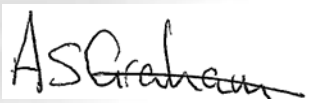
TEST REPORT

TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Comfort Audio AB, DC10-US

To: 47CFR15.107, 47CFR15.109 and RSS-GEN Issue 2 June 2007

Test Report Serial No: RFI-EMC-RP79710JD01A

This test report is issued under the authority of Chris Guy, Head of Global Approvals: 	
Checked By:	**Andy Graham**
Signature: 	
Date of Issue:	**17 January 2011**

THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2006

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1. CUSTOMER DETAILS

Company Name:	Comfort Audio AB
Address:	Slottsmollan Halmstad 302 31 Sweden

2. SUMMARY OF TESTING

2.1. Test Specification

Reference:	47CFR15.107 and 47CFR15.109
Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2009: Part 15 Subpart B (Radio Frequency Devices) – Section 15.107 and 15.109.
Reference:	RSS-210 Issue 7 June 2007
Title:	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category 1 Equipment.
Reference:	RSS-GEN Issue 2 June 2007
Title:	General Requirements and Information for the Certification of Radio communication Equipment
Site Registration:	FCC: 209735 Industry Canada: 3245B-2

2.2. Summary of Test Results

FCC Reference	IC Reference	Measurement Type	Applicability	Result
		EMISSIONS		
15.109	RSS-Gen 4.10 RSS-Gen 6.0	Radiated Emissions (Enclosure)	Y	
15.107	RSS-GEN 7.2.2	Conducted Emissions (AC Mains Input / Output Ports)	Y	

KEY: = Complied = Did not comply

2.3. Location of Testing

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire RG24 8AH.

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above, nor from the requirements defined in the basic standards called up within it.

3. EQUIPMENT UNDER TEST (EUT)

3.1. Description of EUT

The EUT was an advanced conference microphone

3.2. Identification of Equipment under Test (EUT)

ID#	Description	Brand Name	Model No	Serial No
E1	Advanced Conference Microphone	Comfort Audio AB	DC10-US	DM1010159
E2	AC/DC adaptor	I.T.E Power Supply	FW7600/05	T40/E IP40

3.3. Port Identification

Port	Description	Type
P1	Enclosure	-
P2	CHARGE	2 pin
P3	MIC/LINE IN	Audio jack
P4	Multifunction socket	11 pin

3.4. Operating Modes

Mode Reference	Definition
Active	The EUT was powered on in an idle state whilst being charged, via the AC/DC adaptor, from the AC mains supply (110 VAC)

3.5.Radio characteristics

Transmit Frequency Range (MHz):	904.65 MHz to 926.85 MHz
Transmit Channel Tested (MHz):	904.65 MHz to 926.85 MHz
Rated Output Power (dBm):	Unknown
Receive Frequency Range (MHz):	904.65 MHz to 926.85 MHz
Receive Channel Tested (MHz):	904.65 MHz to 926.85 MHz

3.6. Configuration and Peripherals

Description:	Please refer to the Test Configuration and Photograph section for schematic drawing(s) and/or photograph(s) of the test configuration(s) employed in the course of testing.

3.7. Modifications

NOTE: No modifications were made to the EUT during the course of testing

3.8. Additional Information Related to Testing

Equipment Category:	Microphone
Intended Operating Environment:	Residential / Commercial
Cycle Time:	< 1 s
Power Supply Requirement(s):	5 VDC (AC/DC adaptor)
Weight:	9.0 g
Dimensions:	115 x 62 x 14 mm
Class	Class 2
Type:	Type II
Highest Internal Oscillating Frequency:	26 MHz
Hardware Version Number:	CC08G
Software Version Number:	1.21a
FCC ID Number:	UOJ-DG03T
Industry Canada Certification Number:	6769A-DG03T

4. SUPPORT EQUIPMENT

4.1. Identification of Support Equipment

NOTE: No support equipment was used during the course of testing

4.2. Interconnecting Cables

NOTE: No interconnecting cables were used during the course of testing

5. MONITORING PERFORMANCE

5.1. Overview

Only emissions tests were performed; therefore performance criteria were not applicable.

5.2. Monitoring EUT Performance during Testing

For the purposes of testing, the term "*operate as intended*" was defined as:	The EUT was powered on in an idle state whilst being charged, via the AC/DC adaptor, from the AC mains supply (110 VAC)
For the purposes of testing, an "*unintentional response*" was defined as:	Not Applicable
Method used to determine whether user control functions and stored data were lost after the EMC exposure:	Not Applicable
Method used to verify that a communications link was established and maintained (if appropriate):	Not Applicable
Method of assessment of level of performance or degradation of performance during and/or after EMC exposure:	Not Applicable

6. MEASUREMENT UNCERTAINTY

6.1. Overview

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 regarding the uncertainty of approximation.

The measurement uncertainty may need to be taken into account when interpreting the test results included within this test report.

6.2. Method of calculation

The methods used to calculate the uncertainties included within this test report 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 United Kingdom Accreditation Service (UKAS) is followed.

7. MEASUREMENTS, EXAMINATIONS AND DERIVED RESULTS

7.1. General Comments

7.1.1. This section contains the test result sheets for the measurements listed in Section *2.2. Summary of Test Results* (above).

7.1.2. The measurement uncertainties stated in the test result sheets were calculated in accordance with documented best practice and represent a confidence level of 95%. Where only confidence level is given, it has been demonstrated that the relevant items of test equipment used meet the specified requirements in the standard with at least this level of confidence.

7.1.3. Please refer to Section *6. Measurement Uncertainty* on page 10 for details of our treatment of measurement uncertainty.

RADIATED EMISSIONS - TEST RESULTS

This test is covered by the scope of RFI's UKAS Accreditation under ISO/IEC 17025: 2005.

GENERAL INFORMATION

RFI JOB NUMBER:	79710JD01	**TEST SITE ID:**	Site 1
EUT:	DC10-US	**TEMPERATURE:**	20 °C to 20 °C
TEST ENGINEER:	Jack Suter	**RELATIVE HUMIDITY:**	32 % to 32 %
DATE OF TEST:	20 Dec 2010	**ATMOSPHERIC PRESSURE:**	998 mb to 998 mb
FIELD TYPE:	Electric Field	**MEASUREMENT DISTANCE:**	3 Meters
UNCERTAINTY (±):	±3.99 dB	**EQUIPMENT CLASS:**	Class B
MEASUREMENT UNITS:	dBµV/m	**TEST ENVIRONMENT:**	Test Site

TEST SPECIFICATION DETAILS

The EUT has been configured and tested in accordance with the methods and procedures detailed within the following basic standard:

REFERENCE:	ANSI C63.4-2009
TITLE:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

COMMENTS

None

DEVIATIONS FROM TEST SPECIFICATION

There were no deviations from the test configuration and measurement arrangements defined in the test specification (identified above).

EUT RELATED

OPERATING MODE:	Active
FUNCTION(S) MONITORED:	Not Applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Polarity	Detector	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Graph No.	Result
1	37.906	Vertical	Quasi-Peak	37.9	40.0	2.1	001	Complied
2	45.989	Vertical	Quasi-Peak	30.9	40.0	9.1	001	Complied
3	46.011	Vertical	Quasi-Peak	31.0	40.0	9.0	001	Complied
4	51.425	Vertical	Quasi-Peak	27.9	40.0	12.1	001	Complied
5	119.374	Vertical	Quasi-Peak	21.7	43.5	21.8	001	Complied
6	417.593	Horizontal	Quasi-Peak	24.7	46.0	21.3	001	Complied
7	446.405	Vertical	Quasi-Peak	23.6	46.0	22.4	001	Complied
8	475.201	Horizontal	Quasi-Peak	29.4	46.0	16.6	001	Complied
9	504.009	Vertical	Quasi-Peak	26.8	46.0	19.2	001	Complied
11	906.047	Horizontal	Quasi-Peak	42.5	46.0	3.5	001	Complied
12	1000 to 2000	Refer to Note 2					002	Complied
13	2000 to 4000	Refer to Note 2					003	Complied
14	4000 to 7000	Refer to Note 2					004	Complied

NOTES

1 An emission observed at 904.650 MHz was an intentional transmission from the EUT. Therefore no final measurement was made.

2 No emissions were noted above the noise floor of the measurement system. Therefore no further measurements were made.

TEST EQUIPMENT USED

RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0001	5 m Semi-Anechoic Chamber	None Stated	25 Apr 2011	12
L1001	26.5 GHz Test Receiver	ESU26	28 Jan 2011	12
A553	Bi-log Antenna	CBL6111A	16 Mar 2011	12
G0543	Amplifier 9 kHz to 1 GHz	310N	30 Jun 2011	12
C1306	15 m Rosenberger Cable	FA210A0015005050	23 Feb 2011	12
C1302	3 m Rosenberger Cable	FA210A1030005050	30 Jun 2011	12
C1305	3 m Rosenberger Cable	FA210A1030005050	Calibration not required	
C1303	8 m Rosenberger Cable	FA210A1080005050	23 Feb 2011	12
C1077	UFA210A Cable	FA210A1010M5050	17 Feb 2011	12
M172	Electronic Environmental Monitor	BA-116	05 Jul 2011	12
A1834	3 dB N-Type Attenuator	8491B	30 Jun 2011	12
A1984	1 GHz High Pass Filter	AFH-01000	22 Feb 2011	12

CONDUCTED EMISSIONS - TEST RESULTS

This test is covered by the scope of RFI's UKAS Accreditation under ISO/IEC 17025: 2005.

GENERAL INFORMATION

RFI JOB NUMBER:	79710JD01	**TEST SITE ID:**	Site 8
EUT:	DC10-US	**TEMPERATURE:**	22 °C to 22 °C
TEST ENGINEER:	Jack Suter	**RELATIVE HUMIDITY:**	32 % to 32 %
DATE OF TEST:	20 Dec 2010	**ATMOSPHERIC PRESSURE:**	998 mb to 998 mb
UNCERTAINTY (±):	±3.99 dB	**EQUIPMENT CLASS:**	Class B
CATEGORY:	Not applicable	**MEASUREMENT METHOD:**	LISN (AC)

TEST SPECIFICATION DETAILS

The EUT has been configured and tested in accordance with the methods and procedures detailed within the following basic standard:

REFERENCE:	ANSI C63.4-2009
TITLE:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

COMMENTS

None

DEVIATIONS FROM TEST SPECIFICATION

There were no deviations from the test configuration and measurement arrangements defined in the test specification (identified above).

EUT RELATED

OPERATING MODE:	Active
FUNCTION(S) MONITORED:	Not Applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Line	Detector	Level (dBµV)	Limit (dBµV)	Margin (dB)	Graph No.	Result
1	0.186	Live 1	Quasi-Peak	40.7	64.2	23.5	005	Complied
2	0.294	Live 1	Quasi-Peak	40.7	60.4	19.7	005	Complied
3	0.348	Live 1	Quasi-Peak	42.9	59.0	16.1	005	Complied
4	0.407	Live 1	Quasi-Peak	36.7	57.7	21.0	005	Complied
5	0.582	Live 1	Quasi-Peak	34.9	56.0	21.1	005	Complied
6	0.767	Live 1	Quasi-Peak	30.5	56.0	25.5	005	Complied
7	3.764	Neutral	Quasi-Peak	41.3	56.0	14.7	005	Complied
8	20.162	Neutral	Quasi-Peak	33.0	60.0	27.0	005	Complied
9	0.177	Live 1	Average (CISPR)	27.5	54.6	27.1	005	Complied
10	0.299	Live 1	Average (CISPR)	24.4	50.3	25.9	005	Complied
11	0.348	Live 1	Average (CISPR)	28.1	49.0	20.9	005	Complied
12	0.411	Live 1	Average (CISPR)	21.1	47.6	26.5	005	Complied
13	0.573	Neutral	Average (CISPR)	24.8	46.0	21.2	005	Complied
14	0.798	Neutral	Average (CISPR)	24.4	46.0	21.6	005	Complied
15	3.548	Neutral	Average (CISPR)	30.5	46.0	15.5	005	Complied
16	19.838	Neutral	Average (CISPR)	23.9	50.0	26.2	005	Complied

NOTES

N/A During measurement the engineer did not record any specific notes relevant to report.

TEST EQUIPMENT USED

RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0008	Conducted AC Emissions / Conducted RF immunity Laboratory	None Stated	Calibration not required	
M1379	ESIB 7 Test Receiver	ESIB7	26 Aug 2011	12
A1069	Single Phase LISN	ESH3-Z5	13 Apr 2011	12
C363	3 m cable	RG142	23 Feb 2011	12
A1830	N-Type Pulse Limiter	ESH3-Z2	01 Mar 2011	12
M172	Electronic Environmental Monitor	BA-116	05 Jul 2011	12

8. PHOTOGRAPHS OF EUT

This section contains the following photographs:

Photo Reference Number	Title
PHT\79710JD01\001	Test Configuration Photograph - Conducted Emissions
PHT\79710JD01\002	Test Configuration Photograph - Radiated Emissions

PHT\79710JD01\001 - Test Configuration Photograph - Conducted Emissions

PHT\79710JD01\002 - Test Configuration Photograph - Radiated Emissions

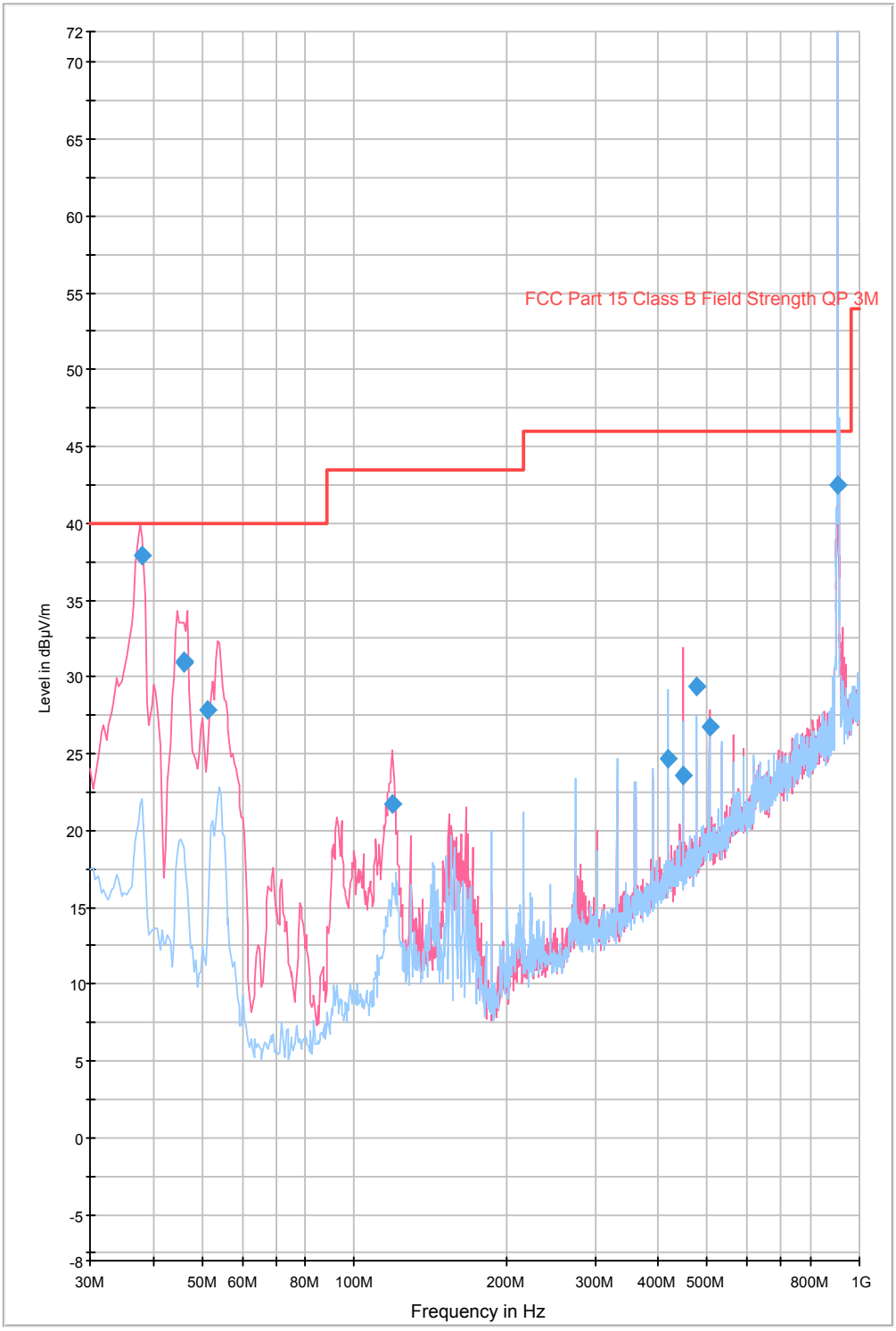
9. GRAPHICAL TEST RESULTS

9.1. This section contains the graphical results for the measurements listed in Section *2.2. Summary of Test Results* (above).

Graph Number	Title
GPH\79710JD01\001	Radiated Emissions Pre-Scan (30 MHz to 1000 MHz)
GPH\79710JD01\002	Radiated Emissions Pre-Scan (1000 MHz to 2000 MHz)
GPH\79710JD01\003	Radiated Emissions Pre-Scan (2000 MHz to 4000 MHz)
GPH\79710JD01\004	Radiated Emissions Pre-Scan (4000 MHz to 7000 MHz)
GPH\79710JD01\005	Conducted Emissions Pre-Scan (0.15 MHz to 30 MHz)

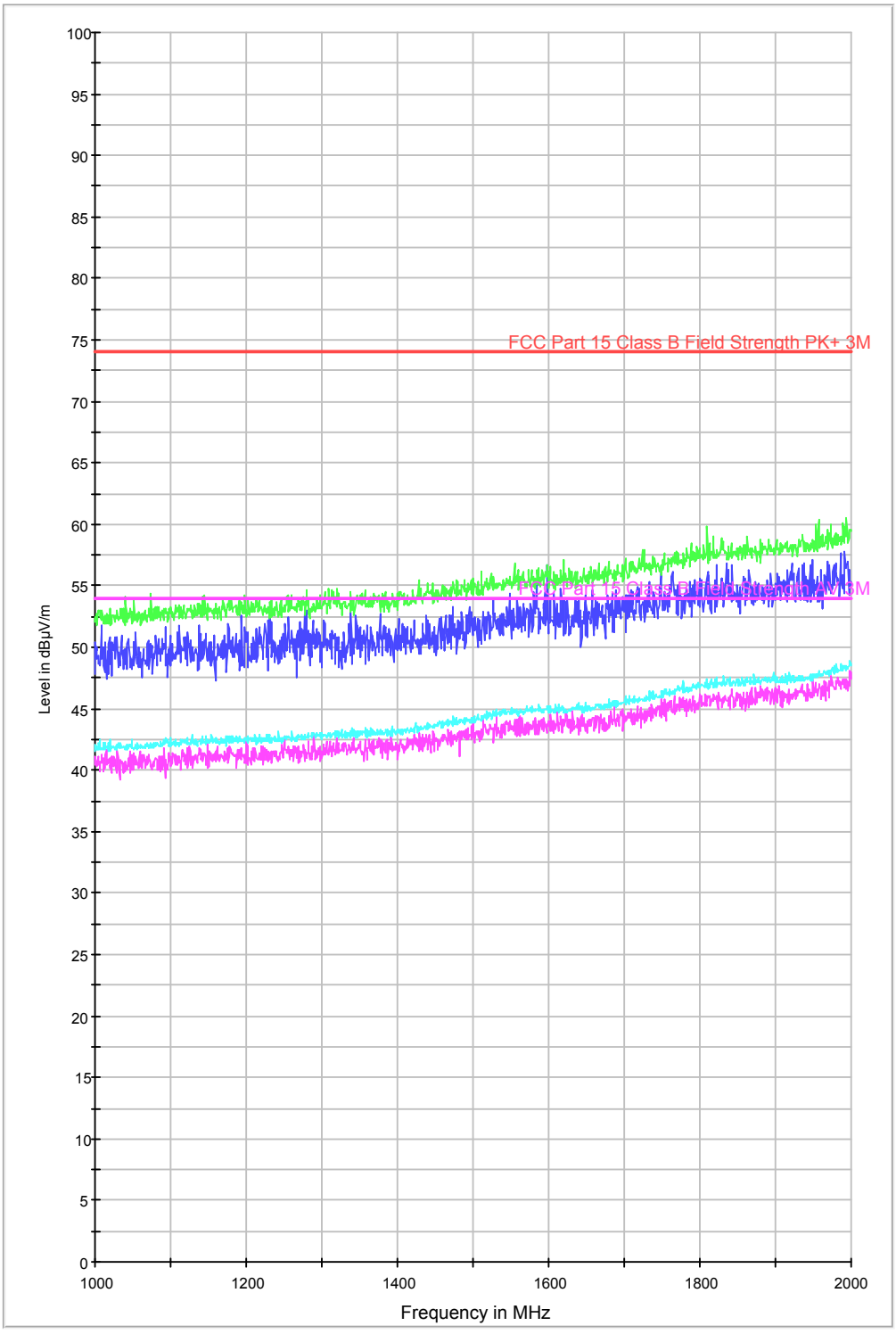
GPH\79710JD01\001

FCC Part 15.109 Radiated Emissions Class B 30MHz-1GHz 3m



GPH\79710JD01\002

Radiated Emissions Field Strength 1- 2GHz



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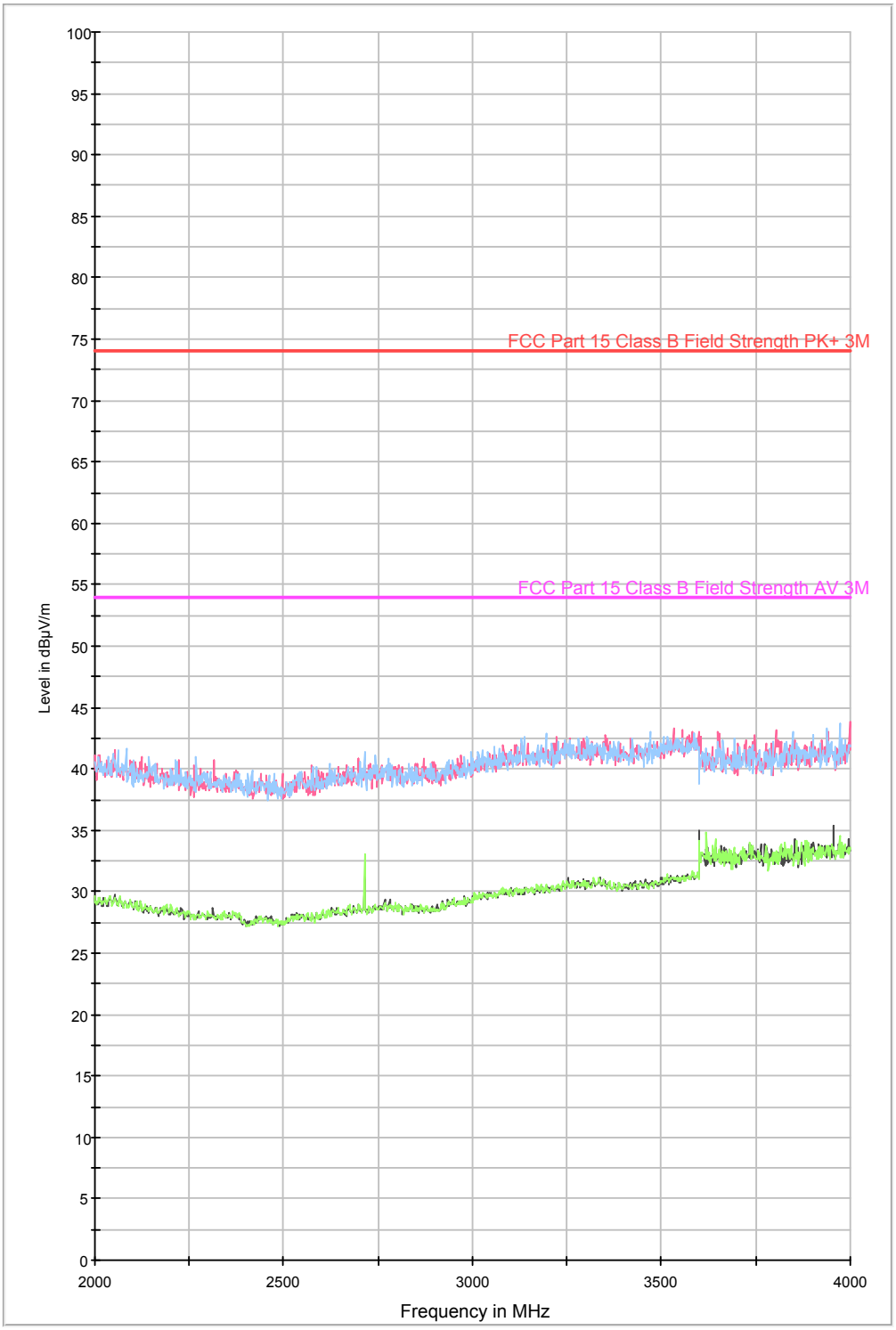
FCC Part 15.109 Radiated Emissions Class B 1-4GHz



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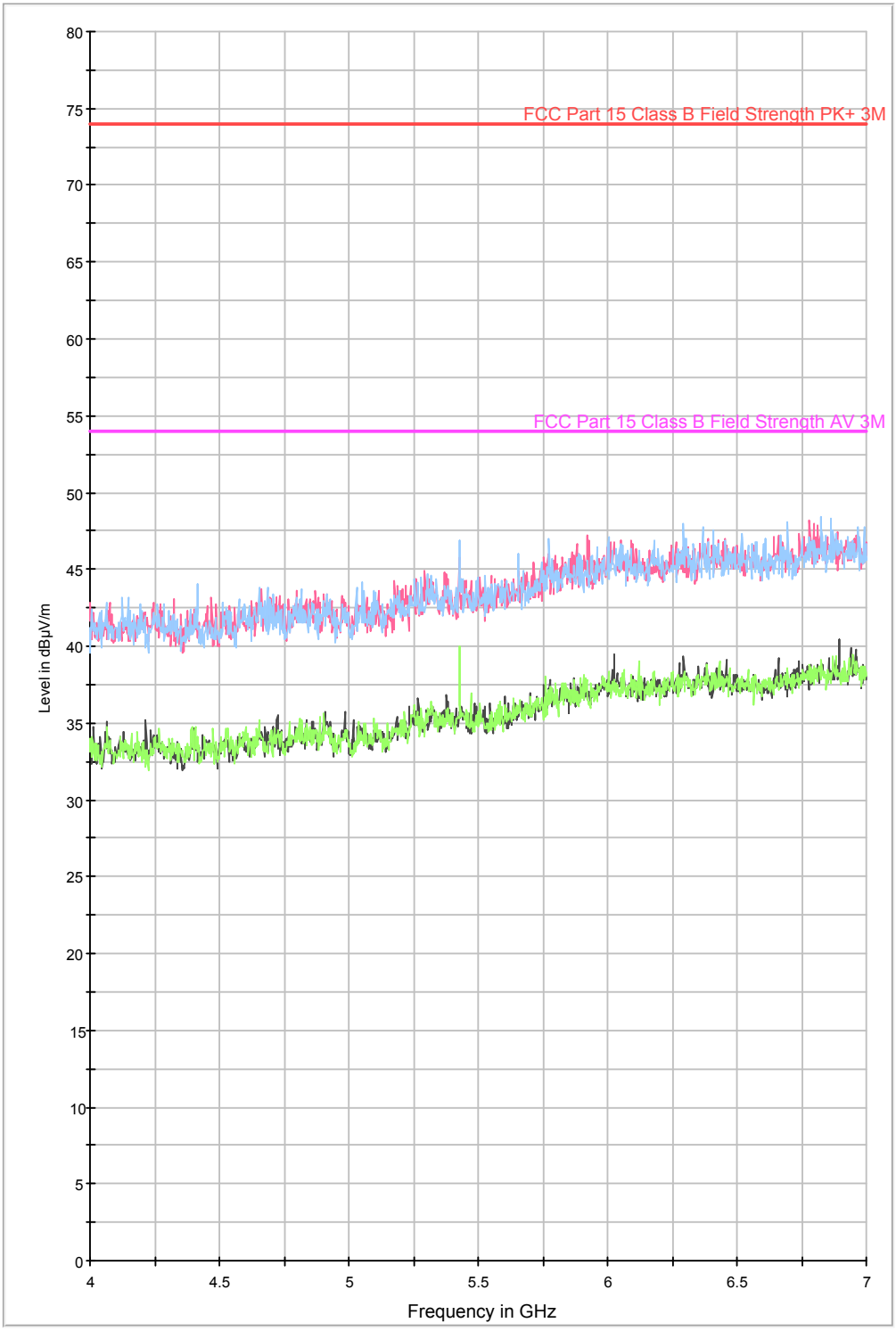
FCC Part 15.109 Radiated Emissions Class B 4-7GHz



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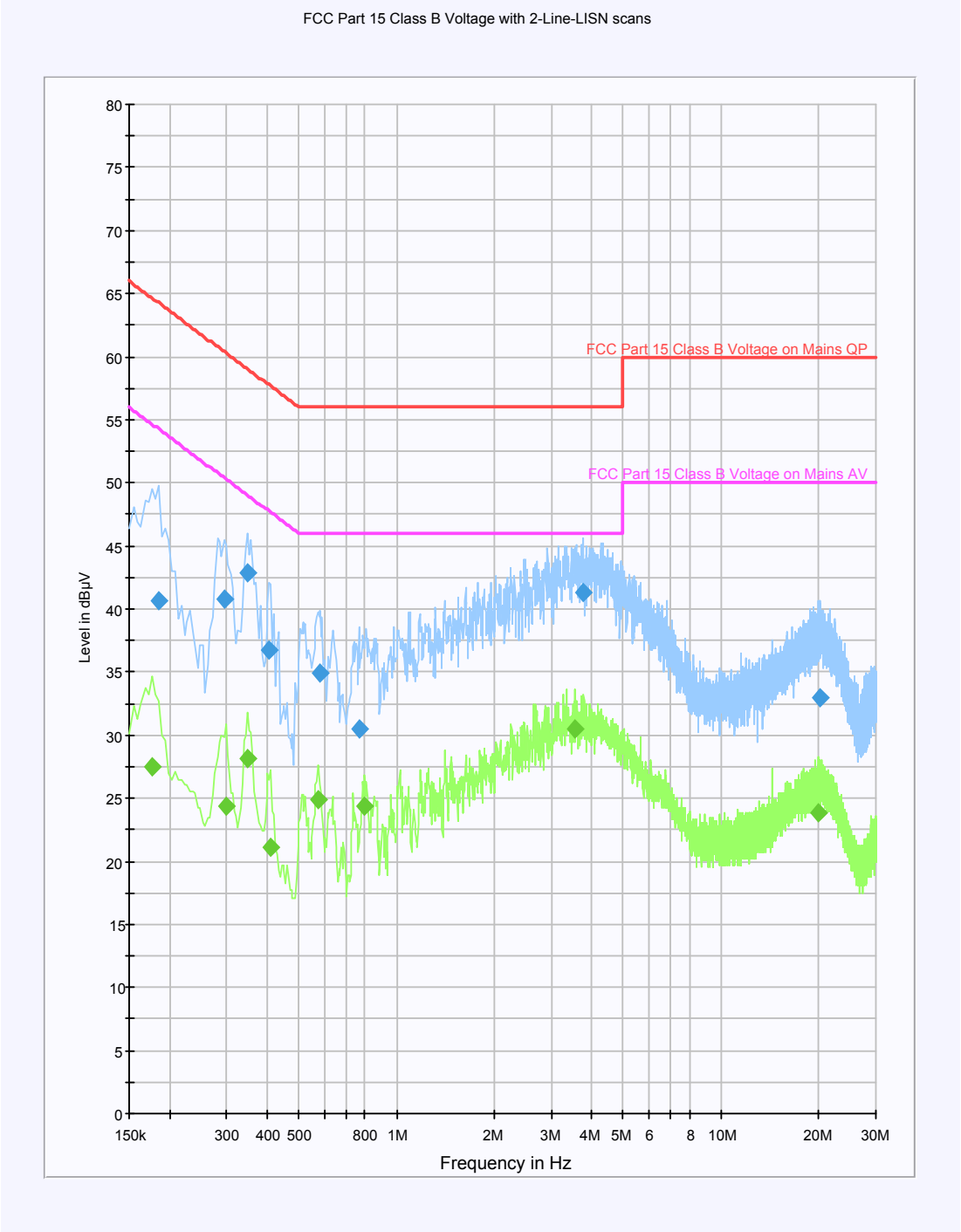

10. TEST CONFIGURATION DRAWING

10.1. This section contains the Test Configuration Drawings for the measurements listed in Section 7: Measurements, Examinations and Derived Results.

Test Configuration Reference Number	Title
DRG\79710JD01\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

DRG\79710JD01\001 - Schematic diagram of the EUT, support equipment and interconnecting cables used for the test