



ADDENDUM TO TEST REPORT FC99-025

FOR THE

INTEGRATED SENSOR SUITE, 6320

FCC PART 15 SUBPART C

PART 15.249

COMPLIANCE

DATE OF ISSUE: JULY 20, 2000

PREPARED FOR:

Davis Instruments
3465 Diablo Avenue
Hayward, CA 94545

W.O. No: 74615

Report No: FC99-025A

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Date of test: June 19-21, 2000

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TABLE OF CONTENTS

Administrative Information	3
Summary Of Results.....	5
Equipment Under Test (EUT) Description.....	5
Measurement Uncertainty.....	5
EUT Operating Frequency.....	5
Peripheral Devices	5
Report Of Measurements.....	6
Table 1: Fundamental Radiated Emission Levels	6
Table 2: Six Highest Radiated Emission Levels - 30MHz-100MHz	7
Table 3: Six Highest Radiated Emission Levels - Greater 1GHz.....	8
Table 4: Six Highest Conducted Emission Levels	9
Table A : List Of Test Equipment	10
EUT Setup	11
Test Instrumentation And Analyzer Settings.....	11
Table B : Analyzer Bandwidth Settings Per Frequency Range.....	12
Spectrum Analyzer Detector Functions.....	12
Peak	12
Quasi-Peak.....	12
Average.....	12
Test Methods	13
Radiated Emissions Testing.....	13
Conducted Emissions Testing	14
Transmitter Characteristics.....	14
Occupied Bandwidth	14
Sample Calculations	15
Appendix A : Information About The Equipment Under Test.....	16
I/O Ports.....	17
Crystal Oscillators	17
Printed Circuit Boards	17
Required EUT Changes To Comply.....	17
Cable Information.....	18
Photograph Showing Radiated Emissions.....	19
Photograph Showing Conducted Emissions.....	20
Appendix B : Measurement Data Sheets.....	21
Occupied Bandwidth Plot.....	22
Occupied Bandwidth Plot.....	23
Occupied Bandwidth Plot.....	24
Occupied Bandwidth Plot.....	25

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	June 19-21, 2000
PURPOSE OF TEST:	To demonstrate the compliance of the Integrated Sensor Suite, 6320, with the requirements for FCC Part 15 Subpart C Part 15.249 devices. The addendum includes new test data due to movement of components to accommodate a different antenna that is being planned for in the future. This report does not include test data for the new antenna.
MANUFACTURER:	Davis Instruments 3465 Diablo Avenue Hayward, CA 94545
REPRESENTATIVE:	Brett Preston
TEST LOCATION:	CKC Laboratories, Inc. 5473A Clouds Rest Mariposa, CA 95338
TEST PERSONNEL:	Dustin Oaks
TEST METHOD:	ANSI C63.4 1992
FREQUENCY RANGE TESTED:	450 kHz - 9200 MHz

EQUIPMENT UNDER TEST:

Integrated Sensor Suite

Manuf: Davis Instruments
Model: 6320
Serial: N/A
FCC ID: IR2DWW6320

AC Adaptor

Manuf: Davis Instruments
Model: N/A
Serial: N/A
FCC ID: N/A

UV Sensor

Manuf: Davis Instruments
Model: 6490
Serial: N/A
FCC ID: N/A

Rain Collector

Manuf: Davis Instruments
Model: N/A
Serial: N/A
FCC ID: N/A

Solar Radiation Sensor

Manuf: Davis Instruments
Model: 6450
Serial: N/A
FCC ID: N/A

Wind Vane and Anemometer

Manuf: Davis Instruments
Model: N/A
Serial: N/A
FCC ID: N/A

SUMMARY OF RESULTS

The Davis Instruments Integrated Sensor Suite, 6320, was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15 Supart C Part 15.249.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15 Supart C Part 15.249. The results in this report apply only to the items tested, as identified herein.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

Device transmits every 2.5 seconds 6 bytes of data using OOK and <1mW of power at 916.5 MHz. Accessory for wired stations. The following modifications have been made to the device since it was granted:

A zero ohm resistor and trace to the external antenna pad have been added, the solar panel connector was rotated and moved approximately 1.8 inches to the left, the power connector type was changed and moved approximately 0.5 inches north, and the TVS was rotated and moved approximately 1.0 inches south. There were no schematic changes made other than to accommodate an external antenna being planned for in the future.

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ± 4 dB measurement uncertainty.

EUT OPERATING FREQUENCY

The EUT was operating at 916.5 MHz.

TEMPERATURE AND HUMIDITY DURING TESTING

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

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

REPORT OF MEASUREMENTS

The following tables report the highest worst case levels recorded during the tests performed on the Integrated Sensor Suite, 6320. All readings taken are peak readings unless otherwise noted by a “Q” or “A”. The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Fundamental Radiated Emission Levels									
FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
916.512	86.5	23.5	-27.3	6.8		89.5	93.9	-4.4	V
916.517	83.7	23.5	-27.3	6.8		86.7	93.9	-7.2	V

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.249(a)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: ISS operating in Normal operating mode. ISS tested with AC power adaptor, and also tested with optional battery power with solar panel.

Table 2: Six Highest Radiated Emission Levels - 30MHz-1000MHz

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
30.044	36.0	13.9	-27.0	0.7	10.0	33.6	40.0	-6.4	VQ
37.566	34.5	11.1	-27.1	0.7	10.0	29.2	40.0	-10.8	V
42.329	34.2	10.8	-27.0	0.8	10.0	28.8	40.0	-11.2	V
56.146	33.6	9.8	-26.8	1.0	10.0	27.6	40.0	-12.4	V
59.999	34.9	9.4	-26.8	1.0	10.0	28.5	40.0	-11.5	V
68.280	35.8	8.1	-26.8	1.0	10.0	28.1	40.0	-11.9	V

Test Method:
Spec Limit :
Test Distance:

ANSI C63.4 1992
FCC Part 15.249(c)/15.209
10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: ISS operating in Normal operating mode. ISS tested with AC power adaptor, and also tested with optional battery power with solar panel.

Table 3: Six Highest Radiated Emission Levels - > 1GHz									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS				CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	FCC 15.35 dB				
1832.851	70.6	27.3	-35.4	6.3	-20.0	48.8	54.0	-5.2	V
2749.289	51.7	31.0	-32.5	10.2	-20.0	40.4	54.0	-13.6	V
3665.701	50.1	32.4	-33.1	11.6	-20.0	41.0	54.0	-13.0	V
4582.155	55.5	32.9	-32.6	14.6	-20.0	50.4	54.0	-3.6	V
5498.556	47.2	34.5	-32.2	18.4	-20.0	47.9	54.0	-6.1	V
6414.975	39.6	35.7	-30.2	24.4	-20.0	49.5	54.0	-4.5	H

Test Method:
Spec Limit :
Test Distance:

ANSI C63.4 1992
FCC Part 15.249(c)/15.209
3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: ISS operating in Normal operating mode. ISS tested with AC power adaptor, and also tested with optional battery power with solar panel. FCC 15.35, Averaging Pulsed Signals, EUT is ON for 10mS. $20\text{LOG}(10\text{mS}/100\text{mS}) = 20\text{dB}$, therefore, the Peak reading may be reduced by 20dB for Averaging.

Table 4: Six Highest Conducted Emission Levels									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS				CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
		Lisn dB							
0.988794	36.7	0.5				37.2	48.0	-10.8	B
3.308270	39.9	0.4				40.3	48.0	-7.7	W
8.728815	32.6	4.7				37.3	48.0	-10.7	W
8.838108	33.2	5.1				38.3	48.0	-9.7	B
8.961063	32.4	5.6				38.0	48.0	-10.0	W
9.206973	32.8	4.9				37.7	48.0	-10.3	B

Test Method:
Spec Limit :

ANSI C63.4 1992
FCC Part 15.207

NOTES: Q = Quasi Peak Reading
A = Average Reading
B = Black Lead
W = White Lead

COMMENTS: ISS operating in Normal operating mode.

TABLE A
LIST OF TEST EQUIPMENT

Barn Lab

Industry Canada File No. IC 3082-D

#	Equipment
439	Quasi-Peak Adapter, Hewlett Packard, Model No. 85650A, S/N 2811A01267. Calibration Date: July 7, 1999. Calibration Due: July 7, 2000.
472	SA Display Section, Hewlett Packard, Model 8566B, S/N 2403A08241.
502	Spectrum Analyzer, Hewlett Packard, Model No. 8566B, CKC 1, S/N 2403A08241 (Display Unit), S/N 2209A01404 (rf Unit). Calibration date: July 7, 1999. Calibration due date: July 7, 2000.
401	Preamplifier, Hewlett Packard, Model No. 8447D, S/N 1937A02604. Calibration Date: April 3, 2000. Calibration Due: April 3, 2001.
341	Log Periodic Antenna, A & H Systems, Model No. SAS-200/512, S/N 154. Calibration Date: May 8, 2000. Calibration Due: May 8, 2001.
92	Biconical Antenna, A & H Systems, Model No. SAS-200/542, S/N 156. Calibration Date: May 8, 2000. Calibration Due: May 8, 2001.
737	Horn Antenna, EMCO, Model No. 3115, S/N 4085. Calibration date: February 14, 2000. Calibration due date: February 14, 2001.
327	LISN, Solar Electronics, S/N 8144793, 474. Calibration date: June 5, 2000. Calibration due date: June 5, 2001.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented their normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1 for fundamental emissions, Tables 2 & 3 for radiated emissions and Table 4 for conducted emissions. Additionally, a complete description of all the ports and cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters. This configuration is typical for radiated emissions testing of table top devices.

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT is located, has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test. Conducted emissions tests required the use of the LISN's listed in Table A.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the Integrated Sensor Suite, 6320. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. For frequencies above 1000 MHz, the horn antenna was used. All antennas were located at a distance of either 3 or 10 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISN's.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBμV, and a vertical scale of 10 dB per division.

TABLE B : ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	9.2 GHz	1 MHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1-4 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Integrated Sensor Suite, 6320.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

When the frequencies exceed 1 GHz, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

TEST METHODS

The radiated and conducted emissions data of the Integrated Sensor Suite, 6320, was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C Part 15.249 emissions limits to determine compliance.

Preliminary and final measurements were taken in order to better ensure that all emissions from the EUT were found and maximized.

Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. For frequencies above 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

For the final radiated scan, the equipment was again positioned facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation and antenna height. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Conducted Emissions Testing

For conducted emissions testing, a 30 to 50 second sweep as used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep.

TRANSMITTER CHARACTERISTICS

Occupied Bandwidth Measurements

The fundamental frequency was kept within the permitted band 902 – 928 MHz. Refer to Appendix B for the occupied bandwidth plots.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the six highest emissions readings in Tables 1-4. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula:

$$\begin{aligned} & \text{Meter reading (dB}\mu\text{V)} \\ & + \text{Antenna Factor (dB)} \\ & + \text{Cable Loss (dB)} \\ & - \text{Distance Correction (dB)} \\ & - \text{Pre-amplifier Gain (dB)} \\ & = \text{Corrected Reading (dB}\mu\text{V/m)} \end{aligned}$$

This reading was then compared to the applicable specification limit to determine compliance.

A typical data sheet will display the following in column format:

#	Freq MHz	Rdng dB μ V	Cable	Amp	Bicon	Horn	Log	Dist	Corr dB μ V/m	Spec	Margin	Polar
	FCC 15.35	LISN										

means reading number

Freq MHz is the frequency in MHz of the obtained reading.

Rdng dB μ V is the reading obtained on the spectrum analyzer in dB μ V.

Amp is short for the preamplifier factor or gain in dB.

Bicon is the biconical antenna factor in dB.

Log is the log periodic antenna factor in dB.

Horn is the horn antenna factor in dB.

Cable is the cable loss in dB of the coaxial cable on the OATS.

Dist is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.

Corr dB μ V/m is the corrected reading which is now in dB μ V/m (field strength).

Spec is the specification limit (dB) stated in the agency's regulations.

Margin is the closeness to the specified limit in dB; + is over and - is under the limit.

Polar is the Polarity of the antenna with respect to earth.

LISN is the line impedance stabilization network factor in dB.

FCC 15.35 is the average correction called in FCC Part 15.35.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	N/A
CRT was displaying:	N/A
Power Supply Manufacturer:	Davis Instruments
Power Supply Part Number:	OEM
AC Line Filter Manufacturer:	N/A
AC Line Filter Part Number:	N/A

I/O PORTS	
Type	#
Digital/Analog (Wind Speed/Dir)	1
Digital (Rain Collector)	2
Analog (Solar Radiation)	3
Analog (UV Radiation)	4

CRYSTAL OSCILLATORS	
Type	Freq. In MHz
Surface Mount Quartz	.076

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Product is placed on roof or in yard and reads connected analog/digital sensors and transmits 6 byte data packets to console inside home.	6320 REV A (04)	.072	2	Inside custom plastic housing.

REQUIRED EUT CHANGES TO COMPLY:
None.

CABLE INFORMATION

Cable #: 1	Cable(s) of this type: 1
Cable Type: Standard Phone Wire Construction: Connected To End (1): Circuit Board Connector At End (1): RJ11 Shield Grounded At (1): None Part Number: 6410 for Anemometer	Shield Type: None Length In Meters: 12 Connected To End (2): Anemometer Connector At End (2): Soldered Shield Grounded At (2): None Number of Conductors: 4
Notes: Magnet and Reed Switch for Speed. Pot for direction.	

Cable #: 2	Cable(s) of this type:
Cable Type: Standard Phone Wire Construction: Connected To End (1): Circuit Board Connector At End (1): RJ11 Shield Grounded At (1): None Part Number: 6430 for Rain Collector	Shield Type: None Length In Meters: 2 Connected To End (2): Rain Collector Connector At End (2): Soldered Shield Grounded At (2): None Number of Conductors: 4
Notes: Magnet and Reed Switch Sensor	

Cable #: 3	Cable(s) of this type:
Cable Type: Standard Phone Wire Construction: Connected To End (1): Circuit Board Connector At End (1): RJ11 Shield Grounded At (1): None Part Number: 6450 for Solar Sensor	Shield Type: None Length In Meters: 2 Connected To End (2): Solar Radiation Sensor Connector At End (2): Soldered Shield Grounded At (2): None Number of Conductors: 4
Notes: +5V Supply, 0 to 3V Output	

Cable #: 4	Cable(s) of this type:
Cable Type: Standard Phone Wire Construction: Connected To End (1): Circuit Board Connector At End (1): RJ11 Shield Grounded At (1): None Part Number: 6490 for UV Radiation	Shield Type: None Length In Meters: 2 Connected To End (2): UV Radiation Sensor Connector At End (2): Soldered Shield Grounded At (2): None Number of Conductors: 4
Notes: +5V Supply, 0 to 3V Output	

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

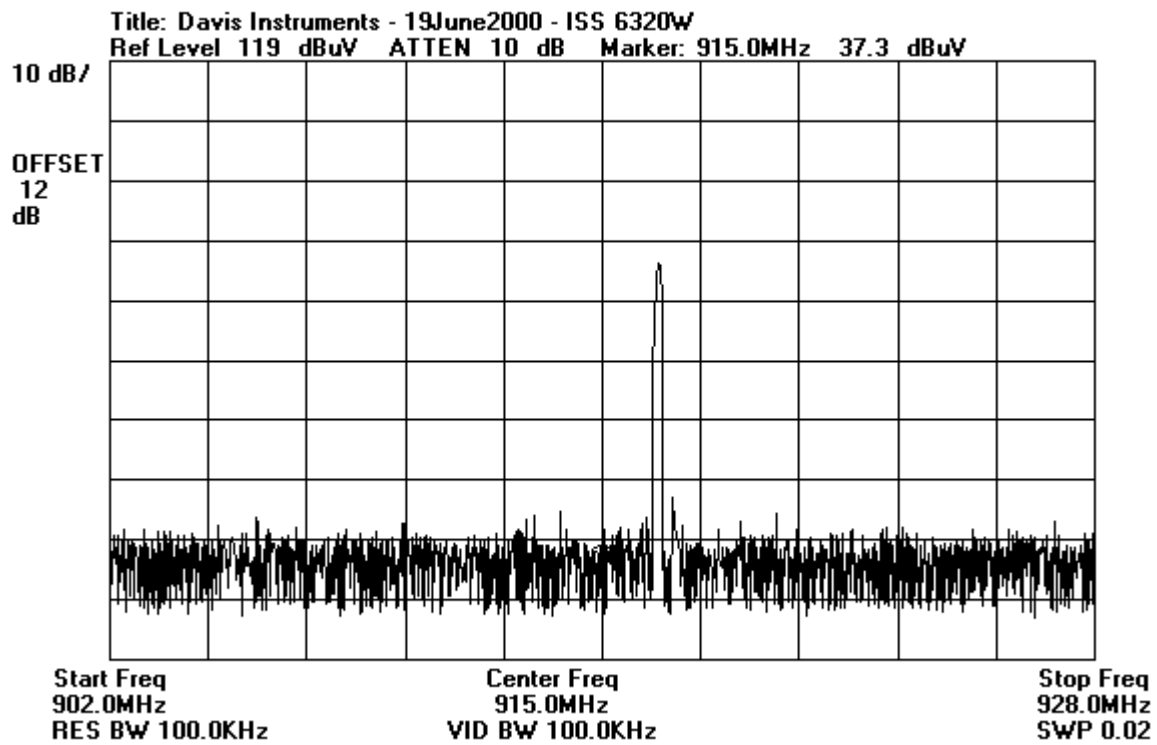


Conducted Emissions - Front View

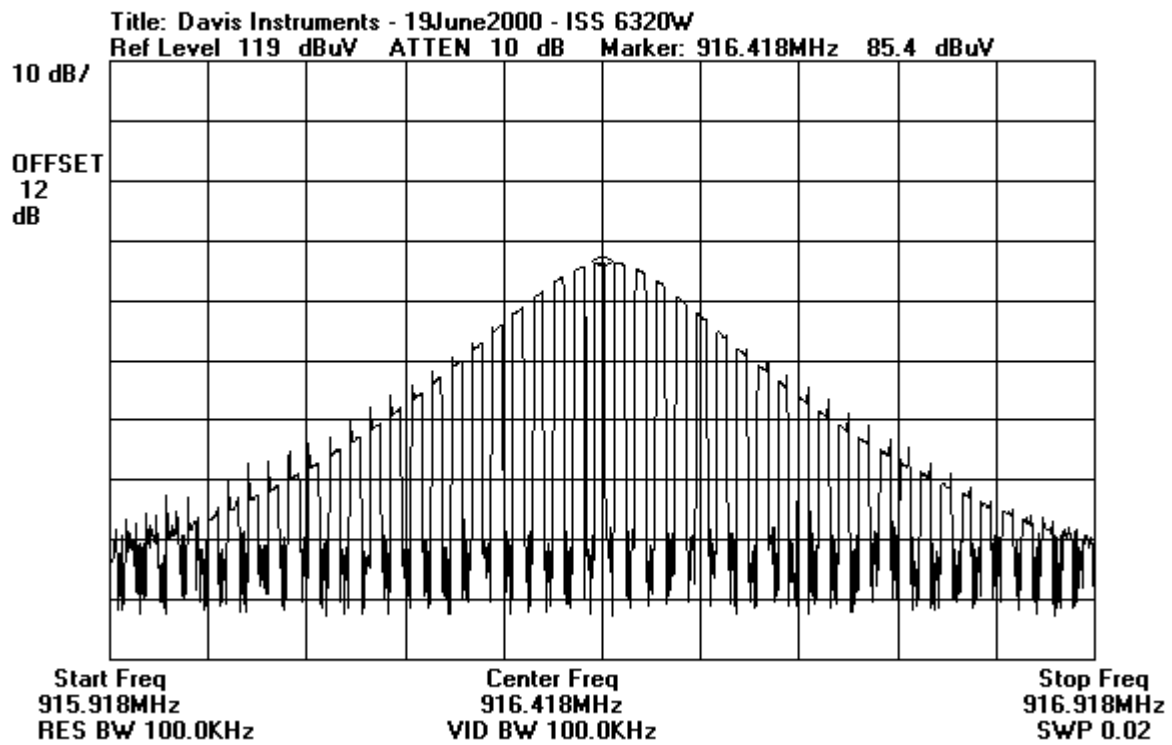
APPENDIX B

MEASUREMENT DATA SHEETS

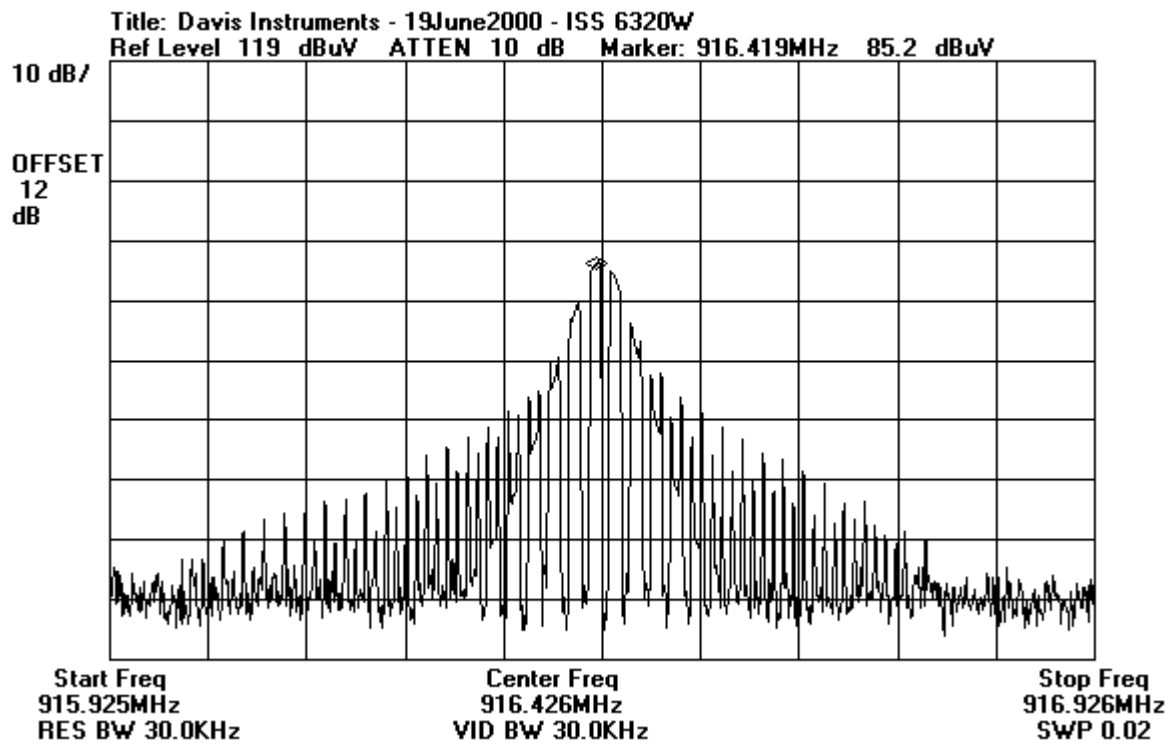
Occupied Bandwidth Plot



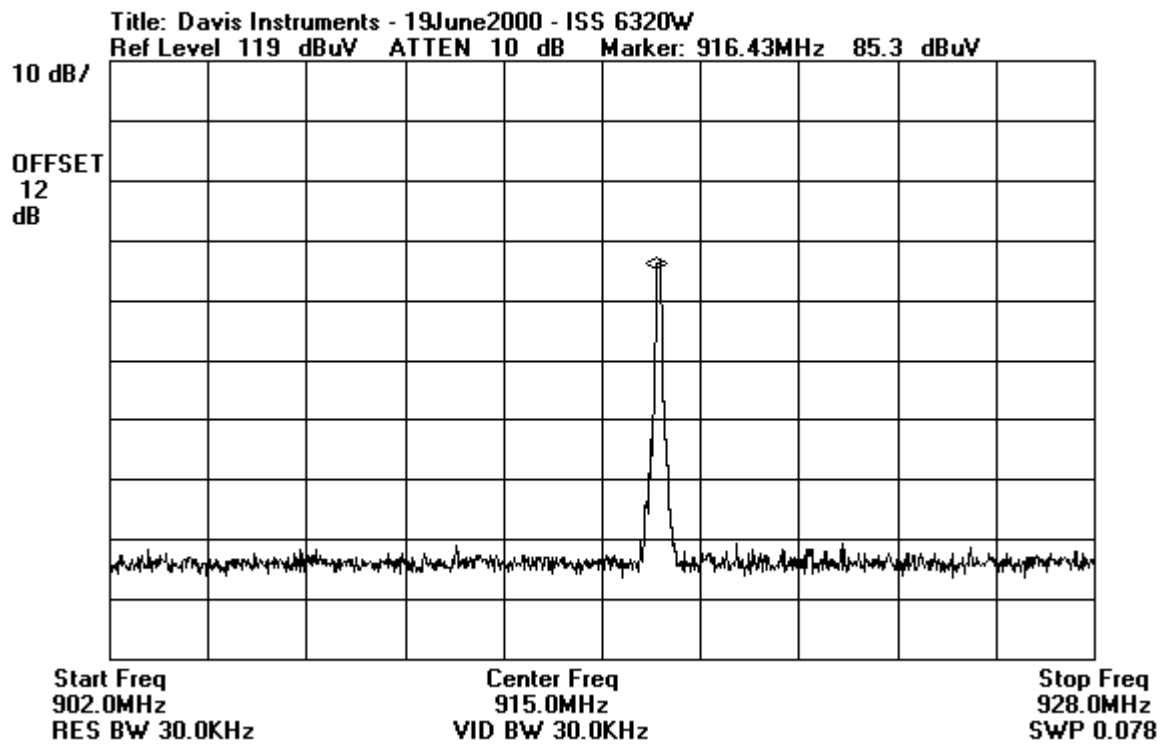
Occupied Bandwidth Plot



Occupied Bandwidth Plot



Occupied Bandwidth Plot



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Davis Instruments**

Specification: **FCC 15.249 (a)**

Work Order #: **74615**

Date: 06/19/2000

Test Type: **Maximized Emissions**

Time: 16:12:29

Equipment: **Integrated Sensor Suite**

Sequence#: 8

Manufacturer: Davis Instruments

Tested By: Dustin Oaks

Model: 6320

S/N: N/A

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6320	N/A
Wind Vane and Anemometer	Davis Instruments		Prototype
Rain Collector	Davis Instruments		Prototype
AC Adaptor	Davis Instruments		Prototype
Solar Radiation Sensor	Davis Instruments	6450	
UV Sensor	Davis Instruments	6490	

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

ISS operating in Normal operating mode. ISS tested with AC power adaptor, and also tested with optional battery power with solar panel.

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Amp dB	Bicon dB	Log dB	Cable dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	916.512M	86.5	-27.3	+0.0	+23.5	+6.8	+0.0	89.5	93.9	-4.4	Vert
2	916.517M	83.7	-27.3	+0.0	+23.5	+6.8	+0.0	86.7	93.9	-7.2	Vert

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240
 Customer: **Davis Instruments**
 Specification: **FCC 15.249(C) / 15.209**
 Work Order #: **74615**
 Test Type: **Maximized Emissions**
 Equipment: **Integrated Sensor Suite**
 Manufacturer: Davis Instruments
 Model: 6320
 S/N: N/A

Date: 06/19/2000
 Time: 11:45:29
 Sequence#: 15
 Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6320	N/A
Wind Vane and Anemometer	Davis Instruments		Prototype
Rain Collector	Davis Instruments		Prototype
AC Adaptor	Davis Instruments		Prototype
Solar Radiation Sensor	Davis Instruments	6450	
UV Sensor	Davis Instruments	6490	

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

ISS operating in Normal operating mode. ISS tested with AC power adaptor, and also tested with optional battery power with solar panel.

Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	Amp dB	Bicon dB	Log dB	Cable dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	30.044M	36.0	-27.0	+13.9	+0.0	+0.7	+10.0	33.6	40.0	-6.4	Vert
QP											
^	30.017M	39.9	-27.0	+13.9	+0.0	+0.7	+10.0	37.5	40.0	-2.5	Vert
3	37.566M	34.5	-27.1	+11.1	+0.0	+0.7	+10.0	29.2	40.0	-10.8	Vert
4	42.329M	34.2	-27.0	+10.8	+0.0	+0.8	+10.0	28.8	40.0	-11.2	Vert
5	59.999M	34.9	-26.8	+9.4	+0.0	+1.0	+10.0	28.5	40.0	-11.5	Vert
6	68.280M	35.8	-26.8	+8.1	+0.0	+1.0	+10.0	28.1	40.0	-11.9	Vert
7	56.146M	33.6	-26.8	+9.8	+0.0	+1.0	+10.0	27.6	40.0	-12.4	Vert
8	108.750M	32.0	-26.8	+12.7	+0.0	+1.5	+10.0	29.4	43.5	-14.1	Vert

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Davis Instruments**
 Specification: **FCC 15.249(C) / 15.209**
 Work Order #: **74615** Date: 06/20/2000
 Test Type: **Maximized Emissions** Time: 10:25:37
 Equipment: **Integrated Sensor Suite** Sequence#: 9
 Manufacturer: Davis Instruments Tested By: Dustin Oaks
 Model: 6320
 S/N: N/A

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6320	N/A
Wind Vane and Anemometer	Davis Instruments		Prototype
Rain Collector	Davis Instruments		Prototype
AC Adaptor	Davis Instruments		Prototype
Solar Radiation Sensor	Davis Instruments	6450	
UV Sensor	Davis Instruments	6490	

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

ISS operating in Normal operating mode. ISS tested with AC power adaptor, and also tested with optional battery power with solar panel. FCC 15.35, Averaging Pulsed Signals, EUT is ON for 10mS. 20LOG(10mS/100mS) = 20dB, Therefore the Peak reading may be reduced by 20dB for Averaging.

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Amp Horn Cable FCC 15.35				Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	4582.155M	55.5	-32.6	+32.9	+14.6	-20.0	+0.0	50.4	54.0	-3.6	Vert
2	6414.975M	39.6	-30.2	+35.7	+24.4	-20.0	+0.0	49.5	54.0	-4.5	Horiz
3	1832.851M	70.6	-35.4	+27.3	+6.3	-20.0	+0.0	48.8	54.0	-5.2	Vert
4	6414.976M	38.8	-30.2	+35.7	+24.4	-20.0	+0.0	48.7	54.0	-5.3	Vert
5	5498.556M	47.2	-32.2	+34.5	+18.4	-20.0	+0.0	47.9	54.0	-6.1	Vert
6	4582.116M	48.8	-32.6	+32.9	+14.6	-20.0	+0.0	43.7	54.0	-10.3	Horiz
7	3665.701M	50.1	-33.1	+32.4	+11.6	-20.0	+0.0	41.0	54.0	-13.0	Vert
8	1832.842M	62.3	-35.4	+27.3	+6.3	-20.0	+0.0	40.5	54.0	-13.5	Horiz
9	2749.289M	51.7	-32.5	+31.0	+10.2	-20.0	+0.0	40.4	54.0	-13.6	Vert
10	9164.253M	35.8	-34.4	+38.1	+20.6	-20.0	+0.0	40.1	54.0	-13.9	Vert
11	5498.547M	38.5	-32.2	+34.5	+18.4	-20.0	+0.0	39.2	54.0	-14.8	Horiz

12	3665.705M	47.1	-33.1	+32.4	+11.6	-20.0	+0.0	38.0	54.0	-16.0	Horiz
13	7331.398M	31.3	-30.3	+37.0	+19.2	-20.0	+0.0	37.2	54.0	-16.8	Horiz
14	2749.266M	47.9	-32.5	+31.0	+10.2	-20.0	+0.0	36.6	54.0	-17.4	Horiz
15	9164.247M	32.0	-34.4	+38.1	+20.6	-20.0	+0.0	36.3	54.0	-17.7	Horiz
16	8247.827M	31.5	-32.7	+37.5	+18.2	-20.0	+0.0	34.5	54.0	-19.5	Vert
17	7331.402M	28.5	-30.3	+37.0	+19.2	-20.0	+0.0	34.4	54.0	-19.6	Vert
18	8247.828M	30.5	-32.7	+37.5	+18.2	-20.0	+0.0	33.5	54.0	-20.5	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Davis Instruments**

Specification: **FCC 15.207**

Work Order #: **74615**

Date: 06/20/2000

Test Type: **Conducted Emissions**

Time: 14:41:45

Equipment: **Integrated Sensor Suite**

Sequence#: 11

Manufacturer: Davis Instruments

Tested By: Dustin Oaks

Model: 6320

S/N: N/A

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6320	N/A
Wind Vane and Anemometer	Davis Instruments		Prototype
Rain Collector	Davis Instruments		Prototype
AC Adaptor	Davis Instruments		Prototype
Solar Radiation Sensor	Davis Instruments	6450	
UV Sensor	Davis Instruments	6490	

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

ISS operating in Normal operating mode.

Measurement Data: Reading listed by margin. Test Lead: Black

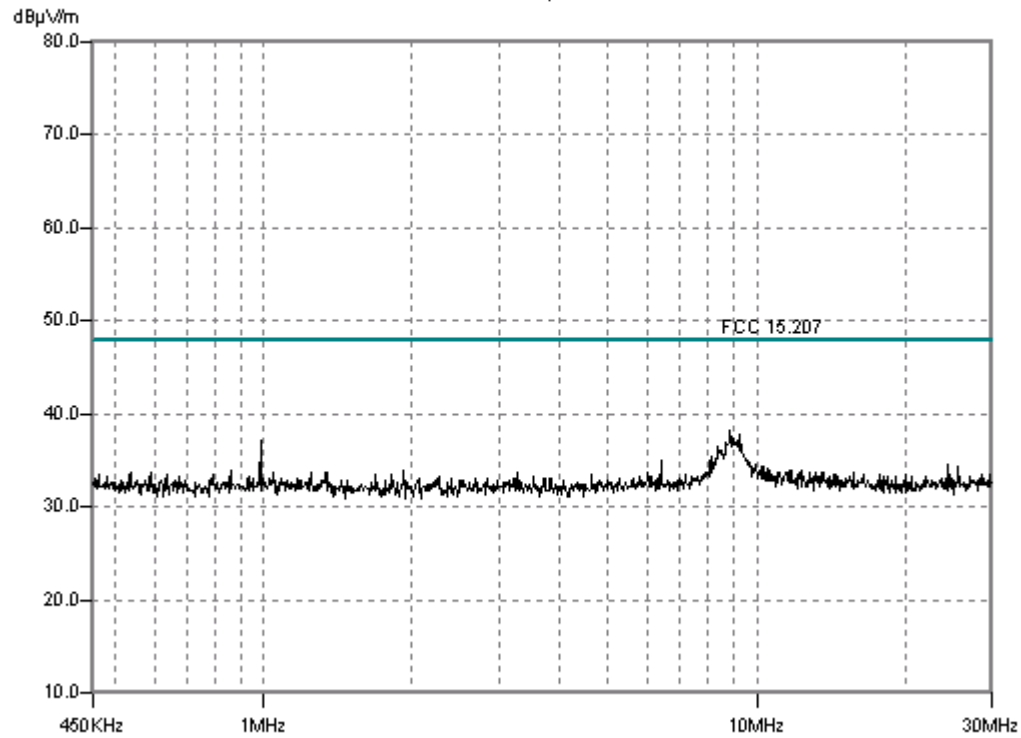
#	Freq MHz	Rdng dBμV	Cable		LISN		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	8.838M	33.2	+0.2	+4.9			+0.0	38.3	48.0	-9.7	Black
2	9.207M	32.8	+0.2	+4.7			+0.0	37.7	48.0	-10.3	Black
3	8.961M	32.0	+0.2	+5.4			+0.0	37.6	48.0	-10.4	Black
4	9.289M	33.0	+0.2	+4.3			+0.0	37.5	48.0	-10.5	Black
5	9.029M	31.7	+0.2	+5.4			+0.0	37.3	48.0	-10.7	Black
6	988.794k	36.7	+0.1	+0.4			+0.0	37.2	48.0	-10.8	Black
7	8.374M	33.3	+0.2	+3.1			+0.0	36.6	48.0	-11.4	Black
8	8.579M	31.5	+0.2	+3.9			+0.0	35.6	48.0	-12.4	Black
9	8.100M	33.2	+0.2	+2.0			+0.0	35.4	48.0	-12.6	Black
10	8.251M	32.4	+0.2	+2.6			+0.0	35.2	48.0	-12.8	Black
11	6.406M	34.2	+0.2	+0.7			+0.0	35.1	48.0	-12.9	Black

12	24.512M	33.8	+0.4	+0.4	+0.0	34.6	48.0	-13.4	Black
13	9.986M	32.7	+0.2	+1.7	+0.0	34.6	48.0	-13.4	Black
14	10.314M	32.6	+0.2	+1.5	+0.0	34.3	48.0	-13.7	Black
15	10.259M	32.5	+0.2	+1.6	+0.0	34.3	48.0	-13.7	Black

CKC Laboratories
FCC 15.207

Date: 06/20/2000
Test Lead: Black

Time: 14:40:25 W/O#: 74615
Sequence#: 11



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **Davis Instruments**

Specification: **FCC 15.207**

Work Order #: **74615**

Date: 06/20/2000

Test Type: **Conducted Emissions**

Time: 15:17:11

Equipment: **Integrated Sensor Suite**

Sequence#: 12

Manufacturer: Davis Instruments

Tested By: Dustin Oaks

Model: 6320

S/N: N/A

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6320	N/A
Wind Vane and Anemometer	Davis Instruments		Prototype
Rain Collector	Davis Instruments		Prototype
AC Adaptor	Davis Instruments		Prototype
Solar Radiation Sensor	Davis Instruments	6450	
UV Sensor	Davis Instruments	6490	

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

ISS operating in Normal operating mode.

Measurement Data:

Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dBµV	Cable		LISN		Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	3.308M	39.9	+0.1	+0.3			+0.0	40.3	48.0	-7.7	White
2	8.961M	32.4	+0.2	+5.4			+0.0	38.0	48.0	-10.0	White
3	8.811M	32.8	+0.2	+4.8			+0.0	37.8	48.0	-10.2	White
4	8.729M	32.6	+0.2	+4.5			+0.0	37.3	48.0	-10.7	White
5	8.141M	33.3	+0.2	+2.2			+0.0	35.7	48.0	-12.3	White
6	8.333M	32.3	+0.2	+2.9			+0.0	35.4	48.0	-12.6	White
7	9.712M	32.2	+0.2	+2.7			+0.0	35.1	48.0	-12.9	White
8	14.162M	33.8	+0.2	+0.9			+0.0	34.9	48.0	-13.1	White
9	9.835M	32.3	+0.2	+2.2			+0.0	34.7	48.0	-13.3	White
10	1.104M	34.2	+0.1	+0.4			+0.0	34.7	48.0	-13.3	White
11	10.685M	32.9	+0.2	+1.5			+0.0	34.6	48.0	-13.4	White

12	10.529M	32.9	+0.2	+1.5	+0.0	34.6	48.0	-13.4	White
13	22.989M	33.7	+0.4	+0.3	+0.0	34.4	48.0	-13.6	White
14	15.060M	33.1	+0.3	+0.8	+0.0	34.2	48.0	-13.8	White
15	5.928M	33.1	+0.2	+0.8	+0.0	34.1	48.0	-13.9	White

CKC Laboratories
FCC 15.207

Date: 06/20/2000
Test Lead: White

Time: 14:42:11 W/O#: 74615
Sequence#: 12

