



**MOTOROLA**

Cellular Networks

APPLICANT: MOTOROLA

FCC ID: IHET5JX1

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# Motorola Test Report

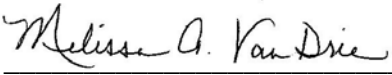
**Applicant:** Motorola  
5555 N. Beach Street  
Fort Worth, TX 76137  
USA

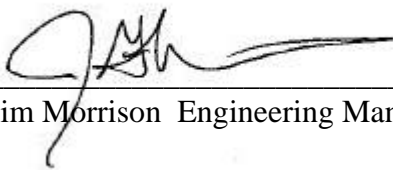
**Equipment Under Test:** UBS CDMA XMI Transceiver at 800MHz

**In Accordance With:** FCC PART 22(H)  
Cellular Radiotelephone Service

**Tested By:** Motorola  
5555 N. Beach Street  
Fort Worth, TX 76137  
USA

**TESTED BY:**  DATE: 12 Dec 2008  
Darryl Aucoin Principal Test Engineer

 DATE: 12 Dec 2008  
Melissa Vandrie Lead Test Engineer

**APPROVE BY:**  DATE: 12 Dec 2008  
Jim Morrison Engineering Manager

**Total Pages:** 25



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**Section 1                      Summary of Test Results**

Manufacturer:                  Motorola  
Model No.:                      UBS CDMA 800MHz XMI Transceiver  
Serial No.:                      575G6Y02TS  
General:                        All measurements are traceable to national standards

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 22,

New Submission                       Production Unit

Class II Permissive Change                       Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE: NONE



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NAME OF TEST	PARA. NO.	SPEC. LIMIT	RESULTS
RF Power Output	2.1046	33 dBW + 10log(X/Y) dBW	Complies
Occupied Bandwidth	2.1049	Not Specified	Complies
Spurious Emissions at Antenna Terminals	2.1051	-13 dBm	Complies
Field Strength of Spurious Radiation	2.1053	-13 dBm	Complies
Frequency Stability	2.1055	Must remain within authorized bandwidth	Complies



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**Section 2**

**General Equipment Specification**

Power Supply: 27 VDC

Frequency Range: 869.88 MHz to 893.10 MHz

Type(s) of Modulation: F3E (Voice) F1D F2D W7D F9W  
\_\_\_\_\_ X

Emissions Designator: 1M30F9W

Output Impedance: 50 ohms

RF Power Output: 43dBm Conducted

Selection of Operating Frequency: Selectable by operator

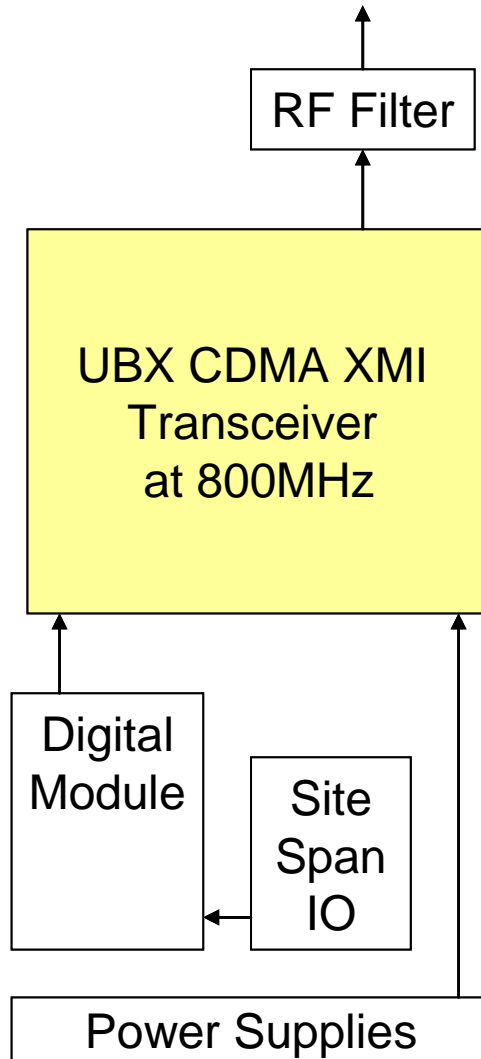
Power Output Adjustment Capability: 25dBm minimum power



**Description of EUT**

The UBS CDMA 800MHz XMI Transceiver is a Base Station transceiver.

**System Diagram**





**Section 3 RF Power Output**

NAME OF TEST: RF Power Output	PARA. NO.: 2.1046
TESTED BY: Darryl Aucoin, Principal Test Engineer	DATE: Nov 25, 2008

Test Result: Complies

Measurement Data: See Tables

Test Equipment: 13, 15, 16

**MAX RF POWER OUTPUT**

CDMA 1X QPSK		
Frequency (MHz)	Power (dBm)	Power (Watts)
869.88	45.41	33.8
893.10	45.28	33.7

CDMA EVDO QPSK		
Frequency (MHz)	Power (dBm)	Power (Watts)
869.88	45.18	33.0
893.10	45.04	31.9

CDMA EVDO 16QAM		
Frequency (MHz)	Power (dBm)	Power (Watts)
869.88	45.05	32.0
893.10	45.12	32.5



**Section 4 Occupied Bandwidth**

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 2.1049
TESTED BY: Darryl Aucoin, Principal Test Engineer	DATE: Nov 25, 2008

Test Result: Complies

Measurement Data: See Attached Tables and Plots

Test Equipment: 13, 15, 16

OCCUPIED BANDWIDTH

CDMA 1X QPSK		
Frequency (MHz)	Occupied BW (MHz)	Maximum Limit (MHz)
869.88	1.2725	1.3
893.10	1.2739	1.3

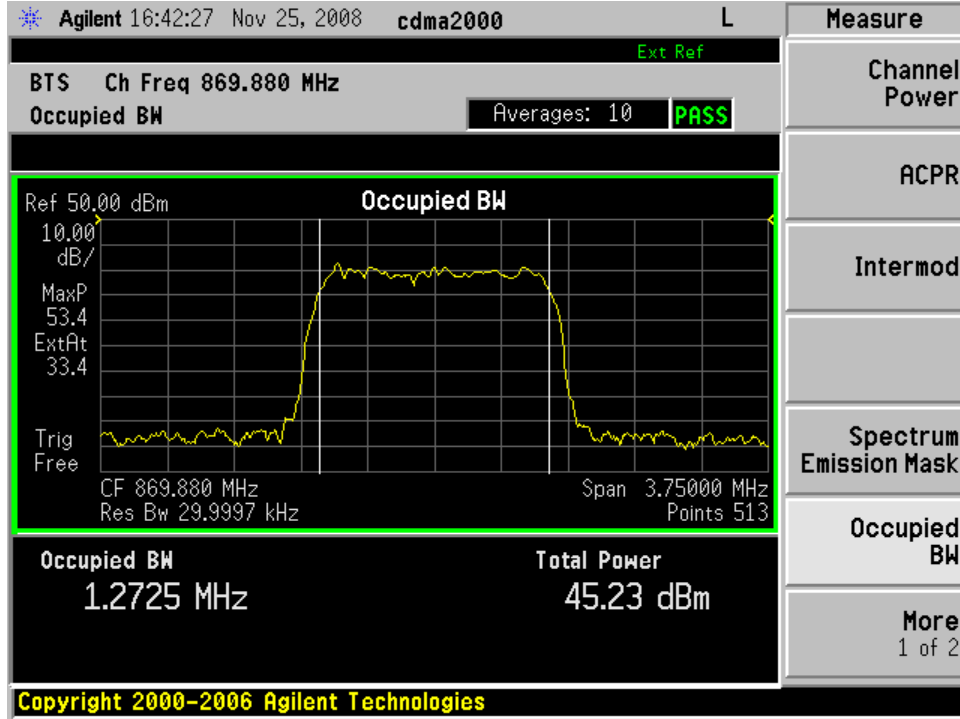
CDMA EVDO QPSK		
Frequency (MHz)	Occupied BW (MHz)	Maximum Limit (MHz)
869.88	1.2622	1.3
893.10	1.2720	1.3

CDMA EVDO 16QAM		
Frequency (MHz)	Occupied BW (MHz)	Maximum Limit (MHz)
869.88	1.2713	1.3
893.10	1.2781	1.3

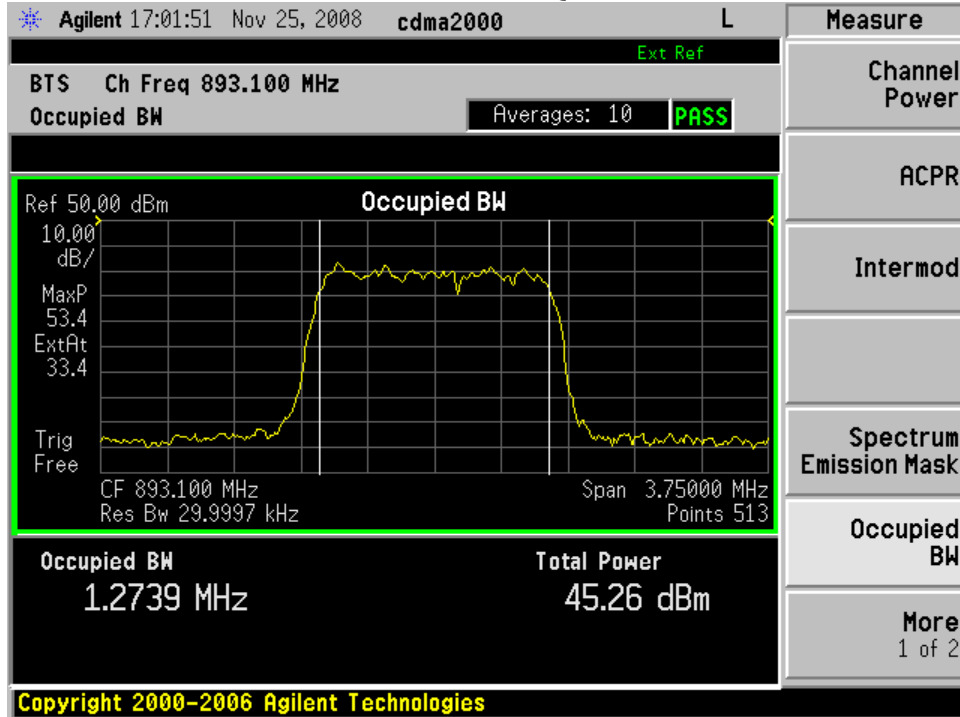




Occupied Bandwidth 869.88MHz in CDMA 1X QPSK

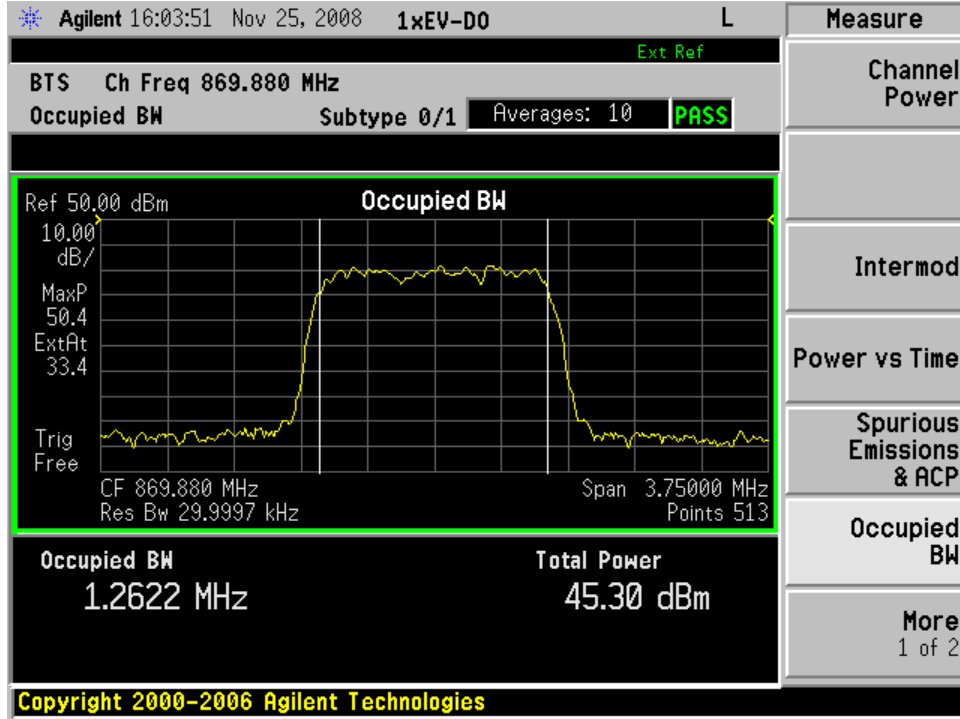


Occupied Bandwidth 893.10 MHz in CDMA 1X QPSK

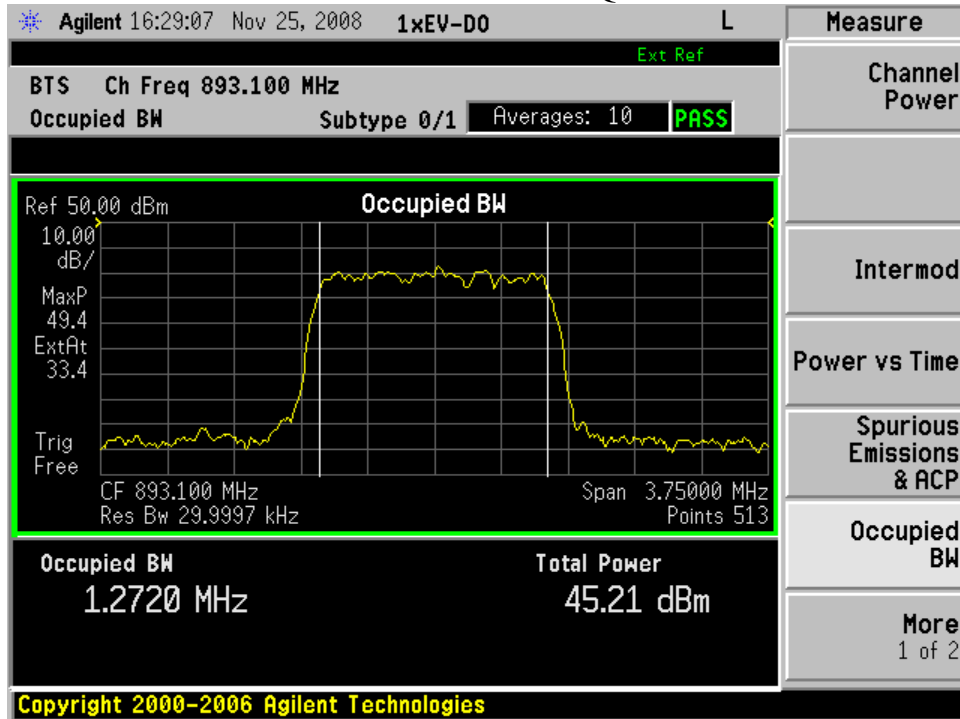




Occupied Bandwidth 869.88MHz in CMDA EVDO QPSK

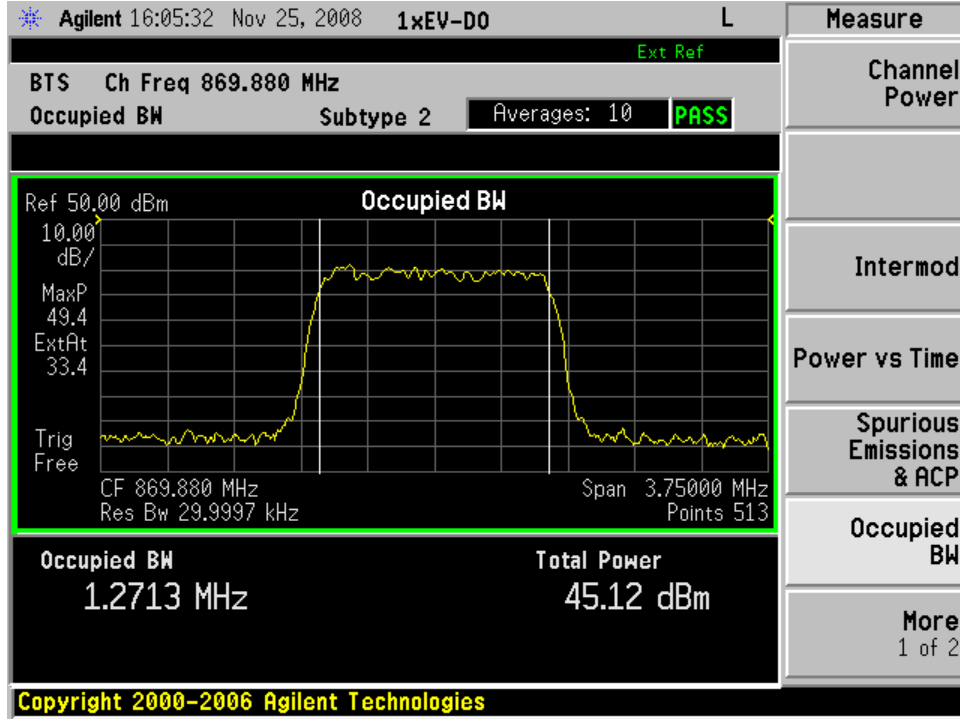


Occupied Bandwidth 893.10 MHz in CMDA EVDO QPSK

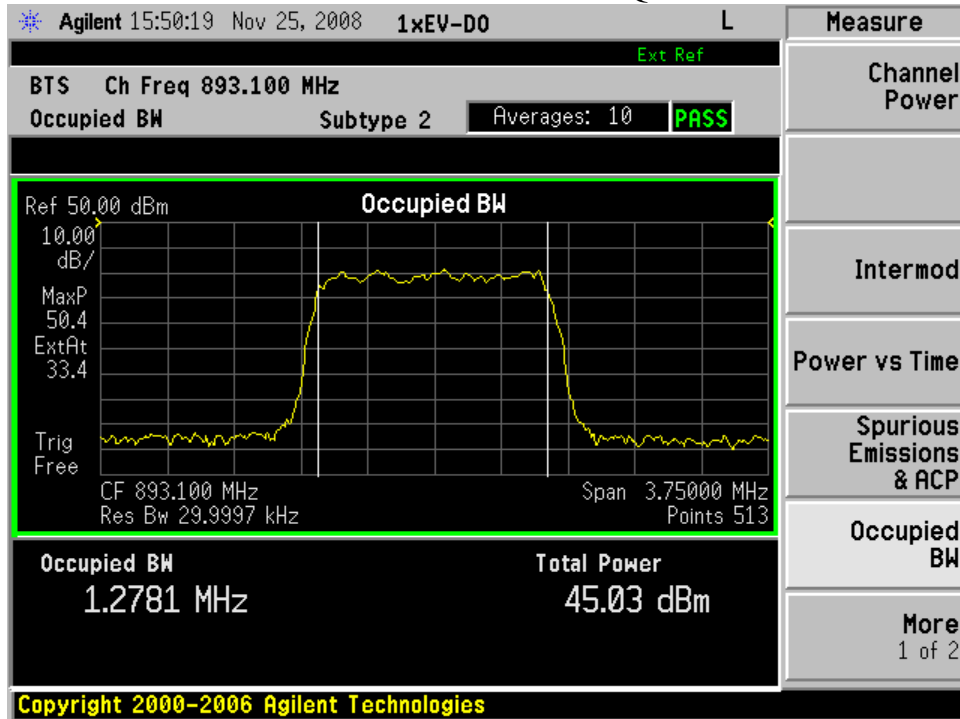




Occupied Bandwidth 869.88MHz in CMDA EVDO 16QAM



Occupied Bandwidth 893.10 MHz in CMDA EVDO 16QAM





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**Section 5 Spurious Emissions at Antenna Terminals**

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 2.1051

TESTED BY: Darryl Aucoin, Principal Test Engineer      DATE: Nov 25, 2008

Test Result:           Complies

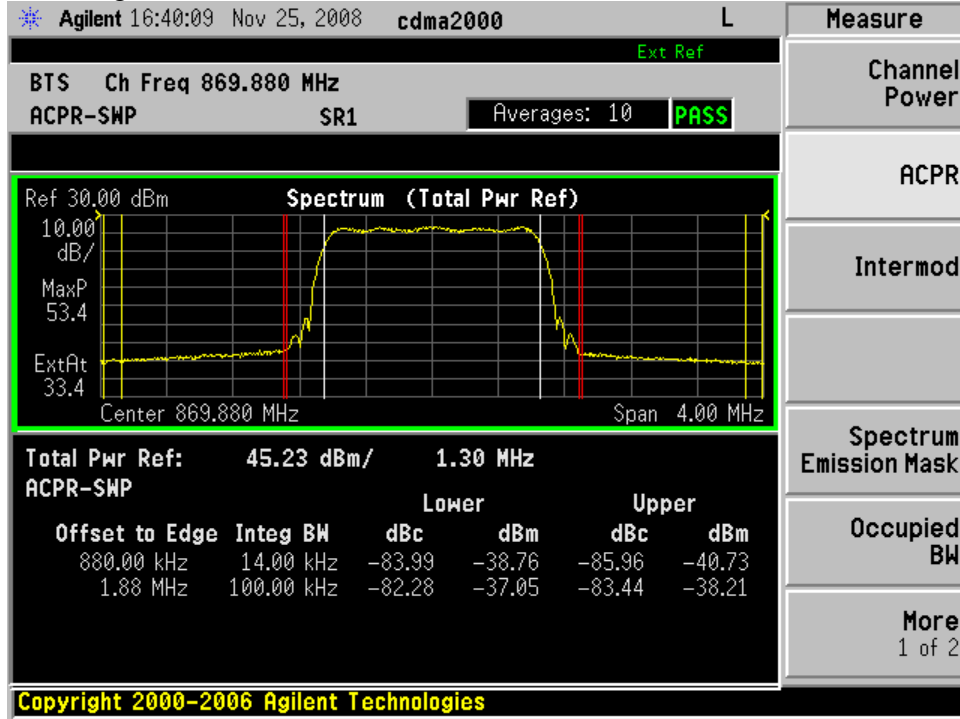
Measurement Data:   See Attached Plots

Test Equipment:      13, 15, 16, 17

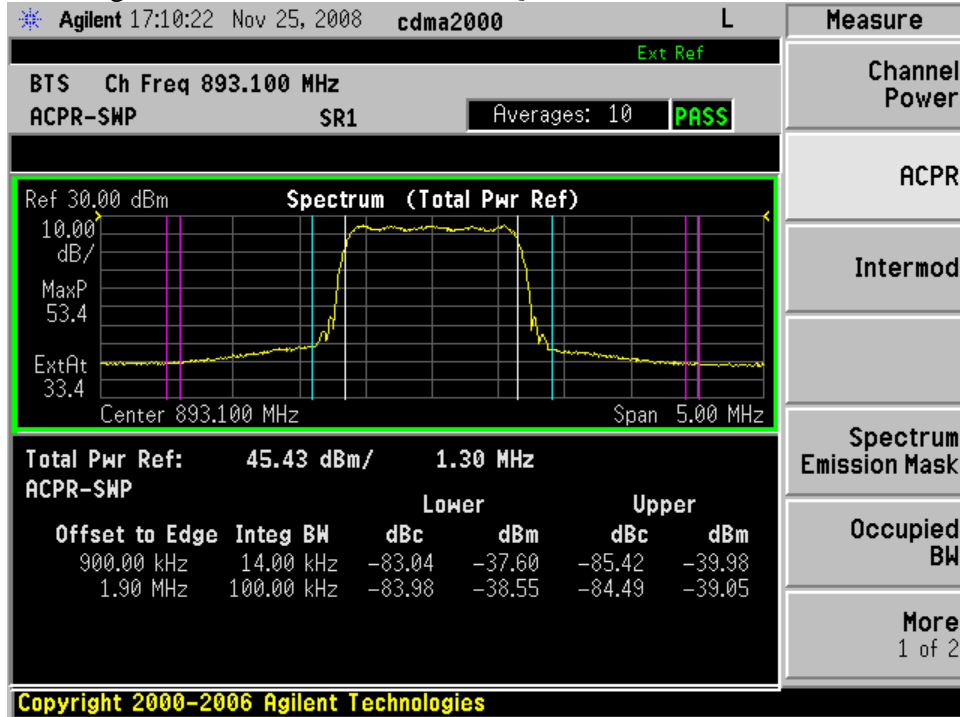
**SPURIOUS EMISSIONS AT ANTENNA TERMINALS**



Lower Band Edge 869.88MHz in CDMA 1X QPSK

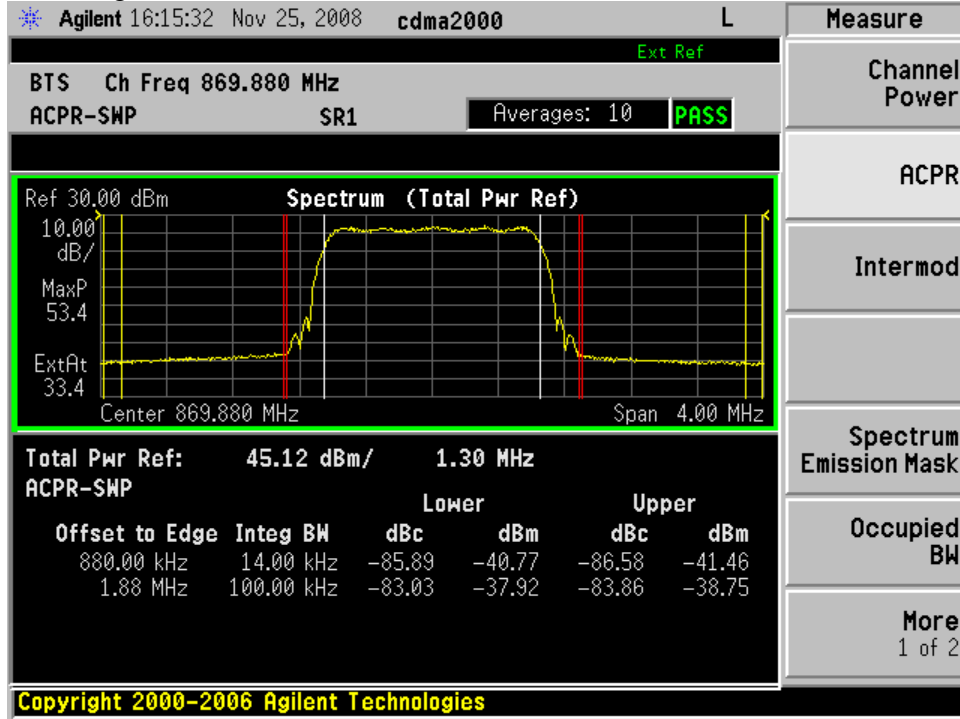


Upper Band Edge 893.10 MHz in CDMA 1X QPSK

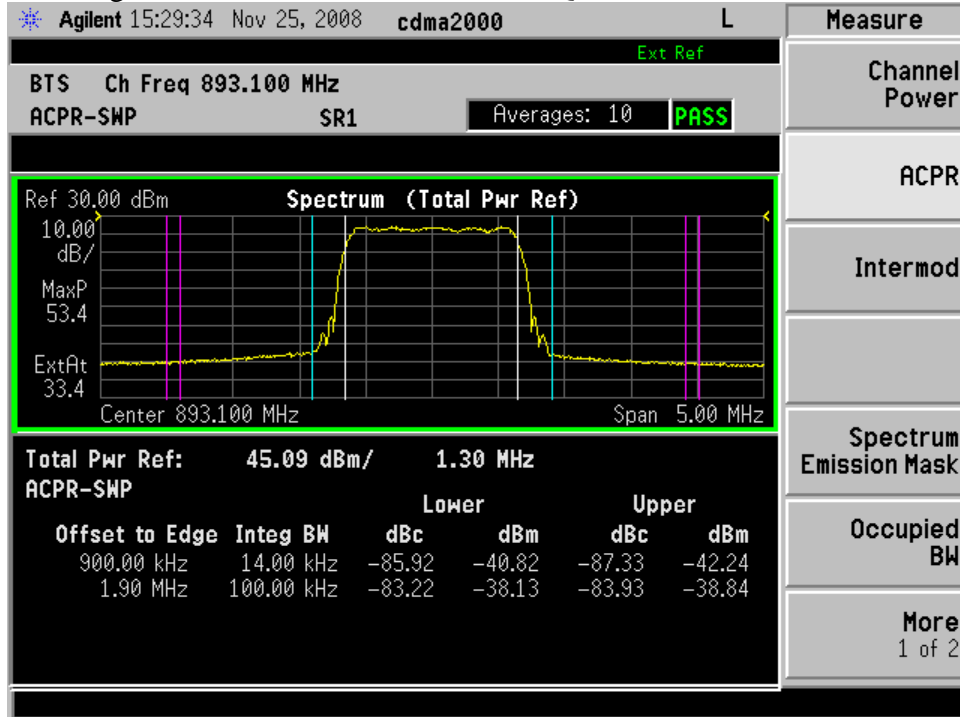




Lower Band Edge 869.88MHz in CDMA EVDO QPSK

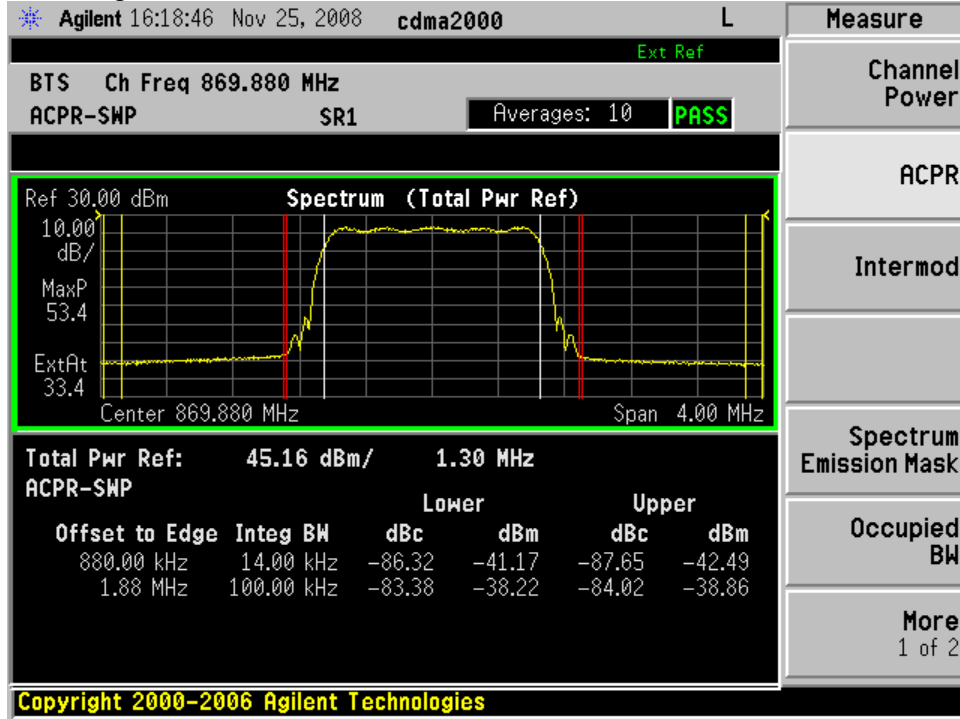


Upper Band Edge 893.10 MHz in CDMA EVDO QPSK

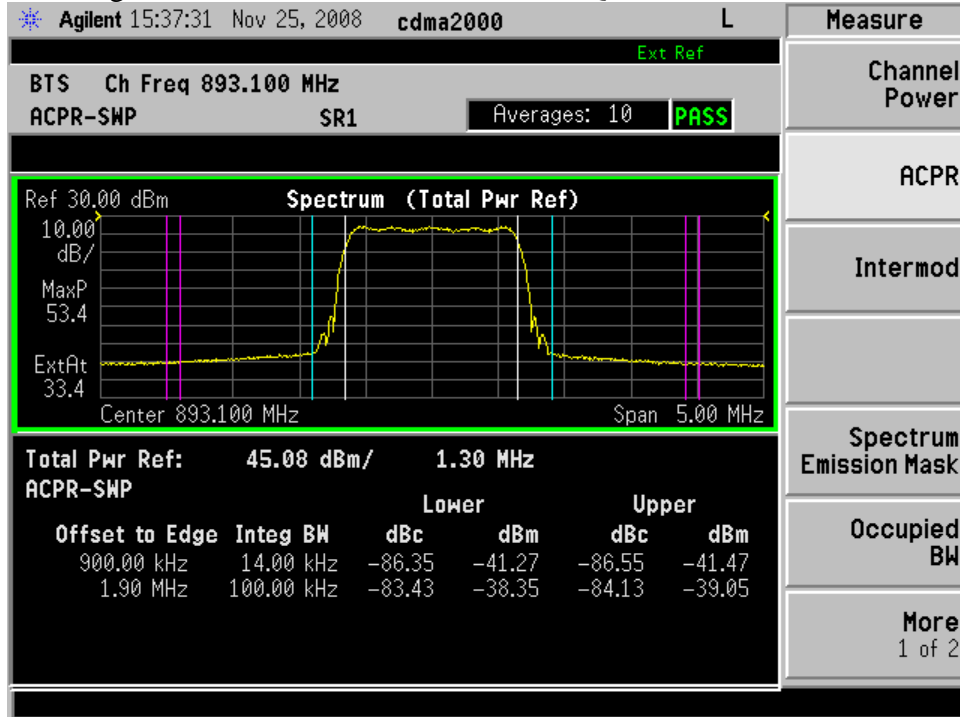




Lower Band Edge 869.88MHz in CDMA EVDO 16QAM

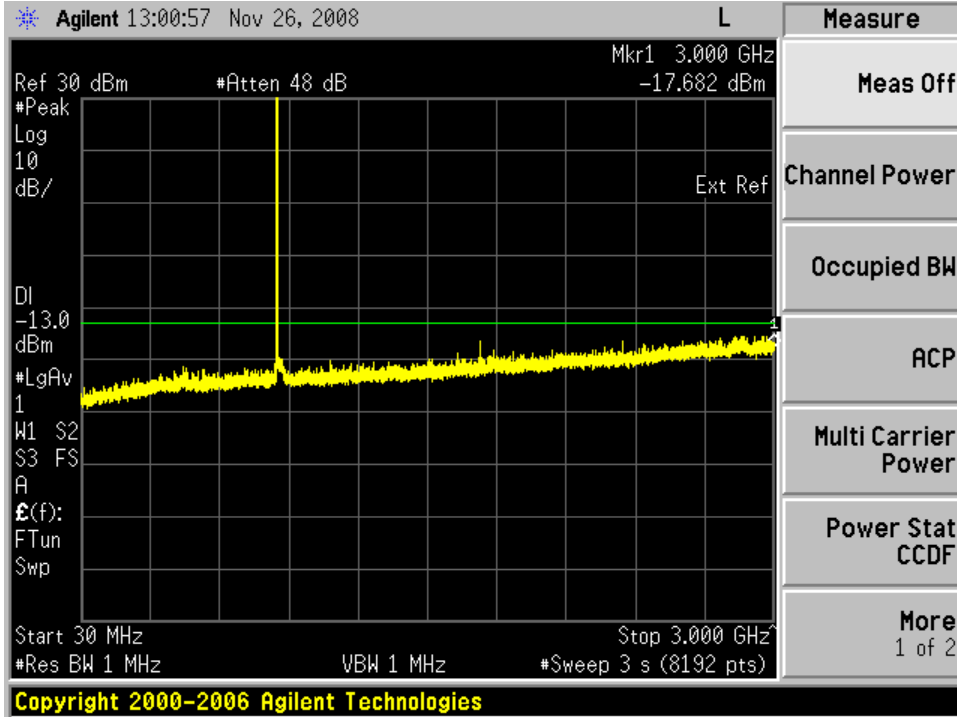


Upper Band Edge 893.10 MHz in CDMA EVDO 16QAM

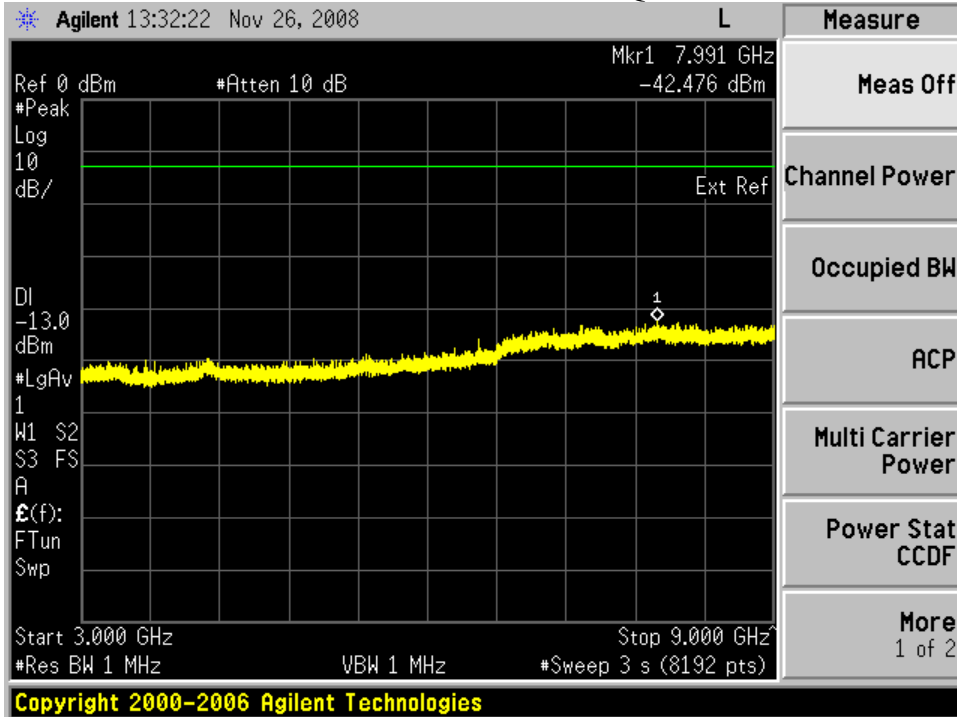




Spurious 30MHz to 3GHz for 869.88MHz in CDMA 1X QPSK



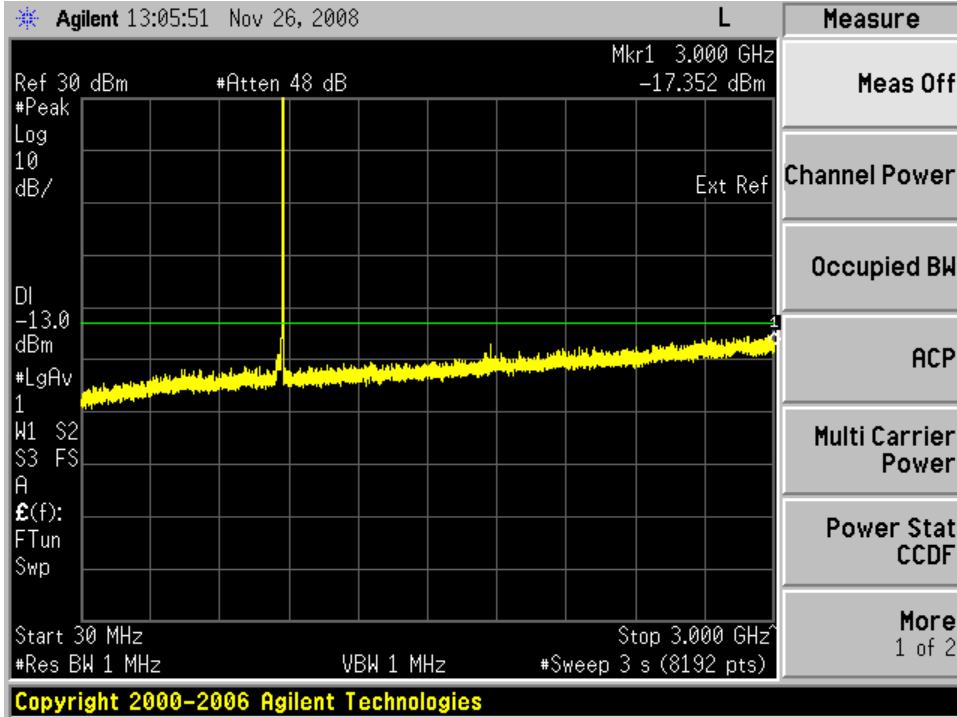
Spurious 3GHz to 9GHz for 869.88MHz in CDMA 1X QPSK



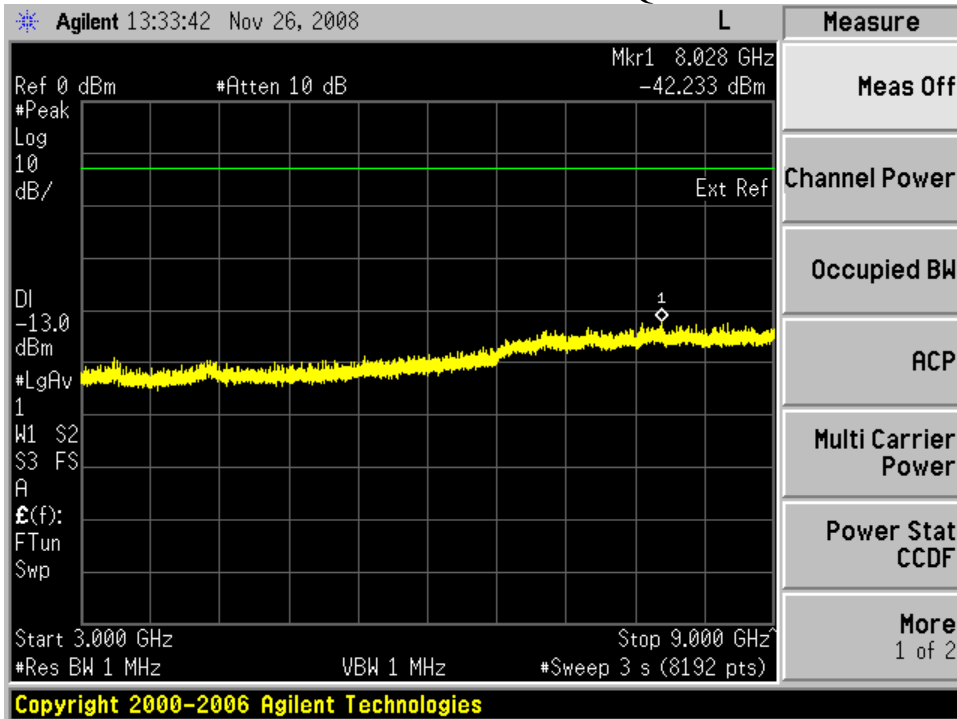




Spurious 30MHz to 3GHz for 893.10 MHz in CDMA 1X QPSK

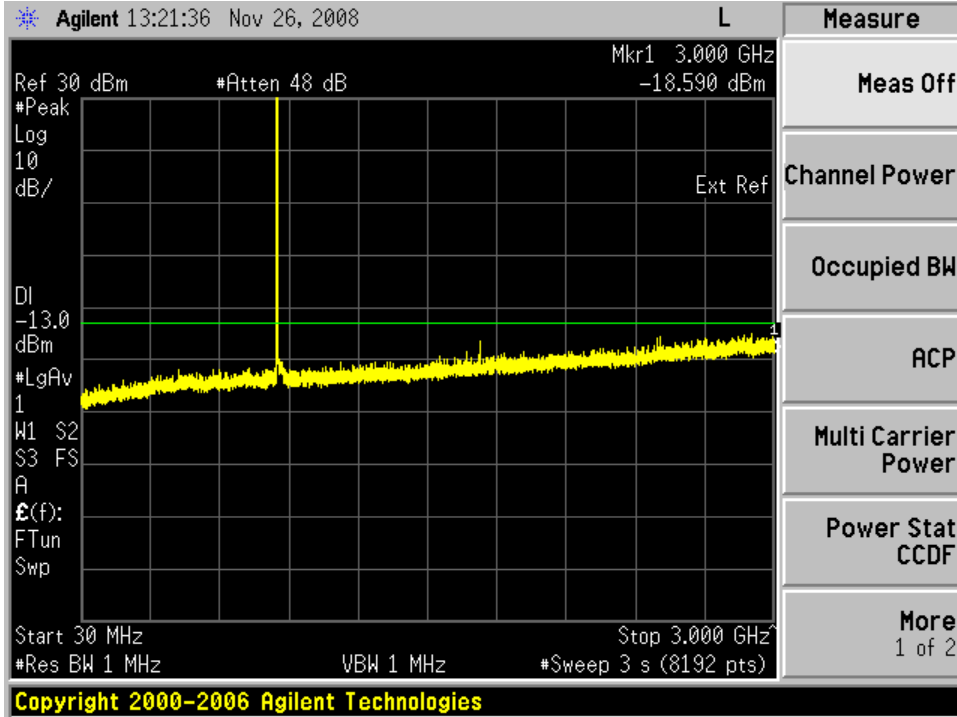


Spurious 3GHz to 9GHz for 893.10 MHz in CDMA 1X QPSK

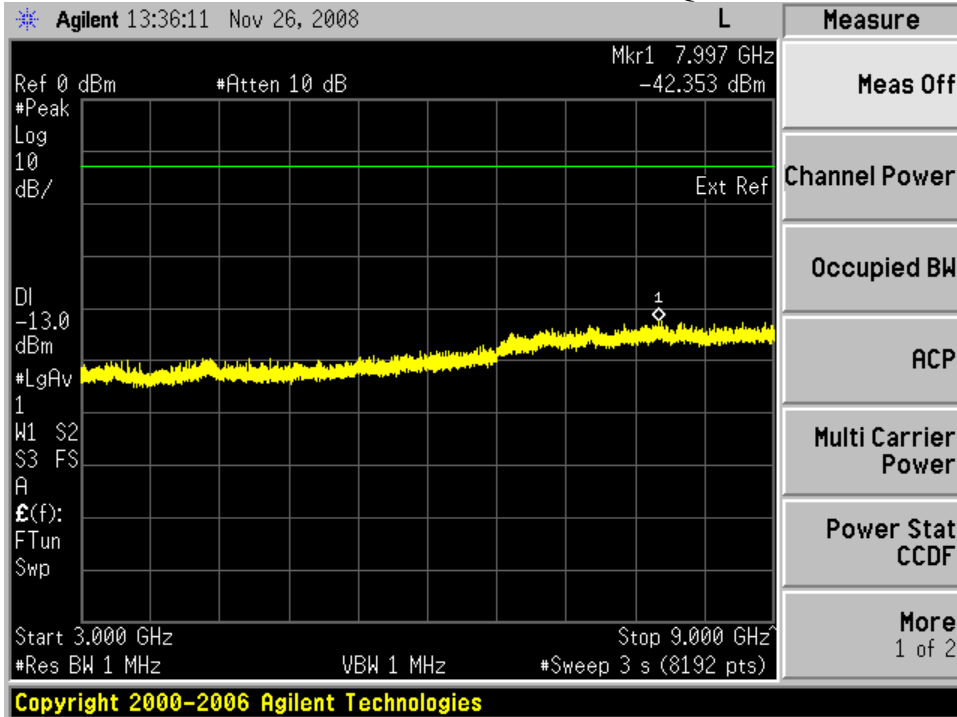




Spurious 30MHz to 3GHz for 869.88MHz in CDMA EVDO QPSK

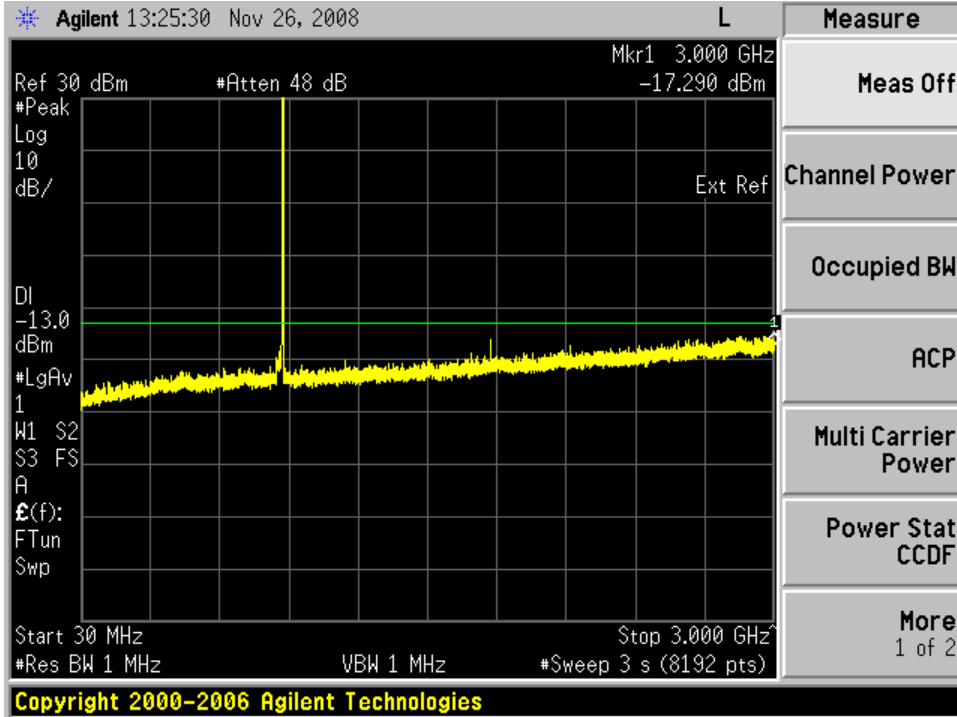


Spurious 3GHz to 9GHz for 869.88MHz in CDMA EVDO QPSK

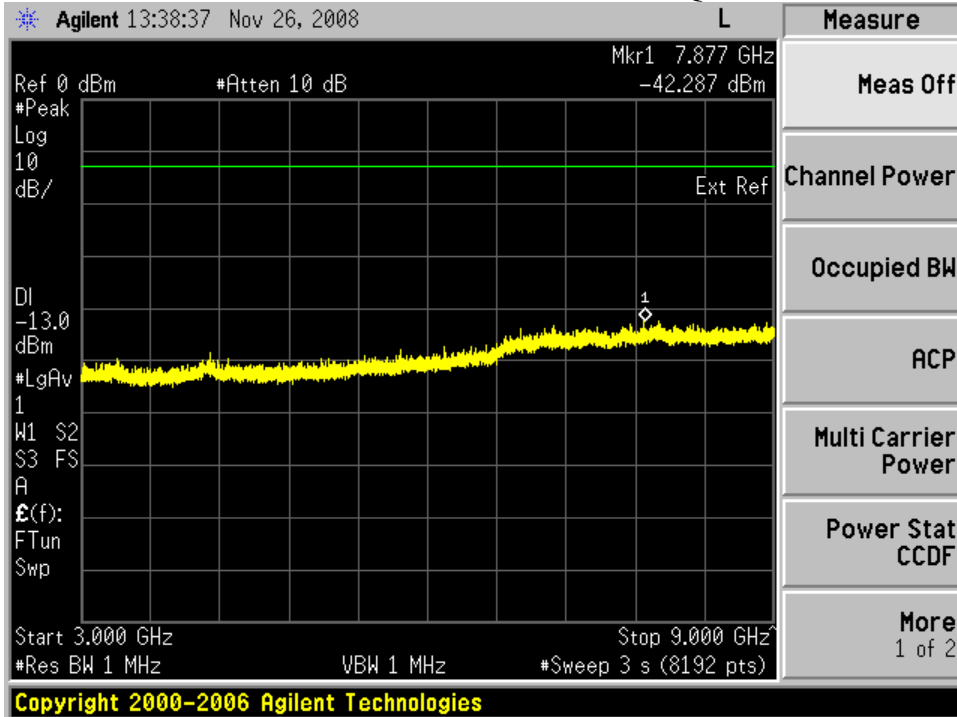




Spurious 30MHz to 3GHz for 893.10 MHz in CDMA EVDO QPSK

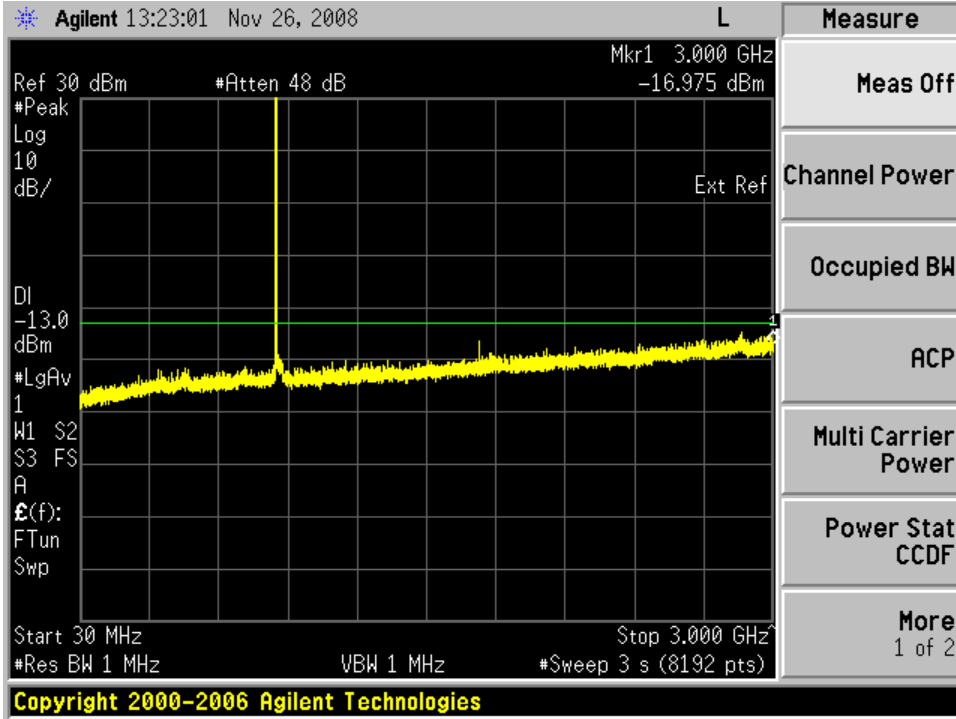


Spurious 3GHz to 9GHz for 893.10 MHz in CDMA EVDO QPSK

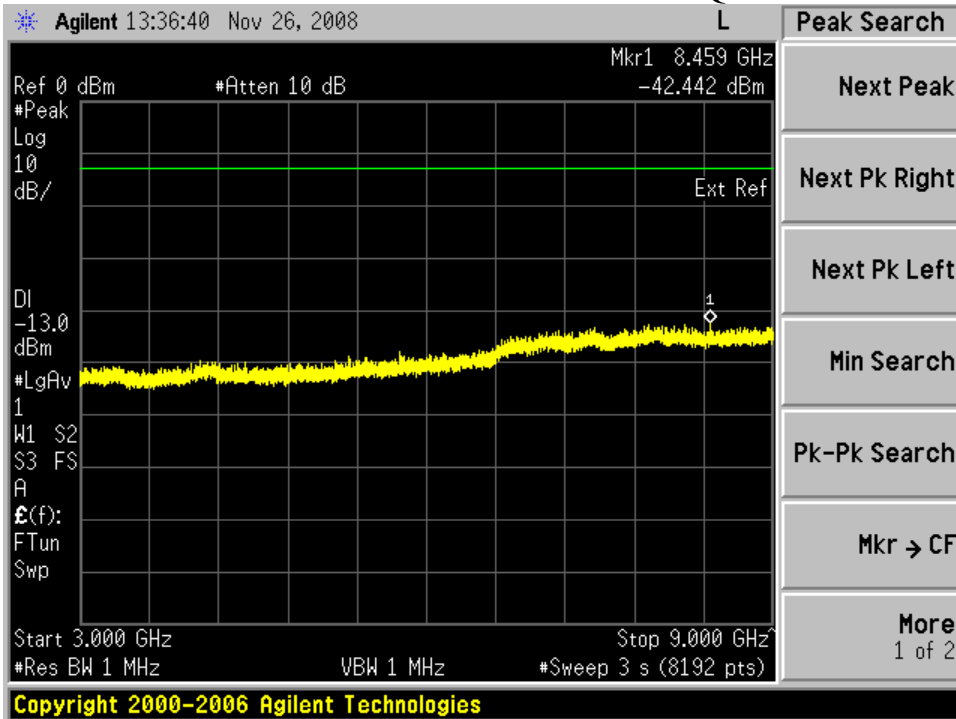




Spurious 30MHz to 3GHz for 869.88MHz in CDMA EVDO 16QAM

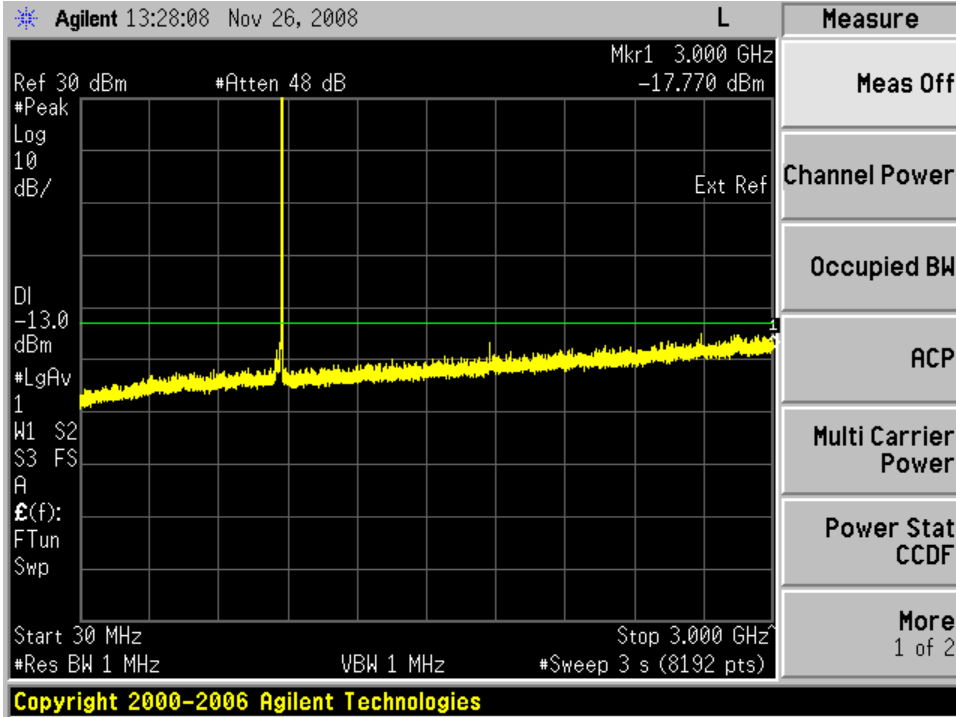


Spurious 3GHz to 9GHz for 869.88MHz in CDMA EVDO 16QAM

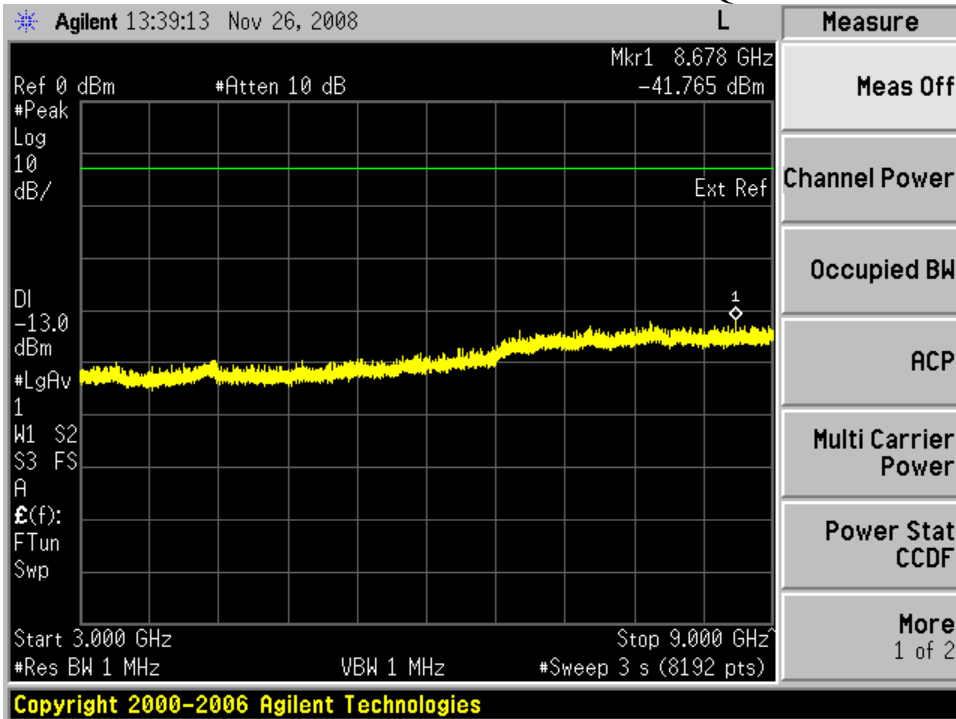




Spurious 30MHz to 3GHz for 893.10 MHz in CDMA EVDO 16QAM



Spurious 3GHz to 9GHz for 893.10 MHz in CDMA EVDO 16QAM





**Section 6                      Field Strength of Spurious**

NAME OF TEST: Field Strength of Spurious	PARA. NO.: 2.1053
TESTED BY: Don Ahrens, Test Technician	DATE: Dec 12, 2008

Test Result:                      Complies

Measurement Data:    See Attached Table

Test Equipment:            1,2,3,4,5,6,7,8,9,10,11,12,14

**FIELD STRENGTH OF SPURIOUS**

The spectrum was searched from 30MHz to the 10<sup>th</sup> harmonic of the carrier

SPUR FREQUENCY (GHz)	DISTANCE MEASURED (meters)	WORST CASE SPUR LEVEL MEASURED (dBuV/meter)	WORST CASE SPUR LEVEL MEASURED (dBm)	FCC MAX LIMIT (dBm)
3.5724	3	42.7	-52.5	-13



**Section 7                      Frequency Stability**

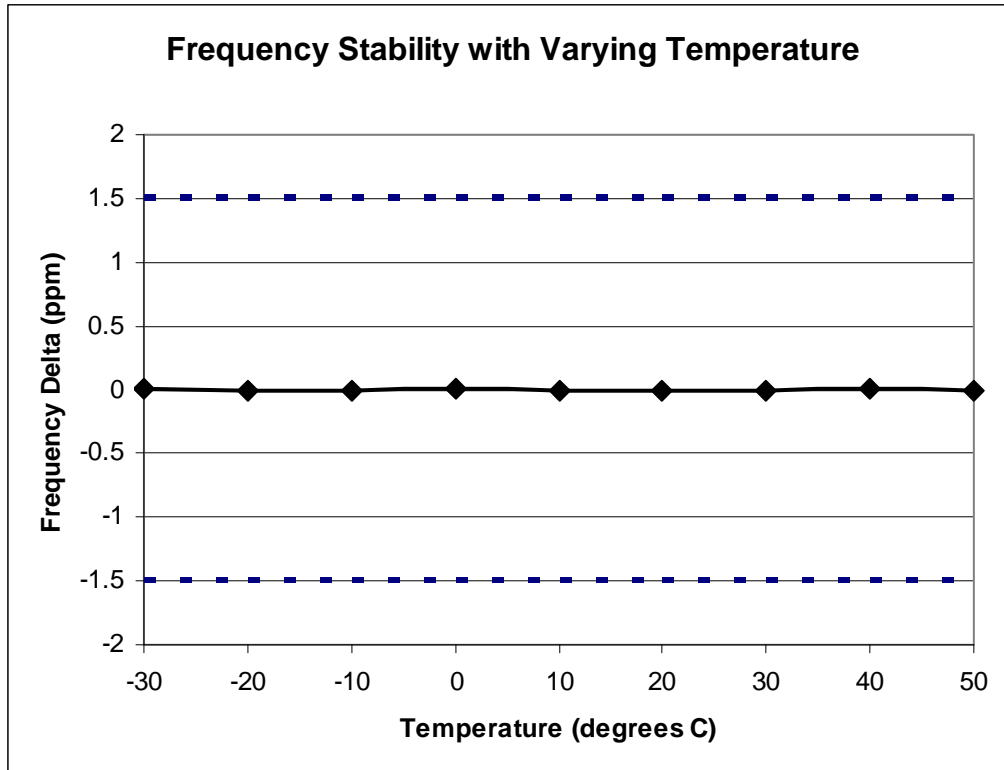
NAME OF TEST: Frequency Stability	PARA. NO.: 2.1055
TESTED BY: Melissa Vandrie, Lead Test Engineer	DATE: Aug 29, 2007

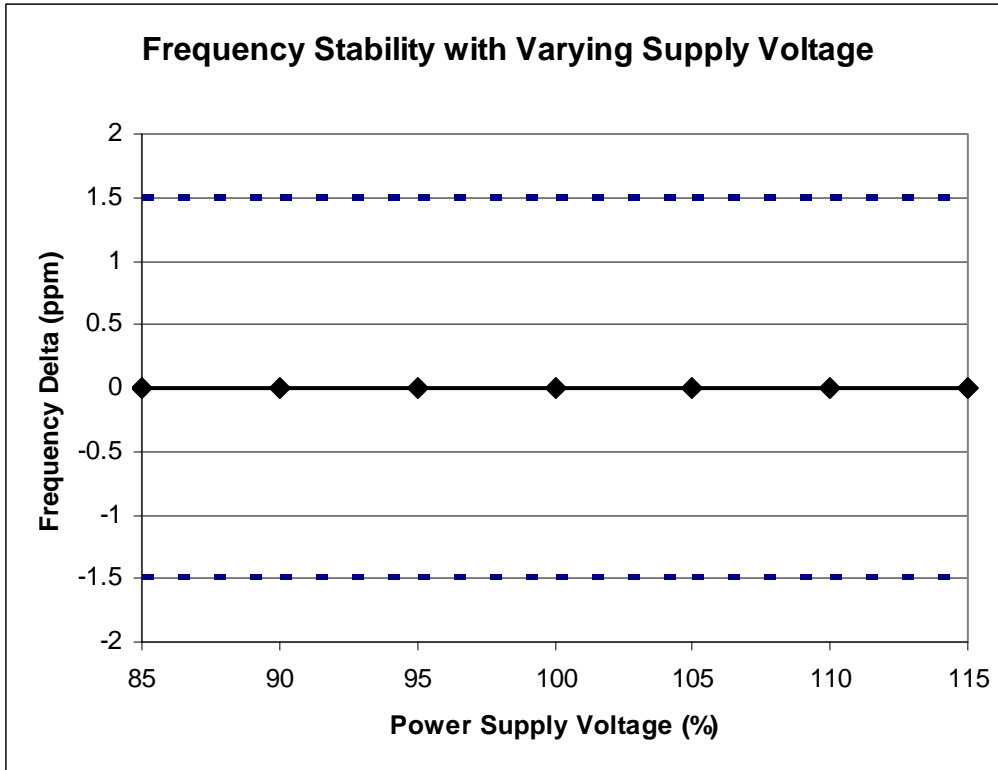
Test Result:                      Complies

Measurement Data:    See Plots

Test Equipment:            13, 15, 16

**FREQUENCY STABILITY**









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**Section 8 Test Equipment List**

Item #	Motorola ID	Description	Model	Serial No.	Cal Date	Cal Due Date
1	118938	Pre-Amp	HP83006A	3950M00136	N/A	N/A
2	118937	Pre-Amp	HP83006A	3950M00135	N/A	N/A
3	505082	Antenna, Log Periodic	EMCO 3146	9303-3597	6/19/2008	9/22/2009
4	500301	Antenna, Biconnical	EMCO 3104C	8905-3974	8/19/2008	9/22/2009
5	500069	Antenna, Double Ridged Guide	EMCO 3115	2020	3/20/2008	9/22/2009
6	112019	Spectrum Analyzer	HP8593EM	3628A00164	4/10/2008	4/10/2009
7	508768	Power Meter	HP438A	3513U03967	4/2/2008	4/2/2009
8	116232	Power Sensor	HP8481A	2702A61832	4/7/2008	4/7/2009
9	509002	Signal Generator	HP83712A	3429A00422	4/7/2008	4/7/2009
10	N/A	Cable, Heliax 1/2" - 100 feet	Andrew	N/A	N/A	N/A
11	N/A	Cable, Coax - 6 feet	Microcoax	N/A	N/A	N/A
12	N/A	Cable, Coax - 6 feet	Microcoax	N/A	N/A	N/A
13	N/A	Cable, Coax - 6 feet	Microcoax	N/A	N/A	N/A
14	N/A	Cable, Reel - 20 feet	Emco	N/A	N/A	N/A
15	123503	Spectrum Analyzer	E4440A	MY4430375 6	6/2/2008	6/3/2009
16	N/A	Attenuator, 20dB	Wienschel	N/A	N/A	N/A
17	N/A	Low Pass Filter	Teledyne	N/A	N/A	N/A