

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

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

Report #0500751KF
Issued 01/10/05



FREQUENCY HOPPING TRANSCEIVER
MODEL IQK1000-9SS-C

Prepared for:

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Last Test Date(s): April 8, 2004

Report prepared by:

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Data recorded by:

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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

IEC61000-4-5: Surge 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: ± 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 (No.90413) and Industry Canada (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	26-Aug-04	12 months
RF Receiver Section	HP-85462A	3625A00342	26-Aug-04	12 months
Solar LISN	8012-50-R-24-BNC	962137	24-Aug-04	12 months
Solar LISN	8012-50-R-24-BNC	962138	24-Aug-04	12 months
(LCI) Double shielded 50ohm Coax	RG58/U	920809	29-Nov-04	12 months
(3-M) LMR-400 Ultra Flex	LMR400	9812-11	25-Oct-04	6 months
(10-M) Amelco 50ohm Coax	RG213/U	9903-10ab	25-Oct-04	6 months
Double Ridged Horn	ONO91202-2	A00329	06-Jun-04*	physical
*inspection				

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		06-July-04	12 months
3ft LowLoss coax	RG142	-	with Avantek amp	
Spectrum Analyzer	HP 8593E	3412A01131	06-July-04	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%.

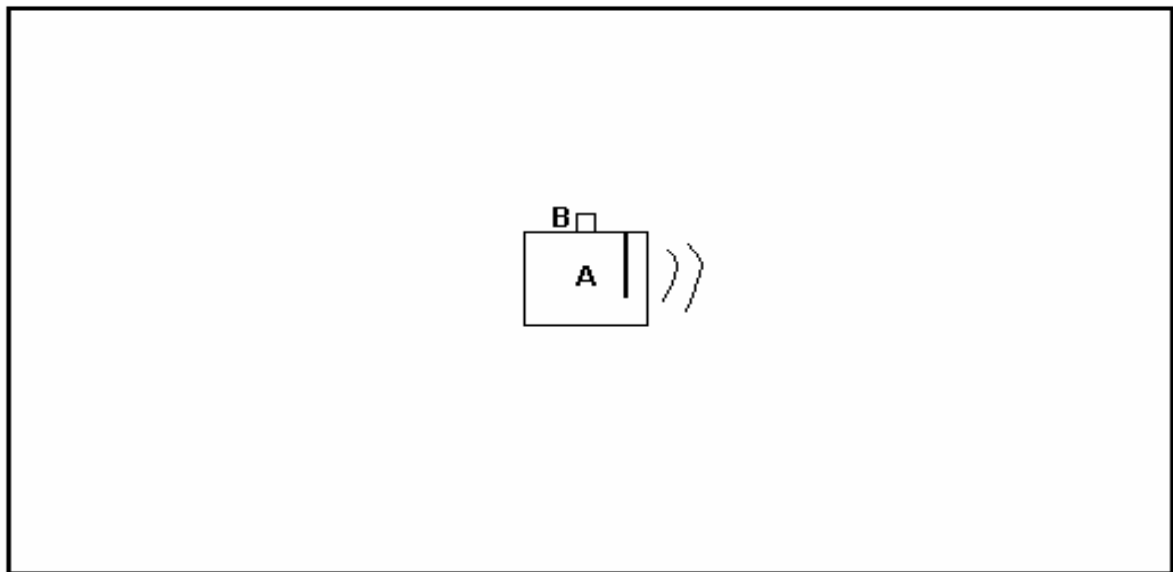
Tested Configuration /Setup: [2.1033(b8)]

Support Equipment & Cabling

Setup Diagram Legend	Description	Model	Serial No. / Part No.	EMC Consideration
A	[EUT] Reply IQ Keypad Transceiver	[Fleetwood Group] IQK1000-9SS-C	Preproduction #18	FCC ID: FBRIQK1000-9SC
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. Additional testing related to occupied bandwidth commenced on April 8, 2004.
4. The line conducted emission testing does not apply to this product. The device is powered from three AA 1.5 volt batteries.
5. Three frequencies were selected for final evaluation. One near the low band edge of 902MHz. One near the center of the 902 to 928MHz band. One near the high band edge of 928MHz. This is in accordance with 47 CFR 15.31(m). The product went through two test cycles. During the first test cycle (Feb-May2003) the three frequencies selected for final evaluation included 902.5MHz, 915MHz, and 927.5MHz. During the second test cycle (April2004) the three frequencies selected for final evaluation included 902.6MHz, 915MHz, and 927.4MHz. This report includes data from both test dates.
6. The Occupied Bandwidth was greatest using the 99% method, with approximately 1%-3% RBW, while observing 902.6MHz. The occupied bandwidth was determined to be 152.3KHz which is less than the limit of 500KHz.
7. The Band Edge measurements: Outside the lower band edge (902MHz) the level was observed to be 22.5dB below the in-band transmitter level. Outside the upper band edge (928MHz) the level was observed to be 28.8dB below the in-band transmitter level. The FCC limit (15.247c) is 20dB below the transmitter carrier level while hopping.
8. The field strength level of the fundamental was measured for 902.5MHz, 915MHz, and 927.5MHz at a distance of 3 meters. 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 16.7dB below the peak power limit of 1Watt.
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).

[continued next page]

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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

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 (near 902MHz, 915MHz, or 928MHz). The measurements of the fundamental were recorded with Peak detection and the results compared to the Peak power limit of section 15.247. The measurements of the fundamental harmonics, greater than 1GHz, were mathematically averaged over a 100mSec period.

In receive mode evaluation the EUT was setup to receive at a single frequency (near 902MHz, 915MHz, or 928MHz). In initial tests, an external RF source sent information to the receiver. Because of the 0-Hz IF, measurements could only be made with the external RF source deactivated. Final measurements 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'.

Radiated

The system was placed upon a 1 x 1.5 meter non-metallic table 80cm above the open field site ground plane in the prescribed setup per ANSI C63.4, Figure 9(c).

The table sits upon a remote controlled turntable. The receiving antenna, located at the appropriate standards distance of 3 or 10 meters from the table center, is also remote controlled.

The principle settings of the EMI Receiver for radiated testing include:

- IF Bandwidth: 120KHz for frequencies less than 1GHz.
1 MHz for frequencies greater than 1GHz.
- Detector Function: Peak Mode for transmitter fundamental and harmonics.
Quasi-Peak and Average for all other emissions
- Occupied Bandwidth settings:
 - RBW: 1% to 3% of emission width.
The RBW is adjusted during the evaluation of the emission width.
This product's emission bandwidth justified a 3KHz RBW.
 - VBW: 3 times the RBW

At frequencies up to 1000MHz a BiconiLog broadband antenna was used for measurements.

At frequencies above 1000MHz a double-ridge Horn broadband antenna was used for measurements.

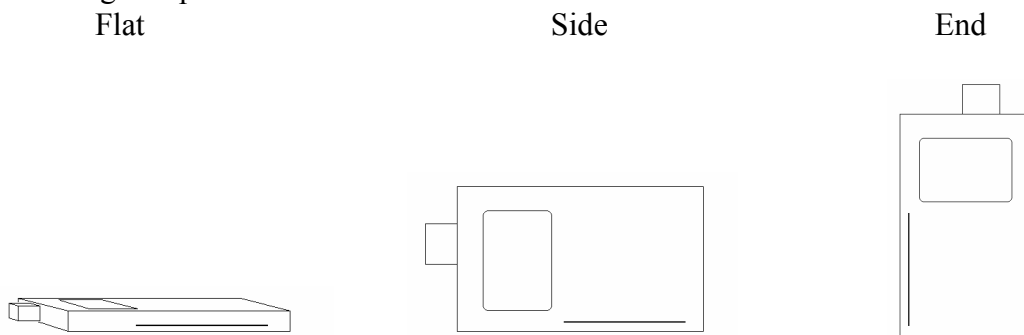
During the transmitter evaluation the EUT was transmitting continuously.

The turntable was rotated 360 degrees and the receiving antenna height varied from 1 to 4 meters to search out the highest emissions.

The final measurements were made at a low band frequency, a mid band frequency, and a high band frequency pursuant to the requirements of 47CFR 15.31(m). At each frequency the EUT was placed in three orthogonal positions (designated as flat, side, and end). Measurements were recorded with the receive antenna in vertical and horizontal positions.

The unit was evaluated up to the tenth harmonic of the transmit fundamental, up to the tenth harmonic of the receive local oscillator, and up to 2000MHz for other spurious signals.

The orthogonal positions of EUT are:



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 $FS(dBuV/m) = RF(dBuV) + AF(dB/m) + CF(dB)$

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

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

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

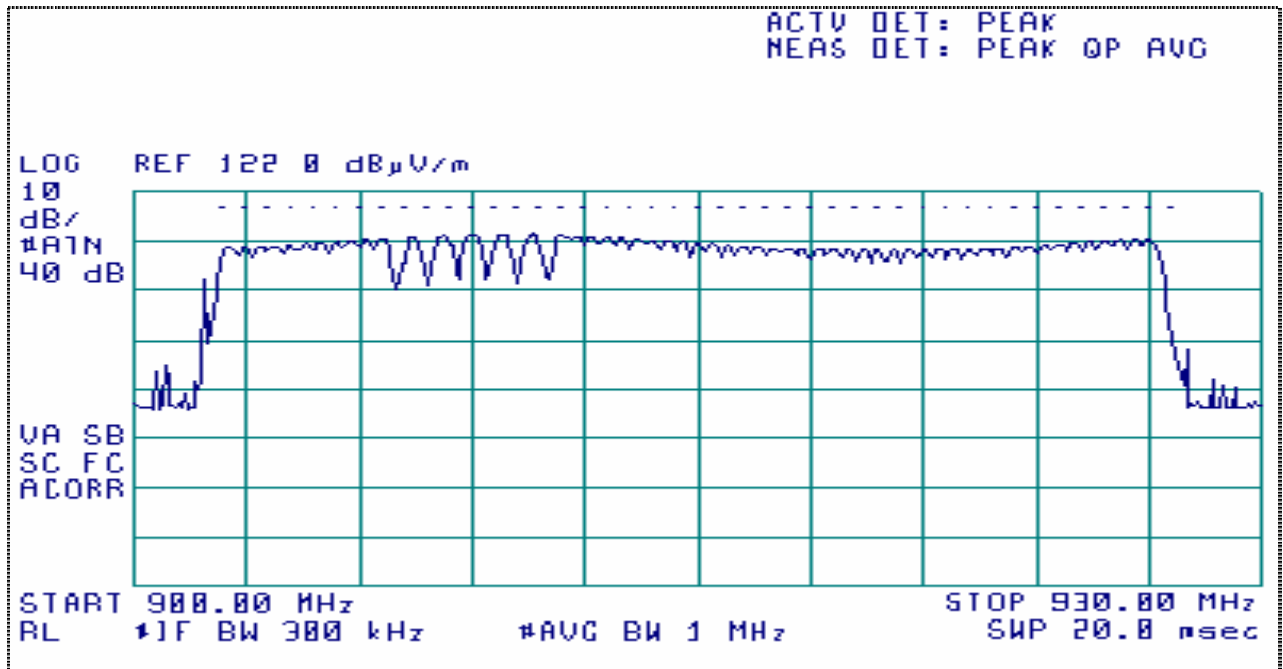
The transmitter is FSK modulated.

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]

Sixty three (63) frequencies from 902.6MHz through 927.4MHz are available for this keypad transceiver to utilize. The keypad will use 56 from the set of 63 frequencies as the set of hopping frequencies. A base transceiver to which the keypad is assigned will determine the set of frequencies used. Refer to Exhibit B for a detailed operational description.



Plot scan of the FHSS profile. Fifty six transmitted frequencies can be discerned. In this hopping sequence, the seven available frequencies not used include – 907.0, 907.8, 908.6, 909.4, 910.2, 911.0, and 927.4MHz.

Carrier Frequency 20dB bandwidth [15.247a1i]

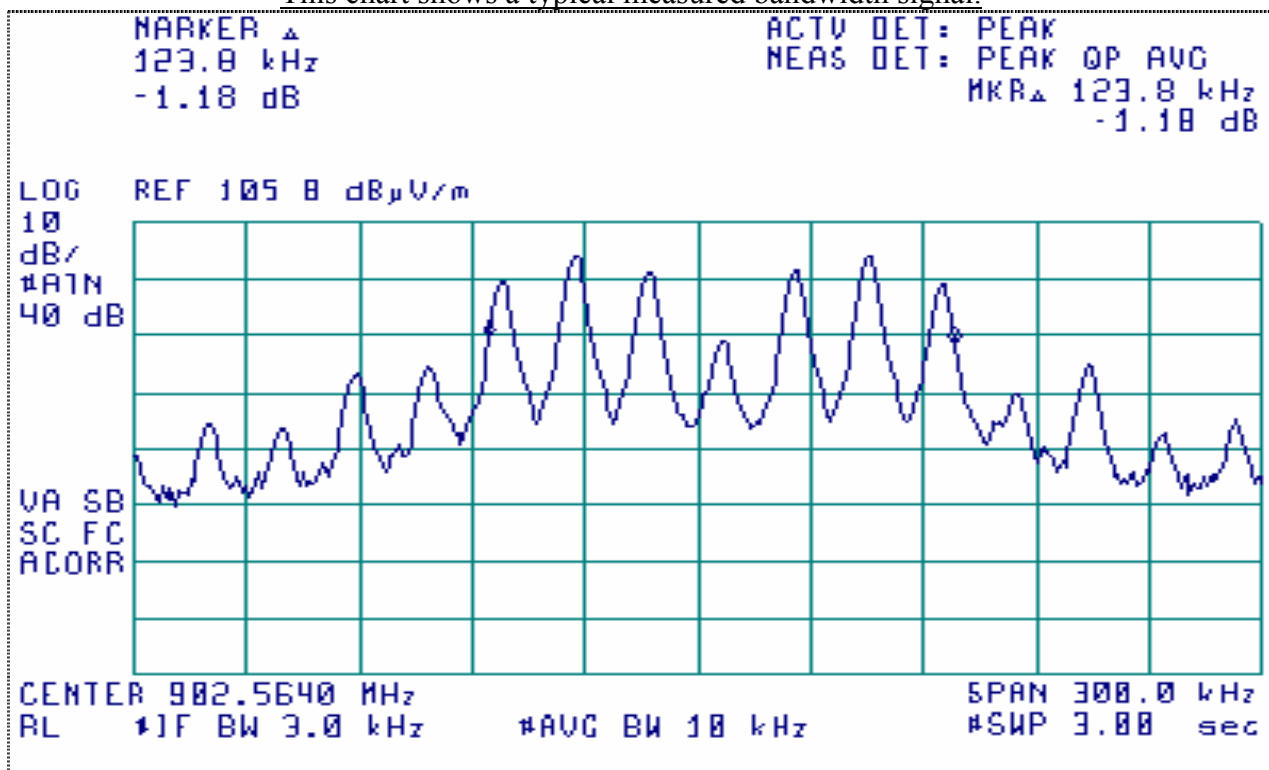
The occupied bandwidth was measured initially with the unit hopping function disabled. The transmitter is FSK modulated at its 50% duty cycle.

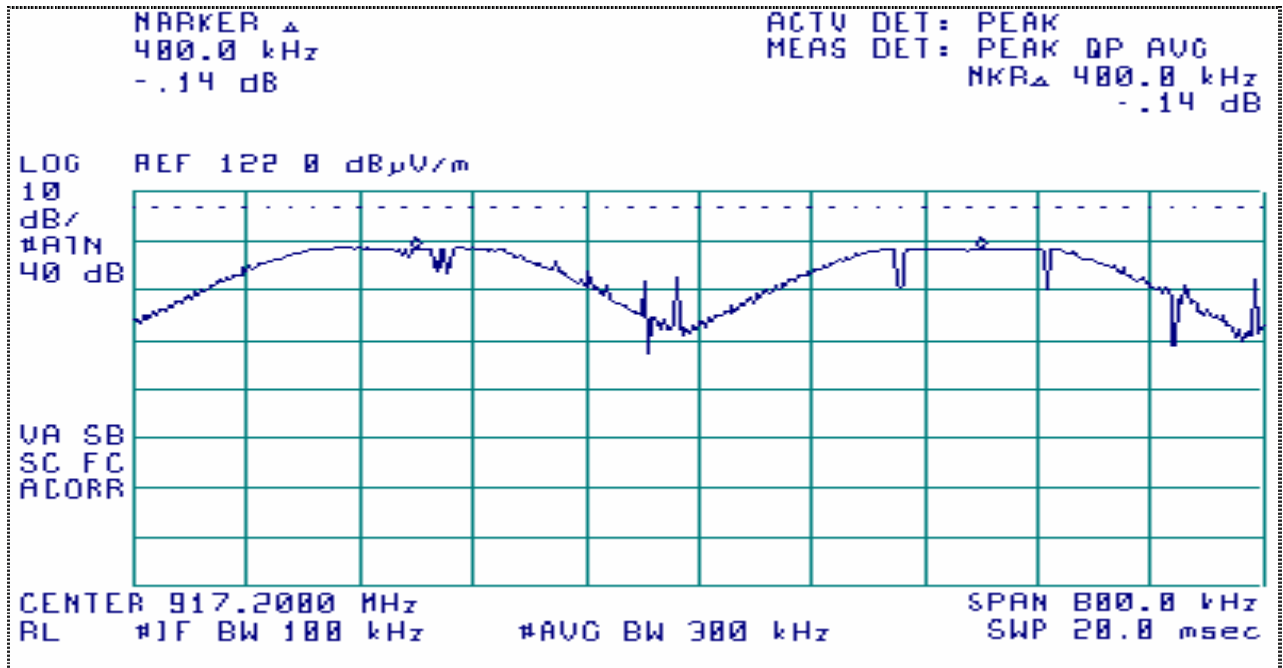
Two methods were used to determine occupied bandwidth. The measurement procedure of both methods, the 99% method and the 20dB method with the RBW of the measurement equipment is set at 1%-3% of viewed occupied bandwidth, are described in the paper "A Discussion on the Measurement of Occupied Bandwidth" authored by Brian Kasper.

The 99% method utilized a routine which had been programmed into the HP8546A EMI Receiver by the manufacturer.

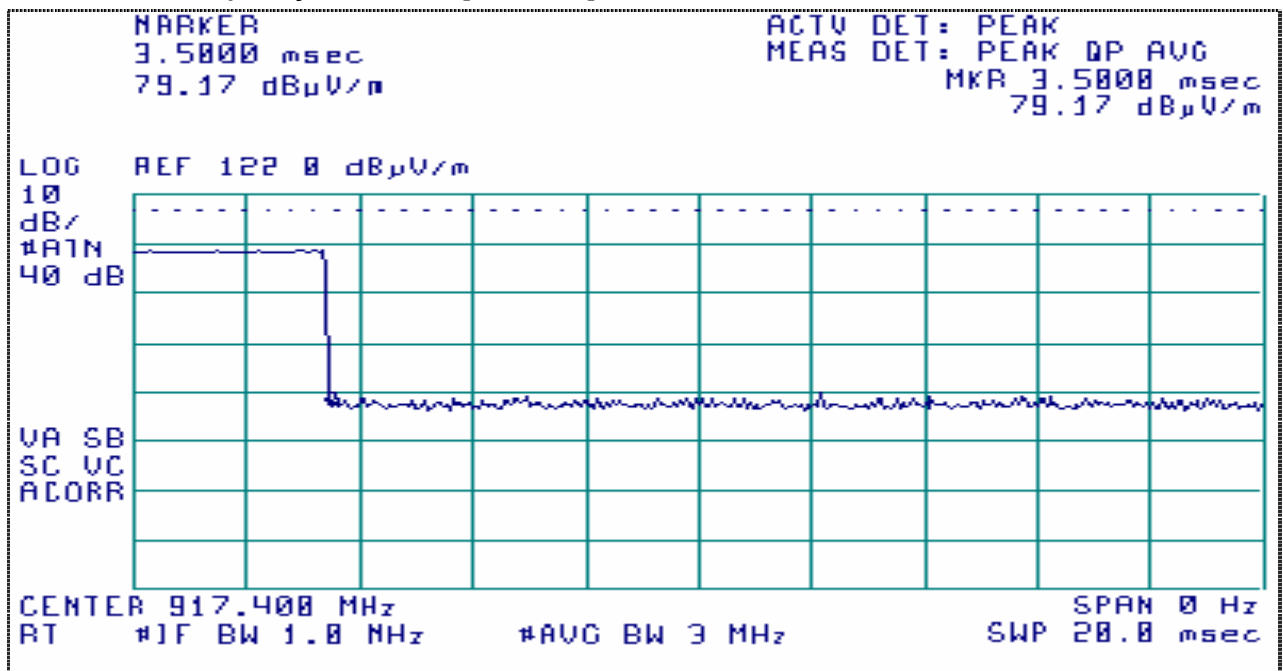
Fundamental (MHz)	TX Module 99% method	20dB method	LIMIT 15.247(a1i)
902.6	152.3KHz	123.8KHz	500 KHz
915	134.3KHz	123.8KHz	500 KHz
927.4	127.8KHz	124.5KHz	500 KHz

This chart shows a typical measured bandwidth signal.



Carrier Frequency Separation [15.247a1]

Each Hopping channel is separated by 400KHz. This is greater than the minimum requirement of 25KHz or 20dB bandwidth. Refer to Exhibit B 'operational description' for the list of frequencies available.

Carrier Frequency Dwell Time [15.247a1i]

The Dwell Time of the hopping frequency captured was measured to be approximately 3.5mSec. 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 902.6MHz.

Hopping Disabled

Measurement equipment RBW = 100KHz

LOG REF 105 7 dB μ V/m

10

dB/

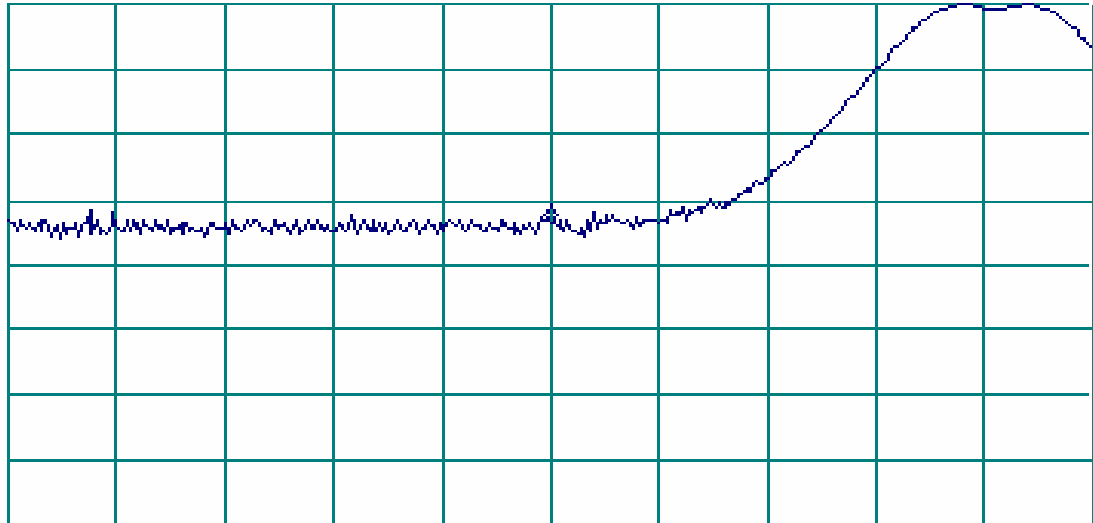
#A1N

40 dB

VA SB

SC FC

ACORR



CENTER 902.000 MHz

SPAN 1.400 MHz

RL #1F BW 100 kHz

#AUC BW 300 kHz

SWP 20.0 msec

Measurement equipment RBW = 3.0KHz

LOG REF 99 7 dB μ V/m

10

dB/

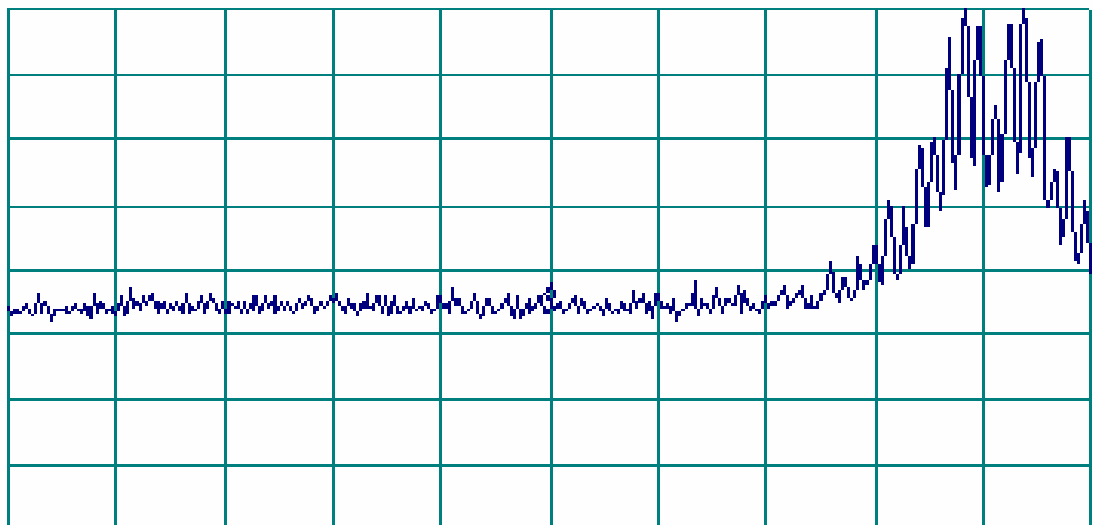
#A1N

40 dB

VA SB

SC FC

ACORR



CENTER 902.000 MHz

SPAN 1.400 MHz

RL #1F BW 3.0 kHz

#AUC BW 10 kHz

SWP 467 msec

Hopping Enabled

Measurement equipment RBW = 100KHz

LOG REF 122 0 dB μ V/m

10

dB/

1A1N

40 dB

DL

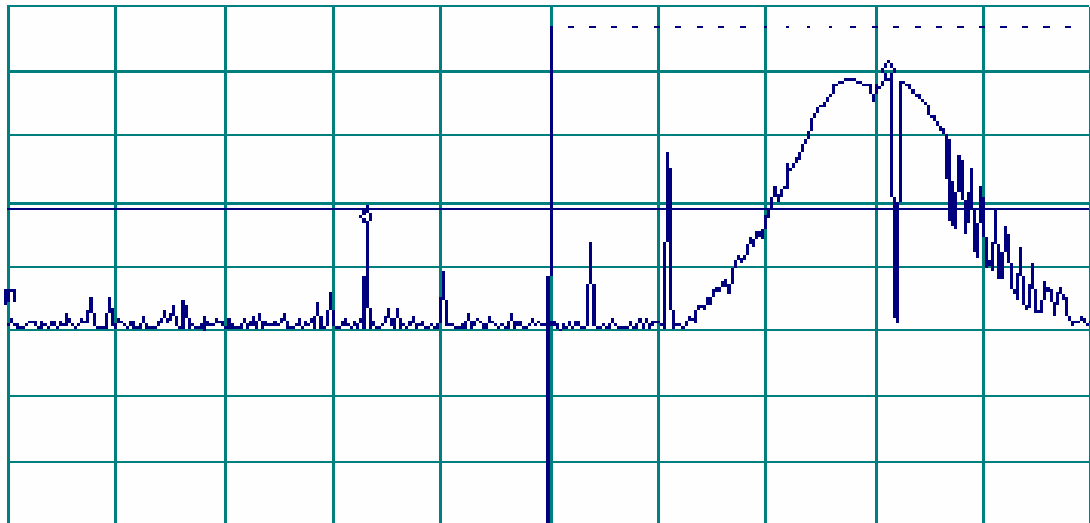
90.8

dB μ V/m

VA SB

SC FC

ACORR



START 901.000 MHz

STOP 903.000 MHz

RL 1F BW 100 kHz

#AUC BW 300 kHz

SWP 20.0 msec

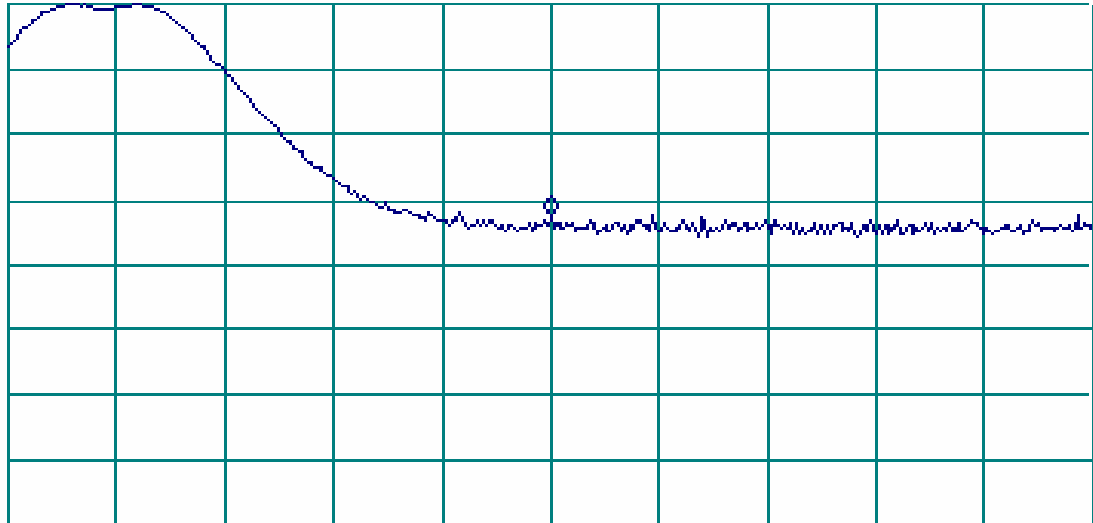
Measurement equipment RBW = 100KHz

Fundamental (MHz)	Delta dBc without hopping	Delta dBc with hopping	dBc LIMIT 15.247c	
902.6	-33.7dB	-22.5 dB	-20 dB	Pass

928MHz Band Edge. EUT transmitting at highest frequency of 927.4MHz.

Hopping Disabled

Measurement equipment RBW = 100KHz

LOG REF 107 2 dB μ V/m10
dB/
#A1N
40 dBMA SB
SC FC
ACORR

CENTER 928.000 MHz

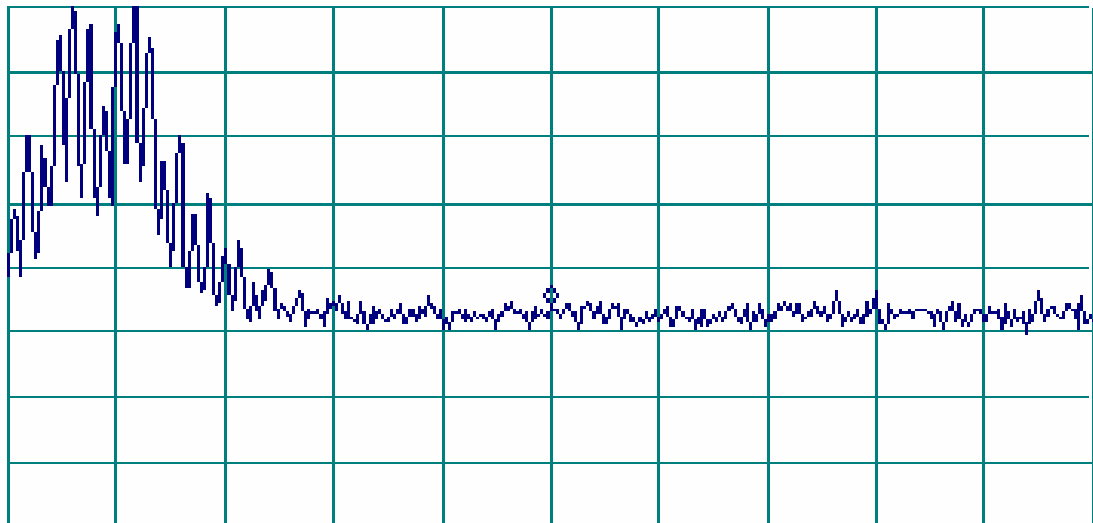
SPAN 1.400 MHz

RT #1F BW 100 kHz

#AUG BW 300 kHz

SWP 20.0 msec

Measurement equipment RBW = 3.0KHz

LOG REF 101 2 dB μ V/m10
dB/
#A1N
40 dBVA SB
SC FC
ACORR

CENTER 928.000 MHz

SPAN 1.400 MHz

RL #1F BW 3.0 kHz

#AUG BW 10 kHz

SWP 467 msec

Hopping Enabled

Measurement equipment RBW = 100KHz

LOG REF 110 dB μ V/m

10

dB/

1A1N

40 dB

DL

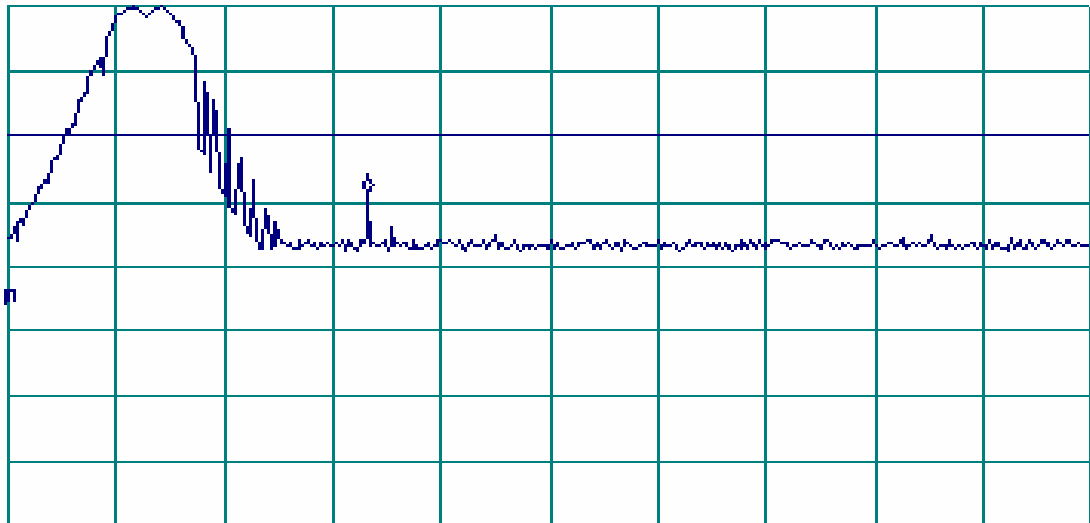
90.8

dB μ V/m

VA SB

SC FC

ACORR



START 927.000 MHz

STOP 930.000 MHz

RL 1F BW 100 kHz

#AUC BW 300 kHz

SWP 20.0 nsec

Measurement equipment RBW = 100KHz

Fundamental (MHz)	Delta dBc without hopping	Delta dBc with hopping	dBc LIMIT 15.247c	
927.4	-32.3dB	-28.8 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	Margin dB	EUT positio n	Ant Pol.
902.50	107.5	26.19	180	1.0	16.9mW	1000	17.5	flat	H
915.05	108.1	26.30	180	1.0	19.4mW	1000	16.9	flat	H
927.48	108.3	26.42	180	1.0	20.3mW	1000	16.7	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	Margin dB	EUT position	Ant Pol.
902.50	34.16	26.19	200	1.0	46.00	11.84	end	H
915.05	33.77	26.30	100	1.0	46.00	12.23	side	H
927.48	35.52	26.42	180	1.0	46.00	10.48	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
902.50										
1805	65.2	20	45.2	0	1.0	87.5#	42.3	flat	V	31.30
2707.5	49.8	20	29.8	270	1.7	54.00	24.2	end	H	35.40
3610	47.6	20	27.6	300	1.9	54.00	26.4	side	H	37.93
4512.5	47.7	20	27.7	270	1.4	54.00	26.3	end-	H	38.42
5415	39**	20	19	-	-	54.00	>35	-	-	41.64
915.00										
1830	65.1	20	45.1	0	1.0	88.1#	43.0	flat	V	31.39
2745	46.2	20	26.2	330	1.0	54.00	27.8	flat	V	35.62
3660	48.7	20	28.7	280	1.7	54.00	25.3	end	H	37.91
4575	46.2	20	26.2	280	1.5	54.00	27.8	side	H	38.59
5490	39**	20	19	-	-	88.1#	>69	-	-	41.97
927.50										
1855	68.6	20	48.6	10	1.0	88.3#	39.7	flat	V	31.48
2782.5	59.0	20	39.0	190	1.7	54.00	15.0	end	H	35.84
3710	55.1	20	35.1	80	1.1	54.00	18.9	end	V	37.90
4637.5	51.3	20	31.3	90	1.0	54.00	22.7	end	V	38.77
5565	52.7	20	32.7	90	1.0	88.3#	55.6	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 continued

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

$$\text{SA Peak Measurement} + \text{Ant Factor} - \text{Amp Factor} - \text{Distance Factor} - \text{Duty Cycle}$$

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#	74.9
7220	59.0	24.9	36.4	9.5	20	18.0	87.5#	69.5
8122.5	56.8	27.0	36.1	9.5	20	18.2	54	35.8
9025	54.8	27.4	36.9	9.5	20	15.8	54	38.2
915.00								
6405	58.4	24.2	37.6	9.5	20	15.5	88.1#	72.6
7320	60.4	25.0	36.3	9.5	20	19.6	54	34.4
8235	54.0	27.1	36.0	9.5	20	15.6	54	38.4
9150	53.0	27.5	36.9	9.5	20	14.1	54	39.9
927.50								
6492.5	58.0	24.3	37.5	9.5	20	15.3	88.3#	73.0
7420	58.0	25.1	36.1	9.5	20	17.5	54	36.5
8347.5	51.0	27.2	36.1	9.5	20	12.6	54	41.4
9275	51.0	27.6	37.0	9.5	20	12.1	88.3#	76.2

**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

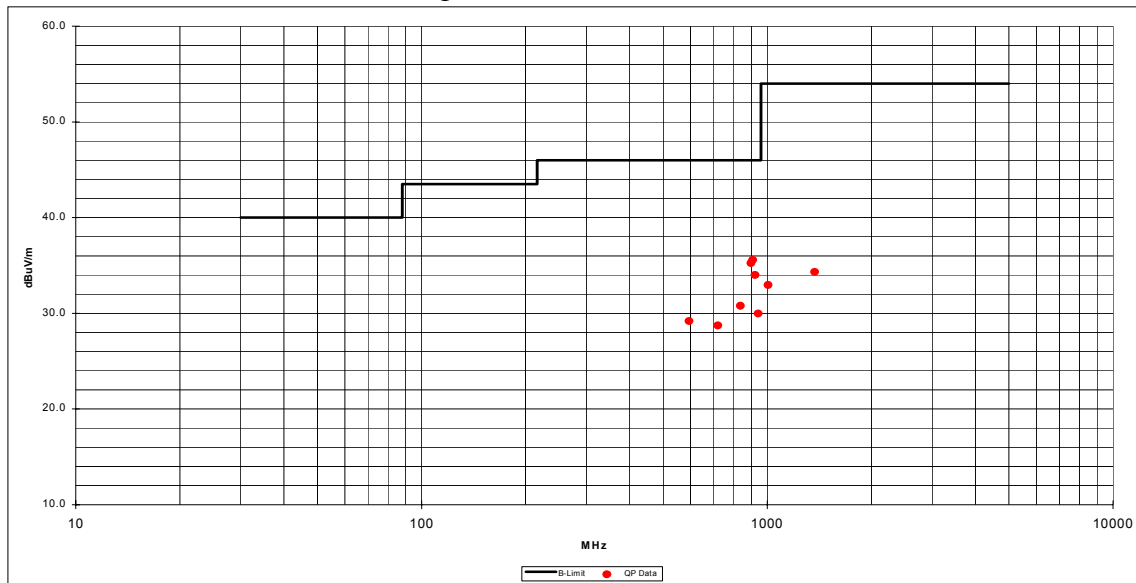
**These levels are at the noise floor of the measurement systems.

Other Spurious Emissions: [15.247c]

A scan of the IQK1000-9SS-C 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.

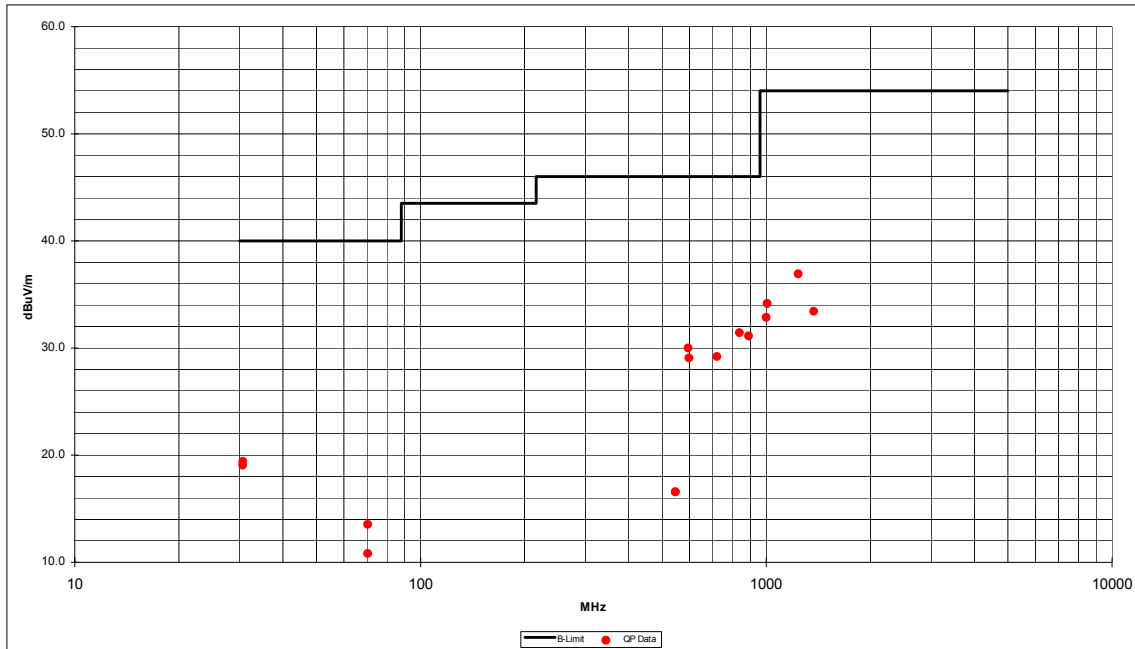
Frequency MHz	Corrected Quasi Peak Measurement dBuV/m	Included Cable+Antenna Factors dB+dB/m	Turntable Azimuth deg	Antenna Height Mtr	FCC Class B Limit dBuV/m	Margin dB
902.5MHZ	flat position	RX ant.Horizontal				
897.00	35.26	26.13	190	1.0	46.00	10.74
907.91	35.57	26.24	180	1.0	46.00	10.43
922.05	34.00	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.