FCC Test Report

Report No.: AGC00575130901FE02

FCC ID	:	2AAYEWOW818
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	CDMA Smart phone
BRAND NAME	:	WOW
MODEL NAME	:	WOW 818
CLIENT	:	MobilMax Technology Inc.
DATE OF ISSUE	:	Sept.18, 2013
STANDARD(S)	:	FCC Part 22H & 24E Rules
REPORT VERSION	:	V1.0

Attestation of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd.

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Sept.18, 2013	Valid	Original Report

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1.VERIFICATION OF COMPLIANCE

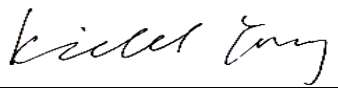
Applicant	MobilMax Technology Inc.
Address	2F-5, No. 28, Tai-Yuan St., Chupei City, HsinChu County 302, Taiwan
Manufacturer	SHENZHEN JOINHOLD MULTIMEDIA INDUSTRIAL CO., LTD.
Address	No 160, Pingxin North Road, Pinghu Street, Longgang District, Shenzhen City, Guangdong Province, P.R.China
Product Designation	CDMA Smart phone
Brand Name	WOW
Test Model	WOW 818
Date of test	Sept. 09,2013 to Sept. 17,2013
Deviation	None
Condition of Test Sample	Normal

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C 63.4:2003 and TIA/EIA 603. The sample tested as described in this report is in compliance with the FCC Rules Part 22H and 24E.
The test results of this report relate only to the tested sample identified in this report.

Tested By : 

Bart Xie Sept.18, 2013

Reviewed By : 

Kidd Yang Sept.18, 2013

Approved By: 

Solger Zhang Sept.18, 2013

2. GENERAL INFORMATION

2.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:		CDMA Smart phone
Hardware version:		K818-MB-V0.3
Software version:		N/A
Frequency Bands:	Tx Frequency	CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz
	Rx Frequency	CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz
Antenna Type:		PIFA Antenna
Type of Modulation:		QPSK
Antenna gain:		1.0dBi
Power Supply:		DC 3.7V by Battery
Battery parameter:		DC3.7V/2000 mAh
Adapter Input:		AC100-240V, 50-60Hz
Adapter Output:		DC5.0V, 500mA
Output Power:		23.02 dBm Maximum ERP measured for CDMA2000 BC0 22.35 dBm Maximum Average Burst Power for CDMA2000 BC0 21.75 dBm Maximum EIRP measured for CDMA2000 BC1 22.23 dBm Maximum Average Burst Power for CDMA2000 BC1
There is no card slot:		The CDMA Smart phone is baked into a number.
Extreme Vol. Limits:		DC3.4 V to 4.2 V (Normal: DC3.7 V)
Extreme Temp. Tolerance		-10℃ to +50℃
*** Note: The High Voltage DC4.2V and Low Voltage DC3.4V were declared by manufacturer, The EUT couldn't be operating normally with higher or lower voltage. Other functions have been performed according to verification procedure except for Bluetooth and MS function.		

2.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AAYEWOW818** , filing to comply with the FCC Part 22H&24E requirements.

2.3 TEST METHODOLOGY

The radiated emission testing was performed according to the procedures of ANSI C 63.4: 2003; TIA/EIA 603 and FCC CFR 47 Rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

2.4 TEST FACILITY

The test site used to collect the radiated data is located at:
Attestation of Global Compliance (Shenzhen) Co., Ltd.
2/F., Building 2, No.1-No.4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
FCC register No.: 259865

2.5 MEASUREMENT INSTRUMENTS

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	Calibration Date	Calibration Due.
SPECTRUM ANALYZER	AGILENT	E4440A	US41421290	July 17, 2013	July 16, 2014
TEST RECEIVER	R&S	ESCI	100694	July 17, 2013	July 16, 2014
COMMUNICATION TESTER	AGILENT	8960	122500087	Oct.22, 2012	Oct.21, 2013
COMMUNICATION TESTER	R&S	CMU200	122500166	Feb.28,2013	Feb.27,2014
LISN	R&S	ESH3-Z5	8389791009	July 17, 2013	July 16, 2014
CLIMATE CHAMBER	ALBATROSS	--	--	July 17, 2013	July 16, 2014
Loop Antenna	A.H.	SAS-562B	SEL0097	July 17, 2013	July 16, 2014
Bilogical Antenna	A.H. Systems Inc.	SAS-521-4	26	June 7,2013	June 6, 2014
Horn Antenna	EM	EM-AH-10180	67	Apr.20, 2013	Apr.19, 2014
Horn Antenna	A.H. Systems Inc.	SAS-574	--	June 7,2013	June 6, 2014

2.6 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

2.7 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

3. SYSTEM TEST CONFIGURATION

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

3.3 GENERAL TECHNICAL REQUIREMENTS

Item Number	Item Description		FCC Rules
1	Output Power	Conducted output power	2.1046/22.913(a) (2) / 24.232 (c)
		Radiated output power	
2	Peak-to-Average Ratio	Peak-to-Average Ratio	24.232(d)
3	Spurious Emission	Conducted spurious emission	2.1051/2.1053/22.917(a)/24.238(a)
		Radiated spurious emission	
4	Mains Conducted Emission		15.107 / 15.207
5	Frequency Stability		2.1055/22.355 /24.235
6	Occupied Bandwidth		2.1049 (h)(i)
7	Emission Bandwidth		22.917(a)/24.238(a)
8	Band Edge		2.1051/22.917(a)/24.238(a)

3.4 CONFIGURATION OF EUT SYSTEM

Fig. 2-1 Configuration of EUT System

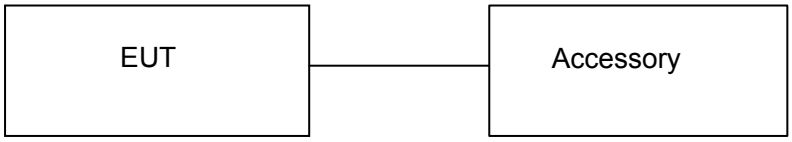


Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Remark
1	CDMA Smart phone	WOW 818	**FCC ID: 2AAYEWOW818**	EUT
2	Adapter	WOW 818	DC5.0V / 500mA	Accessory
3	Battery	WOW 818	DC3.7V/ 2000 mAh	Accessory
4	Earphone	WOW 818	N/A	Accessory
5	USB Cable	WOW 818	N/A	Accessory

****Note: All the accessories have been used during the test. The following "EUT" in setup diagram means EUT system.*

4. SUMMARY OF TEST RESULTS

Item Number	Item Description		FCC Rules	Result
1	Output Power	Conducted Output Power	2.1046/22.913(a) (2) / 24.232 (c)	Pass
		Radiated Output Power		
2	Peak-to-Average Ratio	Peak-to-Average Ratio	24.232(d)	Pass
3	Spurious Emission	Conducted Spurious Emission	2.1051/2.1053/22.917(a)/24.238(a)	Pass
		Radiated Spurious Emission		
4	Mains Conducted Emission		15.107 / 15.207	Pass
5	Frequency Stability		2.1055/22.355 /24.235	Pass
6	Occupied Bandwidth		2.1049 (h)(i)	Pass
7	Emission Bandwidth		22.917(a)/24.238(a)	Pass
8	Band Edge		2.1051/22.917(a)/24.238(a)	Pass

5. DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200/ AGILENT 8960) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both CDMA2000 BC0 and CDMA2000 BC1 frequency band.

*****Note:** CDMA 2000 BC0/ CDMA2000 1xEV-DO, CDMA 2000 BC1/ CDMA2000 1xEV-DO mode have been tested during the test.

The worst condition was recorded in the test report if no other modes test data.

6. OUTPUT POWER

6.1 Conducted Output Power

6.1.1 MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes (CDMA 2000 BC0/ CDMA2000 1xEV-DO, CDMA 2000 BC1/ CDMA2000 1xEV-DO) at 3 typical channels (the Top Channel, the Middle Channel and the Bottom Channel) for each band.

6.1.2 MEASUREMENT RESULT

Conducted Output Power Limits for CDMA 2000 BC0		
Mode	**Nominal Peak Power**	**Tolerance(dB)**
CDMA2000	24 dBm (0.25W)	- 2
Conducted Output Power Limits for CDMA 2000 BC1		
Mode	**Nominal Peak Power**	**Tolerance(dB)**
CDMA2000	24 dBm (0.25W)	- 2

CDMA 2000 BC0/ CDMA2000 1xEV-DO

Mode	Channel	Frequency (MHz)	Reference power	Peak Power	Tolerance	Avg.Burst Power
1xRTT RC1 SO55	1013	824.7	24	23.73	-0.27	22.12
	384	836.52	24	23.98	-0.02	22.30
	777	848.31	24	23.81	-0.19	22.23
1xRTT RC3 SO55	1013	824.7	24	23.75	-0.25	22.24
	384	836.52	24	23.95	-0.05	22.28
	777	848.31	24	23.83	-0.17	22.26
1xRTT RC3 SO32(+ F-SCH)	1013	824.7	24	23.78	-0.22	22.04
	384	836.52	24	**23.99**	-0.01	**22.35**
	777	848.31	24	23.85	-0.15	22.23
1xRTT RC3 SO32(+SCH)	1013	824.7	24	23.74	-0.26	22.17
	384	836.52	24	23.92	-0.08	22.21
	777	848.31	24	23.78	-0.22	22.17
1xEV-DO RTAP 153.6K	1013	824.7	24	23.79	-0.21	22.13
	384	836.52	24	23.96	-0.04	22.17
	777	848.31	24	23.83	-0.17	22.22
1xEV-DO RETAP 4096K	1013	824.7	24	23.73	-0.27	22.09
	384	836.52	24	23.93	-0.07	22.19
	777	848.31	24	23.77	-0.27	22.06

CDMA 2000 BC1/ CDMA2000 1xEV-DO

Mode	Channel	Frequency (MHz)	Reference power	Peak Power	Tolerance	Avg.Burst Power
1xRTT RC1 SO55	25	1851.25	24	23.50	-0.5	22.13
	600	1880	24	23.52	-0.48	22.16
	1175	1908.75	24	23.53	-0.47	22.16
1xRTT RC3 SO55	25	1851.25	24	23.48	-0.52	22.17
	600	1880	24	23.49	-0.51	22.18
	1175	1908.75	24	23.50	-0.5	22.16
1xRTT RC3 SO32(+ F-SCH)	25	1851.25	24	23.49	-0.51	22.09
	600	1880	24	23.51	-0.49	22.12
	1175	1908.75	24	**23.54**	-0.46	**22.23**
1xRTT RC3 SO32(+SCH)	25	1851.25	24	23.48	-0.52	22.15
	600	1880	24	23.50	-0.5	22.19
	1175	1908.75	24	23.52	-0.48	22.21
1xEV-DO RTAP 153.6K	25	1851.25	24	23.41	-0.59	22.18
	600	1880	24	23.47	-0.53	22.14
	1175	1908.75	24	23.53	-0.47	22.15
1xEV-DO RETAP 4096K	25	1851.25	24	23.42	-0.58	22.13
	600	1880	24	23.44	-0.56	22.11
	1175	1908.75	24	23.48	-0.5	22.15

According to 3GPP 25.101 sub-clause 6.2.2 , the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	0≤ CM≤3.5	MAX(CM-1,0)
Note: CM=1 for β_c/β_d=12/15, β_{hs}/β_c=24/15.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the 1xRTT RC3 mode since the device also provides a compensate for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

6.2 RADIATED OUTPUT POWER

6.2.1 MEASUREMENT METHOD

1 The measurements procedures specified in TIA-603C-2004 were applied.

2 In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RBW= 100 KHz, VBW= 300 KHz, RMS detector settings per section 4.0 of KDB 971168 D01.

3 The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as ARpl=Pin + 2.15 - Pr. The ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

4 The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.

5 From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.

6 The EUT is then put into continuously transmitting mode at its maximum power level.

7 Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.

8 This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).

9 ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi..

6.2.2 PROVISIONS APPLICABLE

This is the test for the maximum radiated power from the EUT. Rule Part 24.232(b) specifies, “Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power” and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.” Rule Part 22.913(a) specifies “Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.”

Mode	Nominal Peak Power
CDMA 2000 BC0	<=38.45 dBm (7W)
CDMA 2000 BC1	<=33 dBm (2W)

6.2.3 MEASUREMENT RESULT

Radiated Power (ERP) for CDMA2000 BC0 1xRTT_RC3+SO32				
Mode	Frequency	Result		Conclusion
		Max. Peak ERP (dBm)	Polarization Of Max. ERP	
CDMA2000 BC0	824.70	22.74	Horizontal	Pass
	836.52	**23.02**	Horizontal	Pass
	848.31	22.63	Horizontal	Pass

Radiated Power (E.I.R.P) for CDMA2000 BC1 1xRTT_RC3+SO32				
Mode	Frequency	Result		Conclusion
		Max. Peak E.I.R.P.(dBm)	Polarization Of Max. E.I.R.P.	
CDMA2000 BC1	1851.25	21.56	Horizontal	Pass
	1880.0	21.63	Horizontal	Pass
	1908.75	**21.75**	Horizontal	Pass

Note: Above is worst mode data.

6.3. Peak-to-Average Ratio

6.3.1 MEASUREMENT METHOD

1. The following steps outline the procedure used to measure the Peak-to-Average Ratio from the EUT.
2. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

6.3.2 PROVISIONS APPLICABLE

This is the test for the Peak-to-Average Ratio from the EUT.

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. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

6.3.3 MEASUREMENT RESULT

Modes	**CDMA2000 BC1 CDMA 2000 1xRT**		
Channel	**25**	**600**	**1175**
	(Low)	**(Mid)**	**(High)**
Frequency (MHz)	**1851.25**	**1880.0**	**1980.75**
Peak-To-Average Ratio (dB)	1.4	1.39	1.31

7. SPURIOUS EMISSION

7.1 CONDUCTED SPURIOUS EMISSION

7.1.1 MEASUREMENT METHOD

The following steps outline the procedure used to measure the conducted emissions from the EUT.
1, Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of CDMA2000 BC1, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz. For CDMA2000 BC0,data taken from 30 MHz to 9 GHz.
2, Determine EUT transmit frequencies: the following typical channels were chosen to conducted emissions testing.

Typical Channels for testing of CDMA2000 BC0	
Channel	Frequency (MHz)
1013	824.70
384	836.52
777	848.31

Typical Channels for testing of CDMA2000 BC1	
Channel	Frequency (MHz)
25	1851.25
600	1880.0
1175	1908.75

7.1.2 PROVISIONS APPLICABLE

On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

7.1.3 MEASUREMENT RESULT

PLEASE REFER TO: APPENDIX I TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

Note: 1. Below 30MHZ no Spurious found and The GSM modes is the worst condition.
2. As no emission found in standby or receive mode, no recording in this report.

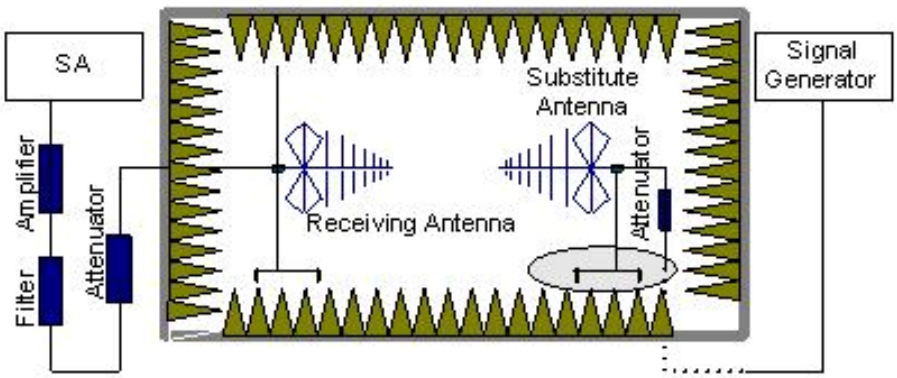
7.2 Radiated Spurious Emission

7.2.1 MEASUREMENT METHOD

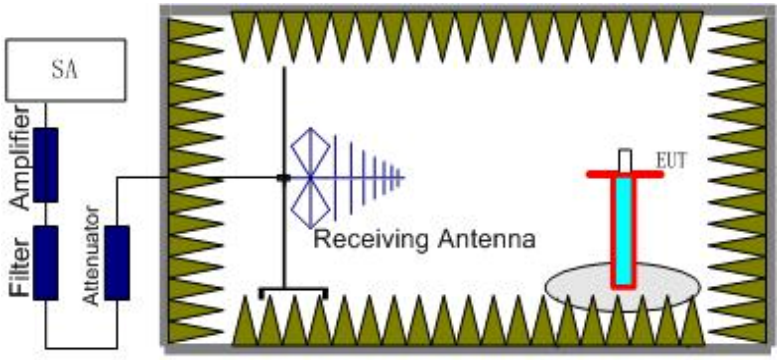
The measurements procedures specified in TIA-603C-2004 were used for testing. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238. The measurements were performed on all modes(CDMA 2000 BC0/ CDMA2000 1xEV-DO, CDMA 2000 BC1/ CDMA2000 1xEV-DO) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（dBuV to dBm）The SA is calibrated using following setup.



b) EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the CDMA2000 BC1 band (1851.25 MHz, 1880 MHz and 1908.75 MHz), CDMA2000 BC0 band (824.7MHz, 836.52MHz, 848.31 MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=P_{Mea}+A_{Rpl}

7.2.2 PROVISIONS APPLICABLE

(a) On any frequency outside a licensee’s frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode:

7.2.3 MEASUREMENT RESULT

CDMA2000 BC0 1xRTT_RC3+SO32:

The Worst Test Results for Channel 777/848.31 MHz					
Frequency(MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
1685.23	-36.64	-2.25	-38.89	-13.00	Horizontal
2456.12	-40.25	-3.03	-43.28	-13.00	Vertical
3645.78	-41.75	-1.87	-43.62	-13.00	Vertical
4536.58	-40.83	8.52	-32.31	-13.00	Horizontal

CDMA2000 BC1 1xRTT_RC3+SO32:

The Worst Test Results for Channel 1175/1908.75MHz					
Frequency(MHz)	Power(dBm)	ARpl (dBm)	PMea(dBm)	Limit（dBm）	Polarity
1429.36	-39.34	-2.26	-41.6	-13.00	Vertical
2563.47	-40.17	-3.12	-43.29	-13.00	Vertical
3645.26	-41.31	-1.74	-43.05	-13.00	Horizontal
4563.56	-39.59	8.74	-30.85	-13.00	Vertical
5689.25	-40.79	17.89	-22.9	-13.00	Horizontal

Note: Below 30MHZ no Spurious found and The CDMA2000 modes is the worst condition.

8. MAINS CONDUCTED EMISSION

8.1 MEASUREMENT METHOD

The measurement procedure specified in ANSI C63.4-2003 was used for testing. Conducted Emission was measured with travel charger.

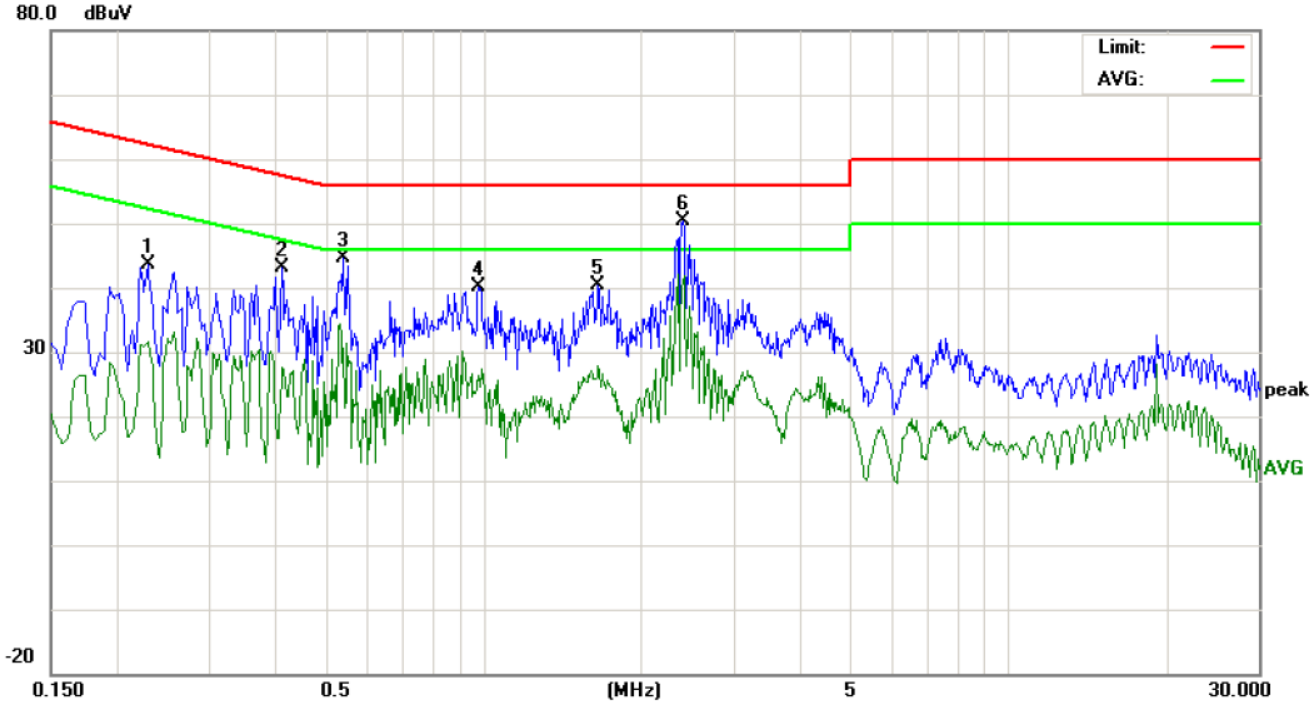
8.2 PROVISIONS APPLICABLE

Frequency of Emission (MHz)	Conducted Limit(dBuV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50
*Decreases with the logarithm of the frequency. *The lower limit shall apply at the transition frequency.		

Note: The CDMA BC0 mode is the worst condition and the test result as following:

8.3 MEASUREMENT RESULT

LINE CONDUCTED EMISSION - L



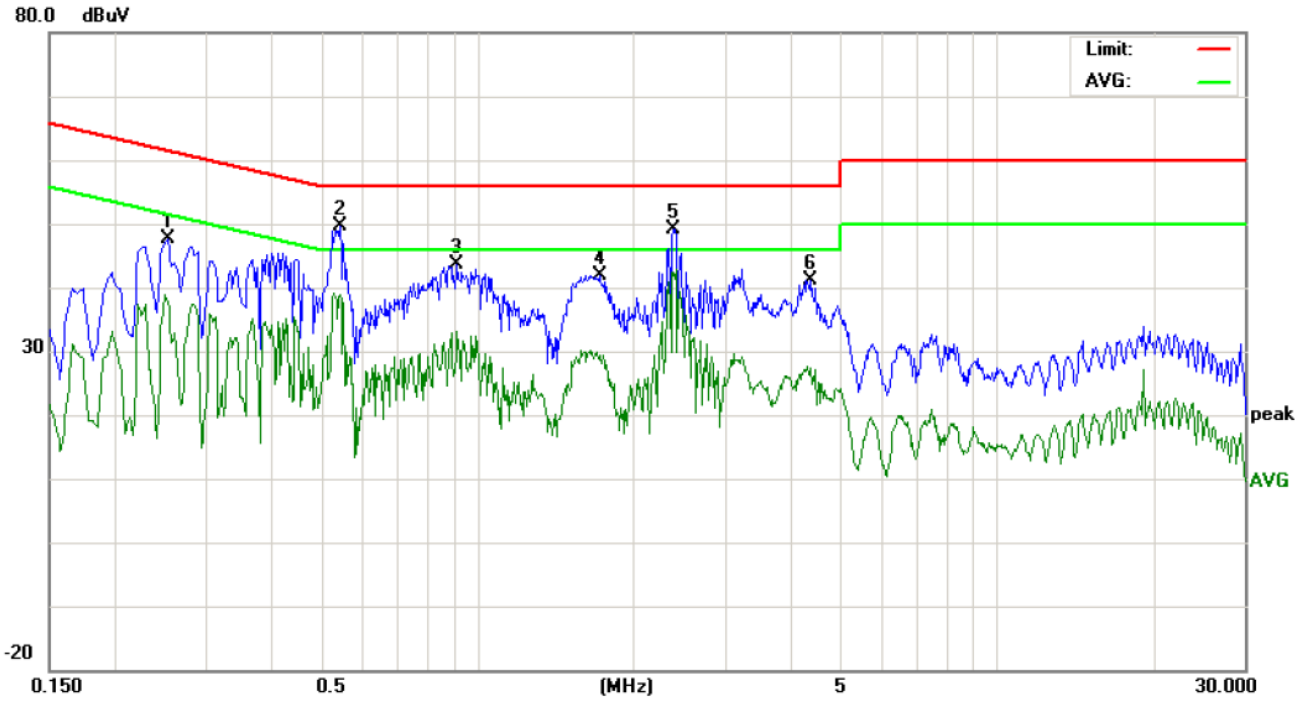
Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: CDMA Smart phone
M/N: WOW 818
Mode: Call
Note:

Phase: *L1*
Power:

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2300	33.41		21.49	10.25	43.66		31.74	62.45	52.45	-18.79	-20.71	P	
2	0.4140	32.79		17.20	10.34	43.13		27.54	57.57	47.57	-14.44	-20.03	P	
3	0.5420	34.17		20.14	10.36	44.53		30.50	56.00	46.00	-11.47	-15.50	P	
4	0.9820	29.66		16.05	10.38	40.04		26.43	56.00	46.00	-15.96	-19.57	P	
5	1.6620	29.95		17.47	10.33	40.28		27.80	56.00	46.00	-15.72	-18.20	P	
6	2.3980	40.02		30.60	10.39	50.41		40.99	56.00	46.00	-5.59	-5.01	P	

LINE CONDUCTED EMISSION - N



Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: CDMA Smart phone
M/N: WOW 818
Mode: Call
Note:

Phase: *N*
Power:

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2540	23.05		11.45	10.27	33.32		21.72	61.62	51.62	-28.30	-29.90	P	
2	0.5460	39.21		28.61	10.36	49.57		38.97	56.00	46.00	-6.43	-7.03	P	
3	0.9180	33.14		22.68	10.40	43.54		33.08	56.00	46.00	-12.46	-12.92	P	
4	1.7180	31.57		19.06	10.31	41.88		29.37	56.00	46.00	-14.12	-16.63	P	
5	2.3900	38.84		32.04	10.38	49.22		42.42	56.00	46.00	-6.78	-3.58	P	
6	4.4019	30.98		17.07	10.25	41.23		27.32	56.00	46.00	-14.77	-18.68	P	

Note: The CDMA 2000 BC0 mode is the worst condition.

9. FREQUENCY STABILITY

9.1 MEASUREMENT METHOD

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

1 , Measure the carrier frequency at room temperature.

2 , Subject the EUT to overnight soak at -10℃.

3 , With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 600 for CDMA 2000 BC 1, channel 384 for CDMA 2000 BC0 measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

4 , Repeat the above measurements at 10℃ increments from -10℃ to +50℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

5 , Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

6 , Subject the EUT to overnight soak at +50℃.

7 , With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

8 , Repeat the above measurements at 10℃ increments from +50℃ to -10℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

9 , At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

9.2 PROVISIONS APPLICABLE

9.2.1 For Hand carried battery powered equipment

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 6.3VDC and 8.5VDC, with a nominal voltage of 7.4VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

9.2.2 For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is 20°C.

9.3 MEASUREMENT RESULT (WORST)

Frequency Error Against Voltage for CDMA2000 BC0 1xRTT_RC3+SO32		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	34	0.041
3.7	27	0.032
4.2	30	0.036

Frequency Error Against Temperature for CDMA2000 BC0 1xRTT_RC3+SO32		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	28	0.033
0	27	0.032
10	27	0.032
20	25	0.030
30	26	0.031
40	28	0.033
50	29	0.035

Note: The EUT doesn't work below -10℃

Frequency Error Against Voltage for CDMA2000 BC1 1xRTT_RC3+SO32		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	35	0.019
3.7	32	0.017
4.2	33	0.018

Frequency Error Against Temperature for CDMA2000 BC1 1xRTT_RC3+SO32		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	37	0.020
0	32	0.017
10	30	0.016
20	28	0.015
30	30	0.016
40	31	0.016
50	33	0.018

Note: The EUT doesn't work below -10℃

10. OCCUPIED BANDWIDTH

10.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

10.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

10.3 MEASUREMENT RESULT

Occupied Bandwidth (99%) for CDMA2000 BC0 1xRTT_RC3+SO32		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	824.70	1.275
Middle Channel	836.52	1.280
High Channel	848.31	1.279

Occupied Bandwidth (99%) for CDMA2000 BC1 1xRTT_RC3+SO32		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	1851.25	1.284
Middle Channel	1880.0	1.291
High Channel	1908.75	1.318

11. EMISSION BANDWIDTH

11.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

11.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

11.3 MEASUREMENT RESULT

Emission Bandwidth (-26dBc) for CDMA2000 BC0 1xRTT_RC3+SO32		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	824.70	1.429
Middle Channel	836.52	1.430
High Channel	848.31	1.438

Emission Bandwidth (-26dBc) for CDMA2000 BC1 1xRTT_RC3+SO32		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	1851.25	1.442
Middle Channel	1880.0	1.446
High Channel	1908.75	1.440

12. BAND EDGE

12.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

12.2 PROVISIONS APPLICABLE

As Specified in FCC rules of 22.917(a) and 24.238(a)

12.3 MEASUREMENT RESULT

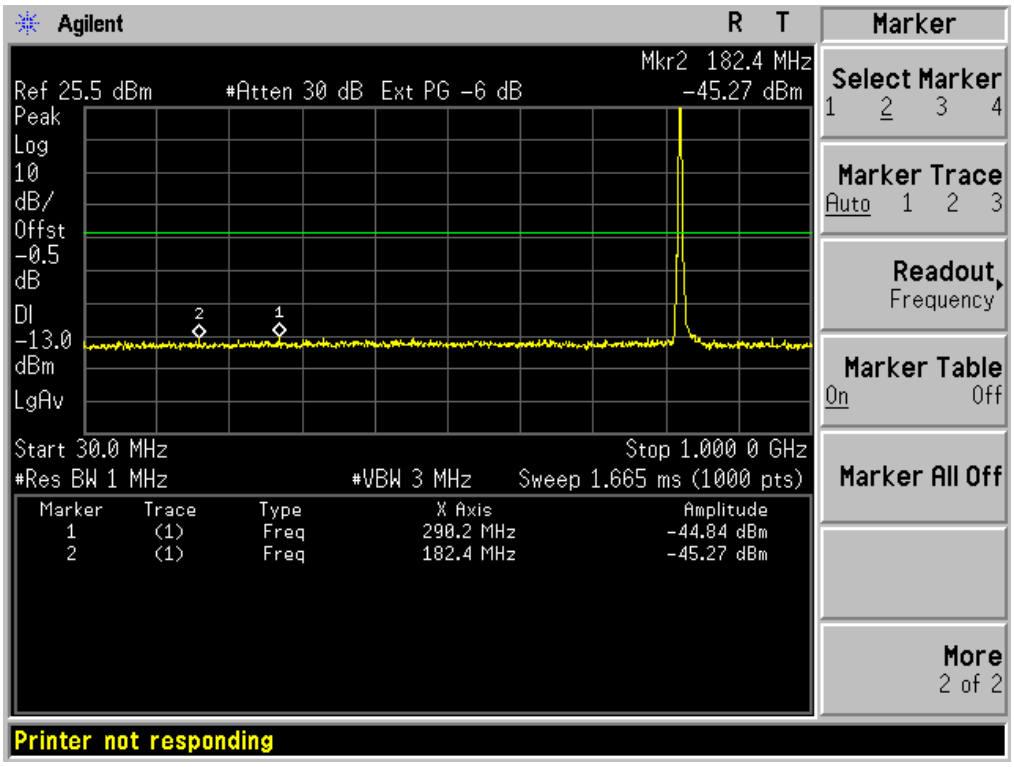
Please refers to Appendix III for compliance test plots for band edges

APPENDIX A

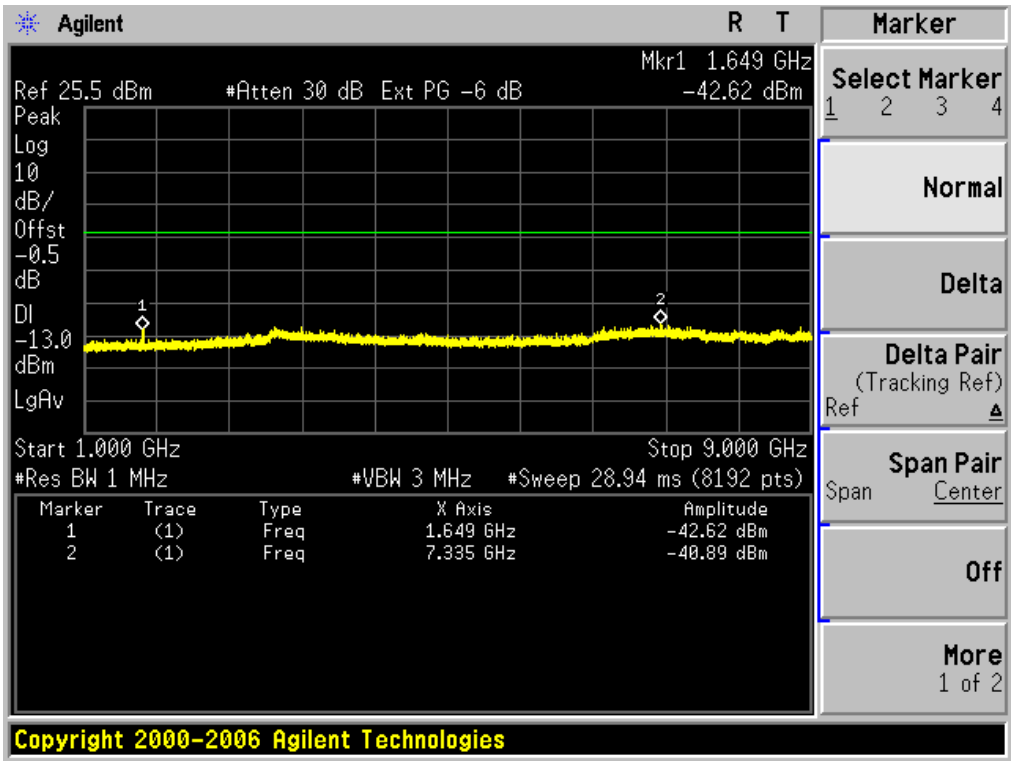
TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

CONDUCTED EMISSION IN CDMA2000 BC0 1xRTT_RC3+SO32

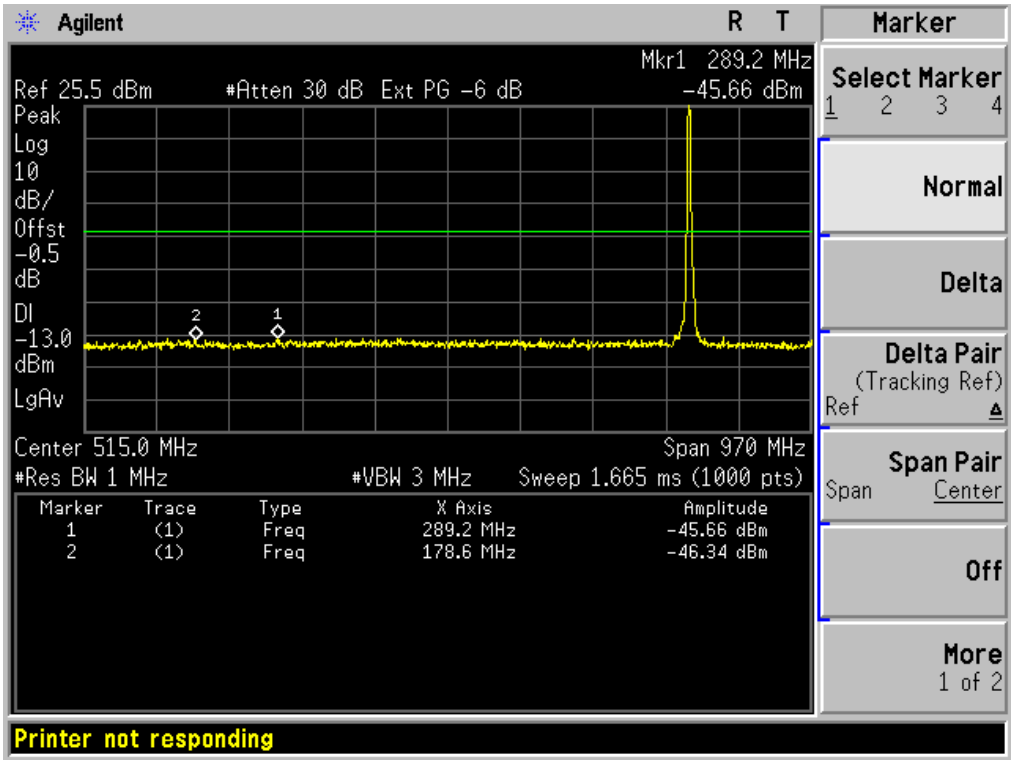
Conducted Emission Transmitting Mode CH 1013 (824.7 MHz) 30MHz – 1GHz



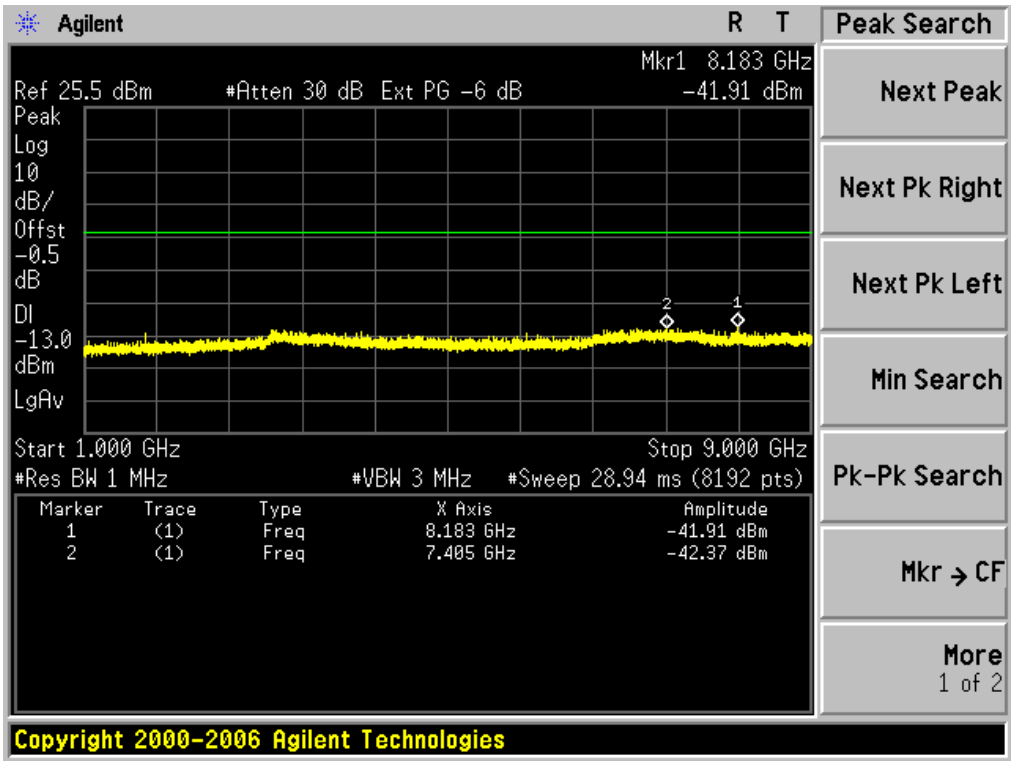
Conducted Emission Transmitting Mode CH 1013 (824.7 MHz) 1GHz – 9GHz



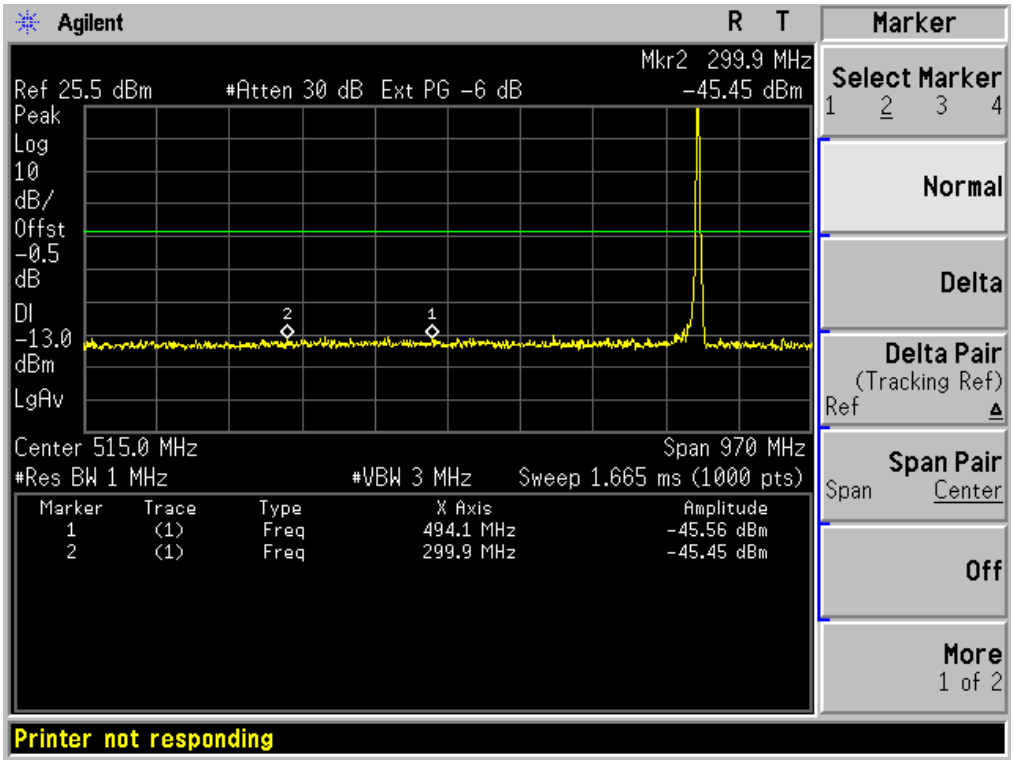
Conducted Emission Transmitting Mode CH 384 (836.52 MHz) 30MHz – 1GHz



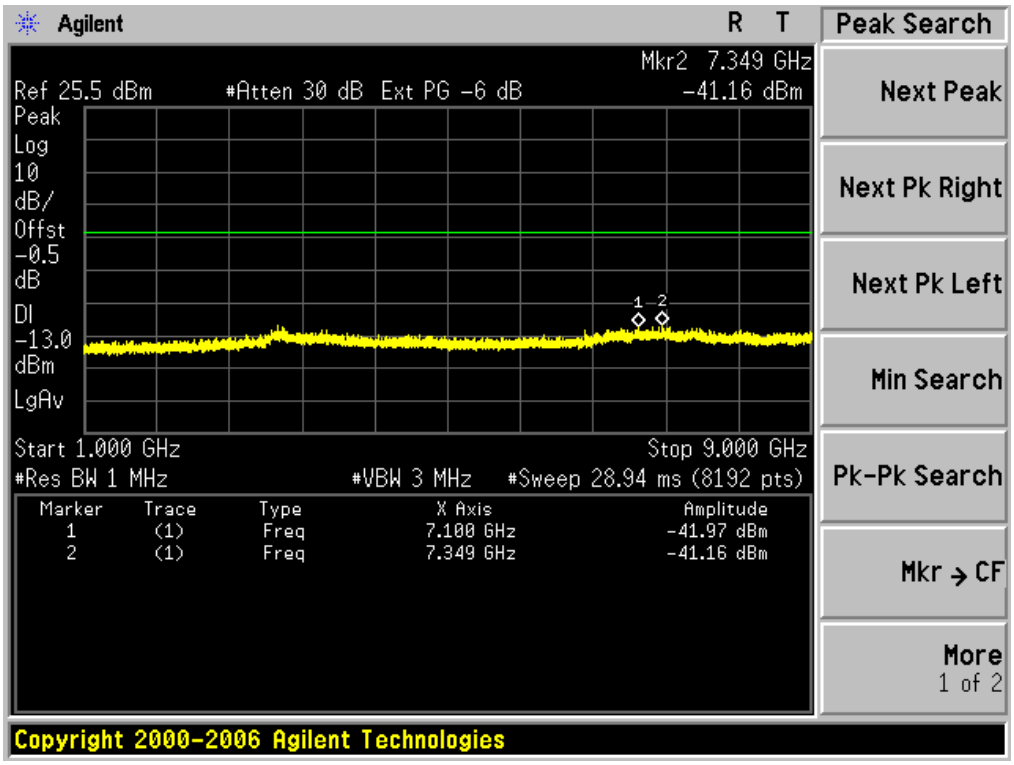
Conducted Emission Transmitting Mode CH 384 (836.52 MHz) 1GHz – 9GHz



Conducted Emission Transmitting Mode CH 777 (848.31 MHz) 30MHz – 1GHz

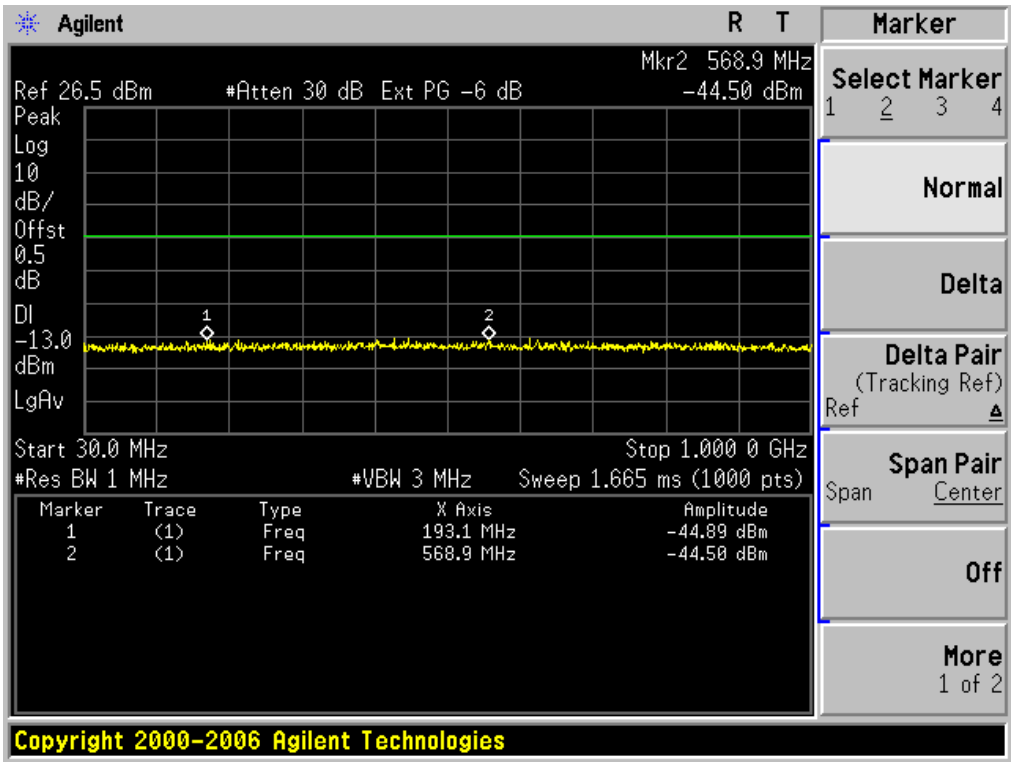


Conducted Emission Transmitting Mode CH 777 (848.31 MHz) 1GHz – 9GHz

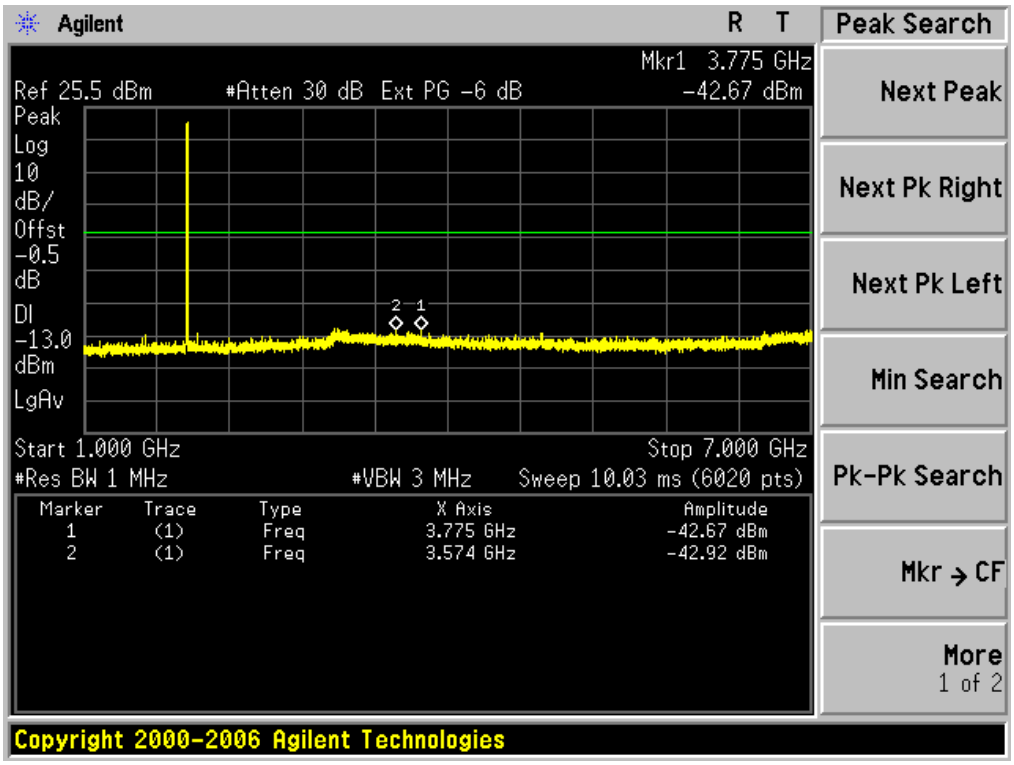


CONDUCTED EMISSION IN CDMA2000 BC1 1xRTT_RC3+SO32

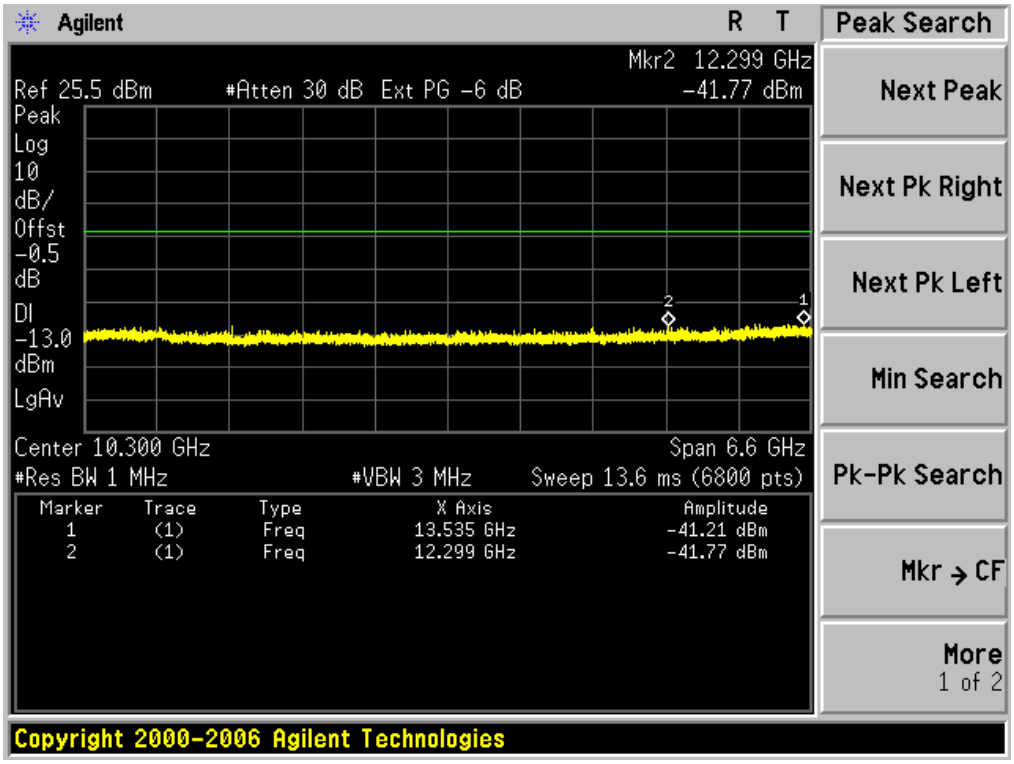
Conducted Emission Transmitting Mode CH 25 30MHz – 1GHz



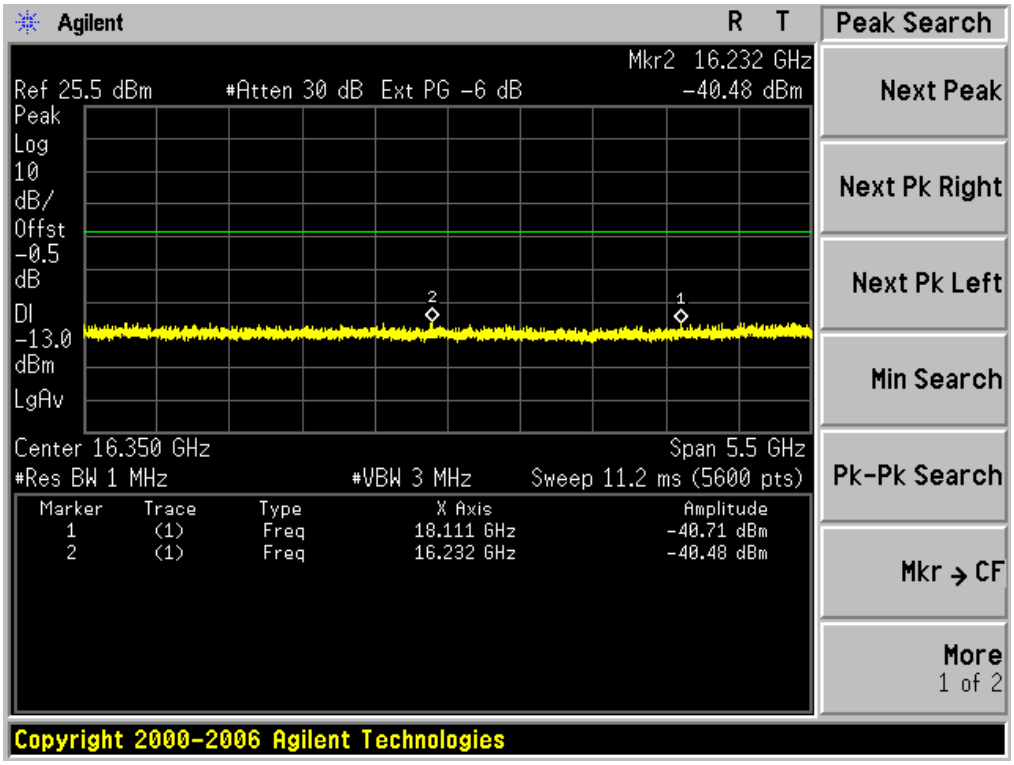
Conducted Emission Transmitting Mode CH 25 1GHz – 7GHz



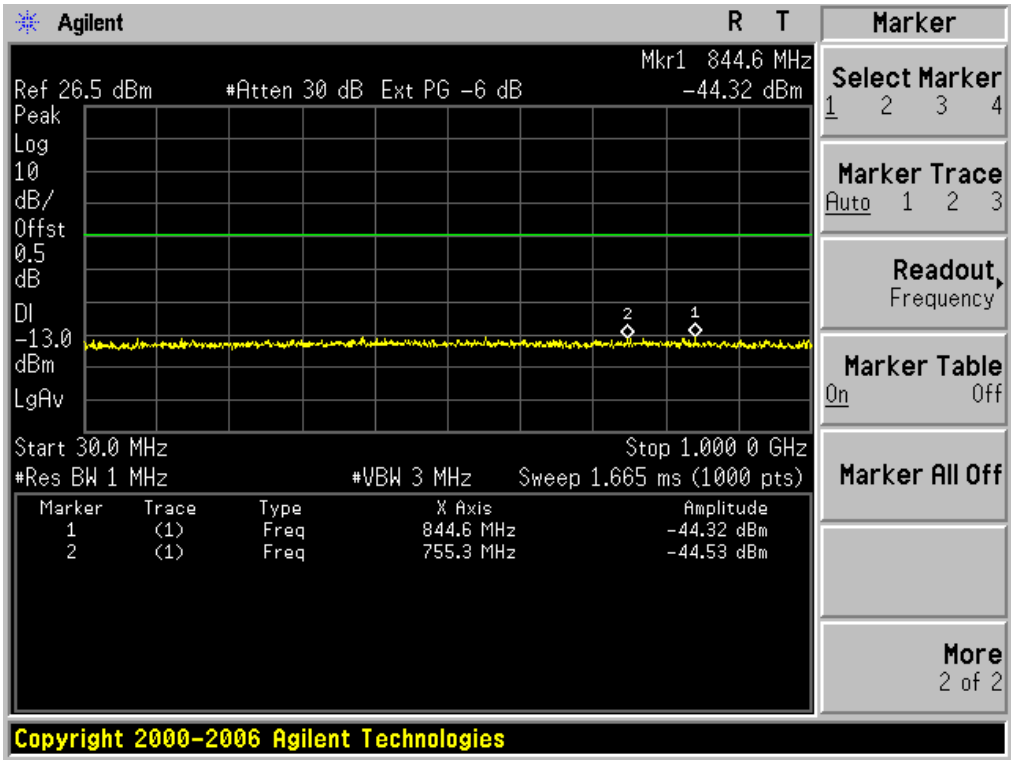
Conducted Emission Transmitting Mode CH 25 7GHz – 13.6GHz



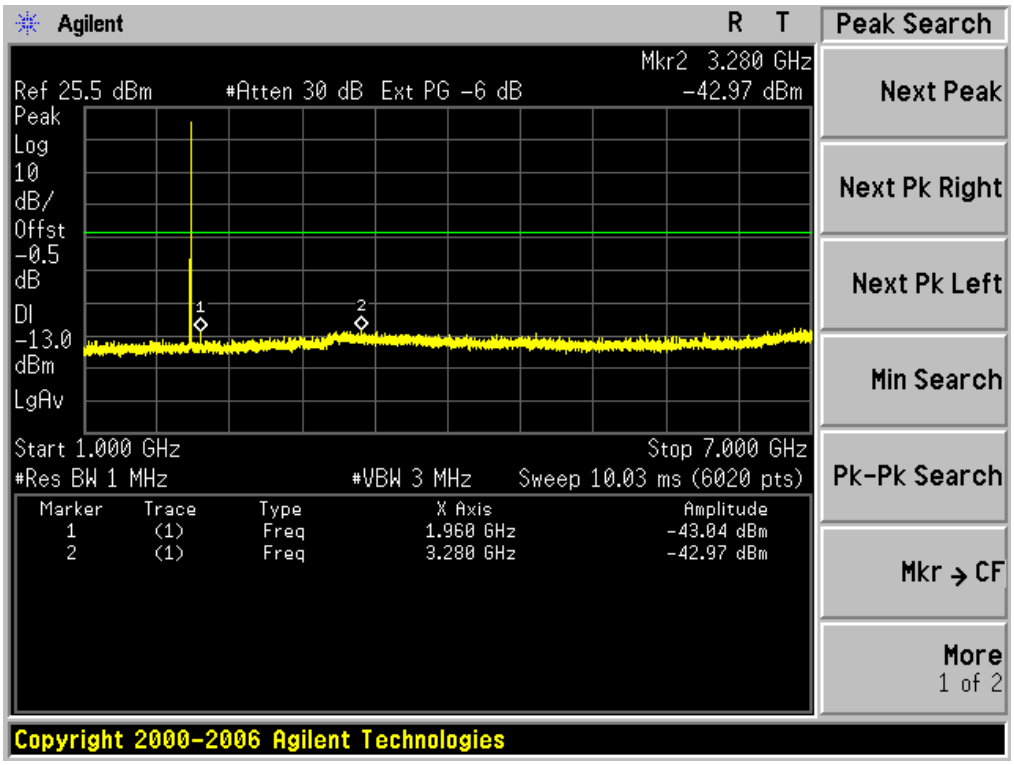
Conducted Emission Transmitting Mode CH 25 13.6GHz – 19.1GHz



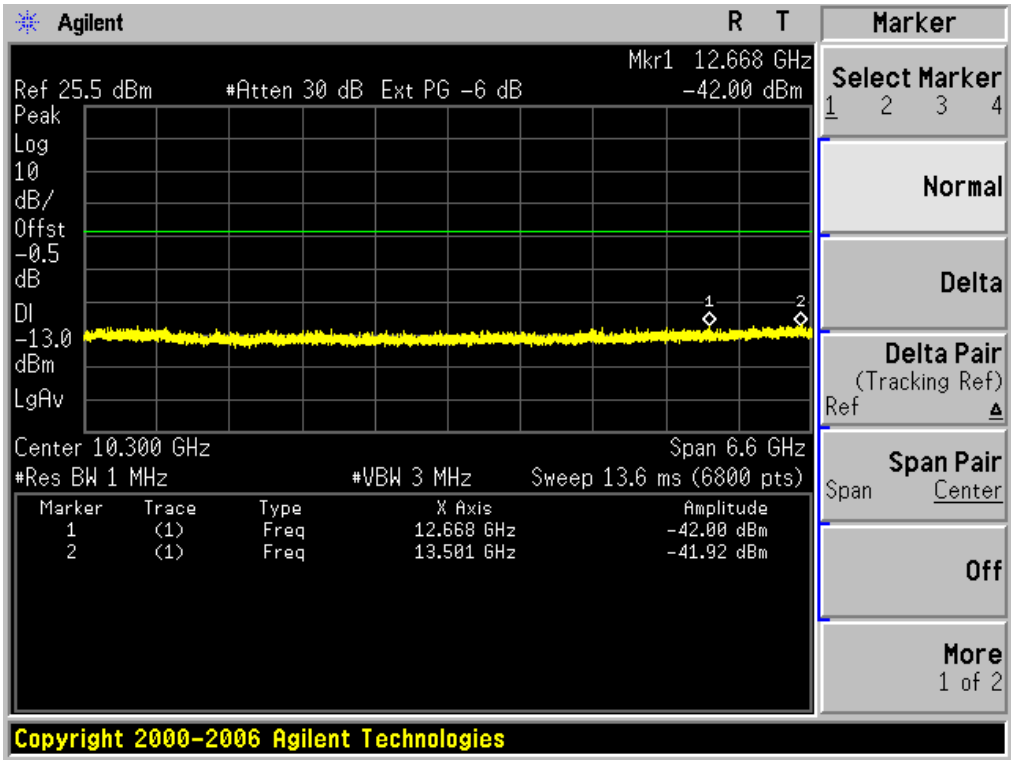
Conducted Emission Transmitting Mode CH 600 30MHz – 1GHz



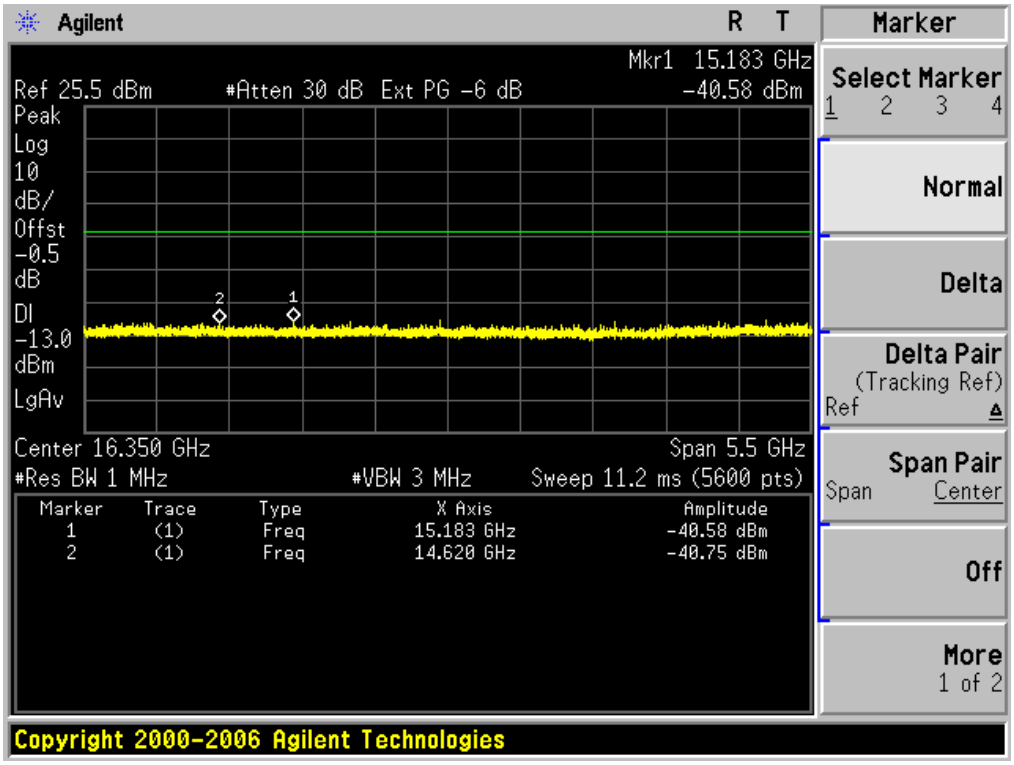
Conducted Emission Transmitting Mode CH 600 1GHz – 7GHz



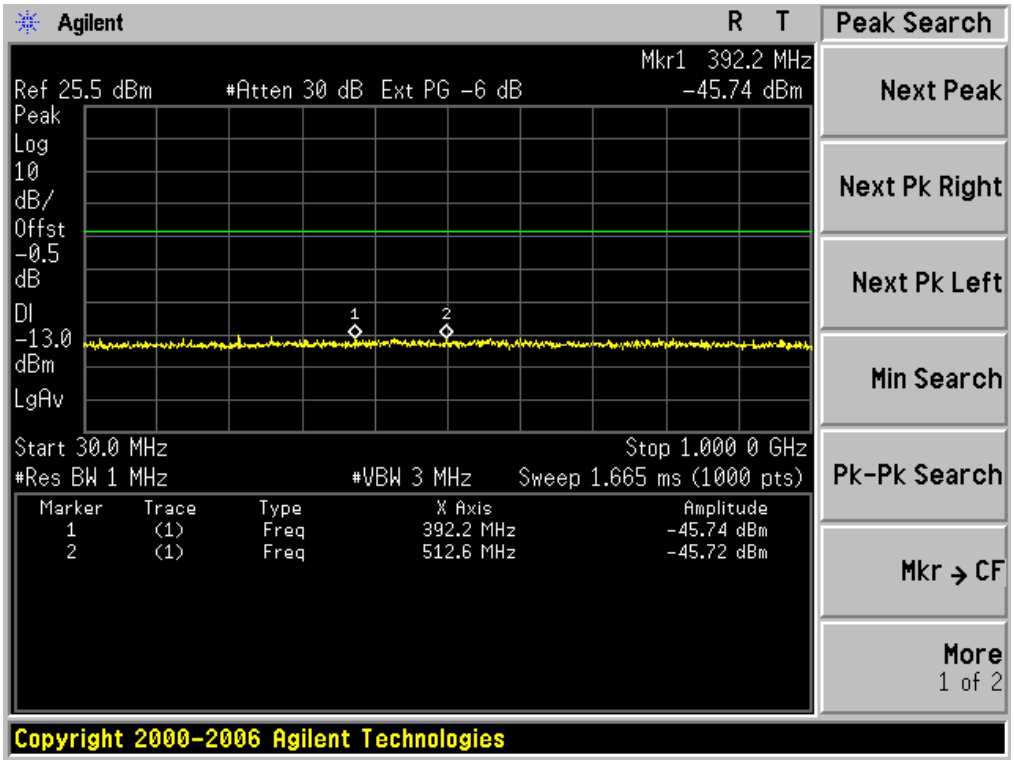
Conducted Emission Transmitting Mode CH 600 7GHz – 13.6GHz



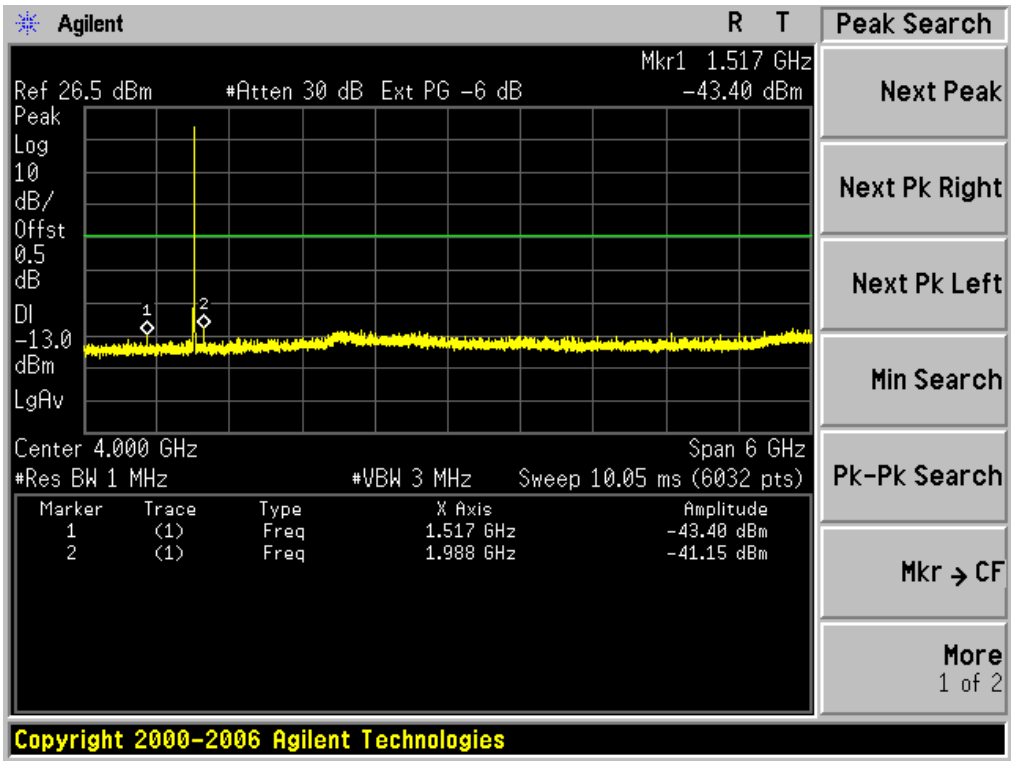
Conducted Emission Transmitting Mode CH 600 13.6GHz – 19.1GHz



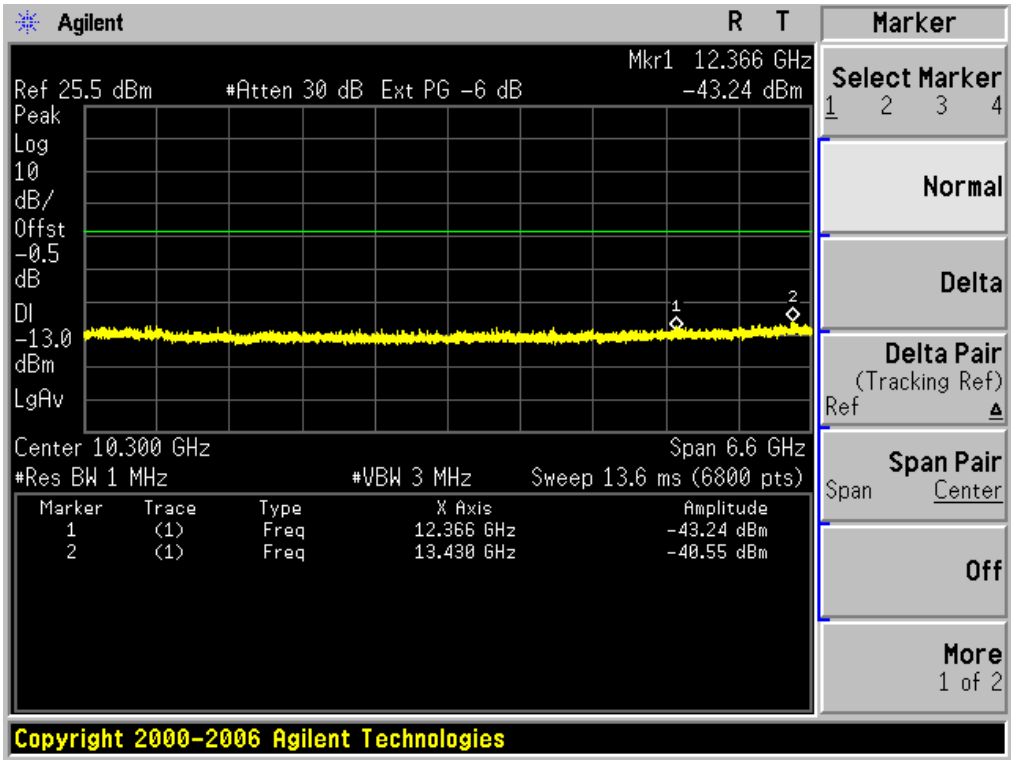
Conducted Emission Transmitting Mode CH 1175(1908.75 MHz) 30MHz – 1GHz



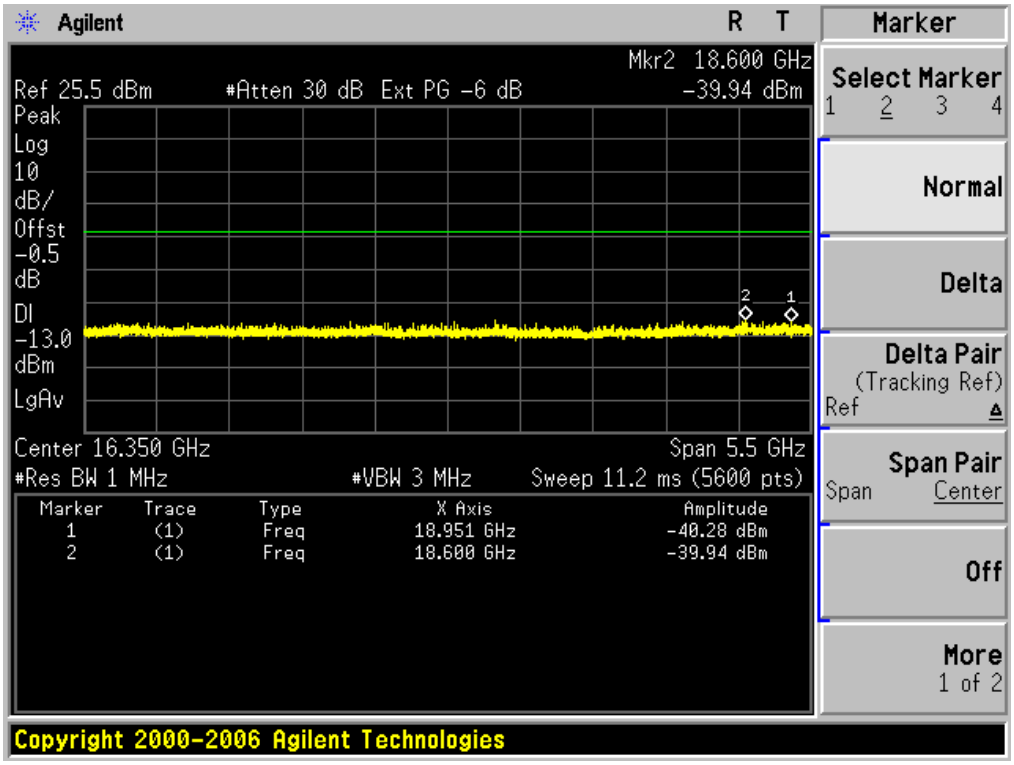
Conducted Emission Transmitting Mode CH 1175(1908.75 MHz) 1GHz – 7GHz



Conducted Emission Transmitting Mode CH 1175(1908.75 MHz) 7GHz – 13.6GHz



Conducted Emission Transmitting Mode CH 1175(1908.75 MHz) 13.6GHz – 19.1GHz



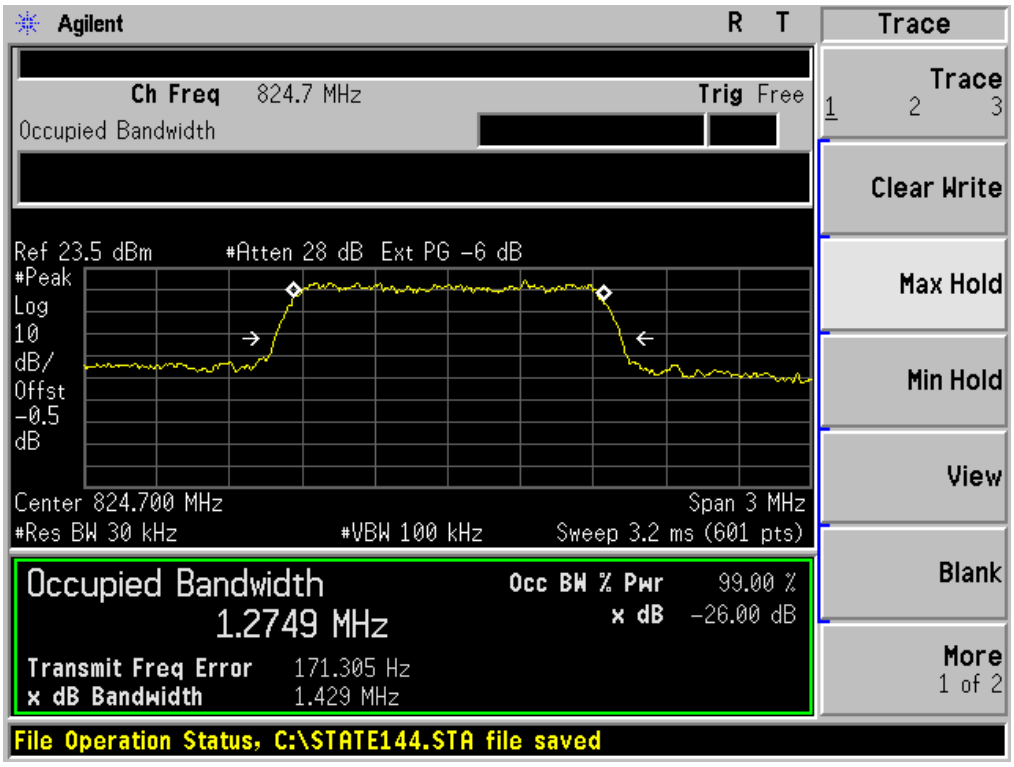
APPENDIX B

TEST PLOTS FOR OCCUPIED BANDWIDTH (99%)

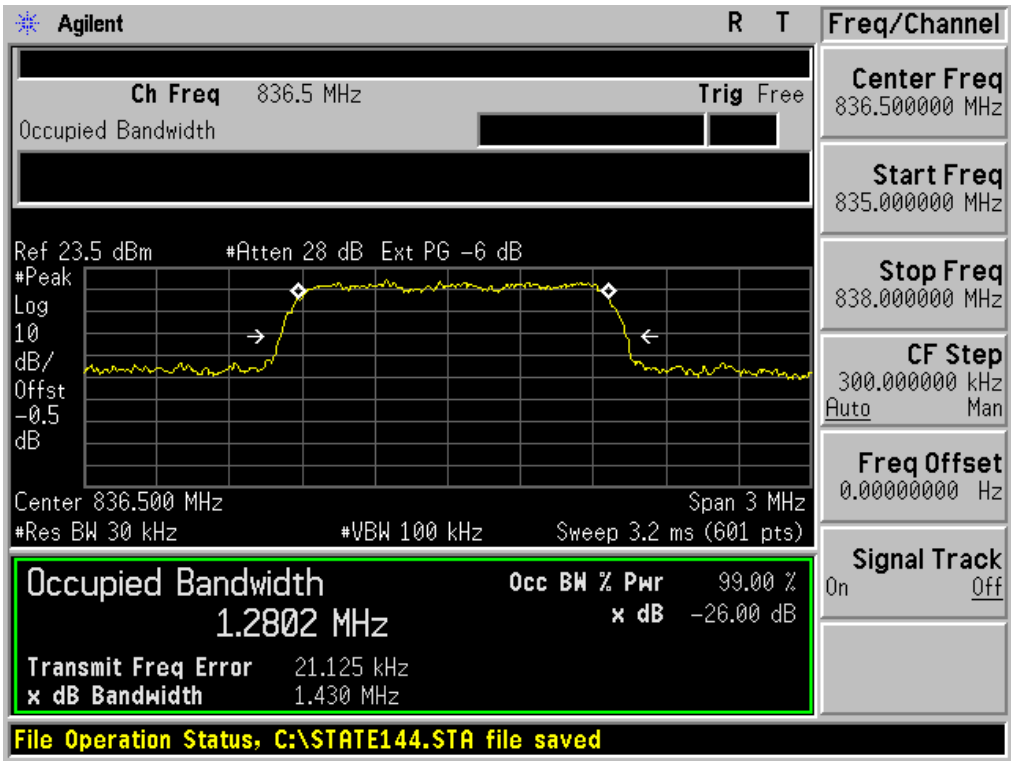
EMISSION BANDWIDTH (-26dBC)

CDMA2000 BC0 1xRTT_RC3+SO32

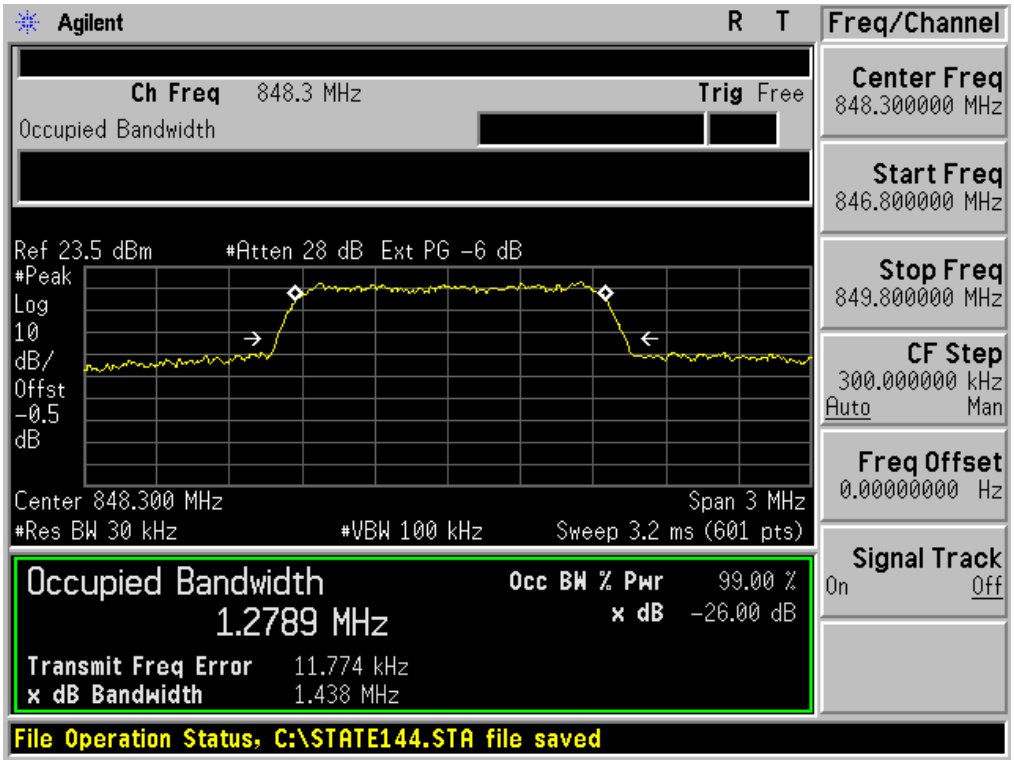
Occupied Bandwidth (99%) CH 1013 (824.7 MHz)



Occupied Bandwidth (99%) CH 384 (836.52 MHz)

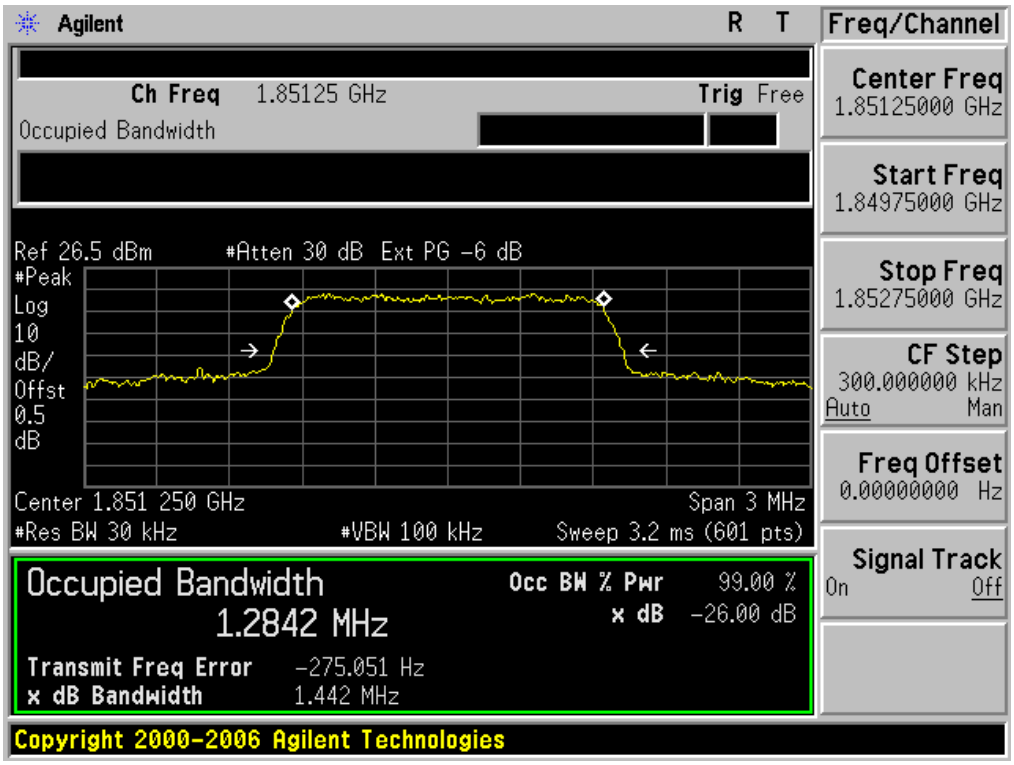


Occupied Bandwidth (99%) CH 777 (848.31 MHz)

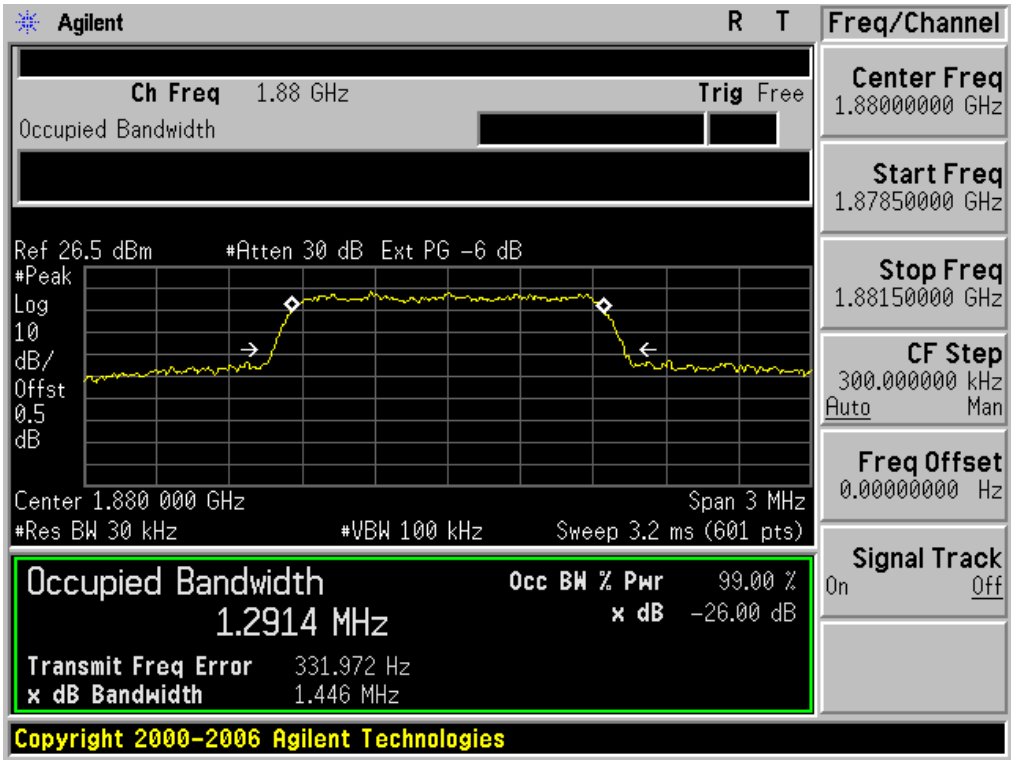


CDMA2000 BC1 1xRTT_RC3+SO32

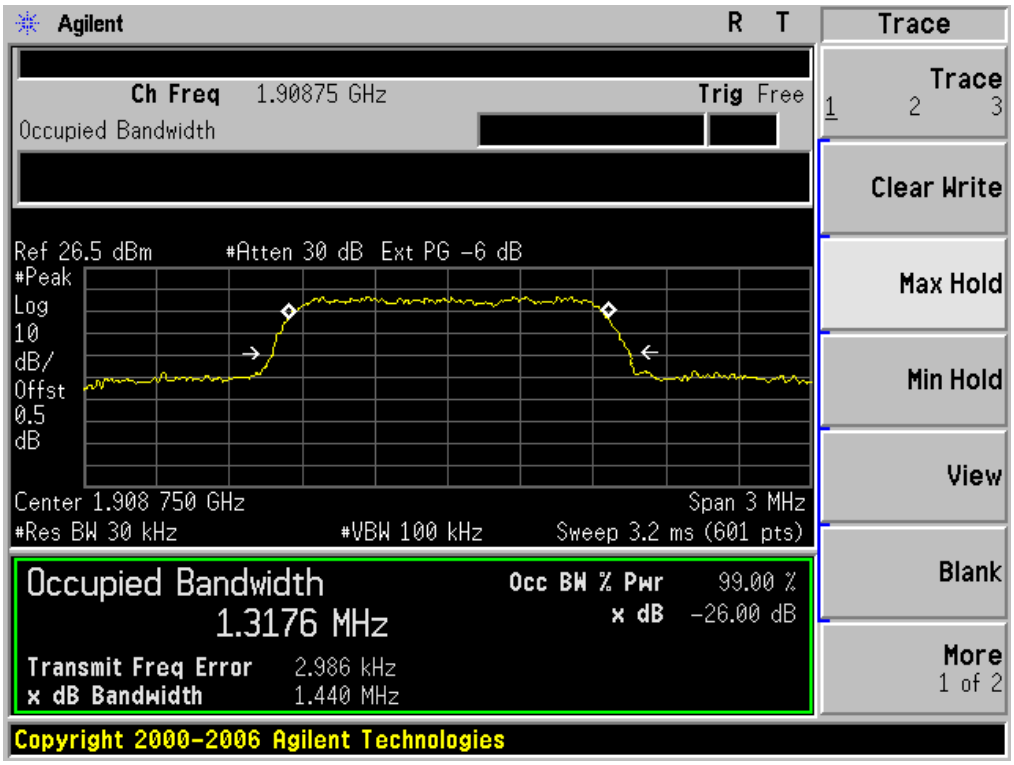
Occupied Bandwidth (99%) CH 25 (1851.25MHz)



Occupied Bandwidth (99%) CH 600 (1880.0 MHz)



Occupied Bandwidth (99%) CH 1175 (1908.75 MHz)

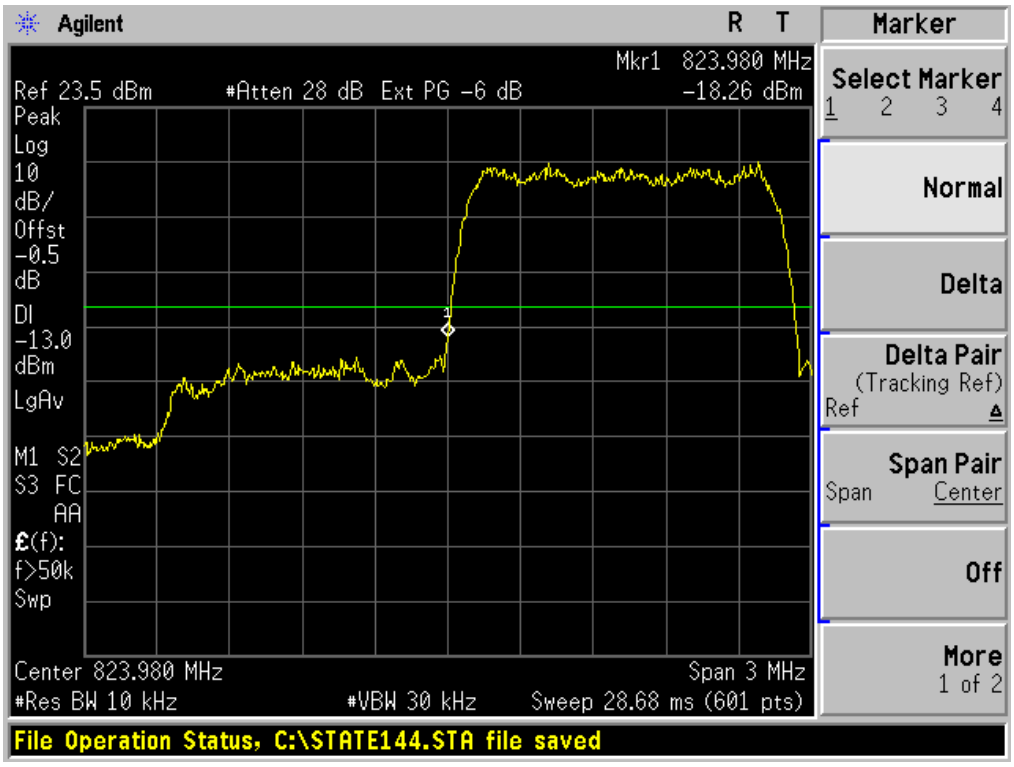


APPENDIX C

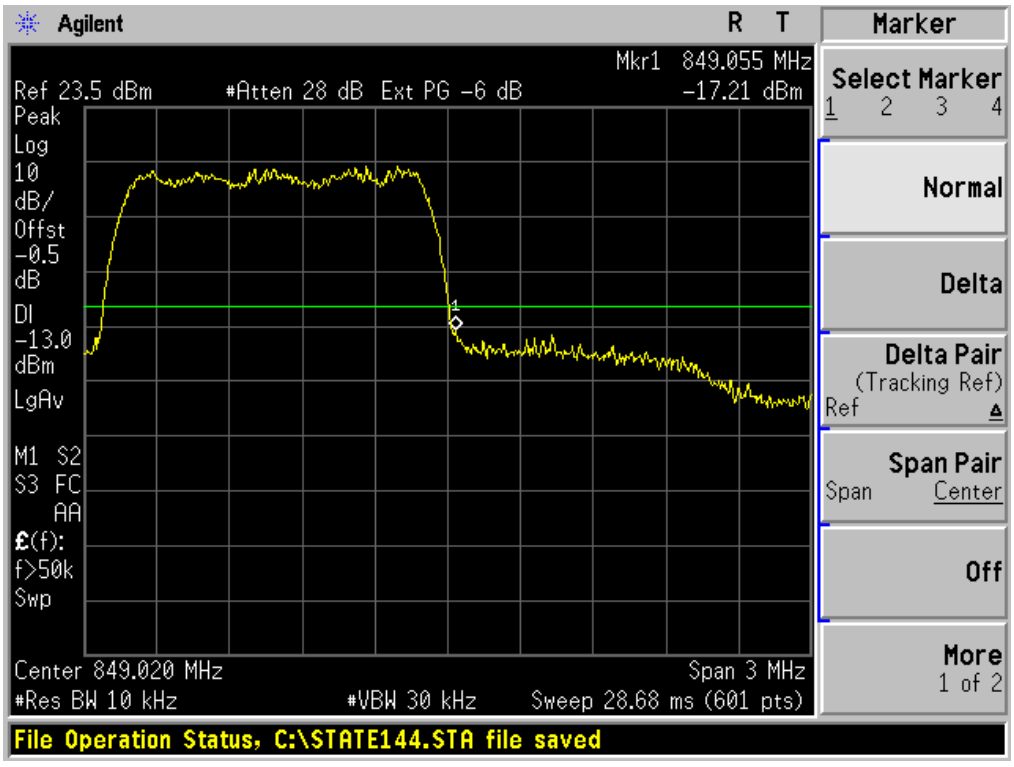
TEST PLOTS FOR BAND EDGES

CDMA2000 BC0 1xRTT_RC3+SO32

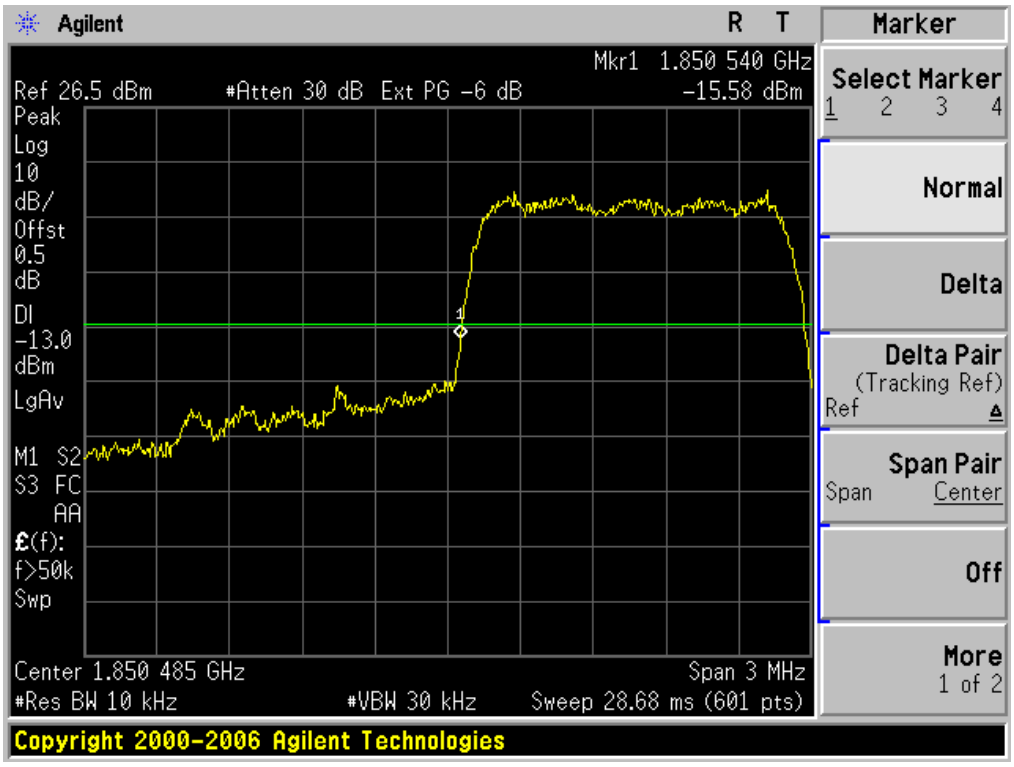
Low Band Edge CH 1013 (824.7 MHz)



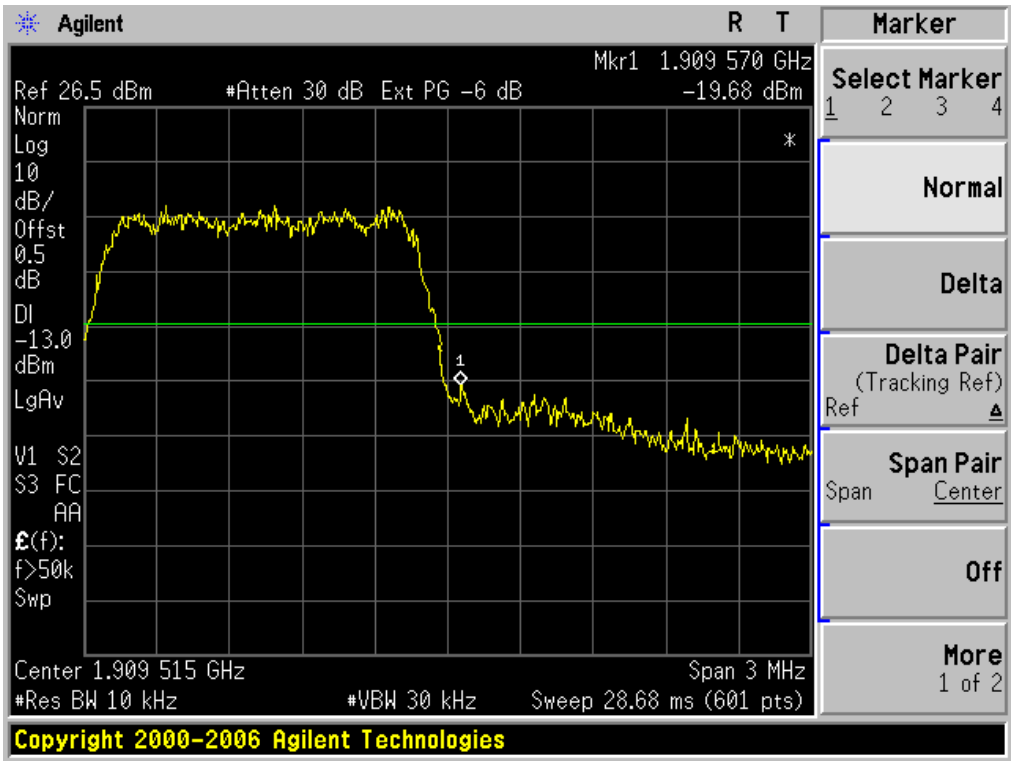
High Band Edge CH 777 (848.31 MHz)



CDMA2000 BC1 1xRTT_RC3+SO32
Low Band Edge BAND CH 25 (1851.25 MHz)



High Band Edge CH 1175 (1908.75 MHz)

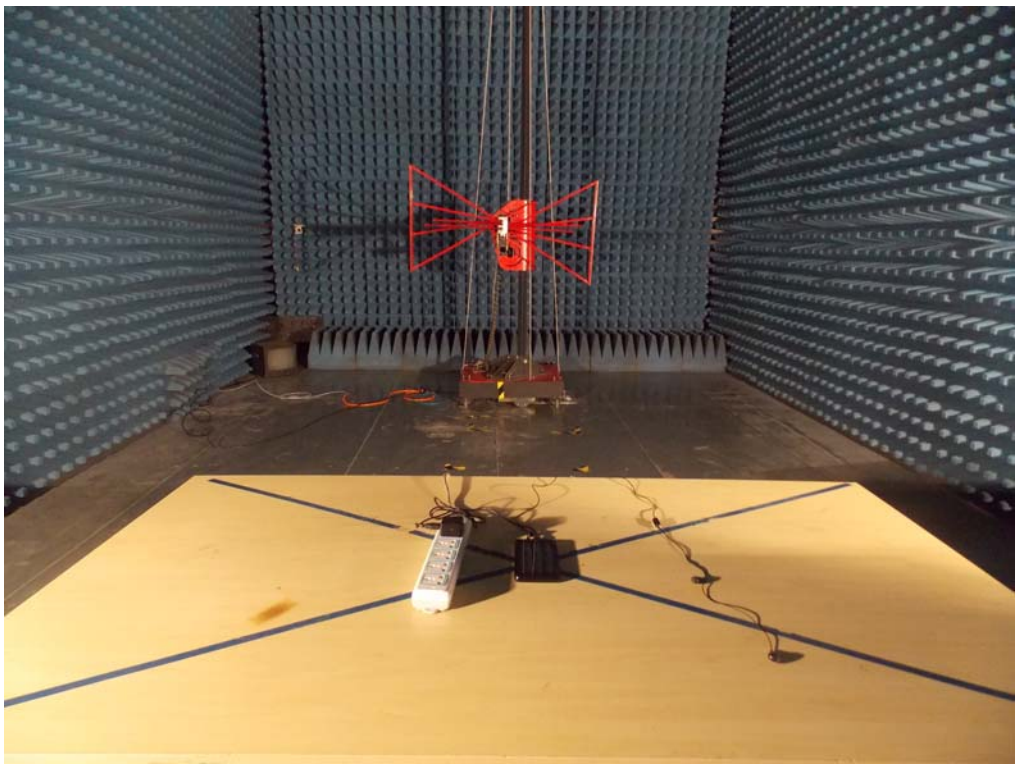


APPENDIX D

PHOTOGRAPHS OF TEST SETUP

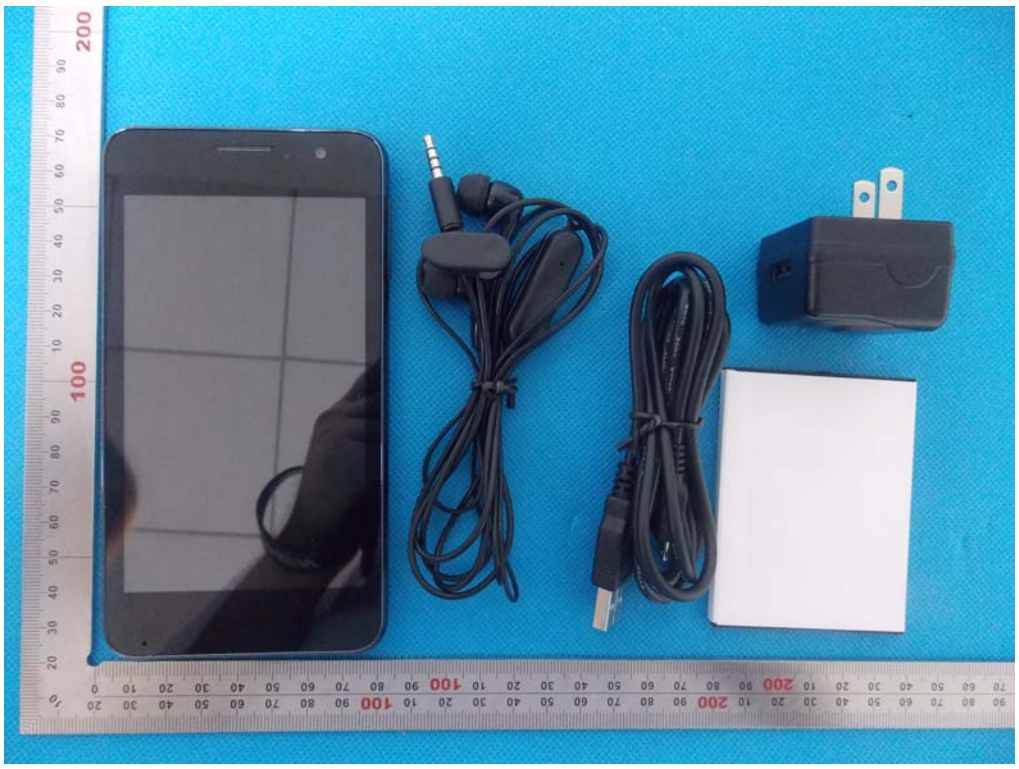
CONDUCTED EMISSION

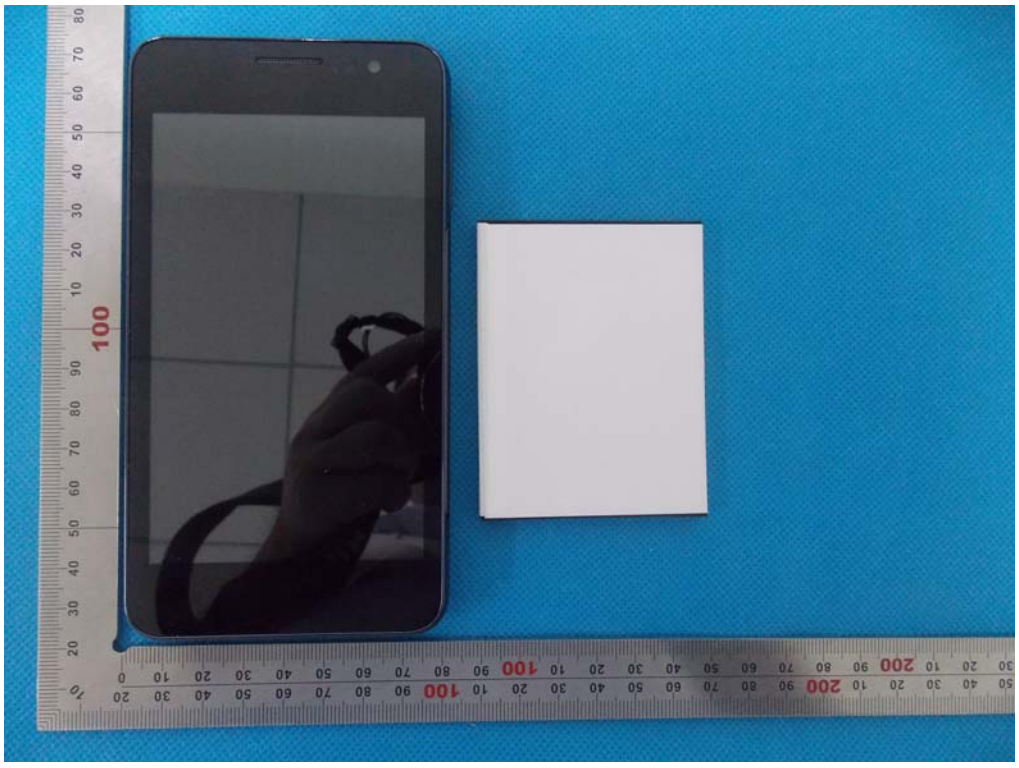
RADIATED SPURIOUS EMISSION



APPENDIX E
PHOTOGRAPHS OF EUT

TOTAL VIEW OF EUT





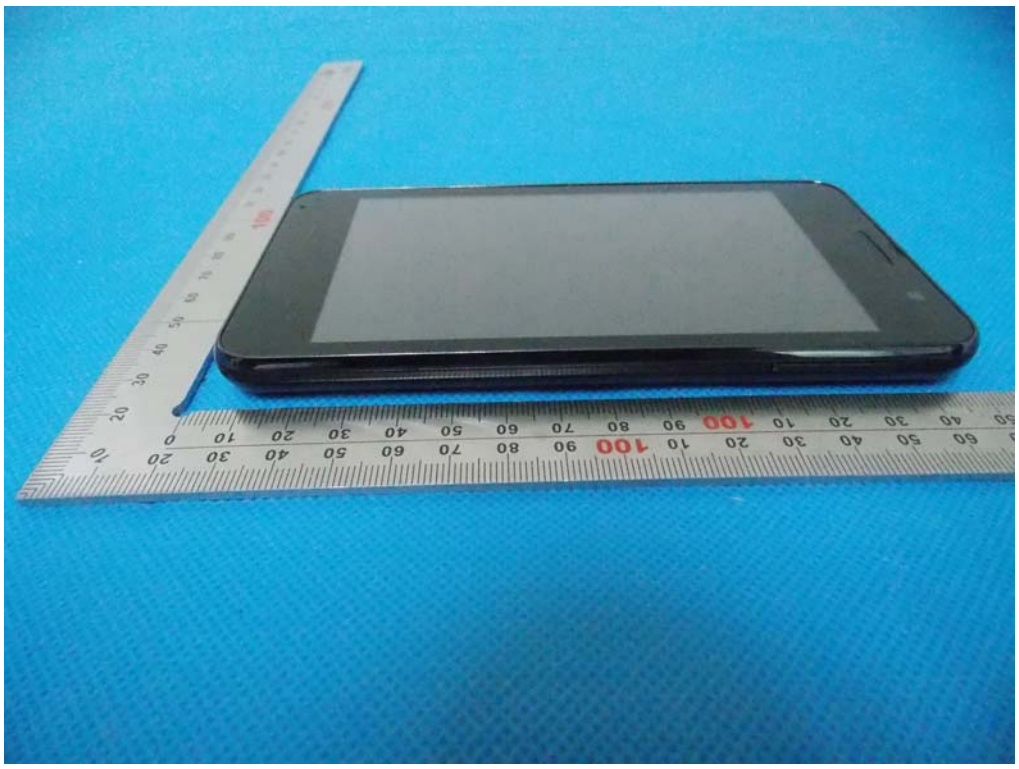
TOP VIEW OF EUT

BOTTOM VIEW OF EUT

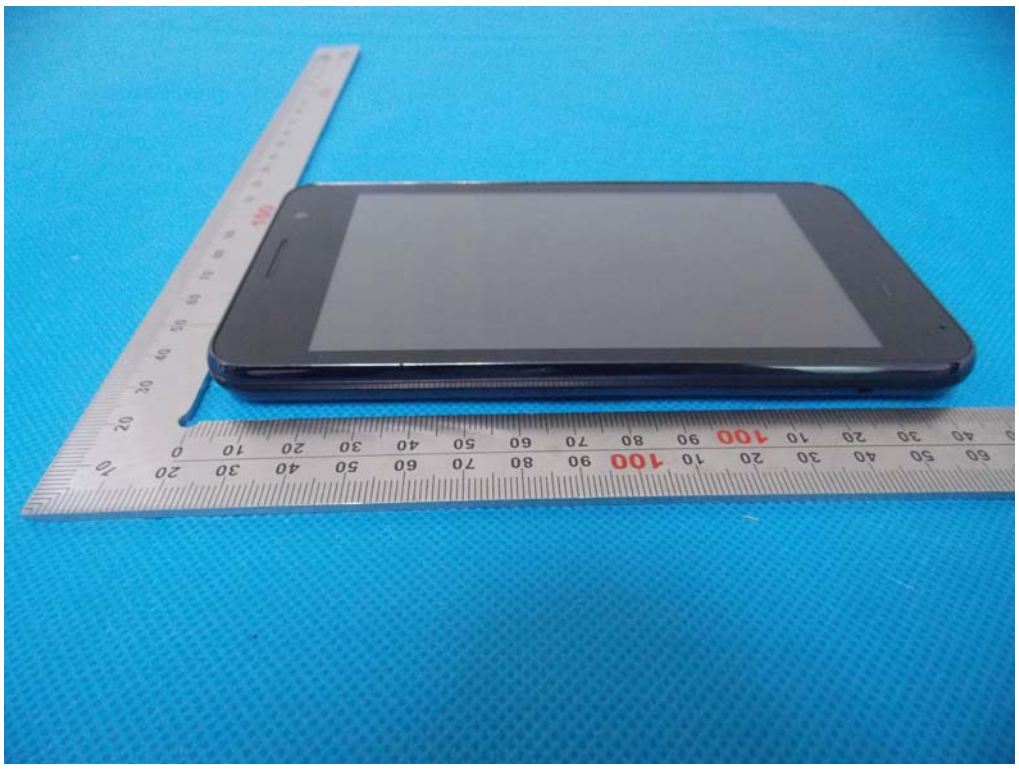
FRONT VIEW OF EUT

BACK VIEW OF EUT

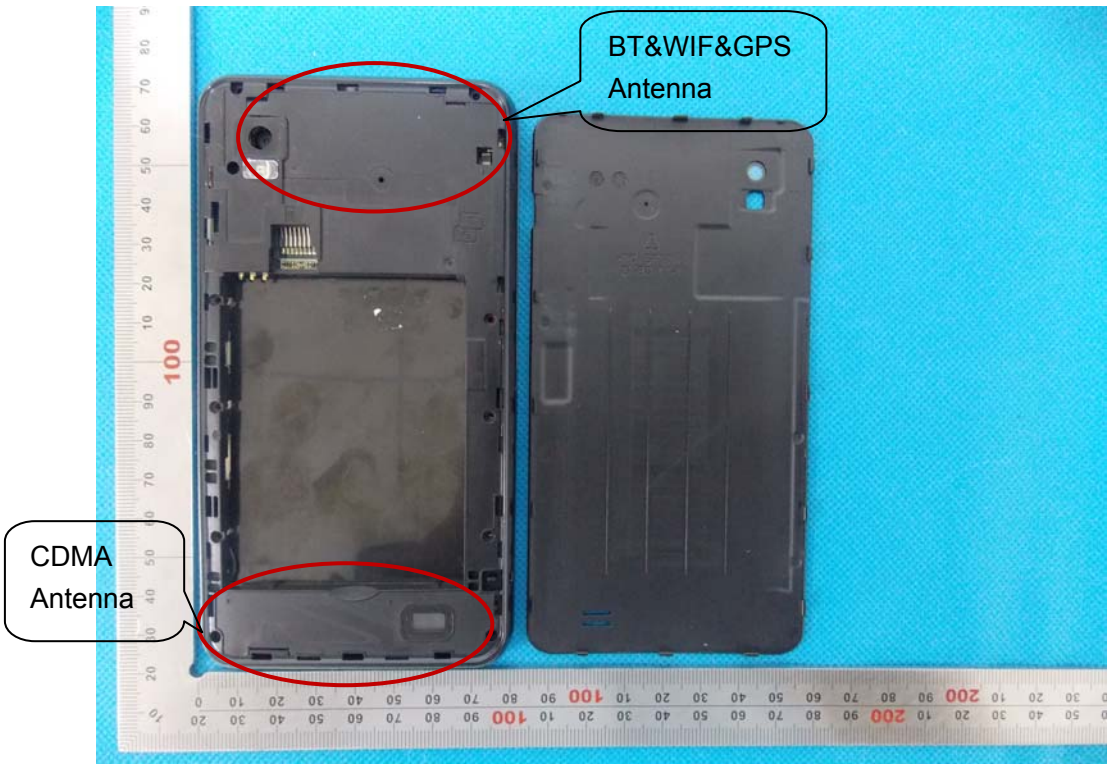
LEFT VIEW OF EUT



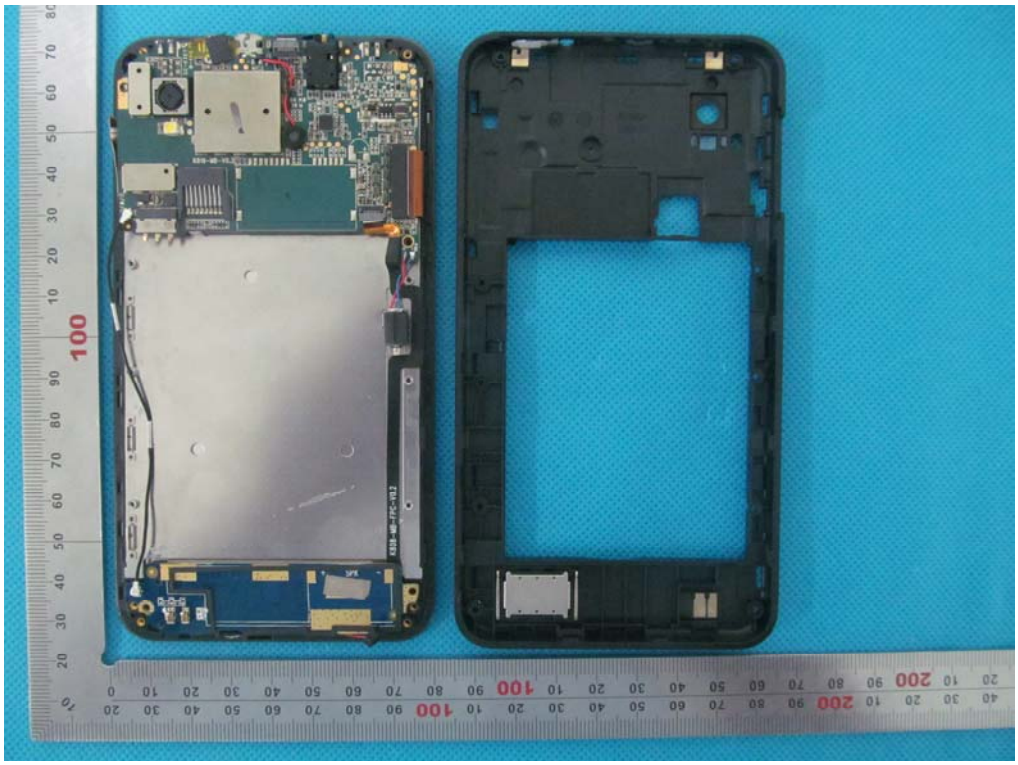
RIGHT VIEW OF EUT



OPEN VIEW OF EUT-1

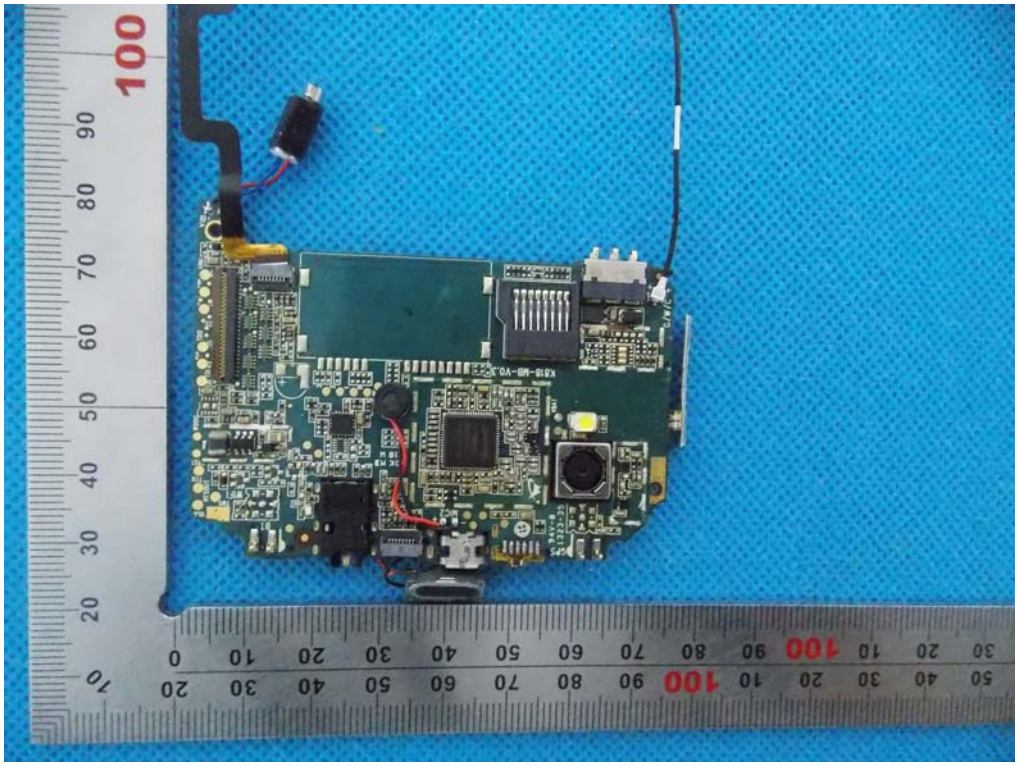


OPEN VIEW OF EUT-2

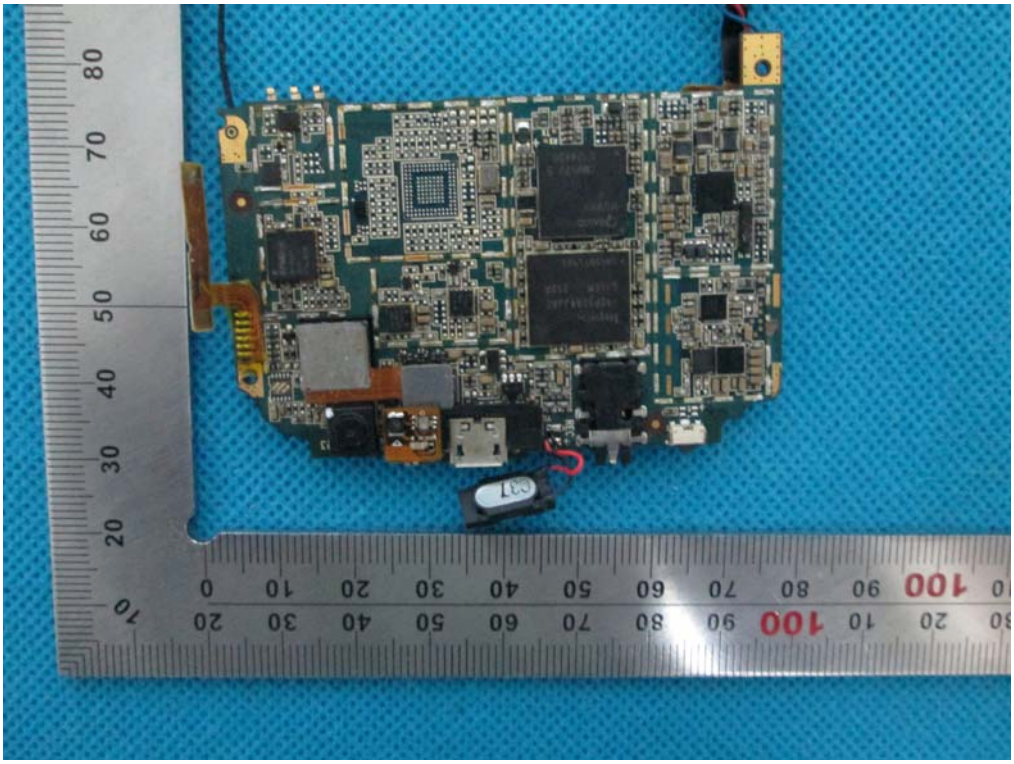


OPEN VIEW OF EUT-3

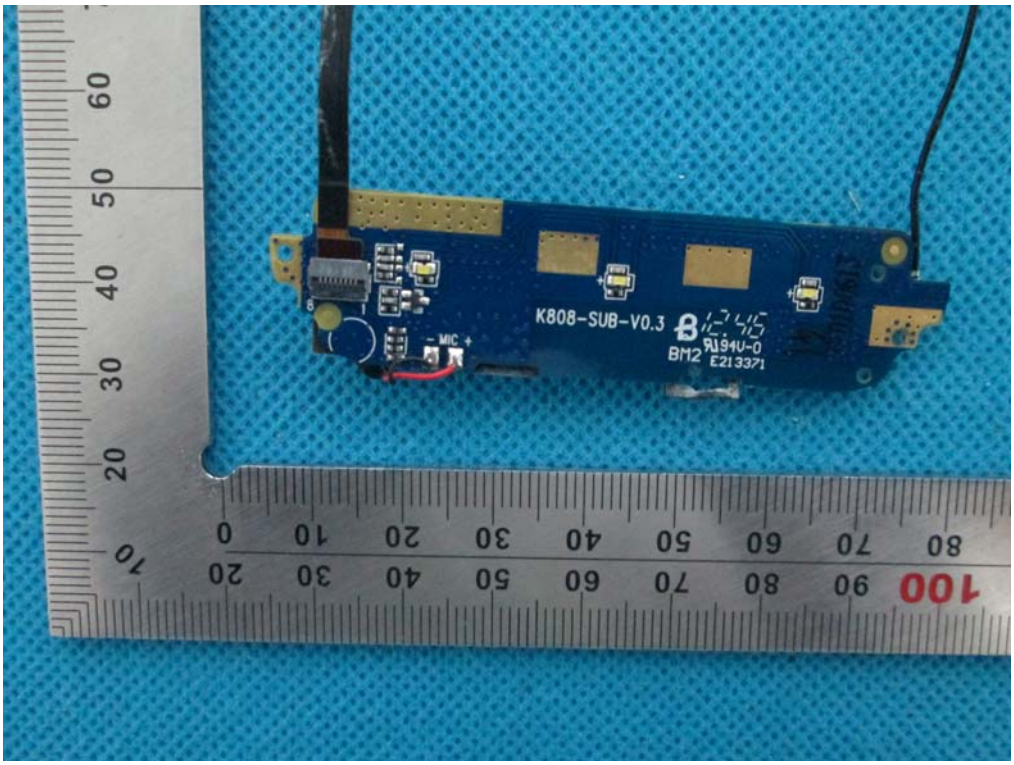
INTERNAL VIEW OF EUT-1



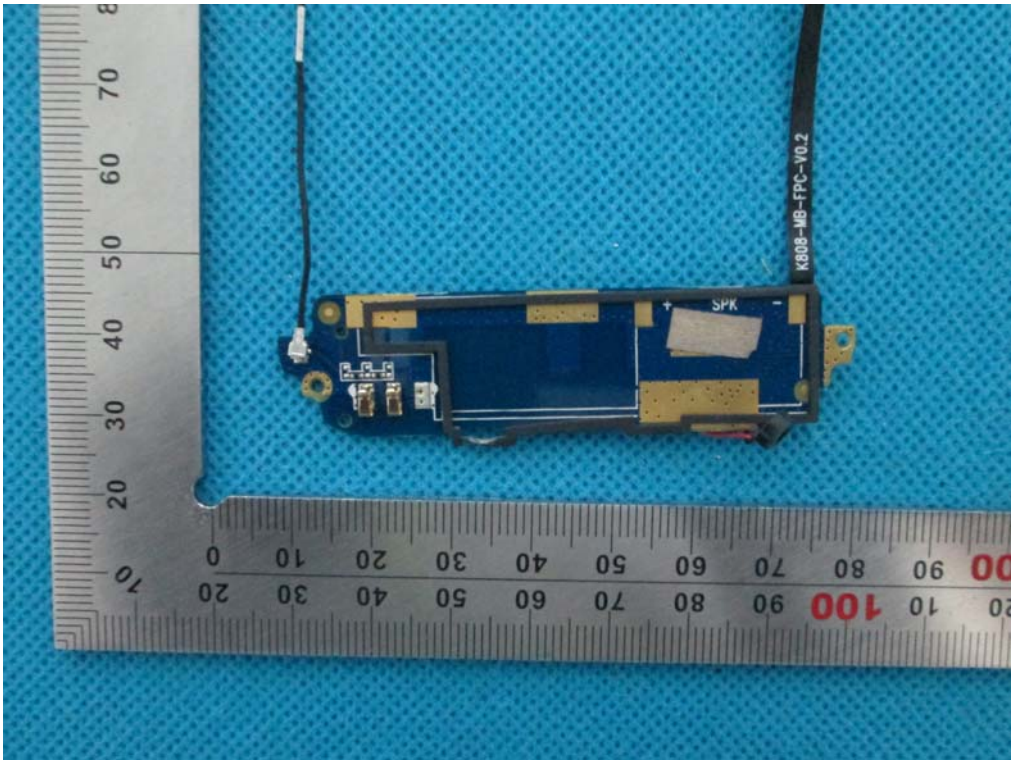
INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



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