

**EXHIBIT E: REPORT OF MEASUREMENTS [2.1033(B6)]**

**Test Report for FCC ID: FBRIQK1000-9SS**  
**FCC Part 2.1031, Part 15 Subpart C(15.247)**

**Report #0300592KF2**  
**Issued 05/16/03**



**FREQUENCY HOPPING**  
**TRANSCEIVER MODEL IQK1000-9SS**

Prepared for:

Mr. Harry Derks  
Fleetwood Group Inc.  
P.O. Box 1259  
Holland, MI 49422-1259

Test Date(s): February 10,13,14, March 10,11,14,28, April 9,28, May 2,15, 2003

data recorded by

witnessed by

\_\_\_\_\_  
Ted Chaffee, NCE  
Gordon Helm, NCE

\_\_\_\_\_  
Dave Ramon  
Harry Derks

This report prepared by:

\_\_\_\_\_  
Ted Chaffee, NCE  
Technical Manager/Test Engineer, AHD

## TABLE OF CONTENTS

EXHIBIT E: Report of Measurements [2.1033(b6)].....	1
TABLE OF CONTENTS.....	2
Statements Concerning this Report.....	3
Manufacturer/Applicant [2.1033(b1)].....	4
Measurement/Test Site Facility & Equipment.....	4
Test Site [2.948, 2.1033(b6)].....	4
Measurement Equipment Used [2.947(d), 15.31(b)].....	4
Tested Configuration /Setup: [2.1033(b8)].....	5
Support Equipment & Cabling.....	5
Setup Diagram.....	5
Summary of Results:.....	6
Changes made to achieve compliance.....	6
Standards Applied to Test: [2.1033(b6)].....	7
Test Methodology: [2.1033(b6)].....	7
FORMULAS AND SAMPLE CALCULATIONS:.....	9
Test Data [2.1033(b6)].....	10
Antenna Characteristics [15.203, 15.204].....	10
Modulation Characteristics.....	10
Frequency Hopping Characteristics.....	10
Number of Hopping Frequencies Separation [15.247a1i].....	10
Carrier Frequency 20dB bandwidth [15.247a1i].....	11
Carrier Frequency Separation [15.247a1].....	12
Carrier Frequency Dwell Time [15.247a1i].....	12
Band Edges [15.247(c)].....	13
Radiated Field Strength Measurements: [15.209, 15.247(b,c)].....	15
Field Strength Measurements of Fundamental & LO: [15.247(b)].....	15
Field Strength Measurements Harmonics of Fundamental & LO: [15.247(c)].....	16
Other Spurious Emissions: [15.247c].....	20

## Statements Concerning this Report

### **NVLAP Accreditation: NVLAP Lab Code 200129-0**

The scope of AHD accreditation is the conducted emissions, radiated emissions test methods of:

IEC/CISPR 22: Limits and methods measurement of radio disturbance characteristics of information technology equipment.

FCC Method – 47 CFT Part 15 – Digital Devices.

AS/NZS 3548: Electromagnetic Interference – Limits and Methods of Measurement of Information Technology Equipment.

IEC61000-4-2 and Amend.1: ElectroStatic Discharge Immunity

### **Test Data:**

This test report contains data included in the scope of the NVLAP accreditation.

### **Subcontracted Testing:**

This report contains data recorded at the University of Michigan Radiation Laboratory. The University of Michigan test facility is located at 8501 Beck Road, Belleville, Michigan 48111. This test facility has been fully described and accepted by the FCC and Industry Canada. This facility was utilized to measure emissions occurring at frequencies greater than 6GHz.

### **Test Traceability:**

The calibration of all measuring and test equipment and the measured data using this equipment are traceable to the National Institute for Standards and Technology (NIST).

### **Limitations on results:**

The test results contained in this report relate only to the Item(s) tested. Any electrical or mechanical modification made to the test item subsequent to the test date shall invalidate the data presented in this report. Any electrical or mechanical modification made to the test item subsequent to this test date shall require an evaluation to verify continued compliance.

### **Limitations on copying:**

This report shall not be reproduced, except in full, without the written approval of AHD.

### **Limitations of the report:**

This report shall not be used to claim product endorsement by NVLAP, FCC, or any agency of the US Government.

**Statement of Test Results Uncertainty:** Following the guidelines of NAMAS publication NIS81 and NIST Technical Note 1297, the Measurement Uncertainty at a 95% confidence level is determined to be:  $\pm 1.4$  dB

**Manufacturer/Applicant [2.1033(b1)]**

The manufacturer and applicant:

FLEETWOOD GROUP Inc.  
P.O. Box 1259  
Holland, Michigan 49422-1259

**Measurement/Test Site Facility & Equipment****Test Site [2.948, 2.1033(b6)]****SITE 1.**

The AHD test facility is centered on 9 acres of rural property near Sister Lakes, Michigan. The mailing address is 92723 M-152, Dowagiac, Michigan 49047. This test facility is NVLAP accredited (LabCode 200129-0). It has been fully described in a report filed with the FCC and Industry Canada. The original report filed with the FCC is, dated November 5, 1996, was accepted by the FCC in a letter dated January 15, 1997 and reconfirmed July 14, 2000, (31040/SIT 1300F2). The original report filed with Industry Canada, dated August 11, 1998, was accepted via a letter dated September 1, 1998, (file:IC3161).

**SITE 2.**

The University of Michigan test facility is located at 8501 Beck Road, Belleville, Michigan 48111. This test facility has been fully described and accepted by the FCC and Industry Canada. This facility was utilized to measure emissions occurring at frequencies greater than 6GHz.

**Measurement Equipment Used [2.947(d), 15.31(b)]****SITE 1.**

Equipment Calibration	Model	S/N	Last Cal	
			Date	Interval
HP EMI Receiver system	HP 8546A			
RF Filter Section	HP-85460A	3448A00283	24-Aug-02	12 month
RF Receiver Section	HP-85462A	3625A00342	24-Aug-02	12 month
EMCO BiconiLog Antenna	3142	1077	24-Aug-02	12 months
(3-M) Type 129FF Ultra Flex LowLoss	RG58/U	9910-12	16-Sep-02	6 months
(3-M) LMR-400 Ultra Flex	LMR400	9812-11	16-Sep-02	6 months
(10-M) Amelco 50ohm Coax	RG213/U	9903-10ab	16-Sep-02	6 months
50ohm Coax	RG223/U	9802302	16-Sep-02	12 months
Double Ridged Horn	ONO91202-2	A00329	17-Apr-01	36 months

**SITE 2.**

Equipment Calibration	Model	S/N	Last Cal	
			Date	Interval
C-Band Std. Gain Horn	UM NRL design		calibration by design	
XN-Band Std. Gain Horn	UM NRL design		calibration by design	
X-Band Std. Gain Horn	SA 12-8.2	730	calibration by design	
Avantek RF amplifier	AFT-12665		Apr-02	12 months
3ft LowLoss coax	RG142	-	with Avantek amp	
Spectrum Analyzer	HP 8593E	3412A01131	04-Apr-02	12 months

**Measurement Environment**

The tests were performed with the equipment under test, and measurement equipment inside the all-weather enclosure. Ambient temperature was 22deg.C., the relative humidity 35%.

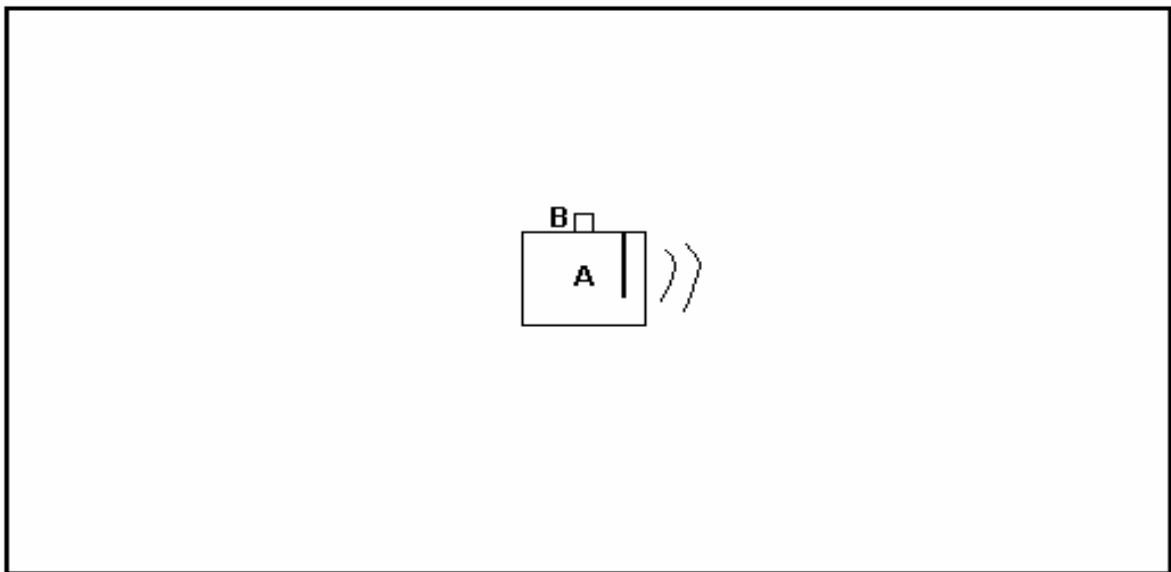
**Tested Configuration /Setup: [2.1033(b8)]**

**Support Equipment & Cabling**

Setup Diagram Legend	Description	Model	Serial No. / Part No.	EMC Consideration
A	[EUT] Reply IQ Keypad Transceiver	[Fleetwood Group] IQK1000-9SS	Preproduction #18	FCC ID: FBRIQK1000-9SS
B	Reply IQ Feature Module	[Fleetwood Group] -	Eng unit	Plugged into front of unit

**Setup Diagram**

Note: Setup photographs are located in Attached Electronic File, Exhibit E.



setup\_1a1a

**BASIC EUT SETUP**  
 (Legend designation is above)

## Summary of Results:

1. This test series evaluated the Equipment Under Test to FCC Part 15, SubPart C.
2. The system tested is compliant to the requirement of CFR 47, FCC Part 15, SubPart C for operation in the 902-928MHz frequency band, ( Part 15.247 ).
3. The equipment under test was received on February 10, 2003 and this test series commenced on February 10, 2003.
4. The line conducted emission testing does not apply to this product. The device is powered from three AA 1.5 volt batteries.
5. The frequencies selected for final evaluation include 902.5MHz, 915MHz, and 927.5MHz. This is in accordance with 47 CFR 15.31(m).
6. 20dB Bandwidth was greatest while observing 915MHz. The 20dB bandwidth measured to be 395KHz.
7. Measurements at the band edge showed the levels to be greater than 29dB below the carrier level. This is greater than the required 20dBc.
8. The field strength level of the fundamental was measured for 902.5MHz, 915MHz, and 927.5MHz. The evaluation showed the emission nearest the limit occurred while operating at 927.5MHz. The EUT was positioned on the 'flat' and the receive antenna oriented in the horizontal polarization. This signal was measured with a Peak detection and the calculated EIRP was determined to be 10.9dB below the peak power limit of 250mWatt.
9. The evaluation of the field strength levels of the transmitter harmonics showed the emission nearest the limit occurred while operating at 927.5MHz. The EUT was configured in the 'end' position, and the receive antenna oriented in the horizontal polarization. This signal, at 2.782GHz, was measured to be 15.0dB below the average limit of 54dBuV/m (500uV/m).
10. The field strength level of the Local Oscillator was measured for 902.5MHz, 915MHz, and 927.5MHz. The evaluation showed the emission nearest the limit occurred while operating at 927.5MHz. The EUT was positioned on the 'end' and the receive antenna oriented in the horizontal polarization. This signal was measured to be 10.5dB below the quasi-peak limit of 46dBuV/m (200uV/m).
11. The evaluation of the field strength levels of the Local Oscillator harmonics showed the measurable emission nearest the limit occurred while operating at 927.5MHz. The EUT was configured in the 'flat' position, and the receive antenna oriented in the vertical polarization. This signal, at 1.855GHz, was measured to be 23.3dB below the average limit of 54dBuV/m (500uV/m). All other emissions were within the background RF noise of the system.

### Changes made to achieve compliance

1. None.

**Standards Applied to Test: [2.1033(b6)]**

ANSI C63.4 - 1992, Appendix I

CFR47 FCC Part 2, Part 15, SubPart C, 15.247 Intentional Radiator; SubPart B, Digital Device

AHD test procedures TP0101-01, TP0102-01

**Test Methodology: [2.1033(b6)]**

The setup pictures in this report indicate the configuration of testing for this product.

The product was evaluated for emissions in both transmit and a receive modes. The transmitted power output is set in firmware and the user does not have access to this location. The receiver uses a 0 Hz IF. The local oscillator is at the same frequency as the incoming transmitted signal.

Most of the evaluations in transmit mode were performed with the frequency hopping function disabled. In this mode the EUT was setup up to transmit continuously, with an FSK modulation, at a single frequency (either 902.5MHz, 915MHz, or 927.5MHz). The measurements of the fundamental and its harmonics were recorded with Peak detection. The measurements of the fundamental frequencies were compared to the Peak power limit of section 15.247. The measurements of the fundamental harmonics, greater than 1GHz, were adjusted by the duty cycle of EUT 'hopping' on time per 100mSec and compared to the Average limits of Section 15.35.

In receive mode evaluation, the EUT was setup to receive at a single frequency; (either 902.52MHz, 915MHz, or 927.5MHz). In initial tests, an external RF source sent information to the receiver. Because of the 0-Hz IF, spurious measurements could only be made with the external RF source deactivated. Final measurements of receiver spurious were made without an external RF source.

The feature module was installed during the testing to terminate this feature port.

The unit can be placed on a battery charger. However, the unit can not function when this charging connection is made. No tests were made with the unit installed onto a charger.

The system was placed at the center of the table 80cm above the ground plane pursuant to ANSI C63.4 for stand-alone equipment.

Line conducted emission testing was not performed on this product. The product is powered from three AA 1.5Volt batteries only. The batteries were replaced during the course of testing to maintain battery 'freshness'.





**FORMULAS AND SAMPLE CALCULATIONS:**

THE HP8546A EMI Receiver has stored in memory the antenna and coax correction factors used in this test. The resultant Field Strength (FS) in dBuV/m presented by the HP8546A is the summation in decibels (dB) of the Received Level (RF), the Antenna Correction Factor (AF), and the Cable Loss Factor (CF).

Formula 1: Field Strength                       $FS(\text{dBuV/m}) = RF(\text{dBuV}) + AF(\text{dB/m}) + CF(\text{dB})$

With the EUT transmitting the resultant Field Strength measurement is recorded using the peak hold detector of the HP8546A.

Formula 2: Effective Radiated Power                       $PG = \frac{(E*d)^2}{30}$   
 $E = 10^{(FS(\text{dBuV/m})/20)} / 1000000$   
 $d = 3 \text{ meter}$

This recorded level is further corrected, by calculation, using a duty cycle correction factor. The duty cycle factor is determined by:

Formula 3:                       $DC \text{ factor (dB)} = 20 * \text{LOG}(\text{dwell time} / 100\text{mSec}).$

When the dwell time is determined to be less than 10mSec, the duty cycle factor to apply is determined to be 20dB.

$$\text{duty cycle factor(dB)} = 20 * \text{Log}(0.1) = -20.0 \text{ dB}$$

Where it was necessary to move the EUT to 1 meter distance to take measurements a 'dB' factor which adjusts for this distance variance is used before comparing the emission level to the FCC limits. This factor is determined by the following formula.

Formula 4:                       $\text{Distance factor(dB)} = 20 * \text{Log}(3\text{meter}/1\text{meter}) = 20 * \text{Log}(3) = 9.54\text{dB}.$

## Test Data [2.1033(b6)]

### Antenna Characteristics [15.203, 15.204]

The antenna is an “inverted F” foil pattern on the main PCB. No other antenna can be connected to the device.

### Modulation Characteristics

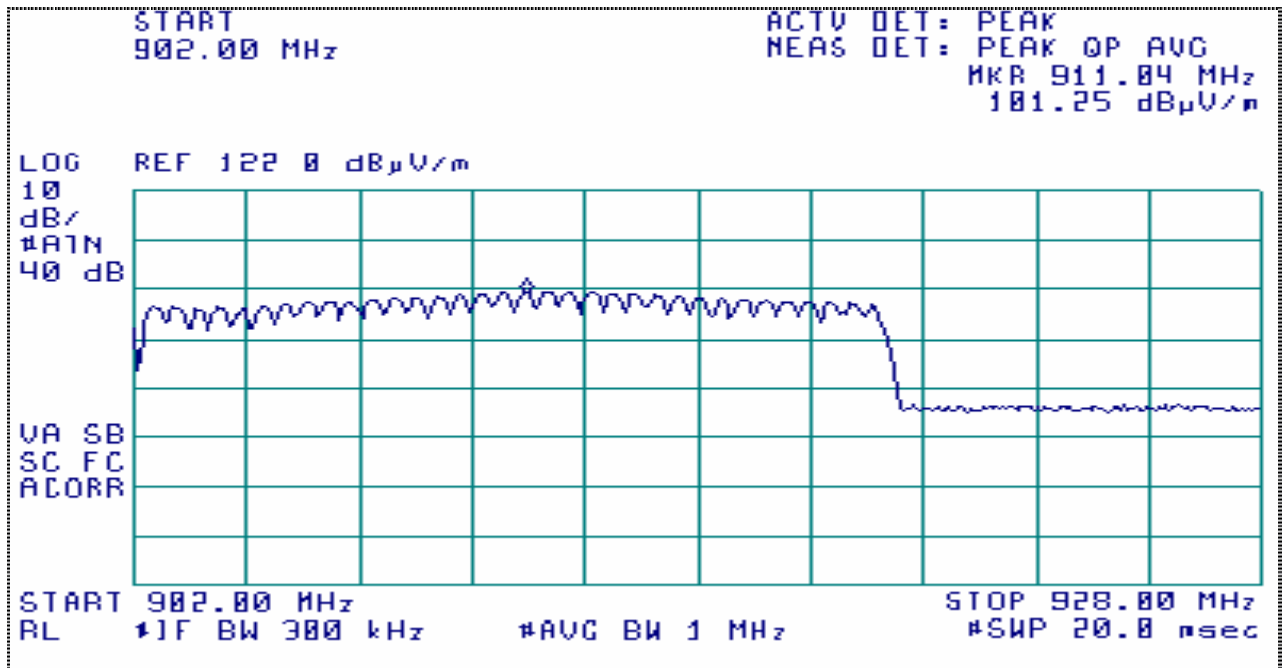
The transmitter is FSK modulated.

Modulation. F1 represents the bit “1”, F2 represents the bit “0”. F1 and F2 are separated by 75KHz. Data rate is 38.4KB/sec

### Frequency Hopping Characteristics

#### Number of Hopping Frequencies Separation [15.247a1i]

Fifty one (51) frequencies from 902.5MHz through 927.5MHz are available for the keypad to utilize. The keypad selects 34 of the 51 frequencies as a set of hopping frequencies. The unit’s operational channel (channel 1-15 selected by the user) determines a home base frequency. The home base frequency is only used to receive home base transmissions from the associated base unit; not as one of the 34 hopping frequencies on which to transmit. Refer to Exhibit B for a detailed operational description.



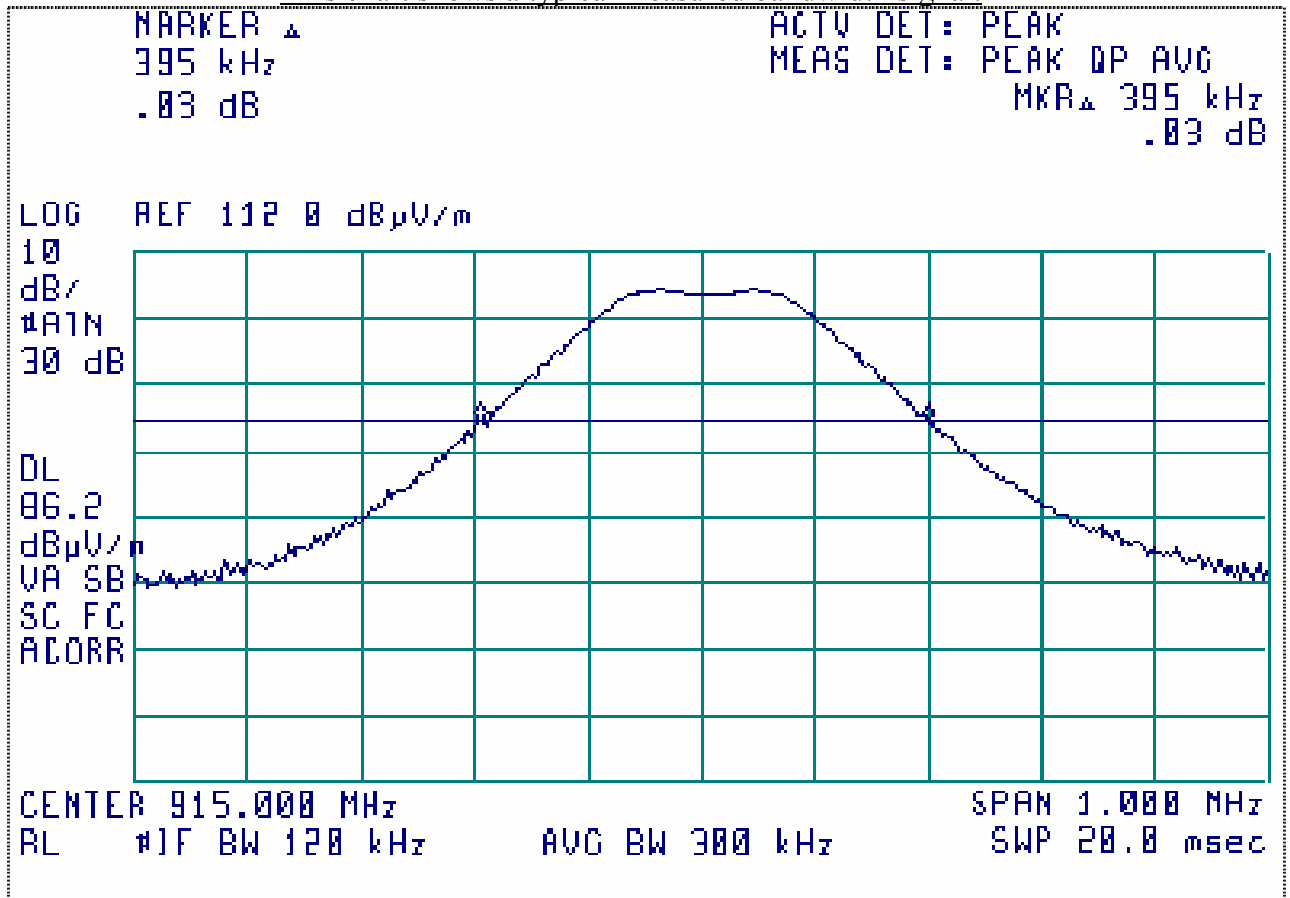
Plot scan of the FHSS profile. Thirty-four transmitted frequencies can be discerned. In this display the lowest frequency is 902.5MHz and the highest frequency is 919.0MHz.

**Carrier Frequency 20dB bandwidth [15.247a1i]**

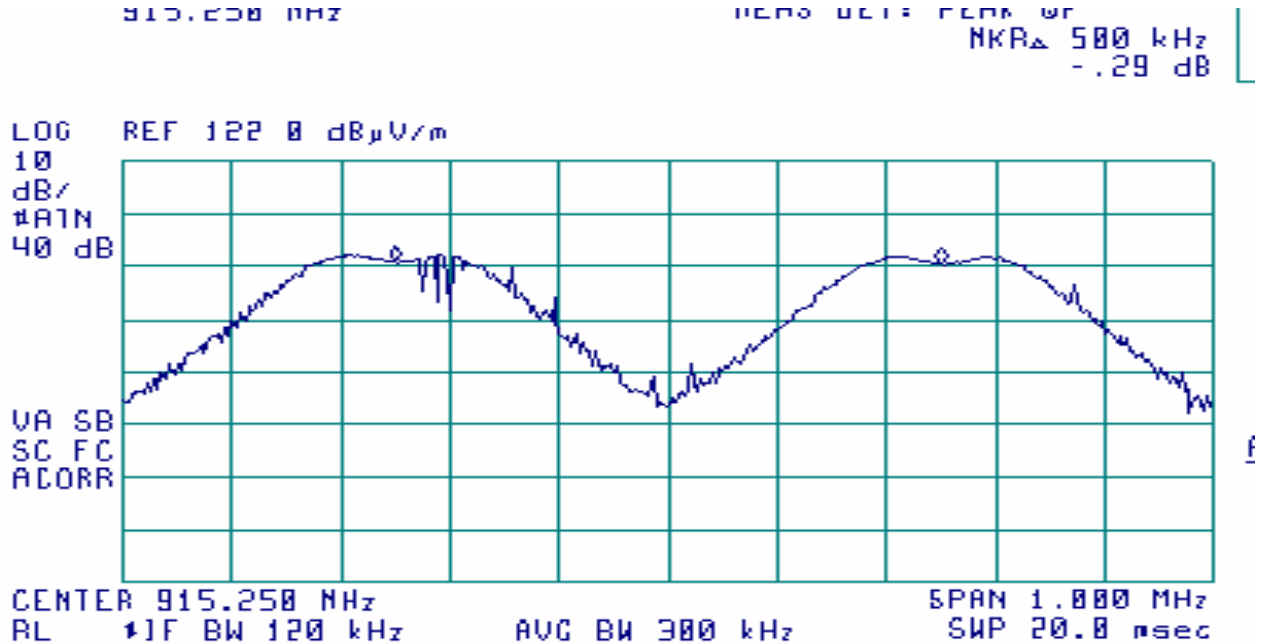
The 20dB bandwidth was measured with the unit hopping function disabled and the transmission modulated at 50% duty cycle.

Fundamental (MHz)	Duty Cycle	Measured 20dB Bandwidth	LIMIT 15.247(a1i)
902.5	50%	390 KHz	500 KHz
915	50%	395 KHz	500 KHz
927.5	50%	375 KHz	500 KHz

This chart shows a typical measured bandwidth signal.

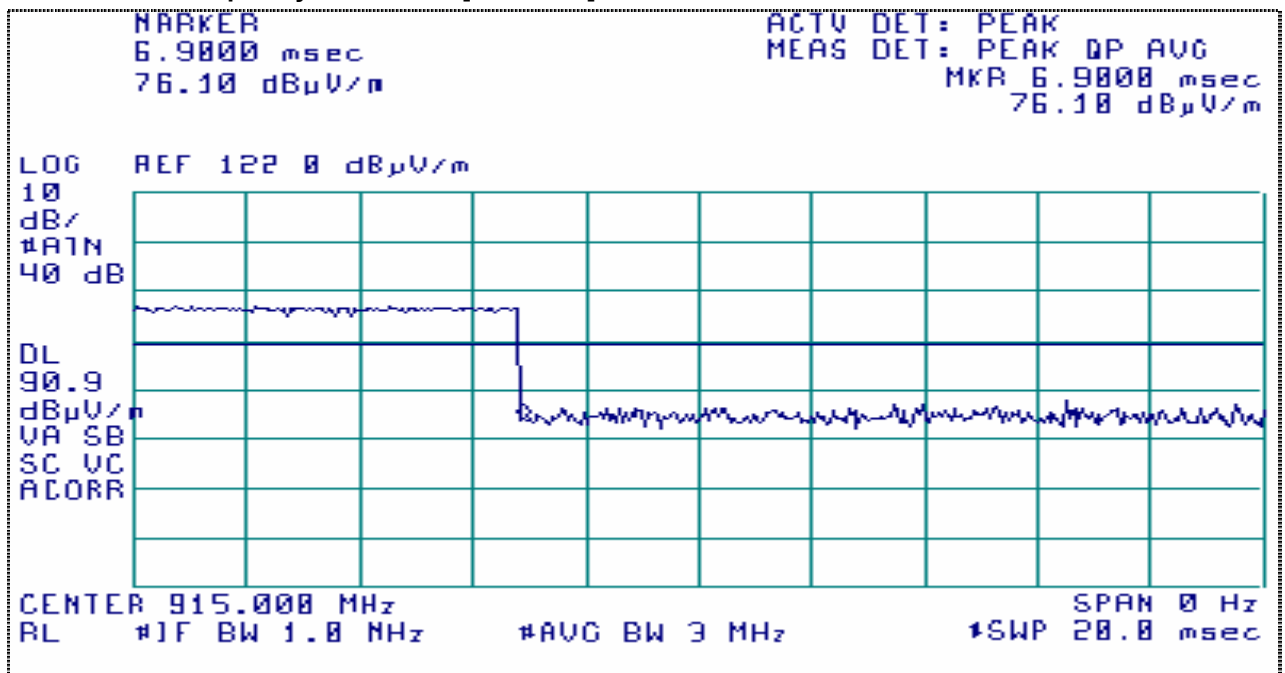


**Carrier Frequency Separation [15.247a1]**



Each Hopping channel is separated by 500KHz. This is greater than the minimum requirement of 25KHz or 20dB bandwidth (395KHz). Refer to Exhibit B ‘operational description’ for the list of frequencies used.

**Carrier Frequency Dwell Time [15.247a1i]**

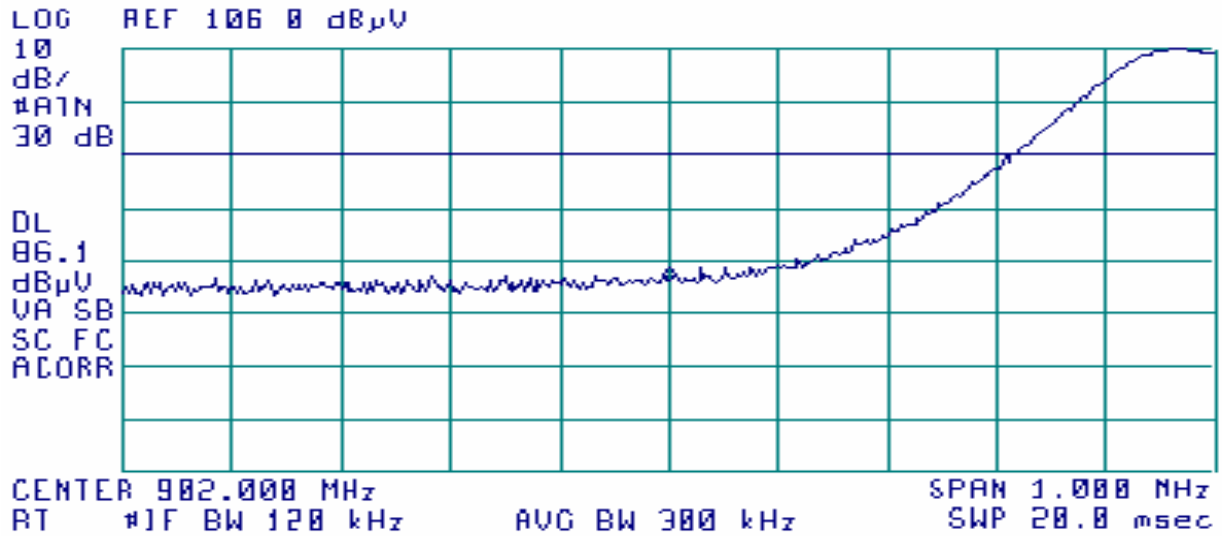


The Dwell Time of the hopping frequency was measured to be approximately 6.90mSec. The unit firmware allows the dwell time to be 8.5mSec. Refer to Exhibit B ‘operational description’ for a table showing dwell times of the system components.

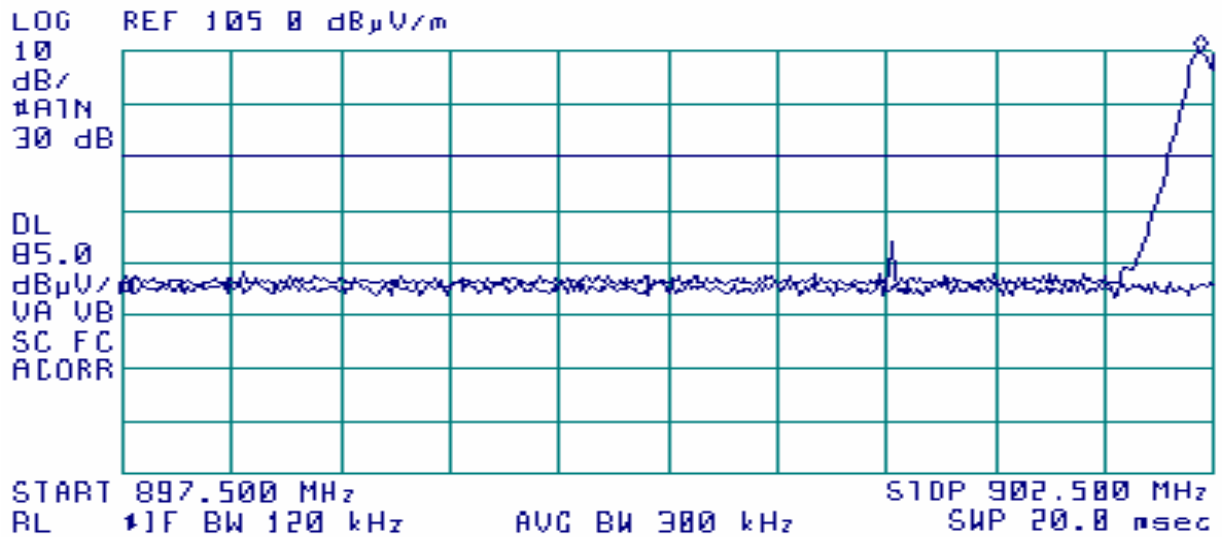
**Band Edges [15.247(c)]**

The emissions outside the 902-928MHz band are to be either 20dB below the level of the fundamental or the limits of section 15.209.

902MHz Band Edge. EUT transmitting at lowest frequency of 902.5MHz.  
 Hopping Disabled



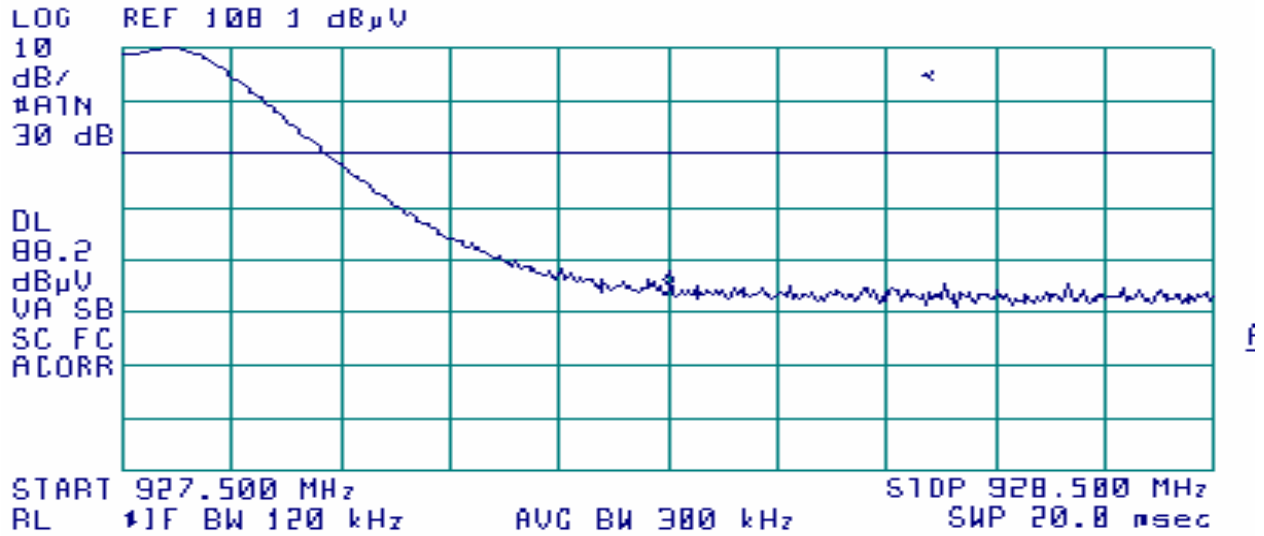
Hopping Enabled



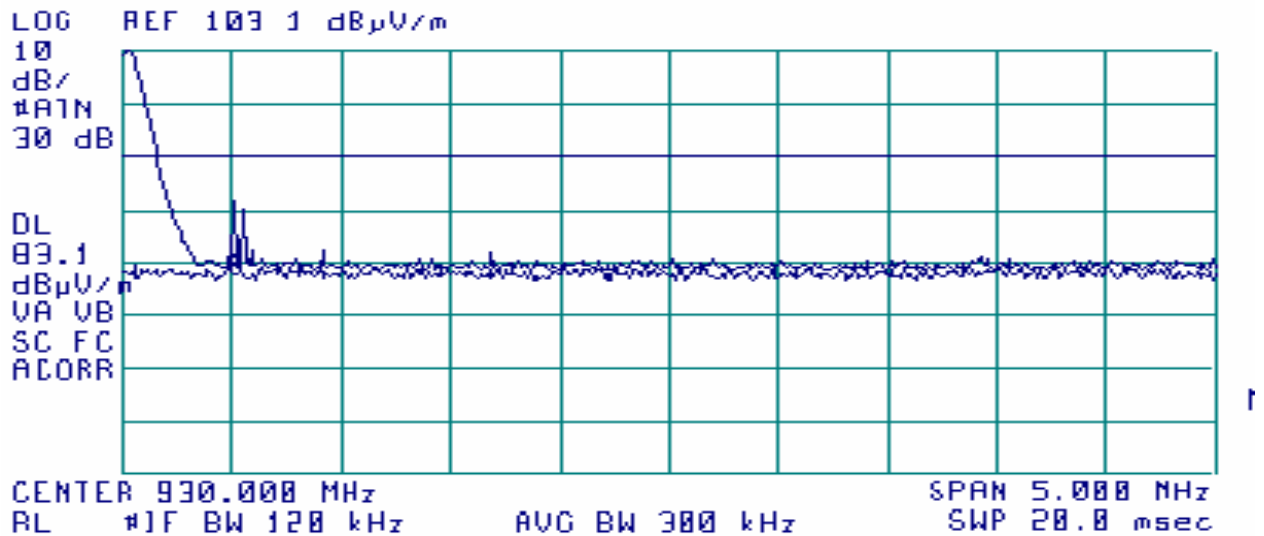
Fundamental (MHz)	Delta dBc without hopping	Delta dBc with hopping	dBc LIMIT 15.247c	
902.5	-42dB	-36 dB	-20 dB	Pass

928MHz Band Edge. EUT transmitting at highest frequency of 927.5MHz.

Hopping Disabled



Hopping Enabled



Fundamental (MHz)	Delta dBc without hopping	Delta dBc with hopping	dBc LIMIT 15.247c	
902.5	-46dB	-29 dB	-20 dB	Pass

**Radiated Field Strength Measurements: [15.209, 15.247(b,c)]****Field Strength Measurements of Fundamental & LO: [15.247(b)]**

Direct Connect Measurements were not conducted on the keypad. Measurements were made only at the 3meter OATS and the measured field strength was used to calculate EIRP of the unit. Formulas are listed on page 10.

**MEASUREMENT PROCEDURE:**

1. The EUT was trained to one of the three test frequencies.
2. The EUT was setup to one of the three orthogonal positions.
3. Steps 1-2 were repeated to cover all positions, and frequencies.

**Transmit Mode. Fundamental**

Frequency MHz	Corrected PEAK Measurement dBuV/m	Included Cable+Antenna Factors dB+dB/m	Turntable Azimuth deg	Antenna Height Mtr	Calculated EIRP	FCC Limit 15.247b mWatt	<b>Margin</b>  <b>dB</b>	EUT position	Ant Pol.
902.50	107.5	26.19	180	1.0	16.9mW	250	<b>-11.7</b>	flat	H
915.05	108.1	26.30	180	1.0	19.4mW	250	<b>-11.1</b>	flat	H
927.48	108.3	26.42	180	1.0	20.3mW	250	<b>-10.9</b>	flat	H

**Receive Mode. Local Oscillator**

Frequency MHz	Corrected Quasi-Peak Measurement dBuV/m	Included Cable+Antenna Factors dB+dB/m	Turntable Azimuth deg	Antenna Height Mtr	FCC Limit 15.209 Quasi-Peak dBuV/m	<b>Margin</b>  <b>dB</b>	EUT position	Ant Pol.
902.50	34.16	26.19	200	1.0	46.00	<b>-11.84</b>	end	H
915.05	33.77	26.30	100	1.0	46.00	<b>-12.23</b>	side	H
927.48	35.52	26.42	180	1.0	46.00	<b>-10.48</b>	end	H

**Field Strength Measurements Harmonics of Fundamental & LO: [15.247(c)]**

Measurements were made only at the 3meter OATS and the measured field strength was used to calculate EIRP of the unit. Formulas are listed on page 10.

**MEASUREMENT PROCEDURE:**

1. The EUT was trained to one of the three test frequencies.
2. The EUT was setup to one of the three orthogonal positions.
3. Steps 1-2 were repeated to cover all positions, and frequencies.

**DUTY CYCLE:** The dwell time is a maximum of 8.5mSec in a 916mSec period. The duty cycle, in a 100mSec period, is less than 10%. The duty cycle factor of -20dB [20Log(10/100)] is used for the averaging calculations of emission levels above 1000MHz.

Transmit Mode. Fundamental harmonics

Freq MHz	Corrected average Measurement dBuV/m	10% Duty Cycle factor dB	Calculated Level For Duty Cycle dBuV/m	Turntable Azimuth deg	Antenna Height Mtr	FCC Avg Limit 15.205 or – 20dBc dBuV/m	Margin dB	EUT position	Ant Pol.	Included Cable+Antenna Factors dB+dB/m
<b>902.50</b>										
1805	65.2	20	45.2	0	1.0	87.5#	<b>-42.3</b>	flat	V	31.30
2707.5	49.8	20	29.8	270	1.7	54.00	<b>-24.2</b>	end	H	35.40
3610	47.6	20	27.6	300	1.9	54.00	<b>-26.4</b>	side	H	37.93
4512.5	47.7	20	27.7	270	1.4	54.00	<b>-26.3</b>	end-	H	38.42
5415	39**	20	19	-	-	54.00	<b>&gt;-35</b>	-	-	41.64
<b>915.00</b>										
1830	65.1	20	45.1	0	1.0	88.1#	<b>-43.0</b>	flat	V	31.39
2745	46.2	20	26.2	330	1.0	54.00	<b>-27.8</b>	flat	V	35.62
3660	48.7	20	28.7	280	1.7	54.00	<b>-25.3</b>	end	H	37.91
4575	46.2	20	26.2	280	1.5	54.00	<b>-27.8</b>	side	H	38.59
5490	39**	20	19	-	-	88.1#	<b>&gt;-69</b>	-	-	41.97
<b>927.50</b>										
1855	68.6	20	48.6	10	1.0	88.3#	<b>-39.7</b>	flat	V	31.48
2782.5	59.0	20	39.0	190	1.7	54.00	<b>-15.0</b>	end	H	35.84
3710	55.1	20	35.1	80	1.1	54.00	<b>-18.9</b>	end	V	37.90
4637.5	51.3	20	31.3	90	1.0	54.00	<b>-22.7</b>	end	V	38.77
5565	52.7	20	32.7	90	1.0	88.3#	<b>-55.6</b>	end	V	42.07

# Limits determined by 20dB below the measured fundamental level.

\*\*These levels are at the noise floor of the measurement systems.



## Transmit Mode. Fundamental harmonics

The following transmitter harmonic measurements were taken at the UM Radiation Lab facility. The distance between the EUT and Horn antenna is 1 meter.

The term in the column “calculated average level” is determined by  
SA Peak Measurement + Ant Factor – Amp Factor – Distance Factor – Duty Cycle

Freq MHz	S.A. PEAK Measurement dBuV/m	Antenna Correction Factor dB/m	RF Amp Factor dB	1 meter Distance factor dB	10% Duty Cycle factor dB	Calculated Average Level dBuV/m	FCC Avg Limit dBuV/m	Margin dB
902.50								
6317.5	56.0	24.1	38.0	9.5	20	12.6	87.5#	<b>-74.9</b>
7220	59.0	24.9	36.4	9.5	20	18.0	87.5#	<b>-69.5</b>
8122.5	56.8	27.0	36.1	9.5	20	18.2	54	<b>-35.8</b>
9025	54.8	27.4	36.9	9.5	20	15.8	54	<b>-38.2</b>
915.00								
6405	58.4	24.2	37.6	9.5	20	15.5	88.1#	<b>-72.6</b>
7320	60.4	25.0	36.3	9.5	20	19.6	54	<b>-34.4</b>
8235	54.0	27.1	36.0	9.5	20	15.6	54	<b>-38.4</b>
9150	53.0	27.5	36.9	9.5	20	14.1	54	<b>-39.9</b>
927.50								
6492.5	58.0	24.3	37.5	9.5	20	15.3	88.3#	<b>-73.0</b>
7420	58.0	25.1	36.1	9.5	20	17.5	54	<b>-36.5</b>
8347.5	51.0	27.2	36.1	9.5	20	12.6	54	<b>-41.4</b>
9275	51.0	27.6	37.0	9.5	20	12.1	88.3#	<b>-76.2</b>

\*\*These levels are at the noise floor of the measurement systems.

## Receive Mode. Local Oscillator harmonics

Frequency MHz	Corrected Average Measurement dBuV/m	Turntable Azimuth deg	Antenna Height Mtr	FCC Limit Average dBuV/m	Margin dB	EUT position	Ant Pol.	Included Cable+Antenna Factors dB+dB/m
902.5								
1804.94	29.4**	-	-	54	>-24.6	-	-	31.30
2707.80	32.3**	-	-	54	>-21.7	-	-	35.40
3610.73	34.4**	-	-	54	>-19.6	-	-	37.93
4511.88	35.2**	-	-	54	>-18.8	-	-	38.42
5415.16	39.3**	-	-	54	>-14.7	-	-	41.64
915.0								
1830.17	27.9	0	1.0	54	-26.1	flat	V	31.39
2744.98	32.0**	-	-	54	>-22.0	-	-	35.62
3660.38	35.0**	-	-	54	>-19.0	-	-	37.91
4574.49	35.0**	-	-	54	>-19.0	-	-	38.59
5489.96	40.2**	-	-	54	>-13.8	-	-	41.97
927.5								
1854.98	30.7	0	1.0	54	-23.3	flat	V	33.60
2782.28	32.6**	-	-	54	>-21.4	-	-	35.84
3710.16	33.9**	-	-	54	>-20.1	-	-	37.90
4637.65	35.2**	-	-	54	>-18.8	-	-	38.77
5565.32	39.9**	-	-	54	>-14.1	-	-	42.07

\*\*These levels are at the noise floor of the measurement systems.

## Receive Mode. Local Oscillator harmonics

The following LO harmonic measurements were taken at the UM Radiation Lab facility  
The distance between the EUT and Horn antenna is 1 meter.

The term in the column “calculated PEAK level” is determined by  
SA Peak Measurement + Ant Factor – Amp Factor – Distance Factor.  
This peak level is compared to the FCC average limit.

Frequency MHz	S.A. PEAK Measurement dBuV/m	Antenna Correction Factor dB/m	RF Amp Factor dB	1 meter Distance factor dB	Calculated PEAK Level dBuV/m	FCC Avg Limit dBuV/m	Margin dB
902.5							
6317.5	45.5**	24.1	38.0	9.5	22.1**	54	>-31.9
7220	45.4**	24.9	36.4	9.5	24.4**	54	>-29.6
8122.5	48.8**	27.0	36.1	9.5	30.2**	54	>-23.8
9025	48.7**	27.4	36.9	9.5	29.7**	54	>-24.3
915.0							
6405	43.8**	24.2	37.6	9.5	20.9**	54	>-33.1
7320	45.7**	25.0	36.3	9.5	24.9**	54	>-29.1
8235	49.1**	27.1	36.0	9.5	30.7**	54	>-23.3
9150	48.8**	27.5	36.9	9.5	29.9**	54	>-24.1
927.5							
6492.5	44.3**	24.3	37.5	9.5	21.6**	54	>-32.4
7420	45.1**	25.1	36.1	9.5	24.6**	54	>-29.4
8347.5	47.9**	27.2	36.1	9.5	29.5**	54	>-24.5
9275	47.6**	27.6	37.0	9.5	28.7**	54	>-25.3

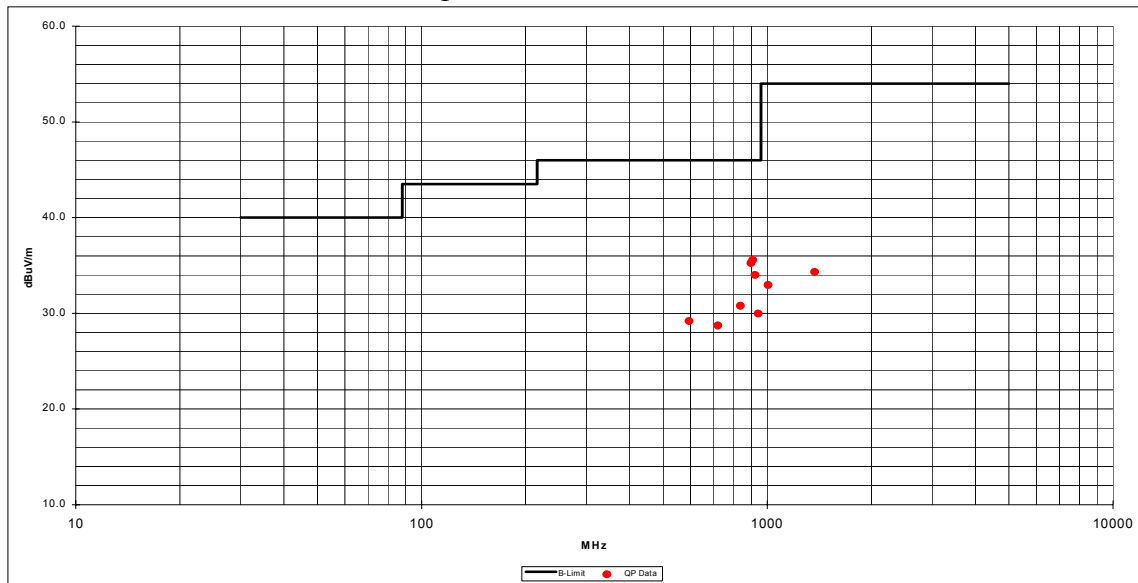
\*\*These levels are at the noise floor of the measurement systems.

**Other Spurious Emissions: [15.247c]**

A scan of the IQK1000-9SS was made in a shielded room to study the emission profile of the EUT. These scans indicate there are low level spurious emissions from the unit other than the fundamental and its associated harmonics. These suspect signals were measured at the 3-meter open area test site.

**Transmit Mode**

Graph of Quasi-Peak Measurements



Tabulated Quasi-Peak Measurements.

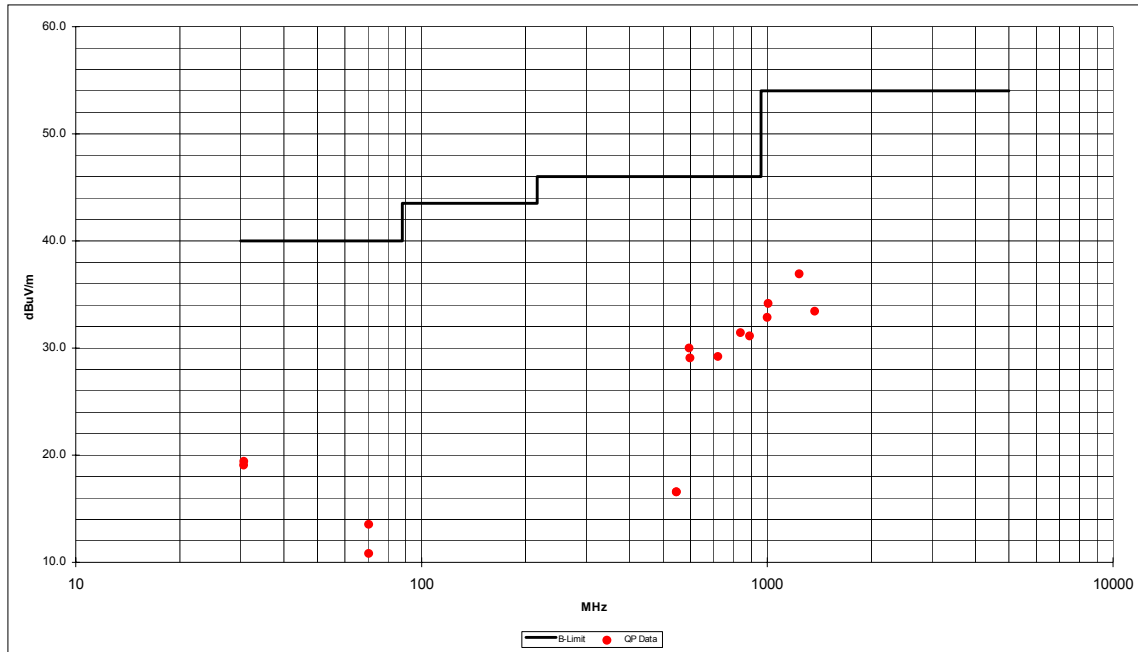
Frequency MHz	Corrected Quasi Peak Measurement dBuV/m	Included Cable+Antenna Factors dB+dB/m	Turntable Azimuth deg	Antenna Height Mtr	FCC Class B Limit dBuV/m	Margin dB
902.5MHZ	flat position	RX ant.Horizontal				
897.00	35.26	26.13	190	1.0	46.00	-10.74
907.91	35.57	26.24	180	1.0	46.00	-10.43
922.05	34.00	26.37	180	1.0	46.00	-12.00
941.46	29.98	26.54	180	1.0	46.00	-16.02
915MHZ	Side position	RX ant.Horizontal				
594.03	29.19	22.60	90	1.3	46.00	-16.81
719.96	28.74	24.27	100	1.1	46.00	-17.26
836.96	30.79	25.55	100	1.0	46.00	-15.21

The frequencies for measurements were determined by the suspect list generated from the shielded room prescan of 30MHz through 5GHz.

All other spurious emission are greater than 20dB below limits.

**Receive Mode**

Graph of Quasi-Peak Measurements



Tabulated Quasi-Peak Measurements.

Frequency MHz	Corrected Quasi Peak Measurement dBuV/m	Included Cable+Antenna Factors dB+dB/m	Turntable Azimuth deg	Antenna Height Mtr	FCC Class B Limit dBuV/m	Margin dB
902.5MHZ	Side position	RX ant.Horizontal				
597.51	29.07	22.67	80	1.3	46.00	-16.93
915MHZ	Side position	RX ant.Horizontal				
594.01	30.00	22.60	80	1.3	46.00	-16.00
720.02	29.20	24.27	100	1.2	46.00	-16.80
837.01	31.43	25.55	100	1.0	46.00	-14.57
1236.02	35.22**	29.35	90	1.0	54.00	-18.78
927.5MHZ	Side position	RX ant.Horizontal				
888.51	31.13	26.05	90	1.0	46.00	-14.87

The frequencies for measurements were determined by the suspect list generated from the shielded room prescan of 30MHz through 5GHz.

\*\*Measurement made with average detector and 1MHz IF bandwidth.

All other spurious emission are greater than 20dB below limits.