

Report No.: EH/2012/60052 Issue Date: Jul. 05, 2012

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E

OF

Product Name: Silver Smart

Marketing Name: MOTOSMART Me

Brand Name: Motorola

Type Name: M0D4D

Model No.: XT303 (GPPD:3405)

Model Differences: N/A

FCC ID: IHDT56NX2

Report No.: EH/2012/60052

Issue Date: Jul. 05, 2012

FCC Rule Part: 2,22H & 24E

Motorola Mobility Inc.

Prepared for: 9F., No.9, Songgao Rd., Taipei 110, Taiwan,

R.O.C.

SGS Taiwan Ltd.

Electronics & Communication Laboratory Prepared by:

No. 134, Wu Kung Rd., Wuku Industrial

Zone, Taipei County, Taiwan.

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VERIFICATION OF COMPLIANCE

Applicant: Motorola Mobility Inc.

9F., No.9, Songgao Rd., Taipei 110, Taiwan, R.O.C.

Product Name: Silver Smart

Marketing Name: MOTOSMART Me

Brand Name: Motorola

Model No.: XT303 (GPPD:3405)

Model Different: N/A

FCC ID: IHDT56NX2

File Number: EH/2012/60052

Date of test: May 30, 2012 ~ Jun. 15, 2012

Date of EUT Received: May 30, 2012

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory 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-C-2004 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, PART 24 subpart E.

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

Test By:	Jimy hi	Date:	Jul. 05, 2012	
Prepared By:	Jimmy Liu/Engineer Judy Hen	Date:	Jul. 05, 2012	
Approved By:	Judy Hsu / Clerk Jim Chang / Supervisor	Date:	Jul. 05, 2012	

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Version

Version No.	Date	Description
00	Jul. 05, 2012	Initial creation of document

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1. GENERAL PRODUCT INFORMATION

General:

Product Name:	Silver Smart		
Marketing Name:	MOTOSMA	ART Me	
Brand Name:	Motorola		
Type Name;	M0D4D		
Model No.:	XT303(GPPD:3405)		
Model Difference:	N/A		
Data Cable (USB):	Model No.: SKN6378A, Supplier: Motorola		
Simple Hands-free (SHF):	Model No.: SJYN0760A, Supplier: Motorola		
	3.7Vdc form Li-Ion battery or 5.1Vdc form adapter		
Power Supply:	Adaptor:	Model No.: SPN5513B(FMP5504A)	
	Battery:	Supplier: Motorola Model No.: BF5X Supplier: Motorola	

GSM/WCDMA:

	Operating Frequency	Rated Power	
Cellular Phone Standards	GSM/GPRS 850, Class 10	824.2 MHz– 848.8 MHz	32.8 dBm
Frequency Range and Power:	GSM/GPRS 1900, Class 10	1850.2MHz – 1909.8MHz	29.5 dBm
	WCDMA/HSUPA/HSDPA Band V	826.4MHz – 846.6MHz	23.0 dBm
Type of Emission:	GSM850: 248KGXW, GSM1900: 246KGXW GPRS850: 250KGXW, GPRS1900: 249KGXW WCDMA Band V: 4M18F9W HSDPA Band V: 4M21F9W HSUPA Band V: 4M18F9W		
Hardware Version:	P2		
Software Version:	SILVS_W_07.13.01R_S		
IMEI:	352215050001765		

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Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
GSM 850	3.7 Vdc	290
GSM 1900	3.7 Vdc	310
GPRS 850	3.7 Vdc	300
GPRS 1900	3.7 Vdc	320
WCDMA B5	3.7 Vdc	280
HSUPA B5	3.7 Vdc	290
HSDPA B5	3.7 Vdc	290

This test report applies for GSM/GPRS 850/1900 and WCDMA/HSDPA/HSUPA Band V.



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1.1. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: <u>IHDT56NX2</u> filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules.

1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures document of TIA/EIA 603C and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

The Output power Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA / HSDPA) was used for EUT and Base station setting.

1.3. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

All equipment is calibrated externally and traceable to SI (International System of Unit).

1.4. Special Accessories

Not available for this EUT intended for grant.

1.5. Equipment Modifications

Not available for this EUT intended for grant.

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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 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in TIA/EIA 603C. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz us- ing CISPR Quasi-Peak and Average detector mode.

2.3.2 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C and RSS-Gen, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.3 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C and RSS-Gen, The EUT is a placed on as turn table which is 0.8 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 and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13 of ANSI C63.4:2003.

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2.4. Measurement Equipment Used:

Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	E4446A	MY51100003	04/15/2011	04/14/2013	
Spectrum Analyzer	Agilent	E4440A	US41160416	03/17/2012	03/16/2014	
Radio Communication Analyzer	R & S	CMU200	102189	08/12/2010	08/11/2012	
WIDEB. RADIO COMIN. TESTER	R & S	CMW500	101582	07/12/2010	07/11/2012	
Temperature Chamber	TERCHY	MHG-120LF	911009	04/16/2012	04/15/2014	
DC Block	Mini-Circuits	BLK-18-S+	1	02/28/2012	02/27/2013	
Attenuator	Mini-Circuit	BW-S10W2+	002	02/28/2012	02/27/2013	
Splitter	Agilent	11636B	N/A	02/28/2012	02/27/2013	
DC Power Supply	Agilent	E3640A	MY40005907	07/15/2011	07/14/2013	

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ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY51100003	04/15/2011	04/14/2013
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	02/15/2011	02/14/2013
Spectrum Analyzer	R&S	FSV-30	101398	10/18/2011	10/17/2013
Bilog Antenna	SCHWAZBECK	VULB9168	378	01/10/2012	01/09/2014
Bilog Antenna	SCHWAZBECK	VULB9160	3158	11/24/2011	11/23/2013
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/17/2010	07/16/2012
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/17/2010	07/16/2012
Horn antenna	ETS.LINDGREN	3117	123995	05/19/2011	05/18/2013
Horn antenna	ETS.LINDGREN	3117	123995	05/19/2011	05/18/2013
Horn Antenna	Schwarzbeck	BBHA9170	184	01/17/2012	01/17/2014
Horn Antenna	Schwarzbeck	BBHA9170	185	07/11/2011	07/10/2013
RF amplifier	Miteq	AMF-6F-2600 400-40-8P	971576	12/28/2011	12/27/2012
Signal Generator	R&S	SMR40	100210	02/02/2012	02/01/2014
Signal Generator	Agilent	E4438C	MY45093613	07/15/2011	07/14/2013
Pre-Amplifier	Agilent	8447D	1937A02834	01/04/2012	01/03/2013
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/04/2012	01/03/2013
Attenuator	Mini-Circuit	BW-S10W2+	004	02/28/2012	02/27/2013
Radio Communication Analyzer	R & S	CMU200	102189	08/12/2010	08/11/2012
WIDEB. RADIO COMIN. TESTER	R & S	CMW500	101582	07/12/2010	07/11/2012
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	966_Tx	10m	01/04/2012	01/03/2013
Low Loss Cable	HUBER+SUHNER	966_Rx	3m	01/04/2012	01/03/2013
Filter 800-1000	Micro-Tronics	EWT	M2	02/28/2012	02/28/2013
Filter 1800-2000	Micro-Tronics	EWT	M2	02/28/2012	02/28/2013
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	02/28/2012	02/27/2013
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	02/28/2012	02/27/2013
3m Site NSA	SGS	966 chamber	N/A	07/15/2011	07/14/2012

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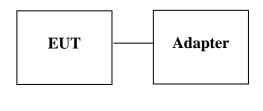


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2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



Remote Side

CMU 200

Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model / Type No.	Series No.
1.	Radio Communication Analyzer	R&S	CMU200	102189

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3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§2.1046(a)		
§22.913(a)(2)	ERP/ EIRP measurement	Compliant
§24.232(c)		
§2.1049(h)	99% Occupied Bandwidth	Compliant
§2.1051	Out of Band Emissions at Antenna	
§22.917(a)	Terminals and	Compliant
§24.238(a)	Band Edge	
§2.1053		
§22.917(a)	Field Strength of Spurious Radiation	Compliant
§24.238(a)		
§2.1055(a)(1)		
§22.355	Frequency Stability vs. Temperature	Compliant
§24.235		
§2.1055(d)(2)		
§22.355	Frequency Stability vs. Voltage	Compliant
§24.235		

Max ERP/EIRP measurement result:

	dBm	dB	W
GSM 850 Band	25.90	ERP	0.389
GSM 1900 Band	31.78	EIRP	1.507
GPRS 850 Band	25.48	ERP	0.353
GPRS 1900 Band	31.06	EIRP	1.276
WCDMA Band V	23.14	ERP	0.206
HSUPA Band V	22.64	ERP	0.184
HSDPA Band V	21.04	ERP	0.127

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4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

EUT was staying in continuous transmitting mode. Channel Low, Mid and High for each 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 GSM/GPRS and WCDMA/HSUPA/HSDPA with power adaptor. The worst-case of H position for GSM 850, E1 position for GSM 1900 band, and E2 position for WCDMA band V were reported.

5. MEASUREMENT UNCERTAINTY FOR FIELD STRENGTH OF SPURIOUS RADIATION

	30MHz - 180MHz: 3.37dB		
Massymoment yn aantainty	180MHz -417MHz: 3.19dB		
Measurement uncertainty (Polarization : Vertical)	0.417GHz-1GHz: 3.19dB		
(I ofarization : Vertical)	1GHz - 18GHz: 4.04dB		
	18GHz - 40GHz: 4.04dB		
	30MHz - 167MHz: 4.22dB		
Measurement uncertainty	167MHz -500MHz: 3.44dB		
(Polarization : Horizontal)	0.5GHz-1GHz: 3.39dB		
(1 oldingation : Holleontal)	1GHz - 18GHz: 4.08dB		

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6. RF POWER OUTPUT MEASUREMENT

6.1. Standard Applicable:

According to FCC §2.1046.

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

FCC 24.232(C) Peak Power Measurement to 2W.

3GPP Power limitation for HSDPA and HSUPA

Maximum Output Powers for HSDPA

Sub-test in table	Power	Class 3	Power Class 4			
C.10.1.4	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)		
1	+24	+1.7/-3.7	+21	+2.7/-2.7		
2	+24	+1.7/-3.7	+21	+2.7/-2.7		
3	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7		
4	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7		

Maximum Output Powers for HSUPA

Sub-test in table	Power	Class 3	Power Class 4		
C.11.1.3	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	
1	+24	+1.7/-6.7	+21	+2.7/-5.7	
2	+22	+3.7/-5.2	+19	+4.7/-4.2	
3	+23	+2.7/-5.2	+20	+3.7/-4.2	
4	+22	+3.7/-5.2	+19	+4.7/-4.2	
5	+24	+1.7/-6.7	+21	+2.7/-5.7	

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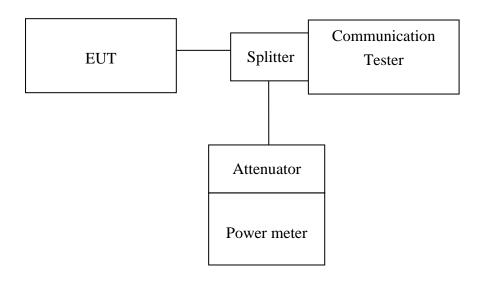
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6.2. Test Set-up:



Note: Measurement setup for testing on Antenna connector

6.3. 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. The Procedure of KDB941225 KDB941125 (SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing

6.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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6.5. Measurement Result:

6.5.1. RF Conducted Output Power 6.5.1.1.: GSM/GPRS (GMSK; 8-PSK)

Result:

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg. Power (dBm)
GSM 850 (Class 10)	824.2	128	33.30	33.10
	836.6	190	33.20	33.10
(Class 10)	848.8	251	33.30	33.20

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg. Power (dBm)
GSM 1900 (Class 10)	1850.2	512	29.90	29.80
	1880.0	661	30.10	29.80
(Class 10)	1909.8	810	30.10	29.90

EUT Mode	Frequency (MHz)	СН	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Avg. Power (1DN 2UP) (dBm)
GDD G 0.50	824.2	128	33.30	33.10	31.70	31.50
GPRS 850 (Class 10)	836.6	190	33.20	33.10	30.60	30.50
(01035 10)	848.8	251	33.30	33.20	29.50	29.40

EUT Mode	Frequency (MHz)	СН	Peak Power (1DN 1UP) (dBm)	Avg. Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Avg. Power (1DN 2UP) (dBm)
GDD G 1000	1850.2	512	29.90	29.80	28.70	28.60
GPRS 1900 (Class 10)	1880.0	661	30.10	30.00	28.80	28.70
	1909.8	810	30.10	29.90	28.90	28.80

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6.5.1.2: WCDMA mode

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1/-3). RMC 12.2kps is used for this testing.

Results:

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Avg. Power (dBm)
WCDMA Band V	826.4	4132	26.61	23.57
	836.6	4183	26.57	23.52
Buna v	846.6	4233	26.49	23.48

Note: The results above reflect max power with all up bits.

offset: 0.8dB(for 1900MHz)

offset: 0.5dB(for 850MHz/Band V)



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6.5.1.3: HSDPA Release 6 mode

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

HSDPA SUB-TEST Setting

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	βc	β _d	β _d (SF)	βc/βd	βнs (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

Results:

Mode	Sub-test	RMS	S Power (d Channel	Bm)	Power Class 3 Limitation (dBm)	Comments
		4132	4172	4233	, , ,	
HSDPA	1	23.36	23.38	23.60	20.3dBm - 25.7dBm	Pass
B5	2	23.50	23.41	23.35	20.3dBm - 25.7dBm	Pass
	3	22.90	22.90 22.90 23.11		19.8dBm – 25.7dBm	Pass
	4	22.95	22.94	23.17	19.8dBm – 25.7dBm	Pass

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6.5.1.4: HSPA (HSDPA & HSUPA) Release 6 mode

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

HSPA SUB-TEST Setting

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub- test	βς	$eta_{ m d}$	β _d (SF)	β_c/β_d	$eta_{ m HS}$	eta_{ec}	eta_{ed}	β _{ed} (SF)	$\begin{array}{c} \beta_{ed} \\ (Codes) \end{array}$	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/22	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β _{ed} 1: 47/15 β _{ed} 2: 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

Note: The recommended HSUPA are implemented as per following sub-tests.

Results:

Mode	Sub-test	` ′			Power Class 3 Limitation (dBm)	Comments
		4132	4172	4233		
HSUPA	1	23.53	23.45	23.40	17.3dBm – 25.7dBm	Pass
B5	2	21.59	21.53	21.44	16.8dBm – 25.7dBm	Pass
	3	22.57	22.51	22.48	17.8dBm – 25.7dBm	Pass
	4	21.64 21.59 21.52		16.8dBm – 25.7dBm	Pass	
	5	23.39	23.28	23.29	17.3dBm – 25.7dBm	Pass

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6.5.2. Minimum Communications Power Measurement

PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8
Output power (dBm)	29.8	27.8	26.2	24.1	22.1	20.1	18.0	16.1	14.0
PCL	9	10	11	12	13	14	15		
Output power (dBm)	11.9	10.0	7.9	5.8	3.6	1.6	-0.8		

Note: The EUT output power was controlled by simulator. Set Communication Tester CMU200 PCL as above, and get the mobile phone output power reading.

WCDMA/HSDPA band V

The EUT output power was controlled by simulator. Set Communication Tester CMU200 function key "UE Power Control" and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. then record the read(see page 15 for measurement data). The min. power was measures by a function key "minimum power" then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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7. ERP, EIRP MEASUREMENT

7.1. Standard Applicable:

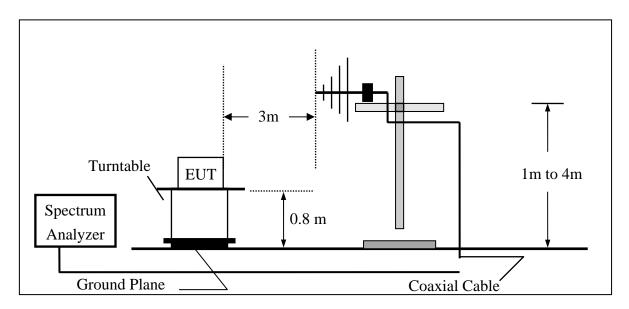
According to FCC §2.1046

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

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

7.2. Test SET-UP (Block Diagram of Configuration):

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



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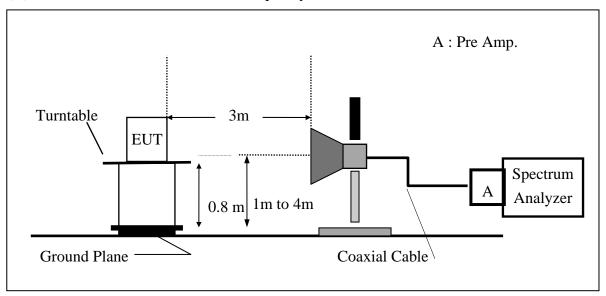
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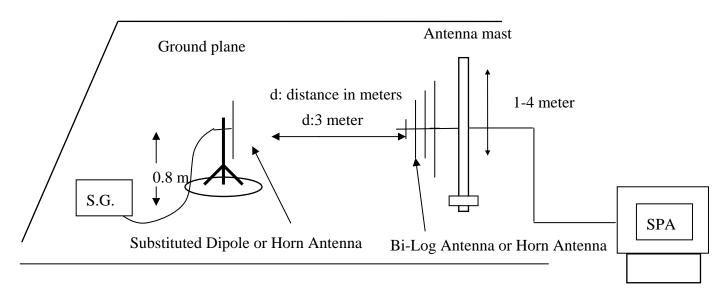
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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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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.

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 –848.80MHz 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 1710-1755MHz and 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by a 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)

7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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7.5. Measurement Result:

	I	EUT		Measurement						
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit	
		MHz		V/H	dBm	dBd	dB	dBm	dBm	
		824.20	128	V	25.36	3.96	-4.22	25.10	38.40	
		824.20	120	Н	22.73	3.96	-4.22	22.47	38.40	
	Н	836.60	190	V	25.91	4.00	-4.24	25.67	38.40	
	11	030.00	190	Н	20.95	4.00	-4.24	20.70	38.40	
		848.80	251	V	26.20	4.03	-4.33	25.90	38.40	
		040.00	231	Н	20.87	4.03	-4.33	20.57	38.40	
			824.20	128	V	22.76	3.96	-4.22	22.51	38.40
		021.20	120	Н	25.58	3.96	-4.22	25.32	38.40	
GSM 850	F1		190	V	22.18	4.00	-4.24	21.94	38.40	
GSIVI 030	L1		170	Н	25.55	4.00	-4.24	25.31	38.40	
			251	V	22.93	4.03	-4.33	22.63	38.40	
		040.00	231	Н	25.73	4.03	-4.33	25.43	38.40	
		824.20	128	V	23.66	3.96	-4.22	23.40	38.40	
	E2	024.20	120	Н	25.55	3.96	-4.22	25.29	38.40	
		E2 836.60	190	V	22.93	4.00	-4.24	22.69	38.40	
			170	Н	25.51	4.00	-4.24	25.27	38.40	
	848.80	251	V	22.72	4.03	-4.33	22.42	38.40		
		040.00	231	Н	25.70	4.03	-4.33	25.40	38.40	

Remark:

(1) The RBW, VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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]	EUT				Measu	rement					
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit			
		MHz		V/H	dBm	dBi	dB	dBm	dBm			
		1850.20	512	V	30.81	4.17	-5.49	29.49	33.00			
		1630.20	312	Н	27.64	4.51	-5.49	26.66	33.00			
	Н	Н	н	п	1880.00	661	V	28.53	4.13	-5.56	27.10	33.00
	11	1880.00	001	Н	26.91	4.44	-5.56	25.78	33.00			
		1909.80	810	V	30.93	4.09	-5.56	29.47	33.00			
		1909.80	810	Н	26.65	4.36	-5.56	25.46	33.00			
			1850.20	512	V	33.10	4.17	-5.49	31.78	33.00		
		1830.20	312	Н	27.47	4.51	-5.49	26.49	33.00			
GSM 1900	E1	E1 188	1880.00	661	V	31.27	4.13	-5.56	29.84	33.00		
GSWI 1900	ĽI	1880.00	001	Н	24.64	4.44	-5.56	23.52	33.00			
					1909.80	810	V	32.07	4.09	-5.56	30.61	33.00
		1909.80	810	Н	26.95	4.36	-5.56	25.76	33.00			
		1850.20	512	V	28.97	4.17	-5.49	27.66	33.00			
	E2	1830.20	312	Н	31.09	4.51	-5.49	30.12	33.00			
		E2 1880.00	661	V	26.85	4.13	-5.56	25.42	33.00			
			001	Н	30.96	4.44	-5.56	29.84	33.00			
	1909.80	810	V	28.04	4.09	-5.56	26.58	33.00				
		1707.00	010	Н	32.50	4.36	-5.56	31.31	33.00			

Remark:

The RBW, VBW of SPA for frequency RBW=300K, VBW=1MHz (1)

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	I	EUT			Measurement							
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit			
		MHz		V/H	dBm	dBd	dB	dBm	dBm			
		824.20	128	V	25.17	3.96	-4.22	24.91	38.45			
		824.20	120	Н	21.79	3.96	-4.22	21.53	38.45			
	Н	Н	Н	н	836.60	190	V	25.28	4.00	-4.24	25.04	38.45
	11	830.00	190	Н	20.25	4.00	-4.24	20.01	38.45			
		848.80	251	V	25.78	4.03	-4.33	25.48	38.45			
		040.00	231	Н	19.94	4.03	-4.33	19.64	38.45			
			824.20	128	V	21.64	3.96	-4.22	21.38	38.45		
		024.20	120	Н	25.33	3.96	-4.22	25.07	38.45			
GPRS 850	E1	836.60	190	V	20.75	4.00	-4.24	20.51	38.45			
GI KS 650	EI	830.00		Н	25.29	4.00	-4.24	25.05	38.45			
		848.80	251	V	21.65	4.03	-4.33	21.35	38.45			
		040.00	231	Н	25.37	4.03	-4.33	25.07	38.45			
		824.20	128	V	23.16	3.96	-4.22	22.90	38.45			
	E2	024.20	120	Н	25.34	3.96	-4.22	25.08	38.45			
		836.60	190	V	21.71	4.00	-4.24	21.47	38.45			
		050.00	170	Н	25.31	4.00	-4.24	25.07	38.45			
		848.80	251	V	21.37	4.03	-4.33	21.07	38.45			
		040.00	231	Н	25.47	4.03	-4.33	25.17	38.45			

Remark:

(1) The RBW, VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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	I	EUT				Measu	rement		
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	EIRP	Limit
		MHz		V/H	dBm	dBi	dB	dBm	dBm
		1850.20	512	V	28.91	4.17	-5.49	27.59	33.00
		1850.20	312	Н	25.85	4.51	-5.49	24.87	33.00
	Н	1880.00 1909.80	661	V	28.87	4.13	-5.56	27.44	33.00
	11		001	Н	26.50	4.44	-5.56	25.37	33.00
			810	V	30.22	4.09	-5.56	28.76	33.00
			810	Н	28.15	4.36	-5.56	26.96	33.00
		1850.20	512	V	32.38	4.17	-5.49	31.06	33.00
		1830.20		Н	26.12	4.51	-5.49	25.14	33.00
GPRS	E1	1880.00	661	V	30.12	4.13	-5.56	28.69	33.00
1900	151	1880.00		Н	24.06	4.44	-5.56	22.93	33.00
		1909.80	810	V	32.27	4.09	-5.56	30.81	33.00
		1909.80	810	Н	24.38	4.36	-5.56	23.19	33.00
		1850.20	512	V	25.76	4.17	-5.49	24.45	33.00
		1850.20	312	Н	30.68	4.51	-5.49	29.70	33.00
	F2	E2 1880.00	661	V	24.47	4.13	-5.56	23.04	33.00
	1000.00	001	Н	30.20	4.44	-5.56	29.07	33.00	
		1909.80	810	V	27.36	4.10	-5.56	25.89	33.00
		1707.00	010	Н	30.94	4.36	-5.56	29.74	33.00

Remark:

The RBW, VBW of SPA for frequency RBW=300K, VBW=1MHz (1)

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	1	EUT				Measur	ement				
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit		
		MHz		V/H	dBm	dBd	dB	dBm	dBm		
		026.40	4100	V	18.24	3.97	-4.22	17.99	38.45		
		826.40	4132	Н	13.34	3.97	-4.22	13.08	38.45		
			4183	V	20.18	4.00	-4.24	19.94	38.45		
	Н		4165	Н	14.28	4.00	-4.24	14.04	38.45		
			4233	V	20.20	4.02	-4.24	19.99	38.45		
			4233	Н	13.14	4.02	-4.24	12.92	38.45		
				826.40	4132	V	12.06	3.97	-4.22	11.80	38.45
		020.40	4132	Н	19.91	3.97	-4.22	19.65	38.45		
WCDMA	E1	E1 836.60	4183	V	12.62	4.00	-4.24	12.38	38.45		
Band V	EI	830.00	4103	Н	21.15	3.99	-4.24	20.90	38.45		
		846.60	4233	V	11.99	4.02	-4.24	11.77	38.45		
		840.00	4233	Н	20.93	4.02	-4.24	20.71	38.45		
		826.40	4100	V	12.77	3.97	-4.22	12.51	38.45		
	E2	820.40	4132	Н	22.88	3.97	-4.22	22.63	38.45		
		E2 836.60	4102	V	12.05	3.99	-4.24	11.81	38.45		
			4183	Н	23.39	4.00	-4.24	23.14	38.45		
	-	0.4.5.50	1000	V	11.16	4.02	-4.24	10.94	38.45		
		846.60	4233	Н	13.49	4.02	-4.24	13.27	38.45		

Remark:

(1) The RBW, VBW of SPA for frequency RBW=5MHz, VBW=8MHz

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	1	EUT		Measurement						
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit	
		MHz		V/H	dBm	dBd	dB	dBm	dBm	
		026.4	4122	V	19.89	3.97	-4.22	19.64	38.45	
		826.4	4132	Н	19.00	3.97	-4.22	18.75	38.45	
		026.6	4183	V	10.77	4.00	-4.24	10.53	38.45	
	Н	836.6	4183	Н	20.16	4.00	-4.24	19.92	38.45	
		846.6	4233	V	10.35	4.02	-4.24	10.13	38.45	
		840.0	4233	Н	20.88	4.02	-4.24	20.66	38.45	
			826.4	4132	V	18.92	3.97	-4.22	18.66	38.45
		820.4	4132	Н	8.59	3.97	-4.22	8.33	38.45	
HSUPA	E1	926.6	4183	V	21.94	4.00	-4.24	21.70	38.45	
Band V	EI	836.6		Н	9.64	4.00	-4.24	9.40	38.45	
		846.6	1222	V	20.24	4.02	-4.24	20.03	38.45	
		840.0	4233	Н	11.58	4.02	-4.24	11.36	38.45	
		926.4	4122	V	22.89	3.97	-4.22	22.64	38.45	
	E2	826.4	4132	Н	12.75	3.97	-4.22	12.50	38.45	
		E2 836.6	4102	V	20.84	4.00	-4.24	20.60	38.45	
			4183	Н	12.92	4.00	-4.24	12.68	38.45	
		0.45.5	4022	V	20.34	4.02	-4.24	20.12	38.45	
		846.6	4233	Н	12.18	4.02	-4.24	11.97	38.45	

Remark:

(1) The RBW, VBW of SPA for frequency RBW=5MHz, VBW=8MHz

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	1	EUT				Measur	ement				
Operation Band	Pol.	Fundamental Frequency	СН	Antenna Pol.	S.G. Output	Antenna Gain	Cable Loss	ERP	Limit		
		MHz		V/H	dBm	dBd	dB	dBm	dBm		
		0064	4100	V	19.63	3.97	-4.22	19.38	38.45		
		826.4	4132	Н	17.44	3.97	-4.22	17.18	38.45		
		926.6	4183	V	20.05	3.99	-4.24	19.81	38.45		
	Н	836.6	4183	Н	17.27	3.99	-4.24	17.03	38.45		
		846.6	4233	V	20.48	4.02	-4.24	20.26	38.45		
		840.0	4233	Н	17.02	4.02	-4.24	16.81	38.45		
				826.4	4132	V	12.47	3.97	-4.22	12.21	38.45
		820.4	4132	Н	19.78	3.97	-4.22	19.53	38.45		
HSDPA	E1	836.6	4183	V	12.81	3.99	-4.24	12.57	38.45		
Band V	ΕI	830.0	4183	Н	21.28	4.00	-4.24	21.04	38.45		
		846.6	1222	V	11.87	4.02	-4.24	11.65	38.45		
		840.0	4233	Н	20.96	4.02	-4.24	20.74	38.45		
		926.4	4122	V	12.79	3.97	-4.22	12.54	38.45		
	E2	826.4	4132	Н	12.36	3.97	-4.22	12.10	38.45		
		926.6	4102	V	13.48	4.00	-4.24	13.24	38.45		
		836.6	4183	Н	12.49	4.00	-4.24	12.26	38.45		
		946.6	4022	V	12.71	4.02	-4.24	12.49	38.45		
		846.6	4233	Н	20.62	4.02	-4.24	20.40	38.45		

Remark:

(1) The RBW, VBW of SPA for frequency RBW=5MHz, VBW=8MHz

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8. 99% OCCUPIED BANDWIDTH MEASUREMENT

8.1. Standard Applicable:

According to §FCC 2.1049.

8.2. Test Set-up:

Refer to section 6.2 in this report

8.3. 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.

8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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8.5. Measurement Result:

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	824.20	128	248.2954
GSM 850	836.60	190	245.1358
	848.80	251	247.6087

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	1850.20	512	244.9040
GSM 1900	1880.00	661	246.2748
	1909.80	810	245.7439

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	824.20	128	249.5659
GPRS 850	836.60	190	243.9426
	848.80	251	246.3183

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	1850.20	512	243.1025
GPRS 1900	1880.00	661	249.0324
	1909.80	810	246.2833

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EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
WCDMA Band V	826.40	4132	4.1604
	836.60	4183	4.1751
	846.60	4233	4.1675

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSUPA Band V	826.40	4132	4.1620
	836.60	4183	4.1810
	846.60	4233	4.1813

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSDPA Band V	826.40	4132	4.1811
	836.60	4183	4.2070
	846.60	4233	4.2077

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Figure 8-1: GSM 850 Channel Low

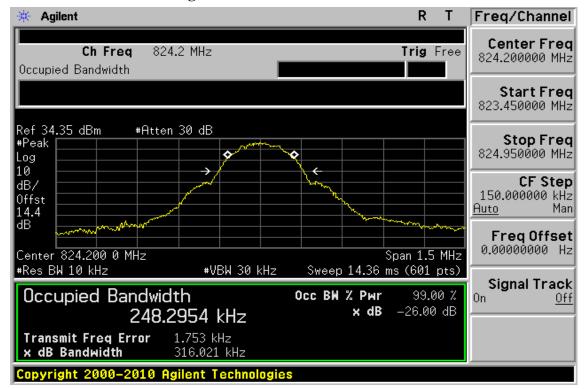
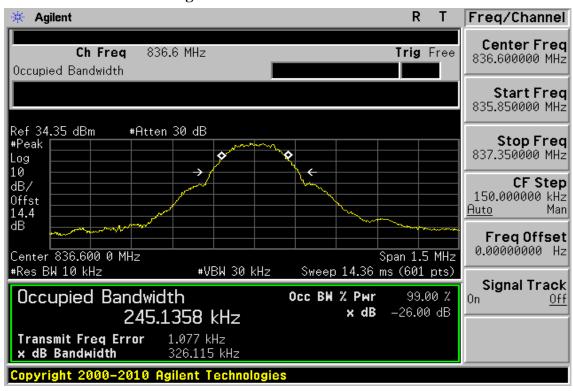


Figure 8-2 GSM 850 Channel Mid



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Figure 8-3: GSM 850 Channel High

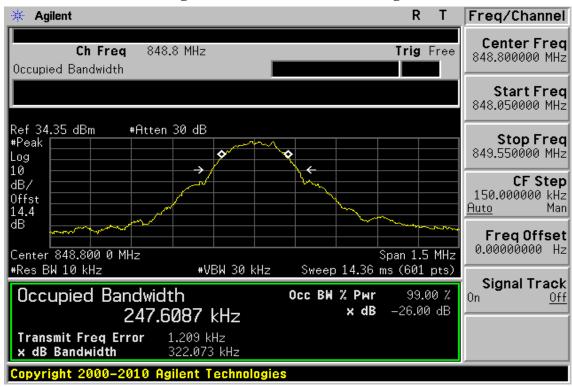
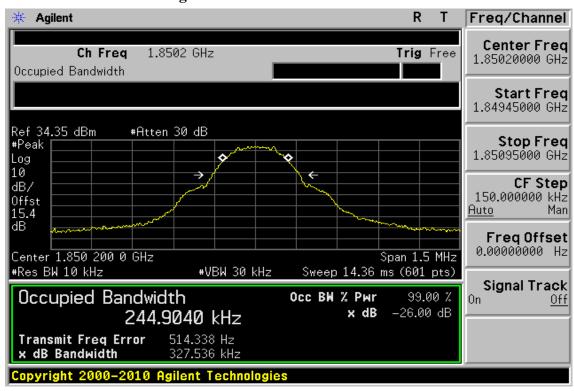


Figure 8-4: GSM 1900 Channel Low



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Figure 8-5 GSM 1900 Channel Mid

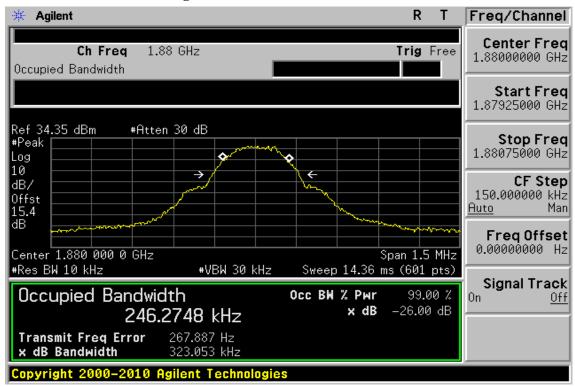
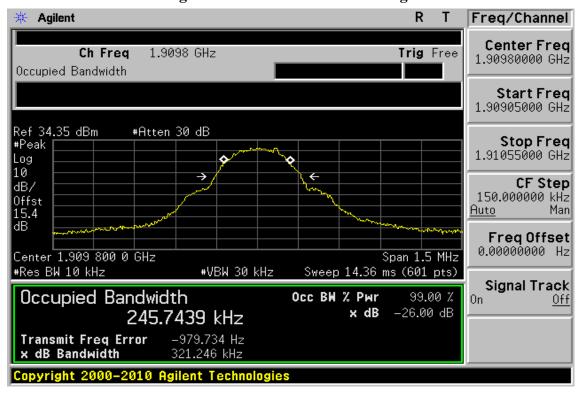


Figure 8-6: GSM 1900 Channel High



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Figure 8-7: GPRS 850 Channel Low

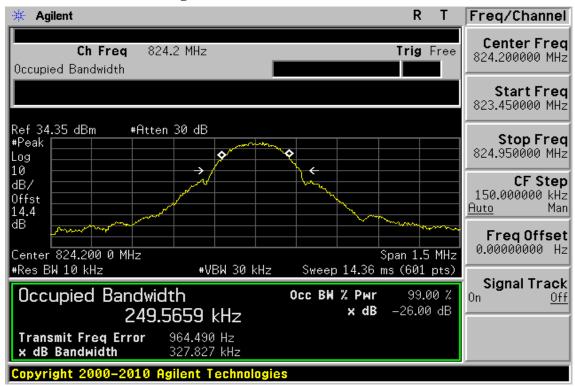
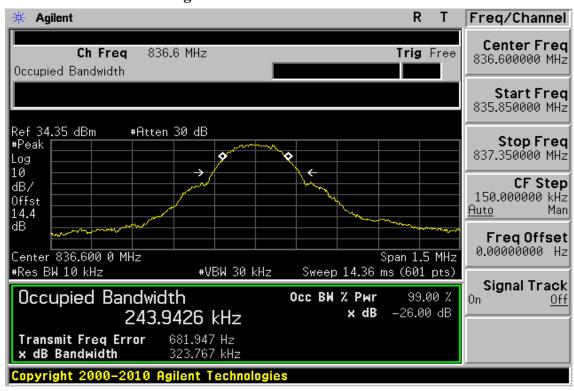


Figure 8-8 GPRS 850 Channel Mid



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Figure 8-9: GPRS 850 Channel High

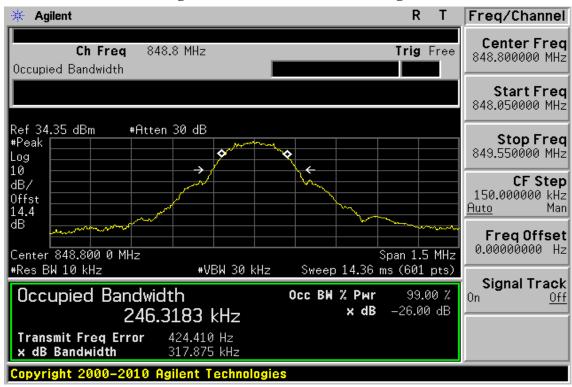
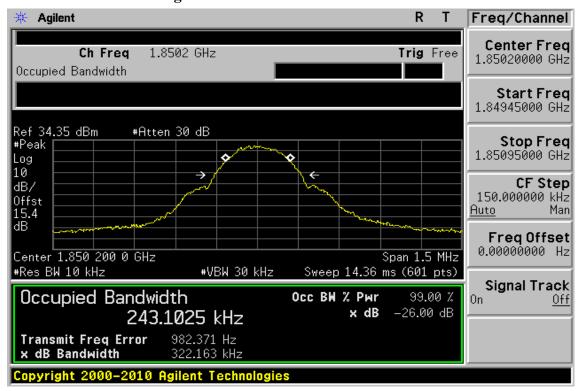


Figure 8-10: GPRS 1900 Channel Low



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Figure 8-11: GPRS 1900 Channel Mid

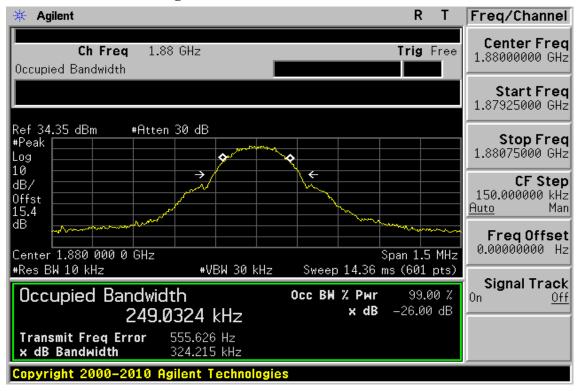
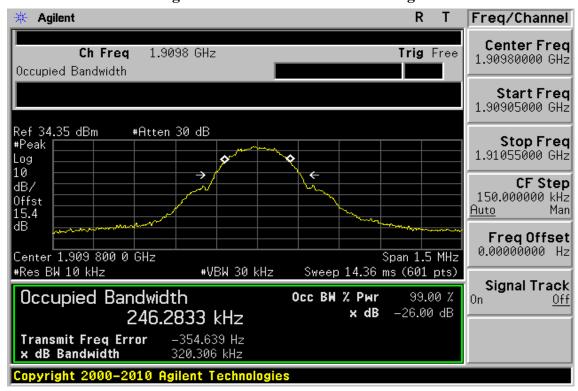


Figure 8-12: GPRS 1900 Channel High



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Figure 8-13: WCDMA Band V Channel Low

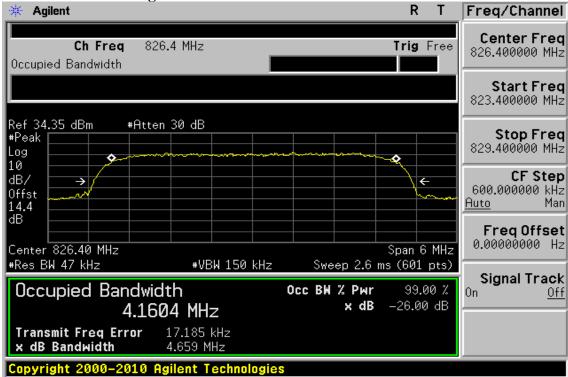
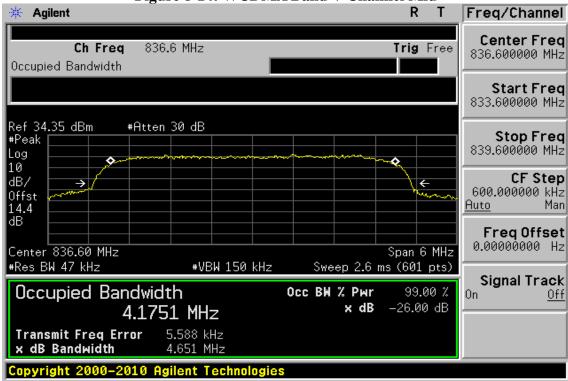


Figure 8-14: WCDMA Band V Channel Mid



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Figure 8-15: WCDMA Band V Channel High

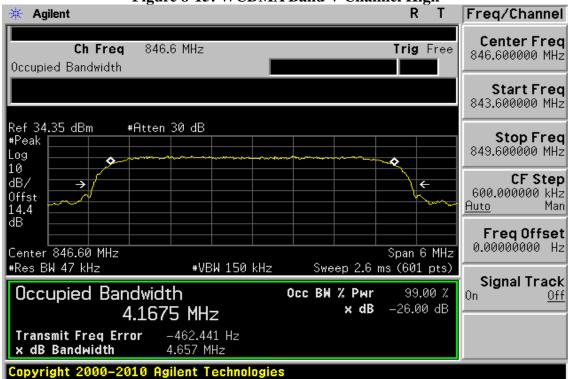
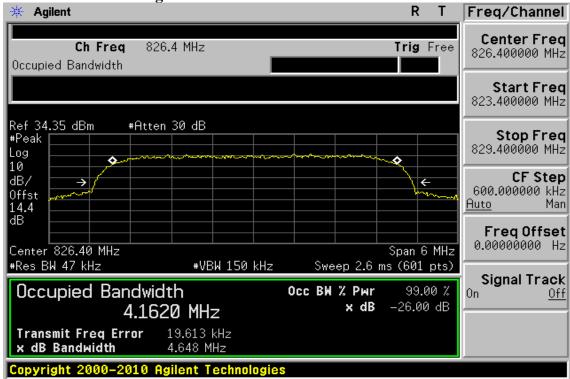


Figure 8-16: HSUPA Band V Channel Low



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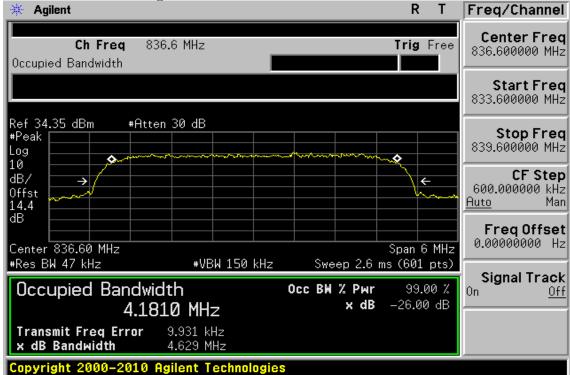
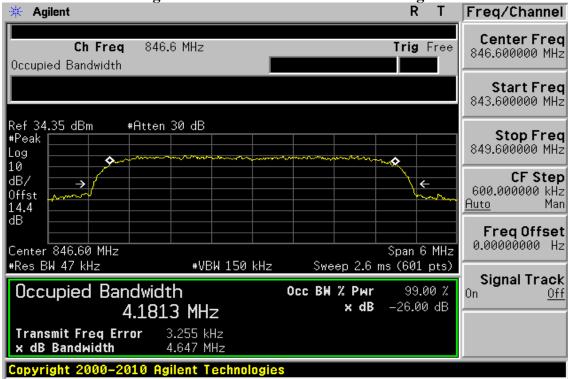


Figure 8-18: HSUPA Band V Channel High



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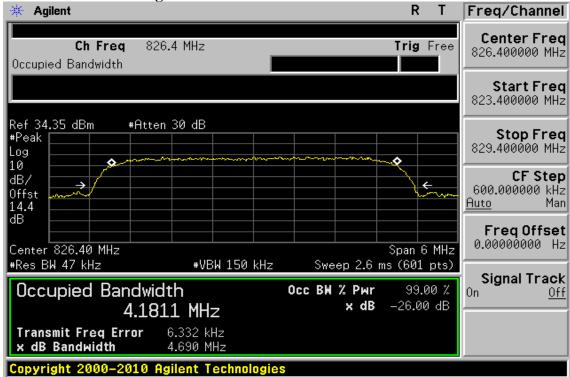
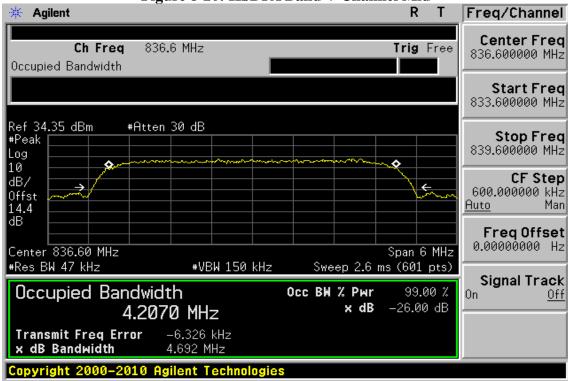


Figure 8-20: HSDPA Band V Channel Mid



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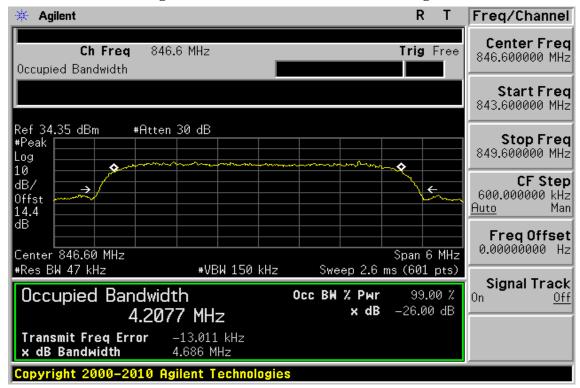
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Figure 8-21: HSDPA Band V Channel High



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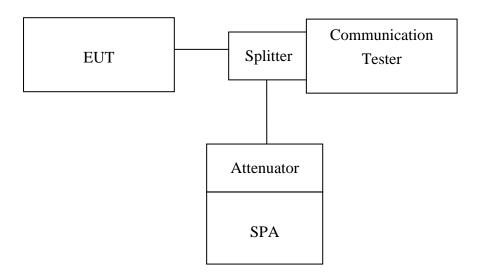
9. OUT OF BAND EMISSION AT ANTENNA TERMINALS

9.1. Standard Applicable:

According to FCC §2.1051.

FCC $\S22.917(a)$, $\S24.238(a)$ 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. Test **SET-UP**:



Note: Measurement setup for testing on Antenna connector

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9.3. 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= 10th 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.

Conducted Emission:

- To connect Antenna Port of EUT to Spectrum.
- 2. Set RBW = 100K & VBW = 100K on Spectrum.
- Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 3G, 3. 3G to 8G, 8G to 13G, 13G to 18G and 18G to 26.5GHz
- Via Software, combine 5 spans of frequency range into one plot 4.

9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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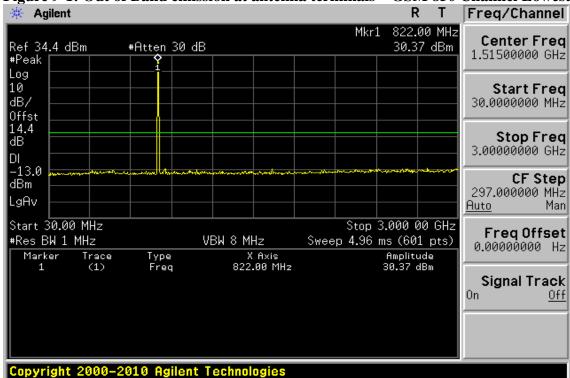


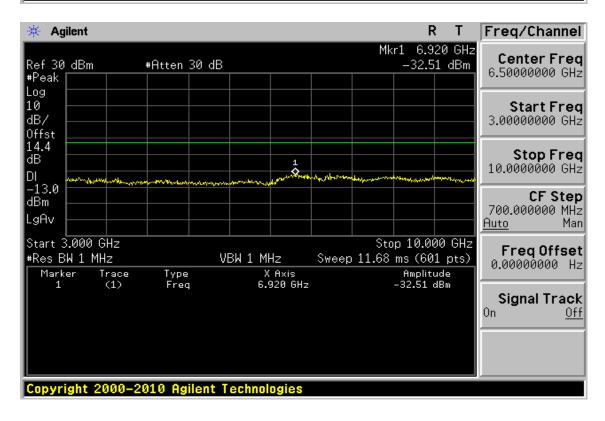
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9.5. Measurement Result:

Figure 9-1: Out of Band emission at antenna terminals – GSM 850 Channel Lowest





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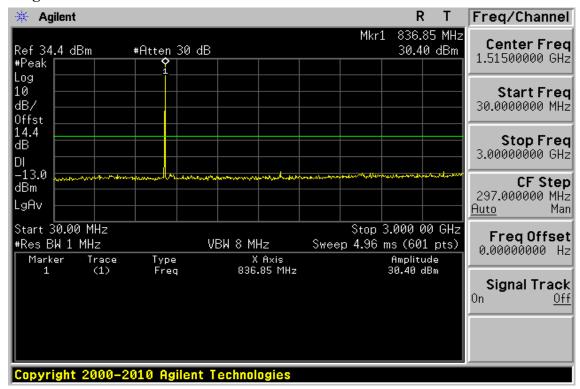
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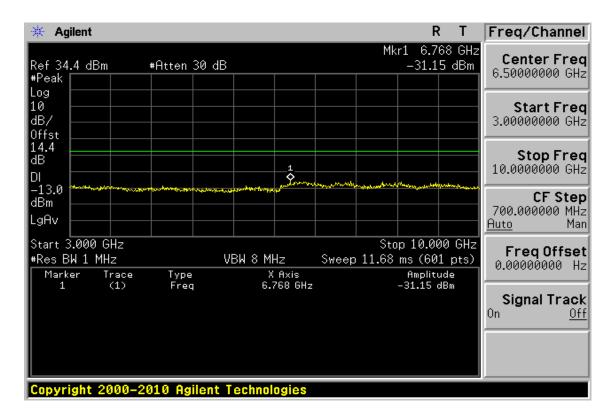


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Figure 9-2: Out of Band emission at antenna terminals – GSM 850 Channel Mid





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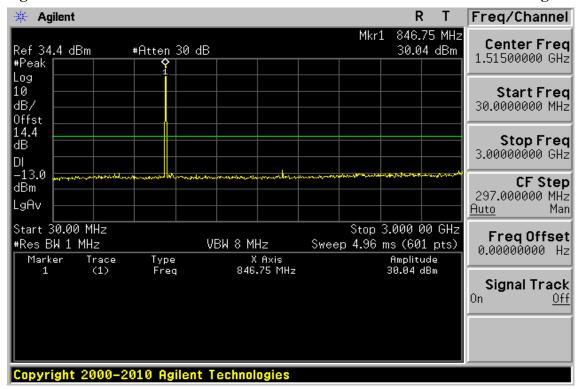
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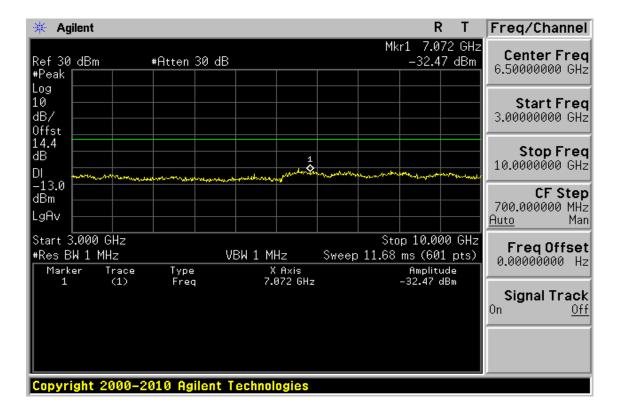


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Figure 9-3: Out of Band emission at antenna terminals – GSM 850 Channel Highest





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Figure 9-4: Band edge emission at antenna terminals – GSM 850 Channel Lowest

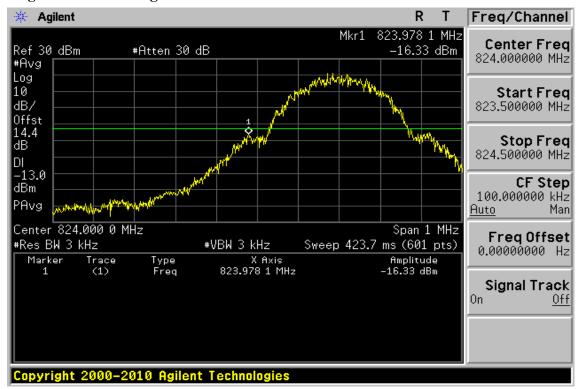
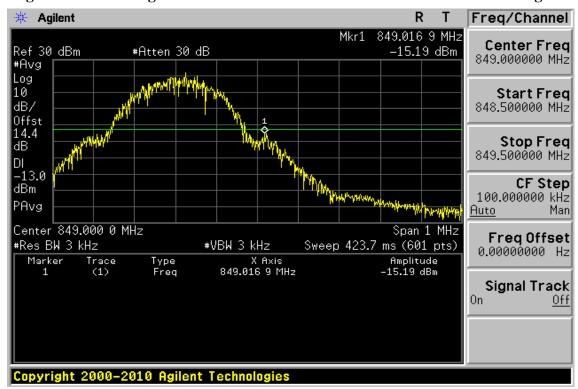


Figure 9-5: Band edge emission at antenna terminals – GSM 850 Channel Highest



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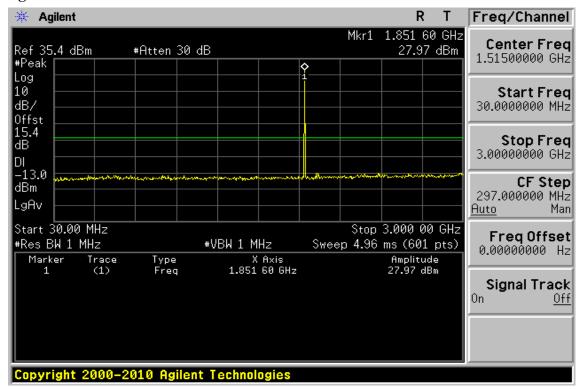
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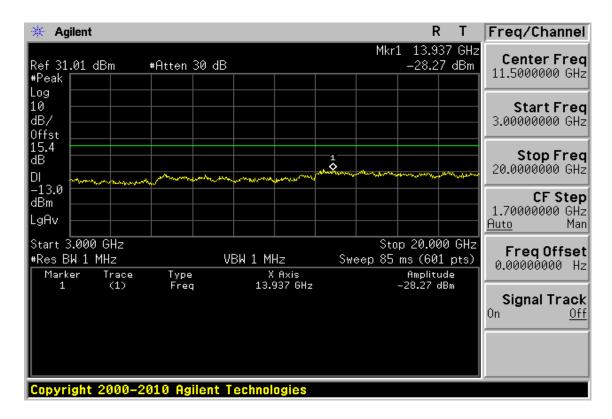


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Figure 9-6: Out of Band emission at antenna terminals – GSM 1900 Channel Lowest





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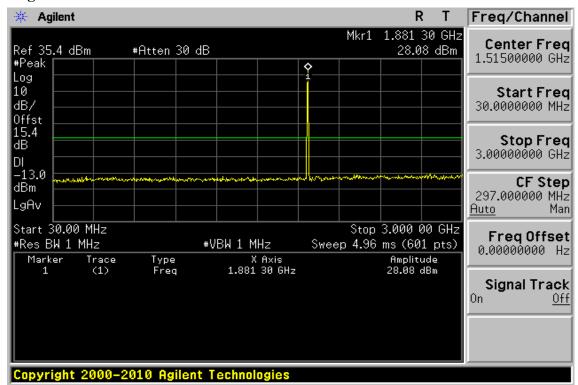
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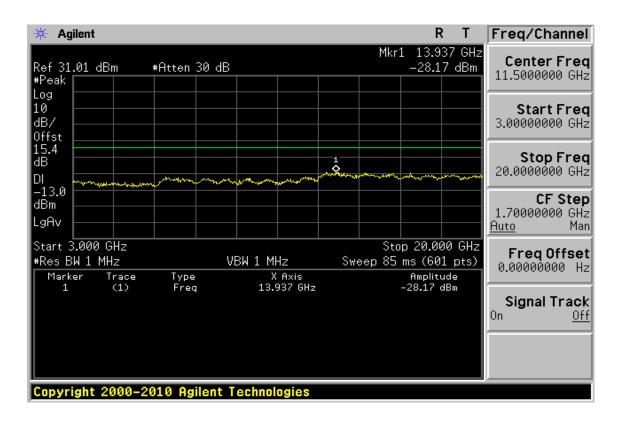


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Figure 9-7: Out of Band emission at antenna terminals – GSM 1900 Channel Mid





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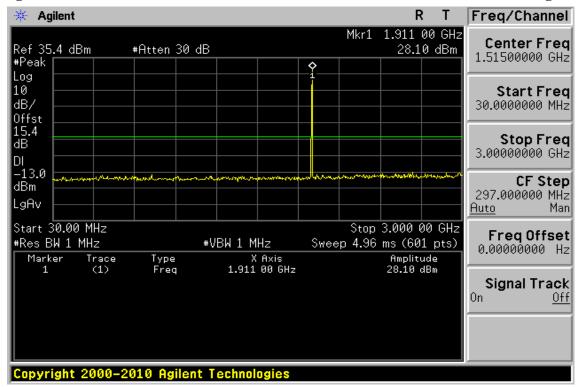
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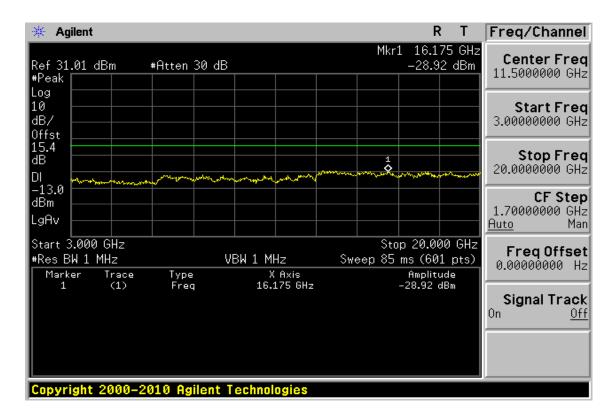


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Figure 9-8: Out of Band emission at antenna terminals – GSM 1900 Channel Highest





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Figure 9-9: Band edge emission at antenna terminals – GSM 1900 Channel Lowest

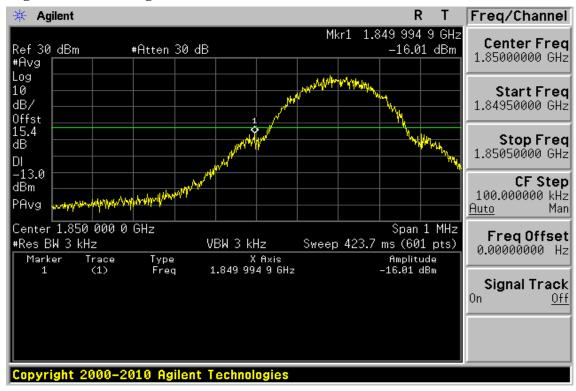
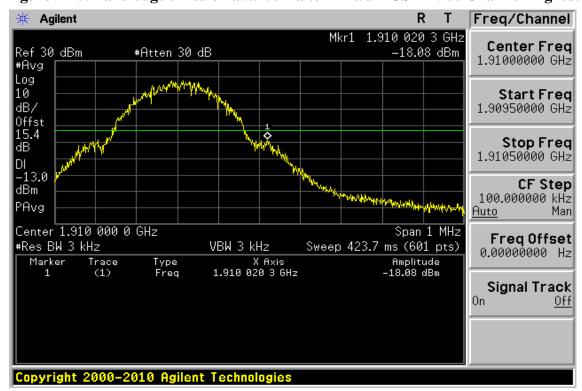


Figure 9-10: Band edge emission at antenna terminals – GSM 1900 Channel Highest



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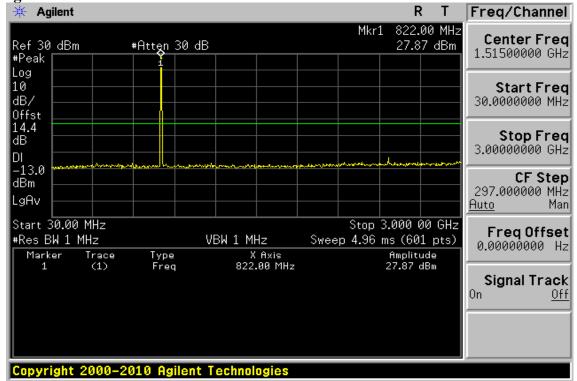
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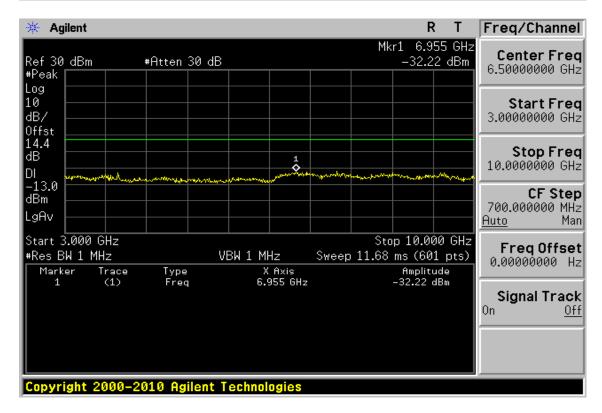


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Figure 9-11: Out of Band emission at antenna terminals – GPRS 850 Channel Lowest





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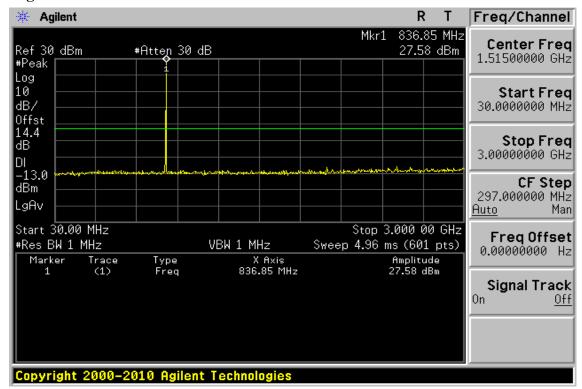
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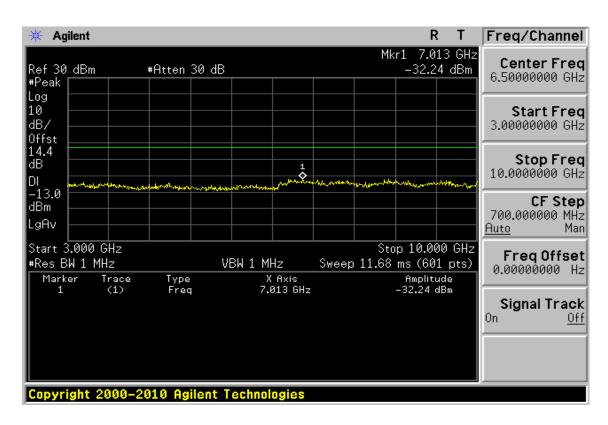


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Figure 9-12: Out of Band emission at antenna terminals – GPRS 850 Channel Mid





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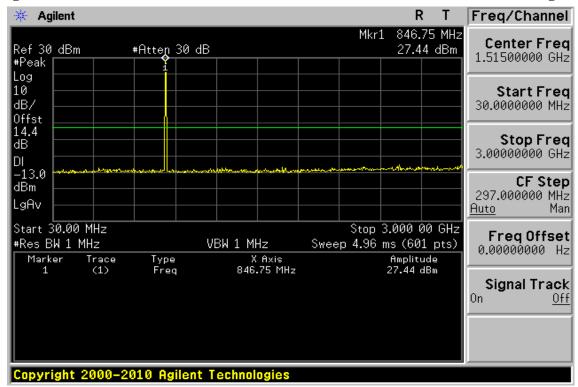
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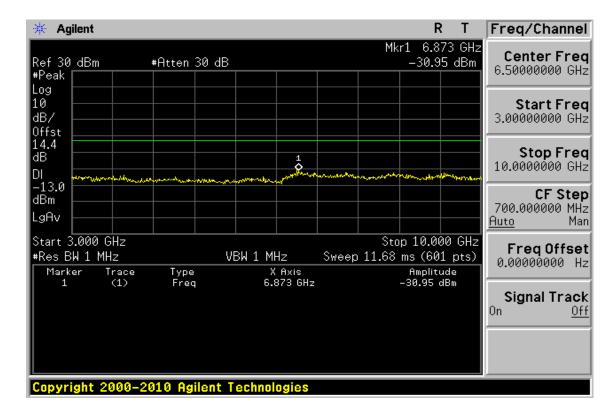


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Figure 9-13: Out of Band emission at antenna terminals – GPRS 850 Channel Highest





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Figure 9-14: Band edge emission at antenna terminals – GPRS 850 Channel Lowest

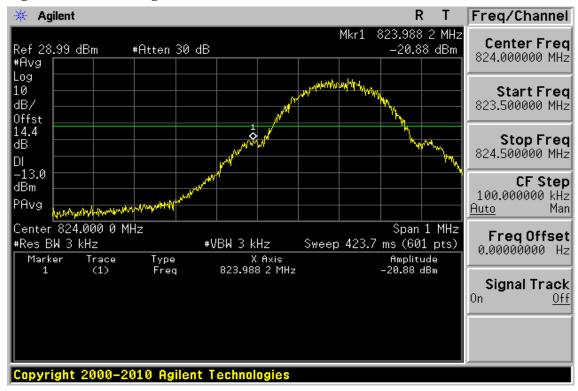
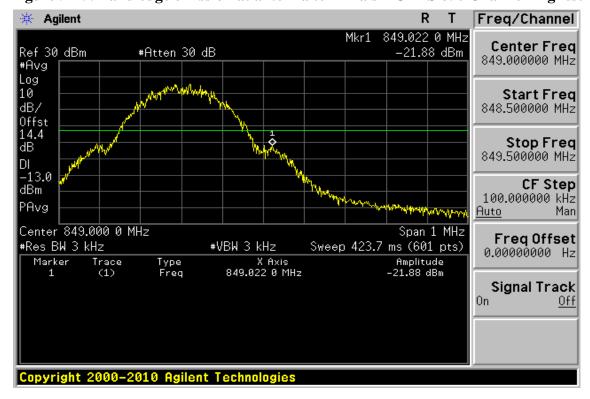


Figure 9-15: Band edge emission at antenna terminals – GPRS 850 Channel Highest



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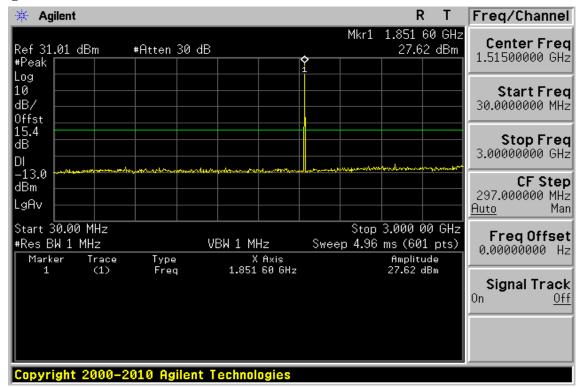
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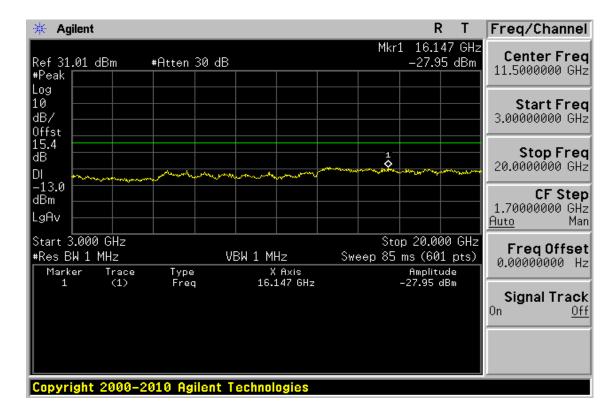


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Figure 9-16: Out of Band emission at antenna terminals – GPRS 1900 Channel Lowest





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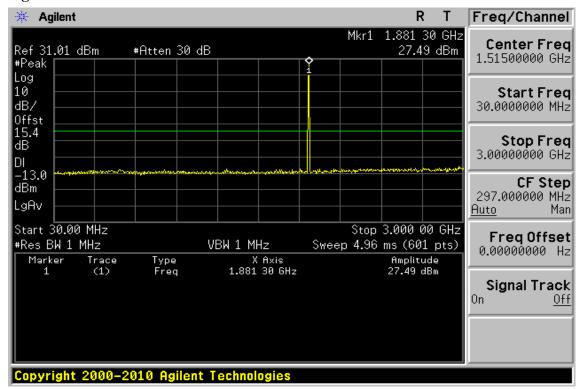
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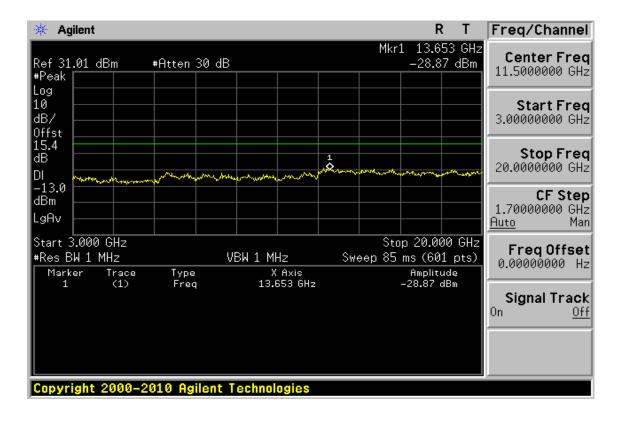


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Figure 9-17: Out of Band emission at antenna terminals – GPRS 1900 Channel Mid





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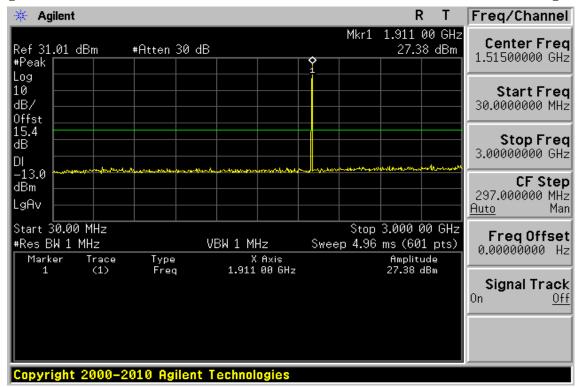
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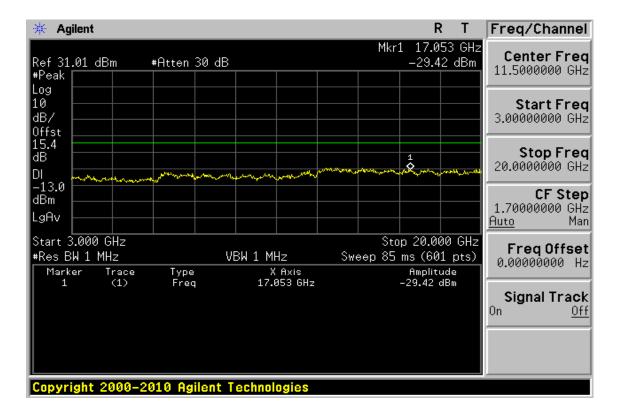


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Figure 9-18: Out of Band emission at antenna terminals – GPRS 1900 Channel Highest





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Figure 9-19: Band edge emission at antenna terminals – GPRS 1900 Channel Lowest

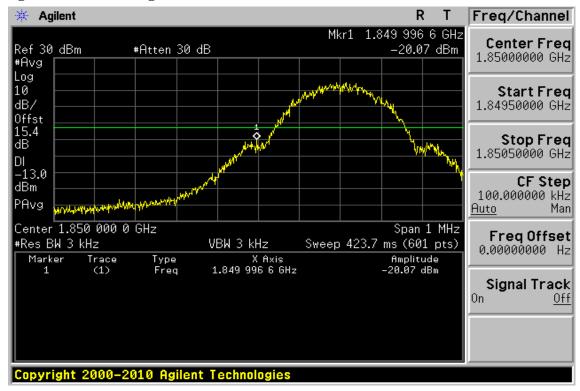
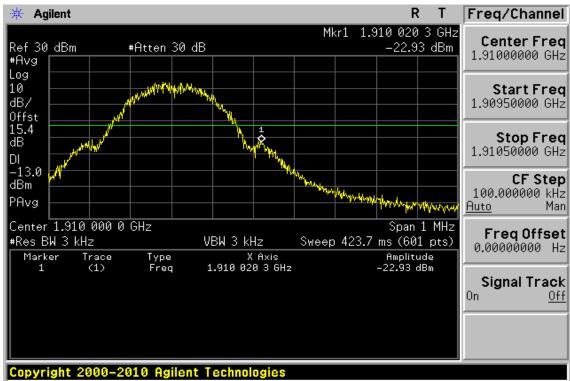


Figure 9-20: Band edge emission at antenna terminals – GPRS 1900 Channel Highest



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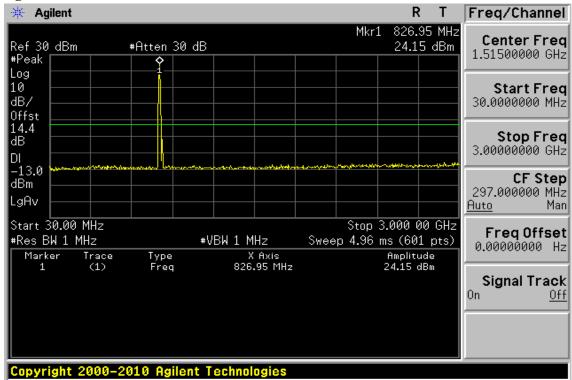
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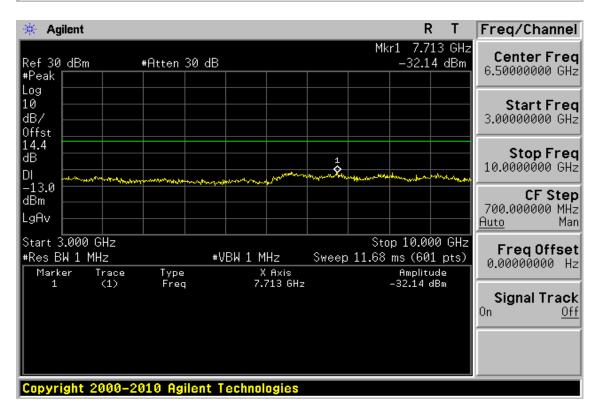


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Figure 9-21: Out of Band emission at antenna terminals—WCDMA V Channel Lowest





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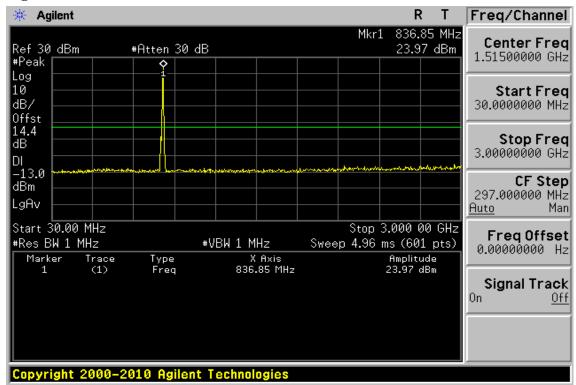
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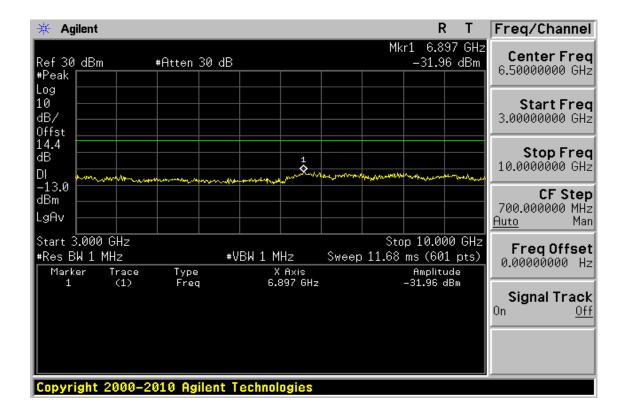


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Figure 9-22: Out of Band emission at antenna terminals –WCDMA V Channel Mid





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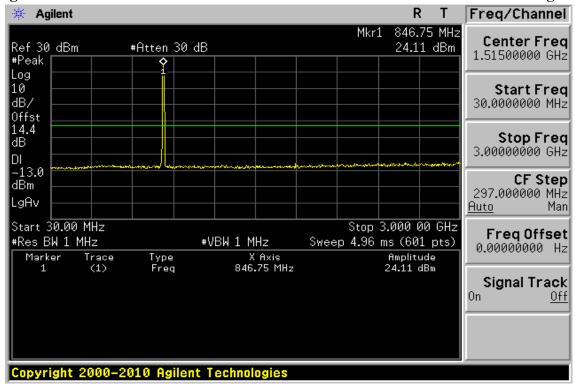
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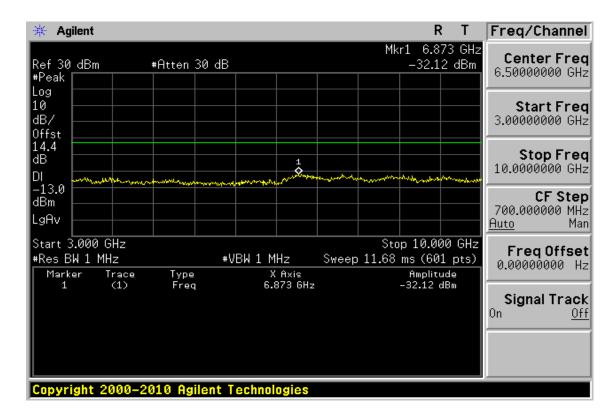


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Figure 9-23: Out of Band emission at antenna terminals-WCDMA V Channel Highest





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Figure 9-24: Band edge emission at antenna terminals –WCDMA V Channel Lowest

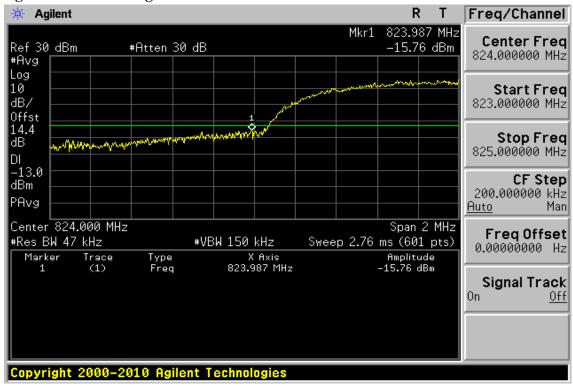
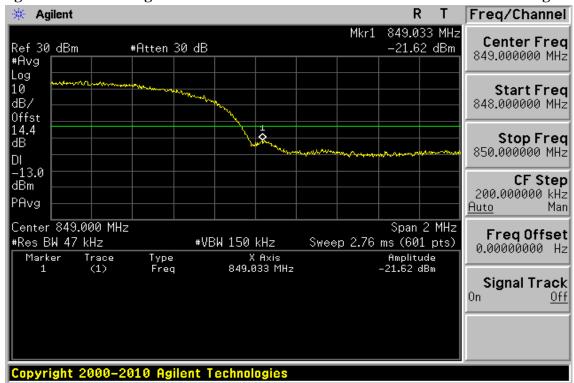


Figure 9-25: Band edge emission at antenna terminals –WCDMA V Channel Highest



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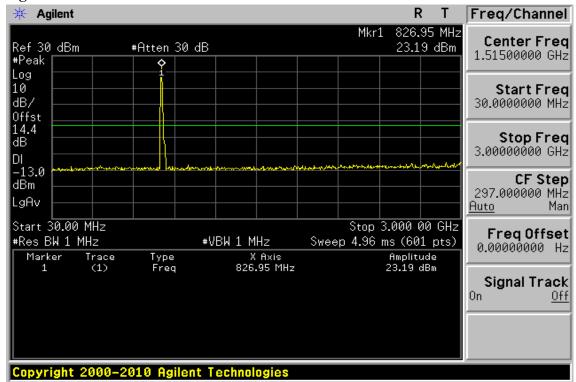
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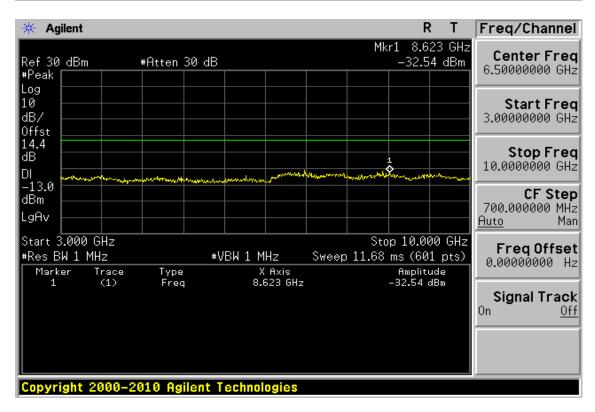


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Figure 9-26: Out of Band emission at antenna terminals-HSUPA V Channel Lowest





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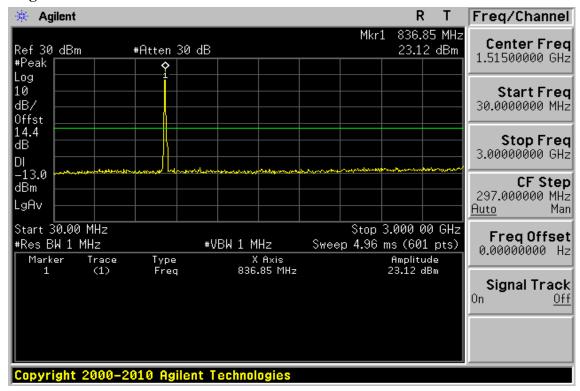
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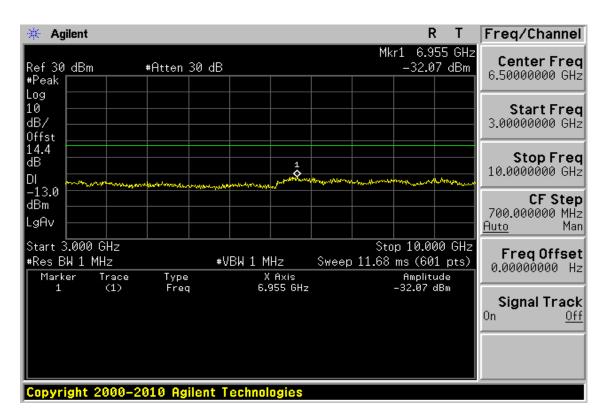


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Figure 9-27: Out of Band emission at antenna terminals –HSUPA V Channel Mid





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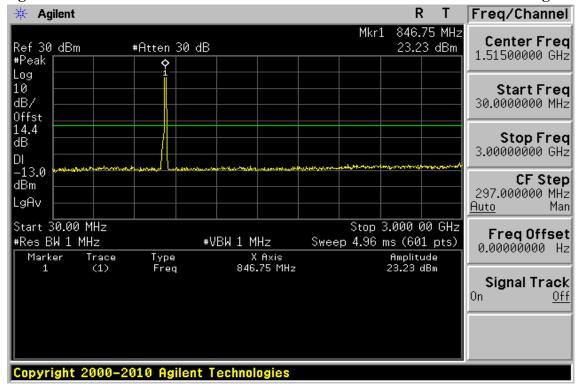
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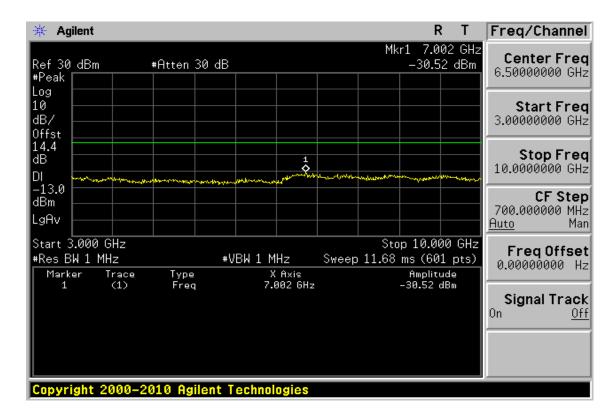


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Figure 9-28: Out of Band emission at antenna terminals-HSUPA V Channel Highest





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Figure 9-29: Band edge emission at antenna terminals –HSUPA V Channel Lowest

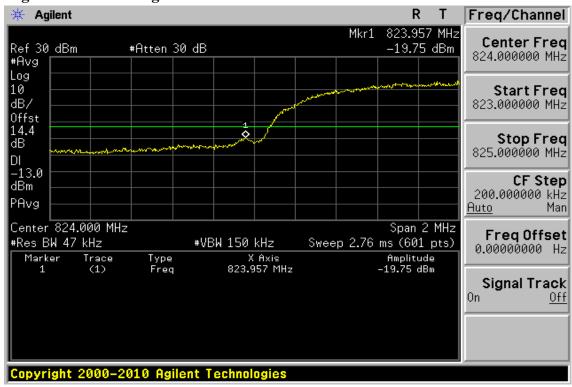
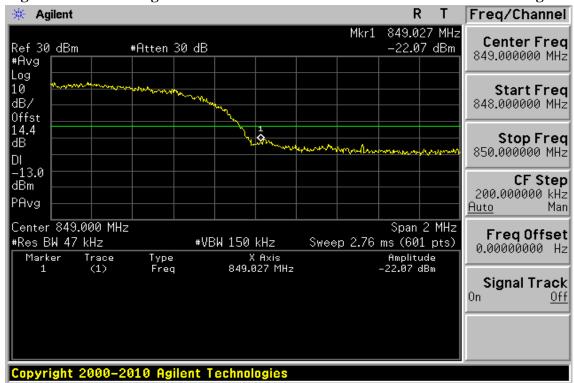


Figure 9-30: Band edge emission at antenna terminals –HSUPA V Channel Highest



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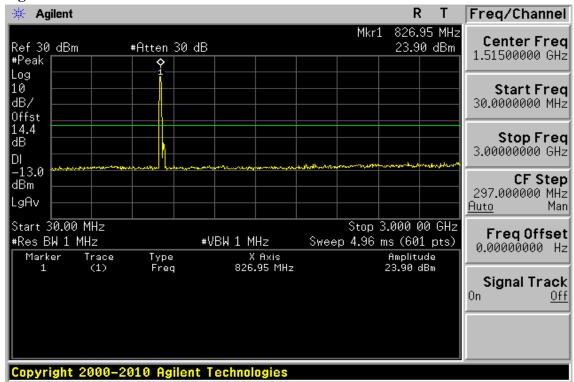
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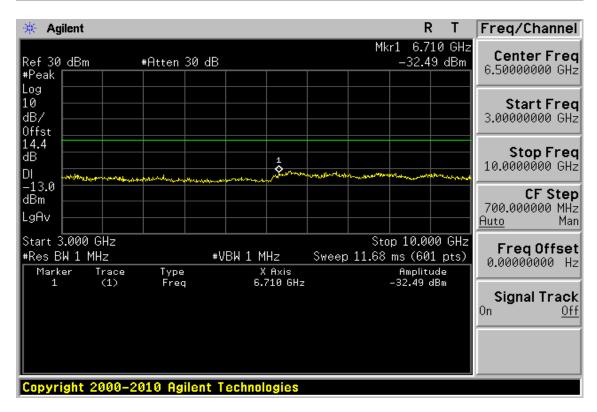


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Figure 9-31: Out of Band emission at antenna terminals-HSDPA V Channel Lowest





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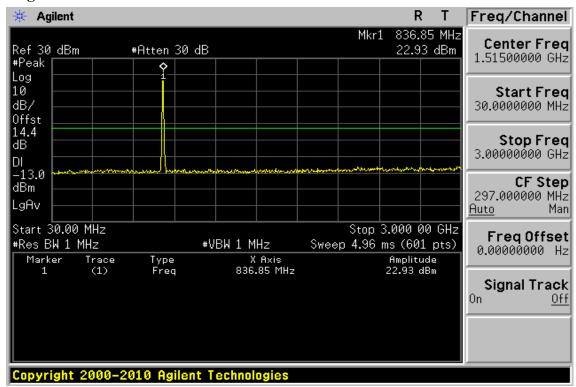
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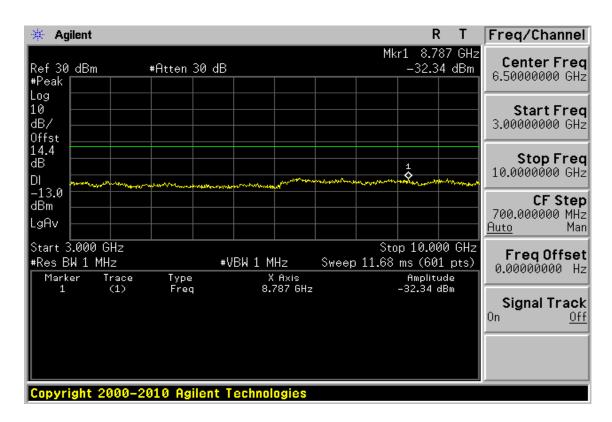


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Figure 9-32: Out of Band emission at antenna terminals –HSDPA V Channel Mid





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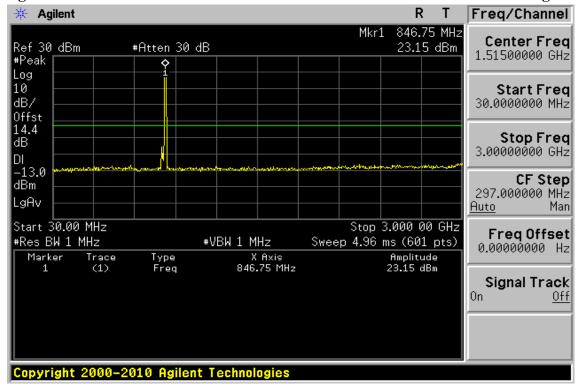
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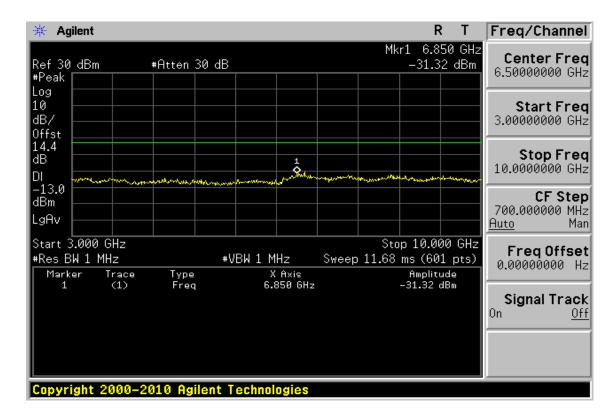


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Figure 9-33: Out of Band emission at antenna terminals-HSDPA V Channel Highest





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Figure 9-34: Band edge emission at antenna terminals –HSDPA V Channel Lowest

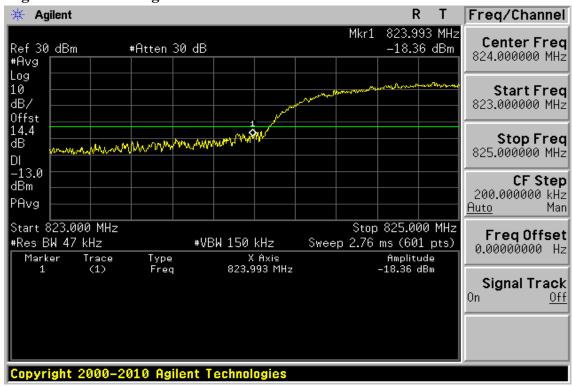
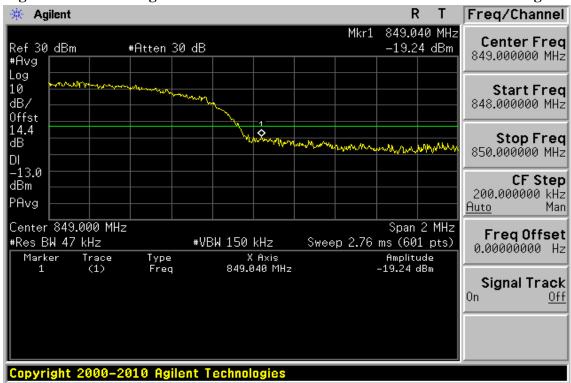


Figure 9-35: Band edge emission at antenna terminals –HSDPA V Channel Highest



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10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT (TX)

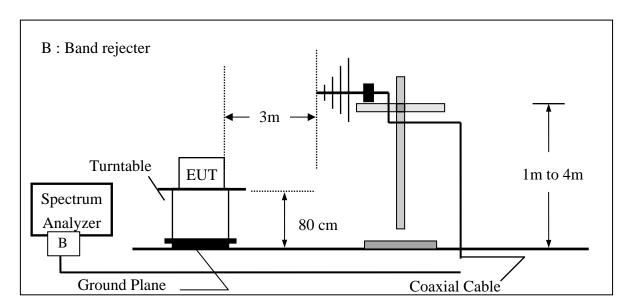
10.1. Standard Applicable:

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)

10.2. EUT Setup (Block Diagram of Configuration):

Radiated Emission Test Set-Up, Frequency Below 1000MHz



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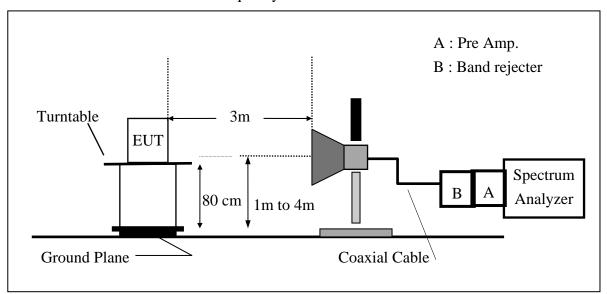
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Radiated Emission Test Set-UP Frequency Over 1 GHz



10.3. 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 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.

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

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

10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

10.5. Measurement Result:

Refer to attach tabular data sheets.

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Radiated Spurious Emission Measurement Result: GSM 850 Mode

Operation Band :GSM 850 **Test Date** :2012-06-15

ARFCN :CH 128 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency: 824.2 MHz Engineer :Jimmy

Operation Mode :TX

EUT Pol. :H Plan Measurement Antenna Pol. : VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
40.67	S	-74.54	-58.51	-13.29	-2.73	-13.00	-61.54
143.49	S	-85.73	-81.68	-1.26	-2.79	-13.00	-72.73
255.04	S	-85.11	-86.47	4.63	-3.27	-13.00	-72.11
393.75	S	-83.83	-85.01	4.74	-3.56	-13.00	-70.83
589.69	S	-79.58	-79.83	4.14	-3.90	-13.00	-66.58
619.76	S	-78.66	-78.75	4.07	-3.97	-13.00	-65.66
1648.40	Н	-42.56	-39.60	2.39	-5.36	-13.00	-29.56
2472.60	Н	-44.45	-41.44	3.14	-6.15	-13.00	-31.45
3296.80	Н						
4121.00	Н						
4945.20	Н						
5769.40	Н						
6593.60	Н						
7417.80	Н						
8242.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 850 Test Date :2012-06-15

ARFCN :CH 128 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency: 824.2 MHz Engineer: :Jimmy

Operation Mode :TX

EUT Pol. :H Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
61.04	S	-87.54	-76.93	-8.02	-2.59	-13.00	-74.54
139.61	S	-89.18	-85.08	-1.32	-2.79	-13.00	-76.18
286.08	S	-86.64	-87.92	4.50	-3.22	-13.00	-73.64
364.65	S	-84.51	-85.77	4.68	-3.43	-13.00	-71.51
561.56	S	-82.91	-83.48	4.45	-3.87	-13.00	-69.91
699.30	S	-81.31	-81.39	4.15	-4.07	-13.00	-68.31
1648.40	Н	-44.78	-42.10	2.68	-5.36	-13.00	-31.78
2472.60	Н	-44.13	-41.50	3.52	-6.15	-13.00	-31.13
3296.80	Н						
4121.00	Н						
4945.20	Н						
5769.40	Н						
6593.60	Н						
7417.80	Н						
8242.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 850 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 190 :25 deg_C / 62 RH

Fundamental Frequency: 836.6 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :VERTICAL EUT Pol. :H Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
46.49	S	-74.57	-59.85	-11.99	-2.73	-13.00	-61.57
182.29	S	-85.53	-85.31	2.72	-2.93	-13.00	-72.53
233.70	S	-84.47	-85.84	4.53	-3.17	-13.00	-71.47
363.68	S	-83.83	-85.09	4.69	-3.43	-13.00	-70.83
588.72	S	-79.94	-80.19	4.15	-3.90	-13.00	-66.94
700.27	S	-79.14	-79.22	4.15	-4.07	-13.00	-66.14
1673.20	Н	-48.26	-45.25	2.33	-5.34	-13.00	-35.26
2509.80	Н	-44.43	-41.50	3.19	-6.13	-13.00	-31.43
3346.40	Н						
4183.00	Н						
5019.60	Н						
5856.20	Н						
6692.80	Н						
7529.40	Н						
8366.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 850 Test Date :2012-06-15

ARFCN :CH 190 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency: 836.6 MHz Engineer: :Jimmy

Operation Mode :TX

EUT Pol. :H Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
59.10	S	-87.01	-75.90	-8.52	-2.59	-13.00	-74.01
141.55	S	-88.50	-84.41	-1.30	-2.79	-13.00	-75.50
286.08	S	-86.65	-87.92	4.50	-3.22	-13.00	-73.65
371.44	S	-84.30	-85.51	4.63	-3.43	-13.00	-71.30
522.76	S	-82.76	-83.68	4.65	-3.74	-13.00	-69.76
674.08	S	-81.43	-81.47	4.13	-4.10	-13.00	-68.43
1673.20	Н	-49.26	-46.58	2.66	-5.34	-13.00	-36.26
2509.80	Н	-45.18	-42.61	3.55	-6.13	-13.00	-32.18
3346.40	Н						
4183.00	Н						
5019.60	Н						
5856.20	Н						
6692.80	Н						
7529.40	Н						
8366.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 850 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 251 :25 deg_C / 62 RH

Fundamental Frequency: 848.8 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :VERTICAL EUT Pol. :H Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
47.46	S	-74.60	-60.18	-11.69	-2.73	-13.00	-61.60
191.02	S	-85.65	-86.32	3.76	-3.09	-13.00	-72.65
294.81	S	-83.96	-85.31	4.61	-3.25	-13.00	-70.96
363.68	S	-83.26	-84.52	4.69	-3.43	-13.00	-70.26
582.90	S	-79.57	-79.89	4.21	-3.90	-13.00	-66.57
615.88	S	-77.85	-77.93	4.06	-3.97	-13.00	-64.85
1697.60	Н	-47.06	-43.94	2.29	-5.40	-13.00	-34.06
2546.40	Н	-43.35	-40.42	3.30	-6.24	-13.00	-30.35
3395.20	Н						
4244.00	Н						
5092.80	Н						
5941.60	Н						
6790.40	Н						
7639.20	Н						
8488.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 850 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 251 :25 deg_C / 62 RH

Fundamental Frequency: 848.8 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :H Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
45.52	S	-87.26	-72.22	-12.30	-2.73	-13.00	-74.26
137.67	S	-88.31	-84.33	-1.20	-2.79	-13.00	-75.31
227.88	S	-84.96	-86.46	4.67	-3.17	-13.00	-71.96
363.68	S	-82.50	-83.76	4.69	-3.43	-13.00	-69.50
583.87	S	-83.03	-83.34	4.20	-3.90	-13.00	-70.03
699.30	S	-81.03	-81.11	4.15	-4.07	-13.00	-68.03
1697.60	Н	-48.61	-45.86	2.65	-5.40	-13.00	-35.61
2546.40	Н	-46.39	-43.82	3.66	-6.24	-13.00	-33.39
3395.20	Н						
4244.00	Н						
5092.80	Н						
5941.60	Н						
6790.40	Н						
7639.20	Н						
8488.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Radiated Spurious Emission Measurement Result: GSM 1900 Mode

Operation Band :GSM 1900 Test Date :2012-06-15

ARFCN :CH 512 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency :1850.2 MHz Engineer :Jimmy

Operation Mode :TX

EUT Pol. :E1 Plan Measurement Antenna Pol. : VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
41.64	S	-69.50	-55.82	-10.95	-2.73	-13.00	-56.50
143.49	S	-83.92	-82.02	0.89	-2.79	-13.00	-70.92
287.05	S	-82.27	-85.71	6.66	-3.22	-13.00	-69.27
310.33	S	-82.35	-85.75	6.80	-3.39	-13.00	-69.35
571.26	S	-77.59	-80.20	6.49	-3.87	-13.00	-64.59
681.84	S	-76.30	-78.50	6.29	-4.10	-13.00	-63.30
3700.40	Н	-47.82	-48.24	7.40	-6.98	-13.00	-34.82
5550.60	Н	(M1)	(AX)	(PB)	(CL)	(LM)	(OV)
7400.80	Н						
9251.00	Н						
11101.20	Н						
12951.40	Н						
14801.60	Н						
16651.80	Н						
18502.00	Н						

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 1900 Test Date :2012-06-15

ARFCN :CH 512 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency: 1850.2 MHz Engineer :Jimmy

Operation Mode :TX

EUT Pol. :E1 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
61.04	S	-85.41	-76.95	-5.87	-2.59	-13.00	-72.41
182.29	S	-79.24	-81.18	4.87	-2.93	-13.00	-66.24
216.24	S	-84.77	-88.62	6.99	-3.14	-13.00	-71.77
385.99	S	-83.06	-86.34	6.84	-3.56	-13.00	-70.06
578.05	S	-80.94	-83.48	6.42	-3.87	-13.00	-67.94
682.81	S	-78.73	-80.92	6.29	-4.10	-13.00	-65.73
3700.40	Н	-53.21	-53.15	6.92	-6.98	-13.00	-40.21
5550.60	Н	(M1)	(AX)	(PB)	(CL)	(LM)	(OV)
7400.80	Н						
9251.00	Н						
11101.20	Н						
12951.40	Н						
14801.60	Н						
16651.80	Н						
18502.00	Н						

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 1900 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 661 :25 deg_C / 62 RH

Fundamental Frequency: 1880.0 MHz Engineer :Jimmy

:TX Operation Mode

Measurement Antenna Pol. :VERTICAL EUT Pol. :E1 Plan

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
41.64	S	-72.19	-58.51	-10.95	-2.73	-13.00	-59.19
196.84	S	-80.92	-84.38	6.54	-3.09	-13.00	-67.92
284.14	S	-82.62	-86.03	6.62	-3.22	-13.00	-69.62
363.68	S	-82.43	-85.85	6.84	-3.43	-13.00	-69.43
588.72	S	-78.02	-80.42	6.30	-3.90	-13.00	-65.02
700.27	S	-77.11	-79.34	6.30	-4.07	-13.00	-64.11
3762.50	S	-40.24	-40.54	7.42	-7.12	-13.00	-27.24
3760.00	Н	-44.16	-44.91	9.01	-8.26	-13.00	-31.16
5640.00	Н						
7520.00	Н						
9400.00	Н						
11280.00	Н						
13160.00	Н						
15040.00	Н						
16920.00	Н						
18800.00	Н						

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 1900 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 661 :25 deg_C / 62 RH

Fundamental Frequency: 1880.0 MHz Engineer :Jimmy

:TX Operation Mode

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E1 Plan

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
59.10	S	-84.99	-76.03	-6.37	-2.59	-13.00	-71.99
182.29	S	-86.67	-88.61	4.87	-2.93	-13.00	-73.67
286.08	S	-84.22	-87.65	6.65	-3.22	-13.00	-71.22
368.53	S	-82.65	-86.03	6.81	-3.43	-13.00	-69.65
511.12	S	-80.42	-83.52	6.84	-3.74	-13.00	-67.42
694.45	S	-78.65	-80.88	6.30	-4.07	-13.00	-65.65
3762.50	S	-47.88	-47.62	6.85	-7.12	-13.00	-34.88
3760.00	Н	-47.34	-47.38	8.30	-8.26	-13.00	-34.34
5640.00	Н						
7520.00	Н						
9400.00	Н						
11280.00	Н						
13160.00	Н						
15040.00	Н						
16920.00	Н						
18800.00	Н						

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 1900 Test Date :2012-06-15

ARFCN :CH 810 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency :1909.8 MHz Engineer :Jimmy

Operation Mode :TX

EUT Pol. :E1 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
41.64	S	-72.84	-59.15	-10.95	-2.73	-13.00	-59.84
143.49	S	-83.66	-81.77	0.89	-2.79	-13.00	-70.66
286.08	S	-82.57	-86.00	6.65	-3.22	-13.00	-69.57
357.86	S	-81.72	-85.17	6.88	-3.43	-13.00	-68.72
600.36	S	-77.78	-80.04	6.18	-3.92	-13.00	-64.78
626.55	S	-75.49	-77.75	6.23	-3.97	-13.00	-62.49
3819.60	Н	-42.50	-42.82	7.51	-7.20	-13.00	-29.50
5729.40	Н	-45.61	-46.20	9.03	-8.44	-13.00	-32.61
7639.20	Н						
9549.00	Н						
11458.80	Н						
13368.60	Н						
15278.40	Н						
17188.20	Н						
19098.00	Н						

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :GSM 1900 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 810 :25 deg_C / 62 RH

Fundamental Frequency: 1909.8 MHz Engineer :Jimmy

:TX Operation Mode

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E1 Plan

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
60.07	S	-85.61	-76.88	-6.13	-2.59	-13.00	-72.61
138.64	S	-86.21	-84.32	0.89	-2.79	-13.00	-73.21
286.08	S	-85.07	-88.50	6.65	-3.22	-13.00	-72.07
397.63	S	-82.81	-86.16	6.91	-3.56	-13.00	-69.81
537.31	S	-80.38	-83.37	6.76	-3.77	-13.00	-67.38
689.60	S	-78.96	-81.19	6.29	-4.07	-13.00	-65.96
3819.60	Н	-51.31	-51.16	7.05	-7.20	-13.00	-38.31
5729.40	Н						
7639.20	Н						
9549.00	Н						
11458.80	Н						
13368.60	Н						
15278.40	Н						
17188.20	Н						
19098.00	Н						

EIRP(dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Radiated Spurious Emission Measurement Result: WCDMA Band V Mode

Operation Band :WCDMA B5 Test Date :2012-06-15

ARFCN :CH 4132 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency :826.4 MHz Engineer :Jimmy

Operation Mode :TX

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
45.52	S	-74.53	-59.50	-12.30	-2.73	-13.00	-61.53
157.07	S	-85.67	-82.01	-0.72	-2.93	-13.00	-72.67
225.94	S	-84.27	-85.81	4.72	-3.17	-13.00	-71.27
351.07	S	-84.36	-85.71	4.78	-3.43	-13.00	-71.36
590.66	S	-80.09	-80.32	4.13	-3.90	-13.00	-67.09
698.33	S	-78.51	-78.60	4.15	-4.07	-13.00	-65.51
1652.80	Н	-58.28	-55.37	2.38	-5.29	-13.00	-45.28
2479.20	Н	-56.40	-53.39	3.14	-6.15	-13.00	-43.40
3305.60	Н						
4132.00	Н						
4958.40	Н						
5784.80	Н						
6611.20	Н						
7437.60	Н						
8264.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 4132 :25 deg_C / 62 RH

Fundamental Frequency: 826.4 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
60.07	S	-88.17	-77.30	-8.28	-2.59	-13.00	-75.17
135.73	S	-88.49	-84.62	-1.08	-2.79	-13.00	-75.49
226.91	S	-78.24	-79.76	4.69	-3.17	-13.00	-65.24
360.77	S	-84.54	-85.82	4.71	-3.43	-13.00	-71.54
545.07	S	-83.00	-83.74	4.59	-3.85	-13.00	-70.00
700.27	S	-81.31	-81.39	4.15	-4.07	-13.00	-68.31
1652.80	Н	-54.52	-51.84	2.68	-5.36	-13.00	-41.52
2479.20	Н	-58.52	-55.89	3.52	-6.15	-13.00	-45.52
3305.60	Н						
4132.00	Н						
4958.40	Н						
5784.80	Н						
6611.20	Н						
7437.60	Н						
8264.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 4183 :25 deg_C / 62 RH

Fundamental Frequency: 836.6 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :VERTICAL EUT Pol. :E2 Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
47.46	S	-74.86	-60.44	-11.69	-2.73	-13.00	-61.86
160.95	S	-85.76	-82.40	-0.43	-2.93	-13.00	-72.76
272.50	S	-84.70	-85.95	4.52	-3.27	-13.00	-71.70
343.31	S	-84.23	-85.53	4.75	-3.44	-13.00	-71.23
599.39	S	-79.15	-79.26	4.04	-3.92	-13.00	-66.15
599.39	S	-79.15	-79.26	4.04	-3.92	-13.00	-66.15
1673.20	Н	-57.59	-54.58	2.33	-5.34	-13.00	-44.59
2509.80	Н	-51.48	-48.54	3.19	-6.13	-13.00	-38.48
3346.40	Н						
4183.00	Н						
5019.60	Н						
5856.20	Н						
6692.80	Н						
7529.40	Н						
8366.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 4183 :25 deg_C / 62 RH

Fundamental Frequency: 836.6 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
62.01	S	-87.92	-77.57	-7.76	-2.59	-13.00	-74.92
135.73	S	-88.85	-84.98	-1.08	-2.79	-13.00	-75.85
286.08	S	-86.50	-87.78	4.50	-3.22	-13.00	-73.50
395.69	S	-84.78	-85.97	4.75	-3.56	-13.00	-71.78
553.80	S	-82.77	-83.45	4.54	-3.85	-13.00	-69.77
697.36	S	-81.02	-81.10	4.15	-4.07	-13.00	-68.02
1673.20	Н	-58.58	-55.90	2.66	-5.34	-13.00	-45.58
2509.80	Н	-57.47	-54.91	3.57	-6.13	-13.00	-44.47
3346.40	Н						
4183.00	Н						
5019.60	Н						
5856.20	Н						
6692.80	Н						
7529.40	Н						
8366.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :2012-06-15

ARFCN :CH 4233 Temp./Humi. :25 deg_C / 62 RH

Fundamental Frequency: 846.6 MHz Engineer :Jimmy

Operation Mode :TX

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
30.00	S	-76.60	-59.76	-14.37	-2.47	-13.00	-63.60
198.78	S	-86.46	-87.97	4.60	-3.09	-13.00	-73.46
286.08	S	-84.54	-85.81	4.50	-3.22	-13.00	-71.54
377.26	S	-84.46	-85.66	4.63	-3.43	-13.00	-71.46
580.96	S	-79.26	-79.59	4.23	-3.90	-13.00	-66.26
631.40	S	-78.86	-78.97	4.09	-3.97	-13.00	-65.86
1693.20	Н	-61.39	-58.27	2.29	-5.40	-13.00	-48.39
2539.80	Н	-56.66	-53.76	3.26	-6.17	-13.00	-43.66
3386.40	Н						
4233.00	Н						
5079.60	Н						
5926.20	Н						
6772.80	Н						
7619.40	Н						
8466.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note: "F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :2012-06-15

Temp./Humi. **ARFCN** :CH 4233 :25 deg_C / 62 RH

Fundamental Frequency :846.6 MHz Engineer :Jimmy

Operation Mode :TX

Measurement Antenna Pol. :HORIZONTAL EUT Pol. :E2 Plan

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
63.95	S	-87.20	-77.34	-7.26	-2.59	-13.00	-74.20
139.61	S	-86.32	-82.21	-1.32	-2.79	-13.00	-73.32
221.09	S	-85.60	-87.26	4.83	-3.17	-13.00	-72.60
385.99	S	-84.44	-85.57	4.69	-3.56	-13.00	-71.44
590.66	S	-82.14	-82.38	4.13	-3.90	-13.00	-69.14
694.45	S	-81.41	-81.49	4.15	-4.07	-13.00	-68.41
1693.20	Н	-59.60	-56.92	2.65	-5.34	-13.00	-46.60
2539.80	Н	-57.70	-55.11	3.64	-6.24	-13.00	-44.70
3386.40	Н						
4233.00	Н						
5079.60	Н						
5926.20	Н						
6772.80	Н						
7619.40	Н						
8466.00	Н						

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

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11. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

11.1. Standard Applicable:

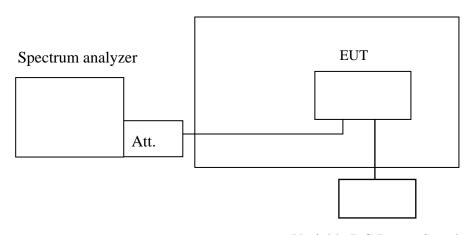
According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

11.2. Test Set-up:

Temperature Chamber



Variable DC Power Supply

Note: Measurement setup for testing on Antenna connector

11.3. 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.

11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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11.5. Measurement Result:

Refer	Reference Frequency: GPRS 850 Mid Channel 836.6 MHz @ 25°C						
	Limit	: +/- 2.5 ppm = 20	91 Hz				
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)			
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)			
3.7	-30	836.600011	-3.00	2091			
3.7	-20	836.600013	-5.00	2091			
3.7	-10	836.600003	5.00	2091			
3.7	0	836.600009	-1.00	2091			
3.7	10	836.600008	0.00	2091			
3.7	20	836.600008	0.00	2091			
3.7	30	836.600015	-7.00	2091			
3.7	40	836.600009	-1.00	2091			
3.7	50	836.600012	-4.00	2091			

Refero	Reference Frequency: GPRS 1900 Mid Channel 1880 MHz @ 20°C						
	Limit	+/-2.5 ppm = 470	00 Hz				
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)			
Vdc	Temperature ($^{\circ}$ C)	(MHz)	Delta (Hz)	Limit (Hz)			
3.7	-30	1880.000011	-8.00	4700			
3.7	-20	1880.000013	-10.00	4700			
3.7	-10	1880.000006	-3.00	4700			
3.7	0	1880.000008	-5.00	4700			
3.7	10	1880.000011	-8.00	4700			
3.7	20	1880.000003	0.00	4700			
3.7	30	1880.000019	-16.00	4700			
3.7	40	1880.000013	-10.00	4700			
3.7	50	1880.000008	-5.00	4700			

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Re	Reference Frequency: WCDMA V Mid Channel 836.6 MHz (ARFCN4183)							
	Limit: +/- 2.5 ppm = 2091 Hz							
Power Sup- ply	Environment	Frequency						
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)				
3.7	-30	836.600004	-1.00	2091				
3.7	-20	836.600005	-2.00	2091				
3.7	-10	836.600009	-6.00	2091				
3.7	0	836.600011	-8.00	2091				
3.7	10	836.600002	1.00	2091				
3.7	20	836.600003	0.00	2091				
3.7	30	836.600005	-2.00	2091				
3.7	40	836.600008	-5.00	2091				
3.7	50	836.600009	-6.00	2091				

Note: The battery is rated 3.7V dc.

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12. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

12.1. Standard Applicable:

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

According to RSS-133 §6.3, RSS-132 §4.3

The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

12.2. Test Set-up:

Refer to section 11.2 in this report

12.3. Measurement Procedure:

Set chamber temperature to 25° C. 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.

12.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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12.5. Measurement Result:

Refe	Reference Frequency: GPRS 850 Mid Channel 836.6 MHz @ 25°C						
	Limit: +/- 2.5 ppm = 2091 Hz						
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)			
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)			
4.2	25.00	836.599994	4.00	2091.00			
3.7	25.00	836.599998	0.00	2091.00			
3.5	25.00	836.599999	-1.00	2091.00			
3.1	25.00	927 500000	1.00	2001.00			
(End Point)	25.00	836.599999	-1.00	2091.00			

Refer	Reference Frequency: GPRS 1900 Mid Channel 1880 MHz @ 25°C					
	Limit	: +/- 2.5 ppm = 470	00 Hz			
Power Supply	Environment	Frequency	Dolto (IIa)	Limit (IIa)		
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)		
4.2	25	1880.000007	-2.00	4700		
3.7	25	1880.000005	0.00	4700		
3.5	25	1880.000008	-3.00	4700		
3.1	25	1000 000007	2.00	4700		
(End Point)	25	1880.000007	-2.00	4700		

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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Reference	Reference Frequency: WCDMA V Mid Channel 836.6 MHz (ARFCN4183)						
	Limit: $+/-2.5 \text{ ppm} = 2091 \text{ Hz}$						
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)			
Vdc	Temperature ($^{\circ}$ C)	(MHz)	Delta (Hz)	Limit (Hz)			
4.2	25.00	836.600000	-2.00	2091.00			
3.7	25.00	836.599998	0.00	2091.00			
3.5	25.00	836.599999	-1.00	2091.00			
3.1	25.00	026 500000	0.00	2001.00			
(End Point)	25.00	836.599998	0.00	2091.00			

Note: The battery is rated 3.7V dc.