

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Enfora L.P
GSM3408 Cradle

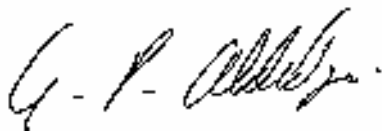
To: FCC Part 15.107 & 15.109

Test Report Serial No:
RFI/EMCE1/RP72183JD10A

This Test Report Is Issued Under The Authority
Of Andrew Brown, Operations Manager:



Tested By: Giles Aldridge



Checked By: Claire Ashman



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Test Dates: 28 September 2006 to 02 October 2006

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RFI GLOBAL SERVICES LTD

TEST REPORT

S.No. RFI/EMCE1/RP72183JD10A

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1. Client Information

Company Name:	Enfora L.P
Address:	661 E 18th Street Plano TX 75074 USA
Contact Name:	Mr R Holden

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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 client:

2.1. Identification of Equipment Under Test (EUT)

Description:	Cradle
Brand Name:	Enfora
Model Name or Number:	GSM 3408
Serial Number:	3408390600001
IMtEI Number:	01106900050015
FCC ID:	Not Stated
Country of Manufacture:	China
Date of Receipt:	28 September 2006

Description:	Power Supply
Brand Name:	Globtek
Model Name or Number:	GT-41052-1305
Unique Type Identification:	WR9QA2600EJ1-N-KIT
Serial Number:	None Stated
FCC ID:	Not Stated
Country of Manufacture:	China
Date of Receipt:	28 September 2006

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2.2. Description of EUT

The equipment under test is a GSM Mobile Station cradle which enables the user to make and receive calls via a PDA.

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

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2.4. Additional Information Related to Testing

Equipment Category:	GSM 850/GSM 1900
Type of Unit:	Base Station (Fixed Use) and Portable (Standalone battery powered device)
Weight:	Not stated
Dimensions:	Not stated
Power Supply Requirement:	
DC Supply (Volts)	5.1 V
AC Supply (Volts)	Nominal 115 V 60 Hz AC Mains supply
Internal Battery Supply (Volts)	3.7 V
Intended Operating Environment:	Within GSM Coverage
Cycle Time:	Less than 2.5 sec

2.5. Port Identification

Port	Description	Type	Applicable
1	Enclosure	-	Y
2	DC Cable	2.0m Multicore Screened	Y

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2.6. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	PDA
Brand Name:	PHT Logpad
Model Name or Number:	Logpad
Serial Number:	PN20UCW5V40Y
Cable Length and Type:	Direct Connection to cradle
Connected to Port:	Cradle Connector

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3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	FCC Part 15: 2001 Class B
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices: Digital Devices.
Comments:	A description of the test facility used for this test is on file with, and has been accepted by, the Federal Communications Commission as required by Section 2.948 of Federal Rules.
Purpose of Test:	To determine whether the equipment complies with the requirements of the specification to achieve the relevant approval.

3.2. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI C63.2 (1996)

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 (2004)

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

ANSI C63.7 (2005)

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

CISPR 16-1-1 (2004)

Title: Specification for radio disturbance and immunity measuring apparatus and methods. Part 1. Radio disturbance and immunity measuring apparatus – Measuring Apparatus.

CISPR 16-1-4 (2005)

Title: Specification for radio disturbance and immunity measuring apparatus and methods. Part 1. Radio disturbance and immunity measuring apparatus – Radiated Disturbances.

3.3. 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.

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 mode(s):

GSM 850 and GSM 1900 Idle mode.

The reason for choosing this configuration was that it has been defined by the customer as being typical of normal use and likely to be a worst case with regard to EMC.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

The EUT was powered from an AC mains supply, connected to the GSM test network, but in idle mode.

Please refer to Appendix 2 for a schematic drawing of the test configuration, drawing number DRG/72183JD10/001

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6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliance Status
Conducted Emissions	FCC Part 15 Class B	AC Mains Input	Complied
Radiated Emissions Electric Field Strength, 30 MHz to 10000 MHz	FCC Part 15 Class B	Enclosure	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.

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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

7.2.1. AC Mains Conducted Emissions - Quasi Peak Detector Measurements on Live and Neutral Lines – GSM 850 Idle Mode

7.2.1.1. Plots of the initial scans can be found in Appendix 3.

7.2.1.2. The following table lists frequencies at which emissions were measured using a quasi peak detector:

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15 Class B

Environmental Conditions:

Temperature Variation (°C):	22
Relative Humidity Variation (%):	54
Atmospheric Pressure Variation (mb):	996

Results:

Frequency (MHz)	Line	Quasi Peak Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Note(s)	Result
0.166	Neutral	35.1	65.2	30.1	-	Complied
0.174	Live	29.8	64.8	35.0	-	Complied
0.194	Neutral	31.2	63.9	32.7	-	Complied
0.222	Live	27.9	62.7	34.8	-	Complied
0.470	Live	20.5	56.5	36.0	-	Complied
2.202	Live	16.1	56.0	39.9	-	Complied

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7.2.2. AC Mains Conducted Emissions - Average Detector Measurements on Live and Neutral Lines GSM 850 Idle Mode

7.2.2.1. Following the initial scans and quasi peak measurements, further measurements were made at the relevant frequencies using an average detector. The measured levels were as follows:

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15 Class B

Environmental Conditions:

Temperature Variation (°C):	22
Relative Humidity Variation (%):	54
Atmospheric Pressure Variation (mb):	996

Results:

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Note(s)	Result
0.166	Neutral	24.9	55.2	30.6	-	Complied
0.174	Live	20.1	54.8	34.7	-	Complied
0.194	Neutral	22.4	53.9	31.5	-	Complied
0.222	Live	18.1	52.7	34.6	-	Complied
0.470	Live	11.1	46.5	35.4	-	Complied
2.202	Live	6.2	46.0	39.8	-	Complied

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7.2.3. AC Mains Conducted Emissions - Quasi Peak Detector Measurements on Live and Neutral Lines - GSM 1900 Idle Mode

7.2.3.1. Plots of the initial scans can be found in Appendix 3.

7.2.3.2. The following table lists frequencies at which emissions were measured using a quasi peak detector:

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15 Class B

Environmental Conditions:

Temperature Variation (°C):	22
Relative Humidity Variation (%):	54
Atmospheric Pressure Variation (mb):	996

Results:

Frequency (MHz)	Line	Quasi Peak Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Note(s)	Result
0.158	Neutral	31.0	65.6	34.6	-	Complied
0.190	Neutral	27.0	64.0	37.0	-	Complied
0.234	Neutral	21.7	62.3	40.6	-	Complied
0.274	Neutral	19.4	61.0	41.6	-	Complied
0.370	Live	16.6	58.5	41.9	-	Complied
8.018	Neutral	12.4	60.0	47.6	-	Complied

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7.2.4. AC Mains Conducted Emissions - Average Detector Measurements on Live and Neutral Lines GSM 1900 Idle Mode

7.2.4.1. Following the initial scans and quasi peak measurements, further measurements were made at the relevant frequencies using an average detector. The measured levels were as follows:

Test Summary:

Port:	AC Mains Input
Basic Standard:	FCC Part 15 Class B

Environmental Conditions:

Temperature Variation (°C):	22
Relative Humidity Variation (%):	54
Atmospheric Pressure Variation (mb):	996

Results:

Frequency (MHz)	Line	Average Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Note(s)	Result
0.158	Neutral	21.3	55.6	32.3	-	Complied
0.190	Neutral	17.1	54.0	36.9	-	Complied
0.234	Neutral	10.9	52.3	41.4	-	Complied
0.274	Neutral	10.1	51.0	40.9	-	Complied
0.370	Live	7.1	48.5	41.4	-	Complied
8.018	Neutral	4.3	50.0	45.7	-	Complied

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7.2.5. Radiated Emissions - Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

GSM 850 Idle

7.2.5.1. Plots of the initial scans can be found in Appendix 3.

7.2.5.2. The following table lists frequencies at which emissions were measured using a quasi peak detector, at a test measurement distance of 3 metres:

Test Summary:

Port:	Enclosure
Basic Standard:	FCC Part 15 Class B

Environmental Conditions:

Temperature Variation (°C):	20
Relative Humidity Variation (%):	70
Atmospheric Pressure Variation (mb):	996

Results:

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Note(s)	Result
48.200	Vertical	22.3	40.0	17.7	-	Complied
93.770	Vertical	31.1	40.5	12.4	-	Complied
131.807	Vertical	25.1	43.5	18.4	-	Complied
156.541	Vertical	14.4	43.5	29.1	-	Complied
497.898	Vertical	31.9	46.0	14.1	-	Complied
569.891	Horizontal	26.6	46.0	19.4	-	Complied
893.800	Vertical	30.7	46.0	15.3	-	Complied

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7.2.6. Radiated Emissions - Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz) **GSM 1900 Idle**

7.2.6.1. Plots of the initial scans can be found in Appendix 3.

7.2.6.2. The following table lists frequencies at which emissions were measured using a quasi peak detector, at a test measurement distance of 3 metres:

Test Summary:

Port:	Enclosure
Basic Standard:	FCC Part 15 Class B

Environmental Conditions:

Temperature Variation (°C):	20
Relative Humidity Variation (%):	70
Atmospheric Pressure Variation (mb):	996

Results:

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Note(s)	Result
49.202	Vertical	19.7	40.0	20.3	-	Complied
111.819	Vertical	15.7	43.5	22.8	-	Complied
136.581	Vertical	13.2	43.5	30.3	-	Complied
144.362	Vertical	12.8	43.5	30.7	-	Complied
476.028	Vertical	21.1	46.0	24.9	-	Complied
552.979	Vertical	29.8	46.0	16.2	-	Complied

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7.2.7. Electric Field Strength Measurements – GSM 850 Idle Mode

7.2.7.1. The client has stated that the highest clock frequency for the EUT was 1900 MHz. Therefore tests were performed up to 10 GHz.

7.2.7.2. Plots of the initial scans can be found in Appendix 4.

7.2.7.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Peak Level:

Frequency (GHz)	Antenna Polarity	Peak Detector level (dB μ V)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dB μ V/m)	Peak Limit (dB μ V/m)	Peak Margin (dB)	Result
1.008	Vertical	16.94	22.1	1.5	40.54	54.0	13.46	Complied
1.032	Vertical	17.21	22.1	1.5	40.81	54.0	13.19	Complied
1.095	Vertical	16.68	20.7	1.5	37.88	54.0	16.12	Complied
1.117	Vertical	14.92	20.7	1.5	37.12	54.0	16.88	Complied
1.392	Vertical	17.10	21.1	1.7	39.90	54.0	14.10	Complied
1.787	Vertical	17.87	21.3	1.8	40.97	54.0	13.03	Complied
1.008	Horizontal	17.72	22.1	1.5	41.32	54.0	12.68	Complied
1.032	Horizontal	18.16	22.1	1.5	41.76	54.0	12.24	Complied
1.095	Horizontal	16.56	20.7	1.5	38.76	54.0	15.24	Complied
1.117	Horizontal	15.92	20.7	1.5	38.12	54.0	15.88	Complied
1.392	Horizontal	16.52	21.1	1.7	39.32	54.0	14.68	Complied
1.787	Horizontal	18.09	21.3	1.8	41.19	54.0	12.81	Complied

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Electric Field Strength Measurements – GSM 850 Idle Mode (Continued)**Highest Average Level:**

Frequency (GHz)	Antenna Polarity	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
1.008	Vertical	5.68	22.1	1.5	29.28	54.0	24.72	Complied
1.032	Vertical	6.11	22.1	1.5	29.71	54.0	24.29	Complied
1.095	Vertical	5.52	20.7	1.5	27.72	54.0	26.28	Complied
1.117	Vertical	5.31	20.7	1.5	27.51	54.0	26.49	Complied
1.392	Vertical	5.98	21.1	1.7	28.78	54.0	25.22	Complied
1.787	Vertical	7.06	21.3	1.8	30.16	54.0	23.84	Complied
1.008	Horizontal	5.98	22.1	1.5	29.58	54.0	23.84	Complied
1.032	Horizontal	6.31	22.1	1.5	29.91	54.0	24.09	Complied
1.095	Horizontal	6.49	20.7	1.5	28.69	54.0	25.31	Complied
1.117	Horizontal	6.29	20.7	1.5	28.49	54.0	25.51	Complied
1.392	Horizontal	5.68	21.1	1.7	28.48	54.0	25.52	Complied
1.787	Horizontal	6.80	21.3	1.8	29.90	54.0	24.10	Complied

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7.2.8. Electric Field Strength Measurements – GSM 1900 Idle Mode

7.2.8.1. The client has stated that the highest clock frequency for the EUT was 1900 MHz. Therefore tests were performed up to 10 GHz.

7.2.8.2. Plots of the initial scans can be found in Appendix 4.

7.2.8.3. The following tables list frequencies at which emissions were measured using Peak and Average detector functions:

Highest Peak Level:

Frequency (GHz)	Antenna Polarity	Peak Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Peak Level (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Result
1.009	Vertical	15.42	22.1	1.5	39.02	54.0	14.98	Complied
1.111	Vertical	16.12	20.7	1.5	38.32	54.0	15.68	Complied
1.160	Vertical	14.82	20.6	1.5	36.92	54.0	17.08	Complied
1.196	Vertical	20.46	20.6	1.5	42.56	54.0	11.44	Complied
1.807	Vertical	22.58	21.3	1.8	45.68	54.0	8.32	Complied
1.948	Vertical	21.04	20.8	1.9	43.74	54.0	10.26	Complied
2.391	Vertical	18.44	21.7	2.1	42.24	54.0	11.76	Complied
1.009	Horizontal	17.72	22.1	1.5	41.32	54.0	12.68	Complied
1.111	Horizontal	18.42	20.7	1.5	40.62	54.0	13.38	Complied
1.160	Horizontal	17.50	20.6	1.5	39.60	54.0	14.40	Complied
1.196	Horizontal	19.17	20.6	1.5	41.27	54.0	12.73	Complied
1.807	Horizontal	22.06	21.3	1.8	45.16	54.0	8.84	Complied
1.948	Horizontal	21.59	20.8	1.9	44.29	54.0	9.71	Complied
2.391	Horizontal	17.87	21.7	2.1	41.69	54.0	12.33	Complied

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Electric Field Strength Measurements – GSM 1900 Idle Mode (Continued)**Highest Average Level:**

Frequency (GHz)	Antenna Polarity	Average Detector level (dBμV)	Antenna factor (dB)	Cable loss (dB)	Actual Average Level (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Result
1.009	Vertical	4.73	22.1	1.5	28.33	54.0	15.67	Complied
1.111	Vertical	5.14	20.7	1.5	27.34	54.0	16.66	Complied
1.160	Vertical	4.68	20.6	1.5	26.78	54.0	27.22	Complied
1.196	Vertical	10.24	20.6	1.5	32.34	54.0	11.66	Complied
1.807	Vertical	17.42	21.3	1.8	40.52	54.0	13.48	Complied
1.948	Vertical	16.26	20.8	1.9	38.96	54.0	15.14	Complied
2.391	Vertical	7.32	21.7	2.1	31.12	54.0	12.78	Complied
1.009	Horizontal	5.68	22.1	1.5	29.28	54.0	24.72	Complied
1.111	Horizontal	6.12	20.7	1.5	28.32	54.0	25.68	Complied
1.160	Horizontal	5.98	20.6	1.5	28.08	54.0	25.92	Complied
1.196	Horizontal	7.80	20.6	1.5	29.90	54.0	14.10	Complied
1.807	Horizontal	14.82	21.3	1.8	37.92	54.0	16.08	Complied
1.948	Horizontal	16.43	20.8	1.9	39.13	54.0	14.87	Complied
2.391	Horizontal	6.54	21.7	2.1	30.34	54.0	23.66	Complied

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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
Radiated Emissions	30 to 1000 MHz	95%	± 4.54 dB
Radiated Emissions	1 to 2 GHz	95%	± 4.76 dB
Radiated Emissions	2 to 4 GHz	95%	± 4.76 dB
Radiated Emissions	4 to 6 GHz	95%	± 4.74 dB
Radiated Emissions	6 to 8 GHz	95%	± 4.76 dB
Radiated Emissions	8 to 12 GHz	95%	± 4.79 dB
Conducted Emissions AC (and DC) Lines	150 kHz to 30 MHz	95%	± 3.66 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.

Where it has been necessary to perform measurements using the substitution method, it has not been possible to calculate an uncertainty for this measurement. Due to the complex effects on the emissions levels measured within a screened room with either a signal source or the equipment under test, the calculation of a general measurement uncertainty for this process would be unrepresentative for all possible measured results.

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Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval
A004	LISN	Rohde & Schwarz	ESH3-Z5	890 604/027	05 Apr 2006	12
A028	Horn Antenna	Eaton	91888-2	304	08 Jun 2006	36
A1037	Bilog Antenna	Chase EMC Ltd	CBL6112B	2413	26 Jan 2006	12
A1227	Pre Amplifier	Agilent	8449B	3008A01566	30 Aug 2006	12
A1360	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	A1360-20112003	11 May 2006	12
A1362	Horn Antenna	Stoddart Aircraft Radio Co., Inc.	91889-1	N/A	08 Jun 2006	12
A253	Horn Antenna	Flann Microwave	12240-20	128	07 July 2004	36
A259	Bilog Antenna	Chase	CBL6111	1513	03 Mar 2006	12
A276	OATS Positioning Controller	Rohde & Schwarz	HCC		Not Applicable	12
A427	Horn Antenna	Flann	14240-20	150	06 Oct 2003	36
A429	Horn Antenna	Flann	16240-20	561	06 Oct 2003	36
C1071	3m Cable	Rosenberger	FA21A1030M5050	Not Stated	01 April 2006	12
C1116	Cable	UtiFlex	UFA 210A-1-0360-50x50	1409	01 April 2006	12
C151	Cable	Rosenberger	UFA210A-1-1181-70x70	None	01 April 2006	12
C160	Cables	Rosenberger	UFA210A-1-1181-70x70	None	01 April 2006	12

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Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval
C348	Cable	Rosenberger	UFA210A-1-1181-70x70	2993	01 April 2006	12
C363	BNC Cable	Rosenberger	RG142	None	01 April 2006	12
C375	Cable	Rosenberger	RG400	None	01 April 2006	12
C461	Cable	Rosenberger	UFA210A-1-1182-704704	98H0305	01 April 2006	12
M023	ESVP Receiver	Rohde & Schwarz	ESVP	872 991/027	10 Apr 2006	12
M024	Spectrum Monitor	Rohde & Schwarz	EZM	873 952/006	Not applicable	12
M1178	Thermo-Hygrometer	RS	212-124	N/A	11 Feb 2006	12
M1263	ESIB7	Rohde & Schwarz	ESIB7	100265	12 Jan 2006	12
M1273	ESIB 26 EMI Test Receiver	Rhode & Schwarz	ESIB 26	100275	13 Feb 2006	12
M1293	STAR ESC	Micropross	907-1037A	ESC.03.14.02	07 Jul 2005	12

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

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Appendix 2. Measurement Methods

A2.1. AC Mains Conducted Emissions

A2.1.1. AC mains conducted emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

A2.1.2. The test was performed in a shielded enclosure with the equipment arranged as detailed in the standard on a wooden bench using the floor of the screened enclosure as the ground reference plane and with the EUT powered via a 60 Hz AC mains supply.

A2.1.3. Initial measurements in the form of swept scans covering the entire measurement band were performed in order to identify frequencies on which the EUT was generating interference. In order to minimise the time taken for these swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidths (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

A2.1.4. Following the initial scans, a graph was produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested (at individual frequencies) using the appropriate detector function.

A2.1.5. The test equipment settings for conducted emissions measurements were as follows:

Receiver Function	Initial Scan	Final Measurements
Detector Type:	Peak	Quasi-Peak (CISPR)*
Mode:	Max Hold	Not applicable
Bandwidth:	10 kHz	9 kHz
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

* In some instances an Average detector function may also have been used.

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A2.2. Radiated Emissions

A2.2.1. Radiated emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

A2.2.2. Initial measurements covering the entire measurement band in the form of swept scans in a shielded enclosure were performed in order to identify frequencies on which the EUT was generating interference. This determined the frequencies on which the EUT should be re-measured in full on the open area test site. In order to minimise the time taken for the swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidth (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and for the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

A2.2.3. The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m. Following the initial scans, graphs were produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested on the open area test site, at the appropriate distance, using a measuring receivers with a Quasi-Peak detector (below 1000 MHz), where applicable, for measurements above 1000 MHz average and peak detectors were used.

A2.2.4. For the main (final) measurements the EUT was arranged on a non-conducting table on an open area test site, as detailed in the specification.

A2.2.5. All measurements on the open area test site were performed using broadband antennas.

A2.2.6. On the open area test site, at each frequency where a signal was found, the levels were maximised by initially rotating the turntable through 360° and then varying the antenna height between 1 m and 4 m. At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT.

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Radiated Emissions (Continued)

A2.2.7. The test equipment settings for radiated emissions measurements were as follows:

Receiver Function	Initial Scan	Final Measurements Below 1GHz	Final Measurements Above 1 GHz
Detector Type:	Peak	Quasi-Peak (CISPR)	Peak/Average
Mode:	Max Hold	Not applicable	Not applicable
Bandwidth:	100 kHz	120 kHz	1 MHz
Amplitude Range:	60 dB	20 dB	20 dB (typical)
Measurement Time:	Not applicable	> 1 s	> 1 s
Observation Time:	Not applicable	> 15 s	> 15 s
Step Size:	Continuous sweep	Not applicable	Not applicable
Sweep Time:	Coupled	Not applicable	Not applicable

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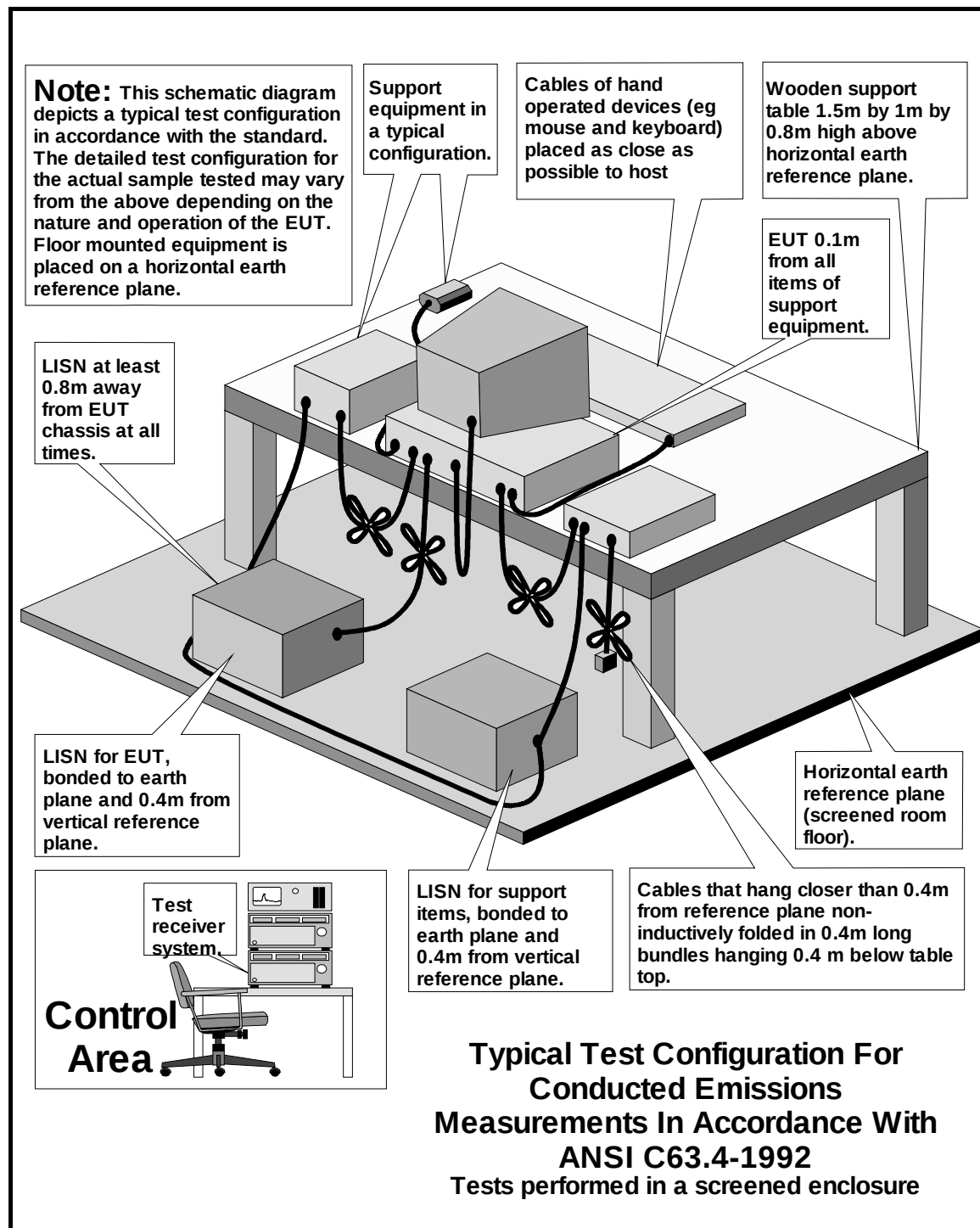
Appendix 3. Test Configuration Drawings

This Appendix contains the following drawings:

Drawing Reference Number	Title
DRG/72183JD10/EMICON	Test configuration for measurement of conducted emissions.
DRG/72183JD10/EMIRAD	Test configuration for measurement of radiated emissions.
DRG/72183JD10/001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test.

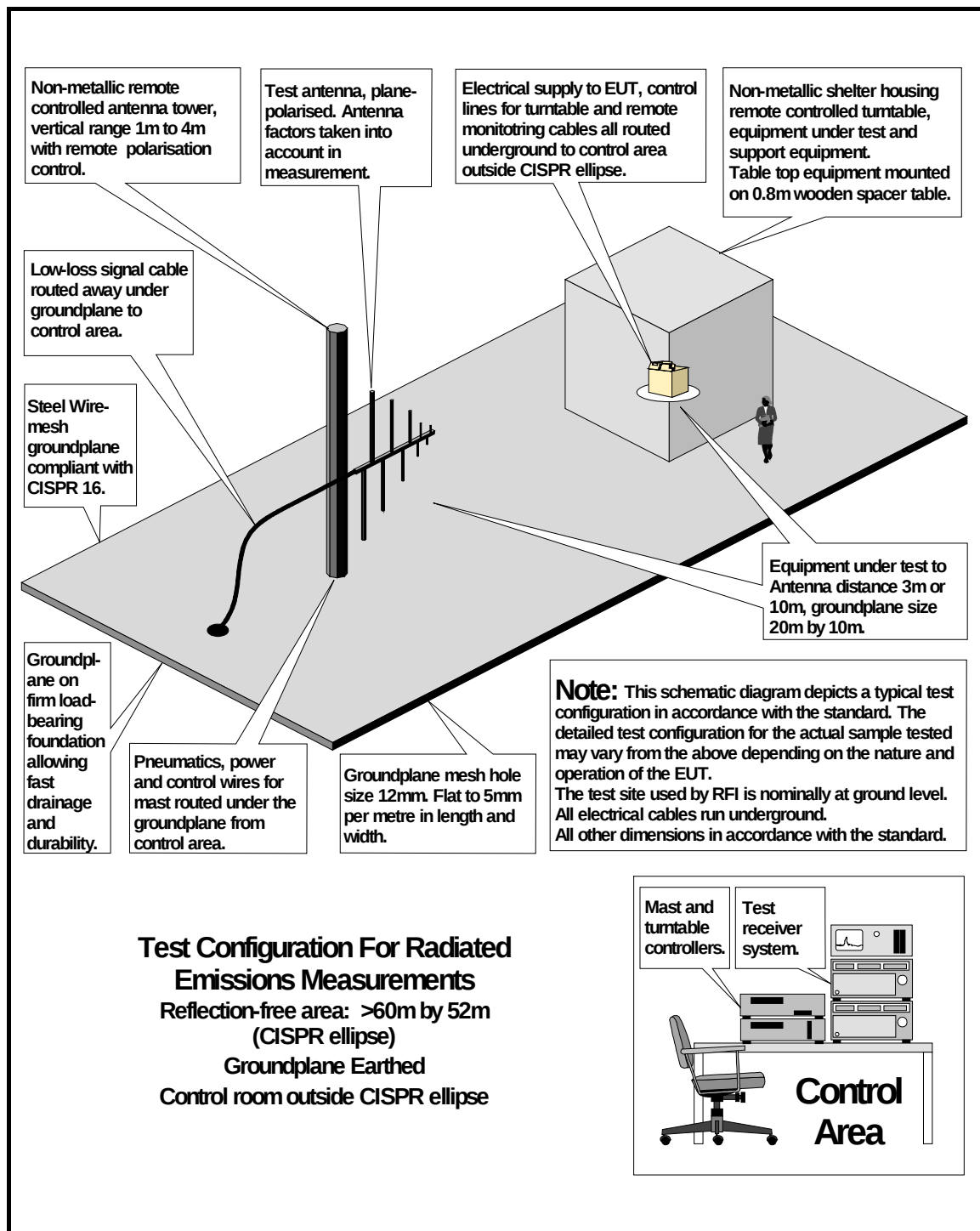
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DRG/72183JD10/EMICON



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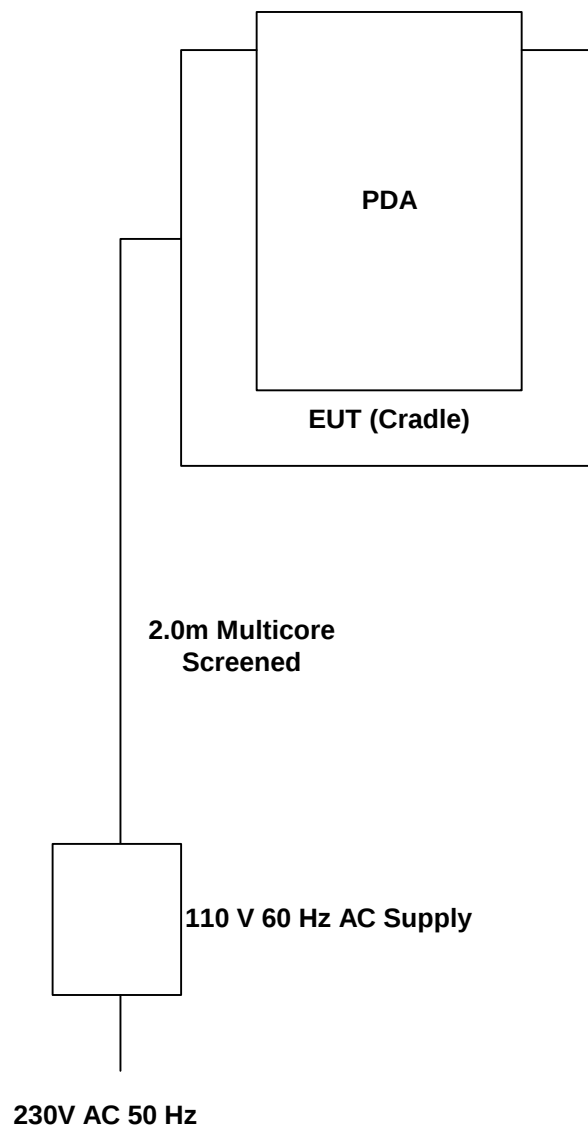
DRG/72183JD10/EMIRAD



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DRG/72183JD10/001

Configuration of EUT and Local Support Equipment



Configuration of Remote Support Equipment

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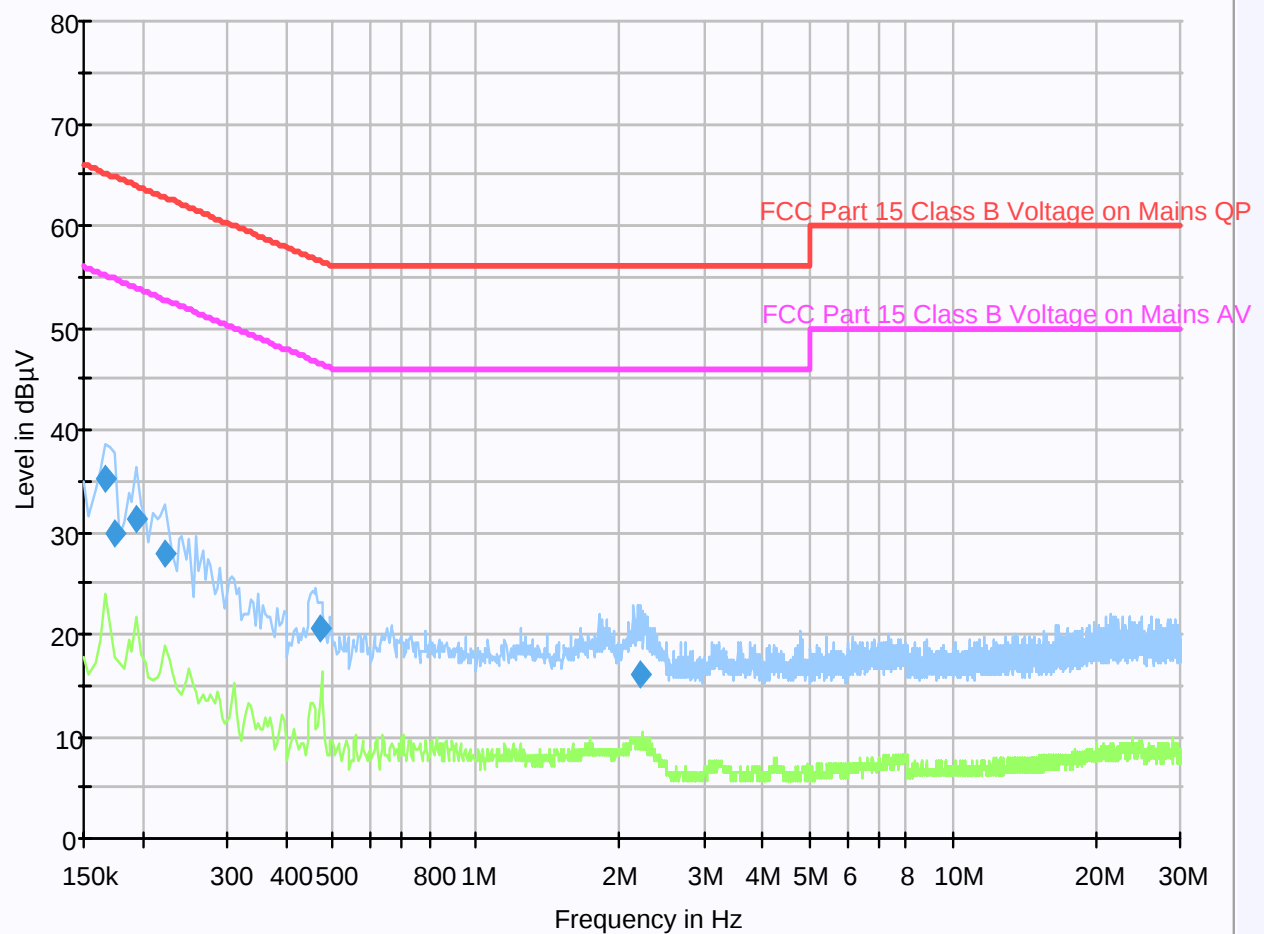
Appendix 4. Graphical Test Results

This Appendix contains the following graphs:

Graph Reference Number	Title
GPH/72183JD10/001	Conducted Emissions Pre-Scan (0.15 MHz to 30.0 MHz) – GSM 850 Idle Mode
GPH/72183JD10/002	Conducted Emissions Pre-Scan (0.15 MHz to 30.0 MHz) – GSM 1900 Idle Mode
GPH/72183JD10/003	Radiated Emissions Pre-Scan (30.0 MHz to 1000.0 MHz) – GSM 850 Idle Mode
GPH/72183JD10/004	Radiated Emissions Pre-Scan (30.0 MHz to 1000.0 MHz) – GSM 1900 Idle Mode
GPH/72183JD10/005	Radiated Emissions Pre-Scan (1.0 GHz to 2.0 GHz) – GSM 850 Idle Mode
GPH/72183JD10/006	Radiated Emissions Pre-Scan (1.0 GHz to 2.0 GHz) – GSM 1900 Idle Mode
GPH/72183JD10/007	Radiated Emissions Pre-Scan (2.0 GHz to 4.0 GHz) – GSM 850 Idle Mode
GPH/72183JD10/008	Radiated Emissions Pre-Scan (2.0 GHz to 4.0 GHz) – GSM 1900 Idle Mode
GPH/72183JD10/009	Radiated Emissions Pre-Scan (4.0 GHz to 6.0 GHz) – GSM 850 Idle Mode
GPH/72183JD10/010	Radiated Emissions Pre-Scan (4.0 GHz to 6.0 GHz) – GSM 1900 Idle Mode
GPH/72183JD10/011	Radiated Emissions Pre-Scan (6.0 GHz to 8.0 GHz) – GSM 850 Idle Mode
GPH/72183JD10/012	Radiated Emissions Pre-Scan (6.0 GHz to 8.0 GHz) – GSM 1900 Idle Mode
GPH/72183JD10/013	Radiated Emissions Pre-Scan (8.0 GHz to 10.0 GHz) – GSM 850 Idle Mode
GPH/72183JD10/014	Radiated Emissions Pre-Scan (8.0 GHz to 10.0 GHz) – GSM 1900 Idle Mode

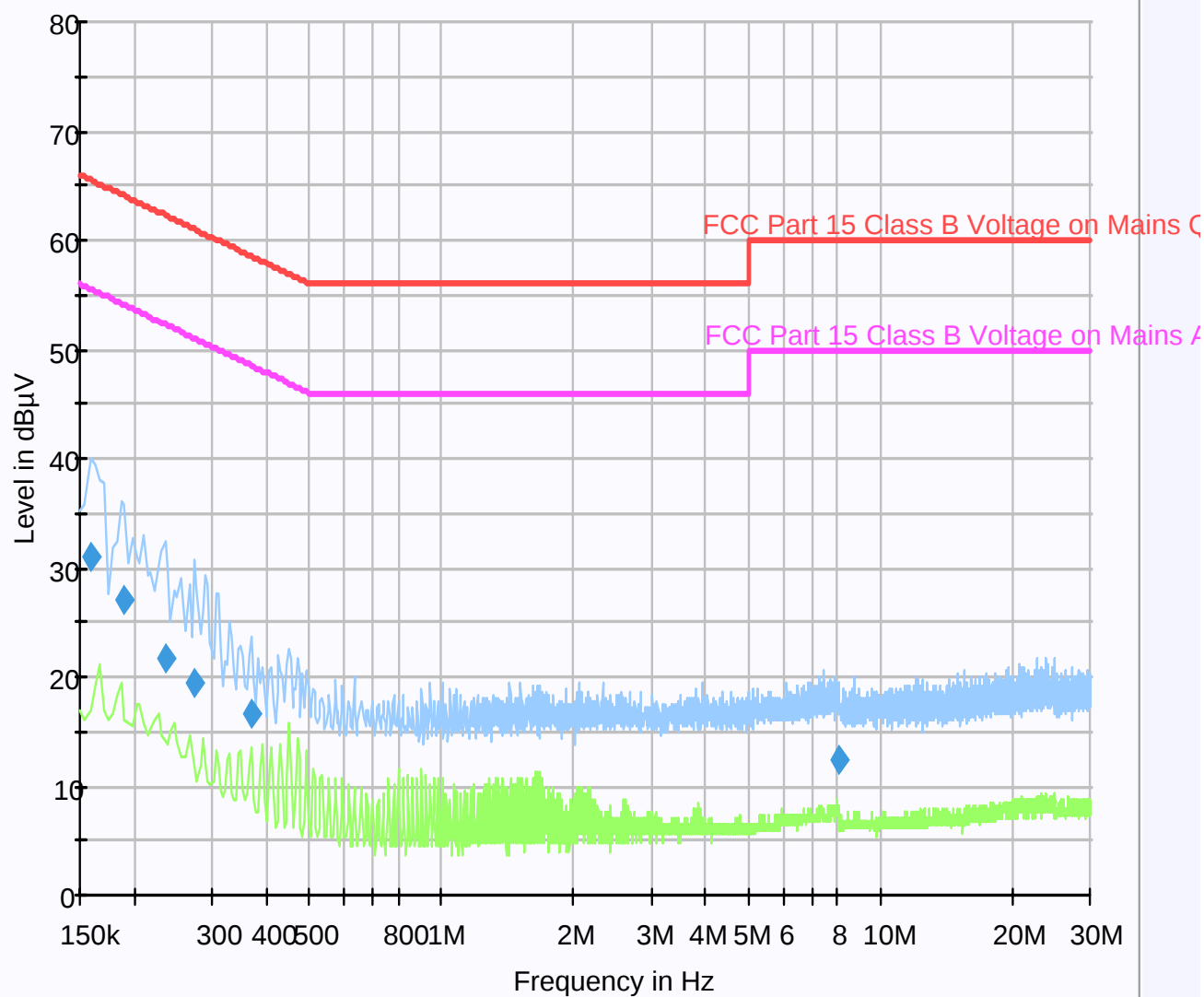
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GPH/72183JD10/001
Conducted Emissions Pre-Scan
(0.15 MHz to 30.0 MHz) – GSM 850 Idle Mode



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GPH/72183JD10/002
Conducted Emissions Pre-Scan
(0.15 MHz to 30.0 MHz) – GSM 1900 Idle Mode

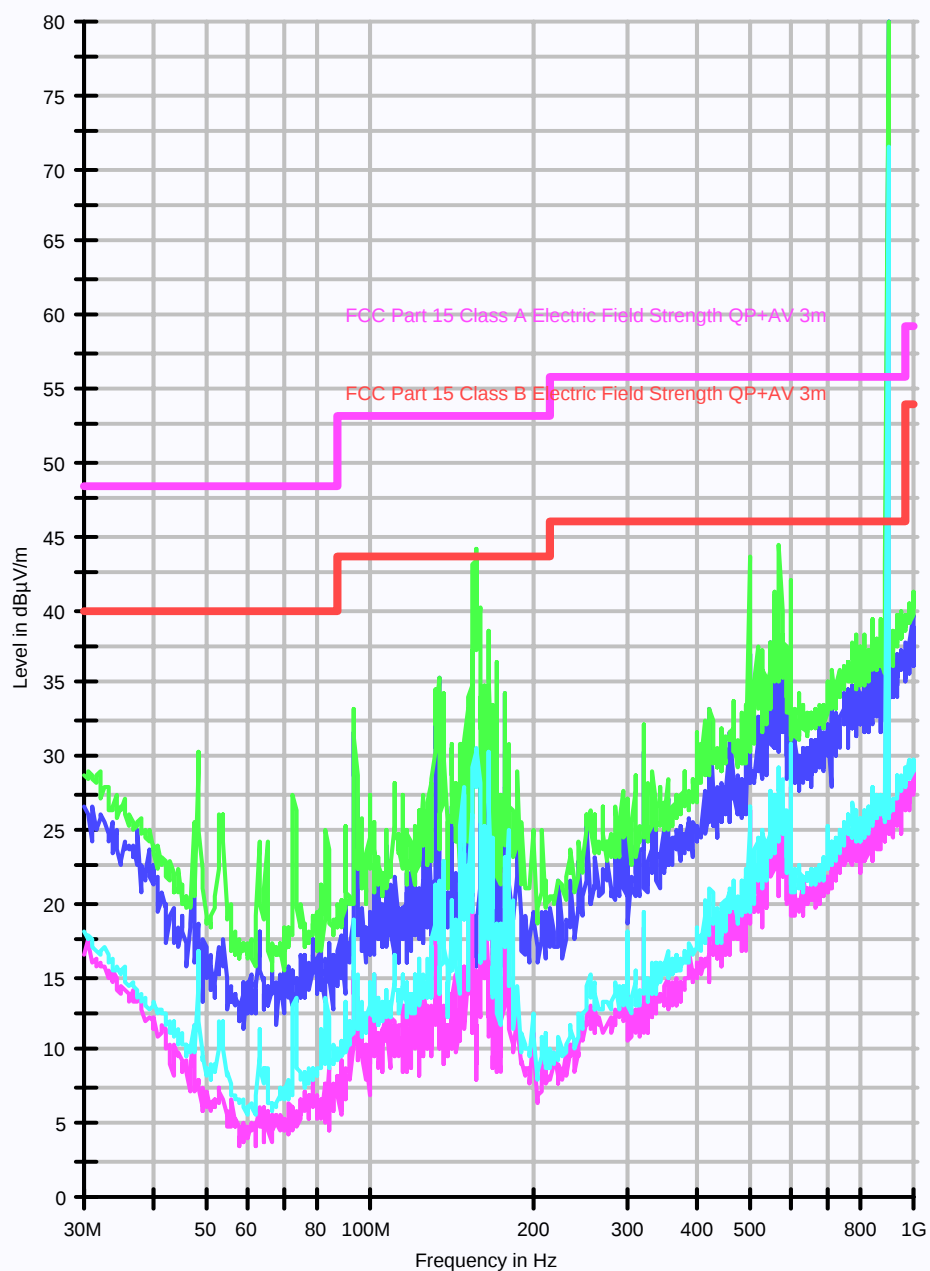


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GPH/72183JD10/003

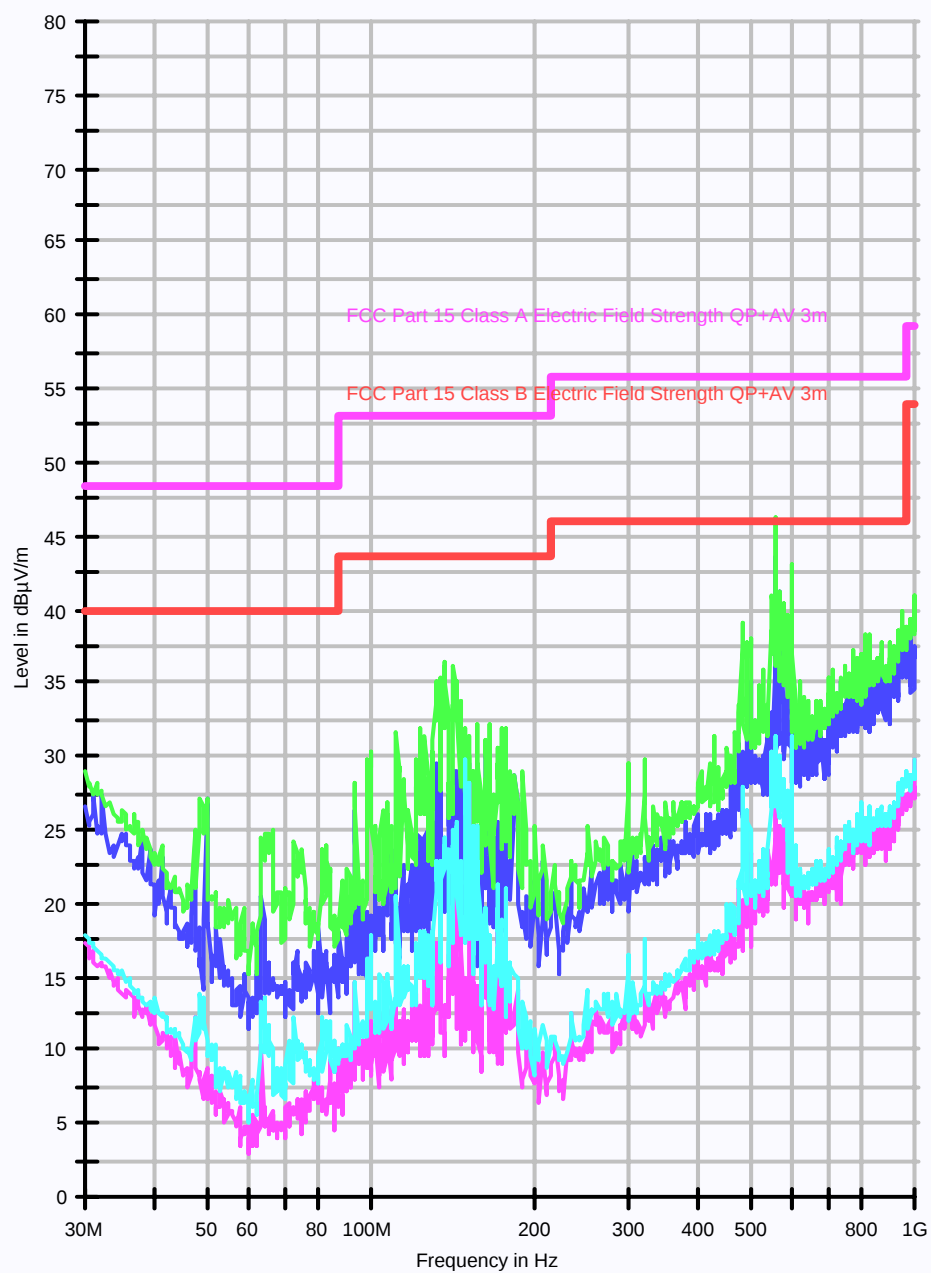
Radiated Emissions Pre-Scan

(30.0 MHz to 1000.0 MHz) – GSM 850 Idle Mode



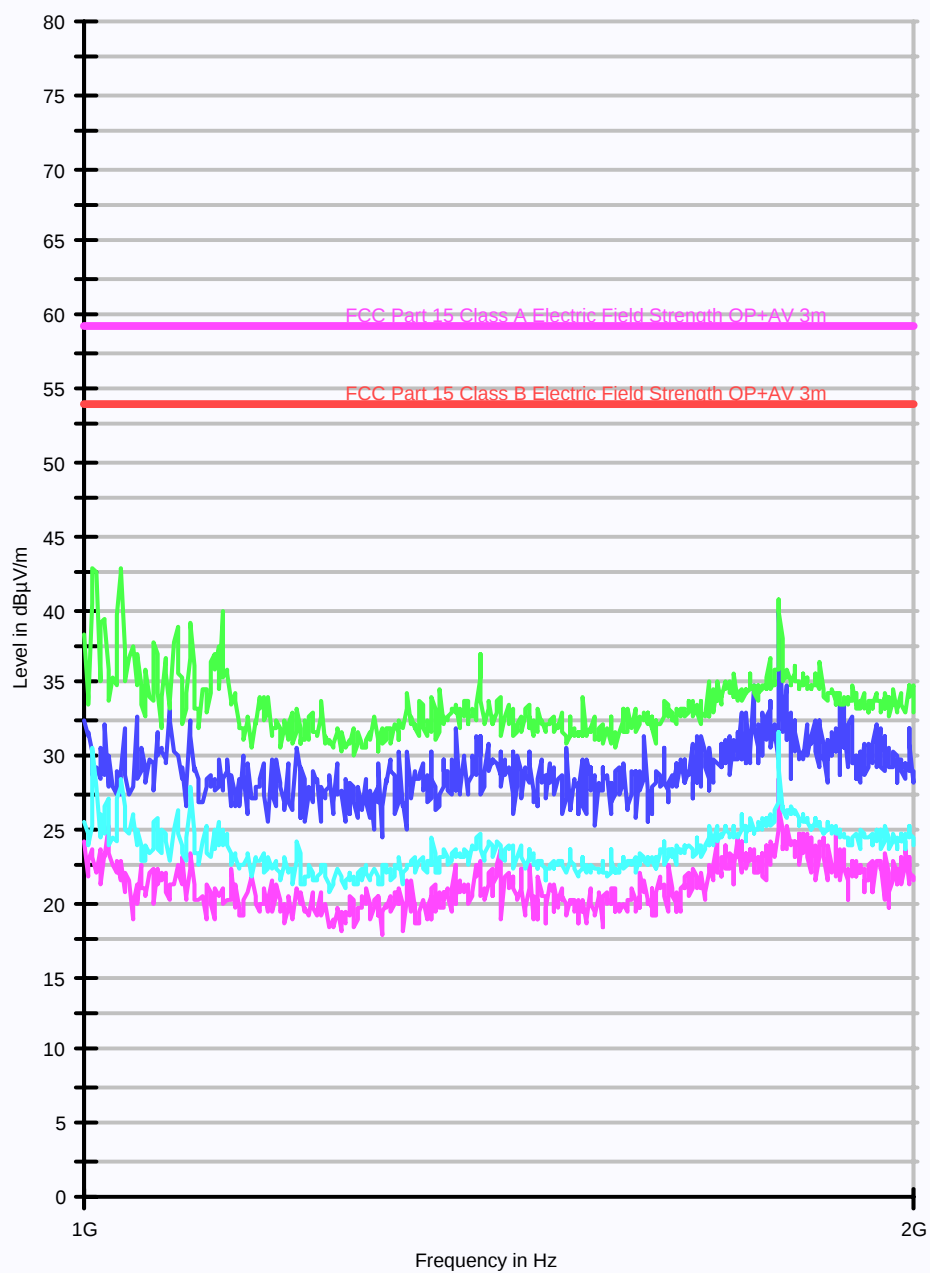
Test Of: Enfora L.P
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GPH/72183JD10/004
Radiated Emissions Pre-Scan
(30.0 MHz to 1000.0 MHz) – GSM 1900 Idle Mode



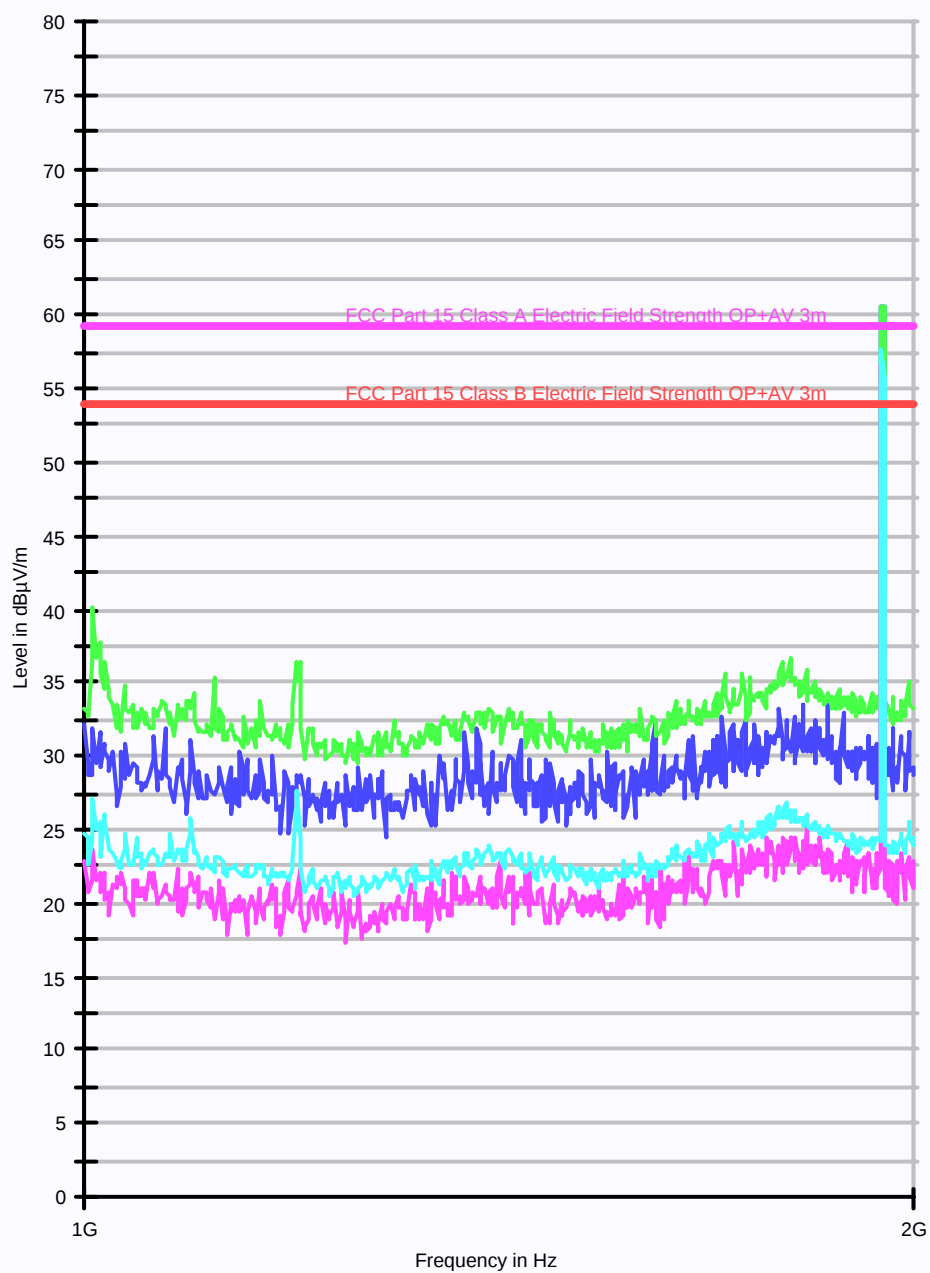
Test Of: Enfora L.P
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To: FCC Part 15.107 & 15.109

GPH/72183JD10/005
Radiated Emissions Pre-Scan
(1.0 GHz to 2.0 GHz) – GSM 850 Idle



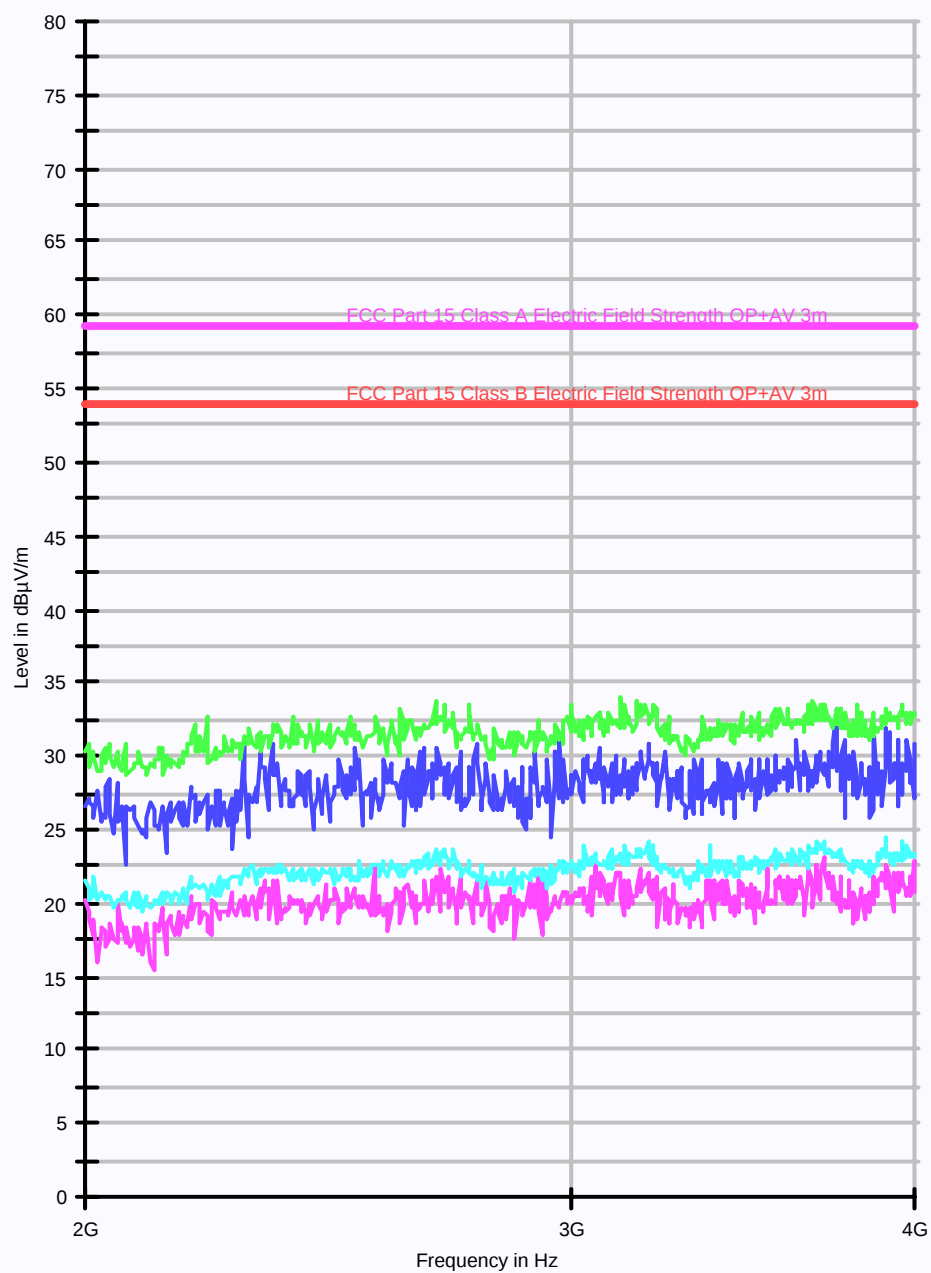
Test Of: Enfora L.P
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GPH/72183JD10/006
Radiated Emissions Pre-Scan
(1.0 GHz to 2.0 GHz) – GSM 1900 Idle



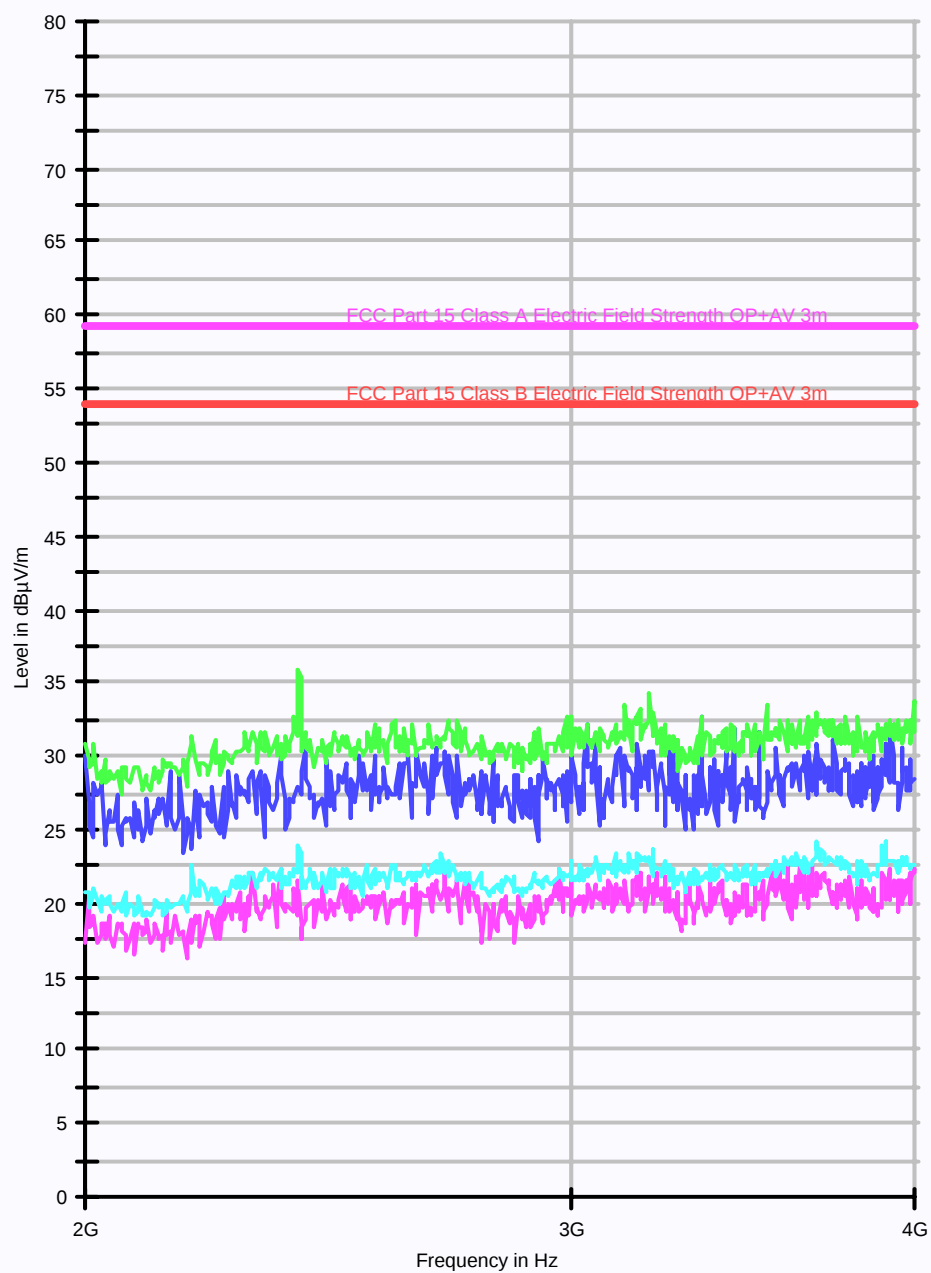
Test Of: Enfora L.P
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GPH/72183JD10/007
Radiated Emissions Pre-Scan
(2.0 GHz to 4.0 GHz) – GSM 850 Idle



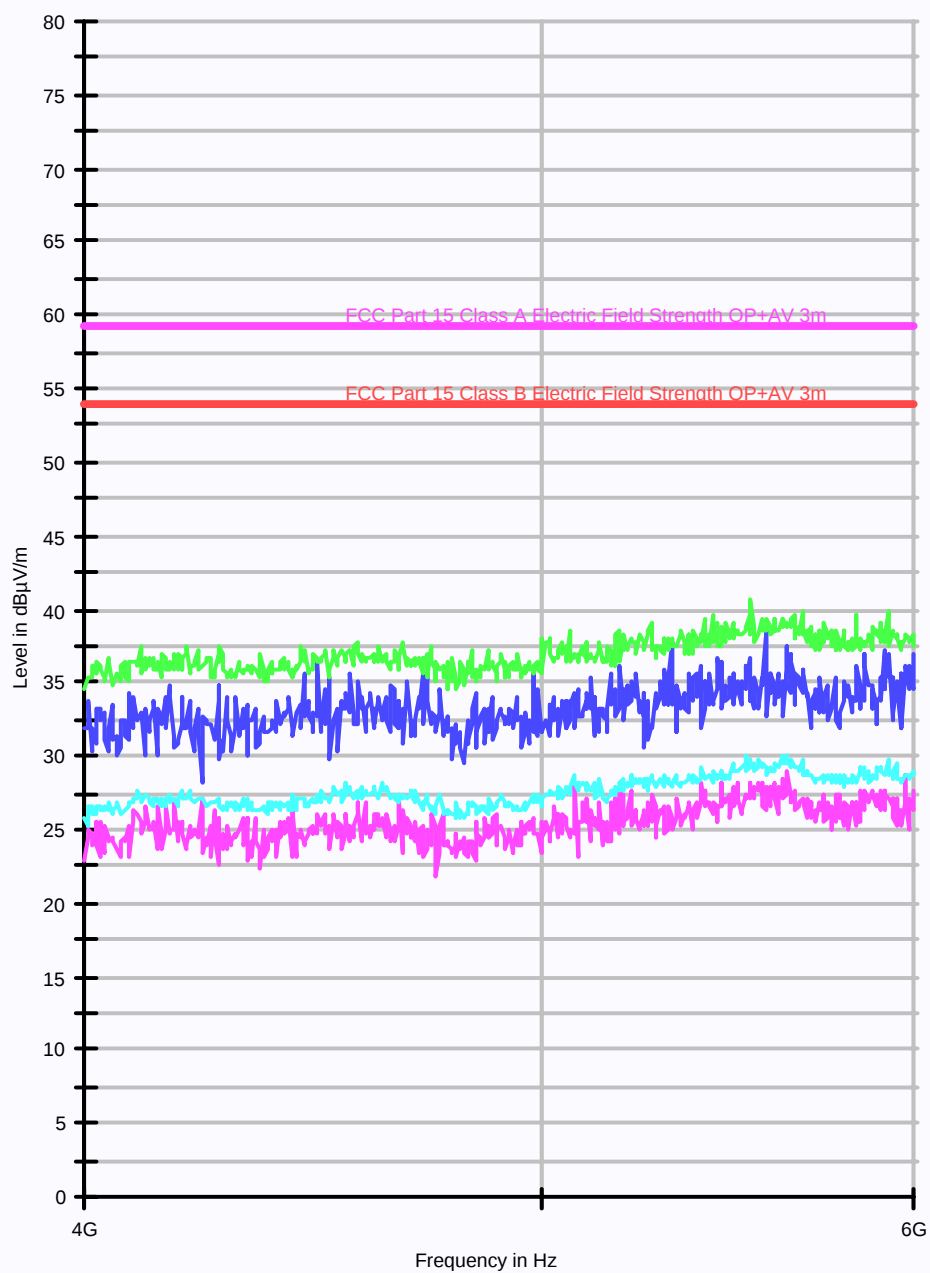
Test Of: Enfora L.P
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GPH/72183JD10/008
Radiated Emissions Pre-Scan
(2.0 GHz to 4.0 GHz) – GSM 1900 Idle



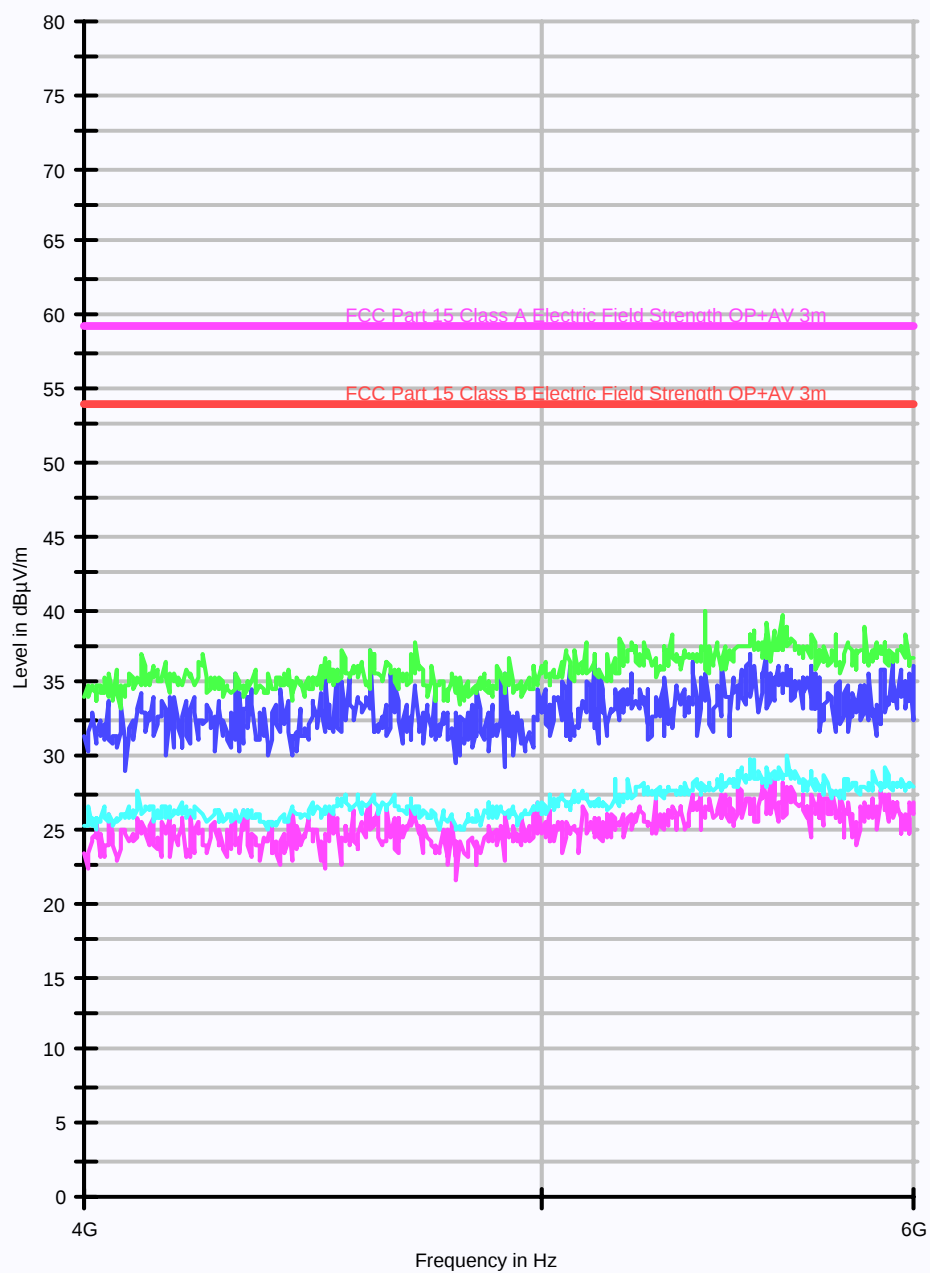
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GPH/72183JD10/009
Radiated Emissions Pre-Scan
(4.0 MHz to 6.0 GHz) - GSM 850 Idle



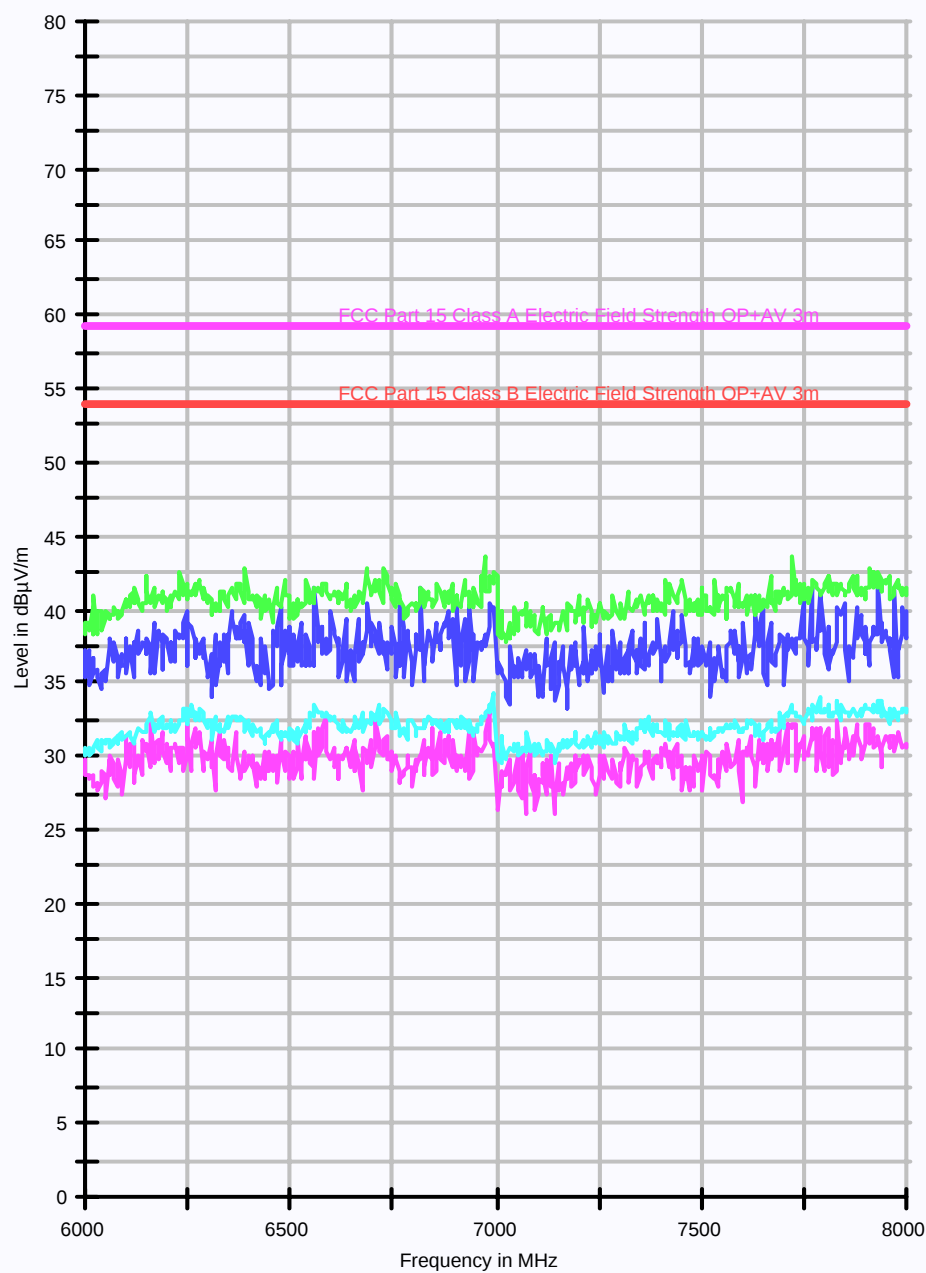
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GPH/72183JD10/010
Radiated Emissions Pre-Scan
(4.0 MHz to 6.0 GHz) - GSM 1900 Idle



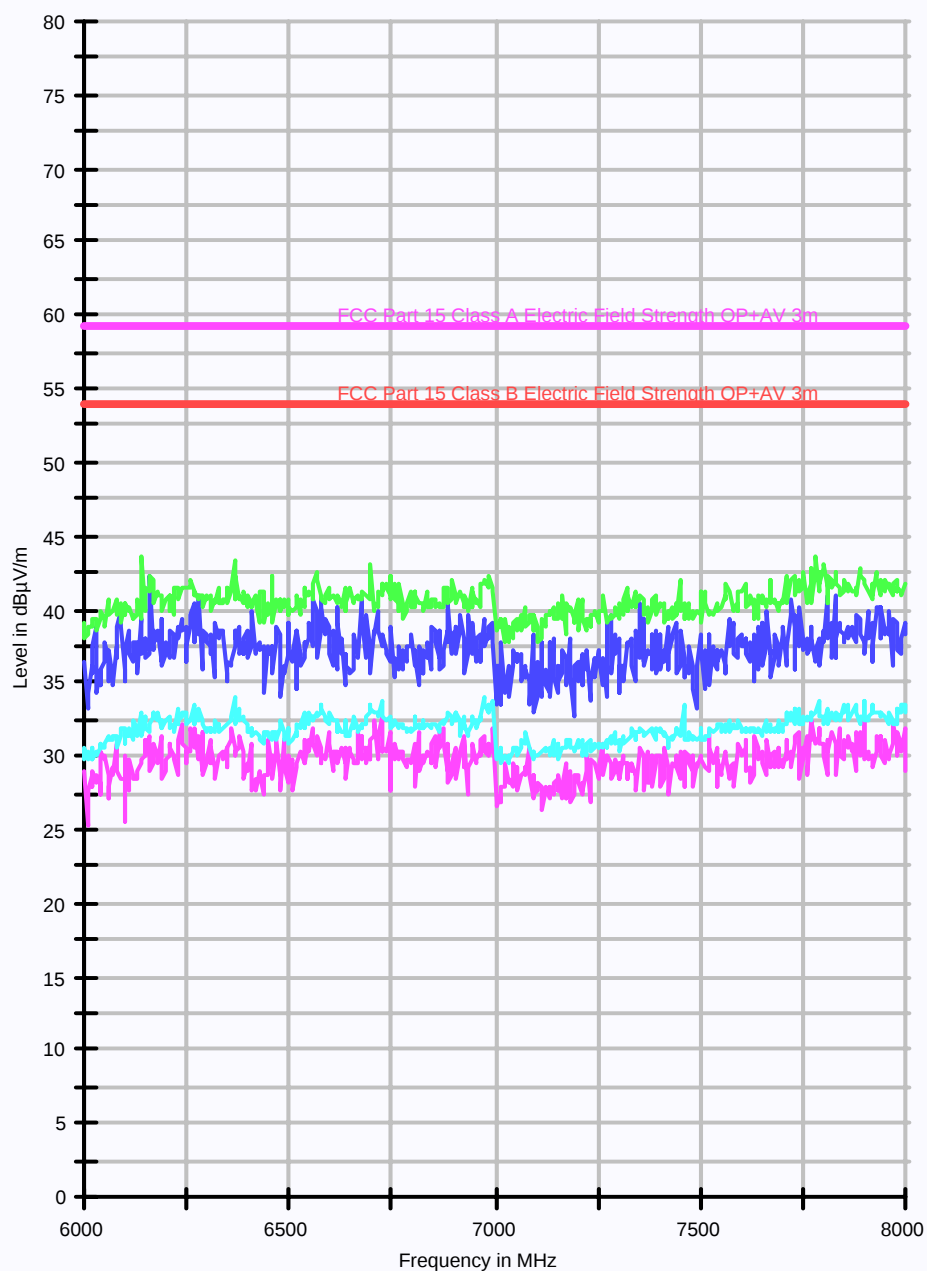
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GPH/72183JD10/011
Radiated Emissions Pre-Scan
(6.0 GHz to 8.0 GHz) - GSM 850 Idle



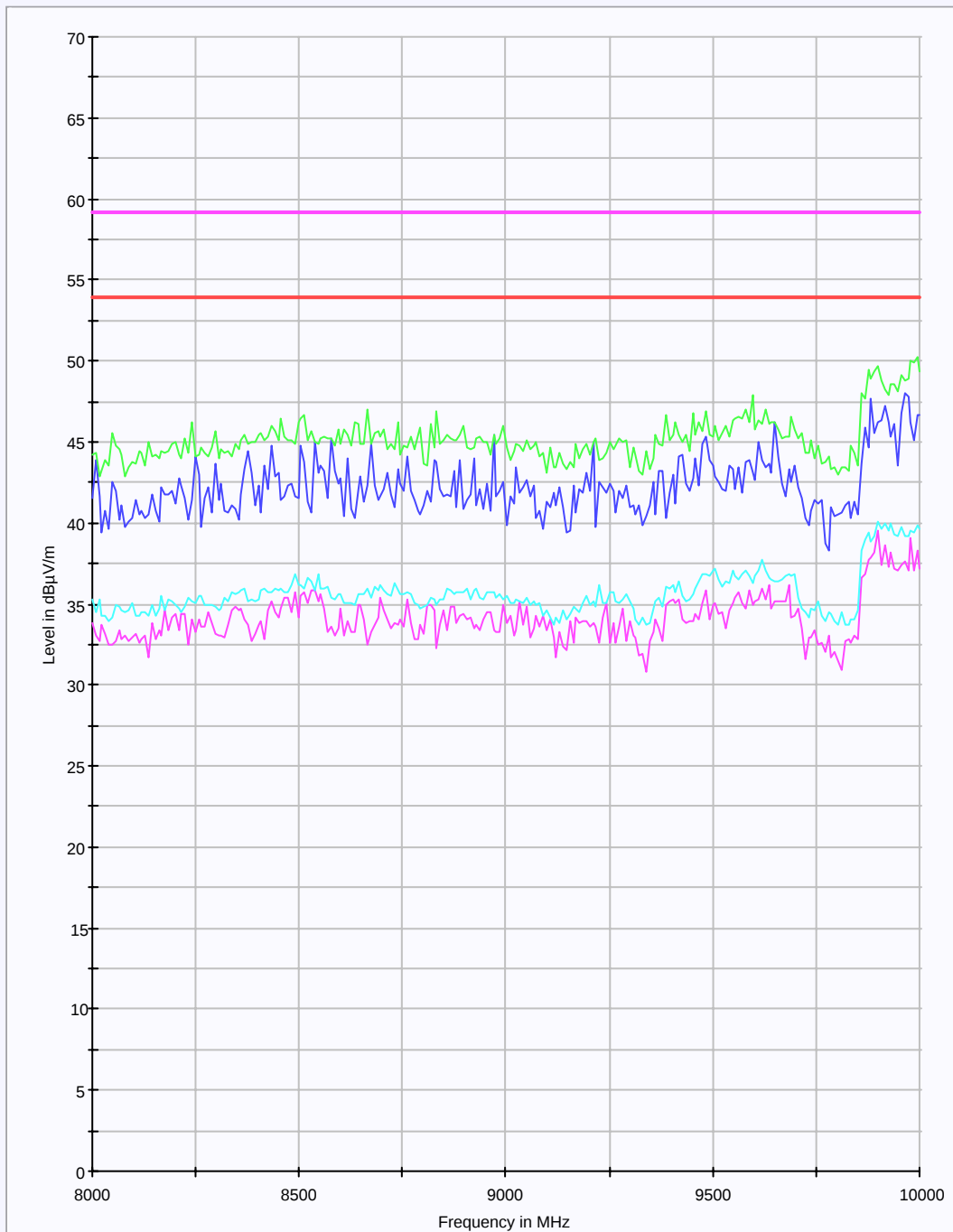
Test Of: Enfora L.P
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GPH/72183JD10/012
Radiated Emissions Pre-Scan
(6.0 GHz to 8.0 GHz) - GSM 1900 Idle



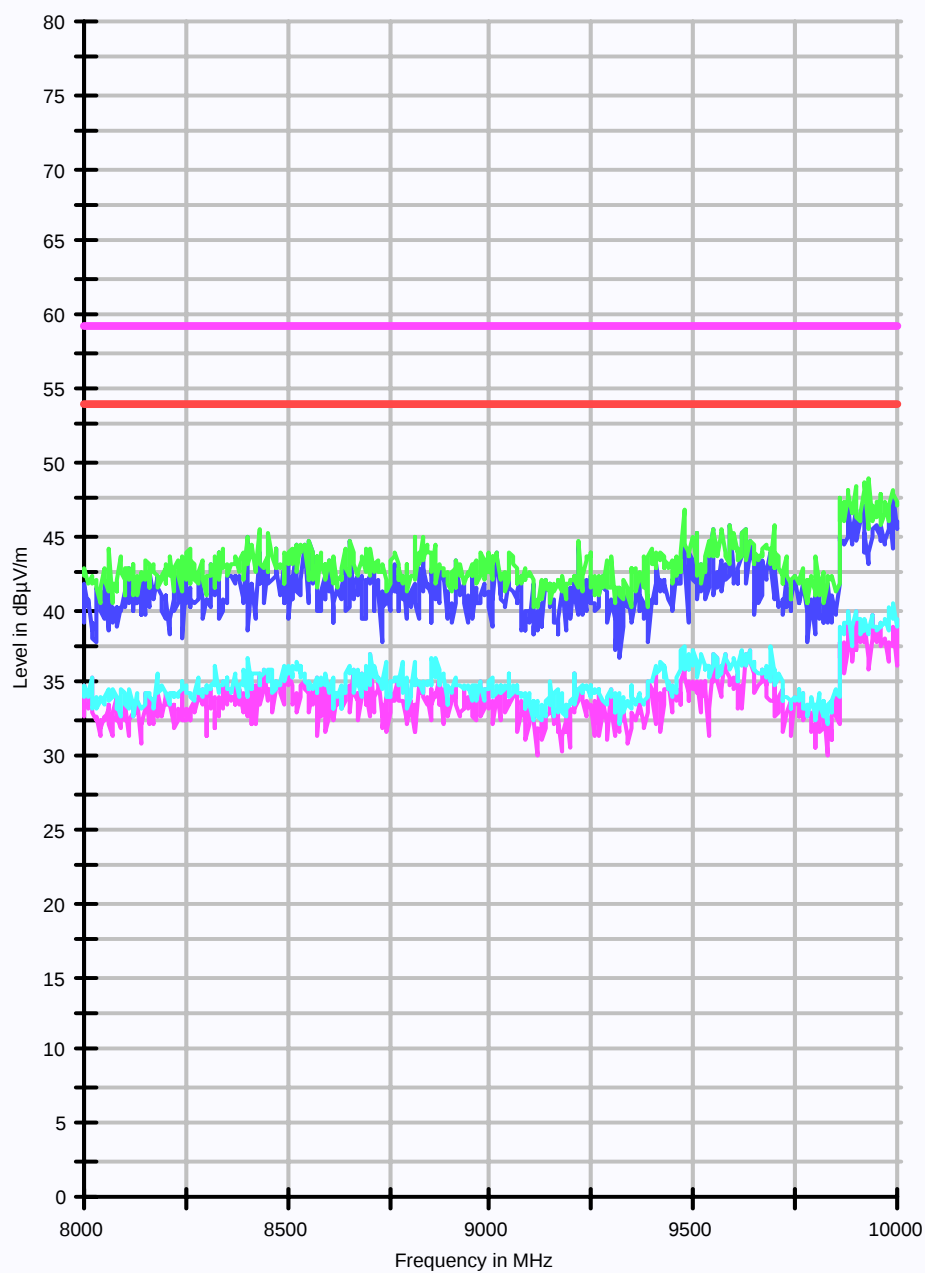
Test Of: Enfora L.P
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GPH/72183JD10/013
Radiated Emissions Pre-Scan
(8.0 GHz to 10.0 GHz) - GSM 850 Idle



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GPH/72183JD10/014
Radiated Emissions Pre-Scan
(8.0 GHz to 10.0 GHz) - GSM 1900 Idle



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Appendix 5. Photographs of EUT

This appendix contains the following photographs:

Photo Reference Number	Title
PHT/72183/001	Conducted Emissions 1
PHT/72183/002	Conducted Emissions 2
PHT/72183/003	Radiated Emissions 1
PHT/72183/004	Radiated Emissions 2

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PHT/72183/001: Conducted Emissions 1



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PHT/72183/002: Conducted Emissions 2



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PHT/72183/003: Radiated Emissions 1



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PHT/72183/004: Radiated Emissions 2



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