

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: Aerotel Medical Systems Ltd, GeoSKeeper

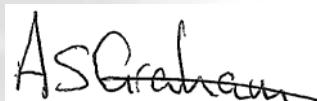
To: 47CFR15.107, 47CFR15.109 and RSS-GEN Issue 3 December 2010

Test Report Serial No: RFI-EMC-RP81245JD03A V3.0

Version 3.0 supersedes all previous versions

**This test report is issued under the authority
of Chris Guy, Head of Global Approvals:**



Checked By:	Andy Graham
Signature:	
Date of Issue:	26 October 2011

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TABLE OF CONTENTS

1. Customer Details	5
2. Summary of Testing	6
3. Equipment under Test (EUT)	7
4. Support Equipment.....	8
5. Monitoring Performance	9
6. Measurement Uncertainty	10
7. Measurements, Examinations and Derived Results	11
8. Photographs of EUT	16
9. Graphical Test Results	19
10. Test Configuration Drawing.....	27

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1. CUSTOMER DETAILS

Company Name:	Aerotel Medical Systems Ltd
Address:	5 Hazoref St Holon 58856 Israel

2. SUMMARY OF TESTING

2.1. Test Specification

Reference:	47CFR15.107 and 47CFR15.109
Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart B (Radio Frequency Devices) – Sections 15.107 and 15.109.
Reference:	RSS-GEN Issue 3 December 2010
Title:	General Requirements and Information for the Certification of Radio Apparatus
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 6.1	Radiated Emissions (Enclosure)	Y	✓
15.107	RSS-Gen 7.2.4	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 a Personal Wristop Cellular Communicator with Emergency Response, GPS Tracking and Geofencing device.

3.2. Identification of Equipment under Test (EUT)

ID#	Description	Brand Name	Model No	Serial No	IMEI
E1	Wristop Communicator	Aerotel Medical Systems	GeoSKeeper	805080	357464030365396
E2	Wall mount power supply	Shinning	GPU07-0501000	None stated	Not applicable

3.3. Port Identification

Port	Description	Type
P1	Enclosure	-
P2	Power Jack	Co-axial

3.4. Operating Modes

Mode Reference	Definition
Idle	A SIM card was inserted into the EUT; the unit was powered and was searching for cellular networks.

Radio characteristics

GSM Bands supported:	Rated Output Power (dBm)	Transmit Frequency range (MHz)	ARFCN	Transmit Frequency (MHz)	Receive Frequency range (MHz)	ARFCN	Receive Frequency (MHz)
GSM 850	33	824-849	190	836.6	869-894	190	881.6
PCS 1900	30	1850-1910	660	1879.8	1930-1990	660	1959.8
Supported Technologies e.g. Circuit Switched Voice/Data, Packet Switched Data GPRS/ EDGE		GSM and PCS circuit switched, GPS					

3.5. 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.
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3.6. Modifications

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

3.7. Additional Information Related to Testing

Equipment Category:	GSM/PCS/GPS
Intended Operating Environment:	Within GSM/PCS coverage
Cycle Time:	< 1 s
Power Supply Requirement(s):	3.7 VDC (internal battery)
Weight:	75 g
Dimensions:	67 x 48 x 19 mm
Antenna Type:	Integral
FCC ID Number:	VZU-GEOSKEEPER-Q
Industry Canada Certification Number:	6931A-GEOSKEEPERQ

4. SUPPORT EQUIPMENT

4.1. Identification of Support Equipment

Description	Manufacturer	Model No	Serial No
Radio Communication Tester	Rohde & Schwarz	CMU 200	835687/011

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 “<i>operate as intended</i>” was defined as:	The EUT remained in a communication link with the radio communication tester
For the purposes of testing, an “<i>unintentional response</i>” 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):	The status of the communication link was monitored via the radio communication tester.
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

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:	81245JD03	TEST SITE ID:	Site 1
EUT:	GeoSKeeper	TEMPERATURE:	27 °C to 28 °C
TEST ENGINEER:	Eric Phiri	RELATIVE HUMIDITY:	31 % to 31 %
DATE OF TEST:	18 May 2011	ATMOSPHERIC PRESSURE:	1001mb to 1001 mb
FIELD TYPE:	Electric Field	MEASUREMENT DISTANCE:	3 Meters
UNCERTAINTY (±):	±3.99 dB	EQUIPMENT CLASS:	Class B
MEASUREMENT UNITS:	dB μ V/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:	Idle
FUNCTION(S) MONITORED:	Not Applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Polarity	Detector	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Graph No.	Result
1	30.616	Vertical	Quasi-Peak	23.1	40.0	16.9	GPH\81245JD03\001	Complied
2	38.550	Vertical	Quasi-Peak	9.9	40.0	30.1	GPH\81245JD03\001	Complied
3	94.200	Vertical	Quasi-Peak	4.6	43.5	38.9	GPH\81245JD03\001	Complied
4	124.648	Vertical	Quasi-Peak	9.2	43.5	34.3	GPH\81245JD03\001	Complied
5	341.123	Vertical	Quasi-Peak	10.4	46.0	35.6	GPH\81245JD03\001	Complied
6	429.772	Vertical	Quasi-Peak	13.2	46.0	32.8	GPH\81245JD03\001	Complied
7	549.129	Vertical	Quasi-Peak	16.4	46.0	29.6	GPH\81245JD03\001	Complied
8	809.860	Vertical	Quasi-Peak	21.4	46.0	24.6	GPH\81245JD03\001	Complied
9	1000 to 4000			Refer to Note 1			GPH\81245JD03\002	Complied
10	4000 to 7000			Refer to Note 1			GPH\81245JD03\003	Complied
11	7000 to 10000			Refer to Note 1			GPH\81245JD03\004	Complied
12	10000 to 12750			Refer to Note 1			GPH\81245JD03\005	Complied

NOTES

- 1 No emissions were noted above the noise floor of the measurement system. Therefore no further measurements were made.
- 2 Measurements below 1 GHz were performed in a semi-anechoic chamber at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
Pre-scans and final measurements above 1 GHz were performed in a semi-anechoic chamber at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

TEST EQUIPMENT USED

RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
M1273	EMI Test Receiver	ESIB 26	04 Feb 2012	12
C1302	3 m Rosenberger Cable	FA210A1030005050	31 Mar 2012	12
C1305	3 m Rosenberger Cable	FA210A1030005050	Calibration not required	
A553	Bi-log Antenna	CBL6111A	26 Mar 2012	12
A1817	1 to 18 GHz Horn Antenna	3115	03 Feb 2012	12
M172	Electronic Environmental Monitor	BA-116	05 Jul 2011	12
A1516	Universal Radio Communications Tester	CMU 200	Calibration not required	

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:	81245JD03	TEST SITE ID:	Site 8	
EUT:	GeoKeeper	TEMPERATURE:	28 °C to 28 °C	
TEST ENGINEER:	Timothy Golding	RELATIVE HUMIDITY:	30 % to 30 %	
DATE OF TEST:	13 October 2011	ATMOSPHERIC PRESSURE:	1005 mb to 1005 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:	Idle
FUNCTION(S) MONITORED:	Not Applicable

MEASUREMENT RESULTS

No.	Frequency (MHz)	Line	Detector	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Graph No.	Result
1	0.150	Live 1	Quasi-Peak	45.551	66.00	20.45	GPH\81245JD03\006	Complied
2	0.155	Neutral	Quasi-Peak	42.180	65.75	23.57	GPH\81245JD03\007	Complied
3	0.159	Neutral	Average (CISPR)	19.988	55.52	35.53	GPH\81245JD03\007	Complied
4	0.173	Live 1	Quasi-Peak	46.132	64.84	18.71	GPH\81245JD03\006	Complied
5	0.173	Live 1	Average (CISPR)	26.629	54.84	28.21	GPH\81245JD03\006	Complied
6	0.177	Live 1	Average (CISPR)	25.725	54.63	28.90	GPH\81245JD03\006	Complied
7	0.191	Neutral	Average (CISPR)	20.086	54.01	33.93	GPH\81245JD03\007	Complied
8	0.213	Live 1	Quasi-Peak	40.301	63.09	22.79	GPH\81245JD03\006	Complied
9	0.213	Live 1	Average (CISPR)	22.935	53.09	30.15	GPH\81245JD03\006	Complied
10	0.254	Live 1	Quasi-Peak	34.470	61.64	27.17	GPH\81245JD03\006	Complied
11	0.339	Live 1	Average (CISPR)	23.609	49.23	25.62	GPH\81245JD03\006	Complied
12	0.384	Live 1	Quasi-Peak	35.611	58.19	22.58	GPH\81245JD03\006	Complied
13	0.384	Neutral	Average (CISPR)	25.933	48.19	22.26	GPH\81245JD03\007	Complied
14	0.389	Live 1	Average (CISPR)	25.424	48.10	22.67	GPH\81245JD03\006	Complied
15	0.389	Neutral	Quasi-Peak	34.298	58.10	23.80	GPH\81245JD03\007	Complied

MEASUREMENT RESULTS

No.	Frequency (MHz)	Line	Detector	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Graph No.	Result
16	1.302	Neutral	Average (CISPR)	11.409	46.00	34.59	GPH\81245JD03\007	Complied
17	1.383	Neutral	Quasi-Peak	26.899	56.00	29.10	GPH\81245JD03\007	Complied
18	1.586	Live 1	Average (CISPR)	10.436	46.00	35.56	GPH\81245JD03\006	Complied
19	1.617	Live 1	Quasi-Peak	23.735	56.00	32.27	GPH\81245JD03\006	Complied
20	1.901	Neutral	Quasi-Peak	24.993	56.00	31.01	GPH\81245JD03\007	Complied
21	1.964	Neutral	Average (CISPR)	11.078	46.00	34.92	GPH\81245JD03\007	Complied
22	2.738	Neutral	Quasi-Peak	21.213	56.00	34.79	GPH\81245JD03\007	Complied
23	2.738	Neutral	Average (CISPR)	8.143	46.00	37.86	GPH\81245JD03\007	Complied

NOTES

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

TEST EQUIPMENT USED

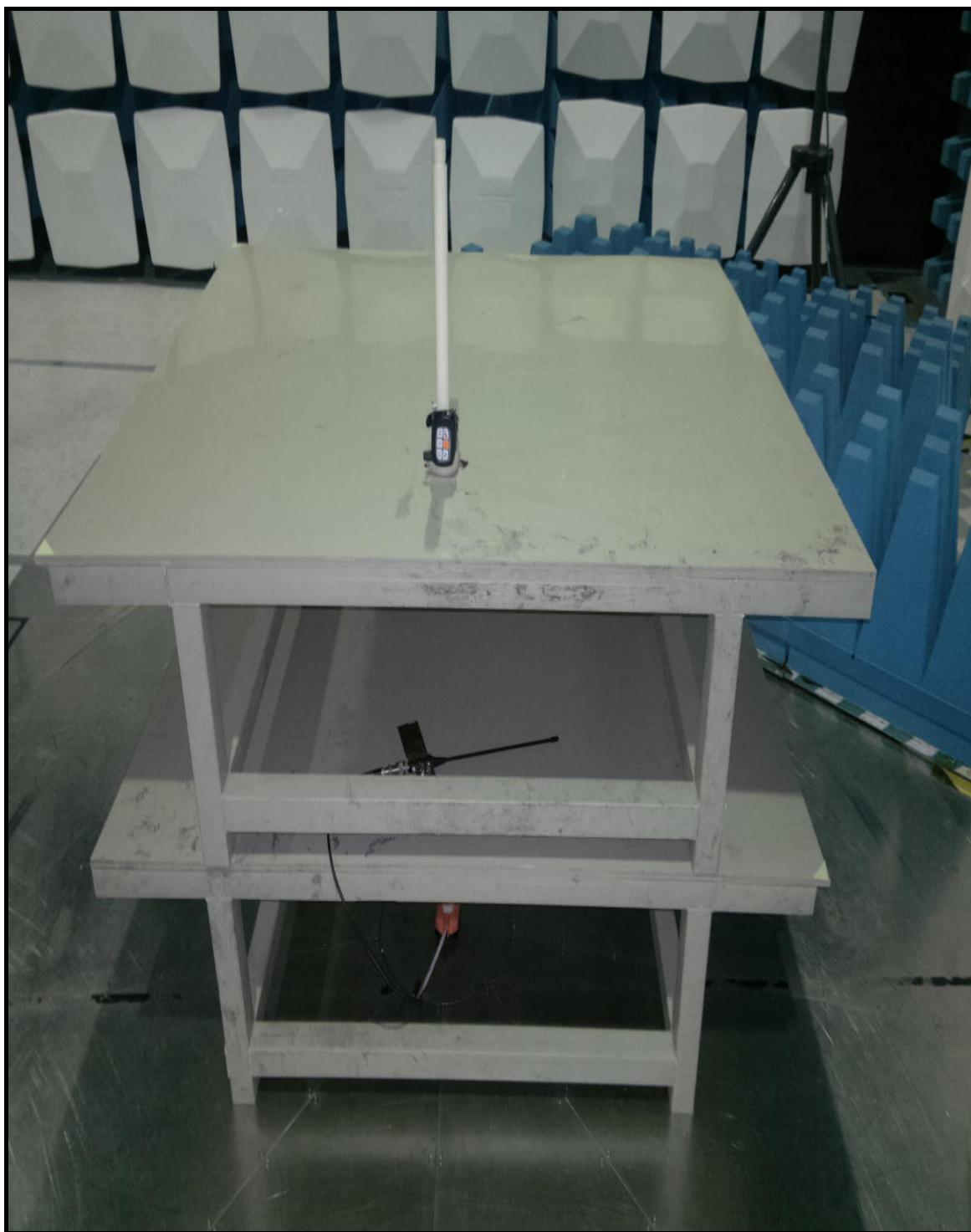
RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0001	5m Semi-Anechoic Chamber	N/A	29 May 2012	12
A649	Single Phase LISN	ESH3-Z5	05 Apr 2012	12
M1273	20 Hz - 26.6 GHz EMI Test Receiver, Rohde & Schwarz	ESIB 26	04 Feb 2012	12
C1302	3m Rosenberger Cable	FA210A1030005050	31 Mar 2012	12
A1829	N-Type Pulse Limiter	ESH3-Z2	05 Mar 2012	12

8. PHOTOGRAPHS OF EUT

This section contains the following photographs:

Photo Reference Number	Title
PHT\81245JD03\001	Test Configuration Photograph - Radiated Emissions
PHT\81245JD03\002	Test Configuration Photograph - Conducted Emissions

PHT\81245JD03\001 - Test Configuration Photograph - Radiated Emissions



PHT\81245JD03\002 - Test Configuration Photograph - Conducted Emissions



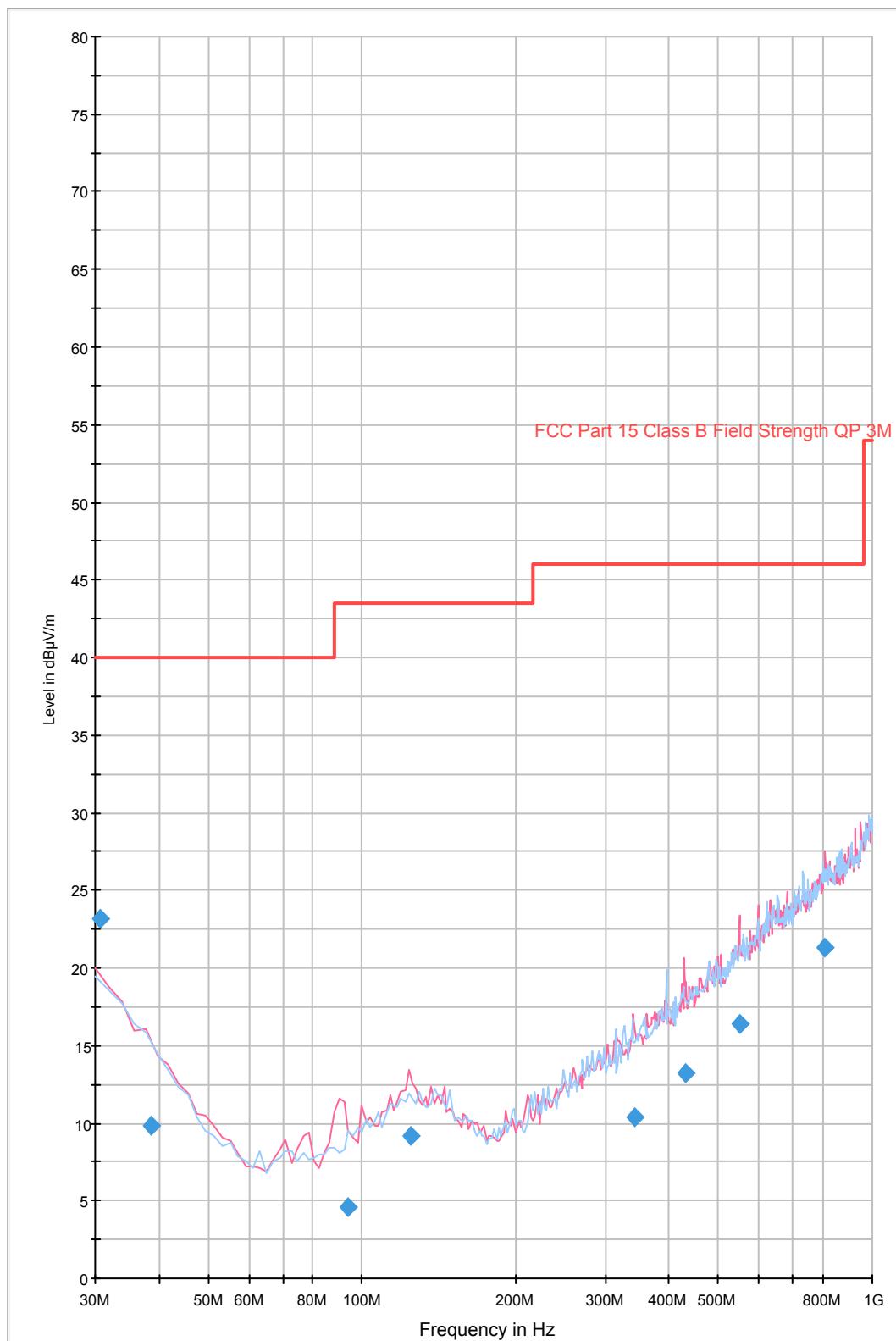
9. GRAPHICAL TEST RESULTS

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

Graph Number	Title
GPH\81245JD03\001	Radiated Emissions Pre-Scan (30 MHz to 1000 MHz)
GPH\81245JD03\002	Radiated Emissions Pre-Scan (1000 MHz to 4000 MHz)
GPH\81245JD03\003	Radiated Emissions Pre-Scan (4000 MHz to 7000 MHz)
GPH\81245JD03\004	Radiated Emissions Pre-Scan (7000 MHz to 10000 MHz)
GPH\81245JD03\005	Radiated Emissions Pre-Scan (10000 MHz to 12750 MHz)
GPH\81245JD03\006	Conducted Emissions (Live) Pre-Scan (0.15 MHz to 30 MHz)
GPH\81245JD03\007	Conducted Emissions (Neutral) Pre-Scan (0.15 MHz to 30 MHz)

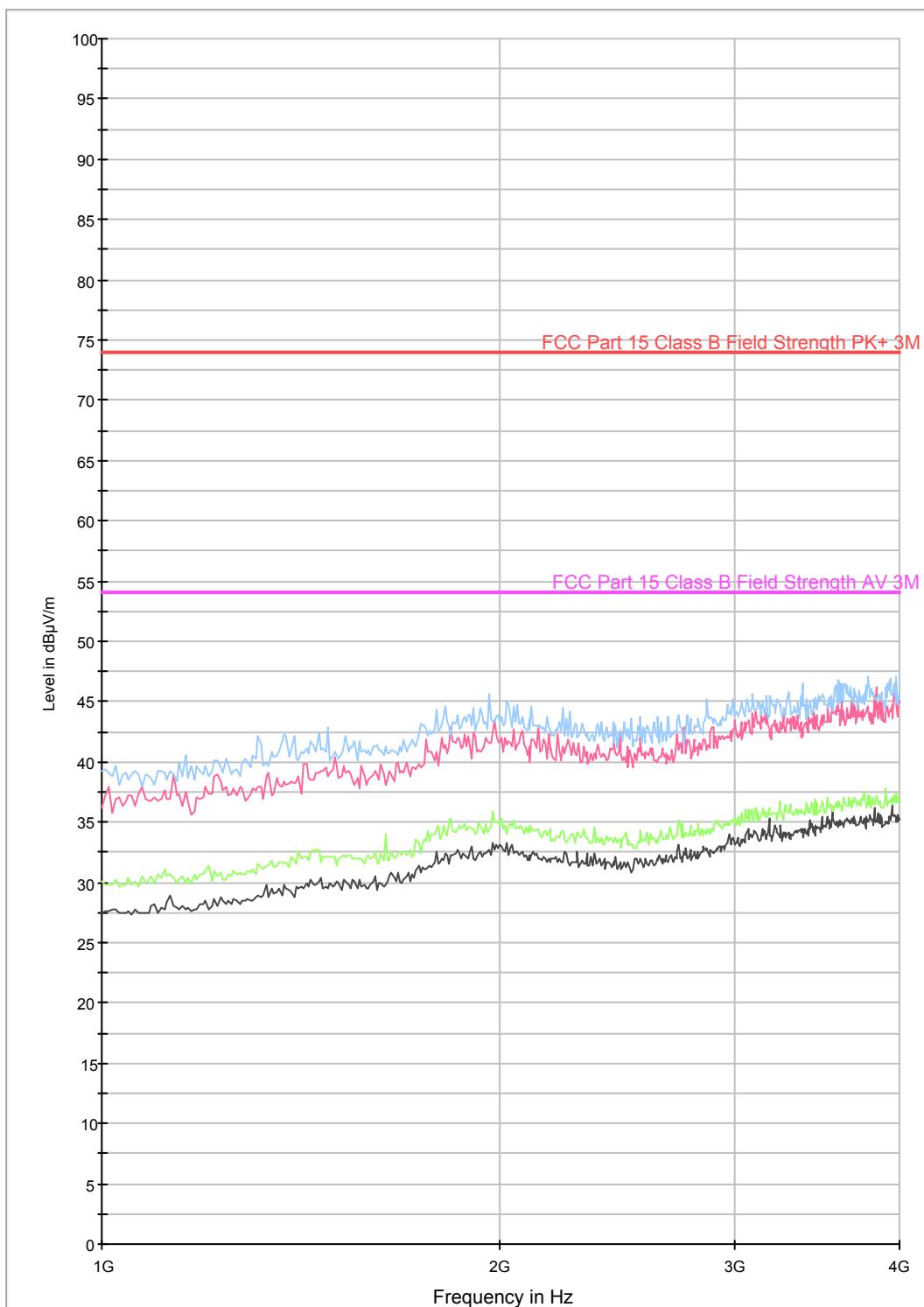
GPH81245JD03\001

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



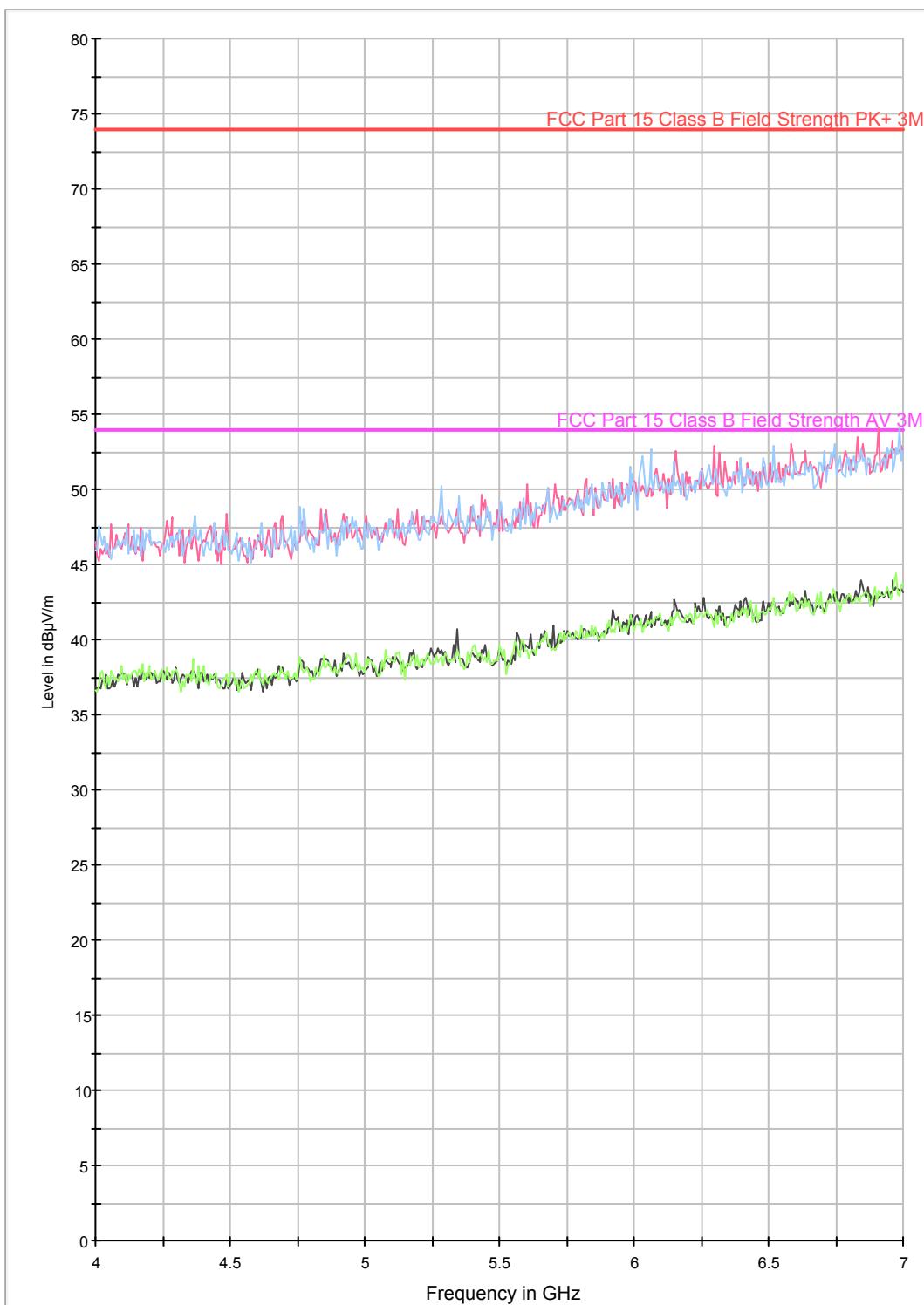
GPH\81245JD03\002

FCC Part 15.109 Radiated Emissions Class B 1-4GHz



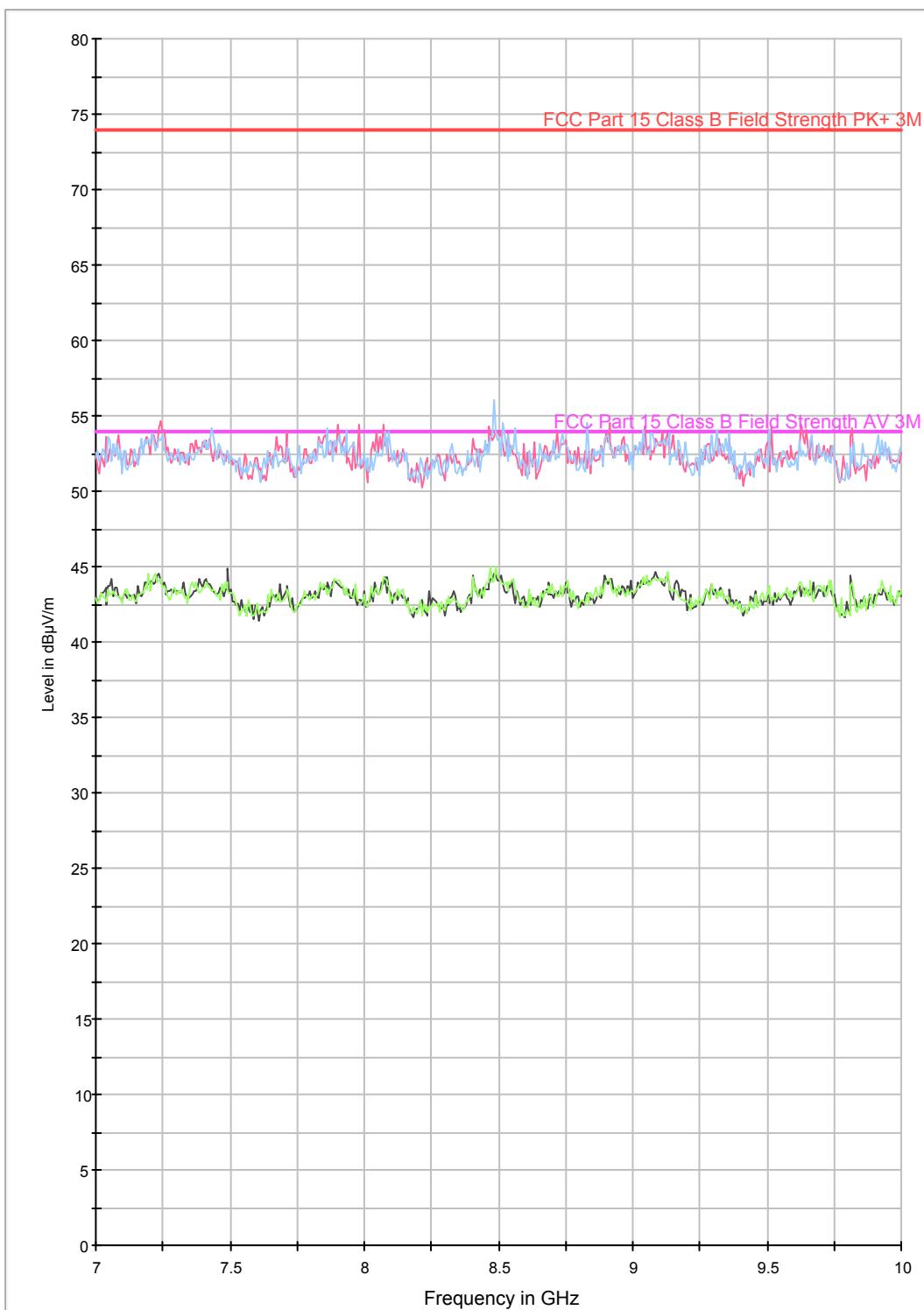
GPH\81245JD03\003

FCC Part 15.109 Radiated Emissions Class B 4-7GHz



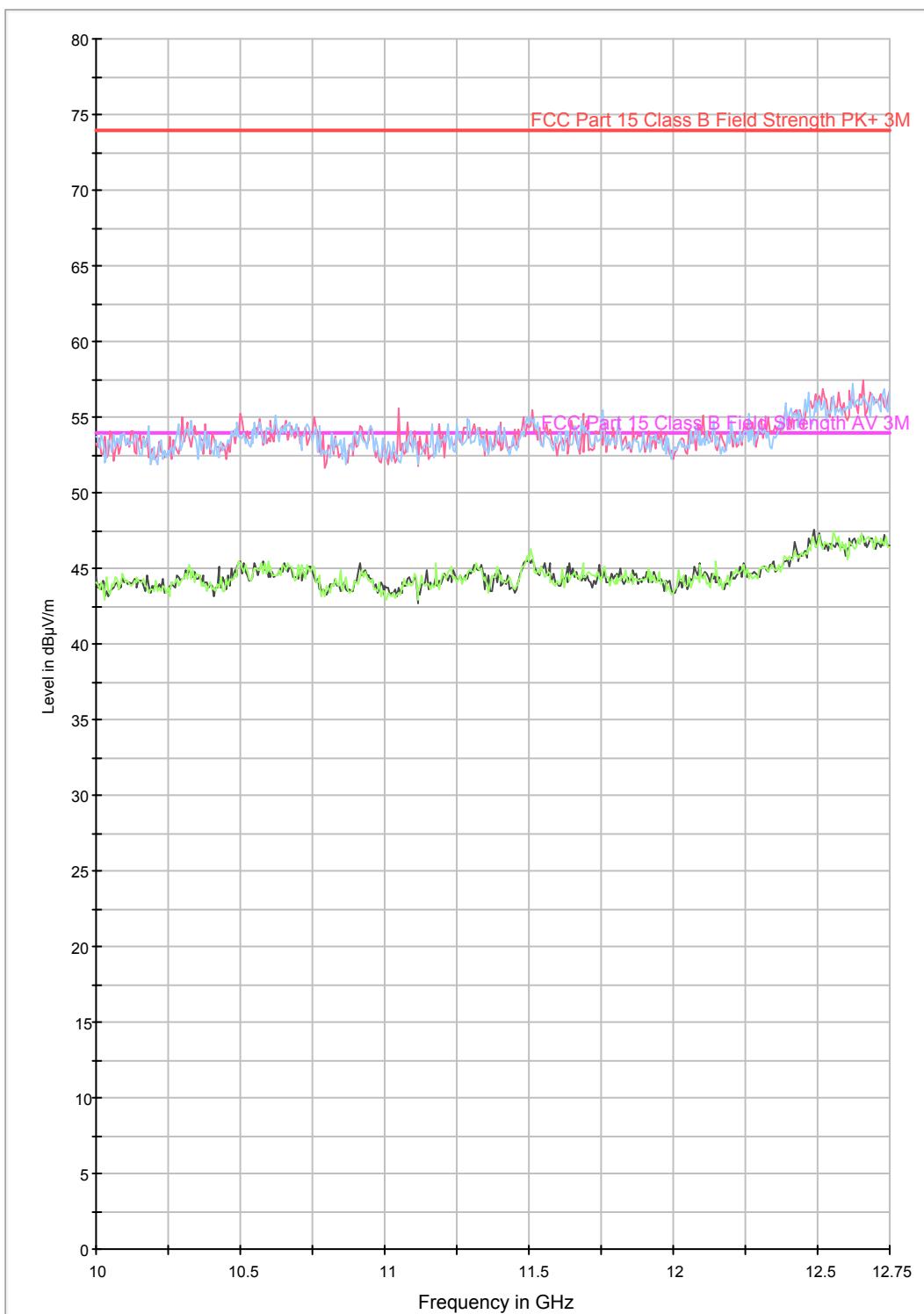
GPH\81245JD03\004

FCC Part 15.109 Radiated Emissions Class B 7-10GHz



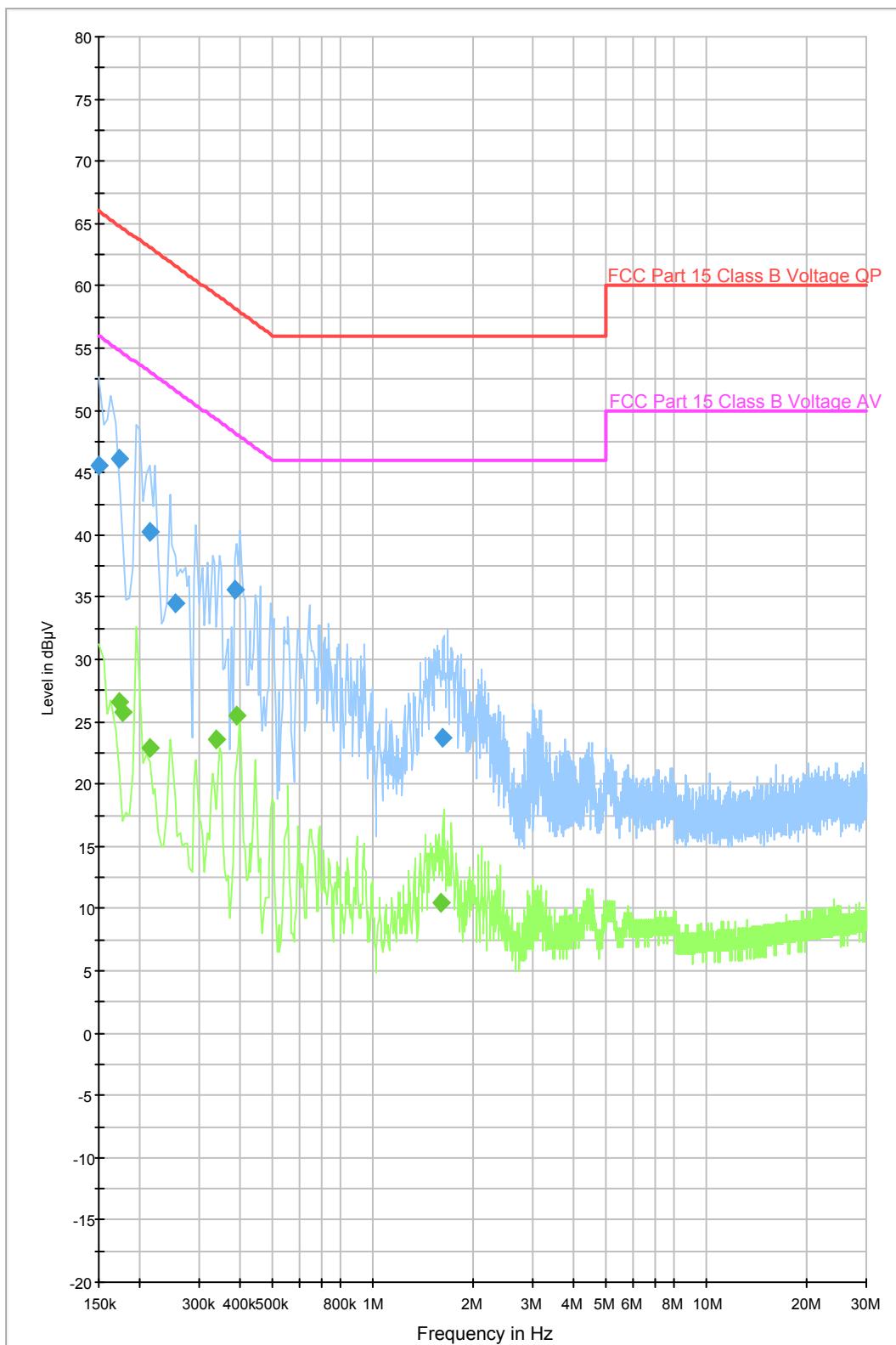
GPH\81245JD03\005

FCC Part 15.109 Radiated Emissions Class B 10-12.75GHz



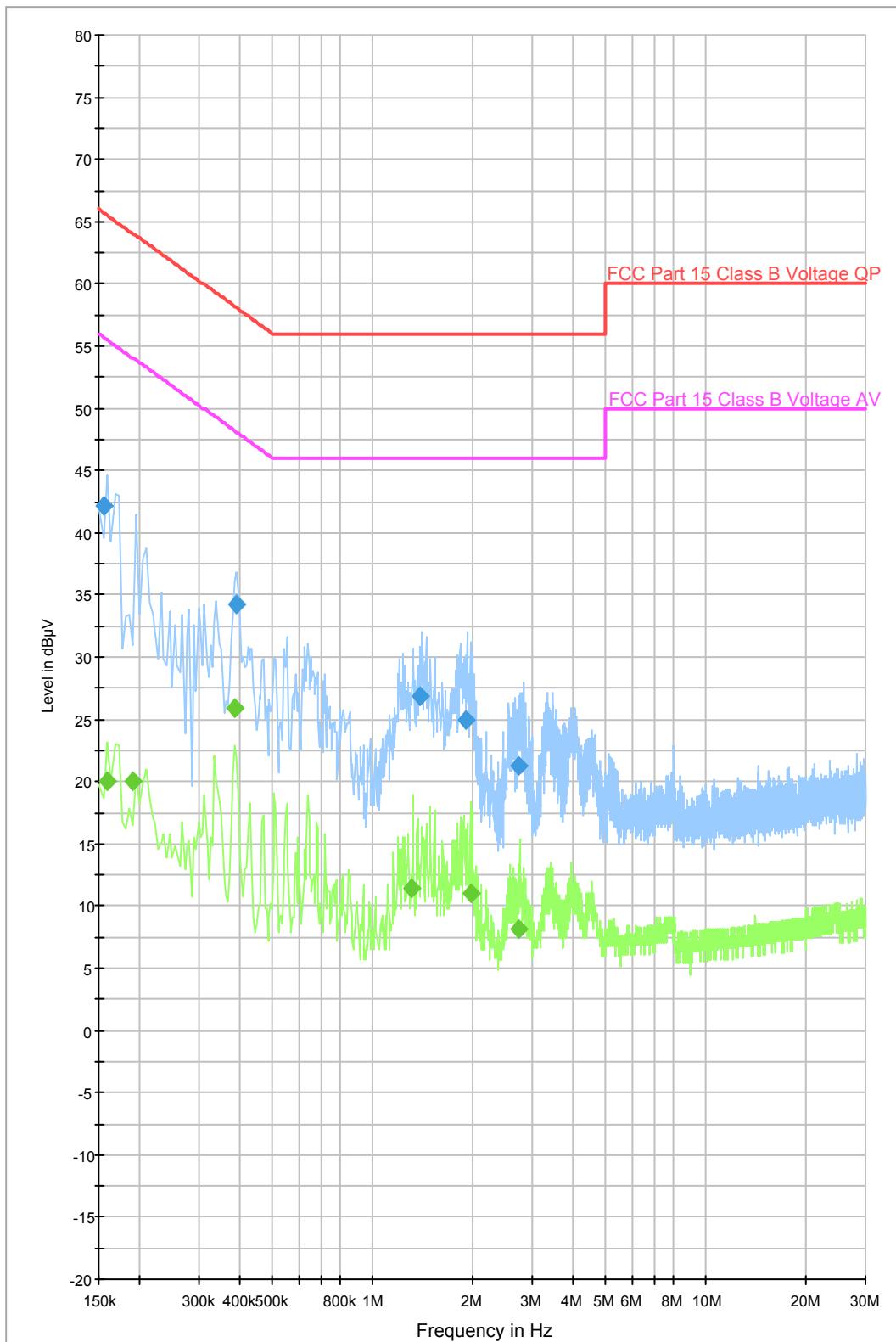
GPH\81245JD03\006

FCC Part 15.107 Conducted Emissions Class B Live



GPH\81245JD03\007

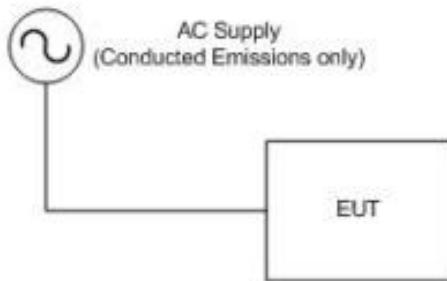
FCC Part 15.107 Conducted Emissions Class B Neutral



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\81245JD03\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

DRG\81245JD03\001 - Schematic diagram of the EUT, support equipment and interconnecting cables used for the test**Configuration of EUT and Local Support Equipment**

No Remote Support Equipment was used during the course of testing

Configuration of Remote Support Equipment