



Part 90

TEST REPORT

Product Name	CDMA/LTE Smart phone
Model Name	HUAWEI H882L,H882L,Marina,Y301-A3
FCC ID	QISH882L
Client	Huawei Technologies Co., Ltd.
Manufacturer	Huawei Technologies Co., Ltd.
Date of issue	March 4, 2013

TA Technology (Shanghai) Co., Ltd.

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GENERAL SUMMARY

Reference Standard(s)	<p>FCC CFR47 Part 2 (2012) Frequency Allocations And Radio Treaty Matters; General Rules And Regulations</p> <p>FCC CFR 47 Part 90 (2012) Subpart I—General Technical Standards FCC CFR 47 Part 90 (2012) Subpart S—Regulations Governing Licensing and Use of Frequencies in the 806–824, 851–869, 896–901, and 935–940 MHz Bands</p> <p>ANSI/TIA-603-C(2004) Land mobile FM or PM Communications Equipment Measurements and Performance Standards.</p> <p>KDB 971168 D01 Power Meas License Digital Systems v01 Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems</p>
Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: Pass</p>
Comment	<p>The test result only responds to the measured sample.</p>

Approved by 杨伟中
Director

Revised by 唐凯
RF Manager

Performed by 王峰
RF Engineer

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1. General Information

1.1. Notes of the test report

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L2264.

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 428261.

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 8510A.

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

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1.2. Testing laboratory

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
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Telephone: +86-021-50791141/2/3
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Website: <http://www.ta-shanghai.com>
E-mail: yangweizhong@ta-shanghai.com

1.3. Applicant Information

Company: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
City: Shenzhen
Postal Code: 518129
Country: P.R. China

1.4. Manufacturer Information

Company: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
City: Shenzhen
Postal Code: 518129
Country: P.R. China

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1.5. Information of EUT

General information

Product MEID:	99000298000366		
Hardware Version:	HL1C8833LM		
Software Version:	H882L V100R001C378B160		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Operating Mode(s):	CDMA BC10 :(tested)		
Support mode:	1x RTT/EVDO Rev.0/ Rev.A/1x Advance		
Test Modulation:	(CDMA)BPSK,QPSK,HPSK		
Maximum E.R.P.	CDMA BC10: 22.73 dBm		
Power Supply:	Battery or Charger (AC adaptor)		
Rated Power Supply Voltage:	3.7V		
Extreme Voltage:	Minimum: 3.6V Maximum: 4.2V		
Extreme Temperature:	Lowest: -10°C Highest: +50°C		
Test Channel: (Low - Middle - High)	476 - 580 - 684 (CDMA Secondary 800) (tested)		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	CDMA BC10	817.9 ~ 823.1	862.9~ 868.1

Equipment Under Test (EUT) is tested CDMA Secondary 800 band in this report.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

1.6. Test Date

The test performed from February 20, 2013 to February 27, 2013.

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2. Test Information

2.1. Summary of test results

Number	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046/90.205&90.635	PASS
2	Occupied Bandwidth	2.1049/90.209	PASS
3	Band Edge Compliance	2.1051/90.691	PASS
4	Frequency Stability	2.1055 / 90.213	PASS
5	Spurious Emissions at Antenna Terminals	2.1051 / 90.691	PASS
6	Radiates Spurious Emission	2.1053 / 90.210	PASS

PASS: The EUT complies with the essential requirements in the standard.

FAIL: The EUT does not comply with the essential requirements in the standard.

2.2. Test Mode

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

During the ERP measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.

Test Modes		
Band	Radiated Test Cases	Conducted Test Cases
CDMA BC10	1x RTT(RC3 SO55)	1x RTT(RC3 SO55)
	EVDO (Rev.0) RTAP153.6 kbps	EVDO (Rev.0) RTAP153.6 kbps
	EVDO(Rev.A) RETAP 4096 bits	EVDO(Rev.A) RETAP 4096 bits
	1X Advance(SO75)	1X Advance(SO75)

Note: The maximum RF output power levels are RC3 SO55 for 1x RTT mode, RTAP153.6 kbps for EVDO (Rev.0) mode, RETAP 4096 bits for EVDO (Rev.A) mode, SO75 for 1X Advance mode, only these modes were used for all tests.

For RSE and CSE, only the maximum RF output power level is chosen.

2.3. RF Power Output

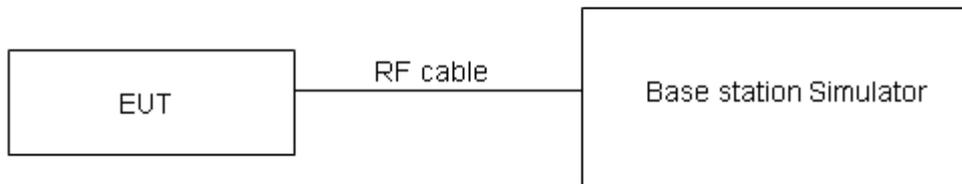
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

Limits

90.205 Power and antenna height limits. Refer to § 90.635

90.635(b): The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw)

Maximum Conducted Output Power (dBm)	<50dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

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Test Results

CDMA BC10			Average Conducted Power(dBm)		
			Channel 476	Channel 580	Channel 684
			817.9(MHz)	820.5 (MHz)	823.1 (MHz)
1x RTT	RC3	SO55(Loopback)	23.41	23.36	23.46
		SO2(Loopback)	23.39	23.35	23.43
		SO32(+FCH-SCH)	23.35	23.31	23.44
		SO32(+SCH)	23.33	23.34	23.45
	RC1	SO55(Loopback)	23.31	23.29	23.44
		SO2(Loopback)	23.3	23.26	23.37
1X Advance		SO75(Loopback)	23.73	23.76	23.83
		SO73(Voice)	23.68	23.72	23.78
EV-DO (Rev.0)	RTAP	9.6 kbps	22.97	22.90	22.99
		38.4 kbps	23.04	23.09	23.12
		153.6 kbps	23.34	23.37	23.44
EVDO (Rev.A)	RETAP	128 bits	22.98	22.88	22.89
		2048 bits	23.05	23.02	23.16
		4096 bits	23.31	23.27	23.35

Note: The maximum RF Output Power numbers are marks in bold.

2.4. Effective Radiated Power

Ambient condition

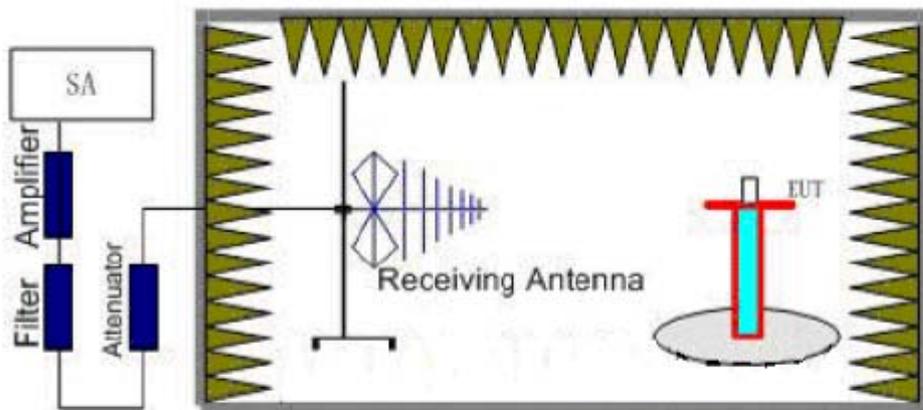
Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

The measurement procedures in TIA- 603C are used.

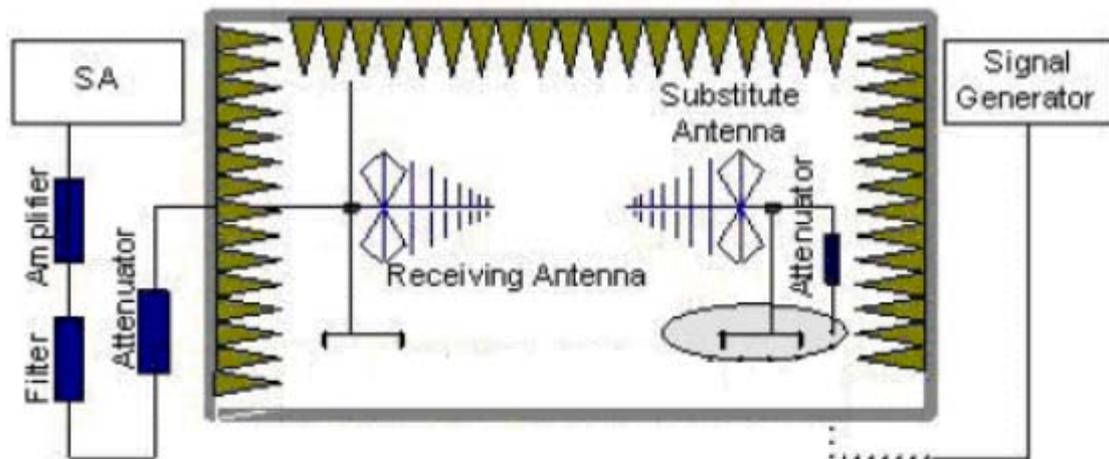
Step 1:

The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 0.8 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a 30dB amplifier and a Tx cable. Then the Analyzer reading which is equal to LVL is recorded while the antenna was moving up and down. The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



$$E.R.P = S.G + 30 - Tx \text{ Cable loss} + \text{Substitution antenna gain} - 2.15.$$

$$EIRP = E.R.P + 2.15$$

Limits

Rule Part 22.913(a) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	$\leq 7 \text{ W} \quad (38.45 \text{ dBm})$
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 1.19 \text{ dB}$

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Test Results: Pass

CDMA band10	Channel	Polarization	LVL (dBm)	SG+30 (dBm)	Gain (dBi)	Cable Loss (dBm)	E.R.P. (dBm)
RC3 SO55	476	Vertical	-26.63	38.81	0.91	14.84	22.73
	580	Vertical	-24.52	38.10	0.99	14.83	22.11
	684	Vertical	-25.78	37.39	1.06	14.84	21.47
EVDO (Rev.0)	476	Vertical	-26.63	38.26	0.91	14.84	22.18
	580	Vertical	-24.52	37.20	0.99	14.83	21.21
	684	Vertical	-25.78	36.82	1.06	14.84	20.89
EVDO (Rev.A)	476	Vertical	-26.63	38.24	0.91	14.84	22.16
	580	Vertical	-24.52	37.15	0.99	14.83	21.16
	684	Vertical	-25.78	36.82	1.06	14.84	20.89
1X Advance (SO75)	476	Vertical	-26.63	38.71	0.91	14.84	22.63
	580	Vertical	-24.52	38.023	0.99	14.83	22.03
	684	Vertical	-25.78	37.44	1.06	14.84	21.52

Note: 1. E.R.P = S.G+30. - Tx Cable loss + Substitution antenna gain – 2.15.

2. EIRP= E.R.P+2.15

2.5. Occupied Bandwidth

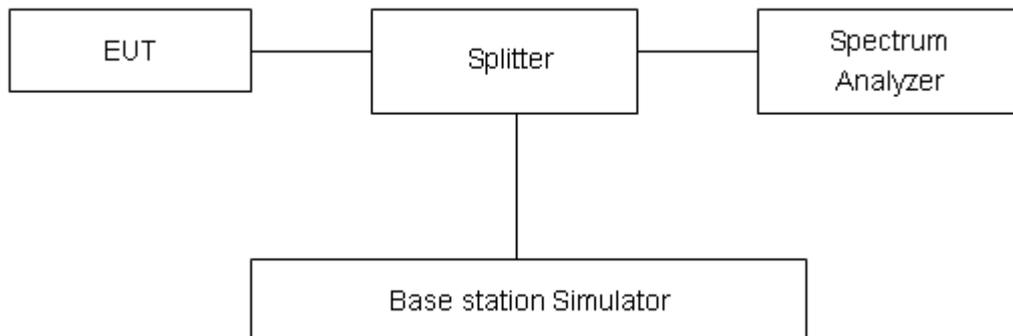
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer. The RBW is set larger than 1% of 26dB bandwidth. 99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

No specific occupied bandwidth requirement in part 90 subpart I, but the occupied bandwidth was defined in part 2.1049: the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

Upper /lower frequency limits	0.5% of the mean power
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 624\text{Hz}$.

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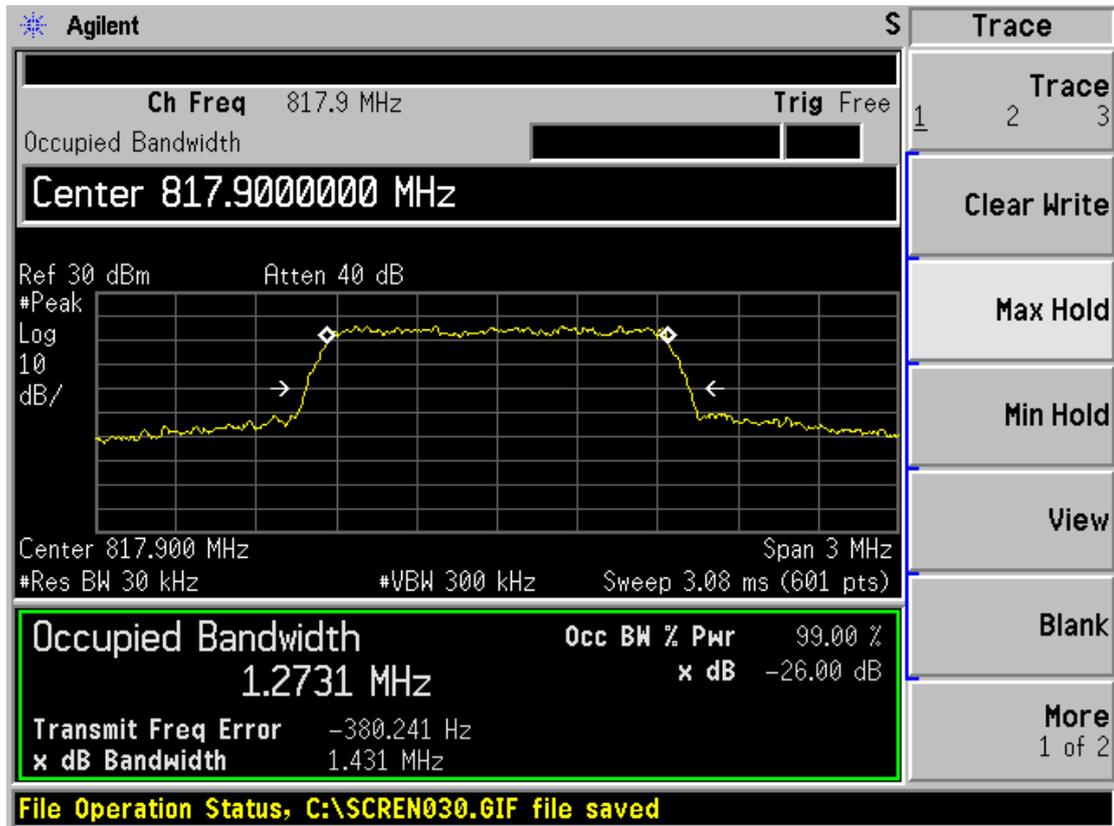
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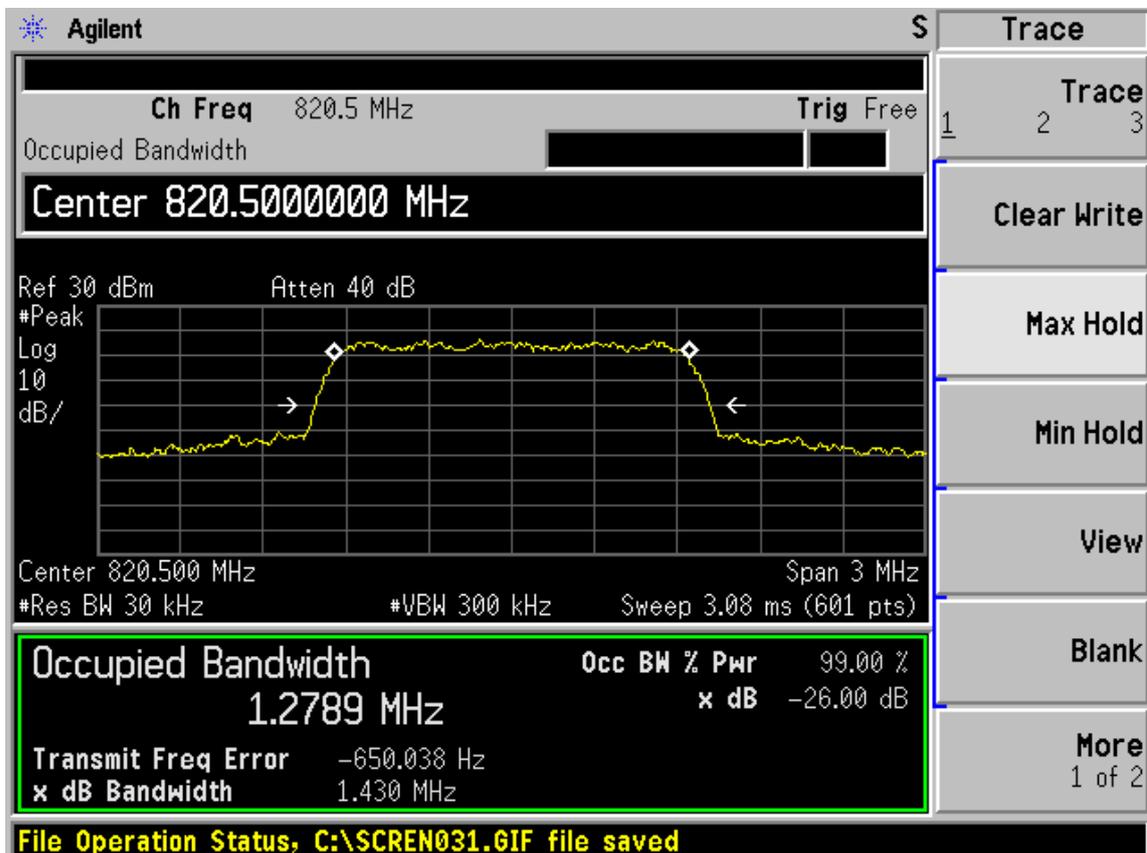
Test Result

CDMA band10	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
RC3 SO55	476	817.9	1.273	1.431
	580	820.5	1.279	1.430
	684	823.1	1.265	1.424
EVDO (Rev.0)	476	817.9	1.272	1.432
	580	820.5	1.271	1.435
	684	823.1	1.265	1.429
EVDO (Rev.A)	476	817.9	1.275	1.440
	580	820.5	1.280	1.440
	684	823.1	1.275	1.425
1X Advance SO75	476	817.9	1.272	1.432
	580	820.5	1.271	1.435
	684	823.1	1.265	1.429

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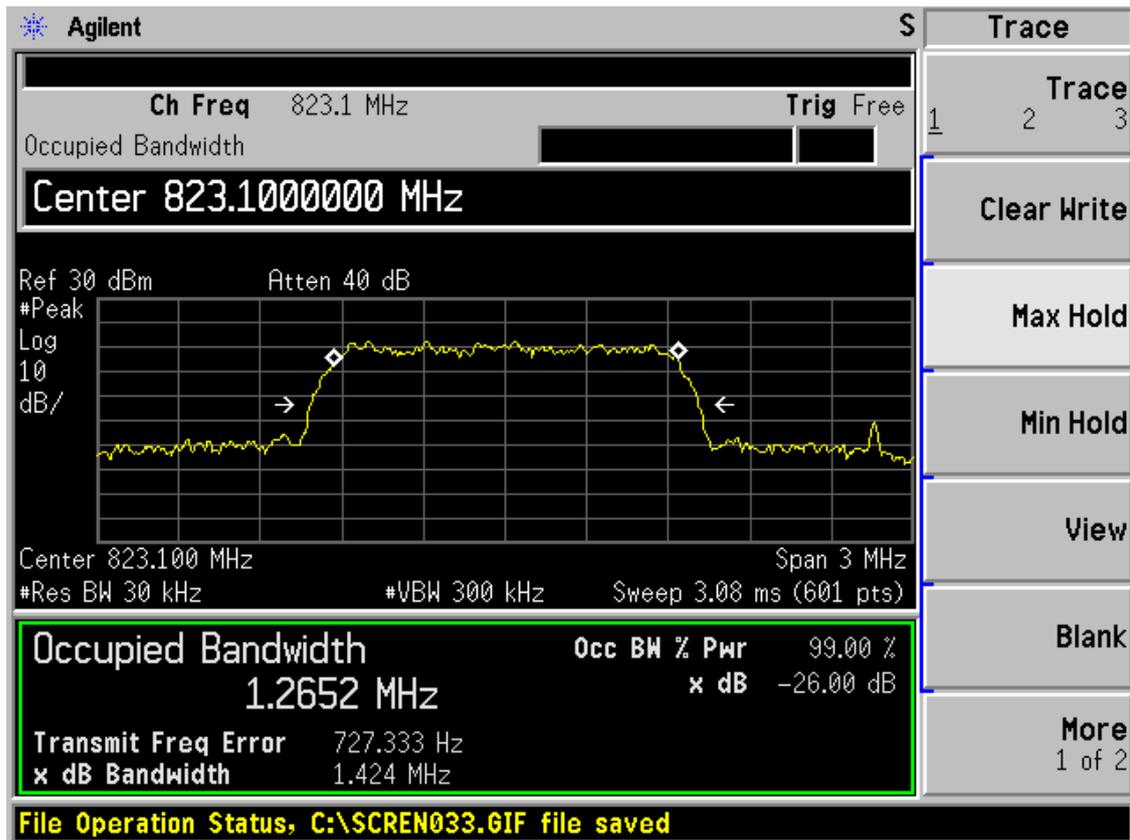


CDMA BC10 RC3 SO55(Loopback) CH476 Occupied Bandwidth

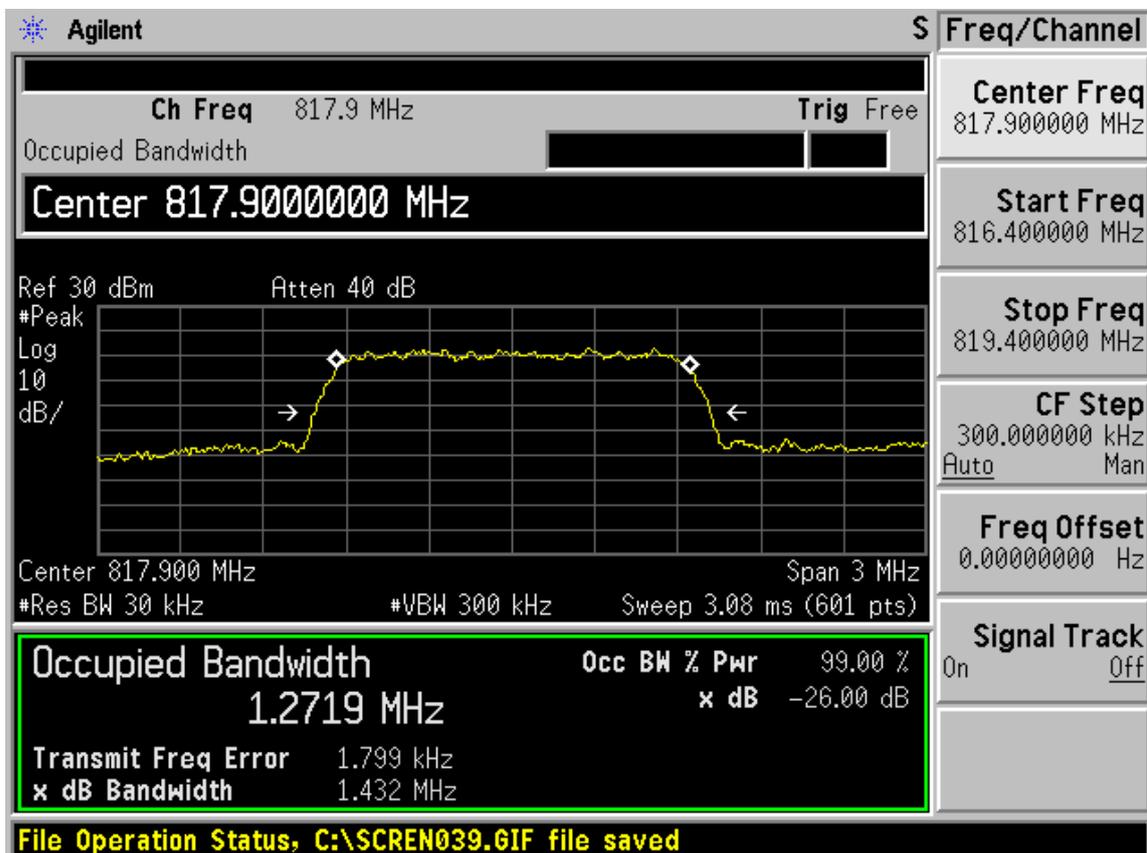


CDMA BC10 RC3 SO55(Loopback) CH580 Occupied Bandwidth

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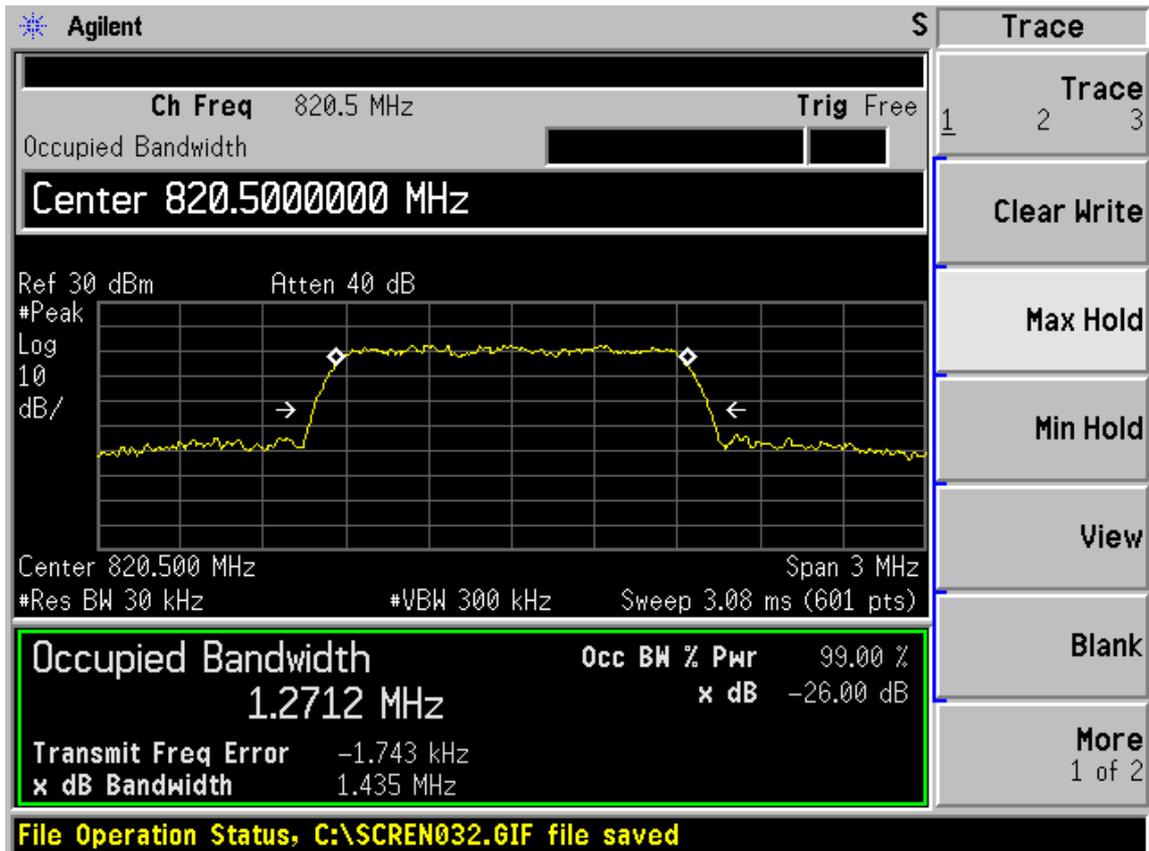


CDMA BC10 RC3 SO55(Loopback) CH684 Occupied Bandwidth

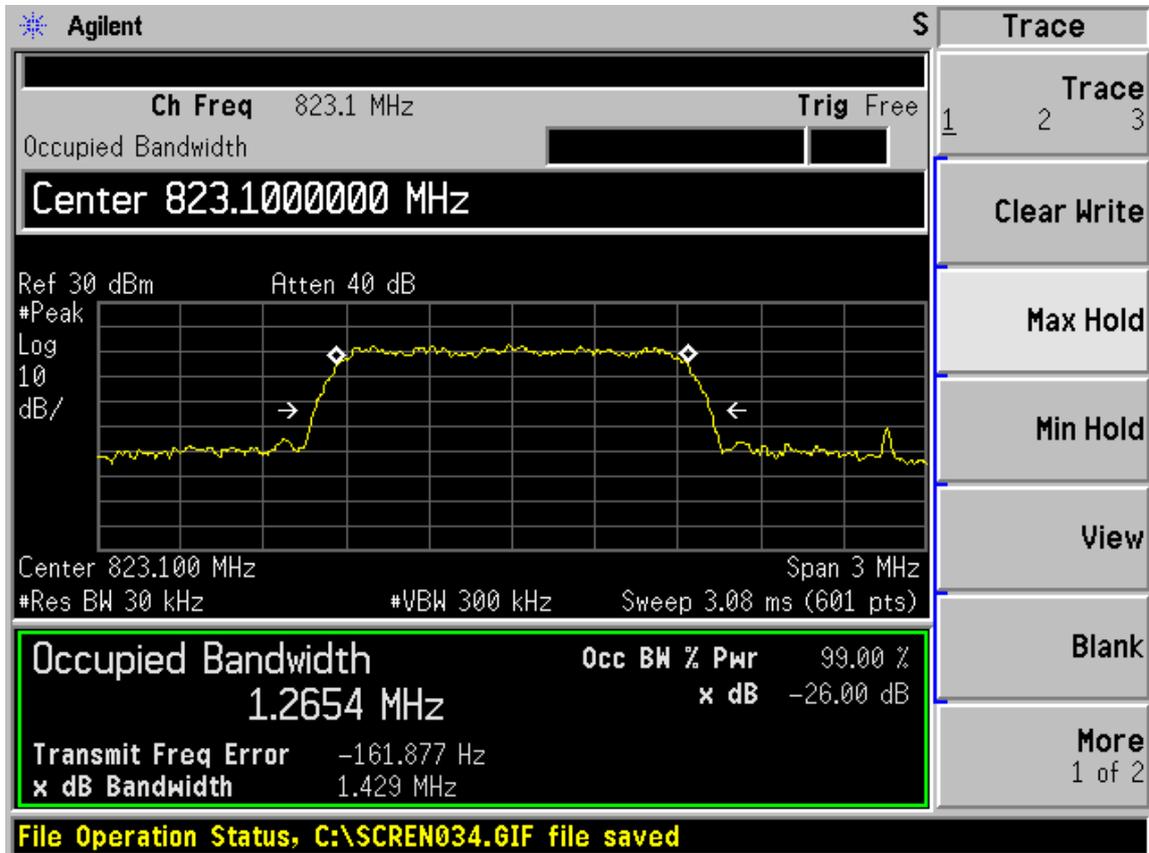


CDMA BC10 EVDO (Rev.0) CH476 Occupied Bandwidth

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CDMA BC10 EVDO (Rev.0) CH580 Occupied Bandwidth

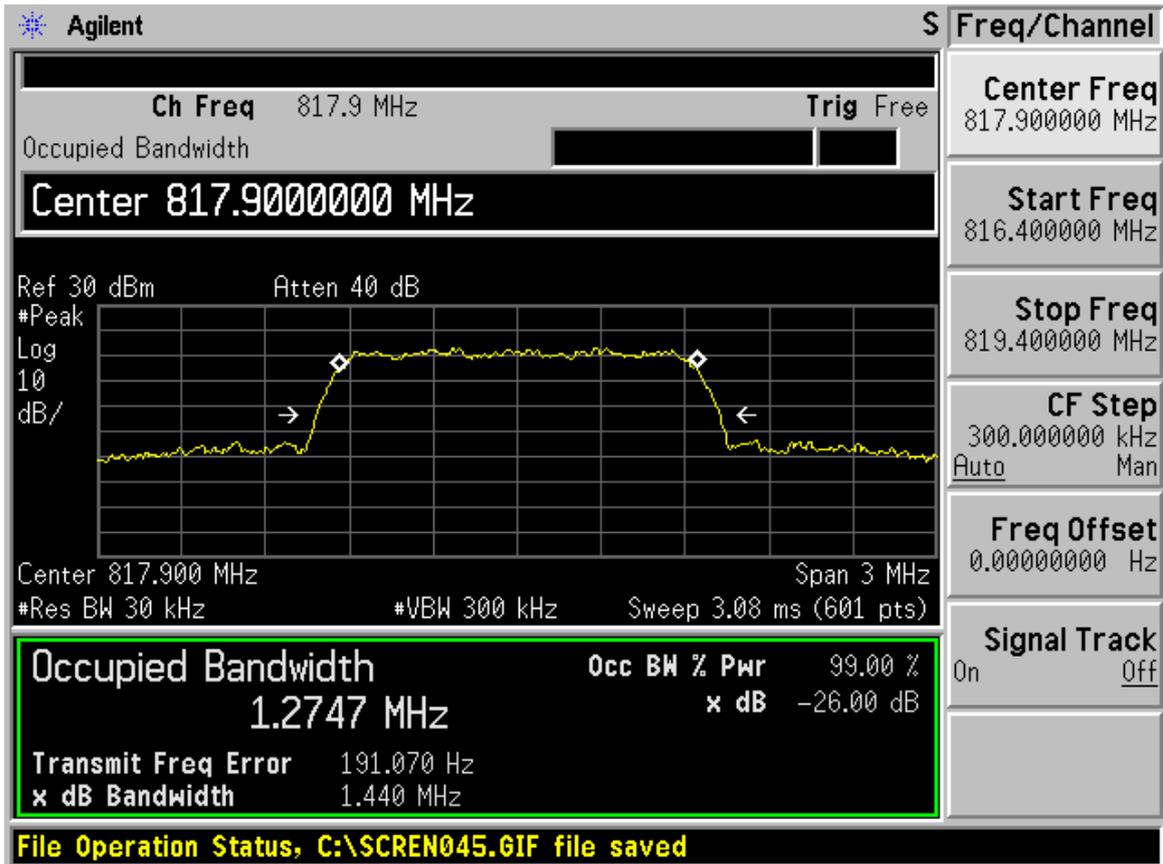


CDMA BC10 EVDO (Rev.0) CH684 Occupied Bandwidth

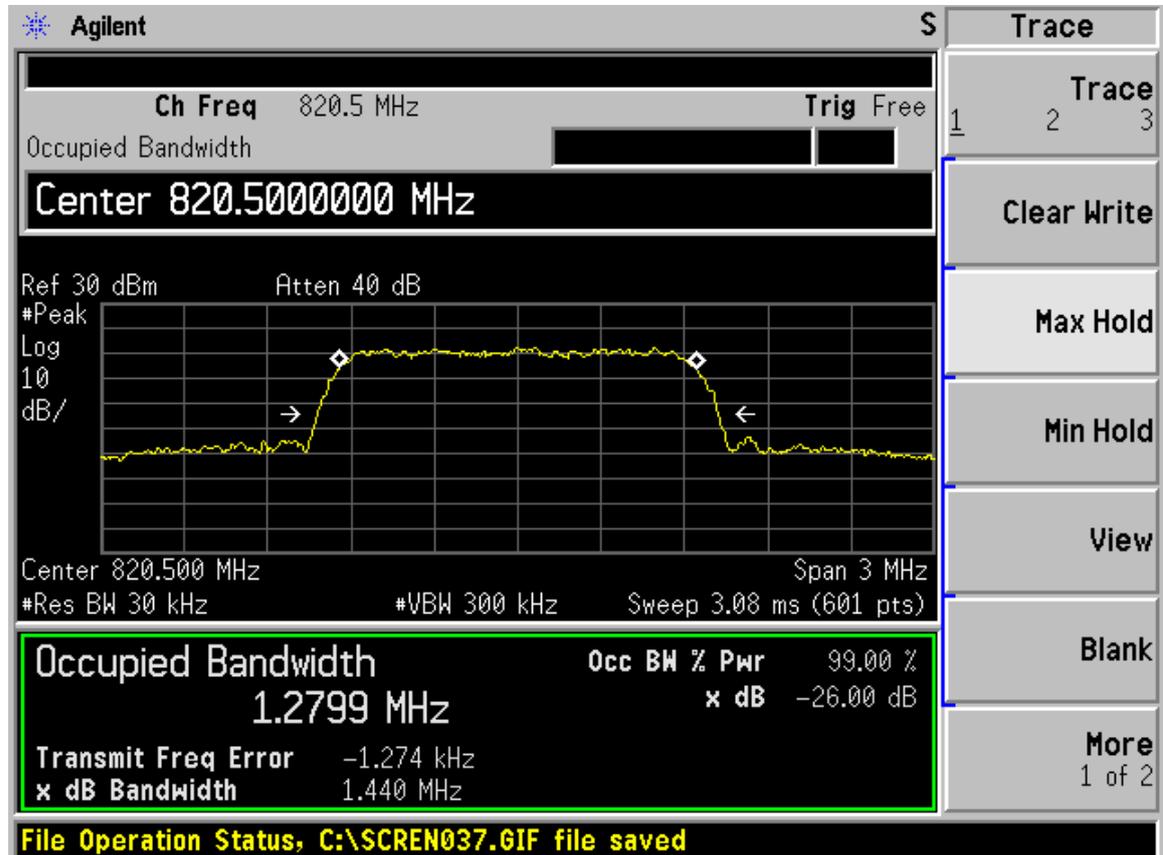
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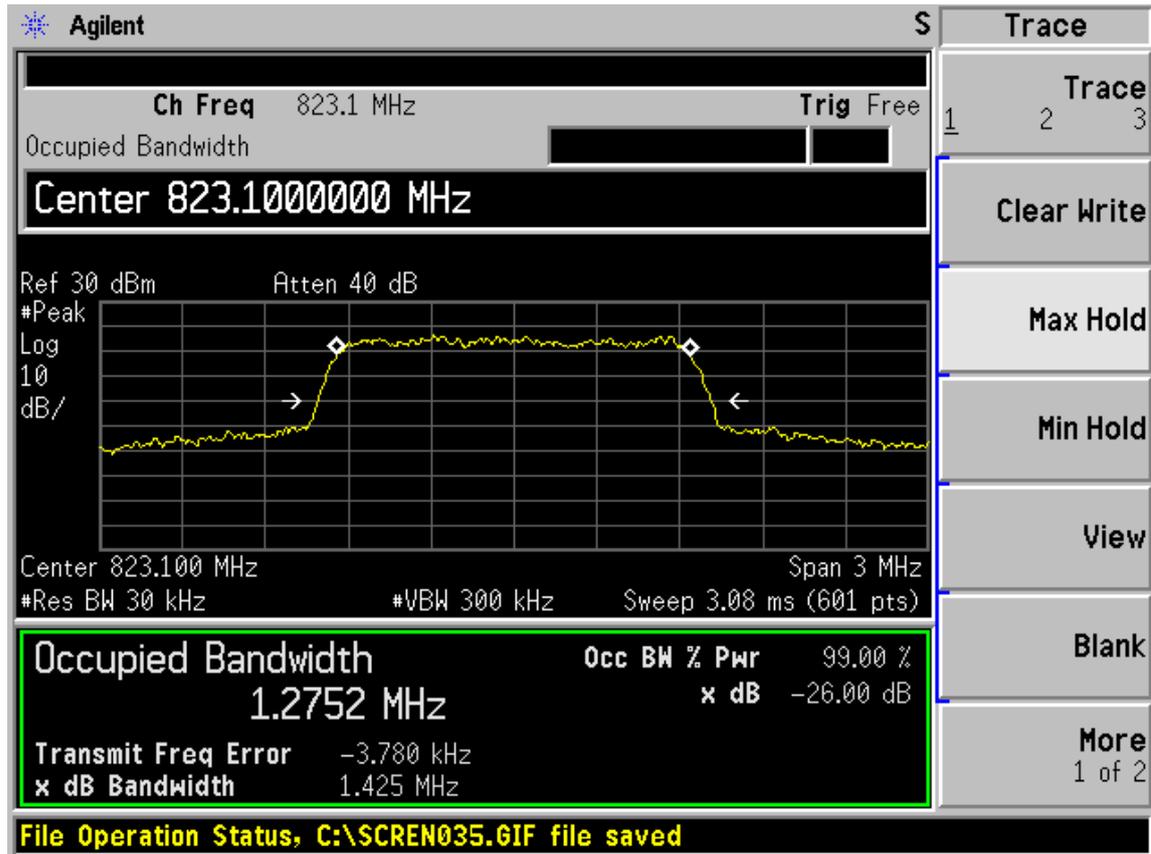


CDMA BC10 EVDO (Rev.A) CH476 Occupied Bandwidth

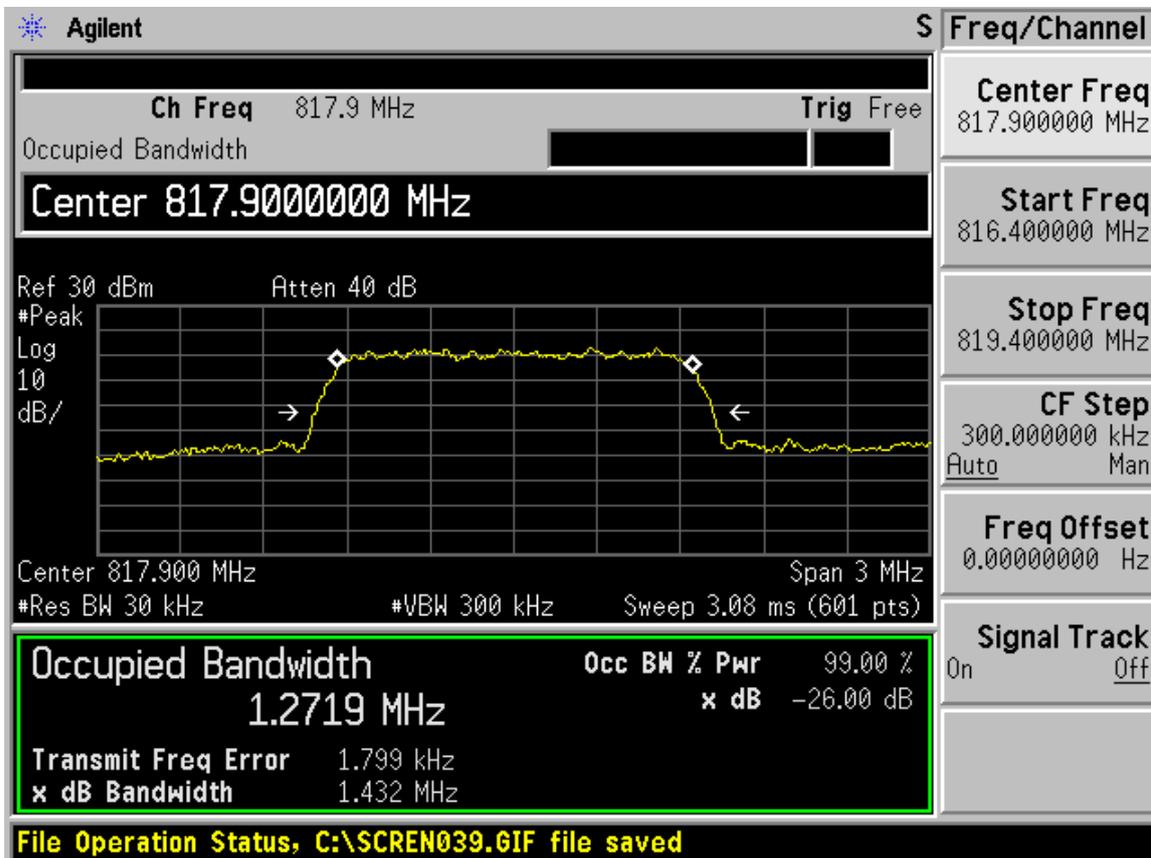


CDMA BC10 EVDO (Rev.A) CH580 Occupied Bandwidth

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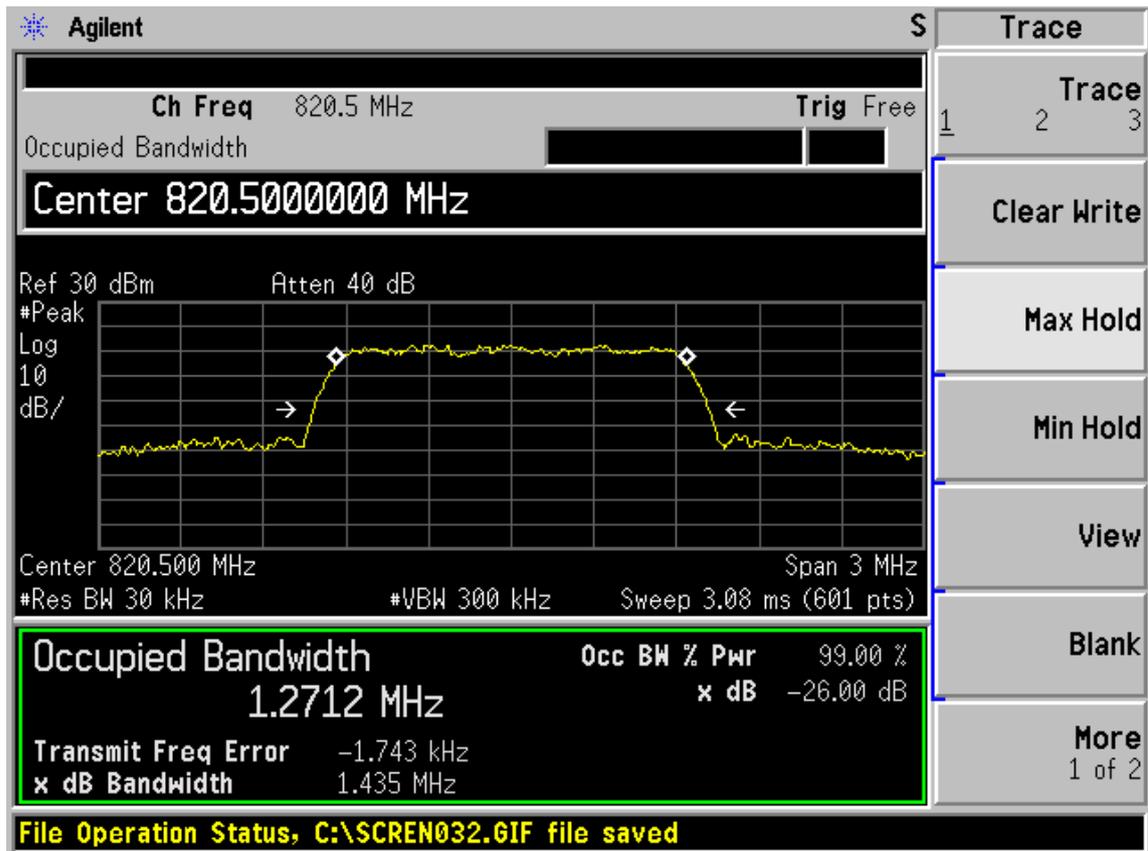


CDMA BC10 EVDO (Rev.A) CH684 Occupied Bandwidth

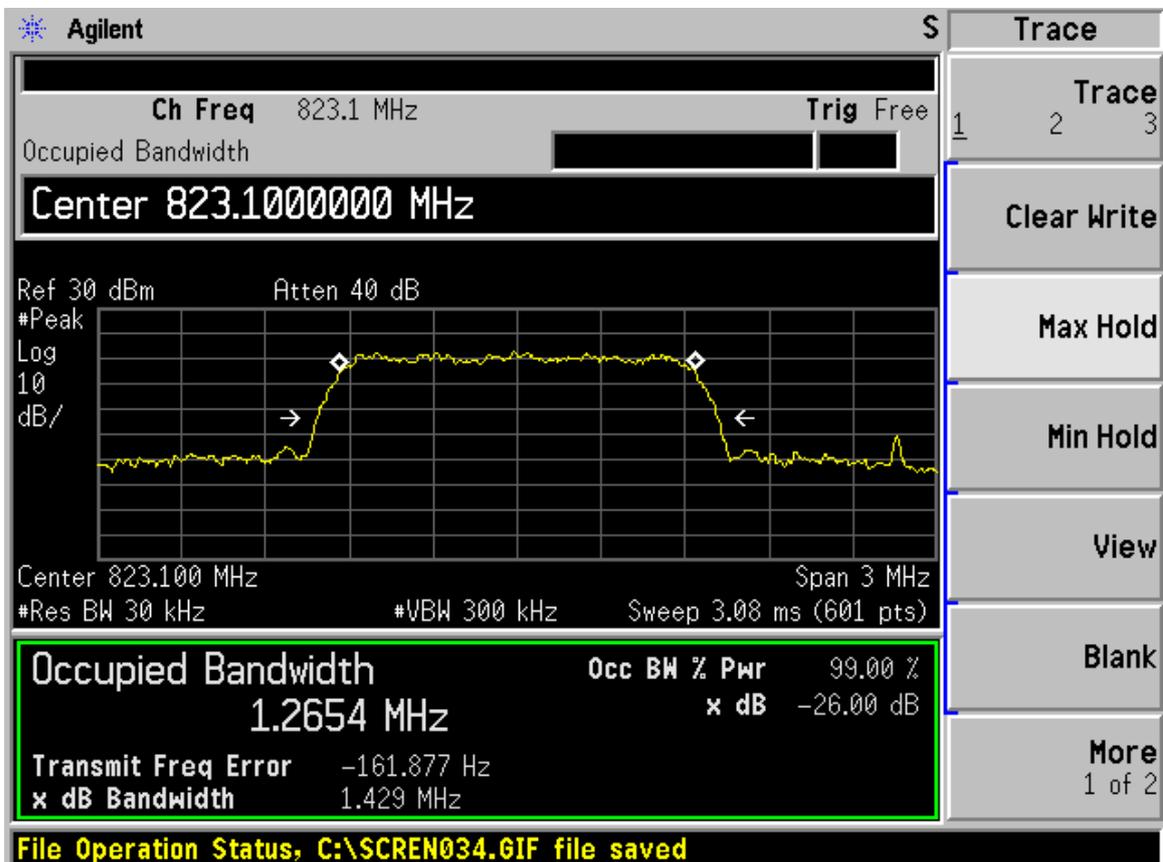


CDMA BC10 1X Advance SO75 CH476 Occupied Bandwidth

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CDMA BC10 1X Advance SO75 CH580 Occupied Bandwidth



CDMA BC10 1X Advance SO75 CH684 Occupied Bandwidth

2.6. Band Edge Compliance

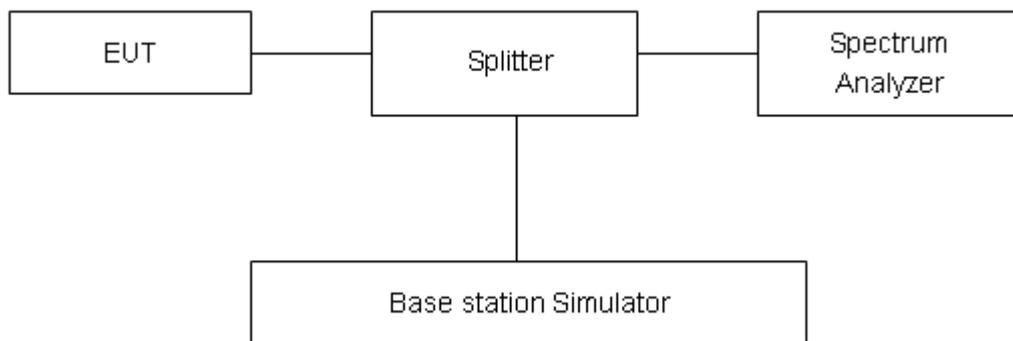
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The average detector is used. RBW is set to 30kHz, VBW is set to 300kHz for CDMA BC10. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 90.691 specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.”

For any frequency removed from the EA licensee’s frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

Limit	-20 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

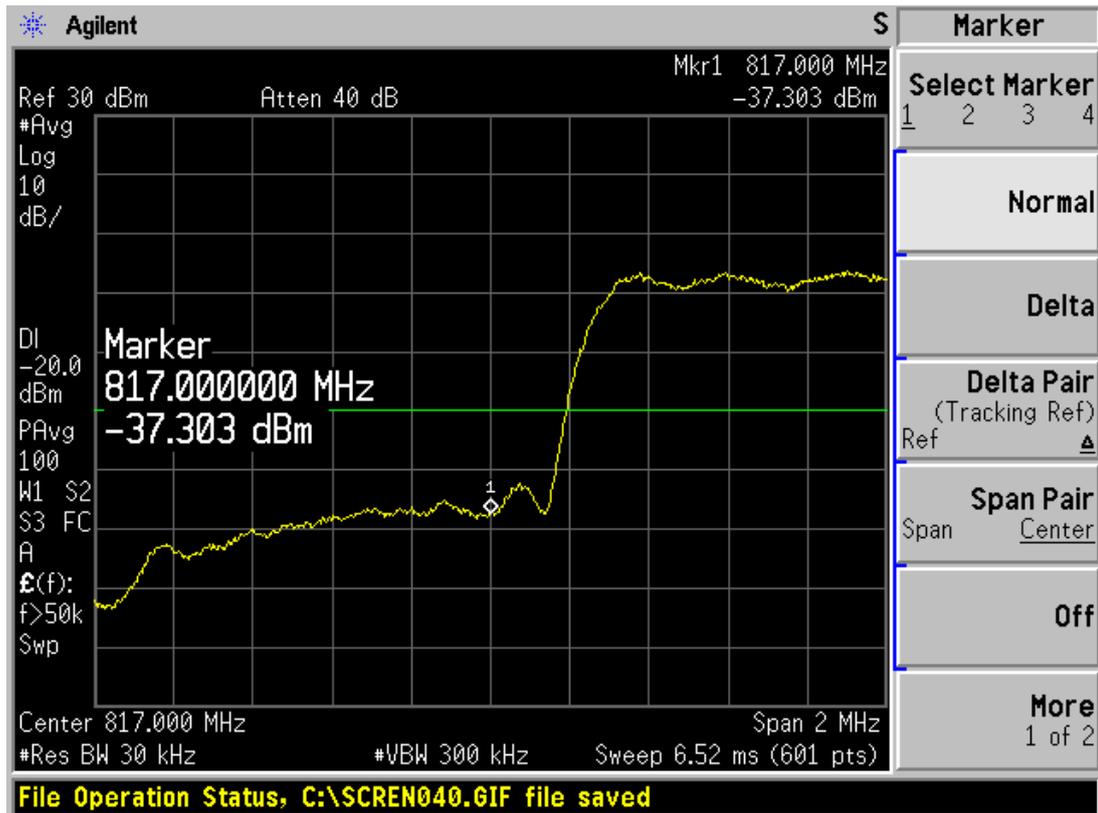
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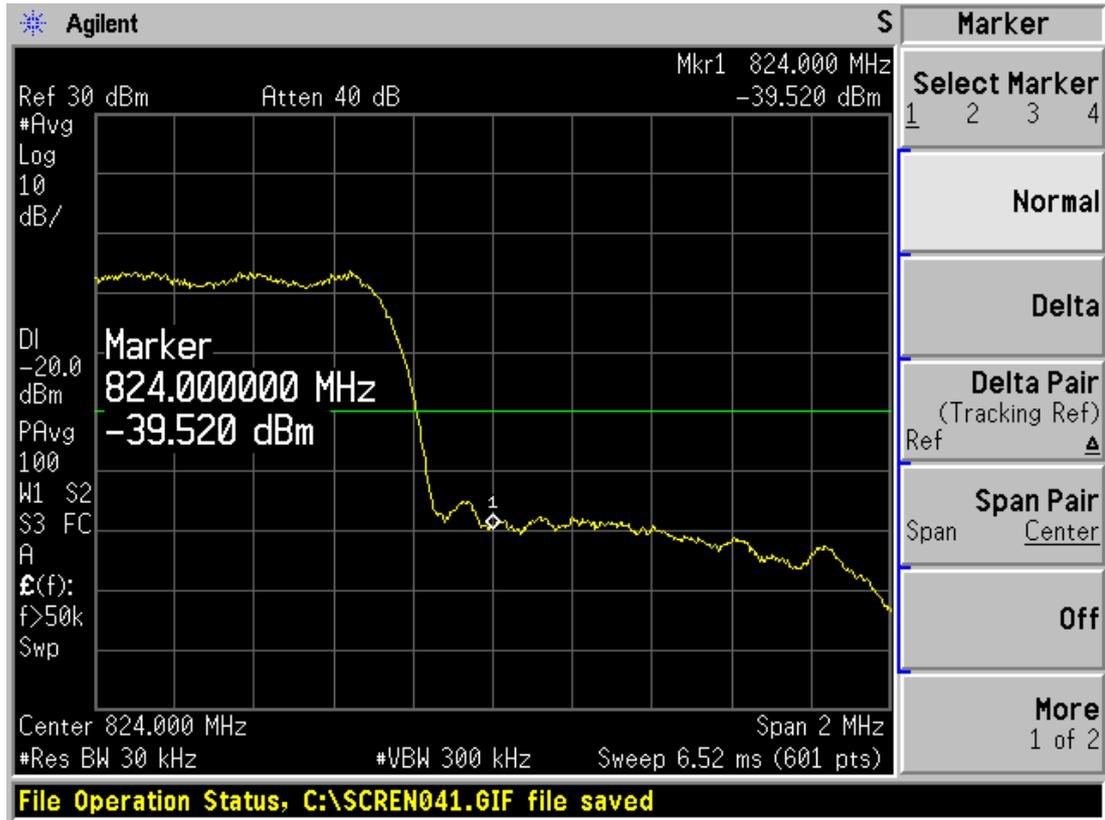
Test Result:

CDMA band10	Carrier frequency (MHz)	Reference value (dBm)	Limit	Conclusion
RC3 SO55	817.9	-37.303	-20	PASS
	823.1	-39.520	-20	PASS
EVDO (Rev.0)	817.9	-37.654	-20	PASS
	823.1	-40.502	-20	PASS
EVDO (Rev.A)	817.9	-33.997	-20	PASS
	823.1	-38.680	-20	PASS
1X Advance SO75	817.9	-37.465	-20	PASS
	823.1	-40.502	-20	PASS

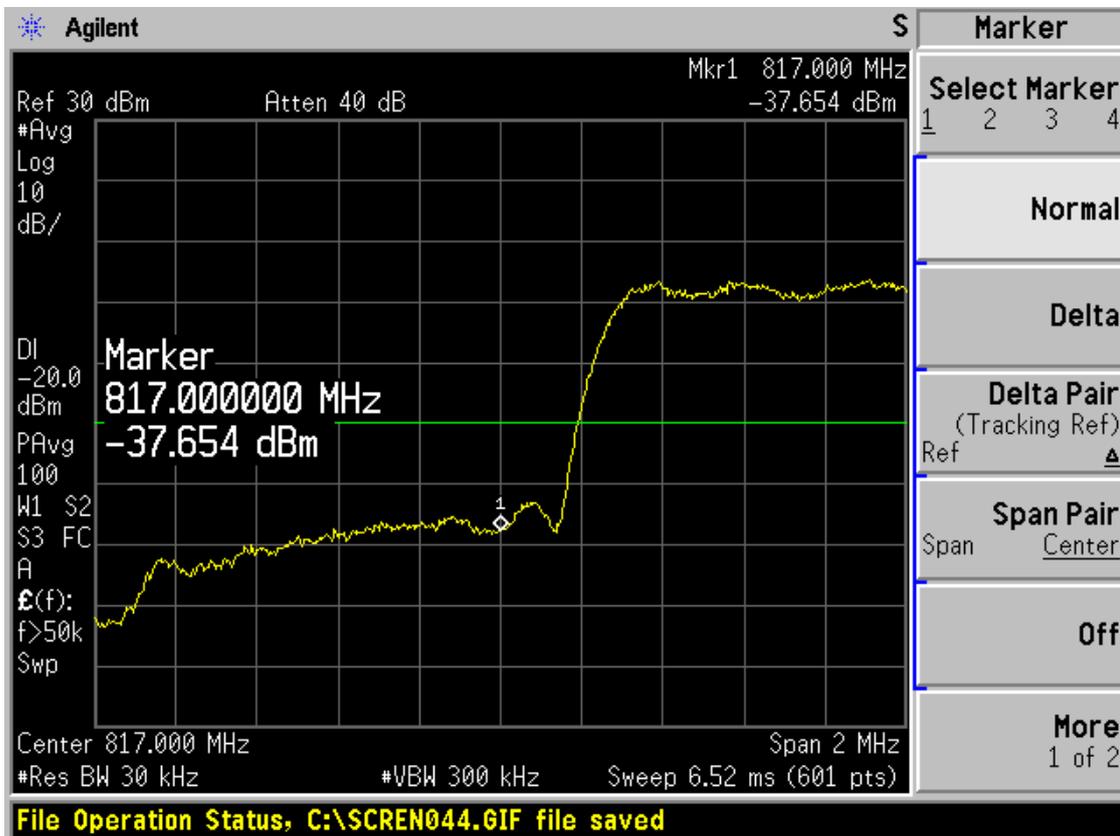


CDMA BC10 RC3 SO55(Loopback) CH476 Channel

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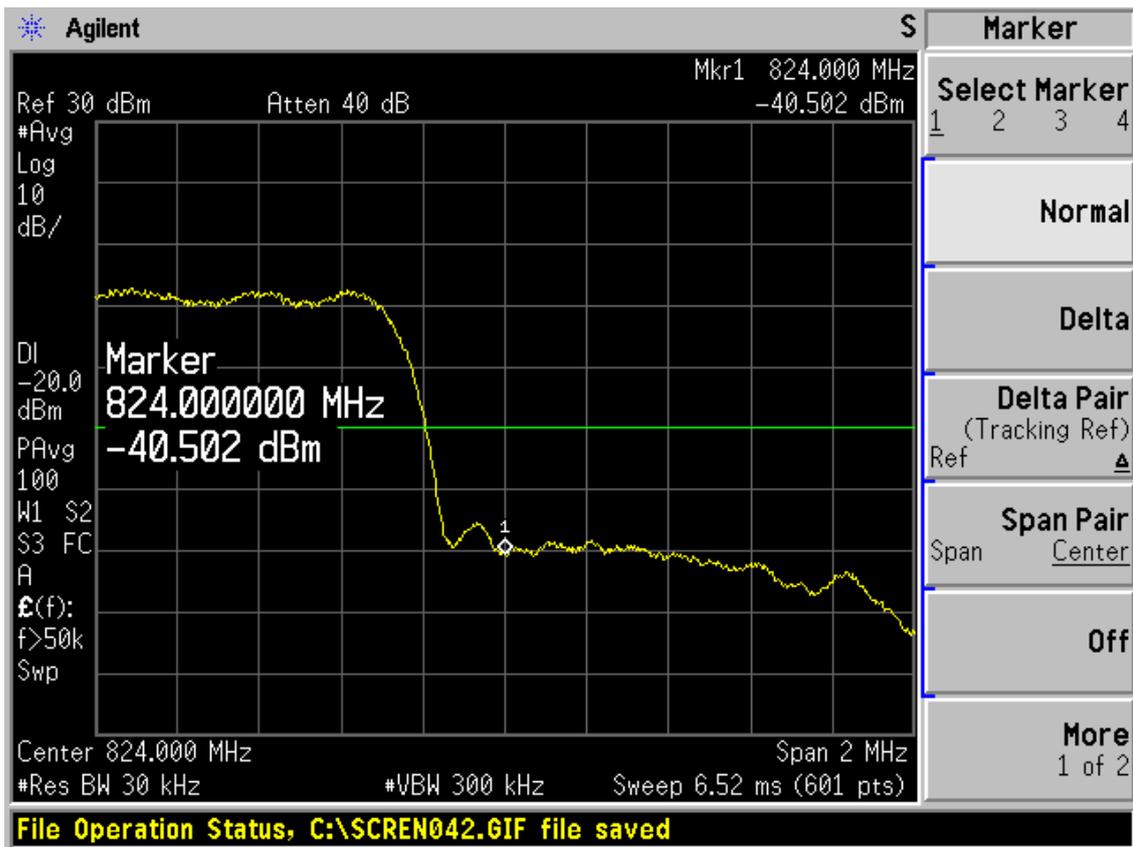


CDMA BC10 RC3 SO55(Loopback) CH684 Channel

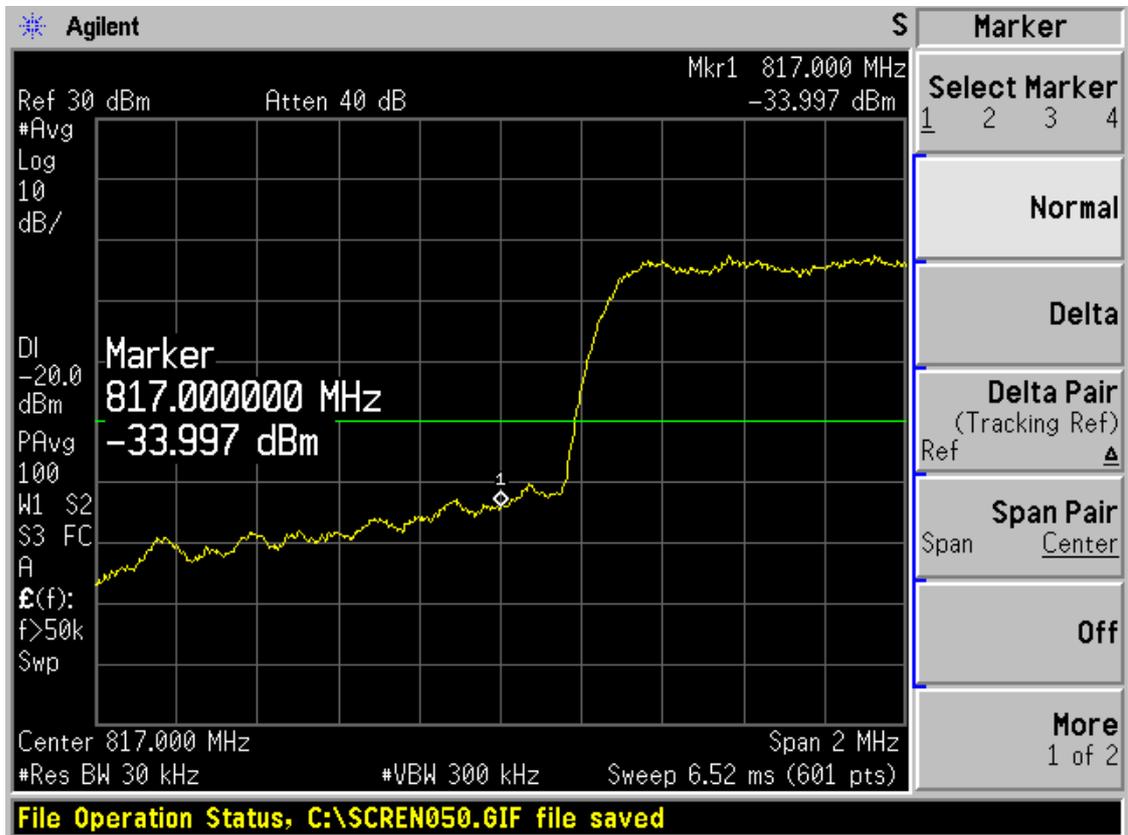


CDMA BC10 EVDO (Rev.0) CH476 Channel

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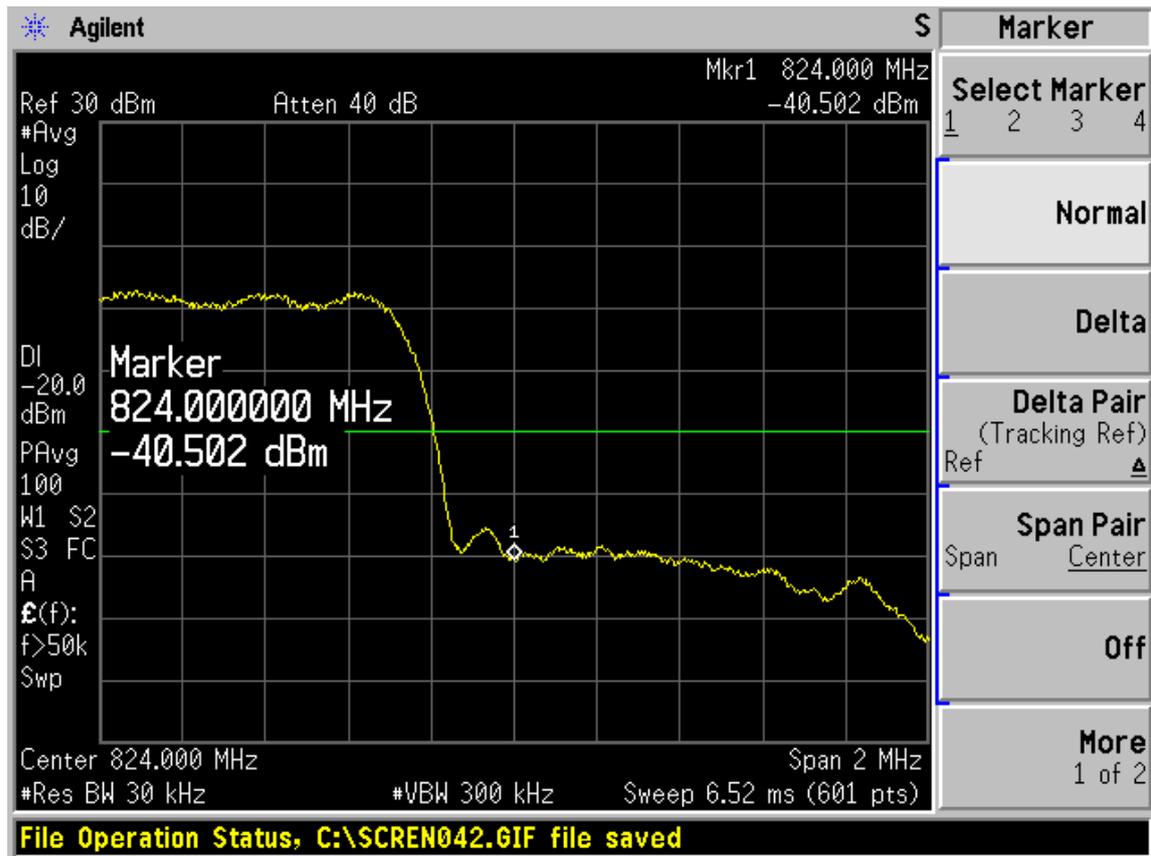


CDMA BC10 EVDO (Rev.0) CH684 Channel



CDMA BC10 EVDO (Rev.A) CH476 Channel

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CDMA BC10 1X Advance SO75 CH684 Channel

2.7. Peak-to-Average Power Ratio (PAPR)

Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

The measurement procedures in KDB971168 are used.

The inherent randomness of the power peaks in a noise-like signal makes it difficult to quantify the peak power using traditional measurement techniques for determining the peak power of an analog signal. The peak power of a digitally-modulated signal is predictable only on a statistical basis. Thus, for these types of signals, a statistical measurement of the peak power is necessary.

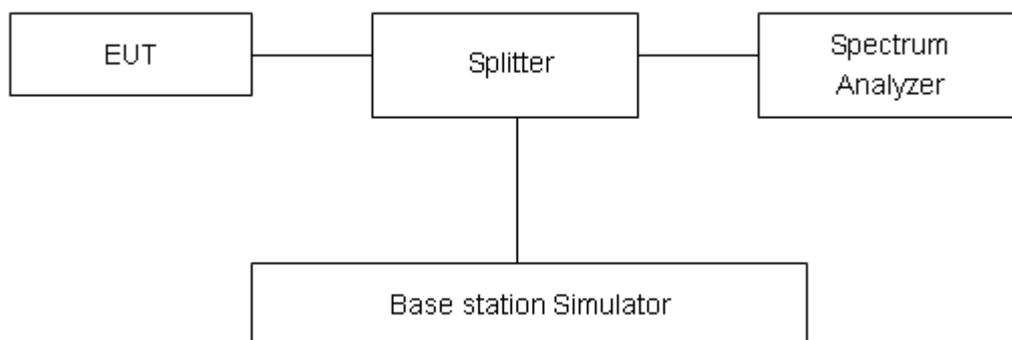
Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth.

Step 1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.

Step 2. Set the CCDF option in Spectrum analyzer.

Step 3. Record the maximum PAPR level associated with a probability of 0.1%.

Test Setup



Limits

No specific Peak-to-Average Ratio requirements in KDB 971168.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

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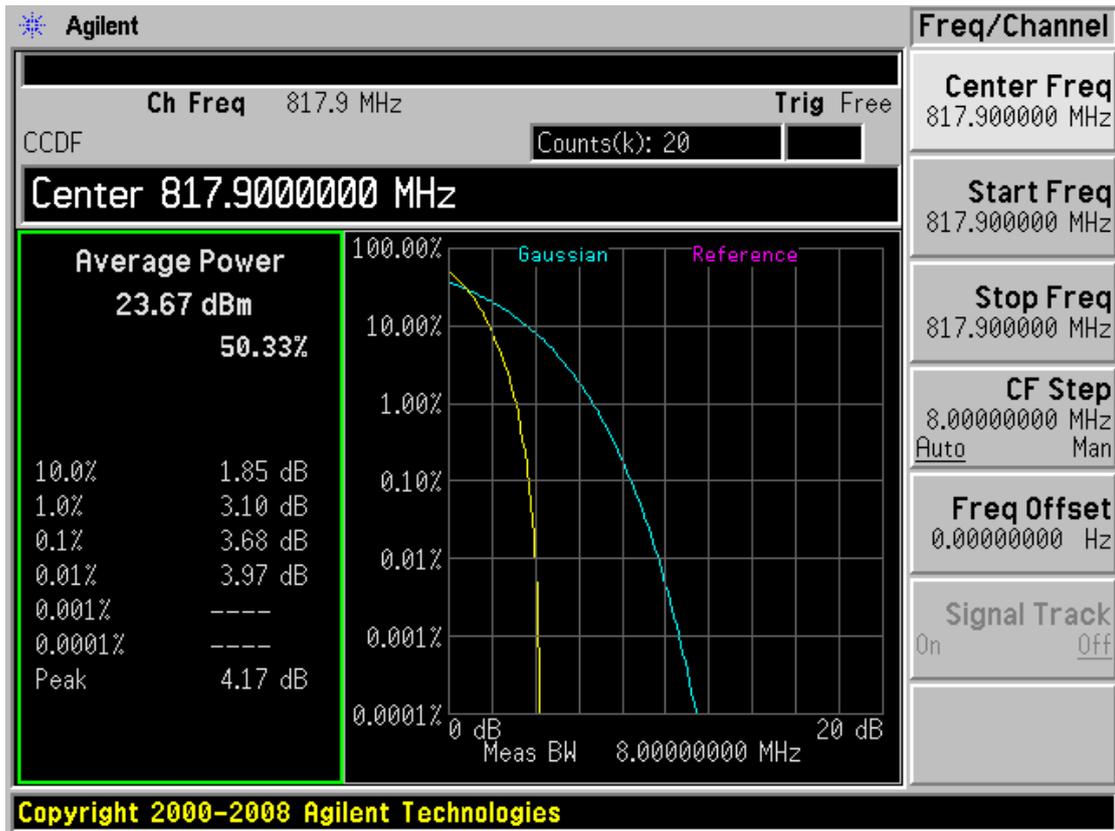
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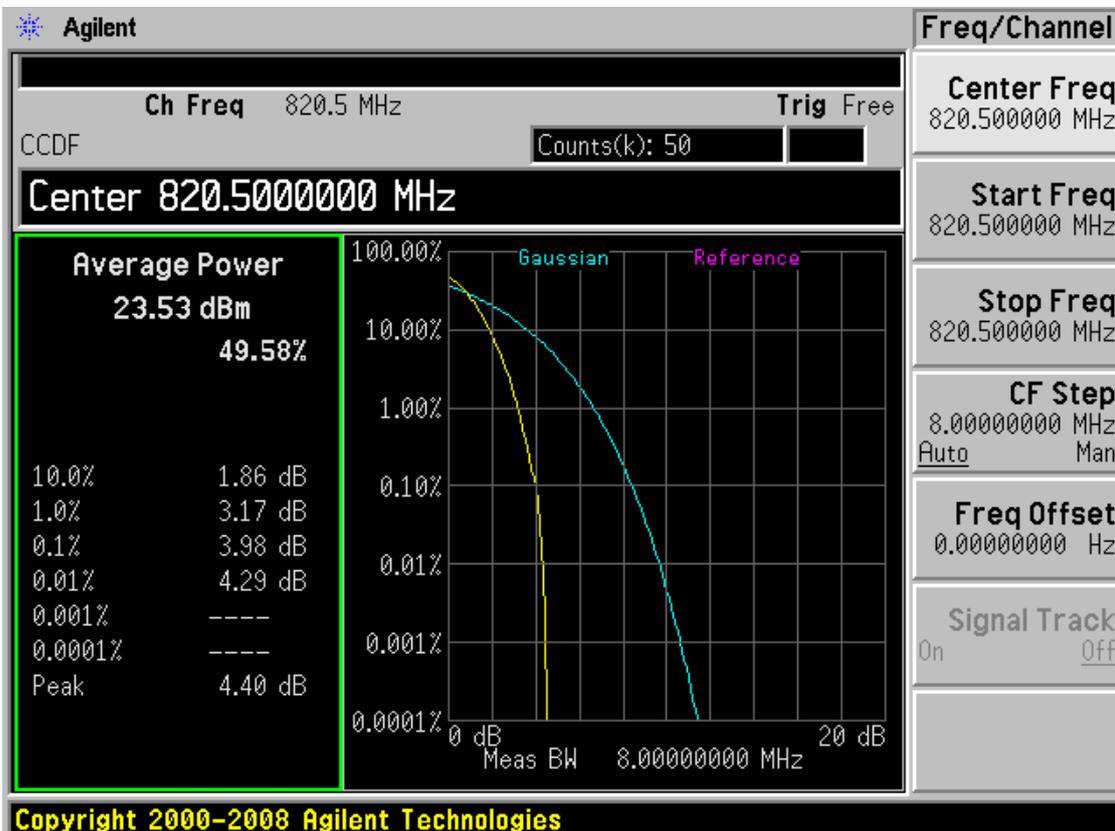
Test Results

CDMA band10	Channel	Frequency (MHz)	Test Result(dB)
RC3 SO55(Loopback)	476	817.9	3.68
	580	820.5	3.98
	684	823.1	3.89
EVDO (Rev.0)	476	817.9	3.86
	580	820.5	4.10
	684	823.1	4.26
EVDO (Rev.A)	476	817.9	4.30
	580	820.5	4.68
	684	823.1	4.98
1X Advance SO75	476	817.9	3.77
	580	820.5	3.85
	684	823.1	3.98

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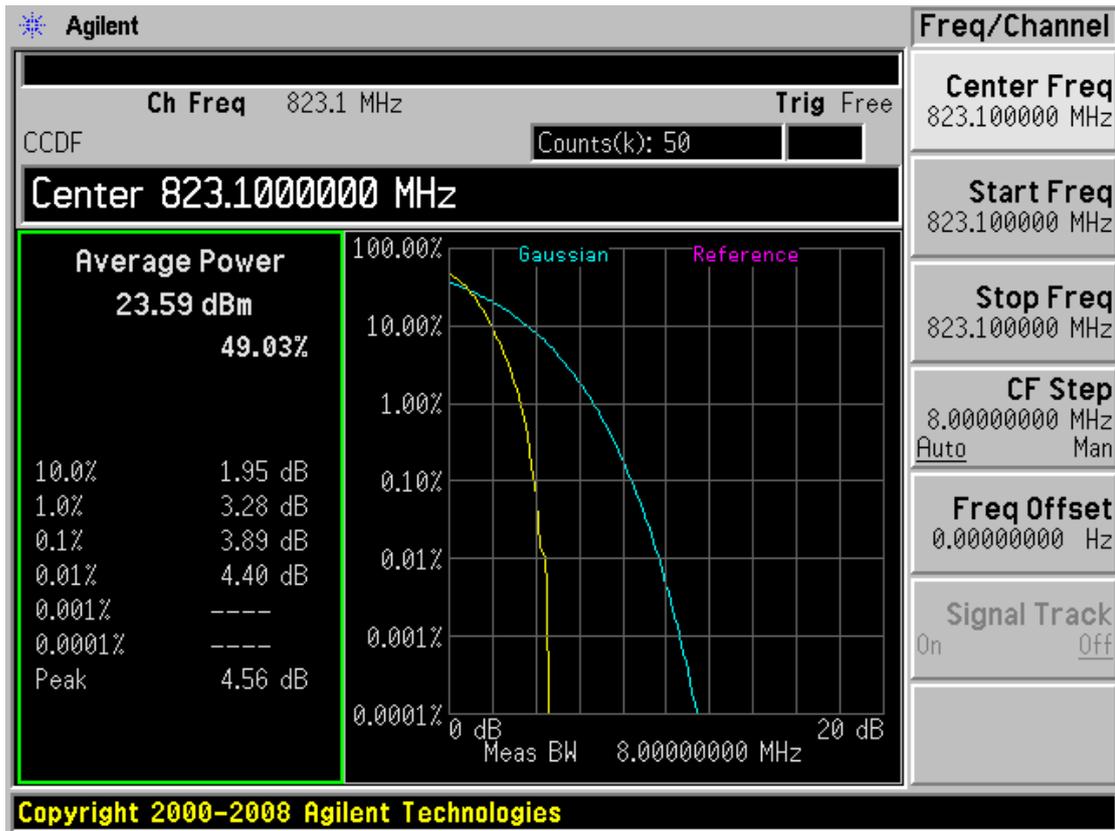
CDMA BC10 RC3 SO55(Loopback) CH476 Channel



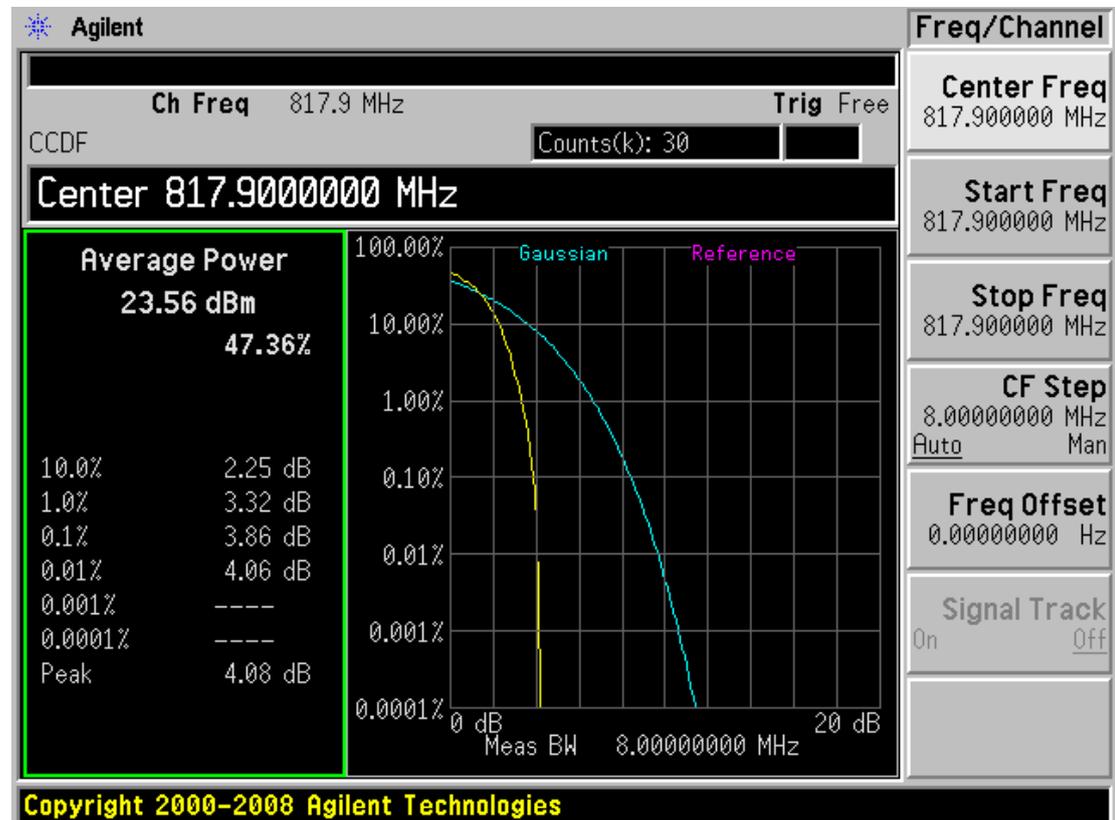
CDMA BC10 RC3 SO55(Loopback) CH580 Channel

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CDMA BC10 RC3 SO55(Loopback) CH684 Channel

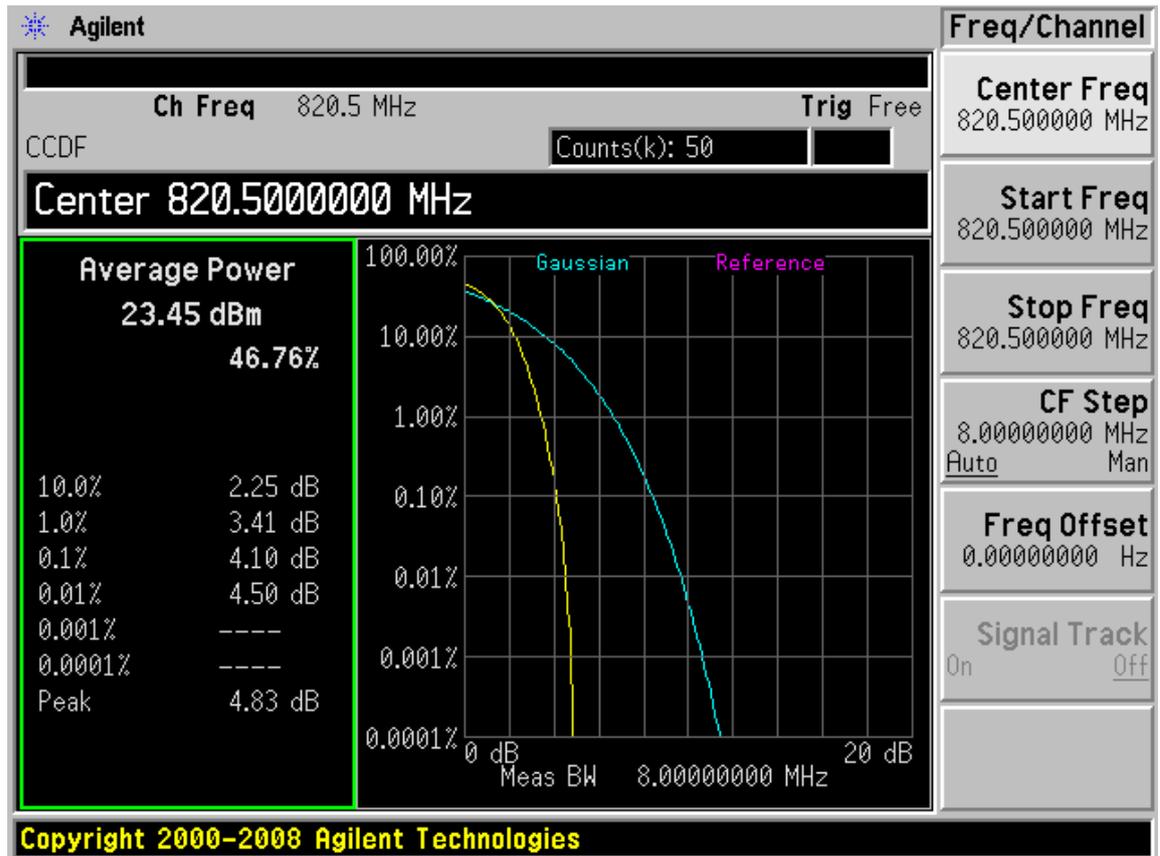


CDMA BC10 EVDO (Rev.0) CH476 Channel

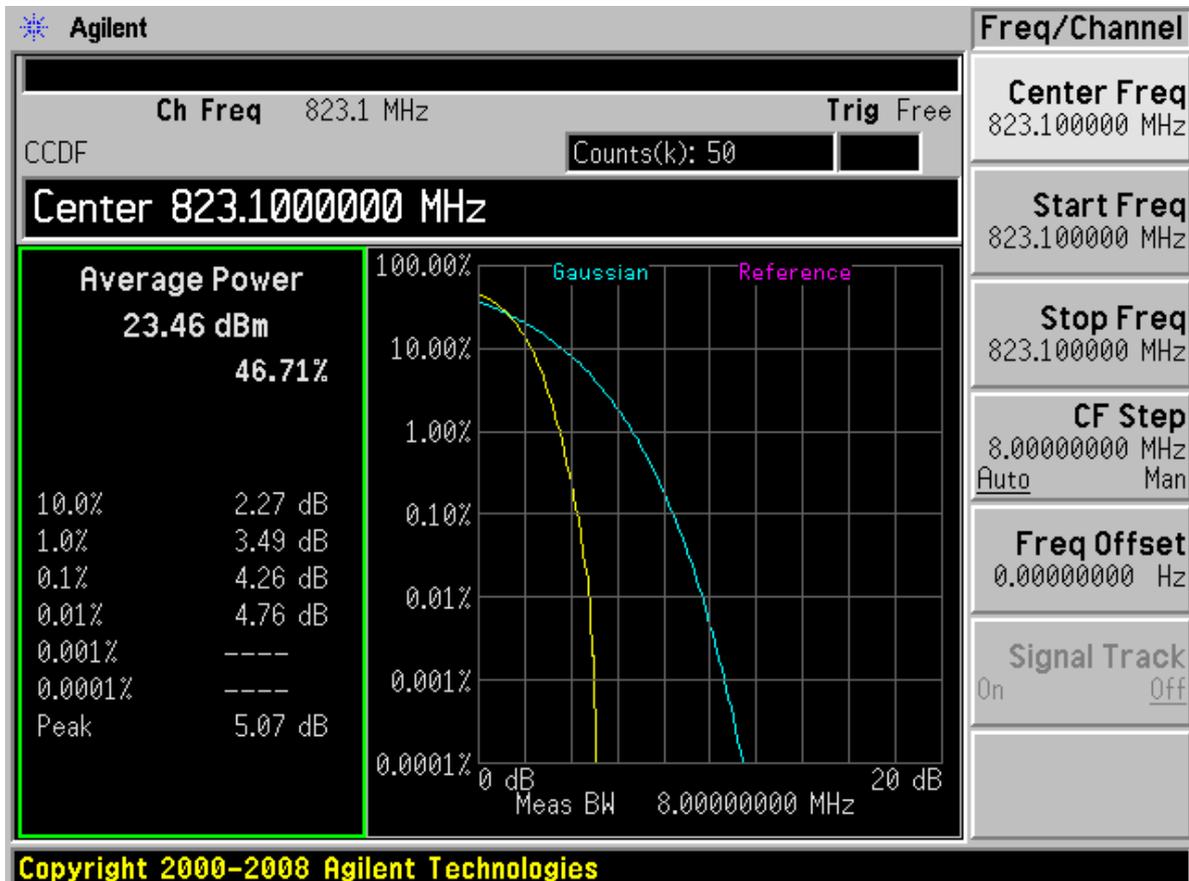
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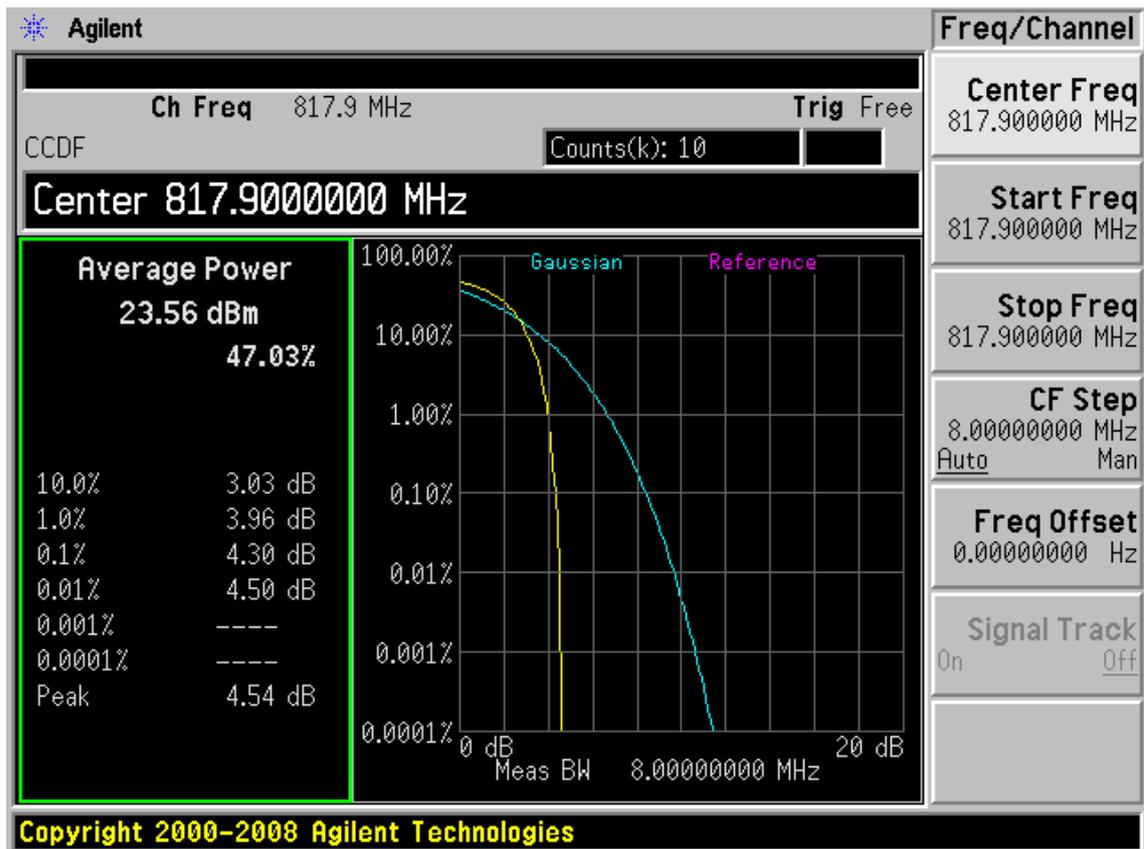


CDMA BC10 EVDO (Rev.0) CH580 Channel

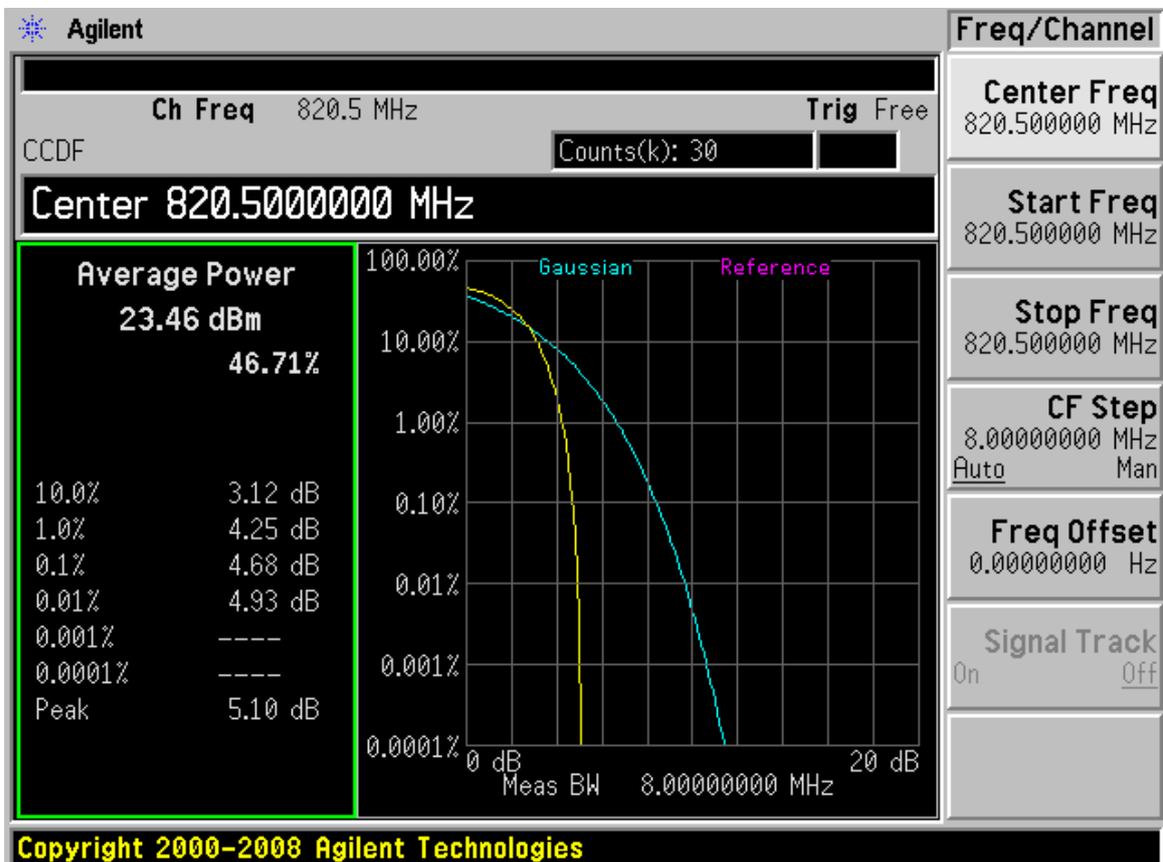


CDMA BC10 EVDO (Rev.0) CH684 Channel

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CDMA BC10 EVDO (Rev.A) CH476 Channel

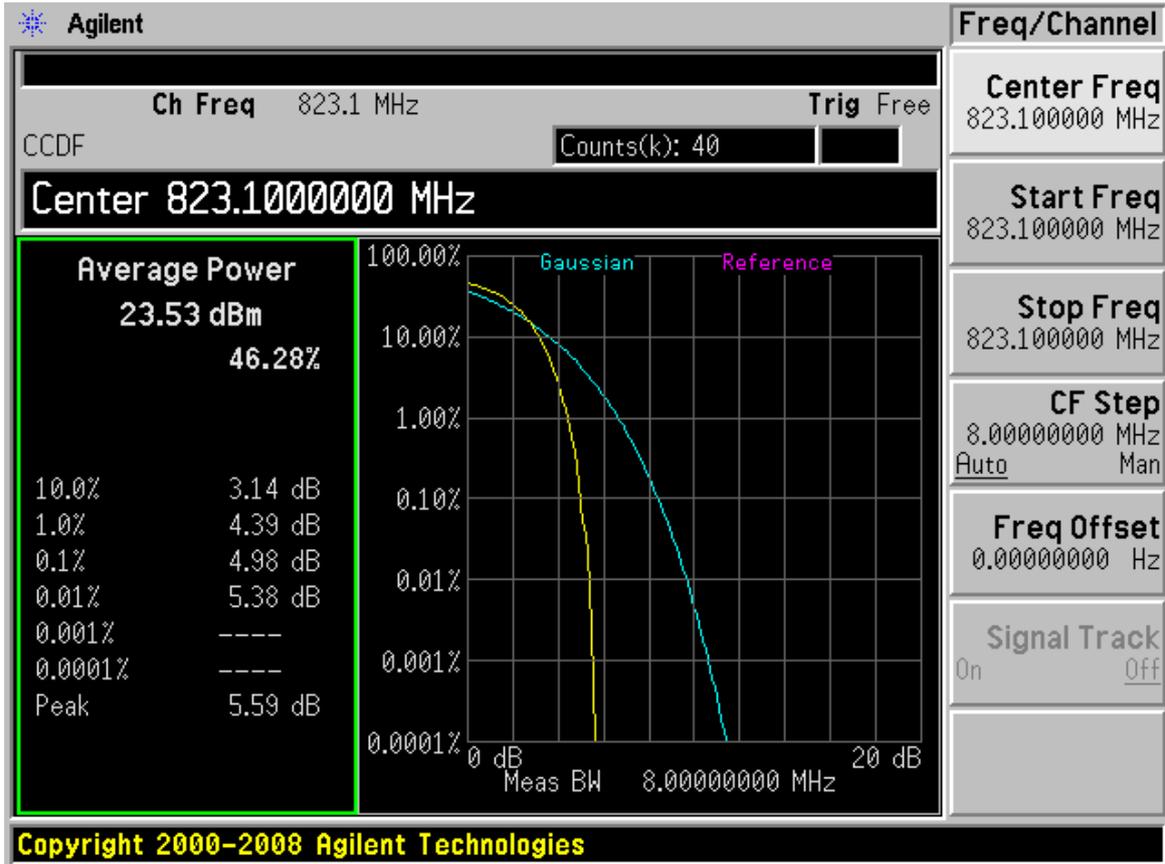


CDMA BC10 EVDO (Rev.A) CH580 Channel

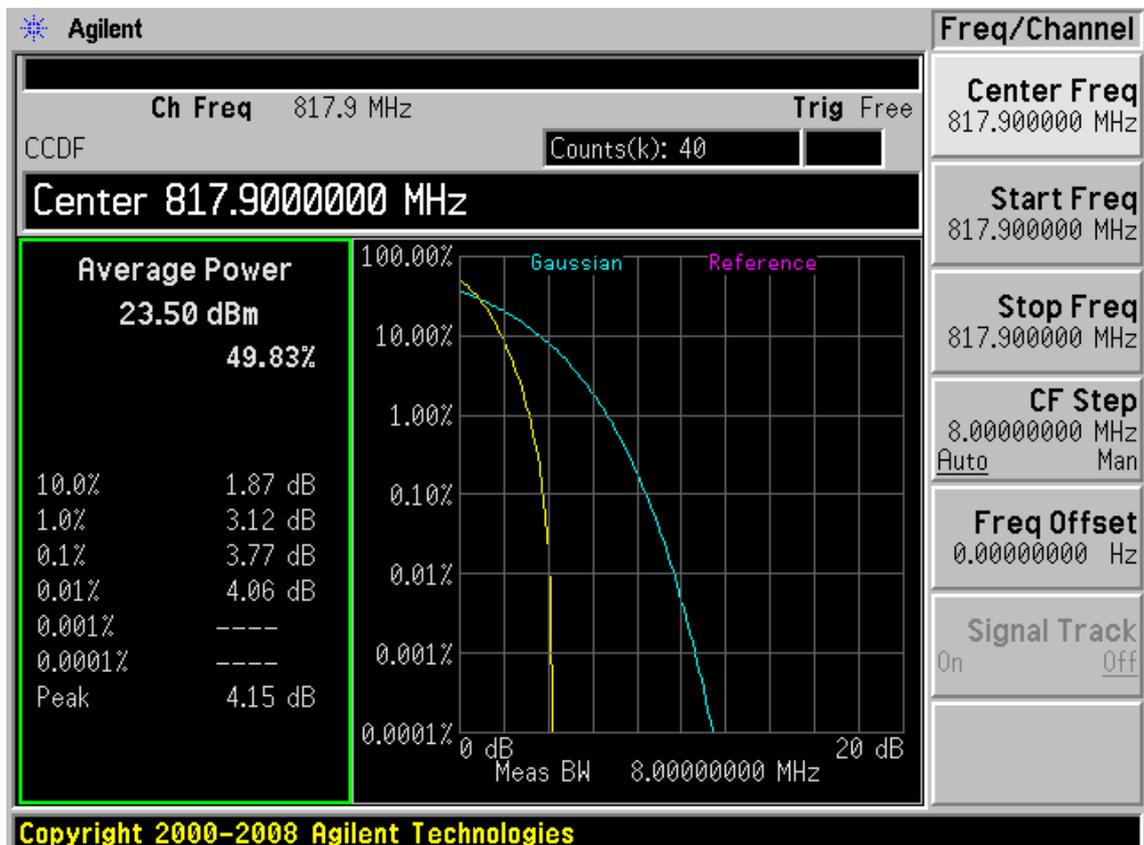
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CDMA BC10 EVDO (Rev.A) CH684 Channel

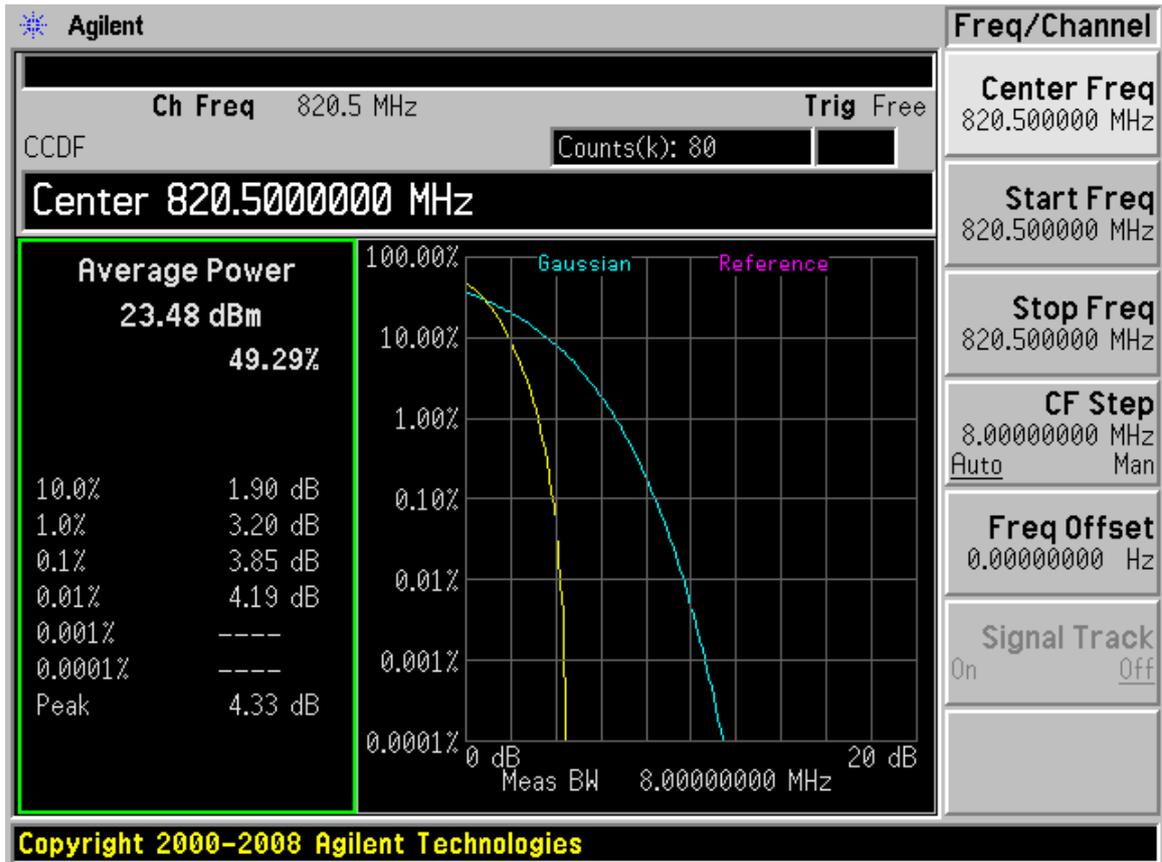


CDMA BC10 1X Advance SO75 CH476 Channel

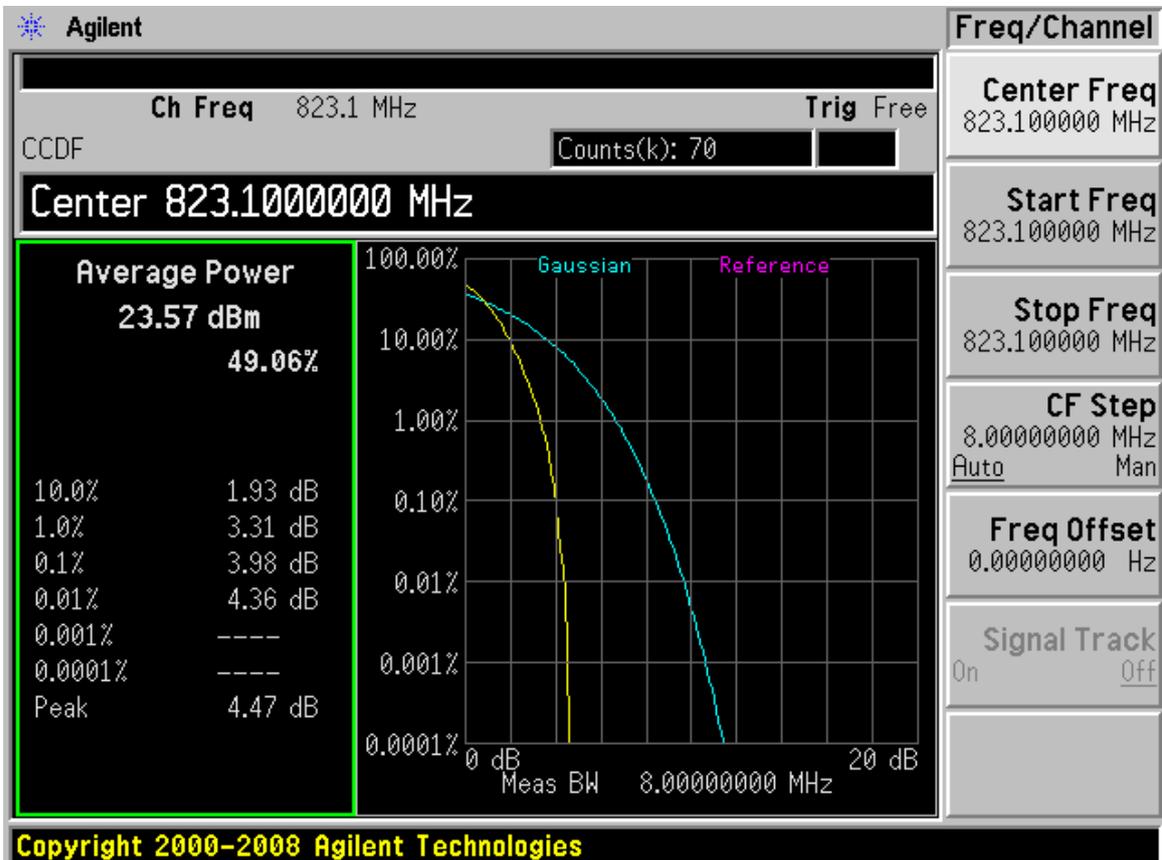
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CDMA BC10 1X Advance SO75 CH580 Channel



CDMA BC10 1X Advance SO75 CH684 Channel

2.8. Frequency Stability

Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a "call mode". These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

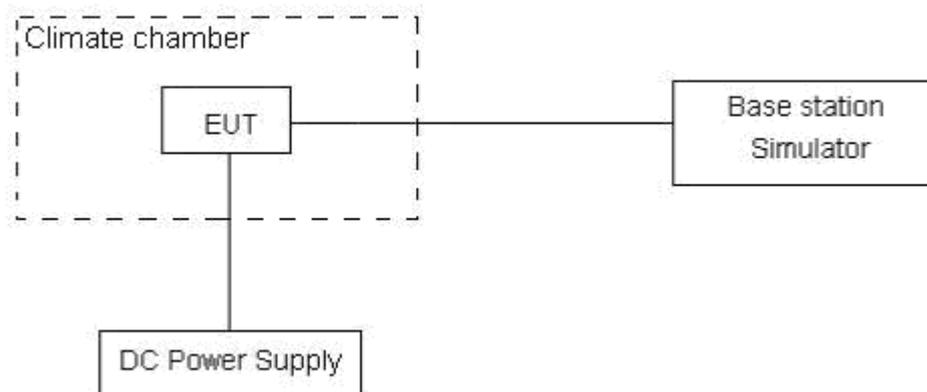
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.2 V, with a nominal voltage of 3.7V.

Test setup



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Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3, U = 0.01$ ppm.

Test Result

Temperature (°C)	Test Results (ppm) / 3.7 V Power supply Channel 580			
	RC3 (SO55)	EV-DO(Rev.0)	EV-DO(Rev.A)	1X Advance(SO75)
-30	0.0138	0.0078	0.0116	0.0118
-20	0.0155	0.0167	0.0205	0.0207
-10	0.0108	0.0088	0.0126	0.0128
0	0.0077	0.0101	0.0139	0.0141
10	0.0071	0.0040	0.0078	0.0080
20	0.0054	0.0045	0.0083	0.0085
30	0.0118	0.0094	0.0132	0.0134
40	0.0105	0.0147	0.0185	0.0188
50	0.0067	0.0098	0.0135	0.0138

Voltage (V)	Test Results(ppm) / 20°C Channel 580			
	RC3 (SO55)	EV-DO(Rev.0)	EV-DO(Rev.A)	1X Advance(SO75)
4.2	0.0093	0.0089	0.0127	0.0129
3.7	0.0057	0.0048	0.0085	0.0088
3.6	0.0078	0.0077	0.0115	0.0117

2.9. Spurious Emissions at Antenna Terminals

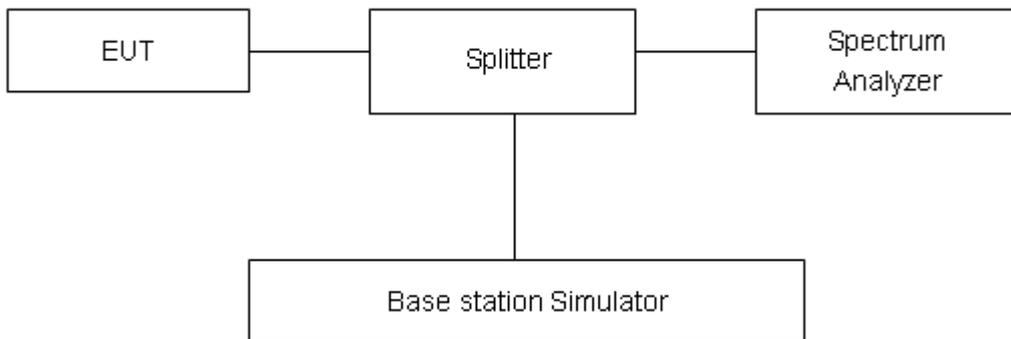
Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. For below 1GHz, RBW and VBW are set to 100 kHz, Sweep is set to ATUO. For above 1GHz, RBW and VBW are set to 1MHz, Sweep is set to ATUO.

Test setup



Limits

Rule Part90.210&90.669 specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75 % confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-12.75GHz	1.407 dB

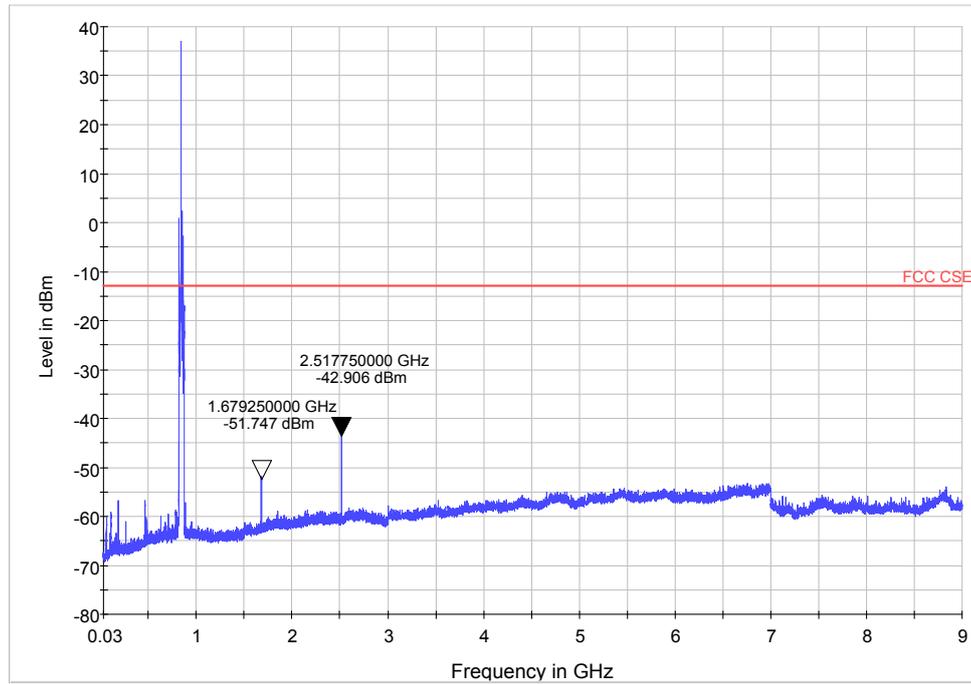
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Test Result

CDMA BC10 CH476



Note: The signal beyond the limit is carrier
CDMA BC10 CH476 30MHz~9GHz

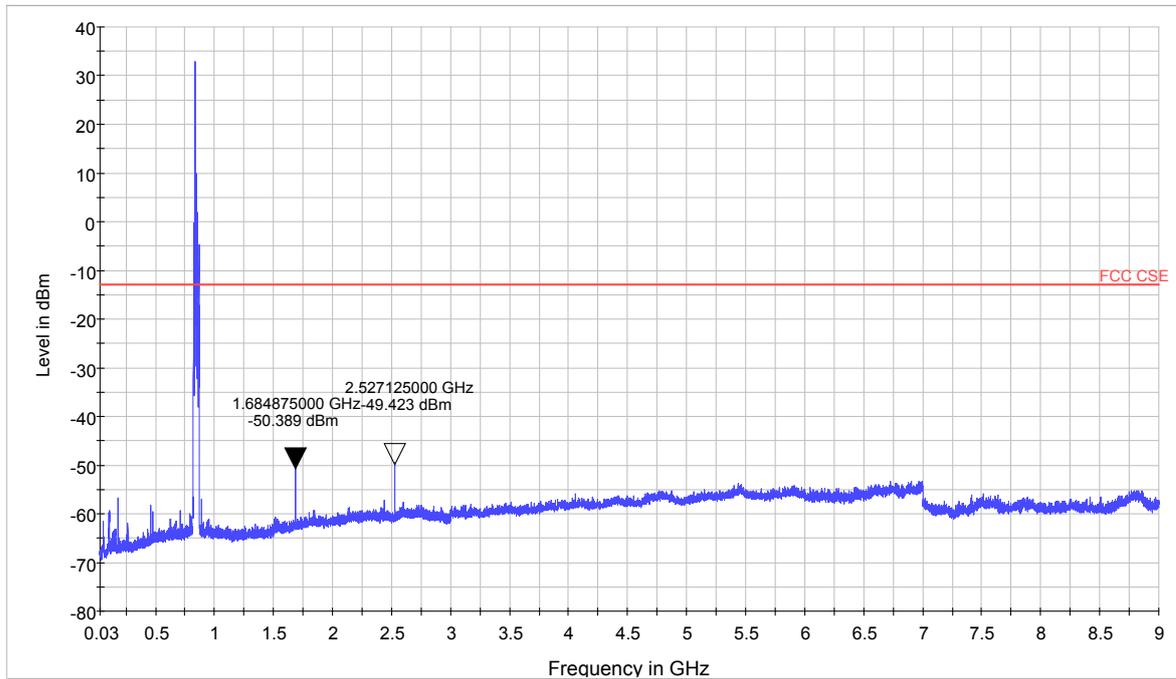
Harmonic	TX ch.476 Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	1679.25	-51.747	-13	38.747
3	2517.75	-42.906	-13	29.906
4	3271.6	Nf	-13	/
5	4089.5	Nf	-13	/
6	4907.4	Nf	-13	/
7	5725.3	Nf	-13	/
8	6543.2	Nf	-13	/
9	7361.1	Nf	-13	/
10	8179	Nf	-13	/

Nf: noise floor

Note: The other Spurious RF conducted emissions level is no more than noise floor.

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CDMA BC10 CH580



Note: The signal beyond the limit is carrier
CDMA BC10 CH580 30MHz~9GHz

Harmonic	TX ch.580 Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	1684.87	-50.389	-13	37.389
3	2461.5	-49.423	-13	26.423
4	3282	Nf	-13	/
5	4102.5	Nf	-13	/
6	4923	Nf	-13	/
7	5743.5	Nf	-13	/
8	6564	Nf	-13	/
9	7384.5	Nf	-13	/
10	8205	Nf	-13	/

Nf: noise floor

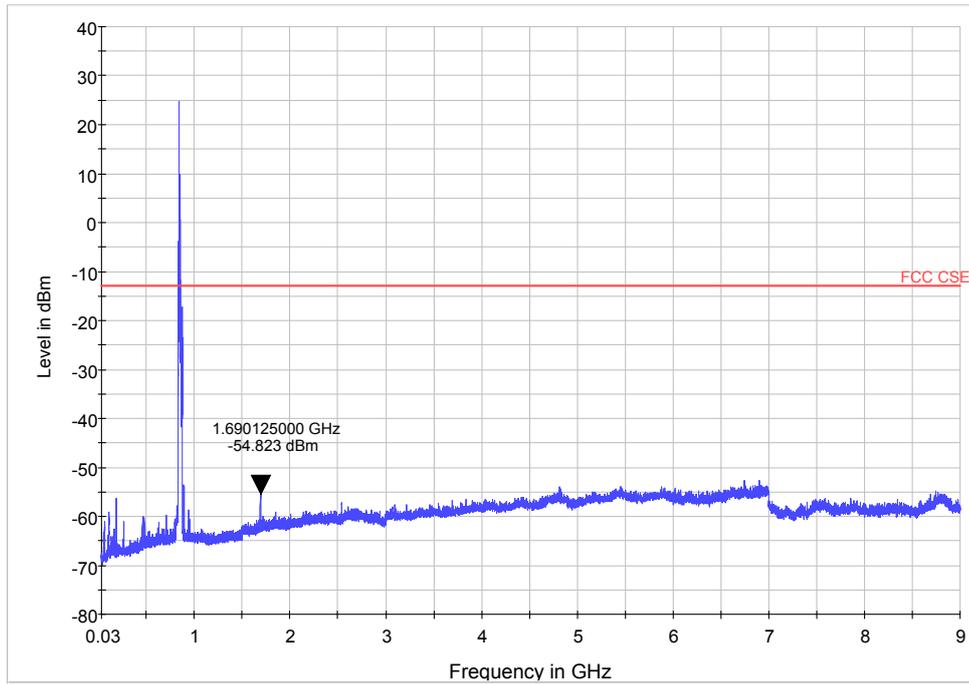
Note: The other Spurious RF conducted emissions level is no more than noise floor.

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CDMA BC10 CH684



Note: The signal beyond the limit is carrier
CDMA BC10 CH684 30MHz~9GHz

Harmonic	TX ch.684 Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	1646.2	-54.823	-13	41.823
3	2469.3	Nf	-13	/
4	3292.4	Nf	-13	/
5	4115.5	Nf	-13	/
6	4938.6	Nf	-13	/
7	5761.7	Nf	-13	/
8	6584.8	Nf	-13	/
9	7407.9	Nf	-13	/
10	8231	Nf	-13	/

Nf: noise floor

Note: The other Spurious RF conducted emissions level is no more than noise floor.

2.10. Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

Method of Measurement

The measurements procedures in TIA -603C are used.

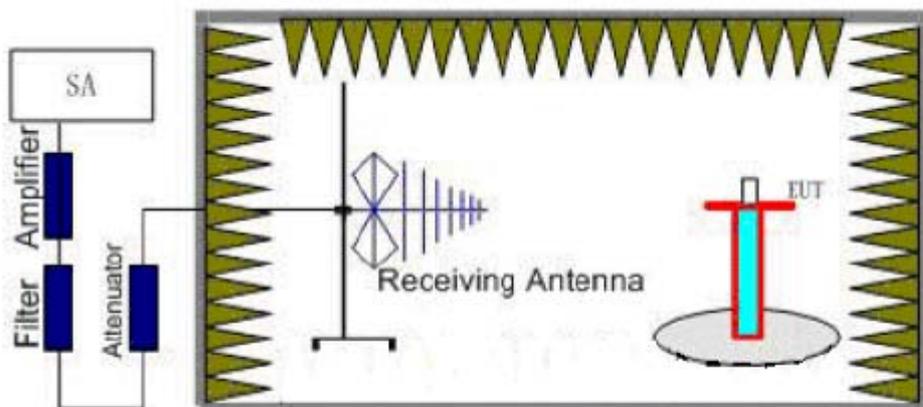
the spectrum is investigated from 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

The emissions less than 20 dB below the permissible value are reported.

The procedure of Radiates Spurious Emission is as follows:

Step 1:

The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 1.5 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.

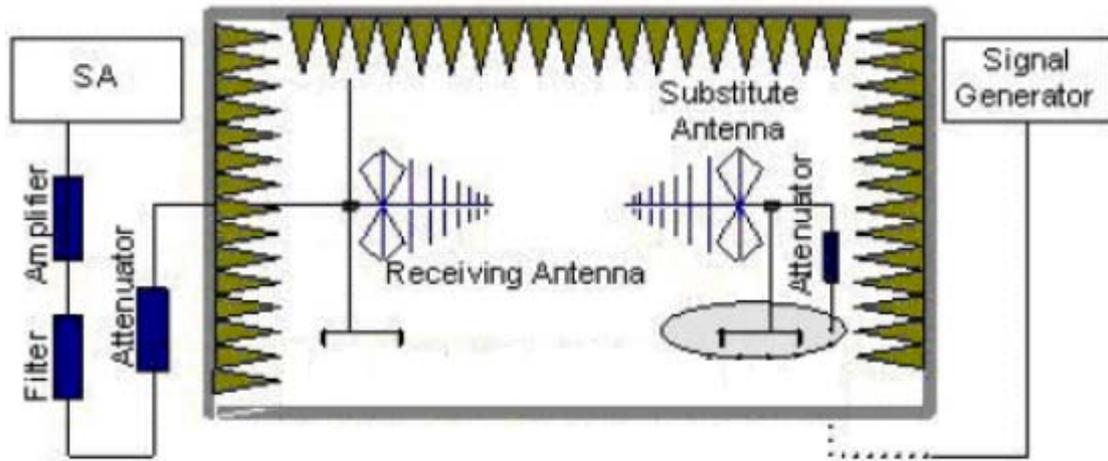


Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL). Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable

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loss and the gain of the substitution antenna. The test setup refers to figure below.



$$\text{E.R.P (peak power)} = \text{S.G.} - \text{Tx Cable loss} + \text{Substitution antenna gain} - 2.15.$$

$$\text{EIRP} = \text{E.R.P} + 2.15$$

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the antenna is vertical.

Limits

Rule Part 90.210 specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

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Test Result

CDMA BC10 CH476

Harmonic	TX ch.476 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1678.56	-6	2	10.15	/	-13	-13	/
3	2517.84	-6.69	2.51	11.35	/	-13	-13	/
4	3357.12	-4.5	4.2	10.85	/	-13	-13	/
5	4196.4	-4	5.2	11.35	/	-13	-13	/
6	5035.68	-4.3	5.5	11.95	/	-13	-13	/
7	5874.96	-5.7	5.7	13.55	/	-13	-13	/
8	6714.24	-5.3	6.3	13.75	/	-13	-13	/
9	7553.52	-4.9	6.8	13.85	/	-13	-13	/
10	8392.8	-5.2	6.9	14.25	/	-13	-13	/
Nf: noise floor								

Note: The other Spurious RF Radiated emissions level is no more than noise floor.

CDMA BC10 CH580

Harmonic	TX ch.580 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1684.8	-6.6	2	10.75	/	-13	-13	/
3	2527.2	-6.39	2.51	11.05	/	-13	-13	/
4	3369.6	-4.8	4.2	11.15	/	-13	-13	/
5	4212	-3.8	5.2	11.15	/	-13	-13	/
6	5054.4	-4.3	5.5	11.95	/	-13	-13	/
7	5896.8	-5.7	5.7	13.55	/	-13	-13	/
8	6739.2	-5.3	6.3	13.75	/	-13	-13	/
9	7581.6	-4.9	6.8	13.85	/	-13	-13	/
10	8424	-5.2	6.9	14.25	/	-13	-13	/
Nf: noise floor								

Note: The other Spurious RF Radiated emissions level is no more than noise floor.

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CDMA BC10 CH684

Harmonic	TX ch.684 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1691.04	-54.39	2	10.15	-48.39	-13	35.39	90
3	2536.56	-6.39	2.51	11.05	/	-13	-13	/
4	3382.08	-4.8	4.2	11.15	/	-13	-13	/
5	4227.6	-3.8	5.2	11.15	/	-13	-13	/
6	5073.12	-4.3	5.5	11.95	/	-13	-13	/
7	5918.64	-5.7	5.7	13.55	/	-13	-13	/
8	6764.16	-5.3	6.3	13.75	/	-13	-13	/
9	7609.68	-4.9	6.8	13.85	/	-13	-13	/
10	8455.2	-5.2	6.9	14.25	/	-13	-13	/

Nf: noise floor

Note: The other Spurious RF Radiated emissions level is no more than noise floor.

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3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	Base Station Simulator	CMU200	R&S	118133	2012-06-30	One year
02	Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
03	Spectrum Analyzer	E4445A	Agilent	MY46181146	2012-06-30	One year
04	Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2012-06-30	One year
05	Signal Analyzer	FSV30	R&S	100815	2012-06-30	One year
06	Signal generator	SMB 100A	R&S	102594	2012-06-30	One year
07	EMI Test Receiver	ESCI	R&S	100948	2012-06-30	One year
08	Trilog Antenna	VUBL 9163	SCHWARZB ECK	9163-201	2010-06-20	Three years
09	Horn Antenna	HF907	R&S	100126	2012-07-01	Three years
10	Climatic Chamber	PT-30B	Re Ce	20101891	2010-09-10	Three years
11	Semi-Anechoic Chamber	9.6*6.7*6.6m	ETS-Lindgren	NA	NA	NA
12	EMI test software	ES-K1	R&S	NA	NA	NA

*****END OF REPORT BODY*****