



MOTOROLA

PERSONAL COMMUNICATIONS SECTOR

**PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY**

EMC TEST REPORT - Addendum

Test Report Number – 17548-1BT

Report Date – January 12, 2006

Revision 2

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Engineer, I hereby declare that the equipment tested as specified in this report conforms to the requirements indicated.

Mark Sidlow

Signature:

Name: Mark Sidlow

Title: Senior Electrical Engineer

Date : 2006-12-01

This report must not be reproduced, except in full, without written approval from this laboratory.

THIS REPORT MUST NOT BE USED TO CLAIM PRODUCT ENDORSEMENT BY A2LA OR ANY AGENCY OF THE U.S. GOVERNMENT.

A2LA Certificate Number: 1651.01



Table of Contents

Test Report Details 5

Applicable Standards 6

Summary of Testing..... 7

General and Special Conditions..... 7

Equipment and Cable Configurations 8

Measuring Equipment and Calibration Information 8

Description of Bluetooth Transmitter 9

Measurement Procedures and Data..... 10

CARRIER FREQUENCY SEPARATION 10

 Measurement Procedure..... 10

 Measurement Results 10

 Carrier Frequency Separation 11

NUMBER OF HOPPING FREQUENCIES 12

 Measurement Procedure..... 12

 Measurement Results 12

 Number of Hopping Frequencies (Channels 0 – 39) 13

 Number of Hopping Frequencies (Channels 39 – 78) 13

TIME OF OCCUPANCY (DWELL TIME)..... 14

 Measurement Procedure..... 14

 Measurement Results 14

 Dwell Time 15

20dB Bandwidth 16

 Measurement Procedure..... 16

 Measurement Results 16

FIELD STRENGTH OF SPURIOUS EMISSIONS..... 18

 Measurement Procedure..... 18

 Measurement Results 18

 30-1000MHz Low Channel Dual Polarization X 19

 30-1000MHz Low Channel Dual Polarization Y 20

 30-1000MHz Low Channel Dual Polarization Z..... 21

 30-1000MHz Mid Channel Dual Polarization X 22

 30 -1000MHz Mid Channel Dual Polarization Y 23

 30 -1000MHz Mid Channel Dual Polarization Z 24

 30 -1000MHz High Channel Dual Polarization X..... 25

 30 -1000MHz High Channel Dual Polarization Y 26

 30 -1000MHz High Channel Dual Polarization Z 27

 1-25 GHz Low Channel Dual Polarization X 28

 1-25 GHz Low Channel Dual Polarization Y 29

 1-25 GHz Low Channel Dual Polarization Z 30

 1-25 GHz Mid Channel Dual Polarization X..... 31

 1-25 GHz Mid Channel Dual Polarization Y 32

 1-25 GHz Mid Channel Dual Polarization Z 33

 1-25 GHz High Channel Dual Polarization X 34

 1-25 GHz High Channel Dual Polarization Y 35

 1-25 GHz High Channel Dual Polarization Z..... 36

Authorized Band Emissions Low Channel Dual Polarization X 37

Authorized Band Emissions Low Channel Dual Polarization Y 38

Authorized Band Emissions Low Channel Dual Polarization Z 39

Authorized Band Emissions Mid Channel Dual Polarization X..... 40

Authorized Band Emissions Mid Channel Dual Polarization Y..... 41

Authorized Band Emissions Mid Channel Dual Polarization Z..... 42

Authorized Band Emissions High Channel Dual Polarization X 43

Authorized Band Emissions High Channel Dual Polarization Y 44

Authorized Band Emissions High Channel Dual Polarization Z..... 45

PEAK OUTPUT POWER 46

 Measurement Procedure..... 46

 Measurement Results 46

 Peak Output Power 46

BAND-EDGE COMPLIANCE OF RF CONDUCTED EMISSIONS 47

 Measurement Procedure..... 47

 Measurement Results 47

 Low Band Edge with Hopping Disabled 48

 Low Band Edge with Hopping Enabled 48

 High Band Edge with Hopping Disabled..... 49

 High Band Edge with Hopping Enabled..... 49

SPURIOUS RF CONDUCTED EMISSIONS 50

 Measurement Procedure..... 50

 Measurement Results 50

 Conducted Spurious Emissions 30-3000MHz (Low Channel Enabled)..... 51

 Conducted Spurious Emissions 2-10GHz (Low Channel Enabled) 51

 Conducted Spurious Emissions 10-20GHz (Low Channel Enabled) 52

 Conducted Spurious Emissions 20-26.5GHz (Low Channel Enabled) 52

 Conducted Spurious Emissions 30-3000MHz (Mid Channel Enabled) 53

 Conducted Spurious Emissions 2-10GHz (Mid Channel Enabled)..... 53

 Conducted Spurious Emissions 10-20GHz (Mid Channel Enabled)..... 54

 Conducted Spurious Emissions 20-26.5GHz (Mid Channel Enabled)..... 54

 Conducted Spurious Emissions 30-3000MHz (High Channel Enabled)..... 55

 Conducted Spurious Emissions 2-10GHz (High Channel Enabled)..... 55

 Conducted Spurious Emissions 10-20GHz (High Channel Enabled)..... 56

 Conducted Spurious Emissions 20-26.5GHz (High Chan Enabled) 56

AC LINE CONDUCTED 57

 Measurement Procedure..... 57

 Measurement Results 57

 Bluetooth Channel 0 2402MHz TX Mode Neutral Coupling Hopping..... 58

 Bluetooth Channel 39 2441MHz TX Mode Line Coupling Nonhopping 58

 Bluetooth Channel 39 2441MHz TX Mode Neutral Coupling Hopping..... 59

 Bluetooth Channel 78 2480MHz TX Mode Line Coupling Hopping 59

 Bluetooth Channel 78 2480MHz TX Mode Neutral Coupling Hopping..... 60

 Bluetooth Channel 0 2441MHz TX Line Line Coupling Hopping 60

 Bluetooth Channel 0 2402MHz TX Mode Neutral Coupling Nonhopping..... 61

 Bluetooth Channel 39 2441MHz TX Mode Line Coupling Hopping 61

Bluetooth Channel 39 2441MHz TX Line Neurtal Coupling Nonhopping..... 62
Bluetooth Channel 78 2480MHz TX Mode Line Coupling Nonhopping 62
Bluetooth Channel 78 2480MHz TX Mode Neutral Coupling Nonhopping..... 63

Test Report Details

Tests Performed By: Motorola Personal Communications Sector
Product Safety and Compliance Group
600 North US Hwy 45
Libertyville, IL 60048
PH (847) 523-6167 Fax (847) 523-4538
Motorola PCS FRN: 0004321311
FCC Registration Number: 316588
Industry Canada Number: IC3908

Radiated Emissions
Performed By: Underwriters Laboratories
International EMC Services
333 Pfingsten RD
Northbrook, IL 60062
Contact: Lubomir Madjarov
(Tel) 847/664-3957
(Fax) 847/313-3957

Tests Requested By: Motorola Inc.
Personal Communications Sector
600 North US Hwy 45
Libertyville, IL 60048

Product Type: Cellular Phone

Signaling Capability: GSM 850 & 1900, Bluetooth

Model Number: Vancouver

Serial Numbers: G00V0300DW, G00V0300GV, G00V0300GR

Testing Complete Date: January 6, 2006

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

- Part 15 Subpart C – Intentional Radiators
- Part 22 Subpart H - Public Mobile Services
- Part 24 - Personal Communications Services
- Part 90 - Private Land Mobile Radio Service

Applicable Standards: TIA EIA 137-A, TIA EIA 98-C, ANSI 63.4 2001, RSS-118 (AMPS), RSS-128 (TDMA), RSS-129 (CDMA), RSS-133 (PCS)

DA 00-705, "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" published by the Federal Communications Commission was also used in the testing of this product.

Summary of Testing

Test	Test Name	Pass/Fail
1	Carrier Frequency Separation	Pass
2	Number of Hopping Frequencies	Pass
3	Time of Occupancy (Dwell Time)	Pass
4	20 dB Bandwidth	Pass
5	Spurious RF Conducted Emissions	Pass
6	Field Strength of Spurious Emissions	Pass
7	Max Power	N/A
8	Band Edges	See plots
9	Conducted Spurious Emissions	Pass

Test	Test Name	Results
1	Carrier Frequency Separation	1.0 MHz
2	Number of Hopping	79
3	Time of Occupancy (Dwell Time)	2.925 ms
4	20 dB Bandwidth	1.0 MHz
5	Spurious RF Conducted Emissions	See plots
6	Field Strength of Spurious Emissions	See plots
7	Max Power	15.09 dBm
8	Band Edges	See plots
9	Conducted Spurious Emissions	See plots

The margin with respect to the limit is the minimum margin for all modes and bands. () indicates the margin at which the product exceeds the limit.

General and Special Conditions

The EUT was tested using a fully charged battery when applicable. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

All testing was done in an indoor controlled environment with an average temperature of 22° C and relative humidity of 50%.

Equipment and Cable Configurations

The EUT was tested in a stand-alone configuration that is representative of typical use.

Measuring Equipment and Calibration Information

Paste Equipment List Here

Manufacturer	Equipment Type	Model No.	Serial Number	Cal. Due Date
Rohde & Schwarz	Receiver	ESI26	838786/010	2/7/2006
Hewlett-Packard	EMC Analyzer	7405	US39440191	1/27/2006
ETS	DRG Horn Antenna	265	2455	5/25/2006
ETS	DRG Horn Antenna	3115	6222	2/9/2006
ETS	Log-Periodic Antenna	3148	1188	6/14/2006
ETS	Biconical Antenna	3110B	3370	2/16/2006
Attenuator	Weinschel	AS-6	6677	11/10/2006
Attenuator	Weinschel	AS-3	6677	11/10/2006
Attenuator	Agilent	8491A	36904	9/19/2006
Rohde & Schwarz	Mobile Test Set	CMD 80	DE29008	N/A
Hewlett-Packard	Signal Generator	83623B	3844A01195	6/20/2006
Thermotron	Environmental Chamber	S-4	31580	1/17/2006
Agilent	Power Meter	EE4418B	GB40206388	6/4/2006
Agilent	Power Sensor	8447F	2805A03419	2/6/2006

U.L. Equipment

Hewlett Packard	QP Adapter	85650A	2811A01069	1/3/2007
Hewlett Packard	S/A Display	8566B	2542A12974	1/3/2007
Hewlett Packard	S/A	8566B	2637A03376	1/3/2007
ANRITSU	Signal Generator	68369B	982015	1/11/2006
Rhode & Schwartz	S/A	FSEK	DE25315	3/15/2006
Chase	Bi-Con Antenna 30-300MHz	VBA6106A	1246	7/22/2006
Chase	Log-Periodic Antenna	UPA6109	1060	2/23/2006
EMCO	Horn Antenna 1-18GHz	3115	2638	7/29/2006

All equipment is on a one-year calibration cycle.

Description of Bluetooth Transmitter

The Vancouver cell phone offers Bluetooth as a feature. The Bluetooth spread-spectrum, frequency hopping transceiver is designed to operate between 2400 and 2483 MHz. The Bluetooth antenna is mounted on the PCB inside of the EUT. The antenna installation is permanent. For a more thorough description of the functionality please refer to Exhibit 12 of this package.

As a Bluetooth transmitter, it is designed operate with other Bluetooth devices as defined by industrial standard. In this application, the device is battery-operated.

The maximum Bluetooth antenna gain is -5 dB.

Measurement Procedures and Data

CARRIER FREQUENCY SEPARATION

CFR 47 Part 15.247

Measurement Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

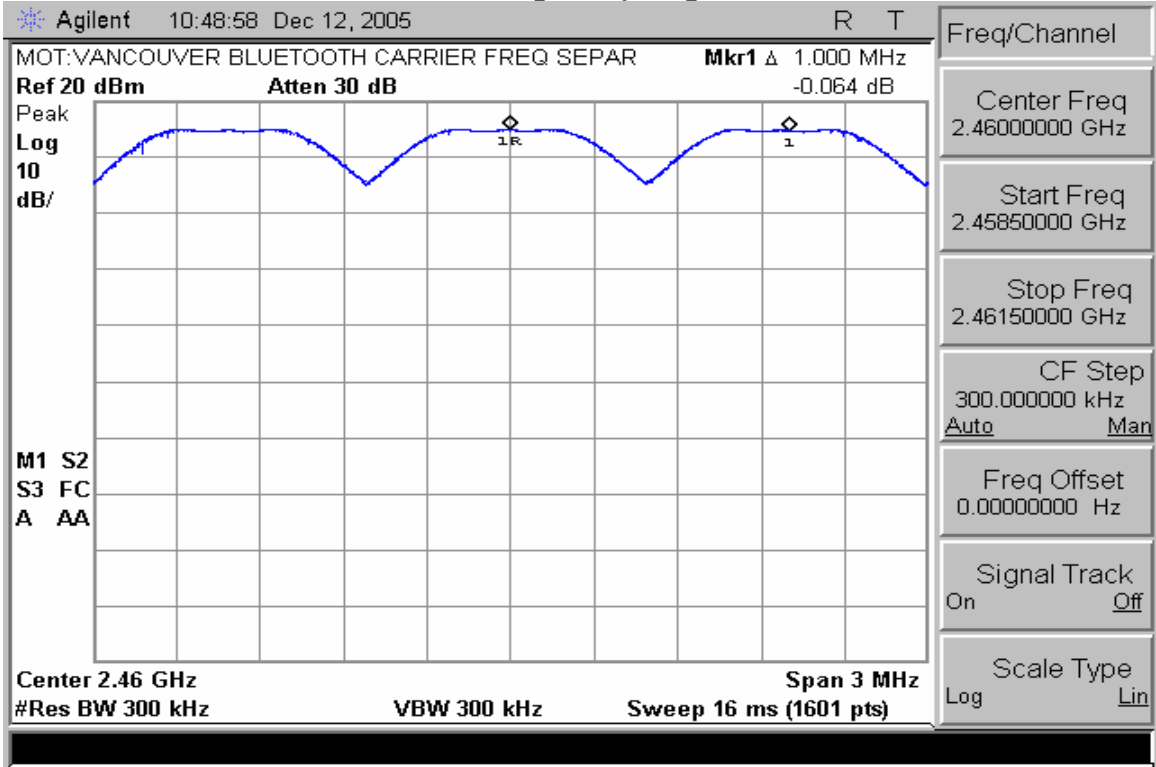
1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW) \geq 1% of the span
3. Video (or Average) Bandwidth (VBW) \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

Measurement Results

See attached.

Carrier Frequency Separation



NUMBER OF HOPPING FREQUENCIES

CFR 47 Part 15.247

Measurement Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

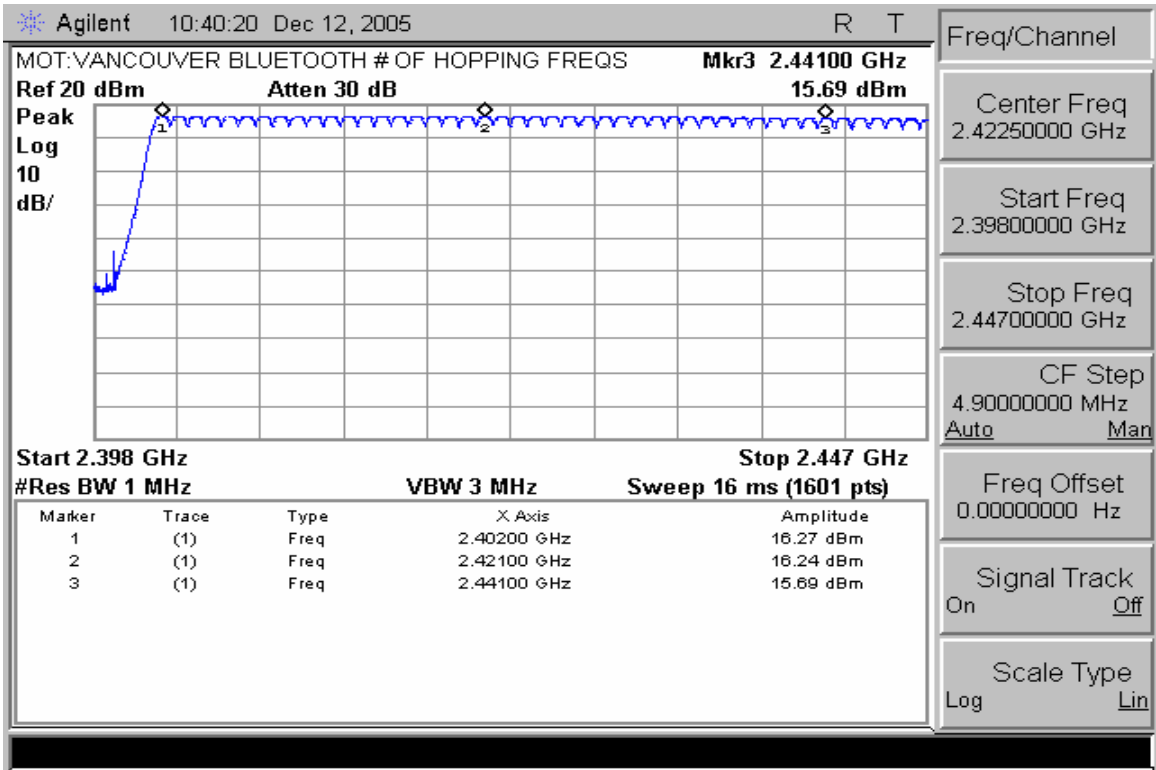
The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW \geq 1% of the span
3. VBW \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

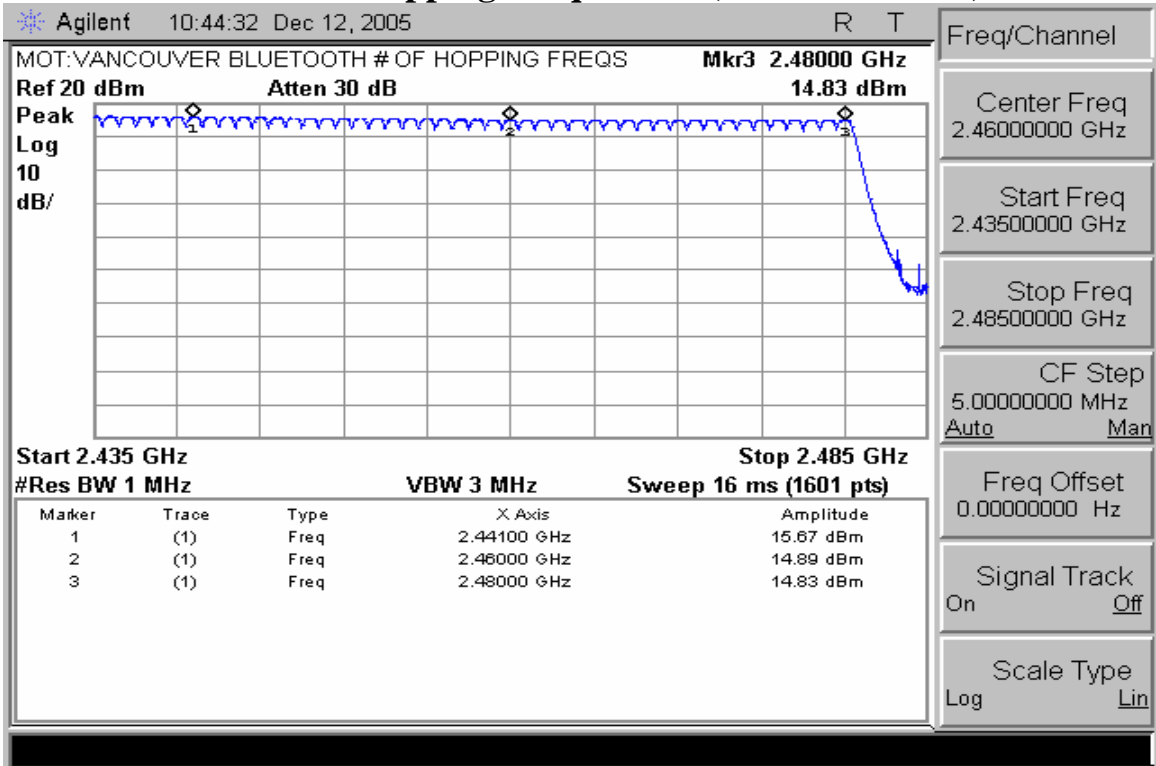
The trace was allowed to stabilize.

Measurement Results

See attached.



Number of Hopping Frequencies (Channels 0 – 39)



Number of Hopping Frequencies (Channels 39 – 78)

TIME OF OCCUPANCY (DWELL TIME)

CFR47 Part 15.247

Measurement Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

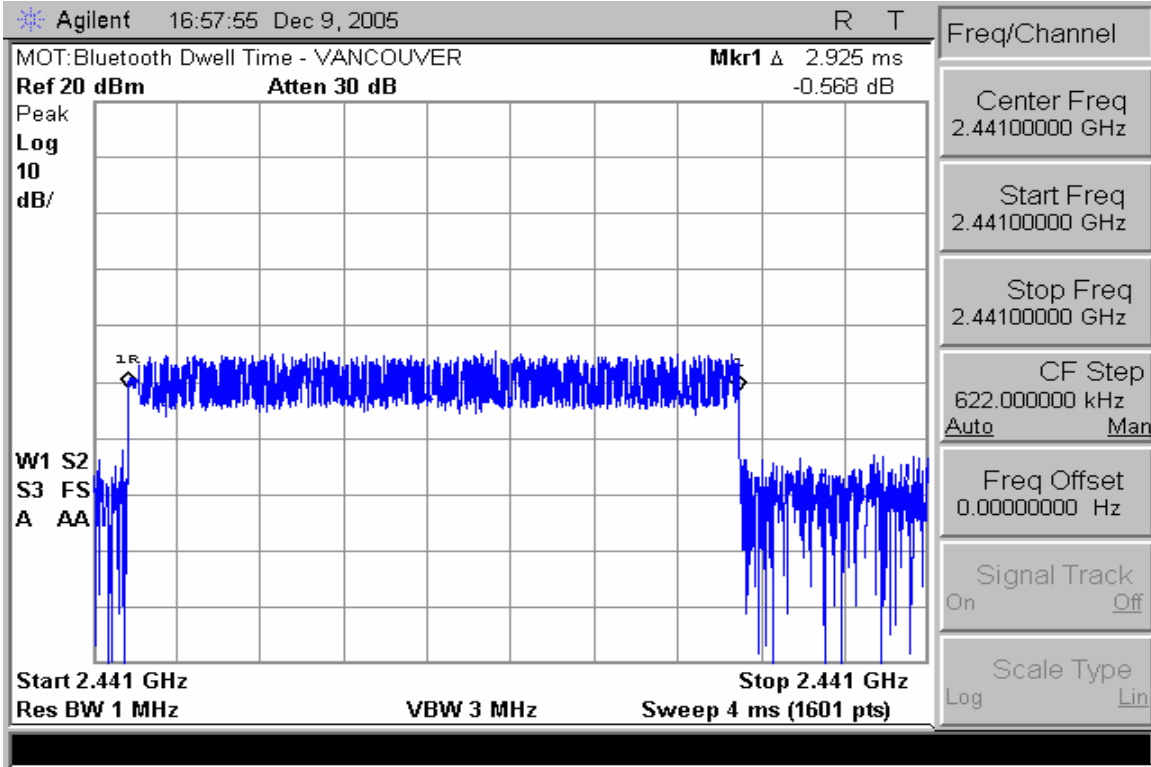
The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 1 MHz
3. VBW \geq RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

The marker-delta function was used to determine the dwell time.

Measurement Results

Attached



Dwell Time

20dB Bandwidth

CFR 47 Part 15.247

Measurement Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

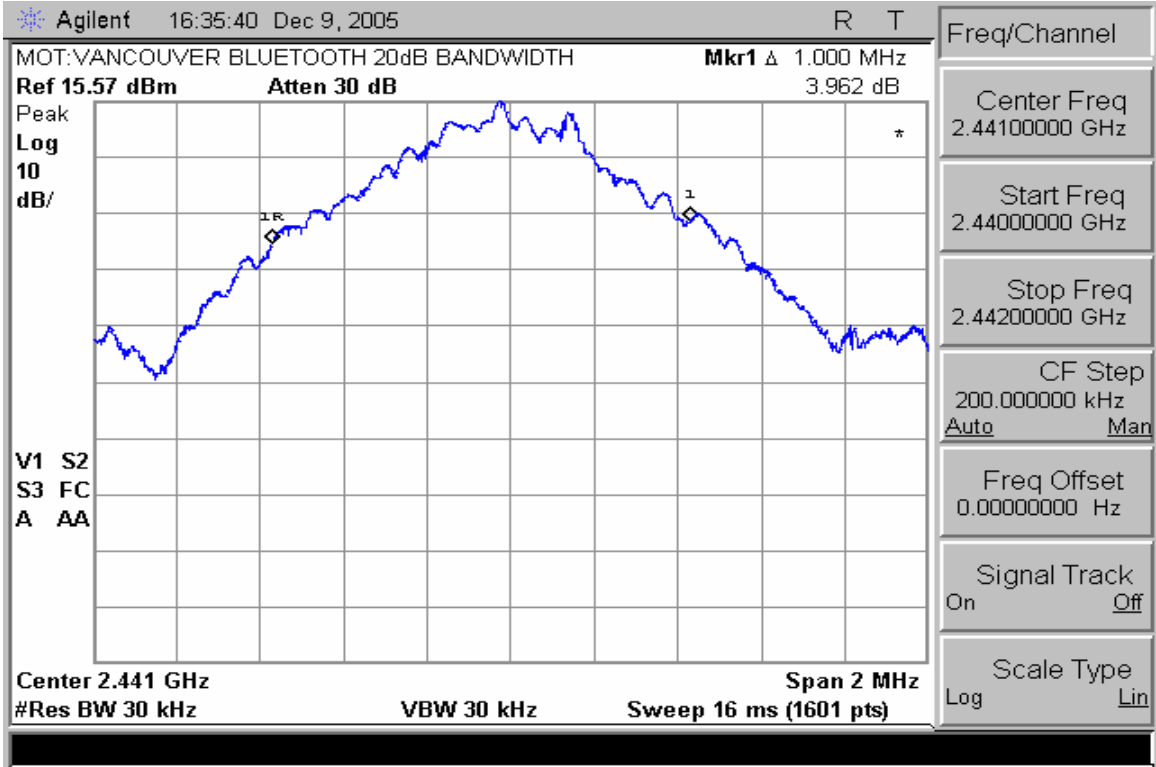
The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW \geq 1% of the 20dB span
3. VBW \geq RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

Measurement Results

Attached



20dB Bandwidth

FIELD STRENGTH OF SPURIOUS EMISSIONS

CFR Part 2.1053, 15.249

Measurement Procedure

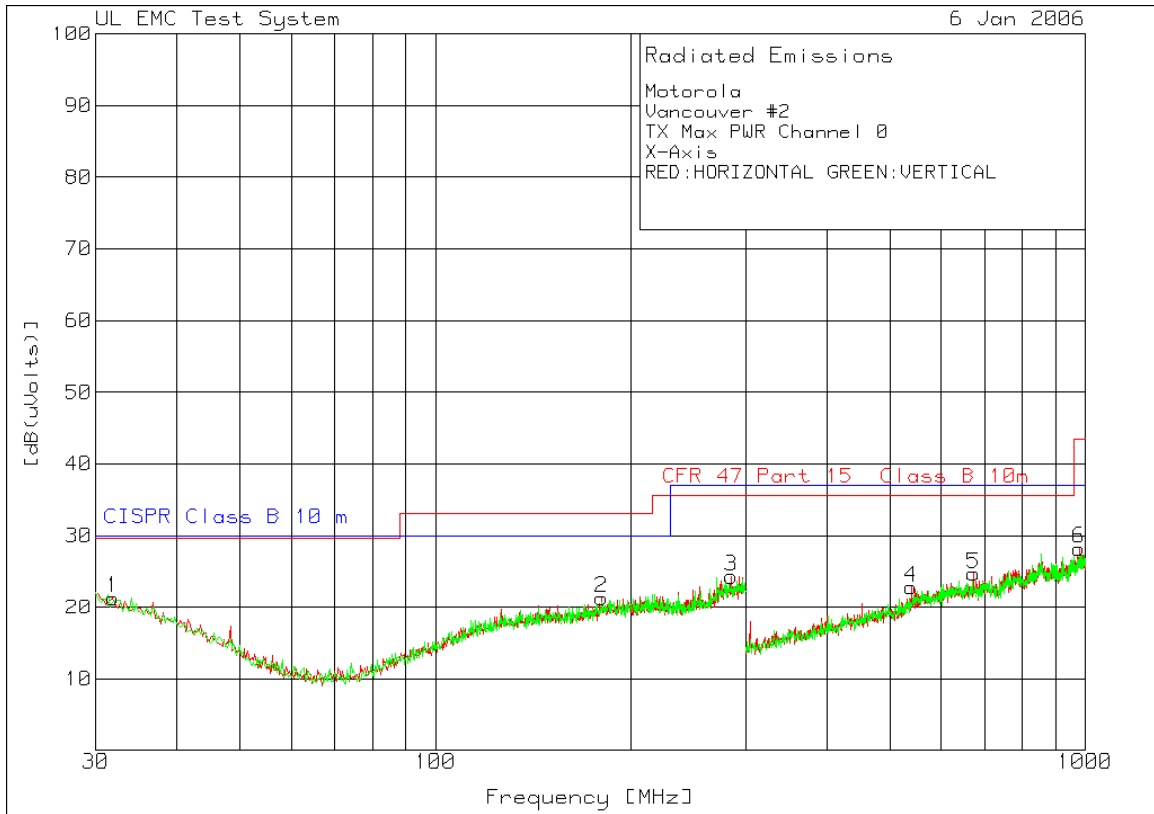
The Equipment-Under-Test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

Field Strength (dBuV/m) = EMI Receiver Level (dBuV) + Cable Loss (dB) -
Amplifier Gain (dB) + Antenna Correction Factor (1/m)

A fully charged battery was used for the supply voltage.

Measurement Results

Attached

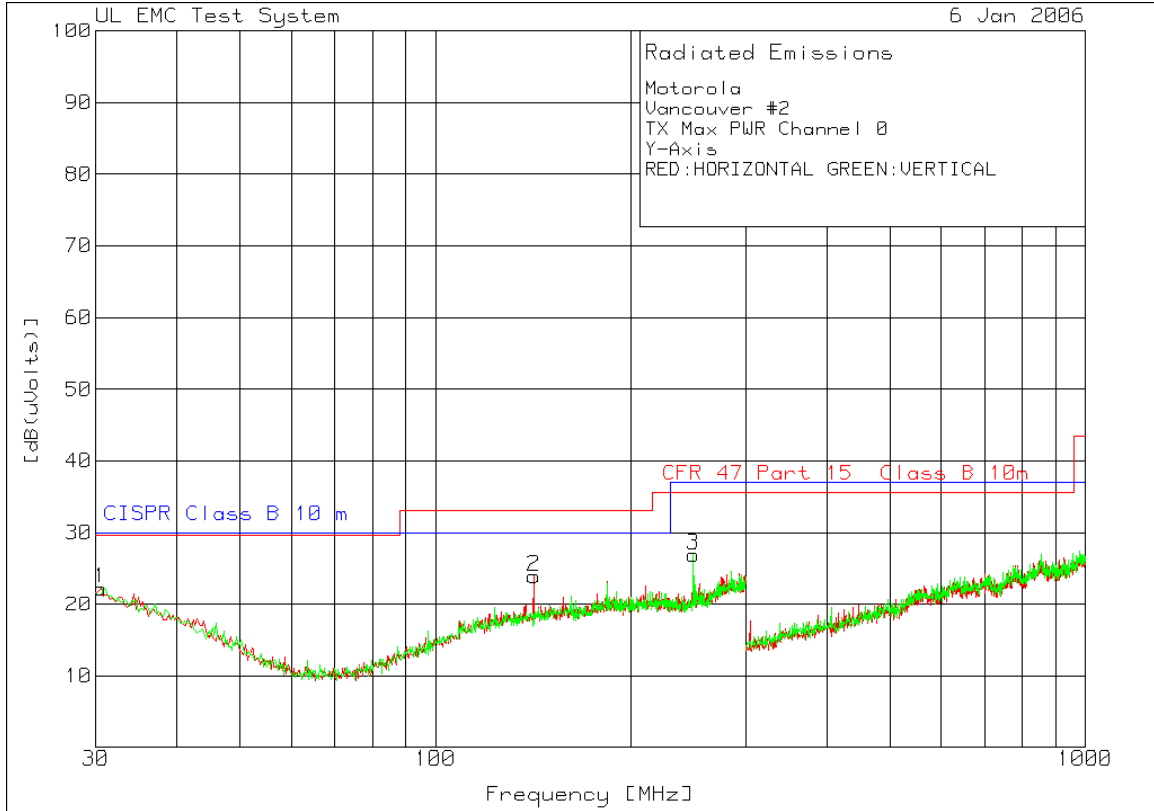


30-1000MHz Low Channel Dual Polarization X

Motorola
Vancouver #2
TX Max PWR Channel 0
X-Axis
:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	
Range 1 30 - 300MHz												
1	31.89	34.7	pk	-30.7	17.3	21.3	29.6	-8.3	30	-8.7	219	
2	180.12	35.9	pk	-30.3	15.7	21.3	33.1	-11.8	30	-8.7	106	
3	285.15	36	pk	-29.8	18.1	24.3	35.6	-11.3	37	-12.7	219	
Range 3 300 - 1000MHz												
4	539.4	36.1	pk	-32	18.7	22.8	35.6	-12.8	37	-14.2	200	
5	673.1	35.7	pk	-31.2	20.2	24.7	35.6	-10.9	37	-12.3	313	
6	978.3	35.9	pk	-31.3	23.6	28.2	43.5	-15.3	37	-8.8	41	

T 1: CFR 47 Part 15 Class B 10m

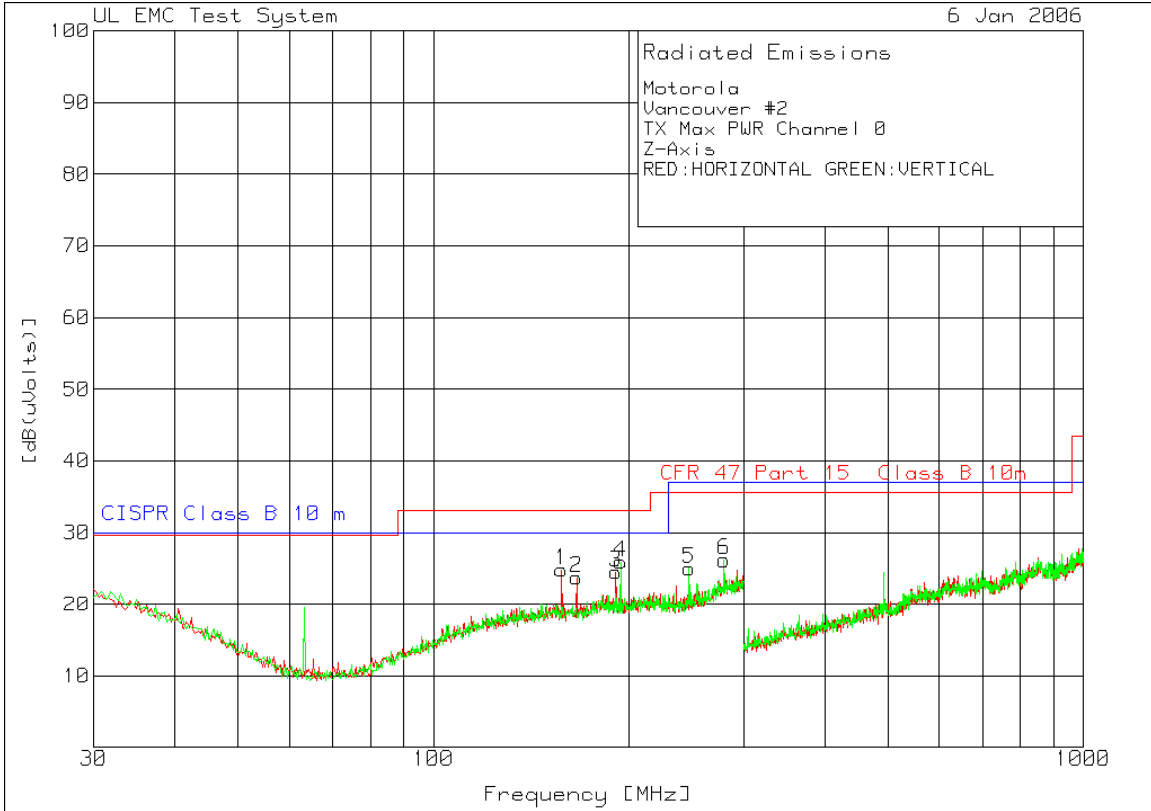


30-1000MHz Low Channel Dual Polarization Y

Motorola
 Vancouver #2
 TX Max PWR Channel 0
 Y-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	30.54	35	pk	-30.7	17.9	22.2	29.6	-7.4	30	-7.8	40	100	Horz
2	141.78	40	pk	-30.5	14.4	23.9	33.1	-9.2	30	-6.1	256	100	Horz
Range 2 30 - 300MHz													
3	249.51	40.8	pk	-29.9	16	26.9	35.6	-8.7	37	-10.1	223	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 10m

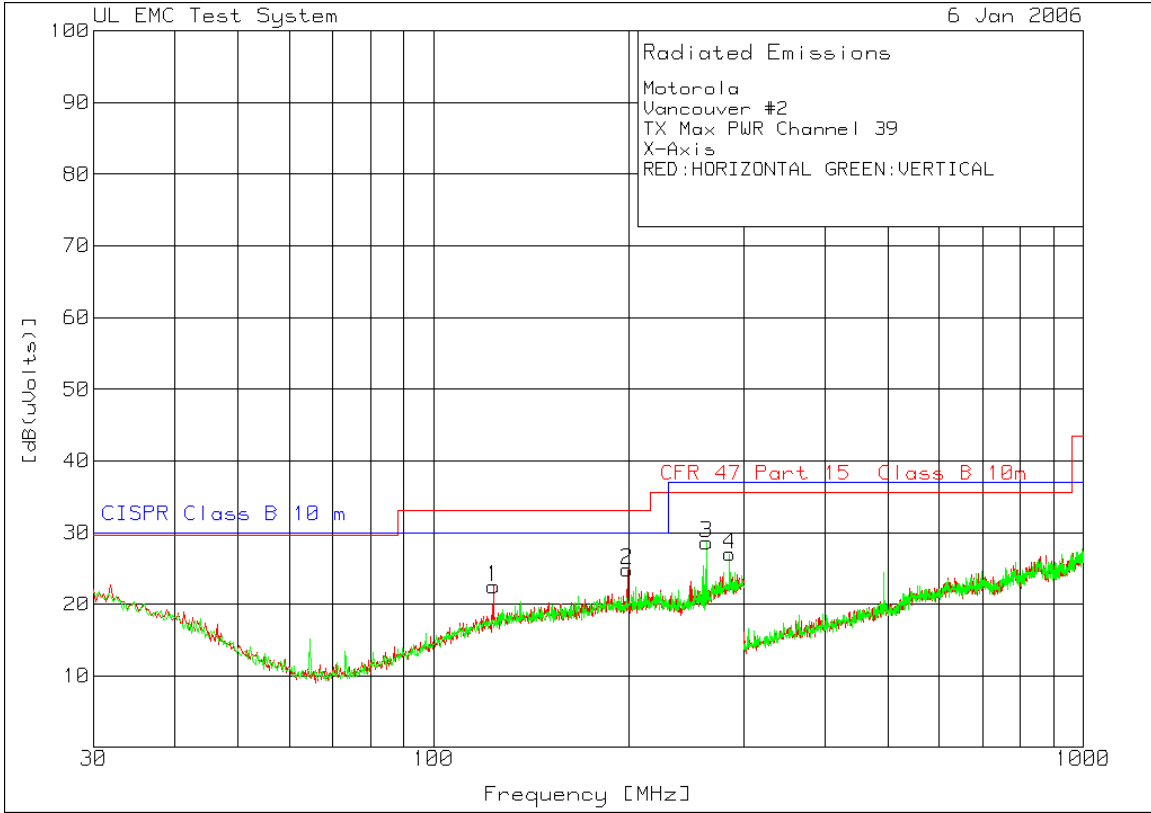


30-1000MHz Low Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 0
 Z-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB(uVolts)	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	157.44	40.3	pk	-30.4	14.9	24.8	33.1	-8.3	30	-5.2	288	100	Horz
2	166.08	39.1	pk	-30.4	15	23.7	33.1	-9.4	30	-6.3	300	100	Horz
3	190.92	39	pk	-30.3	15.8	24.5	33.1	-8.6	30	-5.5	254	100	Horz
Range 2 30 - 300MHz													
4	194.16	40.5	pk	-30.3	15.7	25.9	33.1	-7.2	30	-4.1	120	100	Vert
5	247.35	39.2	pk	-30	15.8	25	35.6	-10.6	37	-12	74	100	Vert
6	280.02	38	pk	-29.7	17.9	26.2	35.6	-9.4	37	-10.8	188	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 10m

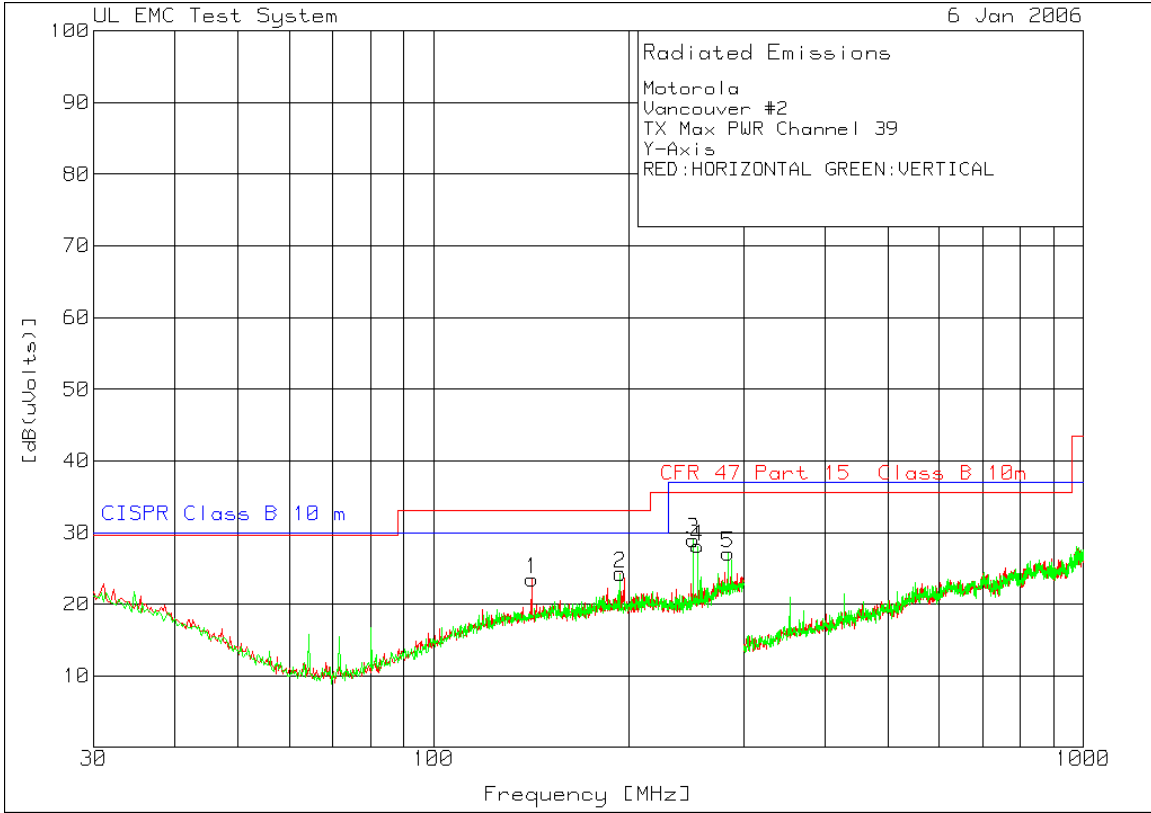


30-1000MHz Mid Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 39
 X-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [deg]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	123.69	39.4	pk	-30.4	13.5	22.5	33.1	-10.6	30	-7.5	106	100	Horz
2	198.75	39.4	pk	-30.4	15.8	24.8	33.1	-8.3	30	-5.2	322	100	Horz
Range 2 30 - 300MHz													
3	263.01	42.1	pk	-30	16.5	28.6	35.6	-7	37	-8.4	315	100	Vert
4	285.69	38.7	pk	-29.8	18.1	27	35.6	-8.6	37	-10	349	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 10m

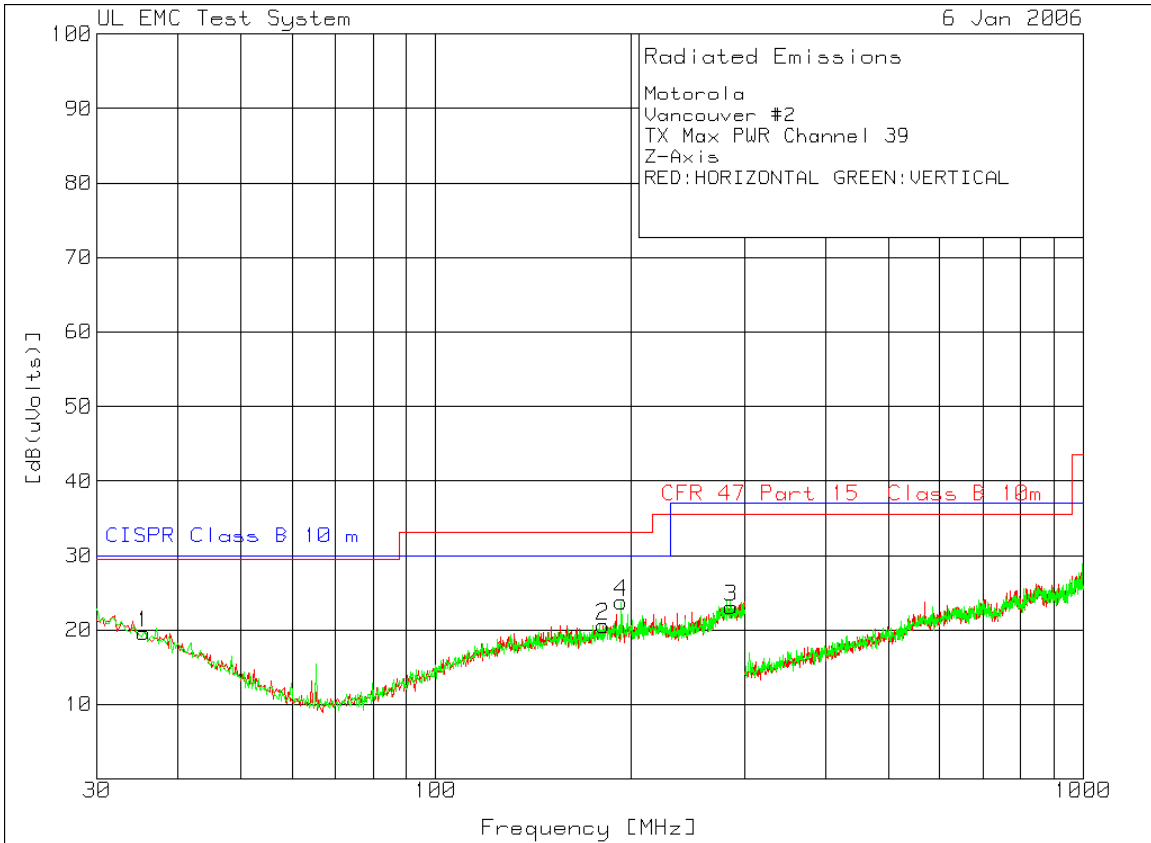


30 -1000MHz Mid Channel Dual Polarization Y

Motorola
Vancouver #2
TX Max PWR Channel 39
Y-Axis
D:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	141.78	39.6	pk	-30.5	14.4	23.5	33.1	-9.6	30	-6.5	311	100	Horz
2	193.89	38.9	pk	-30.3	15.7	24.3	33.1	-8.8	30	-5.7	288	100	Horz
Range 2 30 - 300MHz													
3	251.13	42.9	pk	-30	16.1	29	35.6	-6.6	37	-8	97	100	Vert
4	254.91	41.7	pk	-30	16.4	28.1	35.6	-7.5	37	-8.9	182	100	Vert
5	284.07	38.9	pk	-29.8	18	27.1	35.6	-8.5	37	-9.9	239	100	Vert

IT 1: CFR 47 Part 15 Class B 10m

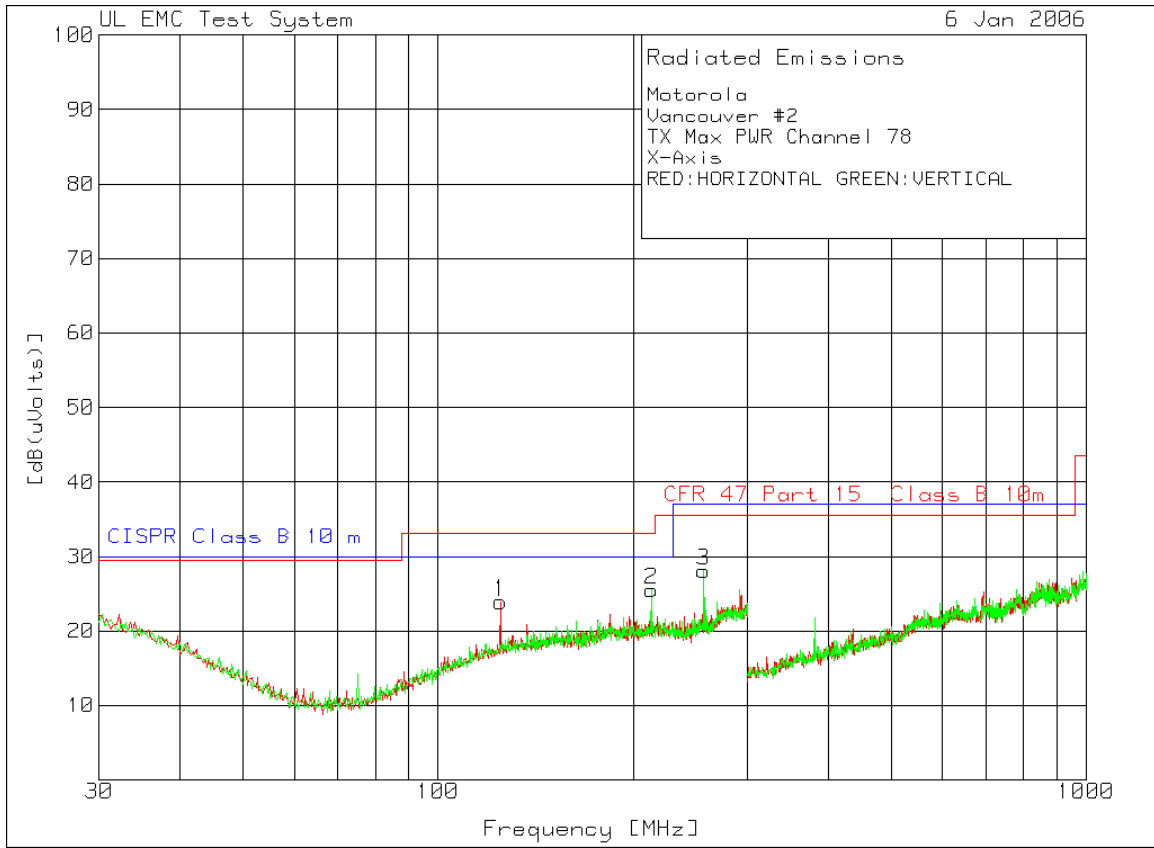


30 -1000MHz Mid Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 39
 Z-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	35.4	34.2	pk	-30.7	16.1	19.6	29.6	-10	30	-10.4	135	100	Horz
2	181.47	35.1	pk	-30.3	15.8	20.6	33.1	-12.5	30	-9.4	323	100	Horz
3	285.69	34.8	pk	-29.8	18.1	23.1	35.6	-12.5	37	-13.9	346	100	Horz
Range 2 30 - 300MHz													
4	193.62	38.4	pk	-30.3	15.7	23.8	33.1	-9.3	30	-6.2	298	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 10m

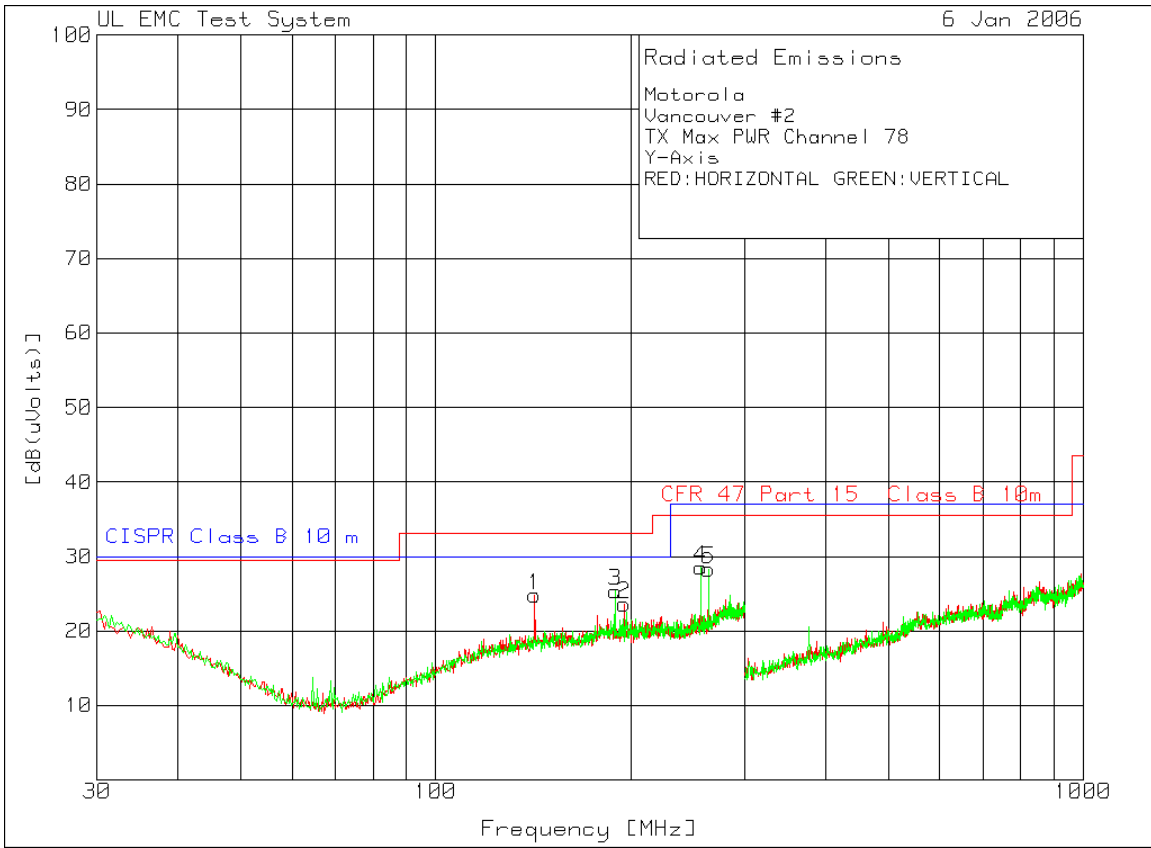


30 -1000MHz High Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 X-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	124.77	40.7	pk	-30.4	13.6	23.9	33.1	-9.2	30	-6.1	267	100	Horz
Range 2 30 - 300MHz													
2	213.33	39.7	pk	-30.1	15.9	25.5	33.1	-7.6	30	-4.5	85	100	Vert
3	257.07	41.8	pk	-30	16.3	28.1	35.6	-7.5	37	-8.9	74	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 10m

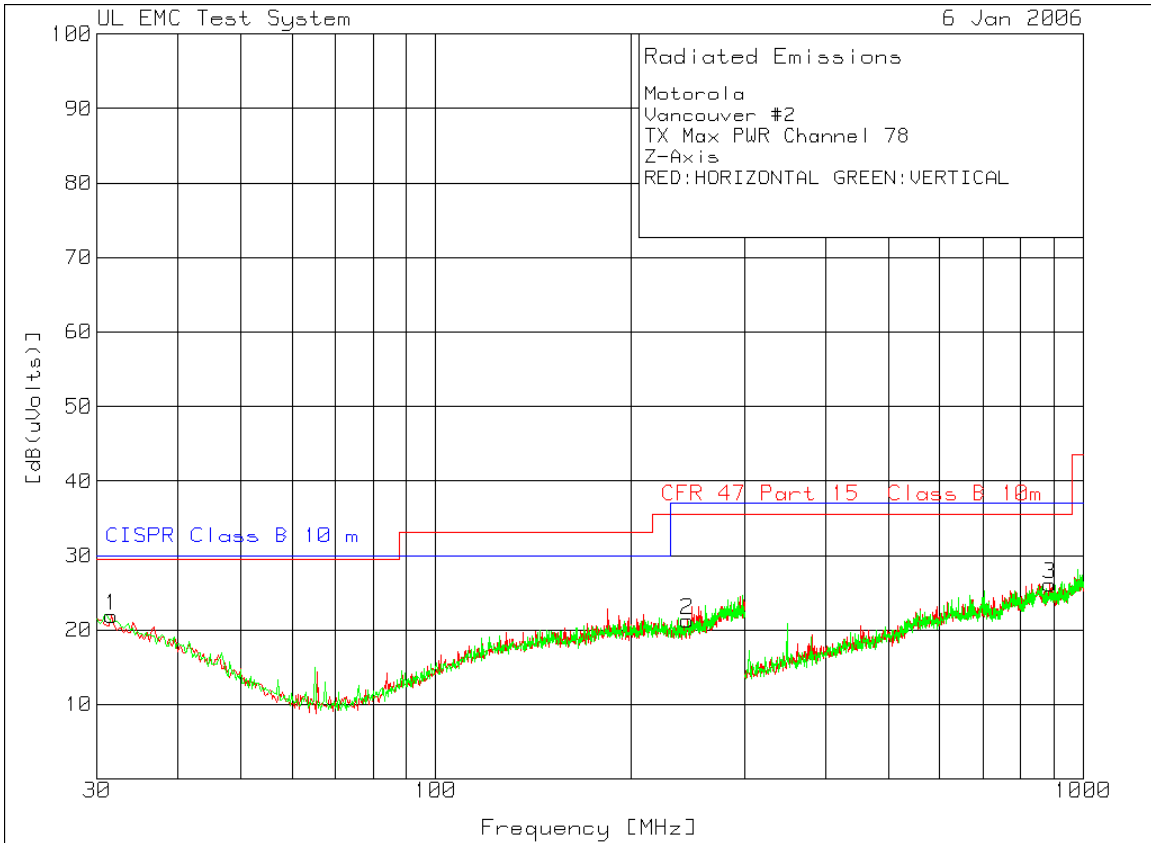


30 -1000MHz High Channel Dual Polarization Y

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 Y-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	142.05	40.9	pk	-30.5	14.4	24.8	33.1	-8.3	30	-5.2	18	100	Horz
2	195.51	38.2	pk	-30.3	15.7	23.6	33.1	-9.5	30	-6.4	327	100	Horz
Range 2 30 - 300MHz													
3	189.3	39.9	pk	-30.3	15.8	25.4	33.1	-7.7	30	-4.6	266	100	Vert
4	256.53	42.2	pk	-30	16.3	28.5	35.6	-7.1	37	-8.5	191	100	Vert
5	263.82	41.7	pk	-30	16.6	28.3	35.6	-7.3	37	-8.7	31	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 10m

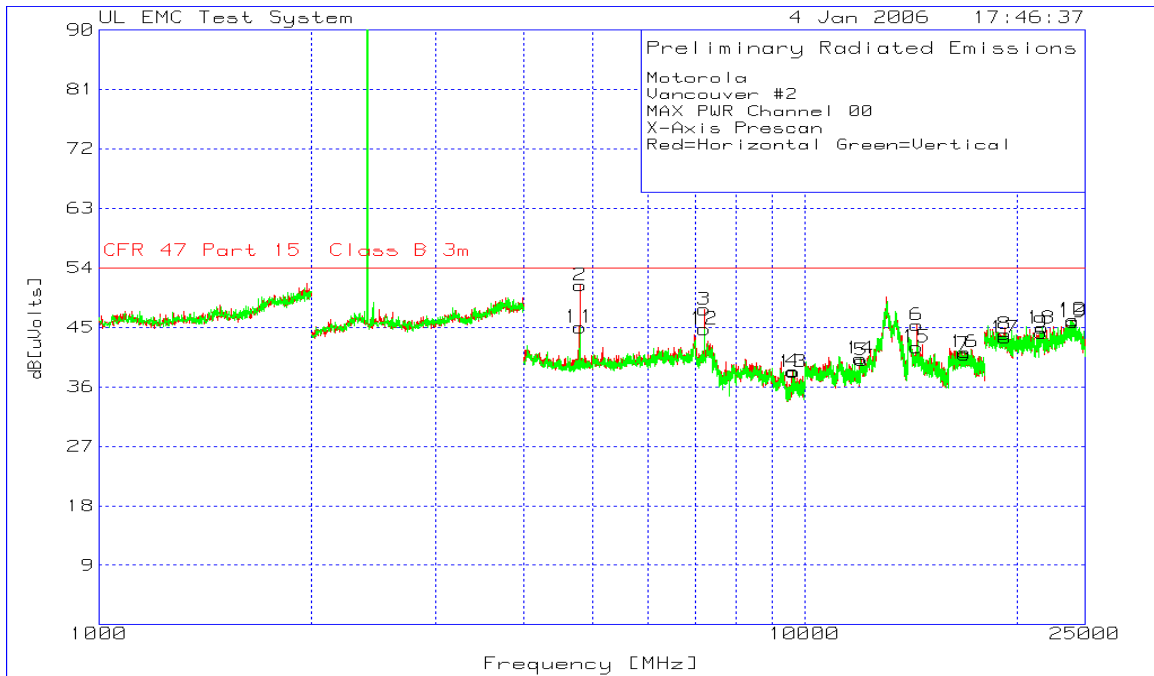


30 -1000MHz High Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 Z-Axis
 RED:HORIZONTAL GREEN:VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Azimuth [degs]	Height [cm]	Polarity
Range 1 30 - 300MHz													
1	31.62	35.2	pk	-30.7	17.4	21.9	29.6	-7.7	30	-8.1	49	100	Horz
2	244.65	35.5	pk	-29.9	15.7	21.3	35.6	-14.3	37	-15.7	303	100	Horz
Range 3 300 - 1000MHz													
3	888.7	35.3	pk	-31.6	22.4	26.1	35.6	-9.5	37	-10.9	212	99	Horz

LIMIT 1: CFR 47 Part 15 Class B 10m

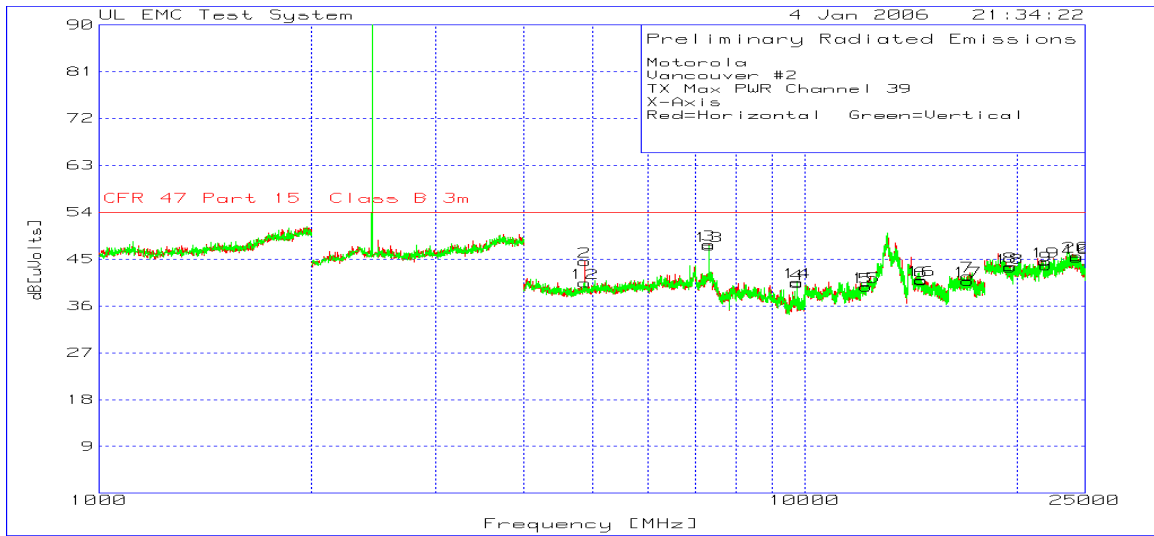


1-25 GHz Low Channel Dual Polarization X

Motorola
 Vancouver #2
 MAX PWR Channel 00
 X-Axis Prescan
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transduce Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
2 - 4GHz 2000 - 4000MHz										
1	2400.802	76.75 pk		4.4	21.8	102.95	54	48.95	100	Horz
4 - 8GHz 4000 - 8000MHz										
2	4804.805	74.24 pk		-50.6	27.7	51.34	54	-2.66	100	Horz
3	7207.207	64.81 pk		-46.9	29.8	47.71	54	-6.29	100	Horz
8 - 12GHz 8000 - 12000MHz										
4	9629.63	50.74 pk		-48.8	36.4	38.34	54	-15.66	100	Horz
12 - 18GHz 12000 - 18000MHz										
5	12052.035	46.19 pk		-45.6	39.4	39.99	54	-14.01	100	Horz
6	14413.609	46.67 pk		-41.1	39.8	45.37	54	-8.63	151	Horz
7	16855.237	41.42 pk		-40.7	40.2	40.92	54	-13.08	151	Horz
18-26.5GHz 18000 - 25000MHz										
8	19208.104	72.2 pk		-68.5	40.3	44	54	-10	149	Horz
9	21645.323	65.15 pk		-61.4	40.4	44.15	54	-9.85	100	Horz
10	23998.499	64.69 pk		-58.9	40.3	46.09	54	-7.91	100	Horz
4 - 8GHz 4000 - 8000MHz										
11	4800.801	68 pk		-50.7	27.7	45	54	-9	100	Vert
12	7207.207	61.85 pk		-46.9	29.8	44.75	54	-9.25	100	Vert
8 - 12GHz 8000 - 12000MHz										
13	9637.638	50.54 pk		-48.7	36.4	38.24	54	-15.76	100	Vert
12 - 18GHz 12000 - 18000MHz										
14	12008.005	46.29 pk		-45.4	39.4	40.29	54	-13.71	100	Vert
15	14413.609	43.3 pk		-41.1	39.8	42	54	-12	100	Vert
16	16855.237	41.75 pk		-40.7	40.2	41.25	54	-12.75	149	Vert
18-26.5GHz 18000 - 25000MHz										
17	19236.118	71.75 pk		-68.6	40.3	43.45	54	-10.55	99	Vert
18	21687.344	65.7 pk		-61.2	40.4	44.9	54	-9.1	149	Vert
19	24002.001	64.41 pk		-58.9	40.3	45.81	54	-8.19	149	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m



1-25 GHz Low Channel Dual Polarization Y

Motorola
Vancouver #2
Max PWR Channel 00
Y-Axis
Red=Horizontal Green=Vertical
Marker
Number

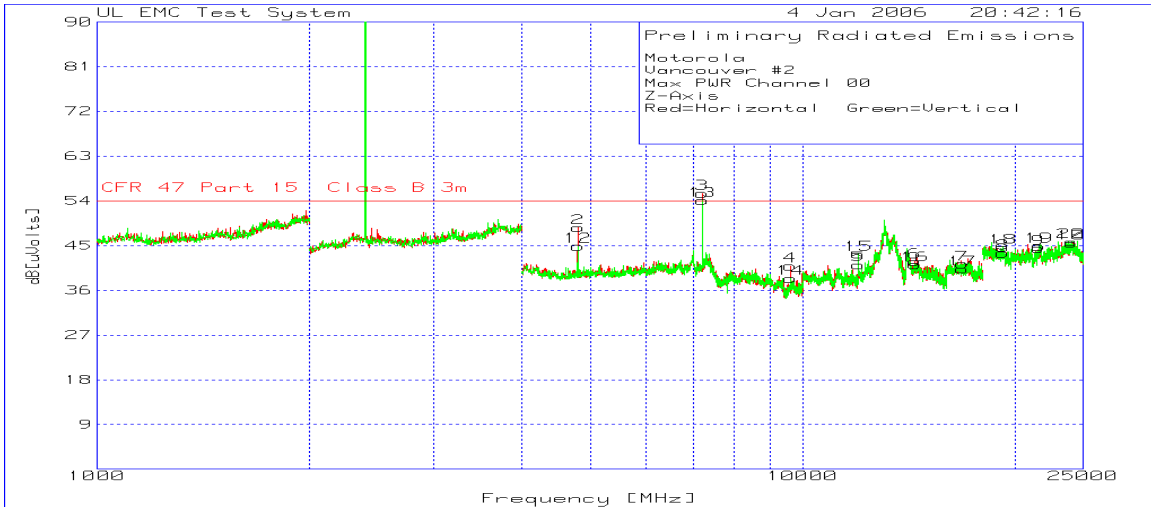
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
1	2400.802	75.14	pk	4.4	21.8	101.34	54	47.34	150	Horz
2	4804.805	71.81	pk	-50.6	27.7	48.91	54	-5.09	100	Horz
3	7207.207	73.99	pk	-46.9	29.8	56.89	54	2.89	100	Horz
4	9609.61	51.32	pk	-49	36.4	38.72	54	-15.28	149	Horz
5	12008.005	50.26	pk	-45.4	39.4	44.26	54	-9.74	149	Horz
6	14413.609	42.54	pk	-41.1	39.8	41.24	54	-12.76	149	Horz
7	16815.21	42.47	pk	-41.3	40.1	41.27	54	-12.73	149	Horz
8	19173.087	73.07	pk	-68.5	40.3	44.87	54	-9.13	149	Horz
9	21606.803	65.45	pk	-61.6	40.3	44.15	54	-9.85	100	Horz
10	23994.998	64.29	pk	-58.8	40.3	45.79	54	-8.21	149	Horz
11	2400.802	76.83	pk	4.4	21.8	103.03	54	49.03	100	Vert
12	4804.805	70.37	pk	-50.6	27.7	47.47	54	-6.53	149	Vert
13	7207.207	63.13	pk	-46.9	29.8	46.03	54	-7.97	100	Vert
14	9609.61	52.09	pk	-49	36.4	39.49	54	-14.51	149	Vert
15	12008.005	45.8	pk	-45.4	39.4	39.8	54	-14.2	149	Vert
16	14405.604	43.69	pk	-41.2	39.8	42.29	54	-11.71	149	Vert
17	16811.207	41.61	pk	-41.3	40.1	40.41	54	-13.59	100	Vert
18	19169.585	71.7	pk	-68.5	40.3	43.5	54	-10.5	149	Vert
19	21613.807	65.83	pk	-61.6	40.3	44.53	54	-9.47	149	Vert
20	23991.496	63.37	pk	-58.8	40.3	44.87	54	-9.13	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

Motorola
Vancouver #2
TX Max PWR Channel
Axis
Red=Horizontal Green=Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Azimuth [degs]	Height [cm]	Polarity
7206 ch0 Y	50.01	av	-46.9	29.7	32.81	54	-21.19	41	127	Vert
7206	50.14	av	-46.9	29.7	32.94	54	-21.06	348	114	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m LIMIT 2: NONE



1-25 GHz Low Channel Dual Polarization Z

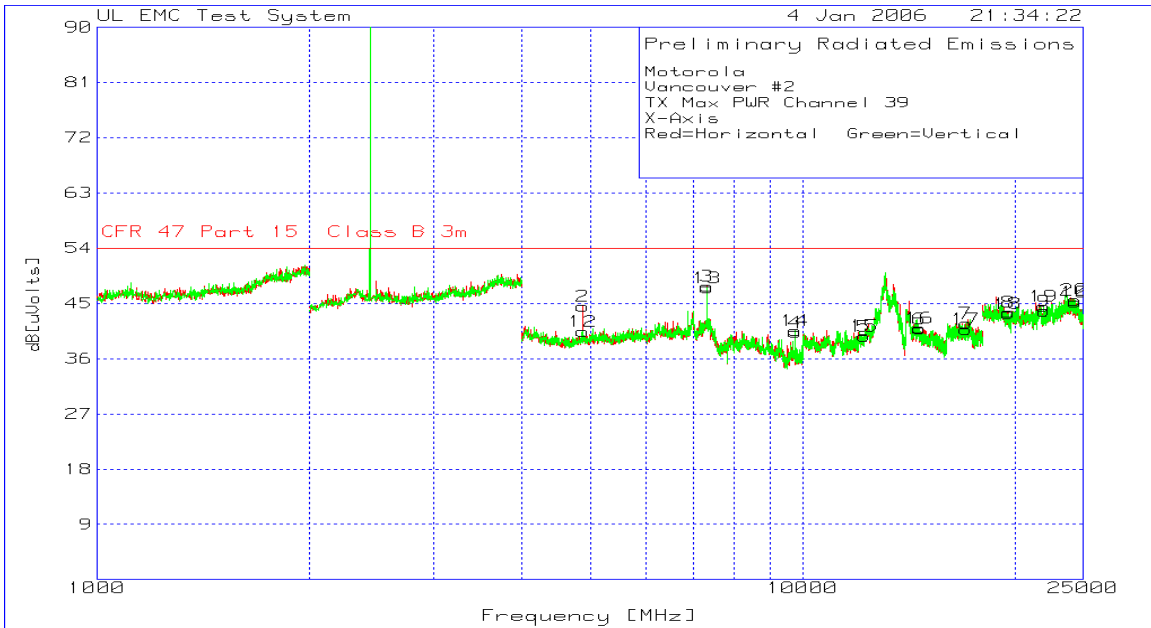
Motorola
Vancouver #2
Max PWR Channel 00
Z-Axis
Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
2 - 4GHz 2000 - 4000MHz 1	2400.802	78.29	pk	4.4	21.8	104.49	54	50.49	100	Horz
4 - 8GHz 4000 - 8000MHz 2	4804.805	71.49	pk	-50.6	27.7	48.59	54	-5.41	100	Horz
3	7207.207	72.62	pk	-46.9	29.8	55.52	54	1.52	100	Horz
8 - 12GHz 8000 - 12000MHz 4	9609.61	53.49	pk	-49	36.4	40.89	54	-13.11	149	Horz
12 - 18GHz 12000 - 18000MHz 5	12008.01	47.09	pk	-45.4	39.4	41.09	54	-12.91	149	Horz
6	14425.62	42.96	pk	-41	39.8	41.76	54	-12.24	100	Horz
7	16851.23	41.68	pk	-40.6	40.2	41.28	54	-12.72	100	Horz
18-26.5GHz 18000 - 25000MHz 8	19225.61	71.72	pk	-68.5	40.3	43.52	54	-10.48	149	Horz
9	21599.8	65.73	pk	-61.6	40.3	44.43	54	-9.57	100	Horz
10	24037.02	63.88	pk	-58.7	40.3	45.48	54	-8.52	149	Horz
2 - 4GHz 2000 - 4000MHz 11	2400.802	72.84	pk	4.4	21.8	99.04	54	45.04	100	Vert
4 - 8GHz 4000 - 8000MHz 12	4804.805	67.79	pk	-50.6	27.7	44.89	54	-9.11	149	Vert
13	7207.207	71.15	pk	-46.9	29.8	54.05	54	0.05	149	Vert
8 - 12GHz 8000 - 12000MHz 14	9609.61	50.97	pk	-49	36.4	38.37	54	-15.63	149	Vert
12 - 18GHz 12000 - 18000MHz 15	12008.01	49.26	pk	-45.4	39.4	43.26	54	-10.74	149	Vert
16	14433.62	42.25	pk	-40.9	39.8	41.15	54	-12.85	100	Vert
17	16859.24	40.81	pk	-40.7	40.2	40.31	54	-13.69	149	Vert
18-26.5GHz 18000 - 25000MHz 18	19250.13	72.94	pk	-68.6	40.3	44.64	54	-9.36	149	Vert
19	21627.81	65.95	pk	-61.5	40.4	44.85	54	-9.15	149	Vert
20	24037.02	64.17	pk	-58.7	40.3	45.77	54	-8.23	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m
Motorola
Vancouver #2
TX Max PWR Channel
Axis
Red=Horizontal Green=Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Azimuth [degs]	Height [cm]	Polarity
7206	49.95	av	-46.9	29.7	32.75	54	-21.25	306	104	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m LIMIT 2: NONE

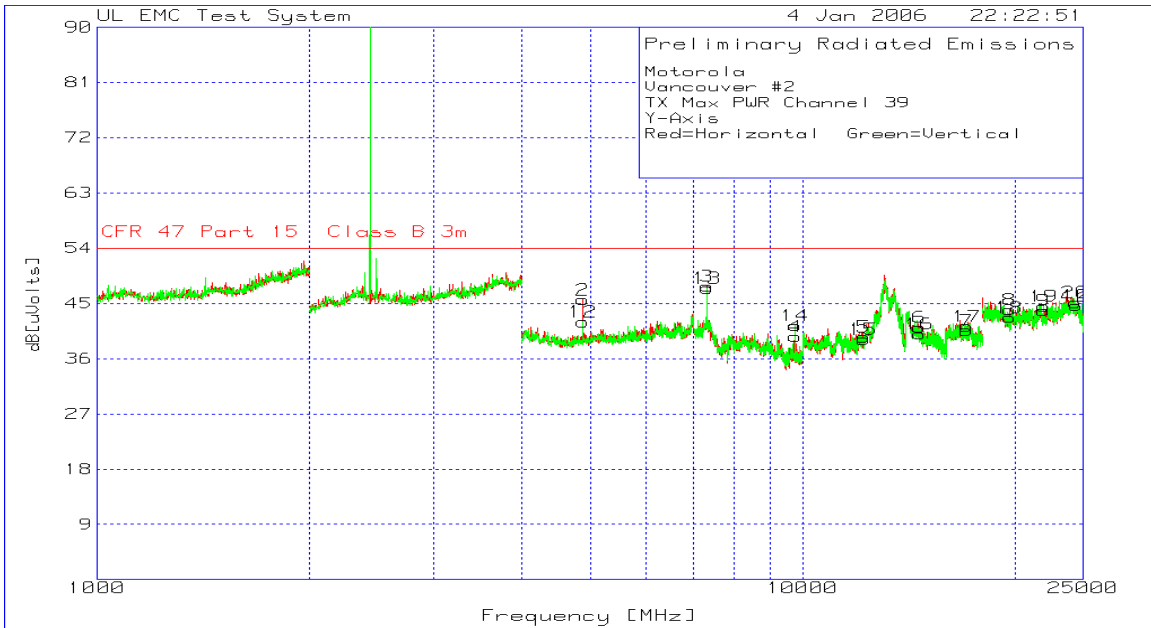


1-25 GHz Mid Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 39
 X-Axis
 Red=Horizontal Green=Vertical
 Marker Number

Test	Meter	Detector	Gain/Loss	Transducer	Level	Limit 1	Margin 1[dB]	Height [cm]	Polarity
Frequency [MHz]	Reading [dB(uV)]	Type	Factor [dB]	Factor [dB]	dB[uVolts]				
2 - 4GHz 2000 - 4000MHz 1	2440.882 77.33	pk	4.2	21.9	103.43	54	49.43	149	Horz
4 - 8GHz 4000 - 8000MHz 2	4880.881 67.35	pk	-50.5	27.7	44.55	54	-9.45	100	Horz
3	7323.323 63.48	pk	-46.3	30.6	47.78	54	-6.22	100	Horz
8 - 12GHz 8000 - 12000MHz 4	9765.766 53.36	pk	-49.5	36.4	40.26	54	-13.74	149	Horz
12 - 18GHz 12000 - 18000MHz 5	12224.15 46.04	pk	-45.8	39.4	39.64	54	-14.36	100	Horz
6	14653.77 41.93	pk	-40.9	39.8	40.83	54	-13.17	149	Horz
7	17031.35 42.62	pk	-41.3	40.4	41.72	54	-12.28	149	Horz
18-26.5GHz 18000 - 25000MHz 8	19561.78 72.48	pk	-69.2	40.3	43.58	54	-10.42	149	Horz
9	21999 63.75	pk	-60.4	40.4	43.75	54	-10.25	149	Horz
10	24341.67 65.88	pk	-61	40.3	45.18	54	-8.82	100	Horz
2 - 4GHz 2000 - 4000MHz 11	2440.882 79.67	pk	4.2	21.9	105.77	54	51.77	100	Vert
4 - 8GHz 4000 - 8000MHz 12	4880.881 63.2	pk	-50.5	27.7	40.4	54	-13.6	100	Vert
13	7323.323 63.2	pk	-46.3	30.6	47.5	54	-6.5	100	Vert
8 - 12GHz 8000 - 12000MHz 14	9765.766 53.64	pk	-49.5	36.4	40.54	54	-13.46	149	Vert
12 - 18GHz 12000 - 18000MHz 15	12232.16 45.89	pk	-45.6	39.4	39.69	54	-14.31	100	Vert
16	14641.76 41.96	pk	-40.8	39.8	40.96	54	-13.04	100	Vert
17	17039.36 41.87	pk	-41.5	40.4	40.77	54	-13.23	149	Vert
18-26.5GHz 18000 - 25000MHz 18	19565.28 72.24	pk	-69.2	40.3	43.34	54	-10.66	149	Vert
19	21949.98 64.4	pk	-60.3	40.4	44.5	54	-9.5	100	Vert
20	24320.66 65.94	pk	-60.7	40.3	45.54	54	-8.46	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

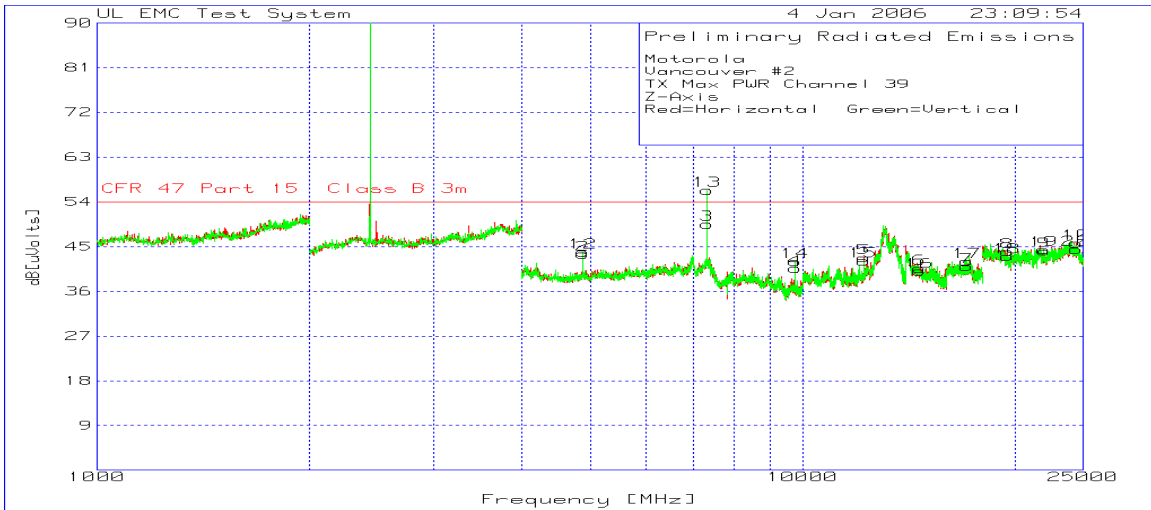


1-25 GHz Mid Channel Dual Polarization Y

Motorola
 Vancouver #2
 TX Max PWR Channel 39
 Y-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
2 - 4GHz 2000 - 4000MHz										
1	2440.882	78.5 pk		4.2	21.9	104.6	54	50.6	149	Horz
4 - 8GHz 4000 - 8000MHz										
2	4880.881	68.38 pk		-50.5	27.7	45.58	54	-8.42	100	Horz
3	7323.323	63.49 pk		-46.3	30.6	47.79	54	-6.21	100	Horz
8 - 12GHz 8000 - 12000MHz										
4	9765.766	52.71 pk		-49.5	36.4	39.61	54	-14.39	149	Horz
12 - 18GHz 12000 - 18000MHz										
5	12204.136	46.45 pk		-46.3	39.4	39.55	54	-14.45	100	Horz
6	14645.764	42.21 pk		-40.9	39.8	41.11	54	-12.89	149	Horz
7	17083.389	41.5 pk		-41.2	40.3	40.6	54	-13.4	149	Horz
18-26.5GHz 18000 - 25000MHz										
8	19642.321	72.96 pk		-69.3	40.3	43.96	54	-10.04	149	Horz
9	21932.466	63.76 pk		-60.3	40.4	43.86	54	-10.14	149	Horz
10	24422.211	65.72 pk		-61.4	40.3	44.62	54	-9.38	100	Horz
2 - 4GHz 2000 - 4000MHz										
11	2440.882	83.72 pk		4.2	21.9	109.82	54	55.82	100	Vert
4 - 8GHz 4000 - 8000MHz										
12	4880.881	64.82 pk		-50.5	27.7	42.02	54	-11.98	100	Vert
13	7323.323	63.17 pk		-46.3	30.6	47.47	54	-6.53	100	Vert
8 - 12GHz 8000 - 12000MHz										
14	9765.766	54.46 pk		-49.5	36.4	41.36	54	-12.64	100	Vert
12 - 18GHz 12000 - 18000MHz										
15	12204.136	46.05 pk		-46.3	39.4	39.15	54	-14.85	149	Vert
16	14649.766	41.1 pk		-40.9	39.8	40	54	-14	100	Vert
17	17083.389	42.19 pk		-41.2	40.3	41.29	54	-12.71	149	Vert
18-26.5GHz 18000 - 25000MHz										
18	19645.823	71.71 pk		-69.3	40.3	42.71	54	-11.29	149	Vert
19	21981.491	64.46 pk		-60.3	40.4	44.56	54	-9.44	149	Vert
20	24387.194	66.23 pk		-61.4	40.3	45.13	54	-8.87	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m



1-25 GHz Mid Channel Dual Polarization Z

Motorola
Vancouver #2
TX Max PWR Channel 39
Z-Axis
Red=Horizontal Green=Vertical

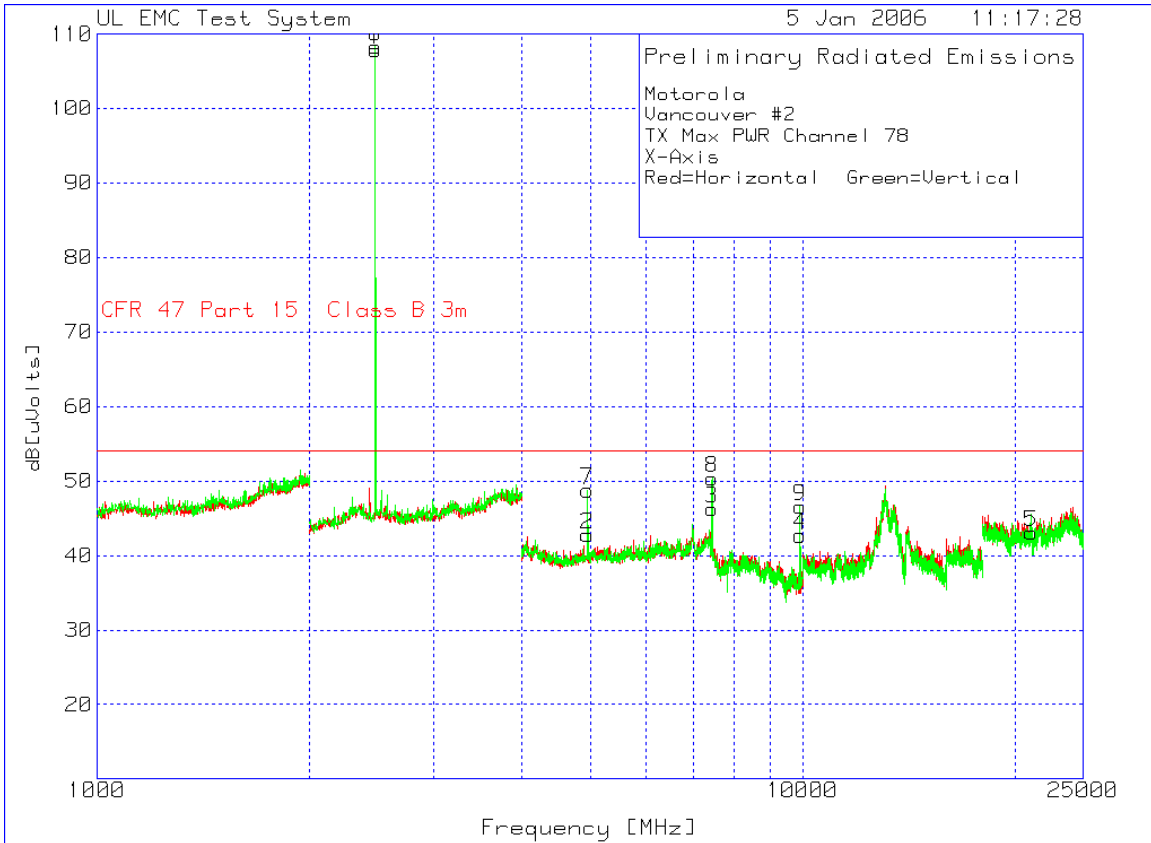
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
1	2440.882	79.82	pk	4.2	21.9	105.92	54	51.92	149	Horz
2	4880.881	66.28	pk	-50.5	27.7	43.48	54	-10.52	100	Horz
3	7323.323	65.21	pk	-46.3	30.6	49.51	54	-4.49	100	Horz
4	9765.766	53.7	pk	-49.5	36.4	40.6	54	-13.4	149	Horz
5	12204.14	49.68	pk	-46.3	39.4	42.78	54	-11.22	100	Horz
6	14661.77	41.63	pk	-40.8	39.8	40.63	54	-13.37	100	Horz
7	17087.39	41.78	pk	-41.1	40.3	40.98	54	-13.02	149	Horz
8	19498.75	72.86	pk	-69.2	40.3	43.96	54	-10.04	149	Horz
9	21999	64.12	pk	-60.4	40.4	44.12	54	-9.88	149	Horz
10	24432.72	66.77	pk	-61.4	40.3	45.67	54	-8.33	149	Horz
11	2440.882	73.89	pk	4.2	21.9	99.99	54	45.99	149	Vert
12	4880.881	66.73	pk	-50.5	27.7	43.93	54	-10.07	100	Vert
13	7323.323	72.04	pk	-46.3	30.6	56.34	54	2.34	100	Vert
14	9765.766	55.11	pk	-49.5	36.4	42.01	54	-11.99	100	Vert
15	12204.14	49.05	pk	-46.3	39.4	42.15	54	-11.85	149	Vert
16	14653.77	41.16	pk	-40.9	39.8	40.06	54	-13.94	100	Vert
17	17087.39	42.83	pk	-41.1	40.3	42.03	54	-11.97	149	Vert
18	19498.75	71.89	pk	-69.2	40.3	42.99	54	-11.01	149	Vert
19	21981.49	64.28	pk	-60.3	40.4	44.38	54	-9.62	149	Vert
20	24422.21	65.57	pk	-61.4	40.3	44.47	54	-9.53	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

Motorola
Vancouver #2
TX Max PWR Channel
Axis
Red=Horizontal Green=Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]
ch39 Z 7323	49.98	av	-46.3	30.6	34.28	54	-19.72

LIMIT 1: CFR 47 Part 15 Class B 3m LIMIT 2: NONE

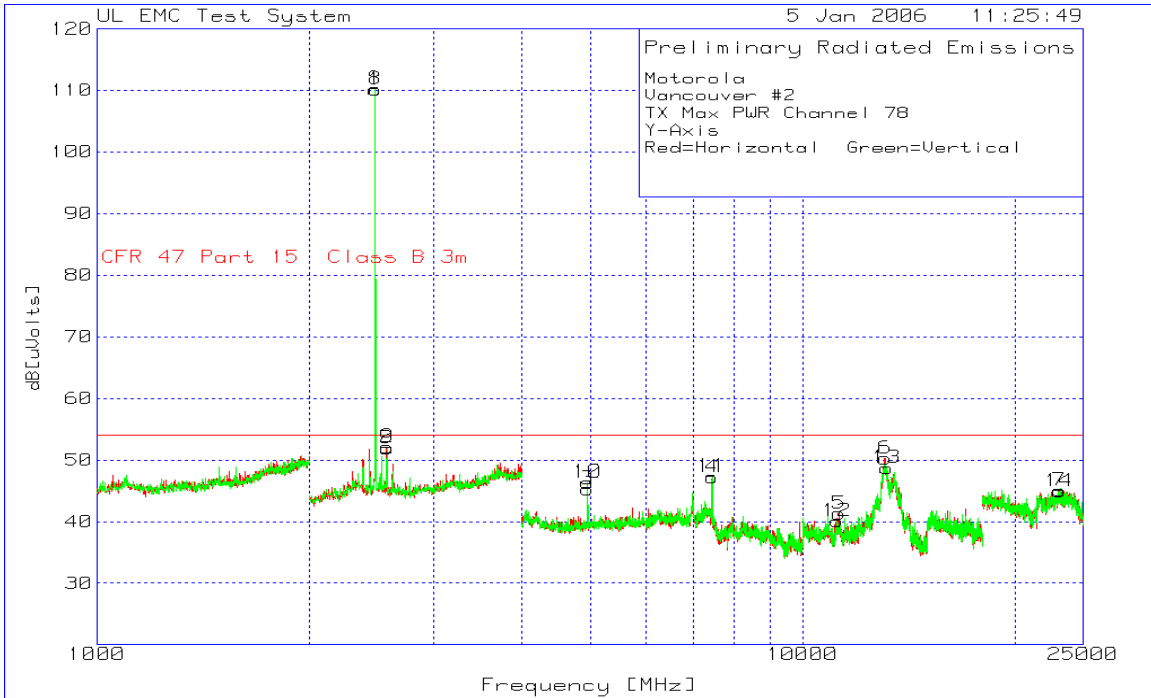


1-25 GHz High Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 X-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
2 - 4GHz 2000 - 4000MHz	1	2480.962	81.76 pk		4.1	22	107.86	54	53.86	100 Horz
4 - 8GHz 4000 - 8000MHz	2	4960.961	65.78 pk		-50.8	27.8	42.78	54	-11.22	100 Horz
	3	7443.443	62.69 pk		-46.9	30.5	46.29	54	-7.71	100 Horz
8 - 12GHz 8000 - 12000MHz	4	9921.922	55.7 pk		-49.4	36.4	42.7	54	-11.3	149 Horz
18-26.5GHz 18000 - 25000MHz	5	21095.548	66.41 pk		-63.4	40.1	43.11	54	-10.89	149 Horz
2 - 4GHz 2000 - 4000MHz	6	2480.962	82.18 pk		4.1	22	108.28	54	54.28	149 Vert
4 - 8GHz 4000 - 8000MHz	7	4960.961	71.76 pk		-50.8	27.8	48.76	54	-5.24	100 Vert
	8	7443.443	66.78 pk		-46.9	30.5	50.38	54	-3.62	100 Vert
8 - 12GHz 8000 - 12000MHz	9	9921.922	59.55 pk		-49.4	36.4	46.55	54	-7.45	149 Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

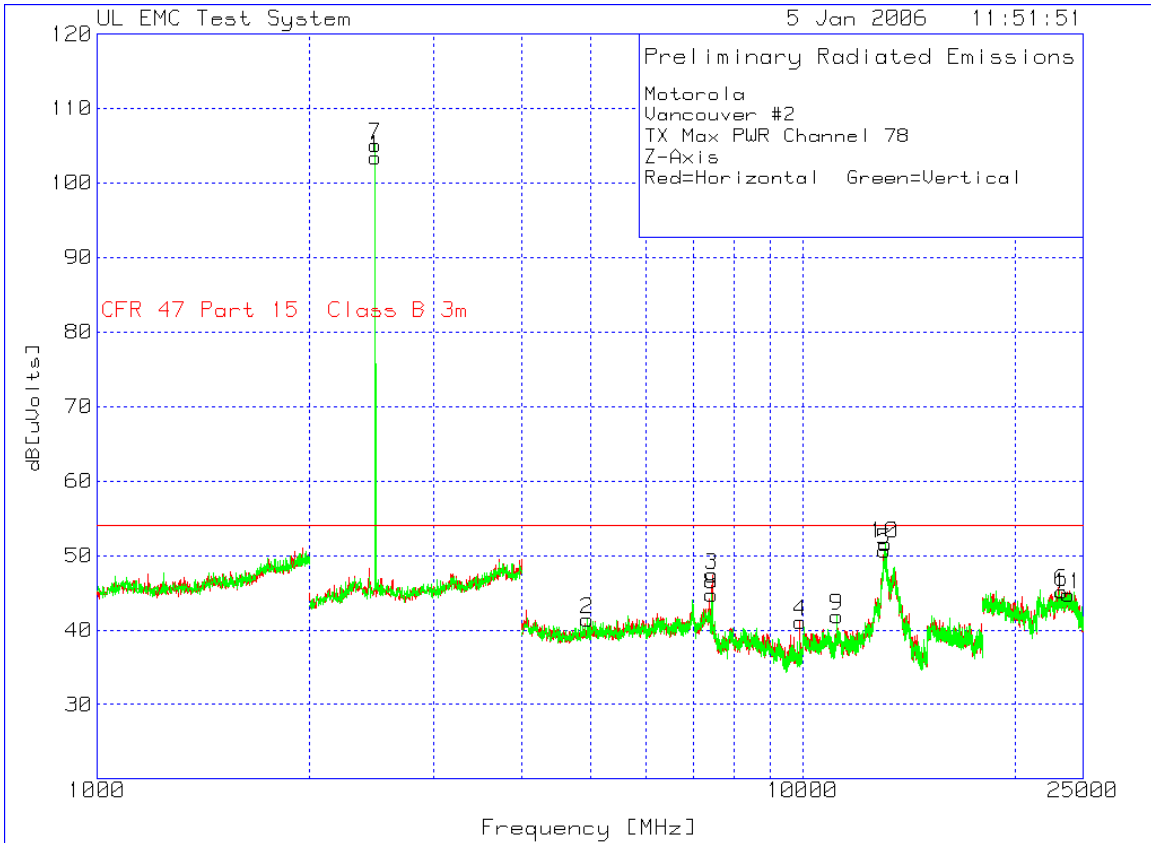


1-25 GHz High Channel Dual Polarization Y

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 Y-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
2 - 4GHz 2000 - 4000MHz										
1	2476.954	84.03	pk	4.1	22.3	110.13	54	56.13	100	Horz
2	2577.154	25.7	pk	4.1	22.3	52.1	54	-1.9	100	Horz
4 - 8GHz 4000 - 8000MHz										
3	4960.961	68.28	pk	-50.8	27.8	45.28	54	-8.72	100	Horz
4	7443.443	63.58	pk	-46.9	30.5	47.18	54	-6.82	100	Horz
8 - 12GHz 8000 - 12000MHz										
5	11251.251	50.81	pk	-46.3	36.8	41.31	54	-12.69	100	Horz
12 - 18GHz 12000 - 18000MHz										
6	13105.105	44.26	pk	-33.8	39.8	50.26	54	-3.74	100	Horz
18-26.5GHz 18000 - 25000MHz										
7	23150.15	60.94	pk	-56.2	40.3	45.04	54	-8.96	100	Horz
2 - 4GHz 2000 - 4000MHz										
8	2480.962	84.09	pk	4.1	22	110.19	54	56.19	100	Vert
9	2577.154	25.45	pk	4.1	22.3	51.85	54	-2.15	100	Vert
4 - 8GHz 4000 - 8000MHz										
10	4960.961	69.34	pk	-50.8	27.8	46.34	54	-7.66	100	Vert
11	7443.443	63.67	pk	-46.9	30.5	47.27	54	-6.73	100	Vert
8 - 12GHz 8000 - 12000MHz										
12	11187.187	48.98	pk	-45.6	36.7	40.08	54	-13.92	100	Vert
12 - 18GHz 12000 - 18000MHz										
13	13159.159	44.49	pk	-35.6	39.8	48.69	54	-5.31	100	Vert
18-26.5GHz 18000 - 25000MHz										
14	23101.101	61	pk	-56.4	40.3	44.9	54	-9.1	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

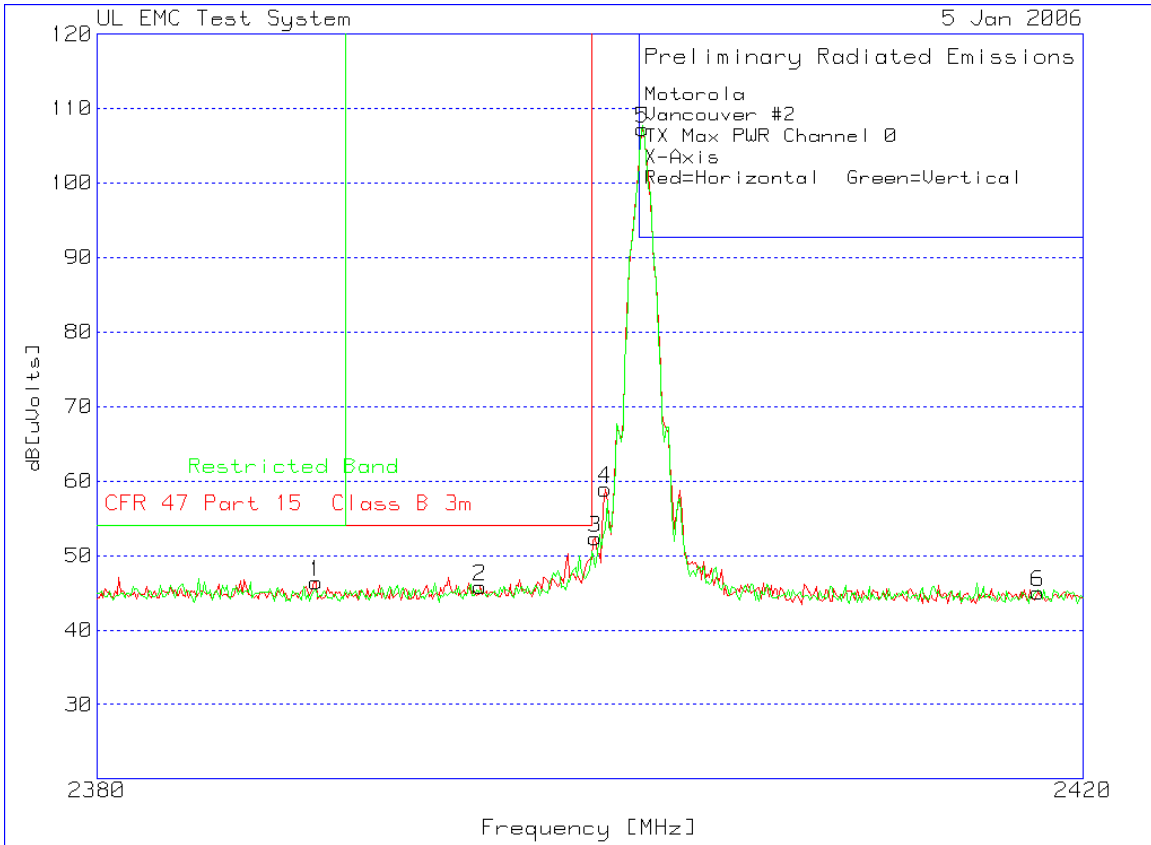


1-25 GHz High Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 Z-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
2 - 4GHz 2000 - 4000MHz	1 2480.962	77.37 pk		4.1	22	103.47	54	49.47	100	Horz
4 - 8GHz 4000 - 8000MHz	2 4960.961	64.38 pk		-50.8	27.8	41.38	54	-12.62	100	Horz
	3 7443.443	63.78 pk		-46.9	30.5	47.38	54	-6.62	100	Horz
8 - 12GHz 8000 - 12000MHz	4 9921.922	54.13 pk		-49.4	36.4	41.13	54	-12.87	100	Horz
12 - 18GHz 12000 - 18000MHz	5 13069.069	44.87 pk		-34	39.8	50.67	54	-3.33	100	Horz
18-26.5GHz 18000 - 25000MHz	6 23332.332	61.16 pk		-56.3	40.3	45.16	54	-8.84	100	Horz
2 - 4GHz 2000 - 4000MHz	7 2480.962	79.01 pk		4.1	22	105.11	54	51.11	100	Vert
4 - 8GHz 4000 - 8000MHz	8 7439.439	61.04 pk		-46.9	30.6	44.74	54	-9.26	100	Vert
8 - 12GHz 8000 - 12000MHz	9 11191.191	50.69 pk		-45.5	36.7	41.89	54	-12.11	100	Vert
12 - 18GHz 12000 - 18000MHz	10 13087.087	45.55 pk		-33.8	39.8	51.55	54	-2.45	100	Vert
18-26.5GHz 18000 - 25000MHz	11 23822.823	61.66 pk		-57.2	40.3	44.76	54	-9.24	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

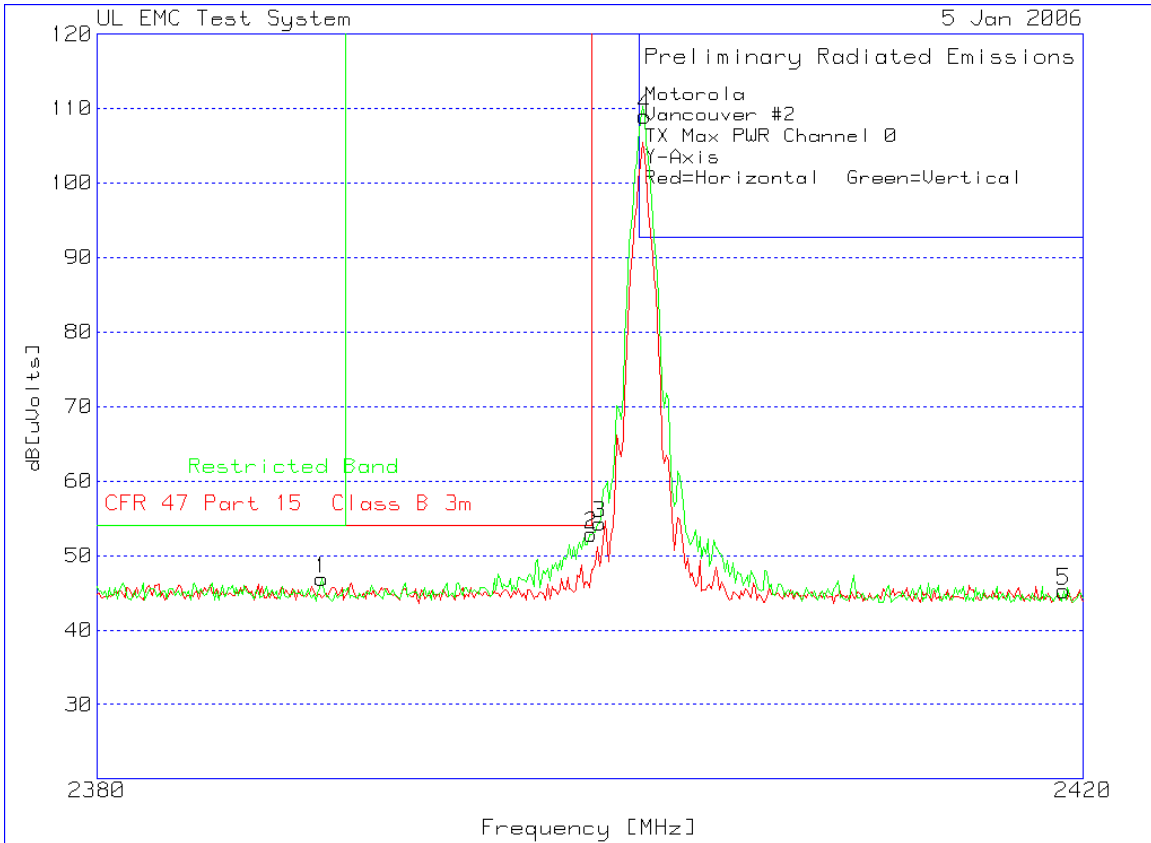


Authorized Band Emissions Low Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 0
 X-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2420MHz												
1	2388.818	20.23	pk	4.4	21.8	46.43	54	-7.57	54	-7.57	100	Horz
2	2395.471	19.61	pk	4.4	21.8	45.81	54	-8.19	999	-953.19	100	Horz
3	2400.12	26.13	pk	4.4	21.8	52.33	999	-946.67	999	-946.67	100	Horz
4	2400.521	32.74	pk	4.4	21.8	58.94	999	-940.06	999	-940.06	100	Horz
5	2402.044	81.06	pk	4.4	21.8	107.26	999	-891.74	999	-891.74	100	Horz
6	2418.156	18.86	pk	4.3	21.9	45.06	999	-953.94	999	-953.94	100	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m



Authorized Band Emissions Low Channel Dual Polarization Y

Motorola
 Vancouver #2
 TX Max PWR Channel 0
 Y-Axis
 Red=Horizontal Green=Vertical

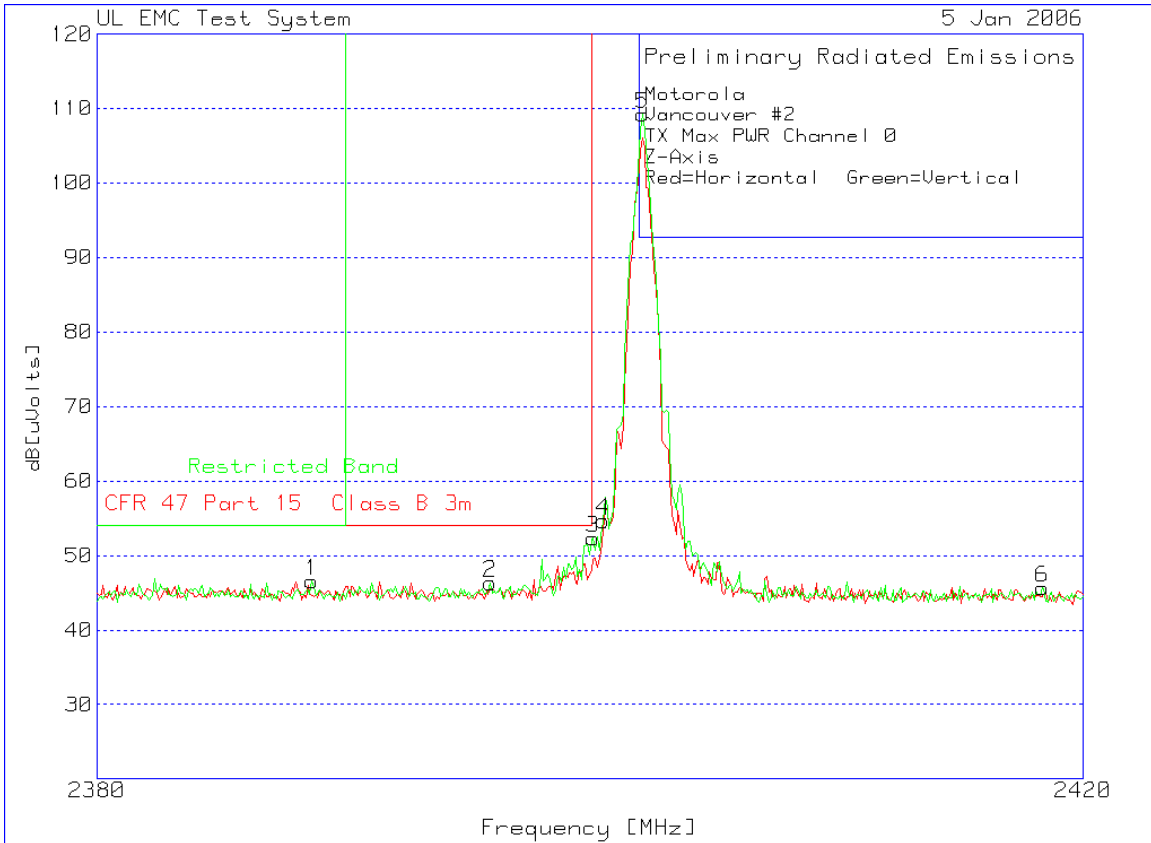
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2420MHz												
1	2389.058	20.64	pk	4.4	21.8	46.84	54	-7.16	54	-7.16	100	Vert
2	2399.96	26.67	pk	4.4	21.8	52.87	54	-1.13	999	-946.13	100	Vert
3	2400.281	28.11	pk	4.4	21.8	54.31	999	-944.69	999	-944.69	100	Vert
4	2402.124	82.76	pk	4.4	21.8	108.96	999	-890.04	999	-890.04	100	Vert
5	2419.198	19.07	pk	4.3	21.9	45.27	999	-953.73	999	-953.73	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

Motorola
 Vancouver #2
 TX Max PWR Channel
 Axis
 Red=Horizontal Green=Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Azimuth [degs]	Height [cm]	Polarity
2400 ch O Y Brt	34.18	av	4.4	21.8	60.38	54	6.38	221	101	Vert
2399.9997	67.33	pk	4.4	21.8	93.53	54	39.53	179	118	Vert
2399.9997	49.91	av	4.4	21.8	76.11	54	22.11	179	118	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m LIMIT 2: NONE

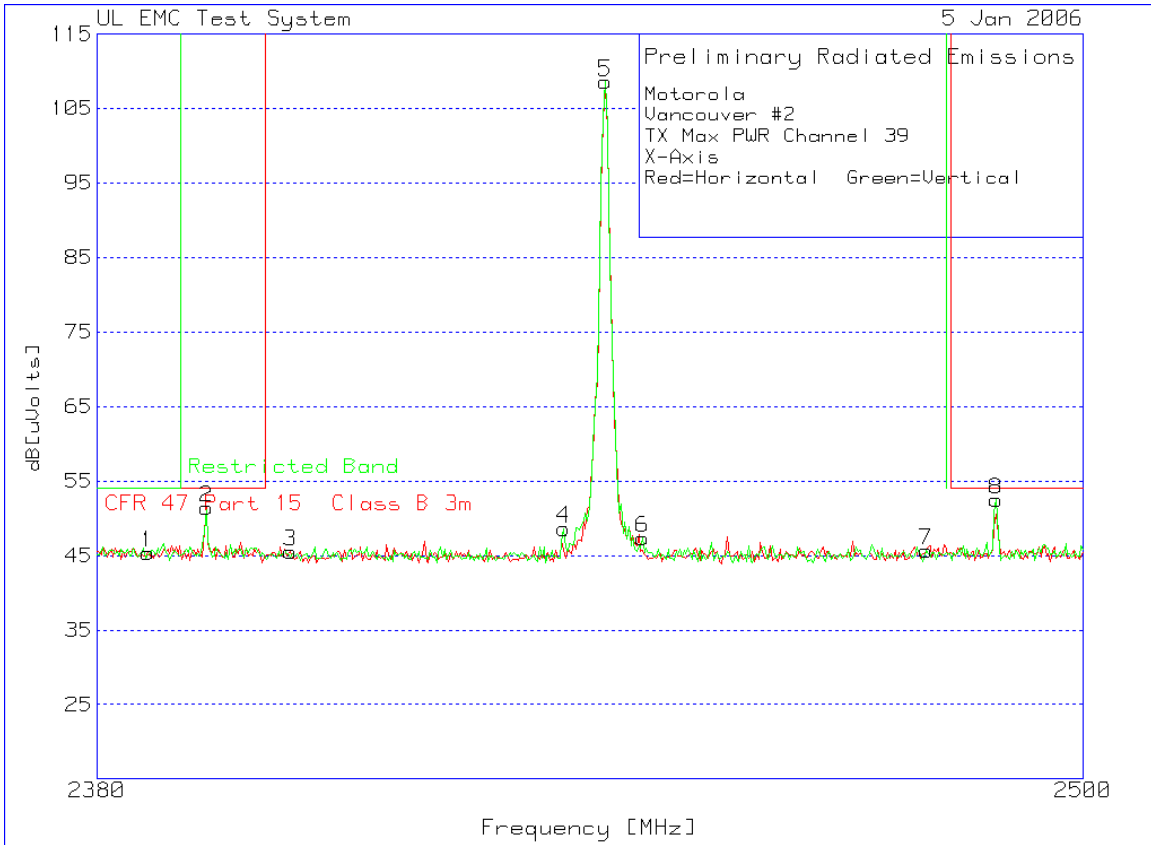


Authorized Band Emissions Low Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 0
 Z-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2420MHz												
1	2388.657	20.36	pk	4.4	21.8	46.56	54	-7.44	54	-7.44	100	Vert
2	2395.872	20.12	pk	4.4	21.8	46.32	54	-7.68	999	-952.68	100	Vert
3	2400.04	26.16	pk	4.4	21.8	52.36	999	-946.64	999	-946.64	100	Vert
4	2400.441	28.5	pk	4.4	21.8	54.7	999	-944.3	999	-944.3	100	Vert
5	2402.044	83.03	pk	4.4	21.8	109.23	999	-889.77	999	-889.77	100	Vert
6	2418.317	19.46	pk	4.3	21.9	45.66	999	-953.34	999	-953.34	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

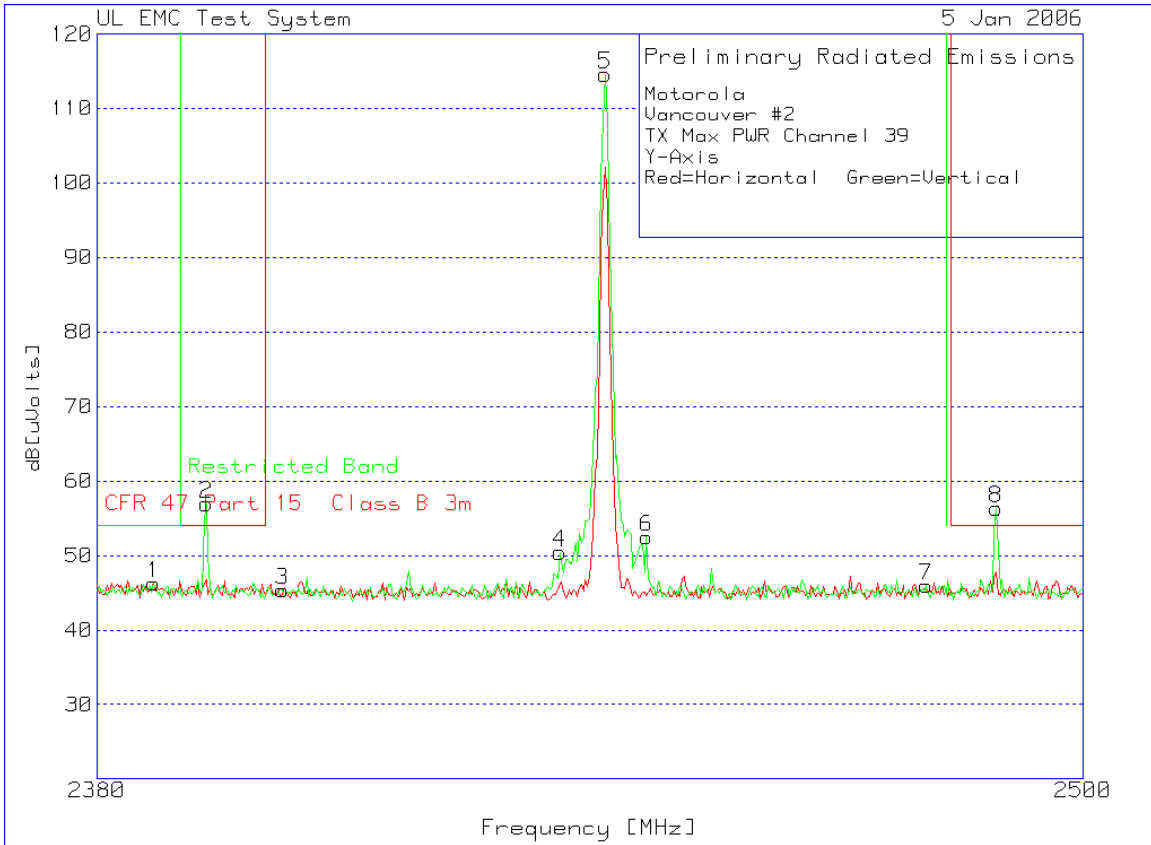


Authorized Band Emissions Mid Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 39
 X-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2500MHz												
1	2386.012	19.13	pk	4.4	21.8	45.33	54	-8.67	54	-8.67	100	Horz
2	2392.986	25.2	pk	4.4	21.8	51.4	54	-2.6	999	-947.6	100	Horz
3	2403.086	19.29	pk	4.4	21.8	45.49	999	-953.51	999	-953.51	100	Horz
2 - 4GHz 2380 - 2500MHz												
4	2436.032	22.54	pk	4.2	21.9	48.64	999	-950.36	999	-950.36	100	Vert
5	2441.082	82.47	pk	4.2	21.9	108.57	999	-890.43	999	-890.43	100	Vert
6	2445.651	21.21	pk	4.2	21.9	47.31	999	-951.69	999	-951.69	100	Vert
7	2480.521	19.53	pk	4.1	22	45.63	999	-953.37	999	-953.37	100	Vert
8	2489.178	26.26	pk	4.1	22.1	52.46	54	-1.54	0	52.46	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m



Authorized Band Emissions Mid Channel Dual Polarization Y

Motorola
Vancouver #2
TX Max PWR Channel 39
Y-Axis
Red=Horizontal Green=Vertical

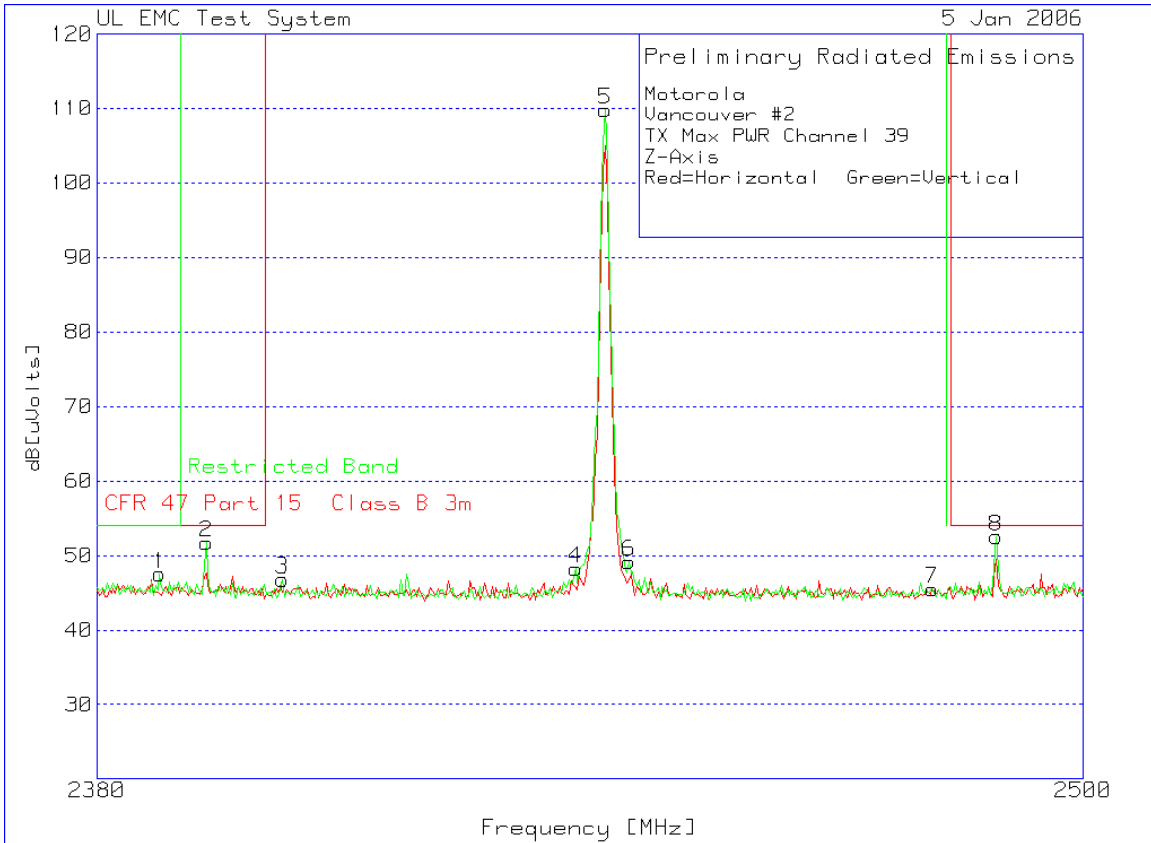
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2500MHz												
1	2386.733	20.1	pk	4.4	21.8	46.3	54	-7.7	54	-7.7	100	Vert
2	2392.986	30.74	pk	4.4	21.8	56.94	54	2.94	999	-942.06	100	Vert
3	2402.124	19.14	pk	4.4	21.8	45.34	999	-953.66	999	-953.66	100	Vert
4	2435.551	24.33	pk	4.2	21.9	50.43	999	-948.57	999	-948.57	100	Vert
5	2441.082	88.5	pk	4.2	21.9	114.6	999	-884.4	999	-884.4	100	Vert
6	2446.132	26.38	pk	4.2	21.9	52.48	999	-946.52	999	-946.52	100	Vert
7	2480.521	19.87	pk	4.1	22	45.97	999	-953.03	999	-953.03	100	Vert
8	2489.178	30.14	pk	4.1	22.1	56.34	54	2.34	0	56.34	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

Motorola
Vancouver #2
TX Max PWR Channel
Axis
Red=Horizontal Green=Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Azimuth [degs]	Height [cm]	Polarity
2393	18.42	av	4.4	21.8	44.62	54	-9.38	171	115	Vert
2489.1	15.64	av	4.1	22.1	41.84	54	-12.16	229	119	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m LIMIT 2: NONE

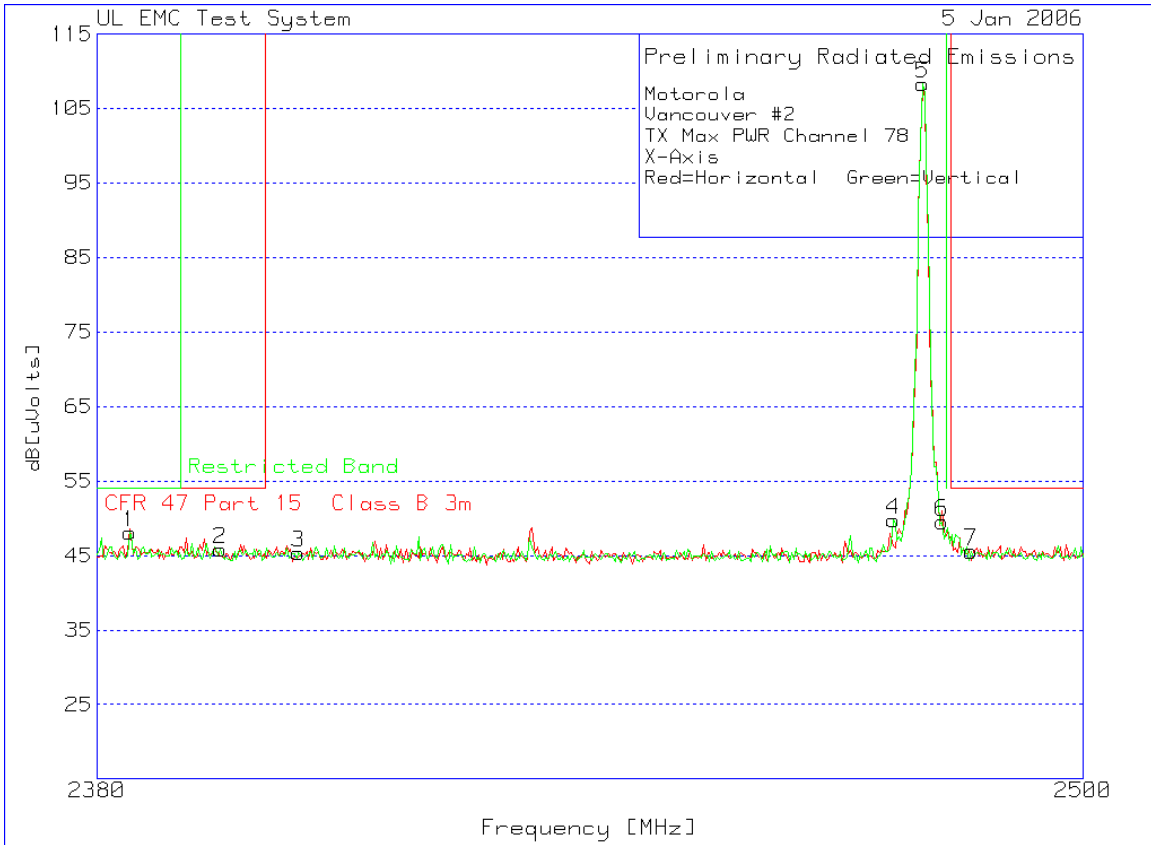


Authorized Band Emissions Mid Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 39
 Z-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2500MHz												
1	2387.455	21.32	pk	4.4	21.8	47.52	54	-6.48	54	-6.48	100	Vert
2	2392.986	25.5	pk	4.4	21.8	51.7	54	-2.3	999	-947.3	100	Vert
3	2402.124	20.59	pk	4.4	21.8	46.79	999	-952.21	999	-952.21	100	Vert
4	2437.475	22.11	pk	4.2	21.9	48.21	999	-950.79	999	-950.79	100	Vert
5	2441.082	83.68	pk	4.2	21.9	109.78	999	-889.22	999	-889.22	100	Vert
6	2443.968	23.08	pk	4.2	21.9	49.18	999	-949.82	999	-949.82	100	Vert
7	2481.243	19.39	pk	4.1	22	45.49	999	-953.51	999	-953.51	100	Vert
8	2489.178	26.33	pk	4.1	22.1	52.53	54	-1.47	0	52.53	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

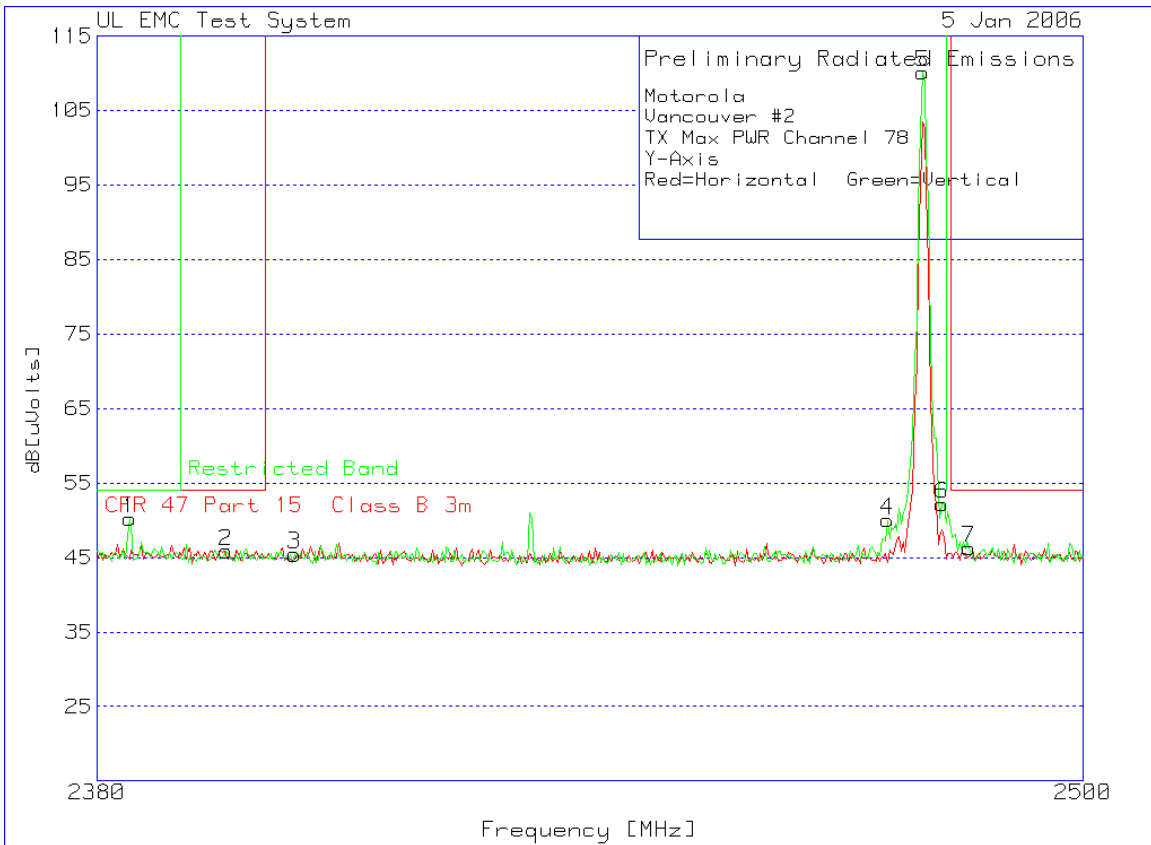


Authorized Band Emissions High Channel Dual Polarization X

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 X-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2500MHz												
1	2383.848	21.9	pk	4.4	21.8	48.1	54	-5.9	54	-5.9	100	Vert
2	2394.669	19.63	pk	4.4	21.8	45.83	54	-8.17	999	-953.17	100	Vert
3	2404.048	19.18	pk	4.4	21.8	45.38	999	-953.62	999	-953.62	100	Vert
4	2476.433	23.65	pk	4.1	22	49.75	999	-949.25	999	-949.25	100	Vert
5	2480.04	82.23	pk	4.1	22	108.33	999	-890.67	999	-890.67	100	Vert
6	2482.445	23.45	pk	4.1	22	49.55	999	-949.45	999	-949.45	100	Vert
7	2486.052	19.37	pk	4.1	22.1	45.57	54	-8.43	0	45.57	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m



Authorized Band Emissions High Channel Dual Polarization Y

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 Y-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2500MHz												
1	2383.848	24	pk	4.4	21.8	50.2	54	-3.8	54	-3.8	100	Vert
2	2395.391	19.66	pk	4.4	21.8	45.86	54	-8.14	999	-953.14	100	Vert
3	2403.567	19.24	pk	4.4	21.8	45.44	999	-953.56	999	-953.56	100	Vert
4	2475.711	23.92	pk	4.1	22	50.02	999	-948.98	999	-948.98	100	Vert
5	2480.04	83.99	pk	4.1	22	110.09	999	-888.91	999	-888.91	100	Vert
6	2482.445	26.1	pk	4.1	22	52.2	999	-946.8	999	-946.8	100	Vert
7	2485.812	20.09	pk	4.1	22.1	46.29	54	-7.71	0	46.29	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m



Authorized Band Emissions High Channel Dual Polarization Z

Motorola
 Vancouver #2
 TX Max PWR Channel 78
 Z-Axis
 Red=Horizontal Green=Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Height [cm]	Polarity
2 - 4GHz 2380 - 2500MHz												
1	2383.848	22.93	pk	4.4	21.8	49.13	54	-4.87	54	-4.87	100	Vert
2	2396.593	20.04	pk	4.4	21.8	46.24	54	-7.76	999	-952.76	100	Vert
3	2403.567	19.51	pk	4.4	21.8	45.71	999	-953.29	999	-953.29	100	Vert
4	2477.635	22.48	pk	4.1	22	48.58	999	-950.42	999	-950.42	100	Vert
5	2480.04	82.14	pk	4.1	22	108.24	999	-890.76	999	-890.76	100	Vert
6	2481.964	26.58	pk	4.1	22	52.68	999	-946.32	999	-946.32	100	Vert
7	2485.331	20.91	pk	4.1	22.1	47.11	54	-6.89	0	47.11	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

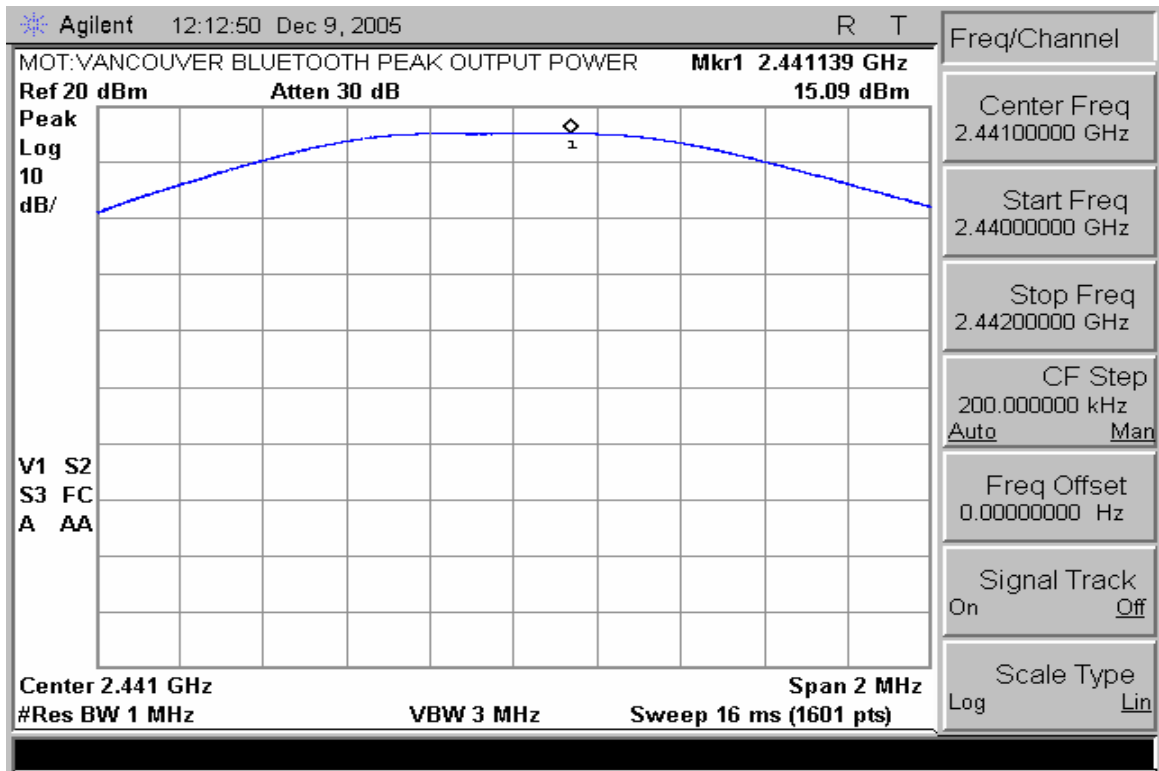
PEAK OUTPUT POWER

CFR 47 Part 15.247

Measurement Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

Measurement Results



Peak Output Power

BAND-EDGE COMPLIANCE OF RF CONDUCTED EMISSIONS

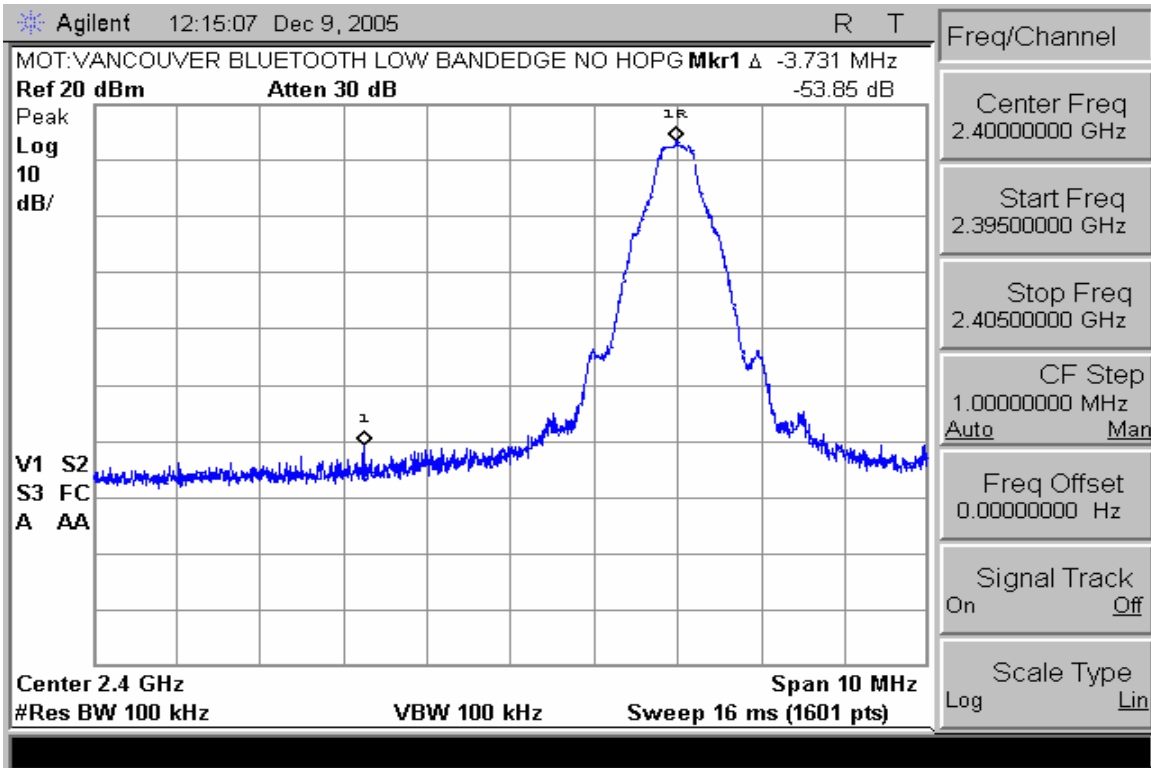
CFR 47 Part 15.247

Measurement Procedure

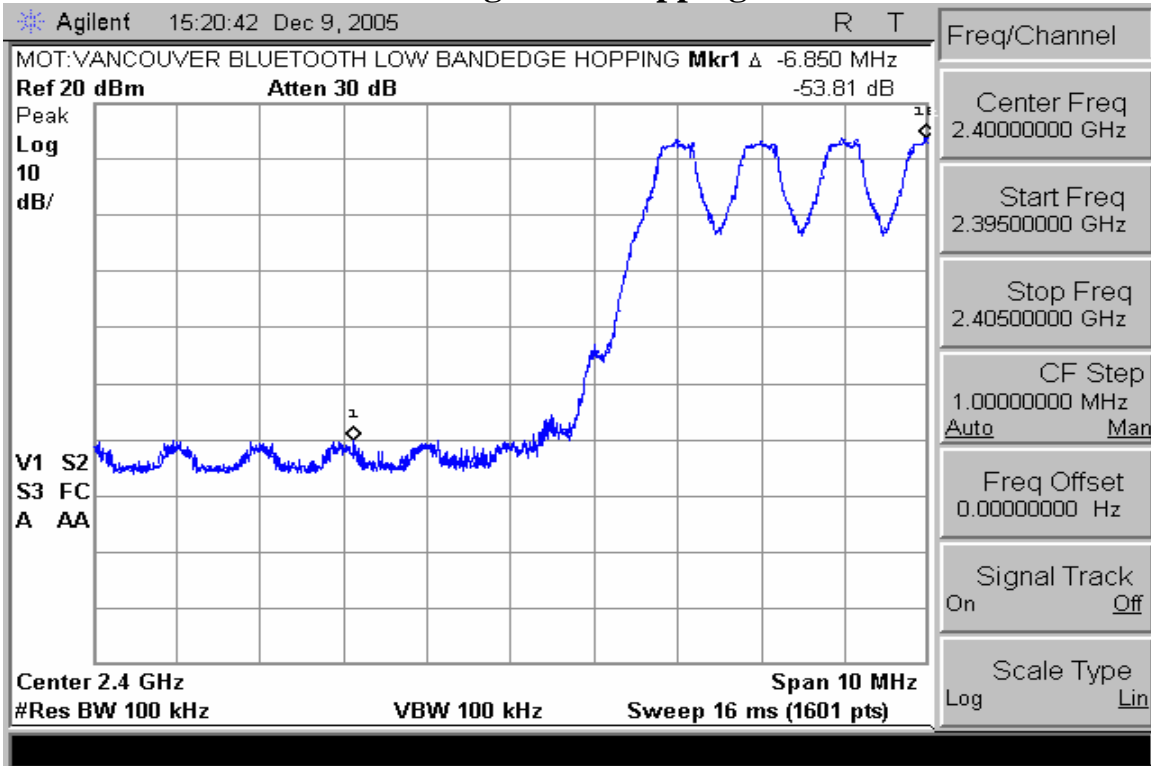
The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

Measurement Results

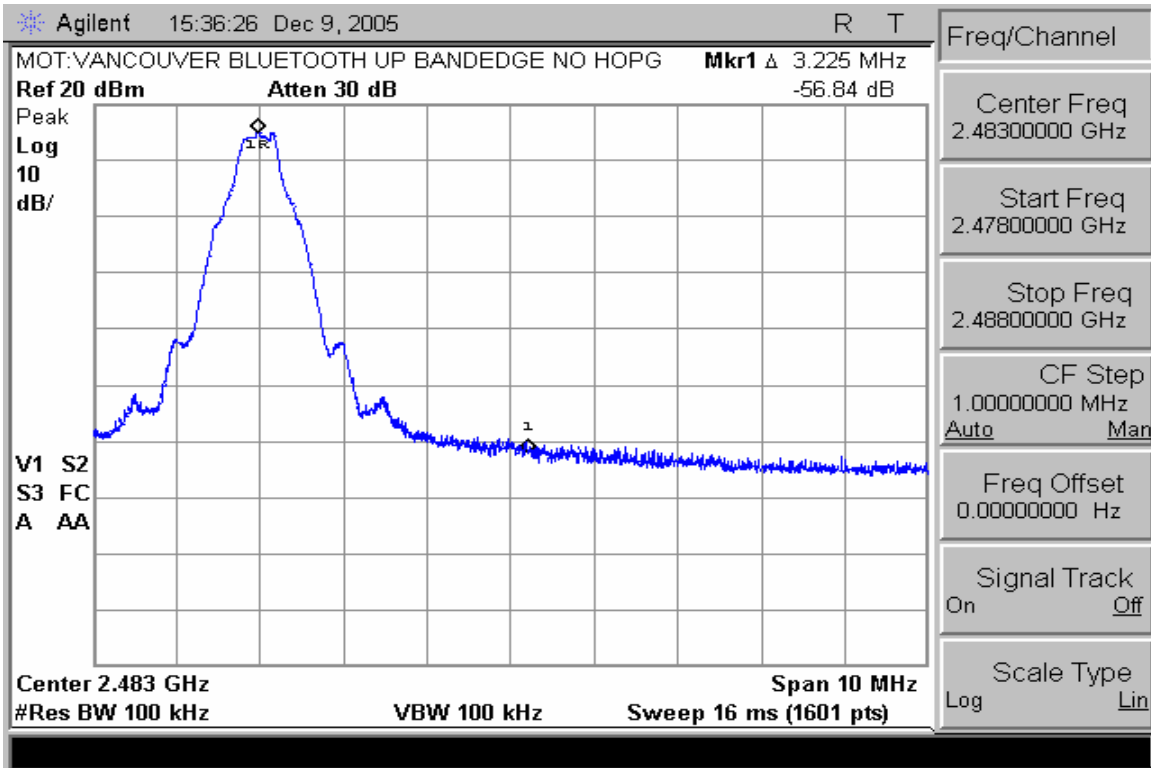
See Attached:



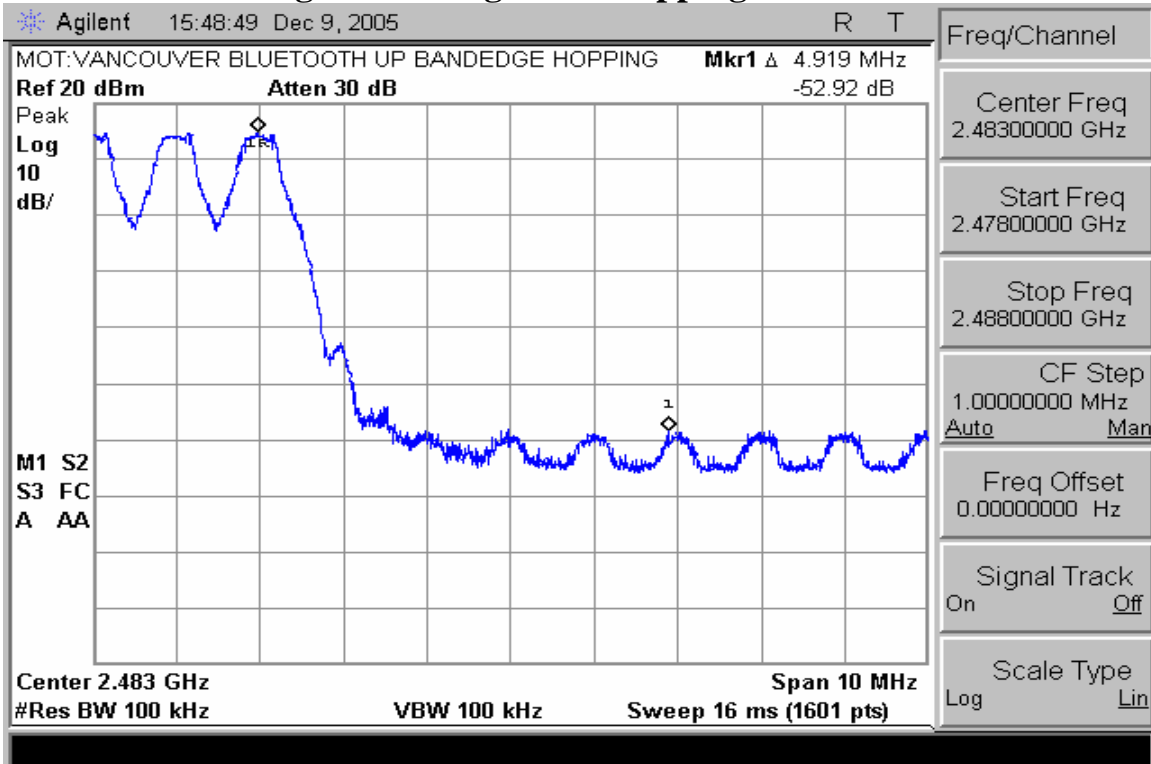
Low Band Edge with Hopping Disabled



Low Band Edge with Hopping Enabled



High Band Edge with Hopping Disabled



High Band Edge with Hopping Enabled

SPURIOUS RF CONDUCTED EMISSIONS

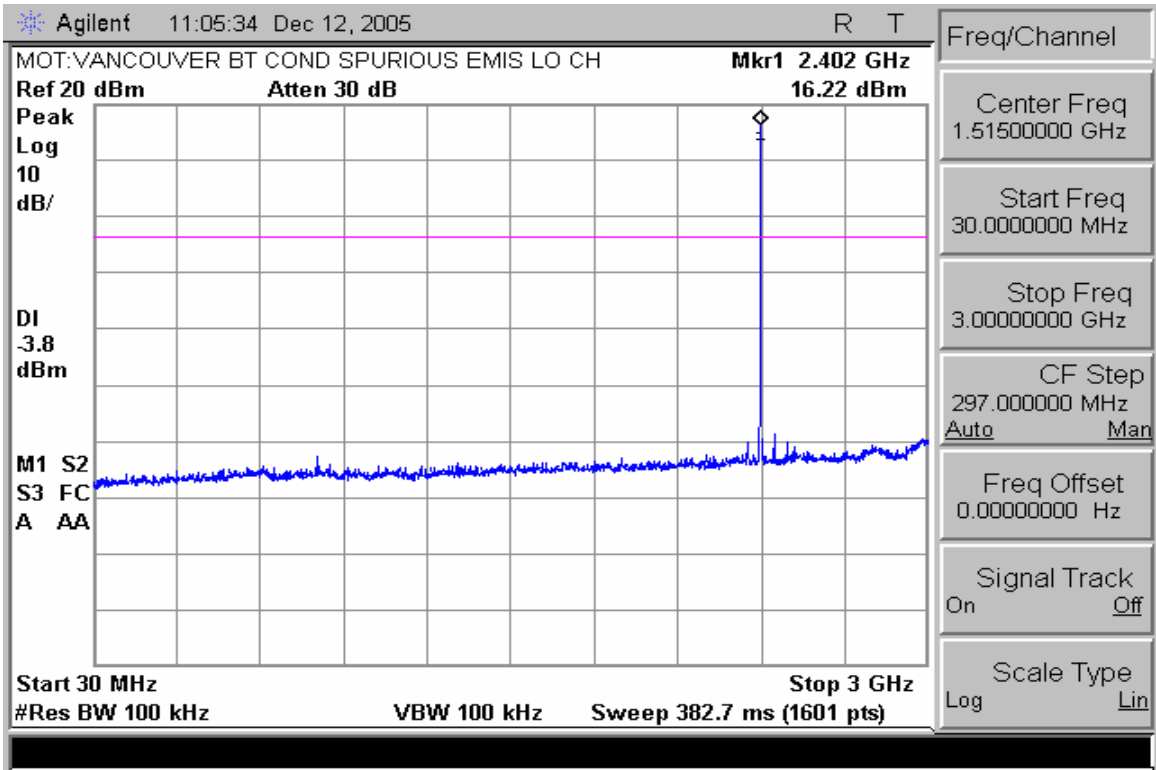
CFR 47 Part 15.247

Measurement Procedure

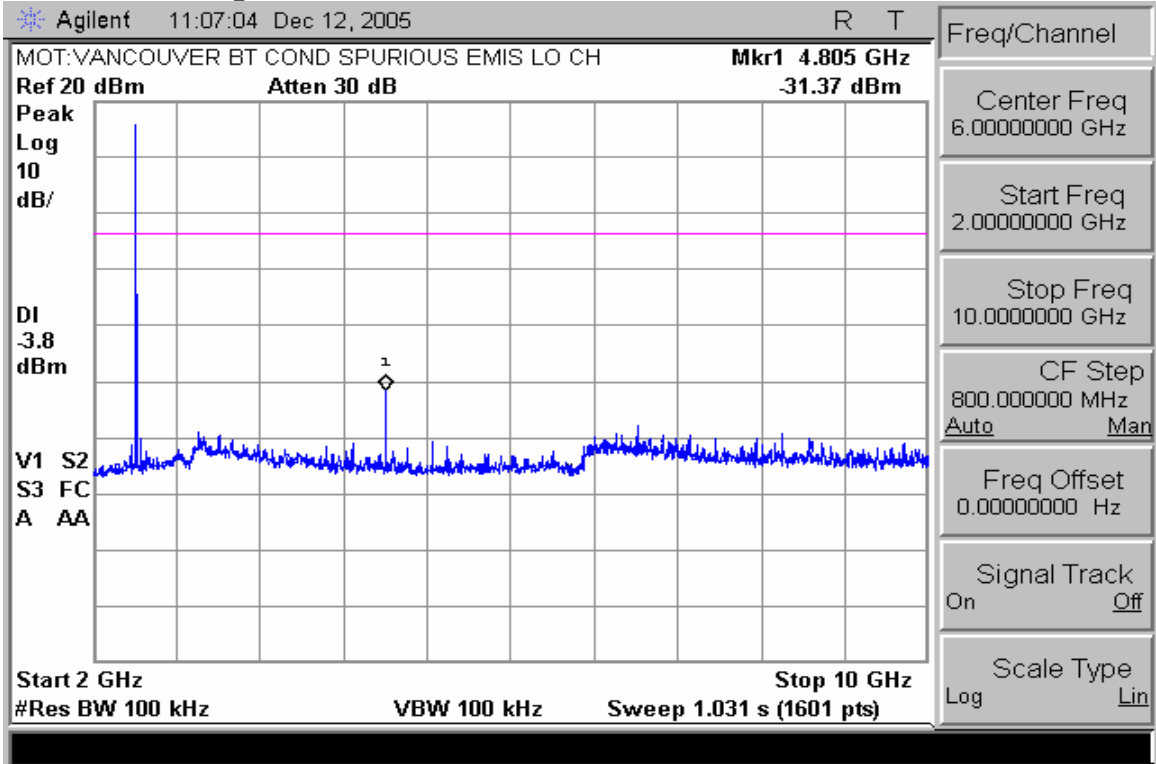
The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

Measurement Results

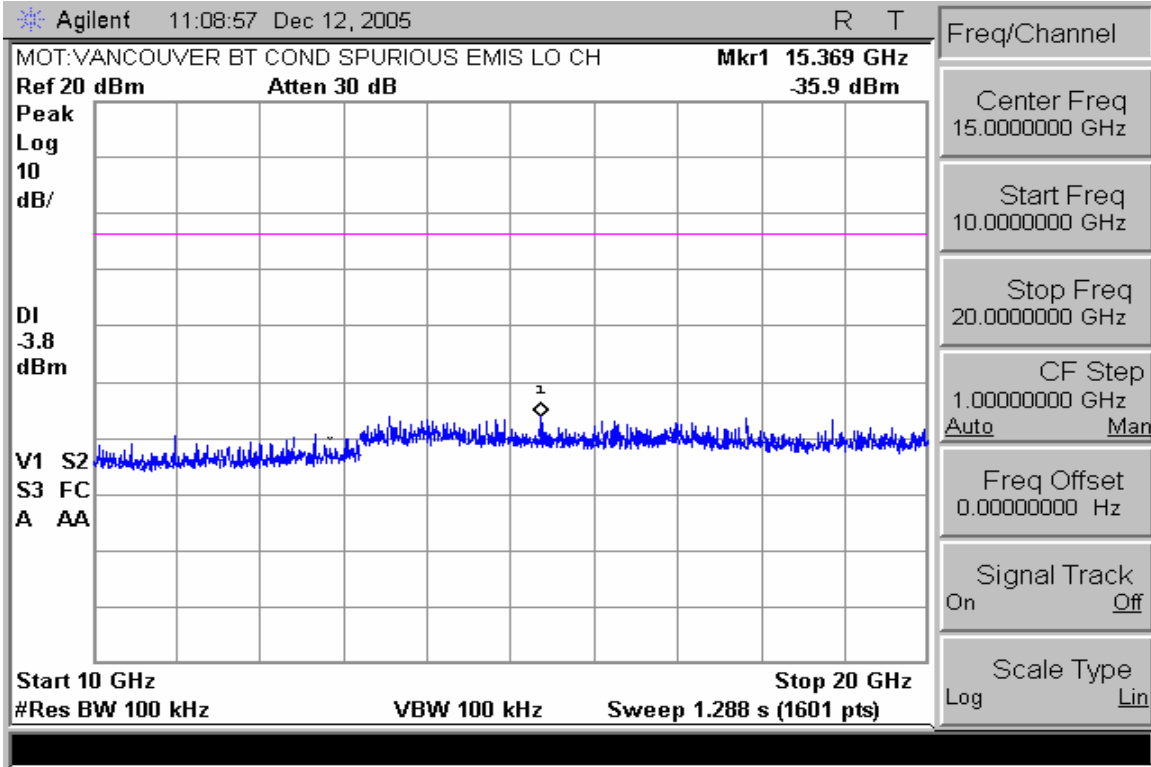
See attached:



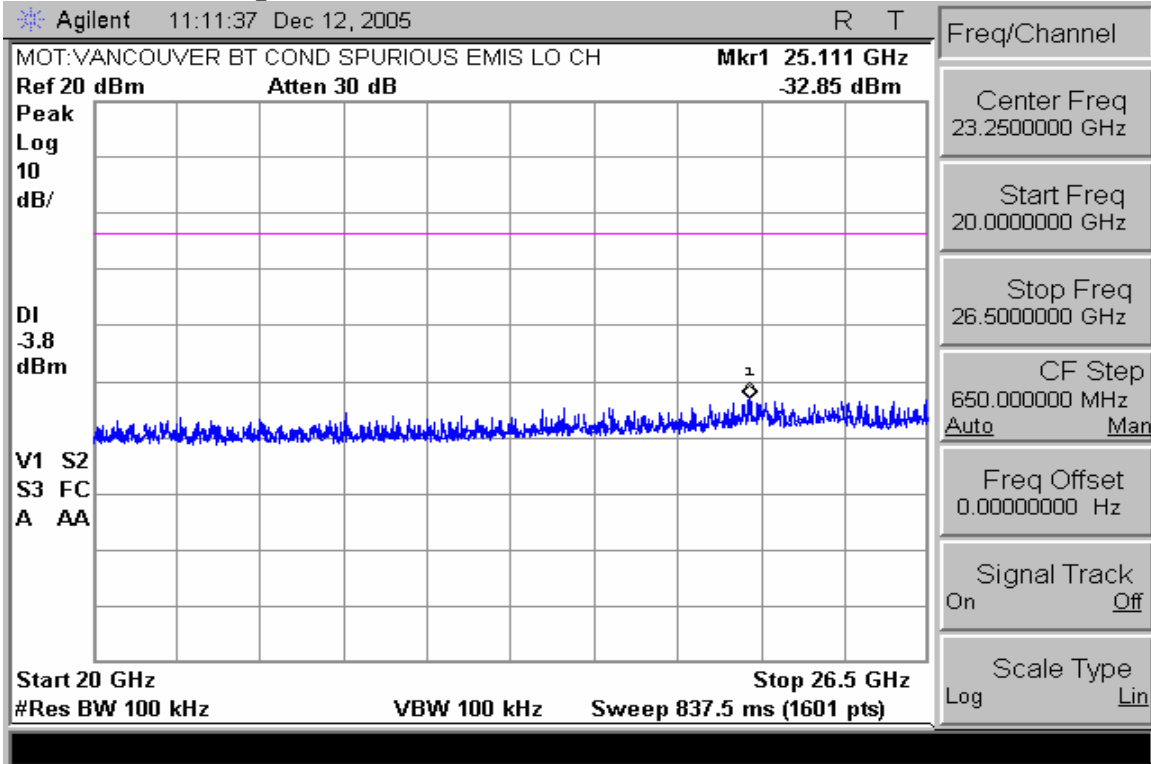
Conducted Spurious Emissions 30-3000MHz (Low Channel Enabled)



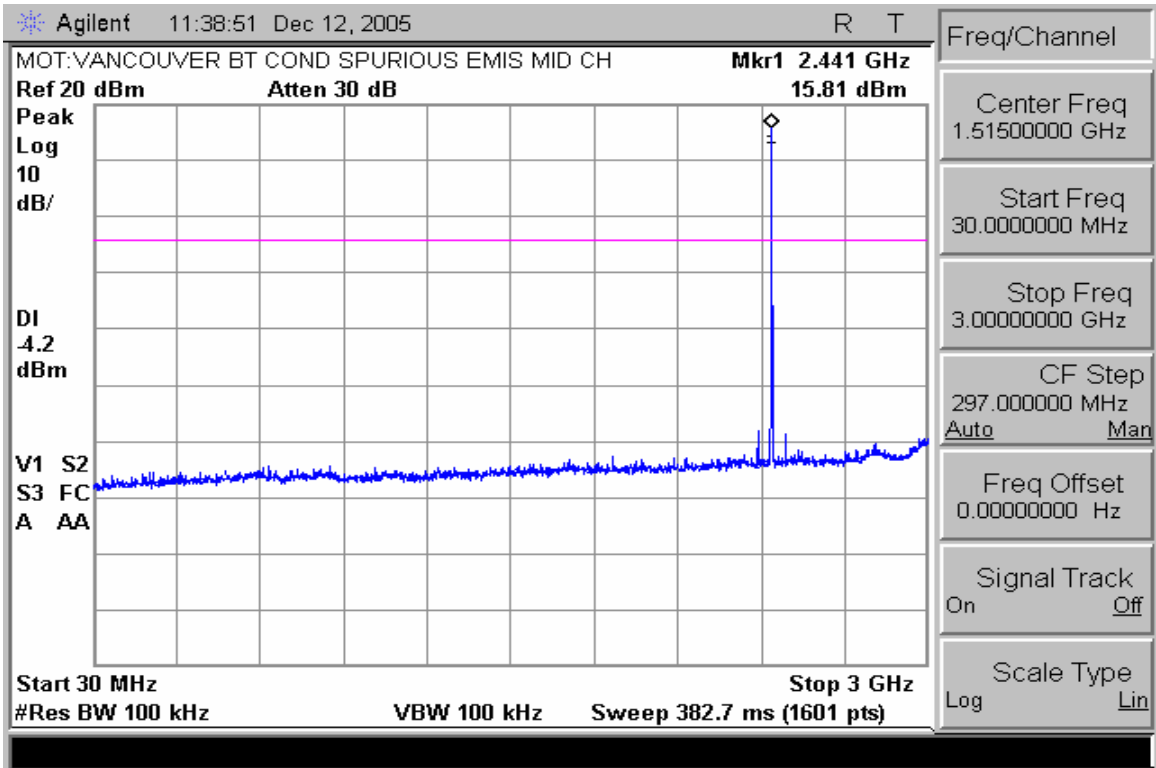
Conducted Spurious Emissions 2-10GHz (Low Channel Enabled)



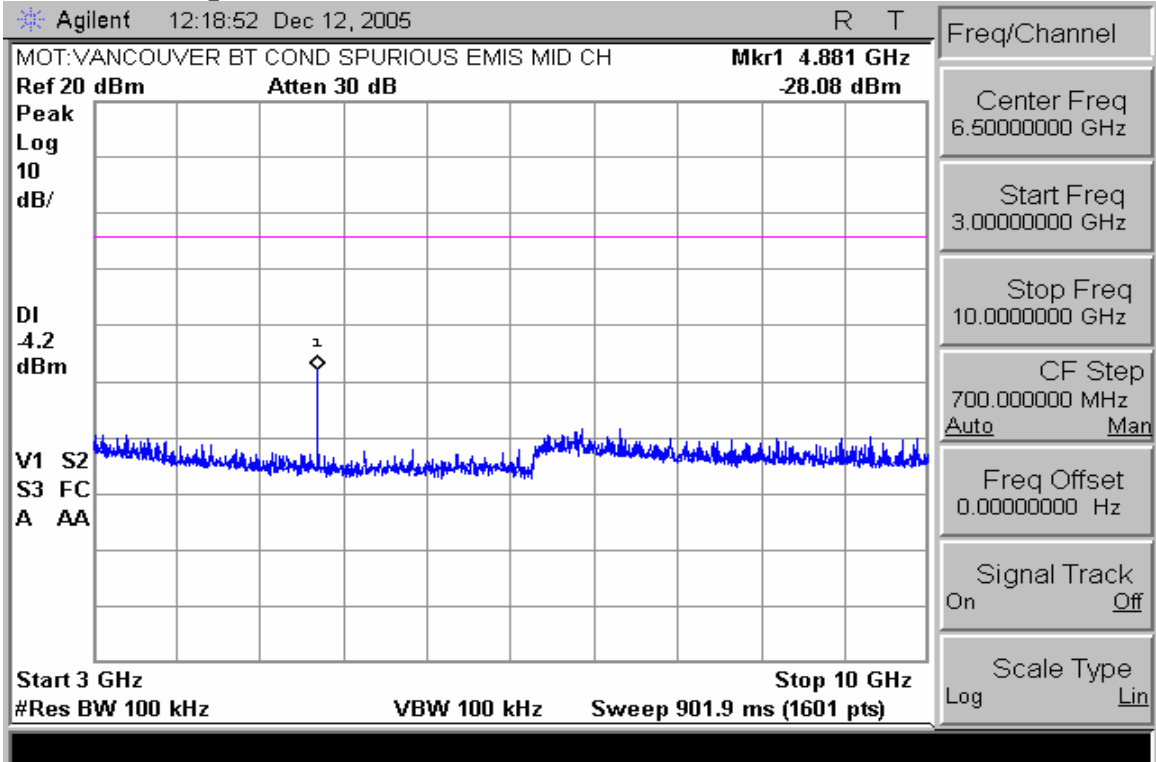
Conducted Spurious Emissions 10-20GHz (Low Channel Enabled)



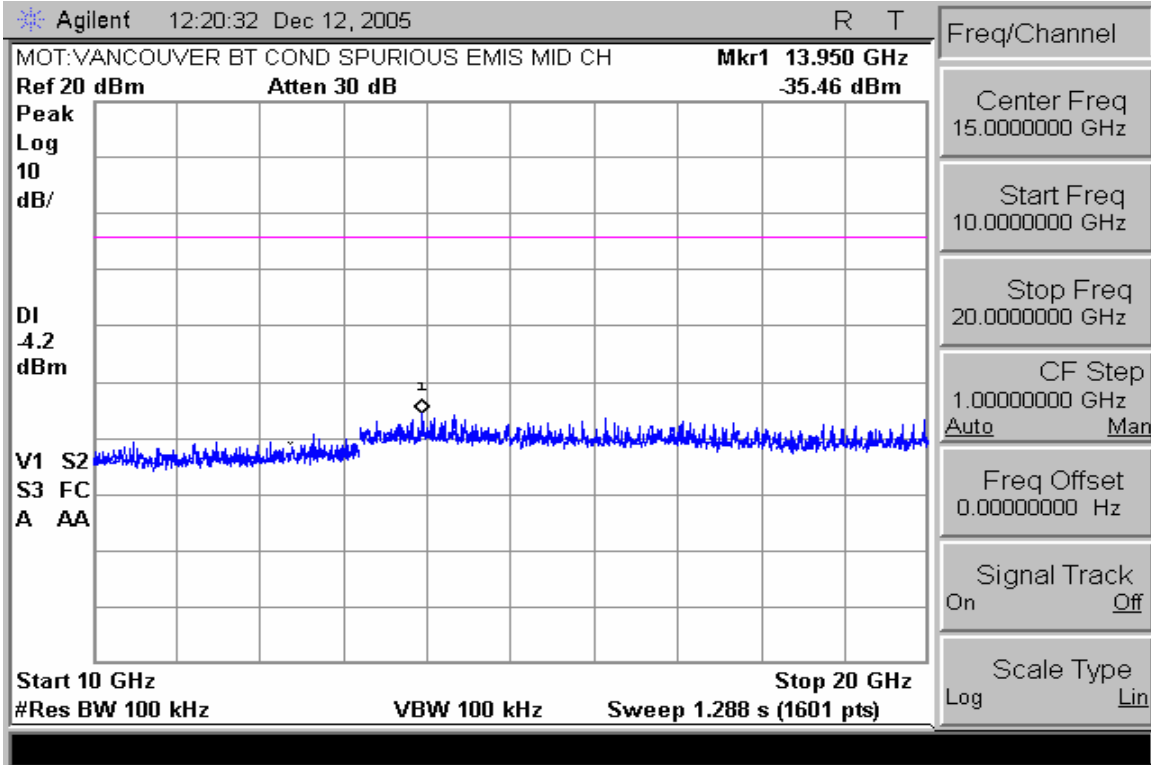
Conducted Spurious Emissions 20-26.5GHz (Low Channel Enabled)



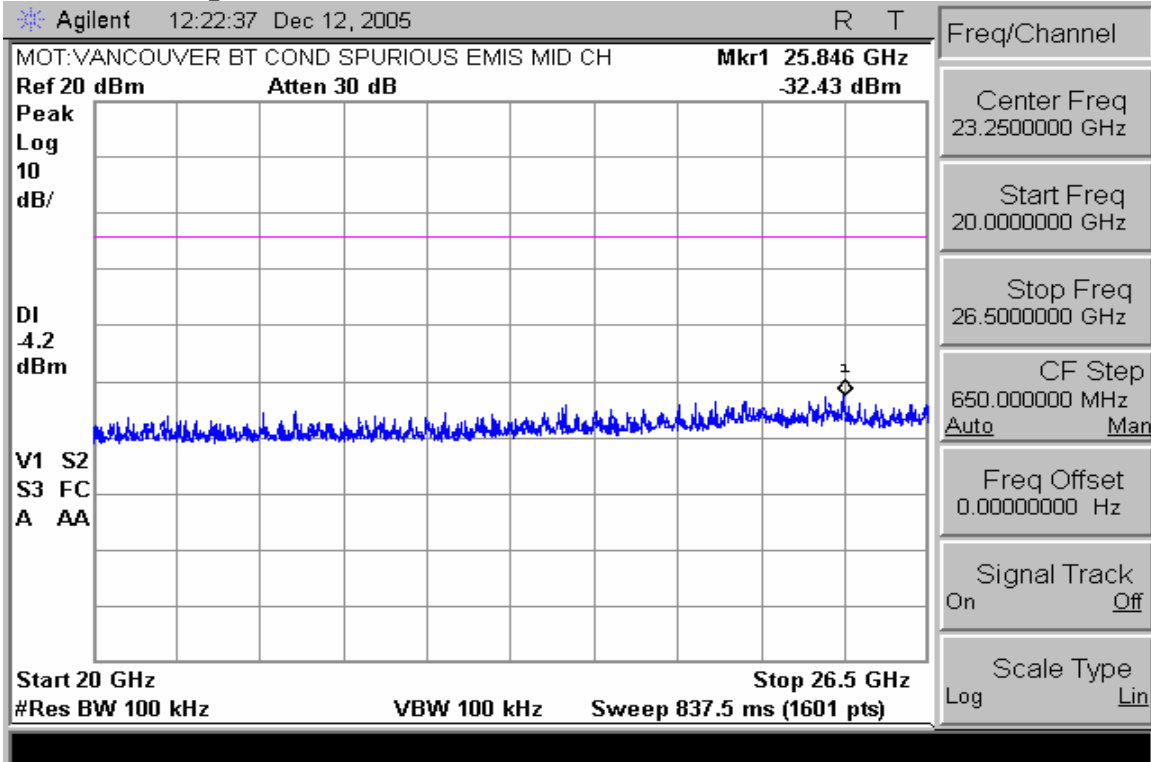
Conducted Spurious Emissions 30-3000MHz (Mid Channel Enabled)



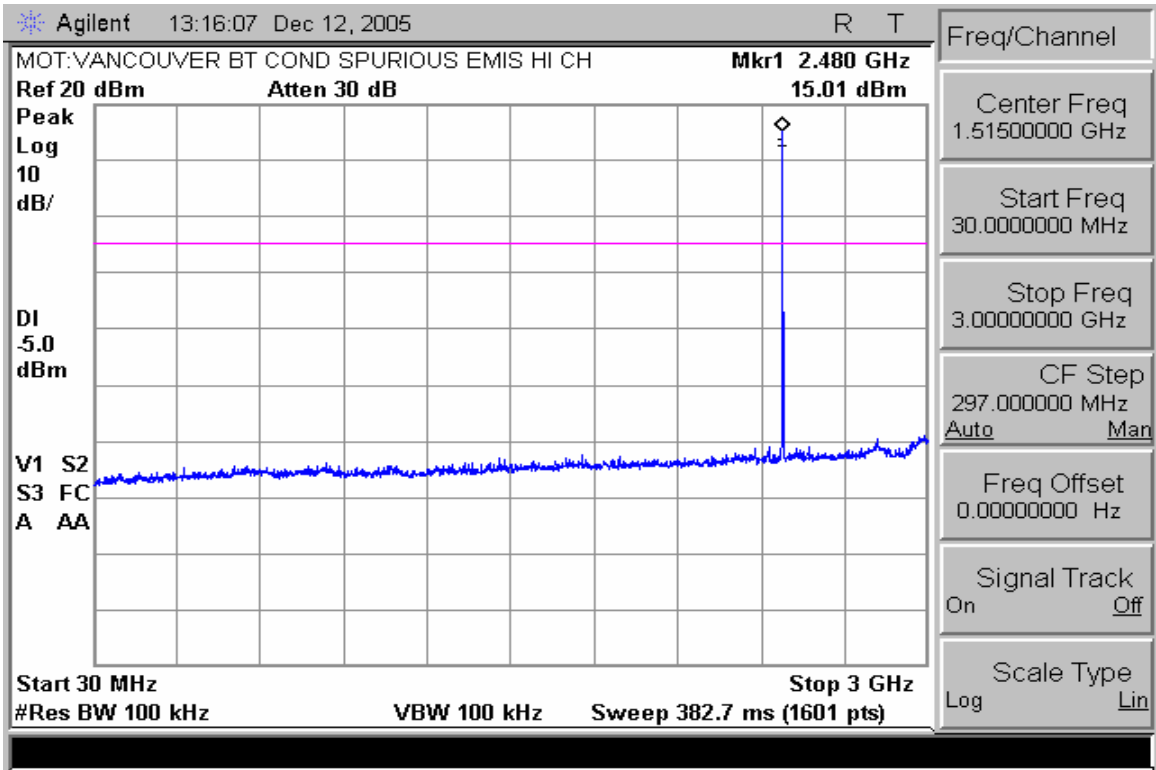
Conducted Spurious Emissions 2-10GHz (Mid Channel Enabled)



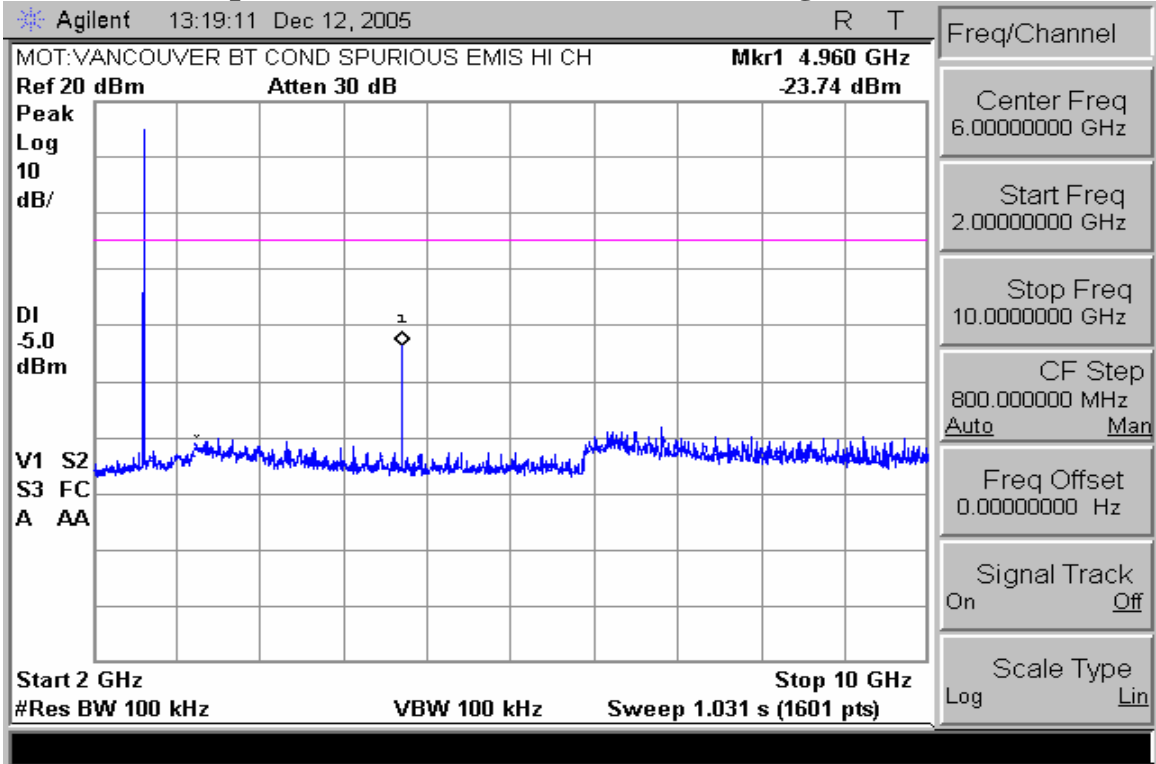
Conducted Spurious Emissions 10-20GHz (Mid Channel Enabled)



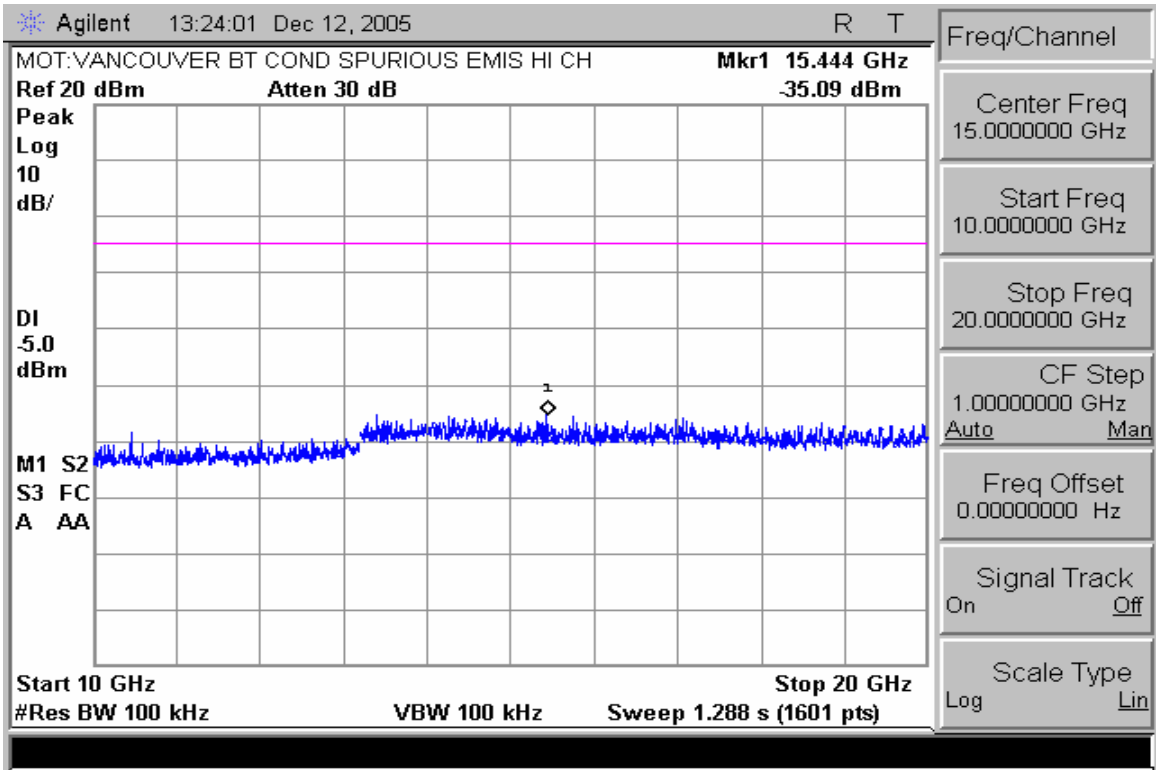
Conducted Spurious Emissions 20-26.5GHz (Mid Chan Enabled)



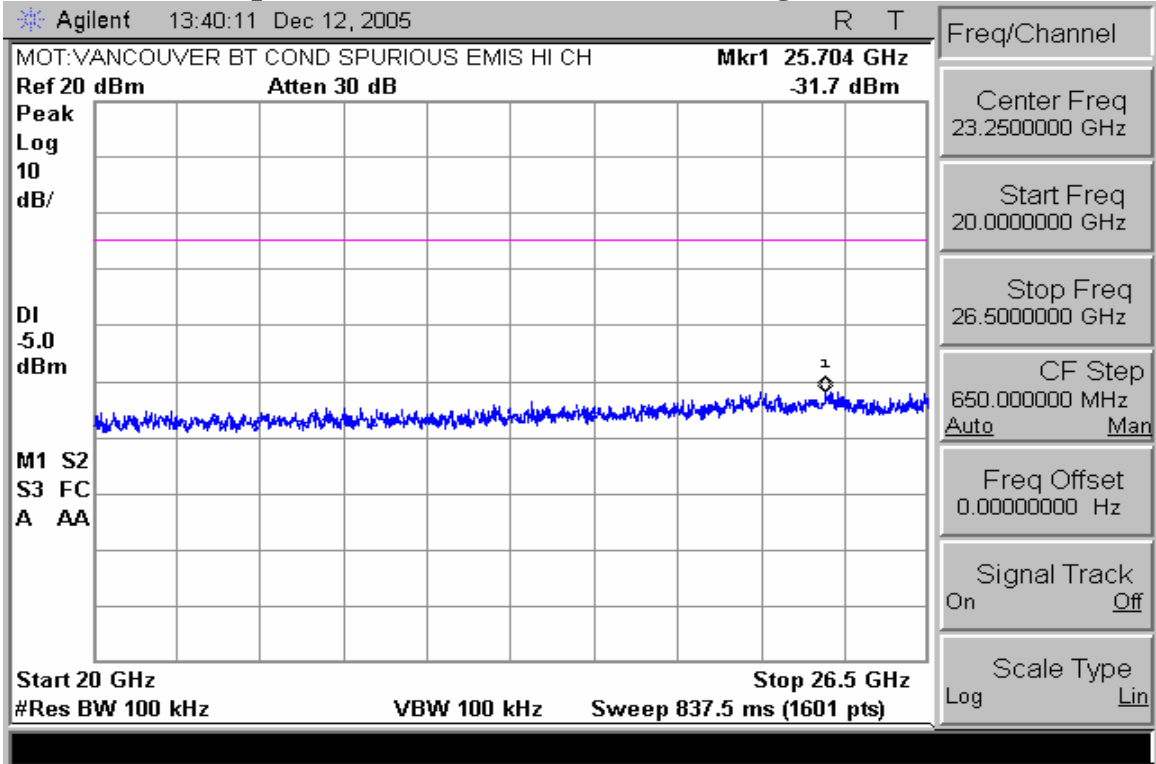
Conducted Spurious Emissions 30-3000MHz (High Channel Enabled)



Conducted Spurious Emissions 2-10GHz (High Channel Enabled)



Conducted Spurious Emissions 10-20GHz (High Channel Enabled)



Conducted Spurious Emissions 20-26.5GHz (High Chan Enabled)

AC LINE CONDUCTED

CFR 47 Part 15.207

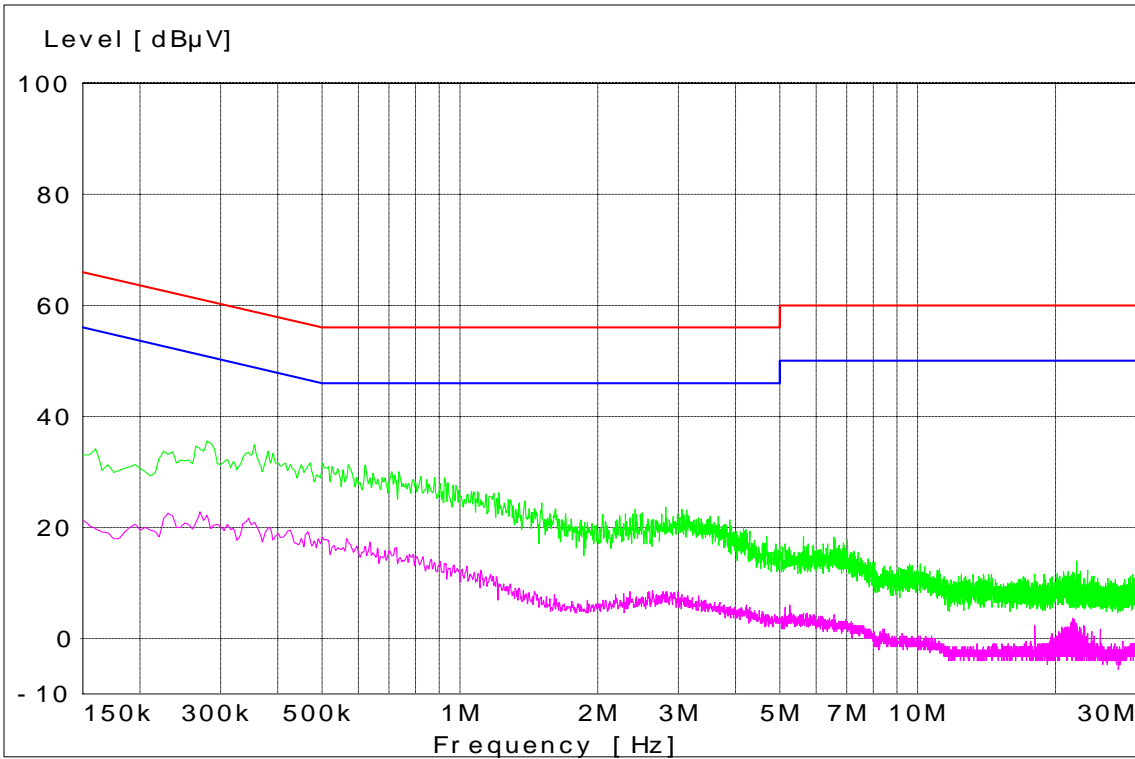
Measurement Procedure

Measured levels of ac powerline conducted emission shall be the radio-noise voltage from the line probe or across the 50 Ω LISN port, where permitted, terminated into a 50 Ω noise meter, or where permitted or required, the radio-noise current on the powerline sensed by a current probe.

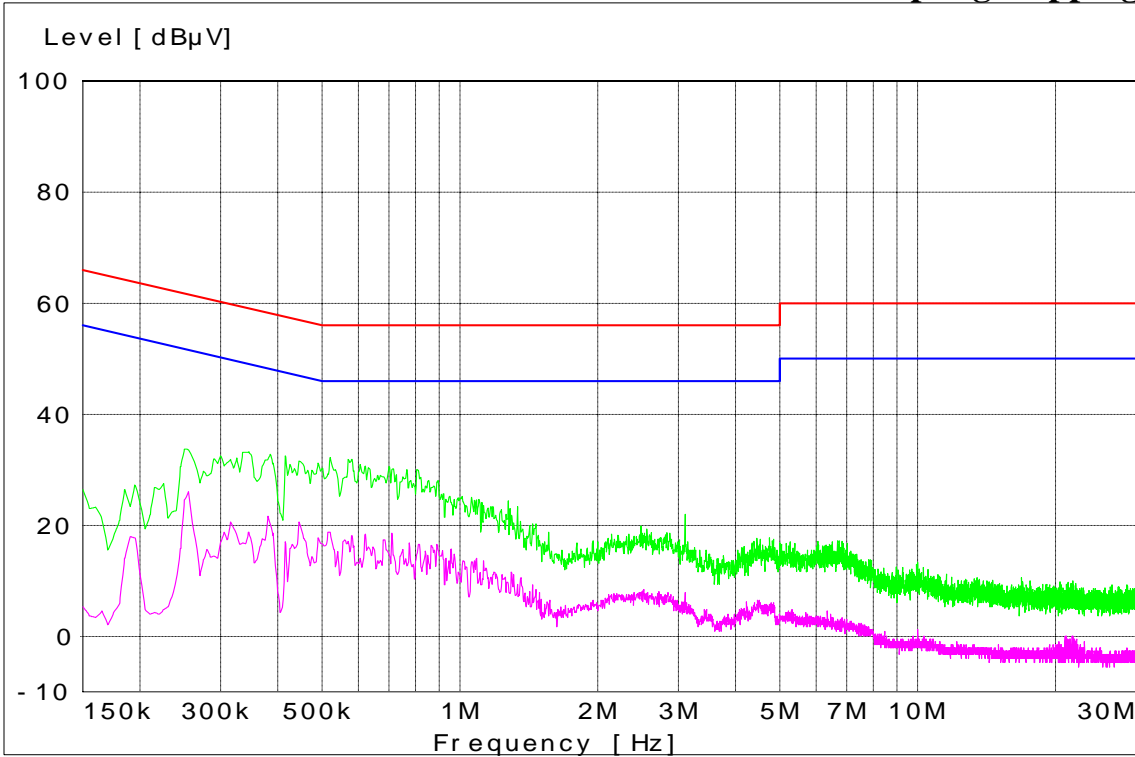
All radio-noise voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord or calibrated extension cord by the use of mating plugs and receptacles on the EUT and LISN. Equipment shall be tested with power cords that are normally supplied using an LISN, the 50 Ω measuring port is terminated by a 50 Ω radio-noise meter or a 50 Ω resistive load. All other ports are terminated in 50 Ω .

Measurement Results

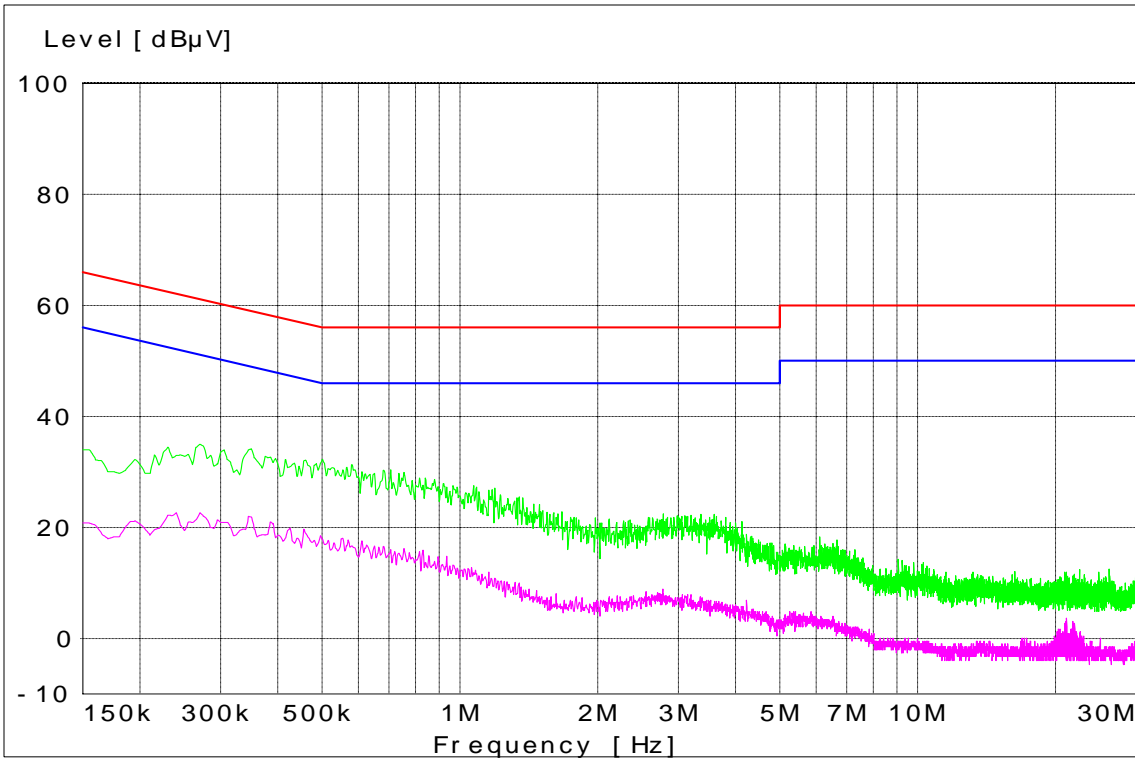
See attached:



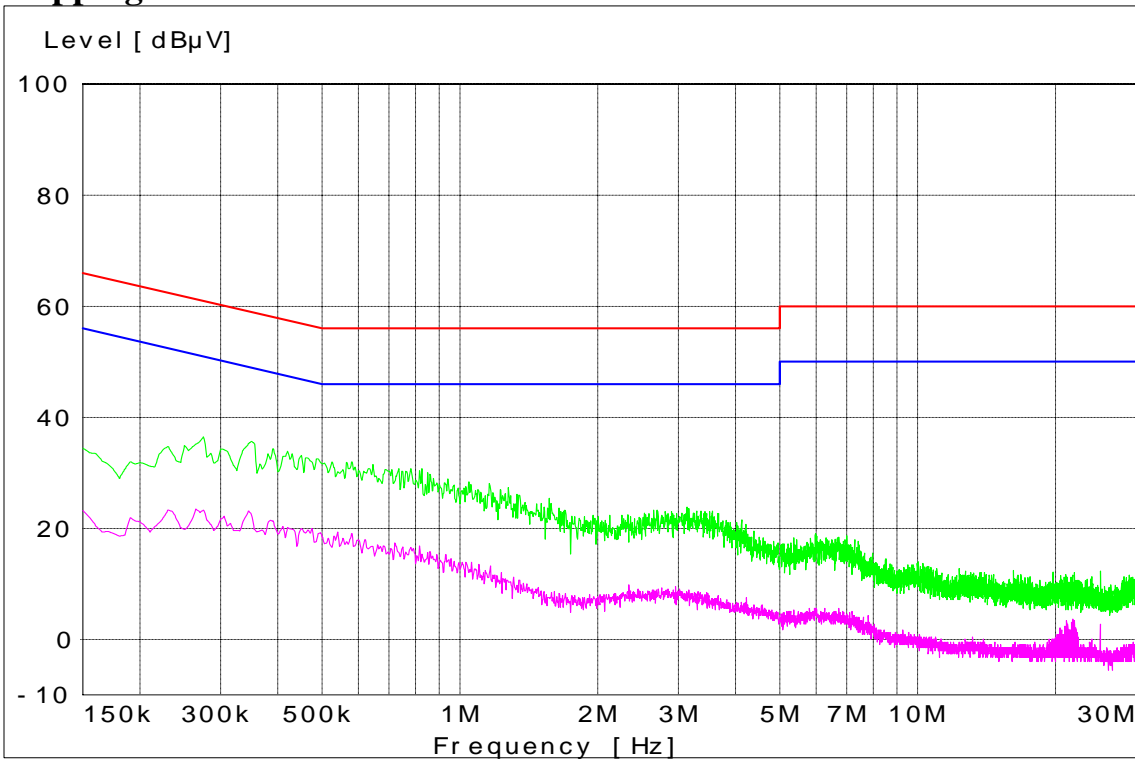
Bluetooth Channel 0 2402MHz - Tx Mode - Neutral Coupling Hopping



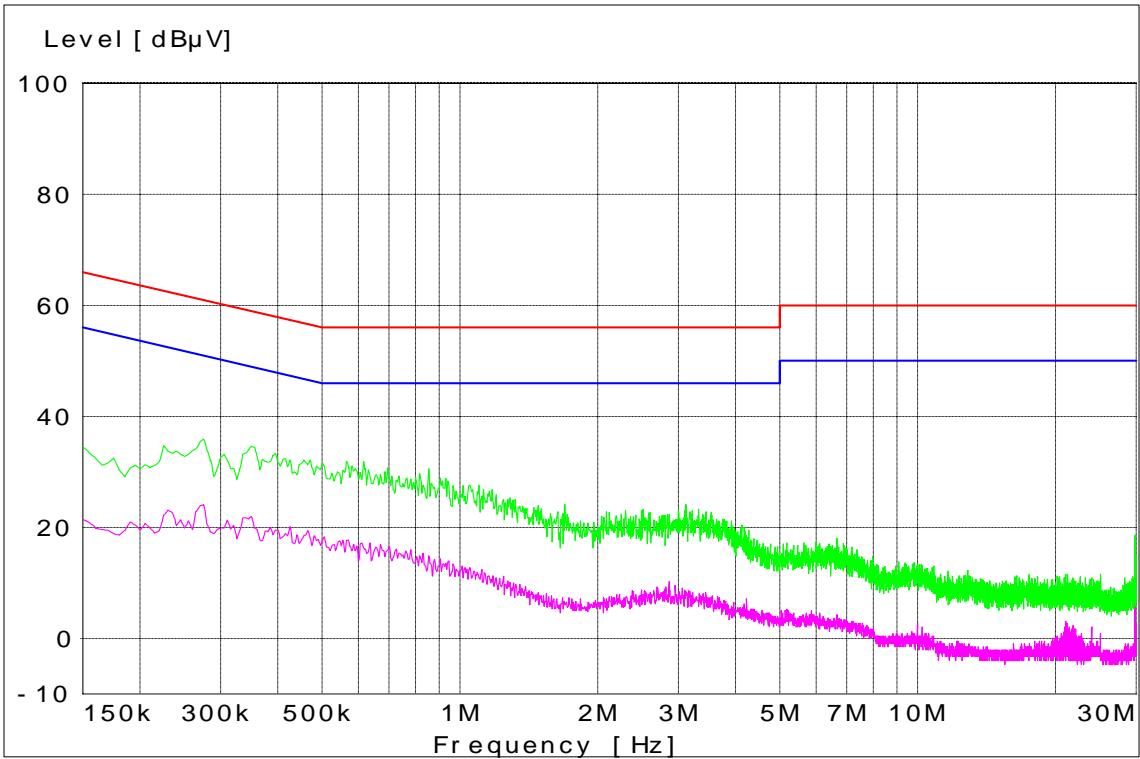
Bluetooth Channel 39 2441MHz - Tx Mode - Line Coupling Nonhopping



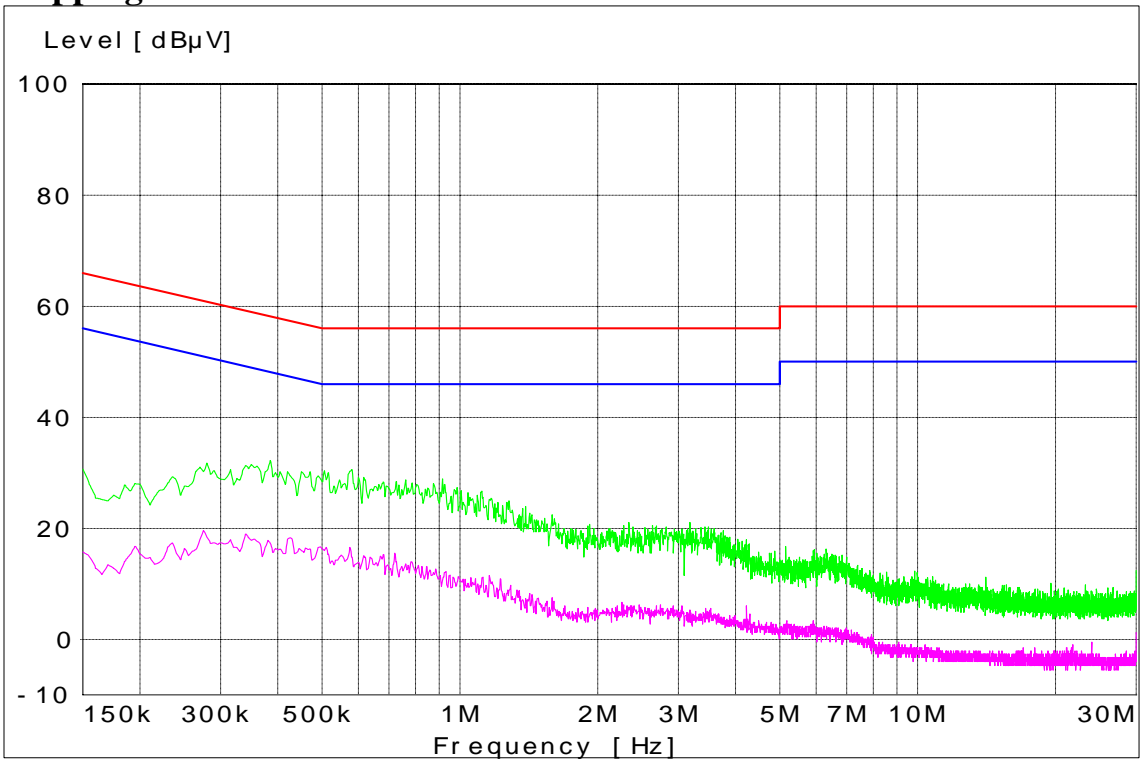
Bluetooth Channel 39 2441MHz - Tx Mode - Neutral Coupling Hopping



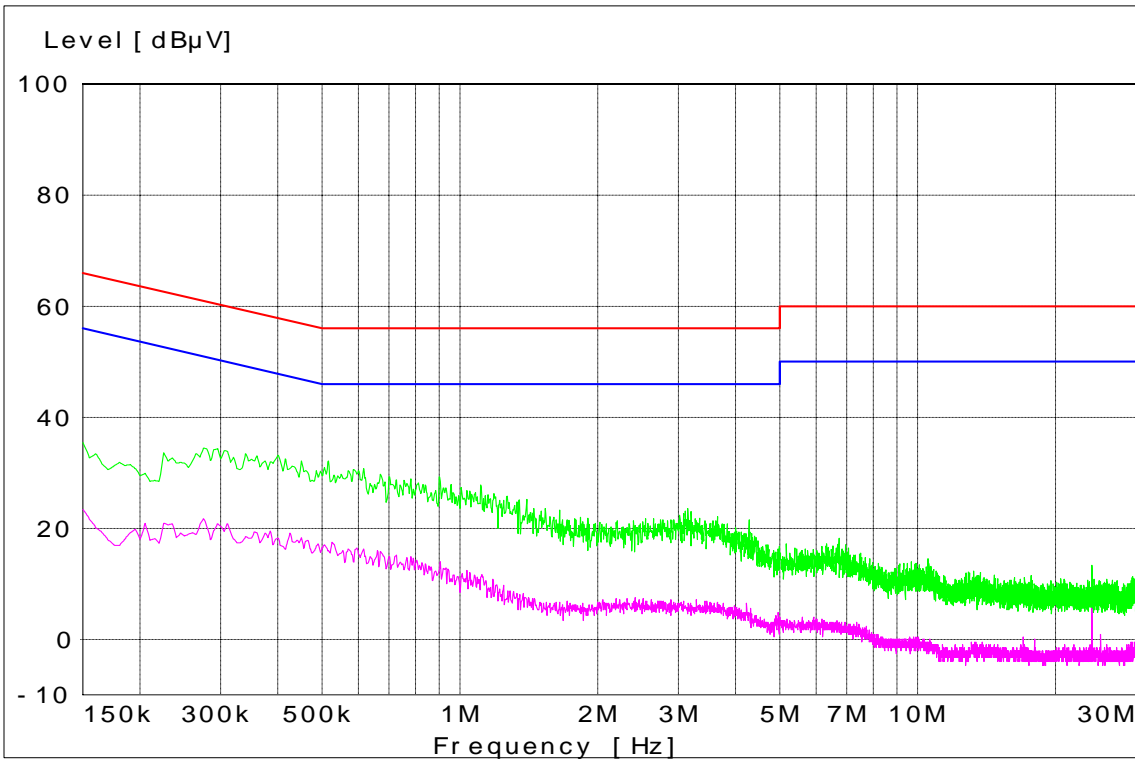
Bluetooth Channel 78 2480MHz - Tx Mode - Line Coupling Hopping



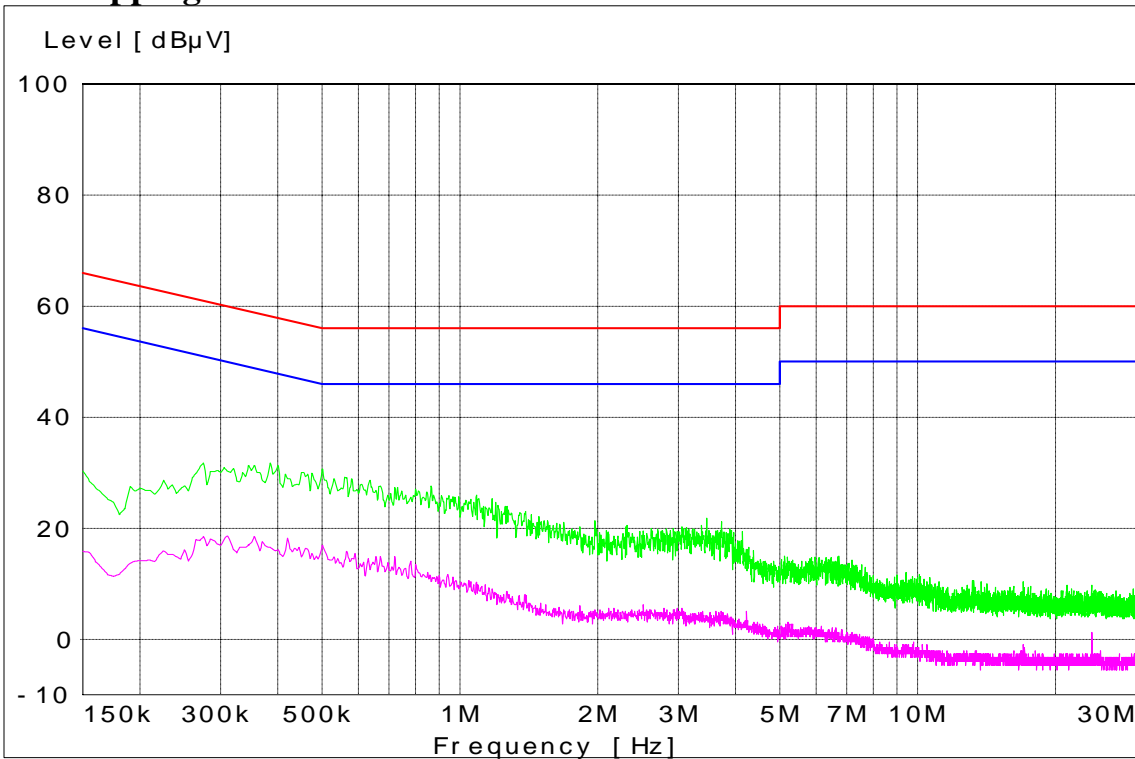
Bluetooth Channel 78 2480MHz - Tx Mode - Neutral Coupling Hopping



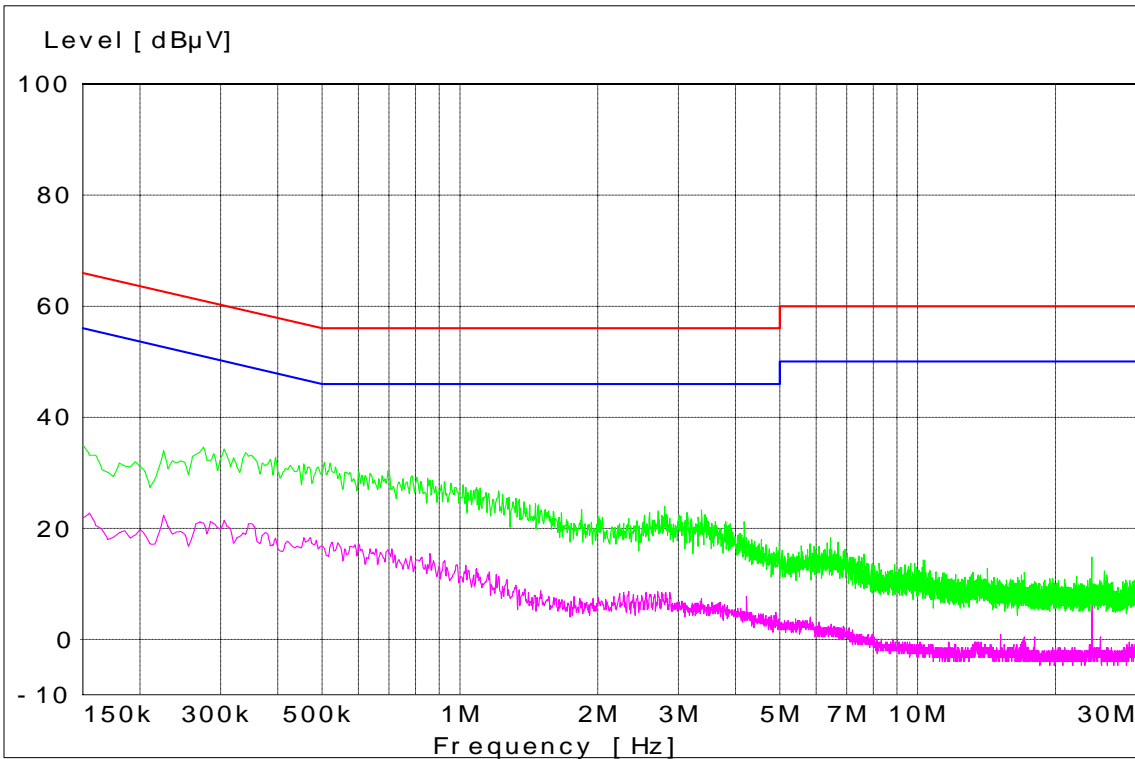
Bluetooth Channel 0 2402MHz - Tx Mode - Line Coupling Hopping



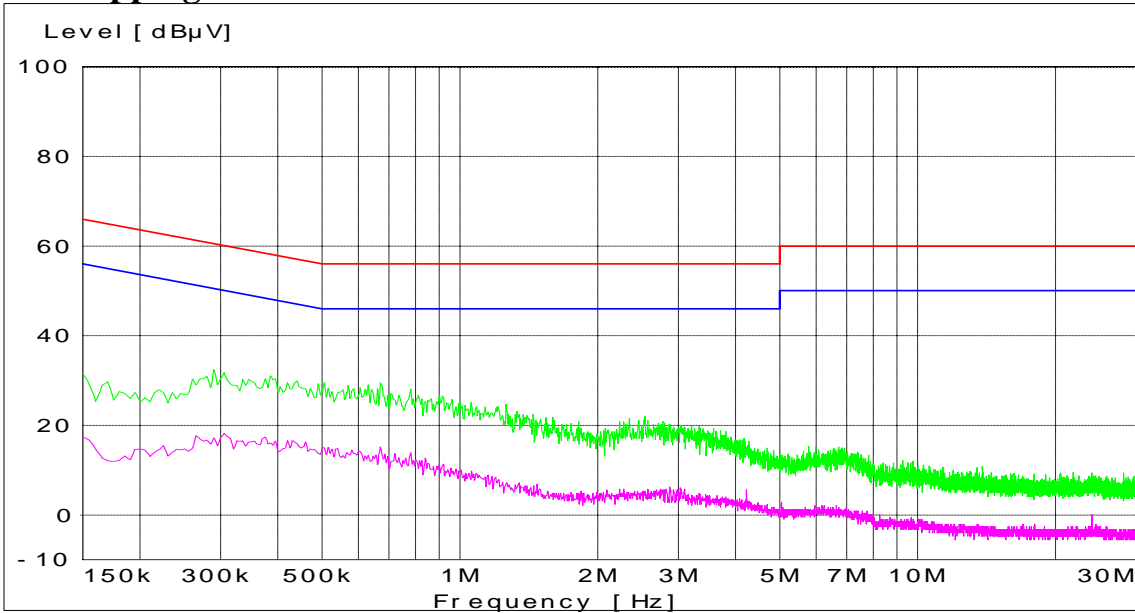
Bluetooth Channel 0 2402MHz - Tx Mode - Neutral Coupling Nonhopping



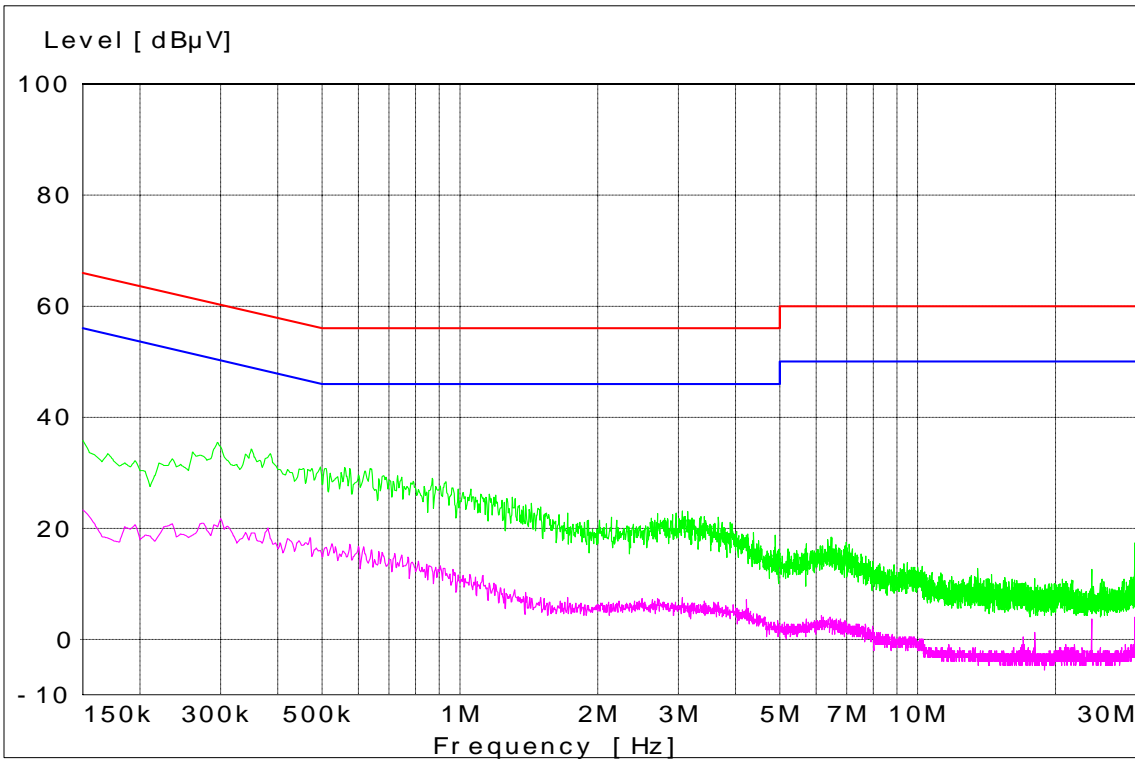
Bluetooth Channel 39 2441MHz - Tx Mode - Line Coupling Hopping



**Bluetooth Channel 39 2441MHz - Tx Mode - Neutral Coupling
Nonhopping**



**Bluetooth Channel 78 2480MHz - Tx Mode - Line Coupling
Nonhopping**



**Bluetooth Channel 78 2480MHz - Tx Mode - Neutral Coupling
Nonhopping**

End of Test Report