

Report No.: EH/2012/B0018 Issue Date: Apr. 29, 2013 Page 1 of 154

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

0F

	Ог
Product Name:	Mobile Phone
Brand Name:	Sony
Marketing Name:	C2105
Model No.:	PM-0290-BV
Model Differences:	N/A
FCC ID:	PY7PM-0290
Report No.:	EH/2012/B0018
Issue Date:	Apr. 29, 2013
FCC Rule Part:	2 , 22H & 24E
Prepared for:	Sony Mobile Communications AB Nya Vattentornet 22188 Lund/SWEDEN
Prepared by:	SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Indus- trial Park, Wuku District, New Taipei City, Taiwan 24803

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Report No.: EH/2012/B0018 Issue Date: Apr. 29, 2013 Page 2 of 154

VERIFICATION OF COMPLIANCE

Applicant:	Sony Mobile Communications AB Nya Vattentornet 22188 Lund/SWEDEN
Product Name:	Mobile Phone
Brand Name:	Sony
Marketing name:	C2105
Model No.:	PM-0290-BV
Model Difference:	N/A
FCC ID:	PY7PM-0290
File Number:	EH/2012/B0018
Date of test:	Nov. 06, 2012 ~ Mar. 11, 2013
Date of EUT Received:	Nov. 06, 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:	Marcus Tseng	Date:	Apr. 29, 2013	
Prepared By:	Marcus Tseng / Engineer Chemy Chem	Date:	Apr. 29, 2013	
Approved By:	Cherry Chen / Clerk Jim Chang Jim Chang / Supervisor	Date:	Apr. 29, 2013	

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Version

Version No.	Date	Description	
00	Nov. 28, 2012	Initial creation of document	
01	Mar 11, 2013	Amend the appropriate reference of the standard governing the particular test item, and incorpo- rate the product features in the section of the general product.	
02	Mar. 18, 2013	Base on Mar.16, 2013 TCB comments	
03	Apr. 03, 2013	Add tabulated set of results to Peak to Average ratio, +/- with uncertainty of the uncertainty ta- ble, and revise the corresponding FCC regulatory provision (ERP/EIRP) in the table of the sum- mary.	
04	Apr. 29, 2013	Amend the section of the equipment lists.	

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1. GENERAL PRODUCT INFORMATION

1.1. Product Description

General:

Product Name:	Mobile Phone		
Brand Name:	Sony		
Marketing Name:	C2105		
Model No.:	PM-0290-B	V	
Model Difference:	N/A		
Data Cable (USB):	Model No.: EC450, Supplier: K-one Type No.: AI-0700		
Simple Hands-Free (SHF):	Model No · MH410c Supplier: Foster Electric		
Car Charger:	Model No.: AN400, Supplier: Salcomp Type No.: CAA-0003013		
Hardware Version:	A		
Software Version:	15.0.A.1.1		
	3.7Vdc form Li-Polymer battery		
Power Supply:	Battery:	Model No.: BA900, Supplier: Sony Type No.: AB-0500	
	Adapter:	Model No.: EP800, Supplier: Salcomp Type No.: CAA-0002016-US	

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Bluetooth_BR+EDR:

Bluetooth Version:	V2.1 + EDR (GFSK + $\pi/4DQPSK + 8DPSK$)	
Channel number:	79 channels	
Modulation type:	Frequency Hopping Spread Spectrum	
Transmit Power:	9.75dBm	
Frequency Range:	2.402GHz – 2.480GHz	
Dwell Time:	<= 0.4s	
Antenna Designation:	PIFA Antenna, 0.02dBi.	
Bluetooth Low Energy:		
Frequency Range:	2402 – 2480MHz	
Bluetooth Version:	V4.0 Dual mode	
Channel number:	40 channels	
Modulation type:	GFSK	
Transmit Power:	1.45 dBm (Peak)	
Antenna Designation:	PIFA Antenna, Gain: 0.02dBi	
NFC:		
Operating Frequency	13.56MHz	
Transmit Power	< 123dBuV/m at 3m.	
Number of Channels	1	
Antenna Type	Loop Antenna	
Modulation Type	ASK, BPSK	

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WLAN 2.4GHz+5.7GHz:

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology
11b/g	2412-2462	11	b: 20.36dBm g: 19.19dBm	DSSS, OFDM
11n	HT20 2412-2462	11	HT20: 19.13dBm	OFDM
11a	5725-5850	5	a : 19.38 dBm	
11n (5GHz)	HT20 5725-5850	5	HT20: 19.26 dBm	OFDM
11n (5GHz)	HT40 5725-5850	2	HT40: 19.50 dBm	
Antenna Designation:		PIFA Antenna, 2.4GHz Gain: 0.02dBi 5GHz Gain: 3.11 dBi (5725MHz-5850MHz)		5850MHz)
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
802.11 a: 6 802.11 b: 1 Transition Rate: 802.11 g: 6 802.11 n_2			6/9/12/18/24/36/48/54 N 1/2/5.5/11 Mbps 6/9/12/18/24/36/48/54 N 20MHz: 6.5 – 72.2Mbp 40MHz: 13.5 – 150Mbp	Иbps Иbps s

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WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg)	Rated Power (EIRP)	Modulation Technology
	5150~5250	4	15.95dBm	16.21dBm	
11a	5250~5350	4	15.87dBm	16.90dBm	OFDM
	5470~5725	11	15.97dBm	19.37dBm	
	HT20 5150~5250	4	HT20: 15.97dBm	HT20: 16.23dBm	
11n	HT20 5250~5350	4	HT20: 15.92dBm	HT20: 16.95dBm	OFDM
	HT20 5470~5725	11	HT20: 15.98dBm	HT20: 19.38dBm	
	HT40 5150~5250	2	HT40: 15.77dBm	HT40: 16.03dBm	
11n	HT40 5250~5350	2	HT40: 15.78dBm	HT40: 16.81dBm	OFDM
	HT40 5470~5725	5	HT40: 15.93dBm	HT40: 19.33dBm	
Antenna Designation PIFA Antenna, 5GHz Gain: 0.26 dBi (5150MHz-5250MHz) 5GHz Gain: 1.03 dBi (5250MHz-5350MHz) 5GHz Gain: 3.40 dBi (5470MHz-5725MHz)					
Modulation typeCCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM					
Transition Rate: 802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 - 72.2Mbps 802.11 n_40MHz: 13.5 - 150Mbps					

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GSM:

FCC ID: PY7PM-0290

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	Operating Frequency	Rated Power		
Cellular Phone	GSM/GPRS 850, Class 12	824.2 MHz- 848.8 MHz	33 dBm	
Standards	EDGE 850, Class 12	824.2 MHz- 848.8 MHz	27 dBm	
Frequency Range and Power.	GSM/GPRS 1900, Class 12	1850.2MHz – 1909.8MHz	30 dBm	
	EDGE 1900, Class 12	1850.2MHz – 1909.8MHz	26 dBm	
Type of Emission:	GSM850: 248KGXW, GSM1900: 245KGXW GPRS850: 244KGXW, GPRS1900: 246KGXW EDEG850: 244KG7W, EDGE1900: 249KG7W			
IMEI:	004402146101104			

This test report applies for 850 /1900 GSM / GPRS / EDGE.

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Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
GSM 850	3.7Vdc	240
GPRS 850	3.7Vdc	140
EDGE 850	3.7Vdc	140
GSM 1900	3.7Vdc	200
GPRS 1900	3.7Vdc	190
EDGE 1900	3.7Vdc	140

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

This submittal(s) (test report) is intended for **FCC ID: <u>PY7PM-0290</u>** filing to comply with Section Part 22 subpart H, 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 of TIA/EIA 603C and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

TS 151 010-1 is used to set, and measure the output power.

KDB971168 D01 Power Meas license Digital System v01 as the supplemental guideline to conduct the measurement, including Peak to Power Average Ratio, and Signal Bandwidth.

1.4. 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 Road, Wuku Industrial Zone, Taipei County, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009. & ANSI C63.10:2009. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-04.

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).

1.5. Special Accessories

Not available for this EUT intended for grant.

1.6. 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 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C, 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.

2.3.2 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C, 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 C63.4:2009 & ANSI C63.10:2009.

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2.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
ТҮРЕ		NUMBER	NUMBER	CAL.	
Power Sensor	Anritsu	ML2495A	1005007	02/08/2012	02/07/2014
Power Meter	Anritsu	MA2411B	917032	02/08/2012	02/07/2014
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	08/12/2012	08/11/2014
Radio Communication Analyzer	Anritsu	MT8820C	6200995019	10/17/2012	10/16/2013
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

Conducted Emission Test Site						
EQUIPMENT MFR		MODEL	SERIAL	LAST	CAL DUE.	
ТҮРЕ		NUMBER	NUMBER	CAL.		
DC Block	Mini-Circuits	BLK-18-S+	1	02/28/2013	02/27/2014	
Attenuator	Mini-Circuit	BW-S10W2+	002	02/28/2013	02/27/2014	
Splitter	Agilent	11636B	N/A	02/28/2013	02/27/2014	

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ERP, El	ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT	EQUIPMENT MFR			LAST	CAL DUE.	
ТҮРЕ		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	07/16/2013	
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/17/2010	07/16/2013	
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	08/12/2012	08/11/2014	
Radio Communication Analyzer	Anritsu	MT8820C	6200995019	10/17/2012	10/16/2013	
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	02/27/2013	
Filter 1800-2000	Micro-Tronics	EWT	M2	02/28/2012	02/27/2013	
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	07/15/2012	07/14/2013	

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ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT	MFR	MODEL	SERIAL LAST		CAL DUE.
ТҮРЕ		NUMBER	NUMBER	CAL.	
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	02/06/2013	02/07/2014
Horn antenna	ETS.LINDGREN	3117	123991	01/21/2013	01/20/2015
RF amplifier	Miteq	AMF-6F-2600 400-40-8P	971576	01/29/2013	01/28/2014
Pre-Amplifier	Agilent	8447D	1937A02834	01/04/2013	01/03/2014
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/04/2013	01/03/2014
Attenuator	Mini-Circuit	BW-S10W2+	004	02/28/2013	02/27/2014
Low Loss Cable	HUBER+SUHNER	966_Tx	10m	01/04/2013	01/03/2014
Low Loss Cable	HUBER+SUHNER	966_Rx	3m	01/04/2013	01/03/2014
Filter 800-1000	Micro-Tronics	EWT	M2	02/28/2013	02/28/2014
Filter 1800-2000	Micro-Tronics	EWT	M2	02/28/2013	02/28/2014
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	02/28/2013	02/28/2014
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	02/28/2013	02/28/2014

Note: The measurement was taken place with the long duration of the time, and additional equipment list as shown above indicate those equipment of which has been subject to undertake the calibration in intermediate period of time of the measurement

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2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel-Conducted)

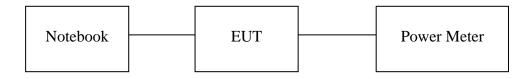


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



Remote Side



Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Com- munication Tester	R&S	CMU200	102189	shielded	Un-shielded
2.	Power Meter	Anritsu	MA2411B	917032	shielded	Un-shielded

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3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)		
§22.913(a)(2)	RF Power Output	Compliant
§24.232(c)		
§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)		
§24.232(d)	Peak to Average Ratio	Compliant
§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	26.79	ERP	0.478
GSM 1900 Band	32.79	EIRP	1.901
GPRS 850 Band	26.80	ERP	0.479
GPRS 1900 Band	32.56	EIRP	1.803
EDGE 850 Band	25.97	ERP	0.395
EDGE 1900 Band	32.14	EIRP	1.637

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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 type band with rated data rate were chosen for full testing.

The list of channel selected to conduct the measurements

GSM/GPRS/EDGE 850:

Channel Low: AFRCN 128 at 824.2MHz, Channel Mid: AFRCN 190 at 836.6MHz, Channel High: AFRCN 251 at 848.8MHz.

GSM/GPRS/EDGE 1900:

Channel Low: AFRCN 512 at 1850.2MHz, Channel Mid: AFRCN 661 at 1880.0MHz, Channel High AFRCN 810 at 1909.8MHz

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. The worst-case of E1 position for GPRS 850 and GSM 1900 band were reported.

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5. MEASUREMENT UNCERTAINTY FOR FIELD STRENGTH OF SPURIOUS RADIATION

Test Items	Uncertainty	
RF Power Output	+/- 1.42 dB	
ERP/ EIRP measurement	Vertical Polarization = +/- 4.74dB Horizontal Polarization =+/- 4.62dB	
99% Occupied Bandwidth	+/- 123.36 Hz	
Out of Band Emissions at Antenna	+/- 1.55 dB	
Terminals and Band Edge		
Peak to Average Ratio	+/- 1.55 dB	
Frequency Stability vs. Temperature	+/- 123.36 Hz	
Frequency Stability vs. Voltage	+/- 123.36 Hz	
Temperature	+/- 0.8 °C	
Humidity	+/- 4.7 %	
DC / AC Power Source	DC= +/- 1%, AC=+/- 0.2%	

Radiated Spurious Emission:

Measurement uncertainty	30MHz - 180MHz: +/- 3.37dB
	180MHz -417MHz: +/- 3.19dB
(Polarization : Vertical)	0.417GHz-1GHz: +/- 3.19dB
	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
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the

95% confidence level using a coverage factor of k=2.

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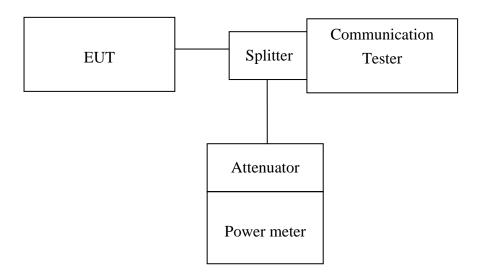


6. RF POWER OUTPUT MEASUREMENT

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. FCC 24.232(c) Equipment must employ means to limit the power to the minimum necessary for successful communication.

6.2. Test Set-up:



Note: Measurement setup for testing on Antenna connector

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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. TS 151 010-1 is reference to conduct the test measurement of output power. The Procedure of KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results

Necessary Communication complying with 24.232 (c)

Set CMU200 (base-station simulator) MS Signal with packet data submenu; SLOT Configuration Set appropriate level to verify if or not power on mobile station's link with simulator still exists.

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 Power6.5.1.1.: GSM/GPRS/EDGE (GMSK; 8-PSK)Result:

Result:

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Averager Burst Power (dBm)
	824.2	128	32.87	32.53
GSM 850	836.6	190	33.08	32.67
	848.8	251	33.45	33.05

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Averager Burst Power (dBm)
	1850.2	512	29.82	29.65
GSM 1900	1880.0	661	30.22	30.04
	1909.8	810	30.18	30.01

EUT Mode	Frequency (MHz)	CH (4DN IOP) class 8		Average Burst Power (4DN 1UP) Class 8 (dBm)	Peak Power (4DN 2UP) Class 10 (dBm)	Average Burst Power (4DN 2UP) Class 10 (dBm)
	824.2	128	32.85	32.60	30.14	29.86
GPRS 850	836.6	190	32.96	32.74	30.36	30.07
	848.8	251	32.96	33.06	30.39	30.10

EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 3UP) Class 11 (dBm)	Average Burst Power (4DN 3UP) Cass 11 (dBm)	Peak Power (4DN 4UP) Class 12 (dBm)	Average Burst Power (4DN 4UP) Class 12 (dBm)
	824.2	128	29.97	29.69	26.83	26.61
GPRS 850	836.6	190	30.18	29.90	26.96	26.73
	848.8	251	30.36	30.07	27.24	27.02

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EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 1UP) class 8 (dBm)	Average Burst Power (4DN 1UP) Class 8 (dBm)	Peak Power (4DN 2UP) Class 10 (dBm)	Average Burst Power (4DN 2UP) Class 10 (dBm)
	1850.2	512	29.98	30.11	27.37	27.19
GPRS 1900	1880.0	661	30.31	30.09	27.29	27.12
	1909.8	810	30.32	30.16	27.36	27.16

EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 3UP) Class 11 (dBm)	Average Burst Power (4DN 3UP) Cass 11 (dBm)	Peak Power (4DN 4UP) Class 12 (dBm)	Average Burst Power (4DN 4UP) Class 12 (dBm)
	1850.2	512	27.15	26.99	24.00	23.84
GPRS 1900	1880.0	661	26.94	26.80	23.86	23.72
	1909.8	810	26.96	26.77	23.81	23.63

EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 1UP) class 8 (dBm)	Average Burst Power (4DN 1UP) Class 8 (dBm)	Peak Power (4DN 2UP) Class 10 (dBm)	Average Burst Power (4DN 2UP) Class 10 (dBm)
	824.2	128	30.26	27.08	29.88	26.61
EDGE 850	836.6	190	30.46	27.18	30.01	26.70
	848.8	251	30.53	27.33	30.13	26.86

EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 3UP) Class 11 (dBm)	Average Burst Power (4DN 3UP) Cass 11 (dBm)	Peak Power (4DN 4UP) Class 12 (dBm)	Average Burst Power (4DN 4UP) Class 12 (dBm)
	824.2	128	29.85	26.55	29.80	26.50
EDGE 850	836.6	190	30.06	26.75	29.91	26.68
	848.8	251	30.11	26.86	30.08	26.79

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EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 1UP) class 8 (dBm)	Average Burst Power (4DN 1UP) Class 8 (dBm)	Peak Power (4DN 2UP) Class 10 (dBm)	Average Burst Power (4DN 2UP) Class 10 (dBm)
	1850.2	512	30.02	26.26	29.07	25.85
EDGE 1900	1880.0	661	29.88	26.12	28.90	25.70
	1909.8	810	29.69	26.03	28.72	25.56

EUT Mode	Frequency (MHz)	СН	Peak Power (4DN 3UP) Class 11 (dBm)	Average Burst Power (4DN 3UP) Cass 11 (dBm)	Peak Power (4DN 4UP) Class 12 (dBm)	Average Burst Power (4DN 4UP) Class 12 (dBm)
	1850.2	512	29.11	25.89	28.92	25.61
EDGE 1900	1880.0	661	28.91	25.65	28.53	25.41
	1909.8	810	28.77	25.63	28.57	25.38

Cable Loss offset: Low Band: 0.5dB Cable Loss offset: High Band: 0.7dB

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6.5.1.2: Minimum Communications Power Measurement

PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8	
Output power (dBm)	29.2	27.6	25.2	23.6	21.4	19.3	17.3	16.2	13.9	
PCL	9	10	11	12	13	14	15	16	17	18
Output power (dBm)	12	9.9	8	6.1	4	2.2	0.6	0.6	0.6	0.6

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

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7. ERP, EIRP MEASUREMENT

7.1. Standard Applicable:

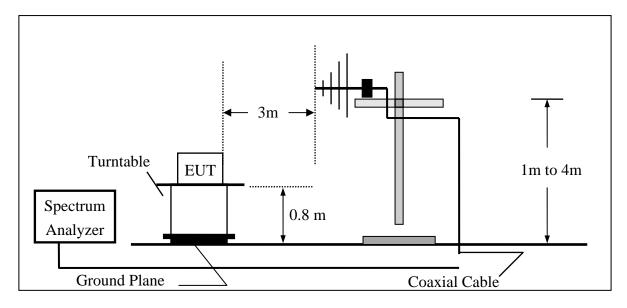
According to FCC §2.1046

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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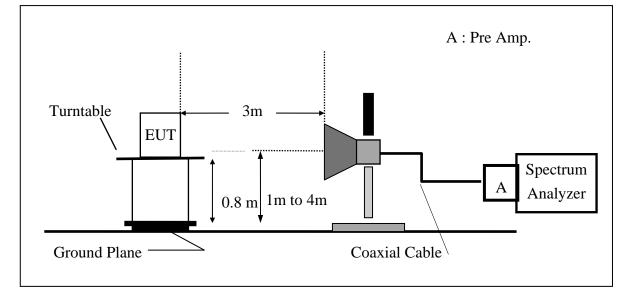
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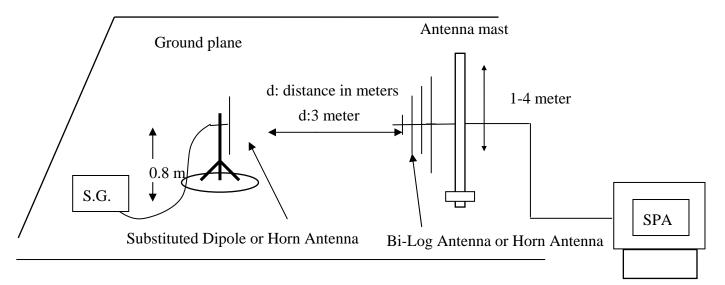


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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz

(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 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)

Spectrum setting:

1. Detector = Peak, marker the highest value of the detector by maximum hold, set RBW wide enough to capture the entire signal of emission, and VBW > = 3xRBW.

Or,

2. KDB 971168 D01 Power Meas License Digital Systems v01 is adopted, and the procedure as lists under item 4, Measurement of the Average Power over the Fundamental Signal Bandwidth, is followed to set correspondingly for the acquisition of proper measurement data.

Set frequency = nominal signal center frequency;

Set span = 2 X occupied BW;

Set RBW $\approx 1 \sim 5\%$ of the span, not to exceed 1 MHz

Set $VBW = 3 \times RBW$;

Select average power (RMS) detector

Set sweep time and number of measurement points to achieve a minimum of 1 millisecond/pt integration time (ex. Point = 601 points, then sweet time = $601*10^{-3} = 6$ s.

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Activate trace averaging routine over a minimum of 10 sweeps; Activate marker/span pair and set span = signal or channel bandwidth; Activate the band/interval power marker function; Record the band power level;

Record adjusted value as the average signal power level. Then activate the occupied bandwidth measurement function.

7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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7.5. Measurement Result: (Peak) –using option of peak measurement

	I	EUT			Ν	leasureme	ent		
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	25.06	3.96	-2.80	26.22	38.45
		024.20	120	Н	17.81	3.96	-2.80	18.98	38.45
	Н	836.60	190	V	25.15	4.00	-2.82	26.33	38.45
	11	830.00	190	Н	16.35	4.00	-2.82	17.52	38.45
		848.80	251	V	25.50	4.03	-2.84	26.69	38.45
		040.00	231	Н	13.71	4.03	-2.84	14.89	38.45
		824.20	128	V	22.14	3.96	-2.80	23.31	38.45
		836.60	120	Н	25.12	3.96	-2.80	26.28	38.45
GSM 850	E1		190	V	23.01	4.00	-2.82	24.19	38.45
05101 050	LI	030.00		Н	25.37	4.00	-2.82	26.55	38.45
		848.80	251	V	23.57	4.03	-2.84	24.76	38.45
		040.00	231	Н	25.60	4.03	-2.84	26.79	38.45
		824.20	128	V	17.71	3.96	-2.80	18.87	38.45
		824.20	120	Н	25.21	3.96	-2.80	26.37	38.45
E2	БJ	836.60	190	V	17.84	4.00	-2.82	19.01	38.45
	ĽŹ	2 836.60	190	Н	25.12	4.00	-2.82	26.29	38.45
		848.80	251	V	18.09	4.03	-2.84	19.28	38.45
		040.00	231	Н	24.96	4.03	-2.84	26.14	38.45

Remark :

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

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	1	EUT			Measurement						
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	29.55	4.17	-4.29	29.43	33.00		
		1830.20	312	Н	28.05	4.51	-4.29	28.26	33.00		
	Н	1880.00	661	V	28.76	4.13	-4.33	28.57	33.00		
		1880.00	001	Н	25.89	4.44	-4.33	26.00	33.00		
	1909.80	810	V	30.15	4.09	-4.37	29.88	33.00			
		1909.80	810	Н	28.82	4.36	-4.37	28.82	33.00		
		1850.20	512	V	32.91	4.17	-4.29	32.79	33.00		
	E1	E1	1880.00	512	Н	26.22	4.51	-4.29	26.44	33.00	
GSM 1900				661	V	31.46	4.13	-4.33	31.27	33.00	
USWI 1900	LI	1880.00	001	Н	25.86	4.44	-4.33	25.97	33.00		
		1909.80	810	V	32.30	4.09	-4.37	32.03	33.00		
		1909.80	810	Н	26.08	4.36	-4.37	26.08	33.00		
		1850.20	512	V	28.85	4.17	-4.29	28.73	33.00		
		1630.20	512	Н	30.21	4.51	-4.29	30.43	33.00		
E	E2	1880.00	661	V	28.66	4.13	-4.33	28.47	33.00		
	Ľ	1880.00	001	Н	31.20	4.44	-4.33	31.30	33.00		
		1909.80	810	V	29.55	4.09	-4.37	29.28	33.00		
		1909.00	010	Н	31.74	4.36	-4.37	31.74	33.00		

Remark :

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

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	1	EUT			Ν	leasureme	ent		
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	25.10	3.96	-2.80	26.26	38.45
		824.20	120	Н	17.93	3.96	-2.80	19.09	38.45
	Н	836.60	190	V	25.23	4.00	-2.82	26.41	38.45
	11	830.00	190	Н	16.24	4.00	-2.82	17.42	38.45
		848.80	251	V	25.49	4.03	-2.84	26.67	38.45
		848.80	231	Н	14.57	4.03	-2.84	15.76	38.45
		824.20	128	V	21.83	3.96	-2.80	22.99	38.45
		836.60	120	Н	25.28	3.96	-2.80	26.45	38.45
GPRS 850	E1			V	22.93	4.00	-2.82	24.11	38.45
01 K5 850	LI	830.00		Н	25.38	4.00	-2.82	26.56	38.45
		848.80	251	V	23.65	4.03	-2.84	24.83	38.45
		040.00	231	Н	25.62	4.03	-2.84	26.80	38.45
		824.20	128	V	17.74	3.96	-2.80	18.90	38.45
		824.20	120	Н	25.14	3.96	-2.80	26.30	38.45
E2	E2	836.60	190	V	18.26	4.00	-2.82	19.44	38.45
	E2 836.60	190	Н	25.13	4.00	-2.82	26.31	38.45	
		848.80 251	251	V	18.09	4.03	-2.84	19.27	38.45
		040.00	231	Н	24.99	4.03	-2.84	26.17	38.45

Remark :

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

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EUT				Measurement						
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	
	Н	1850.20	512	V	28.64	4.17	-4.29	28.52	33.00	
				Н	27.95	4.51	-4.29	28.17	33.00	
		1880.00	661 -	V	28.29	4.13	-4.33	28.09	33.00	
				Н	27.97	4.44	-4.33	28.08	33.00	
		1909.80	810	V	29.95	4.09	-4.37	29.67	33.00	
			010	Н	28.63	4.36	-4.37	28.63	33.00	
	E1	1850.20	512	V	32.68	4.17	-4.29	32.56	33.00	
			512	Н		26.51	33.00			
GPRS 1900		1880.00	661	V	31.50	4.13	-4.33	31.30	33.00	
01 K5 1900				Н	26.09	4.44	-4.33	26.19	33.00	
		1909.80	810	V	32.45	4.09	-4.37	32.18	33.00	
				Н	26.31	4.36	-4.37	26.30	33.00	
	E2	1850.20	512	V	27.25	4.17	-4.29	27.13	33.00	
			512	Н	31.55	4.51	-4.29	31.77	33.00	
		1880.00	661	V	28.40	4.13	-4.33	28.20	33.00	
			001	Н	31.29	4.44	-4.33	31.40	33.00	
		1909.80	810	V	30.35	4.09	-4.37	30.07	33.00	
			810	Н	31.72	4.36	-4.37	31.72	33.00	

Remark :

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

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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	
	Н	824.20	128	V	23.74	3.96	-2.80	24.90	38.45	
				Н	15.99	3.96	-2.80	17.16	38.45	
		836.60	190	V	23.60	4.00	-2.82	24.77	38.45	
				Н	14.31	4.00	-2.82	15.48	38.45	
		848.80	251	V	23.78	4.03	-2.84	24.97	38.45	
			231	Н	11.93	4.03	-2.84	13.12	38.45	
	E1	824.20	128	V	19.28	3.96	-2.80	20.44	38.45	
			120	Н	24.16	3.96	-2.80	25.32	38.45	
EDGE 850		836.60	190	V	19.59	4.00	-2.82	20.77	38.45	
EDGE 850				Н	24.46	4.00	-2.82	25.64	38.45	
		848.80	251	V	20.74	4.03	-2.84	21.93	38.45	
				Н	24.78	4.03	-2.84	25.97	38.45	
	E2	824.20	128	V	15.16	3.96	-2.80	16.33	38.45	
				Н	24.31	3.96	-2.80	25.47	38.45	
		836.60	190	V	16.77	4.00	-2.82	17.95	38.45	
				Н	24.00	4.00	-2.82	25.17	38.45	
		848.80	251	V	16.17	4.03	-2.84	17.35	38.45	
			231	Н	23.28	4.03	-2.84	24.46	38.45	

Remark :

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

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EUT				Measurement						
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	27.96	4.17	-4.29	27.84	33.00	
				Н	26.08	4.51	-4.29	26.30	33.00	
	Н	1880.00	661	V	27.51	4.13	-4.33	27.32	33.00	
				Н	27.14	4.44	-4.33	27.25	33.00	
		1909.80	810	V	29.07	4.09	-4.37	28.79	33.00	
			810	Н	27.63	4.36	-4.37	27.63	33.00	
	E1	1850.20	512 -	V	32.07	4.17	-4.29	31.95	33.00	
			512	Н	25.70	4.51	-4.29	25.92	33.00	
EDGE 1900		1880.00	661	V	30.48	4.13	-4.33	30.28	33.00	
LDOL 1900				Н	25.09	4.44	-4.33	25.19	33.00	
		1909.80	810	V	31.29	4.09	-4.37	31.02	33.00	
				Н	25.11	4.36	-4.37	25.11	33.00	
	E2	1850.20	512	V 27.83 4.17 -4.29	-4.29	27.71	33.00			
			512	Н	30.58	4.51	-4.29	30.80	33.00	
		1880.00	661	V	29.14	4.13	-4.33	28.94	33.00	
			001	Н	31.54	4.44	-4.33	31.65	33.00	
		1909.80	810	V	29.67	4.09	-4.37	29.40	33.00	
			810	Н	32.15	4.36	-4.37	32.14	33.00	

Remark :

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

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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 was set to about 1% of emission BW, VBW= 3 times RBW, -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.

NOTE: For the plot of bandwidth measurement, the marker of the 99% bandwidth is diamond-shape.

8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

8.5. Measurement Result:

Refer to next pages.

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EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	824.20	128	244.4910
GSM 850	836.60	190	247.0643
	848.80	251	248.3163

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	1850.20	512	245.0248
GSM 1900	1880.00	661	243.0403
	1909.80	810	244.4849

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
GPRS 850	824.20	128	243.4286
	836.60	190	244.1754
	848.80	251	241.8137

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	1850.20	512	243.2439
GPRS 1900	1880.00	661	244.4713
	1909.80	810	245.8257

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EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	824.20	128	243.7541
EDGE 850	836.60	190	244.1098
	848.80	251	243.4149

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (kHz)
	1850.20	512	243.1135
EDGE 1900	1880.00	661	243.5462
	1909.80	810	248.6785

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Figure 8-1: GSM 850 Channel Low

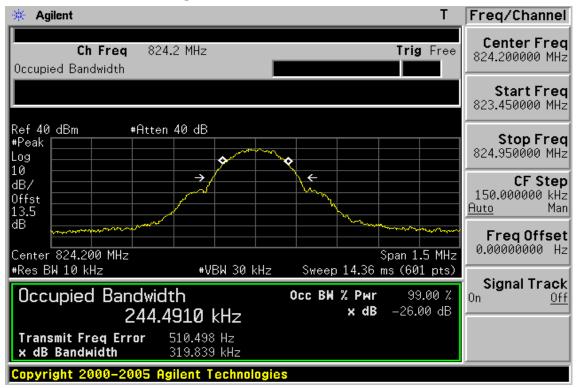
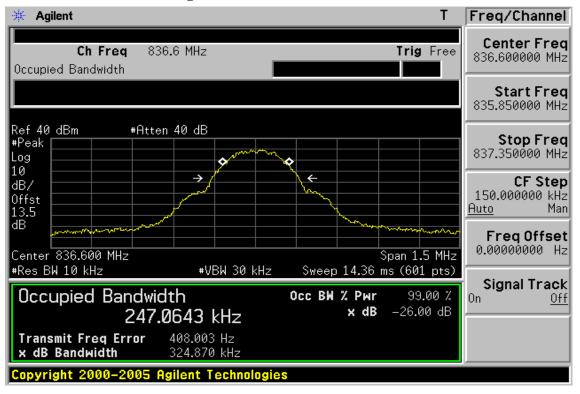


Figure 8-2 GSM 850 Channel Mid



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Figure 8-3: GSM 850 Channel High

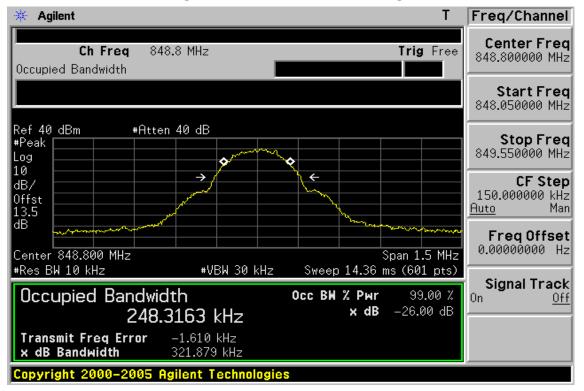
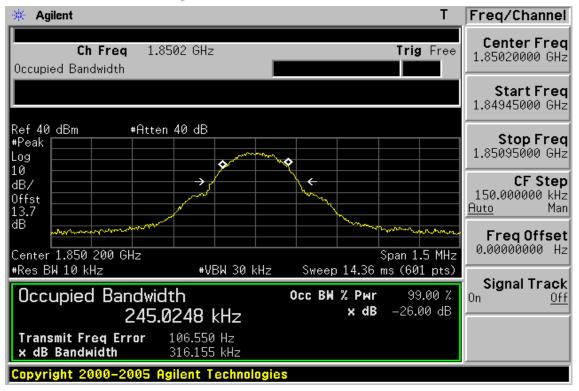


Figure 8-4: GSM 1900 Channel Low



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Figure 8-5 GSM 1900 Channel Mid

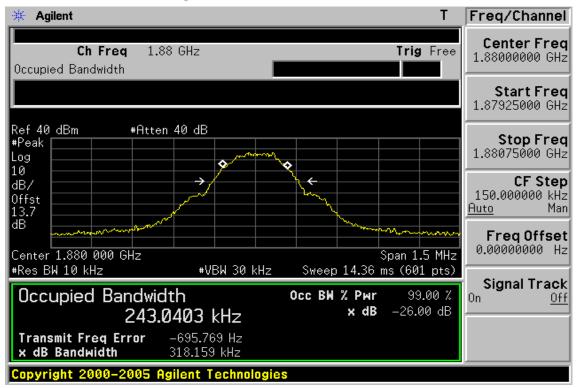
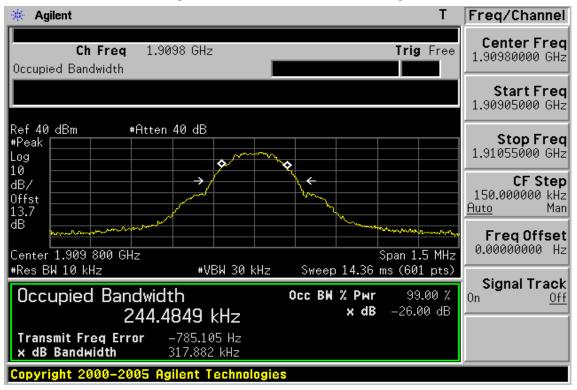


Figure 8-6: GSM 1900 Channel High



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Figure 8-7: GPRS 850 Channel Low

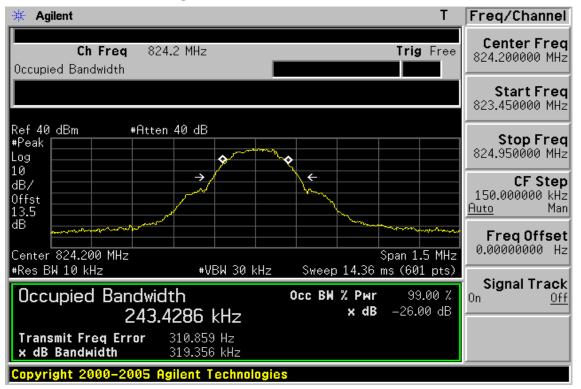
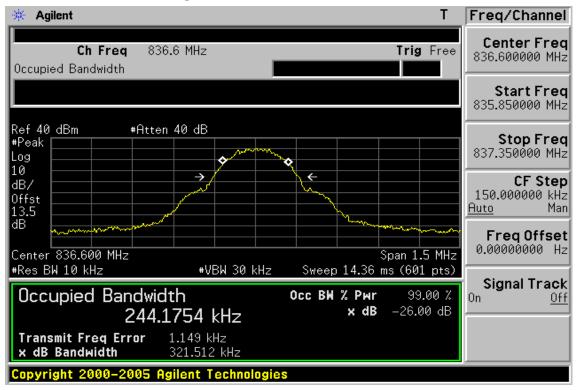


Figure 8-8 GPRS 850 Channel Mid



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Figure 8-9: GPRS 850 Channel High

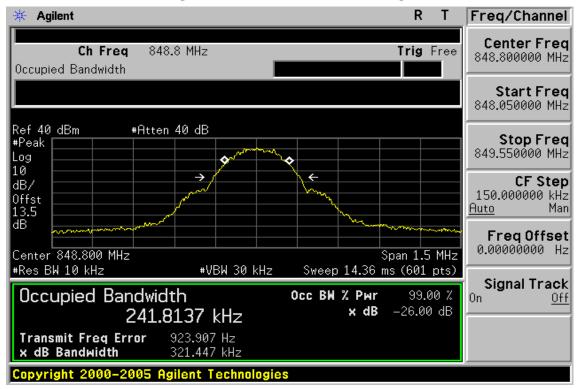
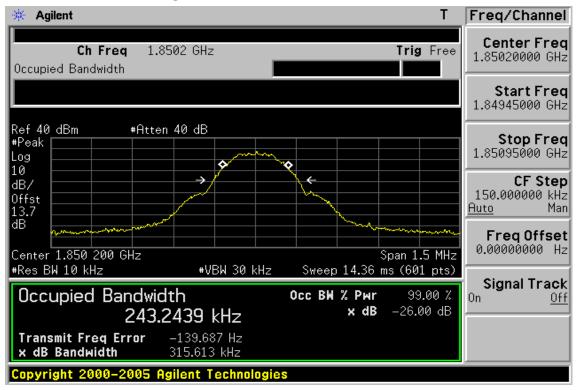


Figure 8-10: GPRS 1900 Channel Low



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Figure 8-11: GPRS 1900 Channel Mid

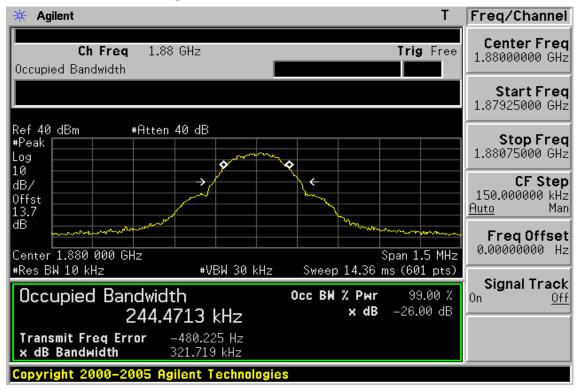
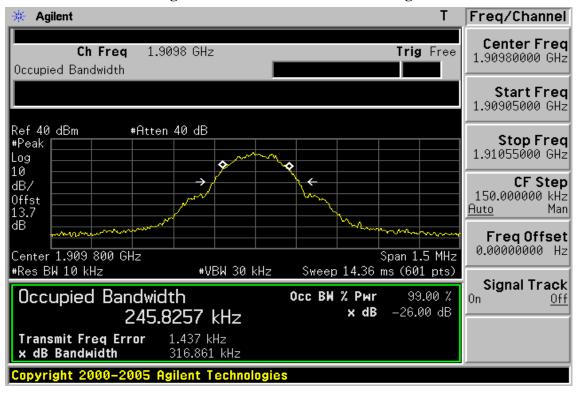


Figure 8-12: GPRS 1900 Channel High



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Figure 8-13 EDGE 850 Channel Low

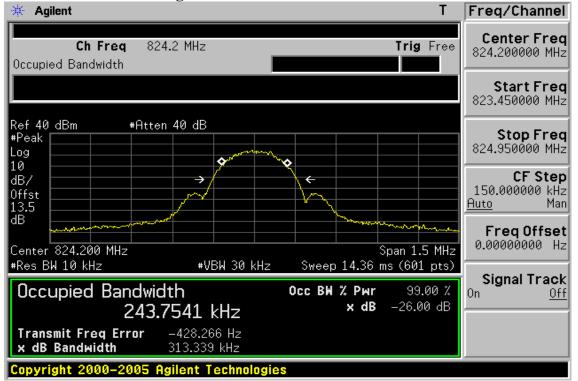
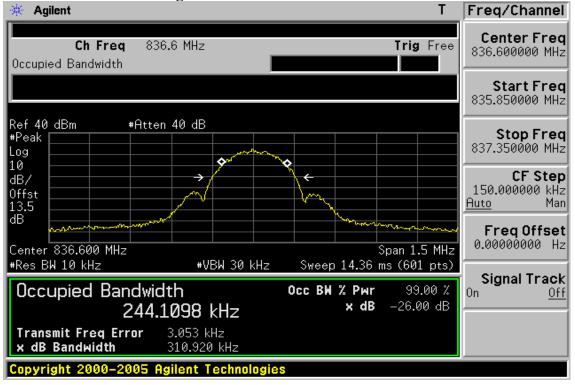


Figure 8-14 EDGE 850 Channel Mid



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Figure 8-15 EDGE 850 Channel High

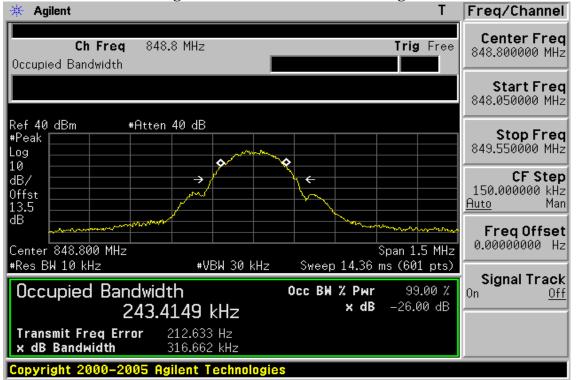
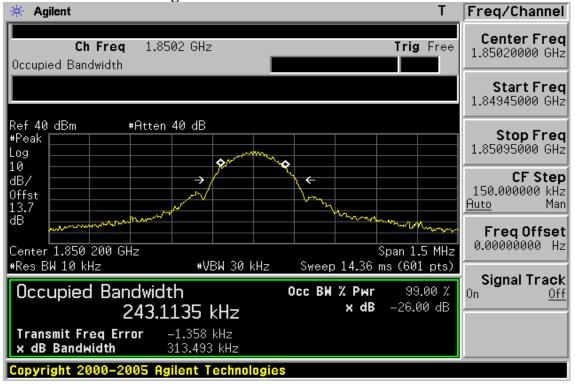


Figure 8-16 EDGE 1900 Channel Low



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Figure 8-17 EDGE 1900 Channel Mid

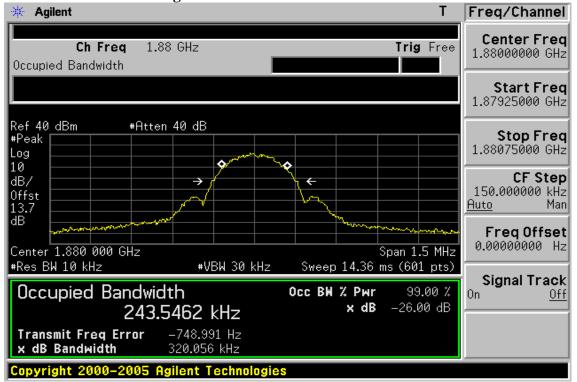
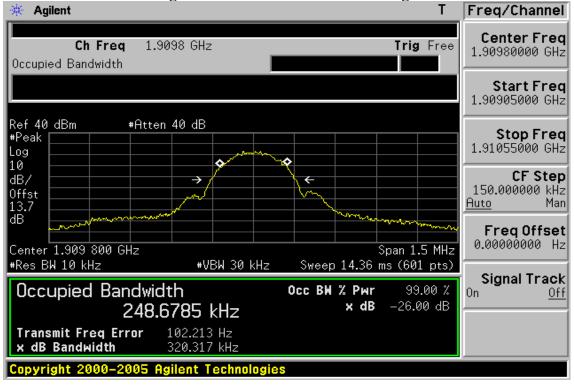


Figure 8-18 EDGE 1900 Channel High



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9. OUT OF BAND EMISSION AT ANTENNA TERMINALS

9.1. 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)

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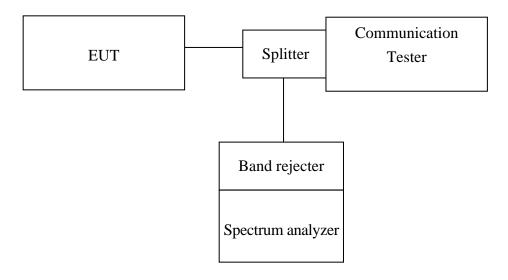
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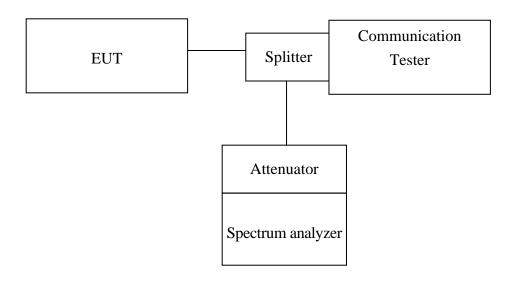


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9.2. Test SET-UP: Out of band emission



Band Edge



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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= 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.

(1) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. Limit, -13dBm

Conducted Emission:

- 1. To connect Antenna Port of EUT to Spectrum.
- 2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
- 3. Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 1G, 1G to 2.5G, 2.5G to 7.5G, 7.5G to 10G, 10G to 15G and 15G to 20GHz
- 4. Via Software, combine 6 spans of frequency range into one plot

9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

9.5. Measurement Result:

Refer to next pages.

NOTE: the occurrence of the spike on the conducted emission is the signal of the fundamental emission.

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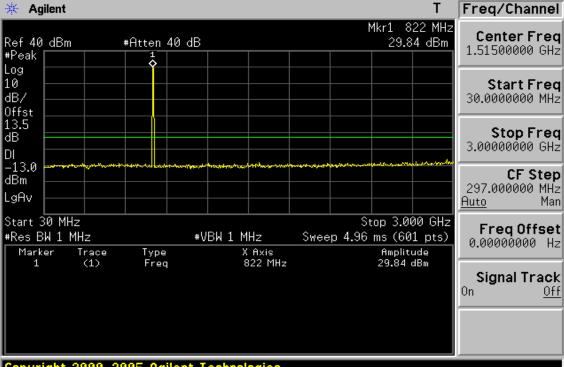
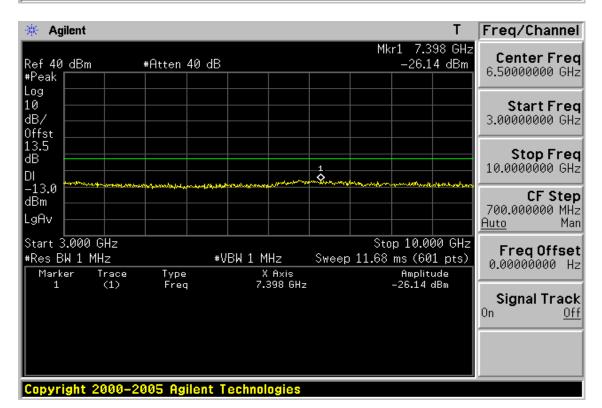


Figure 9-1: Out of Band emission at antenna terminals – GSM 850 Channel Lowest



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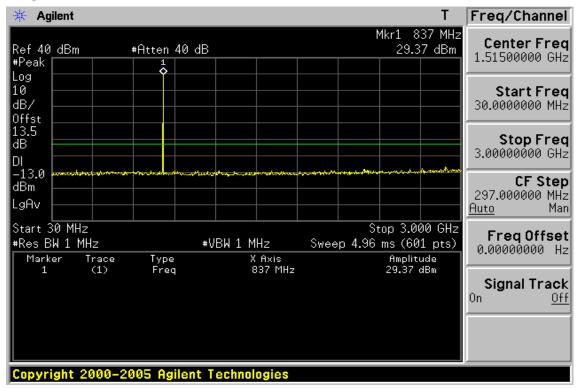
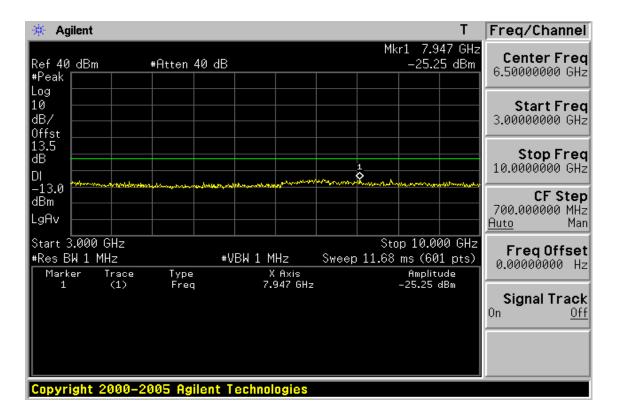


Figure 9-2: Out of Band emission at antenna terminals – GSM 850 Channel Mid



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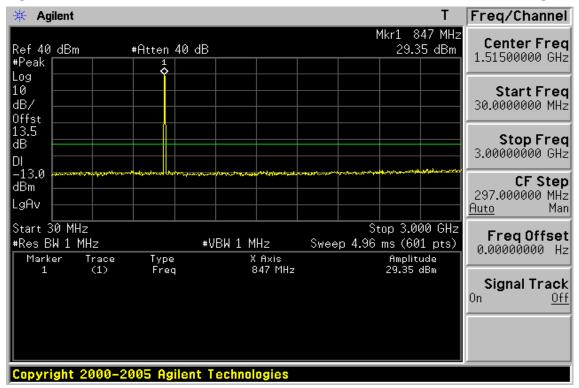
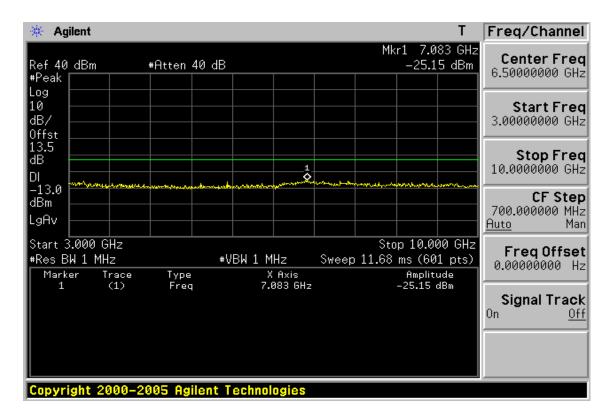


Figure 9-3: Out of Band emission at antenna terminals - GSM 850 Channel Highest



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Out of Band emission at antenna terminals - GSM 850

Fundamental Frequency	:824.2 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-13.00	
30-1000	S		-13.00	
1648.40	Н		-13.00	
2472.60	Н		-13.00	
3296.80	Н		-13.00	
4121.00	Н		-13.00	
4945.20	Н		-13.00	
5769.40	Н		-13.00	
6593.60	Н		-13.00	
7398.00	S	-26.14	-13.00	13.14
7417.80	Н		-13.00	
8242.00	Н		-13.00	
02.2.00	-			

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Fundamental F Operation Mod		:836.6 MHz :TX Mid	Engir	neer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	1673.20	Н		-13.00	
	2509.80	Н		-13.00	
	3346.40	Н		-13.00	
	4183.00	Н		-13.00	
	5019.60	Н		-13.00	
	5856.20	Н		-13.00	
	6692.80	Н		-13.00	
	7529.40	Н		-13.00	
	7947.00	S	-25.25	-13.00	12.25
	8366.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental F Operation Mod		:848.8MHz :TX High	Engi	neer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000	S		-13.00	
	1697.60	Н		-13.00	
	2546.40	Н		-13.00	
	3395.20	Н		-13.00	
	4244.00	Н		-13.00	
	5092.80	Н		-13.00	
	5941.60	Н		-13.00	
	6790.40	Н		-13.00	
	7083.00	S	-25.15	-13.00	12.15
	7639.20	Н		-13.00	
	8488.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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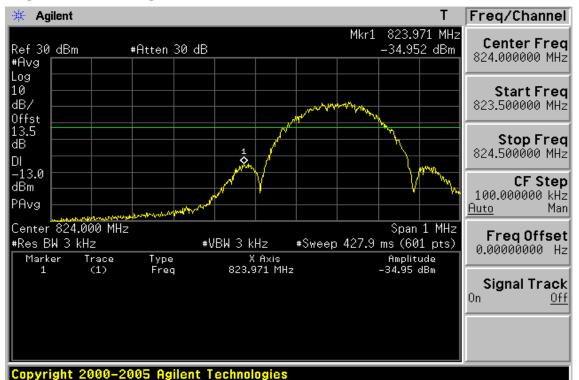
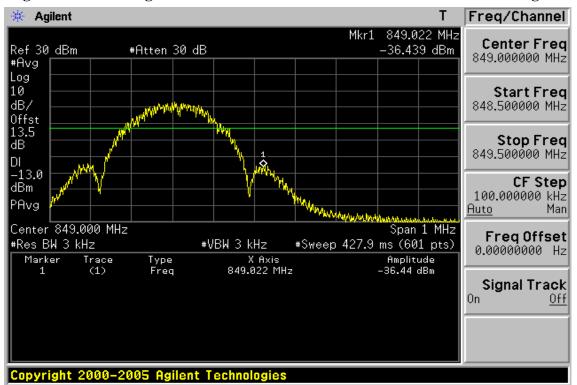


Figure 9-4: Band edge emission at antenna terminals – GSM 850 Channel Lowest

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



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Band edge emission at	t antenna termin	als – GSM 8	50 Low & High		
Test Mode	GSM 850		Engineer		:Nick
	Freq. MHz	Reading dBm	Limit dBm	Safe Margin dB	_
	823.971 849.022	-34.95 -36.44	-13.00 -13.00	21.95 23.44	

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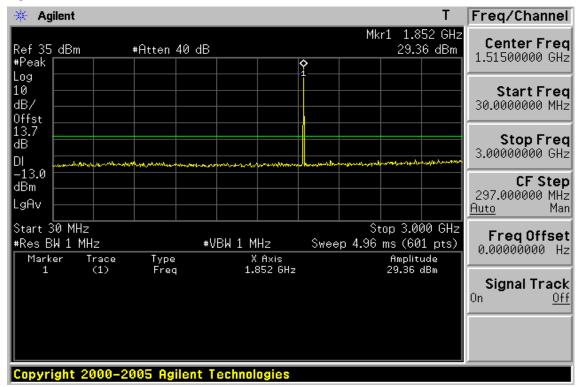
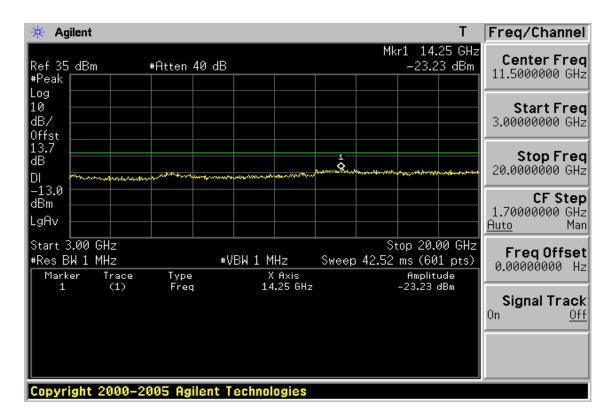


Figure 9-6: Out of Band emission at antenna terminals – GSM 1900 Channel Lowest



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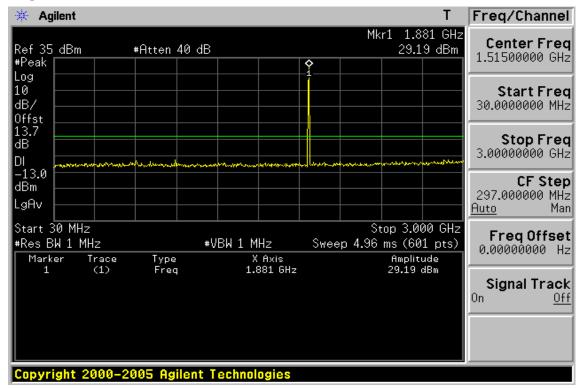
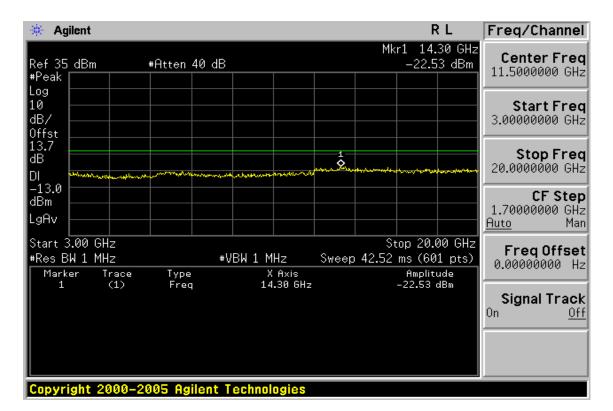


Figure 9-7: Out of Band emission at antenna terminals – GSM 1900 Channel Mid



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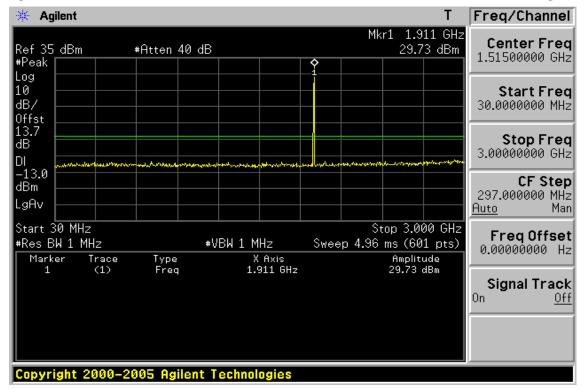
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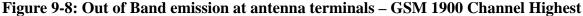
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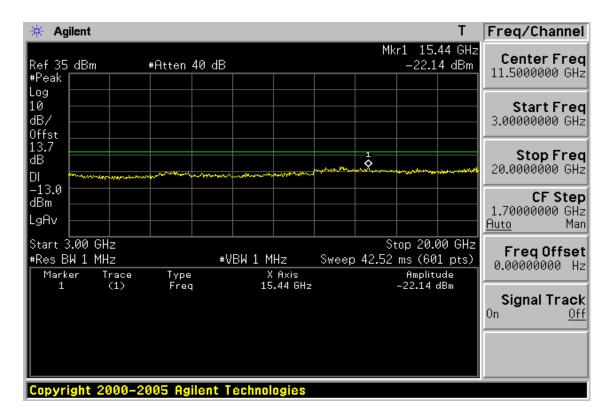
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Out of Band emission at antenna terminals - GSM 1900

Fundamental Frequency	:1850.2 MHz	Engineer	:Nick
Operation Mode	:TX Low		

	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
_					
	<30	S		-13.00	
	30-1000	S		-13.00	
	3700.40	Н		-13.00	
	5550.60	Н		-13.00	
	7400.80	Н		-13.00	
	9251.00	Н		-13.00	
	11101.20	Н		-13.00	
	12951.40	Н		-13.00	
	14250.00	S	-23.23	-13.00	10.23
	14801.60	Н		-13.00	
	16651.80	Н		-13.00	
	18502.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Fundamental Frequency Operation Mode		:1880.0 MHz :TX Mid	Engi	Engineer	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	3760.00	Н		-13.00	
	5640.00	Н		-13.00	
	7520.00	Н		-13.00	
	9400.00	Н		-13.00	
	11280.00	Н		-13.00	
	13160.00	Н		-13.00	
	14300.00	S	-22.53	-13.00	9.53
	15040.00	Н		-13.00	
	16920.00	Н		-13.00	
	18800.00	H		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental Frequency Operation Mode		:1909.8 MHz :TX High	Engi	Engineer	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	3819.60	Н		-13.00	
	5729.40	Н		-13.00	
	7639.20	Н		-13.00	
	9549.00	Н		-13.00	
	11458.80	Н		-13.00	
	13368.60	Н		-13.00	
	15278.40	Н		-13.00	
	15440.00	S	-22.14	-13.00	9.14
	17188.20	Н		-13.00	
	19098.00	H		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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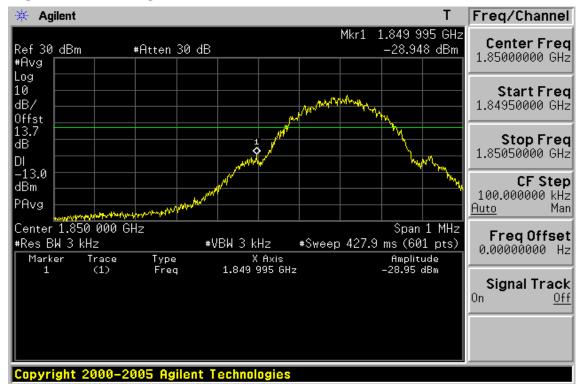
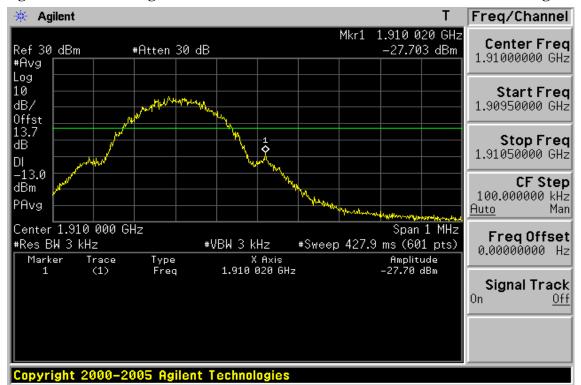


Figure 9-9: Band edge emission at antenna terminals – GSM 1900 Channel Lowest

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



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FCC ID: PY7PM-0290

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Band edge emission at antenna terminals – GSM 1900 Low & High							
Test Mode GSM 1900		Engineer			:Nick		
	Freq. MHz	Reading dBm	Limit dBm	Safe Margin dB			
	1849.995 1910.020	-28.95 -27.7	-13.00 -13.00	15.95 14.70			

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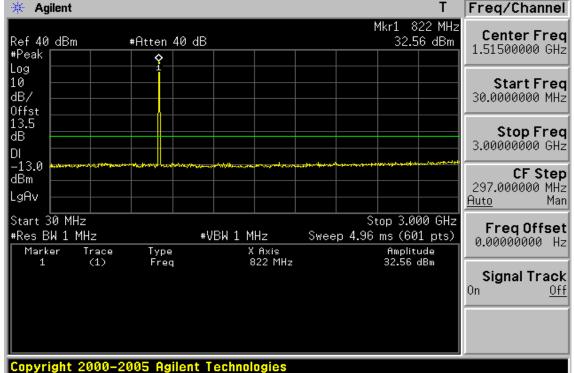
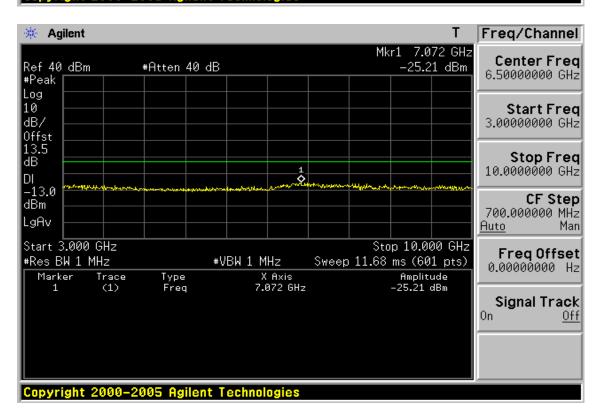


Figure 9-11: Out of Band emission at antenna terminals – GPRS 850 Channel Lowest



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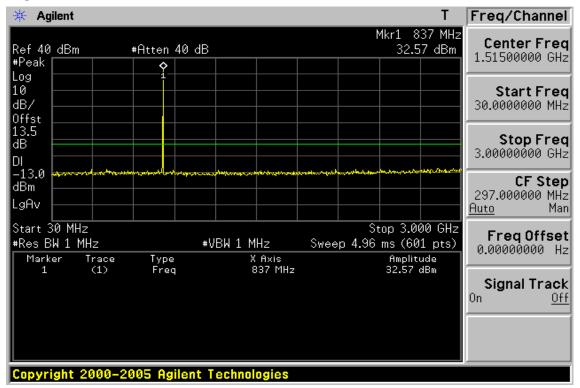
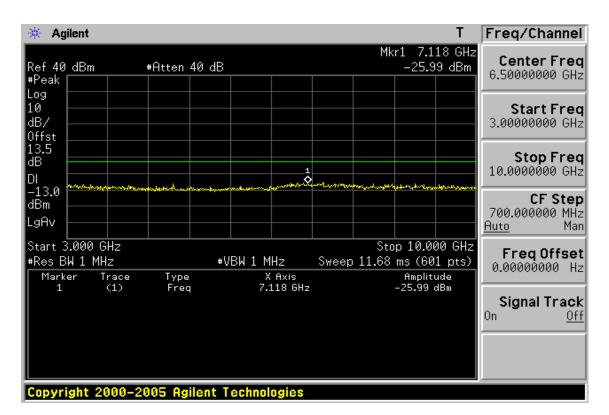


Figure 9-12: Out of Band emission at antenna terminals – GPRS 850 Channel Mid



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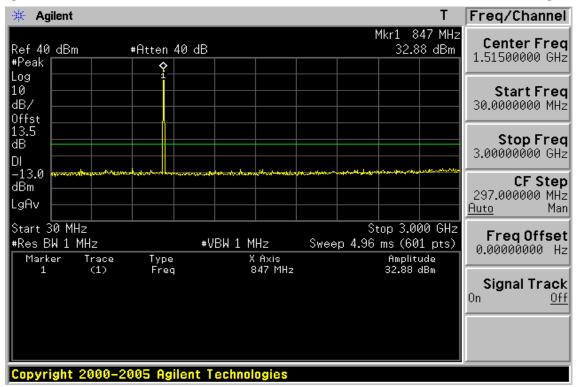
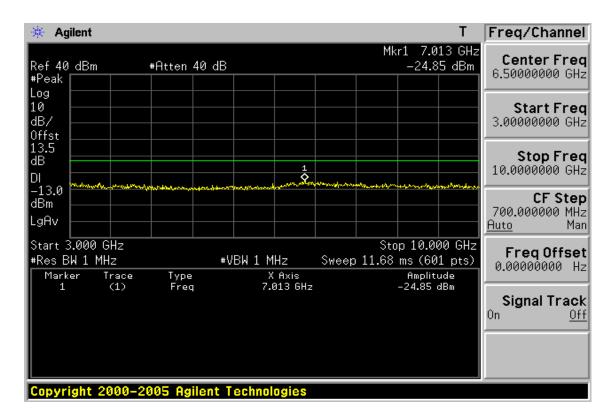


Figure 9-13: Out of Band emission at antenna terminals – GPRS 850 Channel Highest



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Out of Band emission at antenna terminals - GPRS 850

Fundamental Frequency	:824.2 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-13.00	
30-1000	S		-13.00	
1648.40	Н		-13.00	
2472.60	Н		-13.00	
3296.80	Н		-13.00	
4121.00	Н		-13.00	
4945.20	Н		-13.00	
5769.40	Н		-13.00	
6593.60	Н		-13.00	
7072.00	S	-25.21	-13.00	12.21
7417.80	Н		-13.00	
8242.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Fundamental Frequency Operation Mode		:836.6 MHz :TX Mid	Engineer		:Nick	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB	
	<30	S		-13.00		
	30-1000			-13.00		
	1673.20	Н		-13.00		
	2509.80	Н		-13.00		
	3346.40	Н		-13.00		
	4183.00	Н		-13.00		
	5019.60	Н		-13.00		
	5856.20	Н		-13.00		
	6692.80	Н		-13.00		
	7118.00	S	-25.99	-13.00	12.99	
	7529.40	Н		-13.00		
	8366.00	Н		-13.00		

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental Frequency Operation Mode		:848.8MHz :TX High	Engi	neer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	1697.60	Н		-13.00	
	2546.40	Н		-13.00	
	3395.20	Н		-13.00	
	4244.00	Н		-13.00	
	5092.80	Н		-13.00	
	5941.60	Н		-13.00	
	6790.40	Н		-13.00	
	7013.00	S	-24.85	-13.00	11.85
	7639.20	Н		-13.00	
	8488.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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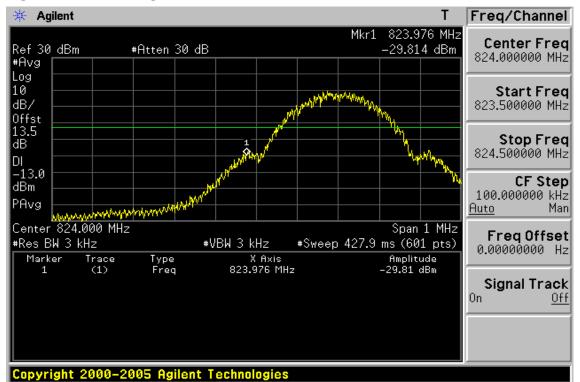
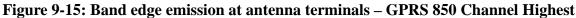
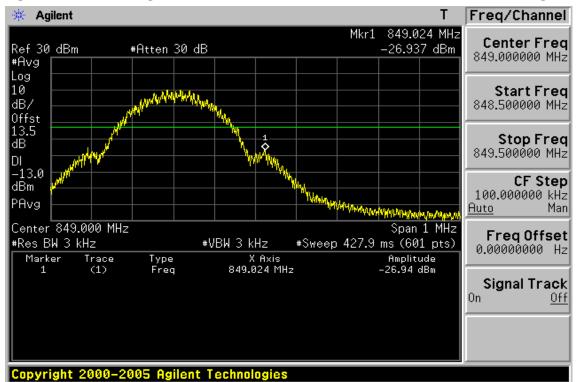


Figure 9-14: Band edge emission at antenna terminals - GPRS 850 Channel Lowest





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Band edge emission at	t antenna termin	als – GPRS 8	850 Low & High		
Test Mode	GPRS 850	Engineer			:Nick
	Freq. MHz	Reading dBm	Limit dBm	Safe Margin dB	
	823.976 849.024	-29.81 -26.94	-13.00 -13.00	16.81 13.94	

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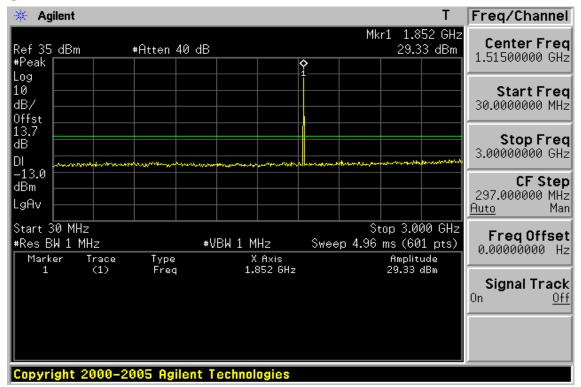
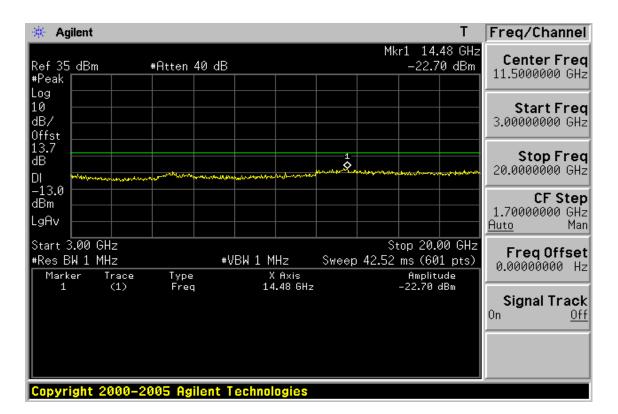


Figure 9-16: Out of Band emission at antenna terminals – GPRS 1900 Channel Lowest



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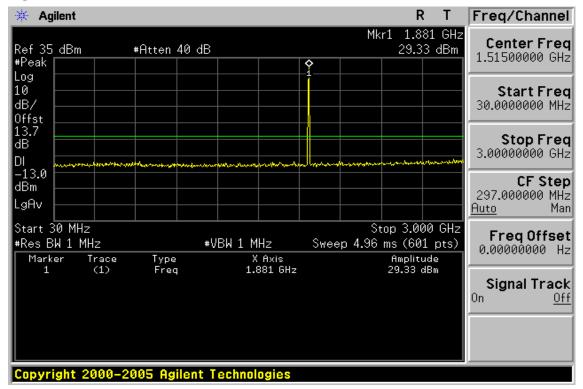
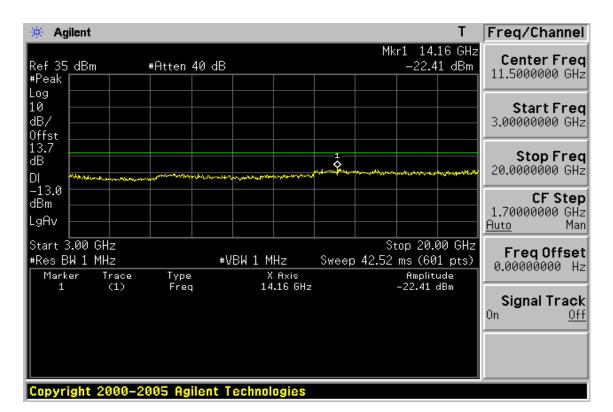


Figure 9-17: Out of Band emission at antenna terminals – GPRS 1900 Channel Mid



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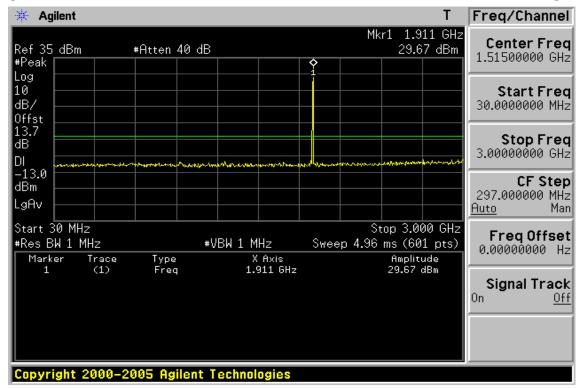
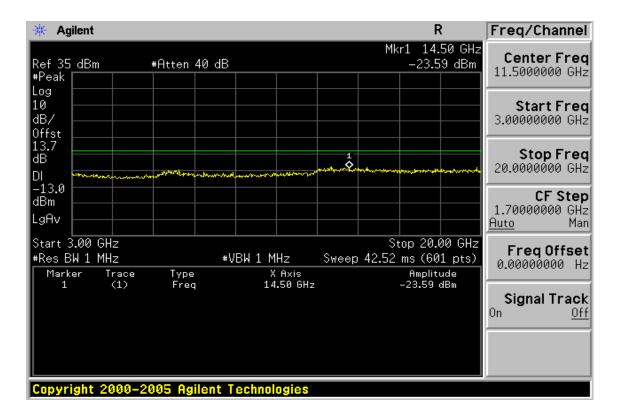


Figure 9-18: Out of Band emission at antenna terminals – GPRS 1900 Channel Highest



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Out of Band emission at antenna terminals - GPRS 1900

Fundamental Frequency	:1850.2 MHz	Engineer	:Nick
Operation Mode	:TX Low		

	req. 1Hz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<	<30	S		-13.00	
30-	1000	S		-13.00	
370	00.40	Н		-13.00	
555	50.60	Н		-13.00	
740	00.80	Н		-13.00	
925	51.00	Н		-13.00	
111	01.20	Н		-13.00	
129	51.40	Н		-13.00	
144	80.00	S	-22.7	-13.00	9.70
148	01.60	Н		-13.00	
166	51.80	Н		-13.00	
185	02.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Fundamental Frequency Operation Mode		:1880.0 MHz Engi :TX Mid		gineer :N	
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	3760.00	Н		-13.00	
	5640.00	Н		-13.00	
	7520.00	Н		-13.00	
	9400.00	Н		-13.00	
	11280.00	Н		-13.00	
	13160.00	Н		-13.00	
	14160.00	S	-22.41	-13.00	9.41
	15040.00	Н		-13.00	
	16920.00	Н		-13.00	
	18800.00	H		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental Frequency Operation Mode		:1909.8 MHz Engi :TX High		neer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	3819.60	Н		-13.00	
	5729.40	Н		-13.00	
	7639.20	Н		-13.00	
	9549.00	Н		-13.00	
	11458.80	Н		-13.00	
	13368.60	Н		-13.00	
	14500.00	S	-23.59	-13.00	10.59
	15278.40	Н		-13.00	
	17188.20	Н		-13.00	
	19098.00	H		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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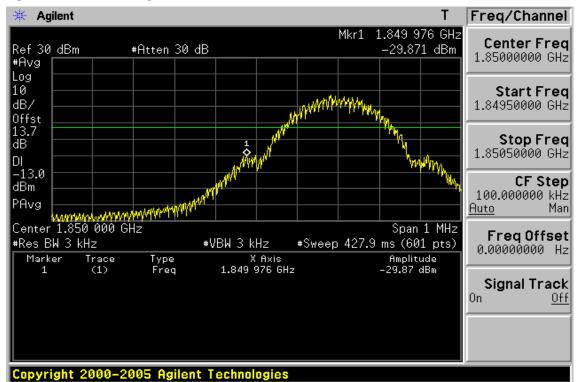
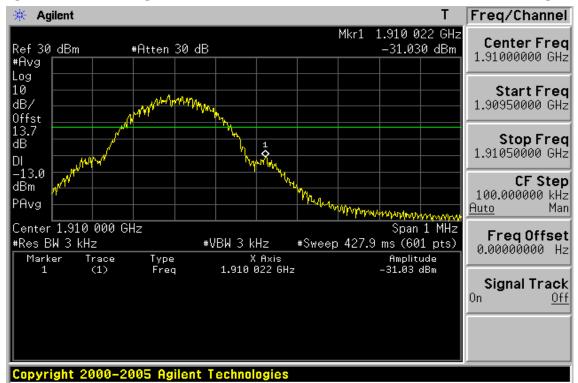


Figure 9-19: Band edge emission at antenna terminals – GPRS 1900 Channel Lowest

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



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Band edge emission at Test Mode	t antenna termin a GPRS 1900	als – GPRS 1900 Low & High Engineer			:Nick
	Freq. MHz	Reading dBm	Limit dBm	Safe Margin dB	
	1849.976 1910.022	-29.87 -31.03	-13.00 -13.00	16.87 18.03	

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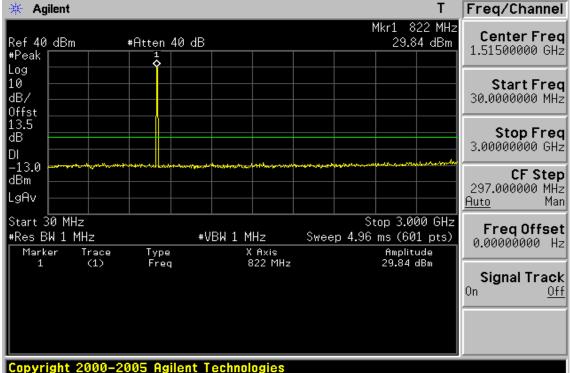
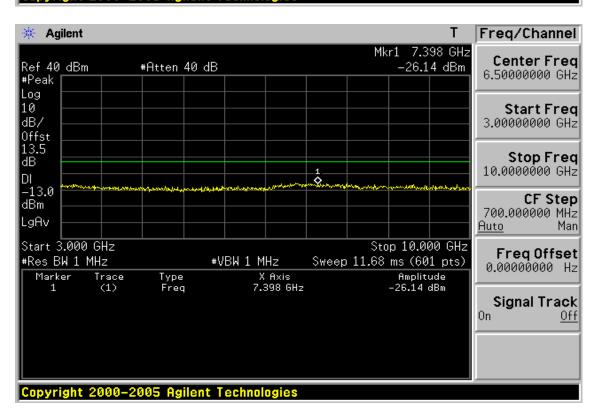


Figure 9-21: Out of Band emission at antenna terminals-EDGE 850 Channel Lowest



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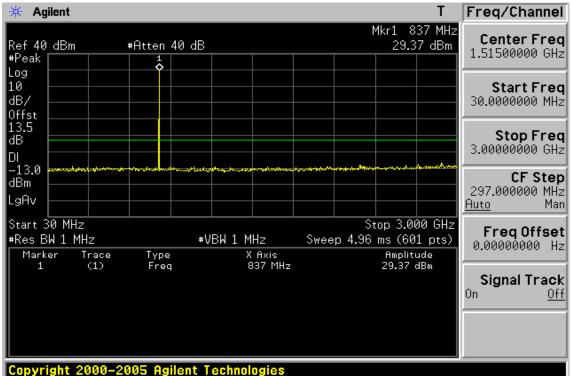
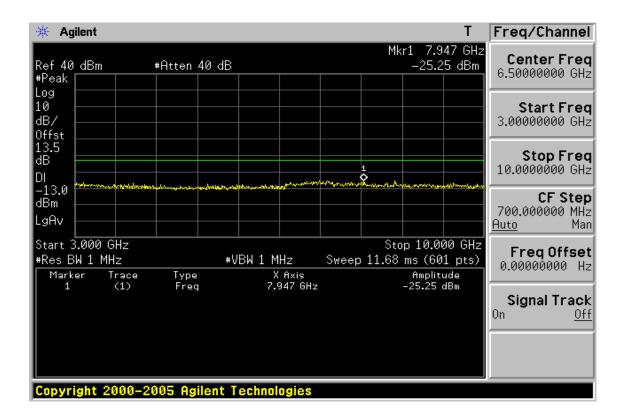


Figure 9-22: Out of Band emission at antenna terminals -EDGE 850 Channel Mid



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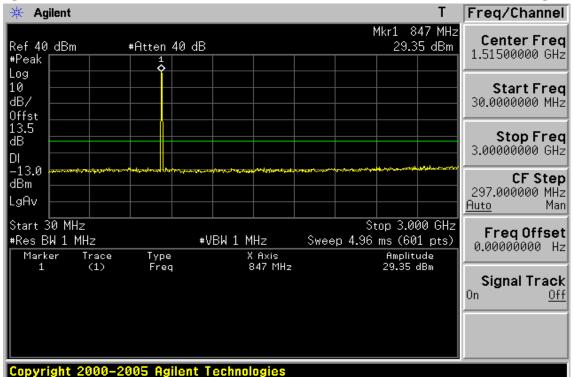
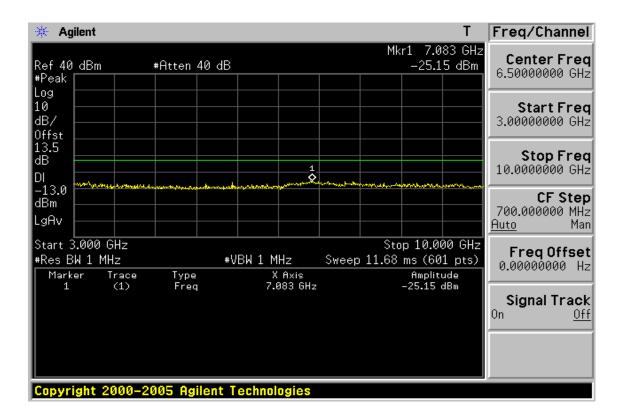


Figure 9-23: Out of Band emission at antenna terminals-EDGE 850 Channel Highest



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Out of Band emission at antenna terminals - EDGE 850

Fundamental Frequency	:824.2 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-13.00	
30-1000	S		-13.00	
1648.40	Н		-13.00	
2472.60	Н		-13.00	
3296.80	Н		-13.00	
4121.00	Н		-13.00	
4945.20	Н		-13.00	
5769.40	Н		-13.00	
6593.60	Н		-13.00	
7398.00	S	-26.14	-13.00	13.14
7417.80	Н		-13.00	
8242.00	Н		-13.00	

"H": denotes Harmonic Frequency. "S": denotes Spurious Frequency. Note : "---": denotes Noise Floor.

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Fundamental Frequency Operation Mode		:836.6 MHz Ei :TX Mid		eer	:Nick
_	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000 1673.20	Н		-13.00 -13.00	
	2509.80 3346.40	Н		-13.00 -13.00 -13.00	
	4183.00 5019.60 6692.80	Н		-13.00 -13.00	
	7529.40 7947.00	Н	-25.25	-13.00 -13.00	12.25
	8366.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental Frequency Operation Mode		:848.8MHz E :TX High		ineer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000	S		-13.00	
	1697.60	Н		-13.00	
	2546.40	Н		-13.00	
	3395.20	Н		-13.00	
	4244.00	Н		-13.00	
	5092.80	Н		-13.00	
	5941.60	Н		-13.00	
	6790.40	Н		-13.00	
	7083.00	S	-25.15	-13.00	12.15
	7639.20	Н		-13.00	
	8488.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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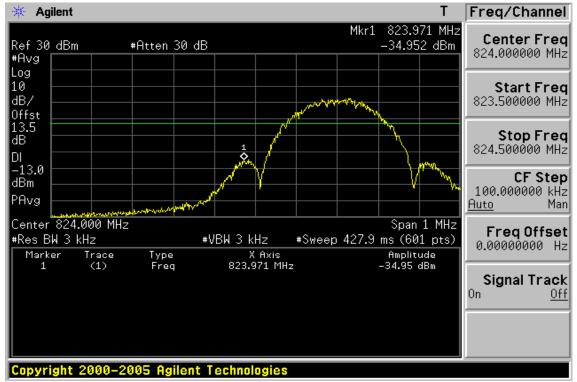
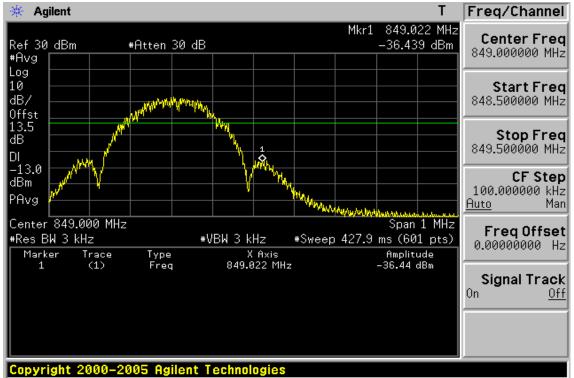


Figure 9-24: Band edge emission at antenna terminals -EDGE 850 Channel Lowest





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FCC ID: PY7PM-0290

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Band edge emission at Test Mode	antenna termina EDGE 850	hals – EDGE 850 Low & High Engineer			:Nick
_	Freq. MHz	Reading dBm	Limit dBm	Safe Margin dB	
	823.971 849.022	34.95 -36.44	-13.00 -13.00	-47.95 23.44	

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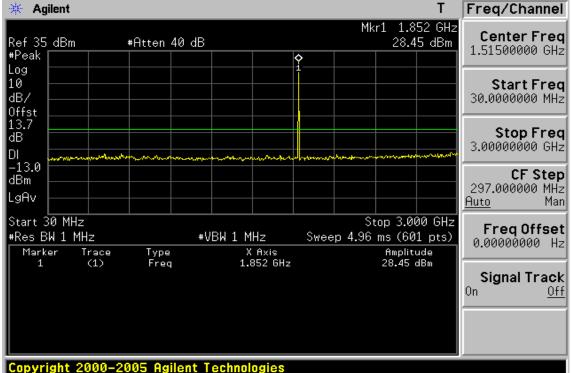
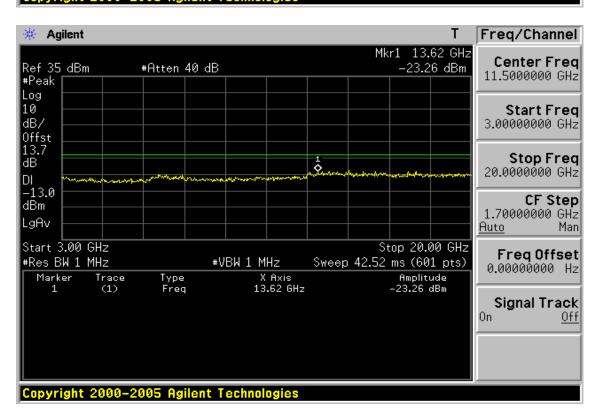


Figure 9-26: Out of Band emission at antenna terminals-EDGE 1900 Channel Lowest



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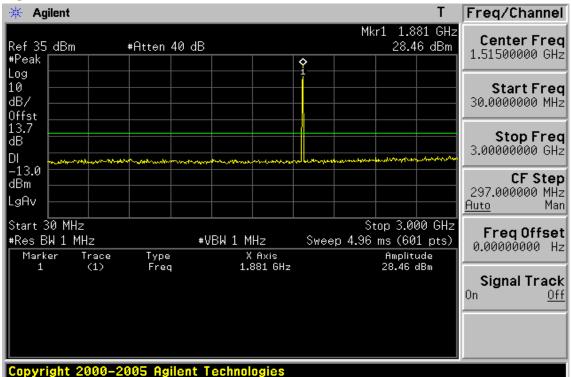
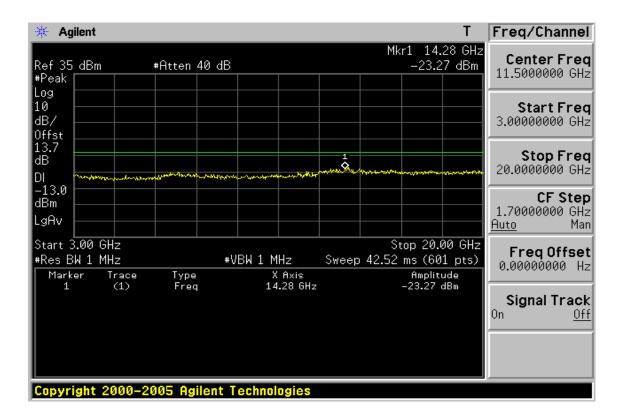


Figure 9-27: Out of Band emission at antenna terminals -EDGE 1900 Channel Mid



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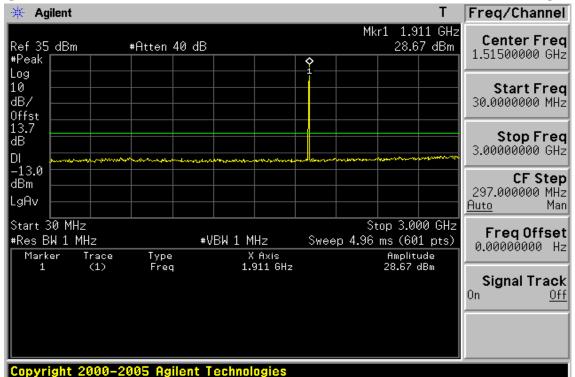
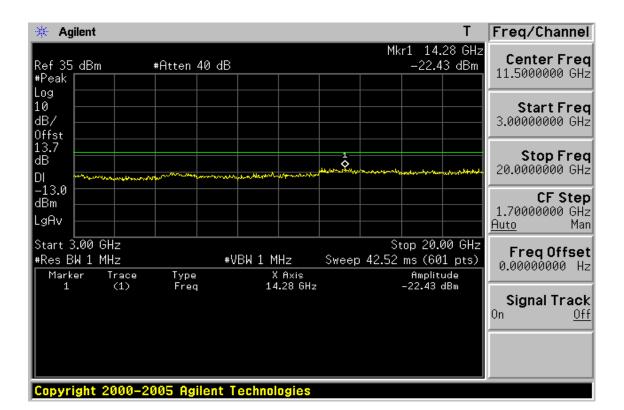


Figure 9-28: Out of Band emission at antenna terminals-EDGE 1900 Channel Highest



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Out of Band emission at antenna terminals - EDGE 1900

Fundamental Frequency	:1850.2 MHz	Engineer	:Nick
Operation Mode	:TX Low		

Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
<30	S		-13.00	
30-1000	S		-13.00	
3700.40	Н		-13.00	
5550.60	Н		-13.00	
7400.80	Н		-13.00	
9251.00	Н		-13.00	
11101.20	Н		-13.00	
12951.40	Н		-13.00	
13620.00	S	-23.26	-13.00	10.26
14801.60	Н		-13.00	
16651.80	Н		-13.00	
18502.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Fundamental Frequency Operation Mode		:1880.0 MHz :TX Mid	Engin	leer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	3760.00	Н		-13.00	
	5640.00	Н		-13.00	
	7520.00	Н		-13.00	
	9400.00	Н		-13.00	
	11280.00	Н		-13.00	
	13160.00	Н		-13.00	
	14280.00	S	-23.27	-13.00	10.27
	15040.00	Н		-13.00	
	16920.00	Н		-13.00	
	18800.00	Н		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental Frequency Operation Mode		:1909.8 MHz :TX High	Eng	ineer	:Nick
	Freq. (MHz)	Note F/H/E/S	Reading dBm	Limit dBm	Safe Margin dB
	<30	S		-13.00	
	30-1000			-13.00	
	3819.60	Н		-13.00	
	5729.40	Н		-13.00	
	7639.20	Н		-13.00	
	9549.00	Н		-13.00	
	11458.80	Н		-13.00	
	13368.60	Н		-13.00	
	14280.00	S	-22.43	-13.00	9.43
	15278.40	Н		-13.00	
	17188.20	Н		-13.00	
	19098.00	H		-13.00	

Note : "H" : denotes Harmonic Frequency. "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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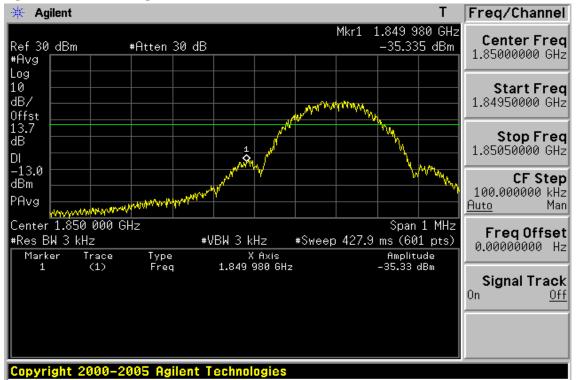
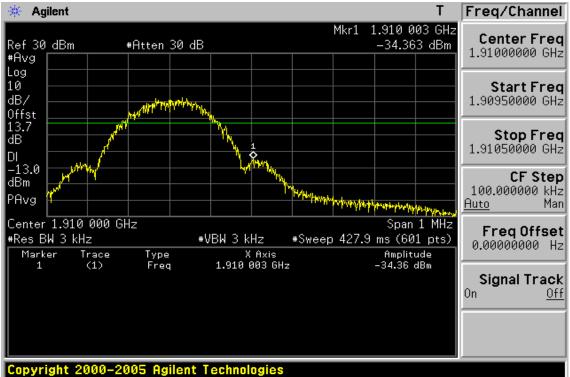


Figure 9-29: Band edge emission at antenna terminals -EDGE 1900 Channel Lowest

Figure 9-30: Band edge emission at antenna terminals -EDGE 1900 Channel Highest



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Band edge emission at Test Mode	antenna termina EDGE 1900	als – EDGE 1900 Low & High Engineer			:Nick
	Freq. MHz	Reading dBm	Limit dBm	Safe Margin dB	
	1849.980 1910.003	-35.33 -34.36	-13.00 -13.00	22.33 21.36	

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10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT (TX)

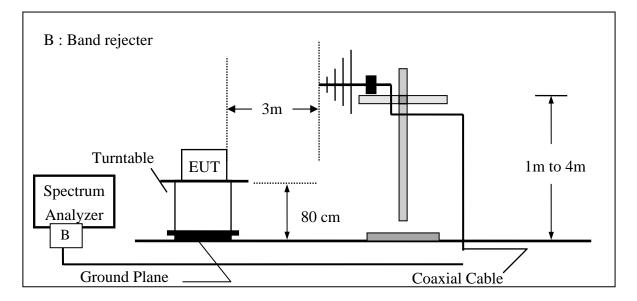
10.1. Standard Applicable:

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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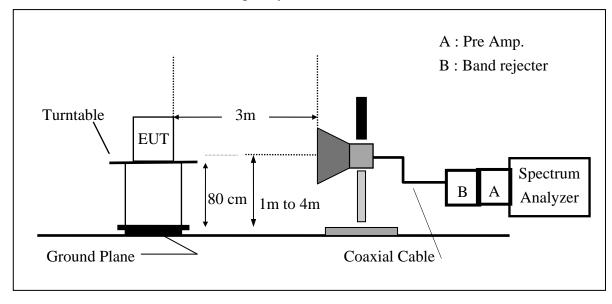
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Radiated Emission Test Set-UP Frequency Over 1 GHz

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.

For radiated plot of test data, please refer to Appendix 1, page 130.

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Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Band	:GPRS 850	Test Date	:2012-11-15
ARFCN	:CH 128	Temp./Humi.	:23.2deg_C/63RH
Fundamental Frequency	:824.2 MHz	Engineer	:Marcus
Operation Mode	:TX LOW		
EUT Pol.	:E1 Plan	Measurement Antenna Pol.	:VERTICAL

	Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
				Output Level	Gain	Loss		
_	MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
	103.72	S	-83.14	-81.05	-1.02	-1.07	-13.00	-70.14
	221.09	S	-84.19	-87.54	4.83	-1.48	-13.00	-71.19
	394.72	S	-82.81	-85.62	4.74	-1.93	-13.00	-69.81
	546.04	S	-78.45	-80.79	4.59	-2.25	-13.00	-65.45
	702.21	S	-76.83	-78.39	4.12	-2.56	-13.00	-63.83
	926.28	S	-74.12	-74.76	3.64	-3.00	-13.00	-61.12
	1648.40	Н	-45.23	-43.57	2.39	-4.05	-13.00	-32.23
	2472.60	Н	-46.64	-44.75	3.14	-5.03	-13.00	-33.64
	3296.80	Н						
	4121.00	Н						
	4945.20	Н						
	5769.40	Н						
	6593.60	Н						
	7417.80	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.

Η

8242.00

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	ll Frequency	:GPRS 850 :CH 128 :824.2 MHz	Tem	Date pp./Humi. ineer		:2012-11-15 :23.2deg_C/ :Marcus	
Operation M EUT Pol.	lode	:TX LOW :E1 Plan	Mea	surement Ante	nna Pol.	:HORIZON	ΓAL
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
152.22	S	-86 38	-84 15	-0 99	-1 25	-13.00	-73 38

152.22	S	-86.38	-84.15	-0.99	-1.25	-13.00	-73.38	
305.48	S	-85.45	-88.39	4.66	-1.72	-13.00	-72.45	
465.53	S	-82.53	-84.99	4.55	-2.09	-13.00	-69.53	
584.84	S	-80.84	-82.69	4.19	-2.34	-13.00	-67.84	
750.71	S	-76.59	-77.47	3.54	-2.66	-13.00	-63.59	
930.16	S	-75.72	-76.34	3.64	-3.01	-13.00	-62.72	
1648.40	Н	-50.68	-49.30	2.68	-4.05	-13.00	-37.68	
2472.60	Н	-47.80	-46.29	3.52	-5.03	-13.00	-34.80	
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 ARFCN	:GPRS 850 :CH 190		Date p./Humi.		:2012-11-15 :23.2deg_C/6	53RH
Fundamental Frequency	:836.6 MHz	Engi	ineer		:Marcus	
Operation Mode EUT Pol.	:TX MID :E1 Plan	Mea	surement Ante	nna Pol.	:VERTICAL	
Freq. Note	ERP	SG Output Lovel	Antenna Gain	Cable Loss	Limit	Margin
	ID	Output Level	Ualli	LUSS	ID	ID

			-					
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
99.84	S	-83.11	-81.07	-0.99	-1.05	-13.00	-70.11	
249.22	S	-83.51	-86.49	4.54	-1.56	-13.00	-70.51	
432.55	S	-81.57	-84.10	4.55	-2.02	-13.00	-68.57	
532.46	S	-78.43	-80.83	4.63	-2.23	-13.00	-65.43	
706.09	S	-76.66	-78.16	4.07	-2.57	-13.00	-63.66	
934.04	S	-73.42	-74.04	3.64	-3.02	-13.00	-60.42	
1673.20	Н	-46.29	-44.54	2.33	-4.08	-13.00	-33.29	
2509.80	Н	-47.98	-46.10	3.19	-5.07	-13.00	-34.98	
3346.40	Н							
4183.00	Н							
5019.60	Н							
5856.20	Н							

6692.80 Η 7529.40 Η 8366.00 Η

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 ARFCN Fundamental Frequency Operation Mode EUT Pol.		:GPRS 850 :CH 190 :836.6 MHz :TX MID	Г	Test Date Temp./Humi. Engineer Measurement Antenna Pol.			:2012-11-15 :23.2deg_C/63RH :Marcus :HORIZONTAL	
		:E1 Plan	Ν					
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin	
			Output Level	l Gain	Loss			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
135.73	S	-86.95	-84.67	-1.08	-1.19	-13.00	-73.95	
287.05	S	-86.86	-89.70	4.51	-1.67	-13.00	-73.86	
418.97	S	-82.79	-85.43	4.63	-1.99	-13.00	-69.79	
554.77	S	-81.37	-83.63	4.53	-2.27	-13.00	-68.37	
745.86	S	-77.50	-78.43	3.58	-2.65	-13.00	-64.50	
953.44	S	-75.69	-76.28	3.66	-3.06	-13.00	-62.69	
1673.20	Н	-53.61	-52.19	2.66	-4.08	-13.00	-40.61	
2509.80	Н	-49.24	-47.72	3.56	-5.07	-13.00	-36.24	
3346.40	Н							
4183.00	Н							
5019.60	Н							
5856.20	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.

Η

Η

Η

6692.80

7529.40

8366.00

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Operation Band	:GPRS 850	Test Date	:2012-11-15
ARFCN	:CH 251	Temp./Humi.	:23.2deg_C/63RH
Fundamental Frequency	:848.8 MHz	Engineer	:Marcus
Operation Mode	:TX HIGH		
EUT Pol.	:E1 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
99.84	S	-82.95	-80.90	-0.99	-1.05	-13.00	-69.95
157.07	S	-84.12	-82.14	-0.72	-1.26	-13.00	-71.12
286.08	S	-82.33	-85.16	4.50	-1.67	-13.00	-69.33
621.70	S	-77.01	-78.66	4.07	-2.42	-13.00	-64.01
721.61	S	-76.63	-77.91	3.88	-2.59	-13.00	-63.63
942.77	S	-73.63	-74.22	3.63	-3.04	-13.00	-60.63
1697.60	Н	-47.08	-45.24	2.28	-4.12	-13.00	-34.08
2546.40	Н	-45.36	-43.55	3.30	-5.11	-13.00	-32.36
3395.20	Н						
4244.00	Н						
5092.80	Н						
5941.60	Н						
6790.40	Н						
7639.20	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.

Η

8488.00

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Operation Band	:GPRS 850	Test Date	:2012-11-15
ARFCN	:CH 251	Temp./Humi.	:23.2deg_C/63RH
Fundamental Frequency	:848.8 MHz	Engineer	:Marcus
Operation Mode	:TX HIGH		
EUT Pol.	:E1 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
114.39	S	-86.56	-84.24	-1.20	-1.11	-13.00	-73.56
328.76	S	-84.77	-87.64	4.65	-1.78	-13.00	-71.77
453.89	S	-82.38	-84.81	4.49	-2.06	-13.00	-69.38
571.26	S	-81.22	-83.25	4.34	-2.31	-13.00	-68.22
752.65	S	-77.77	-78.65	3.55	-2.66	-13.00	-64.77
931.13	S	-75.40	-76.02	3.64	-3.01	-13.00	-62.40
1697.60	Н	-52.51	-51.04	2.65	-4.12	-13.00	-39.51
2546.40	Н	-50.01	-48.56	3.65	-5.11	-13.00	-37.01
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)

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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Radiated Spurious Emission Measurement Result: GSM 1900 Mode

Operation Band	:GSM 1900	Test Date	:2012-11-20
ARFCN	:CH 512	Temp./Humi.	:23.0deg_C/60RH
Fundamental Frequency	:1850.2 MHz	Engineer	:Marcus
Operation Mode	:TX LOW		
EUT Pol.	:E1 Plan	Measurement Antenna Pol.	:VERTICAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
106.63	S	-57.01	-57.03	1.11	-1.08	-13.00	-44.01
157.07	S	-63.02	-63.19	1.43	-1.26	-13.00	-50.02
183.26	S	-70.36	-73.99	4.99	-1.36	-13.00	-57.36
396.66	S	-73.90	-78.87	6.91	-1.93	-13.00	-60.90
877.78	S	-58.70	-61.78	5.97	-2.89	-13.00	-45.70
942.77	S	-62.96	-65.70	5.78	-3.04	-13.00	-49.96
3700.40	Н	-50.81	-51.98	7.40	-6.23	-13.00	-37.81
5550.60	Н	-39.49	-40.68	8.99	-7.80	-13.00	-26.49
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 B ARFCN Fundamenta Operation M EUT Pol.	ll Frequency	:GSM 1900 :CH 512 :1850.2 MHz :TX LOW :E1 Plan	Ter Eng	st Date mp./Humi. gineer easurement Ante	nna Pol	:2012-11-20 :23.0deg_C/0 :Marcus :HORIZONT	50RH
		.L1 I lall	IVIC		iiiia 1 01.		I AL
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
106.63	S	-57.94	-57.96	1.11	-1.08	-13.00	-44.94
157.07	S	-66.73	-66.90	1.43	-1.26	-13.00	-53.73
183.26	S	-74.05	-77.68	4.99	-1.36	-13.00	-61.05
397.63	S	-73.57	-78.55	6.91	-1.94	-13.00	-60.57
878.75	S	-59.28	-62.35	5.96	-2.89	-13.00	-46.28
942.77	S	-64.64	-67.38	5.78	-3.04	-13.00	-51.64
3700.40	Н	-53.89	-54.57	6.91	-6.23	-13.00	-40.89
5550.60	Н	-42.77	-43.24	8.27	-7.80	-13.00	-29.77
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 B ARFCN Fundamenta Operation M EUT Pol.	ll Frequency	:GSM 1900 :CH 661 :1880.0 MHz :TX MID :E1 Plan	Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2012-11-20 :23.0deg_C/60RH :Marcus :VERTICAL		
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
106.63	S	-57.07	-57.10	1.11	-1.08	-13.00	-44.07
157.07	S	-63.08	-63.25	1.43	-1.26	-13.00	-50.08
396.66	S	-73.62	-78.60	6.91	-1.93	-13.00	-60.62
556.71	S	-73.76	-78.14	6.65	-2.27	-13.00	-60.76
878.75	S	-59.83	-62.90	5.96	-2.89	-13.00	-46.83
942.77	S	-62.85	-65.60	5.78	-3.04	-13.00	-49.85
3760.00	Н	-53.21	-54.31	7.42	-6.32	-13.00	-40.21
5640.00	Н	-36.31	-37.43	9.01	-7.89	-13.00	-23.31
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 N	al Frequency	:GSM 1900 :CH 661 :1880.0 MHz :TX MID	Test Date Temp./Humi. Engineer		:2012-11-20 :23.0deg_C/60RH :Marcus		
EUT Pol.		:E1 Plan	Me	easurement Ante	nna Pol.	:HORIZON	TAL
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
106.63	S	-58.57	-58.59	1.11	-1.08	-13.00	-45.57
157.07	S	-66.30	-66.46	1.43	-1.26	-13.00	-53.30
396.66	S	-73.92	-78.89	6.91	-1.93	-13.00	-60.92
440.31	S	-68.98	-73.61	6.66	-2.03	-13.00	-55.98
878.75	S	-60.11	-63.18	5.96	-2.89	-13.00	-47.11
942.77	S	-63.77	-66.52	5.78	-3.04	-13.00	-50.77
3760.00	Н	-54.94	-55.46	6.85	-6.32	-13.00	-41.94
5640.00	Н	-37.71	-38.12	8.30	-7.89	-13.00	-24.71
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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7639.20

9549.00

11458.80

13368.60

15278.40

17188.20

19098.00

FCC ID: PY7PM-0290

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Operation B ARFCN Fundamenta Operation M EUT Pol.	al Frequency	:GSM 1900 :CH 810 :1909.8 MHz :TX HIGH :E1 Plan	Test Date Temp./Humi. Engineer Measurement Antenna Pol.			:2012-11-20 :23.0deg_C/60RH :Marcus :VERTICAL		
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
106.63	S	-57.37	-57.39	1.11	-1.08	-13.00	-44.37	
157.07	S	-63.23	-63.39	1.43	-1.26	-13.00	-50.23	
247.28	S	-69.37	-74.47	6.66	-1.55	-13.00	-56.37	
373.38	S	-72.09	-76.98	6.77	-1.88	-13.00	-59.09	
878.75	S	-59.23	-62.30	5.96	-2.89	-13.00	-46.23	
942.77	S	-63.83	-66.57	5.78	-3.04	-13.00	-50.83	
3819.60	Н	-49.83	-50.96	7.51	-6.39	-13.00	-36.83	
5729.40	Н	-30.02	-31.13	9.03	-7.92	-13.00	-17.02	

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	:2012-11-20
ARFCN	:CH 810	Temp./Humi.	:23.0deg_C/60RH
Fundamental Frequency	:1909.8 MHz	Engineer	:Marcus
Operation Mode	:TX HIGH		
EUT Pol.	:E1 Plan	Measurement Antenna Pol.	:HORIZONTAL

Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
43.58	S	-65.29	-53.82	-10.58	-0.89	-13.00	-52.29
106.63	S	-58.82	-58.84	1.11	-1.08	-13.00	-45.82
157.07	S	-66.91	-67.07	1.43	-1.26	-13.00	-53.91
396.66	S	-72.99	-77.96	6.91	-1.93	-13.00	-59.99
878.75	S	-59.90	-62.97	5.96	-2.89	-13.00	-46.90
942.77	S	-64.94	-67.68	5.78	-3.04	-13.00	-51.94
3819.60	Н	-51.48	-52.14	7.05	-6.39	-13.00	-38.48
5729.40	Н	-29.77	-30.17	8.32	-7.92	-13.00	-16.77
7639.20	Н						
9549.00	Н	-38.08	-38.39	10.67	-10.36	-13.00	-25.08
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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11. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

11.1. Standard Applicable:

According to FCC §2.1055(a) (1)

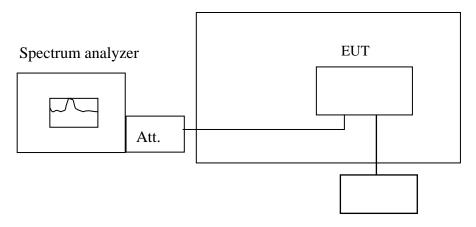
Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

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

11.2. Test Set-up:

Temperature Chamber



Variable DC Power Supply

Note : Measurement setup for testing on Antenna connector

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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 $+50^{\circ}$ C reached.

11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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11.5. Measurement Result:

F	Reference Frequency: GPRS 850 Mid Channel 836.6 MHz							
	Limit	+/-2.5 ppm = 209	91 Hz					
Power Supply	Environment	Frequency	Dolto (Uz)	Limit (Hz)				
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Linit (HZ)				
3.7	-30	836.600014	17.00	2091				
3.7	-20	836.600026	29.00	2091				
3.7	-10	836.599992	-5.00	2091				
3.7	0	836.600008	11.00	2091				
3.7	10	836.600018	21.00	2091				
3.7	20	836.599997	0.00	2091				
3.7	30	836.599979	-18.00	2091				
3.7	40	836.600007	10.00	2091				
3.7	50	836.600005	8.00	2091				

R	Reference Frequency: GPRS 1900 Mid Channel 1880 MHz							
	Limit	$\pm +/-2.5 \text{ ppm} = 470$	00 Hz					
Power Supply	Environment	Frequency	Dolto (Uz)	Limit (Uz)				
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)				
3.7	-30	1880.000045	42.00	4700				
3.7	-20	1879.999974	-29.00	4700				
3.7	-10	1879.999987	-16.00	4700				
3.7	0	1880.000014	11.00	4700				
3.7	10	1880.000029	26.00	4700				
3.7	20	1880.000003	0.00	4700				
3.7	30	1879.999985	-18.00	4700				
3.7	40	1880.000016	13.00	4700				
3.7	50	1879.999980	-23.00	4700				

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(d) (2)

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

+/-2.5ppm for 1900MHz band

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:

]	Reference Frequency: GPRS 850 Mid Channel 836.6 MHz						
	Limit	: +/- 2.5 ppm = 209	91 Hz				
Power Supply	Environment	Frequency	Dolto (Uz)	Limit (Hz)			
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)			
4.2	20	836.599985	-21.00	2091			
3.7	20	836.600006	0.00	2091			
3.4	20	836.599997	-9.00	2091			
2.8	20	826 600001	5.00	2001			
(End Point)	20	836.600001	-5.00	2091			

F	Reference Frequency: GPRS 1900 Mid Channel 1880 MHz							
	Limit	: +/- 2.5 ppm = 470	00 Hz					
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)				
Vdc	Temperature (°C)	(MHz)	Delta (IIZ)	Linint (112)				
4.2	20	1879.999973	-33.00	4700				
3.7	20	1880.000006	0.00	4700				
3.4	20	1879.999993	-13.00	4700				
2.8	20	1070 00000	10.00	1700				
(End Point)	20	1879.999996	-10.00	4700				

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13. PEAK TO AVERAGE RATIO

13.1. Standard Applicable:

According FCC 24.232(d) – The peak-to-average ration (PAR) of the transmission may not exceed 13dB.

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

Refer to section 2.4 in this report

13.3. Measurement Procedure:

KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly: Set resolution/measurement bandwidth \geq signal's occupied bandwidth; & internal =1ms Set the number of counts to a value that stabilizes the measured CCDF curve.

13.4. Measurement Equipment Used:

Refer to section 2.4 in this report

13.5. Measurement Result:

Refer to next page for plot.

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13.5.1 Tabular Results:

	Peak-to-Average Ratio					
	Channel	128(L)	Channel 190(M)		Channel 251(H)	
TEST	824.2	MHz	836.6	MHz	848.8	MHz
CONDITIONS	dB		dB		dB	
Tnom / Vnom	Measured	Limit	Measured	Limit	Measured	Limit
GSM 850	11.57	13	10.48	13	9.79	13
GPRS 850	10.30	13	10.39	13	10.49	13
EDGE 850	12.47	13	11.60	13	12.37	13

	Peak-to-Average Ratio					
	Channel	512(L)	Channel 661(M)		Channel 810(H)	
TEST	1850.2MHz		1880.0MHz		1909.8MHz	
CONDITIONS	dB		dB		dB	
Tnom / Vnom	Measured	Limit	Measured	Limit	Measured	Limit
GSM 1900	10.10	13	10.60	13	9.80	13
GPRS 1900	10.25	13	10.78	13	10.97	13
EDGE 1900	12.61	13	12.81	13	12.56	13

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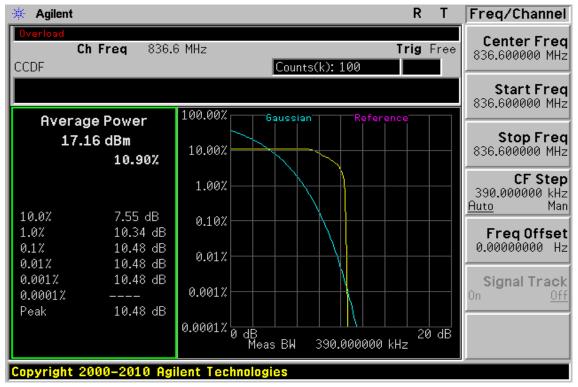
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13.5.2 Measurement Results:



Figure 13-1: GSM 850 Channel Low

Figure 13-2: GSM 850 Channel Mid



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Figure 13-3: GSM 850 Channel High

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0.0001%<u>∟</u>

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dB Meas BW

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20 dB



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Figure 13-5: GSM 1900 Channel Mid

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Figure 13-7: GPRS 850 Channel Low

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0.10%

0.01%

0.001%

0.0001%⊑ 0

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8.57 dB

10.29 dB

10.39 dB

10.39 dB

10.39 dB

10.39 dB

10.0%

1.0%

0.1%

0.01% 0.001%

Peak

0.0001%

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dB Meas BW

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20 dB

Freq Offset

0.00000000 Hz

Signal Track



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Agilent R Т Freq/Channel Center Freq Ch Freq 848.8 MHz Trig Free 848.800000 MHz CCDF Counts(k): 100 Start Freq 848.800000 MHz 100.00% **Average Power** Gaussian Stop Freq 848.800000 MHz 17.14 dBm 10.00% 13.64% **CF** Step 1.00% 390.000000 kHz <u>Auto</u> Man 10.0% 8.22 dB 0.10% 1.0% 10.36 dB Freq Offset 0.0000000 Hz 10.49 dB 0.1% 0.01% 10.51 dB 0.01% 0.001% 10.51 dB Signal Track 0.001% 0.0001% 10.51 dB Peak 20 dB 390.000000 kHz Copyright 2000-2010 Agilent Technologies Figure 13-10: GPRS 1900 Channel Low R Freq/Channel 🔆 Agilent Т Center Freq Ch Freq 1.8502 GHz Trig Free 1.85020000 GHz Counts(k): 100 CCDF Start Freq 1.85020000 GHz 100.00% **Average Power** Gaussian Stop Freq 17.36 dBm 10.00% 1.85020000 GHz 13.46% **CF** Step 1.00% 390.000000 kHz Auto Man 10.0% 7.73 dB 0.10% 1.0% 9.92 dB Freq Offset 10.25 dB 0.00000000 Hz 0.1% 0.01% 10.29 dB 0.01% 0.001% 10.29 dB Signal Track 0.001% 0.0001% 10.29 dB Peak

Figure 13-9: GPRS 850 Channel High

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0.0001%<u>∟</u>

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dB Meas BW

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Agilent R Т Freq/Channel Center Freq Ch Freq 1.88 GHz Trig Free 1.88000000 GHz CCDF Counts(k): 100 Start Freq 1.88000000 GHz 100.00% **Average Power** Gaussian Stop Freq 16.79 dBm 10.00% 1.88000000 GHz 12.78% **CF** Step 1.00% 390.000000 kHz <u>Auto</u> Man 10.0% 8.12 dB 0.10% 1.0% 10.21 dB Freq Offset 0.0000000 Hz 10.78 dB 0.1% 0.01% 0.01% 10.87 dB 0.001% 10.87 dB Signal Track 0.001% 0.0001% 10.87 dB Peak 20 dB 390.000000 kHz Copyright 2000-2010 Agilent Technologies Figure 13-12: GPRS 1900 Channel High R Freq/Channel 🔆 Agilent Т Center Freq Ch Freq 1.9098 GHz Trig Free 1.90980000 GHz Counts(k): 100 CCDF Start Freq 1.90980000 GHz 100.00% **Average Power** Gaussian Referenci Stop Freq 16.63 dBm 10.00% 1.90980000 GHz 14.91% **CF** Step 1.00% 390.000000 kHz Auto Man 8.54 dB 10.0% 0.10% 1.0% 10.69 dB Freq Offset 10.97 dB 0.00000000 Hz 0.1% 0.01% 11.03 dB 0.01% 0.001% 11.03 dB Signal Track 0.001% 0.0001% 11.03 dB Peak 0.0001%⊑ 0 dB Meas BW 20 dB 390.000000 kHz Copyright 2000-2010 Agilent Technologie

Figure 13-11 GPRS 1900 Channel Mid

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Figure 13-13: EDGE 850 Channel Low

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Figure 13-15: EDGE 850 Channel High

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Agilent R Т Freq/Channel Center Freq Ch Freq 1.88 GHz Trig Free 1.88000000 GHz CCDF Counts(k): 100 Start Freq 1.88000000 GHz 100.00% **Average Power** Gaussian Stop Freq 14.60 dBm 10.00% 1.88000000 GHz 13.49% **CF** Step 1.00% 390.000000 kHz <u>Auto</u> Man 10.0% 7.85 dB 0.10% 1.0% 11.78 dB Freq Offset 0.00000000 Hz 12.81 dB 0.1% 0.01% 13.06 dB 0.01% 0.001% 13.14 dB Signal Track 0.001% 0.0001% 13.14 dB Peak 20 dB 390.000000 kHz Copyright 2000-2010 Agilent Technologies Figure 13-18: EDGE 1900 Channel High R Freq/Channel 🔆 Agilent Т Center Freq Ch Freq 1.9098 GHz Trig Free 1.90980000 GHz Counts(k): 100 CCDF Start Freq 1.90980000 GHz 100.00% **Average Power** Gaussian Stop Freq 14.96 dBm 10.00% 1.90980000 GHz 16.29% **CF** Step 1.00% 390.000000 kHz Auto Man 10.0% 8.78 dB 0.10% 1.0% 11.62 dB Freq Offset 12.56 dB 0.00000000 Hz 0.1% 0.01% 12.74 dB 0.01% 0.001% 12.77 dB Signal Track 0.001% 0.0001% 12.77 dB Peak 0.0001%⊑ 0 dB Meas BW 20 dB 390.000000 kHz

Figure 13-17 EDGE 1900 Channel Mid

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APPENDIX 1

MEASUREMENT PLOT OF RADIATED SPURIOUS EMISSION

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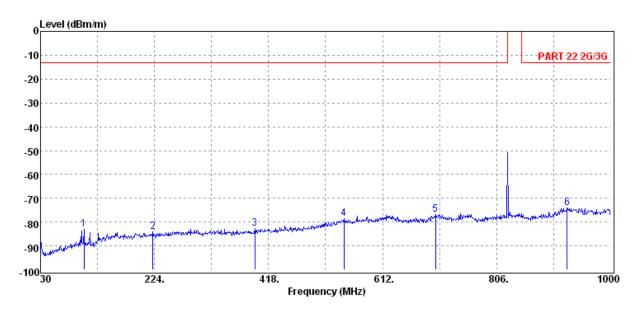


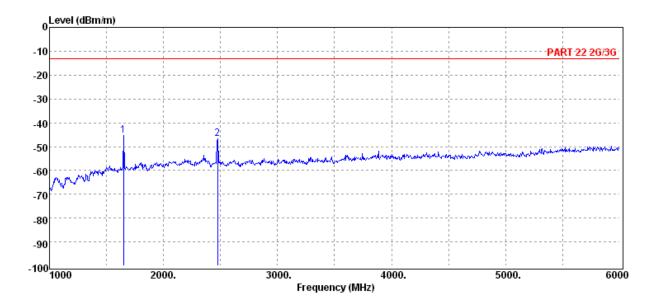
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Radiated Spurious Emission Measurement Result: GPRS 850 Mode

Operation Band ARFCN Fundamental Frequency Operation Mode EUT Pol. :GPRS 850 :CH 128 :824.2 MHz :TX LOW :E1 Plan Test Date Temp./Humi. Engineer :2012-11-15 :23.2deg_C/63RH :Marcus

Measurement Antenna Pol. :VERTICAL





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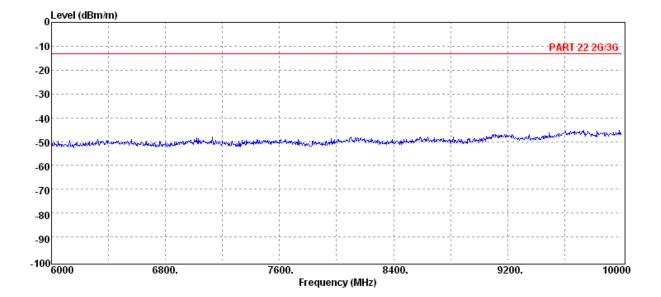
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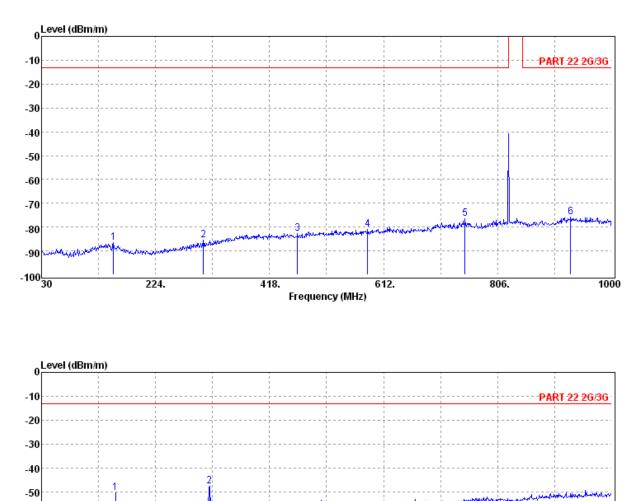
Operation Band:GPR3ARFCN:CH 1Fundamental Frequency:824.2Operation Mode:TX LEUT Pol.:E1 Pl

:GPRS 850 :CH 128 :824.2 MHz :TX LOW :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-15 :23.2deg_C/63RH :Marcus

Measurement Antenna Pol.

:HORIZONTAL



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Frequency (MHz)

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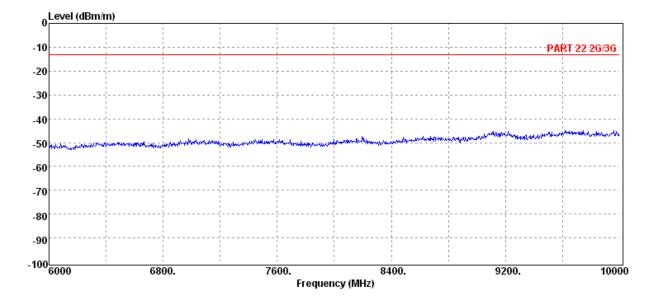
4000.

5000.

6000



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-80 -90

-100^L 1000

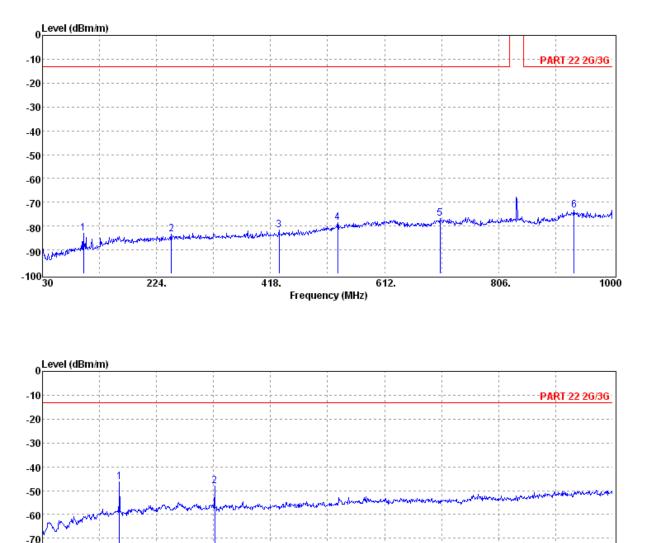
FCC ID: PY7PM-0290

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Operation Band	:GPRS 850
ARFCN	:CH 190
Fundamental Frequency	:836.6 MHz
Operation Mode	:TX MID
EUT Pol.	:E1 Plan

Test Date Temp./Humi. Engineer :2012-11-15 :23.2deg_C/63RH :Marcus

Measurement Antenna Pol. :VERTICAL



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3000.

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Frequency (MHz)

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4000.

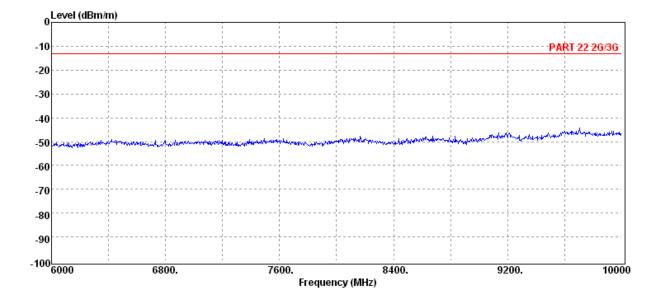
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5000.

6000



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Operation Band ARFCN :CH 190 Fundamental Frequency **Operation Mode** :TX MID EUT Pol. :E1 Plan

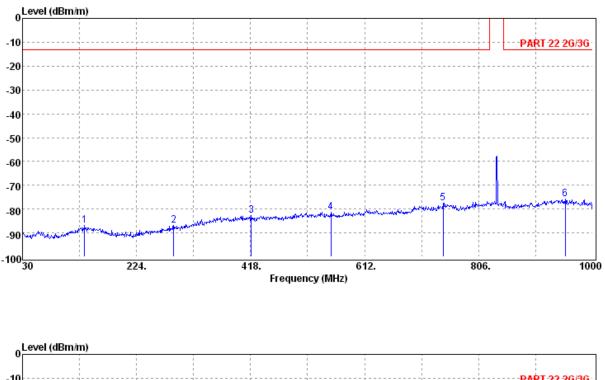
:GPRS 850 :836.6 MHz

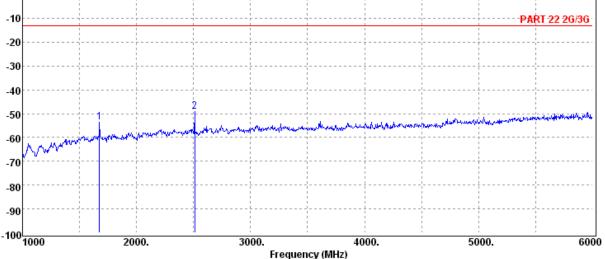
Test Date Temp./Humi. Engineer

:2012-11-15 :23.2deg_C/63RH :Marcus

Measurement Antenna Pol.

:HORIZONTAL





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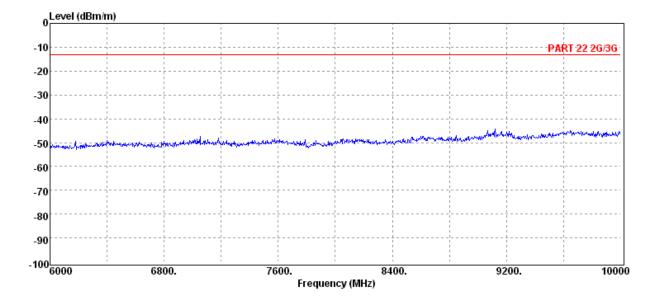
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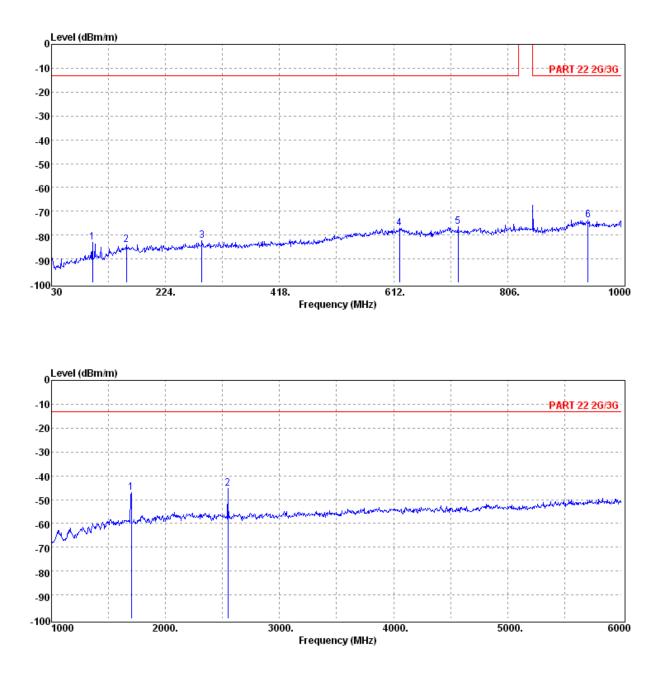
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Operation Band	:GPRS
ARFCN	:CH 2
Fundamental Frequency	:848.8
Operation Mode	:TX H
EUT Pol.	:E1 Pl

GPRS 850 CH 251 348.8 MHz FX HIGH E1 Plan

Test Date Temp./Humi. Engineer :2012-11-15 :23.2deg_C/63RH :Marcus

Measurement Antenna Pol. :VERTICAL



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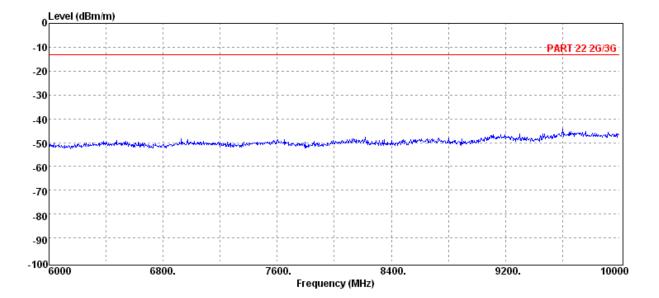
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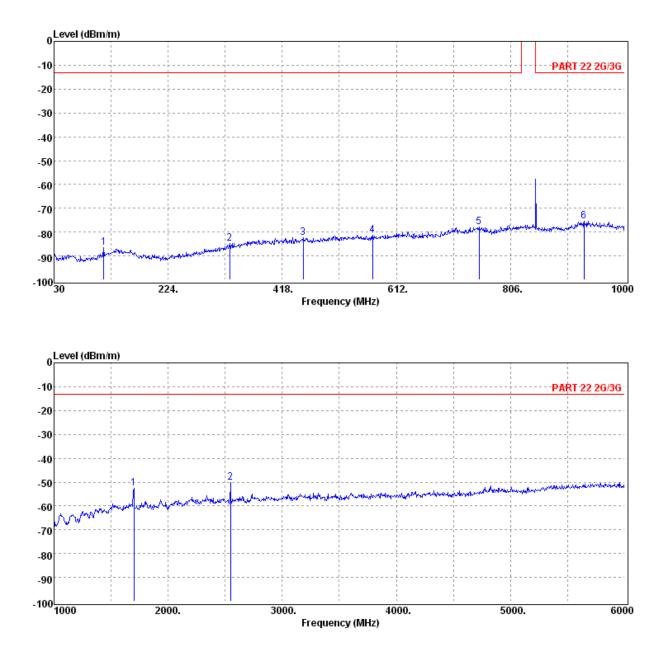
Operation Band:GPRARFCN:CH 2Fundamental Frequency:848.8Operation Mode:TX FEUT Pol.:E1 P

:GPRS 850 :CH 251 :848.8 MHz :TX HIGH :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-15 :23.2deg_C/63RH :Marcus

Measurement Antenna Pol.

:HORIZONTAL



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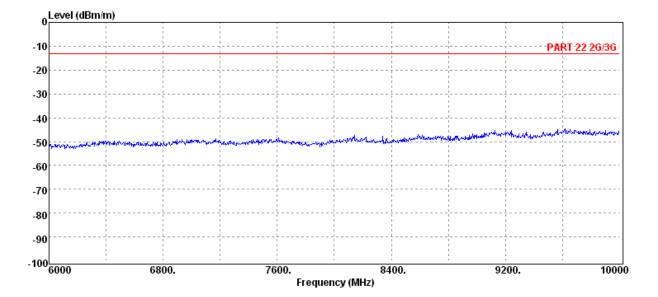
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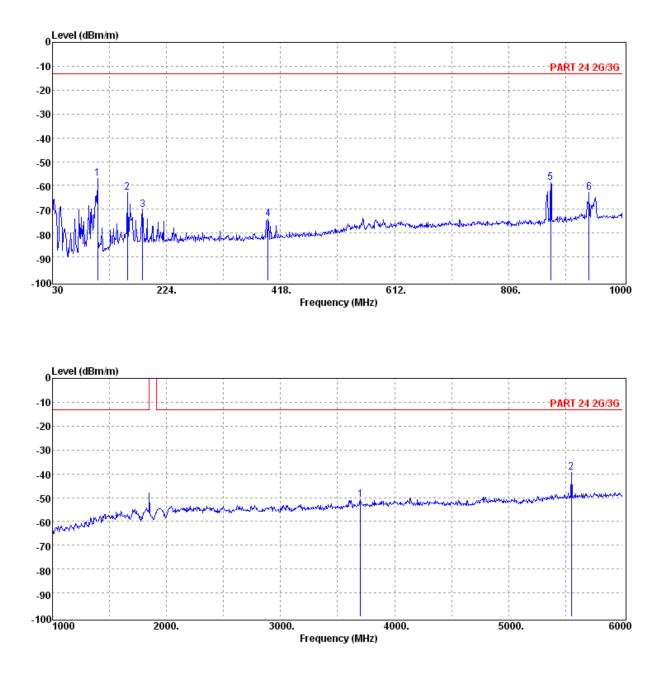


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Radiated Spurious Emission Measurement Result: GSM 1900 Mode

Operation Band ARFCN Fundamental Frequency Operation Mode EUT Pol. :GSM 1900 :CH 512 :1850.2 MHz :TX LOW :E1 Plan Test Date Temp./Humi. Engineer :2012-11-20 :23.0deg_C/60RH :Marcus

Measurement Antenna Pol. :VERTICAL



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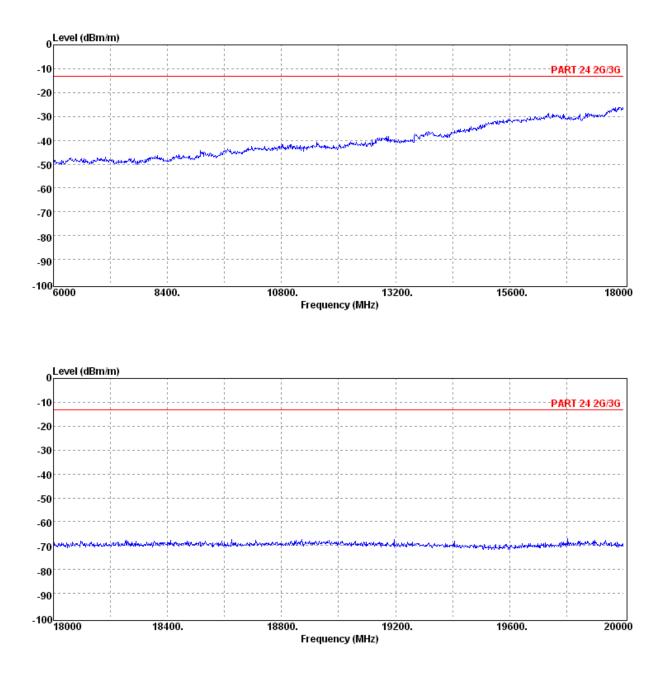
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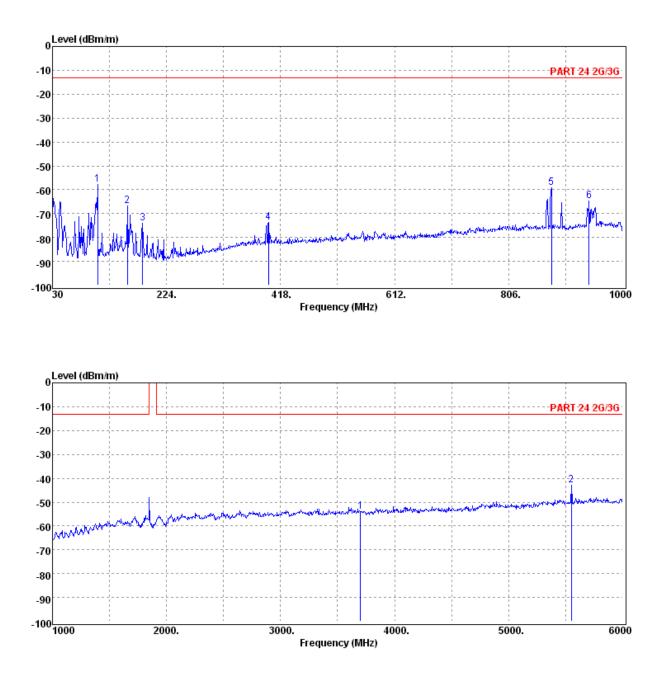
Operation Band:GARFCN:CIFundamental Frequency:18Operation Mode:TIEUT Pol.:EI

:GSM 1900 :CH 512 :1850.2 MHz :TX LOW :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-20 :23.0deg_C/60RH :Marcus

Measurement Antenna Pol.

:HORIZONTAL



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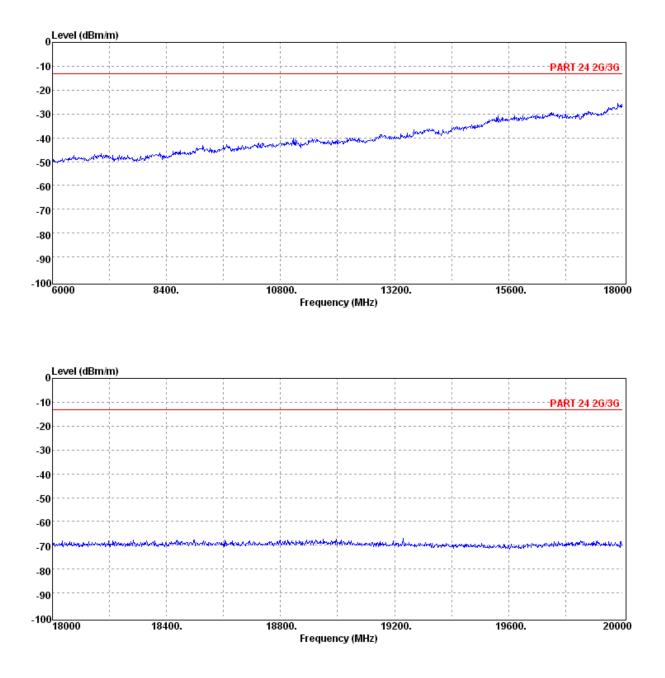
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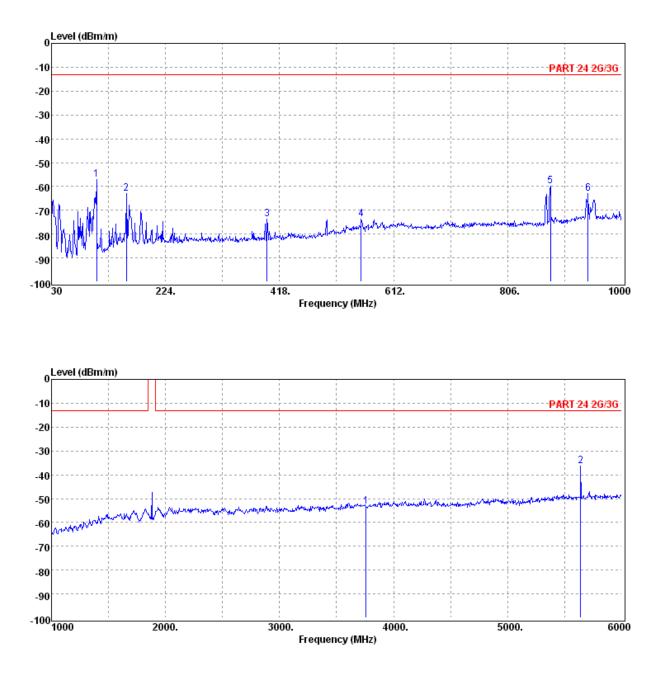
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Operation Band:GSMARFCN:CH 6Fundamental Frequency:1880Operation Mode:TX NEUT Pol.:E1 P

:GSM 1900 :CH 661 :1880.0 MHz :TX MID :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-20 :23.0deg_C/60RH :Marcus

Measurement Antenna Pol. :VERTICAL



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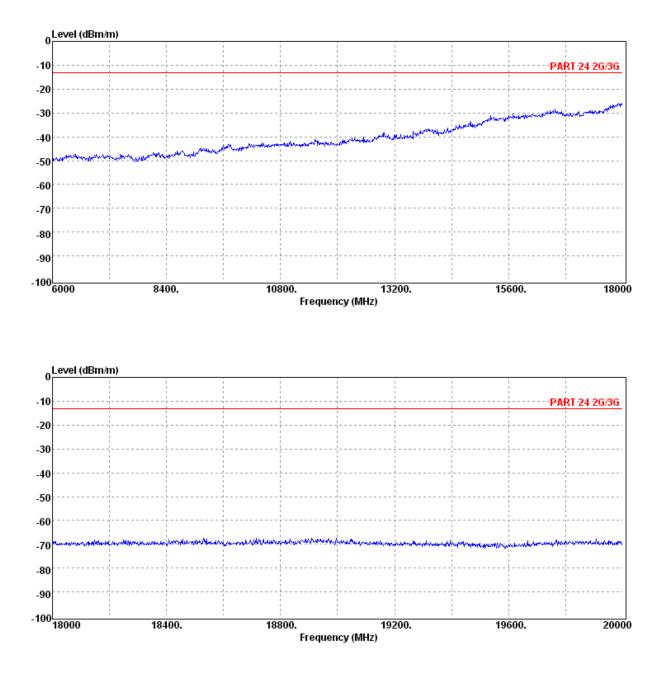
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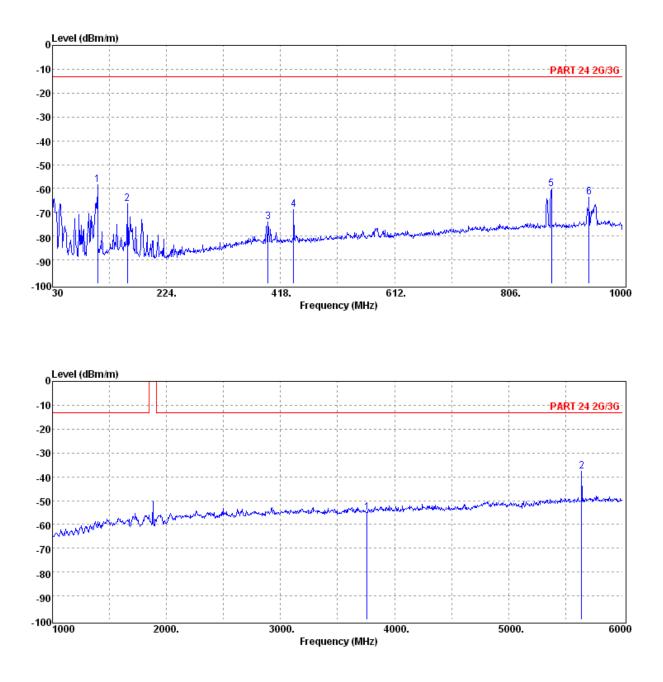
Operation Band:GSMARFCN:CH 6Fundamental Frequency:1880Operation Mode:TX NEUT Pol.:E1 P

:GSM 1900 :CH 661 :1880.0 MHz :TX MID :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-20 :23.0deg_C/60RH :Marcus

Measurement Antenna Pol.

:HORIZONTAL



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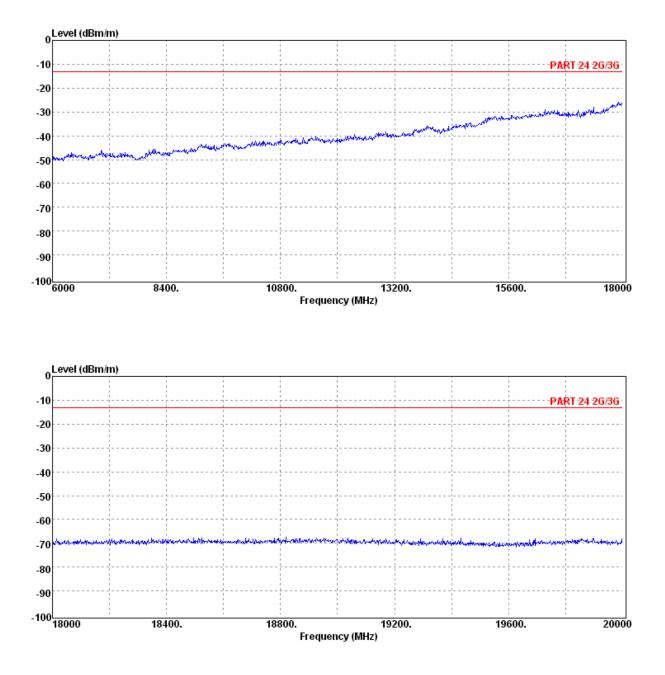
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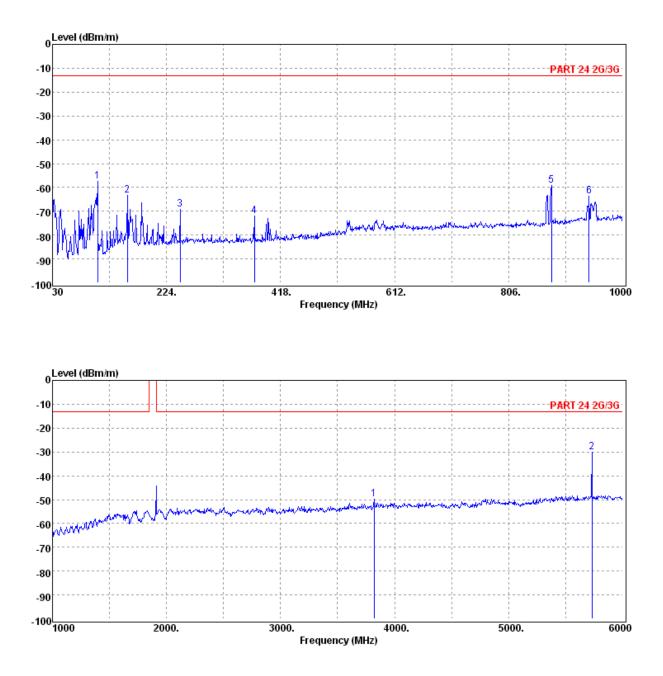
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Operation Band:GSIARFCN:CHFundamental Frequency:190Operation Mode:TXEUT Pol.:E1

:GSM 1900 :CH 810 :1909.8 MHz :TX HIGH :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-20 :23.0deg_C/60RH :Marcus

Measurement Antenna Pol. :VERTICAL



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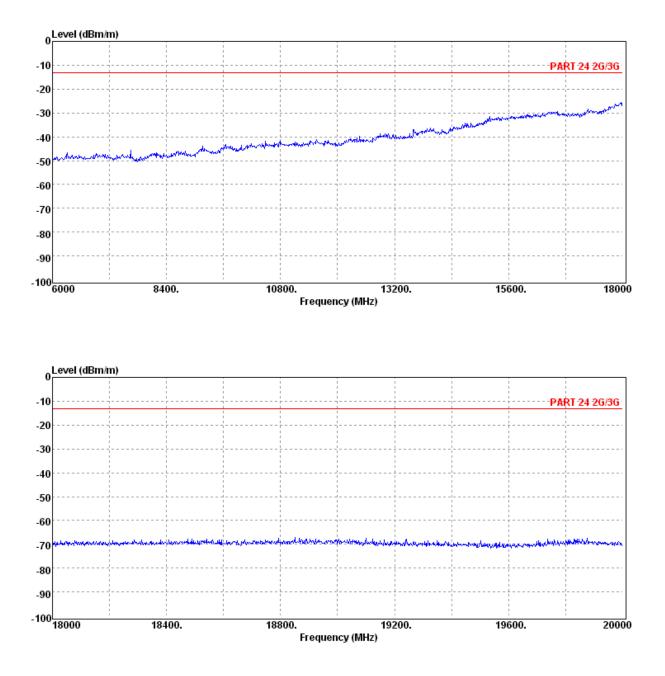
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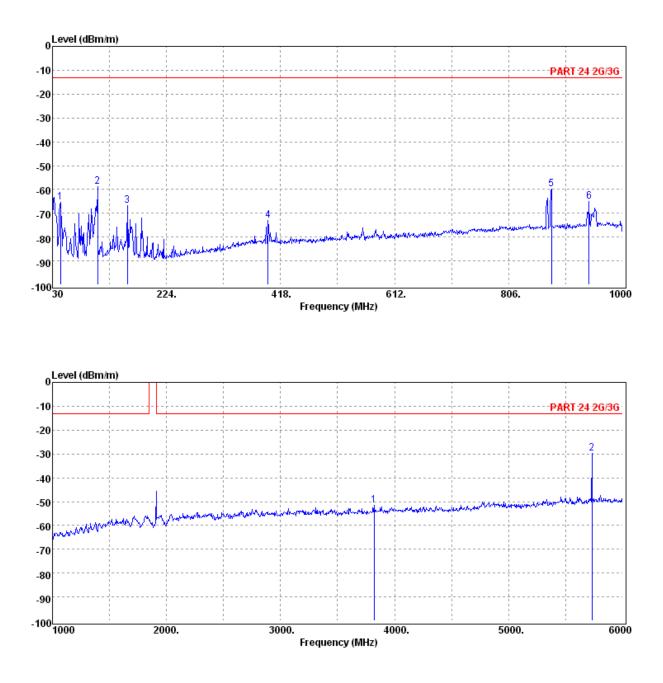
Operation Band:GSNARFCN:CHFundamental Frequency:190Operation Mode:TXEUT Pol.:E11

:GSM 1900 :CH 810 :1909.8 MHz :TX HIGH :E1 Plan

Test Date Temp./Humi. Engineer :2012-11-20 :23.0deg_C/60RH :Marcus

Measurement Antenna Pol.

:HORIZONTAL



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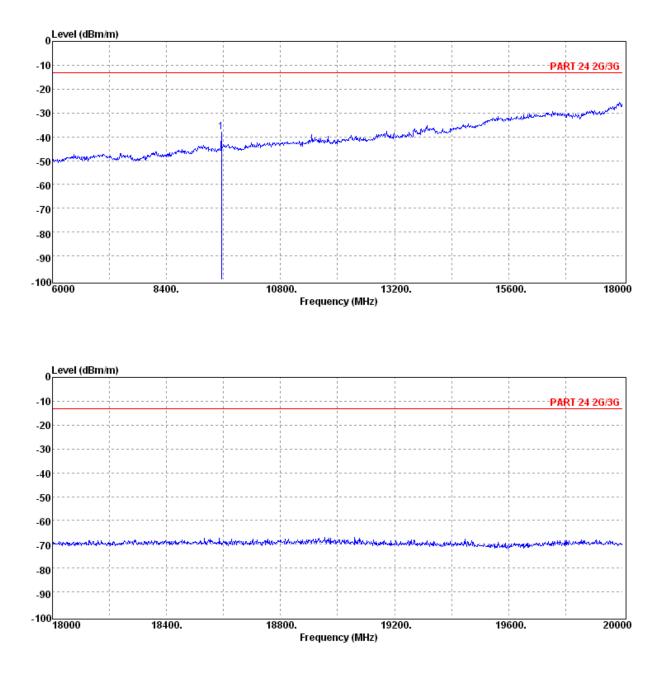
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