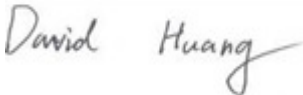


RF TEST REPORT



Report No.: 16071468-FCC-R1

Supersede Report No.: N/A

Applicant	Verykool USA Inc	
Product Name	Mobile Phone	
Model No.	s5035	
Serial No.	N/A	
Test Standard	FCC Part 22(H):2016 ;FCC Part 24(E):2016; FCC Part 27:2016; ANSI/TIA-603-D: 2010	
Test Date	December 23, 2016 to January 09, 2017	
Issue Date	January 10, 2017	
Test Result	☒ Pass ☐ Fail	
Equipment complied with the specification	☒	
Equipment did not comply with the specification	☐	
		
Loren Luo Test Engineer	David Huang Checked By	
This test report may be reproduced in full only 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
16071468-FCC-R1	NONE	Original	January 10, 2017

2. Customer information

Applicant Name	Verykool USA Inc
Applicant Add	3636 Nobel Drive, Suite 325, San Diego, California 92122 United States
Manufacturer	HUAWO TECHNOLOGY LIMITED
Manufacturer Add	3 floor west, B building, New world shopping plaza, Gushu 2nd road, Xixiang street, Baoan District, Shenzhen , China

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:	s5035
Serial Model:	N/A
Date EUT received:	December 22, 2016
Test Date(s):	December 23, 2016 to January 09, 2017
Equipment Category :	PCE
Antenna Gain:	GSM850: -0.6dBi PCS1900: -0.9dBi UMTS-FDD Band V: -0.6dBi UMTS-FDD Band IV: -1.2dBi UMTS-FDD Band II: -1.1dBi WIFI: -1.2dBi Bluetooth/BLE:-1.2dBi GPS: -1.1dBi
Antenna Type:	PIFA antenna
Type of Modulation:	GSM / GPRS: GMSK EGPRS: GMSK UMTS-FDD: QPSK 802.11b/g/n: DSSS, OFDM Bluetooth: GFSK, π /4DQPSK, 8DPSK BLE: GFSK GPS:BPSK

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
 RF Operating Frequency (ies): UMTS-FDD Band II TX: 1852.4 ~ 1907.6 MHz;
 RX: 1932.4 ~ 1987.6 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

 GSM Voice: GSM850: 32.34 dBm
 PCS1900: 29.88 dBm
 GPRS: GSM850: 32.31 dBm
 PCS1900: 29.87 dBm
 EGPRS(MCS1): GSM850: 32.30 dBm
 PCS1900: 29.83 dBm
 Maximum Conducted RMC: UMTS-FDD Band V: 21.88 dBm
 AV Power to Antenna: UMTS-FDD Band II: 21.56 dBm
 UMTS-FDD Band IV: 21.97 dBm
 HSDPA: UMTS-FDD Band V: 20.88 dBm
 UMTS-FDD Band II: 20.59 dBm
 UMTS-FDD Band IV: 20.87 dBm
 HSUPA: UMTS-FDD Band V: 20.88 dBm
 UMTS-FDD Band II: 20.59 dBm
 UMTS-FDD Band IV: 20.90 dBm

	GSM Voce:GSM850: 29.63 dBm / ERP
	PCS1900: 28.98 dBm / EIRP
	GPRS:GSM850: 29.58 dBm / ERP
	PCS1900: 28.97 dBm / EIRP
	EGPRS(MCS1):GSM850: 29.61 dBm / ERP
	PCS1900: 28.93 dBm / EIRP
ERP/EIRP:	RMC:UMTS-FDD Band V: 19.13dBm / ERP
	UMTS-FDD Band II: 20.46 dBm / EIRP
	UMTS-FDD Band IV: 20.77 dBm / EIRP
	HSDPA:UMTS-FDD Band V: 18.13 dBm / ERP
	UMTS-FDD Band II: 19.49 dBm / EIRP
	UMTS-FDD Band IV: 19.67 dBm / EIRP
	HSUPA:UMTS-FDD Band V: 18.13 dBm / ERP
	UMTS-FDD Band II: 19.47 dBm / EIRP
	UMTS-FDD Band IV: 19.70dBm / EIRP
	GSM 850: 124CH
	PCS1900: 299CH
	UMTS-FDD Band V: 102CH
	UMTS-FDD Band IV: 202CH
Number of Channels:	UMTS-FDD Band II: 277CH
	WIFI :802.11b/g/n(20M): 11CH
	WIFI :802.11n(40M): 7CH
	Bluetooth: 79CH
	BLE: 40CH
	GPS:1CH
Port:	USB Port, Earphone Port
	Adapter:
	Model: QU050100
	Input: AC100-240V~50/60Hz,0.2A
	Output: DC 5.0V,1000mA
Input Power:	Battery:
	Model:316083
	Spec: 3.8V,2050mAh,7.79Wh
	Limited charger voltage: 4.35V

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Trade Name : verykool

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

FCC ID: WA6S5035

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;

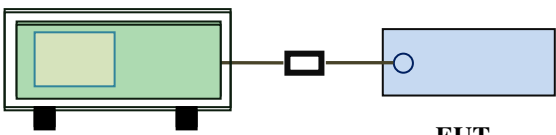
Please refer to RF Exposure Evaluation Report: 16071468-FCC-H.

6.2 RF Output Power

Temperature	21°C
Relative Humidity	53%
Atmospheric Pressure	1010mbar
Test date :	January 03, 2017
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	 The diagram illustrates the test setup. On the left, a green rectangular box represents the 'Base Station'. A red line, representing a cable, connects the Base Station to a blue rectangular box on the right, which is labeled 'EUT'. A small black square is located on the red line between the Base Station and the EUT.
------------	---

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
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	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 = $10 \log (\text{TX power in Watts}/0.001)$ – the absolute level - Spurious attenuation limit in dB = $43 + 10 \text{ Log}_{10} (\text{power out in Watts})$.
Remark	
Result	☒ Pass ☐ Fail

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

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	32.26	32.29	32.34	32±1	29.57	29.81	29.88	30±1
GPRS Multi-Slot Class 8 (1 uplink),GMSK	32.26	32.29	32.31	32±1	29.52	29.77	29.87	30±1
GPRS Multi-Slot Class 10 (2 uplink) GMSK	31.76	31.78	31.80	31.5±1	29.12	29.08	29.13	29±1
GPRS Multi-Slot Class 12 (4 uplink) GMSK	28.93	28.93	28.89	28.5±1	25.35	25.68	25.67	25±1
EGPRS Multi-Slot Class 8 (1 uplink) GMSK MCS1	32.22	32.25	32.30	32±1	29.49	29.73	29.83	29±1
EGPRS Multi-Slot Class 10 (2 uplink) GMSK MCS1	31.73	31.76	31.75	31.5±1	29.10	29.05	29.11	29±1
EGPRS Multi-Slot Class 12 (4 uplink) GMSK MCS1	28.90	28.91	28.88	28.5±1	25.33	25.66	25.65	25.5±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	21.88	21.3±1
	4175	835	21.65	21.3±1
	4233	846.6	21.58	21.3±1
HSDPA Subtest1	4132	826.4	20.61	21.3±1
	4175	835	20.62	21.3±1
	4233	846.6	20.64	21.3±1
HSDPA Subtest2	4132	826.4	20.78	21.3±1
	4175	835	20.73	21.3±1
	4233	846.6	20.77	21.3±1
HSDPA Subtest3	4132	826.4	20.60	21.3±1
	4175	835	20.68	21.3±1
	4233	846.6	20.71	21.3±1
HSDPA Subtest4	4132	826.4	20.88	21.3±1
	4175	835	20.86	21.3±1
	4233	846.6	20.86	21.3±1
HSUPA Subtest1	4132	826.4	20.79	21.3±1
	4175	835	20.73	21.3±1
	4233	846.6	20.75	21.3±1
HSUPA Subtest2	4132	826.4	20.82	21.3±1
	4175	835	20.86	21.3±1
	4233	846.6	20.81	21.3±1
HSUPA Subtest3	4132	826.4	20.88	21.3±1
	4175	835	20.87	21.3±1
	4233	846.6	20.85	21.3±1
HSUPA Subtest4	4132	826.4	20.72	21.3±1
	4175	835	20.77	21.3±1
	4233	846.6	20.74	21.3±1
HSUPA Subtest5	4132	826.4	20.86	21.3±1
	4175	835	20.84	21.3±1
	4233	846.6	20.80	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	21.56	21.3±1
	9400	1880	21.31	21.3±1
	9538	1907.6	21.52	21.3±1
HSDPA Subtest1	9262	1852.4	20.48	21.3±1
	9400	1880	20.49	21.3±1
	9538	1907.6	20.42	21.3±1
HSDPA Subtest2	9262	1852.4	20.52	21.3±1
	9400	1880	20.48	21.3±1
	9538	1907.6	20.52	21.3±1
HSDPA Subtest3	9262	1852.4	20.42	21.3±1
	9400	1880	20.48	21.3±1
	9538	1907.6	20.43	21.3±1
HSDPA Subtest4	9262	1852.4	20.59	21.3±1
	9400	1880	20.54	21.3±1
	9538	1907.6	20.51	21.3±1
HSUPA Subtest1	9262	1852.4	20.44	21.3±1
	9400	1880	20.43	21.3±1
	9538	1907.6	20.45	21.3±1
HSUPA Subtest2	9262	1852.4	20.59	21.3±1
	9400	1880	20.56	21.3±1
	9538	1907.6	20.53	21.3±1
HSUPA Subtest3	9262	1852.4	20.47	21.3±1
	9400	1880	20.49	21.3±1
	9538	1907.6	20.53	21.3±1
HSUPA Subtest4	9262	1852.4	20.43	21.3±1
	9400	1880	20.47	21.3±1
	9538	1907.6	20.49	21.3±1
HSUPA Subtest5	9262	1852.4	20.53	21.3±1
	9400	1880	20.55	21.3±1
	9538	1907.6	20.57	21.3±1

UMTS-FDD Band IV

Band/ Time Slot configuration	Channel	Frequency	Average power (dBm)	Tune up Power tolerant
RMC 12.2kbps	1313	1712.6	21.85	21.3±1
	1413	1732.6	21.97	21.3±1
	1512	1752.4	21.71	21.3±1
HSDPA Subtest1	1313	1712.6	20.80	21.3±1
	1413	1732.6	20.82	21.3±1
	1512	1752.4	20.79	21.3±1
HSDPA Subtest2	1313	1712.6	20.81	21.3±1
	1413	1732.6	20.87	21.3±1
	1512	1752.4	20.84	21.3±1
HSDPA Subtest3	1313	1712.6	20.60	21.3±1
	1413	1732.6	20.69	21.3±1
	1512	1752.4	20.61	21.3±1
HSDPA Subtest4	1313	1712.6	20.79	21.3±1
	1413	1732.6	20.77	21.3±1
	1512	1752.4	20.72	21.3±1
HSUPA Subtest1	1313	1712.6	20.89	21.3±1
	1413	1732.6	20.86	21.3±1
	1512	1752.4	20.84	21.3±1
HSUPA Subtest2	1313	1712.6	20.70	21.3±1
	1413	1732.6	20.59	21.3±1
	1512	1752.4	20.75	21.3±1
HSUPA Subtest3	1313	1712.6	20.82	21.3±1
	1413	1732.6	20.88	21.3±1
	1512	1752.4	20.90	21.3±1
HSUPA Subtest4	1313	1712.6	20.73	21.3±1
	1413	1732.6	20.72	21.3±1
	1512	1752.4	20.75	21.3±1
HSUPA Subtest5	1313	1712.6	20.88	21.3±1
	1413	1732.6	20.80	21.3±1
	1512	1752.4	20.89	21.3±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	23.24	V	6.8	0.53	29.51	38.45
824.2	21.41	H	6.8	0.53	27.68	38.45
836.6	23.29	V	6.8	0.53	29.56	38.45
836.6	21.46	H	6.8	0.53	27.73	38.45
848.8	23.26	V	6.9	0.53	29.63	38.45
848.8	21.44	H	6.9	0.53	27.81	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	21.64	V	7.88	0.85	28.67	33
1850.2	19.76	H	7.88	0.85	26.79	33
1880	21.88	V	7.88	0.85	28.91	33
1880	20.05	H	7.88	0.85	27.08	33
1909.8	21.97	V	7.86	0.85	28.98	33
1909.8	20.12	H	7.86	0.85	27.13	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	23.22	V	6.8	0.53	29.49	38.45
824.2	21.39	H	6.8	0.53	27.66	38.45
836.6	23.27	V	6.8	0.53	29.54	38.45
836.6	21.44	H	6.8	0.53	27.71	38.45
848.8	23.21	V	6.9	0.53	29.58	38.45
848.8	21.38	H	6.9	0.53	27.75	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	21.59	V	7.88	0.85	28.62	33
1850.2	19.73	H	7.88	0.85	26.76	33
1880	21.84	V	7.88	0.85	28.87	33
1880	19.96	H	7.88	0.85	26.99	33
1909.8	21.96	V	7.86	0.85	28.97	33
1909.8	20.11	H	7.86	0.85	27.12	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	23.18	V	6.8	0.53	29.45	38.45
824.2	21.35	H	6.8	0.53	27.62	38.45
836.6	23.27	V	6.8	0.53	29.54	38.45
836.6	21.44	H	6.8	0.53	27.71	38.45
848.8	23.24	V	6.9	0.53	29.61	38.45
848.8	21.41	H	6.9	0.53	27.78	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	21.56	V	7.88	0.85	28.59	33
1850.2	19.61	H	7.88	0.85	26.64	33
1880	21.8	V	7.88	0.85	28.83	33
1880	19.92	H	7.88	0.85	26.95	33
1909.8	21.92	V	7.86	0.85	28.93	33
1909.8	20.05	H	7.86	0.85	27.06	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	12.86	V	6.8	0.53	19.13	38.45
826.4	11.98	H	6.8	0.53	18.25	38.45
835	12.67	V	6.8	0.53	18.94	38.45
835	11.76	H	6.8	0.53	18.03	38.45
846.6	12.49	V	6.9	0.53	18.86	38.45
846.6	11.59	H	6.9	0.53	17.96	38.45

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	13.43	V	7.88	0.85	20.46	33
1852.4	12.5	H	7.88	0.85	19.53	33
1880	13.18	V	7.88	0.85	20.21	33
1880	12.31	H	7.88	0.85	19.34	33
1907.6	13.41	V	7.86	0.85	20.42	33
1907.6	12.48	H	7.86	0.85	19.49	33

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

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	13.71	V	7.76	0.82	20.65	30
1712.4	12.49	H	7.76	0.82	19.43	30
1740	13.83	V	7.76	0.82	20.77	30
1740	12.63	H	7.76	0.82	19.57	30
1752.6	13.59	V	7.74	0.82	20.51	30
1752.6	12.46	H	7.74	0.82	19.38	30

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	11.86	V	6.8	0.53	18.13	38.45
826.4	10.99	H	6.8	0.53	17.26	38.45
835	11.84	V	6.8	0.53	18.11	38.45
835	10.97	H	6.8	0.53	17.24	38.45
846.6	11.72	V	6.9	0.53	18.09	38.45
846.6	10.84	H	6.9	0.53	17.21	38.45

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	12.46	V	7.88	0.85	19.49	33
1852.4	11.53	H	7.88	0.85	18.56	33
1880	12.41	V	7.88	0.85	19.44	33
1880	11.49	H	7.88	0.85	18.52	33
1907.6	12.41	V	7.86	0.85	19.42	33
1907.6	11.5	H	7.86	0.85	18.51	33

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

Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	12.67	V	7.76	0.82	19.61	30
1712.4	11.79	H	7.76	0.82	18.73	30
1740	12.73	V	7.76	0.82	19.67	30
1740	11.85	H	7.76	0.82	18.79	30
1752.6	12.72	V	7.74	0.82	19.64	30
1752.6	11.84	H	7.74	0.82	18.76	30

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	11.86	V	6.8	0.53	18.13	38.45
826.4	10.98	H	6.8	0.53	17.25	38.45
835	11.85	V	6.8	0.53	18.12	38.45
835	10.92	H	6.8	0.53	17.19	38.45
846.6	11.69	V	6.9	0.53	18.06	38.45
846.6	10.76	H	6.9	0.53	17.13	38.45

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	12.4	V	7.88	0.85	19.43	33
1852.4	11.48	H	7.88	0.85	18.51	33
1880	12.43	V	7.88	0.85	19.46	33
1880	11.51	H	7.88	0.85	18.54	33
1907.6	12.46	V	7.86	0.85	19.47	33
1907.6	11.54	H	7.86	0.85	18.55	33

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

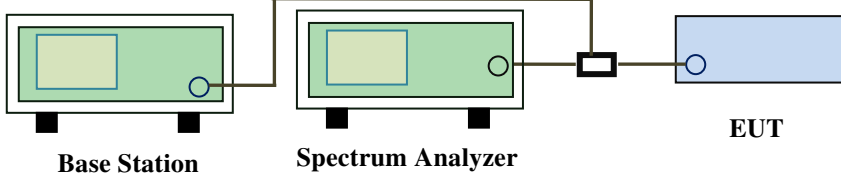
Frequency (MHz)	Substituted level (dBm)	Antenna Polarization	Antenna Gain correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)
1712.4	12.75	V	7.76	0.82	19.69	30
1712.4	11.87	H	7.76	0.82	18.81	30
1740	12.74	V	7.76	0.82	19.68	30
1740	11.86	H	7.76	0.82	18.80	30
1752.6	12.78	V	7.74	0.82	19.70	30
1752.6	11.9	H	7.74	0.82	18.82	30

6.3 Peak-Average Ratio

Temperature	21°C
Relative Humidity	53%
Atmospheric Pressure	1010mbar
Test date :	January 03, 2017
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 13 dB.	☒

Test Setup	 The diagram illustrates the test setup. On the left is a green box labeled 'Base Station'. A cable connects its output to the input of a green box labeled 'Spectrum Analyzer'. Another cable connects the output of the 'Spectrum Analyzer' to a blue box labeled 'EUT' (Equipment Under Test).
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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 $\geq 98\%$) and at all times the EUT is transmitting at its maximum output
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	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 $10\log(1/\text{duty cycle})$
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	30.53	29.57	0.96
1880	30.48	29.81	0.67
1909.8	30.62	29.88	0.74

GPRS 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.32	29.52	0.80
1880	30.41	29.77	0.64
1909.8	30.44	29.87	0.57

EGPRS (MSC1) 1900 PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1850.2	30.11	29.49	0.62
1880	30.25	29.73	0.52
1909.8	30.19	29.83	0.36

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

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	21.92	21.56	0.36
1880	21.64	21.31	0.33
1907.6	21.78	21.52	0.26

UMTS-FDD Band IV PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1713	22.28	21.85	0.43
1733	22.22	21.97	0.25
1752	21.94	21.71	0.23

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

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	21.06	20.44	0.62
1880	21.02	20.43	0.59
1907.6	21.13	20.45	0.68

UMTS-FDD Band IV PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1713	21.44	20.89	0.55
1733	21.48	20.86	0.62
1752	21.43	20.84	0.59

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

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1852.4	21.03	20.48	0.55
1880	21.08	20.49	0.59
1907.6	21.11	20.42	0.69

UMTS-FDD Band IV PK-AV POWER (PART 24E)

Frequency (MHz)	Conducted power(dBm)		Peak-Average Ratio(PAR)
	Peak	Average	
1713	21.13	20.80	0.33
1733	21.15	20.82	0.33
1752	21.21	20.79	0.42

6.4 Occupied Bandwidth

Temperature	23°C
Relative Humidity	52%
Atmospheric Pressure	1020mbar
Test date :	December 27, 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	Base Station Spectrum Analyzer EUT		
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	244.46	316.2
190	836.6	243.09	316.9
251	848.8	245.22	317.0

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	244.27	316.9
661	1880.0	249.54	317.4
810	1909.8	244.90	316.9

GPRS:

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	245.08	315.8
190	836.6	246.47	318.5
251	848.8	243.25	317.5

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	246.87	316.4
661	1880.0	245.71	316.7
810	1909.8	245.08	316.1

EGPRS (MCS 1):

Cellular Band (Part 22H) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
128	824.2	246.29	316.2
190	836.6	245.12	315.0
251	848.8	243.79	314.4

PCS Band (Part 24E) result

Channel	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
512	1850.2	245.57	316.2
661	1880.0	243.63	316.5
810	1909.8	247.72	315.1

RMC:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.1343	4.670
4175	835.0	4.1538	4.676
4233	846.6	4.1521	4.684

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1596	4.671
9400	1880.0	4.1512	4.683
9538	1907.6	4.1633	4.670

UMTS-FDD Band IV (Part 27)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1713	4.1637	4.681
1413	1733	4.1602	4.673
1512	1752	4.1526	4.677

HSDPA:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.6	4.1424	4.672
4175	835.0	4.1488	4.671
4233	846.6	4.1307	4.681

UMTS-FDD Band II (Part 24E)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1540	4.664
9400	1880.0	4.1577	4.668
9538	1907.6	4.1564	4.671

UMTS-FDD Band IV (Part 27)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1713	4.1575	4.666
1413	1733	4.1579	4.681
1512	1752	4.1575	4.655

HSUPA:

UMTS-FDD Band V (Part 22H)

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
4132	826.4	4.1415	4.672
4175	835.0	4.1535	4.672
4233	846.6	4.1376	4.683

UMTS-FDD Band II (Part 24E)

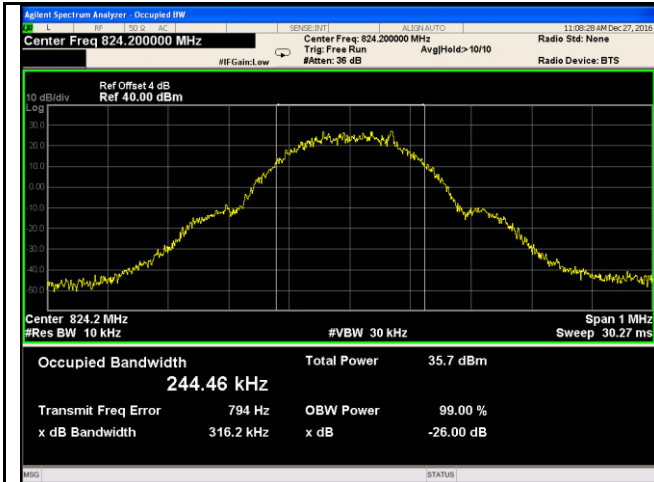
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
9262	1852.4	4.1615	4.674
9400	1880.0	4.1552	4.655
9538	1907.6	4.1638	4.676

UMTS-FDD Band IV (Part 27)

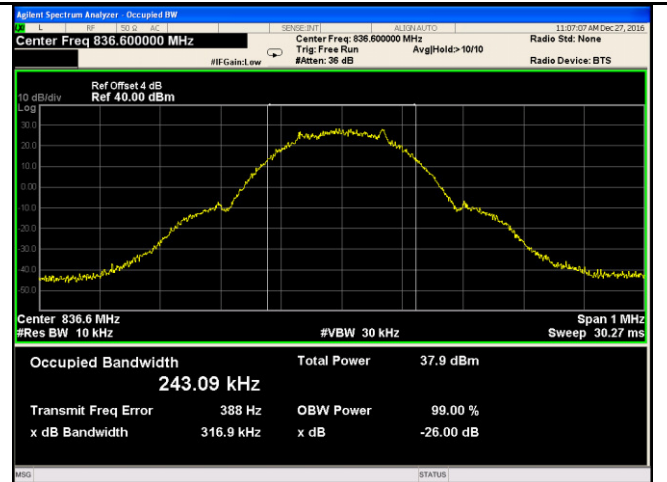
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
1313	1713	4.1573	4.687
1413	1733	4.1558	4.676
1512	1752	4.1515	4.670

Test Plots

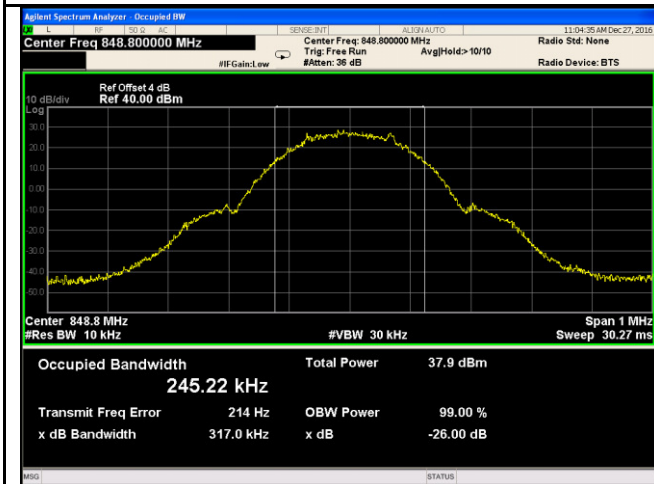
GMS Voice:



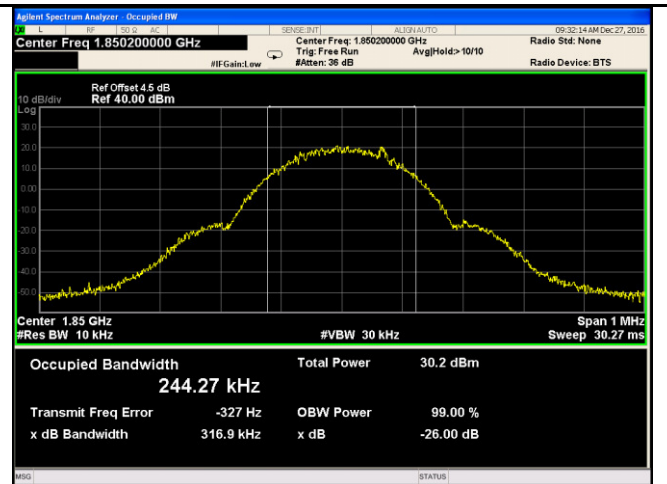
GSM 850 BW - Low CH 824.2MHz



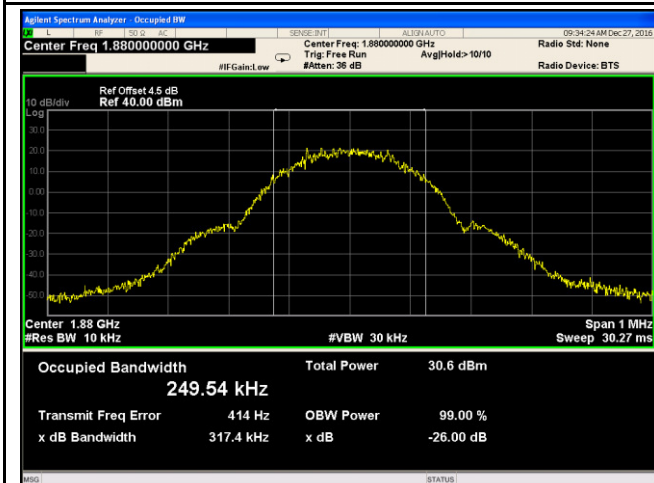
GSM 850 BW - Mid CH 836.6MHz



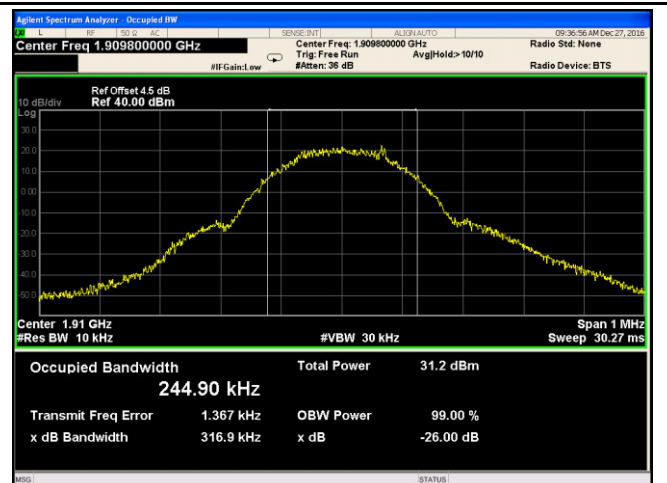
GSM 850 BW - High CH 848.8MHz



PCS 1900 BW - Low CH 1850.2MHz

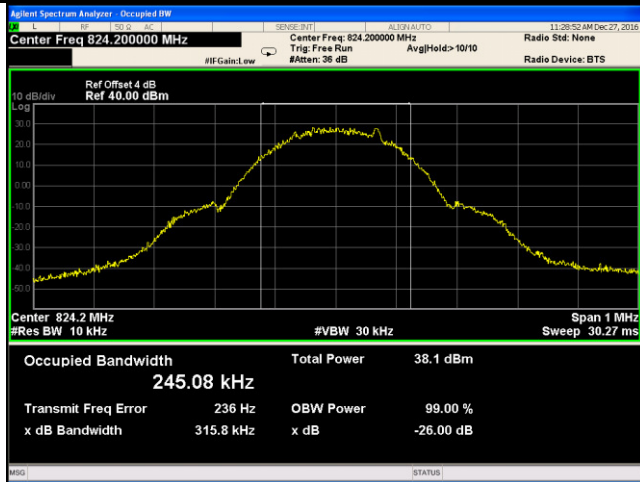


PCS 1900 BW - Mid CH 1880MHz

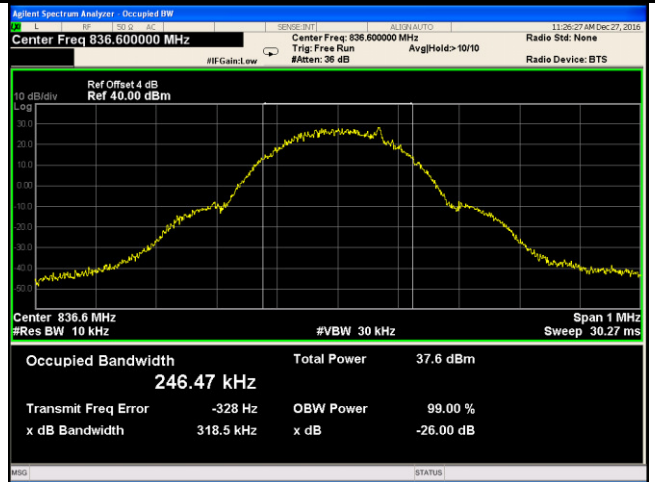


PCS 1900 BW - High CH 1910MHz

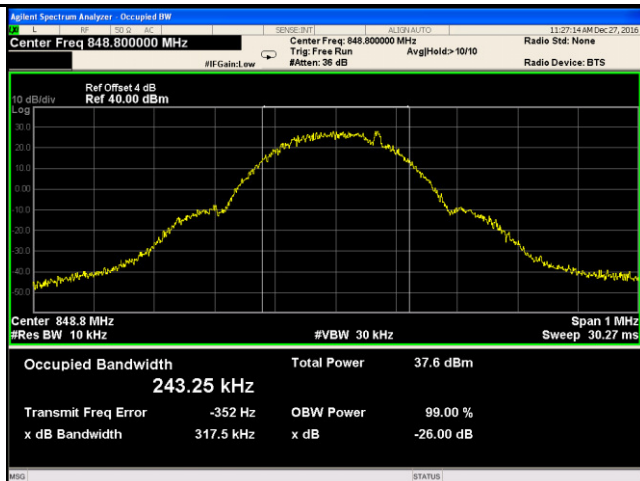
GPRS:



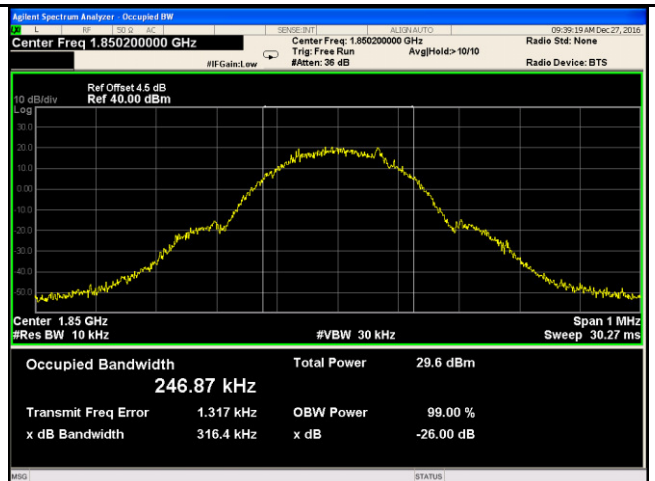
GSM 850 BW - Low CH 824.2MHz



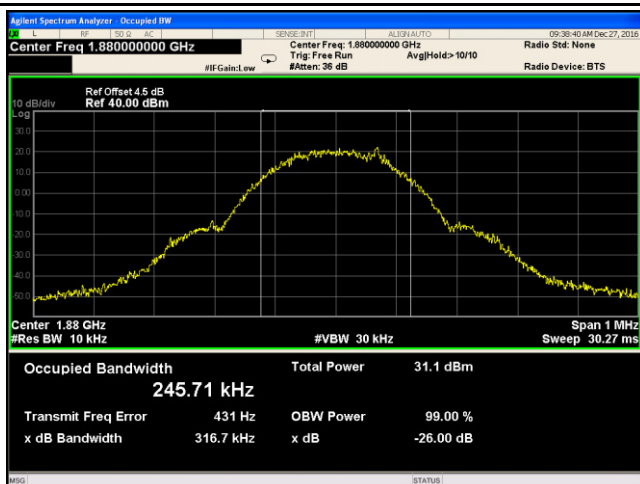
GSM 850 BW - Mid CH 836.6MHz



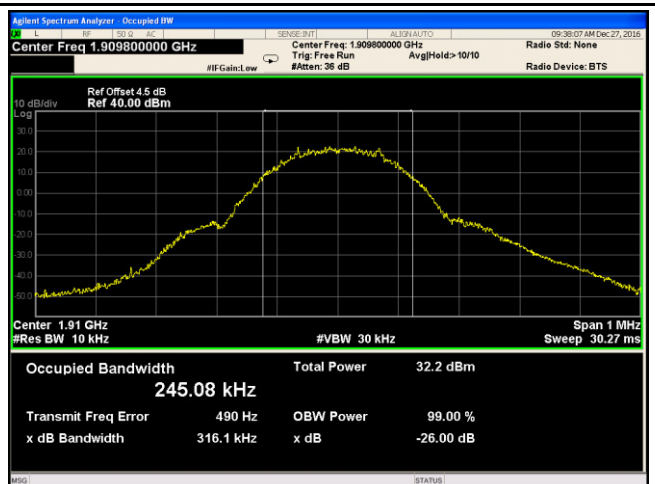
GSM 850 BW - High CH 848.8MHz



PCS 1900 BW - Low CH 1850.2MHz

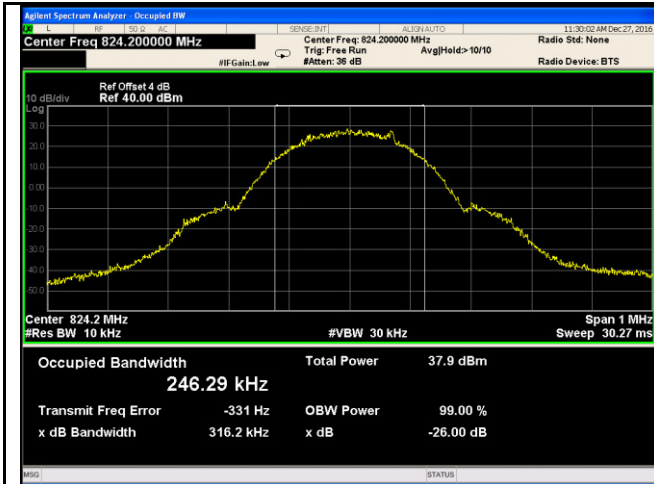


PCS 1900 BW - Mid CH 1880MHz

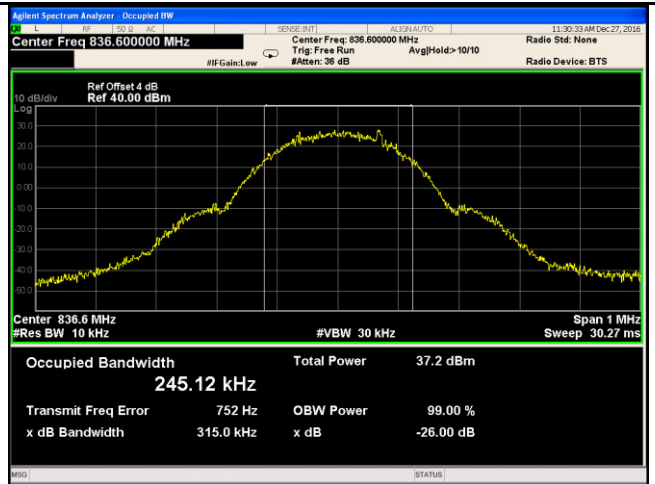


PCS 1900 BW - High CH 1910MHz

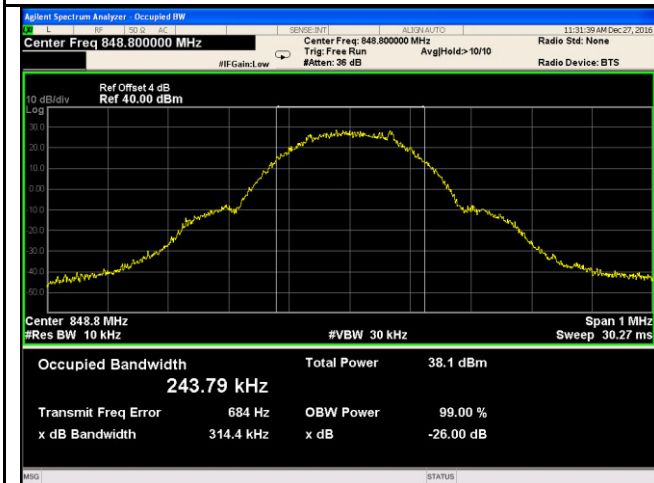
EGPRS:



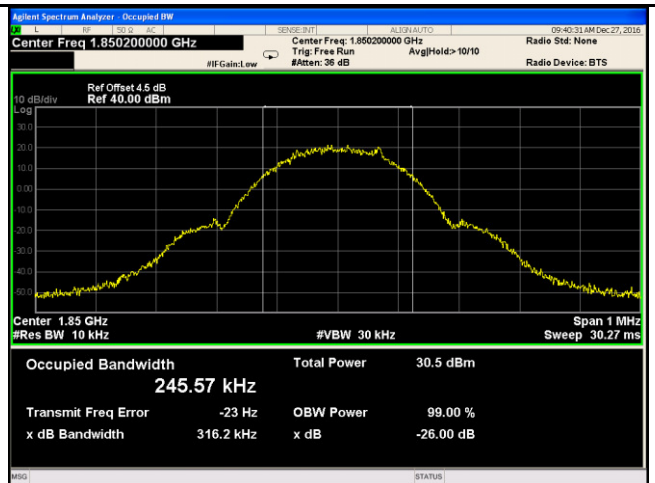
GSM 850 BW - Low CH 824.2MHz



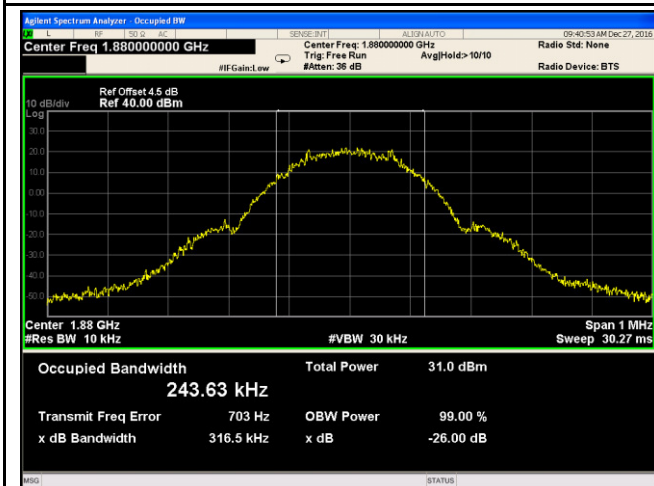
GSM 850 BW - Mid CH 836.6MHz



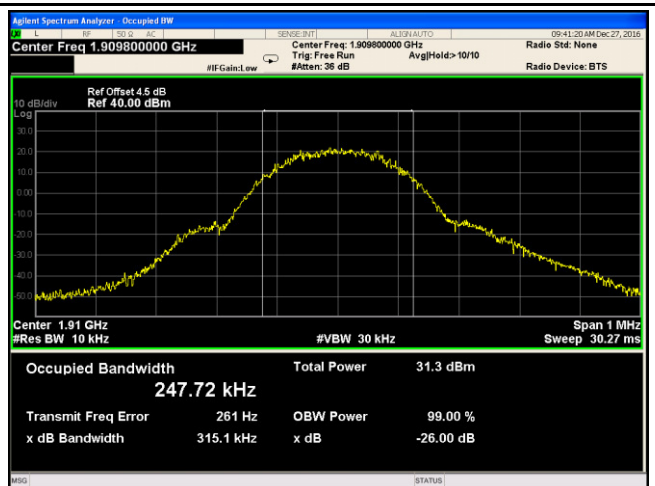
GSM 850 BW - High CH 848.8MHz



PCS 1900 BW - Low CH 1850.2MHz

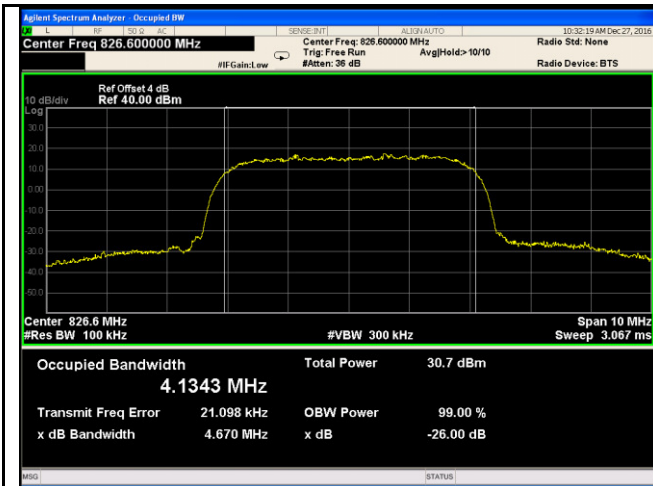


PCS 1900 BW - Mid CH 1880MHz

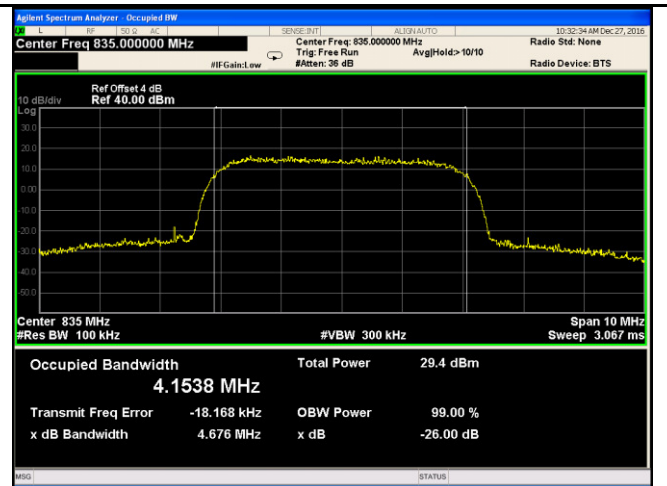


PCS 1900 BW - High CH 1910MHz

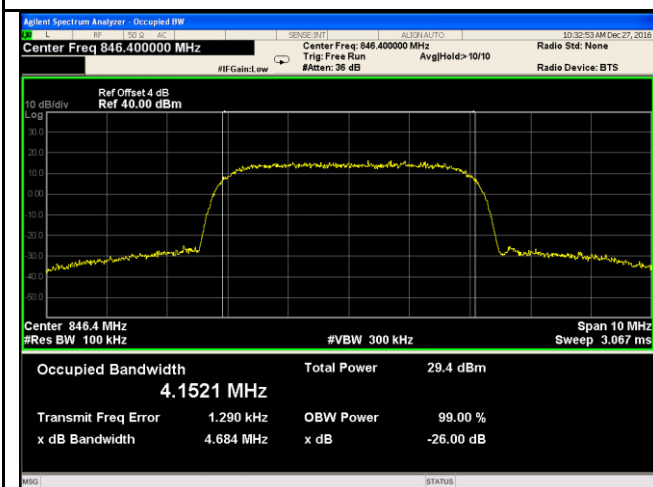
RMC:



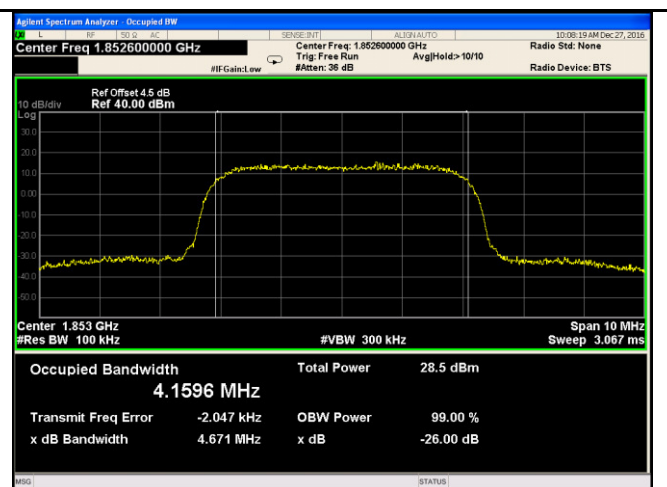
Band V BW - Low CH 826.6 MHz



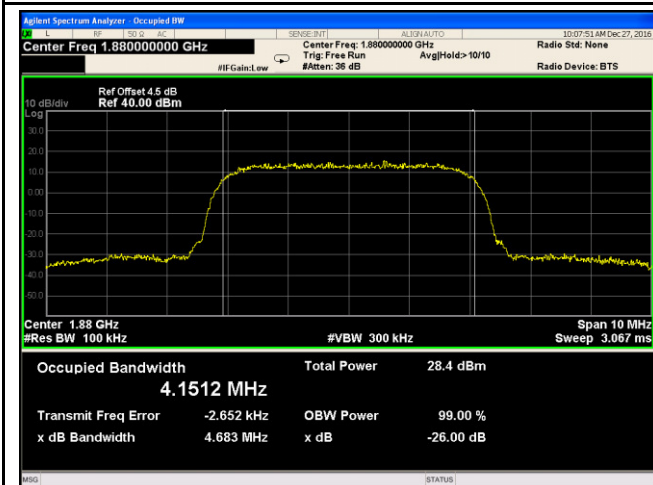
Band V BW - Mid CH 835.0 MHz



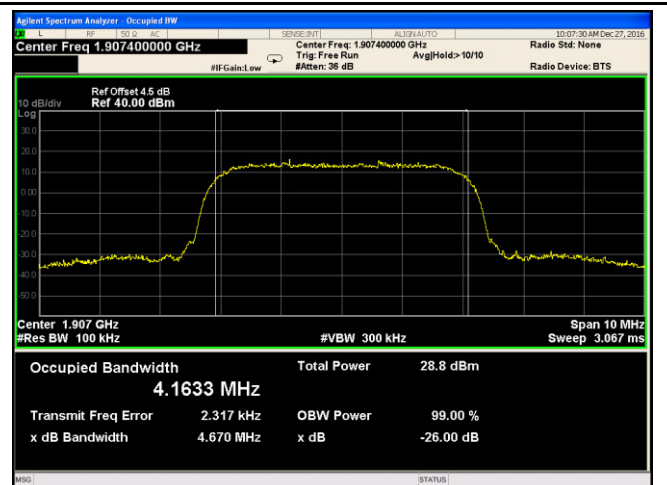
Band V BW - High CH 846.6 MHz



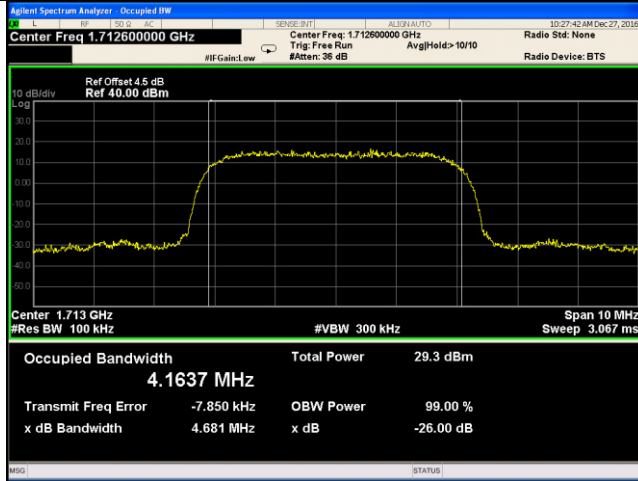
Band II BW - Low CH 1853MHz



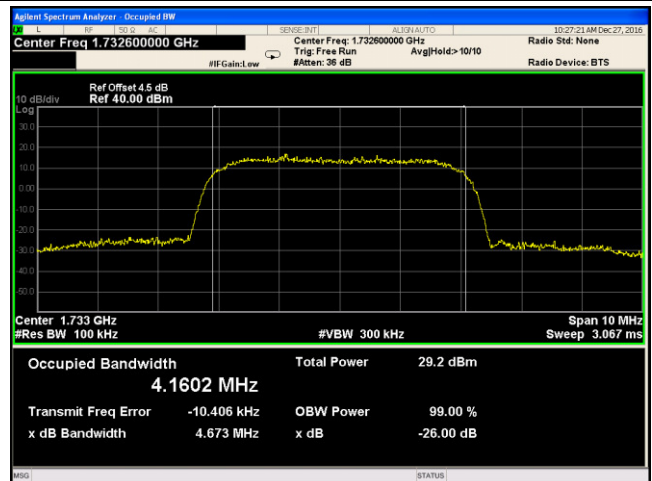
Band II BW - Mid CH 1880MHz



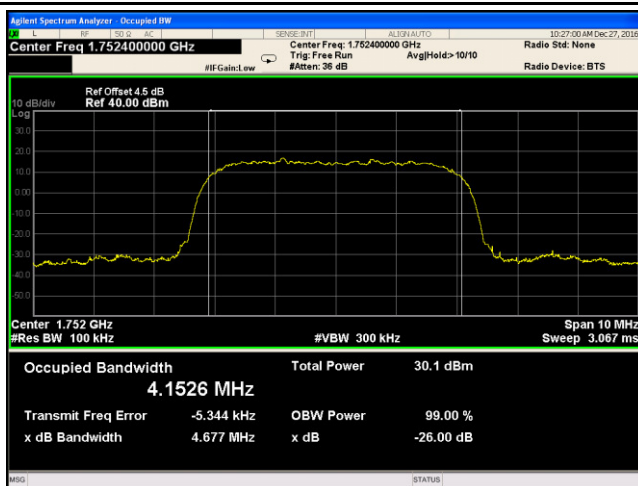
Band II BW - High CH 1907MHz



Band IV BW - Low CH 1713MHz

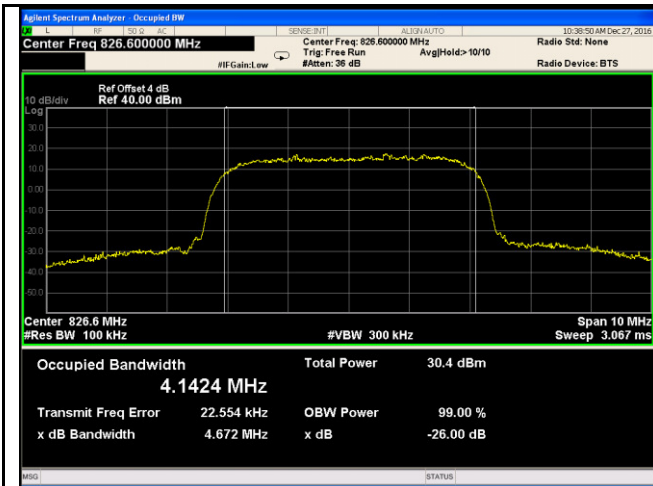


Band IVBW - Mid CH 1733MHz

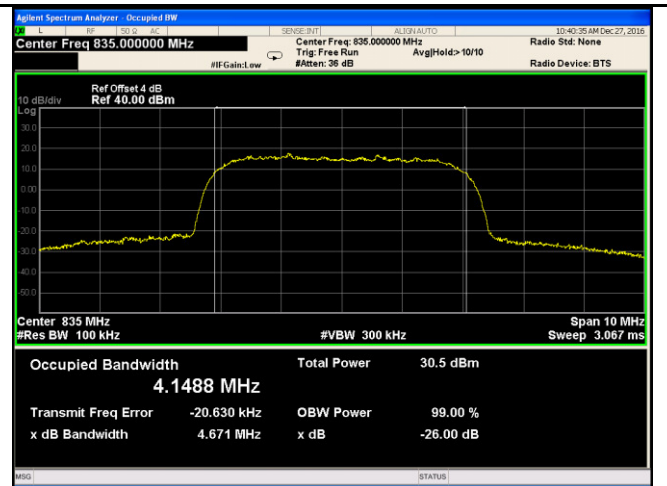


Band IV BW - High CH 1752MHz

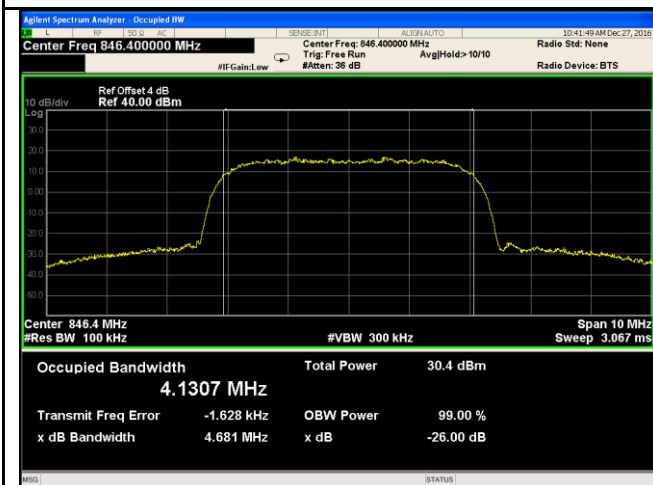
HSDPA:



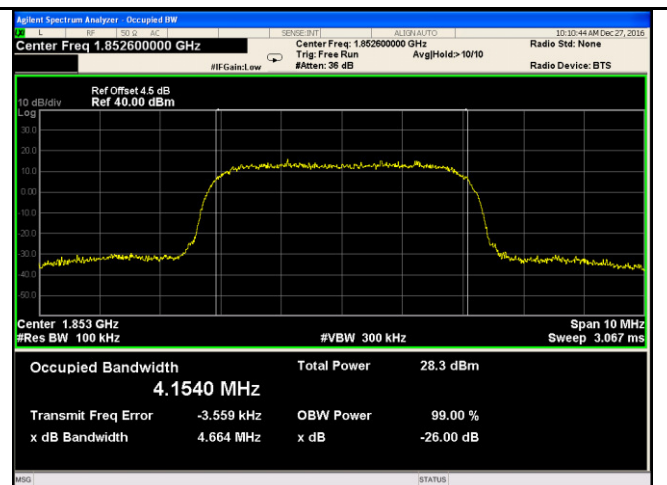
Band V BW - Low CH 826.6 MHz



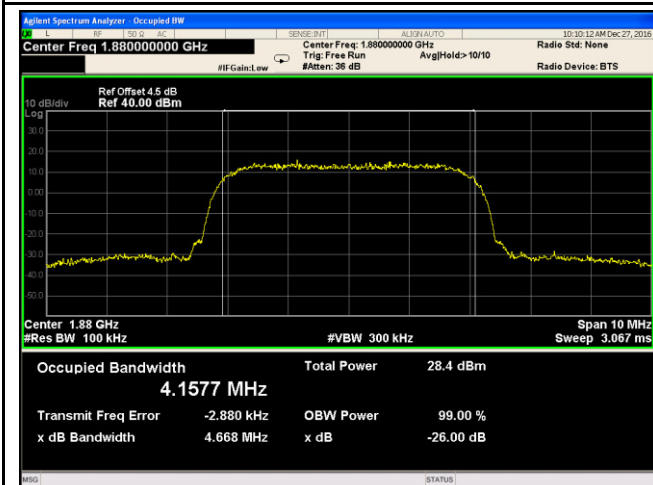
Band V BW - Mid CH 835.0 MHz



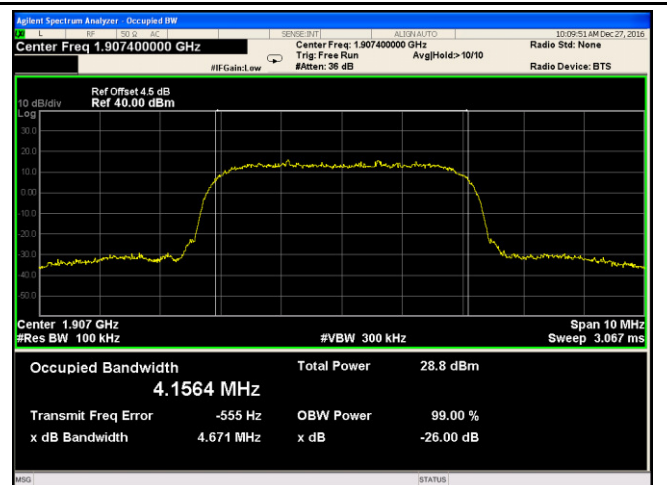
Band V BW - High CH 846.4 MHz



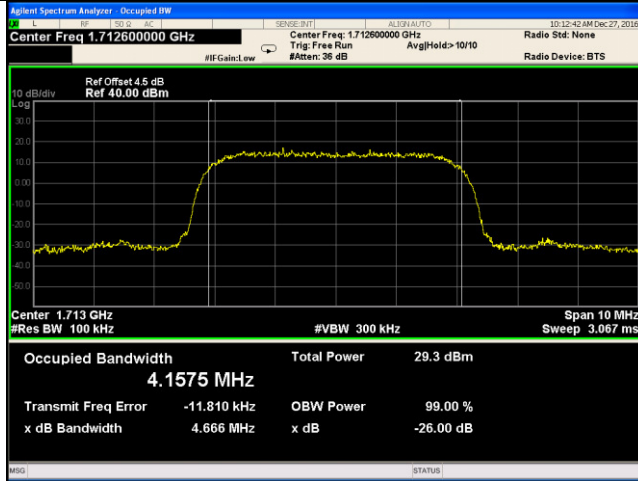
Band II BW - Low CH 1852.4MHz



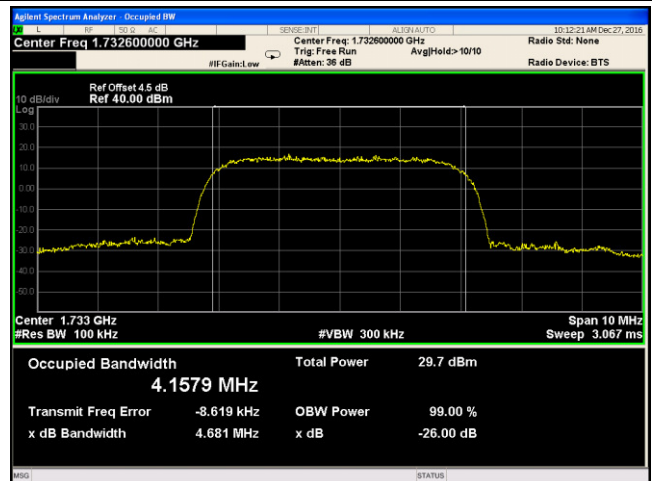
Band II BW - Mid CH 1880MHz



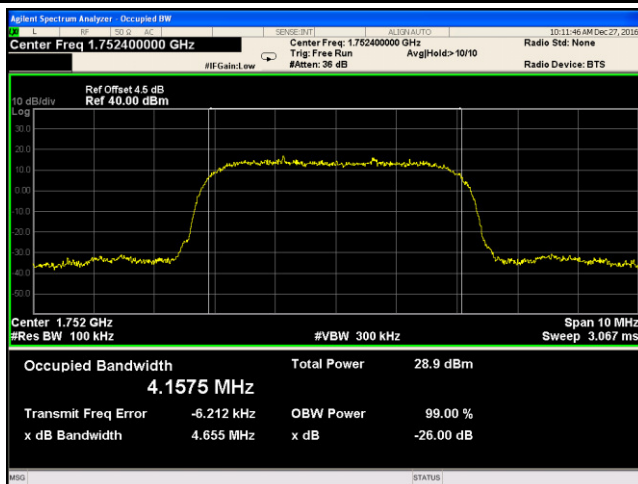
Band II BW - High CH 1907MHz



Band IV BW - Low CH 1713MHz

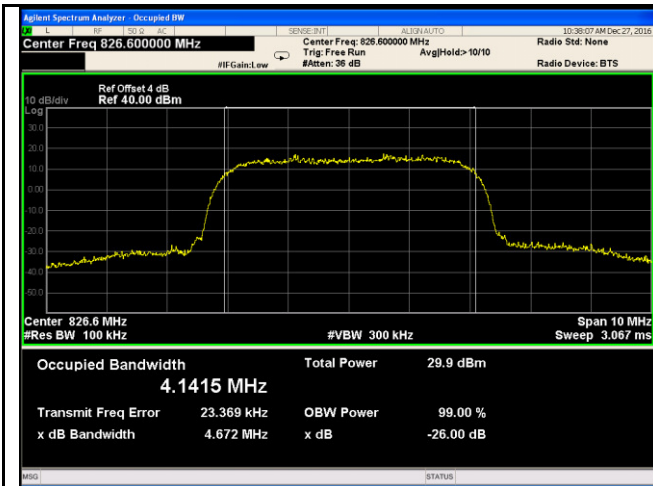


Band IVBW - Mid CH 1733MHz

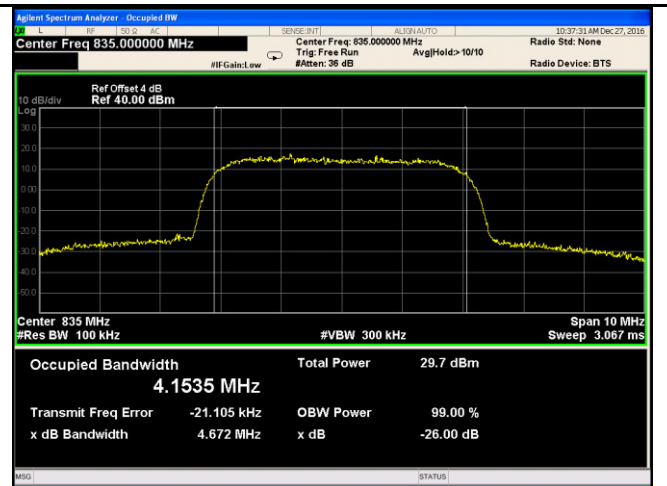


Band IV BW - High CH 1752MHz

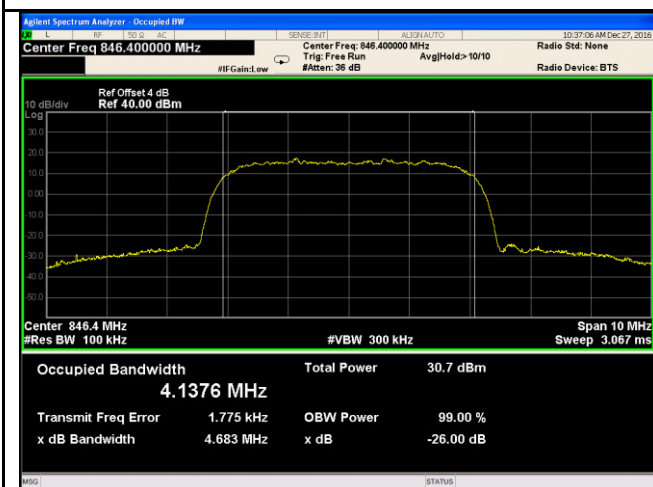
HSUPA:



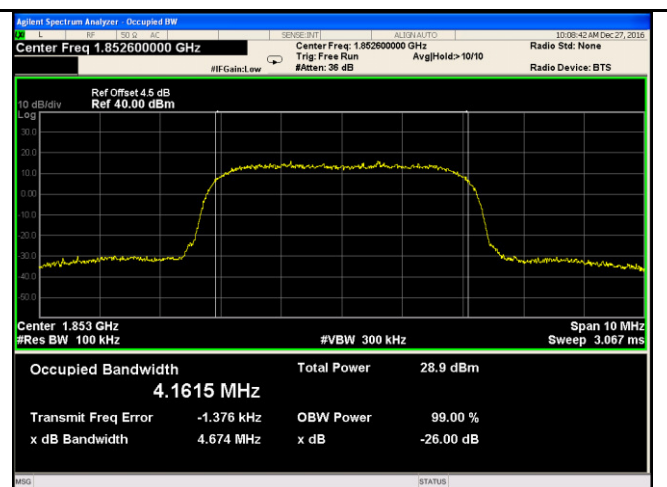
Band V BW - Low CH 826.6 MHz



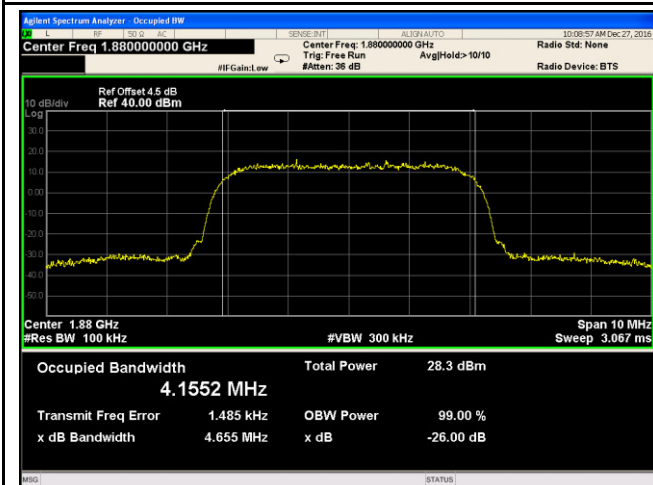
Band V BW - Mid CH 835.0 MHz



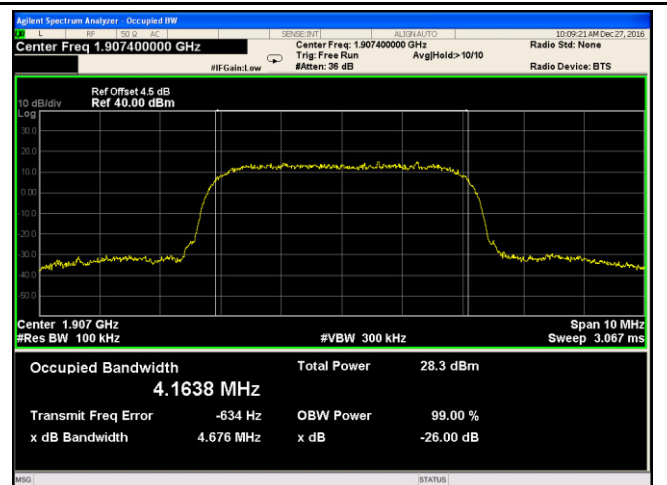
Band V BW - High CH 846.4 MHz



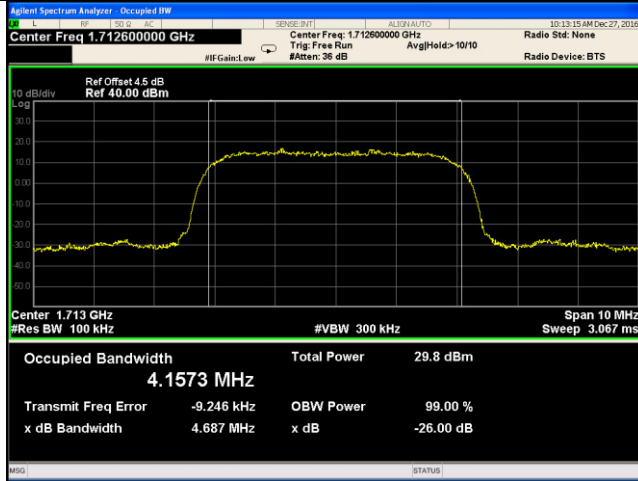
Band II BW - Low CH 1853MHz



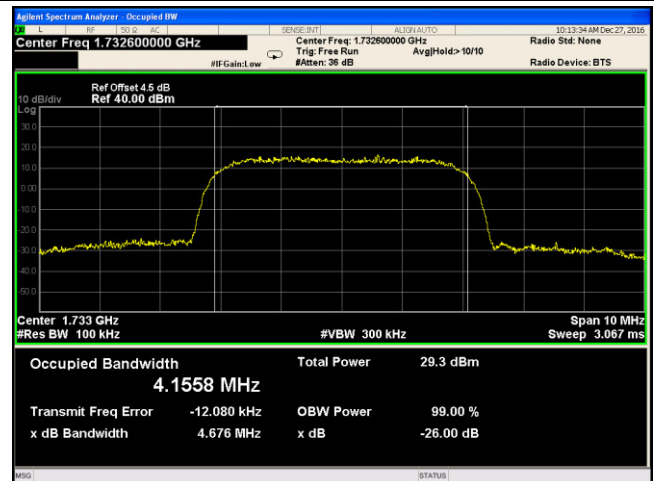
Band II BW - Mid CH 1880MHz



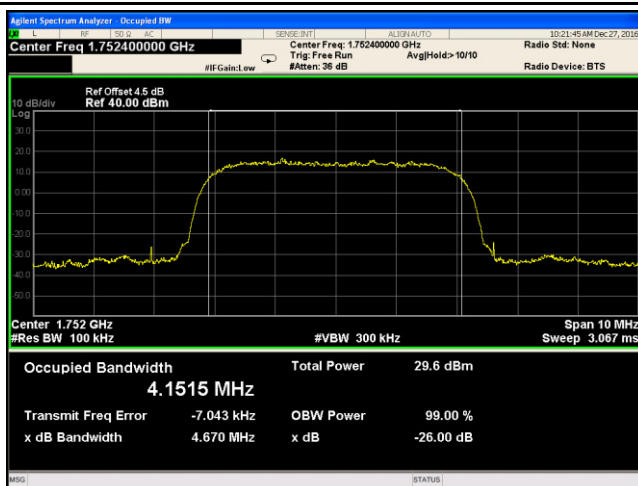
Band II BW - High CH 1907MHz



Band IV BW - Low CH 1713MHz



Band IVBW - Mid CH 1733MHz



Band IV BW - High CH 1752MHz

6.5 Spurious Emissions at Antenna Terminals

Temperature	23°C
Relative Humidity	52%
Atmospheric Pressure	1020mbar
Test date :	December 27, 2016
Tested By :	Loren Luo

Requirement(s):

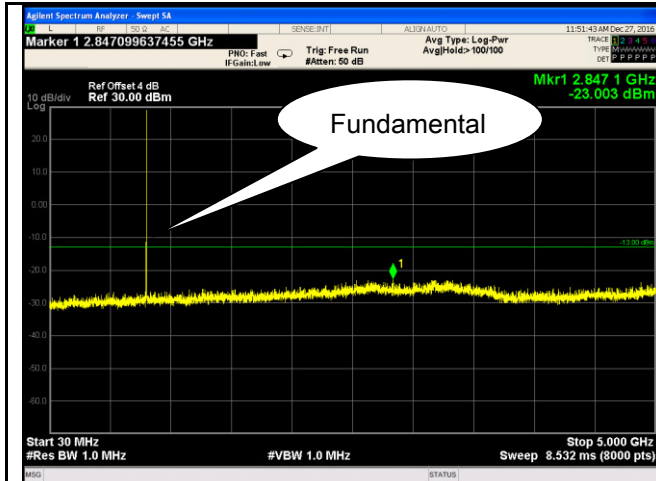
Spec	Item	Requirement	Applicable
§2.1051, §22.917(a)& §24.238(a) § 27.53(h)	a)	The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB	☒
Test Setup	Base Station Spectrum Analyzer EUT		
Test Procedure	- The EUT was connected to Spectrum Analyzer and Base Station via power divider. - The Band Edges of low and high channels for the highest RF powers were measured. - Setting RBW as roughly BW/100.		
Remark			
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A
 Test Plot ☒ Yes (See below) ☐ N/A

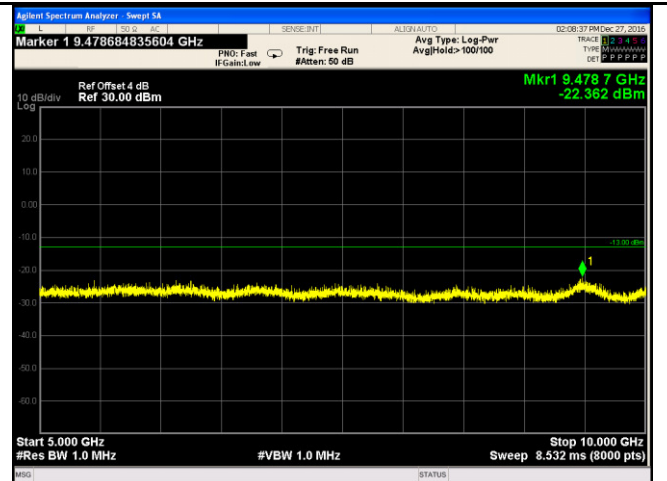
Test Plots

GSM Voice:

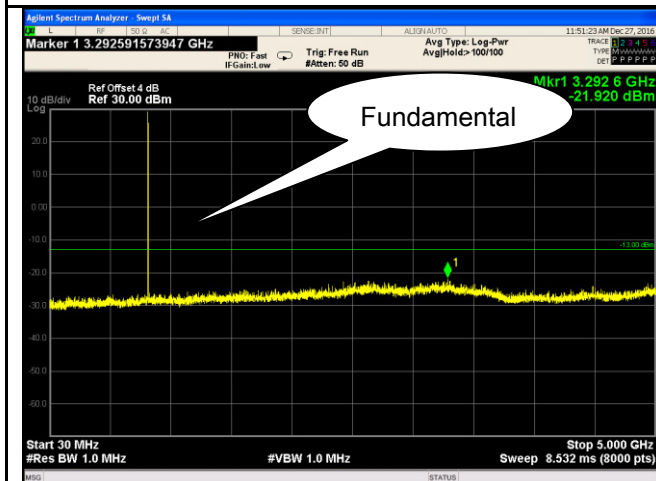
Cellular Band (Part 22H) result



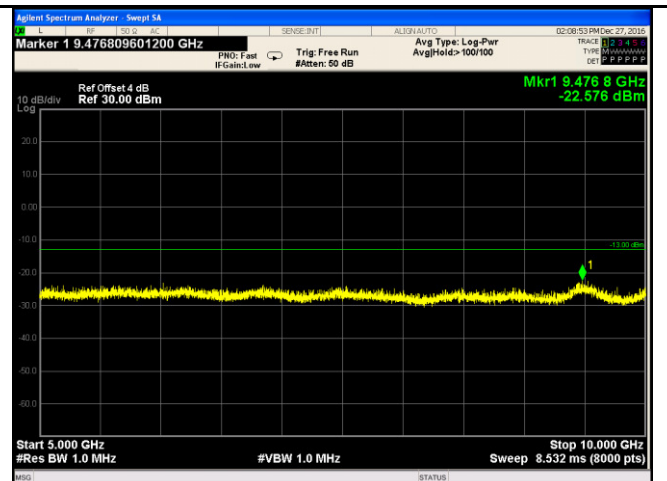
GSM 850 - Low Channel-1



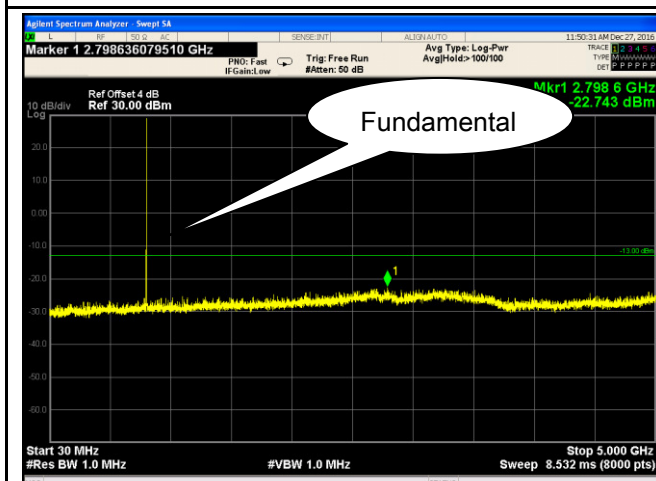
GSM 850 - Low Channel-2



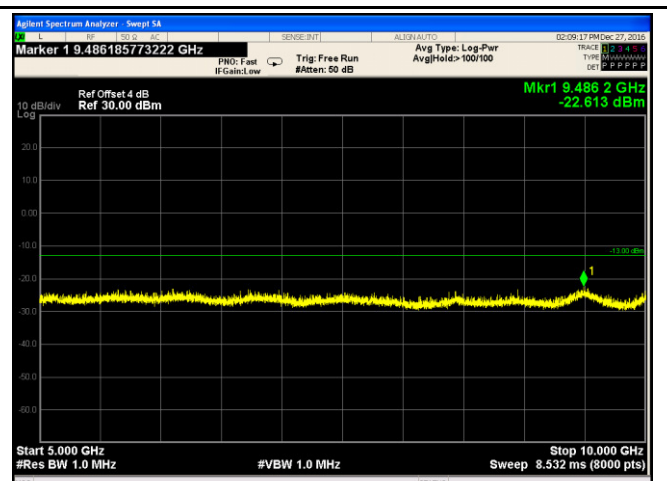
GSM 850 Middle Channel-1



GSM 850 Middle Channel-2

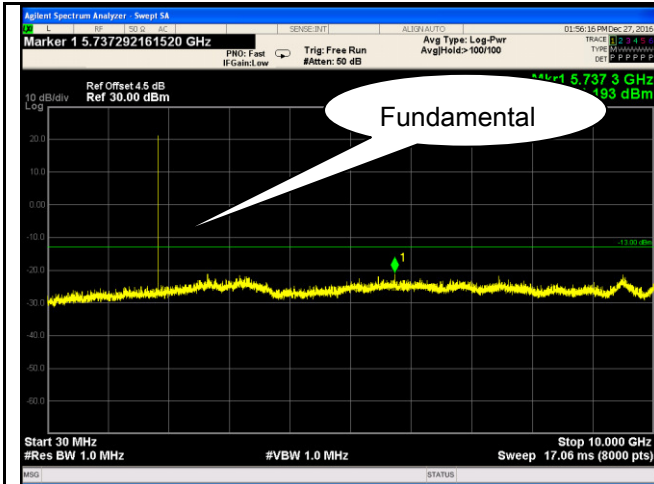


GSM 850 - High Channel-1

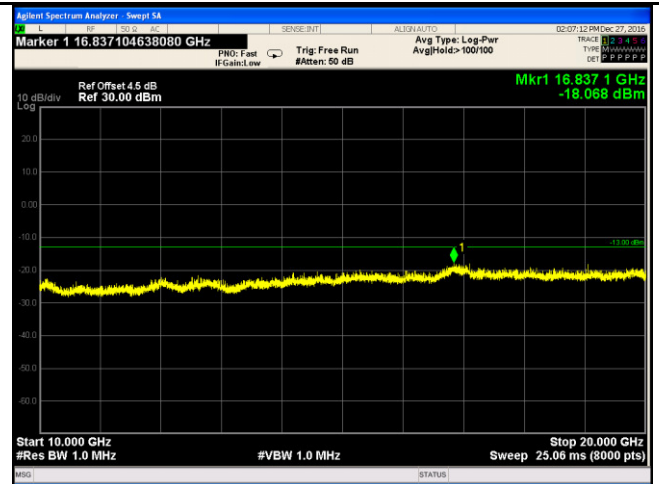


GSM 850 - High Channel-2

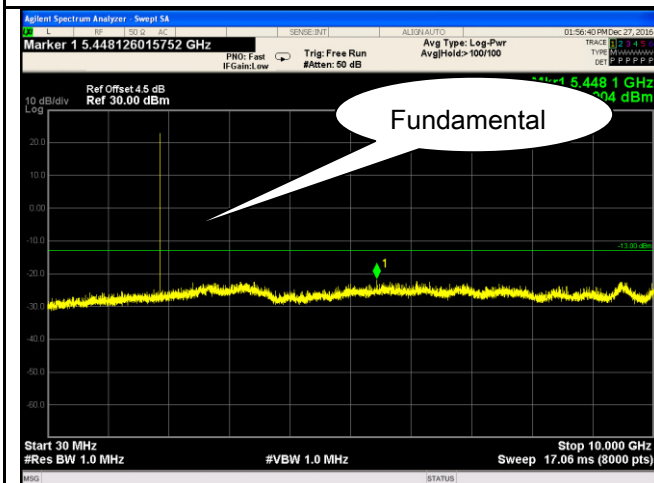
PCS Band (Part24E) result



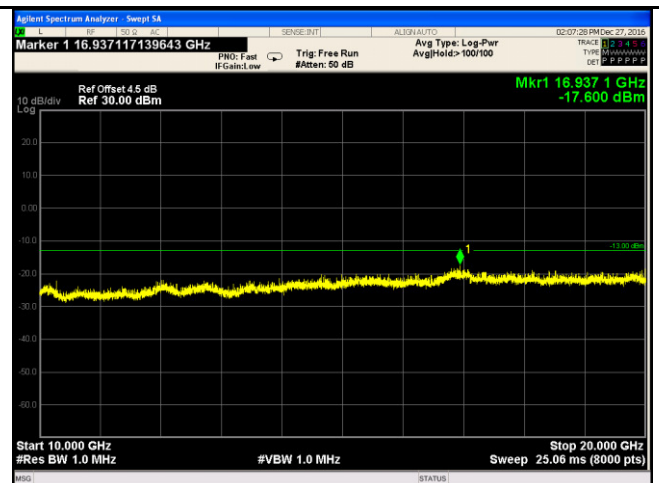
PCS1900 - Low Channel-1



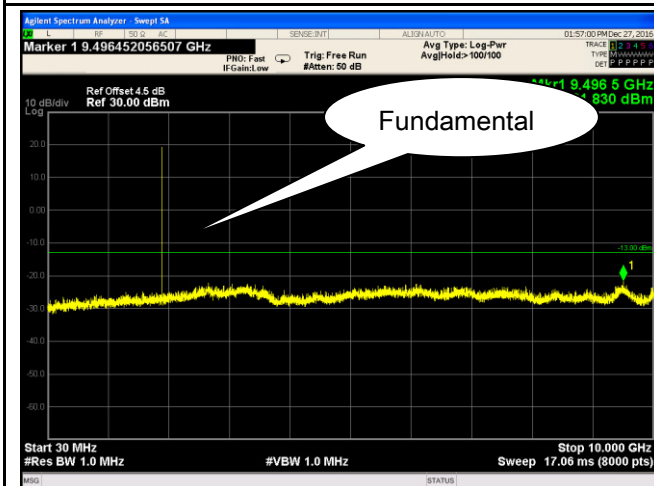
PCS 1900 - Low Channel-2



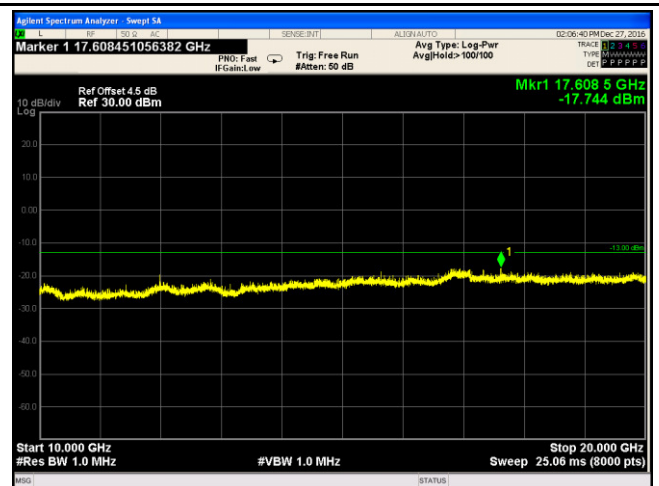
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



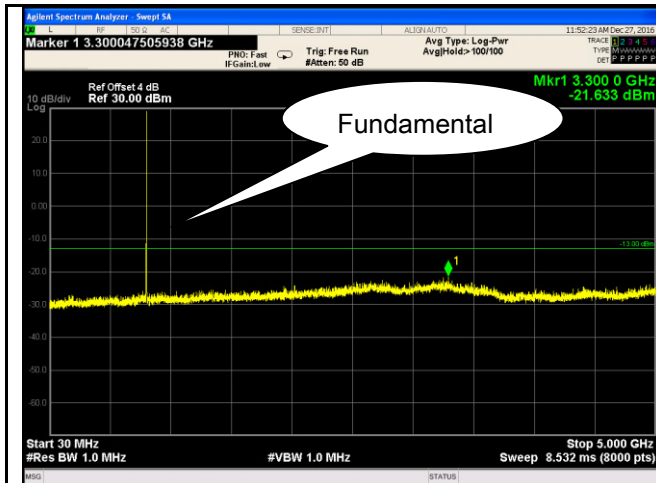
PCS1900 - High Channel-1



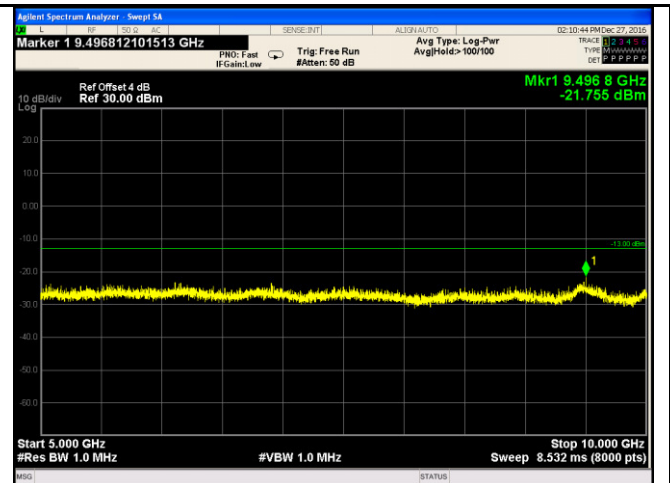
PCS 1900 - High Channel-2

GPRS:

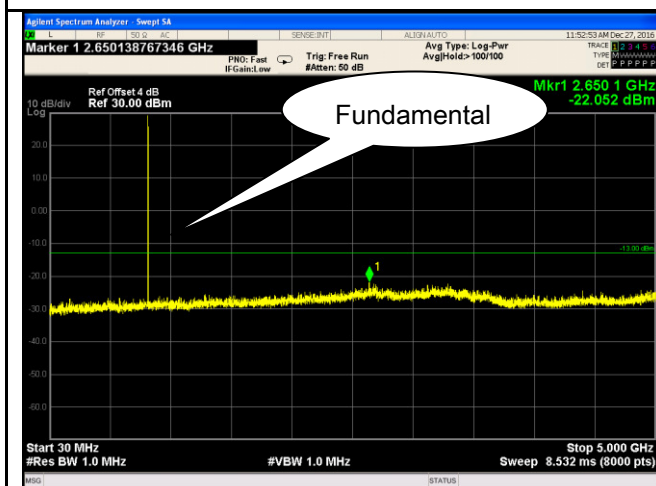
Cellular Band (Part 22H) result



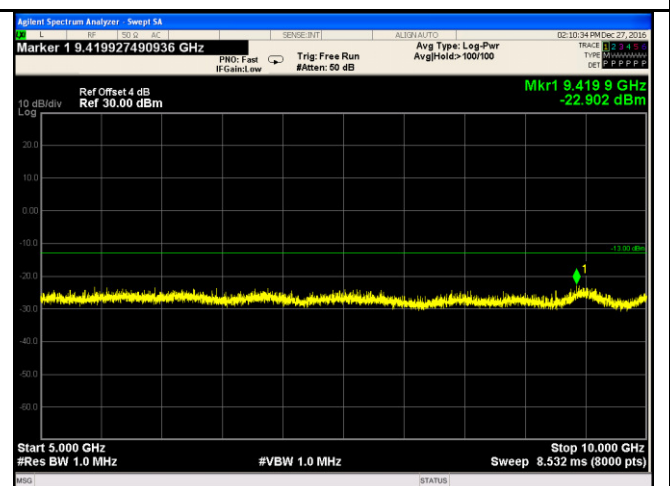
GSM 850 - Low Channel-1



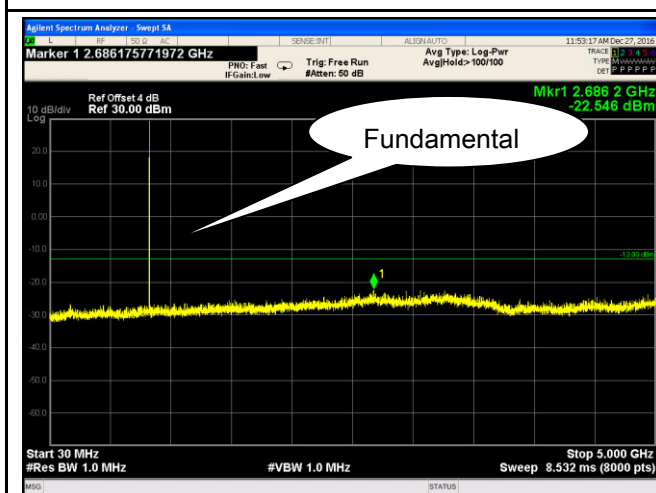
GSM 850 - Low Channel-2



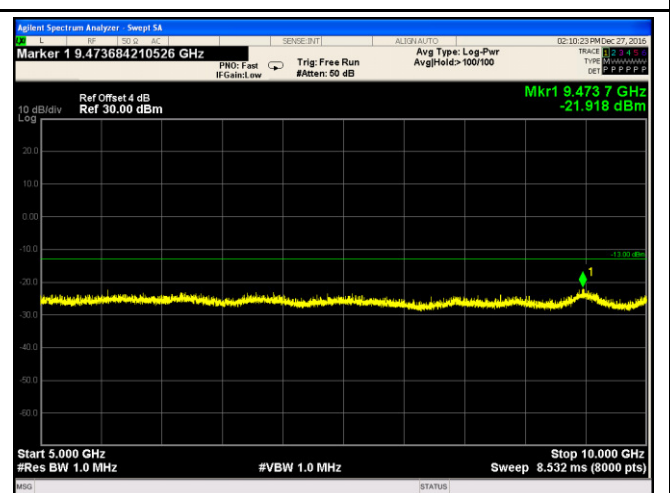
GSM 850 Middle Channel-1



GSM 850 Middle Channel-2

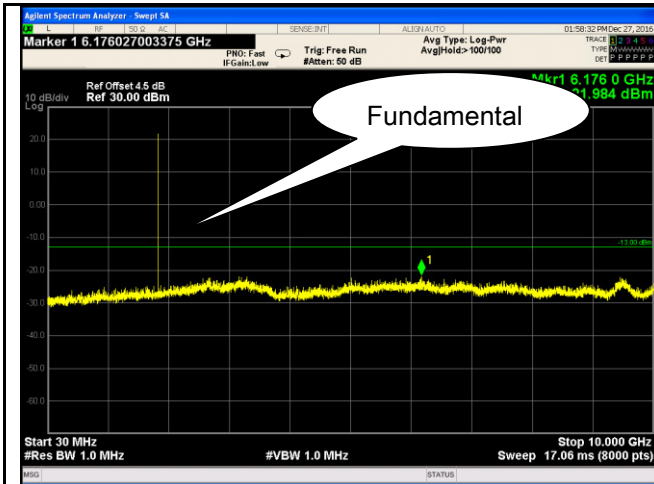


GSM 850 - High Channel-1

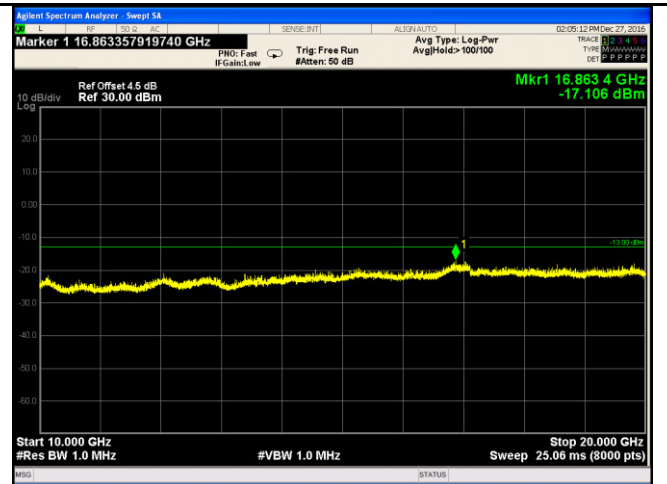


GSM 850 - High Channel-2

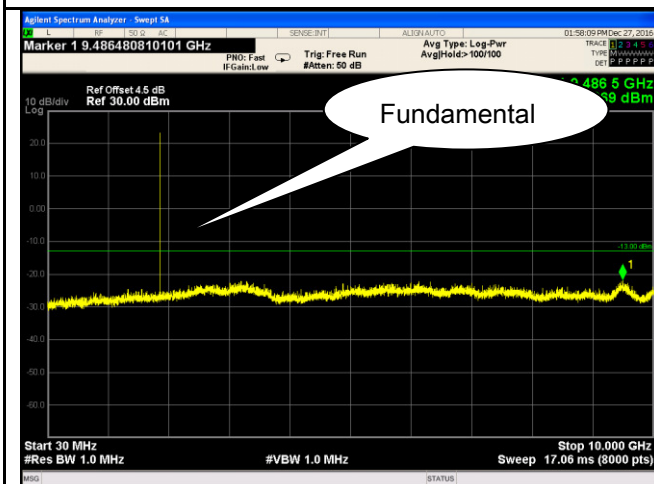
PCS Band (Part24E) result



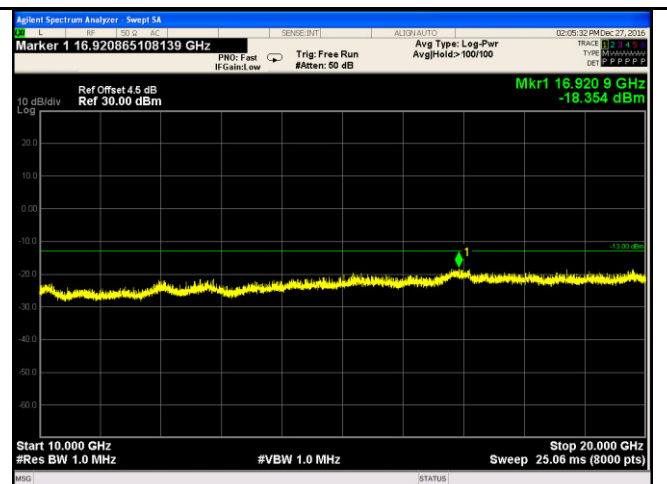
PCS1900 - Low Channel-1



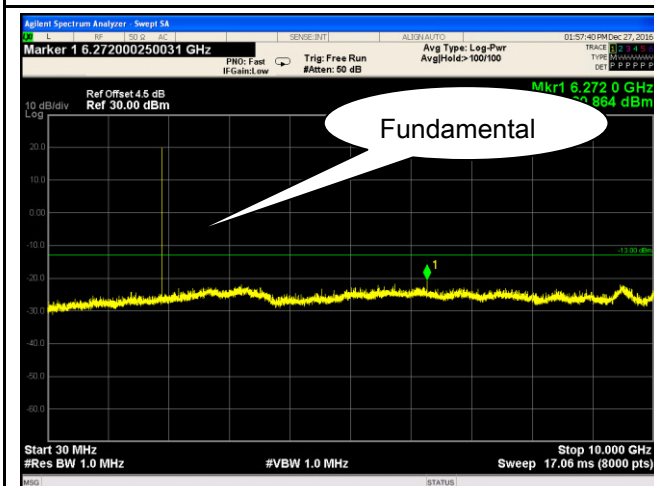
PCS 1900 - Low Channel-2



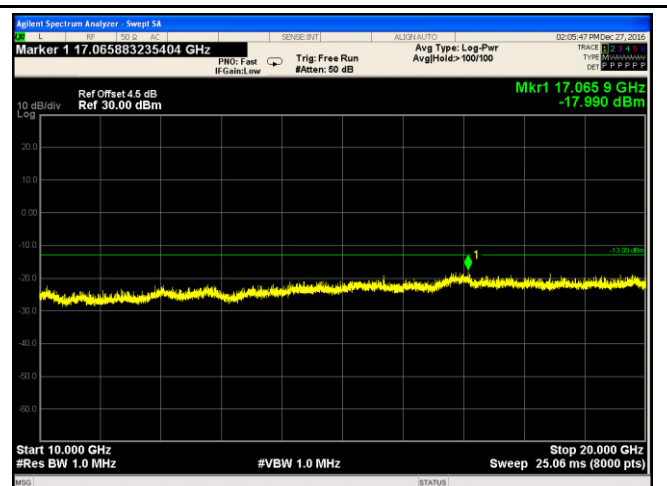
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



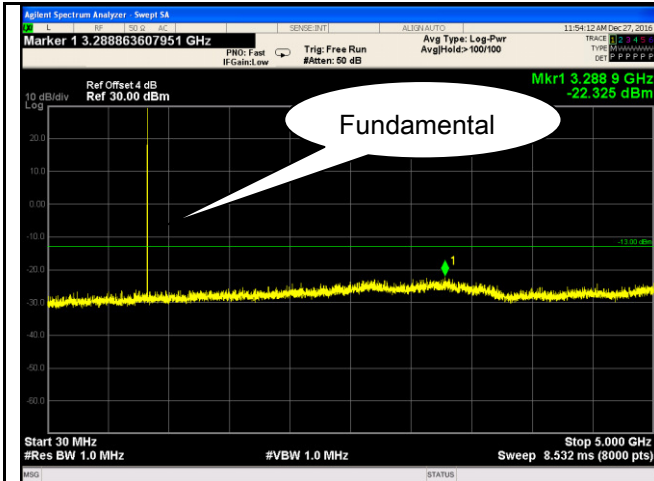
PCS1900 - High Channel-1



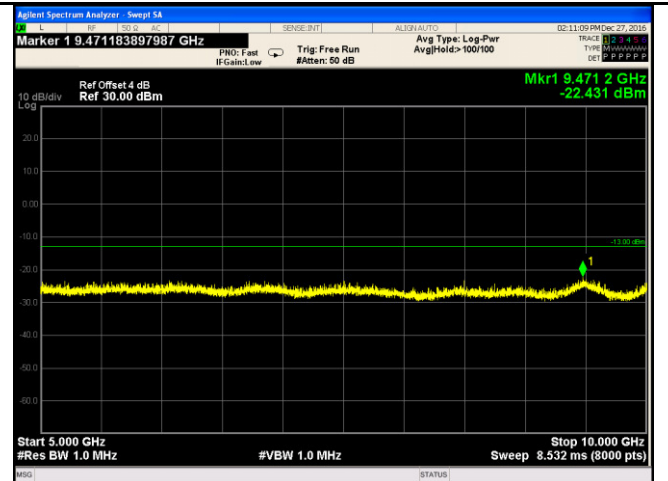
PCS 1900 - High Channel-2

EGPRS (MCS 1):

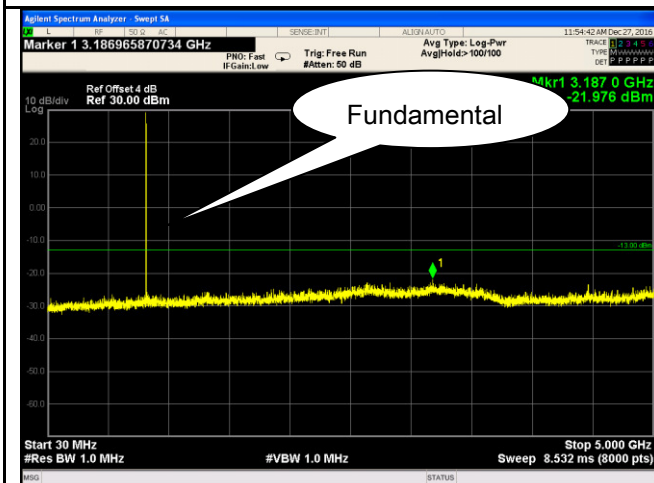
Cellular Band (Part 22H) result



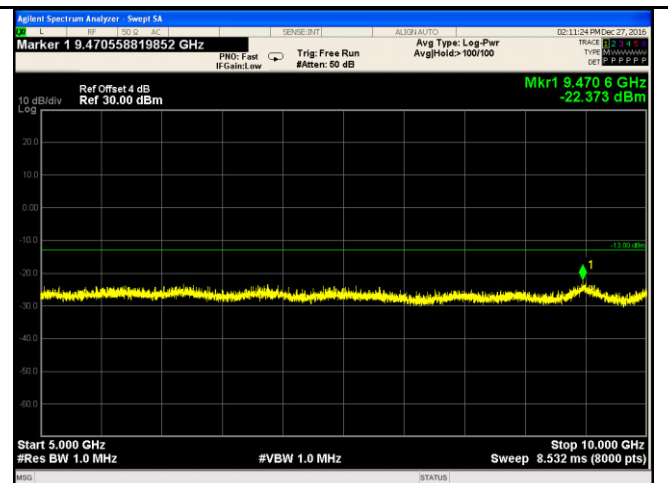
GSM 850 - Low Channel-1



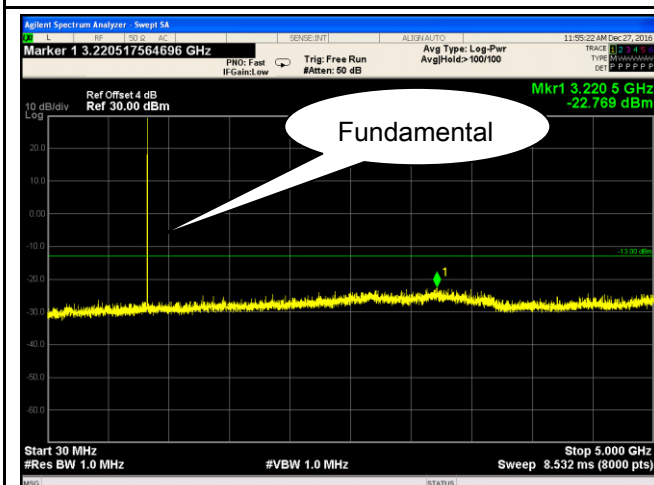
GSM 850 - Low Channel-2



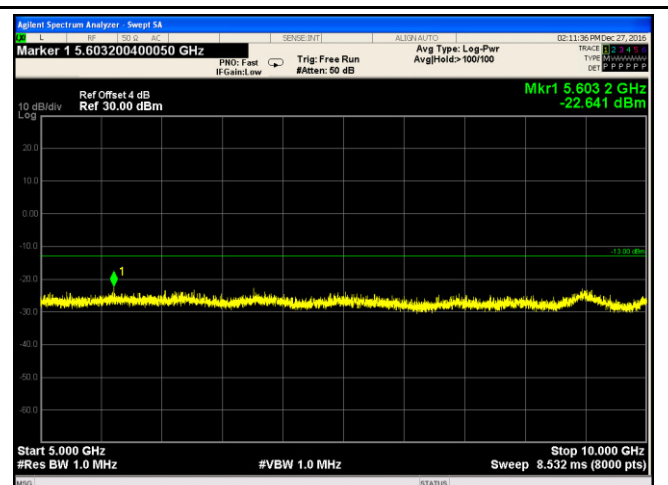
GSM 850 Middle Channel-1



GSM 850 Middle Channel-2

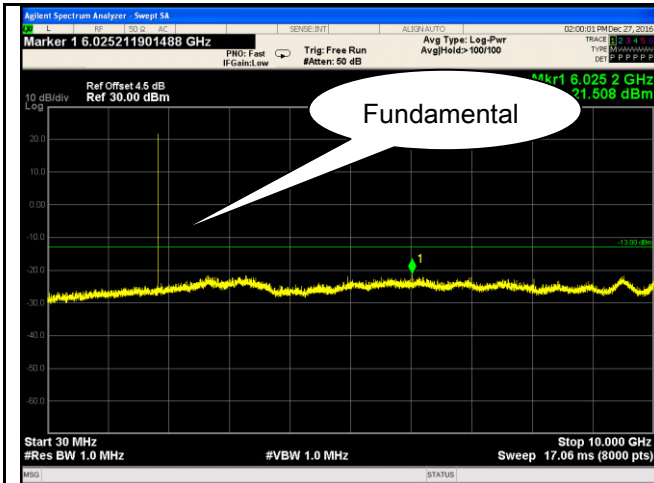


GSM 850 - High Channel-1

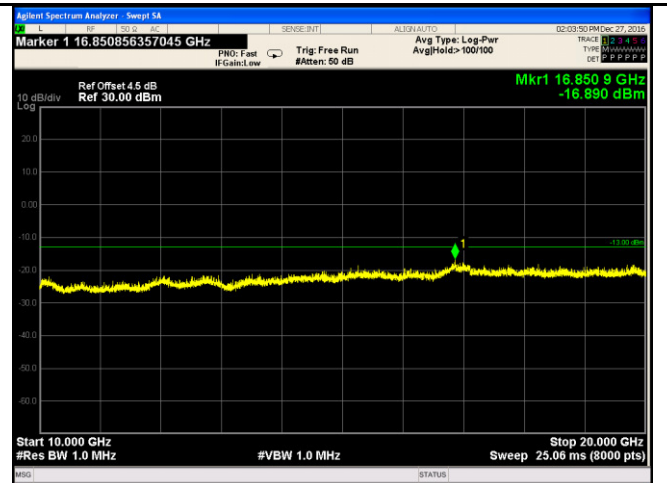


GSM 850 - High Channel-2

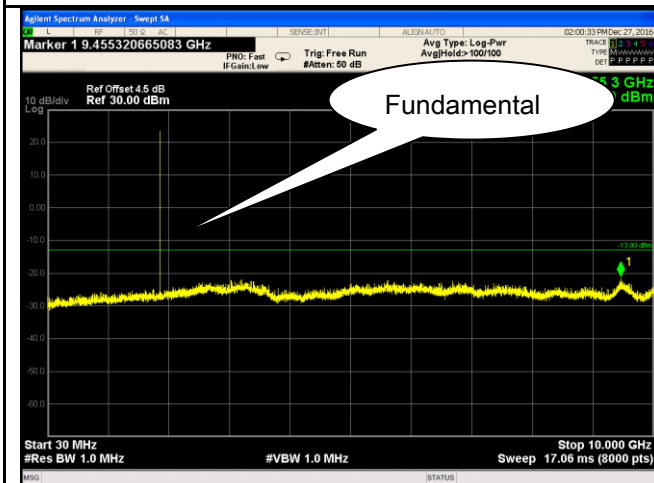
PCS Band (Part24E) result



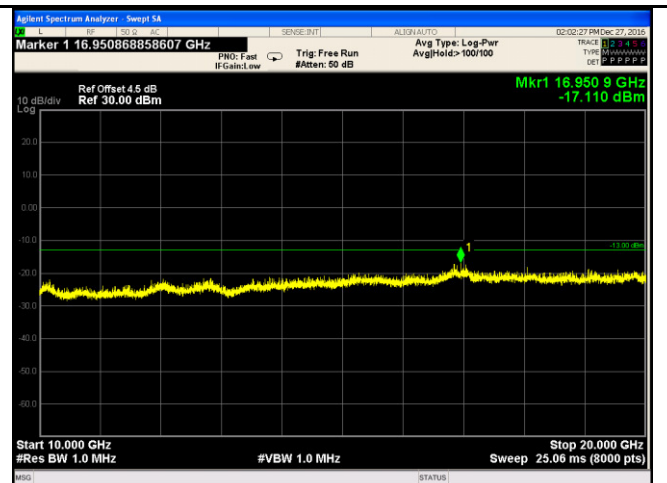
PCS1900 - Low Channel-1



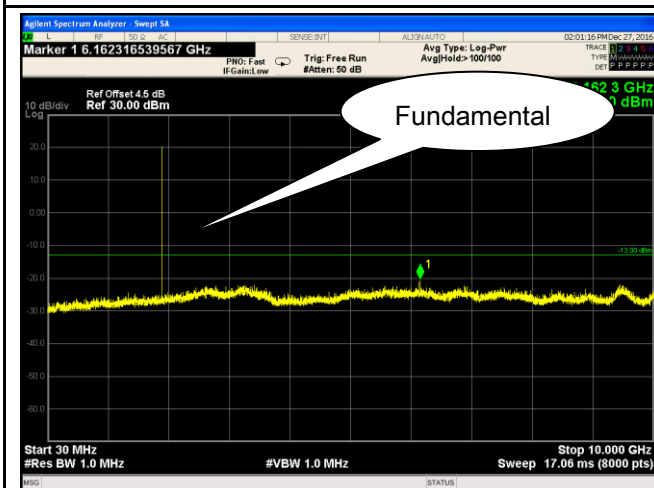
PCS 1900 - Low Channel-2



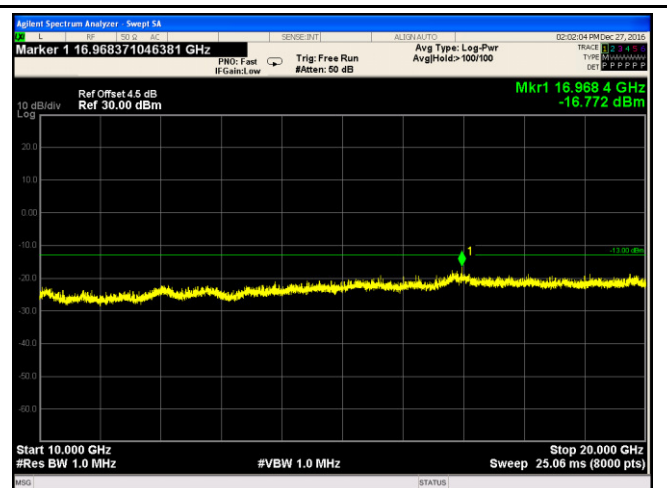
PCS1900 - Middle Channel-1



PCS 1900 - Middle Channel-2



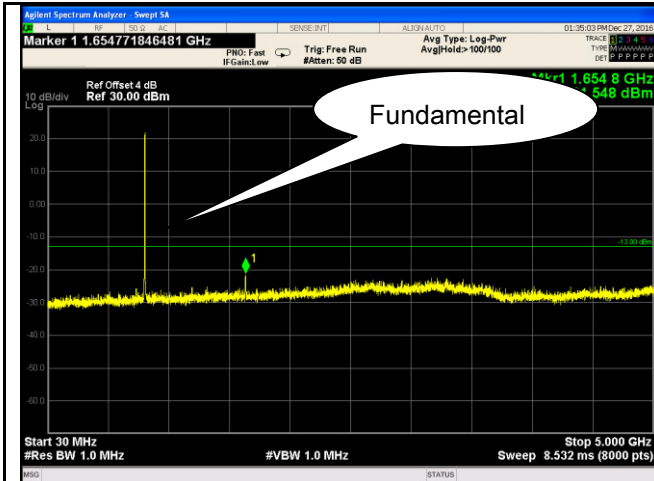
PCS1900 - High Channel-1



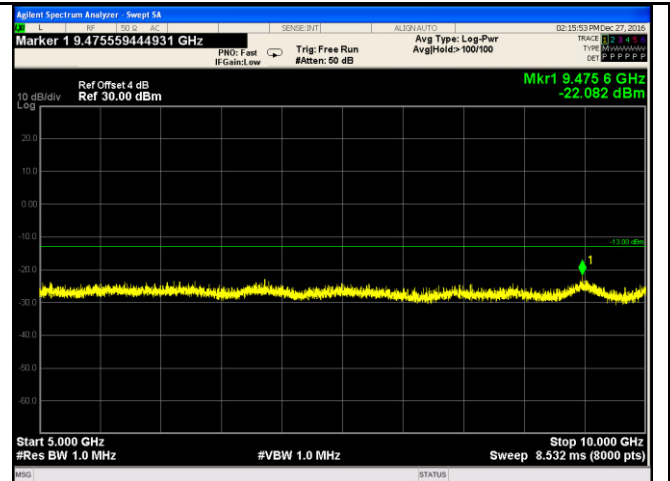
PCS 1900 - High Channel-2

RMC

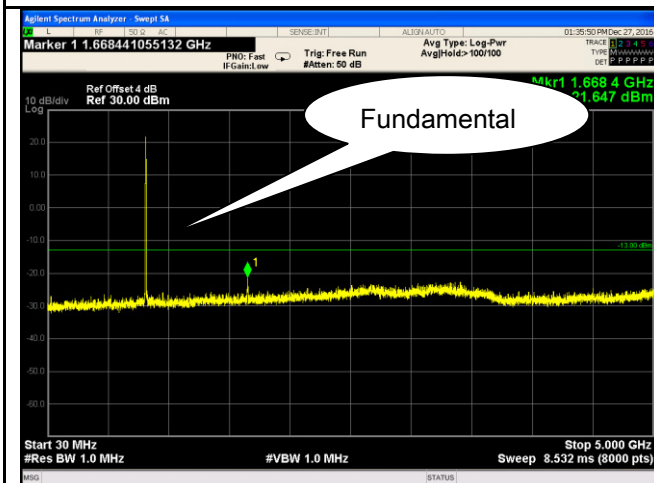
UMTS-FDD Band V (Part 22H)



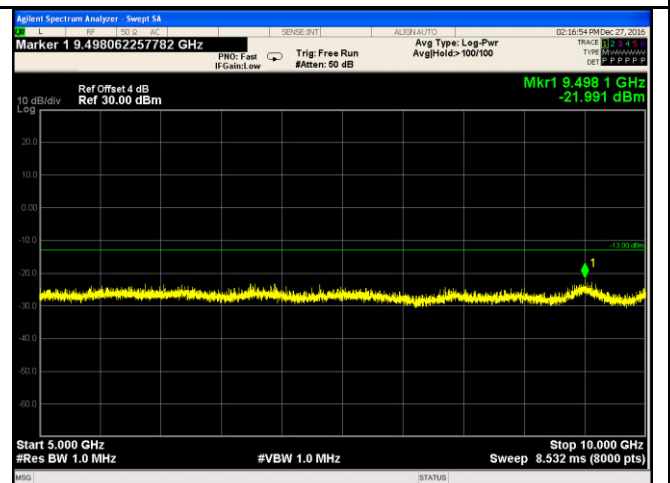
Band V - Low Channel-1



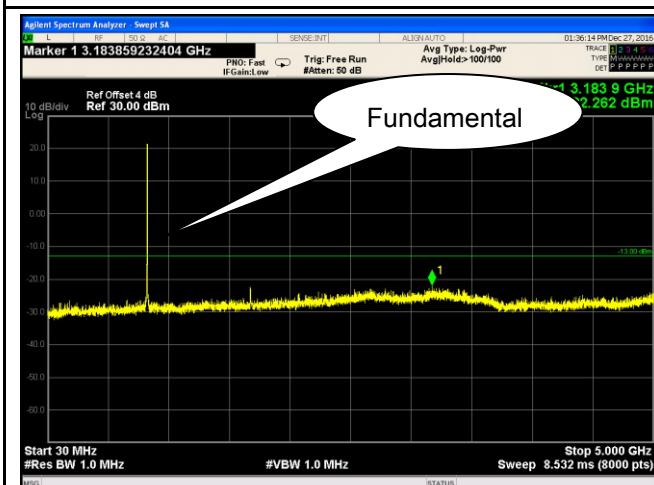
Band V - Low Channel-2



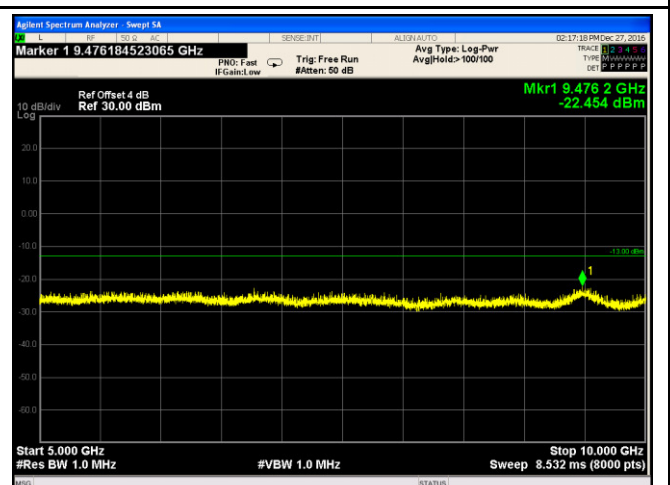
Band V - Middle Channel-1



Band V - Middle Channel-2



Band V - High Channel-1



Band V - High Channel-2