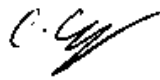


**TEST REPORT
FROM
RFI GLOBAL SERVICES LTD**

Test of: Smart Gears Limited, Micro-tracker MT-01

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

Test Report Serial No: RFI-EMC-RP81827JD05A

<p>This test report is issued under the authority of Chris Guy, Head of Global Approvals:</p> 	
<p>Checked By:</p>	<p>Gareth Bragg</p>
<p>Signature:</p>	
<p>Date of Issue:</p>	<p>30 September 2011</p>

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1. CUSTOMER DETAILS


Company Name:	Smart Gears Limited
Address:	Unit 3603-09, 36/F, 118 Connaught Road West, Hong Kong



2. SUMMARY OF TESTING

2.1. Test Specification

Reference:	47CFR15.109
Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: Part 15 Subpart B (Radio Frequency Devices) – Section 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	

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 GSM / GPRS / GPS enabled vehicular asset tracker

3.2. Identification of Equipment under Test (EUT)

ID#	Description	Brand Name	Model No	Serial No	IMEI
1	Tracker	Maestro	Microtracker MT-01	MT-010603-101224-1341	353893040018518

3.3. Port Identification

Port	Description	Type
1	Enclosure	-
2	Power / Data	Ten Pin Molex
3	Serial	Proprietary 8 pin

3.4. Operating Modes

Mode Reference	Definition
Idle	The EUT was in a stand alone state searching for an available cellular network

3.5. Radio characteristics

GSM Bands tested:	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		Circuit Switched Voice/Data, Packet Switched Data GPRS, GPS					

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:	Asset Tracker
Intended Operating Environment:	Vehicular
Cycle Time:	< 1 s
Power Supply Requirement(s):	12 VDC
Weight:	45 g
Dimensions:	58 x 60 x 13 mm
Antenna Type	Integral
Hardware Version Number:	None Stated
Software Version Number:	None Stated
FCC ID Number:	N7NWMP100
Industry Canada Certification Number:	2417C-WMP100

4. SUPPORT EQUIPMENT

4.1. Identification of Support Equipment

Description	Manufacturer	Model No	Serial No
12 VDC Vehicle Battery	Optima	812 254 0008882	765 55
Power / Data Loom	None Stated	None Stated	None Stated

4.2. Interconnecting Cables

Cable Type	Shielded	Length (m)	Ferrite	Connection 1	Connection 2
Power / Data Loom	N	1	N	EUT	12 VDC Vehicle Battery

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 was in a stand alone state searching for an available cellular network
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):	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:	81827JD05	TEST SITE ID:	Site 1
EUT:	Micro Tracker MT-01	TEMPERATURE:	25 °C to 26 °C
TEST ENGINEER:	Graeme Morris	RELATIVE HUMIDITY:	37 % to 37 %
DATE OF TEST:	30 Sep 2011	ATMOSPHERIC PRESSURE:	1008 mb to 1008 mb
FIELD TYPE:	Electric Field	MEASUREMENT DISTANCE:	3 Metres
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	30.375	Vertical	Quasi-Peak	20.9	40.0	19.1	001	Complied
2	37.693	Vertical	Quasi-Peak	15.6	40.0	24.4	001	Complied
3	64.764	Vertical	Quasi-Peak	7.1	40.0	32.9	001	Complied
4	92.642	Vertical	Quasi-Peak	9.6	43.5	33.9	001	Complied
5	108.059	Vertical	Quasi-Peak	13.5	43.5	30.0	001	Complied
6	352.305	Vertical	Quasi-Peak	10.9	46.0	35.1	001	Complied
7	924.279	Vertical	Quasi-Peak	23.0	46.0	23.0	001	Complied
8	1000 to 10000	Refer to Note 1					002 to 004	Complied

NOTES

- 1 No emissions were noted above the noise floor of the measurement system; therefore no further measurements were made

TEST EQUIPMENT USED

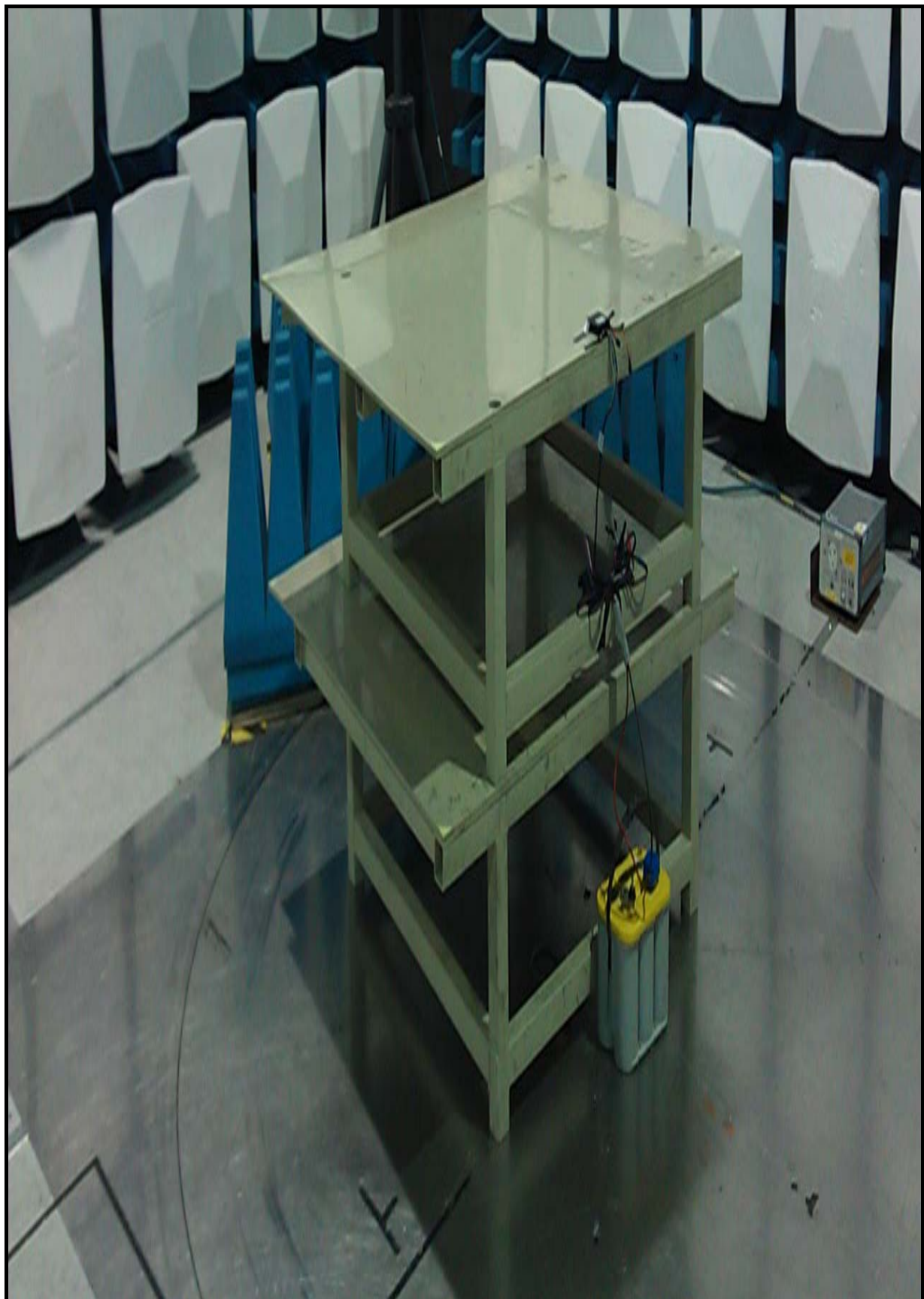
RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0001	5m Semi-Anechoic Chamber	N/A	29 May 2012	12
M1273	20 Hz - 26.6 GHz EMI Test Receiver, Rohde & Schwarz	ESIB 26	04 Feb 2012	12
C1302	3m Rosenberger Cable	FA210A1030005050	31 Mar 2012	12
A553	Bi-log Antenna	CBL6111A	26 Mar 2012	12
A1817	1-18GHz Horn Antenna	3115	03 Feb 2012	12
C1407	15 metre RF cable	262-0941-15M0	15 Apr 2012	12

8. PHOTOGRAPHS OF EUT

This section contains the following photographs:

Photo Reference Number	Title
PHT\81827JD05\001	Test Configuration Photograph - Radiated Emissions

PHT81827JD05\001 - Test Configuration Photograph - Radiated Emissions



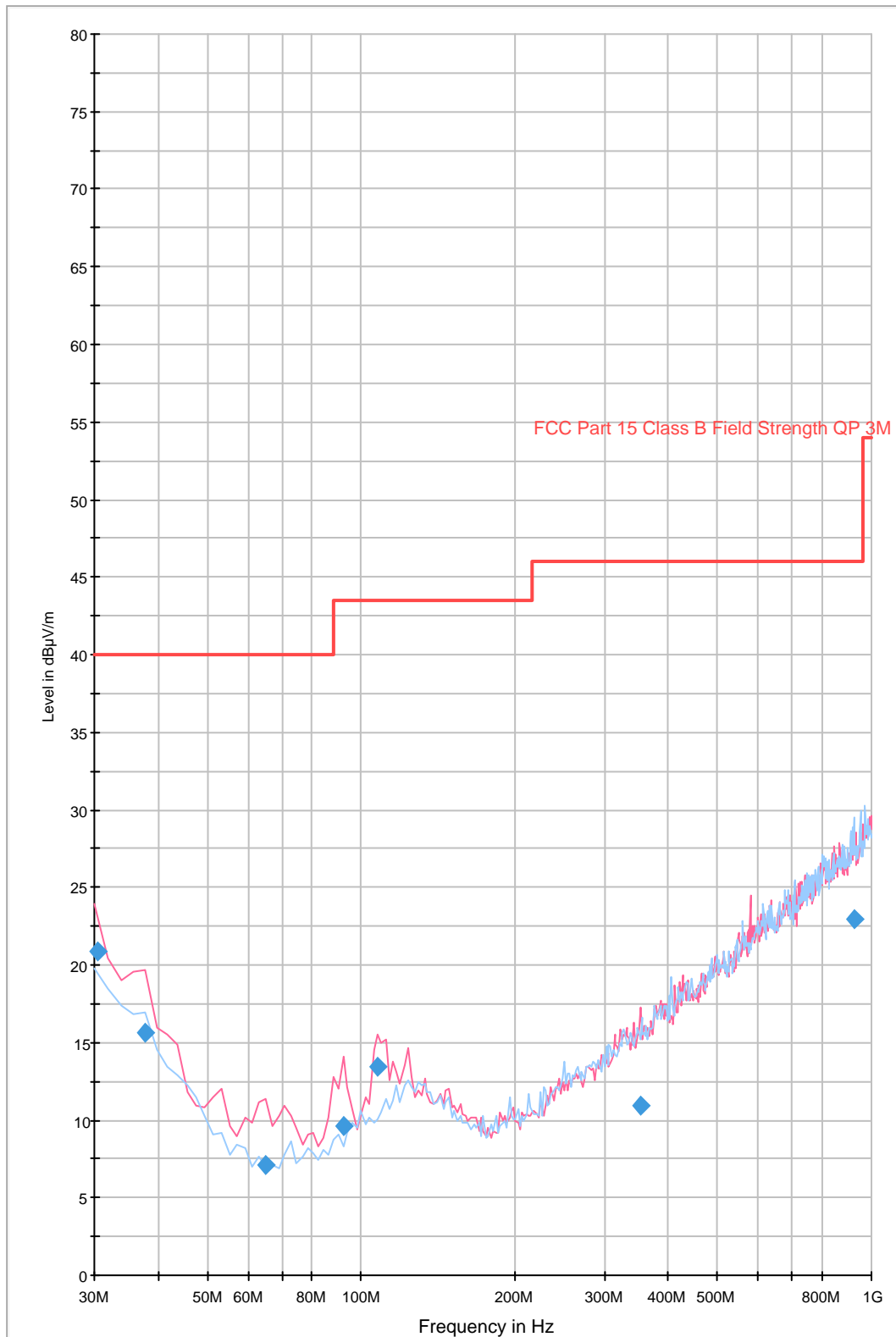
9. GRAPHICAL TEST RESULTS

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

Graph Reference Number	Title
GPH\81827JD05\001 to 004	Radiated Emissions Pre-Scans (30 MHz to 10 GHz)

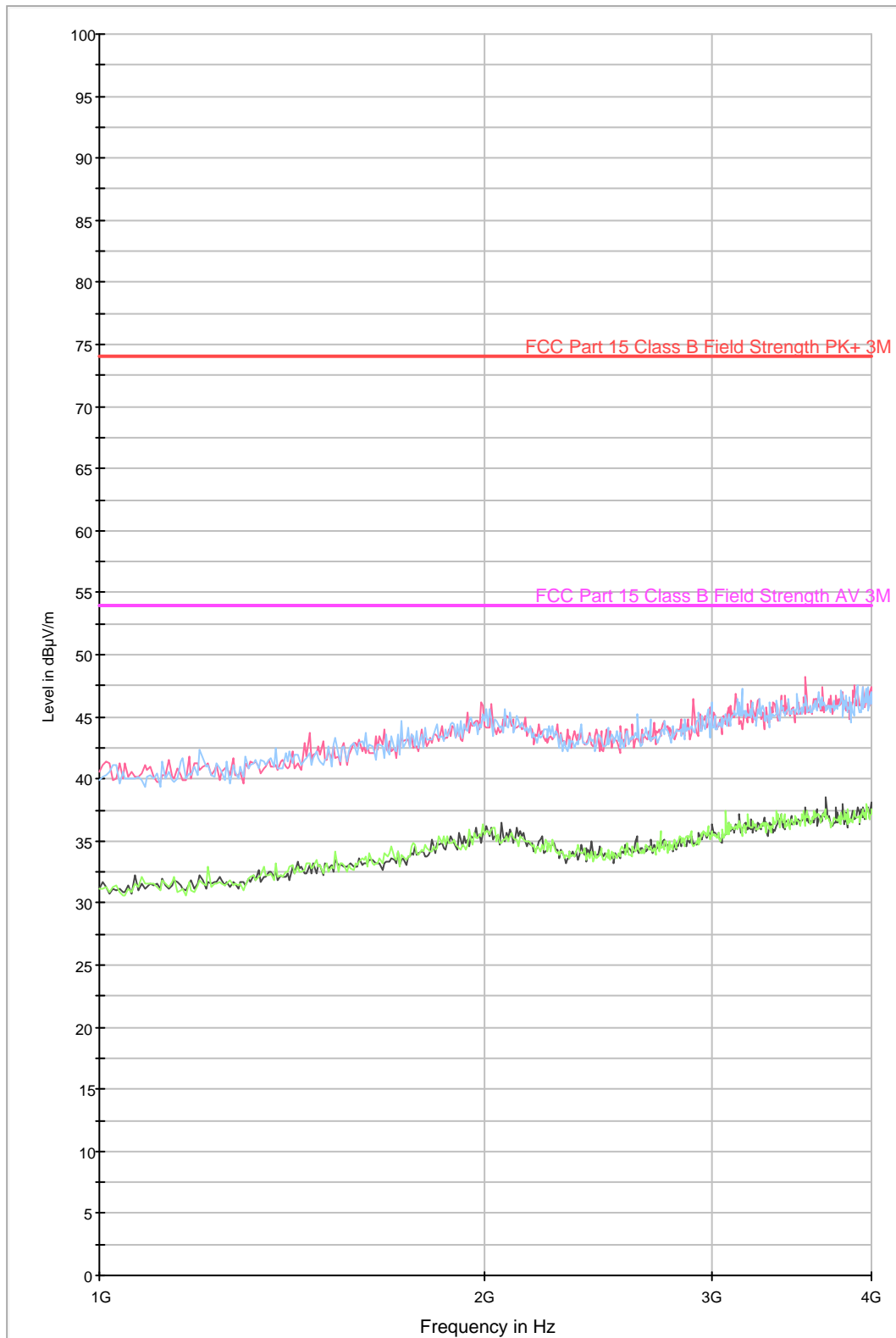
GPH81827JD05\001

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



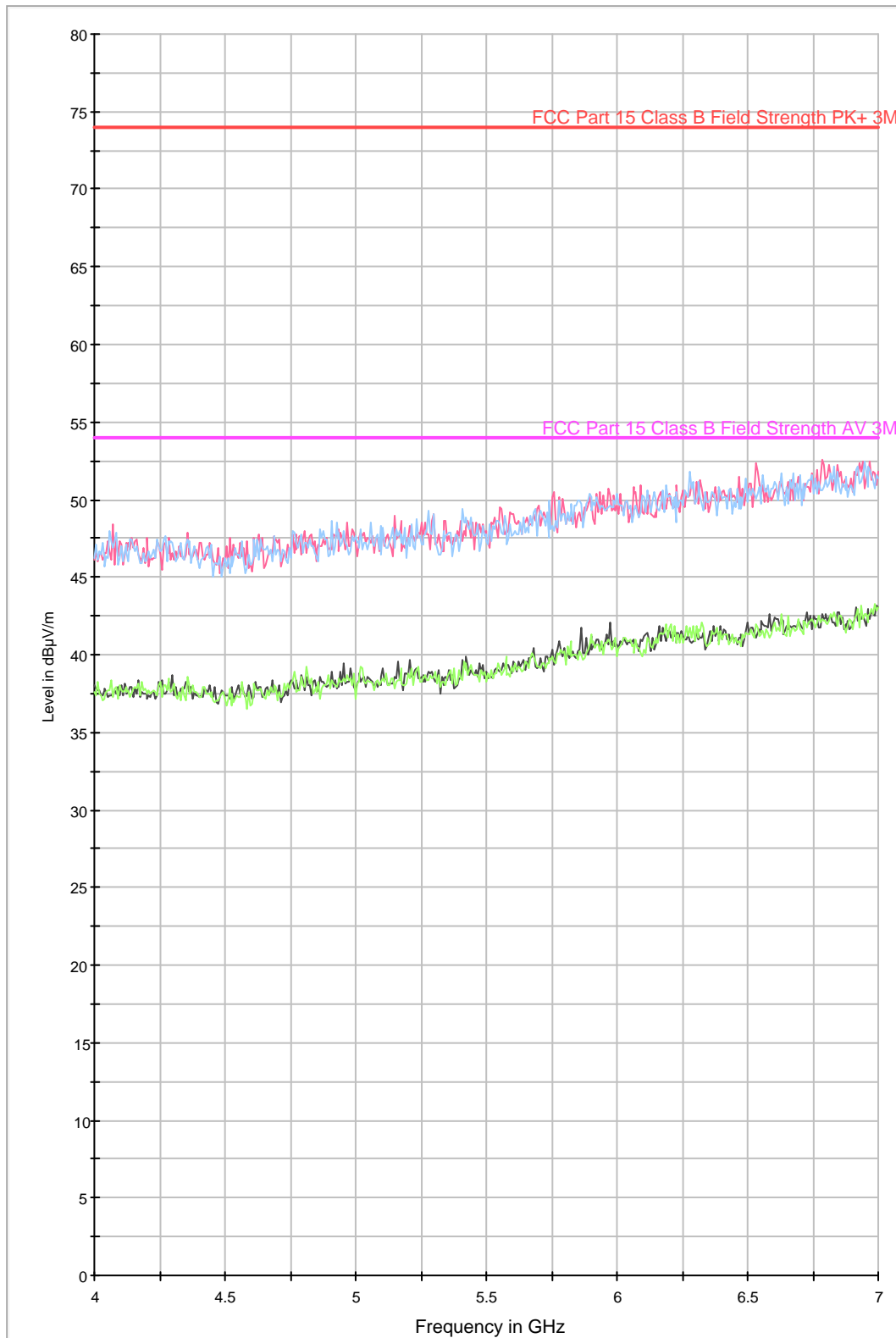
GPH81827JD05\002

FCC Part 15.109 Radiated Emissions Class B 1-4GHz



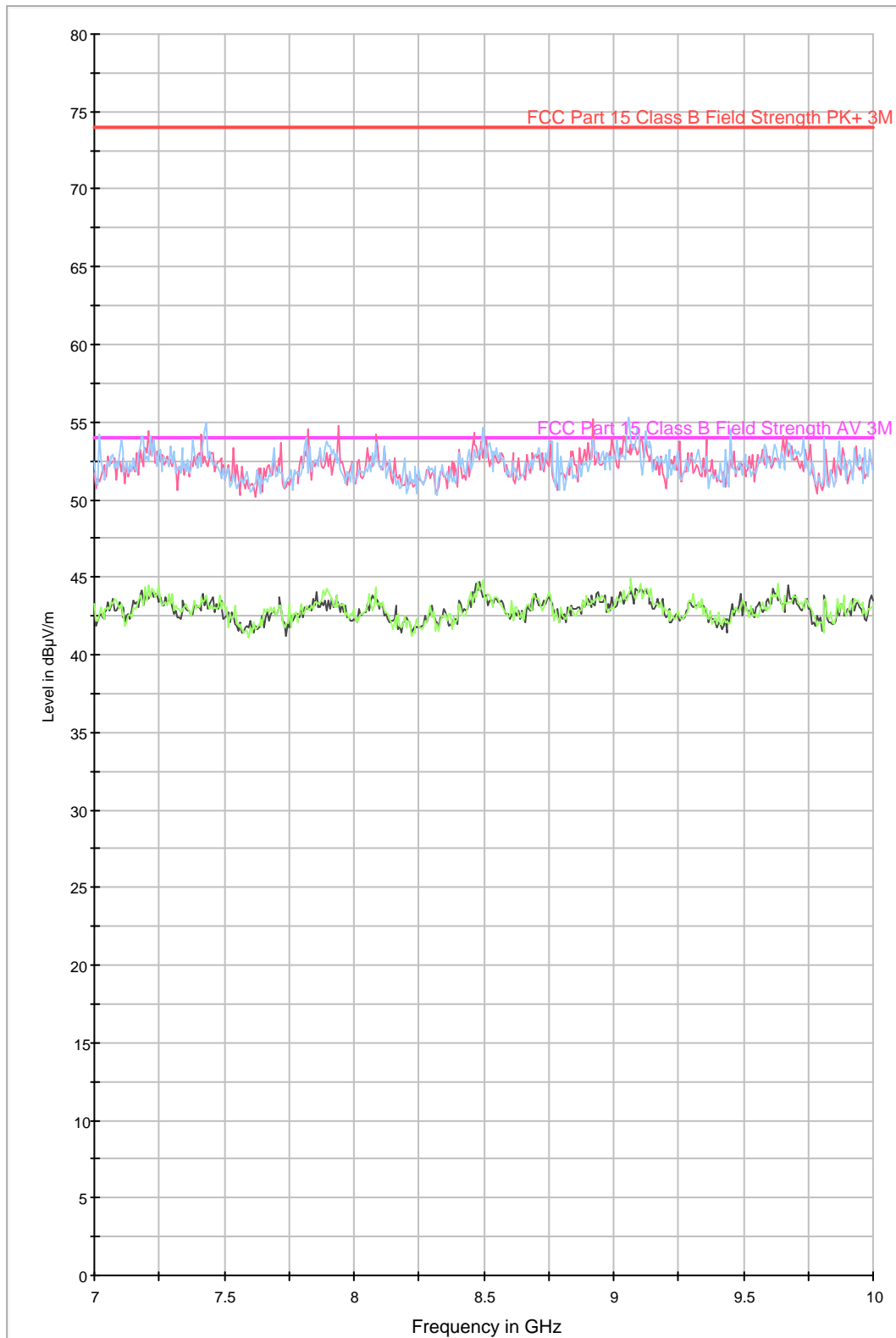
GPH81827JD05\003

FCC Part 15.109 Radiated Emissions Class B 4-7GHz



GPH81827JD05\004

FCC Part 15.109 Radiated Emissions Class B 7-10GHz



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\81827JD05\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

DRG\81827JD05\001 - Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

