Reg. No. DAT-P-051/95-10a

ACCREDITED
EMC/SAFETY

CERTIFICATION TEST REPORT

FOR THE

6330 ANEMOMETER TRANSMITTER KIT/6370 WIRELESS TEMPERATURE STATION, 6330/6370

FCC PART 15 SUBPART C SECTION 15.249

COMPLIANCE

DATE OF ISSUE: OCTOBER 18, 2000

PREPARED FOR:

Davis Instruments
3465 Diablo Avenue
Hayward, CA 94545

W.O. No: 75121

PREPARED BY:

Helen Parrish
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: August 23-25, 2000

Report No: FC00-102

DOCUMENTATION CONTROL:

Tracy Phillips
Documentation Control Supervisor
CKC Laboratories, Inc.

APPROVED BY:

Dennis Ward
Director of Laboratories
CKC Laboratories, Inc.

TABLE OF CONTENTS

Administrative Information 3
Summary Of Results 4
Equipment Under Test (EUT) Description 4
Measurement Uncertainty 4
EUT Operating Frequency 4
Peripheral Devices 5
Report Of Measurements 6
- **Table 1: Fundamental Emission Levels** 6
- **Table 2: Six Highest Spurious Emission Levels** 7
- **Table 3: Six Highest Spurious Emission Levels - Above 1 GHz** 8
- **Table 4: Six Highest Conducted Emission Levels** 9

Table A: List Of Test Equipment 10
EUT Setup 11
Test Instrumentation And Analyzer Settings 12
- **Table B: Analyzer Bandwidth Settings Per Frequency Range** 12
- **Spectrum Analyzer Detector Functions** 13
  - **Peak** 13
  - **Quasi-Peak** 13
  - **Average** 13

Test Methods 14
- **Radiated Emissions Testing** 14
- **Conducted Emissions Testing** 15

Transmitter Characteristics 15
- **Occupied Bandwidth** 15

Power Output FCC Part 15.249 (a) 15
Sample Calculations 16
Appendix A: Information About The Equipment Under Test 17
- **I/O Ports** 18
- **Crystal Oscillators** 18
- **Printed Circuit Boards** 18
- **Required EUT Changes To Comply** 18
- **Equipment Configuration Block Diagram - Radiated** 19
- **Equipment Configuration Block Diagram - Radiated** 20
- **Equipment Configuration Block Diagram - Conducted** 21
- **Photograph Showing Radiated Emissions** 22
- **Photograph Showing Radiated Emissions** 23
- **Photograph Showing Conducted Emissions** 24
- **Photograph Showing Conducted Emissions** 25
- **Photograph Showing Radiated Emissions - Multiple Units** 26
- **Photograph Showing Radiated Emissions - Multiple Units** 27

Appendix B: Measurement Data Sheets 28
- **Occupied Bandwidth Plot - 916 Mhz** 29

ADMINISTRATIVE INFORMATION

DATE OF TEST:	August 23-25, 2000
PURPOSE OF TEST:	To demonstrate the compliance of the 6330 Anemometer Transmitter Kit/6370 Wireless Temperature Station, 6330/6370, with the requirements for FCC Part 15 Subpart C Section 15.249 devices.
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:	Chuck Kendall
TEST METHOD:	ANSI C63.4 1992
FREQUENCY RANGE TESTED:	150 kHz - 1000 MHz

EQUIPMENT UNDER TEST:

Wireless Temperature Station		**Anemometer Transmitter Kit**	
Manuf:	Davis Instruments	Manuf:	Davis Instruments
Model:	6370	Model:	6330
Serial:	N/A	Serial:	N/A

SUMMARY OF RESULTS

The Davis Instruments 6330 Anemometer Transmitter Kit/6370 Wireless Temperature Station, 6330/6370, was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15 Subpart C Section 15.249.

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

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

- 6330 Anemometer Transmitter Kit - Same circuit board as 6320 ISS. Plug in an anemometer and measure wind speed at a location different from where you mount your ISS.

- 6370 Wireless Temperature Station - same circuit board as 6320 ISS. External temperature probe is soldered onto ISS board where previous outside temperature was located. Used to add extra temperature sensors to your weather station.

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%.

ADDITIONAL DEVICES

The EUT was tested simultaneously with the following models:

CPU Laptop
Manuf: Toshiba
Model:
Serial:

Data Logger
Manuf: Davis Instruments
Model: 7345.017
Serial:

Wireless Repeater
Manuf: Davis Instruments
Model: 7625 OV
Serial:

Wireless Repeater
Manuf: Davis Instruments
Model: 7624 EU
Serial:

Wireless Repeater
Manuf: Davis Instruments
Model: 7624 UK
Serial:

Wireless Temperature Station
Manuf: Davis Instruments
Model: 6370
Serial:

Wireless Temperature Station
Manuf: Davis Instruments
Model: 6370 OV
Serial:

Anemometer Transmitter Kit
Manuf: Davis Instruments
Model: 6330
Serial:

Anemometer Transmitter Kit
Manuf: Davis Instruments
Model: 6330 OV
Serial:

Vantage Pro Console
Manuf: Davis Instruments
Model: 6310 C
Serial:

Vantage Pro Console
Manuf: Davis Instruments
Model: 6310 CUK
Serial:

Vantage Pro Console
Manuf: Davis Instruments
Model: 6310 EU
Serial:

Vantage Pro Console
Manuf: Davis Instruments
Model: 6310 CEU
Serial:

Vantage Pro Console
Manuf: Davis Instruments
Model: 6310 UK
Serial:

Repeater
Manuf: Davis Instruments
Model: 7625
Serial:

Repeater
Manuf: Davis Instruments
Model: 7624
Serial:

REPORT OF MEASUREMENTS

The following tables report the highest worst case levels recorded during the tests performed on the 6330 Anemometer Transmitter Kit/6370 Wireless Temperature Station, 6330/6370. 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 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
916.587	87.5	23.9	-25.6	6.8		92.6	93.9	-1.3	V

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Subpart C Section 15.249
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: Model 6370 (solar powered) is actively transmitting CW mode. This is the worst case.

Table 2: Six Highest Spurious Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
31.382	42.8	14.8	-25.1	0.7		33.2	40.0	-6.8	VQ
35.076	45.7	12.2	-25.0	0.7		33.6	40.0	-6.4	V
42.458	46.0	11.6	-25.0	0.8		33.4	40.0	-6.6	V
46.162	45.9	11.1	-24.9	0.8		32.9	40.0	-7.1	VQ
60.912	49.8	9.8	-24.9	1.0		35.7	40.0	-4.3	VQ
68.287	49.8	8.4	-25.0	1.0		34.2	40.0	-5.8	VQ

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Subpart C Section 15.249/15.209
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: All various types of devices are on the turntable so everything else is a sub-set. There are three active repeaters on the table, three active 6310 consoles, a lap-top computer with a Data Logger (RS-232) cable sending data to the 6310 domestic console. There is a domestic ISS on the table as well . One of the repeaters is receiving data from a rain gauge sensor and a Wind Vane sensor. Some are battery powered and some are AC powered.

Table 3: Six Highest Spurious Emission Levels - Above 1 GHz									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
1833.073	53.8	26.0	-35.4	2.5		46.9	54.0	-7.1	VA
2749.470	37.5	30.7	-32.5	12.7		48.4	54.0	-5.6	VA
3666.000	39.0	32.1	-33.1	10.4		48.4	54.0	-5.6	VA
4582.490	37.5	33.3	-32.6	9.1		47.3	54.0	-6.7	HA
4582.816	38.8	33.3	-32.6	9.1		48.6	54.0	-5.4	VA
5498.930	39.1	32.7	-32.2	7.8		47.4	54.0	-6.6	VA

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Subpart C Section 15.249/15.209
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: Model 6370(solar powered) is actively transmitting CW mode. RF Spurious Emissions Readings at 3 Meters. Compared to the FCC 15.209/15.249(a) Max Limit is 54 dB in this region. The carrier is fully modulated and transmitting in its normal mode of operation at full power. Its transmits for 12.5 milliseconds every 2.5 seconds. All other emissions are greater than 20 dB from the limit.

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
0.524631	34.0	0.1				34.1	48.0	-13.9	B
0.800901	33.5	0.1				33.6	48.0	-14.4	W
0.905324	33.4	0.1				33.5	48.0	-14.5	B
1.095469	33.5	0.1				33.6	48.0	-14.4	B
2.449264	33.6	0.1				33.7	48.0	-14.3	W
4.964003	34.0	0.2				34.2	48.0	-13.8	W

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Subpart C Section 15.249/15.207

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

COMMENTS: Model 6330/6370 is actively transmitting.

TABLE A

LIST OF TEST EQUIPMENT

Ref#	Function	Mfr	Model	Serial	Cal Date	Cal Due Date
28	3/10 Meter Cable	NA	CKC	N/A	10/18/1999	10/18/2000
92	Antenna, Bicon	A&H	SAS200/542	156	5/8/2000	5/8/2001
341	Antenna, Log Periodic	A&H	SAS-200/510	154	5/8/2000	5/8/2001
439	QP Adapter	HP	85650A	2811A01267	7/7/2000	7/7/2001
472	SA Display Section	HP	8566B	2403A08241	7/7/2000	7/7/2001
502	Spectrum Analyzer, RF Section	HP	8566B	2209A01404	7/7/2000	7/7/2001
401	Preamp	HP	8447D	1937A02604	4/3/2000	4/3/2001
737	Antenna, Horn	EMCO	3115	4085	2/14/2000	2/14/2001
1107	Cable#7(25')	Andrew	FSJ1-50A	NA	5/10/2000	5/10/2001
691	Cable#2(2')	Andrew	FSJ1-50A	NA	5/10/2000	5/10/2001
765	Preamp	HP	8449B	3008A00301	10/27/1999	10/27/2000
892	Cable, gray	Mini	8/U	NA	6/2/2000	6/2/2001
327	LISNs set	Solar	8028-50-TS-24-BNC	814493,474	6/5/2000	6/5/2001

EUT SETUP

The equipment under test (EUT) and the peripheral(s) listed were 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 Table 1 for fundamental emissions, Tables 2 & 3 for spurious emissions and Table 4 for conducted emissions.

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 LISNs 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 6330 Anemometer Transmitter Kit/6370 Wireless Temperature Station, 6330/6370. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISNs.

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	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	10 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 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 for the 6330 Anemometer Transmitter Kit/6370 Wireless Temperature Station, 6330/6370.

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 6330 Anemometer Transmitter Kit/6370 Wireless Temperature Station, 6330/6370, 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, Section 15.249, 15.209 and 15.207 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 with the I/O cables and line cords facing the antenna. 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. The horn antenna was used to scan for frequencies above 1000 MHz. 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 with its I/O and power cables 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, antenna height and configuration of the peripherals. 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 time was 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 rate.

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.

Power Output FCC Part 15.249 (a)

The maximum ERP of this transmitter was measured to be (47.0 dBμV/m in a 50 Ω system) when measured at a test distance of three meters. This measurement was made with the EUT's integral antenna, for there is no provision for connecting an external antenna.

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:

			LISN	Pream	Bicon	Log 1	Barn					
#	Freq	Rdng			Horn		GHz C	Dist	Corr	Spec	Margin	Polar

means reading number
Freq MHz is the frequency in MHz of the obtained reading.
Rdng is the reading obtained on the spectrum analyzer in dBµV.
LISN is the LISN factor for conducted emissions.
Pream. is short for the preamplifier factor or gain in dB.
Bicon is the biconical antenna factor in dB.
Log 1 is the log periodic antenna factor in dB.
Horn is the horn antenna factor in dB.
Barn is the cable loss in dB of the coaxial cable on the OATS.
GHz C is the cable loss in dB of the high frequency 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 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.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	**Not provided at this time.**
CRT was displaying:	
Power Supply Manufacturer:	
Power Supply Part Number:	
AC Line Filter Manufacturer:	
AC Line Filter Part Number:	

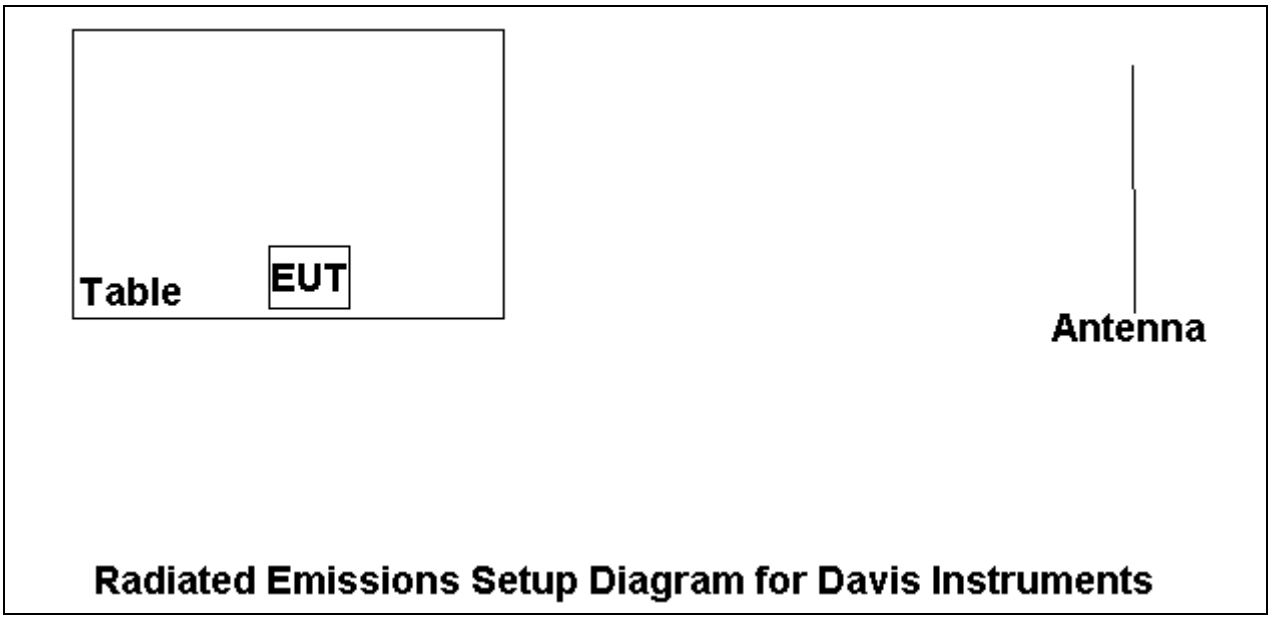
I/O PORTS	
Type	#

CRYSTAL OSCILLATORS	
Type	Freq. In MHz
Not provided at this time.	

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Not provided at this time.				

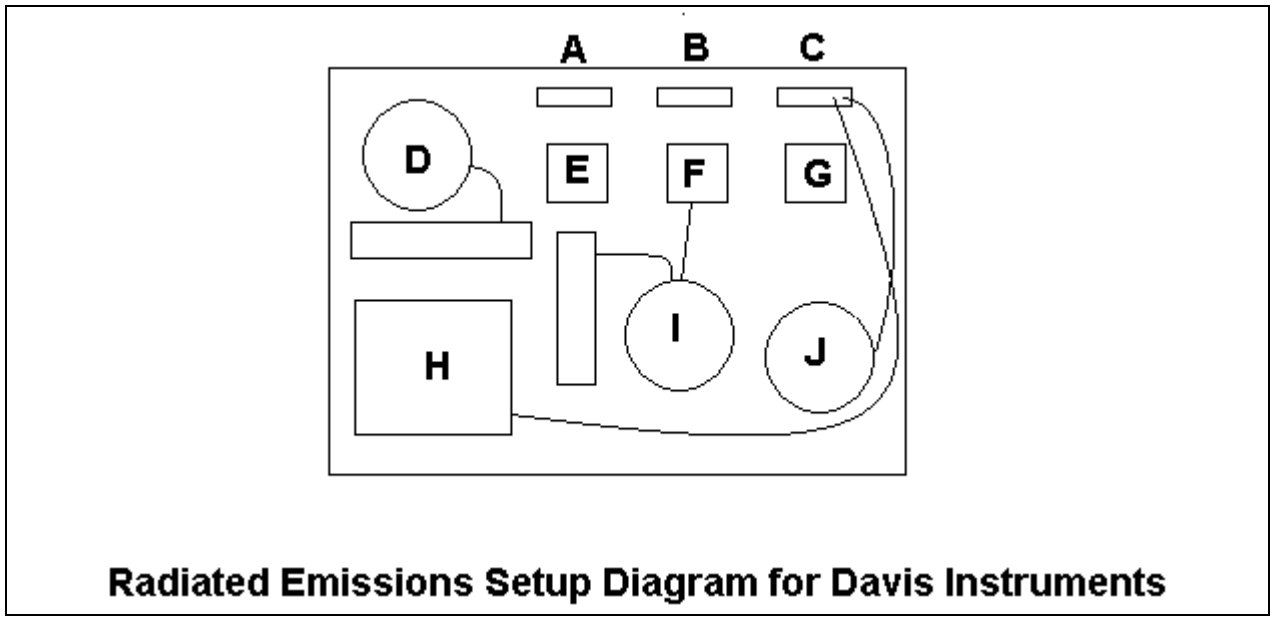
REQUIRED EUT CHANGES TO COMPLY:
None

EQUIPMENT CONFIGURATION BLOCK DIAGRAM - RADIATED



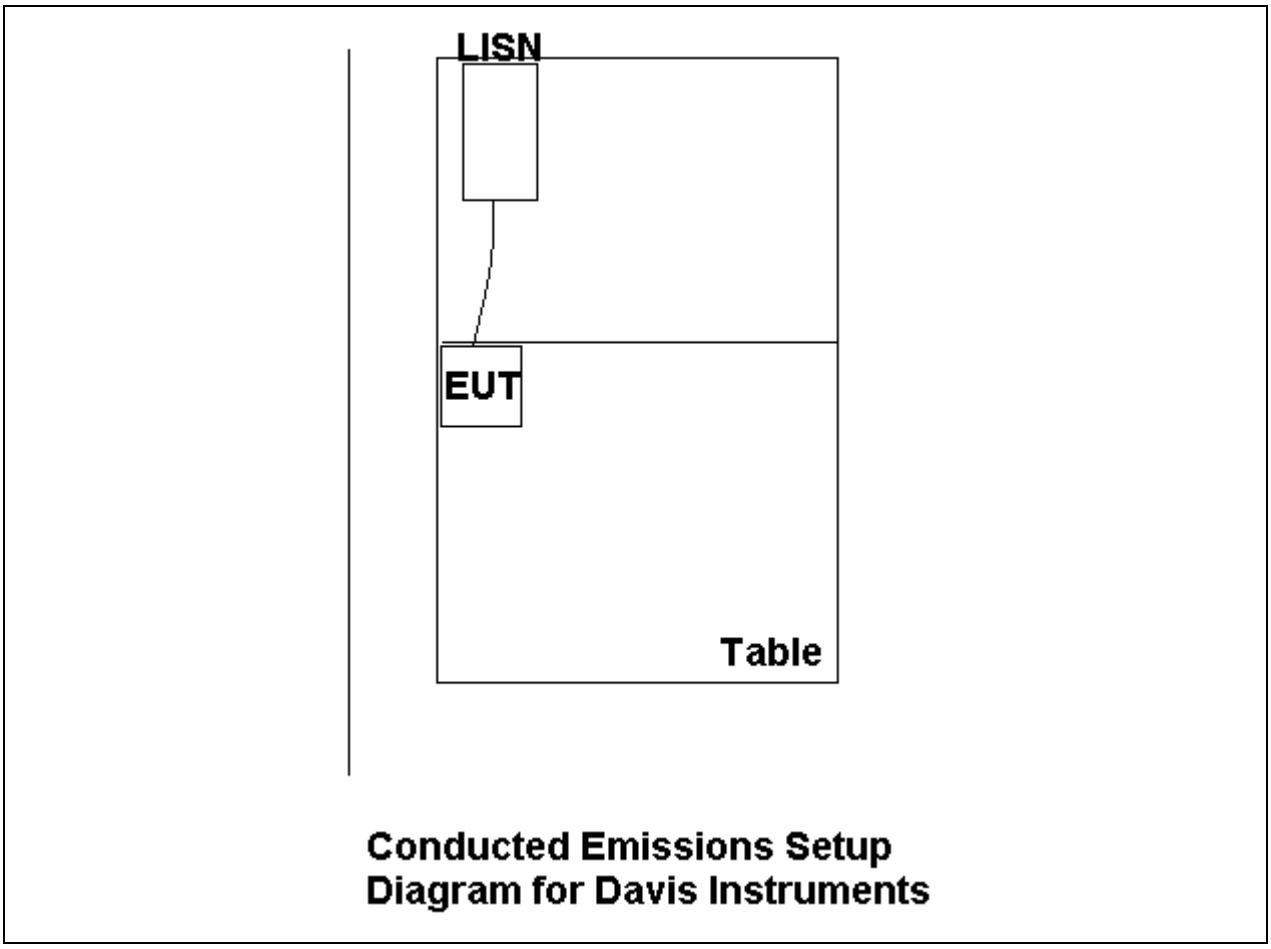
Radiated Emissions Setup - Single Unit

EQUIPMENT CONFIGURATION BLOCK DIAGRAM - RADIATED



Radiated Emissions Setup - Multiple Units

EQUIPMENT CONFIGURATION BLOCK DIAGRAM - CONDUCTED



Conducted Emissions Setup - Single Unit

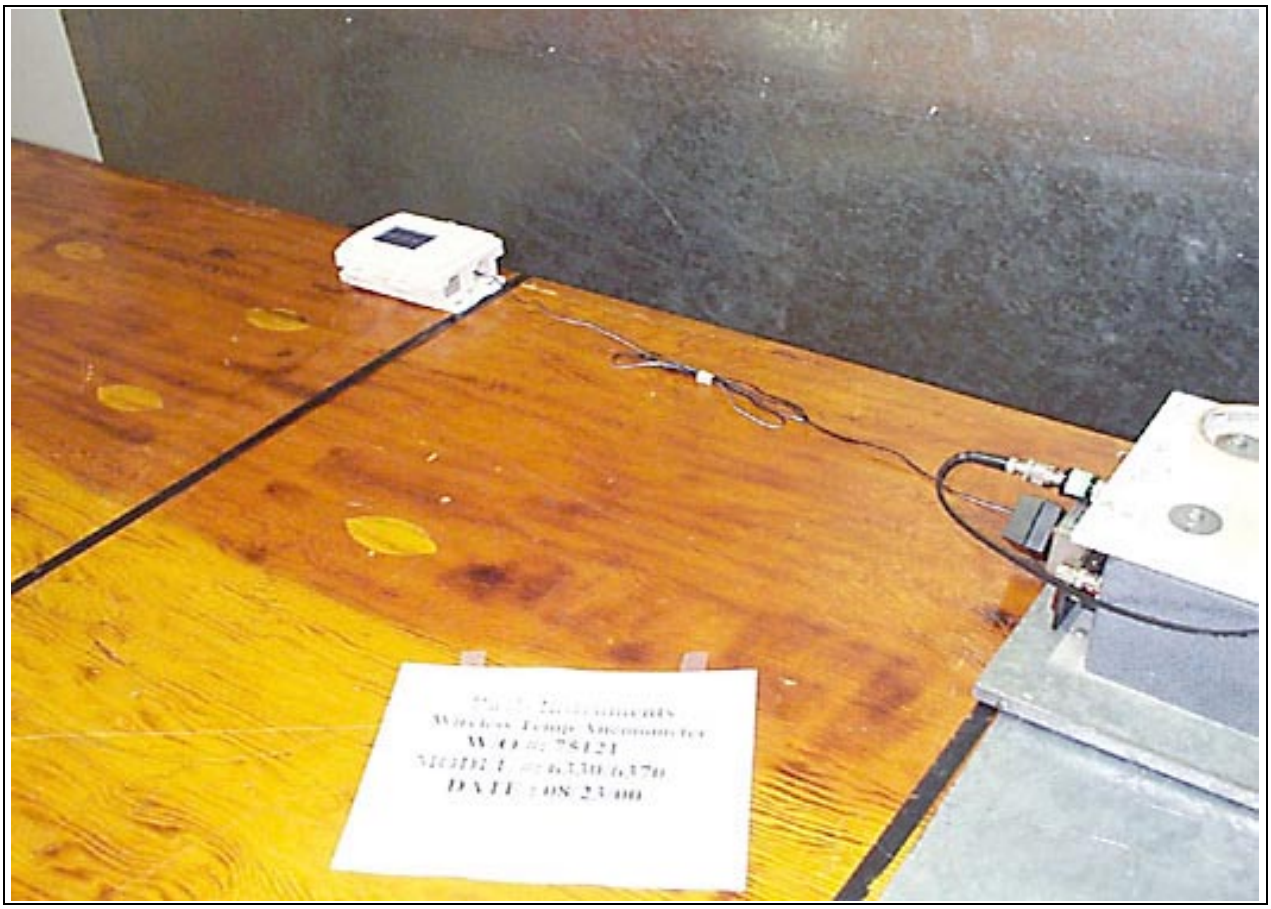
PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View (6330)

PHOTOGRAPH SHOWING RADIATED EMISSIONS

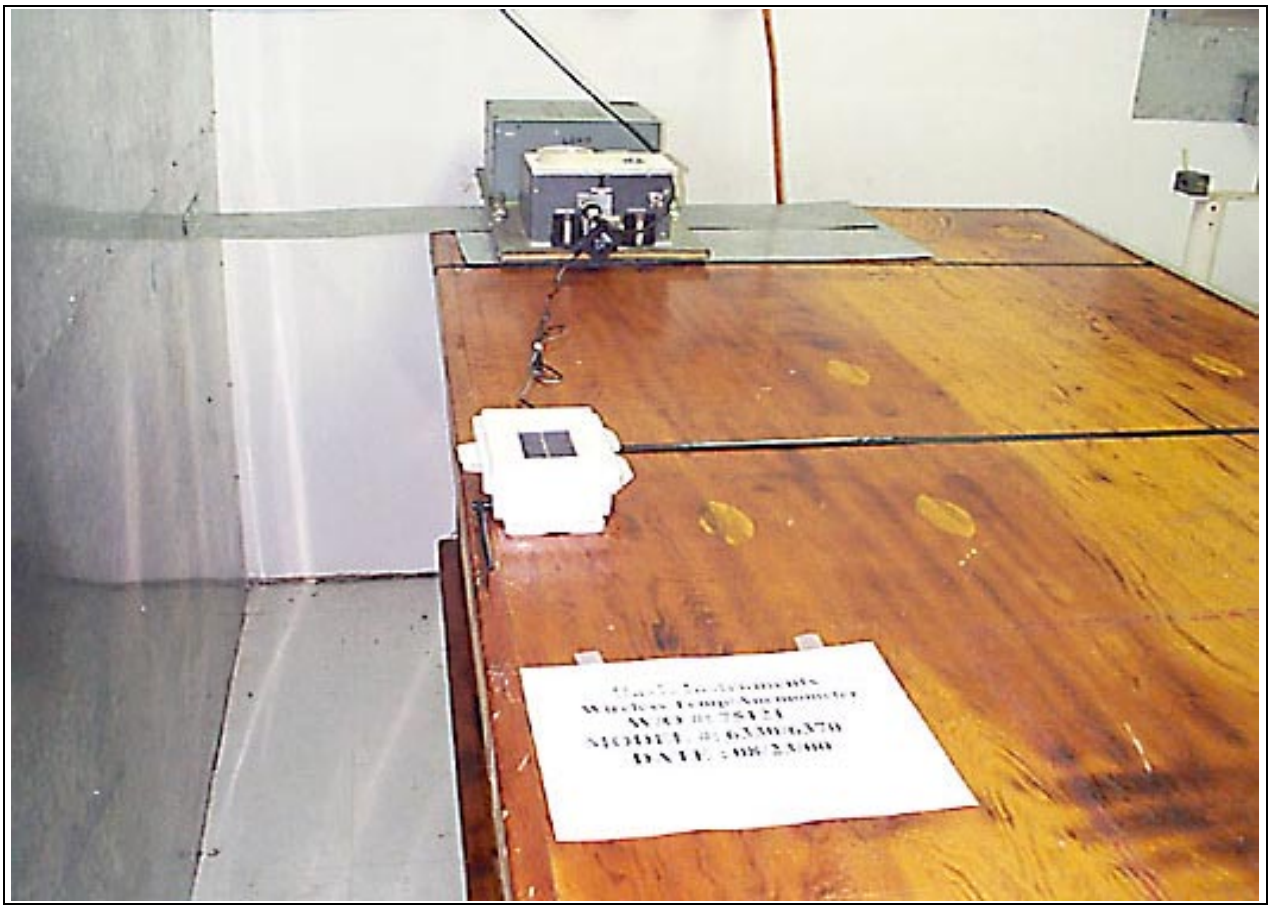
Radiated Emissions - Back View (6330)

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View (6330)

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Back View (6330)

PHOTOGRAPH SHOWING RADIATED EMISSIONS - MULTIPLE UNITS

Radiated Emissions - Front View Multiple Units, including 6370

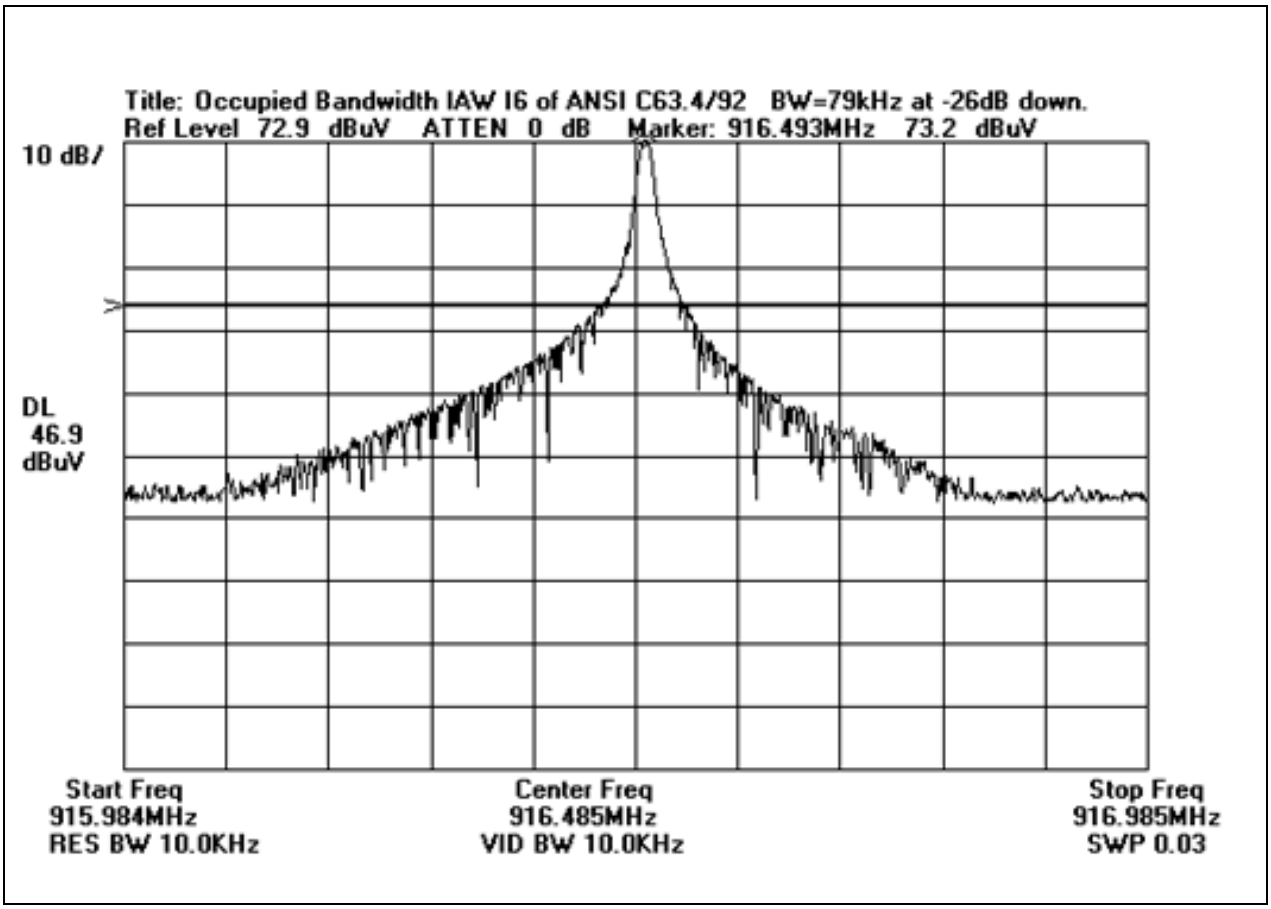
PHOTOGRAPH SHOWING RADIATED EMISSIONS - MULTIPLE UNITS

Radiated Emissions - Back View Multiple Units, including 6370

APPENDIX B

MEASUREMENT DATA SHEETS

OCCUPIED BANDWIDTH PLOT - 916 MHz



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 #: **75121** Date: 08/24/2000
Test Type: **Maximized Emissions** Time: 15:31:29
Equipment: **Temp Station** Sequence#: 7
Manufacturer: Davis Tested By: Chuck Kendall
Model: 6370
S/N: N/A

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

Function	Manufacturer	Model #	S/N
Temp Station*	Davis	6370	N/A

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Model 6370 (solar powered) is actively transmitting CW mode. This is the worst case.

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

#	Freq MHz	Rdng dBµV	Pream dB	Bicon dB	Log 1 dB	Barn dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	916.587M	87.5	-25.6	+0.0	+23.9	+6.8	+0.0	92.6	93.9	-1.3	Vert

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

Customer: **Davis Instruments**
Specification: **FCC15.209**
Work Order #: **75121** Date: 08/23/2000
Test Type: **Maximized Emissions** Time: 13:44:59
Equipment: **Various models** Sequence#: 1
Manufacturer: Davis Instruments Tested By: Chuck Kendall
Model: See below
S/N: N/A

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

Function	Manufacturer	Model #	S/N
Anemometer	Davis	6330	
Temp Station	Davis	6370	

Support Devices:

Function	Manufacturer	Model #	S/N
CPU Laptop	Toshiba		
Vantage Link	Davis	6510C	
Repeater	Davis	7625	
Repeater	Davis	7625OV	
Repeater	Davis	7624	
Repeater	Davis	7624EU	
Repeater	Davis	7624UK	
Repeater	Davis	7624	
Temp Station	Davis	6370OV	
Anemometer	Davis	6330OV	
Vantage Console	Davis	6150	
Vantage Console	Davis	6150UK	
Vantage Console	Davis	6150EU	
Vantage Console	Davis	6150CUK	
Vantage Console	Davis	6150C	
Vantage Console	Davis	6150CEU	

Test Conditions / Notes:

All various types of devices are on the turntable so everything else is a sub-set. There are three active repeaters on the table, three active 6310 (tested as the 6150) consoles, a lap-top computer with a Data Logger (RS-232) cable sending data to the 6310 (tested as the 6150) domestic console. There is a domestic ISS on the table as well . One of the repeater is receiving data from a rain gauge sensor and a Wind Vane sensor. Some are battery powered and some are AC powered.

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

#	Freq	Rdng	Pream	Bicon	Log 1	Barn	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	60.912M	49.8	-24.9	+9.8	+0.0	+1.0	+0.0	35.7	40.0	-4.3	Vert
	QP										
^	60.900M	50.8	-24.9	+9.8	+0.0	+1.0	+0.0	36.7	40.0	-3.3	Vert

3	68.287M QP	49.8	-25.0	+8.4	+0.0	+1.0	+0.0	34.2	40.0	-5.8	Vert
^	68.265M	50.9	-25.0	+8.4	+0.0	+1.0	+0.0	35.3	40.0	-4.7	Vert
5	35.076M	45.7	-25.0	+12.2	+0.0	+0.7	+0.0	33.6	40.0	-6.4	Vert
6	42.458M	46.0	-25.0	+11.6	+0.0	+0.8	+0.0	33.4	40.0	-6.6	Vert
7	31.382M QP	42.8	-25.1	+14.8	+0.0	+0.7	+0.0	33.2	40.0	-6.8	Vert
^	31.376M	45.8	-25.1	+14.8	+0.0	+0.7	+0.0	36.2	40.0	-3.8	Vert
9	46.162M QP	45.9	-24.9	+11.1	+0.0	+0.8	+0.0	32.9	40.0	-7.1	Vert
^	46.146M	47.6	-24.9	+11.1	+0.0	+0.8	+0.0	34.6	40.0	-5.4	Vert
11	64.585M	47.2	-24.9	+9.1	+0.0	+1.0	+0.0	32.4	40.0	-7.6	Vert
12	36.941M QP	44.6	-25.0	+12.1	+0.0	+0.7	+0.0	32.4	40.0	-7.6	Vert
^	36.947M	49.1	-25.0	+12.1	+0.0	+0.7	+0.0	36.9	40.0	-3.1	Vert
14	32.070M	42.3	-25.1	+14.3	+0.0	+0.7	+0.0	32.2	40.0	-7.8	Vert
15	53.515M	45.7	-24.9	+10.2	+0.0	+0.9	+0.0	31.9	40.0	-8.1	Vert
16	33.229M QP	42.6	-25.1	+13.4	+0.0	+0.7	+0.0	31.6	40.0	-8.4	Vert
^	33.243M	46.2	-25.1	+13.4	+0.0	+0.7	+0.0	35.2	40.0	-4.8	Vert
18	32.802M QP	41.1	-25.1	+13.8	+0.0	+0.7	+0.0	30.5	40.0	-9.5	Vert
^	32.806M	45.9	-25.1	+13.8	+0.0	+0.7	+0.0	35.3	40.0	-4.7	Vert
20	79.299M	44.0	-25.0	+7.4	+0.0	+1.1	+0.0	27.5	40.0	-12.5	Vert
21	564.115M	32.7	-26.0	+0.0	+18.8	+5.0	+0.0	30.5	46.0	-15.5	Horiz
22	311.559M	30.6	-24.8	+0.0	+20.8	+3.3	+0.0	29.9	46.0	-16.1	Horiz
23	171.482M	34.5	-24.8	+15.4	+0.0	+2.2	+0.0	27.3	43.5	-16.2	Horiz
24	234.106M	34.9	-24.7	+16.9	+0.0	+2.6	+0.0	29.7	46.0	-16.3	Horiz
25	175.168M	33.8	-24.8	+15.9	+0.0	+2.2	+0.0	27.1	43.5	-16.4	Horiz
26	164.087M	35.3	-24.8	+14.4	+0.0	+2.1	+0.0	27.0	43.5	-16.5	Horiz

27	497.710M	33.0	-25.9	+0.0	+17.5	+4.6	+0.0	29.2	46.0	-16.8	Horiz
28	521.716M	32.3	-25.9	+0.0	+18.0	+4.7	+0.0	29.1	46.0	-16.9	Horiz
29	60.892M	36.9	-24.9	+9.8	+0.0	+1.0	+0.0	22.8	40.0	-17.2	Horiz
30	68.267M	38.1	-25.0	+8.4	+0.0	+1.0	+0.0	22.5	40.0	-17.5	Horiz
31	64.579M	36.9	-24.9	+9.1	+0.0	+1.0	+0.0	22.1	40.0	-17.9	Horiz
32	114.336M	35.1	-25.0	+13.7	+0.0	+1.6	+0.0	25.4	43.5	-18.1	Horiz
33	65.577M	36.8	-25.0	+8.9	+0.0	+1.0	+0.0	21.7	40.0	-18.3	Vert
34	156.736M	34.4	-24.9	+13.6	+0.0	+2.0	+0.0	25.1	43.5	-18.4	Horiz
35	167.795M	32.7	-24.8	+14.9	+0.0	+2.1	+0.0	24.9	43.5	-18.6	Horiz
36	259.942M	31.2	-24.6	+17.9	+0.0	+2.9	+0.0	27.4	46.0	-18.6	Horiz
37	501.414M	30.9	-25.9	+0.0	+17.5	+4.6	+0.0	27.1	46.0	-18.9	Horiz
38	494.041M	30.8	-25.9	+0.0	+17.4	+4.6	+0.0	26.9	46.0	-19.1	Horiz
39	153.049M	33.9	-24.9	+13.4	+0.0	+1.9	+0.0	24.3	43.5	-19.2	Horiz
40	53.520M	34.4	-24.9	+10.2	+0.0	+0.9	+0.0	20.6	40.0	-19.4	Horiz
41	400.066M	31.8	-25.5	+0.0	+16.4	+3.8	+0.0	26.5	46.0	-19.5	Horiz
42	518.003M	29.6	-25.9	+0.0	+17.9	+4.7	+0.0	26.3	46.0	-19.7	Horiz
43	110.661M	33.9	-25.1	+13.4	+0.0	+1.5	+0.0	23.7	43.5	-19.8	Horiz
44	46.147M	33.1	-24.9	+11.1	+0.0	+0.8	+0.0	20.1	40.0	-19.9	Horiz
45	171.484M	30.8	-24.8	+15.4	+0.0	+2.2	+0.0	23.6	43.5	-19.9	Vert
46	136.461M	32.4	-25.0	+14.2	+0.0	+1.8	+0.0	23.4	43.5	-20.1	Horiz
47	130.934M	31.9	-25.0	+14.4	+0.0	+1.8	+0.0	23.1	43.5	-20.4	Vert
48	149.363M	32.7	-24.9	+13.2	+0.0	+1.9	+0.0	22.9	43.5	-20.6	Horiz
49	83.013M	34.0	-25.0	+8.2	+0.0	+1.2	+0.0	18.4	40.0	-21.6	Horiz
50	407.443M	29.4	-25.5	+0.0	+16.5	+3.9	+0.0	24.3	46.0	-21.7	Vert

51	73.797M	34.3	-25.0	+7.8	+0.0	+1.0	+0.0	18.1	40.0	-21.9	Horiz
52	110.659M	31.8	-25.1	+13.4	+0.0	+1.5	+0.0	21.6	43.5	-21.9	Vert
53	147.523M	30.9	-24.9	+13.4	+0.0	+1.9	+0.0	21.3	43.5	-22.2	Vert

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

Customer: **Davis Instruments**
Specification: **FCC 15.209**
Work Order #: **75121** Date: 08/24/2000
Test Type: **Maximized Emissions** Time: 16:42:32
Equipment: **Temp Station** Sequence#: 8
Manufacturer: Davis Tested By: Chuck Kendall
Model: 6370
S/N: N/A

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

Function	Manufacturer	Model #	S/N
Temp Station*	Davis	6370	

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Model 6370(solar powered) is actively transmitting CW mode. RF Spurious Emissions Readings at 3 Meters. Compared to the FCC 15.209/15.249(a) Max Limit is 54 dB in this region. The carrier is fully modulated and transmitting in its normal mode of operation at full power. Its transmits for 12.5 milliseconds every 2.5 seconds. All other emissions are greater than 20 dB from the limit.

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

#	Freq MHz	Rdng dBµV	Pream GHz C dB	Horn dB	GHz C dB	GHz C dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	4582.816M Ave	38.8	-32.6 +2.0	+33.3	+2.0	+5.1	+0.0	48.6	54.0	-5.4	Vert
^	4582.816M	42.0	-32.6 +2.0	+33.3	+2.0	+5.1	+0.0	51.8	54.0	-2.2	Vert
3	2749.470M Ave	37.5	-32.5 +3.5	+30.7	+3.5	+5.7	+0.0	48.4	54.0	-5.6	Vert
^	2749.470M	40.4	-32.5 +3.5	+30.7	+3.5	+5.7	+0.0	51.3	54.0	-2.7	Vert
5	3666.000M Ave	39.0	-33.1 +2.5	+32.1	+2.5	+5.4	+0.0	48.4	54.0	-5.6	Vert
^	3666.000M	41.9	-33.1 +2.5	+32.1	+2.5	+5.4	+0.0	51.3	54.0	-2.7	Vert
7	5498.930M Ave	39.1	-32.2 +1.4	+32.7	+1.4	+5.0	+0.0	47.4	54.0	-6.6	Vert
^	5498.930M	41.8	-32.2 +1.4	+32.7	+1.4	+5.0	+0.0	50.1	54.0	-3.9	Vert
9	4582.490M Ave	37.5	-32.6 +2.0	+33.3	+2.0	+5.1	+0.0	47.3	54.0	-6.7	Horiz
^	4582.490M	39.3	-32.6 +2.0	+33.3	+2.0	+5.1	+0.0	49.1	54.0	-4.9	Horiz
11	1833.073M Ave	53.8	-35.4 +0.2	+26.0	+0.2	+2.1	+0.0	46.9	54.0	-7.1	Vert
^	1833.020M	58.2	-35.4 +0.2	+26.0	+0.2	+2.1	+0.0	51.3	54.0	-2.7	Vert

13	6415.630M Ave	30.3	-30.2 +2.5	+35.2	+2.5	+6.5	+0.0	46.8	54.0	-7.2	Vert
^	6415.630M	34.1	-30.2 +2.5	+35.2	+2.5	+6.5	+0.0	50.6	54.0	-3.4	Vert
15	9164.717M Ave	28.3	-34.4 +4.1	+38.8	+4.1	+5.8	+0.0	46.7	54.0	-7.3	Vert
^	9164.699M	30.7	-34.4 +4.1	+38.8	+4.1	+5.8	+0.0	49.1	54.0	-4.9	Vert
17	9164.820M Ave	27.1	-34.4 +4.1	+38.8	+4.1	+5.8	+0.0	45.5	54.0	-8.5	Horiz
^	9164.820M	30.4	-34.4 +4.1	+38.8	+4.1	+5.8	+0.0	48.8	54.0	-5.2	Horiz
19	7332.210M Ave	28.4	-30.3 +1.5	+36.7	+1.5	+6.6	+0.0	44.4	54.0	-9.6	Vert
^	7332.210M	35.8	-30.3 +1.5	+36.7	+1.5	+6.6	+0.0	51.8	54.0	-2.2	Vert
21	8248.300M Ave	27.0	-32.7 +2.6	+37.1	+2.6	+7.5	+0.0	44.1	54.0	-9.9	Horiz
^	8248.300M	30.6	-32.7 +2.6	+37.1	+2.6	+7.5	+0.0	47.7	54.0	-6.3	Horiz
23	6415.270M Ave	27.5	-30.2 +2.5	+35.2	+2.5	+6.5	+0.0	44.0	54.0	-10.0	Horiz
^	6415.270M	31.5	-30.2 +2.5	+35.2	+2.5	+6.5	+0.0	48.0	54.0	-6.0	Horiz

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

Customer: **Davis Instruments**
Specification: **FCC 15.207**
Work Order #: **75121** Date: 08/25/2000
Test Type: **Conducted Emissions** Time: 14:52:05
Equipment: **Temp Station** Sequence#: 16
Manufacturer: Davis Tested By: Chuck Kendall
Model: 6370/6330
S/N: N/A

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

Function	Manufacturer	Model #	S/N
Temp Station*	Davis	6370/6330	N/A

Support Devices:

Function	Manufacturer	Model #	S/N

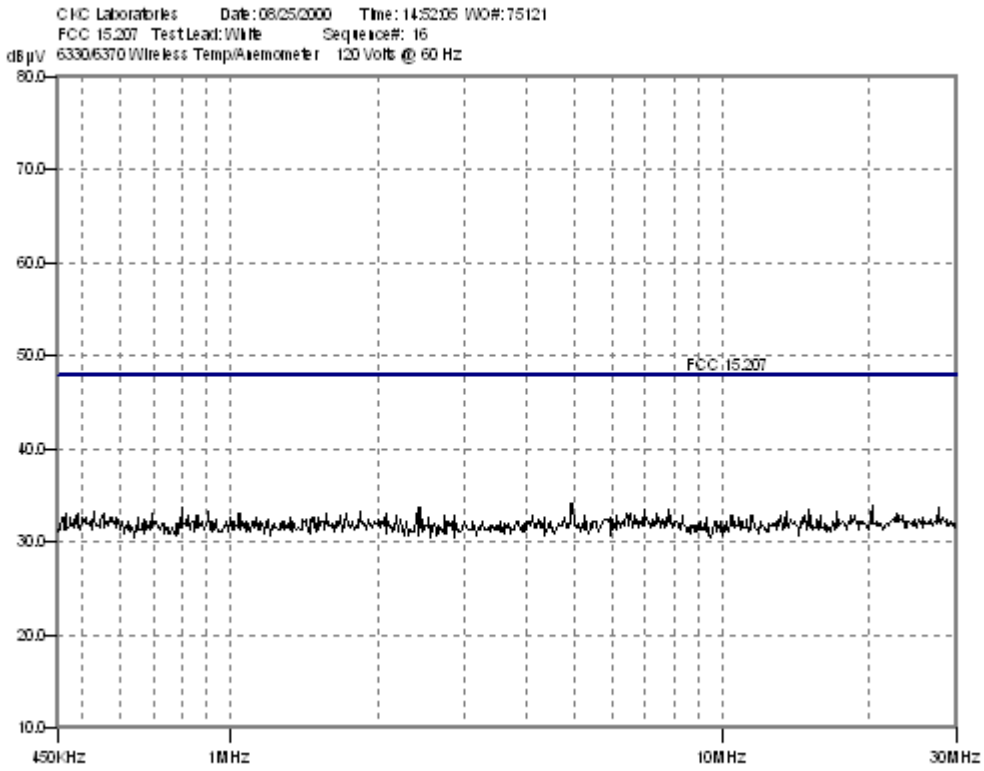
Test Conditions / Notes:

Model 6330/6370 is actively transmitting.

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

#	Freq MHz	Rdng dBµV	LISN dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	4.964M	34.0	+0.2				+0.0	34.2	48.0	-13.8	White
2	2.449M	33.6	+0.1				+0.0	33.7	48.0	-14.3	White
3	2.414M	33.5	+0.1				+0.0	33.6	48.0	-14.4	White
4	800.901k	33.5	+0.1				+0.0	33.6	48.0	-14.4	White
5	1.836M	33.2	+0.1				+0.0	33.3	48.0	-14.7	White
6	906.883k	33.2	+0.1				+0.0	33.3	48.0	-14.7	White
7	530.433k	33.2	+0.1				+0.0	33.3	48.0	-14.7	White
8	492.306k	33.0	+0.1				+0.0	33.1	48.0	-14.9	White
9	2.076M	33.0	+0.1				+0.0	33.1	48.0	-14.9	White
10	1.733M	33.0	+0.1				+0.0	33.1	48.0	-14.9	White
11	1.046M	33.0	+0.1				+0.0	33.1	48.0	-14.9	White
12	1.568M	32.9	+0.1				+0.0	33.0	48.0	-15.0	White
13	694.919k	32.9	+0.1				+0.0	33.0	48.0	-15.0	White

14	555.297k	32.9	+0.1	+0.0	33.0	48.0	-15.0	White
15	2.731M	32.8	+0.1	+0.0	32.9	48.0	-15.1	White


CHC Laboratories Date: 08/25/2000 Time: 14:52:05 WO#: 75121
FCC 15.207 Test Lead: White Sequence#: 16
dBµV 6330/6370 Wireless Temp/Anemometer 120 Volts @ 60 Hz
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450 KHz
1 MHz
10 MHz
30 MHz

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

Customer: **Davis Instruments**
Specification: **FCC 15.207**
Work Order #: **75121** Date: 08/25/2000
Test Type: **Conducted Emissions** Time: 14:48:29
Equipment: **Temp Station** Sequence#: 15
Manufacturer: Davis Tested By: Chuck Kendall
Model: 6370/6330
S/N: N/A

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

Function	Manufacturer	Model #	S/N
Temp Station*	Davis	6370/6330	N/A

Support Devices:

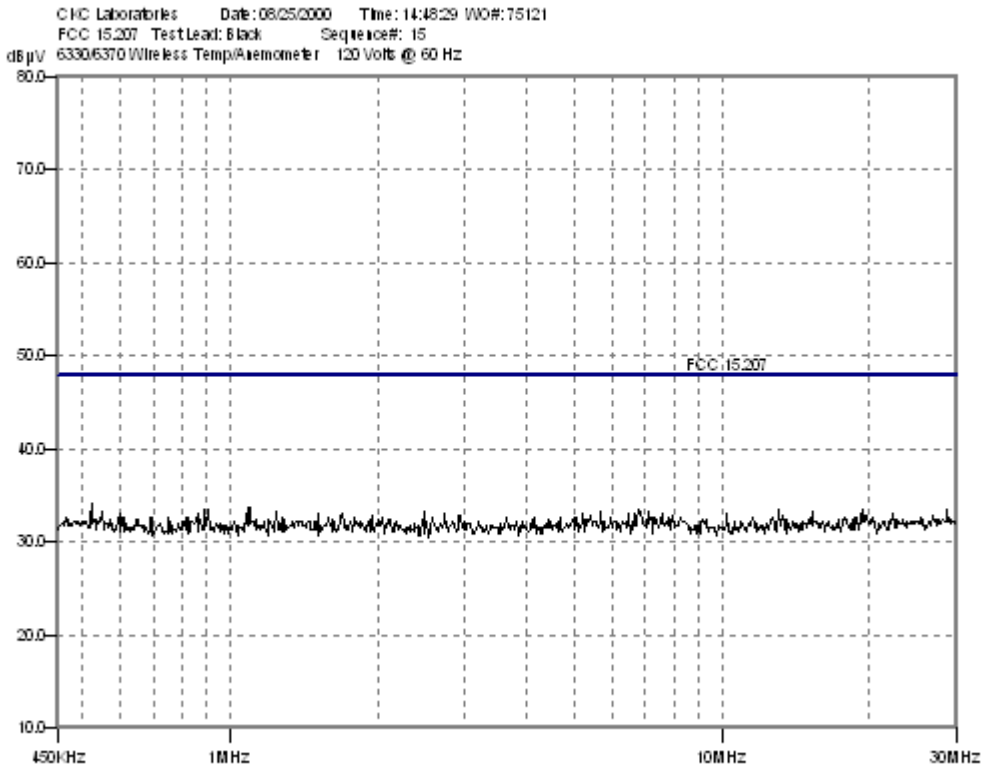
Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Model 6330/6370 is actively transmitting.

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

#	Freq MHz	Rdng dBµV	LISN dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	524.631k	34.0	+0.1				+0.0	34.1	48.0	-13.9	Black
2	1.095M	33.5	+0.1				+0.0	33.6	48.0	-14.4	Black
3	905.324k	33.4	+0.1				+0.0	33.5	48.0	-14.5	Black
4	888.180k	33.3	+0.1				+0.0	33.4	48.0	-14.6	Black
5	550.324k	33.2	+0.1				+0.0	33.3	48.0	-14.7	Black
6	2.496M	33.1	+0.1				+0.0	33.2	48.0	-14.8	Black
7	1.245M	33.1	+0.1				+0.0	33.2	48.0	-14.8	Black
8	1.702M	33.0	+0.1				+0.0	33.1	48.0	-14.9	Black
9	2.742M	32.9	+0.1				+0.0	33.0	48.0	-15.0	Black
10	1.512M	32.9	+0.1				+0.0	33.0	48.0	-15.0	Black
11	1.075M	32.9	+0.1				+0.0	33.0	48.0	-15.0	Black
12	860.126k	32.9	+0.1				+0.0	33.0	48.0	-15.0	Black
13	601.405k	32.9	+0.1				+0.0	33.0	48.0	-15.0	Black


CHC Laboratories Date: 08/25/2000 Time: 14:48:29 WO#: 75121
FCC 15.207 Test Lead: Black Sequence#: 15
dBµV 6330/6370 Wireless Temp/Anemometer 120 Volts @ 60 Hz
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450 KHz
1 MHz
10 MHz
30 MHz