ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H and PART 24 SUBPART E REQUIREMENT

OF

Product Name:	**Smartphone**
Brand Name:	**N/A**
Model Name:	**STAR100, STAR100 (without camera)**
FCC ID:	**NM8STAR**
Report No.:	**EH/2006/20004**
Issue Date:	**May 31, 2006**
FCC Rule Part:	**2 & 24E& 22H**
Prepared for	**High Tech Computer Corp.**
	23, Hsin Hua Rd., Taoyuan 330, Taiwan.
Prepared by	**SGS Taiwan Ltd.**
	No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.

__Note:__ This report shall not be reproduced except in full, without the written approval of SGS Taiwan Ltd. This document may be altered or revised by SGS Taiwan Ltd. personnel only, and shall be noted in the revision section of the document.

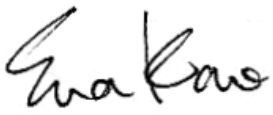
VERIFICATION OF COMPLIANCE

Applicant:	High Tech Computer Corp. 23, Hsin Hua Rd., Taoyuan 330, Taiwan.
Equipment Under Test:	Smartphone
FCC ID Number:	NM8STAR
Brand Name:	N/A
Model No.:	STAR100, STAR100 (without camera)
Model Difference:	N/A
File Number:	EH/2006/20004
Date of test:	Feb. 17, 2006 ~ May 29, 2006
Date of EUT Received:	Feb. 17, 2006

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-1-1998 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 subpart H and FCC PART 24 subpart E.

The test results of this report relate only to the tested sample identified in this report.

Test By:		***Date***	May 31, 2006
	Sky Wang		
Prepared By:		***Date***	May 31, 2006
	Eva Kao		
Approved By		***Date***	May 31, 2006
	Vincent Su		

Version

Version No.	Date
00	Mar. 03, 2006
01	May 31, 2006

Table of Contents

1. GENERAL INFORMATION

1.1 Product Description

Product	Smartphone	
Model Name	STAR100, STAR100 (without camera)	
Model Difference:	N/A	
Trade Name	N/A	
Power Supply	3.7 Vdc re-chargeable battery or 5Vdc by AC/DC power adapter	
	Battery Model:	STAR160, STAR161
	Adaptor Model:	ADP5FH B, Supplier: DELTA

GSM:

Frequency Range and Power	TX: 824 MHz – 848 MHz	33 dBm
	TX: 1850 MHz –1910 MHz	30 dBm
Type of Emission	300KGXW	
Software Version	413.1.05	
Hardware Version	XD	
IMEI	358167000017405	
Antenna Designation	Metal Antenna, 850MHz, -0.96dBi; 1900MHz, +1.85dBi	

Bluetooth:

Frequency Range	2402 – 2480MHz
Channel number	79 channels
Rated Power	3.34 dBm
Modulation type	Frequency Hopping Spread Spectrum (FHSS)
Antenna Designation	Chip Antenna, 0.8 dBi, Non-User Replaceable (Fixed)

The EUT is compliance with Bluetooth Standard.

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **NM8STAR** filing to comply with Section Part 22 subpart H and Part 24 subpart E of the FCC CFR 47 Rules.

1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.4 (2003) and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the address of SGS Taiwan Ltd. No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements. Site No. 1(3 &10 meters) Registration Number: 94644, Both OATS and Anechoic chamber (3 meters) was accredited by CNLA (0513).

1.5 Special Accessories

Not available for this EUT intended for grant.

1.6 Equipment Modifications

Not available for this EUT intended for grant.

2. SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 1.0 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and 13 of ANSI C63.4-2003.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System

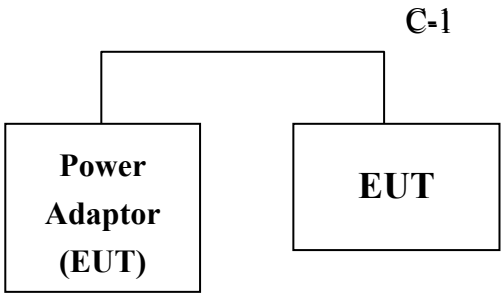


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	FCC ID	Series No.	Data Cable	Power Cord
1.	N/A						

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a) §22.913(a) §24.232(a)	RF Power Output	Compliant
§2.1046(a) §22.913(a) §24.232(a)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a)	Out of Band Emissions at Antenna Terminals and Band Edge	Compliant
§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	Compliant
§2.1055(a)(1)(b)	Frequency Stability vs. Temperature	Compliant
§2.1055(d)(1)(2)	Frequency Stability vs. Voltage	Compliant
§15.107;§15.207	AC Power Line Conducted Emission	Compliant

4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. The battery: STAR160 and STAR161 were pre-tested and STAR161 is worst case.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for both GSM and GPRS with all power adaptors, earphone and Data cable. The worst-case E1 mode for GSM 850 band and E1 mode for GSM 1900 band with earphone mode for channel Low, Mid and High at GSM mode was reported.

The field strength of co-located spurious radiation emission was measured as worst case of EUT at E1 position at GSM 850 channel high/1900 channel low with BT at channel Low, Mid and High mode was reported.

5. RF POWER OUTPUT MEASUREMENT

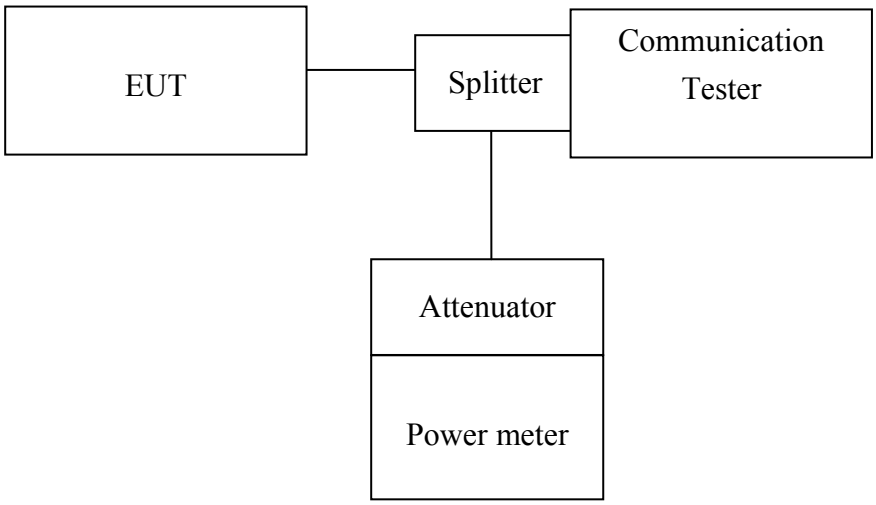
5.1 Standard Applicable

According to FCC §2.1046.

FCC 22.913(a) Mobile station are limited to 7W.

FCC 24.232(b) Mobile station are limited to 2W.

5.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

5.3 Measurement Procedure

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

5.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2005	06/29/2006
Power Sensor	Anritsu	MA2490A	31431	06/28/2005	06/29/2006
Power Meter	Anritsu	ML2487A	6K00002070	06/28/2005	06/29/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	11/11/2005	11/12/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circuit	BW-S10W5	N/A	10/07/2005	10/06/2006
Attenuator	Mini-Circuit	BW-S6W5	N/A	10/07/2005	10/06/2006
Splitter	Mini-Circuit	ZFSC-2-10G	N/A	10/07/2005	10/06/2006
Signal Generator	R&S	SMR40	100210	11/09/2005	11/10/2006
DC Power Supply	Agilent	6038A	2929A-07548	01/06/2006	01/05/2007

5.5 Measurement Result

EUT Mode	Frequency (MHz)	CH	CMU200 Reading (dBm)	Offset (dB)	Average Power (dBm)
GSM 850	824.20	128	6.22	26.50	32.72
	836.60	190	6.36	26.50	32.86
	848.80	251	6.43	26.50	32.93

EUT Mode	Frequency (MHz)	CH	Power Meter Reading (dBm)	Offset (dB)	Average Power (dBm)
PCS 1900	1850.20	512	3.12	26.40	29.52
	1880.00	661	3.26	26.40	29.66
	1909.80	810	3.45	26.40	29.85

6. ERP, EIRP MEASUREMENT

6.1 Standard Applicable

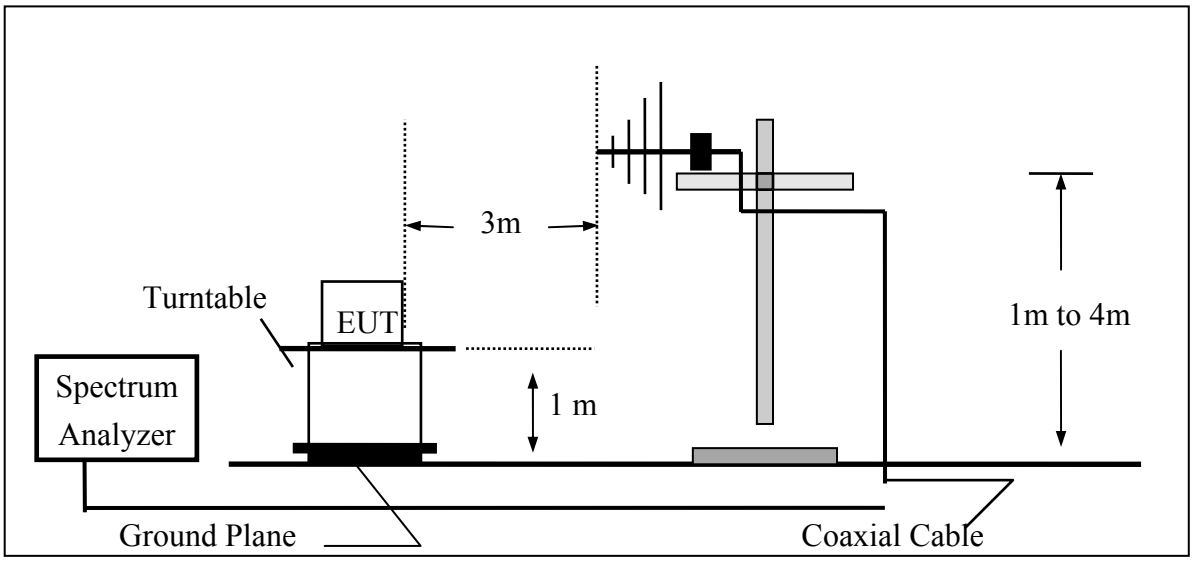
According to FCC §2.1046

FCC 22.913(a) Mobile station are limited to 7W ERP.

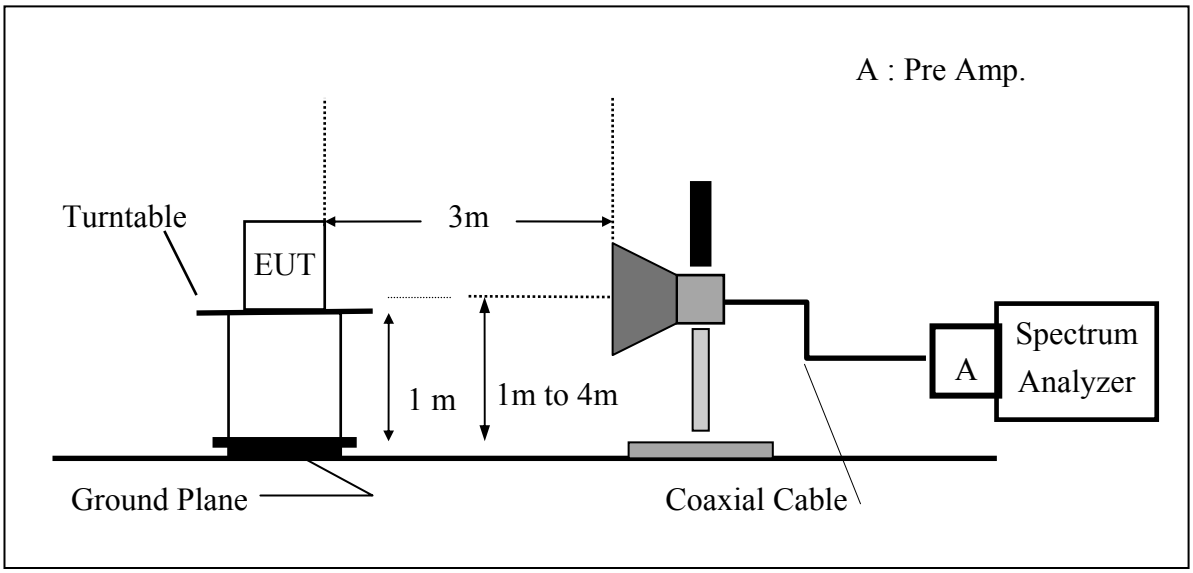
FCC 24.232(b) Mobile station are limited to 2W EIRP.

6.2 Test SET-UP (Block Diagram of Configuration)

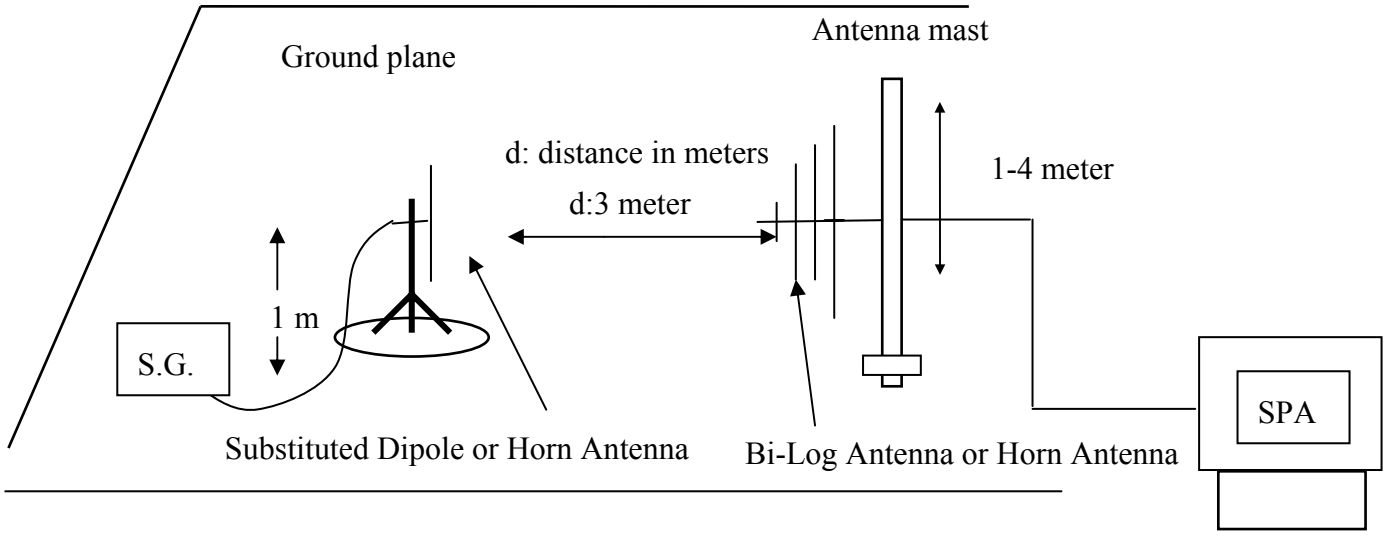
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



6.3 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.

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)

6.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2005	08/26/2006
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2005	06/02/2006
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2005	08/15/2006
Pre-Amplifier	HP	8447D	2944A09469	07/19/2005	07/18/2006
Pre-Amplifier	HP	8494B	3008A00578	02/26/2006	02/25/2007
Signal Generator	R&S	SMR40	100210	02/09/2006	02/10/2007
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2005	10/08/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2005	10/08/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	10/09/2005	10/08/2006
Site NSA	SGS	966 chamber	N/A	11/17/2005	11/16/2006
Site NSA	SGS	10m Open-Site	N/A	10/02/2005	10/01/2006
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2005	10/06/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	10/14/2005	10/13/2006
Dipole Antenna	Schwarzbeck	VHAP	908/909	06/10/2005	06/11/2006
Dipole Antenna	Schwarzbeck	UHAP	891/892	06/10/2005	06/11/2006
Horn antenna	Schwarzbeck	BBHA 9120D	N/A	08/16/2005	08/15/2006

6.5 Measurement Result (Battery: STAR161)

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GSM 850	824.00	128	H	V	127.51	40.19	-7.87	3.64	28.67	38.45
				H	130.84	43.19	-7.87	3.64	31.67	38.45
			E1	V	131.03	43.71	-7.87	3.64	32.19	38.45
				H	127.22	39.57	-7.87	3.64	28.05	38.45
			E2	V	124.38	37.06	-7.87	3.64	25.54	38.45
				H	125.60	26.77	-7.87	5.84	13.06	38.45
	836.50	190	H	V	126.92	39.89	-7.88	3.70	28.32	38.45
				H	130.18	42.85	-7.88	3.70	31.27	38.45
			E1	V	131.16	44.13	-7.88	3.70	32.56	38.45
				H	127.45	40.11	-7.88	3.70	28.54	38.45
			E2	V	122.65	35.62	-7.88	3.70	24.05	38.45
				H	126.37	39.03	-7.88	3.70	27.46	38.45
	848.80	251	H	V	126.87	40.13	-7.88	3.75	28.50	38.45
				H	129.99	42.97	-7.88	3.75	31.34	38.45
			E1	V	131.37	44.63	-7.88	3.75	33.00	38.45
				H	127.34	40.32	-7.88	3.75	28.69	38.45
			E2	V	122.54	35.80	-7.88	3.75	24.17	38.45
				H	126.28	39.26	-7.88	3.75	27.63	38.45

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=100 KHz, VBW=300KHz,

Above 1GHz was RBW= 1MHz , VBW= 3MHz

(Battery: STAR161)

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
PCS 1900	1850.27	512	H	V	125.54	18.58	9.90	5.41	23.07	33.00
				H	130.81	23.92	9.90	5.41	28.41	33.00
			E1	V	126.95	19.99	9.90	5.41	24.48	33.00
				H	131.62	24.73	9.90	5.41	29.22	33.00
			E2	V	128.96	22.00	9.90	5.41	26.49	33.00
				H	131.76	24.87	9.90	5.84	28.93	33.00
	1880.00	661	H	V	126.71	19.76	9.99	5.46	24.29	33.00
				H	131.20	24.33	9.99	5.46	28.86	33.00
			E1	V	128.30	21.35	9.99	5.46	25.88	33.00
				H	130.48	23.61	9.99	5.46	28.14	33.00
			E2	V	128.47	21.52	9.99	5.46	26.05	33.00
				H	131.50	24.63	9.99	5.46	29.16	33.00
	1909.80	810	H	V	126.35	19.41	10.08	5.51	23.98	33.00
				H	131.38	24.53	10.08	5.51	29.09	33.00
			E1	V	128.70	21.76	10.08	5.51	26.33	33.00
				H	130.57	23.72	10.08	5.51	28.28	33.00
			E2	V	128.17	21.23	10.08	5.51	25.80	33.00
				H	131.15	24.30	10.08	5.51	28.86	33.00

Remark：

(1) The RBW,VBW of SPA for frequency

Below 1GHz was RBW=100 KHz, VBW=300KHz,

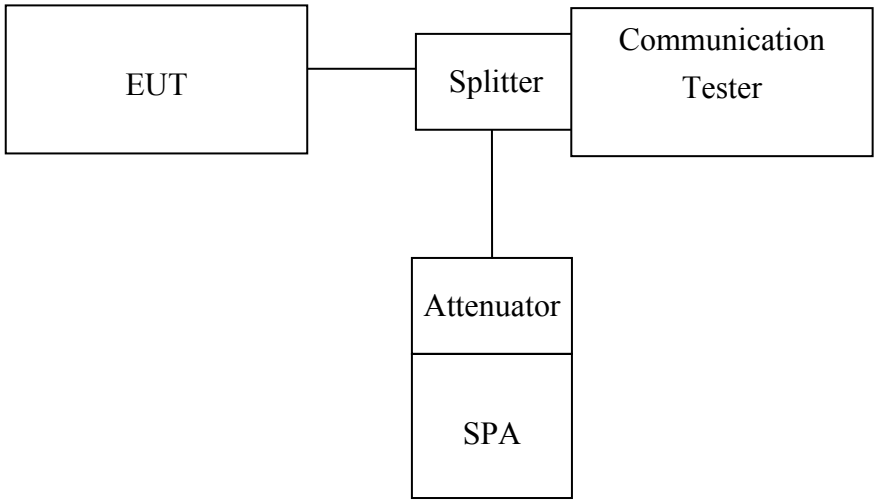
Above 1GHz was RBW= 1MHz , VBW= 3MHz

7. 99% OCCUPIED BANDWIDTH MEASUREMENT

7.1 Standard Applicable

According to §FCC 2.1049.

7.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

7.3 Measurement Procedure

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW (10/30KHz) was set to about 1% of emission BW, VBW= 3 times RBW(30/100KHz), -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

7.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2005	06/29/2006
Power Sensor	Anritsu	MA2490A	31431	06/28/2005	06/29/2006
Power Meter	Anritsu	ML2487A	6K00002070	06/28/2005	06/29/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	11/11/2005	11/12/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circuit	BW-S10W5	N/A	10/07/2005	10/06/2006
Attenuator	Mini-Circuit	BW-S6W5	N/A	10/07/2005	10/06/2006
Splitter	Mini-Circuit	ZFSC-2-10G	N/A	10/07/2005	10/06/2006
Signal Generator	R&S	SMR40	100210	11/09/2005	11/10/2006
DC Power Supply	Agilent	6038A	2929A-07548	01/06/2006	01/05/2007

7.5 Measurement Result:.

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GSM 850	824.20	128	0.2437
	836.60	190	0.2412
	848.80	251	0.2419

EUT Mode	Frequency (MHz)	CH	99 % Bandwidth (MHz)
PCS 1900	1850.20	512	0.2416
	1880.00	661	0.2442
	1909.80	810	0.2444

Figure 7-1: GSM Channel Low

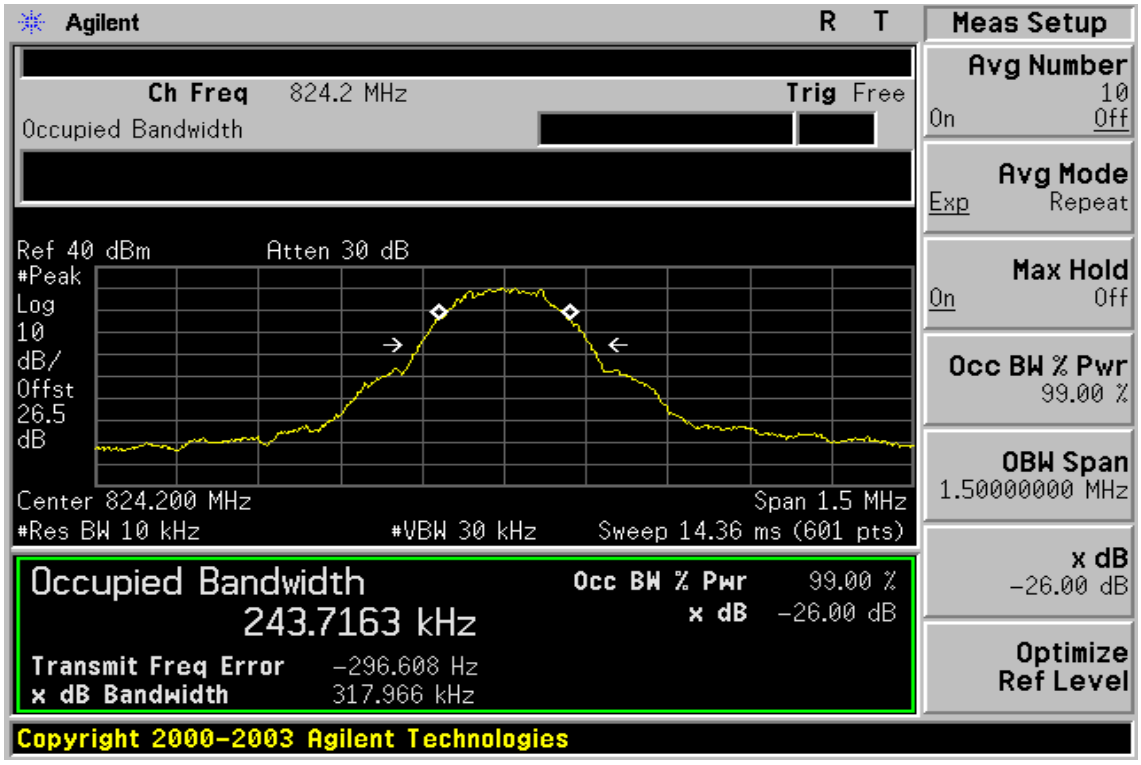


Figure 7-2 GSM Channel Mid

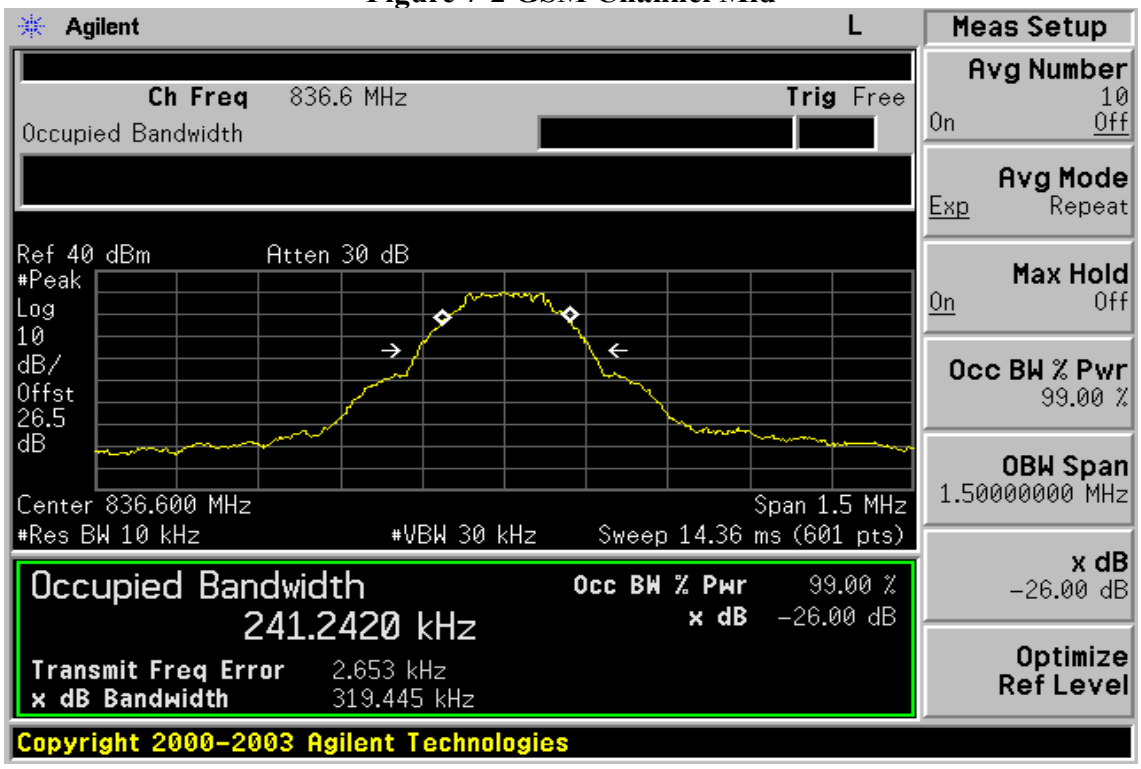


Figure 7-3: GSM Channel High

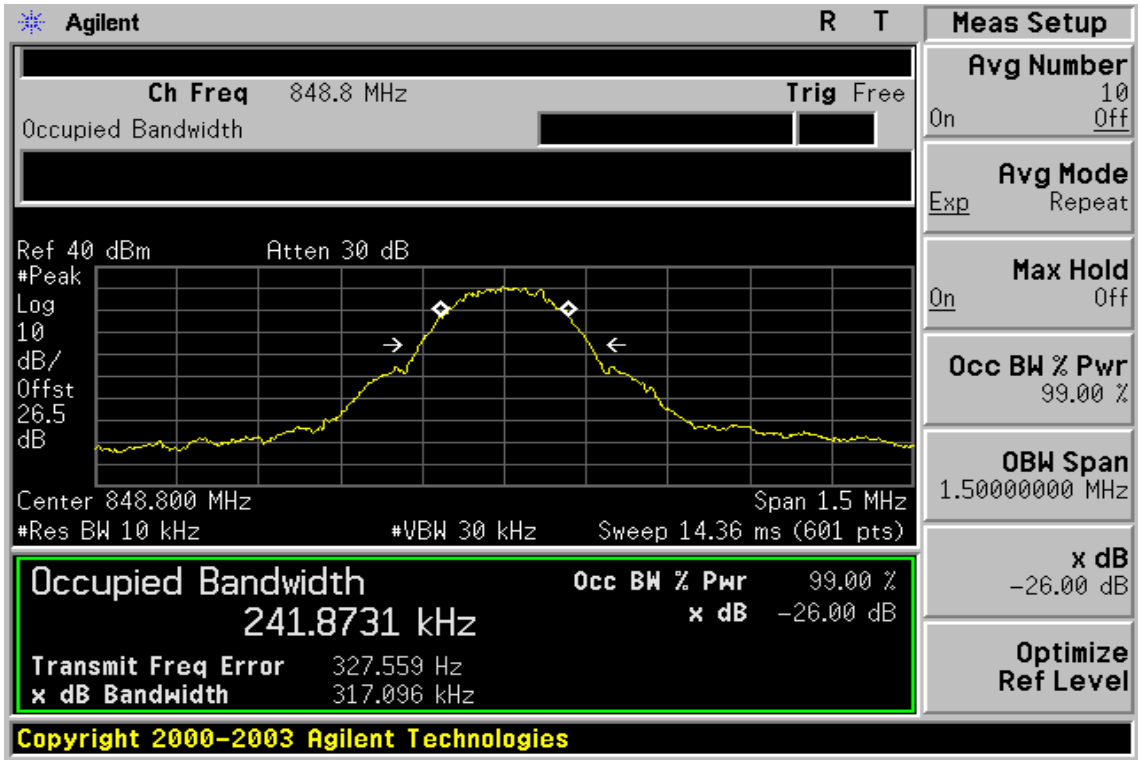


Figure 7-4: PCS Channel Low

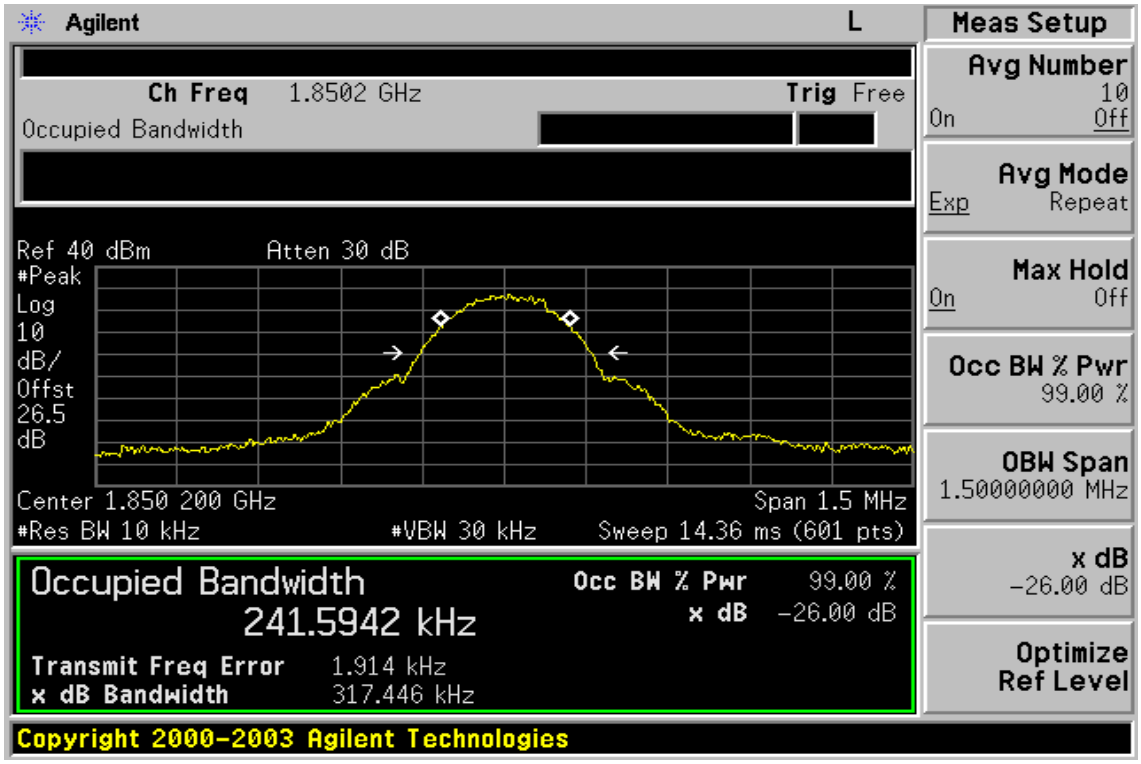


Figure 7-5 PCS Channel Mid

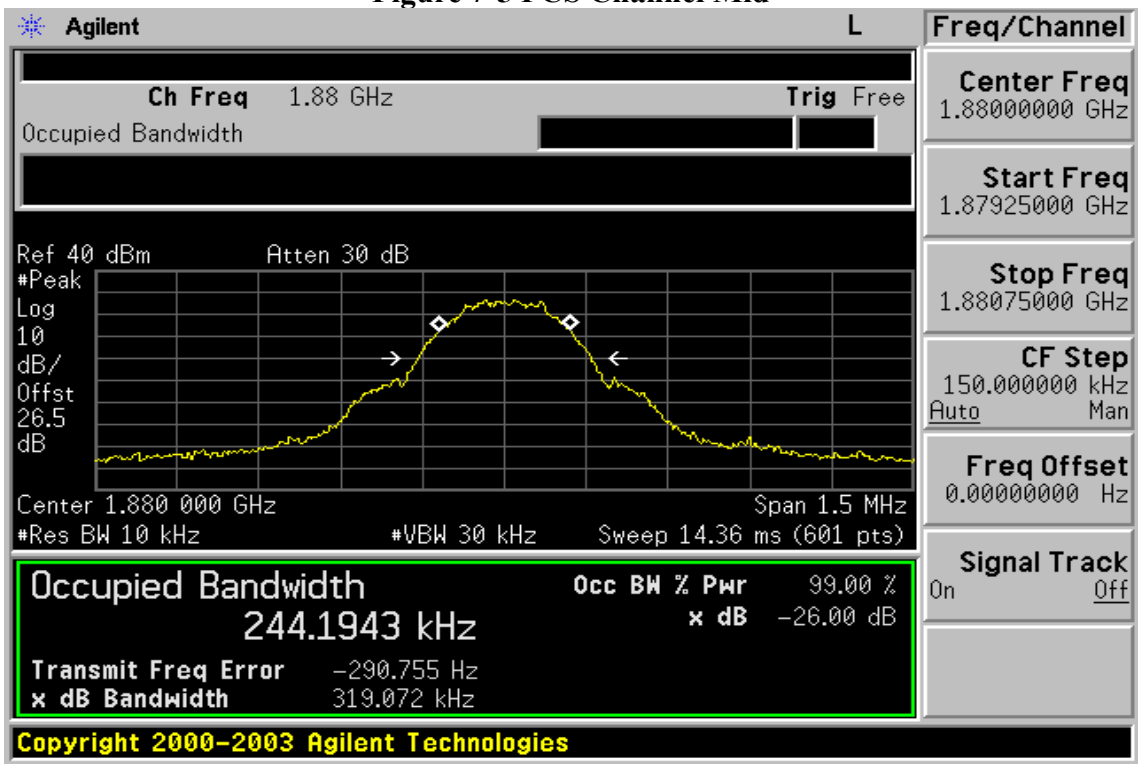
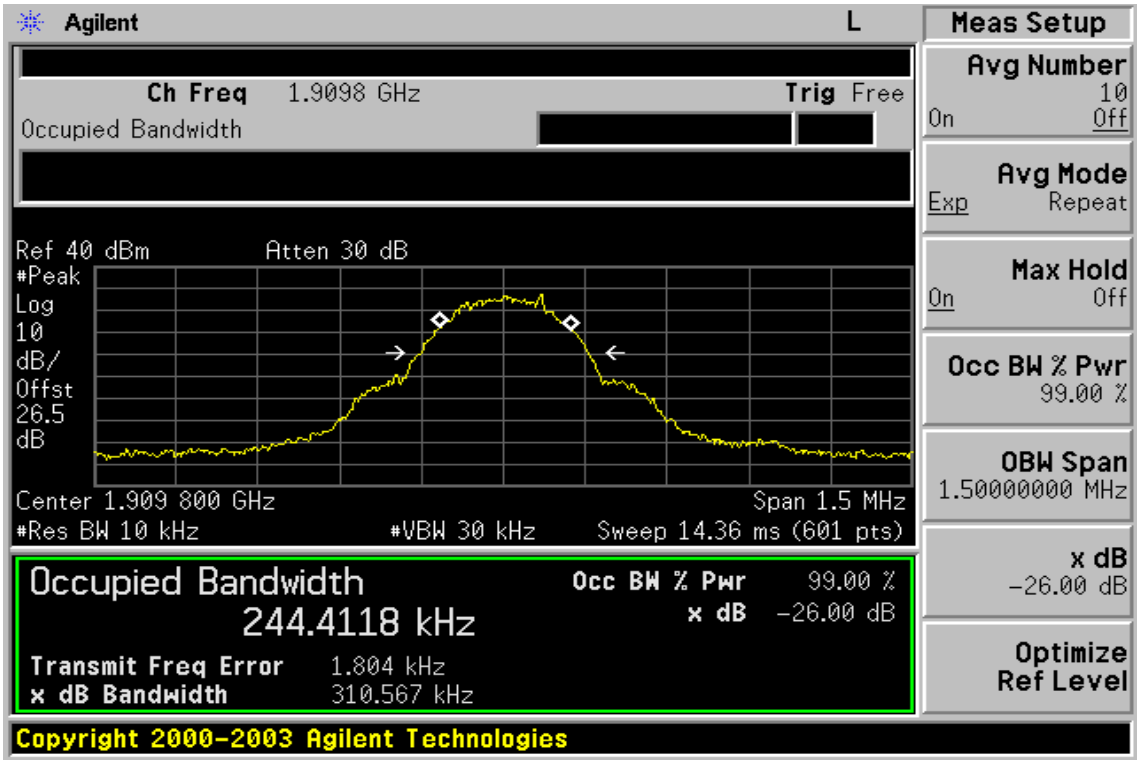


Figure 7-6: PCS Channel High



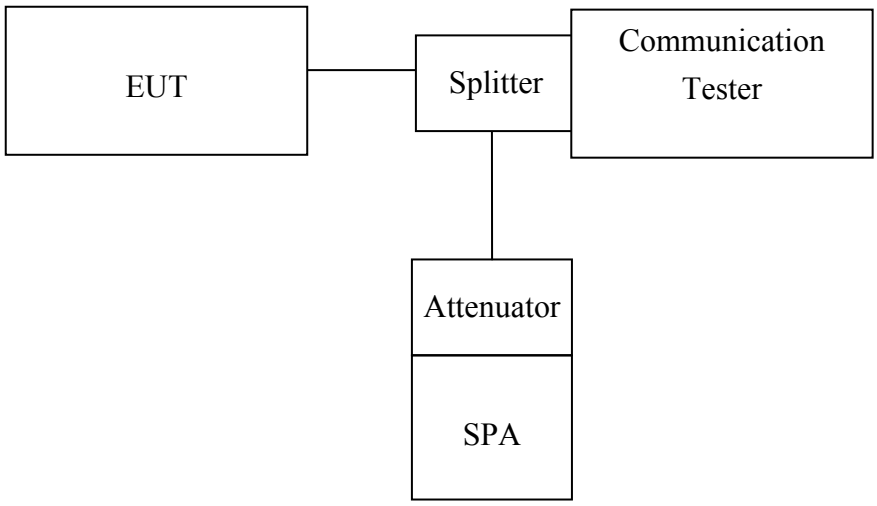
8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

8.1 Standard Applicable

According to FCC §2.1051.

FCC §22.917(a),§24.238(a), the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

8.2 Test SET-UP



Note: *Measurement setup for testing on Antenna connector*

8.3 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 = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

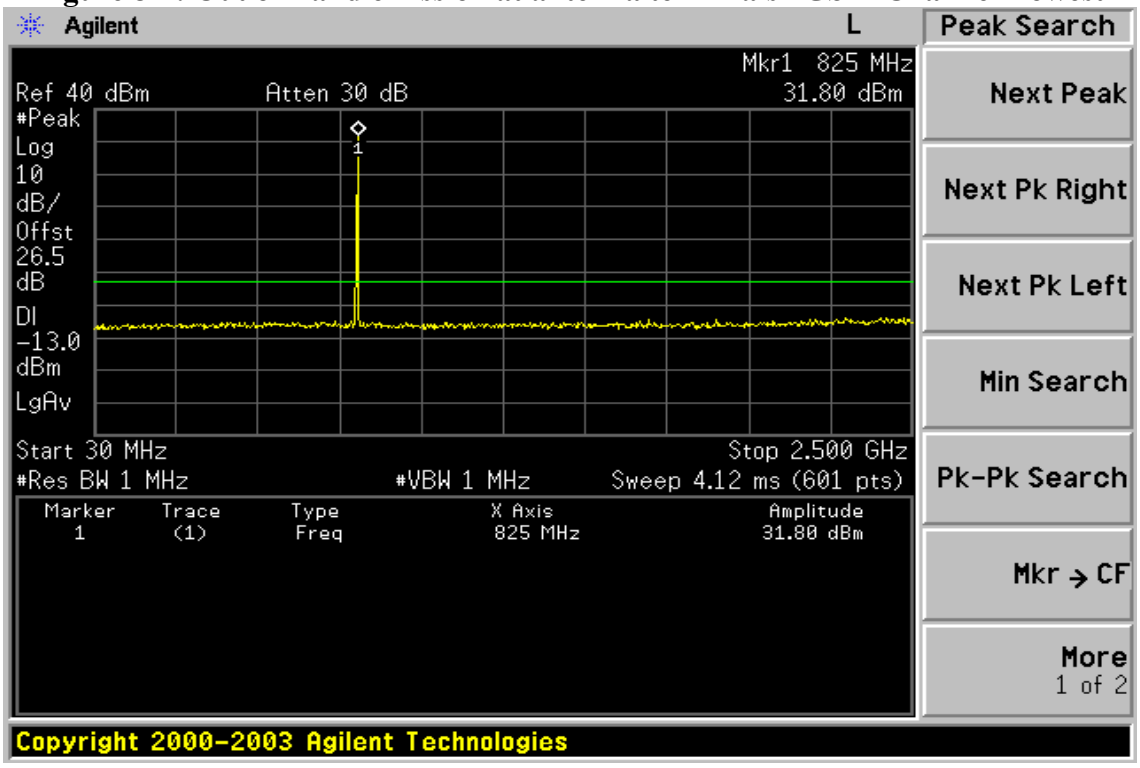
Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

8.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2005	06/29/2006
Power Sensor	Anritsu	MA2490A	31431	06/28/2005	06/29/2006
Power Meter	Anritsu	ML2487A	6K00002070	06/28/2005	06/29/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	11/11/2005	11/12/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2005	10/06/2006
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2005	10/06/2006
Splitter	Mini-Circult	ZFSC-2-10G	N/A	10/07/2005	10/06/2006
Signal Generator	R&S	SMR40	100210	11/09/2005	11/10/2006
DC Power Supply	Agilent	6038A	2929A-07548	01/06/2006	01/05/2007

8.5 Measurement Result

Figure 8-1: Out of Band emission at antenna terminals– GSM Channel Lowest



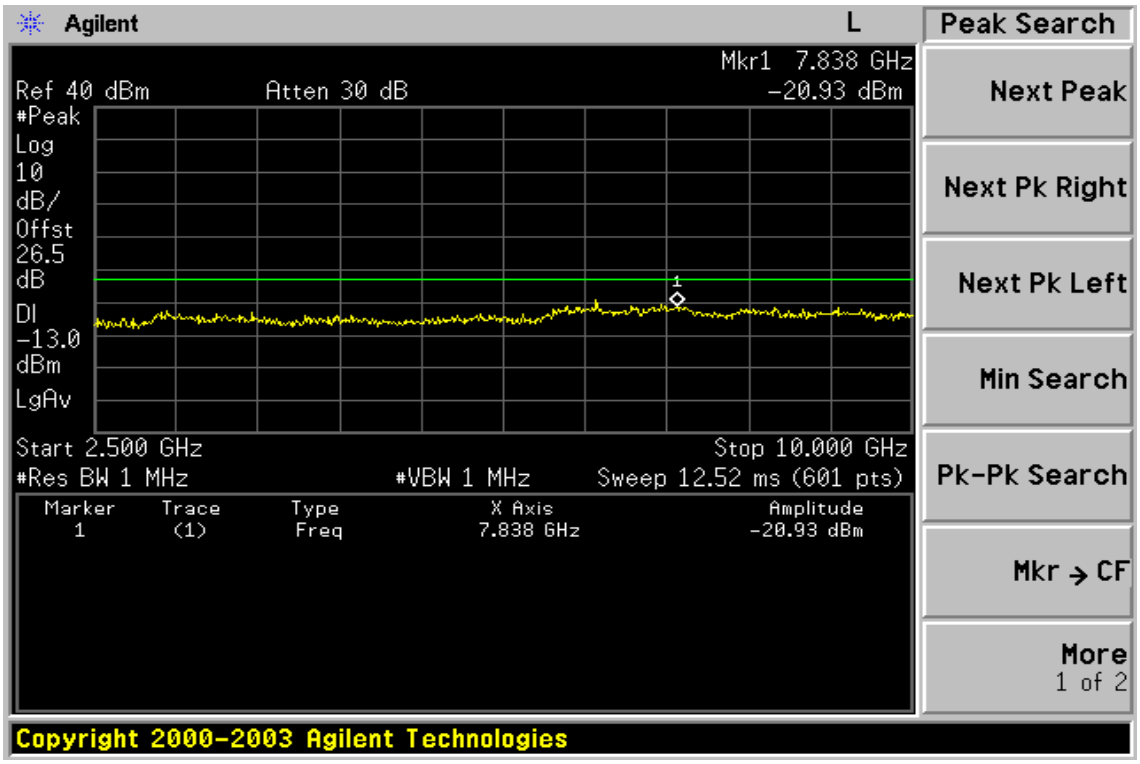
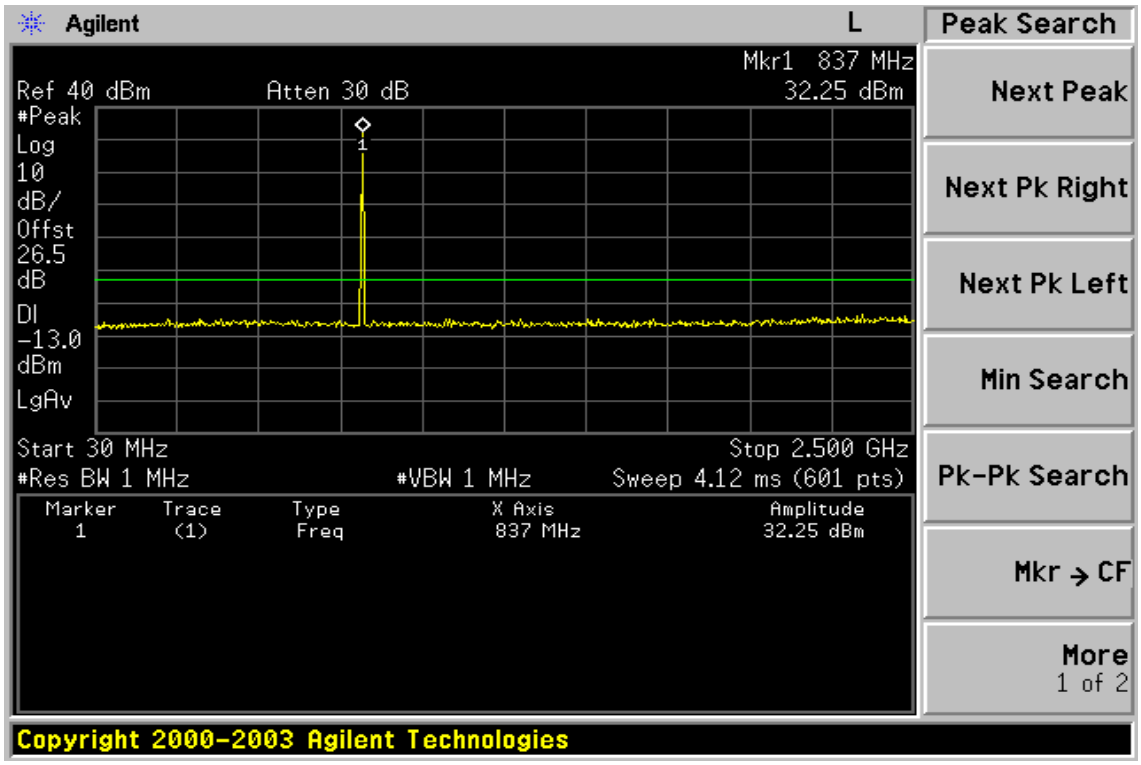


Figure 8-2: Out of Band emission at antenna terminals –GSM Channel Mid



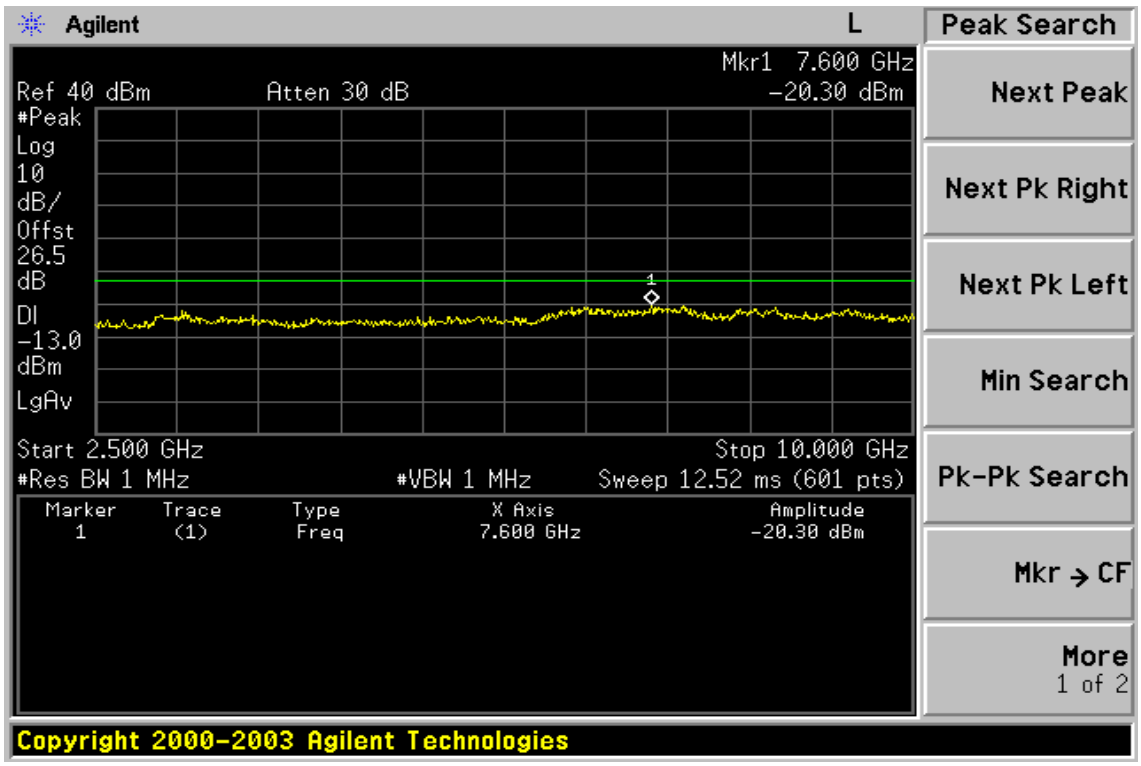
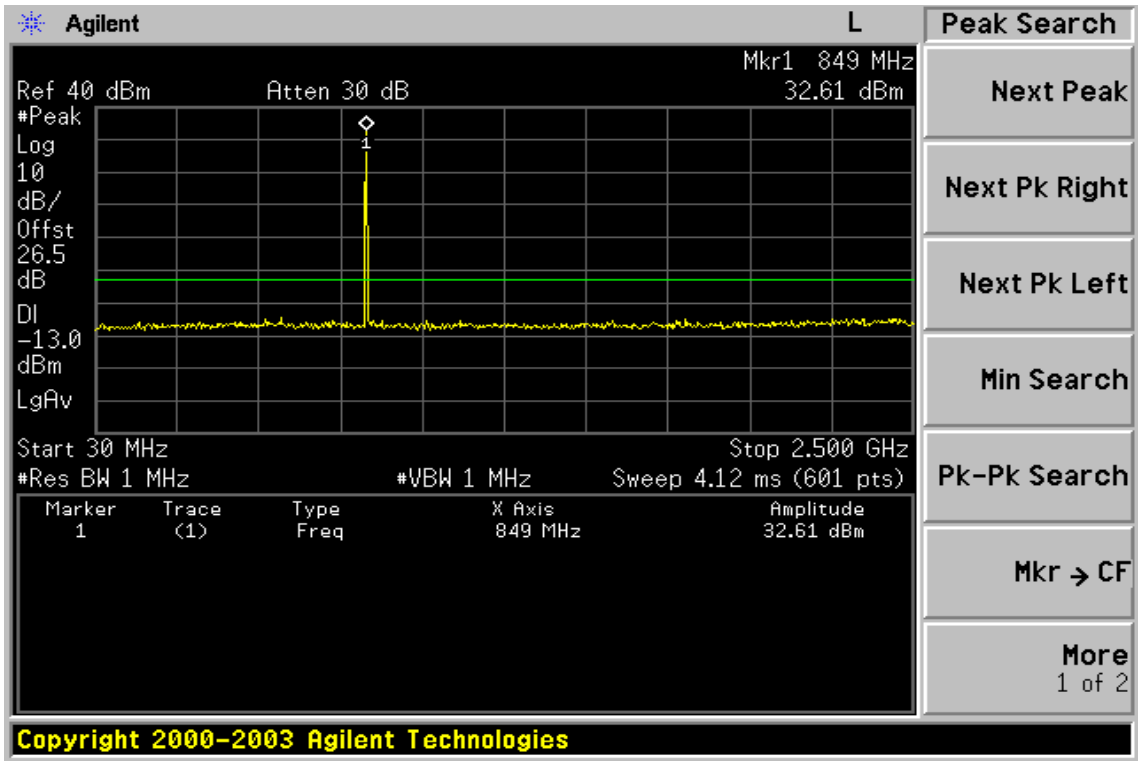


Figure 8-3: Out of Band emission at antenna terminals–GSM Channel Highest



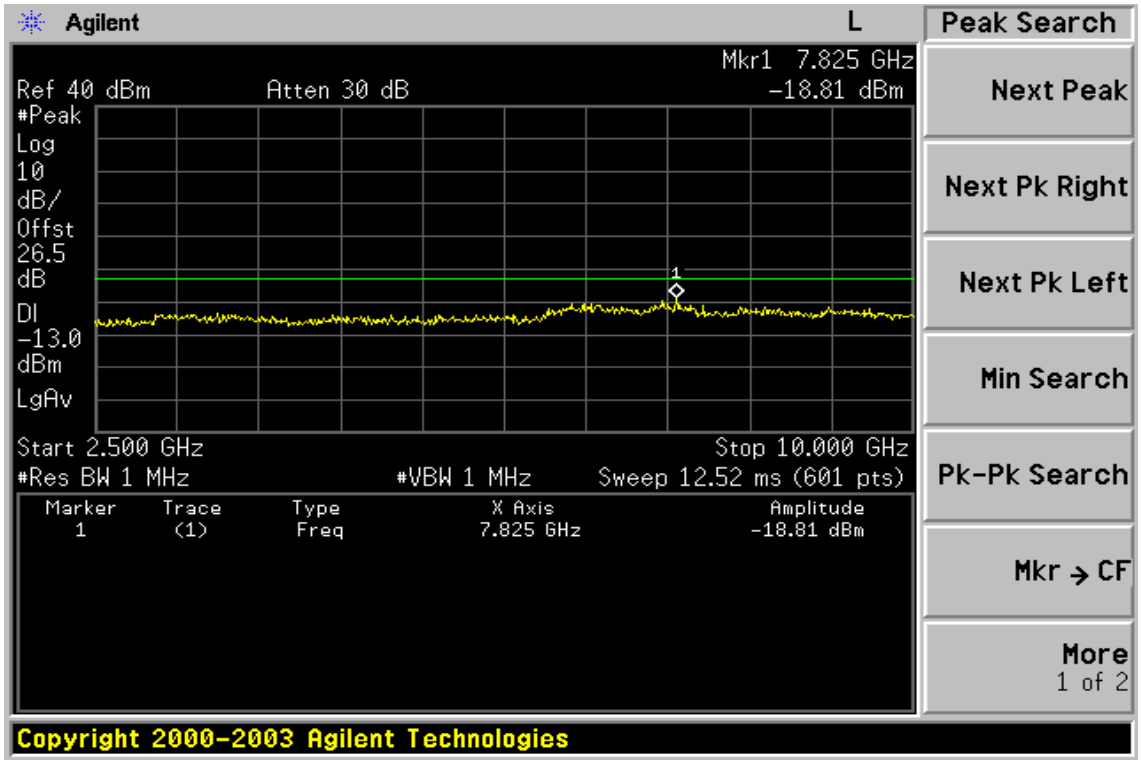


Figure 8-4: Bad edge emission at antenna terminals – GSM Channel Lowest

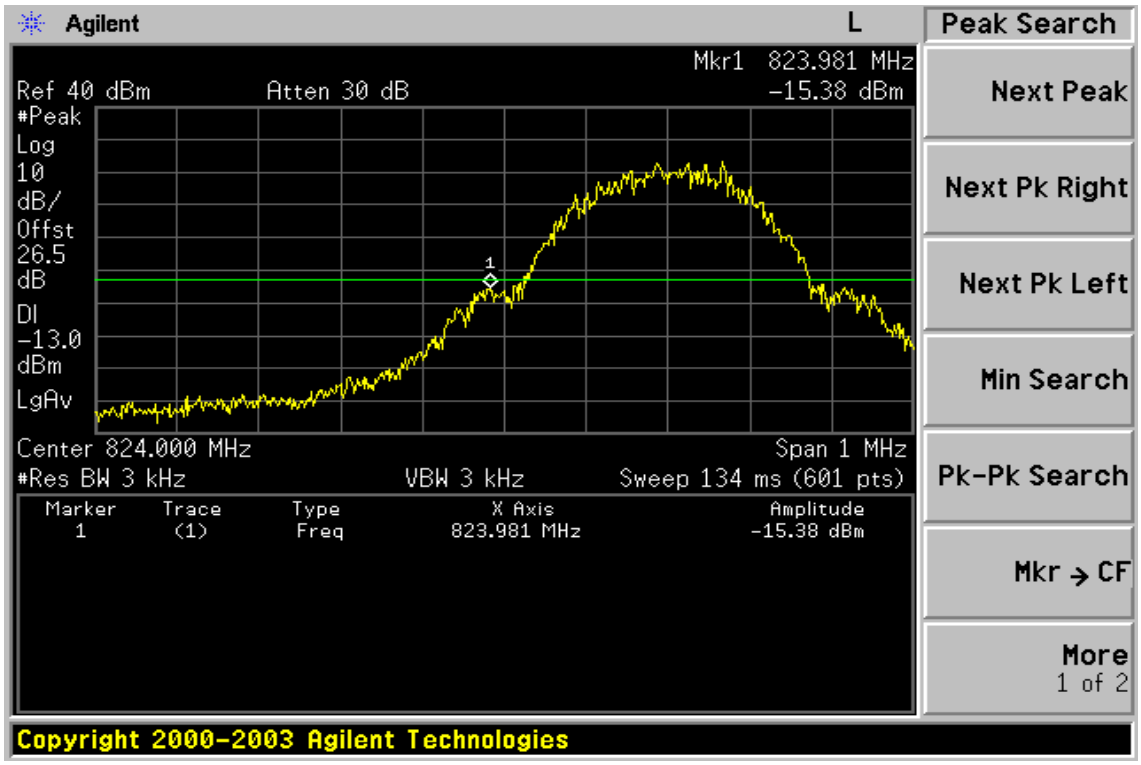


Figure 8-5: Band edge emission at antenna terminals – GSM Channel Highest

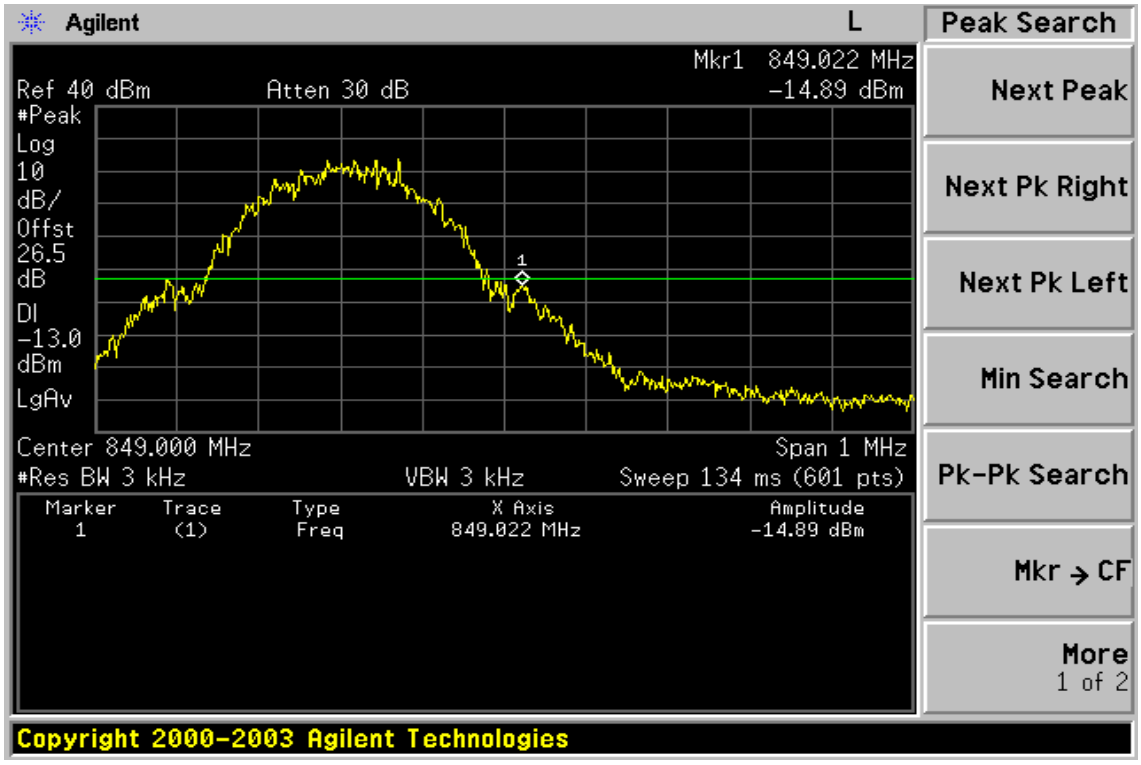
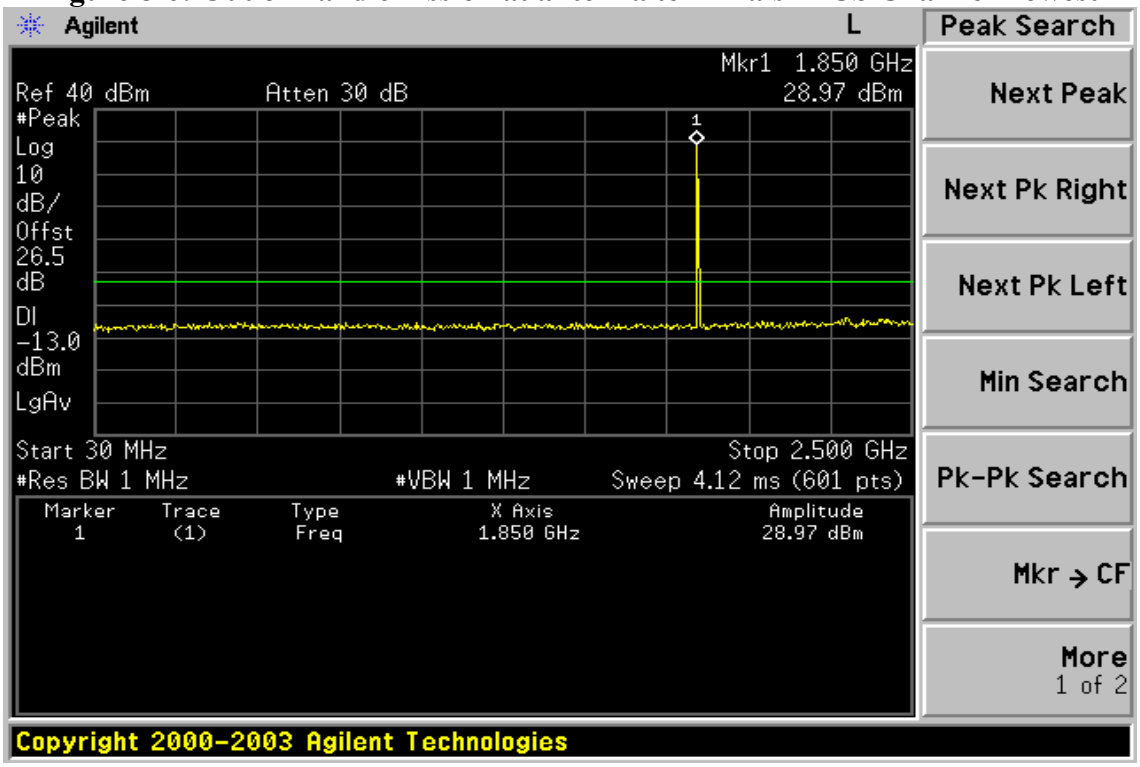


Figure 8-6: Out of Band emission at antenna terminals– PCS Channel Lowest



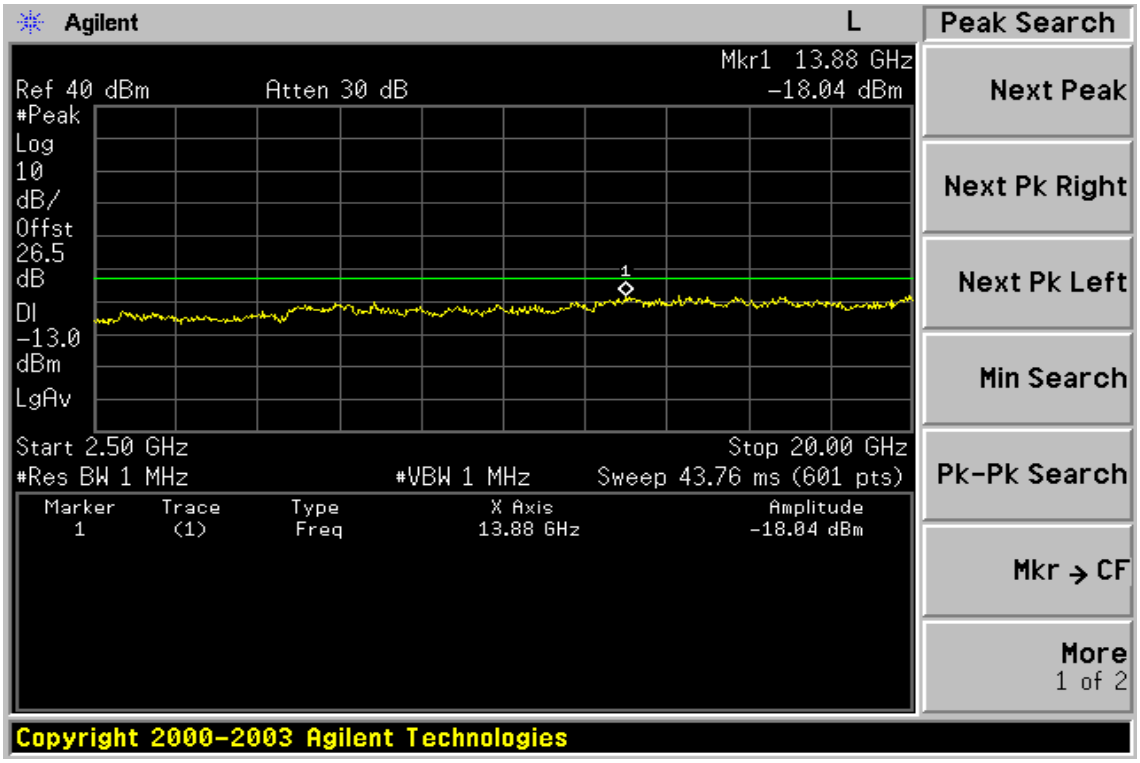
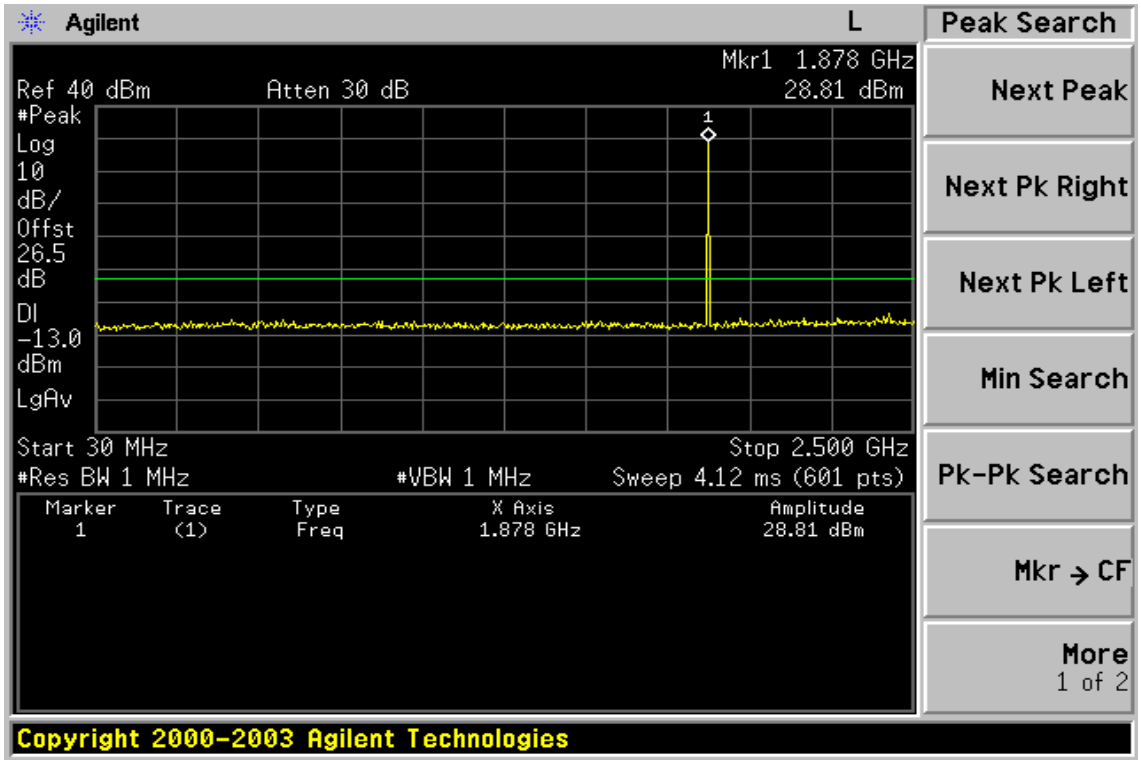


Figure 8-7: Out of Band emission at antenna terminals –PCS Channel Mid



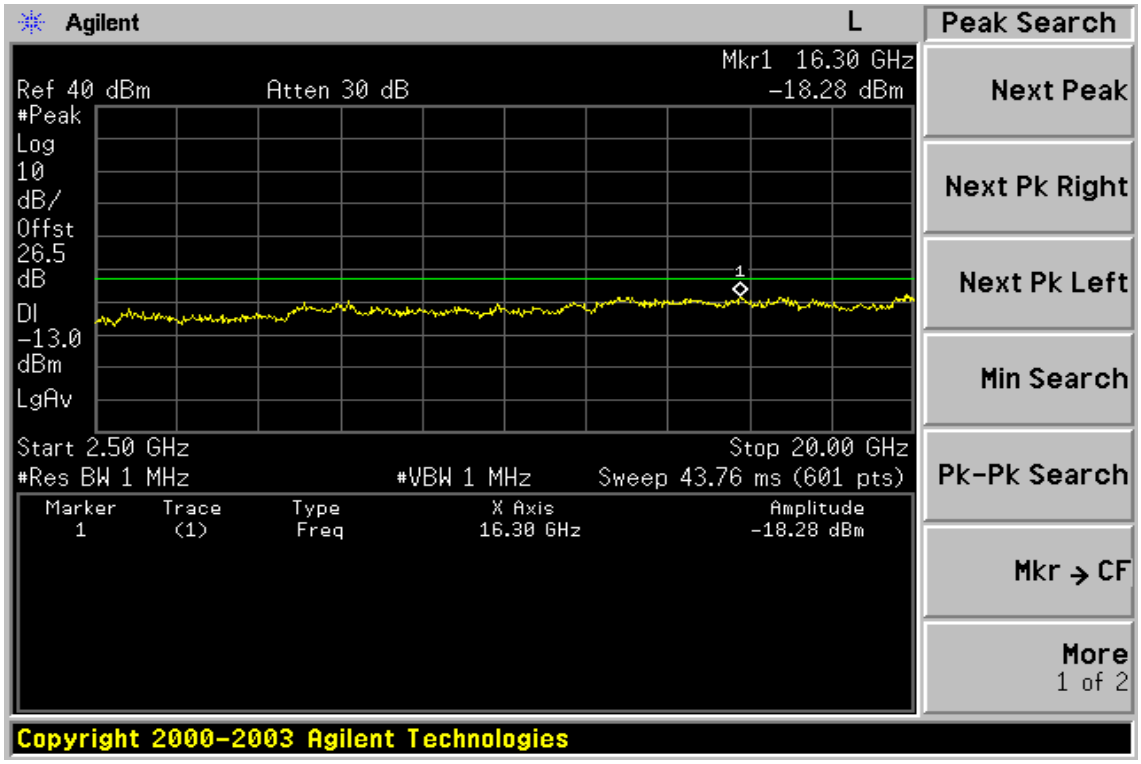
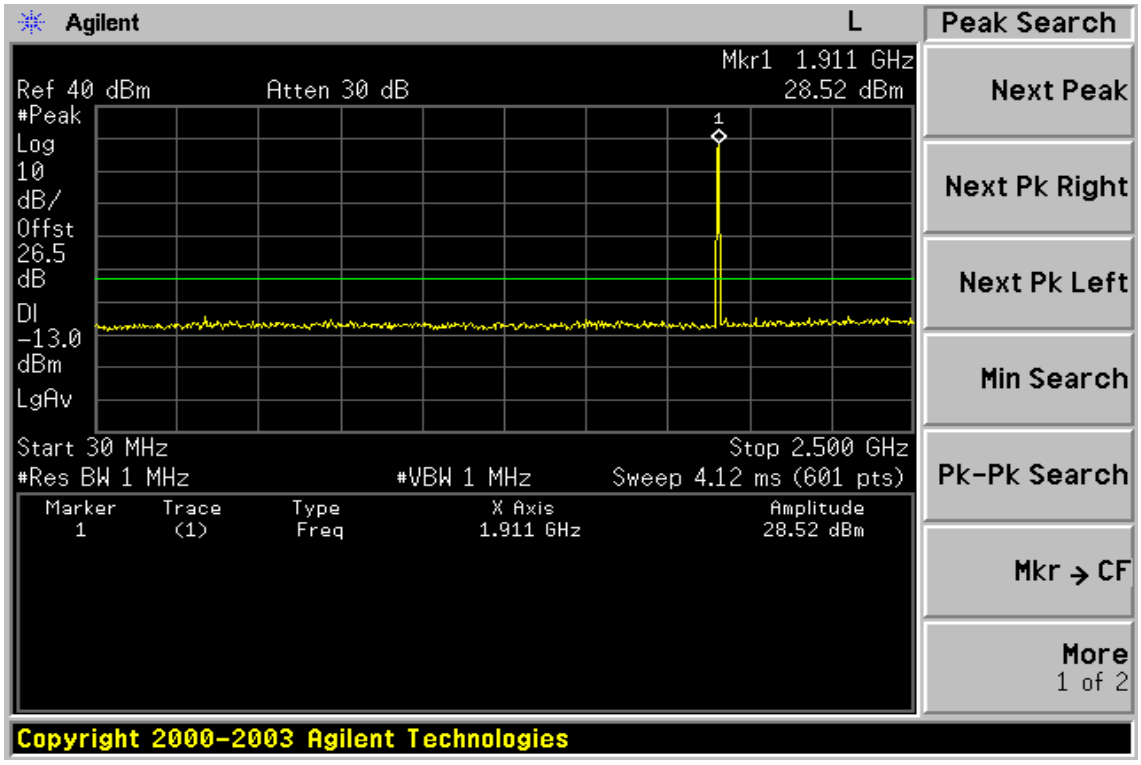


Figure 8-8: Out of Band emission at antenna terminals–PCS Channel Highest



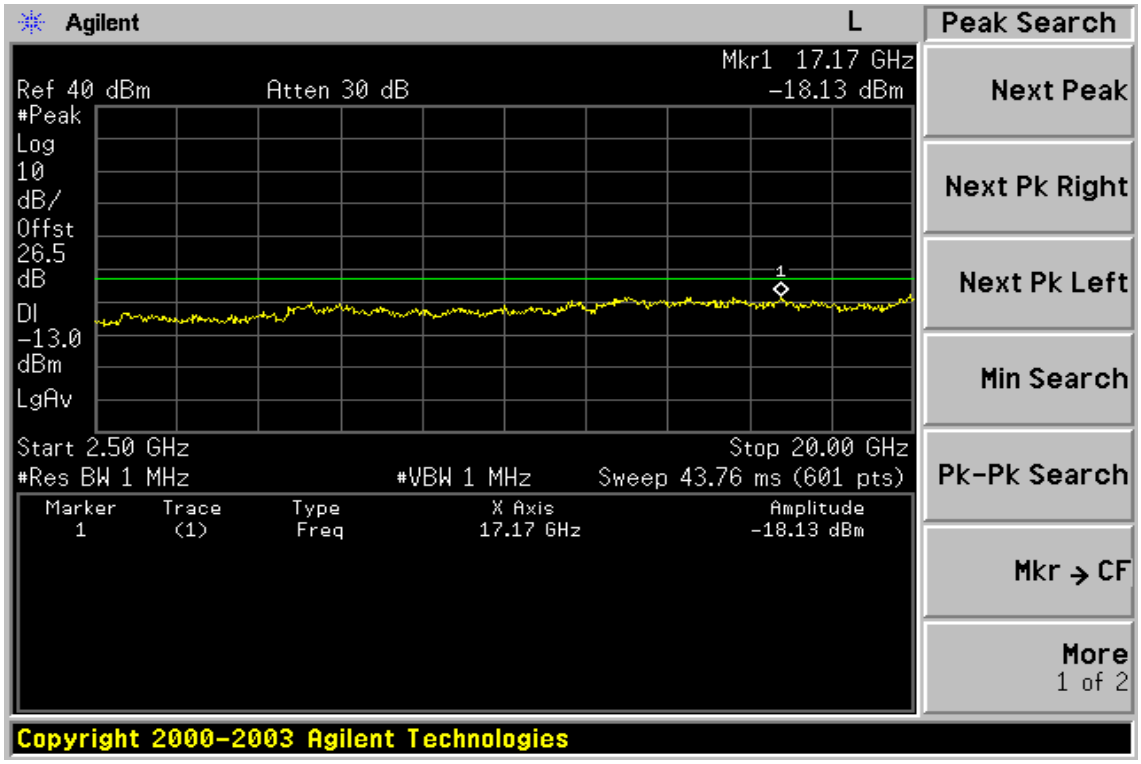


Figure 8-9: Bad edge emission at antenna terminals – PCS Channel Lowest

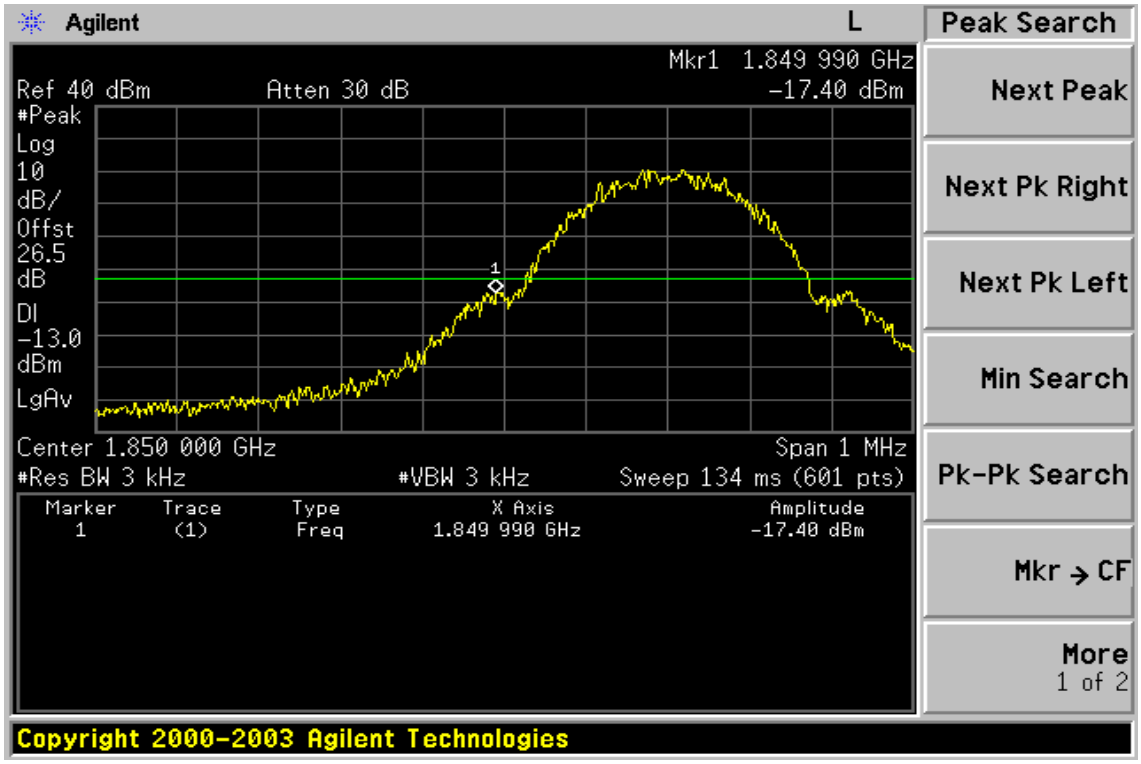
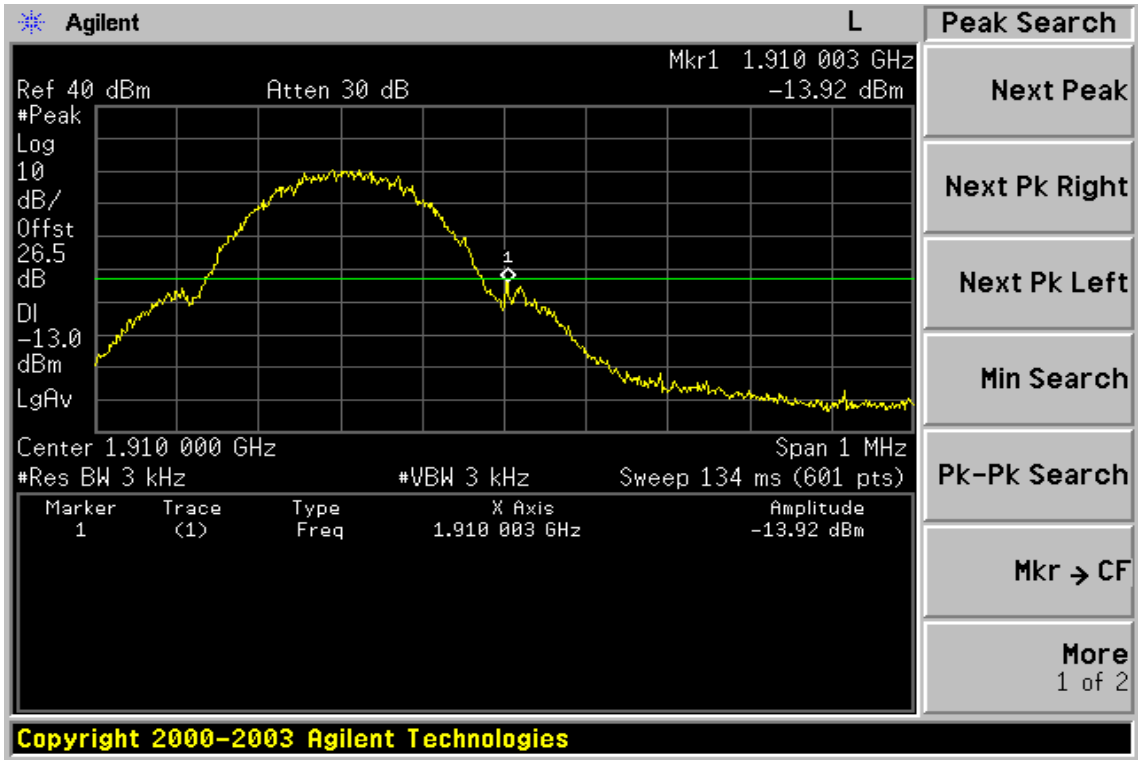


Figure 8-10: Band edge emission at antenna terminals – PCS Channel Highest



9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

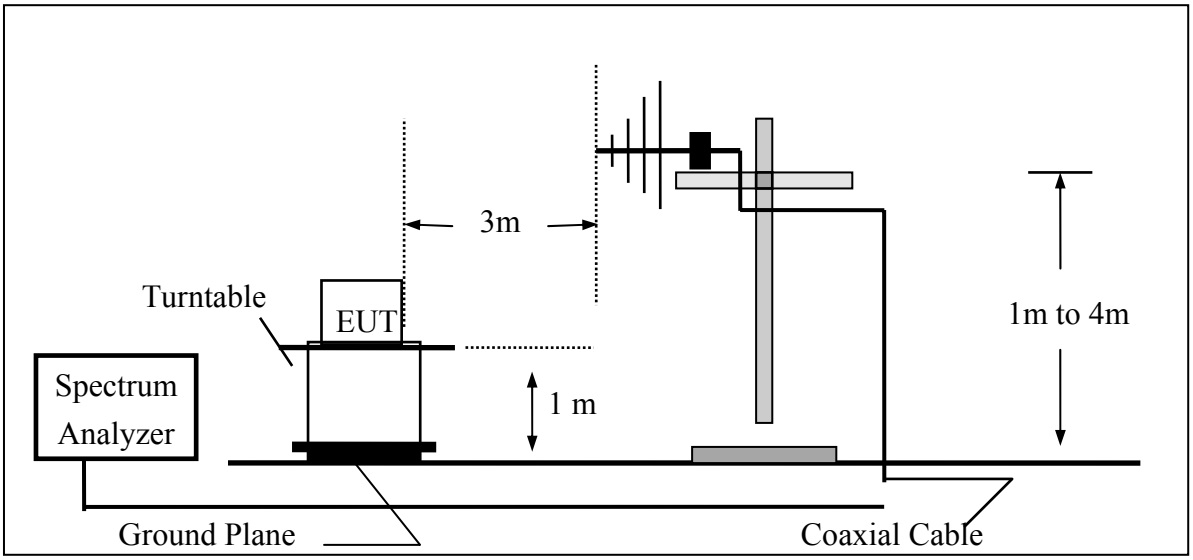
9.1 Standard Applicable

According to FCC §2.1053,

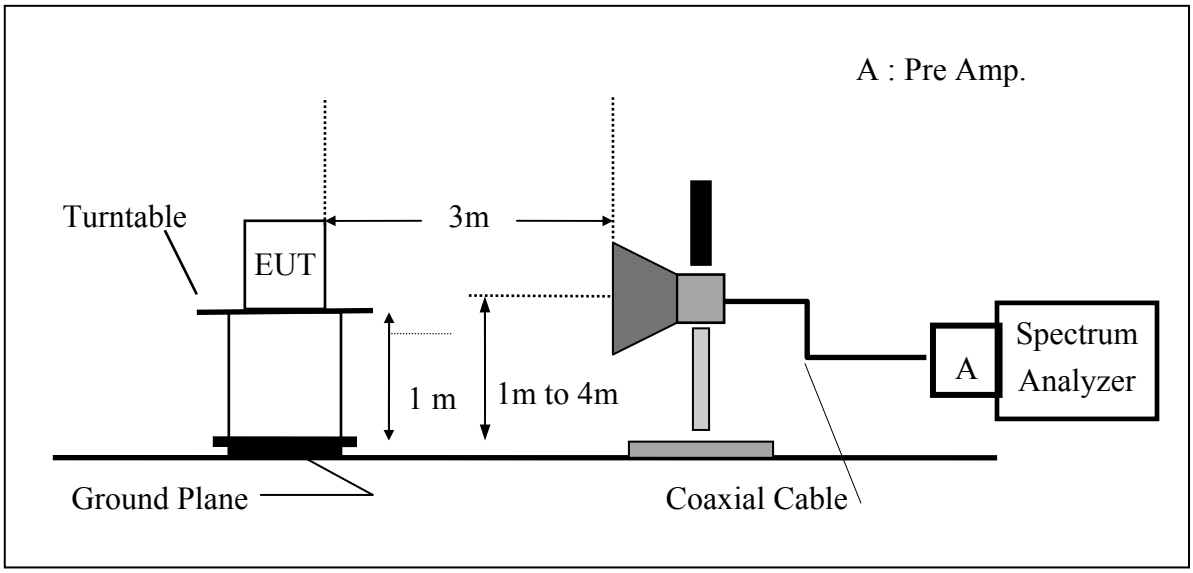
FCC §22.917(a),§24.238(a), the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

9.2 EUT Setup (Block Diagram of Configuration)

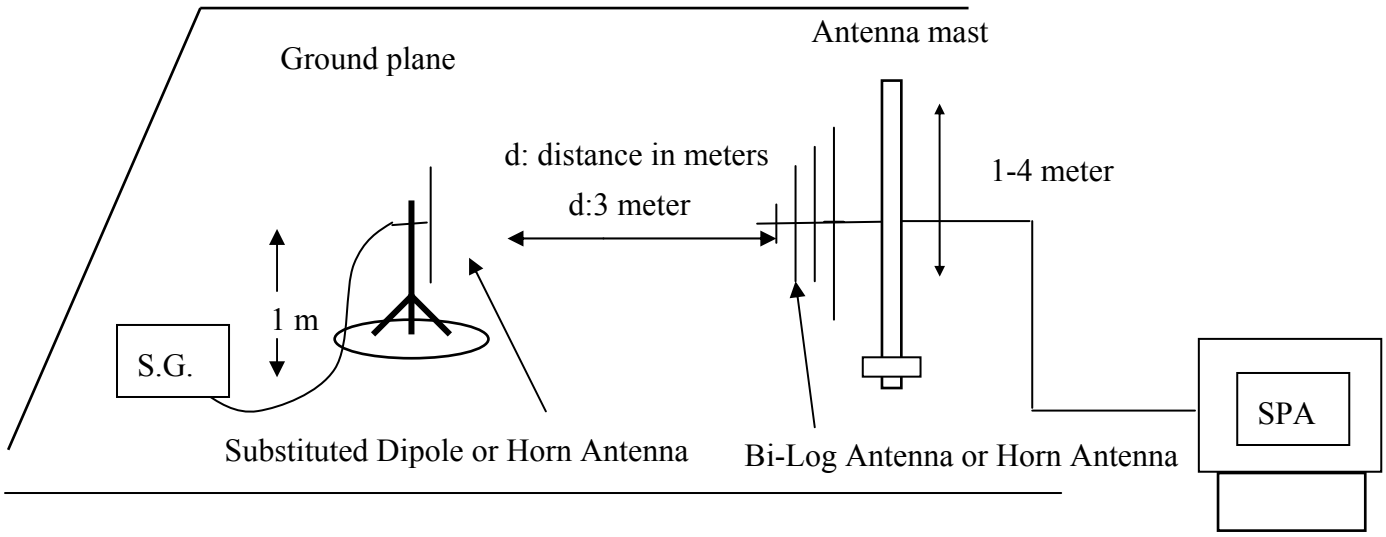
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



9.3 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.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were 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.

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

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

9.4 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	E7405A	US41160416	08/27/2005	08/26/2006
Bilog Antenna	SCHWAZBECK	VULB9163	152	06/03/2005	06/02/2006
Horn antenna	Schwarzbeck	BBHA 9120D	309/320	08/16/2005	08/15/2006
Pre-Amplifier	HP	8447D	2944A09469	07/19/2005	07/18/2006
Pre-Amplifier	HP	8494B	3008A00578	02/26/2006	02/25/2007
Signal Generator	R&S	SMR40	100210	02/09/2006	02/10/2007
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	10/09/2005	10/08/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	10/09/2005	10/08/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-0.5M	0.5m	10/09/2005	10/08/2006
Site NSA	SGS	966 chamber	N/A	11/17/2005	11/16/2006
Site NSA	SGS	10m Open-Site	N/A	10/02/2005	10/01/2006
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2005	10/06/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	10/14/2005	10/13/2006
Dipole Antenna	Schwarzbeck	VHAP	908/909	06/10/2005	06/11/2006
Dipole Antenna	Schwarzbeck	UHAP	891/892	06/10/2005	06/11/2006
Horn antenna	Schwarzbeck	BBHA 9120D	N/A	08/16/2005	08/15/2006

9.5 Measurement Result

Refer to attach tabular data sheets.

Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode	: TX CH Low E1 Mode (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 824.20 MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver / Hor
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
824.00	82.92	V	-4.41	-7.87	3.64	-15.93	-13.00	-2.93
1648.54	56.95	V	-50.09	9.29	5.06	-45.86	-13.00	-32.86
2472.81	55.69	V	-48.37	10.08	6.30	-44.60	-13.00	-31.60
3297.08	---	V	---	---	---	---	-13.00	---
4121.35	---	V	---	---	---	---	-13.00	---
4945.62	---	V	---	---	---	---	-13.00	---
5769.89	42.57	V	-52.02	13.55	9.80	-48.26	-13.00	-35.26
6594.16	---	V	---	---	---	---	-13.00	---
7418.43	---	V	---	---	---	---	-13.00	---
8242.70	---	V	---	---	---	---	-13.00	---
824.00	79.87	H	-7.46	-7.87	3.64	-18.98	-13.00	-5.98
1648.54	55.86	H	-51.15	9.29	5.06	-46.92	-13.00	-33.92
2472.81	57.03	H	-47.03	10.08	6.30	-43.25	-13.00	-30.25
3297.08	---	H	---	---	---	---	-13.00	---
4121.35	37.85	H	-61.80	12.61	8.33	-57.51	-13.00	-44.51
4945.62	---	H	---	---	---	---	-13.00	---
5769.89	---	H	---	---	---	---	-13.00	---
6594.16	---	H	---	---	---	---	-13.00	---
7418.43	---	H	---	---	---	---	-13.00	---
8242.70	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode	: TX CH Mid E1 Mode (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver / Hor
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
389.87	39.07	V	-57.37	-7.66	2.43	-67.45	-13.00	-54.45
435.46	35.79	V	-59.25	-7.69	2.52	-69.46	-13.00	-56.46
1673.04	53.88	V	-53.15	9.36	5.10	-48.89	-13.00	-35.89
2509.56	48.65	V	-55.23	10.09	6.35	-51.49	-13.00	-38.49
3346.08	42.63	V	-59.93	12.27	7.29	-54.95	-13.00	-41.95
4182.60	---	V	---	---	---	---	-13.00	---
5019.12	---	V	---	---	---	---	-13.00	---
5855.64	40.63	V	-53.72	13.68	9.85	-49.88	-13.00	-36.88
6692.16	38.99	V	-50.14	11.95	10.74	-48.92	-13.00	-35.92
7528.68	---	V	---	---	---	---	-13.00	---
8365.20	---	V	---	---	---	---	-13.00	---
1673.04	48.38	H	-58.62	9.36	5.10	-54.35	-13.00	-41.35
2509.56	50.18	H	-53.70	10.09	6.35	-49.95	-13.00	-36.95
3346.08	38.18	H	-64.14	12.27	7.29	-59.16	-13.00	-46.16
4182.60	---	H	---	---	---	---	-13.00	---
5019.12	41.01	H	-55.24	12.67	9.26	-51.83	-13.00	-38.83
5855.64	---	H	---	---	---	---	-13.00	---
6692.16	38.36	H	-50.90	11.95	10.74	-49.69	-13.00	-36.69
7528.68	---	H	---	---	---	---	-13.00	---
8365.20	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Mode	: TX CH High E1 Mode (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 848.80 MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver / Hor
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
849.02	83.23	V	-3.50	-7.88	3.75	-15.13	-13.00	-2.13
1697.74	56.85	V	-50.17	9.44	5.14	-45.87	-13.00	-32.87
2546.61	47.81	V	-55.98	10.20	6.40	-52.18	-13.00	-39.18
3395.48	---	V	---	---	---	---	-13.00	---
4244.35	---	V	---	---	---	---	-13.00	---
5093.22	---	V	---	---	---	---	-13.00	---
5942.09	---	V	---	---	---	---	-13.00	---
6790.96	---	V	---	---	---	---	-13.00	---
7639.83	---	V	---	---	---	---	-13.00	---
8488.70	---	V	---	---	---	---	-13.00	---
35.82	43.11	H	-60.99	-4.61	0.74	-66.34	-13.00	-53.34
849.02	81.95	H	-4.78	-7.88	3.75	-16.41	-13.00	-3.41
1697.74	53.91	H	-53.07	9.44	5.14	-48.78	-13.00	-35.78
2546.61	51.12	H	-52.66	10.20	6.40	-48.86	-13.00	-35.86
3395.48	---	H	---	---	---	---	-13.00	---
4244.35	---	H	---	---	---	---	-13.00	---
5093.22	39.04	H	-57.06	12.74	9.32	-53.63	-13.00	-40.63
5942.09	---	H	---	---	---	---	-13.00	---
6790.96	---	H	---	---	---	---	-13.00	---
7639.83	---	H	---	---	---	---	-13.00	---
8488.70	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode	: TX CH Low E1 Mode (Battery: STAR161)	Test Date	Feb. 24, 2006
Fundamental Frequency	: 1850.20MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver / Hor
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
154.16	44.38	V	-53.60	-7.80	1.47	-62.88	-13.00	-49.88
1849.98	84.03	V	-22.86	9.90	5.41	-18.37	-13.00	-5.37
3700.40	72.28	V	-29.30	12.61	7.73	-24.42	-13.00	-11.42
5550.60	63.29	V	-31.92	13.23	9.68	-28.38	-13.00	-15.38
7400.80	43.67	V	-42.33	11.50	11.28	-42.10	-13.00	-29.10
9251.00	---	V	---	---	---	---	-13.00	---
11101.20	---	V	---	---	---	---	-13.00	---
12951.40	---	V	---	---	---	---	-13.00	---
14801.60	---	V	---	---	---	---	-13.00	---
16651.80	---	V	---	---	---	---	-13.00	---
18502.00	---	V	---	---	---	---	-13.00	---
159.01	43.06	H	-56.10	-7.81	1.48	-65.39	-13.00	-52.39
1849.98	84.73	H	-22.16	9.90	5.41	-17.67	-13.00	-4.67
3700.40	69.19	H	-32.17	12.61	7.73	-27.29	-13.00	-14.29
5550.60	60.61	H	-34.52	13.23	9.68	-30.97	-13.00	-17.97
7400.80	48.83	H	-37.23	11.50	11.28	-37.01	-13.00	-24.01
9251.00	---	H	---	---	---	---	-13.00	---
11101.20	---	H	---	---	---	---	-13.00	---
12951.40	---	H	---	---	---	---	-13.00	---
14801.60	---	H	---	---	---	---	-13.00	---
16651.80	---	H	---	---	---	---	-13.00	---
18502.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode	: TX CH Mid E1 Mode (Battery: STAR161)	Test Date	Feb. 24, 2006
Fundamental Frequency	: 1880MHz	Test By	Sky
Temperature	: 25℃	Pol	Ver / Hor
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
93.05	43.10	V	-61.09	-7.75	1.18	-70.02	-13.00	-57.02
3760.00	69.77	V	-31.53	12.60	7.82	-26.75	-13.00	-13.75
5640.00	57.67	V	-37.29	13.36	9.73	-33.66	-13.00	-20.66
7520.00	39.39	V	-46.22	11.45	11.33	-46.11	-13.00	-33.11
9400.00	---	V	---	---	---	---	-13.00	---
11280.00	---	V	---	---	---	---	-13.00	---
13160.00	---	V	---	---	---	---	-13.00	---
15040.00	---	V	---	---	---	---	-13.00	---
16920.00	---	V	---	---	---	---	-13.00	---
18800.00	---	V	---	---	---	---	-13.00	---
194.90	43.16	H	-58.31	-7.84	1.55	-67.70	-13.00	-54.70
389.87	38.60	H	-57.91	-7.66	2.43	-67.99	-13.00	-54.99
3760.00	69.48	H	-31.63	12.60	7.82	-26.84	-13.00	-13.84
5640.00	57.65	H	-37.24	13.36	9.73	-33.61	-13.00	-20.61
7520.00	49.99	H	-35.70	11.45	11.33	-35.58	-13.00	-22.58
9400.00	---	H	---	---	---	---	-13.00	---
11280.00	---	H	---	---	---	---	-13.00	---
13160.00	---	H	---	---	---	---	-13.00	---
15040.00	---	H	---	---	---	---	-13.00	---
16920.00	---	H	---	---	---	---	-13.00	---
18800.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: PCS 1900 Mode

Operation Mode	: TX CH High E1 Mode (Battery: STAR161)	Test Date	Feb. 24, 2006
Fundamental Frequency	: 1909.8 MHz	Test By	Sky
Temperature	: 25℃	Pol	Ver / Hor
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Mar-gin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
110.51	42.72	V	-59.70	-7.77	1.27	-68.74	-13.00	-55.74
1910.01	81.77	V	-25.17	10.08	5.51	-20.60	-13.00	-7.60
3819.60	45.81	V	-55.22	12.60	7.92	-50.53	-13.00	-37.53
5729.40	51.64	V	-43.06	13.49	9.78	-39.35	-13.00	-26.35
7639.20	42.25	V	-42.92	11.40	11.48	-42.99	-13.00	-29.99
9549.00	---	V	---	---	---	---	-13.00	---
11458.80	---	V	---	---	---	---	-13.00	---
13368.60	---	V	---	---	---	---	-13.00	---
15278.40	---	V	---	---	---	---	-13.00	---
17188.20	---	V	---	---	---	---	-13.00	---
19098.00	---	V	---	---	---	---	-13.00	---
154.16	42.66	H	-56.19	-7.80	1.47	-65.47	-13.00	-52.47
1910.01	84.67	H	-22.27	10.08	5.51	-17.70	-13.00	-4.70
3819.60	55.79	H	-45.07	12.60	7.92	-40.38	-13.00	-27.38
5729.40	47.46	H	-47.19	13.49	9.78	-43.48	-13.00	-30.48
7639.20	50.90	H	-34.39	11.40	11.48	-34.47	-13.00	-21.47
9549.00	---	H	---	---	---	---	-13.00	---
11458.80	---	H	---	---	---	---	-13.00	---
13368.60	---	H	---	---	---	---	-13.00	---
15278.40	---	H	---	---	---	---	-13.00	---
17188.20	---	H	---	---	---	---	-13.00	---
19098.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM850 TX Ch High E1 / BT Ch Low (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 848.80 MHz / 2402MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
31.94	44.70	V	-59.44	-6.43	0.70	-66.57	-13.00	-53.57
62.98	40.85	V	-70.60	-0.64	0.96	-72.21	-13.00	-59.21
130.88	38.93	V	-61.01	-7.78	1.37	-70.17	-13.00	-57.17
849.02	84.3	V	-2.43	-7.88	3.75	-14.06	-13.00	-1.06
1697.74	47.26	V	-59.76	9.44	5.14	-55.46	-13.00	-42.46
2546.61	48.06	V	-55.73	10.20	6.40	-51.93	-13.00	-38.93
3395.48	38.89	V	-63.65	12.38	7.33	-58.60	-13.00	-45.60
4244.35	---	V	---	---	---	---	-13.00	---
5093.22	---	V	---	---	---	---	-13.00	---
5942.09	---	V	---	---	---	---	-13.00	---
6790.96	---	V	---	---	---	---	-13.00	---
7639.83	---	V	---	---	---	---	-13.00	---
8488.70	---	V	---	---	---	---	-13.00	---
4804.00	39.49	V	-57.68	12.65	9.04	-54.07	-13.00	-41.07
7206.00	---	V	---	---	---	---	-13.00	---
9608.00	---	V	---	---	---	---	-13.00	---
12010.00	---	V	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode : GSM850 TX Ch High E1 / BT Ch Low (Battery: STAR161)
Test Date: Feb. 24, 2006

Fundamental Frequency : 848.80 MHz / 2402MHz
Test By: Sky

Temperature : 25℃
Pol: Her.

Humidity : 65%

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
36.79	41.98	H	-61.82	-4.16	0.75	-66.72	-13.00	-53.72
143.49	40.19	H	-58.99	-7.79	1.43	-68.22	-13.00	-55.22
182.29	38.38	H	-62.28	-7.83	1.53	-71.63	-13.00	-58.63
849.02	82.01	H	-5.01	-7.88	3.75	-16.63	-13.00	-3.63
1697.74	49.05	H	-57.93	9.44	5.14	-53.64	-13.00	-40.64
2546.61	47.75	H	-56.03	10.20	6.40	-52.23	-13.00	-39.23
3395.48	---	H	---	---	---	---	-13.00	---
4244.35	---	H	---	---	---	---	-13.00	---
5093.22	---	H	---	---	---	---	-13.00	---
5942.09	---	H	---	---	---	---	-13.00	---
6790.96	---	H	---	---	---	---	-13.00	---
7639.83	---	H	---	---	---	---	-13.00	---
8488.70	---	H	---	---	---	---	-13.00	---
4804.00	39.49	H	-57.56	12.65	9.04	-53.95	-13.00	-40.95
7206.00	---	H	---	---	---	---	-13.00	---
9608.00	---	H	---	---	---	---	-13.00	---
12010.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM850 TX Ch High E1 / BT Ch Mid (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 848.80MHz / 2441MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
31.94	44.13	V	-60.01	-6.43	0.70	-67.14	-13.00	-54.14
65.89	40.92	V	-70.67	-0.83	0.98	-72.48	-13.00	-59.48
135.73	37.96	V	-61.39	-7.79	1.40	-70.57	-13.00	-57.57
849.02	84.02	V	-2.71	-7.88	3.75	-14.34	-13.00	-1.34
1697.74	46.27	V	-60.75	9.44	5.14	-56.45	-13.00	-43.45
2546.61	48.96	V	-54.83	10.20	6.40	-51.03	-13.00	-38.03
3395.48	37.32	V	-65.22	12.38	7.33	-60.17	-13.00	-47.17
4244.35	---	V	---	---	---	---	-13.00	---
5093.22	---	V	---	---	---	---	-13.00	---
5942.09	---	V	---	---	---	---	-13.00	---
6790.96	36.38	V	-52.14	11.85	10.87	-51.15	-13.00	-38.15
7639.83	---	V	---	---	---	---	-13.00	---
8488.70	---	V	---	---	---	---	-13.00	---
4882.00	38.34	V	-58.50	12.65	9.12	-54.97	-13.00	-41.97
7323.00	---	V	---	---	---	---	-13.00	---
9764.00	---	V	---	---	---	---	-13.00	---
12205.00	---	V	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM850 TX Ch High E1 / BT Ch Mid (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 848.80 MHz / 2441MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Her.
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
36.79	41.87	H	-61.93	-4.16	0.75	-66.83	-13.00	-53.83
140.58	38.69	H	-60.76	-7.79	1.42	-69.97	-13.00	-56.97
849.02	82.50	H	-4.52	-7.88	3.75	-16.14	-13.00	-3.14
1697.74	43.83	H	-63.15	9.44	5.14	-58.86	-13.00	-45.86
2546.61	45.62	H	-58.16	10.20	6.40	-54.36	-13.00	-41.36
3395.48	36.99	H	-65.29	12.38	7.33	-60.24	-13.00	-47.24
4244.35	---	H	---	---	---	---	-13.00	---
5093.22	---	H	---	---	---	---	-13.00	---
5942.09	---	H	---	---	---	---	-13.00	---
6790.96	---	H	---	---	---	---	-13.00	---
7639.83	---	H	---	---	---	---	-13.00	---
8488.70	---	H	---	---	---	---	-13.00	---
4882.00	---	H	---	---	---	---	-13.00	---
7323.00	---	H	---	---	---	---	-13.00	---
9764.00	---	H	---	---	---	---	-13.00	---
12205.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM850 TX Ch High E1 / BT Ch High (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 848.80 MHz / 2480MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
31.94	44.66	V	-59.48	-6.43	0.70	-66.61	-13.00	-53.61
64.92	38.71	V	-72.84	-0.77	0.98	-74.58	-13.00	-61.58
130.88	37.37	V	-62.57	-7.78	1.37	-71.73	-13.00	-58.73
849.02	83.92	V	-2.81	-7.88	3.75	-14.44	-13.00	-1.44
1697.74	46.11	V	-60.91	9.44	5.14	-56.61	-13.00	-43.61
2546.61	51.09	V	-52.70	10.20	6.40	-48.90	-13.00	-35.90
3395.48	---	V	---	---	---	---	-13.00	---
4244.35	---	V	---	---	---	---	-13.00	---
5093.22	---	V	---	---	---	---	-13.00	---
5942.09	---	V	---	---	---	---	-13.00	---
6790.96	---	V	---	---	---	---	-13.00	---
7639.83	---	V	---	---	---	---	-13.00	---
8488.70	---	V	---	---	---	---	-13.00	---
4960.00	38.34	V	-58.17	12.65	9.20	-54.72	-13.00	-41.72
7440.00	---	V	---	---	---	---	-13.00	---
9920.00	---	V	---	---	---	---	-13.00	---
12400.00	---	V	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode : GSM850 TX Ch High E1 / BT Ch High (Battery: STAR161)
Test Date: Feb. 24, 2006
Fundamental Frequency : 848.80 MHz / 2480MHz
Test By: Sky
Temperature : 25℃
Pol: Her.
Humidity : 65%

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
36.79	42.45	H	-61.35	-4.16	0.75	-66.25	-13.00	-53.25
65.89	41.70	H	-70.15	-0.83	0.98	-71.96	-13.00	-58.96
135.73	38.24	H	-61.11	-7.79	1.40	-70.29	-13.00	-57.29
849.02	82.10	H	-4.92	-7.88	3.75	-16.54	-13.00	-3.54
1697.74	47.86	H	-59.12	9.44	5.14	-54.83	-13.00	-41.83
2546.61	44.67	H	-59.11	10.20	6.40	-55.31	-13.00	-42.31
3395.48	39.50	H	-62.78	12.38	7.33	-57.73	-13.00	-44.73
4244.35	---	H	---	---	---	---	-13.00	---
5093.22	---	H	---	---	---	---	-13.00	---
5942.09	---	H	---	---	---	---	-13.00	---
6790.96	---	H	---	---	---	---	-13.00	---
7639.83	---	H	---	---	---	---	-13.00	---
8488.70	---	H	---	---	---	---	-13.00	---
4960.00	38.34	H	-58.11	12.65	9.20	-54.66	-13.00	-41.66
7440.00	---	H	---	---	---	---	-13.00	---
9920.00	---	H	---	---	---	---	-13.00	---
12400.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM1900 TX Ch Low E2 / BT Ch Low (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 1850.20 MHz / 2402MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
31.94	43.86	V	-60.28	-6.43	0.70	-67.41	-13.00	-54.41
67.83	40.79	V	-70.90	-0.95	1.00	-72.84	-13.00	-59.84
92.08	40.43	V	-63.82	-7.75	1.17	-72.75	-13.00	-59.75
138.64	38.11	V	-60.88	-7.79	1.41	-70.08	-13.00	-57.08
1292.50	48.44	V	-58.62	7.65	4.39	-55.36	-13.00	-42.36
1849.98	85.70	V	-21.26	9.90	5.41	-16.77	-13.00	-3.77
3700.40	52.24	V	-49.34	12.61	7.73	-44.46	-13.00	-31.46
5550.60	---	V	---	---	---	---	-13.00	---
7400.80	---	V	---	---	---	---	-13.00	---
9251.00	---	V	---	---	---	---	-13.00	---
11101.20	---	V	---	---	---	---	-13.00	---
12951.40	---	V	---	---	---	---	-13.00	---
14801.60	---	V	---	---	---	---	-13.00	---
16651.80	---	V	---	---	---	---	-13.00	---
18502.00	---	V	---	---	---	---	-13.00	---
4804.00	---	V	---	---	---	---	-13.00	---
7206.00	---	V	---	---	---	---	-13.00	---
9608.00	---	V	---	---	---	---	-13.00	---
12010.00	---	V	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode : GSM1900 TX Ch Low E2 / BT Ch Low (Battery: STAR161)
Test Date: Feb. 24, 2006

Fundamental Frequency : 1850.20 MHz / 2402MHz
Test By: Sky

Temperature : 25℃
Pol: Her.

Humidity : 65%

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
36.79	42.47	H	-61.33	-4.16	0.75	-66.23	-13.00	-53.23
67.83	40.08	H	-71.98	-0.95	1.00	-73.92	-13.00	-60.92
138.64	36.82	H	-62.81	-7.79	1.41	-72.01	-13.00	-59.01
193.93	38.91	H	-62.50	-7.84	1.55	-71.88	-13.00	-58.88
1292.50	53.38	H	-54.39	7.65	4.39	-51.13	-13.00	-38.13
1840.00	65.53	H	-41.37	9.87	5.39	-36.89	-13.00	-23.89
1849.98	85.90	H	-20.99	9.90	5.41	-16.50	-13.00	-3.50
3700.40	48.89	H	-52.47	12.61	7.73	-47.59	-13.00	-34.59
5550.60	---	H	---	---	---	---	-13.00	---
7400.80	---	H	---	---	---	---	-13.00	---
9251.00	---	H	---	---	---	---	-13.00	---
11101.20	---	H	---	---	---	---	-13.00	---
12951.40	---	H	---	---	---	---	-13.00	---
14801.60	---	H	---	---	---	---	-13.00	---
16651.80	---	H	---	---	---	---	-13.00	---
18502.00	---	H	---	---	---	---	-13.00	---
4804.00	---	H	---	---	---	---	-13.00	---
7206.00	---	H	---	---	---	---	-13.00	---
9608.00	---	H	---	---	---	---	-13.00	---
12010.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM1900 TX Ch Low E2 / BT Ch Mid (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 1850.20 MHz / 2441MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
31.94	45.05	V	-59.09	-6.43	0.70	-66.22	-13.00	-53.22
62.98	40.66	V	-70.79	-0.64	0.96	-72.40	-13.00	-59.40
140.58	38.01	V	-60.75	-7.79	1.42	-69.96	-13.00	-56.96
193.93	39.92	V	-61.63	-7.84	1.55	-71.02	-13.00	-58.02
1255.00	45.57	V	-61.48	7.43	4.32	-58.37	-13.00	-45.37
1849.98	85.23	V	-21.73	9.90	5.41	-17.24	-13.00	-4.24
3700.40	52.71	V	-48.87	12.61	7.73	-43.99	-13.00	-30.99
5550.60	37.64	V	-57.57	13.23	9.68	-54.03	-13.00	-41.03
7400.80	---	V	---	---	---	---	-13.00	---
9251.00	---	V	---	---	---	---	-13.00	---
11101.20	---	V	---	---	---	---	-13.00	---
12951.40	---	V	---	---	---	---	-13.00	---
14801.60	---	V	---	---	---	---	-13.00	---
16651.80	---	V	---	---	---	---	-13.00	---
18502.00	---	V	---	---	---	---	-13.00	---
4882.00	---	V	---	---	---	---	-13.00	---
7323.00	---	V	---	---	---	---	-13.00	---
9764.00	---	V	---	---	---	---	-13.00	---
12205.00	---	V	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM1900 TX Ch Low E2 / BT Ch Mid (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 1850.20 MHz / 2441MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Her.
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
36.79	43.49	H	-60.31	-4.16	0.75	-65.21	-13.00	-52.21
65.89	39.52	H	-72.33	-0.83	0.98	-74.14	-13.00	-61.14
92.08	38.80	H	-64.80	-7.75	1.17	-73.72	-13.00	-60.72
140.58	36.54	H	-62.91	-7.79	1.42	-72.12	-13.00	-59.12
193.93	38.96	H	-62.45	-7.84	1.55	-71.83	-13.00	-58.83
1255.00	46.53	H	-61.36	7.43	4.32	-58.24	-13.00	-45.24
1849.98	85.10	H	-21.79	9.90	5.41	-17.30	-13.00	-4.30
3700.40	50.52	H	-50.84	12.61	7.73	-45.96	-13.00	-32.96
5550.60	---	H	---	---	---	---	-13.00	---
7400.80	---	H	---	---	---	---	-13.00	---
9251.00	---	H	---	---	---	---	-13.00	---
11101.20	---	H	---	---	---	---	-13.00	---
12951.40	---	H	---	---	---	---	-13.00	---
14801.60	---	H	---	---	---	---	-13.00	---
16651.80	---	H	---	---	---	---	-13.00	---
18502.00	---	H	---	---	---	---	-13.00	---
4882.00	---	H	---	---	---	---	-13.00	---
7323.00	---	H	---	---	---	---	-13.00	---
9764.00	---	H	---	---	---	---	-13.00	---
12205.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode	: GSM1900 TX Ch Low E2 / BT Ch High (Battery: STAR161)	Test Date:	Feb. 24, 2006
Fundamental Frequency	: 1850.20 MHz / 2480MHz	Test By:	Sky
Temperature	: 25℃	Pol:	Ver
Humidity	: 65%		

Freq.	SPA. Reading	Ant.Pol.	S.G Output	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Margin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
31.94	43.75	V	-60.39	-6.43	0.70	-67.52	-13.00	-54.52
65.89	41.42	V	-70.17	-0.83	0.98	-71.98	-13.00	-58.98
92.08	40.73	V	-63.52	-7.75	1.17	-72.45	-13.00	-59.45
140.58	37.78	V	-60.98	-7.79	1.42	-70.19	-13.00	-57.19
193.93	38.13	V	-63.42	-7.84	1.55	-72.81	-13.00	-59.81
1217.50	50.26	V	-56.78	7.22	4.24	-53.81	-13.00	-40.81
1849.98	85.71	V	-21.25	9.90	5.41	-16.76	-13.00	-3.76
3700.40	54.29	V	-47.29	12.61	7.73	-42.41	-13.00	-29.41
5550.60	38.25	V	-56.96	13.23	9.68	-53.42	-13.00	-40.42
7400.80	---	V	---	---	---	---	-13.00	---
9251.00	---	V	---	---	---	---	-13.00	---
11101.20	---	V	---	---	---	---	-13.00	---
12951.40	---	V	---	---	---	---	-13.00	---
14801.60	---	V	---	---	---	---	-13.00	---
16651.80	---	V	---	---	---	---	-13.00	---
18502.00	---	V	---	---	---	---	-13.00	---
4960.00	---	V	---	---	---	---	-13.00	---
7440.00	---	V	---	---	---	---	-13.00	---
9920.00	---	V	---	---	---	---	-13.00	---
12400.00	---	V	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.

2 Remark"---" means that the emission level is too low to be measured

3 The result basic equation calculation is as follows:

4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

Radiated Spurious Emission Measurement Result: Co-Location Mode

Operation Mode : GSM1900 TX Ch Low E2 / BT Ch High (Battery: STAR161)
Test Date: Feb. 24, 2006
Fundamental Frequency : 1850.20 MHz / 2480MHz
Test By: Sky
Temperature : 25℃
Pol: Her.
Humidity : 65%

Freq.	SPA. Reading	Ant.Pol.	S.G Out-put	Antenna Gain	Cable Loss	ERP/ EIRP	Limit	Safe Mar-gin
(MHz)	(dBuV)	H/V	(dBm)	(dB/dBi)	(dB)	(dBm)	(dBm)	(dBm)
36.79	42.59	H	-61.21	-4.16	0.75	-66.11	-13.00	-53.11
65.89	39.00	H	-72.85	-0.83	0.98	-74.66	-13.00	-61.66
138.64	36.80	H	-62.83	-7.79	1.41	-72.03	-13.00	-59.03
206.54	37.99	H	-63.69	-7.85	1.62	-73.16	-13.00	-60.16
1217.50	47.09	H	-60.92	7.22	4.24	-57.95	-13.00	-44.95
1849.98	85.82	H	-21.07	9.90	5.41	-16.58	-13.00	-3.58
3700.40	51.86	H	-49.50	12.61	7.73	-44.62	-13.00	-31.62
5550.60	---	H	---	---	---	---	-13.00	---
7400.80	---	H	---	---	---	---	-13.00	---
9251.00	---	H	---	---	---	---	-13.00	---
11101.20	---	H	---	---	---	---	-13.00	---
12951.40	---	H	---	---	---	---	-13.00	---
14801.60	---	H	---	---	---	---	-13.00	---
16651.80	---	H	---	---	---	---	-13.00	---
18502.00	---	H	---	---	---	---	-13.00	---
4960.00	---	H	---	---	---	---	-13.00	---
7440.00	---	H	---	---	---	---	-13.00	---
9920.00	---	H	---	---	---	---	-13.00	---
12400.00	---	H	---	---	---	---	-13.00	---

Remark：

1 The emission behaviour belongs to narrowband spurious emission.
2 Remark"---" means that the emission level is too low to be measured
3 The result basic equation calculation is as follows:
4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dBd/dBi) – Cable loss (dB)

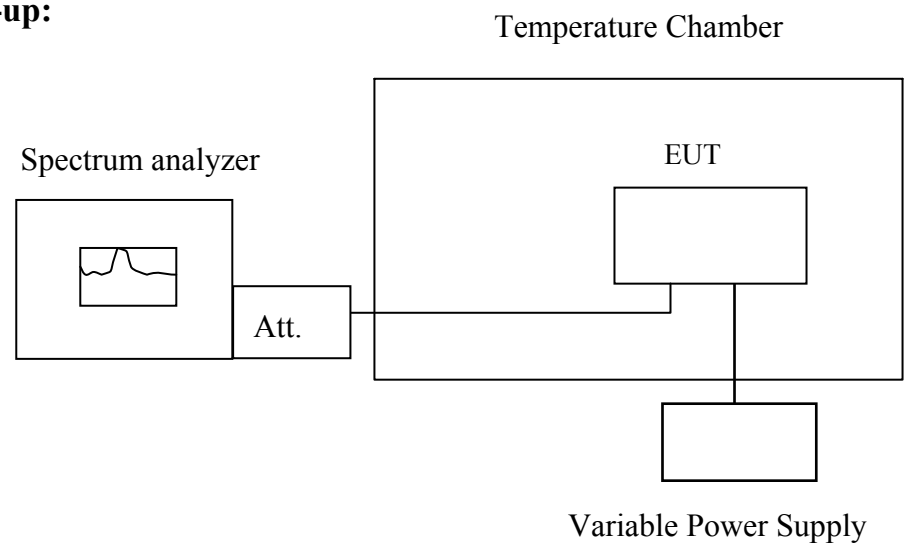
10. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

10.1 Standard Applicable

According to FCC §2.1055(a)(1)(b).

Frequency Tolerance: 2.5 ppm

10.2 Test Set-up:



Note : Measurement setup for testing on Antenna connector

10.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

10.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2005	06/29/2006
Power Sensor	Anritsu	MA2490A	31431	06/28/2005	06/29/2006
Power Meter	Anritsu	ML2487A	6K00002070	06/28/2005	06/29/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	11/11/2005	11/12/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circult	BW-S10W5	N/A	10/07/2005	10/06/2006
Attenuator	Mini-Circult	BW-S6W5	N/A	10/07/2005	10/06/2006
Splitter	Mini-Circult	ZFSC-2-10G	N/A	10/07/2005	10/06/2006
Signal Generator	R&S	SMR40	100210	11/09/2005	11/10/2006
DC Power Supply	Agilent	6038A	2929A-07548	01/06/2006	01/05/2007

10.5 Measurement Result

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	-30	836.600032	6.00	2091
3.7	-20	836.600035	3.00	2091
3.7	-10	836.600037	1.00	2091
3.7	0	836.600045	-7.00	2091
3.7	10	836.600044	-6.00	2091
3.7	20	836.600038	0.00	2091
3.7	30	836.600049	-11.00	2091
3.7	40	836.600041	-3.00	2091
3.7	50	836.600039	-1.00	2091

Reference Frequency: PCS Mid Channel 1880 MHz @ 25℃				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	25	1880.000133	44.00	4700
3.7	-30	1880.000257	-80.00	4700
3.7	-20	1880.000121	56.00	4700
3.7	-10	1880.000133	44.00	4700
3.7	0	1880.000325	-148.00	4700
3.7	10	1880.000206	-29.00	4700
3.7	20	1880.000177	0.00	4700
3.7	30	1880.000165	12.00	4700
3.7	40	1880.000203	-26.00	4700
3.7	50	1880.000187	-10.00	4700

Note: The battery is rated 3.7V dc.

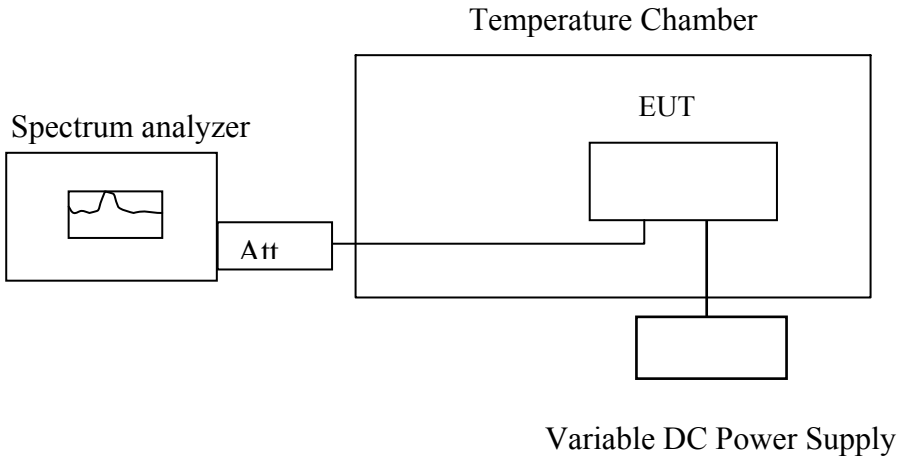
11. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

11.1 Standard Applicable

According to FCC §2.1055(d)(1)(2)

Frequency Tolerance: 2.5 ppm

11.2 Test Set-up:



Note: *Measurement setup for testing on Antenna connector*

11.3 Measurement Procedure

Set chamber temperature to 25℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

11.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Spectrum Analyzer	Agilent	E4446A	MY43360126	03/29/2006	03/28/2007
Spectrum Analyzer	Agilent	7405A	US41160416	06/28/2005	06/29/2006
Power Sensor	Anritsu	MA2490A	31431	06/28/2005	06/29/2006
Power Meter	Anritsu	ML2487A	6K00002070	06/28/2005	06/29/2006
Temperature Chamber	TERCHY	MHG-120LF	911009	11/11/2005	11/12/2006
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A
Attenuator	Mini-Circuit	BW-S10W5	N/A	10/07/2005	10/06/2006
Attenuator	Mini-Circuit	BW-S6W5	N/A	10/07/2005	10/06/2006
Splitter	Mini-Circuit	ZFSC-2-10G	N/A	10/07/2005	10/06/2006
Signal Generator	R&S	SMR40	100210	11/09/2005	11/10/2006
DC Power Supply	Agilent	6038A	2929A-07548	01/06/2006	01/05/2007

11.5 Measurement Result

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25℃				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.70	25.00	836.600030	0.00	2091.00
3.15	25.00	836.600033	-3.00	2091.00
4.26	25.00	836.600037	-7.00	2091.00
2.9 (End Point)	25.00	836.600045	-15.00	2091.00

Reference Frequency: PCS Mid Channel 1880 MHz @ 25℃				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (℃)	(MHz)		
3.7	25	1880.000179	0.00	4700
3.145	25	1880.000168	11.00	4700
4.255	25	1880.000212	-33.00	4700
2.9 (Endpoint)	25	1880.000153	26.00	4700

Note: The battery is rated 3.7V dc.

12. AC POWER LINE CONDUCTED EMISSION TEST

12.1 Standard Applicable

According to §15.207. The emission value for frequency within 150KHz to 30MHz shall not exceed criteria of below chart.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

12.2 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2001.
2. The EUT was plug-in DC power adaptort and was placed on the center of the back edge on the test table. The peripherals like earphone was placed on the side of the EUT. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The Power adaptor was connected with 110Vac/60Hz power source.

12.3 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

12.4 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMC Analyzer	HP	8594EM	3624A00203	09/02/2005	09/03/2006
EMI Test Receiver	R&S	ESCS30	828985/004	06/09/2005	06/10/2006
Transient Limiter	HP	11947A	3107A02062	09/02/2005	09/03/2006
LISN	Rolf-Heine	NNB-2/16Z	99012	12/31/2005	12/30/2006
LISN	Rolf-Heine	NNB-2/16Z	99013	12/24/2005	12/23/2006
Coaxial Cables	N/A	No. 3, 4	N/A	12/24/2005	12/23/2006

12.5 Measurement Result

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

AC POWER LINE CONDUCTED EMISSION TEST DATA

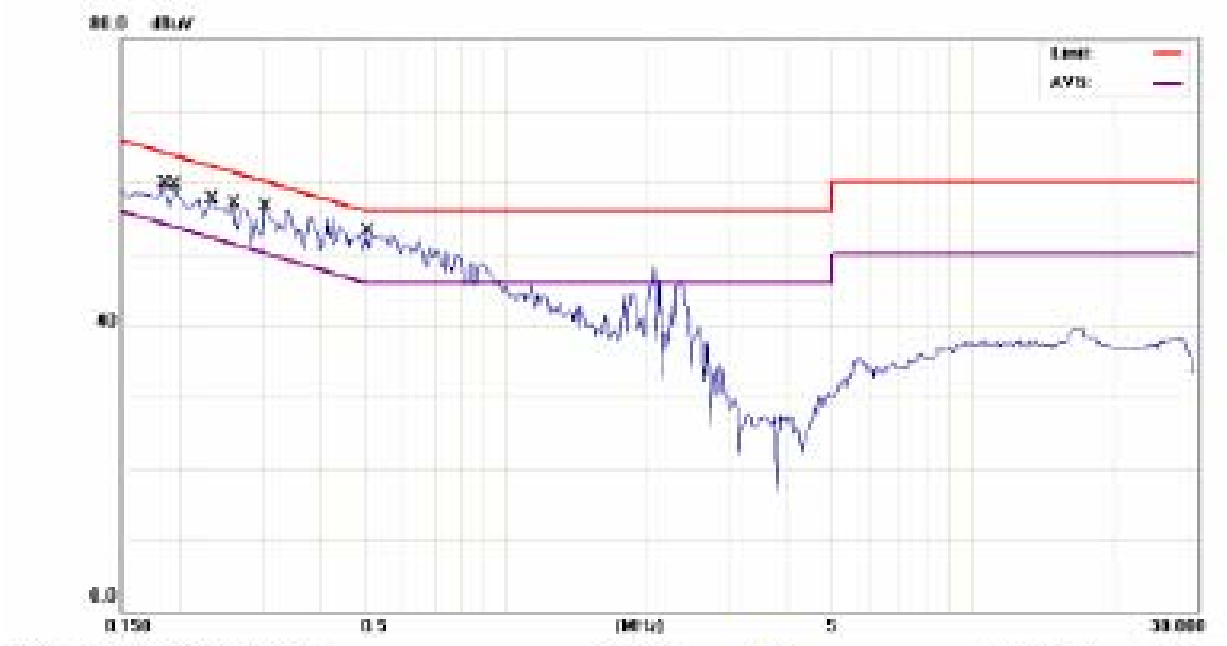
Operation Mode:	GSM 850 + BT LINK (Battery: STAR160)			Test Date:	Feb. 21, 2006
Temperature:	22 ℃	Humidity:	58 %	Test By:	Sky

Site: SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Smartphone
M/N: STAR100
Note: GSM850 LINK

Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 22 ℃
Humidity: 58 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1900	50.04	0.74	50.78	64.04	-13.26	QP	
2		0.1900	30.58	0.74	31.32	54.04	-22.72	AVG	
3		0.2250	48.94	0.76	49.70	62.63	-12.93	QP	
4		0.2250	22.18	0.76	22.94	52.63	-29.69	AVG	
5		0.2650	47.56	0.78	48.34	61.27	-12.93	QP	
6		0.2650	17.07	0.78	17.85	51.27	-33.42	AVG	
7		0.3400	45.39	0.81	46.20	59.20	-13.00	QP	
8		0.3400	19.34	0.81	20.15	49.20	-29.05	AVG	
9		0.3750	45.21	0.83	46.04	58.39	-12.35	QP	
10		0.3750	25.85	0.83	26.68	48.39	-21.71	AVG	
11	*	0.4100	44.89	0.84	45.73	57.65	-11.92	QP	
12		0.4100	17.55	0.84	18.39	47.65	-29.26	AVG	



Site: SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Smartphone
M/N: STAR100
Note: GSM850 LINK

Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 22 ℃
Humidity: 58 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1850	49.09	0.73	49.82	64.26	-14.44	QP	
2		0.1850	25.60	0.73	26.33	54.26	-27.93	AVG	
3		0.1950	49.03	0.74	49.77	63.82	-14.05	QP	
4		0.1950	26.89	0.74	27.63	53.82	-26.19	AVG	
5		0.2350	48.07	0.77	48.84	62.27	-13.43	QP	
6		0.2350	19.42	0.77	20.19	52.27	-32.08	AVG	
7		0.2600	47.77	0.78	48.55	61.43	-12.88	QP	
8		0.2600	20.80	0.78	21.58	51.43	-29.85	AVG	
9		0.3050	46.74	0.80	47.54	60.11	-12.57	QP	
10		0.3050	17.10	0.80	17.90	50.11	-32.21	AVG	
11	*	0.5050	43.30	0.88	44.18	56.00	-11.82	QP	
12		0.5050	19.53	0.88	20.41	46.00	-25.59	AVG	

AC POWER LINE CONDUCTED EMISSION TEST DATA

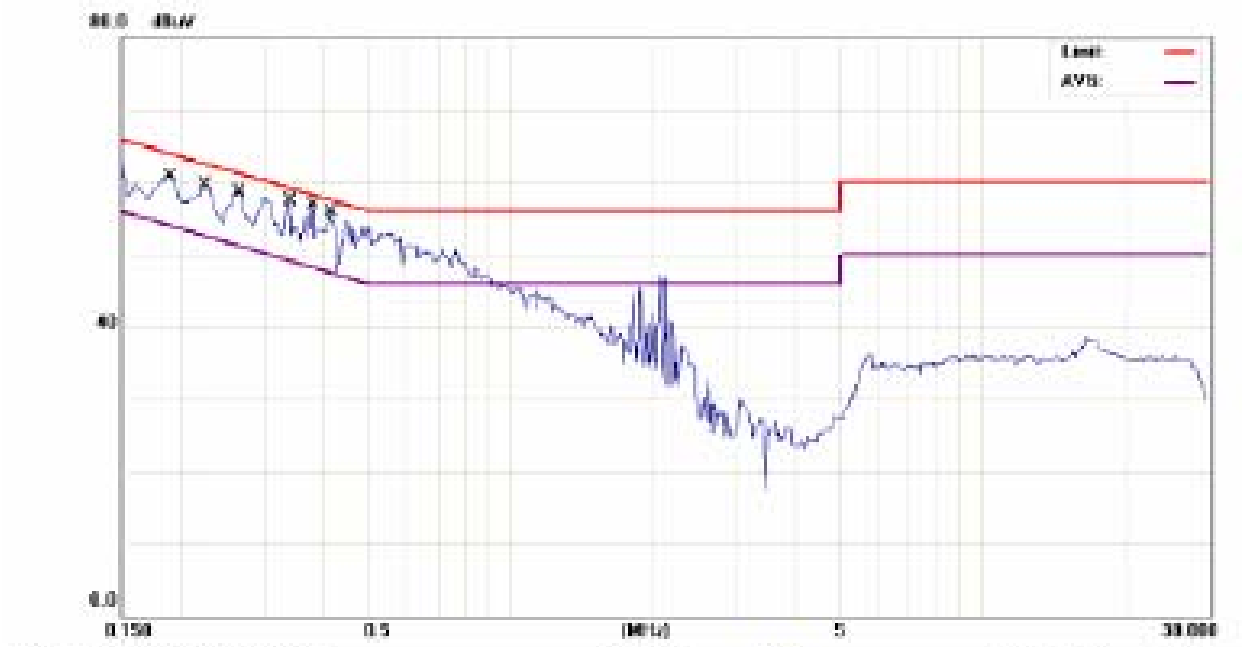
Operation Mode:	GSM 1900 +BT LINK (Battery: STAR160)			Test Date:	Feb. 21, 2006
Temperature:	22 ℃	Humidity:	58 %	Test By:	Sky

Site: SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Smartphone
M/N: STAR100
Note: GSM1900 LINK

Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 22 ℃
Humidity: 58 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1950	49.88	0.74	50.60	63.82	-13.22	QP	
2		0.1950	26.89	0.74	27.63	53.82	-26.19	AVG	
3		0.2300	48.92	0.76	49.68	62.45	-12.77	QP	
4		0.2300	21.86	0.76	22.62	52.45	-29.83	AVG	
5		0.2650	47.97	0.78	48.75	61.27	-12.52	QP	
6		0.2650	19.33	0.78	20.11	51.27	-31.16	AVG	
7		0.3050	47.10	0.80	47.90	60.11	-12.21	QP	
8		0.3050	19.55	0.80	20.35	50.11	-29.76	AVG	
9		0.3400	46.06	0.81	46.87	59.20	-12.33	QP	
10		0.3400	20.17	0.81	20.98	49.20	-28.22	AVG	
11	*	0.5350	43.69	0.86	44.55	56.00	-11.45	QP	
12		0.5350	14.45	0.86	15.31	46.00	-30.69	AVG	

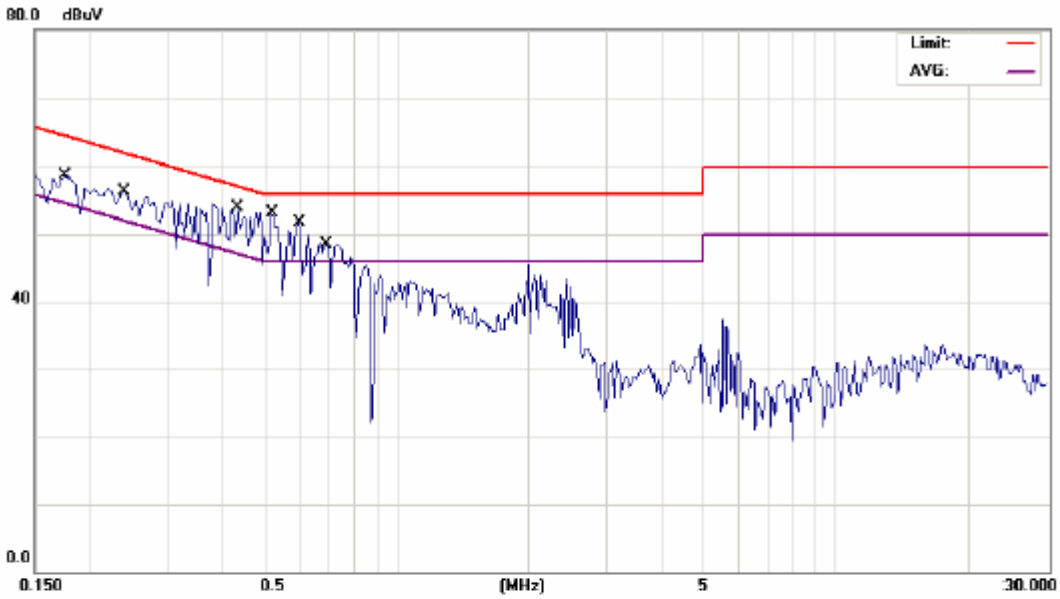


Site: SGS CONDUCTED #1 | Phase: L1 | Temperature: 22 ℃
Limit: CISPR22 Class B Conduction(QP) | Power: AC 120V/60Hz | Humidity: 58 %
EUT: Smartphone | Distance: | Air Pressure: hpa
M/N: STAR100
Note: GSM1900 LINK

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1900	50.27	0.74	51.01	64.04	-13.03	QP	
2		0.1900	28.89	0.74	29.63	54.04	-24.41	AVG	
3		0.2250	49.19	0.76	49.95	62.63	-12.68	QP	
4		0.2250	23.77	0.76	24.53	52.63	-28.10	AVG	
5		0.2650	48.29	0.78	49.07	61.27	-12.20	QP	
6		0.2650	17.15	0.78	17.93	51.27	-33.34	AVG	
7		0.3400	46.69	0.81	47.50	59.20	-11.70	QP	
8		0.3400	20.92	0.81	21.73	49.20	-27.47	AVG	
9		0.3800	45.89	0.83	46.72	58.28	-11.56	QP	
10		0.3800	24.22	0.83	25.05	48.28	-23.23	AVG	
11	*	0.4150	45.25	0.84	46.09	57.55	-11.46	QP	
12		0.4150	21.43	0.84	22.27	47.55	-25.28	AVG	

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 850 + BT LINK (Battery: STAR161)			Test Date:	Jun. 20, 2006
Temperature:	25 ℃	Humidity:	62 %	Test By:	Sky

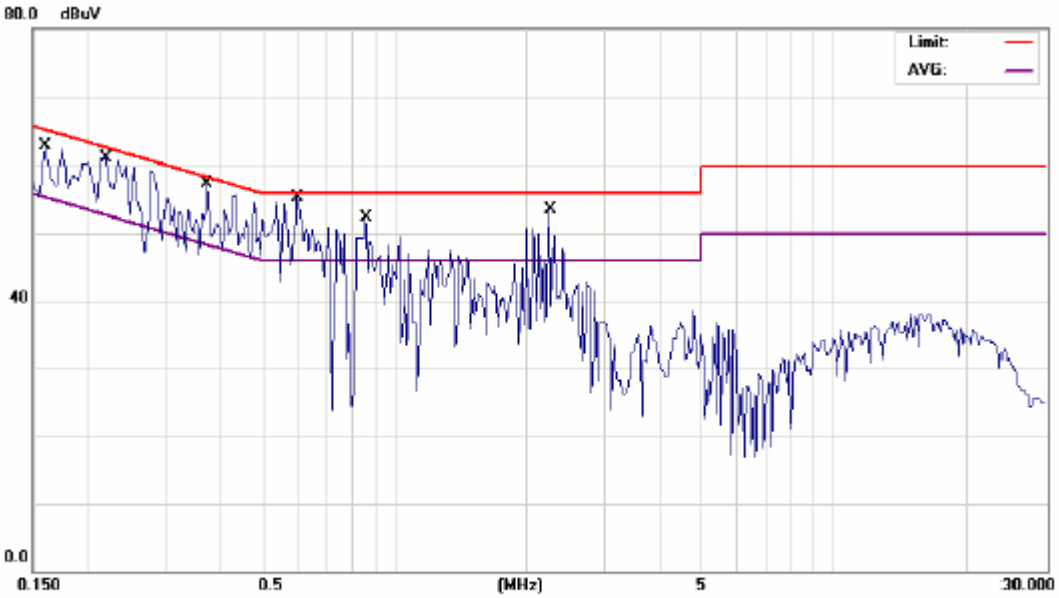


Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Smartphone
M/N: STAR100
Note: GSM 850 LINK+BT OPERATION

Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 25 ℃
Humidity: 62 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1750	38.78	10.55	49.33	64.72	-15.39	QP	
2		0.1750	11.29	10.55	21.84	54.72	-32.88	AVG	
3		0.2400	37.81	10.61	48.42	62.10	-13.68	QP	
4		0.2400	18.02	10.61	28.63	52.10	-23.47	AVG	
5		0.4350	32.41	10.69	43.10	57.16	-14.06	QP	
6		0.4350	21.44	10.69	32.13	47.16	-15.03	AVG	
7		0.5200	30.87	10.71	41.58	56.00	-14.42	QP	
8		0.5200	19.71	10.71	30.42	46.00	-15.58	AVG	
9	*	0.6000	32.55	10.66	43.21	56.00	-12.79	QP	
10		0.6000	12.85	10.66	23.51	46.00	-22.49	AVG	
11		0.6900	30.60	10.61	41.21	56.00	-14.79	QP	
12		0.6900	17.28	10.61	27.89	46.00	-18.11	AVG	



Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Smartphone
M/N: STAR100
Note: GSM 850 LINK+BT OPERATION

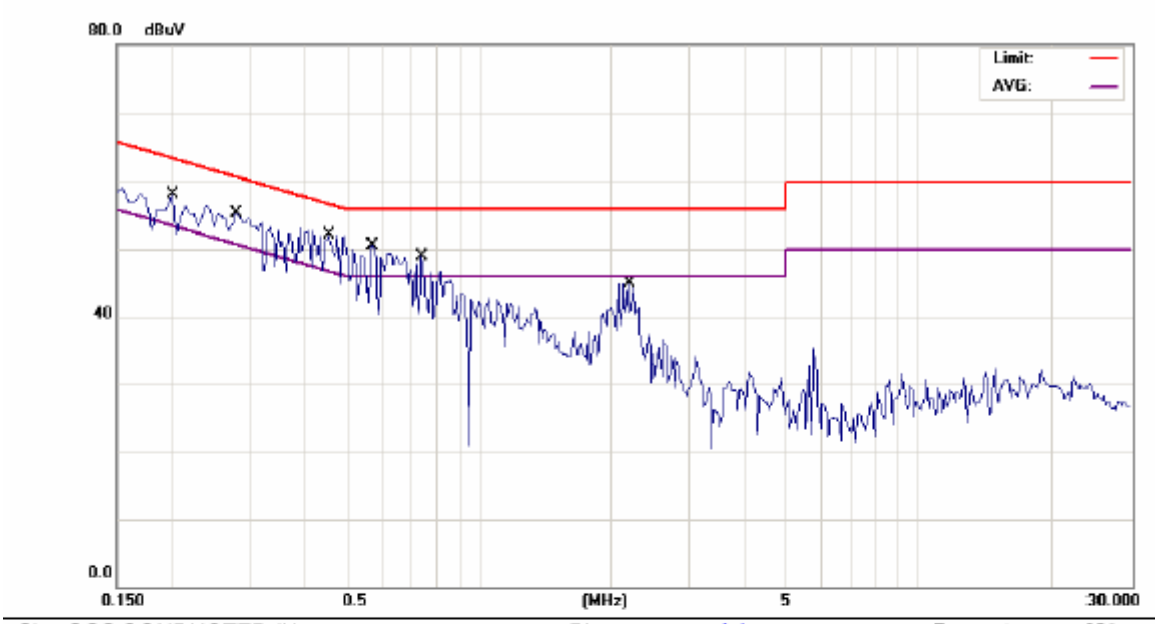
Phase: N
Power: AC 120V/60Hz
Distance:

Temperature: 25 ℃
Humidity: 62 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1600	40.89	10.53	51.42	65.46	-14.04	QP	
2		0.1600	11.96	10.53	22.49	55.46	-32.97	AVG	
3		0.2200	36.03	10.60	46.63	62.82	-16.19	QP	
4		0.2200	14.59	10.60	25.19	52.82	-27.63	AVG	
5		0.3750	35.65	10.67	46.32	58.39	-12.07	QP	
6		0.3750	22.08	10.67	32.75	48.39	-15.64	AVG	
7		0.6000	39.16	10.66	49.82	56.00	-6.18	QP	
8		0.6000	20.74	10.66	31.40	46.00	-14.60	AVG	
9		0.8600	36.96	10.51	47.47	56.00	-8.53	QP	
10		0.8600	11.85	10.51	22.36	46.00	-23.64	AVG	
11	*	2.2500	40.91	10.53	51.44	56.00	-4.56	QP	
12		2.2500	29.51	10.53	40.04	46.00	-5.96	AVG	

AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 1900 +BT LINK (Battery: STAR161)			Test Date:	Jun. 20, 2006
Temperature:	25 ℃	Humidity:	62 %	Test By:	Sky

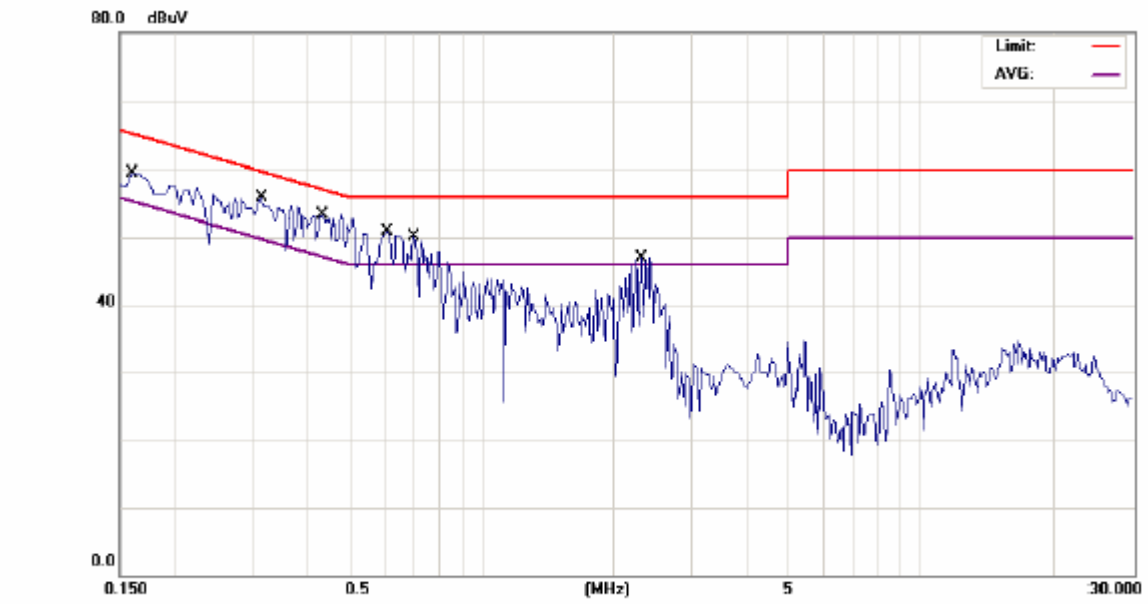


Site SGS CONDUCTED #1
Limit: CISPR22 Class B Conduction(QP)
EUT: Smartphone
M/N: STAR100
Note: GSM 1900 LINK+BT OPERATION

Phase: L1
Power: AC 120V/60Hz
Distance:

Temperature: 25 ℃
Humidity: 62 %
Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2000	37.14	10.59	47.73	63.61	-15.88	QP	
2		0.2000	15.74	10.59	26.33	53.61	-27.28	AVG	
3		0.2800	34.39	10.62	45.01	60.82	-15.81	QP	
4		0.2800	15.80	10.62	26.42	50.82	-24.40	AVG	
5		0.4550	32.30	10.70	43.00	56.78	-13.78	QP	
6		0.4550	13.98	10.70	24.68	46.78	-22.10	AVG	
7		0.5700	31.25	10.68	41.93	56.00	-14.07	QP	
8		0.5700	12.09	10.68	22.77	46.00	-23.23	AVG	
9		0.7400	28.56	10.58	39.14	56.00	-16.86	QP	
10		0.7400	12.69	10.58	23.27	46.00	-22.73	AVG	
11	*	2.2000	37.86	10.52	48.38	56.00	-7.62	QP	
12		2.2000	24.42	10.52	34.94	46.00	-11.06	AVG	



Site SGS CONDUCTED #1 | Phase: N | Temperature: 25 ℃
Limit: CISPR22 Class B Conduction(QP) | Power: AC 120V/60Hz | Humidity: 62 %
EUT: Smartphone | Distance: | Air Pressure: hpa
M/N: STAR100
Note: GSM 1900 LINK+BT OPERATION

No.	Mk.	Freq.	Reading Level	Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1600	38.52	10.53	49.05	65.46	-16.41	QP	
2		0.1600	13.42	10.53	23.95	55.46	-31.51	AVG	
3		0.3150	34.15	10.64	44.79	59.84	-15.05	QP	
4		0.3150	15.69	10.64	26.33	49.84	-23.51	AVG	
5		0.4351	32.31	10.69	43.00	57.15	-14.15	QP	
6		0.4351	14.57	10.69	25.26	47.15	-21.89	AVG	
7		0.6100	31.41	10.66	42.07	56.00	-13.93	QP	
8	*	0.6100	24.96	10.66	35.62	46.00	-10.38	AVG	
9		0.7000	29.81	10.61	40.42	56.00	-15.58	QP	
10		0.7000	14.78	10.61	25.39	46.00	-20.61	AVG	
11		2.3100	34.41	10.53	44.94	56.00	-11.06	QP	
12		2.3100	20.52	10.53	31.05	46.00	-14.95	AVG	