RF TEST REPORT

GLOBAL TESTING & CERTIFICATIONS
YOUR CHOICE FOR- TCB FCB CB NB CAB RCB

Report No.: 16070896-FCC-R1

Supersede Report No.: N/A

Applicant	Verykool USA Inc
Product Name	Mobile phone
Model No.	SL5050
Serial No.	N/A
Test Standard	FCC Part 22(H):2015 ;FCC Part 24(E):2015; FCC Part 27:2015; ANSI/TIA-603-D: 2010
Test Date	July 21 to August 30
Issue Date	August 31, 2016
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Loren Luo	David Huang	
Loren Luo Test Engineer	David Huang Checked By	

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Test result presented in this test report is applicable to the tested sample only

Issued by:

SIEMIC (SHENZHEN-CHINA) LABORATORIES

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Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
16070896-FCC-R1	NONE	Original	August 31, 2016

2. Customer information

Applicant Name	Verykool USA Inc
Applicant Add	3636 Nobel Drive, Suite 325, San Diego, California 92122 United States
Manufacturer	Kozen Mobile Co.,Ltd
Manufacturer Add	Floor 3rd, Building 29, No.368 Zhangjiang Road, Pudong District, Shanghai, China 201203

3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

4. Equipment under Test (EUT) Information

Description of EUT:	Mobile phone
Main Model:	SL5050
Serial Model:	N/A
Date EUT received:	July 20, 2016
Test Date(s):	July 21 to August 30
Equipment Category：	PCE
Antenna Gain:	GSM850: -2.2dBi PCS1900: -1.21dBi UMTS-FDD Band V: -2.62dBi UMTS-FDD Band IV: -1.42dBi UMTS-FDD Band II: -1.42dBi LTE Band 2: -1.5dBi LTE Band 4: -1.4dBi LTE Band 5: -2.2dBi LTE Band 7: -0.8dBi LTE Band 12: -2.4dBi LTE Band 17: -2.4dBi Bluetooth/BLE/WIFI：0dBi GPS:0dBi
Antenna Type:	PIFA antenna
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK,8PSK UMTS-FDD: QPSK LTE Band: QPSK, 16QAM 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK GPS:BPSK

RF Operating Frequency (ies):	GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz UMTS-FDD Band IV TX:1712.4 ~ 1752.6 MHz; RX : 2112.4 ~ 2152.6 MHz UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz; RX: 1932.4 ~ 1987.6 MHz LTE Band 2 TX: 1852.5 ~ 1907.5 MHz; RX : 1932.5 ~ 1987.5 MHz LTE Band 4 TX: 1712.5 ~ 1752.5 MHz; RX : 2112.5 ~ 2152.5 MHz LTE Band 5 TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz LTE Band 7 TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz LTE Band 12 TX:699.7 ~ 715.3 MHz; RX : 729.7~ 745.3MHz LTE Band 17 TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz WIFI: 802.11b/g/n(20M): 2412-2462 MHz WIFI: 802.11n(40M): 2422-2452 MHz Bluetooth& BLE: 2402-2480 MHz GPS: 1575.42 MHz
Number of Channels:	GSM 850: 124CH PCS1900: 299CH UMTS-FDD Band V: 102CH UMTS-FDD Band IV: 202CH UMTS-FDD Band II: 277CH WIFI :802.11b/g/n(20M): 11CH WIFI :802.11n(40M): 7CH Bluetooth: 79CH BLE: 40CH GPS:1CH
Port:	Earphone Port, USB Port
Input Power:	Adapter: Model: TPA-46B050100UU Input: AC 100-240V,50/60Hz;0.2A Output: DC 5.0V,1A Battery: Model:FHPK275875L Spec: 3.8V,2500mAh(9.5Wh) Charge limited voltage: 4.35V

Maximum Conducted AV Power to Antenna:	GSM Vioce:GSM850: 32.16 dBm PCS1900: 29.13 dBm GPRS:GSM850: 32.16 dBm PCS1900: 28.03 dBm MCS1:GSM850: 33.13 dBm PCS1900: 29.73 dBm MCS5:GSM850: 27.75 dBm PCS1900: 26.57 dBm RMC:UMTS-FDD Band V: 21.79 dBm UMTS-FDD Band IV: 21.82 dBm UMTS-FDD Band II: 22.58 dBm HSDPA:UMTS-FDD Band V: 20.94 dBm UMTS-FDD Band IV: 21.93 dBm UMTS-FDD Band II: 20.89 dBm HSUPA:UMTS-FDD Band V: 20.98 dBm UMTS-FDD Band IV: 21.95 dBm UMTS-FDD Band II: 20.99 dBm
ERP/EIRP:	GSM Vioce:GSM850: 27.78 dBm / ERP PCS1900: 27.72 dBm / EIRP GPRS:GSM850: 27.86 dBm / ERP PCS1900: 26.84 dBm / EIRP MCS1:GSM850: 29.04 dBm / ERP PCS1900: 29.14 dBm / EIRP RMC:UMTS-FDD Band V: 17.41 dBm / ERP UMTS-FDD Band IV: 20.53 dBm / EIRP UMTS-FDD Band II: 21.01 dBm / ERP HSDPA:UMTS-FDD Band V: 17.34 dBm / ERP UMTS-FDD Band IV: 20.59 dBm / EIRP UMTS-FDD Band II: 19.29 dBm / ERP HSUPA:UMTS-FDD Band V: 17.30 dBm / ERP UMTS-FDD Band IV: 20.56 dBm / EIRP UMTS-FDD Band II: 19.11 dBm / ERP

Trade Name : verykool

GPRS/EGPRS Multi-slot class 8/10/12

FCC ID: WA6SL5050

5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§ 1.1307; § 2.1093	RF Exposure (SAR)	Compliance
§2.1046; § 22.913(a); § 24.232(c); § 27.50(c.10) ; § 27.50(d.4)	RF Output Power	Compliance
§ 24.232 (d) ; § 27.50(d)	Peak-Average Ratio	Compliance
§ 2.1049; § 22.905; § 22.917; § 24.238; § 27.53(a.5)	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a); § 27.53(h)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a); § 27.53(h)	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a); § 27.53(h)	Out of band emission, Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235; § 27.5(h); § 27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: Testing was performed by configuring EUT to maximum output power status, the declared output power class for different

Measurement Uncertainty

Emissions		
Test Item	**Description**	**Uncertainty**
Band Edge and Radiated Spurious Emissions	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
-	-	-

6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

6.1 RF Exposure (SAR)

Test Result: Pass

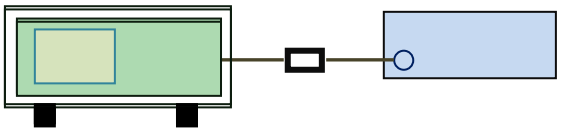
The EUT is a portable device, thus requires SAR evaluation;

Please refer to RF Exposure Evaluation Report: 16070896-FCC-H.

6.2 RF Output Power

Temperature	22℃
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	August 13, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§22.913 (a)	a)	ERP:38.45dBm	☑
§24.232 (c)	b)	EIRP:33dBm	☑
§27.50 (c)	c)	EIRP: 30dBm	☑
Test Setup			
Test Procedure	For Conducted Power: - The transmitter output port was connected to base station. - Set EUT at maximum power through base station. - Select lowest, middle, and highest channels for each band and different test mode. For ERP/EIRP: According with KDB 971168 v02r02 - The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable. - The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis. - The frequency range up to tenth harmonic of the fundamental		

	frequency was investigated. - Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution. - Spurious emissions in dB = 10 log (TX power in Watts/0.001) – the absolute level - Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

Conducted Power

GSM Mode:

Burst Average Power (dBm);								
Band	GSM850				PCS1900			
Channel	128	190	251	Tune up Power tolerant	512	661	810	Tune up Power tolerant
Frequency (MHz)	824.2	836.6	848.8	/	1850.2	1880	1909.8	/
GSM Voice (1 uplink),GMSK	31.90	32.08	**32.16**	32±1	28.02	**29.13**	28.01	29±1
GPRS Multi-Slot Class 8 (1 uplink),GMSK	31.90	32.06	**32.16**	32±1	28.01	28.02	**28.03**	28±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	31.32	31.45	31.55	31±1	27.51	27.49	27.52	27±1
GPRS Multi-Slot Class 12 (4 uplink) GMSK	26.52	26.71	26.87	26±1	23.17	23.11	23.20	23±1
EGPRS Multi-Slot Class 8 (1 uplink) GMSK MCS1	33.01	33.02	**33.13**	33±1	29.32	29.27	29.53	29±1
EGPRS Multi-Slot Class 10 (2 uplink) GMSK MCS1	32.98	32.10	32.27	32±1	**29.73**	29.72	29.95	29.5±1
EGPRS Multi-Slot Class 12 (4 uplink) GMSK MCS1	29.04	29.37	29.46	29±1	26.13	26.15	26.40	26±1
EGPRS Multi-Slot Class 8 (1 uplink) MCS 5 8PSK	**27.75**	27.64	27.38	27±1	**26.57**	26.53	26.52	26±1
EGPRS Multi-Slot Class 10 (2 uplink) MCS 5 8PSK	26.74	26.58	26.49	26±1	25.33	25.28	25.23	25±1
EGPRS Multi-Slot Class 12 (4 uplink) MCS 5 8PSK	23.52	23.43	23.17	23±1	22.15	22.11	22.08	22±1

Remark :

GPRS, CS1 coding scheme.

EGPRS, MCS1 coding scheme.

Multi-Slot Class 8 , Support Max 4 downlink, 1 uplink , 5 working link

Multi-Slot Class 10 , Support Max 4 downlink, 2 uplink , 5 working link

Multi-Slot Class 12 , Support Max 4 downlink, 4 uplink , 5 working link

UMTS Mode:

UMTS-FDD Band V

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	4132	826.4	21.79	21.5±1
	4175	835	21.69	21.5±1
	4233	846.6	21.61	21.5±1
HSDPA Subtest1	4132	826.4	20.56	20.5±1
	4175	835	20.78	20.5±1
	4233	846.6	20.69	20.5±1
HSDPA Subtest2	4132	826.4	20.47	20.5±1
	4175	835	20.48	20.5±1
	4233	846.6	**20.94**	20.5±1
HSDPA Subtest3	4132	826.4	20.48	20.5±1
	4175	835	20.59	20.5±1
	4233	846.6	20.64	20.5±1
HSDPA Subtest4	4132	826.4	20.63	20.5±1
	4175	835	20.51	20.5±1
	4233	846.6	20.77	20.5±1
HSUPA Subtest1	4132	826.4	20.91	20.5±1
	4175	835	20.62	20.5±1
	4233	846.6	20.73	20.5±1
HSUPA Subtest2	4132	826.4	20.84	20.5±1
	4175	835	20.65	20.5±1
	4233	846.6	20.45	20.5±1
HSUPA Subtest3	4132	826.4	20.78	20.5±1
	4175	835	20.66	20.5±1
	4233	846.6	20.39	20.5±1
HSUPA Subtest4	4132	826.4	20.48	20.5±1
	4175	835	20.59	20.5±1
	4233	846.6	20.45	20.5±1
HSUPA Subtest5	4132	826.4	**20.98**	20.5±1
	4175	835	20.55	20.5±1
	4233	846.6	20.44	20.5±1

UMTS-FDD Band IV

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	4132	826.4	21.68	21.3±1
	4175	835	21.74	21.3±1
	4233	846.6	**21.82**	21.3±1
HSDPA Subtest1	4132	826.4	21.53	21.3±1
	4175	835	**21.93**	21.3±1
	4233	846.6	21.63	21.3±1
HSDPA Subtest2	4132	826.4	21.61	21.3±1
	4175	835	21.52	21.3±1
	4233	846.6	21.56	21.3±1
HSDPA Subtest3	4132	826.4	21.78	21.3±1
	4175	835	21.82	21.3±1
	4233	846.6	21.92	21.3±1
HSDPA Subtest4	4132	826.4	21.71	21.3±1
	4175	835	21.91	21.3±1
	4233	846.6	21.81	21.3±1
HSUPA Subtest1	4132	826.4	21.62	21.3±1
	4175	835	21.53	21.3±1
	4233	846.6	21.92	21.3±1
HSUPA Subtest2	4132	826.4	21.52	21.3±1
	4175	835	21.35	21.3±1
	4233	846.6	21.53	21.3±1
HSUPA Subtest3	4132	826.4	21.25	21.3±1
	4175	835	21.85	21.3±1
	4233	846.6	21.52	21.3±1
HSUPA Subtest4	4132	826.4	21.16	21.3±1
	4175	835	21.81	21.3±1
	4233	846.6	21.53	21.3±1
HSUPA Subtest5	4132	826.4	21.34	21.3±1
	4175	835	21.36	21.3±1
	4233	846.6	**21.95**	21.3±1

UMTS-FDD Band II

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	9262	1852.4	21.62	22±1
	9400	1880	**22.58**	22±1
	9538	1907.6	21.86	22±1
HSDPA Subtest1	9262	1852.4	20.56	20.5±1
	9400	1880	20.35	20.5±1
	9538	1907.6	20.56	20.5±1
HSDPA Subtest2	9262	1852.4	20.54	20.5±1
	9400	1880	20.78	20.5±1
	9538	1907.6	20.45	20.5±1
HSDPA Subtest3	9262	1852.4	20.36	20.5±1
	9400	1880	20.54	20.5±1
	9538	1907.6	**20.89**	20.5±1
HSDPA Subtest4	9262	1852.4	20.45	20.5±1
	9400	1880	20.69	20.5±1
	9538	1907.6	20.45	20.5±1
HSUPA Subtest1	9262	1852.4	20.65	20.5±1
	9400	1880	20.78	20.5±1
	9538	1907.6	20.97	20.5±1
HSUPA Subtest2	9262	1852.4	20.88	20.5±1
	9400	1880	20.45	20.5±1
	9538	1907.6	20.89	20.5±1
HSUPA Subtest3	9262	1852.4	20.81	20.5±1
	9400	1880	20.87	20.5±1
	9538	1907.6	20.69	20.5±1
HSUPA Subtest4	9262	1852.4	20.87	20.5±1
	9400	1880	20.36	20.5±1
	9538	1907.6	20.89	20.5±1
HSUPA Subtest5	9262	1852.4	20.78	20.5±1
	9400	1880	20.66	20.5±1
	9538	1907.6	**20.99**	20.5±1

ERP & EIRP

GSM Voice

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.2	21.51	V	6.8	0.53	**27.78**	38.45
824.2	19.66	H	6.8	0.53	25.93	38.45
836.6	21.46	V	6.8	0.53	27.73	38.45
836.6	19.43	H	6.8	0.53	25.70	38.45
848.8	21.38	V	6.9	0.53	27.75	38.45
848.8	19.82	H	6.9	0.53	26.19	38.45

EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.2	19.74	V	7.88	0.85	26.77	33
1850.2	17.83	H	7.88	0.85	24.86	33
1880	20.69	V	7.88	0.85	**27.72**	33
1880	18.32	H	7.88	0.85	25.35	33
1909.8	19.84	V	7.86	0.85	26.85	33
1909.8	17.95	H	7.86	0.85	24.96	33

GPRS:

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.2	21.54	V	6.8	0.53	27.81	38.45
824.2	19.66	H	6.8	0.53	25.93	38.45
836.6	21.48	V	6.8	0.53	27.75	38.45
836.6	19.34	H	6.8	0.53	25.61	38.45
848.8	21.49	V	6.9	0.53	**27.86**	38.45
848.8	19.45	H	6.9	0.53	25.82	38.45

EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.2	19.81	V	7.88	0.85	**26.84**	33
1850.2	18.02	H	7.88	0.85	25.05	33
1880	19.76	V	7.88	0.85	26.79	33
1880	17.83	H	7.88	0.85	24.86	33
1909.8	19.75	V	7.86	0.85	26.76	33
1909.8	17.97	H	7.86	0.85	24.98	33

EGPRS (MCS1):

ERP for Cellular Band (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
824.2	22.49	V	6.8	0.53	28.76	38.45
824.2	20.21	H	6.8	0.53	26.48	38.45
836.6	22.53	V	6.8	0.53	28.80	38.45
836.6	20.38	H	6.8	0.53	26.65	38.45
848.8	22.67	V	6.9	0.53	**29.04**	38.45
848.8	20.46	H	6.9	0.53	26.83	38.45

EIRP for PCS Band (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1850.2	21.02	V	7.88	0.85	28.05	33
1850.2	19.66	H	7.88	0.85	26.69	33
1880	21.12	V	7.88	0.85	28.15	33
1880	19.84	H	7.88	0.85	26.87	33
1909.8	22.13	V	7.86	0.85	**29.14**	33
1909.8	20.25	H	7.86	0.85	27.26	33

RMC

ERP for UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	11.02	V	6.8	0.53	17.29	38.45
826.4	9.56	H	6.8	0.53	15.83	38.45
835	10.89	V	6.8	0.53	17.16	38.45
835	9.34	H	6.8	0.53	15.61	38.45
846.6	11.04	V	6.9	0.53	**17.41**	38.45
846.6	9.63	H	6.9	0.53	16.00	38.45

EIRP for UMTS-FDD Band IV (Part 27E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	13.52	V	7.76	0.82	20.46	30
1712.4	12.68	H	7.76	0.82	19.62	30
1740	13.58	V	7.76	0.82	20.52	30
1740	12.71	H	7.76	0.82	19.65	30
1752.6	13.61	V	7.74	0.82	**20.53**	30
1752.6	12.93	H	7.74	0.82	19.85	30

EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1852.4	13.06	V	7.88	0.85	20.09	33
1852.4	11.87	H	7.88	0.85	18.90	33
1880	13.98	V	7.88	0.85	**21.01**	33
1880	12.24	H	7.88	0.85	19.27	33
1907.6	13.13	V	7.86	0.85	20.14	33
1907.6	11.95	H	7.86	0.85	18.96	33

HSDPA

ERP for UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	11.06	V	6.8	0.53	17.33	38.45
826.4	9.75	H	6.8	0.53	16.02	38.45
835	11.03	V	6.8	0.53	17.30	38.45
835	9.55	H	6.8	0.53	15.82	38.45
846.6	10.97	V	6.9	0.53	**17.34**	38.45
846.6	9.38	H	6.9	0.53	15.75	38.45

EIRP for UMTS-FDD Band IV (Part 27E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	13.42	V	7.76	0.82	20.36	30
1712.4	12.57	H	7.76	0.82	19.51	30
1740	13.59	V	7.76	0.82	20.53	30
1740	12.99	H	7.76	0.82	19.93	30
1752.6	13.67	V	7.74	0.82	**20.59**	30
1752.6	13.15	H	7.74	0.82	20.07	30

EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1852.4	12.12	V	7.88	0.85	19.15	33
1852.4	10.25	H	7.88	0.85	17.28	33
1880	12.19	V	7.88	0.85	19.22	33
1880	10.34	H	7.88	0.85	17.37	33
1907.6	12.28	V	7.86	0.85	**19.29**	33
1907.6	10.45	H	7.86	0.85	17.46	33

HSUPA

ERP for UMTS-FDD Band V (Part 22H)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
826.4	10.69	V	6.8	0.53	16.96	38.45
826.4	9.21	H	6.8	0.53	15.48	38.45
835	10.78	V	6.8	0.53	17.05	38.45
835	9.32	H	6.8	0.53	15.59	38.45
846.6	10.93	V	6.9	0.53	**17.30**	38.45
846.6	9.44	H	6.9	0.53	15.81	38.45

EIRP for UMTS-FDD Band IV (Part 27E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	13.33	V	7.76	0.82	20.27	30
1712.4	12.68	H	7.76	0.82	19.62	30
1740	13.52	V	7.76	0.82	20.46	30
1740	12.86	H	7.76	0.82	19.80	30
1752.6	13.64	V	7.74	0.82	**20.56**	30
1752.6	13.05	H	7.74	0.82	19.97	30

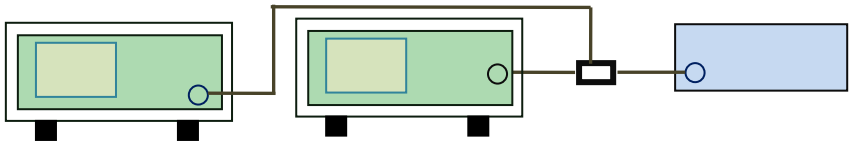
EIRP for UMTS-FDD Band II (Part 24E)

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1852.4	12.08	V	7.88	0.85	**19.11**	33
1852.4	10.56	H	7.88	0.85	17.59	33
1880	11.98	V	7.88	0.85	19.01	33
1880	10.21	H	7.88	0.85	17.24	33
1907.6	12.02	V	7.86	0.85	19.03	33
1907.6	10.87	H	7.86	0.85	17.88	33

6.3 Peak-Average Ratio

Temperature	22℃
Relative Humidity	55%
Atmospheric Pressure	1013mbar
Test date :	August 13, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§24.232(d) § 27.50(d)	a)	The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.	☑
Test Setup			
Test Procedure	According with KDB 971168 v02r02 5.7.2 Alternate procedure for PAPR 5.1.2 Peak power measurements with a peak power meter The total peak output power may be measured using a broadband peak RF power meter. The power meter must have a video bandwidth that is greater than or equal to the emission bandwidth and utilize a fast-responding diode detector. 5.2.3 Average power measurement with average power meter As an alternative to the use of a spectrum/signal analyzer or EMI receiver to perform a measurement of the total in-band average output power, a wideband RF average power meter with a thermocouple detector or equivalent can be used under certain conditions If the EUT can be configured to transmit continuously (i.e., the burst duty cycle ≥ 98%) and at all times the EUT is transmitting at is maximum output		

	power level, then a conventional wide-band RF power meter can be used. If the EUT cannot be configured to transmit continuously (i.e., the burst duty cycle < 98%), then there are two options for the use of an average power meter. First, a gated average power meter can be used to perform the measurement if the gating parameters can be adjusted such that the power is measured only over active transmission bursts at maximum output power levels. A conventional average power meter can also be used if the measured burst duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent) by performing the measurement over the on/off burst cycles and then correcting (increasing) the measured level by a factor equal to 10log(1/duty cycle)
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☑ N/A

GSM : GSM 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.25	28.02	2.23
1880	30.05	28.13	1.92
1909.8	30.48	28.01	2.47

GPRS 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.14	28.05	2.09
1880	30.31	28.07	2.24
1909.8	30.02	28.08	1.94

EGPRS (MSC 1) 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	27.87	26.33	1.54
1880	27.68	26.31	1.37
1909.8	27.69	26.25	1.44

RMC ：UMTS-FDD Band 2 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	24.56	21.62	2.94
1880	24.97	22.58	2.39
1907.6	24.32	21.86	2.46

UMTS-FDD Band 4 PK-AV POWER (PART 27)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1712.6	22.98	21.68	1.3
1732.6	22.86	21.74	1.12
1752.4	22.97	21.82	1.15

HSUPA ：UMTS-FDD Band 2 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	24.32	20.56	3.76
1880	24.16	20.35	3.81
1907.6	24.21	20.56	3.65

UMTS-FDD Band 4 PK-AV POWER (PART 27)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1712.6	22.88	21.62	1.26
1732.6	22.94	21.53	1.41
1752.4	22.93	21.92	1.01

HSDPA ：UMTS-FDD Band 2 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	24.16	20.65	3.51
1880	24.26	20.78	3.48
1907.6	24.51	20.97	3.54

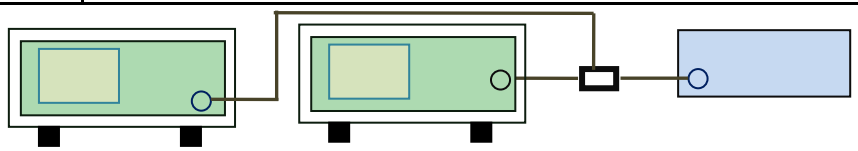
UMTS-FDD Band 4 PK-AV POWER (PART 27)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1712.6	22.78	21.53	1.25
1732.6	22.95	21.93	1.02
1752.4	22.67	21.63	1.04

6.4 Occupied Bandwidth

Temperature	24℃
Relative Humidity	57%
Atmospheric Pressure	1015mbar
Test date :	August 15, 2016
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable
§2.1049, §22.917, §22.905 §24.238 §27.53(a)	a)	99% Occupied Bandwidth(kHz)	☑
	b)	26 dB Bandwidth(kHz)	☑
Test Setup			
Test Procedure	- The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

GSM Voice:

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	245.99	315.0
190	836.6	245.74	315.4
251	848.8	246.52	320.8

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	246.30	318.8
661	1880.0	247.50	327.0
810	1909.8	250.74	318.3

GPRS:

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	240.74	315.6
190	836.6	245.98	318.4
251	848.8	244.09	314.9

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	244.11	311.5
661	1880.0	244.68	317.6
810	1909.8	245.02	303.2

EGPRS (MCS 5):

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	251.39	318.6
190	836.6	246.90	316.1
251	848.8	245.64	322.4

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	246.07	316.6
661	1880.0	247.38	313.9
810	1909.8	244.85	304.1

RMC:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.2044	4.891
4175	835.0	4.1896	4.877
4233	846.6	4.2049	4.890

UMTS-FDD Band IV (Part 27E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1712.6	4.2030	4.887
1413	1732.6	4.2113	4.854
1512	1752.4	4.2135	4.872

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.2226	4.900
9400	1880.0	4.2262	4.899
9538	1907.6	4.2378	4.890

HSDPA:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.2000	4.890
4175	835.0	4.2073	4.876
4233	846.6	4.2029	4.891

UMTS-FDD Band IV (Part 27E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1712.6	4.2024	4.868
1413	1732.6	4.2032	4.861
1512	1752.4	4.2117	4.853

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.2328	4.953
9400	1880.0	4.2285	4.903
9538	1907.6	4.2333	4.959

HSUPA:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.2029	4.891
4175	835.0	4.2059	4.907
4233	846.6	4.1931	4.869

UMTS-FDD Band IV (Part 27E)

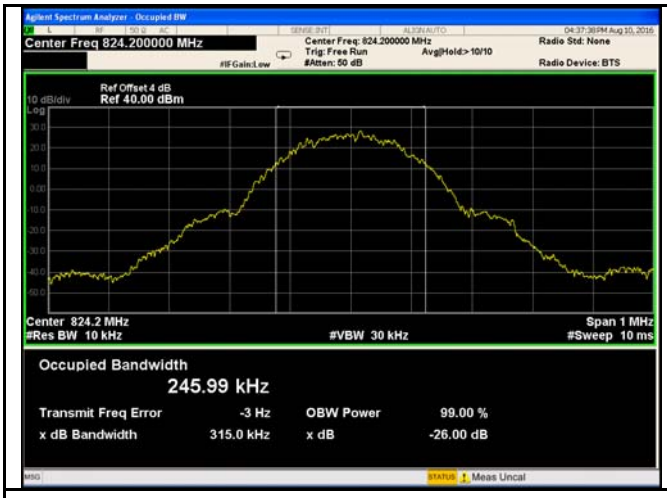
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1712.6	4.2080	4.871
1413	1732.6	4.1944	4.867
1512	1752.4	4.2097	4.856

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.2176	4.919
9400	1880.0	4.2217	4.928
9538	1907.6	4.2507	4.959

Test Plots

GMS Voice:

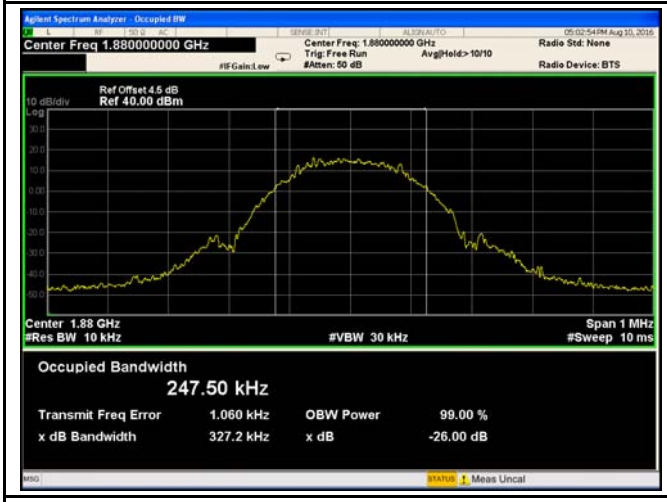


GSM 850 BW - Low CH 824.2MHz

GSM 850 BW - Mid CH 836.6MHz

GSM 850 BW - High CH 848.8MHz

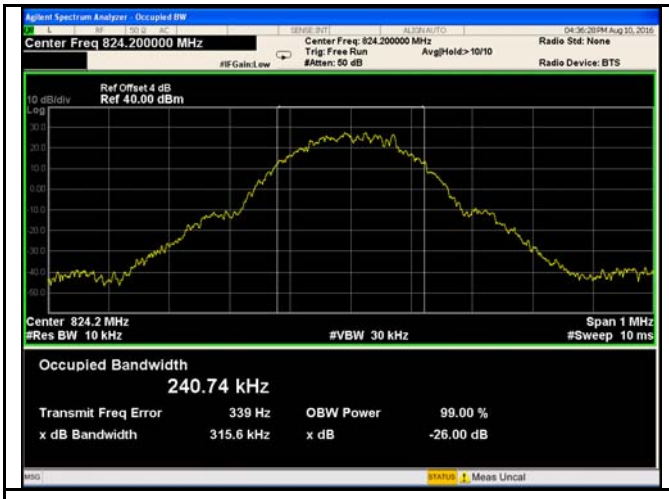
PCS 1900 BW - Low CH 1850.2MHz



PCS 1900 BW - Mid CH 1880MHz

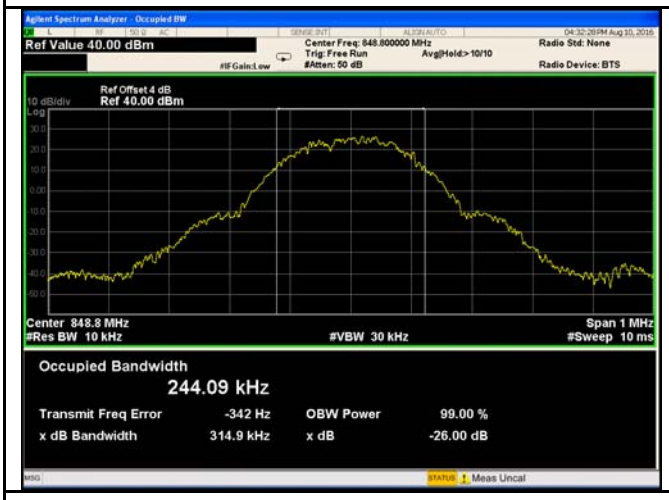
PCS 1900 BW - High CH 1909.8MHz

GPRS:



GSM 850 BW - Low CH 824.2MHz

GSM 850 BW - Mid CH 836.6MHz



GSM 850 BW - High CH 848.8MHz

PCS 1900 BW - Low CH 1850.2MHz

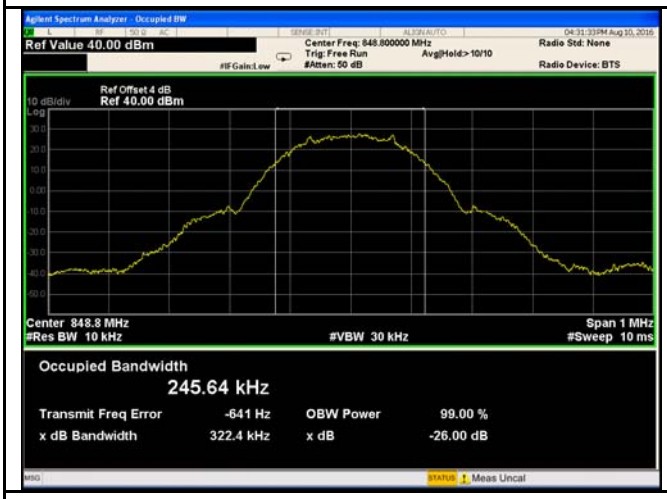
PCS 1900 BW - Mid CH 1880MHz

PCS 1900 BW - High CH 1909.8MHz

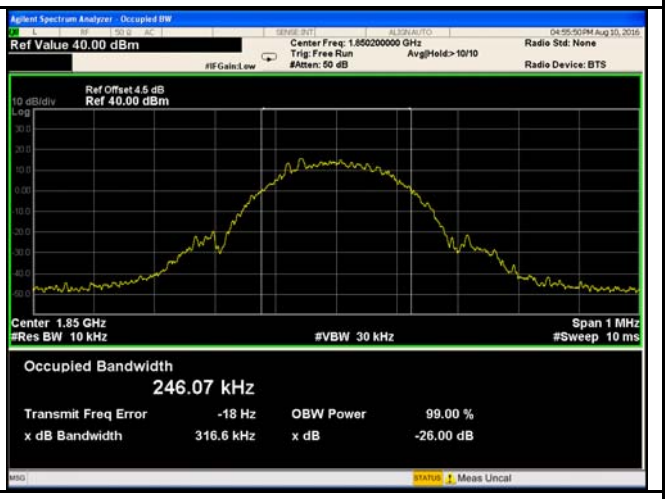
EGPRS (MCS 5):

GSM 850 BW - Low CH 824.2MHz

GSM 850 BW - Mid CH 836.6MHz



GSM 850 BW - High CH 848.8MHz

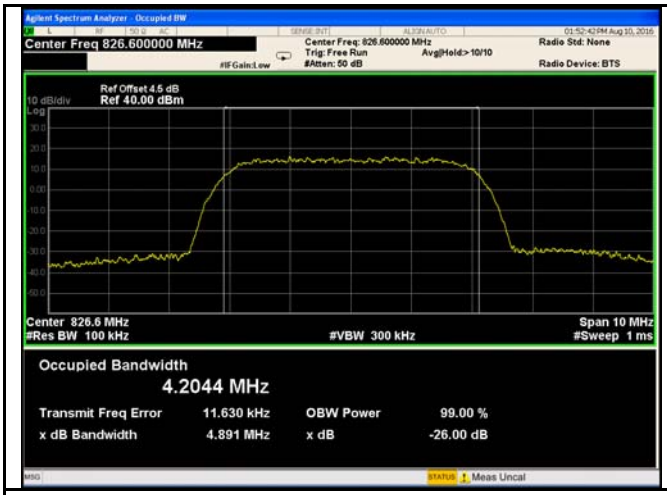


PCS 1900 BW - Low CH 1850.2MHz

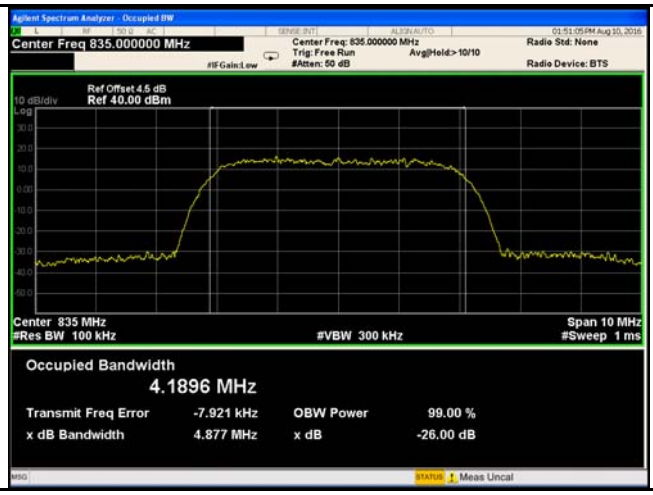
PCS 1900 BW - Mid CH 1880MHz

PCS 1900 BW - High CH 1909.8MHz

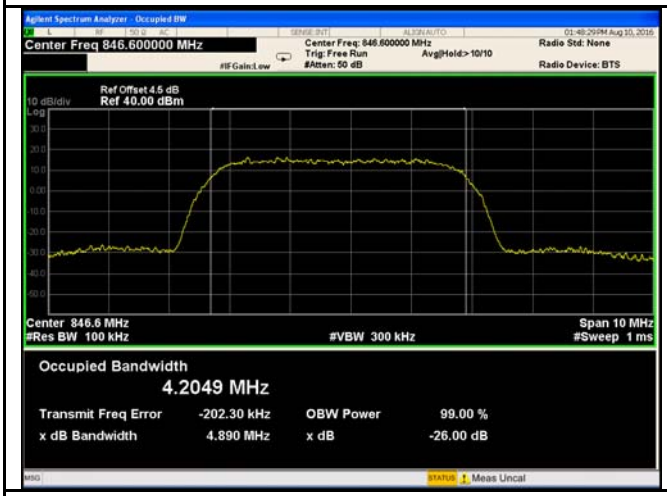
RMC:



Band V BW - Low CH 826.6 MHz

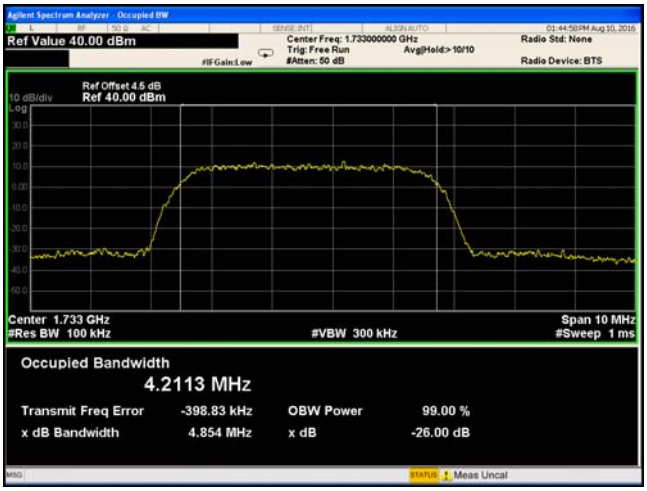


Band V BW - Mid CH 835.0 MHz

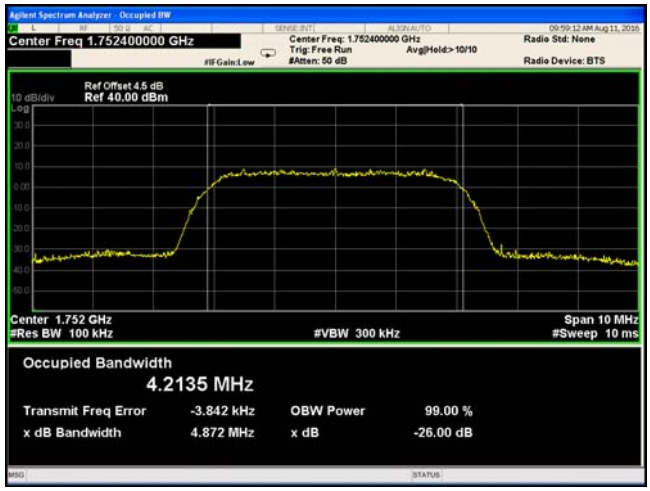


Band V BW - High CH 846.4 MHz

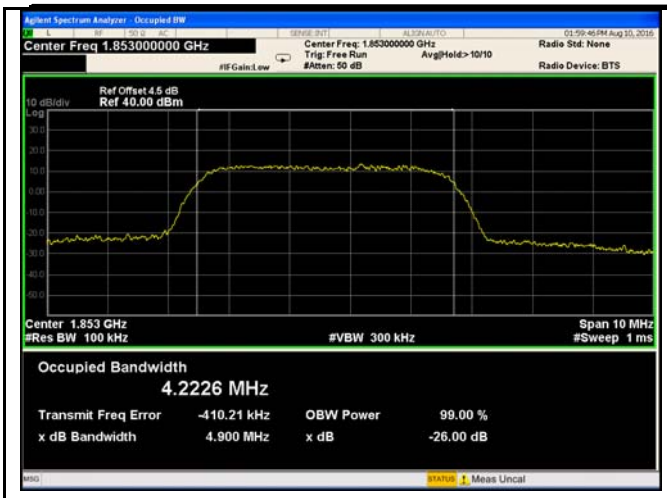
Band IV BW - Low CH 1712.6MHz



Band IV BW - Mid CH 1732.6MHz

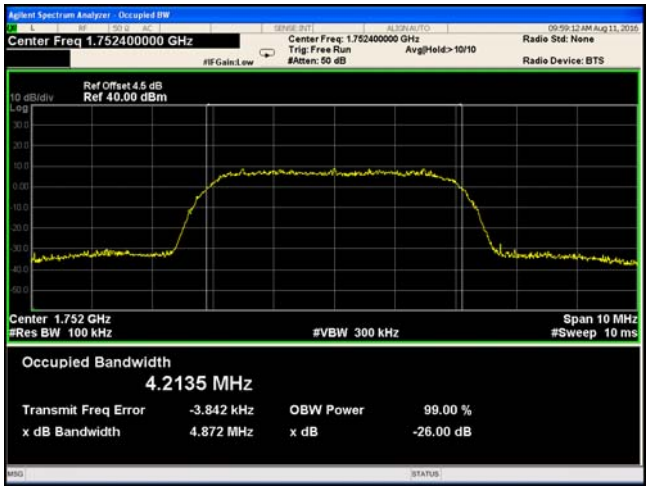


Band IV BW - High CH 1752.4MHz



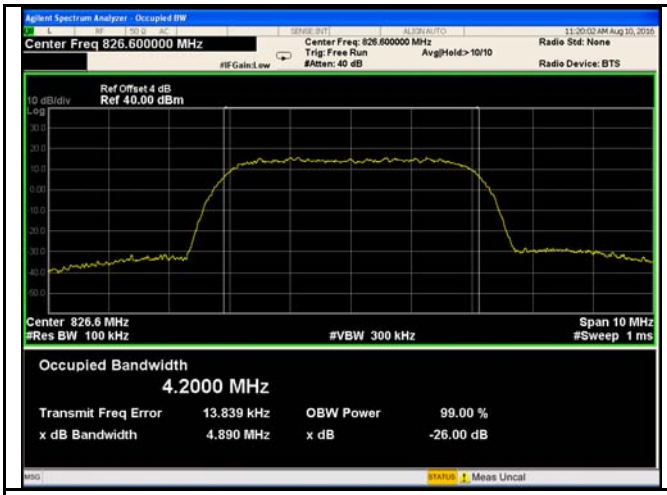
Band II BW - Low CH 1852.4MHz

Band II BW - Mid CH 1880MHz



Band II BW - High CH 1907.6MHz

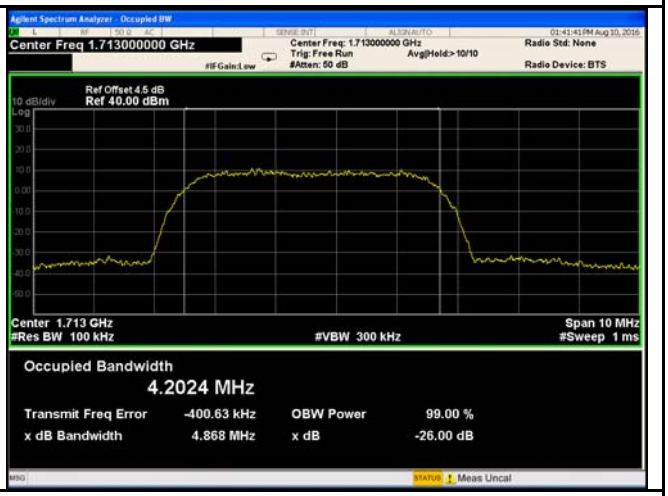
HSDPA:



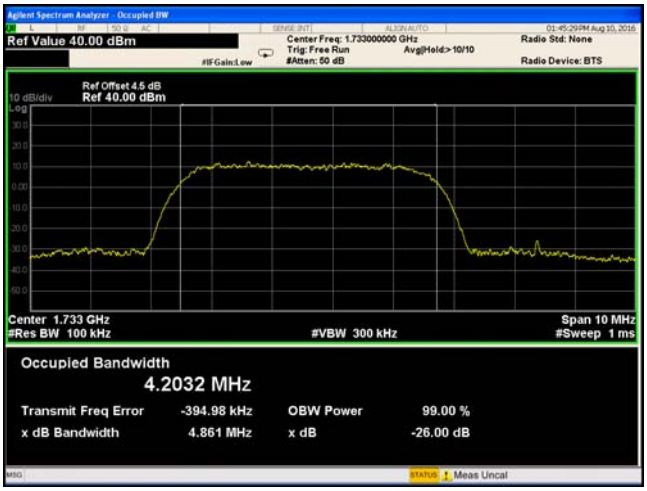
Band V BW - Low CH 826.6 MHz

Band V BW - Mid CH 835.0 MHz

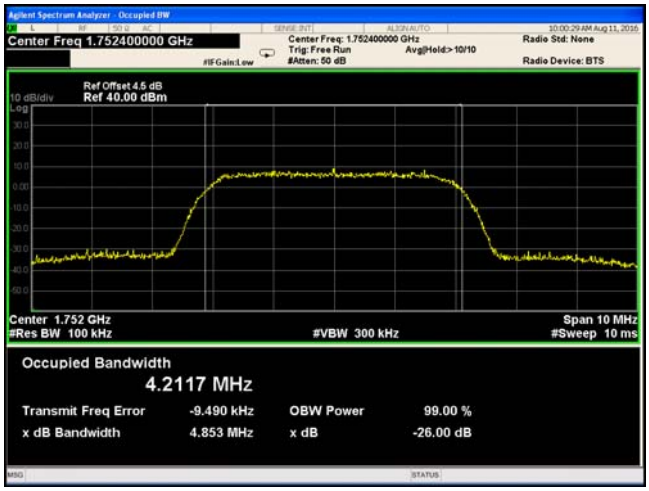
Band V BW - High CH 846.4 MHz



Band IV BW - Low CH 1712.6MHz



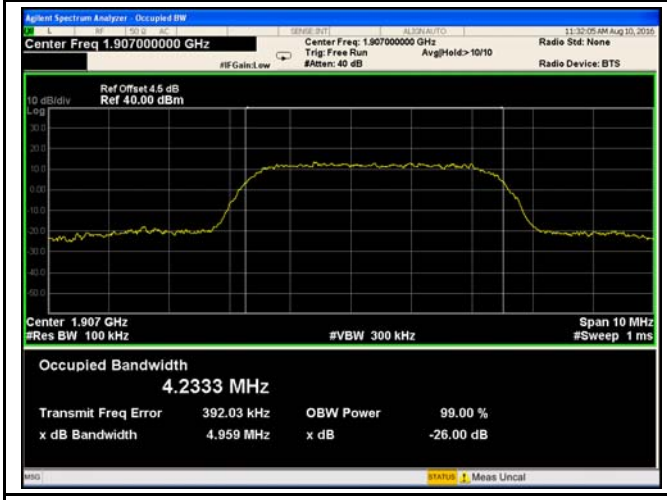
Band IV BW - Mid CH 1732.6MHz



Band IV BW - High CH 1752.4MHz

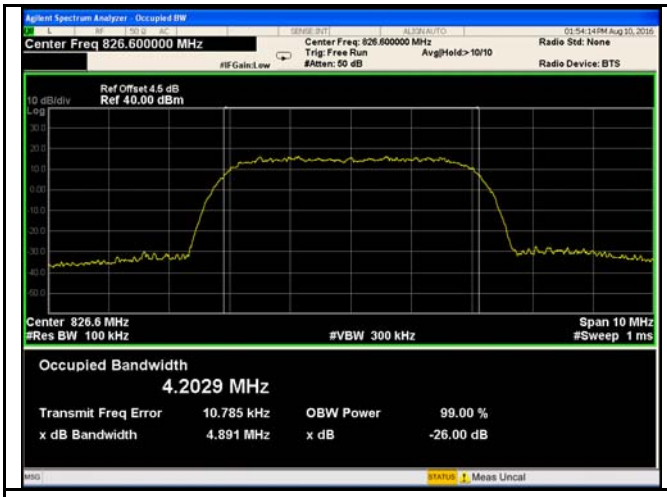
Band II BW - Low CH 1852.4MHz

Band II BW - Mid CH 1880MHz

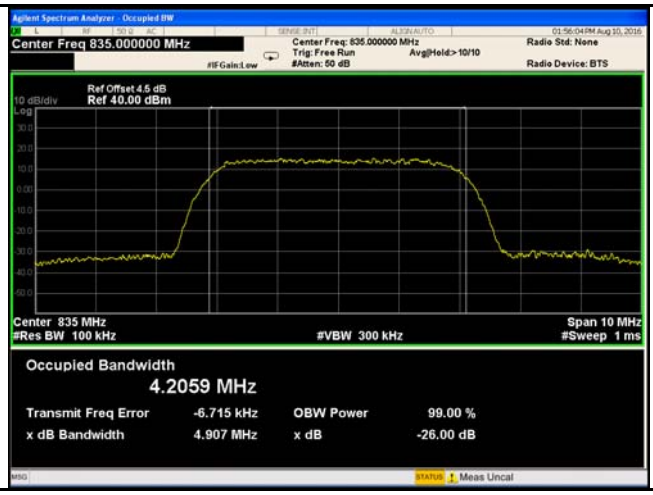


Band II BW - High CH 1907.6MHz

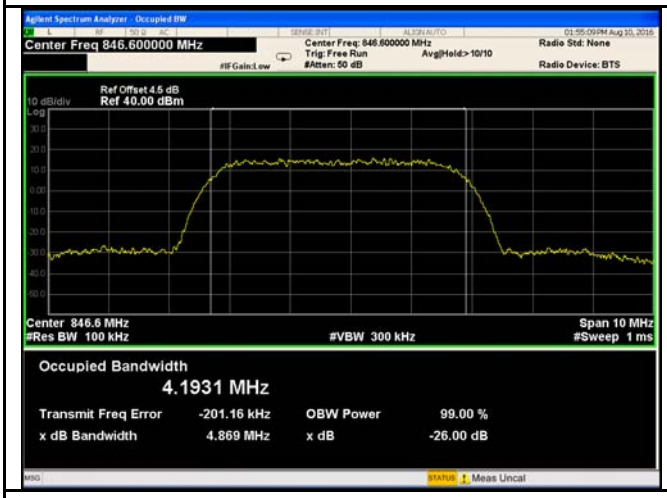
HSUPA:



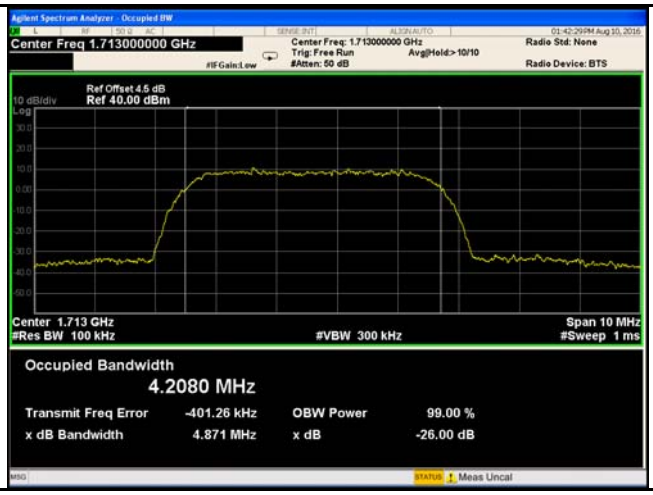
Band V BW - Low CH 826.6 MHz



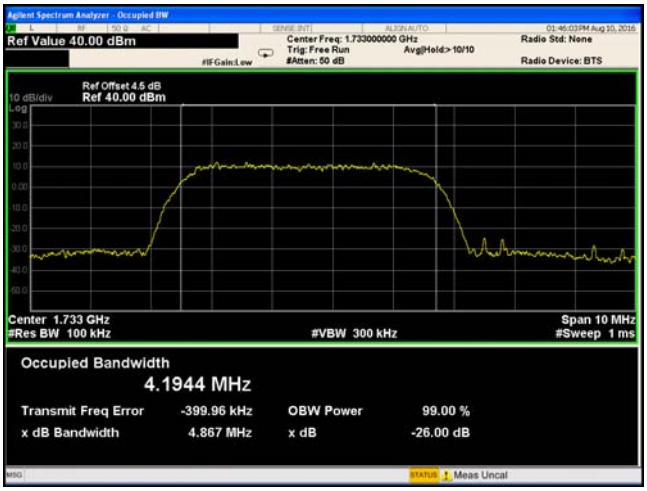
Band V BW - Mid CH 835.0 MHz



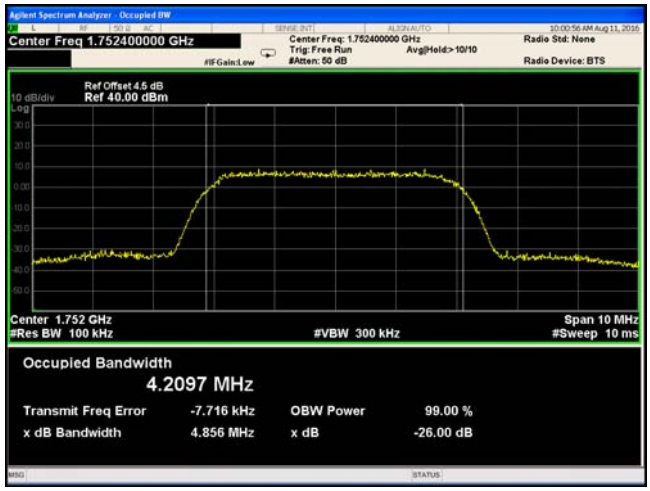
Band V BW - High CH 846.4 MHz



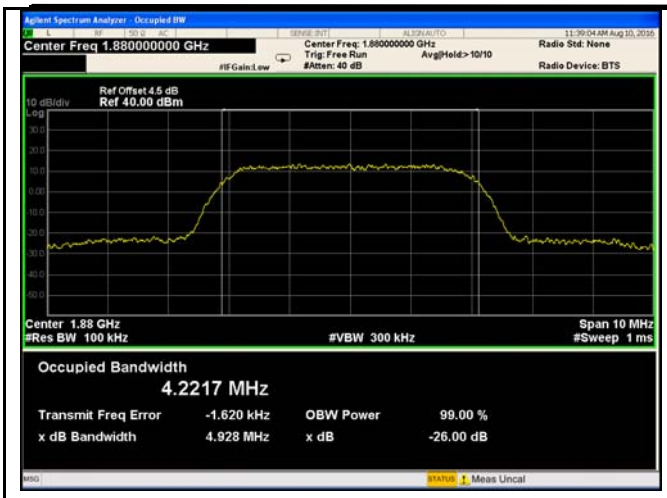
Band IV BW - Low CH 1712.6MHz



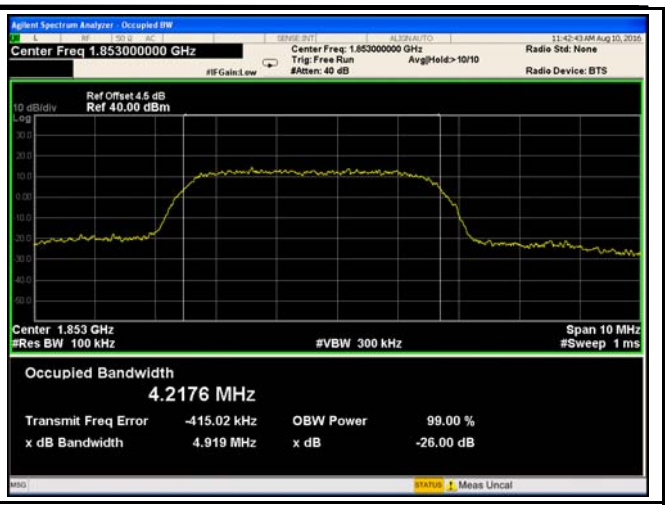
Band IV BW - Mid CH 1732.6MHz



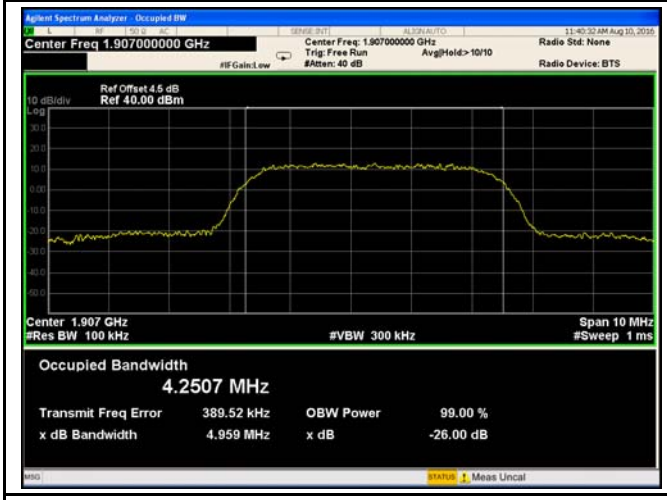
Band IV BW - High CH 1752.4MHz



Band II BW - Low CH 1852.4MHz



Band II BW - Mid CH 1880MHz



Band II BW - High CH 1907.6MHz