Reg. No. DAT-P-061/95-10a

ACCREDITED
EMC/SAFETY

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

PREPARED BY:

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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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DATech (Germany); A2LA (USA); FCC (USA); VCCI (Japan); BSMI (Taiwan); HOKLAS (Hong Kong).
CKC Laboratories, Inc. has Letters of Acceptance through an MRA for the following agencies:
ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); TUV Rheinland-Germany; TUV Rheinland-Korea; TUV Rheinland-Russia; Radio Communication Agency (RA); NEMKO (Norway).

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

Rain Collector

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

AC Adaptor

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

UV Sensor

Manuf:	Davis Instruments
Model:	6490
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 ±4dB 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 Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
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 dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
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: ANSI C63.4 1992
Spec Limit : FCC Part 15.249(c)/15.209
Test Distance: 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									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY	READING	Ant	Amp	Cable	FCC 15.35	READING	LIMIT	MARGIN	NOTES
MHz	dBµV	dB	dB	dB	dB	dBµV/m	dBµV/m	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: ANSI C63.4 1992
Spec Limit : FCC Part 15.249(c)/15.209
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. 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.

Table 4: Six Highest Conducted Emission Levels									
FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Lisn dB	dB	dB	dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
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: ANSI C63.4 1992
Spec Limit : 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	Preamp, 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 dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula:

Meter reading (dBµV)
+ Antenna Factor (dB)
+ Cable Loss (dB)
- Distance Correction (dB)
- Pre-amplifier Gain (dB)

= Corrected Reading (dBµV/m)

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 dBuV	Cable	Amp	Bicon	Horn	Log	Dist	Corr dBuV/m	Spec	Margin	Polar
	FCC 15.35	LISN										

means reading number
Freq MHz is the frequency in MHz of the obtained reading.
Rdng dBuV is the reading obtained on the spectrum analyzer in dBµV.
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 dBµV/m is the corrected reading which is now in dBµV/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	Shield Type:	None
Construction:		Length In Meters:	12
Connected To End (1):	Circuit Board	Connected To End (2):	Anemometer
Connector At End (1):	RJ11	Connector At End (2):	Soldered
Shield Grounded At (1):	None	Shield Grounded At (2):	None
Part Number:	6410 for Anemometer	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	Shield Type:	None
Construction:		Length In Meters:	2
Connected To End (1):	Circuit Board	Connected To End (2):	Rain Collector
Connector At End (1):	RJ11	Connector At End (2):	Soldered
Shield Grounded At (1):	None	Shield Grounded At (2):	None
Part Number:	6430 for Rain Collector	Number of Conductors:	4
Notes:	Magnet and Reed Switch Sensor		

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

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

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

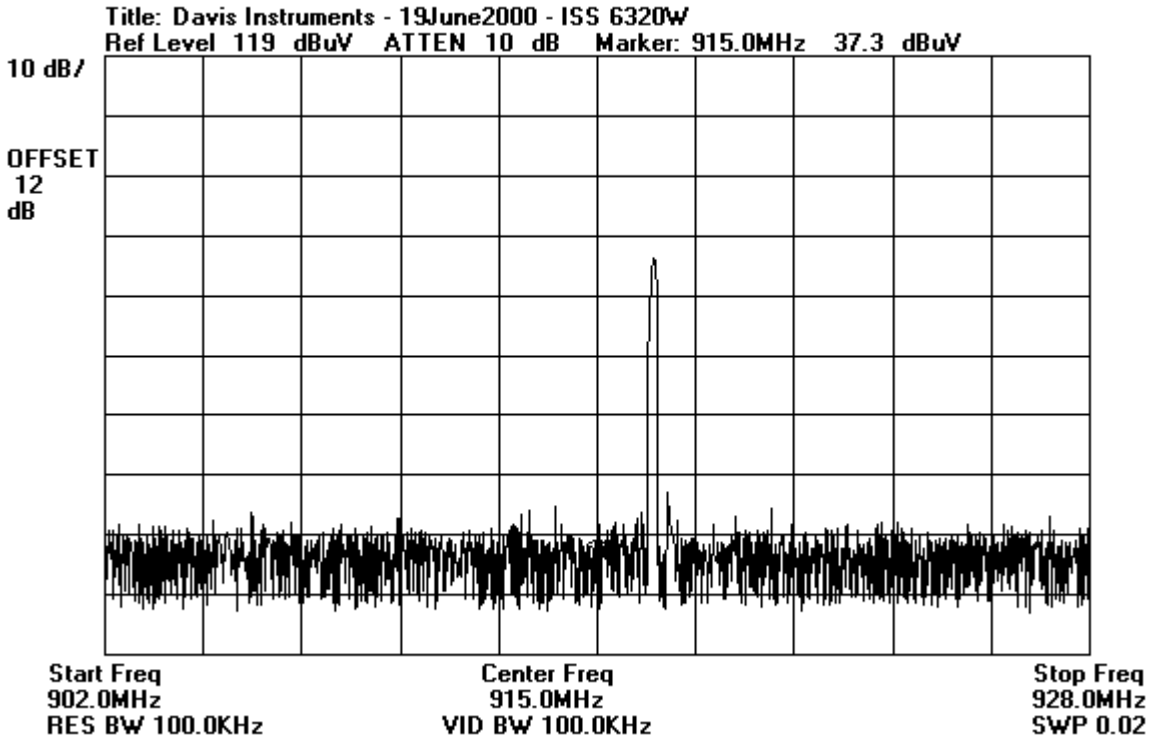
PHOTOGRAPH SHOWING CONDUCTED EMISSIONS

Conducted Emissions - Front View

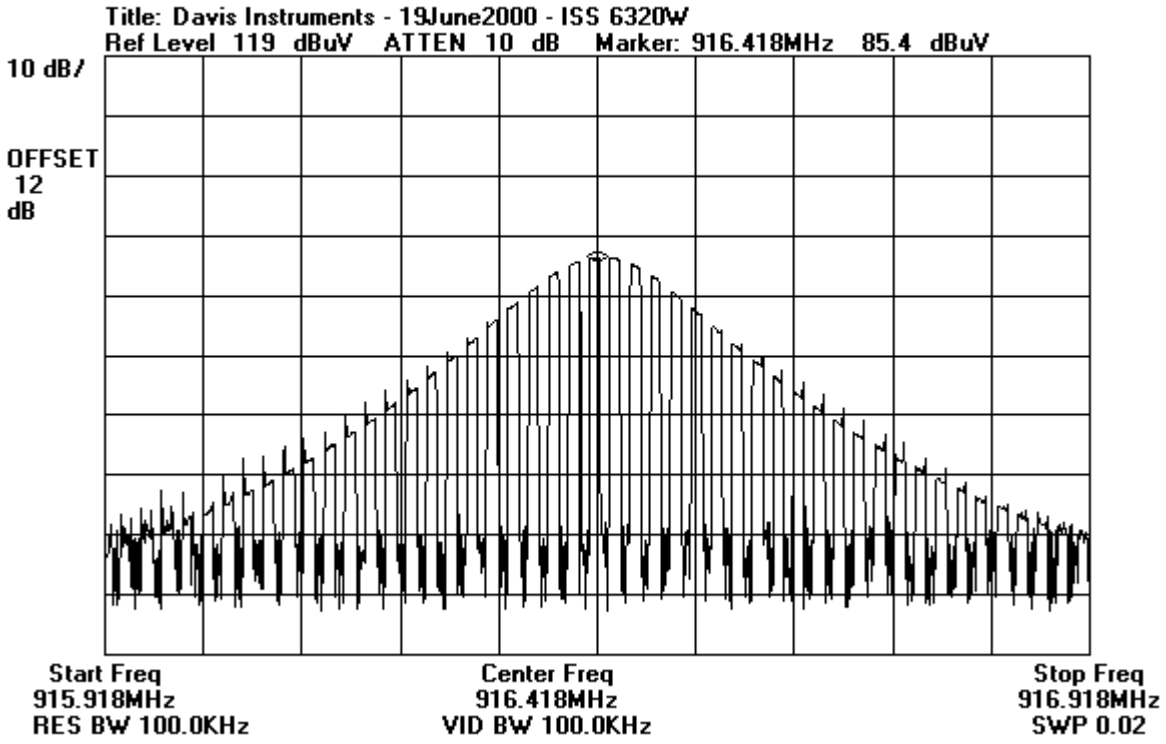
APPENDIX B

MEASUREMENT DATA SHEETS

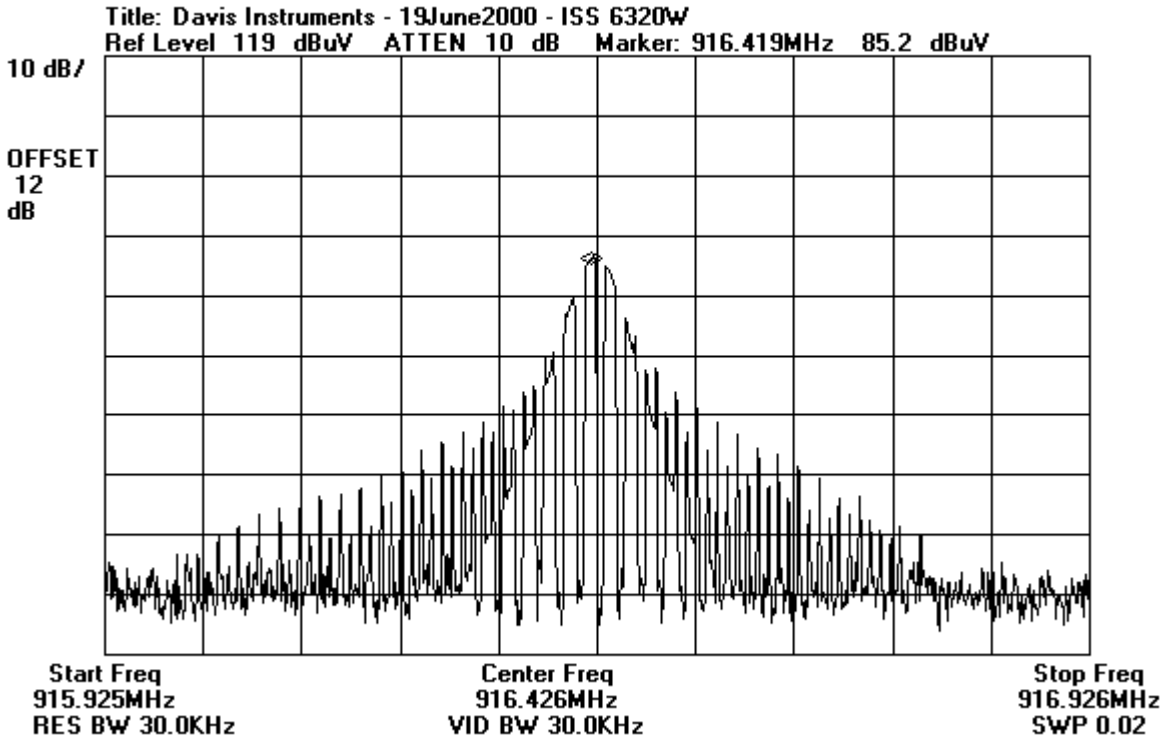
Occupied Bandwidth Plot



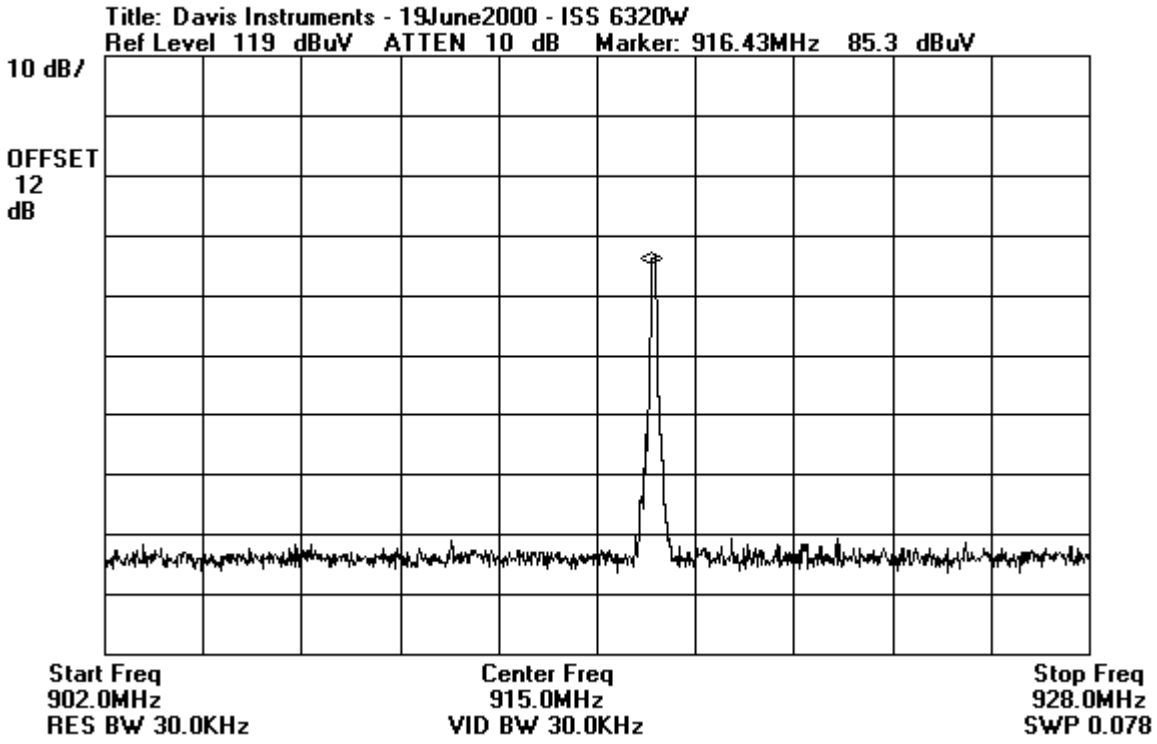
Occupied Bandwidth Plot



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

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**	Date:	06/19/2000
Test Type:	**Maximized Emissions**	Time:	11:45:29
Equipment:	**Integrated Sensor Suite**	Sequence#:	15
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

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 QP	30.044M	36.0	-27.0	+13.9	+0.0	+0.7	+10.0	33.6	40.0	-6.4	Vert
^	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

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 dB	Horn dB	Cable dB	FCC 15.35 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
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

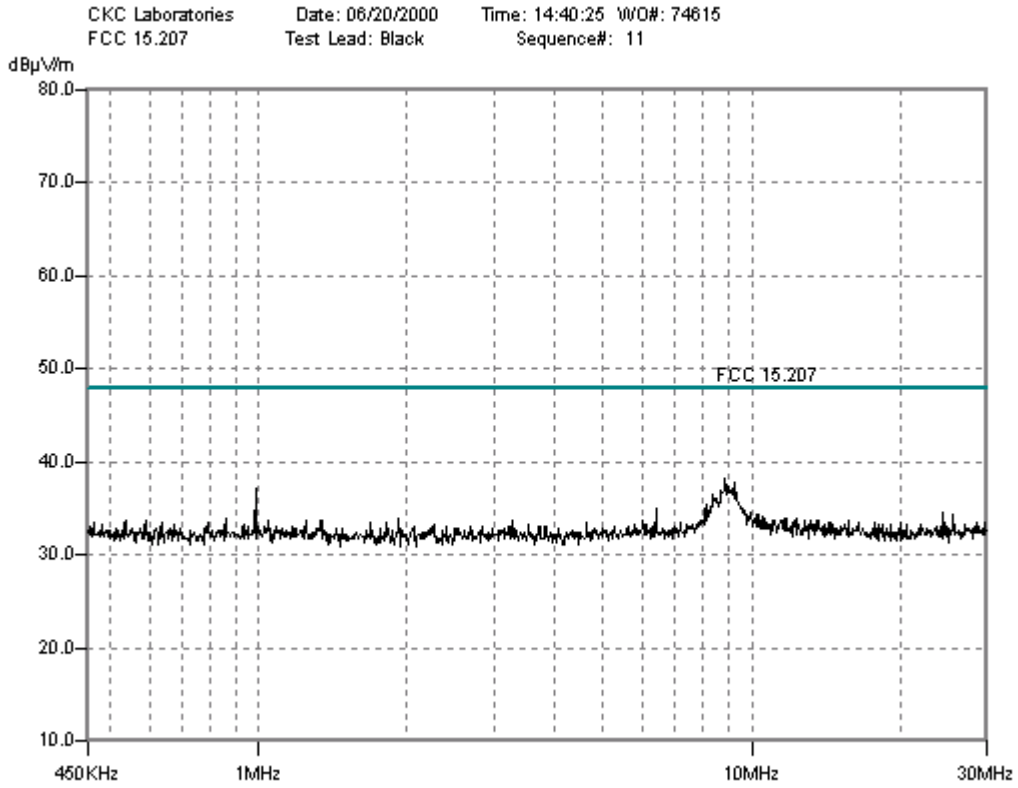
Test Conditions / Notes:

ISS operating in Normal operating mode.

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

#	Freq MHz	Rdng dBµV	Cable dB	LISN dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
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
Date: 06/20/2000
Time: 14:40:25
WO#: 74615
FCC 15.207
Test Lead: Black
Sequence#: 11
dBµV/m
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

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

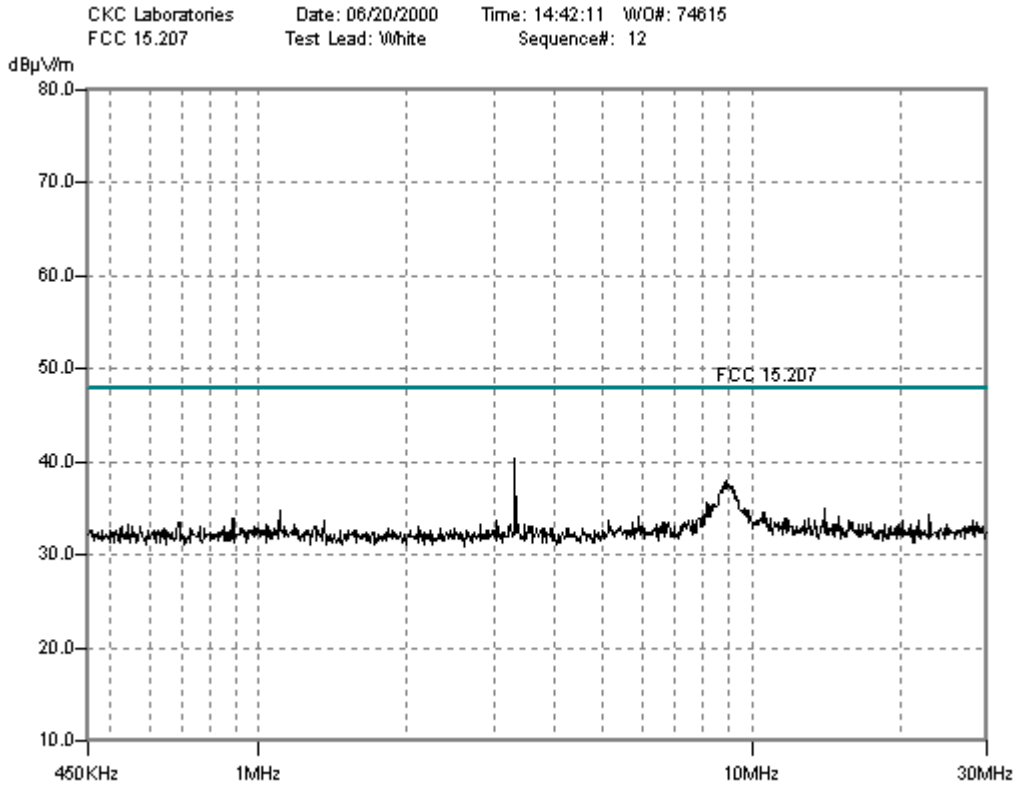
Test Conditions / Notes:

ISS operating in Normal operating mode.

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

#	Freq MHz	Rdng dBµV	Cable dB	LISN dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
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
Date: 06/20/2000
Time: 14:42:11
WO#: 74615
FCC 15.207
Test Lead: White
Sequence#: 12
dBµV/m
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70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz