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

Test Report for FCC ID: FBRIQB500-9XX

FCC Part 2.1031, Part 15 Subpart C(15.249)

Report #0200585BF
Issued 02/07/03

TRANSCEIVER MODEL IQB500

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

Test Date(s): December 18,19,23, 2002, January 3,4,6,9,10,13,14,17,27, 2003

data recorded by

Ted Chaffee, NCE

witnessed by

Dave Ramon
Harry Derks

This report prepared by:

Ted Chaffee, NCE
Technical Manager/Test Engineer, AHD

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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

Test Data:

This test report contains data covered by 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 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	Model	S/N	Last Cal Date	Calibration 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	Model	S/N	Last Cal Date	Calibration 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%.

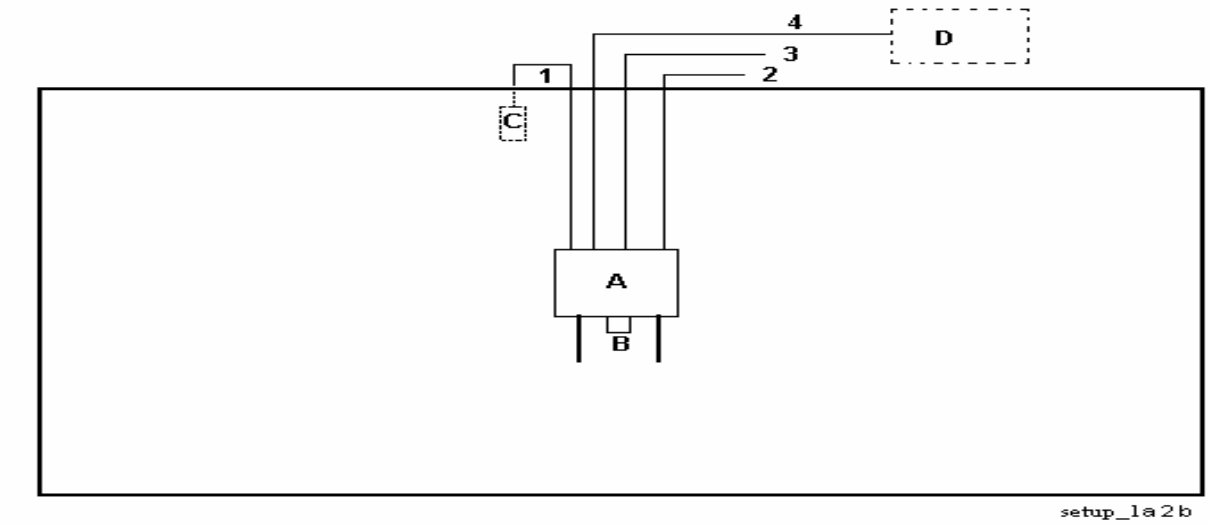
Tested Configuration /Setup: [2.1033(b8)]

Support Equipment & Cabling

Setup Diagram Legend	Description	Model	Serial No. / Part No.	EMC Consideration
A	[EUT] Reply IQ Base Transceiver	[Fleetwood Group] IQB500	preproduction	FCC ID: FBRIQB500-9XX
B	Reply IQ Feature Module	[Fleetwood Group] -	Eng unit	Plugged into Base at front of unit.
C	12V Power supply	[Phi hong] PSA11R-120	-	Located at 120VAC power main under turntable.
D	Remote Network hub	[Linksys] EW10HUB	836000596	FCC ID: KFYLEHA
1	DC cable		2 meter	Unshielded, permanently connected to power supply
2	Coax cable	RG223/U	10 meter	Terminated into 50ohm. Routed to below ground plane.
3	RS232 cable		2 meter	Shielded, unterminated, bundled to 40cm above ground.
4	Ethernet cable	CAT5	16 meters	Unshielded. Routed to below ground plane. Connected into network hub.

Setup Diagram

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



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 15.249).
3. The equipment under test was received on December 18, 2002 and this test series commenced on December 18, 2002.
4. The frequencies selected for final evaluation include 902.5MHz, 915MHz, and 927.5MHz. This is in accordance with 47 CFR 15.31(m).
5. In 120VAC 60Hz operation, the conducted emission level nearest the limit occurred at 259KHz. The signal was measured to be 13.7dB below the Class B Average limit when measuring phase to ground.
6. The Band Edge measurements: At the lower band edge (902MHz) the level measured was 40.2dBuV/m quasi-peak. At the upper band edge (928MHz) the level measured was 36.0dBuV/ quasi-peak. The FCC limit (15.209a) is 46dBuV/m. The margin at the band edge (902MHz) is 5.8dB.
7. The preliminary scan for spurious emissions conducted in a shielded room indicated spurious signals.
8. Spurious in Transmit Mode and Receive Mode were similar. The spurious emission level nearest the limit occurred while in transmitting mode. This emission, at 320MHz, was measured to be 44.6dBuV/m Quasi-Peak which is 1.4dB below the limit of 46dBuV/m (200uV/m). The receive antenna was vertically polarized.
9. 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 915MHz. The antennae of the EUT were positioned on the horizontal' and the receive antenna oriented in the horizontal polarization. This signal was measured with a Peak detection and observed to be 0.5dB below the quasi-peak limit of 94dBuV/m (50,000uV/m).
10. The evaluation of the field strength levels of the transmitter harmonics showed the emission nearest the limit occurred while operating at 2nd harmonic of the fundamental frequencies tested.. The antennae of the EUT was configured in the 'vertical' position, and the receive antenna oriented in the vertical polarization. This emission was measured with a Peak detection and observed to be 15.5dB below the average limit of 54dBuV/m (500uV/m).

[continued next page]

11. 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 antennae of the EUT were positioned on the 'horizontal' and the receive antenna oriented in the horizontal polarization. This signal was measured to be 6.4dB below the quasi-peak limit of 46dBuV/m (200uV/m).

12. 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 antenna of the EUT was configured in the 'vertical' position, and the receive antenna oriented in the vertical polarization. This signal, at 1.855GHz, was measured to be 15.2dB 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. DC input ground bonded to digital ground.

Standards Applied to Test: [2.1033(b6)]

ANSI C63.4 - 1992
CFR47 FCC Part 2, Part 15, SubPart C, 15.249 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 maximum configurations 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.

This product contains two Xemics transceiver modules each with its own antenna connected using a reverse SMA style connection. Both modules were evaluated, one at a time in transmit mode. With one transmitter module emitting its signals the second module was in receive mode.

The two antennas of the unit were adjusted both vertical and horizontal during testing.

In transmit mode, the EUT was setup up to transmit continuously with an FSK modulation. There was no pulsing of the signal during the measurement phase of the tests. The measurements of the fundamental and its harmonics were recorded with Peak detection. The measurements of the fundamental frequencies were compared to the Quasi-Peak limit of section 15.249. The measurements of the fundamental harmonics, greater than 1GHz, were adjusted by the duty cycle of EUT pulsed modulation and compared to the Average limits of Section 15.249.

In receive mode, the EUT was setup to receive. 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.

It was judged the highspeed network communication to have higher emissions than the RS232 communication. Throughout testing the unit communicated to remote computer via the network cable. A scrolling H pattern was being sent continuously to the port during testing. The RS232 port was connected to a serial cable 2meters in length. The two communication ports can not be used at the same time.

The BNC ‘Sync’ port, used only when multiple base units (master/slave) are in service, was terminated with a 1 meter coaxial cable. This coax was terminated into a resistive 50ohms.

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

The system was placed upon a 1 x 1.5 meter non-metallic table 80cm from the ground floor and 40cm from the vertical conducting plane in the prescribed setup per ANSI C63.4, Figure 9(a). This table is housed in a shielded enclosure to prevent the detection of unwanted ambients.

The mains power is nominally 120VAC, 60Hz, but may also be tested at other requested voltage/frequency combinations.

The EUT, or host unit if applicable, was connected to the LISN being monitored by the EMI Receiver. The remaining support devices requiring mains ac power were connected to a second LISN.

The EUT was continuously exercised by software supplied by the manufacturer.

While monitoring the display of the EMI Receiver, via remote video monitor, the cables were manipulated to determine a position that maximized the emissions being observed. Once the highest amplitude relative to the limit was determined for the Phase current carrying line the procedure was repeated for the Neutral current carrying line.

The configuration that created an emission closest to the limit was used during the course of taking final measurements. Pictures of this final configuration are recorded in this report.

The principal settings of the EMI Receiver for line conducted testing include:

Bandwidth = 9KHz
Detector Function: scanning and signal search = Peak Detection Mode
measurements = Quasi Peak Detection and Average Detection

The cable losses of the coax used in line conducted testing is charted in this appendix.

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

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 (902.5MHz), a mid band frequency (915MHz), and a high band frequency (4927.5MHz) pursuant to the requirements of 47CFR 15.31(m). The antennas of the unit were adjusted to both a vertical and a horizontal orientation during testing. 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 5000MHz for other spurious signals.

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

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

This recorded peak level is further corrected, by calculation, to an average level by a factor determined by the duty cycle of the pulsed modulation. The duty cycle factor is determined as outlined in Appendix I4 of the standard ANSI C63.4:1992.

Formula 2: Average Level(uV/m) = [Peak Level(uV/m)] x [duty cycle factor].

Formula 2a: Average Level(dBuV/m) = Peak Level)dBuV/m) + duty cycle factor(dB).

The transmitter on time in any 100mSec window was determined by measurement to be approximately 12.75mSec. That is 12.75%. The duty cycle factor to apply is determined to be 20dB.

For 12.75% (0.1275): duty cycle factor(dB) = 20*Log(0.1275) = -17.9dB

As an example:

A measured peak level of 560uV/m.
Calculated to dBuV/m is 20*Log(560) = 54.96dBuV/m Peak level.
Applying the duty cycle factor: Avg. Level(dBuV/m) = 54.96 – 17.9dB = 37.06dBuV/m.
This resultant is then compared to the limit of 54dBuV/m (200uV/m).
Margin is 37.06 – 54 = -16.94dB

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.

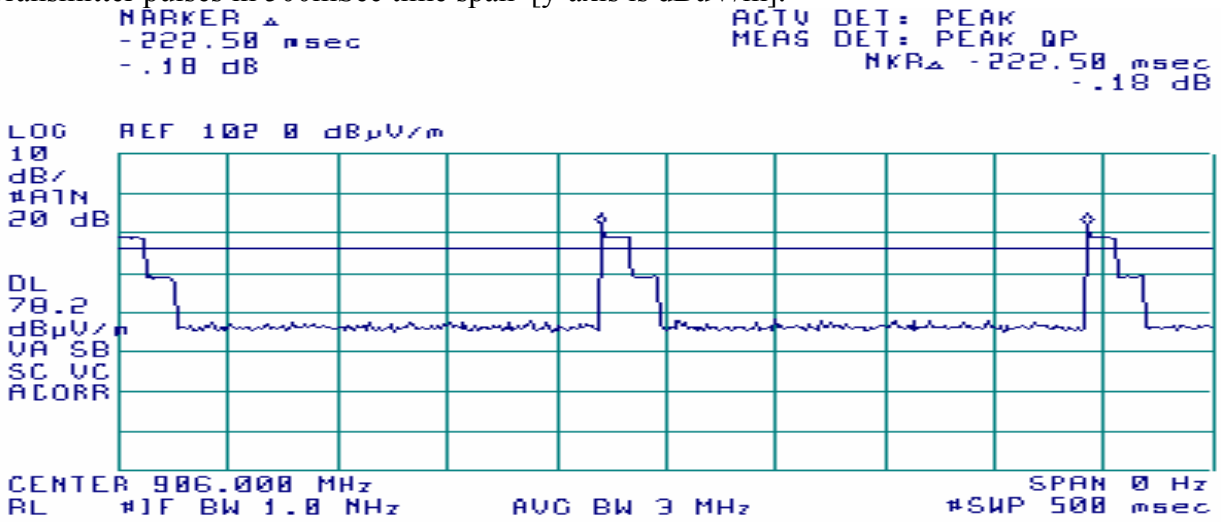
Formula 3: Distance factor(dB) = 20*Log(3meter/1meter) = 20*Log(3) = 9.54dB.

Test Data [2.1033(b6)]

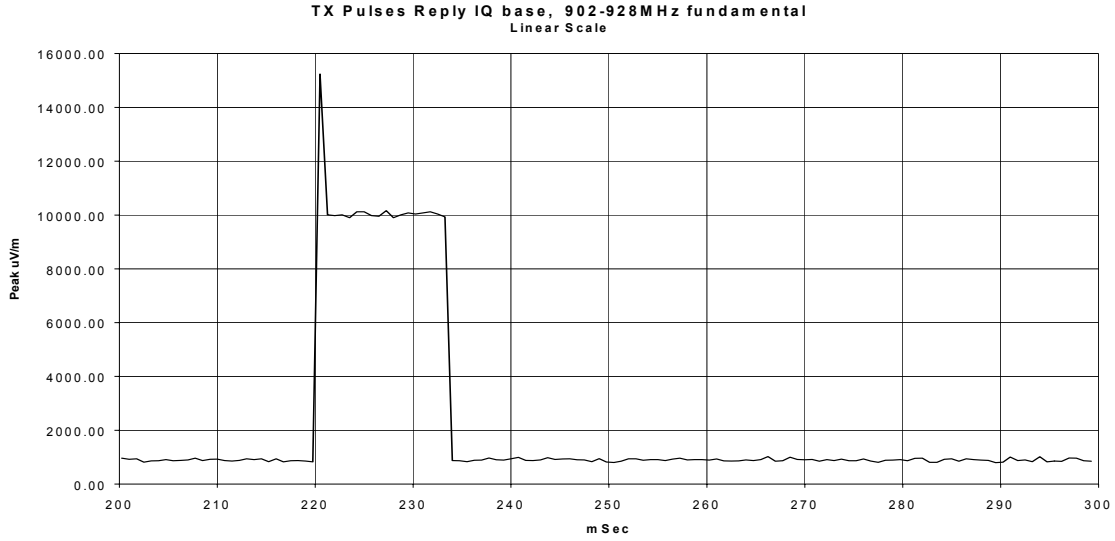
Modulation Characteristics

The transmitter is FSK modulated.
At time 0.0mSec the transmitter is turned on.
At time 0.1mSec the transmitter stabilizes.
From 0.1mSec through approximately 8.5mSec the transmitter communicates using FSK Modulation. F1 represents the bit "1", F2 represents the bit "0". F1 and F2 are separated by 75KHz.
At time 8.5mSec the transmitter is turned off.
The transmitter will not turn on again for a time much longer than 200mSec.

Transmitter pulses in 500mSec time span [y-axis is dBuV/m].



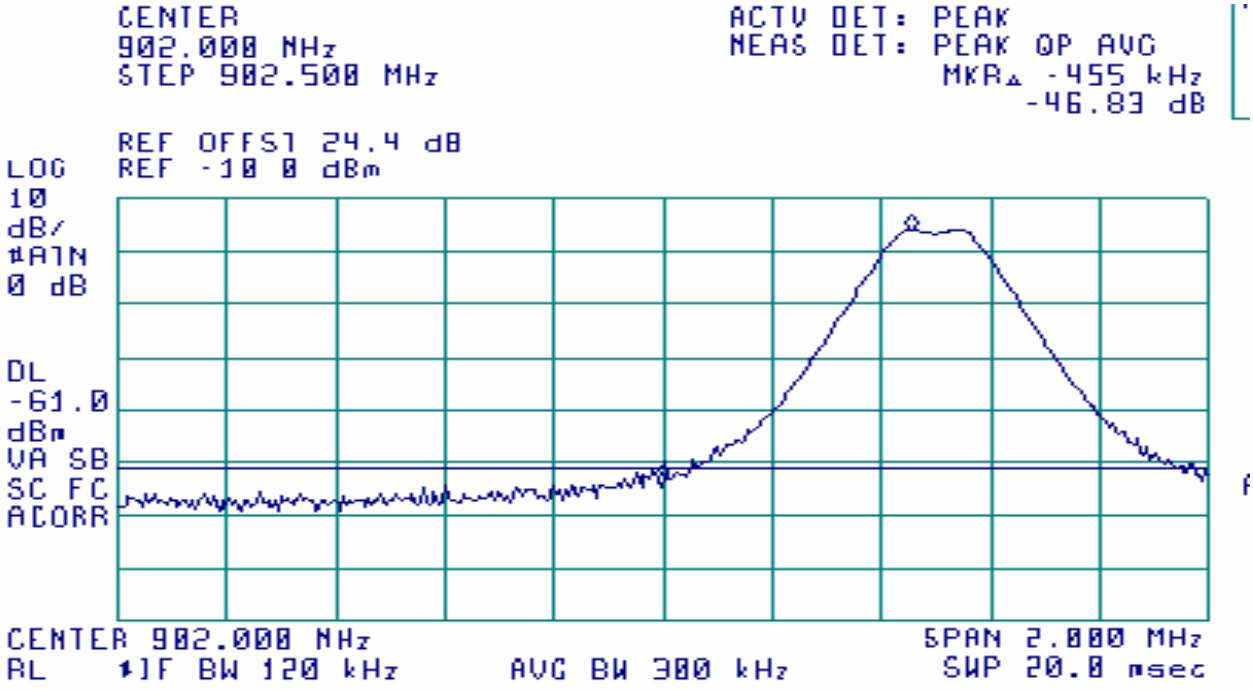
Transmitter pulse 100mSec time span [y-axis is uV/m linear]. Pulse width is 12.75mSec.



Band Edges [15.249(d)]

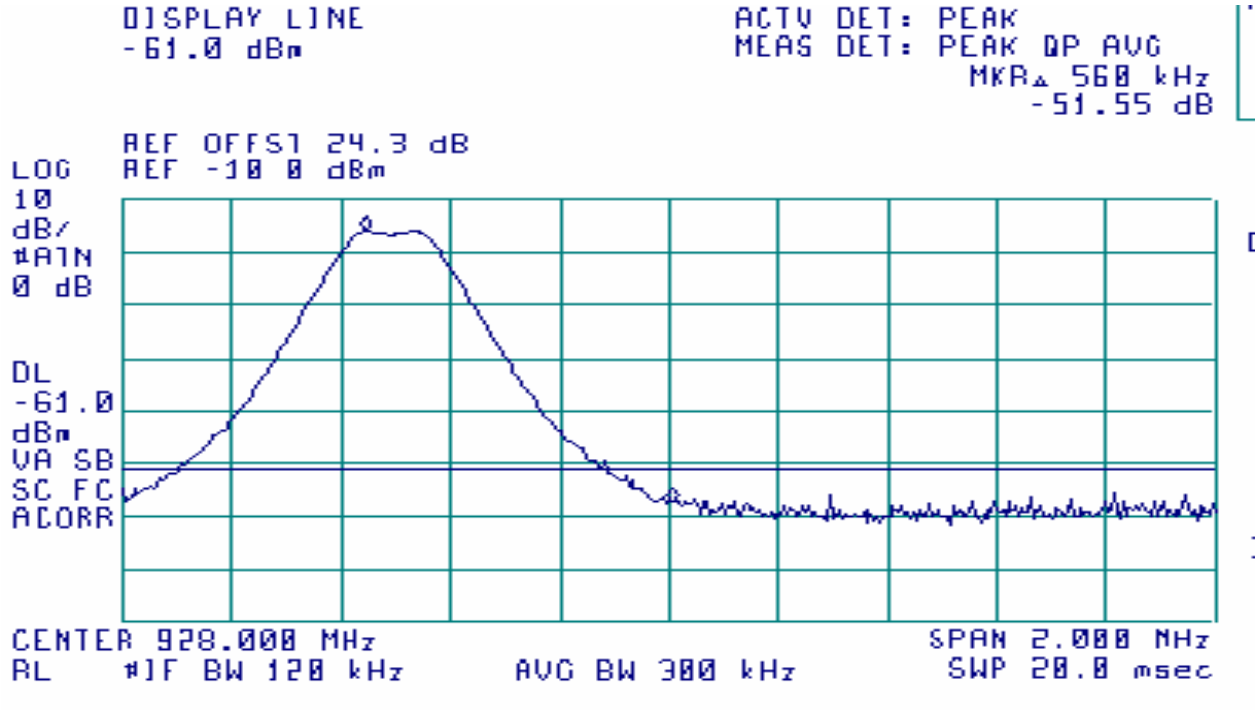
The emissions outside the 902-928MHz band are to be either 50dB below the level of the fundamental or the limits of section 15.209.

902MHz Band Edge. EUT transmitting at lowest frequency of 902.5MHz using TX1 module.



Fundamental (MHz)	902 MHz edge QP Measurement	Quasi-Peak LIMIT 15.209	dBc recorded 15.249d	dBc LIMIT 15.249d	
902.5	40.2 dBuV/m	46 dBuV/m	-46.8 dB	-50 dB	Pass

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



Fundamental (MHz)	928 MHz edge QP Measurement	Quasi-Peak LIMIT 15.209	dBc recorded 15.249d	dBc LIMIT 15.249d	
927.5	36.0 dBuV/m	46 dBuV/m	-51.6 dB	-50 dB	Pass

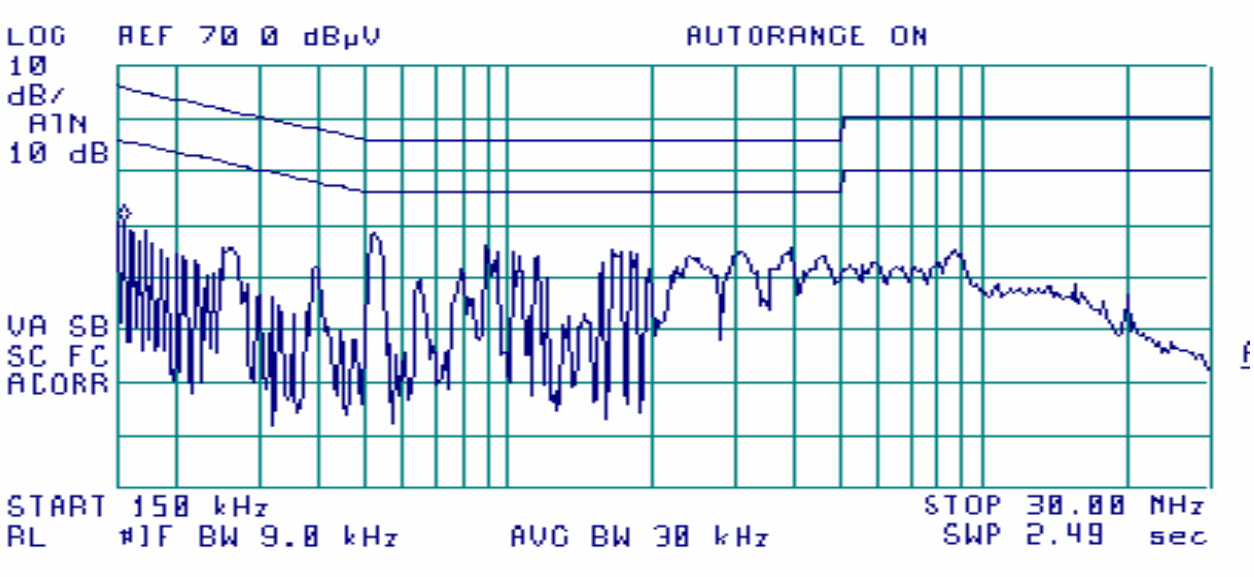
LIMIT @ 3meter: [15.209(a)]

30-88MHz	100uV/m	40dBuV/m
88-216MHz	150uV/m	43.5dBuV/m
216-960MHz	200uV/m	46dBuV/m
above 960MHz	500uV/m	54dBuV/m

Line Conducted Measurements: [15.207(a)]

Line Conducted 120VAC / 60Hz.

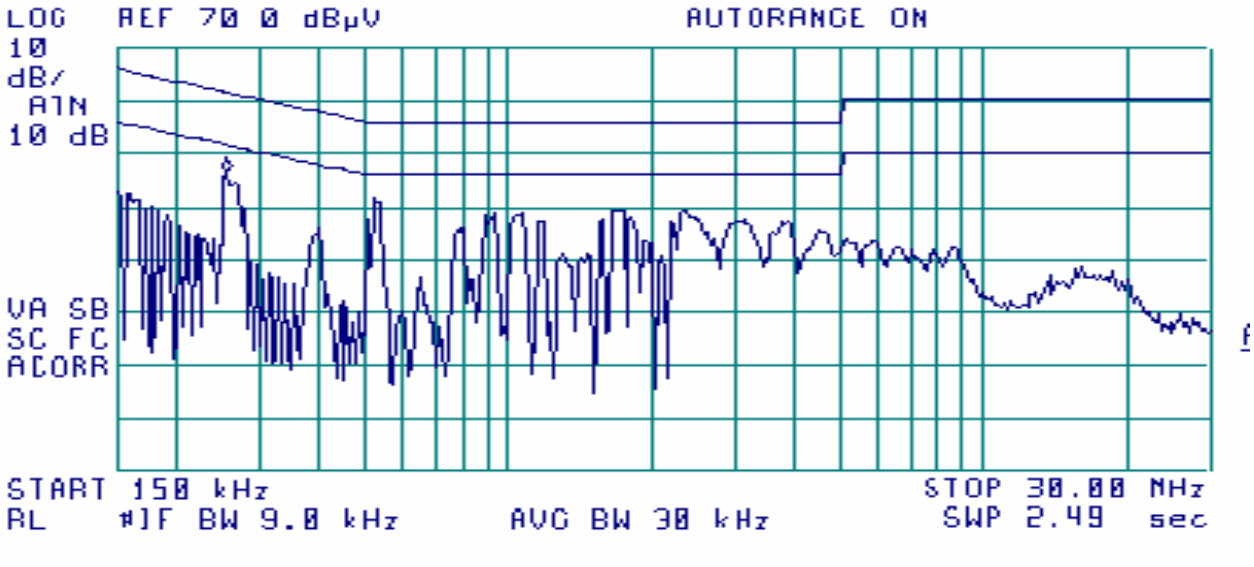
NEUTRAL to Ground Measurement.
Class B
Plot of Peak Values



Tabulated Quasi-Peak/Average Measurements.

Frequency	dBuV Reading		FCC / EN55022 dBuV Class B Limit		dB Margin	
MHz	QP	Avg	QP	Avg	QP	Avg
0.150	37.74	12.48	66.00	56.00	-28.26	-43.52
0.266	35.77	30.60	61.23	51.23	-25.46	-20.63
0.515	37.56	24.09	56.00	46.00	-18.44	-21.91
0.900	34.38	17.73	56.00	46.00	-21.62	-28.27
1.735	32.60	11.62	56.00	46.00	-23.40	-34.38
3.932	32.78	13.78	56.00	46.00	-23.22	-32.22
8.811	33.56	17.17	60.00	50.00	-26.44	-32.83
19.999	26.95	23.71	60.00	50.00	-33.05	-26.29

PHASE to Ground Measurement.
Class B
Plot of Peak Values



Tabulated Quasi-Peak/Average Measurements.

Frequency	dBuV Reading		FCC / EN55022 dBuV Class B Limit		dB Margin	
MHz	QP	Avg	QP	Avg	QP	Avg
0.150	37.74	10.84	66.00	56.00	-28.26	-45.16
0.259	44.16	37.79	61.47	51.47	-17.31	-13.68
0.515	41.05	28.65	56.00	46.00	-14.95	-17.35
0.898	37.55	18.81	56.00	46.00	-18.45	-27.19
1.025	36.48	16.19	56.00	46.00	-19.52	-29.81
1.667	37.37	14.42	56.00	46.00	-18.63	-31.58
2.307	36.94	16.51	56.00	46.00	-19.06	-29.49

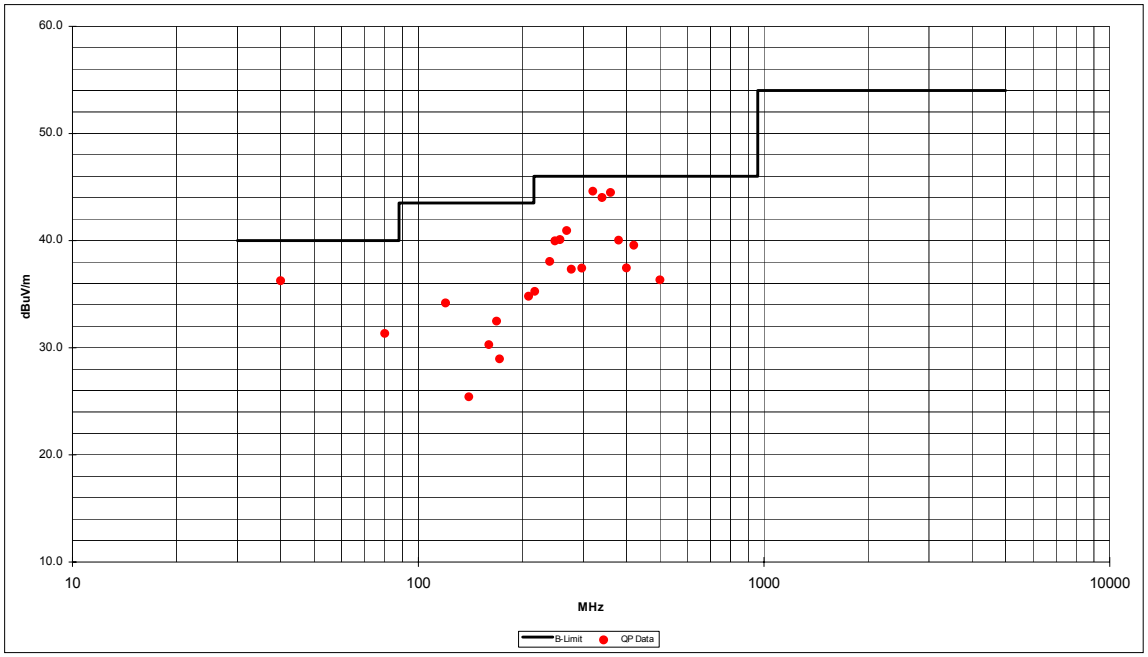
Radiated Field Strength Measurements: [15.209, 15.249(a,d)]

A scan of the IQB500 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.

Spurious Emissions: [15.249d]

Transmit Mode and Receive Mode. Same spurious profile

Graph of Quasi-Peak Measurements Vertically polarized



Tabulated Quasi-Peak Measurements.

Frequency	Corrected Quasi Peak Measurement	Included Cable+Antenna Factors	Turntable Azimuth	Antenna Height	FCC Class B Limit	Margin
MHz	dBuV/m	dB+dB/m	deg	Mtr	dBuV/m	dB
40.00	36.25	13.72	190	1.0	40.00	-3.75
79.98	31.32	7.62	170	1.0	40.00	-8.68
120.00	34.17	8.62	180	1.0	43.50	-9.33
208.58	34.79	12.39	180	1.0	43.50	-8.71

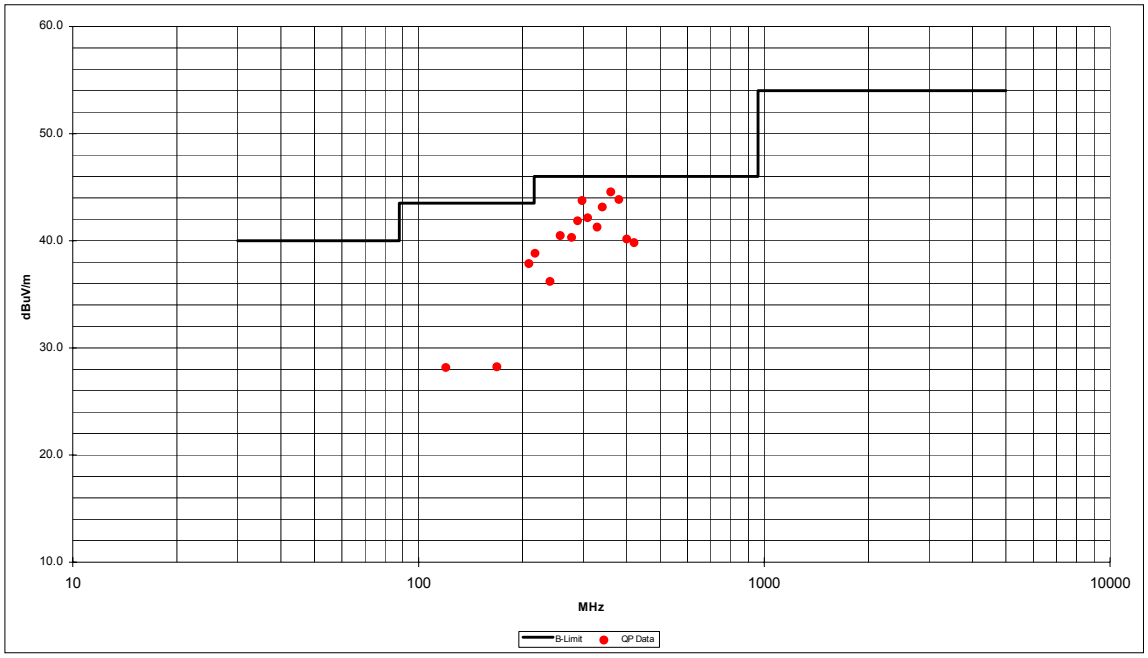
Tabulated Quasi-Peak Measurements. Continued
Vertically polarized

Frequency	Corrected Quasi Peak Measurement	Included Cable+Antenna Factors	Turntable Azimuth	Antenna Height	FCC Class B Limit	Margin
MHz	dBuV/m	dB+dB/m	deg	Mtr	dBuV/m	dB
240.02	38.05	13.32	190	1.0	46.00	-7.95
248.59	39.97	13.56	190	1.0	46.00	-6.03
257.15	40.09	13.78	190	1.0	46.00	-5.91
268.58	40.93	14.08	190	1.0	46.00	-5.07
277.15	37.32	14.29	190	1.0	46.00	-8.68
297.15	37.42	14.75	190	1.0	46.00	-8.58
320.02	44.60	15.75	170	1.0	46.00	-1.40
340.02	44.02	16.63	170	1.0	46.00	-1.98
360.02	44.48	17.45	100	1.0	46.00	-1.52
380.04	40.04	18.24	90	1.0	46.00	-5.96
400.02	37.45	18.84	90	1.0	46.00	-8.55
420.04	39.57	19.00	90	1.0	46.00	-6.43
500.30	36.33	20.51	60	1.0	46.00	-9.67

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 10dB below limits.

Spurious Emissions
Graph of Quasi-Peak Measurements – horizontally polarized



Tabulated Quasi-Peak Measurements.

Frequency	Corrected Quasi Peak Measurement	Included Cable+Antenna Factors	Turntable Azimuth	Antenna Height	FCC Class B Limit	Margin
MHz	dBuV/m	dB+dB/m	deg	Mtr	dBuV/m	dB
217.13	38.82	12.65	200	2.0	46.00	-7.18
208.58	37.87	12.39	200	2.0	43.50	-5.63
240.02	36.20	13.32	200	1.7	46.00	-9.80
257.14	40.48	13.78	270	1.5	46.00	-5.52
277.14	40.30	14.29	280	1.0	46.00	-5.70
288.58	41.85	14.56	280	1.0	46.00	-4.15
297.14	43.74	14.75	280	1.0	46.00	-2.26
308.58	42.15	15.22	280	1.0	46.00	-3.85
340.02	43.13	16.63	260	1.0	46.00	-2.87
328.58	41.27	16.13	260	1.0	46.00	-4.73
360.02	44.55	17.45	270	1.0	46.00	-1.45
380.02	43.84	18.24	270	1.0	46.00	-2.16
400.02	40.15	18.84	0	1.0	46.00	-5.85
420.03	39.81	19.00	0	1.0	46.00	-6.19

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 10dB below limits.

Field Strength Measurements of Fundamental & LO: [15.249(a), 15.209]

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	FCC Limit Quasi-Peak dBuV/m	Margin dB	EUT antenna position	Ant Pol.
902.50	92.00	26.19	10	1.0	94.00	-2.0	H	H
915.05	93.50	26.30	230	1.0	94.00	-0.50	H	H
927.48	92.40	26.42	180	1.0	94.00	-1.60	H	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 Quasi-Peak dBuV/m	Margin dB	EUT antenna position	Ant Pol.
902.50	35.2	26.19	200	1.0	46.00	-10.8	H	H
915.05	37.1	26.30	100	1.0	46.00	-8.9	H	H
927.48	39.6	26.42	180	1.0	46.00	-6.4	H	H

Field Strength Measurements of Fundamental & LO Harmonics: [15.249(d)]

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 harmonics

Freq	Corrected PEAK Measurement	12.75% Duty Cycle factor	Calculated Average Level	Turntable Azimuth	Antenna Height	FCC Avg Limit	Margin	EUT antenna position	Ant Pol.	Included Cable+Antenna Factors
MHz	dBuV/m	dB	dBuV/m	deg	Mtr	dBuV/m	dB			dB+dB/m
902.50										
1805	56.4	17.9	38.5	90	1.0	54.00	-15.5	V	V	31.30
2707.5	53.1	17.9	35.2	170	1.0	54.00	-18.8	V	V	35.40
3610	46**	17.9	28.1**	-	-	54.00	>-25.9	V	V	37.93
4512.5	47**	17.9	29.1**	-	-	54.00	>-24.9	V	V	38.42
915.00										
1830	56.4	17.9	38.5	90	1.0	54.00	-15.5	V	V	31.39
2745	53.9	17.9	36.0	180	1.0	54.00	-18.0	V	V	35.62
3660	46**	17.9	28.1**	-	-	54.00	>-25.9	V	V	37.91
4575	46**	17.9	28.1**	-	-	54.00	>-25.9	V	V	38.59
927.50										
1855	56.4	17.9	38.5	90	1.0	54.00	-15.5	V	V	33.60
2782.5	53.9	17.9	36.0	270	1.5	54.00	-18.0	V	V	35.84
3710	46**	17.9	28.1**	-	-	54.00	>-25.9	V	V	37.90
4637.5	47**	17.9	29.1**	-	-	54.00	>-24.9	V	V	38.77

**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	S.A. PEAK Measurement	Antenna Correction Factor	RF Amp Factor	1 meter Distance factor	12.75% Duty Cycle factor	Calculated Average Level	FCC Avg Limit	Margin
MHz	dBuV/m	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
902.50								
5415	28.0**	25.8	-	9.5	17.9	26.4**	54	>-27.6
6317.5	45.0**	24.1	38.0	9.5	17.9	3.7**	54	>-50.3
7220	43.0**	24.9	36.4	9.5	17.9	4.1**	54	>-49.9
8122.5	44.4**	27.0	36.1	9.5	17.9	7.9**	54	>-46.1
9025	44.8**	27.4	36.9	9.5	17.9	7.9**	54	>-46.1
915.00								
5490	28.0**	25.8	-	9.5	17.9	26.4**	54	>-27.6
6405	45.0**	24.2	37.6	9.5	17.9	4.2**	54	>-49.8
7320	44.0**	25.0	36.3	9.5	17.9	5.3**	54	>-48.7
8235	43.3**	27.1	36.0	9.5	17.9	7.0**	54	>-47.0
9150	44.4**	27.5	36.9	9.5	17.9	7.6**	54	>-46.4
927.50								
5565	27.0**	25.8	-	9.5	17.9	25.4**	54	>-28.6
6492.5	45.0**	24.3	37.5	9.5	17.9	4.4**	54	>-49.6
7420	45.5	25.1	36.1	9.5	17.9	7.1	54	-46.9
8347.5	43.0**	27.2	36.1	9.5	17.9	6.7**	54	>-47.3
9275	44.0**	27.6	37.0	9.5	17.9	7.2**	54	>-46.8

**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 Antenna position	Ant Pol.	Included Cable+Antenna Factors dB+dB/m
902.5								
1805	37.1	90	1.0	54	-16.9	V	V	31.30
2707.5	33**	-	-	54	>-21	-	-	35.40
3610	34**	-	-	54	>-20	-	-	37.93
4512.5	36**	-	-	54	>-18	-	-	38.42
5415	39**	-	-	54	>-15	-	-	41.64
915.0								
1830	38.7	90	1.0	54	-15.3	V	V	31.39
2745	34**	-	-	54	>-20	-	-	35.62
3660	35**	-	-	54	>-19	-	-	37.91
4575	35**	-	-	54	>-19	-	-	38.59
5490	40**	-	-	54	>-14	-	-	41.97
927.5								
1855	38.8	90	1.0	54	-15.2	V	V	33.60
2782.5	34**	-	-	54	>-20	-	-	35.84
3710	35**	-	-	54	>-19	-	-	37.90
4637.5	36**	-	-	54	>-18	-	-	38.77
5565	39**	-	-	54	>-15	-	-	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	S.A. PEAK Measurement	Antenna Correction Factor	RF Amp Factor	1 meter Distance factor	Calculated PEAK Level	FCC Avg Limit	Margin
MHz	dBuV/m	dB/m	dB	dB	dBuV/m	dBuV/m	dB
902.5							
6317.5	44.9**	24.1	38.0	9.5	21.5**	54	>-32.5
7220	48.3**	24.9	36.4	9.5	27.3**	54	>-26.7
8122.5	48.8**	27.0	36.1	9.5	30.2**	54	>-23.8
9025	49.1**	27.4	36.9	9.5	30.1**	54	>-23.9
915.0							
6405	45.1**	24.2	37.6	9.5	22.2**	54	>-31.8
7320	47.3**	25.0	36.3	9.5	26.5**	54	>-27.5
8235	48.3**	27.1	36.0	9.5	29.9**	54	>-24.1
9150	47.4**	27.5	36.9	9.5	28.5**	54	>-25.5
927.5							
6492.5	44.4**	24.3	37.5	9.5	21.7**	54	>-32.3
7420	47.1**	25.1	36.1	9.5	26.6**	54	>-27.4
8347.5	47.6**	27.2	36.1	9.5	29.2**	54	>-24.8
9275	48.6**	27.6	37.0	9.5	29.7**	54	>-24.3

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