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Test report

319681-1TRFWL

Date of issue: January 13, 2017

Applicant:

Ingenu Inc.

Product:

RPMA Wireless Access Point

Model:

RPMAAP10M2

FCC ID:

XTE-RPMAAP10M2

Specifications:

- FCC 47 CFR Part 15 Subpart C, §15.247

  Operation in the 902–928 MHz, 2400–2483.5 MHz, 5725–5850 MHz

Test location

Company name	Nemko Canada Inc.
Address	303 River Road
City	Ottawa
Province	Ontario
Postal code	K1V 1H2
Country	Canada
Telephone	+1 613 737 9680
Facsimile	+1 613 737 9691
Toll free	+1 800 563 6336
Website	www.nemko.com
Site number	FCC: 176392; IC: 2040A-4 (3 m semi anechoic chamber)

Tested by	Kevin Rose, Wireless/EMC Specialist
Reviewed by	Andrey Adelberg, Senior Wireless/EMC Specialist
Review date	January 13, 2017
Reviewer signature	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

Table of contents

Section 1. Report summary

1.1 Applicant and manufacturer

Company name:	Ingenu Inc.
Address:	10301 Meanley Drive, San Diego, CA, USA, 92131

1.2 Test specifications

FCC 47 CFR Part 15, Subpart C, Clause 15.247	Operation in the 902–928 MHz, 2400–2483.5 MHz

1.3 Test methods

558074 D01 DTS Meas Guidance v03r05 (April 8, 2016)	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
ANSI C63.10 v2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

1.4 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was completed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See “Summary of test results” for full details.

1.5 Exclusions

None

1.6 Test report revision history

Revision #	Details of changes made to test report
TRF	Original report issued

Section 2. Summary of test results

2.1 FCC Part 15 Subpart C, general requirements test results

Part	Test description	Verdict
§15.207(a)	Conducted limits	Pass
§15.31(e)	Variation of power source	Pass[1]
§15.203	Antenna requirement	Pass[2]

Notes: [1] Measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, was performed with the supply voltage varied between 85 % and 115 % of the nominal rated supply voltage. No noticeable output power variation was observed

[2] The Antennas uses a unique connector.

2.2 FCC Part 15 Subpart C, intentional radiators test results

Part	Test description	Verdict
§15.247(a)(1)(i)	Frequency hopping systems operating in the 902–928 MHz band	Not applicable
§15.247(a)(1)(ii)	Frequency hopping systems operating in the 5725–5850 MHz band	Not applicable
§15.247(a)(1)(iii)	Frequency hopping systems operating in the 2400–2483.5 MHz band	Not applicable
§15.247(a)(2)	Minimum 6 dB bandwidth for systems using digital modulation techniques	Pass
§15.247(b)(1)	Maximum peak output power of frequency hopping systems operating in the 2400–2483.5 MHz band and 5725–5850 MHz band	Not applicable
§15.247(b)(2)	Maximum peak output power of Frequency hopping systems operating in the 902–928 MHz band	Not applicable
§15.247(b)(3)	Maximum peak output power of systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands	Pass
§15.247(c)(1)	Fixed point-to-point operation with directional antenna gains greater than 6 dBi	Not applicable
§15.247(c)(2)	Transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams	Not applicable
§15.247(d)	Spurious emissions	Pass
§15.247(e)	Power spectral density for digitally modulated devices	Pass
§15.247(f)	Time of occupancy for hybrid systems	Not applicable

Section 3. Equipment under test (EUT) details

3.1 Sample information

Receipt date	November 7, 2016
Nemko sample ID number	133-002240

3.2 EUT information

Product name	RPMA Wireless Access Point
Model	RPMAAP10M2
Serial number	79100011 and 79100031 with Diplexer 36952-01

3.3 Technical information

Frequency band	2400–2483.5 MHz
Frequency Min (MHz)	2402
Frequency Max (MHz)	2475.63
RF power Min (W), Conducted	0.778 (28.91 dBm)
RF power Max (W), Conducted	0.867 (29.38 dBm)
Field strength, Units @ distance	N/A
Measured BW (kHz) (6 dB)	1030.0
Calculated BW (kHz), as per TRC-43	N/A
Type of modulation	DSSS-BPSK
Emission classification (F1D, G1D, D1D)	G1D
Transmitter spurious, Units @ distance	2483.5 MHz 51.72 dBµV/m average @ 3 meters
Power requirements	POE (48 VDC)
Antenna information	The antenna is a 6dBi Omni directional antenna. The Antenna is professionally installed The EUT uses a unique antenna coupling/ non-detachable antenna to the intentional radiator.

3.4 Product description and theory of operation

The EUT is an Access point.

3.5 EUT exercise details

GUI software was used to operate the EUT

3.6 EUT setup diagram

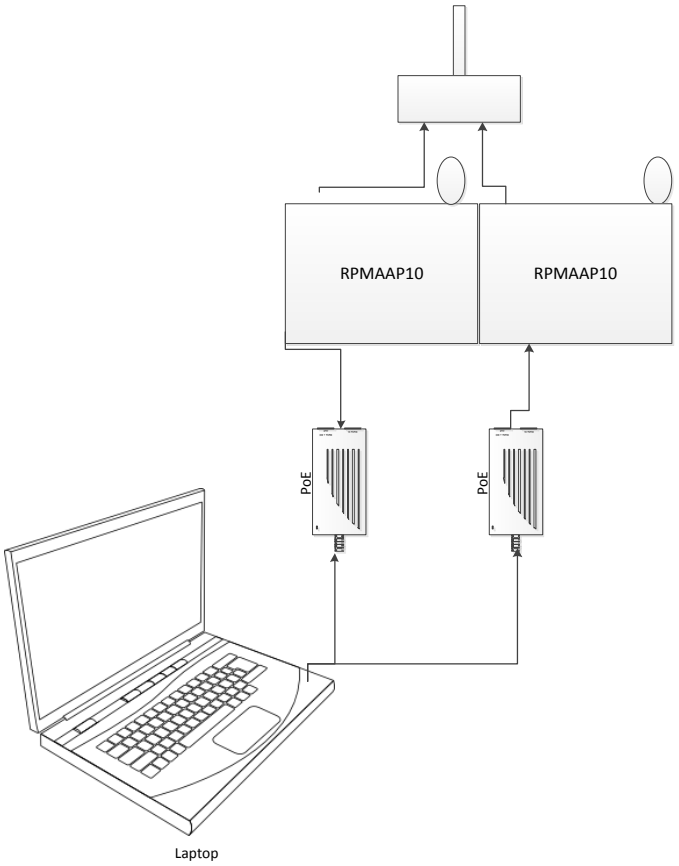


Figure 3.6-1: *Setup diagram*

3.7 EUT sub assemblies

Table 3.7-1: *EUT sub assemblies*

Description	Brand name	Model/Part number	Serial number
POE	ITE Power Supply	PENB1035B5600N02	-
POE	ITE Power Supply	PENB1035B5600N02	-

Section 4. Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5. Test conditions

5.1 Atmospheric conditions

Temperature	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 mbar

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.

Section 6. Measurement uncertainty

6.1 Uncertainty of measurement

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of K = 2 with 95% certainty.

Test name	Measurement uncertainty, dB
All antenna port measurements	0.55
Conducted spurious emissions	1.13
Radiated spurious emissions	3.78
AC power line conducted emissions	3.55

Section 7. Test equipment

7.1 Test equipment list

Table 7.1-1: *Equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
3 m EMI test chamber	TDK	SAC-3	FA002047	1 year	Dec. 01/16
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 26	FA002043	1 year	Jan. 07/17
Spectrum analyzer	Rohde & Schwarz	FSP	FA001920	1 year	Aug. 20/17
Bilog antenna (20–3000 MHz)	Sunol	JB3	FA002108	1 year	Apr. 28/17
Horn antenna (1–18 GHz)	EMCO	3115	FA000825	1 year	Apr. 26/17
Pre-amplifier (1–18 GHz)	JCA	JCA118-503	FA002091	1 year	April 26/17
Horn antenna 18–40 GHz	EMCO	3116	FA001847	1 year	Apr.15/17
18–26 GHz pre-amplifier	Narda	BBS-1826N612	FA001550	—	VOU
LISN	Rohde & Schwarz	ENV216	FA002023	1 year	Mar. 08/17

Note: NCR - no calibration required, VOU - verify on use

Section 8. Testing data

8.1 FCC 15.207(a) AC power line conducted emissions limits

8.1.1 Definitions and limits

FCC:
Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Table 8.1-1: *Conducted emissions limit*

Frequency of emission, MHz	**Conducted limit, dBµV**	
	Quasi-peak	**Average****
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

Note: * - The level decreases linearly with the logarithm of the frequency.
** - A linear average detector is required.

8.1.2 Test summary

Test date	November 8, 2016	Temperature	21 °C
Test engineer	Kevin Rose	Air pressure	1010 mbar
Verdict	Pass	Relative humidity	32 %

8.1.3 Observations, settings and special notes

The EUT was set up as tabletop configuration.

The spectral scan has been corrected with transducer factors (i.e. cable loss, LISN factors, and attenuators) for determination of compliance.

A preview measurement was generated with the receiver in continuous scan mode. Emissions detected within 6 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

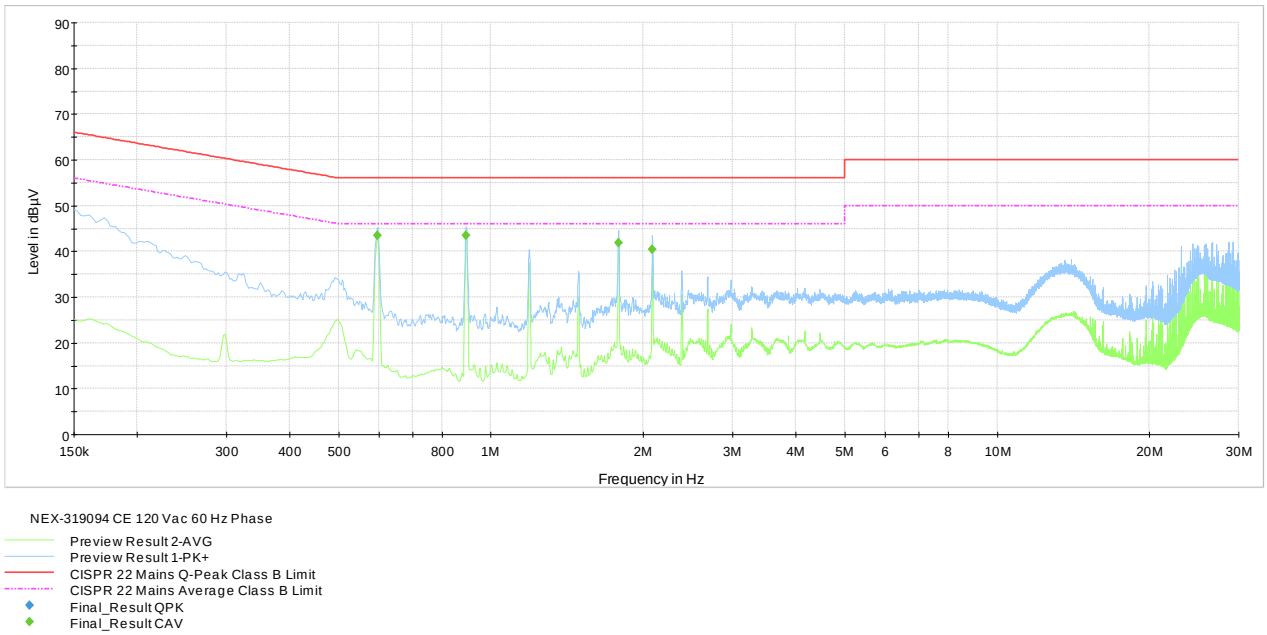
Receiver settings for preview measurements:

Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Detector mode	Peak and Average
Trace mode	Max Hold
Measurement time	1000 ms

Receiver settings for final measurements:

Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Detector mode	Quasi-Peak and Average
Trace mode	Max Hold
Measurement time	1000 ms

8.1.4 Test data



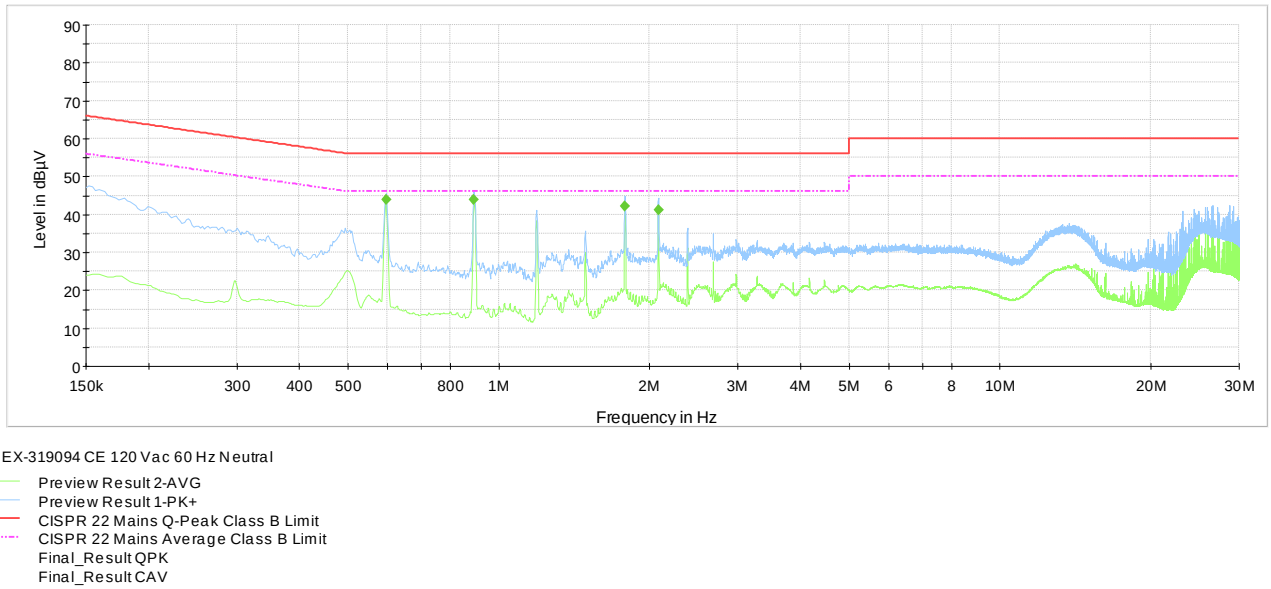
Plot 8.1-1: *Conducted emissions on phase line*

Table 8.1-2: *Average conducted emissions results on phase line*

Frequency, MHz	Average result, dBµV	Meas. Time, ms	Bandwidth, kHz	Filter	Correction, dB	Margin, dB	Limit, dBµV
0.5955	43.42	100	9	Off	10.1	2.58	46
0.8925	43.46	100	9	Off	10	2.54	46
1.78575	41.84	100	9	Off	10	4.16	46
2.08275	40.4	100	9	Off	10	5.60	46

Sample calculation
Correction factor (dB) = LISN factor IL (dB) + cable loss (dB) + attenuator (dB)
Result (dBµV) = XX dBµV (reading from receiver) + XX dB (Correction factor)

Example:
43.5 dBµV = 23.2 dBµV (receiver reading) + 10.1 dB (LISN factor IL) + 0.2 dB (cable loss) + 10 dB (attenuator)



Plot 8.1-2: *Conducted emissions on neutral line*

Table 8.1-3: *Average conducted emissions results on neutral line*

Frequency, MHz	Average result, dBµV	Meas. Time, ms	Bandwidth, kHz	Filter	Correction, dB	Margin, dB	Limit, dBµV
0.595500	43.82	100	9	Off	10.1	2.18	46.00
0.892500	44.00	100	9	Off	10	2.00	46.00
1.785750	42.17	100	9	Off	10	3.83	46.00
2.082750	41.13	100	9	Off	10	4.87	46.00

Sample calculation:
Correction factor (dB) = LISN factor IL (dB) + cable loss (dB) + attenuator (dB)
Result (dBµV) = XX dBµV (reading from receiver) + XX dB (Correction factor)

Example:
43.5 dBµV = 23.2 dBµV (receiver reading) + 10.1 dB (LISN factor IL) + 0.2 dB (cable loss) + 10 dB (attenuator)

8.2 FCC 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques

8.2.1 Definitions and limits

FCC:

(a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

(2) Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2.2 Test summary

Test date	November 14, 2016	Temperature	27 °C
Test engineer	Kevin Rose	Air pressure	1003 mbar
Verdict	Pass	Relative humidity	32 %

8.2.3 Observations, settings and special notes

Spectrum analyser settings:

Resolution bandwidth	1–5 % of DTS BW (no wider than 100 kHz)
Video bandwidth	≥3 × RBW
Frequency span	5 MHz
Detector mode	Peak
Trace mode	Max Hold

8.2.4 Test data

Table 8.2-1: *6 dB bandwidth results*

Frequency, MHz	6 dB bandwidth, kHz	Minimum Limit, kHz	Margin, kHz
2402.00	860.0	500	360
2403.99	960.0	500	460
2405.93	1030.0	500	530
2471.65	990.0	500	490
2473.64	990.0	500	490
2475.63	1010.0	500	510

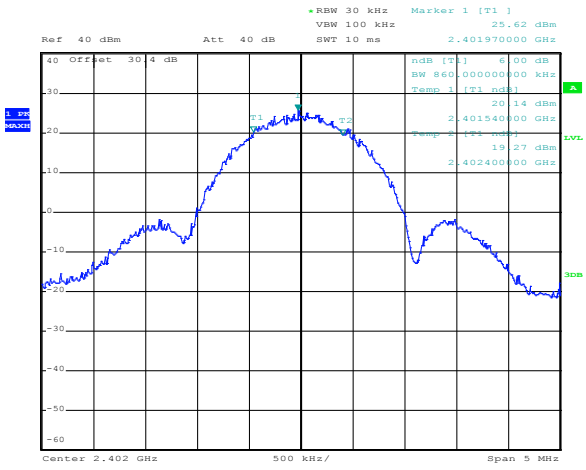


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Figure 8.2-1: *6 dB bandwidth 2402 MHz*

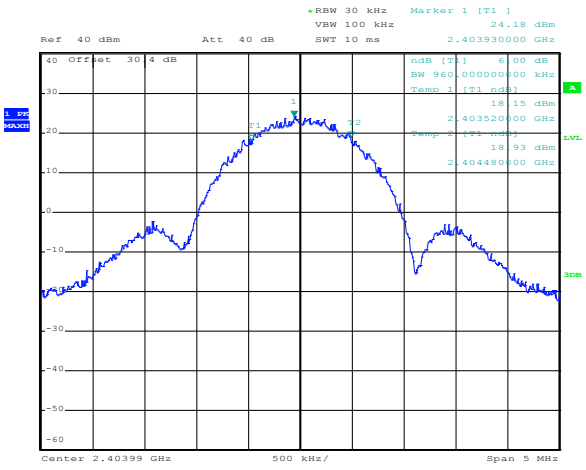

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Figure 8.2-2: *6 dB bandwidth 2403.99 MHz*

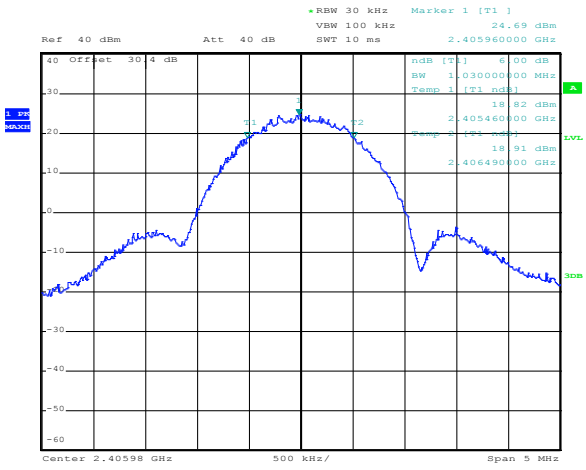

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Figure 8.2-3: *6 dB bandwidth 2405.98 MHz*

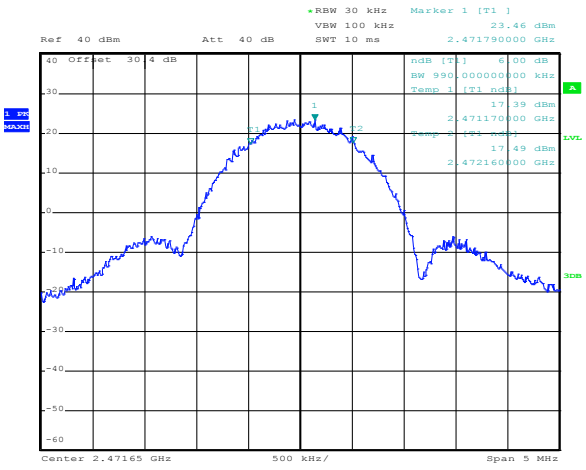

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Figure 8.2-4: *6 dB bandwidth 2471.65 MHz*

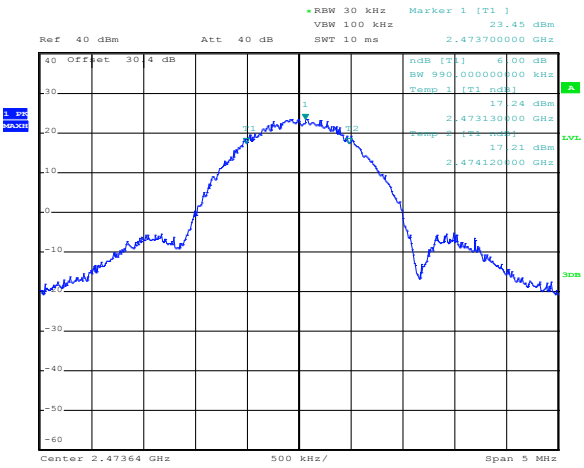


Figure 8.2-5: *6 dB bandwidth 2473.64 MHz*

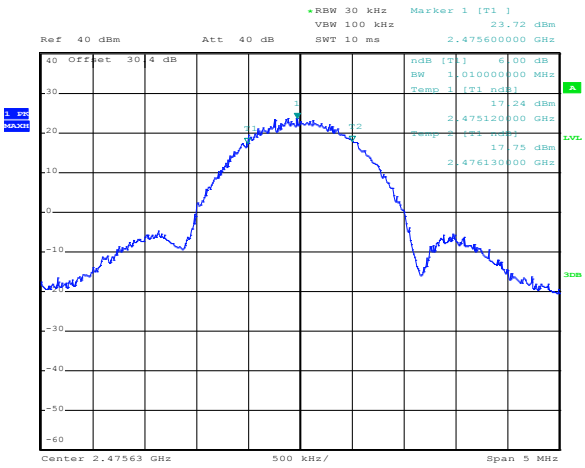


Figure 8.2-6: *6 dB bandwidth 2475.63 MHz*

8.3 FCC 15.247(b) Transmitter output power and e.i.r.p. requirements

8.3.1 Definitions and limits

FCC:

(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:

(3) For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 W (30 dBm). As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Fixed, point-to-point operation, as used in paragraphs (b)(3)(i) and (b)(3)(ii) of this section, excludes the use of point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

(c) Operation with directional antenna gains greater than 6 dBi.

(2) In addition to the provisions in paragraphs (b)(1), (b)(3), (b)(4) and (c)(1)(i) of this section, transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams, simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers provided the emissions comply with the following:

(i) Different information must be transmitted to each receiver.

(ii) If the transmitter employs an antenna system that emits multiple directional beams but does not do emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device, i.e., the sum of the power supplied to all antennas, antenna elements, staves, etc. and summed across all carriers or frequency channels, shall not exceed the limit specified in paragraph (b)(1) or (b)(3) of this section, as applicable. However, the total conducted output power shall be reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi. The directional antenna gain shall be computed as follows:

(A) The directional gain shall be calculated as the sum of 10 log (number of array elements or staves) plus the directional gain of the element or stave having the highest gain.

8.3.2 Test summary

Test date	November 14, 2016	Temperature	27 °C
Test engineer	Kevin Rose	Air pressure	1003 mbar
Verdict	Pass	Relative humidity	32 %

8.3.3 Observations, settings and special notes

9.2.3.1 Method AVGPM (Measurement using an RF average power meter)
EUT transmitting with >98% duty cycle

8.3.4 Test data

Table 8.3-1: *Output power measurements results*

Frequency, MHz	Conducted output power, dBm		Margin, dB	Antenna gain, dBi	EIRP, dBm	EIRP limit, dBm	EIRP margin, dB
	Measurement	Limit					
2402.00	29.34	30	0.66	6	35.34	36	0.66
2403.99	29.21	30	0.79	6	35.21	36	0.79
2405.93	29.38	30	0.62	6	35.38	36	0.62
2471.65	28.91	30	1.09	6	34.91	36	1.09
2473.64	29.20	30	0.80	6	35.20	36	0.80
2475.63	28.94	30	1.06	6	34.94	36	1.06

8.4 FCC 15.247(d) Spurious (out-of-band) emissions

8.4.1 Definitions and limits

FCC:
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Table 8.4-1: *FCC §15.209 – Radiated emission limits*

Frequency, MHz	Field strength of emissions		Measurement distance, m
	µV/m	dBµV/m	
0.009–0.490	2400/F	$67.6 - 20 \times \log_{10}(F)$	300
0.490–1.705	24000/F	$87.6 - 20 \times \log_{10}(F)$	30
1.705–30.0	30	29.5	30
30–88	100	40.0	3
88–216	150	43.5	3
216–960	200	46.0	3
above 960	500	54.0	3

Notes: In the emission table above, the tighter limit applies at the band edges.
For frequencies above 1 GHz the limit on peak RF emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test

Table 8.4-2: *FCC restricted frequency bands*

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2690–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	Above 38.6
13.36–13.41			

8.4.2 Test summary

Test date	November 16, 2016	Temperature	27 °C
Test engineer	Kevin Rose	Air pressure	1003 mbar
Verdict	Pass	Relative humidity	32 %

8.4.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.
EUT was set to transmit with 100 % duty cycle.
Since fundamental power was tested using average method, the spurious emissions limit is −30 dBc/100 kHz

Spectrum analyser settings for radiated measurements within restricted bands below 1 GHz:

Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyser settings for peak radiated measurements within restricted bands above 1 GHz:

Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyser settings for average radiated measurements within restricted bands above 1 GHz:

Resolution bandwidth:	1 MHz
Video bandwidth:	10 Hz
Detector mode:	Peak
Trace mode:	Max Hold

Spectrum analyser settings for conducted spurious emissions measurements:

Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Detector mode:	Peak
Trace mode:	Max Hold

8.4.4 Test data

Table 8.4-3: *Radiated field strength measurement results*

Channel	Frequency, MHz	Peak Field strength, dBµV/m		Margin, dB	Average Field strength, dBµV/m		Margin, dB
		Measured	Limit		Measured	Limit	
1	2390.0	60.43	74	13.57	49.38	54	4.62
1	4804.0	48.93	74	25.07	42.73	54	11.27
2	4807.9	47.96	74	26.04	40.97	54	13.03
2	4811.9	43.73	74	30.27	34.62	54	19.38
37	4947.2	44.50	74	29.50	36.33	54	17.67
38	4951.3	45.71	74	28.29	38.03	54	15.97
38	2483.5	63.81	74	10.19	51.72	54	2.28

Notes: Field strength includes correction factor of antenna, cable loss, amplifier, and attenuators where applicable.

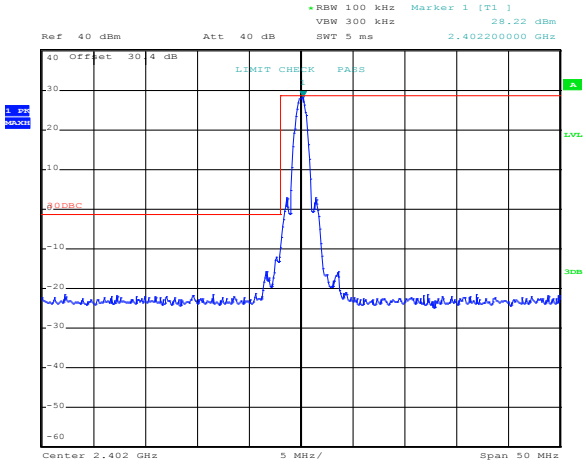


Figure 8.4-1: *Conducted spurious emissions low channel*

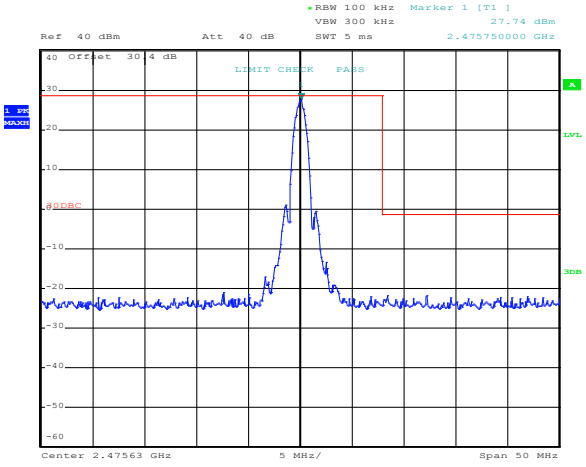


Figure 8.4-2: *Conducted spurious emissions for high channel*

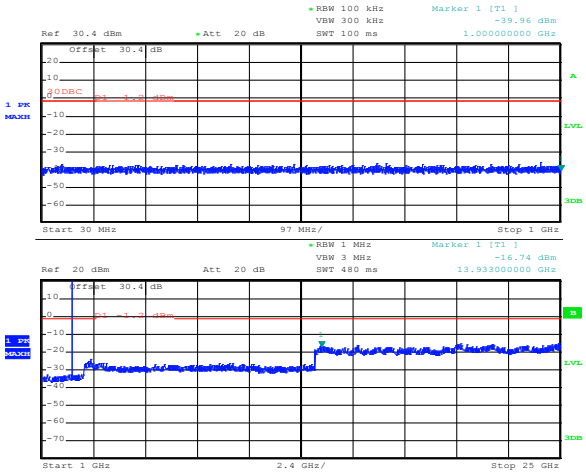


Figure 8.4-3: *Conducted spurious emissions 2402 MHz*

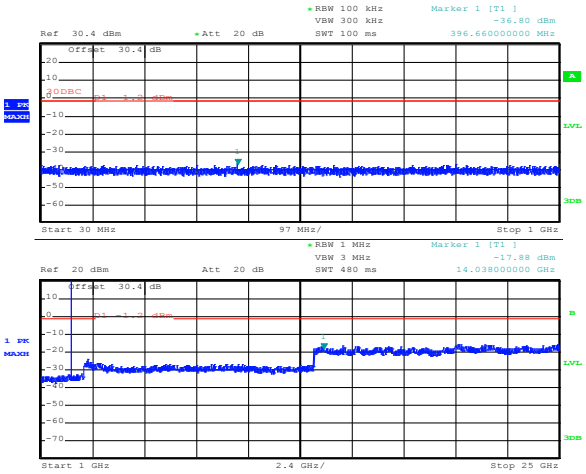
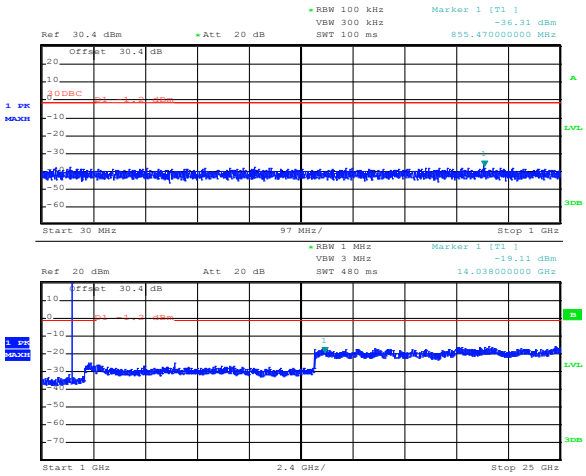
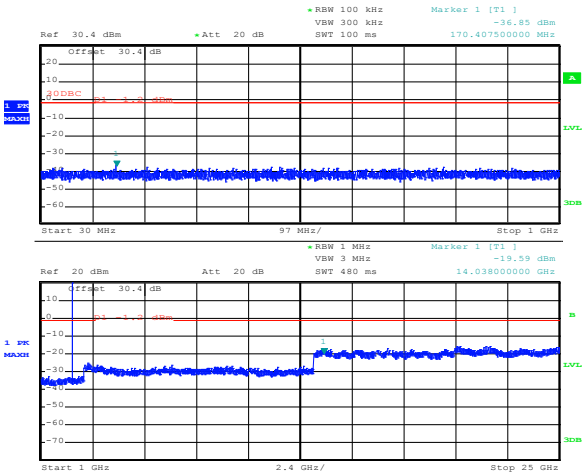


Figure 8.4-4: *Conducted spurious emissions 2403.99 MHz*



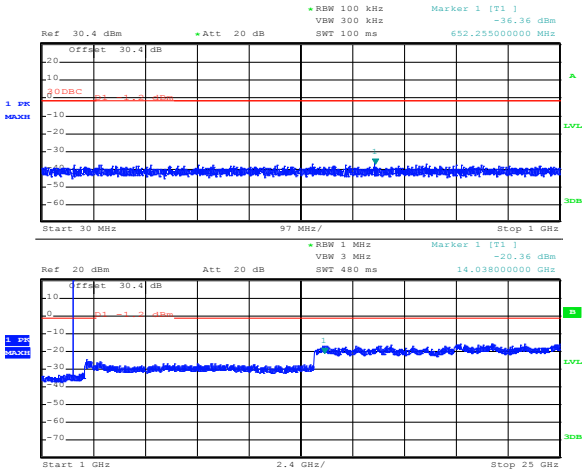
Date: 14.NOV.2016 20:04:32

Figure 8.4-5: *Conducted spurious emissions 2405.98 MHz*



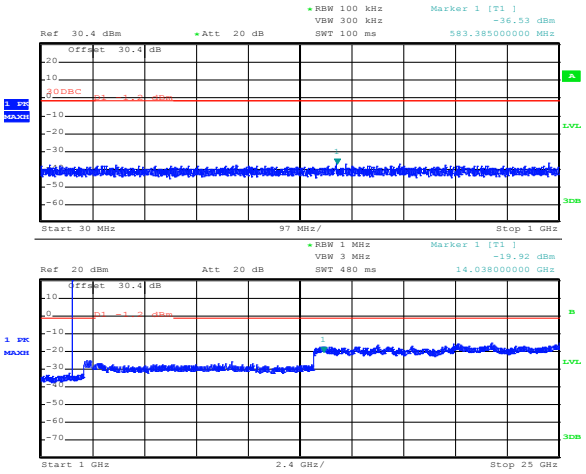
Date: 14.NOV.2016 20:07:17

Figure 8.4-6: *Conducted spurious emissions 2471.65 MHz*



Date: 14.NOV.2016 20:08:55

Figure 8.4-7: *Conducted spurious emissions 2473.94 MHz*



Date: 14.NOV.2016 20:10:21

Figure 8.4-8: *Conducted spurious emissions 2475.63 MHz*

8.5 FCC 15.247(e) Power spectral density for digitally modulated devices

8.5.1 Definitions and limits

FCC:
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

8.5.2 Test summary

Test date	November 14, 2016	Temperature	27 °C
Test engineer	Kevin Rose	Air pressure	1003 mbar
Verdict	Pass	Relative humidity	32 %

8.5.3 Observations, settings and special notes

The test was performed using method described in section 10.3 Method AVGPSD-1 (trace averaging with EUT transmitting at full power throughout each sweep). Spectrum analyser settings:

Resolution bandwidth:	3 kHz
Video bandwidth:	30 kHz
Frequency span:	5MHz
Detector mode:	RMS
Trace mode:	Power average
Averaging sweeps number:	100

8.5.4 Test data

Table 8.5-1: *PSD measurements results*

Frequency, MHz	PSD, dBm/3 kHz	PSD limit, dBm/3 kHz	Margin, dB
2402.00	4.79	8.00	3.21
2403.99	4.83	8.00	3.17
2405.93	4.96	8.00	3.04
2471.65	3.57	8.00	4.43
2473.64	3.88	8.00	4.12
2475.63	3.57	8.00	4.43

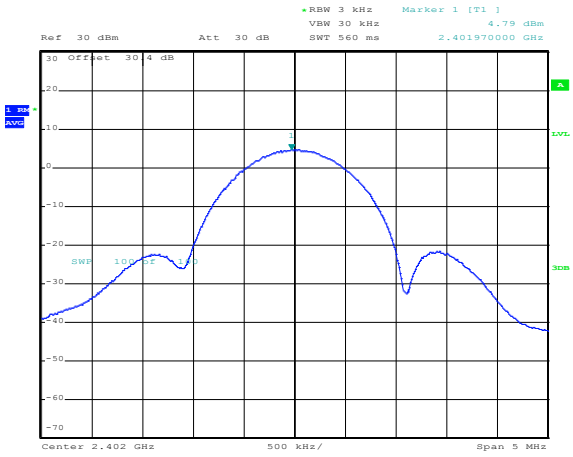


Figure 8.5-1: *PSD 2402 MHz*

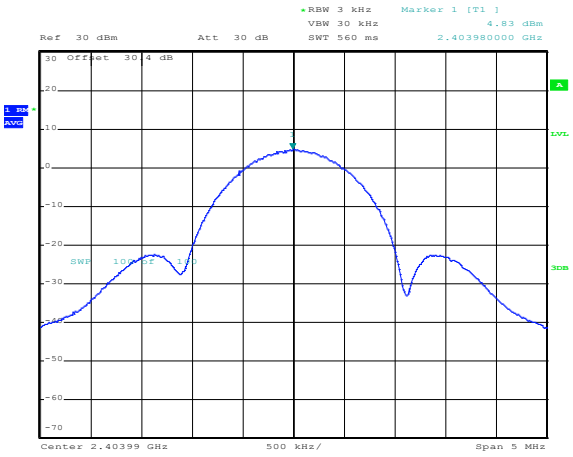


Figure 8.5-2: *PSD 2403.99 MHz*

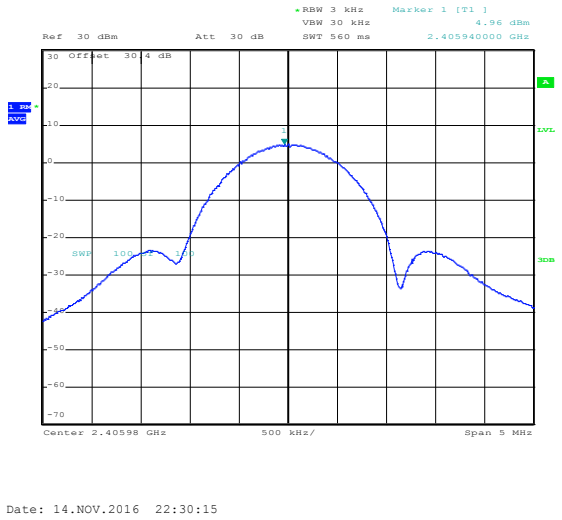


Figure 8.5-3: *PSD 2405.98 MHz*

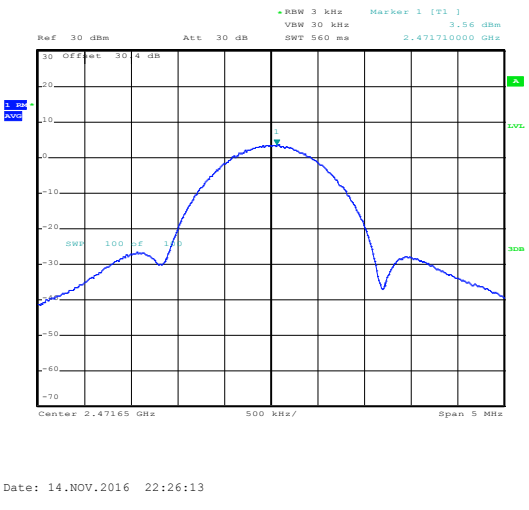
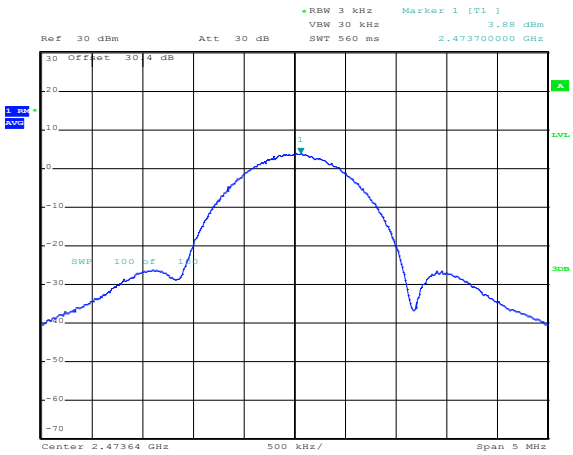


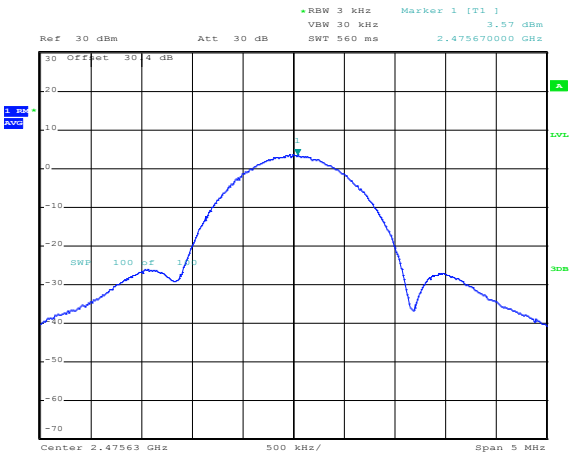
Figure 8.5-4: *PSD 2471.65 MHz*

8.5.4 Test data continued



Date: 14.NOV.2016 22:24:08

Figure 8.5-5: *PSD 2473.64 MHz*

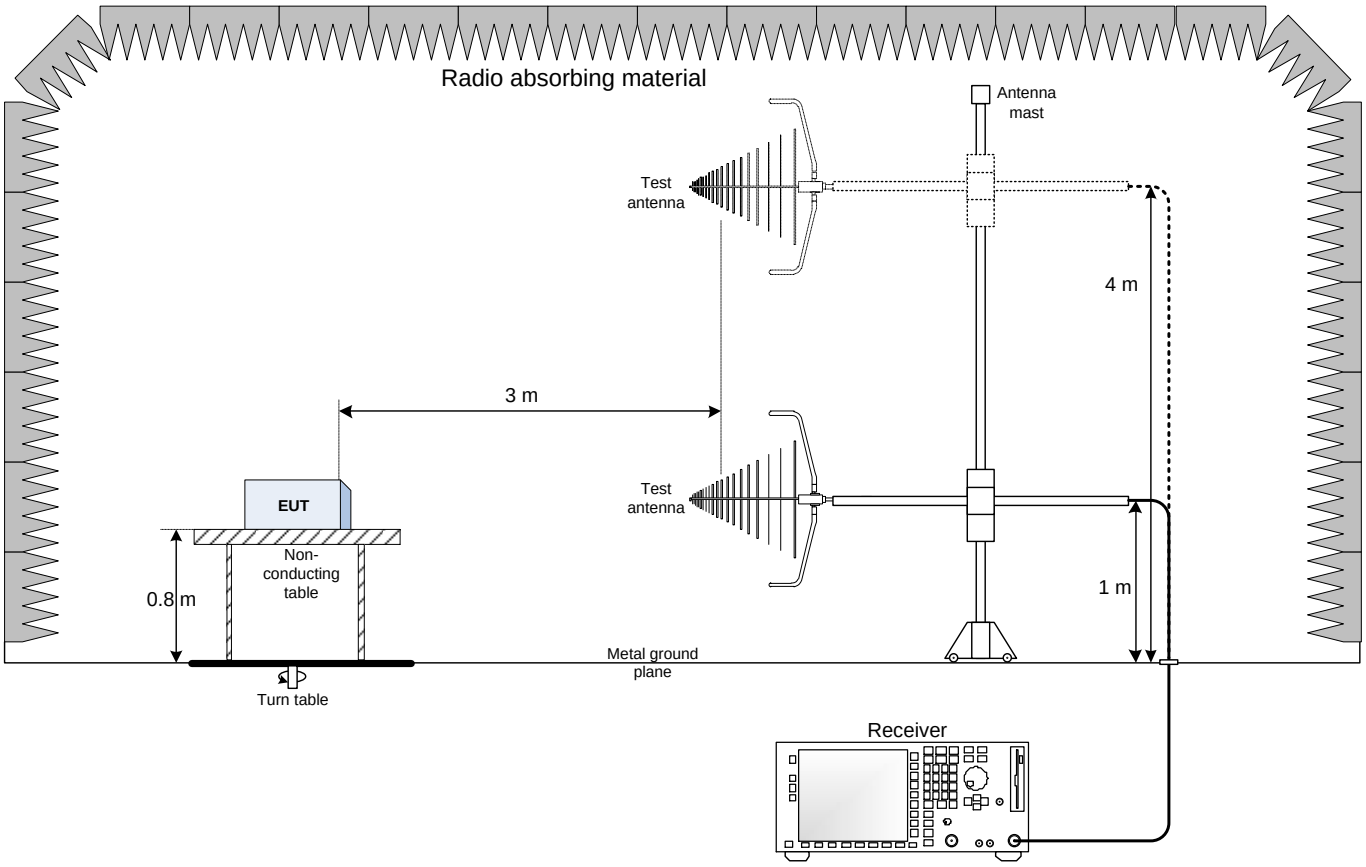


Date: 14.NOV.2016 22:22:03

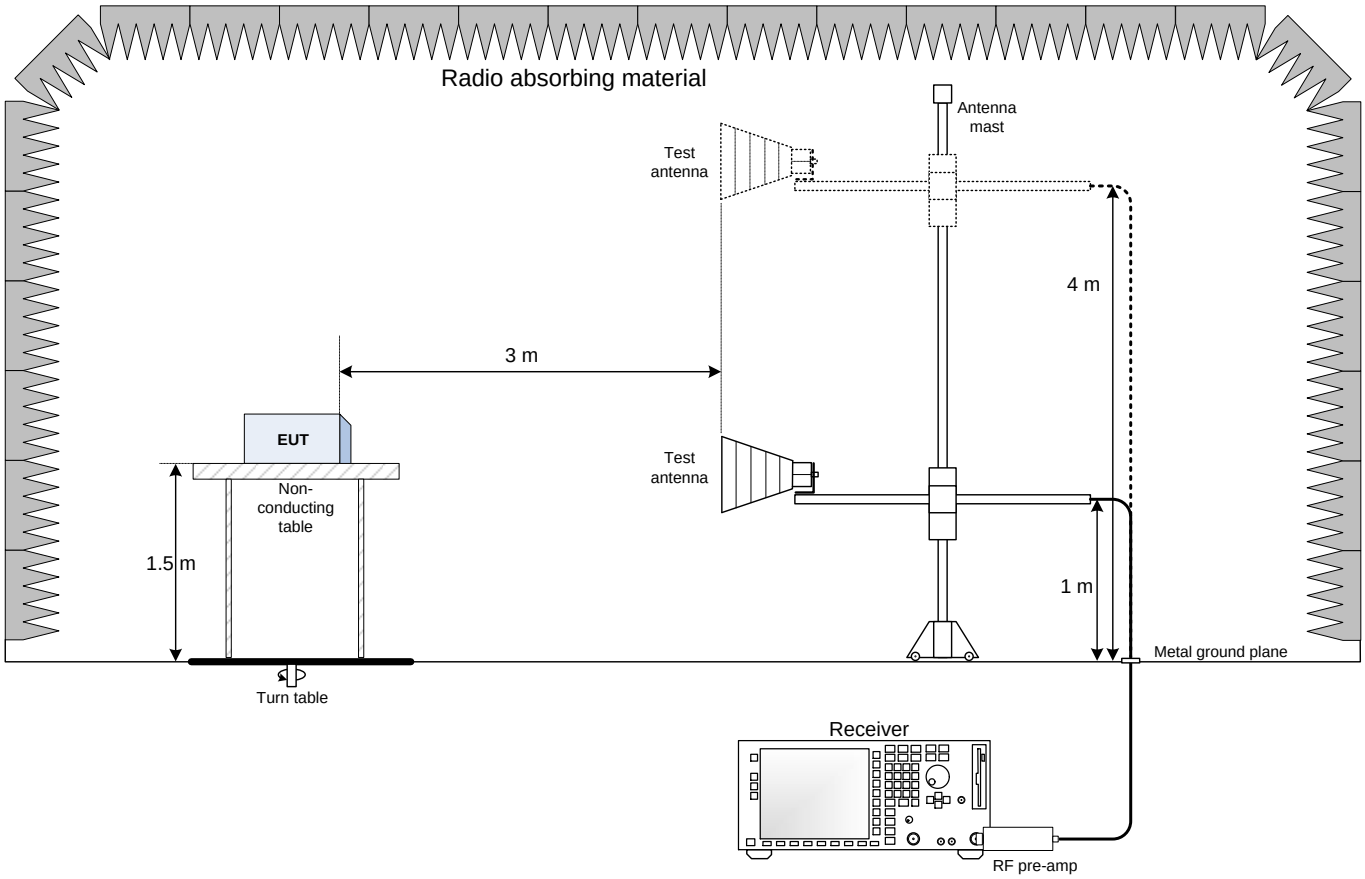
Figure 8.5-6: *PSD 2475.63 MHz*

Section 9. Block diagrams of test set-ups

9.1 Radiated emissions set-up for frequencies below 1 GHz



9.2 Radiated emissions set-up for frequencies above 1 GHz



9.3 Conducted emissions set-up