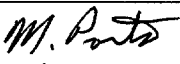


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AF	<b>2. REFERENCE DOCUMENTS</b>  Reference documents are not required for performance of the test procedures. The purpose of these documents is to provide an aid for fault isolation should any discrepancies occur during the tests. <table border="0"> <thead> <tr> <th><u>Honeywell P/N</u></th> <th><u>Description</u></th> </tr> </thead> <tbody> <tr> <td>7517400</td> <td>Mode S Diversity Transponder Module Assembly</td> </tr> <tr> <td>7517410-90X</td> <td>CCA, Interface</td> </tr> <tr> <td>7517420-90X</td> <td>CCA, Processor</td> </tr> <tr> <td>7517430-90X</td> <td>CCA, Connector</td> </tr> <tr> <td>7517440-90X</td> <td>ECA, Receiver</td> </tr> <tr> <td>7517450-90X</td> <td>CCA, IAC Processor</td> </tr> <tr> <td>7517460-90X</td> <td>ECA, Transmitter</td> </tr> <tr> <td>7517470-90X</td> <td>CCA, Power Supply, Modulator</td> </tr> <tr> <td>A72-5810-001-02</td> <td>System Requirements Document, XS-852 Diversity Mode S Transponder</td> </tr> <tr> <td>PS7510700</td> <td>Product Specification, RCZ-851( ) Integrated Communications Unit</td> </tr> <tr> <td>7026180-903</td> <td>CCA, EPIC Transponder Interface</td> </tr> </tbody> </table>					<u>Honeywell P/N</u>	<u>Description</u>	7517400	Mode S Diversity Transponder Module Assembly	7517410-90X	CCA, Interface	7517420-90X	CCA, Processor	7517430-90X	CCA, Connector	7517440-90X	ECA, Receiver	7517450-90X	CCA, IAC Processor	7517460-90X	ECA, Transmitter	7517470-90X	CCA, Power Supply, Modulator	A72-5810-001-02	System Requirements Document, XS-852 Diversity Mode S Transponder	PS7510700	Product Specification, RCZ-851( ) Integrated Communications Unit	7026180-903	CCA, EPIC Transponder Interface		
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				CAGE CODE 55939			REV LTR				
		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.									
REV LTR	<div>3. GENERAL INFORMATION</div> <div>3.1 All tests shall be performed at a temperature of 25 ± 10° C with less than 90 percent relative humidity and at a atmospheric pressure of 20 to 32 inches of mercury.</div> <div>3.2 No warm-up period is required for the module.</div> <div>3.3 To limit interference and power loss, it is recommended that transponder antenna cables be made of RG-214 or equivalent, 2 to 3 feet in length and a maximum VSWR of 1.3:1.</div> <div>3.4 The transponder power output is specified at the antenna port. All power readings shall be corrected for antenna cable losses and variations in power meter specifications.</div> <div>3.5 Where two antenna cables are required for testing diversity antenna operations, the two antenna cables shall be matched so that the cable loss between the two cables is within 0.2dB, and the propagation delay at 1090 MHz is within 10nsec.</div> <div>3.6 Connect the test equipment per Figure 1 for -901 module (XS-852), Figure 2 for -902, -903, -904 module (XS-852A/852B/852C) or Figure 3 for -855, -856, -857, (XS-855A, XS-855B, XS-855C) -865, -866, -867 (XS-856A, XS-856B, XS-856C) -875 (XS-857) (EPIC)</div> <div>3.7 Connect UUT TOP antenna port to ANT B RF port when using IFR S1403.</div> <div>3.8 Connect UUT BOTTOM antenna port of the RF I/O port when using IFR 1400A.</div> <div>3.9 Connect UUT BOTTOM antenna port to RF I/O port when using a SDX 2000.</div> <div>3.10 Connect UUT TOP antenna port to bottom port when using a SDX 2000.</div> <div>3.11 Connect 429 Test Set Transmitter Output and Receiver Input to the following:<div>-923 RTIU HARNESS Connect transmitter to RTIU Pins P1G6(HI) and P1H6(LO). Connect receiver to RTIU Pins P1Y6(HI) and P1X6(LO) (XPDR-&gt;TCAS 429 BUS)</div><div>-925 RTIU HARNESS Connect transmitter to Enhanced RTIU Adapter ARINC 429 Input jack. Connect receiver to Enhanced RTIU Adapter ARINC 429 Output jack.</div><div>-926 RTIU HARNESS Connect transmitter to RTIU Pins P1G6(HI) and P1H6(LO). Connect receiver to RTIU Pins P1Y6(HI) and P1X6(LO) (XPDR-&gt;TCAS 429 BUS)</div><div><b>NOTE:</b> ARINC 429 Transmitter buses go to pins "P1Yn" and "P1Xn," where "n" is a row number on the RTIU front panel, an "P1" corresponds to the "J1" panel on the front panel. The RTIU pins which correspond to "P1Yn" and "P1Xn" are labeled "SPARE BUS." The "Y" column is labeled "HI" and the "X" column is labeled "LO."</div></div>										
AF											
Honeywell							AW/CRITICAL NOTATION				
							SECURITY NOTATION	SUPPLEMENTS		2 PAGE	

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<b>REV LTR</b>					
AF	<b>3.12</b>	Appendix C contains a procedure for making the initial adjustments to the transponder prior to testing. This procedure is intended as guideline only and it is not a requirement that it be followed exactly. The settings given are nominal values. Tolerance build-ups on any given module may make it desirable to deviate slightly from the given levels in order to meet the required Integrated Test specifications.			
AF	<b>3.13</b>	For manual final testing the test sequence is based on functional requirements, it is required that the tests be performed in the order given, tests maybe performed out of sequence for automated final test.			
	<b>3.14</b>	The Integrated Test Specification shall be performed in its entirety upon completion of any modifications or repairs to the unit under test.			
	<b>3.15</b>	All alphanumeric symbols bracketed by greater-than/less-than "< >" symbols will require the characters be typed and "ENTER" or "Return" typed.			
	<b>3.16</b>	In the Procedure section, switch position column, of the Integrated Test Specification document the statement "TEST SETUP # X", where X = A NUMBER, will be encountered at the beginning of each test section. This statement is included to allow the operator to break-in at any given section for troubleshooting. When encountered during the final testing of the module the operator will ignore the function and continue on with the next statement.			
	<b>3.17</b>	Instructions to setup test equipment or configure the radio will occur before the reading is taken. The test parameter reading will have a test number assigned. Taking the reading is the end of that test section and subsequent instructions belong to the next test parameter.			
	<b>3.18</b>	In cases where timing is required be sure to read the entire instruction before performing the test. The test setup and sequence is completed when the reading paragraph is performed. Any instructions after this reading are for the following test setup.			
AF	<b>3.19</b>	If tests, other than final tests, are performed out of sequence the tester is responsible for insuring the correct mechanical and software setups are performed.			
V	<b>3.20</b>	When filling in the manual Final Test Report (FTR) the actual readings observed will be written in the blank associated with that test. The use of less than (<), greater than (>), equal (=), or check mark signs will be avoided.			
<b>Honeywell</b>		<b>AW/CRITICAL NOTATION</b>			
		<b>SECURITY NOTATION</b>	<b>SUPPLEMENTS</b>	<b>3 PAGE</b>	

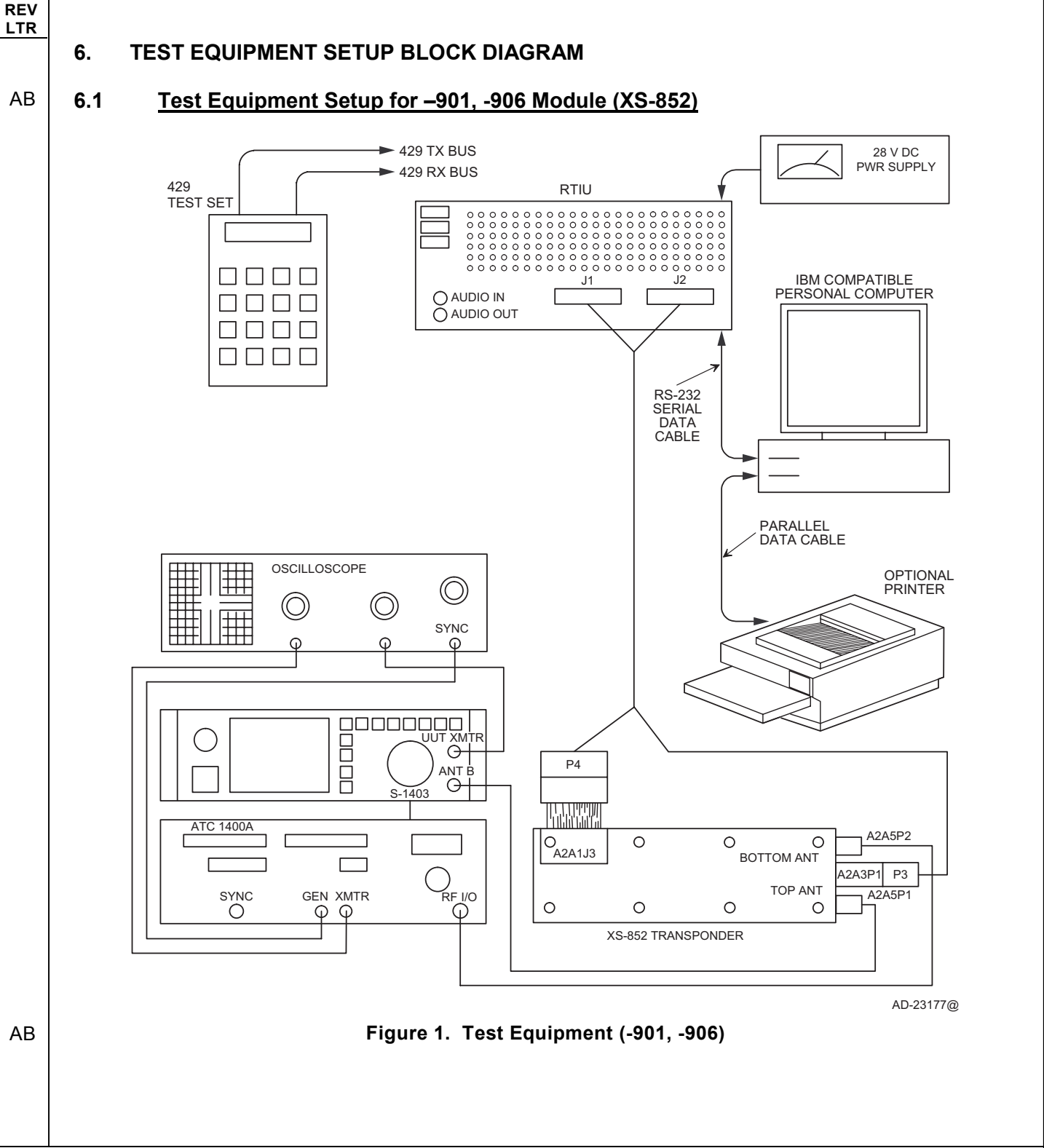


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		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR	P	<div>4. POWER AND SIGNAL REQUIREMENTS</div> <div>4.1 <u>Power Required</u>  115 ± 5 V ac / 60 ± 5 Hz +28.0 ± 0.5 V dc/ 2 A</div> <div>4.2 <u>Signals</u>  The Radio Test Interface Unit (RTIU) in conjunction with the Personal Computer (PC), power supplies, RTIU software, and signal generators specified in the test setup generate all required signals.</div>				
Honeywell		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS		4 PAGE

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	<b>5. TEST EQUIPMENT</b>																												
AF	<b>5.1 <u>Honeywell Test Equipment or Equivalent</u></b>  Radio Test Interface Unit (RTIU), Part No. 7511400-902  RTIU Basic Software 7512001-XYX where X = media code and YY = 10 or greater software version.  RTIU Harness Assembly <table border="0"> <thead> <tr> <th><u>Module Model/Part No</u></th> <th><u>RTIU Harness Part No.</u></th> </tr> </thead> <tbody> <tr> <td>XS-852 / 7517400-901</td> <td>7511409-923</td> </tr> <tr> <td>XS-852A/ 7517400-902</td> <td>7511409-926</td> </tr> <tr> <td>XS-852B/ 7517400-903</td> <td>7511409-926</td> </tr> <tr> <td>XS-852C/ 7517400-904</td> <td>7511409-926</td> </tr> <tr> <td>XS-852D/7517400-906</td> <td>7511409-923</td> </tr> <tr> <td>XS-855A, -855B, 855C/7517400-855, -856, -857</td> <td>7511409-935</td> </tr> <tr> <td>XS-856A, -856B, -856C/751400-865, -866, -867</td> <td>7511409-935</td> </tr> <tr> <td>XS-857/751400-875</td> <td>7511409-935</td> </tr> </tbody> </table> <u>OPTIONAL</u> <u>FOR -901, -906 MODULES ONLY</u> <table border="0"> <thead> <tr> <th></th> <th><u>Substitute for 7511409-923</u></th> </tr> </thead> <tbody> <tr> <td>RTIU CABLE</td> <td>7511409-925</td> </tr> <tr> <td>WITH ADAPTER</td> <td>T335784</td> </tr> </tbody> </table>					<u>Module Model/Part No</u>	<u>RTIU Harness Part No.</u>	XS-852 / 7517400-901	7511409-923	XS-852A/ 7517400-902	7511409-926	XS-852B/ 7517400-903	7511409-926	XS-852C/ 7517400-904	7511409-926	XS-852D/7517400-906	7511409-923	XS-855A, -855B, 855C/7517400-855, -856, -857	7511409-935	XS-856A, -856B, -856C/751400-865, -866, -867	7511409-935	XS-857/751400-875	7511409-935		<u>Substitute for 7511409-923</u>	RTIU CABLE	7511409-925	WITH ADAPTER	T335784
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AF	<b>5.2 <u>Automated Honeywell Test Equipment</u></b>  <table border="0"> <tbody> <tr> <td>AE</td> <td>T-360001</td> <td>Honeywell Computer Aided Test System for HPN 7517400-901, 902, 903, 904 only</td> </tr> <tr> <td>AF</td> <td>MT7517400-901 Rev V</td> <td>Module test software</td> </tr> <tr> <td>AB</td> <td>T335763</td> <td>Module Test adapter for -901, -906</td> </tr> <tr> <td></td> <td>T336126</td> <td>Module Test adapter for -902, -903, -904</td> </tr> <tr> <td></td> <td>T-336384</td> <td>Honeywell EPIC Computer Aided Test System for all variables of HPN 7517400 except -905</td> </tr> <tr> <td>AF</td> <td>MT7517400-501 Rev E</td> <td>Module test software for all variables of HPN 7517400 except -905</td> </tr> <tr> <td></td> <td>T336399</td> <td>EPIC/PRIMUS TEST ADAPTER</td> </tr> </tbody> </table>					AE	T-360001	Honeywell Computer Aided Test System for HPN 7517400-901, 902, 903, 904 only	AF	MT7517400-901 Rev V	Module test software	AB	T335763	Module Test adapter for -901, -906		T336126	Module Test adapter for -902, -903, -904		T-336384	Honeywell EPIC Computer Aided Test System for all variables of HPN 7517400 except -905	AF	MT7517400-501 Rev E	Module test software for all variables of HPN 7517400 except -905		T336399	EPIC/PRIMUS TEST ADAPTER			
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<b>Honeywell</b>		<b>AW/CRITICAL NOTATION</b>																											
		<b>SECURITY NOTATION</b>	<b>SUPPLEMENTS</b>	<b>5 PAGE</b>																									

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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.					
<b>REV LTR</b>					
AF	<b>5.3      <u>Commercial Test Equipment or Equivalent</u></b>  Personal Computer, IBM AT (80286 microprocessor) or equivalent with the following: IBM Compatible 512 kilobytes of RAM, or more Two 360k, 5-1/4 inch disk drives (20 MB hard disk recommended) Monochrome or color monitor (with EGA, but not CGA) Math co-processor One serial port 7.16 MHz, or faster, clock speed RS-232 cable  <b><u>NOTE:</u></b> Due to varying serial port connectors on personal computers the operator will be required to determine the proper cable for their setup.				
AF	DVM, FLUKE 8840A Oscilloscope, Tektronix 2465A.  <b><u>NOTE:</u></b> A Tektronix 2430A digital storage oscilloscope or equivalent is recommended for testing.  Transponder Test Set, IFR ATC-1400A Mode S Auxiliary Unit, IFR Mode S-1403  <b><u>NOTE:</u></b> The JcAIR SDX 2000 may be substituted for the IFR equipment.				
AF	Current meter, or DVM with current capability Power supply, HP 6630 +28V dc / 5 A				
AF	ARINC 429 Test Set, JC AIR 429E				
<b>Honeywell</b>		<b>AW/CRITICAL NOTATION</b>			
		<b>SECURITY NOTATION</b>	<b>SUPPLEMENTS</b>	<b>6 PAGE</b>	

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	SECURITY NOTATION	SUPPLEMENTS	7 PAGE

REV LTR  
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6.2 Test Equipment Setup for -902, -903, -904 Module (XS-852A/852B/852C)

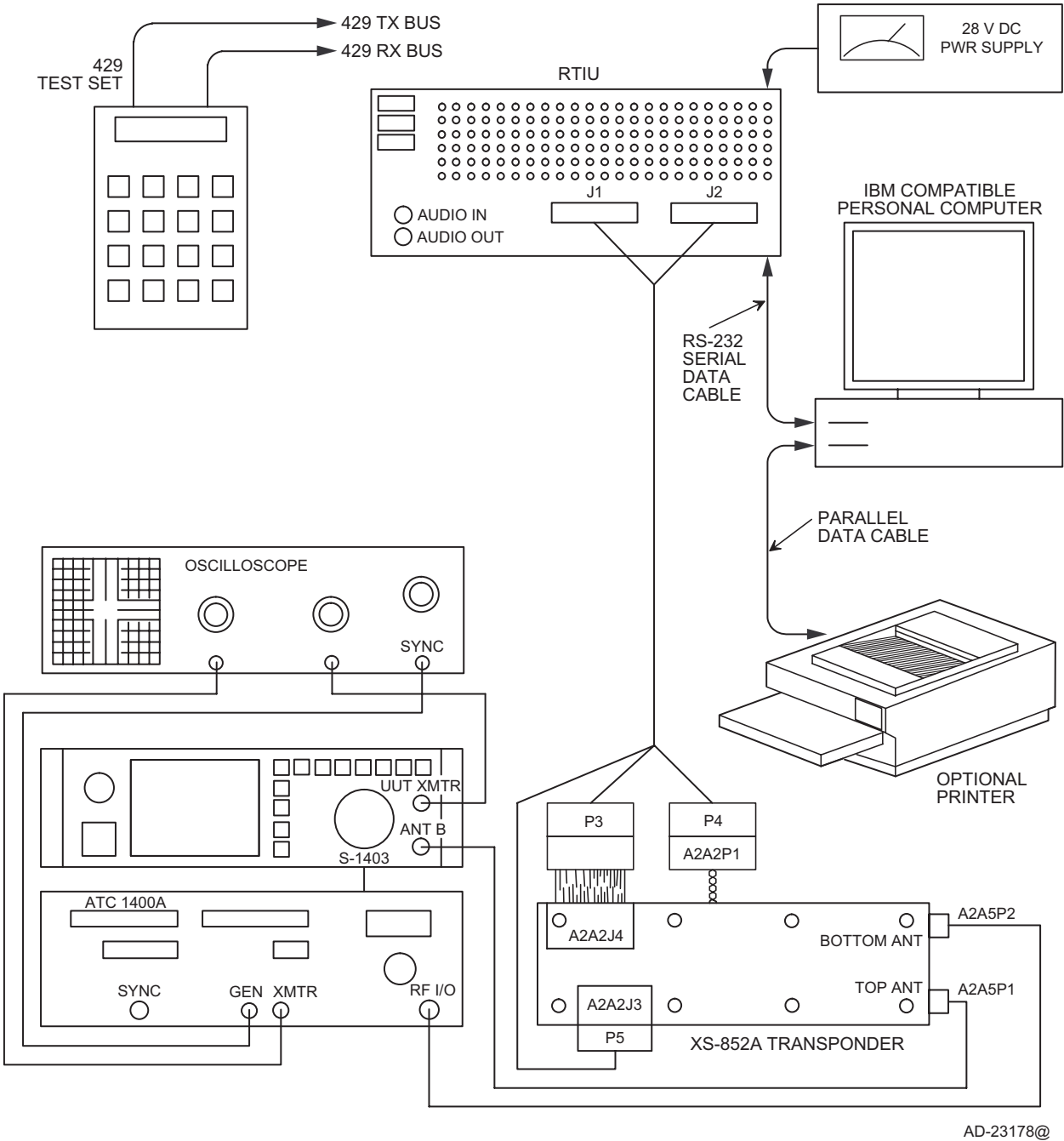


Figure 2. Test Equipment (-902, -903, -904)

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6.3 Test Equipment Setup for Module -855, -856, -857(XS-855A/855B/855C), -865, -866, -867(XS-856A/856B/856C)-875(XS-857)

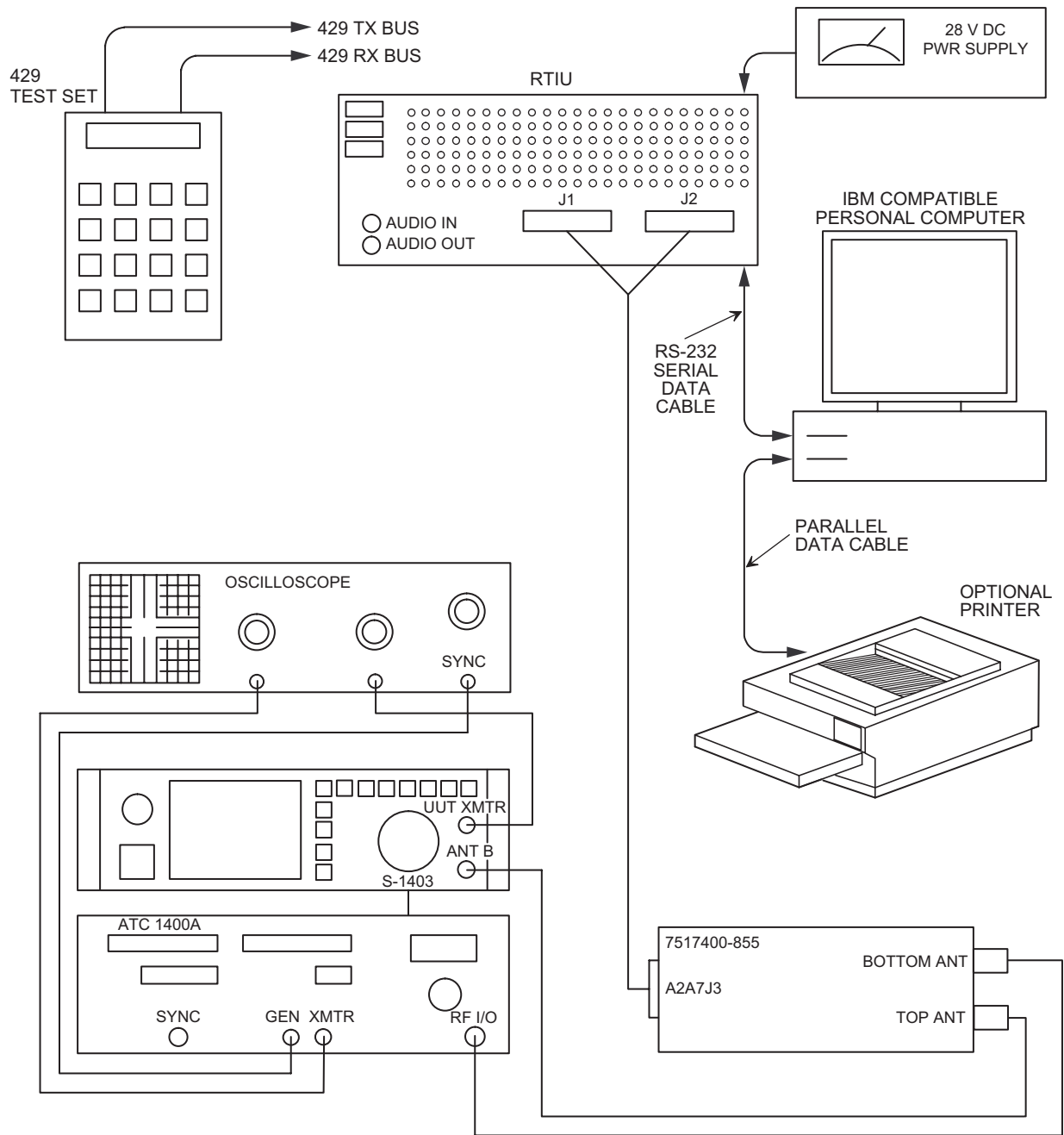


Figure 3. Test Equipment (-855, -856, -857 -865,-866,-867, 875 Only)

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REV LTR	<div>7. TEST EQUIPMENT SETUP</div> <div>7.1 <u>Test Setup#1 for IFR ATC1400/S1403 Equipment</u></div> <div>Test setup #1 contains the initial test equipment settings:</div> <div>ATC 1400A</div> <div><div>FREQ/FUNCT:1030 MHz, XPDR</div><div>DELTA F:0.00, OFF</div><div>PRF/SQTR:60, ON</div><div>DISPLAY SELECT:XPDR CODE</div><div>DME REPLY EFF:100</div><div>XPDR MODE:A</div><div>RF LEVEL:-67, CW/NORM/OFF: NORM</div><div>TACAN:OFF</div><div>IDENT:OFF</div><div>F2/P2-F1/P1:F1/P1</div><div>TO/TAC/TD:TO</div><div>XDPR P2/P3 DEV:0.00</div><div>P2:CAL</div><div>P3:CAL</div><div>DME P2 DEV:0.0</div><div>P2:CAL</div><div>XPDR PULSEWIDTH:0.00, CAL</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></d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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.					
REV LTR					
P	CMENU: (2)                      Prepulse: OFF Ext. Sync.: Out= OFF, Dv= +0.00; In = OFF Pulse Power Gate:P 1 CMENU: (1)                      Ext. Mod. In: OFF				
AF	<b>7.2      <u>ARINC 429 Test Equipment</u></b> JC-AIR 429 TX PARITY:                      ODD TX SPEED:                      LOW RX SPEED:                      HIGH DISPLAY:                      HEX TRANSMIT MODE LABEL =                      203 DATA =                      608340 WORD RATE =                      32 Milliseconds				
	<b>7.3      <u>Test Setup # 1 PC</u></b> Connect PC to RTIU using RS-232 cable. Connect +28 Volt power supply to RTIU. Connect RTIU Harness Assembly to RTIU. Turn Main power switch to RTIU to ON. Turn power to PC and PC Monitor ON. Set PROGRAM/NORMAL switch on RTIU cable connector P1 to the NORMAL position. After the RTIU MAIN MENU is displayed, select XS-850/852/XI-851 (<13>). After the transponder module menu is displayed, select XS-852 (<3>). After the DIVERSITY MODULE CONFIGURATION SOURCE DISPLAY is displayed, select: ALTITUDE SOURCE (<A>) RSB (<4>) RCB PAGE (<P>).				
	<b>7.4      <u>Test Setup #2</u></b> Test Setup #2 contains additional equipment settings from Test Setup #1: Set up equipment per the requirements in Test Setup #1. Turn RTIU +28V ON. Select the following commands on the RTIU:				
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REV LTR					
U	<p>&lt;X&gt; Select ON+ALT ATC Mode</p> <p>&lt;5&gt; ON+A</p> <p>&lt;H&gt; MAIN BENCH PAGE</p> <p>&lt;N&gt; BENCH ANALOG PAGE</p> <p>&lt;Q&gt; SQUITTER</p> <p>&lt;D&gt; DISABLE</p> <p>&lt;P&gt; MAIN BENCH PAGE</p> <p>&lt;P&gt; RSB PAGE</p>				
	<p><b>7.5     <u>Pre-test RTIU Current Calibration</u></b></p> <p>Setup the equipment per Test Setup #1, except <u>DON'T</u> install the transponder at this time.</p> <p>Turn on the 28 V dc power supply switch and adjust the voltage for <math>27.5 \pm 0.25</math> V dc. Turn on the 28 VDC RTIU SWITCH. Observe the current meter. Record this reading for future use.</p> <p>Turn off the 28 VDC RTIU SWITCH.</p> <p>Connect the Transponder to the RTIU harness per Figure 1 or 2.</p> <p>The unit is now reading to start testing per the I.T.</p>				
	<p><b>7.6     <u>Test Setup #3</u></b></p> <p>Test setup #3 is used to set the transponder to the nominal state.</p> <p>&lt;H&gt; MAIN BENCH PAGE</p> <p>&lt;K&gt; CALIBRATION DISPLAY</p> <p>&lt;Q&gt; TRANSPONDER TYPE</p> <p>&lt;0&gt; TYPE 0; SELECT DIVERSITY</p> <p>&lt;L&gt; ATCRBS RATE LIMIT</p> <p>&lt;650&gt; TYPE 650; SET RATE LIMIT TO 650</p> <p>&lt;B&gt; READ CAL DATA: ACTUAL CRC</p> <p>&lt;S&gt; SAVE CAL DATA</p> <p>&lt;Y&gt; TYPE Y: YES</p> <p>&lt;B&gt; READ CAL DATA: VERIFY ACTUAL CRC IS THE SAME AS PROGRAM DATA</p>				
<h1>Honeywell</h1>		AW/CRITICAL NOTATION			
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<b>ENGINEERING SPECIFICATION</b>				<b>SECURITY NOTATION</b>				<b>SPEC NO.</b> IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER  <b>REV LTR</b>	
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<b>REV LTR</b>											
<b>8. GENERAL TEST REQUIREMENTS.</b>											
<b>8.1 <u>Software Part Number Matrix</u></b>											
Table 1 lists the software part number required for each Diversity Module for a given part number and modification status.											
<b>Table 1. Module Modification Status vs. Software Version</b>											
AF  AB  AB  AB  AB  AB  AB  AB  AE  AB  AB  AB  AB  AE  AB  AB  AE  AE  AE  AE  AE	<b>MODULE PART NUMBER</b>								<b>SOFTWARE VERSION</b>		
	-857	-856	-855	906	-904	-903	-902	-901	MOD LTR	VER(A) (FLASH PGM) (TYPE)	VER(B) (BOOT PGM)
				X				X	NONE	7517419-102	7517418-103
				X				X	A	7517419-103	7517418-103
							X	X	B	7517419-104-0	7517418-103
						X			B	7517419-104-1	7517418-103
				X	X				B	7517419-104-2	7517418-103
							X		C	7517419-105-0	7517418-103
						X			C	7517419-105-1	7517418-103
					X				C	7517419-105-2	7517418-103
								X	E, G	7517419-104-0	7517418-103
							X		E, G	7517419-105-0	7517418-103
						X			E, G	7517419-105-1	7517418-103
					X				E, G	7517419-105-2	7517418-103
				X					E, G	7517419-104-2	7517418-103
			X						G	7517419-105-0	7517418-103
		X							G	7517419-104-1	7517418-103
		X							G	7517419-105-2	7517418-103
		-875	-867	-866	-865				MOD LTR	VER(A) (FLASH PGM) (TYPE)	VER(B) (BOOT PGM)
				X				G	7517419-105-0	7517418-103	
			X					G	7517419-105-1	7517418-103	
		X						G	7517419-105-2	7517418-103	
	X							G	7517419-105-0	7517418-103	

<b>ENGINEERING SPECIFICATION</b>		<b>SECURITY NOTATION</b>	<b>SPEC NO.</b>	IT7517400	SEE PAGE INDEX FOR THIS SHEET REV LETTER
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<b>REV LTR</b>	<div> <div>P</div> <div> <div>Column</div> <div>Description</div> </div> <div> <div>Rev Ltr</div> <div>This column is used to identify revised material.</div> </div> <div> <div>Test No.</div> <div>Tests are numbered in sequence in steps of 10. If new tests are added adding 1-9 to the end of the appropriate section will number them e.g. add new test to 1.010 results in 1.011.</div> </div> <div> <div>Opr Limits</div> <div>Unit under test (UUT) shall meet these limits whenever tested at other than the manufacturing facility. When an item is marked OPTIONAL in this column, the corresponding test is not required except as an aid in troubleshooting.</div> </div> <div> <div>Test Description</div> <div>These items are the parameters to which the unit under test was designed. In addition, these items aid in troubleshooting by specifying the input and output signal terminals. For brevity, all conditions required are not repeated for each test. Conditions established in previous tests will also apply.</div> </div> <div> <div>Switch Pos</div> <div>Perform switch settings in order specified. When an item is entered in Work Steps Column opposite a switch setting other than the first or when there is additional space between switches, perform this item before setting any other switches.</div> </div> <div> <div>Work Steps</div> <div>When work step items are entered opposite first Switch Pos, perform all switch settings first. When items are entered opposite switch setting other than first setting or when there is additional space between switches, perform work step item before setting any other switches.</div> </div> <div> <div>Mfg Limits</div> <div>Unit under test shall meet these limits prior to customer delivery.</div> </div> <div> <div>Code</div> <div>A "1" in the column indicates that the material in the next column applies only to manual test procedures. A "2" in the column indicates that the material in the next column applies only to Automatic Test Equipment procedures. A blank column indicates that the material in the next column applies equally to manual and automated test procedures.</div> </div> </div>				
<b>Honeywell</b>	<b>AW/CRITICAL NOTATION</b>				
	<b>SECURITY NOTATION</b>	<b>SUPPLEMENTS</b>		<b>14 PAGE</b>	

ENGINEERING SPECIFICATION			SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS
AF	1.000			POWER ON CURRENT TEST	Initial Test Setup		POWER ON CURRENT TEST
U				Apply +27.5 ± 0.25 V dc to unit.	Test Setup #1		Prior to running Test 1.010 paragraph 7.5 must be run. Connect Equipment per Figure 1 for a -901, -906 module, Figure 2 for -902, -903, -904, Figure 3 for -8XX.  (For IFR 1400/S1403)
AF				+28V dc (+) Pins: -901, -906: A2A3P1-8, 9 -902, -903, -904 A2A2P1-1 -856, -857, -865, -866, -861, -875 -855: A2A7J3 - 29, 30	Test Setup #2		Turn RTIU 28 V dc switch on.
AB				Ground (-) Pins: -901, -906: A2A3P1-7, 17, 18, 19, 21 -902, -903, -904 A2A2P1-2	Test Setup #3		Before testing, the module unit must be set to the nominal state. (Paragraph 7.6)
AE AE				-855, -856, -857, -865, -866, -861, -875: A2A7J3 - 6, 43, 44,			Ground station equipment: PRF/SQTR: OFF
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AF	1.010	Less than or equal to 1.0 A		With the voltage applied and unit in standby the current draw shall be as specified.			With power applied to the transponder module and power supply amp meter shall read as specified. <u>NOTE:</u> Subtract the current found in paragraph 7.5 from the meter reading observed in 1.010.  Ground station equipment: PRF/SQTR: ON	Less than or equal to 1.0 A
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AB	2.000			<u>RS-232 PROGRAMMING INTERFACE</u> Remove +28 V dc from the module.  Connect PROGRAM_+15V to PROGRAM_ENA(PO) discrete to enable programming. <u>PROGRAM +15V pin:</u> -901, -906: A2A3P1-25 -902, -903, -904: A2A2J3-37 <u>PROGRAM ENA(PO) pin:</u> -901, -906: A2A3P1-12 -902, -903, -904: A2A2J3-38  Enter and invalid command.	Test Setup #1  <H> <F> <T>		<u>RS-232 PROGRAMMING INTERFACE</u> On the RTIU turn the 28 V dc switch off. Main Bench Page Program Page Transmit Data On the RTIU CABLE harness P1 connector set the PROG/NORM switch to PROG.  <u>WARNING:</u> In PROGRAM mode the FLASH program may be modified inadvertently from keyboard commands. <u>CARE SHOULD BE TAKEN TO ADHERE TO THE KEYSTROKES LISTED IN THIS SECTION.</u>  On the RTIU turn the 28 V dc switch ON.	
	Exit TERMINAL mode. Return to RCB Page  Disconnect PROGRAM_+15V to PROGRAM_ENA(PO) discrete to enable programming.			<A>  <ESC> <P> <P>	The Bench Program display shall be as specified. Exit TERMINAL mode. Main Bench Page RCB Page On the RTIU CABLE harness P1 connector set the PROG/NORM toggle switch to NORMAL.			
	2.010	INVALID INPUT!!						INVALID INPUT!!
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				Remove +28 V dc from the unit, wait 5 seconds minimum  Reapply +28 V dc to the unity under test.			On the RTIU turn the 28 V dc switch OFF.  Wait 7 seconds minimum On the RTIU turn the 28 V dc switch ON.	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	3.000			DELETED.				
	4.000			DELETED				
Honeywell				AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	5.000			SELF TEST	Test Setup #2		SELF TEST	
	5.010	Greater than or equal to 99%		Verify transponder is replying to MODE S interrogations.			On the ground station test equipment the MODE S reply shall be as specified.	Greater than or equal to 99%
				Activate POST self-test mode.	<S>		Test (PAST/POST)	
					<O>		POST	
	5.020	ATC PASS		Verify self-test passes with no errors.			Observe the RTIU RADIO MSGS display. The display shall be as specified.	ATC PASS
				Return to NORMAL mode.	<S>		Return radio to normal.	
							TEST (PAST/POST)	
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	6.000			<u>POWER SUPPLY LOW/HIGH LINE VOLTAGE TEST.</u>  Apply +18.0 ± 0.25 V dc to unit. (LOW Line Voltage)	Test Setup #2		<u>POWER SUPPLY LOW/HIGH LINE VOLTAGE TEST.</u>  With a DVM monitor the +28 V dc power supply. Adjust the supply for +18.0 ± 0.25 V dc.	
	6.010	NO ERRORS		Verify there are no RCB errors.  Go to the Bench Analog Page.	<H> <N>		RTIU: Observe the ERROR display. The reading shall be as specified.  Main Bench Page Bench Analog Page	NO ERRORS
	6.020	54.0 to 66.0 V dc (nominal 60.0)		Verify the +60 V dc power supply monitor is with specified limits.  Apply +33.0 ± 0.25 V dc to unit. (HIGH line Voltage)			RTIU: Observe the +60 V dc SUPPLY display. The reading shall be as specified.  With a DVM monitor the +28 V dc power supply. Adjust the supply for +33.0 ± 0.25 V dc.	57.0 to 63.0 V dc (nominal 60.0)
	6.030	54.0 to 66.0 V dc (nominal 60.0)		Verify the +60 V dc power supply monitor is with specified limits.  Return to RCB Page.  Apply +27.5 ± 0.25 V dc to unit.	<P> <P>		RTIU: Observe the +60 V dc SUPPLY display. The reading shall be as specified.  Main Bench Page RCB Page  With a DVM monitor the +28 V dc power supply. Adjust the supply for +27.5 ± 0.25 V dc.	57.0 to 63.0 V dc (nominal 60.0)
<b>Honeywell</b>			<b>AW/CRITICAL NOTATION</b>					
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
	7.000			<u>MONITOR TEST</u> Go to the Bench Analog Page.	Test Setup #2 <H> <N>		<u>MONITOR TEST</u> Main Bench Page Bench Analog Page		
	7.010	24.0 to 30.0 V dc (nominal 27.0)		Verify the filtered +28 V dc power supply monitor is with specified limits.			RTIU: Observe the 28V FILTER display. The reading shall be as specified.	25.0 to 29.0 V dc (nominal 27.0)	
	7.020	54.0 to 66.0 V dc (nominal 60.0)		Verify the +60 V dc power supply monitor is with specified limits.			RTIU: Observe the +60V SUPPLY display. The reading shall be as specified.	57.0 to 63.0 V dc (nominal 60.0)	
	7.030	45.0 to 55.0 V dc (nominal 50.0)		Verify the +50 V dc power supply monitor is with specified limits.			RTIU: Observe the +50V SUPPLY display. The reading shall be as specified.	47.0 to 53.0 V dc (nominal 50.0)	
	7.040	24.0 to 31.0 V dc (nominal 27.5)		Verify the +28.0 V dc power supply monitor is with specified limits.			RTIU: Observe the +28.0 V SUPPLY display. The reading shall be as specified.	25.0 to 29.0 V dc (nominal 27.5)	
	7.050	12.0 to 18.0 V dc (nominal 14.2)		Verify the +15.0 V dc power supply monitor is with specified limits.			RTIU: Observe the +15.0 V SUPPLY display. The reading shall be as specified.	13.5 to 16.5 V dc (nominal 14.2)	
	7.060	-6.0 to -3.5 V dc (nominal -4.5)		Verify the -5 V dc power supply monitor is with specified limits.			RTIU: Observe the -5.0 V SUPPLY display. The reading shall be as specified.	-5.2 to -4.0 V dc (nominal -4.5)	
Y	7.070	-18.0 to -12.0 V dc (nominal -14.8)		Verify the -15 V dc power supply monitor is with specified limits.			RTIU: Observe the -15 V SUPPLY display. The reading shall be as specified.	-16.5 to -13.5 V dc (nominal -14.8)	
Y Y	7.080	-100.0 to -180.0 V dc (nominal -140.0)		Verify the -150 V dc power supply monitor is with specified limits.			RTIU: Observe the -150 V SUPPLY display. The reading shall be as specified.	-110.0 to -165.0 V dc (nominal -140.0)	
	7.090	10.0 to 65.0 Deg. C. (nominal 27.0)		Verify the temperature monitor is with the specified limits.			RTIU: Observe the temperature monitor display. The reading shall be as specified.	20.0 to 55.0 Deg. C. (nominal 27.0)	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
P	7.100	4.0 to 6.0 V dc (nominal 5.0)		Verify the -150 V dc power supply monitor is with specified limits.			RTIU: Observe the WARM/COLD DET display. The reading shall be as specified.	4.5 to 5.5 V dc (nominal 5.0)	
				Set the ATC MODE to STANDBY then go to Bench Analog Page	<P> <P> <X> <2> <H> <N>		Main Bench Page RCB Page ATC MODE STANDBY Main Bench Page Bench Analog Page		
	7.110	-30.0 to 30.0 V dc (nominal 0.0)		Verify the transmitter top pin monitor is within the limits specified.			RTIU: Observe the XMTR TOP PIN display. The reading shall be as specified.	-20.0 to 20.0 V dc (nominal 0.0)	
	7.120	-30.0 to 30.0 V dc (nominal 0.0)		Verify the transmitter bottom pin monitor is within the limits specified.			RTIU: Observe the XMTR BOTTOM PIN display. The reading shall be as specified.	-20.0 to 20.0 V dc (nominal 0.0)	
				Set the ATC MODE to ON+ALT then go to Bench Analog Page	<P> <P> <X> <5> <H> <N>		Main Bench Page RCB Page ATC MODE ON+ALT Main Bench Page Bench Analog Page		
AF									
AF									
	7.130	0.7 to 5.0 V dc (nominal 2.5)		Verify the Transmitter Top Forward Power monitor is within the specified limits.			RTIU: Observe the TOP FWD PWR display. The reading shall be as specified.	1.6 to 4.5 V dc (nominal 2.5)	
AE									
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
Y	7.140	0.7 to 5.0 V dc (nominal 2.5)		Verify the Transmitter Bottom Forward Power monitor is within the specified limits.			RTIU: Observe the BOT FWD PWR display. The reading shall be as specified.	1.6 to 4.5 V dc (nominal 2.5)	
	7.150	2.5 to 6.0 V dc (nominal 5.0)		Verify the Transmitter Duty Cycle monitor is within the specified limits.			RTIU: Observe the XMTR DUTY CYCLE display. The reading shall be as specified.	3.5 to 5.5 V dc (nominal 5.0)	
	7.160	19.0 TO 31.0 V dc (nominal 27.0)		Verify the Transmitter Envelope monitor is within the specified limits.			RTIU: Observe the XMTR ENV MON display. The reading shall be as specified.	21.0 to 29. 0 V dc (nominal 27.0)	
	7.170	0.0 to 1.0 V dc (nominal 0.0)		Verify the Self-Test monitor is within the specified limits.			RTIU: Observe the SELF-TEST MON display. The reading shall be as specified.	0.0 to 0.5 V dc (nominal 0.0)	
	7.180	0.0 to 2.5 V dc (nominal 0.3)		Verify the Boost Current monitor is within the specified limits.			RTIU: Observe the BOOST CURRENT display. The reading shall be as specified.	0.0 to 2.1 V dc (nominal 0.3)	
	7.190	34.0 to 46.0 V dc (nominal 40.0)		Verify the Pulse + 40v monitor is within the specified limits.			RTIU: Observe the PULSE +40V monitor display. The reading shall be as specified.	35.0 to 44.0 V dc (nominal 40.0)	
	7.200	19.0 to 31.0 V dc (nominal 27.0)		Verify the Pulse Modulation monitor is within the specified limits.			RTIU: Observe the PULSE MOD display. The reading shall be as specified.	21.0 to 29.0 V dc (nominal 27.0)	
	7.210	2.5 to 6.0 V dc (nominal 4.5)		Verify the Synthesizer Lock Detector monitor is within the specified limit.			RTIU: Observe the SYNTH LOCK DET display. The reading shall be as specified.	3.5 to 5.5 V dc (nominal 4.5)	
	7.220	9.0 to 16.0 V dc (nominal 13.5)		Verify the Initial Power Supply monitor is within the specified limit.			RTIU: Observe the INIT PWR SUPPLY display. The reading shall be as specified.	10.0 to 15.0 V dc (nominal 13.5)	
	7.230	0.5 to 4.5 V dc (nominal 2.0)		Verify the Local Oscillator Level monitor is within the specified limit.			RTIU: Observe the LOCAL OSC LEVEL display. The reading shall be as specified.	1.0 to 3.0 V dc (nominal 2.0)	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AF	8.000			<u>TRANSMITTER FREQUENCY AND OUTPUT POWR</u> <u>Transmitter Frequency</u>	Test Setup #2		<u>TRANSMITTER FREQUENCY AND OUTPUT POWR</u> <u>Transmitter Frequency</u>	
	8.010	1089.0 to 1091.0 (nominal 1090.0 MHz)		Verify transmitter frequency on the BOTTOM Antenna is within the specified limits.  <u>Transmitter Power Output</u> Measure the first pulse of the Long Mode S Reply			Observe the ground station test equipment XMITER/FREQ display. The display shall read as specified.  <u>Transmitter Power Output</u> On the ground station equipment set to measure the F2/P2 pulse. Set equipment to measure P1.  <u>NOTE:</u> All attenuation losses for cables must be compensated when making power measurements per paragraph 3.4.	1089.5 to 1090.5 (nominal 1090.0 MHz)
	8.020	Greater than or equal to 250 W		Verify transmitter power on the BOTTOM Antenna. First pulse reply shall be within specified limits.  Measure the last pulse in the Long Mode S reply.			Observe the power display on the ground station test equipment. The reading shall be as specified.  Set the ground station test equipment to measure pulse 115 (S115 is the last pulse in the reply.)	Greater than or equal to 350 W
	8.030	Greater than or equal to 250 W		Verify transmitter power on the BOTTOM Antenna. The last pulse on the reply shall be within the limits specified.			Observe the power meter on the ground station test equipment. The display shall read as specified.	Greater than or equal to 350 W
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	8.040	-2.0 dB to + 2.0 dB		<p>Verify the pulse droop (first to last pulse) of the reply is within the specified limits.</p> <p>Measure TOP antenna power.</p>			<p>Calculate the ratio in dB between the power in 8.020 and 8.030 according to the following formula:</p> $10 * \text{Log}_{10} (\text{Power } 8.020 / \text{Power } 8.030)$ <p>The ratio shall be as specified.</p> <p>Connect the UUT top antenna to the ground station RF I/O PORT.</p> <p>On the ground station equipment set to measure the F2/P2 pulse. Set equipment to measure P1.</p> <p><u>NOTE:</u> All attenuation losses for cables must be compensated when making power measurements per paragraph 3.4.</p>	-1.5 dB to + 1.5 dB
	8.050	Greater than or equal to 250 W		<p>Verify transmitter power on the TOP antenna. First pulse reply shall be within specified limits.</p> <p>Measure the last pulse in the Long Mode S reply.</p>			<p>Observe the power display on the ground station test equipment. The reading shall be as specified.</p> <p>Set the ground station test equipment to measure pulse 115 (S115 is the last pulse in the reply.)</p>	Greater than or equal to 350 W
	8.060	Greater than or equal to 250 W		<p>Verify transmitter power on the TOP Antenna. The last pulse on the reply shall be within the limits specified.</p>			<p>Observe the power meter on the ground station test equipment. The display shall read as specified.</p>	Greater than or equal to 350 W
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	9.000			<u>TRANSMITTER REPLY PULSE WIDTH, RISE, AND FALL TIME</u>  Set ATC CODE to 0000.  Select the TOP antenna          With the transponder set to reply to 60 Long Mode S replies/second, connect the test equipment to measure the transmitter reply pulse characteristics.	Test Setup #2  <A>  <0000>		<u>TRANSMITTER REPLY PULSE WIDTH, RISE, AND FALL TIME</u>  ATC CODE  0000  <u>NOTE:</u> The XMTR Detector on the ground station test equipment must be used to measure transmitter reply pulse characteristics. (Use the detector output of S1403 and antenna B readings when using IFR equipment)  Set the oscilloscope for the following configuration: CH1 TOP ANTENNA XMTR Detector.  CH: 2 OFF  TRIGGER A: CH1 Slope +  A-SWP: 20 uSec  B-SWP: 50 nSec  B-Delayed Mode  Set B-delay to measure the rising edge of the second preamble pulse of the reply. The rise time ((time between the 10% and 90% voltage points on the pulse) on the oscilloscope shall be as specified.	
	9.010	50 nSec to 100 nSec		Check the rise time (time between the 10% and 90% voltage points on the pulse) of the second preamble pulse of the reply.				50 nSec to 100 nSec
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
R	9.020	450 to 550 nSec (nominal 500)		Check the pulse width (time between the 50% to 50% voltage point on the pulse) of the second preamble pulse of the reply.			Set B-SWP to 100 nSec and B-Delay to measure the pulse width of the second preamble pulse of the reply. The pulse width (time between the 50% to 50% voltage point on the pulse) on the oscilloscope shall be as specified.	450 to 550 nSec (nominal 500)
	9.030	50 nSec to 200 nSec		Check the fall time (time between the 90% and 10% voltage points on the pulse) of the second preamble pulse of the reply.			Set B-SWP to 50 nSec and S-Delay to measure the falling edge of the second preamble pulse of the reply. The fall time ((time between the 90% and 10% voltage points on the pulse) on the oscilloscope shall be as specified.	50 nSec to 200 nSec
	9.040	50 nSec to 100 nSec		Check the rise time (time between the 10% and 90% voltage points on the pulse) of the last pulse of the reply.			Set B-delay to measure the rising edge of the last pulse of the reply. The rise time ((time between the 10% and 90% voltage points on the pulse) on the oscilloscope shall be as specified.	50 nSec to 100 nSec
	9.050	450 to 550 nSec (nominal 500)		Check the pulse width (time between the 50% to 50% voltage point on the pulse) of the last pulse of the reply.			Set B-SWP to 100 nSec and B-Delay to measure the pulse width of the last pulse of the reply. The pulse width (time between the 50% to 50% voltage point on the pulse) on the oscilloscope shall be as specified.	450 to 550 nSec (nominal 500)
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	10.000			DELETED				
	11.000			<u>MODE S CODE VERIFICATION, REPLY DELAY AND JITTER</u> Set ATC CODE to 2525.  Display Mode S Reply Data.	Test Setup #2  <A> <2525>		<u>MODE S CODE VERIFICATION, REPLY DELAY AND JITTER</u> ATC CODE 2525 Set ground station test equipment to display Mode S Reply Data.	
AF	11.010	DF=21,		Verify the Mode S Reply to a UF=5 interrogation is correct.			On the ground station test equipment the reply data shall be as specified.	DF=21
	11.020	MB=0000000 000000000000 0						MB=0000000 000000000000 0
	11.030	ID=2525						ID=2525
	11.040	ADD=000000 01						ADD=000000 01
	11.050	127.75 to 128.25 uSec (nominal 127.925)		Measure the SPR to First Preamble Pulse Reply Delay on the BOTTOM receiver.			Set ground station test equipment to measure the reply delay of the SPR to first preamble pulse.  The replay delay shall be as specified.	127.80 to 128.05 uSec (nominal 127.925)
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P				Set the test equipment to measure jitter of the First Preamble Pulse of the replay relative to the interrogation.			Setup the oscilloscope for the following configuration: CH1: UUT BOTTOM XMTR DET. CH2: OFF EXT SYNC: GEN DET. TRIGGER A: EXT, Slope + A-SWP: 20 uSec B-SWP: 50 nSec B-Delayed Mode	
	11.060	Less than or equal to 160 nSec		Measure the first preamble pulse jitter (peak to peak variation).			Set the B-Delay to measure the rising edge of the first pulse of the replay (first preamble pulse). The pulse peak reply delay variation (maximum replay delay - minimum replay delay) shall be as specified.	Less than or equal to 120 nSec
	11.070	127.75 to 128.25 uSec (nominal 127.925)		Connect TOP antenna RF I/O PORT. Measure the SPR to First Preamble Pulse Reply Delay on the TOP receiver. Re-connect BOTTOM antenna cable to RF I/O PORT and TOP antenna to second RF INPUT. Interrogate the transponder with an ATCRBS Mode A/Mode S Interrogation.			On the ground station test equipment RF I/O to the UUT TOP antenna. The replay delay shall be as specified. On the ground station test equipment connect the UUT BOTTOM antenna to the RF I/O port and UUT TOP antenna to the other RF INPUT. Set ground station test equipment to ATCRBS Mode/Mode S interrogations. ALL CALL LONG (ACL mode)	127.80 to 128.05 uSec (nominal 127.925)
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	11.080	127.75 to 128.25 uSec (nominal 127.925)		Measure the leading edge of the P4 to First Preamble Pulse Reply Delay on the BOTTOM receiver.			The replay delay shall be as specified.	127.775 to 128.75 uSec (nominal 127.925)
AF	11.090	Less than or equal to 200 nSec		Measure the first preamble pulse jitter (peak to peak variation) on the BOTTOM antenna.			On the oscilloscope set the B-Delay to measure the rising edge of the first pulse of the reply (first preamble pulse). The pulse peak reply delay variation (maximum reply delay - minimum reply delay) shall be as specified.	Less than or equal to 160 nSec
AF	11.100	127.75 to 128.25 uSec (nominal 127.925)		Connect UUT TOP antenna to test equipment RF I/O port.			On the ground station test equipment connect the UUT TOP antenna to the main RF I/O port.	
				Measure the leading edge of the P4 to First Preamble Pulse Reply Delay on the TOP receiver.			The replay delay shall be as specified.	127.775 to 128.75 uSec (nominal 127.925)
				Re-connect UUT BOTTOM antenna to test equipment RF I/O port.			On the ground station test equipment connect the UUT BOTTOM antenna to the main RF I/O port and UUT TOP antenna to the other RF INPUT.	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	12.000			<u>RECEIVER MTL, DYNAMIC RANGE AND LOW LEVEL REPLY RATIO</u>  Interrogate the transponder with 600 ATCRBS Mode A interrogations/sec.	Test Setup #2		<u>RECEIVER MTL, DYNAMIC RANGE AND LOW LEVEL REPLY RATIO</u>  On the ground station test equipment: set reply's to ATC (ATCRBS ONLY), PRF/SQTR 600, XPDR MODE: A.  On the ground station simulator adjust the RF attenuator until the %Reply shows a 90% reply average.  The attenuator reading shall be as specified.  (NOTE: The percent reply is taken with the S1403 on IFR equipment)  Add + 3 dBm to the reading found in step 12.010 and use as a starting value point. On the ground station test equipment adjust the RF attenuator to this point. Using 2.0 dBm / sec (max) increments adjust the attenuator until -24 dBm is reached on the attenuator.  At each signal level the %reply of the ground station shall display as indicated.  Adjust the ground station test equipment attenuator for -81 dBm	
AF	12.010	-78 to -74 dB (nominal -76)		Verify the UUT BOTTOM receiver MTL for ATCRBS Mode A Interrogations.				-78 to -74 dB (nominal -76)
	12.020	Greater than or equal to 90%		Verify the BOTTOM receiver dynamic range for ATCRBS Mode A interrogations between MTL + 3 dBm and -24 dBm.				Greater than or equal to 99%
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	12.030	Less than or equal to 10%		Verify the Bottom receiver low-level reply ratio for ATCRBS Mode A interrogations at - 81 dBm.			On the ground station test equipment read the % reply. The percentage shall be as specified.	Less than or equal to 1%
	12.040	-78 to -74 dBm (nominal -76)		Verify the UUT BOTTOM receiver MTL for Mode S Interrogations.			On the ground station test equipment set the PRF/SQTR: 60, MODE S Only  On the ground station simulator adjust the RF attenuator until the %Reply shows a 90% reply average.  The attenuator reading shall be as specified. (NOTE: The percent reply is taken with the S1403 on IFR equipment)  Add + 3 dBm to the reading found in step 12.040 and use as a starting value point. On the ground station test equipment adjust the RF attenuator to this point. Using 2.0 dBm / sec (max) increments adjust the attenuator until -24 dBm is reached on the attenuator.	-78 to -74 dBm (nominal -76)
	12.050	Greater than or equal to 90%		Verify the BOTTOM receiver dynamic range for MODE S interrogations between MTL + 3 dBm and -24 dBm.  Connect TOP antenna to RF I/O port.			At each signal level the %reply of the ground station shall display as indicated.  On the ground station test equipment connect the UUT TOP antenna to the RF I/O port.	Greater than or equal to 99%
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				Interrogate the transponder with 600 ATCRBS Mode A Interrogations.			On the ground station test equipment set to ATC (ATCRBS ONLY) mode, PRF/SQTR: 600	
	12.060	-78 to -74 dBm (nominal -76)		Verify the UUT TOP receiver MTL for Mode A Interrogations.			On the ground station simulator adjust the RF attenuator until the %Reply shows a 90% reply average.  The attenuator reading shall be as specified.  (NOTE: The percent reply is taken with the S1403 on IFR equipment)  Add + 3 dBm to the reading found in step 12.060 and use as a starting value point. On the ground station test equipment adjust the RF attenuator to this point. Using 2.0 dBm / sec (max) increments adjust the attenuator until -24 dBm is reached on the attenuator.	-78 to -74 dBm (nominal -76)
	12.070	Greater than or equal to 90%		Verify the TOP receiver dynamic range for ATCRBS Mode A interrogations between MTL + 3 dBm and -24 dBm.			At each signal level the %reply of the ground station shall display as indicated.	Greater than or equal to 99%
	12.080	Less than or equal to 10%		Verify the TOP receiver low-level reply ratio for ATCRBS Mode A interrogations at - 81 dBm.			Adjust the ground station test equipment attenuator for -81 dBm  On the ground station test equipment read the % reply. The percentage shall be as specified.	Less than or equal to 1%
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				Interrogate the transponder with 60 Mode S interrogations/sec.			On the ground station test equipment set PRF/SQTR: 60, Mode S Only	
	12.090	-78 to -74 dBm (nominal -76)		Verify the UUT TOP receiver MTL for Mode S Interrogations.			On the ground station simulator adjust the RF attenuator until the %Reply shows a 90% reply average.	
							The attenuator reading shall be as specified.	-78 to -74 dBm (nominal -76)
							(NOTE: The percent reply is taken with the S1403 on IFR equipment)	
							Add + 3 dBm to the reading found in step 12.070 and use as a starting value point. On the ground station test equipment adjust the RF attenuator to this point. Using 2.0 dBm / sec (max) increments adjust the attenuator until -24 dBm is reached on the attenuator.	
	12.100	Greater than or equal to 90%		Verify the TOP receiver dynamic range for Mode S interrogations between MTL + 3 dBm and -24 dBm.			At each signal level the %reply of the ground station shall display as indicated.	Greater than or equal to 99%
				Re-connect UUT BOTTOM antenna to RF I/O.			On the ground station equipment re-connect the UUT BOTTOM antenna to the RF I/O port and the TOP antenna to the other RF INPUT.	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
	13.000			RECEIVER BANDWIDTH  Interrogate the transponder with 600 ATCRBS Mode A interrogations/sec.	Test Setup #2		RECEIVER BANDWIDTH  On the ground station test equipment: set for ATC (ATCRBS only) mode, PRF/SQTR 600, XPDR MODE: A, RF LEV: -17 dBm.  On the ground station test equipment: set frequency for 1005.  Observe the ground station test equipment. The % Reply shall read as specified.  NOTE: This reading is taken from the S1403 when using IFR equipment.		
T	13.010	Less than or equal to 10%		Verify the BOTTOM antenna receiver bandwidth response at 1005 MHz to ATCRBS Mode A interrogations.			On the ground station test equipment adjust the frequency by 1 MHz steps until the % Reply is greater than or equal to 90%.  The frequency shall be as specified.  On the ground station test equipment set the frequency for 1055 MHz.  Observe the ground station test equipment. The % Reply shall read as specified.  NOTE: This reading is taken from the S1403 when using IFR equipment.	Less than or equal to 10%	
	13.020	Greater than or equal to 1005 MHz		Measure where the BOTTOM receiver bandwidth response is 60 dB down at frequencies less than 1030 MHz.				Greater than or equal to 1010 MHz	
T	13.030	Less than or equal to 10%		Verify the BOTTOM antenna receiver bandwidth response at 1055 MHz to ATCRBS Mode A interrogations.				Less than or equal to 10%	
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
R	13.040	Less than or equal to 1055 MHz		Measure where the BOTTOM receiver bandwidth response is 60 dB down at frequencies less than 1030 MHz.  Connect the UUT TOP antenna to the RF I/O port.			On the ground station test equipment adjust the frequency by 1 MHz steps until the % Reply is greater than or equal to 90%.  The frequency shall be as specified.	Less than or equal to 1050 MHz
T	13.050	Less than or equal to 10%		Verify the TOP antenna receiver bandwidth response at 1005 MHz to ATCRBS Mode A interrogations.			On the ground station test equipment connect the UUT TOP antenna to the RF I/O port.  On the ground station test equipment set the frequency for 1005 MHz.  Observe the ground station test equipment. The % Reply shall read as specified.  <u>NOTE:</u> This reading is taken from the S1403 when using IFR equipment.  On the ground station test equipment adjust the frequency by 1 MHz steps until the % Reply is greater than or equal to 90%.	Less than or equal to 10%
T	13.060	Greater than or equal to 1005 MHz		Measure where the TOP receiver bandwidth response is 60 dB down at frequencies less than 1030 MHz.			The frequency shall be as specified.  On the ground station test equipment set the frequency for 1055 MHz.	Greater than or equal to 1010 MHz
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AF	13.070	Less than or equal to 10%		Verify the TOP antenna receiver bandwidth response at 1055 MHz to ATCRBS Mode A interrogations.			Observe the ground station test equipment. The % Reply shall read as specified.  <u>NOTE:</u> This reading is taken from the S1403 when using IFR equipment.  On the ground station test equipment adjust the frequency by 1 MHz steps until the % Reply is greater than or equal to 90%.	Less than or equal to 10%
R	13.080	Less than or equal to 1055 MHz		Measure where the BOTTOM receiver bandwidth response is 60 dB down at frequencies less than 1030 MHz.  Set the RF test set for standard interrogations.  Re-connect the UUT BOTTOM antenna to the RF I/O port and the TOP antenna to the other RF port.			The frequency shall be as specified.  On the ground station test equipment set the frequency for 1030 MHz.  On the ground station test equipment re-connect the UUT BOTTOM antenna to the RF I/O port and the TOP antenna to the other RF port.	Less than or equal to 1050 MHz
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
R	14.000			<u>MODE S AND ATCRBS SIDE LOBE SUPPRESSION (SLS)</u>  Interrogate the transponder with 600 ATCRBS Mode A interrogations/sec.	Test Setup #2		<u>MODE S AND ATCRBS SIDE LOBE SUPPRESSION (SLS)</u>  On the ground station test equipment: set for ATC (ATCRBS only) mode, PRF/SQTR 600, XPDR MODE: A, RF LEV: -17 dBm.  On the ground station test equipment set the SLS/ECHO: -0, ON  On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from -74 dBm to -24 dBm.	
	14.010	Less than or equal to 10%		Verify the BOTTOM receiver SLS pulse recognition for ATCRBS Mode A interrogations with P2 = P1			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment set the SLS/ECHO: -9, ON  On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from -74 dBm to -24 dBm.	Less than or equal to 1%
	14.020	Greater than or equal to 90%		Verify the BOTTOM receiver SLS pulse recognition for ATCRBS Mode A interrogations with P2 = P1 - 9dB			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment set the RF LEVEL: -74 dBm, SLS/ECHO: -0, ON	Greater than or equal to 99%
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>			<b>PROCEDURE</b>			<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
	14.030	Less than or equal to 0 dB		Verify the BOTTOM receiver SLS pulse recognition threshold for an ATCRBS Mode A interrogation at MTL +3 dB			On the ground station test equipment decrease the SLS/ECHO until the % reply is greater than or equal to 50%.  The SLS/ECHO shall be as specified.	Less than or equal to -1 dB.
	14.040	Less than or equal to 0 dB		Verify the BOTTOM receiver SLS pulse recognition threshold for an ATCRBS Mode A interrogation at -24 dBm  Connect the UUT TOP antenna to the test equipment RF I/O port.			On the ground station test equipment set the RF LEVEL: -24 dBm, SLS/ECHO: -0, ON  On the ground station test equipment decrease the SLS/ECHO until the % reply is greater than or equal to 50%.  The SLS/ECHO shall be as specified.  On the ground station test equipment connect the UUT TOP antenna to the RF I/O port.  On the ground station test equipment set XPDR MODE: C, SLS/ECHO: -0, ON.  On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from -74 dBm to -24 dBm.	Less than or equal to -1 dB.
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
R	14.050	Less than or equal to 10%		Verify the TOP receiver SLS pulse recognition for ATCRBS Mode C interrogations with P2 = P1			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment set the SLS/ECHO: -9, ON  On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from -74 dBm to -24 dBm.	Less than or equal to 1%	
	14.060	Greater than or equal to 90%		Verify the TOP receiver SLS pulse recognition for ATCRBS Mode C interrogations with P2 = P1 - 9dB			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment set the RF LEVEL: -74 dBm, SLS/ECHO: -0, ON  On the ground station test equipment decrease the SLS/ECHO until the % reply is greater than or equal to 50%.	Greater than or equal to 99%	
	14.070	Less than or equal to 0 dB		Verify the TOP receiver SLS pulse recognition threshold for an ATCRBS Mode C interrogation at MTL +3 dB			The SLS/ECHO shall be as specified.       On the ground station test equipment set the RF LEVEL: -24 dBm, SLS/ECHO: -0, ON	Less than or equal to -1 dB.	
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P	14.080	Less than or equal to 0 dB		Verify the TOP receiver SLS pulse recognition threshold for an ATCRBS Mode A interrogation at -24 dBm  Re-connect UUT BOTTOM antenna to RF I/O port and TOP antenna to the other RF port.  Set the RF test set for Mode S interrogations.			On the ground station test equipment decrease the SLS/ECHO until the % reply is greater than or equal to 50%.  The SLS/ECHO shall be as specified.  On the ground station test equipment re-connect UUT BOTTOM antenna to RF I/O port and TOP antenna to the other RF port.  On the ground station test equipment set for: Mode S only, PRF/SQTR: 60, RF LEV: -67 dBm  On the ground station test equipment set for: SLS/ECHO: +3, ON	Less than or equal to -1 dB.
	14.090	Less than or equal to 10%		Verify no replies are generated for a Mode S interrogations with the P5 (SLS) pulse set to the P6 RF level +3 dB.			On the ground station test equipment the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment the % reply is displayed on the S1403.  On the ground station test equipment decrease the SLS/ECHO by -1 dB increments until the % reply is greater than or equal to 99%.	Less than or equal to 1%
	14.100	Greater than or equal to -12 dB		Verify replies are generated for a Mode S interrogation with the P5 (SLS) pulse set to the P6 RF level -12 dB.			The SLS/ECHO shall be as specified.	Greater than or equal to -10 dB.
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	15.000			<u>P4 PULSE LEVEL, ATCRBS/MODE S AND ATCRBS ONLY ALL CALL</u>  Interrogate the transponder with 60 ATCRBS Mode A/Mode S ALL CALL interrogations/sec.	Test Setup #2		<u>P4 PULSE LEVEL, ATCRBS/MODE S AND ATCRBS ONLY ALL CALL</u>  On the ground station test equipment set for: ACL (ATCRBS/Mode S ALL CALL) mode, P4: variable, XPDR MODE: A  On the ground station test equipment set: SLS/ECHO: -1, OFF  On the ground station test equipment adjust the RF LEV in 2 dB/sec (max) steps from -67 to -24 dBm.	
	15.010	Greater than or equal to 90%		Verify the BOTTOM receiver recognizes interrogations as valid ATCRBS Mode A/Mode S All Call interrogations when P4 = P3 -1 dB.			At each signal level the % replay shall be as specified.  <u>NOTE:</u> On IRF equipment the % reply is read on the S1403.  On the ground station test equipment set: SLS/ECHO: -6, OFF  On the ground station test equipment adjust the RF LEV in 2 dB/sec (max) steps from -67 to -24 dBm.	Greater than or equal to 99%
	15.020	Greater than or equal to 90%		Verify the BOTTOM receiver recognizes interrogations as valid ATCRBS Mode A interrogations when P4 = P3 -6 dB.			At each signal level the % replay shall be as specified.  <u>NOTE:</u> On IRF equipment the % reply is read on the S1403.  On the ground station test equipment set; RF LEV: -74, SLS/ECHO: -1, OFF	Greater than or equal to 99%
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	15.030	Less than or equal to -1 dB		Verify the BOTTOM receiver P4 pulse recognition threshold for ATCRBS Mode A/Mode S All Call interrogations at MTL +3 dB.			<p>On the ground station test equipment decrease the SLS/ECHO until the % reply is less than or equal to 50%.</p> <p>The SLS/ECHO shall be as specified.</p>	Less than or equal to -1 dB
AF	15.040	Less than or equal to -1 dB		<p>Verify the BOTTOM receiver P4 pulse recognition threshold for an ATCRBS Mode A/Mode S All Call interrogation at -24 dBm</p> <p>Interrogate the transponder with 60 ATCRBS Mode C-Only All Call interrogations/sec.</p>			<p>On the ground station test equipment set the RF LEVEL: -24 dBm, SLS/ECHO: -1, OFF</p> <p>On the ground station test equipment decrease the SLS/ECHO until the % reply is less than or equal to 50%.</p> <p>The SLS/ECHO shall be as specified.</p> <p>On the ground station equipment set; ACS (ATCRBS-Only All Call) mode, P4: variable, XPDR MODE: C</p> <p>On the ground station equipment set; SLS/ECHO: -1, OFF</p> <p>On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from - 67 dBm to -24 dBm.</p>	Less than or equal to -1 dB.
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LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
R	15.050	Less than or equal to 10%		Verify no replies are generated to ATCRBS-Only Mode C All Call interrogations on the BOTTOM receiver when: P4 = P3 - 1 dB  Connect the UUT TOP antenna to the test equipment RF I/O port.			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment connect the UUT TOP antenna to the RF I/O port.  On the ground station test equipment; XPDR MODE: A  On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from - 67 dBm to -24 dBm.	Less than or equal to 1%
	15.060	Less than or equal to 10%		Verify no replies are generated to ATCRBS-Only Mode A All Call interrogations on the TOP receiver when P4 = P3 - 1 dB			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment; ACL, XPDR MODE: C, P4: VAR  On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from - 67 dBm to -24 dBm.	Less than or equal to 1%
	15.070	Greater than or equal to 90%		Verify TOP receiver recognizes as valid ATCRBS Mode C All Call interrogations when P4 = P3 - 1 dB			At each signal level the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is taken from the S1403.  On the ground station test equipment set; SLS/ECHO: -6, OFF	Greater than or equal to 99%
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	15.080	Greater than or equal to 90%		Verify TOP receiver recognizes as valid ATCRBS Mode C interrogations when P4 = P3 - 6 dB			<p>On the ground station test equipment adjust the RF LEVEL in 2 dB/sec (max) steps from - 67 dBm to -24 dBm.</p> <p>At each signal level the % reply shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment this reading is taken from the S1403.</p> <p>On the ground station test equipment set; SLS/ECHO: -1, OFF, RF LEV: -74</p> <p>On the ground station test equipment decrease the SLS/ECHO until the % reply is less than or equal to 50%.</p>	Greater than or equal to 99%
	15.090	Less than or equal to -1 dB		Verify the TOP receiver P4 pulse recognition threshold for ATCRBS Mode C/Mode S All Call interrogation at MTL + 3 dB.			<p>The SLS/ECHO shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment the % reply is read on the S1403.</p> <p>On the ground station test equipment set; RF LEV: -24</p> <p>On the ground station test equipment decrease the SLS/ECHO until the % reply is less than or equal to 50%.</p>	Less than or equal to -1 dB
	15.100	Less than or equal to -1 dB		Verify the TOP receiver P4 pulse recognition threshold for ATCRBS Mode C/Mode S All Call interrogation at -24 dBm.			<p>The SLS/ECHO shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment the % reply is read on the S1403.</p>	Less than or equal to -1 dB
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P				Set the RF test set for standard interrogations.  Re-connect UUT BOTTOM antenna to test equipment RF I/O port and UUT TOP antenna to the other RF port.			On the ground station test equipment set; RF LEV: -67, SLS/ECHO: -0, OFF, P4: CAL  On the ground station test equipment re-connect UUT BOTTOM antenna to test equipment RF I/O port and UUT TOP antenna to the other RF port.	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	16.000			P4 PULSE POSITION	Test Setup #2		P4 PULSE POSITION On the ground station test equipment set: ACL (ATCRBS/Mode S All Call) mode, XPDR MODE: C (ATCRBS Mode C/Mode S All Call interrogations. On the ground station test equipment set: P4: Deviation -0.30	
	16.010	Greater than or equal to 90%		Verify the BOTTOM receiver does NOT recognize interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 1.7 uSec. The transponder will reply with ATCRBS replies.			On the ground station test equipment the ATC percent reply shall be as specified. <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.	Greater than or equal to 99%
	16.020	Greater than or equal to 90%		Verify the BOTTOM receiver DOES recognize interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 1.95 uSec. The transponder will reply with Mode S replies.			On the ground station test equipment set; P4: Deviation -0.05 On the ground station test equipment the Mode S percent reply shall be as specified. <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.	Greater than or equal to 99%
	16.030	Greater than or equal to 90%		Verify the BOTTOM receiver DOES recognize interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 2.05 uSec. The transponder will reply with Mode S replies.			On the ground station test equipment set; P4: Deviation +0.05 On the ground station test equipment the Mode S percent reply shall be as specified. <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.	Greater than or equal to 99%
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	16.040	Greater than or equal to 90%		Verify the BOTTOM receiver DOES recognize interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 2.3 uSec. The transponder will reply with ATCRBS replies.  Test TOP Antenna for P4 Pulse Positon.			On the ground station test equipment set; P4: Deviation +0.30  On the ground station test equipment the ATC percent reply shall be as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  Connect UUT TOP antenna to ground station RF input port.  NOTE: On IFR 1400 equipment the antenna must be connect to the RF I/O port  On the ground station test equipment set; P4: Deviation -0.30, XPDR MODE: A	Greater than or equal to 99%
	16.050	Greater than or equal to 90%		Verify the TOP receiver does NOT recognize interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 1.7 uSec. The transponder will reply with ATCRBS replies.			On the ground station test equipment the ATC percent reply shall be as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment set; P4: Deviation -0.05	Greater than or equal to 99%
	16.060	Greater than or equal to 90%		Verify the TOP receiver Recognizes interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 1.95 uSec. The transponder will reply with Mode S replies.			On the ground station test equipment the Mode S percent reply shall be as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.	Greater than or equal to 99%
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	16.070	Greater than or equal to 90%		Verify the TOP receiver Recognizes interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 2.05 uSec. The transponder will reply with Mode S replies.			On the ground station test equipment set; P4: Deviation +0.05  On the ground station test equipment the Mode S percent reply shall be as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.	Greater than or equal to 99%
	16.080	Greater than or equal to 90%		Verify the TOP receiver Recognizes interrogations as ATCRBS Mode C/Mode S All Call when the P3 to P4 spacing is 2.3 uSec. The transponder will reply with ATCRBS replies.  Set RF test set for standard interrogations.  Re-connect UUT BOTTOM antenna to the RF I/O port and UUT TOP antenna to the other RF port.			On the ground station test equipment set; P4: Deviation +0.30  On the ground station test equipment the ATC percent reply shall be as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment set; P4: Deviation CAL  Re-connect UUT BOTTOM antenna to the RF I/O port and UUT TOP antenna to the other RF port.	Greater than or equal to 99%
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	17.000			<u>P4 PULSE WIDTH</u>	Test Setup #2		<u>P4 PULSE WIDTH</u> On the ground station test equipment set: ACL (ATCRB/Mode S All Call) mode. On the ground station test equipment set; P4: Width -0.40 On the ground station test equipment the Mode S % reply shall display as specified. <u>NOTE:</u> On IFR equipment the reading is taken from the S1403. On the ground station test equipment set; P4: Width -0.10 On the ground station test equipment the Mode S % reply shall display as specified. <u>NOTE:</u> On IFR equipment the reading is taken from the S1403. On the ground station test equipment set; P4: Width +0.10 On the ground station test equipment the Mode S % reply shall display as specified. <u>NOTE:</u> On IFR equipment the reading is taken from the S1403. On the ground station test equipment set; P4: Width +0.90	
	17.010	Less than or equal to 10%		Verify the UUT BOTTOM receiver does NOT recognize interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 1.2 uSec.				Less than or equal to 1%
	17.020	Greater than or equal to 90%		Verify the UUT BOTTOM receiver Recognizes interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 1.5 uSec.				Greater than or equal to 99%
	17.030	Greater than or equal to 90%		Verify the UUT BOTTOM receiver Recognizes interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 1.7 uSec.				Greater than or equal to 99%
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>			<b>PROCEDURE</b>			<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
	17.040	Less than or equal to 10%		Verify the UUT BOTTOM receiver does NOT recognize interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 2.5 uSec.  Connect UUT TOP antenna to RF I/O port			On the ground station test equipment the Mode S % reply shall display as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment connect the UUT TOP antenna to the RF I/O port and the UUT BOTTOM antenna to the other RF input  On the ground station test equipment set; P4: Width -0.40	Less than or equal to 1%
AA	17.050	Less than or equal to 10%		Verify the UUT TOP receiver does NOT recognize interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 1.2 uSec.			On the ground station test equipment the Mode S % reply shall display as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment set; P4: Width -0.10	Less than or equal to 1%
AA	17.060	Greater than or equal to 90%		Verify the UUT TOP receiver Recognizes interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 1.5 uSec.			On the ground station test equipment the Mode S % reply shall display as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment set; P4: Width +0.10	Greater than or equal to 99%
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>	
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>		<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AA	17.070	Greater than or equal to 90%		Verify the UUT TOP receiver Recognizes interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 1.7 uSec.				On the ground station test equipment the Mode S % reply shall display as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment set; P4: Width +0.90	Greater than or equal to 99%
AA	17.080	Less than or equal to 10%		Verify the UUT TOP receiver does NOT recognize interrogations as ATCRBS Mode A/Mode S All Call when the P4 pulse width is 2.5 uSec.  Set the RF test set for standard interrogations  Re-connect UUT BOTTOM antenna to RF I/O port and UUT TOP antenna to the other RF port.				On the ground station test equipment the Mode S % reply shall display as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the S1403.  On the ground station test equipment set; P4: Width CAL  On the ground station test equipment re-connect UUT BOTTOM antenna to RF I/O port and UUT TOP antenna to the other RF port.	Less than or equal to 1%
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LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
R	18.000			<u>P1/P3 PULSE WIDTH</u>  Interrogate the transponder with 600 ATCRBS Mode A interrogations with variable P1/P3 width.	Test Setup #2		<u>P1/P3 PULSE WIDTH</u>  On the ground station test equipment set: ATC (ATCRBS only) mode, PRF/SQTR: 600.  On the ground station test equipment set; XPDR PULSE WIDTH: 0.30 and VAR.		
	18.010	Less than or equal to 10%		Verify no reply is generated when the P1/P3 pulse width on the UUT BOTTOM receiver is 0.30 uSec.			On the ground station test equipment the ATC % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is read from the S1403.	Less than or equal to 1%	
	18.020	Greater than or equal to 90%		Verify replies are generated when the P1/P3 pulse width on the UUT BOTTOM receiver is 0.70 uSec.			On the ground station test equipment the ATC % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is read from the S1403.	Greater than or equal to 99%	
	18.030	Greater than or equal to 90%		Verify replies are generated when the P1/P3 pulse width on the UUT BOTTOM receiver is 0.90 uSec.  Connect UUT TOP antenna to test equipment.			On the ground station test equipment the ATC % reply shall be as specified.  <u>NOTE:</u> On IFR equipment this reading is read from the S1403.  On the ground station test equipment connect the UUT TOP antenna to he RF I/O port and the UUT BOTTOM antenna to the other RF port.	Greater than or equal to 99%	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	18.040	Less than or equal to 10%		Verify no reply is generated when the P1/P3 pulse width on the UUT TOP receiver is 0.30 uSec.			<p>On the ground station test equipment set; XPDR PULSE WIDTH: 0.30</p> <p>On the ground station test equipment the ATC % reply shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment this reading is read from the S1403.</p> <p>On the ground station test equipment set; XPDR PULSE WIDTH: 0.70</p>	Less than or equal to 1%
	18.050	Greater than or equal to 90%		Verify replies are generated when the P1/P3 pulse width on the UUT TOP receiver is 0.70 uSec.			<p>On the ground station test equipment the ATC % reply shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment this reading is read from the S1403.</p> <p>On the ground station test equipment set; XPDR PULSE WIDTH: 0.90</p>	Greater than or equal to 99%
	18.060	Greater than or equal to 90%		<p>Verify replies are generated when the P1/P3 pulse width on the UUT TOP receiver is 0.90 uSec.</p> <p>Set the RF test set for standard interrogations.</p>			<p>On the ground station test equipment the ATC % reply shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment this reading is read from the S1403.</p> <p>On the ground station test equipment set; PRF/SQTR: 60, XPDR PULSE WIDTH 0.00, MODE S (Mode S Only)</p>	Greater than or equal to 99%
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
P	19.000			Re-connect UUT BOTTOM antenna to the test equipment RF I/O port and the UUT TOP antenna to the other antenna port.  <u>MODE S SYNC PHASE REVERAL (SPR) POSITION.</u>	Test Setup #2		On the ground station test equipment re-connect UUT BOTTOM antenna to the test equipment RF I/O port and the UUT TOP antenna to the other antenna port.  <u>MODE S SYNC PHASE REVERAL (SPR) POSITION</u>		
AF	19.010	Less than or equal to 1%		Verify no reply is generated when the P6 to SPR delay on the UUT BOTTOM receiver is 1.05 uSec.			On the ground station test equipment set: SPR DEVIATION: -0.20  On the ground station test equipment the Mode S %Reply shall be as specified. <u>NOTE:</u> On IFR equipment this reading is read from the S1403.	Less than or equal to 1%	
AF	19.020	Greater than or equal to 99%		Verify replies are generated when the P6 to SPR delay on the UUT BOTTOM receiver is 1.20 uSec.			On the ground station test equipment set: SPR DEVIATION: -0.05  On the ground station test equipment the Mode S %Reply shall be as specified. <u>NOTE:</u> On IFR equipment this reading is read from the S1403.	Greater than or equal to 99%	
AF	19.030	Greater than or equal to 99%		Verify replies are generated when the P6 to SPR delay on the UUT BOTTOM receiver is 1.30 uSec.			On the ground station test equipment set: SPR DEVIATION: +0.05  On the ground station test equipment the Mode S %Reply shall be as specified. <u>NOTE:</u> On IFR equipment this reading is read from the S1403.  On the ground station test equipment set: SPR DEVIATION: +0.20	Greater than or equal to 99%	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	19.040	Less than or equal to 1%		Verify no reply is generated when the P6 to SPR delay on the UUT BOTTOM receiver is 1.45 uSec.  Connect UUT TOP antenna to the test equipment RF I/O port.			On the ground station test equipment the Mode s %Reply shall be as specified.  NOTE: On IFR equipment this reading is read from the S1403.  On the ground station test equipment connect the UUT TOP antenna port to the RF I/O port and the UUT BOTTOM antenna to the other port.  On the ground station test equipment set: SPR DEVIATION: -0.20	Less than or equal to 1%
	19.050	Less than or equal to 1%		Verify no reply is generated when the P6 to SPR delay on the UUT TOP receiver is 1.05 uSec.			On the ground station test equipment the Mode S %Reply shall be as specified.  NOTE: On IFR equipment this reading is read from the S1403.  On the ground station test equipment set: SPR DEVIATION: -0.05	Less than or equal to 1%
	19.060	Greater than or equal to 99%		Verify replies are generated when the P6 to SPR delay on the UUT TOP receiver is 1.20 uSec.			On the ground station test equipment the Mode S %Reply shall be as specified.  NOTE: On IFR equipment this reading is read from the S1403.  On the ground station test equipment set: SPR DEVIATION: +0.05	Greater than or equal to 99%
AF	19.070	Greater than or equal to 99%		Verify replies are generated when the P6 to SPR delay on the UUT TOP receiver is 1.30 uSec.			On the ground station test equipment the Mode S %Reply shall be as specified.  NOTE: On IFR equipment this reading is read from the S1403.	Greater than or equal to 99%
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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.								
REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	19.080	Less than or equal to 1%		<p>Verify no reply is generated when the P6 to SPR delay on the UUT TOP receiver is 1.45uSec.</p> <p>Set RF test set for standard interrogations.</p> <p>Re-connect UUT BOTTOM antenna cable to RF I/O port and the UUT TOP antenna to the other RF port.</p>			<p>On the ground station test equipment set: SPR DEVIATION: +0.20</p> <p>On the ground station test equipment the Mode S %Reply shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment this reading is read from the S1403.</p> <p>On the ground station test equipment set; SPR DEVIATION: CAL/OFF</p> <p>Re-connect UUT BOTTOM antenna cable to RF I/O port and the UUT TOP antenna to the other RF port.</p>	Less than or equal to 1%
<b>Honeywell</b>				AW/CRITICAL NOTATION				
				SECURITY NOTATION		SUPPLEMENTS		61 PAGE

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						CAGE CODE 55939		REV LTR	
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.									
REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
P	20.000			<u>DIVERSITY OPERATION</u> Interrogate the unit with a Mode S interrogation on the TOP and BOTTOM antenna.	Test Setup #2		<u>DIVERSITY OPERATION</u> <u>NOTE:</u> The TOP and BOTTOM antenna cables shall be matched per the requirements in paragraph 3.5.  On the ground station test equipment set the UUT TOP antenna for 50 dBm, delay -0.15 (delay by 125 nSec), UUT BOTTOM Antenna RF LEVEL -47 dBm.  <u>NOTE:</u> On IFR equipment the UUT top antenna is connected to the S1403. All TOP ANT adjustments will have to be done using the ANT B adjustment.		
	20.010	Greater than or equal to 90%		Interrogate the transponder with: Mode S interrogations TOP RF Level: -50 dBm, BOT RF Level: -47 dBm, DELAY: TOP 125 nSec before TOP. Verify transponder replies on the BOTTOM antenna.			The Mode S % percent reply for the UUT BOTTOM antenna shall be as specified.  <u>NOTE:</u> On IFR equipment the reading will be taken with the S1403.  On the ground station test equipment set interrogations for ATCRBS Mode A	Greater than or equal to 99%	
	20.020	Greater than or equal to 90%		Interrogate the transponder with: ATCRBS Mode A interrogations TOP RF Level: -50 dBm, BOT RF Level: -47 dBm, DELAY: TOP 125 nSec before TOP. Verify transponder replies on the BOTTOM antenna.			The ATC % percent reply for the UUT BOTTOM antenna shall be as specified.  <u>NOTE:</u> On IFR equipment the reading will be taken with the S1403.	Greater than or equal to 99%	
Honeywell				AW/CRITICAL NOTATION					
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<b>ENGINEERING SPECIFICATION</b>				SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	20.030	Greater than or equal to 90%		Interrogate the transponder with: Mode S interrogations TOP RF Level: -50 dBm, BOT RF Level: -53 dBm, DELAY: TOP 125 nSec before TOP. Verify transponder replies on the TOP antenna.			<p>On the ground station test equipment set interrogations for Mode S, UUT BOTTOM antenna RF I/O LEVEL: -53</p> <p>The MODE S % percent reply for the UUT TOP antenna shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment the reading is taken from the AntB display.</p> <p>On the ground station test equipment set: MODE S interrogations, UUT TOP antenna for 50 dBm, delay +0.15 (delay by 125 nSec), UUT BOTTOM Antenna RF LEVEL -53 dBm.</p> <p><u>NOTE:</u> On IFR equipment the UUT top antenna is connected to the S1403. All TOP ANT adjustments will have to be done using the ANTB adjustment.</p>	Greater than or equal to 99%
	20.040	Greater than or equal to 90%		Interrogate the transponder with: MODE S interrogations, TOP ANT RF Level: -50 dBm, BOT ANT RF Level: -53 dBm, DELAY: 125 nSec AFTER BOT ANT. Verify transponder replies on the TOP ANT.			<p>The MODE S % percent reply for the UUT TOP antenna shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment the reading is taken from the AntB display.</p>	Greater than or equal to 99%
<b>Honeywell</b>				AW/CRITICAL NOTATION				
				SECURITY NOTATION		SUPPLEMENTS		63 PAGE

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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
R	20.050	Greater than or equal to 90%		Interrogate the transponder with: ATCRBS Mode A Interrogations, TOP ANT RF Level: -50 dBm, BOT ANT RF Level: -53 dBm, DELAY: 125 nSec AFTER BOT ANT. Verify transponder replies on the TOP ANT.			<p>On the ground station test equipment set: ATCRBS MODE A interrogations, UUT TOP antenna for 50 dBm, delay +0.15 (delay by 125 nSec), UUT BOTTOM Antenna RF LEVEL -53 dBm.</p> <p><u>NOTE:</u> On IFR equipment the UUT top antenna is connected to the S1403. All TOP ANT adjustments will have to be done using the ANTB adjustment.</p> <p>The ATC % percent reply for the UUT TOP antenna shall be as specified.</p> <p><u>NOTE:</u> On IFR equipment the reading is taken from the AntB display.</p> <p>On the ground station test equipment set: MODE S interrogations, UUT TOP antenna for 50 dBm, delay +0.15 (delay by 125 nSec), UUT BOTTOM Antenna RF LEVEL -47dBm.</p> <p><u>NOTE:</u> On IFR equipment the UUT top antenna is connected to the S1403. All TOP ANT adjustments will have to be done using the ANTB adjustment.</p>	Greater than or equal to 99%
<b>Honeywell</b>				AW/CRITICAL NOTATION				
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<b>REV</b>	<b>TEST NO.</b>	<b>SPECIFICATION</b>			<b>PROCEDURE</b>			<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AF	20.060	Greater than or equal to 90%		Interrogate the transponder with Mode S interrogations, TOP ANT RF Level: -50 dBm, BOT ANT RF Level: - 47dBm, DELAY: 125 nSec AFTER BOT ANT. Verify transponder replies on the BOTTOM ANT.			The MODE S % percent reply for the UUT BOTTOM antenna shall be as specified.  On the ground station test equipment set: MODE S interrogations, UUT TOP antenna for 50 dBm, delay +0.35 (delay by 375 nSec), UUT BOTTOM Antenna RF LEVEL -74 dBm.  <u>NOTE:</u> On IFR equipment the UUT top antenna is connected to the S1403. All TOP ANT adjustments will have to be done using the ANTB adjustment.	Greater than or equal to 99%
AF	20.070	Greater than or equal to 90%		Interrogate the transponder with Mode S interrogations, TOP ANT RF Level: -50 dBm, BOT ANT RF Level: - 74dBm, DELAY: 375 nSec AFTER BOT ANT. Verify transponder replies on the BOTTOM ANT.  Connect the UUT TOP antenna to RF I/O port and UUT BOT antenna to the MODE S antenna port.			The MODE S % percent reply for the UUT BOTTOM antenna shall be as specified.  Connect the UUT TOP antenna to RF I/O port and UUT BOT antenna to the MODE S antenna port.	Greater than or equal to 99%
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AF	20.080	Greater than or equal to 90%		Interrogate the transponder with Mode S interrogations, TOP ANT RF Level: -74 dBm, BOT ANT RF Level: - 50 dBm, DELAY: 375 nSec AFTER BOT ANT. Verify transponder replies on the TOP ANT.  Re-connect UUT BOT antenna cable to RF I/O port and UUT TOP antenna MODE S port.  Set the RF test equipment for standard interrogations.			The MODE S % percent reply for the UUT BOTTOM antenna shall be as specified.  On the ground station test equipment re-connect UUT BOT antenna cable to RF I/O port and UUT TOP antenna MODE S port.  On the ground station test equipment set: MODE A interrogations, UUT TOP antenna for 50 dBm, delay off, UUT BOTTOM Antenna RF LEVEL - 67 dBm.	Greater than or equal to 99%
AF								
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
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<b>ENGINEERING SPECIFICATION</b>				<b>SECURITY NOTATION</b>		<b>SPEC NO.</b> IT7517400 <b>CAGE CODE</b> 55939		SEE PAGE INDEX FOR THIS SHEET REV LETTER  <b>REV LTR</b>
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AF	21.000			<u>MUTUAL SUPPRESSION</u>	Test Setup #2		<u>MUTUAL SUPPRESSION</u> On the ground station test equipment set interrogations to ATCRBS, PRF/SQTR: 600  Connect and oscilloscope probe to the RTIU P2-T1. Adjust the oscilloscope to measure a 26 Volt 30 uSec pulse.	
AC	21.010	22.0 to 32.0 VDC (26.0 nominal)		Verify mutual suppression line goes active when replying to ATCRBS interrogations. <u>MUT SUP(P) pin:</u> -901, -906 A2A1P1-3 (H) -902, 903, 904 A2A2J4-1 (H) -855, -856, -857, -865, -866, -867, -875 A2A7J3-30 (H)			The pulse amplitude on the oscilloscope shall be as specified.	23.0 to 29.0 VDC (26.0 nominal)
AE AE	21.020	20.0 to 40.0 uSec (30.0 nominal)		RTIU P2T1  Verify the duration of the mutual suppression pulse.			The pulse width (measured from 50% to 50% voltage point) of the mutual suppression pulse shall be as specified.  On the ground station test equipment connect the mutual suppression output to the RTIU test point P2T1.  On the ground station test equipment set INTERFERENCE PULSE: +5.0, SUPPRESSOR: ON	25.0 to 35.0 uSec (30.0 nominal)
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AF	21.030	Equal to 0%		Externally activate the mutual suppression line with pulse amplitude of 18.0V. Verify no replies are generated.  Disconnect mutual suppression pulse.			The ATC % percent reply for the UUT BOTTOM antenna shall be as specified  On the ground station test equipment set INTERFERENCE PULSE: 0.0, OFF; SUPPRESSOR: OFF	Equal to 0%
	21.040	Greater than or equal to 90%		Verify the transponder replies to ATCRBS Interrogations.  Set RF test set for standard interrogations.			The ATC % percent reply for the UUT BOTTOM antenna shall be as specified  On the ground station test equipment set PRF/SQTR: 60, MODE S ONLY interrogations.	Greater than or equal to 99%
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION																																				
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS																																				
AF	22.000			<u>DISCRETE INPUTS</u> <u>(-901, -906 MODULES ONLY)</u> Select ENC ALT 1 inputs. (-925 RTIU Harness).  Select BENCH Discrete DISPLAY 2  Write alternating OPEN(0)/GROUND(1) patterns to the discrete inputs for INPUT PORT 0 and INPUT PORT 1. Ports are listed in order from Bit 7 to Bit 0.  <table border="1"> <tr> <td>Input Port 0</td> <td>A2A3P1-</td> </tr> <tr><td>ENC ALT1 D2(NO)</td><td>56</td></tr> <tr><td>ENC ALT1 D4(NO)</td><td>57</td></tr> <tr><td>ENC ALT1 A1(NO)</td><td>58</td></tr> <tr><td>ENC ALT1 A2(NO)</td><td>67</td></tr> <tr><td>ENC ALT1 A4(NO)</td><td>68</td></tr> <tr><td>ENC ALT1 B1(NO)</td><td>69</td></tr> <tr><td>ENC ALT1 B2(NO)</td><td>70</td></tr> <tr><td>ENC ALT1 B4(NO)</td><td>71</td></tr> </table> <table border="1"> <tr> <td>Input Port 1</td> <td>A2A3P1-</td> </tr> <tr><td>Squat Switch2(NO)</td><td>75</td></tr> <tr><td>XPDR STANDY(NO)</td><td>72</td></tr> <tr><td>CTL SRC SEL1(NO)</td><td>61</td></tr> <tr><td>ALT SRC SEL2(NO)</td><td>60</td></tr> <tr><td>ALT COMPENA(NO)</td><td>59</td></tr> <tr><td>ENC ALT1 C1(NO)</td><td>53</td></tr> <tr><td>ENC ALT1 C2(NO)</td><td>54</td></tr> <tr><td>ENC ALT1 C4(NO)</td><td>55</td></tr> </table>	Input Port 0	A2A3P1-	ENC ALT1 D2(NO)	56	ENC ALT1 D4(NO)	57	ENC ALT1 A1(NO)	58	ENC ALT1 A2(NO)	67	ENC ALT1 A4(NO)	68	ENC ALT1 B1(NO)	69	ENC ALT1 B2(NO)	70	ENC ALT1 B4(NO)	71	Input Port 1	A2A3P1-	Squat Switch2(NO)	75	XPDR STANDY(NO)	72	CTL SRC SEL1(NO)	61	ALT SRC SEL2(NO)	60	ALT COMPENA(NO)	59	ENC ALT1 C1(NO)	53	ENC ALT1 C2(NO)	54	ENC ALT1 C4(NO)	55	Test Setup #2		<u>DISCRETE INPUTS</u> <u>(-901, -906 MODULES ONLY)</u> Disc/Analog Page SEL ENC ALT ALT 1 RCB Page Main Bench Page Bench Analog Page Discrete Pages 2 Change Input Ports - 10101010 10101010 -	
Input Port 0	A2A3P1-																																											
ENC ALT1 D2(NO)	56																																											
ENC ALT1 D4(NO)	57																																											
ENC ALT1 A1(NO)	58																																											
ENC ALT1 A2(NO)	67																																											
ENC ALT1 A4(NO)	68																																											
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Input Port 1	A2A3P1-																																											
Squat Switch2(NO)	75																																											
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ENC ALT1 C2(NO)	54																																											
ENC ALT1 C4(NO)	55																																											
AB																																												

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REV	TEST	SPECIFICATION				PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS		
AF	22.010	Port 0 = 10101010		Verify the correct values are read from PORT 0 and PORT 1.			The XPDR column on the RTIU display for INPUT PORT 0 and INPUT 1 shall be as specified. (Bit 7 on the RTIU corresponds to first digit in LIMITS column)	Port 0 = 10101010		
	22.020	Port 1 = 10101010		Reverse OPEN/GROUND pattern written in the previous test.	<T> <01010101> <01010101>		CHANGE INPUT PORTS 01010101 01010101	Port 1 = 10101010		
	22.030	Port 0 = 01010101		Verify the correct values are read from PORT 0 and PORT 1.			The XPDR column on the RTIU display for INPUT PORT 0 and INPUT 1 shall be as specified. (Bit 7 on the RTIU corresponds to first digit in LIMITS column)	Port 0 = 01010101		
	22.040	Port 1 = 01010101		Set Port pattern to default value.	<T> <00000000> <00000000>		Change Input Port 00000000 00000000	Port 1 = 01010101		
				Select ENC ALT 2 inputs. (-925 RTIU Harness).	<P> <P> <P> <N> <S> <2> <P> <H> <N> <I> <3>		Bench Analog Page Main Bench Page RCB Page Disc/Analog Page SEL ENC ALT 2 RCB Page Main Bench Page Bench Analog Page Discrete Pages 3			
				Select BENCH DISCRETE DISPLAY 3						
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION																																			
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS																																			
AF				<p>Write alternating OPEN(0)/GROUND(1) patterns to the discrete inputs for INPUT PORT 2 and INPUT PORT 3. Ports are listed in order from Bit 7 to Bit 0.</p> <table border="1"> <thead> <tr> <th>Input Port 0</th> <th>A2A3P1-</th> </tr> </thead> <tbody> <tr><td>ENC ALT2 D2(NO)</td><td>83</td></tr> <tr><td>ENC ALT2 D4(NO)</td><td>84</td></tr> <tr><td>ENC ALT2 A1(NO)</td><td>58</td></tr> <tr><td>ENC ALT2 A2(NO)</td><td>94</td></tr> <tr><td>ENC ALT2 A4(NO)</td><td>95</td></tr> <tr><td>ENC ALT2 B1(NO)</td><td>96</td></tr> <tr><td>ENC ALT2 B2(NO)</td><td>97</td></tr> <tr><td>ENC ALT2 B4(NO)</td><td>98</td></tr> <tr><td colspan="2"> </td></tr> <tr><td>Squat Switch1(NO)</td><td>73</td></tr> <tr><td>RSV INUT 4(NO)</td><td>89</td></tr> <tr><td>RSV INPUT 3(NO)</td><td>88</td></tr> <tr><td>RSV INPUT 2(NO)</td><td>87</td></tr> <tr><td>RSV INPUT 1(NO)</td><td>86</td></tr> <tr><td>ENC ALT2 C1(NO)</td><td>80</td></tr> <tr><td>ENC ALT2 C2(NO)</td><td>81</td></tr> <tr><td>ENC ALT2 C4(NO)</td><td>82</td></tr> </tbody> </table>	Input Port 0	A2A3P1-	ENC ALT2 D2(NO)	83	ENC ALT2 D4(NO)	84	ENC ALT2 A1(NO)	58	ENC ALT2 A2(NO)	94	ENC ALT2 A4(NO)	95	ENC ALT2 B1(NO)	96	ENC ALT2 B2(NO)	97	ENC ALT2 B4(NO)	98			Squat Switch1(NO)	73	RSV INUT 4(NO)	89	RSV INPUT 3(NO)	88	RSV INPUT 2(NO)	87	RSV INPUT 1(NO)	86	ENC ALT2 C1(NO)	80	ENC ALT2 C2(NO)	81	ENC ALT2 C4(NO)	82	<T> <10101010> <10101010>	Change Input Ports 10101010 10101010	
Input Port 0	A2A3P1-																																										
ENC ALT2 D2(NO)	83																																										
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ENC ALT2 C1(NO)	80																																										
ENC ALT2 C2(NO)	81																																										
ENC ALT2 C4(NO)	82																																										
	22.050	PORT 2 = 10101010		Verify the correct values are read form PORT 2 and Port 3.			The XPDR column on the RTIU display for INPUT PORT 2 and INPUT 3 shall be as specified. (Bit 7 on the RTIU corresponds to first digit in LIMITS column)	Port 2 = 10101010																																			
	22.060	PORT 3 = 10101010		Reverse OPEN/GROUND pattern written in the previous test.	<T> <01010101> <01010101>		Change Input Ports 01010101 01010101	Port 3 = 10101010																																			
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AF	22.070	PORT 2 = 01010101		Verify the correct values are read form PORT 2 and PORT 3.			The XPDR column on the RTIU display for INPUT PORT 2 and INPUT 3 shall be as specified. (Bit 7 on the RTIU corresponds to first digit in LIMITS column)	PORT 2 = 01010101
	22.080	PORT 3 = 01010101		Set port pattern to default values.  Return to RCB Page.	<T> <00000000> <00000000>  <P> <P> <P>		Change Input Ports 00000000 00000000  Bench Analog Page Main Bench Page RCB Page	PORT 3 = 01010101
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
				<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>	<b>72 PAGE</b>	

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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AF	23.000			<u>DISCRETE OUTPUTS</u>	Test Setup #2		<u>DISCRETE OUTPUTS</u>		
AB				<u>-901, -906 MODULES ONLY)</u>			<u>-901, -906 MODULES ONLY)</u>		
				Select Bench Discrete Display 1	<H>		Main Bench Page		
					<N>		Bench Analog Page		
					<I>		Discrete Pages		
					<1>		1		
				Set the discrete outputs to alternating ON/OFF states. Ports are listed in order from Bit 7 to Bit 0.	<T>		Test I/O Port		
					<00010101>		00010101		
					<10000000>		10000000		
				<u>OUTPUT PORT 0</u> A2A3P1-			<u>NOTE:</u> Wait 7 seconds to allow monitors to operate correctly.		
				RESERV ED -					
				RESERV ED -					
				RESERV ED -					
				ALT VALID(NO) 102					
				RSV OUTPUT1(NO) 101					
				XPDR ACTIVE(NO) 99					
				XPDR VALID(NO) 100					
				XPDR VALID(PO) 23					
				<u>OUTPUT PORT 1</u> A2A3P1-					
				STRAP_PGM(N(O) 104					
				STRAP_PGM DAT 104					
				STRAP_LOAD 92					
				STRAP_CLK -					
				RESERV ED -					
				RESERV ED -					
				SELECT_SPARE2/1* -					
				FAN_ENABLE -					
	23.010	Port 0 = 1010		Verify Discrete outputs for Output Port 0, Bits 4 to 1 are in the correct state.			Observe the column on the RTIU display for OUTPUT PORT 0 BITS 4 to 1. The display shall indicate as specified. (Bit 4 corresponds to first digit in Limits Specification.		PORT 0 = 1010

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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AF	V 23.020	Greater than or equal to 24.0 VDC		Verify XPDR VALID(PO) output voltage is correct.			Observed the column on the RTIU display for XPDR VALID(PO). The display shall be as specified. (OUTPUT PORT 0 BIT 0)	Greater than or equal to 24.0 VDC	
				23.030	PORT 1 = 10	Verify Discrete outputs for Output Port 1, Bits 7 and 6 are in the correct state.			Observe the column on the RTIU display for OUTPUT PORT 1 BITS 7 and 6. The display shall be as specified. (Bit 7 corresponds to first digit in Limits Specification).
V	23.040	PORT 0 = 0101		Reverse ON/OFF state pattern written in previous test.	<T> <00001010> <01000000>		Test I/O Port 00001010 01000000 <u>NOTE:</u> Wait 7 seconds to allow monitors to operate correctly.	PORT 0 = 0101	
				23.050	Less than or equal to 2.0 VDC	Verify XPDR VALID(PO) output voltage is correct.			Observe the column on the RTIU display for XPDR VALID(PO). The reading shall be as specified. (Output Port 0 BIT 0)
	23.060	PORT 1 = 01		Verify discrete outputs for Output Port 0, Bits 4 to 1 are in the correct state.			Observe the column on the RTIU display for Output Port 0 BITS 4 to 1. The display shall be as specified.	PORT 0 = 0101	
				Verify discrete output for Output Port 1, Bits 7 and 6 are in the correct state.			Observe the column on the RTIU for Output Port 1 Bits 7 and 6. The reading shall be as specified.	PORT 1 = 01	
				Select Bench discrete Display 4	<P> <I> <4>		Bench Analog Page Discrete Pages 4		
Honeywell				AW/CRITICAL NOTATION					
				SECURITY NOTATION		SUPPLEMENTS		74 PAGE	

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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AF	23.070	PORT 4 = 11000000		Verify discrete output monitors are in the correct state (INPUT PORT 4)  Select Aircraft Maintenance Log	<P> <P> <P>		Observe the column on the RTIU for Input Port 4 Bits 7 to 0. The display shall be as specified.  Bench Analog Page Main Bench Page RCB Page	PORT 4 = 11000000
AG	23.080	END LIST		Verify no errors for the discrete outputs are logged in the TROUBLESHOOT maintenance log.  Return to the RCB Page	<M> <A>  <P>		Maintenance Log Aircraft  Observe the RTIU discription column display. The display shall be as specified.  RCB Page	END LIST
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
				<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>		75 PAGE



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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AB	24.000			<u>FAN/STRAP INTERFACES</u>	Test Setup #2		<u>FAN/STRAP INTERFACES</u>		
				<u>(-901, -906 MODULE, MOD B OR LATER ONLY)</u>			<u>(-901, -906 MODULE, MOD B OR LATER ONLY)</u>		
AF				Select Bench Page	<H>		Main Bench Page		
					<N>		Bench Analog Page		
V	24.010	Greater than or equal to 25.0 VDC		Turn FAN simulator OFF	<Y>		FAN SIMULATION		
					<0>		0		
AF				Turn FAN OFF	<F>		FAN Test		
					<F>		OFF		
V	24.010	Greater than or equal to 25.0 VDC		Verify FAN SUPPLY voltage is a specified.			Observe the RTIU display for FAN SUPPLY. The display shall read as specified.	Greater than or equal to 25.0 VDC	
V	24.020	Greater than or equal to 25.0 VDC		Verify FAN RETURN voltage is as specified.			Observe the RTIU display for FAN RETURN. The display shall read as specified.	Greater than or equal to 25.0 VDC	
AF	24.030	OFF		Verify FAN TEST status monitor is OFF			Observe the RTIU display for FAN TEST. The display shall read as specified.	OFF	
				Turn FAN ON	<F>		FAN Test		
AF					<0>		ON		
				Turn FAN simulator ON (100 MHz)	<Y>		FAN Simulation		
V	24.040	ON			<100>		100		
				Verify FAN TEST status monitor is ON.			Observe the RTIU display for FAN TEST. The display shall read as specified.	ON	
V	24.050	Less than or equal to 5.0 VDC		Verify FAN RETURN voltage is as specified.			Observe the RTIU display for FAN RETURN. The display shall read as specified.	Less than or equal to 5.0 VDC	
				Select BENCH STRAPS PAGE, Read straps.	<N>		Bench Straps Page		
					<R>		Read Straps		
Honeywell				AW/CRITICAL NOTATION					
				SECURITY NOTATION		SUPPLEMENTS		76 PAGE	

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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	24.060	PASS		<p>Verify RCB source straps are identical to RTIU SOURCE strap data</p> <p>Configure straps for STAND-ALONE, RCB TUNING. (W1 = 0, W2 - 0).</p> <p>Select Configuration Page</p> <p>Remove the ground from the INTEGRATE_COM(NO) discrete input. <u>INTEGRATE COM(NO):</u> A2A1J3-20 RTIU: P2M1</p> <p>Cycle +28V Power to the select stand-alone module operation.</p>	<p>&lt;S&gt;</p> <p>&lt;1&gt;</p> <p>&lt;S&gt;</p> <p>&lt;2&gt;</p> <p>&lt;P&gt;</p> <p>&lt;P&gt;</p> <p>&lt;P&gt;</p> <p>&lt;C&gt;</p> <p>&lt;G&gt;</p>		<p>Observe the RTIU display. RCB Source Straps Wires 1-48 shall be equal to RTIU Source strap wires 1-48.</p> <p>Change Straps</p> <p>1</p> <p>Change Straps</p> <p>2</p> <p>Bench Analog Page</p> <p>Main Bench Page</p> <p>RCB Page</p> <p>Configuration Page</p> <p>INTEGRATE COM</p> <p><u>RTIU:</u> Turn the 28V dc switch off.</p> <p>Wait a minimum of 7 seconds.</p> <p><u>RTIU:</u> Turn the 28V dc switch on.</p>	PASS
	24.070	NO ERRORS		<p>Verify no RCB errors occur.</p> <p>Connect a ground signal to INTEGRATE COM(NO) discrete input.</p>	<p>&lt;G&gt;</p>		<p>Observe the RTIU display. The ERRORS display between the vertical lines shall display as specified. (NO ERRORS means nothing is displayed).</p> <p>INTEGRATE COM</p>	NO ERRORS
Honeywell				AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				Cycle +28V Power to the select stand-alone module operation.  Disable SQUITTER and select RCB Page	<P> <H> <N> <Q> <D> <P> <P>		RTIU: Turn the 28V dc switch off.  Wait a minimum of 7 seconds.  RTIU: Turn the 28V dc switch on.  RCB Page Main Bench Page Bench Analog Page Squitter Disable Main Bench Page RCB Page	
Honeywell				AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AB	25.000			<u>ARINC 429 BUSSES</u> <u>(-901, -906 MODULE ONLY, MOD - OR A ONLY)</u>  Set XPDR Module straps for: TCAS Installed DLP Installed ARINC 419 ADC Source  Cycle +28V power to the selected straps.  Apply ARINC 429 signal to TCAS->XPDR bus receiver channel and select TCAS->XPDR receiver test: <div style="text-align: right; margin-right: 20px;">A2A3P1-</div> <div style="display: flex; justify-content: flex-end;"> <div style="text-align: left; margin-right: 20px;">TCAS-&gt;XPDR_A 40</div> <div style="text-align: left;">TCAS-&gt;XPDR_B 41</div> </div>	Test Setup #2  <C> <I> <L> <A> <2>  <P> <H> <J> <1> <L> <A> <H> <6> <4> <00000000>		<u>ARINC 429 BUSSES</u> <u>(-901, -906 MODULE ONLY, MOD - OR A ONLY)</u>  Configuration Page TCAS Installed DLP Installed Altitude Source 429  <u>RTIU:</u> Turn the 28V dc switch on the RTIU to OFF.  Wait a minimum of 7 seconds.  <u>RTIU:</u> Turn the 28V dc switch on the RTIU to ON.  RCB Page Main Bench Select 429 Bus TCAS LOADED Test ARINC 429 High speed No Transmit TCAS 00000000  <u>429 Test equipment Set:</u> Connect 429 inputs to RTIU per paragraph 3.11 TX SPEED: HIGH TX DATA: 111111  Observe the RTIU display. The ARINC WORD displayed shall be as specified.	
AF	25.010	111111C1		Set ARINC 429 test to transmit Label 203, Data 111111.  Verify ARINC 429 data is received on the TCAS->XPDR bus.			111111C1	
Honeywell				AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				Apply ARINC 429 signal to DLP_A/B->XPDR bus receiver channel and select DLP_A/B->XPDR receiver test: <div style="text-align: right;">A2A3P1-</div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="margin-left: 5px;">42</div> </div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="margin-left: 5px;">43</div> </div>	<B> <J> <2> <L> <A> <H> <6> <3> <00000000>		Read SW Version Select 429 Bus DLP_A/B LOADED Test ARINC 429 High speed No Transmit DLP_A/B 00000000 <u>429 Test equipment Set:</u> TX DATA: 222222	
	25.020	222222C1		Set ARINC test set to transmit Label 203, Data 222222. Verify ARINC 429 data is received on the DLP_A/B->XPDR bus. Apply ARINC 429 signal to DLP_C/D->XPDR bus receiver channel and select DLP_C/D->XPDR receiver test: <div style="text-align: right;">A2A3P1-</div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="margin-left: 5px;">44</div> </div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="margin-left: 5px;">45</div> </div>	<B> <J> <3> <L> <A> <H> <6> <5> <00000000>		Observe the RTIU display. The ARINC WORD displayed shall be as specified. Read SW Version Select 429 Bus DLP_C/D LOADED Test ARINC 429 High speed No Transmit DLP_C/D 00000000 <u>429 Test equipment Set:</u> TX DATA: 333333	222222C1
	25.030	333333C1		Set ARINC test set to transmit Label 203, Data 333333. Verify ARINC 429 data is received on the DLP_C/D->XPDR bus			Observe the RTIU display. The ARINC WORD displayed shall be as specified	333333C1
Honeywell				AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS
P				Apply ARINC 429 signal to ADC1->XPDR bus receiver channel and select ADC1->XPDR receiver test: <div style="text-align: right;">A2A3P1-</div> ADC1->XPDR _A 32 ADC1->XPDR _B 33	<B> <J> <4> <L> <A> <L> <6> <1> <00000000>		Read SW Version Select 429 Bus ADC1 LOADED Test ARINC 429 Low speed No Transmit ADC1 00000000
	25.040	444444C1		Set ARINC test set to transmit Label 203, Data 444444, Low speed. Verify ARINC 429 data is received on the ADC1->XPDR bus Apply a ground to ALT_SRC_SEL2(NO) discrete input. Apply ARINC 429 signal to ADC2->XPDR bus receiver channel and select ADC2->XPDR receiver test: <div style="text-align: right;">A2A3P1-</div> ADC2->XPDR _A 46 ADC2->XPDR _B 47	<P> <N> <A> <P> <H> <B> <J> <5> <L> <A> <L> <6> <9> <00000000>		429 Test equipment Set: TX DATA: 333333 TX SPEED: Low Observe the RTIU display. The ARINC WORD displayed shall be as specified RCB Page Disc/Analog Page Alt Src Sel2 RCB Page Main Bench Page Read SW Version Select 429 Bus ADC2 LOADED Test ARINC 429 Low speed No Transmit ADC2 00000000
				Set ARINC test set to transmit Label 203, Data 555555.			429 Test equipment Set: TX DATA: 555555
Honeywell			AW/CRITICAL NOTATION				
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	25.090	000000		Set ARINC test set to receive Label 004.  Verify ARINC 429 data is transmitted on the XPDR->DLP_A/B bus.  <u>-923 RTIU HARNESS</u>  When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.			<u>429 Test equipment Set:</u> RX LABEL: 004  Set the ARINC test set to receive data and trap LABEL 004. The data shall be as specified.  <u>-923 RTIU HARNESS</u>  Apply an 800-ohm resistor between RTIU P1Y5 and ground. Apply an 800-ohm resistor between RTIU P1X5 and ground.  <u>-925 RTIU HARNESS</u> Main Bench page  Select 429 bus  DLP_A/B  Loaded  RCB Page	000000
	25.100	000000		Verify ARINC 429 data is transmitted on the XPDR->DLP_A/B bus.          Connect ARINC test set receiver to XPDR->DLP_C/D bus.  <div style="text-align: right;">A2A3P1-</div> XPDR->DLP_C/D_A 30 XPDR->DLP_C/D_B 31  When using the -925 harness select unloaded bus operation.	<H> <J> <2> <L> <P>          <H> <J> <3> <U> <P>		Set the ARINC test set to receive data and trap LABEL 004. The data shall be as specified.  <u>-923 RTIU HARNESS</u> Remove the 800-ohm resistor from P1Y5 and P1X5.  <u>-923 RTIU HARNESS</u> Connect 429 test set receiver input to RTIU pins P1Y4(HI) and P1X4(LO)  <u>-925 RTU HARNESS</u> Main Bench Page  Select 429 bus  DLP_C/D  Unloaded  RCB Page	000000
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
				<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>		<b>84 PAGE</b>

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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>			<b>PROCEDURE</b>			<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
T	25.110	000000		Set ARINC test set to receive Label 004.  Verify ARINC 429 data is transmitted on the XPDR->DLP_C/D bus.  <u>-923 RTIU HARNESS</u>  When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.			<u>429 Test equipment Set:</u> RX LABEL: 004  Set the ARINC test set to receive data and trap LABEL 004. The data shall be as specified.  <u>-923 RTIU HARNESS</u>  Apply an 800-ohm resistor between RTIU P1Y4 and ground. Apply an 800-ohm resistor between RTIU P1X4 and ground.  <u>-925 RTIU HARNESS</u> Main Bench page	000000
	25.120	000000		Verify ARINC 429 data is transmitted on the XPDR->DLP_C/D bus.          Set XPDR Module straps for : TCAS Installed DLP Installed RCB Altitude source.   Cycle the UUT +28V power to the selected straps.	<H> <J> <3> <L> <P>          <C> <I> <L> <A> <4> <P>		Set the ARINC test set to receive data and trap LABEL 004. The data shall be as specified.  <u>-923 RTIU HARNESS</u> Remove the 800-ohm resistor from P1Y4 and P1X4.  Configuration Page TCAS Installed DLP Installed Altitude Source RSB RCB Page  <u>RTIU:</u> On the RTIU shut the +28V switch OFF.  Wait 7 seconds minimum.  On the RTIU turn on the +28V switch.	000000
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
				<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>		<b>85 PAGE</b>

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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AB	26.000			<u>ARINC 429 BUSSES</u> <u>(-901, -906 MODULE MOD B OR LATER ONLY)</u>	Test Setup #2		<u>ARINC 429 BUSSES</u> <u>(-901, -906 MODULE MOD B OR LATER ONLY)</u>	
AF				Select Main Bench Page	<H>		Main Bench Page	
AF				Connect 429 inputs to RTIU per paragraph 3.11 Set ARINC 429 test equipment to even parity.  Set ARINC 429 test to transmit Label 203, Data D55555.			<u>429 Test equipment Set:</u> TC PARITY: EVEN TX SPEED: HIGH TX DATA: D55555	
				Apply ARINC 429 signal to TCAS->XPDR bus receiver channel and select TCAS->XPDR receiver test:  <div style="text-align: right;">A2A3P1-</div> TCAS->XPDR_A 40 TCAS->XPDR_B 41	<J> <1> <L> <A> <H> <6> <4> <00000000>		Select 429 Bus TCAS LOADED Test ARINC 429 High speed No Transmit TCAS 00000000	
	26.010	D55555C1		Verify ARINC 429 data is received on the TCAS->XPDR bus.  Apply ARINC 429 signal to DLP_A/B->XPDR bus receiver channel and select DLP_A/B->XPDR receiver test:  <div style="text-align: right;">A2A3P1-</div> DLP_A/B->XPDR_A 42 DLP_A/B->XPDR_B 43	<J> <2> <L> <A> <H> <6> <3> <00000000>		Observe the RTIU display. The ARINC WORD displayed shall be as specified.  Select 429 Bus DLP_A/B LOADED Test ARINC 429 High speed No Transmit DLP_A/B 00000000	D55555C1
AF	26.020	D55555C1		Verify ARINC 429 data is received on the DLP_A/B->XPDR bus.			Observe the RTIU display. The ARINC WORD displayed shall be as specified.	D55555C1
Honeywell				AW/CRITICAL NOTATION				
				SECURITY NOTATION		SUPPLEMENTS		86 PAGE

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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
T				Apply ARINC 429 signal to DLP_C/D->XPDR bus receiver channel and select DLP_C/D->XPDR receiver test: <div style="text-align: right;">A2A3P1-</div> DLP_C/D->XPDR_A 44 DLP_C/D->XPDR_B 45	<J> <3> <L> <A> <H> <6> <5> <00000000> <P> <C> <I> <L> <A> <4> <P>		Select 429 Bus DLP_C/D LOADED Test ARINC 429 High speed No Transmit DLP_C/D 00000000 RCB Source Page Configuration Page TCAS Installed DLP Installed Altitude Source RSB RCB Page <u>RTIU</u> : Turn the 28VDC switch on the RTIU to OFF. Wait a minimum of 7 seconds. <u>RTIU</u> : Turn the 28VDC switch on the RTIU to ON.	
T	26.030	D55555C1		Verify ARINC 429 data is received on the DLP_C/D->XPDR bus  Apply ARINC 429 signal to ADC1->XPDR bus receiver channel and select ADC1->XPDR receiver test: <div style="text-align: right;">A2A3P1-</div> ADC1->XPDR_A 32 ADC1->XPDR_B 33	<H> <J> <4> <L> <A> <L> <6> <1> <00000000>		Observe the RTIU display. The ARINC WORD displayed shall be as specified Main Bench Display Select 429 Bus ADC1 LOADED Test ARINC 429 Low speed No Transmit ADC1 00000000	D55555C1
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
T	26.040	D55555C1		Set ARINC test set to Low speed.  Verify ARINC 429 data is received on the ADC1->XPDR bus  Apply ARINC 429 signal to ADC2->XPDR bus receiver channel and select ADC2->XPDR receiver test:  <div style="text-align: right;">A2A3P1-</div> ADC2->XPDR _A      46 ADC2->XPDR _B      47	<J> <5> <L> <A> <L> <6> <9> <00000000>		<u>429 Test equipment Set:</u> TX SPEED: Low  Observe the RTIU display. The ARINC WORD displayed shall be as specified  Select 429 Bus  ADC2  LOADED  Test ARINC 429  Low speed  No Transmit  ADC2  00000000	D55555C1
	26.050	D55555C1		Verify ARINC 429 data is received on the ADC2->XPDR bus  Apply ARINC 429 signal to FMS->XPDR bus receiver channel and select FMS->XPDR receiver test:  <div style="text-align: right;">A2A3P1-</div> FMS->XPDR _A      64 FMS->XPDR _B      65	<J> <8> <L> <A> <L> <6> <8> <00000000>		Observe the RTIU display. The ARINC WORD displayed shall be as specified  Select 429 Bus  FMS  LOADED  Test ARINC 429  Low speed  No Transmit  FMS  00000000	D55555C1
	26.060	D55555C1		Verify ARINC 429 data is received on the FMS->XPDR bus			Observe the RTIU display. The ARINC WORD displayed shall be as specified	D55555C1
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
	26.070	D55555C1		Apply ARINC 429 signal to CTL1->XPDR bus receiver channel and select CTL1->XPDR receiver test: <div>A2A3P1- CTL1-&gt;XPDR _A 34 CTL1-&gt;XPDR _B 35</div>	<J> <6> <L> <A> <L> <6> <2> <00000000>		Select 429 Bus CTL1 LOADED Test ARINC 429 Low speed No Transmit CTL1 00000000 Observe the RTIU display. The ARINC WORD displayed shall be as specified	D55555C1	
	26.080	D55555C1		Verify ARINC 429 data is received on the CTL1->XPDR bus  Apply ARINC 429 signal to CTL2->XPDR bus receiver channel and select CTL2->XPDR receiver test: <div>A2A3P1- CTL2-&gt;XPDR _A 48 CTL2-&gt;XPDR _B 49</div>	<J> <7> <L> <A> <L> <6> <10> <00000000>		Select 429 Bus CTL2 LOADED Test ARINC 429 Low speed No Transmit CTL2 00000000 Observe the RTIU display. The ARINC WORD displayed shall be as specified	D55555C1	
				Apply ARINC 429 signal to RSV1->XPDR bus receiver channel and select RSV1->XPDR receiver test: <div>A2A3P1- RSV1-&gt;XPDR _A 36 RSV1-&gt;XPDR _B 37</div>	<J> <9> <L> <A> <H> <6> <6> <00000000>		Select 429 Bus RSV1 LOADED Test ARINC 429 High speed No Transmit RSV1 00000000 429 Test equipment Set: TX SPEED: High		
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
	26.090	D55555C1		Verify ARINC 429 data is received on the RSV1->XPDR bus  Apply ARINC 429 signal to RSV2->XPDR bus receiver channel and select RSV2->XPDR receiver test:  <div style="text-align: right;">A2A3P1-</div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="text-align: right; margin-right: 10px;">38</div> </div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="text-align: right; margin-right: 10px;">39</div> </div>			Observe the RTIU display. The ARINC WORD displayed shall be as specified  Select 429 Bus  RSV2  LOADED  Test ARINC 429  High speed  No Transmit  RSV2  00000000  Observe the RTIU display. The ARINC WORD displayed shall be as specified  <u>-923 RTIU HARNESS</u> Connect 429 test set receiver input to RTIU pins P1Y6(HI) and P1X6(LO)  <u>-925 RTU HARNESS</u> Select 429 bus  TCAS  Unloaded  <u>429 Test equipment Set:</u> RX LABEL: 252  Test ARINC 429  High  TCAS Bus xmit  Loop-back to TCAS  D5555555	D55555C1
	26.100	D55555C1		Verify ARINC 429 data is received on the RSV2->XPDR bus  Connect ARINC test set receiver to XPDR->TCAS bus.  <div style="text-align: right;">A2A3P1-</div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="text-align: right; margin-right: 10px;">26</div> </div> <div style="display: flex; justify-content: flex-end;"> <div style="border-bottom: 1px solid black; width: 100px;"></div> <div style="text-align: right; margin-right: 10px;">27</div> </div> When using the -925 harness select unloaded bus operation.  Set ARINC test set to receive Label 252.  Transit Label 252, Data D55555 on XPDR->TCAS bus, High speed with internal module loop-back to the TCAS->XPDR bus receiver enabled	<J> <10> <L> <A> <H> <6> <7> <00000000>  <J> <1> <U>  <A> <H> <2> <14> <D5555555>		Observe the RTIU display. The ARINC WORD displayed shall be as specified  <u>-923 RTIU HARNESS</u> Connect 429 test set receiver input to RTIU pins P1Y6(HI) and P1X6(LO)  <u>-925 RTU HARNESS</u> Select 429 bus  TCAS  Unloaded  <u>429 Test equipment Set:</u> RX LABEL: 252  Test ARINC 429  High  TCAS Bus xmit  Loop-back to TCAS  D5555555	D55555C1

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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	
P	26.110	D55555		<p>Verify ARINC 429 data is transmitted on the XPDR-&gt;TCAS bus.</p> <p><u>-923 RTIU HARNESS</u></p> <p>When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.</p>			<p>On the ARINC test set trap Label 252. The ARINC data displayed shall be as specified</p> <p><u>-923 RTIU HARNESS</u></p> <p>Apply an 800-ohm resistor between RTIU P1Y6 and ground. Apply an 800-ohm resistor between RTIU P1X6 and ground.</p> <p><u>-925 RTIU HARNESS</u></p> <p>Select 429 bus</p>	D55555
	26.120	D55555		<p>Verify ARINC 429 data is transmitted on the XPDR-&gt;TCAS bus.</p>	<J>		<p>On the ARINC test set trap Label 252. The data displayed shall be as specified</p>	D55555
	26.130	8.0 to 12.0 msec (10.0 nominal)		<p>Verify ARINC 429 data transmission rate on the XPDR-&gt;TCAS bus.</p>	<1>		<p>On the ARINC test set scroll to find transmission speed. The rate displayed shall be as specified</p>	8.0 to 12.0 msec (10.0 nominal)
	26.140	D5555555		<p>Verify ARINC 429 data is transmitted on the TCAS-&gt;XPDR bus (internal loop-back).</p> <p>Connect ARINC test set receiver to XPDR-&gt;DLP_A/B bus.</p> <p style="text-align: right;">A2A3P1-</p> <p>XPDR-&gt;DLP_A/B_A 28</p> <p>XPDR-&gt;DLP_A/B_B 29</p>	<L>		<p>Observe the RTIU display. The ARINC WORD displayed shall be as specified</p> <p><u>-923 RTIU HARNESS</u></p> <p>Remove the 800-ohm resistors from P1Y6 and P1X6.</p> <p><u>-923 RTIU HARNESS</u></p> <p>Connect 429 test set receiver input to RTIU pins P1Y5(HI) and P1X5(LO)</p>	D5555555
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				When using the -925 harness select unloaded bus operation.	<J>		<u>-925 RTU HARNESS</u> Select 429 bus	
					<2>		DLP_A/B	
					<U>		Unloaded	
				Transit Label 252, Data D55555 on the XPDR->DLP_A/B bus, High speed with internal module loop-back to the XPDR->DLP_A/B bus receiver enabled.	<A>		Test ARINC 429	
					<H>		High	
					<1>		DLP_A/B bus xmit	
					<13>		Loop-back to DLP_A.B	
					<D5555555>		D5555555	
	26.150	D55555		Verify ARINC 429 data is transmitted on the XPDR->DLP_A/B bus.			On the ARINC test set trap Label 252. The data displayed shall be as specified	D55555
				<u>-923 RTIU HARNESS</u>			<u>-923 RTIU HARNESS</u>	
				When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.			Apply an 800-ohm resistor between RTIU P1Y5 and ground. Apply an 800-ohm resistor between RTIU P1X5 and ground.	
					<J>		<u>-925 RTIU HARNESS</u> Select 429 bus	
					<2>		DLP_A/B	
					<L>		Loaded	
	26.160	D55555		Verify ARINC 429 data is transmitted on the XPDR->DLP_A/B bus.			On the ARINC test set trap Label 252. The data displayed shall be as specified	D55555
	26.170	8.0 to 12.0 msec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR->TCAS bus.			On the ARINC test set scroll to find transmission speed. The rate displayed shall be as specified	8.0 to 12.0 msec (10.0 nominal)
	26.180	D5555555		Verify ARINC 429 data is transmitted on the TCAS->XPDR bus (internal loop-back).			Observe the RTIU display. The ARINC WORD displayed shall be as specified	D5555555
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P				Connect ARINC test set receiver to XPDR->DLP_C/D bus.  A2A3P1- XPDR->DLP_C/D_A 30 XPDR->DLP_C/D_B 31  When using the -925 harness select unloaded bus operation.  Transit Label 252, Data D55555 on the XPDR->DLP_C/D bus, High speed with internal module loop-back to the XPDR->DLP_C/D bus receiver enabled.  Verify ARINC 429 data is transmitted on the XPDR->DLP_C/D bus.  -923 RTIU HARNESS When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.	<J>  <3>  <U>  <A>  <H>  <3>  <15>  <D5555555>		-923 RTIU HARNESS Remove the 800-ohm resistors from P1Y5 and P1X5.  -923 RTIU HARNESS Connect 429 test set receiver input to RTIU pins P1Y4(HI) and P1X4(LO)  -925 RTU HARNESS Select 429 bus  DLP_C/D Unloaded Test ARINC 429 High DLP_C/D bus xmit Loop-back to DLP_C/D D5555555  On the ARINC test set trap Label 252. The data displayed shall be as specified  -923 RTIU HARNESS Apply an 800-ohm resistor between RTIU P1Y4 and ground. Apply an 800-ohm resistor between RTIU P1X4 and ground.  -925 RTIU HARNESS Select 429 bus  DLP_C/D Loaded  On the ARINC test set trap Label 252. The data displayed shall be as specified	
	26.190	D55555						D55555
	26.200	D55555						D55555
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REV	TEST	SPECIFICATION				PROCEDURE				SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION		SWITCH POS	C	WORK STEPS		MFG LIMITS	
P											
	26.210	8.0 to 12.0 msec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR->DLP_C/D bus.				On the ARINC test set scroll to find transmission speed. The rate displayed shall be as specified		8.0 to 12.0 msec (10.0 nominal)	
	26.220	D5555555		Verify ARINC 429 data is transmitted on the DLP_C/D->XPDR bus (internal loop-back).				Observe the RTIU display. The ARINC WORD displayed shall be as specified		D5555555	
				Apply ARINC 429 signal to XPDR->RSV1 bus receiver channel and select XPDR->RSV1 receiver test:				<u>-923 RTIU HARNESS</u> Remove the 800-ohm resistors from P1Y4 and P1X4.			
				<u>A2A3P1-</u> XPDR->RSV1_A 50 XPDR->RSV1_B 51				<u>-923 RTIU HARNESS</u> Connect 429 test set receiver input to RTIU pins P1Y3(HI) and P1X3(LO)			
				When using the -925 harness select unloaded bus operation.		<J>		<u>-925 RTU HARNESS</u> Select 429 bus			
						<9>		RSV1			
						<U>		Unloaded			
				Transit Label 252, Data D55555 on the XPDR->RSV1 bus, High speed with internal module loop-back to the XPDR->RSV(1/2) bus receiver enabled.		<A>		Test ARINC 429			
						<H>		High			
						<4>		RSV1 bus xmit			
						<16>		Loop-back to RSV1/2			
						<D5555555>		D5555555			
	26.230	D55555		Verify ARINC 429 data is transmitted on the XPDR->RSV1 bus.				On the ARINC test set trap Label 252. The data displayed shall be as specified		D55555	
				<u>-923 RTIU HARNESS</u> When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.				<u>-923 RTIU HARNESS</u> Apply an 800-ohm resistor between RTIU P1Y3 and ground. Apply an 800-ohm resistor between RTIU P1X3 and ground.			
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
T	26.240	D55555		Verify ARINC 429 data is transmitted on the XPDR->RSV1 bus.	<J>		<u>-925 RTIU HARNESS</u> Select 429 bus	D55555
	26.250	8.0 to 12.0 msec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR-> RSV1 bus.	<9>		RSV1	8.0 to 12.0 msec (10.0 nominal)
	26.260	D5555555		Verify ARINC 429 data is transmitted on the RSV1->XPDR bus (internal loop-back).	<L>		Loaded	D5555555
				On the ARINC test set trap Label 252. The data displayed shall be as specified  On the ARINC test set scroll to find transmission speed. The rate displayed shall be as specified  Observe the RTIU display. The ARINC WORD displayed shall be as specified  <u>-923 RTIU HARNESS</u> Remove the 800-ohm resistors from P1Y3 and P1X3.  <u>-923 RTIU HARNESS</u> Connect 429 test set receiver input to RTIU pins P1Y2(HI) and P1X2(LO)				
				Apply ARINC 429 signal to XPDR->RSV1 bus receiver channel and select XPDR->RSV2 receiver test:  <u>A2A3P1-</u> XPDR->RSV2_A 38 XPDR->RSV2_B 39  When using the -925 harness select unloaded bus operation.	<J>		<u>-925 RTU HARNESS</u> Select 429 bus	
				Transit Label 252, Data D55555 on the XPDR->RSV2 bus, High speed with internal module loop-back to the XPDR->RSV(1/2) bus receiver enabled.	<10>		RSV2	
					<U>		Unloaded	
					<A>		Test ARINC 429	
					<H>		High	
					<5>		RSV2 bus xmit	
					<16>		Loop-back to RSV1/2	
					<D5555555>		D5555555	
	26.270	D55555		Verify ARINC 429 data is transmitted on the XPDR->RSV2 bus.			On the ARINC test set trap Label 252. The data displayed shall be as specified	D55555

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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P				<u>-923 RTIU HARNESS</u> When using the -923 RTIU harnesses connect an 800-ohm load from HI and LO input pins to ground.			<u>-923 RTIU HARNESS</u> Apply an 800-ohm resistor between RTIU P1Y2 and ground. Apply an 800-ohm resistor between RTIU P1X2 and ground.	
	26.280	D55555		Verify ARINC 429 data is transmitted on the XPDR->RSV2 bus.	<J> <10> <L>		<u>-925 RTIU HARNESS</u> Select 429 bus RSV2 Loaded On the ARINC test set trap Label 252. The data displayed shall be as specified	D55555
	26.290	8.0 to 12.0 msec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR-> RSV2 bus.			On the ARINC test set scroll to find transmission speed. The rate displayed shall be as specified	8.0 to 12.0 msec (10.0 nominal)
	26.300	D5555555		Verify ARINC 429 data is transmitted on the RSV2->XPDR bus (internal loop-back).			Observe the RTIU display. The ARINC WORD displayed shall be as specified	D5555555
				Return to RCB Page	<P>		<u>-923 RTIU HARNESS</u> Remove the 800-ohm resistors from P1Y2 and P1X2. RCB Page	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AC	27.000			SET TRANSPONDER TYPE  For -112 or Higher RTIU Software  <del>For -902, -903, -904, -906, -855, -856, -857, -865, -866, -867, -875 UNITS ONLY</del>  Go to calibration page.	Test Setup #2		SET TRANSPONDER TYPE  For -112 or Higher RTIU Software  <del>For -902, -903, -904, -906, -855, -856, -857, -865, -866, -867, -875 UNITS ONLY</del>  Main Bench page Calibration page Transponder Type.		
AE									
AE									
AE				Program The TRANSPONDER TYPE  <del>-902, -855 -865, -875 UNITS ONLY</del>	<H>				
AE					<K>				
AE					<Q>				
AE				For the XS-852A, XS-855, XS-866A, XS-857 select type 0.	<0>		RTIU: Diversity Mode S		
AE				<del>-903, -856, -866 UNITS ONLY</del>			<del>-903, -856, -866 UNITS ONLY</del>		
AE				For the XS-852B, XS-855B, XS865B select type 1	<1>		Mode S		
AE				<del>-904, -906, -857, -867 UNITS ONLY</del>			<del>-904, -906, -857, -867 UNITS ONLY</del>		
AE				For the XS-852C, XS-852D, XS-855C, XS-856C select type 2	<2>		ATCRBS		
AE				<del>(-902, -903, -904, -906, -855, -856, -857, -865, -866, -867, -875)</del>			<del>(-902, -903, -904, -906, -855, -856, -857-865, -866, -867, -875)</del>		
AE				Read CAL Data	<B>		Read CAL Data		
AE				Program the ATCRBS Reply Rate Limit.	<L>		ATCRBS Rate Limit		
AE				<del>-902, -903, -855, -856, -875, -866, -865 UNITS ONLY</del>			<del>-902, -903, -855, -856, -875, -866, -865 UNITS ONLY</del>		
AE									

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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AE	27.010	Programmed CRC = Actual CRC	C	For the XS-852A, 852B, XS-855, XS-855B, XS-856A, XS-856B, XS-857 set the rate to 650	<650>		650 replies/second.	Programmed CRC = Actual CRC
AE								
AE								
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AE								
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
P	28.000			<u>CLEAR MAINTENANCE LOG AND RAD SOFTWARE PART NO.</u>  Clear the AIRCRAFT and TROUBLESHOOT maintenance log and the power-on count.	Test Setup #1  <H> <M> <M> <M> <C>		<u>CLEAR MAINTENANCE LOG AND RAD SOFTWARE PART NO.</u>  Main Bench Page Clear Main Log/POC Maint Log Clear Maint Log/POC POC		
	28.010	PASS		Verify the Flash Program software version is correct for the module part number and MOD status.	<B>		Observer the RTIU display. The SW VERSION shall match the software version listed in Table 1 of this document for the module part number and MOD status.	PASS	
	28.020	PASS		Verify the BOOT (UV) Program software version is correct for the module part number and MOD status.	<B>		Observe the RTIU display. The SW VERSION UV shall match the software version listed in Table 1 of this document for the module part number and MOD status.	PASS	
	28.030	0		Go to the Troubleshoot Maintenance Log.  Verify the POC in the maintenance log is set to 0.	<P> <M> <T>		RCB Page Maintenance Page Troubleshoot Log Observe the RTIU display. The CUR POC display shall be as specified.	0	
	28.040	END LIST		Verify the Troubleshoot maintenance log is cleared.  Return to the RCB page.	<P>		Observe the RTIU display. The first row in the Description Column display shall read as specified.  RCB Page	END LIST	

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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AB	29.000			<b>TRANSPONDER ON/OFF DISCRETE AND COLD/WARM START OPERATION</b>  Apply a ground to XPDR_OFF(NO) discrete input, wait 5 to 7 seconds and remove ground from the discrete.  <u>XPDR OFF(NO) PIN:</u> -901, A2A3P1-74 -906, A2A3P1-74 -902: A2A2J4-30 -855: A2A7J3-23 RTIU: P2K6  Go to the Troubleshoot Maintenance Log page	Test Setup #1  <N> <O>  <O> <P> <M> <T>		<b>TRANSPONDER ON/OFF DISCRETE AND COLD/WARM START OPERATION</b>  Discrete/Analog Page XPDR ON/OFF: OFF Wait 5 to 7 Seconds.  XPDR ON/OFF: ON RCB Page Maintenance Page Troubleshoot Page	
	29.010	1		Verify the Power-On Count was incremented by 1.  Go to the Discrete Analog Page.  Apply a ground to XPDR_OFF(NO) discrete input, wait less than 1 second and remove ground from the discrete.  <u>XPDR OFF(NO) PIN:</u> -901: A2A3P1-74 -902: A2A2J4-30 -855: A2A7J3-23 RTIU: P2K6  Go to the Troubleshoot Maintenance Log page.	<P> <N> <O>  <O> <P> <M> <T>		The CUR POC display shall be as specified.  RCB Page Discrete/Analog Page XPDR ON/OFF: OFF Wait less than 1 second  XPDR ON/OFF: ON RCB Page Maintenance Page Troubleshoot Log	1
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	29.020	1		Verify the Power-On county was NOT incremented.  Return to RCB Page. Go to the Bench Analog Page. Disable Squitter.  Return to RCB Page  Set the transponder ATC MODE to ON+A.	<P> <H> <N> <Q> <D>  <P> <P>  <X> <5>		The CUR POC display shall be as specified.  RCB Page Main Bench Page Bench Analog Page Squitter Disabled  Main Bench Page RCB Page  ATC Mode ON+A	1
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AB AE AE	30.000			<u>ATCRBS REPLY RATE LIMIT, CODE VERIFICATON, REPLY DELAY AND JITTER</u>  Interrogate the transponder with ATCRBS MODE A interrogations.  <u>-855, -856, -901, -902, -903, -865, -866, -875</u> <u>Modules only:</u>  For XS-852/852A/852B, XS-855, XS-855B, XS-865A, XS-865B, XS-857 modules set PRF to 1000	Test Setup #1		<u>ATCRBS REPLY RATE LIMIT, CODE VERIFICATON, REPLY DELAY AND JITTER</u>  Set the ground station test equipment to ATC (ATCRBS ONLY) mode.  <u>-855, -856, -901, -902, -903, -865, -866, -875</u> <u>Modules only:</u>  Set the ground station test equipment PRF: 1000		
	AE			<u>-857, -904, -906, -867</u> <u>Modules only:</u>  For XS-852C, XS-852D, XS-855C, XS-856C module set PRF to 2000			<u>-857, -904, -906, -867</u> <u>Modules only:</u>  Set the ground station test equipment PRF/SQTR: 2000		
	AA								
AE	30.010	55% TO 75% (65% nominal)		Verify the transponder limits replies to ATCRBS interrogations as specified.          Interrogate the transponder with 600 Mode A interrogations. Set ATC CODE to 5252	<A> <5252>		On the ground station test equipment the % reply shall be as specified.  <u>NOTE:</u> On IFR equipment the reading is taken from the ATC 1400.  Set the ground station test equipment PRF/SQTR: 600 ATC CODE 5252	60% to 70% (65% nominal)	
	30.020	5252		Verify ATC CODE of Mode A reply is as specified.          Set ATC CODE to 2525	<A> <2525>		Observe the ground station test equipment. The ATC CODE displayed shall be as specified. ATC CODE 2525	5252	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AE	30.030	2525		Verify ATC CODE of Mode A reply is as specified.			Observe the ground station test equipment. The ATC CODE displayed shall be as specified.	2525	
	30.040	ID appears		Set the IDENT of the Mode A reply.  Verify the IDENT bit appears in the Mode A reply.  <u>For all Units except -855, -856, -857, -865, -866, -867, -875</u>  Interrogate the transponder with 600 Mode C interrogations/second  Set ARINC test set to transmit Altitude of 110,600 feet.  Select Main Bench Page. Apply ARINC 429 signal to ADC1->XPDR bus receiver channel.  Configure transponder module for: ARINC 429 ALT SOURCE  Cycle +28 volt power off.  Cycle +28 volt power on.	<I>		IDENT  Observe the ground station test equipment. The ATC code shall be as specified.  <u>For all Units except -855, -856, -857, -865, -866, -867, -875</u>  Set the ground station test equipment to XPDR MODE: C  <u>429 test set:</u> TX DATA ED8040  Main Bench Page Select 429 BUS (ADC1) LOADED RCB Page  Configuration Page Altitude Source 429  <u>RTIU:</u> 28 Volt switch OFF  Wait a minimum of 7 seconds  <u>RTIU:</u> 28 Volt switch ON	ID appears	
AA AE AE	30.050	3062		Verify ALT CODE of Mode C reply is as specified  Set ARINC test set to transmit Altitude of 4,200 feet.	<H> <J> <4> <L> <P>  <C> <A> <2>		Observe the ground station test equipment. The ATC CODE displayed shall be sas specified.  <u>429 test set:</u> TX DATA 608340	3062	
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AE	30.060	4710		Verify ALT CODE of Mode C reply is as specified			Observe the ground station test equipment. The ATC CODE displayed shall be as specified.	4710	
				Configure the transponder module for: RSB ALTITUDE SOURCE.	<A> <4>		Altitude Source RSB		
				Cycle +28 volt power off.			RTIU: 28 Volt switch OFF		
				Cycle +28 volt power on.			Wait a minimum of 7 seconds		
				Return to RCB page.	<P>		RTIU: 28 Volt switch ON		
				<b>For All Units</b>			RCB Page		
				Disable Squitter	<H> <N> <Q> <D>		Main Bench Page Bench Analog Page Squitter Disable		
				Return to RCB Page.	<P> <P>		Main Bench Page RCB Page		
	30.070	2.50 to 3.50 uSec (3.10 nominal)		Measure the P3 to F1 ATCRBS reply delay on the BOTTOM receiver channel.			Observe the ground station test equipment. The reply delay shall be as specified.	2.95 to 3.25 uSec (3.10 nominal)	
				Set the test equipment to measure jitter on F1 of the ATCRBS reply relative to interrogations.			Oscilloscope: Set oscilloscope to use B-delayed function. Connect Ch1 to XMTR DET of ground station test equipment. Ch2: OFF EXT SYNC: ground station GEN DET jack. A-SWP: 20 uSec B-SWP: 50 nSec B-Delayed mode.		

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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
	30.080	Less than or equal to 200 nSec		Measure F1 ATCRBS reply jitter (peak to peak variation) on the BOTTOM receiver channel.			<u>Oscilloscope:</u> Set the B-Delay to measure the F1 pulse reply jitter at 50% voltage level of the rising edge of the F1 pulse. The F1 pulse peak reply jitter (maximum reply delay – minimum reply delay) shall be as specified.	Less than or equal to 160 nSec
T	30.090	2.50 to 3.50 uSec (3.10 nominal)		Connect UUT TOP antenna to RF I/O port.  Measure the P3 to F1 ATCRBS reply delay on the TOP receiver channel.  Re-connect UUT BOTTOM antenna cable to RF I/O port.  Interrogate the transponder with 60 Mode S Interrogations/seconds			On the ground station test equipment connect UUT TOP antenna to RF I/O port.  Observe the ground station test equipment. The reply delay shall be as specified.  On the ground station test equipment re-connect the UUT BOTTOM antenna to the RF I/O and UUT TOP antenna to the other RF port.  Set ground station test equipment PRF/SQTR: 60, MODE S Only.	2.95 to 3.25 uSec (3.10 nominal)
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REV	TEST	SPECIFICATION			PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS
T	31.000			<u>DISCRETE INPUTS/OUTPUTS</u> <u>-902, -903, -904 MODULES ONLY</u> Select Bench IAC Discrete Display  Write alternating OPEN(0)/GROUND(1) patterns to the discrete inputs for INPUT PORT. Ports are listed in order from Bit 7 to Bit 0.  <u>Input Port            A2A2J4-</u> RESERVED - RESERVED - XPDR ACTIVE MON - RSV INPUT(NO) 27 ALT SRC SEL2(NO) 2 RESERVED - RESERVED - RESERVED -  Set XPDR ACTIVE(NO) discrete output to OPEN(0) on OUTPUT PORT.  <u>Output Port            A2A2J4</u> RESERVED - XPDR ACTIVE (NO) 21 RESERVED - RESERVED - RESERVED - RESERVED - RESERVED - RESERVED -	Test Setup #1  <H> <N> <A>  <I> <00001000>  <O> <00000000>	<u>DISCRETE INPUTS/OUTPUTS</u> <u>-902, -903, -904 MODULES ONLY</u> Main Bench Page Bench Analog Page IAC Discrete Page  Change Input Port 00001000  Change Output Port 00000000	
	31.010	PORT=110		Verify the correct values are read from INPUT PORT.		The XPDR column on the RTIU display for INPUT PORT BITS 5 to 3 shall be as specified. (Bit 5 on the RTIU corresponds to first digit in LIMITS COLUMN).	PORT- 110
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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AE AE	31.020	PORT= 101		Reverse OPEN/GROUND pattern written in the previous test.	<I> <00010000>		Change Input Port 00010000	PORT= 101	
	31.030	XPDR ACTIVE(NO)= 0		Verify the correct values are read form INPUT PORT.			The XPDR COLUMN on the RTIU display for INPUT PORT shall be as specified.	XPDR ACTIVE(NO)= 0	
	31.040	XPDR ACTIVE(NO)= 1		Verify XPDR_ACTIVE(NO) discrete is in the correct state.			The RTIU column on the RTIU display for OUTPUT PORT, XPDER ACTIVE(NO) discrete output shall be as specified.	XPDR ACTIVE(NO)= 0	
	31.050	END LIST		Set XPDR ACTIVE(NO) discrete output to GROUND(1) on Output Port.	<O> <01000000>		Change Output Port 01000000	XPDR ACTIVE(NO)= 1	
				Verify XPDR_ACTIVE(NO) discrete is in the correct state.			The RTIU column on the RTIU display for OUTPUT PORT, XPDER ACTIVE(NO) discrete output shall be as specified.	XPDR ACTIVE(NO)= 1	
				Select Troubleshoot Maintenance Log	<P> <P> <P> <M> <T>		Bench Analog page Main Bench Page RCB Page Maintenance Page Troubleshoot	END LIST	
				Verify no errors for the discrete outputs are logged in the Troubleshoot maintenance log.			The first row in the Discript Column display shall be as specified.		
				Return to RCB Page.	<P>		RCB Page		
				<u>-855, -856, -857, -865, -866, -867, -875</u> <u>MODULE ONLY</u>			<u>-855, -856, -857, -865, -866, -867, -875</u> <u>MODULE ONLY</u>		
				Select Bench IAC Discrete Display	<H> <N> <A>		Main Bench Page Bench Analog Page IAC Discrete Page		
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
T				Write alternating OPEN(0)/GROUND(1) patterns to the discrete inputs for INPUT PORT. Ports are listed in order from Bit 7 to Bit 0.	<I> <00010000>		Change Input Port 00010000	
				Input Port A2A7J3- RESERVED - RESERVED - XPDR ACTIVE MON - RSV INPUT(NO) - ALT SRC SEL2(NO) 24 RESERVED - RESERVED - RESERVED -				
				Set XPDR ACTIVE(NO) discrete output to OPEN(0) on OUTPUT PORT.	<O> <00000000>		Change Output Port 00000000	
				Output Port A2A2J4 RESERVED - XPDR ACTIVE (NO) 5 RESERVED - RESERVED - RESERVED - RESERVED - RESERVED - RESERVED -				
	31.060	PORT= 111		Verify the correct values are read from INPUT PORT.			The XPDR column on the RTIU display for INPUT PORT BITS 5 to 3 shall be as specified. (Bit 5 on the RTIU corresponds to first digit in LIMITS COLUMN).	PORT= 111
	31.070	XPDR ACTIVE(NO)= 0		Verify XPDR_ACTIVE(NO) discrete is in the correct state.			The RTIU column on the RTIU display for OUTPUT PORT, XPDER ACTIVE(NO) discrete output shall be as specified.	XPDR ACTIVE(NO)= 0
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>			<b>PROCEDURE</b>			<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P	31.080	XPDR ACTIVE(NO)=1		Set XPDR ACTIVE(NO) discrete output to GROUND(1) on Output Port.  Verify XPDR_ACTIVE(NO) discrete is in the correct state.	<O> <01000000>		Change Output Port 01000000  The RTIU column on the RTIU display for OUTPUT PORT, XPDER ACTIVE(NO) discrete output shall be as specified.	XPDR ACTIVE(NO)=1
	31.090	END LIST		Select Troubleshoot Maintenance Log  Verify no errors for the discrete outputs are logged in the Troubleshoot maintenance log.  Return to RCB Page.	<P> <P> <P> <M> <T>		Bench Analog page Main Bench Page RCB Page Maintenance Page Troubleshoot  The first row in the Discript Column display shall be as specified.	END LIST
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REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AE AE	32.030	555555C1		<p>Apply ARINC 429 signal to DLP C/D -&gt;XPDR bus receiver channel and select DLP C/D -&gt;XPDR receiver test:</p> <p><u>FOR -902, -903, -904 ONLY</u></p> <p>429 Signal A2A2J4</p> <p>DLP_CD-&gt; XPDR_A 9</p> <p>DLP_CD-&gt; XPDR_B 10</p> <p><u>FOR -855, -856, -857, -865, -866, -867, -875 MODULE ONLY</u></p> <p>429 Signal A2A2J4</p> <p>DLP_CD-&gt; XPDR_A 13</p> <p>DLP_CD-&gt; XPDR_B 14</p> <p>Set XPDR to ARINC 429, HIGH SPEED, NO TRANSMIT, DLP C/D, DATA 00000000</p> <p>&lt;A&gt; &lt;H&gt; &lt;6&gt; &lt;5&gt; &lt;00000000&gt;</p> <p>Verify ARINC 429 data is received on the DLP_C/D-&gt;XPDR bus.</p> <p><u>FOR -902, -903, -904 MODULES ONLY</u></p> <p>Set ARINC test set to transmit LOW speed data.</p> <p>Apply ARINC 429 signal to ADC1 -&gt;XPDR bus receiver channel and select ADC1 -&gt;XPDR receiver test:</p> <p><u>FOR -902, -903, -904 ONLY</u></p> <p>429 Signal A2A2J4</p> <p>ADC1-&gt; XPDR_A 11</p> <p>ADC1 -&gt; XPDR_B 12</p>			<p>Connect 429 test set to RTIU P1G6 (H) and P1H6 (L).</p> <p>Test ARINC 429 HIGH speed NO Transmit DLP C/D 00000000</p> <p>The ARINC WORD display on the RTIU shall be as specified.</p> <p><u>FOR -902, -903, -904 MODULES ONLY</u></p> <p><u>429 test set:</u> TX Speed LOW</p> <p>Connect 429 test set to RTIU P1G6 (H) and P1H6 (L).</p>	555555C1
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<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P	32.040	555555C1		Set XPDR to ARINC 429, LOW SPEED, NO TRANSMIT, ADC1, DATA 00000000  Verify ARINC 429 data is received on the ADC1->XPDR bus.  Apply ARINC 429 signal to ADC2 ->XPDR bus receiver channel and select ADC2 ->XPDR receiver test:  <u>FOR -902, -903, -904 ONLY</u>  <div style="display: flex; justify-content: space-between; font-size: small;"> <span>429 Signal</span> <span>A2A2J4</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>ADC2-&gt; XPDR_A</span> <span>13</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> <span>ADC2 -&gt; XPDR_B</span> <span>14</span> </div>	<A> <L> <6> <1> <00000000>		Test ARINC 429 LOW speed NO Transmit ADC1 00000000  The ARINC WORD display on the RTIU shall be as specified.  Connect 429 test set to RTIU P1G6 (H) and P1H6 (L).	555555C1
	32.050	555555C1		Set XPDR to ARINC 429, LOW SPEED, NO TRANSMIT, ADC2, DATA 00000000  Verify ARINC 429 data is received on the ADC2->XPDR bus.  <u>XPDR TX BUSES</u>	<A> <L> <6> <9> <00000000>		Test ARINC 429 LOW speed NO Transmit ADC2 00000000  The ARINC WORD display on the RTIU shall be as specified.  <u>XPDR TX BUSES</u>	555555C1

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REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
AE				Connect ARINC test set receiver to XPDR->TCAS bus. <u>FOR -902, -903, -904 ONLY</u> 429 Signal A2A2J4 XPDR-> TCAS_A 15 XPDR -> TCAS_B 16  <u>FOR -855, -856, -857, -865, -866, -867, -875 ONLY</u> 429 Signal A2A2J4 XPDR-> TCAS_A 11 XPDR -> TCAS_B 12			Connect 429 test set to RTIU P1Y6 (H) and P1X6 (L).	
	32.060	D55555		Set 429-test receiver to receiver Label 252.  Set XPDR to transmit Label 252, Data D55555 on the XPDR->TCAS bus, High speed with internal module loop-back to the TCAS-> XPDR bus receiver enabled.  Verify ARINC 429 data is transmitted on the XPDR->TCAS bus.	<A> <H> <2> <14> <D5555555>		On the 429 tester set to RX position, LABEL 252  Test ARINC 429 HIGH (speed) TCAS Bus Xmit Loop-back to TCAS D5555555  On the 429 tester trap LABEL 252. The data for this label shall be as specified.	D55555
	32.070	D55555		Apply an 800-ohm load on each bus output to ground.  Verify ARINCE 429 is transmitted on the XPDR->TCAS bus with a maximum load applied.			Apply an 800-ohm resistor between RTIU pin P1Y6 and ground. Apply an 800-ohm resistor between RTIU pin P1X6 and ground.  On the 429 test set trap label 252. The data shall be as specified.	D55555
	32.080	8.0 to 12.0 mSec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR->TCAS bus.			On the 429 test set the transmission RATE function. The reading shall be as specified.	8.0 to 12.0 mSec (10.0 nominal)
Honeywell				AW/CRITICAL NOTATION				
				SECURITY NOTATION		SUPPLEMENTS		114 PAGE

<b>ENGINEERING SPECIFICATION</b>				<b>SECURITY NOTATION</b>		<b>SPEC NO.</b> IT7517400 <b>CAGE CODE</b> 55939		SEE PAGE INDEX FOR THIS SHEET REV LETTER <b>REV LTR</b>
						SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.		
<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>				<b>PROCEDURE</b>		<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
AE AE	32.090	D5555555		Verify ARIC 429 data is received on the TCAS->XPDR bus (internal loop-back).  Connect ARINC test set receiver to XPDR-> DLP_A/B bus. <u>FOR -902, -903, -904 ONLY</u>  <div> <div>429 Signal</div> <div>A2A2J4</div> </div> <div> <div>XPDR-&gt; DLP_A/B</div> <div>3</div> </div> <div> <div>XPDR-&gt; DLP_A/B</div> <div>4</div> </div> <u>FOR -855, -856, -857, -865, -866, -867, -875 ONLY</u>  <div> <div>429 Signal</div> <div>A2A2J4</div> </div> <div> <div>XPDR-&gt; DLP_A/B</div> <div>21</div> </div> <div> <div>XPDR-&gt; DLP_A/B</div> <div>22</div> </div> Set XPDR to transmit Label 252, Data D55555 on the XPDR->DLP_A/B bus, High speed with internal module loop-back to the DLP_A/B-> XPDR bus receiver enabled.			The ARINC WORD display on the RTIU shall be as specified.  Remove the 800 resistors from RTIU P1Y6 and P1X6.  Connect 429 test set to RTIU P1Y5 (H) and P1X5 (L).  Test ARINC 429 HIGH (speed) DLP_A/B Bus Xmit Loop-back to DLP_A/B D5555555	D5555555
	32.100	D55555		Verify ARINC 429 data is transmitted on the XPDR->DLP_A/B bus.  Apply an 800-ohm load on each bus output to ground.	<A> <H> <1> <13> <D5555555>		On the 429 test set trap label 252. The data shall be as specified.  Apply an 800-ohm resistor between RTIU pin P1Y5 and ground. Apply an 800-ohm resistor between RTIU pin P1X5 and ground.	D55555
R	32.110	D55555		Verify ARINCE 429 is transmitted on the XPDR->DLP_A/B bus with a maximum load applied.			On the 429 test set trap label 252. The data shall be as specified.	D55555
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
				<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>		<b>115 PAGE</b>



ENGINEERING SPECIFICATION				SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER	
						CAGE CODE 55939		REV LTR	
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.									
REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
R	32.120	8.0 to 12.0 mSec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR->DLP_A/B bus.			On the 429 test set the transmission RATE function. The reading shall be as specified.	8.0 to 12.0 mSec (10.0 nominal)	
R	32.130	D5555555		Verify ARIC 429 data is received on the DLP_A/B->XPDR bus (internal loop-back).			The ARINC WORD display on the RTIU shall be as specified.	D5555555	
AE AE				Connect ARINC test set receiver to XPDR-> DLP_C/D bus.			Remove the 800 resistors from RTIU P1Y5 and P1X5.		
				FOR -902, -903, -904 ONLY			Connect 429 test set to RTIU P1Y4 (H) and P1X4 (L).		
				429 Signal A2A2J4					
				XPDR-> DLP_C/D 7					
				XPDR -> DLP_C/D 8					
				FOR -855, -856, -857, -865, -866, -867, -875 ONLY					
				429 Signal A2A2J4					
				XPDR-> DLP_C/D 17					
				XPDR -> DLP_C/D 18					
				Set XPDR to transmit Label 252, Data D55555 on the XPDR->DLP_C/D bus, High speed with internal module loop-back to the DLP_C/D> XPDR bus receiver enabled.	<A> <H> <3> <15> <D5555555>		Test ARINC 429 HIGH (speed) DLP_C/D Bus Xmit Loop-back to DLP_C/D D5555555		
R	32.140	D55555		Verify ARINC 429 data is transmitted on the XPDR->DLP_A/B bus.			On the 429 test set trap label 252. The data shall be as specified.	D55555	
				Apply an 800-ohm load on each bus output to ground.			Apply an 800-ohm resistor between RTIU pin P1Y4 and ground. Apply an 800-ohm resistor between RTIU pin P1X4 and ground.		
Honeywell				AW/CRITICAL NOTATION					
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						<b>CAGE CODE</b> 55939		
				SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
<b>REV</b>	<b>TEST</b>	<b>SPECIFICATION</b>			<b>PROCEDURE</b>			<b>SPECIFICATION</b>
<b>LTR</b>	<b>NO.</b>	<b>OPR LIMITS</b>	<b>C</b>	<b>TEST DESCRIPTION</b>	<b>SWITCH POS</b>	<b>C</b>	<b>WORK STEPS</b>	<b>MFG LIMITS</b>
P	32.150	D55555		Verify ARINCE 429 is transmitted on the XPDR->DLP_C/D bus with a maximum load applied.			On the 429 test set trap label 252. The data shall be as specified.	D55555
	32.160	8.0 to 12.0 mSec (10.0 nominal)		Verify ARINC 429 data transmission rate on the XPDR->DLP_C/D bus.			On the 429 test set the transmission RATE function. The reading shall be as specified.	8.0 to 12.0 mSec (10.0 nominal)
	32.170	D5555555		Verify ARIC 429 data is received on the DLP_C/D->XPDR bus (internal loop-back).			The ARINC WORD display on the RTIU shall be as specified.  Remove the 800 resistors from RTIU P1Y4and P1X4.  RCB Page	D5555555
					<P>			
<b>Honeywell</b>				<b>AW/CRITICAL NOTATION</b>				
				<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>		<b>117 PAGE</b>

ENGINEERING SPECIFICATION				SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER	
						CAGE CODE 55939		REV LTR	
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.									
REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AB AE	33.000			<u>ATCRBS/MODE S TRANSPONDER OPERATION</u>  Remove +28 V power from the module.  Wait 7 seconds minimum  Reapply +28 V power to the module  <u>-855, -856, -901, -902, -903, -865, -866, -875 MODULES ONLY</u>	Test Setup #2		<u>ATCRBS/MODE S TRANSPONDER OPERATION</u>  On the RTIU turn the 28 V switch OFF.  Wait 7 seconds  On the RTIU turn the 28 V switch ON.  <u>-855, -856, -901, -902, -903, -865, -866, -875 MODULES ONLY</u>		
	33.010	Greater than or equal to 99%		Verify transponder replies to MODE S interrogations			On the transponder ground station test equipment observe the MODE S replies. The reply percentage shall be as specified.  <u>NOTE:</u> On IFR test equipment the reading are taken on the S1403.  <u>-857, -904, -906, -867 MODULES ONLY</u>	Greater than or equal to 99%	
	33.020	Equal to 0%		Verify transponder replies to MODE S interrogations			On the transponder ground station test equipment observe the MODE S replies. The reply percentage shall be as specified.  <u>NOTE:</u> On IFR test equipment the reading are taken on the S1403.  <u>-855, -856, -901, -902, -903, -865, -866, -875 MODULES ONLY</u>	Equal to 0%	
AB AE				<u>-855, -856, -901, -902, -903, -865, -866, -875 MODULES ONLY</u>  Interrogate the transponder with ATCRBS Only Mode A All Call interrogations.			<u>-855, -856, -901, -902, -903, -865, -866, -875 MODULES ONLY</u>  Ground station test equipment set ACS (ATCRBS Only All Call), PRF/SQTR: 600, XPDR MODE: Mode A		
Honeywell				AW/CRITICAL NOTATION					
				SECURITY NOTATION		SUPPLEMENTS		118 PAGE	

ENGINEERING SPECIFICATION				SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER	
						CAGE CODE 55939		REV LTR	
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.									
REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
AE	33.030	Equal to 0%		Verify transponder replies to ATCRBS interrogations			Ground station test equipment observe the ATCRBS replies. The reply percentage shall be as specified. NOTE: On IFR test equipment the reading are taken on the S1403.	Equal to 0%	
				<del>-857, -904, -906, -867</del> <b>MODULES ONLY</b> Interrogate the transponder with ATCRBS Only Mode A All Call interrogations.			<del>-857, -904, -906, -867</del> <b>MODULES ONLY</b> Ground station test equipment set ACS (ATCRBS Only All Call), PRF/SQTR: 600, XPDR MODE: Mode A		
AB AE	33.040	Greater than or equal to 99%		Verify transponder replies to ATCRBS interrogations			Ground station test equipment observe the ATCRBS replies. The reply percentage shall be as specified. NOTE: On IFR test equipment the reading are taken on the S1403.	Greater than or equal to 99%	
				<del>-855, -856, -901, -902, -903, -865, -866, -875</del> <b>MODULES ONLY</b> Interrogate the transponder with ATCRBS Only Mode S All Call interrogations.			<del>-855, -856, -901, -902, -903, -865, -866, -875</del> <b>MODULES ONLY</b> On the ground station test equipment set ACL (ATCRBS MODE S Only All Call), PRF/SQTR: 60, XPDR MODE: Mode C		
AE  T	33.050	Greater than or equal to 99%		Verify transponder replies to ATCRBS Mode C/Mode S All Call interrogations			On the transponder ground station test equipment observe the Mode S replies. The reply percentage shall be as specified. NOTE: On IFR test equipment the reading are taken on the S1403.	Greater than or equal to 99%	
				<del>-857, -904, -906, -867</del> <b>MODULES ONLY</b> Interrogate the transponder with ATCRBS Only Mode S All Call interrogations.			<del>-857, -904, -906, -867</del> <b>MODULES ONLY</b> On the ground station test equipment set ACL (ATCRBS MODE S Only All Call), PRF/SQTR: 60, XPDR MODE: Mode C		
Honeywell				AW/CRITICAL NOTATION					
				SECURITY NOTATION		SUPPLEMENTS		119 PAGE	

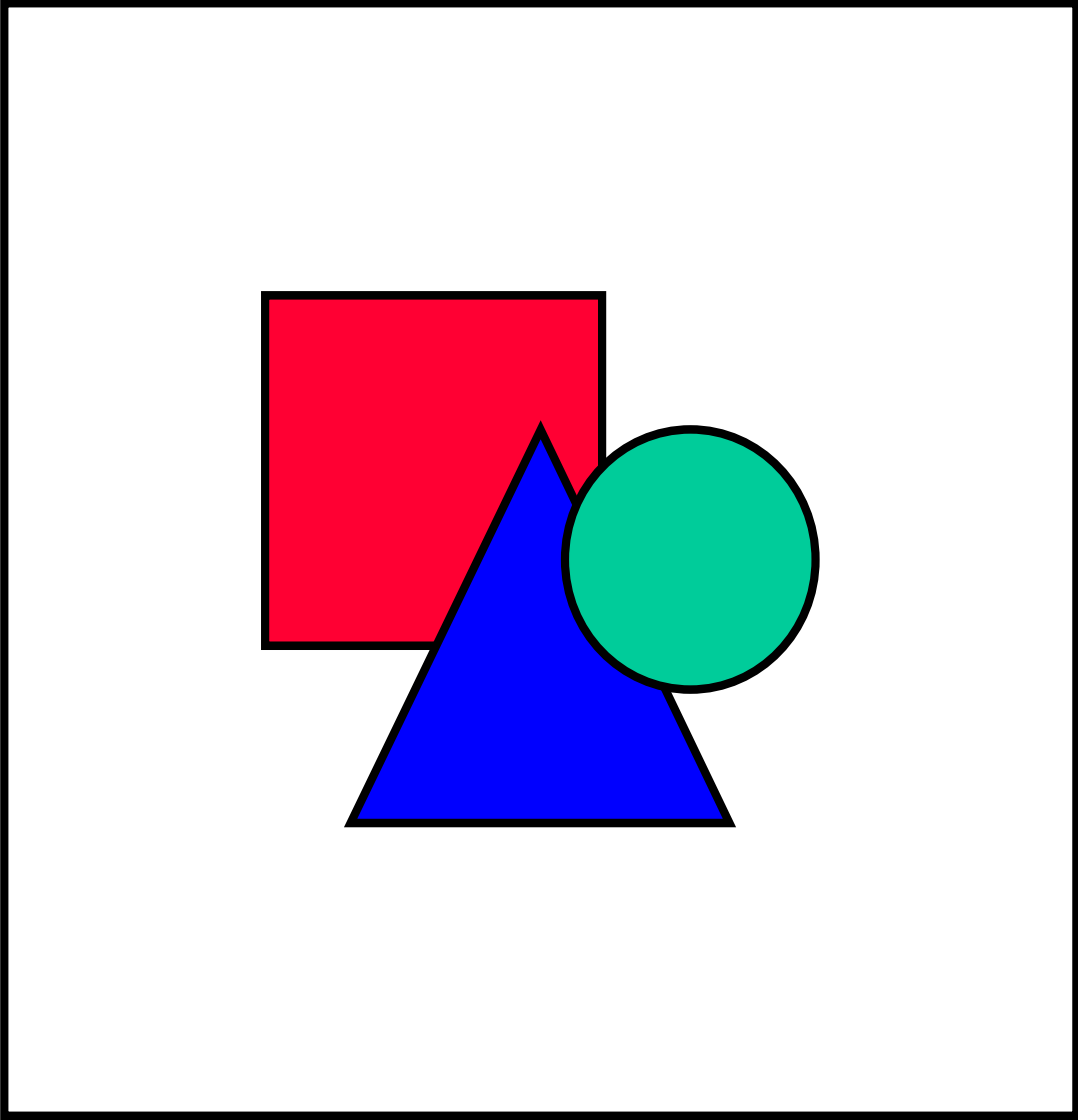
<b>ENGINEERING SPECIFICATION</b>				SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER
						CAGE CODE 55939		
				SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV	TEST	SPECIFICATION				PROCEDURE		SPECIFICATION
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS
P	33.060	Greater than or equal to 99%		Verify transponder replies to ATCRBS Mode C/Mode S All Call interrogations			On the ground station test equipment observe the ATCRBS replies. The reply percentage shall be as specified.  <u>NOTE:</u> On IFR test equipment the reading are taken on the S1403.  Set the ground station test equipment to MODE S Only MODE.	Greater than or equal to 99%
<b>Honeywell</b>				AW/CRITICAL NOTATION				
				SECURITY NOTATION		SUPPLEMENTS		120 PAGE

ENGINEERING SPECIFICATION				SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER	
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SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.									
REV	TEST	SPECIFICATION			PROCEDURE			SPECIFICATION	
LTR	NO.	OPR LIMITS	C	TEST DESCRIPTION	SWITCH POS	C	WORK STEPS	MFG LIMITS	
P	34.000			<u>CLEAR MAINTENANCE</u> For All Units Clear maintenance logs (AIRCRAFT and TROUBLESHOOT) and Power On Count.	Test Setup #2 <H> <M> <M> <M> <C> <P>		<u>CLEAR MAINTENANCE</u> For All Units Main Bench Page Clear Maint. LOG/POC Maint. LOG Clear Maint. LOG/POC POC RCB Page On the RTIU turn the 28 V switch OFF. Wait 7 seconds. On the RTIU turn the 28 V switch ON.		
AF	34.010	ATC PASS		Turn UUT 28-volt power off. Wait 7 seconds. Turn UUT 28 volt power on. Activate PAST self-test mode. Verify self-test passes with no errors.	<S> <A>		Test (PAST/POST) PAST On the RTIU the RADIO MSGS display shall be as specified.	ATC PASS	
	34.020	1		Return to NORMAL mode. Go to the TROUBLESHOOT Maintenance log. Verify the POC in the maintenance log is set to 1.	<S> <M> <T>		TEST (PAST/POST)  Maintenance Page Troubleshoot Log  On the RTIU the CUR POC display shall be as specified.	1	
	34.030	END LIST		Verify the TROUBLESHOOT maintenance log is cleared. Go to the Aircraft Maintenance Log.	<P> <M> <A>		On the RTIU the DESCRIPT COLUMN display shall be as specified. RCB Page Maintenance Page Aircraft Log	END LIST	
	34.040	END LIST		Verify the AIRCRAFT maintenance log is cleared.  END OF TESTING	<P>		Observe the RTIU DISCRIPT COLUMN. The display shall be as specified. RCB Page RTIU 28 V switch OFF. REMOVE UUT from test set.	END LIST	
Honeywell				AW/CRITICAL NOTATION					
				SECURITY NOTATION		SUPPLEMENTS		121 PAGE	

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				CAGE CODE 55939		
		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR P	<div>APPENDIX A RF SIGNAL SPECIFICATIONS</div>					
<b>Honeywell</b>		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS	A-0 PAGE	

ENGINEERING SPECIFICATION		SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER																																																											
				CAGE CODE 55939																																																													
		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.																																																															
REV LTR P	<div>APPENDIX A</div> <div>RF SIGNAL SPECIFICATIONS</div> <div>1. ATCRBS INTERROGATIONS</div> <table><tr><td>Pulse Designator</td><td>Pulse Duration</td><td>Duration Tolerance</td><td>Rise Time Min/Max</td><td>Decay Time Min/Max</td></tr><tr><td>P1, P2, P3, P5</td><td>0.8</td><td>±0.1</td><td>0.05/0.1</td><td>0.05/0.2</td></tr><tr><td>P4 (short)</td><td>0.8</td><td>±0.1</td><td>0.05/0.1</td><td>0.05/0.2</td></tr><tr><td>P4 (long)</td><td>1.6</td><td>±0.1</td><td>0.05/0.1</td><td>0.05/0.2</td></tr></table> <table><tr><td rowspan="2">Interrogation Type</td><td colspan="4">Spacing</td></tr><tr><td>P1 - P2</td><td>P1 - P3</td><td>P3 - P4</td><td>P4</td></tr><tr><td>ATCRBS Mode A</td><td>2 ±0.15</td><td>8 ±0.2</td><td>-</td><td>None</td></tr><tr><td>ATCRBS Mode C</td><td>2 ±0.15</td><td>21 ±0.2</td><td>-</td><td>None</td></tr><tr><td>ATCRBS Mode A/Mode S All-Call</td><td>2 ±0.15</td><td>8 ±0.2</td><td>2 ±0.05</td><td>Long</td></tr><tr><td>ATCRBS Mode C/Mode S All-Call</td><td>2 ±0.15</td><td>21 ±0.2</td><td>2 ±0.05</td><td>Long</td></tr><tr><td>ATCRBS Mode A-Only All-Call</td><td>2 ±0.15</td><td>8 ±0.2</td><td>2 ±0.05</td><td>Short</td></tr><tr><td>ATCRBS Mode C-Only All-Call</td><td>2 ±0.15</td><td>21 ±0.2</td><td>2 ±0.05</td><td>Short</td></tr></table>						Pulse Designator	Pulse Duration	Duration Tolerance	Rise Time Min/Max	Decay Time Min/Max	P1, P2, P3, P5	0.8	±0.1	0.05/0.1	0.05/0.2	P4 (short)	0.8	±0.1	0.05/0.1	0.05/0.2	P4 (long)	1.6	±0.1	0.05/0.1	0.05/0.2	Interrogation Type	Spacing				P1 - P2	P1 - P3	P3 - P4	P4	ATCRBS Mode A	2 ±0.15	8 ±0.2	-	None	ATCRBS Mode C	2 ±0.15	21 ±0.2	-	None	ATCRBS Mode A/Mode S All-Call	2 ±0.15	8 ±0.2	2 ±0.05	Long	ATCRBS Mode C/Mode S All-Call	2 ±0.15	21 ±0.2	2 ±0.05	Long	ATCRBS Mode A-Only All-Call	2 ±0.15	8 ±0.2	2 ±0.05	Short	ATCRBS Mode C-Only All-Call	2 ±0.15	21 ±0.2	2 ±0.05	Short
Pulse Designator							Pulse Duration	Duration Tolerance	Rise Time Min/Max	Decay Time Min/Max																																																							
P1, P2, P3, P5	0.8	±0.1	0.05/0.1	0.05/0.2																																																													
P4 (short)	0.8	±0.1	0.05/0.1	0.05/0.2																																																													
P4 (long)	1.6	±0.1	0.05/0.1	0.05/0.2																																																													
Interrogation Type	Spacing																																																																
	P1 - P2	P1 - P3	P3 - P4	P4																																																													
ATCRBS Mode A	2 ±0.15	8 ±0.2	-	None																																																													
ATCRBS Mode C	2 ±0.15	21 ±0.2	-	None																																																													
ATCRBS Mode A/Mode S All-Call	2 ±0.15	8 ±0.2	2 ±0.05	Long																																																													
ATCRBS Mode C/Mode S All-Call	2 ±0.15	21 ±0.2	2 ±0.05	Long																																																													
ATCRBS Mode A-Only All-Call	2 ±0.15	8 ±0.2	2 ±0.05	Short																																																													
ATCRBS Mode C-Only All-Call	2 ±0.15	21 ±0.2	2 ±0.05	Short																																																													
Honeywell		AW/CRITICAL NOTATION																																																															
		SECURITY NOTATION		SUPPLEMENTS	A-1 PAGE																																																												



<b>ENGINEERING SPECIFICATION</b>	<b>SECURITY NOTATION</b>	<b>SPEC NO.</b>	IT7517400	SEE PAGE INDEX FOR THIS SHEET REV LETTER  <b>REV LTR</b>
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<b>REV LTR</b> P	<div></div>			
<b>Honeywell</b>	<b>AW/CRITICAL NOTATION</b>			
	<b>SECURITY NOTATION</b>	<b>SUPPLEMENTS</b>		<b>A-2 PAGE</b>

REV  
LTR  
P

2. MODE S INTERROGATIONS

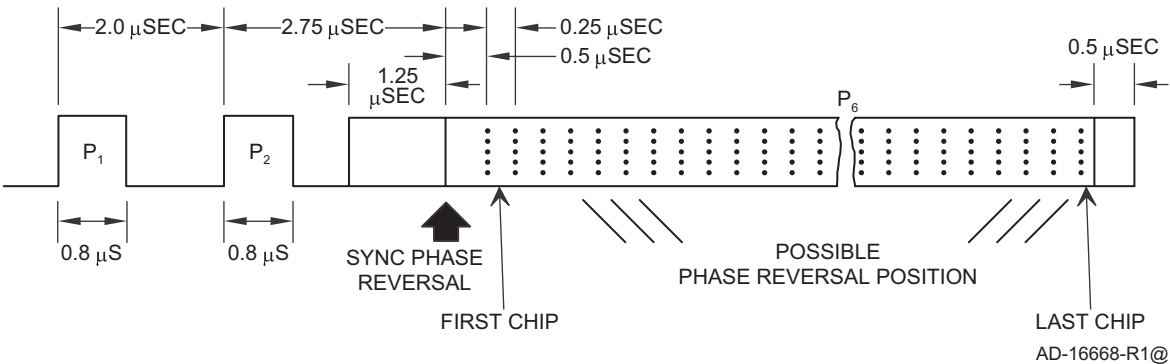


Figure A-2

3. MODE S REPLIES

The reply data block is formed by PPM encoding of the reply data. A pulse transmitted in the first half of the interval represents a ONE while a pulse transmitted in the second half represents a ZERO.

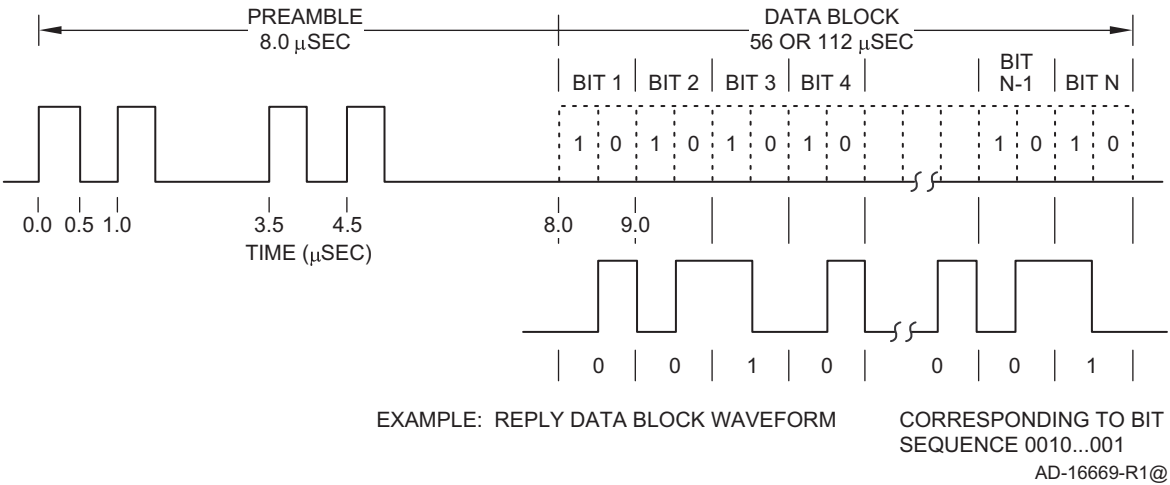


Figure A-3

<b>ENGINEERING SPECIFICATION</b>		<b>SECURITY NOTATION</b>		<b>SPEC NO.</b> IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER
				<b>CAGE CODE</b> 55939		
		<b>REV LTR</b>				
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.						
<b>REV LTR</b> P		<div>APPENDIX B FINAL TEST REPORT</div>				
<b>Honeywell</b>		<b>AW/CRITICAL NOTATION</b>				
		<b>SECURITY NOTATION</b>		<b>SUPPLEMENTS</b>		<b>B-0 PAGE</b>

ENGINEERING SPECIFICATION		SECURITY NOTATION		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER	
				CAGE CODE 55939		REV LTR	
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REV LTR							
P	QUALITY CONTROL FUNCTIONAL TEST REPORT						
AF	PART NO. 7517400				SERIAL		
	TEST FIXTURES AND SUPPORT EQUIPMENT						
	TEST FIXTURE OR TYPE	SERIAL	MODEL	SPC/ID	REV	CAL DUE DATE	
	MOD S AUXILARY UNIT, IFR MODE - S1403						
	TRANSPONDER TEST SET, IFR ATC - 1400A						
	OSCILLOSCOPE						
	DIG VOLTMETER						
	RTIU						
	RTIU SOFT						
	ARINC TEST SET						
		P/N 7517400 ( )		REV.	C.O.		DATE
	IT NO. 7517400		REV.	C.O.		DATE	
	APPROVED						
AF	<b>NOTE:</b> The JcAir SDX2000 may be substituted for the IFR equipment						
TESTER				DATE		FTR SHEET 1 OF 6	
Honeywell		AW/CRITICAL NOTATION					
		SECURITY NOTATION		SUPPLEMENTS		B-1 PAGE	

<b>ENGINEERING SPECIFICATION</b>		<b>SECURITY NOTATION</b>		SPEC NO. IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER <b>REV LTR</b>
				CAGE CODE 55939		
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.						
REV LTR	<b>QUALITY CONTROL FUNCTIONAL TEST REPORT</b>					
V	PART NO. 7517400			SERIAL NO.		
	1.000 RECEIVE INPUT CURRENT			7.190 PULSE +40V MON VDC		
AF	1.010	CURRENT	AMPS	7.200 PULSE MOD MON VDC		
AF	2.000 RS-232 PROGRAMMING INTERFACE			7.210 SYNTH LOCK DET VDC		
	2.010		INVALID INPUT!!	7.220 INIT PWR SUPPLY VDC		
AF	3.000 DELETED			7.230 LOCAL OSC LEVEL VDC		
	4.000 DELETED			7.240 LOCAL OSC VCO VDC		
AF	5.000 SELF TEST			8.000 TX FREQ & OUTPUT POWER		
AF	5.010	Mode S Interrogations	%REPLY	8.010 TX FREQUENCY MHz		
	5.020	POST	ATC PASS	8.020 TX POWER P1 BOT ANT WATTS		
AF	6.000 POWER SUPPLY LOW/HIGH LINE VOLTAGE TEST			8.030 TX POWER S115 PULSE WATTS		
AF	6.010	RCB ERRORS	NO ERRORS	8.040 TX PULSE DROOP BOT ANT dB		
	6.020	+60VDC MONITOR	VDC	8.050 TX POWER P1 TOP ANT WATTS		
	6.030	+60 VDC MONITOR	VDC	8.060 TX POWER S115 TOP ANT WATTS		
	7.000 MONITOR TEST			8.070 TX PULSE DROOP TOP ANT dB		
	7.010	+28 VDC	VDC	9.000 TX REPLY P/W, RISE & FALL TIMES		
	7.020	+60 VDC	VDC	9.010 RISE TIME nSec		
	7.030	+50 VDC	VDC	9.020 PULSE WIDTH nSec		
	7.040	+28.0 VDC	VDC	9.030 FALL TIME nSec		
	7.050	+15 VDC	VDC	9.040 RISE TIME nSec		
	7.060	-5 VDC	VDC	9.050 PULSE WIDTH nSec		
	7.070	-15 VDC	VDC	9.060 FALL TIME nSec		
	7.080	-150 VDC	VDC	10.000 DELETED		
V	7.090	TEMPERATURE	DEG C	11.000 MODE S CODE VERIFICATION, REPLY DELAY AND JITTER		
V	7.100	WARM/COLD DET	VDC	11.010 UF=5 INTERROGATIONS DATA		
V	7.110	XMTR TOP PIN	VDC	11.020 MB DATA		
V	7.120	XMTR BOT PIN	VDC	11.030 ID DATA		
V	7.130	TOP FWD PWR	VDC	11.040 ADDRESS DATA		
V	7.140	BOT FWD PWR	VDC	11.050 BOT ANT SPR DELAY uSec		
V	7.150	XMTR DUTY CYCLE	VDC	11.060 FIRST PREAMBLE JITTER nSec		
V	7.160	XMTR ENV MON	VDC	11.070 TOP ANT SPR DELAY uSec		
V	7.170	SELF-TEST MON	VDC	11.080 BOT ANT P4 REPLY DELAY uSec		
V	7.180	BOOST CURRENT	VDC	11.090 BOT ANT PREAMBLE JITTER nSec		
				11.100 TOP ANT PREAMBLE JITTER uSec		
TESTER			DATE		FTR SHEET 2 OF 6	

<b>Honeywell</b>	AW/CRITICAL NOTATION		
	SECURITY NOTATION	SUPPLEMENTS	B-2 PAGE

<h1 style="margin: 0;">ENGINEERING SPECIFICATION</h1>		<b>SECURITY NOTATION</b>		<b>SPEC NO.</b> IT7517400		SEE PAGE INDEX FOR THIS SHEET REV LETTER  <b>REV LTR</b>
				<b>CAGE CODE</b> 55939		
SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.						

REV LTR	<b>QUALITY CONTROL FUNCTIONAL TEST REPORT</b>																																																																																																																																																																																																																																										
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REV LTR	QUALITY CONTROL FUNCTIONAL TEST REPORT											
V	PART NO. 7517400					SERIAL NO.						
AF	17.070	P4 = +0.10				%	21.040				%	
	17.080	P4 = + 0.90				%	22.000	DISCRETE INPUTS				
AF	18.000 P1/P3 PULSE WIDTH					22.010						PORT 0
		BOT ANT					22.020			PORT 1		
AF	18.010					%	22.030			PORT 0		
	18.020					%	22.040			PORT 1		
AF	18.030					%	22.050			PORT 2		
		TOP ANT					22.060			PORT 3		
AF	18.040					%	22.070			PORT 2		
	18.050					%	22.080			PORT 3		
AF	18.060					%	23.000 DISCRETE OUTPUTS					
	19.000 MODE S SYNC PHASE REVERSAL(SPR) POSITION					23.010						PORT 0
AF		BOT ANT					23.02			VDC		
	19.010					%	23.03			PORT 1		
AF	19.020					%	23.04			PORT 0		
	19.030					%	23.05			VDC		
AF	19.040					%	23.06			PORT 1		
		TOP ANT					23.07			PORT 4		
AF	19.050					%	23.08			END LIST		
	19.060					%	24.000 FAN STRAP INTERFACES					
AF	19.070					%	24.010			VDC		
	19.080					%	24.020			VDC		
AF	20.000 DIVERSITY OPERATION					24.030			OFF			
		BOT ANT					24.040			ON		
AF	20.010					%	24.050			VDC		
	20.020					%	24.060			PASS		
AF	20.030					%	24.070			NO ERR		
	20.040					%	25.000 SIDETONE DISTORTION					
AF		TOP ANT					25.010			WORD		
	20.050					%	25.020			WORD		
AF	20.060					%	25.030			WORD		
	20.070					%	25.040			WORD		
AF	20.080					%	25.050			WORD		
	21.000 MUTUAL SUPPRESSION					25.060			WORD			
AF	21.010					VDC	25.070			WORD		
	21.020					uSec	25.080			WORD		
AF	21.030					%	25.090			WORD		
						25.100			WORD			
AF						25.110			WORD			
						25.120			WORD			
AF	TESTER					DATE		FTR SHEET 4 OF 6				
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REV LTR	<b>QUALITY CONTROL FUNCTIONAL TEST REPORT</b>					
V	PART NO. 7517400			SERIAL NO.		
	26.000 ARINC 429 BUSSES			29.000 TRANSPONDER ON/OFF DISCRETE AND COLD/WARM START OPERATION		
	26.010		WORD	29.010		POC
	26.020		WORD	29.020		POC
	26.030		WORD			
	26.040		WORD			
	26.050		WORD			
	26.060		WORD			
	26.070		WORD			
	26.080		WORD			
	26.090		WORD			
	26.100		WORD			
	26.110		WORD			
	26.120		WORD			
	26.130		mSec			
	26.140		WORD			
	26.150		WORD			
	26.160		WORD			
	26.170		mSec			
	26.180		WORD			
	26.190		WORD			
	26.200		WORD			
	26.210		mSec			
	26.220		WORD			
	26.230		WORD			
	26.240		WORD			
	26.250		mSec			
	26.260		WORD			
	26.270		WORD			
	26.280		WORD			
	26.290		mSec			
	26.300		WORD			
	27.0 SET TRANSPONDER TYPE					
	27.01		CRCS			
	28.00 CLEAR MAINTENANCE LOF AND RAD SOFTWARE PART NO.					
	28.010		FLASH			
	28.020		BOOT			
	28.030		POC			
	28.040		END LIST			
	TESTER			DATE		FTR SHEET 5 OF 6

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<b>V</b>	<b>PART NO. 7517400</b>				<b>SERIAL NO.</b>																																																																																																												
	<div>32.000 ARINC 429 BUSSES</div> <table><tr><td>32.010</td><td></td><td></td><td>WORD</td></tr><tr><td>32.020</td><td></td><td></td><td>WORD</td></tr><tr><td>32.030</td><td></td><td></td><td>WORD</td></tr><tr><td>32.040</td><td></td><td></td><td>WORD</td></tr><tr><td>32.050</td><td></td><td></td><td>WORD</td></tr><tr><td>32.060</td><td></td><td></td><td>WORD</td></tr><tr><td>32.070</td><td></td><td></td><td>WORD</td></tr><tr><td>32.080</td><td></td><td></td><td>mSec</td></tr><tr><td>32.090</td><td></td><td></td><td>WORD</td></tr><tr><td>32.100</td><td></td><td></td><td>WORD</td></tr><tr><td>32.110</td><td></td><td></td><td>WORD</td></tr><tr><td>32.120</td><td></td><td></td><td>mSec</td></tr><tr><td>32.130</td><td></td><td></td><td>WORD</td></tr><tr><td>32.140</td><td></td><td></td><td>WORD</td></tr><tr><td>32.150</td><td></td><td></td><td>WORD</td></tr><tr><td>32.160</td><td></td><td></td><td>mSec</td></tr><tr><td>32.170</td><td></td><td></td><td>WORD</td></tr></table> <div>33.000 ATCRBS/MODE S TRANSPONDER OPERATION</div> <table><tr><td>33.010</td><td></td><td></td><td>%</td></tr><tr><td>33.020</td><td></td><td></td><td>%</td></tr><tr><td>33.030</td><td></td><td></td><td>%</td></tr><tr><td>33.040</td><td></td><td></td><td>%</td></tr><tr><td>33.050</td><td></td><td></td><td>%</td></tr><tr><td>33.060</td><td></td><td></td><td>%</td></tr></table> <div>34.000 CLEAR MAINTENANCE LOG</div> <table><tr><td>34.010</td><td></td><td></td><td>MSGs</td></tr><tr><td>34.020</td><td></td><td></td><td>POC</td></tr><tr><td>34.030</td><td></td><td></td><td>END LIST</td></tr><tr><td>34.040</td><td></td><td></td><td>END LIST</td></tr></table>				32.010			WORD	32.020			WORD	32.030			WORD	32.040			WORD	32.050			WORD	32.060			WORD	32.070			WORD	32.080			mSec	32.090			WORD	32.100			WORD	32.110			WORD	32.120			mSec	32.130			WORD	32.140			WORD	32.150			WORD	32.160			mSec	32.170			WORD	33.010			%	33.020			%	33.030			%	33.040			%	33.050			%	33.060			%	34.010			MSGs	34.020			POC	34.030			END LIST	34.040			END LIST	
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<b>REV LTR</b> P						
<div>APPENDIX C MODULE CALIBRATION PROCEDURE</div>						
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REV LTR	<div>APPENDIX C</div> <div>MODULE CALIBRATION PROCEDURE</div> <div>1. INTRODUCTION</div> <p>The XS-852 Diversity Transponder module uses computer (electronic) adjustments for most of the circuitry which requires calibration. Computer adjustments are preferable to mechanical adjustments (potentiometers, variable capacitors and inductors) because they can be performed automatically by a computer remotely (without the unit opened up), and are inherently more reliable.</p> <p>With the exception of several variable capacitors on the Transmitter CCA, all adjustments are performed from the BENCH mode on the RTIU. Calibration constants for parameters are stored in EEPROM memory on the PROCESSOR CCA. The parameters in EEPROM have an error detection means, so that a loss of data will be detected by the computer. A loss of calibration data could result in invalid transponder operation.</p> <div>2. CALIBRATION PROCEDURE</div> <p>The following calibration procedure MUST be performed in the following order to insure consistent results from the calibration. If calibration procedure is not completed (SAVE CALIBRATION command executed) prior to removing power from the module, the calibration data will not be transferred to EEPROM, and will be lost. Calibration data may be saved permanently at any point in the procedure by executing the SAVE CALIBRATION command.</p> <div>2.1 Calibration Test Setup</div> <p>The following test setup is required prior to performing the calibration procedure:</p> <p>ATC 1400A Per TEST SETUP #1 in Section 7.1</p> <p>S1403 Per TEST SETUP #1 in Section 7.1</p> <p>RTIU SETUP Per TEST SETUP #2 in Section 7.2 (RCB PAGE).</p> <p>&lt;H&gt; MAIN BENCH PAGE &lt;K&gt; CALIBRATION PAGE</p> <p><b>NOTE:</b> Squitter must be disabled in accordance with test setup #2 to correctly calibrate unit.</p> <div>2.2 Initialize Calibration with Default Data</div> <p>This step puts in default calibration data in SYSTEM RAM. Some DEFAULT parameter settings which are initialized by this command are not altered in later steps.</p> <p>RTIU &lt;C&gt; SET CAL TO DEFAULT</p> <p>&lt;B&gt; READ CAL DATA</p> <p>&lt;S&gt; SAVE</p> <p>&lt;Y&gt; YES</p>				
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2.3	<div><div>Initialize MTL Temperature Compensation</div><div>MTL temperature compensation must be correctly set before TOP/BOTTOM MTL AUTOCAL is performed.  RTIU &lt;M&gt; MTL TEMP COMP &lt;-40&gt; (NOTE: number is -0.04 dB/Degree Centigrade) &lt;B&gt; READ CAL DATA</div></div>				
2.4	<div><div>Top/Bottom MTL Autocal</div><div>The CABLE LOSS number used in this setup is the loss in dB at 1030MHz for the RF cable which connects the ATC 1400A to the Diversity Transponder module. The RF Level on the ATC 1400A must be increased from the MTL setting by the amount of the loss.  S1403 C MENU: 1 FUNC: 1 ATC (ATCRBS Only)  ATC 1400A PRF/SQTR: 500 XPDR MODE: A RF LEVEL: -76dBm + CABLE LOSS(a positive number in dB) Connect RF CABLE to TOP antenna jack on XS-852  RTIU &lt;A&gt; AUTOCAL MTL &lt;T&gt; TOP WAIT UNTIL AUTOCAL MTL STATUS INDICATES PASS.  NOTE: If the AUTOCAL MTL STATUS indicates FAIL, the module is not correctly calibrated. This indicates a test equipment problem or module failure had prevented the calibration from completing.  ATC 1400A Connect RF CABLE to BOTTOM antenna jack on XS-852  RTIU &lt;A&gt; AUTOCAL MTL &lt;B&gt; BOTTOM WAIT UNTIL AUTOCAL MTL STATUS INDICATES PASS. &lt;B&gt; READ CAL DATA</div></div>				
2.5	<div><div>ATCRBS Reply Delay</div><div>ATC 1400A RF LEVEL: -67dBm  Repeat the following procedure until the RpDly: display on the S1403 reads an AVERAGE value of 3.10 micro-seconds.:</div></div>				
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REV LTR P	<div data-bbox="316 342 1429 642"> <p>RTIU</p> <p>&lt;F&gt; SET REPLY DELAYS</p> <p>&lt;1&gt; ATCRBS</p> <p>&lt;NEW #&gt; (Change the existing ATCRBS REPLY DELAY depending on the value of the RpDly display on the S1403)</p> <p>&lt;B&gt; READ CAL DATA</p> <p><b>NOTE:</b> The RpDly: is increased by INCREASING the ATCRBS REPLY DELAY number, and is decreased by DECREASING the number. Changing the ATCRBS REPLY DELAY by 1 changes the delay by 42 nsec.</p> </div> <div data-bbox="199 674 625 709"> <p><b>2.6 ALLCALL Reply Delay</b></p> </div> <div data-bbox="316 730 1485 1289"> <p>ATC 1400A</p> <p>PRF/SQTR: 60</p> <p>S1403</p> <p>C MENU: 1</p> <p>FUNC: 4 ACL (ATCRBS/Mode S All-Call)</p> <p>Repeat the following procedure until the RpDly: display on the S1403 reads an AVERAGE value of 127.925 micro-seconds:</p> <p>RTIU</p> <p>&lt;F&gt; SET REPLY DELAYS</p> <p>&lt;2&gt; ALLCALL</p> <p>&lt;NEW #&gt; (Change the existing ALLCALL REPLY DELAY depending on the value of the RpDly display on the S1403)</p> <p>&lt;B&gt; READ CAL DATA</p> <p><b>NOTE:</b> The RpDly: is increased by INCREASING the ALLCALL REPLY DELAY number, and is decreased by DECREASING the number. Changing the ALLCALL REPLY DELAY by 1 changes the delay by 42 nsec.</p> </div> <div data-bbox="199 1323 462 1358"> <p><b>2.7 SPR Delay</b></p> </div> <div data-bbox="316 1379 1461 1749"> <p>S1403</p> <p>C MENU: 1</p> <p>FUNC: 2 SEQ (Mode S Only)</p> <p>SPR Dv: <math>\pm 0.05</math> AND <math>\pm 0.20</math></p> <p>Repeat the following procedure until the %Reply:S on the S1403 is 0% when SPR Dv is -0.20 and +0.20, and is 100% when SPR Dv is -0.05 and +0.05:</p> <table border="0"> <tr> <td>S1403</td> <td></td> </tr> <tr> <td>SPR Dv: -0.20</td> <td>Check %Reply:S</td> </tr> <tr> <td>SPR Dv: -0.05</td> <td>Check %Reply:S</td> </tr> <tr> <td>SPR Dv: +0.05</td> <td>Check %Reply:S</td> </tr> <tr> <td>SPR Dv: +0.20</td> <td>Check %Reply:S</td> </tr> </table> </div>				S1403		SPR Dv: -0.20	Check %Reply:S	SPR Dv: -0.05	Check %Reply:S	SPR Dv: +0.05	Check %Reply:S	SPR Dv: +0.20	Check %Reply:S
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SPR Dv: +0.05	Check %Reply:S													
SPR Dv: +0.20	Check %Reply:S													
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<b>REV LTR</b> P	<div data-bbox="316 342 1429 493"> <p>RTIU            &lt;G&gt; SPR DELAY            &lt;NEW #&gt; (Change the existing SPR DELAY depending on the results of the %Reply:S on the S1403)            &lt;B&gt; READ CAL DATA</p> <p><b>NOTE:</b> The position of the SPR window relative to the start of the P6 pulse is increased by DECREASING the SPR DELAY number, and is decreased by INCREASING the number. Changing the SPR DELAY by 1 changes the position by 42 nsec.</p> <p>At the end of the procedure, reset the S1403 to the following condition:</p> <p>S1403            C MENU: 1            SPR Dv: CAL</p> </div> <div data-bbox="199 795 571 829"> <p><b>2.8 <u>DPSK Reply Delay</u></b></p> </div> <div data-bbox="316 850 1429 1228"> <p>Repeat the following procedure until the RpDly: display on the S1403 reads an AVERAGE value of 127.925 micro-seconds:</p> <p>RTIU            &lt;F&gt; SET REPLY DELAYS            &lt;3&gt; MODE S            &lt;NEW #&gt; (Change the existing MODE S REPLY DELAY depending on the value of the RpDly display on the S1403)            &lt;B&gt; READ CAL DATA</p> <p><b>NOTE:</b> The RpDly: is increased by INCREASING the MODE S REPLY DELAY number, and is decreased by DECREASING the number. Changing the MODE S REPLY DELAY by 1 changes the delay by 42 nsec.</p> </div> <div data-bbox="199 1260 571 1293"> <p><b>2.9 <u>XMTR Pulse Width</u></b></p> </div> <div data-bbox="316 1314 1469 1764"> <p>S1403            Connect the oscilloscope to S1403 XMTR Detector.            Connect the Transponder RF Cable to the S1043 RF Connector.            C MENU: 1            ANT B: ON</p> <p>Repeat the following procedure until the pulse width of the 1st pulse of the Mode S reply (50% to 50% voltage point) is set to between 460 nsec and 510 nsec:</p> <p>RTIU            &lt;T&gt; XMTR PULSE WIDTH            &lt;NEW #&gt; (Change the existing XMTR PULSE WIDTH depending on the width of the first pulse on the oscilloscope)            &lt;B&gt; READ CAL DATA</p> </div>								
	<table border="1"> <tr> <td data-bbox="94 1829 571 1980" rowspan="2"> <h1>Honeywell</h1> </td> <td colspan="3" data-bbox="571 1829 1531 1887"> <b>AW/CRITICAL NOTATION</b> </td> </tr> <tr> <td data-bbox="571 1887 954 1980"> <b>SECURITY NOTATION</b> </td> <td data-bbox="954 1887 1383 1980"> <b>SUPPLEMENTS</b> </td> <td data-bbox="1383 1887 1531 1980"> <b>C-4 PAGE</b> </td> </tr> </table>			<h1>Honeywell</h1>	<b>AW/CRITICAL NOTATION</b>			<b>SECURITY NOTATION</b>	<b>SUPPLEMENTS</b>
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REV LTR P	<p><b><u>NOTE:</u></b> The pulse width is increased by INCREASING the XMTR PULSE WIDTH number and decreased by DECREASING the number. Changing the XMTR PULSE WIDTH by 1 changes the pulse width by 42 nsec.</p> <p><b>2.10    <u>DELETED</u></b></p> <p><b>2.11    <u>DELETED</u></b></p> <p><b>2.12    <u>Save Calibration Data</u></b></p> <p>This MUST be executed prior to removing power from the system to save the CALIBRATION DATA permanently in EEPROM.</p> <p><u>RTIU</u> &lt;S&gt; SAVE CALIBRATION &lt;Y&gt; YES</p> <p><b><u>NOTE:</u></b> SAVE CAL STATUS must indicate PASS or else calibration data was not correctly saved. A FAIL or no response may indicate a module failure.</p>				
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REV LTR P	<div>3. CALIBRATION PARAMETER DEFINITION</div> <p>The XS-852 contains the following parameters which allow adjustment of circuitry in the module. For each parameter, a DEFAULT setting is listed, which is the nominal value the parameter is set to by an INITIALIZE EEPROM command. NOTE: The DEFAULT settings apply to MOD B or later modules, MOD A or earlier modules may contain different default settings.</p> <div>3.1 <u>Top LOGAMP Gain / Bottom LOGAMP Gain</u></div> <p>PARAMETER RANGE: 0 to 1</p> <p>DEFAULT SETTING: 0</p> <p>This parameter allows the slope of the Log amplifier on the RECEIVER CCA to be adjusted. The TOP and BOTTOM receiver channels have separate adjustments. A 0 is defined as LOW gain setting, and a 1 is defined as a HIGH gain setting.</p> <div>3.2 <u>MTL TEMP COMP</u></div> <p>PARAMETER RANGE: -50 to +50</p> <p>DEFAULT SETTING: -40</p> <p>This parameter allows for a linear compensation of the Minimum Transmit Level (MTL) based on the temperature of the module. The computer uses this parameter and the temperature sensor to change the MTL setting of the receiver to compensate for the variations in the receiver hardware over temperature. The amount of MTL compensation in dB at a given module temperature (MTL CHANGE) is given by the following formula:</p> <p>MTL CHANGE = (TEMP -25) * PARAMETER * 0.001</p> <p>The TEMP variable in the formula is the internal temperature sensor in Degrees Centigrade. The compensation is centered around 25 degrees centigrade (room temperature) since most alignment and bench testing is performed at this temperature. As the temperature moves away from room temperature, (hot or cold), the amount of compensation increases. A PARAMETER setting of 0 eliminates all temperature compensation.</p> <div>3.3 <u>ATCRBS Rate Limit</u></div> <p>PARAMETER RANGE: 0 to 204</p> <p>DEFAULT SETTING: 65 (650 replies/second)</p> <p>This parameter adjusts the ATCRBS reply rate limit. This function limits the number of ATCRBS interrogations the transponder will reply to per second. The reply limit has the following definition:</p> <p>ATCRBS LIMIT = PARAMETER * 10</p> <div>3.4 <u>Top Receiver MTL / Bottom Receiver MTL</u></div> <p>PARAMETER RANGE: 0 to 255</p>				
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REV LTR P	<p>DEFAULT SETTING: 255</p> <p>This parameter sets the Minimum Transmit Level (MTL) for both the TOP and BOTTOM receiver channels. The MTL parameter is converted to a voltage by a digital to analog converter on the PROCESSOR CCA, which changes the sensitivity of the receiver. The TOP and BOTTOM receivers have separate MTL channel adjustments. The digital to analog voltage conversion is given by the following formula:</p> <p>RECEIVER MTL VOLTAGE = (PARAMETER / 256) * 10.0 Volts</p> <p>A setting of 0 gives the receiver the lowest MTL (in dBm), and a setting of 255 gives the receiver the highest MTL. The DEFAULT setting for this parameter is not typical, but is set to aid the initial calibration process.</p> <p><b>3.5     <u>ATCRBS Reply Delay</u></b></p> <p>PARAMETER RANGE: 0 to 63</p> <p>DEFAULT SETTING: 11</p> <p>The ATCRBS REPLY DELAY parameter sets the delay between the P3 pulse of an ATCRBS Mode A/Mode C interrogation and the F1 pulse of the ATCRBS reply. The parameter is used to program a register in the RF ASIC on the PROCESSOR CCA which sets this delay. The delay has the following definition:</p> <p>ATCRBS DELAY = (PARAMETER * 0.04167) + 2.513 usec</p> <p>The ATCRBS DELAY in the above definition is the reply delay <u>AT THE PINS</u> of the RF ASIC (BVIDEO or TVIDEO inputs, Pin 11 or 12, to PULSEMOD output, Pin 81). The delay number does not include delays through the Receiver IF or Transmitter/Modulator.</p> <p><b>3.6     <u>ALLCALL Reply Delay</u></b></p> <p>PARAMETER RANGE: 0 to 255</p> <p>DEFAULT SETTING: 154</p> <p>The ALLCALL REPLY DELAY parameter sets the delay between the P4 pulse of an ATCRBS Mode A/Mode S or ATCRBS Mode C/Mode S all-call interrogation and the first FRAMING pulse of the Mode S reply. The parameter is used to program a register in the RF ASIC on the PROCESSOR CCA which sets this delay. The delay has the following definition:</p> <p>ALLCALL DELAY = (PARAMETER * 0.04167) + 121.429 usec</p> <p>The ALLCALL DELAY in the above definition is the reply delay <u>AT THE PINS</u> of the RF ASIC (BVIDEO or TVIDEO inputs, Pin 11 or 12, to PULSEMOD output, Pin 81). The delay number does not include delays through the Receiver IF or Transmitter/Modulator.</p> <p><b>3.7     <u>Mode S Reply Delay</u></b></p> <p>PARAMETER RANGE: 0 to 255</p> <p>DEFAULT SETTING: 191</p>				
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REV LTR P	<p>The MODE S REPLY DELAY parameter sets the delay between the SYNC PHASE REVERSAL (SPR) pulse of a Mode S interrogation and the first FRAMING pulse of the Mode S reply. The parameter is used to program a register in the RF ASIC on the PROCESSOR CCA which sets this delay. The delay has the following definition:</p> <p>MODE S DELAY = (PARAMETER * 0.04167) + 119.555 usec</p> <p>The MODE S DELAY in the above definition is the reply delay <u>AT THE PINS</u> of the RF ASIC (DPSKDATA input, Pin 17, to PULSEMOD output, Pin 81). The delay number does not include delays through the Receiver IF or Transmitter/Modulator.</p> <p><b>3.8      <u>DPSK Window Select</u></b></p> <p>PARAMETER RANGE:      0 to 15</p> <p>DEFAULT SETTING:      6</p> <p>The DPSK WINDOW SELECT parameter sets the width of the window in which the RF ASIC on the PROCESSOR CCA looks for a SYNC PHASE REVERSAL (SPR) pulse in a Mode S interrogation (DPSKDATA input, Pin 17). This parameter in conjunction with the SPR DELAY parameter is used to determine if a valid SPR has been received in a Mode S interrogation. For a Mode S interrogation to be valid, a SPR pulse must be detected within a window of time from the leading edge of the P6 pulse of the interrogation. The SPR DELAY sets the time from the leading edge of the P6 to the start of the window where the RF ASIC starts to look for the SPR pulse, and the DPSK WINDOW SELECT sets the width of the window. The window width has the following definition:</p> <p>DPSK WINDOW = PARAMETER * 0.04167 usec</p> <p><b>3.9      <u>SPR Delay</u></b></p> <p>PARAMETER RANGE:      0 to 63</p> <p>DEFAULT SETTING:      36</p> <p>The SPR DELAY parameter sets the time between when the RF ASIC detects a P6 pulse of a Mode S interrogation, and when it starts looking for a SYNC PHASE REVERSAL (SPR) pulse on the DPSK input. The SPR DELAY had the following definition:</p> <p>SPR DELAY = 3.00 - (PARAMETER * 0.04167) usec</p> <p>The SPR DELAY is measured as the time between the start of the P6 pulse on BVIDEO or TVIDEO inputs, pins 11 or 12, and the SPR pulse on DPSKDATA input, Pin 17 of the RF ASIC.</p> <p><b>3.10     <u>XMTR PULSE WIDTH</u></b></p> <p>PARAMETER RANGE:      0 to 15</p> <p>DEFAULT SETTING:      12</p> <p>The XMTR PULSE WIDTH parameter sets the width of the pulses which are output for ATCRBS or Mode S replies. This allows for variations in Transmitter and Modulator hardware to be adjusted out. The XMTR PULSE WIDTH has the following definition:</p>				
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REV LTR P	<p>XMTR PULSE WIDTH = 0.7083 - (PARAMETER * 0.04167) usec</p> <p>The XMTR PULSE WIDTH is the pulse width of the PULSEMOD output (Pin 81) on the RF ASIC on the PROCESSOR CCA. The width in the formula is for a narrow (0.5 usec) Mode S reply pulse. A wide (1.0usec) Mode S reply pulse is XMTR PULSE WIDTH + 0.5 usec. An ATCRBS reply pulse is XMTR PULSE WIDTH - 0.08334 usec.</p> <p><b>3.11 <u>TRANSPONDER TYPE</u></b></p> <p>PARAMETER RANGE:        0 to 2</p> <p>DEFAULT SETTING:        0</p> <p>The TRANSPONDER TYPE parameter configures the transponder as one of the following types:</p> <table border="1"> <thead> <tr> <th><u>TYPE</u></th> <th><u>DESCRIPTION</u></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Diversity Mode S with Data Link and TCAS operation.</td> </tr> <tr> <td>1</td> <td>Mode S with Data Link and without TCAS operation.</td> </tr> <tr> <td>2</td> <td>ATCRBS Transponder operation.</td> </tr> </tbody> </table> <p>The software reads the parameter and operates accordingly. For TYPE=1, the software will disallow replies on the TOP antenna, and operation with a TCAS system. For TYPE=2, the software will disallow replies to Mode S Interrogations, and will generate ATCRBS replies to ATCRBS-Only All Call Interrogations, and ATCRBS/Mode S All Call Interrogations.</p>					<u>TYPE</u>	<u>DESCRIPTION</u>	0	Diversity Mode S with Data Link and TCAS operation.	1	Mode S with Data Link and without TCAS operation.	2	ATCRBS Transponder operation.
<u>TYPE</u>	<u>DESCRIPTION</u>												
0	Diversity Mode S with Data Link and TCAS operation.												
1	Mode S with Data Link and without TCAS operation.												
2	ATCRBS Transponder operation.												
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REV LTR P	<div>4. RTIU CALIBRATION COMMAND OPERATION</div> <div>The RTIU's BENCH CALIBRATION DISPLAY displays existing calibration parameters, and allows for entering new calibration parameters. The following paragraphs list different features of the commands and displays.</div> <div>4.1 Calibration Operation Description</div> <div>The CALIBRATION parameters which are used for module alignment are contained in 2 different places on the PROCESSOR CCA, the SYSTEM RAM and the EEPROM memory. The calibration constants contained in EEPROM is non-volatile, and the constants are retained when power is removed from the system. When power is applied to the system, a copy of the constants is transferred to SYSTEM RAM. The constants which are in SYSTEM RAM are volatile, and are lost when power is removed from the system.</div> <div>Calibration data which is displayed on the BENCH CALIBRATION DISPLAY on the RTIU displays the calibration data which is contained in the SYSTEM RAM. All commands on this RTIU page which modify calibration data modify the copy in SYSTEM RAM with two exceptions. The INITIALIZE EEPROM and SAVE CALIBRATION commands modify the calibration data in EEPROM. Calibration data in SYSTEM RAM which is modified by BENCH commands is not automatically saved in the EEPROM, and changes will be lost after power is removed from the system. The SAVE CALIBRATION command must be issued after changes are made to calibration data before the EEPROM data will be updated.</div> <div>4.2 READ CAL DATA Command</div> <div>The READ CAL DATA command displays on the RTIU display the current calibration data settings which are in the SYSTEM RAM. The command does not affect the calibration data in either SYSTEM RAM or EEPROM.</div> <div>4.3 SET CAL TO DEFAULT</div> <div>The SET CAL TO DEFAULT command may be used if calibration data is lost due to replacing an EEPROM or some other failure which would destroy calibration data. The command initializes the copy of calibration data in SYSTEM RAM to default (nominal) numbers which are average numbers for most systems. If this command is used, the system MUST be re-calibrated using the calibration procedure in this section.</div> <div>4.4 INITIALIZE EEPROM</div> <div>The INITIALIZE EEPROM command may be used to initialize an EEPROM similar to the SET CAL TO DEFAULT command. This command differs from the SET CAL TO DEFAULT command in two ways:</div> <div><ul style="list-style-type: none"><li>The command updates the EEPROM directly, and does not require using the SAVE CALIBRATION command to physically write to the EEPROM.</li><li>ALL data contained in EEPROM is initialized, including the maintenance logs, power-on counts, and system times.</li></ul></div>			
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REV LTR P	<p>If this command is used, the system MUST be re-calibrated using the calibration procedure in this section.</p> <p><b>4.5      <u>SAVE CALIBRATION</u></b></p> <p>The SAVE CALIBRATION commands transfers the calibration data which is contained in the SYSTEM RAM copy to EEPROM, where is becomes permanent. This command must be issued after changing calibration constants if they are to be saved permanently.</p> <p><b>4.6      <u>RESTORE CAL DATA</u></b></p> <p>The RESTORE CAL DATA command transfers the calibration data which is in the EEPROM to the copy in SYSTEM RAM. The command has the same effect as turning the power to the module off and then on.</p> <p><b>4.7      <u>Manual Calibration Commands</u></b></p> <p>The following commands are calibration commands that allow manual entry of calibration data:</p> <p>RECEIVER MTL DPSK WINDOW SEL XMTR PULSE WIDTH SET REPLY DELAYS SPR DELAY ATCRBS RATE LIMIT MTL TEMP COMP LOGAMP GAIN TRANSPONDER TYPE</p> <p>When the command is selected, a prompt is given for entry of a parameter, which is an integer number within the range specified. The parameter is then entered into the calibration data copy in SYSTEM RAM. The RTIU display is not automatically updated after the new data is entered, the READ CAL DATA command must be issued to display the new values.</p> <p><b>4.8      <u>AUTOCAL MTL Command</u></b></p> <p>The AUTOCAL MTL command allows for automatic calibration of the receiver MTL. This command differs from the RECEIVER MTL command in that it performs an automatic calibration of the MTL. The command requires that the RF test set generates the following signal:</p> <p>500 ATCRBS Mode A Interrogations/second</p> <p>RF Level @ Transponder RF connector is -77dBm.</p> <p>The TOP and BOTTOM receivers each require separate calibrations.</p>				
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<b>REV LTR</b> P	<div><div>4.9</div><div><b><u>Calibration Parameter Display</u></b></div><div>Calibration data is primarily displayed on the RTIU BENCH CALIBRATION DISPLAY as the integer parameters which are entered by commands. Some parameters are additionally displayed as either voltages or time per the conversions listed in section 3.0 of this appendix.</div><div>The PROGRAMMED CRC and ACTUAL CRC is used to detect calibration data which has been corrupted. The PROGRAMMED CRC is the Cyclical Redundancy Check (CRC) calculation of the calibration data, and it is contained in EEPROM as a parameter. The PROGRAMMED CRC is written at the time the calibration data in EEPROM was saved. The ACTUAL CRC is calculated each time power is applied to the system. If data has been corrupted in EEPROM, the PROGRAMMED CRC and ACTUAL CRC will not match.</div></div>				
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<div>APPENDIX D SOFTWARE PROGRAMMING PROCEDURE</div>						
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<div>REV LTR</div> <div>P</div>	<div>APPENDIX D</div> <div>SOFTWARE PROGRAMMING PROCEDURE</div> <div>1. INTRODUCTION</div> <div> <p>The XS-852 Diversity Transponder has the ability to update the software from the RTIU without disassembling the module or unsoldering EPROMS. In order to accomplish this, the module contains two programs, a BOOT PROGRAM, and a FLASH PROGRAM.</p> <p>The BOOT PROGRAM is contained in normal EPROM memory, and it's primary function is to update the transponder software which is contained in the FLASH EPROM memory from the RTIU. The BOOT PROGRAM is only operational when FLASH programming mode is selected from a switch on the RTIU harness.</p> <p>The FLASH EPROM memory contains all transponder operational code which is executed in normal operational modes. The FLASH EPROM may be reprogrammed from the RTIU using the PC which is connected to the RTIU. The FLASH EPROM software may be put on a floppy disk, or a hard disk on the PC, and transferred to the FLASH EPROM in programming operation mode.</p> </div> <div>2. FLASH PROGRAMMING PROCEDURE</div> <div> <p>The following procedure should be followed in order to remotely program the FLASH EPROM in the module. The FLASH EPROM program is physically contained in two FLASH EPROM devices, an EVEN device and an ODD device. The two devices are differentiated by the following part number:</p> <p>EVEN DEVICE: 7517419-1XX</p> <p>ODD DEVICE: 7517419-2XX</p> <p>Although the procedure is written for programming both EVEN and ODD FLASH EPROM devices, it is also possible to independently erase and program either device.</p> </div> <div>2.1 <u>Program File Setup</u></div> <div> <p>The program for each FLASH EPROM device (EVEN, ODD) is contained in a seperate file on the PC, and each device is erased and programmed independently. The files may reside on either a floppy disk or hard disk drive on the PC. The file names which are entered from the RTIU prompt must also contain the drive name, path name and extension for the files. In order to make the programming process more efficient, the file extension should be named after the 3 digit dash number for the FLASH EPROM device which it programs. An example of a file name which is entered at the RTIU prompt would be (the string after the FILENAME prompt):</p> <p>ENTER EVEN FILENAME C:\FLASH.103</p> <p>ENTER ODD FILENAME C:\FLASH.203</p> </div>			
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REV LTR P	<p>In the above example, the files are located on a root directory of a hard disk ("C:\"), the EVEN file name is "FLASH.103", and the ODD file name is "FLASH.203".</p> <p><b>NOTE:</b> Both EVEN and ODD FLASH PROGRAM files will not fit on a single 360K floppy drive. If a higher density drive is not available, it is desirable to copy the files to a hard disk to make the programming process easier.</p> <p><b>2.2 Program Test Setup</b></p> <p>RTIU Per TEST SETUP #2 in Section 7.2 (RCB PAGE) &lt;H&gt; MAIN BENCH PAGE &lt;F&gt; PROGRAM PAGE</p> <p><b>2.3 Set Module To Programming Mode</b></p> <p>Turn RTIU +28 V switch OFF Set PROG/NORM switch on RTIU harness to PROG Turn RTIU +28 V switch ON &lt;T&gt; TRANSMIT DATA</p> <p><b>2.4 Erase Even and Odd Flash EPROMS</b></p> <p>&lt;E0&gt; (Erase EVEN FLASH device) Wait 10 seconds until PASS is displayed. &lt;E1&gt; (Erase ODD FLASH device) Wait 10 seconds until PASS is displayed. &lt;ESC&gt; (Press &lt;ESC&gt; key to go to MENU mode)</p> <p><b>NOTE:</b> If the status returned after the E0 or E1 command is FAIL, or if no status is returned, the FLASH devices have not erased correctly. This may indicate a module hardware failure.</p> <p><b>2.5 Program Even and Odd Flash EPROMS</b></p> <p>&lt;X&gt; PROGRAM FLASH ROM &lt;B&gt; BOTH MAX RECORDS PER PACKET &lt;16&gt; ENTER EVEN FILE NAME &lt;Even Path/filename&gt; ENTER ODD FILE NAME &lt;Odd Path/filename&gt; Wait 12 to 15 minutes until PROGRAM COMPLETE is displayed on PC.</p> <p><b>NOTE:</b> If PROGRAM ABORTED is displayed on the RTIU screen, or PROGRAM COMPLETE is never displayed, this indicates the programming operation did not complete normally. The problem could be an error in the file on the PC, an RTIU problem, or a hardware problem with the transponder. The reason for the problem is listed next to the PROGRAM ABORTED message.</p>			
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REV LTR P	<div><div>2.6</div><div><div><u>Verify Programming Operation</u></div><div>&lt;T&gt; TRANSMIT DATA &lt;F&gt; (FLASH program data verification command)  The following message should be displayed: P-CSUM = xxxx C-CSUM = xxxx P-CRC = yyyy C-CRC= yyyy  Verify the 4 digit hexidecimal number for the P-CSUM equals the number for the C-CSUM, and the P-CRC number equals the C-CRC number. If these numbers do not match, the FLASH EPROM is not programmed correctly.  &lt;ESC&gt; (Press &lt;ESC&gt; key to go to MENU mode)</div></div></div> <div><div>2.7</div><div><div><u>Exit Programming Mode</u></div><div>Turn RTIU +28 V switch OFF Set PROG/NORM switch on RTIU harness to NORM</div></div></div>					
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REV LTR P													
3. BOOT PROGRAM COMMANDS													
<p>The BOOT program is selected by setting the PROG/NORM switch on the RTIU harness to the PROG position, and applying or cycling the +28 V power. The commands listed in this section may be executed from the RTIU from the "TRANSMIT MODE" (&lt;T&gt; command). Some of the commands in this section are not used for programming operation, but can be used for troubleshooting or debugging.</p> <p>In the command descriptions listed below, the KEY SEQUENCE defines the valid keystrokes for the commands. A "&lt;CR&gt;" specifies the RETURN key must be pressed after the key sequence. Parameter required for commands are listed with the KEY SEQUENCE. The RTIU DISPLAY shows what the expected result of the command is.</p>													
3.1 <u>Flash Memory CRC/CHECKSUM</u>													
<p>This test computes a 16-bit CRC and 16-bit CHECKSUM for the FLASH EPROM devices, and displays this computed result along with the CRC and CHECKSUM which was programmed into the devices at the time of programming. If FLASH EPROM data is corrupted, the PROGRAMMED CRC/CHECKSUM will not match the COMPUTED CRC/CHECKSUM. The CRC and CHECKSUM are different methods of detecting data errors in the devices.</p> <p><u>KEY SEQUENCE</u> F&lt;CR&gt;</p> <p><u>RTIU DISPLAY</u> P-CSUM= &lt;Programmed checksum&gt; C-CSUM= &lt;Computed checksum&gt; P-CRC= &lt;Programmed CRC&gt; C-CRC= &lt;Computed CRC&gt;</p> <p>Where:</p> <table><tr><td>&lt;Programmed checksum&gt;</td><td>Field contains 4 hexadecimal digits which is the checksum programmed into memory at the time of programming.</td></tr><tr><td>&lt;Computed checksum&gt;</td><td>Field contains 4 hexadecimal digits which is the checksum which was computed by the test.</td></tr><tr><td>&lt;Programmed CRC&gt;</td><td>Field contains 4 hexadecimal digits which is the CRC programmed into memory at the time of programming.</td></tr><tr><td>&lt;Computed CRC&gt;</td><td>Field contains 4 hexadecimal digits which is the CRC which was computed by the test.</td></tr></table>						<Programmed checksum>	Field contains 4 hexadecimal digits which is the checksum programmed into memory at the time of programming.	<Computed checksum>	Field contains 4 hexadecimal digits which is the checksum which was computed by the test.	<Programmed CRC>	Field contains 4 hexadecimal digits which is the CRC programmed into memory at the time of programming.	<Computed CRC>	Field contains 4 hexadecimal digits which is the CRC which was computed by the test.
<Programmed checksum>	Field contains 4 hexadecimal digits which is the checksum programmed into memory at the time of programming.												
<Computed checksum>	Field contains 4 hexadecimal digits which is the checksum which was computed by the test.												
<Programmed CRC>	Field contains 4 hexadecimal digits which is the CRC programmed into memory at the time of programming.												
<Computed CRC>	Field contains 4 hexadecimal digits which is the CRC which was computed by the test.												
3.2 <u>Boot Memory CRC/CHECKSUM</u>													
<p>This test computes a 16-bit CRC and 16-bit CHECKSUM for the BOOT EPROM devices, and displays this computed result along with the CRC and CHECKSUM which was programmed into the devices at the time of programming. If BOOT EPROM data is corrupted, the PROGRAMMED CRC/CHECKSUM will not match the COMPUTED CRC/CHECKSUM.</p> <p><u>KEY SEQUENCE</u> B&lt;CR&gt;</p>													
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REV LTR P	<div><div><div><div><div><div>RTIU DISPLAY</div><div>P-CSUM= &lt;Programmed checksum&gt; C-CSUM= &lt;Computed checksum&gt;</div><div>P-CRC= &lt;Programmed CRC&gt; C-CRC= &lt;Computed CRC&gt;</div><div>Where:</div><div><div><div>&lt;Programmed checksum&gt;</div><div>Field contains 4 hexadecimal digits which is the checksum programmed into memory at the time of programming.</div></div><div><div>&lt;Computed checksum&gt;</div><div>Field contains 4 hexadecimal digits which is the checksum which was computed by the test.</div></div><div><div>&lt;Programmed CRC&gt;</div><div>Field contains 4 hexadecimal digits which is the CRC programmed into memory at the time of programming.</div></div><div><div>&lt;Computed CRC&gt;</div><div>Field contains 4 hexadecimal digits which is the CRC which was computed by the test.</div></div></div></div></div><div><div>3.3</div><div><div>MEMORY Read</div><div>This test will read 8 words from MEMORY address space in the microprocessor. If the memory Address specified is ODD, it will read 16 bytes from the MEMORY address space in the microprocessor. The command is similar to the READ MEMORY command in the RTIU BENCH mode.</div><div>KEY SEQUENCE</div><div>R &lt;Address&gt;&lt;CR&gt;</div><div>RTIU DISPLAY</div><div>&lt;Word #1&gt; &lt;Word #2&gt; .. &lt;Word #8&gt;</div><div>Where:</div><div><div><div>&lt;Address&gt;</div><div>Field contains up to 5 hexadecimal digits with the starting address of the memory to be read.</div></div><div><div>&lt;Word #x&gt;</div><div>Field contains 4 hexadecimal digits with the words from memory.</div></div></div></div></div></div></div></div>				
<div><div>3.4</div><div><div>MEMORY Write</div><div>This test will write 1 BYTE or WORD to memory address space, and read the data word back to verify it was written correctly. If the address is an odd address, the command will write the word as two bytes to memory. If the address range specifies FLASH EPROM memory it will write 1 byte to the appropriate device and read the data back after it programs it.</div><div><div>WARNING:</div><div>THIS COMMAND CAN ALTER THE CONTENTS OF FLASH EPROM MEMORY</div></div><div>KEY SEQUENCE</div><div>W &lt;Address&gt; &lt;Byte/Word&gt; &lt;CR&gt;</div></div></div>					
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REV LTR P	<div><div><div>RTIU DISPLAY</div><div>&lt;Word&gt;</div></div><div><div>Where:</div><div><div>&lt;Address&gt;</div><div>Field contains 5 hexadecimal digits with the address to be written.</div></div><div><div>&lt;Byte/Word&gt;</div><div>Field contains 4 hexadecimal digits for a word and 2 hexadecimal digits for a byte.</div></div></div><div><div>3.5</div><div><div>FLASH EPROM Erase</div><div>This test performs an erase operation to the FLASH EPROM to initialize the device. The erase operation leaves all memory locations as "FF", which is the "unprogrammed" state of an EPROM. The erase operation consists of first programming all bytes of the EPROM to "00", and then initiating an erase operation which sets all bytes to "FF". Errors may occur either during the operation of programming bytes to "00" or erasing the device (setting bytes to "FF"). If no failures occur during the programming or erase operation, the "PASS" status will be output. If either the programming or erase operation fails, an "FAIL" message is output which describes the test failure.</div><div><div>WARNING:</div><div>THIS COMMAND CAN ALTER THE CONTENTS OF FLASH EPROM MEMORY</div></div><div><div>KEY SEQUENCE</div><div>E &lt;Device #&gt; &lt;CR&gt;</div><div><div>RTIU DISPLAY</div><div>FAIL &lt;Address&gt; &lt;Program Byte&gt; &lt;Error Byte&gt;</div><div>- OR -</div><div>PASS</div></div><div><div>Where:</div><div><div>&lt;Device #&gt;</div><div>0 for EVEN FLASH device, 1 for ODD FLASH device.</div></div><div><div>&lt;Address&gt;</div><div>5 digit hex address where program/erase error occurred.</div></div><div><div>&lt;Program Byte&gt;</div><div>2 digit hex byte which is the data which is being programmed. The byte is "00" during programming operation and "FF" during erase operation.</div></div><div><div>&lt;Error Byte&gt;</div><div>2 digit hex byte which is the actual data which is read back at the address where the error occurred.</div></div></div></div><div><div>3.6</div><div><div>EEPROM Pattern Test</div><div>The test performs a read/write test to EEPROM memory. The test first reads the EEPROM memory and checks it's contents against the "Verify Byte" which is specified as a parameter in the command. If the data in the EEPROM does match the "Verify Byte", the address and contents of the first memory location where the data did not match is displayed on the RTIU</div></div></div></div></div></div>				
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REV LTR P	<p>screen. The test also writes the "Write Byte" data byte to all locations in the EEPROM memory after verifying the memory. Note that a FAIL message does not necessarily mean the EEPROM is bad, it may mean the data in the EEPROM has not been initialized by this command.</p> <p><b><u>WARNING:</u> CALIBRATION CONSTANTS AND MAINTANENCE LOG INFORMATION STORED IN THE EEPROM WILL BE ERASED BY THIS COMMAND.</b></p> <p><u>KEY SEQUENCE</u> N &lt;Verify Byte&gt; &lt;Write Byte&gt;</p> <p>Where:</p> <table border="0"> <tr> <td>&lt;Verify Byte&gt;</td> <td>Byte which is compared to all locations in EEPROM.</td> </tr> <tr> <td>&lt;Write Byte&gt;</td> <td>New byte to be written to all locations in EEPROM.</td> </tr> </table> <p><u>RTIU DISPLAY</u> FAIL &lt;address&gt; &lt;error byte&gt; - OR - PASS</p> <p>Where:</p> <table border="0"> <tr> <td>&lt;address&gt;</td> <td>5 digit hex address of first location in EEPROM which did not match the &lt;Verify Byte&gt; data.</td> </tr> <tr> <td>&lt;error byte&gt;</td> <td>2 digit hex byte which is the contents of the location.</td> </tr> </table>				<Verify Byte>	Byte which is compared to all locations in EEPROM.	<Write Byte>	New byte to be written to all locations in EEPROM.	<address>	5 digit hex address of first location in EEPROM which did not match the <Verify Byte> data.	<error byte>	2 digit hex byte which is the contents of the location.
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<div>APPENDIX E ERROR CODE DEFINITION</div>						
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REV LTR P	<div>APPENDIX E ERROR CODE DEFINITION</div> <div>1. INTRODUCTION</div> <p>The XS-852 Diversity Transponder has extensive self-test and performance monitor capability. Each error which is logged in a maintenance log is one of four different types or categories of errors (FAIL ERRORS, INSTALL ERRORS, TROUBLESHOOT ERRORS and BENCH TEST ERRORS). The module contains two separate maintenance logs (AIRCRAFT and TROUBLESHOOT) which have different functions. The error definitions here apply to transponders with MOD B or later software.</p> <div>2. ERROR TYPES</div> <p>Errors which are logged in a maintenance log fall into one of four categories. The categories are FAIL ERRORS, INSTALL ERRORS, TROUBLESHOOT ERRORS and BENCH TEST ERRORS. The following paragraphs describe the characteristics of the different error types.</p> <div>2.1 <u>FAIL ERRORS</u></div> <p>FAIL ERRORS are errors which occur during normal system operation on the bench or in the aircraft, and are generally a result of an internal failure in the transponder. FAIL ERRORS will cause the module to fail PAST or POST self-test modes. In addition, these errors will cause the "ATC ERR" annunciation on an RMU. FAIL ERRORS are logged in both the AIRCRAFT and TROUBLESHOOT maintenance logs.</p> <div>2.2 <u>INSTALL ERRORS</u></div> <p>INSTALL ERRORS are errors which occur during normal system operation on the bench or in the aircraft, and are errors which are generally a result of a problem outside the transponder, such as an installation problem or a failure in a unit which interfaces to the transponder. These errors are primarily designed to help maintenance personnel troubleshoot system problems, however an internal module failure could cause the errors to occur. INSTALL ERRORS will NOT cause the module to fail PAST or POST self-test modes. Only the "INVALID MODE S ADDRESS" error will cause the "ATC ERR" annunciation on an RMU.</p> <p>INSTALL ERRORS are only permanently logged in the AIRCRAFT and TROUBLESHOOT maintenance logs when the transponder SQUAT SWITCH inputs are set to the "IN AIR" condition. If the transponder is "ON GROUND", then the error will be displayed in the AIRCRAFT maintenance log, but will be erased when power is removed from the system.</p> <div>2.3 <u>TROUBLESHOOT ERRORS</u></div> <p>TROUBLESHOOT ERRORS are errors which occur during normal system operation on the bench or in the aircraft, and are errors which are designed for aiding in troubleshooting module problems or failures in the transponder. TROUBLESHOOT ERRORS will NOT cause the module to fail PAST or POST self-test, and will NOT cause the "ATC ERR" annunciation on the RMU. FAIL ERRORS are ONLY logged in the TROUBLESHOOT maintenance log, and are not accessible from an RMU.</p>				
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<div>2.4      <u>BENCH TEST ERRORS</u></div> <p>BENCH TEST ERRORS are errors which are logged as a result of the BENCH TEST or BURN-IN TEST modes. These operational modes only may be accessed on the bench from an RTIU, and do not occur in normal aircraft installations. The errors are designed for aiding in troubleshooting module problems. BENCH TEST ERRORS are only logged in the TROUBLESHOOT maintenance log. Some errors which occur in BENCH TEST or BURN-IN TEST modes are the same error codes which occur during PAST/POST modes, but the limits where failures occur may be different between BENCH and PAST/POST modes.</p> <div>3.      MAINTENANCE LOG STRUCTURE</div> <p>The XS-852 Diversity Transponder contains two separate maintenance logs, an AIRCRAFT LOG, and a TROUBLESHOOT LOG. Each log can hold up to 32 error codes, and both may be accessed from the RTIU.</p> <div>3.1      <u>AIRCRAFT Maintenance Log</u></div> <p>The AIRCRAFT LOG is accessible from both the RMU and RTIU. Only FAIL ERRORS and INSTALL ERRORS as described in section 2.0 are logged in the AIRCRAFT LOG. Errors which are logged in the AIRCRAFT LOG are removed from the log after 20 power-on counts.</p> <div>3.2      <u>TROUBLESHOOT Maintenance Log</u></div> <p>The TROUBLESHOOT LOG is not accessible from the RMU in an aircraft installation. All error types (FAIL ERRORS, INSTALL ERRORS, TROUBLESHOOT ERRORS and BENCH TEST ERRORS) are logged in the TROUBLESHOOT log. All errors which are logged in the AIRCRAFT LOG are also logged in the TROUBLESHOOT LOG, however errors are not removed from the TROUBLESHOOT log based on the number of power-on counts.</p>					
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The following list contains all error codes which may be logged in the maintenance logs, and contains the hexadecimal error code and ASCII name which is displayed on the RTIU or RMU, and brief description of the error. Note some errors have more than one hexadecimal error code, which indicates the error may occur during different test modes. The ASCII name is chosen to describe which CCA <u>most likely</u> caused the error.																																																																																																								
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	3C BC	PWR SPLY	ENVELOPE MOD VOLTAGE DURING TRANSMISSION out of limits.		
	3D BD	INTERFAC	DISCRETE OUTPUT OVER-CURRENT MONITOR out of limits.		
	3F BF	INTERFAC	MUTUAL SUPPRESSION MONITOR - test failed.		
	42	CHK TCAS	TCAS BUS COMMUNICATION failure.		
	43	CHK DLPA	DLP A/B BUS COMMUNICATION failure.		
	44	CHK DLPC	DLP C/D BUS COMMUNICATION failure.		
	45	CHK ADC1	ADC1 TO XPDR BUS COMMUNICATION failure.		
	46	CHK ADC2	ADC2 TO XPDR BUS COMMUNICATION failure.		
	47	CHK CTL1	CTL1 TO XPDR BUS COMMUNICATION failure.		
	48	CHK CTL2	CTL2 TO XPDR BUS COMMUNICATION failure.		
	49	CHK OUTP	XPDR_VALID(NO) OVER-CURRENT MONITOR - test failed.		
	C9	INTERFAC	XPDR_VALID(NO) OVER-CURRENT MONITOR - test failed.		
	4A	CHK OUTP	XPDR_VALID(PO) OVER-CURRENT MONITOR - test failed.		
	CA	INTERFAC	XPDR_VALID(PO) OVER-CURRENT MONITOR - test failed.		
	4B	CHK OUTP	XPDR_ACTIVE(NO) OVER-CURRENT MONITOR - test failed.		
	CB	INTERFAC	XPDR_ACTIVE(NO) OVER-CURRENT MONITOR - test failed.		
	4C	CHK OUTP	ALT_VALID(NO) OVER-CURRENT MONITOR - test failed.		
	CC	INTERFAC	ALT_VALID(NO) OVER-CURRENT MONITOR - test failed.		
	4D	CHK OUTP	RSV_OUTPUT1(NO) OVER-CURRENT MONITOR - test failed.		
	CD	INTERFAC	RSV_OUTPUT(NO) OVER-CURRENT MONITOR - test failed.		
	4E	CHK FAN	FAN TURN-ON FAILURE.		
	4F	CHK FAN	FAN TURN-OFF FAILURE.		
	51	STRAPS	INVALID ALTITUDE SOURCE strap selected.		
	D2	PWR SPLY	+28V FILTERED MONITOR out of limits.		
	D3	PWR SPLY	PULSE MOD VOLTAGE DURING RECEIVE out of limits.		
	D4	PWR SPLY	ENVELOPE MOD VOLTAGE DURING RECEIVE out of limits.		
	D5	XMITTER	LOCAL OSCILLATOR SYNTHESIZER UNLOCKED.		
	D6	PWR SPLY	INITIAL PS VOLTAGE out of limits.		
	D7	PWR SPLY	PULSE +40V VOLTAGE out of limits.		
	58	PWR SPLY	ST ENABLE VOLTAGE DURING NORMAL OPERATION out of limits.		
	D8	PWR SPLY	ST ENABLE VOLTAGE DURING TEST OPERATION limits.		
	D9	PWR SPLY	BOOST CURRENT VOLTAGE out of limits.		
	E0	INTERFAC	ARINC I/O EXTERNAL LOOP-BACK - test failed.		
	E1	INTERFAC	ARINC I/O EXTERNAL LOOP-BACK - test failed.		
	E2	INTERFAC	DISCRETE I/O PORT #0 EXTERNAL LOOP-BACK - test failed.		
	E3	INTERFAC	DISCRETE I/O PORT #0 EXTERNAL LOOP-BACK - test failed.		
	E4	INTERFAC	DISCRETE I/O PORT #1 EXTERNAL LOOP-BACK - test failed.		
	E5	INTERFAC	DISCRETE I/O PORT #1 EXTERNAL LOOP-BACK - test failed.		
	E6	INTERFAC	DISCRETE I/O PORT #2 EXTERNAL LOOP-BACK - test failed.		
	E7	INTERFAC	DISCRETE I/O PORT #2 EXTERNAL LOOP-BACK - test failed.		
	E8	INTERFAC	DISCRETE I/O PORT #3 EXTERNAL LOOP-BACK - test failed.		
	E9	INTERFAC	DISCRETE I/O PORT #3 EXTERNAL LOOP-BACK - test failed.		
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REV LTR P	<div>5. ERROR CODE DEFINITION</div> <div>The definition for error codes are listed in this section. The error code description includes the parameter definition, parameter limits, a description of the test which caused the error, and an aid for diagnosing the cause of the error. The error classification (FAIL, INSTALL, TROUBLESHOOT, BENCH TEST) is listed in the title for the error.</div> <div>The error code parameter which is displayed on the RTIU is a 5 digit decimal number (base 10). In the following definitions, the digits are specified as #0 to #4 where #0 is the 1's digit and #4 is the 10,000's digit. Where numbers are specified as SIGNED, a "1" in digit #4 represents a negative number. UNSIGNED numbers are assumed to be positive for all values of digit #4.</div> <div><u>RCB CHECKSUM (03 COMPUTER) - TROUBLESHOOT ERROR</u></div> <div>DESCRIPTION:</div> <div>The transponder communicates with the COM CLUSTER or RTIU on the RCB data bus every 50 milli-seconds. Part of the data communication packet includes a checksum, which detects data errors in the communication. The error will occur if no valid RCB checksums are received for the specified period of time.</div> <div>PARAMETER:</div> <div>NONE (set to 0)</div> <div>ERROR LIMITS:</div> <div>No valid RCB checksums received for a period of 5 seconds.</div> <div><u>RCB TIMEOUT (04 COMPUTER) - TROUBLESHOOT ERROR</u></div> <div>DESCRIPTION:</div> <div>The transponder communicates with the COM CLUSTER or RTIU on the RCB data bus every 50 milli-seconds. If NO valid communication packets are exchanged for the specified period of time, the error will occur.</div> <div>PARAMETER:</div> <div>UNSIGNED DIGITS</div> <div>Digit #0, 1 = Framing Errors / 0 = No framing errors.</div> <div>Digit #1, 1 = Overrun Errors / 0 = No overrun errors.</div> <div>Digits #2-#4, unused.</div> <div>ERROR LIMITS:</div> <div>No valid RCB communications have occurred for 5 seconds.</div>			
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REV LTR P	<p><u>WATCHDOG RESET (08 COMPUTER) - TROUBLESHOOT ERROR</u></p> <p>DESCRIPTION:</p> <p>The error occurs when the microcontroller is reset in current power-on count by the WATCHDOG timer circuitry AND a warm start was detected. The WATCHDOG timer circuit (U12, MAX691) on the PROCESSOR CCA will reset the microcontroller (U1, 80C186EB) if the microcontroller does not toggle the WDRESET input of the WATCHDOG timer circuit (U12 pin 11) within a period of time. If a WARM START is not detected when the reset occurs, the error will not be logged. The WARM START is a monitor on the POWER SUPPLY/MODULATOR CCA, and is read by the microcontroller with the Analog to Digital Converter (U30, AD7576) on the PROCESSOR CCA.</p> <p>PARAMETER: NONE (set to 0)</p> <p>ERROR LIMITS: Not Applicable</p> <p><u>EEPROM DATA (09/89 COMPUTER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>When power is applied to the system in normal operation or when the BENCH TEST/BURN-IN TEST command is activated, the microcontroller performs a Cyclical Redundancy Check (CRC) test on the calibration data which is stored in EEPROM (U8, 28C64). The test checks if the data has been corrupted since it was originally loaded in memory. If a loss of data is detected, an error is logged.</p> <p>An 09 error is logged on power-on if the data in the EEPROM has been corrupted. If a PAST or POST operation is executed, or the BENCH TEST/BURN-IN TEST operation is executed, it will additionally log an 89 error.</p> <p>PARAMETER: UNSIGNED DIGITS</p> <p>Digit #0, Keyword Flag: 0 = Valid / 1 = Invalid Digit #1, CRC Flag: 0 = Valid / 1 = Invalid Digit #2-#4, unused.</p> <p>ERROR LIMITS: Not Applicable</p> <p><u>FLASH EPROM DATA (21/A1 COMPUTER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>When power is applied to the system in normal operation or when the BENCH TEST/BURN-IN TEST command is activated, the microcontroller performs a Cyclical Redundancy Check (CRC) and Checksum Test on the FLASH PROGRAM which is stored in FLASH EPROM (U3, U6, 28F010). The tests check if the data has been corrupted since it was originally loaded in memory.</p>		
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REV LTR P	<p>If a loss of data is detected, an error is logged. The CRC and Checksum are different methods of detecting data loss, and both tests are performed.</p> <p>A 21 error is logged on power-on if the data in either FLASH EPROM has been corrupted. If a PAST or POST operation is executed, or the BENCH TEST/BURN-IN TEST operation is executed, it will log a A1 error.</p> <p>PARAMETER: UNSIGNED DIGITS</p> <p>Digit #0, Checksum Flag: 0 = Valid / 1 = Invalid Digit #1, CRC Flag: 0 = Valid / 1 = Invalid Digits #2-#4, unused.</p> <p>ERROR LIMITS: Not Applicable</p> <p><u>BOOT EPROM DATA (22/A2 COMPUTER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>When power is applied to the system in normal operation or when the BENCH TEST/BURN-IN TEST command is activated, the microcontroller performs a Checksum Test on the BOOT PROGRAM which is stored in EPROM (U4, U7, 27C256). The tests check if the data has been corrupted since it was originally loaded in memory. If a loss of data is detected, an error is logged.</p> <p>A 22 error is logged on power-on if the data in either BOOT EPROM has been corrupted. If a PAST or POST operation is executed, or the BENCH TEST/BURN-IN TEST operation is executed, it will log a A2 error.</p> <p>PARAMETER: NONE (set to 0)</p> <p>ERROR LIMITS: Not Applicable</p> <p><u>RF TOP ANTENNA FORWARD POWER (23/A3 XMITTER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>During normal operation, the transponder transmits a SQUITTER transmission periodically (approximately once per second) when it is in an active (non-STANDBY) mode. During this transmission, the TOP FORWARD POWER monitor voltage is sampled by the Analog/Digital converter on the PROCESSOR CCA. If the voltage is out of specification for 5 consecutive samples, an "23 XMITTER" is logged. During PAST/POST operational mode, if the voltage is out of specification for 1 transmission, "A3 XMITTER" is logged. The voltage limits for this test condition it the FAIL ERROR limit.</p> <p>During BENCH TEST/BURN-IN TEST mode, a test transmission operation is performed. If the voltage is out of specification for 1 transmission, "A3 XMITTER" is logged. The voltage limits for this condition is the BENCH TEST limit.</p>					
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<b>REV LTR</b> P	<p>           PARAMETER:            UNSIGNED DIGITS, Units 0.1 Volts.             Voltage at POWER SUPPLY/MODULATOR CCA, TOP_FWD_PWR_MON signal (J3-21).             ERROR LIMITS:            FAIL ERROR: &lt;0.70V OR &gt;5.00V is an ERROR condition.            BENCH TEST: &lt;1.60V OR &gt;4.50V is an ERROR condition.         </p> <p> <u>RF BOTTOM ANTENNA FORWARD POWER (24/A4 XMITTER) - FAIL AND BENCH TEST ERROR</u>             DESCRIPTION:             The monitor is identical to the RF TOP ANTENNA FORWARD POWER monitor, except it is for the BOTTOM antenna.             PARAMETER:            UNSIGNED DIGITS, Units 0.1 Volts.             Voltage at POWER SUPPLY/MODULATOR CCA, BOT_FWD_PWR_MON signal (J3-22).             ERROR LIMITS:            FAIL ERROR: &lt;0.70V OR &gt;5.00V is an ERROR condition.            BENCH TEST: &lt;1.60V OR &gt;4.50V is an ERROR condition.         </p> <p> <u>TRANSMITTER DUTY CYCLE (25/A5 PWR SPLY) - TROUBLESHOOT AND BENCH TEST ERROR</u>             DESCRIPTION:             The POWER SUPPLY/MODULATOR CCA contains a protection circuitry which keeps the transmitter from being harmed through excessive transmissions. If the over-duty cycle condition occurs, the monitor (OVER_DUTY_MON signal) is read by the Analog to Digital converter on the PROCESSOR CCA, and an error is logged.             During normal operation, if the monitor is out of voltage limits for 5 consecutive samples a "25 PWR SPLY" error is logged as a TROUBLESHOOT ERROR, using TROUBLESHOOT limits.             During BENCH TEST/BURN-IN TEST operation, if the monitor is out of voltage limits for 1 sample a "A5 PWR SPLY" error is logged, using BENCH TEST limits.             PARAMETER:            UNSIGNED DIGITS, Units 0.1 Volts.             Voltage at POWER SUPPLY/MODULATOR CCA, OVER_DUTY_MON signal (U4 Pin 2).             ERROR LIMITS:            TROUBLESHOOT: &lt;2.5V OR &gt;6.0V is an ERROR condition.            BENCH TEST: &lt;3.5V OR &gt;5.5V is an ERROR condition.         </p>		
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REV LTR P	<p><u>INTERNAL MODULE TEMPERATURE (26/A6 PWR SPLY) - TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The POWER SUPPLY/MODULATOR CCA contains a temperature sensor (U14) which monitors the internal system temperature. If the sensor is outside the normal operating temperature range of the unit, an error is logged.</p> <p>During normal operation, if the monitor is out of temperature limits for 5 consecutive samples a "26 PWR SPLY" error is logged as a TROUBLESHOOT ERROR, using TROUBLESHOOT limits.</p> <p>During BENCH TEST/BURN-IN TEST operation, if the monitor is out of temperature limits for 1 sample a "A6 PWR SPLY" error is logged, using BENCH TEST limits.</p> <p>PARAMETER: SIGNED DIGITS, Units 1 Degree Centigrade.</p> <p>ERROR LIMITS: TROUBLESHOOT: &lt;-75 OR &gt;100 Degrees is an ERROR condition. BENCH TEST: &lt;-80 OR &gt;110 Degrees is an ERROR condition.</p> <p><u>POWER SUPPLY ERRORS - TROUBLESHOOT AND BENCH TEST ERRORS</u></p> <p>DESCRIPTION:</p> <p>The POWER SUPPLY/MODULATOR CCA monitors each internally generated power supply voltage. If the voltage is outside the operating limits, an error is logged.</p> <p>During normal operation, if the monitor is out of limits for 5 consecutive samples a error is logged as a TROUBLESHOOT ERROR, using TROUBLESHOOT limits.</p> <p>During BENCH TEST/BURN-IN TEST operation, if the monitor is out of temperature limits for 1 or 2 samples (as indicated in the following table) a error is logged, using BENCH TEST limits.</p> <p>The following error codes are assigned for TROUBLESHOOT and BENCH TEST errors:</p> <table border="1"> <thead> <tr> <th>TROUBLESHOOT SUPPLY</th> <th>BENCH TEST ERROR CODE</th> <th>ERROR CODE</th> <th>#SAMPLES</th> </tr> </thead> <tbody> <tr> <td>+60VDC</td> <td>27 PWR SPLY</td> <td>A7 PWR SPLY</td> <td>2</td> </tr> <tr> <td>+50VDC</td> <td>28 PWR SPLY</td> <td>A8 PWR SPLY</td> <td>2</td> </tr> <tr> <td>+28VDC</td> <td>29 PWR SPLY</td> <td>A9 PWR SPLY</td> <td>1</td> </tr> <tr> <td>+15VDC</td> <td>2A PWR SPLY</td> <td>AA PWR SPLY</td> <td>1</td> </tr> <tr> <td>-5VDC</td> <td>2B PWR SPLY</td> <td>AB PWR SPLY</td> <td>1</td> </tr> <tr> <td>-15VDC</td> <td>2C PWR SPLY</td> <td>AC PWR SPLY</td> <td>1</td> </tr> <tr> <td>-150VDC</td> <td>2D PWR SPLY</td> <td>AD PWR SPLY</td> <td>1</td> </tr> </tbody> </table> <p>PARAMETER: SIGNED DIGITS, Units 0.1 VDC.</p>			TROUBLESHOOT SUPPLY	BENCH TEST ERROR CODE	ERROR CODE	#SAMPLES	+60VDC	27 PWR SPLY	A7 PWR SPLY	2	+50VDC	28 PWR SPLY	A8 PWR SPLY	2	+28VDC	29 PWR SPLY	A9 PWR SPLY	1	+15VDC	2A PWR SPLY	AA PWR SPLY	1	-5VDC	2B PWR SPLY	AB PWR SPLY	1	-15VDC	2C PWR SPLY	AC PWR SPLY	1	-150VDC	2D PWR SPLY	AD PWR SPLY	1
TROUBLESHOOT SUPPLY	BENCH TEST ERROR CODE	ERROR CODE	#SAMPLES																																
+60VDC	27 PWR SPLY	A7 PWR SPLY	2																																
+50VDC	28 PWR SPLY	A8 PWR SPLY	2																																
+28VDC	29 PWR SPLY	A9 PWR SPLY	1																																
+15VDC	2A PWR SPLY	AA PWR SPLY	1																																
-5VDC	2B PWR SPLY	AB PWR SPLY	1																																
-15VDC	2C PWR SPLY	AC PWR SPLY	1																																
-150VDC	2D PWR SPLY	AD PWR SPLY	1																																
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REV LTR P	<div>ERROR LIMITS:</div> <table><tr><td>TROUBLESHOOT</td><td colspan="4">BENCH TEST</td></tr><tr><td><u>SUPPLY</u></td><td><u>LOW</u></td><td><u>HIGH</u></td><td><u>LOW</u></td><td><u>HIGH</u></td></tr><tr><td>+60VDC</td><td>+45.0V</td><td>+66.0V</td><td>+48.0V</td><td>+63.0V</td></tr><tr><td>+50VDC</td><td>+42.0V</td><td>+55.0V</td><td>+44.0V</td><td>+53.0V</td></tr><tr><td>+28VDC</td><td>+24.0V</td><td>+31.0V</td><td>+25.0V</td><td>+29.0V</td></tr><tr><td>+15VDC</td><td>+12.0V</td><td>+18.0V</td><td>+13.5V</td><td>+16.5V</td></tr><tr><td>-5VDC</td><td>-6.0V</td><td>-3.5V</td><td>-5.2V</td><td>-4.0V</td></tr><tr><td>-15VDC</td><td>-18.0V</td><td>-12.0V</td><td>-16.5V</td><td>-13.5V</td></tr><tr><td>-150VDC</td><td>-180.0V</td><td>-100.0V</td><td>-165.0V</td><td>-110.0V</td></tr></table> <div><u>LOCAL OSCILLATOR OUTPUT POWER (2E/AE XMITTER) - TROUBLESHOOT AND BENCH TEST ERROR</u></div> <div>DESCRIPTION:</div> <p>The TRANSMITTER CCA has a monitor which detects the RF power level of the 1090MHz Local Oscillator. The voltage from the monitor is read by the Analog to Digital converter on the PROCESSOR CCA. If a voltage is detected outside of the normal operational range, an error is logged.</p> <p>During normal operation, if the monitor is out of range for 5 consecutive samples a "2E XMITTER" error is logged as a TROUBLESHOOT ERROR, using TROUBLESHOOT limits.</p> <p>During BENCH TEST/BURN-IN TEST operation, if the monitor is out of range for 1 sample a "AE XMITTER" error is logged, using BENCH TEST limits.</p> <div>PARAMETER:</div> <p>UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, LO_LEVEL_MON signal (J2 pin 35).</p> <div>ERROR LIMITS:</div> <table><tr><td>TROUBLESHOOT:</td><td>&lt;0.5 OR &gt;4.0 Volts is an ERROR condition.</td></tr><tr><td>BENCH TEST:</td><td>&lt;1.0 OR &gt;3.0 Volts is an ERROR condition.</td></tr></table> <div><u>LOCAL OSCILLATOR OFF FREQUENCY (2F/AF XMITTER) - FAIL ERROR</u></div> <div>DESCRIPTION:</div> <p>The 1090MHz Local Oscillator on the TRANSMITTER CCA is monitored for being on frequency. An off-frequency condition is determined by the Local Oscillator VCO Tuning voltage being out of range, and the synthesizer lock detect monitor in a unlocked condition. The following two signals must both be in an ERROR state for the monitor to log an error:</p> <ul style="list-style-type: none"><li>VCO Tuning Voltage (U6 pin 7) on the TRANSMITTER CCA (VCO_TUNING_MON signal on the POWER SUPPLY/MODULATOR CCA).</li><li>TP_SYNTH_LOCK signal on the POWER SUPPLY/MODULATOR CCA (J3 pin 16).</li></ul>					TROUBLESHOOT	BENCH TEST				<u>SUPPLY</u>	<u>LOW</u>	<u>HIGH</u>	<u>LOW</u>	<u>HIGH</u>	+60VDC	+45.0V	+66.0V	+48.0V	+63.0V	+50VDC	+42.0V	+55.0V	+44.0V	+53.0V	+28VDC	+24.0V	+31.0V	+25.0V	+29.0V	+15VDC	+12.0V	+18.0V	+13.5V	+16.5V	-5VDC	-6.0V	-3.5V	-5.2V	-4.0V	-15VDC	-18.0V	-12.0V	-16.5V	-13.5V	-150VDC	-180.0V	-100.0V	-165.0V	-110.0V	TROUBLESHOOT:	<0.5 OR >4.0 Volts is an ERROR condition.	BENCH TEST:	<1.0 OR >3.0 Volts is an ERROR condition.
TROUBLESHOOT	BENCH TEST																																																					
<u>SUPPLY</u>	<u>LOW</u>	<u>HIGH</u>	<u>LOW</u>	<u>HIGH</u>																																																		
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<b>REV LTR</b> P	<p>During normal operation, if BOTH monitors are out of range for 5 consecutive samples a "2F XMITTER" error is logged as a FAIL ERROR.</p> <p>During PAST/POST operation, if BOTH monitors are out of range for 1 sample, a "AF XMITTER" error is logged as a FAIL ERROR.</p> <p>PARAMETER: UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>VCO Tuning Voltage on TRANSMITTER CCA (U6 pin 7).</p> <p><b>NOTE:</b> The VCO_TUNING_MON signal (J2 pin 15) on POWER SUPPLY/MODULATOR CCA is the VCO Tuning Voltage after a resistor divider. The parameter recorded is the voltage before the divider.</p> <p>ERROR LIMITS: VCO Tuning Voltage: &lt;1.0 OR &gt;11.0 Volts is an ERROR condition. TP_SYNTH_LOCK: &lt;2.5 Volts is an ERROR condition.</p> <p><u>LOCAL OSCILLATOR VCO TUNING VOLTAGE (AF XMITTER) - BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>During BENCH TEST/BURN-IN TEST operation, the 1090MHz Local Oscillator VCO Tuning voltage on the TRANSMITTER CCA is monitored being out of range. A "AF XMITTER" error is logged if it is out of range for 1 sample. The VCO Tuning voltage monitor is the VCO Tuning Voltage signal on the TRANSMITTER CCA (U6 pin 7). This error is different from the LOCAL OSCILLATOR OFF FREQUENCY error (AF XMITTER), which is logged during normal operation.</p> <p>PARAMETER: UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>VCO Tuning Voltage on TRANSMITTER CCA (U6 pin 7).</p> <p><b>NOTE:</b> The VCO_TUNING_MON signal (J2 pin 15) on POWER SUPPLY/MODULATOR CCA is the VCO Tuning Voltage after a resistor divider. The parameter recorded is the voltage before the divider.</p> <p>ERROR LIMITS: BENCH TEST: &lt;2.0 OR &gt;9.5 Volts is an ERROR condition.</p> <p><u>RF MODE-S RECEIVER LOOP-BACK (B0 RECEIVER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The RF loop-back self test generates an RF test interrogation which is injected in the receiver and decoded. The RF ASIC on the PROCESSOR CCA generates Mode S self test modulation signals which modulates the self test generator on the POWER SUPPLY/MODULATOR CCA. The modulates self-test signal is converted to RF and injected in the receiver front-end on the TRANSMITTER CCA. The transponder then expects the test interrogation to be received and decoded by the RF ASIC.</p>		
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<b>REV LTR</b> P	<p>During PAST/POST operation mode, the RF loop-back test generates test interrogations until either 5 valid interrogations are received or 99 test interrogations have been generated. If 5 valid interrogations were not received, "B0 RECEIVER" error is logged, which is a FAIL ERROR. When the system is strapped for diversity antennas, both TOP and BOTTOM receiver channels are tested independently. When the system is strapped for a single antenna, only the BOTTOM receiver channel is tested.</p> <p>During BENCH TEST/BURN-IN TEST operation mode, the RF loop-back test continuously generates test interrogations. If less than 90 valid interrogations are received for every 99 test interrogations, a "B0 RECEIVER" error is generated, which is a BENCH TEST ERROR. Both TOP and BOTTOM receiver channels are tested independently.</p> <p>PARAMETER: UNSIGNED DIGITS, PARAMETER = xxyy</p> <p>xx     -     Number of times interrogations failed on BOTTOM Antenna, maximum 99 (Digit# 3,2).</p> <p>yy     -     Number of times interrogations failed on TOP Antenna, maximum 99 (Digit# 1,0).</p> <p>ERROR LIMITS: FAIL ERROR:    &lt;5 Valid interrogations is an ERROR condition. BENCH TEST:    &lt;90 Valid interrogations is an ERROR condition.</p> <p><u>RF ASIC RAM TEST (B1 COMPUTER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The RF ASIC on the PROCESSOR CCA contains internal Random Access Memory (RAM) which is used for receiving interrogations and generating replies. During both PAST/POST and BENCH TEST/BURN-IN TEST operational modes, the transponder tests the RF ASIC RAM memory by writing patterns to the memory and verifying the patterns can be read back. A failure results in a "B1 COMPUTER" error being logged. In PAST/POST modes, this is a FAIL ERROR.</p> <p>PARAMETER: NONE (Set to 0)</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>STRAP BUS PARITY (32/B2 STRAPS) - INSTALL ERROR (XS-854 STAND-ALONE ONLY)</u></p> <p>DESCRIPTION:</p> <p>This error is only used when the module is operating as a XS-854 stand-alone transponder. The transponder reads the STRAP CARD from the strap bus on system power-on. Straps W3 and W4 on the STRAP CARD are used to set the parity of the straps to allow for error detection. If the parity straps W3 and W4 are not correctly set, a "32 STRAPS" error is logged as an INSTALL ERROR. If a self-test operation is initiated during this condition, a "B2 STRAPS" error will be logged.</p>		
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REV LTR P	<p>PARAMETER: NONE (Set to 0)</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>STRAP BUS READ (33/B3 STRAPS) - INSTALL ERROR (XS-854 STAND-ALONE ONLY)</u></p> <p>DESCRIPTION:</p> <p>This error is only used when the module is operating as a XS-854 stand-alone transponder. The transponder reads the STRAP CARD from the strap bus on system power-on a minimum of 2 times, and a maximum of 10 times. If the straps reads do not agree for two consecutive reads, a "33 STRAPS" error will be logged as an INSTALL ERROR. If a self-test operation is initiated during this condition, a "B3 STRAPS" error will be logged.</p> <p>PARAMETER: NONE (Set to 0)</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>INVALID MODE S ADDRESS (34 STRAPS) - INSTALL ERROR</u></p> <p>DESCRIPTION:</p> <p>Part of the STRAP information for the transponder includes a 24-bit Mode S Address. The address is set on the STRAP CARD on the unit mount. An address of all 0's or all 1's is a illegal address. If this occurs, a "34 STRAPS" error will be logged as an INSTALL ERROR.</p> <p>PARAMETER: NONE (Set to 0)</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>ARINC ASIC INTERNAL LOOP-BACK (35/B5 COMPUTER) - FAIL AND BENCH TEST ERRORS</u></p> <p>DESCRIPTION:</p> <p>The ARINC ASIC on the PROCESSOR CCA contains 4 transmitter channels and 8 receiver channels, which are internally multiplexed to give 16 sets of receiver inputs. The 4 transmitter channels are connected to 4 spare receiver inputs on the PROCESSOR CCA to provide for a transmitter to receiver loop-back test. The ARINC ASIC test transmits a label from each of the transmitter channels and checks that the labels were received on the receiver channels. A failure to receive a label is a test failure.</p> <p>During normal operation, the ARINC ASIC test is executed when power is applied to the system. If the test fails, a "35 COMPUTER" error is logged which is a FAIL ERROR. If PAST/POST mode is executed during this power-on count, a "B5 COMPUTER" error is logged, which is a FAIL ERROR.</p>			
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REV LTR P	<p>During BENCH TEST/BURN-IN TEST modes, the test is continuously executed, and a "B5 COMPUTER" error is logged if a failure occurs, which is a BENCH TEST ERROR.</p> <p>PARAMETER: UNSIGNED DIGITS</p> <p>Digit #0: DLP A/B BUS    0 = pass / 1 = fail          Digit #1: TCAS BUS       0 = pass / 1 = fail          Digit #2: DLP C/D BUS   0 = pass / 1 = fail          Digit #3: RESERVED BUS    0 = pass / 1 = fail</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>RF ATCRBS RECEIVER LOOP-BACK (B6 RECEIVER) - FAIL AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>This test is identical in operation to the RF MODE S RECEIVER LOOP-BACK (B0 RECEIVER), except an ATCRBS self-test interrogation is used instead of a MODE S self-test interrogation. The "B6 RECEIVER" error is logged if failures occur.</p> <p>PARAMETER: UNSIGNED DIGITS, PARAMETER = xxyy</p> <p>xx       -       Number of times interrogations failed on BOTTOM Antenna, maximum 99 (Digit# 3,2).          yy       -       Number of times interrogations failed on TOP Antenna, maximum 99 (Digit# 1,0).</p> <p>ERROR LIMITS:          FAIL ERROR:    &lt;5 Valid interrogations is an ERROR condition.          BENCH TEST:    &lt;90 Valid interrogations is an ERROR condition.</p> <p><u>TOP PIN VOLTAGE DURING TRANSMISSION ON TOP ANTENNA (37/B7 PWR SPLY) TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The TOP ANTENNA PIN Diode voltage (TP_TOP_PIN_DRVR) which is generated on the POWER SUPPLY/MODULATOR CCA is monitored by the Analog to Digital converter on the PROCESSOR CCA. The voltage is tested during a transmission from the TOP ANTENNA, when the PIN Diode is in the OFF (reverse biased) state. An error is logged if the voltage is out of limits.</p> <p>During normal operation, the TOP PIN Diode voltage is monitored during a squitter from the TOP antenna. If 5 consecutive samples are out of limits, a "37 PWR SPLY" error is logged as a TROUBLESHOOT error. If the system is strapped as a "SINGLE" antenna, the TOP PIN Diode voltage is not tested. If the system is in STANDBY mode, the test is not performed.</p> <p>During BENCH TEST/BURN-IN TEST operation, the TOP PIN Diode voltage is monitored during test transmissions from the TOP antenna. If 1 sample is out of limits, a "B7 PWR SPLY" error is logged as a TROUBLESHOOT error.</p>			
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REV LTR P	<p>PARAMETER: SIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_TOP_PIN_DRVR signal (J3 pin 17).</p> <p>ERROR LIMITS:</p> <p>TROUBLESHOOT:      &lt;-190.0 OR &gt;-90.0 Volts is an ERROR condition.</p> <p>BENCH TEST:         &lt;-170.0 OR &gt;-100.0 Volts is an ERROR condition.</p> <p><u>TOP PIN VOLTAGE DURING RECEIVE ON TOP ANTENNA (38/B8 PWR SPLY) TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The TOP ANTENNA PIN Diode voltage (TP_TOP_PIN_DRVR) is tested during a time when the PIN Diode is in the ON (forward biased) state. This condition occurs when the transponder is in a receive mode or is transmitting on the BOTTOM antenna. An error is logged if the voltage is out of limits.</p> <p>During normal operation, the TOP PIN Diode voltage is monitored when the NOT transmitting from the TOP antenna. If 5 consecutive samples are out of limits, a "38 PWR SPLY" error is logged as a TROUBLESHOOT error.</p> <p>During BENCH TEST/BURN-IN TEST operation, the TOP PIN Diode voltage is monitored when NOT transmitting from the TOP antenna. If 1 sample is out of limits, a "B8 PWR SPLY" error is logged as a TROUBLESHOOT error.</p> <p>PARAMETER: SIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_TOP_PIN_DRVR signal (J3 pin 17).</p> <p>ERROR LIMITS:</p> <p>TROUBLESHOOT:      &lt;-30.0 OR &gt;+30.0 Volts is an ERROR condition.</p> <p>BENCH TEST:         &lt;-20.0 OR &gt;+20.0 Volts is an ERROR condition.</p> <p><u>BOTTOM PIN VOLTAGE DURING TRANSMISSION ON BOTTOM ANTENNA (39/B9 PWR SPLY) TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>This error is identical to the TOP PIN VOLTAGE DURING TRANSMISSION ON TOP ANTENNA (37/B7 PWR SPLY), except it is for the BOTTOM ANTENNA PIN Diode (TP_BOT_PIN_DRVR). A "39 PWR SPLY" error is logged as a TROUBLESHOOT error during normal operation, and a "B9 PWR SPLY" error is logged during BENCH TEST/BURN-IN TEST operation. The "SINGLE" antenna strap condition does not apply to this error during normal operation, since the BOTTOM antenna is used in all configurations.</p> <p>PARAMETER: SIGNED DIGITS, Units 0.1 Volts.</p>			
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<b>REV LTR</b> P	<p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_BOT_PIN_DRVR signal (J3 pin 18).</p> <p>ERROR LIMITS:          TROUBLESHOOT: &lt;-190.0 OR &gt;-90.0 Volts is an ERROR condition.          BENCH TEST: &lt;-170.0 OR &gt;-100.0 Volts is an ERROR condition.</p> <p><u>BOTTOM PIN VOLTAGE DURING RECEIVE ON BOTTOM ANTENNA (3A/BA PWR SPLY) TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The error is identical to the TOP PIN VOLTAGE DURING RECEIVE ON TOP ANTENNA (38/B8 PWR SPLY), except is for the BOTTOM ANTENNA PIN Diode (TP_BOT_PIN_DRVR). A "3A PWR SPLY" error is logged as a TROUBLESHOOT error during normal operation, and a "BA PWR SPLY" error is logged during BENCH TEST/BURN-IN TEST operation.</p> <p>PARAMETER:          SIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_BOT_PIN_DRVR signal (J3 pin 18).</p> <p>ERROR LIMITS:          TROUBLESHOOT: &lt;-30.0 OR &gt;+30.0 Volts is an ERROR condition.          BENCH TEST: &lt;-20.0 OR &gt;+20.0 Volts is an ERROR condition.</p> <p><u>PULSE MOD VOLTAGE DURING TRANSMISSION (3B/BB PWR SPLY) TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The PULSE MODULATOR (TP_+28V_PULSEMOD) voltage which is generated on the POWER SUPPLY/MODULATOR CCA to modulate the transmitter is monitored by the Analog to Digital converter on the PROCESSOR CCA. The voltage is tested during a transmission, when the PULSE MOD is in the ON state (+28V). An error is logged if the voltage is out of limits.</p> <p>During normal operation, the PULSE MODULATOR voltage is monitored during a squitter transmission. If 5 consecutive samples are out of limits, a "3B PWR SPLY" error is logged as a TROUBLESHOOT error. If the system is in STANDBY mode, the test is not performed.</p> <p>During BENCH TEST/BURN-IN TEST operation, the PULSE MODULATOR voltage is monitored during test transmissions. If 1 sample is out of limits, a "BB PWR SPLY" error is logged as a TROUBLESHOOT error.</p> <p>PARAMETER:          UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_+28V_PULSEMOD signal (J3 pin 13).</p> <p>ERROR LIMITS:          TROUBLESHOOT: &lt;19.0 OR &gt;31.0 Volts is an ERROR condition.          BENCH TEST: &lt;21.0 OR &gt;29.0 Volts is an ERROR condition.</p>		
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REV LTR P	<p><u>ENVELOPE MOD VOLTAGE DURING TRANSMISSION (3C/BC PWR SPLY) TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The ENVELOPE MODULATOR (TP_+28V_ENVELOPE) voltage which is generated on the POWER SUPPLY/MODULATOR CCA to bracket the transmitter during a transmission is monitored by the Analog to Digital converter on the PROCESSOR CCA. The voltage is tested during a transmission, when the ENVELOPE MODULATOR is in the ON state (+28V). An error is logged if the voltage is out of limits.</p> <p>During normal operation, the ENVELOPE MODULATOR voltage is monitored during a squitter transmission. If 5 consecutive samples are out of limits, a "3C PWR SPLY" error is logged as a TROUBLESHOOT error. If the system is in STANDBY mode, the test is not performed.</p> <p>During BENCH TEST/BURN-IN TEST operation, the ENVELOPE MODULATOR voltage is monitored during test transmissions. If 1 sample is out of limits, a "BC PWR SPLY" error is logged as a TROUBLESHOOT error.</p> <p>PARAMETER:</p> <p>UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_+28V_ENVELOPE signal (J3 pin 14).</p> <p>ERROR LIMITS:</p> <p>TROUBLESHOOT: &lt;19.0 OR &gt;31.0 Volts is an ERROR condition.</p> <p>BENCH TEST: &lt;21.0 OR &gt;29.0 Volts is an ERROR condition.</p> <p><u>DISCRETE OUTPUT OVER-CURRENT MONITOR (3D/BD INTERFAC) - TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>Each discrete output contains a over-current monitor which protects the outputs from damage if the outputs are directly shorted to +28V (for NEGATIVE outputs) or GROUND (for POSITIVE outputs). In addition to limiting the current through the transistor outputs, the monitor also indicates an over-current condition to the micro-controller, which turns the outputs OFF to protect the devices. This test verifies that the monitors are working correctly. The test verifies that when the outputs are turned OFF, the monitor does NOT indicate an over-current condition.</p> <p>During normal operation, when power is first applied to the system, all discrete outputs are turned OFF, and the monitors are checked. If one or more monitors indicate an over-current condition, a "3D INTERFACE" error is logged as a TROUBLESHOOT error.</p> <p>During BENCH TEST/BURN-IN TEST operation, the outputs are continuously tested. An over-current condition which occurs with the outputs OFF is logged as a "BD INTERFAC" error, which is a BENCH TEST error.</p> <p><b>NOTE:</b> The XS-852A Transponder model (IAC VERSION) only contains one discrete output XPDR_ACTIVE(NO). The other outputs are not tested with this model.</p>			
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REV LTR P	<p>PARAMETER: UNSIGNED DIGITS</p> <p>Digit #4: ALT_VALID_MON      0 = pass / 1 = fail          Digit #3: RSV_OUTPUT_MON   0 = pass / 1 = fail          Digit #2: XPDR_ACTIVE_MON   0 = pass / 1 = fail          Digit #1: XPDR_VALID_N_MON 0 = pass / 1 = fail          Digit #0: XPDR_VALID_P_MON 0 = pass / 1 = fail</p> <p><b>NOTE:</b>    Digits 0,1,3,4 are unused on XS-852A Module.</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>MUTUAL SUPPRESSION MONITOR (3F/BF INTERFAC) - TROUBLESHOOT AND BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The MUTUAL SUPPRESSION ( MUT_SUP(PO) ) interface is an input/output bus which is connected on the airplane to keep only one L-band system from transmitting at a time. When the transponder transmits a reply, the MUT_SUP(PO) bus is driven to an active state (+28V). When an external system sets the MUT_SUP(PO) to an active state, the transponder suppresses replies to interrogations. The RF ASIC on the PROCESSOR CCA asserts an output during a reply which turns on a driver transistor on the INTERFACE CCA. The INTERFACE CCA has a receiver which converts the external signal level to a digital signal which is input by the RF ASIC. The monitor tests the MUT_SUP(PO) operation after transmitting a reply by verifying that MUT_SUP(PO) was asserted during the reply. The RF ASIC has a register which is set whenever the MUT_SUP(PO) is asserted.</p> <p>During normal operation, MUT_SUP(PO) is monitored during squitters transmissions when the transponder is in an ACTIVE state. If the output was not asserted for 5 consecutive samples, a "3F INTERFAC" error is logged as a TROUBLESHOOT error. The monitor does not operate in STANDBY mode.</p> <p>During BENCH TEST/BURN-IN TEST operation, MUT_SUP(PO) is monitored during test transmissions. If the output was not asserted for 1 sample, a "BF INTERFAC" error is logged as a BENCH TEST error.</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p>			
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REV LTR P	<p><u>TCAS BUS COMMUNICATION (42 CHK TCAS) - INSTALL ERROR</u></p> <p>DESCRIPTION:</p> <p>The transponder continuously monitors the TCAS-&gt;XPDR ARINC 429 data bus to insure that valid data is being received. If no valid data is received for 5 seconds, a "42 CHK TCAS" error is logged as an INSTALL ERROR. The monitor is only enabled when the TCAS INSTALLED strap is set, and the transponder is in "TA ONLY" or "TA/RA" operational mode.</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>DLP A/B BUS COMMUNICATION (43 CHK DLPA) - INSTALL ERROR</u></p> <p>DESCRIPTION:</p> <p>The transponder continuously monitors the DLP_A/B-&gt;XPDR ARINC 429 data bus to insure that valid data is being received. If no valid data is received for 5 seconds, a "43 CHK DLPA" error is logged as an INSTALL ERROR. The monitor is only enabled when the DLP INSTALLED strap is set.</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>DLP C/D BUS COMMUNICATION (44 CHK DLPC) - INSTALL ERROR</u></p> <p>DESCRIPTION:</p> <p>The transponder continuously monitors the DLP_C/D-&gt;XPDR ARINC 429 data bus to insure that valid data is being received. If no valid data is received for 5 seconds, a "44 CHK DLPC" error is logged as an INSTALL ERROR. The monitor is only enabled when the DLP INSTALLED strap is set.</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p>								
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REV LTR P	<p><u>ADC1 TO XPDR BUS COMMUNICATION (45 CHK ADC1) - INSTALL ERROR</u></p> <p>DESCRIPTION:</p> <p>The transponder continuously monitors the ADC1-&gt;XPDR ARINC 429 data bus to insure that valid altitude data is being received. If no valid data is received for 5 seconds, a "45 CHK ADC1" error is logged as an INSTALL ERROR. The monitor is only enabled when the system is configured for ARINC 429 or ARINC 575 air data, and ADC1 altitude source is selected (ALT_SRC_SEL2(NO) discrete is set to OPEN).</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>ADC2 TO XPDR BUS COMMUNICATION (46 CHK ADC2) - INSTALL ERROR</u></p> <p>DESCRIPTION:</p> <p>The transponder continuously monitors the ADC2-&gt;XPDR ARINC 429 data bus to insure that valid altitude data is being received. If no valid data is received for 5 seconds, a "46 CHK ADC2" error is logged as an INSTALL ERROR. The monitor is only enabled when the system is configured for ARINC 429 or ARINC 575 air data, and ADC2 altitude source is selected (ALT_SRC_SEL2(NO) discrete is set to GROUND).</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p> <p><u>CTL1 TO XPDR BUS COMMUNICATION (47 CHK CTL1) - INSTALL ERROR (XS-854 STAND-ALONE ONLY)</u></p> <p>DESCRIPTION:</p> <p>The transponder continuously monitors the CTL1-&gt;XPDR ARINC 429 data bus to insure that valid control data is being received. If no valid data is received for 5 seconds, a "47 CHK CTL1" error is logged as an INSTALL ERROR. The monitor is only enabled when the system is a XS-854 STAND-ALONE transponder system using an ARINC 429 control source, and control source #1 is selected (CTL_SRC_SEL1(NO) is set to GROUND).</p> <p>PARAMETER: NONE (Set to 0).</p> <p>ERROR LIMITS: Not Applicable.</p>			
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REV LTR P	<div><div><div><div><div>CTL2 TO XPDR BUS COMMUNICATION (48 CHK CTL2) - INSTALL ERROR (XS-854 STAND-ALONE ONLY)</div><div>DESCRIPTION:</div><div>The transponder continuously monitors the CTL2-&gt;XPDR ARINC 429 data bus to insure that valid control data is being received. If no valid data is received for 5 seconds, a "48 CHK CTL2" error is logged as an INSTALL ERROR. The monitor is only enabled when the system is a XS-854 STAND-ALONE transponder system using an ARINC 429 control source, and control source #2 is selected (CTL_SRC_SEL1(NO) is set to OPEN).</div><div>PARAMETER:</div><div>NONE (Set to 0).</div><div>ERROR LIMITS:</div><div>Not Applicable.</div></div></div><div><div>DISCRETE OUTPUT OVER-CURRENT MONITORS - INSTALL AND BENCH TEST ERRORS</div><div>DESCRIPTION:</div><div>Each discrete output contains a over-current monitor which protects the outputs from damage if the outputs are directly shorted to +28V (for NEGATIVE outputs) or GROUND (for POSITIVE outputs). In addition to limiting the current through the transistor outputs, the monitor also indicates an over-current condition to the micro-controller, which turns the outputs OFF to protect the devices. This monitor detects an over-current condition.</div><div>During normal operation, if a discrete output is in the ON state and an over-current condition is detected for 5 samples, a INSTALL error is logged.</div><div>During BENCH TEST/BURN-IN TEST operation, each discrete output is turned on. If an over-current condition is detected for 1 sample, a BENCH TEST error is logged.</div><div>The following error codes are assigned for INSTALL and BENCH TEST errors:</div><div><div><div>DISCRETE OUTPUT</div><div>XPDR_VALID(NO)</div><div>XPDR_VALID(PO)</div><div>XPDR_ACTIVE(NO)</div><div>ALT_VALID(NO)</div><div>RSV_OUTPUT1(NO)</div></div><div><div>INSTALL</div><div>49 CHK OUTP</div><div>4A CHK OUTP</div><div>4B CHK OUTP</div><div>4C CHK OUTP</div><div>4D CHK OUTP</div></div><div><div>BENCH TEST</div><div>C9 INTERFAC</div><div>CA INTERFAC</div><div>CB INTERFAC</div><div>CC INTERFAC</div><div>CD INTERFAC</div></div></div><div><div>NOTE:</div><div>The XS-852A Transponder model (IAC VERSION) only contains one discrete output XPDR_ACTIVE(NO). The other error codes are not used with this model.</div></div><div><div>PARAMETER:</div><div>NONE (Set to 0)</div><div>ERROR LIMITS:</div><div>Not Applicable.</div></div></div></div></div>			
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REV LTR P	<p><u>FAN TURN-ON FAILURE (4E CHK FAN) - TROUBLESHOOT ERROR (XS-854 STAND-ALONE ONLY)</u></p> <p>DESCRIPTION:</p> <p>This error is only used with XS-854 STAND-ALONE Transponder modules. The INTERFACE CCA contains circuitry which turns a fan on, and detects if the fan is turning. If the circuitry turns the fan ON, but it does not detect that the fan is turning, a "4E CHK FAN" error is logged as a TROUBLESHOOT error.</p> <p>PARAMETER:</p> <p>NONE (Set to 0)</p> <p>ERROR LIMITS:</p> <p>Not Applicable.</p> <p><u>FAN TURN-OFF FAILURE (4F CHK FAN) - TROUBLESHOOT ERROR (XS-854 STAND-ALONE ONLY)</u></p> <p>DESCRIPTION:</p> <p>This error is only used with XS-854 STAND-ALONE Transponder modules. The INTERFACE CCA contains circuitry which turns a fan on, and detects if the fan is turning. If the circuitry turns the fan OFF, but it does not detect that the fan stops turning, a "4F CHK FAN" error is logged as a TROUBLESHOOT error.</p> <p>PARAMETER:</p> <p>NONE (Set to 0)</p> <p>ERROR LIMITS:</p> <p>Not Applicable.</p> <p><u>INVALID ALTITUDE SOURCE (51 STRAPS) - INSTALL ERROR (XS-852A MODULE ONLY)</u></p> <p>DESCRIPTION:</p> <p>This error is only used with XS-852A Transponder Module (IAC model). If the module is strapped for GILHAM altitude sources, which is an invalid altitude source for this model, a "51 STRAPS" error will be logged as an INSTALL error.</p> <p>PARAMETER:</p> <p>NONE (Set to 0)</p> <p>ERROR LIMITS:</p> <p>Not Applicable.</p>		
	<div> <div>Honeywell</div> <div> <div>AW/CRITICAL NOTATION</div> <div> <div>SECURITY NOTATION</div> <div>SUPPLEMENTS</div> <div>E-22 PAGE</div> </div> </div> </div>		

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<b>REV LTR</b> P	<p><u>+28V FILTERED MONITOR (D2 PWR SPLY) - BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The +28V FILTERED monitor voltage is monitored during BENCH TEST/BURN-IN TEST operation. A "D2 PWR SPLY" error is logged if it exceeds the limits for 2 consecutive samples.</p> <p>PARAMETER:</p> <p>UNSIGNED DIGITS, Units 0.1 VDC.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, XPDR_+28V_FILTRD (U5-13).</p> <p><b>NOTE:</b> The parameter is for the voltage prior to the resistor divider which results in the XPDR_+28V_FILTRD signal.</p> <p>ERROR LIMITS:</p> <p>&lt;18.0 OR &gt;31.0 VDC is an ERROR condition.</p> <p><u>PULSE MOD VOLTAGE DURING RECEIVE (D3 PWR SPLY) BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The PULSE MODULATOR (TP_+28V_PULSEMOD) voltage which is generated on the POWER SUPPLY/MODULATOR CCA to modulate the transmitter is monitored by the Analog to Digital converter on the PROCESSOR CCA. During BENCH TEST/BURN-IN TEST operation, the voltage is tested when the PULSE MOD is in the OFF state (0V). If 1 sample is out of limits, a "D3 PWR SPLY" error is logged as a BENCH TEST error.</p> <p>PARAMETER:</p> <p>UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_+28V_PULSEMOD signal (J3 pin 13).</p> <p>ERROR LIMITS:</p> <p>&gt;2.0 Volts is an ERROR condition.</p> <p><u>ENVELOPE MOD VOLTAGE DURING RECEIVE (D4 PWR SPLY) BENCH TEST ERROR</u></p> <p>DESCRIPTION:</p> <p>The ENVELOPE MODULATOR (TP_+28V_ENVELOPE) voltage which is generated on the POWER SUPPLY/MODULATOR CCA to bracket the transmitter during a transmission is monitored by the Analog to Digital converter on the PROCESSOR CCA. During BENCH TEST/BURN-IN TEST operation, the voltage is tested when the ENVELOPE MODULATOR is in the OFF state (0V). If 1 sample is out of limits, a "D4 PWR SPLY" error is logged as a BENCH TEST error.</p> <p>PARAMETER:</p> <p>UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, TP_+28V_ENVELOPE signal (J3 pin 14).</p> <p>ERROR LIMITS:</p> <p>&gt;2.0 Volts is an ERROR condition.</p>		
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REV LTR P	<p>Voltage on POWER SUPPLY/MODULATOR CCA, PULSE_+40V_MON signal (U3 pin 15).</p> <p><b>NOTE:</b> The parameter is for the voltage prior to the resistor divider which results in the PULSE_+40V_MON signal.</p> <p>ERROR LIMITS: &lt;35.0 OR &gt;44.0 Volts is an ERROR condition.</p> <p><u>ST ENABLE VOLTAGE DURING NORMAL OPERATION (58 PWR SPLY) - BENCH TEST</u></p> <p>DESCRIPTION:</p> <p>The ST ENABLE voltage monitors the power which is applied to the self-test oscillator circuitry on the POWER SUPPLY/MODULATOR CCA (ST_ENABLE_MON), and is read by the Analog to Digital converter on the PROCESSOR CCA. During BENCH TEST/BURN-IN TEST operation when power is NOT applied to the self-test oscillator circuitry (Normal operation), the voltage is tested, and if 1 sample is out of limits, a "58 PWR SPLY" error is logged as a BENCH TEST error.</p> <p>PARAMETER: UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, ST_ENABLE_MON signal (U3 pin 13).</p> <p>ERROR LIMITS: &gt;1.0 Volts is an ERROR condition.</p> <p><u>ST ENABLE VOLTAGE DURING TEST OPERATION (D8 PWR SPLY) - BENCH TEST</u></p> <p>DESCRIPTION:</p> <p>The ST ENABLE voltage monitors the power which is applied to the self-test oscillator circuitry on the POWER SUPPLY/MODULATOR CCA (ST_ENABLE_MON), and is read by the Analog to Digital converter on the PROCESSOR CCA. During BENCH TEST/BURN-IN TEST operation when power IS applied to the self-test oscillator circuitry (RF self-test operation), the voltage is tested, and if 1 sample is out of limits, a "D8 PWR SPLY" error is logged as a BENCH TEST error.</p> <p>PARAMETER: UNSIGNED DIGITS, Units 0.1 Volts.</p> <p>Voltage on POWER SUPPLY/MODULATOR CCA, ST_ENABLE_MON signal (U3 pin 13).</p> <p>ERROR LIMITS: &lt;4.0 OR &gt;5.5 Volts is an ERROR condition.</p>			
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REV LTR P	<div data-bbox="272 352 1062 384"> <u>BOOST CURRENT VOLTAGE (D9 PWR SPLY) - BENCH TEST</u> </div> <div data-bbox="272 401 474 428">DESCRIPTION:</div> <div data-bbox="272 447 1490 596"> <p>The BOOST CURRENT voltage monitors current in the primary transistor of the +60V Boost Power Supply on the POWER SUPPLY/MODULATOR CCA (BOOST_CURRENT), and is read by the Analog to Digital converter on the PROCESSOR CCA. During BENCH TEST/BURN-IN TEST operation the voltage is tested, and if 1 sample is out of limits, a "D9 PWR SPLY" error is logged as a BENCH TEST error.</p> </div> <div data-bbox="272 615 456 642">PARAMETER:</div> <div data-bbox="272 644 725 674">UNSIGNED DIGITS, Units 0.1 Volts.</div> <div data-bbox="272 688 1380 722">Voltage on POWER SUPPLY/MODULATOR CCA, BOOST_CURRENT signal (U3 pin 14).</div> <div data-bbox="272 737 482 764">ERROR LIMITS:</div> <div data-bbox="272 766 703 795">&gt;2.1 Volts is an ERROR condition.</div> <div data-bbox="272 861 1131 892"> <u>ARINC I/O EXTERNAL LOOP-BACK (E0 INTERFAC) - BENCH TEST</u> </div> <div data-bbox="272 907 474 934">DESCRIPTION:</div> <div data-bbox="272 953 1471 1197"> <p>This test is used to perform a wrap-around test of ARINC Bus Inputs and Outputs. The error is only logged when the BURN-IN TEST mode is selected from the RTIU. In order for the test to work correctly, a harness must be used which connects the appropriate ARINC outputs to inputs. When selected, the test outputs ARINC 429 words on the XPDR-&gt;TCAS, XPDR-&gt;DLP_A/B and XPDR-&gt;DLP_C/D busses, and checks to see that the labels were received on the TCAS-&gt;XPDR, ADC1-&gt;XPDR, DLP_A/B-&gt;XPDR, ADC2-&gt;XPDR, and DLP_C/D-&gt;XPDR bus inputs as is appropriate. If the labels were not received a (E0 INTERFAC) error is logged as a BENCH TEST error. The failure must occur for 2 consecutive samples for the error to be logged.</p> </div> <div data-bbox="272 1211 456 1241">PARAMETER:</div> <div data-bbox="272 1243 524 1270">UNSIGNED DIGITS</div> <div data-bbox="272 1287 1052 1442"> Digit #0: XPDR-&gt;TCAS to TCAS-&gt;XPDR      0=pass / 1=fail  Digit #1: XPDR-&gt;TCAS to ADC1-&gt;XPDR      0=pass / 1=fail  Digit #2: XPDR-&gt;DLP_A/B to DLP_A/B-&gt;XPDR   0=pass / 1=fail  Digit #3: XPDR-&gt;DLP_A/B to ADC2-&gt;XPDR      0=pass / 1=fail  Digit #4: XPDR-&gt;DLP_C/D to DLP_C/D-&gt;XPDR 0=pass / 1=fail </div> <div data-bbox="272 1457 482 1486">ERROR LIMITS:</div> <div data-bbox="272 1488 464 1518">Not Applicable.</div>		
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<b>REV LTR</b> P	<div data-bbox="272 352 1336 384"> <u>ARINC I/O EXTERNAL LOOP-BACK (E1 INTERFAC) - BENCH TEST (XS-852 ONLY)</u> </div> <div data-bbox="272 401 474 428"> <b>DESCRIPTION:</b> </div> <div data-bbox="272 447 1490 690"> <p>This test is used to perform a wrap-around test of ARINC Bus Inputs and Outputs, and is only used for XS-852 modules. The error is only logged when the BURN-IN TEST mode is selected from the RTIU. In order for the test to work correctly, a harness must be used which connects the appropriate ARINC outputs to inputs. When selected, the test outputs ARINC 429 words on the XPDR-&gt;RSV1, and XPDR-&gt;RSV2 busses, and checks to see that the labels were received on the RSV1-&gt;XPDR, CTL1-&gt;XPDR, FMS-&gt;XPDR, RSV2-&gt;XPDR, and CTL2-&gt;XPDR bus inputs as is appropriate. If the labels were not received a (E1 INTERFAC) error is logged as a BENCH TEST error. The failure must occur for 2 consecutive samples for the error to be logged.</p> </div> <div data-bbox="272 705 456 732"> <b>PARAMETER:</b> </div> <div data-bbox="272 735 522 762">       UNSIGNED DIGITS     </div> <div data-bbox="272 781 1052 932"> <table> <tr> <td>Digit #0: XPDR-&gt;RSV1 to RSV1-&gt;XPDR</td> <td>0=pass / 1=fail</td> </tr> <tr> <td>Digit #1: XPDR-&gt;RSV1 to CTL1-&gt;XPDR</td> <td>0=pass / 1=fail</td> </tr> <tr> <td>Digit #2: XPDR-&gt;RSV1 to FMS-&gt;XPDR</td> <td>0=pass / 1=fail</td> </tr> <tr> <td>Digit #3: XPDR-&gt;RSV2 to RSV2-&gt;XPDR</td> <td>0=pass / 1=fail</td> </tr> <tr> <td>Digit #4: XPDR-&gt;RSV2 to CTL2-&gt;XPDR</td> <td>0=pass / 1=fail</td> </tr> </table> </div> <div data-bbox="272 949 482 976"> <b>ERROR LIMITS:</b> </div> <div data-bbox="272 980 464 1010">       Not Applicable.     </div> <div data-bbox="272 1073 1344 1102"> <u>DISCRETE I/O PORT EXTERNAL LOOP-BACK (E2 to E9 INTERFAC) - BENCH TEST</u> </div> <div data-bbox="272 1119 474 1146"> <b>DESCRIPTION:</b> </div> <div data-bbox="272 1165 1490 1377"> <p>This test is used to perform a wrap-around test of Discrete Outputs to Discrete Inputs. The error is only logged when the BURN-IN TEST mode is selected from the RTIU. In order for the test to work correctly, a harness must be used which connects the appropriate Discrete outputs to inputs. When selected, the test outputs a "LOW" and "HIGH" level on each discrete output, and verifies that the discrete inputs which are connected to the output read the appropriate signal level. If the discrete inputs do not read the correct level, a error is logged as a (Ex INTERFAC) BENCH TEST error. The failure must occur for 2 consecutive samples for the error to be logged.</p> </div> <div data-bbox="272 1394 456 1421"> <b>PARAMETER:</b> </div> <div data-bbox="272 1425 1081 1455">       UNSIGNED DIGITS, where each digit has the following definition:     </div> <div data-bbox="272 1472 964 1591"> <p>         0 = Test Passes          1 = Input should have read a "LOW", but read a "HIGH".          2 = Input should have read a "HIGH", but read a "LOW"          3 = Input failed during both "LOW" and "HIGH" tests.       </p> </div>			Digit #0: XPDR->RSV1 to RSV1->XPDR	0=pass / 1=fail	Digit #1: XPDR->RSV1 to CTL1->XPDR	0=pass / 1=fail	Digit #2: XPDR->RSV1 to FMS->XPDR	0=pass / 1=fail	Digit #3: XPDR->RSV2 to RSV2->XPDR	0=pass / 1=fail	Digit #4: XPDR->RSV2 to CTL2->XPDR	0=pass / 1=fail
	Digit #0: XPDR->RSV1 to RSV1->XPDR	0=pass / 1=fail											
Digit #1: XPDR->RSV1 to CTL1->XPDR	0=pass / 1=fail												
Digit #2: XPDR->RSV1 to FMS->XPDR	0=pass / 1=fail												
Digit #3: XPDR->RSV2 to RSV2->XPDR	0=pass / 1=fail												
Digit #4: XPDR->RSV2 to CTL2->XPDR	0=pass / 1=fail												
<h1>Honeywell</h1>	<b>AW/CRITICAL NOTATION</b>												
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REV LTR P	<p>The following parameters for error codes E2 to E9 are defined as follows:</p> <p><u>E2 - DISCRETE I/O PORT #0 (XS-852 ONLY)</u></p> <table><tr><td>Digit #0: ALT_VALID(NO)</td><td>to</td><td>ENC_ALT1_A2(NO)</td></tr><tr><td>Digit #1: XPDR_ACTIVE(NO)</td><td>to</td><td>ENC_ALT1_A1(NO)</td></tr><tr><td>Digit #2: RSV_OUTPUT_1(NO)</td><td>to</td><td>ENC_ALT1_D4(NO)</td></tr><tr><td>Digit #3: XPDR_VALID(NO)</td><td>to</td><td>ENC_ALT1_D2(NO)</td></tr><tr><td>Digit #4: unused.</td><td></td><td></td></tr></table> <p><u>E2 - DISCRETE I/O PORT #0 (XS-852A ONLY)</u></p> <table><tr><td>Digit #0: XPDR_ACTIVE(NO)</td><td>to</td><td>ALT_SRC_SEL2(NO)</td></tr><tr><td>Digit #1: XPDR_ACTIVE(NO)</td><td>to</td><td>RSV_INPUT(NO)</td></tr><tr><td>Digit #2-#4: unused.</td><td></td><td></td></tr></table> <p><u>E3 - DISCRETE I/O PORT #0 (XS-852 ONLY)</u></p> <table><tr><td>Digit #0: XPDR_ACTIVE(NO)</td><td>to</td><td>ENC_ALT1_B4(NO)</td></tr><tr><td>Digit #1: RSV_OUTPUT_1(NO)</td><td>to</td><td>ENC_ALT1_B2(NO)</td></tr><tr><td>Digit #2: XPDR_VALID(NO)</td><td>to</td><td>ENC_ALT1_B1(NO)</td></tr><tr><td>Digit #3: XPDR_VALID(PO)</td><td>to</td><td>ENC_ALT1_A4(NO)</td></tr><tr><td>Digit #4: unused.</td><td></td><td></td></tr></table> <p><u>E4 - DISCRETE I/O PORT #1 (XS-852 ONLY)</u></p> <table><tr><td>Digit #0: RSV_OUTPUT_1(NO)</td><td>to</td><td>ALT_SRC_SEL2(NO)</td></tr><tr><td>Digit #1: XPDR_VALID(NO)</td><td>to</td><td>CTL_SRC_SEL1(NO)</td></tr><tr><td>Digit #2: XPDR_VALID(PO)</td><td>to</td><td>XPDR_STANDBY(NO)</td></tr><tr><td>Digit #3: ALT_VALID(NO)</td><td>to</td><td>SQUAT_SWITCH_2(NO)</td></tr><tr><td>Digit #4: unused.</td><td></td><td></td></tr></table> <p><u>E5 - DISCRETE I/O PORT #1 (XS-852 ONLY)</u></p> <table><tr><td>Digit #0: XPDR_VALID(NO)</td><td>to</td><td>ENC_ALT1_C4(NO)</td></tr><tr><td>Digit #1: XPDR_VALID(PO)</td><td>to</td><td>ENC_ALT1_C2(NO)</td></tr><tr><td>Digit #2: ALT_VALID(NO)</td><td>to</td><td>ENC_ALT1_C1(NO)</td></tr><tr><td>Digit #3: XPDR_ACTIVE(NO)</td><td>to</td><td>ALT_COMP_ENA(NO)</td></tr><tr><td>Digit #4: unused.</td><td></td><td></td></tr></table> <p><u>E6 - DISCRETE I/O PORT #2 (XS-852 ONLY)</u></p> <table><tr><td>Digit #0: XPDR_VALID(PO)</td><td>to</td><td>ENC_ALT2_A2(NO)</td></tr><tr><td>Digit #1: ALT_VALID(NO)</td><td>to</td><td>ENC_ALT2_A1(NO)</td></tr><tr><td>Digit #2: XPDR_ACTIVE(NO)</td><td>to</td><td>ENC_ALT2_D4(NO)</td></tr><tr><td>Digit #3: RSV_OUTPUT_1(NO)</td><td>to</td><td>ENC_ALT2_D2(NO)</td></tr><tr><td>Digit #4: unused.</td><td></td><td></td></tr></table>					Digit #0: ALT_VALID(NO)	to	ENC_ALT1_A2(NO)	Digit #1: XPDR_ACTIVE(NO)	to	ENC_ALT1_A1(NO)	Digit #2: RSV_OUTPUT_1(NO)	to	ENC_ALT1_D4(NO)	Digit #3: XPDR_VALID(NO)	to	ENC_ALT1_D2(NO)	Digit #4: unused.			Digit #0: XPDR_ACTIVE(NO)	to	ALT_SRC_SEL2(NO)	Digit #1: XPDR_ACTIVE(NO)	to	RSV_INPUT(NO)	Digit #2-#4: unused.			Digit #0: XPDR_ACTIVE(NO)	to	ENC_ALT1_B4(NO)	Digit #1: RSV_OUTPUT_1(NO)	to	ENC_ALT1_B2(NO)	Digit #2: XPDR_VALID(NO)	to	ENC_ALT1_B1(NO)	Digit #3: XPDR_VALID(PO)	to	ENC_ALT1_A4(NO)	Digit #4: unused.			Digit #0: RSV_OUTPUT_1(NO)	to	ALT_SRC_SEL2(NO)	Digit #1: XPDR_VALID(NO)	to	CTL_SRC_SEL1(NO)	Digit #2: XPDR_VALID(PO)	to	XPDR_STANDBY(NO)	Digit #3: ALT_VALID(NO)	to	SQUAT_SWITCH_2(NO)	Digit #4: unused.			Digit #0: XPDR_VALID(NO)	to	ENC_ALT1_C4(NO)	Digit #1: XPDR_VALID(PO)	to	ENC_ALT1_C2(NO)	Digit #2: ALT_VALID(NO)	to	ENC_ALT1_C1(NO)	Digit #3: XPDR_ACTIVE(NO)	to	ALT_COMP_ENA(NO)	Digit #4: unused.			Digit #0: XPDR_VALID(PO)	to	ENC_ALT2_A2(NO)	Digit #1: ALT_VALID(NO)	to	ENC_ALT2_A1(NO)	Digit #2: XPDR_ACTIVE(NO)	to	ENC_ALT2_D4(NO)	Digit #3: RSV_OUTPUT_1(NO)	to	ENC_ALT2_D2(NO)	Digit #4: unused.		
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		SEE THE TITLE PAGE FOR PROPRIETARY AND DATA RIGHTS NOTATIONS.				
REV LTR	<div><div>P</div><div><div><div>E7 - DISCRETE I/O PORT #2 (XS-852 ONLY)</div><div><div>Digit #0: ALT_VALID(NO)</div><div>Digit #1: XPDR_ACTIVE(NO)</div><div>Digit #2: RSV_OUTPUT_1(NO)</div><div>Digit #3: XPDR_VALID(NO)</div><div>Digit #4: unused.</div></div><div><div>E8 - DISCRETE I/O PORT #3 (XS-852 ONLY)</div><div><div>Digit #0: XPDR_ACTIVE(NO)</div><div>Digit #1: RSV_OUTPUT_1(NO)</div><div>Digit #2: XPDR_VALID(NO)</div><div>Digit #3: XPDR_VALID(PO)</div><div>Digit #4: unused.</div></div><div><div>E9 - DISCRETE I/O PORT #3 (XS-852 ONLY)</div><div><div>Digit #0: RSV_OUTPUT_1(NO)</div><div>Digit #1: XPDR_VALID(NO)</div><div>Digit #2: XPDR_VALID(PO)</div><div>Digit #3: ALT_VALID(NO)</div><div>Digit #4: unused.</div></div><div>ERROR LIMITS:</div><div>Not Applicable.</div></div></div></div></div></div>					
<div>Honeywell</div>		AW/CRITICAL NOTATION				
		SECURITY NOTATION		SUPPLEMENTS	E-29 PAGE	