TEST REPORT

TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: KORE Telematics Inc., VRB101

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

Test Report Serial No: RFI-EMC-RP82077JD07A V2.0

Version 2.0 supersedes all previous versions

This Test Report Is Issued Under The Authority Of John Newell, Group Quality Manager:	
Checked By:	**Nicholas Jones**
Signature:	N T Jones
Date of Issue:	**23 August 2012**

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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 14
9. Graphical Test Results 16
10. Test Configuration Drawing 22
11. Report Revision History 24

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1. CUSTOMER DETAILS

Company Name:	KORE Telematics Inc.
Address:	93 Lombard Ave East, Suite 412, Winnipeg MB, R3B 3B1, Canada.

2. SUMMARY OF TESTING

2.1. Test Specification

Reference:	47CFR15.109
Title:	Code of Federal Regulations - Title 47 (Telecommunication) 2010: Part 15 (Radio Frequency Devices) - Subpart B (Unintentional Radiators) - 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)	Yes	

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 automotive data acquisition and reporting device.

3.2. Identification of Equipment under Test (EUT)

ID#	Description	Brand Name	Model No	Serial No	IMEI
1	VINVOX Retriever	VINVOX	VRB101	08-1 2	354660045720474

3.3. Port Identification

Port	Description	Type
1	Enclosure	-
2	DC Power input	RJ45

3.4. Operating Modes

Mode Reference	Definition
Idle	A SIM card was inserted, the EUT was powered and searching for available cellular networks.

3.5. 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
GSM 900	33	880 – 915	63	902.6	925 - 960	63	947.6
DCS 1800	30	1710 – 1785	700	1747.8	1805 – 1880	700	1842.8
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			Packet Switched Data GPRS				

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 Mobile
Intended Operating Environment:	Vehicular
Cycle Time:	< 1 s
Power Supply Requirement(s):	12 V DC
Weight:	< 100 g
Dimensions:	125 x 45 x 25 mm
Antenna Type	Integral
Hardware Version Number:	Version C
Software Version Number:	V. 1.00
FCC ID Number:	B8OVRB101
Industry Canada Certification Number:	5131A-GE865
Highest Internally Generated Operating Frequency:	1990 MHz

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 and searching for available cellular networks.
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:	82077JD07	**TEST SITE ID:**	Site 1
EUT:	VRB101	**TEMPERATURE:**	25 °C to 25 °C
TEST ENGINEER:	Nick Jones	**RELATIVE HUMIDITY:**	30 % to 30 %
DATE OF TEST:	12 Apr 2012	**ATMOSPHERIC PRESSURE:**	992 mb to 992 mb
FIELD TYPE:	Electric Field	**MEASUREMENT DISTANCE:**	3 Metres
UNCERTAINTY:	< 1 GHz: ± 4.78 dB > 1 GHz: ± 4.37 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

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.

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	30.611	Horizontal	Quasi-Peak	12.8	40.0	27.2	001	Complied
2	58.932	Vertical	Quasi-Peak	22.3	40.0	17.7	001	Complied
3	59.424	Vertical	Quasi-Peak	24.5	40.0	15.5	001	Complied
4	118.855	Vertical	Quasi-Peak	30.5	43.5	13.0	001	Complied
5	122.859	Vertical	Quasi-Peak	28.6	43.5	14.9	001	Complied
6	198.535	Vertical	Quasi-Peak	33.3	43.5	10.2	001	Complied
7	269.458	Vertical	Quasi-Peak	18.5	46.0	27.5	001	Complied
8	949.521	Vertical	Quasi-Peak	22.2	46.0	23.8	001	Complied
9	1000 to 12750	Refer to Note 1					002 to 005	Complied

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

TEST EQUIPMENT USED

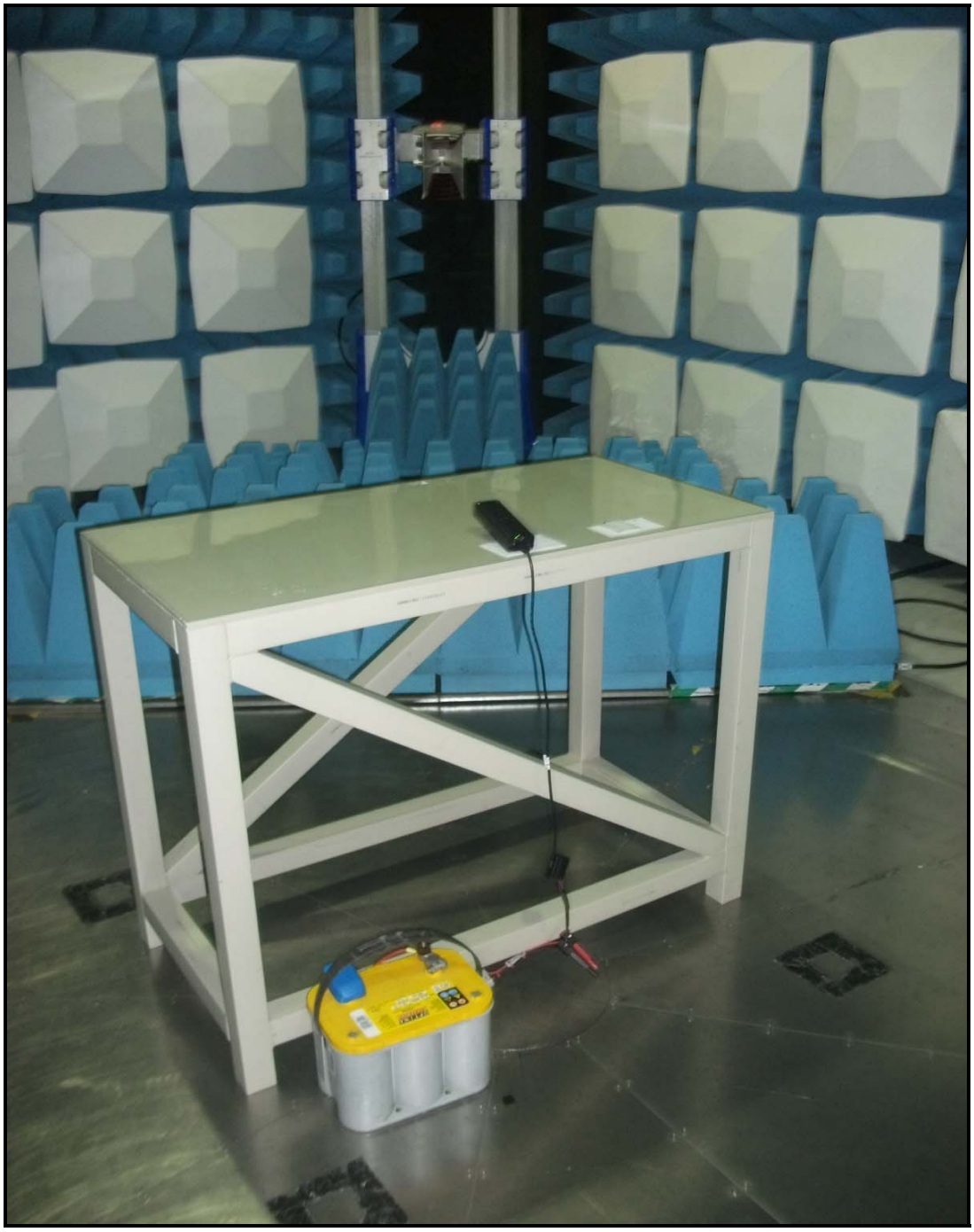
RFI ID	INSTRUMENT DESCRIPTION	MODEL NUMBER	CALIBRATION DUE	INTERVAL
K0001	5m Semi-Anechoic Chamber	N/A	29 May 2012	12
A2105	Single Control Unit SCU	SCU	Calibration not required	N/A
A2107	Positioning Controller - RSC	Positioning Controller - RSC	Calibration not required	N/A
A2102	Multiple Control Device	Controller NCD	Calibration not required	N/A
A2106	Site 1 Turntable	TT 3.0-3t	Calibration not required	N/A
M1273	20 Hz - 26.6 GHz EMI Test Receiver	ESIB 26	03 Feb 2013	12
C1410	1 metre RF cable	239-0088-1000	09 Nov 2012	12
C1411	1 metre RF cable	239-0088-1000	09 Nov 2012	12
A1227	Pre Amp	8449B	09 Nov 2012	12
C1415	3 metre RF cable	239-0088-3000	09 Nov 2012	12
A553	Bi-log Antenna	CBL6111A	15 Feb 2013	12
C1407	15 metre RF cable	262-0941-15M0	15 Apr 2012	12
A1817	1-18GHz Horn Antenna	3115	16 Aug 2012	12
C1409	5 metre RF cable	239-0088-5000	09 Nov 2012	12
A2103	Tilt Antenna Mast	TAM 4.0-E	Calibration not required	N/A
M1623	Thermometer Hygrometer Station	30.5015.13	09 Jan 2013	12

8. PHOTOGRAPHS OF EUT

This section contains the following photographs:

Photo Reference Number	Title
PHT\82077JD07\001	Test Configuration Photograph - Radiated Emissions

PHT\82077JD07\001 - Test Configuration Photograph - Radiated Emissions



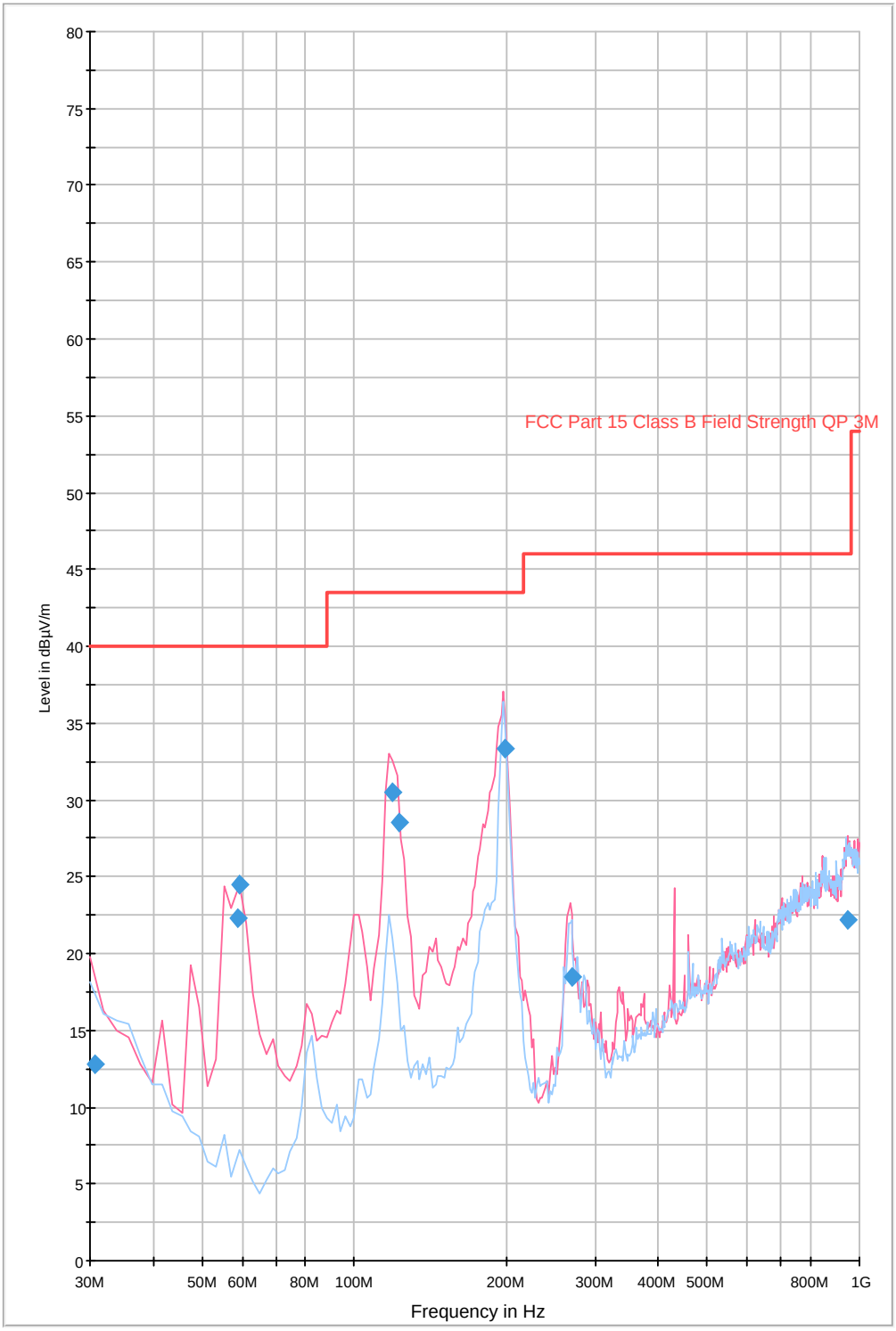
9. GRAPHICAL TEST RESULTS

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\82077JD07\001	Radiated Emissions (30 MHz to 1000 MHz)
GPH\82077JD07\002	Radiated Emissions (1 GHz to 4 GHz)
GPH\82077JD07\003	Radiated Emissions (4 GHz to 7 GHz)
GPH\82077JD07\004	Radiated Emissions (7 GHz to 10 GHz)
GPH\82077JD07\005	Radiated Emissions (10 GHz to 12.75 GHz)

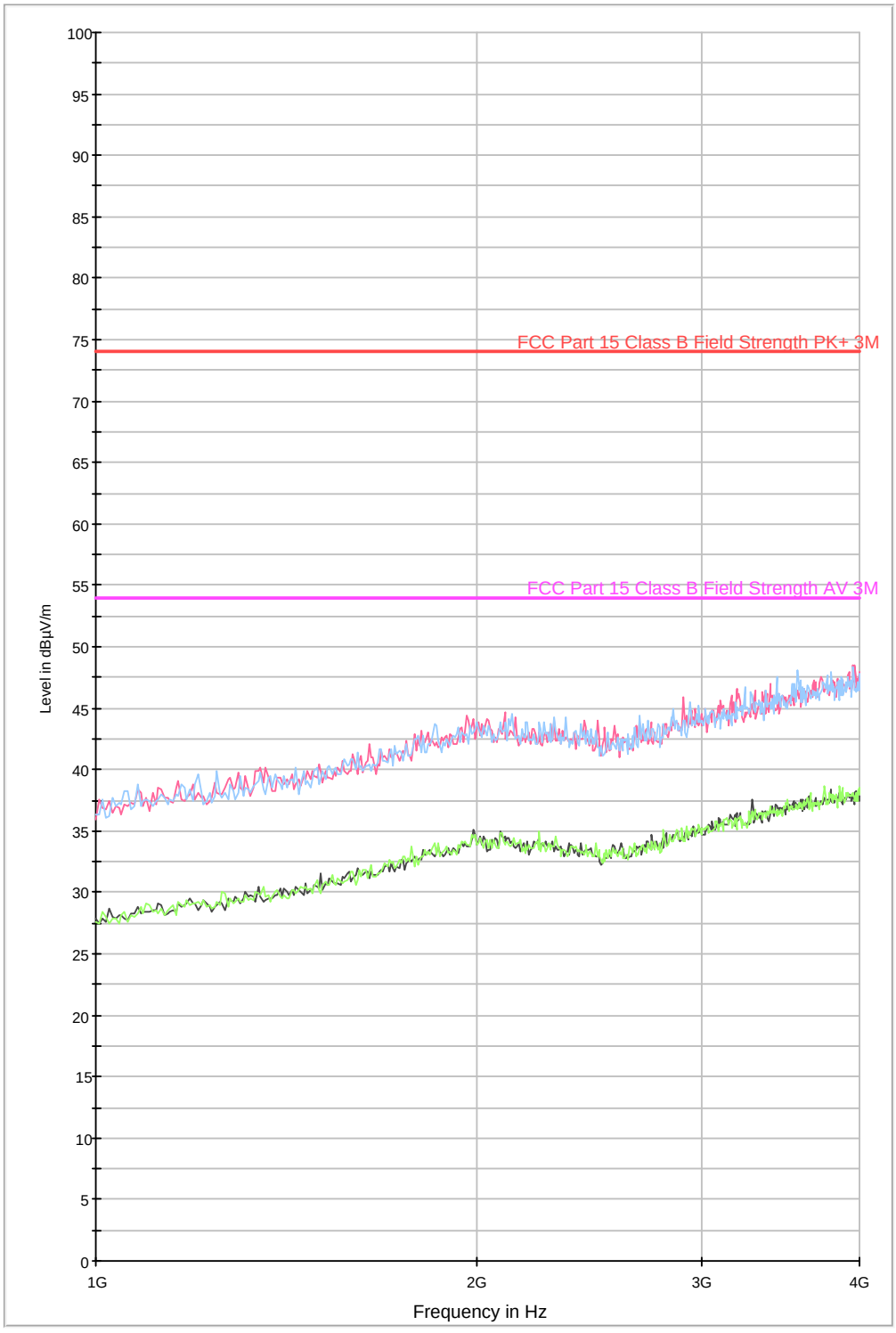
GPH\82077JD07\001

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



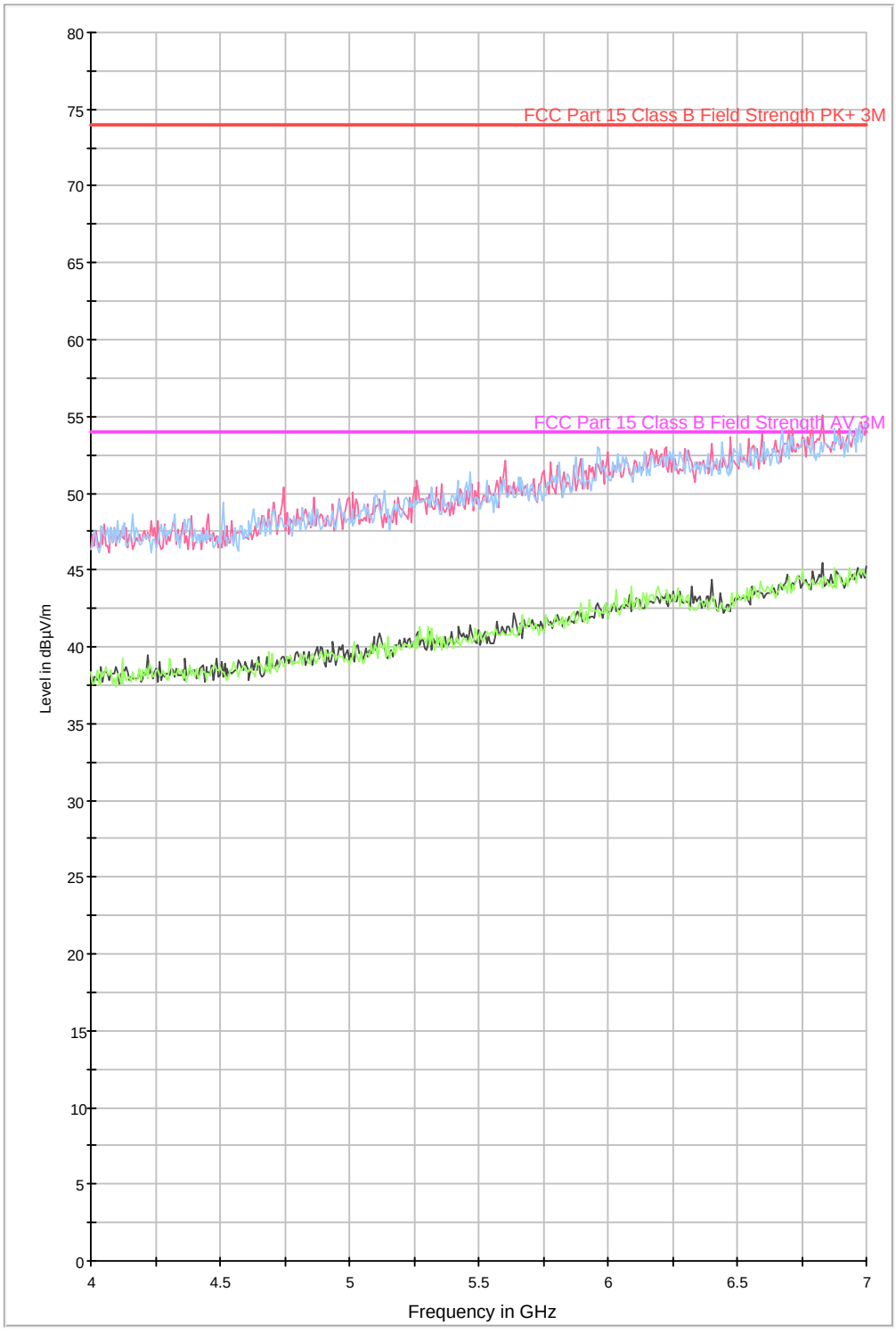
GPH\82077JD07\002

FCC Part 15.109 Radiated Emissions Class B 1-4GHz



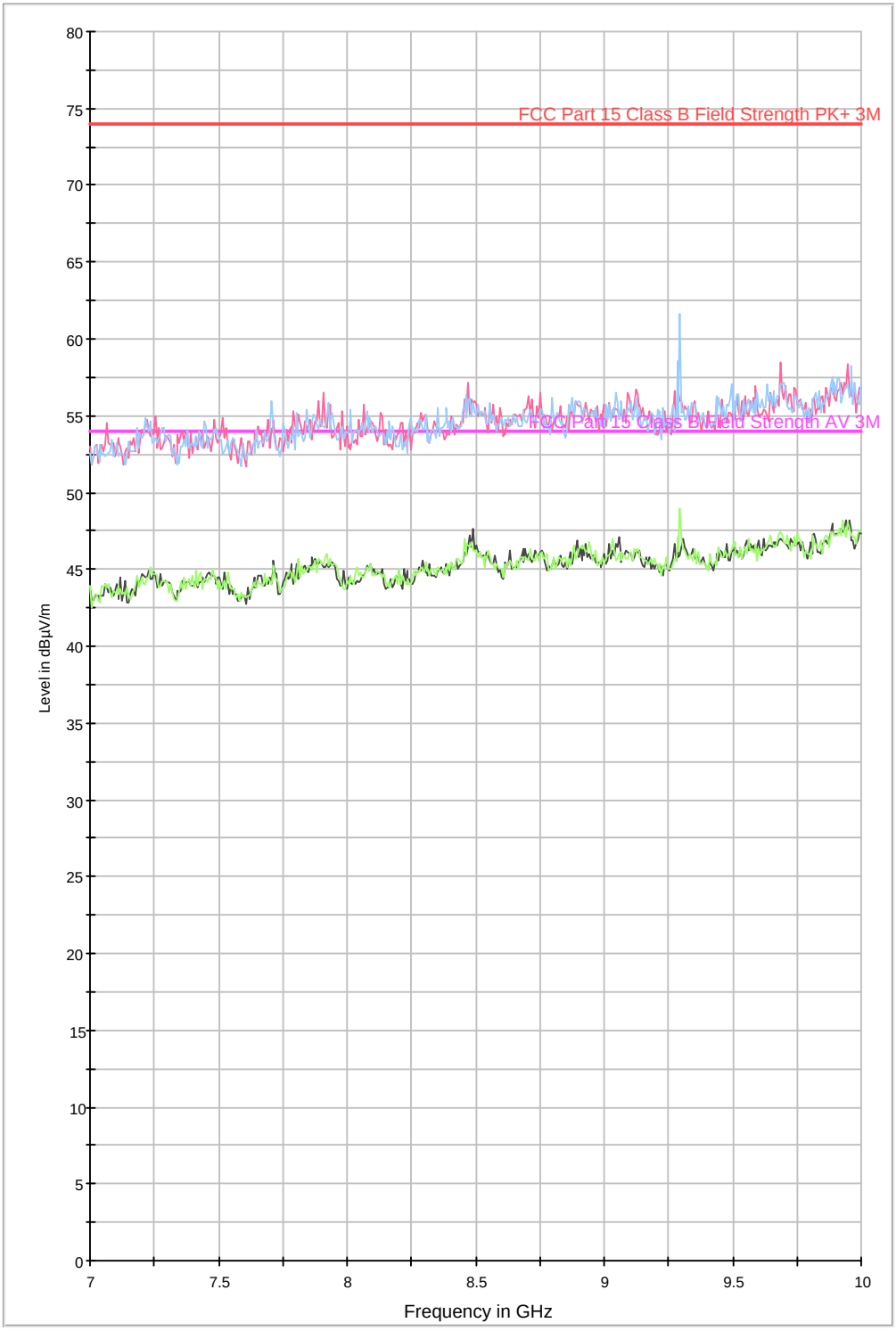
GPH\82077JD07\003

FCC Part 15.109 Radiated Emissions Class B 4-7GHz



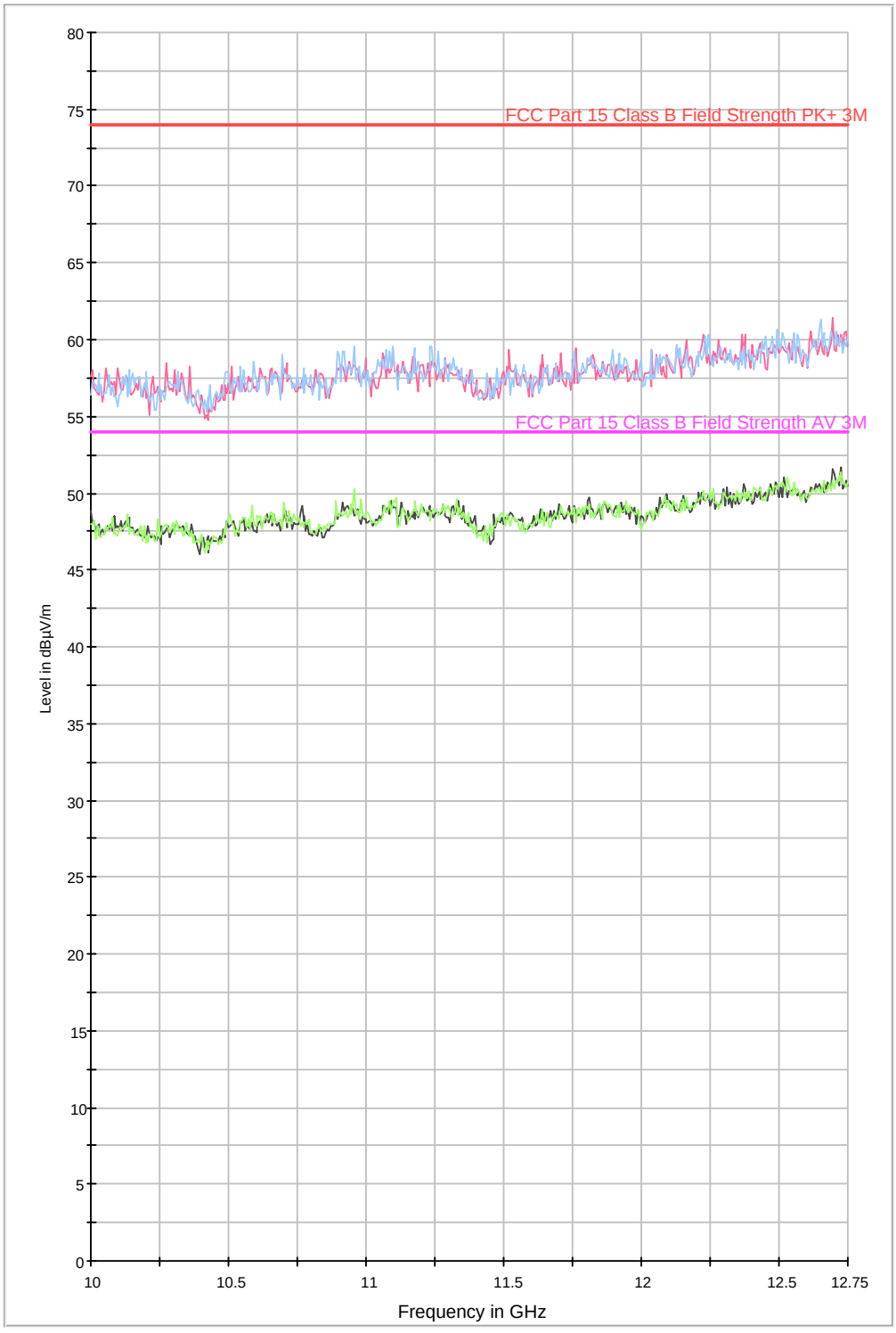
GPH\82077JD07\004

FCC Part 15.109 Radiated Emissions Class B 7-10GHz



GPH\82077JD07\005

FCC Part 15.109 Radiated Emissions Class B 10-12.75GHz

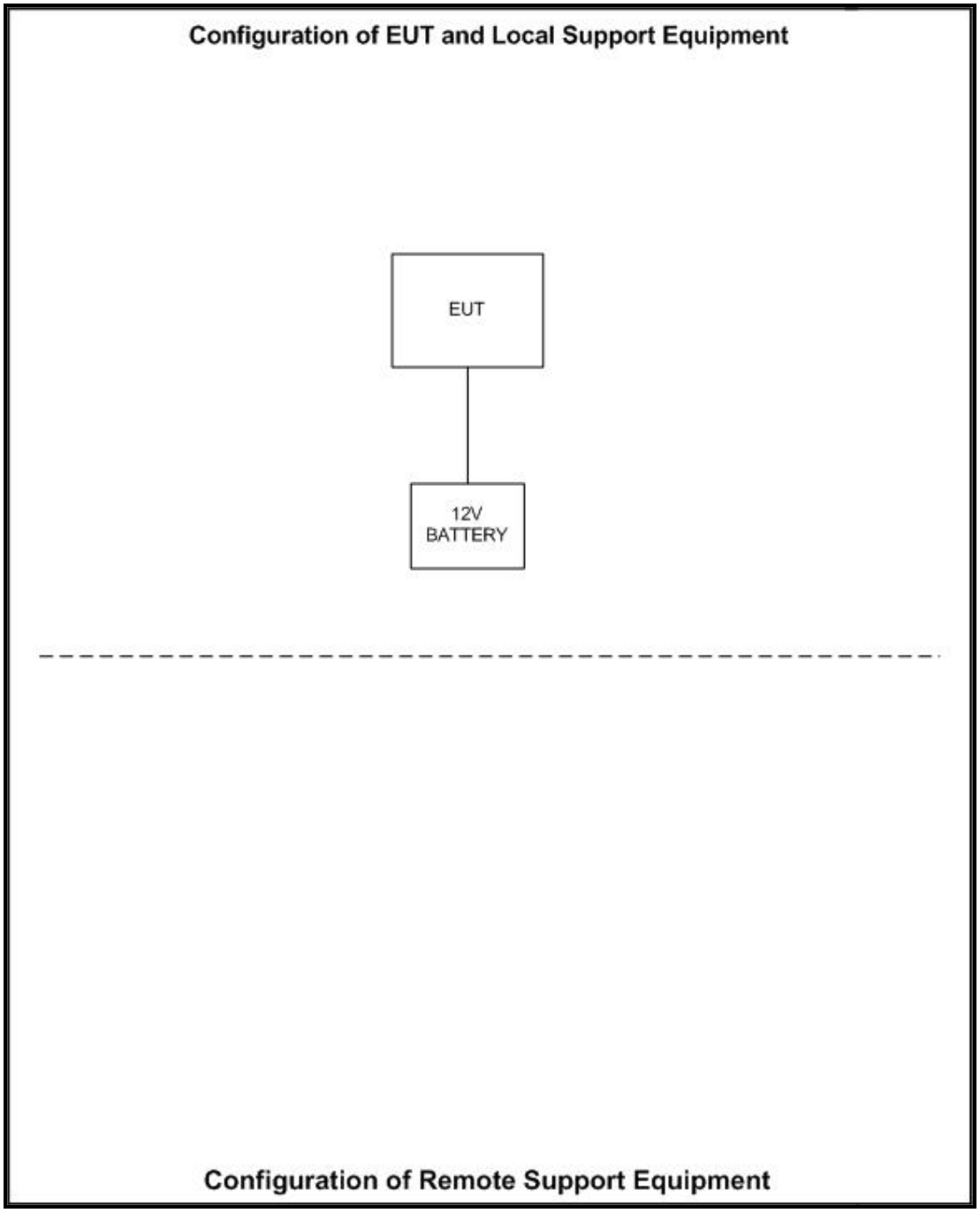


10. TEST CONFIGURATION DRAWING

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\82077JD07\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

DRG\82077JD07\001 - Schematic diagram of the EUT, support equipment and interconnecting cables used for the test



11. REPORT REVISION HISTORY

11.1. This section contains the report revision history.

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version.
2.0	7	3.7	FCC ID changed