

Partial FCC / IC RF Test Report

APPLICANT : Nokia Corporation
EQUIPMENT : Internet Stick
BRAND NAME : Nokia
MODEL NAME : 21M-01, 7M-01
TYPE DESIGNATION : RD-17, RD-22
MARKETING NAME : Nokia Internet Stick 21M-01, Nokia Internet Stick 7M-01
FCC ID : PYARD-17
IC : 661V-RD17
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)
IC RSS-132 Issue 2 and RSS-133 Issue 5
CLASSIFICATION : PCS Licensed Transmitter (PCB)
Tx/Rx FREQUENCY RANGE : GSM850 : 824.2 ~ 848.8 MHz /
869.2 ~ 893.8 MHz
GSM1900 : 1850.2 ~ 1909.8 MHz /
1930.2 ~ 1989.8 MHz
Emission Designator : GMSK : 244KGXW
8PSK : 246KG7W

This is a partial report which only contains conducted test and radiated emission test results. The product was received on Mar. 17, 2011 and completely tested on Apr. 19, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG131744-02B	Rev. 01	Initial issue of report	Jun. 17, 2011
FG131744-02B	Rev. 02	Update report for revising type designation	Jun. 28, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1049 §22.917(a) §24.238(a)	N/A	Occupied Bandwidth	N/A	PASS	-
3.2	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Band Edge Measurement	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	-
3.3	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Conducted Emission	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	-
3.4	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Field Strength of Spurious Radiation	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Under limit 20.21 dB at 3813 MHz
3.5	§2.1055 §22.355 §24.235	RSS-132(4.3) RSS-133(6.3)	Frequency Stability for Temperature & Voltage	$< 2.5 \text{ ppm}$	PASS	-

Remark: The test results of PYARD-19 are re-used for certification of the PYARD-17. The table above indicates the results, which will be re-used.



1 General Description

1.1 Applicant

Nokia Corporation

Keilalahdentie 2-4, 02150 ESPOO, FINLAND

1.2 Manufacturer

Nokia Corporation

Keilalahdentie 2-4, 02150 ESPOO, FINLAND

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Internet Stick
Brand Name	Nokia
Model Name	21M-01, 7M-01
Type Designation	RD-17, RD-22
Marketing Name	Nokia Internet Stick 21M-01, Nokia Internet Stick 7M-01
FCC ID	PYARD-17
IC	661V-RD17
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz
Antenna Type	Fixed Internal Antenna
HW Version	4.0
SW Version	1.6
ME Version	2.0
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK
Type of Emission	GMSK : 244KGXW 8PSK : 246KG7W
EUT Stage	Production Unit

Remark: This test report recorded only product characteristics and test results of PCS Licensed Transmitter (PCB).

<Test Sample>

Product Feature & Specification	
Equipment	Internet Stick
Brand Name	Nokia
Model Name	Model 1: 21M-02 Model 2: 7M-02
Type Designation	RD-19, RD-23
Marketing Name	Model 1: Nokia Internet Stick 21M-02 Model 2: Nokia Internet Stick 7M-02
FCC ID	PYARD-19
IC	661V-RD19
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz
Antenna Type	Fixed Internal Antenna
HW Version	4.0
SW Version	1.6
ME Version	2.0
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK
Type of Emission	GMSK : 244KGXW 8PSK : 246KG7W
EUT Stage	Production Unit

List of Accessory:

Specification of Accessory		
USB Cable	Brand Name	Nokia
	Model Name	CA-175D
	Signal Line Type	0.22 meter shielded cable without ferrite core
	HW Version	1.0
	Mechanical Version	1.0
Micro SD card	Brand Name	Nokia
	Model Name	MU-43 (8G)

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. For accessories equipped with this EUT, please refer to the appendix of the external photo.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	TH02-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR Part 2, 22(H), 24(E)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ IC RSS-132 Issue 2
- ♦ IC RSS-133 Issue 5

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.

Frequency range investigated for radiated emission is as follows:

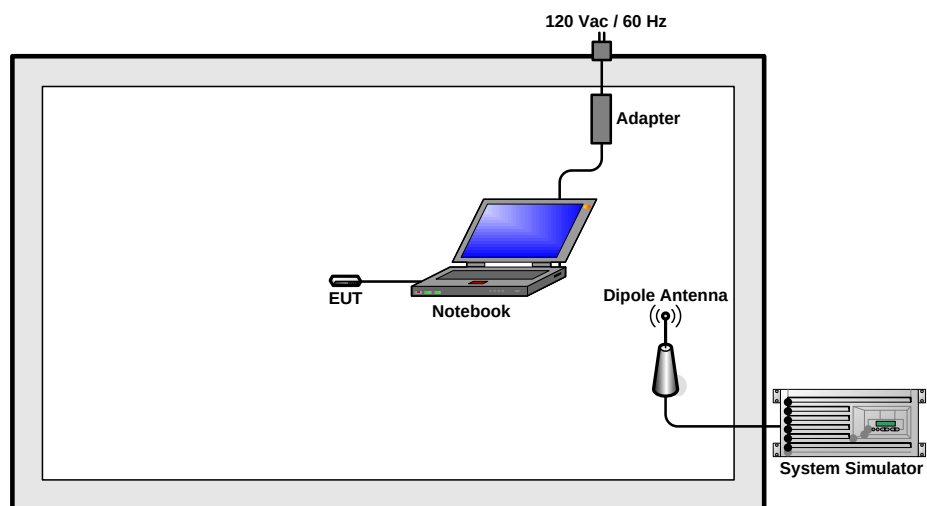
1. 30 MHz to 9000 MHz for GSM850.
2. 30 MHz to 19000 MHz for GSM1900.

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GPRS 8 Link with USB Cable ■ EDGE 8 Link with USB Cable ■ GPRS 8 Link without USB Cable	■ GPRS 8 Link ■ EDGE 8 Link
GSM 1900	■ GPRS 8 Link with USB Cable ■ EDGE 8 Link with USB Cable ■ GPRS 8 Link without USB Cable	■ GPRS 8 Link ■ EDGE 8 Link

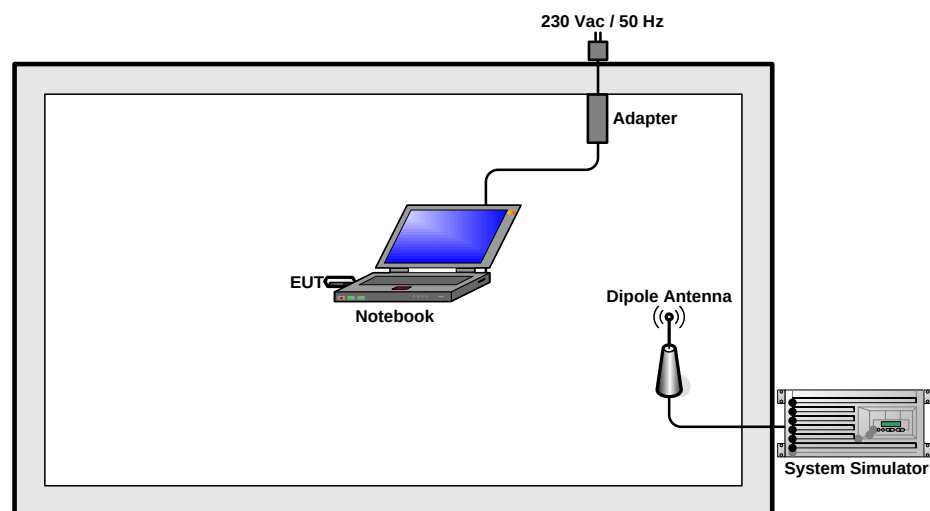
Note: The maximum power levels are GPRS multi-slot class 8 mode for GMSK link, EDGE multi-slot class 8 mode for 8PSK link, only these modes was used for all tests.

2.2 Connection Diagram of Test System

<EUT with USB Cable Mode>



<EUT without USB Cable Mode>



3 Test Result

3.1 Occupied Bandwidth Measurement

3.1.1 Description of Occupied Bandwidth Measurement

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

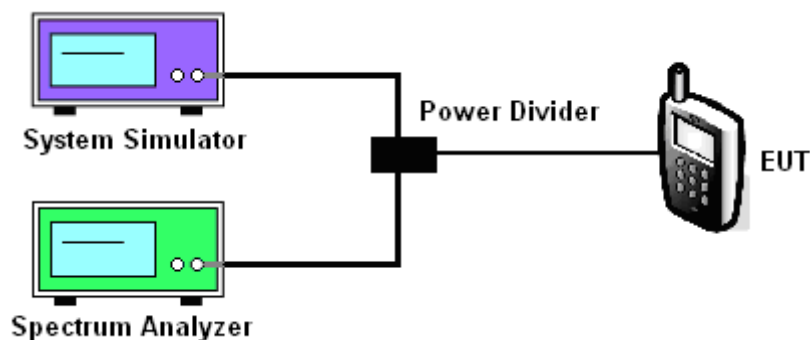
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% and 26 dB occupied bandwidth (BW) of the middle channel for the highest RF powers were measured.

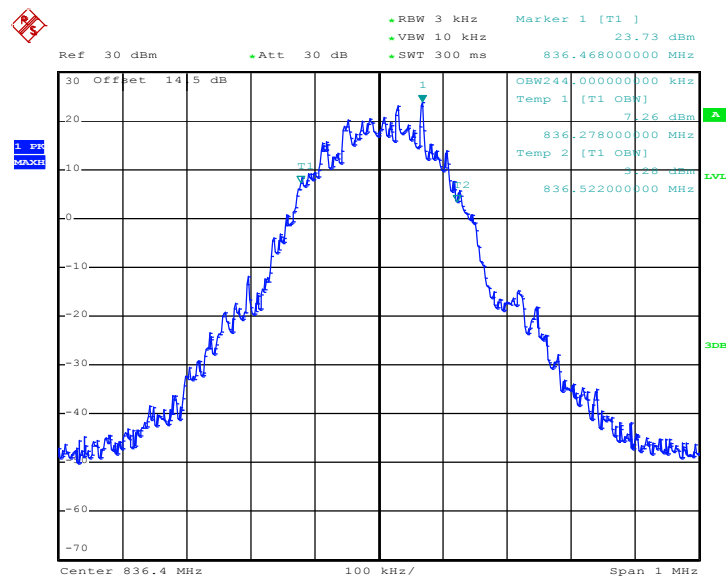
3.1.4 Test Setup



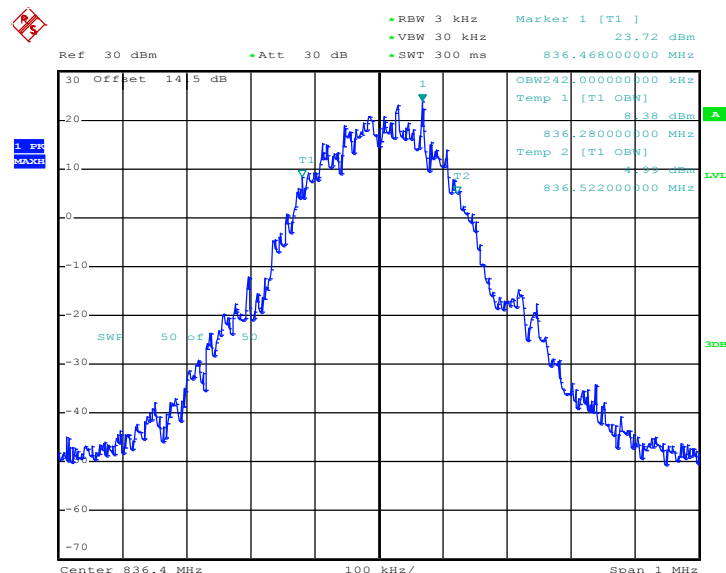
3.1.5 Test Result (Plots) of Occupied Bandwidth

Band :	GSM 850	Power Stage :	High
Test Mode :	GPRS 8 Link		

99% Occupied Bandwidth Plot on Channel 189



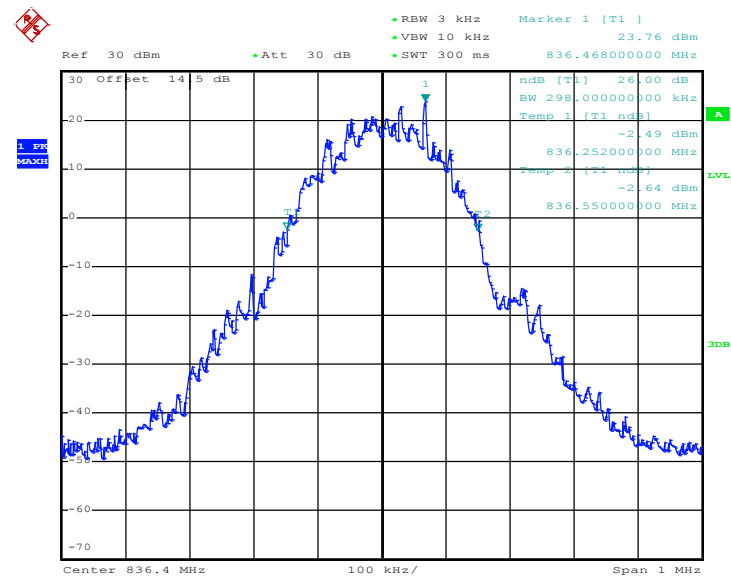
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Date: 12.APR.2011 16:57:24



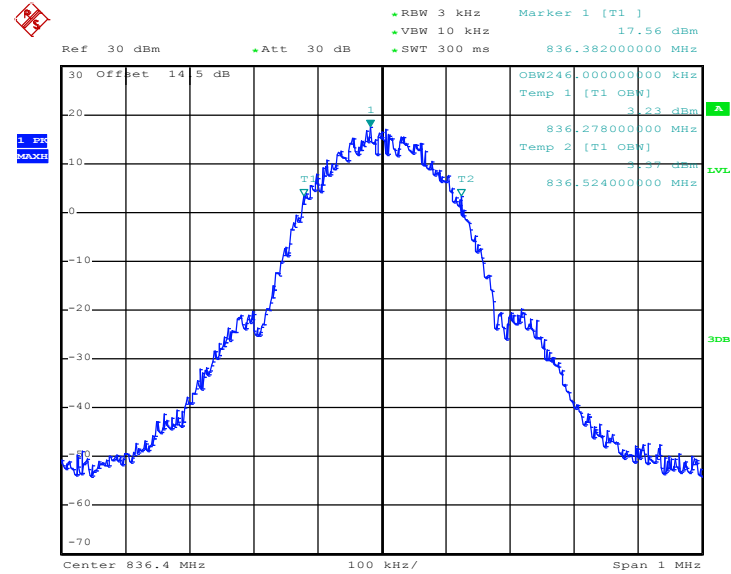
26dB Bandwidth Plot on Channel 189



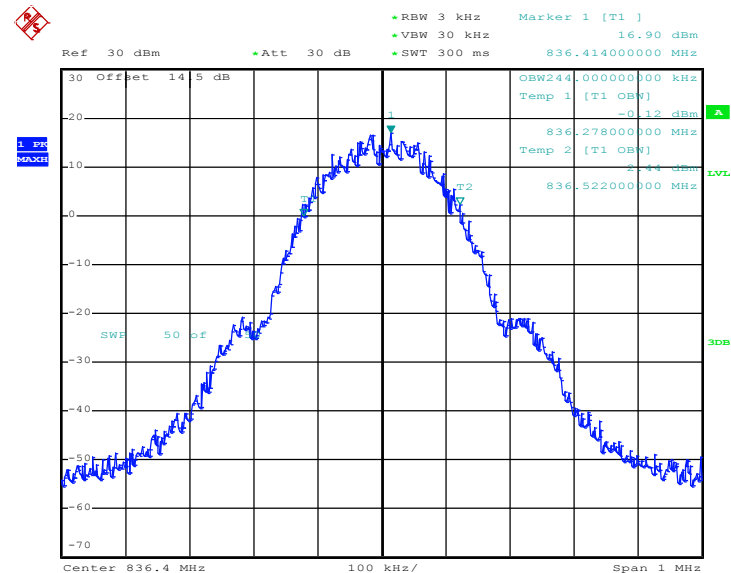
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Band :	GSM 850	Power Stage :	High
Test Mode :	EDGE 8 Link		

99% Occupied Bandwidth Plot on Channel 189

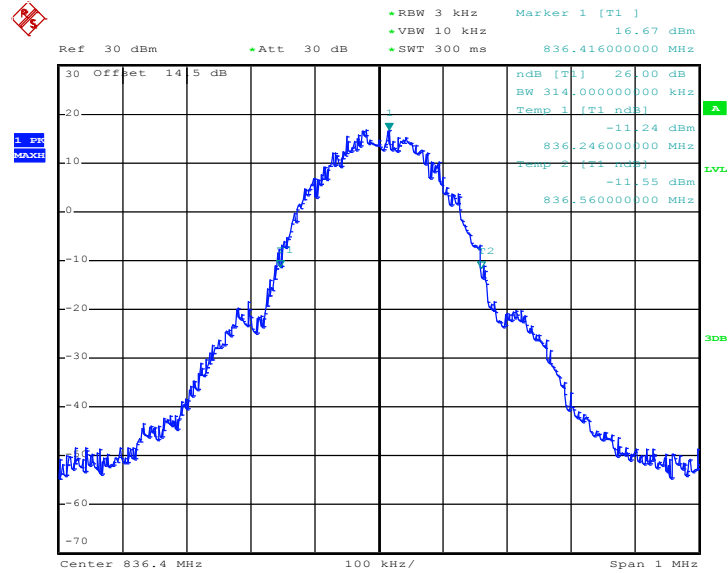
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Date: 12.APR.2011 17:06:00



26dB Bandwidth Plot on Channel 189

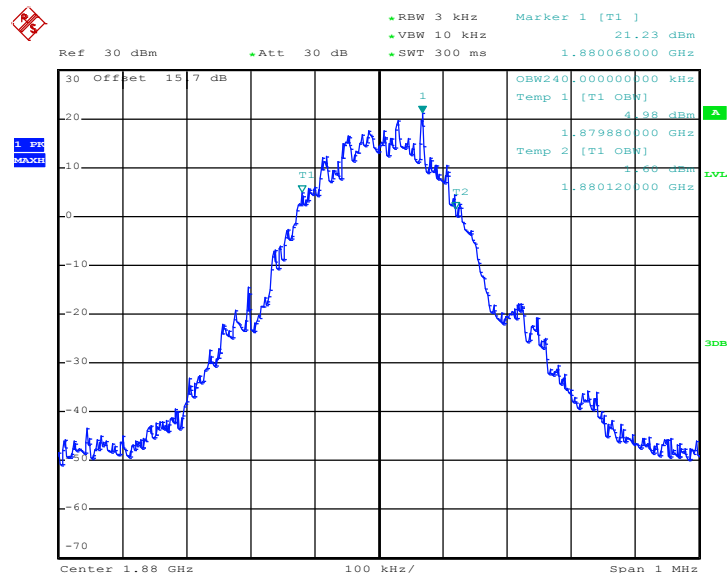


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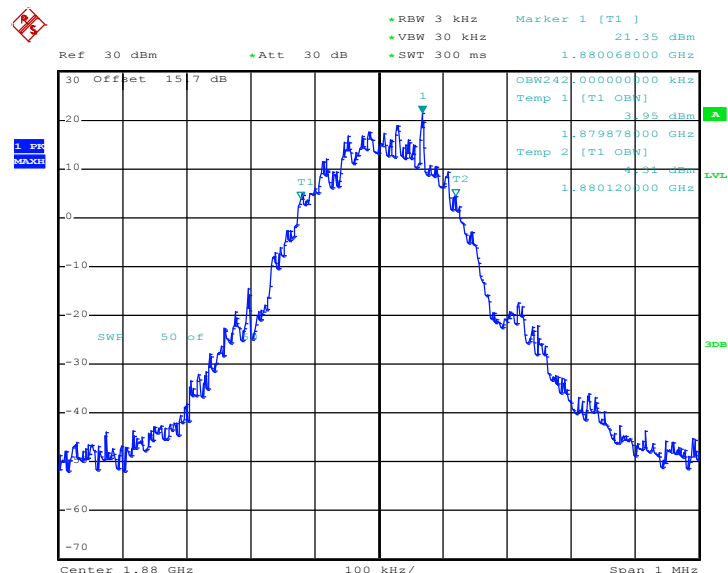


Band :	GSM 1900	Power Stage :	High
Test Mode :	GPRS 8 Link		

99% Occupied Bandwidth Plot on Channel 661



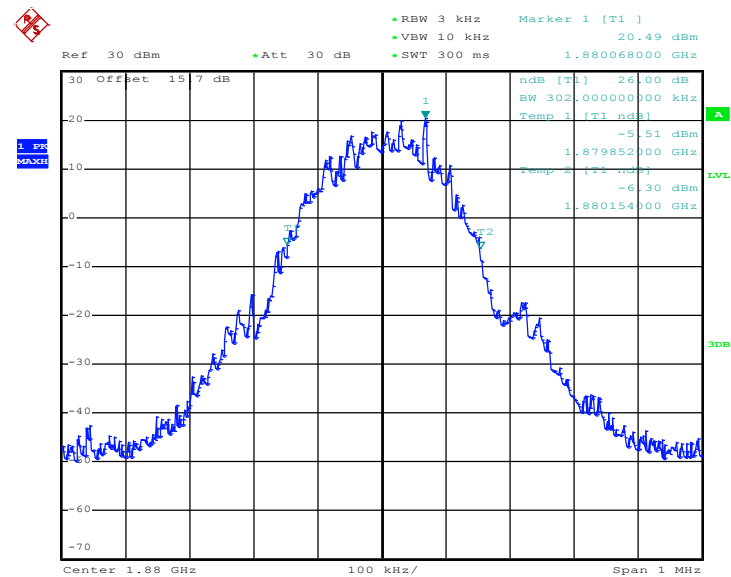
Date: 12.APR.2011 17:14:52



Date: 12.APR.2011 17:15:57



26dB Bandwidth Plot on Channel 661

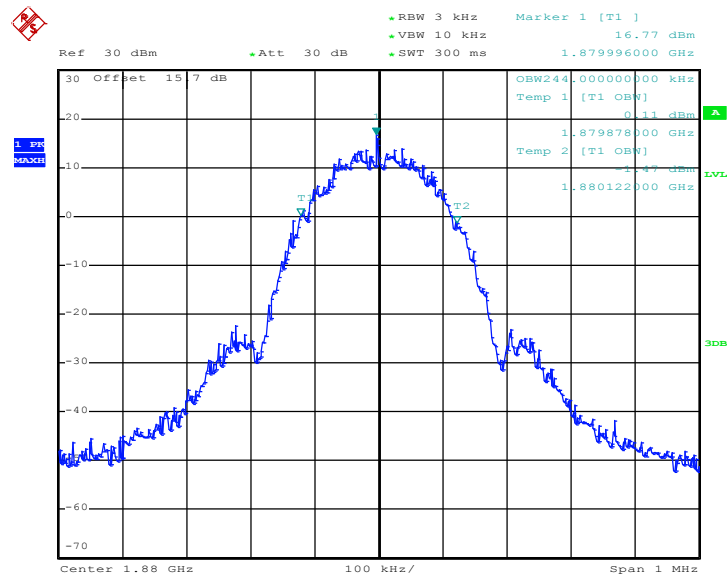


Date: 12.APR.2011 17:13:33

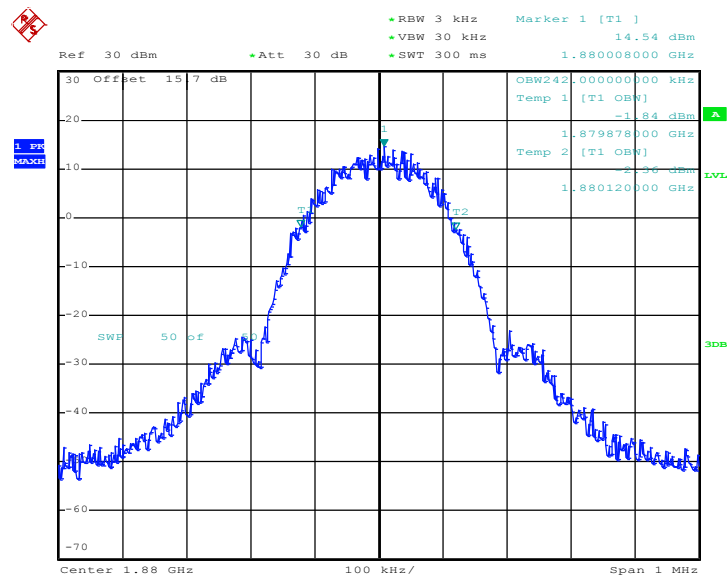


Band :	GSM 1900	Power Stage :	High
Test Mode :	EDGE 8 Link		

99% Occupied Bandwidth Plot on Channel 661

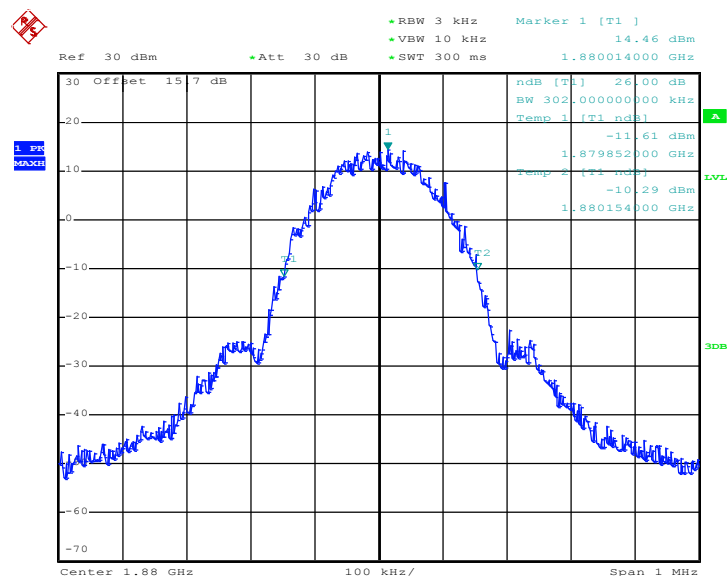


Date: 12.APR.2011 17:24:16



Date: 12.APR.2011 17:25:21

26dB Bandwidth Plot on Channel 661



Date: 12.APR.2011 17:22:57

3.2 Band Edge Measurement

3.2.1 Description of Band Edge Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

3.2.2 Measuring Instruments

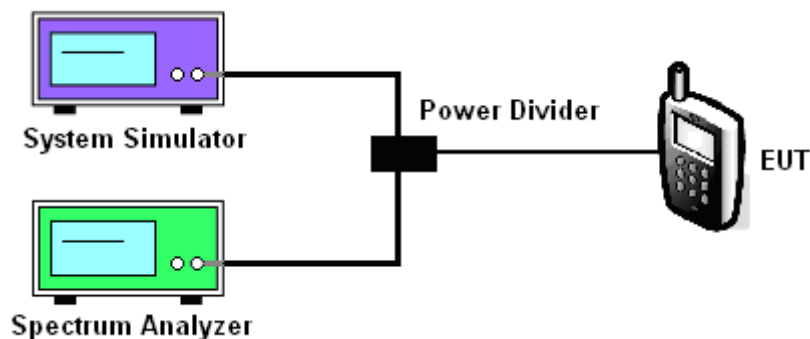
See list of measuring instruments of this test report.

3.2.3 Test Procedures

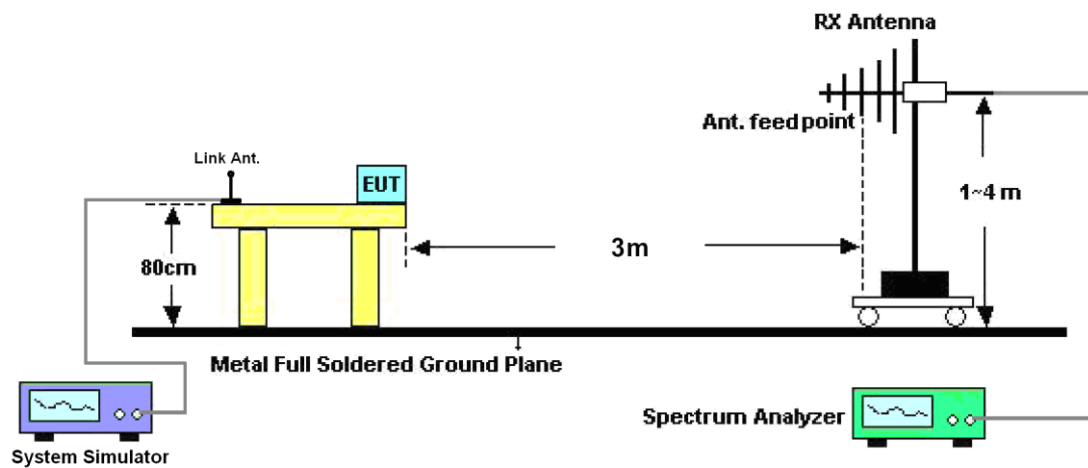
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.

3.2.4 Test Setup

<Conducted Band Edge >



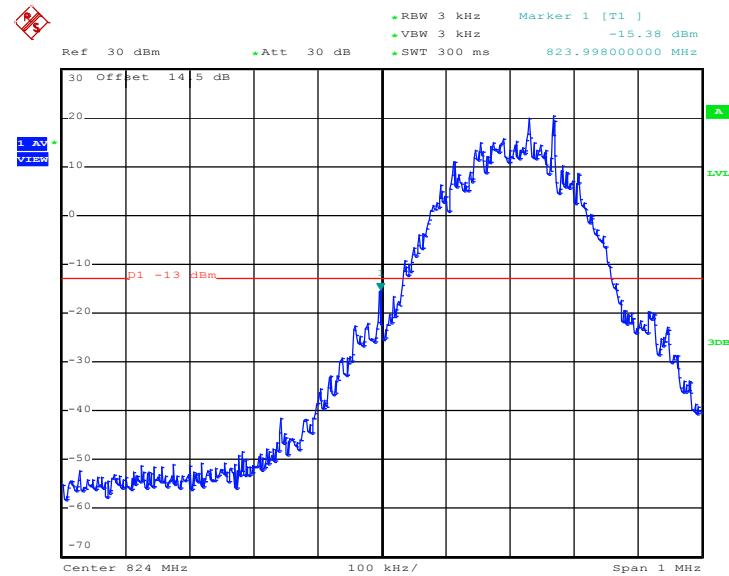
<Radiated Band Edge>



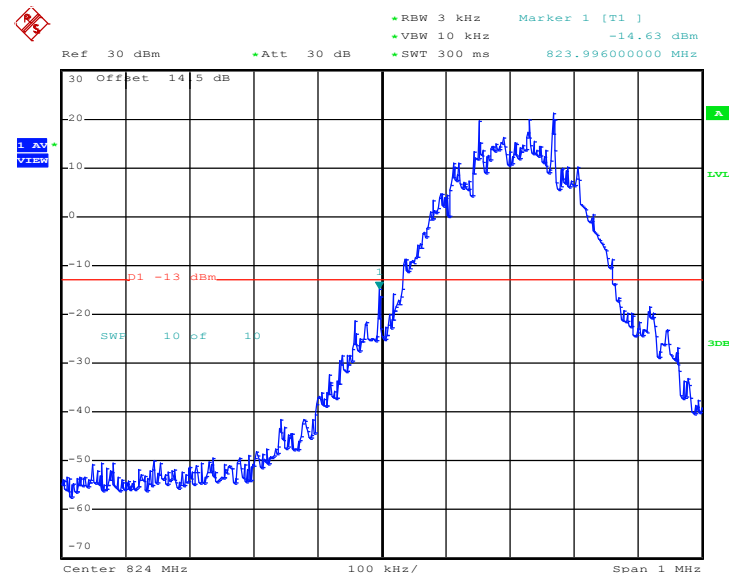
3.2.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Power Stage :	High
Test Mode :	GPRS 8 Link		

Lower Band Edge Plot on Channel 128



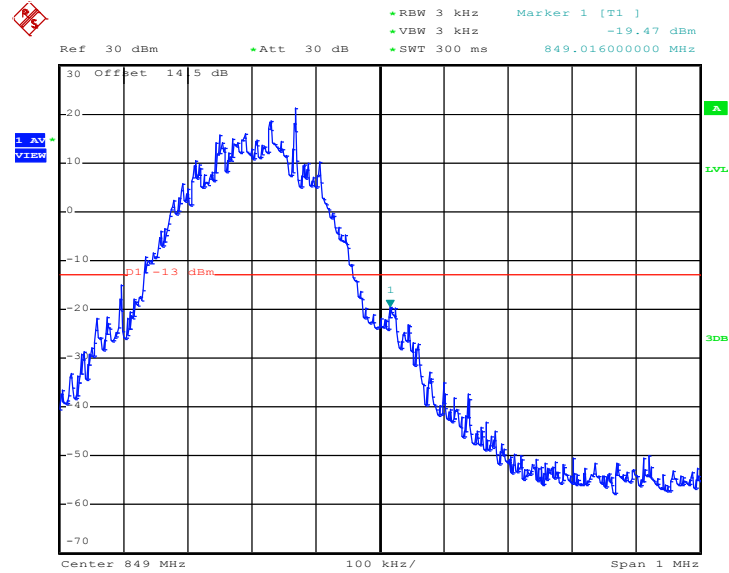
Date: 12.APR.2011 16:58:10



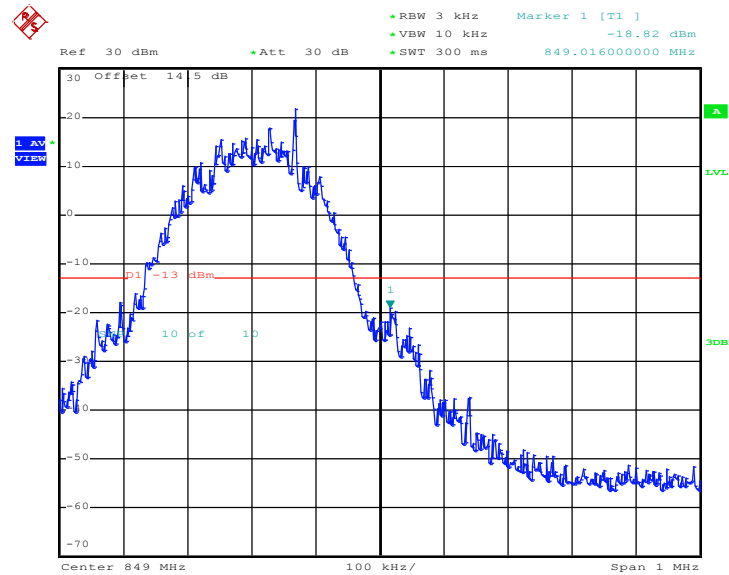




Higher Band Edge Plot on Channel 251



Date: 12.APR.2011 16:58:37

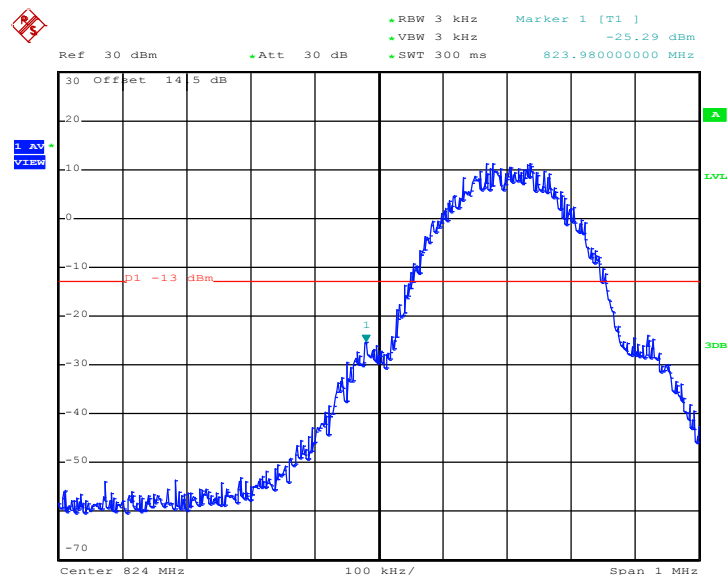


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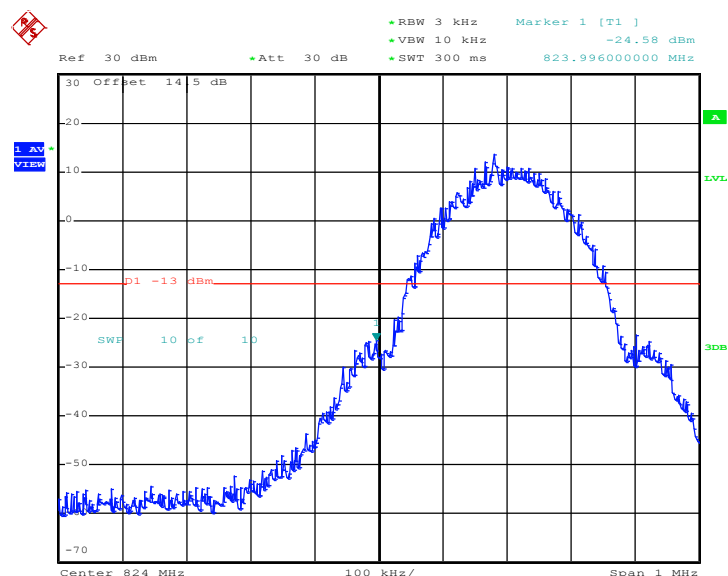


Band :	GSM850	Power Stage :	High
Test Mode :	EDGE 8 Link		

Lower Band Edge Plot on Channel 128



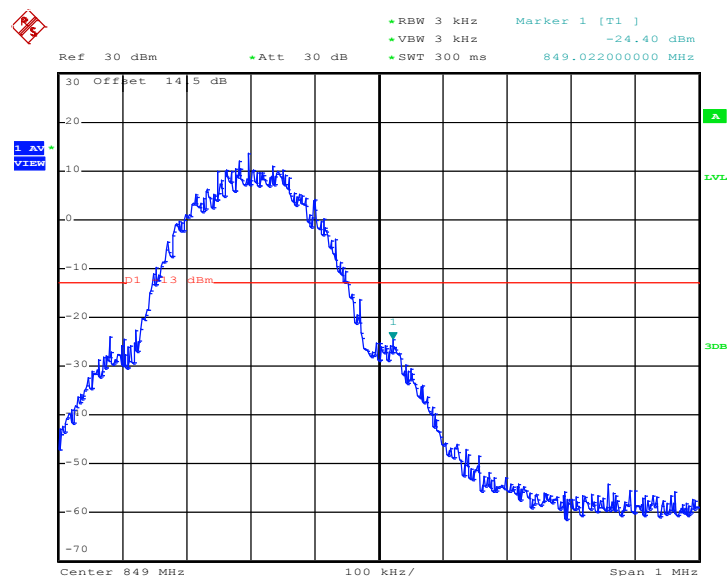
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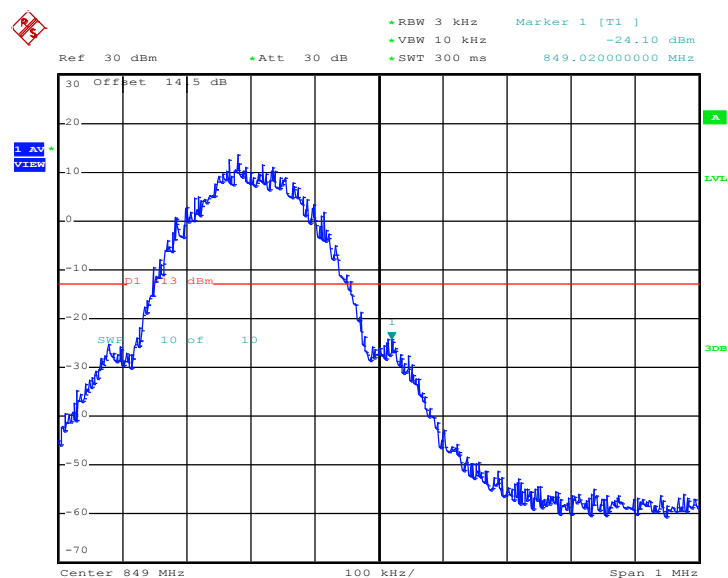
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Higher Band Edge Plot on Channel 251



Date: 12.APR.2011 17:07:13

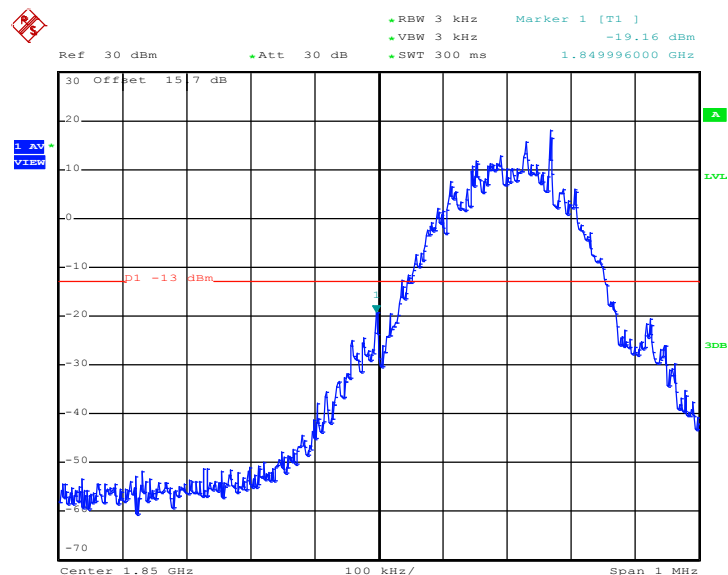


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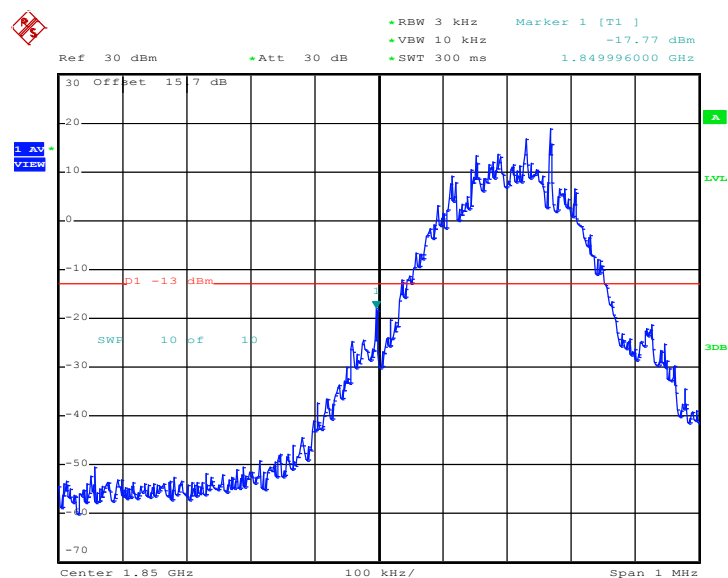


Band :	GSM1900	Power Stage :	High
Test Mode :	GPRS 8 Link		

Lower Band Edge Plot on Channel 512

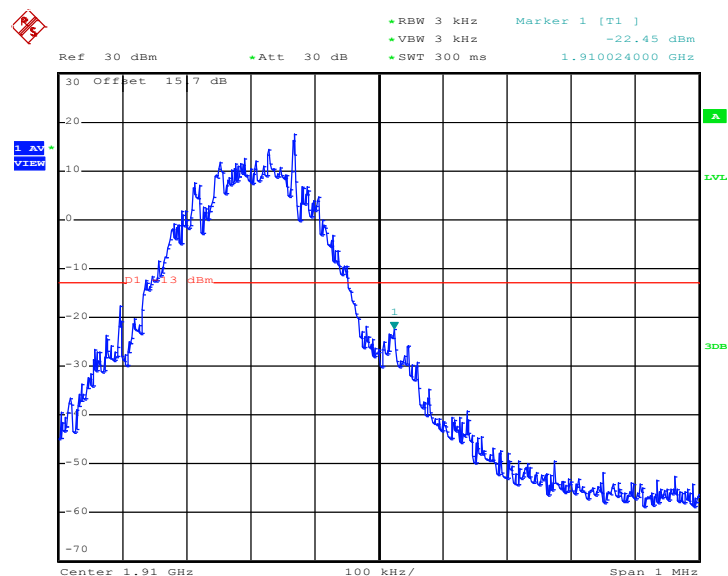


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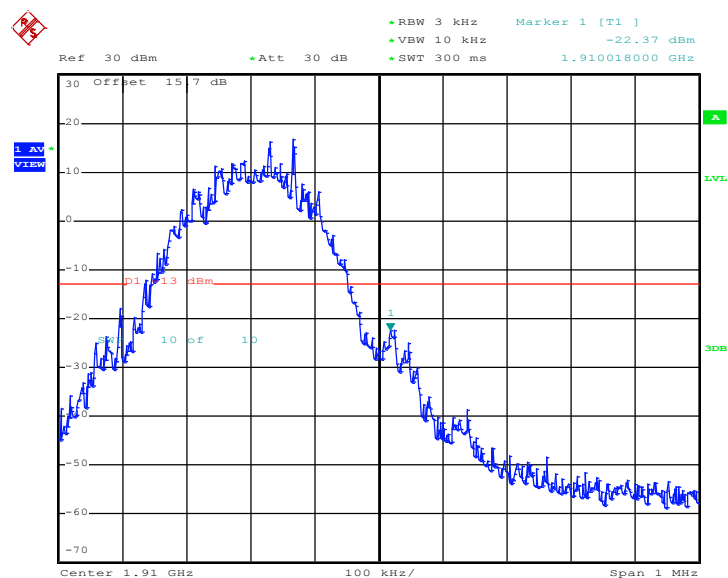


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Higher Band Edge Plot on Channel 810



Date: 12.APR.2011 17:17:10

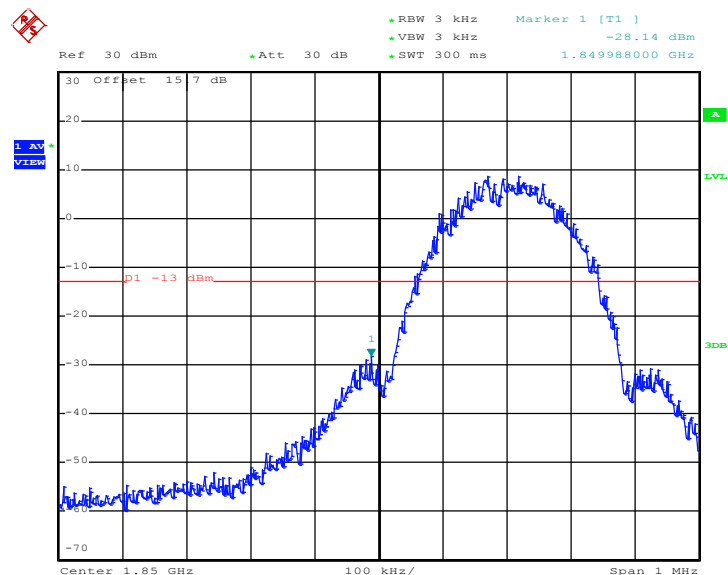


Date: 12.APR.2011 17:18:09

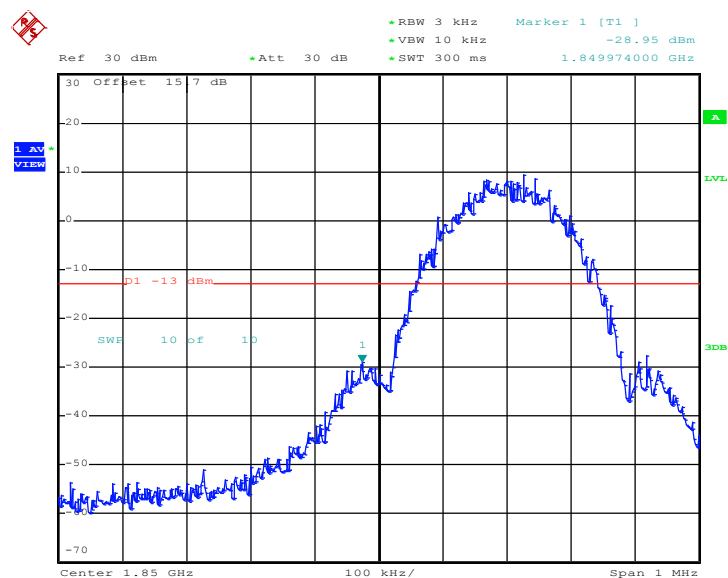


Band :	GSM1900	Power Stage :	High
Test Mode :	EDGE 8 Link		

Lower Band Edge Plot on Channel 512

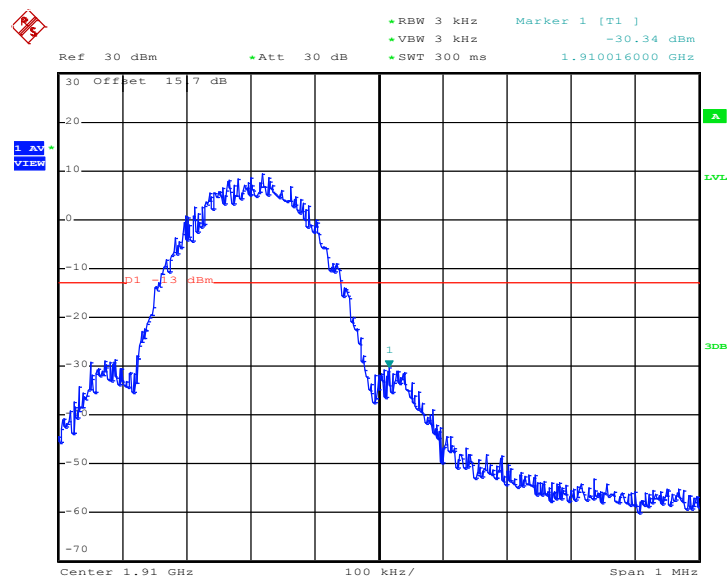


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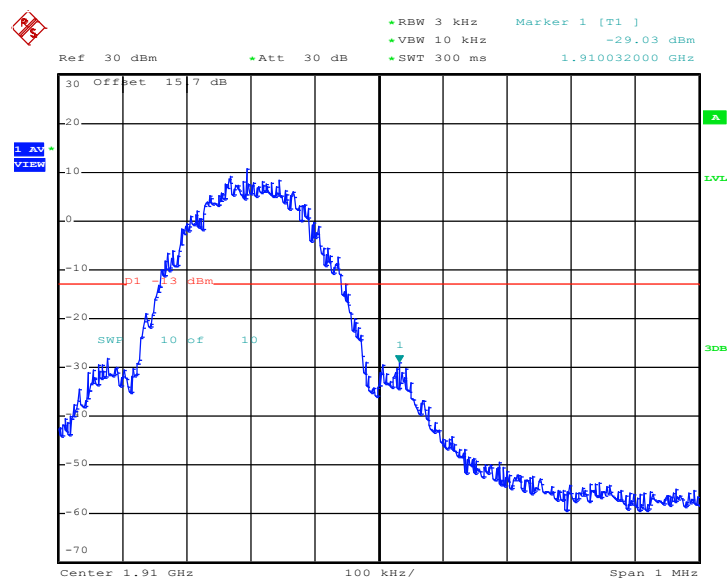


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Higher Band Edge Plot on Channel 810

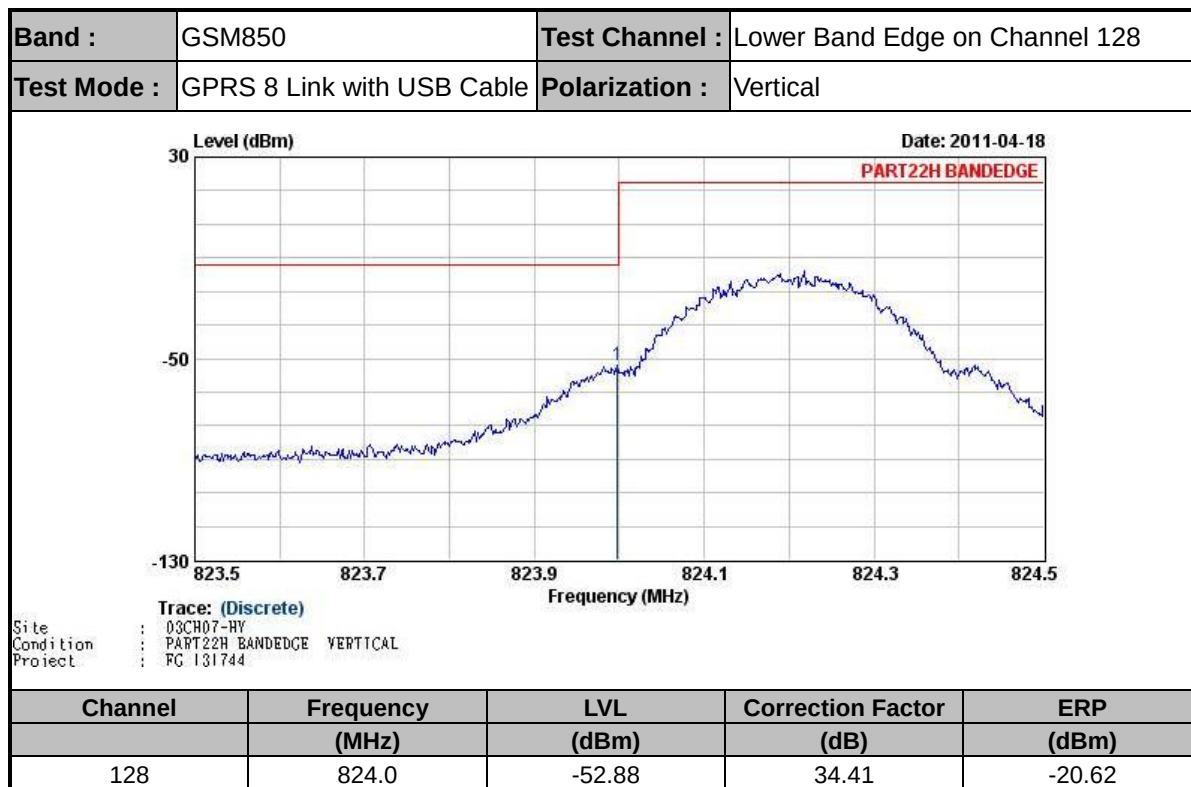
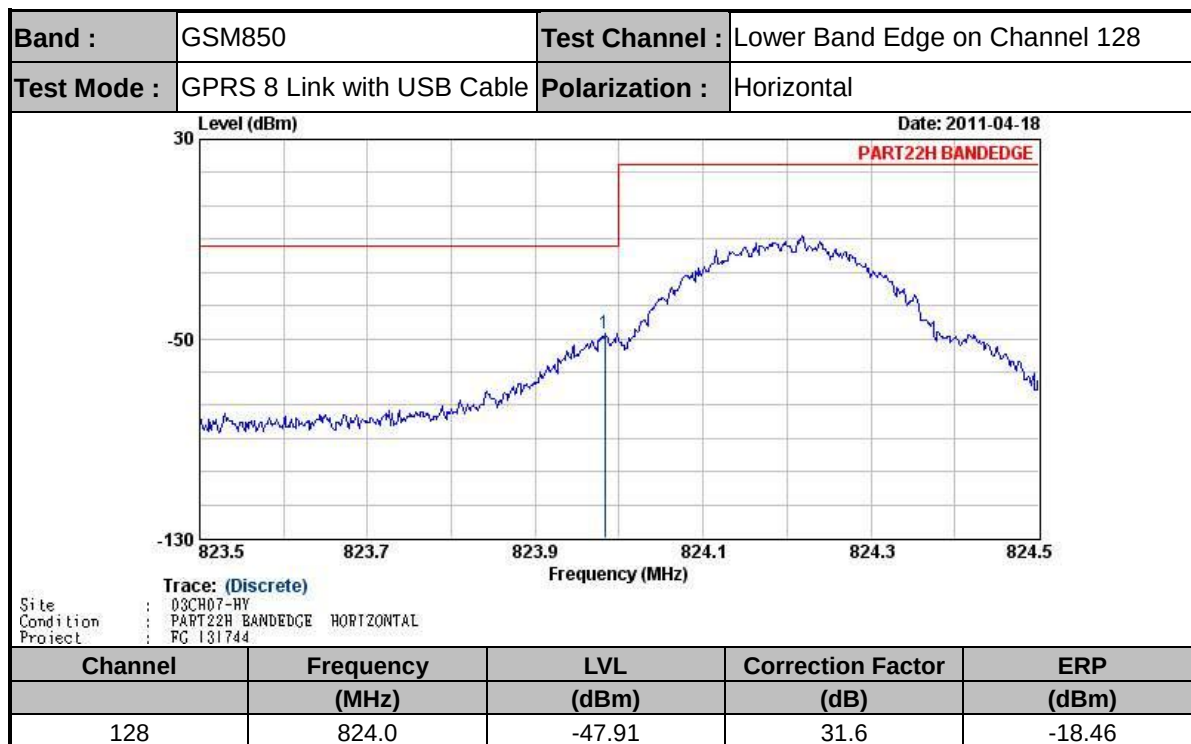


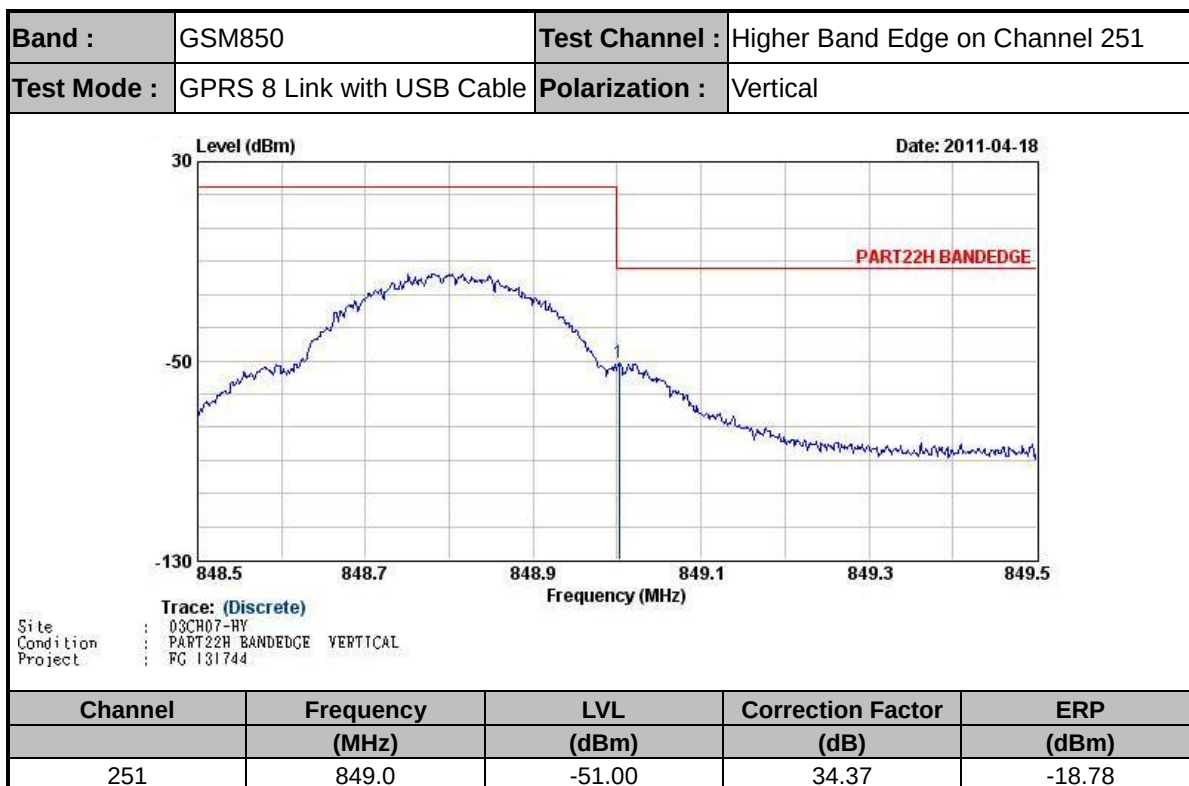
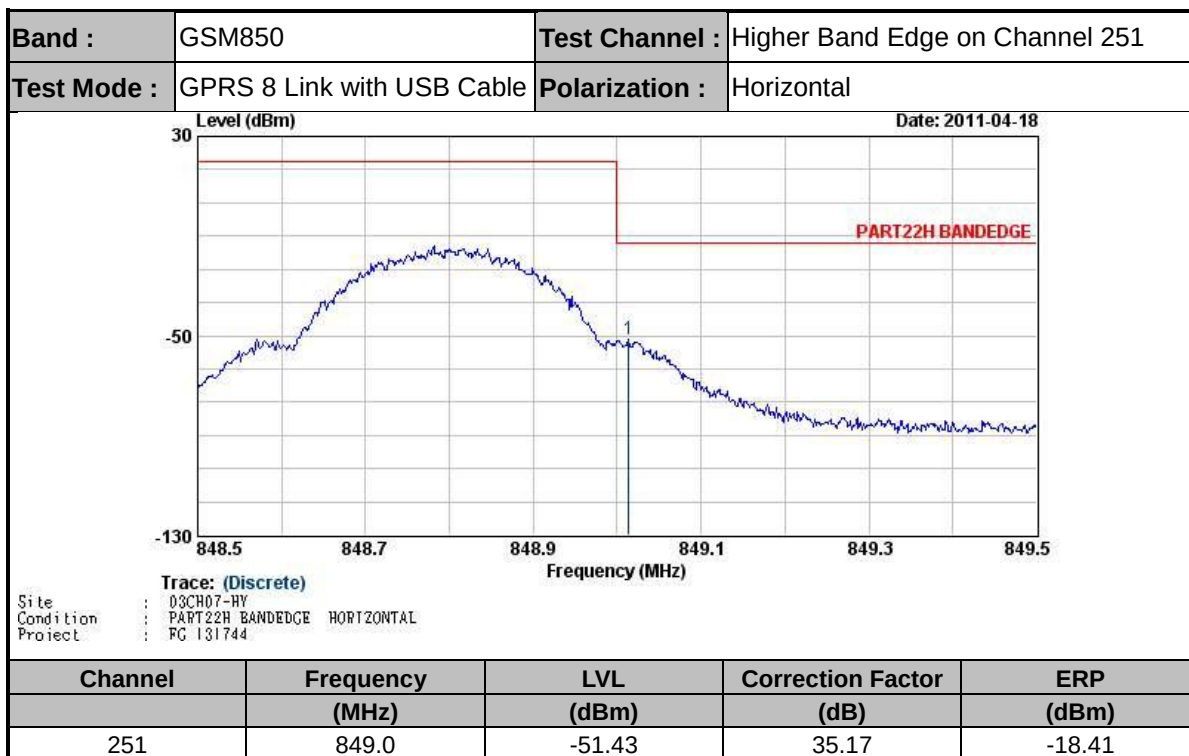
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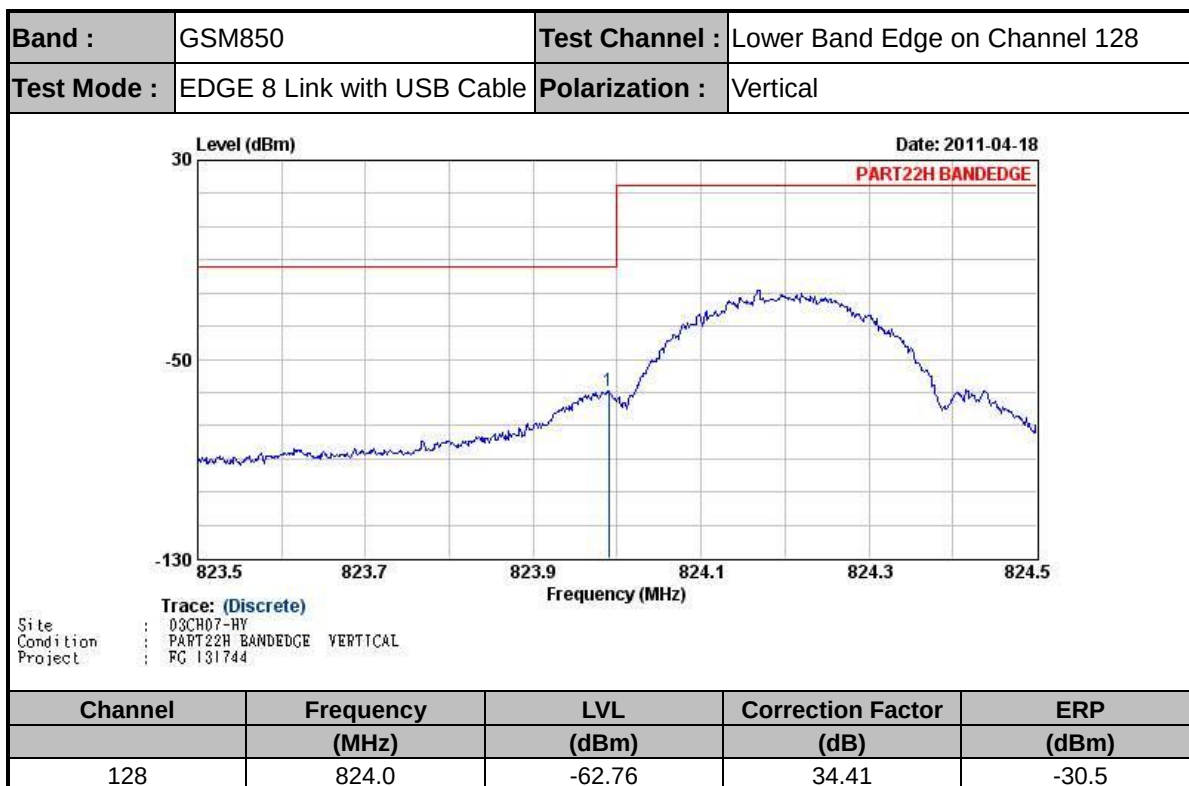
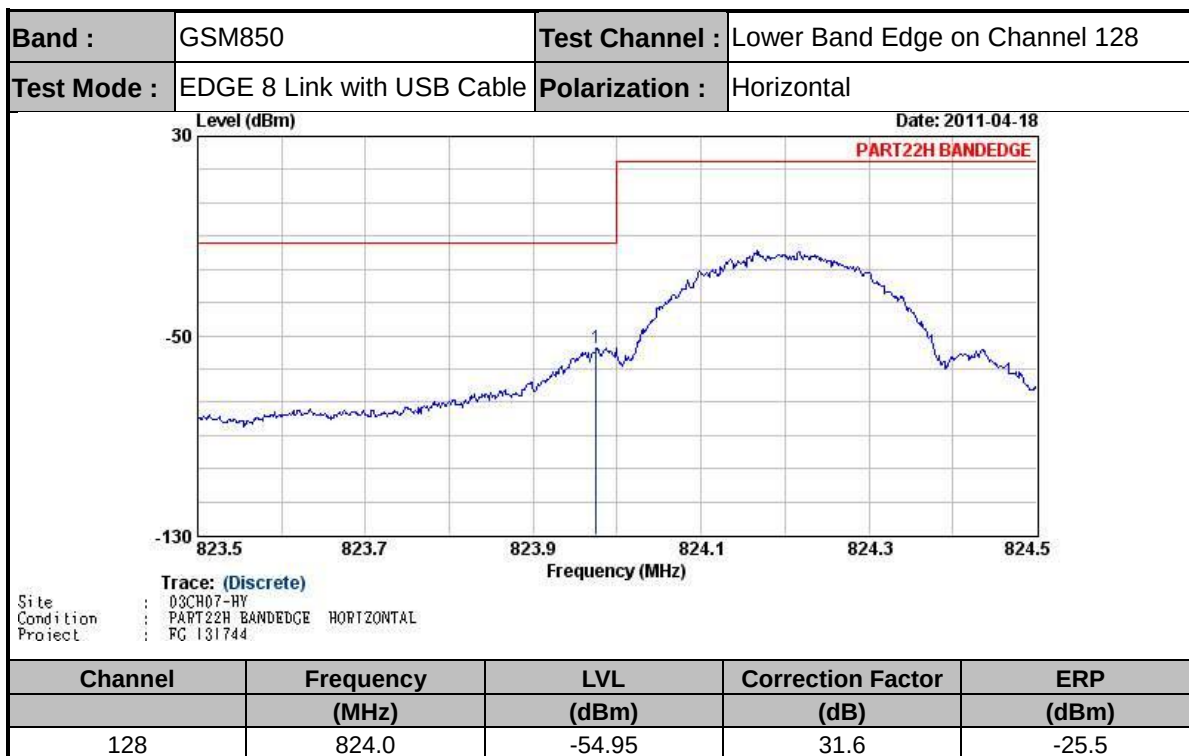


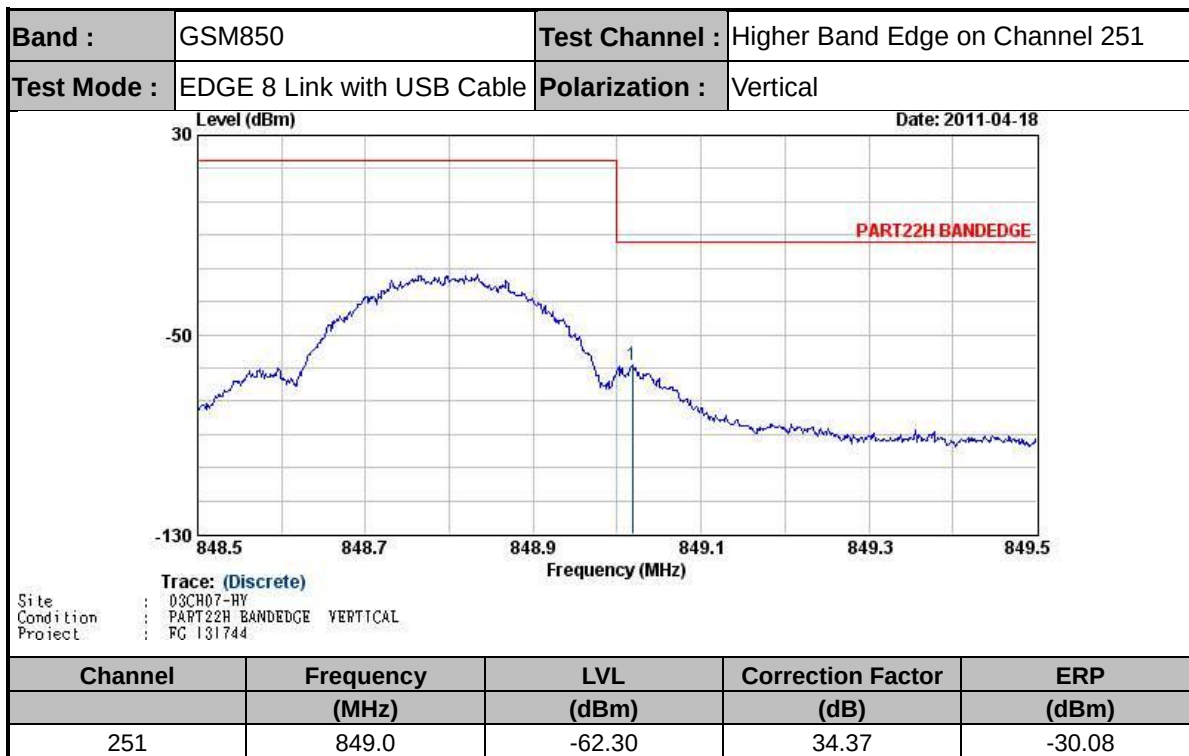
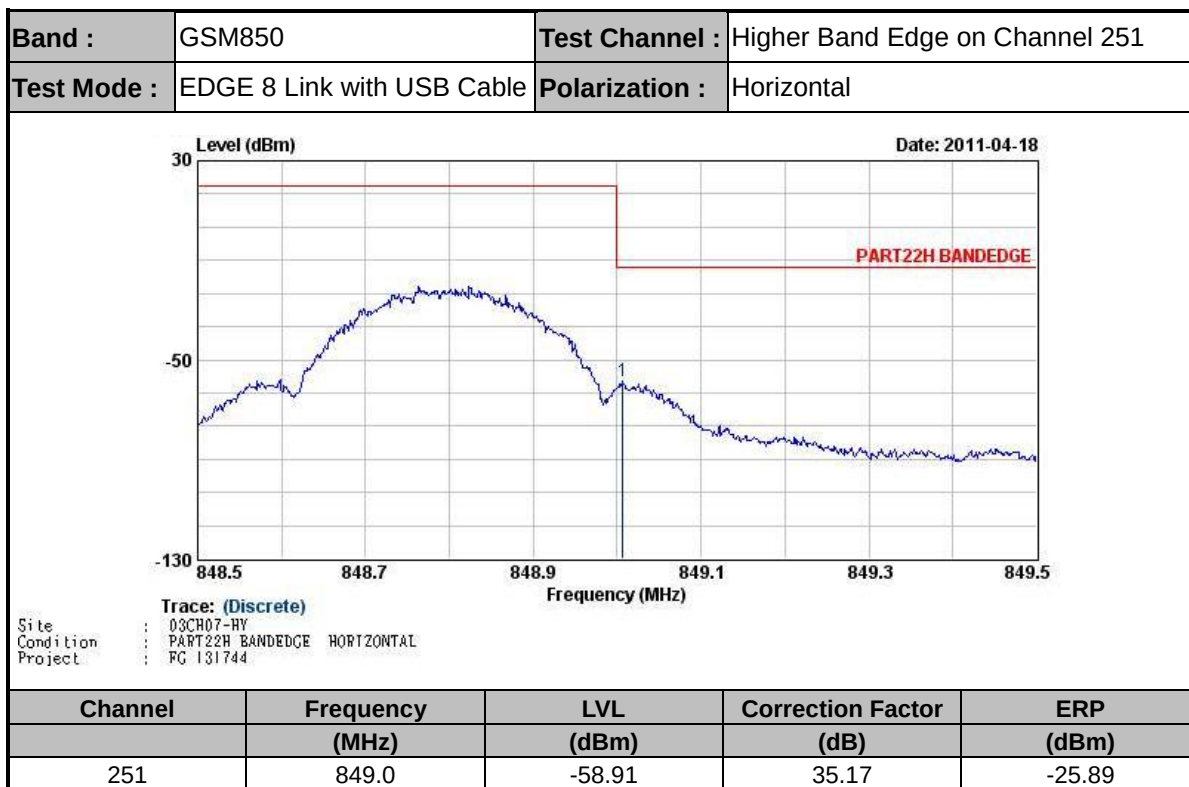
Date: 12.APR.2011 17:28:18

3.2.6 Test Result of Radiated Band Edge



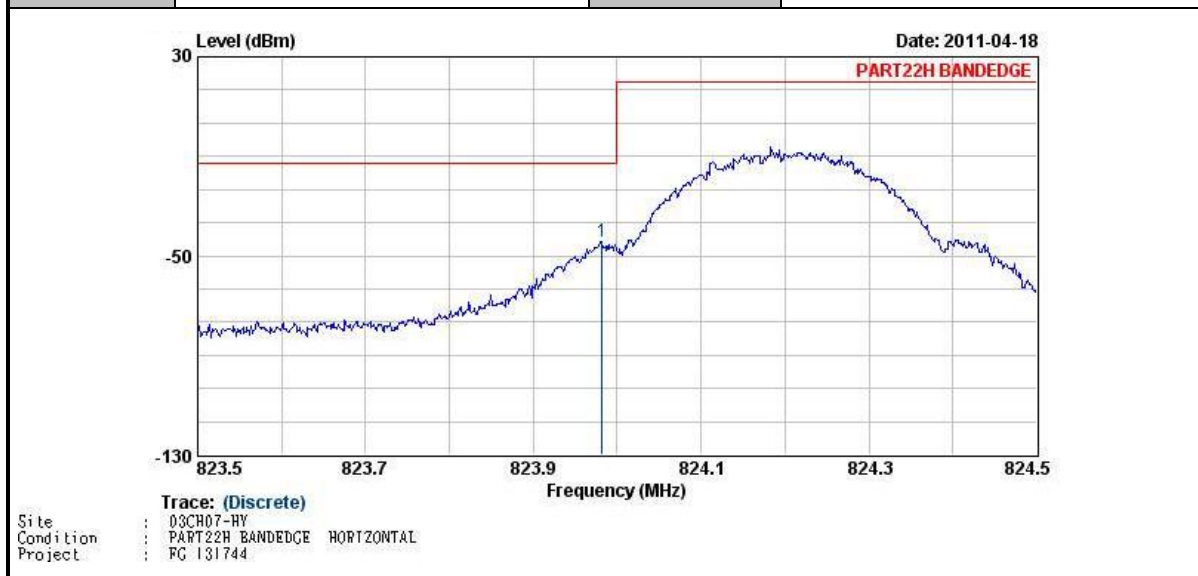






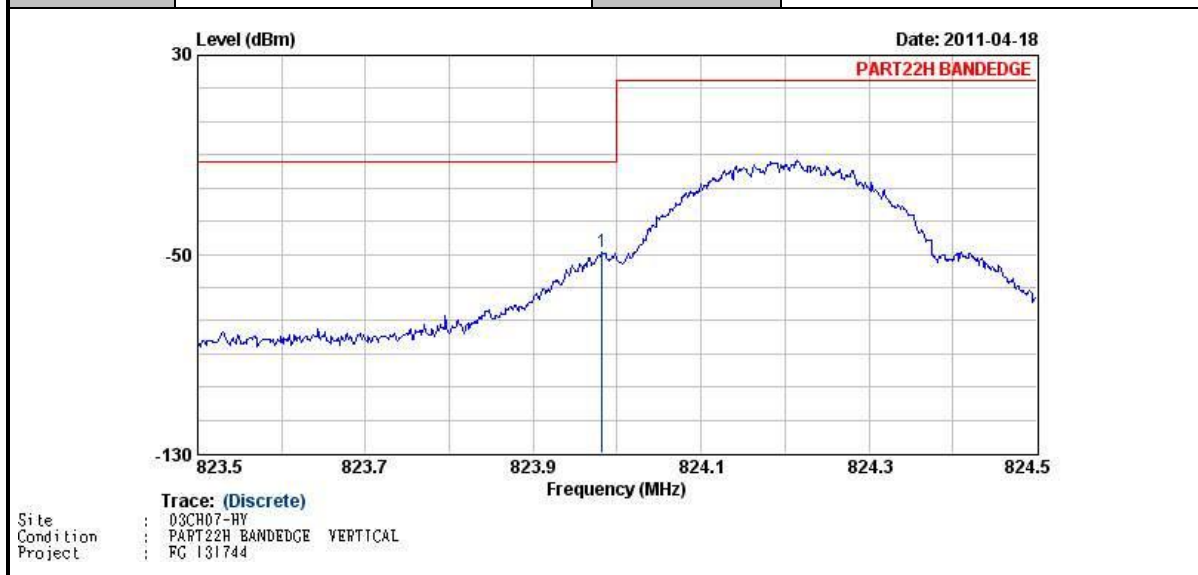


Band :	GSM850	Test Channel :	Lower Band Edge on Channel 128
Test Mode :	GPRS 8 Link without USB Cable	Polarization :	Horizontal



Channel	Frequency	LVL	Correction Factor	ERP
	(MHz)	(dBm)	(dB)	(dBm)
128	824.0	-44.18	31.6	-14.73

Band :	GSM850	Test Channel :	Lower Band Edge on Channel 128
Test Mode :	GPRS 8 Link without USB Cable	Polarization :	Vertical

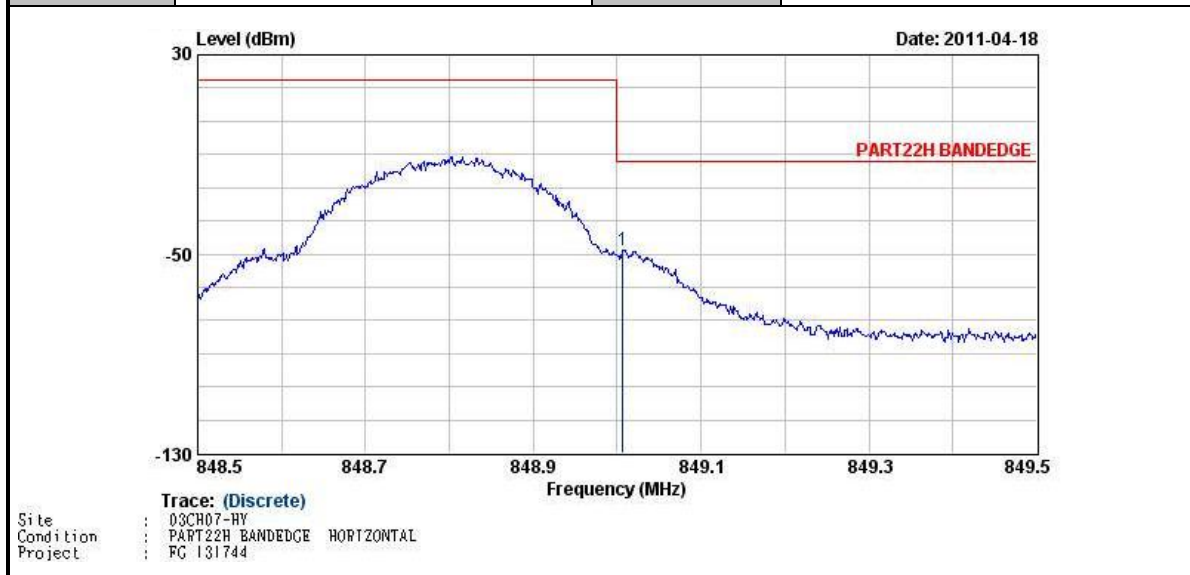


Channel	Frequency	LVL	Correction Factor	ERP
	(MHz)	(dBm)	(dB)	(dBm)



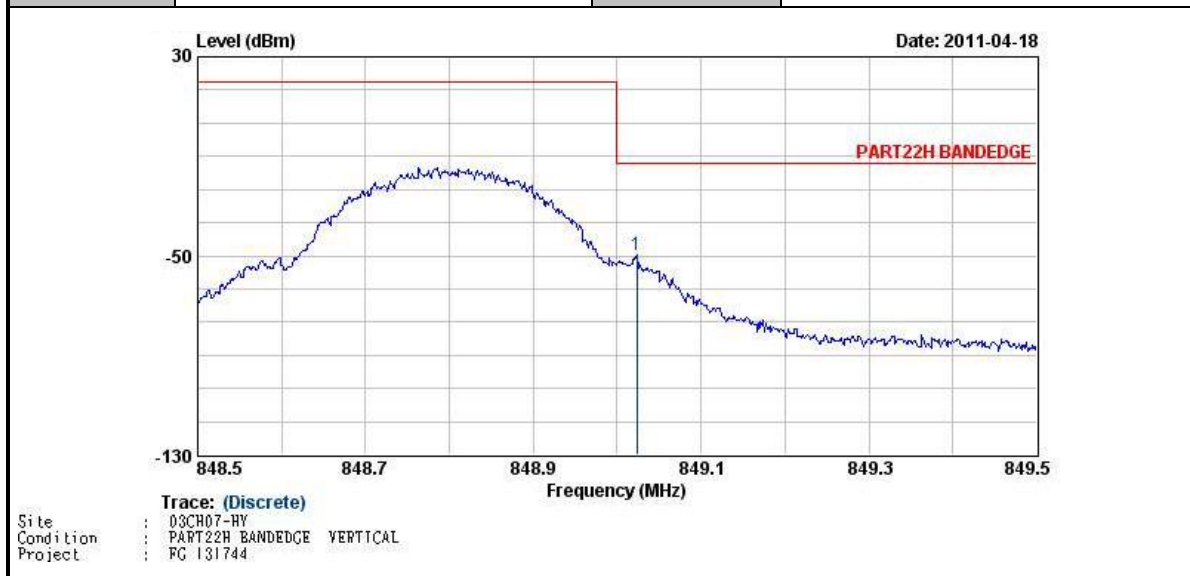
128	824.0	-48.98	34.41	-16.72
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Band :	GSM850	Test Channel :	Higher Band Edge on Channel 251
Test Mode :	GPRS 8 Link without USB Cable	Polarization :	Horizontal



Channel	Frequency	LVL	Correction Factor	ERP
	(MHz)	(dBm)	(dB)	(dBm)
251	849.0	-48.40	35.17	-15.38

Band :	GSM850	Test Channel :	Higher Band Edge on Channel 251
Test Mode :	GPRS 8 Link without USB Cable	Polarization :	Vertical

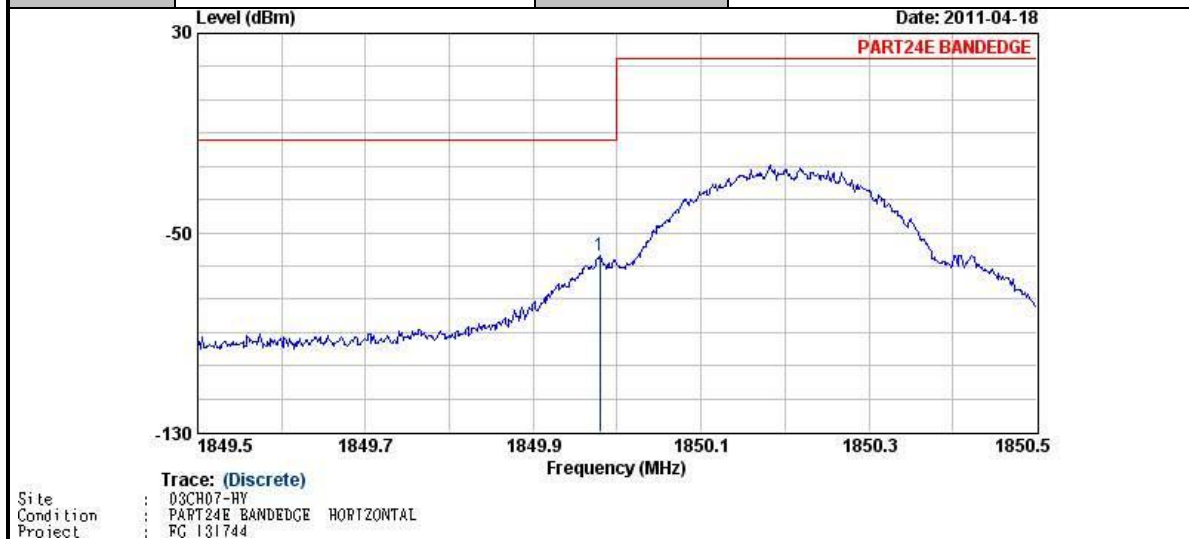


Channel	Frequency	LVL	Correction Factor	ERP
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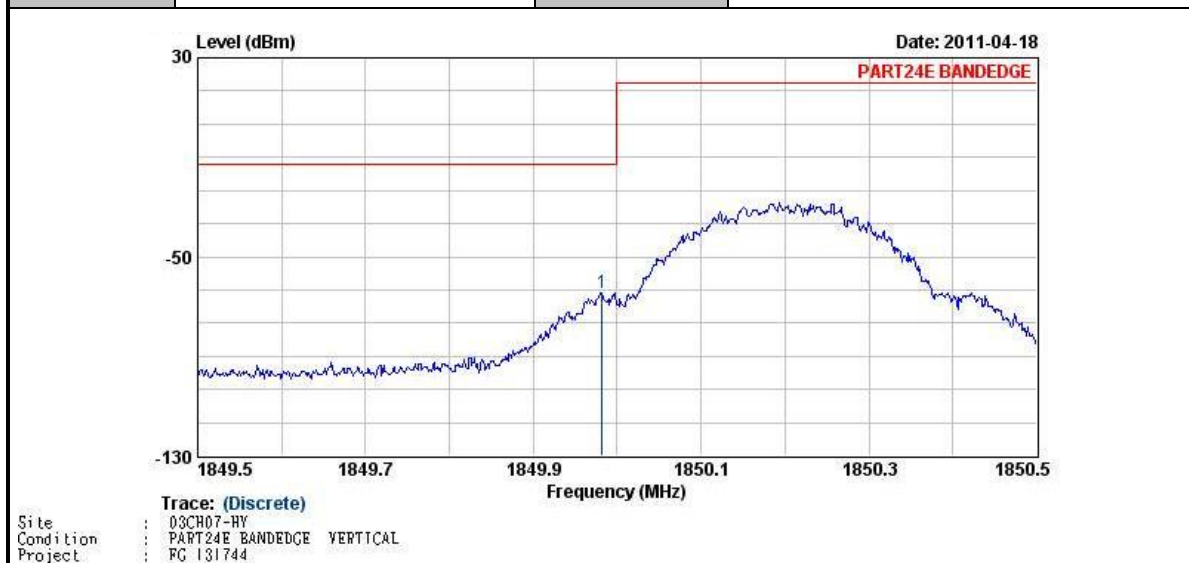
	(MHz)	(dBm)	(dB)	(dBm)
251	849.0	-49.64	34.37	-17.42

Band :	GSM1900	Test Channel :	Lower Band Edge on Channel 512
Test Mode :	GPRS 8 Link with USB Cable	Polarization :	Horizontal



Channel	Frequency	LVL	Correction Factor	ERP
	(MHz)	(dBm)	(dB)	(dBm)
512	1850.0	-59.47	41.24	-18.23

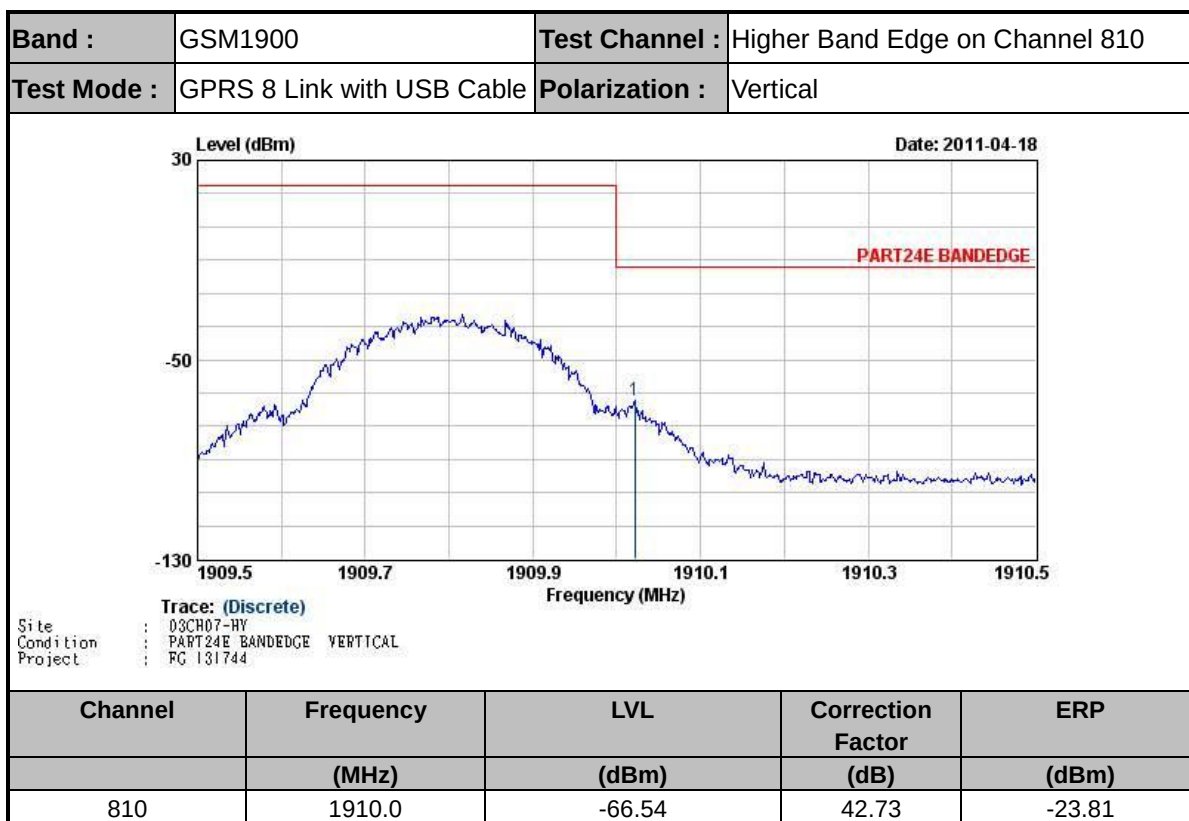
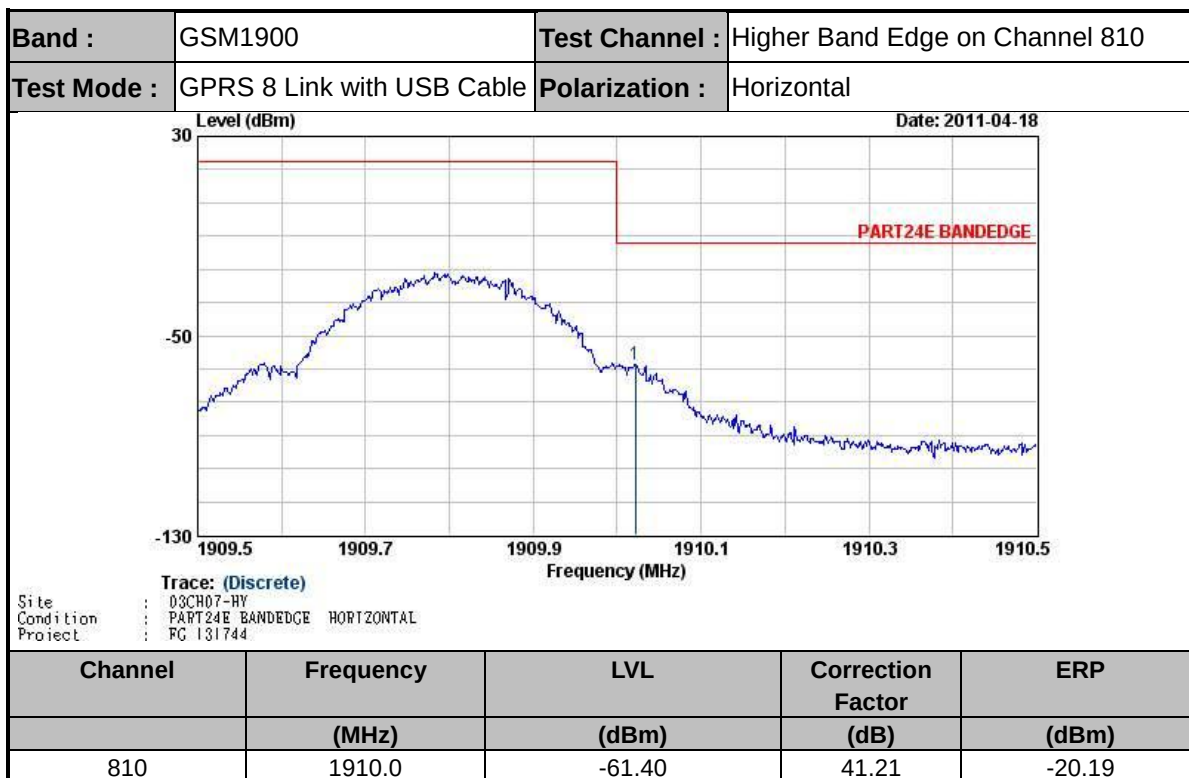
Band :	GSM1900	Test Channel :	Lower Band Edge on Channel 512
Test Mode :	GPRS 8 Link with USB Cable	Polarization :	Vertical



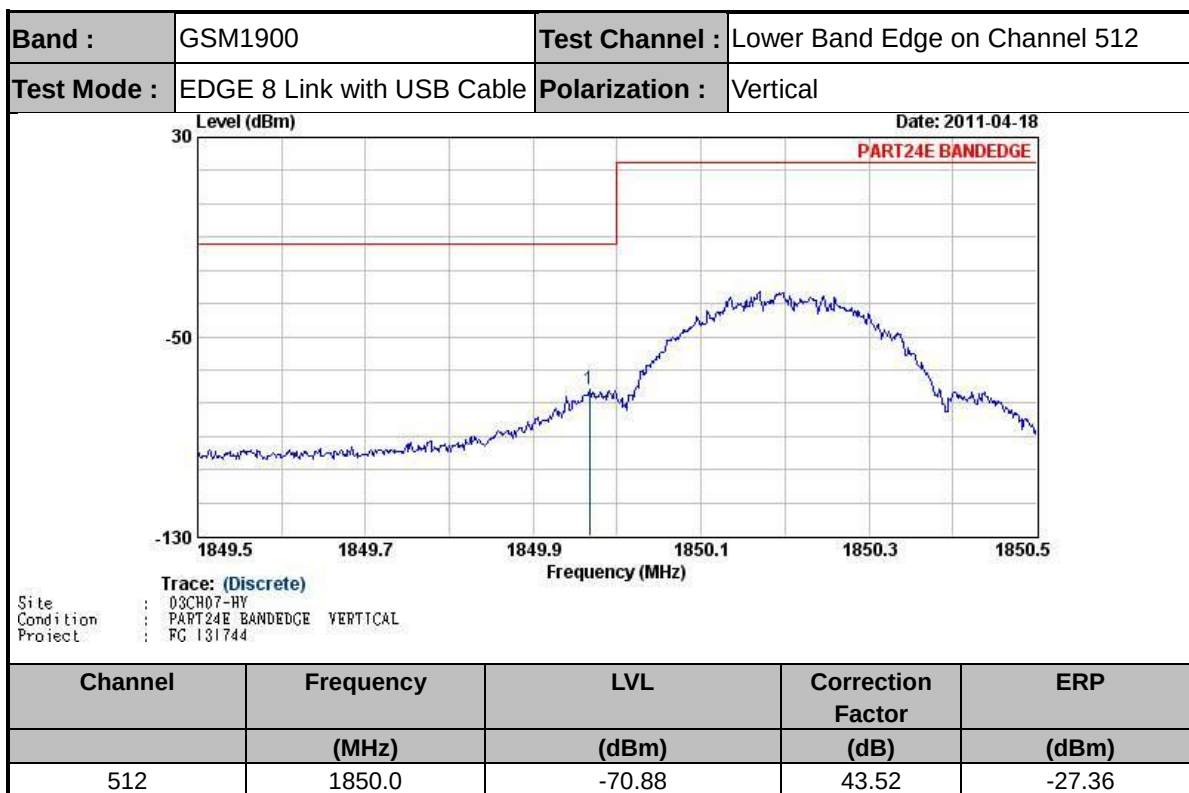
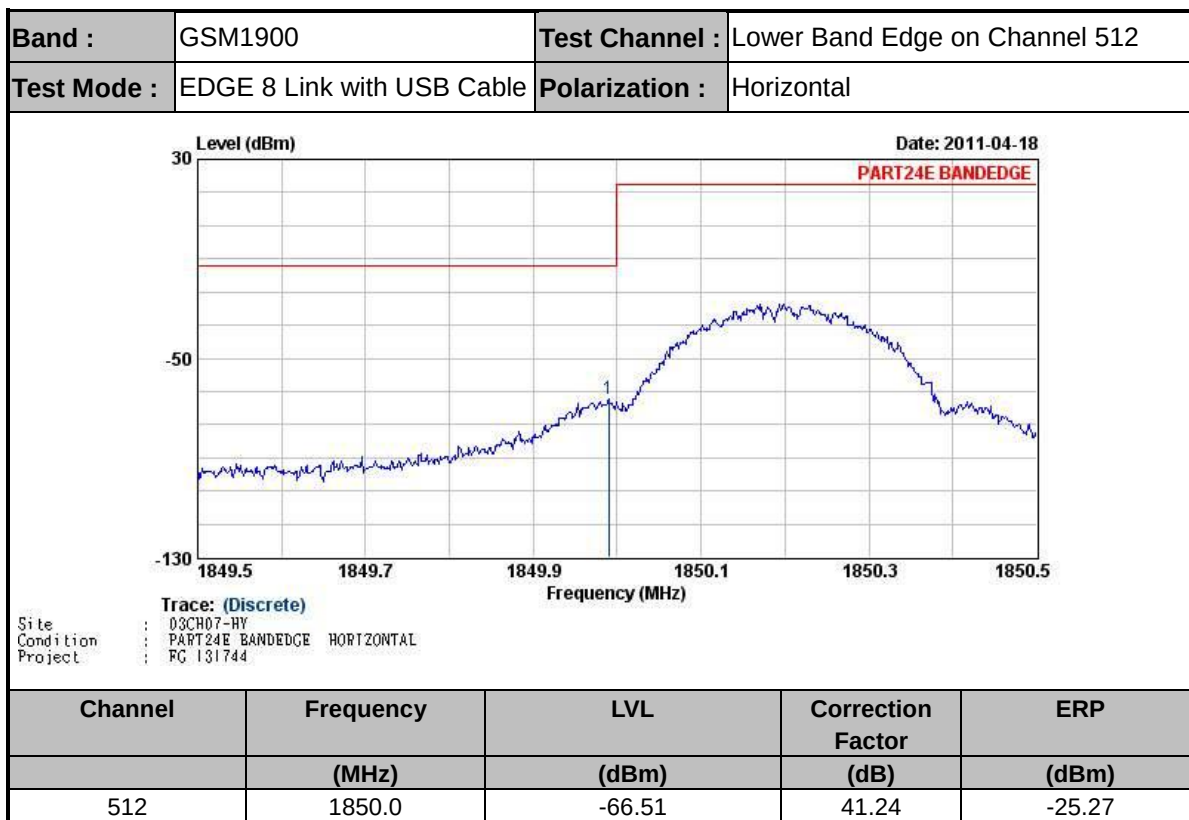
Channel	Frequency	LVL	Correction Factor	ERP
---------	-----------	-----	-------------------	-----



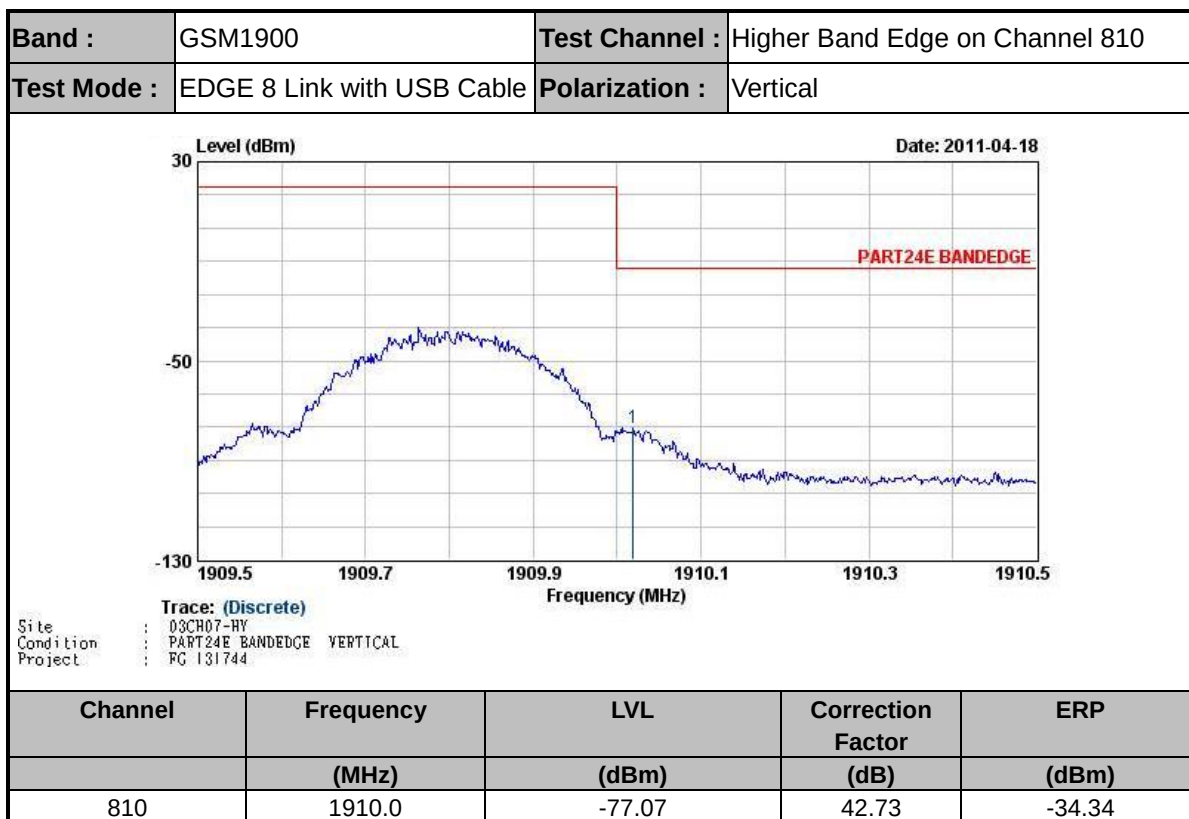
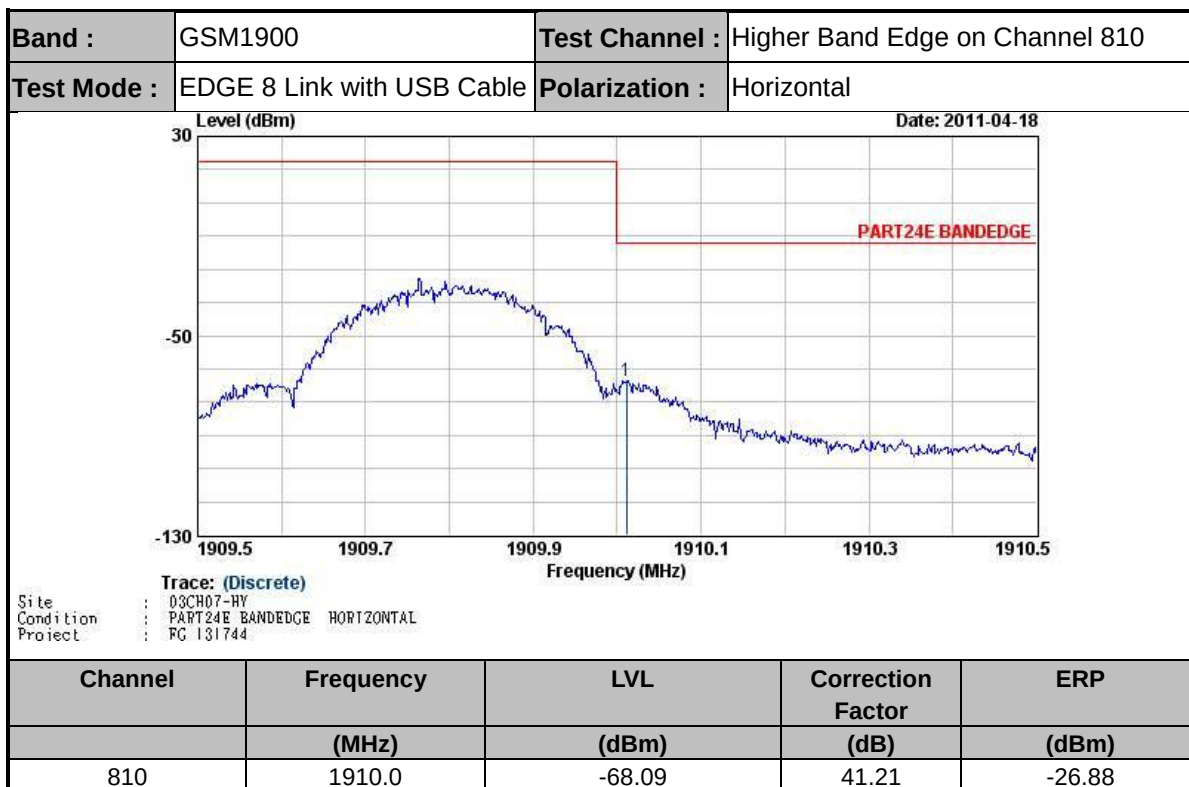
	(MHz)	(dBm)	(dB)	(dBm)
512	1850.0	-64.44	43.52	-20.92







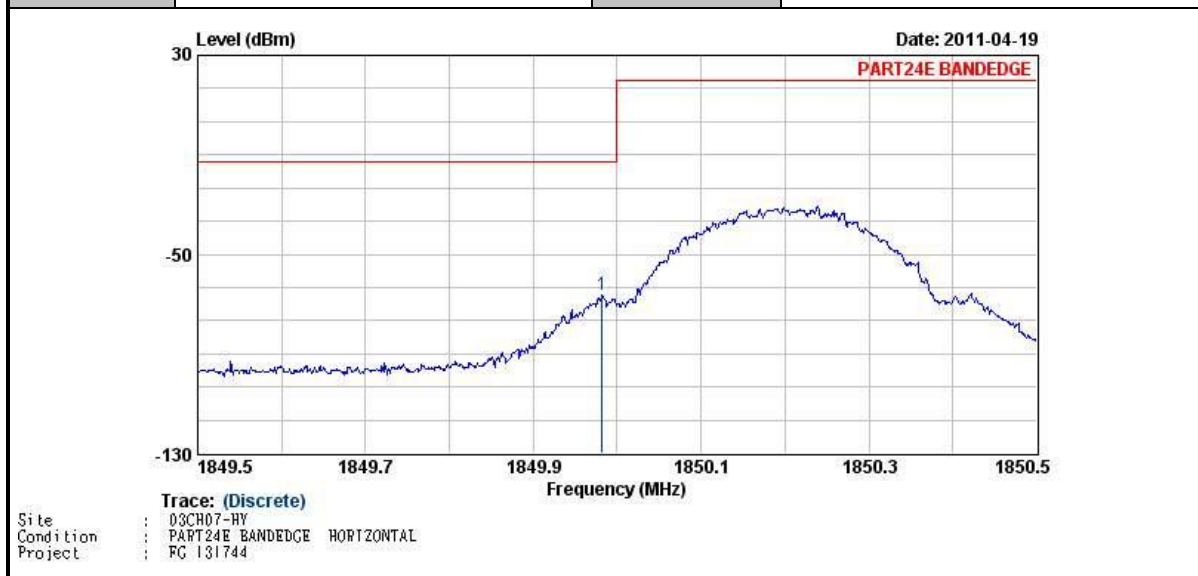






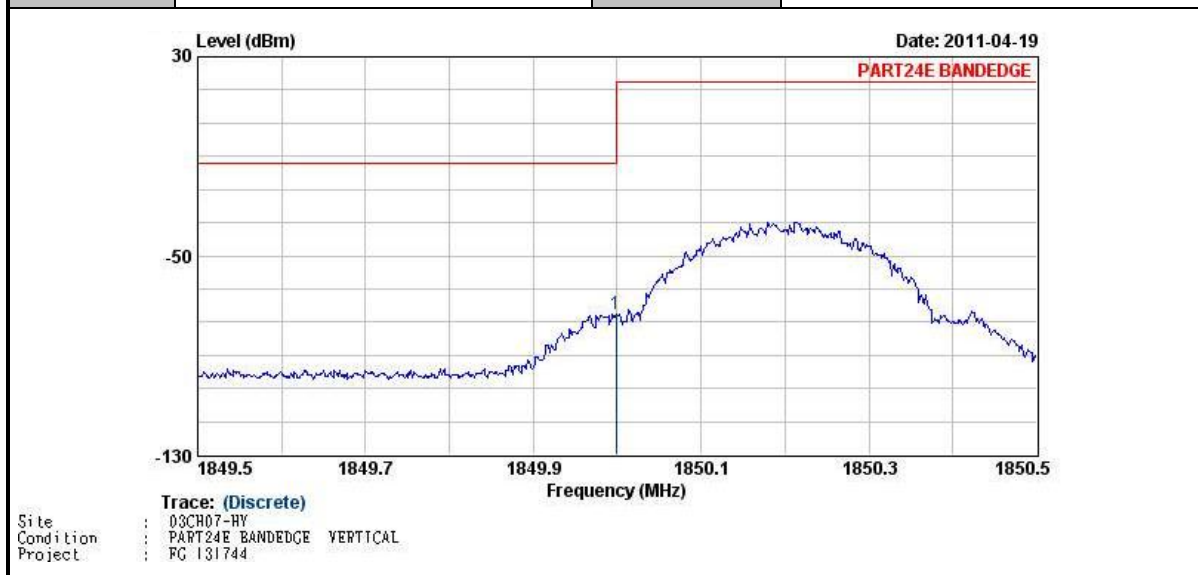


Band :	GSM1900	Test Channel :	Lower Band Edge on Channel 512
Test Mode :	GPRS 8 Link without USB Cable	Polarization :	Horizontal



Channel	Frequency	LVL	Correction Factor	ERP
	(MHz)	(dBm)	(dB)	(dBm)
512	1850.0	-66.56	41.24	-25.32

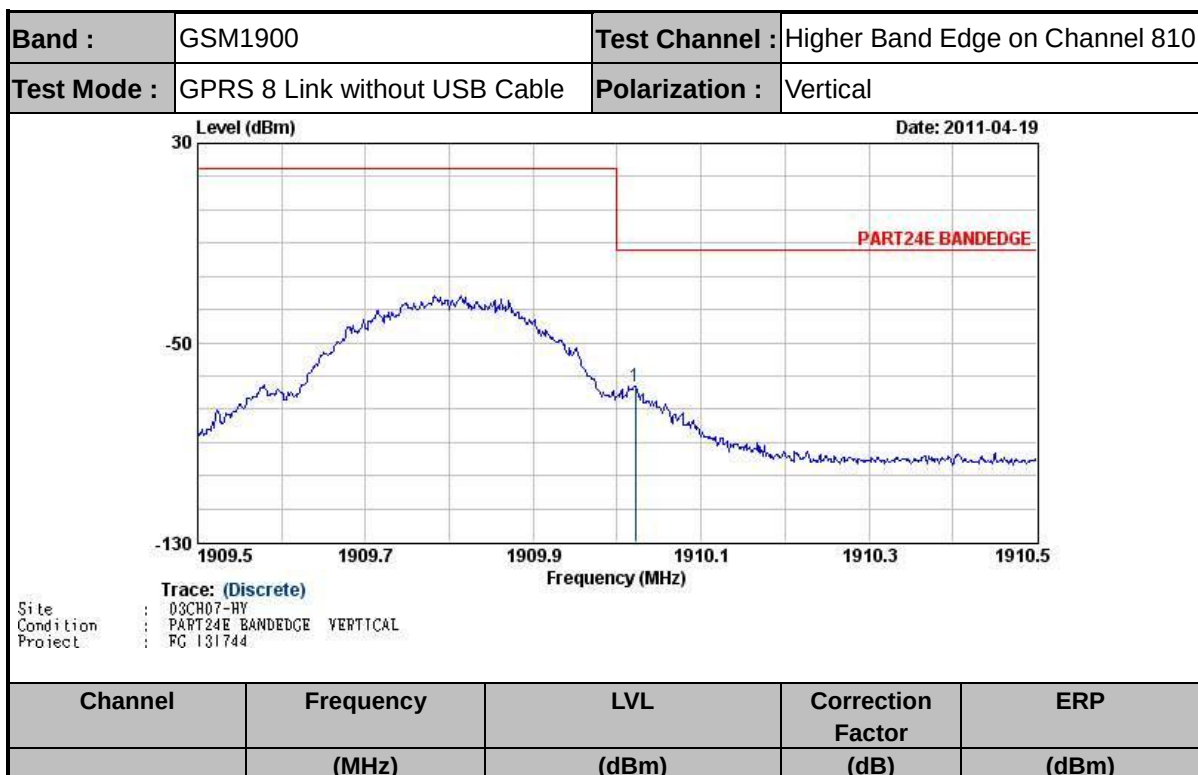
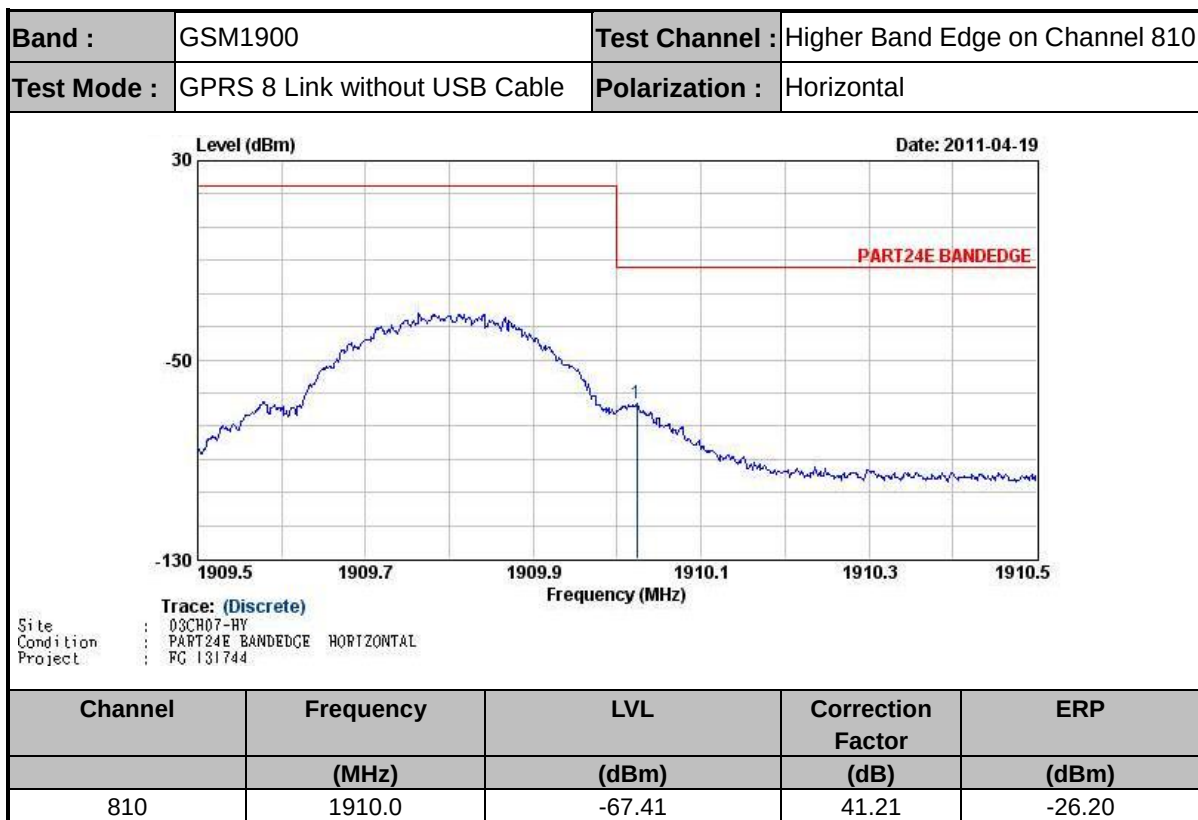
Band :	GSM1900	Test Channel :	Lower Band Edge on Channel 512
Test Mode :	GPRS 8 Link without USB Cable	Polarization :	Vertical



Channel	Frequency	LVL	Correction Factor	ERP
	(MHz)	(dBm)	(dB)	(dBm)
512	1850.0	-66.56	41.24	-25.32



512	1850.0	-73.38	43.52	-29.86
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810	1910.0	-67.60	42.73	-24.87
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3.3 Conducted Emission Measurement

3.3.1 Description of Conducted Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

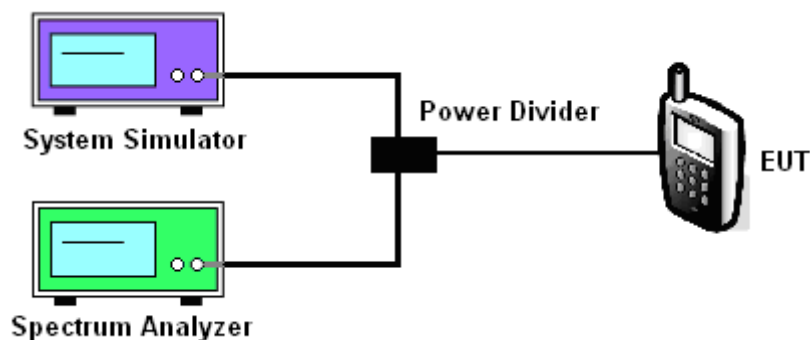
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

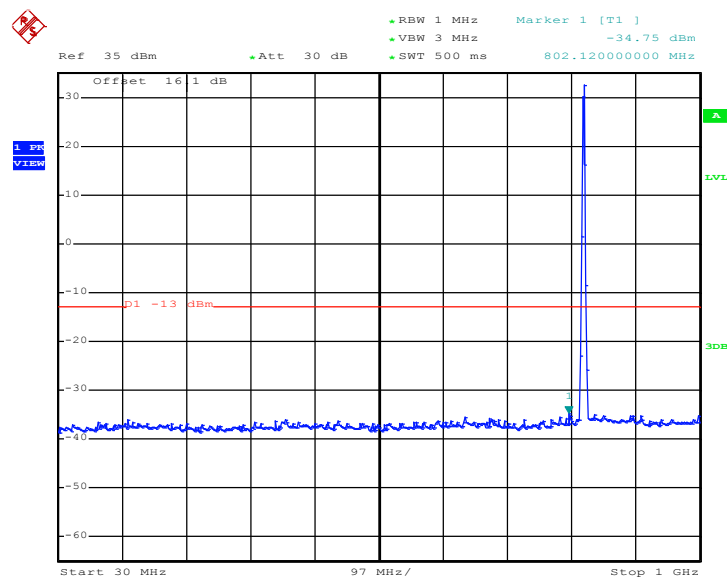
3.3.4 Test Setup



3.3.5 Test Result (Plots) of Conducted Emission

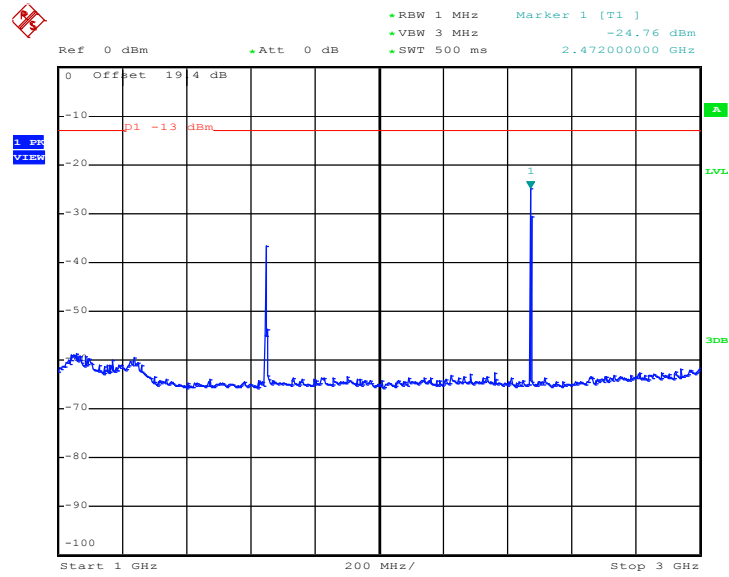
Band :	GSM850	Channel :	CH128
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz

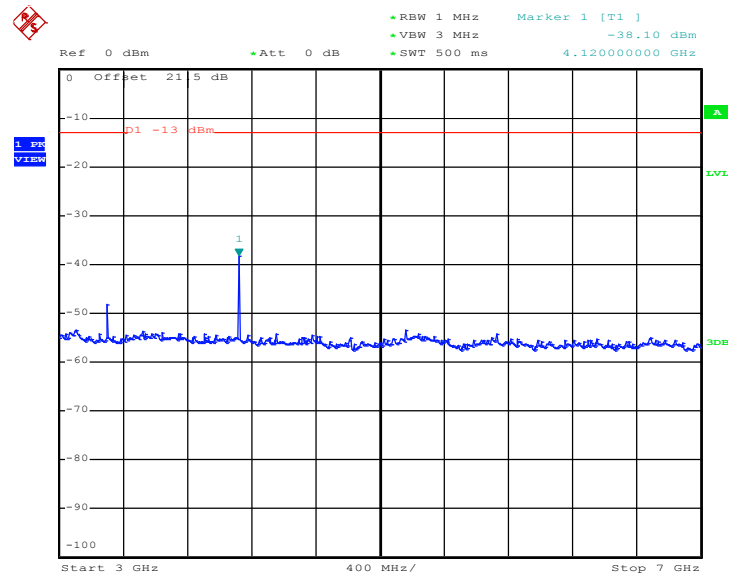


Date: 16.MAY.2011 17:45:00

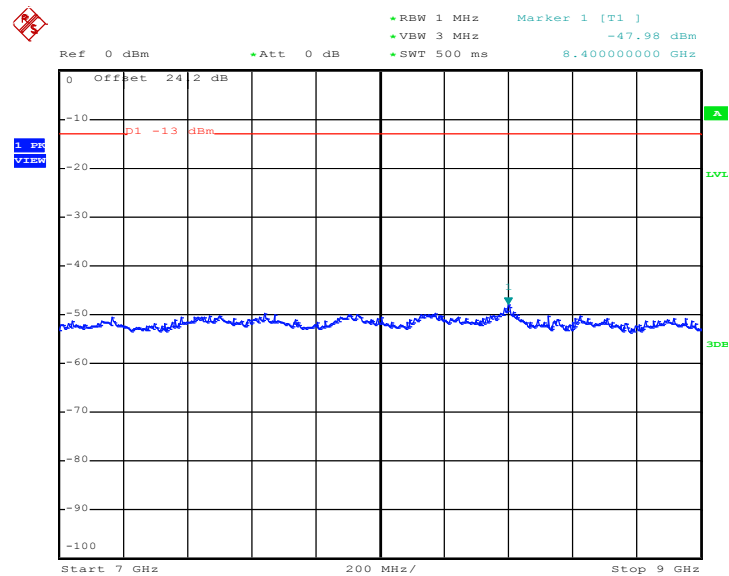
Conducted Emission Plot between 1GHz ~ 3GHz



Date: 16.MAY.2011 17:45:15

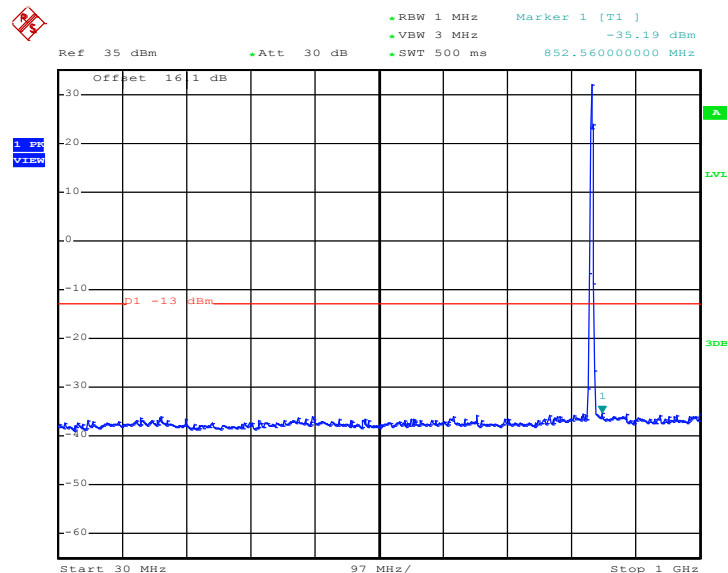
Conducted Emission Plot between 3GHz ~ 7GHz


Date: 16.MAY.2011 17:45:28

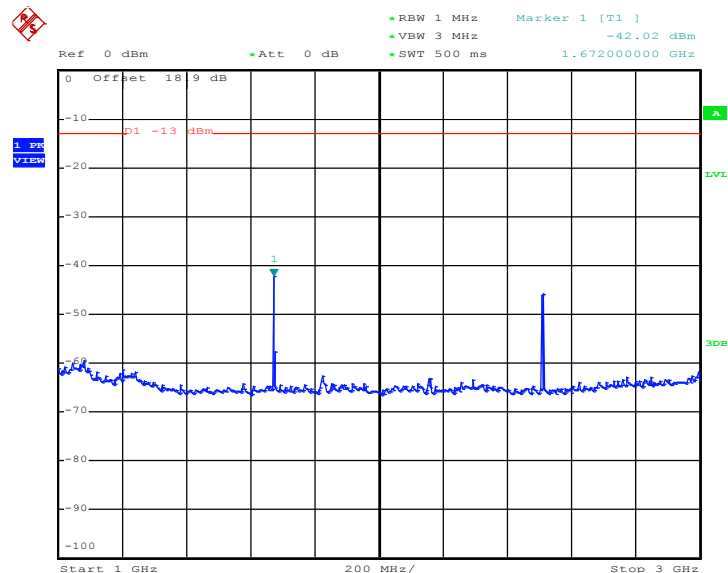
Conducted Emission Plot between 7GHz ~ 9GHz


Date: 16.MAY.2011 17:45:40

Band :	GSM850	Channel :	CH189
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz


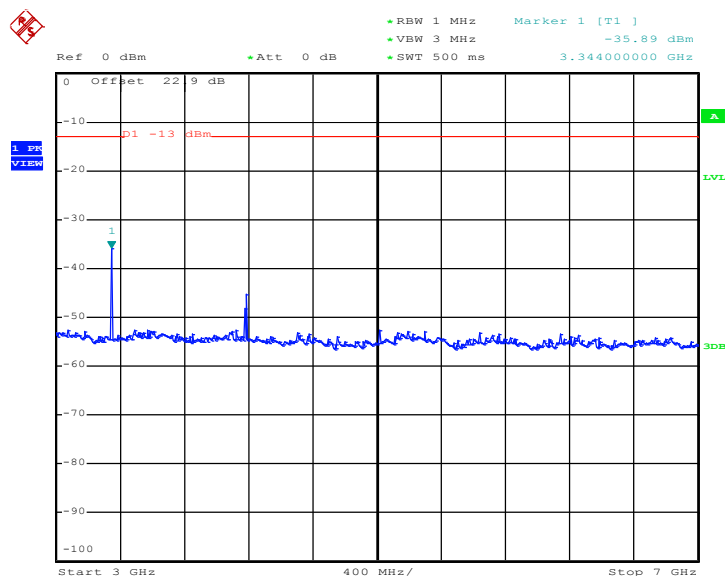
Date: 12.APR.2011 16:53:02

Conducted Emission Plot between 1GHz ~ 3GHz


Date: 12.APR.2011 16:53:26

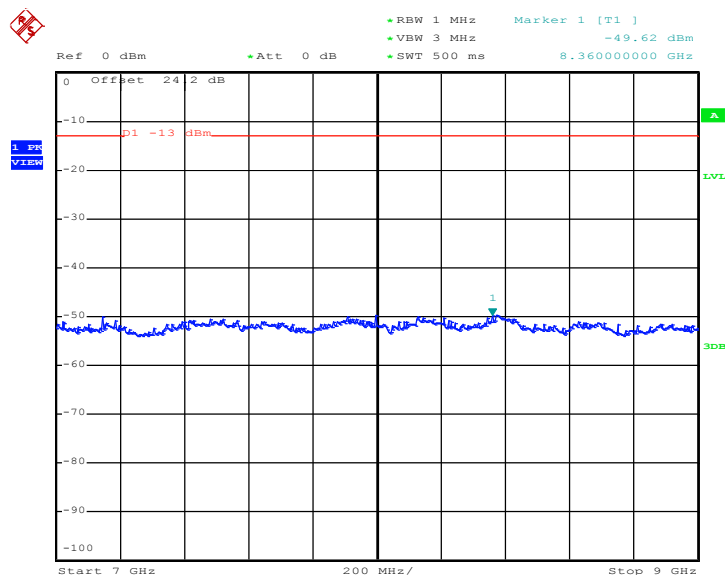


Conducted Emission Plot between 3GHz ~ 7GHz



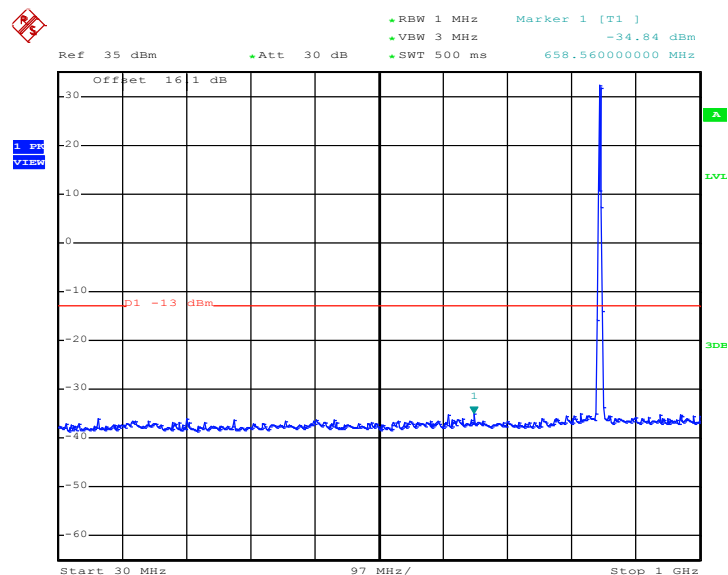
Date: 12.APR.2011 16:53:39

Conducted Emission Plot between 7GHz ~ 9GHz

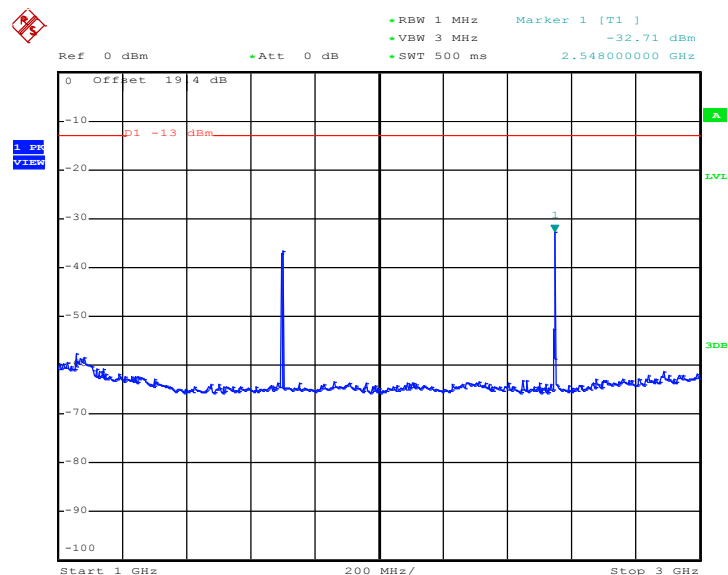


Date: 12.APR.2011 16:53:51

Band :	GSM850	Channel :	CH251
Test Mode :	GPRS 8 Link		

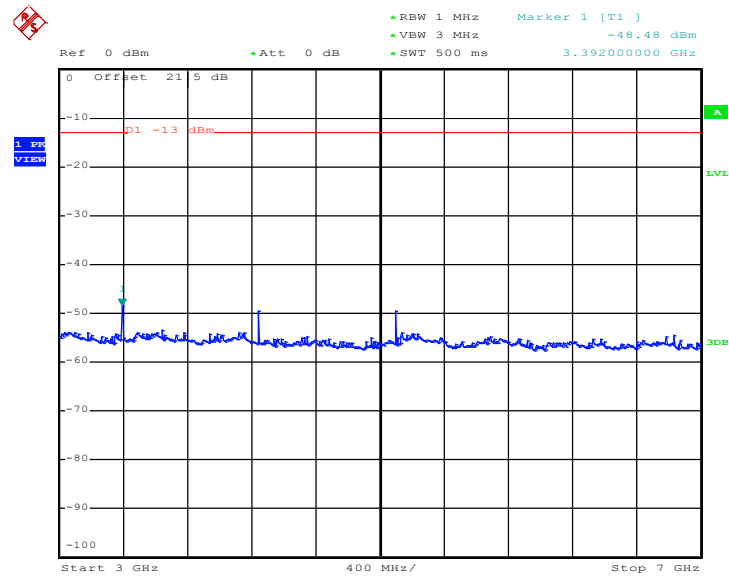
Conducted Emission Plot between 30MHz ~ 1GHz


Date: 16.MAY.2011 17:46:50

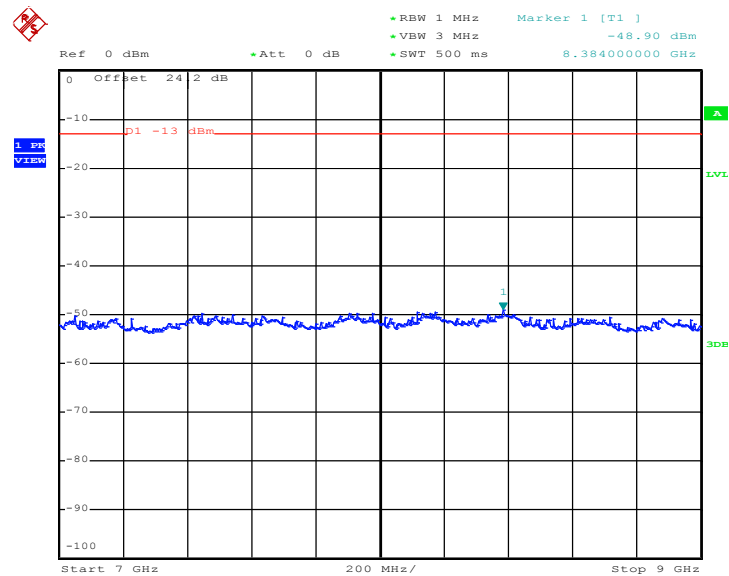
Conducted Emission Plot between 1GHz ~ 3GHz


Date: 16.MAY.2011 17:47:08



Conducted Emission Plot between 3GHz ~ 7GHz


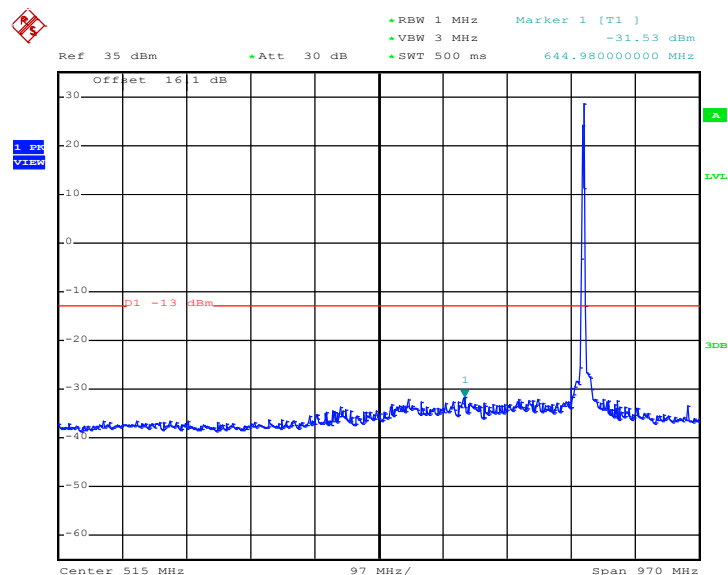
Date: 16.MAY.2011 17:47:20

Conducted Emission Plot between 7GHz ~ 9GHz


Date: 16.MAY.2011 17:47:33

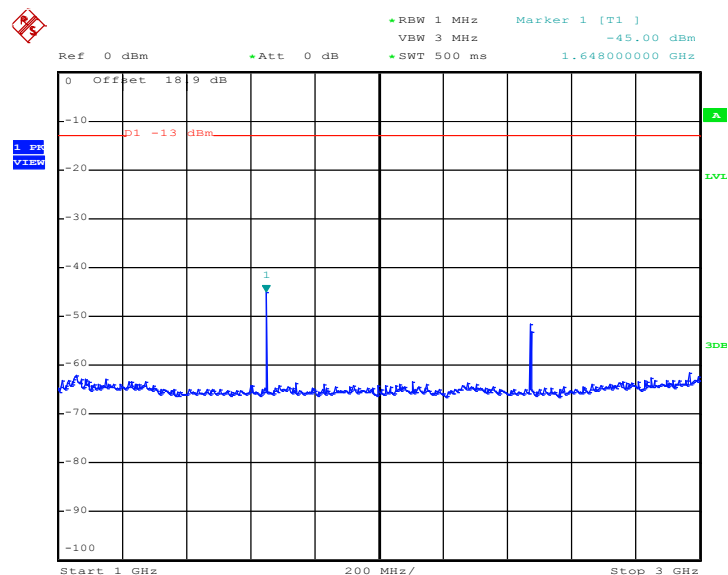
Band :	GSM850	Channel :	CH128
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



Date: 18.MAY.2011 11:47:46

Conducted Emission Plot between 1GHz ~ 3GHz

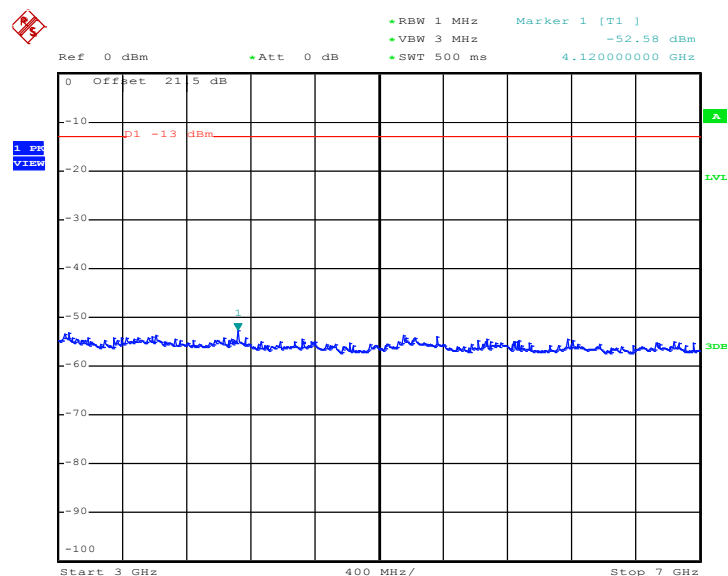


Date: 16.MAY.2011 18:47:28



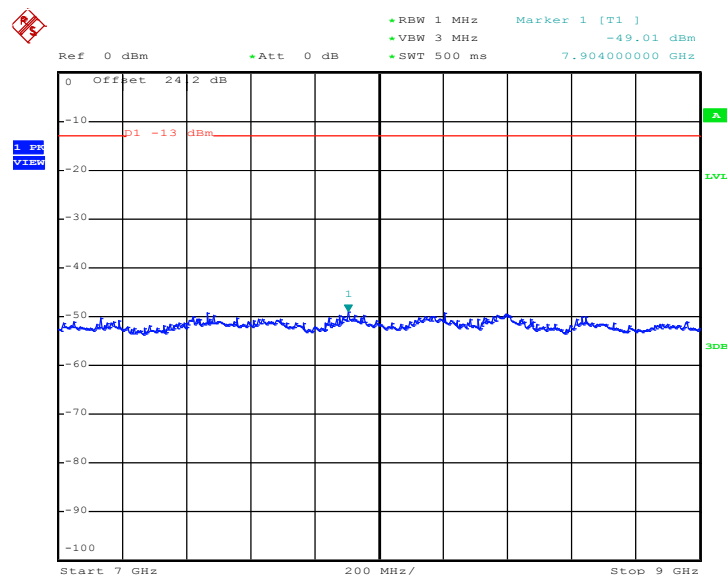


Conducted Emission Plot between 3GHz ~ 7GHz



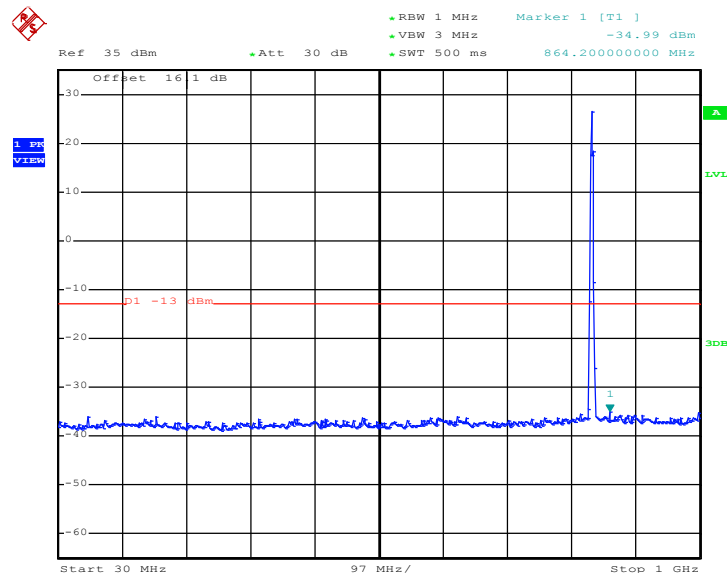
Date: 16.MAY.2011 17:56:12

Conducted Emission Plot between 7GHz ~ 9GHz

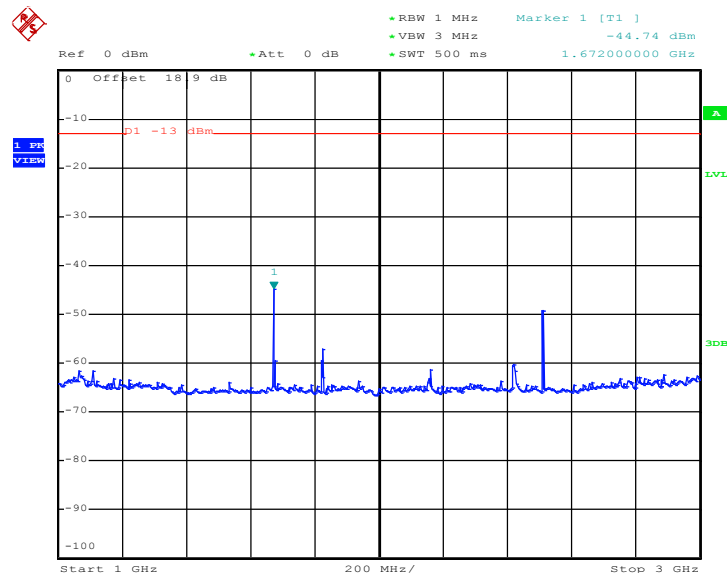


Date: 16.MAY.2011 17:56:24

Band :	GSM850	Channel :	CH189
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz


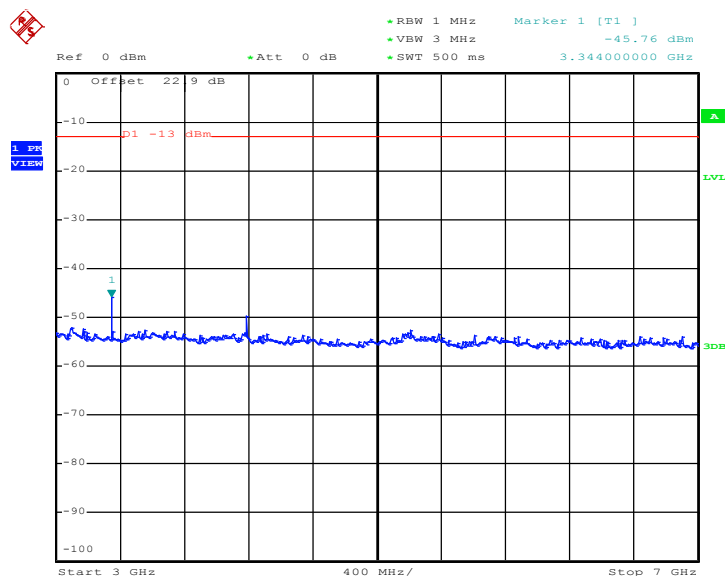
Date: 12.APR.2011 17:01:51

Conducted Emission Plot between 1GHz ~ 3GHz


Date: 12.APR.2011 17:02:08

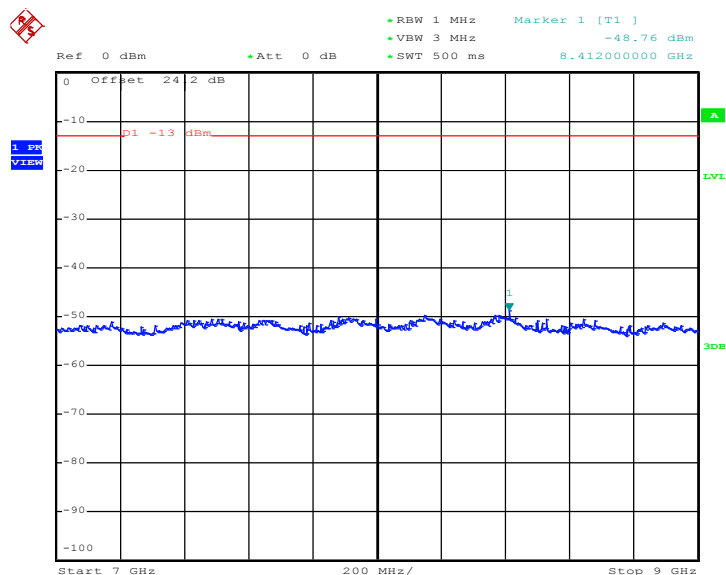


Conducted Emission Plot between 3GHz ~ 7GHz



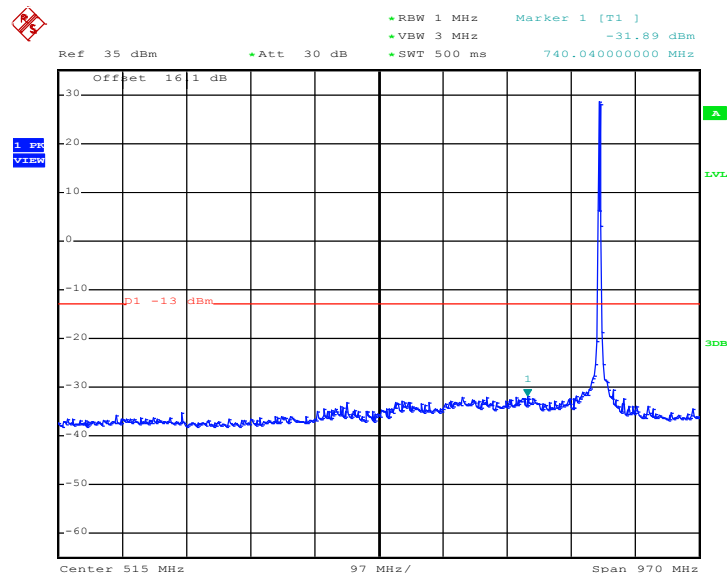
Date: 12.APR.2011 17:02:20

Conducted Emission Plot between 7GHz ~ 9GHz

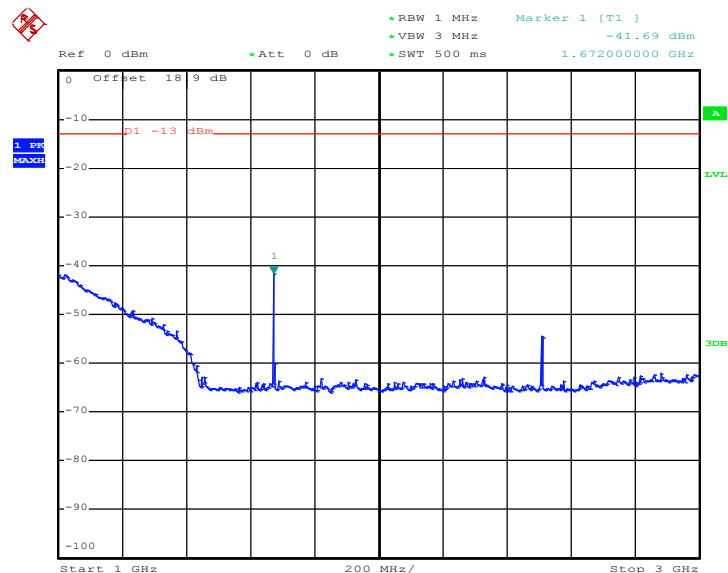


Date: 12.APR.2011 17:02:33

Band :	GSM850	Channel :	CH251
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz


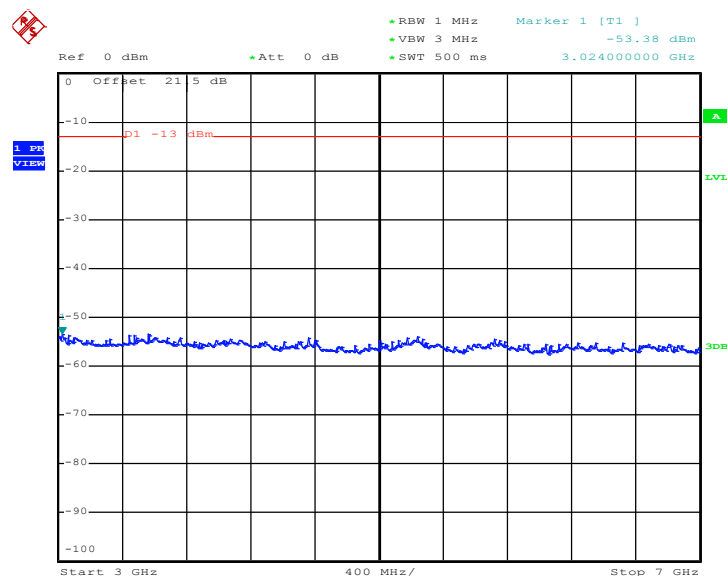
Date: 18.MAY.2011 11:56:40

Conducted Emission Plot between 1GHz ~ 3GHz


Date: 18.MAY.2011 12:34:44

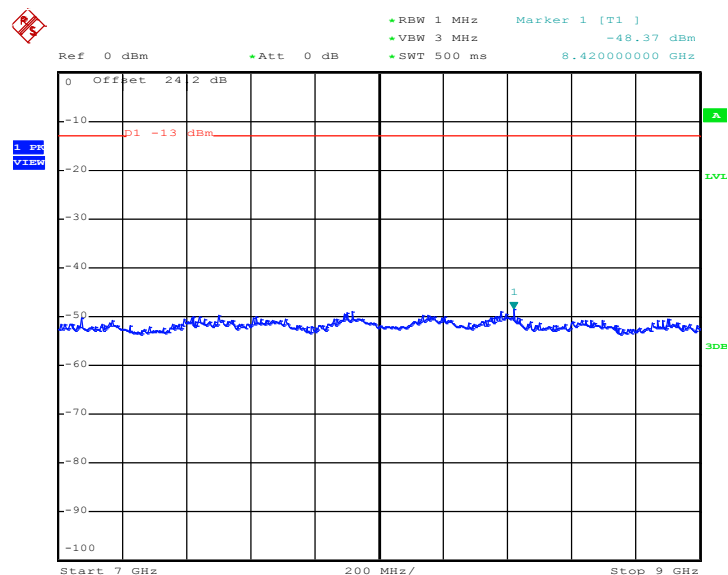


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 16.MAY.2011 17:57:37

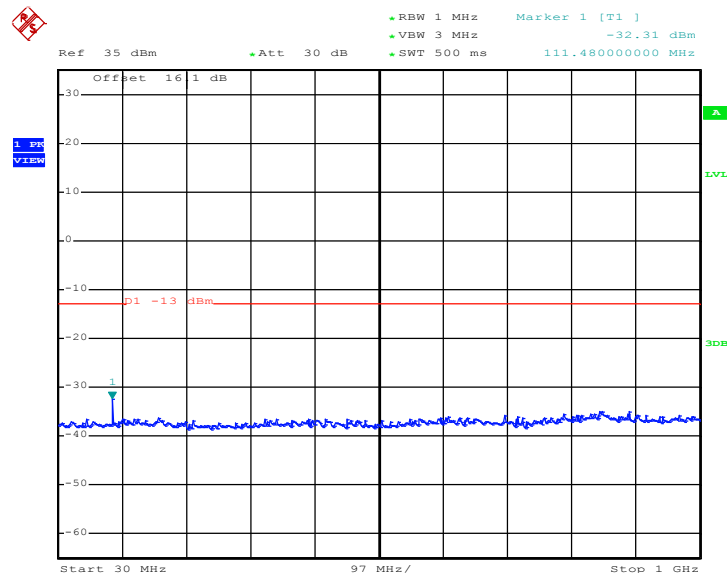
Conducted Emission Plot between 7GHz ~ 9GHz



Date: 16.MAY.2011 17:57:49

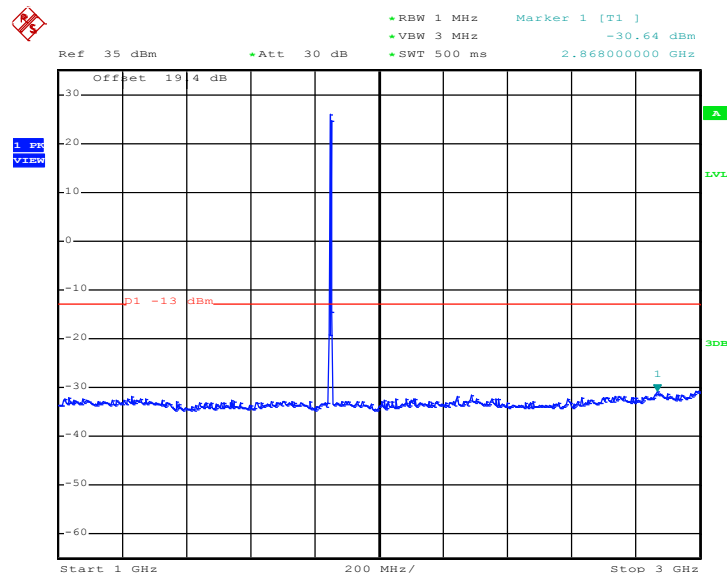
Band :	GSM1900	Channel :	CH512
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



Date: 16.MAY.2011 17:51:20

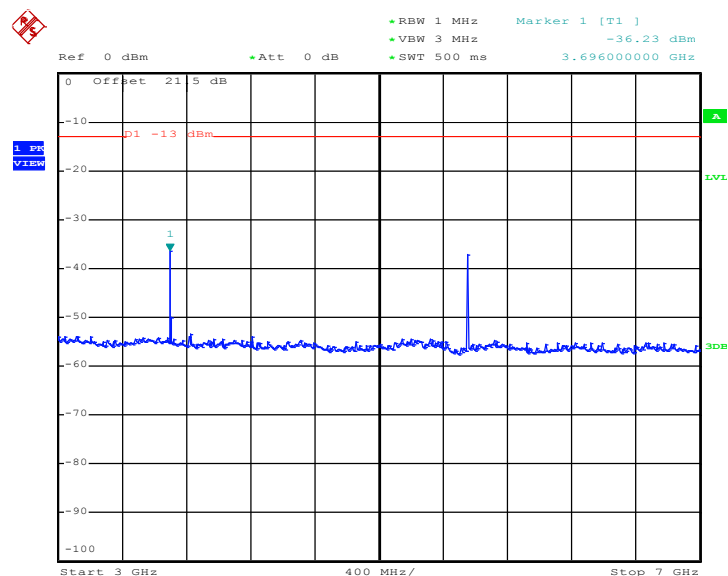
Conducted Emission Plot between 1GHz ~ 3GHz



Date: 16.MAY.2011 17:51:32

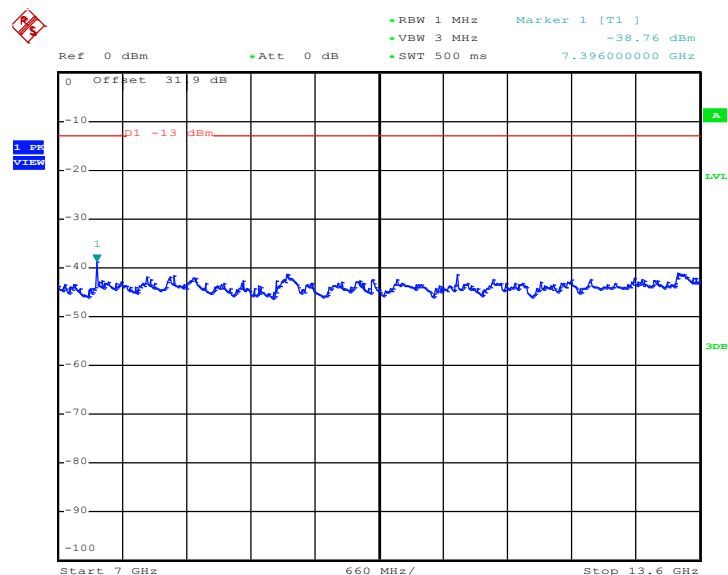


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 16.MAY.2011 17:51:47

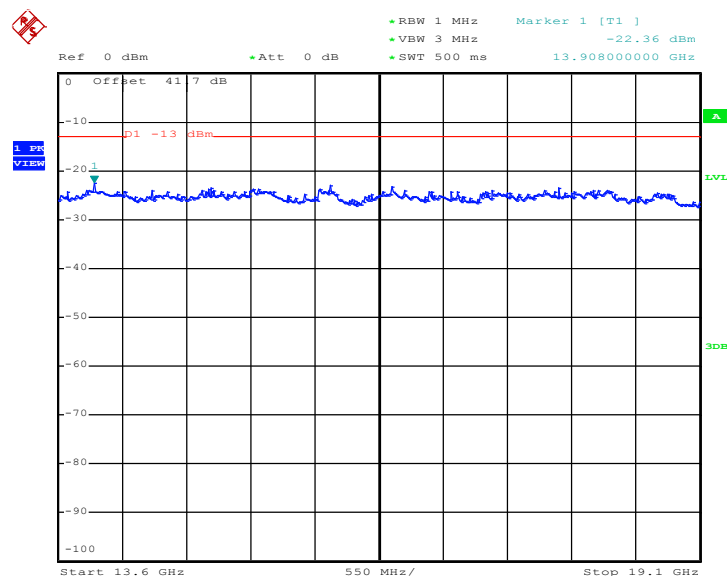
Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAY.2011 17:52:00

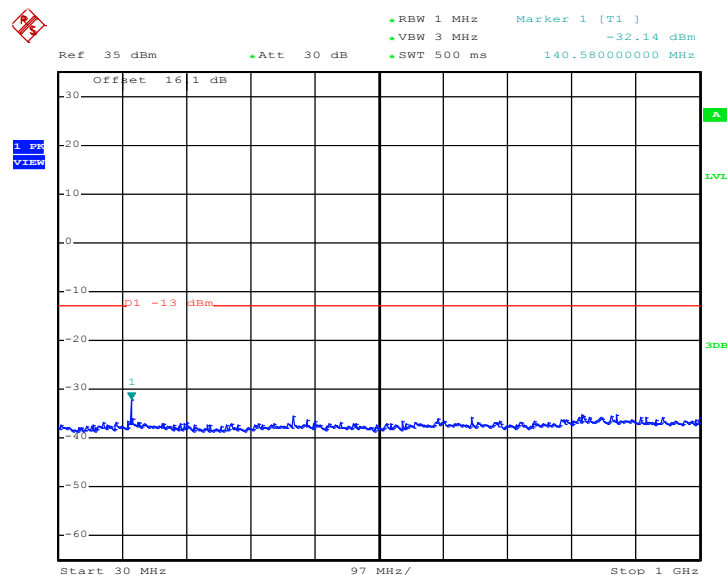


Conducted Emission Plot between 13.6GHz ~ 19.1GHz

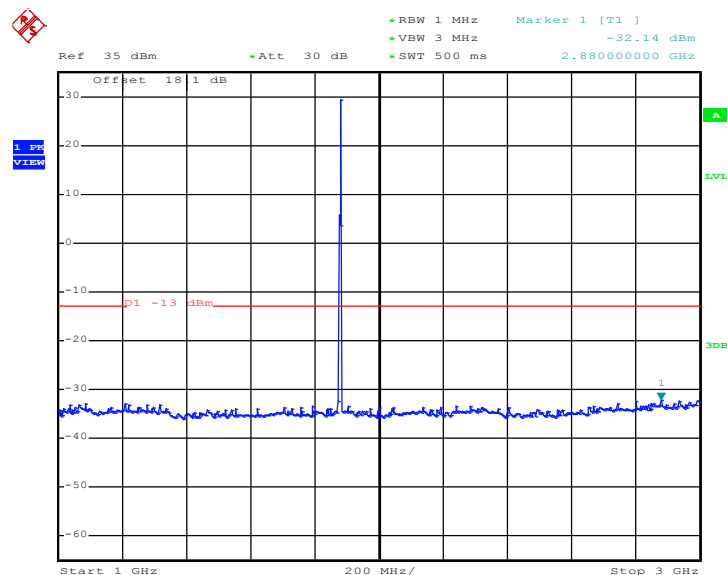


Date: 16.MAY.2011 17:52:12

Band :	GSM1900	Channel :	CH661
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz


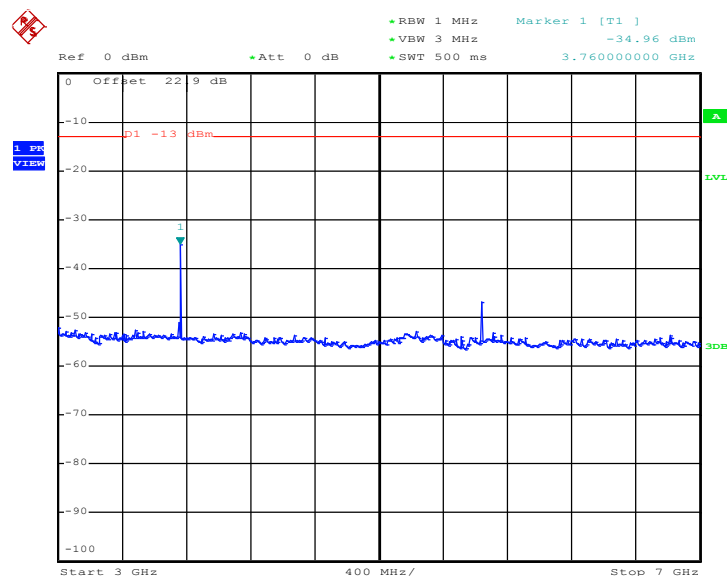
Date: 12.APR.2011 17:11:34

Conducted Emission Plot between 1GHz ~ 3GHz


Date: 12.APR.2011 17:11:46

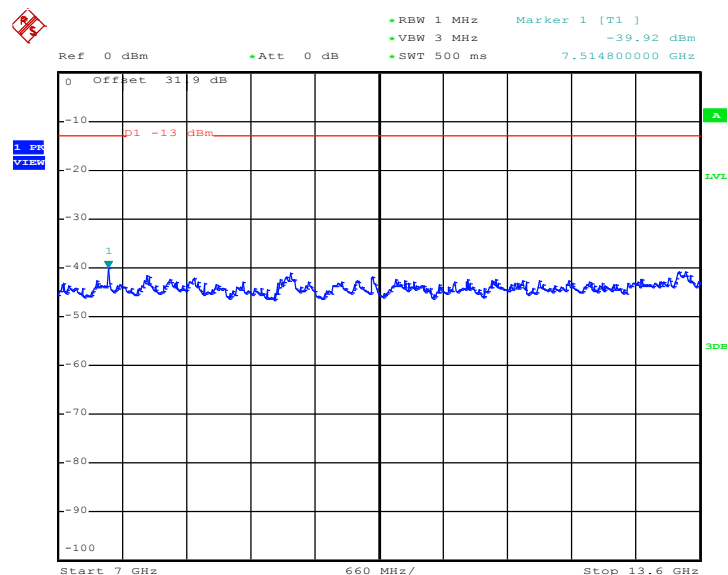


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 12.APR.2011 17:12:04

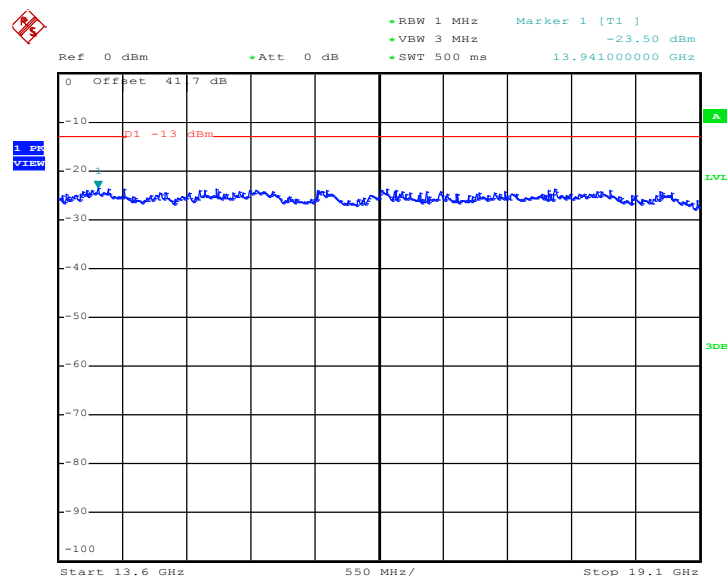
Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 12.APR.2011 17:12:17

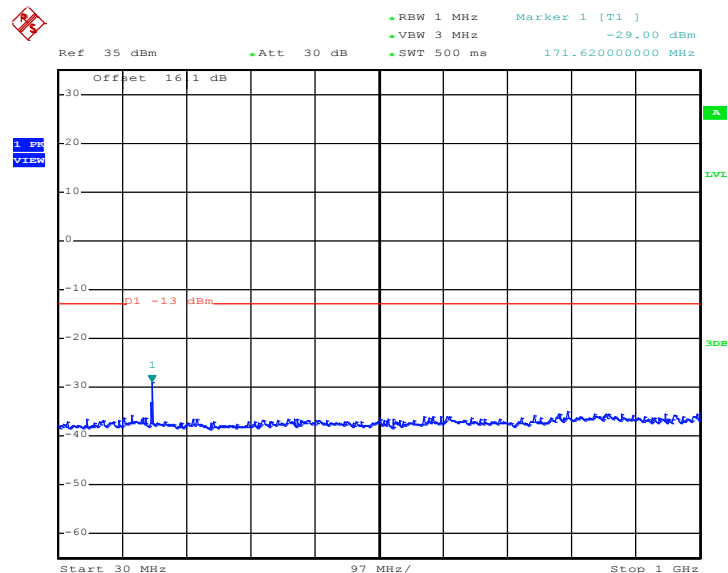


Conducted Emission Plot between 13.6GHz ~ 19.1GHz

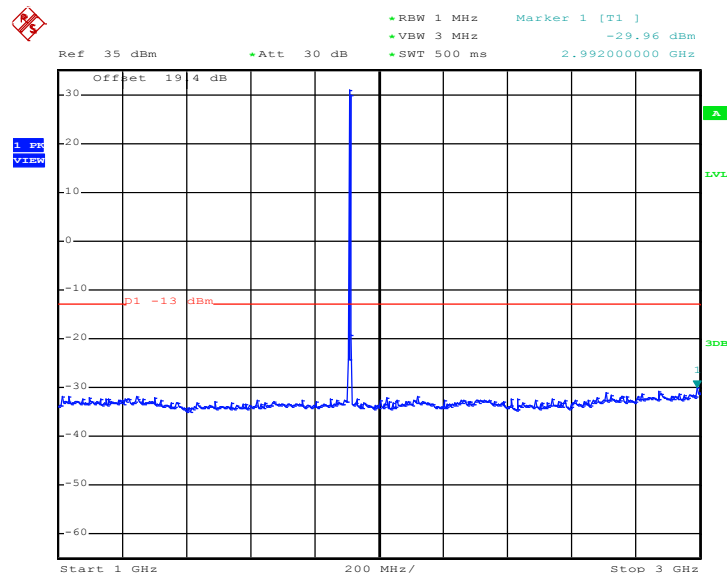


Date: 12.APR.2011 17:12:29

Band :	GSM1900	Channel :	CH810
Test Mode :	GPRS 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz


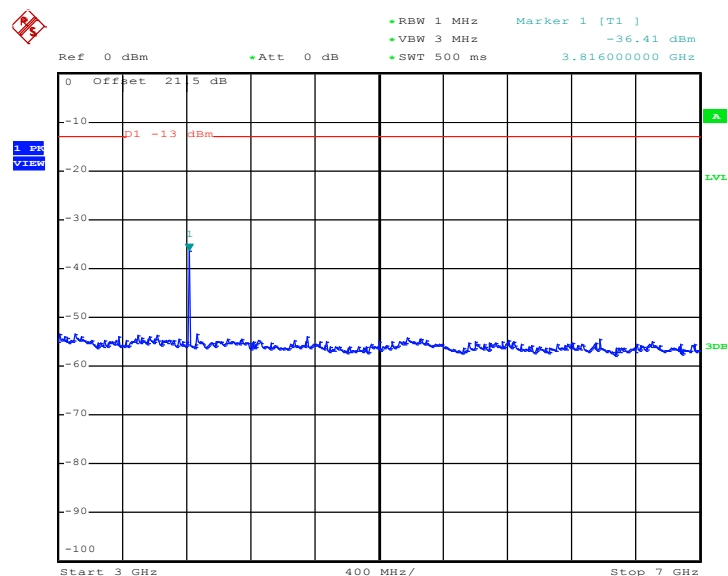
Date: 16.MAY.2011 17:53:00

Conducted Emission Plot between 1GHz ~ 3GHz


Date: 16.MAY.2011 17:53:12

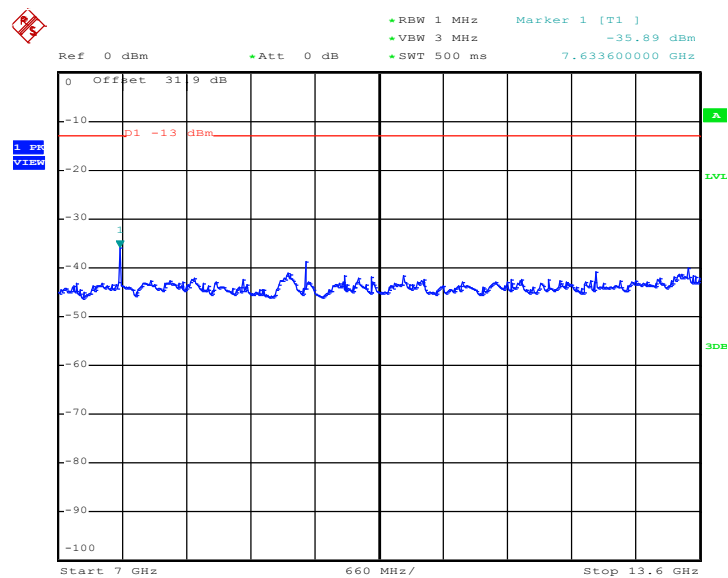


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 16.MAY.2011 17:53:27

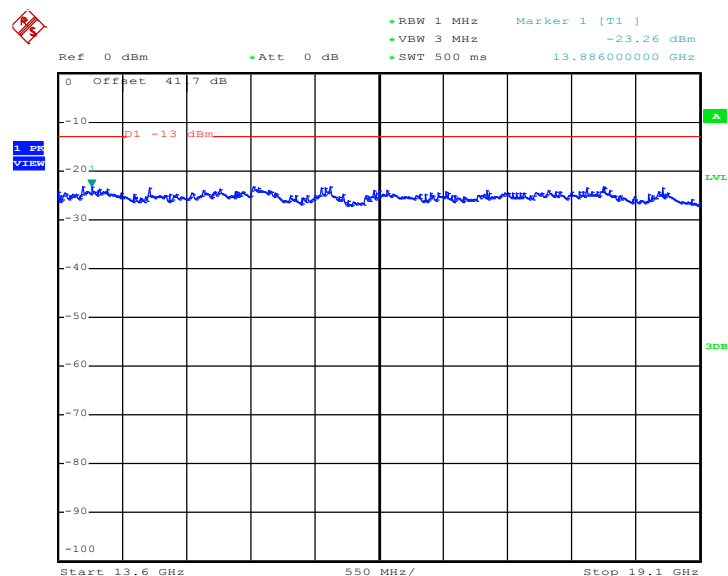
Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAY.2011 17:53:40



Conducted Emission Plot between 13.6GHz ~ 19.1GHz

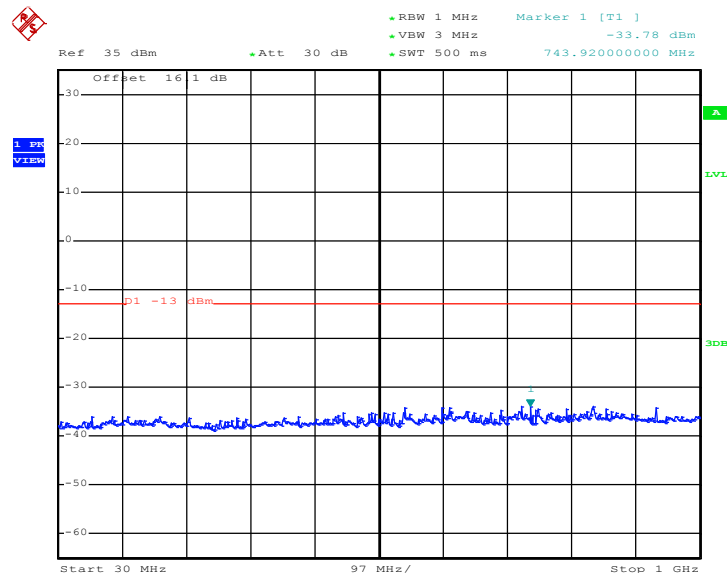


Date: 16.MAY.2011 17:53:52



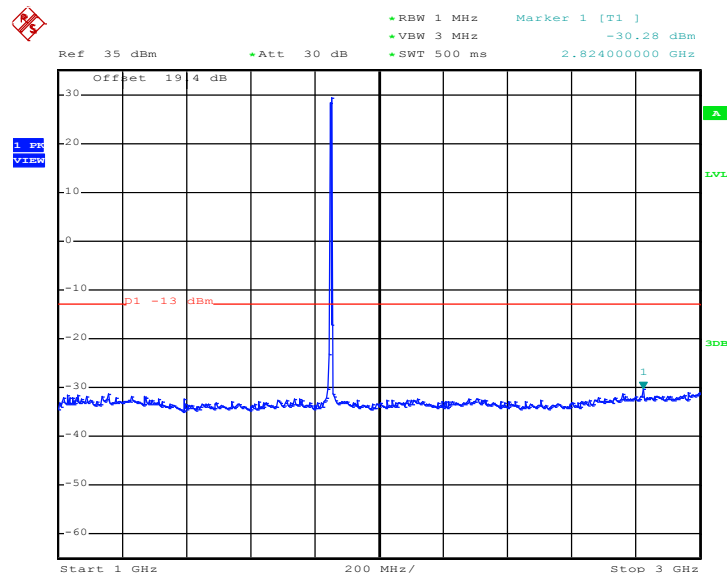
Band :	GSM1900	Channel :	CH512
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



Date: 16.MAY.2011 17:59:39

Conducted Emission Plot between 1GHz ~ 3GHz

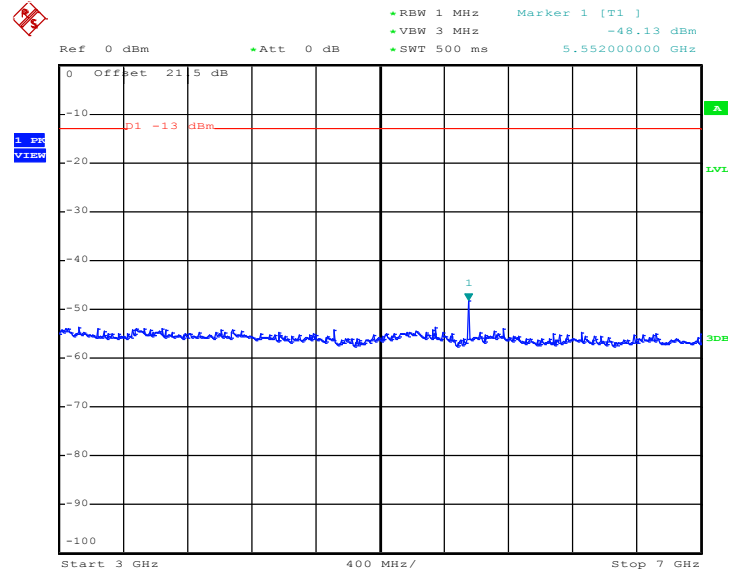


Date: 16.MAY.2011 17:59:52



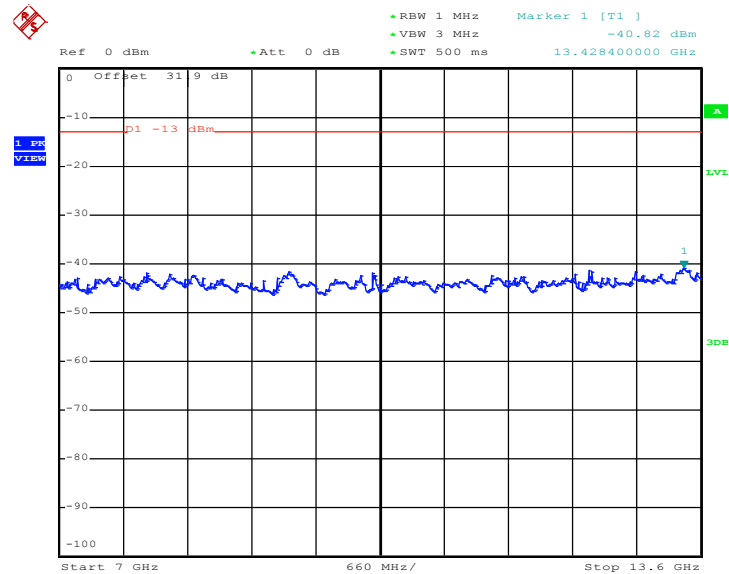


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 16.MAY.2011 18:00:12

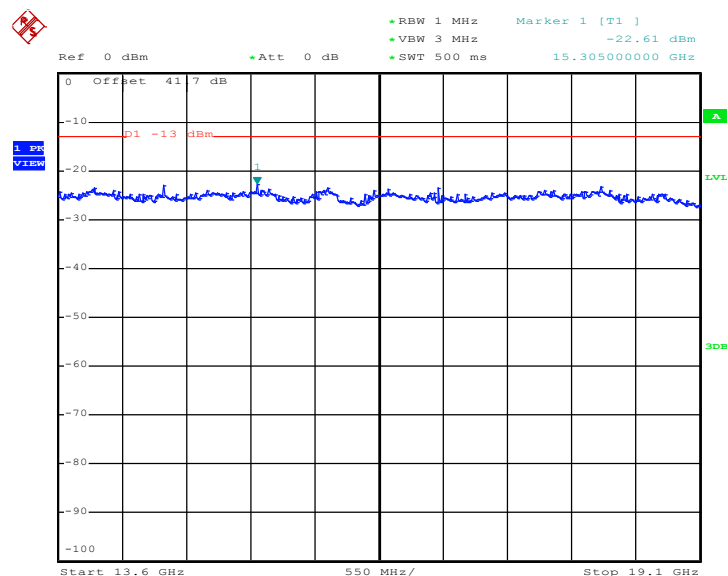
Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAY.2011 18:00:24



Conducted Emission Plot between 13.6GHz ~ 19.1GHz

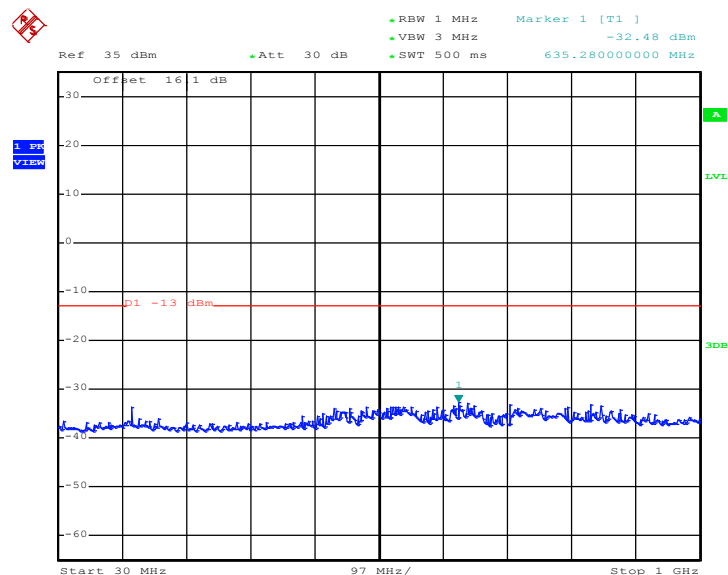


Date: 16.MAY.2011 18:00:37



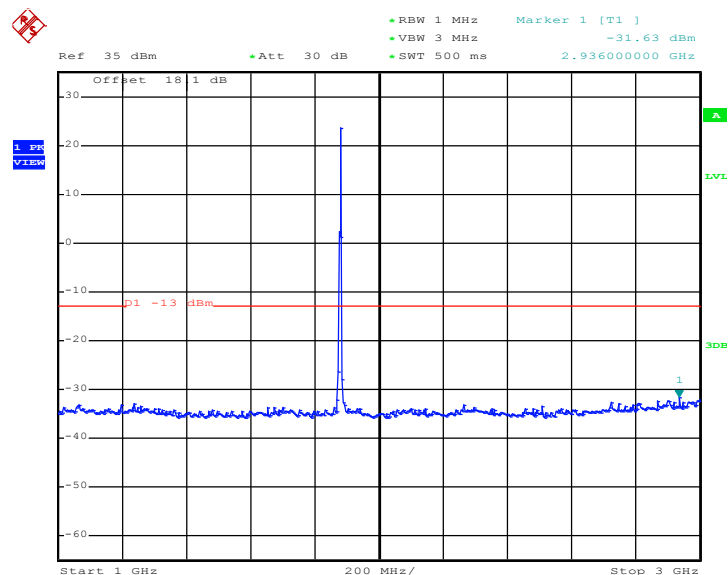
Band :	GSM1900	Channel :	CH661
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz



Date: 12.APR.2011 17:20:49

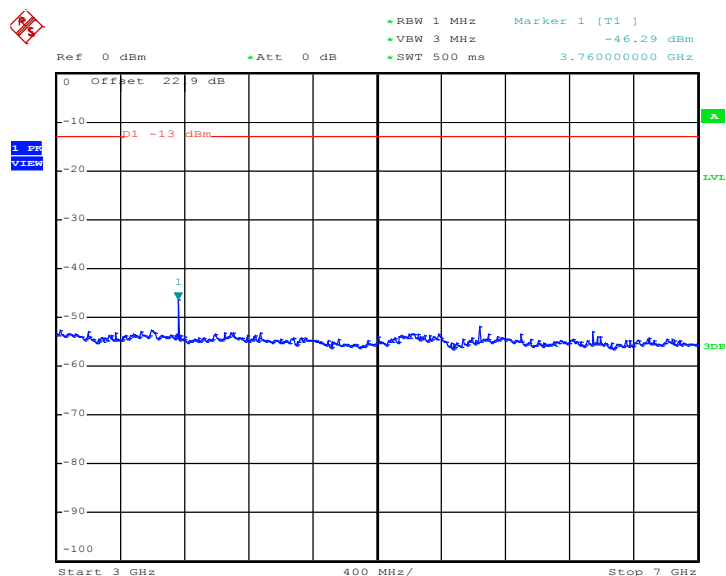
Conducted Emission Plot between 1GHz ~ 3GHz



Date: 12.APR.2011 17:21:02

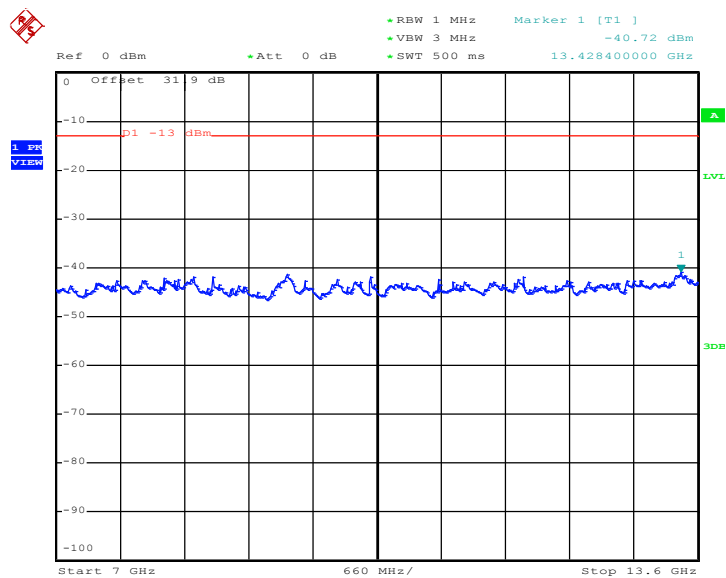


Conducted Emission Plot between 3GHz ~ 7GHz



Date: 12.APR.2011 17:21:25

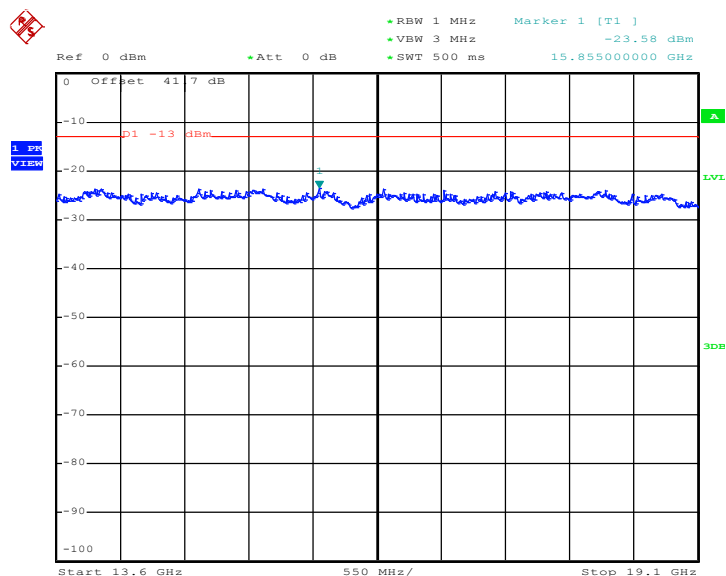
Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 12.APR.2011 17:21:37

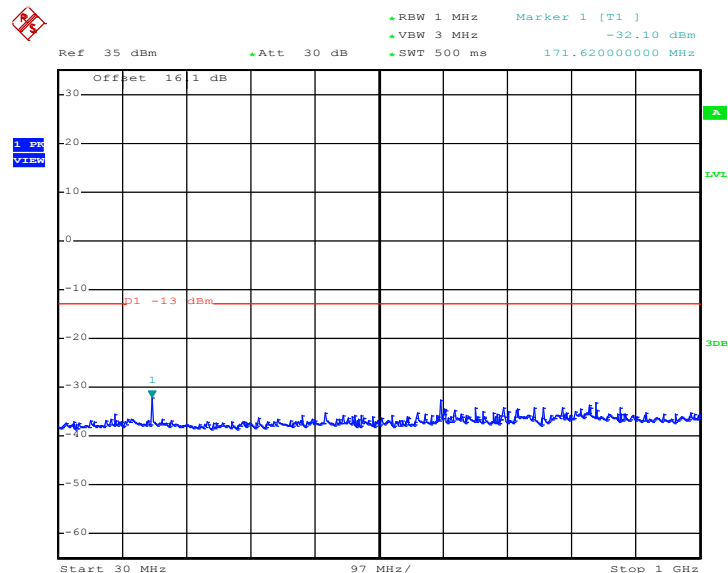


Conducted Emission Plot between 13.6GHz ~ 19.1GHz

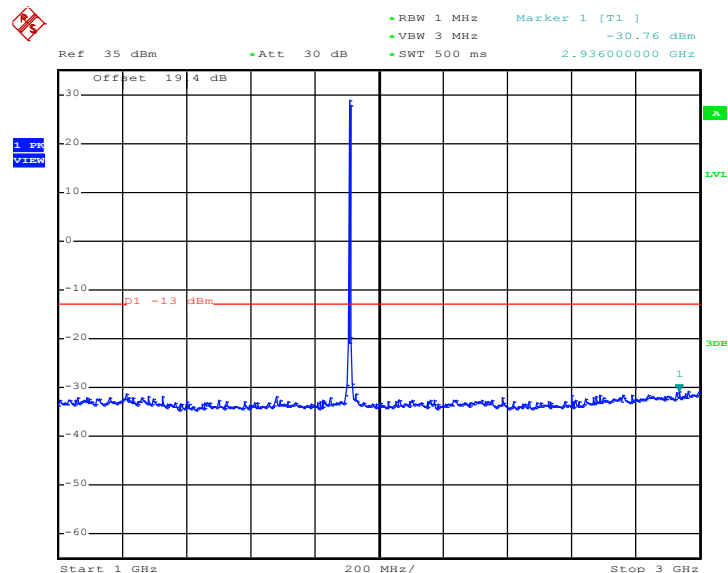


Date: 12.APR.2011 17:21:50

Band :	GSM1900	Channel :	CH810
Test Mode :	EDGE 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz


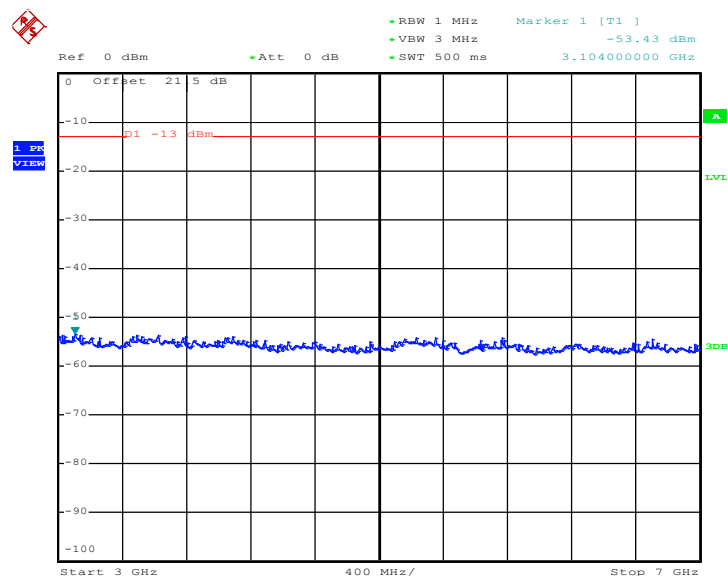
Date: 16.MAY.2011 18:01:28

Conducted Emission Plot between 1GHz ~ 3GHz


Date: 16.MAY.2011 18:01:40

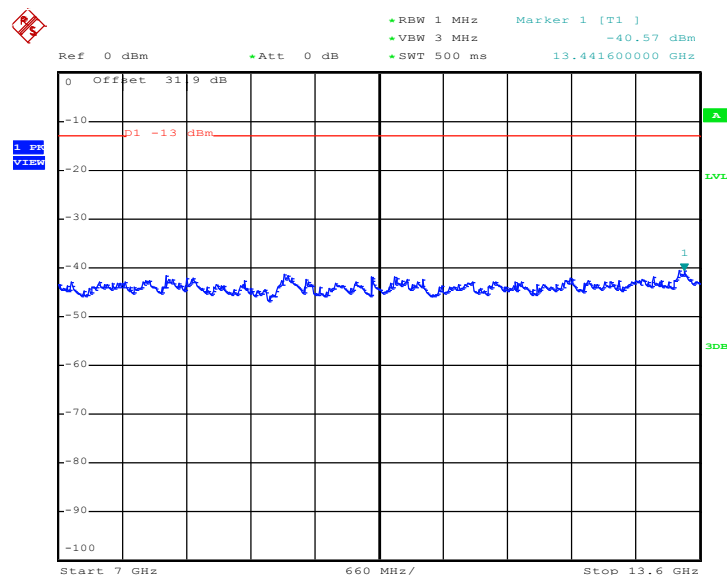


Conducted Emission Plot between 3GHz ~ 7GHz



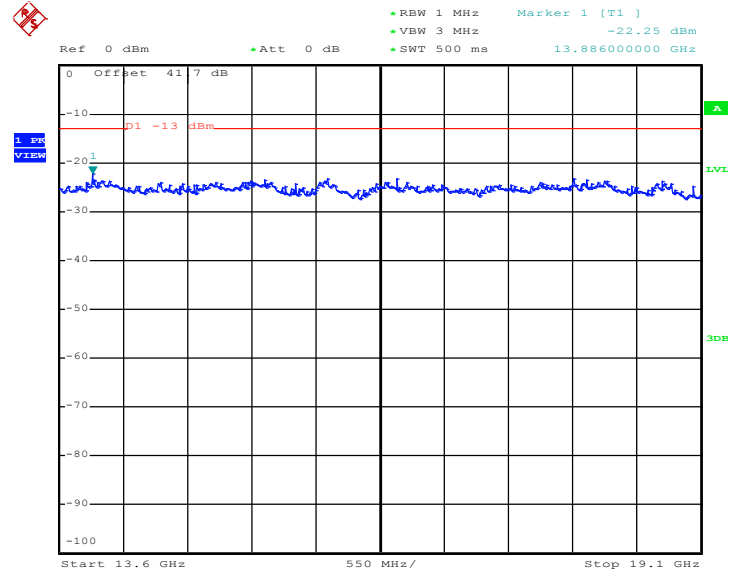
Date: 16.MAY.2011 18:01:57

Conducted Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAY.2011 18:02:09

Conducted Emission Plot between 13.6GHz ~ 19.1GHz



Date: 16.MAY.2011 18:02:22

3.4 Field Strength of Spurious Radiation Measurement

3.4.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

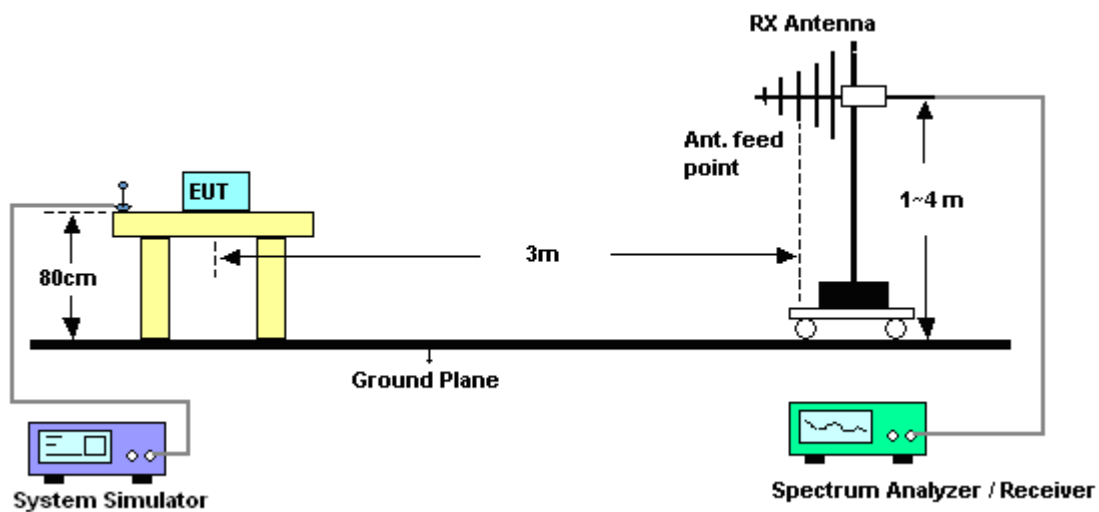
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

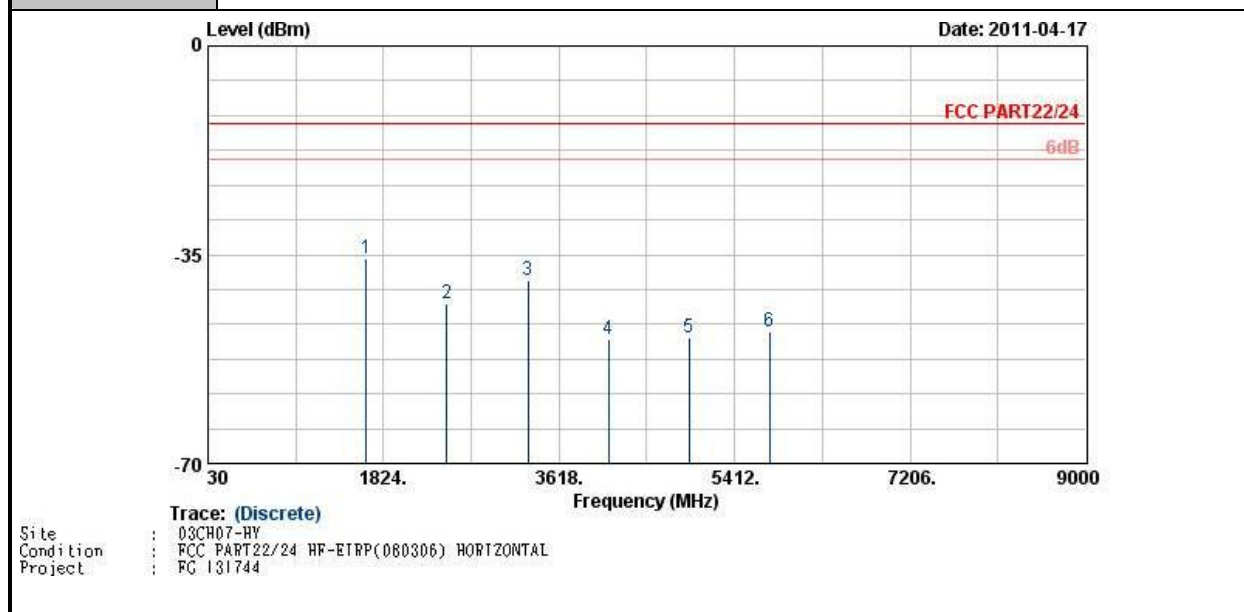
1. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$

3.4.4 Test Setup



3.4.5 Test Result of Field Strength of Spurious Radiated

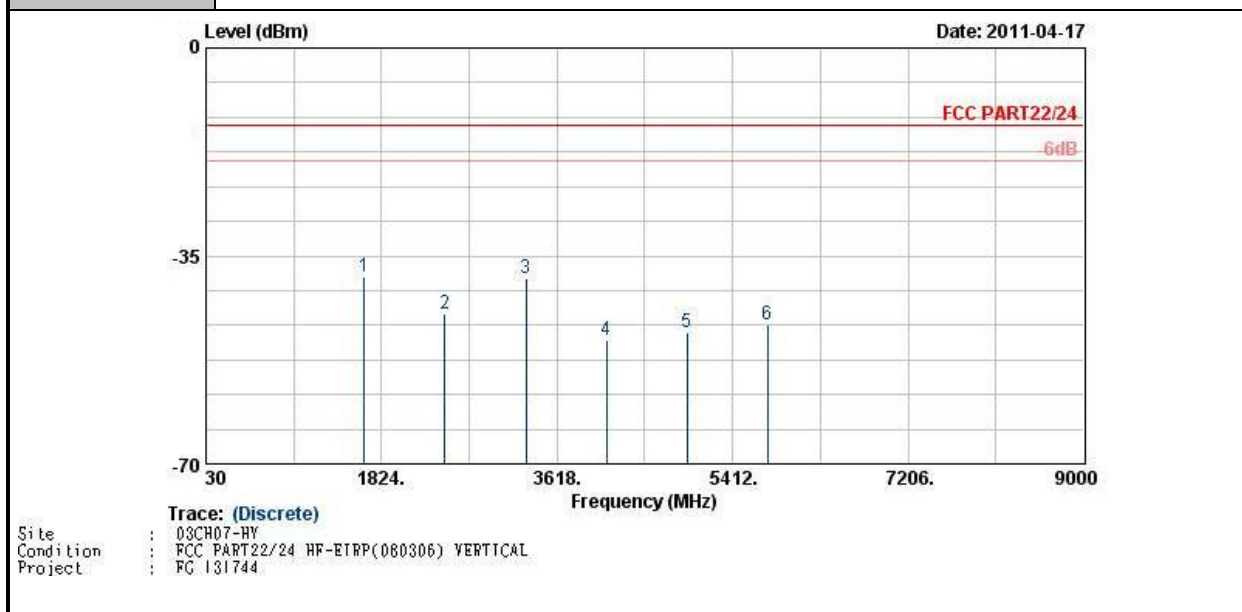
Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 128 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-35.67	-13	-22.67	-44.81	-37.52	1.53	5.53	H	Pass
2474	-43.24	-13	-30.24	-57.7	-45.18	2.06	6.15	H	Pass
3298	-39.38	-13	-26.38	-53.96	-42.68	2.48	7.93	H	Pass
4123	-49.29	-13	-36.29	-65.58	-53.77	2.54	9.17	H	Pass
4948	-48.89	-13	-35.89	-67.02	-54.26	2.74	10.26	H	Pass
5772	-47.93	-13	-34.93	-68.54	-53.51	2.97	10.70	H	Pass



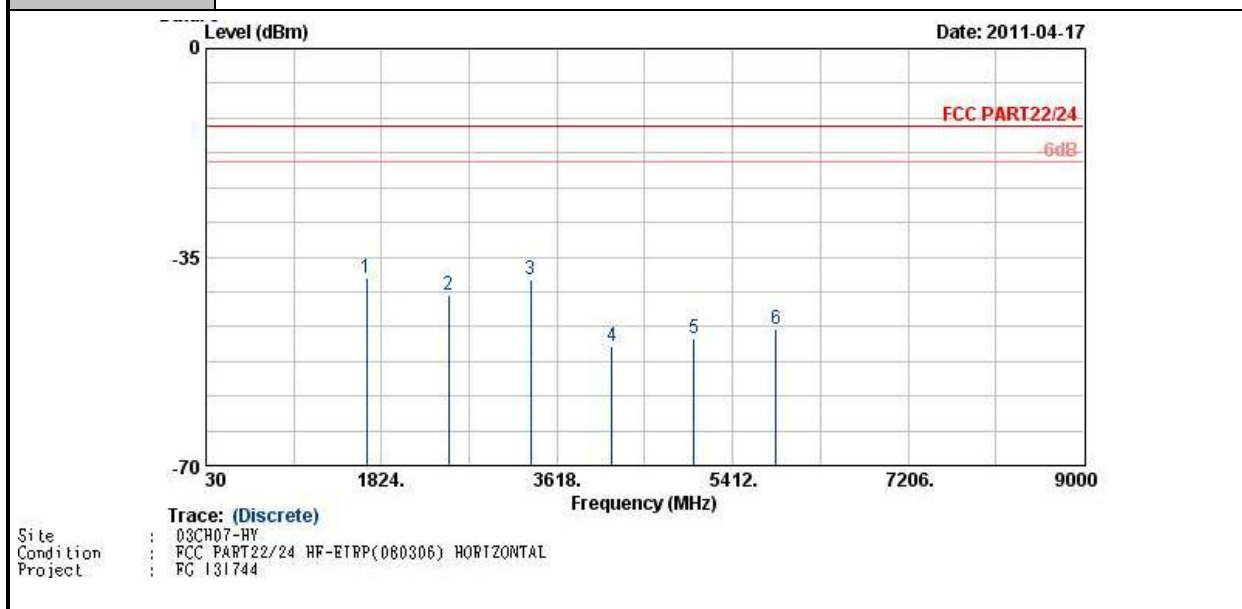
Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 128 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-38.43	-13	-25.43	-50.09	-40.28	1.53	5.53	V	Pass
2474	-44.63	-13	-31.63	-59.61	-46.57	2.06	6.15	V	Pass
3298	-38.87	-13	-25.87	-55	-42.17	2.48	7.93	V	Pass
4123	-49.29	-13	-36.29	-66.06	-53.77	2.54	9.17	V	Pass
4948	-47.82	-13	-34.82	-66.76	-53.19	2.74	10.26	V	Pass
5772	-46.65	-13	-33.65	-68.21	-52.23	2.97	10.70	V	Pass



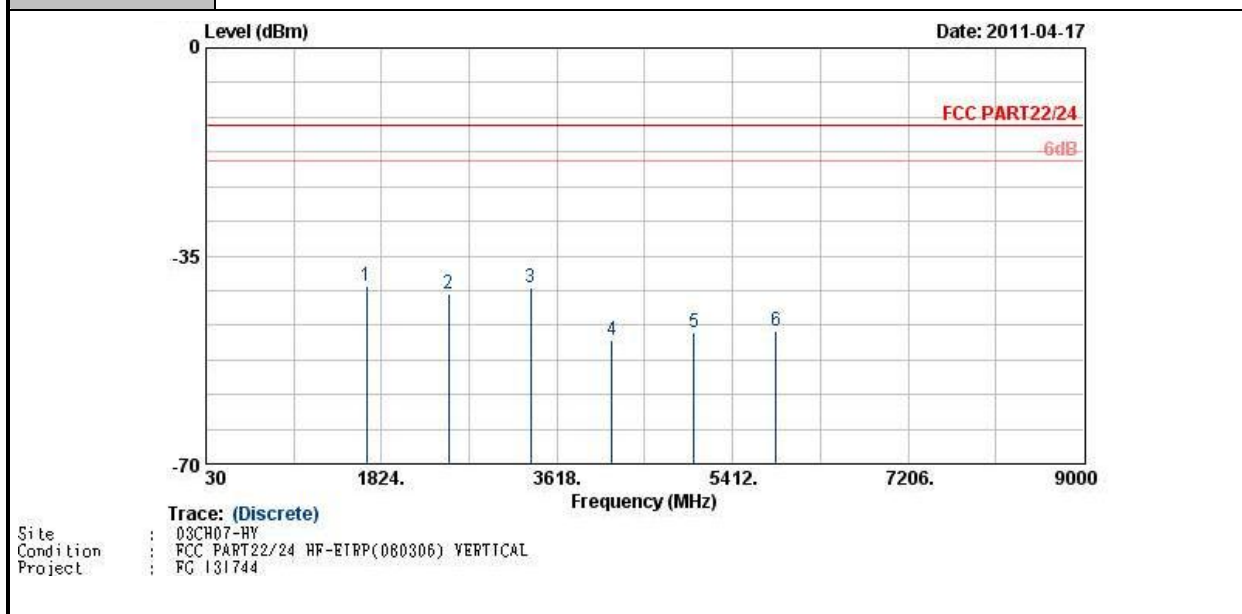
Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 189 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-38.40	-13	-25.40	-47.48	-40.12	1.62	5.49	H	Pass
2509	-41.31	-13	-28.31	-54.47	-43.28	2.1	6.22	H	Pass
3345	-38.68	-13	-25.68	-53.99	-41.57	3.03	8.07	H	Pass
4182	-50.09	-13	-37.09	-66.89	-54.63	2.52	9.21	H	Pass
5018	-48.68	-13	-35.68	-67.26	-54.13	3.1	10.70	H	Pass
5854	-47.13	-13	-34.13	-68.91	-52.37	2.92	10.31	H	Pass



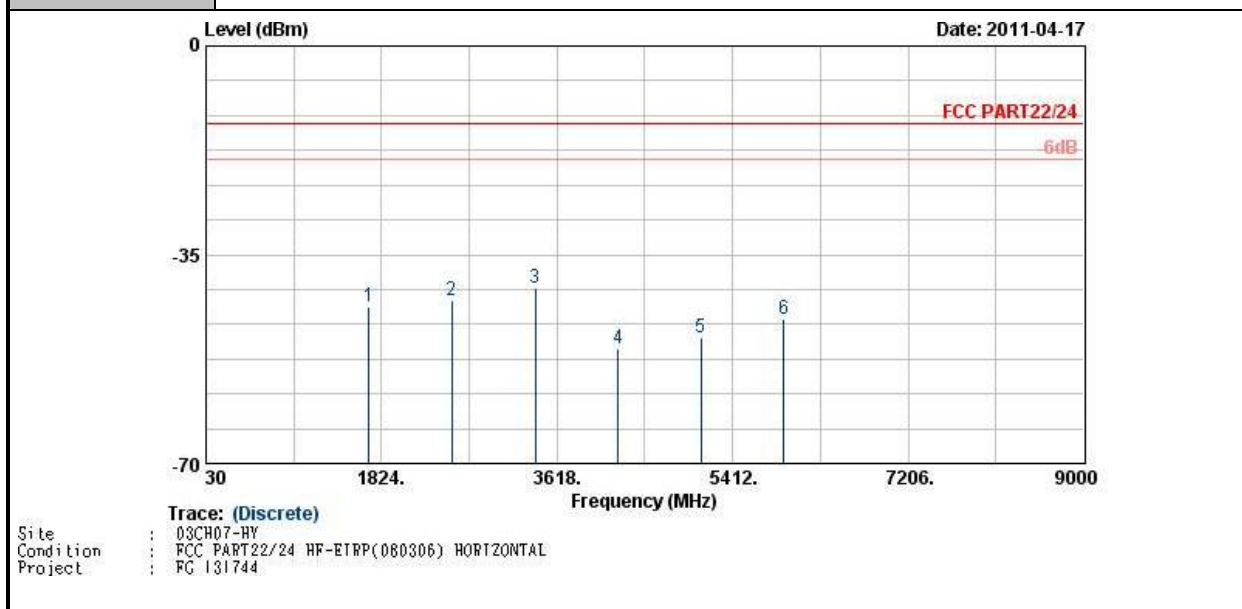
Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 189 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-39.97	-13	-26.97	-52.51	-41.69	1.62	5.49	V	Pass
2509	-41.31	-13	-28.31	-56.44	-43.28	2.1	6.22	V	Pass
3345	-40.43	-13	-27.43	-57.33	-43.32	3.03	8.07	V	Pass
4182	-49.08	-13	-36.08	-66.49	-53.62	2.52	9.21	V	Pass
5018	-48.01	-13	-35.01	-67.04	-53.46	3.1	10.70	V	Pass
5854	-47.57	-13	-34.57	-68.69	-52.81	2.92	10.31	V	Pass



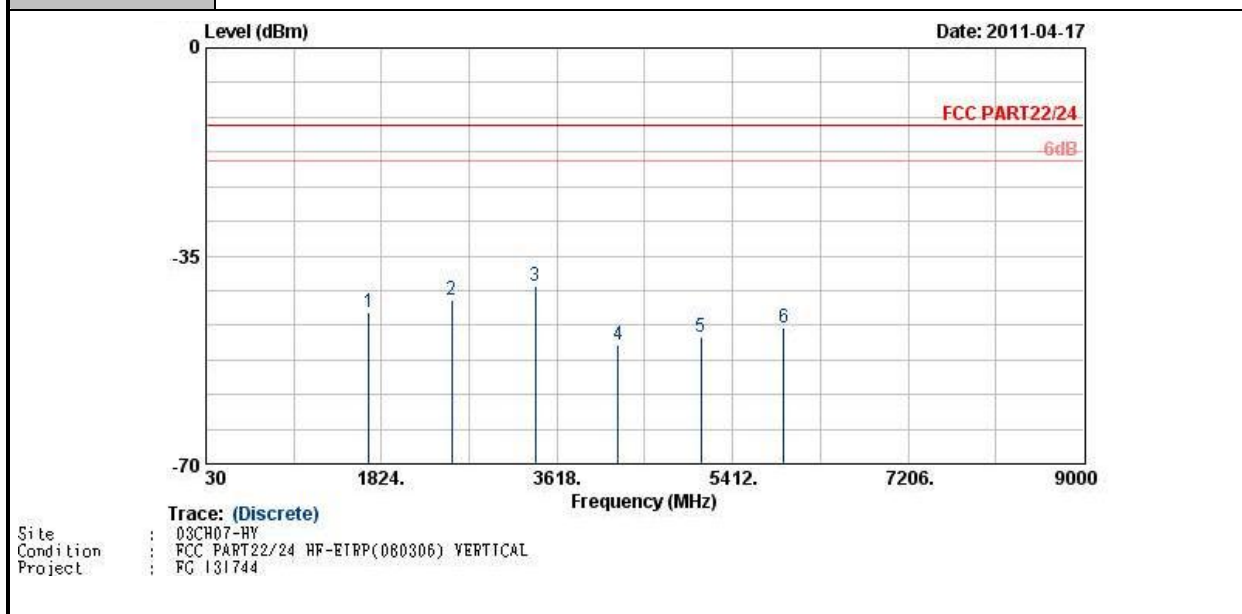
Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 251 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-43.63	-13	-30.63	-53.22	-45.36	1.57	5.45	H	Pass
2544	-42.57	-13	-29.57	-56.12	-44.68	2.02	6.28	H	Pass
3393	-40.52	-13	-27.52	-55.93	-44.27	2.3	8.20	H	Pass
4241	-50.81	-13	-37.81	-66.95	-55.17	2.73	9.24	H	Pass
5089	-48.92	-13	-35.92	-67.57	-54.39	2.75	10.37	H	Pass
5938	-45.90	-13	-32.90	-68.37	-51.44	3.01	10.70	H	Pass

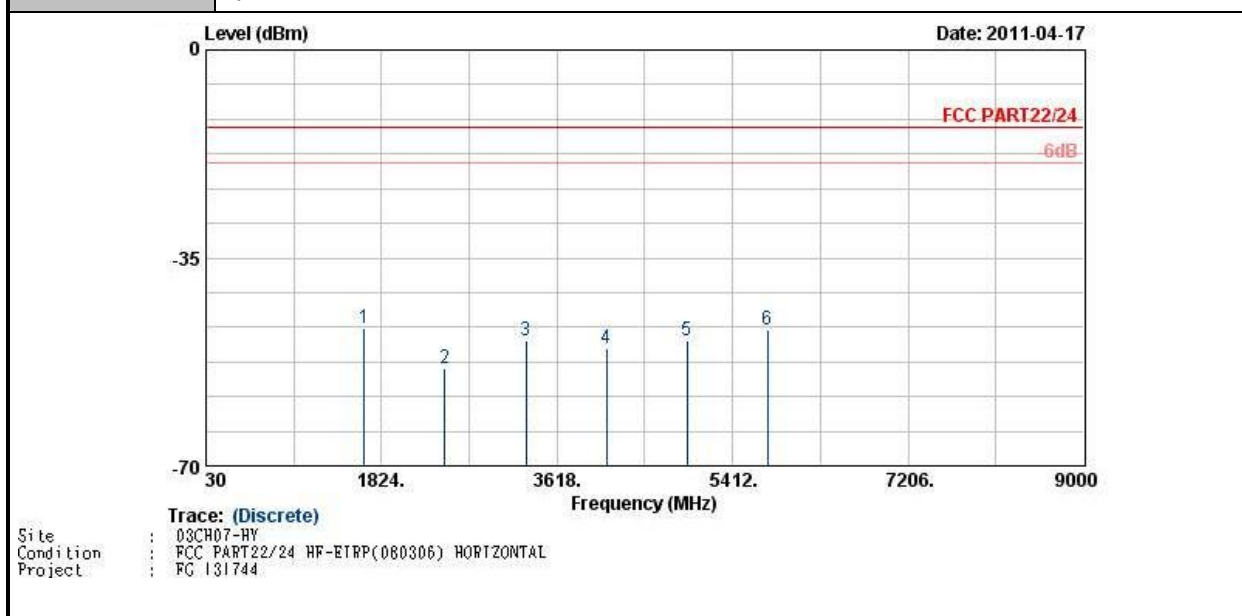


Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 251 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



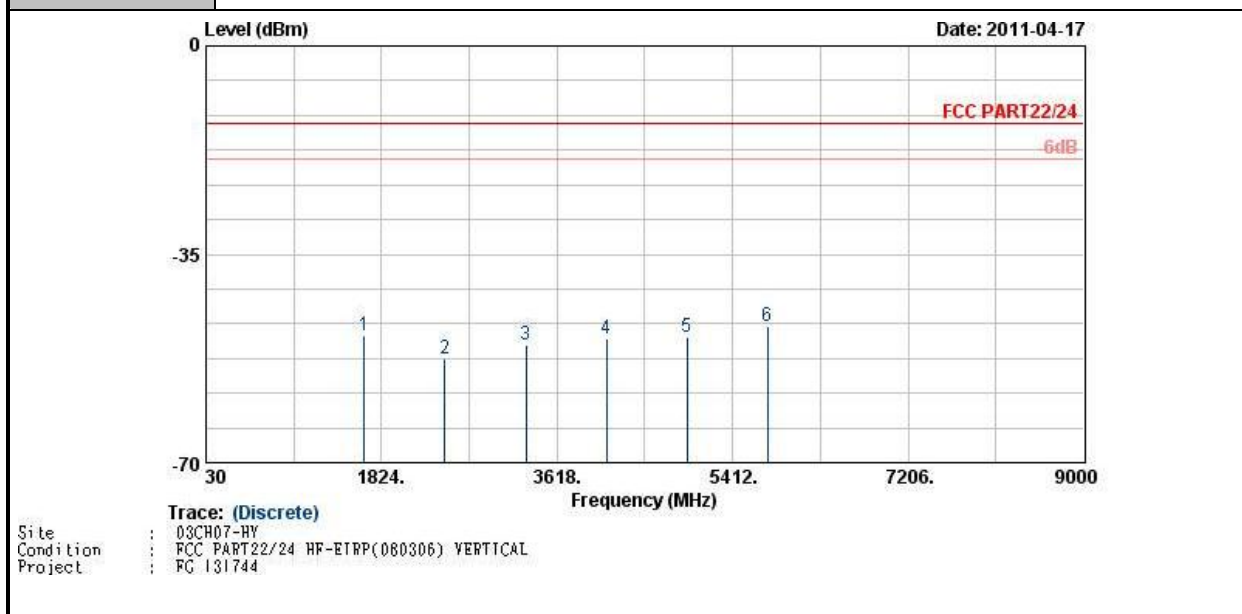
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-44.54	-13	-31.54	-56.8	-46.27	1.57	5.45	V	Pass
2544	-42.50	-13	-29.50	-56.1	-44.61	2.02	6.28	V	Pass
3393	-40.03	-13	-27.03	-57.32	-43.78	2.3	8.20	V	Pass
4241	-49.93	-13	-36.93	-67.22	-54.29	2.73	9.24	V	Pass
5089	-48.66	-13	-35.66	-68.11	-54.13	2.75	10.37	V	Pass
5938	-47.08	-13	-34.08	-68.55	-52.62	3.01	10.70	V	Pass

Band :	GSM850	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 128 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



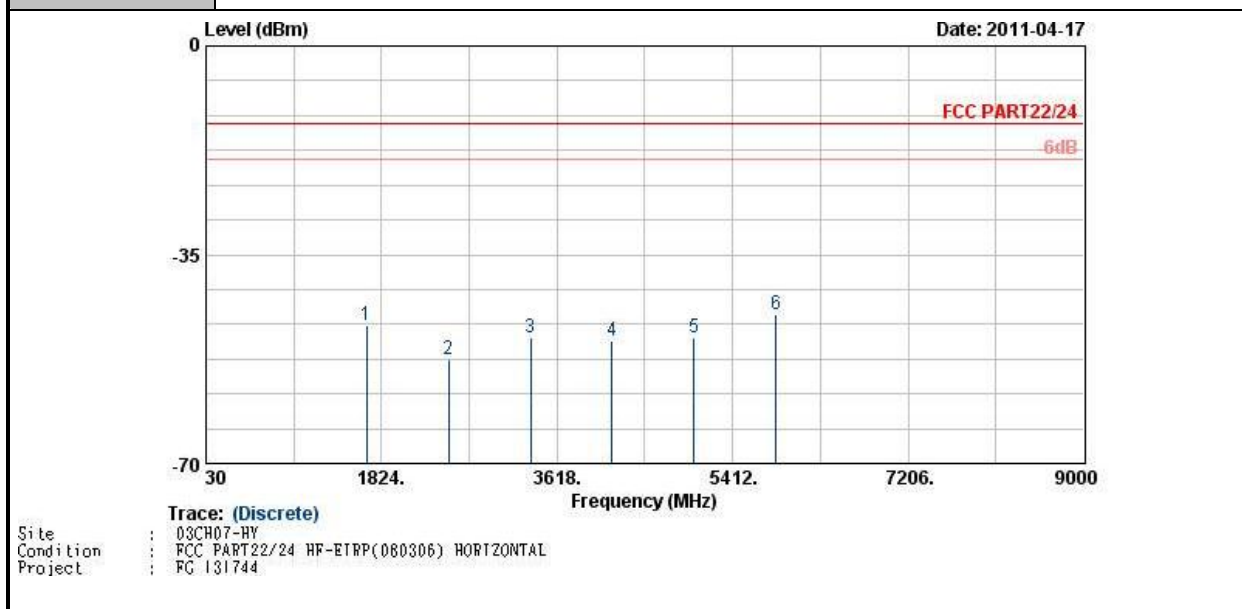
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-46.84	-13	-33.84	-56.41	-48.69	1.53	5.53	H	Pass
2474	-53.51	-13	-40.51	-67.22	-55.45	2.06	6.15	H	Pass
3298	-48.97	-13	-35.97	-64.54	-52.27	2.48	7.93	H	Pass
4123	-50.20	-13	-37.20	-66.25	-54.68	2.54	9.17	H	Pass
4948	-48.86	-13	-35.86	-67.4	-54.23	2.74	10.26	H	Pass
5772	-47.07	-13	-34.07	-68.61	-52.65	2.97	10.70	H	Pass

Band :	GSM850	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 128 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-48.78	-13	-35.78	-61.01	-50.63	1.53	5.53	V	Pass
2474	-52.63	-13	-39.63	-66.98	-54.57	2.06	6.15	V	Pass
3298	-50.31	-13	-37.31	-65.97	-53.61	2.48	7.93	V	Pass
4123	-49.07	-13	-36.07	-65.93	-53.55	2.54	9.17	V	Pass
4948	-48.80	-13	-35.80	-67.37	-54.17	2.74	10.26	V	Pass
5772	-47.15	-13	-34.15	-68.68	-52.73	2.97	10.70	V	Pass

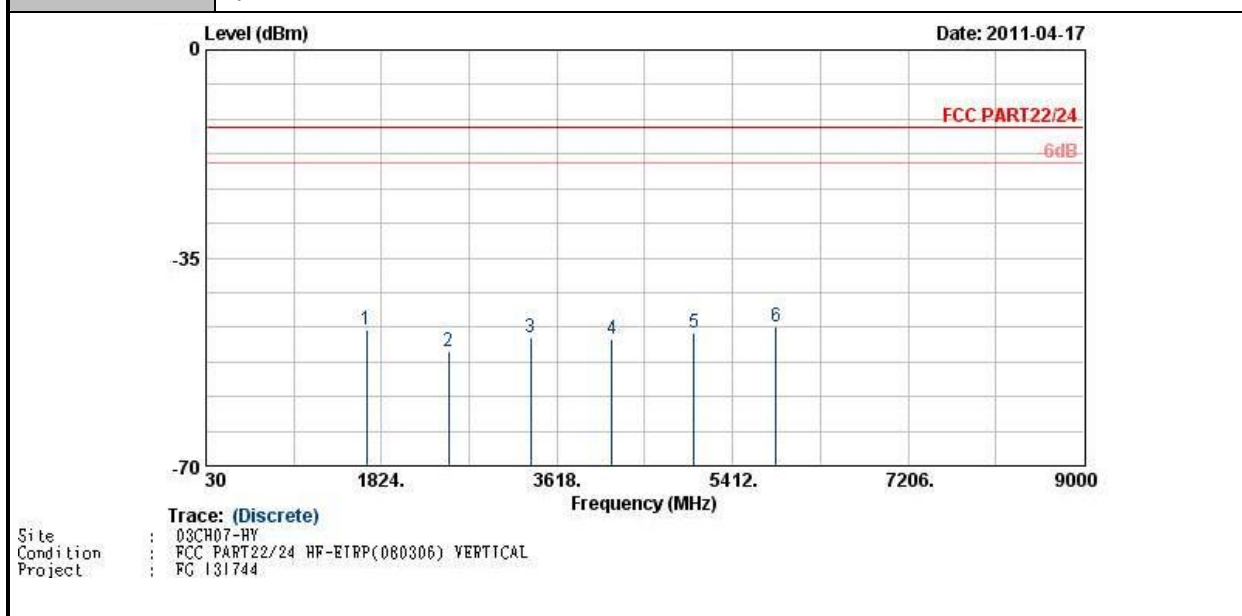
Band :	GSM850	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 189 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-46.91	-13	-33.91	-55.71	-48.63	1.62	5.49	H	Pass
2509	-52.54	-13	-39.54	-66.59	-54.51	2.1	6.22	H	Pass
3345	-48.89	-13	-35.89	-64.8	-51.78	3.03	8.07	H	Pass
4182	-49.57	-13	-36.57	-66.47	-54.11	2.52	9.21	H	Pass
5018	-48.91	-13	-35.91	-66.96	-54.36	3.1	10.70	H	Pass
5854	-45.04	-13	-32.04	-67.45	-50.28	2.92	10.31	H	Pass



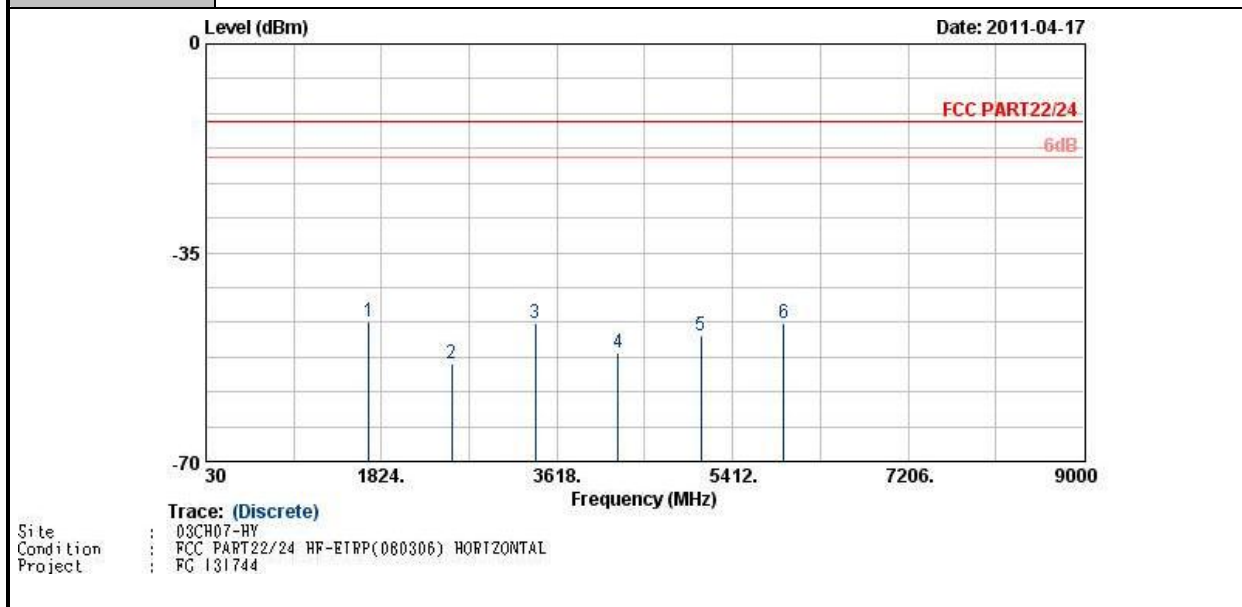
Band :	GSM850	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 189 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-47.10	-13	-34.10	-59.41	-48.82	1.62	5.49	V	Pass
2509	-50.64	-13	-37.64	-64.74	-52.61	2.1	6.22	V	Pass
3345	-48.30	-13	-35.30	-65.56	-51.19	3.03	8.07	V	Pass
4182	-48.68	-13	-35.68	-66.8	-53.22	2.52	9.21	V	Pass
5018	-47.72	-13	-34.72	-66.2	-53.17	3.1	10.70	V	Pass
5854	-46.57	-13	-33.57	-67.97	-51.81	2.92	10.31	V	Pass



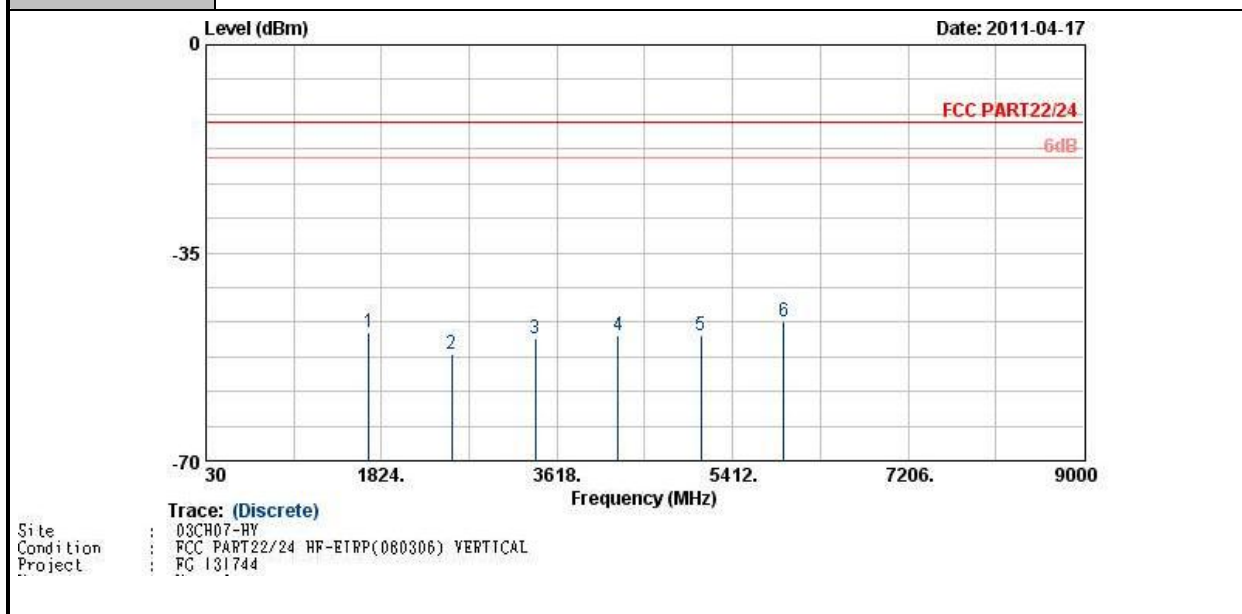
Band :	GSM850	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 251 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-46.49	-13	-33.49	-55.88	-48.22	1.57	5.45	H	Pass
2544	-53.58	-13	-40.58	-66.55	-55.69	2.02	6.28	H	Pass
3393	-46.72	-13	-33.72	-61.93	-50.47	2.3	8.20	H	Pass
4241	-51.75	-13	-38.75	-67.89	-56.11	2.73	9.24	H	Pass
5089	-48.89	-13	-35.89	-68.23	-54.36	2.75	10.37	H	Pass
5938	-46.93	-13	-33.93	-68.51	-52.47	3.01	10.70	H	Pass

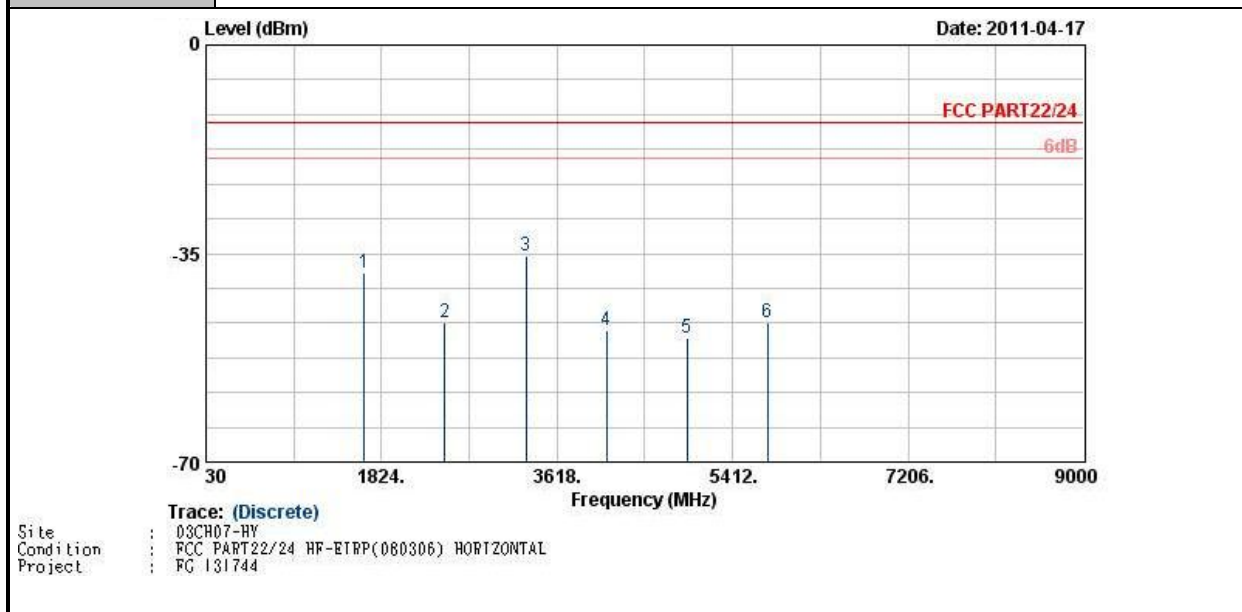


Band :	GSM850	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 251 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



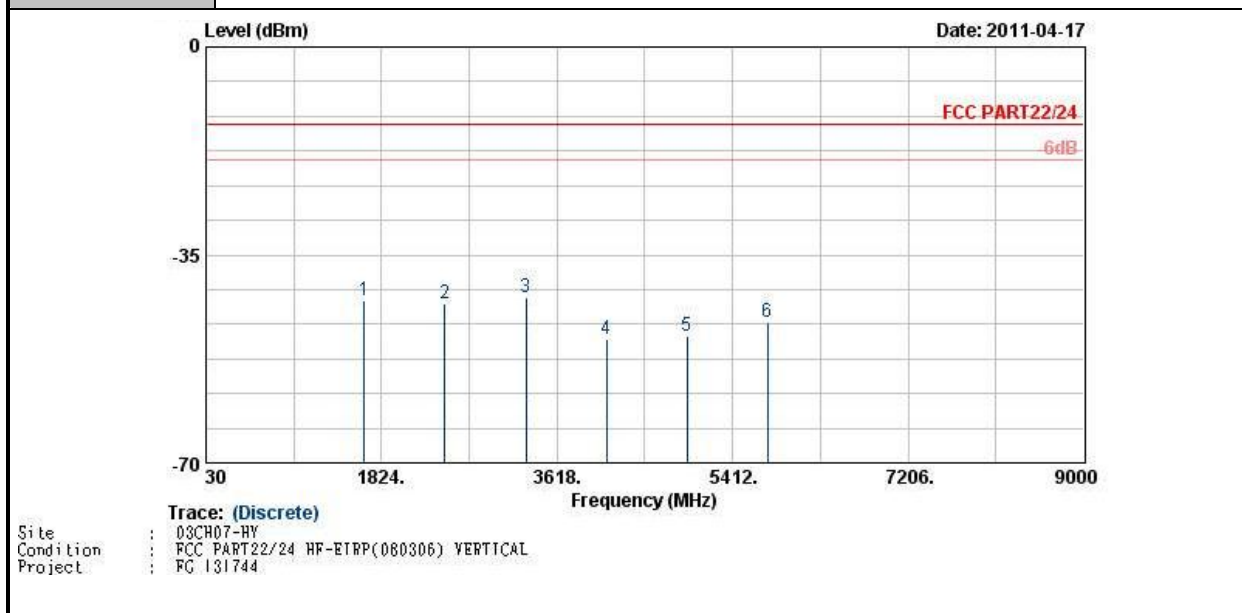
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-48.46	-13	-35.46	-61.11	-50.19	1.57	5.45	V	Pass
2544	-52.16	-13	-39.16	-66.26	-54.27	2.02	6.28	V	Pass
3393	-49.56	-13	-36.56	-66.37	-53.31	2.3	8.20	V	Pass
4241	-48.82	-13	-35.82	-66.56	-53.18	2.73	9.24	V	Pass
5089	-48.92	-13	-35.92	-67.82	-54.39	2.75	10.37	V	Pass
5938	-46.68	-13	-33.68	-68.55	-52.22	3.01	10.70	V	Pass

Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 128 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



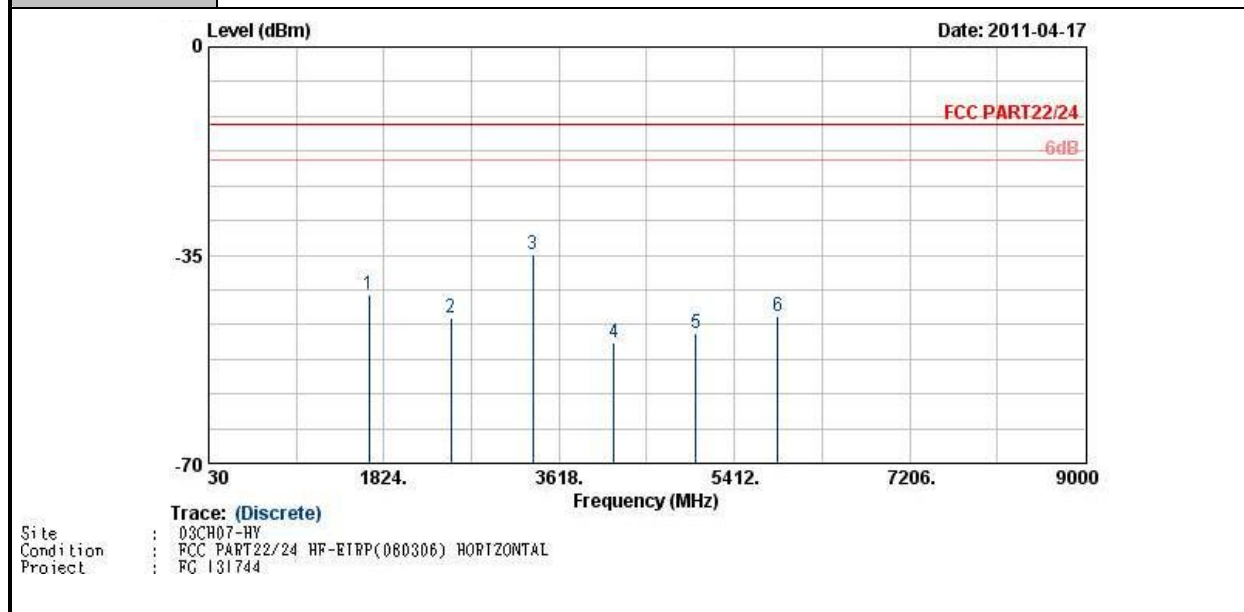
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-38.31	-13	-25.31	-48.3	-40.16	1.53	5.53	H	Pass
2474	-46.59	-13	-33.59	-60.4	-48.53	2.06	6.15	H	Pass
3298	-35.51	-13	-22.51	-49.3	-38.81	2.48	7.93	H	Pass
4123	-47.93	-13	-34.93	-64.87	-52.41	2.54	9.17	H	Pass
4948	-49.30	-13	-36.30	-66.83	-54.67	2.74	10.26	H	Pass
5772	-46.61	-13	-33.61	-68.55	-52.19	2.97	10.70	H	Pass

Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 128 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



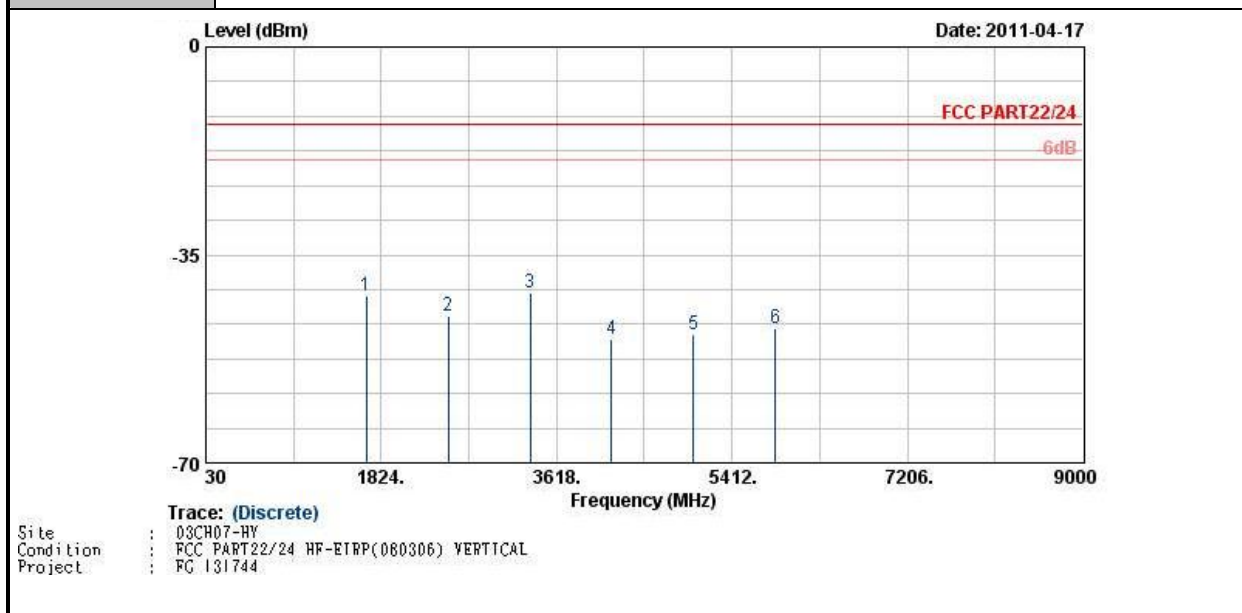
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1649	-42.67	-13	-29.67	-54.9	-44.52	1.53	5.53	V	Pass
2474	-43.17	-13	-30.17	-58.26	-45.11	2.06	6.15	V	Pass
3298	-42.15	-13	-29.15	-58.03	-45.45	2.48	7.93	V	Pass
4123	-49.19	-13	-36.19	-66.15	-53.67	2.54	9.17	V	Pass
4948	-48.78	-13	-35.78	-67.27	-54.15	2.74	10.26	V	Pass
5772	-46.34	-13	-33.34	-67.33	-51.92	2.97	10.70	V	Pass

Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 189 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



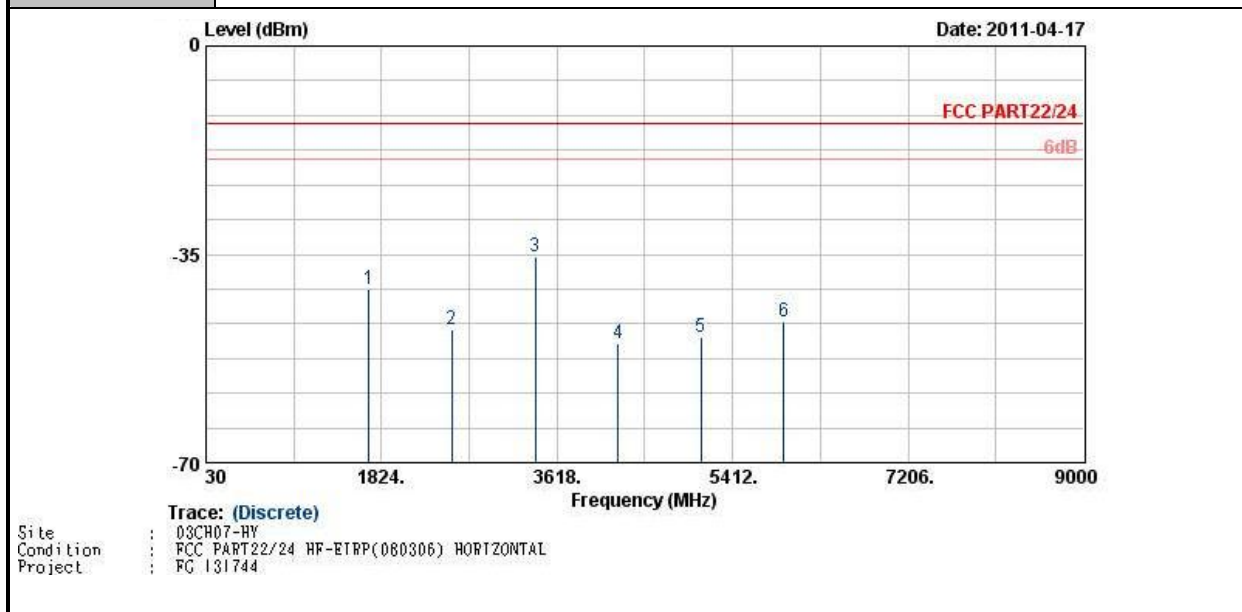
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-41.59	-13	-28.59	-50.28	-43.31	1.62	5.49	H	Pass
2509	-45.55	-13	-32.55	-59.89	-47.52	2.1	6.22	H	Pass
3345	-34.76	-13	-21.76	-50.02	-37.65	3.03	8.07	H	Pass
4182	-49.83	-13	-36.83	-66.31	-54.37	2.52	9.21	H	Pass
5018	-48.23	-13	-35.23	-66.79	-53.68	3.1	10.70	H	Pass
5854	-45.25	-13	-32.25	-68.46	-50.49	2.92	10.31	H	Pass

Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 189 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-41.80	-13	-28.80	-53.72	-43.52	1.62	5.49	V	Pass
2509	-45.21	-13	-32.21	-59.33	-47.18	2.1	6.22	V	Pass
3345	-41.38	-13	-28.38	-58.4	-44.27	3.03	8.07	V	Pass
4182	-49.07	-13	-36.07	-66.58	-53.61	2.52	9.21	V	Pass
5018	-48.33	-13	-35.33	-66.91	-53.78	3.1	10.70	V	Pass
5854	-47.27	-13	-34.27	-68.51	-52.51	2.92	10.31	V	Pass

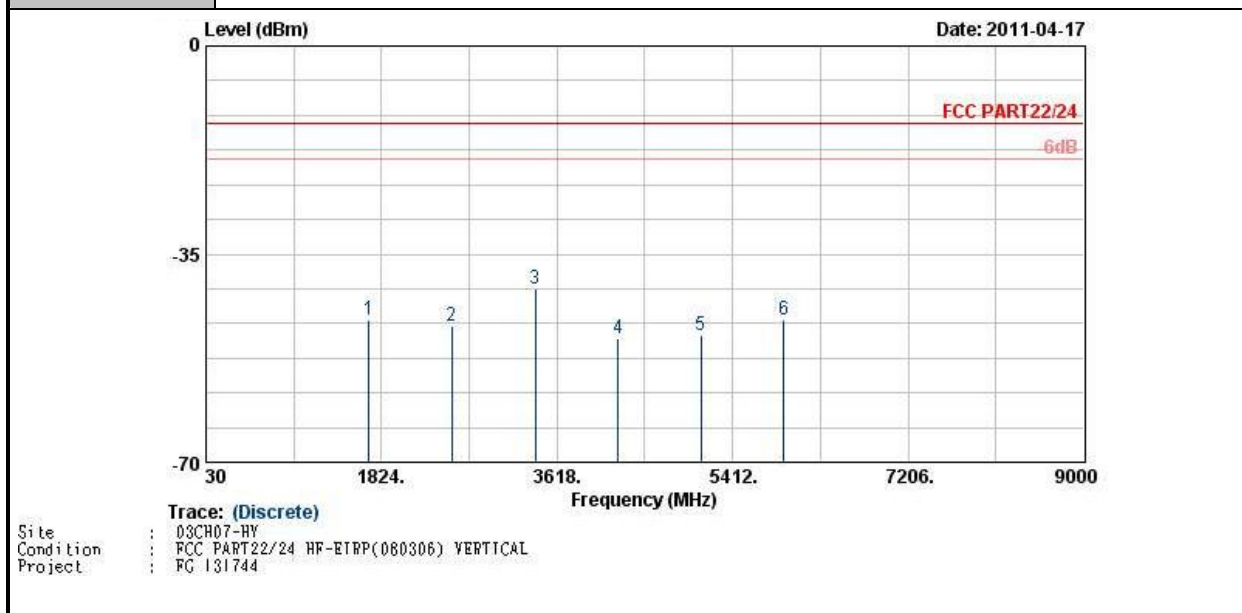
Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 251 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-40.98	-13	-27.98	-50.7	-42.71	1.57	5.45	H	Pass
2544	-47.72	-13	-34.72	-61	-49.83	2.02	6.28	H	Pass
3393	-35.44	-13	-22.44	-50.78	-39.19	2.3	8.20	H	Pass
4241	-50.02	-13	-37.02	-67.13	-54.38	2.73	9.24	H	Pass
5089	-48.82	-13	-35.82	-67.85	-54.29	2.75	10.37	H	Pass
5938	-46.24	-13	-33.24	-68.55	-51.78	3.01	10.70	H	Pass

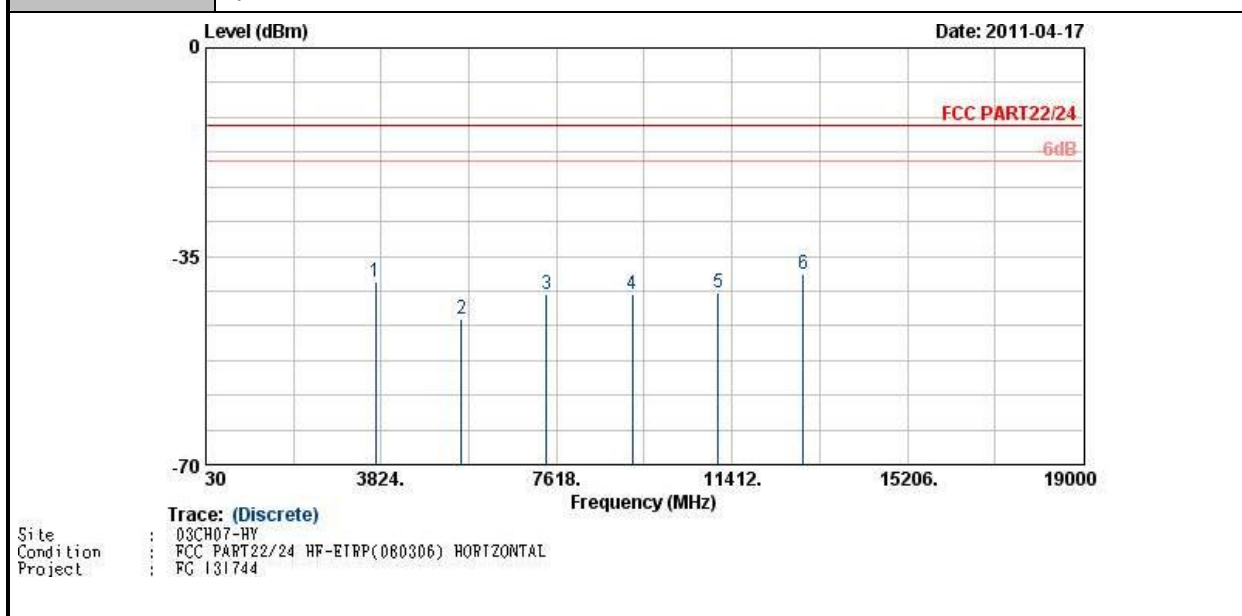


Band :	GSM850	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 251 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



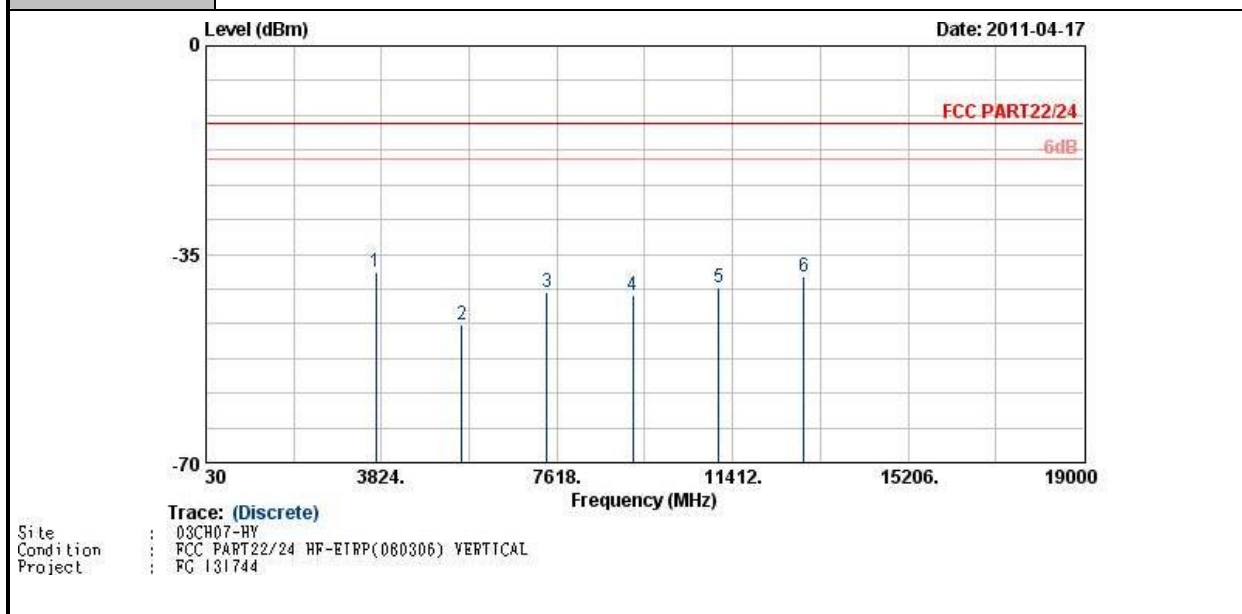
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-46.13	-13	-33.13	-57.57	-47.86	1.57	5.45	V	Pass
2544	-47.11	-13	-34.11	-61.79	-49.22	2.02	6.28	V	Pass
3393	-40.86	-13	-27.86	-57.28	-44.61	2.3	8.20	V	Pass
4241	-49.09	-13	-36.09	-66.23	-53.45	2.73	9.24	V	Pass
5089	-48.74	-13	-35.74	-68.4	-54.21	2.75	10.37	V	Pass
5938	-45.94	-13	-32.94	-68.27	-51.48	3.01	10.70	V	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 512 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-39.17	-13	-26.17	-54.2	-45.32	2.59	8.74	H	Pass
5553	-45.61	-13	-32.61	-66.41	-53.27	3.04	10.70	H	Pass
7405	-41.37	-13	-28.37	-68.45	-50.11	3.28	12.02	H	Pass
9256	-41.48	-13	-28.48	-67.92	-50.78	3.9	13.20	H	Pass
11107	-41.00	-13	-28.00	-70.37	-49.82	4.42	13.24	H	Pass
12958	-37.87	-13	-24.87	-71.27	-46.53	4.89	13.55	H	Pass

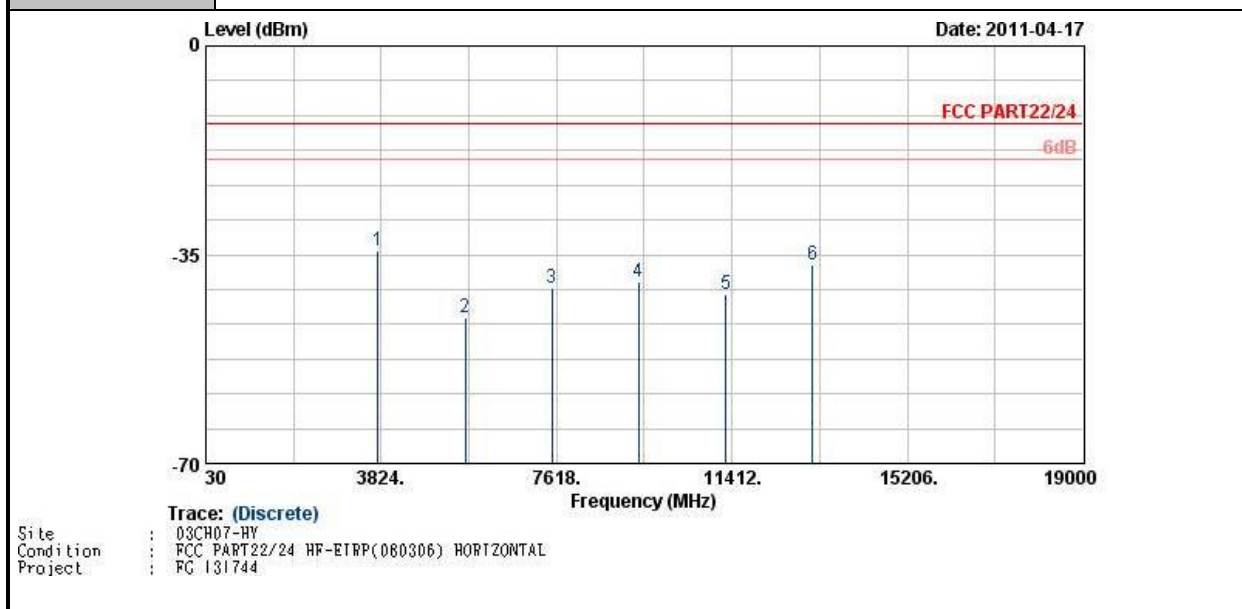
Band :	GSM1900	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 512 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-38.12	-13	-25.12	-54.83	-44.27	2.59	8.74	V	Pass
5553	-46.97	-13	-33.97	-67.55	-54.63	3.04	10.70	V	Pass
7405	-41.49	-13	-28.49	-68.28	-50.23	3.28	12.02	V	Pass
9256	-41.89	-13	-28.89	-67.76	-51.19	3.9	13.20	V	Pass
11107	-40.52	-13	-27.52	-70.1	-49.34	4.42	13.24	V	Pass
12958	-38.80	-13	-25.80	-70.96	-47.46	4.89	13.55	V	Pass

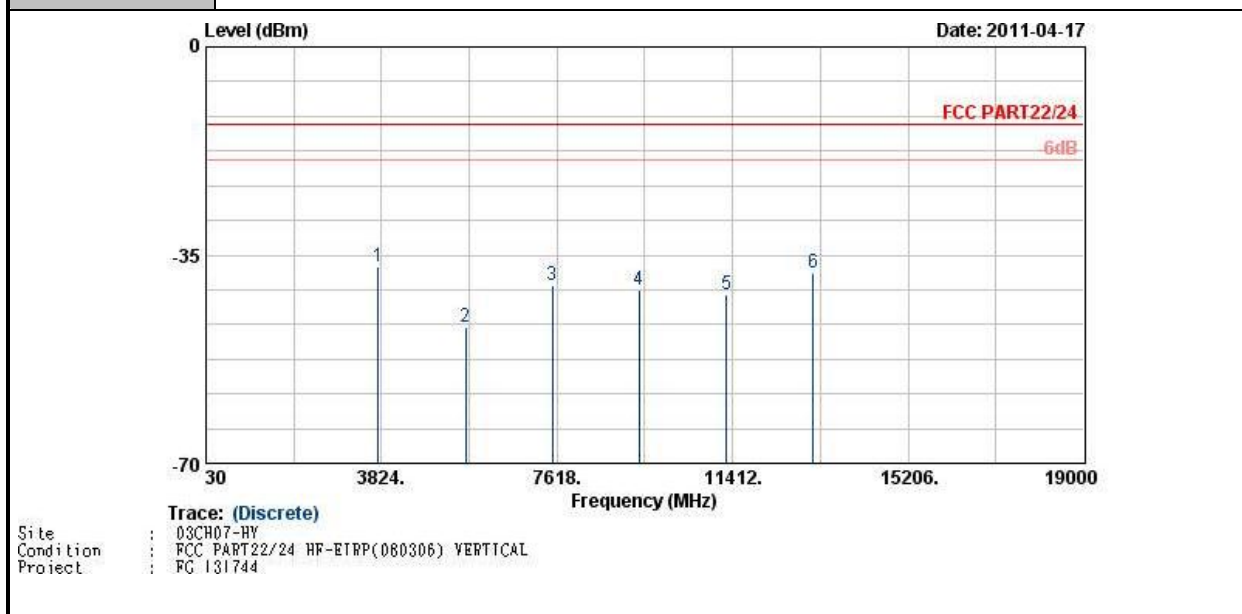


Band :	GSM1900	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 661 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-34.28	-13	-21.28	-49.54	-40.58	2.51	8.81	H	Pass
5636	-45.56	-13	-32.56	-67.31	-53.27	2.99	10.70	H	Pass
7520	-40.69	-13	-27.69	-68.32	-49.22	3.59	12.12	H	Pass
9396	-39.61	-13	-26.61	-67.35	-48.71	4.1	13.20	H	Pass
11280	-41.58	-13	-28.58	-71.25	-50.62	4.27	13.31	H	Pass
13160	-36.66	-13	-23.66	-70.35	-46.18	4.27	13.79	H	Pass

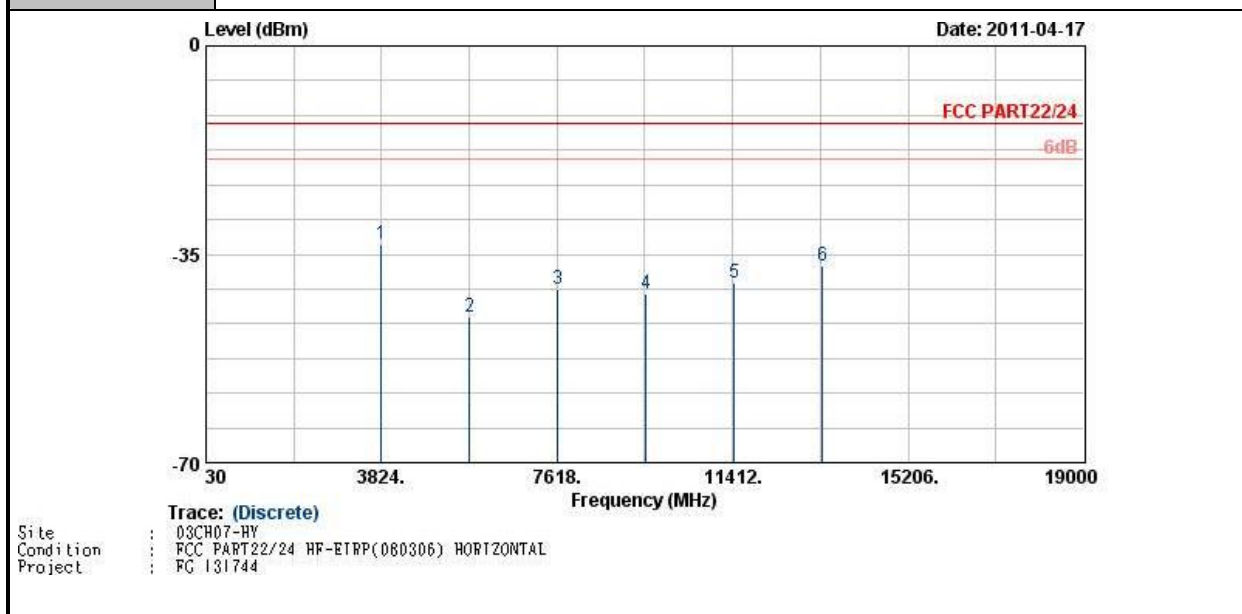
Band :	GSM1900	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 661 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-37.01	-13	-24.01	-54.01	-43.31	2.51	8.81	V	Pass
5636	-47.08	-13	-34.08	-68.32	-54.79	2.99	10.70	V	Pass
7520	-40.18	-13	-27.18	-67.35	-48.71	3.59	12.12	V	Pass
9396	-40.73	-13	-27.73	-67.95	-49.83	4.1	13.20	V	Pass
11280	-41.59	-13	-28.59	-70.26	-50.63	4.27	13.31	V	Pass
13160	-38.06	-13	-25.06	-70.25	-47.58	4.27	13.79	V	Pass

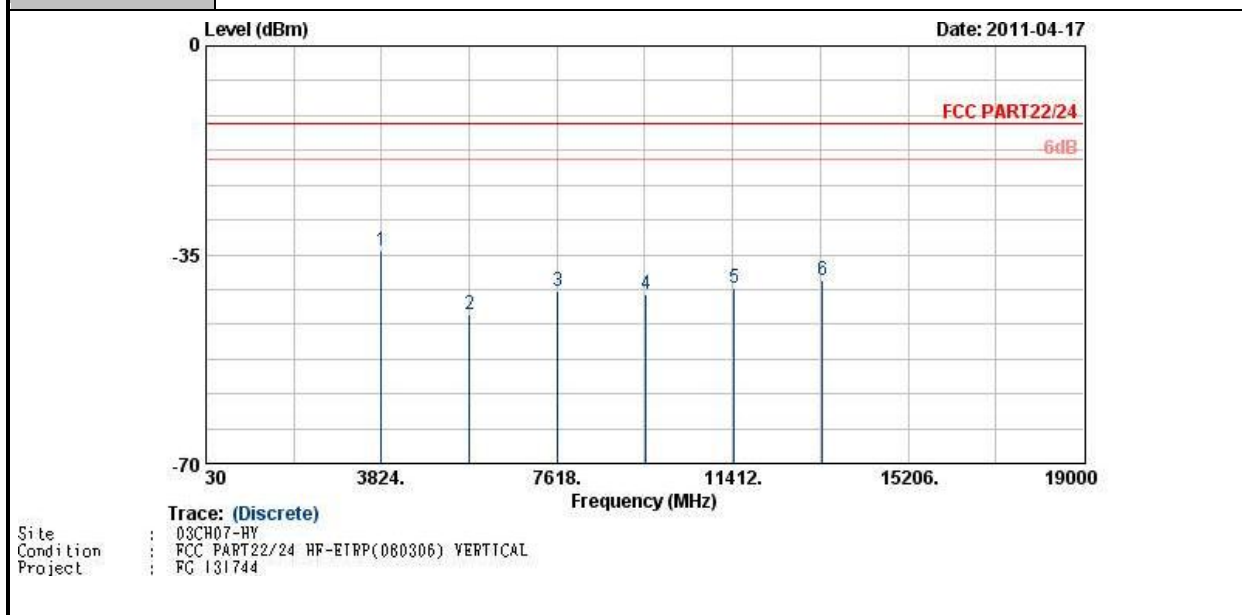


Band :	GSM1900	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 810 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



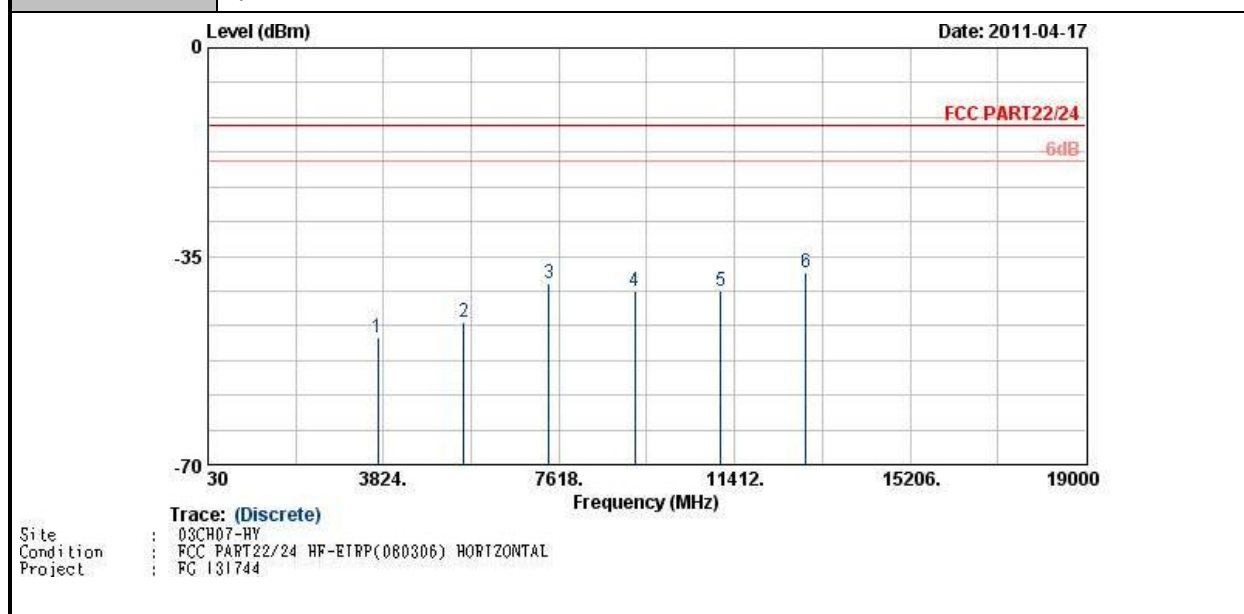
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-33.21	-13	-20.21	-49.01	-39.62	2.47	8.88	H	Pass
5726	-45.57	-13	-32.57	-68.05	-53.27	3	10.70	H	Pass
7635	-40.77	-13	-27.77	-68.18	-49.55	3.43	12.21	H	Pass
9543	-41.57	-13	-28.57	-68.34	-50.78	3.99	13.20	H	Pass
11452	-39.69	-13	-26.69	-70.43	-48.63	4.44	13.38	H	Pass
13361	-36.87	-13	-23.87	-71.28	-46.22	4.68	14.03	H	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	GPRS 8 Link_Channel 810 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



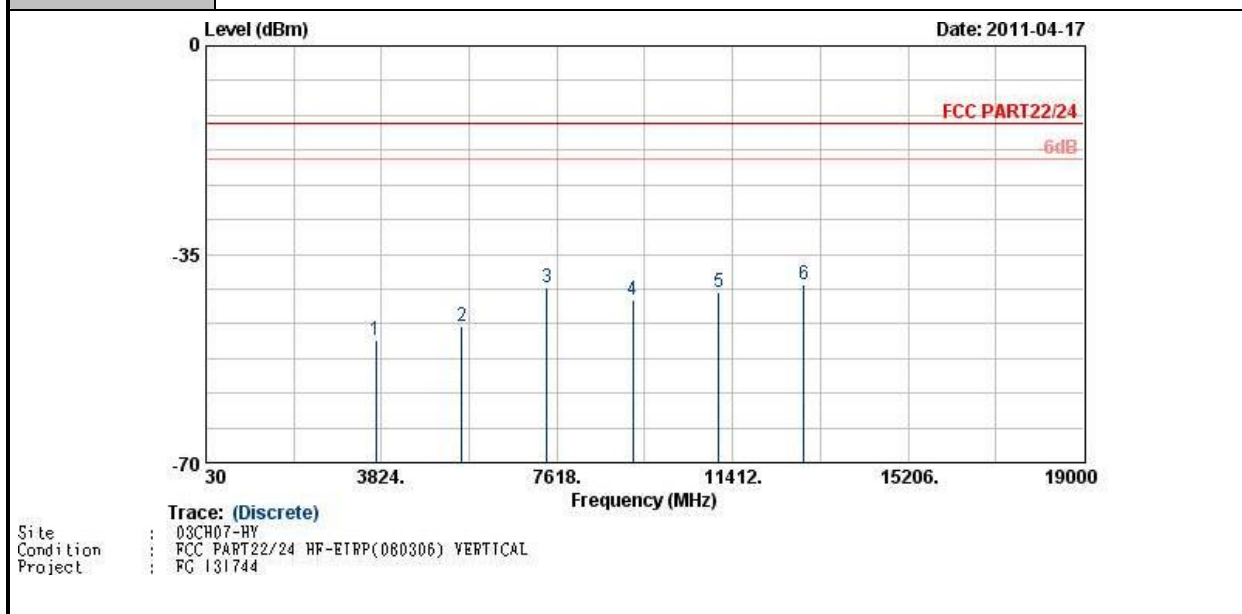
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-34.25	-13	-21.25	-51.45	-40.66	2.47	8.88	V	Pass
5726	-45.09	-13	-32.09	-67.16	-52.79	3	10.70	V	Pass
7635	-41.04	-13	-28.04	-67.94	-49.82	3.43	12.21	V	Pass
9543	-41.51	-13	-28.51	-68.36	-50.72	3.99	13.20	V	Pass
11452	-40.69	-13	-27.69	-70.07	-49.63	4.44	13.38	V	Pass
13361	-39.23	-13	-26.23	-71.4	-48.58	4.68	14.03	V	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 512 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-48.56	-13	-35.56	-63.53	-54.71	2.59	8.74	H	Pass
5553	-45.97	-13	-32.97	-67.27	-53.63	3.04	10.70	H	Pass
7405	-39.68	-13	-26.68	-68.26	-48.42	3.28	12.02	H	Pass
9256	-40.89	-13	-27.89	-68.23	-50.19	3.9	13.20	H	Pass
11107	-40.76	-13	-27.76	-70.15	-49.58	4.42	13.24	H	Pass
12958	-37.75	-13	-24.75	-71.38	-46.41	4.89	13.55	H	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 512 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-49.46	-13	-36.46	-65.98	-55.61	2.59	8.74	V	Pass
5553	-47.09	-13	-34.09	-67.68	-54.75	3.04	10.70	V	Pass
7405	-40.54	-13	-27.54	-68	-49.28	3.28	12.02	V	Pass
9256	-42.58	-13	-29.58	-68.16	-51.88	3.9	13.20	V	Pass
11107	-41.35	-13	-28.35	-70.25	-50.17	4.42	13.24	V	Pass
12958	-39.96	-13	-26.96	-71.16	-48.62	4.89	13.55	V	Pass

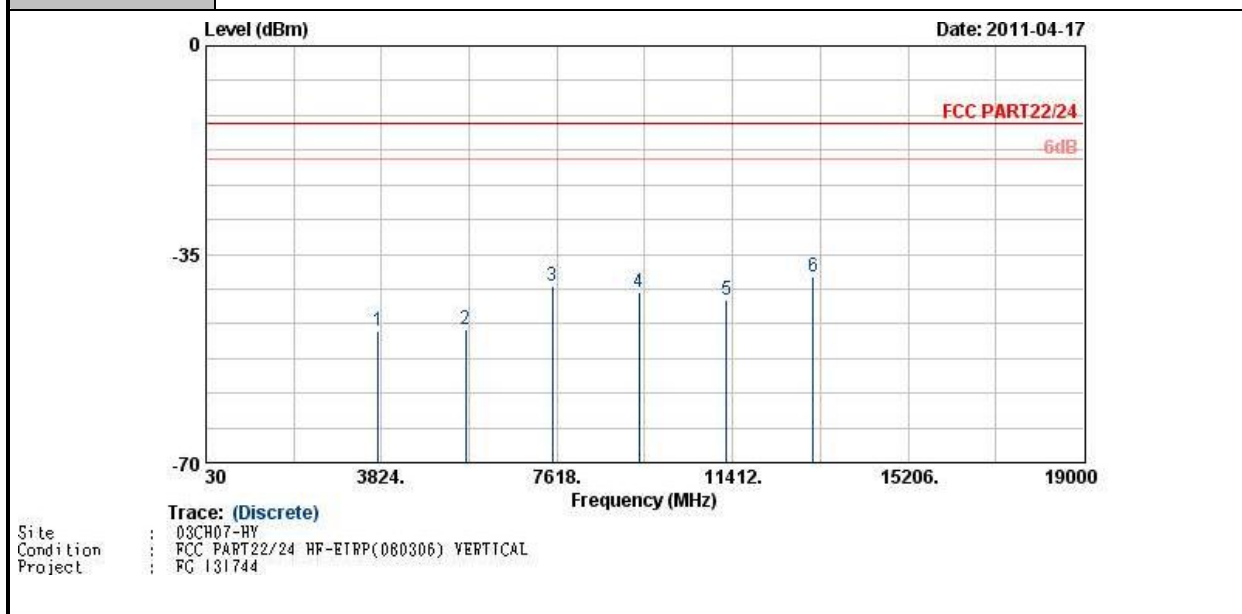


Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 661 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-44.33	-13	-31.33	-59.5	-50.63	2.51	8.81	H	Pass
5636	-47.00	-13	-34.00	-68.13	-54.71	2.99	10.70	H	Pass
7520	-40.71	-13	-27.71	-68.16	-49.24	3.59	12.12	H	Pass
9396	-42.57	-13	-29.57	-68.68	-51.67	4.1	13.20	H	Pass
11280	-40.79	-13	-27.79	-69.73	-49.83	4.27	13.31	H	Pass
13160	-36.09	-13	-23.09	-69.75	-45.61	4.27	13.79	H	Pass

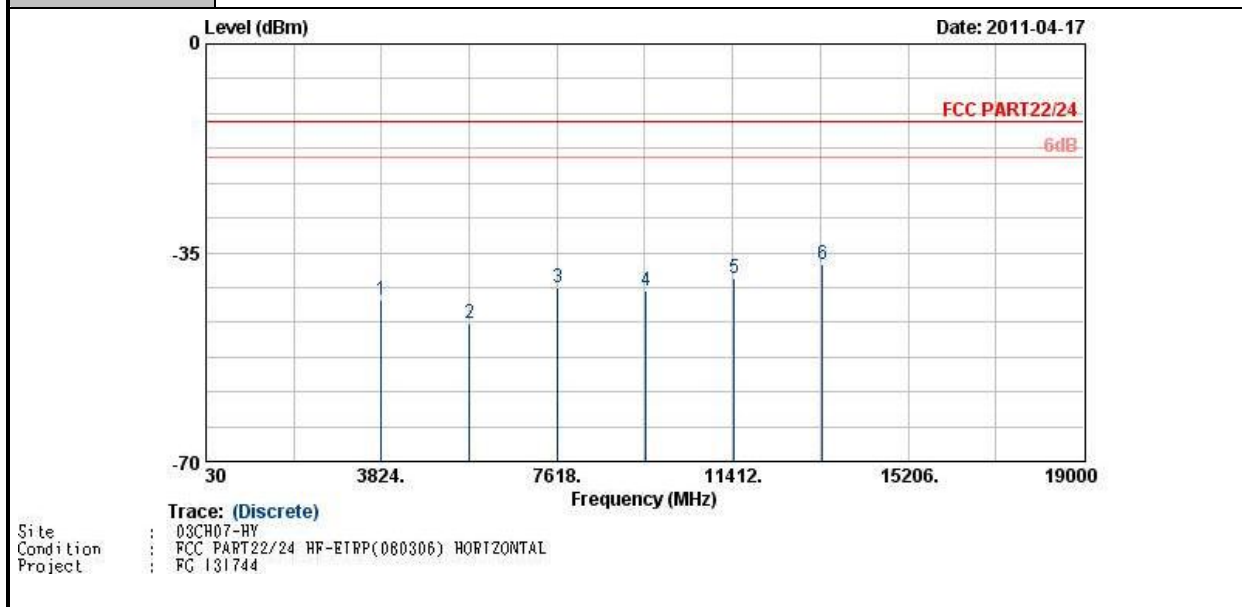
Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 661 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-47.93	-13	-34.93	-64.5	-54.23	2.51	8.81	V	Pass
5636	-47.57	-13	-34.57	-67.94	-55.28	2.99	10.70	V	Pass
7520	-40.26	-13	-27.26	-68.02	-48.79	3.59	12.12	V	Pass
9396	-41.36	-13	-28.36	-68.14	-50.46	4.1	13.20	V	Pass
11280	-42.64	-13	-29.64	-71.23	-51.68	4.27	13.31	V	Pass
13160	-38.75	-13	-25.75	-71.3	-48.27	4.27	13.79	V	Pass

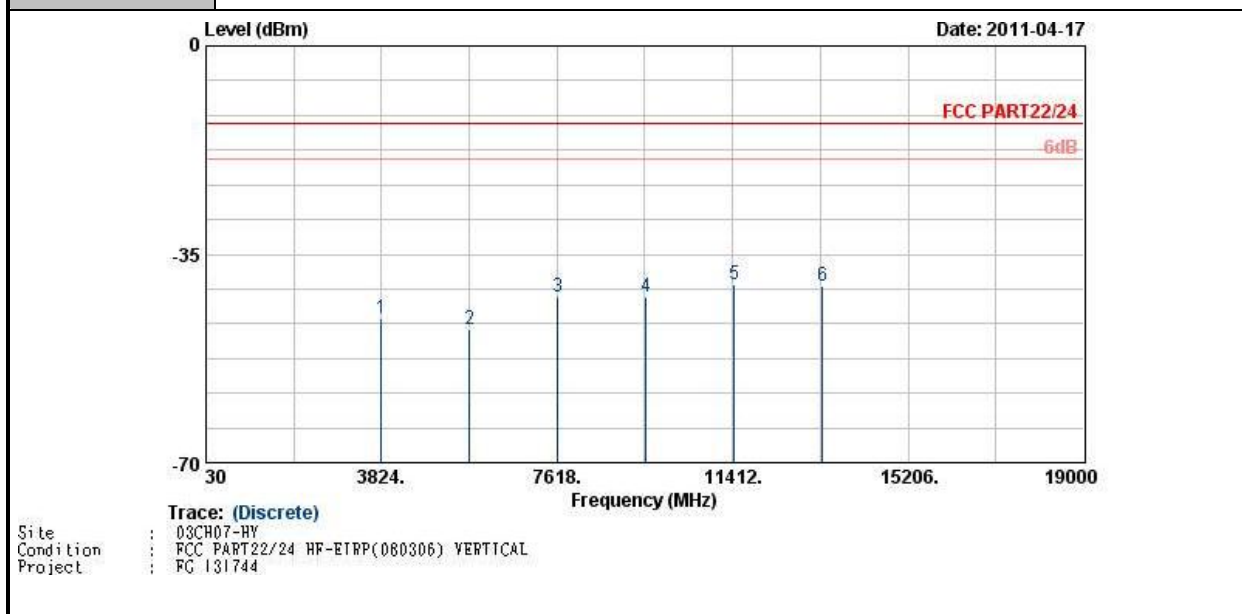


Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 810 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



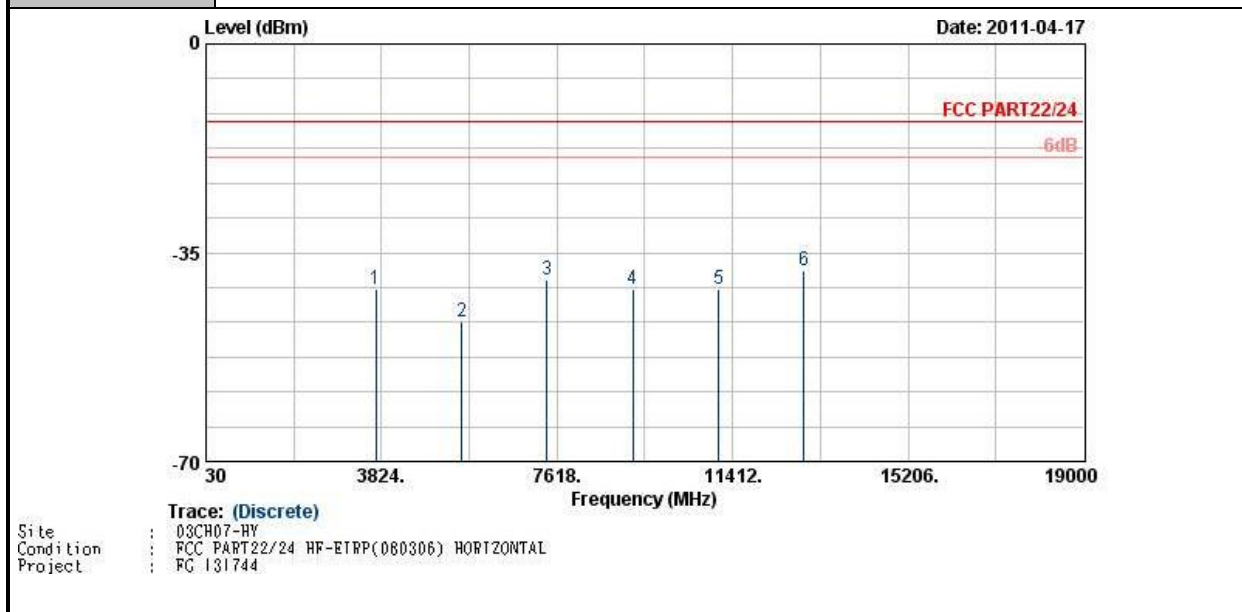
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-42.95	-13	-29.95	-58.95	-49.36	2.47	8.88	H	Pass
5726	-46.94	-13	-33.94	-67.85	-54.64	3	10.70	H	Pass
7635	-40.83	-13	-27.83	-68.23	-49.61	3.43	12.21	H	Pass
9543	-41.28	-13	-28.28	-68.34	-50.49	3.99	13.20	H	Pass
11452	-39.33	-13	-26.33	-70.53	-48.27	4.44	13.38	H	Pass
13361	-36.86	-13	-23.86	-70.6	-46.21	4.68	14.03	H	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 810 (With USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



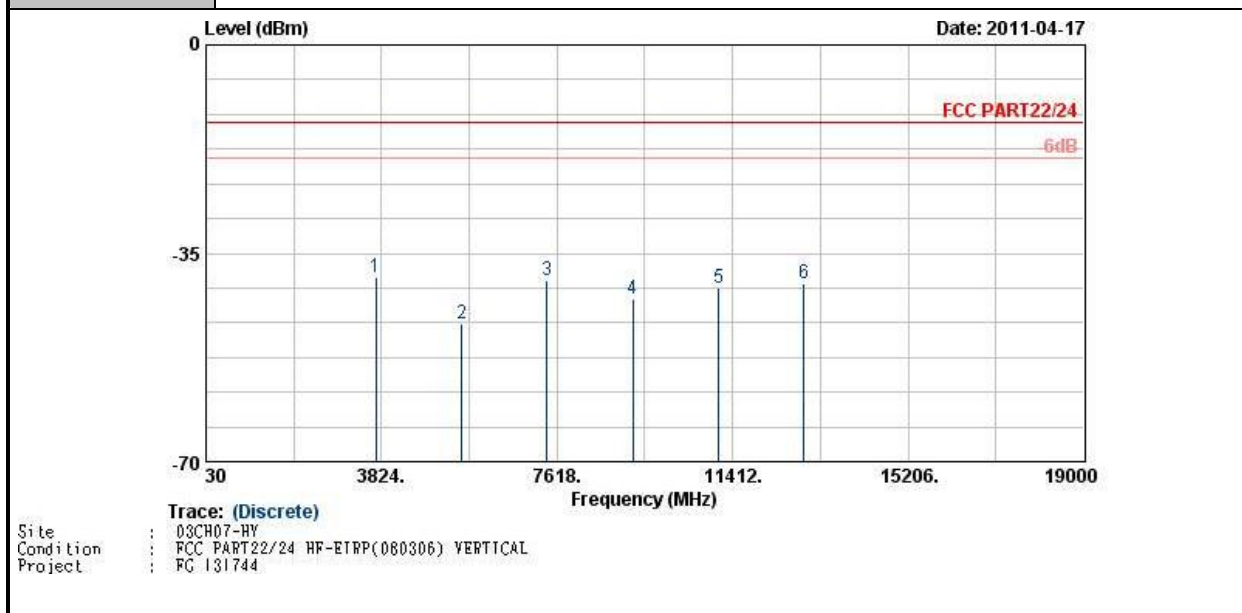
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-45.73	-13	-32.73	-61.91	-52.14	2.47	8.88	V	Pass
5726	-47.63	-13	-34.63	-68.39	-55.33	3	10.70	V	Pass
7635	-42.09	-13	-29.09	-68.09	-50.87	3.43	12.21	V	Pass
9543	-42.14	-13	-29.14	-68.4	-51.35	3.99	13.20	V	Pass
11452	-40.18	-13	-27.18	-70.27	-49.12	4.44	13.38	V	Pass
13361	-40.33	-13	-27.33	-71.81	-49.68	4.68	14.03	V	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 512 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



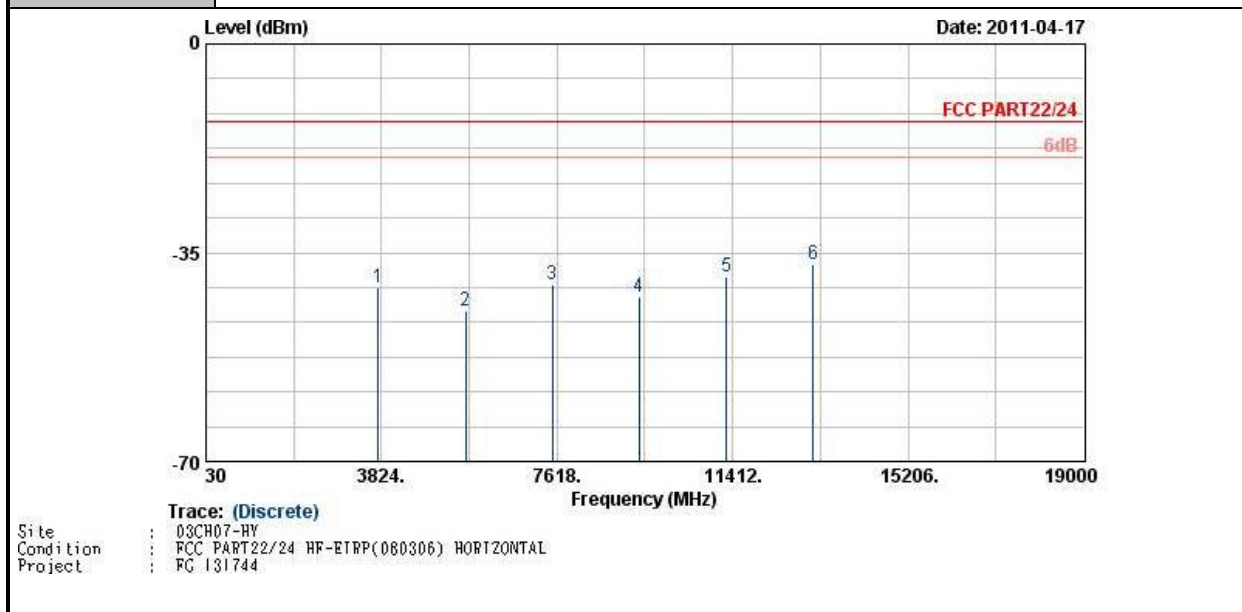
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-41.03	-13	-28.03	-56.6	-47.18	2.59	8.74	H	Pass
5553	-46.70	-13	-33.70	-66.97	-54.36	3.04	10.70	H	Pass
7405	-39.50	-13	-26.50	-67.83	-48.24	3.28	12.02	H	Pass
9256	-41.17	-13	-28.17	-67.94	-50.47	3.9	13.20	H	Pass
11107	-41.01	-13	-28.01	-70.38	-49.83	4.42	13.24	H	Pass
12958	-38.06	-13	-25.06	-71.6	-46.72	4.89	13.55	H	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 512 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



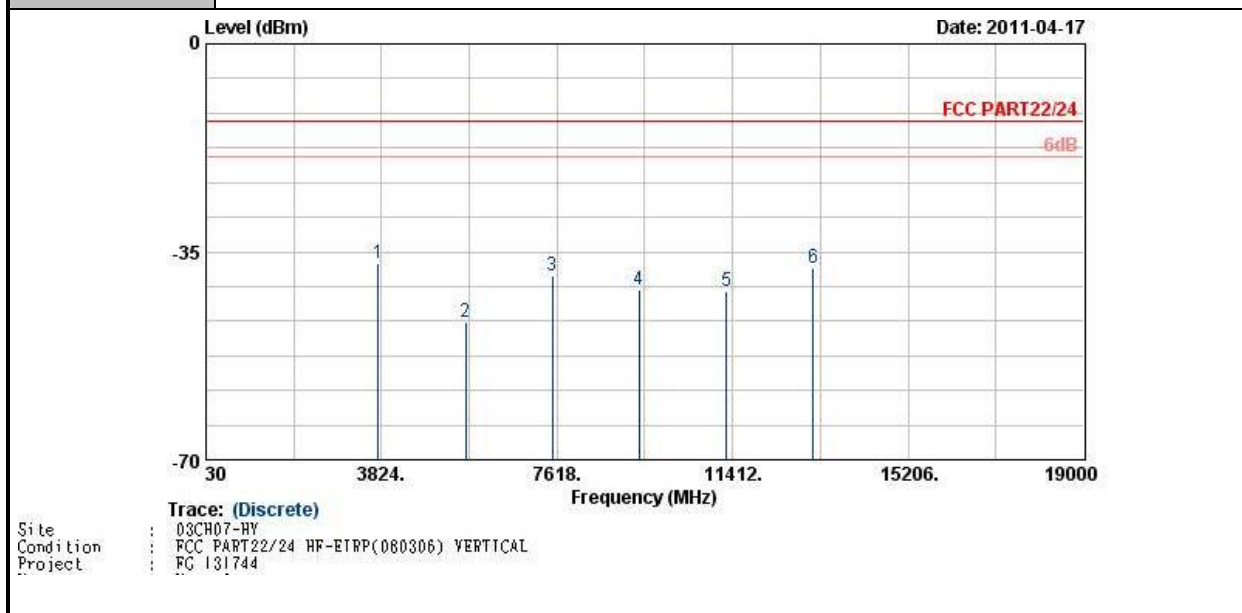
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-39.09	-13	-26.09	-55.15	-45.24	2.59	8.74	V	Pass
5553	-46.96	-13	-33.96	-66.79	-54.62	3.04	10.70	V	Pass
7405	-39.58	-13	-26.58	-67.19	-48.32	3.28	12.02	V	Pass
9256	-42.64	-13	-29.64	-68.32	-51.94	3.9	13.20	V	Pass
11107	-40.85	-13	-27.85	-69.7	-49.67	4.42	13.24	V	Pass
12958	-40.07	-13	-27.07	-72.05	-48.73	4.89	13.55	V	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 661 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



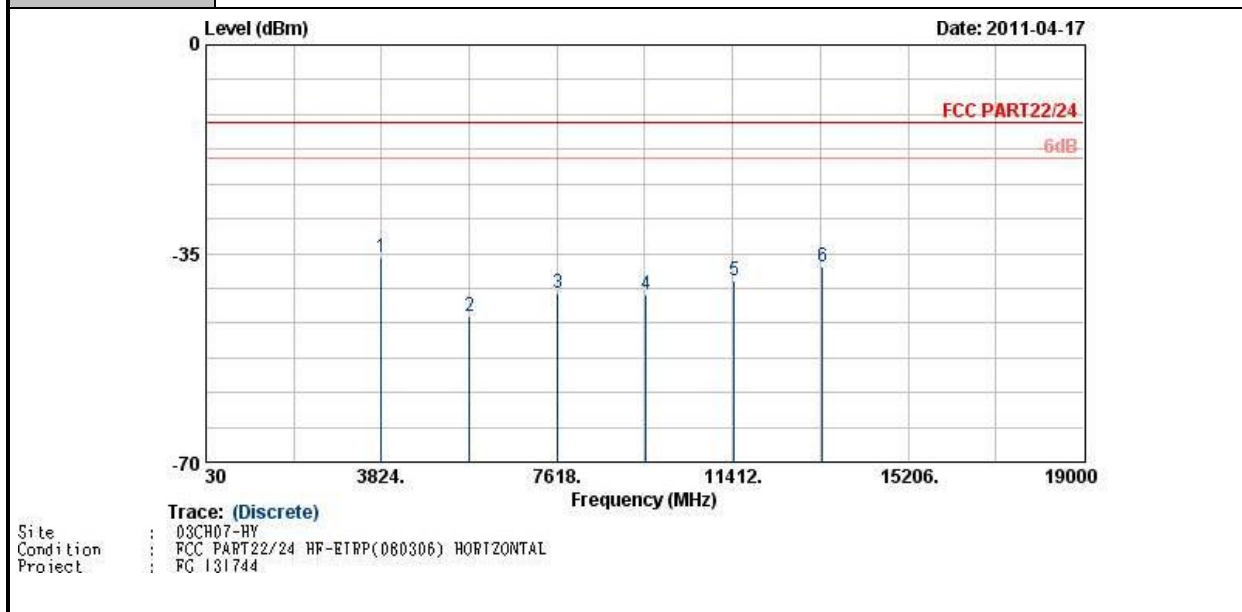
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-40.85	-13	-27.85	-56.36	-47.15	2.51	8.81	H	Pass
5636	-44.70	-13	-31.70	-66.53	-52.41	2.99	10.70	H	Pass
7520	-40.24	-13	-27.24	-68.16	-48.77	3.59	12.12	H	Pass
9396	-42.52	-13	-29.52	-68.48	-51.62	4.1	13.20	H	Pass
11280	-39.07	-13	-26.07	-70.13	-48.11	4.27	13.31	H	Pass
13160	-36.86	-13	-23.86	-70.67	-46.38	4.27	13.79	H	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 661 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



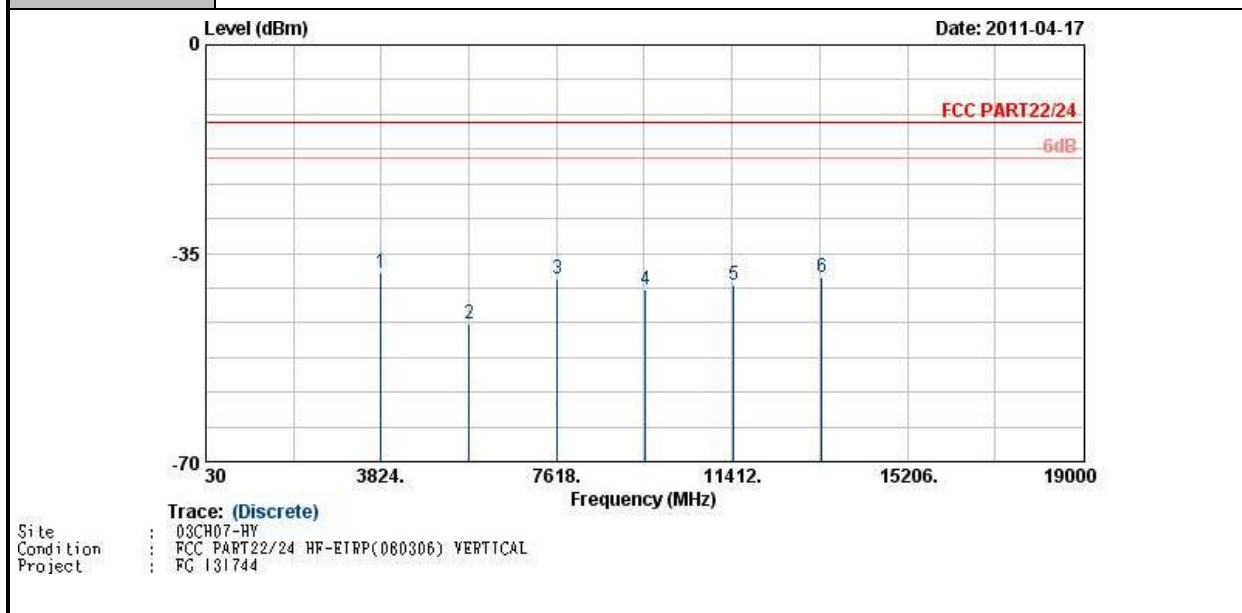
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-36.97	-13	-23.97	-53.67	-43.27	2.51	8.81	V	Pass
5636	-46.92	-13	-33.92	-68.29	-54.63	2.99	10.70	V	Pass
7520	-38.99	-13	-25.99	-66.67	-47.52	3.59	12.12	V	Pass
9396	-41.32	-13	-28.32	-67.87	-50.42	4.1	13.20	V	Pass
11280	-41.70	-13	-28.70	-70.55	-50.74	4.27	13.31	V	Pass
13160	-37.77	-13	-24.77	-70.25	-47.29	4.27	13.79	V	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 810 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-35.76	-13	-22.76	-52.39	-42.17	2.47	8.88	H	Pass
5726	-45.58	-13	-32.58	-67.53	-53.28	3	10.70	H	Pass
7635	-41.71	-13	-28.71	-68.31	-50.49	3.43	12.21	H	Pass
9543	-42.01	-13	-29.01	-68.52	-51.22	3.99	13.20	H	Pass
11452	-39.43	-13	-26.43	-69.94	-48.37	4.44	13.38	H	Pass
13361	-37.16	-13	-24.16	-71.41	-46.51	4.68	14.03	H	Pass

Band :	GSM1900	Temperature :	22~26°C
Test Mode :	EDGE 8 Link_Channel 810 (Without USB Cable)	Relative Humidity :	53~58%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-38.21	-13	-25.21	-55.01	-44.62	2.47	8.88	V	Pass
5726	-46.79	-13	-33.79	-68.69	-54.49	3	10.70	V	Pass
7635	-39.41	-13	-26.41	-66.84	-48.19	3.43	12.21	V	Pass
9543	-41.10	-13	-28.10	-68.1	-50.31	3.99	13.20	V	Pass
11452	-40.34	-13	-27.34	-70.08	-49.28	4.44	13.38	V	Pass
13361	-39.01	-13	-26.01	-71.09	-48.36	4.68	14.03	V	Pass

3.5 Frequency Stability Measurement

3.5.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

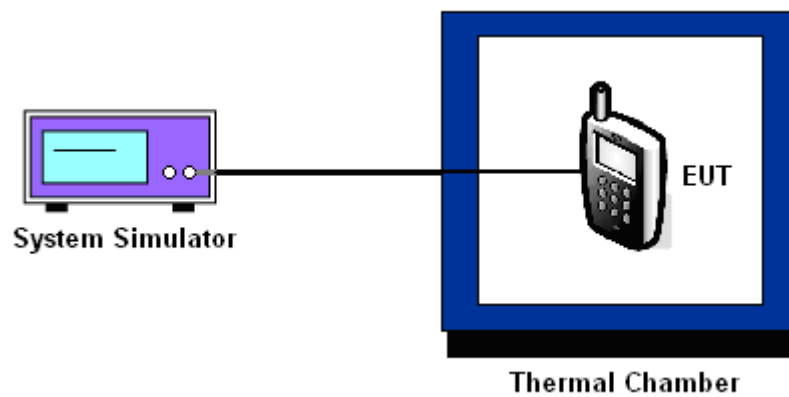
3.5.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. If the EUT can not be turned on at -30°C , the testing lowest temperature will be raised in 10°C step until the EUT can be turned on.

3.5.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the base station.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.5.5 Test Setup



3.5.6 Test Result of Temperature Variation

Band :	GSM 850	Channel :	189
Limit (ppm) :	2.5		

Temperature (°C)	GPRS 8		EDGE 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	N/A	N/A	PASS
-20	N/A	N/A	N/A	N/A	
-15	29	0.03	26	0.03	
-10	-24	-0.03	22	0.03	
0	-26	-0.03	23	0.03	
10	-22	-0.03	-19	-0.02	
20	17	0.02	14	0.02	
30	-14	-0.02	-15	-0.02	
40	-18	-0.02	-12	-0.01	
50	-15	-0.02	-13	-0.02	

Note:

1. The EUT stops transmitting at temperatures -20°C, and -30°C.
2. The manufacturer declared that the EUT could work properly between temperatures -15°C~55°C.

Band :	GSM 1900	Channel :	661
Limit (ppm) :	2.5		

Temperature (°C)	GPRS 8		EDGE 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	N/A	N/A	N/A	N/A	PASS
-20	N/A	N/A	N/A	N/A	
-15	-31	-0.02	-29	-0.02	
-10	-28	-0.01	-33	-0.02	
0	-24	-0.01	-30	-0.02	
10	-20	-0.01	-24	-0.01	
20	26	0.01	-25	-0.01	
30	-23	-0.01	-16	-0.01	
40	-21	-0.01	-19	-0.01	
50	18	0.01	-15	-0.01	

Note:

1. The EUT stops transmitting at temperatures -20°C, and -30°C.
2. The manufacturer declared that the EUT could work properly between temperatures -15°C~55°C.

3.5.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GPRS 8	5.0	-18	-0.02	2.5	PASS
		5.0	-18	-0.02		
		5.0	-18	-0.02		
	EDGE 8	5.0	17	0.02		
		5.0	-16	-0.02		
		5.0	17	0.02		
GSM 1900 CH661	GPRS 8	5.0	-19	-0.01		
		5.0	-19	-0.01		
		5.0	-18	-0.01		
	EDGE 8	5.0	-21	-0.01		
		5.0	-20	-0.01		
		5.0	-21	-0.01		

Note: Normal Voltage = 5.0V.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jun. 08, 2009	Jun. 07, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 11, 2010	Jun. 10, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30, 2010	Jul. 29, 2011	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB. GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)
System Simulator	R&S	CMU200	117591	N/A	Oct. 18, 2010	Oct. 17, 2011	-

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	± 0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	± 1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	± 0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	± 2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	± 1.50	Rectangular	0.87	1	0.87
Site Imperfection	± 2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\log(1-\Gamma_1\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP131744-02 as below.