UL International EMC Services
333 Pfingsten Road
Northbrook, Illinois 60062-2096
(800) 873-8536
Fax No. (847) 272-8864
http://www.ul.com/emc/

October 10, 2002

Motorola CDMA Wireless Products
Customer Integration Engineering
Attn: Mr. Terry Schwenk
IL75-Room F520
1455 Shure Dr.
Arlington Heights, IL 60004

UL Reference: File MC1281, Project 02NK41384

Subject: EMC Test and Measurement Report for
SC4812ET 1X @ 800MHz CDMA BTS Cellular Phone Base Station

Dear Mr. Schwenk:

We have provided with this letter your EMC Test Report for the above referenced model. The product was determined to comply with the requirements noted in the report.

Please review the attached report and direct any questions or comments to me. Samples were returned following testing. This closes Project No. 02NK41384.

We appreciate your interest in UL's EMC Services, and encourage you to contact us in the future should you need EMC test services.

Best regards,

Lou Madjarov (Ext 43957)
EMC Sr. Project Engineer
International EMC Services

Reviewed by:

Jack Steiner
Engineering Group Leader
International EMC Services

EMC – TEST REPORT

Issue Date: October 10, 2002

√ **EMISSIONS**

IMMUNITY

Test Report File No.	:	**MC1281**
Project No.	:	**02NK41384**
Model / Type	:	**SC4812ET 1X @ 800MHz CDMA BTS**
Kind of Product	:	**Cellular Phone Base Station**
Applicant	:	**Motorola CDMA Wireless Products**
		Customer Integration Engineering
License Holder	:	**Motorola CDMA Wireless Products**
		Customer Integration Engineering
Address	:	**IL75-Room F520**
	:	**1455 Shure Dr.**
	:	**Arlington Heights, IL 60004**
Manufacturer	:	**Same as Applicant**
	:	
Test Result	:	**COMPLIANT**

This report without appendices consists of 13 pages. Appendix A contains test photos, and Appendix B contains original test data, Appendix C contains sample calculations and Appendix D contains Transmit Power, Occupied Bandwidth or RHO and Conducted Spurious and Harmonic Emissions test set-up.
The data contained in this report reflects only the items tested in the configurations and mode of operations described. An attempt has been made to arrange the EUT, with the equipment provided, into a test configuration which maximizes the observed emissions of the EUT while simulating, as close as practical, a typical end-use installation.

Underwriters Laboratories Inc. 333 Pfingsten Rd. Northbrook, IL 60062
Fax: (847) 272-8864

REPORT DIRECTORY

SECTION TITLE

1.0 REVISION HISTORY

Revision	Changes	Date
1.0	Initial Release	October 10, 2002

1.1 GENERAL PRODUCT DESCRIPTION

The rated maximum average power out of the SC4812ET 1X @ 800MHz unit is 60W (47.78dBm)

1.1.1 Equipment Mobility:

Floor standing

1.1.2 Test Voltage and Frequency:

Voltage (V)	Frequency (Hz)
27V	DC

1.2 MODEL DIFFERENCES

Any other model(s) represented by the models tested in this investigation will be documented by the manufacturer.

1.3 ENVIRONMENTAL CONDITIONS IN TEST LAB

Temperature: **20-25 °C**
Relative Humidity: **30-60% RH**
Atmospheric Pressure: **860-1060 mbar**

1.4 CALIBRATION OF EQUIPMENT USED FOR MEASUREMENT

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST), therefore, all test data recorded in this report is traceable to NIST.

The test laboratory facilities used for the collection of test data reported herein are accredited to comply with ISO Guide 25 quality measurements by the NVLAP. The test procedures and techniques for radiated emissions up to 2000MHz and AC Mains conducted emissions up to 30MHz are also NVLAP accredited, as applicable.

1.5 EUT CONFIGURATION(s)

See Appendix A for individual set-up configuration(s). In addition to the EUT, the following peripheral devices and/or cables were connected during the measurement:

Device	Manufacturer	Model	Serial #	FCC ID
SC4812ET 1X @ 800MHz CDMA BTS	Motorola	STLF1064	379GOU55HE	IHET5CT1

1.6 EUT OPERATING MODE(s)

The equipment under test was operated during the measurements under the following conditions:

Base station set at High Power 60W (47.78dBm) and Low Power 400mW (26dBm) operation at Low Channel 1013 (869.7 MHz) and at High Channel 777 (893.3 MHz). Refer to Appendix D for more information.

1.7 DEVICE MODIFICATIONS

The following modifications were necessary for compliance:

None.

2.0 EMISSIONS TEST REGULATIONS

The EUT was considered to be a Class B device.

Emissions testing was performed according to the following regulations:

47 CFR Part 15 Subpart B: 2000 + ANSI C63.4 – 1992

47 CFR Part 22/24: 2001

Per manufacturer's specifications the following test were conducted:

- Conducted Spurious Emissions: 30MHz – 10GHz
- Radiated Electric Field Emissions: 30MHz – 1000MHz
- Radiated Electric Field Spurious Emissions: 1GHz – 10GHz
- Substitution Method - Radiated Spurious Harmonics Emissions
- Occupied Bandwidth
- Rho

Radiated Spurious Emissions - Substitution Method was performed per ANSI/TIAEIA-603-1992, Section 2.2.12

Conducted voltage measurements were not considered necessary as EUT is rated 27Vdc and is not intended for connection to AC mains.

CONDUCTED SPURIOUS EMISSIONS

Test Location

10 Meter Semi-Anechoic Chamber

UL Procedure

3014ANBK-LPG-001CSE

Test Instruments

Spectrum Analyzer

Rhode & Schwarz, Spectrum Analyzer, 9KHz-40GHz, EMC 4182

Motorola Measurement Equipment

30dB attenuator, NARDA High Power Attenuator, Model 769-30 S/N 04405
20dB attenuator, NARDA, Model 766-20
Bidirectional coaxial coupler, model #3022, NARDA
Band pass filter, Filtronix
High power 50ohm load, (58883464-R01)

Frequency Range on each line

30MHz – 10GHz

Test Results

The requirements are:
MET

Remarks

See App. B for complete test results.

RADIATED ELECTRIC FIELD EMISSIONS, 30 TO 1000MHz

Test Location

10 Meter Semi-Anechoic Chamber

UL Procedure

3014ANBK-LPG-002

Test Instruments

Spectrum Analyzer / Quasi-peak Adapter / Preamplifier / Preselector

Hewlett Packard Model 8566B Spectrum Analyzer
Model 85650A Quasi-peak Adapter
Miteq AM-3A-000110-N Preamp No. FCA4003, EMC4016, EMC4151
Model 85685A RF Preselector No. EMC4015

Antennas

Chase EMC Ltd., Biconical Antenna Model VBA6106A	S/N 1237
Chase EMC Ltd., Log Periodic Antenna Model UPA6108	S/N 1120

Frequency Range of Measurement

30-1000MHz

Measurement Distance

10 meters

Test Results

The requirements are:
MET

Remarks
See App. B for complete test results.

RADIATED ELECTRIC FIELD EMISSIONS, 1 TO 10 GHz

Test Location

10 Meter Semi-Anechoic Chamber

UL Procedure

3014ANBK-LPG-002A

Test Instruments

Spectrum Analyzer
Hewlett Packard Model 8566B Spectrum Analyzer
Hewlett Packard Preamplifier Model 8449A, EMC4201

Antennas
EMCO, Model 3115, EMC No. 4033

Frequency Range of Measurement

1 to 10 GHz

Measurement Distance

3 meters

Test Results

The requirements are:
MET

Remarks
See App. B for complete test results.

RADIATED SPURIOUS EMISSIONS – SUBSTITUTION METHOD

Test Location

10 Meter Semi-Anechoic Chamber

UL Procedure

3014ANBK-LPG-002SM

Test Instruments

Spectrum Analyzer

Rhode & Schwarz, Spectrum Analyzer, 9KHz-40GHz, EMC 4182

Signal Generator

Anritsu, Model 68369B 10MHz – 40GHz,

Antennas

EMCO, Horn Model 3115, S/N 8812-3032
EMCO, Horn Model 3115, S/N 3012

Frequency Range on each line

30MHz – 10GHz

Measurement Distance

3 meters

Test Results

The requirements are:
MET

Remarks

See App. B for complete test results.

OCCUPIED BANDWIDTH MEASUREMENTS

Test Location

10 Meter Semi-Anechoic Chamber

Test Instruments

Power Meter
Hewlett Packard, Model 437B, S/N 3125U15845,
Last Cal. 6-13-02, Next Cal. 6-13-03
(Motorola equipment)

HEWLETT PACKARD POWER SENSOR
MODEL: 8481A
LAST CAL: 12/5/01
CAL DUE: 12/5/02
S/N: 2702A57644
(Motorola equipment)

HEWLETT PACKARD VSA SERIES TRANSMIT TESTER
MODEL: E4406A
LAST CAL: 11/1/01
CAL DUE: 11/1/02
S/N: US38450220
(Motorola equipment)

Test Results

The requirements are: MET

Remarks

See App. B for complete test results.

RHO MEASUREMENTS

Test Location

10 Meter Semi-Anechoic Chamber

Test Instruments

Power Meter
Hewlett Packard, Model 437B, S/N 3125U15845,
Last Cal. 6-13-02, Next Cal. 6-13-03
(Motorola equipment)

HEWLETT PACKARD POWER SENSOR
MODEL: 8481A
LAST CAL: 12/5/01
CAL DUE: 12/5/02
S/N: 2702A57644
(Motorola equipment)

HEWLETT PACKARD VSA SERIES TRANSMIT TESTER
MODEL: E4406A
LAST CAL: 11/1/01
CAL DUE: 11/1/02
S/N: US38450220
(Motorola equipment)

Test Results

The requirements are: MET

Remarks

See App. B for complete test results.

3.0 IMMUNITY TEST REGULATIONS

Immunity testing was not performed.

4.0 GENERAL REMARKS

Sample Receipt Date : September 23, 2002

Test Dates

Start : September 23, 2002
End : October 4, 2002

4.1 SUMMARY

The requirements according to the technical regulations are:

MET

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, IL 60062 USA

Test Engineer,

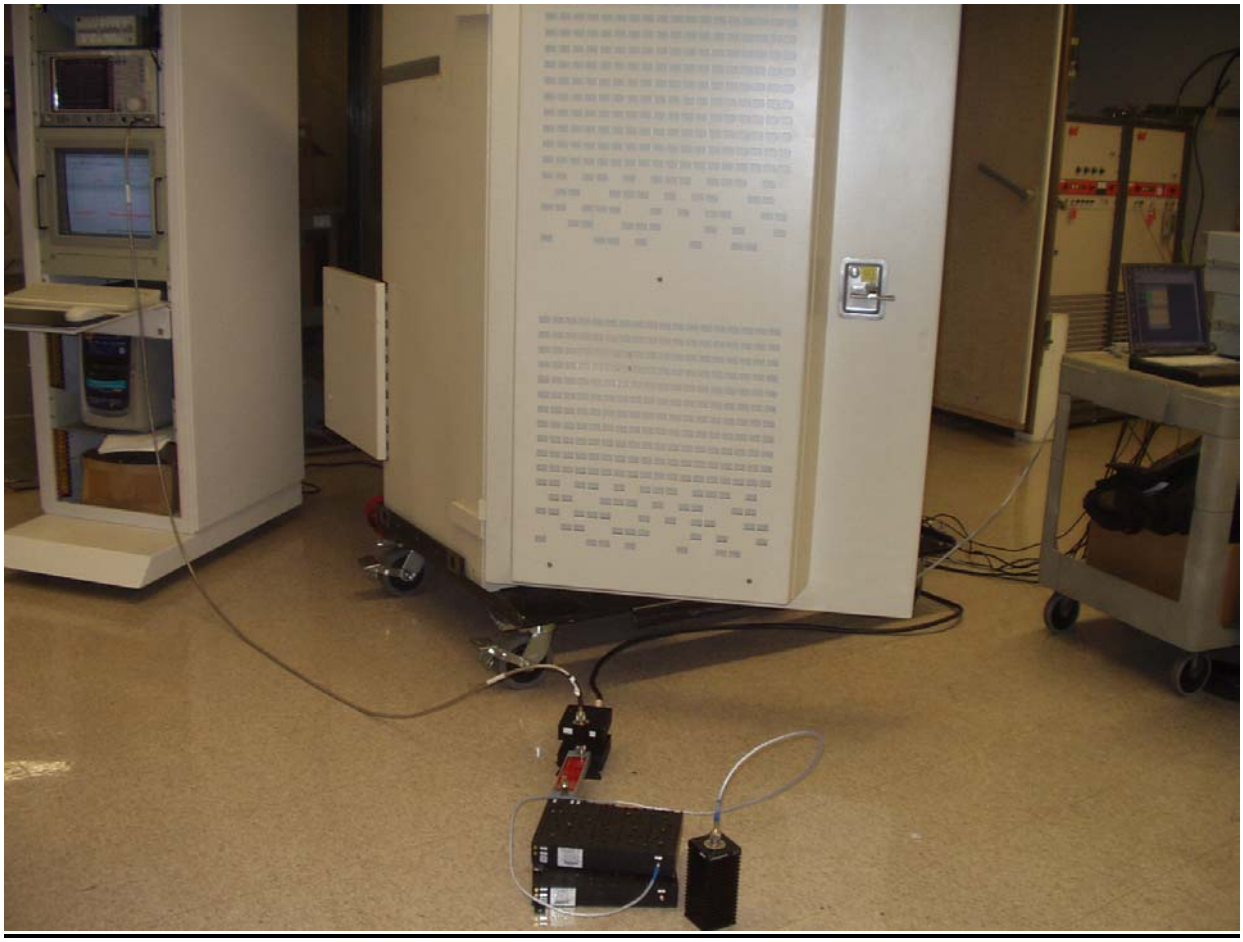
Lou Madjarov (Ext 43957)
EMC Sr. Project Engineer
International EMC Services

Reviewed by:

Jack Steiner
Engineering Group Leader
International EMC Services

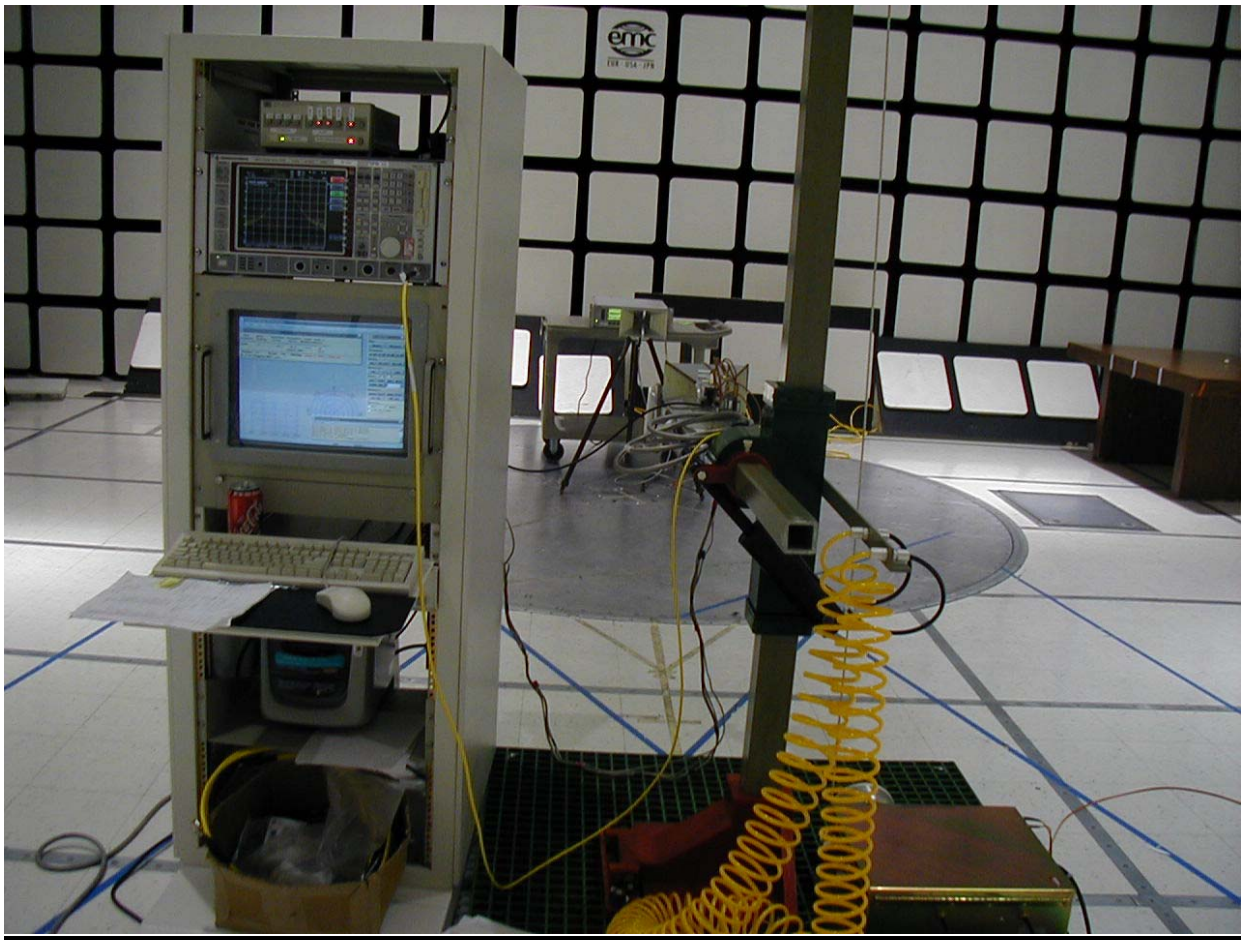
APPENDIX A

PHOTOS

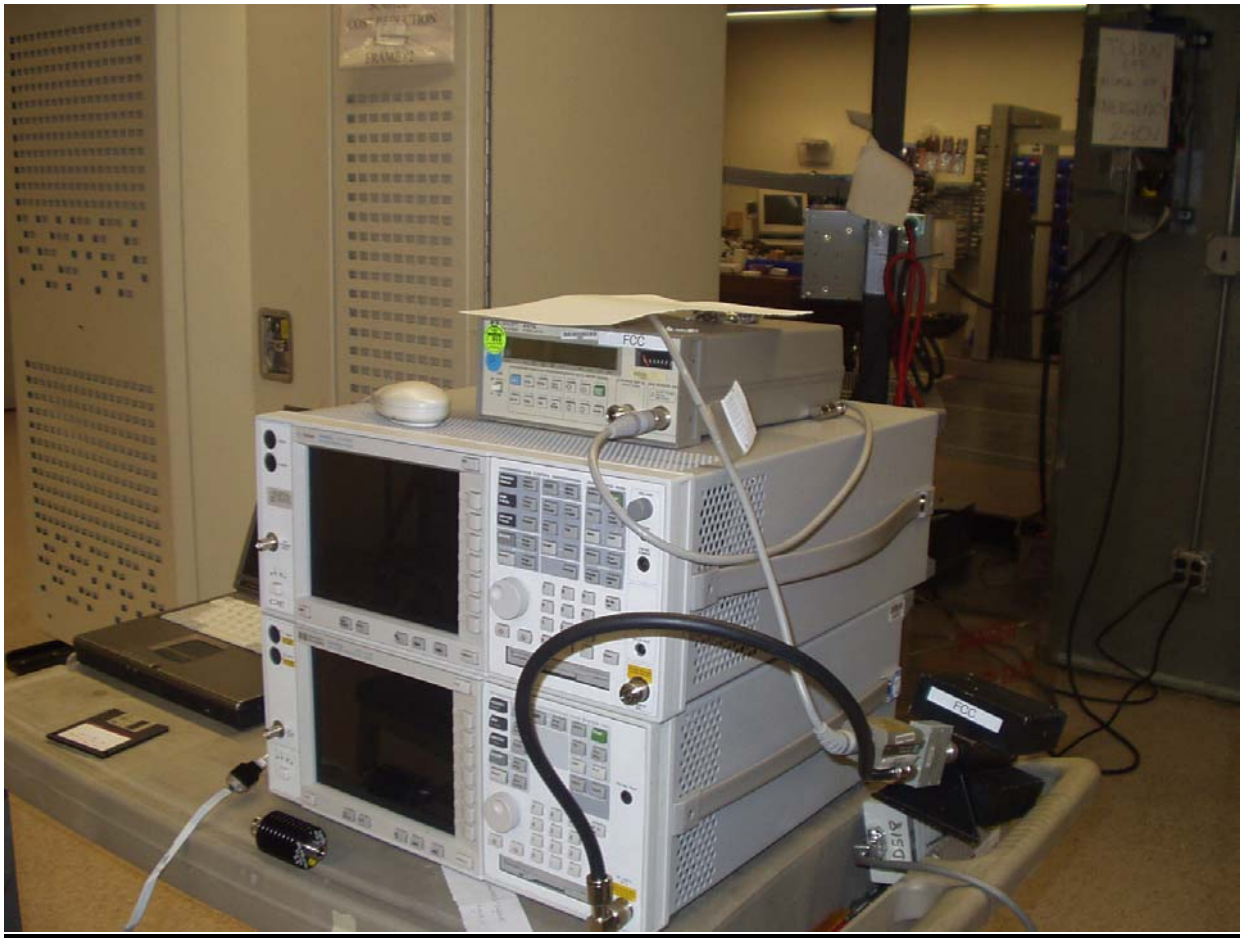


Conducted Spurious Emissions

Radiated Emissions



Substitution Method - Radiated Emissions



Occupied Bandwidth and Rho

APPENDIX B

TEST DATA

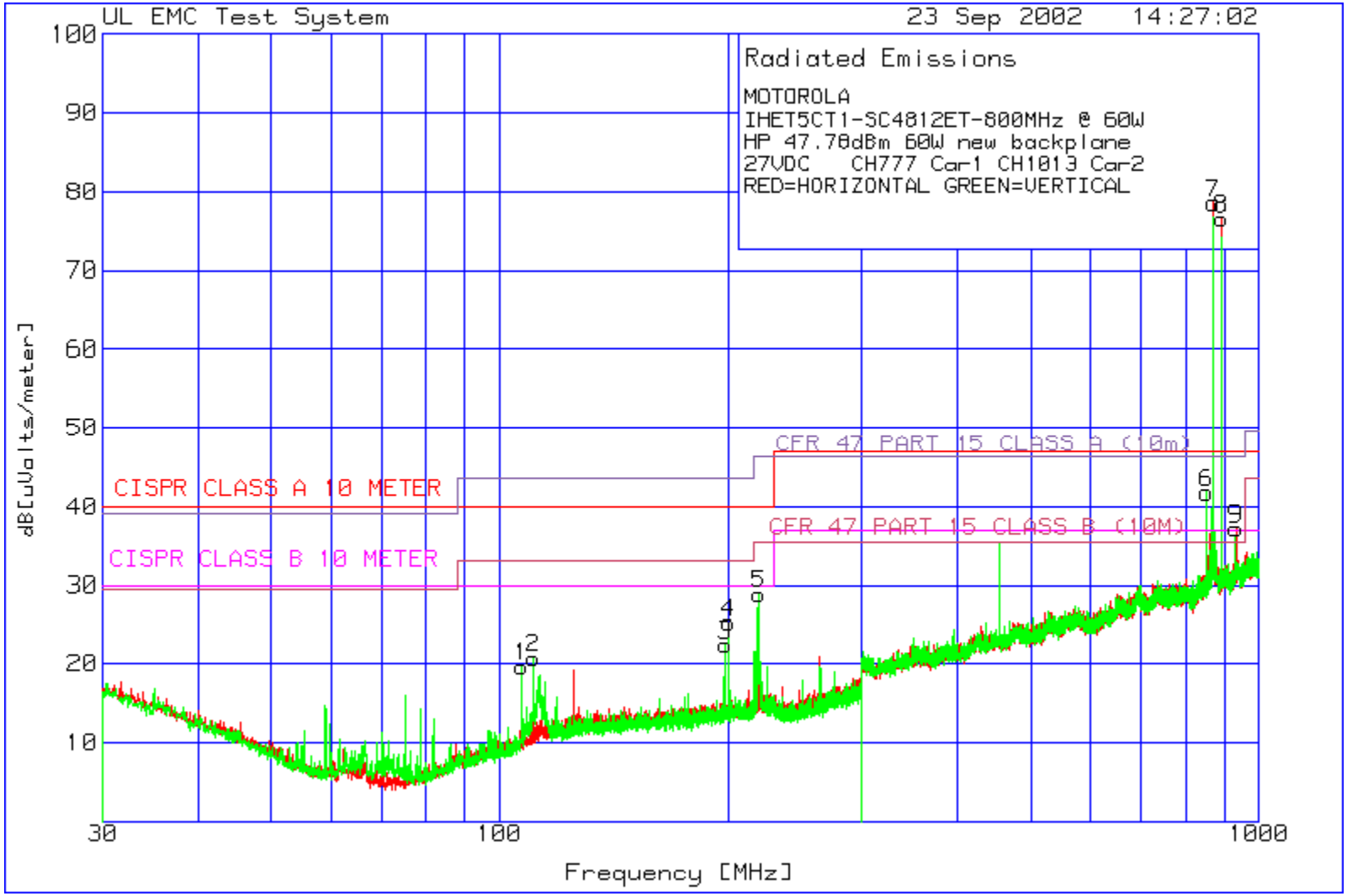
EMISSIONS

Radiated Electric Field Emissions 30MHz - 1000MHz
Radiated Electric Field Emissions 1GHz - 10GHz
Conducted Spurious Emissions 30MHz – 10GHz
Substitution Method - Radiated Emissions
Occupied Bandwidth
Rho

UNDERWRITERS LABORATORIES INC.
Radiated Emissions

Date Tested: 9-23-2002

Manufacturer	**:**	Motorola CDMA Wireless Products Customer Integration Engineering
Equipment Under Test	**:**	SC4812ET 800MHz Cellular Phone Base Station
Requirement	**:**	CFR 47 PART 15 B Class B
Detection Mode	**:**	Quasi-peak (qp)
Bandwidth	**:**	120 kHz, 30-1000MHz
Measurement Distance	**:**	10 meter
Antenna Type	**:**	30 - 300MHz, Biconical 300 - 1000MHz, Log-Periodic


UL EMC Test System
23 Sep 2002 14:27:02
Radiated Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HP 47.78dBm 60W new backplane
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL
CISPR CLASS A 10 METER
CISPR CLASS B 10 METER
CFR 47 PART 15 CLASS A (10m)
CFR 47 PART 15 CLASS B (10M)
dB[uVolts/meter]
Frequency [MHz]
100
90
80
70
60
50
40
30
20
10
30
100
1000

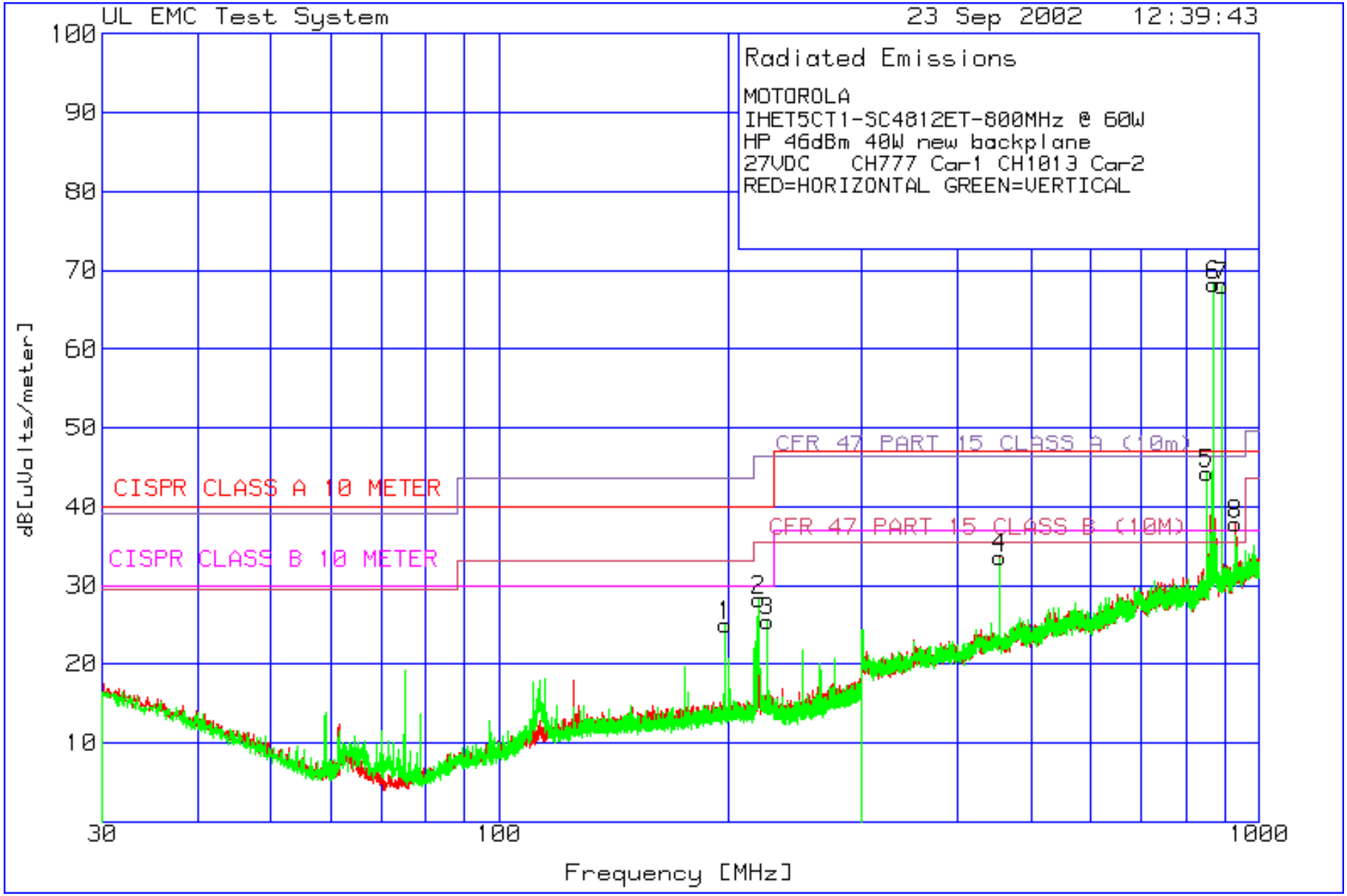
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HP 47.78dBm 60W new backplane
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Azimuth [degs] Height Factor [dB]	Transducer [cm] dB[uVolts/meter]	Polarity	Level	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]
Vertical 30 - 300MHz																
1	106.7574	37.6	pk	-29.5	11.6	19.7	40	-20.3	30	-10.3	43.5	-23.8	33.1	-13.4	222	100
	Vert															
2	110.7369	38.1	pk	-29.4	12.1	20.8	40	-19.2	30	-9.2	43.5	-22.7	33.1	-12.3	0	100
	Vert															
3	198.2188	35.6	pk	-29.1	15.9	22.4	40	-17.6	30	-7.6	43.5	-21.1	33.1	-10.7	161	200
	Vert															
4	200.2423	38.5	pk	-29.1	15.9	25.3	40	-14.7	30	-4.7	43.5	-18.2	33.1	-7.8	161	200
	Vert															
5	219.2631	41.7	pk	-28.9	16.1	28.9	40	-11.1	30	-1.1	46.4	-17.5	35.6	-6.7	4	299
	Vert															
Horizontal 300 - 1000MHz																
7	869.5478	50.8	pk	3.6	24.2	78.6	47	31.6	37	41.6	46.4	32.2	35.6	43	185	100
	Horz	carrier frequency														
8	893.5049	49.8	pk	3.6	23.2	76.6	47	29.6	37	39.6	46.4	30.2	35.6	41	264	100
	Horz	carrier frequency														
9	931.8011	9.3	pk	3.8	24.1	37.2	47	-9.8	37	.2	46.4	-9.2	35.6	1.6	169	199
	Horz	not from EUT														
Vertical 300 - 1000MHz																
6	852.061	15.6	pk	3.5	22.7	41.8	47	-5.2	37	4.8	46.4	-4.6	35.6	6.2	343	199	Vert

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Azimuth [degs] Height Factor [dB]	Transducer [cm] dB[uVolts/meter]	Polarity	Level	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]	
Vertical 30 - 300MHz																
197.926	34.48	qp	-29.1	15.9	21.28	40	-18.72	30	-8.72	43.5	-22.22	33.1	-11.82	206	101	Vert
199.9189	37.23	qp	-29.1	15.9	24.03	40	-15.97	30	-5.97	43.5	-19.47	33.1	-9.07	187	138	Vert
218.674	42.19	qp	-28.9	16.2	29.49	40	-10.51	30	-.51	46.4	-16.91	35.6	-6.11	11	327	Vert

LIMIT 1: CISPR CLASS A 10 METER
LIMIT 2: CISPR CLASS B 10 METER
LIMIT 3: CFR 47 PART 15 CLASS A (10m)
LIMIT 4: CFR 47 PART 15 CLASS B (10M)

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector


UL EMC Test System
23 Sep 2002 12:39:43
Radiated Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HP 46dBm 40W new backplane
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL
CISPR CLASS A 10 METER
CISPR CLASS B 10 METER
CFR 47 PART 15 CLASS A (10m)
CFR 47 PART 15 CLASS B (10M)
dB[uVolts/meter]
Frequency [MHz]
100
90
80
70
60
50
40
30
20
10
30
100
1000

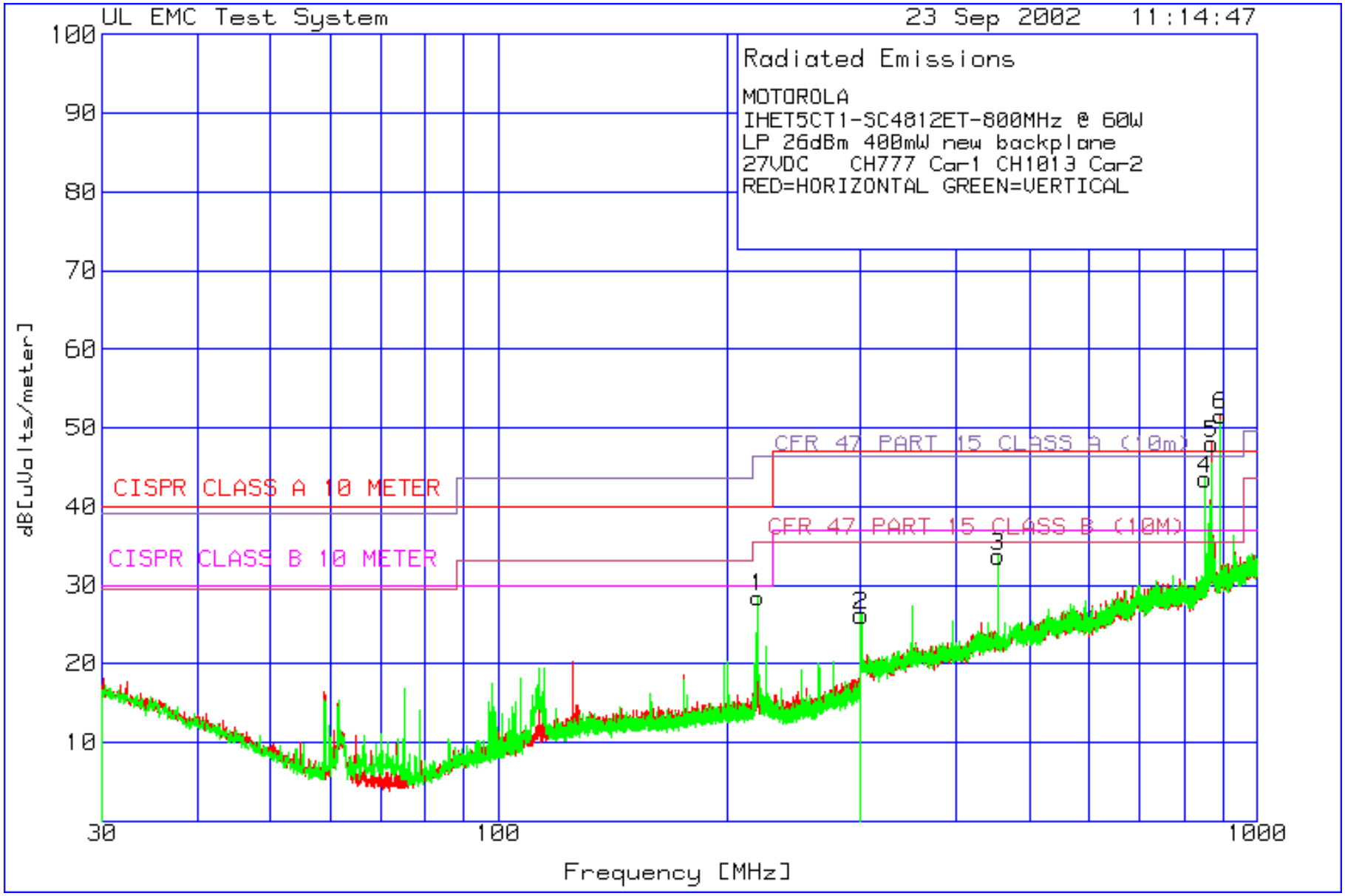
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HP 46dBm 40W new backplane
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Azimuth [degs] Height Factor [dB]	Transducer [cm]	Polarity	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]
Vertical 30 - 300MHz																
1	198.2863	38.2	pk	-29.1	15.9	25	40	-15	30	-5	43.5	-18.5	33.1	-8.1	183	100
	Vert															
2	219.0607	41	pk	-28.9	16.1	28.2	40	-11.8	30	-1.8	46.4	-18.2	35.6	-7.4	0	400
	Vert															
3	225.3335	38.3	pk	-29	16.2	25.5	40	-14.5	30	-4.5	46.4	-20.9	35.6	-10.1	25	400
	Vert															
Horizontal 300 - 1000MHz																
4	454.4092	14.4	pk	2.3	16.9	33.6	47	-13.4	37	-3.4	46.4	-12.8	35.6	-2	114	100
	Horz															
8	929.0032	10.2	pk	3.8	23.8	37.8	47	-9.2	37	.8	46.4	-8.6	35.6	2.2	225	300
	Horz not from EUT															
Vertical 300 - 1000MHz																
5	852.7604	18	pk	3.5	22.8	44.3	47	-2.7	37	7.3	46.4	-2.1	35.6	8.7	51	399
	Vert not from EUT															
6	869.7227	40.4	pk	3.6	24.2	68.2	47	21.2	37	31.2	46.4	21.8	35.6	32.6	209	300
	Vert carrier frequency															
7	892.9803	41.3	pk	3.6	23.2	68.1	47	21.1	37	31.1	46.4	21.7	35.6	32.5	225	300
	Vert carrier frequency															

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Azimuth [degs] Height Factor [dB]	Transducer [cm]	Polarity	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]
Vertical 30 - 300MHz															
197.9573	33	qp	-29.1	15.9	19.8	40	-20.2	30	-10.2	43.5	-23.7	33.1	-13.3	181	118	Vert
218.673	40.99	qp	-28.9	16.2	28.29	40	-11.71	30	-1.71	46.4	-18.11	35.6	-7.31	20	315	Vert
224.9217	37.89	qp	-29	16.2	25.09	40	-14.91	30	-4.91	46.4	-21.31	35.6	-10.51	24	303	Vert

LIMIT 1: CISPR CLASS A 10 METER
LIMIT 2: CISPR CLASS B 10 METER
LIMIT 3: CFR 47 PART 15 CLASS A (10m)
LIMIT 4: CFR 47 PART 15 CLASS B (10M)

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector


UL EMC Test System
23 Sep 2002 11:14:47
Radiated Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW new backplane
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL
CISPR CLASS A 10 METER
CISPR CLASS B 10 METER
CFR 47 PART 15 CLASS A (10m)
CFR 47 PART 15 CLASS B (10M)
dBuVolts/meter
Frequency [MHz]
100
90
80
70
60
50
40
30
20
10
30
100
1000

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW new backplane
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Azimuth [degs]	Gain/Loss Factor [dB]	Height [cm]	Transducer Factor [dB]	Polarity	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]
Vertical 30 - 300MHz																	
1	219.0607	41.3	pk	-28.9	16.1	28.5	40	-11.5	30	-1.5	46.4	-17.9	35.6	-7.1	0	200	
	Vert																
Horizontal 300 - 1000MHz																	
CARRIER FREQUENCY																	
5	870.0724	20.2	pk	3.6	24.2	48	47	1	37	11	46.4	1.6	35.6	12.4	161	199	
	Horz																
CARRIER FREQUENCY																	
6	892.6305	24.8	pk	3.6	23.2	51.6	47	4.6	37	14.6	46.4	5.2	35.6	16	146	100	
	Horz																
Vertical 300 - 1000MHz																	
2	300.1749	9.1	pk	1.8	15.3	26.2	47	-20.8	37	-10.8	46.4	-20.2	35.6	-9.4	272	100	
	Vert																
NOT FROM EUT																	
3	454.4092	14.5	pk	2.3	16.9	33.7	47	-13.3	37	-3.3	46.4	-12.7	35.6	-1.9	272	199	
	Vert																
NOT FROM EUT																	
4	852.7604	17.2	pk	3.5	22.8	43.5	47	-3.5	37	6.5	46.4	-2.9	35.6	7.9	335	100	
	Vert																

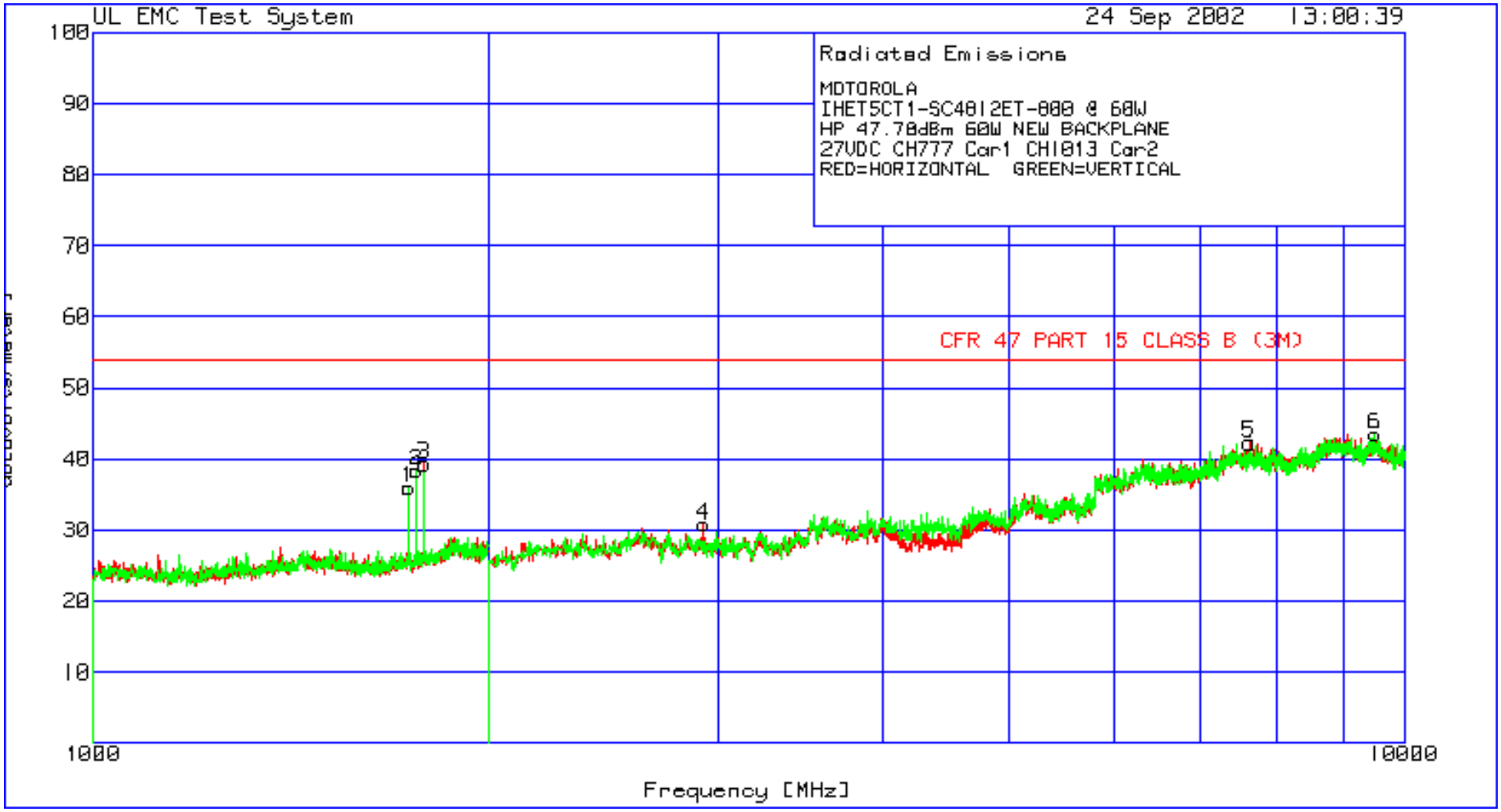
LIMIT 1: CISPR CLASS A 10 METER
LIMIT 2: CISPR CLASS B 10 METER
LIMIT 3: CFR 47 PART 15 CLASS A (10m)
LIMIT 4: CFR 47 PART 15 CLASS B (10M)
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

UNDERWRITERS LABORATORIES INC.
Radiated Emissions

Date Tested: 9-24-2002

Manufacturer	**:**	Motorola CDMA Wireless Products Customer Integration Engineering
Equipment Under Test	**:**	SC4812ET 800MHz Cellular Phone Base Station
Requirement	**:**	CFR 47 PART 15 B Class B
Detection Mode	**:**	Average (av)
Bandwidth	**:**	100KHz, 1-10GHz
Measurement Distance	**:**	3 meter
Antenna Type	**:**	1-10GHz, Horn

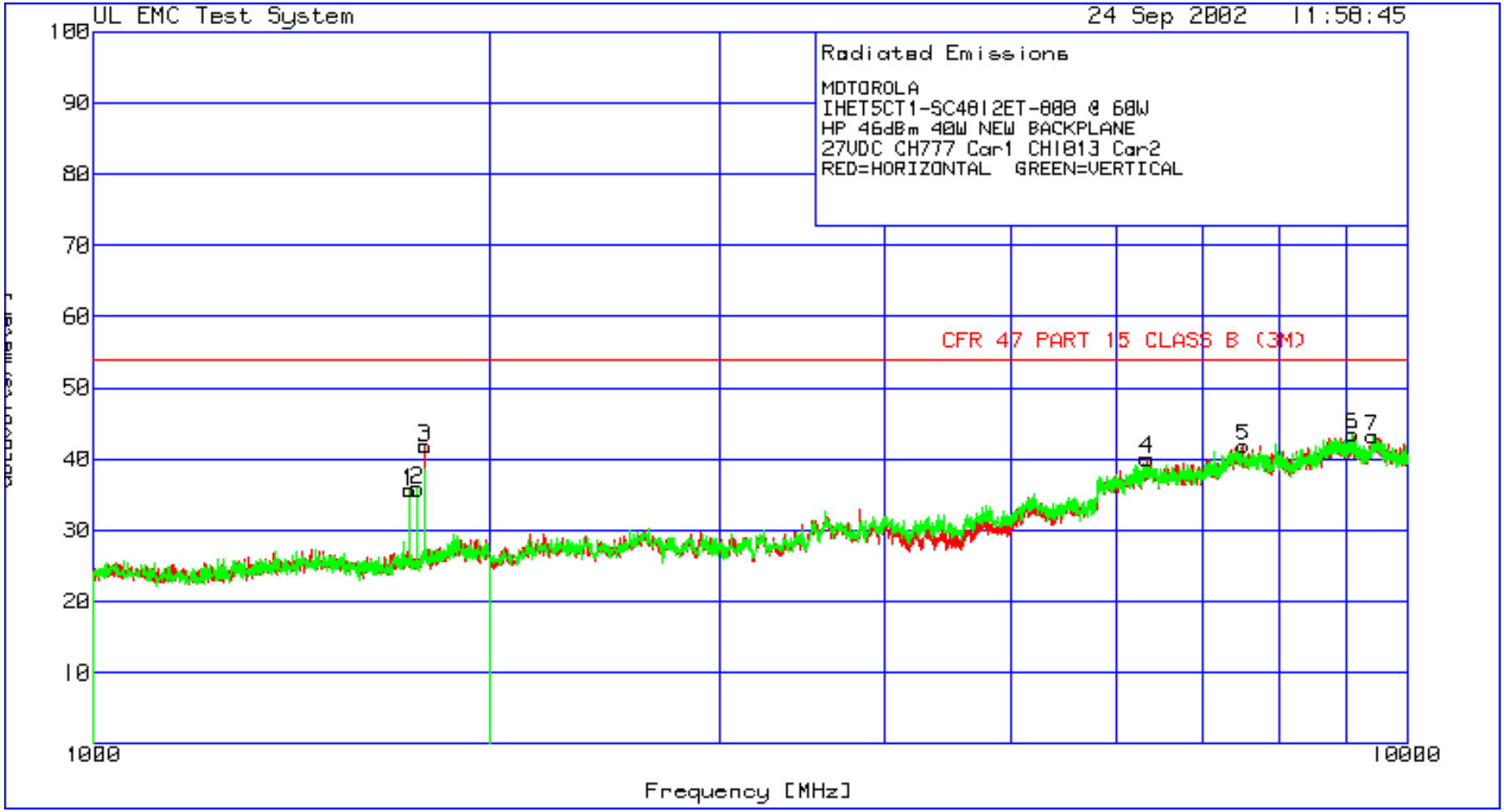

UL EMC Test System
24 Sep 2002 13:00:39
Radiated Emissions
MOTOROLA
IHET5CT1-SC4812ET-000 @ 60W
HP 47.70dBm 60W NEW BACKPLANE
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL
CFR 47 PART 15 CLASS B (3M)
100
90
80
70
60
50
40
30
20
10
1000
10000
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800 @ 60W
HP 47.78dBm 60W NEW BACKPLANE
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL

Marker Number	Frequency [MHz]	Test Height [cm]	Meter Reading [dB(uV)]	Detector Polarity	Gain/Loss Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB[uVolts/meter]]	Limit 1	Margin 1[dB]	Azimuth [degs]	
Horizontal 1000 - 2000MHz												
3	1786	41	pk	-29.8	28.1	39.3	54	-14.7	235	100	Horz	
Horizontal 1000 - 2000MHz												
1	1739	38.2	pk	-30	27.8	36	54	-18	56	100	Vert	
2	1762	40.4	pk	-30	28	38.4	54	-15.6	36	100	Vert	
Horizontal 2000 - 10000MHz												
4	2919.387	28.8	pk	-29.5	31.5	30.8	54	-23.2	206	200	Horz	
5	7617.588	25.8	pk	-21.6	38.1	42.3	54	-11.7	356	200	Horz	
Horizontal 2000 - 10000MHz												
6	9496.336	26	pk	-21	38.5	43.5	54	-10.5	297	200	Vert	

LIMIT 1: CFR 47 PART 15 CLASS B (3M)
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

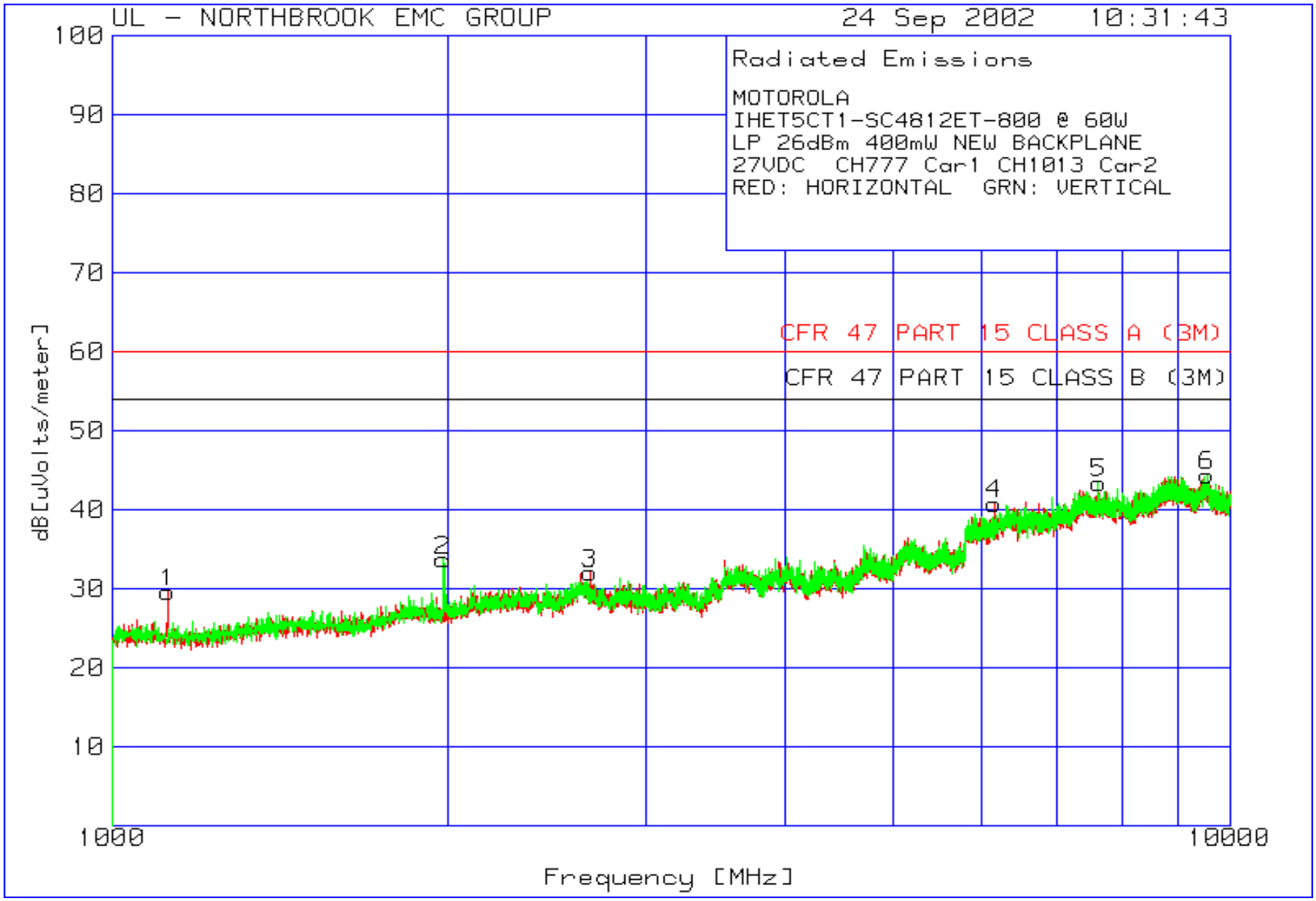

UL EMC Test System
24 Sep 2002 11:58:45
Radiated Emissions
MOTOROLA
IHET5CT1-SC4812ET-000 @ 60W
HP 46dBm 40W NEW BACKPLANE
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL
CFR 47 PART 15 CLASS B (3M)
100
90
80
70
60
50
40
30
20
10
1000
10000
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800 @ 60W
HP 46dBm 40W NEW BACKPLANE
27VDC CH777 Car1 CH1013 Car2
RED=HORIZONTAL GREEN=VERTICAL

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Polarity	Gain/Loss Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB[uVolts/meter]]	Limit 1	Margin 1[dB]	Azimuth [degs]	Height [cm]
Horizontal 1000 - 2000MHz											
3	1786	43.5	pk	-29.8	28.1	41.8	54	-12.2	233	100	Horz
Horizontal 1000 - 2000MHz											
1	1739	37.8	pk	-30	27.8	35.6	54	-18.4	38	100	Vert
2	1762	37.8	pk	-30	28	35.8	54	-18.2	38	100	Vert
Horizontal 2000 - 10000MHz											
4	6335.776	26.4	pk	-22.9	36.6	40.1	54	-13.9	324	200	Horz
5	7502.998	26	pk	-22.4	38.3	41.9	54	-12.1	0	100	Horz
Horizontal 2000 - 10000MHz											
6	9091.272	25.6	pk	-21.7	39.6	43.5	54	-10.5	297	100	Vert
7	9413.724	25.6	pk	-21.1	38.7	43.2	54	-10.8	297	200	Vert

LIMIT 1: CFR 47 PART 15 CLASS B (3M)
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector


UL – NORTHBROOK EMC GROUP
24 Sep 2002 10:31:43
Radiated Emissions
MOTOROLA
IHET5CT1-SC4812ET-800 @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH777 Car1 CH1013 Car2
RED: HORIZONTAL GRN: VERTICAL
CFR 47 PART 15 CLASS A (3M)
CFR 47 PART 15 CLASS B (3M)
dB[uVolts/meter]
100
90
80
70
60
50
40
30
20
10
1000
10000
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800 @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH777 Car1 CH1013 Car2
RED: HORIZONTAL GRN: VERTICAL

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2
Range: 1 1000 - 10000MHz							
1	1121.394	32.86 pk	-28.6	25.34	29.6	60	53.98
	Azimuth:239	Height:100 Horz		Margin [dB]		-30.4	-24.38
3	2675.909	30.81 pk	-29.86	31.05	32	60	53.98
	Azimuth:239	Height:100 Horz		Margin [dB]		-28	-21.98
4	6154.74	28.61 pk	-24.56	36.75	40.8	60	53.98
	Azimuth:143	Height:100 Horz		Margin [dB]		-19.2	-13.18
Range: 1 1000 - 10000MHz							
2	1977.894	34.15 pk	-29.44	28.99	33.7	60	53.98
	Azimuth:314	Height:100 Vert		Margin [dB]		-26.3	-20.28
5	7629.449	27.19 pk	-21.88	38.09	43.4	60	53.98
	Azimuth:354	Height:100 Vert		Margin [dB]		-16.6	-10.58
6	9541.401	26.78 pk	-20.9	38.52	44.4	60	53.98
	Azimuth:39	Height:100 Vert		Margin [dB]		-15.6	-9.58

LIMIT 1: CFR 47 PART 15 CLASS A (3M)
LIMIT 2: CFR 47 PART 15 CLASS B (3M)
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - denotes average log detection
tm - Trace Math Result

UNDERWRITERS LABORATORIES INC.
Radiated Emissions Substitution Method

Date Tested: 10-4-2002

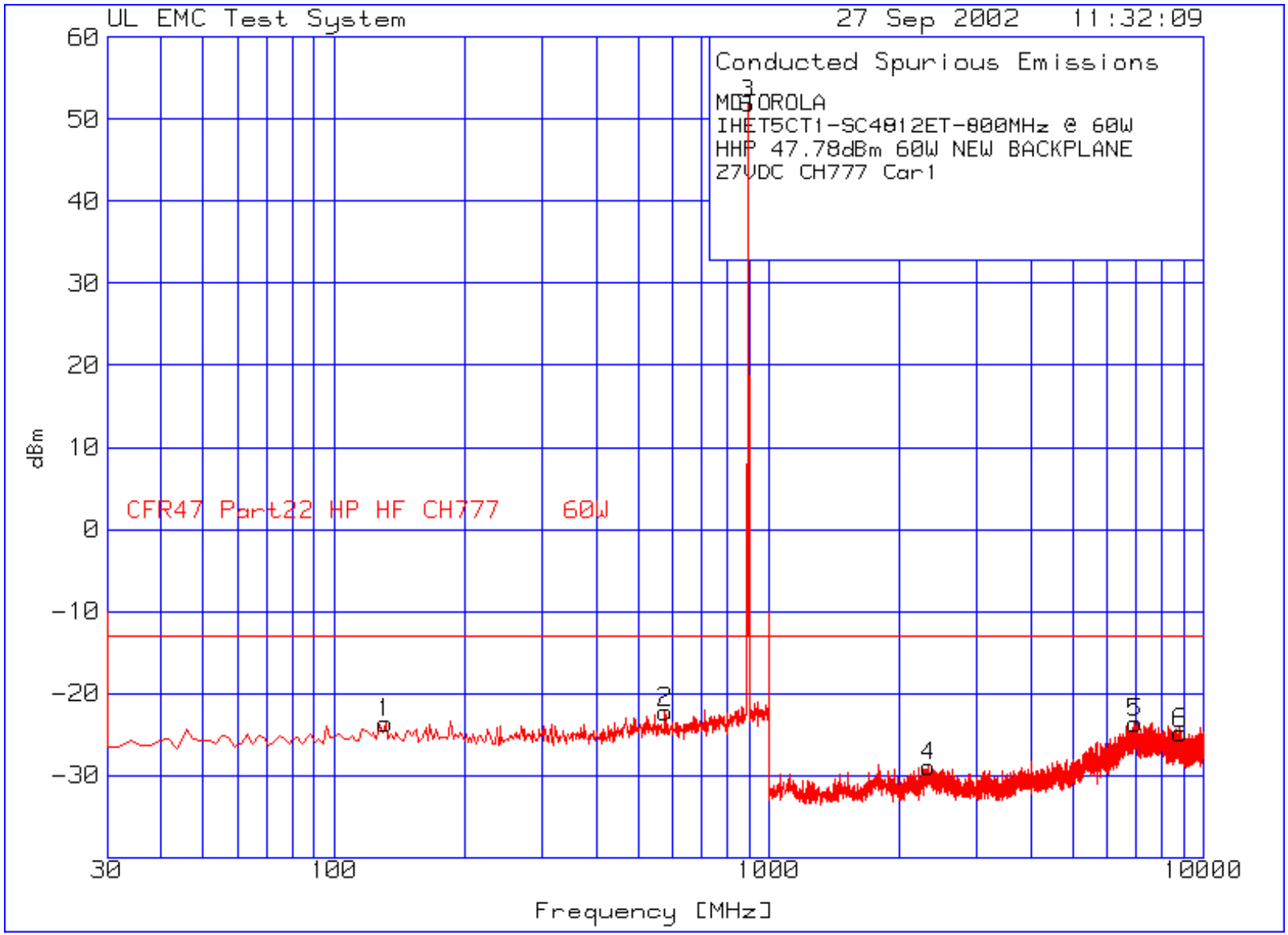
Manufacturer : MOTOROLA HP 46dBm 40W
Equipment Under Test : IHET5CT1-SC4812ET 800MHz @60W
: new backplane CH777 Car1 CH1013 Car2
Requirement : FCC Part 22/24 : Substitution Method–TIA/EIA–603 :1992, : Section 2.2.12*
Detection Mode : Pick
Measurement Distance : 3 meter

Radiated			Substituted Power					
Spurious Fr. (MHz) channel mode of operation	**Antenna Polarity**	**Measured Radiated Field Strength (dBuV/m)**	**Signal Generator Output Level (dBm)**	**Tx Antenna Terminal Voltage (dBm)**	**Substitution Antenna Gain (dBi)**	**Calculated EIRP (dBm)**	**EDRP (EIRP -2.15) (dBm)**	FCC Part 22/24 MAX LIMIT (dBm)
1786	**H**	**41.8**	**-57.1**	**-58.6**	**7**	**-51.6**	**-53.75**	**- 13**
1739	**V**	**35.6**	**-64.8**	**-66.3**	**7**	**-59.3**	**-61.45**	**- 13**

UNDERWRITERS LABORATORIES INC.
Conducted Spurious Emissions

Date Tested: 9-27-2002

Manufacturer	**:**	Motorola CDMA Wireless products Customer Integration Engineering
Equipment Under Test	**:**	SC4812ET 800MHz Cellular Phone Base Station
Requirement	**:**	CFR47 Part 22/24 , ANSI/TIAEIA-603-1992, Section 2.2.12
Detection Mode	**:**	Quasi-peak (qp) or Peak (pk) or Average (ave)

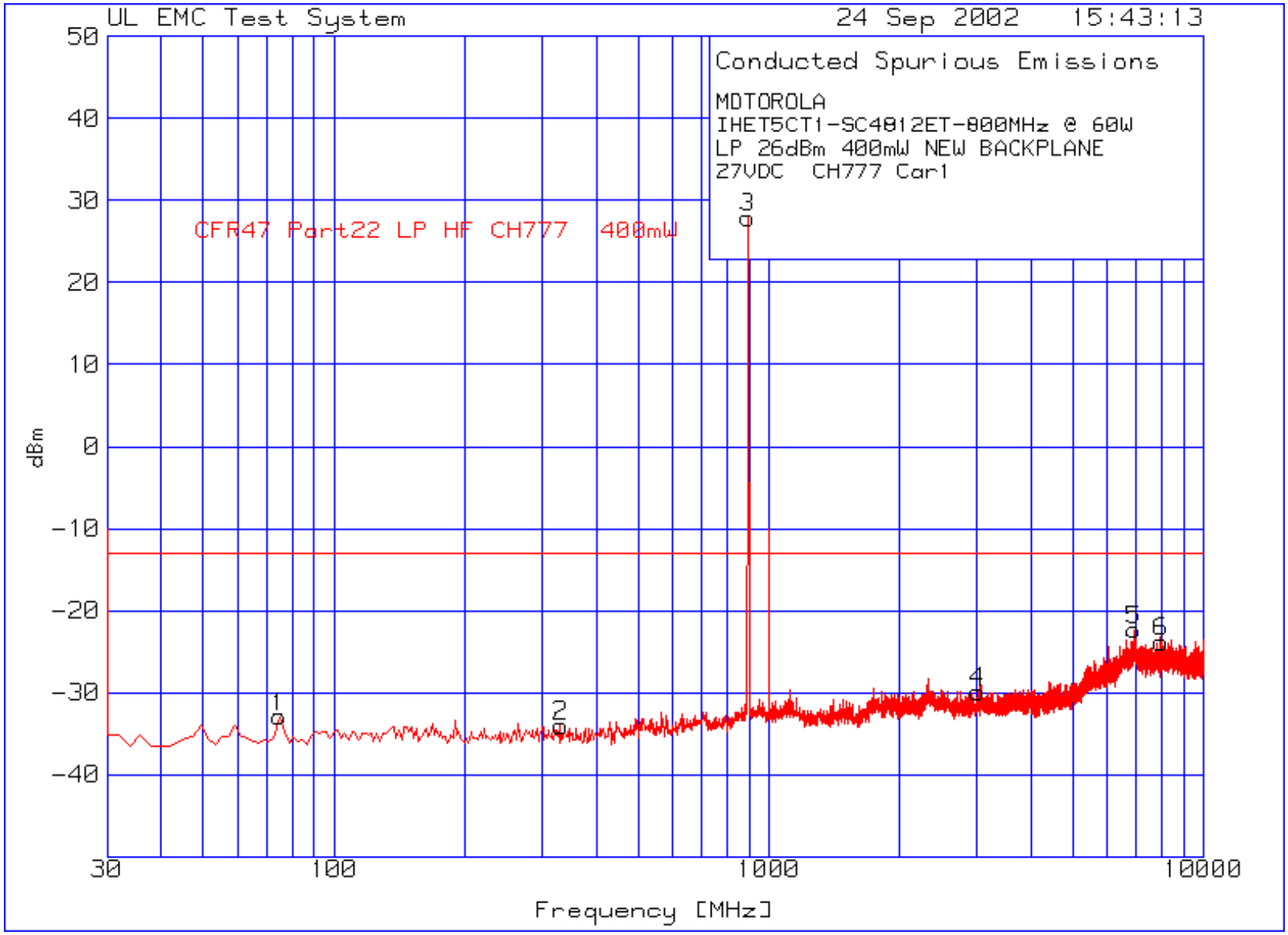

UL EMC Test System
27 Sep 2002 11:32:09
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH777 Car1
CFR47 Part22 HP HF CH777 60W
dBm
60
50
40
30
20
10
0
-10
-20
-30
30
100
1000
10000
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH777 Car1

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
Range: 1 30 - 1000MHz								
1	131.0822	33.32	pk	50.1	-107	-23.58	-13	-10.58
2	576.2325	34.05	pk	50.7	-107	-22.25	-13	-9.25
3	895.0301	107.88	pk	51	-107	51.88	47.8	4.08 carrier frequency
Range: 2 1000 - 10000MHz								
4	2326.865	26.25	pk	51.9	-107	-28.85	-13	-15.85
5	6942.989	29.72	pk	53.7	-107	-23.58	-13	-10.58
6	8833.367	28.02	pk	54.2	-107	-24.78	-13	-11.78

LIMIT 1: CFR47 Part22 HP HF CH777 60W
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

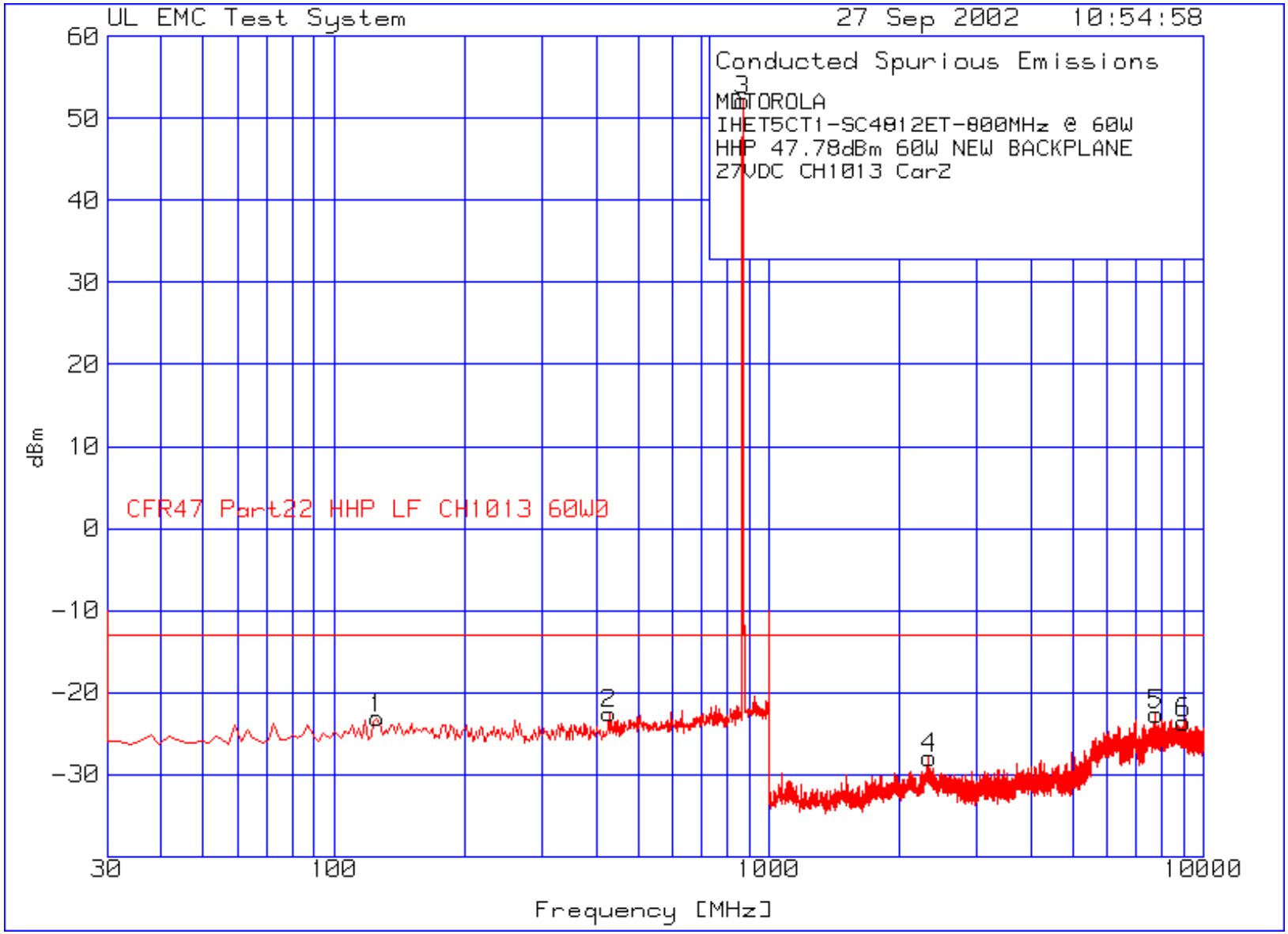

UL EMC Test System
24 Sep 2002 15:43:13
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH777 Car1
CFR47 Part22 LP HF CH777 400mW
dBm
50
40
30
20
10
0
-10
-20
-30
-40
30
100
1000
10000
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH777 Car1

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector	Gain/Loss Type [dB]	Factor [dB]	Transducer Factor	dBm	Level	Limit 1	Margin 1[dB]
Range: 1 30 - 1000MHz										
1	74.7094	23.98	pk	50.1	-107	-32.92	-13	-19.92		
2	331.3026	22.58	pk	50.4	-107	-34.02	-13	-21.02		
3	895.0301	83.93	pk	51	-107	27.93	26	1.93	carrier frequency	
Range: 2 1000 - 10000MHz										
4	3023.605	25	pk	52.1	-107	-29.9	-13	-16.9		
5	6919.584	31.06	pk	53.6	-107	-22.34	-13	-9.34		
6	7987.197	29.11	pk	54.1	-107	-23.79	-13	-10.79		

LIMIT 1: CFR47 Part22 LP HF CH777 400mW
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

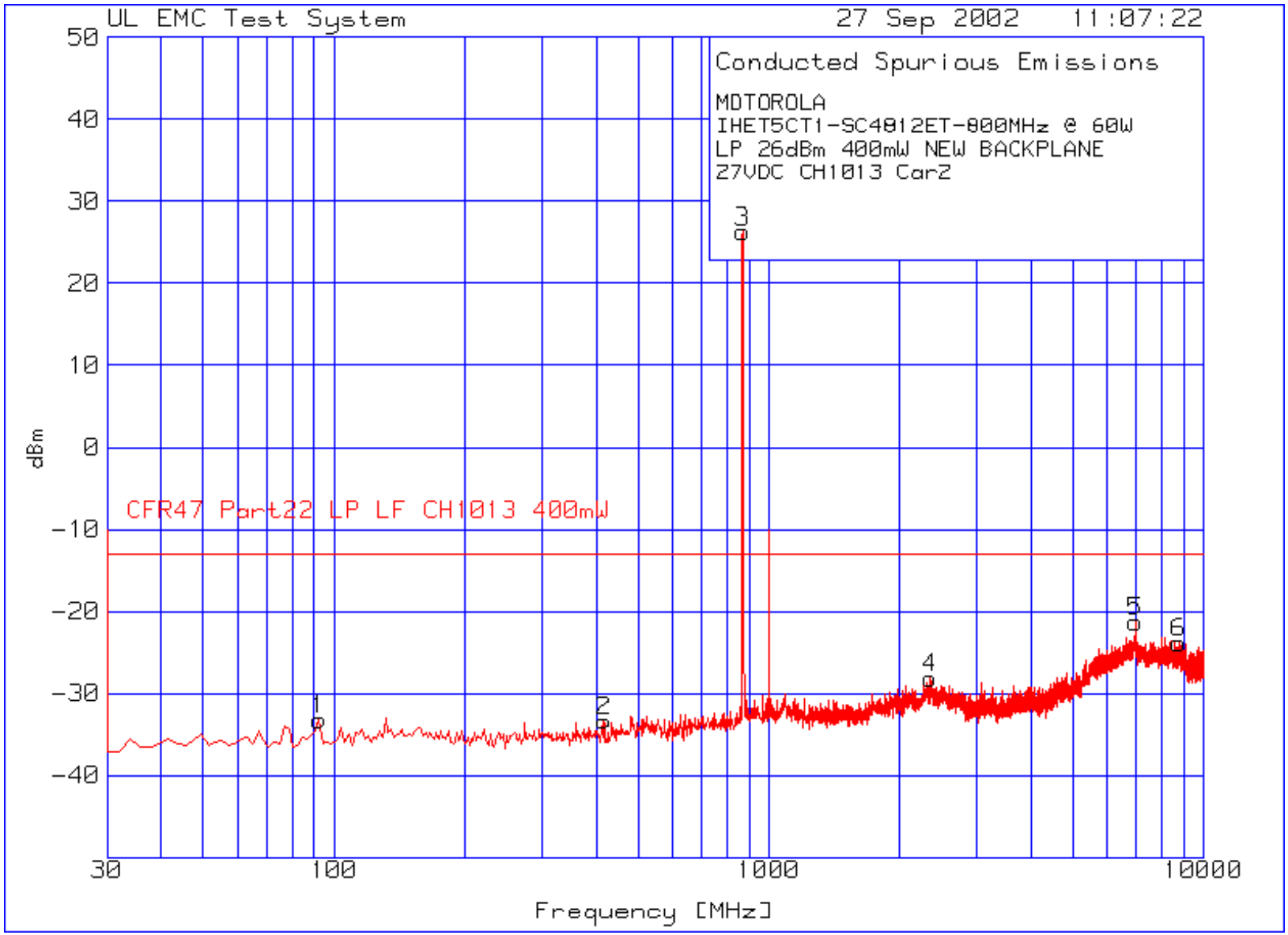

UL EMC Test System
27 Sep 2002 10:54:58
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH1013 Car2
CFR47 Part22 HHP LF CH1013 60W0
dBm
60
50
40
30
20
10
0
-10
-20
-30
30
100
1000
10000
Frequency [MHz]
1
2
3
4
5
6

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH1013 Car2

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector	Gain/Loss Type [dB]	Gain/Loss Factor [dB]	Transducer Factor	dBm	Level	Limit 1	Margin 1[dB]
Range: 1 30 - 1000MHz										
1	125.2505	33.8	pk	50.1	-107	-23.1	-13	-10.1		
2	428.497	33.93	pk	50.5	-107	-22.57	-13	-9.57		
3	869.7595	108.2	pk	51	-107	52.2	47.8	4.4	carrier frequency	
Range: 2 1000 - 10000MHz										
4	2332.266	27.18	pk	51.9	-107	-27.92	-13	-14.92		
5	7749.55	30.56	pk	53.8	-107	-22.64	-13	-9.64		
6	8971.994	29.36	pk	54	-107	-23.64	-13	-10.64		

LIMIT 1: CFR47 Part22 HHP LF CH1013 60W0
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

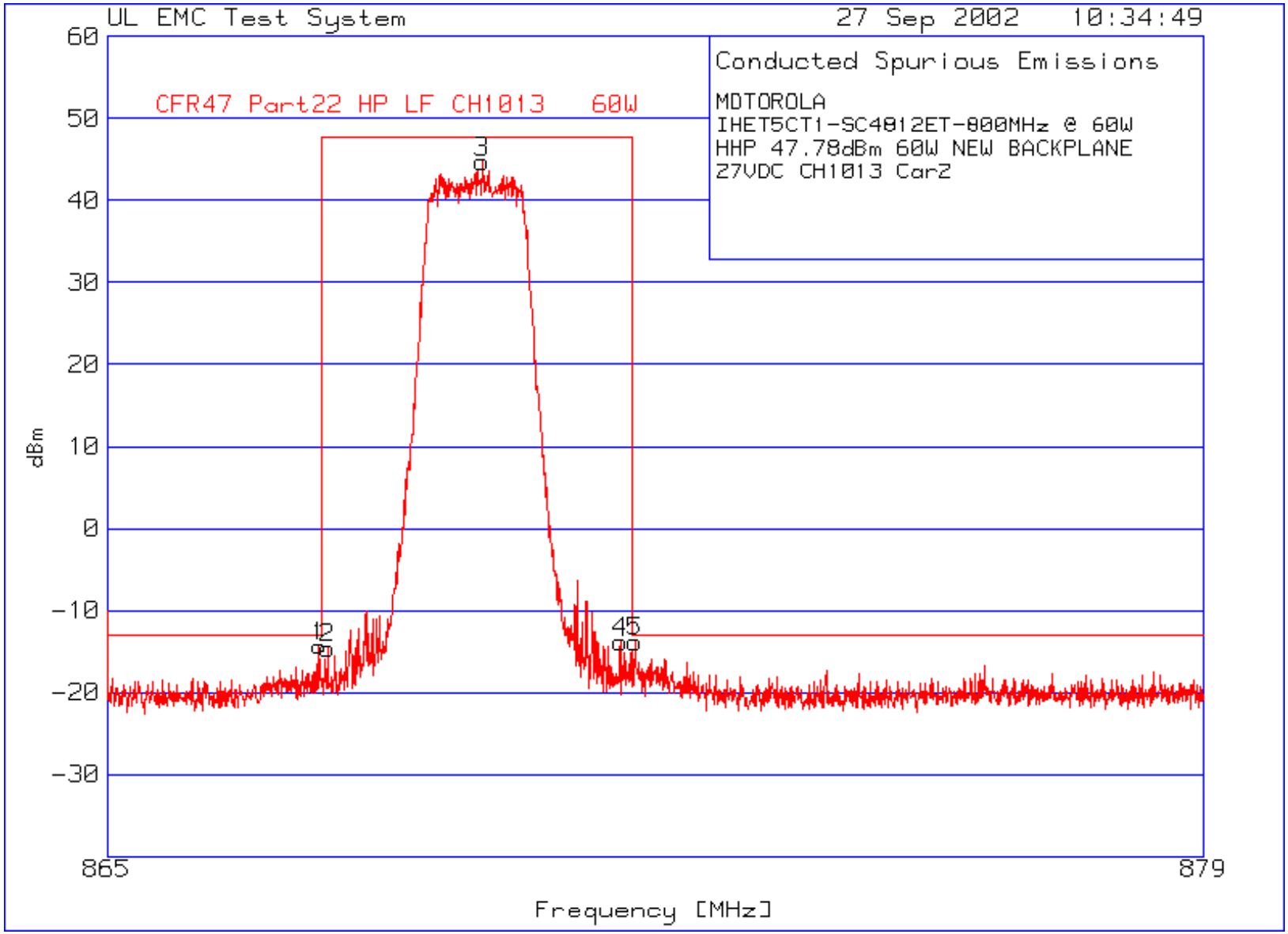

UL EMC Test System
27 Sep 2002 11:07:22
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH1013 Car2
CFR47 Part22 LP LF CH1013 400mW
dBm
50
40
30
20
10
0
-10
-20
-30
-40
30
100
1000
10000
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH1013 Car2

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	dBm	Level	Limit 1	Margin 1[dB]
Range: 1 30 - 1000MHz									
1	92.2044	23.73	pk	50.1	-107	-33.17	-13	-20.17	
2	416.8337	23.15	pk	50.5	-107	-33.35	-13	-20.35	
3	869.7595	82.27	pk	51	-107	26.27	26	.27	carrier frequency
Range: 2 1000 - 10000MHz									
4	2346.669	27.02	pk	51.9	-107	-28.08	-13	-15.08	
5	6959.192	32.07	pk	53.7	-107	-21.23	-13	-8.23	
6	8773.955	29.02	pk	54.2	-107	-23.78	-13	-10.78	

LIMIT 1: CFR47 Part22 LP LF CH1013 400mW
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

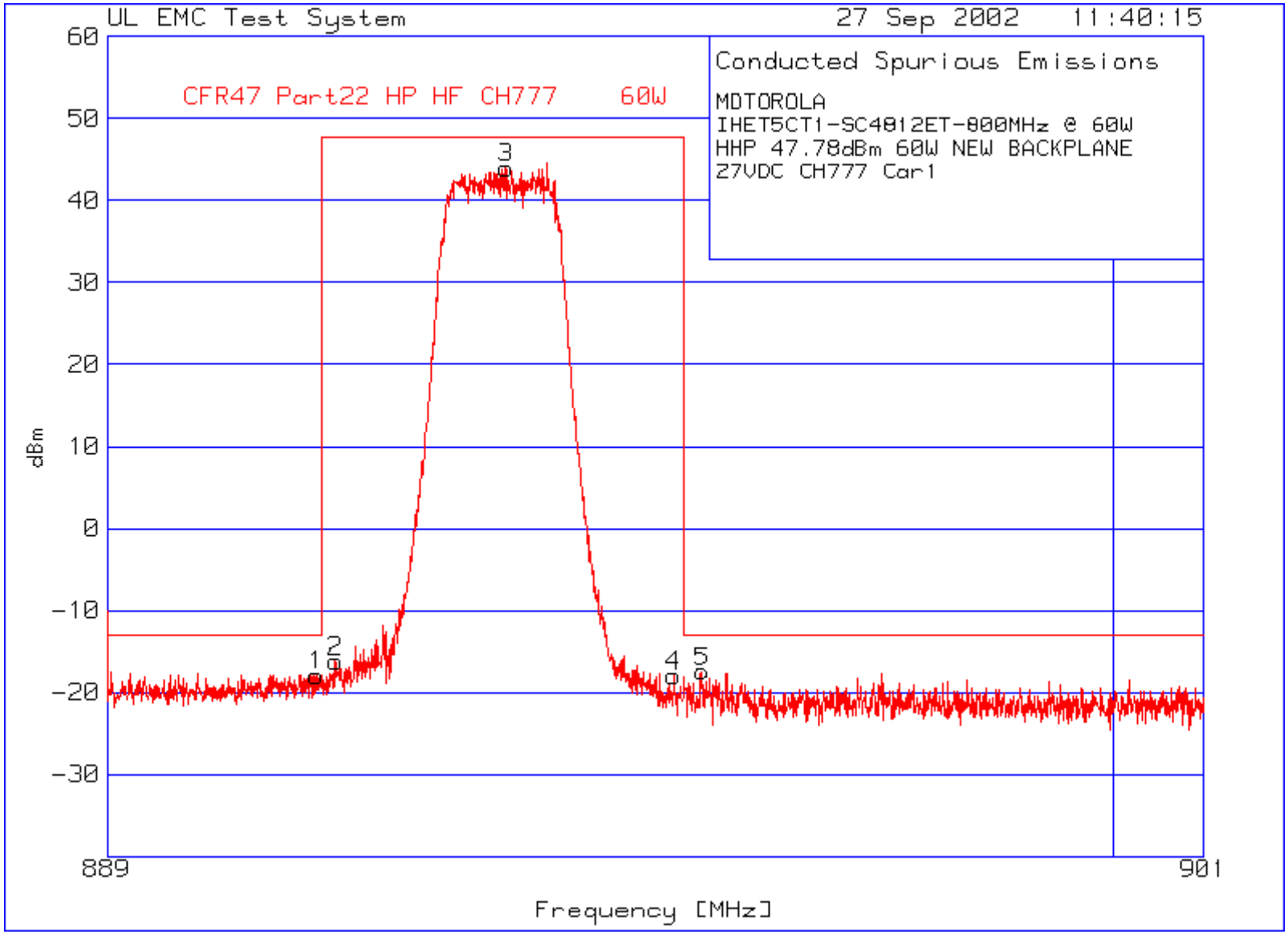

UL EMC Test System
27 Sep 2002 10:34:49
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH1013 Car2
CFR47 Part22 HP LF CH1013 60W
dBm
60
50
40
30
20
10
0
-10
-20
-30
865
879
Frequency [MHz]

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH1013 Car2

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector	Gain/Loss Type [dB]	Factor [dB]	Transducer Factor	Level dBm	Limit 1	Margin 1[dB]
Range: 1 865 - 879MHz									
1	867.6893	21.67	pk	71	-107	-14.33	-13		-1.33
2	867.8014	21.41	pk	71	-107	-14.59	47.8		-62.39
3	869.7624	80.7	pk	71	-107	44.7	47.8		-3.1
4	871.5273	22.14	pk	71	-107	-13.86	47.8		-61.66
5	871.7094	22.22	pk	71	-107	-13.78	-13		-.78

LIMIT 1: CFR47 Part22 HP LF CH1013 60W
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

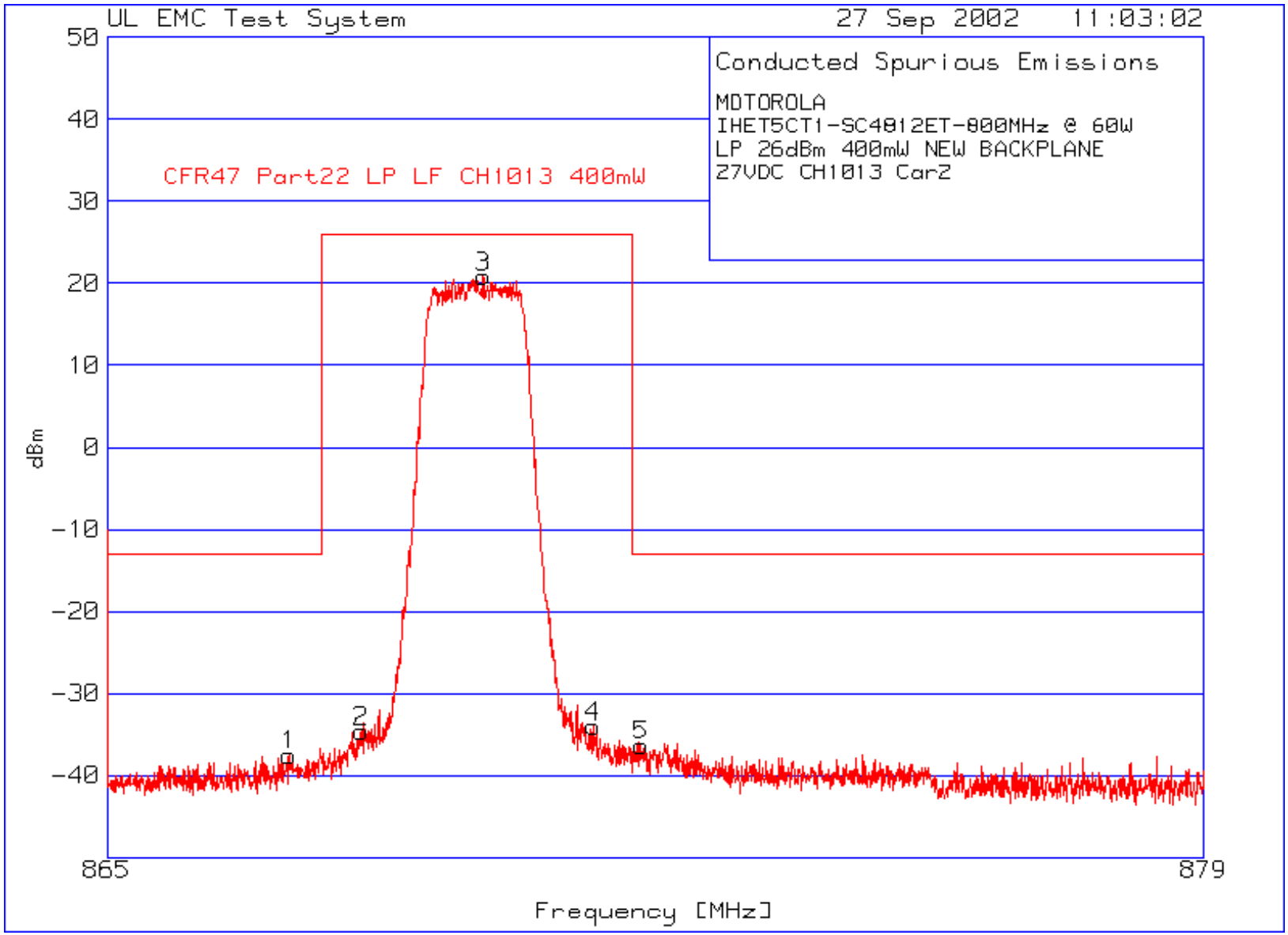

UL EMC Test System
27 Sep 2002 11:40:15
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH777 Car1
CFR47 Part22 HP HF CH777 60W
60
50
40
30
20
10
0
-10
-20
-30
dBm
889
901
Frequency [MHz]
1
2
3
4
5

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
HHP 47.78dBm 60W NEW BACKPLANE
27VDC CH777 Car1

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
Range: 1 889 - 901MHz								
1	891.2811	18.09	pk	71	-107	-17.91	-13	-4.91
2	891.4852	19.81	pk	71	-107	-16.19	47.8	-63.99
3	893.3462	79.99	pk	71	-107	43.99	47.8	-3.81
4	895.1831	18.01	pk	71	-107	-17.99	47.8	-65.79
5	895.4892	18.57	pk	71	-107	-17.43	-13	-4.43

LIMIT 1: CFR47 Part22 HP HF CH777 60W
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

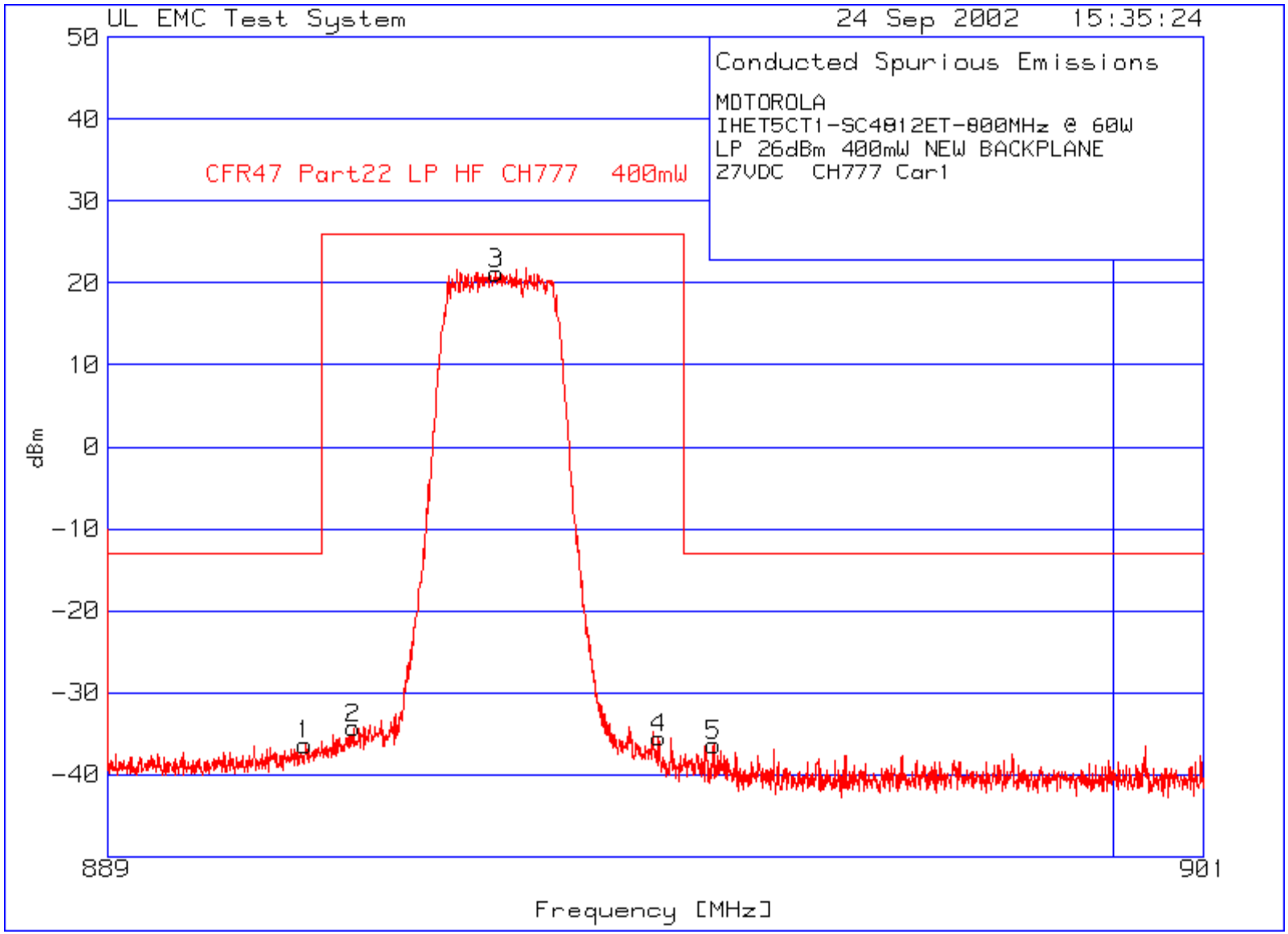

UL EMC Test System
27 Sep 2002 11:03:02
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH1013 Car2
CFR47 Part22 LP LF CH1013 400mW
50
40
30
20
10
0
-10
-20
-30
-40
dBm
865
879
Frequency [MHz]
1
2
3
4
5

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH1013 Car2

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector	Gain/Loss Type [dB]	Gain/Loss Factor [dB]	Transducer Factor	Level dBm	Limit 1	Margin 1[dB]
Range: 1 865 - 879MHz									
1	867.3112	18.49	pk	51	-107	-37.51	-13		-24.51
2	868.2286	21.38	pk	51	-107	-34.62	26		-60.62
3	869.7764	76.77	pk	51	-107	20.77	26		-5.23
4	871.1841	21.93	pk	51	-107	-34.07	26		-60.07
5	871.7864	19.69	pk	51	-107	-36.31	-13		-23.31

LIMIT 1: CFR47 Part22 LP LF CH1013 400mW
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector


UL EMC Test System
24 Sep 2002 15:35:24
Conducted Spurious Emissions
MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH777 Car1
CFR47 Part22 LP HF CH777 400mW
50
40
30
20
10
0
-10
-20
-30
-40
dBm
889
901
Frequency [MHz]
1
2
3
4
5

MOTOROLA
IHET5CT1-SC4812ET-800MHz @ 60W
LP 26dBm 400mW NEW BACKPLANE
27VDC CH777 Car1

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector	Gain/Loss Type [dB]	Gain/Loss Factor [dB]	Transducer Factor	Level dBm	Limit 1	Margin 1[dB]
Range: 1 889 - 901MHz									
1	891.1551	19.66	pk	51	-107	-36.34	-13		-23.34
2	891.6833	21.72	pk	51	-107	-34.28	26		-60.28
3	893.2381	77.17	pk	51	-107	21.17	26		-4.83
4	895.015	20.52	pk	51	-107	-35.48	26		-61.48
5	895.6213	19.62	pk	51	-107	-36.38	-13		-23.38

LIMIT 1: CFR47 Part22 LP HF CH777 400mW
LIMIT 2: NONE
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
avem - EMI Average detector

UNDERWRITERS LABORATORIES INC.
Occupied Bandwidth

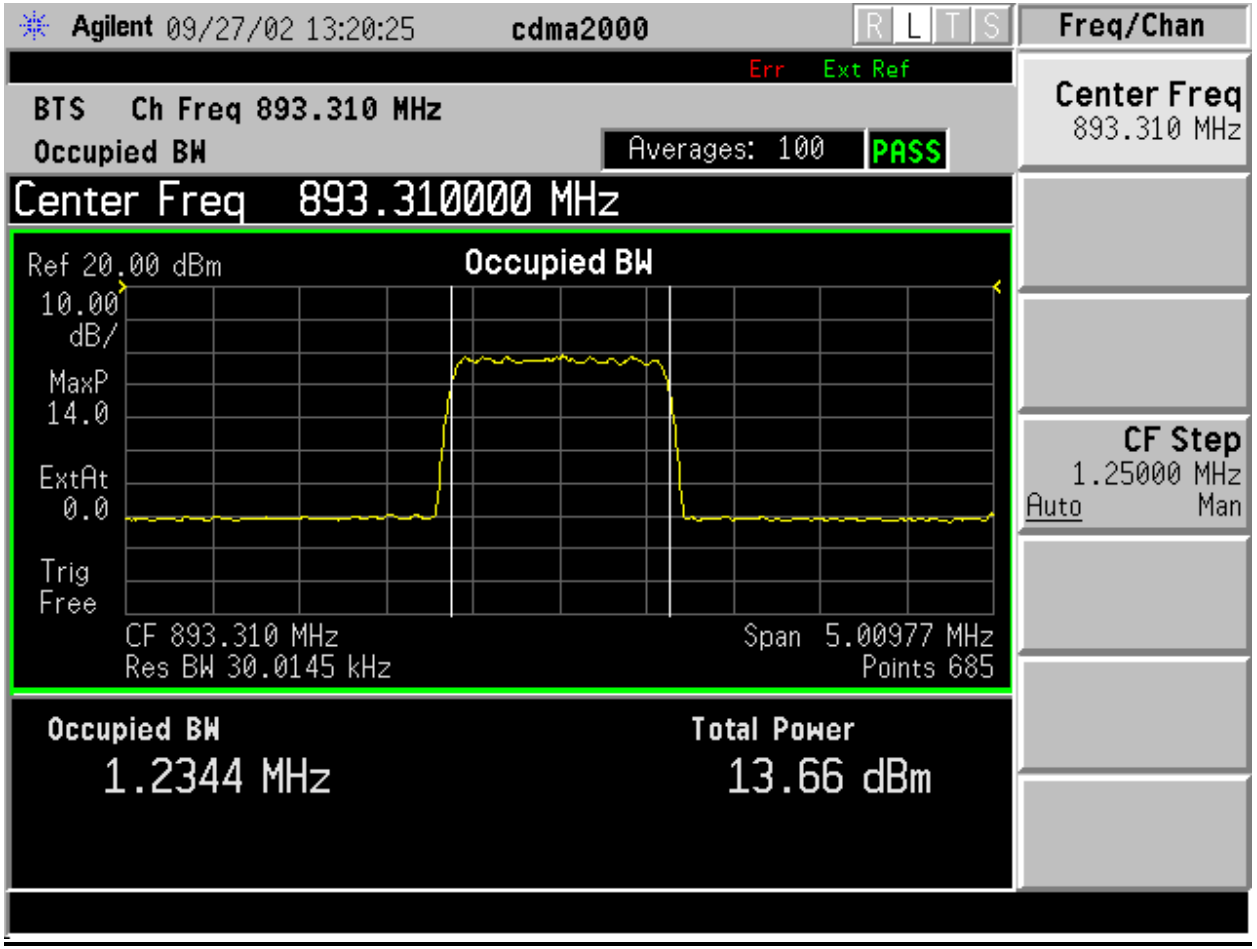
Date Tested: 9-27-2002

Manufacturer	**:**	Motorola CDMA Wireless products Customer Integration Engineering
Equipment Under Test	**:**	SC4812ET 800MHz Cellular Phone Base Station
Requirement	**:**	CFR47 Part 22/24

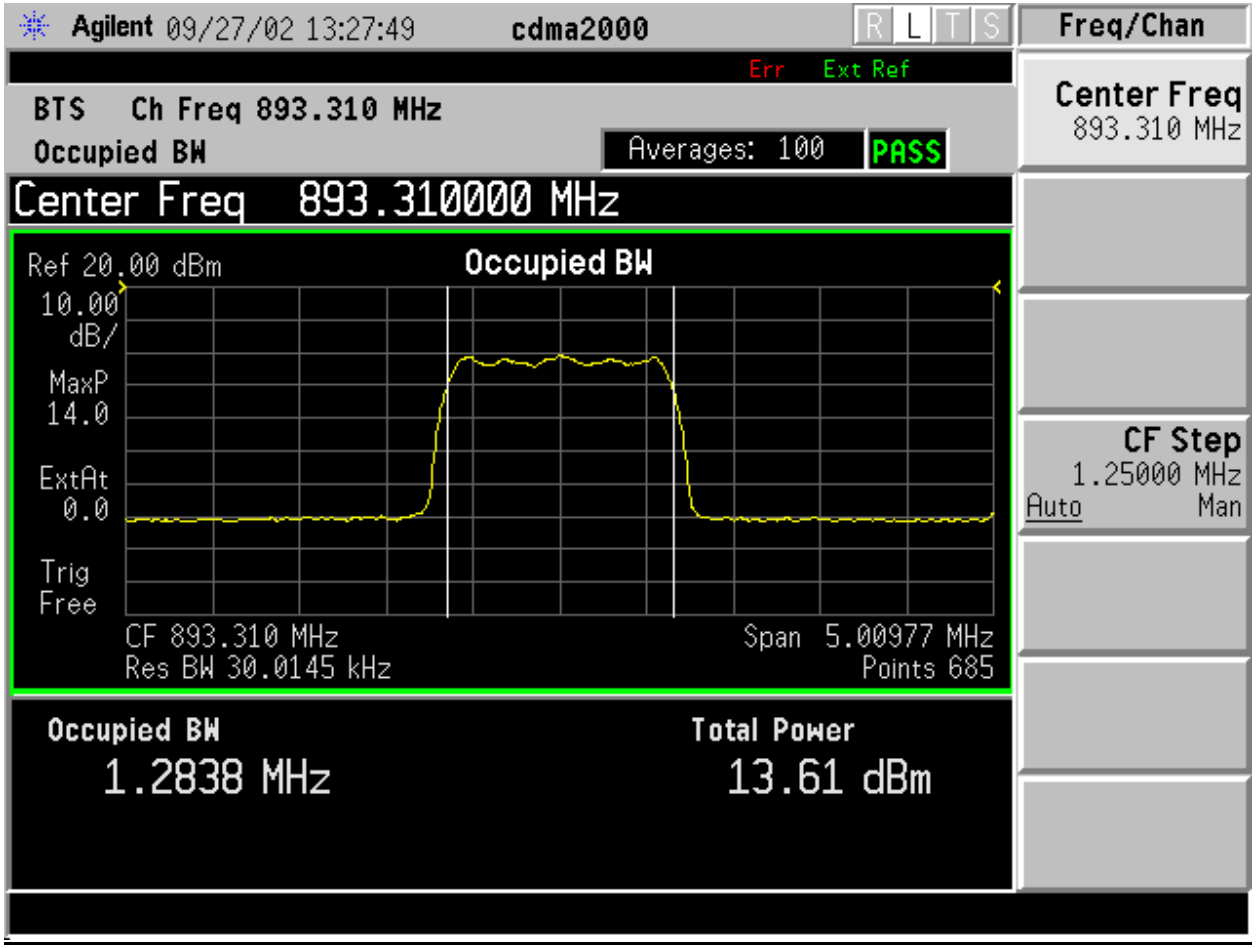
Section 2.1047 Measurement Required: **Occupied Bandwidth**

DEFINITION
The measured spectral width of an emission. The measurement determines occupied bandwidth as the difference between upper and lower frequencies where 0.5% of the emission power is above the upper frequency and 0.5% of the emission power is below the lower frequency at rated power, with Pilot, Page, Sync, and Traffic Channel modulation.
Data to show the bandwidth occupied by this transmitter and output power is presented in the form of Channel Power Measurement plots from a spectrum analyzer. The Channel Power Measurement divides the Channel Power Bandwidth into increments (defined by the Resolution Bandwidth Setting selected), then sums the energy contained in each of those increments to provide an integrated measurement of the power in the Channel Power Bandwidth.

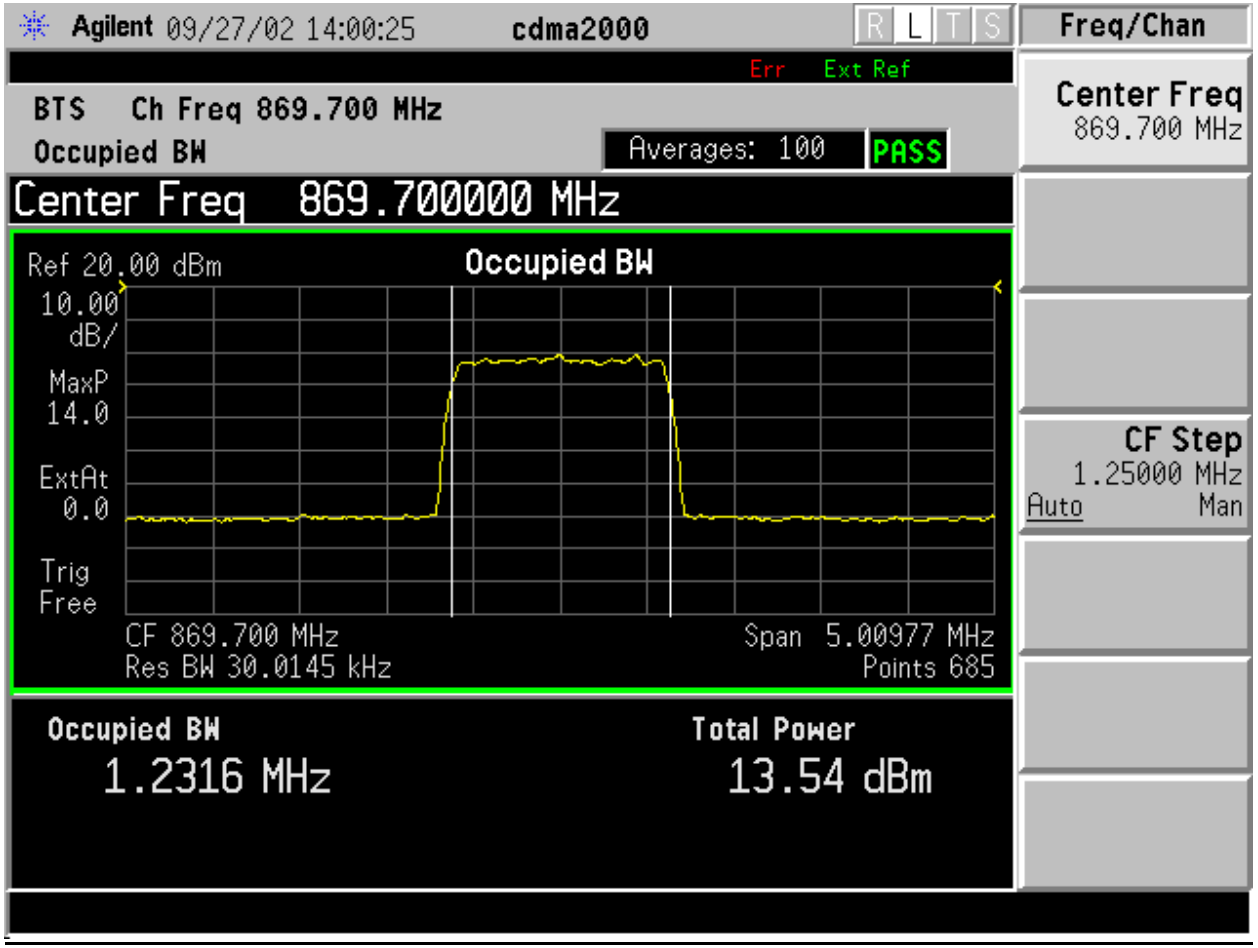
METHOD OF MEASUREMENT
Connect a spectrum analyzer to the BTS RF Transmit Port. Set the CDMA signal power to maximum. Setup the spectrum analyzer to make the following integrated Channel Power Measurements:
1. Channel Power Measurement of the CDMA Carrier Centered at 869.70 (Ch. 1013).
Channel Power Bandwidth: 1.30 MHz
Resolution Bandwidth: 30 KHz
2. Channel Power Measurement of the CDMA Carrier Centered at 893.31 (Ch. 777).
Channel Power Bandwidth: 1.30 MHz
Resolution Bandwidth: 30 KHz
Record the Channel Power Measurements.
Repeat the procedure with the CDMA signal power set to Minimum level.



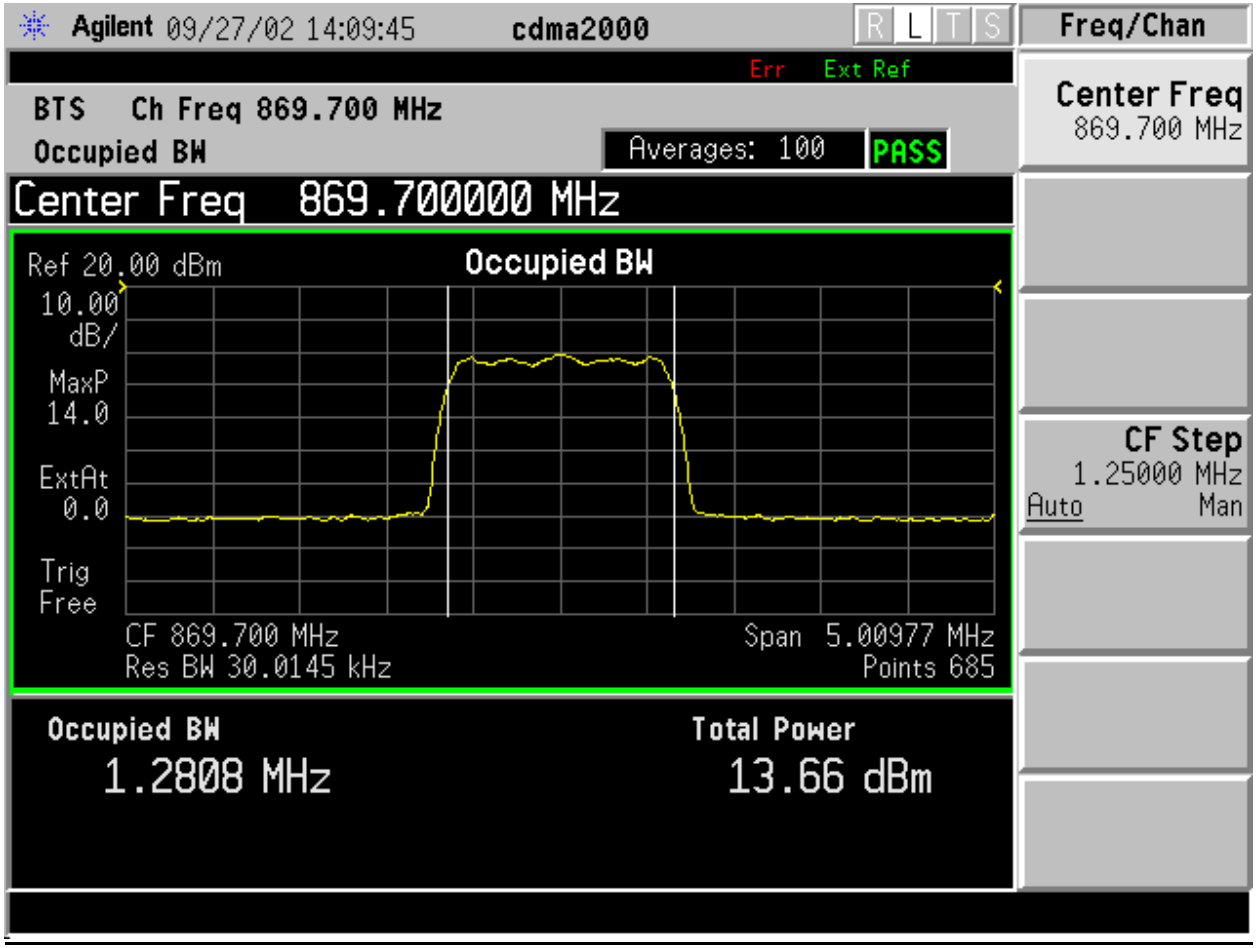
OBW - HP HF 47.78dBm Long Filter



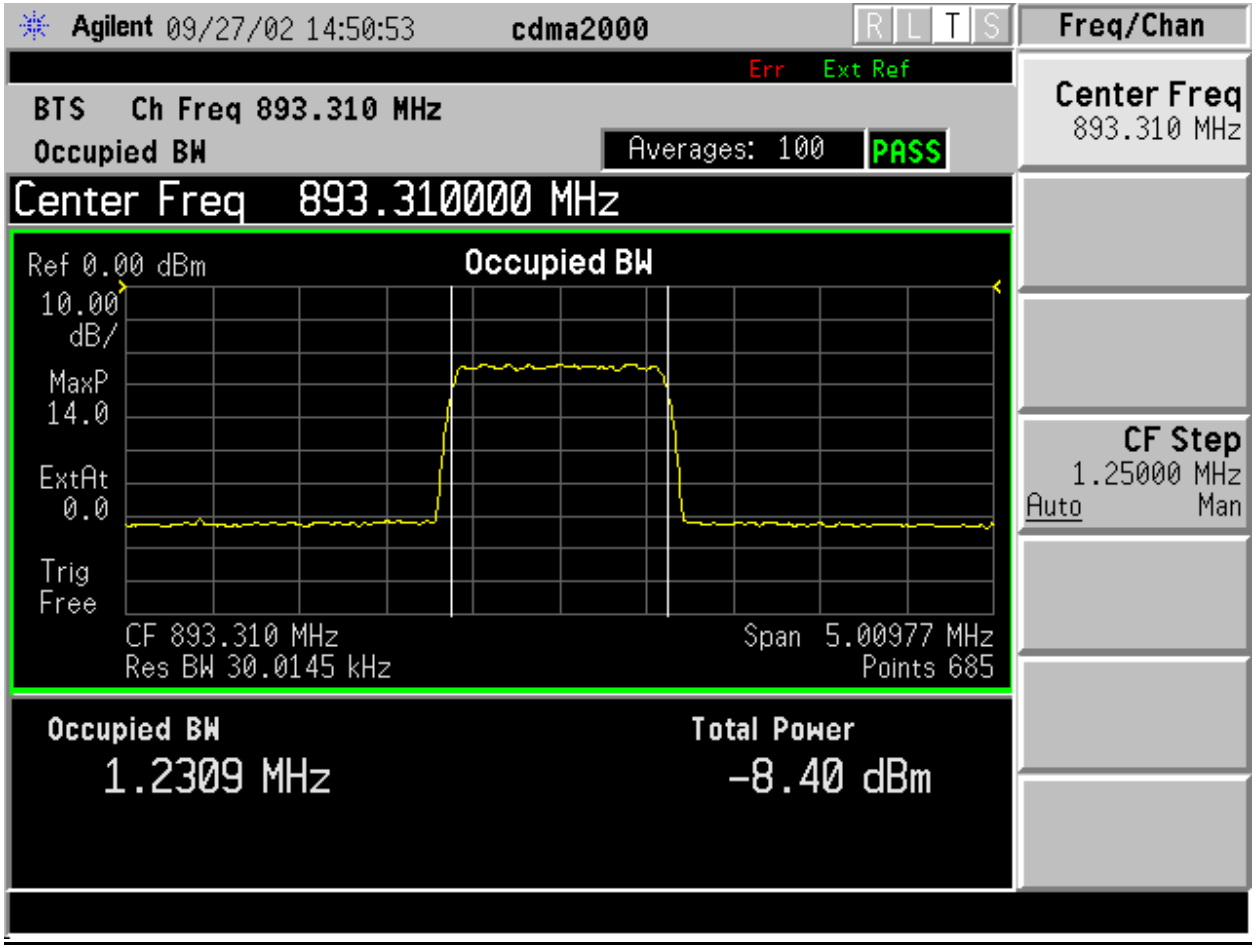
OBW - HP HF 47.78dBm Short Filter



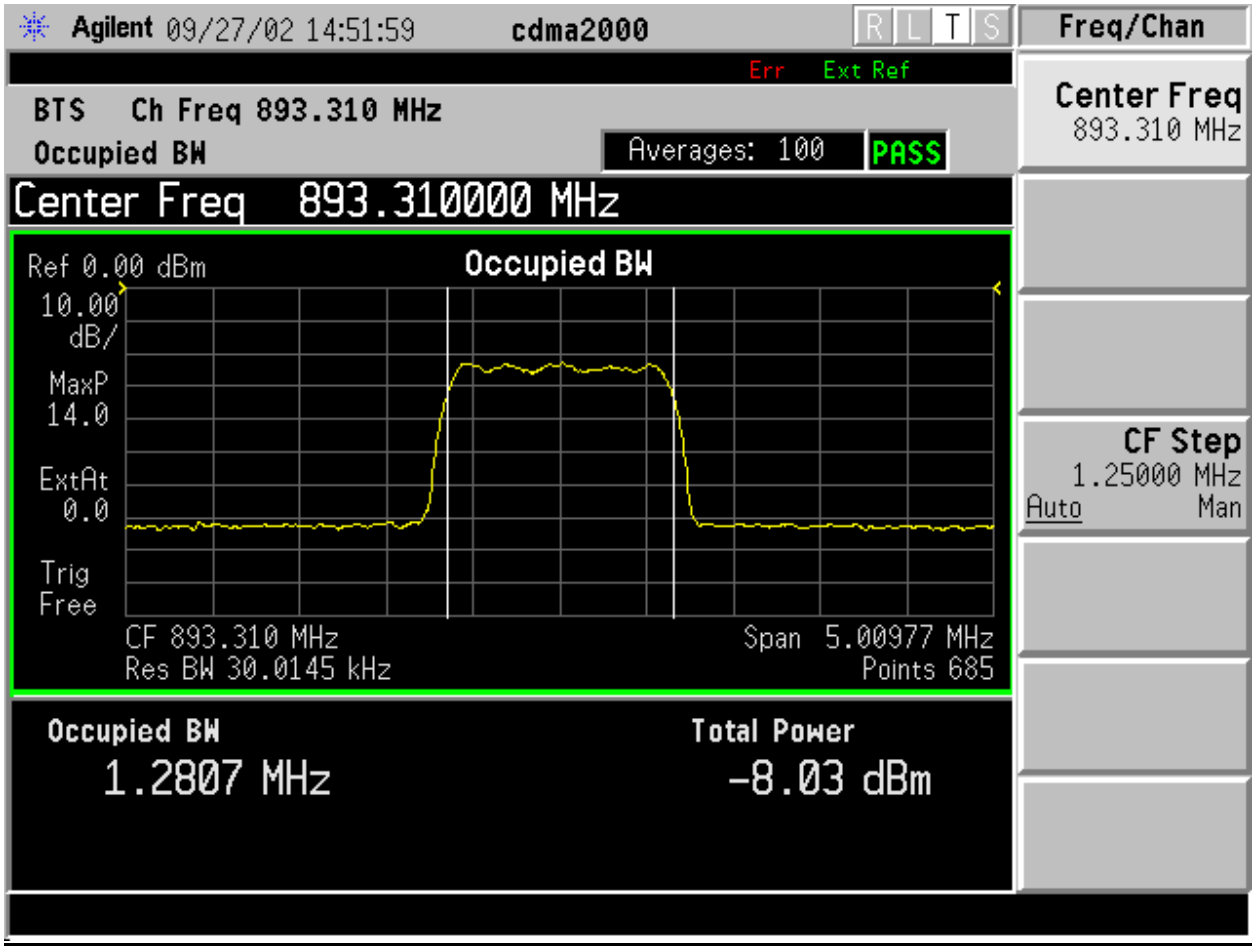
OBW - HP LF 47.78dBm Long Filter



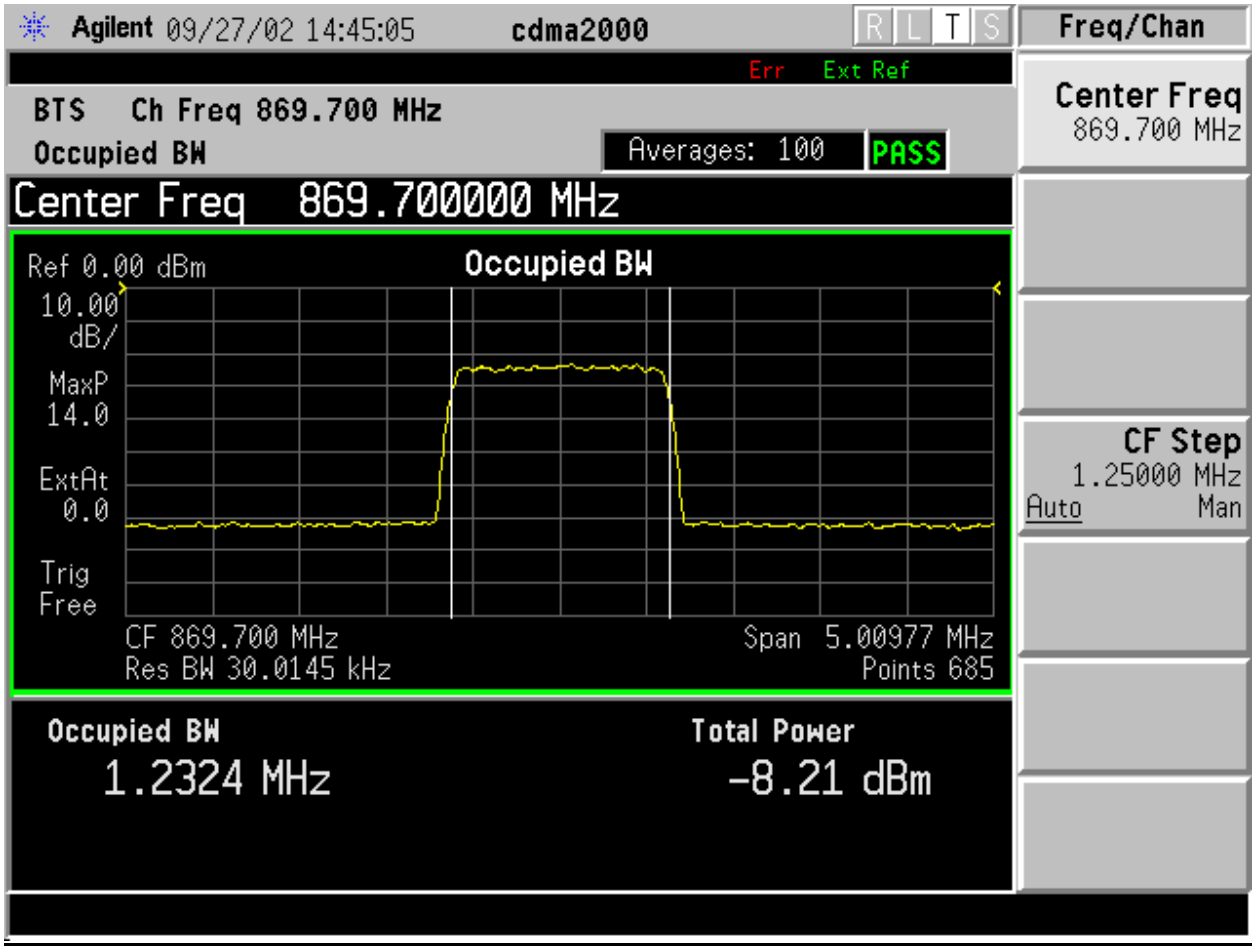
OBW - HP LF 47.78dBm Short Filter



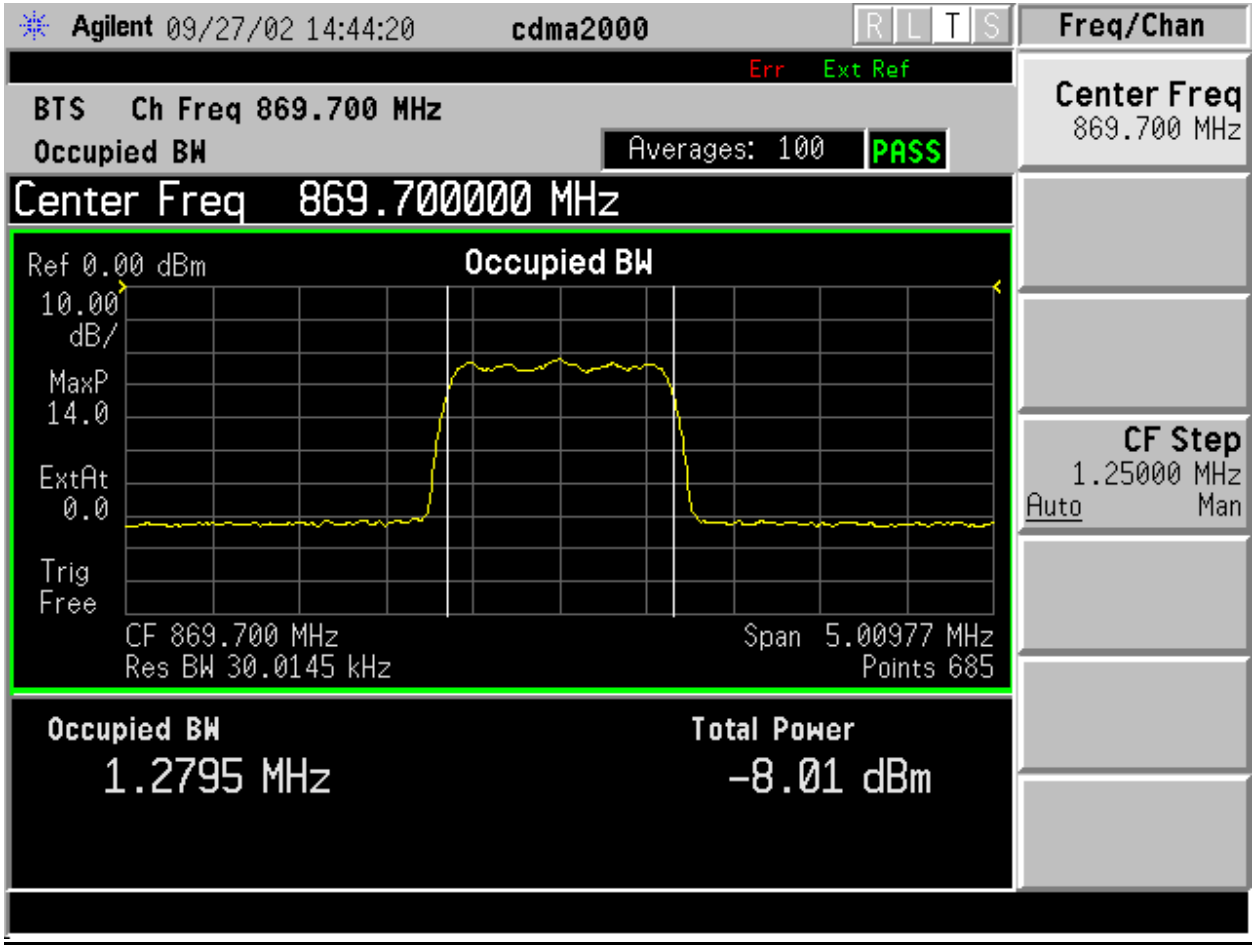
OBW - LP HF 26.0dBm Long Filter



OBW - LP HF 26.0dBm Short Filter



OBW - LP LF 26.0dBm Long Filter



OBW - LP LF 26.0dBm Short Filter

UNDERWRITERS LABORATORIES INC.

Rho

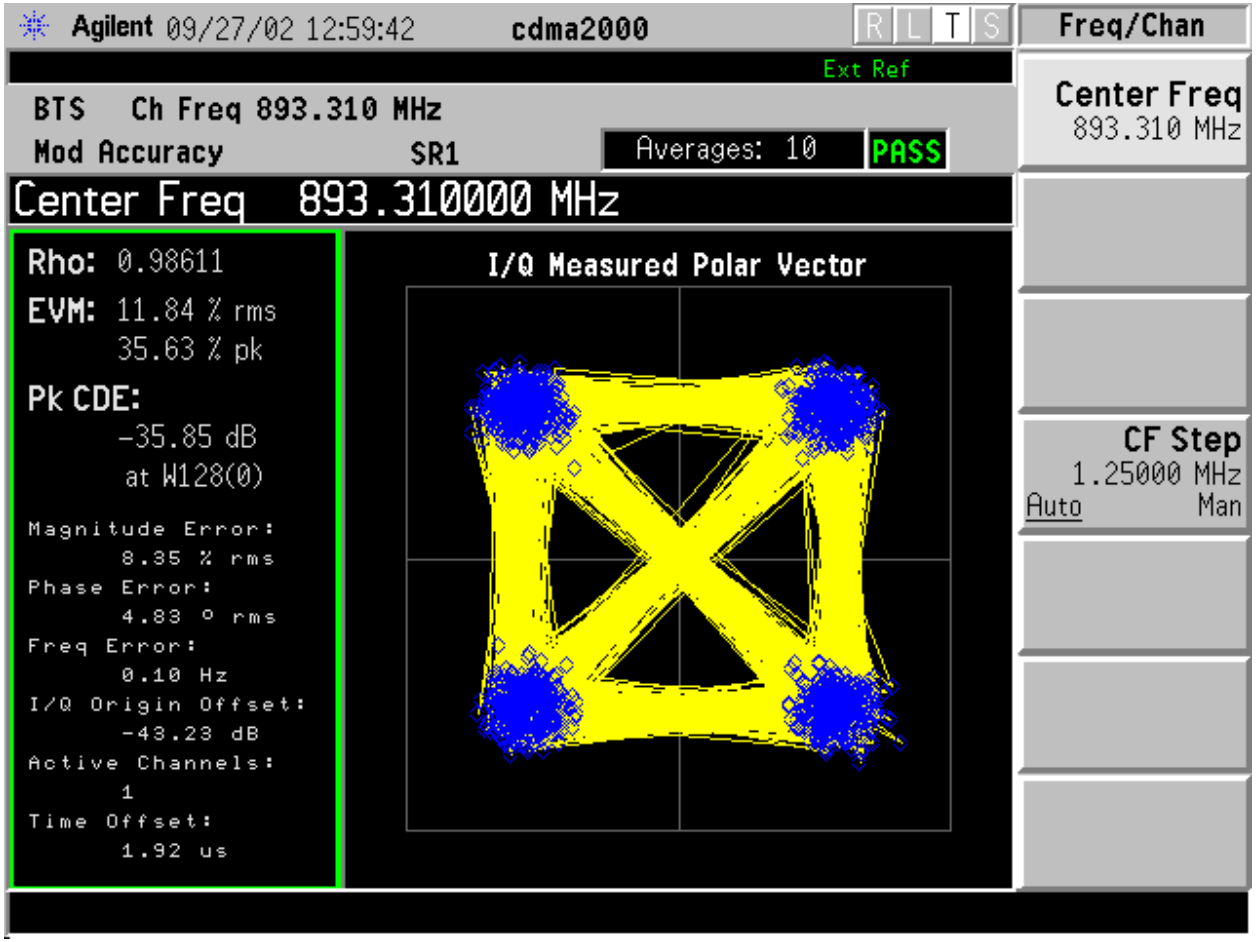
Date Tested: 9-27-2002

Manufacturer	**:**	Motorola CDMA Wireless products Customer Integration Engineering
Equipment Under Test	**:**	SC4812ET 800MHz Cellular Phone Base Station
Requirement	**:**	CFR47 Part 22/24

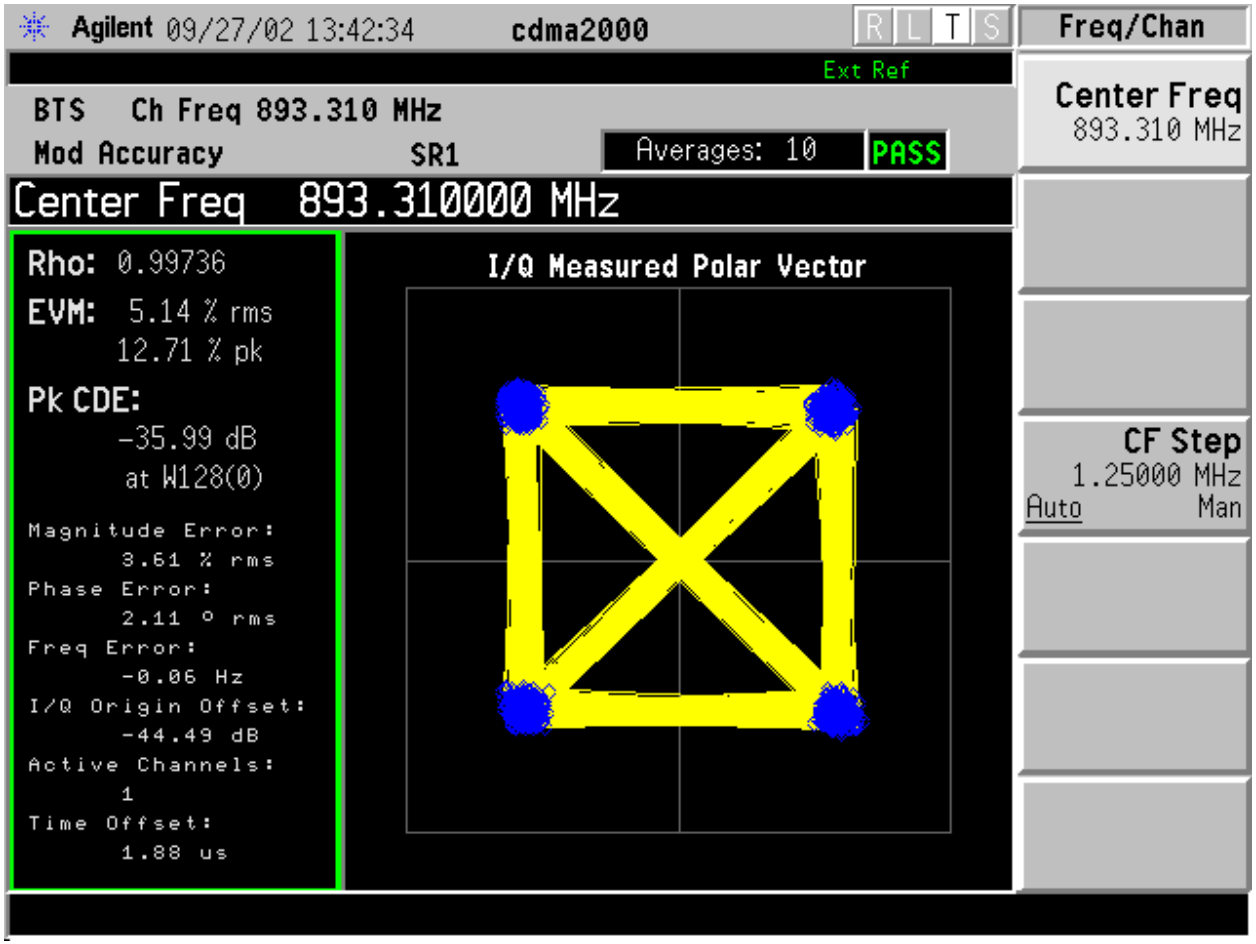
Section 2.987(d) Measurements Required: **Modulation Characteristics**
Waveform Quality (ρ)

DEFINITION
Transmit waveform quality is the normalized correlated power between the actual waveform and the ideal waveform. The range of values for the transmit waveform quality is from 1.0, a perfect CDMA waveform, to 0.0, a non-CDMA signal. As an example, a base station with a -0.4 dB degradation in its transmit waveform would have a quality (ρ) of 10^(-0.4/10) = 0.912.
MINIMUM STANDARD
The minimum waveform quality figure for a spread-spectrum CDMA signal is -0.4 dB or 0.912 as measured with a Rho meter.

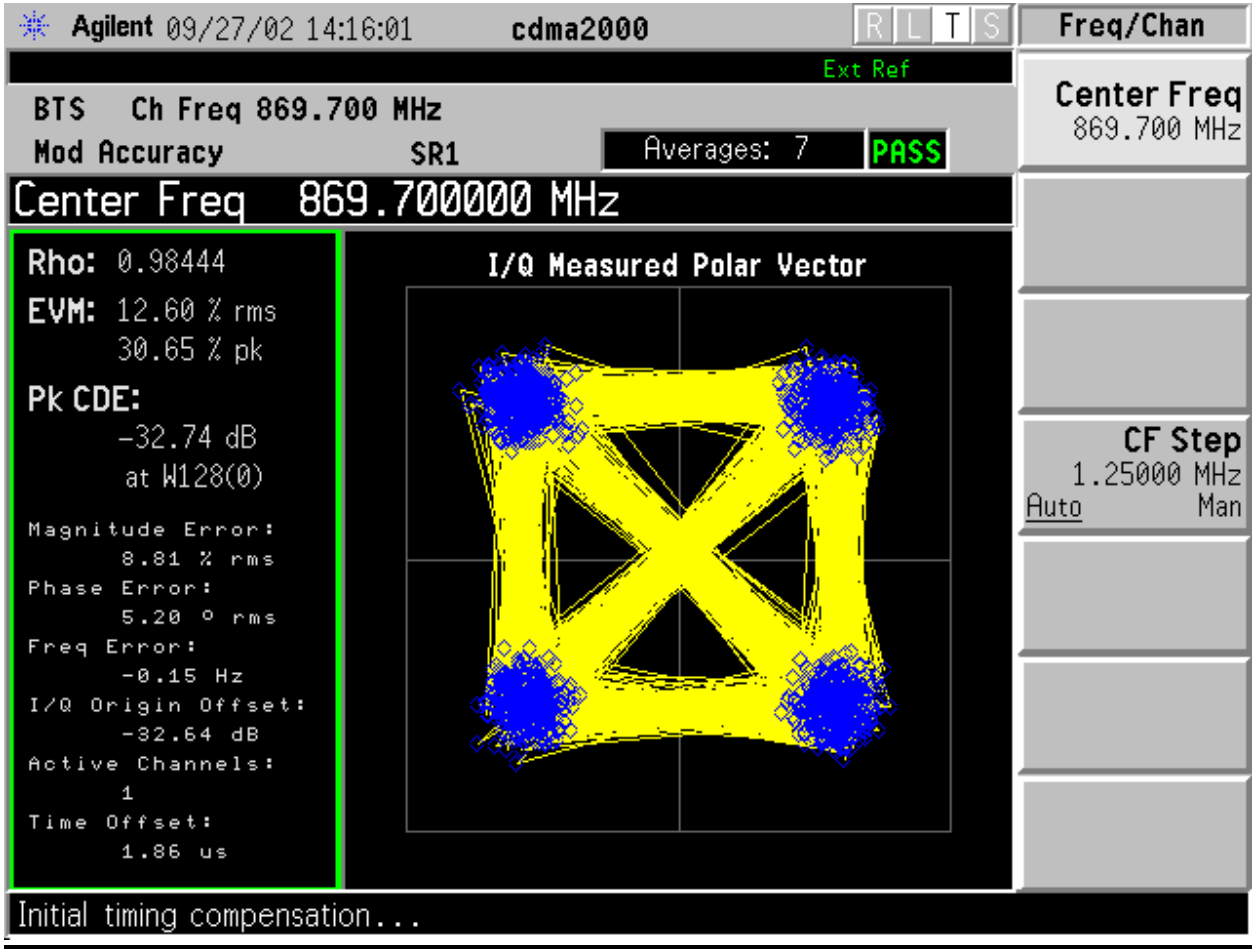
METHOD OF MEASUREMENT
Set the pilot level to 20% of the CDMA Avg. power, and transmit the pilot signal only. Connect the Rho meter directly to the transmit port. On the CDMA Rho Meter, disable the RF generator and set the tuning mode to manual. Enter the base station's RF transmit frequency and set the input attenuation to hold. Set the input attenuation to 20 dB. Now, set the DSP Analyzer test mode to continuous and chose the Rho measurement as the measurement type. Set the channel to forward and choose amplitude middle as the trigger qualifier. Set the gain to 0 dB. Set the reference frequency to 19.6608 MHz. Select internal to lock-on to the CDMA time base reference. Read the measured value for Rho on the Rho meter.



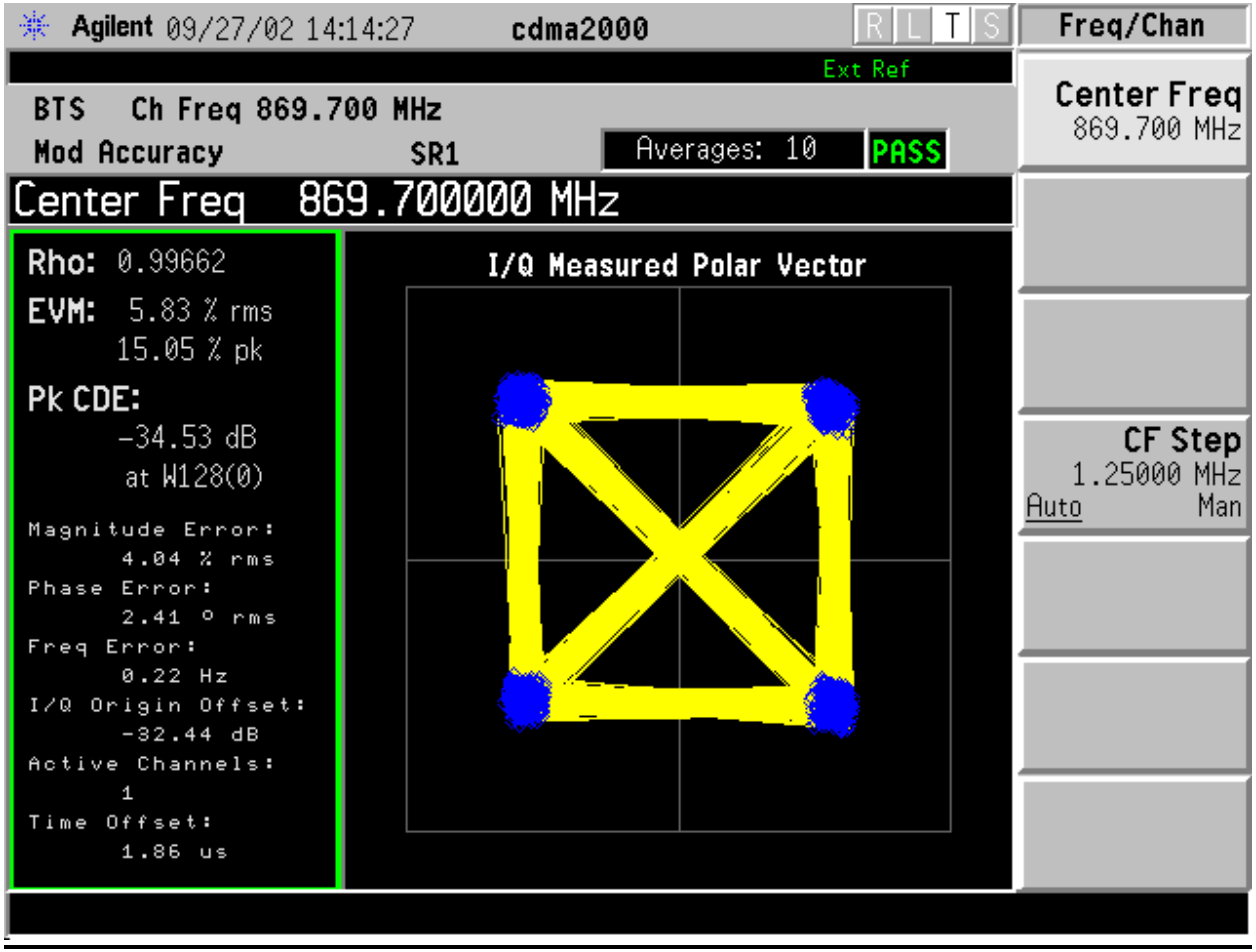
RHO - HP HF 47.78 dBm Long Filter



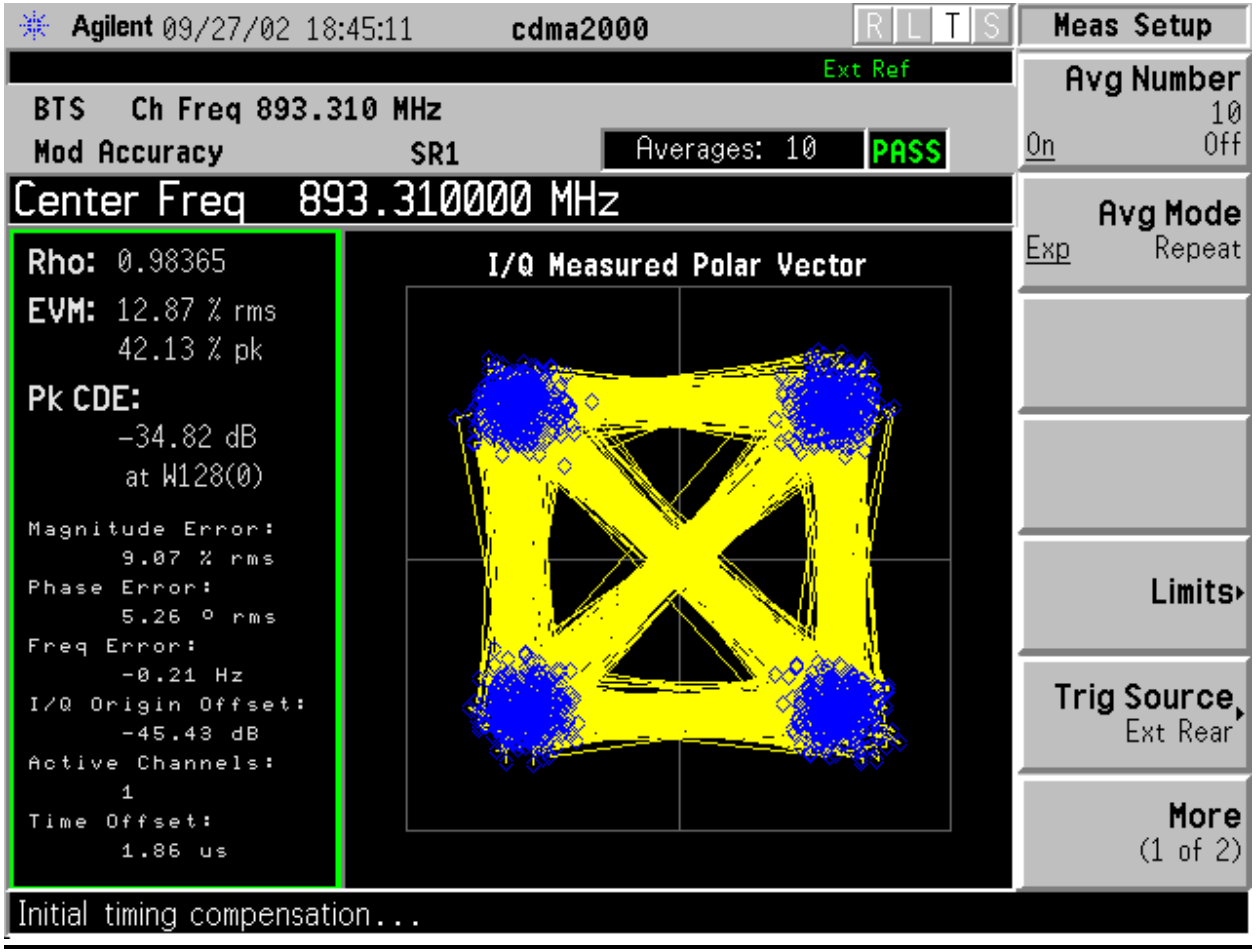
RHO - HP HF 47.78dbm Short Filter



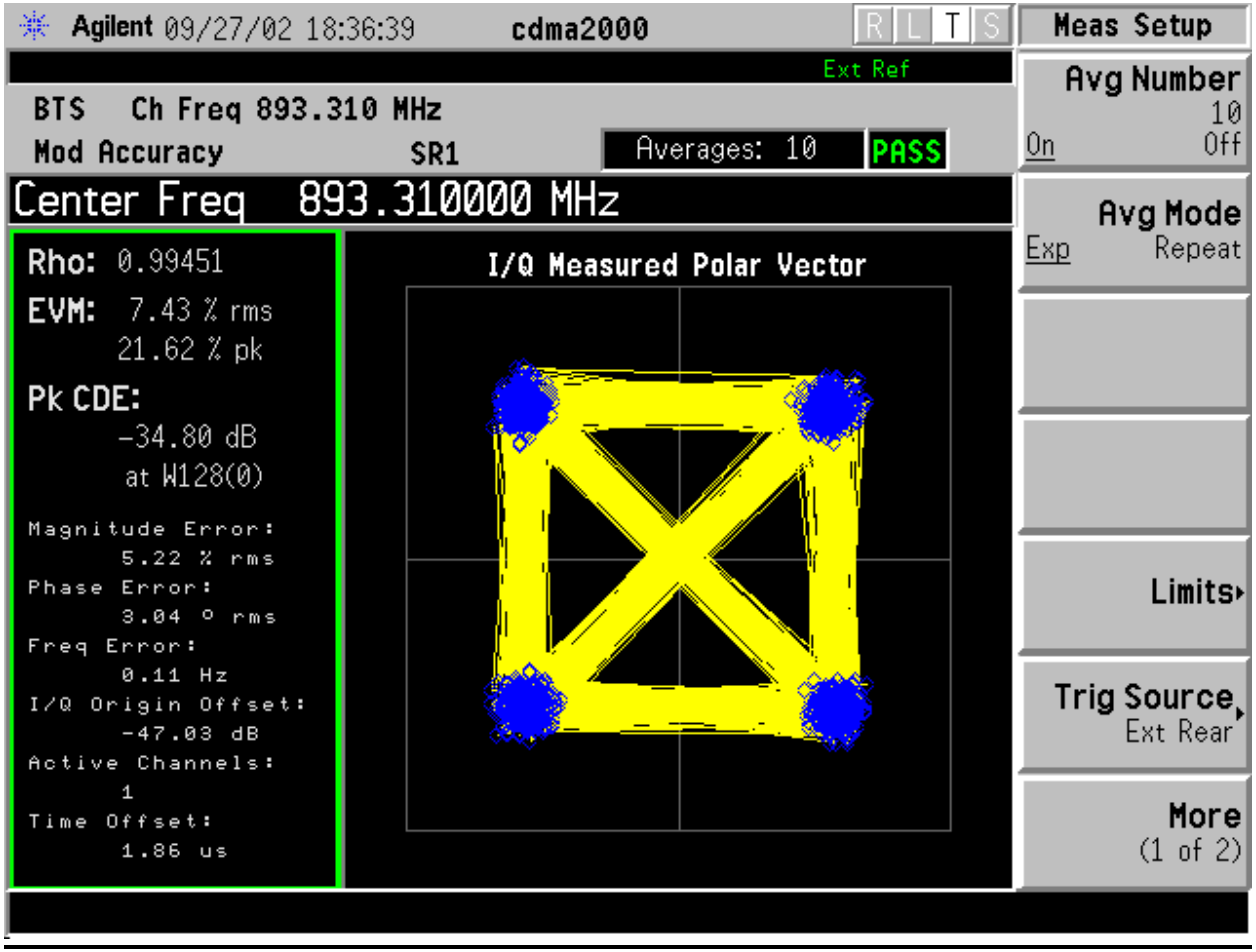
RHO - HP LF 47.78dBm Long Filter



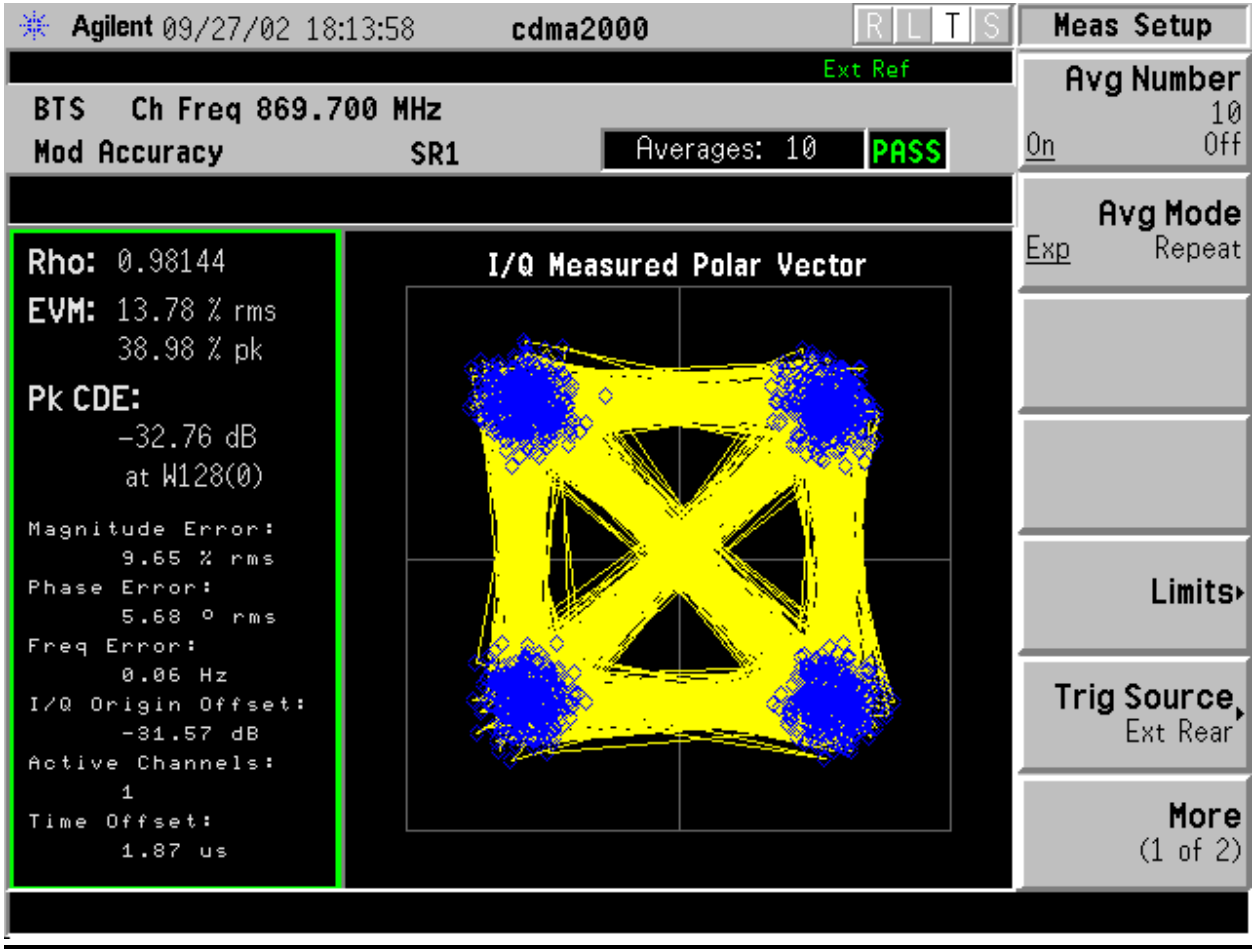
RHO - HP LF 47.78dBm Short Filter



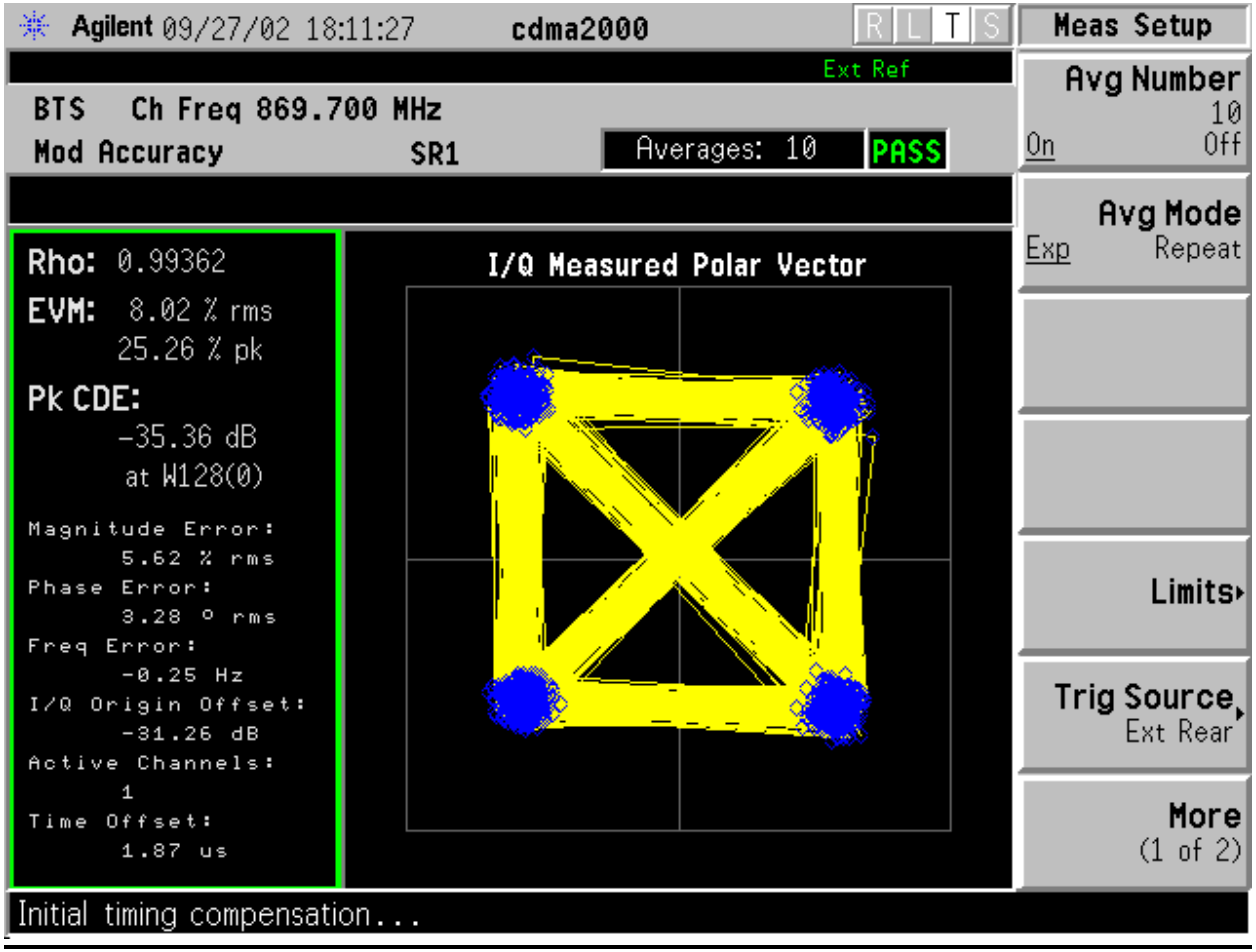
RHO - LP HF 26.00dbm Long Filter



RHO - LP HF 26.00dBm Short Filter



RHO - LP LF 26.00dBm Long Filter



RHO - LP LF 26.00dBm Short Filter

APPENDIX C

Sample Calculations

Per 22.917 (b) (2) any frequency removed from the carrier was attenuated bellow the mean power of the unmodulated carrier wave by 43+10logP (dBc) as follows:

Low Power

P = 400mW = 0.4W = 26dBm = 133dBµ V
43 + 10log(0.4) = 39dB
Limit = 26dBm – 39dB = -13dBm = 94dBµ V

High Power

P = 60W = 47.78dBm = 154.78dBµ V
43 + 10log(60) = 60.78dB
Limit = 47.78dBm – 60.78dB = -13dBm = 94dBµ V

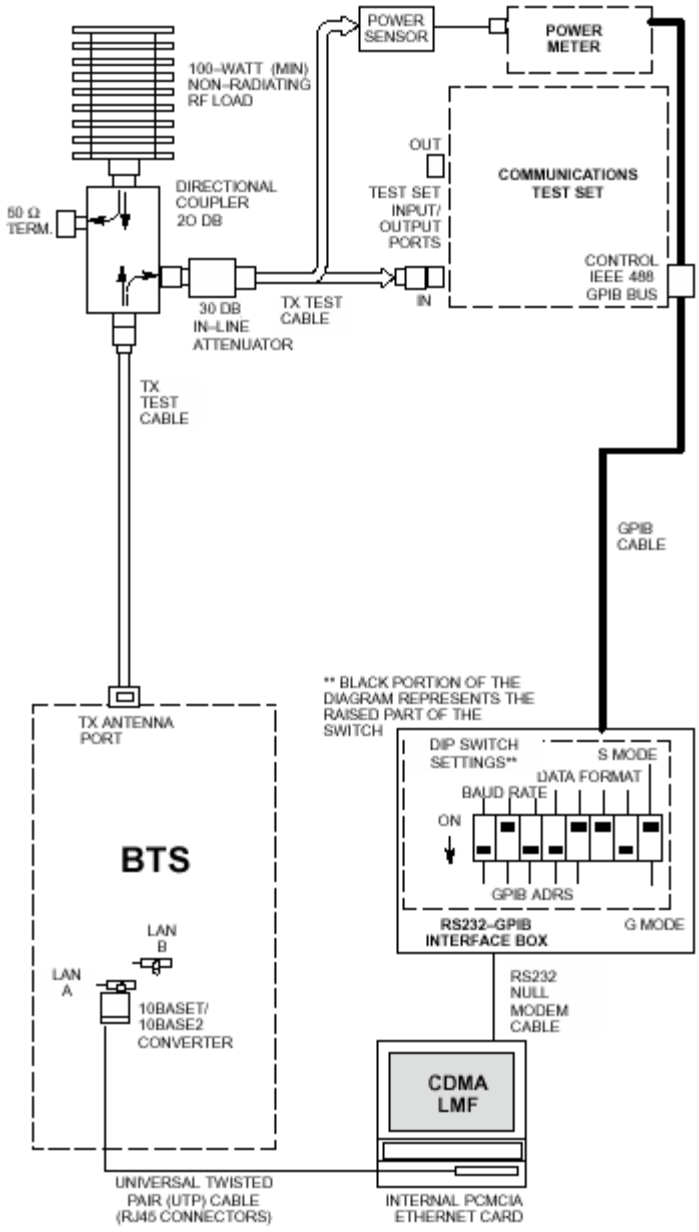
APPENDIX D

Transmit Power, Occupied Bandwidth or RHO

TEST SET-UP

The following test set-up below was used either to test for Transmit Power, Occupied Bandwidth or RHO.
The BTS was configured for maximum power out of 47.78 dBm and minimum power out of 26.0 dBm respectively.
The output power was set respectively to 60.0 Watts or 400 mWatts using an HP437B power meter.

Transmit Power Out, Occupied Bandwidth and RHO TEST SET-UP



Conducted Spurious and Harmonic Emissions

NOTE: In Band Spurious Emissions plots are measured in a 100 kHz resolution bandwidth. The following formula is used to obtain the correct zero dB reference point relative to the bandwidth of the 1.2288 MHz CDMA signal.

Power (measured in 100 kHz bandwidth) + 10 log (1.2288 MHz/ 100 kHz)

UL witnessed that the BTS was configured for maximum power out of 60.0 dBm and minimum power out of 26.0 dBm respectively.

The output power was set respectively to 60.0 Watts or 400 mWatts using an HP437B power meter.

NOTE: Out of Band Spurious and Harmonic Emissions plots are measured in a 1MHz resolution bandwidth.

OCCUPIED BANDWIDTH

NOTE: The occupied bandwidth plots are measured in a 30 kHz resolution bandwidth. The following formula is used to obtain the correct zero dB reference point relative to the bandwidth of the 1.2288 MHz CDMA signal.

Power (measured in 30 kHz bandwidth) + 10 log (1.2288 MHz/ 30 kHz)

UL witnessed that the BTS was configured for maximum power out of 60.0 dBm and minimum power out of 26.0 dBm respectively.

The output power was set respectively to 60.0 Watts or 400 mWatts using an HP437B power meter.