FCC 47CFR part 15C
Test Report
For
MEMS Evolution3 Sensor
RV1.30

Reference Standard: FCC 47CFR part 15C
Manufacturer: Michelin Americas Research Company
For type of equipment and serial number, refer to section 3
Report Number: 08-7067-3-13 Issue 01
Report Produced by: -

R.N. Electronics Ltd.
1 Arnolds Court
Arnolds Farm Lane
Mountnessing
Essex
CM13 1UT
U.K.

www.RNelectronics.com
Telephone +44 (0) 1277 352219
Email sales@RNelectronics.com

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Arnolds Court, Arnolds Farm Lane, Mountnessing, Brentwood Essex, CM13 1UT

Certificate of Test 6067-3

The unit noted below has been tested by **R.N. Electronics Limited** and, where appropriate, conforms to the relevant subpart of FCC 47CFR Part 15. This is a certificate of test only and should not be confused with an equipment authorisation. Other standards may also apply.

Equipment:	MEMS Evolution3 Sensor
Model Number:	RV1.30
Proposed FCC ID:	FI5-RV1-30E
Unique Serial Number:	21076145
Manufacturer:	Michelin Americas Research Company 515 Michelin Road PO Box 1987 Greenville SC 29605-1987 USA
Full measurement results are detailed in Report Number:	08-7067-3-13 Issue 01
Test Standards:	FCC 47CFR Part 15C effective date **October 1st 2012,** Class DSC Intentional Radiator

NOTE:
Certain tests were not performed based upon manufacturer's declarations. Certain other requirements are subject to manufacturer declaration only and have not been tested/verified. For details refer to section 3 of this report.

DEVIATIONS:
Deviations from the standards have been applied. For details refer to section 4.2 of this report.

This certificate relates only to the unit tested as identified by a unique serial number and in the condition at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of unit not meeting the intentions of the standard or the requirements of the Federal Regulations, particularly under different conditions to those during testing. Any compliance statements are made reliant on (a) the application of the product and use of the assigned band being acceptable to the FCC and (b) the modes of operation as instructed to us by the Customer based on their specific knowledge of the application and functionality of the EUT. Statements of compliance, where measurements were made, do not include the measurement uncertainty. The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Date of Test: August, 16th - 23rd 2013

Test Engineer:

Approved By:
Quality Manager: Clint Hilling
Digitally signed by: Clint Hilling
DN: CN = Clint Hilling C = GB O = RN Electronics
Date: 2013.11.06 15:26:48 Z

Customer Representative:

1 Contents

2 Equipment Under Test (EUT)

2.1 Equipment Specification

Applicant	Raster Vision Ltd Unit 1 Crundalls Gedges Hill Matfield Kent TN12 7EA
Manufacturer of EUT	Michelin Americas Research Company
Brand name of EUT	Michelin MEMS Evolution3 Sensor
Model Number of EUT	RV1.30
Serial Number of EUT	21076145
Date when equipment was received by RN Electronics	31st July 2013
Date of test:	16th - 23rd August 2013
Visual description of EUT:	The EUT is a palm sized plastic unit with the Michelin logo on the top and four bolt holes for securing the lid.
Main function of the EUT:	Tyre Pressure Monitoring
Height	47 mm
Width	76 mm
Depth	78 mm
Weight	100 g
Voltage	3V Lithium coin cell
Current required from above voltage source	not stated

2.2 EUT Configurations for testing

General parameters	
EUT Normal use position	Inside tyre (tested as table top)
Choice of model(s) for type tests	Single variant
Antenna details	Helical coil
Antenna port	None
Baseband Data port (yes/no)?	No
Highest Signal generated in EUT	433.92 MHz RF carrier
Lowest Signal generated in EUT	3.25 MHz clock
TX Parameters	
Alignment range – transmitter	Single Channel
EUT Declared Modulation Parameters	FSK
EUT Declared Power level	Level 14 gives 72.9 dBuV/m @ 3m average power (n.b. EUT is pulsed).
EUT Declared Signal Bandwidths	Not stated
EUT Declared Channel Spacing's	Not applicable
EUT declared Duty Cycle	18ms per minute in normal use
Unmodulated carrier available?	No
Declared frequency stability	Not stated

2.3 Functional Description

The MEMS (Michelin Earthmover Management system) sensor is a battery powered tyre air pressure and air temperature sensor. The sensor is mounted on the interior of the tyre, in the air chamber. The sensor is equipped with a radio transmitter, which sends temperature and pressure measurements to receiving units outside of the tyre. The sensor transmits when the air pressure is above approximately 10 PSI. In normal operating conditions, the temperature and pressure measurements and are transmitted at approximately 1 minute (*) intervals. If the measured air pressure changes significantly the sensor increases the rate of measurement to approximately 16 second (*) intervals for a period of 20 approximately minutes. The sensor operates at 433.92 MHz, and uses FSK modulation.

* The timer used for interval measurement is accurate to +/-20% over the full temperature and voltage range.

2.4 EUT Modes

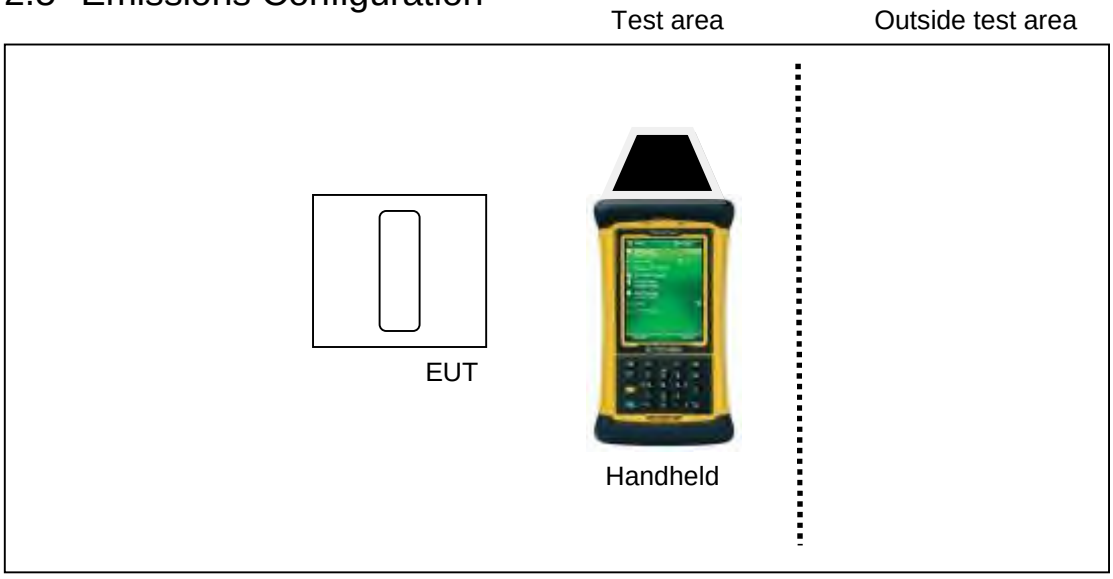
Mode Reference	Description	Used for testing
Normal	Transmission every 60s, approx., when above 10PSI.	No
Fast Mode	Transmission every 16s for 20 minutes.	Yes
Continuous Test	Repeated transmission approx once per second.	Yes

Description of ancillary equipment connected to the equipment under test, for the purpose of tests, can be found in Section 11.

Any modifications made to the EUT, whilst under test, can be found in Section 12.

This report was printed on: 06 November 2013

2.5 Emissions Configuration



The unit was powered from a new internal battery. The unit was configured with engineering menus on the associated handheld software to allow continuous (approx. once per second) transmissions for test purposes. The handheld communicator transmitted its commands to the EUT at 125kHz.

3 Summary of test results

The MEMS Evolution3 Sensor RV1.30 was tested to the following standards: -

FCC 47CFR Part 15.231 (effective date October 1st, 2012);
Class DSC Intentional Radiator

Any compliance statements are made reliant on the modes of operation as instructed to us by the Manufacturer based on their specific knowledge of the application and functionality of the equipment tested. Whilst every effort is made to assure quality of testing, type tests are not exhaustive and although no non-conformances may be found, this doesn't exclude the possibility of equipment not meeting the intentions of the standard, particularly under different conditions to those during testing.

Title	Reference	Results
1. AC power line conducted emissions	ANSI C63.10 §6.2.	Not applicable[1]
2. Intentional radiator field strength	ANSI C63.10 §6.5.	PASSED
3. Radiated emissions	ANSI C63.10 §6.4 – 6.6.	PASSED
4. Frequency stability	ANSI C63.10 §6.8.	Not applicable[2]
5. Occupied bandwidth	ANSI C63.10 §6.9.	PASSED
6. Band edge compliance	ANSI C63.10 §6.9.	Not applicable[2]
7. Periodic operation and emissions	ANSI C63.10 §7.4 – 7.6.	PASSED

[1] EUT does not operate from the AC power lines nor contain provisions for operation while connected to AC power lines.
[2] EUT is not operating in the 40.66 – 40.70 MHz band, therefore no limits are specified.

4 Specifications

4.1 Relevant standards

The tests were performed and operated in accordance with the RN Electronics procedures and the basic standards listed below.

Reference	Standard Number	Year	Description
4.1.1	47CFR15	2012	Federal Communications Commission PART 15 – RADIO FREQUENCY DEVICES
4.1.2	ANSI C63.10	2009	American National Standard for Testing Unlicensed Wireless Devices
4.1.3	ANSI C63.4	2003	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

R.N. Electronics Ltd sites M and OATS are listed with the FCC; Registration Number 293246
R.N. Electronics Ltd site H is listed with the FCC; Registration Number 823977

4.2 Deviations

ANSI C63-10-2009 deviations:
The reference standard ANSI C63.4-2003 was used, not the latest ANSI C63.4-2009

FCC Part 15 deviations:
None.

4.3 Tests at Extremes of Temperature & Voltage

No tests at extremes were required.

4.4 Measurement Uncertainties

Parameter	Uncertainty
Transmitter Tests	
RF frequency	<± 0.7 ppm
Bandwidth	<± 1.9 %
Radiated RF Power	<± 3.5 dB
Radiated Spurious Emissions	<± 3.4 dB

5 Tests, Methods and Results

5.1 AC power line conducted emissions

NOT APPLICABLE: EUT does not operate from the AC power lines nor contain provisions for operation while connected to AC power lines.

5.2 Intentional radiator field strength

5.2.1 Test Methods

Test Requirements FCC Part 15C, Reference (15.231 e)
Test Method: ANSI C63.10, Reference (6.5)

5.2.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The antenna was scanned 1-4m in height in both Horizontal and Vertical polarisations. The EUT was rotated in all three orthogonal planes. The EUT was operated in **Continuous Test** mode.

5.2.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below. Measurements were made at Site OATS. Measurements were made on an OATS. This site is listed with the FCC.

5.2.4 Test Equipment used

E226, TMS903
See Section 10 for more details

5.2.5 Test results

Ambient conditions.
Temperature: 26°C Relative humidity: 33 %

	433.92 MHz
Peak Level (dBµV/m)	86.3
Average (dBµV/m)	72.1
(µV/m)	4028
Plot reference	none
Antenna Polarisation	H
EUT Polarisation	Upright (H)

Note: EUT tested in a continuous transmit mode for ease of test. Where average limits apply, duty cycle correction was then calculated as per FCC 15.35. TX on time in 100ms period. See section 5.5 Periodic emissions within this report.

LIMITS:
Fc = 433.92MHz
15.231(e) Average = 4,400 uV/m = 72.9 dBuV/m @ 3m.
15.35 Peak = 20dB above the maximum permitted average emission limit = 92.9 dBuV/m @ 3m.

These results show that the EUT has **PASSED** this test.

5.3 Radiated emissions

5.3.1 Test Methods

Test Requirements FCC Part 15C, Reference (15.209)
Test Method: ANSI C63.10, Reference (6.4 – 6.6.)

5.3.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was rotated in all three orthogonal planes. Radiated Emissions testing was performed with a new battery. The EUT was operated in **Continuous Test** mode.

5.3.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below.

30MHz - 1GHz, pre-scans were made in a semi-anechoic chamber, followed by final measurements made on a site listed with the FCC. The equipment was rotated 360° and the antenna scanned 1 – 4 metres in both horizontal and vertical polarisations to record the worst case emissions.

Above 1GHz, measurements were made in a semi-anechoic chamber with appropriate absorbing material for use in this range. The EUT was raised and antenna was placed 1.5m above the ground in line with the EUT, which was rotated through 360° to record the worst case emissions.

At least 6 signals within 20dB and all signals within 10dB of the limit were investigated.

5.3.4 Test Equipment used

E226, TMS903, TMS933, E428, E289, E410, E411, E412, TMS82
See Section 10 for more details.

5.3.5 Test results

Analyser plots for the Quasi-Peak / Average values as applicable can be found in Section 6.1 of this report. Emissions more than 20dB from limit are not listed here.

5.3.5.1 30MHz - 1GHz.

Ambient conditions for final measurements, site OATS:
Temperature: 26 °C Relative humidity: 33%

Signal No.	Frequency (MHz)	Pol.	Peak Amp (dBuV)	QP Amp (dBuV)	Limit	Margin (dB)
1	600.0	H	37.5	35.3	15.231(e)	-17.7
2	650.0	H	37.8	34.6	15.231(e)	-18.4
3	867.8	V	34.7	33.5	15.231(e)	-19.5

5.3.5.2 Above 1GHz.

Signal No.	Frequency (MHz)	Pol.	Peak Amp (dBuV)	AVG Amp (dBuV)	Limit	Margin (dB)
1	1735.7	H	48.8	34.6	15.209	-19.4
2	2169.6	V	48.8	34.6	15.209	-19.4
3	2603.0	H	55.9	41.7	15.209	-12.3
4	2603.0	V	56.7	42.5	15.209	-11.5

Note: EUT tested in a continuous transmit mode for ease of test. Where average limits apply, duty cycle correction was then calculated as per FCC 15.35. TX on time in 100ms period. See section 5.5 Periodic emissions within this report.

LIMITS:
15.209 limits are applicable in the restricted bands of 15.205 with the relevant detector.
15.231(e) limits are applicable elsewhere, although 15.209 limits may be used where these allow a higher field strength.

n.b. the general limits of 15.209 are as drawn on the respective plots.

These show that the **EUT** has **PASSED** this test.

5.4 Frequency stability

NOT APPLICABLE: No limits apply, however the requirement to contain the designated bandwidth of the emission within the specified frequency band includes the frequency stability of the transmitter over expected variations in temperature and supply voltage.

5.5 Periodic operation and emissions

5.5.1 Test Methods

Test Requirements FCC Part 15C, Reference (15.231e)
Test Method: ANSI C63.10, Reference (7.4 – 7.6)

5.5.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was operated in **Continuous Test** and **Fast** modes.

5.5.3 Test Procedure

Tests were made in accordance with FCC Part 15 using the measuring equipment noted below. The centre frequency of the analyser was set to that of the transmitter, and the span set to zero. The sweep time was adjusted so that either the pulse width or the periodic operation could be observed.

Tests were performed using Test **Site B**.

5.5.4 Test Equipment used

LPE377, E005, E327.
See Section 10 for more details.

5.5.5 Test results

Ambient conditions.
Temperature: 21°C Relative humidity: 58 %

Analyser plots for the dwell time and duty cycle can be found in Section 6.2 of this report.

LIMITS:
15.231(e)

- duration of transmission <= 1s.
- silent period between transmissions >= 30x duration, and min. of 10s.

These results show that the **EUT** has **PASSED** this test.

5.6 Occupied bandwidth

5.6.1 Test Methods

Test Requirements FCC Part 15C, Reference (15.231(c))
Test Method: ANSI C63.10, Reference (6.9)

5.6.2 Configuration of EUT

The EUT was placed on a 0.8 metres high turntable. The front edge of the EUT was initially positioned facing the antenna. The EUT was measured at a distance of 3 metres. The EUT was operated in **Continuous Test** mode.

5.6.3 Test Procedure

Tests were performed using Test Site **B**.
Tests were made in accordance with FCC Part 15 using the measuring equipment noted below. A 30kHz RBW, 3x VBW, auto sweep time and max hold settings were used for the 20 dB bandwidth.

5.6.4 Test Equipment used

LPE377, E005, E327
See Section 10 for more details.

5.6.5 Test results

Ambient conditions.
Temperature: 21°C Relative humidity: 58 %

Analyser plots for the 20 dB bandwidth can be found in Section 6.3 of this report.

Occupied Bandwidth (kHz)		
20 dB	Fundamental	433,920
	Result	220
	Plot ref	See section 6.3 of this report

LIMITS:
15.231(c) must be <0.25% of centre frequency.
Fc = 433.92MHz = 1.085MHz.

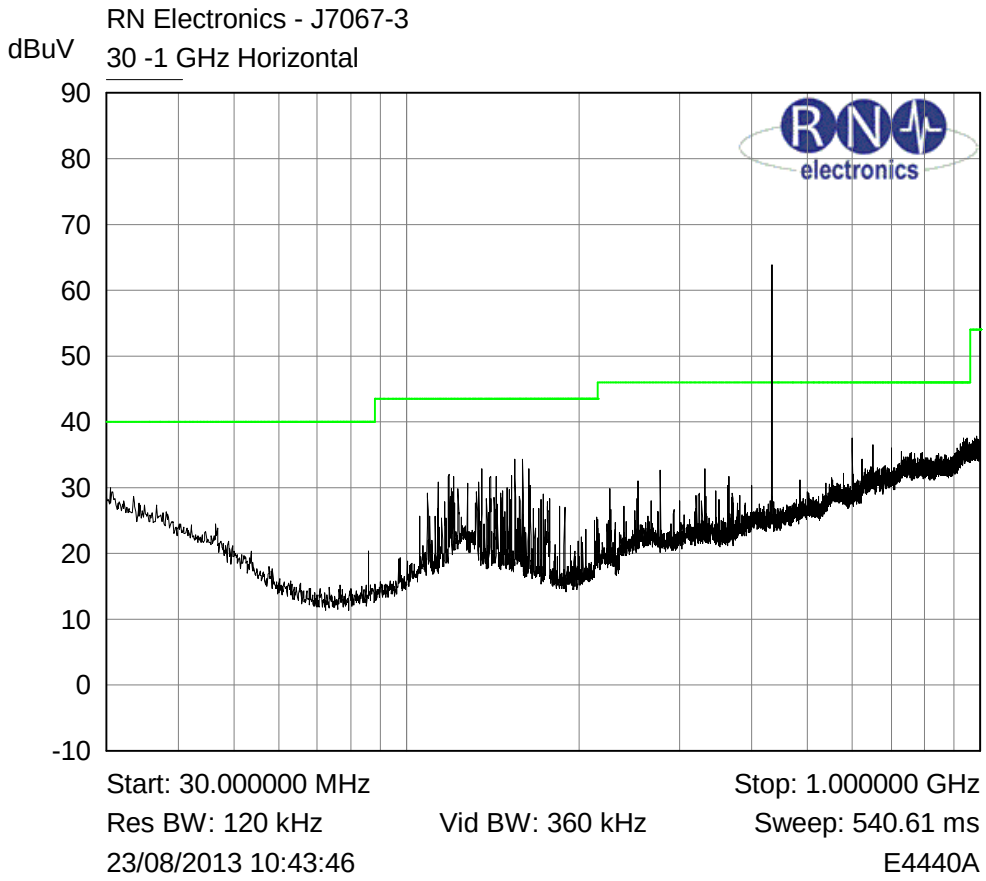
These results show that the EUT has **PASSED** this test.

5.7 Band Edge compliance

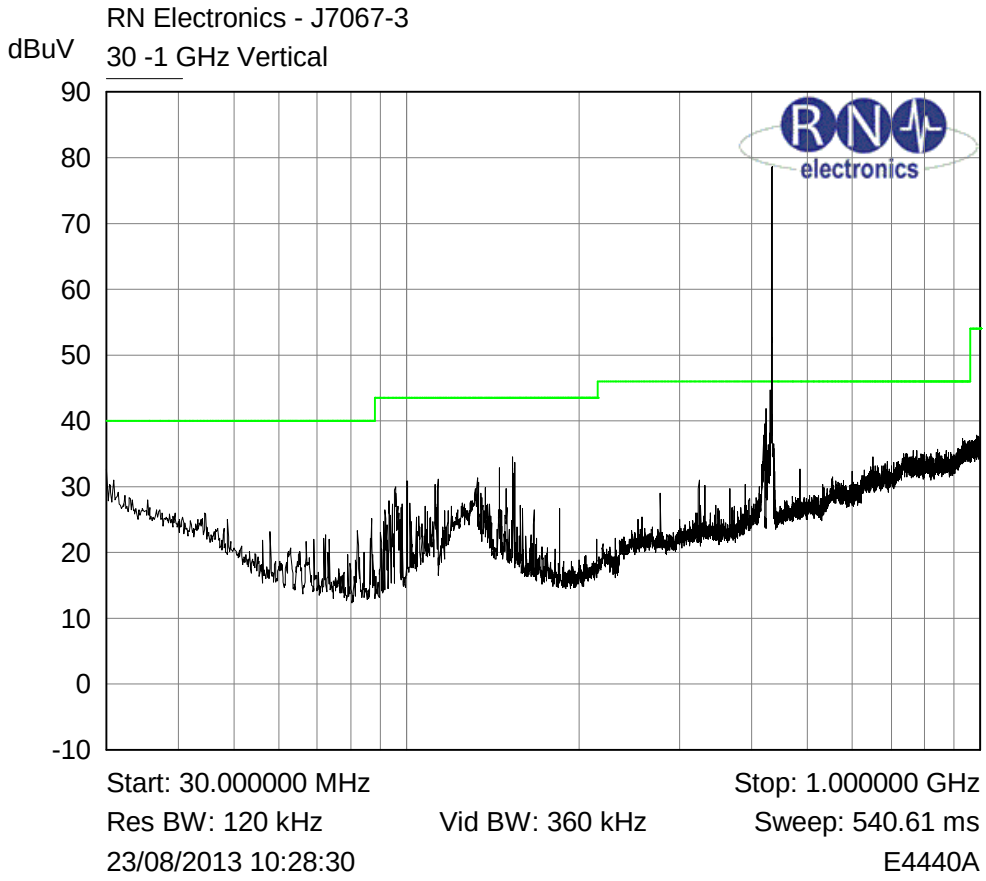
NOT APPLICABLE. EUT is not operating in the 40.66 – 40.70 MHz band, therefore no limits are specified.

6 Plots and Results

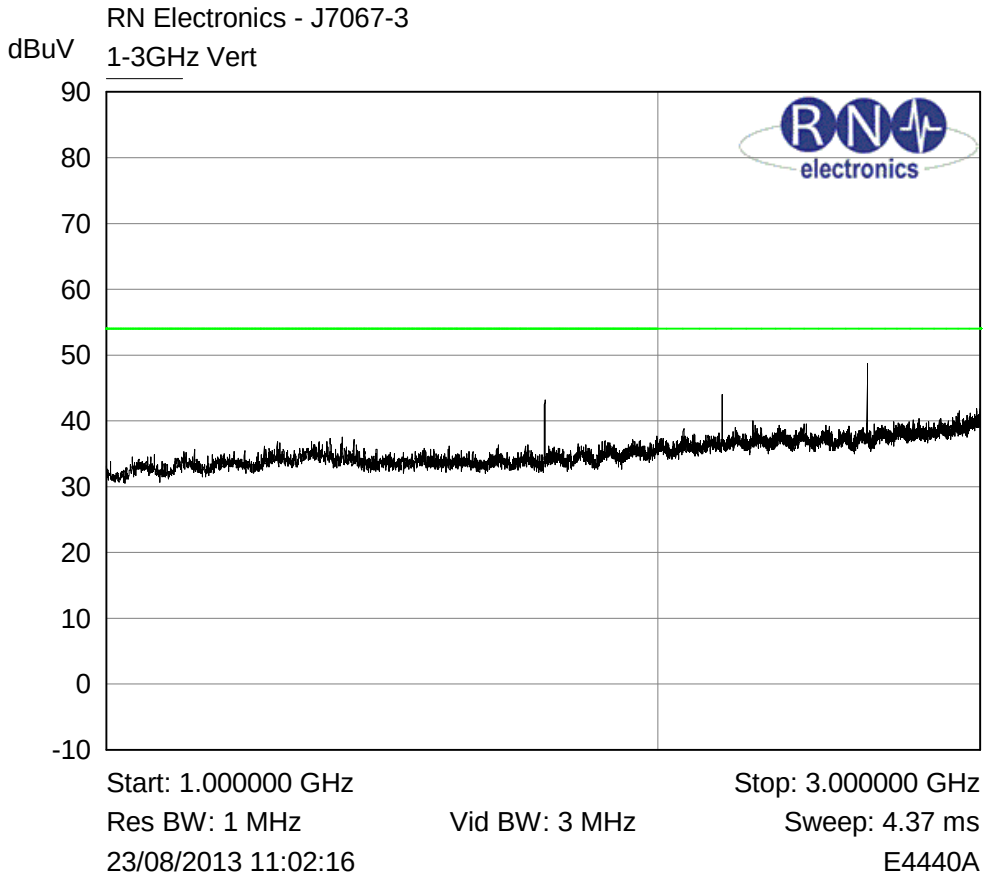
6.1 Radiated emissions plots

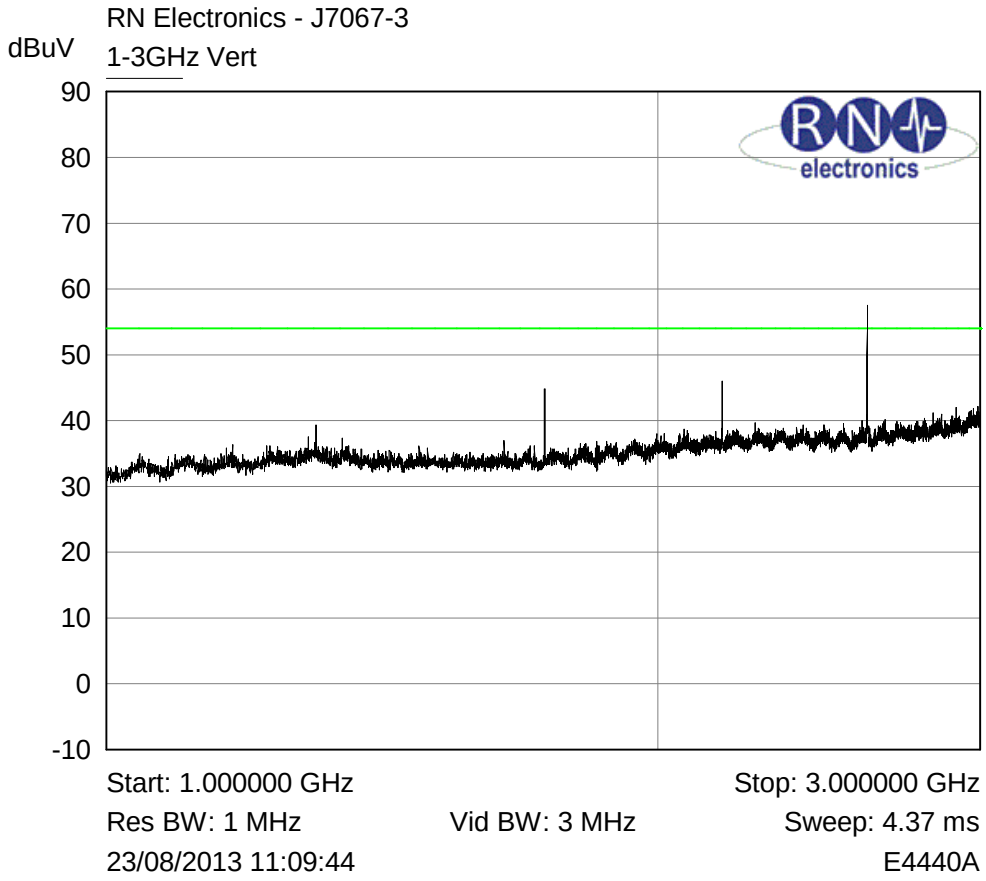


Note, emission observed at 433.92MHz, above the radiated emission 15.209 average limit, is the fundamental.

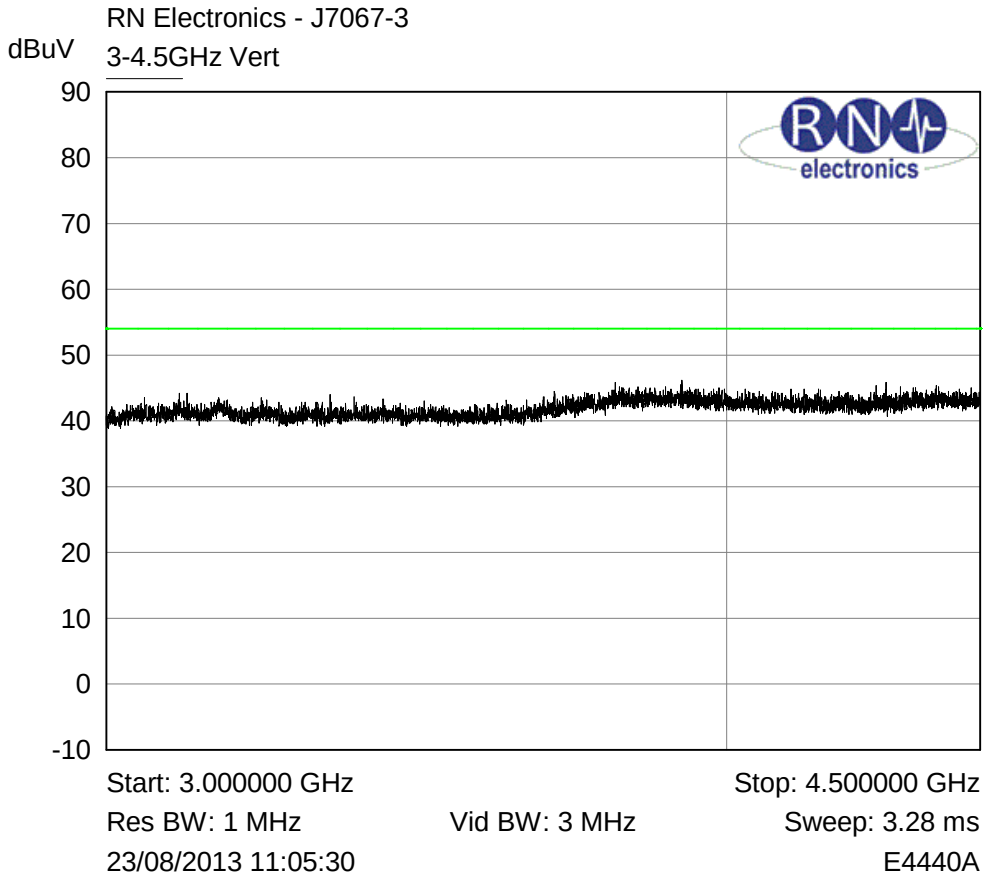


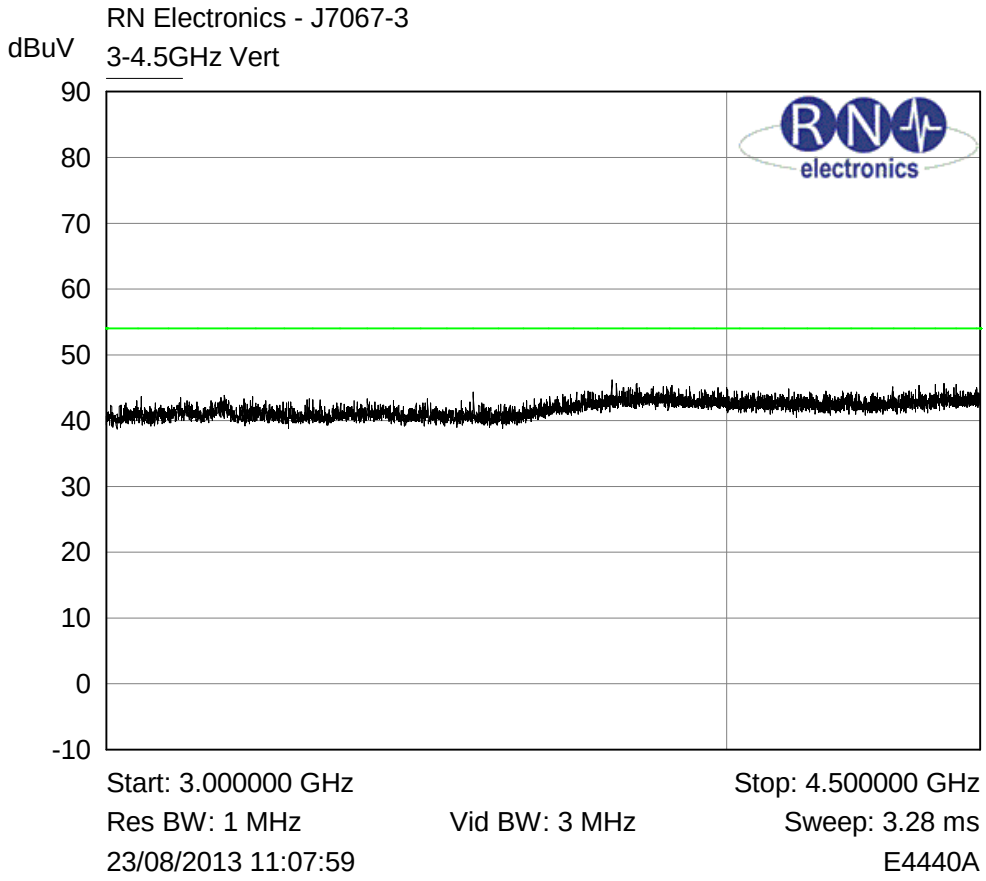
Note, emission observed at 433.92MHz, above the radiated emission 15.209 average limit, is the fundamental.


RN Electronics - J7067-3
1-3GHz Vert
dBuV
90
80
70
60
50
40
30
20
10
0
-10
Start: 1.000000 GHz
Stop: 3.000000 GHz
Res BW: 1 MHz
Vid BW: 3 MHz
Sweep: 4.37 ms
23/08/2013 11:02:16
E4440A



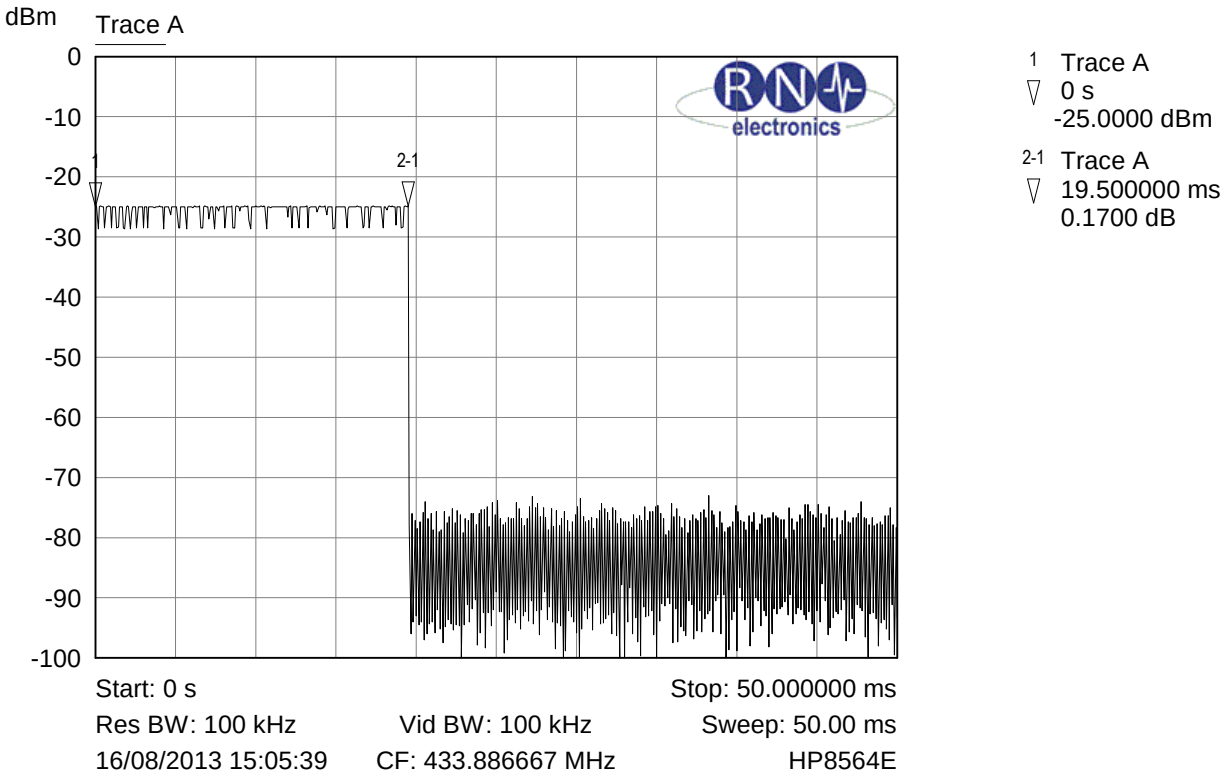
Note, emission observed at 2604 MHz, above the radiated emission 15.209 average limit, is 6th harmonic of the fundamental and is below the limit after averaging (above scan is peak).


RN Electronics - J7067-3
3-4.5GHz Vert
dBuV
90
80
70
60
50
40
30
20
10
0
-10
Start: 3.000000 GHz
Stop: 4.500000 GHz
Res BW: 1 MHz
Vid BW: 3 MHz
Sweep: 3.28 ms
23/08/2013 11:05:30
E4440A

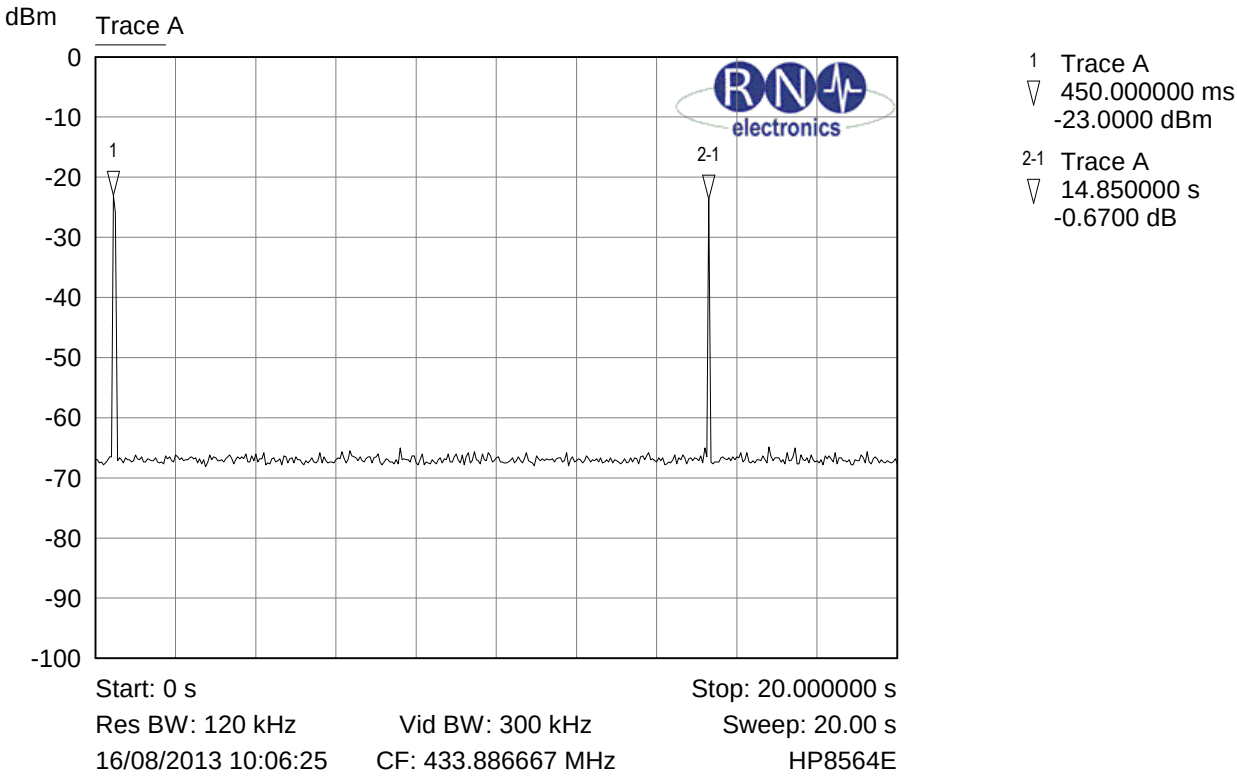

RN Electronics - J7067-3
3-4.5GHz Vert
dBuV
90
80
70
60
50
40
30
20
10
0
-10
Start: 3.000000 GHz
Stop: 4.500000 GHz
Res BW: 1 MHz
Vid BW: 3 MHz
Sweep: 3.28 ms
23/08/2013 11:07:59
E4440A

6.2 Periodic operation and emissions plots

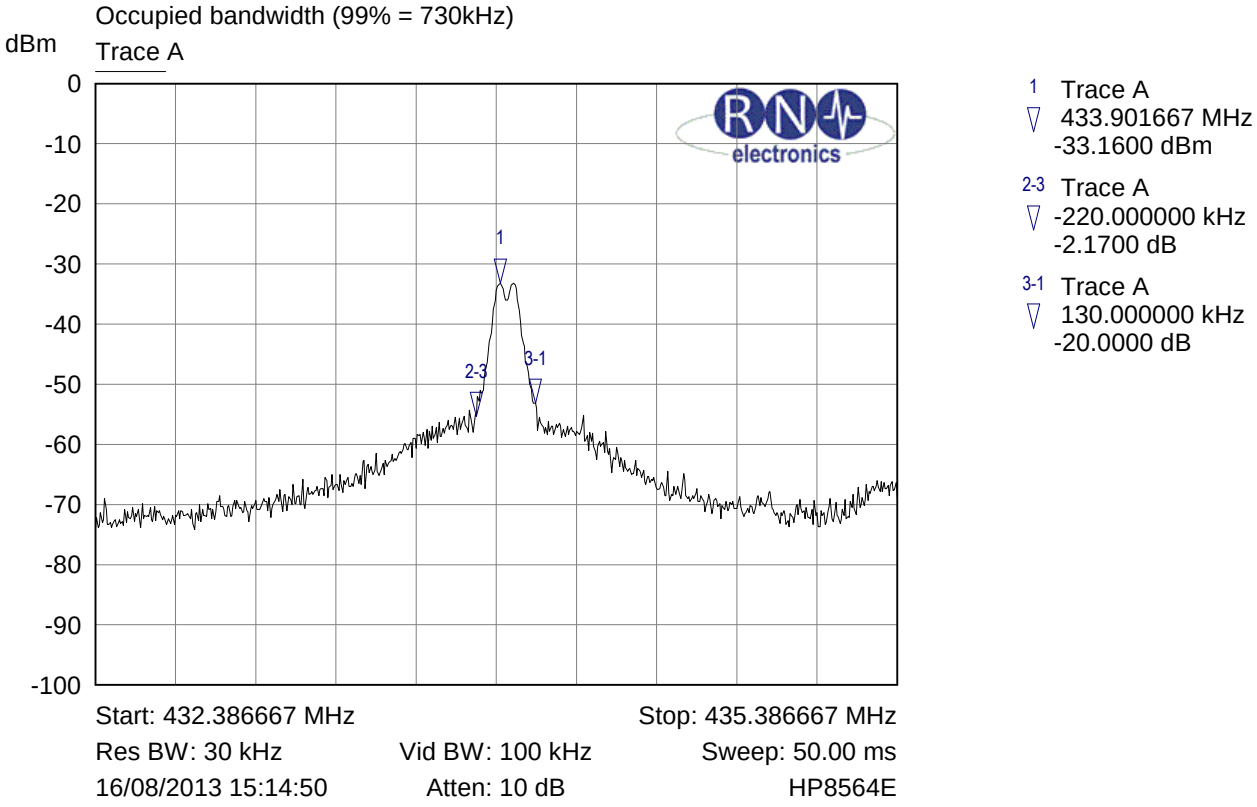
On time



PERIOD time - fast mode



6.3 Occupied bandwidth plots



7 Explanatory Notes

7.1 Explanation of Table of Signals Measured

Measurements are made as required by the standard. These measurements are made and recorded using detectors, either peak, quasi peak or average dependant on the test. A table of results has been given following the relevant plots. This table looks similar to the one illustrated below dependant on the measurements required by the test: -

Signal No.	Freq (MHz)	Peak Amp (dBuV)	Pk – Lim 1 (dB)	QP Amp (dBuV)	QP - Lim1 (dB)	Av Amp (dBuV)	Av - Lim1 (dB)
1	12345	54.9	-10.5	48.0	-12.6	37.6	-14.4

Column One - Labelled Signal No. is an incremental number that the receiver has given to each signal that has been measured.

Column Two - Labelled Freq (MHz) is the approximate frequency of the signal received.

Column Three - Labelled Peak Amp (dBμV) is the level of received signal that was measured in dB above 1μV using the peak detector.

Column Four - Labelled Pk - Lim1 (dB) is the difference in level from the peak signal given to the active limit line. If this column appears in the table the peak detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Column Five - Labelled QP Amp (dBμV) is the level of received signal that was measured in dB above 1μV using the quasi-peak detector.

Column Six - Labelled QP - Lim1 (dB) is the difference in level from the quasi-peak signal given to the active limit line. If this column appears in the table the quasi-peak detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Column Seven - Labelled Av Amp (dBμV) is the level of received signal that was measured in dB above 1μV using the average detector.

Column Eight - Labelled Av - Lim1 (dB) is the difference in level from the average signal given to the active limit line. If this column appears in the table the average detector measurement is required by the standard for this test. The results entered in this column indicate the signal level relative to the compliance limit required. Negative numbers indicate that the product is compliant.

Only signals highlighted in red are deemed to exceed the limit of the detector required.

7.2 Explanation of limit line calculations for radiated measurements

The limits given in the test standard are normally expressed as absolute values (e.g. in μV/m at a specified distance), whereas the measured values are expressed as peak, quasi peak or average values in dBμV/m referenced to the measuring instrument inputs. RN Electronics calibrate the test set-up to account for any path losses, antenna gains, etc. so that the value read at the receiver relates directly to the absolute value required, except that it is expressed in dB relative to one microVolt and may need to take account of any alternative measuring distance used. Examples:

(a) limit of 500 μV/m equates to 20.log (500) = 54 dB μV/m.

(b) limit of 300 μV/m at 10m equates to 20.log (300 . 10/3) = 60 dB μV/m at 3m

(c) limit of 30 μV/m at 30m, but below 30MHz, equates to 20.log(30) + 40.log(30/3) = 69.5 dBμV/m at 3m, as extrapolation factor below 30MHz is 40dB/decade per 15.31(f)(2).

8 Photographs

8.1 EUT front view

8.2 EUT side view

8.3 EUT rear view

8.4 Test set-up, erp and spurious emissions

8.5 Test set-up diagram

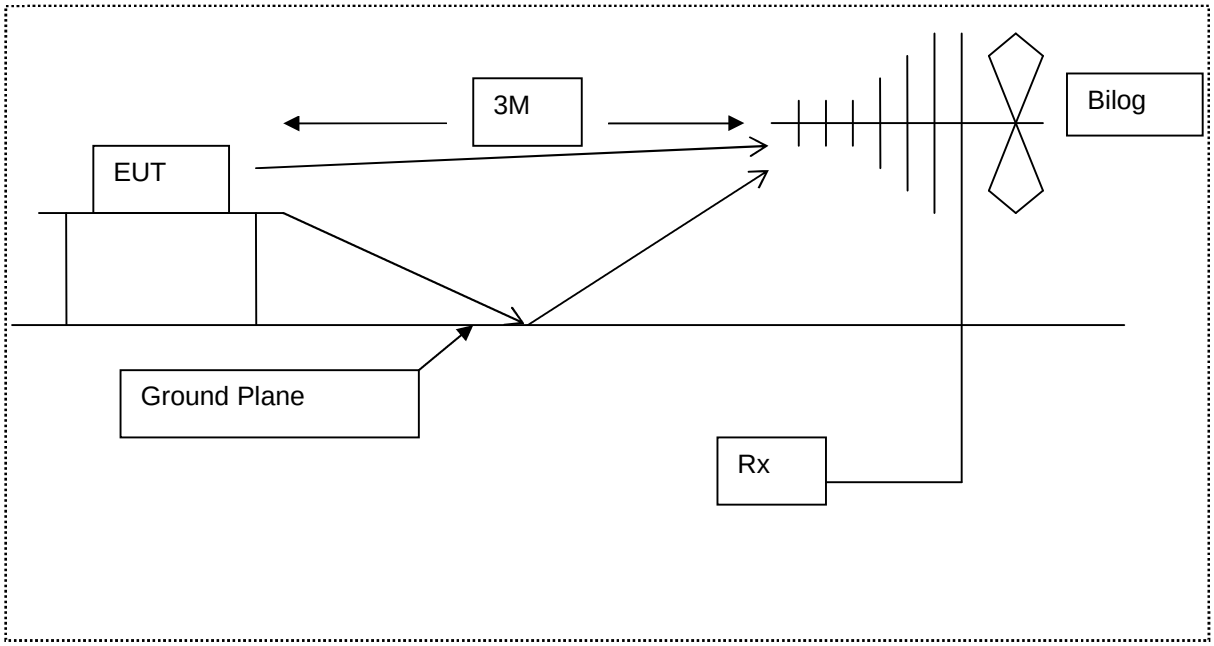


Diagram of the radiated emissions test setup.

9 Signal Leads

None.

10 Test Equipment Calibration list

The following table lists the test equipment used, last calibration date and calibration interval. All test equipment used has been maintained within the calibration requirements of ***R.N. Electronics Ltd.*** test facility quality system. Calibration intervals are regularly reviewed dependent on equipment manufacturer's recommendations and actual usage of the equipment.

RN No.	Model	Manufacturer	Description	Period	Cal Date
E005	HP8447F	Hewlett Packard	Pre-Amplifier	12	12-Nov-12
E226	8546A	Hewlett Packard	EMI Receiver	12	18-Jun-13
E289	8449B	HP	22-40GHZ H40 Block Down Converter	12	10-May-12
E327	CBL6141A	Schaffner	Bi-log Antenna	24	24-Mar-14
E410	N5181A	Agilent Technologies	3 GHz MXG Signal Generator	36	26-Oct-11
E411	N9039A	Agilent Technologies	9 kHz - 1 GHz RF Filter Section	12	18-Oct-12
E412	E4440A	Agilent Technologies	3 Hz - 26.5 GHz PSA	12	18-Oct-12
E428	HF906	Rhode & Schwarz	1-18 GHz Horn Antenna	24	25-Nov-11
LPE377	8564E	HP	Spectrum Analyser 9kHz - 40GHz	24	13-Feb-12
TMS82	8449B	Agilent	Pre Amplifier 1 - 26 GHz	12	19-Nov-12
TMS903	CBL6111A	Chase	Bilog Antenna 30MHz - 1GHz	36	04-Jun-13
TMS933	CBL6141A	York EMC	Bilog Antenna 30MHz - 2GHz	36	12-Jun-13

11 Auxiliary equipment

11.1 Customer supplied Equipment

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

Item No.	Model No.	Description	Manufacturer	Serial No.
1	Nomad	Handheld interrogator / programming terminal	Trimble / Raster Vision	RVL

11.2 Supplied by RN Electronics Limited

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

None.

12 Modifications

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

12.1 Modifications before test

The EUT was configured via the support equipment to power level 14 prior to test.

12.2 Modifications during test

No modifications were made during test by RN Electronics Ltd.

13 Compliance information

Products subject to the Declaration of Conformity procedure are required to be supplied with a compliance information statement. A copy of this statement may be included here:

Not Applicable – Equipment is to be Certified.

14 Description of Test Sites

Site A	Radio / Calibration Laboratory and anechoic chamber
Site B	Semi-anechoic chamber
Site B1	Control Room for Site B
Site C	Transient Laboratory
Site D	Screened Room (Conducted Immunity)
Site E	Screened Room (Control Room for Site D)
Site F	Screened Room (Conducted Emissions) VCCI Registration No. C-2823
Site G	Screened Room (Control Room for Site H)
Site H	3m Semi-anechoic chamber (indoor OATS) FCC Registration No. 823977
Site J	Screened Room
Site K	Screened Room (Control Room for Site M)
Site M	3m Semi-anechoic chamber (indoor OATS) FCC Registration No. 293246
Site Q	Fully-anechoic chamber
Site OATS	3m and 10m Open Area Test Site FCC Registration No. 293246 IC Registration No. 5612A-1 VCCI Registration No. R-2580
Site R	Screened Room (Conducted Immunity)
Site S	Safety Laboratory
Site T	Transient Laboratory

15 Abbreviations and Units

%	Percent	g	Grams
µV	microVolts	GHz	GigaHertz
µW	microWatts	Hz	Hertz
AC	Alternating Current	IF	Intermediate Frequency
ALSE	Absorber Lined Screened Enclosure	kHz	kiloHertz
		LO	Local Oscillator
AM	Amplitude Modulation	mA	milliAmps
Amb	Ambient	max	maximum
ANSI	American National Standards Institute	kPa	milliBars
		MHz	MegaHertz
ºC	Degrees Celsius	min	minimum
CFR	Code of Federal Regulations	mm	milliMetres
		ms	milliSeconds
CS	Channel Spacing	mW	milliWatts
CW	Continuous Wave	NA	Not Applicable
dB	deciBels	nom	Nominal
dBµV	deciBels relative to 1µV	nW	nanoWatt
dBc	deciBels relative to Carrier	OATS	Open Area Test Site
dBm	deciBels relative to 1mW	OFDM	Orthogonal Frequency Division Multiplexing
DC	Direct Current		
DSC	Part 15 security / remote control transmitter	ppm	Parts per million
		QAM	Quadrature Amplitude Modulation
DSR	Part 15 remote control / security device transceiver	QPSK	Quadrature Phase Shift Keying
EIRP	Equivalent Isotropic Radiated Power	Ref	Reference
		RF	Radio Frequency
ERP	Effective Radiated Power	RTP	Room Temperature and Pressure
EUT	Equipment Under Test		
FCC	Federal Communications Commission	s	Seconds
		Tx	Transmitter
FM	Frequency Modulation	V	Volts
FSK	Frequency Shift Keying		