

MEASUREMENT REPORT

FCC PART 22H & 24E & 27L

FCC ID: HD5-EDA711

Applicant: Honeywell International Inc.
Honeywell Safety and Productivity Solution

Application Type: Certification

Product: Tablet

Model No.: EDA71-1

Brand Name: Honeywell

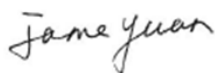
FCC Classification: PCS Licensed Transmitter (PCB)

FCC Rule Part(s): Part 22 Subpart H, Part 24 Subpart E
Part 27 Subpart L

Test Procedure(s): ANSI C63.26-2015, KDB 971168 D01v03r01

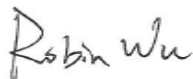
Test Date: July 06 ~ Aug 16, 2020

Reviewed By:



(Jame Yuan)

Approved By:



(Robin Wu)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2001RSU044-U7	Rev. 01	Initial Report	08-18-2020	Valid

CONTENTS

Description	Page
General Information	5
1. INTRODUCTION	6
1.1. Scope	6
1.2. MRT Test Location	6
2. PRODUCT INFORMATION	7
2.1. Equipment Description	7
2.2. Product Specification Subjective to this Report	8
2.3. Maximum Power, Frequency Tolerance, and Emission Designator	9
2.4. Description of Test Configuration and Software	9
2.5. Test Environment Condition	10
2.6. EMI Suppression Device(s)/Modifications	10
3. TEST EQUIPMENT CALIBRATION DATE	11
4. MEASUREMENT UNCERTAINTY	13
5. TEST RESULT	14
5.1. Summary	14
5.2. Occupied Bandwidth	15
5.2.1. Test Limit	15
5.2.2. Test Procedure used	15
5.2.3. Test Setting	15
5.2.4. Test Setup	15
5.2.5. Test Result	16
5.3. Band Edge Measurement	26
5.3.1. Test Limit	26
5.3.2. Test Procedure Used	26
5.3.3. Test Setting	26
5.3.4. Test Setup	27
5.3.5. Test Result	28
5.4. Conducted Spurious Emissions	32
5.4.1. Test Limit	32
5.4.2. Test Procedure Used	32
5.4.3. Test Setting	32
5.4.4. Test Setup	33
5.4.5. Test Result	34
5.5. Peak-Average Ratio	42

5.5.1. Test Limit	42
5.5.2. Test Procedure	42
5.5.3. Test Procedure	42
5.5.4. Test Setup.....	42
5.5.5. Test Result.....	43
5.6. Equivalent Isotropically Radiated Power Measurement.....	49
5.6.1. Test Limit	49
5.6.2. Test Procedure Used	49
5.6.3. Test Setting.....	49
5.6.4. Test Setup.....	50
5.6.5. Test Result.....	51
5.7. Frequency Stability Under Temperature & Voltage Variations.....	56
5.7.1. Test Limit	56
5.7.2. Test Procedure	56
5.7.3. Test Setting.....	56
5.7.4. Test Setup.....	57
5.7.5. Test Result.....	58
5.8. Radiated Spurious Emissions Measurements.....	67
5.8.1. Test Limit	67
5.8.2. Test Procedure Used	67
5.8.3. Test Setting.....	67
5.8.4. Test Setup.....	68
5.8.5. Test Result.....	69
6. CONCLUSION.....	76
Appendix A - Test Setup Photograph	77
Appendix B - EUT Photograph.....	78

General Information

Applicant:	Honeywell International Inc. Honeywell Safety and Productivity Solutions
Applicant Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
Manufacturer:	Honeywell International Inc. Honeywell Safety and Productivity Solutions
Manufacturer Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Designation No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Tablet
Model No.	EDA71-1
Serial No.	20087B1290
Hardware Version	IDH63_MB_V2.0.0
Software Version	213.01.00.0009E
IMEI	990013560217445
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Version	v4.2 dual mode
NFC Working Frequency	13.56MHz
Satellite	GPS / GLONASS / BDS
GSM Operating Band	GSM850 / PCS1900
WCDMA Operating Band	Band II / IV / V
CDMA2000 Operating Band	BC0 / BC1
LTE Operating Band	FDD Band: 2 / 4 / 7 / 12 / 13 / 17 TDD Band: 38 / 41
Accessories	
USB Adapter	Model No.: ADS-12B-06 05010E Input Power: 100 - 240V ~ 50/60Hz, Max. 0.3A Output Power: 5VDC 2.0A
Li-ion Battery 1#	Model No.: BAT-EDA50US Capacitance: 4000mAh/15.2Wh Rated Voltage: 3.8V
Li-ion Battery 2#	Model No.: EDA70-EXT Capacitance: 8850mAh/33.45Wh Rated Voltage: 3.78V
USB CUP	Model No.: EDA70-UC Input: 5VDC 2.0A

2.2. Product Specification Subjective to this Report

T _x Frequency Range	GSM850: 824.2 ~ 848.8MHz PCS1900: 1850.2 ~ 1909.8MHz WCDMA Band II: 1852.4 ~ 1907.6MHz WCDMA Band IV: 1712.4 ~ 1752.6MHz WCDMA Band V: 826.4 ~ 846.6MHz CDMA2000 BC0: 824.70 ~ 848.31 MHz CDMA2000 BC1: 1851.25 ~ 1908.75 MHz
R _x Frequency Range	GSM850: 869.2 ~ 893.8MHz PCS1900: 1930.2 ~ 1989.8MHz WCDMA Band II: 1932.4 ~ 1987.6MHz WCDMA Band IV: 2112.4 ~ 2152.6MHz WCDMA Band V: 871.4 ~ 891.6MHz CDMA2000 BC0: 869.70 ~ 893.31 MHz CDMA2000 BC1: 1930.2 ~ 1989.8 MHz
Antenna Type	FPC
Antenna Gain	GSM850 / WCDMA Band V / CDMA2000 BC0: 0.5dBi PCS1900 / WCDMA Band II & IV / CDMA2000 BC1: 1dBi
Modulation	GSM / GPRS: GMSK; EDGE: 8PSK WCDMA: BPSK/QPSK CDMA2000 1xRTT: QPSK CDMA2000 1xEV-DO: QPSK/8PSK

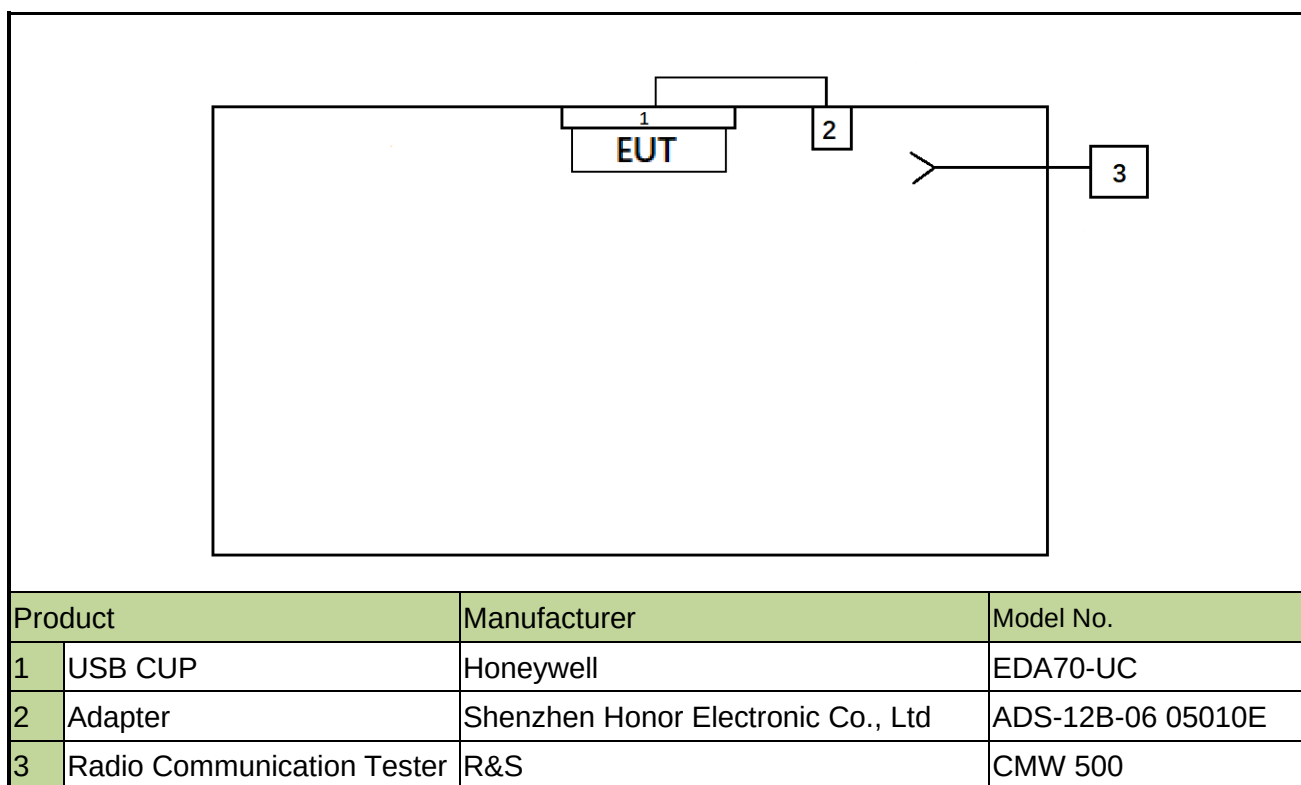
Note 1: For other features of this EUT, test report will be issued separately.

Note 2: All product information is provided by the manufacturer.

2.3. Maximum Power, Frequency Tolerance, and Emission Designator

Test Mode	Designator	Tolerance (ppm)	Max EIRP / ERP (W)
GSM850	245KGXW	0.0198	1.4825
PCS1900	247KGXW	0.0072	0.3119
EDGE850	247KG7W	0.0120	0.4624
EDGE1900	247KG7W	0.0032	0.3069
WCDMA Band II	4M13F9W	0.0016	0.0851
WCDMA Band IV	4M13F9W	0.0022	0.1005
WCDMA Band V	4M12F9W	0.0025	0.1592
CDMA2000 BC0	1M28F9W	-0.0267	0.1445
CDMA2000 BC1	1M28F9W	-0.0205	0.0904

2.4. Description of Test Configuration and Software



2.5. Test Environment Condition

Ambient Temperature	15°C~35°C
Relative Humidity	20%RH ~75%RH

2.6. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

3. TEST EQUIPMENT CALIBRATION DATE

Radiated Emission - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2021/08/01
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/10
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2021/02/23
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2021/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2021/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2021/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2021/08/01
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/10
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2021/02/23
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2021/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2021/04/30

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2021/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2021/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2021/04/15
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2020/11/18
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2021/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2021/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2021/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2021/06/13
Attenuator	MVE	6dB	MRTSUE06534	1 year	2020/12/12
Attenuator	MVE	10dB	MRTSUE06543	1 year	2020/12/12
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2020/10/10
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2020/11/07
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2020/11/07
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2021/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

4. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): Horizontal: 9kHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 9kHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 0.28%

5. TEST RESULT

5.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied bandwidth	N/A	Conducted	Pass	Section 5.2
2.1051 22.917(a) 24.238(a) 27.53(h)	Conducted Band Edge / Spurious Emissions	$> 43 + \log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions		Pass	Section 5.3 Section 5.4
24.232(d) 27.50(d)(5)	Peak-Average Ratio	$< 13 \text{ dB}$		Pass	Section 5.5
2.1046	Transmitter Conducted Output Power	N/A		Pass	Section 5.6
22.913(a.5)	Effective Radiated Power	$< 7 \text{ Watts max. ERP}$		Pass	Section 5.6
24.232(c)	Equivalent Isotropic Radiated Power	$< 2 \text{ Watts max. EIRP}$		Pass	Section 5.6
27.50(d)(4)	Equivalent Isotropic Radiated Power	$< 1 \text{ Watts max. EIRP}$		Pass	Section 5.6
2.1055 22.355 24.235 27.54	Frequency Stability	$< 2.5 \text{ ppm (Part 22)}$ Emission must remain in band (Part 24, 27)		Pass	Section 5.7
2.1053 22.917(a) 24.238(a) 27.53(h)	Radiated Spurious Emissions	$> 43 + \log_{10}(P[\text{Watts}])$ for all out-of-band emissions	Radiated	Pass	Section 5.8

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Channel Band Edge, Radiated & Conducted Spurious Emission were presented in the test report.

5.2. Occupied Bandwidth

5.2.1. Test Limit

The occupied bandwidth, that is 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.

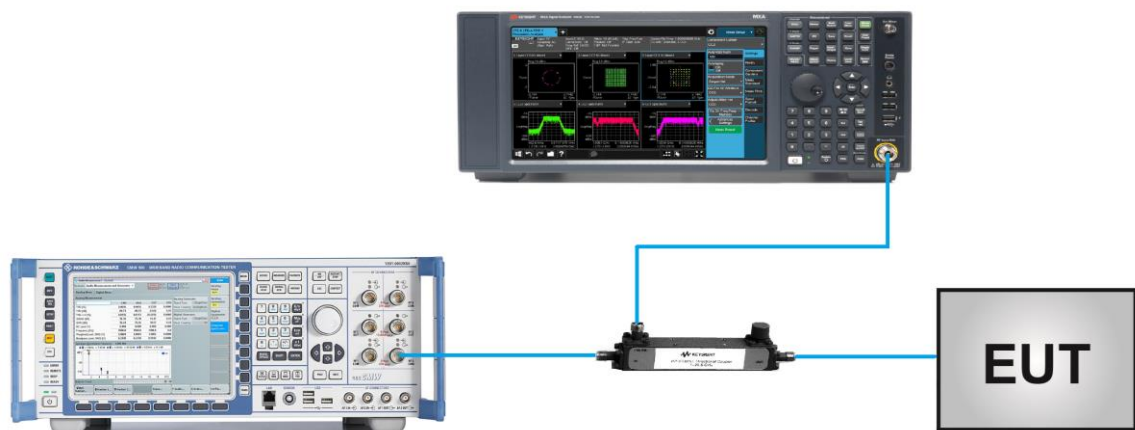
5.2.2. Test Procedure used

ANSI C63.26-2015 - Section 5.4

5.2.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

5.2.4. Test Setup



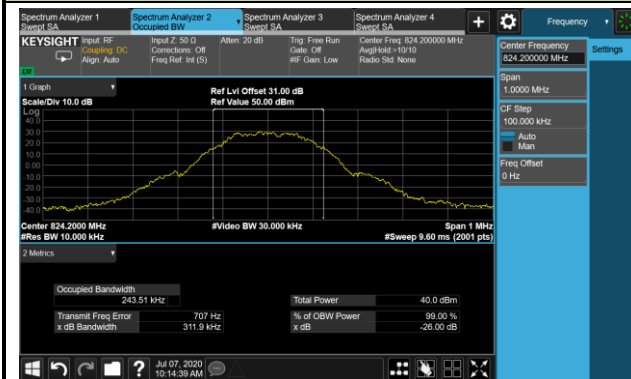
5.2.5.Test Result

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/07~2020/07/08

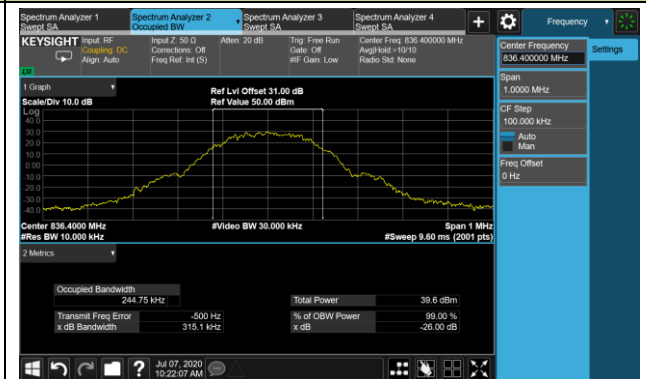
Test Mode	Channel No.	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26dB Occupied Bandwidth (kHz)
GSM850	128	824.2	243.5	311.9
	189	836.4	244.8	315.1
	251	848.8	244.8	306.7
PCS1900	512	1850.2	245.4	319.1
	661	1880.0	245.5	314.8
	810	1909.8	246.7	318.3
EDGE850	128	824.2	246.6	325.6
	189	836.4	245.3	323.4
	251	848.8	242.7	318.6
EDGE1900	512	1850.2	247.4	316.5
	661	1880.0	245.6	314.4
	810	1909.8	246.4	314.9
WCDMA Band II	9262	1852.4	4126.7	4718
	9400	1880.0	4115.3	4695
	9538	1907.6	4124.7	4678
WCDMA Band IV	1312	1712.4	4116.1	4667
	1413	1732.6	4126.2	4682
	1513	1752.6	4109.9	4712
WCDMA Band V	4132	826.4	4106.7	4700
	4182	836.4	4123.7	4691
	4233	846.6	4115.4	4667
CDMA2000 BC0	1013	824.70	1274.3	1423
	384	836.52	1277.2	1435
	777	848.31	1275.9	1432
CDMA2000 BC1	25	1851.25	1276.4	1425
	600	1880.00	1269.7	1435
	1175	1908.75	1274.6	1418

GSM850 Occupied Bandwidth

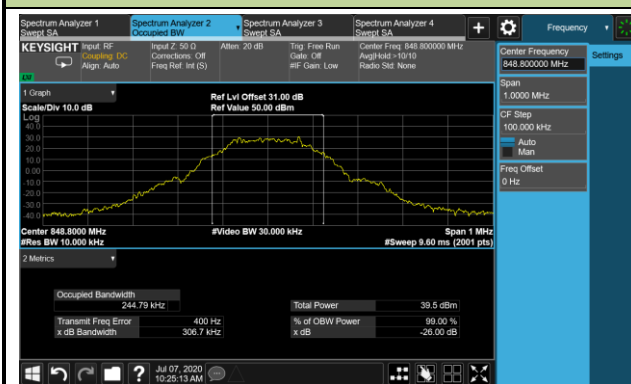
Channel 128 (824.2MHz)



Channel 189 (836.4MHz)

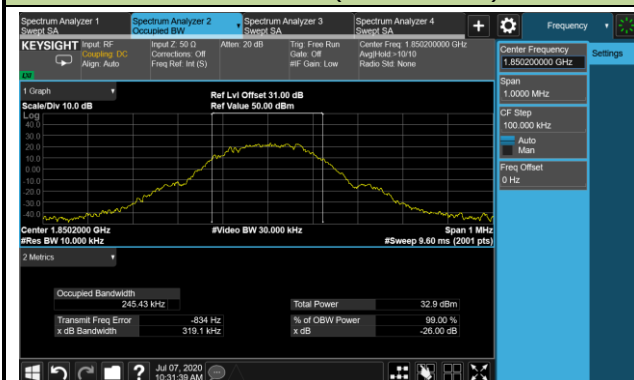


Channel 251 (848.8MHz)

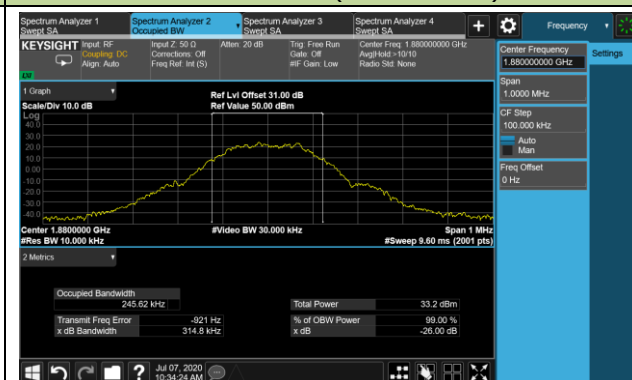


PCS1900 Occupied Bandwidth

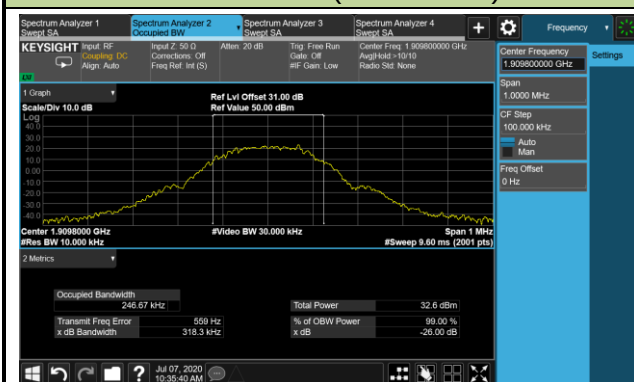
Channel 512 (1850.2MHz)



Channel 661 (1880.0MHz)

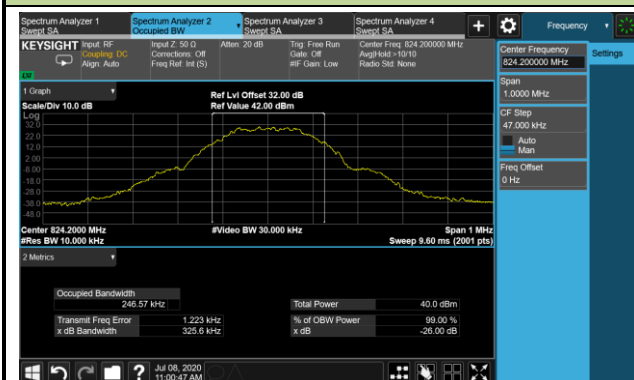


Channel 810 (1909.8MHz)

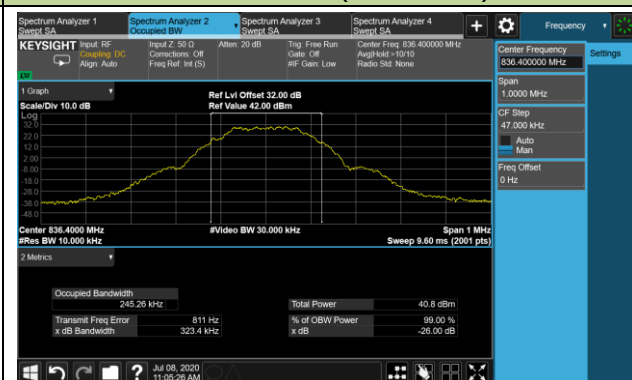


EDGE850 Occupied Bandwidth

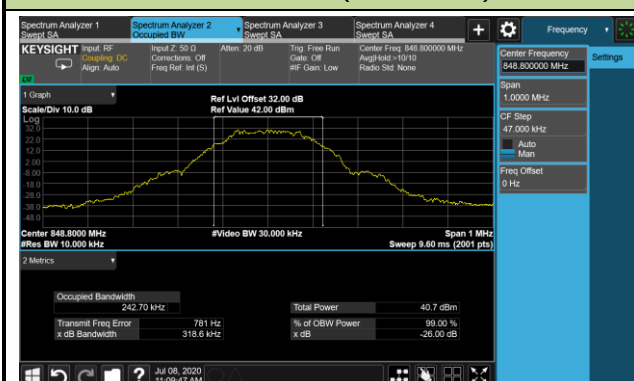
Channel 128 (824.2MHz)



Channel 189 (836.4MHz)

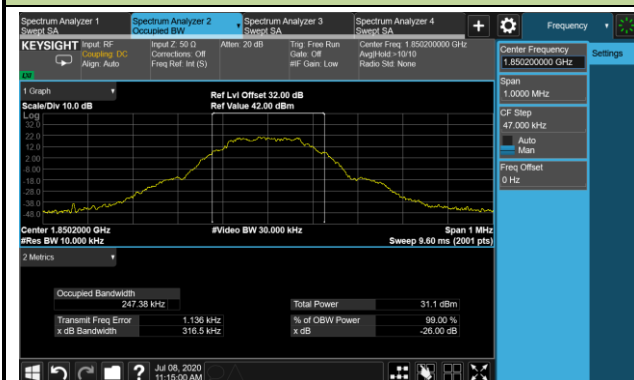


Channel 251 (848.8MHz)

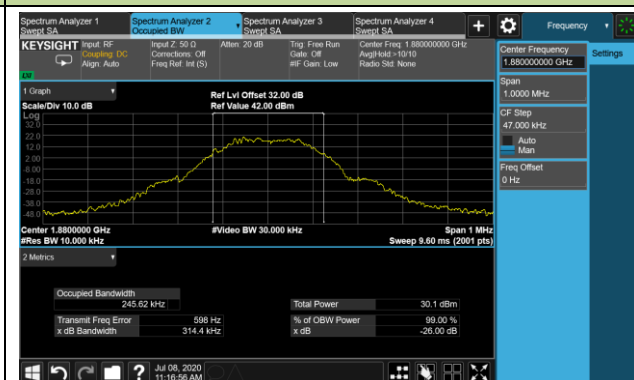


EDGE1900 Occupied Bandwidth

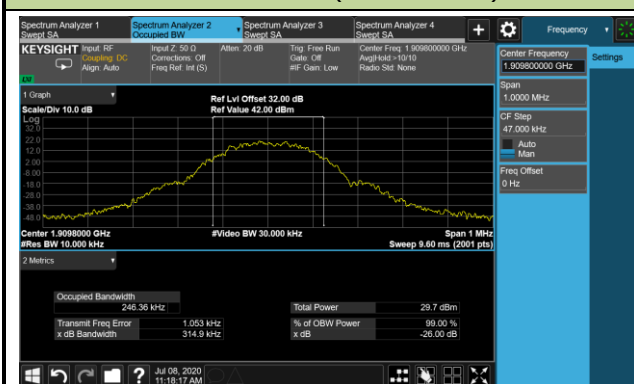
Channel 512 (1850.2MHz)



Channel 661 (1880.0MHz)

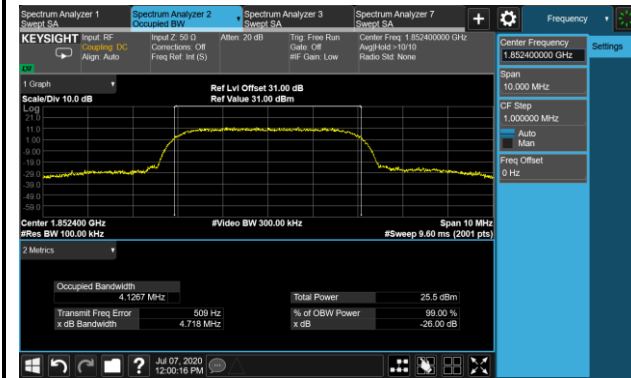


Channel 810 (1909.8MHz)

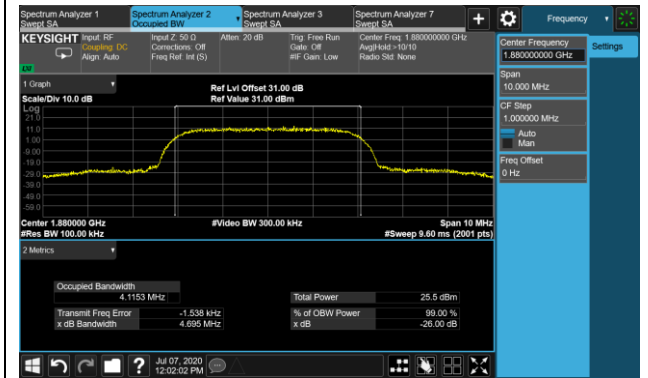


WCDMA Band II Occupied Bandwidth

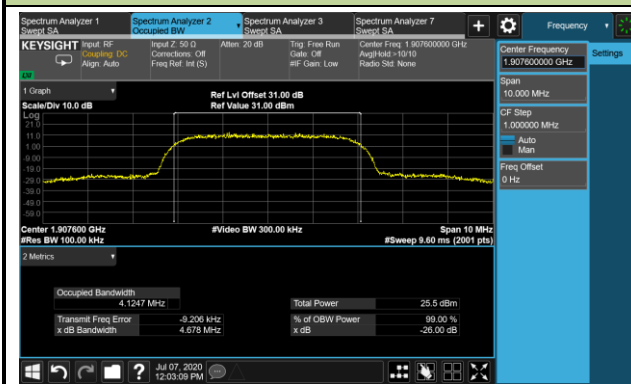
Channel 9262 (1852.4MHz)



Channel 9400 (1880.0MHz)

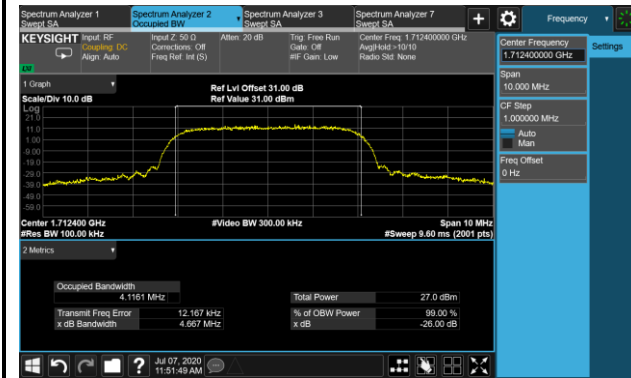


Channel 9538 (1907.6MHz)

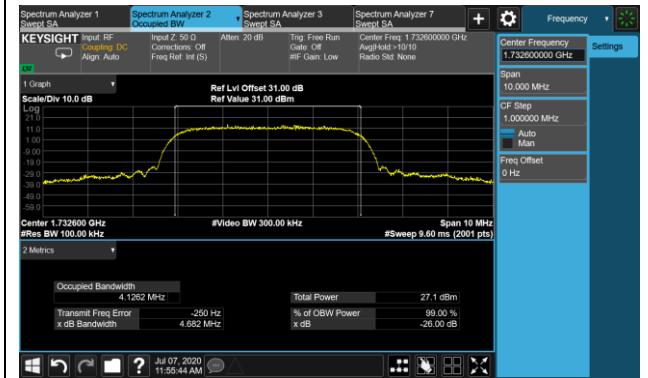


WCDMA Band IV Occupied Bandwidth

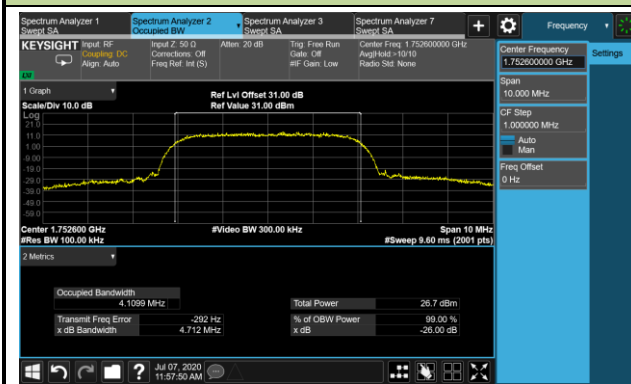
Channel 1312 (1712.4MHz)



Channel 1413 (1732.6MHz)



Channel 1513 (1752.6MHz)

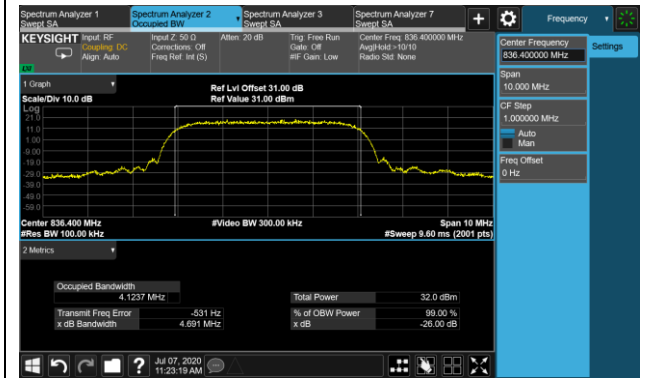


WCDMA Band V Occupied Bandwidth

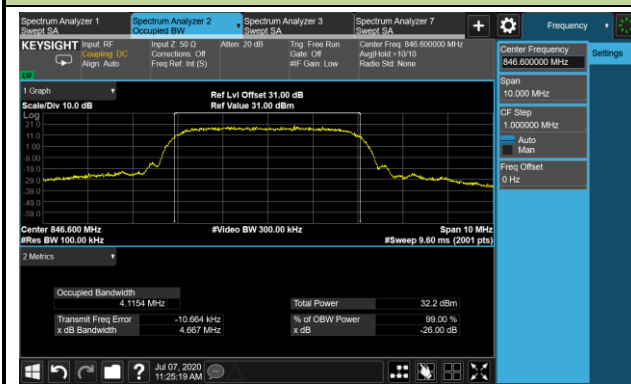
Channel 4132 (826.4MHz)



Channel 4182 (836.4MHz)

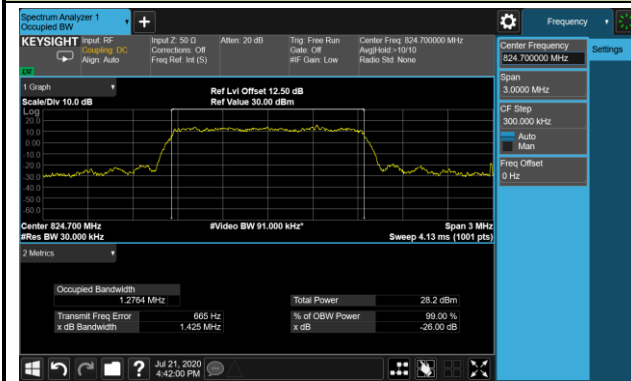


Channel 4233 (846.6MHz)

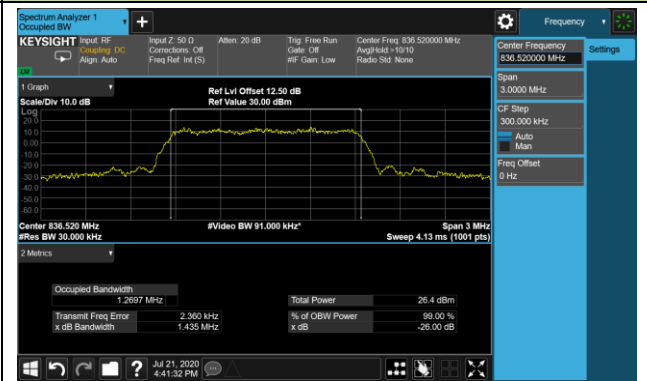


CDMA2000 BC0 Occupied Bandwidth

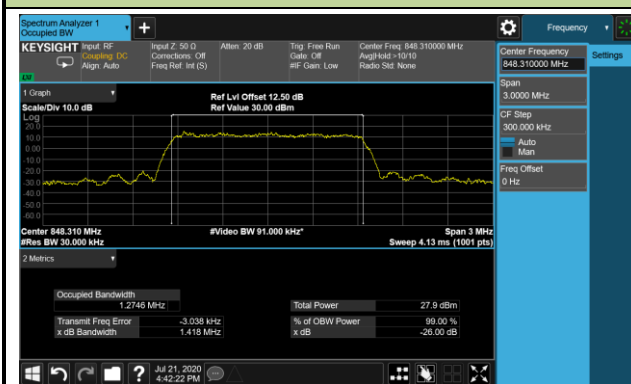
Channel 1013 (824.70MHz)



Channel 384 (836.52MHz)

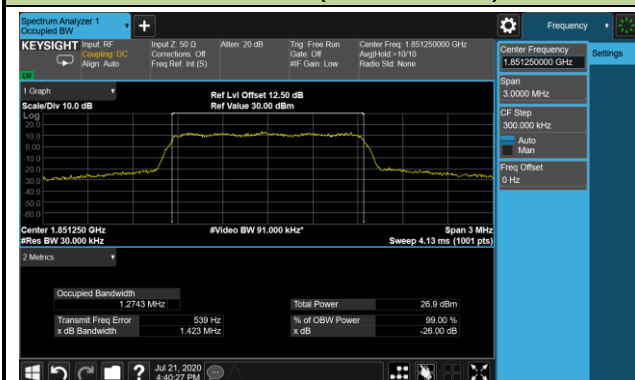


Channel 777 (848.31MHz)

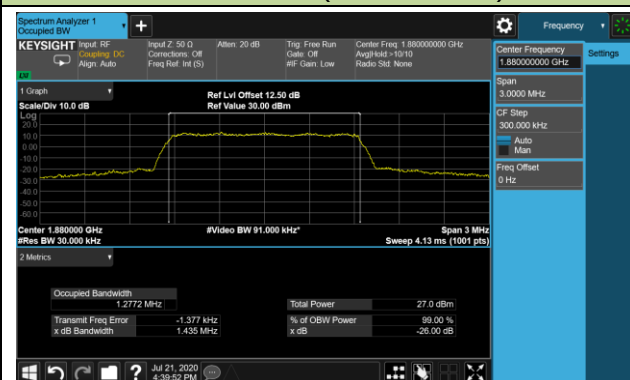


CDMA2000 BC1 Occupied Bandwidth

Channel 25 (1851.25MHz)



Channel 600 (1880.00MHz)



Channel 1175 (1908.75MHz)



5.3. Band Edge Measurement

5.3.1. Test Limit

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. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

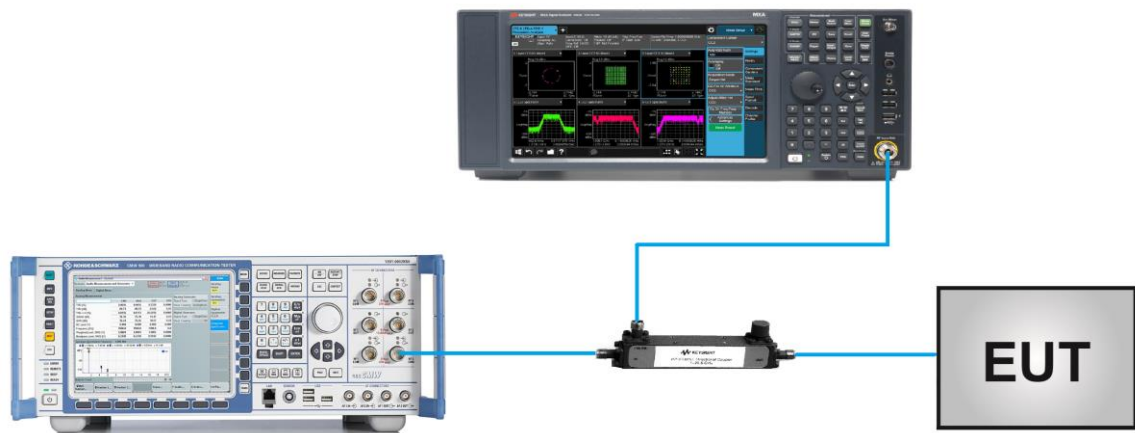
5.3.2. Test Procedure Used

ANSI C63.26-2015 - Section 5.7

5.3.3. Test Setting

1. Set the analyzer frequency to low or high channel
2. $RBW \geq$ The nominal RBW shall be in the range of 1% of the anticipated OBW (in the 1MHz band immediately outside and adjacent to the band edge). For improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW), provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer's band power functions.
3. $VBW \geq 3 \cdot RBW$
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

5.3.4. Test Setup



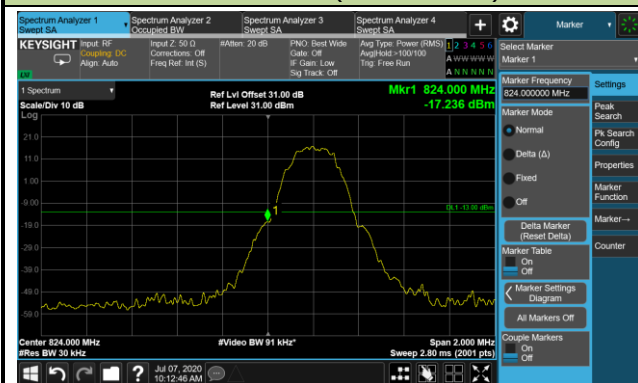
5.3.5.Test Result

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/07~2020/08/06

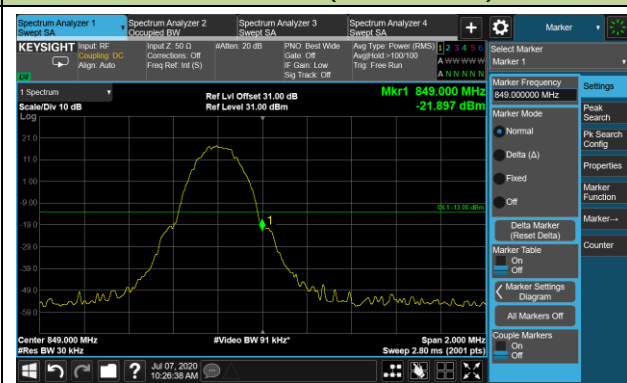
Mode	Channel No.	Frequency (MHz)	Test Result
GSM850	128	824.20	Pass
GSM850	189	836.40	Pass
GSM850	251	848.80	Pass
PCS1900	512	1850.20	Pass
PCS1900	661	1880.00	Pass
PCS1900	810	1909.80	Pass
WCDMA Band II	9262	1852.4	Pass
WCDMA Band II	9400	1880.0	Pass
WCDMA Band II	9538	1907.6	Pass
WCDMA Band IV	1312	1712.4	Pass
WCDMA Band IV	1413	1732.6	Pass
WCDMA Band IV	1513	1752.6	Pass
WCDMA Band V	4132	826.40	Pass
WCDMA Band V	4182	836.40	Pass
WCDMA Band V	4233	846.60	Pass
CDMA2000 BC0	1013	824.70	Pass
CDMA2000 BC0	384	836.52	Pass
CDMA2000 BC0	777	848.31	Pass
CDMA2000 BC1	25	1851.25	Pass
CDMA2000 BC1	600	1880.00	Pass
CDMA2000 BC1	1175	1908.75	Pass

GSM850 Band Edge

Channel 128 (824.20MHz)

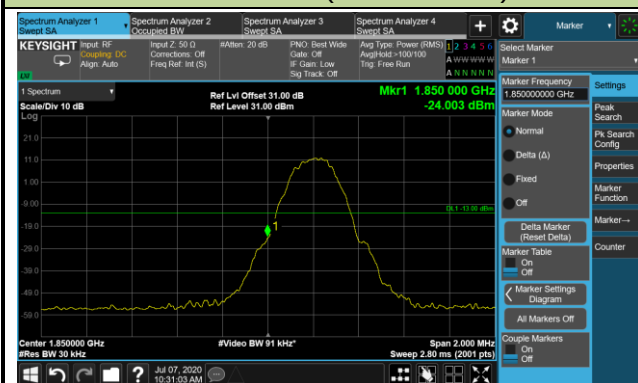


Channel 251 (848.80MHz)

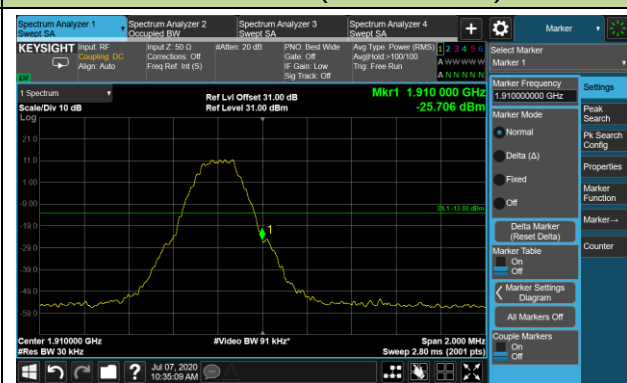


PCS1900 Band Edge

Channel 512 (1850.20MHz)



Channel 810 (1909.80MHz)



WCDMA Band II Band Edge

Channel 9262 (1852.4MHz)



Channel 9538 (1907.6MHz)



WCDMA Band IV Band Edge

Channel 1312 (826.4MHz)



Channel 1513 (846.6MHz)



WCDMA Band V Band Edge

Channel 4132 (826.4MHz)

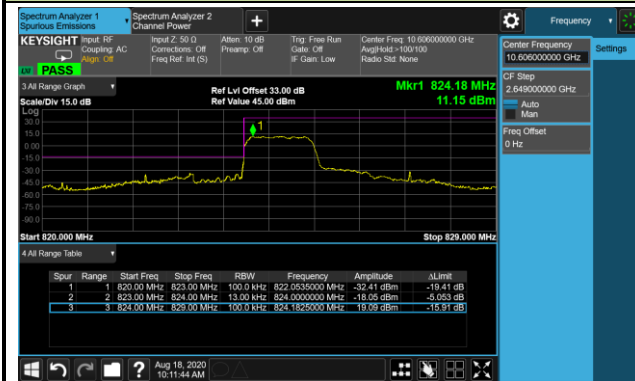


Channel 4233 (846.6MHz)

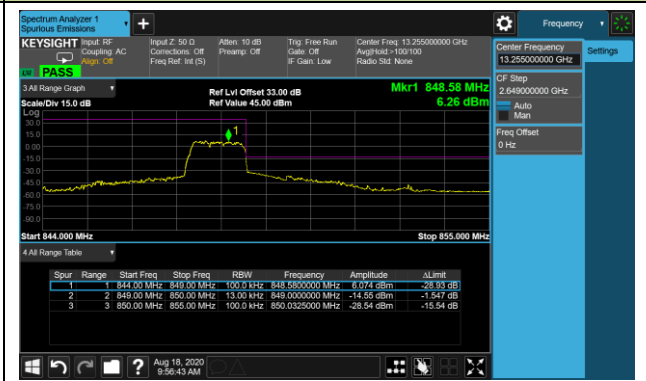


CDMA2000 BC0 Band Edge

Channel 1013

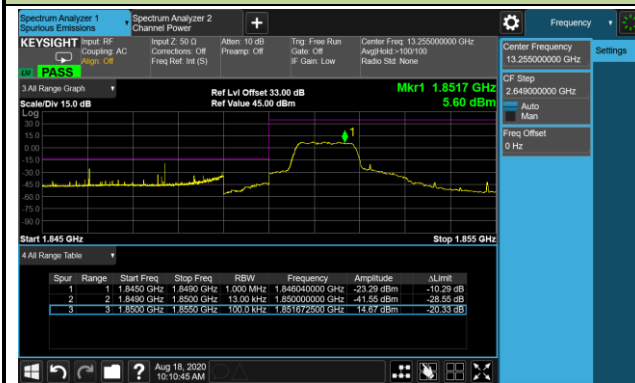


Channel 777



CDMA2000 BC1 Band Edge

Channel 25



Channel 1175



5.4. Conducted Spurious Emissions

5.4.1. Test Limit

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section. 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.

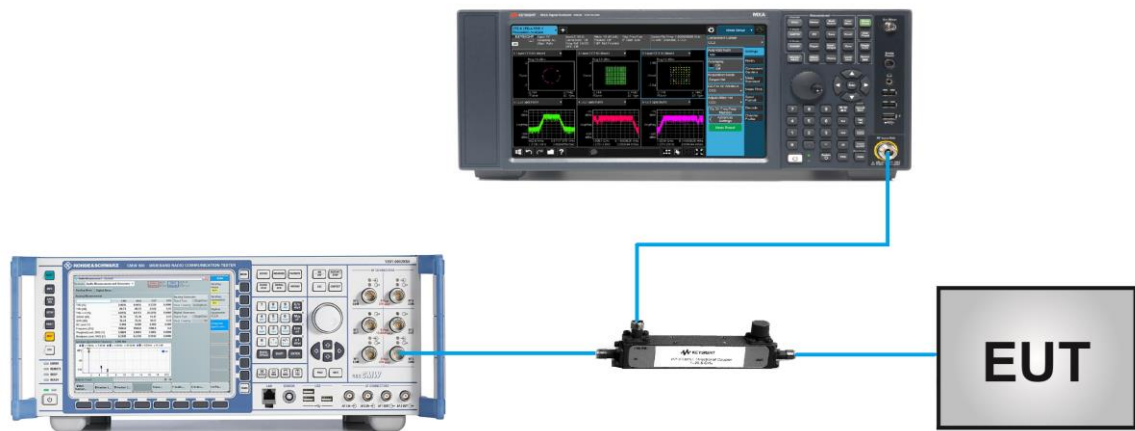
5.4.2. Test Procedure Used

ANSI C63.26-2015 - Section 5.7

5.4.3. Test Setting

1. Set the analyzer frequency to low, mid, high channel.
2. RBW = 1MHz
3. VBW $\geq 3 \times$ RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power.
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

5.4.4. Test Setup



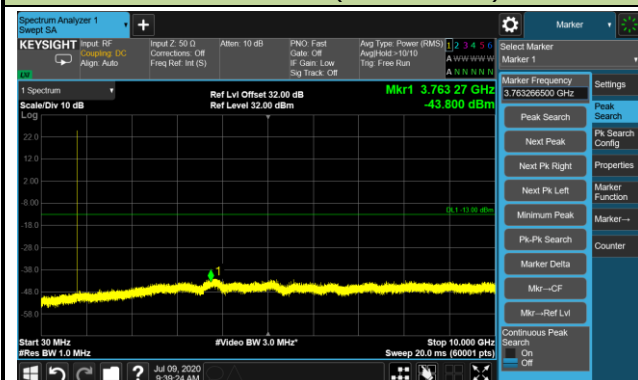
5.4.5. Test Result

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/07~2020/08/06

Mode	Channel No.	Frequency (MHz)	Test Result
GSM850	128	824.20	Pass
GSM850	189	836.40	Pass
GSM850	251	848.80	Pass
PCS1900	512	1850.20	Pass
PCS1900	661	1880.00	Pass
PCS1900	810	1909.80	Pass
WCDMA Band II	9262	1852.4	Pass
WCDMA Band II	9400	1880.0	Pass
WCDMA Band II	9538	1907.6	Pass
WCDMA Band IV	1312	1712.4	Pass
WCDMA Band IV	1413	1732.6	Pass
WCDMA Band IV	1513	1752.6	Pass
WCDMA Band V	4132	826.40	Pass
WCDMA Band V	4182	836.40	Pass
WCDMA Band V	4233	846.60	Pass
CDMA2000 BC0	1013	824.70	Pass
CDMA2000 BC0	384	836.52	Pass
CDMA2000 BC0	777	848.31	Pass
CDMA2000 BC1	25	1851.25	Pass
CDMA2000 BC1	600	1880.00	Pass
CDMA2000 BC1	1175	1908.75	Pass

GSM850 Conducted Spurious Emission

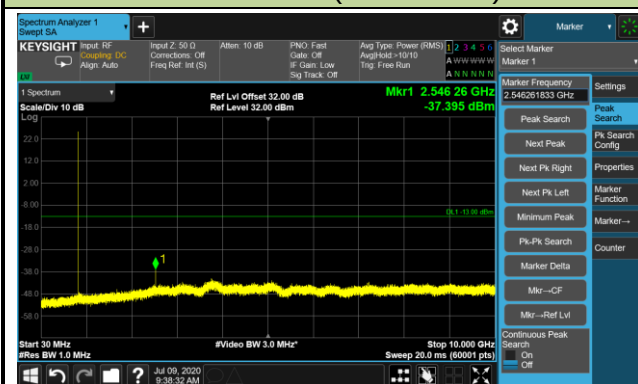
Channel 128 (824.20MHz)



Channel 189 (836.40MHz)



Channel 251 (848.80MHz)



PCS1900 Conducted Spurious Emission

Channel 512 (1850.20MHz)



Channel 661 (1880.00MHz)

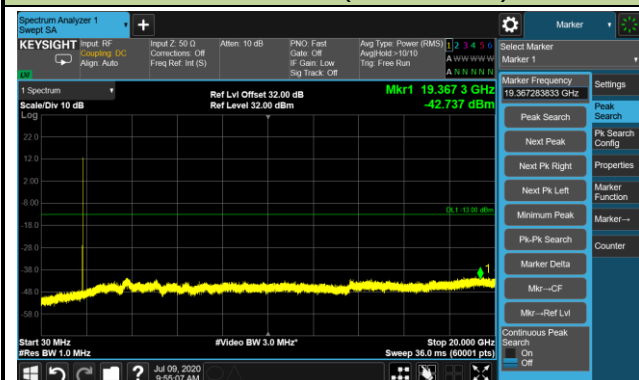


Channel 810 (1909.80MHz)

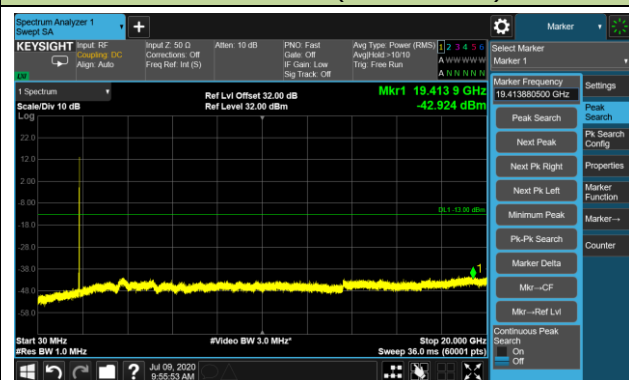


WCDMA Band II Conducted Spurious Emission

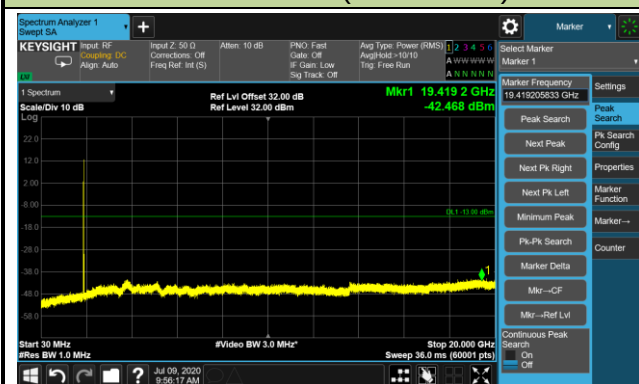
Channel 9262 (1852.4MHz)



Channel 9400 (1880.0MHz)



Channel 9538 (1907.6MHz)

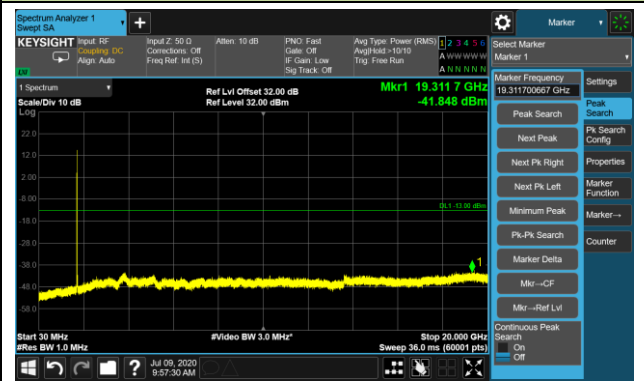


WCDMA Band IV Conducted Spurious Emission

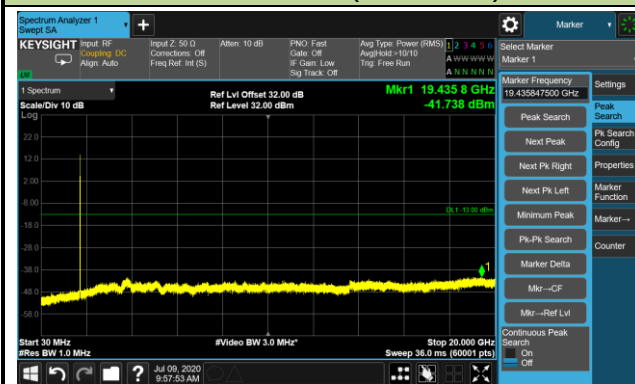
Channel 1312 (826.4MHz)



Channel 1413 (836.4MHz)

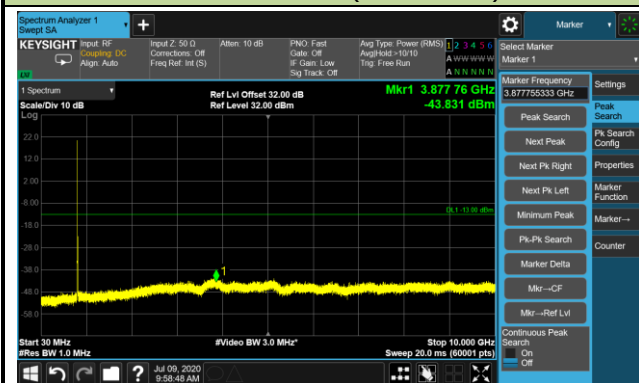


Channel 1513 (846.6MHz)

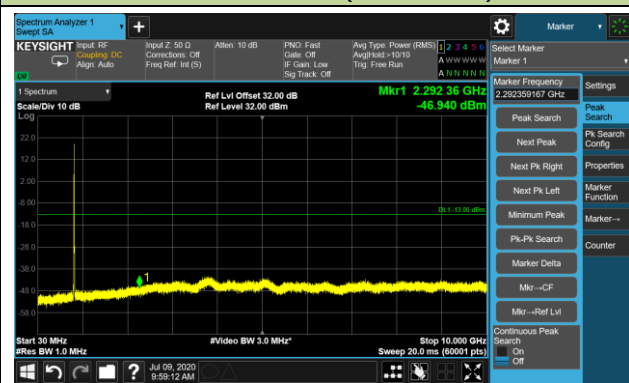


WCDMA Band V Conducted Spurious Emission

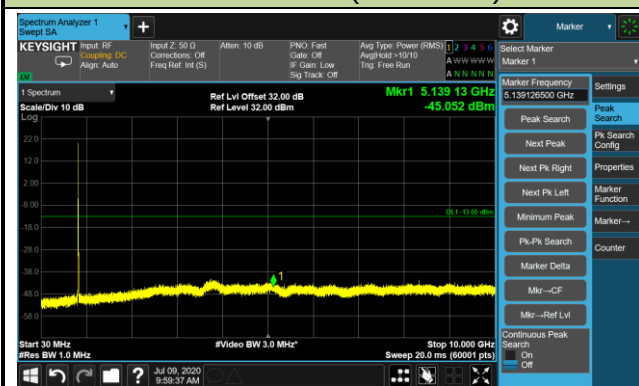
Channel 4132 (826.4MHz)



Channel 4182 (836.4MHz)

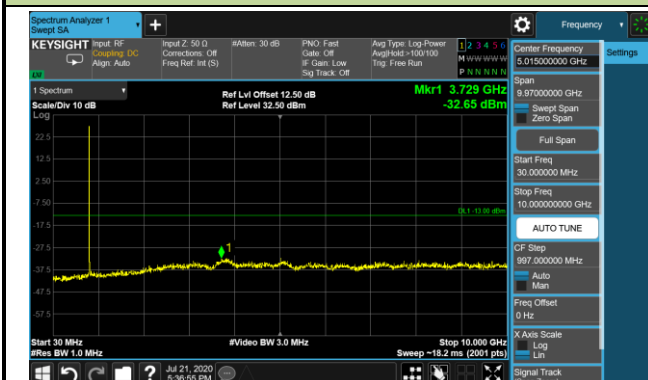


Channel 4233 (846.6MHz)



CDMA2000 BC0 Conducted Spurious Emission

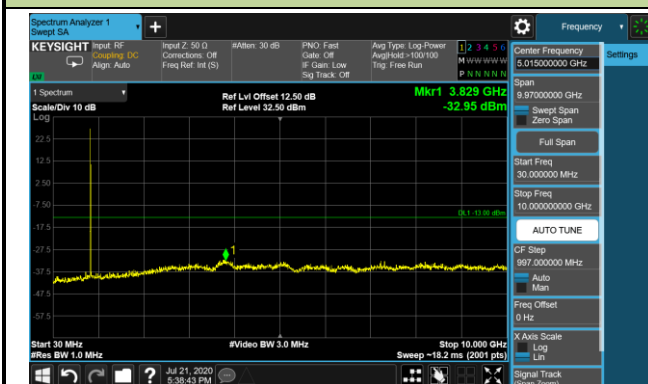
Channel 1013



Channel 384

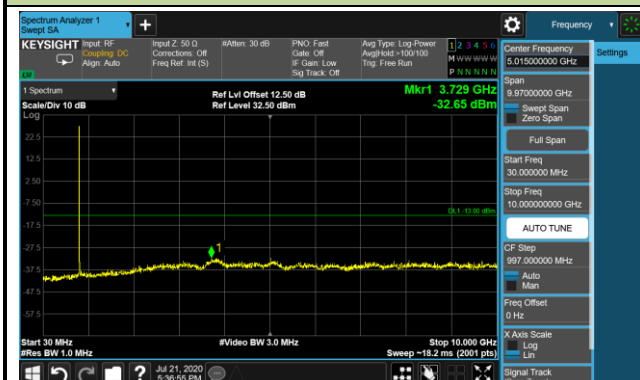


Channel 777



CDMA2000 BC1 Conducted Spurious Emission

Channel 25



Channel 600



Channel 1175



5.5. Peak-Average Ratio

5.5.1. Test Limit

The transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

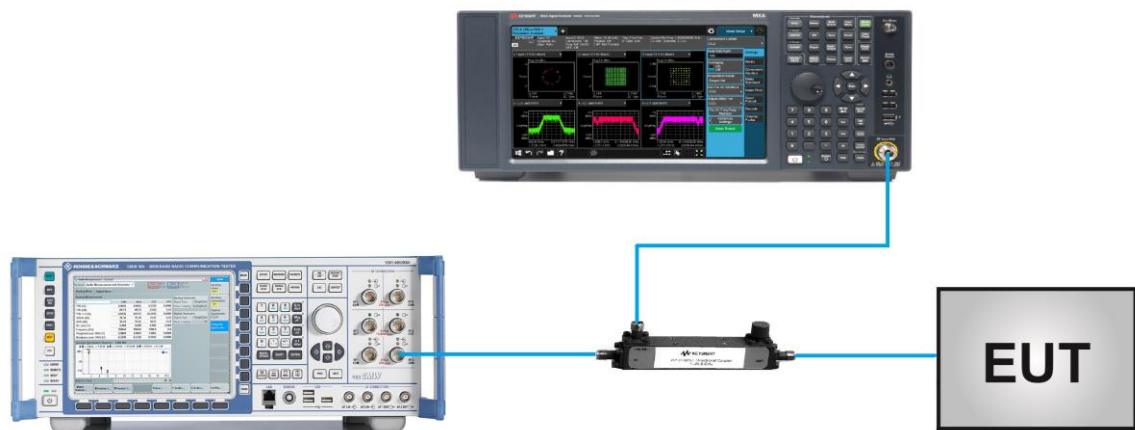
5.5.2. Test Procedure

ANSI C63.26-2015 - Section 5.2.3.4 (CCDF).

5.5.3. Test Procedure

1. Set the resolution / measurement bandwidth $\geq$ signal's occupied bandwidth
2. Set the number of counts to a value that stabilizes the measured CCDF curve
3. Record the maximum PARR level associated with a probability of 0.1%

5.5.4. Test Setup



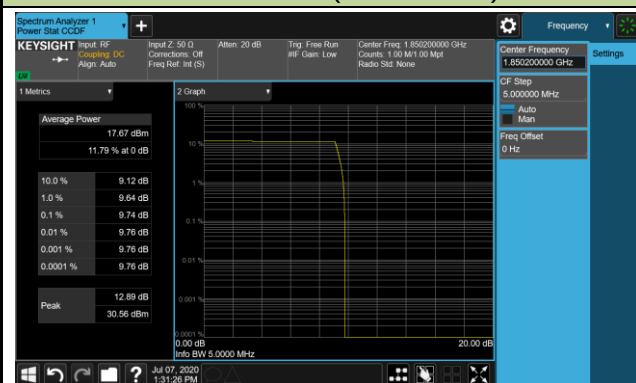
5.5.5.Test Result

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/07~2020/07/08

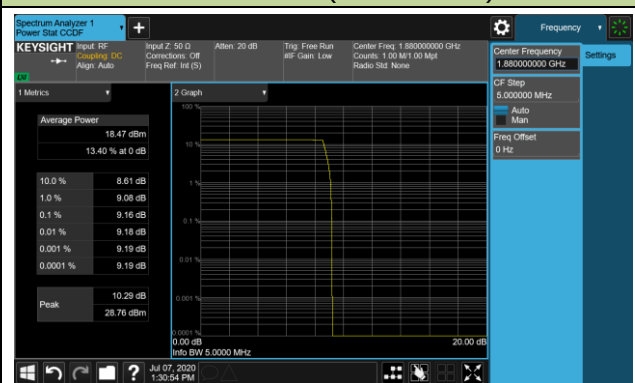
Channel No.	Frequency (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
PCS 1900				
512	1850.2	9.74	≤ 13.00	Pass
661	1880.0	9.16	≤ 13.00	Pass
810	1909.8	9.45	≤ 13.00	Pass
EDGE 1900				
512	1850.2	9.90	≤ 13.00	Pass
661	1880.0	8.41	≤ 13.00	Pass
810	1909.8	9.81	≤ 13.00	Pass
WCDMA Band II				
9262	1852.4	3.05	≤ 13.00	Pass
9400	1880.0	3.20	≤ 13.00	Pass
9538	1907.6	3.16	≤ 13.00	Pass
WCDMA Band IV				
1537	1712.4	3.05	≤ 13.00	Pass
1638	1732.6	3.12	≤ 13.00	Pass
1738	1752.6	3.08	≤ 13.00	Pass
CDMA2000 BC1				
25	1851.25	5.48	≤ 13.00	Pass
600	1880.00	6.54	≤ 13.00	Pass
1175	1908.75	4.93	≤ 13.00	Pass

PCS 1900 Peak - Average Ratio

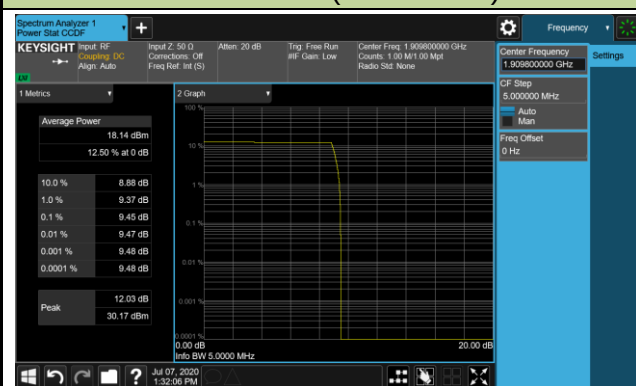
Channel 512 (1850.2MHz)



Channel 661 (1880.0MHz)

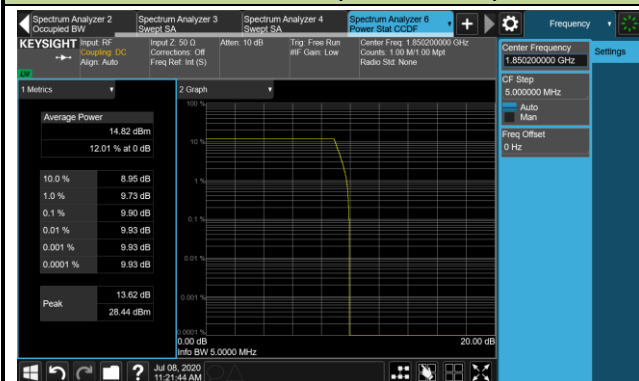


Channel 810 (1909.8MHz)

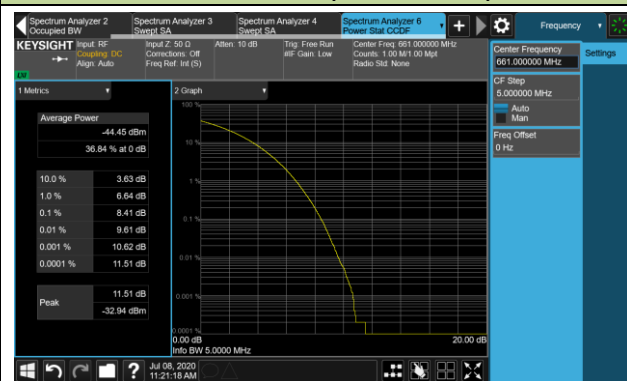


EDGE 1900 Peak - Average Ratio

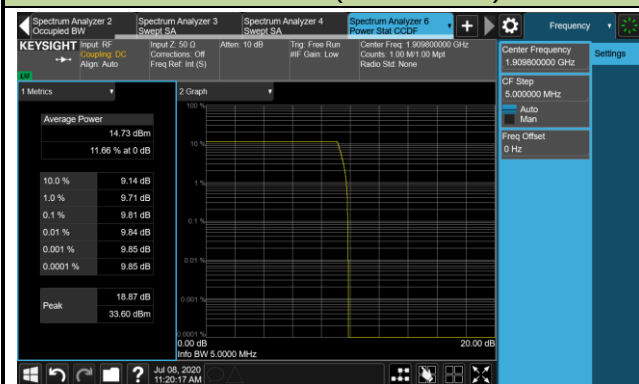
Channel 512 (1850.2MHz)



Channel 661 (1880.0MHz)

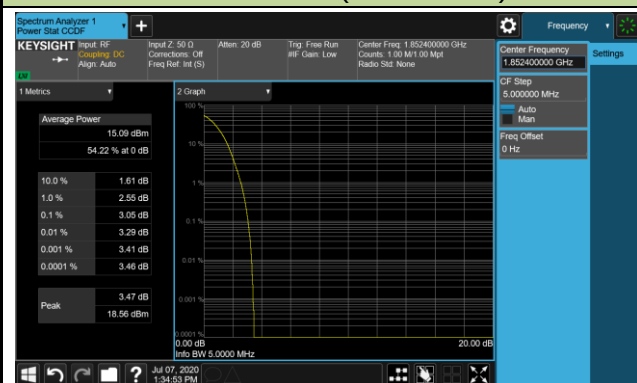


Channel 810 (1909.8MHz)

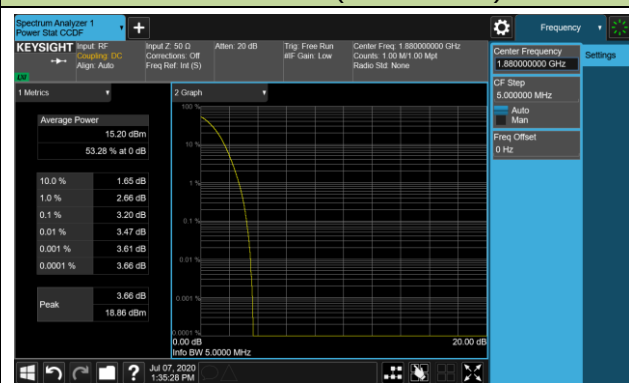


WCDMA Band II Peak - Average Ratio

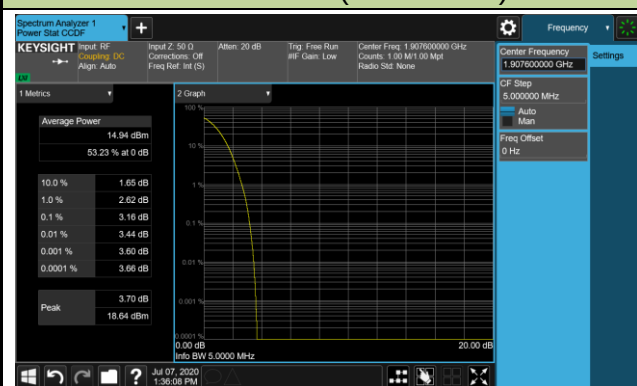
Channel 9262 (1852.4MHz)



Channel 9400 (1880.0MHz)

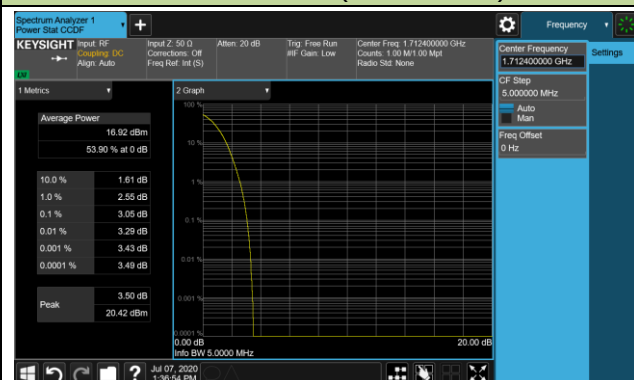


Channel 9538 (1907.6MHz)

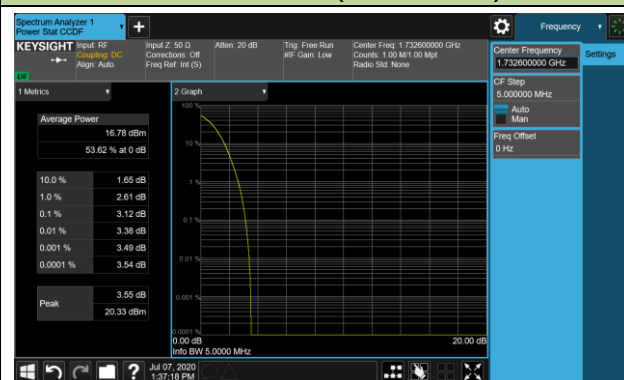


WCDMA Band IV Peak - Average Ratio

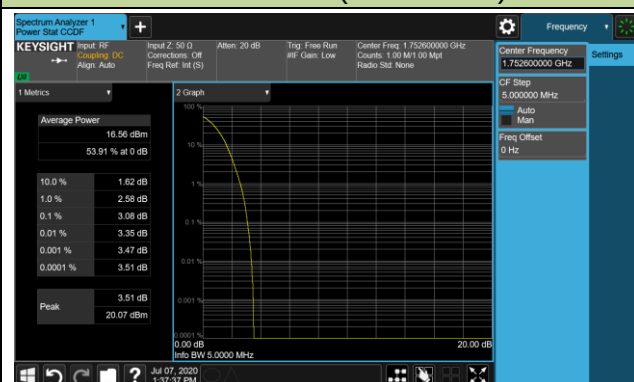
Channel 1537 (1712.4MHz)



Channel 1638 (1732.6MHz)

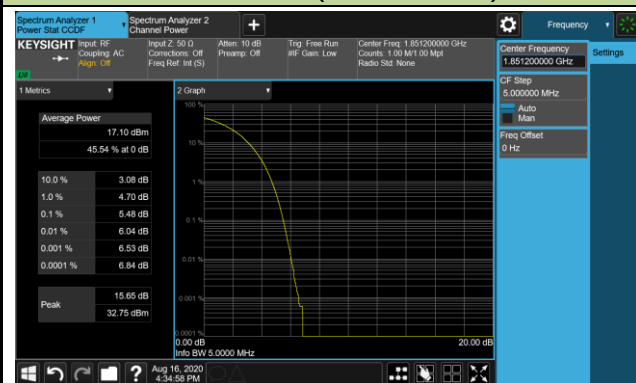


Channel 1738 (1752.6MHz)

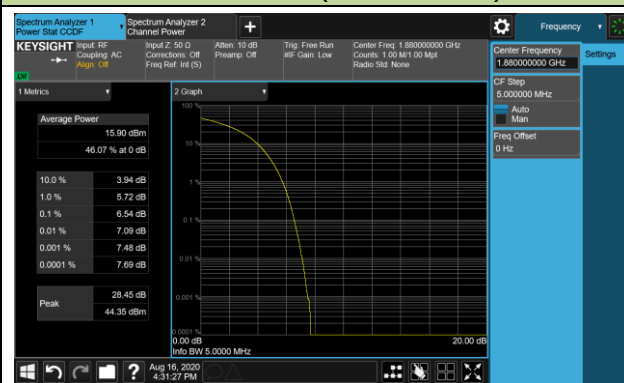


CDMA2000 BC1 Peak - Average Ratio

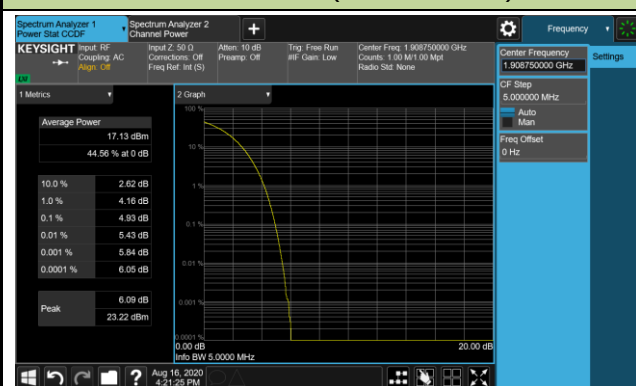
Channel 25 (1851.25MHz)



Channel 600 (1800.00MHz)



Channel 1175 (1908.75MHz)



5.6. Equivalent Isotropically Radiated Power Measurement

5.6.1. Test Limit

For FCC Part 22.913(a)(5):

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(b):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

For FCC Part 27.50(d)(4):

The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 1 Watts.

5.6.2. Test Procedure Used

ANSI C63.26-2015 - Section 5.2

5.6.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T$$

where

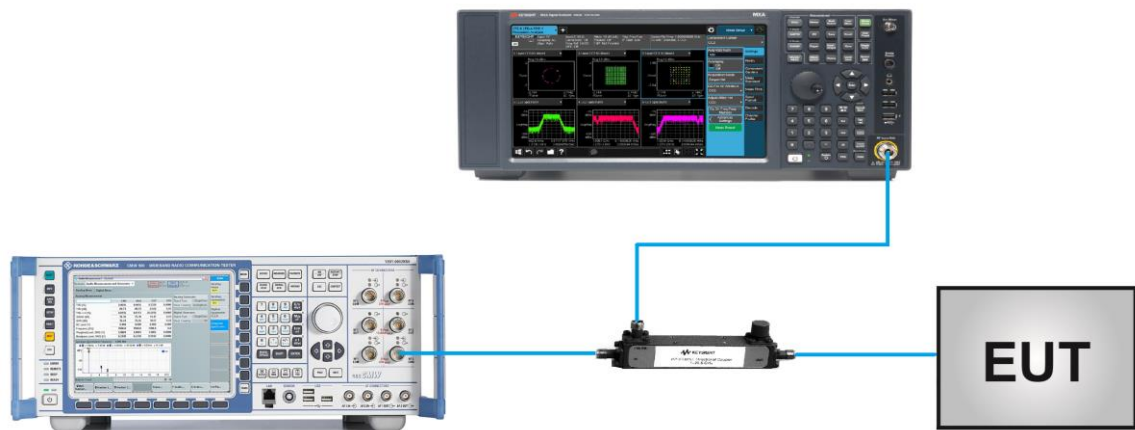
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

$$\text{ERP} = \text{EIRP} - 2.15$$

5.6.4. Test Setup



5.6.5.Test Result

Product	Tablet	Test Site	SR5
Test Engineer	Hunk Li	Test Date	2020/07/06

Mode	Channel	Frequency (MHz)	Output Power (dBm)	ERP (dBm)	Limit (dBm)
GSM850	128	824.2	33.36	31.71	38.45
	189	836.4	33.16	31.51	38.45
	251	848.8	33.22	31.57	38.45
GPRS850 (1 Slot)	128	824.2	33.35	31.70	38.45
	189	836.4	33.17	31.52	38.45
	251	848.8	33.23	31.58	38.45
GPRS850 (2 Slot)	128	824.2	31.95	30.30	38.45
	189	836.4	31.84	30.19	38.45
	251	848.8	31.91	30.26	38.45
GPRS850 (3 Slot)	128	824.2	29.51	27.86	38.45
	189	836.4	29.55	27.90	38.45
	251	848.8	29.37	27.72	38.45
GPRS850 (4 Slot)	128	824.2	27.71	26.06	38.45
	189	836.4	27.74	26.09	38.45
	251	848.8	27.68	26.03	38.45
EDGE850 (1 Slot)	128	824.2	28.30	26.65	38.45
	189	836.4	28.23	26.58	38.45
	251	848.8	28.15	26.50	38.45
EDGE850 (2 Slot)	128	824.2	28.11	26.46	38.45
	189	836.4	28.07	26.42	38.45
	251	848.8	28.05	26.40	38.45
EDGE850 (3 Slot)	128	824.2	27.93	26.28	38.45
	189	836.4	27.89	26.24	38.45
	251	848.8	27.91	26.26	38.45
EDGE850 (4 Slot)	128	824.2	27.37	25.72	38.45
	189	836.4	27.33	25.68	38.45
	251	848.8	27.28	25.63	38.45

Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) – 2.15

Mode	Channel	Frequency (MHz)	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
PCS1900	512	1850.2	23.91	24.91	33.00
	661	1880.0	23.90	24.90	33.00
	810	1909.8	23.94	24.94	33.00
GPRS1900 (1 Slot)	512	1850.2	23.90	24.90	33.00
	661	1880.0	23.98	24.98	33.00
	810	1909.8	23.92	24.92	33.00
GPRS1900 (2 Slot)	512	1850.2	23.88	24.88	33.00
	661	1880.0	23.96	24.96	33.00
	810	1909.8	23.89	24.89	33.00
GPRS1900 (3 Slot)	512	1850.2	23.85	24.85	33.00
	661	1880.0	23.88	24.88	33.00
	810	1909.8	23.91	24.91	33.00
GPRS1900 (4 Slot)	512	1850.2	23.84	24.84	33.00
	661	1880.0	23.95	24.95	33.00
	810	1909.8	23.91	24.91	33.00
EDGE1900 (1 Slot)	512	1850.2	23.71	24.71	33.00
	661	1880.0	23.81	24.81	33.00
	810	1909.8	23.76	24.76	33.00
EDGE1900 (2 Slot)	512	1850.2	23.75	24.75	33.00
	661	1880.0	23.84	24.84	33.00
	810	1909.8	23.77	24.77	33.00
EDGE1900 (3 Slot)	512	1850.2	23.76	24.76	33.00
	661	1880.0	23.87	24.87	33.00
	810	1909.8	23.76	24.76	33.00
EDGE1900 (4 Slot)	512	1850.2	23.75	24.75	33.00
	661	1880.0	23.84	24.84	33.00
	810	1909.8	23.84	24.84	33.00

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)		
		Band II Channel				Band II Channel		
		9262	9400	9538		9262	9400	9538
WCDMA R99	1	18.30	18.16	18.13	1.0	19.30	19.16	19.13
Rel5 HSDPA	1	15.31	14.75	14.68	1.0	16.31	15.75	15.68
	2	15.22	14.70	14.62	1.0	16.22	15.70	15.62
	3	15.25	14.74	14.52	1.0	16.25	15.74	15.52
	4	15.23	14.70	14.60	1.0	16.23	15.70	15.60
Rel6 HSUPA	1	15.22	14.68	14.74	1.0	16.22	15.68	15.74
	2	15.50	14.71	14.61	1.0	16.50	15.71	15.61
	3	15.26	14.73	14.76	1.0	16.26	15.73	15.76
	4	15.56	14.75	14.65	1.0	16.56	15.75	15.65
	5	15.11	14.73	14.78	1.0	16.11	15.73	15.78

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)		
		Band IV Channel				Band IV Channel		
		1312	1413	1513		1312	1413	1513
WCDMA R99	1	19.02	18.95	19.24	1.0	20.02	19.95	20.24
Rel5 HSDPA	1	15.69	15.54	15.71	1.0	16.69	16.54	16.71
	2	15.68	15.42	15.72	1.0	16.68	16.42	16.72
	3	15.68	15.46	15.74	1.0	16.68	16.46	16.74
	4	15.63	15.47	15.73	1.0	16.63	16.47	16.73
Rel6 HSUPA	1	15.64	15.42	15.75	1.0	16.64	16.42	16.75
	2	15.65	15.52	15.76	1.0	16.65	16.52	16.76
	3	15.67	15.47	15.71	1.0	16.67	16.47	16.71
	4	15.66	15.37	15.76	1.0	16.66	16.37	16.76
	5	15.63	15.41	15.76	1.0	16.63	16.41	16.76

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	ERP (dBm)		
		Band V Channel				Band V Channel		
		4132	4183	4233		4132	4183	4233
WCDMA R99	1	23.25	23.31	23.67	0.5	21.60	21.66	22.02
Rel5 HSDPA	1	20.02	20.02	20.25	0.5	18.37	18.37	18.60
	2	20.01	19.96	20.27	0.5	18.36	18.31	18.62
	3	20.02	20.01	20.25	0.5	18.37	18.36	18.60
	4	20.03	19.98	20.26	0.5	18.38	18.33	18.61
Rel6 HSUPA	1	20.03	20.02	20.29	0.5	18.38	18.37	18.64
	2	20.00	19.95	20.29	0.5	18.35	18.30	18.64
	3	20.01	19.98	20.26	0.5	18.36	18.33	18.61
	4	19.98	20.04	20.23	0.5	18.33	18.39	18.58
	5	20.01	20.02	20.27	0.5	18.36	18.37	18.62

Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) – 2.15

Mode	Channel No.	Frequency (MHz)	Output Power (dBm)	ERP (dBm)	Limit (dBm)
CDMA2000 BC0					
1xRTT RC1 SO55	1013	824.70	23.03	21.38	38.45
	384	836.52	22.95	21.30	38.45
	777	848.31	23.05	21.40	38.45
1xRTT RC3 SO55	1013	824.70	23.04	21.39	38.45
	384	836.52	23.02	21.37	38.45
	777	848.31	23.11	21.46	38.45
1xRTT RC3 SO32 (+ F-SCH)	1013	824.70	23.20	21.55	38.45
	384	836.52	23.10	21.45	38.45
	777	848.31	23.21	21.56	38.45
1xRTT RC3 SO32 (+SCH)	1013	824.70	23.25	21.60	38.45
	384	836.52	23.03	21.38	38.45
	777	848.31	23.19	21.54	38.45

Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) – 2.15

Mode	Channel No.	Frequency (MHz)	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
CDMA2000 BC1					
1xRTT RC1 SO55	25	1851.25	18.34	19.34	33.00
	600	1880.00	18.39	19.39	33.00
	1175	1908.75	18.33	19.33	33.00
1xRTT RC3 SO55	25	1851.25	18.56	19.56	33.00
	600	1880.00	18.32	19.32	33.00
	1175	1908.75	18.30	19.30	33.00
1xRTT RC3 SO32 (+ F-SCH)	25	1851.25	18.54	19.54	33.00
	600	1880.00	18.40	19.40	33.00
	1175	1908.75	18.41	19.41	33.00
1xRTT RC3 SO32 (+SCH)	25	1851.25	18.55	19.55	33.00
	600	1880.00	18.42	19.42	33.00
	1175	1908.75	18.43	19.43	33.00

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

5.7. Frequency Stability Under Temperature & Voltage Variations

5.7.1. Test Limit

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 and Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

5.7.2. Test Procedure

ANSI C63.26-2015 - Section 5.6

5.7.3. Test Setting

Frequency Stability Under Temperature Variations:

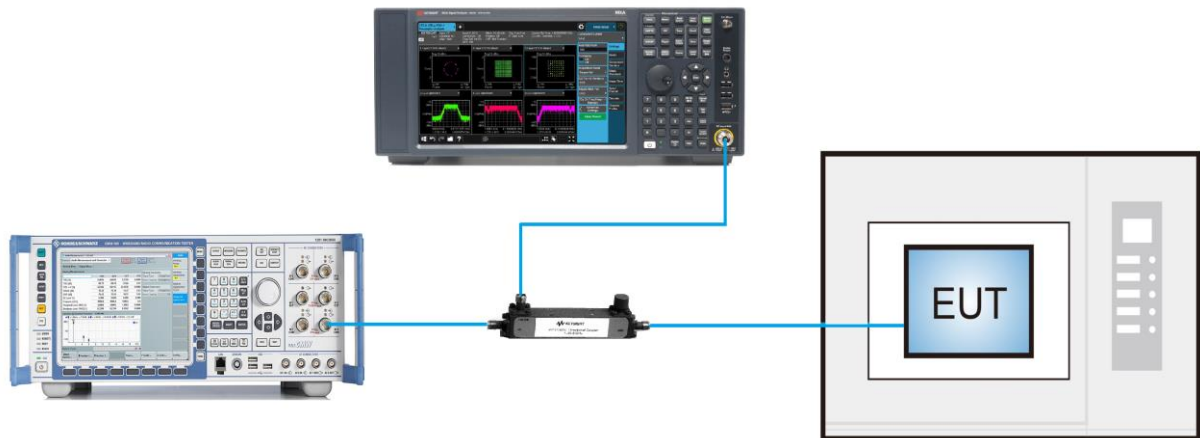
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

For hand-carried battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

5.7.4. Test Setup



5.7.5.Test Result

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	GSM850	Operating Frequency	836.4MHz (Channel 189)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	10.52	0.0126	Pass
100%		-20	11.59	0.0139	Pass
100%		-10	13.13	0.0157	Pass
100%		0	14.14	0.0169	Pass
100%		+10	11.88	0.0142	Pass
100%		+20	14.40	0.0172	Pass
100%		+30	16.54	0.0198	Pass
100%		+40	14.56	0.0174	Pass
100%		+50	15.58	0.0186	Pass
Battery Upper	4.35	+20	16.28	0.0195	Pass
Battery Endpoint	3.40	+20	16.06	0.0192	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	PCS1900	Operating Frequency	1880.0MHz (Channel 661)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	13.48	0.0072	Pass
100%		-20	11.01	0.0059	Pass
100%		-10	10.46	0.0056	Pass
100%		0	11.20	0.0060	Pass
100%		+10	12.75	0.0068	Pass
100%		+20	12.26	0.0065	Pass
100%		+30	12.78	0.0068	Pass
100%		+40	9.01	0.0048	Pass
100%		+50	10.65	0.0057	Pass
Battery Upper	4.35	+20	10.24	0.0054	Pass
Battery Endpoint	3.40	+20	11.02	0.0059	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	EDGE850	Operating Frequency	836.4MHz (Channel 189)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	8.46	0.0101	Pass
100%		-20	9.56	0.0114	Pass
100%		-10	9.07	0.0108	Pass
100%		0	9.04	0.0108	Pass
100%		+10	8.17	0.0098	Pass
100%		+20	9.71	0.0116	Pass
100%		+30	8.04	0.0096	Pass
100%		+40	8.89	0.0106	Pass
100%		+50	9.85	0.0118	Pass
Battery Upper	4.35	+20	9.59	0.0115	Pass
Battery Endpoint	3.40	+20	10.07	0.0120	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	EDGE1900	Operating Frequency	1880.0MHz (Channel 661)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	2.81	0.0015	Pass
100%		-20	3.49	0.0019	Pass
100%		-10	3.62	0.0019	Pass
100%		0	3.35	0.0018	Pass
100%		+10	5.59	0.0030	Pass
100%		+20	5.67	0.0030	Pass
100%		+30	5.00	0.0027	Pass
100%		+40	3.78	0.0020	Pass
100%		+50	3.30	0.0018	Pass
Battery Upper	4.35	+20	6.01	0.0032	Pass
Battery Endpoint	3.40	+20	5.49	0.0029	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	WCDMA Band II	Operating Frequency	1880.0MHz (Channel 9400)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	1.24	0.0007	Pass
100%		-20	1.66	0.0009	Pass
100%		-10	1.47	0.0008	Pass
100%		0	1.62	0.0009	Pass
100%		+10	1.68	0.0009	Pass
100%		+20	3.18	0.0017	Pass
100%		+30	2.54	0.0014	Pass
100%		+40	1.69	0.0009	Pass
100%		+50	1.82	0.0010	Pass
Battery Upper	4.35	+20	2.32	0.0012	Pass
Battery Endpoint	3.40	+20	3.03	0.0016	Pass

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	WCDMA Band IV	Operating Frequency	1732.6MHz (Channel 1638)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	2.91	0.0017	Pass
100%		-20	2.34	0.0014	Pass
100%		-10	1.62	0.0010	Pass
100%		0	1.76	0.0010	Pass
100%		+10	1.37	0.0008	Pass
100%		+20	2.04	0.0012	Pass
100%		+30	2.6	0.0015	Pass
100%		+40	1.92	0.0011	Pass
100%		+50	1.8	0.0011	Pass
Battery Upper	4.35	+20	3.73	0.0022	Pass
Battery Endpoint	3.40	+20	2.83	0.0017	Pass

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/08
Test Mode	WCDMA Band V	Operating Frequency	836.4MHz (Channel 4182)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	1.87	0.0022	Pass
100%		-20	1.54	0.0018	Pass
100%		-10	1.3	0.0016	Pass
100%		0	1.37	0.0016	Pass
100%		+10	1.38	0.0016	Pass
100%		+20	2.07	0.0025	Pass
100%		+30	1.83	0.0022	Pass
100%		+40	1.45	0.0017	Pass
100%		+50	1.95	0.0023	Pass
Battery Upper	4.35	+20	1.59	0.0019	Pass
Battery Endpoint	3.40	+20	1.58	0.0019	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/21
Test Mode	CDMA2000 BC0	Operating Frequency	824.7MHz (Channel 1013)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	-15.0	-0.0182	Pass
100%		-20	-20.0	-0.0243	Pass
100%		-10	-16.0	-0.0194	Pass
100%		0	-21.0	-0.0255	Pass
100%		+10	-18.0	-0.0218	Pass
100%		+20	-25.0	-0.0303	Pass
100%		+30	-22.0	-0.0267	Pass
100%		+40	-19.0	-0.0230	Pass
100%		+50	-14.0	-0.0170	Pass
Battery Upper	4.35	+20	-21.0	-0.0255	Pass
Battery Endpoint	3.40	+20	-20.0	-0.0243	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

Product	Tablet	Test Site	SR5
Test Engineer	Candy Luo	Test Date	2020/07/21
Test Mode	CDMA2000 BC1	Operating Frequency	1851.25MHz (Channel 25)

Voltage (%)	Power (V _{DC})	TEMP (%)	Freq. Dev. (Hz)	Deviation (ppm)	Result
100%	3.80	-30	-31.0	-0.0167	Pass
100%		-20	-25.0	-0.0135	Pass
100%		-10	-27.0	-0.0146	Pass
100%		0	-30.0	-0.0162	Pass
100%		+10	-25.0	-0.0135	Pass
100%		+20	-28.0	-0.0151	Pass
100%		+30	-36.0	-0.0194	Pass
100%		+40	-37.0	-0.0200	Pass
100%		+50	-35.0	-0.0189	Pass
Battery Upper	4.35	+20	-38.0	-0.0205	Pass
Battery Endpoint	3.40	+20	-27.0	-0.0146	Pass

Note: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.40Vdc, which are declared by the manufacturer.

5.8. Radiated Spurious Emissions Measurements

5.8.1. Test Limit

Out of band emissions: 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. The emission limit equal to -13dBm.

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters.

The emission limit equal to 82.3dB μ V/m.

5.8.2. Test Procedure Used

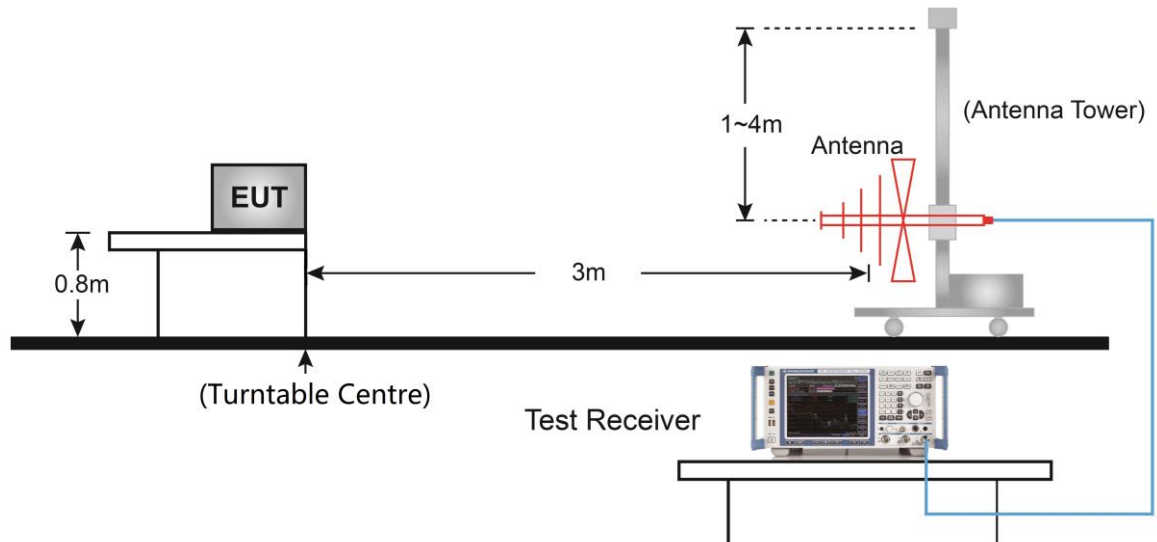
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.8.3. Test Setting

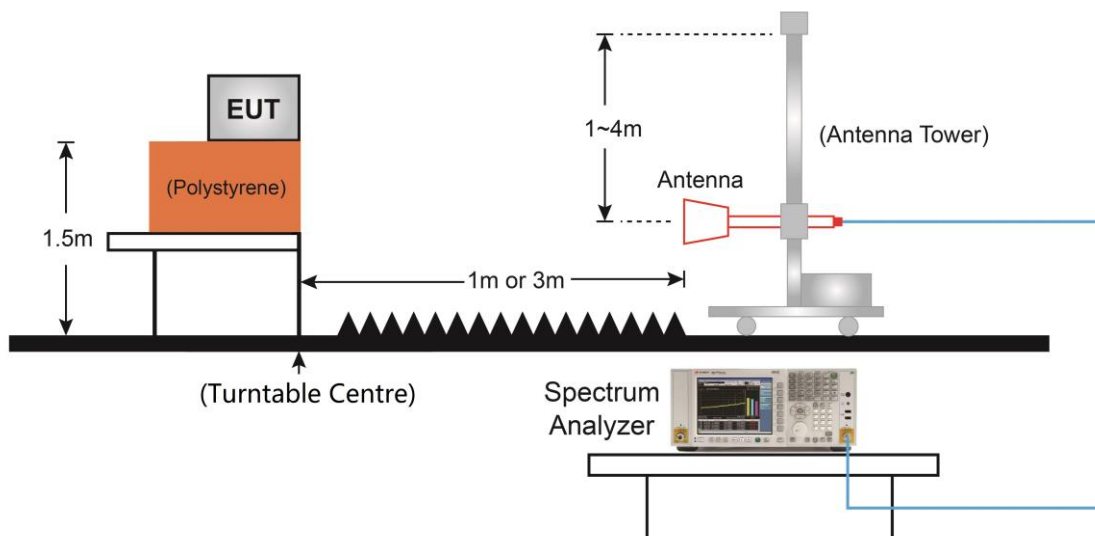
1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.8.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.8.5.Test Result

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	GSM 850		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 128 (824.2MHz)							
155.6	-0.6	14.6	14.0	82.3	-68.3	Peak	Horizontal
644.5	2.2	22.6	24.8	82.3	-57.5	Peak	Horizontal
152.7	-1.0	14.4	13.4	82.3	-68.9	Peak	Vertical
518.4	13.7	20.0	33.7	82.3	-48.6	Peak	Vertical
1646.0	48.1	-4.4	43.7	82.3	-38.6	Peak	Horizontal
4808.0	37.0	5.9	42.9	82.3	-39.4	Peak	Horizontal
1646.0	42.9	-4.4	38.5	82.3	-43.8	Peak	Vertical
9262.0	37.2	14.5	51.7	82.3	-30.6	Peak	Vertical
Middle CH 189 (836.4MHz)							
156.6	-0.2	14.6	14.4	82.3	-67.9	Peak	Horizontal
560.1	2.8	20.7	23.5	82.3	-58.8	Peak	Horizontal
169.7	1.1	14.0	15.1	82.3	-67.2	Peak	Vertical
633.8	6.3	22.5	28.8	82.3	-53.5	Peak	Vertical
1671.5	47.1	-4.4	42.7	82.3	-39.6	Peak	Horizontal
2785.0	40.9	0.6	41.5	82.3	-40.8	Peak	Horizontal
1671.5	44.2	-4.4	39.8	82.3	-42.5	Peak	Vertical
4706.0	38.3	5.2	43.5	82.3	-38.8	Peak	Vertical
Top CH 251 (848.8MHz)							
155.1	1.4	14.6	16.0	82.3	-66.3	Peak	Horizontal
431.6	3.3	18.3	21.6	82.3	-60.7	Peak	Horizontal
155.1	1.4	14.6	16.0	82.3	-66.3	Peak	Vertical
633.8	6.6	22.5	29.1	82.3	-53.2	Peak	Vertical
1697.0	47.9	-4.2	43.7	82.3	-38.6	Peak	Horizontal
7247.5	38.1	10.6	48.7	82.3	-33.6	Peak	Horizontal
1697.0	43.2	-4.2	39.0	82.3	-43.3	Peak	Vertical
5853.5	37.5	6.8	44.3	82.3	-38.0	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	PCS 1900		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 512 (1850.2MHz)							
165.3	0.6	14.4	15.0	82.3	-67.3	Peak	Horizontal
592.1	2.8	21.6	24.4	82.3	-57.9	Peak	Horizontal
114.4	3.4	11.5	14.9	82.3	-67.4	Peak	Vertical
689.6	2.2	23.0	25.2	82.3	-57.1	Peak	Vertical
9219.5	37.7	14.1	51.8	82.3	-30.5	Peak	Horizontal
14855.0	39.5	18.0	57.5	82.3	-24.8	Peak	Horizontal
10528.5	36.7	16.4	53.1	82.3	-29.2	Peak	Vertical
14744.5	38.3	18.1	56.4	82.3	-25.9	Peak	Vertical
Middle CH 661 (1880.0MHz)							
157.6	-0.1	14.6	14.5	82.3	-67.8	Peak	Horizontal
687.7	4.0	23.0	27.0	82.3	-55.3	Peak	Horizontal
160.0	0.3	14.4	14.7	82.3	-67.6	Peak	Vertical
687.7	4.0	23.0	27.0	82.3	-55.3	Peak	Vertical
8718.0	38.3	12.8	51.1	82.3	-31.2	Peak	Horizontal
10860.0	37.1	16.5	53.6	82.3	-28.7	Peak	Horizontal
7494.0	37.7	10.8	48.5	82.3	-33.8	Peak	Vertical
10537.0	36.9	16.4	53.3	82.3	-29.0	Peak	Vertical
Top CH 810 (1909.8MHz)							
148.8	1.3	14.4	15.7	82.3	-66.6	Peak	Horizontal
575.6	3.4	21.1	24.5	82.3	-57.8	Peak	Horizontal
106.1	10.9	10.6	21.5	82.3	-60.8	Peak	Vertical
747.8	2.9	24.3	27.2	82.3	-55.1	Peak	Vertical
7120.0	37.2	10.5	47.7	82.3	-34.6	Peak	Horizontal
10588.0	36.5	16.4	52.9	82.3	-29.4	Peak	Horizontal
10979.0	36.4	16.5	52.9	82.3	-29.4	Peak	Vertical
14192.0	38.0	17.7	55.7	82.3	-26.6	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	WCDMA Band II		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 9263 (1852.6MHz)							
147.4	-0.9	14.4	13.5	82.3	-68.8	Peak	Horizontal
759.9	2.2	24.7	26.9	82.3	-55.4	Peak	Horizontal
164.8	0.2	14.4	14.6	82.3	-67.7	Peak	Vertical
789.0	2.8	24.8	27.6	82.3	-54.7	Peak	Vertical
5309.5	38.5	5.9	44.4	82.3	-37.9	Peak	Horizontal
10426.5	37.0	16.3	53.3	82.3	-29.0	Peak	Horizontal
7936.0	38.2	11.4	49.6	82.3	-32.7	Peak	Vertical
10511.5	37.0	16.1	53.1	82.3	-29.2	Peak	Vertical
Middle CH 9400 (1880.0MHz)							
160.0	0.5	14.4	14.9	82.3	-67.4	Peak	Horizontal
749.3	1.9	24.4	26.3	82.3	-56.0	Peak	Horizontal
160.0	0.7	14.4	15.1	82.3	-67.2	Peak	Vertical
754.1	2.6	24.5	27.1	82.3	-55.2	Peak	Vertical
7358.0	37.7	11.0	48.7	82.3	-33.6	Peak	Horizontal
9253.5	37.1	14.4	51.5	82.3	-30.8	Peak	Horizontal
9245.0	36.9	14.2	51.1	82.3	-31.2	Peak	Vertical
10911.0	36.8	16.4	53.2	82.3	-29.1	Peak	Vertical
Top CH 9537 (1907.4MHz)							
166.8	0.2	14.3	14.5	82.3	-67.8	Peak	Horizontal
624.6	2.3	22.4	24.7	82.3	-57.6	Peak	Horizontal
167.3	1.3	14.3	15.6	82.3	-66.7	Peak	Vertical
754.6	3.5	24.6	28.1	82.3	-54.2	Peak	Vertical
7587.5	37.9	10.7	48.6	82.3	-33.7	Peak	Horizontal
10545.5	36.4	16.5	52.9	82.3	-29.4	Peak	Horizontal
4680.5	38.4	5.1	43.5	82.3	-38.8	Peak	Vertical
7230.5	38.2	10.5	48.7	82.3	-33.6	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	WCDMA Band IV		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 25 (1712.6MHz)							
164.8	0.0	14.4	14.4	82.3	-67.9	Peak	Horizontal
708.5	2.8	23.3	26.1	82.3	-56.2	Peak	Horizontal
165.8	0.0	14.4	14.4	82.3	-67.9	Peak	Vertical
768.7	3.2	24.7	27.9	82.3	-54.4	Peak	Vertical
8063.5	37.4	11.5	48.9	82.3	-33.4	Peak	Horizontal
10579.5	36.4	16.2	52.6	82.3	-29.7	Peak	Horizontal
7664.0	38.1	10.5	48.6	82.3	-33.7	Peak	Vertical
10639.0	37.4	16.2	53.6	82.3	-28.7	Peak	Vertical
Middle CH 1450 (1740.0MHz)							
154.6	0.0	14.5	14.5	82.3	-67.8	Peak	Horizontal
696.9	2.6	23.2	25.8	82.3	-56.5	Peak	Horizontal
160.0	0.4	14.4	14.8	82.3	-67.5	Peak	Vertical
630.9	2.5	22.5	25.0	82.3	-57.3	Peak	Vertical
7375.0	38.1	10.8	48.9	82.3	-33.4	Peak	Horizontal
11361.5	37.5	16.0	53.5	82.3	-28.8	Peak	Horizontal
7919.0	37.3	11.3	48.6	82.3	-33.7	Peak	Vertical
10537.0	36.9	16.4	53.3	82.3	-29.0	Peak	Vertical
Top CH 1512 (1752.4MHz)							
151.3	1.1	14.4	15.5	82.3	-66.8	Peak	Horizontal
707.1	2.6	23.3	25.9	82.3	-56.4	Peak	Horizontal
162.9	-0.7	14.4	13.7	82.3	-68.6	Peak	Vertical
595.0	2.8	21.8	24.6	82.3	-57.7	Peak	Vertical
7094.5	38.0	10.4	48.4	82.3	-33.9	Peak	Horizontal
10996.0	37.0	16.6	53.6	82.3	-28.7	Peak	Horizontal
7171.0	36.7	10.7	47.4	82.3	-34.9	Peak	Vertical
9262.0	36.8	14.5	51.3	82.3	-31.0	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	WCDMA Band V		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 4133 (826.6MHz)							
150.3	0.7	14.3	15.0	82.3	-67.3	Peak	Horizontal
544.1	2.8	20.3	23.1	82.3	-59.2	Peak	Horizontal
156.1	0.9	14.5	15.4	82.3	-66.9	Peak	Vertical
445.6	1.7	18.8	20.5	82.3	-61.8	Peak	Vertical
7171.0	37.9	10.7	48.6	82.3	-33.7	Peak	Horizontal
9848.5	36.2	15.4	51.6	82.3	-30.7	Peak	Horizontal
7256.0	37.7	10.7	48.4	82.3	-33.9	Peak	Vertical
10622.0	36.9	16.2	53.1	82.3	-29.2	Peak	Vertical
Middle CH 4175 (835.0MHz)							
295.3	0.9	14.7	15.6	82.3	-66.7	Peak	Horizontal
628.5	2.3	22.4	24.7	82.3	-57.6	Peak	Horizontal
162.9	0.0	14.4	14.4	82.3	-67.9	Peak	Vertical
633.8	2.9	22.5	25.4	82.3	-56.9	Peak	Vertical
7264.5	38.2	10.7	48.9	82.3	-33.4	Peak	Horizontal
10936.5	35.9	16.6	52.5	82.3	-29.8	Peak	Horizontal
6278.5	38.4	7.4	45.8	82.3	-36.5	Peak	Vertical
10987.5	36.2	16.6	52.8	82.3	-29.5	Peak	Vertical
Top CH 4232 (846.4MHz)							
153.2	-0.6	14.5	13.9	82.3	-68.4	Peak	Horizontal
509.7	1.1	19.8	20.9	82.3	-61.4	Peak	Horizontal
158.5	1.3	14.6	15.9	82.3	-66.4	Peak	Vertical
711.9	2.6	23.4	26.0	82.3	-56.3	Peak	Vertical
5760.0	36.9	6.8	43.7	82.3	-38.6	Peak	Horizontal
11004.5	36.4	16.5	52.9	82.3	-29.4	Peak	Horizontal
6516.5	36.3	8.6	44.9	82.3	-37.4	Peak	Vertical
11251.0	37.1	16.0	53.1	82.3	-29.2	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	CDMA2000 BC0 SO55/RC3		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 1013 (824.7MHz)							
151.3	0.9	14.4	15.3	82.3	-67.0	Peak	Horizontal
568.4	3.0	20.9	23.9	82.3	-58.4	Peak	Horizontal
154.2	-0.6	14.4	13.8	82.3	-68.5	Peak	Vertical
545.1	2.5	20.3	22.8	82.3	-59.5	Peak	Vertical
4119.5	43.0	3.7	46.7	82.3	-35.6	Peak	Horizontal
7247.5	37.8	10.6	48.4	82.3	-33.9	Peak	Horizontal
4808.0	38.3	5.9	44.2	82.3	-38.1	Peak	Vertical
7196.5	37.0	10.6	47.6	82.3	-34.7	Peak	Vertical
Middle CH 384 (836.5MHz)							
153.7	-0.1	14.5	14.4	82.3	-67.9	Peak	Horizontal
556.2	1.6	20.6	22.2	82.3	-60.1	Peak	Horizontal
154.2	0.2	14.4	14.6	82.3	-67.7	Peak	Vertical
614.4	2.3	22.3	24.6	82.3	-57.7	Peak	Vertical
4179.0	40.8	3.7	44.5	82.3	-37.8	Peak	Horizontal
6788.5	37.3	8.9	46.2	82.3	-36.1	Peak	Horizontal
4816.5	38.3	5.8	44.1	82.3	-38.2	Peak	Vertical
7349.5	37.4	10.9	48.3	82.3	-34.0	Peak	Vertical
Top CH 777 (848.3MHz)							
160.5	0.3	14.5	14.8	82.3	-67.5	Peak	Horizontal
609.1	3.3	22.2	25.5	82.3	-56.8	Peak	Horizontal
164.8	0.3	14.4	14.7	82.3	-67.6	Peak	Vertical
602.8	2.4	22.0	24.4	82.3	-57.9	Peak	Vertical
3626.5	39.2	2.7	41.9	82.3	-40.4	Peak	Horizontal
4816.5	38.5	5.8	44.3	82.3	-38.0	Peak	Horizontal
3864.5	38.5	3.1	41.6	82.3	-40.7	Peak	Vertical
4816.5	37.5	5.8	43.3	82.3	-39.0	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

Product	Tablet	Test Site	AC1
Test Engineer	Buter Shi	Test Date	2020/07/29
Test Mode	CDMA2000 BC1 SO55/RC3		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 25 (1851.3MHz)							
149.3	0.0	14.4	14.4	82.3	-67.9	Peak	Horizontal
727.4	3.3	23.7	27.0	82.3	-55.3	Peak	Horizontal
163.4	1.0	14.4	15.4	82.3	-66.9	Peak	Vertical
712.4	0.3	23.4	23.7	82.3	-58.6	Peak	Vertical
3703.0	48.1	2.5	50.6	82.3	-31.7	Peak	Horizontal
5547.5	43.6	6.8	50.4	82.3	-31.9	Peak	Horizontal
4332.0	38.1	4.4	42.5	82.3	-39.8	Peak	Vertical
5547.5	41.4	6.8	48.2	82.3	-34.1	Peak	Vertical
Middle CH 600 (1880.0MHz)							
167.7	0.4	14.3	14.7	82.3	-67.6	Peak	Horizontal
687.2	2.9	23.0	25.9	82.3	-56.4	Peak	Horizontal
160.0	0.5	14.4	14.9	82.3	-67.4	Peak	Vertical
715.3	2.1	23.4	25.5	82.3	-56.8	Peak	Vertical
3737.0	45.9	2.7	48.6	82.3	-33.7	Peak	Horizontal
5607.0	40.7	6.5	47.2	82.3	-35.1	Peak	Horizontal
4808.0	38.8	5.9	44.7	82.3	-37.6	Peak	Vertical
5955.5	37.4	7.0	44.4	82.3	-37.9	Peak	Vertical
Top CH 1175 (1908.8MHz)							
161.4	-0.1	14.5	14.4	82.3	-67.9	Peak	Horizontal
762.4	1.7	24.7	26.4	82.3	-55.9	Peak	Horizontal
161.4	-0.1	14.5	14.4	82.3	-67.9	Peak	Vertical
665.8	3.5	22.6	26.1	82.3	-56.2	Peak	Vertical
3822.0	44.3	3.1	47.4	82.3	-34.9	Peak	Horizontal
5726.0	39.4	6.4	45.8	82.3	-36.5	Peak	Horizontal
4808.0	38.4	5.9	44.3	82.3	-38.0	Peak	Vertical
5726.0	40.1	6.4	46.5	82.3	-35.8	Peak	Vertical

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB).

Note 2: Margin (dB) = Measure Level (dBuV/m) - Limit (dBuV/m).

6. CONCLUSION

The data collected relate only the item(s) tested and show that unit is compliance with all the requirements of Parts 22, 24, 27 of the FCC Rules.

_____ The End _____

Appendix A - Test Setup Photograph

Refer to “2001RSU044-UT” file.

Appendix B - EUT Photograph

Refer to “2001RSU044-UE” file.