47 CFR PART 22 SUBPART H & 24 SUBPART E

TEST REPORT

of

Odin

Model Name: MG758/MG75X/MG75875075X/MG752/E750
Trade Name: UniStrong
Brand Name: UniStrong
Report No: SH11110007R02
FCC ID: YYEMG75875075X

prepared for

Beijing UniStrong Science & Technology Co., Ltd
6f East, A2 Building, #9 Jiuxianqiao East Road, Chaoyang District,
Beijing 100015, China

prepared by

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CTIA Authorized Test Lab
LAB CODE 20081223-00

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TABLE OF CONTENT

1. TEST CERTIFICATION

Equipment under Test:	Odin
Trade Name:	UniStrong
Brand Name:	UniStrong
Model Name:	MG758/MG75X/MG75875075X/MG752/E750
FCC ID:	YYEMG75875075X
Applicant:	Beijing UniStrong Science & Technology Co., Ltd 6F East, A2 Building, #9 Jiuxianqiao East Road, Chaoyang District, Beijing 100015, China
Manufacturer:	Beijing UniStrong Science & Technology Co., Ltd 6F East, A2 Building, #9 Jiuxianqiao East Road, Chaoyang District, Beijing 100015, China
Test Standards:	47 CFR Part 2 47 CFR Part 22 Subpart H 47 CFR Part 24 Subpart E
Test Date(s):	Nov.15, 2011 – Nov.23, 2011
Test Result:	PASS

*** We Hereby Certify That:**

The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: ..... Shi Feng ..... Dated: ..... 2011. 11. 24 .....
Shi Feng

Reviewed by: ..... Zhang Jun ..... Dated: ..... 2011. 11. 24 .....
Zhang Jun

Approved by: ..... Wei Bei ..... Dated: ..... 2011. 11. 24. .....
Wei Bei

2. GENERAL INFORMATION

2.1 EUT Description

EUT Type.....: Odin
Model Name .....: MG758/MG75X/MG75875075X/MG752/E750
Frequency Range.....: GSM 850MHz:
Tx: 824.20 - 848.80MHz (at intervals of 200kHz);
Rx: 869.20 - 893.80MHz (at intervals of 200kHz)
GSM 1900MHz:
Tx: 1850.20 - 1909.80MHz (at intervals of 200kHz);
Rx: 1930.20 - 1989.80MHz (at intervals of 200kHz)
Modulation Type.....: GMSK,8-PSK
Power Supply.....: Battery

Brand name:	DBK
Mode Name.:	MG-4LH
Capacitance:	3000mAh
Rated voltage:	3.7V
Charge limited:	4.2V
Manufacturer:	SHENZHEN DBK ELECTRONICS CO., LTD DBK Ind. Park, the north of longguan Rd. Hualian community, Longhua Town, Baoan District, Shenzhen

Ancillary Equipments.....: AC Adapter (Charger for Battery)

Brand name:	PHIHONG
Mode Name.:	PSAI05R-050Q
Rated Input:	AC100~240 V, 300mA, Max 4.2 W, 50/60 Hz
Rated Output:	DC5 V, 1000 mA
Manufacturer:	PHIHONG TECHNOLOGY CO.,LTD PHIHONG TECHNOLOGY CO.,LTD, Yinhu Industry park ,Qingxi district,Dongguan City,Guangdong Province

Note 1: The transmitter (Tx) frequency arrangement of the GSM 850MHz band used by the EUT can be represented with the formula F(n)=824.2+0.2*(n-128), 128<=n<=251; the lowest, middle, highest channel numbers (ARFCHs) used and tested in this report are separately 128 (824.2MHz), 190 (836.6MHz) and 251 (848.8MHz).

Note 2: The transmitter (Tx) frequency arrangement of the PCS 1900MHz band used by the EUT can be represented with the formula F(n)=1850.2+0.2*(n-512), 512<=n<=810; the lowest, middle and highest channel numbers (ARFCHs) used and tested in this report are separately

512 (1850.2MHz), 661 (1880.0MHz) and 810 (1909.8MHz).

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 2, Part 22 and Part 24 for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-05 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22 (10-1-05 Edition)	Public Mobile Services
3	47 CFR Part 24 (10-1-05 Edition)	Personal Communications Services
4	ANSI/TIA/EIA-603-C (2004)	Land Mobile FM or PM - Communications Equipment - Measurement and Performance Standards
5	ANSI C63.4-2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Test detailed items/section required by FCC rules and results are as below:

No.	FCC rules	Description	Result
1	2.1046	Conducted RF Output Power	PASS
2	2.1053 2.1057 22.917 24.238	Radiated Out of Band Emissions	PASS

2.3 Facilities and Accreditations

2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

2.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (℃):	20 - 25
Relative Humidity (%):	40 - 60
Atmospheric Pressure (kPa):	96

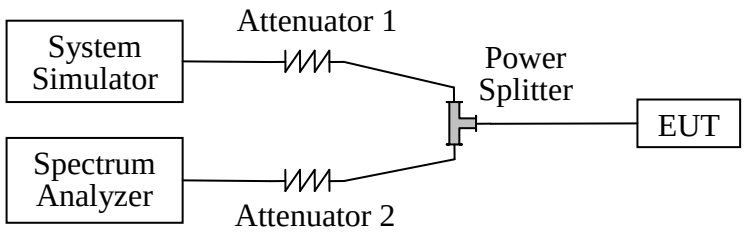
3. 47 CFR PART 2, PART 22H &24E REQUIREMENTS

3.1 Conducted RF Output Power

3.1.1 Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

3.1.2 Test Description



3.1.3 Test Result

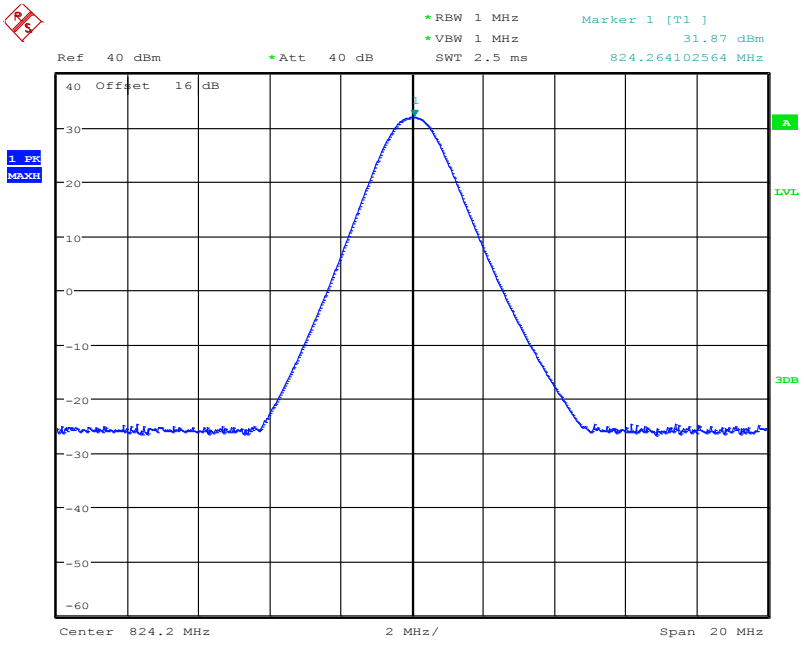
Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT. For the GSM 850MHz operates at PCL=5 (where Power Class is 4), the rated conducted RF output power is 32.3dBm within the tolerance of ±0.5dB, and For the GSM 1900MHz operates at PCL=0 (where Power Class is 1), the rated conducted RF output power is 30.2dBm within the tolerance of ±0.8dB.

1. Test Verdict:

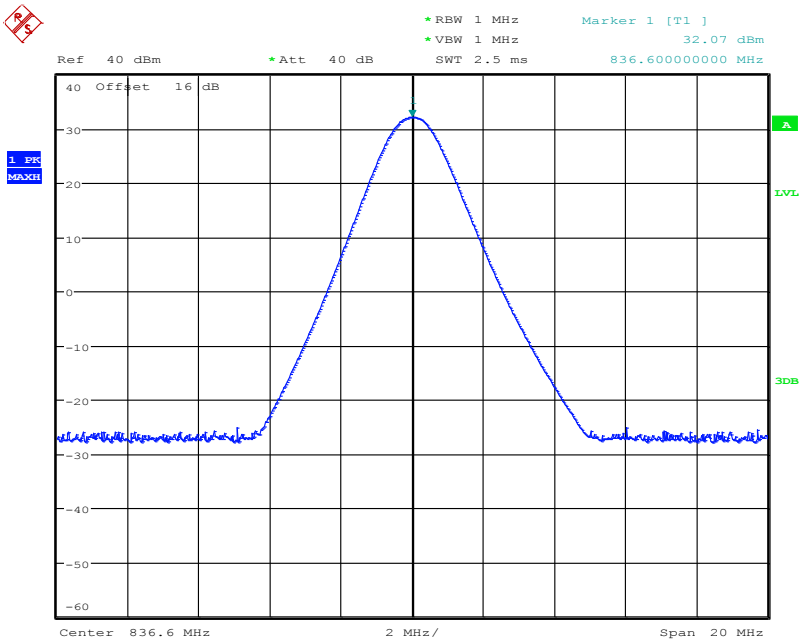
Band	Channel	Frequency (MHz)	Measured Output Power		Rated Output Power		Verdict
			dBm	Refer to Plot	dBm	Tolerance (dB)	
GSM 850MHz	128	824.26	31.87	Plot A2	32	±0.5	PASS
	190	836.60	32.07	Plot B2			PASS
	251	848.80	32.22	Plot C2			PASS
GSM 1900MHz	512	1850.17	30.01	Plot D2	29.5	±1	PASS
	661	1879.97	29.68	Plot E2			PASS
	810	1909.80	29.61	Plot F2			PASS
GPRS 850MHz	128	824.17	31.76	Plot G2	32	±0.5	PASS

Band	Channel	Frequency (MHz)	Measured Output Power		Rated Output Power		Verdict
			dBm	Refer to Plot	dBm	Tolerance (dB)	
	190	836.60	31.93	Plot H2			PASS
	251	848.80	32.12	Plot I2			PASS
GPRS 1900MHz	512	1850.20	29.42	Plot J2	29.5	±1	PASS
	661	1879.97	29.27	Plot K2			PASS
	810	1909.80	29.05	Plot L2			PASS
EGPRS 850MHz	128	824.14	28.69	Plot M2	29	±1	PASS
	190	836.50	28.59	Plot N2			PASS
	251	848.83	28.62	Plot O2			PASS
EGPRS 1900MHz	512	1850.20	28.45	Plot P2	27.5	±1	PASS
	661	1880.03	28.43	Plot Q2			PASS
	810	1909.80	28.10	Plot R2			P ASS

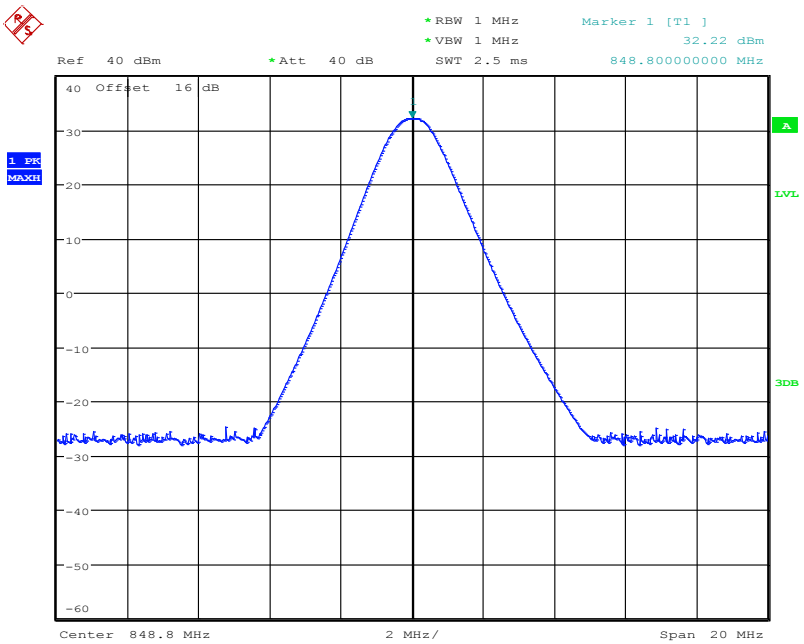
2. Test Plot:



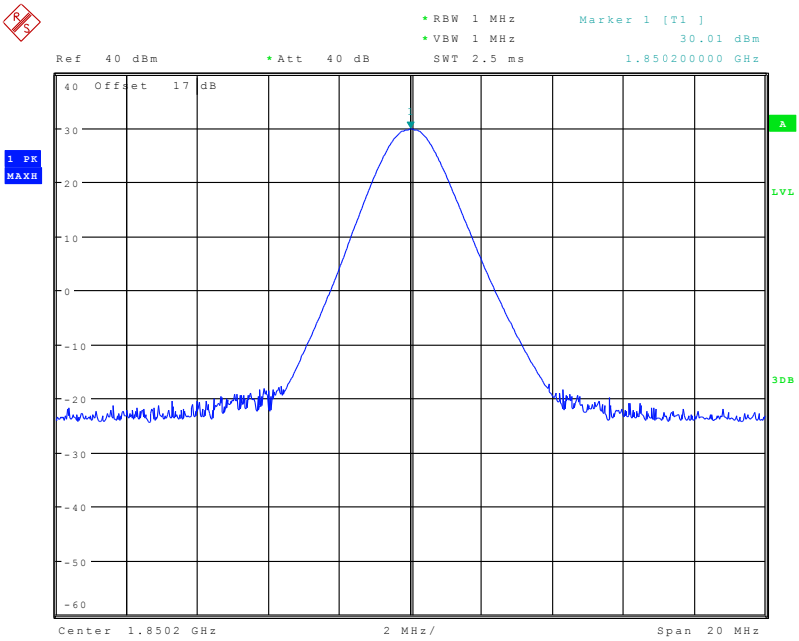
(Plot A2: GSM 850MHz Channel = 128)



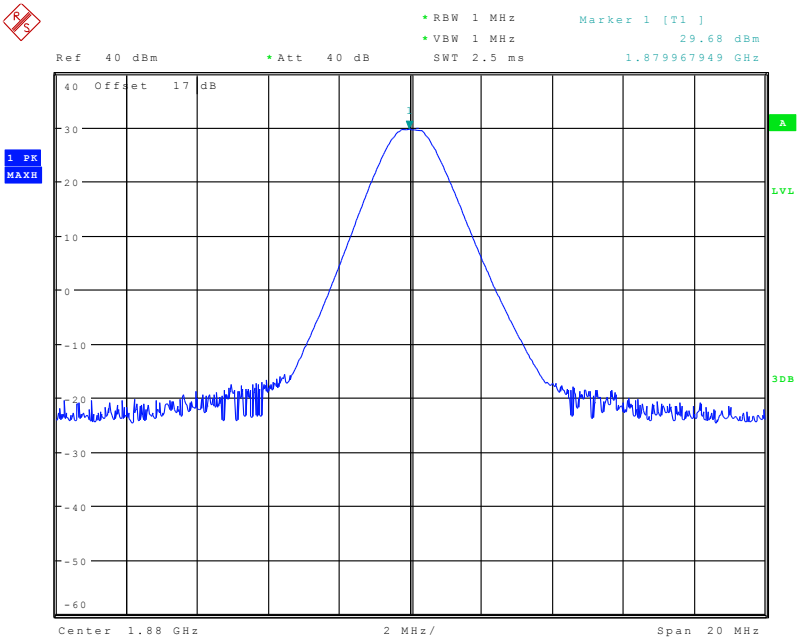
(Plot B2: GSM 850MHz Channel = 190)



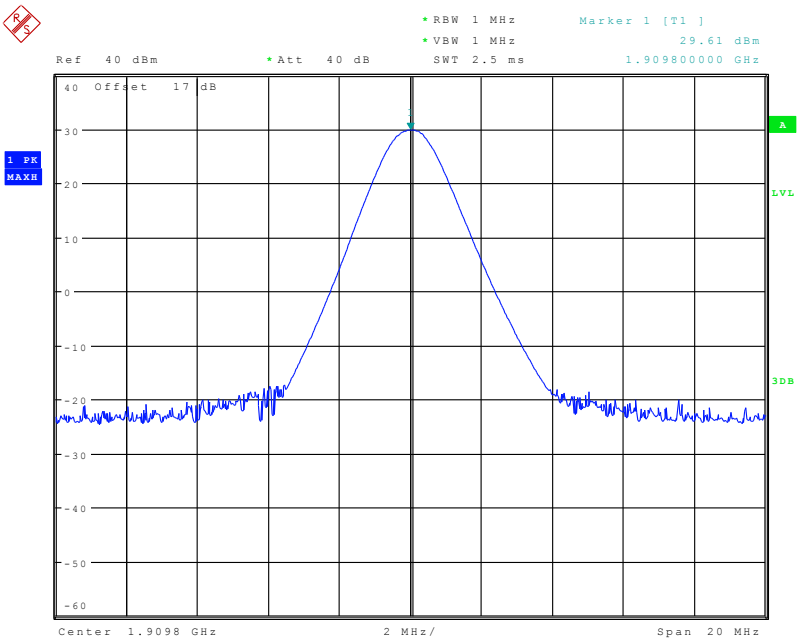
(Plot C2: GSM 850MHz Channel = 251)



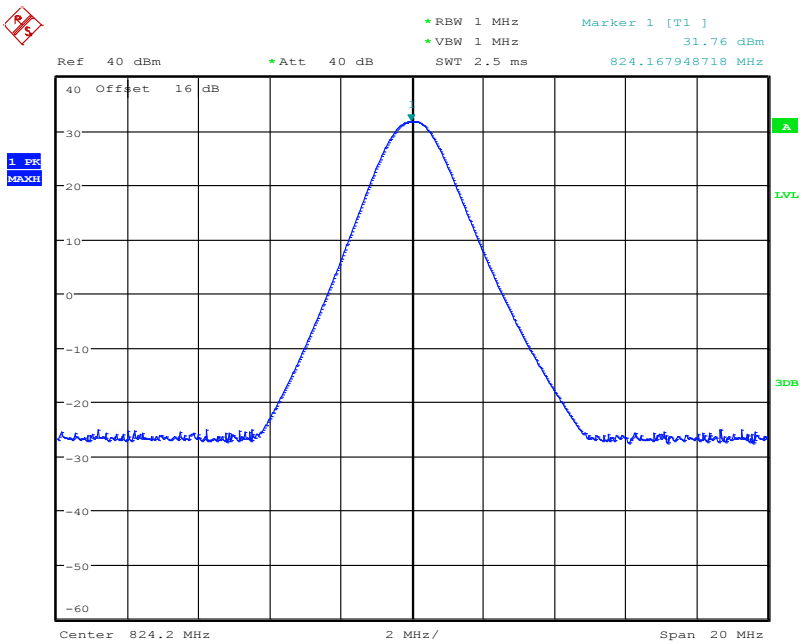
(Plot D2: GSM 1900MHz Channel = 512)



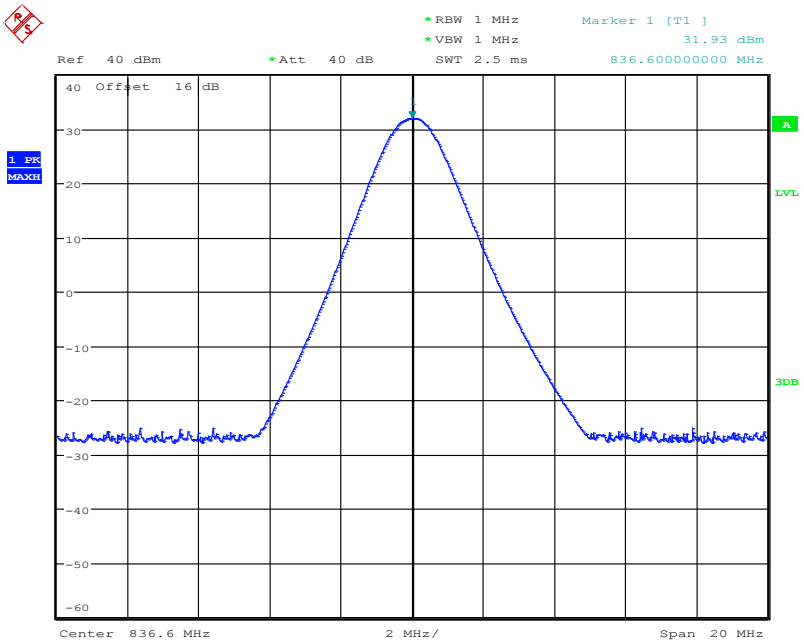
(Plot E2: GSM 1900MHz Channel = 661)



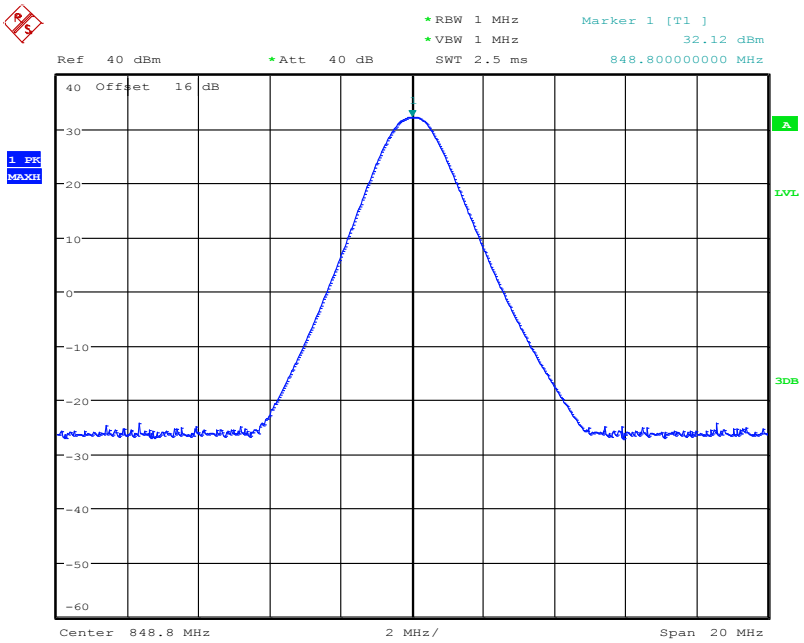
(Plot F2: GSM 1900MHz Channel = 810)



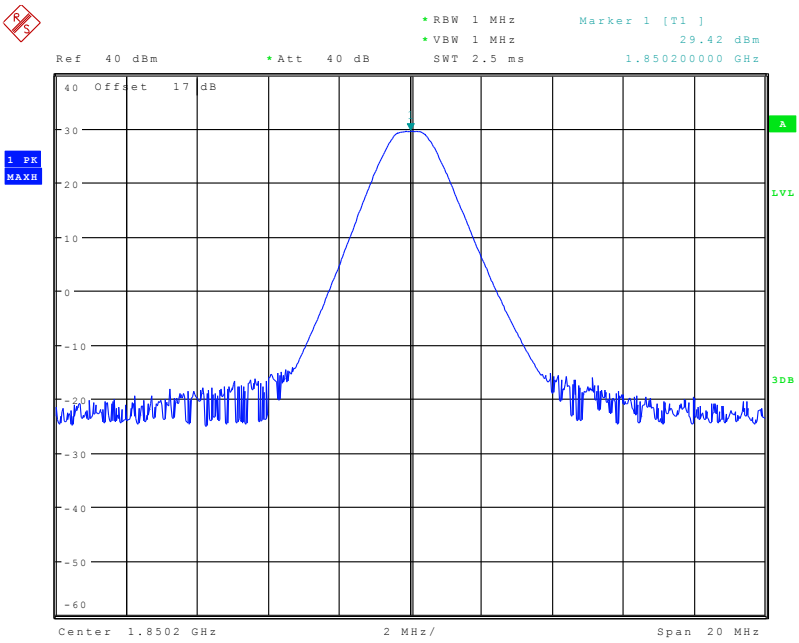
(Plot G2:GPRS 850MHz Channel = 128)



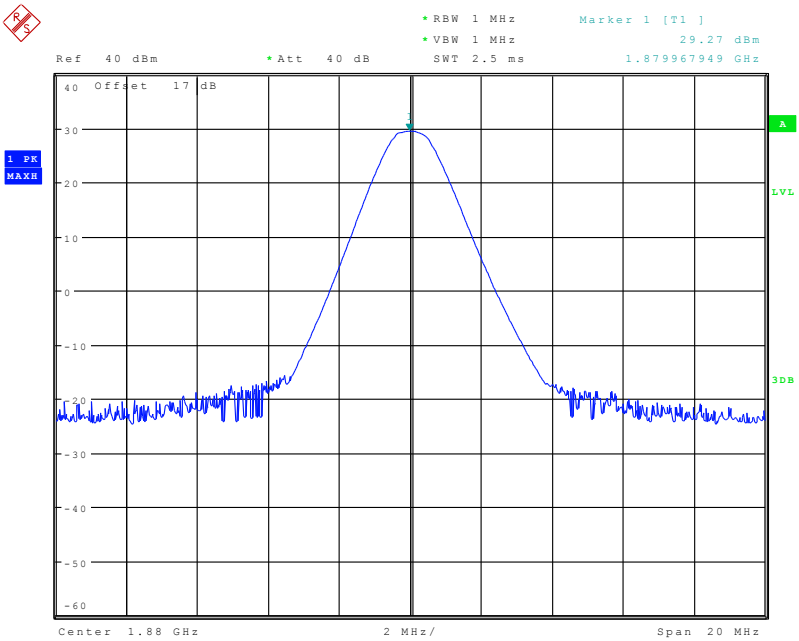
(Plot H2: GPRS 850MHz Channel = 190)



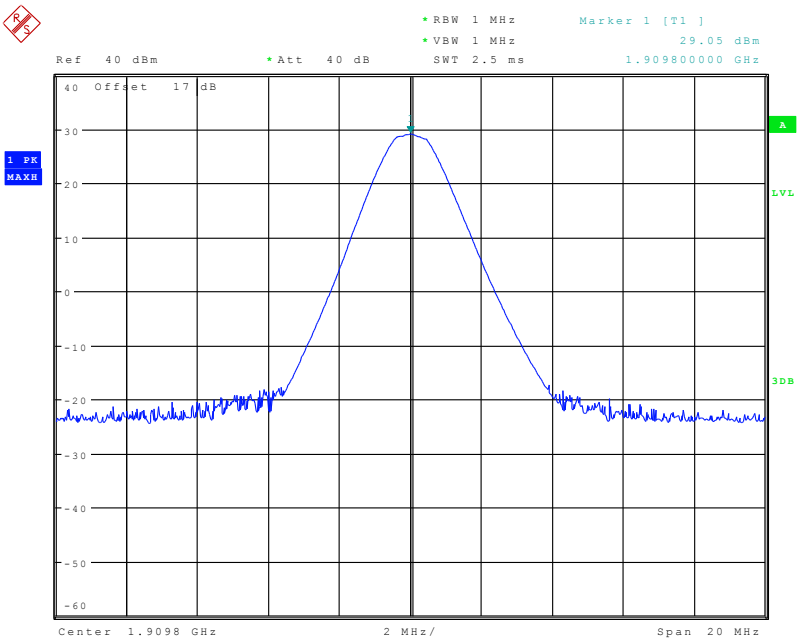
(Plot I2: GPRS 850MHz Channel = 251)



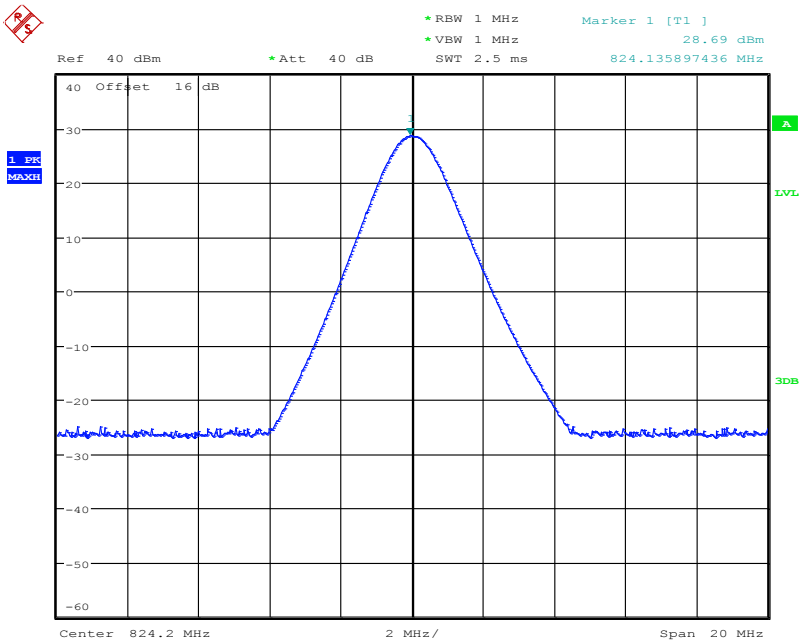
(Plot J2: GPRS 1900MHz Channel = 512)



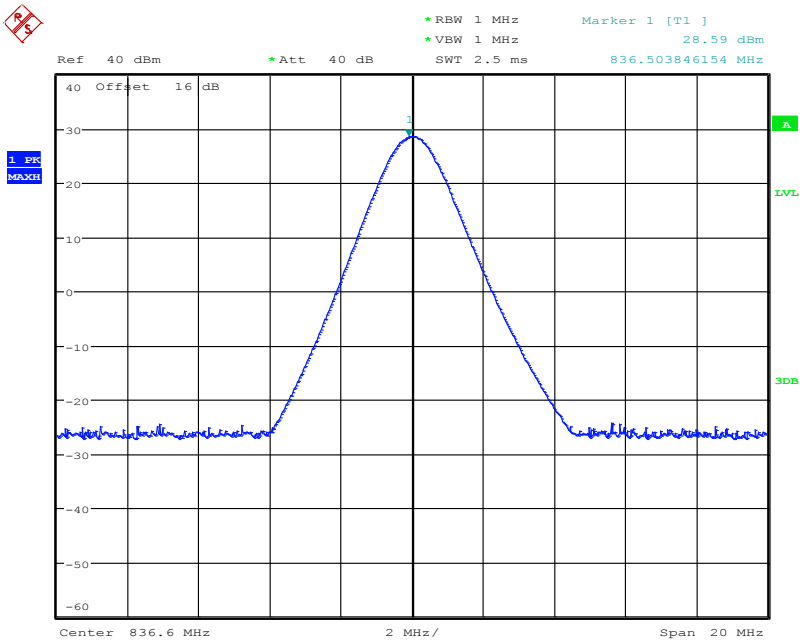
(Plot K2: GPRS 1900MHz Channel = 661)



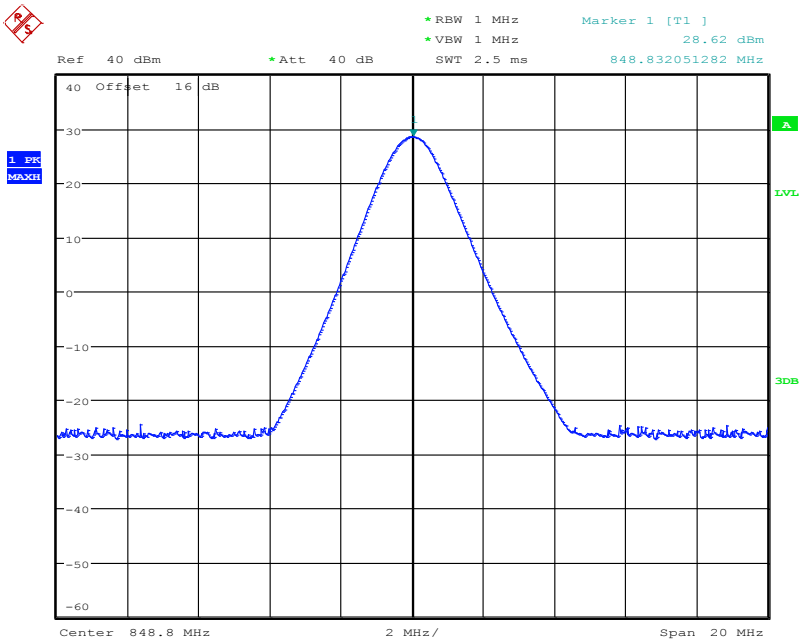
(Plot L2: GPRS 1900MHz Channel = 810)



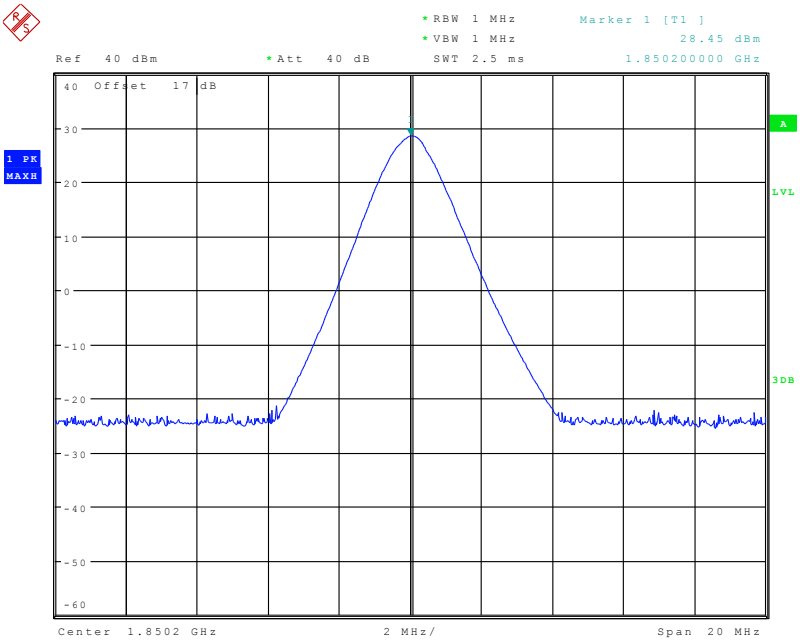
(Plot M2:EGPRS 850MHz Channel = 128)



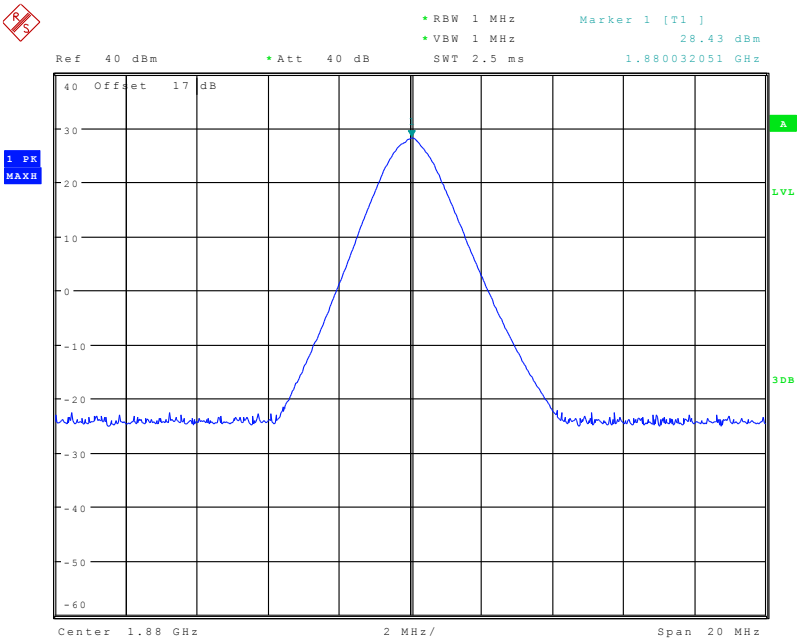
(Plot N2:EGPRS 850MHz Channel = 190)



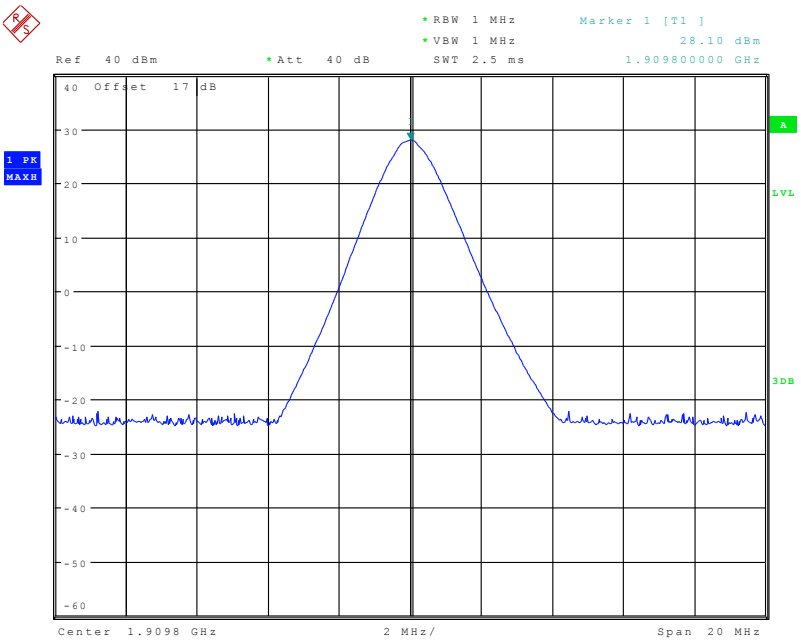
(Plot O2:EGPRS 850MHz Channel = 251)



(Plot P2:EGPRS 1900MHz Channel = 512)



(Plot Q2:EGPRS 1900MHz Channel = 661)



(Plot R2:EGPRS 1900MHz Channel = 810)

3.2 Radiated Out of Band Emissions

3.2.1 Requirement

According to FCC section 22.917(a) and section 24.238(a), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

3.2.2 Test Description

See section 3.7.2 of this report.

3.2.3 Test Procedure

1. Perform test system setup as section 2.4.2
2. Make a limit line whose value is -13dBm on the Spectrum Analyzer, and set the RBW of the Spectrum Analyzer to 1MHz.
3. The lowest and the highest channel were selected to perform tests respectively.
4. Employ the bi-log Test Antenna as the test system receiving antenna and set the frequency range of the Spectrum Analyzer from 30MHz to 3GHz.
5. The measurement is performed with the Test Antenna at both horizontal and vertical polarization respectively. Set the polarization of the Test Antenna to be horizontal.
6. Actuate the Turn Table to turn from 0 degrees to 360 degrees to find the maximum reading via the Spectrum Analyzer, mark the fundamental frequency and the harmonics thereof, after then record the harmonics and the plot.
7. Set the polarization of the Test Antenna to be vertical, then repeat step 6.
8. Employ the horn Test Antenna as the test system receiving antenna and set the frequency range of the Spectrum Analyzer from 3GHz to 10^{th} harmonic of the fundamental frequency (here used 10GHz), then repeat step 5 to 7.
9. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; search peak and mark it; finally record the peak and the plot.

3.2.4 Test Result

Table for the Harmonics

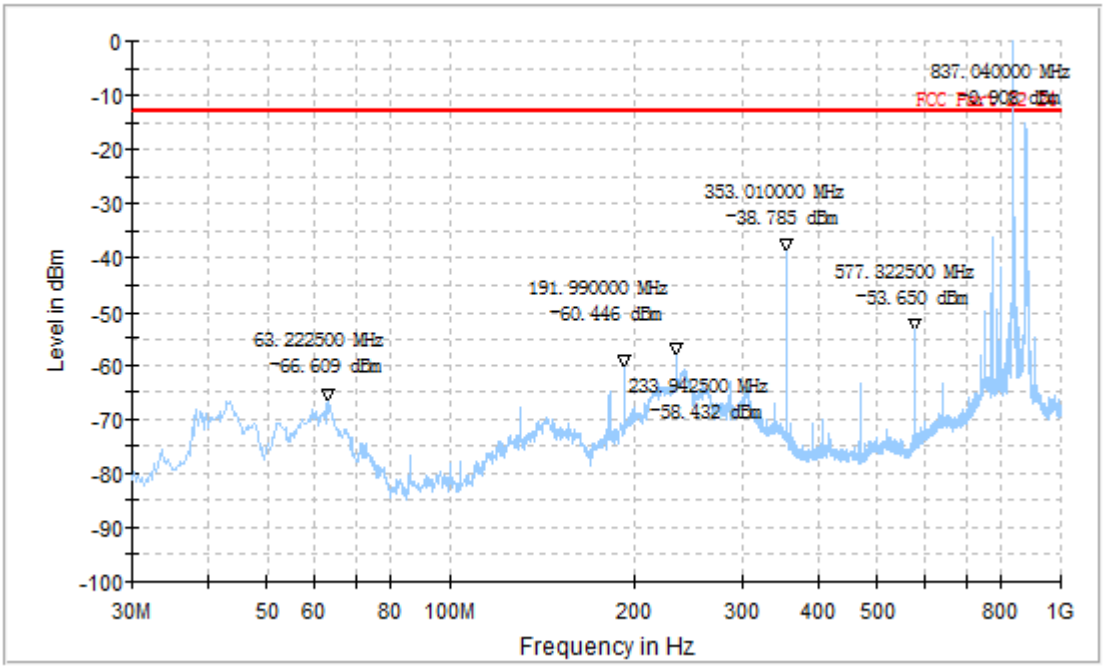
NOTE: “---” in the table following means that the emission power was too small to be measured and

was at least 12dB below the limit. All modes are tested, including (GSM850 and PCS1900).

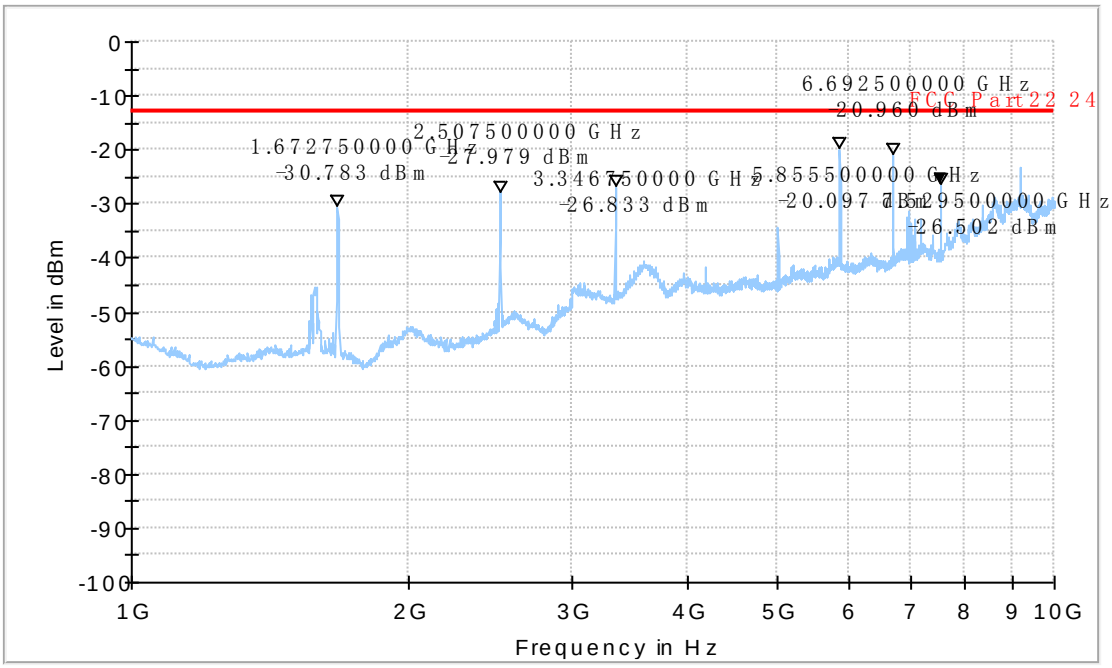
the highest emissions in radiated emission plots are transmit channel center frequency.They are ingnred

1. Test Plot

FCC 22H 24E 30M~1G

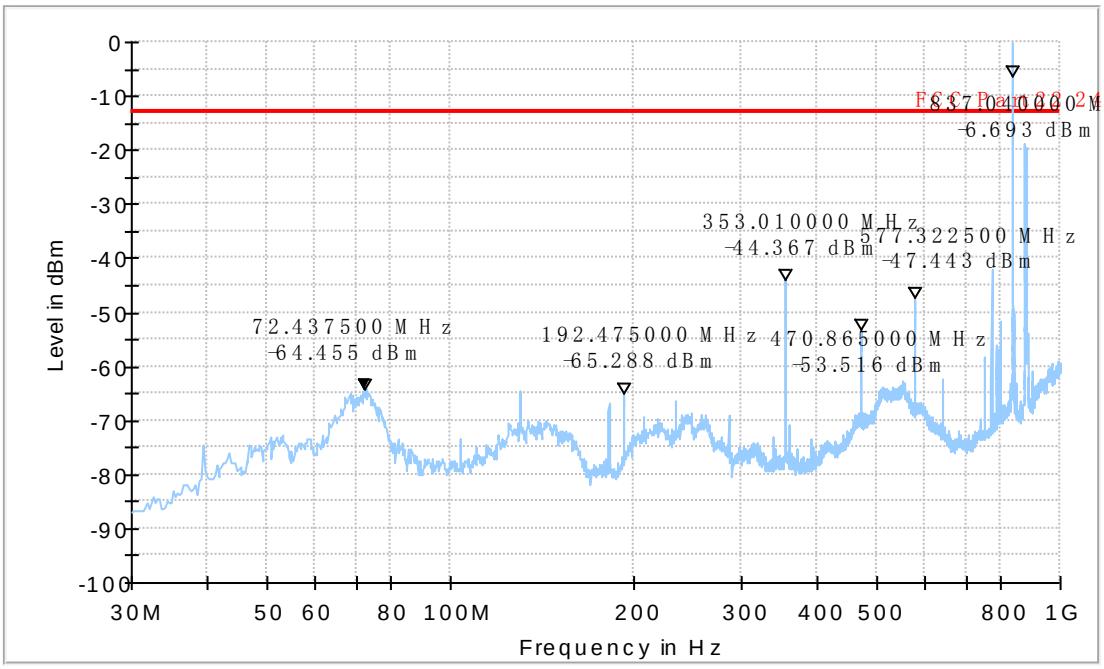


FCC Part 22H 24E 1-18G

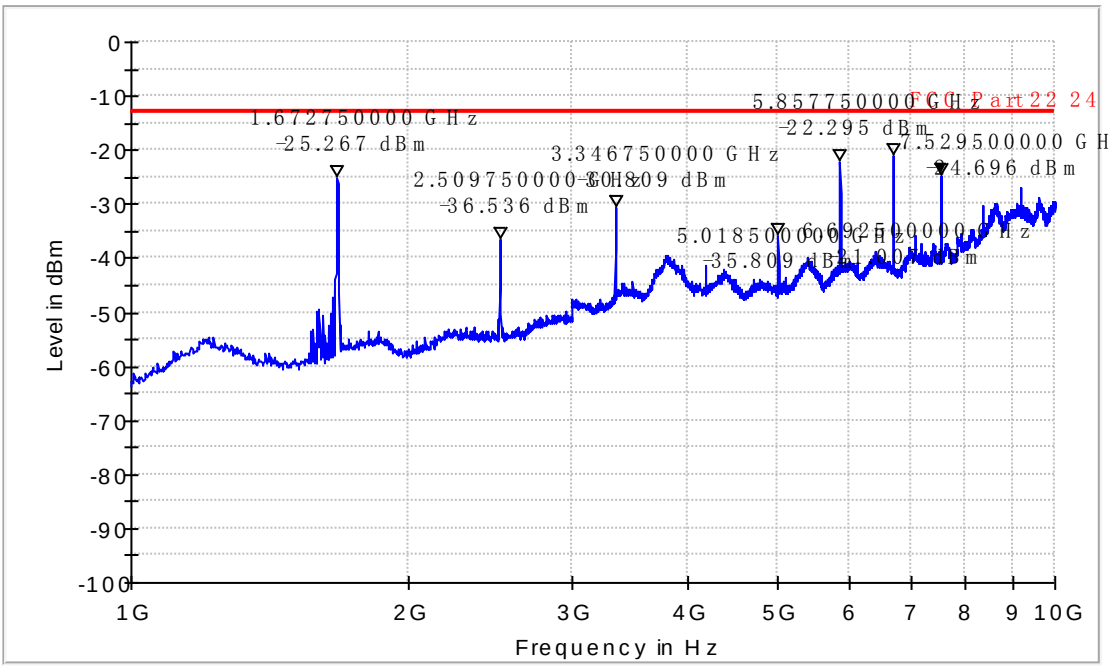


GSM850 CH190-H 30MHz-10GHz

FCC 22H 24E 30M~1G

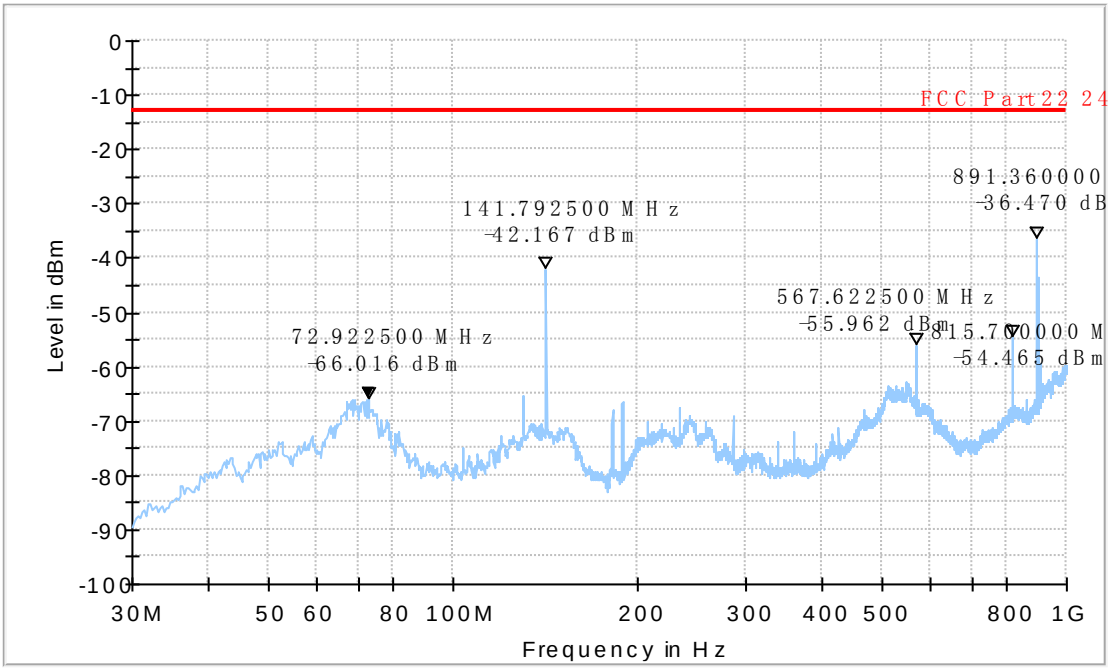


FCC Part 22H 24E 1-18G

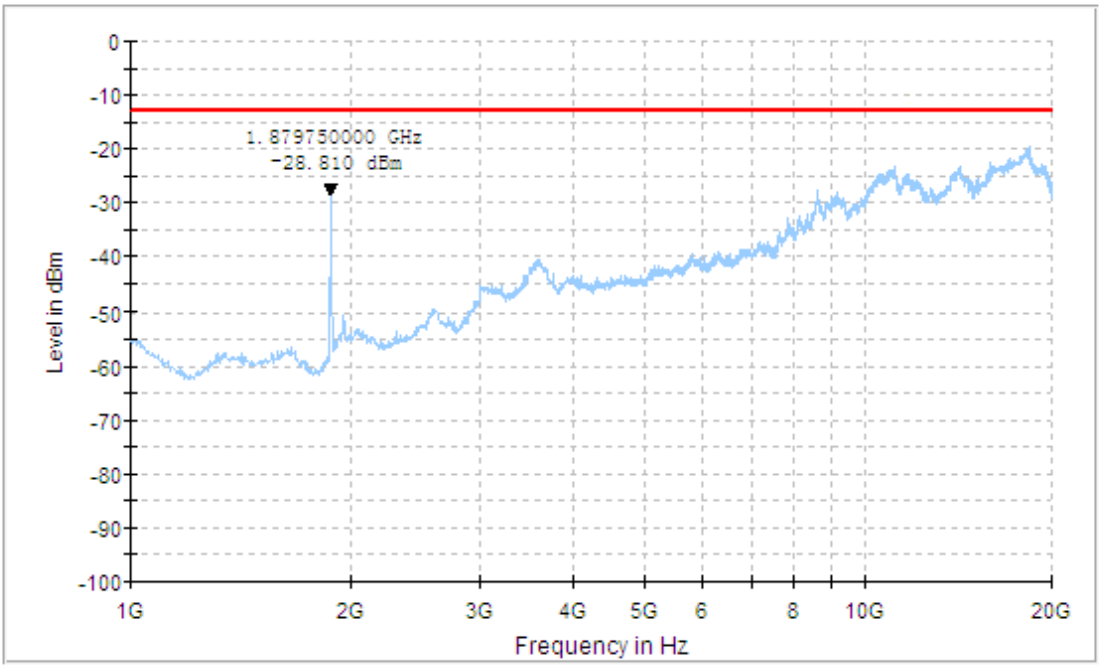


GSM850 CH190-V 30MHz-10GHz

FCC 22H 24E 30M~1G

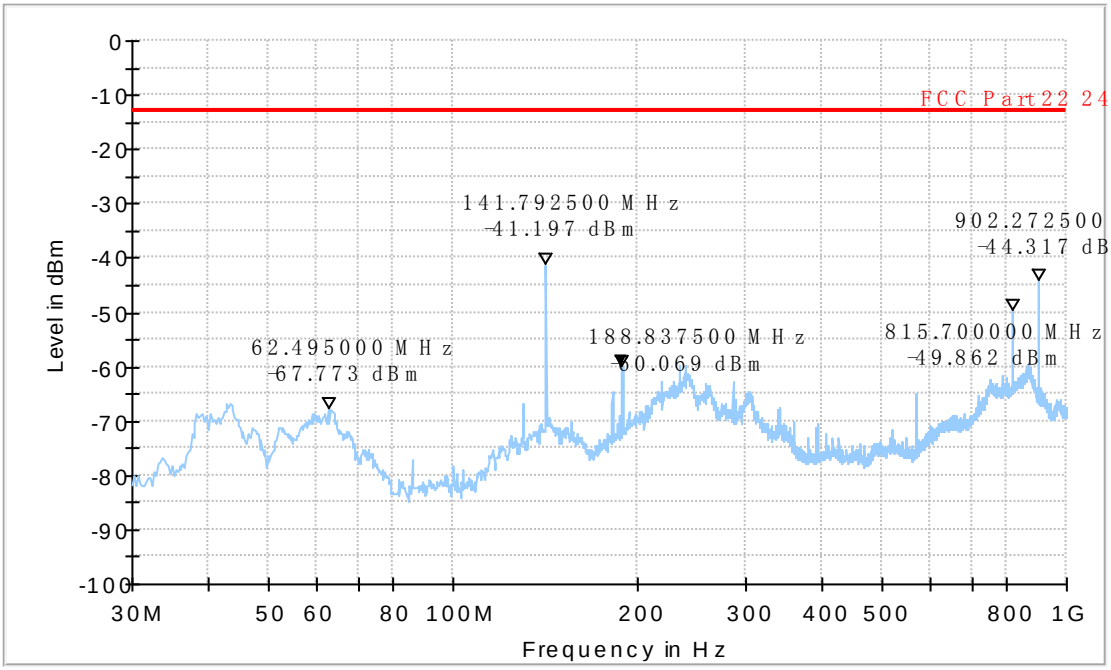


FCC Part 22H 24E 1-20G

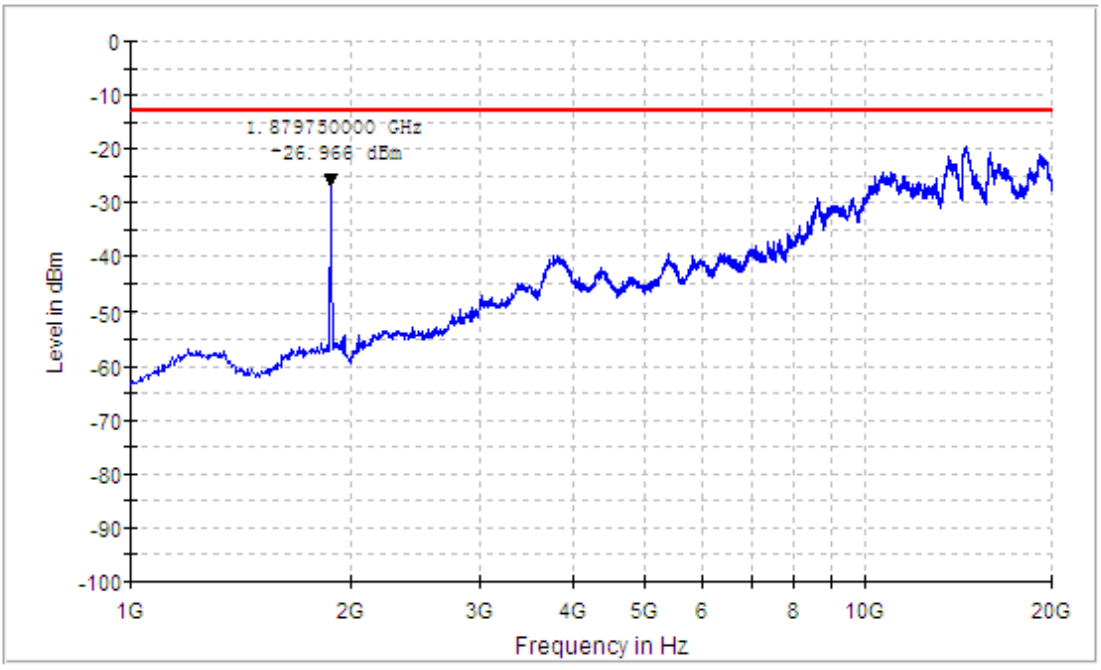


GSM1900 CH661-H 30MHz-20GHz

FCC 22H 24E 30M~1G



FCC Part 22H 24E 1-20G



GSM1900 CH661-V 30MHz-20GHz

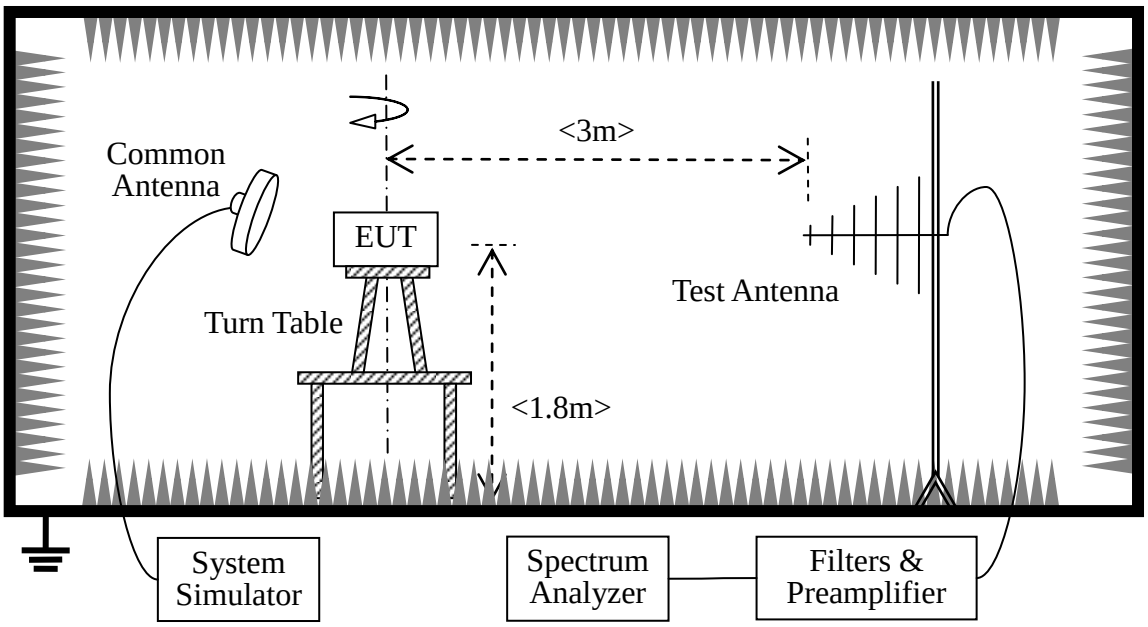
3.3 Transmitter Radiated Power (EIRP/ERP)

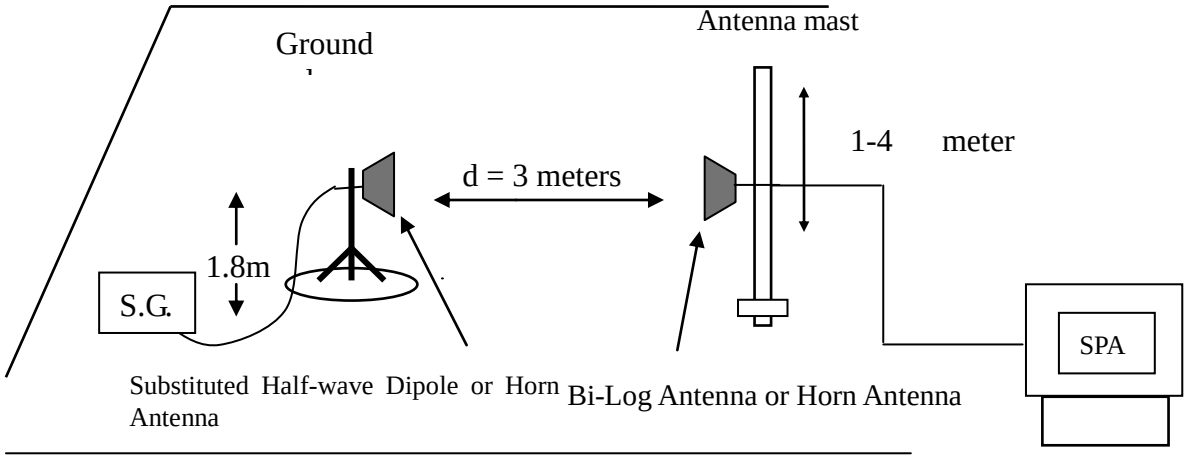
3.3.1 Requirement

According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7Watts, and FCC section 24.232, the broadband PCS mobile station is limited to 2Watts e.i.r.p. peak power.

3.3.2 Test Procedure

1. Test Setup:





The measurements procedures in TIA-603C-2004 are used.

1. EUT was placed on a 1.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.8m. Detected emissions were maximized at each frequency by rotating the EUT through 360 °and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (P_r).
3. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
4. The cable loss (P_{cl}) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (Ga) should be recorded after test. The measurement results are obtained as described below:
   Power(EIRP)= $P_{Mea} + P_{cl} + G_a$
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

2. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
SS	Agilent	E5515C	GB46040102	2011.9	1year
Spectrum Analyzer	Agilent	E4440A	MY46187763	2011.9	1year
Spectrum Analyzer	R&S	FSP30	101020	2011.9	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2011.9	2year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2011.9	1year
Test Antenna - Horn	Rohde&Schwarz	HF906	100565	2011.9	1year

3.3.3 Test Result

The Turn Table is actuated to turn from 0 ° to 360 °, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. The lowest, middle and highest channels are tested. All modes are tested, including (GSM850 GPRS850 EDGE850 and PCS1900 GPRS1900 EDGE1900).

Limits:

	Burst Peak ERP (dBm)
GSM850	≤38.5dBm (7W)
GPRS850	≤38.5dBm (7W)
EGPRS850	≤38.5dBm (7W)

Measurement result

GSM850

Channel	Peak ERP (dBm)	P_{cl} Cable Loss (dB)	G_a Antenna Gain(dB)	Correction (dBm)	P_{Mea} (dBm)	Polarization
128	28.18	10.01	5.05	2.15	15.27	Horizontal
190	28.52	10.03	5.07	2.15	15.57	Horizontal
251	28.64	10.05	5.11	2.15	15.63	Horizontal
128	27.44	10.01	5.05	2.15	14.53	Vertical
190	27.52	10.03	5.07	2.15	14.57	Vertical
251	27.76	10.05	5.11	2.15	14.75	Vertical

GPRS850

Channel	Peak ERP (dBm)	P_{cl} Cable Loss (dB)	G_a Antenna Gain(dB)	Correction (dBm)	P_{Mea} (dBm)	Polarization

128	28.15	10.01	5.05	2.15	15.24	Horizontal
190	28.33	10.03	5.07	2.15	15.38	Horizontal
251	27.83	10.05	5.11	2.15	14.82	Horizontal
128	27.28	10.01	5.05	2.15	14.37	Vertical
190	27.41	10.03	5.07	2.15	14.46	Vertical
251	27.67	10.05	5.11	2.15	14.66	Vertical

EGPRS850

Channel	Peak ERP (dBm)	P_{cl} Cable Loss (dB)	G_a Antenna Gain(dB)	Correction (dBm)	P_{Mea} (dBm)	Polarization
128	19.62	10.01	5.05	2.15	6.71	Horizontal
190	19.55	10.03	5.07	2.15	6.60	Horizontal
251	19.59	10.05	5.11	2.15	6.58	Horizontal
128	18.17	10.01	5.05	2.15	5.26	Vertical
190	18.06	10.03	5.07	2.15	5.11	Vertical
251	18.09	10.05	5.11	2.15	5.08	Vertical

Remark:

ERP(dBm)= P_{Mea}+ P_{cl}+G_a-2.15

Limits:

	Burst Peak EIRP (dBm)
GSM1900	≤33dBm (2W)
GPRS1900	≤33dBm (2W)
EGPRS1900	≤33dBm (2W)

Measurement result

GSM1900

Channel	Peak EIRP (dBm)	P_{cl} Cable Loss (dB)	G_a Antenna Gain(dB)	P_{Mea}(dBm)	Polarization
512	25.37	12.05	5.52	7.80	Horizontal
661	25.08	12.08	5.64	7.36	Horizontal
810	25.71	12.11	5.61	7.99	Horizontal
512	24.25	12.05	5.52	6.68	Vertical

661	24.04	12.08	5.64	6.32	Vertical
810	24.56	12.11	5.61	6.84	Vertical

GPRS1900

Channel	Peak EIRP (dBm)	P_{cl} Cable Loss (dB)	G_a Antenna Gain(dB)	P_{Mea}(dBm)	Polarization
512	25.46	12.05	5.52	7.89	Horizontal
661	25.11	12.08	5.64	7.39	Horizontal
810	24.95	12.11	5.61	7.23	Horizontal
512	24.28	12.05	5.52	6.71	Vertical
661	24.01	12.08	5.64	6.29	Vertical
810	23.82	12.11	5.61	6.10	Vertical

EGPRS1900

Channel	Peak EIRP (dBm)	P_{cl} Cable Loss (dB)	G_a Antenna Gain(dB)	P_{Mea} (dBm)	Polarization
512	16.69	12.05	5.52	-0.88	Horizontal
661	16.48	12.08	5.64	-1.24	Horizontal
810	16.22	12.11	5.61	-1.50	Horizontal
512	15.33	12.05	5.52	-2.24	Vertical
661	15.28	12.08	5.64	-2.44	Vertical
810	15.05	12.11	5.61	-2.67	Vertical

Remark:

EIRP(dBm)= P_{Mea}+ P_{cl}+G_a

** END OF REPORT **