



**ADDENDUM TO DAVIS INSTRUMENTS TEST REPORT FC04-069**

**FOR THE**

**INTEGRATED SENSOR SUITE, 6328**

**FCC PART 15 SUBPART C SECTIONS 15.209 & 15.247**

**COMPLIANCE**

**DATE OF ISSUE: AUGUST 27, 2004**

**PREPARED FOR:**

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Date of test: August 24-25, 2004

**Report No.: FC04-069A**

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## ADMINISTRATIVE INFORMATION

**DATE OF TEST:** August 24-25, 2004

**DATE OF RECEIPT:** August 24, 2004

**PURPOSE OF TEST:** To demonstrate the compliance of the Integrated Sensor Suite, 6328, with the requirements for FCC Part 15 Subpart C Sections 15.209 & 15.247 devices. **Addendum A** is to revise the 15.209 14-1000 MHz data sheet

**TEST METHOD:** ANSI C63.4 (2001)

**MANUFACTURER:** Davis Instruments  
3465 Diablo Avenue  
Hayward, CA 94545

**REPRESENTATIVE:** Perry Dillon

**TEST LOCATION:** CKC Laboratories, Inc.  
5473A Clouds Rest  
Mariposa, CA 95338

### SUMMARY OF RESULTS

As received, the Davis Instruments Integrated Sensor Suite, 6328 was found to be fully compliant with the following standards and specifications:

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 210	5.5	47CFR	15.203	Antenna Connector Requirements
RSS 210	6.2.1	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	6.3	47CFR	15.205	Restricted Bands of Operation
RSS 210	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.5	47CFR	15.35(c)	Pulsed Operation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	6.2.2(o)(a1)	47CFR	15.247(a)(1)	Minimum Channel Bandwidth
RSS 210	6.2.2(o)(a1)	47CFR	15.247(g)	Hopping Sequence
RSS 210	6.2.2(o)(a1)	47CFR	15.247(h)	Incorporation of Intelligence
RSS 210	6.2.2(o)(a2)	47CFR	15.247(a)(1)(i)	Average Time of Occupancy
RSS 210	6.2.2(o)(a2)	47CFR	15.247(b)(2)	RF Power Output
RSS 210	6.2.2(o)(e1)	47CFR	15.247(c) /15.209	Spurious Emissions
	IC 3082-D		784962	Site No.

### CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply. No AC conducted emissions are required. Unit is AC powered for emissions testing only.

### APPROVALS

Steve Behm, Director of Engineering Services

#### QUALITY ASSURANCE:

#### TEST PERSONNEL:




Joyce Walker, Quality Assurance Administrative Manager

Randy Clark, EMC Engineer

**EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

The EUT tested by CKC Laboratories was a production unit.

**FCC 15.31(m) Number Of Channels**

This device was tested on three channels.

**FCC 15.33(a) Frequency Ranges Tested**

15.209 Radiated Emissions: 14 MHz – 10 GHz

<b>FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE</b>			
<b>TEST</b>	<b>BEGINNING FREQUENCY</b>	<b>ENDING FREQUENCY</b>	<b>BANDWIDTH SETTING</b>
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	10 GHz	1 MHz

**FCC 15.203 Antenna Requirements**

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

**FCC 15.205 Restricted Bands**

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

**Eut Operating Frequency**

The EUT was operating at 902-928 MHz.

## **EQUIPMENT UNDER TEST**

### **Integrated Sensor Suite**

Manuf: Davis Instruments  
Model: 6328  
Serial: Davis 201  
FCC ID: Pending

## **PERIPHERAL DEVICES**

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

### **Power Supply**

Manuf: Davis Instruments  
Model: 6625  
Serial: NA  
FCC ID: DoC

## REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the EUT. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix C.

Table 1:FCC 15.209 Six Highest Radiated Emission Levels: 14-1000 MHz									
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB					
797.212	35.4	21.4	-27.7	6.8		35.9	46.0	-10.1	V
804.618	39.9	21.5	-27.7	6.8		40.5	46.0	-5.5	V
811.984	37.1	21.6	-27.7	6.9		37.9	46.0	-8.1	V
863.120	40.5	22.3	-27.6	7.3		42.5	46.0	-3.5	V
966.807	39.7	23.8	-27.1	7.4		43.8	54.0	-10.2	V
974.167	39.6	23.9	-27.1	7.4		43.8	54.0	-10.2	V

Test Method: ANSI C63.4 (2001)  
 Spec Limit: FCC Part 15 Subpart C Section 15.209  
 Test Distance: 3 Meters

NOTES: V = Vertical Polarization

COMMENTS: EUT is an Integrated Sensor Suite with SPARS consisting of the following sensors: Temperature and Humidity (Asperated), Anemometer, Rain Gauge, Solar and UV. Due to the power consumption required to operate the EUT in a test configuration, for the purpose of emissions testing only, the equipment is powered via AC adapter. Equipment is normally powered via solar panel, battery in combination with super cap. Solar panel, battery and supercap are all operational during testing. EUT is continuously transmitting data on Low, Mid and High channels. Data is representative of all channels. Frequency Range Investigated: 14-1000MHz. Temperature: 20°C, Relative Humidity: 41%.

**Table 2: FCC 15.209 Six Highest Radiated Emission Levels: 1-10 GHz**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB					
2744.680	51.1	29.3	-35.0	-2.8		42.6	54.0	-11.4	V
2782.370	51.7	29.4	-35.0	-2.8		43.3	54.0	-10.7	V
4574.525	44.8	32.4	-34.5	0.2		42.9	54.0	-11.1	H
4574.580	44.1	32.4	-34.5	0.2		42.2	54.0	-11.8	V
4636.980	44.9	32.5	-34.6	0.3		43.1	54.0	-10.9	V
5413.980	44.5	34.2	-34.7	1.2		45.2	54.0	-8.8	H

Test Method: ANSI C63.4 (2001)  
 Spec Limit: FCC Part 15 Subpart C Section 15.247  
 Test Distance: 3 Meters

NOTES: H = Horizontal Polarization  
 V = Vertical Polarization

COMMENTS: EUT is an Integrated Sensor Suite with SPARS consisting of the following sensors: Temperature and Humidity (Asperated), Anemometer, Rain Gauge, Solar and UV. Due to the power consumption required to operate the EUT in a test configuration, for the purpose of emissions testing only, the equipment is powered via AC adapter. Equipment is normally powered via solar panel, battery in combination with super cap. Solar panel, battery and supercap are all operational during testing. EUT is continuously transmitting data on the indicated channel. Dwell time correction factor used in accordance with DA 00-705. Maximum packet length is 6.7ms, which transmits once every 2.5625 seconds. Therefore, longest duration within a 100ms window is 7.4ms. Correction factor calculated as follows:  $10 * \text{LOG}(7.4/100) = -11.3\text{dB}$ . Dwell time correction factor applied only to those frequencies, which are harmonics of the carrier. Frequency Range Investigated: 1-10GHz. Temperature: 20°C, Relative Humidity: 41%.



**FCC 15.247(A)(1)(i) Average Time Of Occupancy:** The equipment has a dwell time per hop of 7.4ms with an average hop time of 120.2 seconds. In any 10 second interval, only one hop could be observed. The maximum time of occupancy is 7.4ms within any 10 second interval. This demonstrates compliance with the provisions of 15.247.

**Table 3: FCC 15.247(b)(3) Fundamental Emission Levels**

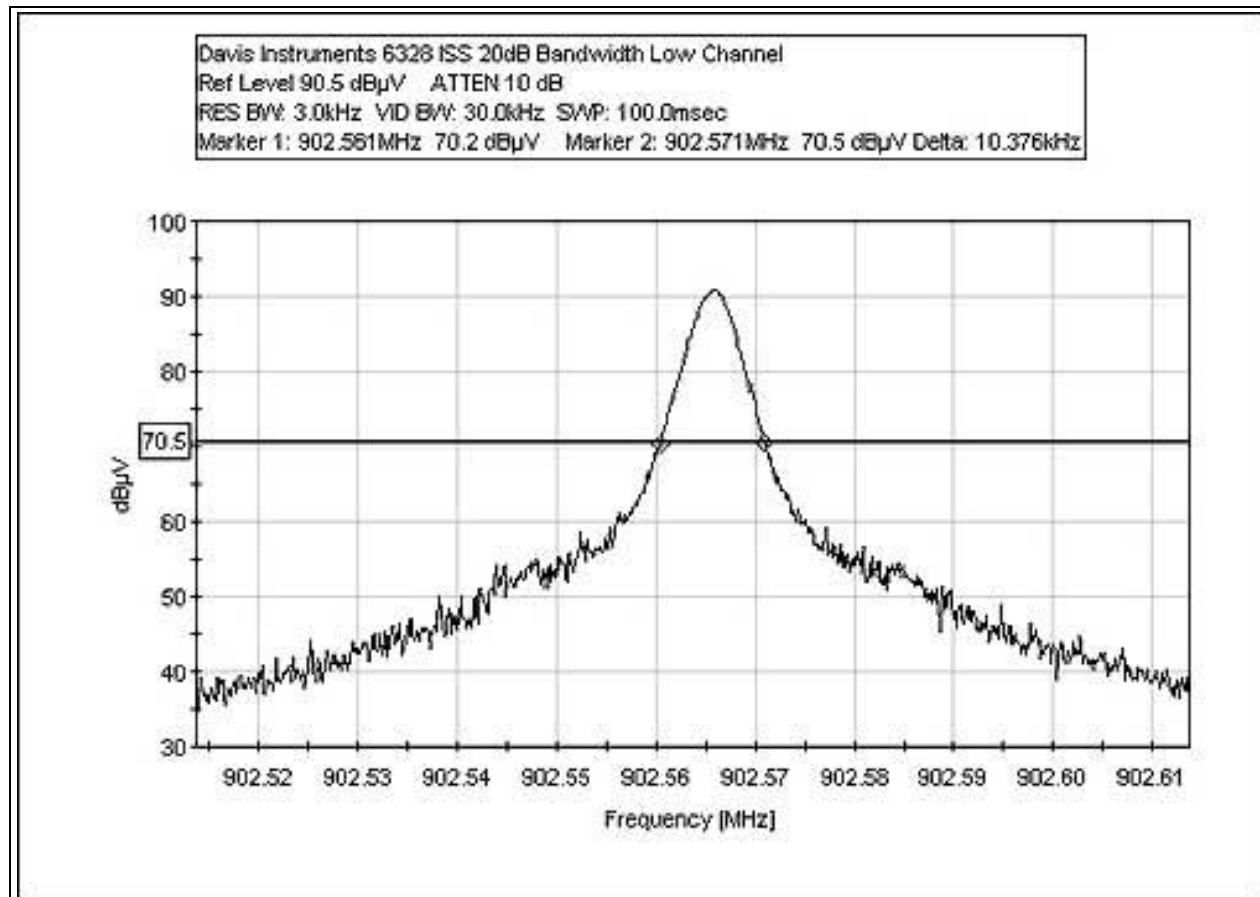
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB					
902.353	96.5	22.8	-27.3	7.5		99.5	127.0	-27.5	H
902.365	98.5	22.8	-27.3	7.5		101.5	127.0	-25.5	V
914.897	97.6	23.0	-27.3	7.4		100.7	127.0	-26.3	H
914.914	99.5	23.0	-27.3	7.4		102.6	127.0	-24.4	V
927.445	92.5	23.2	-27.2	7.3		95.8	127.0	-31.2	H
927.446	99.4	23.2	-27.2	7.3		102.7	127.0	-24.3	V

Test Method: ANSI C63.4 (2001)  
 Spec Limit: FCC Part 15 Subpart C Section 15.247(b)(3)  
 Test Distance: 3 Meters

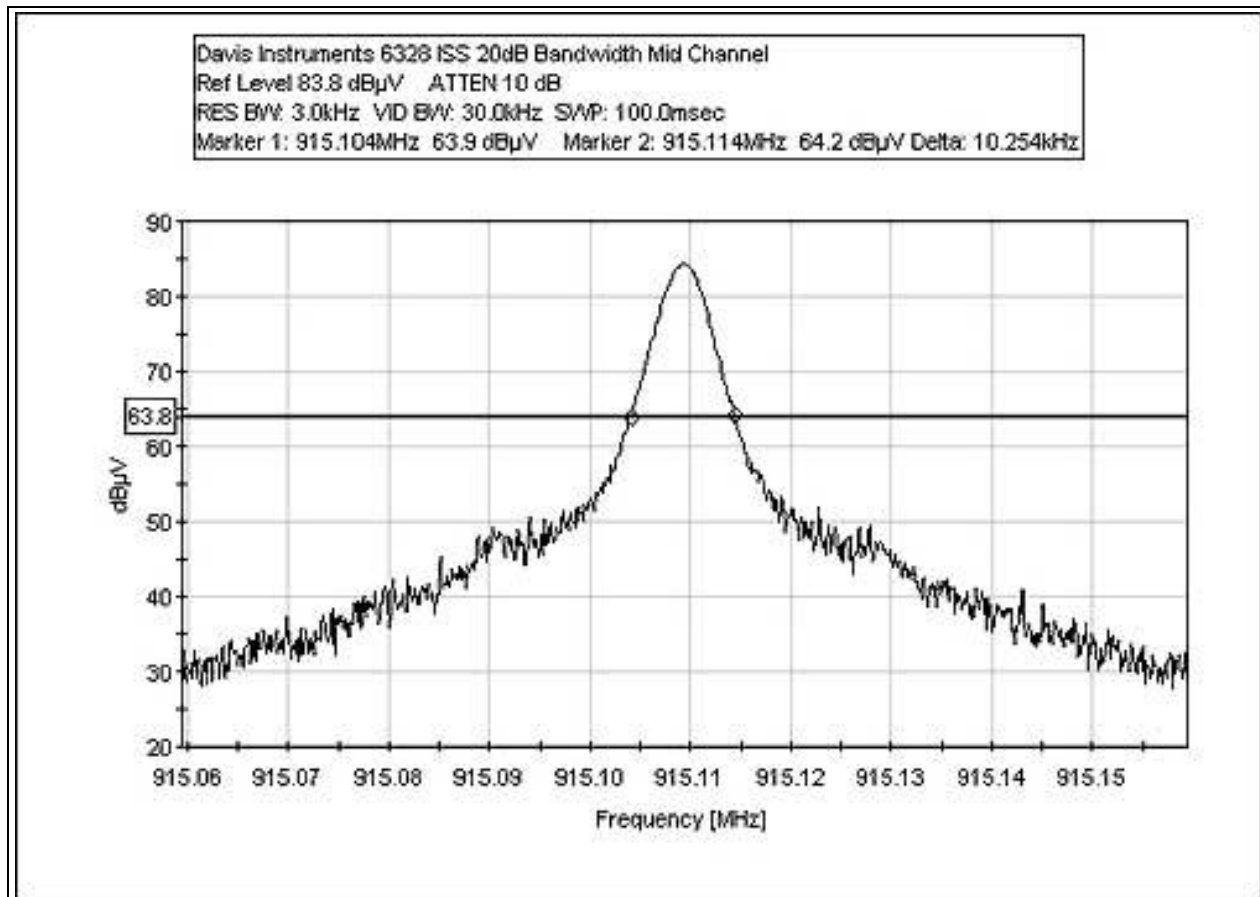
NOTES: H = Horizontal Polarization  
 V = Vertical Polarization

**COMMENTS:** EUT is an Integrated Sensor Suite with SPARS consisting of the following sensors: Temperature and Humidity (Asperated), Anemometer, Rain Gauge, Solar and UV. Due to the power consumption required to operate the EUT in a test configuration, for the purpose of emissions testing only, the equipment is powered via AC adapter. Equipment is normally powered via solar panel, battery in combination with super cap. Solar panel, battery and supercap are all operational during testing. EUT is continuously transmitting data on the indicated channel. Frequency Range Investigated: Carrier. Temperature: 20°C, Relative Humidity: 41%.

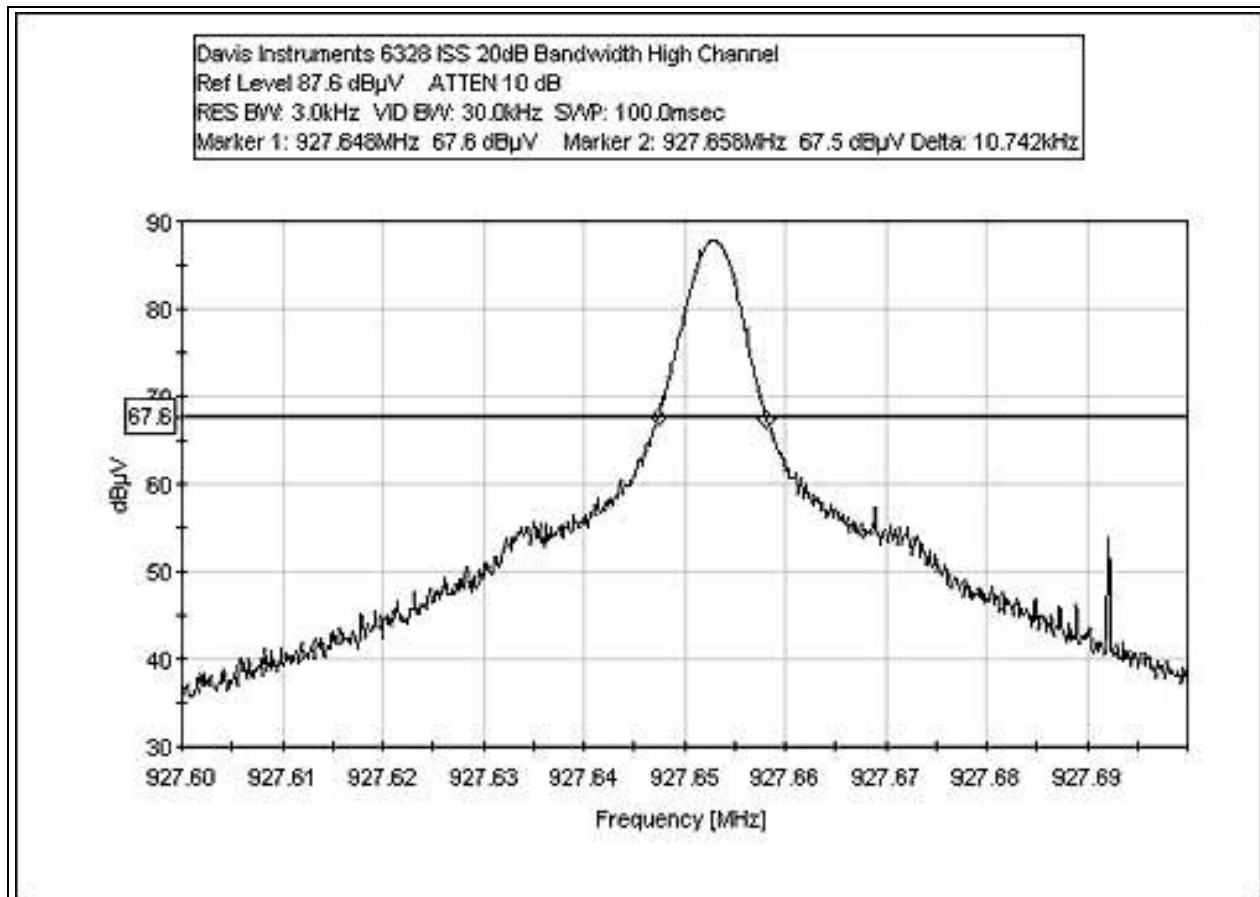
### 20 dB BANDWIDTH LOW CHANNEL



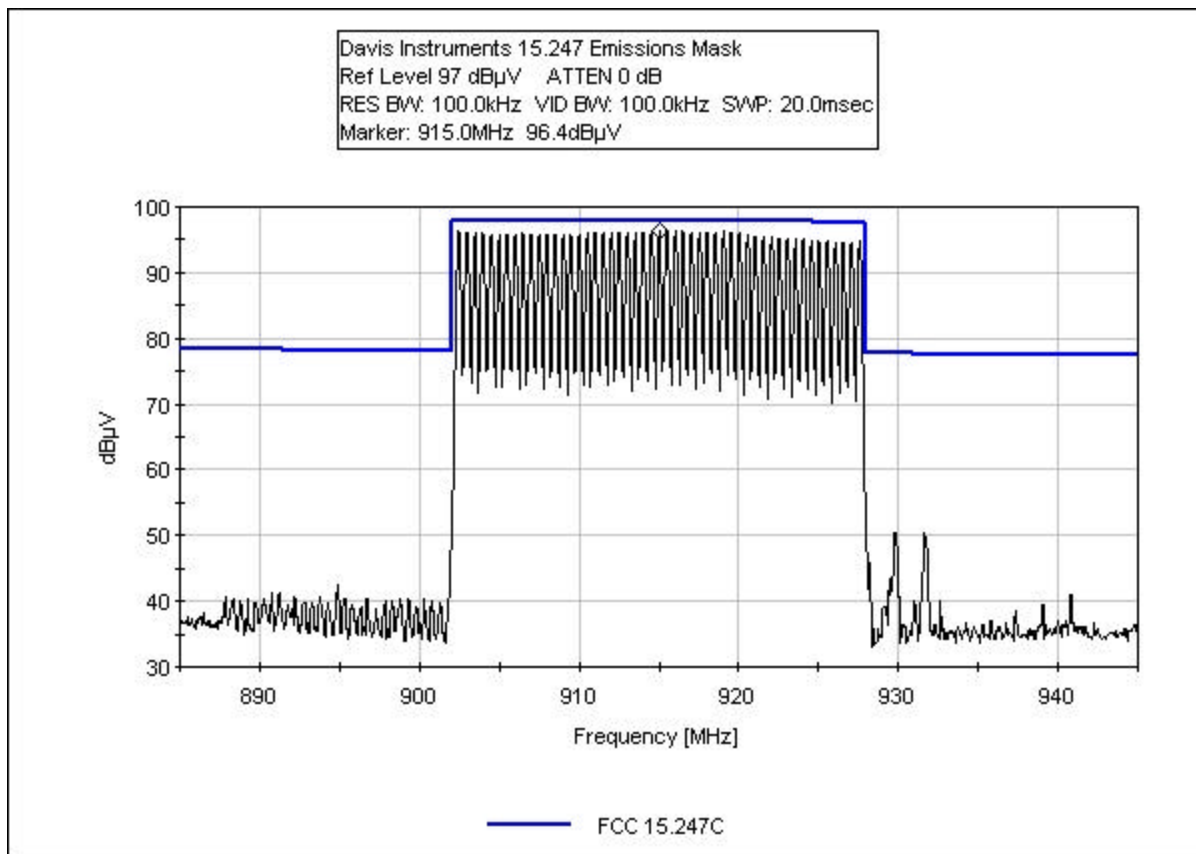
### 20 dB BANDWIDTH MID CHANNEL



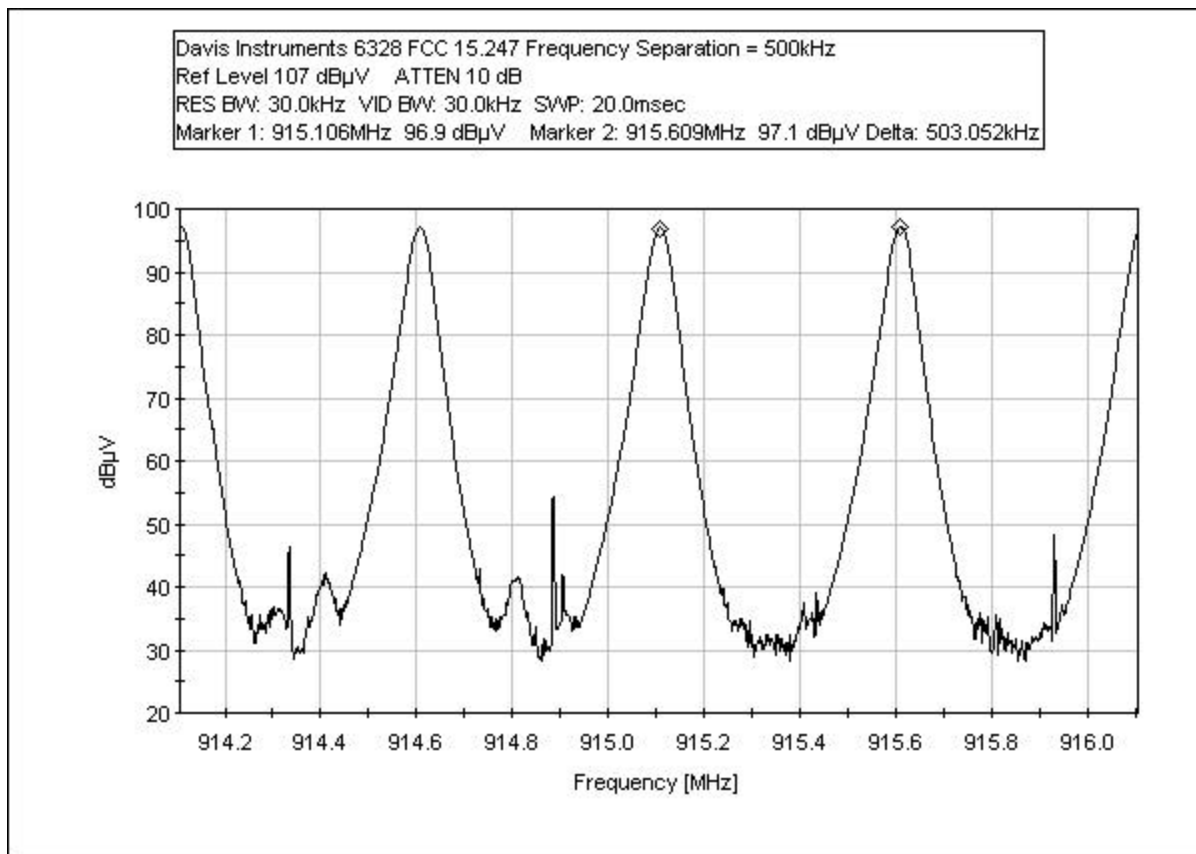
### 20 dB BANDWIDTH HIGH CHANNEL



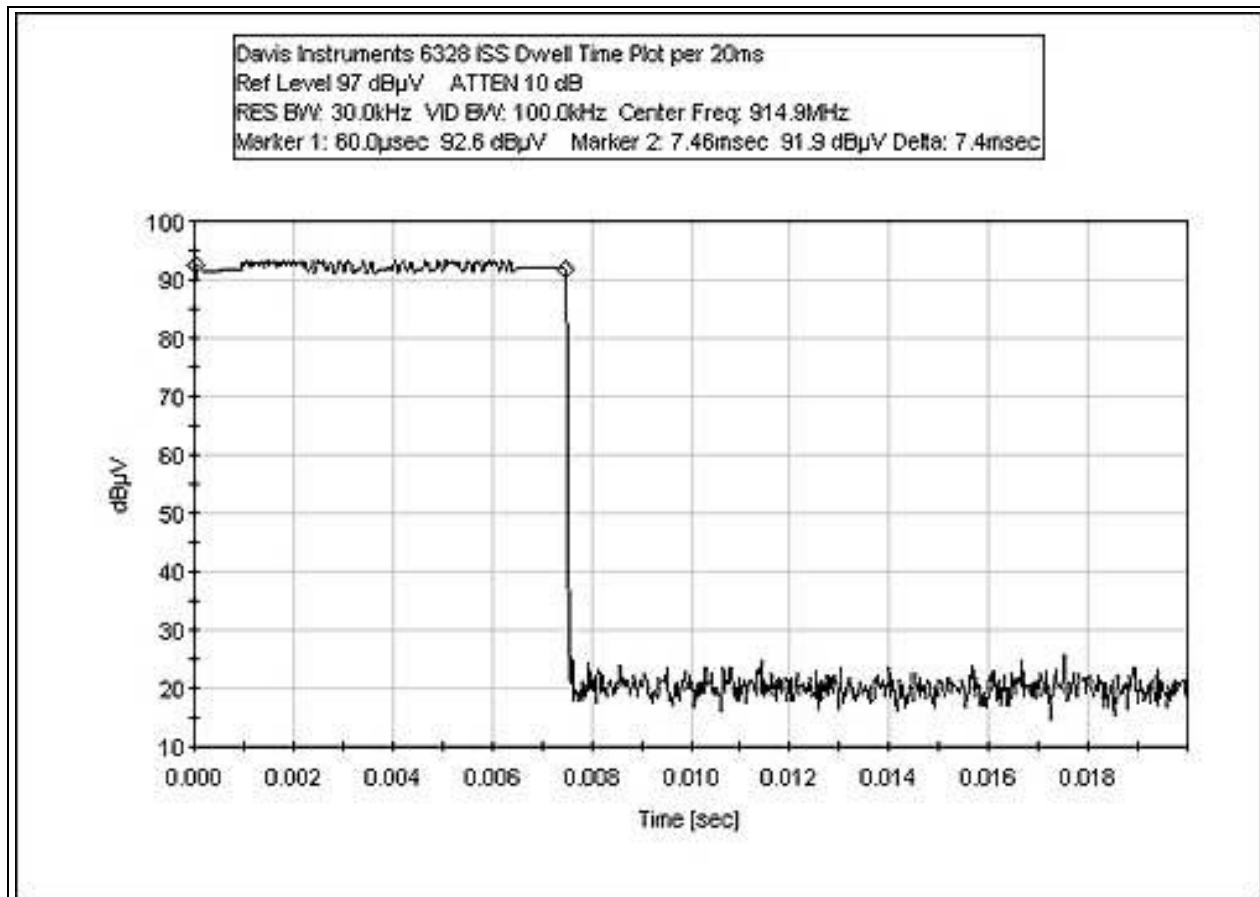
### EMISSIONS MASK



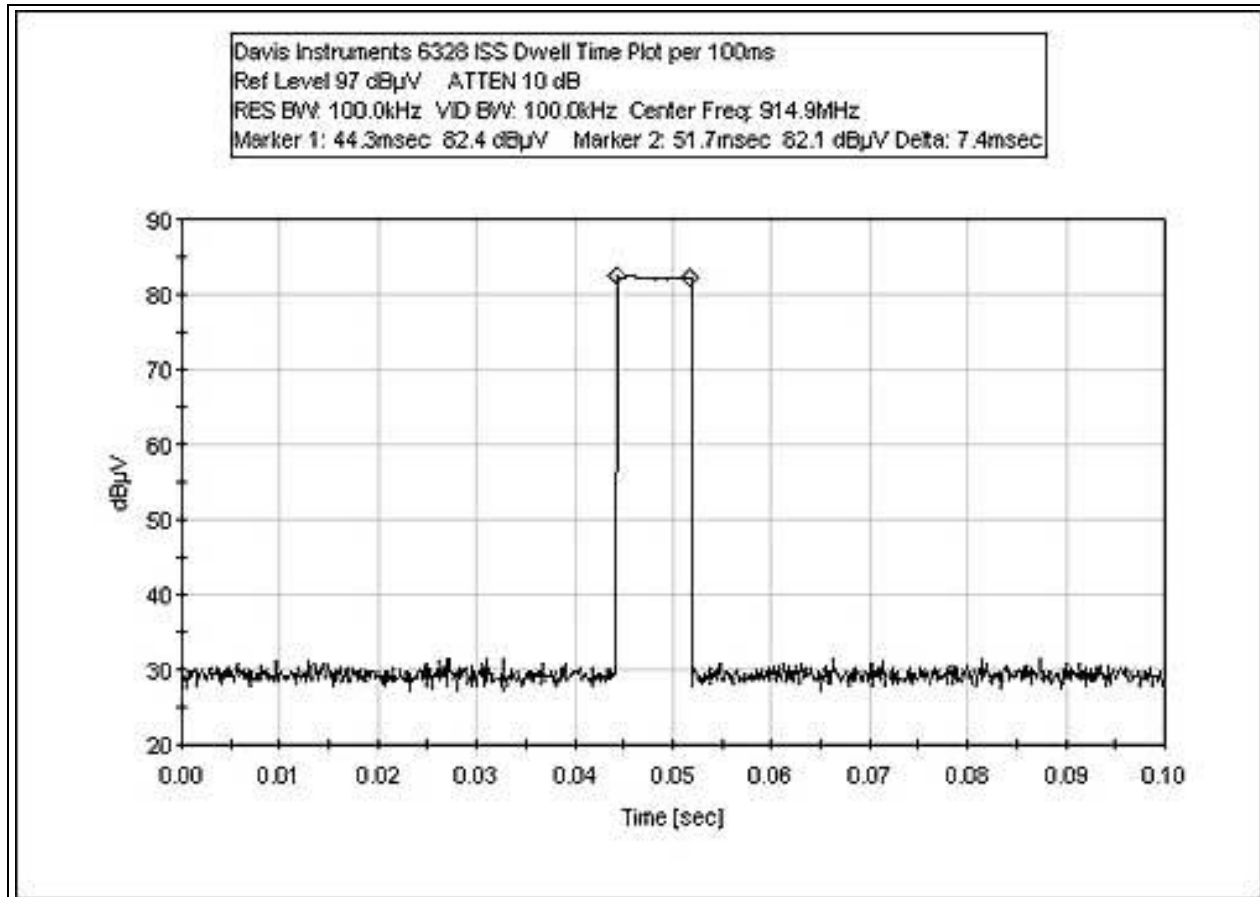
### FREQUENCY SEPARATION



### DWELL TIME 20 ms

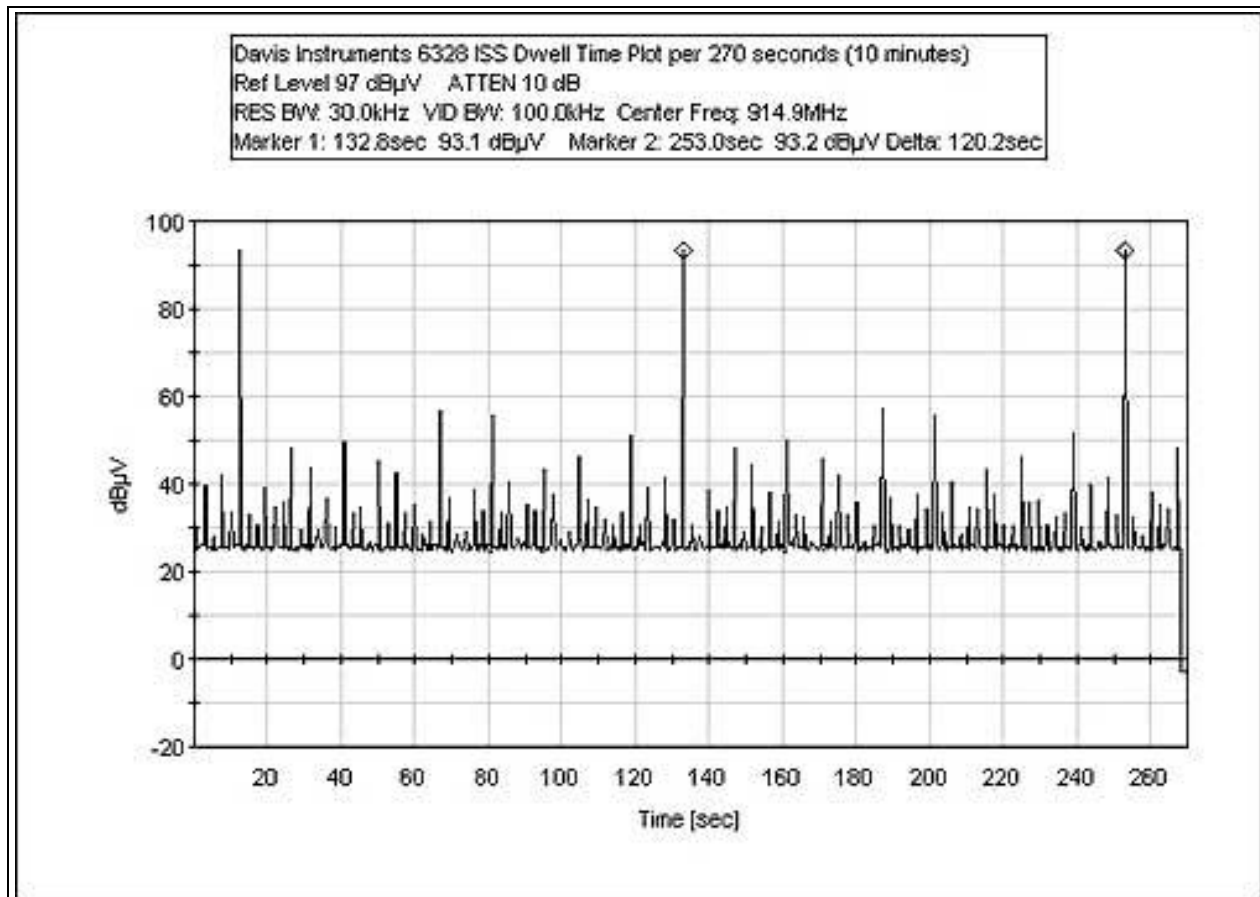


### DWELL TIME 100 ms

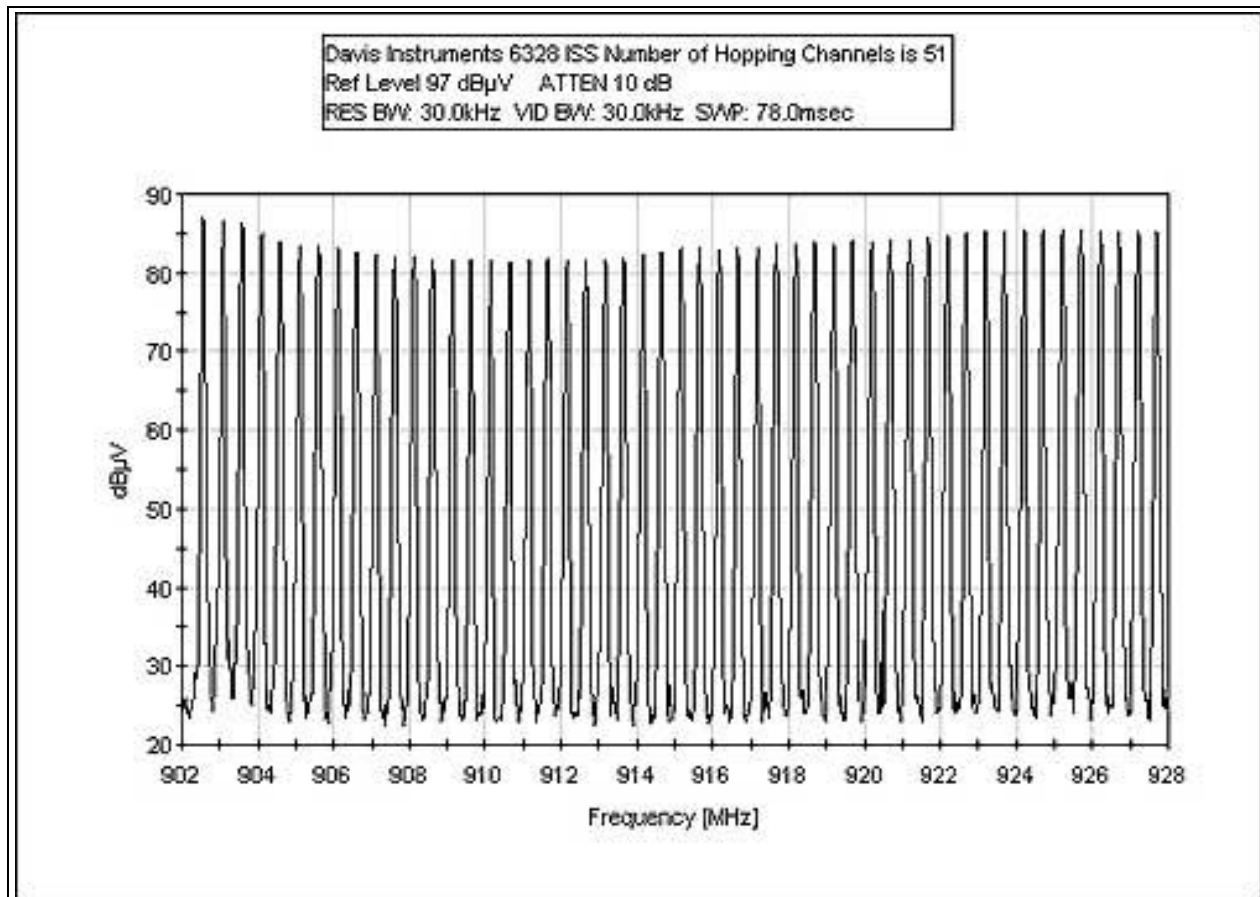




**DWELL TIME 10 minutes**



### HOPPING CHANNELS



## TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

## EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated emissions data of the EUT 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 Table A.

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

## CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

<b>TABLE A: SAMPLE CALCULATIONS</b>		
	Meter reading	(dB $\mu$ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB $\mu$ V/m)

## **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 EUT. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz.

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 dB $\mu$ V, and a vertical scale of 10 dB per division.

## **SPECTRUM ANALYZER DETECTOR FUNCTIONS**

The notes that accompany the measurements contained in the Tables 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 six 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.

### **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**

For certain frequencies, 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.

## **EUT TESTING**

### **Radiated Emissions**

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.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 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.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

**APPENDIX A**

**TEST SETUP PHOTOGRAPHS**

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View



## APPENDIX B

### TEST EQUIPMENT LIST

***15.209: 14-1000 MHz***

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
EMCO Loop Antenna	1074	05/21/2003	05/21/2005	00226
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2005	00099

***15.209: 1-10 GHz***

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Antenna, Horn EMCO 3115	3413	4/25/2003	4/25/2005	00327
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2004	2010
Cable, Andrews Hardline HF-005-20	NA	06/03/2003	06/03/2005	P04275
Cable, WL Gore 2'	149047	04/10/2003	04/10/2005	P01527

***15.247(b)(3)***

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2005	00099

**APPENDIX C**  
**MEASUREMENT DATA SHEETS**

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Davis Instruments**  
 Specification: **FCC 15.247C**  
 Work Order #: **82620** Date: 08/30/2004  
 Test Type: **Maximized Emissions** Time: 14:37:22  
 Equipment: **Integrated Sensor Suite** Sequence#: 3  
 Manufacturer: Davis Instruments Tested By: Randal Clark  
 Model: 6328  
 S/N: Davis 201

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6328	Davis 201

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	Davis Instruements	6625	NA

**Test Conditions / Notes:**

EUT is an Integrated Sensor Suite with SPARS consisting of the following sensors: Temperature and Humidity (Asperated), Annemometer, Rain Gauge, Solar and UV. Due to the power consumption required to operate the EUT in a test configuration, for the purpose of emissions testing only, the equipment is powed via AC adapter. Equipment is normally powered via solar panel, battery in combination with super cap. Solar panel, battery and supercap are all operational during testing. EUT is continuously transmitting data on Low Mid and High channels. Data is representative of all channels. Frequency Range Investigated: 14-1000MHz. Temperature: 20°C, Relative Humidity: 41%.

**Transducer Legend:**

T1=Bilog Site B	T2=Amp - S/N 604
T3=Cable - 3 Meter	

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	863.120M	40.5	+22.3	-27.6	+7.3	+0.0	42.5	46.0	-3.5	Vert
2	804.618M	39.9	+21.5	-27.7	+6.8	+0.0	40.5	46.0	-5.5	Vert
3	811.984M	37.1	+21.6	-27.7	+6.9	+0.0	37.9	46.0	-8.1	Vert
4	797.212M	35.4	+21.4	-27.7	+6.8	+0.0	35.9	46.0	-10.1	Vert
5	974.167M	39.6	+23.9	-27.1	+7.4	+0.0	43.8	54.0	-10.2	Vert
6	966.807M	39.7	+23.8	-27.1	+7.4	+0.0	43.8	54.0	-10.2	Vert
7	967.255M	38.7	+23.8	-27.1	+7.4	+0.0	42.8	54.0	-11.2	Vert
8	974.627M	38.2	+23.9	-27.1	+7.4	+0.0	42.4	54.0	-11.6	Vert
9	221.257M	40.8	+10.0	-26.5	+3.1	+0.0	27.4	46.0	-18.6	Horiz

10	420.098M	33.5	+15.8	-27.3	+4.6	+0.0	26.6	46.0	-19.4	Horiz
11	444.095M	32.2	+16.3	-27.5	+4.8	+0.0	25.8	46.0	-20.2	Horiz
12	228.627M	38.6	+10.5	-26.5	+3.1	+0.0	25.7	46.0	-20.3	Vert
13	213.910M	37.1	+9.4	-26.6	+3.1	+0.0	23.0	43.5	-20.5	Vert
14	217.805M	39.1	+9.7	-26.6	+3.1	+0.0	25.3	46.0	-20.7	Vert
15	265.461M	35.6	+12.3	-26.5	+3.4	+0.0	24.8	46.0	-21.2	Vert
16	199.136M	37.2	+8.3	-26.7	+3.0	+0.0	21.8	43.5	-21.7	Vert
17	243.380M	35.7	+11.6	-26.5	+3.2	+0.0	24.0	46.0	-22.0	Vert
18	396.091M	31.0	+15.3	-27.2	+4.4	+0.0	23.5	46.0	-22.5	Horiz
19	118.068M	34.7	+10.8	-27.2	+2.2	+0.0	20.5	43.5	-23.0	Vert 100
20	372.096M	30.6	+14.7	-27.0	+4.2	+0.0	22.5	46.0	-23.5	Horiz
21	324.446M	31.9	+13.5	-26.7	+3.8	+0.0	22.5	46.0	-23.5	Vert
22	331.861M	31.6	+13.7	-26.7	+3.9	+0.0	22.5	46.0	-23.5	Vert
23	280.081M	32.9	+12.5	-26.5	+3.5	+0.0	22.4	46.0	-23.6	Vert
24	243.383M	34.1	+11.6	-26.5	+3.2	+0.0	22.4	46.0	-23.6	Horiz
25	243.811M	33.8	+11.6	-26.5	+3.3	+0.0	22.2	46.0	-23.8	Horiz
26	247.373M	33.4	+11.8	-26.5	+3.3	+0.0	22.0	46.0	-24.0	Vert
27	265.459M	32.2	+12.3	-26.5	+3.4	+0.0	21.4	46.0	-24.6	Horiz
28	287.647M	31.7	+12.6	-26.5	+3.6	+0.0	21.4	46.0	-24.6	Vert
29	221.280M	34.7	+10.0	-26.5	+3.1	+0.0	21.3	46.0	-24.7	Vert
30	280.079M	31.7	+12.5	-26.5	+3.5	+0.0	21.2	46.0	-24.8	Horiz
31	309.694M	30.9	+13.1	-26.6	+3.7	+0.0	21.1	46.0	-24.9	Vert
32	263.314M	31.8	+12.2	-26.5	+3.4	+0.0	20.9	46.0	-25.1	Vert
33	267.628M	31.6	+12.3	-26.5	+3.4	+0.0	20.8	46.0	-25.2	Vert
34	224.577M	33.6	+10.2	-26.5	+3.1	+0.0	20.4	46.0	-25.6	Vert
35	110.672M	31.4	+10.3	-27.2	+2.1	+0.0	16.6	43.5	-26.9	Vert

36	247.365M	29.9	+11.8	-26.5	+3.3	+0.0	18.5	46.0	-27.5	Horiz
37	913.016M	44.0	+23.0	-27.3	+7.4	+0.0	47.1	82.7	-35.6	Horiz
								15.247(c) Limit		
38	900.438M	44.0	+22.8	-27.3	+7.5	+0.0	47.0	82.7	-35.7	Horiz
								15.247(c) Limit		
39	900.459M	43.5	+22.8	-27.3	+7.5	+0.0	46.5	82.7	-36.2	Horiz
								15.247(c) Limit		
40	942.482M	40.4	+23.4	-27.2	+7.3	+0.0	43.9	82.7	-38.8	Horiz
								15.247(c) Limit		
41	913.007M	40.5	+23.0	-27.3	+7.4	+0.0	43.6	82.7	-39.1	Vert
								15.247(c) Limit		
42	863.565M	41.6	+22.3	-27.6	+7.3	+0.0	43.6	82.7	-39.1	Vert
								15.247(c) Limit		
43	912.997M	39.5	+23.0	-27.3	+7.4	+0.0	42.6	82.7	-40.1	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Davis Instruments**  
 Specification: **FCC 15.209**  
 Work Order #: **82620** Date: 08/24/2004  
 Test Type: **Maximized Emissions** Time: 16:14:43  
 Equipment: **Integrated Sensor Suite** Sequence#: 1  
 Manufacturer: Davis Instruments Tested By: Randal Clark  
 Model: 6328  
 S/N: Davis 201

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6328	Davis 201

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	Davis Instruments	6625	NA

**Test Conditions / Notes:**

EUT is an Integrated Sensor Suite with SPARS consisting of the following sensors: Temperature and Humidity (Asperated), Anemometer, Rain Gauge, Solar and UV. Due to the power consumption required to operate the EUT in a test configuration, for the purpose of emissions testing only, the equipment is powered via AC adapter. Equipment is normally powered via solar panel, battery in combination with super cap. Solar panel, battery and supercap are all operational during testing. EUT is continuously transmitting data on the indicated channel. Dwell time correction factor used in accordance with DA 00-705. Maximum packet length is 6.7ms, which transmits once every 2.5625 seconds. Therefore, longest duration within a 100ms window is 7.4ms. Correction factor calculated as follows:  $10 * \text{LOG}(7.4/100) = -11.3\text{dB}$ . Dwell time correction factor applied only to those frequencies, which are harmonics of the carrier. Frequency Range Investigated: 1-10GHz. Temperature: 20°C, Relative Humidity: 41%.

**Transducer Legend:**

T1=Amp - S/N 301	T2=Horn AN 00327 1-18GHz
T3=Cable - 3 Meter to bulkhead	T4=Cable HF-005-20
T5=WL Gore SN 1065 AN P004301	T6=Cable HF P01527
T7=DTCF	

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

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	5413.980M	44.5	-34.7 +0.9	+34.2 +0.5	+7.7 -11.3	+3.4	+0.0	45.2	54.0 Low Channel	-8.8	Horiz 100
2	2782.370M	51.7	-35.0 +0.7	+29.4 +0.4	+5.3 -11.3	+2.1	+0.0	43.3	54.0 High Channel	-10.7	Vert
3	4636.980M	44.9	-34.6 +0.9	+32.5 +0.6	+7.2 -11.3	+2.9	+0.0	43.1	54.0 High Channel	-10.9	Vert
4	4574.525M	44.8	-34.5 +0.9	+32.4 +0.6	+7.1 -11.3	+2.9	+0.0	42.9	54.0 Mid Channel	-11.1	Horiz 100
5	2744.680M	51.1	-35.0 +0.7	+29.3 +0.4	+5.3 -11.3	+2.1	+0.0	42.6	54.0 Mid Channel	-11.4	Vert 100
6	4574.580M	44.1	-34.5 +0.9	+32.4 +0.6	+7.1 -11.3	+2.9	+0.0	42.2	54.0 Mid Channel	-11.8	Vert 107
7	1352.200M	57.4	-35.7 +0.5	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	40.9	54.0 Low Channel	-13.1	Vert

8	3609.580M	45.4	-35.0 +0.7	+31.2 +0.6	+6.2 -11.3	+2.5	+0.0	40.3	54.0 Low Channel	-13.7	Vert 100
9	2782.420M	47.5	-35.0 +0.7	+29.4 +0.4	+5.3 -11.3	+2.1	+0.0	39.1	54.0 High Channel	-14.9	Horiz
10	2744.620M	47.3	-35.0 +0.7	+29.3 +0.4	+5.3 -11.3	+2.1	+0.0	38.8	54.0 Mid Channel	-15.2	Horiz 111
11	3659.530M	43.6	-35.0 +0.8	+31.4 +0.5	+6.2 -11.3	+2.5	+0.0	38.7	54.0 Mid Channel	-15.3	Vert 107
12	2706.950M	47.4	-35.0 +0.7	+29.2 +0.4	+5.2 -11.3	+2.1	+0.0	38.7	54.0 Low Channel	-15.3	Vert 100
13	1372.500M	55.0	-35.7 +0.5	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	38.5	54.0 Mid Channel	-15.5	Vert 100
14	2707.050M	45.9	-35.0 +0.7	+29.2 +0.4	+5.2 -11.3	+2.1	+0.0	37.2	54.0 Low Channel	-16.8	Horiz 100
15	1308.000M	52.9	-35.7 +0.4	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	36.3	54.0 Low Channel	-17.7	Vert
16	1320.300M	52.9	-35.7 +0.4	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	36.3	54.0 Mid Channel	-17.7	Vert 100
17	1619.190M	51.0	-35.4 +0.5	+25.5 +0.3	+4.0 -11.3	+1.6	+0.0	36.2	54.0 High Channel	-17.8	Vert
18	1626.540M	50.9	-35.4 +0.6	+25.5 +0.3	+4.0 -11.3	+1.6	+0.0	36.2	54.0 High Channel	-17.8	Vert
19	1328.100M	52.6	-35.7 +0.5	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	36.1	54.0 Mid Channel	-17.9	Vert 100
20	1301.000M	52.1	-35.7 +0.4	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	35.5	54.0 Low Channel	-18.5	Vert
21	1340.400M	51.6	-35.7 +0.5	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	35.1	54.0 High Channel	-18.9	Vert
22	1335.200M	51.5	-35.7 +0.5	+24.7 +0.3	+3.6 -11.3	+1.4	+0.0	35.0	54.0 Mid Channel	-19.0	Vert 100
23	1600.910M	48.6	-35.4 +0.5	+25.4 +0.3	+3.9 -11.3	+1.6	+0.0	33.6	54.0 Mid Channel	-20.4	Vert 100
24	1580.600M	48.2	-35.4 +0.5	+25.3 +0.3	+3.9 -11.3	+1.6	+0.0	33.1	54.0 Low Channel	-20.9	Vert
25	1390.600M	49.1	-35.6 +0.5	+24.8 +0.3	+3.7 -11.3	+1.4	+0.0	32.9	54.0 High Channel	-21.1	Vert
26	1616.600M	46.9	-35.4 +0.5	+25.5 +0.3	+4.0 -11.3	+1.6	+0.0	32.1	54.0 Low Channel	-21.9	Horiz 138
27	1804.750M	73.3	-35.3 +0.6	+26.4 +0.3	+4.2 -11.3	+1.7	+0.0	59.9	82.7 Low Channel	-22.8	Vert 100
28	1829.755M	71.1	-35.3 +0.6	+26.5 +0.3	+4.2 -11.3	+1.7	+0.0	57.8	82.7 Mid Channel	-24.9	Vert 100
29	1854.820M	69.4	-35.3 +0.6	+26.6 +0.3	+4.2 -11.3	+1.7	+0.0	56.2	82.7 High Channel	-26.5	Vert
30	1829.745M	68.2	-35.3 +0.6	+26.5 +0.3	+4.2 -11.3	+1.7	+0.0	54.9	82.7 Mid Channel	-27.8	Horiz 111
31	1804.750M	67.2	-35.3 +0.6	+26.4 +0.3	+4.2 -11.3	+1.7	+0.0	53.8	82.7 Low Channel	-28.9	Horiz 100
32	1854.880M	66.1	-35.3 +0.6	+26.6 +0.3	+4.2 -11.3	+1.7	+0.0	52.9	82.7 High Channel	-29.8	Horiz

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Davis Instruments**

Specification: **15.247(b)(3)**

Work Order #: **82620**

Date: 08/24/2004

Test Type: **Maximized Emissions**

Time: 16:57:03

Equipment: **Integrated Sensor Suite**

Sequence#: 2

Manufacturer: Davis Instruments

Tested By: Randal Clark

Model: 6328

S/N: Davis 201

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Integrated Sensor Suite*	Davis Instruments	6328	Davis 201

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	Davis Instruments	6625	NA

**Test Conditions / Notes:**

EUT is an Integrated Sensor Suite with SPARS consisting of the following sensors: Temperature and Humidity (Asperated), Anemometer, Rain Gauge, Solar and UV. Due to the power consumption required to operate the EUT in a test configuration, for the purpose of emissions testing only, the equipment is powered via AC adapter. Equipment is normally powered via solar panel, battery in combination with super cap. Solar panel, battery and supercap are all operational during testing. EUT is continuously transmitting data on the indicated channel. Frequency Range Investigated: Carrier. Temperature: 20°C, Relative Humidity: 41%.

**Transducer Legend:**

T1=Amp - S/N 604	T2=Bilog Site B
T3=Cable - 3 Meter	

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	927.446M	99.4	-27.2	+23.2	+7.3	+0.0	102.7	127.0	-24.3	Verti 197	
2	914.914M	99.5	-27.3	+23.0	+7.4	+0.0	102.6	127.0	-24.4	Verti 196	
3	902.365M	98.5	-27.3	+22.8	+7.5	+0.0	101.5	127.0	-25.5	Verti 194	
4	914.897M	97.6	-27.3	+23.0	+7.4	+0.0	100.7	127.0	-26.3	Horiz 164	
5	902.353M	96.5	-27.3	+22.8	+7.5	+0.0	99.5	127.0	-27.5	Horiz 184	
6	927.445M	92.5	-27.2	+23.2	+7.3	+0.0	95.8	127.0	-31.2	Horiz 197	