

**TEST REPORT
FROM
RFI GLOBAL SERVICES LTD**

Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Test Report Serial No:
RFI/RPT1/RP73532JD01A

**This Test Report Is Issued Under The Authority
Of Steve Flocks, Service Leader:**



pp

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1. Customer Information

Company Name:	Enfora Inc.
Address:	251 Renner Parkway Richardson Texas TX 75080 USA

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2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the customer:

2.1. Identification of Equipment Under Test (EUT)

Description:	GSM/GPRS module mounted on a development board
Brand Name:	Enfora
Model Name or Number:	Enabler IIG - GSM0128
IMEI Number:	001036000180169
Serial Number:	SIM Test-03
FCC ID Number:	MIVGSM0128
Date of Receipt:	26 June 2008

Description:	AC-DC PSU, switching power adaptor
Brand Name:	CUI Inc
Model Name or Number:	DSA-15P-05 US 050100
Part Number:	EPS050200U-P7P-DB
Cable Length and Type:	2.0 metre / 2-Core
Connected to Port	DC input

2.2. Description of EUT

The equipment under test was a GSM/GPRS module mounted on a development board.

2.3. Modifications Incorporated in EUT

During the course of testing the EUT was not modified.

2.4. Support Equipment

A development board was used to mount the EUT during testing. The development board used an integral antenna with a stated max gain of 0.5dBi for GSM850 and 3.0 dBi for GSM1900 and was used to communicate via a wireless link to a GSM system simulator.

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2.5. Additional Information Related to Testing

Power Supply Requirement:	V-Norm 110 V, V-Max 93.5 V, V-Min 126.5 V Vdc Norm 3.6 V, V-Min 3.3 V, V-Max 4.5 V
Type of Unit:	Transceiver

FCC Part 22

Transmit Frequency Range:	824 MHz to 849 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	824.2
	Middle	189	836.4
	Top	251	848.8
Receive Frequency Range:	869 MHz to 894 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	128	869.2
	Middle	189	881.4
	Top	251	893.8
Maximum Power Output (ERP):	33.2 dBm		

FCC Part 24

Transmit Frequency Range:	1850 MHz to 1910 MHz		
Transmit Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	810	1909.8
Receive Frequency Range:	1930 MHz to 1990 MHz		
Receive Channels Tested:	Channel ID	Channel Number	Channel Frequency (MHz)
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8
Maximum Power Output (EIRP):	26.0 dBm		

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3. Test Specification, Methods and Procedures

Reference:	FCC Part 22: 2007 Subpart H (Cellular Radiotelephone Service)
Title:	Code of Federal Regulations, Part 22 (47CFR22) Personal Communication Services.

Reference:	FCC Part 24: 2007 Subpart E (Broadband PCS)
Title:	Code of Federal Regulations, Part 24 (47CFR24) Personal Communication Services.

Reference:	RSS-GEN Issue 2 June 2007
Title:	General Requirements and Information for the Certification of Radiocommunication Equipment

Reference:	RSS-132 Issue 2 Sep 2005
Title:	Cellular Telephones Employing New Technologies Operating in the Bands 824- 849 MHz and 869-894 MHz

Reference:	RSS-133 Issue 4 Feb 2008
Title:	2 GHz Personal Communications Services

Reference:	SRSP-510 Issue 4 Feb 2008
Title:	Technical Requirements for Personal Communications Services in the Bands 1850-1915 MHz and 1930-1995 MHz

Reference:	SRSP-503 Issue 6 Jun 2003
Title:	Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824 – 849 MHz and 869 – 894 MHz

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3.1. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003

Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)

Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2003)

Title: American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1988)

Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)

Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)

Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

3.2. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures Section above. Appendix 1 contains a list of the test equipment used.

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4. Deviations from the Test Specification

There were no deviations from the test specification.

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5. Operation of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated.

- Connected (via wireless link) to a GSM system simulator, operating in GSM transceiver mode.
- Transmitter Modes:
Testing was performed at full power on the top, middle and bottom channels of the assigned frequency block.
- Receiver/Idle Modes:
Testing was performed with call terminated from the GSM test simulator and the equipment left in its Idle mode.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration unless otherwise stated:

- Tests were performed with the EUT powered using AC-DC PSU model EPA-101MU-05A. The frequency tolerance over voltage variations was performed by varying the DC voltage directly to the module.
- Preliminary emissions testing were performed on both GSM and GPRS modes and it was found that the GSM mode was worst regards emissions. All other emissions testing was performed in GSM mode.

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6. Summary of Test Results

FCC Part 22

Range of Measurements	FCC Reference	IC RSS Reference	Port Type	Result
Receiver/Idle AC Conducted Spurious Emissions (150 kHz to 30 MHz)	15.107	RSS-Gen 7.2.2	AC Mains Input	Complied
Receiver/Idle Radiated Emissions	15.109	RSS-Gen 4.10/6.0 RSS-132 4.6	Enclosure	Complied
Transmitter Effective Radiated Power (ERP)	FCC Part 22.913(a)(2)	RSS-132 4.4 SRSP-503 5.1.3	Antenna	Complied
Transmitter Frequency Stability (Temperature Variation)	22.355	RSS-132 4.3 RSS Gen 4.7	Antenna Terminals	Complied
Transmitter Frequency Stability (Voltage Variation)	22.355	RSS-132 4.3 RSS Gen 4.7	Antenna Terminals	Complied
Transmitter Occupied Bandwidth	2.1049	RSS-Gen 4.6.1	Antenna Terminals	Complied
Transmitter Out of Band Radiated Emissions	2.1053/22.917	RSS-132 4.5	Antenna	Complied
Transmitter Band Edge Radiated Emissions	2.1053/22.917	RSS-132 4.5	Antenna	Complied

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Summary of Test Results (Continued)**FCC Part 24**

Range of Measurements	FCC Reference	IC RSS Reference	Port Type	Result
Idle Mode AC Conducted Spurious Emissions (150 kHz to 30 MHz)	15.107	RSS-Gen 7.2.2	AC Mains Input	Complied
Idle Mode Radiated Spurious Emissions	15.109	RSS-Gen 4.10/6.0 RSS-133 6.6	Enclosure	Complied
Transmitter Effective Isotropic Radiated Power (EIRP)	FCC Part 24.232(c)	RSS-133 6.4 SRSP-510 5.1.2	Antenna	Complied
Transmitter Frequency Stability (Temperature Variation)	FCC Part 24.235	RSS-133 6.3 RSS Gen 4.7	Antenna Terminals	Complied
Transmitter Frequency Stability (Voltage Variation)	FCC Part 24.235	RSS-133 6.3 RSS Gen 4.7	Antenna Terminals	Complied
Transmitter Occupied Bandwidth	2.1049/24.238	RSS-Gen 4.6.1	Antenna Terminals	Complied
Transmitter Out of Band Radiated Emissions	FCC 2.1053 FCC 24.238	RSS-133 6.5	Antenna	Complied
Transmitter Band Edge Radiated Emissions	FCC 2.1053 FCC 24.238	RSS-133 6.5	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

6.2. Site Registration Numbers

FCC: 90895

IC: 3485

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7. Measurements, Examinations and Derived Results

7.1. General Comments

This Section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 8 for details of measurement uncertainties.

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7.2. Test Results – FCC Part 22 (Subpart H)

7.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions: Section 15.107

Ambient Temperature: 21°C

Relative Humidity: 43%

Tests were performed using the test methods detailed in ANSI C63.4 Section 7.

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.154000	Neutral	39.5	65.8	26.3	Complied
0.182000	Neutral	36.1	64.4	28.3	Complied
0.222000	Live	49.7	62.7	13.0	Complied
0.226000	Live	44.6	62.6	18.0	Complied
0.442000	Live	37.6	57.0	19.4	Complied
0.666000	Neutral	38.7	56.0	17.3	Complied
0.790000	Neutral	9.5	56.0	46.5	Complied
0.886000	Live	37.1	56.0	18.9	Complied
1.406000	Live	8.0	56.0	48.0	Complied
1.554000	Neutral	32.4	56.0	23.6	Complied

Average Detector Measurements on Live and Neutral Lines

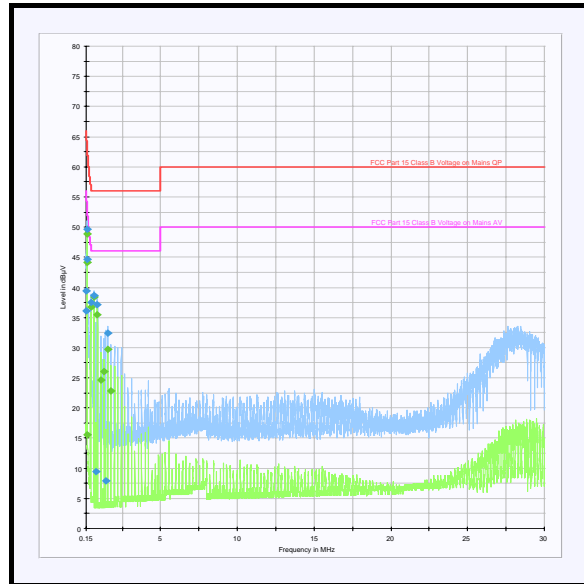
Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.202000	Live	15.6	53.5	37.9	Complied
0.222000	Live	48.8	52.7	3.9	Complied
0.226000	Live	44.2	52.6	8.4	Complied
0.442000	Live	36.8	47.0	10.2	Complied
0.666000	Neutral	38.4	46.0	7.6	Complied
0.886000	Live	35.5	46.0	10.5	Complied
1.106000	Live	24.6	46.0	21.4	Complied
1.330000	Live	26.0	46.0	20.0	Complied
1.554000	Neutral	29.7	46.0	16.3	Complied
1.774000	Neutral	22.8	46.0	23.2	Complied

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Receiver/Idle Mode AC Conducted Spurious Emissions: Section 15.107 (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

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7.2.2. Receiver/Idle Mode Radiated Spurious Emissions

Ambient Temperature: 21°C

Relative Humidity: 43%

Tests were performed using the test methods detailed in ANSI C63.4 Section 8.

Results:

Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

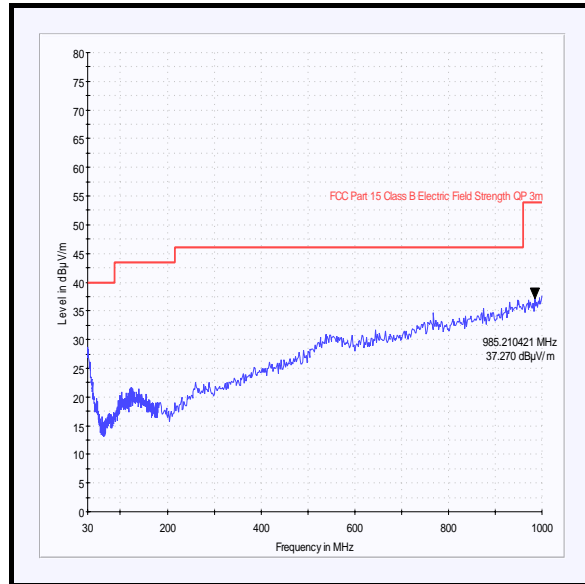
Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
985.210	Horizontal	37.3	54.0	16.7	Complied

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Receiver/Idle Mode Radiated Spurious Emissions (Continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying tables.

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7.2.3. Receiver/Idle Mode Radiated Spurious Emissions

Ambient Temperature: 21°C to 23°C

Relative Humidity: 35% to 43%

Results:**Electric Field Strength Measurements (Frequency Range: 1 to 6 GHz)****Highest Peak Level**

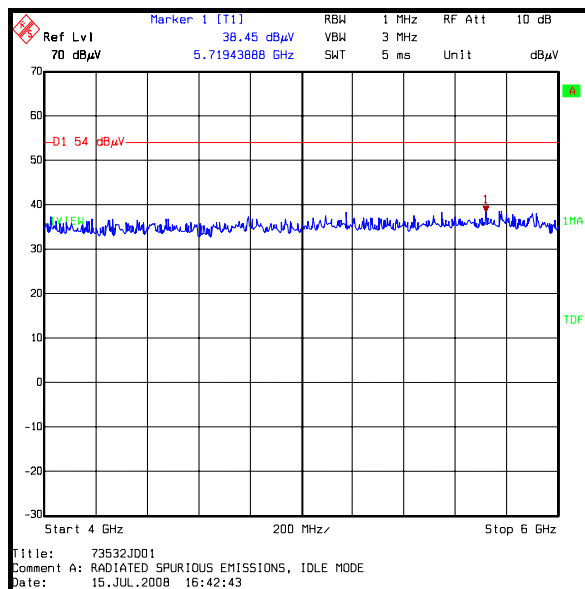
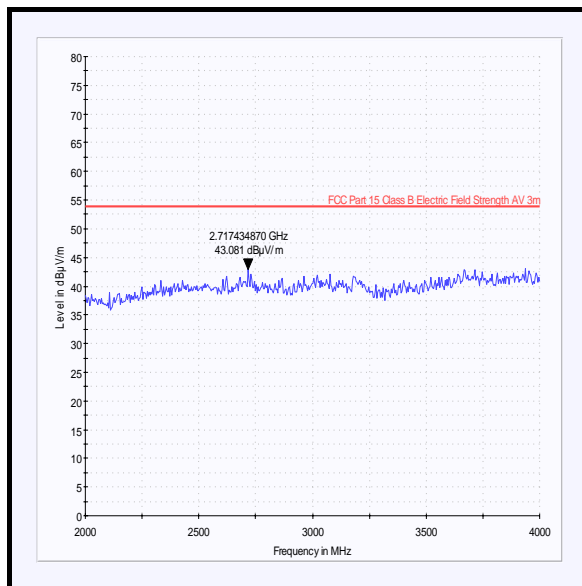
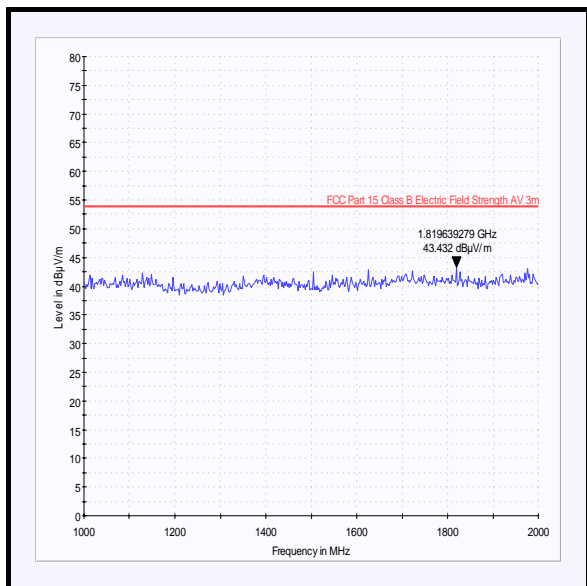
Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
1.819639	Vertical	49.9	-6.5	43.4	54.0	10.6	Complied

Note(s):

1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.
2. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.

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Receiver/Idle Mode Radiated Spurious Emissions (Continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

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7.2.4. Transmitter Effective Radiated Power (ERP)

Ambient Temperature: 19°C

Relative Humidity: 57%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Channel	Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	824.2	32.6	38.4	5.8	Complied
Middle	836.6	32.4	38.4	6.0	Complied
Top	848.8	33.2	38.4	5.2	Complied

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7.2.5. Transmitter Frequency Stability (Temperature Variation)

Ambient Temperature: 19°C

Relative Humidity: 65%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Bottom Channel (824.2 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	824.200023	23	0.03	2.5	2.47	Complied
-20	824.200034	34	0.04	2.5	2.46	Complied
-10	824.200036	36	0.04	2.5	2.46	Complied
0	824.200025	25	0.03	2.5	2.47	Complied
10	824.200021	21	0.02	2.5	2.48	Complied
20	824.200034	34	0.04	2.5	2.46	Complied
30	824.200024	24	0.03	2.5	2.47	Complied
40	824.200030	30	0.04	2.5	2.46	Complied
50	824.200032	32	0.04	2.5	2.46	Complied

Top Channel (848.8 MHz)

Temperature (°C)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
-30	848.800024	24	0.03	2.5	2.47	Complied
-20	848.800030	30	0.04	2.5	2.46	Complied
-10	848.800019	19	0.02	2.5	2.48	Complied
0	848.800023	23	0.03	2.5	2.47	Complied
10	848.800023	23	0.03	2.5	2.47	Complied
20	848.800032	32	0.04	2.5	2.46	Complied
30	848.800030	30	0.04	2.5	2.46	Complied
40	848.800036	36	0.04	2.5	2.46	Complied
50	848.800029	29	0.03	2.5	2.47	Complied

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7.2.6. Transmitter Frequency Stability (Voltage Variation)

Ambient Temperature: 19°C

Relative Humidity: 65%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:**Bottom Channel (824.2 MHz)**

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
3.1	824.200028	28	0.03	2.5	2.47	Complied
4.2	824.200025	25	0.03	2.5	2.47	Complied

Top Channel (848.8 MHz)

Supply Voltage (V)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Margin (ppm)	Result
3.1	848.800016	16	0.02	2.5	2.48	Complied
4.2	848.800029	29	0.03	2.5	2.47	Complied

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7.2.7. Transmitter Occupied Bandwidth

Ambient Temperature: 20°C

Relative Humidity: 47%

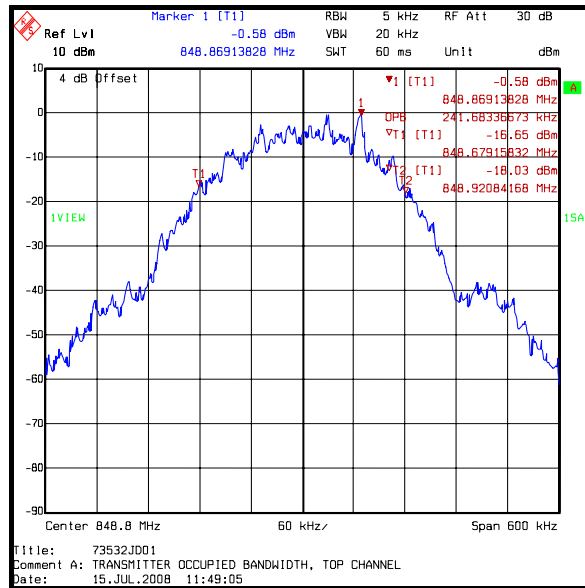
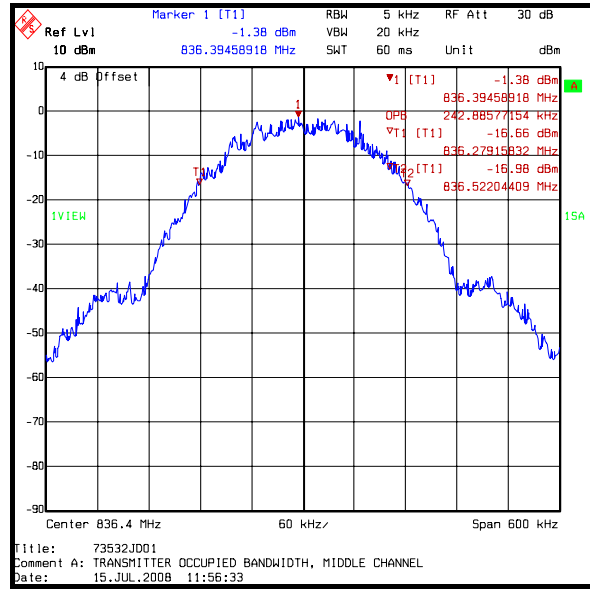
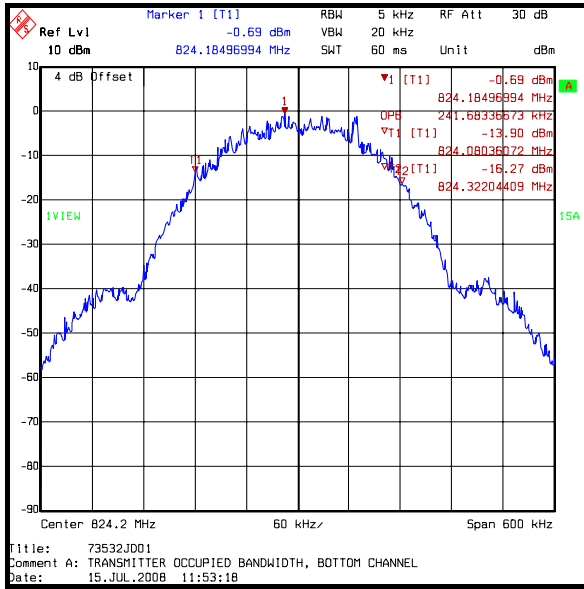
The 99% occupied bandwidth was measured using the channel bandwidth function of the R&S spectrum analyser referencing FCC CFR Part 2.

Results:

Channel	Frequency (MHz)	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (kHz)
Bottom	824.2	5.0	20.0	241.683
Middle	836.6	5.0	20.0	242.886
Top	848.8	5.0	20.0	241.683

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7.2.8. Transmitter Out of Band Radiated Emissions

Ambient Temperature: 20°C to 24°C

Relative Humidity: 35% to 55%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1648.366	-36.2	-13.0	23.2	Complied
2472.673	-33.6	-13.0	20.6	Complied

Middle Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1672.733	-34.9	-13.0	21.9	Complied
2509.236	-30.3	-13.0	17.3	Complied

Top Channel

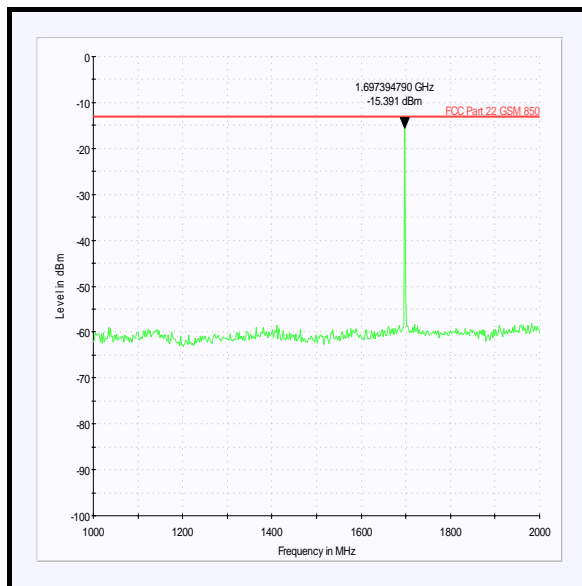
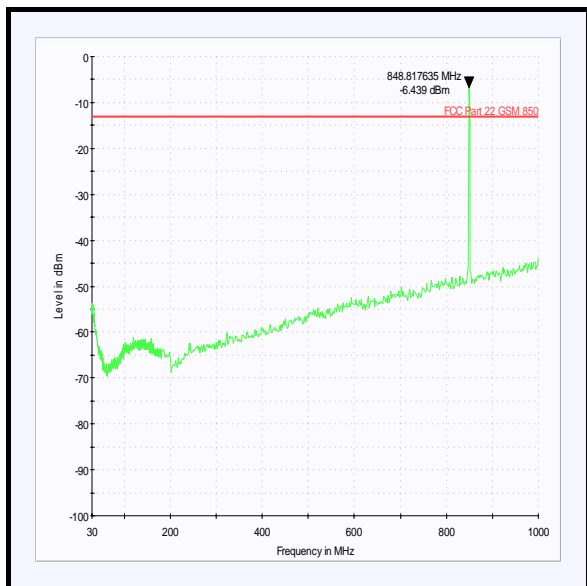
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1697.584	-32.7	-13.0	20.3	Complied
2546.421	-28.7	-13.0	15.7	Complied

Note(s):

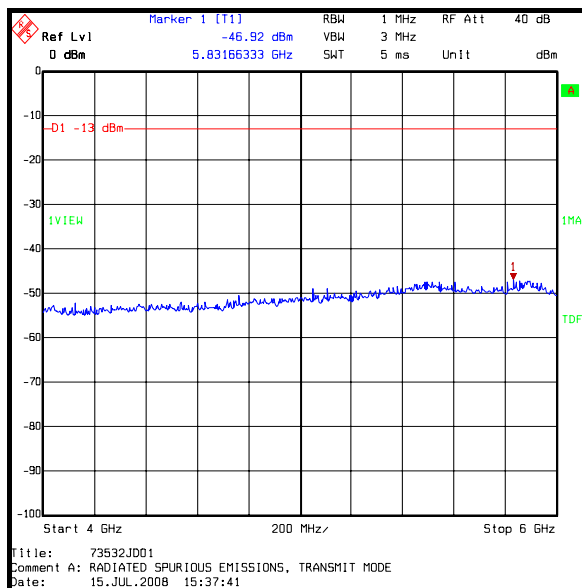
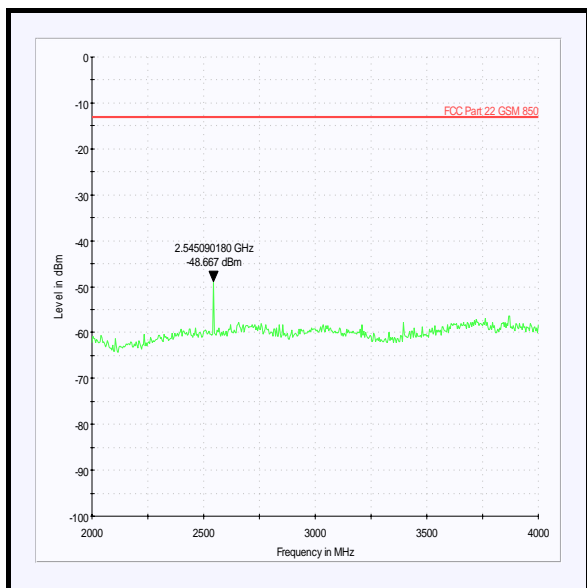
1. No other spurious emissions were detected within 20dB of the limit.
2. The carrier is shown on the plot below at 848.8 MHz.

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 FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Transmitter Out of Band Radiated Emissions (Continued)



Refer to Note 1

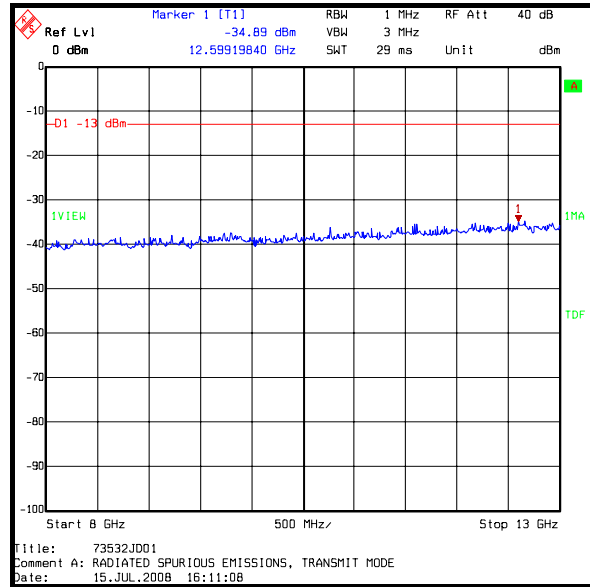
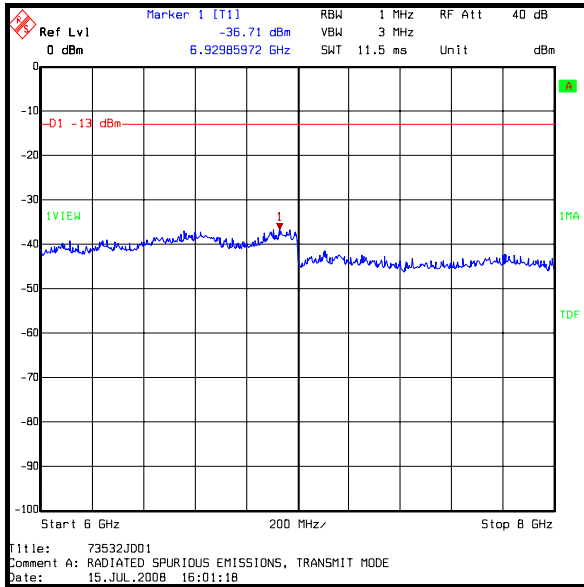


Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Transmitter Out of Band Radiated Emissions (Continued)



Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Transmitter Out of Band Radiated Emissions (Continued)

Ambient Temperature: 22°C

Relative Humidity: 35%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:**Integrated Power Over 1 MHz Strip Band: 821 to 823 MHz**1st and 2nd 1 MHz blocks immediately below adjacent frequency block

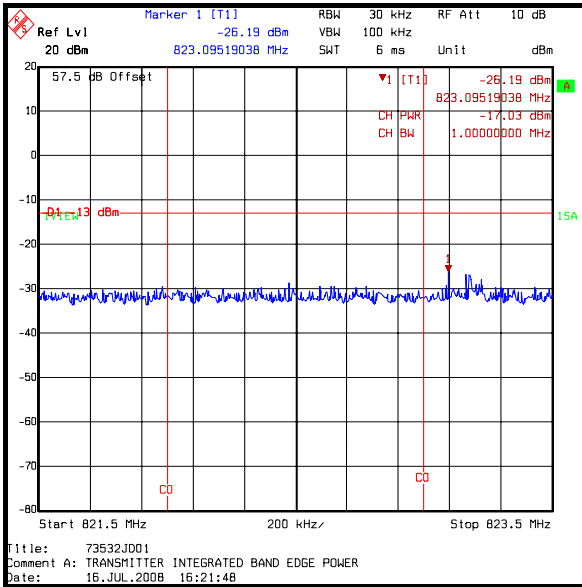
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
821 to 822	-17.6	-13.0	4.6	Complied
822 to 823	-17.0	-13.0	4.0	Complied

Integrated Power Over 1 MHz Strip Band: 851 to 853 MHz1st and 2nd 1 MHz blocks immediately above adjacent frequency block

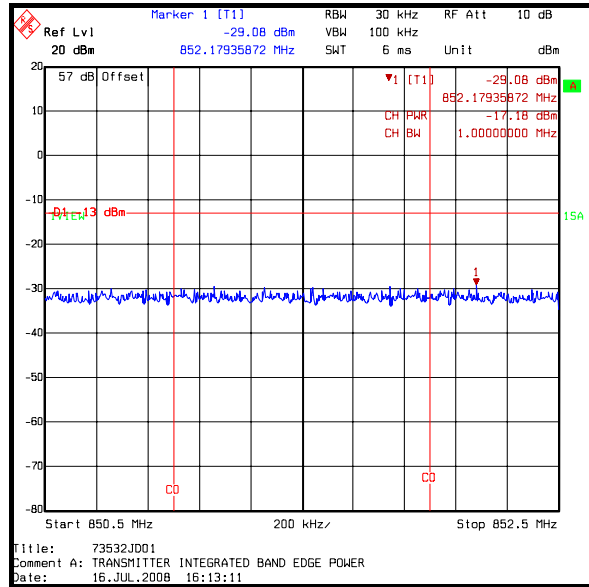
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
851 to 852	-17.2	-13.0	4.2	Complied
852 to 853	-17.9	-13.0	4.9	Complied

Test of: Enfora Enabler IIG - GSM0128
 To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
 FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

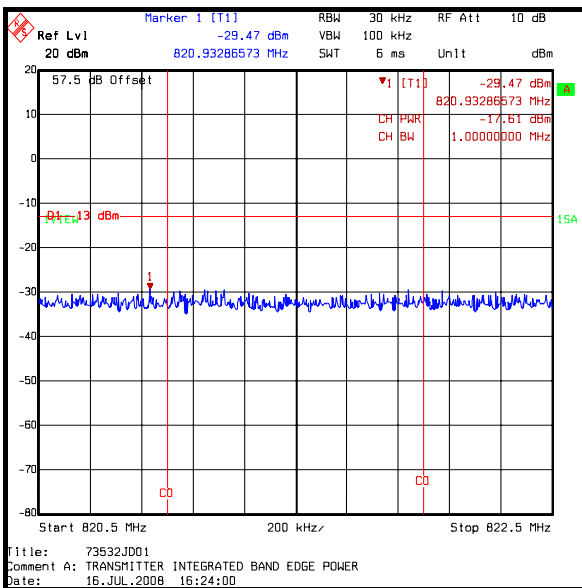
Transmitter Out of Band Radiated Emissions (Continued)



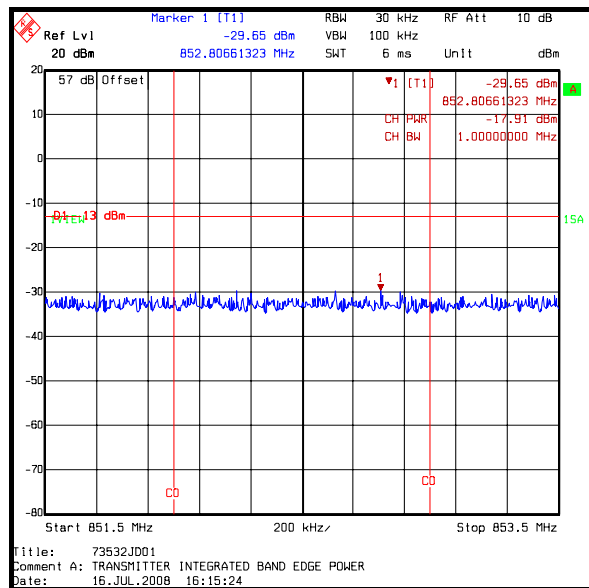
Lower Band Edge -1 MHz strip



Upper Band Edge +1 MHz strip



Lower Band Edge -2 MHz strip



Upper Band Edge +2 MHz strip

Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.2.9. Transmitter Radiated Emissions at Band Edges

Ambient Temperature: 20°C

Relative Humidity: 52%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Parts 2 and 22.917.

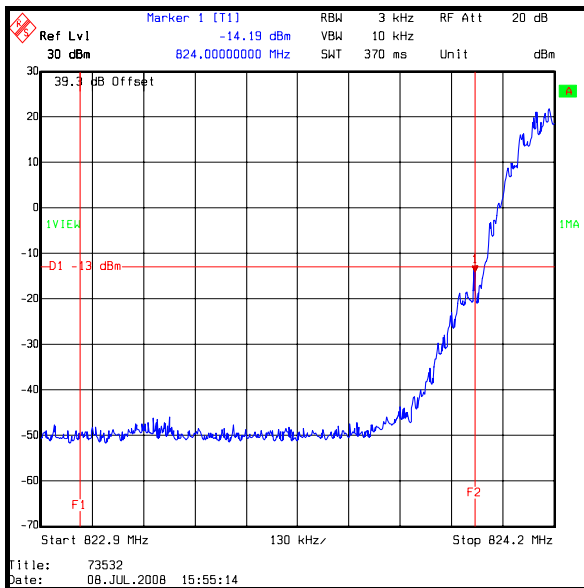
Results:

Bottom Band Edge

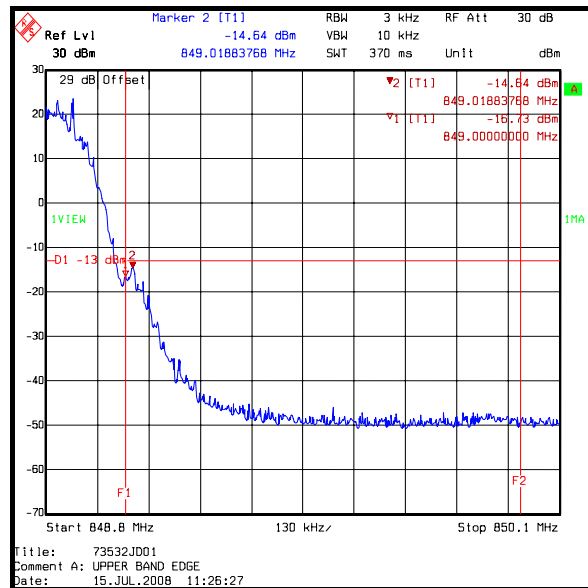
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
824	-14.2	-13.0	1.2	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
849	-16.7	-13.0	3.7	Complied



Lower Band Edge



Upper Band Edge

Test of: Enfora Enabler IIG - GSM0128
 To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
 FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.3. Test Results – FCC Part 24 (Subpart E)

7.3.1. Idle Mode AC Conducted Spurious Emissions

Ambient Temperature: 21°C

Relative Humidity: 43%

Tests were performed using the test methods detailed in ANSI C63.4 Section 7.

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

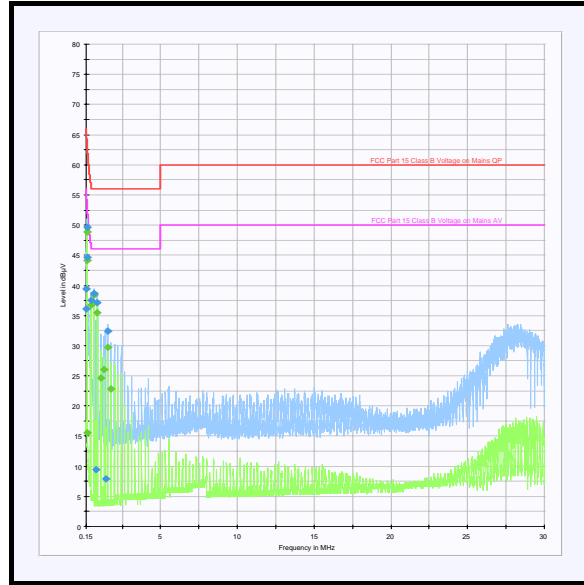
Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.154000	Neutral	39.5	65.8	26.3	Complied
0.182000	Neutral	36.1	64.4	28.3	Complied
0.222000	Live	49.7	62.7	13.0	Complied
0.226000	Live	44.6	62.6	18.0	Complied
0.442000	Live	37.6	57.0	19.4	Complied
0.666000	Neutral	38.7	56.0	17.3	Complied
0.790000	Neutral	9.5	56.0	46.5	Complied
0.886000	Live	37.1	56.0	18.9	Complied
1.406000	Live	8.0	56.0	48.0	Complied
1.554000	Neutral	32.4	56.0	23.6	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.202000	Live	15.6	53.5	37.9	Complied
0.222000	Live	48.8	52.7	3.9	Complied
0.226000	Live	44.2	52.6	8.4	Complied
0.442000	Live	36.8	47.0	10.2	Complied
0.666000	Neutral	38.4	46.0	7.6	Complied
0.886000	Live	35.5	46.0	10.5	Complied
1.106000	Live	24.6	46.0	21.4	Complied
1.330000	Live	26.0	46.0	20.0	Complied
1.554000	Neutral	29.7	46.0	16.3	Complied
1.774000	Neutral	22.8	46.0	23.2	Complied

Test of: Enfora Enabler IIG - GSM0128
To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Idle Mode AC Conducted Spurious Emissions (Continued)



Test of: Enfora Enabler IIG - GSM0128
 To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
 FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.3.2.Receiver Radiated Spurious Emissions

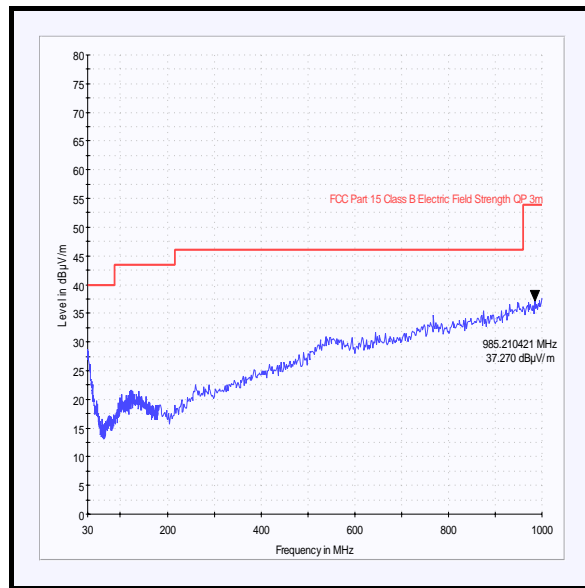
Ambient Temperature: 21°C Relative Humidity: 43%

Tests were performed using the test methods detailed in ANSI C63.4 Section 8.

Results:

Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
985.210	Horizontal	37.3	54.0	16.7	Complied



Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.3.3. Receiver Radiated Spurious Emissions (Continued)

Ambient Temperature: 21°C to 24°C

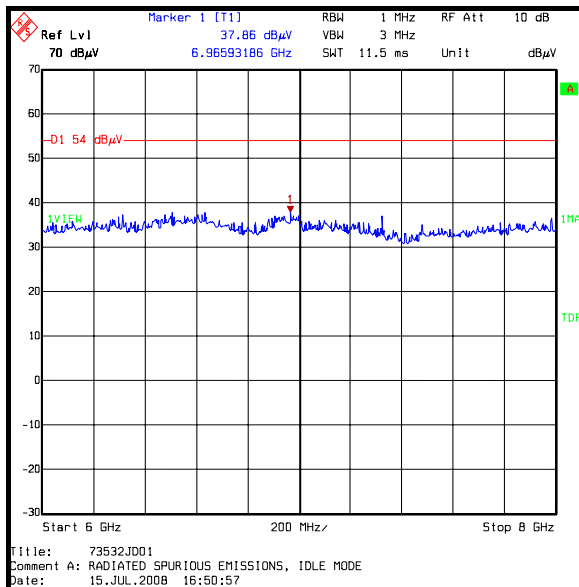
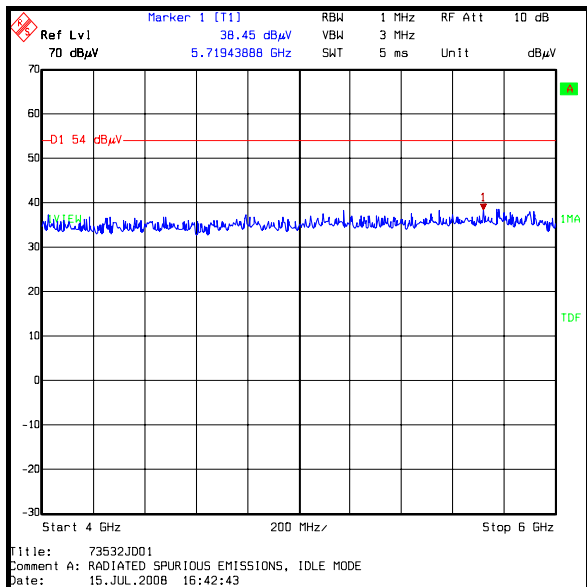
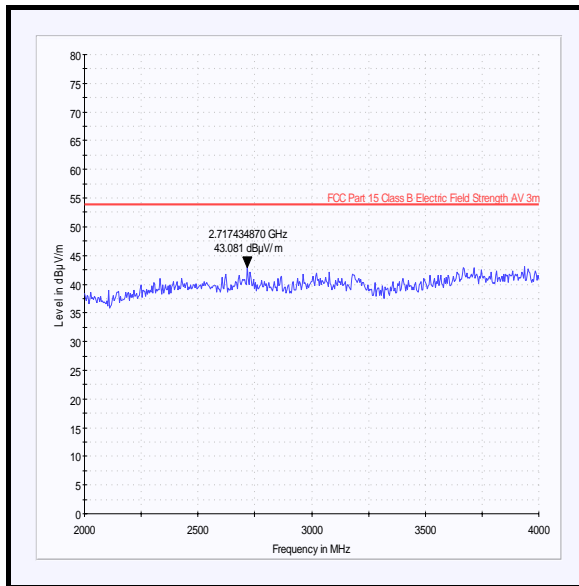
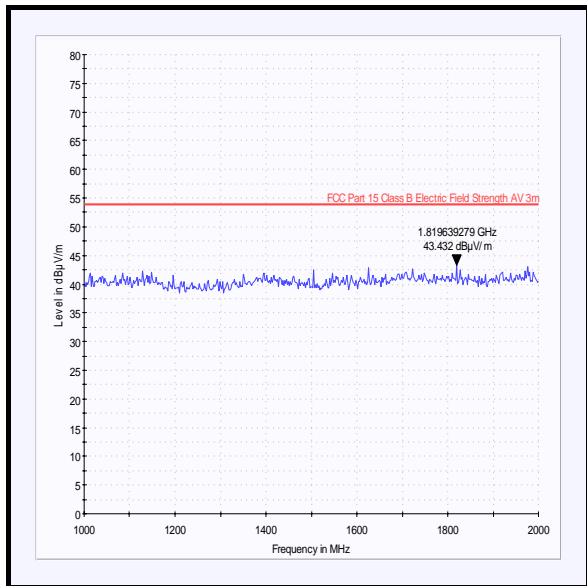
Relative Humidity: 35% to 43%

Results:**Electric Field Strength Measurements (Frequency Range: 1 to 13 GHz)****Highest Peak Level:**

Frequency (GHz)	Antenna Polarity	Detector Level (dB μ V)	Transducer Factor (dB)	Actual Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
1.819639	V	49.9	-6.5	43.4	54.0	10.6	Complied

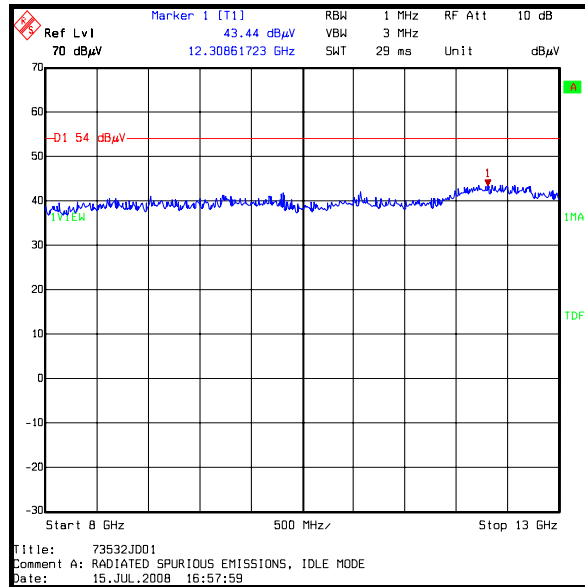
Test of: Enfora Enabler IIG - GSM0128
 To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
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Receiver Radiated Spurious Emissions (Continued)



Test of: Enfora Enabler IIG - GSM0128
To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
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Receiver Radiated Spurious Emissions (Continued)



Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

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7.3.4. Transmitter Effective Isotropic Radiated Power (EIRP)

Ambient Temperature: 18°C

Relative Humidity: 57%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	26.0	33.0	7.0	Complied
Middle	1879.8	Horizontal	26.0	33.0	7.0	Complied
Top	1909.8	Horizontal	25.4	33.0	7.6	Complied

Test of: Enfora Enabler IIG - GSM0128
To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.3.5. Transmitter Frequency Stability (Temperature Variation)

Ambient Temperature: 19°C

Relative Humidity: 65%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Bottom Channel (1850.2 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-30	25	1850.200025	1850.0	0.200025	Complied
-20	21	1850.200021	1850.0	0.200021	Complied
-10	28	1850.200028	1850.0	0.200028	Complied
0	22	1850.200022	1850.0	0.200022	Complied
10	19	1850.200019	1850.0	0.200019	Complied
20	24	1850.200024	1850.0	0.200024	Complied
30	31	1850.200031	1850.0	0.200031	Complied
40	26	1850.200026	1850.0	0.200026	Complied
50	36	1850.200036	1850.0	0.200036	Complied

Test of: Enfora Enabler IIG - GSM0128
 To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
 FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Transmitter Frequency Stability (Temperature Variation) (Continued)

Results:

Top Channel (1909.8 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-30	20	1909.800020	1910.0	0.199980	Complied
-20	28	1909.800028	1910.0	0.199972	Complied
-10	21	1909.800021	1910.0	0.199919	Complied
0	27	1909.800027	1910.0	0.199973	Complied
10	32	1909.800032	1910.0	0.199968	Complied
20	20	1909.800020	1910.0	0.199980	Complied
30	28	1909.800028	1910.0	0.199972	Complied
40	30	1909.800030	1910.0	0.199970	Complied
50	27	1909.800027	1910.0	0.199973	Complied

Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.3.6. Transmitter Frequency Stability (Voltage Variation)

Ambient Temperature: 19°C

Relative Humidity: 65%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:**Bottom Channel (1850.2 MHz)**

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.3	22	1850.200022	1850	0.200022	Complied
4.5	18	1850.200018	1850	0.200018	Complied

Top Channel (1909.8 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.3	12	1850.200012	1850	0.200012	Complied
4.5	21	1850.200021	1850	0.200021	Complied

Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

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7.3.7. Transmitter Occupied Bandwidth

Ambient Temperature: 19°C

Relative Humidity: 55%

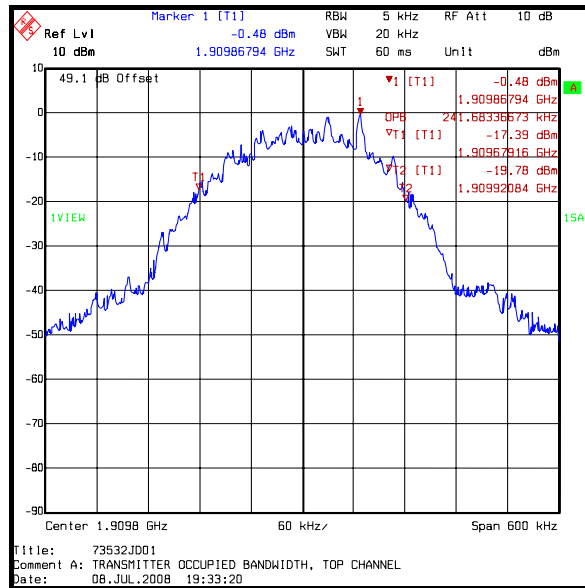
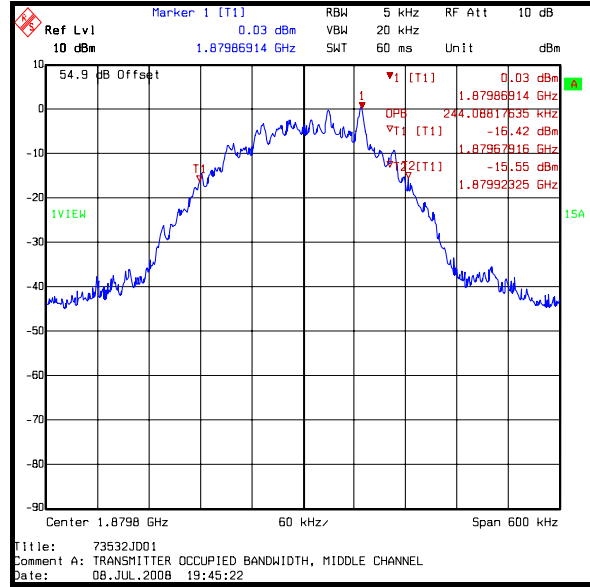
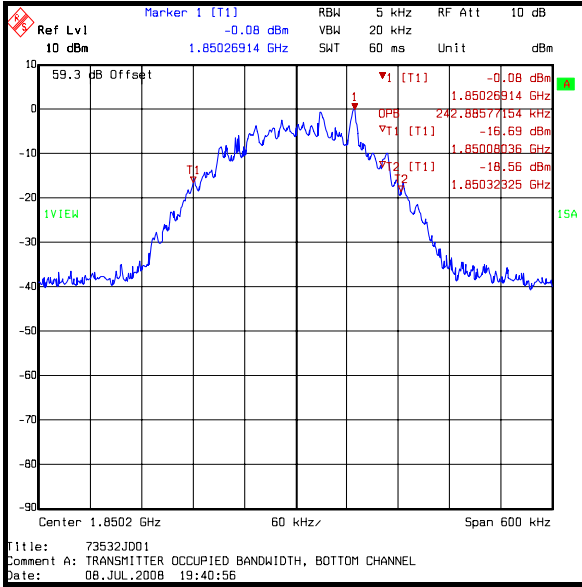
The 99% occupied bandwidth was measured using the channel bandwidth function of the R&S spectrum analyser referencing FCC CFR Part 2.

Results:

Channel	Frequency (MHz)	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (kHz)
Bottom	1850.2	3.0	10.0	242.886
Middle	1879.8	3.0	10.0	244.088
Top	1909.8	3.0	10.0	241.683

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 To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005
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Transmitter Occupied Bandwidth (Continued)



Test of: Enfora Enabler IIG - GSM0128

To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

7.3.8. Transmitter Out of Band Radiated Emissions

Ambient Temperature: 19°C

Relative Humidity: 55%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Parts 2 and 24.238.

Results:**Bottom Channel**

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3700.493	-29.9	-13.0	16.9	Complied

Middle Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3759.681	-28.9	-13.0	15.9	Complied

Top Channel

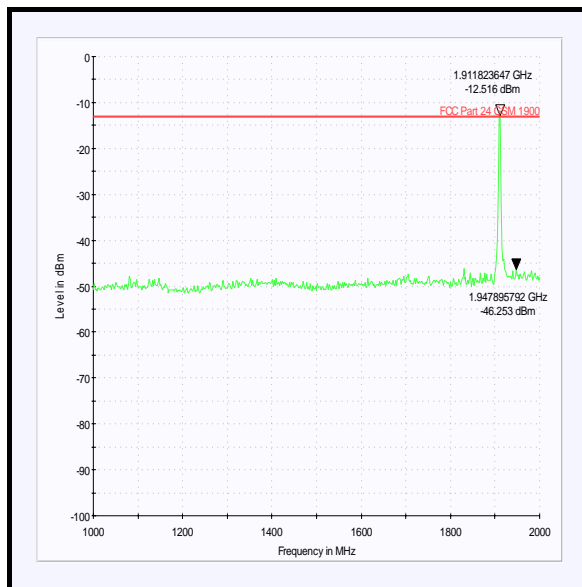
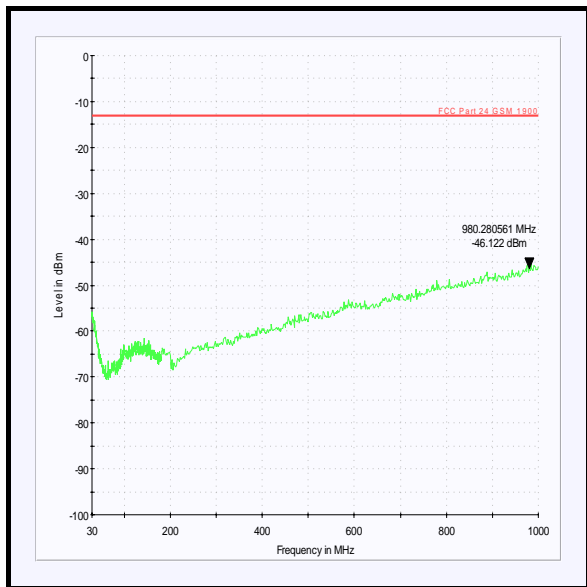
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3819.624	31.0	-13.0	18.0	Complied

Note(s):

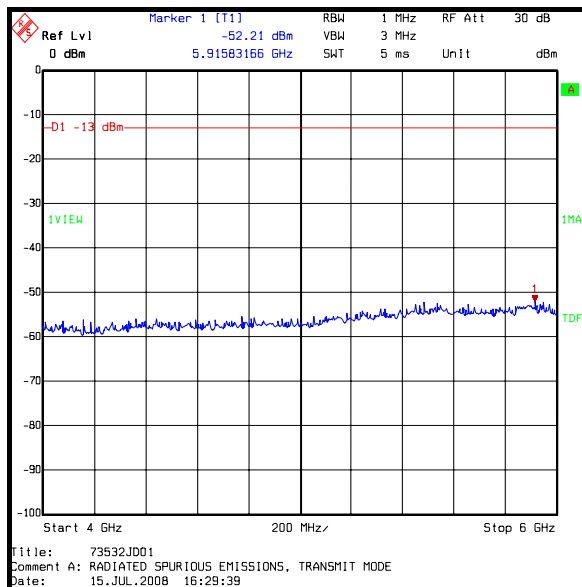
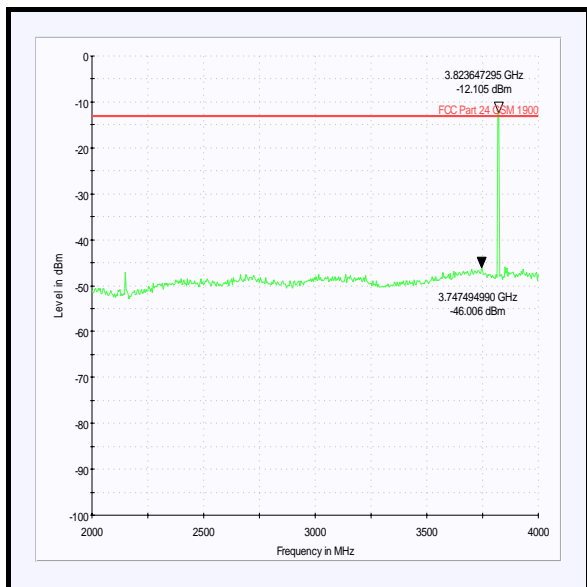
1. The carrier is shown on the above plot at 1911 MHz.

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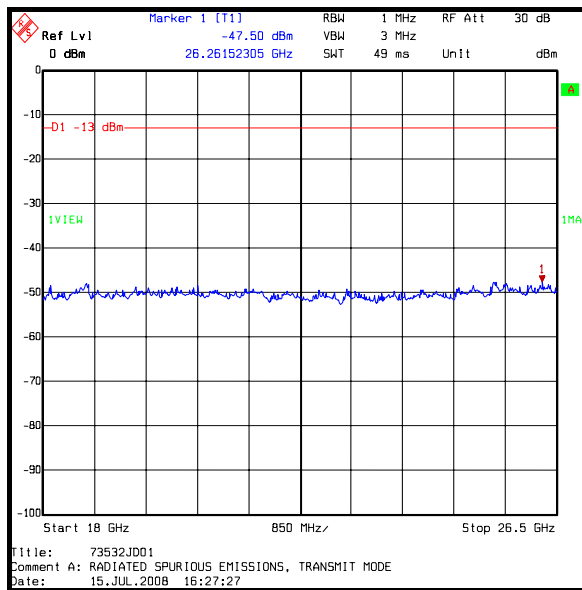
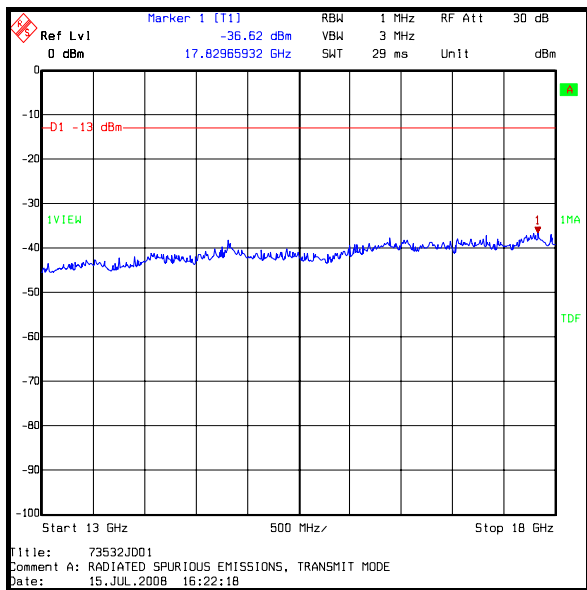
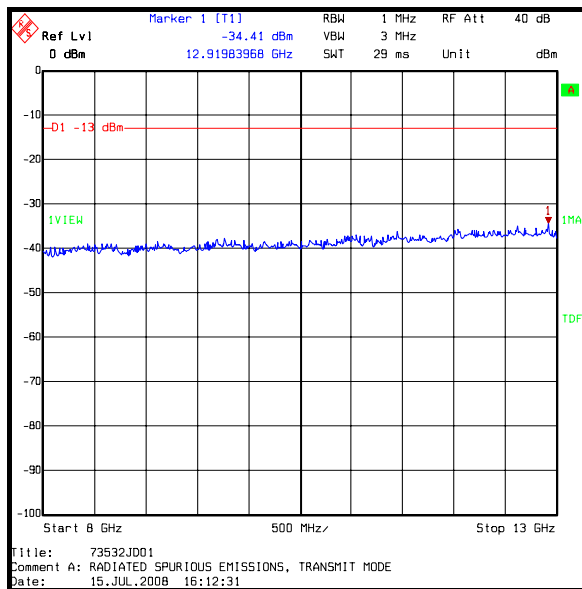
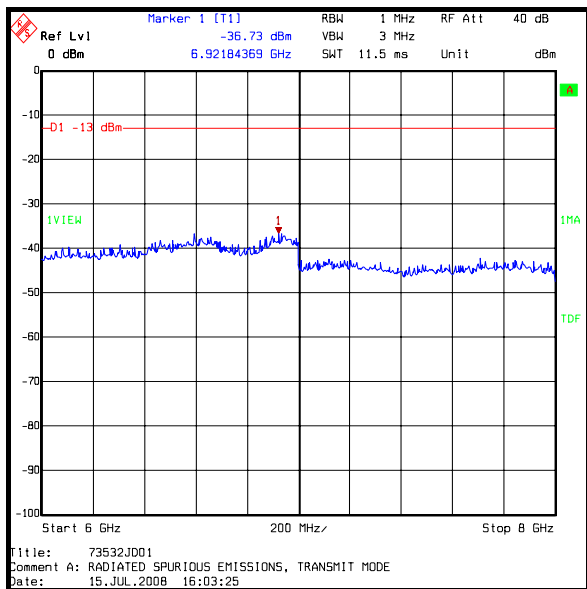
Transmitter Out of Band Radiated Emissions (Continued)



Refer to Note 1



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Test of: Enfora Enabler IIG - GSM0128

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Transmitter Out of Band Radiated Emissions (Continued)**Integrated Power Over 1 MHz Strip Band: 1847 to 1849 MHz**1st and 2nd 1 MHz blocks immediately below adjacent frequency block**Results:**

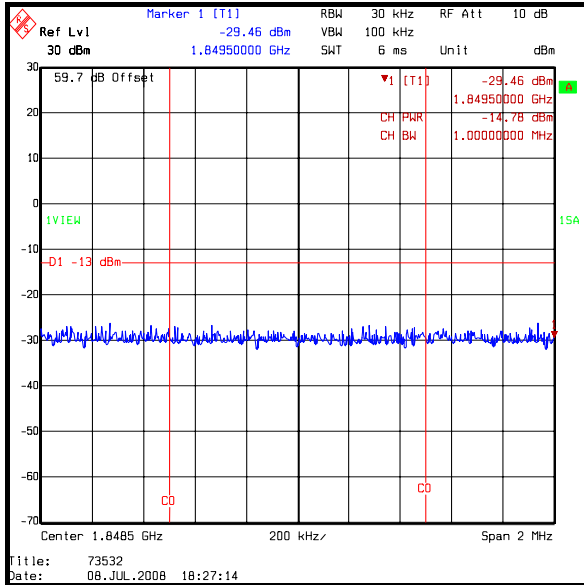
Band (MHz)	Peak Power (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Status
1847 to 1848	-14.7	-13.0	1.7	Complied
1848 to 1849	-14.8	-13.0	1.8	Complied

Integrated Power Over 1 MHz Strip Band: 1911 to 1913 MHz1st and 2nd 1 MHz blocks immediately above adjacent frequency block**Results:**

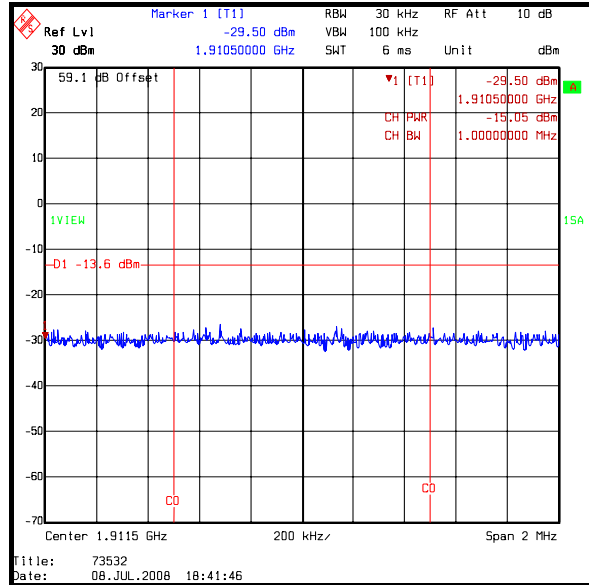
Band (MHz)	Peak Power (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Status
1911 to 1912	-15.0	-13.0	2.0	Complied
1912 to 1913	-15.4	-13.0	1.6	Complied

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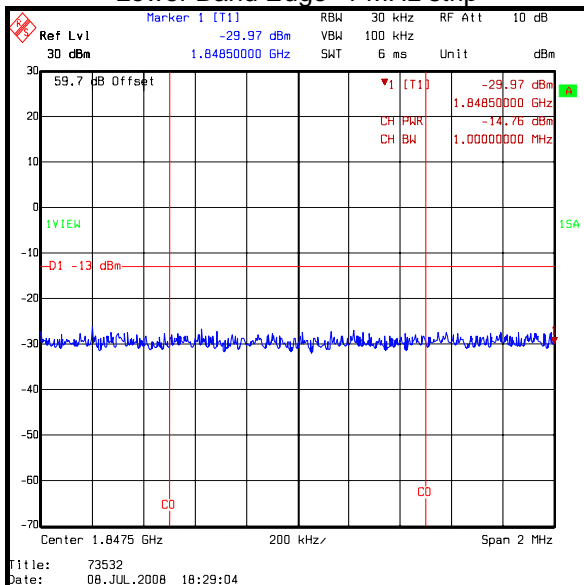
Transmitter Out of Band Radiated Emissions (Continued)



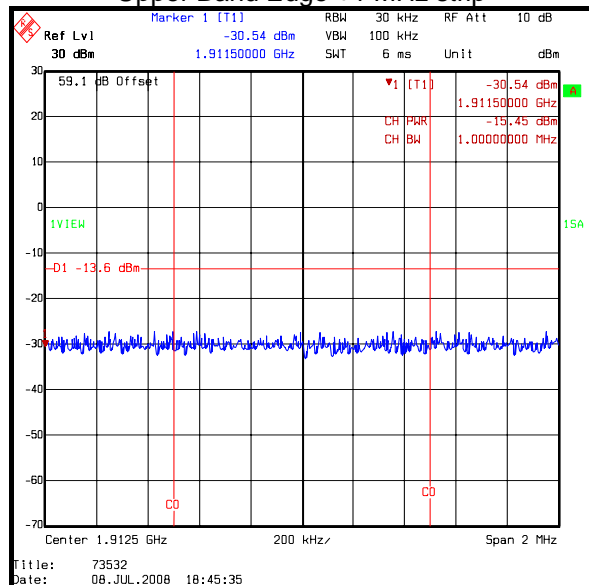
Lower Band Edge -1 MHz strip



Upper Band Edge +1 MHz strip



Lower Band Edge -2 MHz strip



Upper Band Edge +2 MHz strip

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7.3.9. Transmitter Radiated Emissions at Band Edges

Ambient Temperature: 18°C

Relative Humidity: 57%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Parts 2 and 24.238.

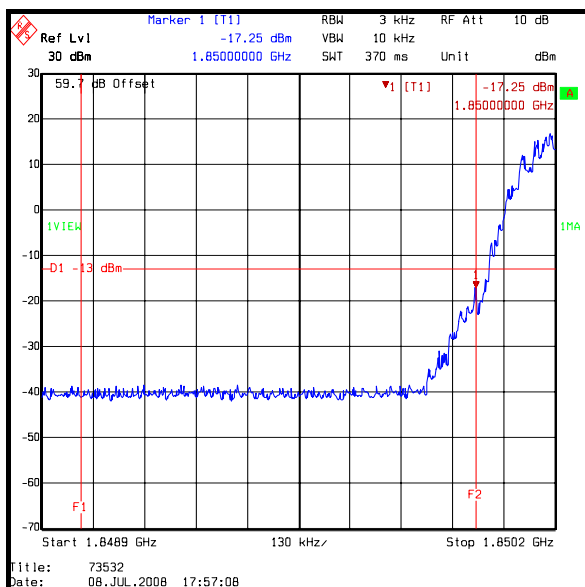
Results:

Bottom Band Edge

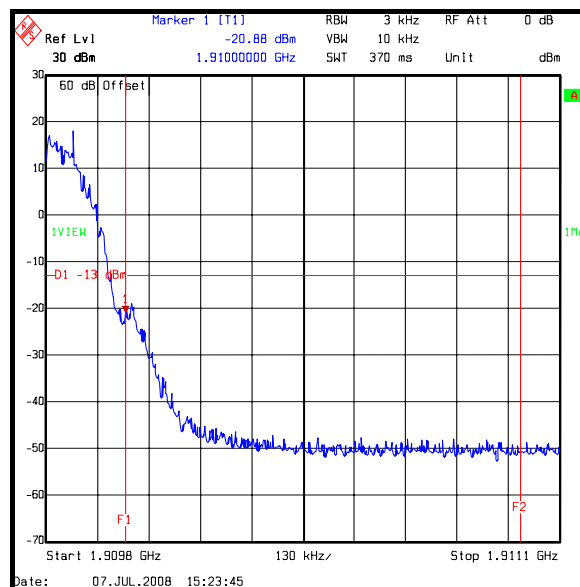
Frequency (MHz)	Spurious Emission (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-17.2	-13.0	4.2	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1910	-20.9	-13.0	7.9	Complied



Lower Band Edge



Upper Band Edge

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8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.72 dB
Effective Radiated Power (ERP)	Not applicable	95%	±2.94 dB
Effective Isotropic Radiated Power (EIRP)	Not applicable	95%	±2.54 dB
Frequency Stability	Not applicable	95%	±11.4 ppm
Occupied Bandwidth	824 to 849 MHz	95%	±11.4 ppm
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz to 26 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

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Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (months)
A028	Antenna	Eaton	91888-2	304	08 Jun 2006	36
A031	Antenna	Eaton	91889-2	557	08 Jun 2006	36
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1829	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100671	16 Jan 2008	12
A253	Antenna	Flann Microwave	12240-20	128	17 Nov 2006	36
A254	Antenna	Flann Microwave	14240-20	139	17 Nov 2006	36
A255	Antenna	Flann Microwave	16240-20	519	17 Nov 2006	36
A256	Antenna	Flann Microwave	18240-20	400	17 Nov 2006	36
A436	Antenna	Flann	20240-20	330	24 Apr 2006	36
A490	Antenna	Chase	CBL6111A	1590	07 Feb 2008	12
A649	Single Phase LISN	Rohde & Schwarz	ESH3-Z5	825562/008	07 Mar 2008	12
C1155	Cable	Huber & Suhner	Sucoflex 104PA	1522/4PA	Calibrated before use	-
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibration not required	-
M1093	Communications Test Set	Will tek	4202S	0513018	Calibration not required	-
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	29 Nov 2007	12
M1249	Thermometer	Fluke	52II	88800049	09 Jul 2008	12
M1269	Multimeter	Fluke	179	90250210	09 Apr 2008	12
M1379	Test Receiver	Rohde and Schwarz	ESIB7	100330	02 Aug 2007	12
S0539	Power Supply Unit	Kikusui	PCR 1000L	13010170	Calibration not required	-
S202	Site 2	RFI	2	S202-15011990	28 Jan 2008	12
S207	Site 7	RFI	7	None	Calibration not required	-
S209	Anechoic Chamber	RFI	9	None	Verified before use	-

NB In accordance with UKAS requirements, all the measurement equipment is on a calibration schedule.

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To: FCC Part 22: 2007 (Subpart H) and RSS 132 Issue 2 September 2005

FCC Part 24: 2007 (Subpart E) and RSS-133 Issue 4 February 2008

Appendix 2. Test Configuration Drawings

This appendix contains the following drawings:

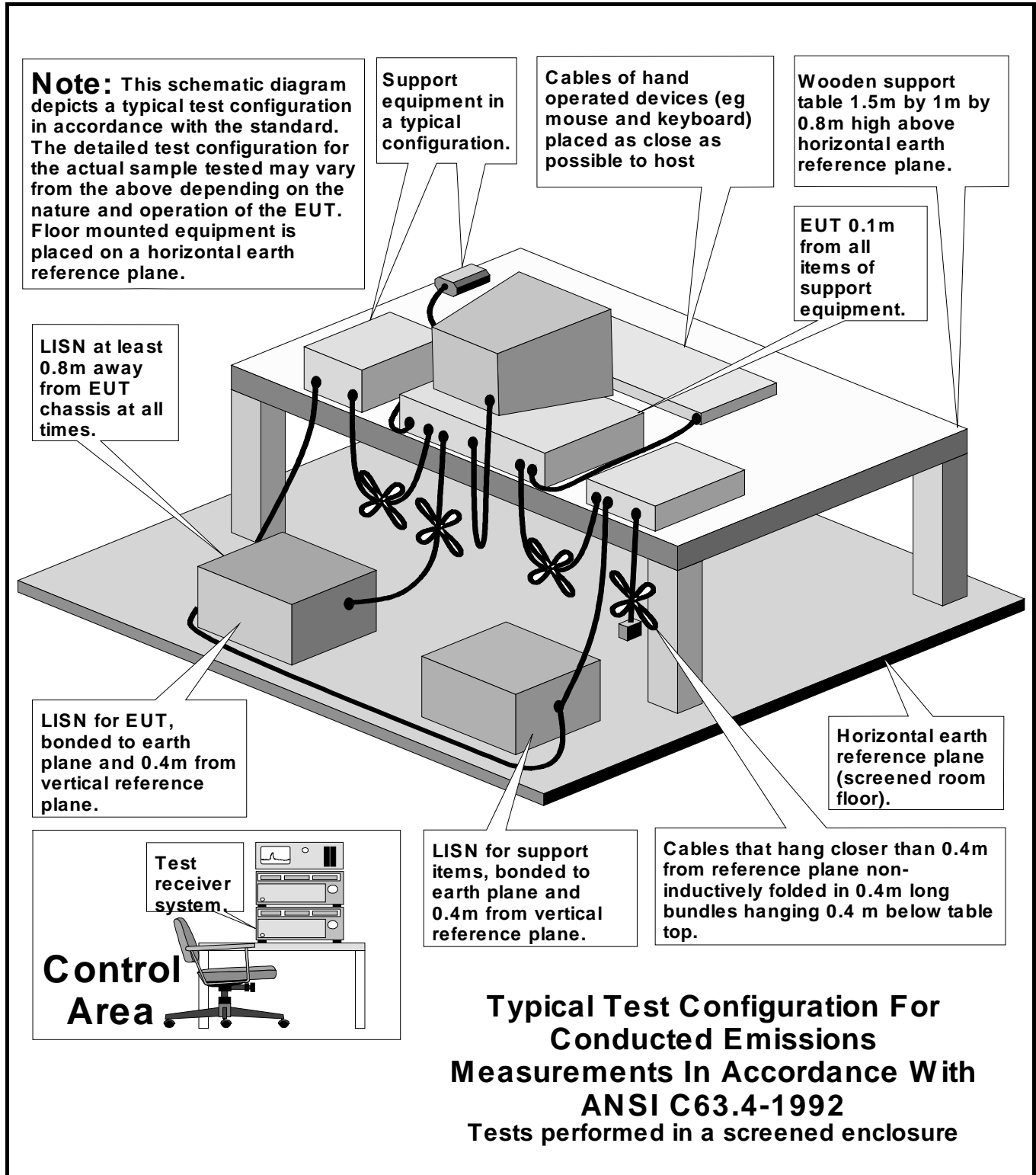
Drawing Reference Number	Title
DRG\73532JD01\EMICON	Test configuration for measurement of conducted emissions.
DRG\73532JD01\EMIRAD	Test configuration for measurement of radiated emissions.

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