



MOTOROLA

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

**SC300 1X MICROCELL @ 1.9 GHZ
CDMA BTS CDMA BTS FRAME**

TEST REPORT EXHIBIT

Index

<u>Section</u>	<u>Description</u>
A	Summary of RF Measurements
B	Modulation Characteristics
C	Spurious & Harmonic Emissions Radiated
D	Spurious & Harmonic Emissions Conducted
E	Occupied Bandwidth
F	Frequency Stability



MOTOROLA

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Section A

Summary of RF Measurements

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Summary of Radiated RF Measurements

Worst Case Radiated RF Spur Level for SC300 1X Microcell @ 1.9 GHz CDMA BTS

Radiated				Substituted Power			Spec	Result
Channel	Spurious Frequency (MHz)	Antenna Polarity	Measured Radiated Field Strength (dBuV/m)	Measured Radiated Field Strength (dBm) (Note 1)	Tx Antenna Terminal Voltage (dBm) (Note 2)	EDRP (dBm) (Note 3)	FCC Part 22/24 MAX LIMIT (dBm)	(Pass/Fail)
25	3862.5	H	56.88	-38.348	-50.4	-44.75	-13	Pass

Notes:

1. Converting dBuV/M to dBm at 3 meters:
(dBuV/M) + 9.542 - 104.77 = dBm
Converting dBuV/M to dBm at 10 meters:
(dBuV/M) + 20 - 104.77 = dBm
2. The same horn antenna and measurement system was used for EUT scan and during substitution method. After maximizing the receive antenna and adjusting signal generator power level to measure the same emission level with the spectrum analyzer as with the EUT. Signal generator output level was recorded for each of the spurious frequencies. Test cable was then disconnected from the transmit horn and was connected to the input of the S/A measuring the voltage at the terminals of the antenna.
3. This value was obtained by converting the Equivalent Isotropic Radiated Power (EIRP) to ideal half-wave dipole reference power - (Equivalent Di-Pole Radiated Power - EDRP) per (TIA-603, 2.2.12.2(i)(m)).

Signature

1/10/02

Date

Terry Schwenk

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Summary of Conducted RF Measurements

SC300 1X Microcell @ 1.9 GHz CDMA BTS

FCC Part 22

CHANNEL	FREQUENCY (MHz)	SPUR LEVEL MEASURED (dB μ V)	SPUR LEVEL MEASURED (dBm)	FCC MAX LIMIT (dBm)	PASS / FAIL
25	13702.34	88.42	-18.58	-13	Pass


1-10-02

Signature

Date

Francisco Avalos

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Section B

Summary of Modulation Characteristics

SC300 1X Microcell @ 1.9 GHz CDMA BTS

CHANNEL	TUNE FREQUENCY (MHz)	RHO Measured	RHO Specifications	PASS / FAIL
1175	1988.750	0.9871	> 0.912	Pass
25	1931.250	0.9912	> 0.912	Pass

The BTS was configured for maximum power out of 40.0 dBm and minimum power out of 23.0 dBm respectively. The output power was set respectively to 10.0 Watts or 200 mWatts using an HP437B power meter


1-10-02

Signature

Date

Francisco Avalos

**MOTOROLA**

Global Telecom Solutions Sector

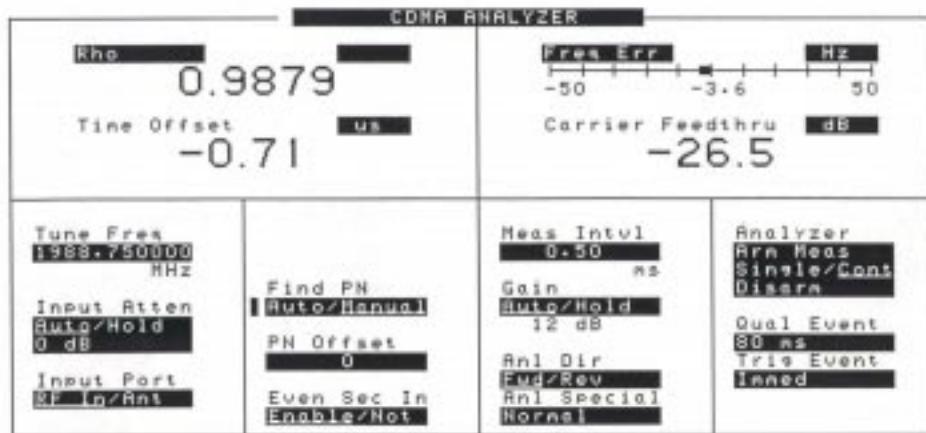
APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Modulation Characteristics

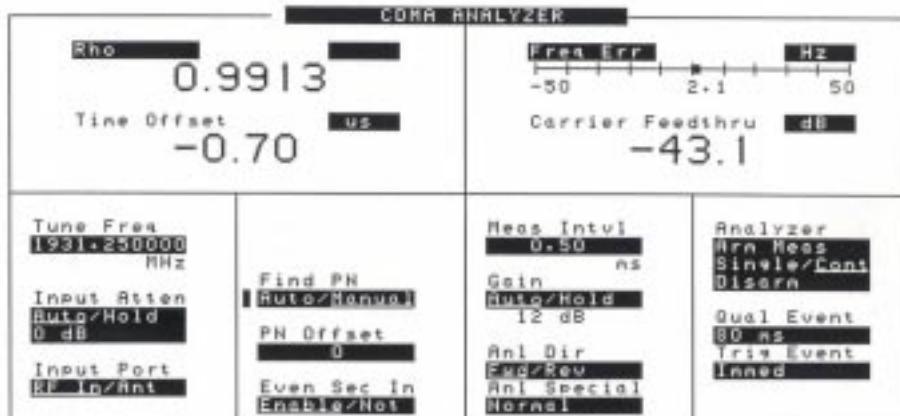
Maximum Power

SC300 1.9GHz 3G-1X 40dBm
E6380R Cell Site Test Set: 12/13/01 02:52:00 PM



Channel 1175 High Power

SC300 1.9GHz 3G-1X 40dBm
E6380R Cell Site Test Set: 12/13/01 02:16:00 PM



Channel 25 High Power

**MOTOROLA**

Global Telecom Solutions Sector

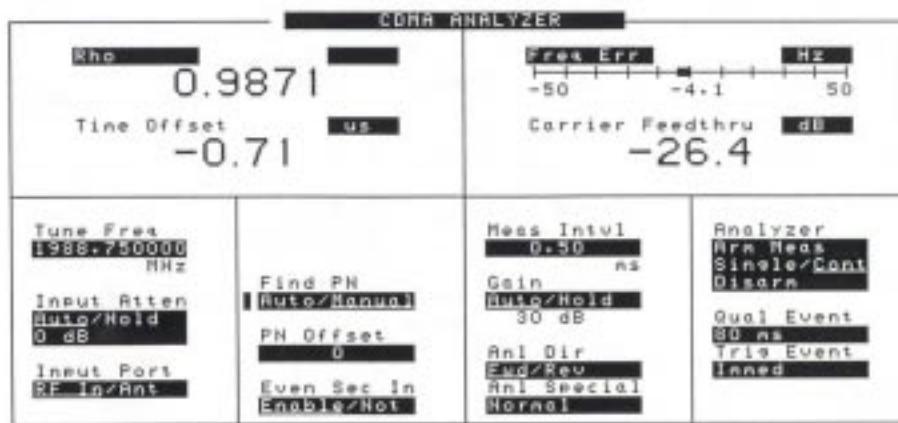
APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Modulation Characteristics

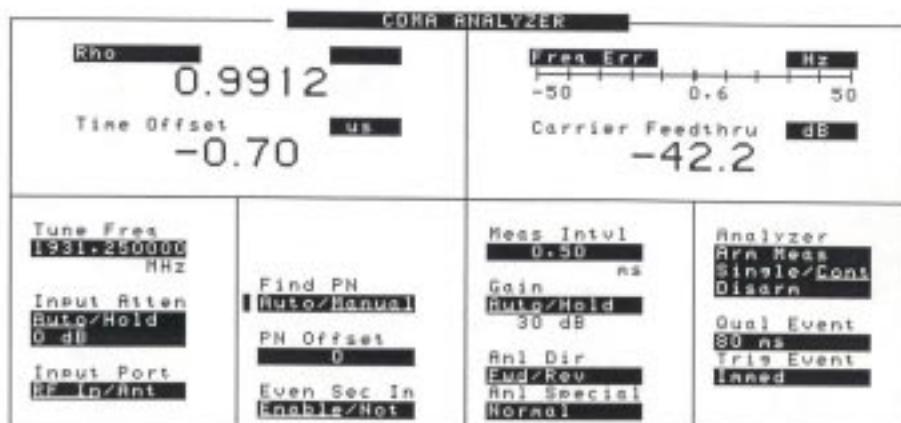
Minimum Power

SC300 1.9GHz 3G-1X 23dBm
E6380A Cell Site Test Set: 12/13/01 02:54:00 pm



Channel 1175 Low Power

SC300 1.9GHz 3G-1X 23dBm
E6380A Cell Site Test Set: 12/13/01 02:35:00 pm



Channel 25 Low Power



MOTOROLA

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Section C

Spurious and Harmonic Emissions Radiated

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Radiated RF Measurements

**Worst Case Radiated RF Spur Levels for SC300 1X
Microcell @ 1.9 GHz CDMA BTS**

Radiated				Substituted Power			Spec	Result
Channel	Spurious Frequency (MHz)	Antenna Polarity	Measured Radiated Field Strength (dBuV/m)	Measured Radiated Field Strength (dBm) (Note 1)	Tx Antenna Terminal Voltage (dBm) (Note 2)	EDRP (dBm) (Note 3)	FCC Part 22/24 MAX LIMIT (dBm)	(Pass/Fail)
1175	3977.5	H	52.63	-42.598	-57.4	-51.85	-13	Pass
1175	17922.961	V	48.37	-46.858	-60	-53.65	-13	Pass
25	3862.5	H	56.88	-38.348	-50.4	-44.75	-13	Pass
25	3255.255	V	47.36	-47.868	-61.54	-55.39	-13	Pass

Notes:

1. Converting dBuV/M to dBm at 3 meters:
(dBuV/M) + 9.542 - 104.77 = dBm
Converting dBuV/M to dBm at 10 meters:
(dBuV/M) + 20 - 104.77 = dBm
2. The same horn antenna and measurement system was used for EUT scan and during substitution method. After maximizing the receive antenna and adjusting signal generator power level to measure the same emission level with the spectrum analyzer as with the EUT. Signal generator output level was recorded for each of the spurious frequencies. Test cable was then disconnected from the transmit horn and was connected to the input of the S/A measuring the voltage at the terminals of the antenna.
3. This value was obtained by converting the Equivalent Isotropic Radiated Power (EIRP) to ideal half-wave dipole reference power - (Equivalent Di-Pole Radiated Power - EDRP) per (TIA-603, 2.2.12.2(i)(m)).

Signature

Date

Terry Schwenk



MOTOROLA

Global Telecom Solutions Sector

APPLICANT: MOTOROLA
FCC ID: IHET6CB1

Section C

Spurious and Harmonic Emissions Conducted

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Conducted RF Measurements

SC300 1X Microcell @ 1.9 GHz CDMA BTS

FCC Part 24

CHANNEL	FREQUENCY (MHz)	SPUR LEVEL MEASURED (dB μ V)	SPUR LEVEL MEASURED (dBm)	FCC MAX LIMIT (dBm)	PASS / FAIL
25	13702.34	88.42	-18.58	-13	Pass
1175	13306.261	87.58	-19.12	-13	Pass

FCC Maximum Limit Per 47 CFR:

- " = Transmitted Power ($10 \log_{10}(P_{watt})$) - (43 + 10 $\log_{10}(P_{watt})$) dBW
- " = $10 \log_{10}(P_{watt})$ - (43 + 10 $\log_{10}(P_{watt})$) dBW
- " = -43 dBW
- " = -13 dBm


1-10-02

Signature

Date

Francisco Avalos

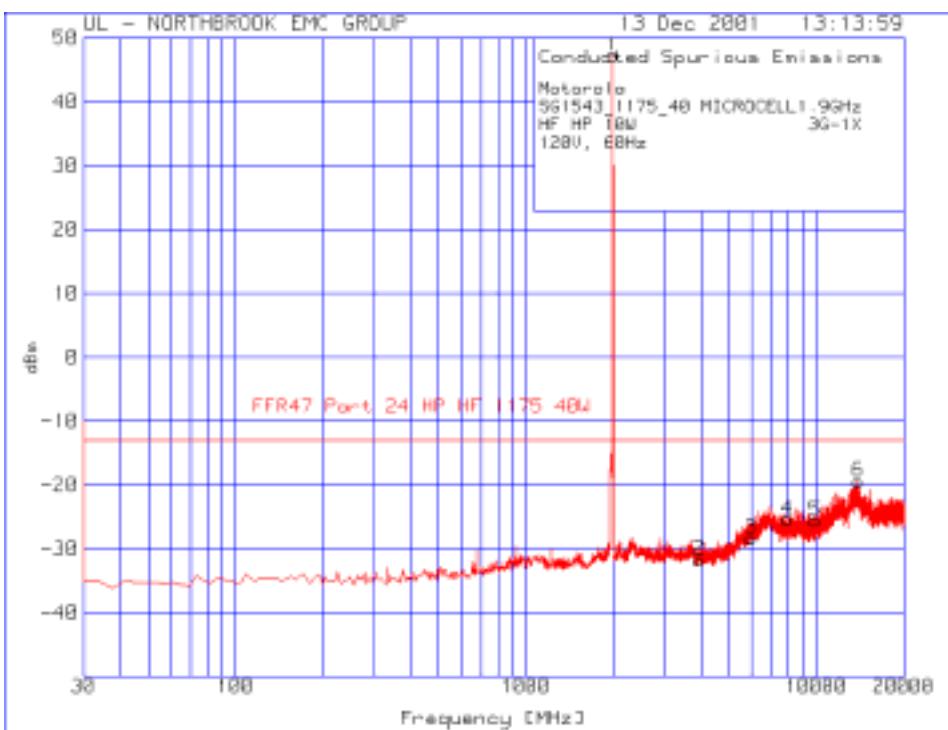
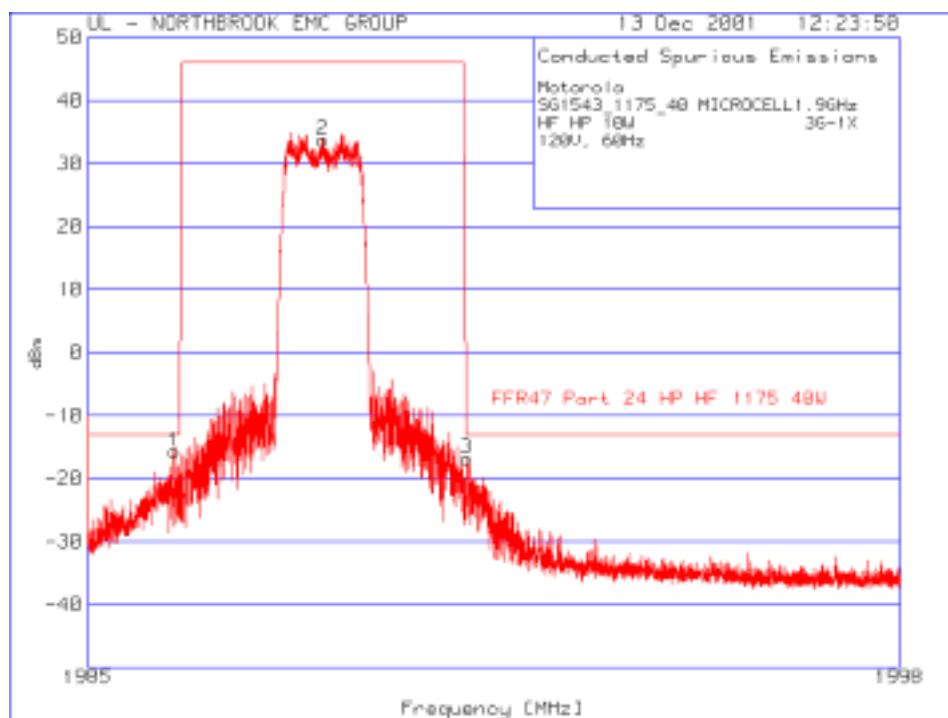
**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Spurious and Harmonic Emissions Conducted
CDMA Channel 1175 - Maximum Power

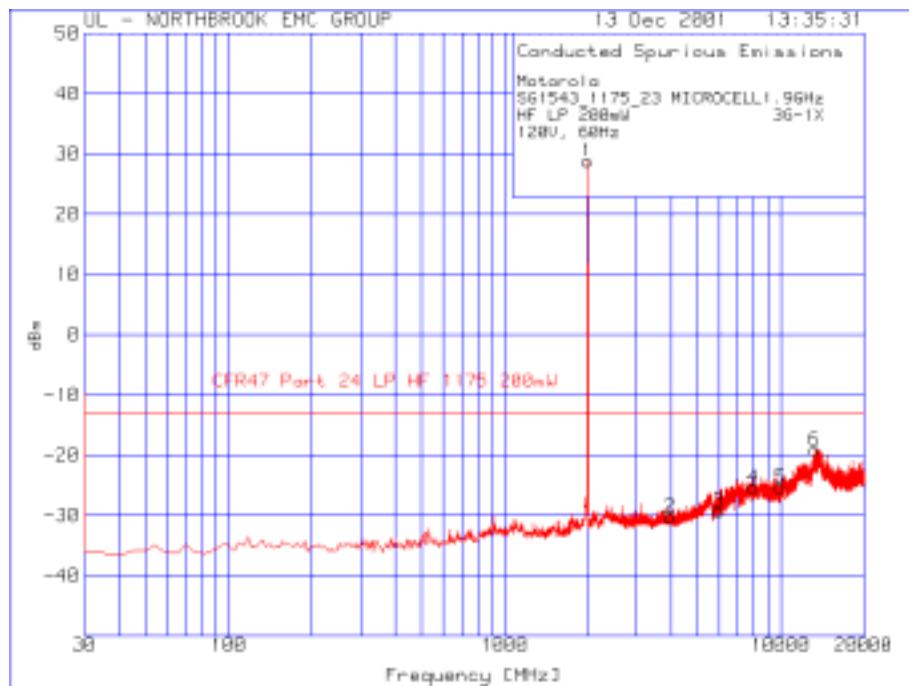
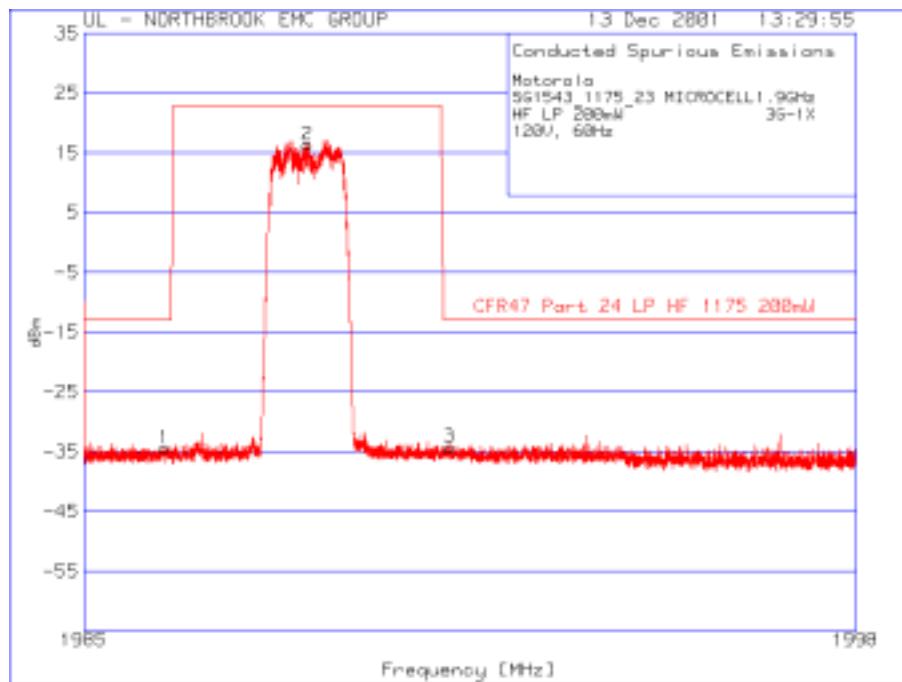


**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA**FCC ID: IHET6CB1**

Spurious and Harmonic Emissions Conducted
CDMA Channel 1175 – Minimum Power



**MOTOROLA**

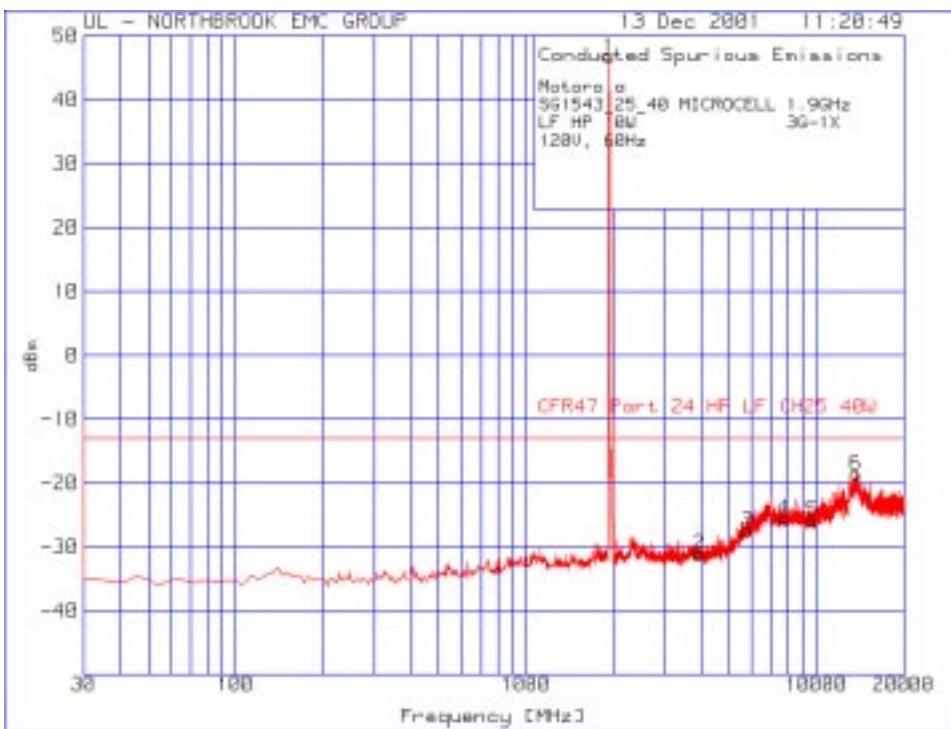
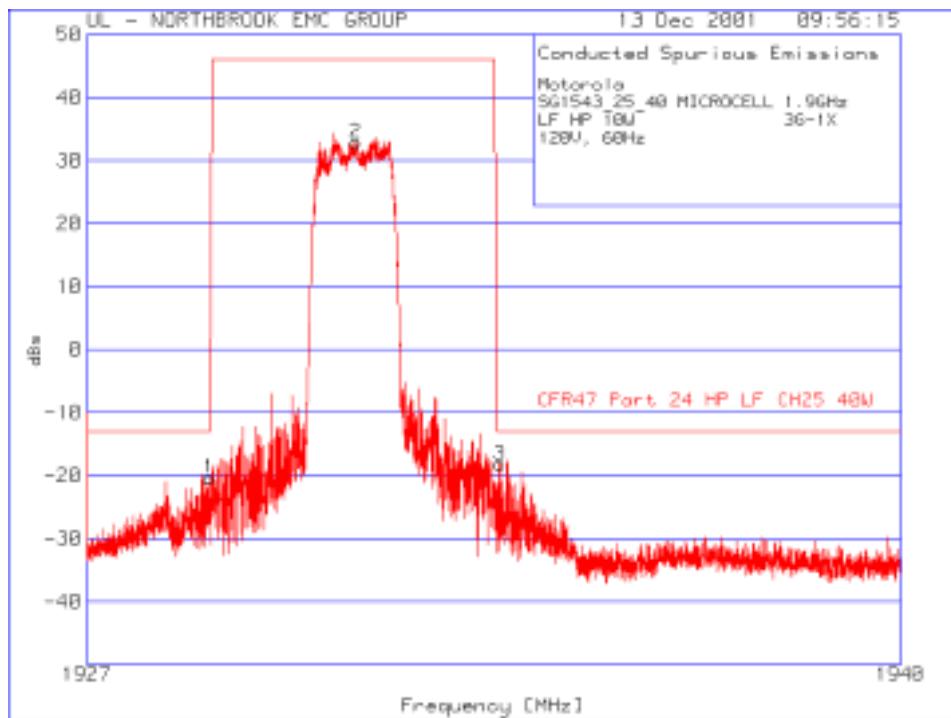
Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Spurious and Harmonic Emissions Conducted

CDMA Channel 25 – Maximum Power

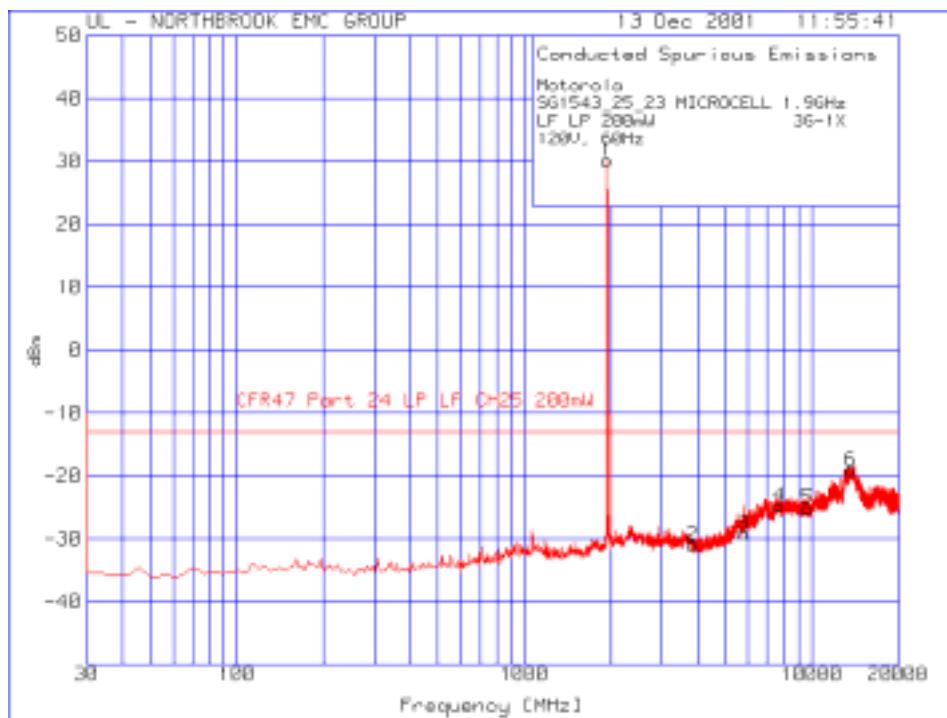
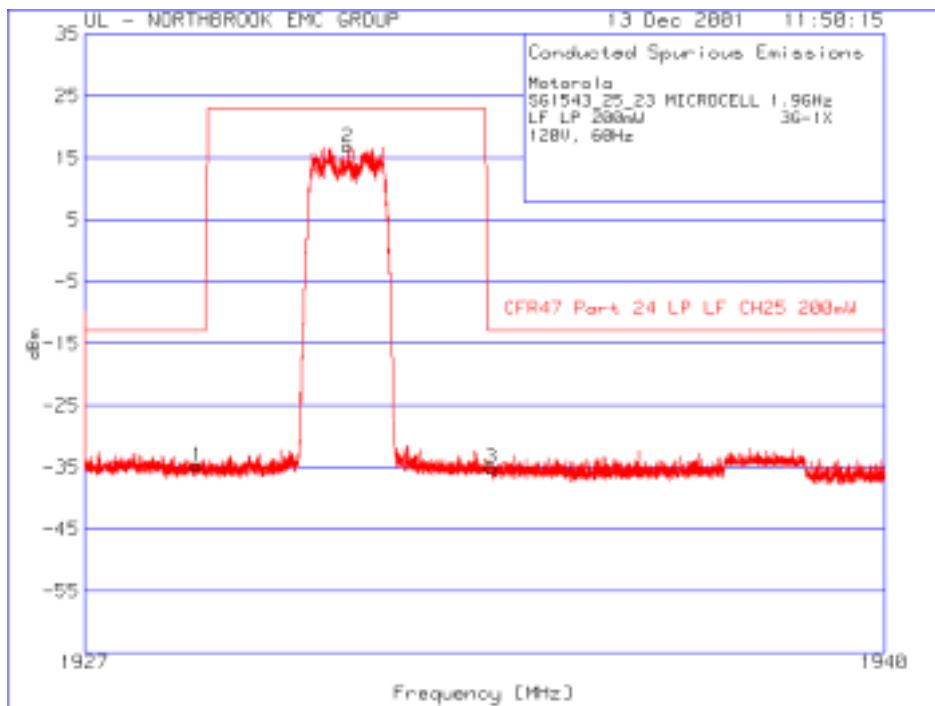


**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

Spurious and Harmonic Emissions Conducted
CDMA Channel 25 – Minimum Power

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

SECTION E

OCCUPIED BANDWIDTH

NOTE: The BTS was configured for maximum power out of 40.0 dBm and minimum power out of 23.0 dBm respectively. The max and min output power was set to 10.0 Watts or 200 mWatts respectively using an HP437B power meter.

The following formula is used to obtain the correct power reference point from which the OBW of the CDMA signal is obtained. See example calculation below:

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

Example: 23.88 dBm + 16.12 dB = 40.0 dBm

The occupied bandwidth is measured in a 30 kHz resolution bandwidth. The summary is listed below.

CHANNEL / POWER	FREQUENCY (MHz)	MEASURED (MHz)	FCC LIMIT (MHz)	Pass / Fail
1175 / MAX	1988.750	1.258	1.30	Pass
25 / MAX	1931.250	1.258	1.30	Pass
1175 / MIN	1988.750	1.258	1.30	Pass
25 / MIN	1931.250	1.258	1.30	Pass

Signature

Date

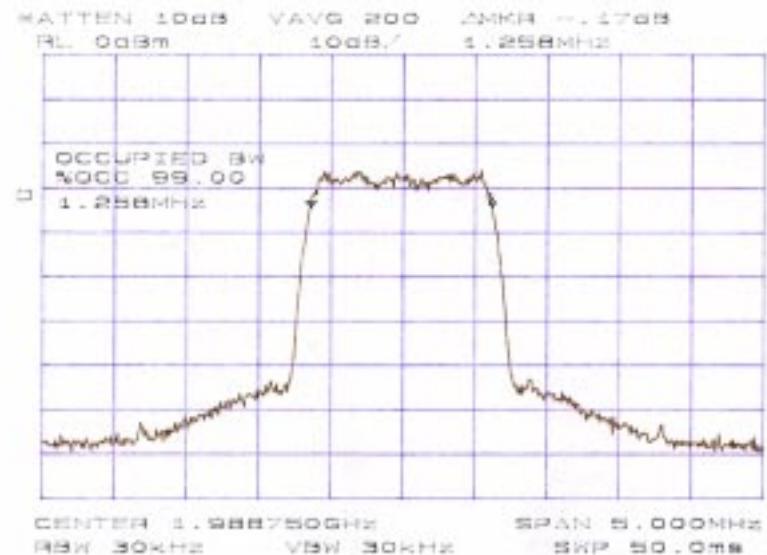
Francisco Avalos

**MOTOROLA**

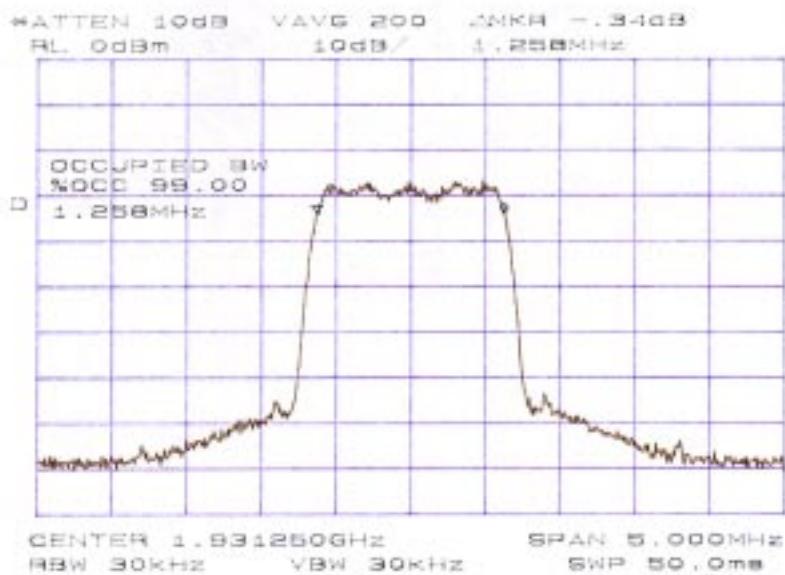
Global Telecom Solutions Sector

APPLICANT: MOTOROLA**FCC ID: IHET6CB1****Occupied Bandwidth - Maximum Power**

Channel 1175



Channel 25



**MOTOROLA**

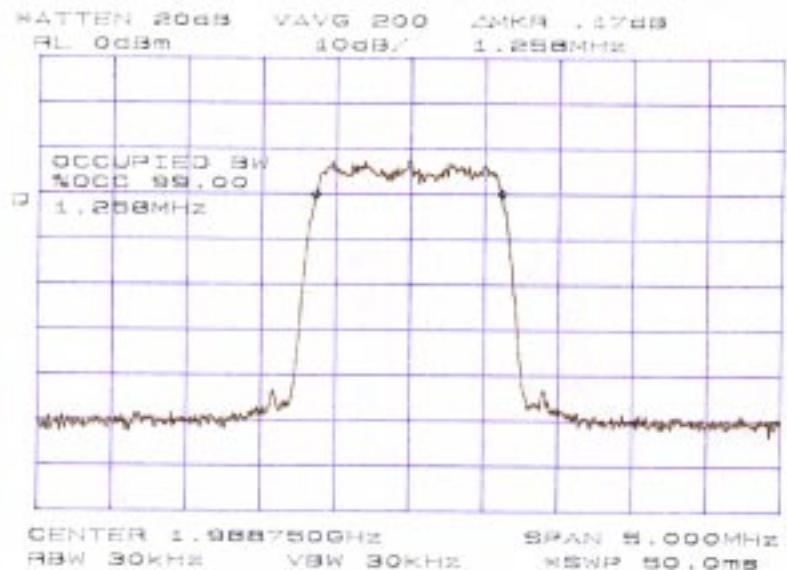
Global Telecom Solutions Sector

APPLICANT: MOTOROLA

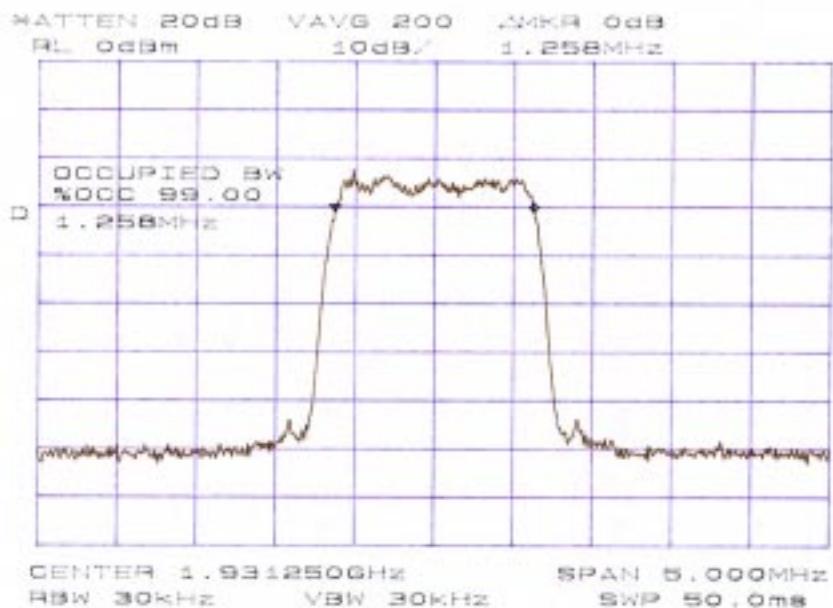
FCC ID: IHET6CB1

Occupied Bandwidth - Minimum Power

Channel 1175



Channel 25



**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

SECTION F

FREQUENCY STABILITY

MODE	27V POWER	WORST CASE (PPM)	FCC REQUIREMENT	Pass / Fail
GPS mod	85-115%	< 0.02	+/- 0.5 PPM MAX	Pass



Signature1/10/02

Date

Terry Schwenk

**MOTOROLA**

Global Telecom Solutions Sector

APPLICANT: MOTOROLA

FCC ID: IHET6CB1

