FCC Test Report

FCC ID:2AHGWSG983G

Product Name:	**Scouting Camera/Trail Camera**
Trademark:	**ScoutGuard/BolyGuard**
Model Name:	**SG983G series**
Prepared For: Address:	**Boly Media Communications (Shenzhen) Co., Ltd.** 2F, Shanshui Building A, B, Yungu Innovation Industrial Park, No. 1183, Liuxian Blvd, Nanshan District, Shenzhen, Guangdong, China
Prepared By: Address:	**Shenzhen BCTC Technology Co., Ltd.** No.101,Yousong Road,Longhua New District, Shenzhen,China
Test Date:	**Jan. 22 - Jan. 29, 2016**
Date of Report:	**Jan. 29, 2016**
Report No.:	**BCTC-151215431**

VERIFICATION OF COMPLIANCE

Applicant's name ..... :	**Boly Media Communications (Shenzhen) Co., Ltd.**
Address ..... :	2F, Shanshui Building A, B, Yungu Innovation Industrial Park, No. 1183, Liuxian Blvd, Nanshan District, Shenzhen, Guangdong, China
Manufacture's Name ..... :	**Boly Media Communications (Shenzhen) Co., Ltd.**
Address ..... :	2F, Shanshui Building A, B, Yungu Innovation Industrial Park, No. 1183, Liuxian Blvd, Nanshan District, Shenzhen, Guangdong, China
Product description	
Product name ..... :	**Scouting Camera/Trail Camera**
Trademark:	ScoutGuard/BolyGuard
Model Name:	**SG983G series**
Test procedure	ANSI C63.10-2013
	FCC CFR Title 47 Part 2: 2014
Standards	FCC CFR Title 47 Part22 Subpart H: 2014
	FCC CFR Title 47 Part24 Subpart E: 2014

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of BCTC, this document may be altered or revised by BCTC, personal only, and shall be noted in the revision of the document.

Test Result : **Pass**

Testing Engineer : Eric Yang

(Eric Yang)

Technical Manager : Sophie Lu

(Sophia Lee)

Authorized Signatory : Carson. Zhang

(Carson. Zhang)

TABLE OF CONTENTS

1.TEST SUMMARY

Test Items	Test Requirement	Result
Conducted RF Output Power	2.1046	PASS
Peak to Average Radio	2.1055,22.355 24.235,27.54	PASS
99% & -26 dB Occupied Bandwidth	2.1049, 22.917 24.238,	PASS
Frequency Stability	2.1055, 22.355 24.235,	PASS
Conducted Out of Band Emissions	2.1051,2.1057 22.917, 24.238	PASS
Band Edge	2.1051,2.1057 22.917, 24.238	PASS
Transmitter Radiated Power (EIPR/ERP)	22.913, 24.232	PASS
Radiated Out of Band Emissions	2.1053,2.1057 22.917, 24.238	PASS
Conducted Emission	15.207	PASS

2.GENERAL PRODUCT INFORMATION

2.1. Product Function

Refer to Technical Construction Form and User Manual.

2.2. Description of Device (EUT)

Product Name:	Scouting Camera/Trail Camera
Model No.:	SG983G series
Operation Frequency:	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) WCDMA Band II: TX: 1852.4MHz - 1907.6MHz, (at intervals of 200kHz); RX: 1932.4MHz - 1987.6MHz(at intervals of 200kHz);
Modulation technology:	GSM/GPRS Mode with GMSK, 8PSK Modulation WCDMA Mode with QPSK Modulation HSDPA Mode with QPSK, 16QAM Modulation HSUPA Mode with QPSK, 16QAM Modulation
Antenna Type:	Reverse SMA-type Antenna
Antenna gain:	2dBi（GSM&WCDMA）,
Power supply:	DC 5-12V
GPRS Class:	12
EGPRS Class:	12

2.3. Difference between Model Numbers

N/A

2.4. Test Supporting System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Scouting Camera/Trail Camera	ScoutGuard/BolyGuard	SG983G series	N/A	EUT
E-2	Notebook	N/A	X550C	N/A	
E-3	Adapter	N/A	AD887520	N/A	Input:100-240V~ 50/60Hz 1.5A Output: DC19V 3.42A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8M	USB cable unshielded
C-2	NO	NO	1.5M	DC cable unshielded

2.5. Independent Operation Modes

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test modes		
Band	Radiated	Conducted
GSM 850	■ GSM link ■ EGPRS 8 link	■ GSM link ■ EGPRS 8 link
PCS 1900	■ GSM link ■ EGPRS 8 link	■ GSM link ■ EGPRS 8 link
WCDMA Band II.	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link

Note: The maximum power levels are GSM mode for GMSK link, RMC12.2Kbps mode for WCDMA band V, RMC12.2Kbps mode for WCDMA band II and V.

The conducted average power tables are as follows:

Conducted Average Power (dBm)						
Band	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM	31.25	31.36	31.60	30.32	30.58	30.61

3. TEST SITES

3.1. Test Facilities

Shenzhen BCTC Technology Co., Ltd.
Add.:No.101,Yousong Road,Longhua New District, Shenzhen,China
FCC Registration No.:187086

3.1.1. Measurement Uncertainty

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

3.2. List of Test and Measurement Instruments

3.2.1. For conducted emission at the mains terminals test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	R&S	ESCI	101160	2015.06.07	2016.06.06
LISN	SCHWARZBECK	ENV216	101313	2015.08.25	2016.08.24
LISN	EMCO	3816/2	00042990	2015.08.25	2016.08.24
50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.06.07	2016.06.06
Passive Voltage Probe	R&S	ESH2-Z3	100196	2015.06.07	2016.06.06
Absorbing clamp	R&S	MOS-21	100423	2015.06.08	2016.06.07
RF cables	R&S	R204	R20X	2015.07.06	2016.07.05

3.2.2. For radiated emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	R&S	ESPI	101318	2015.06.07	2016.06.06
System Simulator	Agilent	E5515C	GB43130252	2015.06.07	2016.06.06
Power Splitter	Weinschel	1506A	NW534	2015.06.07	2016.06.06
Bilog Antenna	TESEQ	CBL6111D	31216	2015.07.06	2016.07.05
Bilog Antenna	TESEQ	CBL6111D	31212	2015.08.06	2017.07.05
Loop antenna	ARA	PLA-1030/B	1029	2015.06.07	2016.06.06
Spectrum Analyzer	Agilent	E4411B	MY4511235	2015.07.06	2016.07.05
Signal Amplifier	SONOMA	313	187022	2015.07.06	2016.07.05
Signal Amplifier	Agilent	8449B	3008A00213	2015.07.06	2016.07.05
RF Cable	R&S	R203	R20X	2015.07.06	2016.07.05
MULTI-DEVICE Controller	ETS-LINDGREEN	31250	126821	N/A	N/A
Horn Antenna	EM	EM-AH-10180	2011071400	2015.08.06	2017.08.05
Horn Antenna	EM	EM-AH-10180	2011071402	2015.07.06	2016.07.05
Horn Antenna	Schwarzbeck	BBHA 9170	9170-179	2015.07.06	2017.07.05
Spectrum Analyzer	Agilent	8593E	3911A03928	2015.07.06	2016.07.05
Spectrum Analyzer	Agilent	E4407B	MY45108040	2015.07.06	2016.07.05
Signal Amplifier	DAZE	ZN3380B	11235	2015.08.25	2016.08.24
High Pass filter	KANGMAI	WHKX1.0/1.5G-10SS	40	2015.08.25	2016.08.24
Filter	COM-MW	ZBSF-C836.5-25-X	BCTC042	2015.08.25	2016.08.24
Filter	COM-MW	ZBSF-C1747.5-75-X2	BCTC045	2015.08.25	2016.08.24
Filter	COM-MW	ZBSF-C1880-60-X2	BCTC047	2015.08.25	2016.08.24
DC Power Supply	LongWei	PS-305D	010965682	2015.07.06	2016.07.05
Constant temperature and humidity box	GF	GTH-800-40-2P	MAA9906-012	2015.06.07	2016.06.06
Universal radio communication tester	R&S	CMU200	115295	2015.08.25	2016.08.24
Splitter	Agilent	11435B	1125162	2015.07.06	2016.07.05

4. TEST SET-UP AND OPERATION MODES

4.1. Principle of Configuration Selection

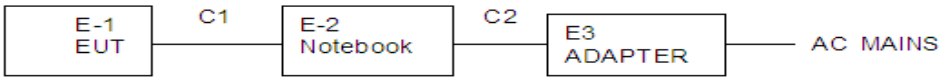
Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

4.2. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators

Radiated Spurious Emission Test

Conducted Emission Test



(EUT: Scouting Camera/Trail Camera)

4.3. Test Operation Mode and Test Software

None.

4.4. Special Accessories and Auxiliary Equipment

None.

4.5. Countermeasures to Achieve EMC Compliance

None.

4.6. Test Environment:

Ambient conditions in the test laboratory:

Items	Actual
Temperature (℃)	21~23
Humidity (%RH)	50~65

5. EMISSION TEST RESULTS

5.1. Conducted RF Output Power

5.1.1. Limit

According to FCC section 2.1046(a) , FCC part22.913(a) and FCC part24.232(b) ,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).

5.1.2. Test Setup

The EUT, which is powered by the adapter, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power.

5.1.3. Test Result

Here the lowest, middle and highest channels are selected to perform testing to verify the conducted RF output power of the EUT.

Measurement data

The conducted power tables are as follows:

Average Conducted Power (dBm)						
Band	GSM850			PCS1900		
Frequency	824.20	836.60	848.80	1850.20	1880.00	1909.80
GSM (GMSK, 1 TX slot)	31.25	31.16	31.10	30.32	30.38	30.41
GPRS (GMSK, 1 TX slot)	31.11	31.21	31.23	30.18	30.12	30.57
GPRS (GMSK, 2 TX slot)	30.32	30.57	30.87	28.99	29.47	29.33
GPRS (GMSK, 3 TX slot)	28.34	28.61	28.43	26.97	27.42	27.38
GPRS (GMSK, 4 TX slot)	27.32	27.47	27.75	24.91	25.37	25.35
EGPRS(GMSK, 1 TX slot)	31.17	31.28	31.62	29.19	29.49	29.51
EGPRS(GMSK, 2 TX slot)	30.31	30.56	30.85	28.37	28.36	28.23
EGPRS(GMSK, 3 TX slot)	28.24	28.54	28.58	25.95	26.36	26.25
EGPRS(GMSK, 4 TX slot)	26.52	26.53	26.64	25.26	24.73	24.67

EGPRS (8PSK, 1 TX slot)	25.75	25.75	25.67	25.25	25.44	25.55
EGPRS (8PSK, 2 TX slot)	24.65	24.93	24.74	2126	24.35	23.37
EGPRS (8PSK, 3 TX slot)	22.76	23.24	23.27	22.39	22.73	22.51
EGPRS (8PSK, 4 TX slot)	21.87	21.91	22.12	21.35	21.47	21.86
Limit	38.45			33.01		
Result	Pass					

Average Conducted Power						
Band	WCDMA Band II.					
Frequency	1852.4	1880.0	1907.6			
RMC 12.2Kbps	22.67	22.55	22.59			
RMC 64kbps	22.63	22.45	22.51			
RMC 144kbps	22.55	22.47	22.50			
RMC 384kbps	22.47	22.45	22.49			
HSDPA Subtest-1	22.28	22.23	22.31			
HSDPA Subtest-2	22.29	22.22	22.31			
HSDPA Subtest-3	22.25	22.18	22.23			
HSDPA Subtest-4	22.21	22.26	22.25			
HSUPA Subtest-1	22.19	22.18	22.19			
HSUPA Subtest-2	22.16	22.17	22.25			
HSUPA Subtest-3	22.29	22.17	22.25			
HSUPA Subtest-4	22.17	22.12	22.21			
HSUPA Subtest-5	22.14	22.09	22.13			
ARM	22.24	22.06	22.27			
Limit	33.01					
Result	Pass					

Note: Measurement Uncertainty: ±2.6 dB.

5.2. Peak to Average Radio

5.2.1. Limit

According to FCC section 27.50(d)(5) , the peak to average ratio(PAR) of the transmission may not exceed 13dB.

5.2.2. Test Setup

See section 5.1.2 of this report.

5.2.3. Test Result

Measurement data as follows:

Band	GSM850		
	Low	Middle	High
Frequency	824.20	836.60	848.80
Peak-to average ratio(dB)/GSM	0.65	0.58	0.60
Peak-to average ratio(dB)/EDGE	0.38	0.40	0.41

Band	PCS1900		
	Low	Middle	High
Frequency	1850.20	1880.00	1909.8
Peak-to average ratio(dB)/GSM	0.64	0.66	0.67
Peak-to average ratio(dB)/EDGE	0.38	0.36	0.33

Band	WCDMA Band II.		
	Low	Middle	High
Frequency	1852.40	1880.00	1907.6
Peak-to average ratio(dB)	0.54	0.51	0.53

Note: Measurement Uncertainty: ±0.2 dB.

5.3. 99% Occupied Bandwidth

5.3.1. Limit

According to FCC section 2.1049 and FCC part22.913(a) and FCC part24.232(b), the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth,

5.3.2. Test Setup

The EUT, which is powered by the adapter, is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power.

5.3.3. Test Result

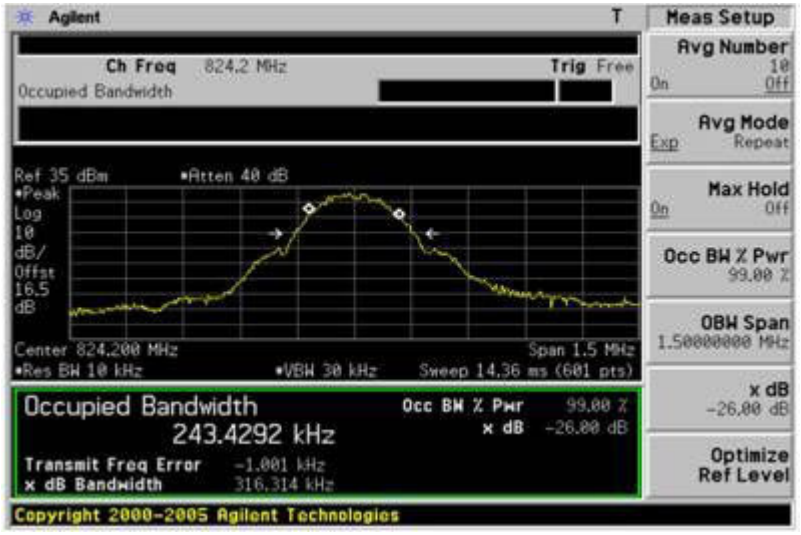
Measurement Data

EUT Mode	Frequency (MHz)	99% Occupy bandwidth (kHz)
GSM 850 (GSM link)	824.20	243.4
	836.60	244.5
	848.80	242.7
GSM 850 (EGPRS 8 link)	824.20	249.9
	836.60	248.8
	848.80	249.8
PCS 1900 (GSM link)	1850.20	240.5
	1880.00	243.3
	1909.80	241.3
PCS 1900 (EGPRS 8 link)	1850.20	247.4
	1880.00	247.3
	1909.80	248.3
WCDMA Band II (RMC 12.2Kbps link)	1852.4	4252.5
	1880.0	4262.6
	1907.6	4033.5

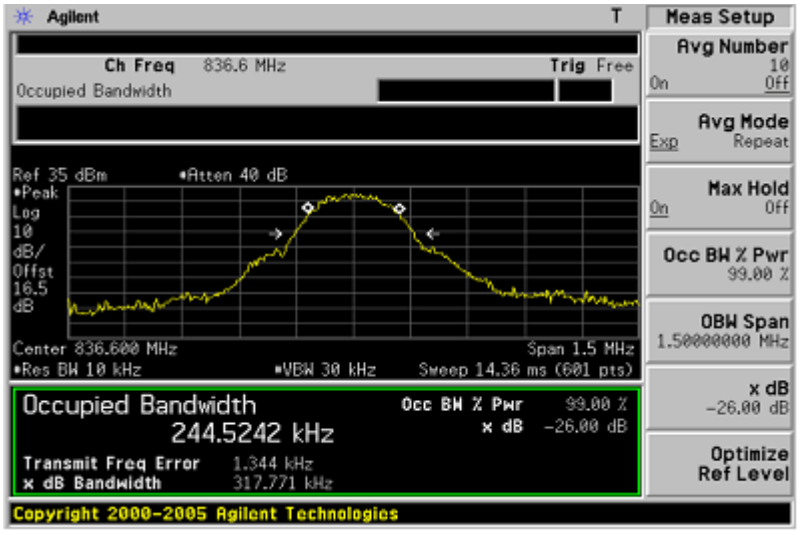
Note: Measurement Uncertainty: ±20Hz.

Test plot as follows:

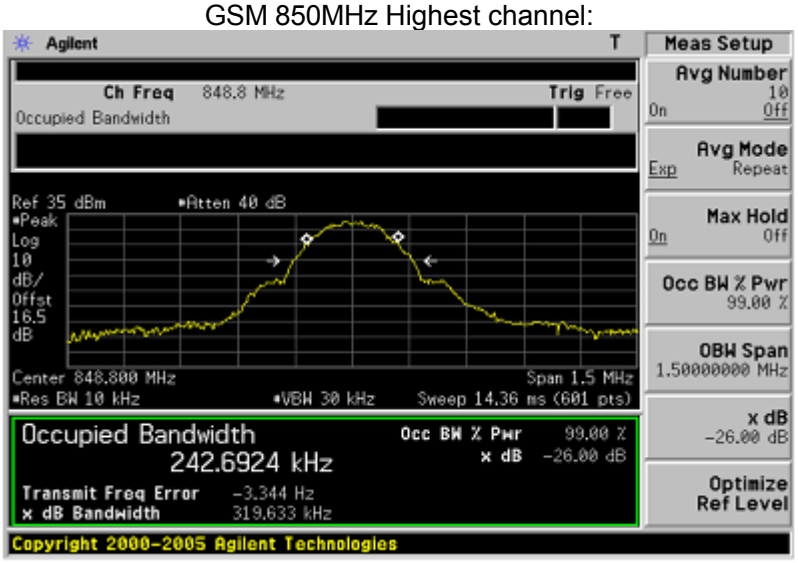
GSM 850MHz Lowest channel



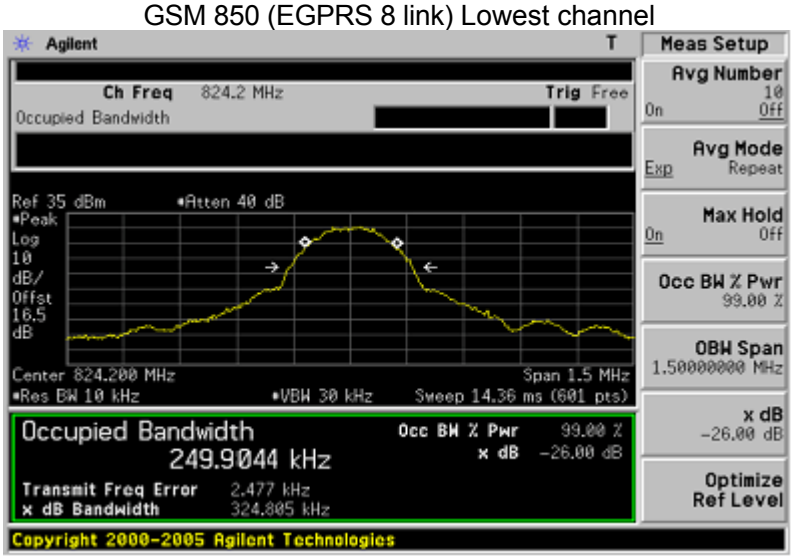
GSM 850MHz Middle channel



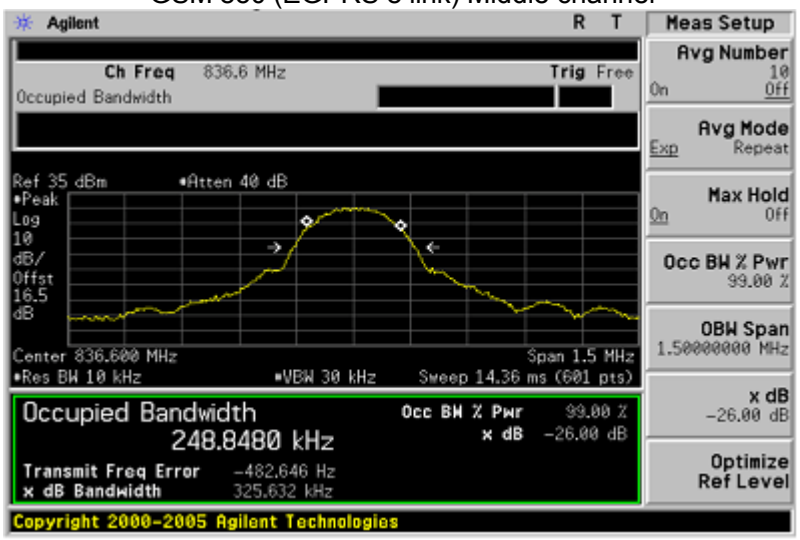
GSM 850MHz Highest channel:



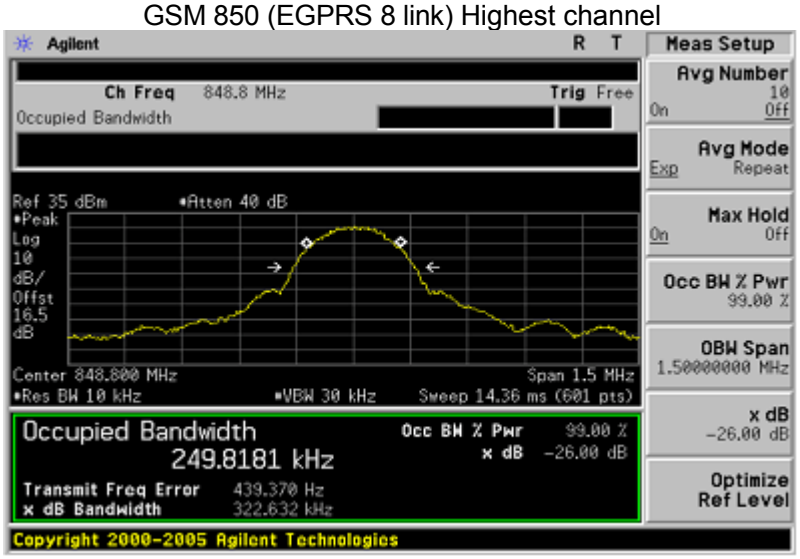
GSM 850 (EGPRS 8 link) Lowest channel



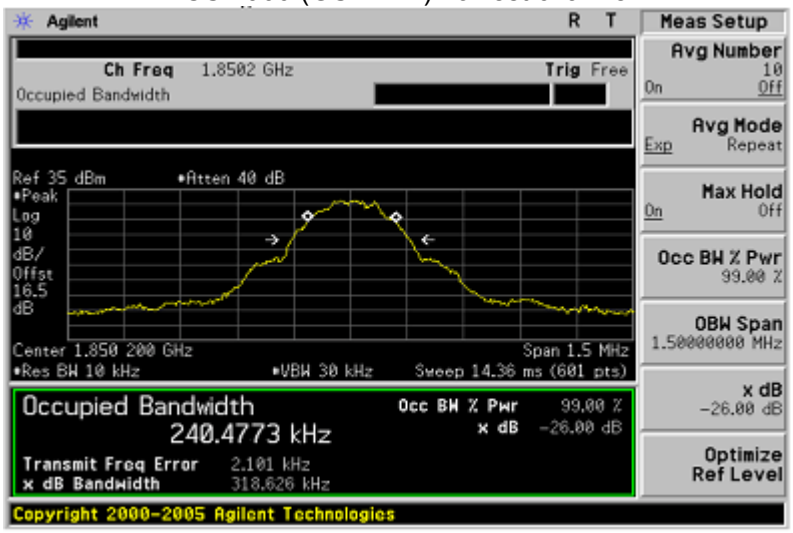
GSM 850 (EGPRS 8 link) Middle channel



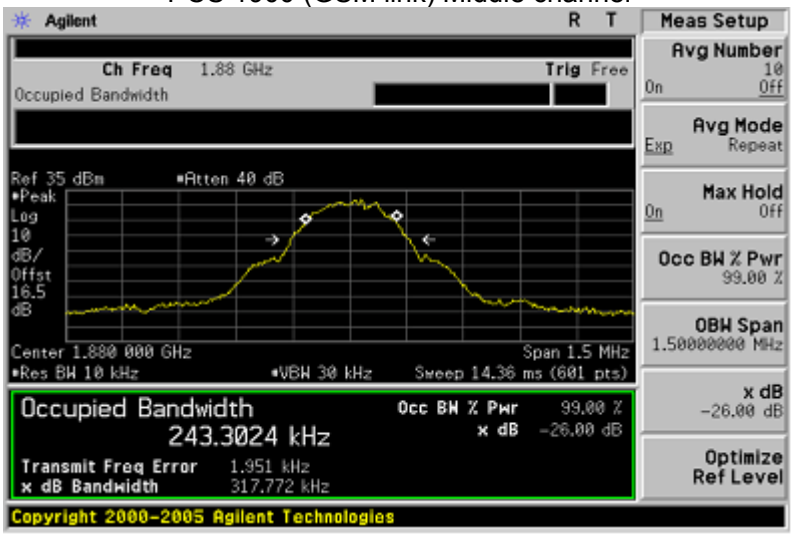
GSM 850 (EGPRS 8 link) Highest channel



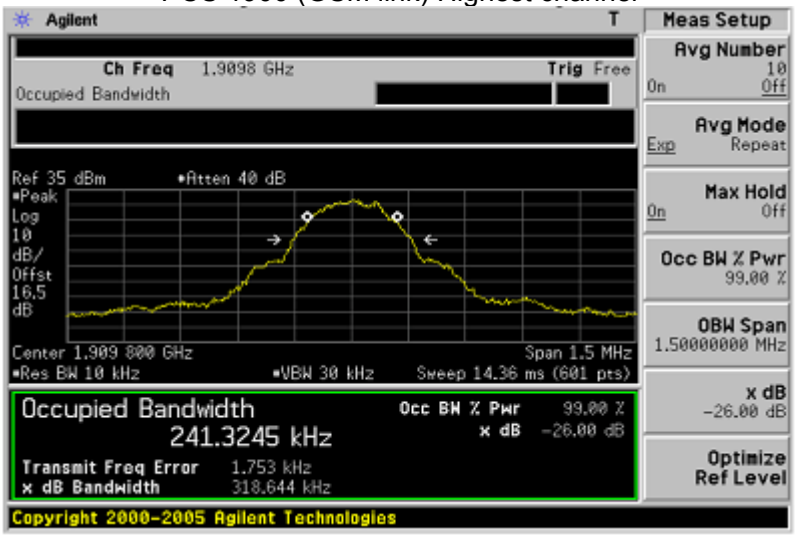
PCS 1900 (GSM link) Lowest channel



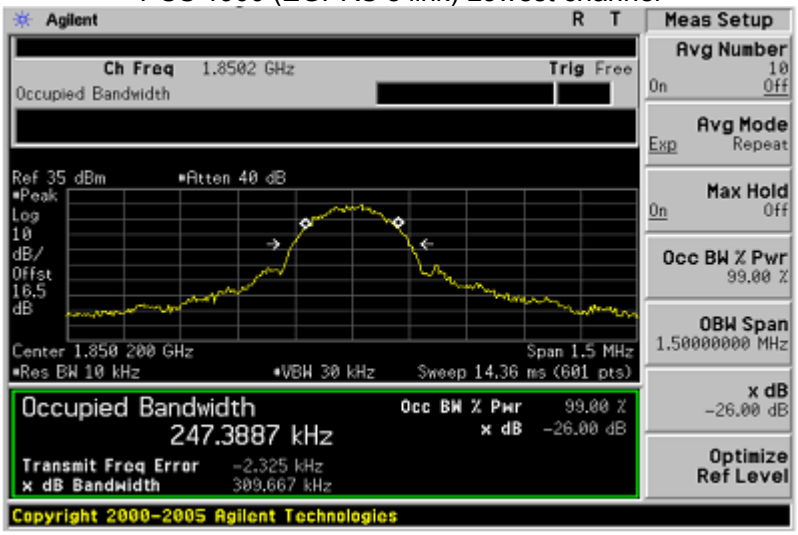
PCS 1900 (GSM link) Middle channel



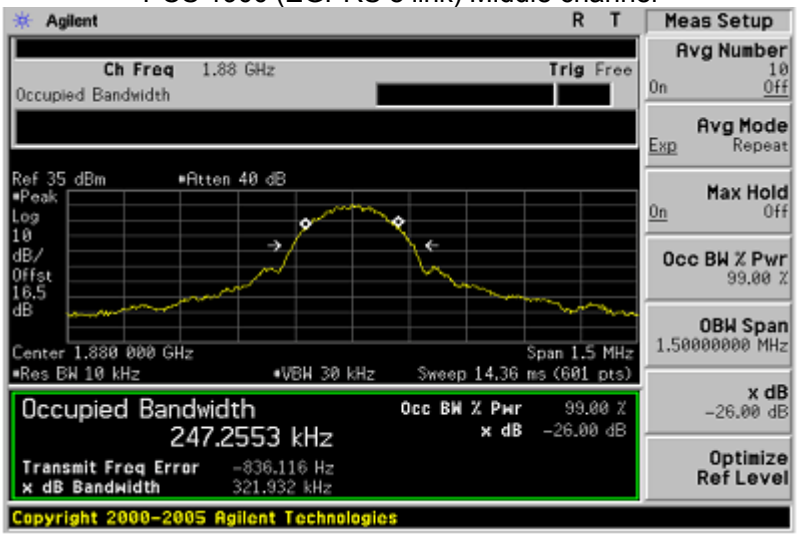
PCS 1900 (GSM link) Highest channel



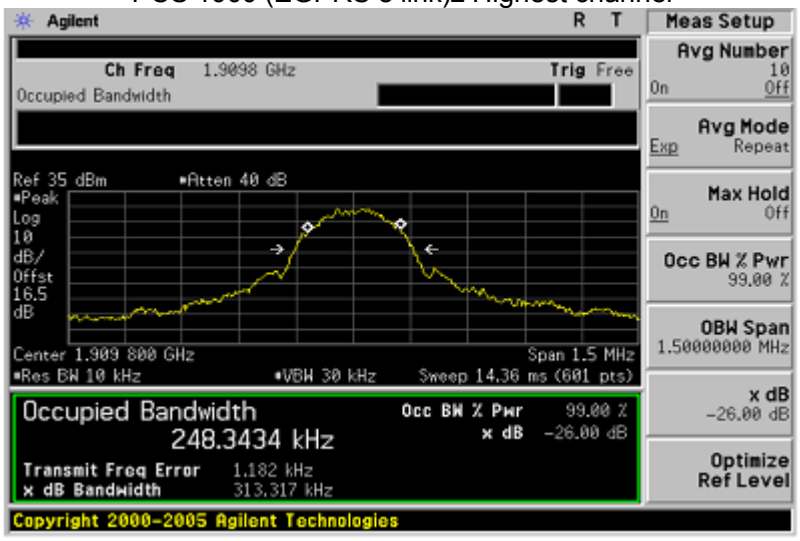
PCS 1900 (EGPRS 8 link) Lowest channel



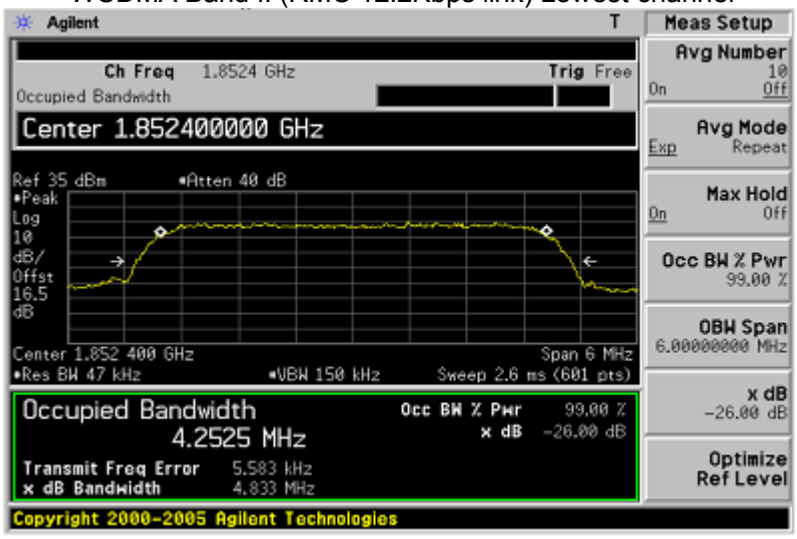
PCS 1900 (EGPRS 8 link) Middle channel



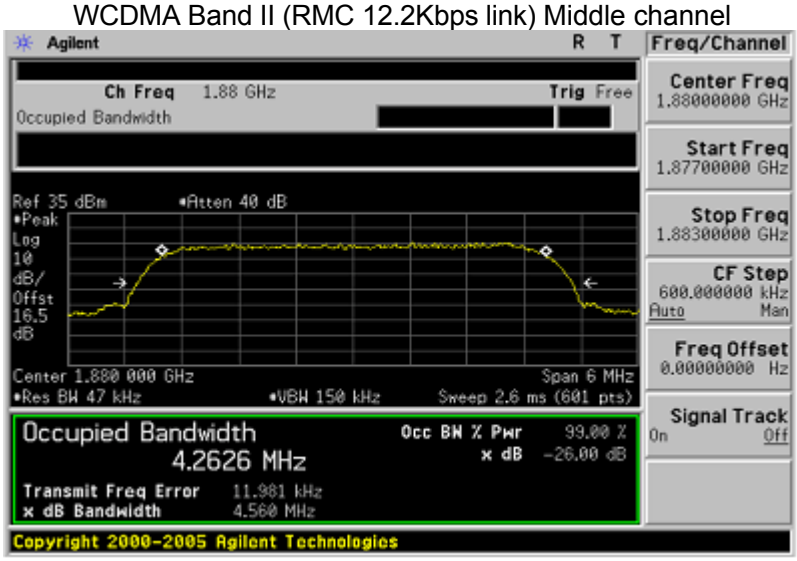
PCS 1900 (EGPRS 8 link)z Highest channel



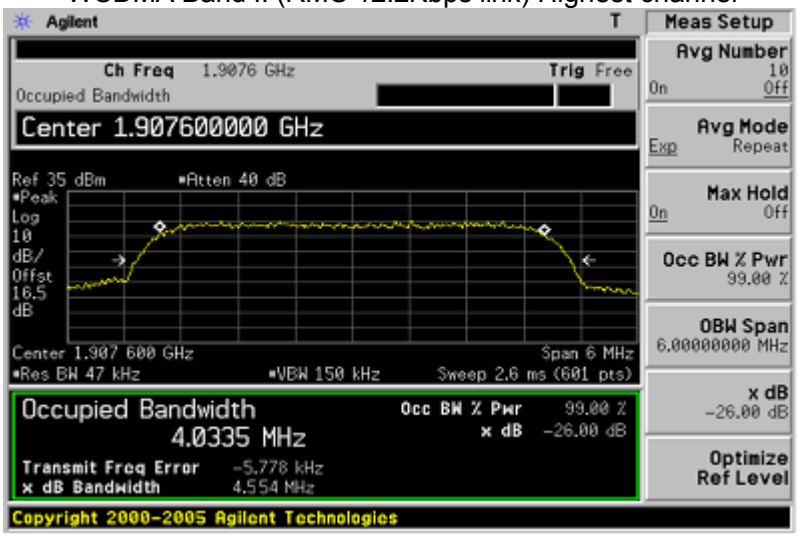
WCDMA Band II (RMC 12.2Kbps link) Lowest channel



WCDMA Band II (RMC 12.2Kbps link) Middle channel



WCDMA Band II (RMC 12.2Kbps link) Highest channel



5.4. Frequency Stability

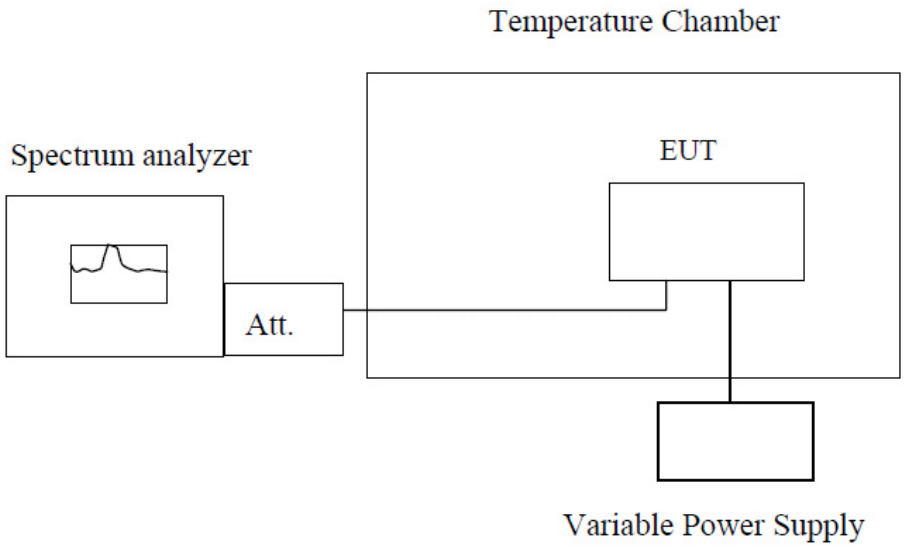
5.4.1. Limit

According to FCC section 22.355 and FCC section 24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30℃ to +50℃ at intervals of not more than 10℃.

(b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

5.4.2. Test Setup



Note : Measurement setup for testing on Antenna connector

The EUT, which is powered by the DC Power Supply directly, is located in the Temperature Chamber.

The EUT is commanded by the System Simulator (SS) to operate at the maximum output power

5.4.3. Test Result

The nominal, highest and lowest extreme voltages are separately 12VDC, 13.5VDC and 10.8VDC which are specified by the applicant; the normal temperature here used is 25℃. The frequency deviation limit of 850MHz band is ±2.5ppm, and 1900MHz is ±1ppm

Normal

Test Conditions			Frequency Deviation			Result
Band	Power(Vdc)	Temperature(℃)	Frequency Error(Hz)	ppm	Limit	
GSM850 (GSM link) Middle channel=190 channel=836.6MHz	12	-30	45	0.0538	±2.5	PASS
	12	-20	41	0.0490		
	12	-10	36	0.0430		
	12	0	33	0.0394		
	12	10	32	0.0383		
	12	20	28	0.0335		
	12	30	34	0.0406		
	12	40	38	0.0454		
	12	50	36	0.0430		
	13.5	25	30	0.0359		
	12	25	28	0.0335		
	10.8	25	32	0.0383		
GSM850 (EGPRS 8 link) Middle channel=190 channel=836.6MHz	12	-30	40	0.0478	±2.5	PASS
	12	-20	37	0.0442		
	12	-10	32	0.0383		
	12	0	31	0.0371		
	12	10	29	0.0347		
	12	20	26	0.0311		
	12	30	31	0.0371		
	12	40	34	0.0406		
	12	50	32	0.0383		
	13.5	25	28	0.0335		
	12	25	26	0.0311		
	10.8	25	29	0.0347		
PCS1900 (GSM link) Middle channel=661 channel=1880MHz	12	-30	52	0.0277	±1	PASS
	12	-20	63	0.0335		
	12	-10	58	0.0309		
	12	0	55	0.0293		
	12	10	54	0.0287		
	12	20	49	0.0261		
	12	30	56	0.0298		
	12	40	62	0.0330		
	12	50	58	0.0309		
	13.5	25	52	0.0277		
	12	25	49	0.0261		
	10.8	25	53	0.0282		

Note: Measurement Uncertainty: ±20Hz.

PCS1900 (EGPRS 8 link) Middle channel=661 channel=1880MHz	12	-30	55	0.0293	±1	PASS
	12	-20	62	0.0330		
	12	-10	78	0.0415		
	12	0	65	0.0346		
	12	10	38	0.0202		
	12	20	56	0.0298		
	12	30	49	0.0261		
	12	40	45	0.0239		
	12	50	66	0.0351		
	13.5	25	59	0.0314		
	12	25	48	0.0255		
	10.8	25	25	0.0133		
WCDMA Band II Middle channel=9400 channel=1880.0MHz	12	-30	45	0.0239	±1	PASS
	12	-20	65	0.0346		
	12	-10	58	0.0309		
	12	0	46	0.0245		
	12	10	45	0.0239		
	12	20	39	0.0207		
	12	30	27	0.0144		
	12	40	45	0.0239		
	12	50	58	0.0309		
	13.5	25	38	0.0202		
	12	25	48	0.0255		
	10.8	25	43	0.0229		

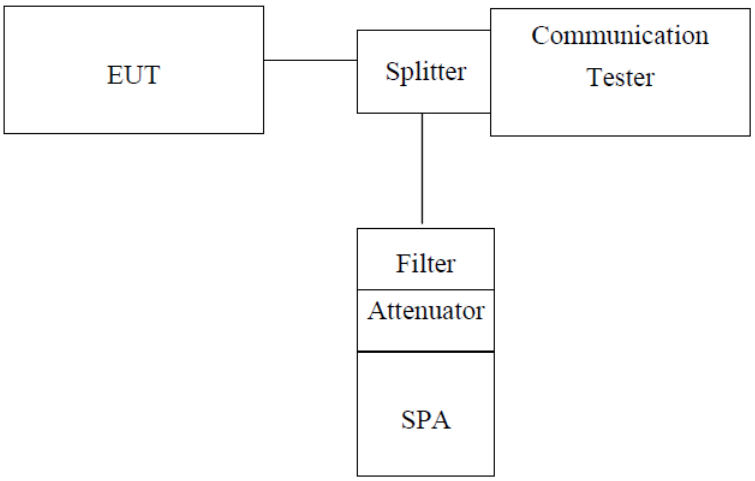
Note: Measurement Uncertainty: ±20Hz.

5.5. Conducted Out of Band Emissions

5.5.1. Limit

According to FCC section 22.917(a) and FCC 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.

5.5.2. Test Setup



Note: *Measurement setup for testing on Antenna connector*

5.5.3. Measurement Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 100KHz, Start=30MHz, Stop= 10th harmonic.

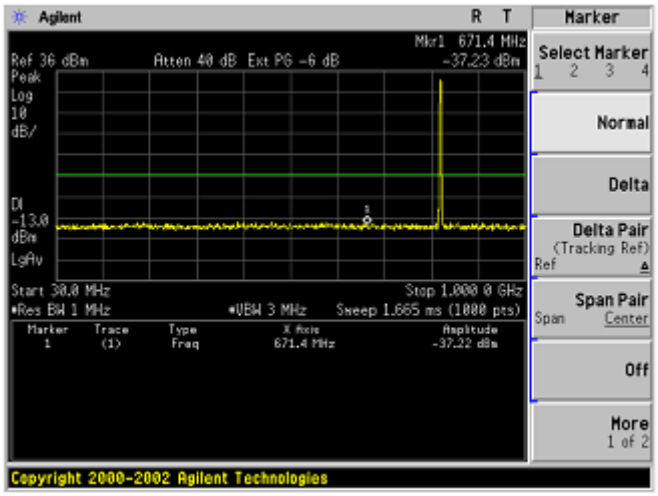
Limit = -13dBm

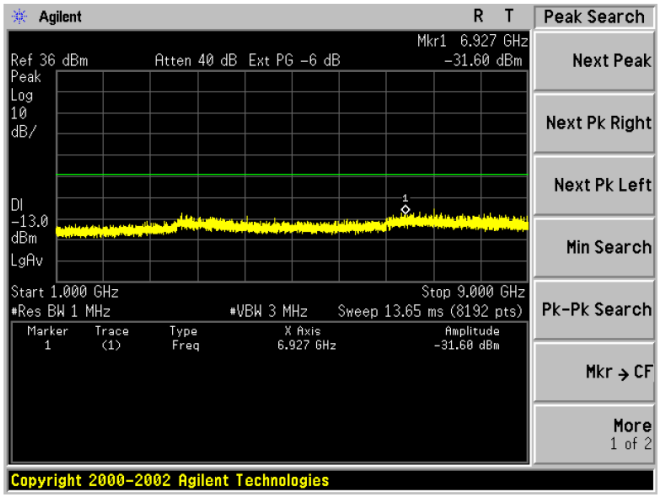
5.5.4. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

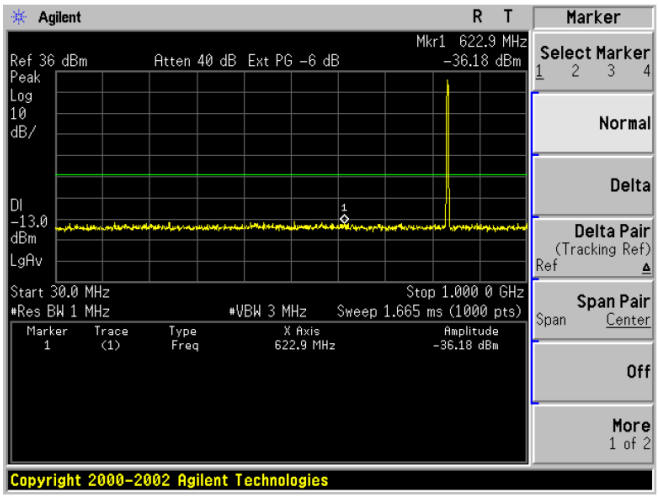
Test plot as follows:

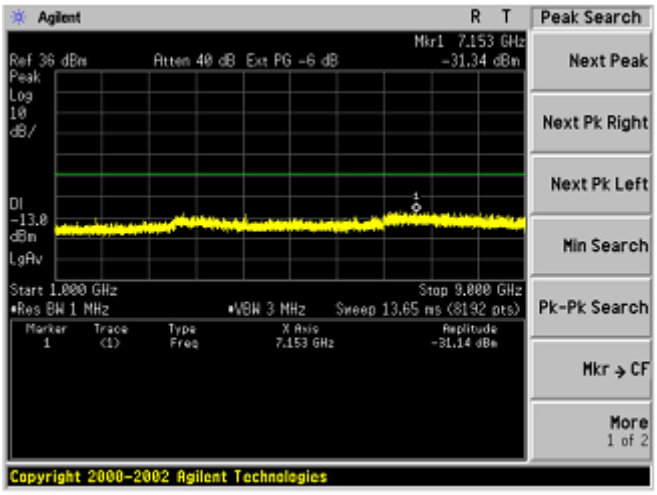
GSM 850MHz Lowest channel



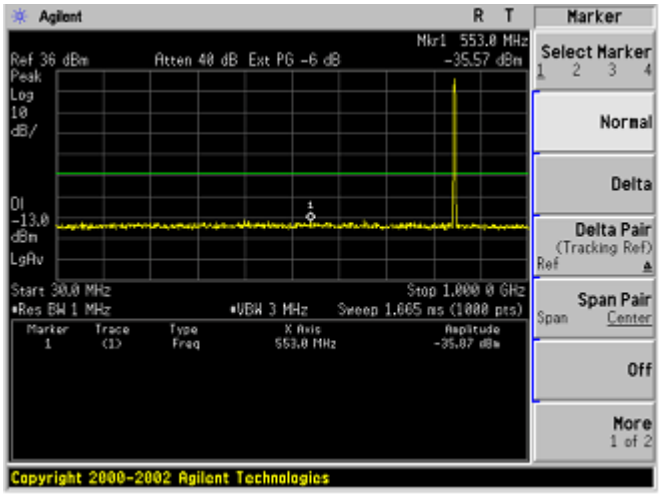


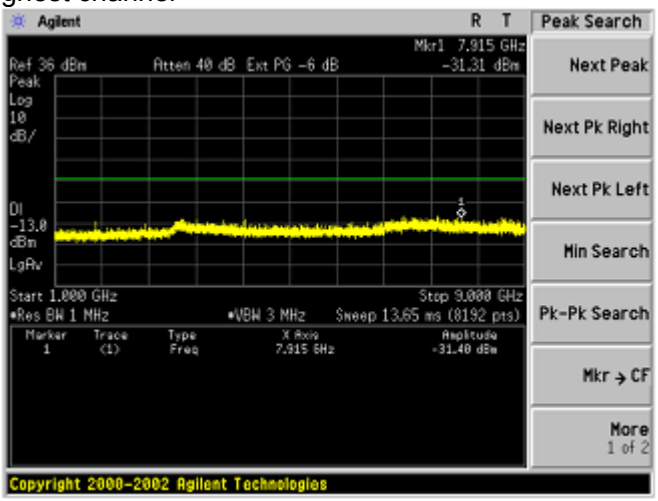
GSM 850MHz Middle channel



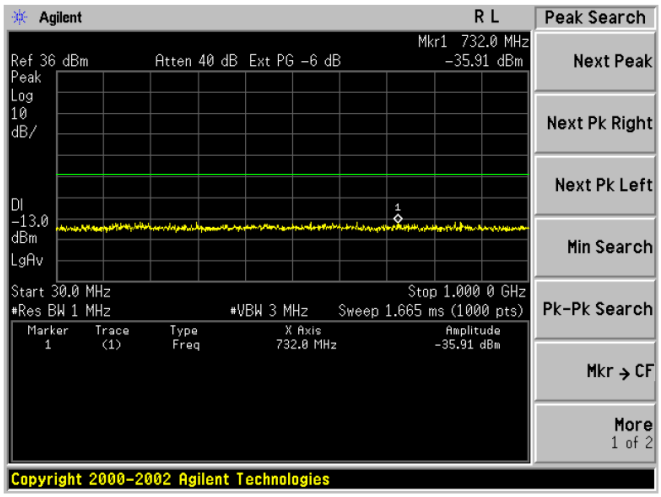


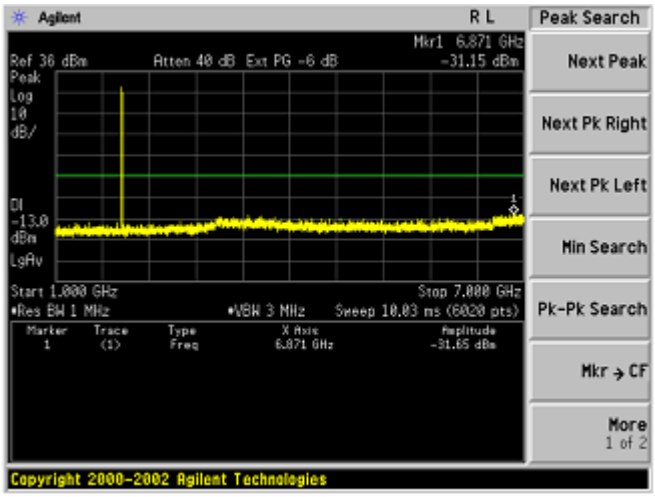
GSM 850MHz Highest channel

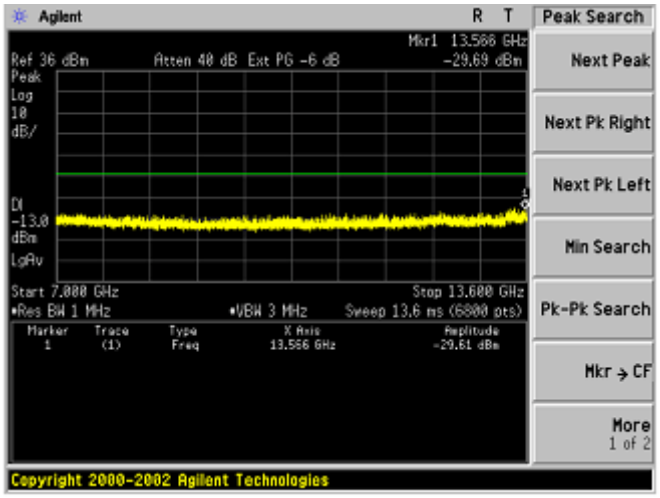


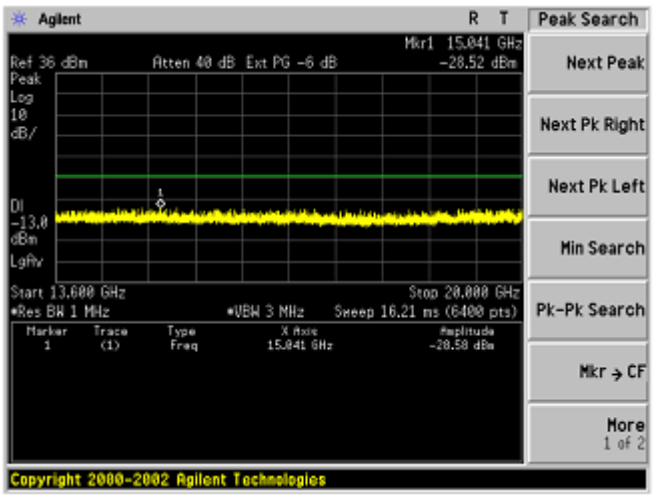


GSM 1900MHz Lowest channel

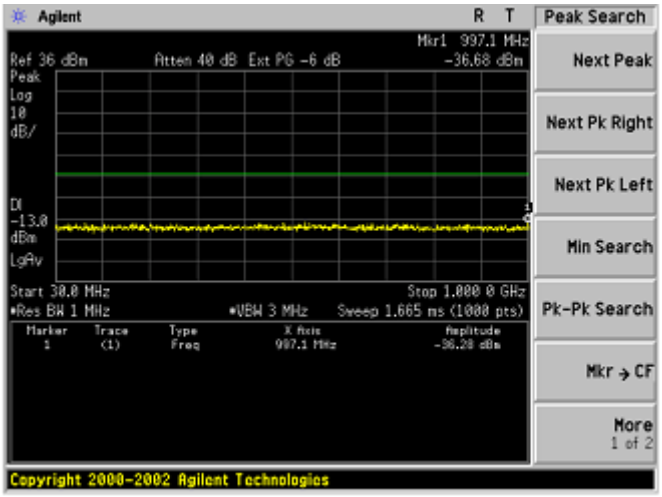


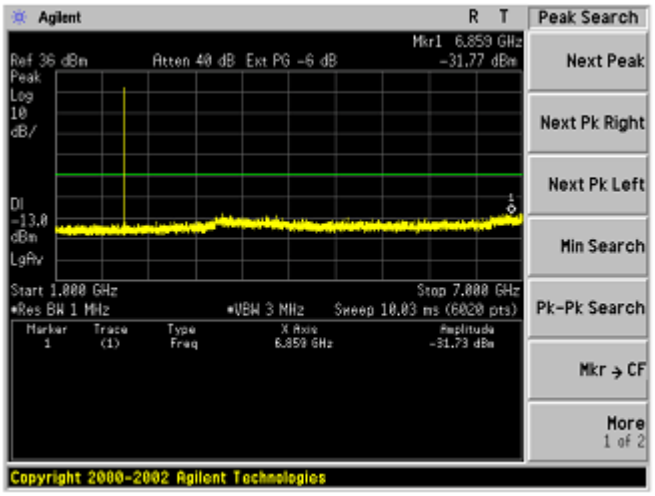


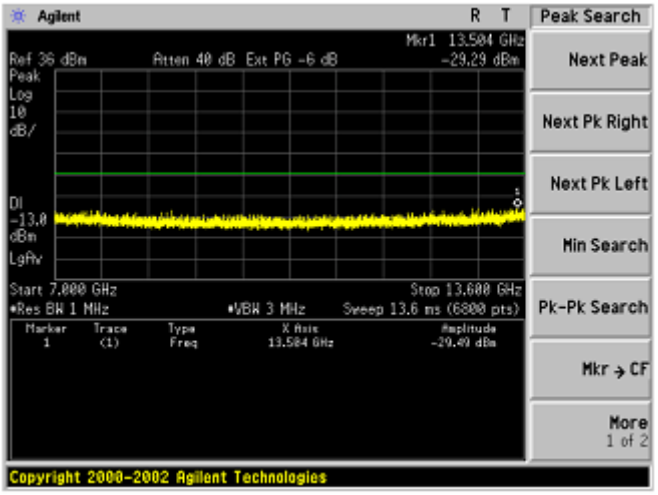


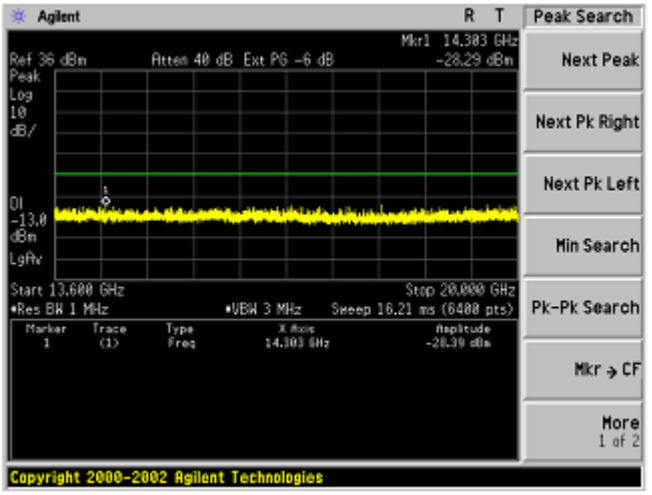


GSM 1900MHz Middle channel

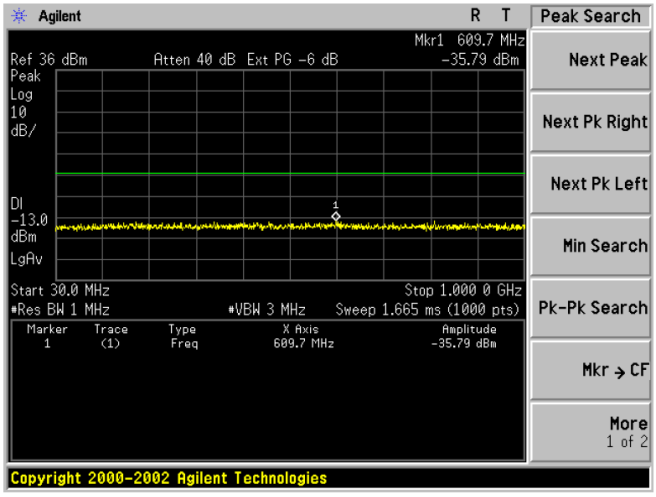


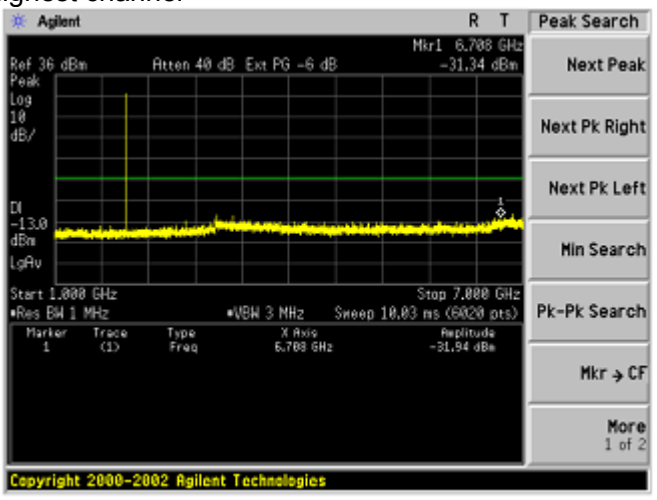


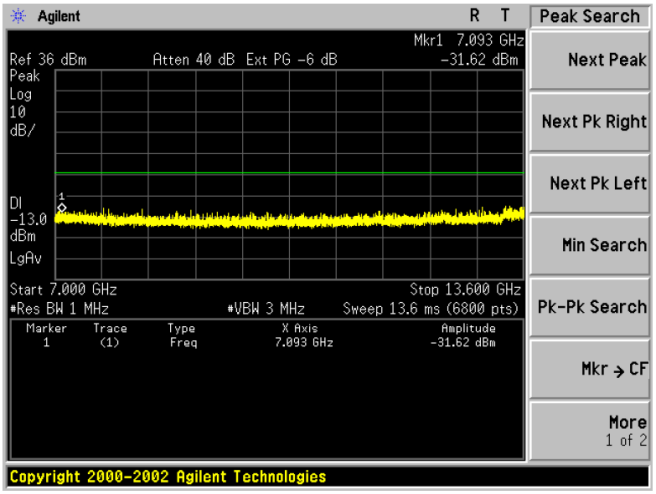


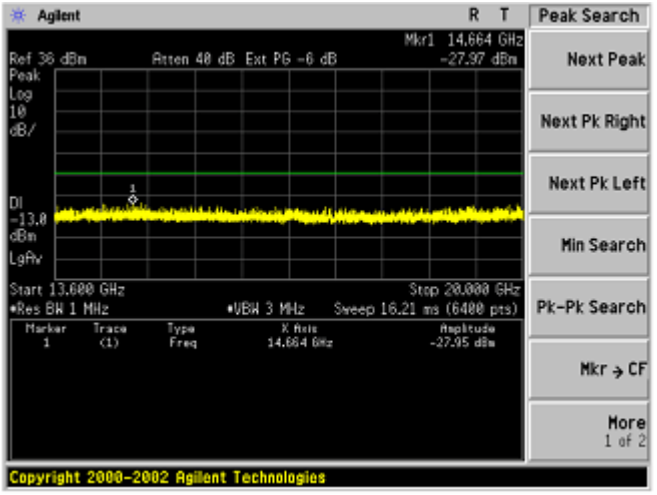


GSM 1900MHz Highest channel



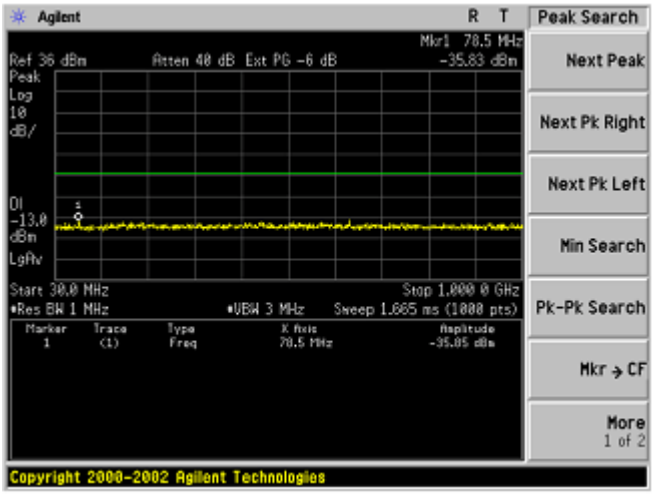


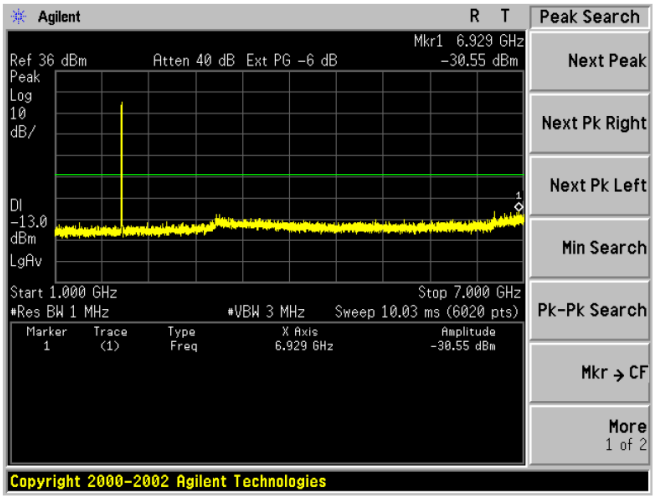


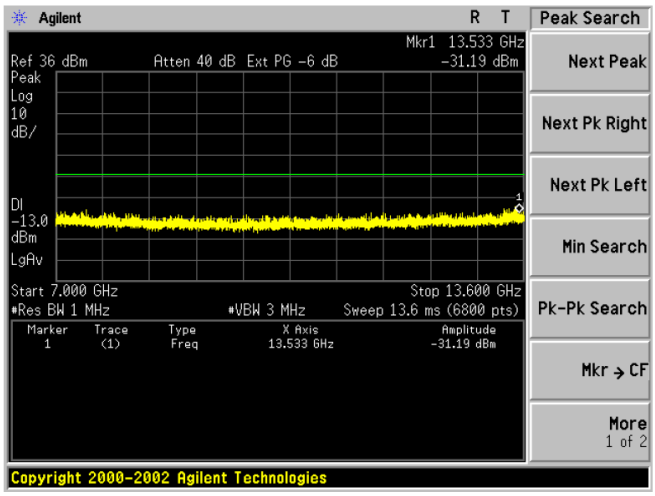


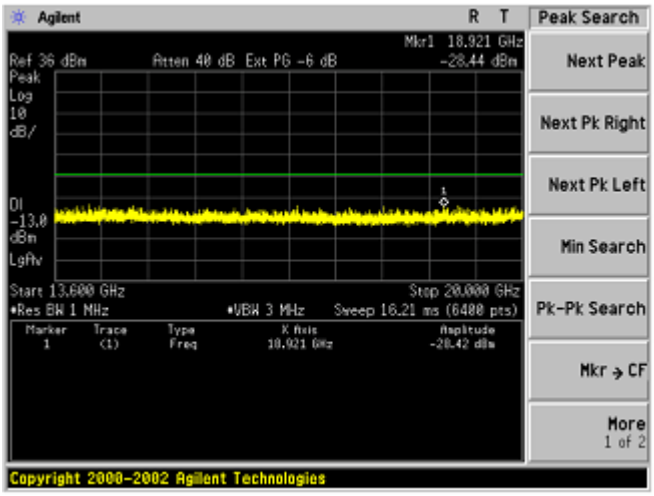
WCDMA Band II (RMC 12.2Kbps link)

Lowest channel



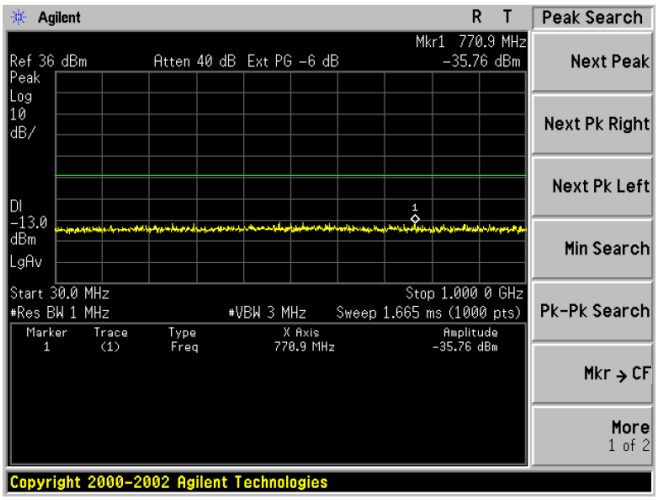


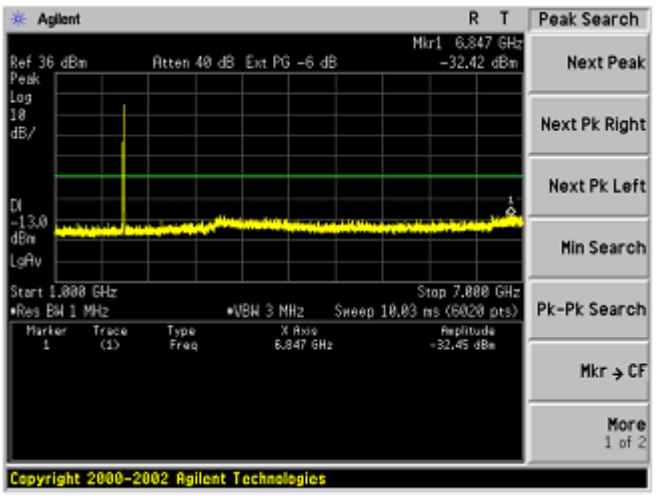


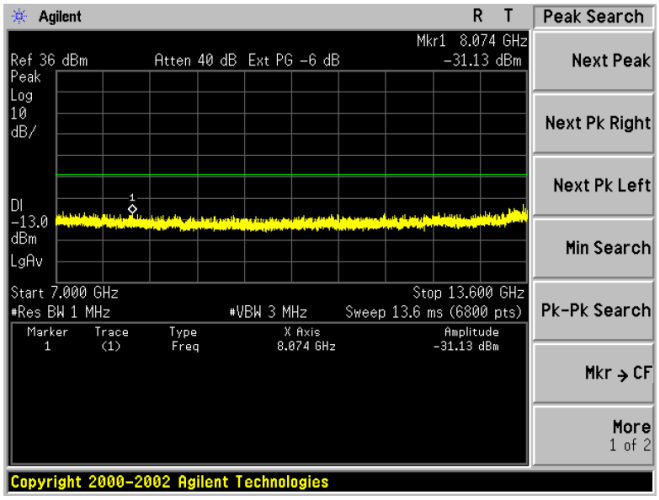


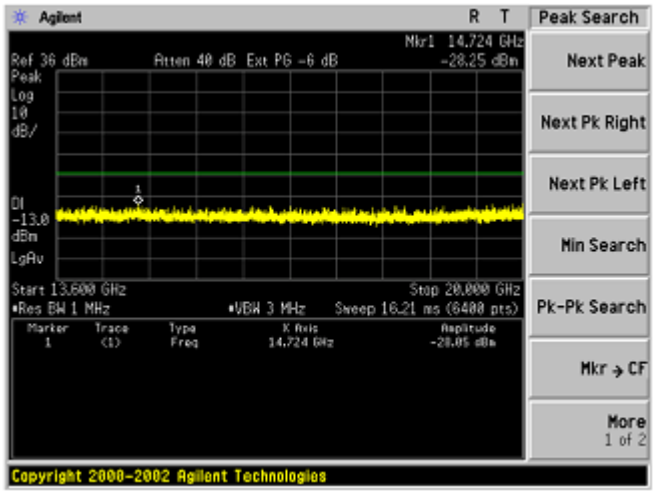
WCDMA Band II (RMC 12.2Kbps link)

Middle channel



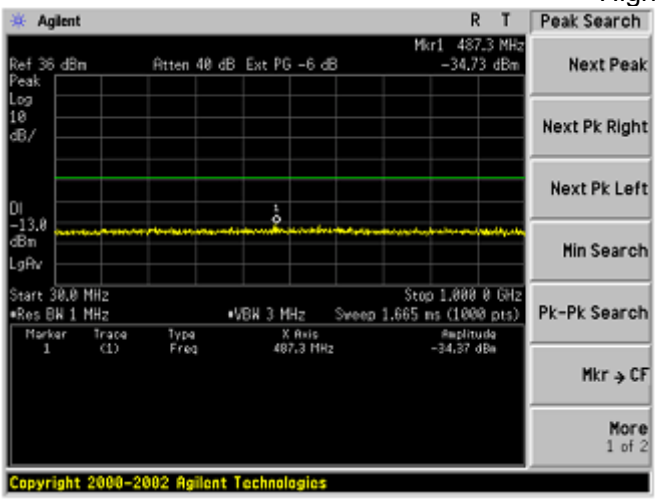


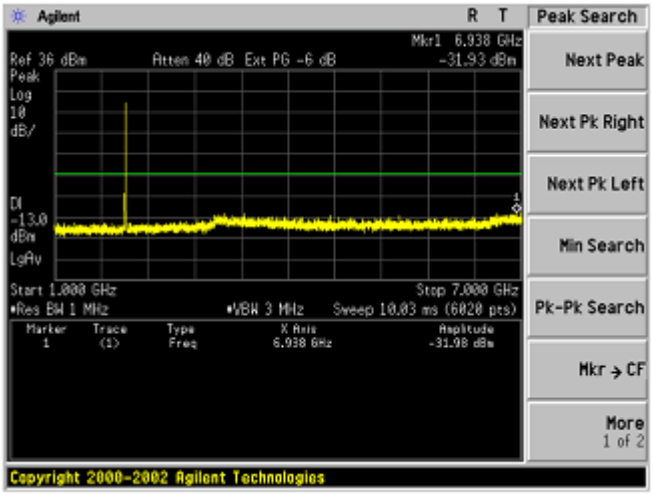


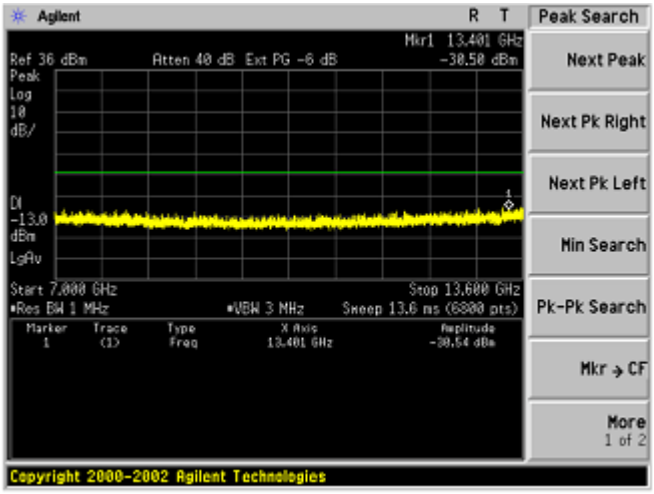


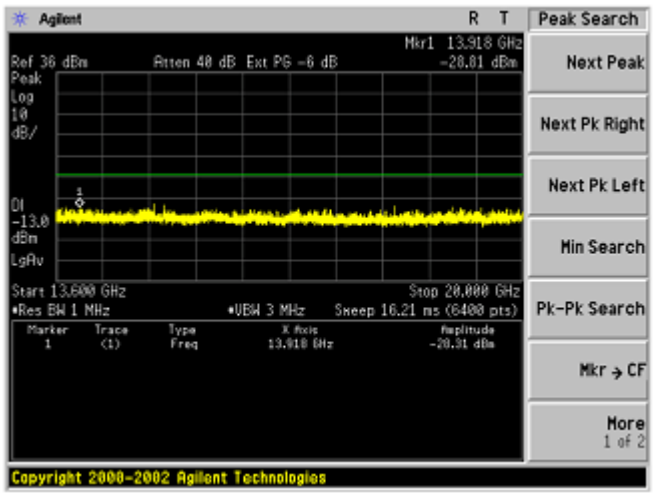
WCDMA Band II (RMC 12.2Kbps link)

Highest channel







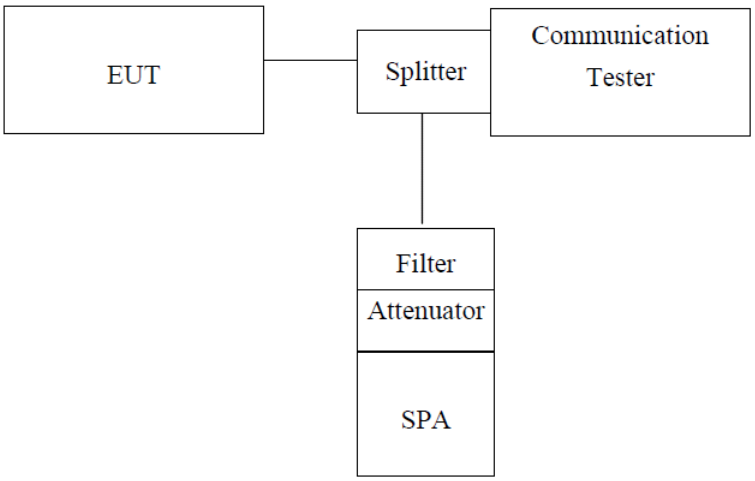


5.6. Conducted Out of Band Emissions

5.6.1. Limit

According to FCC section 22.917(b) and FCC section 24.238(b), 27.53(g)(h) in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth (26dB emission bandwidth) of the fundamental emission of the transmitter may be employed.

5.6.2. Test Setup



Note: *Measurement setup for testing on Antenna connector*

5.6.3. Measurement Procedure

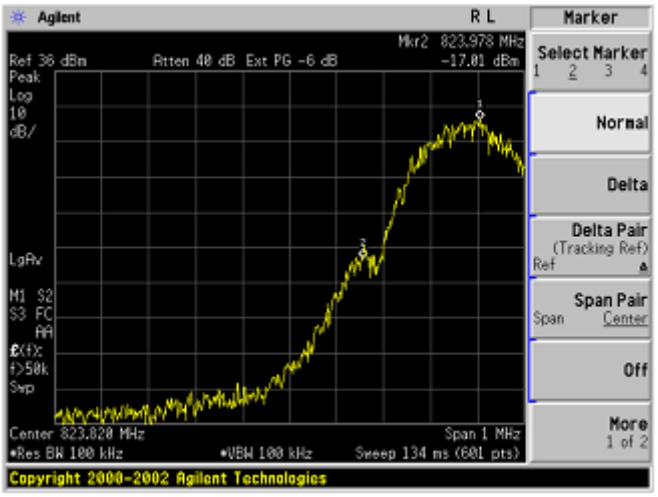
The EUT, which is powered by the adapter, is coupled to the Spectrum Analyzer and the System Simulator with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the System Simulator to operate at the maximum output power i.e. Power Control Level (PCL) = 5 and Power Class = 4. A call is established between the EUT and the System Simulator.

5.6.4. Test Result

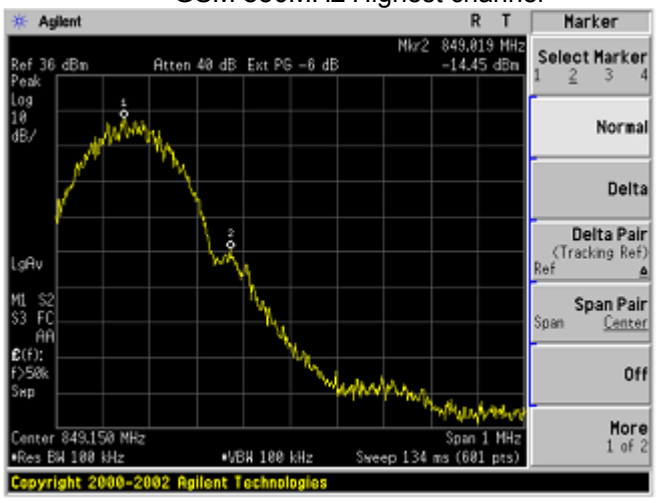
The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the out of band emissions.

Test plot as follows:

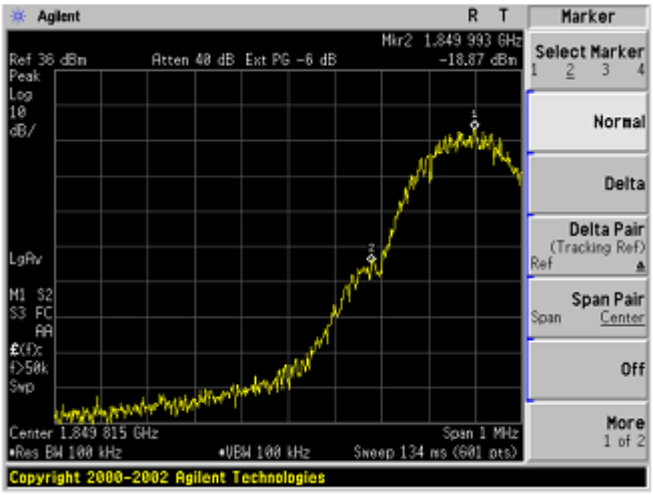
GSM 850MHz Lowest channel



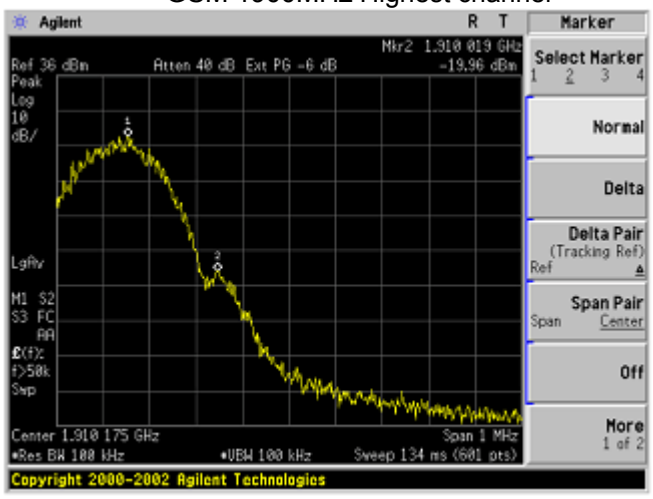
GSM 850MHz Highest channel



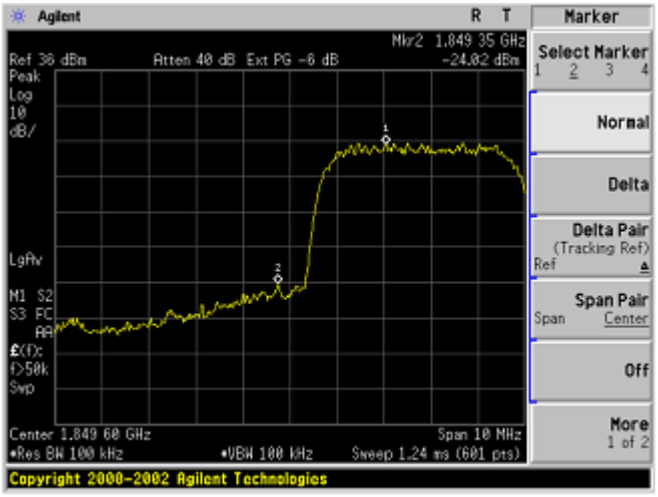
GSM 1900MHz Lowest channel



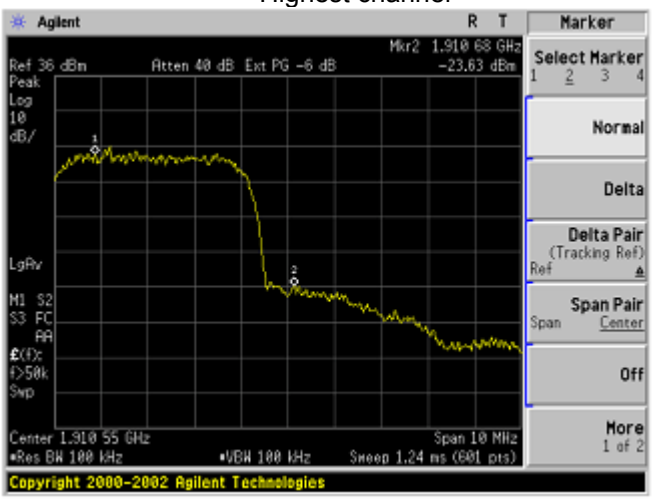
GSM 1900MHz Highest channel



WCDMA Band II (RMC 12.2Kbps link)
Lowest channel



WCDMA Band II (RMC 12.2Kbps link)
Highest channel



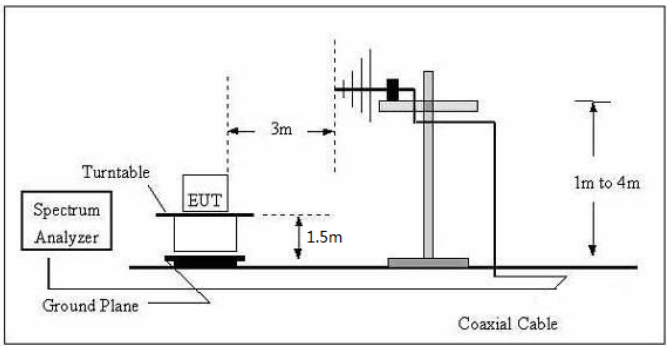
5.7. Transmitter Radiated Power (EIRP/ERP)

5.7.1. Limit

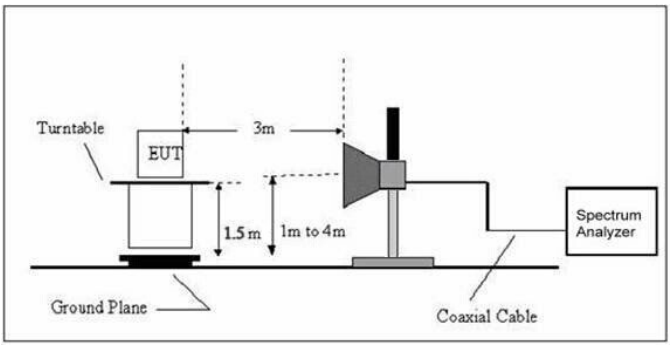
According to FCC section 22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7Watts, and FCC section 24.232, the broadband PCS mobile station is limited to 2 Watts e.i.r.p. peak power.

5.7.2. Test Setup

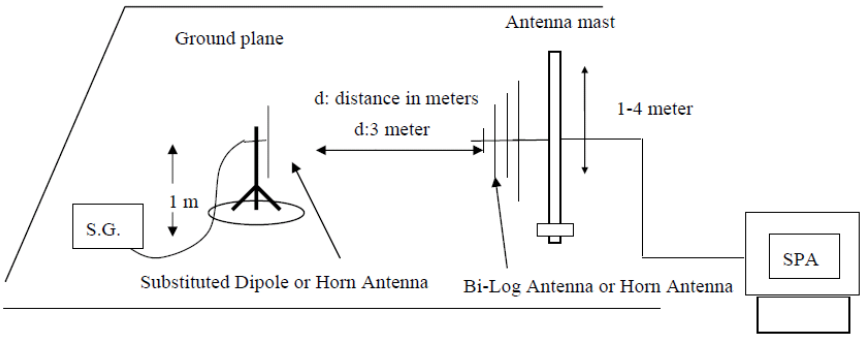
Below 1GHz



Above 1GHz



Substituted method:



5.7.3. Measurement Procedure

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. all test in Full-Anechoic Chamber.

During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)

5.7.4. Test Result

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GSM link)	Lowest	H	V	31.13	38.45	Pass
			H	29.18		
		E1	V	25.07		
			H	29.42		
		E2	V	24.53		
			H	27.75		
	Middle	H	V	31.06	38.45	Pass
			H	29.35		
		E1	V	25.47		
			H	29.78		
		E2	V	25.86		
			H	28.25		
	Highest	H	V	**31.25**	38.45	Pass
			H	29.25		
		E1	V	25.28		
			H	28.89		
		E2	V	24.42		
			H	28.58		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (EGPRS 8 link)	Lowest	H	V	30.52	38.45	Pass
			H	28.87		
		E1	V	22.86		
			H	25.41		
		E2	V	24.27		
			H	23.39		
	Middle	H	V	27.93	38.45	Pass
			H	25.28		
		E1	V	26.27		
			H	25.75		
		E2	V	20.81		
			H	23.86		
	Highest	H	V	**31.05**	38.45	Pass
			H	24.64		
		E1	V	27.79		
			H	24.26		
		E2	V	27.53		
			H	23.87		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GSM link)	Lowest	H	V	29.75	33.01	Pass
			H	27.28		
		E1	V	22.97		
			H	27.45		
		E2	V	22.48		
			H	25.73		
	Middle	H	V	**30.55**	33.01	Pass
			H	28.61		
		E1	V	24.64		
			H	29.26		
		E2	V	25.45		
			H	27.42		
	Highest	H	V	30.03	33.01	Pass
			H	27.95		
		E1	V	24.35		
			H	27.76		
		E2	V	22.91		
			H	27.24		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (EGPRS 8 link)	Lowest	H	V	28.75	33.01	Pass
			H	24.29		
		E1	V	19.56		
			H	24.43		
		E2	V	18.85		
			H	22.61		
	Middle	H	V	29.68	33.01	Pass
			H	24.42		
		E1	V	19.84		
			H	24.87		
		E2	V	20.33		
			H	23.15		
	Highest	H	V	**29.85**	33.01	Pass
			H	21.27		
		E1	V	19.43		
			H	23.68		
		E2	V	18.18		
			H	22.62		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
WCDMA Band II	Lowest	H	V	**22.76**	33.01	Pass
			H	17.88		
		E1	V	15.93		
			H	16.35		
		E2	V	15.32		
			H	19.28		
	Middle	H	V	22.65	33.01	Pass
			H	17.89		
		E1	V	16.87		
			H	18.48		
		E2	V	17.35		
			H	20.43		
	Highest	H	V	22.87	33.01	Pass
			H	21.25		
		E1	V	15.44		
			H	20.11		
		E2	V	14.26		
			H	17.55		

5.8. Radiated Out of Band Emissions

5.8.1. Limit

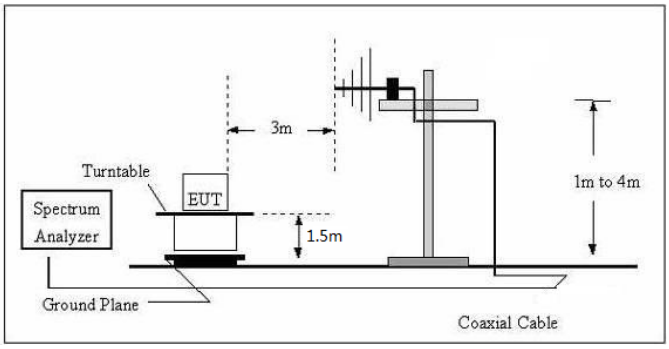
According to FCC section 22.917(a) and section 24.238(a), 27.53(g) the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power

(P) by a factor of at least 43+10*log(P)dB. This calculated to be -13dBm.

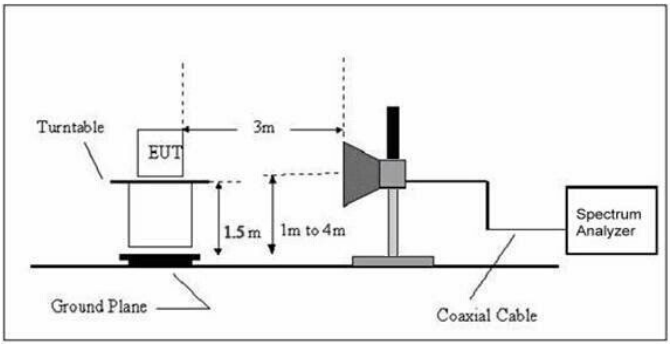
The spurious emission with frequency band 1900 according to FCC section 2.1057.

5.8.2. Test Setup

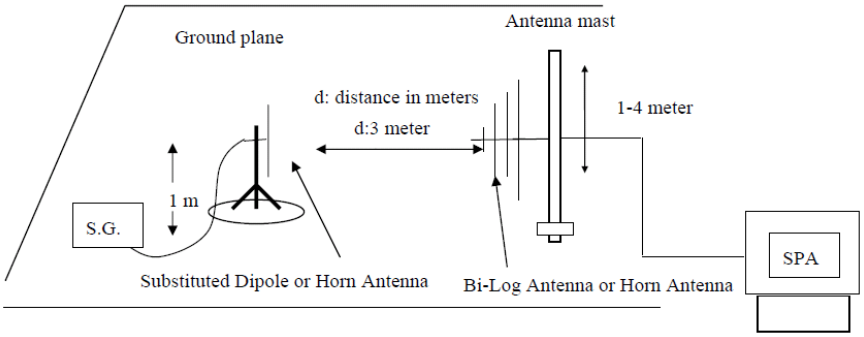
Below 1GHz



Above 1GHz



Substituted method:



5.8.3. Measurement Procedure

The EUT was placed on a non-conductive, The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. all test in Full-Anechoic Chamber.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency

(low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

EIRP = S.G. output (dBm) + Antenna Gain(dBi) – Cable Loss (dB)

Note: Measurement Uncertainty: ±3.6 dB.

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
GSM 850 Lowest	47.87	Vertical	-73.25	-13	PASS
	1648.40	Vertical	-24.26		
	2472.60	Vertical	-31.35		
	3296.80	Vertical	-33.58		
	4121.00	Vertical	-41.03		
	4945.20	Vertical	-35.23		
	127.58	Horizontal	-72.56		
	2472.60	Horizontal	-28.67		
	3296.80	Horizontal	-33.52		
	4121.00	Horizontal	-41.53		
	4945.20	Horizontal	-44.46		
	5769.40	Horizontal	-38.58		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
GSM 850 Middle	45.58	Vertical	-71.45	-13	PASS
	1673.20	Vertical	-27.27		
	2509.80	Vertical	-28.56		
	3346.40	Vertical	-36.59		
	4183.00	Vertical	-43.62		
	5019.60	Vertical	-38.38		
	126.86	Horizontal	-72.47		
	1673.20	Horizontal	-24.28		
	2509.80	Horizontal	-28.41		
	3346.40	Horizontal	-44.11		
	4183.00	Horizontal	-45.27		
	5019.60	Horizontal	-35.02		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
GSM 850 Highest	45.76	Vertical	-72.34	-13	PASS
	1697.60	Vertical	-26.15		
	2546.40	Vertical	-28.88		
	3395.20	Vertical	-32.44		
	4244.00	Vertical	-37.13		
	5092.80	Vertical	-42.23		
	121.65	Horizontal	-72.26		
	1697.60	Horizontal	-24.56		
	2546.40	Horizontal	-29.05		
	3395.20	Horizontal	-34.14		
	4244.00	Horizontal	-42.45		
	5092.80	Horizontal	-48.63		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
PCS1900 Lowest	39.89	Vertical	-74.05	-13	PASS
	3700.40	Vertical	-42.46		
	5550.60	Vertical	-42.63		
	7400.80	Vertical	-35.04		
	9251.00	Vertical	-38.02		
	11101.20	Vertical	-37.15		
	188.67	Horizontal	-73.11		
	3700.40	Horizontal	-44.35		
	5550.60	Horizontal	-43.25		
	7400.80	Horizontal	-37.55		
	9251.00	Horizontal	-42.53		
	11101.20	Horizontal	-39.87		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
PCS1900 Middle	39.47	Vertical	-71.75	-13	PASS
	3760.00	Vertical	-43.82		
	5640.00	Vertical	-42.54		
	7520.00	Vertical	-38.28		
	9400.00	Vertical	-37.16		
	11280.00	Vertical	-38.64		
	187.77	Horizontal	-73.65		
	3760.00	Horizontal	-42.38		
	5640.00	Horizontal	-42.15		
	7520.00	Horizontal	-34.65		
	9400.00	Horizontal	-38.25		
	11280.00	Horizontal	-37.64		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
PCS1900 Highest	42.96	Vertical	-72.35	-13	PASS
	3819.60	Vertical	-43.27		
	5729.40	Vertical	-37.15		
	7639.20	Vertical	-33.33		
	9549.00	Vertical	-39.75		
	11458.80	Vertical	-39.62		
	185.89	Horizontal	-72.78		
	3819.60	Horizontal	-41.54		
	5729.40	Horizontal	-36.85		
	7639.20	Horizontal	-32.76		
	9549.00	Horizontal	-37.85		
	11458.80	Horizontal	-37.25		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
WCDMA Band II Lowest	52.79	Vertical	-74.14	-13	PASS
	3704.80	Vertical	-24.56		
	5557.20	Vertical	-25.82		
	7409.60	Vertical	-32.54		
	9262.00	Vertical	-39.27		
	11114.40	Vertical	-44.65		
	152.32	Horizontal	-75.16		
	3704.80	Horizontal	-21.71		
	5557.20	Horizontal	-27.28		
	7409.60	Horizontal	-35.14		
	9262.00	Horizontal	-41.39		
	11114.40	Horizontal	-46.27		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
WCDMA Band II Middle	51.12	Vertical	-74.25	-13	PASS
	3760.00	Vertical	-23.69		
	5640.00	Vertical	-25.87		
	7520.00	Vertical	-32.48		
	9400.00	Vertical	-39.76		
	11280.00	Vertical	-44.28		
	147.78	Horizontal	-75.19		
	3760.00	Horizontal	-22.36		
	5640.00	Horizontal	-27.28		
	7520.00	Horizontal	-35.35		
	9400.00	Horizontal	-41.48		
	11280.00	Horizontal	-46.16		

Band	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level(dBm)		
WCDMA Band II Highest	54.09	Vertical	-74.23	-13	PASS
	3815.20	Vertical	-22.75		
	5722.80	Vertical	-27.29		
	7630.40	Vertical	-32.16		
	9538.00	Vertical	-39.36		
	11445.60	Vertical	-44.57		
	151.76	Horizontal	-73.56		
	3815.20	Horizontal	-22.26		
	5722.80	Horizontal	-27.42		
	7630.40	Horizontal	-35.25		
	9538.00	Horizontal	-41.78		
	11445.60	Horizontal	-46.46		

6. EMC EMISSION TEST

6.1 CONDUCTED EMISSION MEASUREMENT

6.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quas -peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

6.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

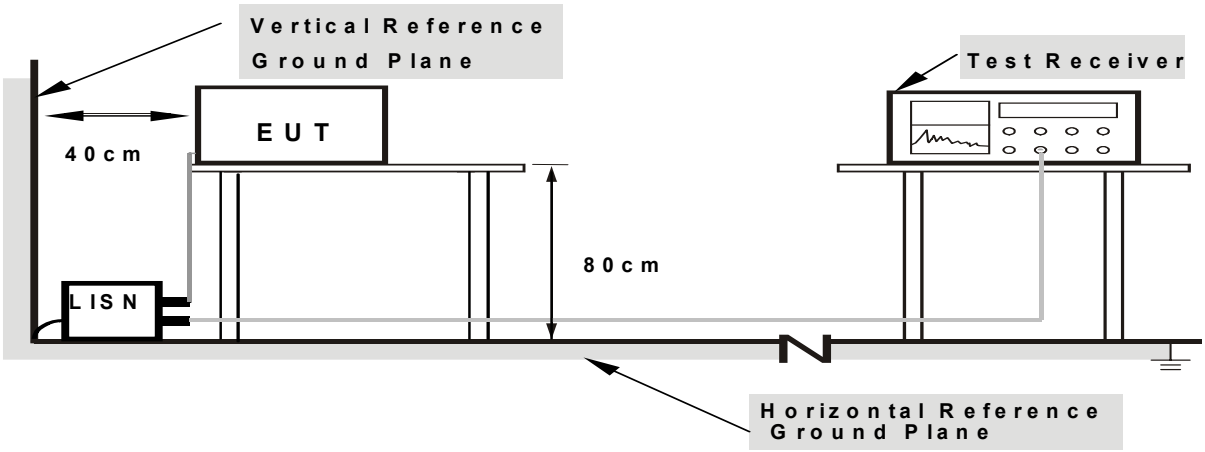
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

6.1.3 DEVIATION FROM TEST STANDARD

No deviation

6.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

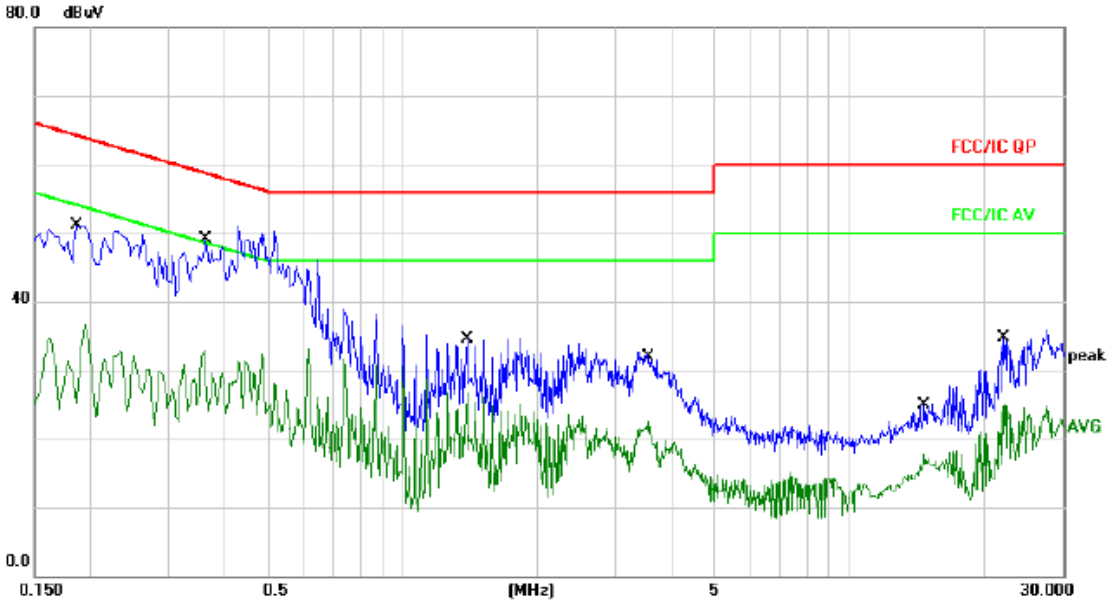
6.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

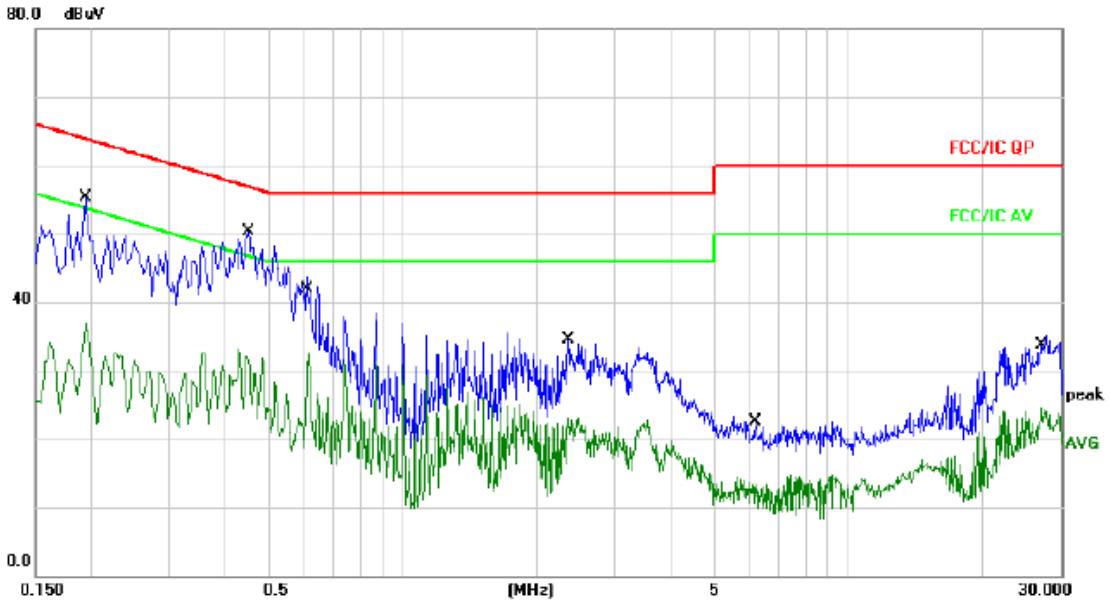
6.1.6 TEST RESULTS

EUT：	Scouting Camera/Trail Camera	Model Name ：	SG983G series
Temperature：	25 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 5V from Notebook input AC 120V	Test Mode：	Link Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1860	41.02	10.06	51.08	64.21	-13.13	QP	
2		0.1860	26.63	10.06	36.69	54.21	-17.52	AVG	
3	*	0.3580	40.96	10.10	51.06	58.77	-7.71	QP	
4		0.3580	22.83	10.10	32.93	48.77	-15.84	AVG	
5		1.3900	24.44	10.17	34.61	56.00	-21.39	QP	
6		1.3900	16.59	10.17	26.76	46.00	-19.24	AVG	
7		3.5740	15.86	10.17	26.03	56.00	-29.97	QP	
8		3.5740	10.93	10.17	21.10	46.00	-24.90	AVG	
9		14.7300	14.88	10.15	25.03	60.00	-34.97	QP	
10		14.7300	7.45	10.15	17.60	50.00	-32.40	AVG	
11		22.1780	24.45	10.18	34.63	60.00	-25.37	QP	
12		22.1780	14.77	10.18	24.95	50.00	-25.05	AVG	

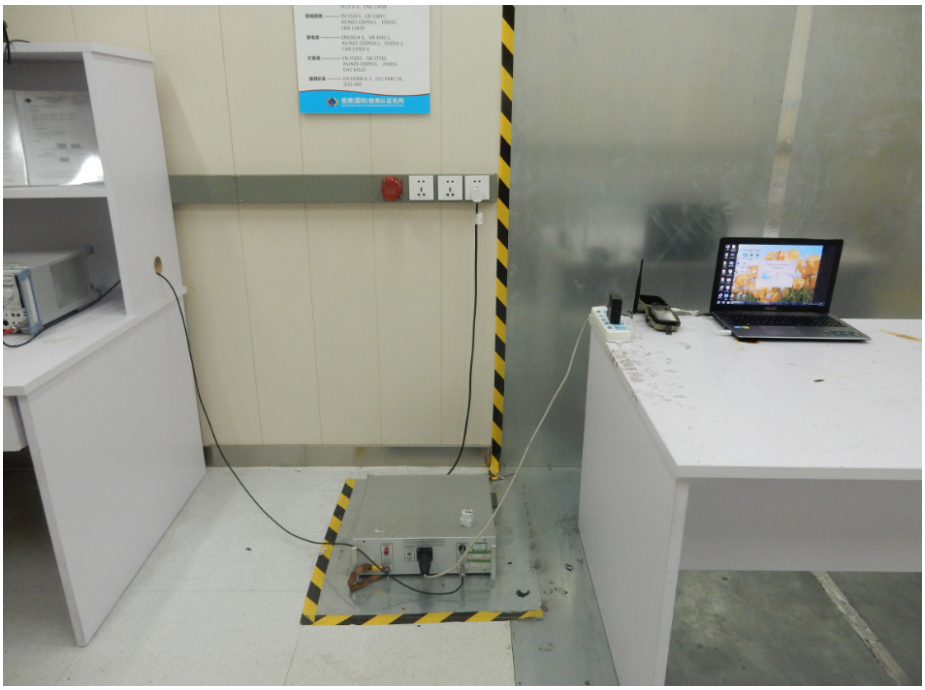
EUT：	Scouting Camera/Trail Camera	Model Name ：	SG983G series
Temperature：	25 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5V from Notebook input AC 120V	Test Mode：	Link Mode



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1940	45.17	10.06	55.23	63.86	-8.63	QP	
2		0.1940	26.85	10.06	36.91	53.86	-16.95	AVG	
3	*	0.4460	40.23	10.11	50.34	56.95	-6.61	QP	
4		0.4460	22.06	10.11	32.17	46.95	-14.78	AVG	
5		0.6180	32.19	10.13	42.32	56.00	-13.68	QP	
6		0.6180	18.49	10.13	28.62	46.00	-17.38	AVG	
7		2.3580	24.23	10.18	34.41	56.00	-21.59	QP	
8		2.3580	12.84	10.18	23.02	46.00	-22.98	AVG	
9		6.2020	12.49	10.09	22.58	60.00	-37.42	QP	
10		6.2020	3.17	10.09	13.26	50.00	-36.74	AVG	
11		27.2340	24.89	10.21	35.10	60.00	-24.90	QP	
12		27.2340	14.22	10.21	24.43	50.00	-25.57	AVG	

7. PHOTOGRAPHS OF TEST SET-UP

Conducted Measurement Photos



Radiated Measurement Photos