



MOTOROLA

PERSONAL COMMUNICATIONS SECTOR

**PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY**

EMC TEST REPORT - Addendum

Test Report Number –13878 -1BT

Report Date – May 5, 2004

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.

A handwritten signature in blue ink that reads "Michael E. Hill".

Signature:

Name: Michael E. Hill

Title: Senior Electrical Engineer

Date :2004-05-05

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.

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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 1900, Bluetooth

Model Number: E398

Serial Numbers: LE90913003, LE90910017, LE90910020

Testing Complete Date: April 29, 2004

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	1.00MHz
2	Number of Hopping	79
3	Time of Occupancy (Dwell Time)	120.6 μs
4	20 dB Bandwidth	800 KHz
5	Spurious RF Conducted Emissions	See plots
6	Field Strength of Spurious Emissions	See plots
7	Max Power	2.27 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

Manufacturer Name	Item Name Description	Model #	Serial Number	Calibration Due Date
HP	GSM TEST SET	8922M	3639U01033	04/05/2004
HP	DCS/PCS MS TEST SET	83220E	3524U01522	22/05/2004
AGILENT	POWER SUPPLY	66311B	US38447252	24/10/2004
HP	EMC ANALYZER	E7405	US40240219	04/04/2004
WEINSCHTEL	10DB ATTENUATOR	AS-6	6675	14/10/2004
GIGATRONICS	UNIVERSAL POWER METER	8651A	8650508	02/10/2004
GIGATRONICS	POWER SENSOR/ATTENUATOR	80701A	1834031	02/10/2004
KWM	1900 MHz HP FILTER	HPF-L-14768	8427-01	15/08/2004
KWM	800 MHz HP FILTER	HPF-L-14767	8427-02	15/08/2004
Thermotron	Environmental Chamber	S-4	31580	19/12/2003
Rohde Schwartz	EMI TEST RECEIVER	ESI26	838786/010	29/04/2004
A. H. System	Horn Antenna	SAS-200/571	365	11/12/2003
A. H. System	Horn Antenna	SAS-200/571	265	29/04/2004
ETS	Log-Periodic Antenna	3148	1189	29/04/2004
ETS	Biconical Antenna	3110B	3369	29/04/2004
UL EQUIPMENT LIST				
HP	QP Adapter	85650A	2811A01069	15/01/2004
HP	S/A Display	8566B	2542A12974	15/01/2004
HP	S/A	8566B	2637A03376	15/01/2004
HP	RF Preselector	85685A	2810A00692	15/01/2004
Rohde & Schwarz	S/A	FSEK20	DE2525315	14/01/2004
EMCO	Horn Antenna 1-18GHz	3115	2638	10/07/2004
EMCO	Horn Antenna 18-26.5GHz	3160-09	9904-1165	N/A*
Chase	Bi-Con Antenna 30-300MHz	VBA6106A	1246	23/06/2004
Chase	Log-Periodic Antenna	UPA6108	1120	18/06/2004

* Per ANSI C63.5-1998 (Revision of ANSI C63.5-1988) pg. 6, under 5.1 General " It is unnecessary to calibrate standard gain horn antennas for use above 1GHz; rather, they are used as gain standards to calibrate other antennas (see 12.3.1 of IEEE Std 149-1979)."

All equipment is on a one-year calibration cycle.

Description of Bluetooth Transmitter

The E398 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. Therefore conducted AC line emissions testing as described in CFR47, Part 15.207 was not necessary.

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.

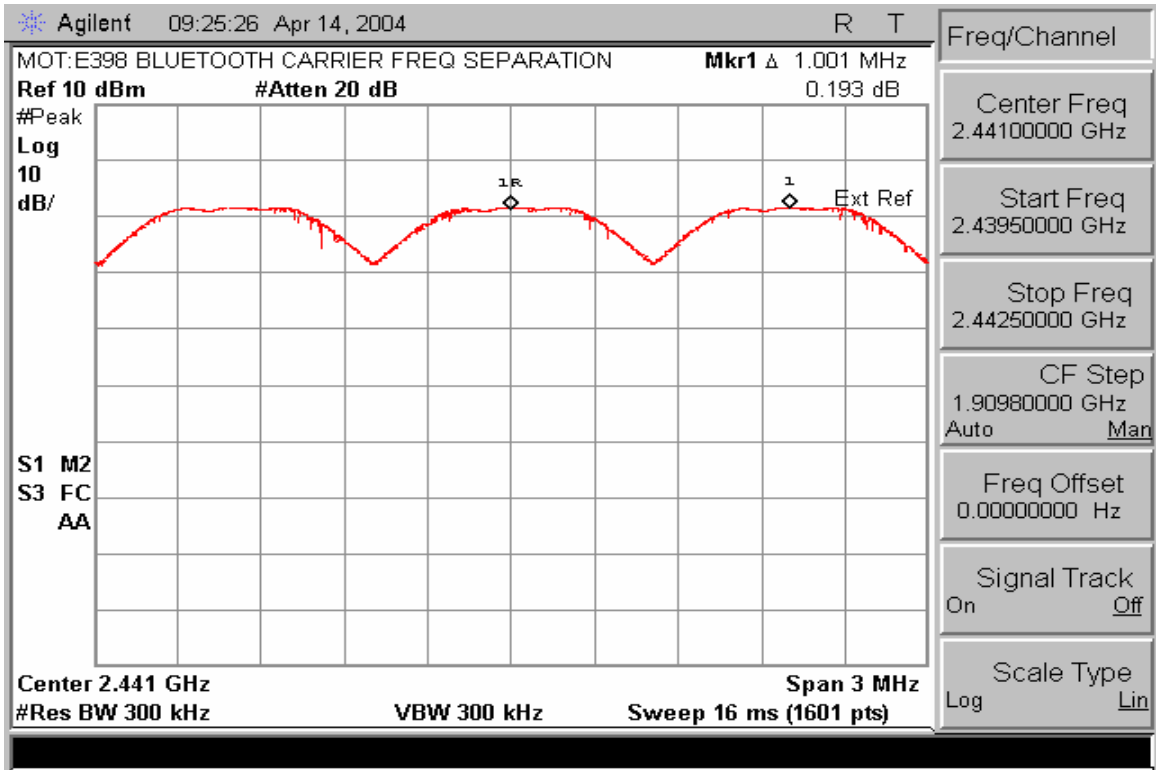
The Bluetooth transmitter of the E398 had its hopping function enabled. The following spectrum analyzer settings were used:

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.

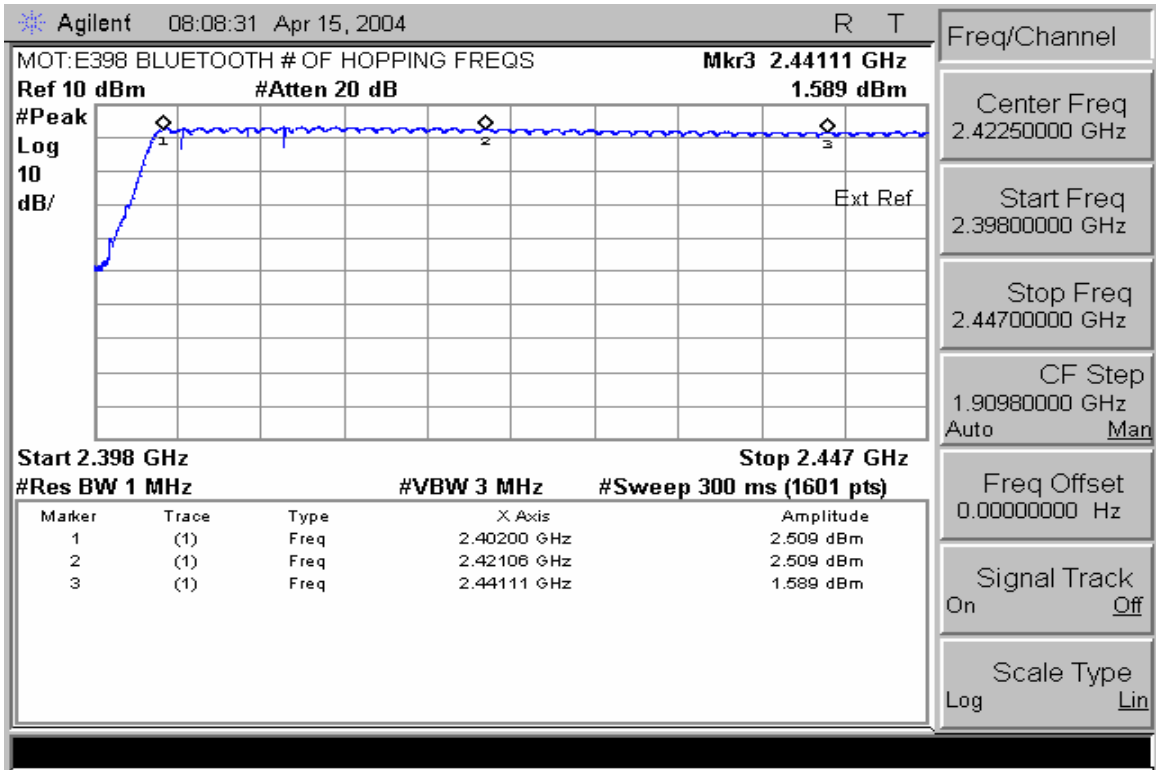
The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

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

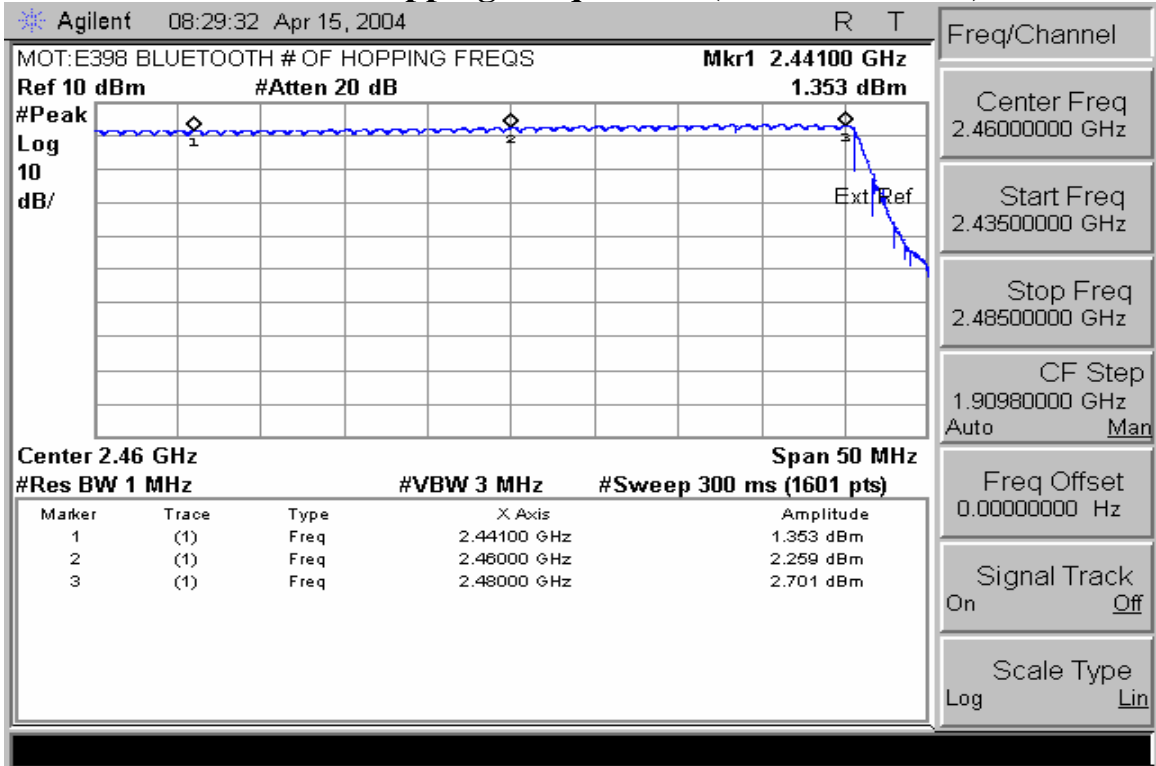
The trace was allowed to stabilize.

Measurement Results

See attached.



Number of Hopping Frequencies (Channels 2 – 42)



Number of Hopping Frequencies (Channels 42 – 80)

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.

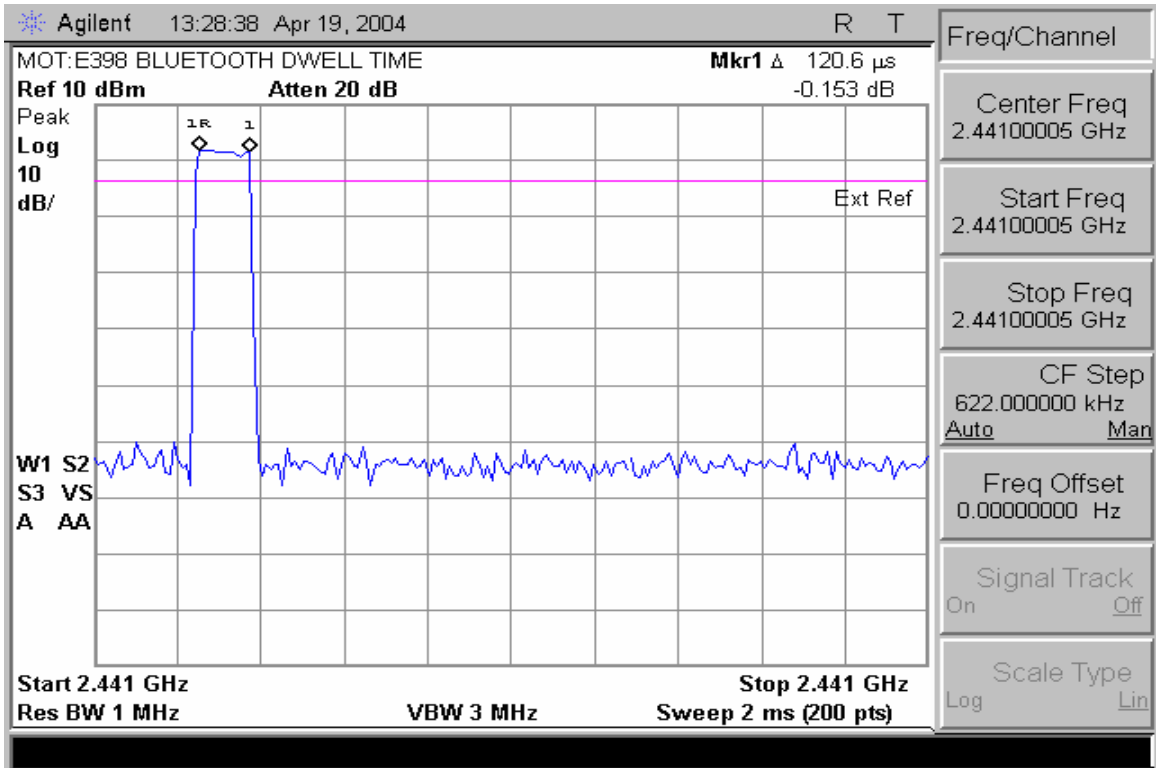
The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

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



20 dB 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.

The Equipment-Under-Test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

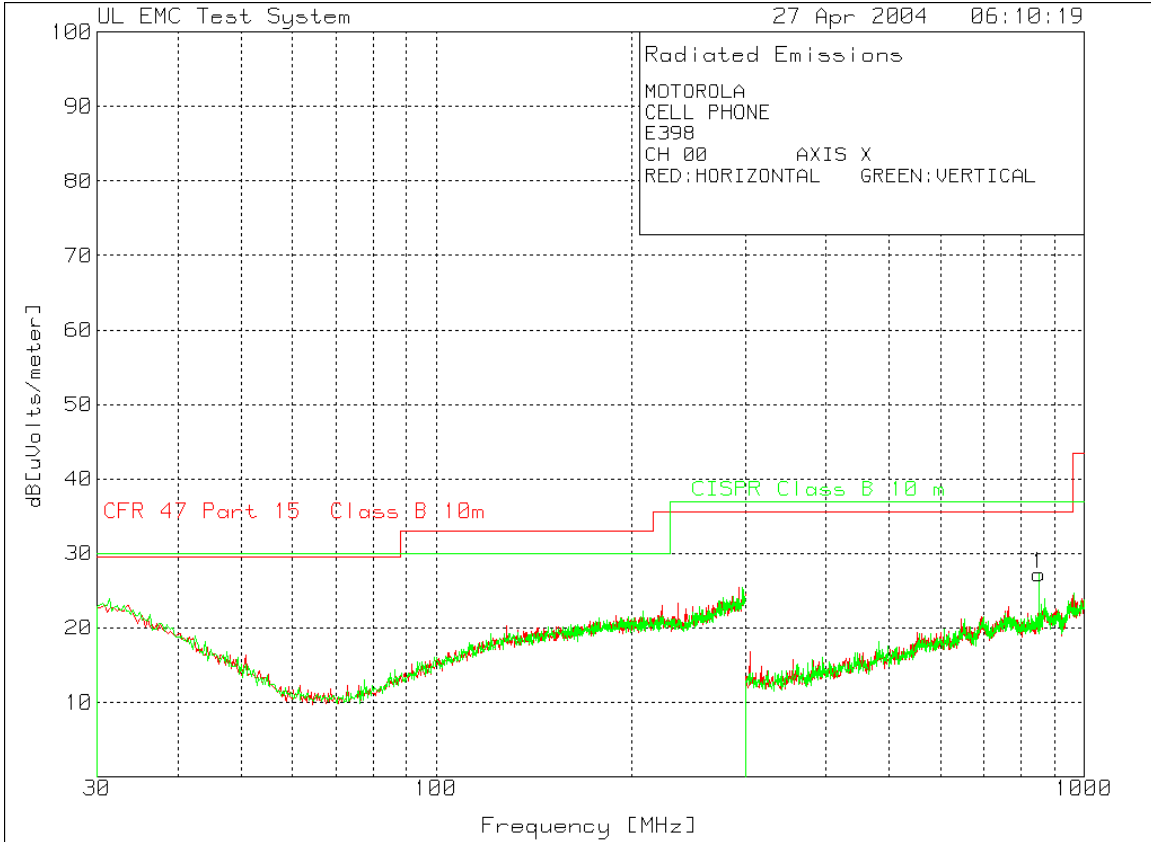
Field Strength (dBuV/m) = EMI Receiver Level (dBuV) + Cable Loss (dB) -
Amplifier Gain (dB) + Antenna Correction Factor (1/m)

A fully charged battery was used for the supply voltage.

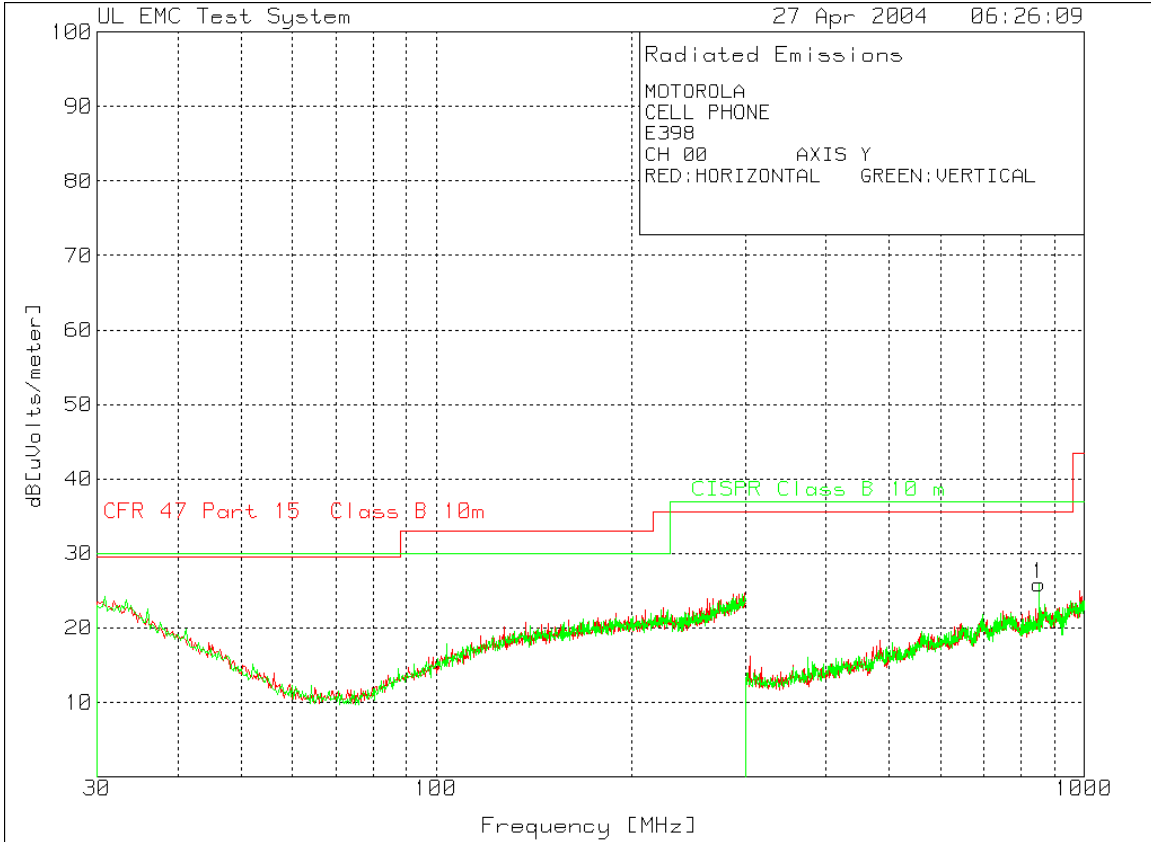
This data was taken at Underwriter's Laboratories.

Measurement Results

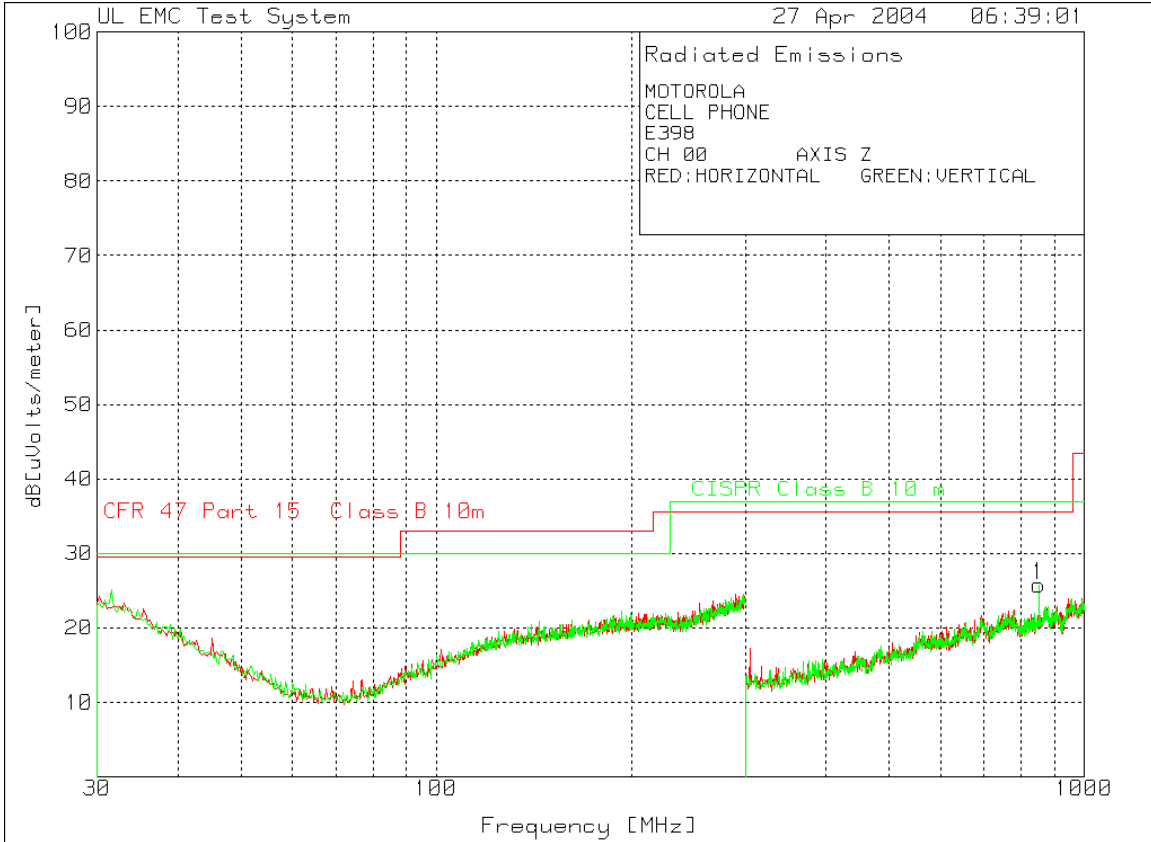
Attached



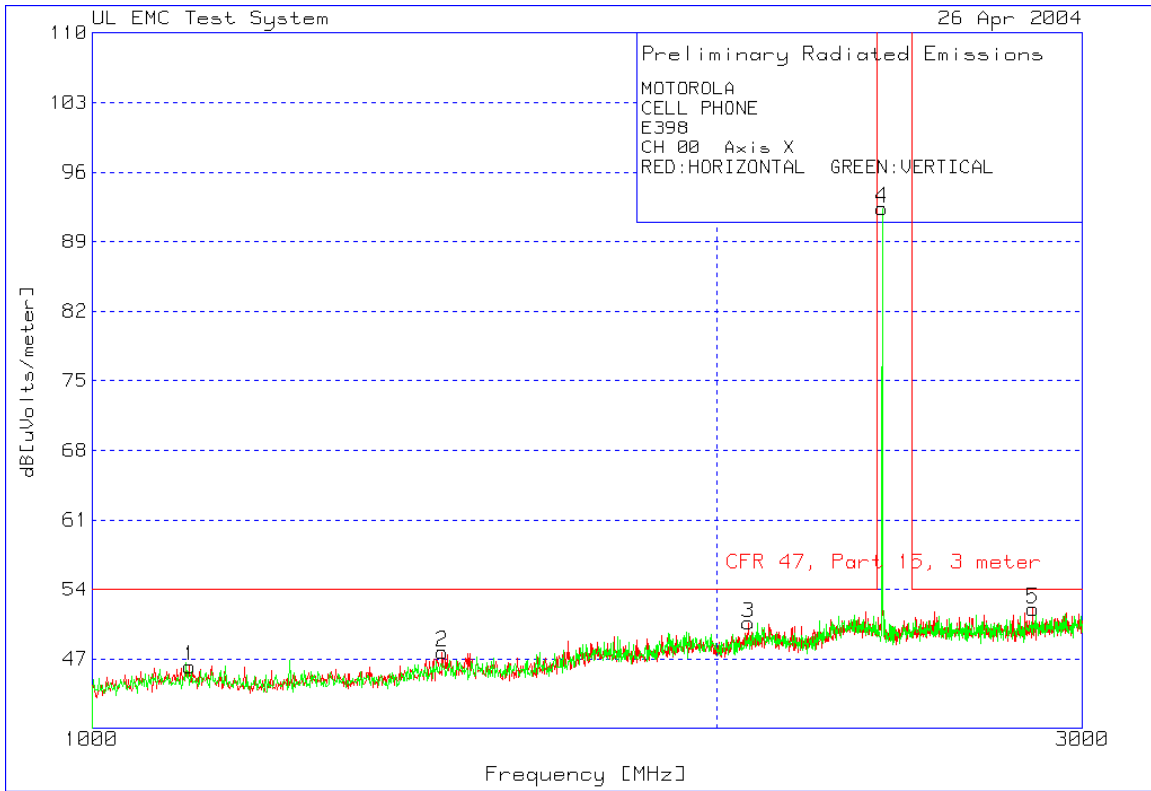
30 -1000MHz Low Channel Dual Polarization (Radiated Plot 1)



30-1000MHz Mid Channel Dual Polarization (Radiated Plot 2)



30-1000MHz High Channel Dual Polarization (Radiated Plot 3)

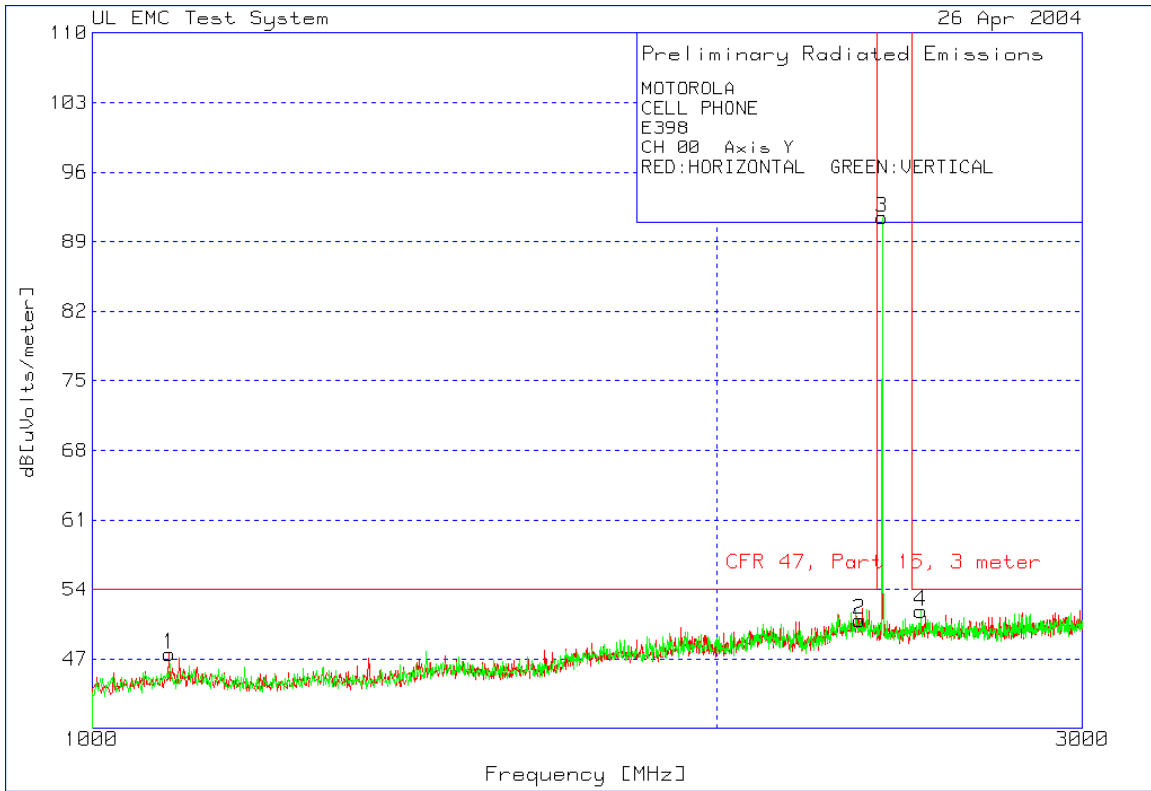


1-3GHz Low Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis X
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 1000 - 3000MHz						
1	1114.743	19.58 pk	1.2	25.5	46.28	54
		Height:100 Horz		Margin [dB]	-7.72	
2	1474.983	19.6 pk	1.5	26.6	47.7	54
		Height:100 Horz		Margin [dB]	-6.3	
3	2071.381	20.53 pk	1.8	28.3	50.63	54
		Height:100 Horz		Margin [dB]	-3.37	
5	2839.894	20.15 pk	2.1	29.8	52.05	54
		Height:100 Horz		Margin [dB]	-1.95	
Vertical 1000 - 3000MHz						
4	2402.268	61.56 pk	2	28.8	92.36	999
		Height:100 Vert		Margin [dB]	-906.64	

LIMIT 1: CFR 47, Part 15, 3 meter

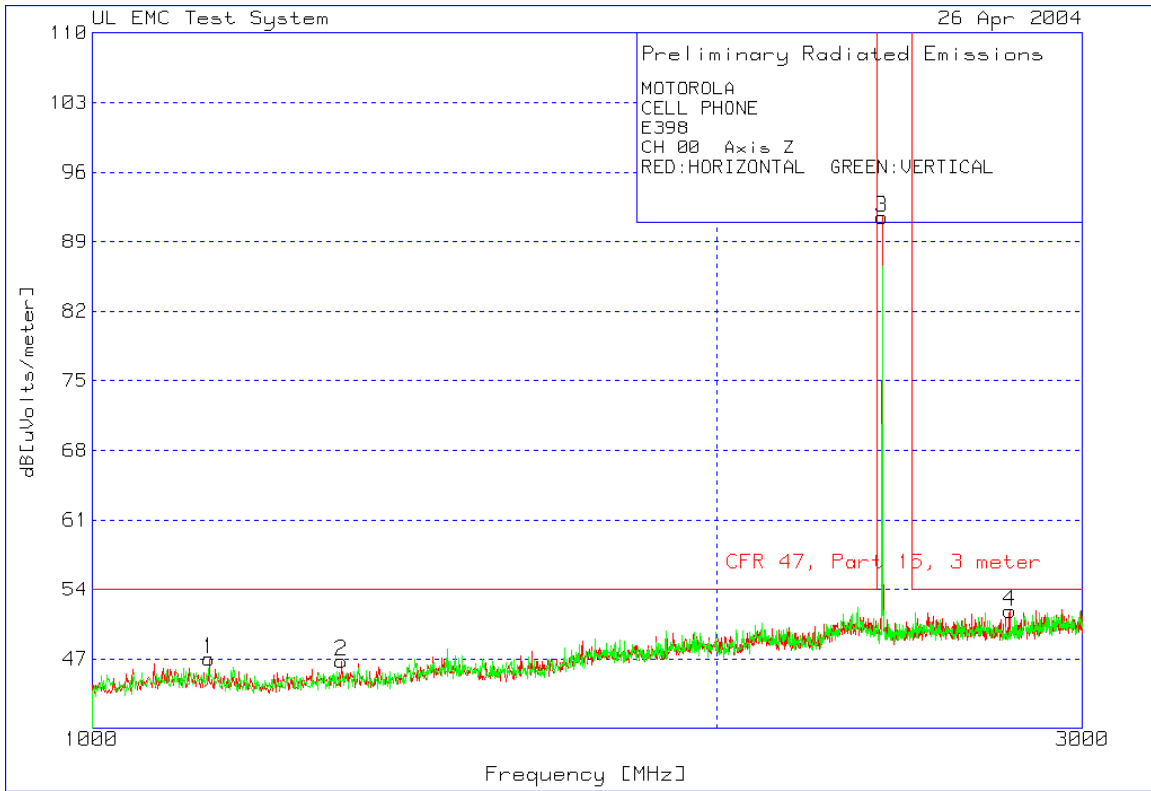


1-3GHz Low Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 1000 - 3000MHz						
1	1089.393	20.89 pk	1.2	25.4	47.49	54
		Height:100 Horz			Margin [dB]	-6.51
2	2342.228	20.34 pk	1.9	28.7	50.94	54
		Height:100 Horz			Margin [dB]	-3.06
Vertical 1000 - 3000MHz						
3	2402.268	60.63 pk	2	28.8	91.43	999
		Height:100 Vert			Margin [dB]	-907.57
4	2507.672	21.01 pk	1.9	28.9	51.81	54
		Height:100 Vert			Margin [dB]	-2.19

LIMIT 1: CFR 47, Part 15, 3 meter

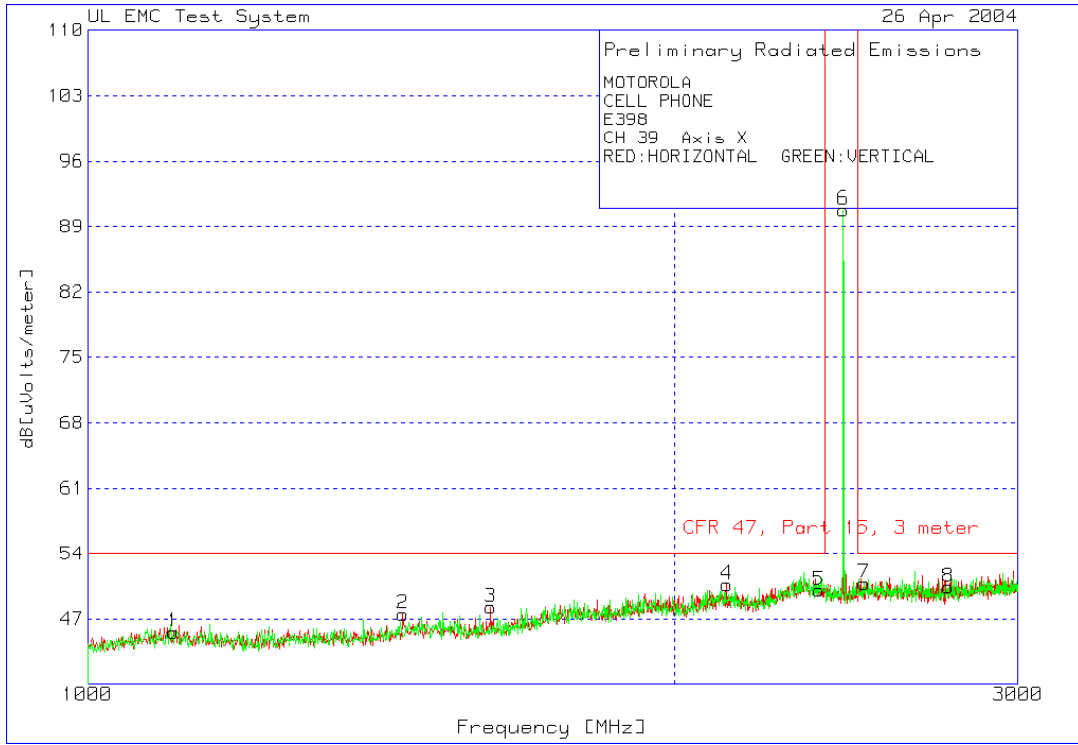


1-3GHz Low Channel Z-Orientation

MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis Z
 RED:HORIZONTAL GREEN:VERTICAL

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 1000 - 3000MHz						
1	1138.759	20.22 pk	1.3	25.5	47.02	54
		Height:100 Horz		Margin(dB)	-6.98	
2	1318.879	19.49 pk	1.2	26.1	46.79	54
		Height:100 Horz		Margin(dB)	-7.21	
3	2402.268	60.67 pk	2	28.8	91.47	999
		Height:100 Horz		Margin(dB)	-907.53	
4	2767.845	20.23 pk	2	29.6	51.83	54
		Height:100 Horz		Margin(dB)	-2.17	

LIMIT 1: CFR 47, Part 15, 3 meter



3GHz Mid-Channel X-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis X
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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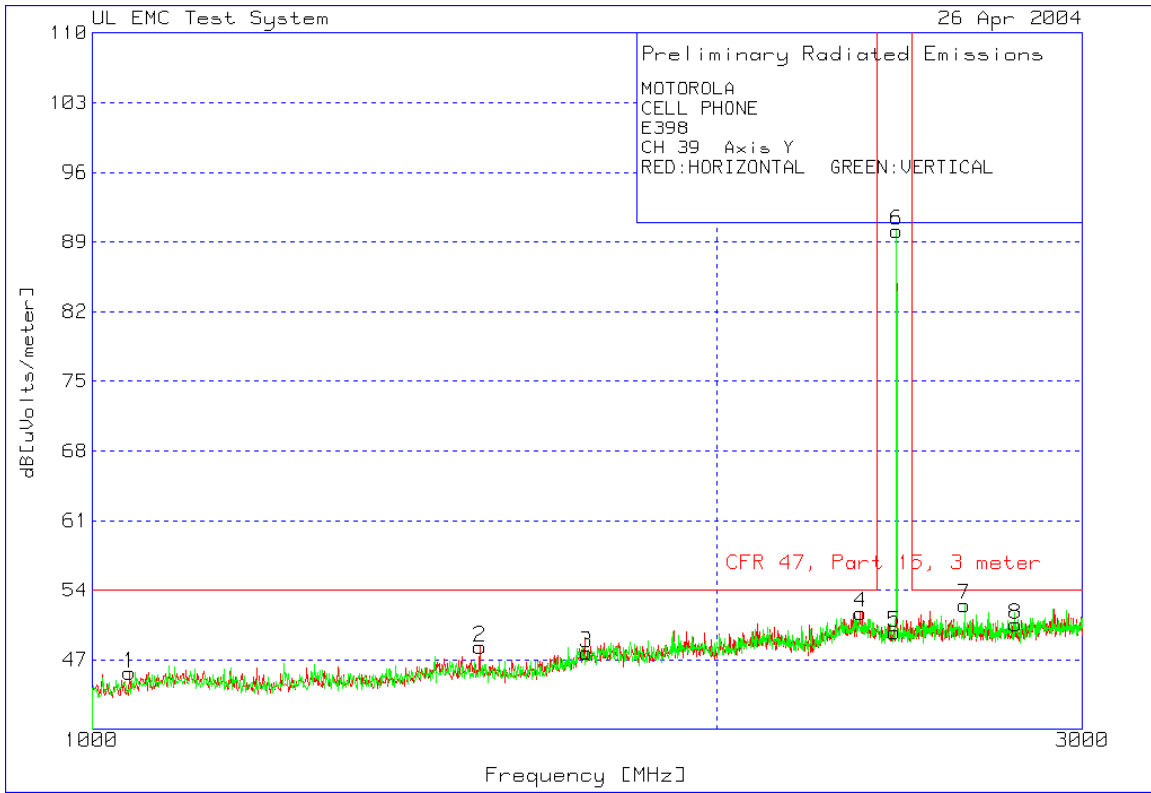
Horizontal 1000 - 3000MHz

1	1106.738	19.01 pk	1.2	25.4	45.61	54
		Height:101 Horz		Margin [dB]	-8.39	
2	1450.967	19.63 pk	1.4	26.5	47.53	54
		Height:101 Horz		Margin [dB]	6.47	
3	1609.74	19.75 pk	1.5	27	48.25	54
		Height:101 Horz		Margin [dB]	-5.75	
4	2127.418	20.49 pk	1.8	28.4	50.69	54
		Height:101 Horz		Margin [dB]	-3.31	
5	2371.581	19.47 pk	1.9	28.7	50.07	54
		Height:101 Horz		Margin [dB]	-3.93	

Vertical 1000 - 3000MHz

6	2440.961	59.97 pk	2	28.8	90.77	999
		Height:101 Vert		Margin [dB]	-908.23	
7	2501.001	20.04 pk	1.9	28.9	50.84	54
		Height:101 Vert		Margin [dB]	-3.16	
8	2763.843	18.8 pk	2	29.6	50.4	54
		Height:101 Vert		Margin [dB]	-3.6	

LIMIT 1: CFR 47, Part 15, 3 meter

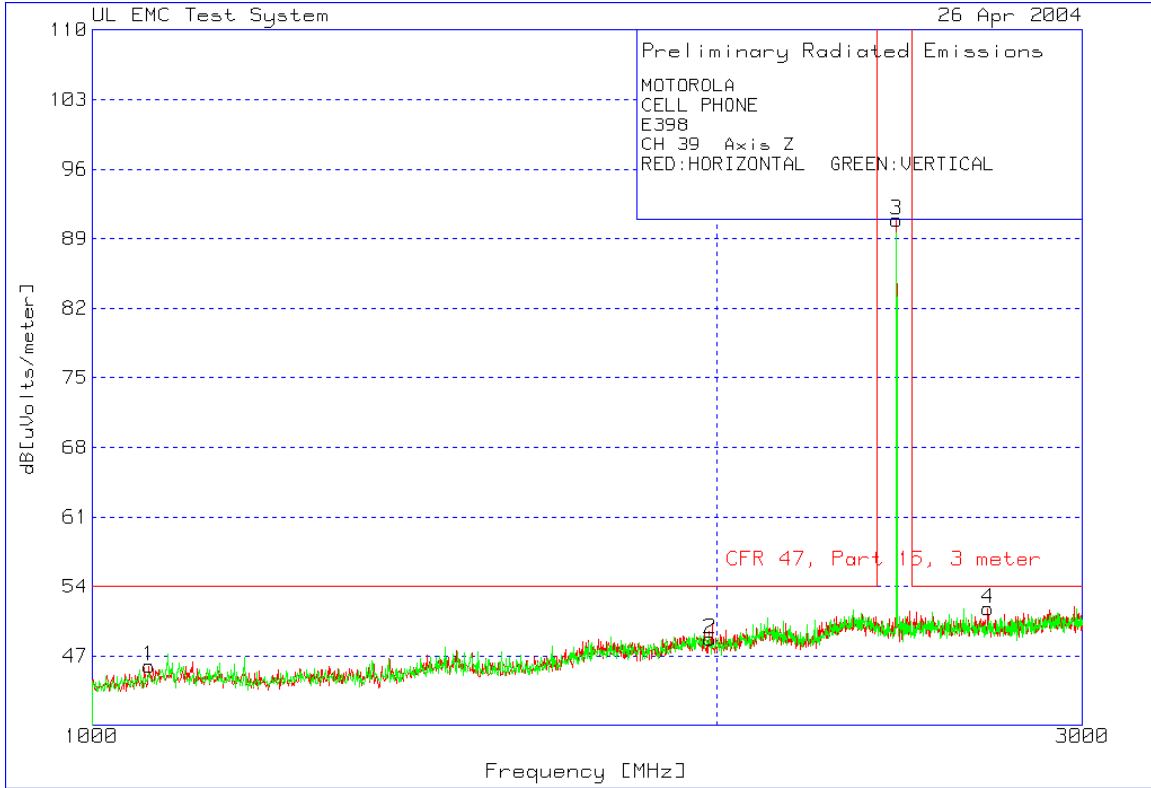


1-3GHz Mid-Channel Y-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis Y
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 1000 - 3000MHz						
1	1042.695	19.31 pk	1.2	25.2	45.71	54
	Height:101 Horz			Margin [dB]	-8.29	
2	1537.692	19.99 pk	1.5	26.8	48.29	54
	Height:101 Horz			Margin [dB]	-5.71	
3	1731.154	18.84 pk	1.5	27.4	47.74	54
	Height:101 Horz			Margin [dB]	-6.26	
4	2344.897	21.14 pk	1.9	28.7	51.74	54
	Height:101 Horz			Margin [dB]	-2.26	
Vertical 1000 - 3000MHz						
5	2435.624	18.98 pk	2	28.8	49.78	999
	Height:101 Vert			Margin [dB]	-949.22	
6	2440.961	59.36 pk	2	28.8	90.16	999
	Height:101 Vert			Margin [dB]	-908.84	
7	2631.755	21.34 pk	2	29.2	52.54	54
	Height:101 Vert			Margin [dB]	-1.46	
8	2785.19	18.86 pk	2.1	29.6	50.56	54
	Height:101 Vert			Margin [dB]	-3.44	

LIMIT 1: CFR 47, Part 15, 3 meter

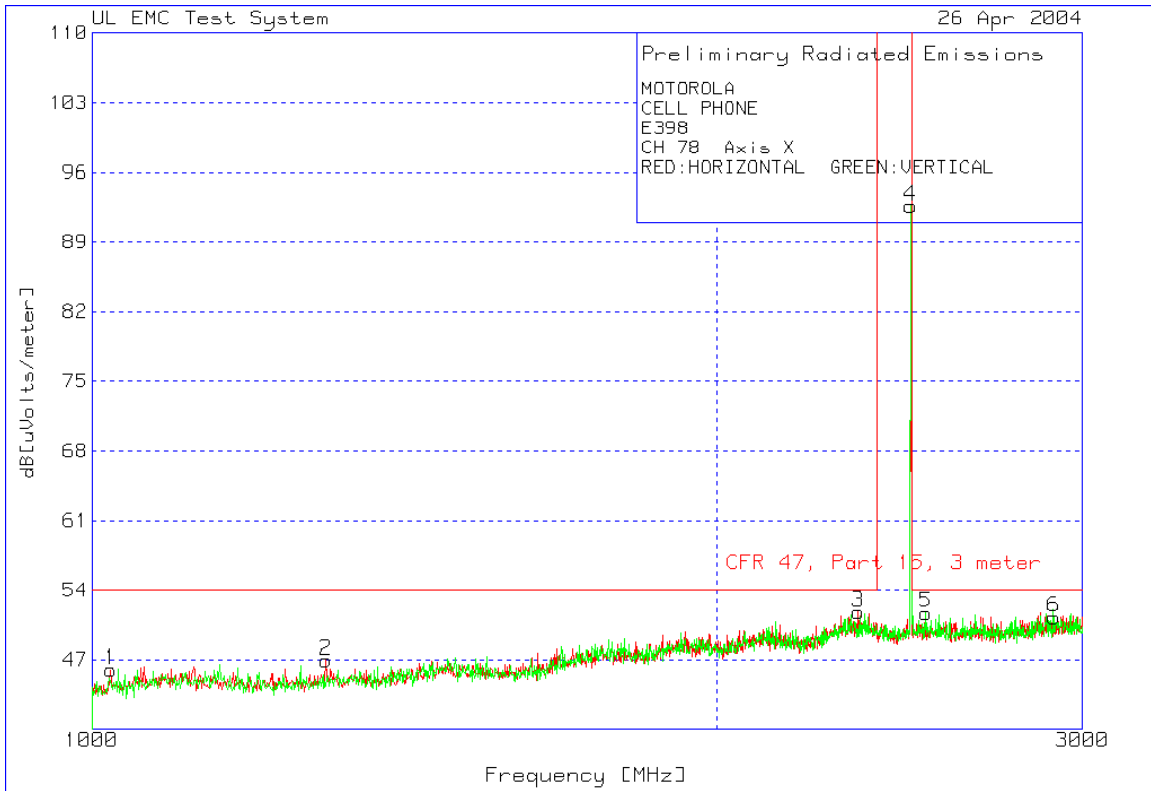


1-3GHz Mid-Channel Z-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 39 Axis Z
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 1000 - 3000MHz						
1	1065.377	19.47 pk	1.2	25.3	45.97	54
		Height:101 Horz		Margin(dB)	-8.03	
2	1984.657	18.79 pk	1.7	28.2	48.69	54
		Height:101 Horz		Margin (dB)	-5.31	
3	2440.961	60.07 pk	2	28.8	90.87	999
		Height:101 Horz		Margin(dB)	-908.13	
4	2701.134	20.37 pk	2	29.4	51.77	54
		Height:101 Horz		Margin(dB)	-2.23	

LIMIT 1: CFR 47, Part 15, 3 meter



1-3GHz High-Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 78 Axis X
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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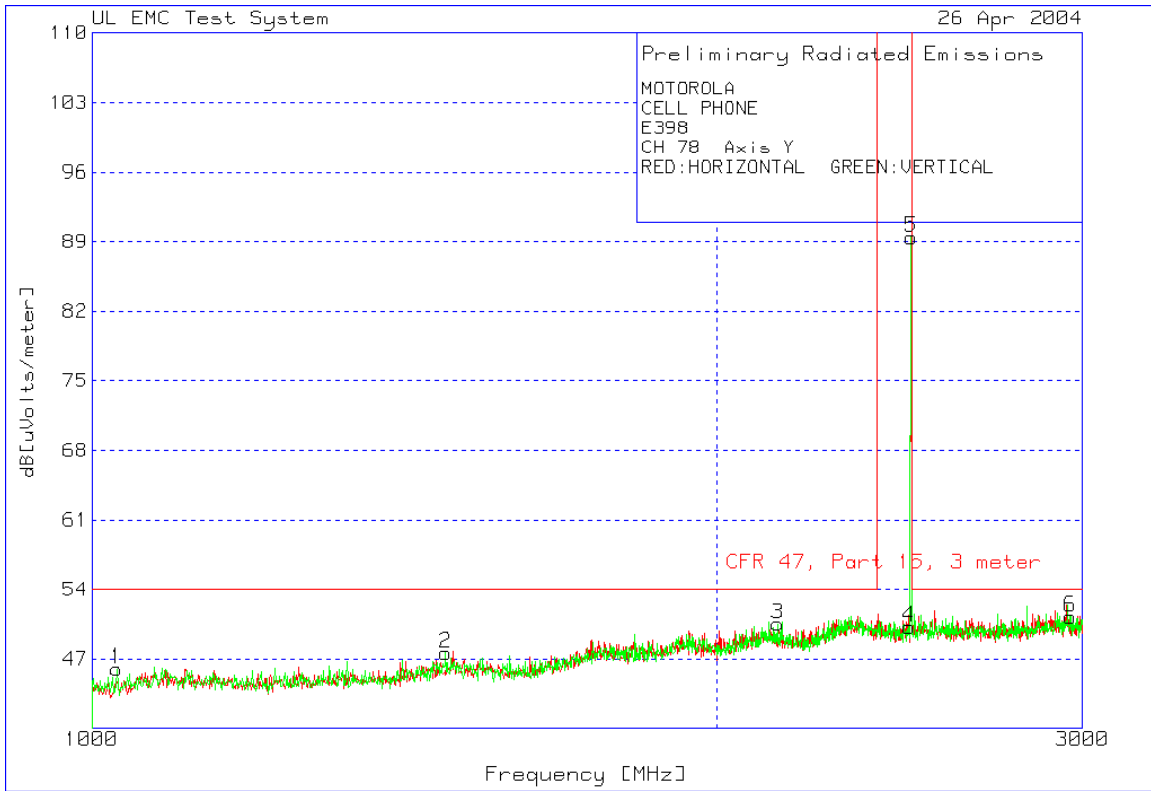
Horizontal 1000 - 3000MHz

1	1021.348	19.6 pk	1.2	25.2	46	54
Height:101 Horz						
Margin [dB] -8						
2	1296.198	19.75 pk	1.2	26	46.95	54
Height:101 Horz						
Margin [dB] -7.05						
3	2339.56	21.21 pk	1.9	28.7	51.81	54
Height:101 Horz						
Margin [dB] -2.19						

Vertical 1000 - 3000MHz

4	2479.653	61.81 pk	1.9	28.9	92.61	999
Height:101 Vert						
Margin [dB] -906.39						
5	2521.014	20.74 pk	2	29	51.74	54
Height:101 Vert						
Margin [dB] -2.26						
6	2906.605	19.29 pk	2	30	51.29	54
Height:101 Vert						
Margin [dB] -2.71						

LIMIT 1: CFR 47, Part 15, 3 meter

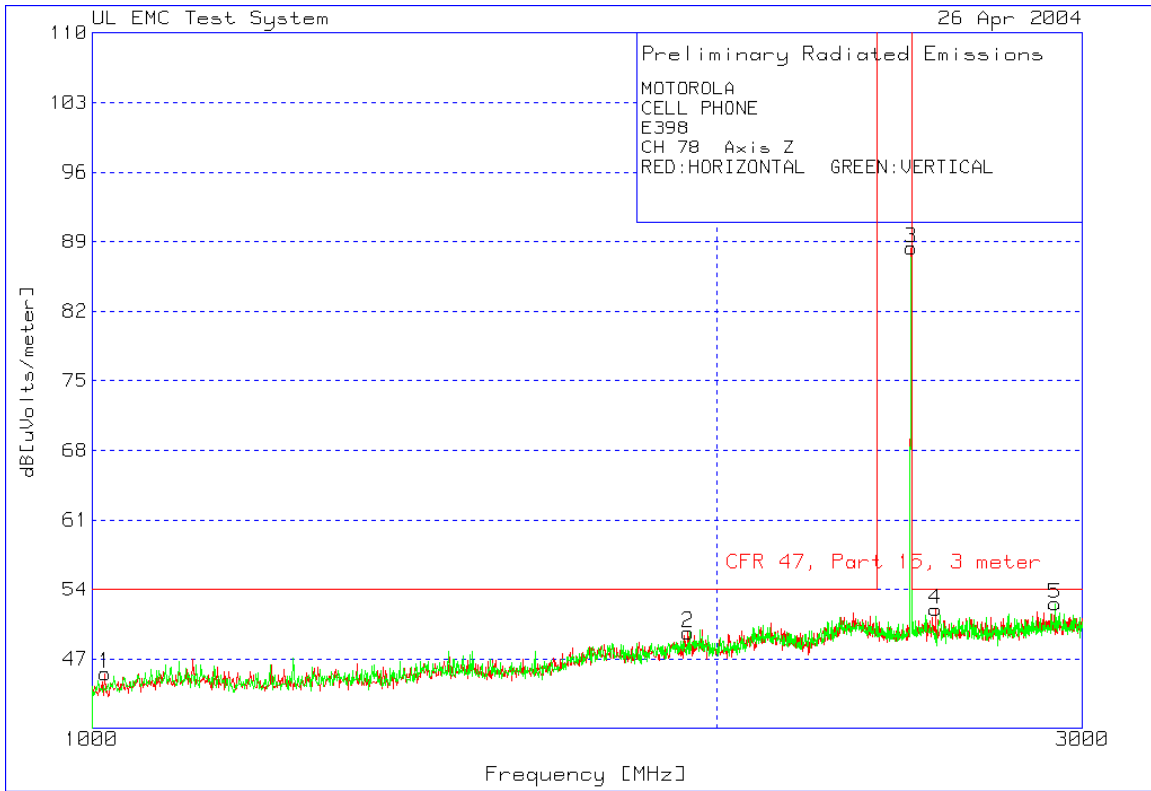


1-3GHz High-Channel Y-Orientation

**MOTOROLA
CELL PHONE
E398
CH 78 Axis Y
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
1	1028.019	19.6 pk	1.2	25.2	46	54
		Height:101 Vert		Margin(dB)	-8	
2	1480.32	19.51 pk	1.5	26.6	47.61	54
		Height:101 Vert		Margin(dB)	-6.39	
3	2139.426	20.32 pk	1.8	28.4	50.52	54
		Height:101 Vert		Margin(dB)	-3.48	
4	2474.316	19.41 pk	1.9	28.9	50.21	999
		Height:101 Vert		Margin(dB)	-948.79	
5	2480.988	58.66 pk	1.9	28.9	89.46	999
		Height:101 Vert		Margin(dB)	-909.54	
6	2958.639	19.17 pk	2	30.1	51.27	54
		Height:101 Vert		Margin(dB)	-2.73	

LIMIT 1: CFR 47, Part 15, 3 meter



1-3GHz High-Channel Z-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 78 Axis Z
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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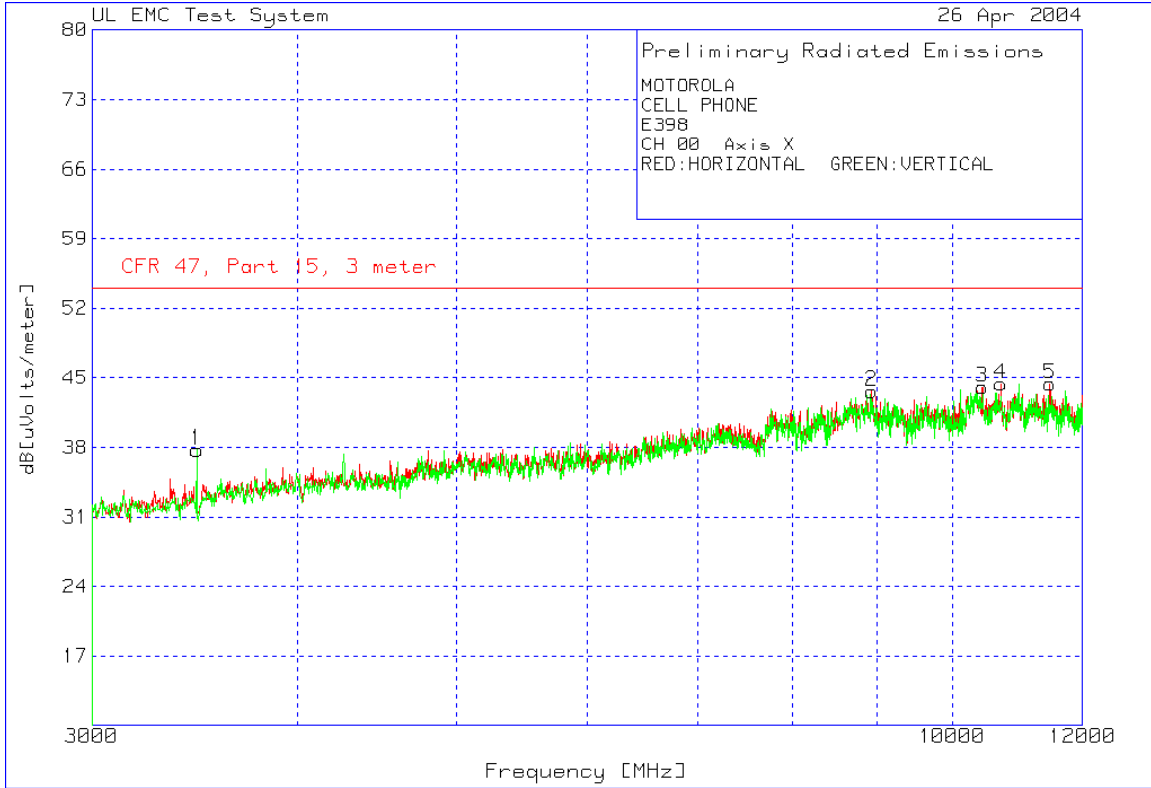
Horizontal 1000 - 3000MHz

1	1014.676	19.24 pk	1.2	25.1	45.54	54	
						Margin [dB]	-8.46
2	1936.625	19.96 pk	1.7	28	49.66	54	
						Margin [dB]	-4.34
3	2480.988	57.55 pk	1.9	28.9	88.35	999	
						Margin [dB]	-910.65
4	2549.033	20.98 pk	2	29	51.98	54	
						Margin [dB]	-2.02

Vertical 1000 - 3000MHz

5	2910.607	20.55 pk	2	30	52.55	54	
						Margin [dB]	-1.45

LIMIT 1: CFR 47, Part 15, 3 meter



3-12GHz Low-Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis X
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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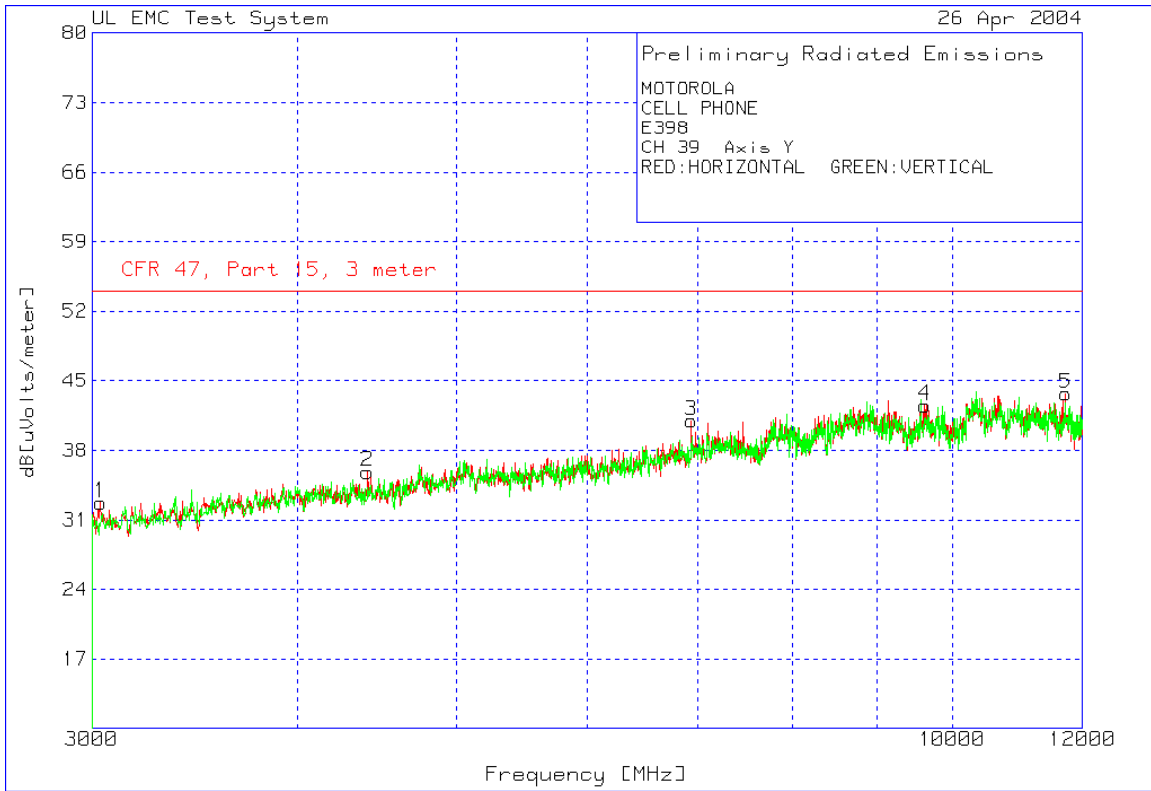
Horizontal 3000 - 12000MHz

2	8931.573	53.95 pk	-48.7	38.4	43.65	54
		Height:150 Horz		Margin [dB]	-10.35	
3	10429.773	51.85 pk	-46.3	38.5	44.05	54
		Height:101 Horz		Margin [dB]	-9.95	
4	10707.084	52.48 pk	-46.6	38.5	44.38	54
		Height:101 Horz		Margin [dB]	-9.62	
5	11466.988	51.37 pk	-46.3	39.3	44.37	54
		Height:150 Horz		Margin [dB]	-9.63	

Vertical 3000 - 12000MHz

1	3475.39	55.91 pk	-49.4	31.2	37.71	54
		Height:150 Vert		Margin [dB]	-16.29	

LIMIT 1: CFR 47, Part 15, 3 meter



3-12GHz Low-Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB]	Limit [dB]
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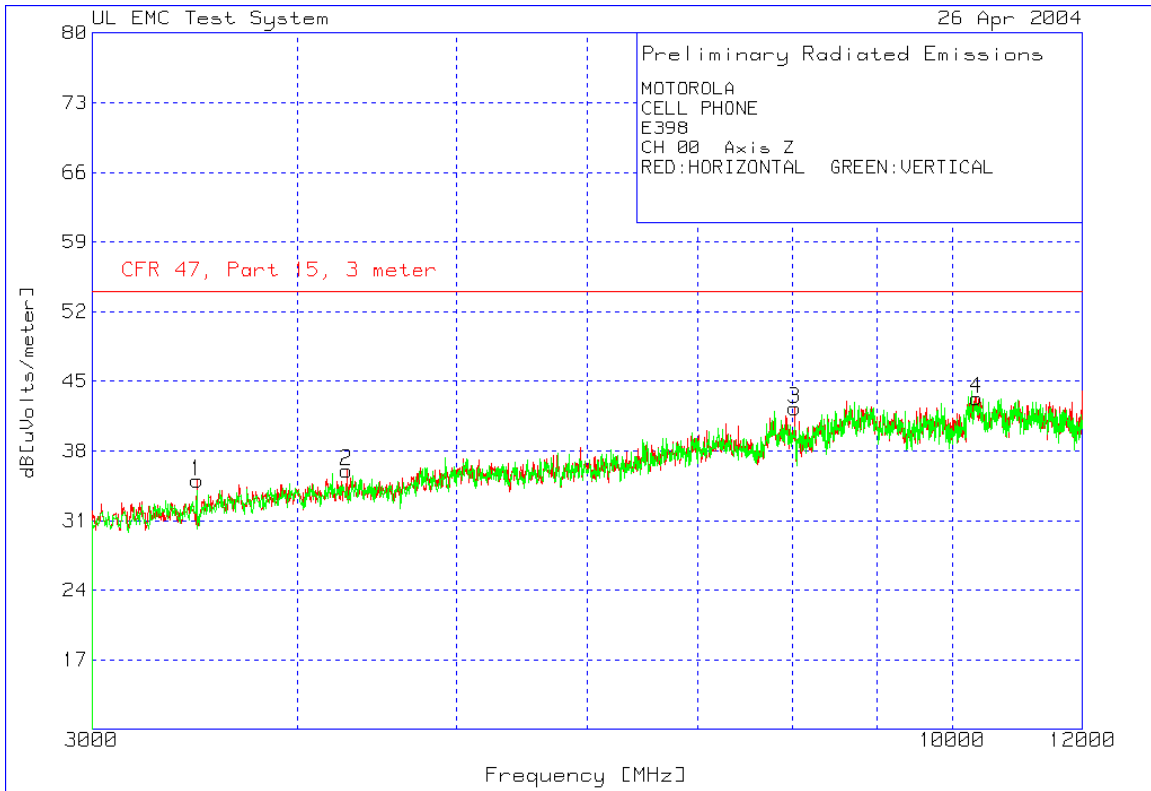
Horizontal 3000 - 12000MHz

3	7984.394	50.35 pk	-46.6	38.5	42.25	54	
						Margin [dB]	-11.75
4	10346.94	52.93 pk	-47.4	38.6	44.13	54	
						Margin [dB]	-9.87

Vertical 3000 - 12000MHz

1	3410.564	52.97 pk	-49.8	31.1	34.27	54	
						Margin [dB]	-19.73
2	6515.006	49.31 pk	-44.7	35	39.61	54	
						Margin [dB]	-14.39

LIMIT 1: CFR 47, Part 15, 3 meter



3-12GHz Low-Channel Z-Orientation

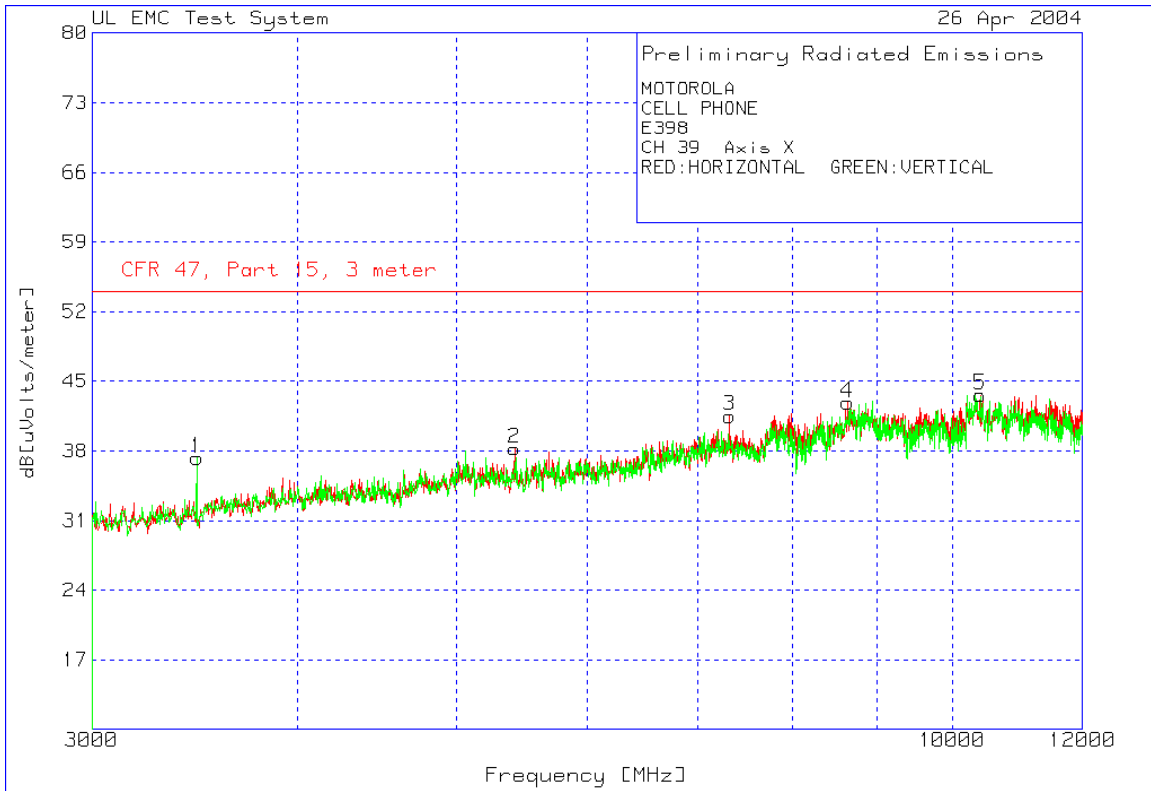
**MOTOROLA
CELL PHONE
E398
CH 00 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Level Factor [dB]	Level dB[uV/m]	Limit:1
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Horizontal 3000 - 12000MHz

1	3475.39	53.23 pk	-49.4		31.2	35.03	54
		Height:101	Horz	Margin(dB)		-18.97	
2	4285.714	53.15 pk	-49.9		32.8	36.05	54
		Height:150	Horz	Margin(dB)		-17.95	
3	8020.409	50.08 pk	-46.4		38.6	42.28	54
		Height:150	Horz	Margin(dB)		-11.72	
4	10343.338	52.12 pk	-47.4		38.6	43.32	54
		Height:150	Horz	Margin(dB)		-10.68	

LIMIT 1: CFR 47, Part 15, 3 meter

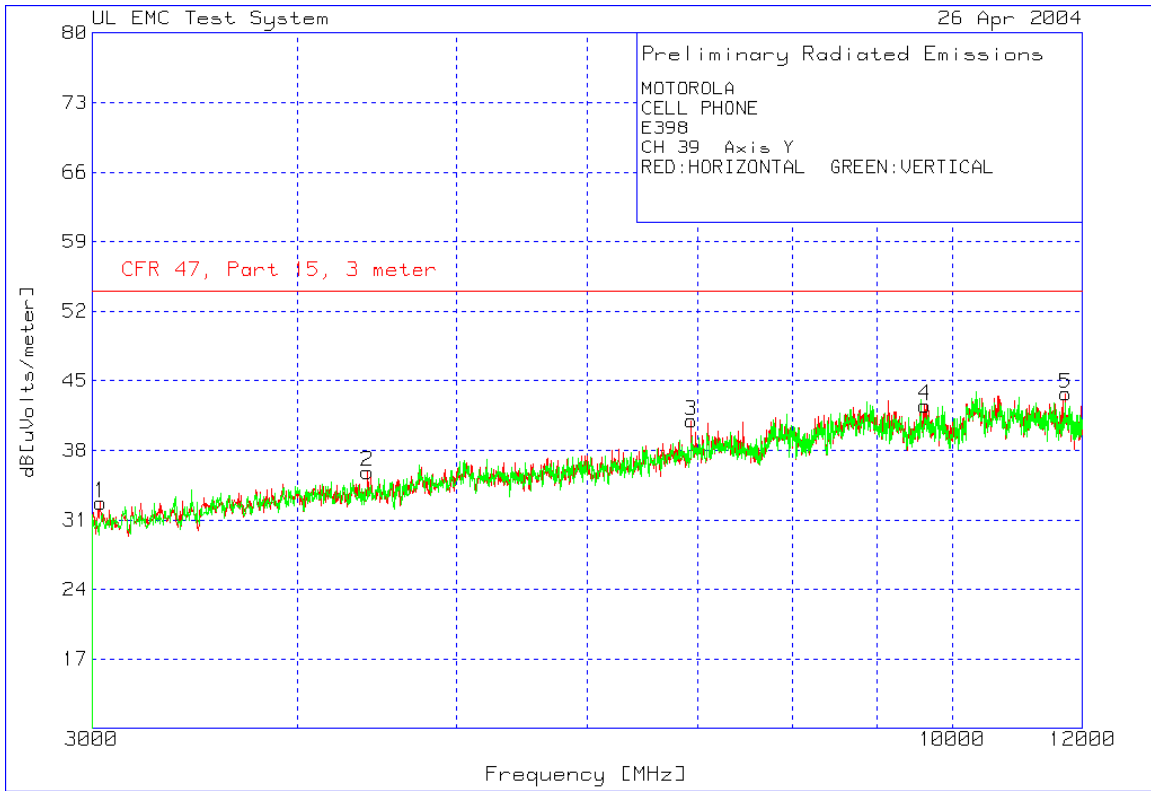


3-12GHz Mid-Channel X-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis X
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 3000 - 12000MHz						
2	5420.168	52.83 pk	-49	34.4	38.23	54
		Height:101 Horz		Margin [dB]	-15.77	
3	7321.729	50.02 pk	-45	36.5	41.52	54
		Height:101 Horz		Margin [dB]	-12.48	
4	8639.857	53.75 pk	-49	38.1	42.85	54
		Height:150 Horz		Margin [dB]	-11.15	
5	10400.961	51.71 pk	-46.7	38.6	43.61	54
		Height:150 Horz		Margin [dB]	-10.39	
Vertical 3000 - 12000MHz						
1	3475.39	55.49 pk	-49.4	31.2	37.29	54
		Height:101 Vert		Margin [dB]	-16.71	

LIMIT 1: CFR 47, Part 15, 3 meter

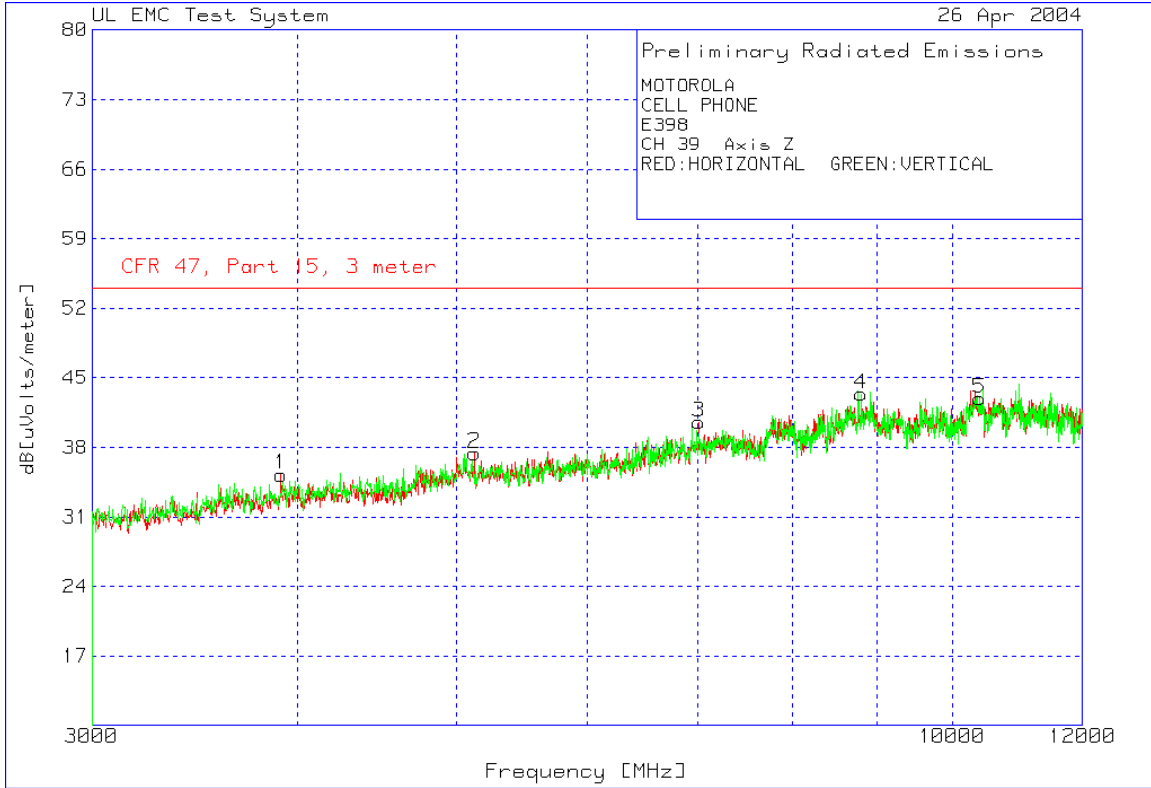


3-12GHz Mid-Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 39 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 3000 - 12000MHz						
1	3036.014	52.41 pk	-50	30.3	32.71	54
				Margin(dB)	-21.29	
2	4411.765	53.83 pk	-50.8	32.8	35.83	54
				Margin(dB)	-18.17	
3	6943.578	50.87 pk	-46.3	36.4	40.97	54
				Margin(dB)	-13.03	
4	9623.05	51.63 pk	-47.4	38.3	42.53	54
				Margin(dB)	-11.47	
5	11719.089	50.02 pk	-45.8	39.5	43.72	54
				Margin(dB)	-10.28	

LIMIT 1: CFR 47, Part 15, 3 meter

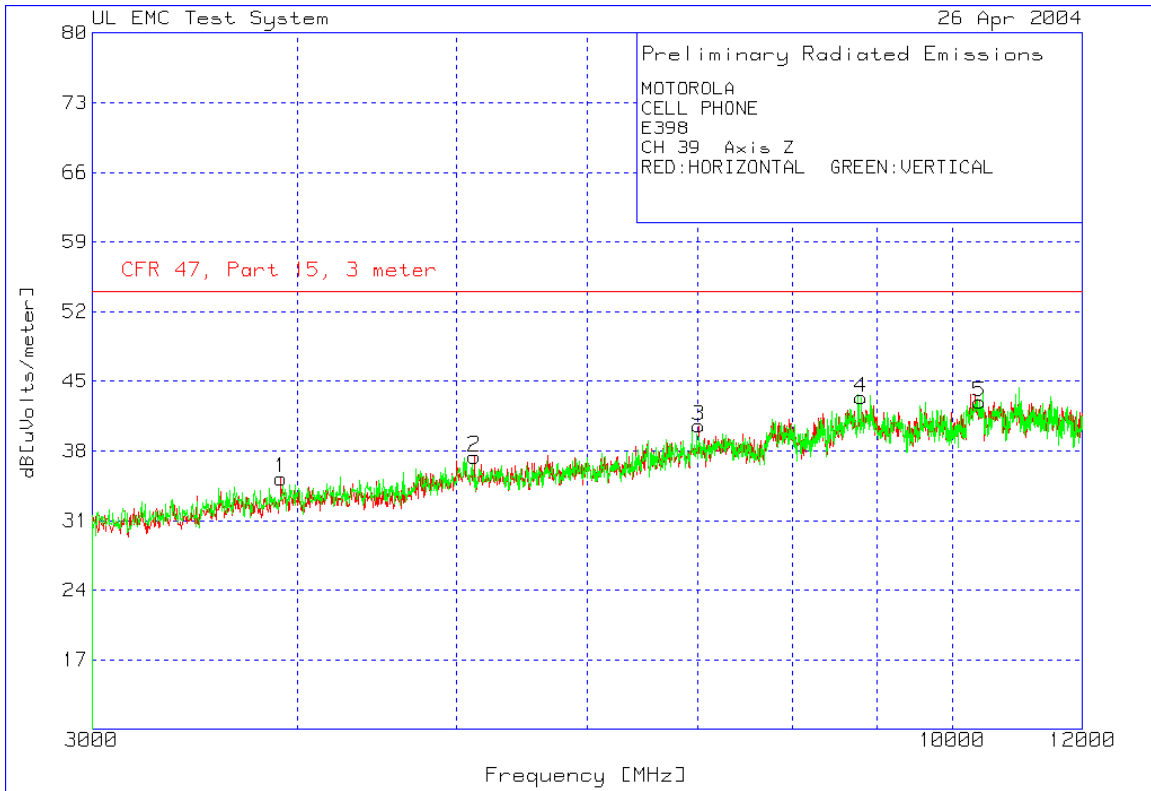


3-12GHz Mid-Channel Y-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 3000 - 12000MHz						
1	3907.563	53.37 pk	-50.5	32.4	35.27	54
		Height:101 Horz		Margin [dB]	-18.73	
2	5124.85	51.61 pk	-48.5	34.3	37.41	54
		Height:150 Horz		Margin [dB]	-16.59	
3	7015.607	49.21 pk	-45.3	36.6	40.51	54
		Height:101 Horz		Margin [dB]	-13.49	
Vertical 3000 - 12000MHz						
4	8805.523	52.95 pk	-47.9	38.3	43.35	54
		Height:101 Vert		Margin [dB]	-10.65	
5	10386.555	51.2 pk	-46.9	38.6	42.9	54
		Height:101 Vert		Margin [dB]	-11.1	

LIMIT 1: CFR 47, Part 15, 3 meter



3-12GHz Mid-Channel Z-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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Horizontal 3000 - 12000MHz

1	3907.563	53.37 pk	-50.5	32.4	35.27	54
		Height:101 Horz		Margin [dB]	-18.73	
2	5124.85	51.61 pk	-48.5	34.3	37.41	54
		Height:150 Horz		Margin [dB]	-16.59	
3	7015.607	49.21 pk	-45.3	36.6	40.51	54
		Height:101 Horz		Margin [dB]	-13.49	

Vertical 3000 - 12000MHz

4	8805.523	52.95 pk	-47.9	38.3	43.35	54
		Height:101 Vert		Margin [dB]	-10.65	
5	10386.555	51.2 pk	-46.9	38.6	42.9	54
		Height:101 Vert		Margin [dB]	-11.1	

LIMIT 1: CFR 47, Part 15, 3 meter



12-18GHz Low-Channel X-Orientation

**MOTOROLA
CELL PHONE
E398**

CH 0 Axis X

RED:HORIZONTAL GREEN:VERTICAL

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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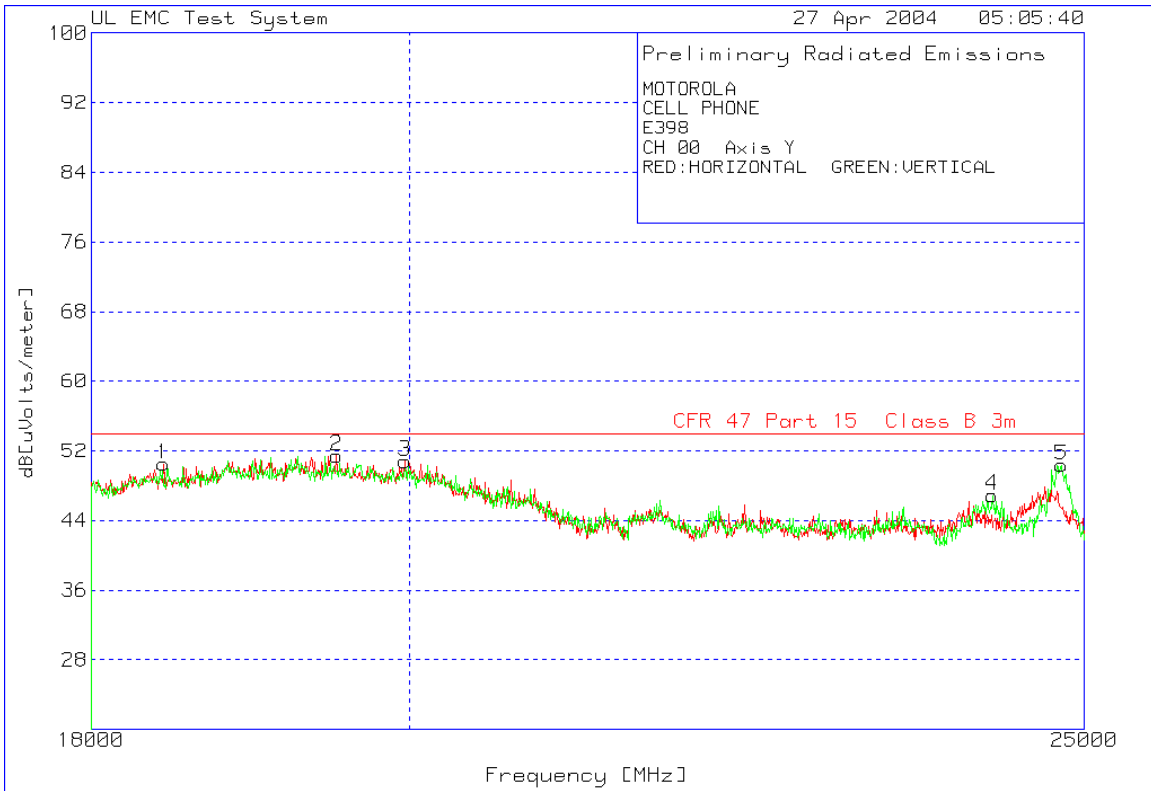
Horizontal 12000 - 18000 MHz

1	12150.15	50.27 pk Height:150 Horz	-47.7	39.4	41.97	54 Margin [dB] -12.03
2	13075.075	48.95 pk Height:150 Horz	-46	39.8	42.75	54 Margin [dB] -11.25
3	13543.544	49.55 pk Height:101 Horz	-46.2	39.8	43.15	54 Margin [dB] -10.85
4	14846.847	45.14 pk Height:101 Horz	-43.2	39.8	41.74	54 Margin [dB] -12.26

Vertical 12000 - 18000MHz

5	15015.015	45.68 pk Height:150 Vert	-42.7	39.8	42.78	54 Margin [dB] -11.22
6	15429.429	46.09 pk Height:101 Vert	-42.2	40.1	43.99	54 Margin [dB] -10.01
7	17063.063	45.29 pk Height:101 Vert	-42.2	40.3	43.39	54 Margin [dB] -10.61

LIMIT 1: CFR 47 Part 15 Class B 3m

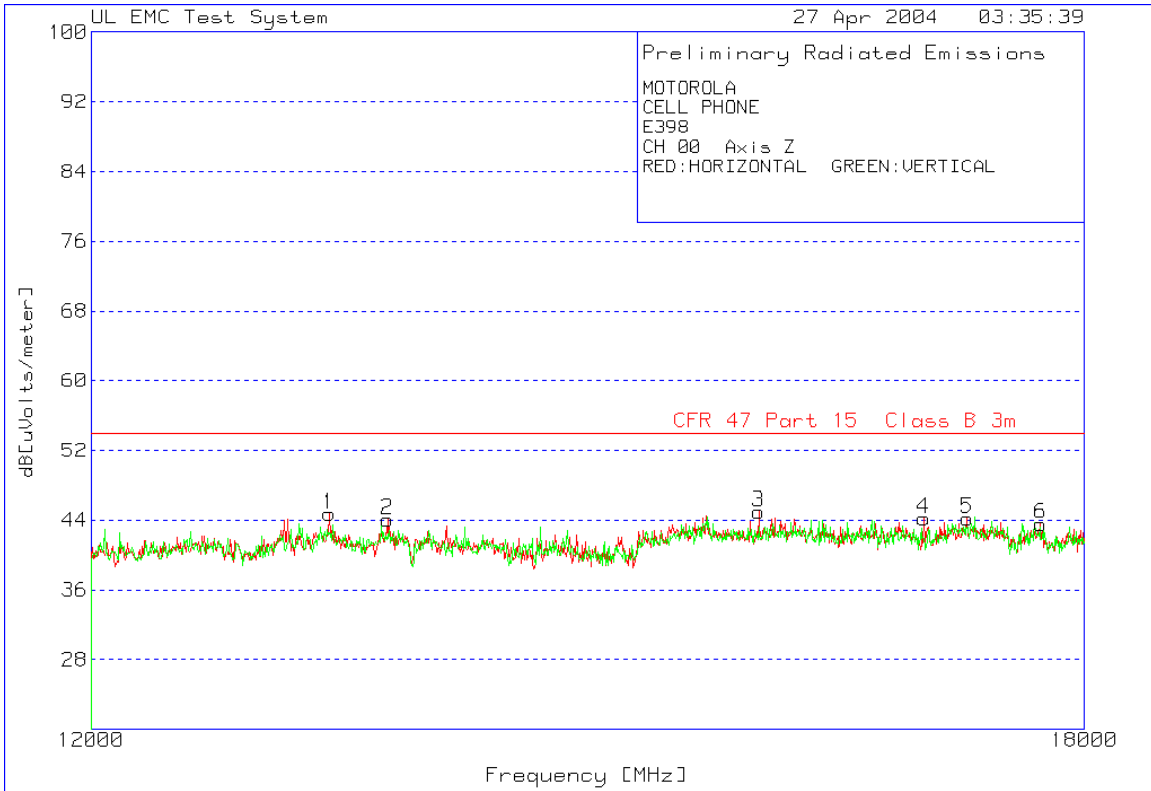


12-18GHz Low-Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000 - 18000MHz						
1	12588.589	51.5 pk	-48.3	39.5	42.7	54
		Height:150 Horz		Margin[dB}	-11.3	
2	13543.544	49.91 pk	-46.2	39.8	43.51	54
		Height:150 Horz		Margin[dB}	-10.49	
3	15237.237	47.09 pk	-42.8	39.9	44.19	54
		Height:150 Horz		Margin[dB}	-9.81	
4	16612.613	46.55 pk	-41.8	39.9	44.65	54
		Height:101 Horz		Margin[dB}	-9.35	
5	17051.051	46.3 pk	-42.4	40.4	44.3	54
		Height:101 Horz		Margin[dB}	-9.7	
6	17639.64	45.31 pk	-40.6	40	44.71	54
		Height:101 Horz		Margin[dB}	-9.29	

LIMIT 1: CFR 47 Part 15 Class B 3m



12-18GHz Low-Channel Z-Orientation

**MOTOROLA
CELL PHONE
E398
CH 00 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1 [dB]
Horizontal 12000 - 18000MHz						
1	13225.225	50.33 pk	-45.4	39.8	44.73	54
		Height:150 Horz		Margin[dB]	-9.27	
2	13543.544	50.49 pk	-46.2	39.8	44.09	54
		Height:150 Horz		Margin[dB]	-9.91	
3	15759.76	47.28 pk	-42.3	40	44.98	54
		Height:101 Horz		Margin[dB]	-9.02	
4	16858.859	45.89 pk	-41.9	40.2	44.19	54
		Height:101 Horz		Margin[dB]	-9.81	
5	17159.159	45.2 pk	-41.3	40.3	44.2	54
		Height:150 Horz		Margin[dB]	-9.8	
6	17681.682	44.1 pk	-40.5	40	43.6	54
		Height:101 Horz		Margin[dB]	-10.4	

LIMIT 1: CFR 47 Part 15 Class B 3m

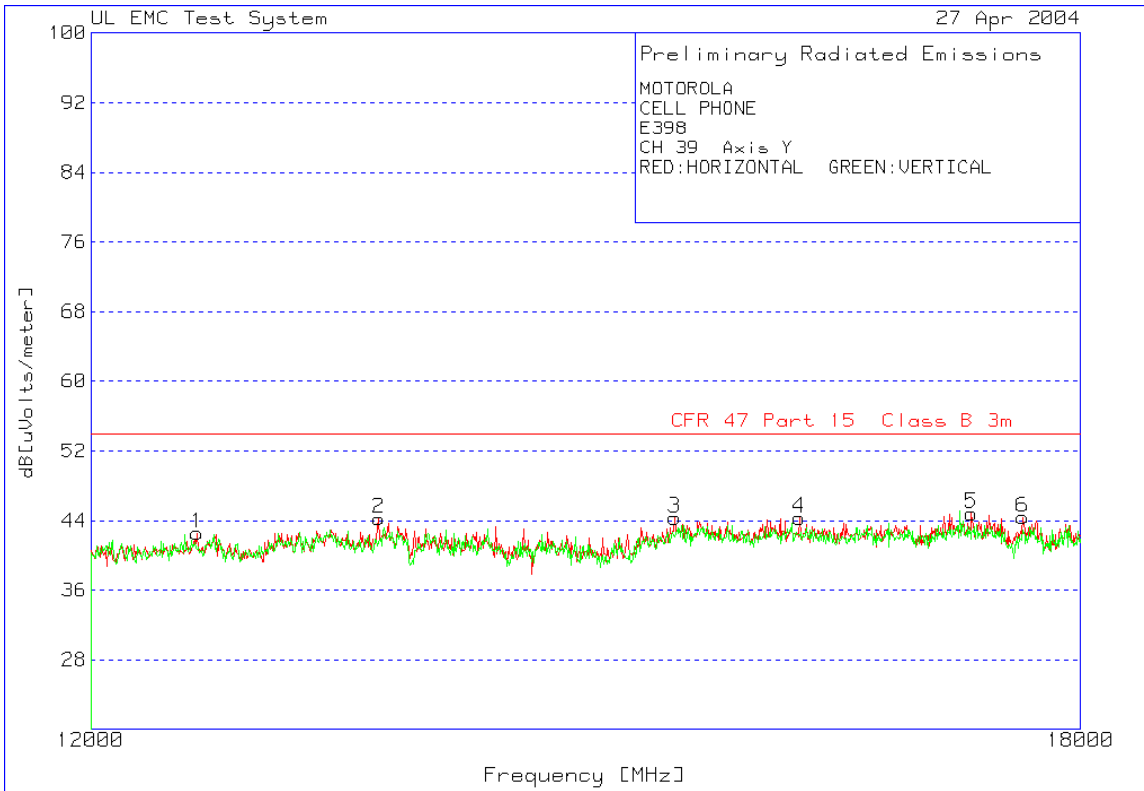


12-18GHz Mid-Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 39 Axis X
 RED: HORIZONTAL GREEN: VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Level Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000 - 18000MHz						
1	12462.462	51.37 pk	-48.2	39.4	42.57	54
		Height:150 Horz		Margin[dB]	-11.43	
2	13213.213	49.19 pk	-45.6	39.8	43.39	54
		Height:101 Horz		Margin[dB]	-10.61	
3	13633.634	49.35 pk	-44.8	39.8	44.35	54
		Height:150 Horz		Margin[dB]	-9.65	
4	15903.904	46.36 pk	-42.5	39.9	43.76	54
		Height:101 Horz		Margin[dB]	-10.24	
5	16642.643	46 pk	-41.9	39.9	44	54
		Height:101 Horz		Margin[dB]	-10	
6	17231.231	45.92 pk	-41.7	40.2	44.42	54
		Height:101 Horz		Margin[dB]	-9.58	

LIMIT 1: CFR 47 Part 15 Class B 3m



12-18GHz Mid-Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 39 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000 - 18000MHz						
1	12534.535	51.06 pk	-47.9	39.4	42.56	54
		Height:150 Horz		Margin[dB]	-11.44	
2	13501.502	50.61 pk	-46.2	39.8	44.21	54
		Height:101 Horz		Margin[dB]	-9.79	
3	15243.243	47.3 pk	-42.9	39.9	44.3	54
		Height:101 Horz		Margin[dB]	-9.7	
4	16042.042	46.18 pk	-41.8	39.9	44.28	54
		Height:101 Horz		Margin[dB]	-9.72	
5	17213.213	45.92 pk	-41.3	40.2	44.82	54
		Height:101 Horz		Margin[dB]	-9.18	
6	17579.58	45.86 pk	-41.5	40	44.36	54
		Height:101 Horz		Margin[dB]	-9.64	

LIMIT 1: CFR 47 Part 15 Class B 3m

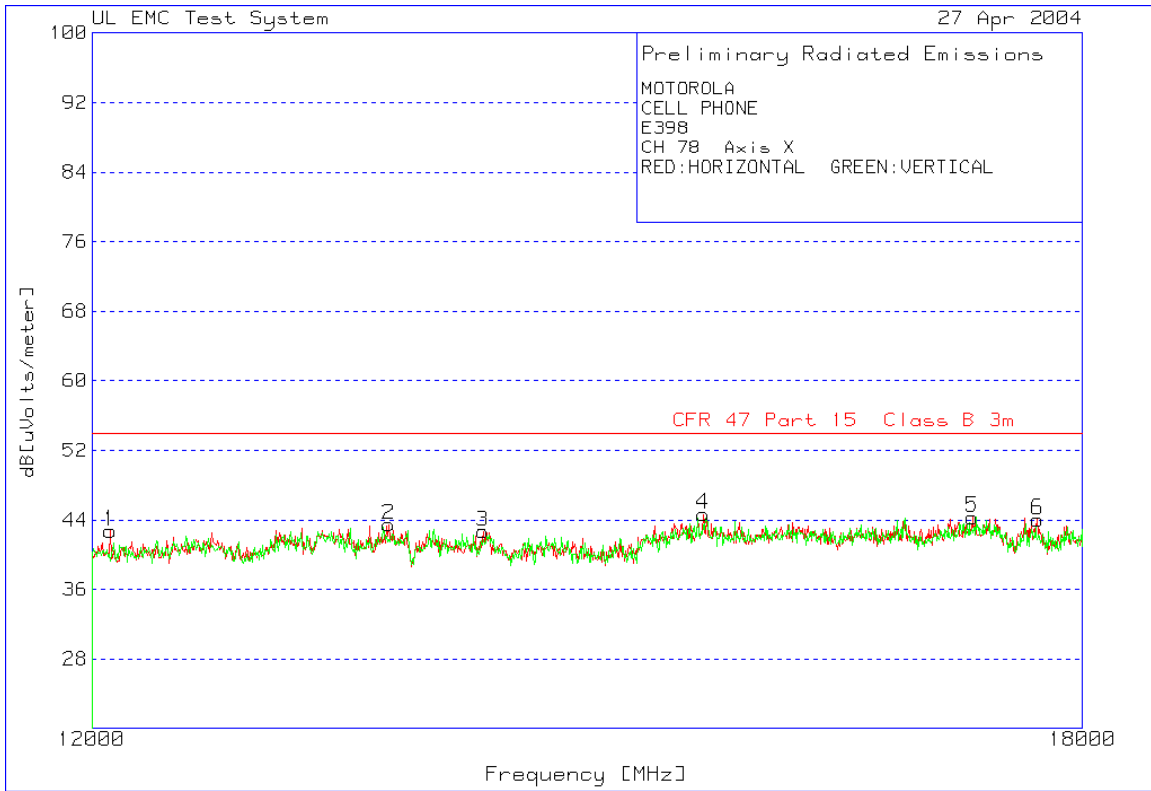


12-18GHz Mid-Channel Z-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Level Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000 - 18000MHz						
1	13243.243	48.27 pk	-45.2	39.8	42.87	54
		Height:101 Horz		Margin[dB]	-11.13	
2	13483.483	49.73 pk	-46	39.8	43.53	54
		Height:101 Horz		Margin[dB]	-10.47	
3	15657.658	47.03 pk	-42.5	40	44.53	54
		Height:101 Horz		Margin[dB]	-9.47	
4	15981.982	46.45 pk	-42	39.9	44.35	54
		Height:150 Horz		Margin[dB]	-9.65	
5	17141.141	45.46 pk	-41.4	40.3	44.36	54
		Height:101 Horz		Margin[dB]	-9.64	
6	17975.976	43.38 pk	-39.9	40.1	43.58	54
		Height:101 Horz		Margin[dB]	-10.42	

LIMIT 1: CFR 47 Part 15 Class B 3m

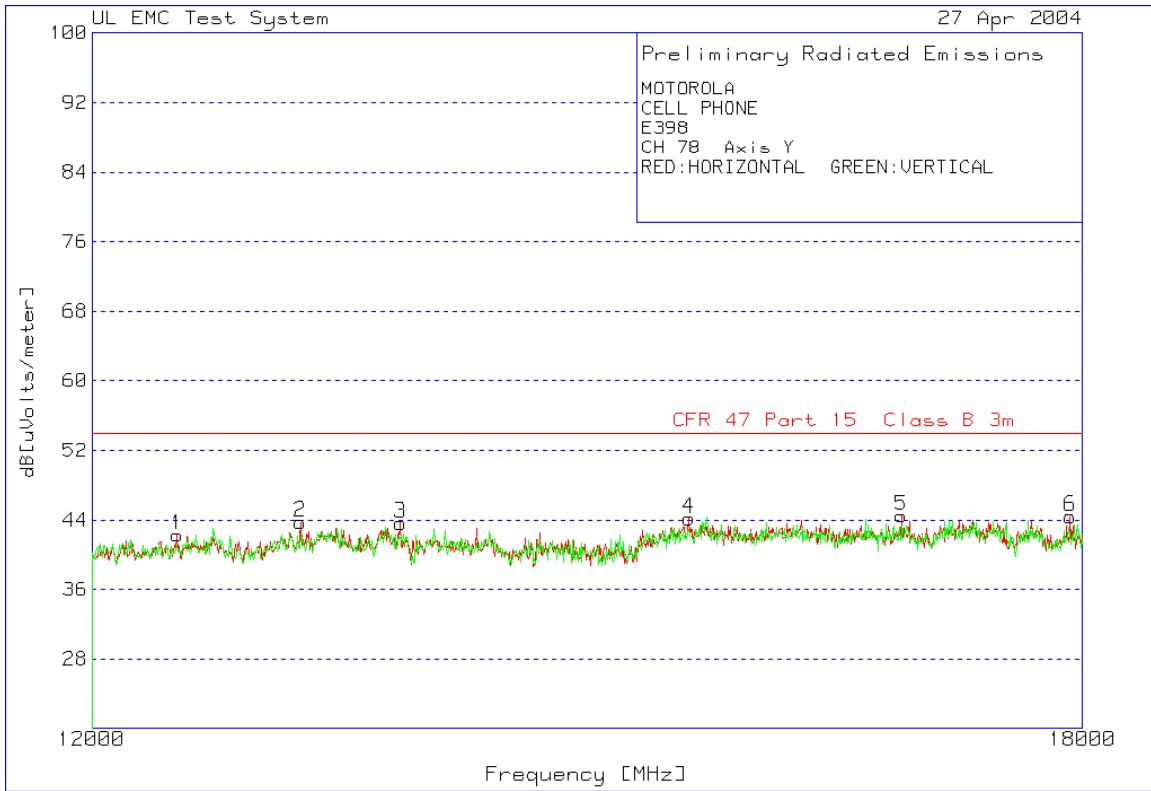


12-18GHz High-Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 78 Axis X
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000 - 18000MHz						
1	12090.09	52.12 pk	-48.8	39.4	42.72	54
		Height:101 Horz		Margin[dB]	-11.28	
2	13549.55	49.85 pk	-46.2	39.8	43.45	54
		Height:101 Horz		Margin[dB]	-10.55	
3	14084.084	47.69 pk	-44.9	39.9	42.69	54
		Height:101 Horz		Margin[dB]	-11.31	
4	15411.411	47.05 pk	-42.4	40	44.65	54
		Height:101 Horz		Margin[dB]	-9.35	
5	17207.207	45.21 pk	-41.1	40.2	44.31	54
		Height:101 Horz		Margin[dB]	-9.69	
6	17669.67	44.54 pk	-40.5	40	44.04	54
		Height:150 Horz		Margin[dB]	-9.96	

LIMIT 1: CFR 47 Part 15 Class B 3m

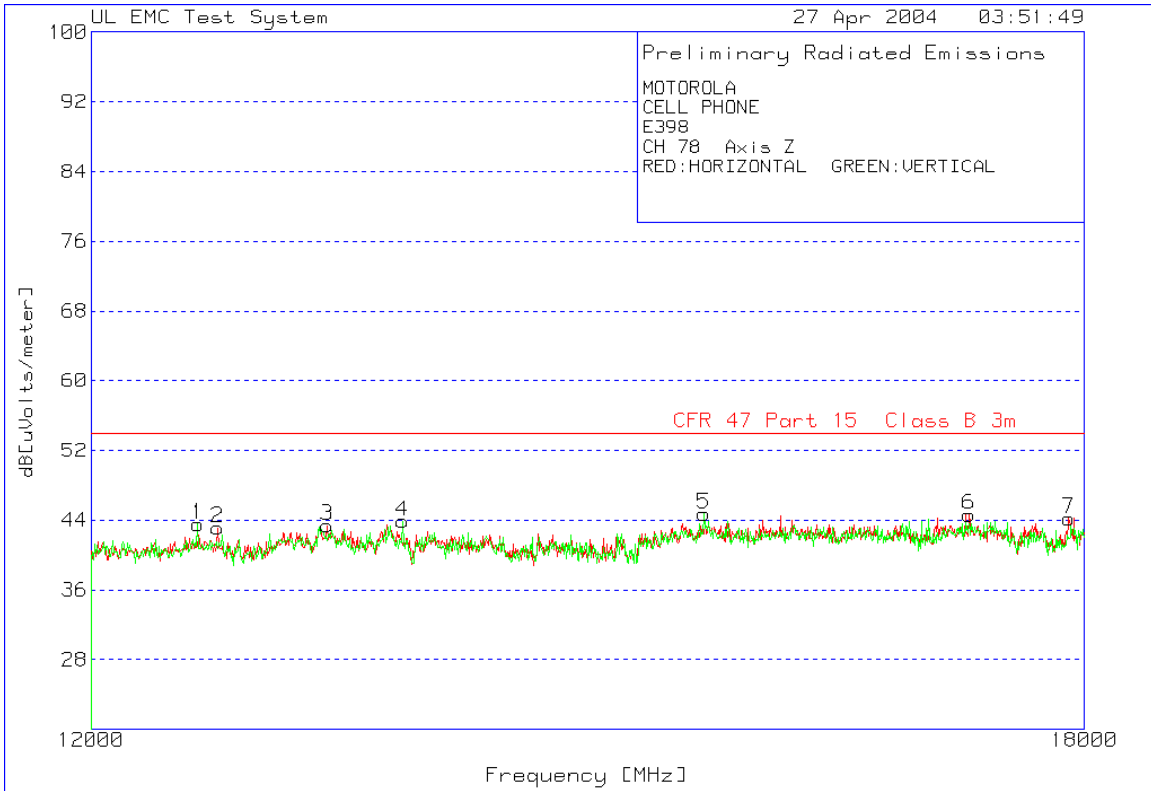


12-18GHz High-Channel Y-Orientation

**MOTOROLA
CELL PHONE
E398
CH 78 Axis Y
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000 - 18000MHz						
1	12426.426	51.06 pk	-48.2	39.4	42.26	54
		Height:150 Horz		Margin[dB]	-11.74	
2	13069.069	49.94 pk	-46	39.8	43.74	54
		Height:150 Horz		Margin[dB]	-10.26	
3	13615.616	48.74 pk	-44.9	39.8	43.64	54
		Height:101 Horz		Margin[dB]	-10.36	
4	15321.321	46.58 pk	-42.4	40	44.18	54
		Height:101 Horz		Margin[dB]	-9.82	
5	16714.715	46.87 pk	-42.4	40	44.47	54
		Height:101 Horz		Margin[dB]	-9.53	
6	17909.91	44.89 pk	-40.6	40.1	44.39	54
		Height:101 Horz		Margin[dB]	-9.61	

LIMIT 1: CFR 47 Part 15 Class B 3m

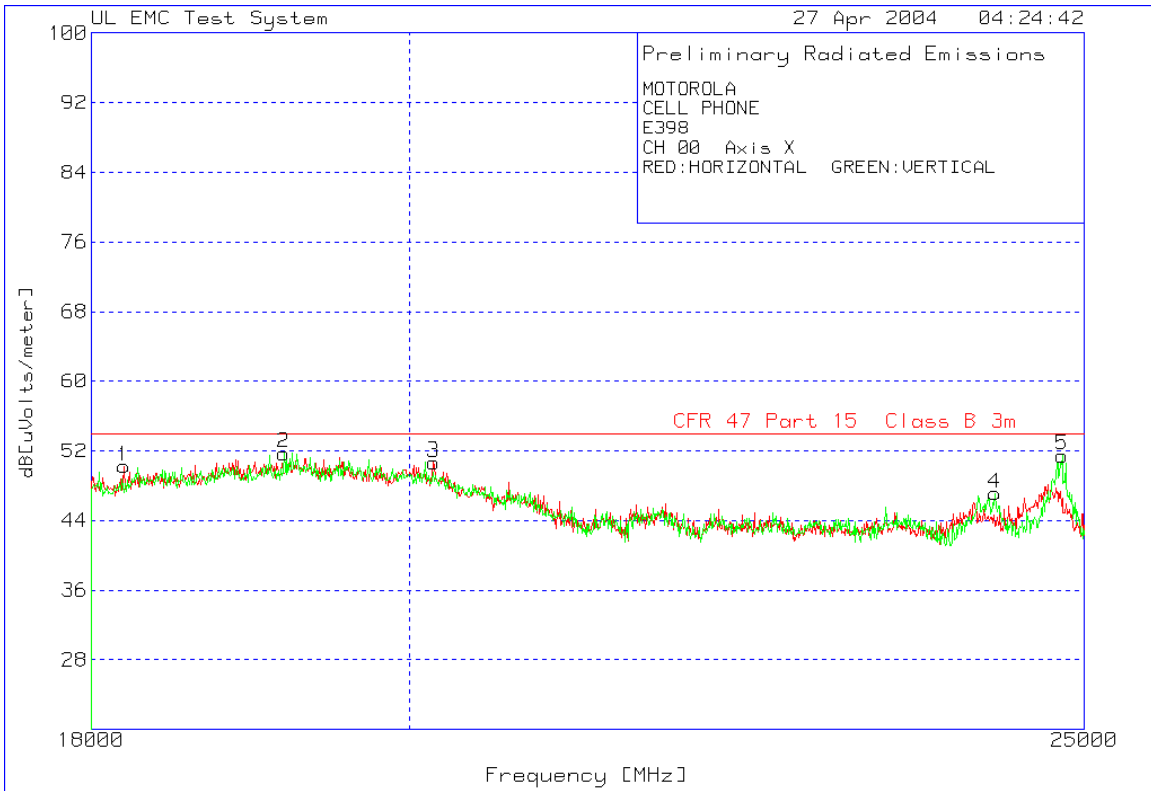


12-18GHz High-Channel Z-Orientation

**MOTOROLA
CELL PHONE
E398
CH 78 Axis Z**

RED:HORIZONTAL GREEN:VERTICAL

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 12000-18000MHz						
2	12636.637	51.73 pk	-48.1	39.5	43.13	54
		Height:101	Horz	Margin [dB]	-10.87	
3	13213.213	49.18 pk	-45.6	39.8	43.38	54
		Height:101	Horz	Margin [dB]	-10.62	
6	17171.171	45.52 pk	-41.2	40.3	44.62	54
		Height:101	Horz	Margin [dB]	-9.38	
7	17885.886	45.01 pk	-40.9	40.1	44.21	54
		Height:101	Horz	Margin [dB]	-9.79	
Vertical 12000-18000MHz						
1	12534.535	52.05 pk	-47.9	39.4	43.55	54
		Height:150	Vert	Margin [dB]	-10.45	
4	13627.628	48.88 pk	-44.8	39.8	43.88	54
		Height:101	Vert	Margin [dB]	-10.12	
5	15411.411	47.14 pk	-42.4	40	44.74	54
		Height:150	Vert	Margin [dB]	-9.26	
LIMIT 1: CFR 4 7 Part 15 Class B 3 m						



18-25GHz Low-Channel X-Orientation

CELL PHONE

E398

CH 00 Axis X

RED:HORIZONTAL GREEN:VERTICAL

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1 dB[uV/m]
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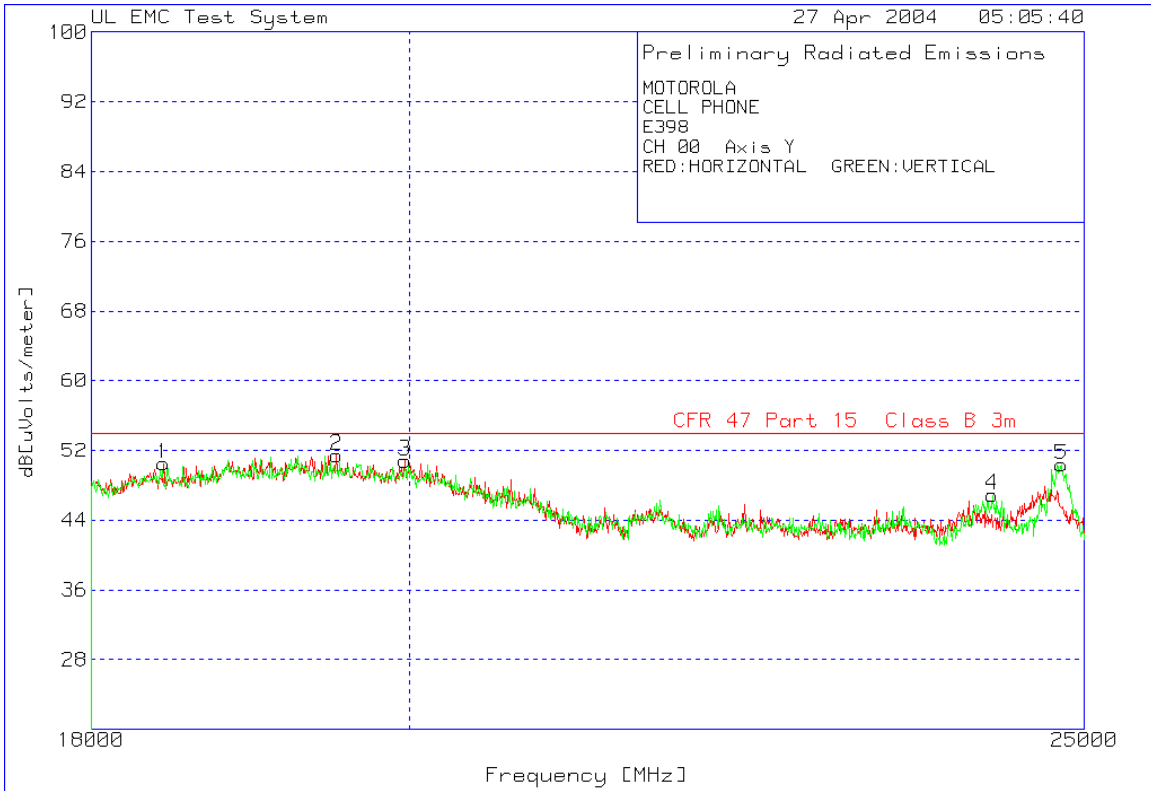
Horizontal 18000 - 25000MHz

1	18196.196	71.23 pk	-61	40	50.23	54
		Height:150 Horz	Margin [dB]	-3.77		
3	20158.158	71.57 pk	-61.1	40.2	50.67	54
		Height:101 Horz	Margin [dB]	-3.33		

Vertical 18000 - 25000MHz

2	19184.184	72.34 pk	-60.9	40.3	51.74	54
		Height:101 Vert	Margin [dB]	-2.26		
4	24271.271	65.03 pk	-58.2	40.3	47.13	54
		Height:101 Vert	Margin [dB]	-6.87		
5	24817.818	70.28 pk	-59.1	40.3	51.48	54
		Height:150 Vert	Margin [dB]	-2.52		

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz Low-Channel Y-Orientation

**MOTOROLA
CELL PHONE
E398
CH 00 Axis Y
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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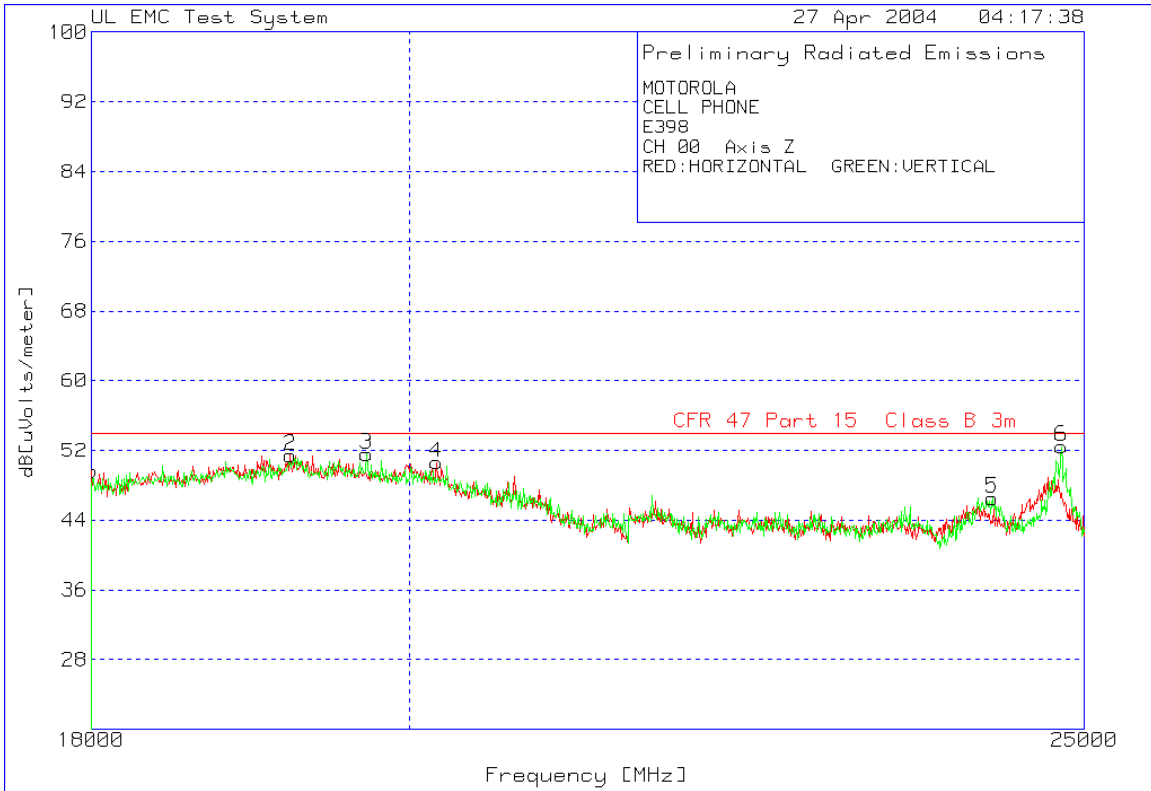
Horizontal 18000 - 25000MHz

1	18434.434	70.98 pk	-60.6	40.1	50.48	54
		Height:150 Horz			Margin [dB] -3.52	
2	19520.521	72.13 pk	-61	40.3	51.43	54
		Height:101 Horz			Margin [dB] -2.57	
3	19968.969	71.73 pk	-61.1	40.2	50.83	54
		Height:150 Horz			Margin [dB] -3.17	

Vertical 18000 - 25000MHz

4	24250.25	64.69 pk	-58.1	40.3	46.89	54
		Height:150 Vert			Margin [dB] -7.11	
5	24810.811	69.07 pk	-59	40.3	50.37	54
		Height:101 Vert			Margin [dB] -3.63	

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz Low-Channel Z-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 00 Axis Z
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Level Factor [dB]	Level dB[uV/m]	Limit:1
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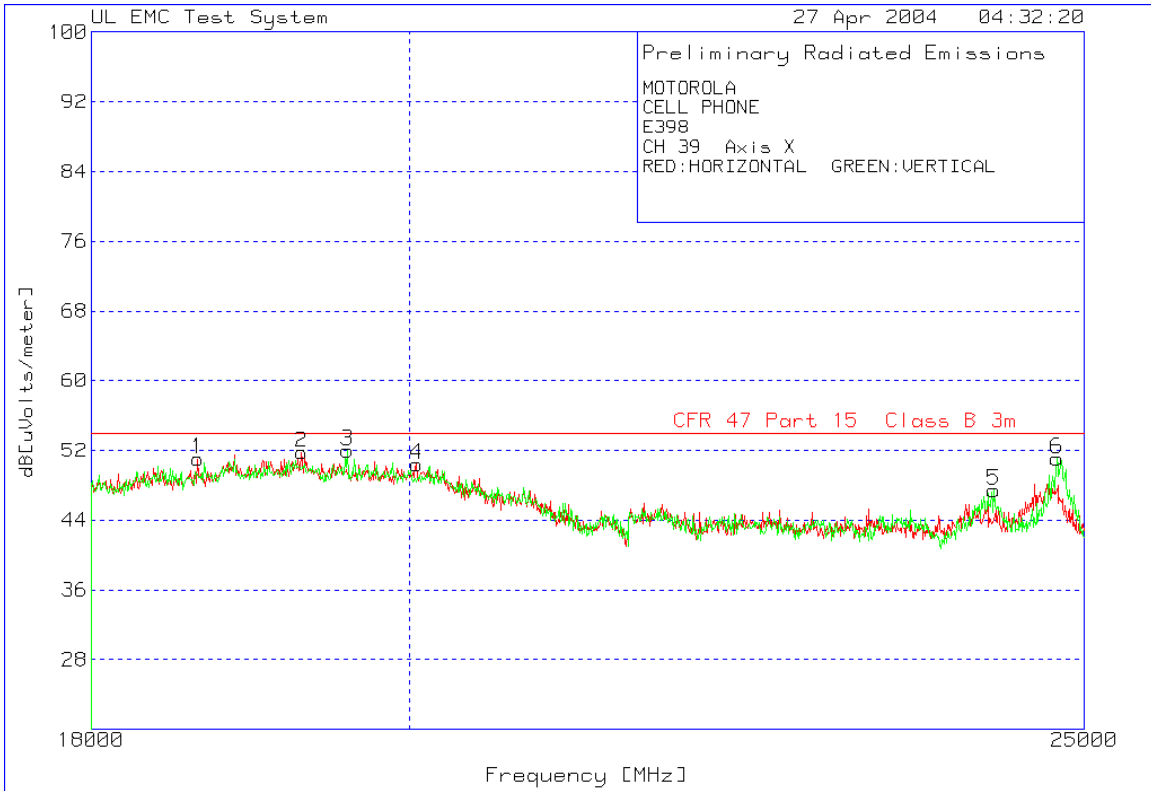
Horizontal 18000 - 25000MHz

1	18000	70.26 pk	-60.6	40	49.66	54
		Height:101 Horz		Margin [dB]	-4.34	
2	19226.226	71.95 pk	-60.8	40.3	51.45	54
		Height:150 Horz		Margin [dB]	-2.55	
4	20179.179	71.52 pk	-61.1	40.2	50.62	54
		Height:150 Horz		Margin [dB]	-3.38	

Vertical 18000 - 25000MHz

3	19716.717	72.26 pk	-61	40.3	51.56	54
		Height:101 Vert		Margin [dB]	-2.44	
5	24250.25	64.34 pk	-58.1	40.3	46.54	54
		Height:150 Vert		Margin [dB]	-7.46	
6	24810.811	71.15 pk	-59	40.3	52.45	54
		Height:150 Vert		Margin [dB]	-1.55	

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz Mid-Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 39 Axis X
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Level Factor [dB]	Level dB[uV/m]	Limit:1 [dB]
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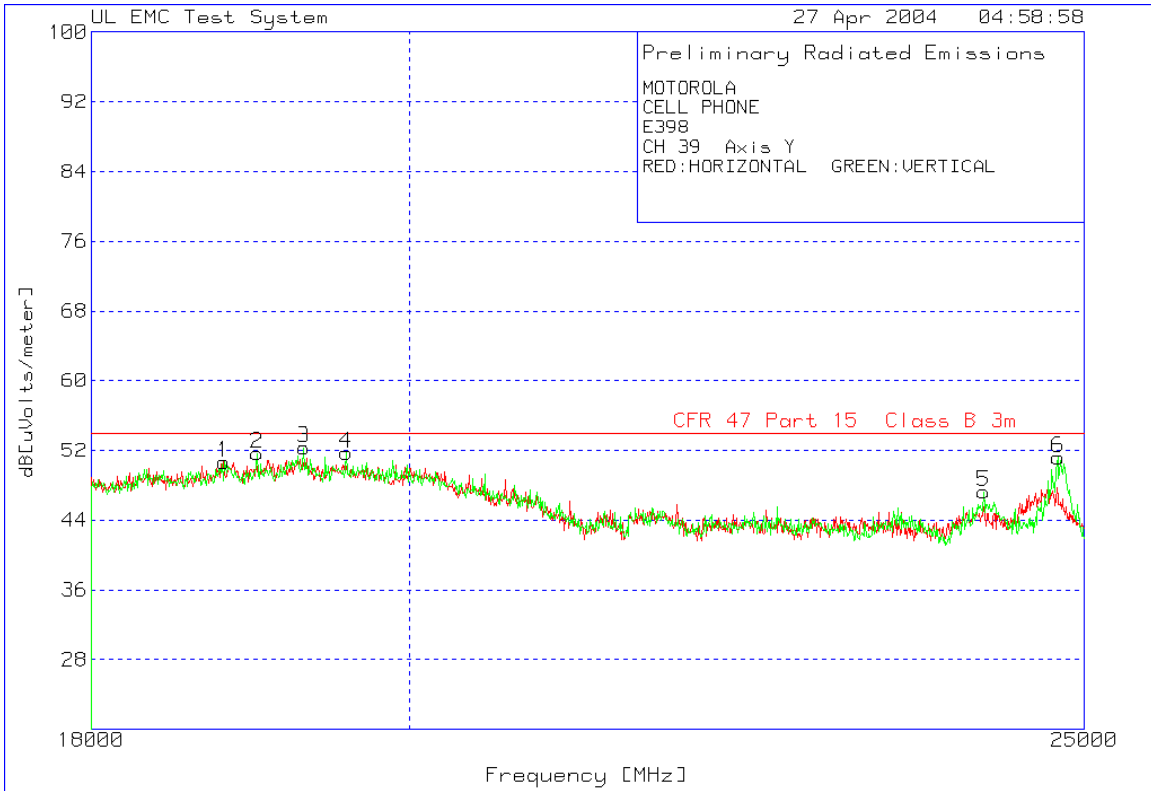
Horizontal 18000 - 25000MHz

1	18644.645	71.42 pk	-60.5	40.1	51.02	54	
						Margin [dB]	-2.98
2	19296.296	72.27 pk	-60.8	40.3	51.77	54	
						Margin [dB]	-2.23
4	20046.046	71.31 pk	-61.1	40.2	50.41	54	
						Margin [dB]	-3.59

Vertical 18000 - 25000MHz

3	19590.591	72.68 pk	-61	40.3	51.98	54	
						Margin [dB]	-2.02
5	24264.264	65.23 pk	-58.1	40.3	47.43	54	
						Margin [dB]	-6.57
6	24775.776	69.56 pk	-58.8	40.3	51.06	54	
						Margin [dB]	-2.94

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz Mid-Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 39 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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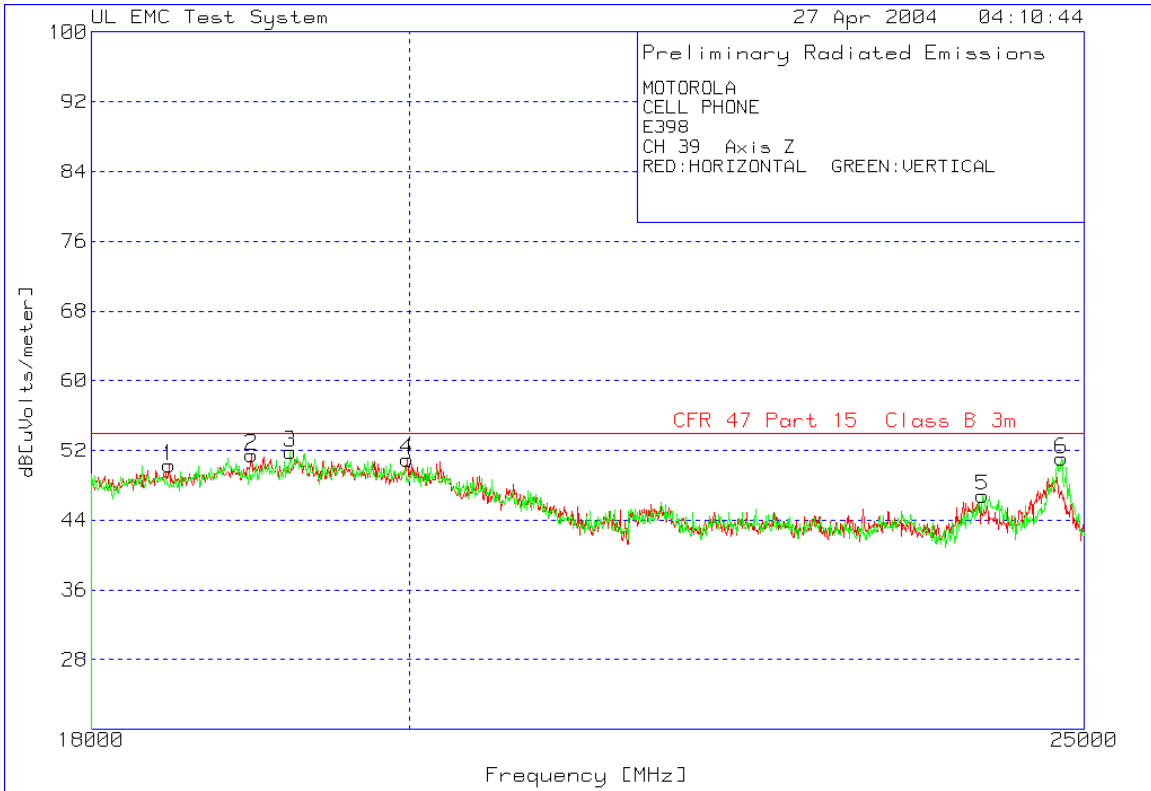
Horizontal 18000 - 25000MHz

1	18805.806	71.09 pk	-60.5	40.1	50.69	54
Height:101 Horz						Margin [dB] -3.31

Vertical 18000 - 25000MHz

2	19016.016	72.18 pk	-60.7	40.2	51.68	54
Height:101 Vert						Margin [dB] -2.32
3	19310.31	72.73 pk	-60.7	40.3	52.33	54
Height:150 Vert						Margin [dB] -1.67
4	19583.584	72.42 pk	-61	40.3	51.72	54
Height:150 Vert						Margin [dB] -2.28
5	24180.18	64.77 pk	-57.8	40.3	47.27	54
Height:150 Vert						Margin [dB] -6.73
6	24782.783	69.69 pk	-58.8	40.3	51.19	54
Height:101 Vert						Margin [dB] -2.81

LIMIT 1: CFR 47 Part 15 Class B 3m

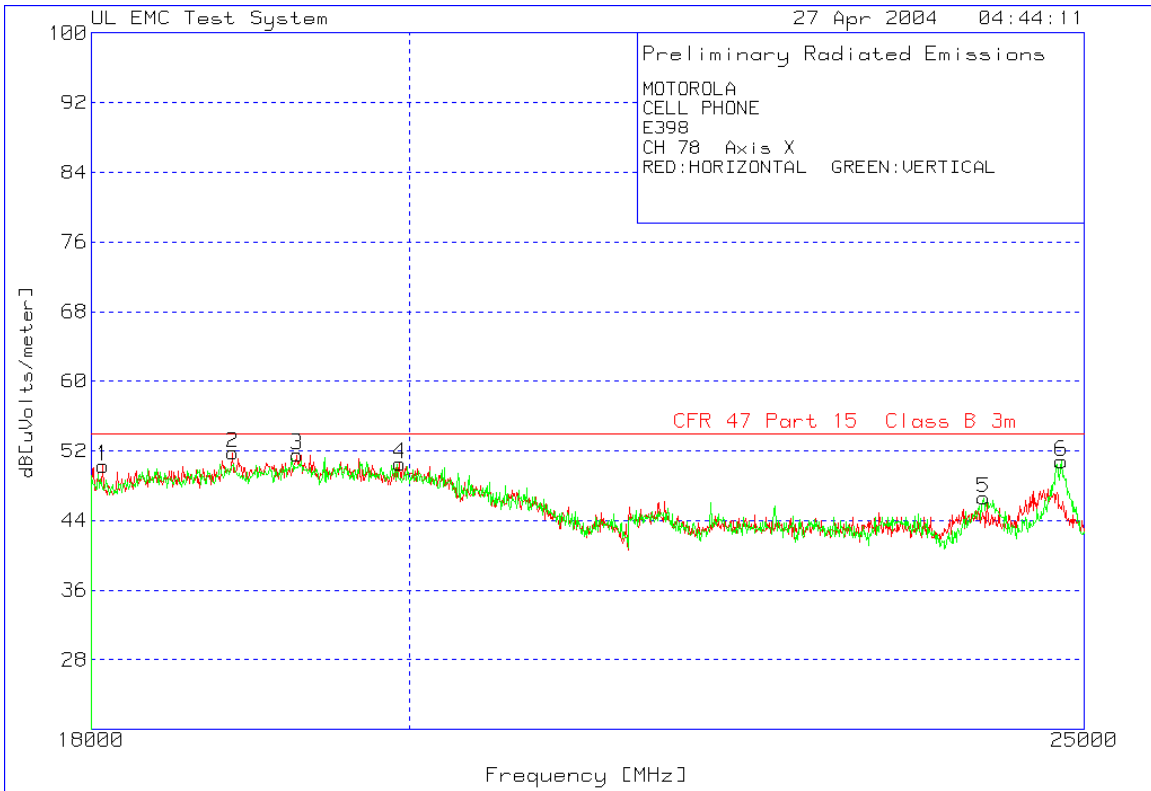


18-25GHz Mid-Channel Z-Orientation

**MOTOROLA
CELL PHONE
E398
CH 39 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Level Factor [dB]	Level dB[uV/m]	Limit:1
Horizontal 18000 - 25000MHz						
1	18469.469	70.8 pk	-60.6	40.1	50.3	54
		Height:150 Horz			Margin [dB] -3.7	
2	18980.981	71.86 pk	-60.6	40.2	51.46	54
		Height:101 Horz			Margin [dB] -2.54	
4	19982.983	71.84 pk	-61.1	40.2	50.94	54
		Height:101 Horz			Margin [dB] -3.06	
Vertical 18000 - 25000MHz						
3	19226.226	72.34 pk	-60.8	40.3	51.84	54
		Height:150 Vert			Margin [dB] -2.16	
5	24173.173	64.33 pk	-57.8	40.3	46.83	54
		Height:150 Vert			Margin [dB] -7.17	
6	24810.811	69.79 pk	-59	40.3	51.09	54
		Height:150 Vert			Margin [dB] -2.91	

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz High-Channel X-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 78 Axis X
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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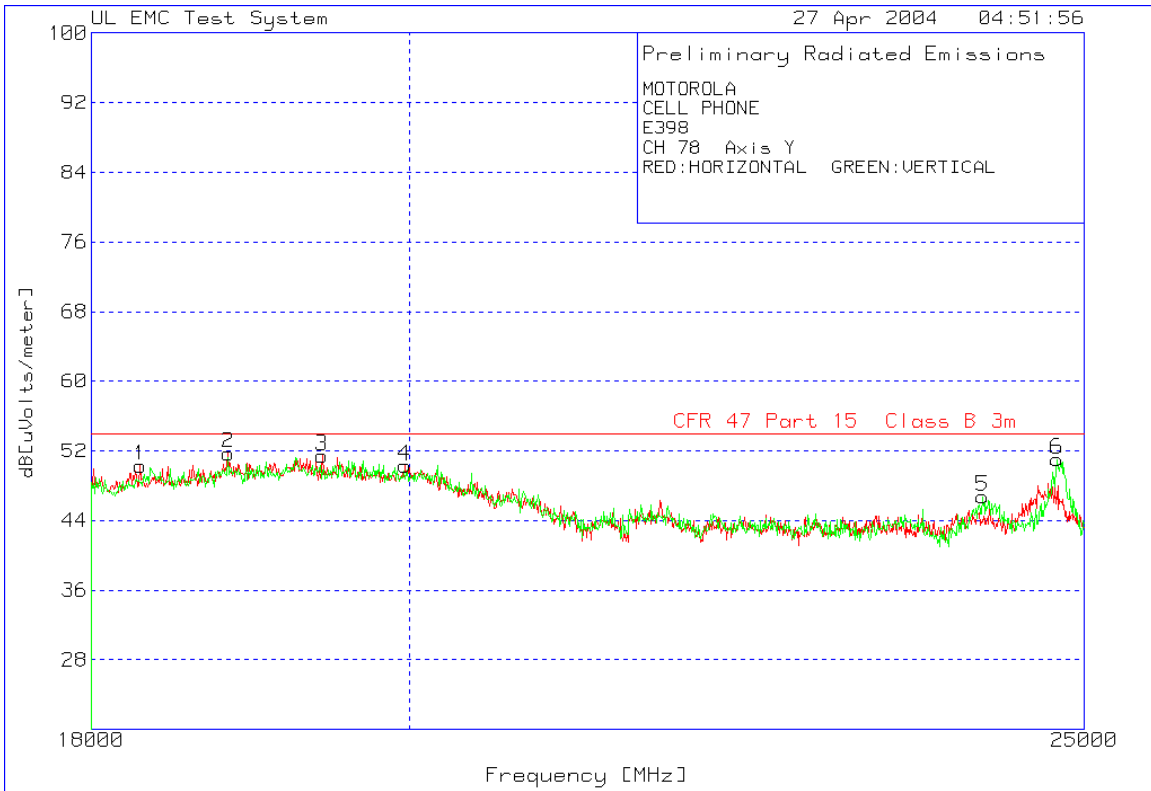
Horizontal 18000 - 25000MHz

1	18070.07	70.87 pk	-60.6	40	50.27	54
		Height:150 Horz	Margin [dB]		-3.73	
2	18861.862	72.07 pk	-60.4	40.1	51.77	54
		Height:101 Horz	Margin [dB]		-2.23	
3	19268.268	71.9 4 pk	-60.7	40.3	51.54	54
		Height:101 Horz	Margin [dB]		-2.46	
4	19933.934	71.34 pk	-61	40.2	50.54	54
		Height:101 Horz	Margin [dB]		-3.46	

Vertical 18000 - 25000MHz

5	24180.18	64.11 pk	-57.8	40.3	46.61	54
		Height:150 Vert	Margin [dB]		-7.39	
6	24810.811	69.5 pk	-59	40.3	50.8	54
		Height:150 Vert	Margin [dB]		-3.2	

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz High-Channel Y-Orientation

**MOTOROLA
 CELL PHONE
 E398
 CH 78 Axis Y
 RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Meter Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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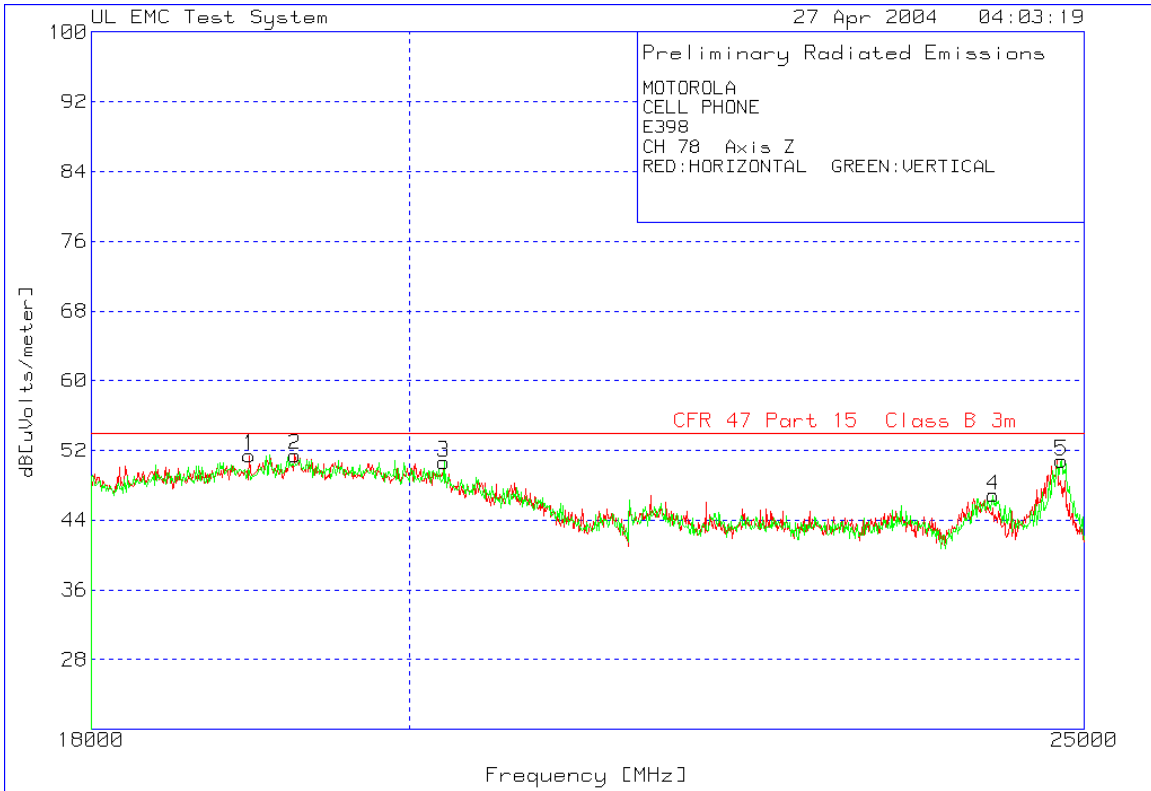
Horizontal 18000 - 25000MHz

1	18294.294	71.03 pk	-60.7	40	50.33	54
		Height:101 Horz	Margin [dB]		-3.67	
2	18833.834	72.05 pk	-60.4	40.1	51.75	54
		Height:101 Horz	Margin [dB]		-2.25	
3	19429.429	71.86 pk	-60.7	40.3	51.46	54
		Height:101 Horz	Margin [dB]		-2.54	
4	19968.969	71.19 pk	-61.1	40.2	50.29	54
		Height:150 Horz	Margin [dB]		-3.71	

Vertical 18000 - 25000MHz

5	24173.173	64.25 pk	-57.8	40.3	46.75	54
		Height:101 Vert	Margin [dB]		-7.25	
6	24775.776	69.53 pk	-58.8	40.3	51.03	54
		Height:101 Vert	Margin [dB]		-2.97	

LIMIT 1: CFR 47 Part 15 Class B 3m



18-25GHz High-Channel Z-Orientation

**MOTOROLA
CELL PHONE
E398
CH 78 Axis Z
RED:HORIZONTAL GREEN:VERTICAL**

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit:1
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Horizontal 18000 - 25000MHz

1	18966.967	71.72 pk	-60.5	40.2	51.42	54
		Height:101 Horz	Margin [dB]		-2.58	
2	19254.254	71.88 pk	-60.7	40.3	51.48	54
		Height:150 Horz	Margin [dB]		-2.52	

Vertical 18000 - 25000MHz

3	20228.228	71.66 pk	-61.2	40.2	50.66	54
		Height:150 Vert	Margin [dB]		-3.34	
4	24257.257	64.66 pk	-58.1	40.3	46.86	54
		Height:101 Vert	Margin [dB]		-7.14	
5	24810.811	69.53 pk	-59	40.3	50.83	54
		Height:150 Vert	Margin [dB]		-3.17	

LIMIT 1: CFR 47 Part 15 Class B 3m

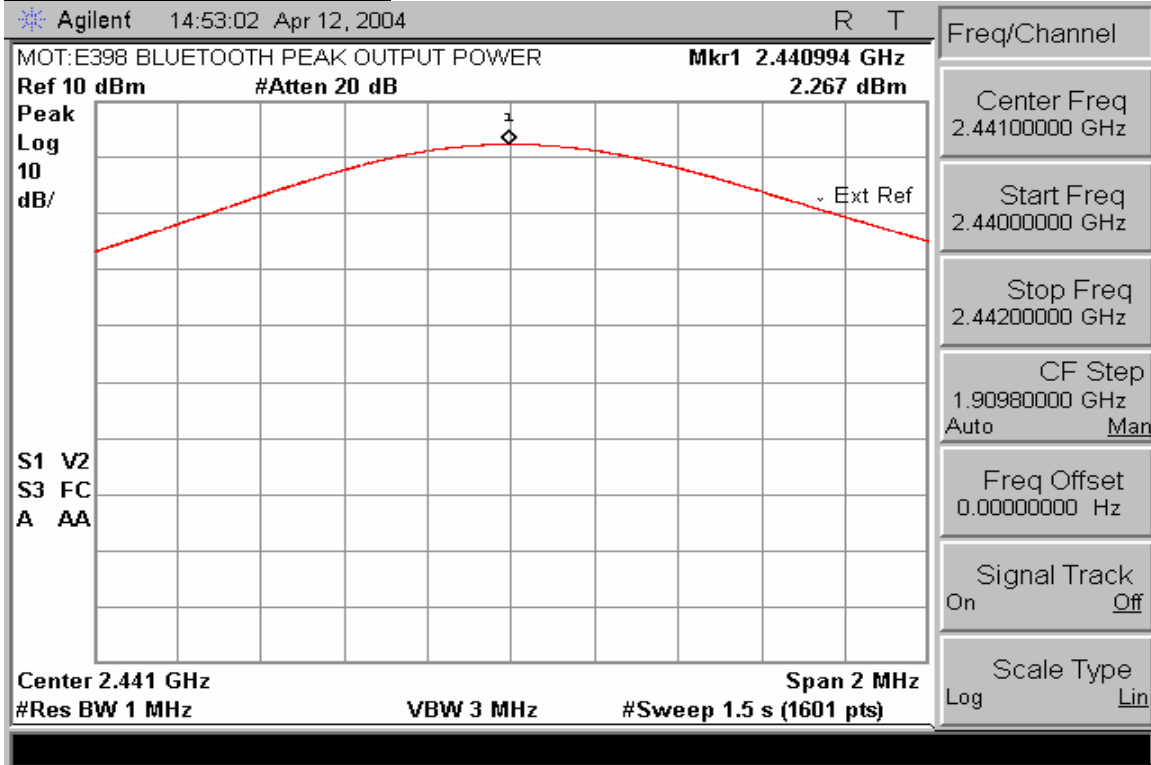
PEAK OUTPUT POWER

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

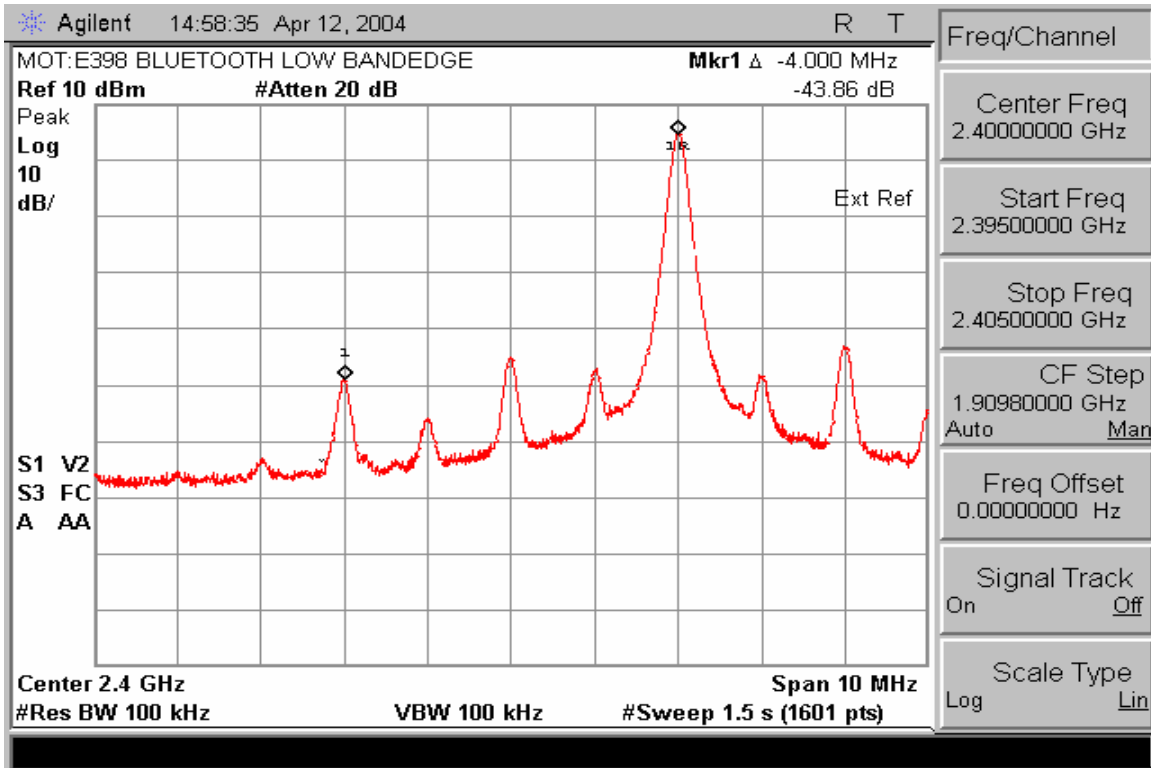
CFR 47 Part 15.247

Measurement Procedure

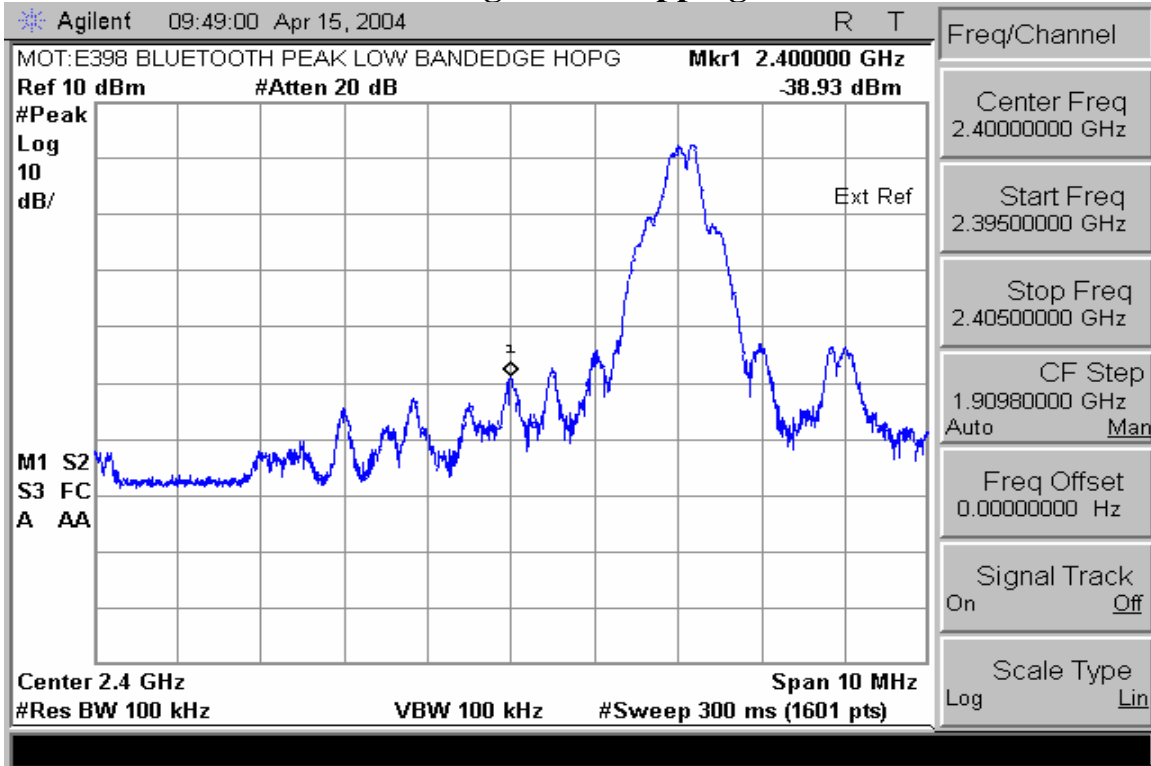
The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

Measurement Results

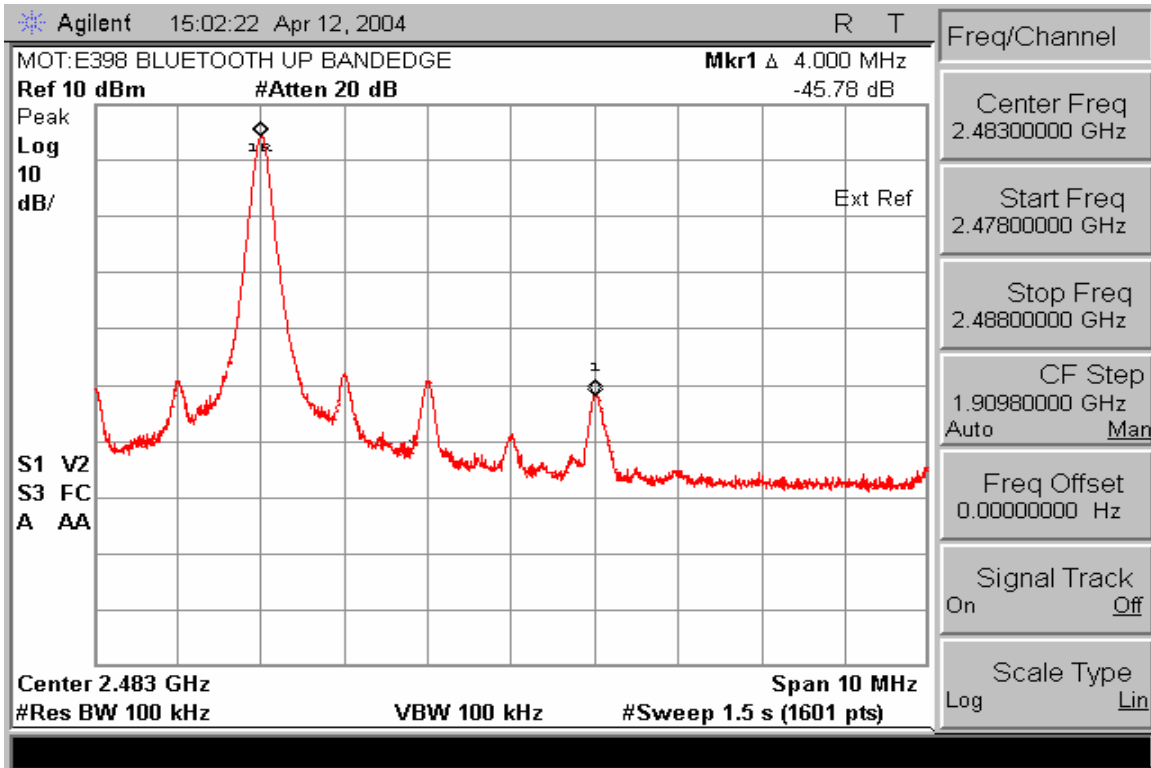
See Attached:



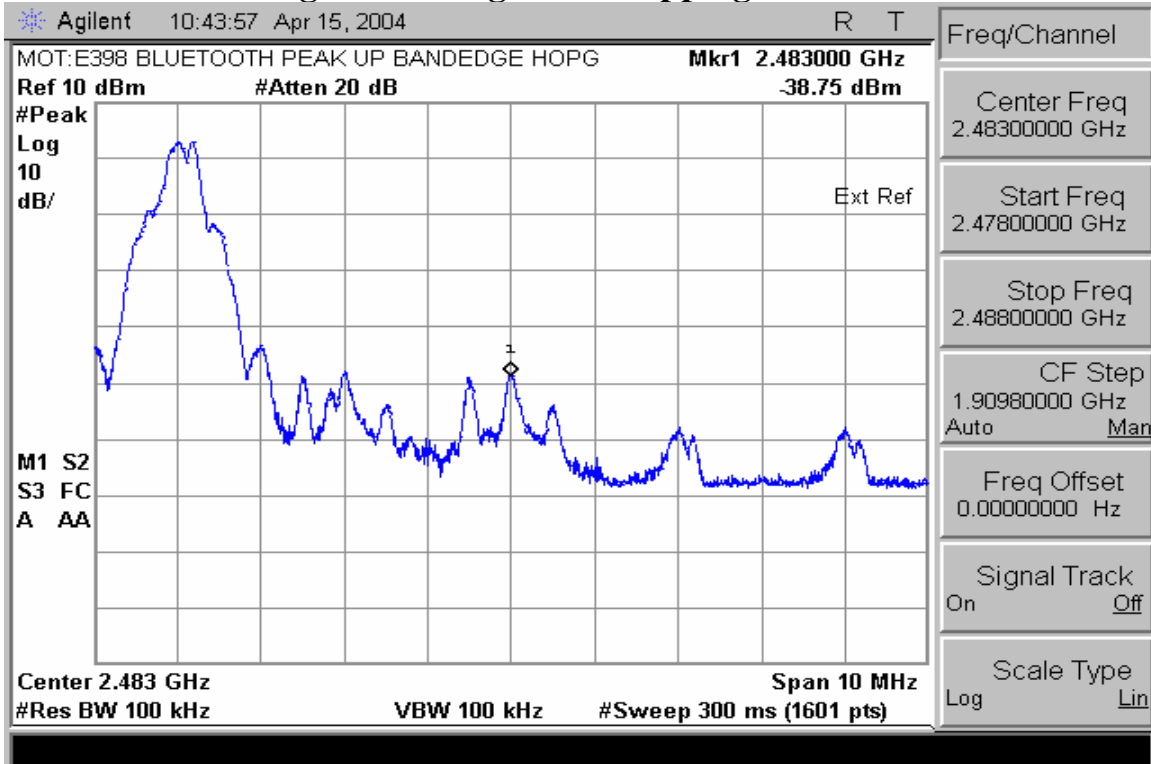
Low Band Edge with Hopping Disabled



Low Band Edge with Hopping Enabled



High Band Edge with Hopping Disabled



High Band Edge with Hopping Enabled

SPURIOUS RF CONDUCTED EMISSIONS

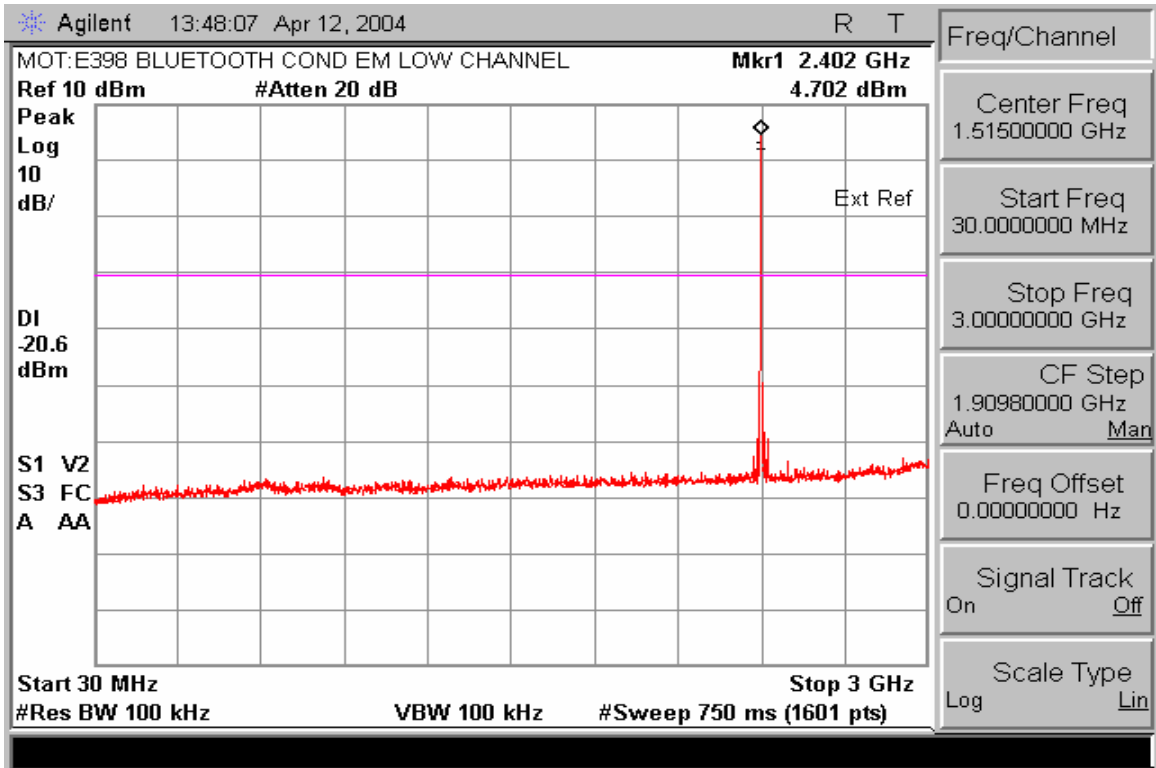
CFR 47 Part 15.247

Measurement Procedure

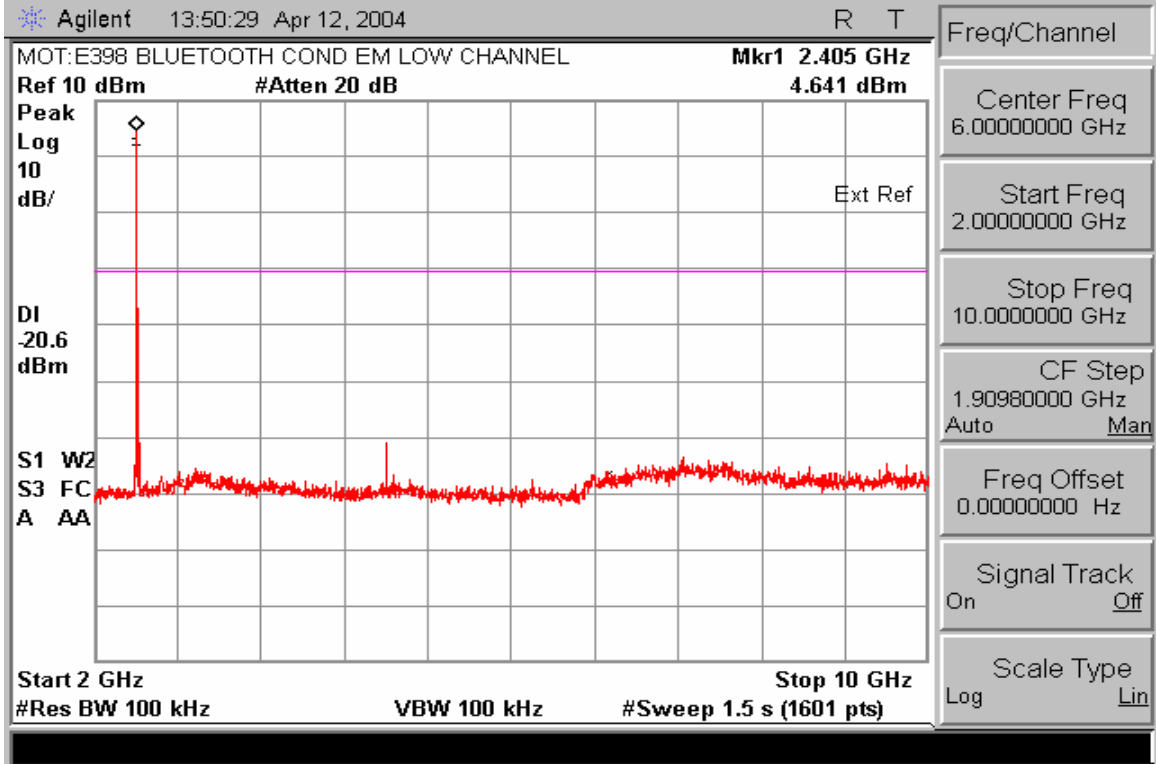
The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage.

Measurement Results

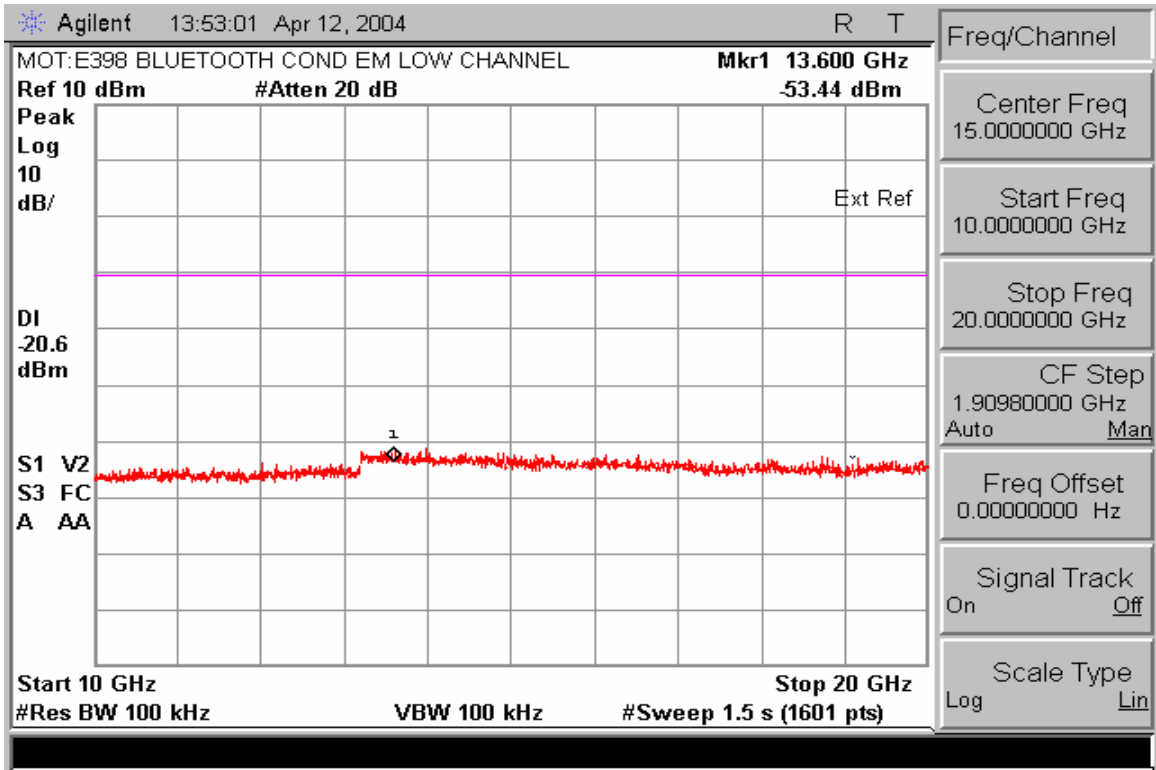
See attached:



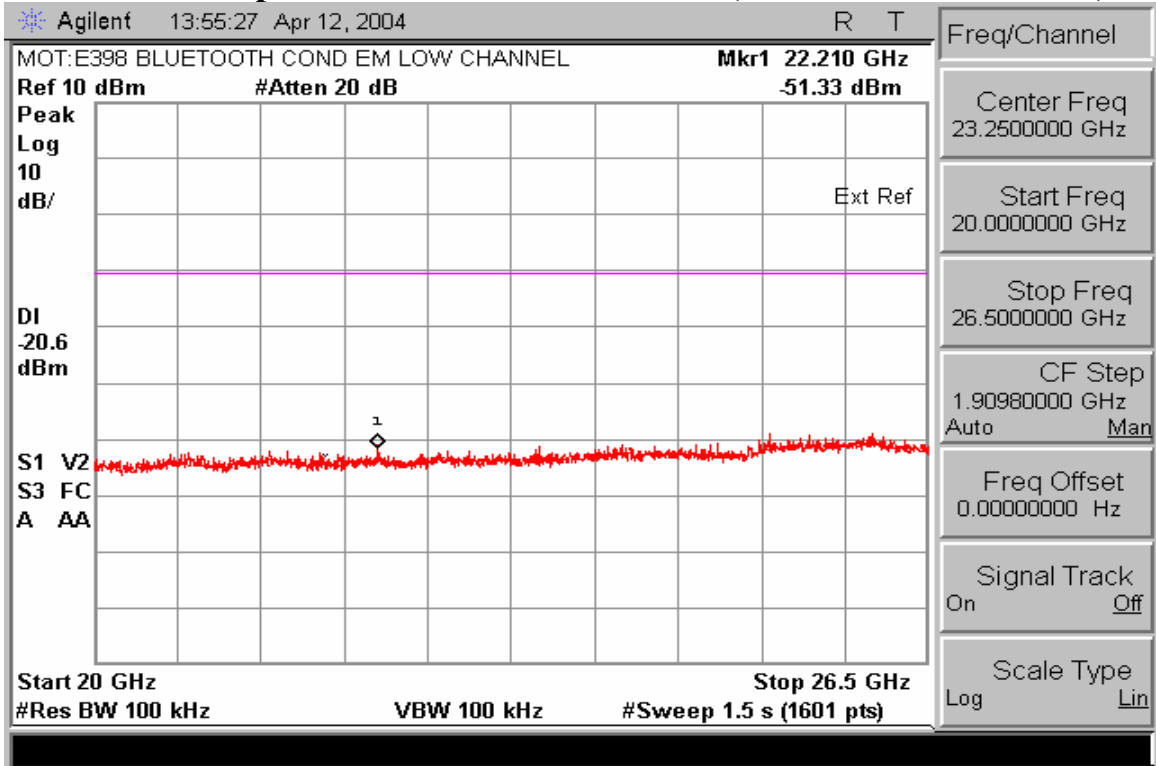
Conducted Spurious Emissions 30-3000MHz (Low Channel Enabled)



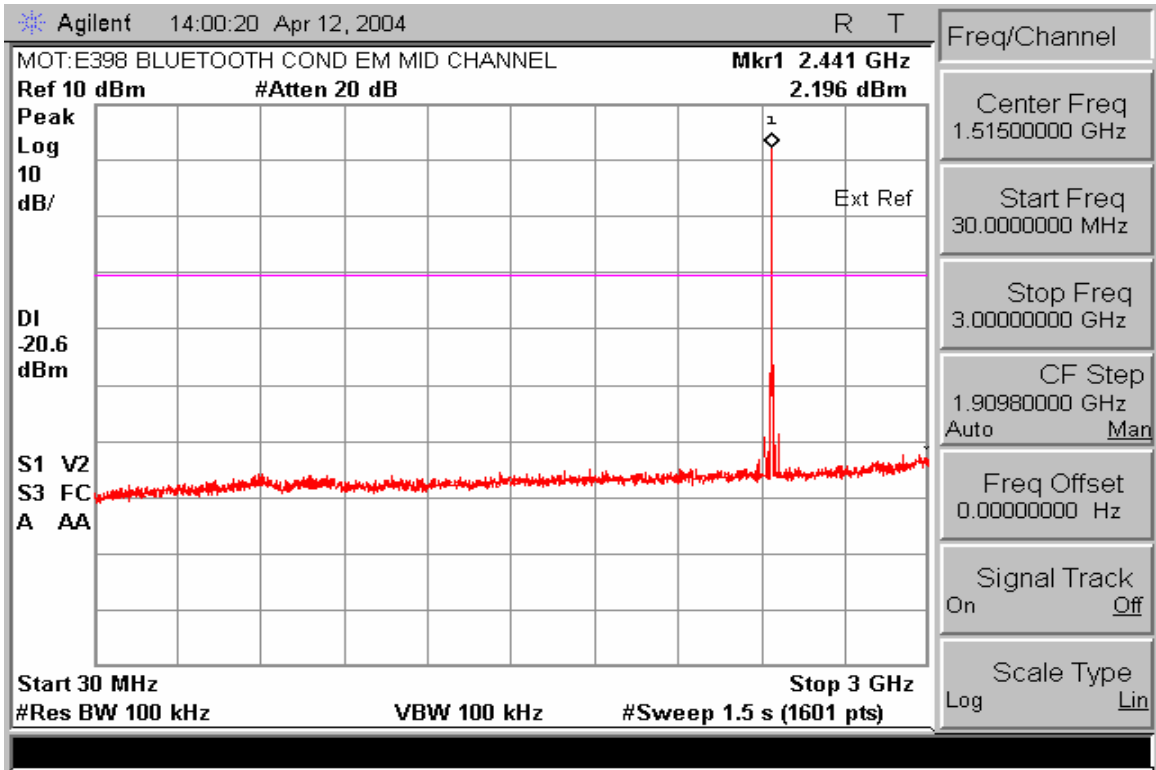
Conducted Spurious Emissions 2-10GHz (Low Channel Enabled)



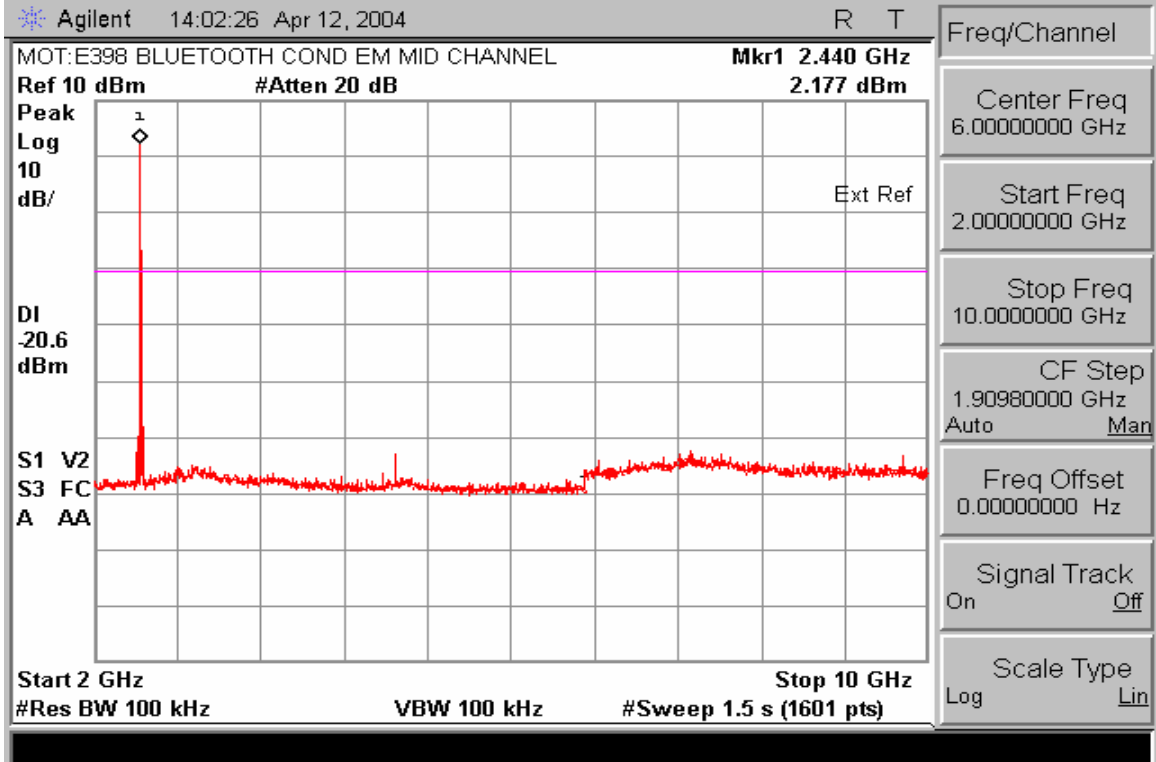
Conducted Spurious Emissions 10-20GHz (Low Channel Enabled)



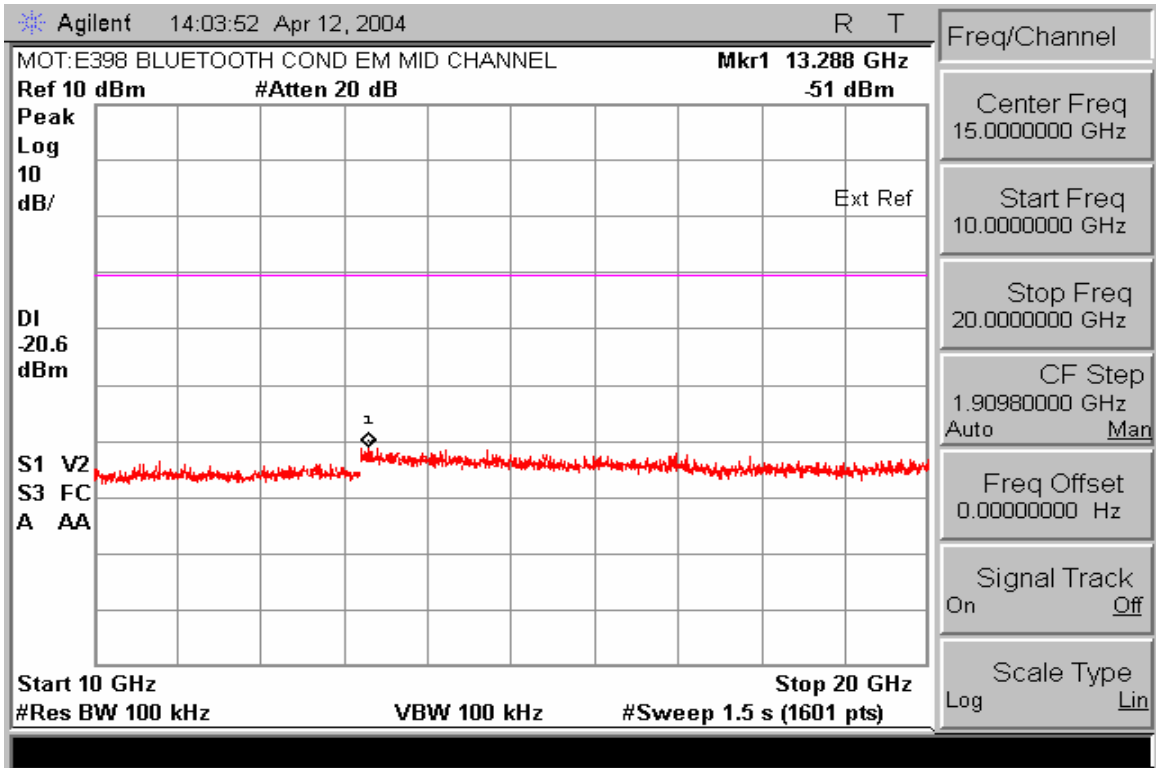
Conducted Spurious Emissions 20-26.5GHz (Low Channel Enabled)



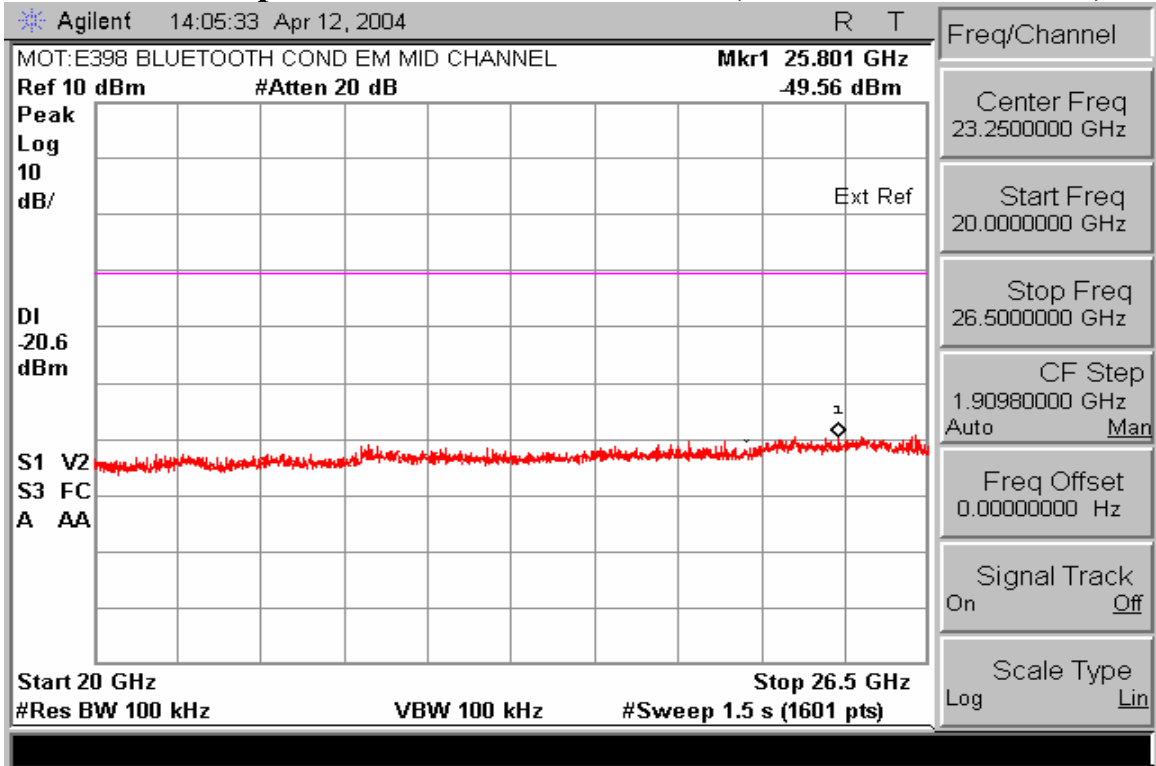
Conducted Spurious Emissions 30-3000MHz (Mid Channel Enabled)



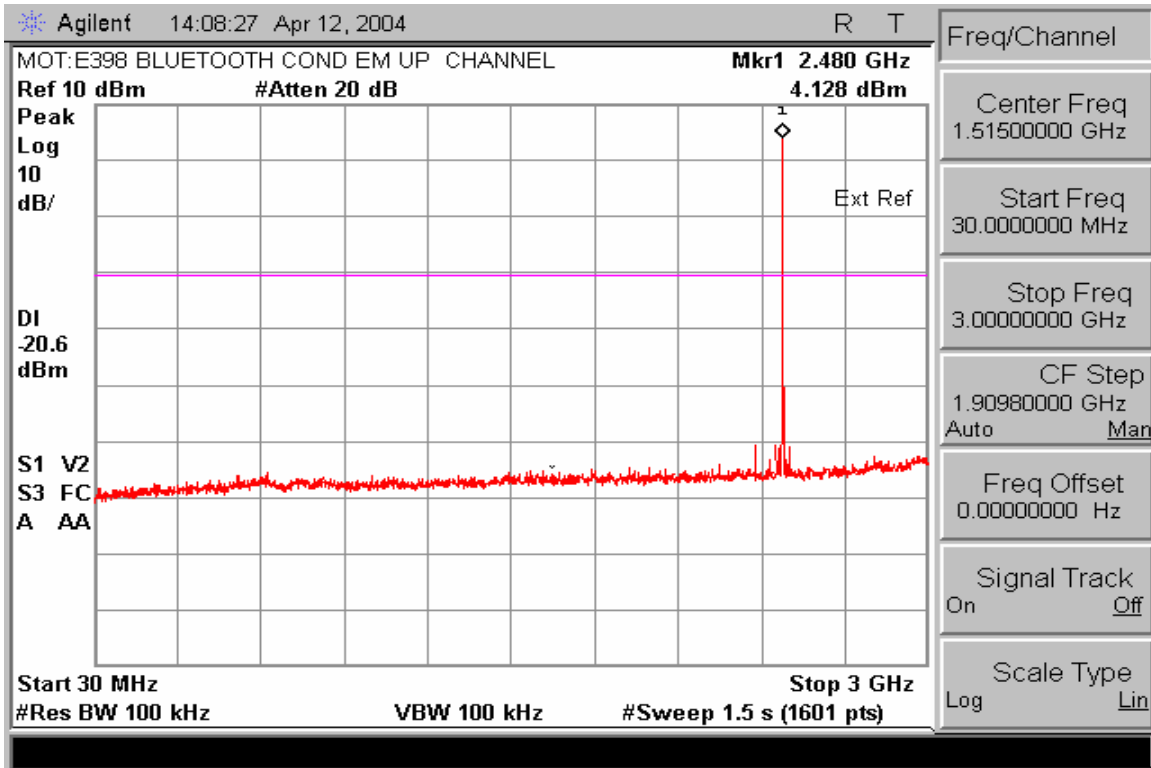
Conducted Spurious Emissions 2-10GHz (Mid Channel Enabled)



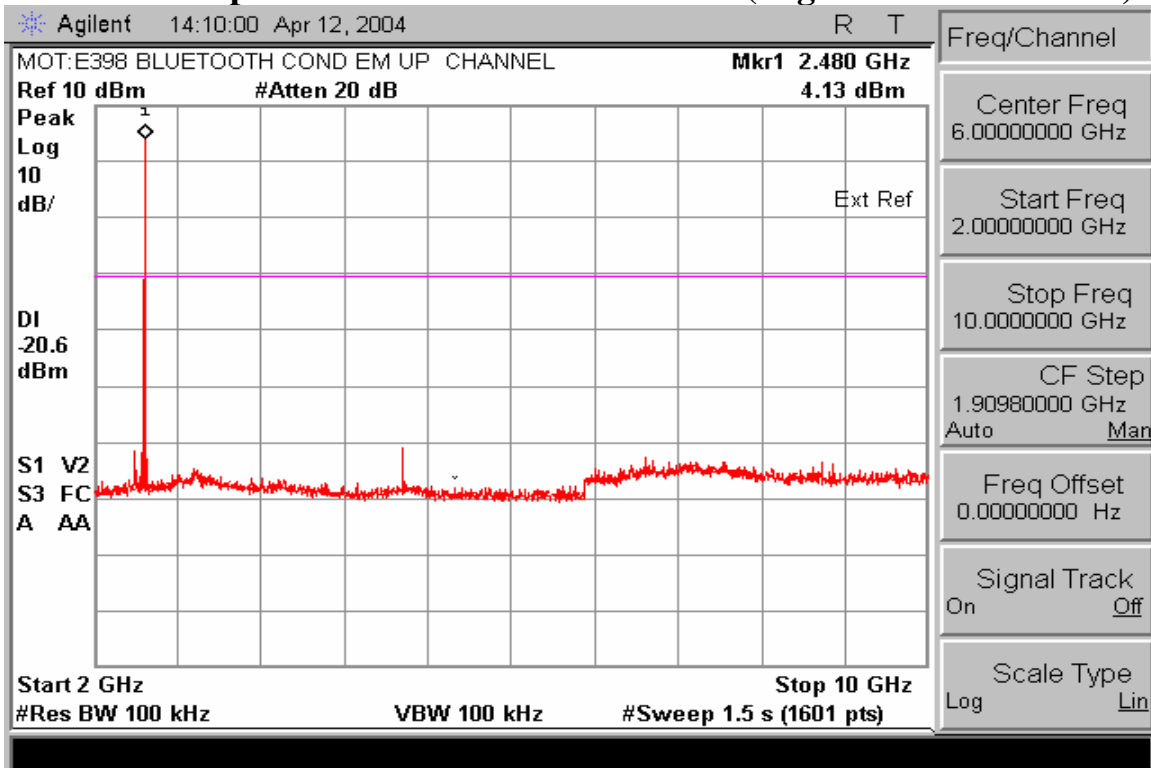
Conducted Spurious Emissions 10-20GHz (Mid Channel Enabled)



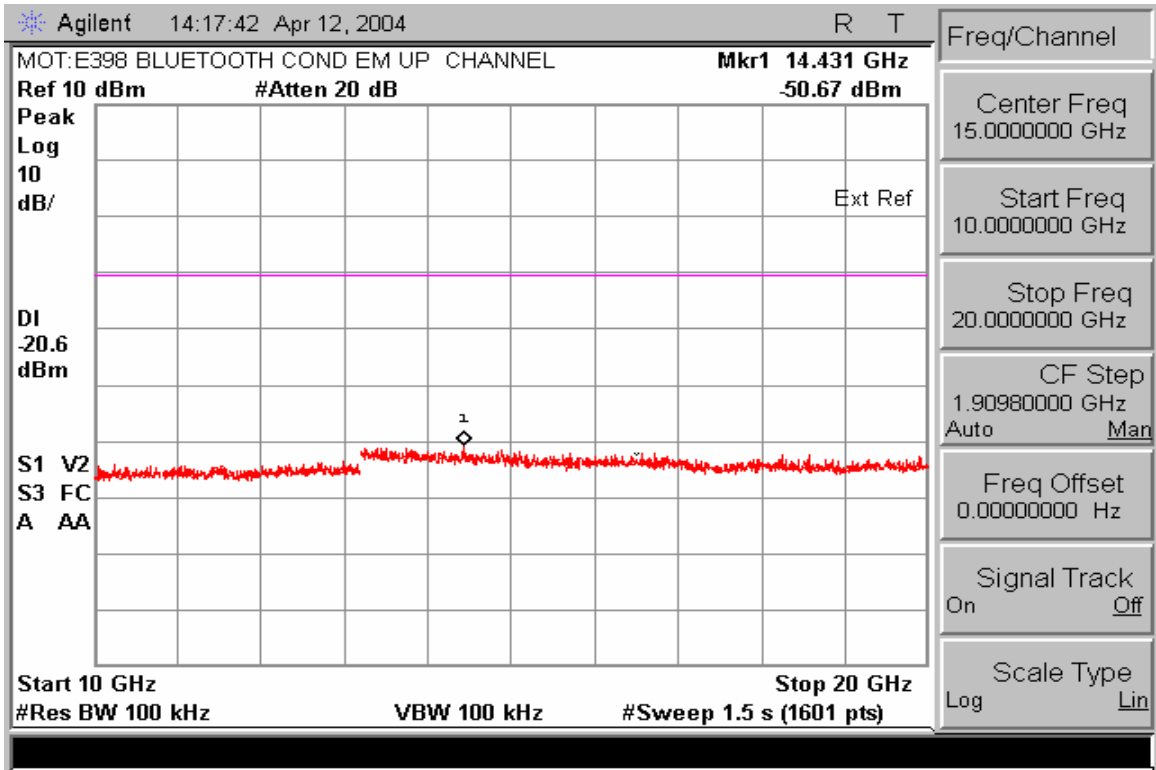
Conducted Spurious Emissions 20-26.5GHz (Mid Chan Enabled)



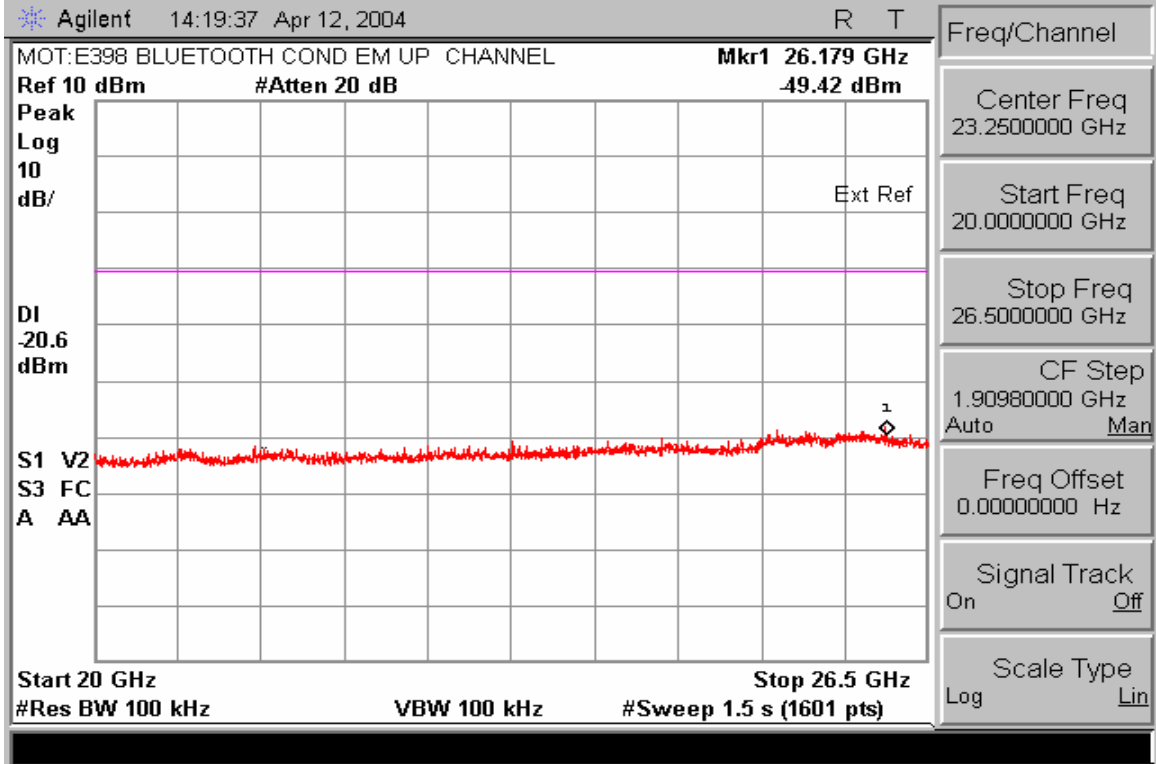
Conducted Spurious Emissions 30-3000MHz (High Channel Enabled)



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)

End of Test Report