



RAYTHEON COMPANY TEST REPORT

FOR THE

DSRC READER, M215

FCC PART 90 AND FCC PART 15 SUBPART B SECTIONS 15.107 & 15.109

COMPLIANCE

DATE OF ISSUE: DECEMBER 8, 2004

PREPARED FOR:

Raytheon Company
MS 675/Z314
1801 Hughes Drive
Fullerton, CA 92833-2200

P.O. No.: L-SR000591
W.O. No.: 82846

PREPARED BY:

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Date of test: November 29 - December 2, 2004

Report No.: FC04-085

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ADMINISTRATIVE INFORMATION

DATE OF TEST: November 29 - December 2, 2004

DATE OF RECEIPT: November 29, 2004

PURPOSE OF TEST: To demonstrate the compliance of the DSRC Reader, M215 with the requirements for FCC Part 90 and FCC Part 15 Subpart B Sections 15.107 & 15.109 devices.

TEST METHOD: FCC Part 90 and ANSI C53.4 (2001)

FREQUENCY RANGE TESTED: 9 kHz-10 GHz

MANUFACTURER: Raytheon Company
MS 675/Z314
1801 Hughes Drive
Fullerton, CA 92833-2200

REPRESENTATIVE: Ira Feldman

TEST LOCATION: CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92621

SUMMARY OF RESULTS

As received, the Raytheon Company DSRC Reader, M215 was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 90
- FCC Part 15 Subpart B Sections 15.107 & 15.109

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Septimiu Apahidean, EMC Test Engineer



Eddie Wong, EMC Engineer



EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit. The Reader is used to communicate with a DSRC transponder that will be mounted on the windshield of a vehicle behind the rear view mirror. The purpose is to collect toll from the vehicle, to verify that toll had been collected, or to verify operation of the transponder. In some cases, the Reader may be used to locate the position of the transponder. In one use, the Reader is installed on the side of the road, connected by coax with panel antennas mounted overhead to communicate with the transponder in the vehicle. In another use, the Reader is installed inside an enforcement vehicle, connected to a patch antenna mounted on the side window of the vehicle, for the purpose of verifying that toll had been collected from the transponder in an adjacent vehicle. A third use is to connect the Reader to a patch antenna mounted in a box, where the Reader is used to verify operation of a transponder in an office environment.

The customer declares that the EUT tested by CKC Laboratories was a production unit. The following model name was referenced by CKC Laboratories during testing: **M125**. The model name referenced was incorrect. The proper model name should have been **M215**. The data sheets in Appendix B are screen captures taken at the time of testing and will reflect the wrong model number. Any differences between the names does not affect their EMC characteristics and therefore complies to the level of testing equivalent to the tested model name shown on the data sheets.

EQUIPMENT UNDER TEST

DSRC Reader

Manuf: Raytheon Company
Model: M215
Serial: HTMS 01000126
FCC ID: pending

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Antenna

Manuf: Larsen
Model: PA0004
Serial: NA

Laptop

Manuf: Dell
Model: PP01X
Serial: 20311250257

**TEMPERATURE AND HUMIDITY DURING TESTING**

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

FCC 2.1033(c)(3) USER'S MANUAL

The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS

3M6A1D.

FCC 2.1033 (c)(5) FREQUENCY RANGE

905-925 MHz.

FCC 2.1033 (c)(6) OPERATING POWER

3.8018 Watts ERP.

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

30 Watts ERP

FCC 2.1033 (c)(8) DC VOLTAGES

The necessary information is contained in a separate document.

FCC 2.1033 (c)(9) TUNE-UP PROCEDURE

The necessary information is contained in a separate document.

FCC 2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION

The necessary information is contained in a separate document.

FCC 2.1033(c)(11) LABEL AND PLACEMENT

The necessary information is contained in a separate document.

FCC 2.1033(c)(12) SUBMITTAL PHOTOS

The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION

The necessary information is contained in a separate document.

FCC 2.1033(c)(14)/2.1046/90.205 - RF POWER OUTPUT

§90.205 Power and antenna height limits. - Applicants for licenses must request and use no more power than the actual power necessary for satisfactory operation. Except where otherwise specifically provided for, the maximum power that will be authorized for new stations authorized after August 16, 1995 is as follows:

(k) 902-928 MHz. LMS systems operating pursuant to Subpart M of this part in the 902-927.25 MHz band will be authorized a maximum of 30 watts ERP. LMS equipment operating in the 927.25-928 MHz band will be authorized a maximum of 300 watts ERP. ERP must be measured as peak envelope power. Antenna heights will be as specified in §90.353(h).

Radiated measurement performed in accordance with 2.1046(a).Antenna Substitution method (TIA/EIA 603 Par 2.2.17) was used. The peak RF field strength of the EUT was first measured with a tune dipole antenna. The EUT is then replaced with a transmitting tuned Dipole antenna. A signal generator fed RF signal to the transmitting antenna via a RF power amplifier. The signal level of the signal generator was adjusted to produce RF field strength equal to the transmitted field strength of the EUT. An Average power meter was employed to measure the signal level of the signal generator.

The power level is recorded as ERP. RWB=VBW= 3MHz

Larson antenna 8 (dBi)	ERP (dBm)	ERP (w)
905 V	32.4	1.7378
905 H	22.9	0.1950
915 V	32.3	1.6982
915 H	25.9	0.3890
925 V	34.6	2.8840
925 H	25.4	0.3467
European antenna (16 dBi)		
905 V	33.2	2.0893
905 H	21.2	0.1318
915 V	16.2	0.0417
915 H	19.8	0.0955
925 V	35.8	3.8018
925 H	21.2	0.1318

Result: The ERP is below the 30 Watt limitation.



Note: The final user of the equipment will re-measure ERP on site prior to putting the device in service. Two antennas to be used. The Larson antenna is to be used on mobile configuration whereas the European Antenna is configured for base station.

FCC 90.205(k) CARRIER OUTPUT POWER TO ANTENNA

Conducted measurement performed in accordance with 2.1046(a).

Peak RF power to antenna was measured at the antenna terminal using a spectrum analyzer.

Measurement made with Spectrum analyzer set at RBW =VBW=3MHz

915 MHz = 31.24 dBm = 1.3305 W

905 MHz = 31.00 dBm = 1.2589 W

925 MHz = 30.00 dBm = 1.0000 W

RF Power Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



FCC 2.1033(c)(14)/2.1047(a) - MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

Not applicable to this unit.

FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS- Modulation Limiting Response

Not applicable to this unit.

FCC 2.1033(c)(14)/2.1051/90.210(k)(3)(ii) - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Conditions: The EUT is placed on the test bench. RS232 port is connected to a support laptop. Conducted spurious emission measured at antenna port. Frequency = 905 MHz, 915 MHz, 925 MHz. Frequency range of measurement = 9 kHz - 10 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 10000 MHz; RBW=1 MHz, VBW=1 MHz. 26.7°C, 30% relative humidity.

Result: Detection was performed with reduced resolution bandwidth or with the aid of High Pass Filter at the required resolution bandwidth. **No Emission found.**

Spurious Emissions at Antenna Terminal Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP





FCC 2.1033(c)(14)/2.1053/90.210(k)(3)(ii) - FIELD STRENGTH OF SPURIOUS RADIATION

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
Specification: **FCC 90.210(k)**
Work Order #: **82846** Date: 12/02/2004
Test Type: **Maximized Emissions** Time: 08:36:11
Equipment: **DSRC Reader** Sequence#: 7
Manufacturer: Raytheon Company Tested By: Eddie Wong
Model: M125
S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	PP01X	20311250257
Antenna	European Antenna	FPA 15-916H/1159	402521/0002

Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Sync Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. RF port is connected to a 16 dBi patch antenna Frequency = 905 MHz, 915 MHz and 925 MHz. Frequency range of measurement = 9 kHz - 10 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 10000 MHz; RBW=1 MHz, VBW=1 MHz. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Operating Frequency: 905-925 MHz

Channels: Low, Mid and High

Highest Measured Output Power: 35.80 ERP(dBm)= 3.8018 ERP(Watts)

Distance: 3 meters

Limit: $43 + 10 \log(P)$ 48.80 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
905.02	-30.9	Horiz	66.70
332.21	-45.3	Horiz	81.10
332.23	-36.6	Vert	72.40
808.96	-23.7	Vert	59.50
905.03	-28.6	Vert	64.40
1,596.25	-41.8	Vert	77.60
1,700.00	-39.4	Vert	75.20
1,800.00	-40.1	Vert	75.90
3,620.00	-31.9	Vert	67.70
345.72	-16.3	Vert	52.10
819.09	-19.5	Vert	55.30
915.02	-27.8	Vert	63.60
915.02	-31.1	Vert	66.90
819.11	-31.4	Horiz	67.20
767.96	-40.1	Horiz	75.90
626.79	-33.4	Horiz	69.20
520.72	-33.7	Horiz	69.50
494.73	-28.4	Horiz	64.20
473.90	-33.5	Horiz	69.30
431.98	-39.5	Horiz	75.30
347.21	-25.9	Horiz	61.70
1,697.50	-41.4	Horiz	77.20
3,660.00	-29.6	Horiz	65.40
1,696.25	-40.6	Vert	76.40
3,660.00	-33	Vert	68.80
925.00	-27.7	Vert	63.50
829.18	-20.7	Vert	56.50
543.21	-40.4	Vert	76.20
519.85	-36	Vert	71.80
359.43	-34.1	Vert	69.90
174.63	-40.2	Horiz	76.00
362.27	-44.4	Horiz	80.20
524.40	-35.6	Horiz	71.40
829.12	-40.8	Horiz	76.60
924.96	-34.7	Horiz	70.50
3,699.88	-35.4	Horiz	71.20

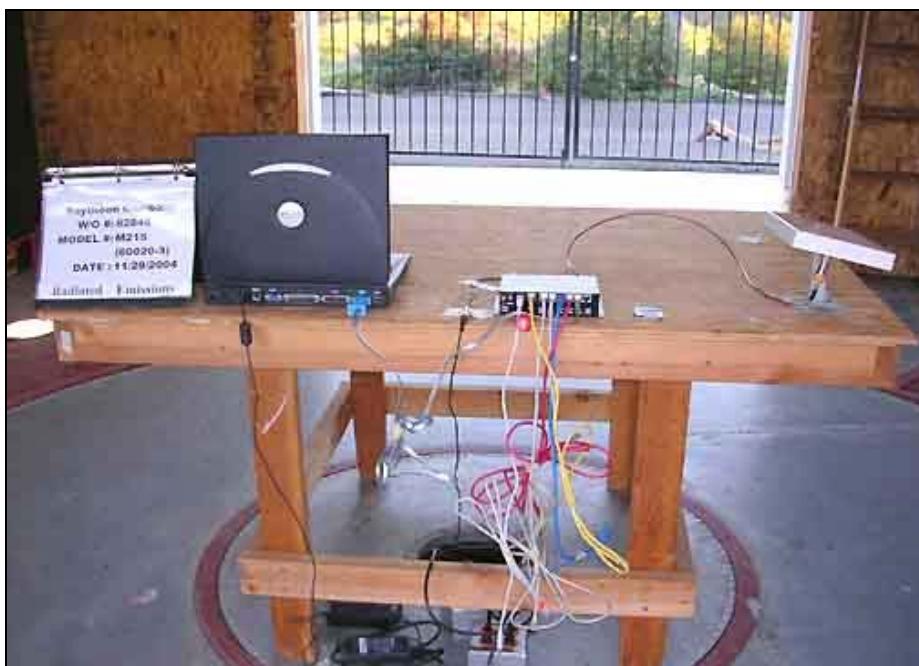
Radiated Emissions

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	070204	070206
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	070204	070206
Quasi Peak Adapter	00200	HP	85650A	2043A00221	070204	070206
30-1000MHz						
Bilog Antenna	00851	Schaffner-Chase EMC	CBL6111C	2629	031604	031606
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	100204	100205
Antenna cable from bulkhead to antenna	N/A	Pasternack	RG-214/U	Cable #33	032904	032905
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	080904	080905
Pre-amp	00010	HP	8447D	2727A05392	070204	070206
1-10GHz						
Antenna cable (Heliax)	NA	Andrew	LDF1-50	Cable#19	101303	101305
Horn Antenna	01646	EMCO	3115	9603-4683	042503	042505
Microwave Pre-amp	00787	HP	83017A	3123A00282	042303	042305
Magnetic Loop Antenna	00314	Emco	6502	2014	072804	072806
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105
24" SMA Cable	2604	Argosy	UFA147A	0-0360-200200	012304	012305
9kHz-30MHz						
Loop Antenna	00314	EMCO	6502	2014	062804	062806

PHOTOGRAPH SHOWING RADIATED EMISSIONS

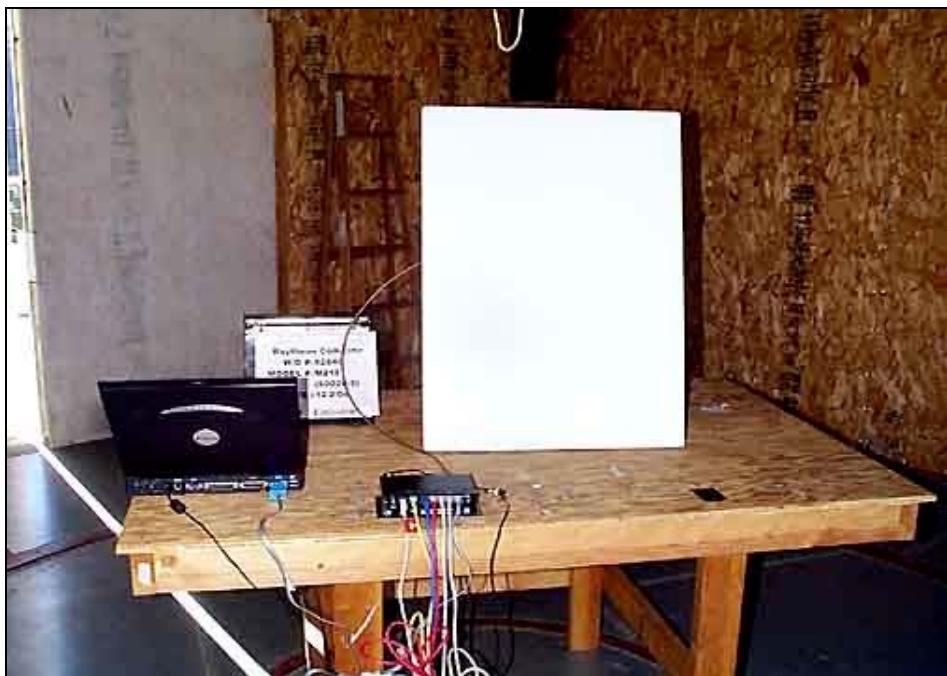


Radiated Emissions - Front View



Radiated Emissions - Back View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View



Radiated Emissions - Back View

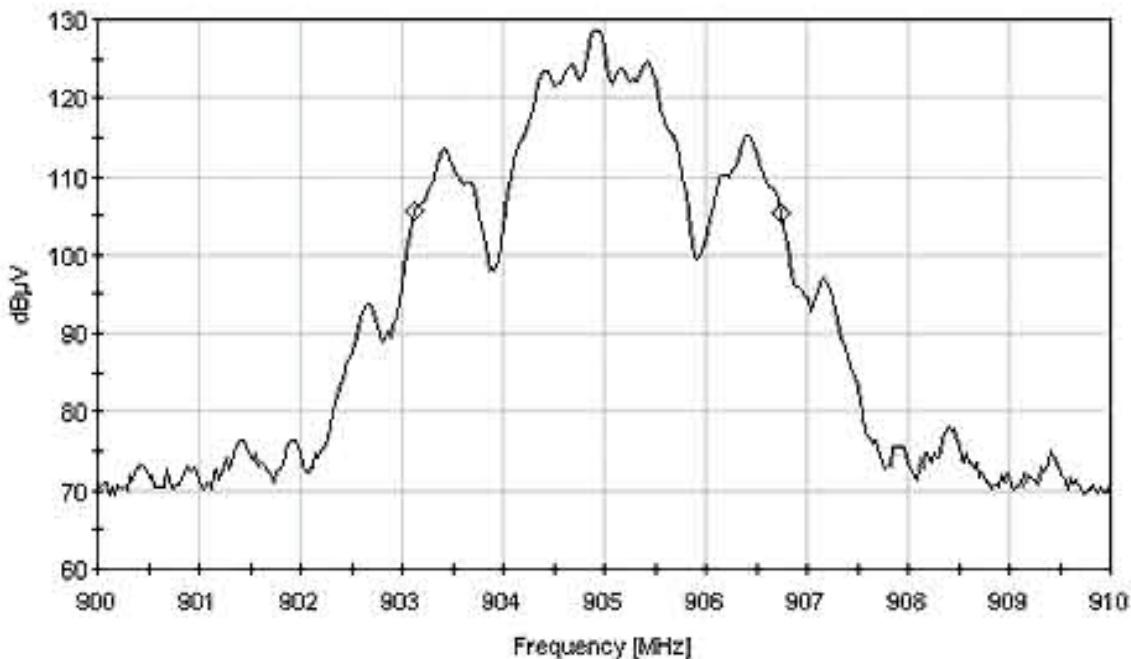
PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Loop Antenna

OCCUPIED BANDWIDTH 905 MHz

Occupied BW_905MHz_)BW=3.63MHz
Ref Level 136.99 dB μ V ATTEN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker 1: 903.125MHz: 105.521 dB μ V Marker 2: 906.75MHz 105.378 dB μ V Delta: 3.625MHz



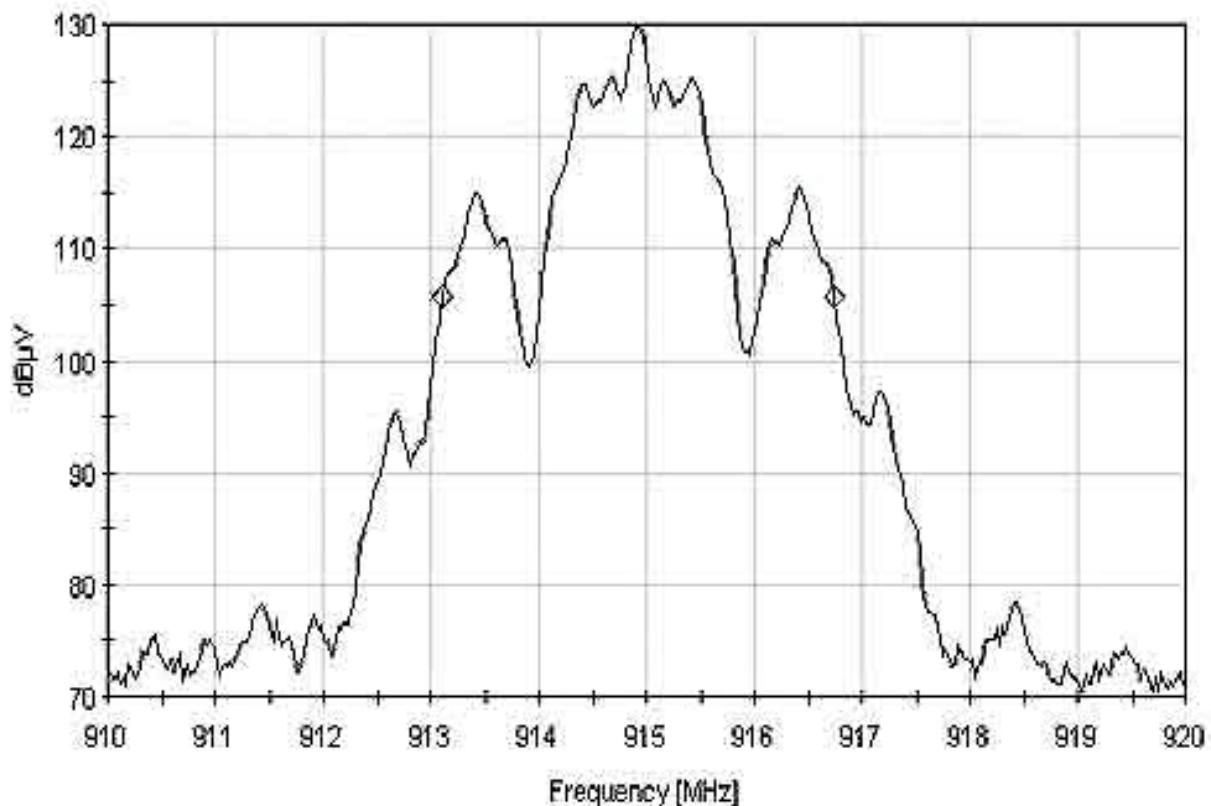
OCCUPIED BANDWIDTH 915 MHz

Occupied BW_915 MHz_OBW=3.65 MHz

Ref Level 136.99 dB μ V ATTEN 0 dB OFFSET: 40dB

RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec

Marker 1: 913.1MHz 105.695 dB μ V Marker 2: 916.75MHz 105.605 dB μ V Delta: 3.65MHz



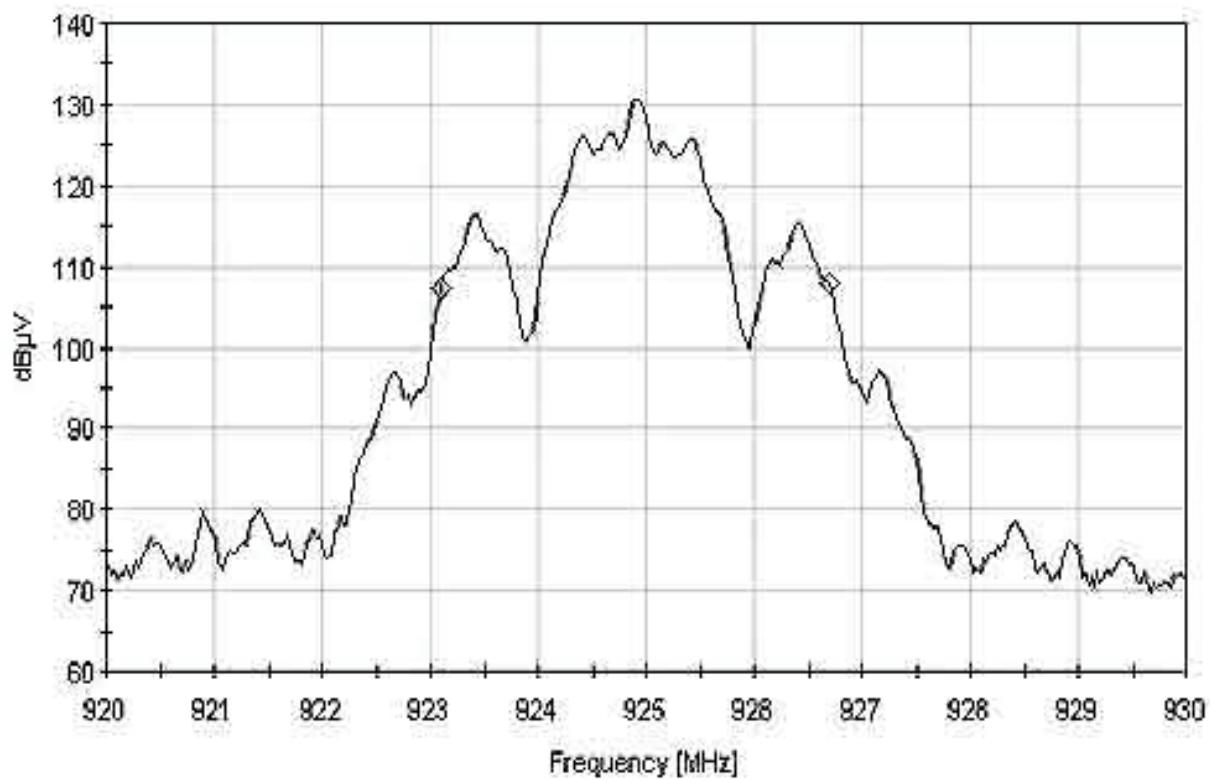
OCCUPIED BANDWIDTH 925 MHz

Occupied BW_925MHz_OBW=3.6MHz

Ref Level 136.99 dB μ V ATTEN 0 dB OFFSET: 40dB

RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec

Marker 1: 923.1MHz 107.422 dB μ V Marker 2: 926.7MHz 107.898 dB μ V Delta: 3.6MHz



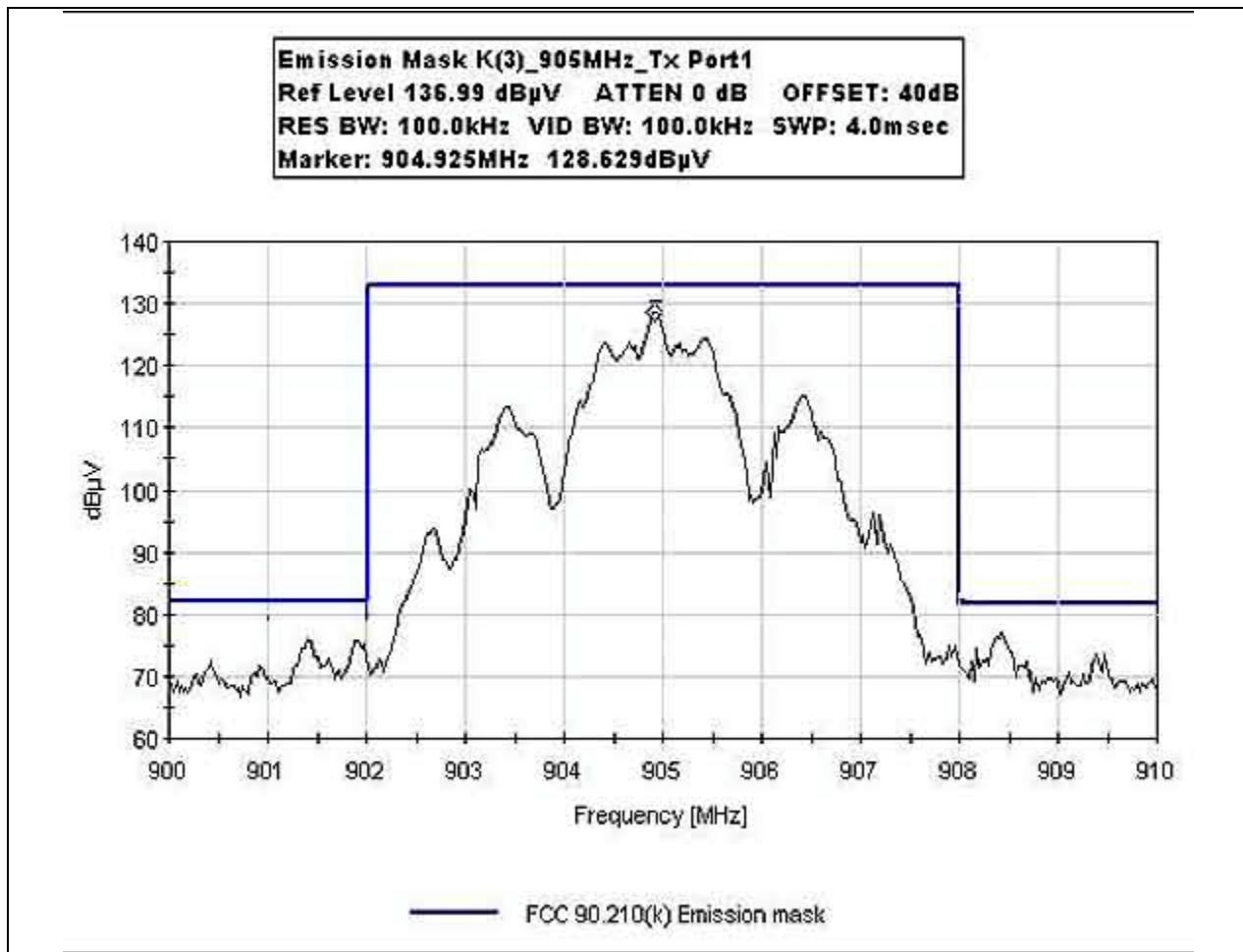
Occupied Bandwidth Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

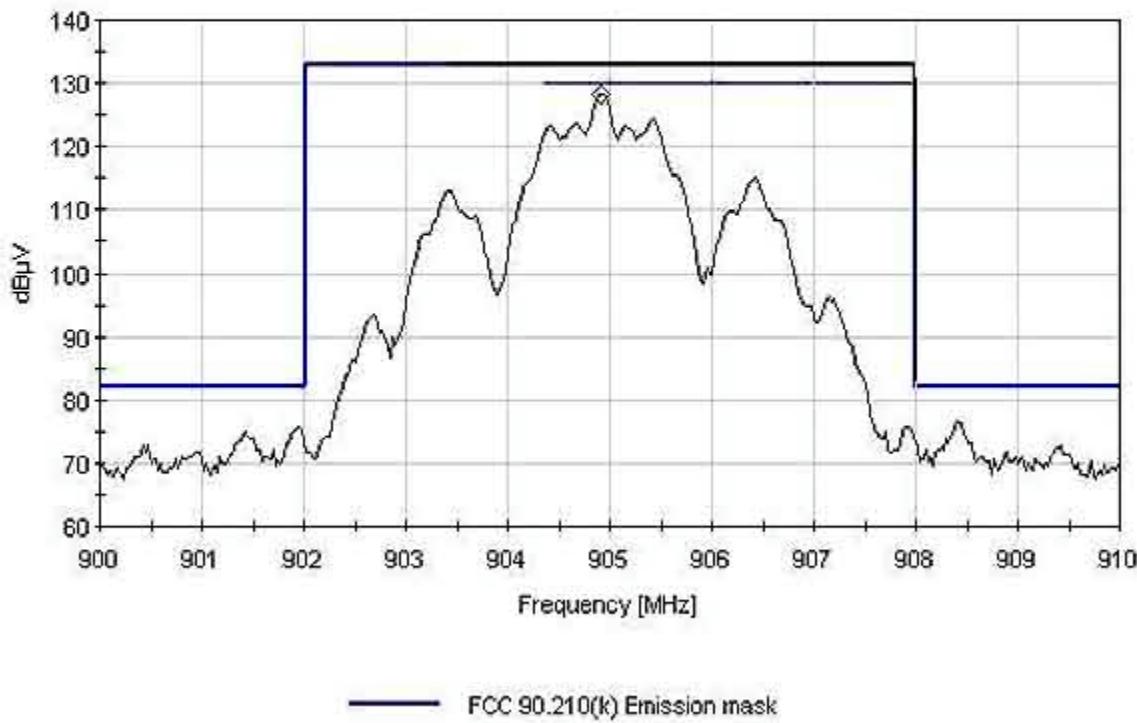


EMISSIONS MASK 905 MHz PORT 1

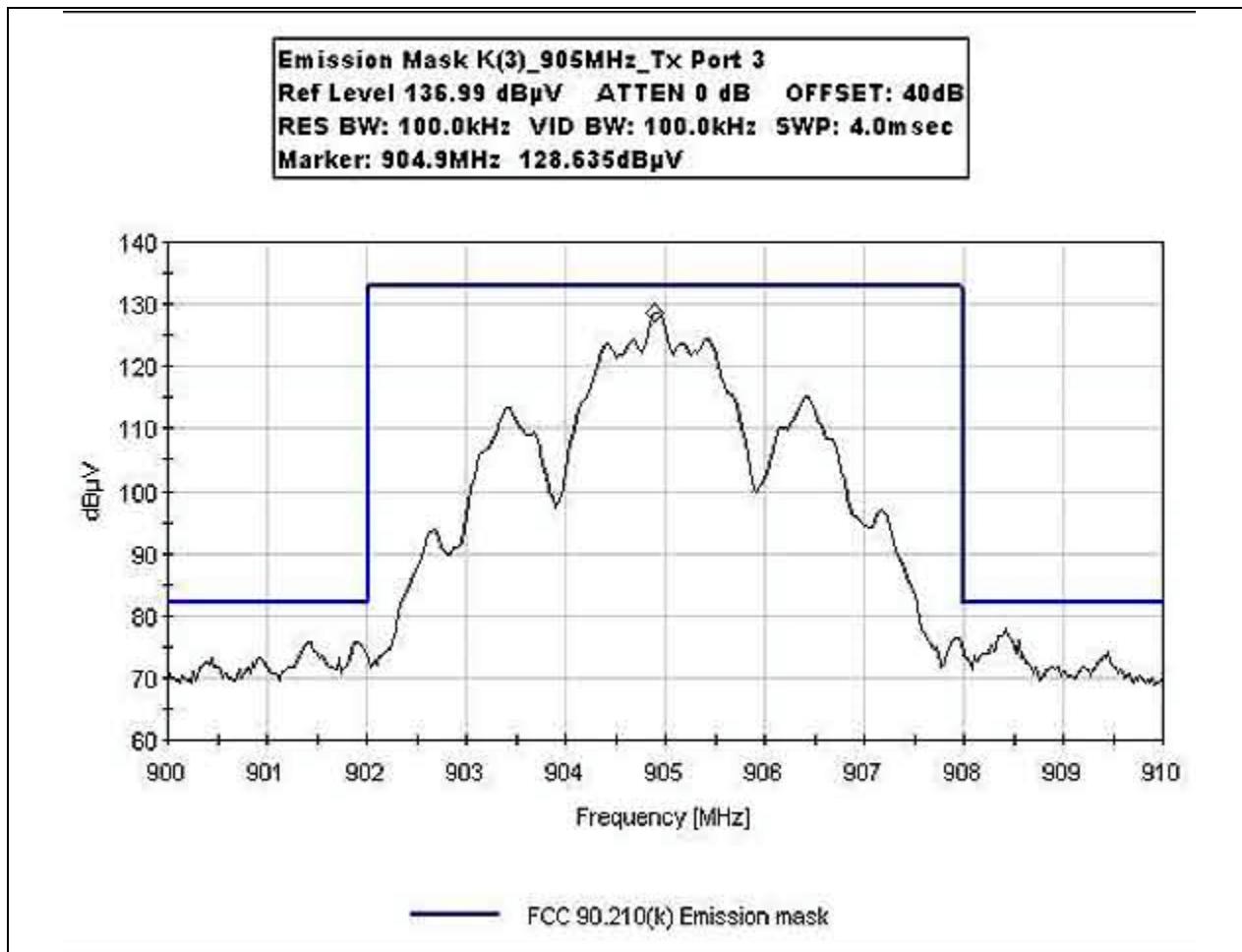


EMISSIONS MASK 905 MHz PORT 2

Emission Mask K(3)_905MHz_TX Port2
Ref Level 136.99 dB μ V ATTN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker: 904.925MHz 128.41dB μ V

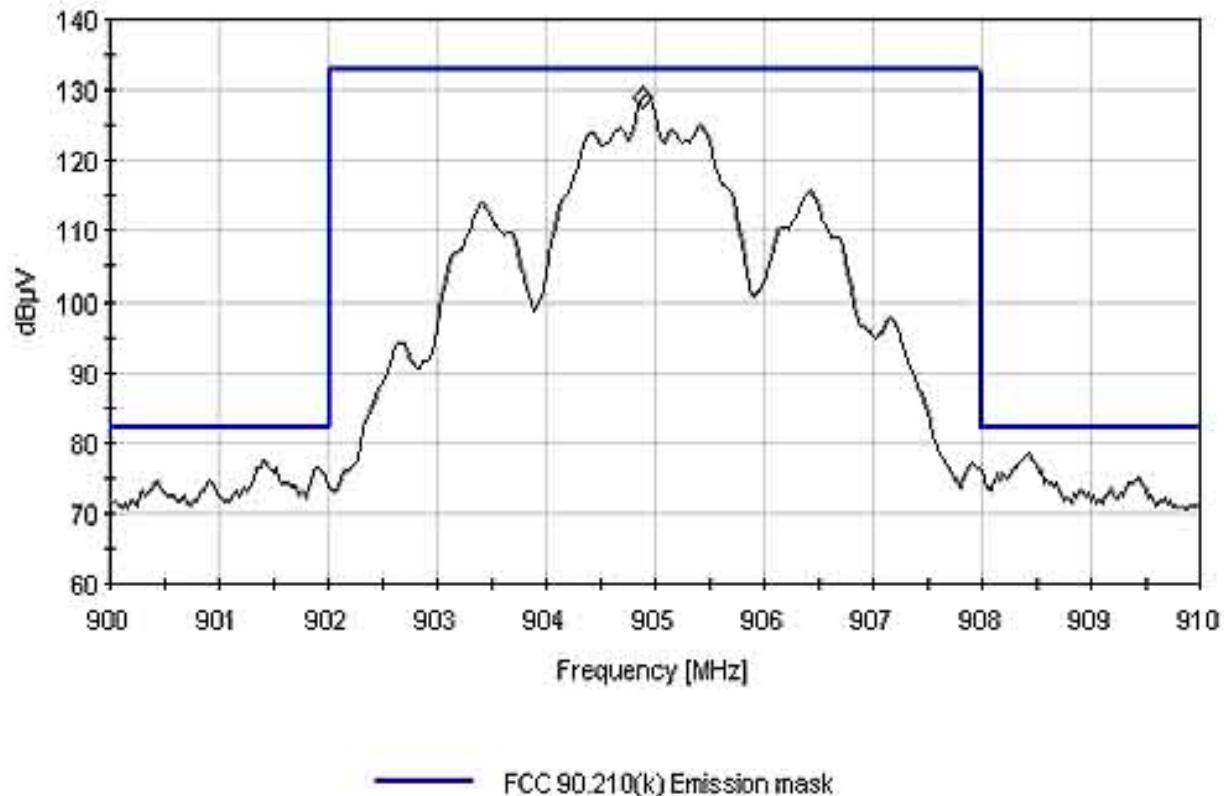


EMISSIONS MASK 905 MHz PORT 3

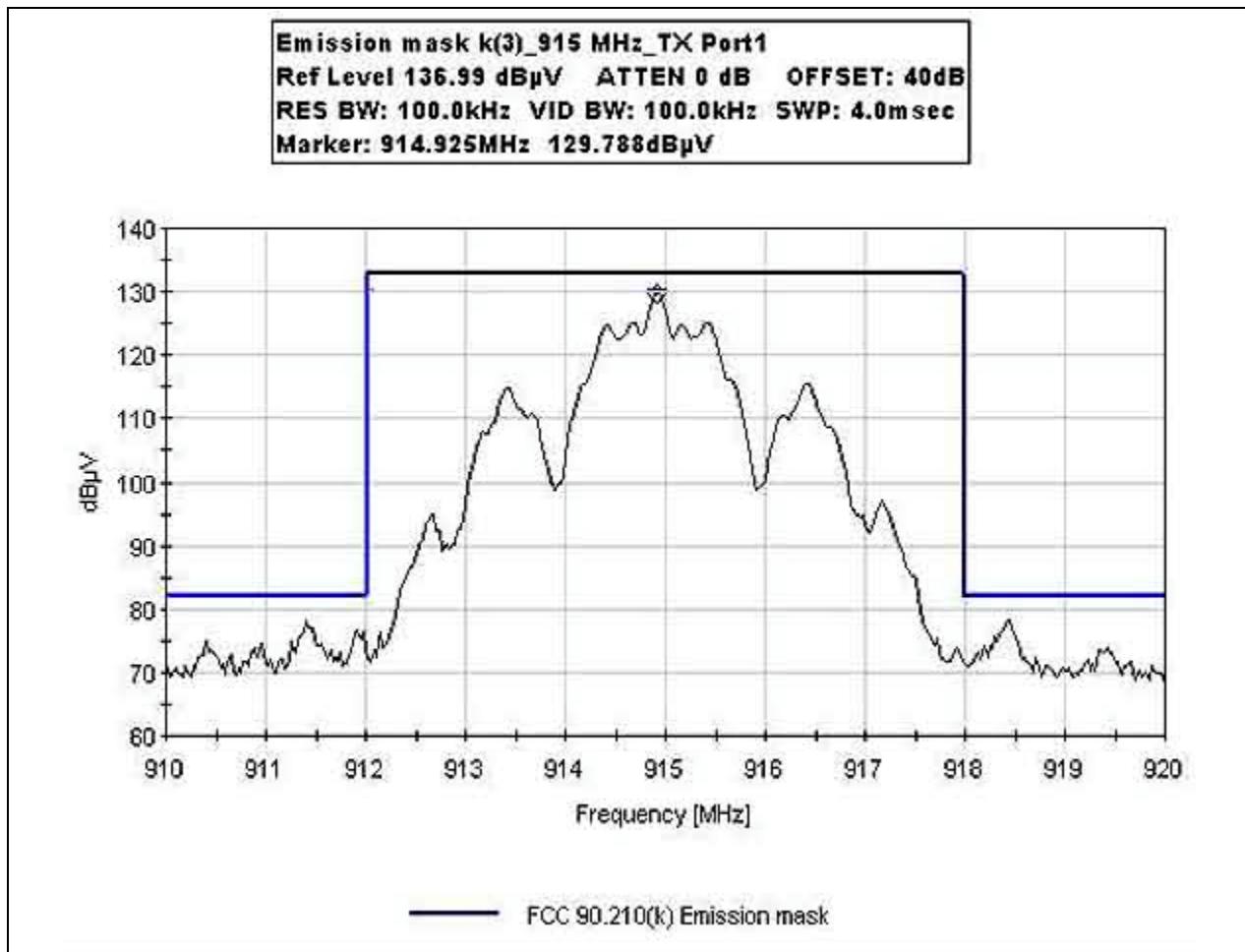


EMISSIONS MASK 905 MHz PORT 4

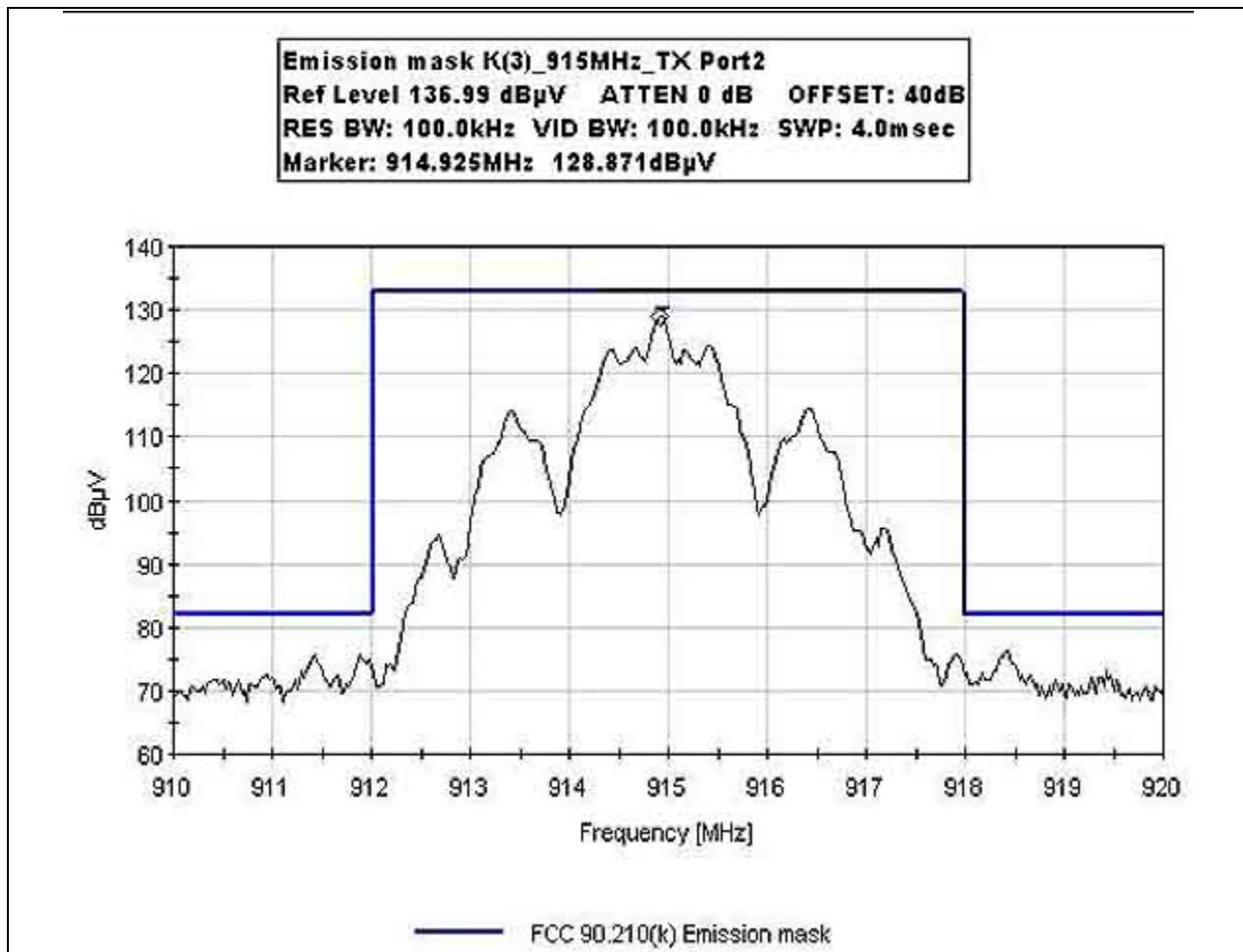
emission mask K(3)_905MHz_Tx Port4
Ref Level 136.99 dB μ V ATTN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker: 904.9MHz 129.108dB μ V



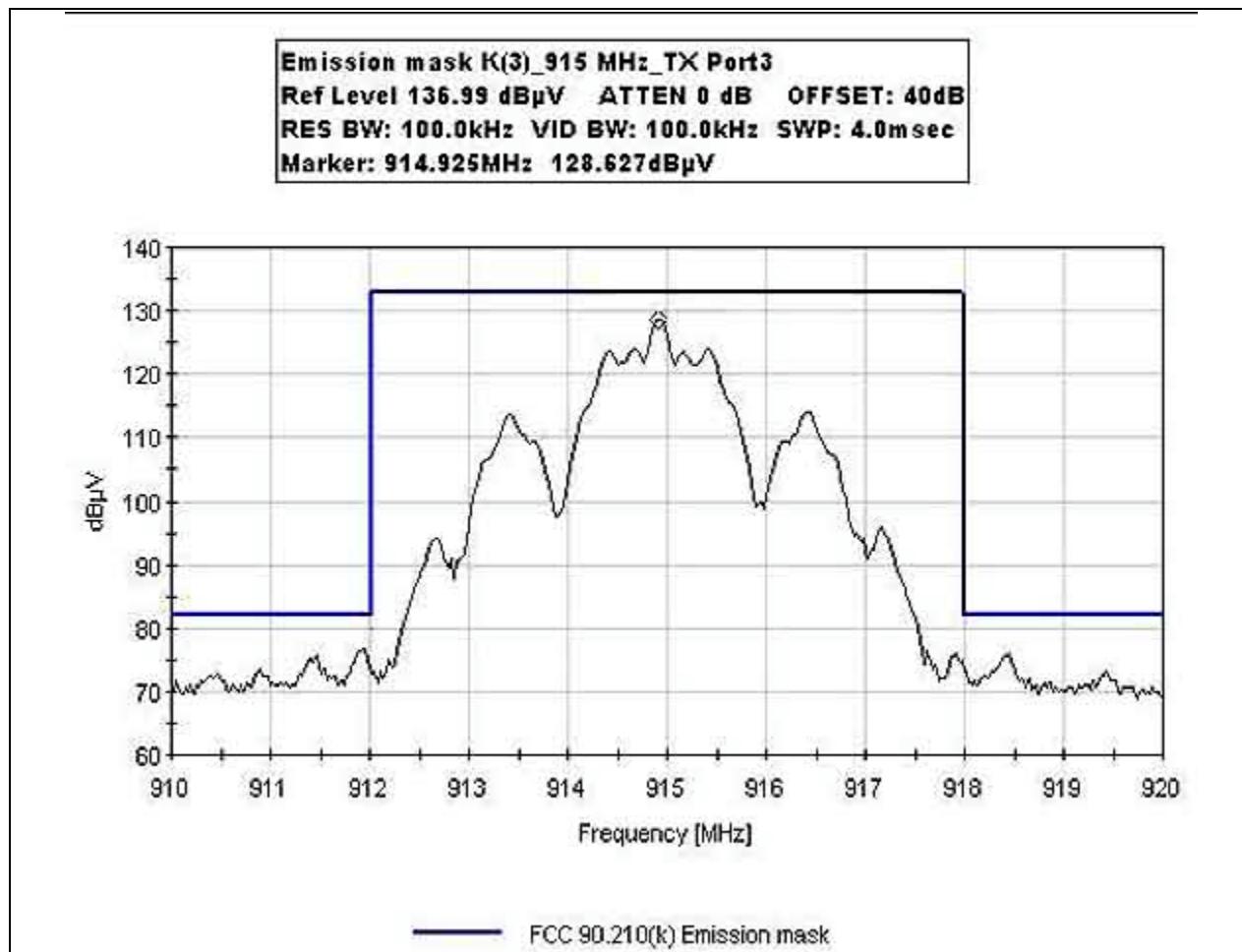
EMISSIONS MASK 915 MHz PORT 1



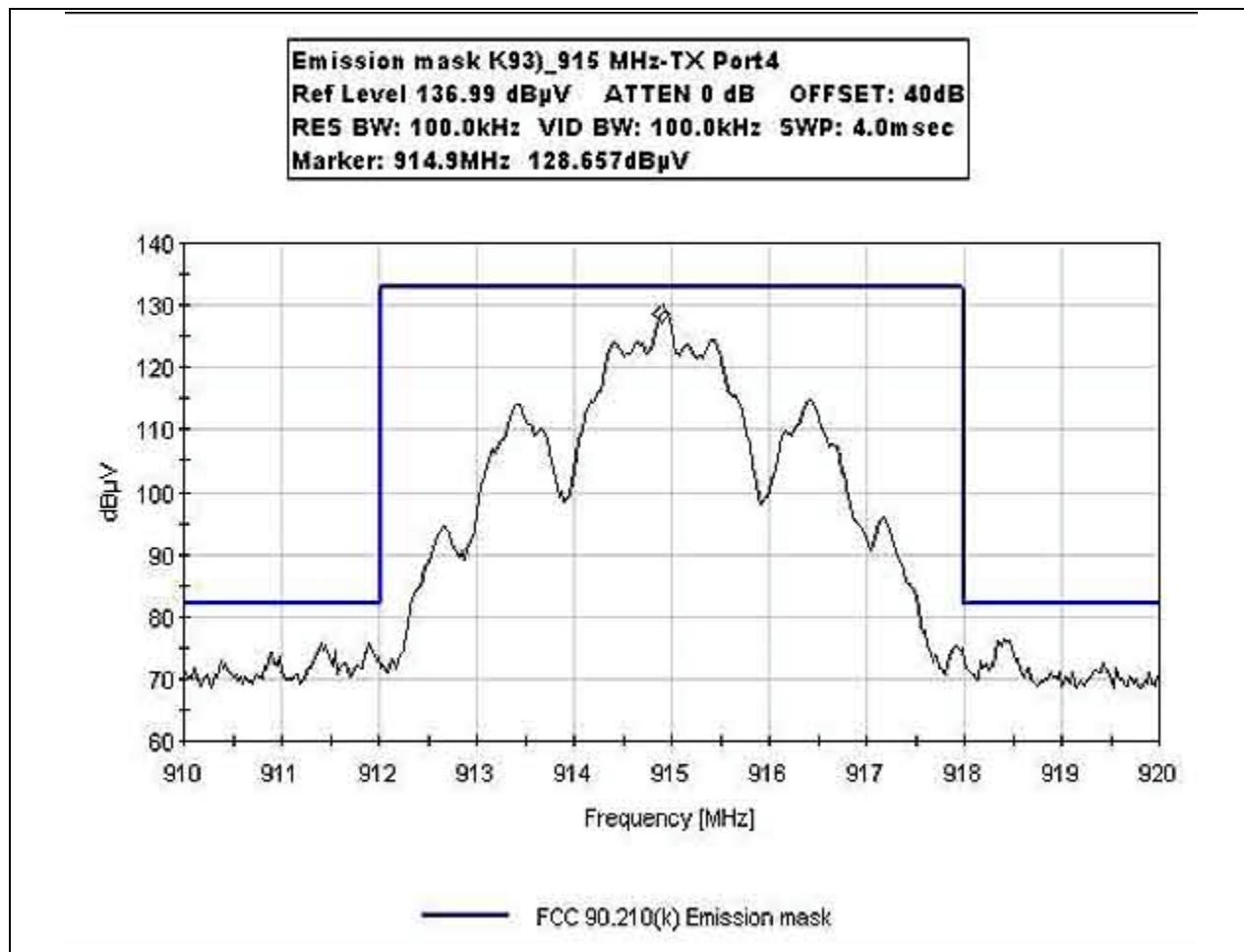
EMISSIONS MASK 915 MHz PORT 2



EMISSIONS MASK 915 MHz PORT 3

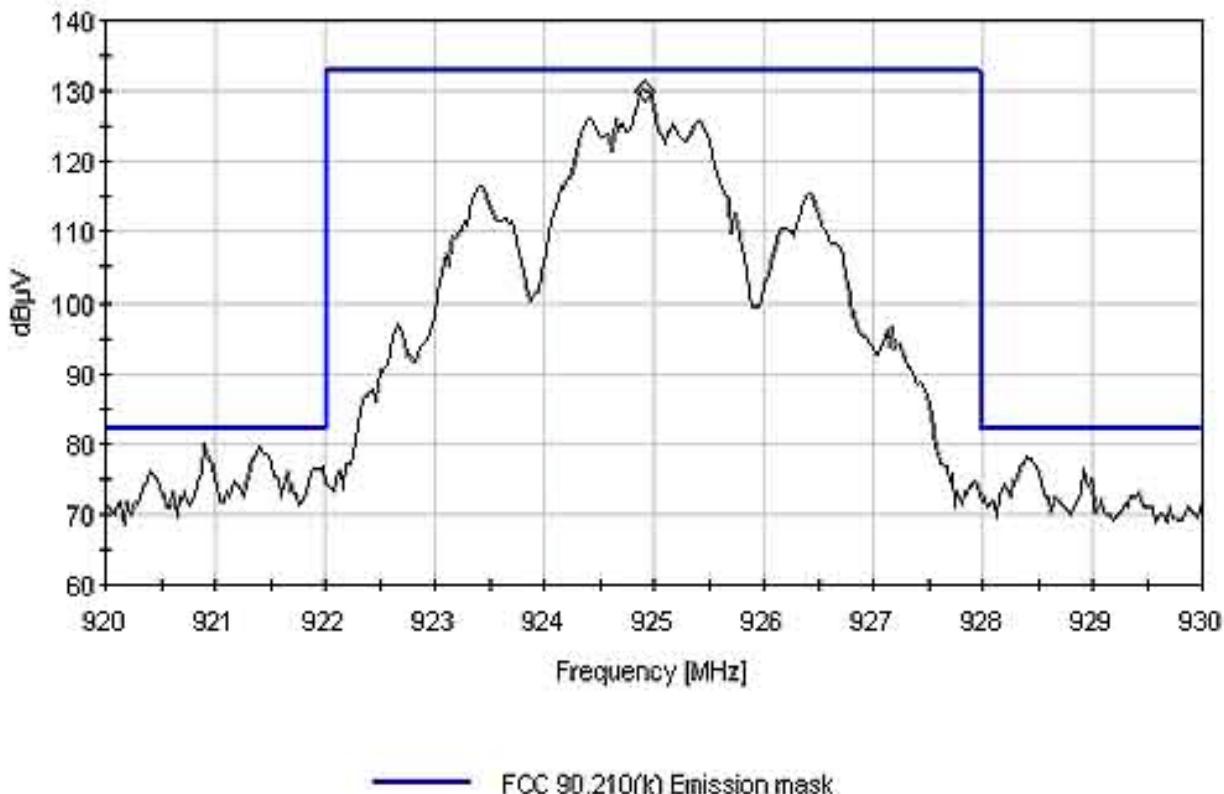


EMISSIONS MASK 915 MHz PORT 4



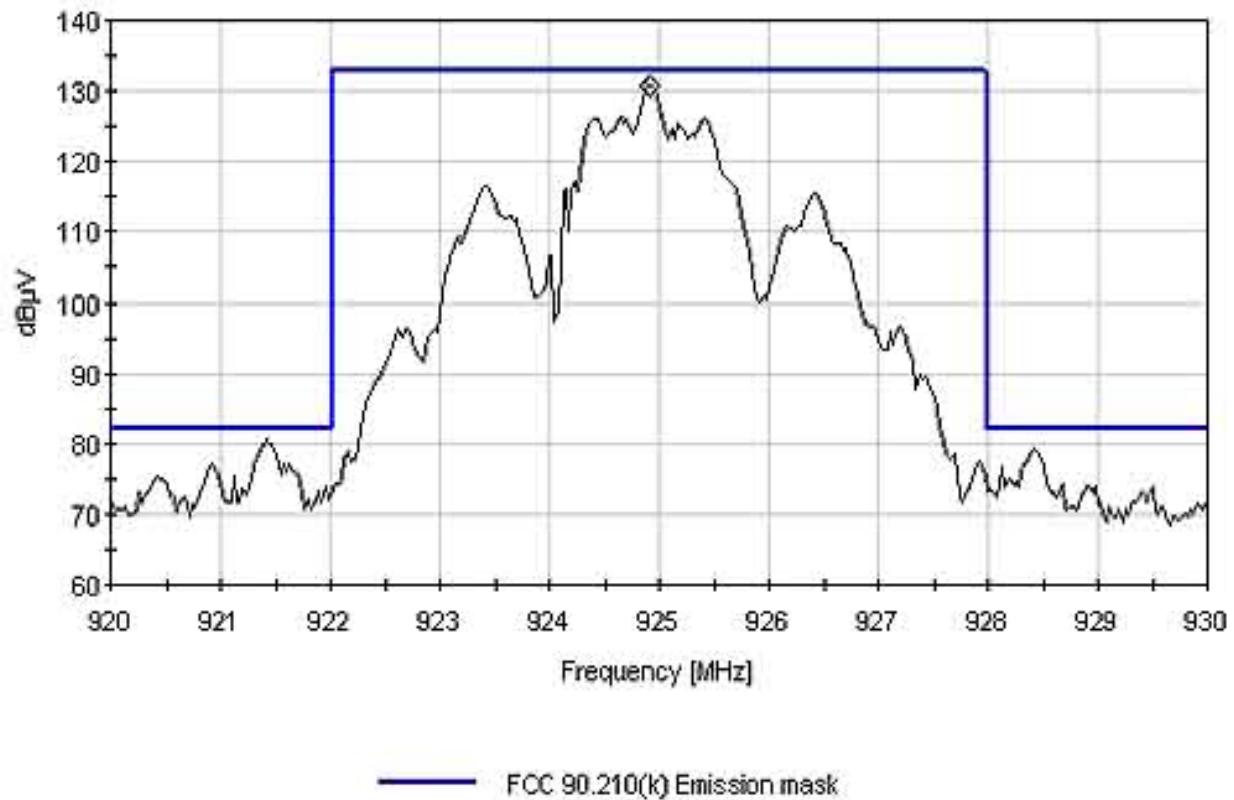
EMISSIONS MASK 925 MHz PORT 1

Emission Mask K(3)_925MHz_Tx Port 1
Ref Level 136.99 dB μ V ATTEN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker: 924.925MHz 130.078dB μ V



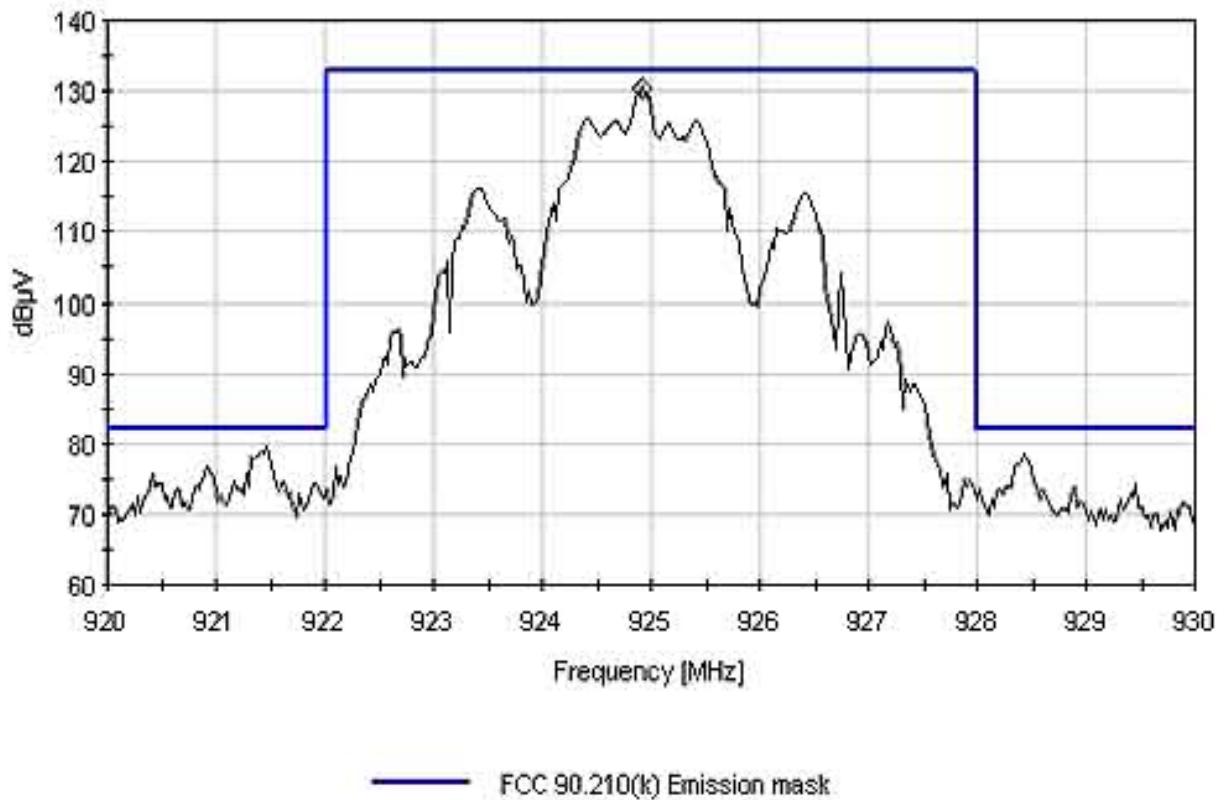
EMISSIONS MASK 925 MHz PORT 2

Emission mask K(3)_925 MHz_Tx Port2
Ref Level 136.99 dB μ V ATTEN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker: 924.925MHz 130.745dB μ V



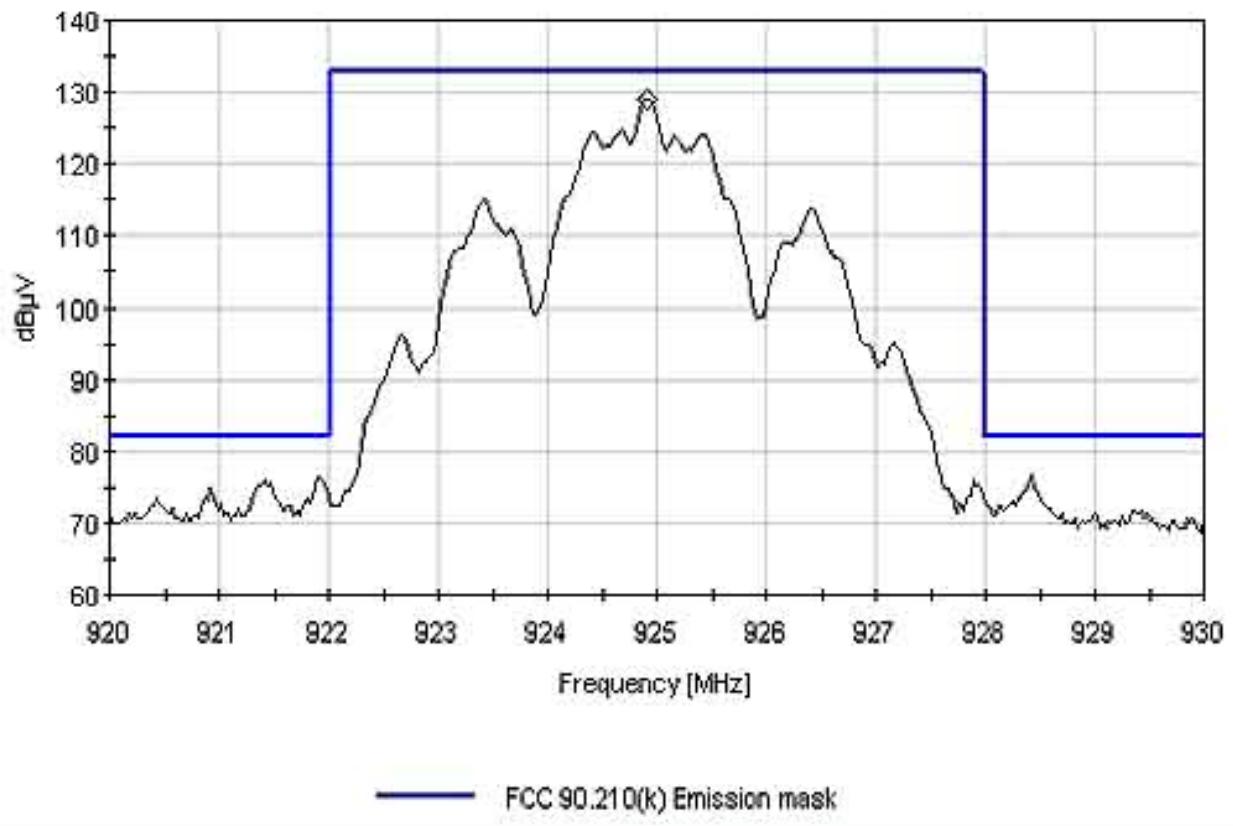
EMISSIONS MASK 925 MHz PORT 3

Emission mask K(3)_925 MHz_TX Port3
Ref Level 136.99 dB μ V ATTN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker: 924.925MHz 130.554dB μ V



EMISSIONS MASK 925 MHz PORT 4

Emission mask K(3)_925 MHz_Tx Port 4
Ref Level 136.99 dB μ V ATTN 0 dB OFFSET: 40dB
RES BW: 100.0kHz VID BW: 100.0kHz SWP: 4.0msec
Marker: 924.925MHz 129.068dB μ V



Emissions Mask Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



FCC 15.107 – AC CONDUCTED EMISSIONS

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
 Specification: **FCC 15.107 Class A COND AVE**
 Work Order #: **82846** Date: **12/02/2004**
 Test Type: **Conducted Emissions** Time: **4:21:24 PM**
 Equipment: **DSRC Reader** Sequence#: **15**
 Manufacturer: Raytheon Company Tested By: Eddie Wong
 Model: M125 110V 60Hz
 S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

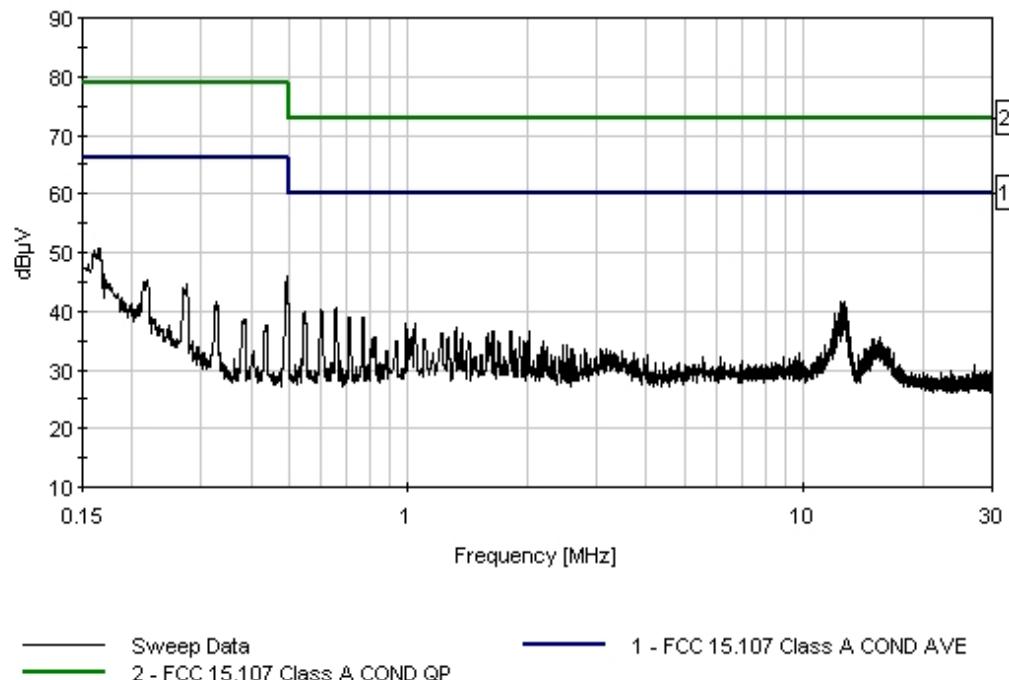
Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 905 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

<i>Measurement Data:</i>		Reading listed by margin.							Test Lead: Black		
#	Freq MHz	Rdng dB μ V	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar	Ant
1	165.271k	50.8				+0.0	50.8	66.0	-15.2	Black	
2	12.346M	41.7				+0.0	41.7	60.0	-18.3	Black	
3	12.689M	41.7				+0.0	41.7	60.0	-18.3	Black	
4	660.494k	40.7				+0.0	40.7	60.0	-19.3	Black	
5	12.824M	40.5				+0.0	40.5	60.0	-19.5	Black	
6	603.046k	40.1				+0.0	40.1	60.0	-19.9	Black	
7	495.420k	45.8				+0.0	45.8	66.0	-20.2	Black	
8	547.778k	39.8				+0.0	39.8	60.0	-20.2	Black	

9	12.049M	39.5	+0.0	39.5	60.0	-20.5	Black
10	219.084k	45.3	+0.0	45.3	66.0	-20.7	Black
11	771.029k	39.0	+0.0	39.0	60.0	-21.0	Black
12	709.217k	38.9	+0.0	38.9	60.0	-21.1	Black
13	275.806k	44.6	+0.0	44.6	66.0	-21.4	Black
14	1.043M	37.8	+0.0	37.8	60.0	-22.2	Black
15	12.085M	37.8	+0.0	37.8	60.0	-22.2	Black

CKC Laboratories Inc. Date: 12/02/2004 Time: 4:21:24 PM Raytheon Company WO#: 82846
FCC 15.107 Class A COND AVE Test Lead: Black 110V 60Hz Sequence#: 15




Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
Specification: **FCC 15.107 Class A COND AVE**
Work Order #: **82846** Date: **12/02/2004**
Test Type: **Conducted Emissions** Time: **4:25:57 PM**
Equipment: **DSRC Reader** Sequence#: **16**
Manufacturer: Raytheon Company Tested By: Eddie Wong
Model: M125 110V 60Hz
S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

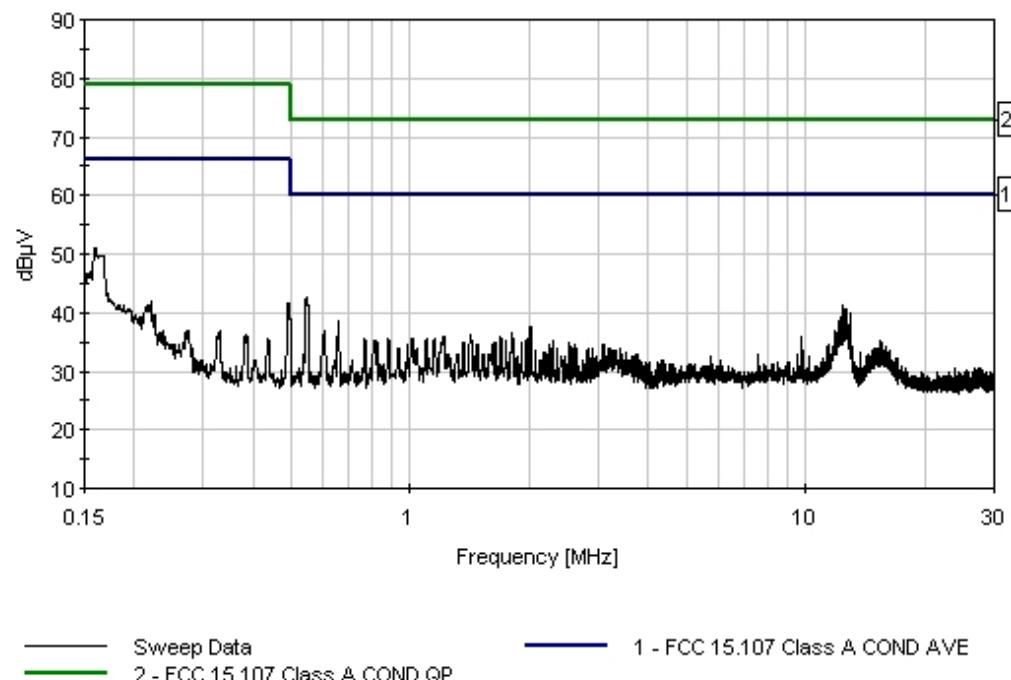
Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 905 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

<i>Measurement Data:</i>		Reading listed by margin.					Test Lead: White			
#	Freq MHz	Rdng dB μ V	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	159.454k	50.9				+0.0	50.9	66.0	-15.1	White
2	549.233k	42.5				+0.0	42.5	60.0	-17.5	White
3	12.364M	41.4				+0.0	41.4	60.0	-18.6	White
4	12.427M	41.1				+0.0	41.1	60.0	-18.9	White
5	12.653M	40.7				+0.0	40.7	60.0	-19.3	White
6	12.589M	40.5				+0.0	40.5	60.0	-19.5	White
7	12.616M	40.1				+0.0	40.1	60.0	-19.9	White
8	12.923M	40.0				+0.0	40.0	60.0	-20.0	White
9	12.283M	39.2				+0.0	39.2	60.0	-20.8	White
10	656.131k	38.7				+0.0	38.7	60.0	-21.3	White

11	12.148M	38.7	+0.0	38.7	60.0	-21.3	White
12	2.013M	37.4	+0.0	37.4	60.0	-22.6	White
13	605.954k	36.9	+0.0	36.9	60.0	-23.1	White
14	1.813M	36.4	+0.0	36.4	60.0	-23.6	White
15	1.417M	36.1	+0.0	36.1	60.0	-23.9	White

CKC Laboratories Inc. Date: 12/02/2004 Time: 4:25:57 PM Raytheon Company WO#: 82846
FCC 15.107 Class A COND AVE Test Lead: White 110V 60Hz Sequence#: 16




Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
Specification: **FCC 15.107 Class A COND AVE**
Work Order #: **82846** Date: **12/02/2004**
Test Type: **Conducted Emissions** Time: **4:18:07 PM**
Equipment: **DSRC Reader** Sequence#: **14**
Manufacturer: Raytheon Company Tested By: Eddie Wong
Model: M125 110V 60Hz
S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

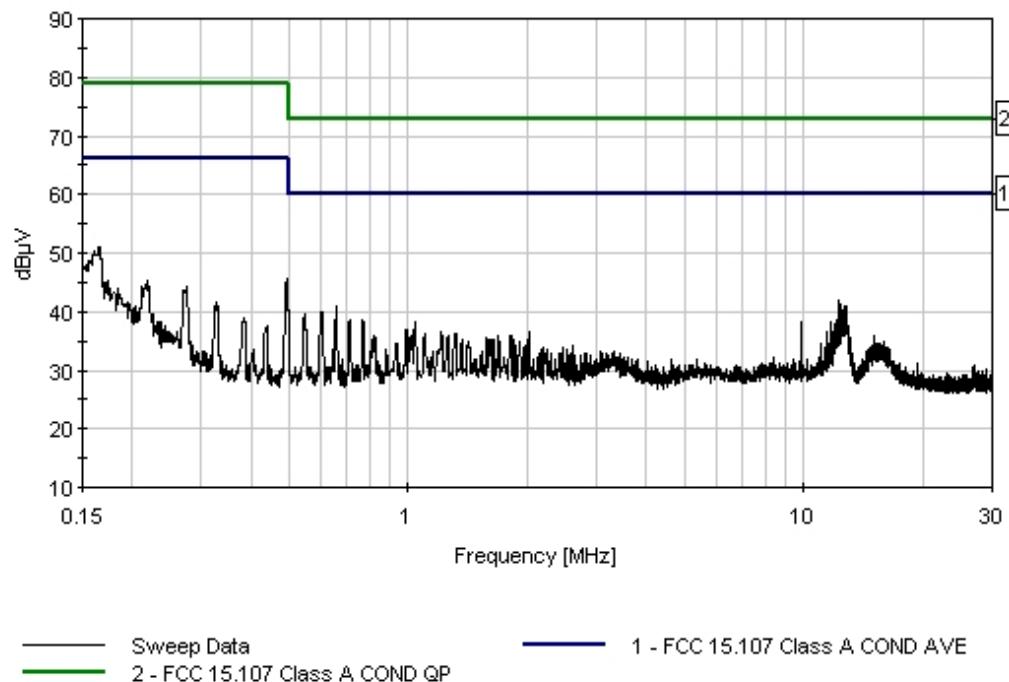
Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 915 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin.							Test Lead: Black			
#	Freq MHz	Rdng dB μ V	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	165.271k	51.0				+0.0	51.0	66.0	-15.0	Black
2	12.319M	41.8				+0.0	41.8	60.0	-18.2	Black
3	12.427M	41.2				+0.0	41.2	60.0	-18.8	Black
4	659.040k	41.0				+0.0	41.0	60.0	-19.0	Black
5	12.625M	40.9				+0.0	40.9	60.0	-19.1	Black
6	12.761M	40.8				+0.0	40.8	60.0	-19.2	Black
7	12.544M	40.2				+0.0	40.2	60.0	-19.8	Black
8	603.046k	39.9				+0.0	39.9	60.0	-20.1	Black
9	494.693k	45.7				+0.0	45.7	66.0	-20.3	Black
10	12.400M	39.6				+0.0	39.6	60.0	-20.4	Black

11	548.506k	39.5	+0.0	39.5	60.0	-20.5	Black
12	219.811k	45.4	+0.0	45.4	66.0	-20.6	Black
13	713.580k	38.7	+0.0	38.7	60.0	-21.3	Black
14	12.175M	38.6	+0.0	38.6	60.0	-21.4	Black
15	765.211k	38.5	+0.0	38.5	60.0	-21.5	Black

CKC Laboratories Inc. Date: 12/02/2004 Time: 4:18:07 PM Raytheon Company WO#: 82846
FCC 15.107 Class A COND AVE Test Lead: Black 110V 60Hz Sequence#: 14




Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
Specification: **FCC 15.107 Class A COND AVE**
Work Order #: **82846** Date: **12/02/2004**
Test Type: **Conducted Emissions** Time: **4:15:06 PM**
Equipment: **DSRC Reader** Sequence#: **13**
Manufacturer: Raytheon Company Tested By: Eddie Wong
Model: M125 110V 60Hz
S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

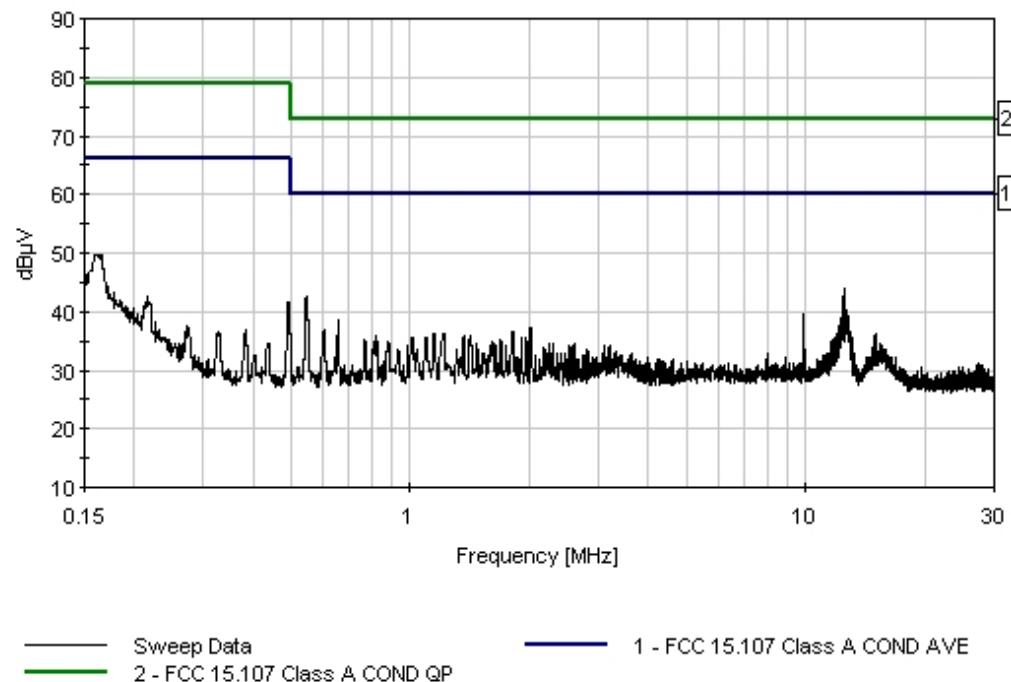
Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 915 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

<i>Measurement Data:</i>		Reading listed by margin.					Test Lead: White			
#	Freq	Rdng	Dist	Corr	Spec	Margin	Polar			
	MHz	dB μ V	dB	dB	dB μ V	dB	Ant			
1	159.454k	49.8	+0.0	49.8	66.0	-16.2	White			
2	12.490M	43.8	+0.0	43.8	60.0	-16.2	White			
3	549.233k	42.5	+0.0	42.5	60.0	-17.5	White			
4	12.635M	40.4	+0.0	40.4	60.0	-19.6	White			
5	12.400M	39.9	+0.0	39.9	60.0	-20.1	White			
6	12.364M	39.8	+0.0	39.8	60.0	-20.2	White			
7	9.842M	39.5	+0.0	39.5	60.0	-20.5	White			
8	12.544M	38.7	+0.0	38.7	60.0	-21.3	White			
9	656.131k	38.6	+0.0	38.6	60.0	-21.4	White			
10	12.589M	38.6	+0.0	38.6	60.0	-21.4	White			

11	2.017M	37.3	+0.0	37.3	60.0	-22.7	White
12	12.076M	37.2	+0.0	37.2	60.0	-22.8	White
13	604.500k	36.8	+0.0	36.8	60.0	-23.2	White
14	1.817M	36.7	+0.0	36.7	60.0	-23.3	White
15	215.448k	42.5	+0.0	42.5	66.0	-23.5	White

CKC Laboratories Inc. Date: 12/02/2004 Time: 4:15:06 PM Raytheon Company WO#: 82846
FCC 15.107 Class A COND AVE Test Lead: White 110V 60Hz Sequence#: 13




Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
Specification: **FCC 15.107 Class A COND AVE**
Work Order #: **82846** Date: **12/02/2004**
Test Type: **Conducted Emissions** Time: **4:05:14 PM**
Equipment: **DSRC Reader** Sequence#: **11**
Manufacturer: Raytheon Company Tested By: Eddie Wong
Model: M125 110V 60Hz
S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

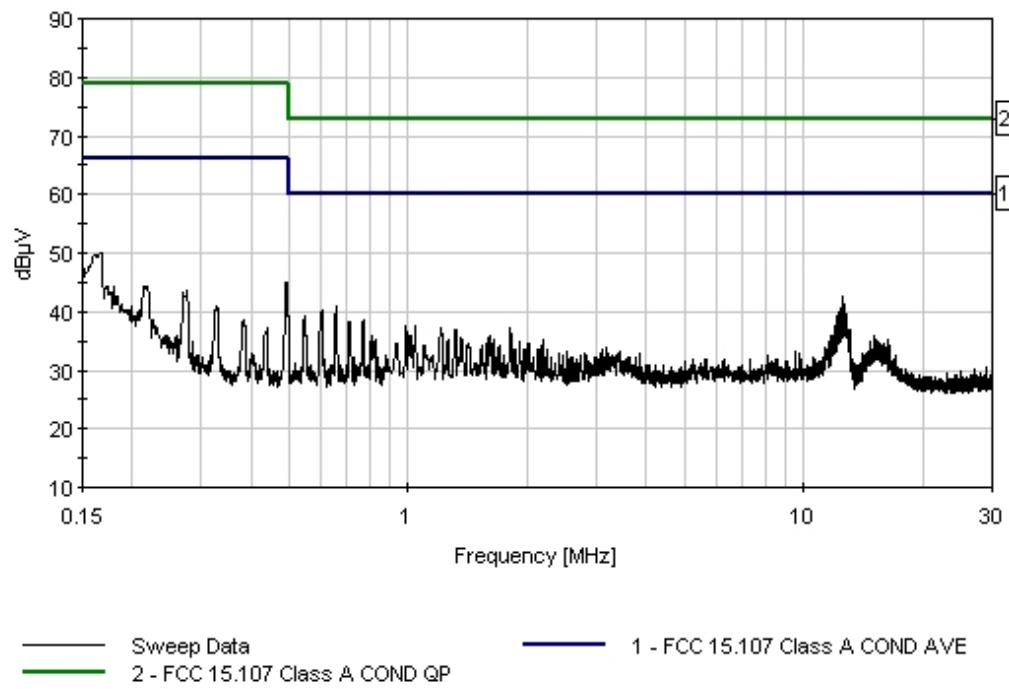
Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 925 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin.							Test Lead: Black			
#	Freq MHz	Rdng dB μ V	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	166.726k	50.1				+0.0	50.1	66.0	-15.9	Black
2	12.571M	42.6				+0.0	42.6	60.0	-17.4	Black
3	12.517M	41.1				+0.0	41.1	60.0	-18.9	Black
4	659.040k	41.0				+0.0	41.0	60.0	-19.0	Black
5	12.400M	40.7				+0.0	40.7	60.0	-19.3	Black
6	605.227k	40.3				+0.0	40.3	60.0	-19.7	Black
7	12.553M	39.6				+0.0	39.6	60.0	-20.4	Black
8	12.761M	39.5				+0.0	39.5	60.0	-20.5	Black
9	12.842M	39.4				+0.0	39.4	60.0	-20.6	Black
10	548.506k	39.3				+0.0	39.3	60.0	-20.7	Black

11	12.067M	39.3	+0.0	39.3	60.0	-20.7	Black
12	494.693k	45.1	+0.0	45.1	66.0	-20.9	Black
13	769.574k	38.6	+0.0	38.6	60.0	-21.4	Black
14	714.307k	38.4	+0.0	38.4	60.0	-21.6	Black
15	12.1175M	38.3	+0.0	38.3	60.0	-21.7	Black

CKC Laboratories Inc. Date: 12/02/2004 Time: 4:05:14 PM Raytheon Company WO#: 82846
FCC 15.107 Class A COND AVE Test Lead: Black 110V 60Hz Sequence#: 11




Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
Specification: **FCC 15.107 Class A COND AVE**
Work Order #: **82846** Date: **12/02/2004**
Test Type: **Conducted Emissions** Time: **4:09:01 PM**
Equipment: **DSRC Reader** Sequence#: **12**
Manufacturer: Raytheon Company Tested By: Eddie Wong
Model: M125 110V 60Hz
S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

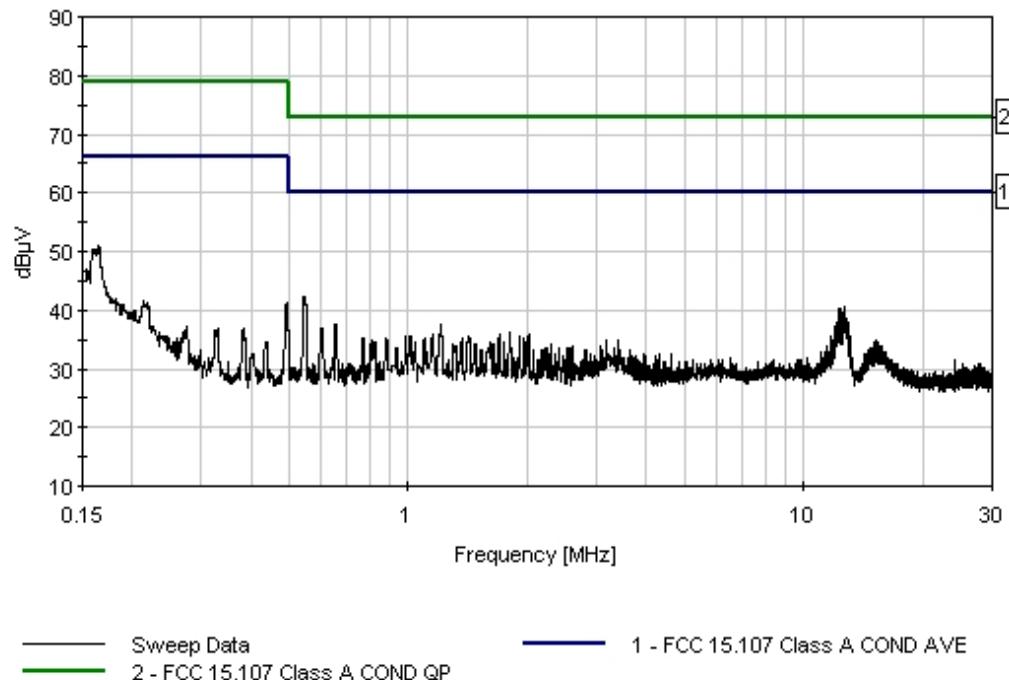
Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 925 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

<i>Measurement Data:</i>		Reading listed by margin.					Test Lead: White			
#	Freq MHz	Rdng dB μ V	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	164.544k	50.9				+0.0	50.9	66.0	-15.1	White
2	544.142k	42.3				+0.0	42.3	60.0	-17.7	White
3	12.662M	40.5				+0.0	40.5	60.0	-19.5	White
4	12.283M	40.3				+0.0	40.3	60.0	-19.7	White
5	12.364M	40.2				+0.0	40.2	60.0	-19.8	White
6	12.472M	39.4				+0.0	39.4	60.0	-20.6	White
7	12.995M	37.9				+0.0	37.9	60.0	-22.1	White
8	1.204M	37.6				+0.0	37.6	60.0	-22.4	White
9	653.950k	37.5				+0.0	37.5	60.0	-22.5	White
10	11.995M	37.3				+0.0	37.3	60.0	-22.7	White

11	603.046k	37.0	+0.0	37.0	60.0	-23.0	White
12	1.813M	36.2	+0.0	36.2	60.0	-23.8	White
13	1.149M	35.8	+0.0	35.8	60.0	-24.2	White
14	1.698M	35.8	+0.0	35.8	60.0	-24.2	White
15	2.017M	35.8	+0.0	35.8	60.0	-24.2	White

CKC Laboratories Inc. Date: 12/02/2004 Time: 4:09:01 PM Raytheon Company WO#: 82846
FCC 15.107 Class A COND AVE Test Lead: White 110V 60Hz Sequence#: 12


Conducted Emissions Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	070204	070206
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	070204	070206
Quasi Peak Adapter	00200	HP	85650A	2043A00221	070204	070206
Coaxial Cable		Harbour Industries	M17/60-RG142	Cable #8	070204	070205
LISN	02128	EMCO	3816/2	1090	040403	040405

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Side View

FCC 15.109 – RADIATED EMISSIONS

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
 Specification: **FCC 15.109 Class A**
 Work Order #: **82846** Date: **12/02/2004**
 Test Type: **Maximized Emissions** Time: **15:38:13**
 Equipment: **DSRC Reader** Sequence#: **10**
 Manufacturer: Raytheon Company Tested By: Eddie Wong
 Model: M125
 S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 925 MHz, Mute mode. Both antennas tested. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

T1=Chase bilog a/n 00851, s/n 2629	T2=Cable #22 080905
T3=Cable #33 44ft. RG-214/U	T4=Cable Heliax #17 84ft(10 meter) 100205
T5=Preamp 8447D Asset 00010	T6=Cable Heliax #17 84ft(10 meter) 100205
T7=Horn AN 01646 1-18 GHz 042505	T8=SMA Cable 1-40GHz AN2604_012305
T9=HF Preamp Cal. HP-83017A,S/N- 3123A00282	T10=Cable #19 54ft Heliax 101304

Measurement Data: Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	Reading listed by margin.				Dist	Corr	Spec	Margin	Polar	
			T1	T2	T3	T4						
			T5	T6	T7	T8						
			MHz	dB μ V	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	1300.000M	55.7	+0.0	+0.0	+0.0	+0.0	-10.0	37.0	49.5	-12.5	Vert	
			+0.0	+4.0	+24.6	+0.4						
			-40.1	+2.4								
2	431.968M	50.6	+15.3	+0.4	+2.4	+2.4	-10.0	33.6	46.4	-12.8	Horiz	
			-27.5	+0.0	+0.0	+0.0						
			+0.0	+0.0								
3	159.991M	52.0	+12.1	+0.2	+1.3	+1.4	-10.0	30.2	43.5	-13.3	Vert	
			-26.8	+0.0	+0.0	+0.0						
			+0.0	+0.0								
4	65.060M	54.3	+6.3	+0.1	+0.8	+1.0	-10.0	25.3	39.1	-13.8	Vert	
			-27.2	+0.0	+0.0	+0.0						
			+0.0	+0.0								

5	854.968M	40.5	+22.0	+0.6	+3.4	+3.1	-10.0	31.8	46.4	-14.6	Vert
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
6	431.987M	48.2	+15.3	+0.4	+2.4	+2.4	-10.0	31.2	46.4	-15.2	Horiz
			-27.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
7	218.852M	53.6	+10.2	+0.3	+1.6	+1.7	-10.0	30.8	46.4	-15.6	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
8	431.992M	47.7	+15.3	+0.4	+2.4	+2.4	-10.0	30.7	46.4	-15.7	Vert
			-27.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
9	1496.250M	50.9	+0.0	+0.0	+0.0	+0.0	-10.0	33.7	49.5	-15.8	Vert
			+0.0	+4.4	+24.8	+0.4					
			-39.5	+2.7							
10	1398.750M	51.3	+0.0	+0.0	+0.0	+0.0	-10.0	33.5	49.5	-16.0	Vert
			+0.0	+4.2	+24.7	+0.4					
			-39.8	+2.7							
11	2191.250M	45.9	+0.0	+0.0	+0.0	+0.0	-10.0	33.2	49.5	-16.3	Vert
			+0.0	+5.5	+27.3	+0.5					
			-39.4	+3.4							
12	1600.000M	49.2	+0.0	+0.0	+0.0	+0.0	-10.0	32.6	49.5	-16.9	Vert
			+0.0	+4.4	+25.2	+0.4					
			-39.5	+2.9							
13	207.983M	49.6	+10.0	+0.2	+1.6	+1.6	-10.0	26.4	43.5	-17.1	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
14	1695.625M	47.9	+0.0	+0.0	+0.0	+0.0	-10.0	32.1	49.5	-17.4	Vert
			+0.0	+4.6	+25.7	+0.4					
			-39.5	+3.0							
15	240.028M	51.1	+10.5	+0.3	+1.7	+1.8	-10.0	28.9	46.4	-17.5	Vert
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
16	208.006M	49.1	+10.0	+0.2	+1.6	+1.6	-10.0	25.9	43.5	-17.6	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
17	239.940M	50.8	+10.5	+0.3	+1.7	+1.8	-10.0	28.6	46.4	-17.8	Horiz
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
18	463.907M	44.7	+16.1	+0.4	+2.5	+2.5	-10.0	28.5	46.4	-17.9	Horiz
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0							
19	159.992M	47.0	+12.1	+0.2	+1.3	+1.4	-10.0	25.2	43.5	-18.3	Horiz
			-26.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
20	202.827M	47.9	+9.9	+0.2	+1.5	+1.6	-10.0	24.5	43.5	-19.0	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
21	815.878M	36.5	+21.2	+0.6	+3.4	+3.1	-10.0	27.1	46.4	-19.3	Horiz
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0							

22	854.986M	35.6	+22.0	+0.6	+3.4	+3.1	-10.0	26.9	46.4	-19.5	Horiz
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
23	160.012M	45.7	+12.1	+0.2	+1.3	+1.4	-10.0	23.9	43.5	-19.6	Horiz
			-26.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
24	1695.625M	44.9	+0.0	+0.0	+0.0	+0.0	-10.0	29.1	49.5	-20.4	Horiz
			+0.0	+4.6	+25.7	+0.4					
			-39.5	+3.0							
25	447.987M	42.1	+15.7	+0.4	+2.4	+2.4	-10.0	25.3	46.4	-21.1	Horiz
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0							
26	224.020M	47.8	+10.3	+0.3	+1.7	+1.7	-10.0	25.2	46.4	-21.2	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
27	816.110M	34.1	+21.2	+0.6	+3.4	+3.1	-10.0	24.7	46.4	-21.7	Vert
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0							
28	854.982M	33.3	+22.0	+0.6	+3.4	+3.1	-10.0	24.6	46.4	-21.8	Horiz
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
29	239.992M	46.7	+10.5	+0.3	+1.7	+1.8	-10.0	24.5	46.4	-21.9	Horiz
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
30	416.037M	41.3	+15.0	+0.4	+2.3	+2.4	-10.0	24.2	46.4	-22.2	Horiz
			-27.2	+0.0	+0.0	+0.0					
			+0.0	+0.0							
31	479.971M	39.8	+16.5	+0.4	+2.5	+2.5	-10.0	23.9	46.4	-22.5	Horiz
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
32	399.966M	40.8	+14.6	+0.4	+2.3	+2.4	-10.0	23.5	46.4	-22.9	Vert
			-27.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
33	304.025M	43.7	+11.0	+0.3	+1.9	+2.0	-10.0	22.5	46.4	-23.9	Vert
			-26.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
34	84.560M	41.9	+8.0	+0.1	+0.9	+1.1	-10.0	15.0	39.1	-24.1	Vert
			-27.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
35	234.844M	44.5	+10.4	+0.3	+1.7	+1.8	-10.0	22.1	46.4	-24.3	Horiz
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
36	505.960M	37.0	+17.2	+0.4	+2.6	+2.6	-10.0	22.0	46.4	-24.4	Vert
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
37	615.916M	34.1	+19.4	+0.5	+2.9	+2.8	-10.0	21.8	46.4	-24.6	Vert
			-27.9	+0.0	+0.0	+0.0					
			+0.0	+0.0							
38	335.940M	41.0	+13.2	+0.4	+1.9	+2.1	-10.0	21.8	46.4	-24.6	Horiz
			-26.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							

39	351.924M	38.8	+14.1	+0.4	+1.9	+2.2	-10.0	20.5	46.4	-25.9	Horiz
			-26.9	+0.0	+0.0	+0.0					
			+0.0	+0.0							
40	367.959M	36.8	+14.3	+0.4	+2.0	+2.3	-10.0	18.9	46.4	-27.5	Vert
			-26.9	+0.0	+0.0	+0.0					
			+0.0	+0.0							
41	303.960M	38.9	+11.0	+0.3	+1.9	+2.0	-10.0	17.7	46.4	-28.7	Horiz
			-26.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
42	303.960M	38.8	+11.0	+0.3	+1.9	+2.0	-10.0	17.6	46.4	-28.8	Horiz
			-26.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
43	367.956M	34.4	+14.3	+0.4	+2.0	+2.3	-10.0	16.5	46.4	-29.9	Vert
			-26.9	+0.0	+0.0	+0.0					
			+0.0	+0.0							
44	282.826M	37.2	+10.7	+0.3	+1.9	+2.0	-10.0	15.6	46.4	-30.8	Vert
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112
 Customer: **Raytheon Company**
 Specification: **FCC 15.109 Class A**
 Work Order #: **82846** Date: 12/02/2004
 Test Type: **Maximized Emissions** Time: 15:22:44
 Equipment: **DSRC Reader** Sequence#: 9
 Manufacturer: Raytheon Company Tested By: Eddie Wong
 Model: M125
 S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257
Antenna	European Antenna	FPA15-916H/1159	402521/0002

Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 905 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

T1=Chase bilog a/n 00851, s/n 2629	T2=Cable #22 080905
T3=Cable #33 44ft. RG-214/U	T4=Cable Heliax #17 84ft(10 meter) 100205
T5=Preamp 8447D Asset 00010	

#	Freq	Rdng	Reading listed by margin.				Test Distance: 3 Meters			
			T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB
1	1671.325M	43.5	+0.0 +0.0	+0.0	+0.0	+4.5	-10.0	38.0	49.5	-11.5
2	170.851M	52.9	+11.5 -26.7	+0.2	+1.4	+1.5	-10.0	30.8	43.5	-12.7
3	431.990M	50.3	+15.3 -27.5	+0.4	+2.4	+2.4	-10.0	33.3	46.4	-13.1
4	218.802M	53.3	+10.2 -26.6	+0.3	+1.6	+1.7	-10.0	30.5	46.4	-15.9
5	431.963M	47.2	+15.3 -27.5	+0.4	+2.4	+2.4	-10.0	30.2	46.4	-16.2
6	539.520M	43.7	+18.0 -27.9	+0.5	+2.7	+2.7	-10.0	29.7	46.4	-16.7
7	160.056M	48.5	+12.1 -26.8	+0.2	+1.3	+1.4	-10.0	26.7	43.5	-16.8
8	63.390M	51.4	+6.3 -27.1	+0.1	+0.7	+0.9	-10.0	22.3	39.1	-16.8
9	432.014M	46.3	+15.3 -27.5	+0.4	+2.4	+2.4	-10.0	29.3	46.4	-17.1

10	223.979M	51.1	+10.3 -26.6	+0.3	+1.7	+1.7	-10.0	28.5	46.4	-17.9	Vert
11	834.998M	37.2	+21.7 -27.8	+0.6	+3.4	+3.1	-10.0	28.2	46.4	-18.2	Vert
12	181.350M	47.9	+11.0 -26.7	+0.2	+1.4	+1.5	-10.0	25.3	43.5	-18.2	Vert
13	202.828M	48.6	+9.9 -26.6	+0.2	+1.5	+1.6	-10.0	25.2	43.5	-18.3	Horiz
14	448.051M	44.8	+15.7 -27.7	+0.4	+2.4	+2.4	-10.0	28.0	46.4	-18.4	Horiz
15	834.968M	37.0	+21.7 -27.8	+0.6	+3.4	+3.1	-10.0	28.0	46.4	-18.4	Vert
16	240.038M	49.5	+10.5 -26.5	+0.3	+1.7	+1.8	-10.0	27.3	46.4	-19.1	Horiz
17	448.070M	44.1	+15.7 -27.7	+0.4	+2.4	+2.4	-10.0	27.3	46.4	-19.1	Vert
18	207.996M	45.2	+10.0 -26.6	+0.2	+1.6	+1.6	-10.0	22.0	43.5	-21.5	Horiz
19	240.162M	46.8	+10.5 -26.5	+0.3	+1.7	+1.8	-10.0	24.6	46.4	-21.8	Horiz
20	159.990M	43.3	+12.1 -26.8	+0.2	+1.3	+1.4	-10.0	21.5	43.5	-22.0	Horiz
21	218.837M	46.8	+10.2 -26.6	+0.3	+1.6	+1.7	-10.0	24.0	46.4	-22.4	Horiz
22	835.019M	32.5	+21.7 -27.8	+0.6	+3.4	+3.1	-10.0	23.5	46.4	-22.9	Horiz
23	976.032M	32.4	+23.5 -27.3	+0.7	+3.8	+3.4	-10.0	26.5	49.5	-23.0	Horiz
24	303.957M	44.3	+11.0 -26.4	+0.3	+1.9	+2.0	-10.0	23.1	46.4	-23.3	Horiz
25	159.979M	40.5	+12.1 -26.8	+0.2	+1.3	+1.4	-10.0	18.7	43.5	-24.8	Horiz
26	367.960M	39.0	+14.3 -26.9	+0.4	+2.0	+2.3	-10.0	21.1	46.4	-25.3	Horiz
27	512.070M	35.9	+17.3 -27.8	+0.4	+2.6	+2.6	-10.0	21.0	46.4	-25.4	Vert
28	834.996M	29.3	+21.7 -27.8	+0.6	+3.4	+3.1	-10.0	20.3	46.4	-26.1	Horiz
29	479.985M	36.0	+16.5 -27.8	+0.4	+2.5	+2.5	-10.0	20.1	46.4	-26.3	Vert
30	192.004M	39.7	+10.4 -26.6	+0.2	+1.5	+1.6	-10.0	16.8	43.5	-26.7	Horiz
31	847.960M	28.4	+22.0 -27.8	+0.6	+3.4	+3.1	-10.0	19.7	46.4	-26.7	Vert
32	159.988M	38.4	+12.1 -26.8	+0.2	+1.3	+1.4	-10.0	16.6	43.5	-26.9	Vert
33	303.994M	38.7	+11.0 -26.4	+0.3	+1.9	+2.0	-10.0	17.5	46.4	-28.9	Vert
34	319.970M	34.4	+12.1 -26.6	+0.3	+1.9	+2.1	-10.0	14.2	46.4	-32.2	Horiz

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
 Specification: **FCC 15.109 Class A**
 Work Order #: **82846** Date: **12/02/2004**
 Test Type: **Maximized Emissions** Time: **09:13:50**
 Equipment: **DSRC Reader** Sequence#: **5**
 Manufacturer: Raytheon Company Tested By: Eddie Wong
 Model: M125
 S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 915 MHz, Mute mode. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

T1=Chase bilog a/n 00851, s/n 2629	T2=Cable #22 080905
T3=Cable #33 44ft. RG-214/U	T4=Cable Heliax #17 84ft(10 meter) 100205
T5=Preamp 8447D Asset 00010	T6=-----
T7=Cable Heliax #17 84ft(10 meter) 100205	T8=Horn AN 01646 1-18 GHz 042505
T9=SMA Cable 1-40GHz AN2604_012305	T10=HF Preamp Cal. HP-83017A,S/N- 3123A00282
T11=Cable #19 54ft Heliax 101304	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
			T9	T10	T11						
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m	dB	Ant
1	1293.750M	56.1	+0.0	+0.0	+0.0	+0.0	-10.0	37.4	49.5	-12.1	Horiz
			+0.0	+0.0	+4.0	+24.6					
			+0.4	-40.1	+2.4						
2	1200.000M	54.9	+0.0	+0.0	+0.0	+0.0	-10.0	35.6	49.5	-13.9	Horiz
			+0.0	+0.0	+3.9	+24.5					
			+0.3	-40.4	+2.4						
3	1300.000M	54.0	+0.0	+0.0	+0.0	+0.0	-10.0	35.3	49.5	-14.2	Vert
			+0.0	+0.0	+4.0	+24.6					
			+0.4	-40.1	+2.4						
4	1196.250M	53.8	+0.0	+0.0	+0.0	+0.0	-10.0	34.5	49.5	-15.0	Vert
			+0.0	+0.0	+3.9	+24.5					
			+0.3	-40.4	+2.4						

5	1795.000M	49.5	+0.0	+0.0	+0.0	+0.0	-10.0	34.5	49.5	-15.0	Horiz
			+0.0	+0.0	+4.8	+26.0					
			+0.5	-39.4	+3.1						
6	1797.500M	48.9	+0.0	+0.0	+0.0	+0.0	-10.0	34.0	49.5	-15.5	Vert
			+0.0	+0.0	+4.8	+26.1					
			+0.5	-39.4	+3.1						
7	1695.000M	49.5	+0.0	+0.0	+0.0	+0.0	-10.0	33.6	49.5	-15.9	Horiz
			+0.0	+0.0	+4.6	+25.6					
			+0.4	-39.5	+3.0						
8	1597.500M	49.5	+0.0	+0.0	+0.0	+0.0	-10.0	32.9	49.5	-16.6	Horiz
			+0.0	+0.0	+4.4	+25.2					
			+0.4	-39.5	+2.9						
9	1597.500M	49.1	+0.0	+0.0	+0.0	+0.0	-10.0	32.5	49.5	-17.0	Vert
			+0.0	+0.0	+4.4	+25.2					
			+0.4	-39.5	+2.9						
10	176.002M	48.4	+11.3	+0.2	+1.4	+1.5	-10.0	26.1	43.5	-17.4	Vert
			-26.7								
11	655.968M	40.2	+19.8	+0.6	+2.9	+2.9	-10.0	28.7	46.4	-17.7	Vert
			-27.7								
12	175.998M	48.0	+11.3	+0.2	+1.4	+1.5	-10.0	25.7	43.5	-17.8	Horiz
			-26.7								
13	656.020M	39.8	+19.8	+0.6	+2.9	+2.9	-10.0	28.3	46.4	-18.1	Horiz
	QP		-27.7								
^	656.020M	43.7	+19.8	+0.6	+2.9	+2.9	-10.0	32.2	46.4	-14.2	Horiz
			-27.7								
15	104.996M	49.4	+10.4	+0.1	+1.0	+1.2	-10.0	25.2	43.5	-18.3	Vert
			-26.9								
16	1493.750M	48.3	+0.0	+0.0	+0.0	+0.0	-10.0	31.1	49.5	-18.4	Horiz
			+0.0	+0.0	+4.4	+24.8					
			+0.4	-39.5	+2.7						
17	1700.000M	46.7	+0.0	+0.0	+0.0	+0.0	-10.0	30.9	49.5	-18.6	Vert
			+0.0	+0.0	+4.6	+25.7					
			+0.4	-39.5	+3.0						
18	160.025M	46.4	+12.1	+0.2	+1.3	+1.4	-10.0	24.6	43.5	-18.9	Vert
			-26.8								
19	55.984M	48.2	+7.3	+0.1	+0.7	+0.9	-10.0	20.1	39.1	-19.0	Vert
			-27.1								
20	240.004M	49.5	+10.5	+0.3	+1.7	+1.8	-10.0	27.3	46.4	-19.1	Vert
			-26.5								
21	1400.000M	47.9	+0.0	+0.0	+0.0	+0.0	-10.0	30.1	49.5	-19.4	Horiz
			+0.0	+0.0	+4.2	+24.7					
			+0.4	-39.8	+2.7						

22	192.002M	46.3	+10.4 -26.6	+0.2	+1.5	+1.6	-10.0	23.4	43.5	-20.1	Vert
23	144.002M	44.0	+12.1 -26.8	+0.2	+1.3	+1.4	-10.0	22.2	43.5	-21.3	Vert
24	207.954M	44.8	+10.0 -26.6	+0.2	+1.6	+1.6	-10.0	21.6	43.5	-21.9	Vert
25	479.960M	39.9	+16.5 -27.8	+0.4	+2.5	+2.5	-10.0	24.0	46.4	-22.4	Vert
26	143.989M	42.3	+12.1 -26.8	+0.2	+1.3	+1.4	-10.0	20.5	43.5	-23.0	Horiz
27	127.993M	42.3	+11.7 -26.8	+0.2	+1.2	+1.3	-10.0	19.9	43.5	-23.6	Vert
28	415.908M	38.5	+15.0 -27.2	+0.4	+2.3	+2.4	-10.0	21.4	46.4	-25.0	Vert
29	352.004M	39.7	+14.1 -26.9	+0.4	+1.9	+2.2	-10.0	21.4	46.4	-25.0	Vert
30	223.989M	43.6	+10.3 -26.6	+0.3	+1.7	+1.7	-10.0	21.0	46.4	-25.4	Horiz
31	399.999M	38.1	+14.6 -27.0	+0.4	+2.3	+2.4	-10.0	20.8	46.4	-25.6	Vert
32	199.985M	41.0	+9.9 -26.6	+0.2	+1.5	+1.6	-10.0	17.6	43.5	-25.9	Vert
33	320.042M	40.7	+12.1 -26.6	+0.3	+1.9	+2.1	-10.0	20.5	46.4	-25.9	Vert
34	368.062M	37.6	+14.3 -26.9	+0.4	+2.1	+2.3	-10.0	19.8	46.4	-26.6	Vert
35	320.004M	39.6	+12.1 -26.6	+0.3	+1.9	+2.1	-10.0	19.4	46.4	-27.0	Vert
36	383.784M	36.8	+14.4 -27.0	+0.4	+2.2	+2.3	-10.0	19.1	46.4	-27.3	Vert



Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Raytheon Company**
 Specification: **FCC 15.109 Class A**
 Work Order #: **82846** Date: **12/02/2004**
 Test Type: **Maximized Emissions** Time: **15:38:13**
 Equipment: **DSRC Reader** Sequence#: **10**
 Manufacturer: Raytheon Company Tested By: Eddie Wong
 Model: M125
 S/N: HTMS 01000126

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
DSRC Reader*	Raytheon Company	M125	HTMS 01000126

Support Devices:

Function	Manufacturer	Model #	S/N
Antenna	Larsen	PA0004	-
Laptop	Dell	PP01X	20311250257

Test Conditions / Notes:

The EUT is placed on the test bench. RS232 port is connected to a support laptop. Host data is connected to a section of USB cable, Digital I/O, reader Symm Host data Locator sync, locator data are connected to sections of UTP. Debug port is left unterminated. Frequency = 925 MHz, Mute mode Both antennas tested. 12 VDC (from 110VAC, 60 Hz source) 26.7°C, 30% relative humidity.

Transducer Legend:

T1=Chase bilog a/n 00851, s/n 2629	T2=Cable #22 080905
T3=Cable #33 44ft. RG-214/U	T4=Cable Heliax #17 84ft(10 meter) 100205
T5=Preamp 8447D Asset 00010	T6=Cable Heliax #17 84ft(10 meter) 100205
T7=Horn AN 01646 1-18 GHz 042505	T8=SMA Cable 1-40GHz AN2604_012305
T9=HF Preamp Cal. HP-83017A,S/N- 3123A00282	T10=Cable #19 54ft Heliax 101304

Measurement Data:			Reading listed by margin.									Test Distance: 3 Meters			
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar				
			T5	T6	T7	T8	Table	dB μ V/m	dB μ V/m						
			T9	T10											
	MHz	dB μ V	dB	dB	dB	dB	Table	dB μ V/m	dB μ V/m						
1	1300.000M	55.7	+0.0	+0.0	+0.0	+0.0	-10.0	37.0	49.5	-12.5	Vert				
			+0.0	+4.0	+24.6	+0.4									
			-40.1	+2.4											
2	431.968M	50.6	+15.3	+0.4	+2.4	+2.4	-10.0	33.6	46.4	-12.8	Horiz				
			-27.5	+0.0	+0.0	+0.0									
			+0.0	+0.0											
3	159.991M	52.0	+12.1	+0.2	+1.3	+1.4	-10.0	30.2	43.5	-13.3	Vert				
			-26.8	+0.0	+0.0	+0.0									
			+0.0	+0.0											
4	65.060M	54.3	+6.3	+0.1	+0.8	+1.0	-10.0	25.3	39.1	-13.8	Vert				
			-27.2	+0.0	+0.0	+0.0									
			+0.0	+0.0											
5	854.968M	40.5	+22.0	+0.6	+3.4	+3.1	-10.0	31.8	46.4	-14.6	Vert				
			-27.8	+0.0	+0.0	+0.0									
			+0.0	+0.0											

6	431.987M	48.2	+15.3	+0.4	+2.4	+2.4	-10.0	31.2	46.4	-15.2	Horiz
			-27.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
7	218.852M	53.6	+10.2	+0.3	+1.6	+1.7	-10.0	30.8	46.4	-15.6	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
8	431.992M	47.7	+15.3	+0.4	+2.4	+2.4	-10.0	30.7	46.4	-15.7	Vert
			-27.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
9	1496.250M	50.9	+0.0	+0.0	+0.0	+0.0	-10.0	33.7	49.5	-15.8	Vert
			+0.0	+4.4	+24.8	+0.4					
			-39.5	+2.7							
10	1398.750M	51.3	+0.0	+0.0	+0.0	+0.0	-10.0	33.5	49.5	-16.0	Vert
			+0.0	+4.2	+24.7	+0.4					
			-39.8	+2.7							
11	2191.250M	45.9	+0.0	+0.0	+0.0	+0.0	-10.0	33.2	49.5	-16.3	Vert
			+0.0	+5.5	+27.3	+0.5					
			-39.4	+3.4							
12	1600.000M	49.2	+0.0	+0.0	+0.0	+0.0	-10.0	32.6	49.5	-16.9	Vert
			+0.0	+4.4	+25.2	+0.4					
			-39.5	+2.9							
13	207.983M	49.6	+10.0	+0.2	+1.6	+1.6	-10.0	26.4	43.5	-17.1	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
14	1695.625M	47.9	+0.0	+0.0	+0.0	+0.0	-10.0	32.1	49.5	-17.4	Vert
			+0.0	+4.6	+25.7	+0.4					
			-39.5	+3.0							
15	240.028M	51.1	+10.5	+0.3	+1.7	+1.8	-10.0	28.9	46.4	-17.5	Vert
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
16	208.006M	49.1	+10.0	+0.2	+1.6	+1.6	-10.0	25.9	43.5	-17.6	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
17	239.940M	50.8	+10.5	+0.3	+1.7	+1.8	-10.0	28.6	46.4	-17.8	Horiz
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							
18	463.907M	44.7	+16.1	+0.4	+2.5	+2.5	-10.0	28.5	46.4	-17.9	Horiz
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0							
19	159.992M	47.0	+12.1	+0.2	+1.3	+1.4	-10.0	25.2	43.5	-18.3	Horiz
			-26.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							
20	202.827M	47.9	+9.9	+0.2	+1.5	+1.6	-10.0	24.5	43.5	-19.0	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0							
21	815.878M	36.5	+21.2	+0.6	+3.4	+3.1	-10.0	27.1	46.4	-19.3	Horiz
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0							
22	854.986M	35.6	+22.0	+0.6	+3.4	+3.1	-10.0	26.9	46.4	-19.5	Horiz
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0							

23	160.012M	45.7	+12.1	+0.2	+1.3	+1.4	-10.0	23.9	43.5	-19.6	Horiz
			-26.8	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
24	1695.625M	44.9	+0.0	+0.0	+0.0	+0.0	-10.0	29.1	49.5	-20.4	Horiz
			+0.0	+4.6	+25.7	+0.4					
			-39.5	+3.0							
25	447.987M	42.1	+15.7	+0.4	+2.4	+2.4	-10.0	25.3	46.4	-21.1	Horiz
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
26	224.020M	47.8	+10.3	+0.3	+1.7	+1.7	-10.0	25.2	46.4	-21.2	Vert
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
27	816.110M	34.1	+21.2	+0.6	+3.4	+3.1	-10.0	24.7	46.4	-21.7	Vert
			-27.7	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
28	854.982M	33.3	+22.0	+0.6	+3.4	+3.1	-10.0	24.6	46.4	-21.8	Horiz
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
29	239.992M	46.7	+10.5	+0.3	+1.7	+1.8	-10.0	24.5	46.4	-21.9	Horiz
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
30	416.037M	41.3	+15.0	+0.4	+2.3	+2.4	-10.0	24.2	46.4	-22.2	Horiz
			-27.2	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
31	479.971M	39.8	+16.5	+0.4	+2.5	+2.5	-10.0	23.9	46.4	-22.5	Horiz
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
32	399.966M	40.8	+14.6	+0.4	+2.3	+2.4	-10.0	23.5	46.4	-22.9	Vert
			-27.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
33	304.025M	43.7	+11.0	+0.3	+1.9	+2.0	-10.0	22.5	46.4	-23.9	Vert
			-26.4	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
34	84.560M	41.9	+8.0	+0.1	+0.9	+1.1	-10.0	15.0	39.1	-24.1	Vert
			-27.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
35	234.844M	44.5	+10.4	+0.3	+1.7	+1.8	-10.0	22.1	46.4	-24.3	Horiz
			-26.6	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
36	505.960M	37.0	+17.2	+0.4	+2.6	+2.6	-10.0	22.0	46.4	-24.4	Vert
			-27.8	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
37	615.916M	34.1	+19.4	+0.5	+2.9	+2.8	-10.0	21.8	46.4	-24.6	Vert
			-27.9	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
38	335.940M	41.0	+13.2	+0.4	+1.9	+2.1	-10.0	21.8	46.4	-24.6	Horiz
			-26.8	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
39	351.924M	38.8	+14.1	+0.4	+1.9	+2.2	-10.0	20.5	46.4	-25.9	Horiz
			-26.9	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					

40	367.959M	36.8	+14.3	+0.4	+2.0	+2.3	-10.0	18.9	46.4	-27.5	Vert
			-26.9	+0.0	+0.0	+0.0					
			+0.0	+0.0							
41	303.960M	38.9	+11.0	+0.3	+1.9	+2.0	-10.0	17.7	46.4	-28.7	Horiz
			-26.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
42	303.960M	38.8	+11.0	+0.3	+1.9	+2.0	-10.0	17.6	46.4	-28.8	Horiz
			-26.4	+0.0	+0.0	+0.0					
			+0.0	+0.0							
43	367.956M	34.4	+14.3	+0.4	+2.0	+2.3	-10.0	16.5	46.4	-29.9	Vert
			-26.9	+0.0	+0.0	+0.0					
			+0.0	+0.0							
44	282.826M	37.2	+10.7	+0.3	+1.9	+2.0	-10.0	15.6	46.4	-30.8	Vert
			-26.5	+0.0	+0.0	+0.0					
			+0.0	+0.0							

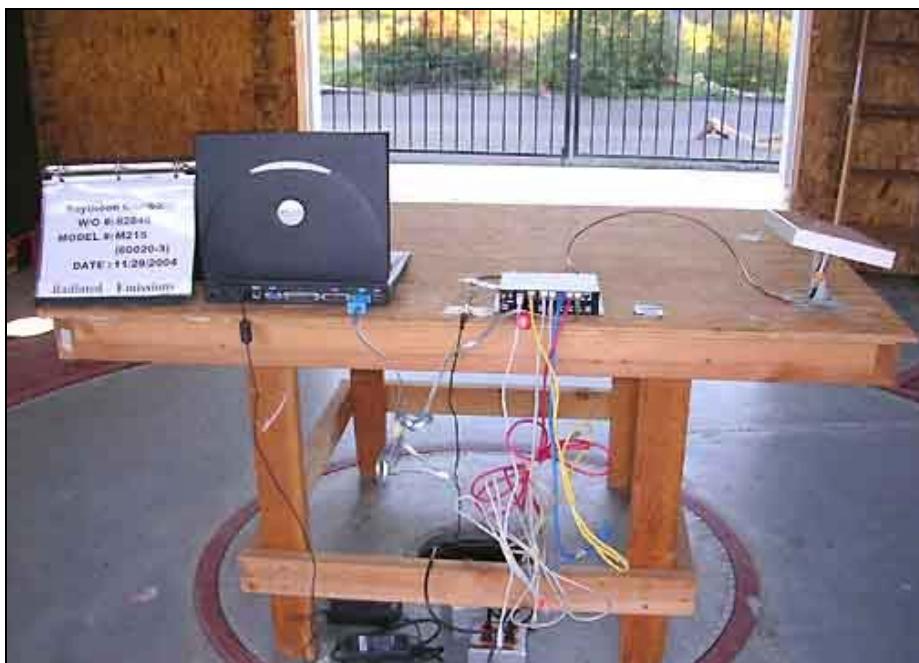
Radiated Emissions Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	070204	070206
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	070204	070206
Quasi Peak Adapter	00200	HP	85650A	2043A00221	070204	070206
30-1000MHz						
Bilog Antenna	00851	Schaffner-Chase EMC	CBL6111C	2629	031604	031606
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	100204	100205
Antenna cable from bulkhead to antenna	N/A	Pasternack	RG-214/U	Cable #33	032904	032905
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	080904	080905
Pre-amp	00010	HP	8447D	2727A05392	070204	070206

PHOTOGRAPH SHOWING RADIATED EMISSIONS

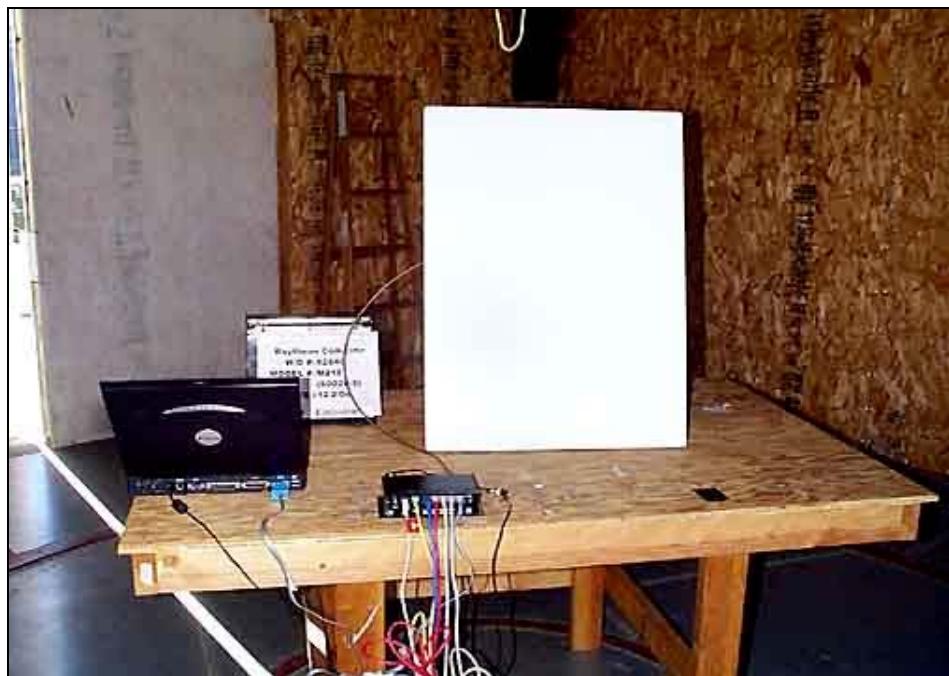


Radiated Emissions - Front View



Radiated Emissions - Back View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View



Radiated Emissions - Back View