TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Connexion2 Ltd
Identicom i770

To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

Test Report Serial No:
RFI/EMCE2/RP49684JD03B

Supersedes Test Report Serial No:
RFI/EMCE1/RP49684JD03B

This Test Report Is Issued Under The Authority Of Claire Ashman, EMC Service Leader:  **pp Brian Watson**	
Checked By: Brian Watson 	**Report Copy No: PDF01**
Issue Date: 27 March 2008	**Test Dates: 10 December 2007 to 11 December 2007 and 04 January 2008**

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Registered in England and Wales. Company number:2117901

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Test Of: Connexion2 Ltd
Identicom i770
To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

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1. Client Information

Company Name:	Connexion2 Ltd
Address:	Momentum House Church Lane Dinnington Sheffield S25 2RG
Contact Name:	Mr C Swallow

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:	ID Communications Device
Brand Name:	Connexion2
Model Name or Number:	i770
IMEI Number:	352023004602138
Serial Number:	S10607001414
Country of Manufacture:	United Kingdom
FCC ID Number	VTJS10611
Date of Receipt:	10 December 2007

Description:	AC to DC adaptor
Brand Name:	Connexion2
Model Name or Number:	SCP0750300P
Serial Number:	Not stated
Country of Manufacture:	China
Date of Receipt:	10 December 2007

2.2. Description of EUT

The equipment under test is an ID Communication Device, operating in the GSM 850 and 1900 bands.

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

2.4. Additional Information Related to Testing

Equipment Category:	GSM/GPRS
Type of Unit:	Base Station (fixed used) and Portable (standalone battery powered device).
Weight:	78g
Dimensions:	102 x 72 x 12 mm
Transmit Output Power Characteristics:	GSM 850: 33 dBm GSM 1900 30 dBm
Allocated (Test) Frequency:	
Transmitter	GSM 850, 836.6 MHz, channel 190 GSM 1900, 1879.8 MHz, channel 660
Receiver	GSM 850, 881.6 MHz, channel 190 GSM 1900, 1959.8 MHz, channel 660
Power Supply Requirement:	
DC Supply (Volts)	Not applicable
AC Supply (Volts)	Nominal 110V, 60 Hz AC Mains supply
Internal Battery Supply (Volts)	Not applicable
Intended Operating Environment:	Within GSM coverage
Cycle Time:	Less than 2.5 seconds

2.5. Port Identification

Port	Description	Type	Applicable
1	Enclosure	Not applicable	Yes
2	DC Input	2 core < 3 m	Yes

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices.

3.2. Methods And Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2002
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 (2001)
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.

Public Notice DA00-705 (2000)
Title: Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

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.

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, charging.
- 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):

- Charging with AC-DC charger.

Please refer to Appendix 2 for a schematic drawing of the test configuration, drawing number DRG\49684JD03\001.

6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliancy Status
Conducted Emissions	FCC Part 15.107	AC Mains Input	Complied
Radiated Emissions Electric Field Strength, 30 MHz to 10000 MHz	FCC Part 15.109	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.

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.

7.2. Test Results

7.2.1. AC Mains Conducted Emissions - Quasi Peak Detector Measurements on Live and Neutral Lines - GSM850 Idle

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

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

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 15.107

Environmental Conditions:

Temperature Variation (°C):	19.3 to 19.3
Relative Humidity Variation (%):	50 to 50
Atmospheric Pressure Variation (mb):	1008 to 1008

Results:

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.420	Live	42.6	57.4	14.8	-	Complied
0.479	Live	42.1	56.4	14.3	-	Complied
0.776	Live	42.8	56.0	13.2	-	Complied
1.014	Live	42.4	56.0	13.6	-	Complied
1.077	Live	40.6	56.0	15.4	-	Complied
1.316	Live	39.9	56.0	16.1	-	Complied
1.973	Live	41.0	56.0	15.0	-	Complied
2.031	Live	40.8	56.0	15.2	-	Complied
2.211	Live	41.1	56.0	14.9	-	Complied
2.270	Live	41.5	56.0	14.5	-	Complied

7.2.2. AC Mains Conducted Emissions - Average Detector Measurements on Live and Neutral Lines - GSM850 Idle

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

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 15.107

Environmental Conditions:

Temperature Variation (°C):	19.3 to 19.3
Relative Humidity Variation (%):	50 to 50
Atmospheric Pressure Variation (mb):	1008 to 1008

Results:

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.299	Live	37.2	50.3	13.1	-	Complied
0.420	Live	34.5	47.4	12.9	-	Complied
0.479	Live	34.2	46.4	12.2	-	Complied
0.717	Live	33.3	46.0	12.7	-	Complied
0.776	Live	34.9	46.0	11.1	-	Complied
1.077	Live	32.0	46.0	14.0	-	Complied
1.973	Live	31.2	46.0	14.8	-	Complied
2.031	Live	31.9	46.0	14.1	-	Complied
2.211	Live	30.3	46.0	15.7	-	Complied
2.270	Live	31.9	46.0	14.1	-	Complied

7.2.3. AC Mains Conducted Emissions - Quasi Peak Detector Measurements on Live and Neutral Lines – GSM1900 Idle

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

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

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 15.107

Environmental Conditions:

Temperature Variation (°C):	19.3 to 19.3
Relative Humidity Variation (%):	50 to 50
Atmospheric Pressure Variation (mb):	1008 to 1008

Results:

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.420	Live	42.8	57.4	14.6	-	Complied
0.722	Live	35.3	56.0	20.7	-	Complied
0.780	Live	39.7	56.0	16.3	-	Complied
1.019	Live	39.9	56.0	16.1	-	Complied
1.082	Live	33.9	56.0	22.1	-	Complied
1.320	Live	33.7	56.0	22.3	-	Complied
1.982	Live	28.8	56.0	27.2	-	Complied
2.162	Live	26.4	56.0	29.6	-	Complied
2.220	Live	29.2	56.0	26.8	-	Complied
2.279	Live	32.0	56.0	24.0	-	Complied

7.2.4. AC Mains Conducted Emissions - Average Detector Measurements on Live and Neutral Lines - GSM1900 Idle

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

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 15.107

Environmental Conditions:

Temperature Variation (°C):	19.3 to 19.3
Relative Humidity Variation (%):	50 to 50
Atmospheric Pressure Variation (mb):	1008 to 1008

Results:

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Note(s)	Result
0.299	Live	37.1	50.3	13.2	-	Complied
0.420	Live	34.6	47.4	12.8	-	Complied
0.479	Live	34.2	46.4	12.2	-	Complied
0.542	Live	28.3	46.0	17.7	-	Complied
0.780	Live	31.4	46.0	14.6	-	Complied
1.019	Live	30.9	46.0	15.1	-	Complied
1.082	Live	24.7	46.0	21.3	-	Complied
1.320	Live	24.4	46.0	21.6	-	Complied
2.220	Live	18.5	46.0	27.5	-	Complied
2.279	Live	20.8	46.0	25.2	-	Complied

7.2.5. Radiated Emissions - Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz) - GSM850

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 15.109

Environmental Conditions:

Temperature Variation (°C):	3 to 3
Relative Humidity Variation (%):	77 to 77
Atmospheric Pressure Variation (mb):	1020 to 1020

Results:

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Note(s)	Result
140.000	Vertical	15.2	43.5	27.8	-	Complied
118.000	Vertical	13.0	43.5	30.5	-	Complied
172.000	Horizontal	11.7	43.5	31.8	-	Complied
270.000	Vertical	15.1	46.0	30.9	-	Complied
539.800	Horizontal	36.4	46.0	9.6	-	Complied
782.350	Horizontal	29.5	46.0	16.5	-	Complied
876.002	Refer to note 1					

Note(s):

1. *This frequency was the GSM Test set (CMU200) output frequency.*

7.2.6. Radiated Emissions - Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz) - GSM1900

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 15.109

Environmental Conditions:

Temperature Variation (°C):	3 to 3
Relative Humidity Variation (%):	77 to 77
Atmospheric Pressure Variation (mb):	1020 to 1020

Results:

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Note(s)	Result
49.957	Vertical	17.8	40.0	22.2	-	Complied
155.050	Horizontal	13.9	43.5	29.6	-	Complied
556.312	Vertical	25.4	46.0	20.6	-	Complied
853.747	Vertical	34.4	46.0	11.6	-	Complied
124.088	Vertical	14.3	43.5	29.2	-	Complied
965.490	Vertical	33.1	54.0	20.9	-	Complied
1949.899	-	-	-	-	1	Complied

Note(s):

1. *This frequency was the GSM Test set (CMU 200) output frequency.*

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
Conducted Emissions AC (and DC) Lines	150 kHz to 30 MHz	95%	± 3.66 dB
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
Radiated Emissions	12 to 18 GHz	95%	± 5.99 dB
Radiated Emissions	18 to 26.5 GHz	95%	± 4.92 dB
Radiated Emissions	26.5 to 40 GHz	95%	± 4.96 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.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Date Last Calibrated	Serial No.	Cal Interval (Months)
A028	Antenna	Eaton	91888-2	17 Nov 2006	304	36
A1069	LISN	Rohde & Schwarz	ESH3-Z5	09 Feb 2007	837469/012	12
A1227	Pre Amplifier	Agilent	8449B	03 Sept 2007	3008A01566	12
A1516	GSM Test Set	Rohde & Schwarz	CMU200	Not Applicable	1100.0008.02	Not Applicable
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	08 Jan 2007	100668	12
A253	Antenna	Flann Microwave	12240-20	17 Nov 2006	128	36
A427	Antenna	Flann	14240-20	17 Nov 2006	150	36
A429	Antenna	Flann	16240-20	17 Nov 2006	561	36
A553	Antenna	Chase	CBL6111A	17 Nov 2006	1593	15
C1116	Cable	UtiFlex	UFA 210A-1-0360-50x50	22 April 2007	1409	12
C1265	Cable	Rosenberger	FA210A1020007070	22 April 2007	49317-01	12
C1268	Cable	Rosenberger	FA210A0075008080	08 Jan 2007	49536-1	12
C363	Cable	Rosenberger	RG142	22 April 2007	None	12
C454	Cable	Rosenberger	RG142XX-001-RFIB	22 April 2007	C454-10081998	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	20 Feb 2007	100275	12
S201	Open Area Test Site	RFI	1	15 July 2007	None	12
S212	Screened Room	RFI	9	Not Applicable	None	Not Applicable

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

Appendix 2. Test Configuration Drawing

This Appendix contains the following drawings:

Drawing Reference Number	Title
DRG\49684JD03\EMICON	Test configuration for measurement of conducted emissions.
DRG\49684JD03\EMIRAD	Test configuration for measurement of radiated emissions.
DRG\49684JD03\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test.

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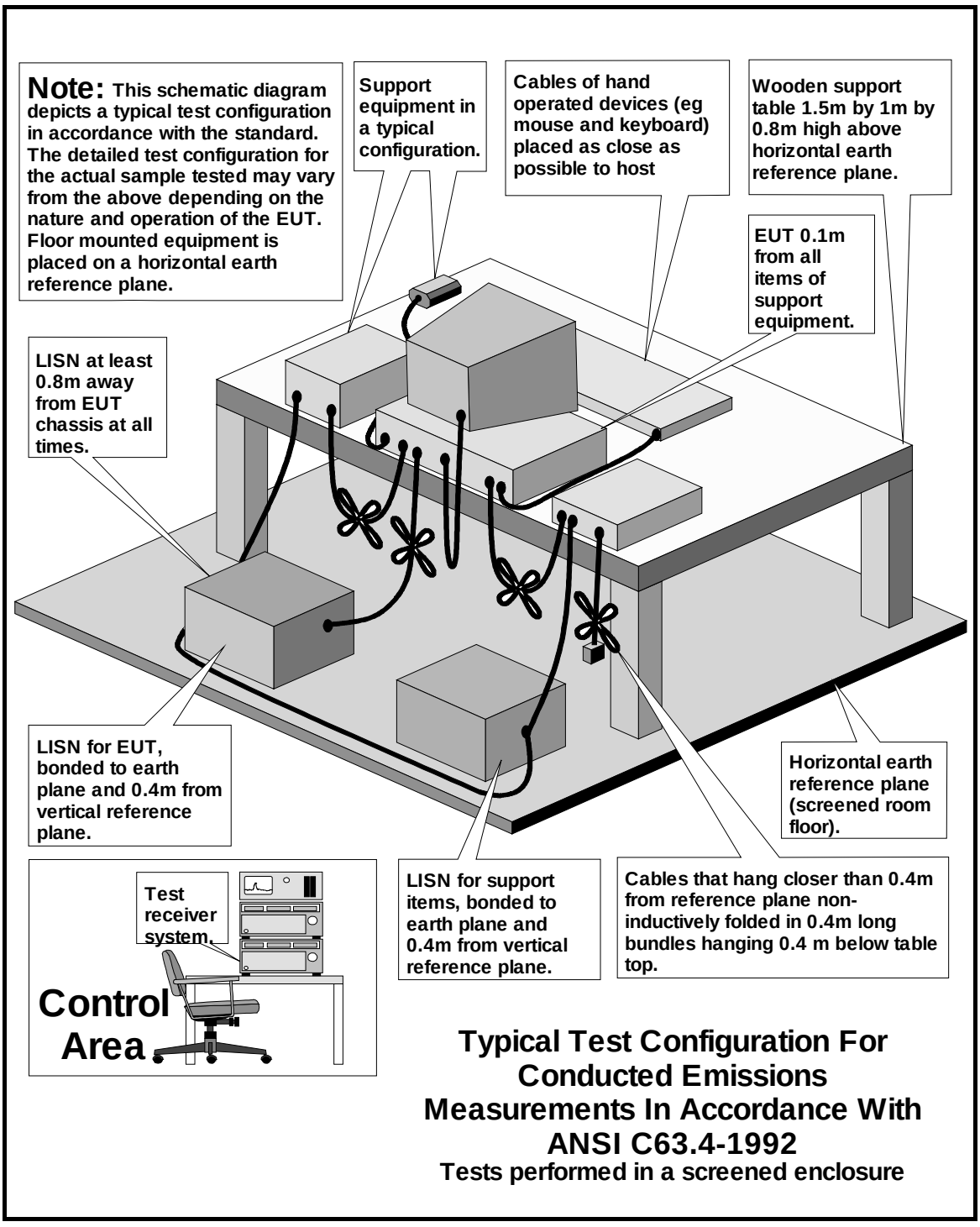
DRG\49684JD03\EMICON



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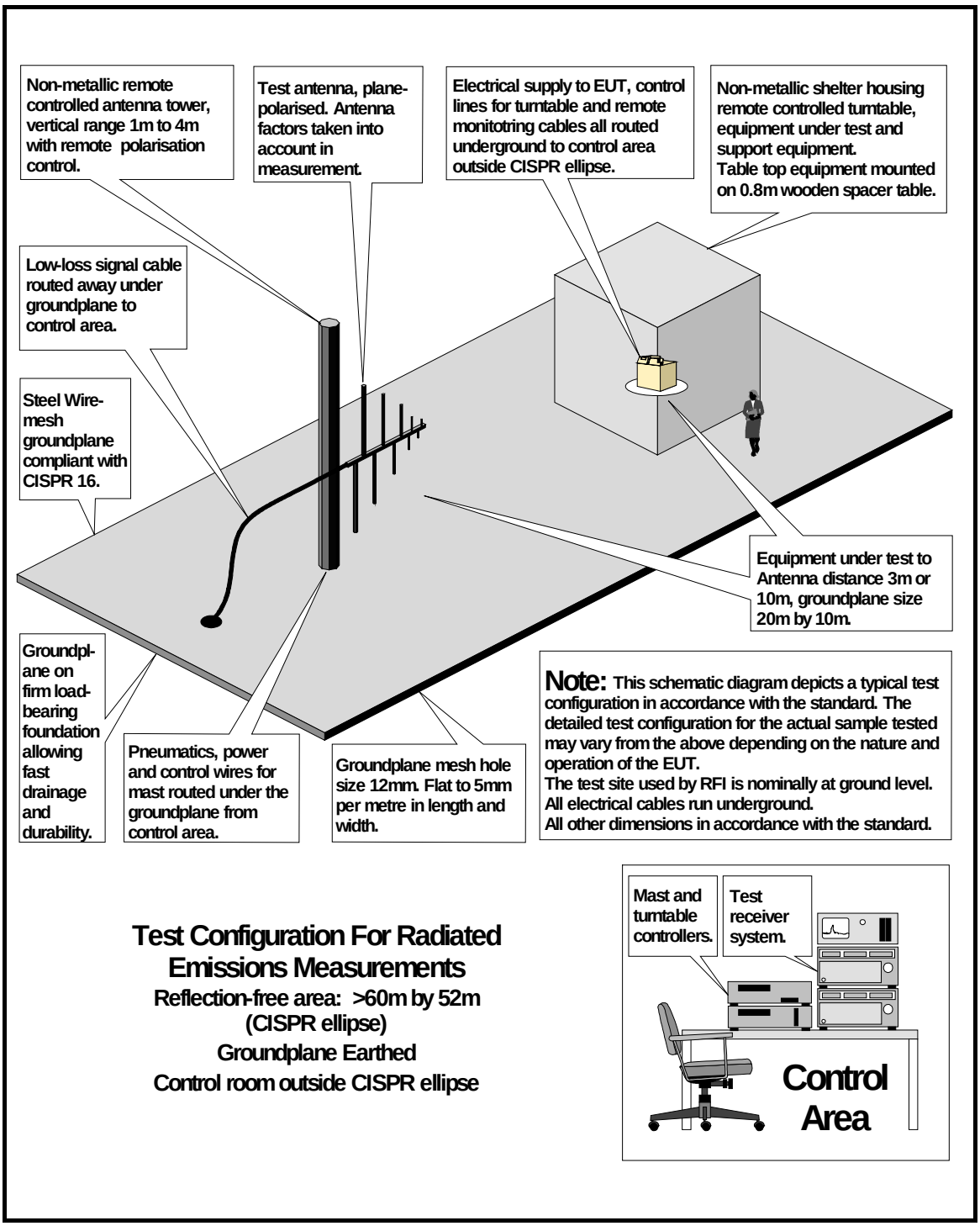
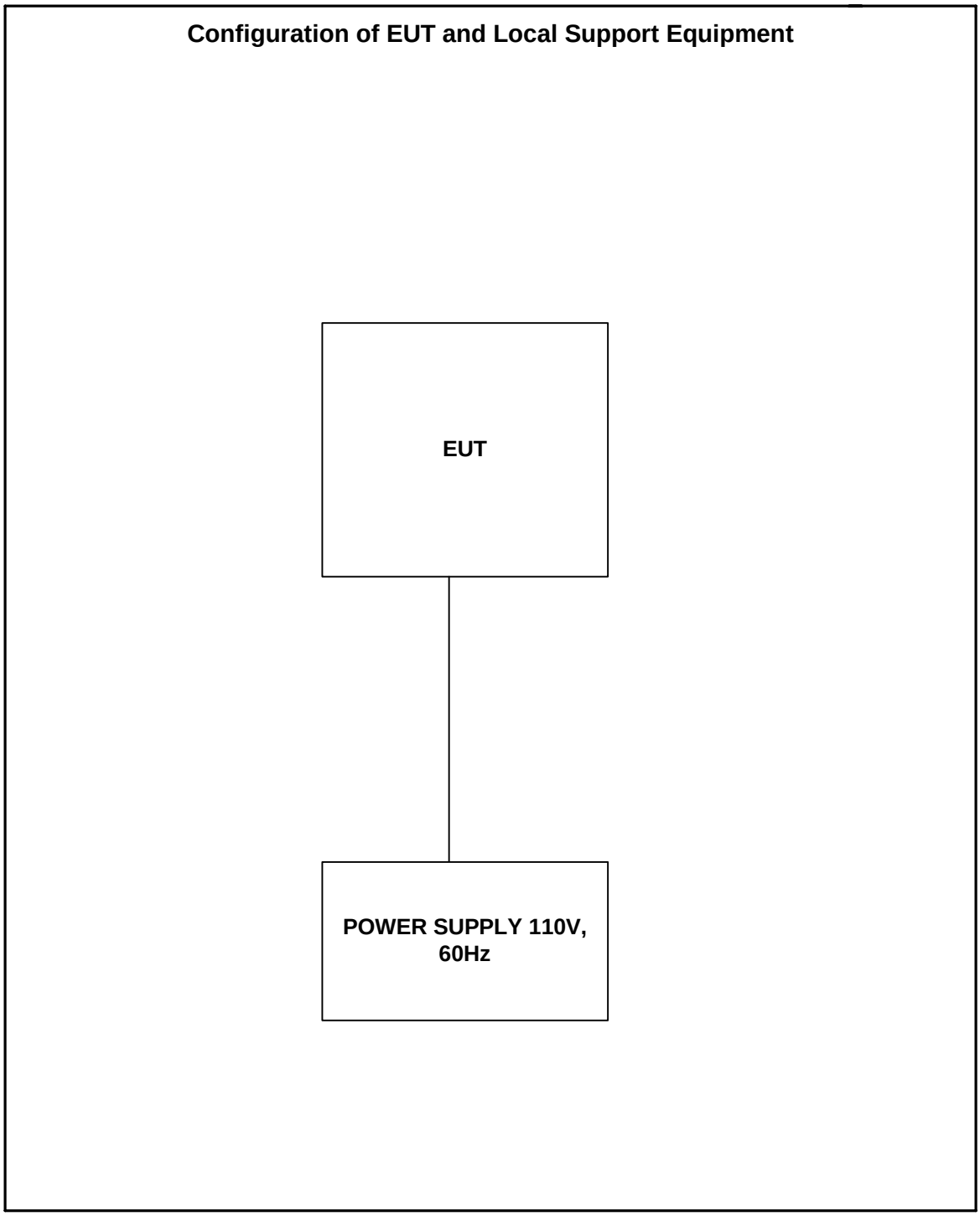
DRG\49684JD03\EMIRAD



Test Configuration For Radiated Emissions Measurements
Reflection-free area: >60m by 52m (CISPR ellipse)
Groundplane Earthed
Control room outside CISPR ellipse

DRG\49684JD03\001

Configuration of EUT and Local Support Equipment



Appendix 3. Graphical Test Results

This Appendix contains the following graphs:

Graph Reference Number	Title
GPH\49684JD03\001	Conducted Emissions GSM 850 Idle Mode Pre-Scan (0.15 MHz to 30.0 MHz)
GPH\49684JD03\002	Conducted Emissions GSM 1900 Idle Mode Pre-Scan (0.15 MHz to 30.0 MHz)
GPH\49684JD03\003	Radiated Emissions GSM 850 Idle Mode Pre-Scan (30.0 MHz to 1000.0 MHz)
GPH\49684JD03\004	Radiated Emissions GSM 850 Idle Mode Pre-Scan (1000.0 MHz to 2000.0 MHz)
GPH\49684JD03\005	Radiated Emissions GSM 850 Idle Mode Pre-Scan (2000.0 MHz to 4000.0 MHz)
GPH\49684JD03\006	Radiated Emissions GSM 850 Idle Mode Pre-Scan (4000.0 MHz to 6000.0 MHz)
GPH\49684JD03\007	Radiated Emissions GSM 1900 Idle Mode Pre-Scan (30.0 MHz to 1000.0 MHz)
GPH\49684JD03\008	Radiated Emissions GSM 850 Idle Mode Pre-Scan (1000.0 MHz to 2000.0 MHz)
GPH\49684JD03\009	Radiated Emissions GSM 850 Idle Mode Pre-Scan (2000.0 MHz to 4000.0 MHz)
GPH\49684JD03\010	Radiated Emissions GSM 850 Idle Mode Pre-Scan (4000.0 MHz to 6000.0 MHz)
GPH\49684JD03\011	Radiated Emissions GSM 850 Idle Mode Pre-Scan (6000.0 MHz to 8000.0 MHz)
GPH\49684JD03\012	Radiated Emissions GSM 850 Idle Mode Pre-Scan (8000.0 MHz to 10000.0 MHz)

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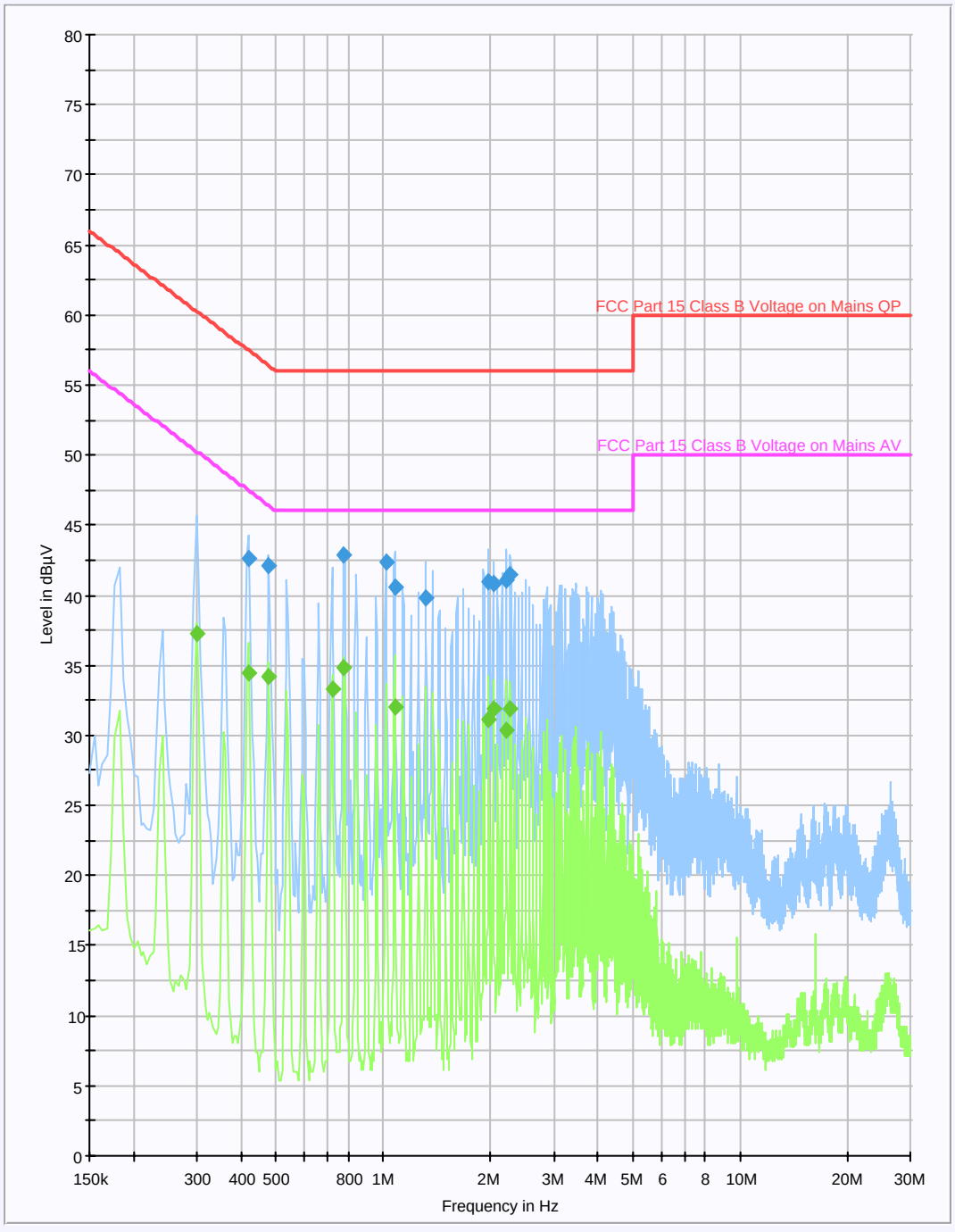
GPH\49684JD03\001
Conducted Emissions Pre-Scan
(0.15 MHz to 30.0 MHz) GSM 850 Idle Mode



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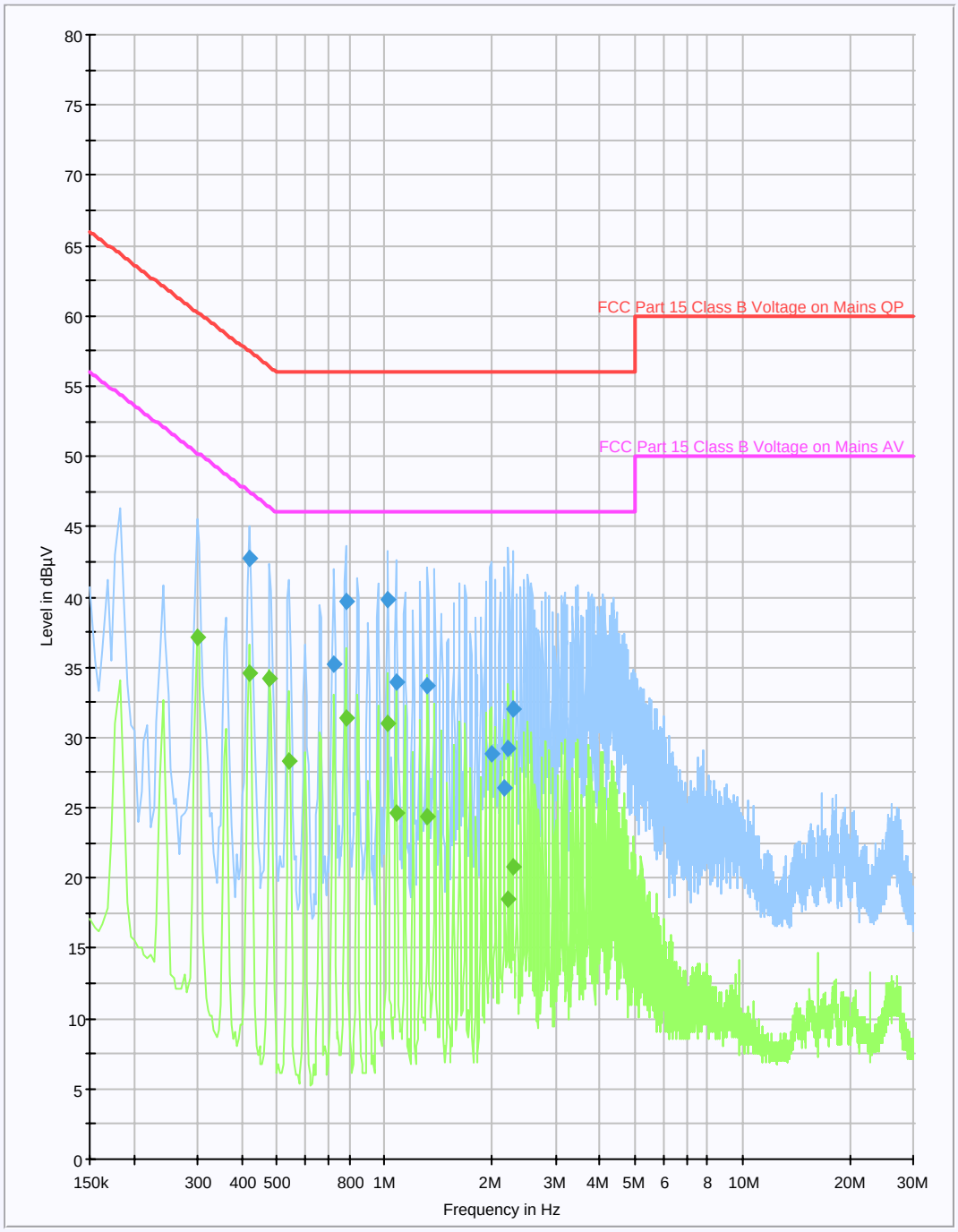
GPH\49684JD03\002
Conducted Emissions Pre-Scan
(0.15 MHz to 30.0 MHz) GSM 1900 Idle Mode



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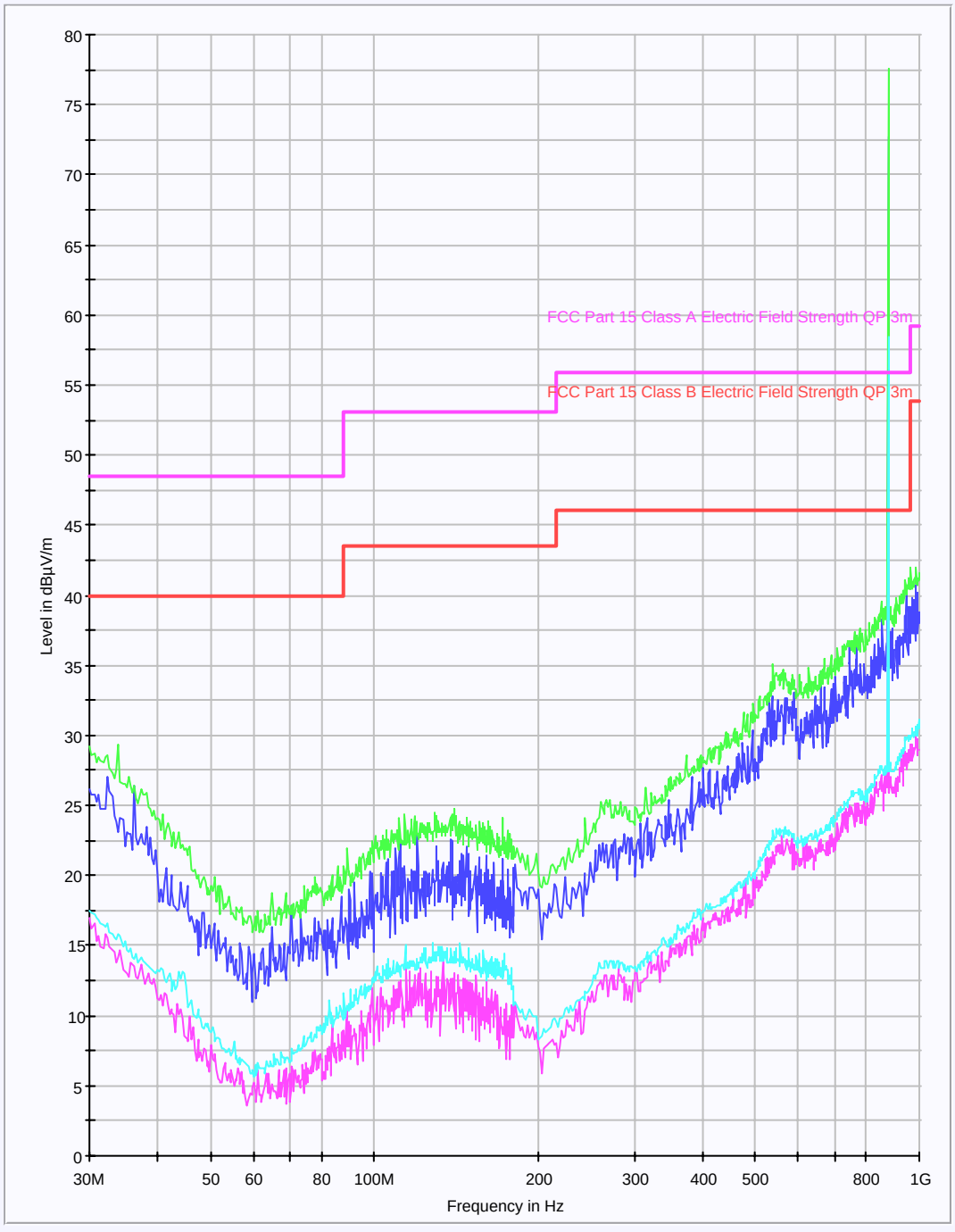
GPH\49684JD03\003
Radiated Emissions Pre-Scan
(30.0 MHz to 1000.0 MHz) GSM 850 Idle Mode



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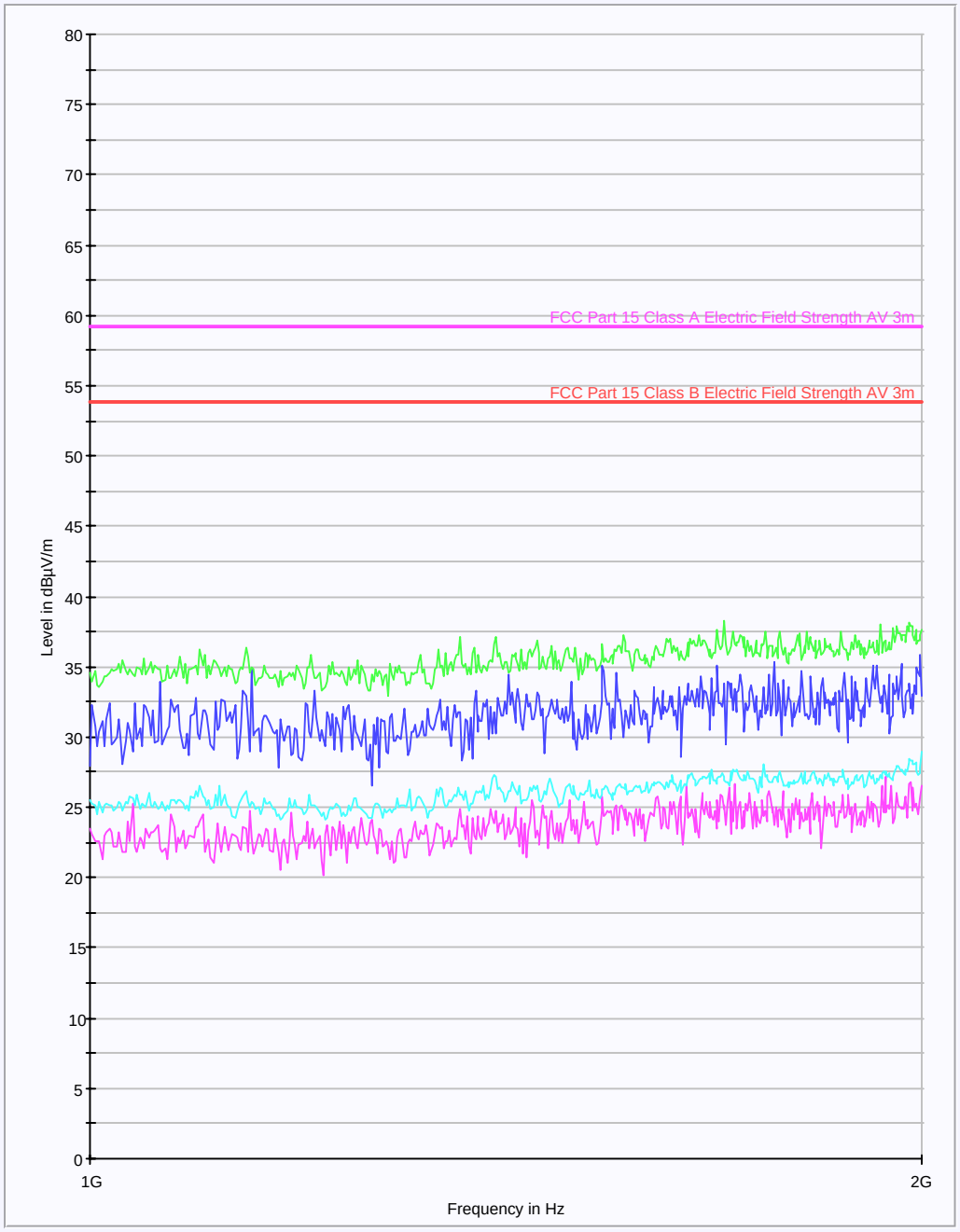
GPH\49684JD03\004
Radiated Emissions Pre-Scan
(1000.0 MHz to 2000.0 MHz) GSM 850 Idle Mode



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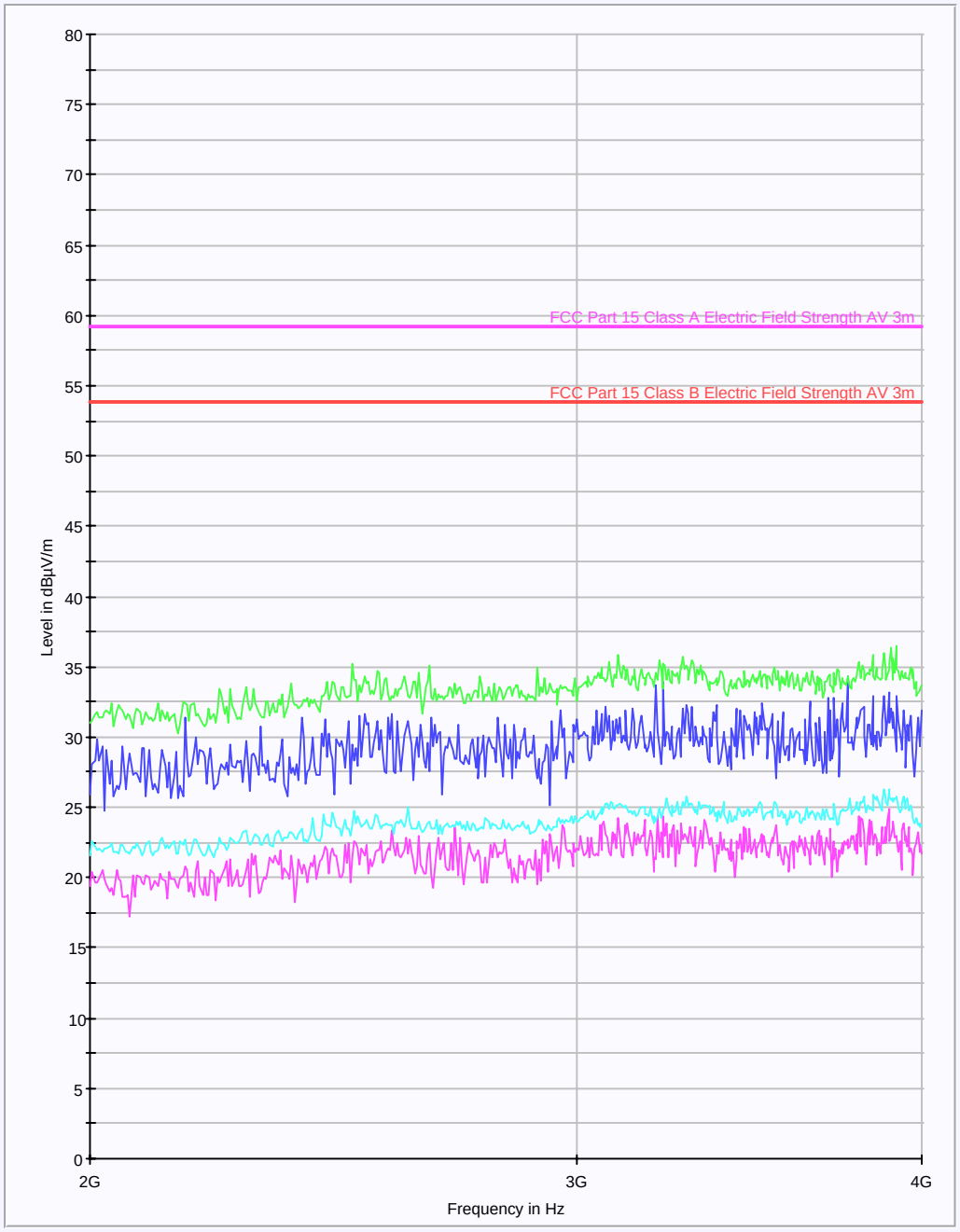
GPH\49684JD03\005
Radiated Emissions Pre-Scan
(2000.0 MHz to 4000.0 MHz) GSM 850 Idle Mode



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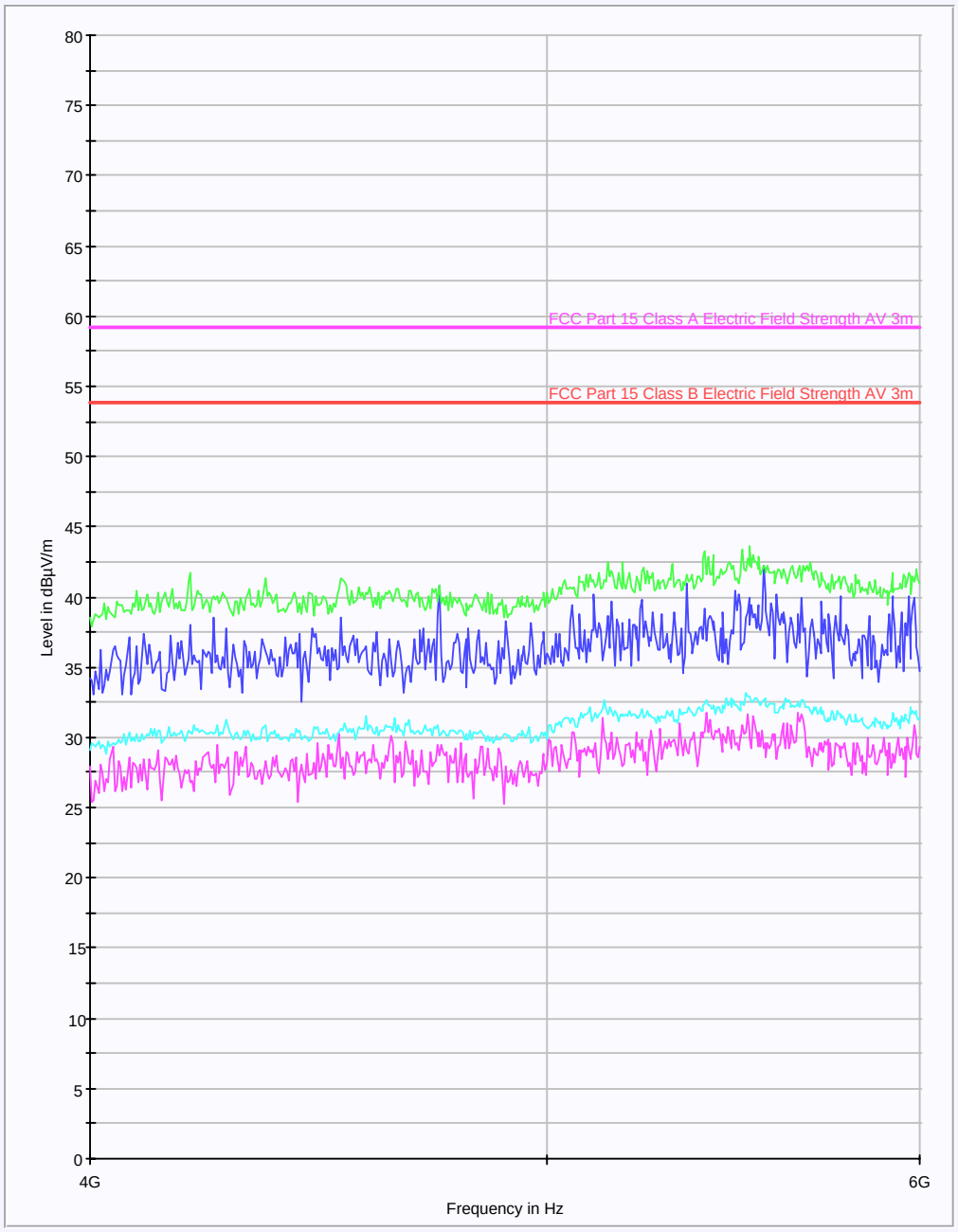
GPH\49684JD03\006
Radiated Emissions Pre-Scan
(4000.0 MHz to 6000.0 MHz) GSM 850 Idle Mode



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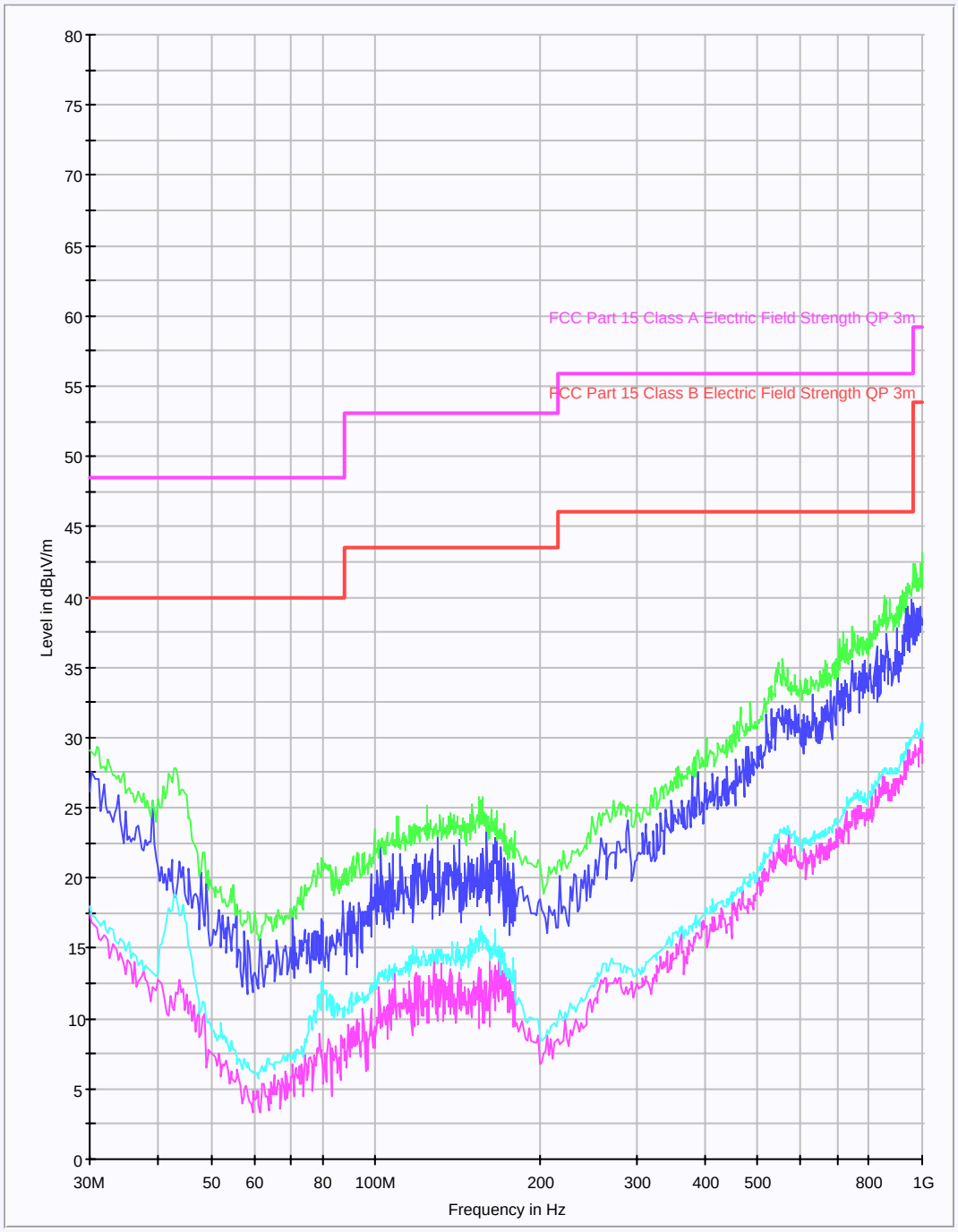
GPH\49684JD03\007
Radiated Emissions Pre-Scan
(30.0 MHz to 1000.0 MHz) GSM 1900 Idle Mode



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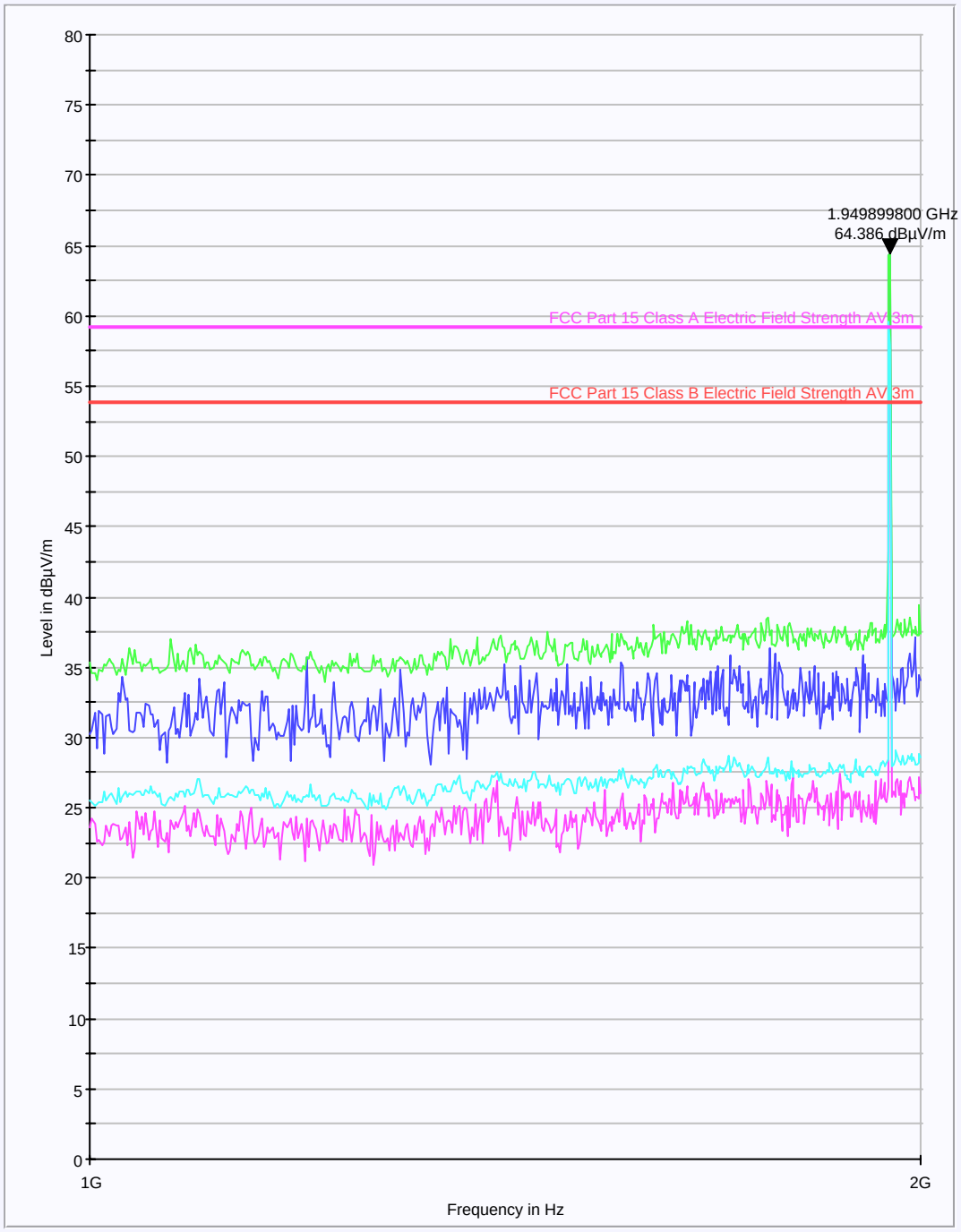
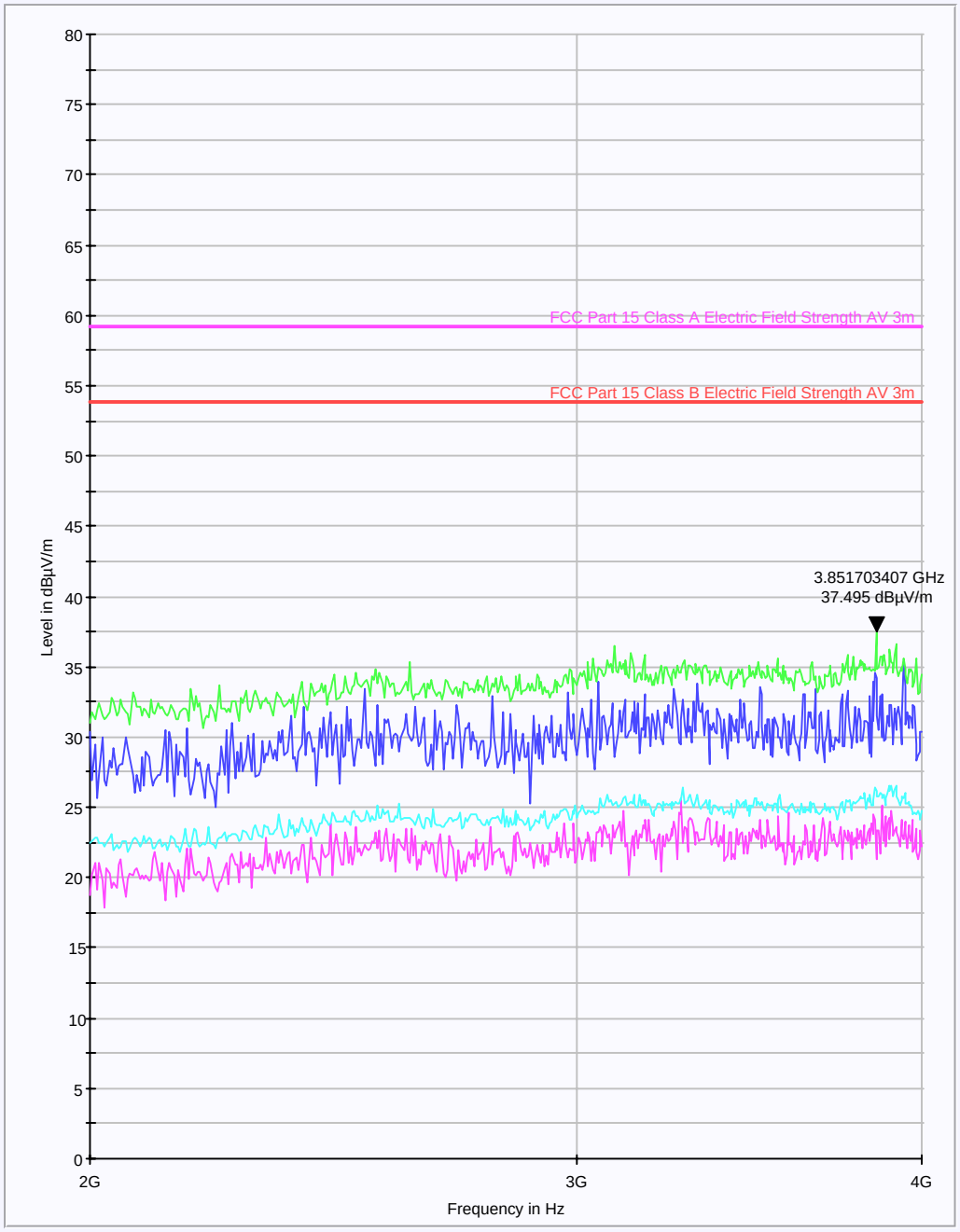
GPH\49684JD03\008
Radiated Emissions Pre-Scan
(1000.0 MHz to 2000.0 MHz) GSM 1900 Idle Mode



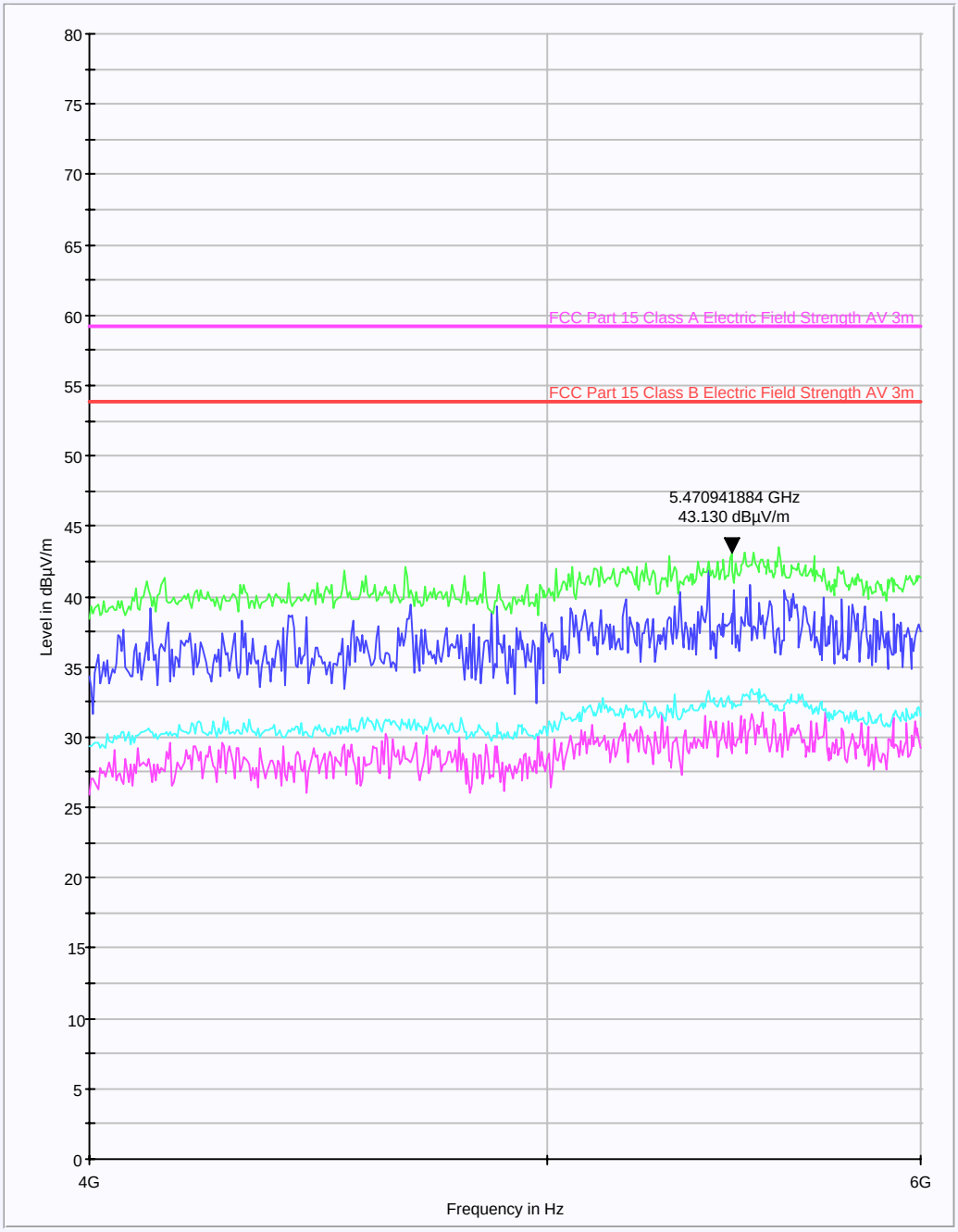
Test Of: Connexion2 Ltd
Identicom i770
To: FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)

GPH\49684JD03\009
Radiated Emissions Pre-Scan
(2000.0 MHz to 4000.0 MHz) GSM 1900 Idle Mode



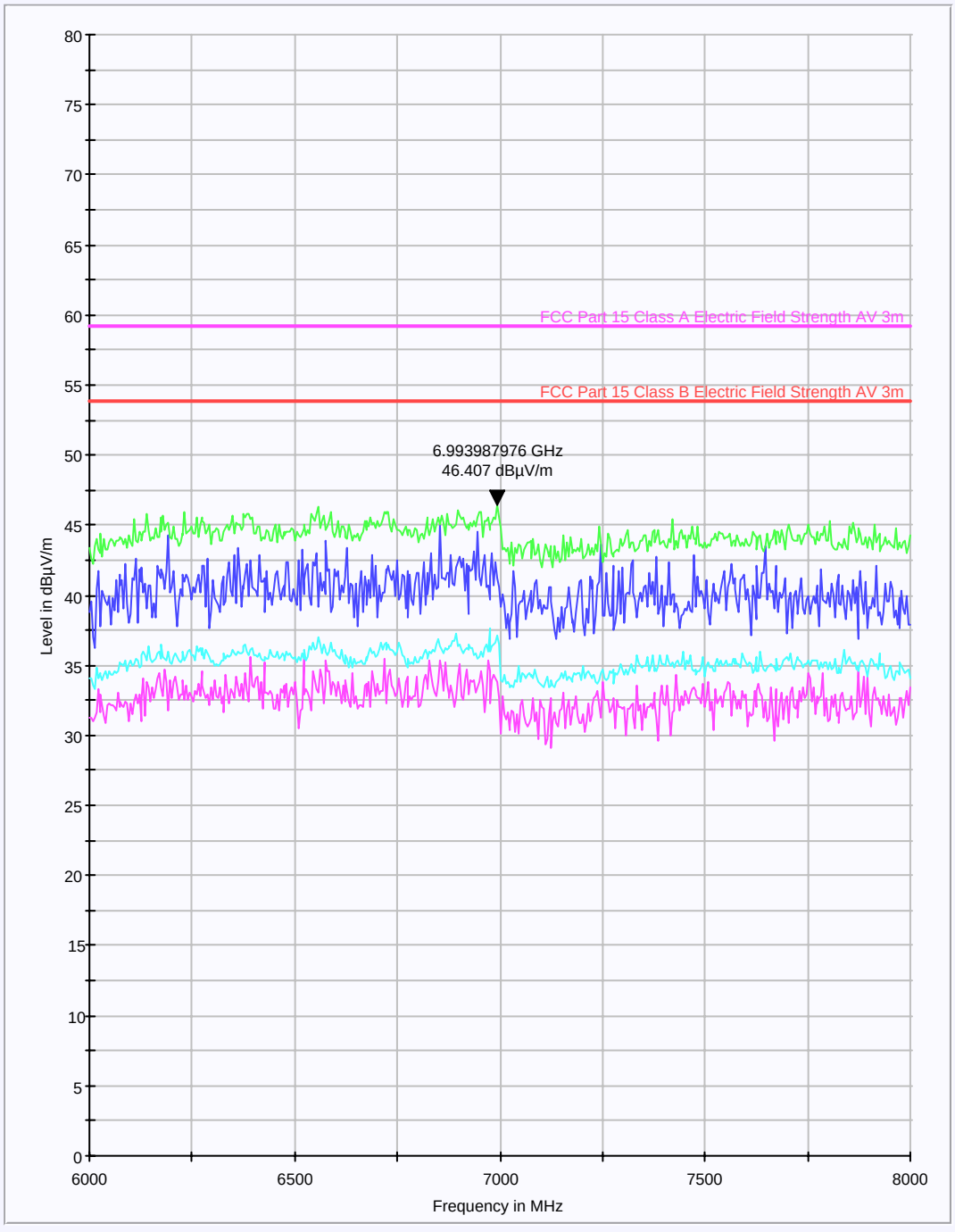
Test Of: **Connexion2 Ltd**
Identicom i770
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

GPH\49684JD03\010
Radiated Emissions Pre-Scan
(4000.0 MHz to 6000.0 MHz) GSM 1900 Idle Mode



Test Of: **Connexion2 Ltd**
Identicom i770
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

GPH\49684JD03\011
Radiated Emissions Pre-Scan
(6000.0 MHz to 8000.0 MHz) GSM 1900 Idle Mode



Test Of: **Connexion2 Ltd**
Identicom i770
To: **FCC Part 15: 2007 Class B (Sections 15.107 and 15.109)**

GPH\49684JD03\012
Radiated Emissions Pre-Scan
(8000.0 MHz to 12000.0 MHz) GSM 1900 Idle Mode