

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

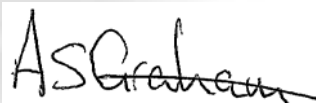
This test report is issued under the authority
of Chris Guy, Head of Global Approvals:



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. |
|--------------|---|

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: | 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: | Idle |
| FUNCTION(S) MONITORED: | Not Applicable |

MEASUREMENT RESULTS

| No. | Frequency (MHz) | Polarity | Detector | Level (dBµV/m) | Limit (dBµV/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: | GeoSkeeper | 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 (dBμV) | Limit (dBμV) | 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 (dBµV) | Limit (dBµV) | 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

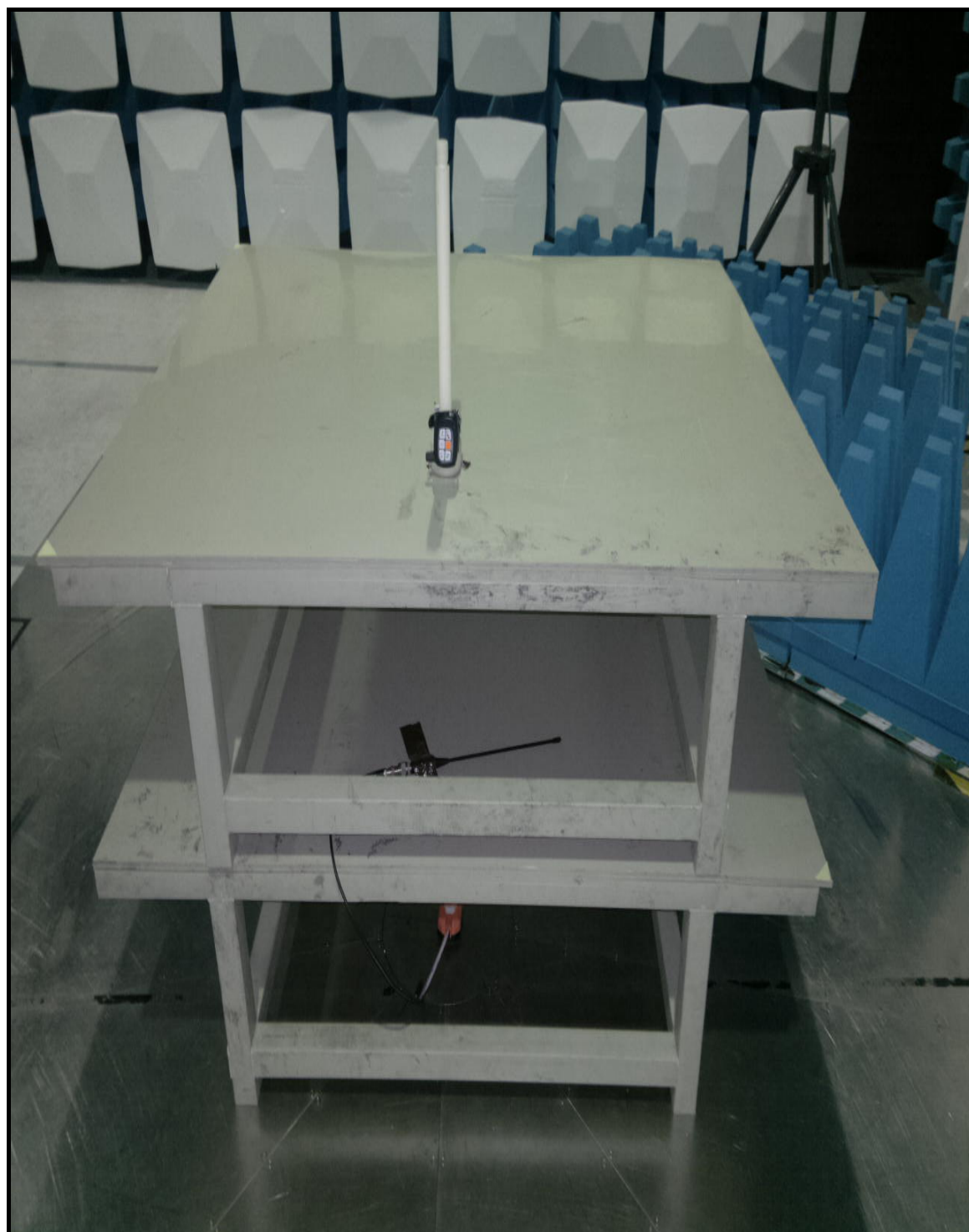
| RFI ID | INSTRUMENT DESCRIPTION | MODEL NUMBER | CALIBRATION DUE | INTERVAL |
|--------|---|------------------|-----------------|----------|
| K0001 | 5m Semi-Anechoic Chamber | N/A | 29 May 2012 | 12 |
| A649 | Single Phase LISN | ESH3-Z5 | 05 Apr 2012 | 12 |
| M1273 | 20 Hz - 26.6 GHz EMI Test Receiver, 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 |

PHT81245JD03\001 - Test Configuration Photograph - Radiated Emissions



PHT81245JD03\002 - Test Configuration Photograph - Conducted Emissions



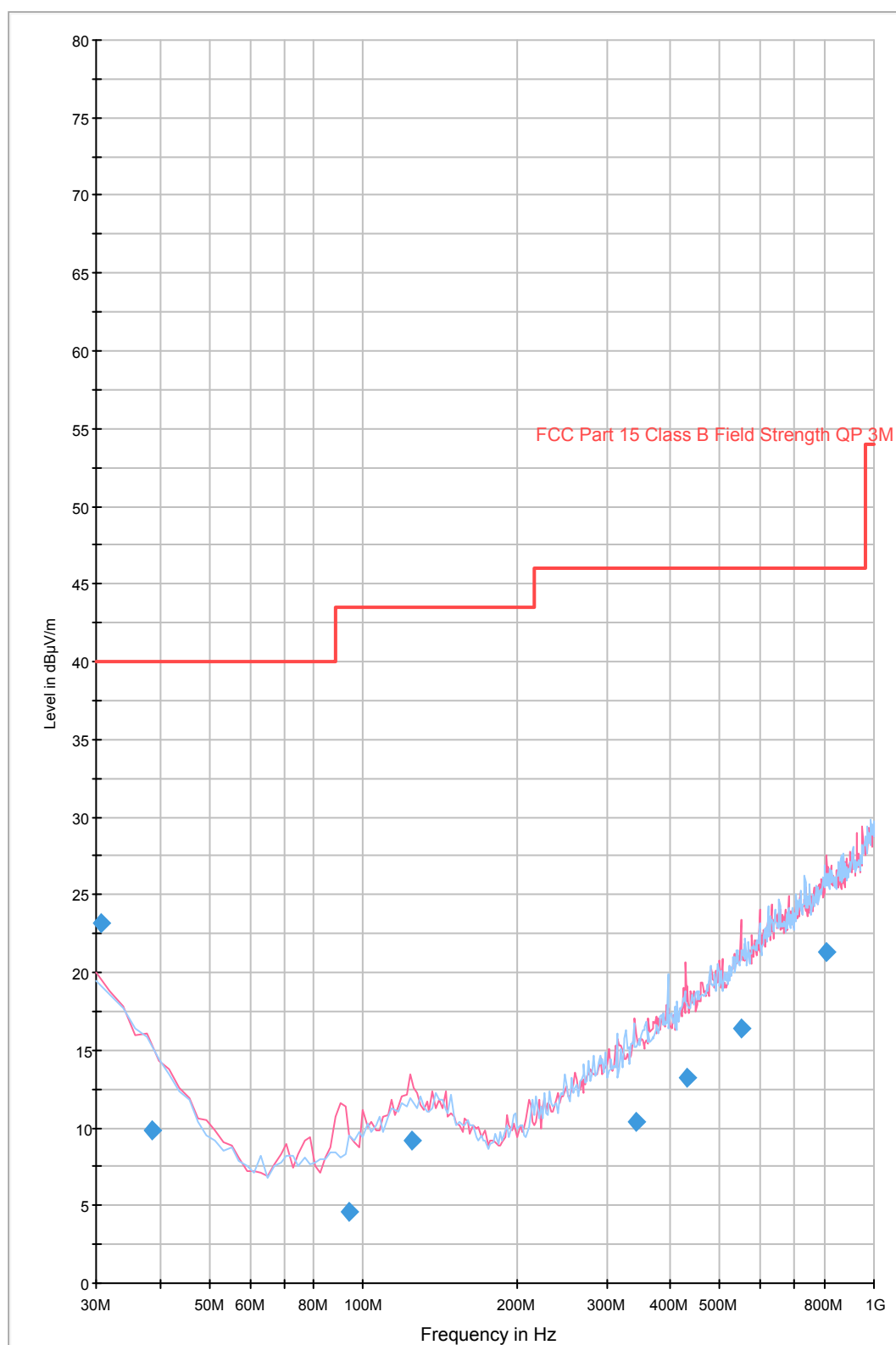
9. GRAPHICAL TEST RESULTS

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) |

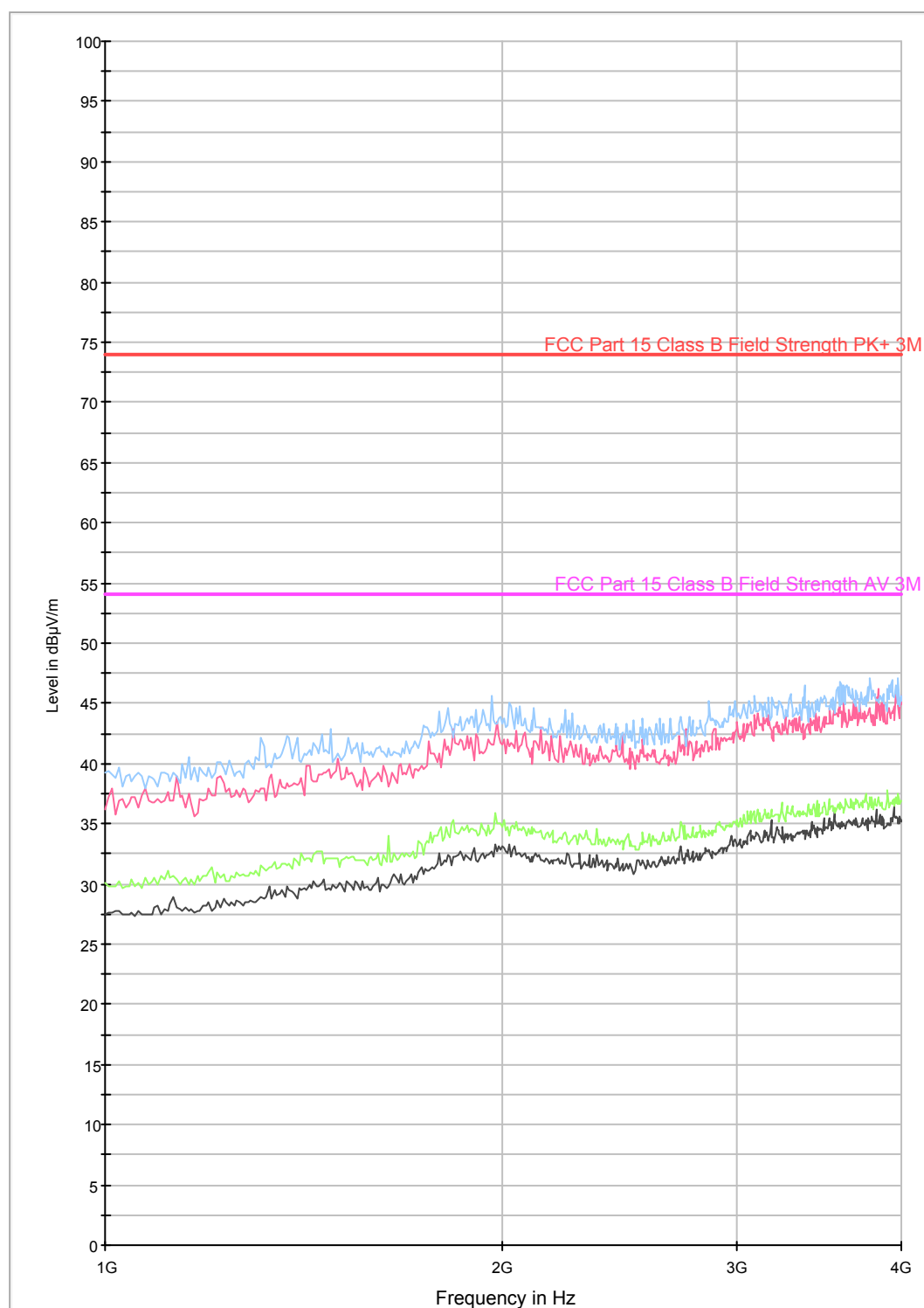
GPH\81245JD03\001

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



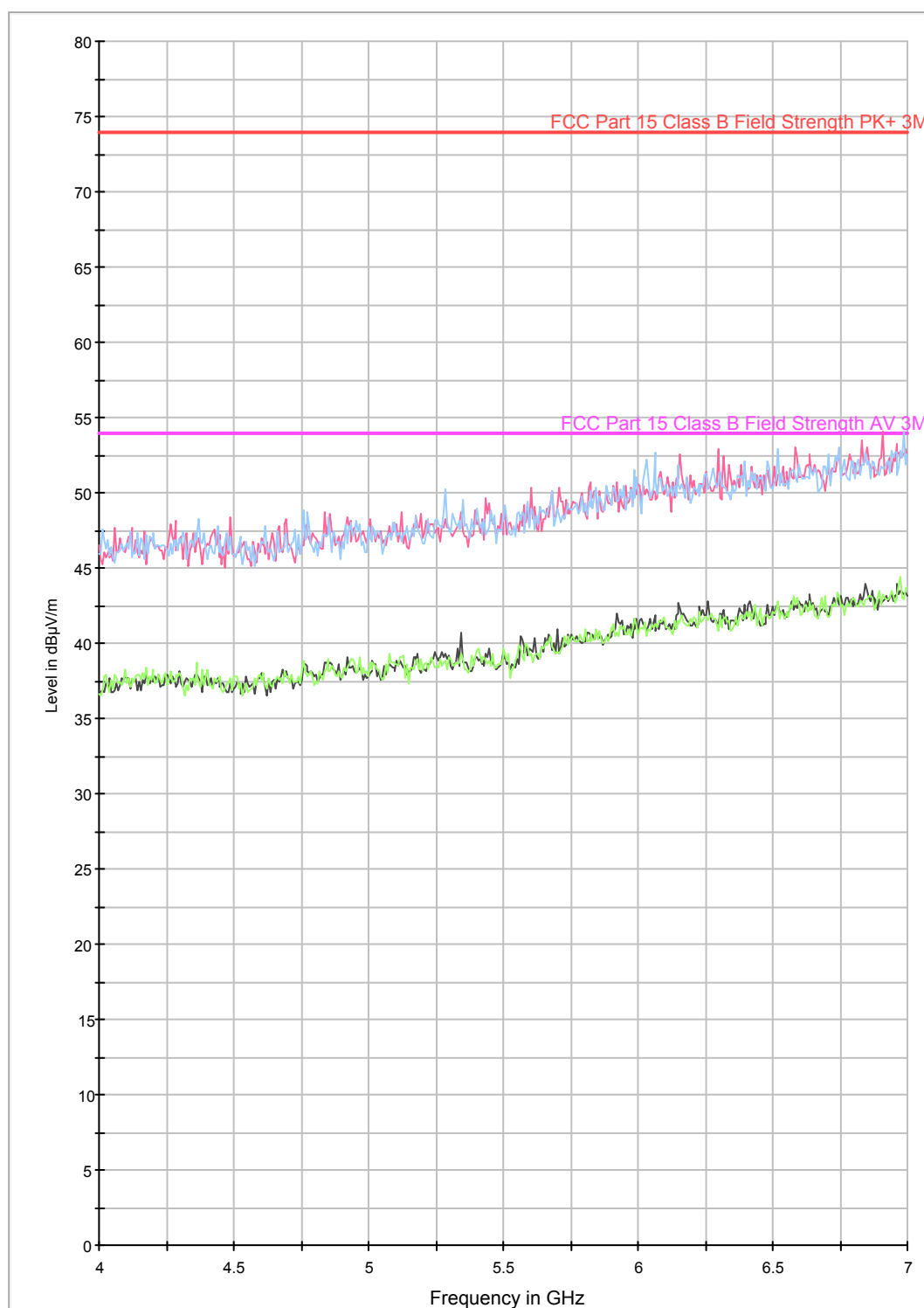
GPH81245JD03\002

FCC Part 15.109 Radiated Emissions Class B 1-4GHz



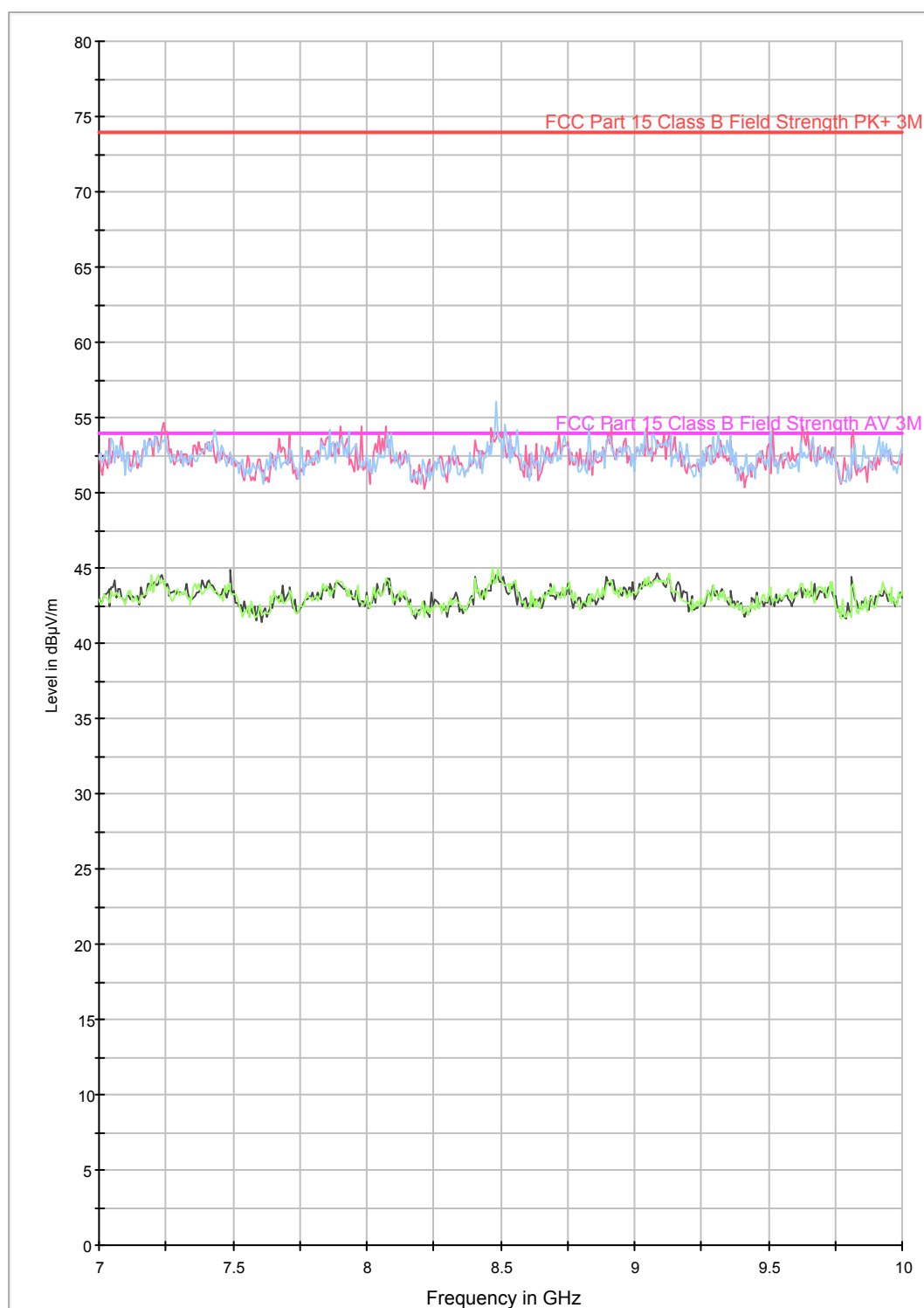
GPH81245JD03\003

FCC Part 15.109 Radiated Emissions Class B 4-7GHz



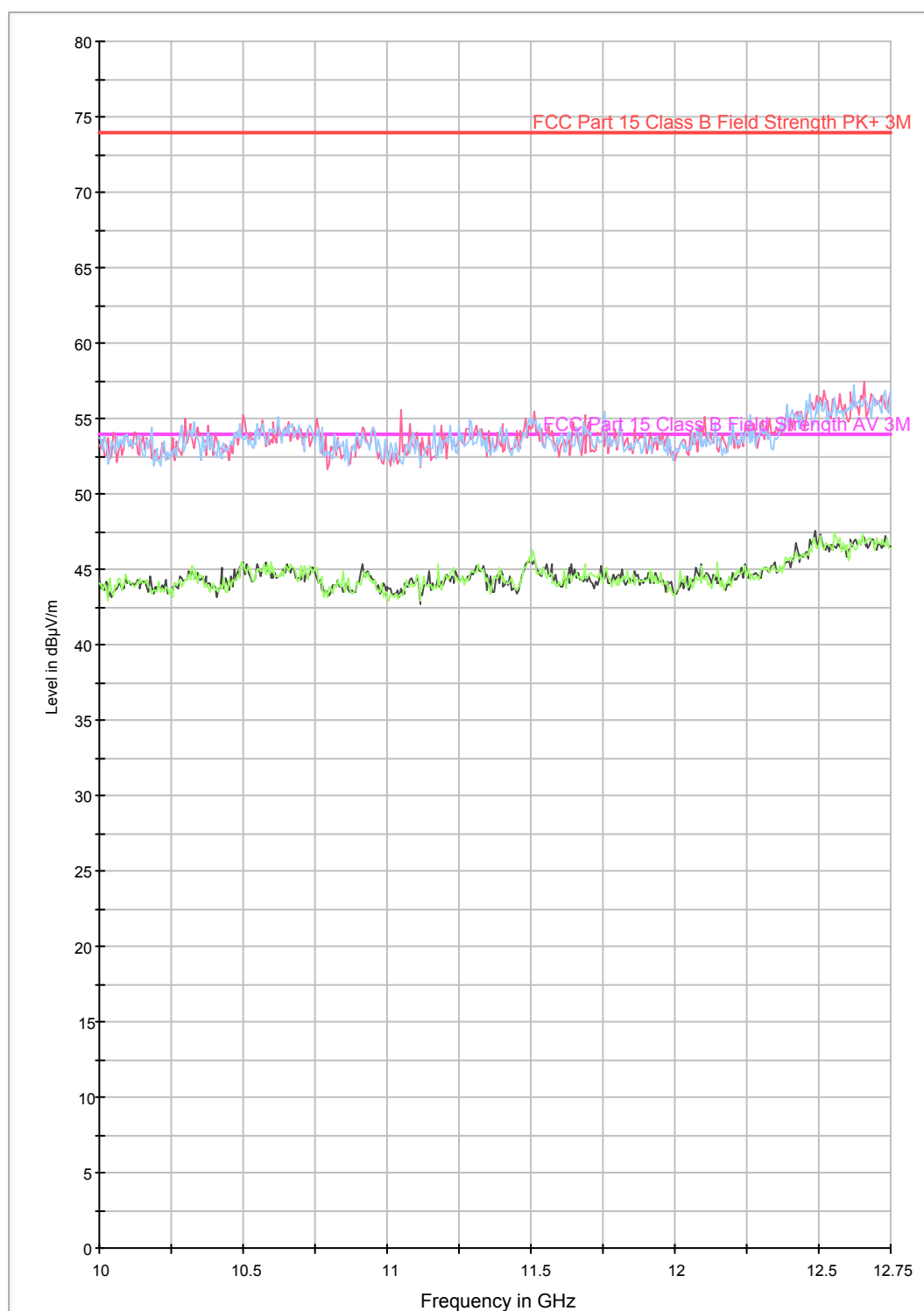
GPH\81245JD03\004

FCC Part 15.109 Radiated Emissions Class B 7-10GHz



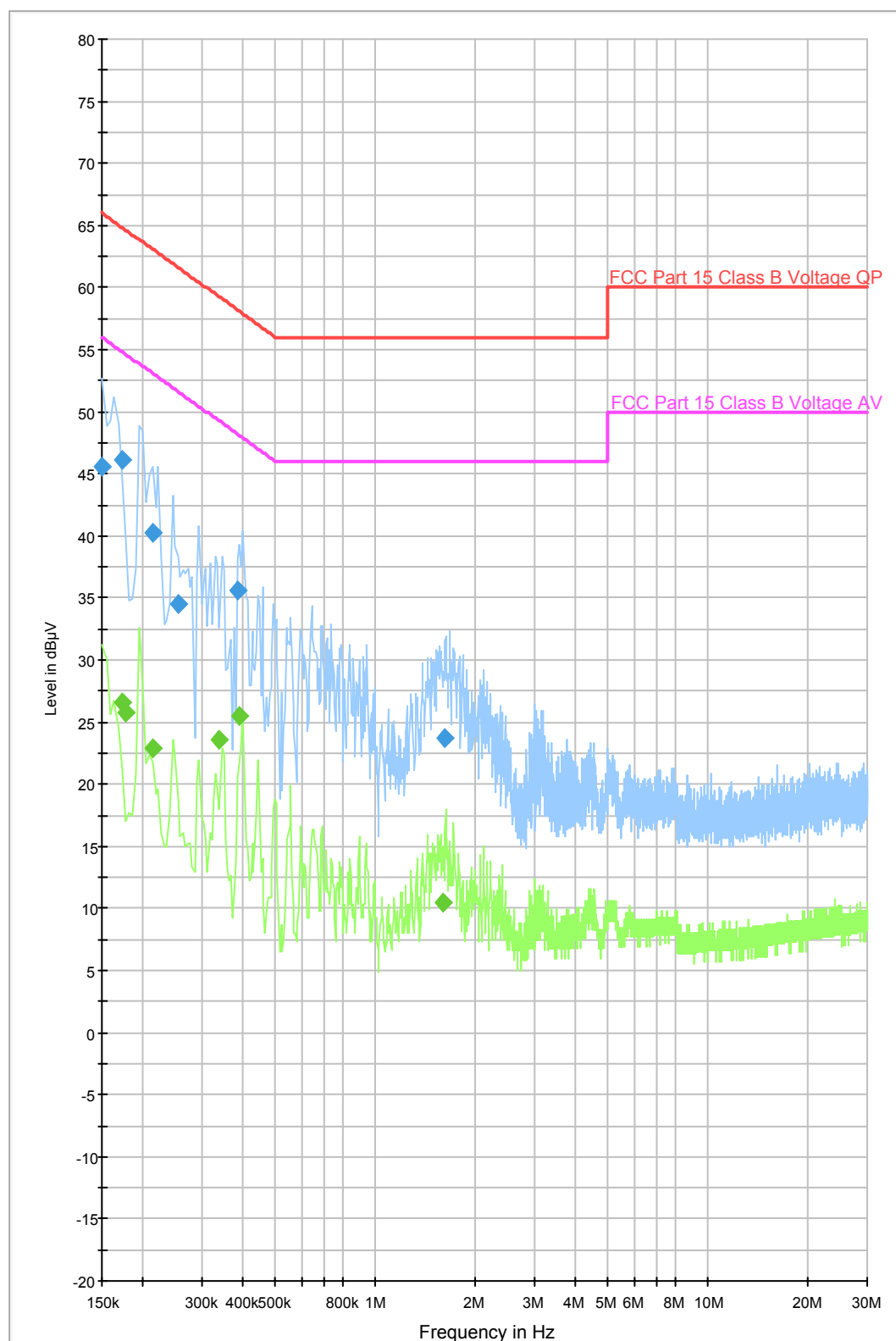
GPH81245JD03\005

FCC Part 15.109 Radiated Emissions Class B 10-12.75GHz



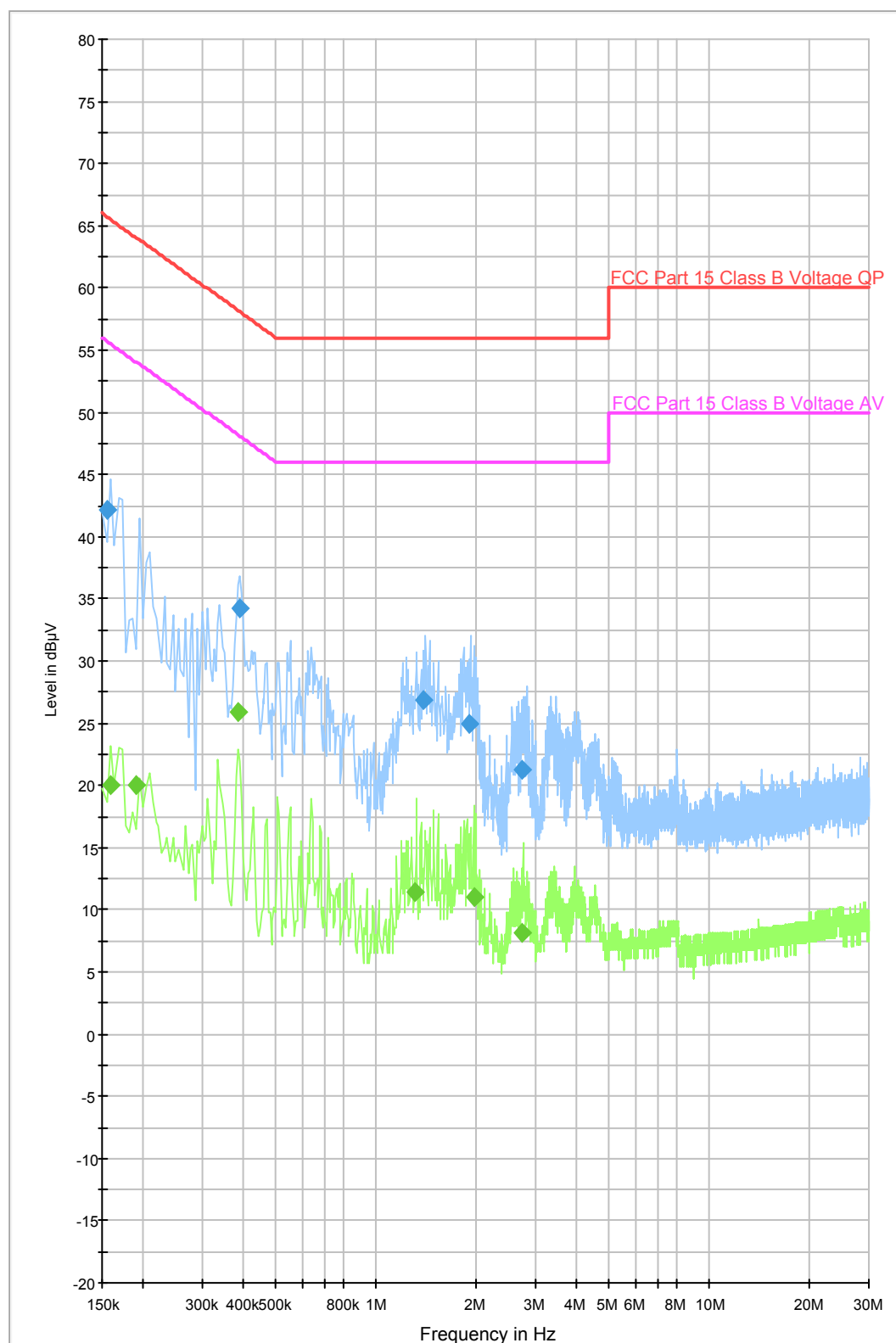
GPH81245JD03\006

FCC Part 15.107 Conducted Emissions Class B Live



GPH81245JD03\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