FCC TEST REPORT

For

Shenzhen Connectech Technology Co., Ltd.

senior phone

Model No.: V808G

FCC ID: 2AQQL-V808G

Prepared For	:	Shenzhen Connectech Technology Co., Ltd.
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Report Number	:	SZAWW180521002-02
Date of Test	:	May 23~ July 20, 2018
Date of Report	:	July 23 , 2018

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TEST REPORT

Applicant	:	Shenzhen Connectech Technology Co., Ltd.
Manufacturer	:	Shenzhen Connectech Technology Co., Ltd.
Product Name	:	senior phone
Model No.	:	V808G
Trade Mark	:	UNIWA
Rating(s)	:	Input: DC 5V, 500mA (Battery: DC 3.7V Battery inside, 1400mAh)

Test Standard(s)	**:**	**FCC PART 2, FCC Part 22(H) :2017, FCC Part 24(E):2017**
Test Method(s)	**:**	**ANSI/TIAC603 D: 2010，KDB971168 D01 v03**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 22/FCC Part 24 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : : May 23~ July 20, 2018

Prepared by : (Engineer / Tangcy. T)

Reviewer : : (Supervisor / Calvin Liu)

Approved & Authorized Signer : : (Manager / Tom Chen)

1. General Information

1.1. Client Information

Applicant	:	Shenzhen Connectech Technology Co., Ltd.
Address	:	Room 2814,Building A,Qunxing Plaza,Huaqiang North Road,Huaqiang North Street,Futian District,Shenzhen,518028,China
Manufacturer	:	Shenzhen Connectech Technology Co., Ltd.
Address	:	Room 2814,Building A,Qunxing Plaza,Huaqiang North Road,Huaqiang North Street,Futian District,Shenzhen,518028,China

1.2. Description of Device (EUT)

Product Name	:	senior phone	
Model No.	:	V808G	
Trade Mark	:	UNIWA	
Test Sample NO.	:	S1	
Test Power Supply		DC 3.7V Battery inside	
Product Description	:	Operation Frequency:	GSM/GPRS/EGPRS 850 TX:824.2~848.8 MHz; RX:869.2~893.8 MHz PCS/GPRS/EGPRS 1900 TX:1850.2~1909.8 MHz; RX:1930.2~1989.8 MHz UMTS-FDD Band 5 TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz UMTS-FDD Band 2 TX:1852.4~1907.6 MHz; RX: 1932.4~1987.6 MHz
		Software Version:	CS009_KM_CS009_KM_B125_NV180302_SC7701_1G X512_PCB11_QVGA_H_MUL1_B125_UNIWA_V15
		Hardware Version:	sc7701_barphone
		GPRS/EGPRS Class	8/10/12
		Modulation Type:	GSM/GPRS: GMSK EDGE: GMSK, 8PSK WCDMA: BPSK, 16QAM;
		Antenna Type:	PIFA Antenna
		Antenna Gain(Peak):	GSM 850: 0.56 dBi PCS 1900: 1.2 dBi UMTS-FDD Band 2: 1.2 dBi UMTS-FDD Band 5: 0.56 dBi
Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

1.3. Auxiliary Equipment Used During Test

Adapter	:	Input: AC 100-240V 50/60Hz 500mA Output: DC 5.0V, 500mA

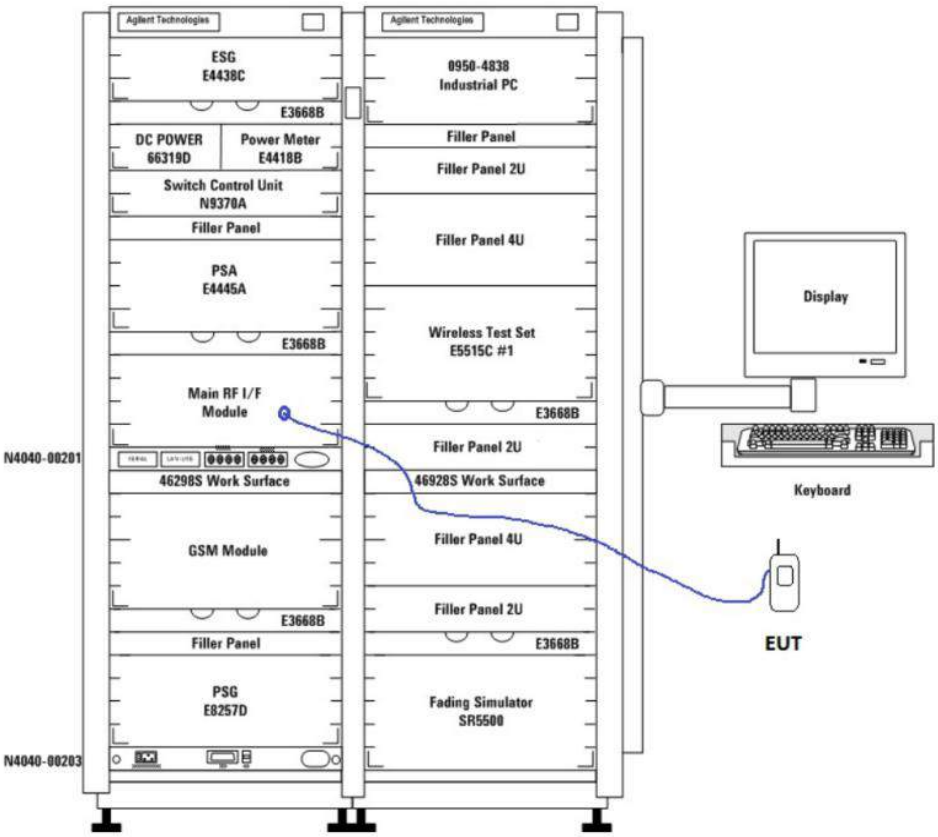
1.4. Description of Test Modes

The following is the description of how the EUT is exercised during testing.

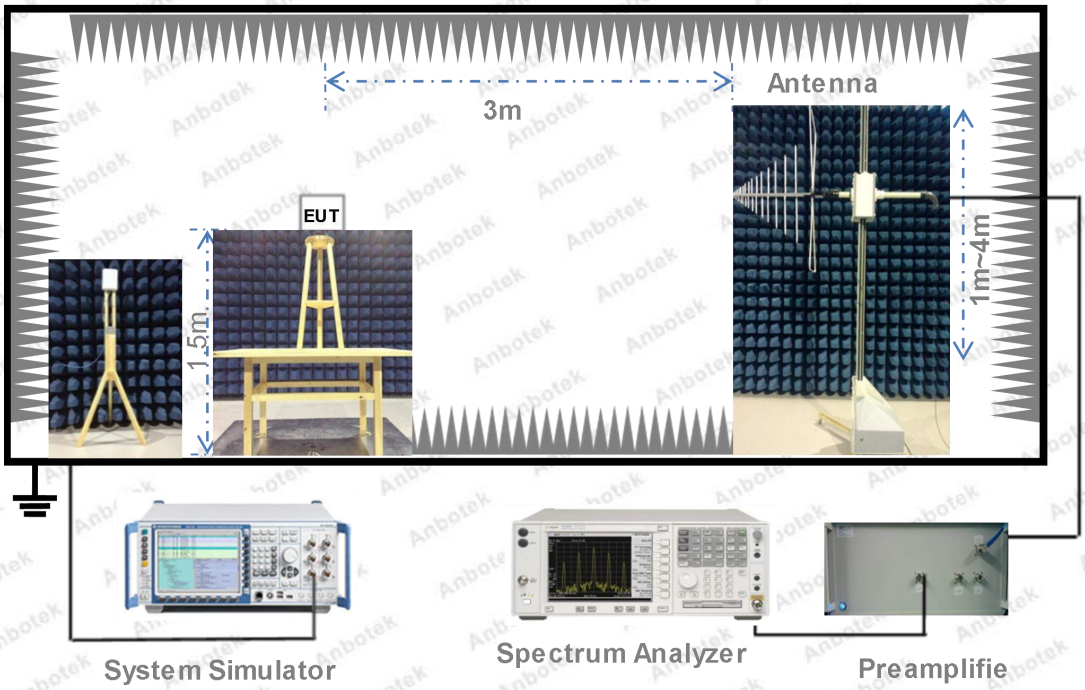
Test	Description Of Operation
Emissions Testing	The EUT was communicating with base station.
Others Testing	The EUT was communicating with base station.

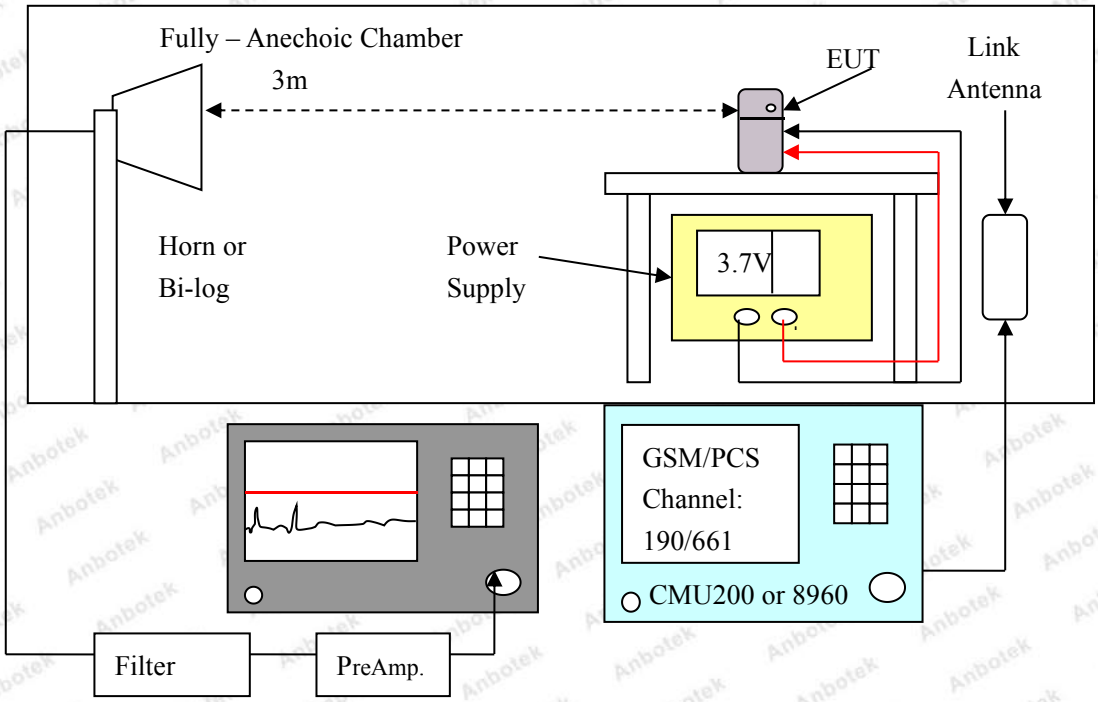
1.5. Description Of Test Setup

1.5.1 Conducted Test Setup



1.5.2 Radiated Test Setup





1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Nov. 17, 2017	1 Year
2.	Preamplifier	SKET Electronic	BK1G18G30 D	KD17503	Nov. 17, 2017	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Nov. 17, 2017	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Nov. 20, 2017	1 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Nov. 20, 2017	1 Year
6.	Pre-amplifier	SONOMA	310N	186860	Nov. 17, 2017	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
8.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Nov. 18, 2017	1 Year
9.	MXG RF Vector Signal Generator	Agilent	N5182A	MY48180656	Nov. 18, 2017	1 Year
10.	DC Power Supply	LW	TPR-6410D	349315	Nov. 01, 2017	1 Year
11.	Constant Temperature Humidity Chamber	Sertep	ZJ-HWHS80 B	ZJ-17042804	Nov. 01, 2017	1 Year
12.	Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	117888	Nov. 17, 2017	1 Year
13.	Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	1201.0002K50-104 209-JC	Nov. 18, 2017	1 Year
14.	High-Pass Filter	CDKMV	ZHPF-BM110 0 -4000-0730	B2015094550	Nov. 18, 2017	1 Year
15.	High-Pass Filter	CDKMV	ZHPF-M3.5 -18G-3834	1307006523	Nov. 17, 2017	1 Year
16.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063507	Nov. 17, 2017	1 Year
17.	4 Ch. Simultaneous Sampling 14 Bits 2 MS/s	Agilent	U2531A	TW54063513	Nov. 17, 2017	1 Year

1.7. Measurement Uncertainty

Maximum measurement uncertainty

Parameter	Uncertainty
RF output power, conducted	±1,5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±1 ℃
Humidity	±5 %
DC and low frequency voltages	±3 %
Time	±5 %
Confidence interval：95%. Confidence factor:k=2	

1.8. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 184111

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No. 184111, July 31, 2017.

ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

Test Location

All Emissions tests were performed at

Shenzhen Anbotek Compliance Laboratory Limited.

1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518102

2. Summary of Test

2.1. Summary of test result

FCC Rules	Description of Test	Result
§2.1046; § 22.913(a); § 24.232(c);	RF Output Power	Compliance
§ 24.232 (d);	Peak-Average Ratio	Compliance
§ 2.1047	Modulation Characteristics	N/A
§ 2.1049; § 22.905; § 22.917; § 24.238;	99% & -26 dB Occupied Bandwidth	Compliance
§ 2.1051; § 22.917(a); § 24.238(a);	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; § 22.917(a); § 24.238(a);	Field Strength of Spurious Radiation	Compliance
§ 22.917(a); § 24.238(a);	Out of band emission, Band Edge	Compliance
§ 2.1055; § 22.355; § 24.235;	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

2.2. Test mode

During all testing, EUT is in link mode with base station emulator at maximum power level in each test mode and channel as below:

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

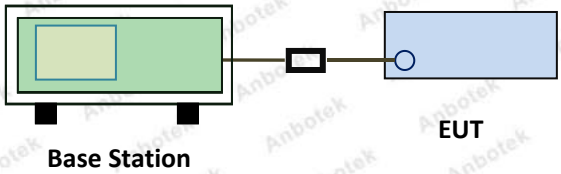
Mode	Channel	Frequency(MHz)
GSM 850	128	824.2
	190	836.6
	251	848.8
PCS 1900	512	1850.2
	661	1880.0
	810	1909.8
UMTS BAND V	4132	826.4
	4182	836.4
	4233	846.6
UMTS BAND II	9262	1852.4
	9400	1880.0
	9538	1907.6

3. RF Output Power Test

3.1. Test Standard and Limit

Spec	Item	Requirement
§22.913 (a)	a)	ERP:38.5dBm
§24.232 (c)	b)	EIRP:33dBm
§ 27.50 (c)	c)	EIRP:30dBm

3.2. Test Setup



3.3. 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:

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.

3.4. Test Data

Please to see the following pages

Conducted Power:

Band	Channel	PCL	Power(dBm)	Limit(dBm)	Verdict
GSM850	128	5	31.17	38.5	PASS
GSM850	190	5	30.22	38.5	PASS
GSM850	251	5	30.69	38.5	PASS
GSM1900	512	0	30.46	33	PASS
GSM1900	661	0	30.25	33	PASS
GSM1900	810	0	29.71	33	PASS

Band	Channel	PCL	Slot	Power(dBm)	Limit(dBm)	Verdict
GPRS850	128	3	1	30.16	38.5	PASS
GPRS850	128	3	2	29.35	38.5	PASS
GPRS850	128	3	3	28.65	38.5	PASS
GPRS850	128	3	4	28.60	38.5	PASS
GPRS850	190	3	1	30.13	38.5	PASS
GPRS850	190	3	2	29.27	38.5	PASS
GPRS850	190	3	3	29.76	38.5	PASS
GPRS850	190	3	4	29.13	38.5	PASS
GPRS850	251	3	1	30.22	38.5	PASS
GPRS850	251	3	2	30.27	38.5	PASS
GPRS850	251	3	3	28.31	38.5	PASS
GPRS850	251	3	4	29.26	38.5	PASS
GPRS1900	512	3	1	28.05	33	PASS
GPRS1900	512	3	2	27.77	33	PASS
GPRS1900	512	3	3	26.76	33	PASS
GPRS1900	512	3	4	26.61	33	PASS
GPRS1900	661	3	1	28.61	33	PASS
GPRS1900	661	3	2	27.41	33	PASS
GPRS1900	661	3	3	26.42	33	PASS
GPRS1900	661	3	4	26.77	33	PASS
GPRS1900	810	3	1	28.71	33	PASS
GPRS1900	810	3	2	27.54	33	PASS
GPRS1900	810	3	3	26.41	33	PASS
GPRS1900	810	3	4	27.34	33	PASS

Band	Channel	PCL	Slot	Power(dBm)	Limit(dBm)	Verdict
EGPRS850	128	6	1	27.16	38.5	PASS
EGPRS850	128	6	2	26.88	38.5	PASS
EGPRS850	128	6	3	26.78	38.5	PASS
EGPRS850	128	6	4	26.56	38.5	PASS
EGPRS850	190	6	1	27.47	38.5	PASS
EGPRS850	190	6	2	27.02	38.5	PASS
EGPRS850	190	6	3	26.95	38.5	PASS
EGPRS850	190	6	4	26.84	38.5	PASS
EGPRS850	251	6	1	27.49	38.5	PASS
EGPRS850	251	6	2	27.06	38.5	PASS
EGPRS850	251	6	3	26.96	38.5	PASS
EGPRS850	251	6	4	26.77	38.5	PASS
EGPRS1900	512	5	1	26.91	33	PASS
EGPRS1900	512	5	2	26.38	33	PASS
EGPRS1900	512	5	3	27.04	33	PASS
EGPRS1900	512	5	4	26.04	33	PASS
EGPRS1900	661	5	1	26.75	33	PASS
EGPRS1900	661	5	2	26.05	33	PASS
EGPRS1900	661	5	3	27.59	33	PASS
EGPRS1900	661	5	4	27.76	33	PASS
EGPRS1900	810	5	1	26.91	33	PASS
EGPRS1900	810	5	2	27.06	33	PASS
EGPRS1900	810	5	3	26.94	33	PASS
EGPRS1900	810	5	4	27.41	33	PASS

Band	Channel	Power(dBm)	Limit(dBm)	Verdict
Band II	9262	22.30	33	PASS
Band II	9400	22.47	33	PASS
Band II	9538	22.36	33	PASS
Band V	4132	21.53	38.5	PASS
Band V	4182	21.86	38.5	PASS
Band V	4233	21.49	38.5	PASS

Band	Channel	SubTest	Power(dBm)	Limit(dBm)	Verdict
Band II	9262	HSDPA_Sub1	21.27	33	PASS
Band II	9262	HSDPA_Sub2	20.88	33	PASS
Band II	9262	HSDPA_Sub3	20.84	33	PASS
Band II	9262	HSDPA_Sub4	20.89	33	PASS
Band II	9400	HSDPA_Sub1	21.69	33	PASS
Band II	9400	HSDPA_Sub2	21.36	33	PASS
Band II	9400	HSDPA_Sub3	21.11	33	PASS
Band II	9400	HSDPA_Sub4	21.06	33	PASS
Band II	9538	HSDPA_Sub1	21.56	33	PASS
Band II	9538	HSDPA_Sub2	21.23	33	PASS
Band II	9538	HSDPA_Sub3	20.83	33	PASS
Band II	9538	HSDPA_Sub4	20.99	33	PASS
Band V	4132	HSDPA_Sub1	21.58	38.5	PASS
Band V	4132	HSDPA_Sub2	21.12	38.5	PASS
Band V	4132	HSDPA_Sub3	20.71	38.5	PASS
Band V	4132	HSDPA_Sub4	20.67	38.5	PASS
Band V	4182	HSDPA_Sub1	21.95	38.5	PASS
Band V	4182	HSDPA_Sub2	21.49	38.5	PASS
Band V	4182	HSDPA_Sub3	21.33	38.5	PASS
Band V	4182	HSDPA_Sub4	21.35	38.5	PASS
Band V	4233	HSDPA_Sub1	22.10	38.5	PASS
Band V	4233	HSDPA_Sub2	21.74	38.5	PASS
Band V	4233	HSDPA_Sub3	21.47	38.5	PASS
Band V	4233	HSDPA_Sub4	21.82	38.5	PASS

Band	Channel	SubTest	Power(dBm)	Limit(dBm)	Verdict
Band II	9262	HSUPA_Sub1	21.06	33	PASS
Band II	9262	HSUPA_Sub2	21.59	33	PASS
Band II	9262	HSUPA_Sub3	20.59	33	PASS

Band II	9262	HSUPA_Sub4	20.77	33	PASS
Band II	9262	HSUPA_Sub5	20.76	33	PASS
Band II	9400	HSUPA_Sub1	21.39	33	PASS
Band II	9400	HSUPA_Sub2	21.49	33	PASS
Band II	9400	HSUPA_Sub3	21.55	33	PASS
Band II	9400	HSUPA_Sub4	21.63	33	PASS
Band II	9400	HSUPA_Sub5	21.22	33	PASS
Band II	9538	HSUPA_Sub1	20.56	33	PASS
Band II	9538	HSUPA_Sub2	21.23	33	PASS
Band II	9538	HSUPA_Sub3	20.34	33	PASS
Band II	9538	HSUPA_Sub4	20.29	33	PASS
Band II	9538	HSUPA_Sub5	20.66	33	PASS
Band V	4132	HSUPA_Sub1	21.41	38.5	PASS
Band V	4132	HSUPA_Sub2	21.48	38.5	PASS
Band V	4132	HSUPA_Sub3	20.33	38.5	PASS
Band V	4132	HSUPA_Sub4	20.18	38.5	PASS
Band V	4132	HSUPA_Sub5	20.29	38.5	PASS
Band V	4182	HSUPA_Sub1	21.73	38.5	PASS
Band V	4182	HSUPA_Sub2	21.52	38.5	PASS
Band V	4182	HSUPA_Sub3	20.62	38.5	PASS
Band V	4182	HSUPA_Sub4	21.45	38.5	PASS
Band V	4182	HSUPA_Sub5	21.45	38.5	PASS
Band V	4233	HSUPA_Sub1	22.03	38.5	PASS
Band V	4233	HSUPA_Sub2	21.52	38.5	PASS
Band V	4233	HSUPA_Sub3	21.69	38.5	PASS
Band V	4233	HSUPA_Sub4	21.89	38.5	PASS
Band V	4233	HSUPA_Sub5	21.41	38.5	PASS

Radiated Output power:

ERP & EIRP
GSM Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
GSM 850,Low Channel										
824.2	97.78	157	2.3	H	30.75	0.60	0.00	30.15	38.45	8.30
824.2	99.67	177	1.4	V	32.57	0.60	0.00	31.97	38.45	6.48
GSM 850,Middle Channel										
836.6	97.78	42	2.1	H	30.75	0.60	0.00	30.15	38.45	8.30
836.6	99.10	25	1.4	V	32.00	0.60	0.00	31.40	38.45	7.05
GSM 850,High Channel										
848.8	96.31	222	2.3	H	29.28	0.60	0.00	28.68	38.45	9.77
848.8	99.05	214	2.2	V	31.95	0.60	0.00	31.35	38.45	7.10
PCS 1900，Low Channel										
1850.2	93.35	84	2.3	H	19.38	1.20	9.30	27.48	33	5.52
1850.2	95.37	279	2.1	V	22.09	1.20	9.30	30.19	33	2.81
PCS 1900，Middle Channel										
1880.0	93.41	51	2.3	H	19.44	1.20	9.30	27.54	33	5.46
1880.0	95.54	204	2.3	V	22.26	1.20	9.30	30.36	33	2.64
PCS 1900，High Channel										
1909.8	95.58	81	2.1	H	21.61	1.20	9.30	29.71	33	3.29
1909.8	95.28	290	1.8	V	22.00	1.20	9.30	30.10	33	2.90

GPRS Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
GPRS 850,Low Channel										
824.2	96.27	19	1.6	H	29.24	0.60	0.00	28.64	38.45	9.81
824.2	97.98	272	1.9	V	30.88	0.60	0.00	30.28	38.45	8.17
GPRS 850,Middle Channel										
836.6	96.44	304	1.6	H	29.41	0.60	0.00	28.81	38.45	9.64
836.6	97.04	225	1.9	V	29.94	0.60	0.00	29.34	38.45	9.11
GPRS 850,High Channel										
848.8	93.79	246	1.9	H	26.76	0.60	0.00	26.16	38.45	12.29
848.8	97.69	332	1.1	V	30.59	0.60	0.00	29.99	38.45	8.46

GPRS 1900，Low Channel										
1850.2	95.90	114	1.2	H	21.93	1.20	9.30	30.03	33	2.97
1850.2	93.67	94	2.1	V	20.39	1.20	9.30	28.49	33	4.51
GPRS 1900，Middle Channel										
1880.0	95.42	266	2.2	H	21.45	1.20	9.30	29.55	33	3.45
1880.0	93.02	343	1.2	V	19.74	1.20	9.30	27.84	33	5.16
GPRS 1900，High Channel										
1909.8	92.88	70	1.7	H	18.91	1.20	9.30	27.01	33	5.99
1909.8	94.34	296	1.6	V	21.06	1.20	9.30	29.16	33	3.84

EGPRS Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
EGPRS 850,Low Channel										
824.2	95.67	218	1.2	H	28.64	0.60	0.00	28.04	38.45	10.41
824.2	94.31	36	1.7	V	27.21	0.60	0.00	26.61	38.45	11.84
EGPRS 850,Middle Channel										
836.6	95.37	33	2.1	H	28.34	0.60	0.00	27.74	38.45	10.71
836.6	94.59	32	2.0	V	27.49	0.60	0.00	26.89	38.45	11.56
EGPRS 850,High Channel										
848.8	95.23	82	2.4	H	28.20	0.60	0.00	27.60	38.45	10.85
848.8	94.56	224	2.2	V	27.46	0.60	0.00	26.86	38.45	11.59
EGPRS 1900，Low Channel										
1850.2	94.09	77	1.1	H	20.12	1.20	9.30	28.22	33	4.78
1850.2	92.67	309	1.6	V	19.39	1.20	9.30	27.49	33	5.51
EGPRS 1900，Middle Channel										
1880.0	93.55	302	2.4	H	19.58	1.20	9.30	27.68	33	5.32
1880.0	92.95	40	1.5	V	19.67	1.20	9.30	27.77	33	5.23
EGPRS 1900，High Channel										
1909.8	92.34	12	1.9	H	18.37	1.20	9.30	26.47	33	6.53
1909.8	92.83	94	1.5	V	19.55	1.20	9.30	27.65	33	5.35

WCDMA RMC Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA Band V RMC, Low Channel										

826.4	85.05	334	1.7	H	18.02	0.60	0.00	17.42	38.45	21.03
826.4	88.72	12	1.4	V	21.62	0.60	0.00	21.02	38.45	17.43
WCDMA Band V RMC,Middle Channel										
836.6	85.96	173	1.9	H	18.93	0.60	0.00	18.33	38.45	20.12
836.6	88.40	251	2.1	V	21.30	0.60	0.00	20.70	38.45	17.75
WCDMA Band V RMC, High Channel										
846.6	85.92	29	2.1	H	18.89	0.60	0.00	18.29	38.45	20.16
846.6	88.99	9	1.0	V	21.89	0.60	0.00	21.29	38.45	17.16
WCDMA Band II RMC, Low Channel										
1852.4	83.02	186	2.3	H	9.05	1.20	9.30	17.15	33	15.85
1852.4	85.99	269	1.4	V	12.71	1.20	9.30	20.81	33	12.19
WCDMA Band II RMC， Middle Channel										
1880.0	83.96	290	1.7	H	10.11	1.20	9.30	18.21	33	14.79
1880.0	85.74	35	2.1	V	12.62	1.20	9.30	20.72	33	12.28
WCDMA Band II RMC, High Channel										
1907.6	85.28	330	1.3	H	11.31	1.20	9.30	19.41	33	13.59
1907.6	85.35	184	1.8	V	12.07	1.20	9.30	20.17	33	12.83

WCDMA HSDPA Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA Band V HSDPA, Low Channel										
826.4	87.22	108	2.2	H	20.19	0.60	0.00	19.59	38.45	18.86
826.4	88.96	34	2.2	V	21.86	0.60	0.00	21.26	38.45	17.19
WCDMA Band V HSDPA,Middle Channel										
836.6	86.57	344	2.5	H	19.54	0.60	0.00	18.94	38.45	19.51
836.6	88.78	182	1.3	V	21.68	0.60	0.00	21.08	38.45	17.37
WCDMA Band V HSDPA, High Channel										
846.6	87.30	85	1.2	H	20.27	0.60	0.00	19.67	38.45	18.78
846.6	88.75	61	1.8	V	21.65	0.60	0.00	21.05	38.45	17.40
WCDMA Band II HSDPA, Low Channel										
1852.4	85.21	353	2.2	H	11.24	1.20	9.30	19.34	33	13.66
1852.4	85.97	124	2.1	V	12.69	1.20	9.30	20.79	33	12.21
WCDMA Band II HSDPA， Middle Channel										
1880.0	85.06	279	1.2	H	11.09	1.20	9.30	19.19	33	13.81
1880.0	85.88	279	2.5	V	12.60	1.20	9.30	20.70	33	12.30
WCDMA Band II HSDPA, High Channel										

1907.6	85.07	108	1.9	H	11.10	1.20	9.30	19.20	33	13.80
1907.6	85.56	109	1.9	V	12.28	1.20	9.30	20.38	33	12.62

WCDMA HSUPA Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA Band V HSUPA, Low Channel										
826.4	87.92	56	1.2	H	20.89	0.60	0.00	20.29	38.45	18.16
826.4	88.99	59	1.5	V	21.89	0.60	0.00	21.29	38.45	17.16
WCDMA Band V HSUPA,Middle Channel										
836.6	87.04	327	1.9	H	20.01	0.60	0.00	19.41	38.45	19.04
836.6	88.52	64	2.1	V	21.42	0.60	0.00	20.82	38.45	17.63
WCDMA Band V HSUPA, High Channel										
846.6	87.06	28	1.0	H	20.03	0.60	0.00	19.43	38.45	19.02
846.6	88.52	336	1.1	V	21.42	0.60	0.00	20.82	38.45	17.63
WCDMA Band II HSUPA, Low Channel										
1852.4	85.32	201	2.1	H	11.35	1.20	9.30	19.45	33	-13.55
1852.4	85.46	148	1.2	V	12.18	1.20	9.30	20.28	33	-12.72
WCDMA Band II HSUPA，Middle Channel										
1880.0	85.79	276	1.5	H	11.82	1.20	9.30	19.92	33	13.08
1880.0	85.70	123	1.1	V	12.42	1.20	9.30	20.52	33	12.48
WCDMA Band II HSUPA, High Channel										
1907.6	85.87	245	1.0	H	11.90	1.20	9.30	20.00	33	13.00
1907.6	85.64	331	1.6	V	12.36	1.20	9.30	20.46	33	12.54

Note:

Absolute level=Substituted Level-Cable loss+Antenna Gain

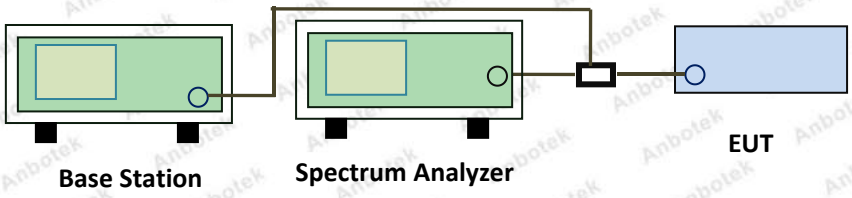
Margin=Limit -Absolute Level

4. Peak-Average Ratio

4.1. Test Standard and Limit

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

4.2. Test Setup



4.3. Test Procedure

According with KDB 971168

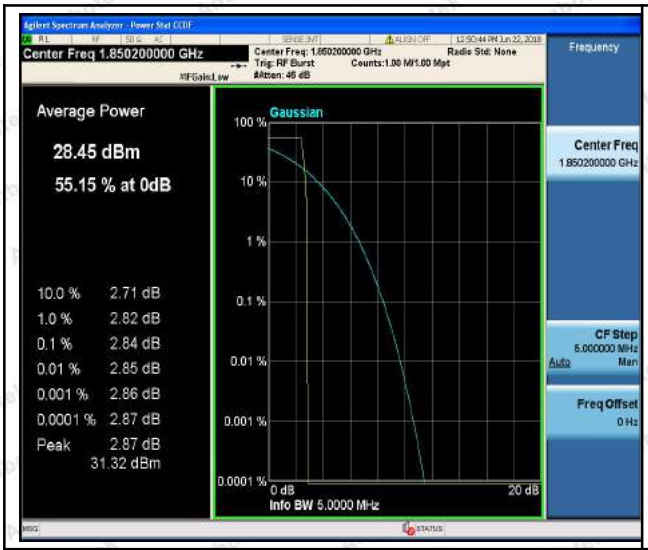
1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

4.4. Test Data

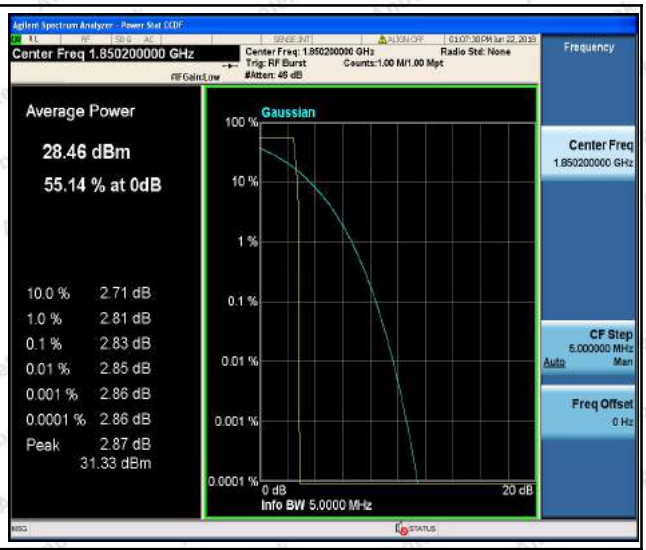
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
GSM1900	512	0.34	13	PASS
GSM1900	661	0.34	13	PASS
GSM1900	810	0.43	13	PASS
GPRS1900	512	0.33	13	PASS
GPRS1900	661	0.35	13	PASS
GPRS1900	810	0.40	13	PASS
EGPRS1900	512	3.19	13	PASS
EGPRS1900	661	3.53	13	PASS
EGPRS1900	810	3.21	13	PASS

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band II	9262	3.30	13	PASS
Band II	9400	3.76	13	PASS
Band II	9538	3.52	13	PASS

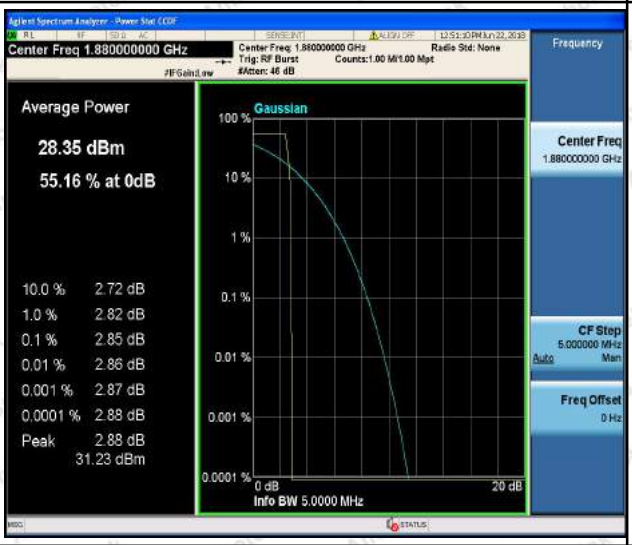
Test Plots



GSM 1900 BW - Low CH 1850.2MHz

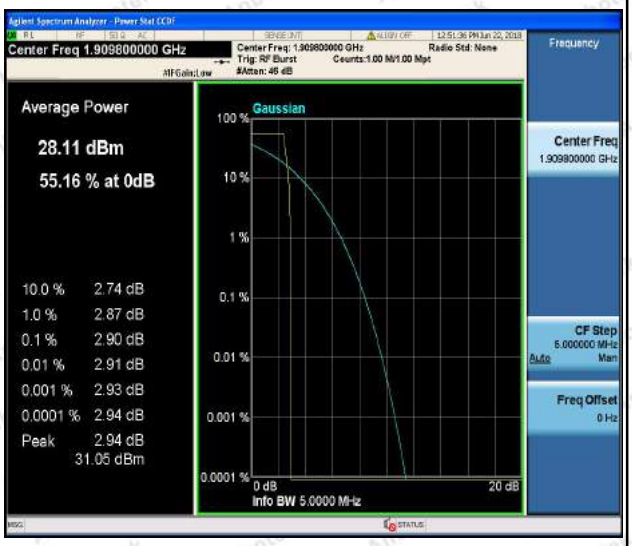


GPRS 1900 BW - Low CH 1850.2MHz

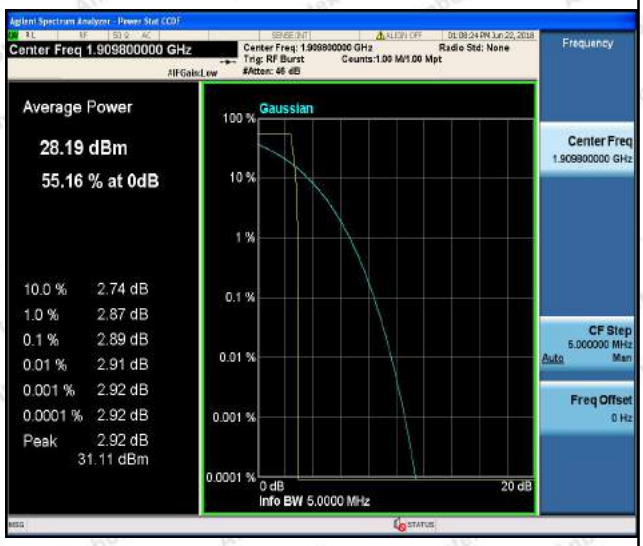


GSM 1900 BW - Mid CH 1880.0MHz

GPRS 1900 BW - Mid CH 1880.0MHz

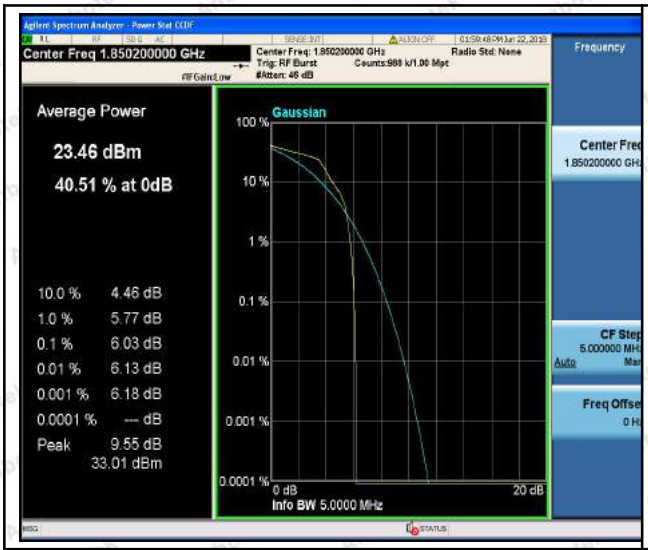


GSM 1900 BW - High CH 1909.8MHz

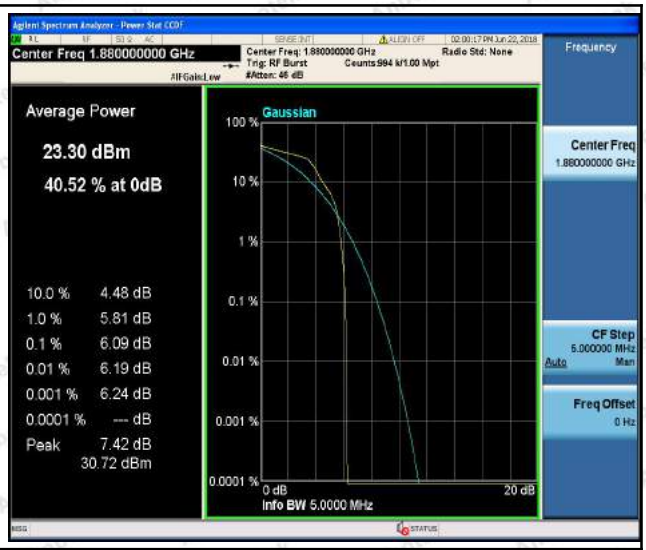


GPRS 1900 BW - High CH 1909.8MHz

Test Plots



EGPRS 1900 BW - Low CH 1850.2MHz



EGPRS 1900 BW - Mid CH 1880.0MHz

EGPRS 1900 BW - High CH 1909.8MHz

Band II_9262

Band II_9400

Band II_9538

5. Modulation Characteristic

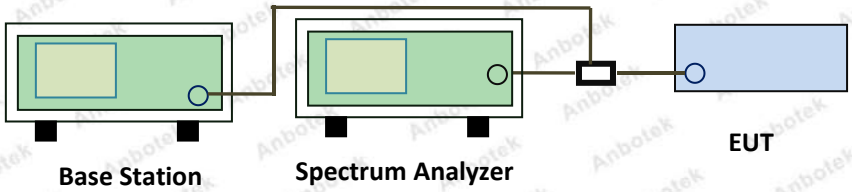
According to FCC § 2.1047(d), Part 22H, 24E there is no specific requirement for digital modulation, thereforemodulation characteristic is not presented.

6. Occupied Bandwidth

6.1. Test Standard and Limit

Spec	Item	Requirement
§2.1049, §22.917, §22.905 §24.238 §27.53(a)	a)	99% Occupied Bandwidth(kHz)
	b)	26 dB Bandwidth(kHz)

6.2. Test Setup



6.3. Test Procedure

1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBWwas set to about 1% of emission BW, VBW= 3 times RBW.
3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth isthe delta frequency between the two points where the display line intersects the signal trace.

6.4. Test Data

Cellular Band (Part 22H) result/PCS Band (Part 24E) result:

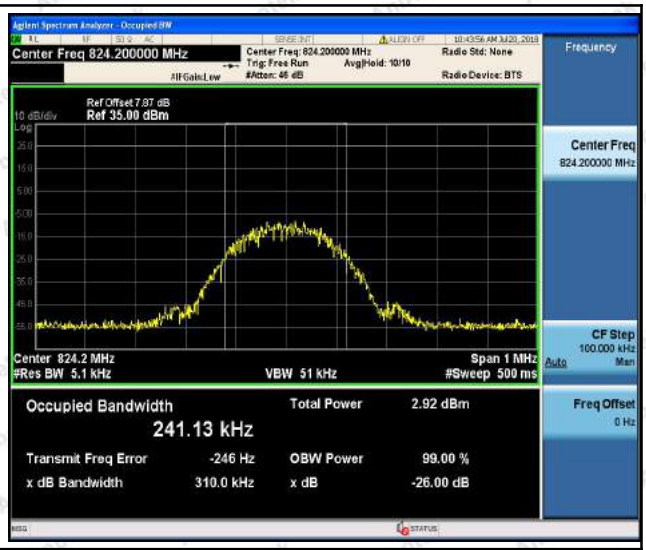
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Verdict
GSM850	128	244.6	316	PASS
GSM850	190	246.4	316	PASS
GSM850	251	242.5	312	PASS
GPRS850	128	241.1	310	PASS
GPRS850	190	244.1	314	PASS
GPRS850	251	243.6	313	PASS
EGPRS850	128	245.1	315	PASS
EGPRS850	190	245.0	299	PASS
EGPRS850	251	246.4	309	PASS
GSM1900	512	245.2	311	PASS
GSM1900	661	247.5	306	PASS
GSM1900	810	244.8	316	PASS
GPRS1900	512	244.8	314	PASS
GPRS1900	661	244.9	310	PASS

GPRS1900	810	243.6	313	PASS
EGPRS1900	512	239.7	298	PASS
EGPRS1900	661	245.1	306	PASS
EGPRS1900	810	239.5	306	PASS

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Verdict
Band II	9262	4155.8	4718	PASS
Band II	9400	4144.7	4756	PASS
Band II	9538	4131.6	4734	PASS
Band V	4132	4144.6	4709	PASS
Band V	4182	4130.1	4696	PASS
Band V	4233	4123.7	4699	PASS

Test Plots

GSM 850 BW - Low CH 824.2MHz



GPRS 850 BW - Low CH 824.2MHz

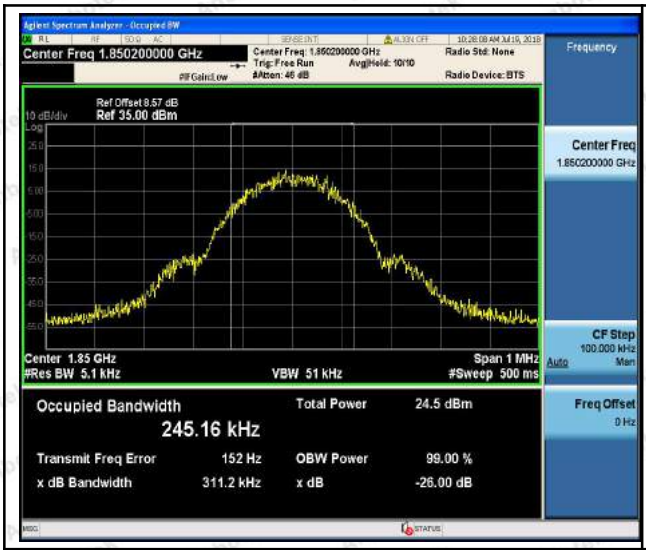
GSM 850 BW - Mid CH 836.6MHz

GPRS 850 BW - Mid CH 836.6MHz

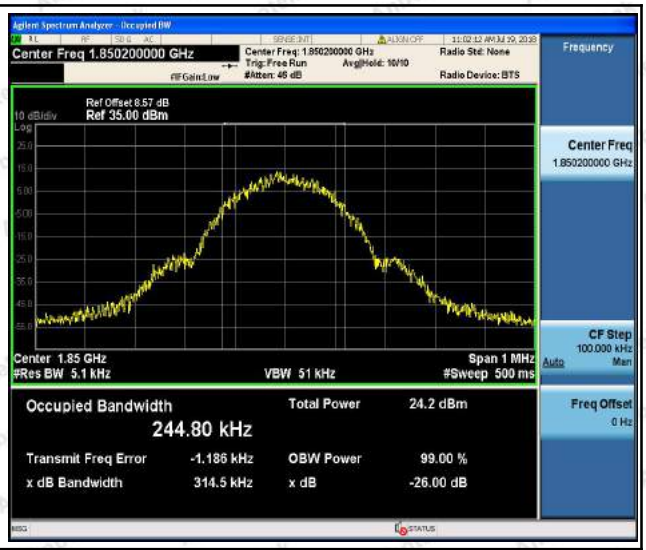
GSM 850 BW - High CH 848.8MHz

GPRS 850 BW - High CH 848.8MHz

Test Plots



GSM 1900 BW - Low CH 1850.2MHz



GPRS 1900 BW - Low CH 1850.2MHz

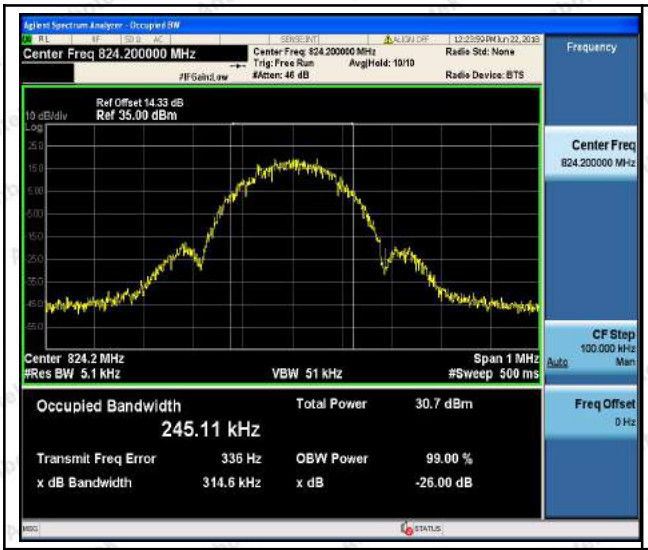
GSM 1900 BW - Mid CH 1880.0MHz

GPRS 1900 BW - Mid CH 1880.0MHz

GSM 1900 BW - High CH 1909.8MHz

GPRS 1900 BW - High CH 1909.8MHz

Test Plots



EGPRS 850 BW - Low CH 824.2MHz

EGPRS 1900 BW - Low CH 1850.2MHz

EGPRS 850 BW - Mid CH 836.6MHz

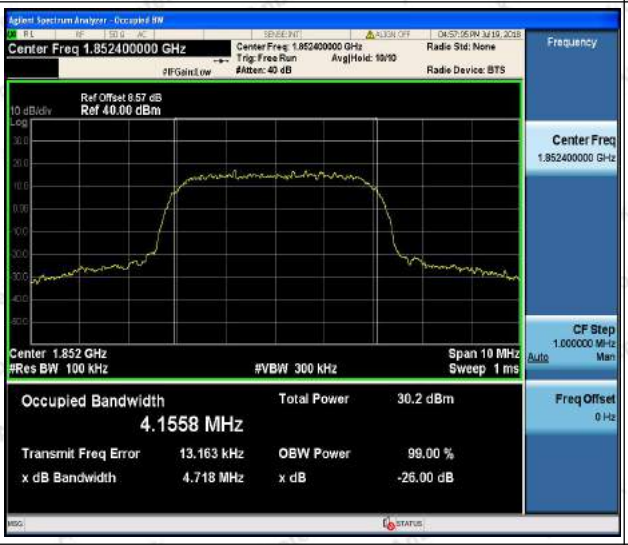
EGPRS 1900 BW - Mid CH 1880.0MHz

EGPRS 850 BW - High CH 848.8MHz

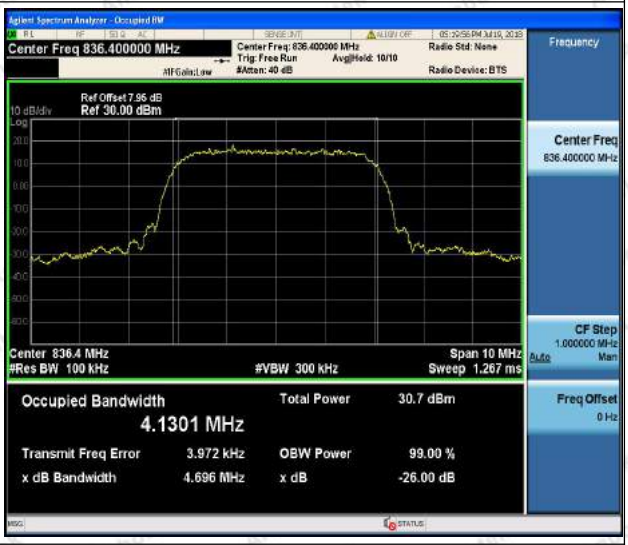
EGPRS 1900 BW - High CH 1909.8MHz

Test Plots

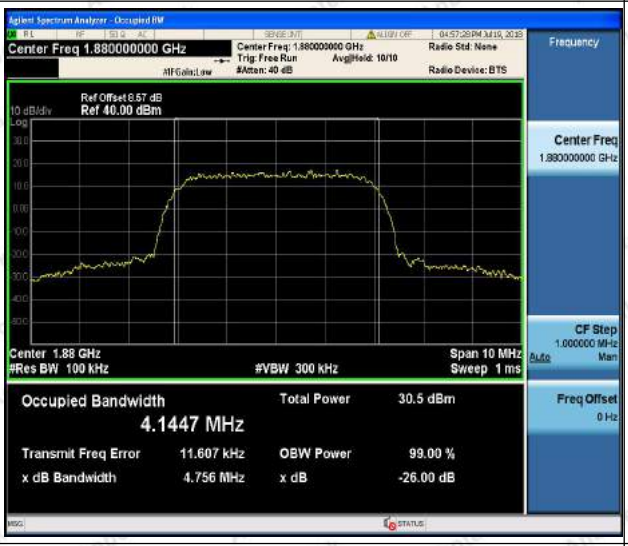
Band II_9262



Band V_4132



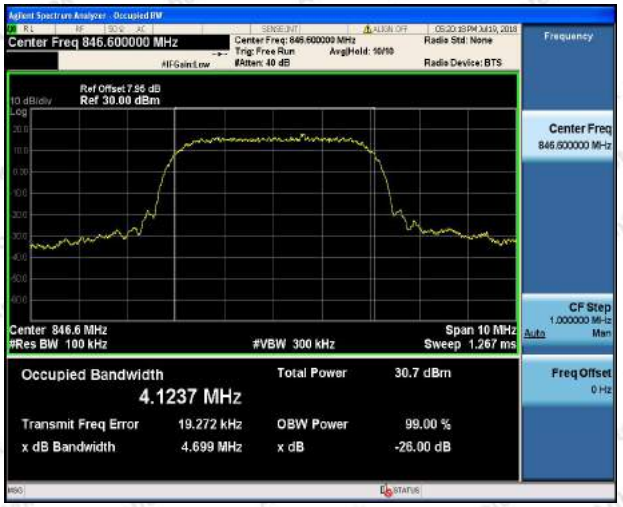
Band II_9400



Band V_4182

Band II_9538

Band V_4233

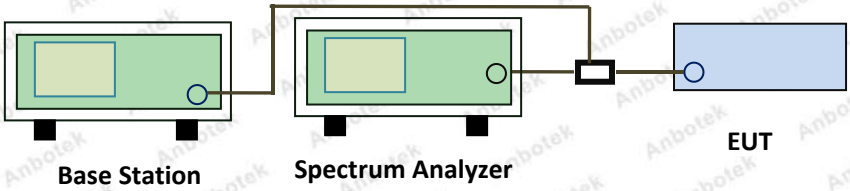


7. Spurious Emissions at Antenna Terminals

7.1. Test Standard and Limit

The mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency outside the frequency band by at least (43 + 10 log P) dB, in this case, -13dBm.

7.2. Test Setup



7.3. Test Procedure

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriateattenuation.
2. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficientscans were taken to show the out of band Emissions if any up to 10th harmonic.
3. For the out of band: Set the RBW= 1MHz, VBW = 3MHz, Start=30MHz, Stop= 10th harmonic.

7.4. Test Data

Band	Channel	Frequency Rang(Mhz)	Value(dBm)	Limit(dBm)	Verdict
GSM850	128	0.009~0.15	-42.42	-33	PASS
GSM850	128	0.15~30	-45.92	-23	PASS
GSM850	128	30~1000	-34.92	-13	PASS
GSM850	128	1000~9000	-30.70	-13	PASS
GSM850	190	0.009~0.15	-41.49	-33	PASS
GSM850	190	0.15~30	-44.10	-23	PASS
GSM850	190	30~1000	-34.89	-13	PASS
GSM850	190	1000~9000	-30.63	-13	PASS
GSM850	251	0.009~0.15	-40.68	-33	PASS
GSM850	251	0.15~30	-43.76	-23	PASS
GSM850	251	30~1000	-34.70	-13	PASS
GSM850	251	1000~9000	-31.26	-13	PASS
GPRS850	128	0.009~0.15	-47.33	-43	PASS
GPRS850	128	0.15~30	-45.18	-33	PASS
GPRS850	128	30~1000	-35.40	-13	PASS
GPRS850	128	1000~9000	-30.56	-13	PASS
GPRS850	190	0.009~0.15	-46.06	-43	PASS
GPRS850	190	0.15~30	-44.20	-33	PASS
GPRS850	190	30~1000	-33.61	-13	PASS
GPRS850	190	1000~9000	-31.10	-13	PASS
GPRS850	251	0.009~0.15	-45.33	-43	PASS
GPRS850	251	0.15~30	-45.74	-33	PASS

GPRS850	251	30~1000	-34.60	-13	PASS
GPRS850	251	1000~9000	-31.39	-13	PASS
EGPRS850	128	0.009~0.15	-46.76	-43	PASS
EGPRS850	128	0.15~30	-40.12	-33	PASS
EGPRS850	128	30~1000	-28.16	-13	PASS
EGPRS850	128	1000~9000	-23.59	-13	PASS
EGPRS850	190	0.009~0.15	-47.06	-43	PASS
EGPRS850	190	0.15~30	-38.42	-33	PASS
EGPRS850	190	30~1000	-27.56	-13	PASS
EGPRS850	190	1000~9000	-23.54	-13	PASS
EGPRS850	251	0.009~0.15	-48.71	-43	PASS
EGPRS850	251	0.15~30	-38.76	-33	PASS
EGPRS850	251	30~1000	-27.96	-13	PASS
EGPRS850	251	1000~9000	-23.84	-13	PASS
GSM1900	512	0.009~0.15	-45.84	-43	PASS
GSM1900	512	0.15~30	-45.40	-33	PASS
GSM1900	512	30~1000	-33.56	-13	PASS
GSM1900	512	1000~7000	-30.51	-13	PASS
GSM1900	512	7000~13600	-29.15	-13	PASS
GSM1900	512	13600~20000	-25.35	-13	PASS
GSM1900	661	0.009~0.15	-44.54	-43	PASS
GSM1900	661	0.15~30	-45.36	-33	PASS
GSM1900	661	30~1000	-34.78	-13	PASS
GSM1900	661	1000~7000	-30.64	-13	PASS
GSM1900	661	7000~13600	-28.94	-13	PASS
GSM1900	661	13600~20000	-24.08	-13	PASS
GSM1900	810	0.009~0.15	-43.95	-43	PASS
GSM1900	810	0.15~30	-45.55	-33	PASS
GSM1900	810	30~1000	-34.59	-13	PASS
GSM1900	810	1000~7000	-30.59	-13	PASS
GSM1900	810	7000~13600	-29.69	-13	PASS
GSM1900	810	13600~20000	-25.14	-13	PASS
GPRS1900	512	0.009~0.15	-44.66	-43	PASS
GPRS1900	512	0.15~30	-46.50	-33	PASS
GPRS1900	512	30~1000	-35.25	-13	PASS
GPRS1900	512	1000~7000	-30.14	-13	PASS
GPRS1900	512	7000~13600	-29.29	-13	PASS
GPRS1900	512	13600~20000	-24.61	-13	PASS
GPRS1900	661	0.009~0.15	-44.23	-43	PASS
GPRS1900	661	0.15~30	-45.47	-33	PASS
GPRS1900	661	30~1000	-35.18	-13	PASS
GPRS1900	661	1000~7000	-30.93	-13	PASS
GPRS1900	661	7000~13600	-29.50	-13	PASS
GPRS1900	661	13600~20000	-24.19	-13	PASS

GPRS1900	810	0.009~0.15	-44.39	-43	PASS
GPRS1900	810	0.15~30	-44.35	-33	PASS
GPRS1900	810	30~1000	-34.96	-13	PASS
GPRS1900	810	1000~7000	-30.20	-13	PASS
GPRS1900	810	7000~13600	-28.26	-13	PASS
GPRS1900	810	13600~20000	-24.84	-13	PASS
EGPRS1900	512	0.009~0.15	-44.24	-43	PASS
EGPRS1900	512	0.15~30	-39.35	-33	PASS
EGPRS1900	512	30~1000	-28.78	-13	PASS
EGPRS1900	512	1000~7000	-24.17	-13	PASS
EGPRS1900	512	7000~13600	-22.10	-13	PASS
EGPRS1900	512	13600~20000	-18.48	-13	PASS
EGPRS1900	661	0.009~0.15	-45.84	-43	PASS
EGPRS1900	661	0.15~30	-38.65	-33	PASS
EGPRS1900	661	30~1000	-28.95	-13	PASS
EGPRS1900	661	1000~7000	-24.10	-13	PASS
EGPRS1900	661	7000~13600	-22.07	-13	PASS
EGPRS1900	661	13600~20000	-17.04	-13	PASS
EGPRS1900	810	0.009~0.15	-45.33	-43	PASS
EGPRS1900	810	0.15~30	-37.67	-33	PASS
EGPRS1900	810	30~1000	-28.68	-13	PASS
EGPRS1900	810	1000~7000	-23.34	-13	PASS
EGPRS1900	810	7000~13600	-22.28	-13	PASS
EGPRS1900	810	13600~20000	-18.27	-13	PASS

Band	Channel	Frequency Rang(Mhz)	Value(dBm)	Limit(dBm)	Verdict
Band II	9262	30~1000	-44.46	-13	PASS
Band II	9262	1000~7000	-30.58	-13	PASS
Band II	9262	7000~13600	-38.89	-13	PASS
Band II	9262	13600~20000	-33.67	-13	PASS
Band II	9400	30~1000	-45.21	-13	PASS
Band II	9400	1000~7000	-30.29	-13	PASS
Band II	9400	7000~13600	-39.24	-13	PASS
Band II	9400	13600~20000	-34.96	-13	PASS
Band II	9538	30~1000	-44.30	-13	PASS
Band II	9538	1000~7000	-30.46	-13	PASS
Band II	9538	7000~13600	-38.50	-13	PASS
Band II	9538	13600~20000	-34.36	-13	PASS
Band V	4132	0.15~30	-36.02	-23	PASS
Band V	4132	30~1000	-44.77	-13	PASS
Band V	4132	1000~9000	-31.28	-13	PASS
Band V	4182	0.15~30	-34.97	-23	PASS
Band V	4182	30~1000	-44.96	-13	PASS
Band V	4182	1000~9000	-31.10	-13	PASS

Band V	4233	0.15~30	-35.20	-23	PASS
Band V	4233	30~1000	-43.25	-13	PASS
Band V	4233	1000~9000	-31.14	-13	PASS

Test Plots

GSM850_128

GSM850_128

GSM850_128

GSM850_128

GSM850_190

GSM850_190

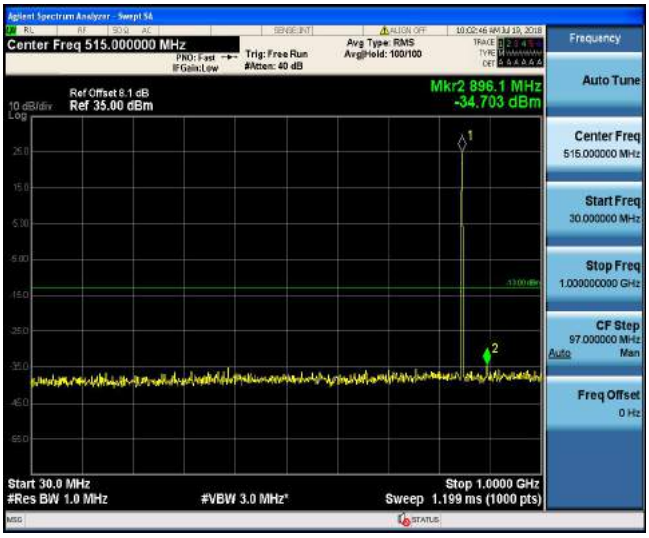
GSM850_190

GSM850_190

GSM850_251

GSM850_251

GSM850_251



GSM850_251

GPRS850_128

GPRS850_128

GPRS850_128

GPRS850_128

GPRS850_190

GPRS850_190

GPRS850_190

GPRS850_190

GPRS850_251

GPRS850_251

GPRS850_251

GPRS850_251

GSM1900_512

GSM1900_512

GSM1900_512

GSM1900_512

GSM1900_512

GSM1900_512

GSM1900_661

GSM1900_661

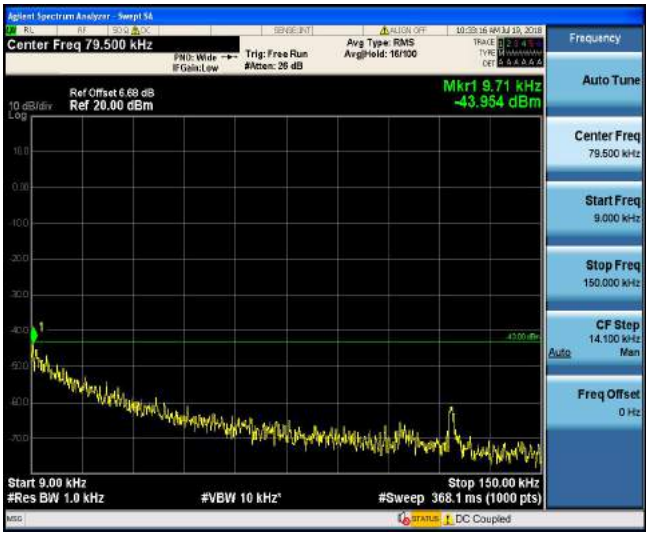
GSM1900_661

GSM1900_661

GSM1900_661

GSM1900_661

GSM1900_810



GSM1900_810

GSM1900_810

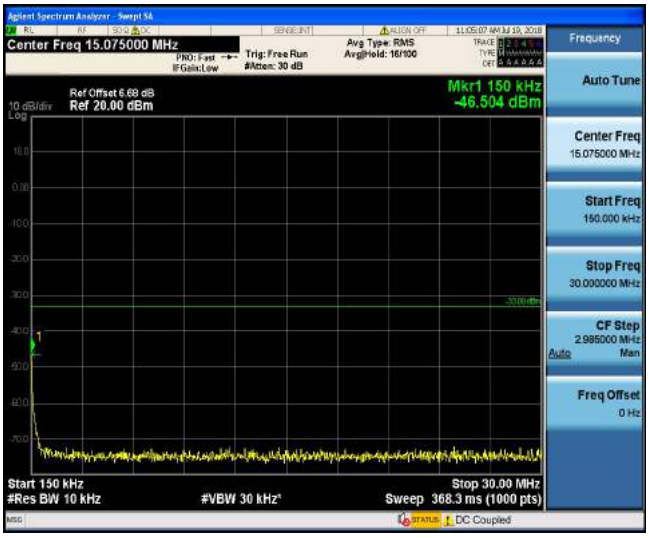
GSM1900_810

GSM1900_810

GSM1900_810

GPRS1900_512

GPRS1900_512



GPRS1900_512

GPRS1900_512

GPRS1900_512

GPRS1900_512

GPRS1900_661

GPRS1900_661

GPRS1900_661

GPRS1900_661

GPRS1900_661

GPRS1900_661

GPRS1900_810

GPRS1900_810

GPRS1900_810

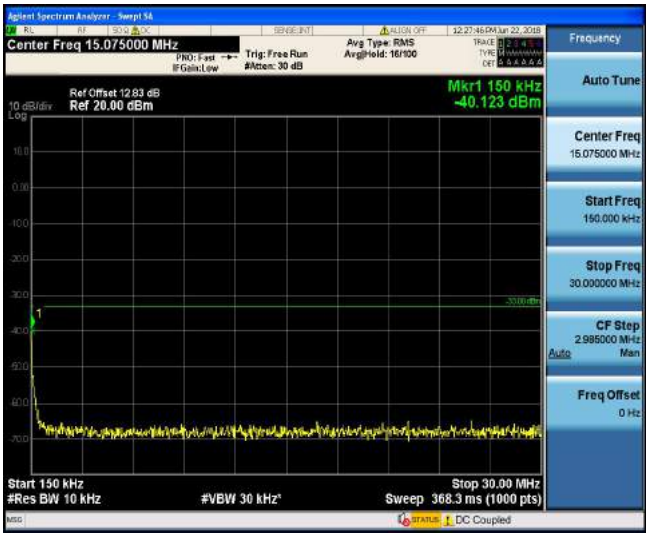
GPRS1900_810

GPRS1900_810

GPRS1900_810

EGPRS850_128

EGPRS850_128



EGPRS850_128

EGPRS850_128

EGPRS850_190

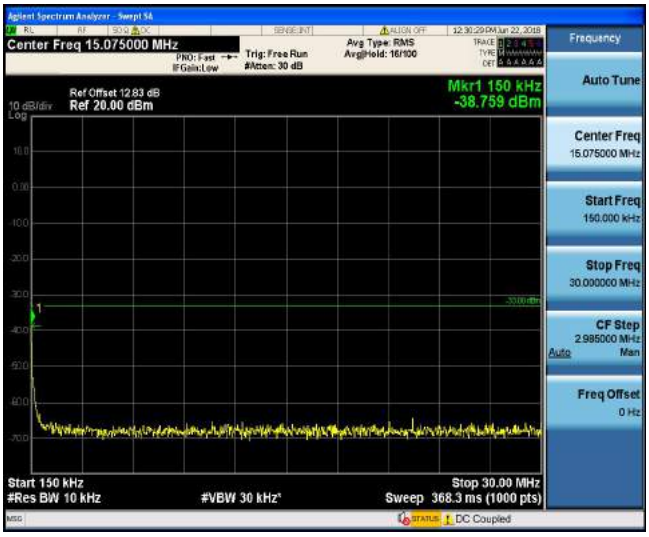
EGPRS850_190

EGPRS850_190

EGPRS850_190

EGPRS850_251

EGPRS850_251



EGPRS850_251

EGPRS850_251

EGPRS1900_512

EGPRS1900_512

EGPRS1900_512

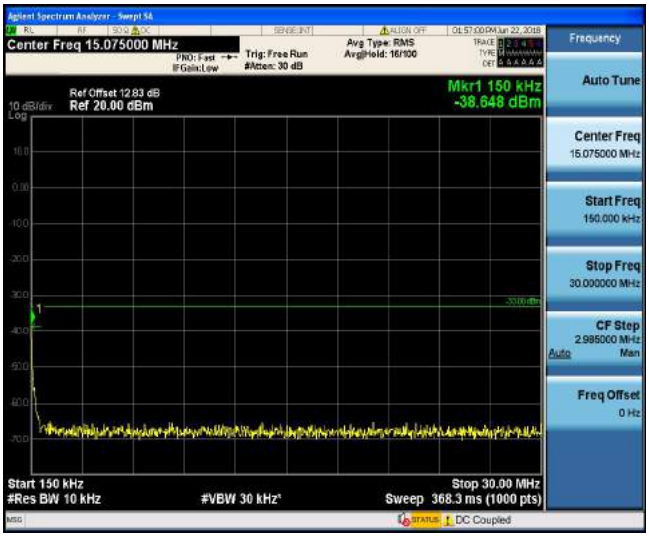
EGPRS1900_512

EGPRS1900_512

EGPRS1900_512

EGPRS1900_661

EGPRS1900_661



EGPRS1900_661

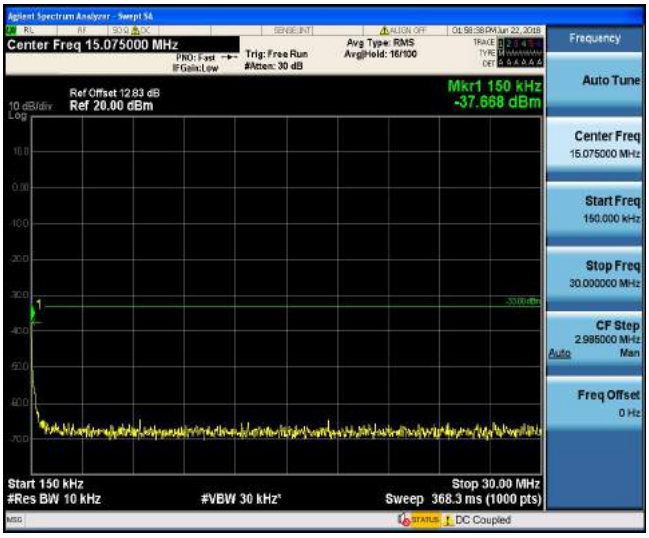
EGPRS1900_661

EGPRS1900_661

EGPRS1900_661

EGPRS1900_810

EGPRS1900_810



EGPRS1900_810

EGPRS1900_810

EGPRS1900_810

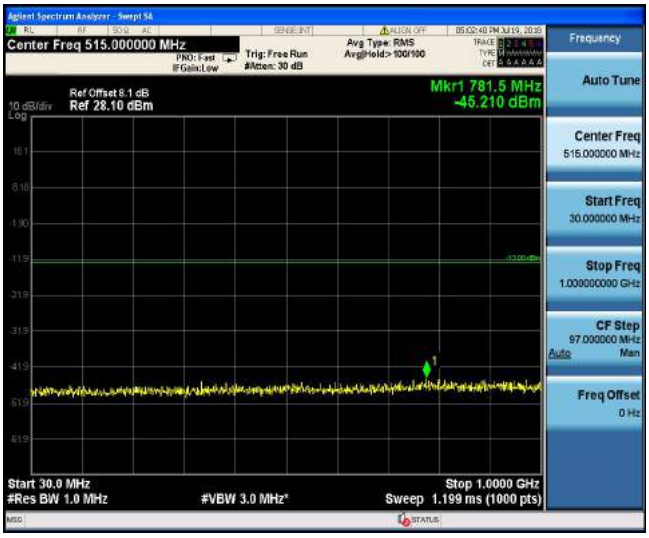
EGPRS1900_810

Band II_9262

Band II_9262

Band II_9262

Band II_9262



Band II_9400

Band II_9400

Band II_9400

Band II_9400

Band II_9538

Band II_9538

Band II_9538

Band II_9538

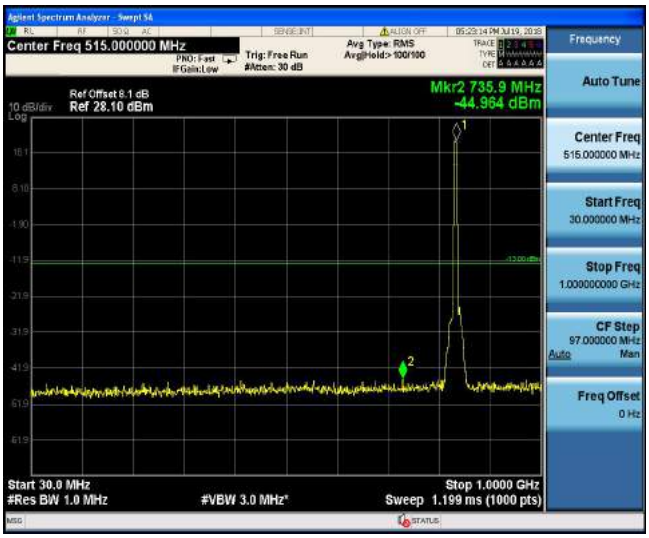
Band V_4132

Band V_4132

Band V_4132

Band V_4182

Band V_4182



Band V_4182

Band V_4182

Band V_4233

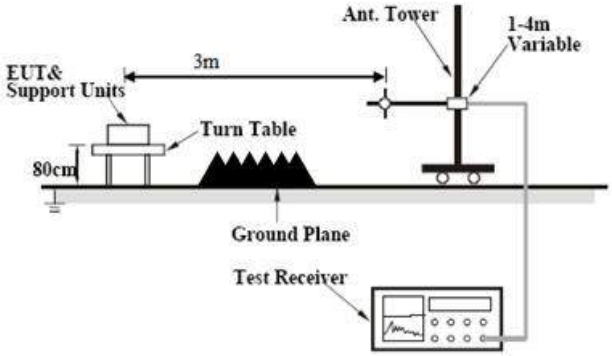
Band V_4233

8. Spurious Radiated Emissions

8.1. Test Standard and Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

8.2. Test Setup



8.3. Test Procedure

1.The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

2.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.

3.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.

Sample Calculation:

EUT Field Strength = Raw Amplitude (dBμV/m) – Amplifier Gain (dB) + Antenna Factor (dB) + Cable Loss (dB) + Filter Attenuation (dB, if used)

8.4. Test Data

Please to see the following pages

GSM Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
GSM 850,Middle Channel										
311.52	32.93	261	1.5	H	-32.07	0.3	0	-32.37	-13	19.37
311.52	32.04	1516	1.4	V	-32.26	0.3	0	-32.56	-13	19.56
1673.2	56.59	224	7	H	-50.56	1.2	8.7	-43.06	-13	30.06
1673.2	53.48	162	1.4	V	-53.36	1.2	8.7	-45.86	-13	32.86
2509.8	42.49	175	1.7	H	-62.13	2.4	9.9	-54.63	-13	41.63
2509.8	42.37	121	1.6	V	-60.84	2.4	9.9	-53.34	-13	40.34
PCS 1900，Middle Channel										
311.52	33.03	256	1.4	H	-36.77	0.3	0	-37.07	-13	24.07
311.52	31.92	17	2.1	V	-37.58	0.3	0	-37.88	-13	24.88
3760	56.73	214	1.2	H	-45.11	1.4	11.6	-34.91	-13	21.91
3760	55.16	114	2.7	V	-46.05	1.4	11.6	-35.85	-13	22.85
5640	51.65	217	1.6	H	-46.00	1.5	12.1	-35.40	-13	22.40
5640	52.84	148	2.2	V	-43.95	1.5	12.1	-33.35	-13	20.35

WCDMA Mode

Frequency (MHz)	Receiver Reading (dBuV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Part 22H/24E	
			Height (m)	Polor (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
WCDMA Band V,Middle Channel										
311.52	32.11	217	1.5	H	-32.89	0.3	0	-33.19	-13	20.19
311.52	31.72	152	1.2	V	-32.58	0.3	0	-32.88	-13	19.88
1673.2	45.47	24	1.7	H	-61.68	1.2	8.7	-54.18	-13	41.18
1673.2	43.69	124	1.2	V	-63.15	1.2	8.7	-55.65	-13	42.65
2509.8	41.74	217	1.4	H	-62.88	2.4	9.9	-55.38	-13	42.38
2509.8	41.87	171	1.2	V	-61.34	2.4	9.9	-53.84	-13	40.84
WCDMA Band II，Middle Channel										
311.52	32.39	214	1.2	H	-37.41	0.3	0	-37.71	-13	24.71
311.52	33.42	325	2.4	V	-36.08	0.3	0	-36.38	-13	23.38
3760	44.29	218	1.7	H	-57.55	1.4	11.6	-47.35	-13	34.35
3760	43.96	134	2.5	V	-57.25	1.4	11.6	-47.05	-13	34.05
5640	43.32	313	1.5	H	-54.33	1.5	12.1	-43.73	-13	30.73
5640	42.43	147	2.7	V	-54.36	1.5	12.1	-43.76	-13	30.76

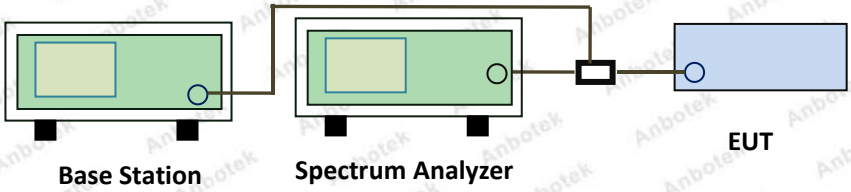
Note：The measurment have been performed for all mode, only report the worst case.

9. Band Edge Compliance

9.1. Test Standard and Limit

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.

9.2. Test Setup



9.3. Test Procedure

1. The RF output of the transceiver was connected to a spectrum analyzer through appropriateattenuation. 2. For the bandedge: 2G:Set the RBW=5.1KHz, VBW = 10KHz, Sweep time= Auto

9.4. Test Data

Band	Channel	Value(dBm)	Limit(dBm)	Verdict
GSM850	128	-23.30	-13	PASS
GSM850	251	-23.65	-13	PASS
GPRS850	128	-24.00	-13	PASS
GPRS850	251	-24.64	-13	PASS
EGPRS850	128	-25.13	-13	PASS
EGPRS850	251	-26.78	-13	PASS
GSM1900	512	-29.59	-13	PASS
GSM1900	810	-29.45	-13	PASS
GPRS1900	512	-29.10	-13	PASS
GPRS1900	810	-29.25	-13	PASS
EGPRS1900	512	-25.31	-13	PASS
EGPRS1900	810	-26.31	-13	PASS

Band Edge only reflects the worst mode WCDMA data emissions.

UMTS-FDD Band Ⅴ (Part 22H)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
824	-20.79	-13
849	-17.92	-13

UMTS-FDD Band Ⅱ (Part 24E)

Frequency (MHz)	Emission (dBm)	Limit (dBm)
1850	-22.11	-13
1910	-19.62	-13

Test Plots

Cellular Band (Part 22H) result

Test Mode: GSM 850 - Low Channel

Test Mode: GSM 850 - High Channel

Test Mode: GPRS 850 - Low Channel

Test Mode: GPRS 850 - High Channel

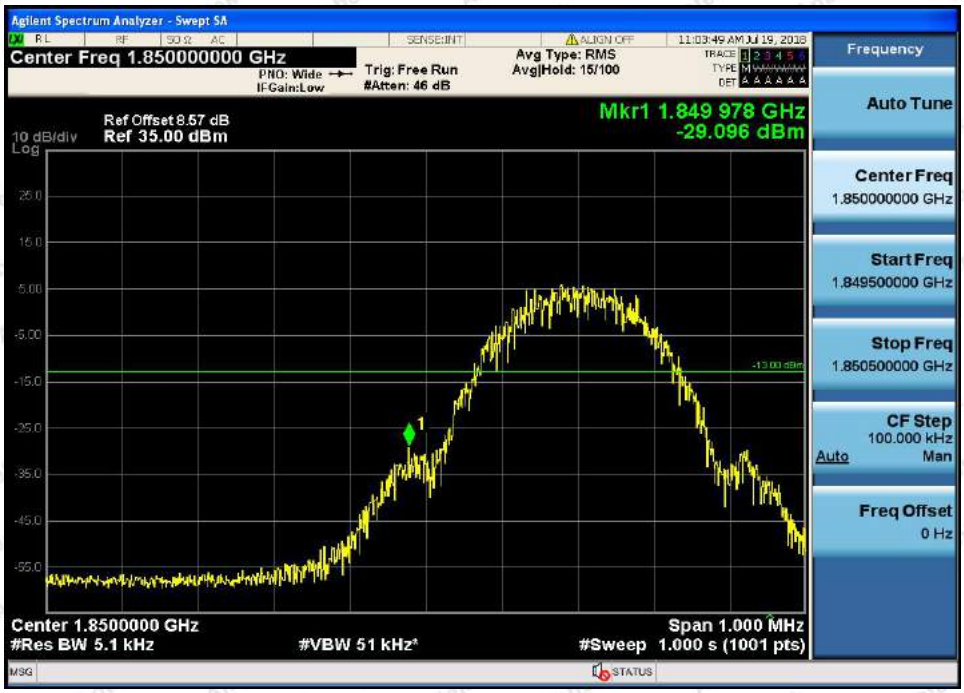
Test Mode: EGPRS 850 - Low Channel

Test Mode: EGPRS 850 - High Channel

PCS Band (Part24E) result

Test Mode: GSM 1900 - Low Channel

Test Mode: GSM 1900 - High Channel



Test Mode: GPRS 1900 - Low Channel

Test Mode: GPRS 1900 - High Channel

Test Mode: EGPRS 1900 - Low Channel

Test Mode: EGPRS 1900 - High Channel

Band II_9262

Band II_9538

Band V_4132

Band V_4233

10. Frequency Stability

10.1. Test Standard and Limit

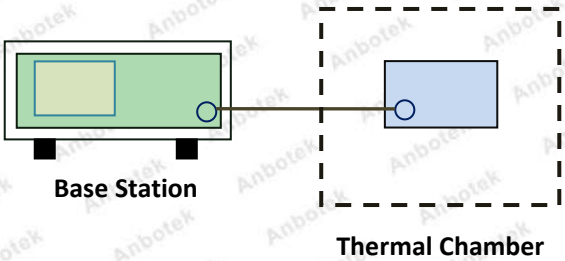
According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.

10.2. Test Setup



10.3. Test Procedure

A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage.

Limit: The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

10.4. Test Data

Cellular Band（Part 22H）

GSM 850 Test Frequency：836.6MHz				
Temperature(℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (Hz)	Limit (ppm)
-30	3.7	-5	-0.0060	2.5
-20		-1	-0.0012	2.5
-10		3	0.0036	2.5
0		4	0.0048	2.5
10		2	0.0024	2.5
20		9	0.0108	2.5
30		-6	-0.0072	2.5
40		7	0.0084	2.5
50		6	0.0072	2.5
20	3.3	2	0.0024	2.5
20	4.2	3	0.0036	2.5

WCDMA Band V Test Frequency：836.6MHz				
Temperature(℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (Hz)	Limit (ppm)
-30	3.7	-4	-0.0048	2.5
-20		-1	-0.0012	2.5
-10		4	0.0048	2.5
0		4	0.0048	2.5
10		2	0.0024	2.5
20		9	0.0108	2.5
30		-6	-0.0072	2.5
40		8	0.0096	2.5
50		6	0.0072	2.5
20	3.3	2	0.0024	2.5
20	4.2	4	0.0048	2.5

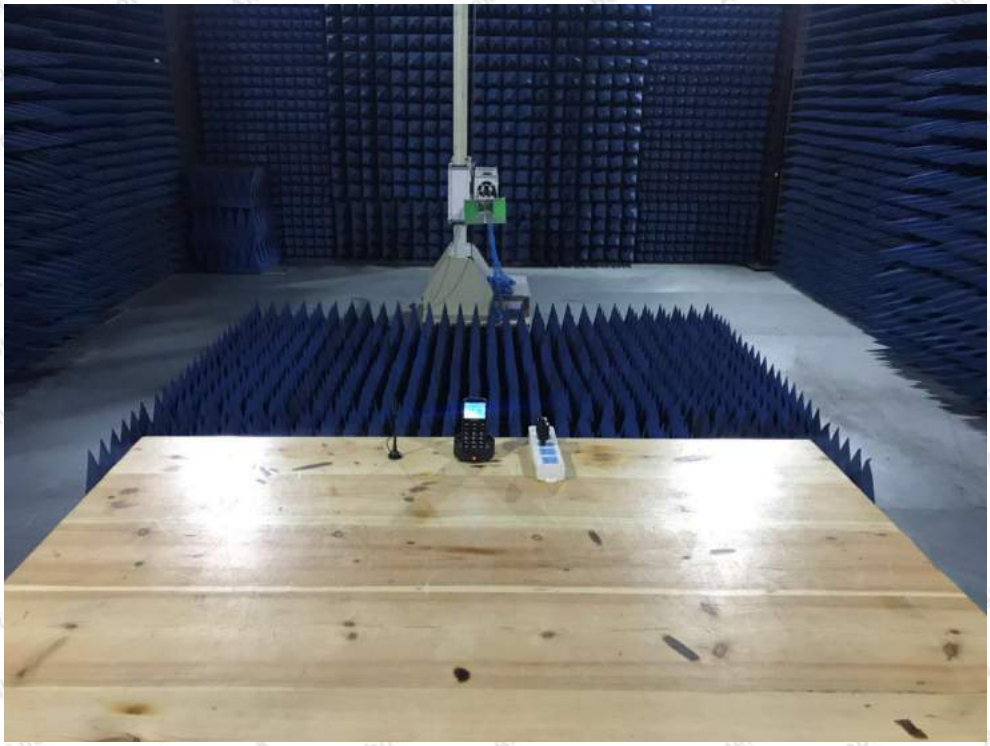
PCS Band（Part 22E）

PCS 1900 Test Frequency：1880MHz				
Temperature(℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (Hz)	Limit (ppm)
-30	3.7	-4	-0.0021	2.5
-20		-1	-0.0005	2.5
-10		4	0.0021	2.5
0		4	0.0021	2.5
10		2	0.0011	2.5
20		9	0.0048	2.5
30		-6	-0.0032	2.5
40		8	0.0043	2.5
50		6	0.0032	2.5
20	3.3	2	0.0011	2.5
20	4.2	4	0.0021	2.5

WCDMA Band II Test Frequency：1880MHz				
Temperature(℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (Hz)	Limit (ppm)
-30	3.7	-5	-0.0027	2.5
-20		-1	-0.0005	2.5
-10		3	0.0016	2.5
0		1	0.0005	2.5
10		2	0.0011	2.5
20		9	0.0048	2.5
30		-6	-0.0032	2.5
40		7	0.0037	2.5
50		6	0.0032	2.5
20	3.3	2	0.0011	2.5
20	4.2	3	0.0016	2.5

APPENDIX I -- TEST SETUP PHOTOGRAPH

Photo of Radiation Emission Test



APPENDIX II -- PHOTOGRAPH

Reference to the test report SZAWW180521002-01