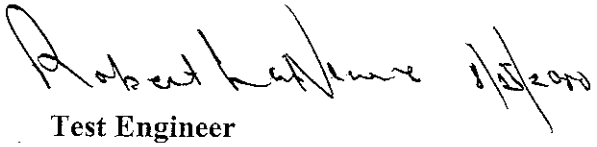
Equipment Authorization Measurements

FCC Identifier:	IHET5BP1
Name of Grantee:	Motorola, Inc
Equipment Class:	Licensed Non-Broadcast Transmitter
Notes:	SC4812-MF 1X @ 800 MHz CDMA BTS

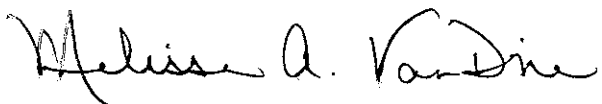
FCC CFR Title 47	Descripion	Section	Compliant
2.1046	RF Output Power	A	Yes
2.1047	Modulation Characteristics	B	Yes
2.1049	Occupied Bandwidth	C	Yes
2.1051	Spurious Emissions at Antenna Terminals	D	Yes
2.1053	Field Strength of Spurious Radiation	E	Yes
2.1055	Frequency Stability	F	Yes

Measurements Performed by:

Motorola EMC Facility
5555 North Beach Street
Fort Worth, TX 76137
Authorized Testing Laboratory
FCC Test Firm Registration No. 90809



Test Engineer



FCC/Package Coordination

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SECTION A

RF Output Power - 47CFR2.1046

Channel	Tune Frequency (MHz)	Modulation	Power Level (mW)	Power Level (dBm)	Power Level Measured (dBm)	IS-97 Limit (dB)	Pass/Fail
1013	869.70	1X-QPSK	0.063	-12	-11.94	+2/-4	Pass
777	893.31	1X-QPSK	0.063	-12	-12.00	+2/-4	Pass

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Summary of Radiated RF Measurements

Worst Case Radiated RF Spur Level

Transmit Channel	Power Level (mW)	Spur Freq. (GHz)	Spur Level Measured (dBµV/meter)	Spur Level Measured (dBm*)	FCC Max Limit (dBm)	Pass/Fail
777H	0.063	8.9331	37.873	-57.36	-13.0	Pass

Summary of Conducted RF Measurements

Worst Case Conducted RF Spur Level

Transmit Channel	Power Level (mW)	Freq. (MHz)	Spur Level Measured (dBm)	FCC Max Limit (dBm)	Pass/Fail
777	.063	1.78662	-75.29	-13.0	Pass

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SECTION B

Modulation Characteristics - 47CFR2.1047

Summary of Modulation Characteristics

Channel	Tune Frequency (MHz)	Modulation	Power Level (mW)	RHO Measured	RHO Spec	Pass/Fail
1013	869.70	1X-QPSK	.063	0.98443	>0.912	Pass
777	893.31	1X-QPSK	.063	0.98459	>0.912	Pass

Note: The BTS was configured for maximum power out of –12.0 dBm. The output power was set 0.063mW using a power meter.

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SECTION C

Occupied Bandwidth - 47CFR2.1049

Summary of Occupied Bandwidth

Channel	Frequency (MHz)	Modulation	Power Level (dBm)	Measured (MHz)	FCC Limit (MHz)	Pass/Fail
1013	869.70	1X-QPSK	-12.0	1.2233	1.30	Pass
777	893.31	1X-QPSK	-12.0	1.2217	1.30	Pass

Note: The BTS was configured for maximum power out of –12.0 dBm. The output power was set 0.063mW using a 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 30kHz bandwidth) + 10 log (1.2288 MHz/30kHz)

The occupied bandwidth is measured in a 30 kHz resolution bandwidth. Results are summarized above.

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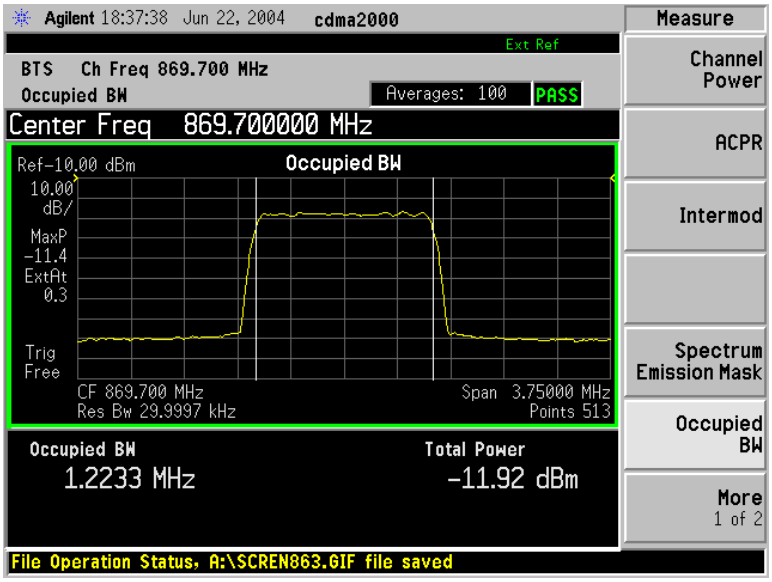
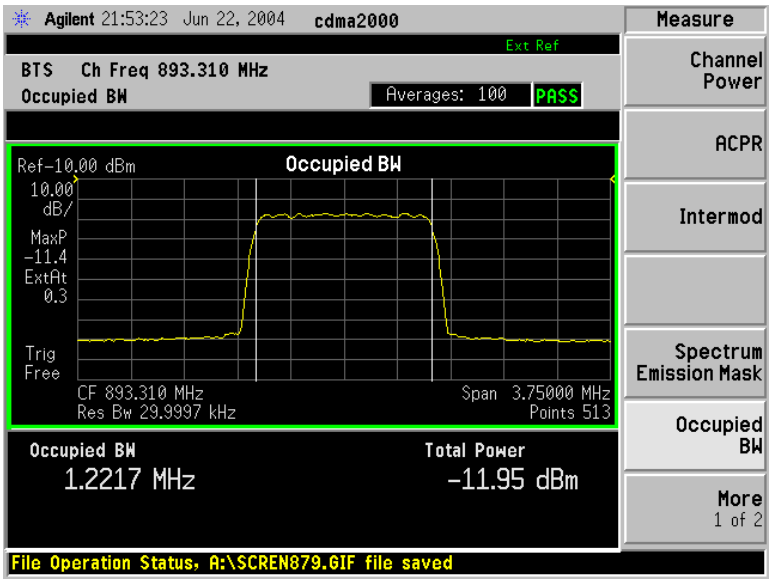
Occupied Bandwidth – 0.063mW



Channel 1013 – 869.70 MHz – QPSK



Channel 777 – 893.31 MHz – QPSK

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SECTION D

Spurious Emissions at Antenna Terminal - 47 CFR 2.1051

Summary of Worst Case Spurious Emissions at Antenna Terminal

Channel	Modulation	Freq. (GHz)	Spur Level Measured (dBm)	FCC Max Limit (dBm)	Pass/Fail
1013	1X-QPSK	1.73940	-75.87	-13	Pass
777	1X-QPSK	1.78662	-75.29	-13	Pass

FCC Max. Limit Per 47 CFR:

= Transmitted Power (10 Log10 (Pwatt)) - (43 + 10 Log10 (Pwatt)) dBW
= 10 Log10 (Pwatt) - (43 + 10 Log10 (Pwatt)) dBW
= -43 dBW
= -13 dBm

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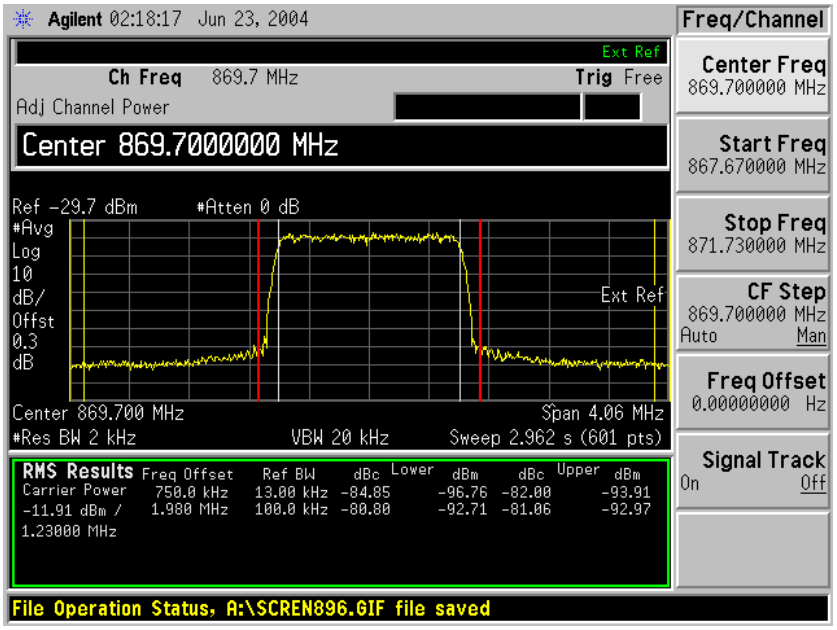
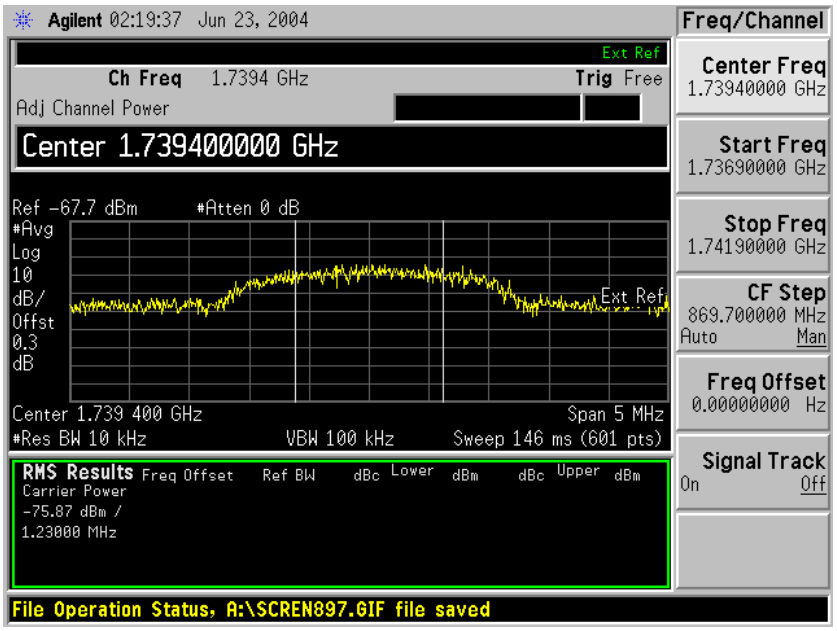
Spurious Emissions at Antenna Terminal – 0.063mW

Channel 1013 – 869.70 MHz – QPSK





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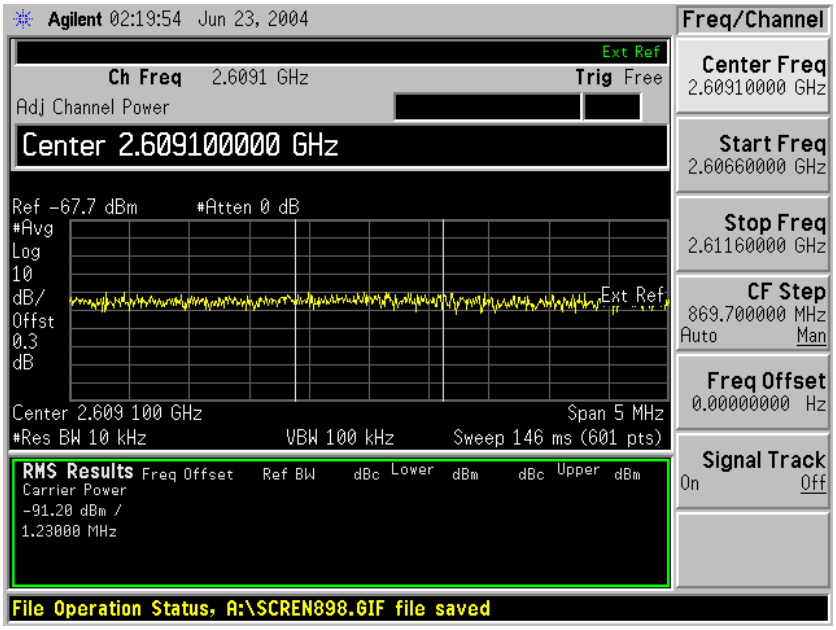

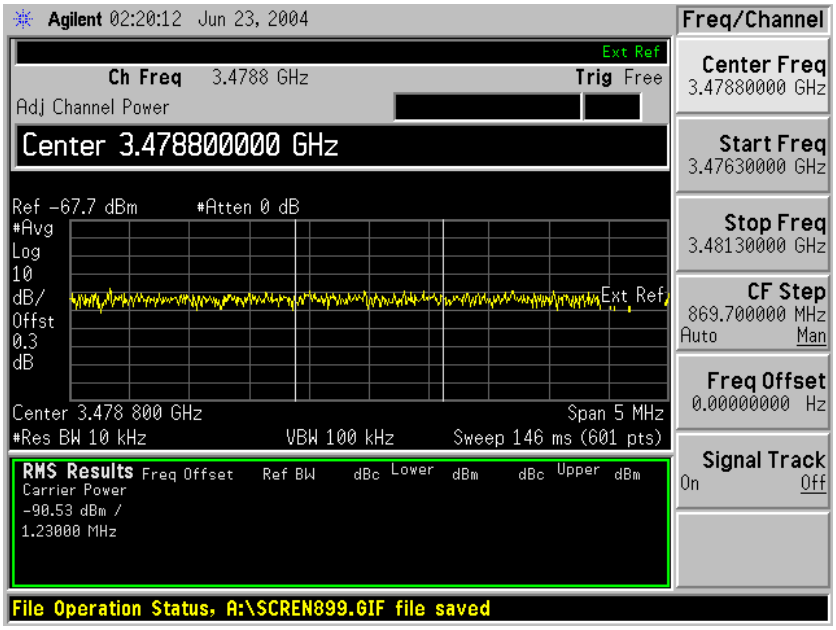

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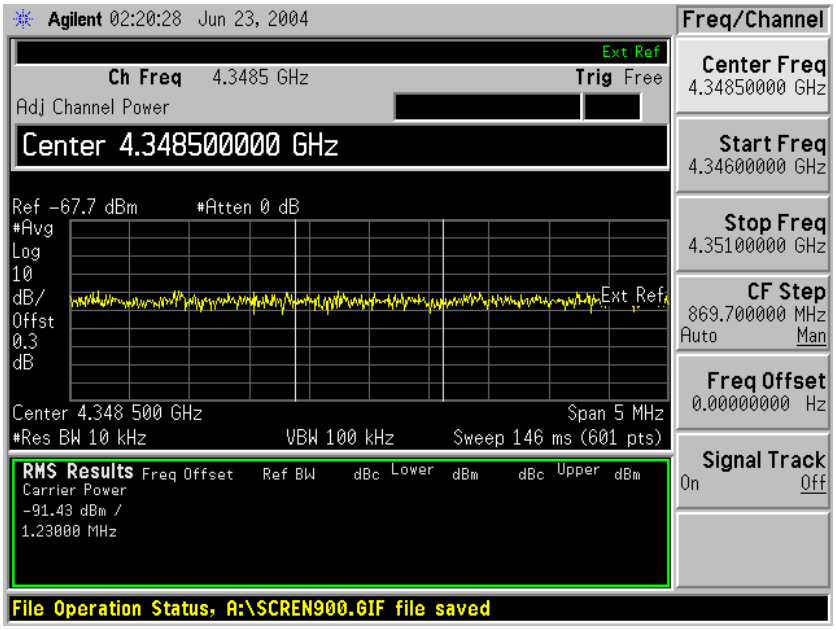

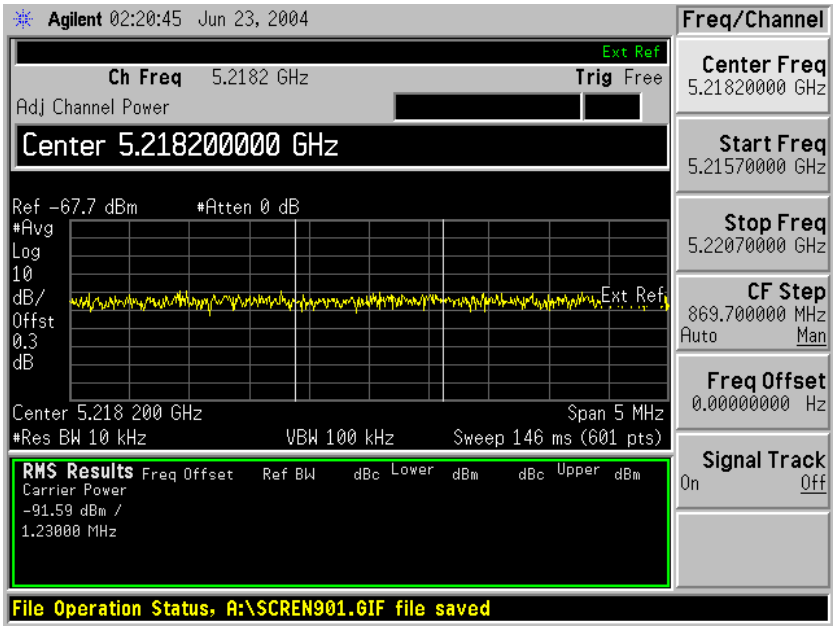

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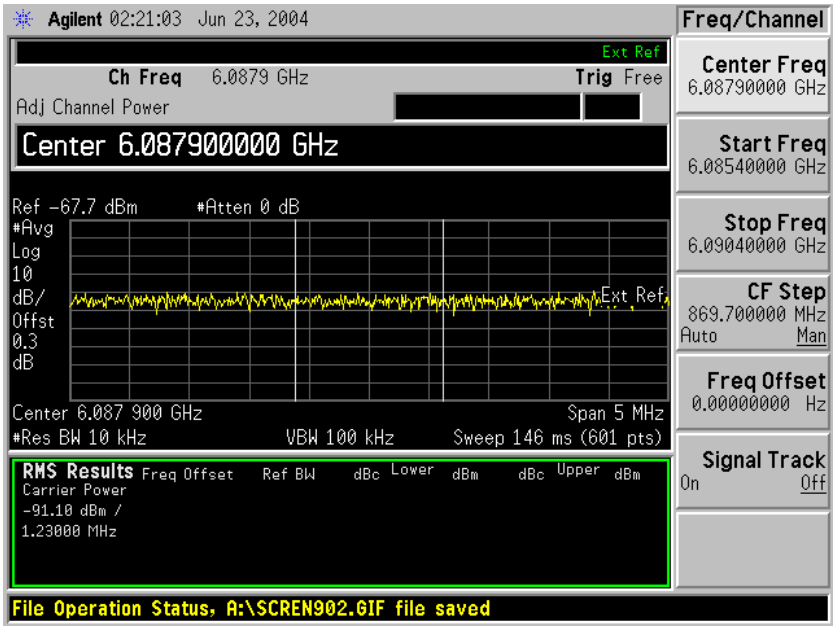

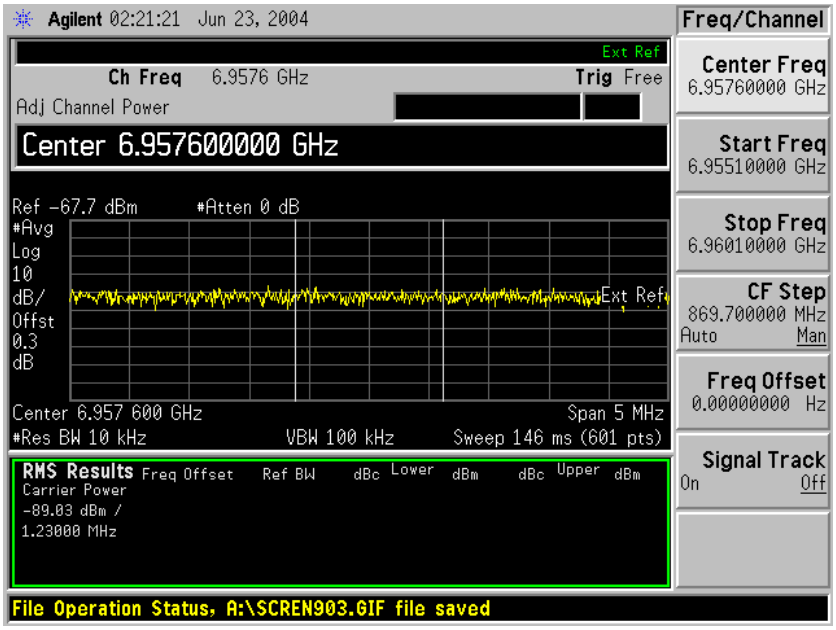

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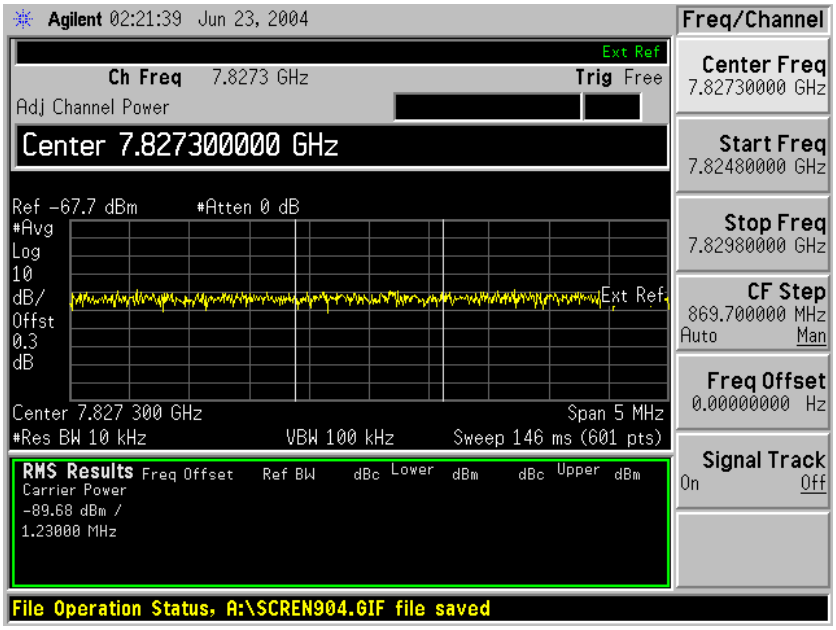

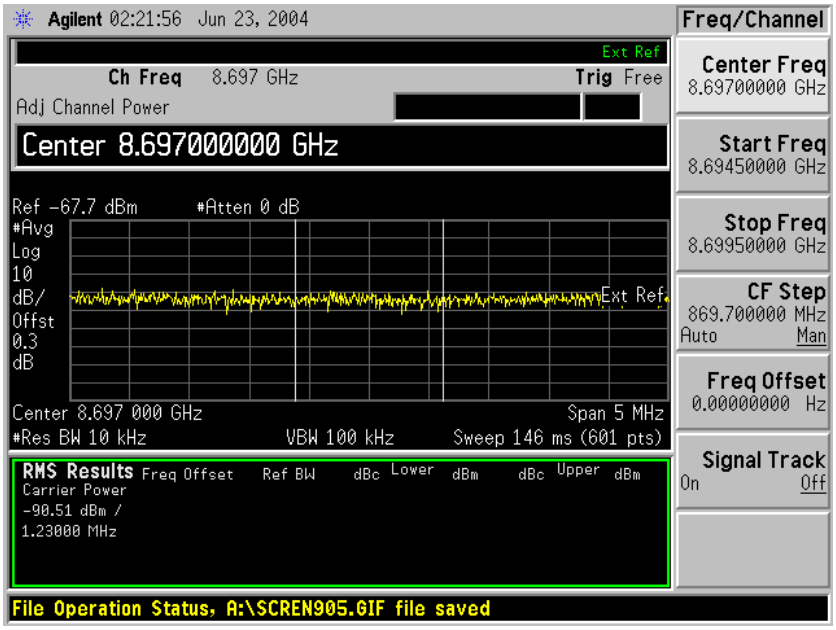

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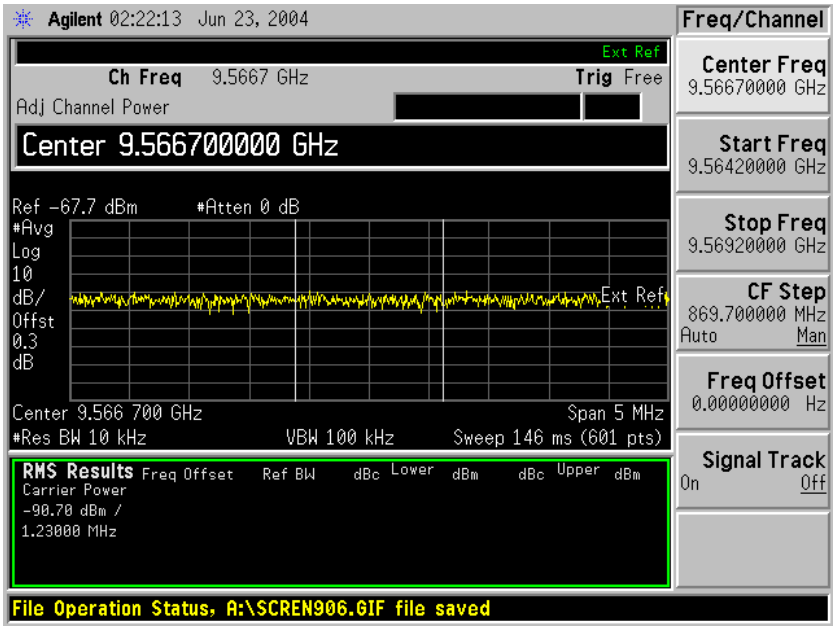

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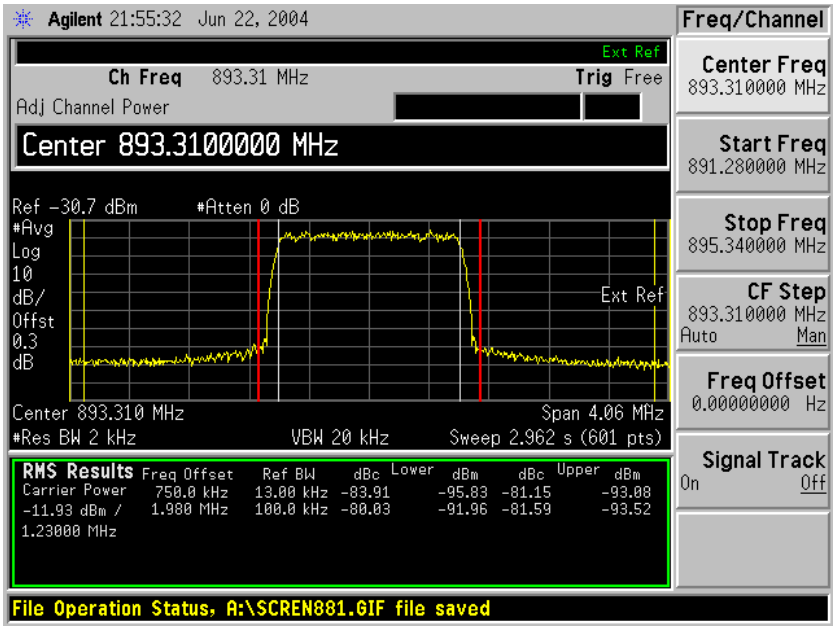
Spurious Emissions at Antenna Terminal – 0.063mW

Channel 777 – 893.31 MHz – QPSK



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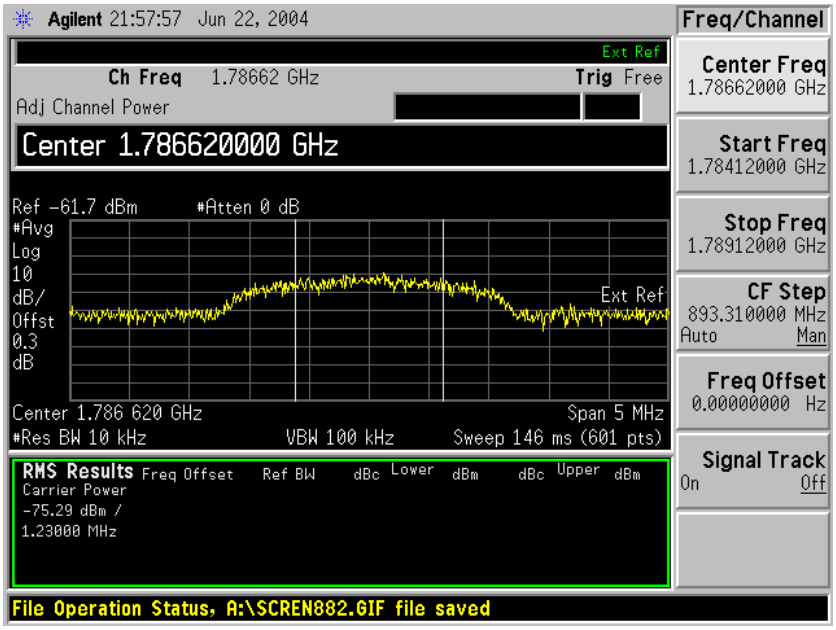

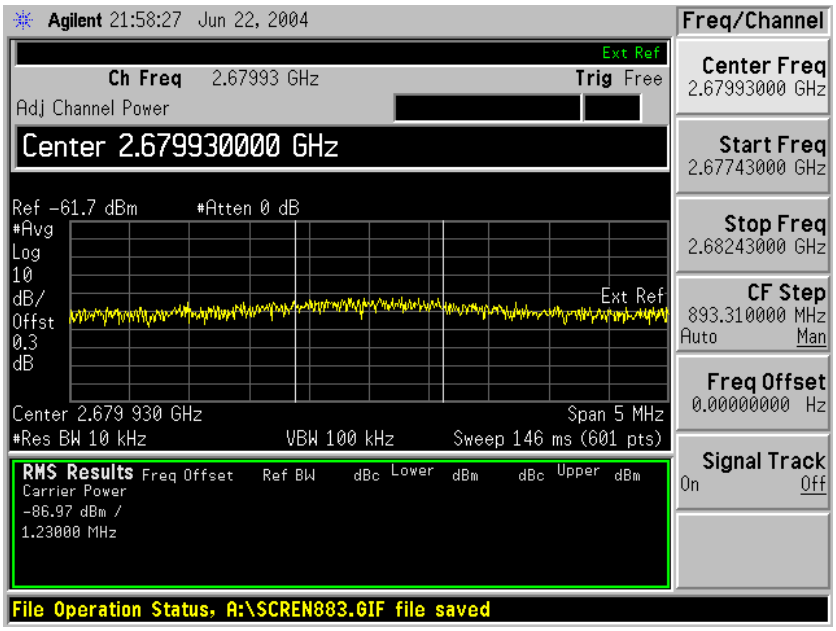

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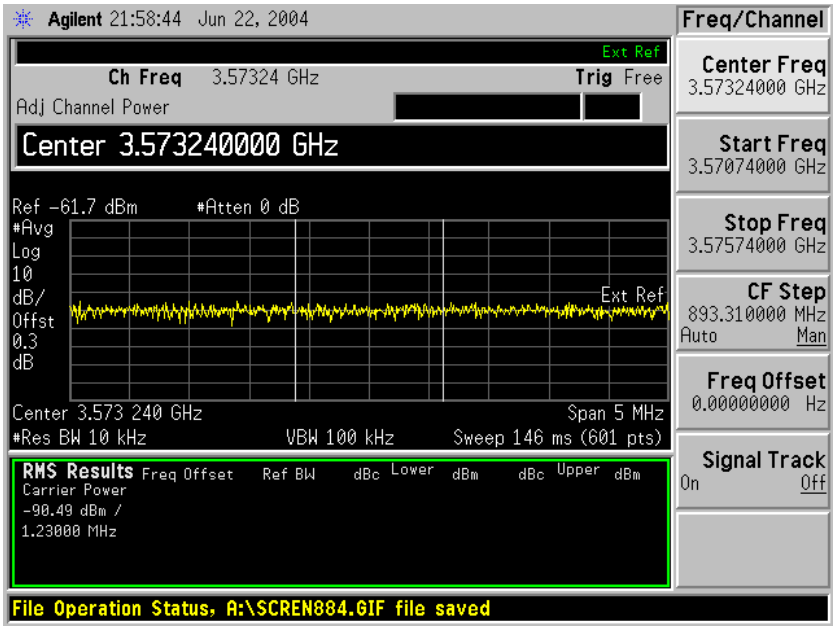

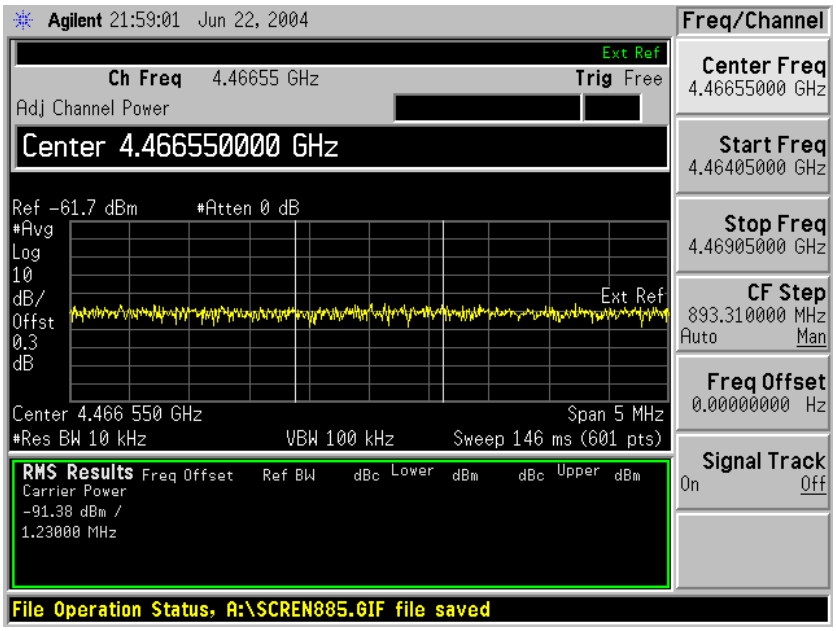

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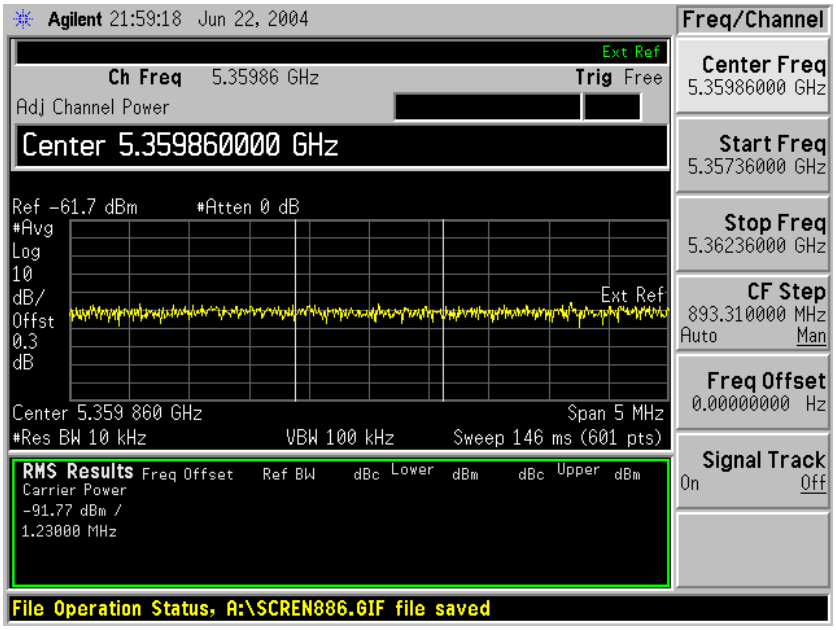

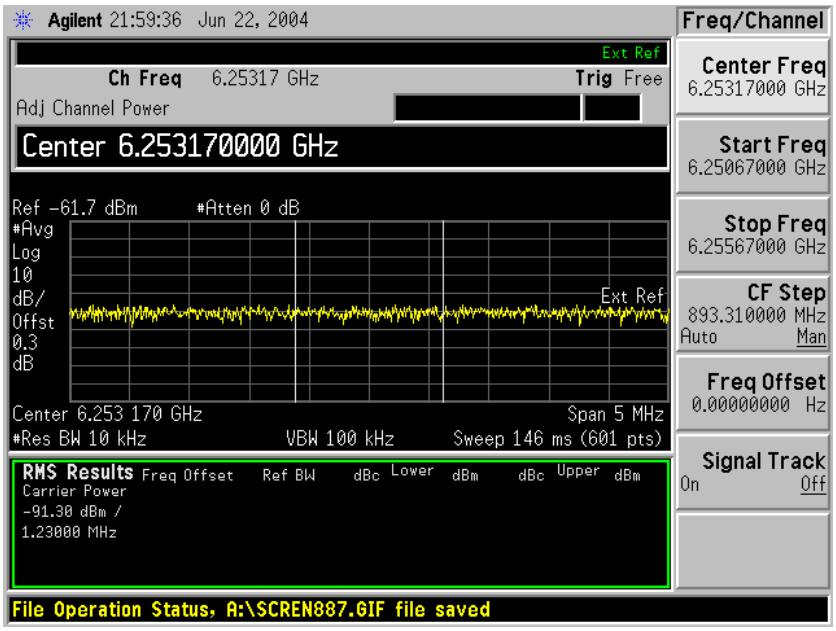

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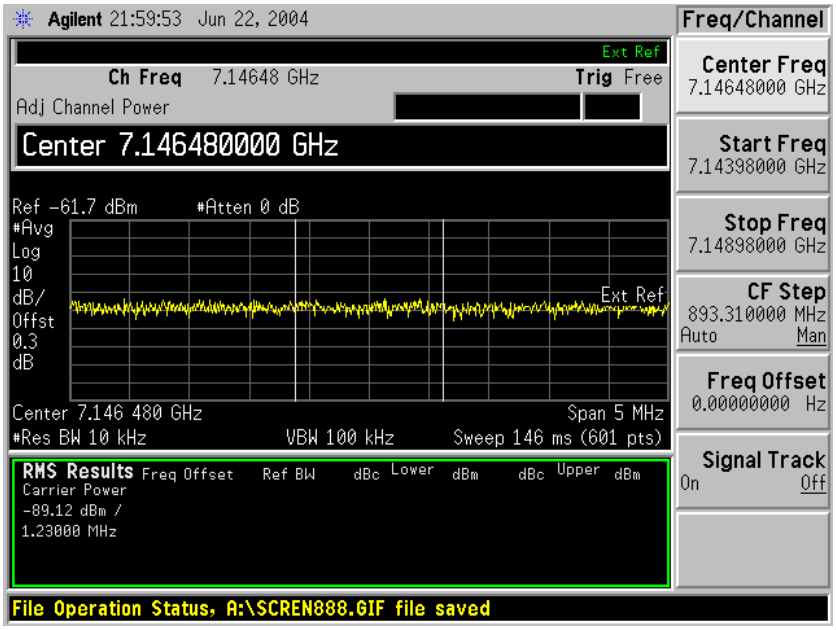

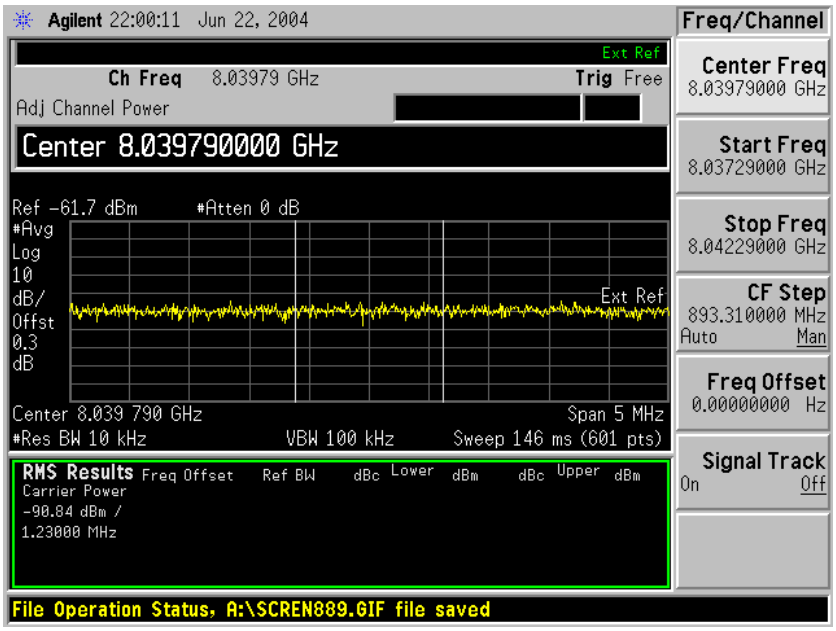

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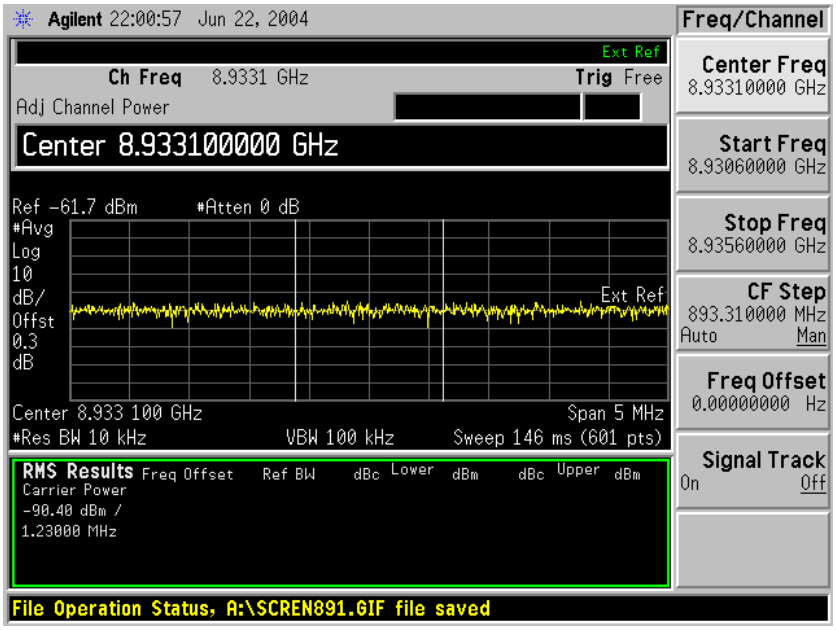

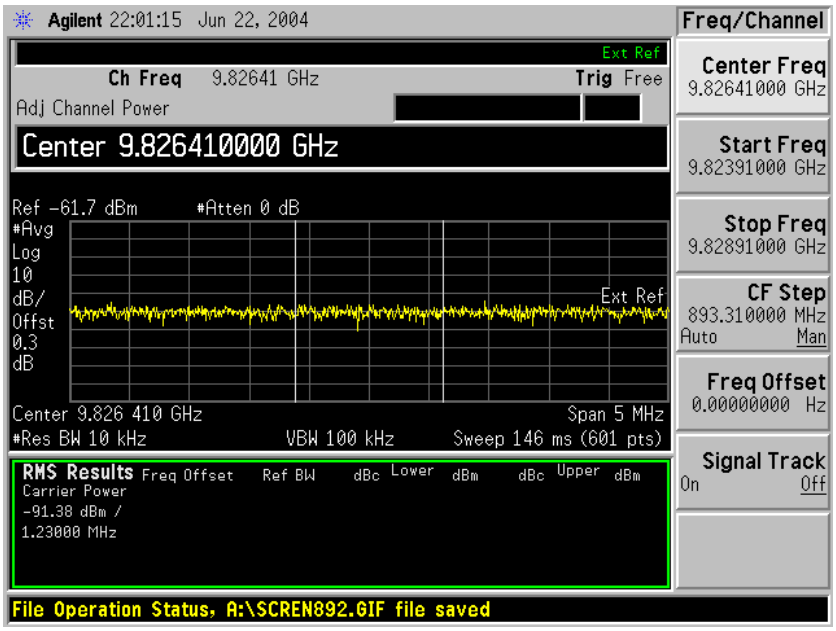

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SECTION E

Field Strength of Spurious Radiation - 47CFR2.1053

Worst case Radiated RF Spur Levels

TRANSMIT CHANNEL	SPUR FREQUENCY (GHz)	MEASURED SIGNAL LEVEL dBuV/meter	MEASURED Signal Level (dBm)	FCC, Part 22 MAX LIMIT (dBm)
1013H 1013V	8.697 8.697	37.047 35.747	-58.18 -59.48	-13 -13
777H 777V	8.9331 8.9331	37.873 36.373	-57.36 -58.86	-13 -13

Converting dBuV/meter to dBm when Part 24 is done at 3 meters.

1. (dBuV/M / 20) *(Inverse Log) = uV/M
2. Log(uV/M /57735) * 20 = dBm

If the test is done at 10 meters, the first formula would remain the same.
The 2nd is as follows Log[(uV/m * 1/ (3 * 57735)/10)] * 20 dBm

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SECTION F

Frequency Stability - 47CFR2.1055

Mode	27V Power	Worst case DPPM	FCC Requirement	Pass/Fail
CSM1	85-115%	<0.02	+/- 1.5 ppm max	Pass
CSM 2	85-115%	<0.02	+/- 1.5 ppm max	Pass

Mode	Temperature	DPPM	FCC Requirement	Pass/Fail
CSM1	-30 to +50 C	<0.02	+/- 1.5 ppm max	Pass
CSM2	-30 to +50 C	<0.02	+/- 1.5 ppm max	Pass

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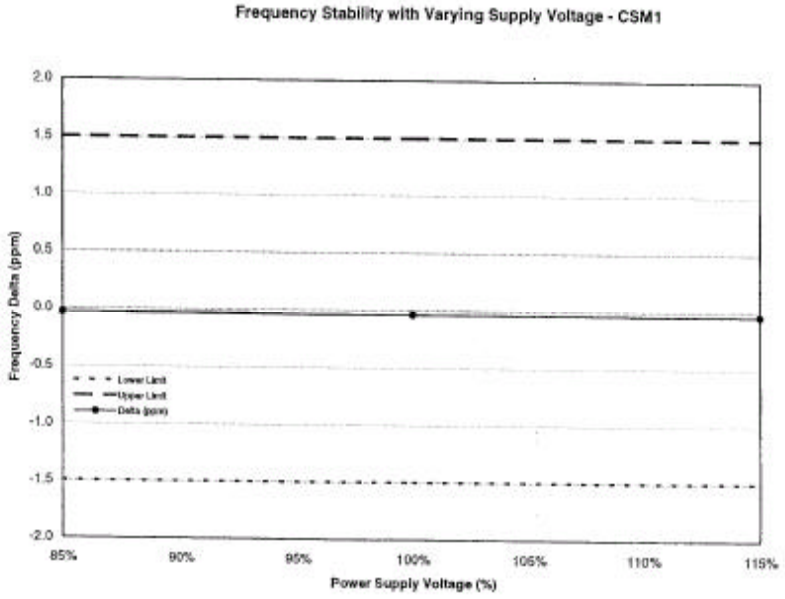

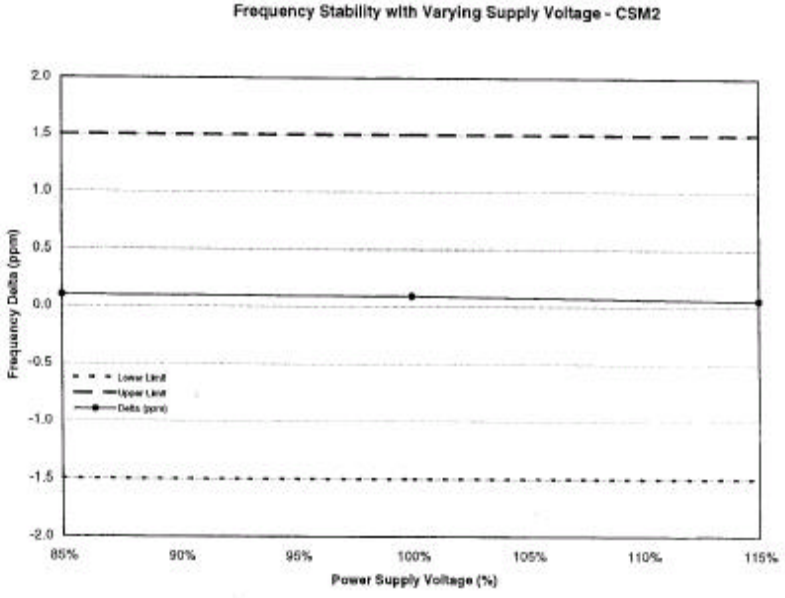

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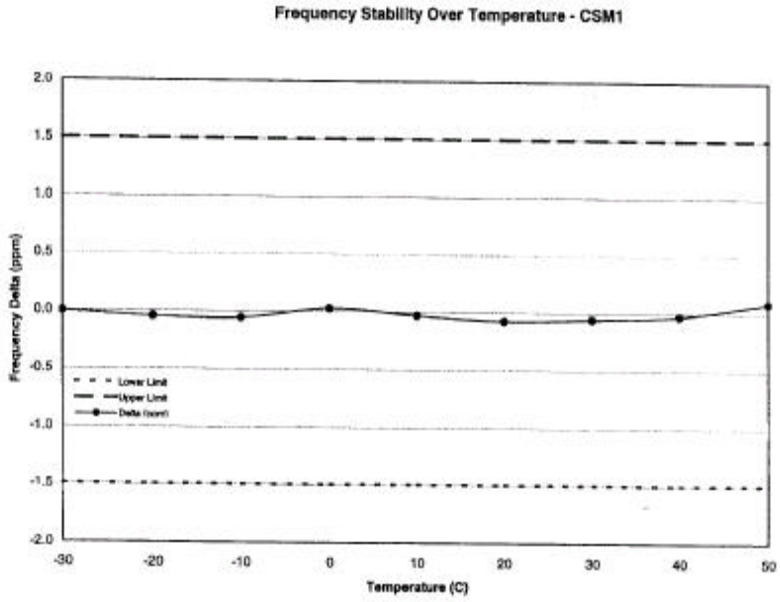

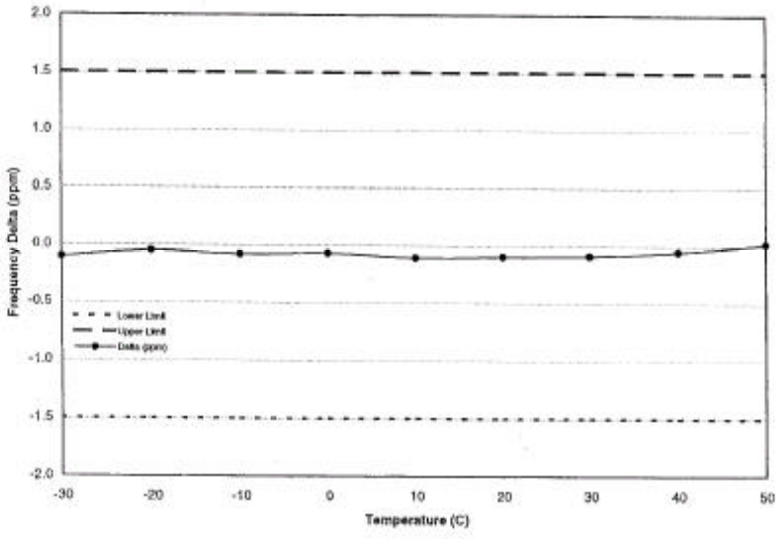

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