TEST REPORT

Test Report No. : UL-RPT-RP-12066124-416FCC

Manufacturer	:	Workaround GmbH (ProGlove)
Model No.	:	Access Point One S
FCC ID	:	2AOJL-AP-ONE-S
Test Standard(s)	:	FCC Parts 15.207, 15.209(a) & 15.249
		For details of applied tests refer to test result summary

1. This test report shall not be reproduced in full or partial, without the written approval of UL International Germany GmbH.
2. The results in this report apply only to the sample tested.
3. The test results in this report are traceable to the national or international standards.
4. Test Report Version 1.2 Supersedes Version 1.1
5. Result of the tested sample: **PASS**

Prepared by: Segun, Adeniji
Title: Laboratory Engineer
Date: 14 December 2017

Approved by: Jakob, Reschke
Title: Test Engineer
Date: 25 January 2018

Deutsche Akkreditierungsstelle D-PL-19381-02-00

This laboratory is accredited by DAkkS.
The tests reported herein have been performed in accordance with its' terms of accreditation.

UL INTERNATIONAL GERMANY GMBH
Hedelfinger Str. 61
70327 Stuttgart, Germany
STU.CTECHLab@ul.com

This page has been left intentionally blank.

Table of Contents

1. Customer Information

Company Name:	Workaround GmbH (ProGlove)
Company Address:	Friedenstr. 4, 81671 Munich Germany
Contact Person:	Arthur Van de Wiele
Contact E-Mail Address:	Arthur.wiele@proglove.de
Contact Phone No.:	+4915221994850

2. Summary of Testing

2.1. General Information

Applied Standards

Specification Reference:	47CFR15.249
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.249
Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Test Firm Registration:	399704

Location

Location of Testing:	UL International Germany GmbH Hedelfinger Str. 61 70327 Stuttgart Germany

Date information

Order Date:	30 November 2017
EUT arrived:	04 December 2017
Test Dates:	07 December 2017 to 13 December 2017
EUT returned:	-/-

2.2. Summary of Test Results

Clause	Measurement	Complied	Did not comply	Not performed	Not applicable
Part 15.207	Transmitter AC Conducted Emissions	☒	☐	☐	☐
Part 15.249(a)(e)	Transmitter Fundamental Field Strength	☒	☐	☐	☐
Part 2.1049	Transmitter 20 dB Bandwidth	☒	☐	☐	☐
Part 15.249(a)(d)(e)/ 15.209(a)	Transmitter Radiated Emissions	☒	☐	☐	☐
Part 15.249(d)/ 15.209(a)	Transmitter Band Edge Radiated Emissions	☒	☐	☐	☐

2.3. Methods and Procedures

Reference:	ANSI C63.10-2013
Title:	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
Reference:	ANSI C63.4-2014
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.

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.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	ProGlove
Model Name or Number:	Access Point One S
Test Sample Serial Number:	PGMS 10200000 *(Conducted Sample with RF Port)*
Hardware Version Number:	3.4.2
Software Version Number:	RF 2.3.2
FCC ID:	2AOJL-AP-ONE-S

Brand Name:	ProGlove
Model Name or Number:	Access Point One S
Test Sample Serial Number:	PGMS 10300088 *(Radiated Sample)*
Hardware Version Number:	3.4.2
Software Version Number:	RF 2.3.2
FCC ID:	2AOJL-AP-ONE-S

3.2. Description of EUT

The equipment under test was a wireless adapter intended to be used with a compatible wearable bar code reader.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Power Supply Requirement:	Nominal	5 VDC	
Type of Unit:	Transceiver		
Modulation:	2FSK		
Data Rate (kbits/s):	152.34		
Transmit Frequency Range:	902.97 MHz-926.28 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	0	902.97
	Middle	32	915.00
	Top	62	926.28

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Item	Description	Brand Name	Model Name or Number	Serial Number
1	Glove with button to trigger Mark	ProGlove	Not marked or stated	Not marked or stated
2	Bar code reader	ProGlove	Mark One S	20100077
3	Notebook	Lenovo	20F1-001YGE	MP-16X71T 16/11
4	Serial AC/DC Power adapter	Not marked/stated	Not marked/stated	Not marked/stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):
☒ Transmitting Mode where the EUT is constantly transmitting on bottom, middle and top channels at maximum power with 100 % duty cycle.

4.2. Configuration and Peripherals

The EUT was tested in the following configurations:

- The EUT was placed in continuous transmission by scanning the bar code corresponding to a particular channel as provided by the manufacturer.
- The EUT field strength was initially investigated at different EUT orientations and the final measurements were therefore performed where the highest power was found. There were no ports on the EUT to terminate.
- The customer declared that there are possibilities of configuring the EUT with 5 VDC via a USB and with an externally powered RS 232.
- Both power supplies (USB and RS232 + External Power Supply) were checked during spurious emissions testing. No differences could be detected. Only plots and results from the 5V USB supply are added to the report.
- The EUT was powered via 5V USB cable connected to a notebook USB port during testing for all radio measurements except for AC conducted test.
- For AC conducted test, both of these configuration modes were tested.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 6 *Measurement Uncertainty* for details.

In accordance with DAkkS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Transmitter AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	M. Fawad Khan	**Test Date:**	13 December 2017
Test Sample Serial Number:	10883000		
Test Site Identification	SR 7/8		

FCC Reference:	Part 15.207
Test Method Used:	ANSI C63.10 Section 6.2

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	38

Settings of the Instrument

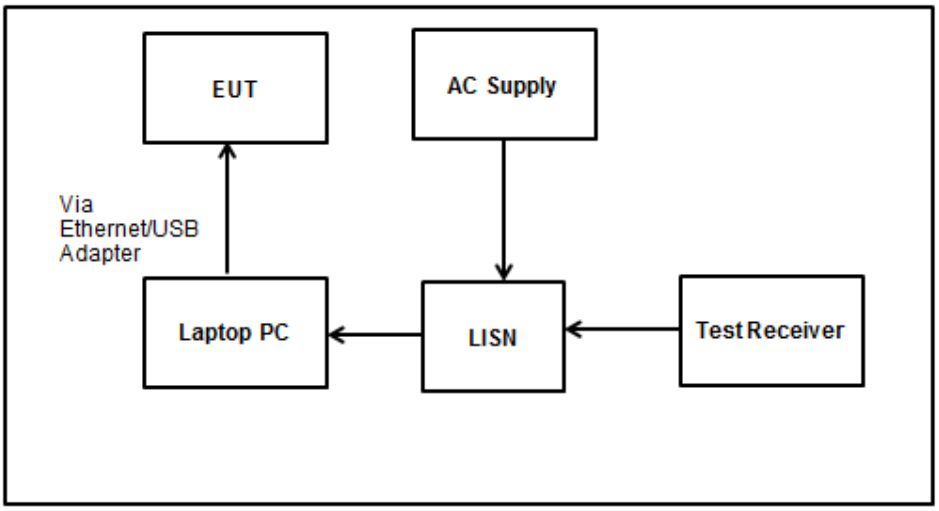
Detector	Quasi Peak/ Average Peak

Note(s):

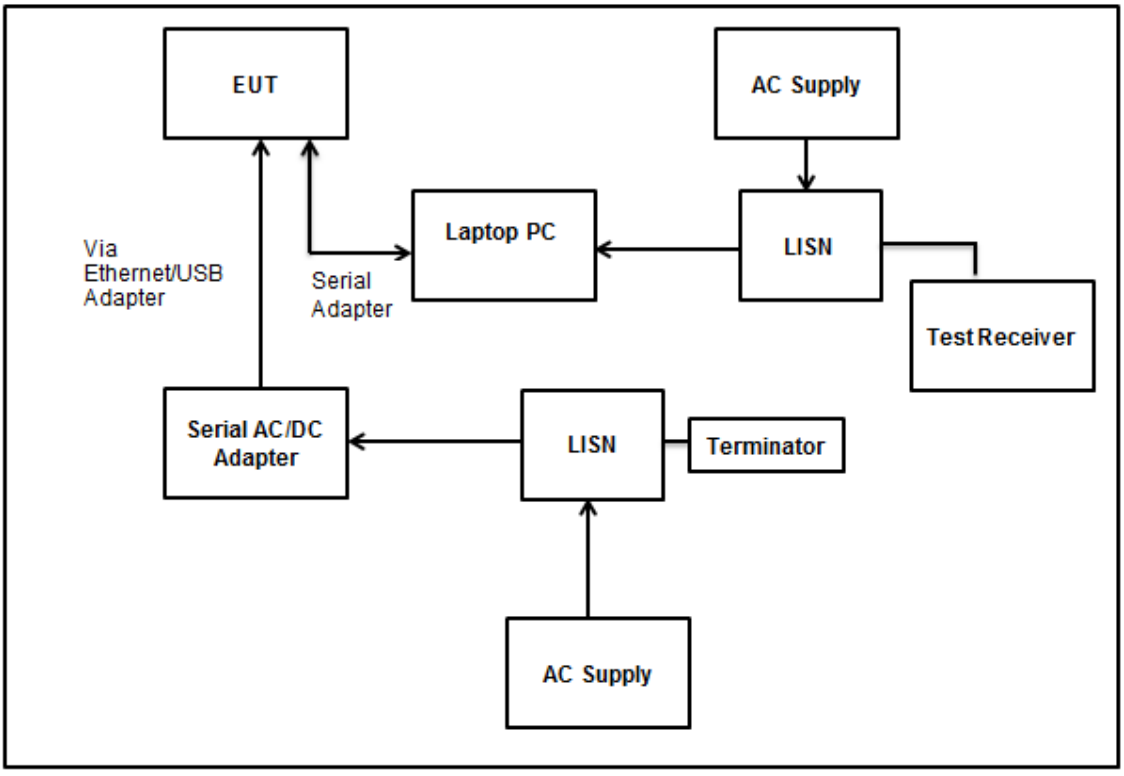
1. For the first measurement, the EUT was powered via a USB cable connected to a laptop PC which supplied the unit with 5 VDC. The laptop PC power supply was connected to 120 VAC 60 Hz single phase supply via a LISN. Please see below the Test setup 1 block diagram for more details.
2. For the second and third measurements, the EUT was powered via a serial cable connected to a ac/dc adapter and a laptop PC. The laptop PC power supply was connected to 120 VAC 60 Hz single phase supply via a LISN. Please see below the Test setup 2 block diagram for more details.
3. Pre-scans were performed and final measurements were performed on the marker frequencies and the results entered into the tables below.

Transmitter AC Conducted Spurious Emissions (continued)

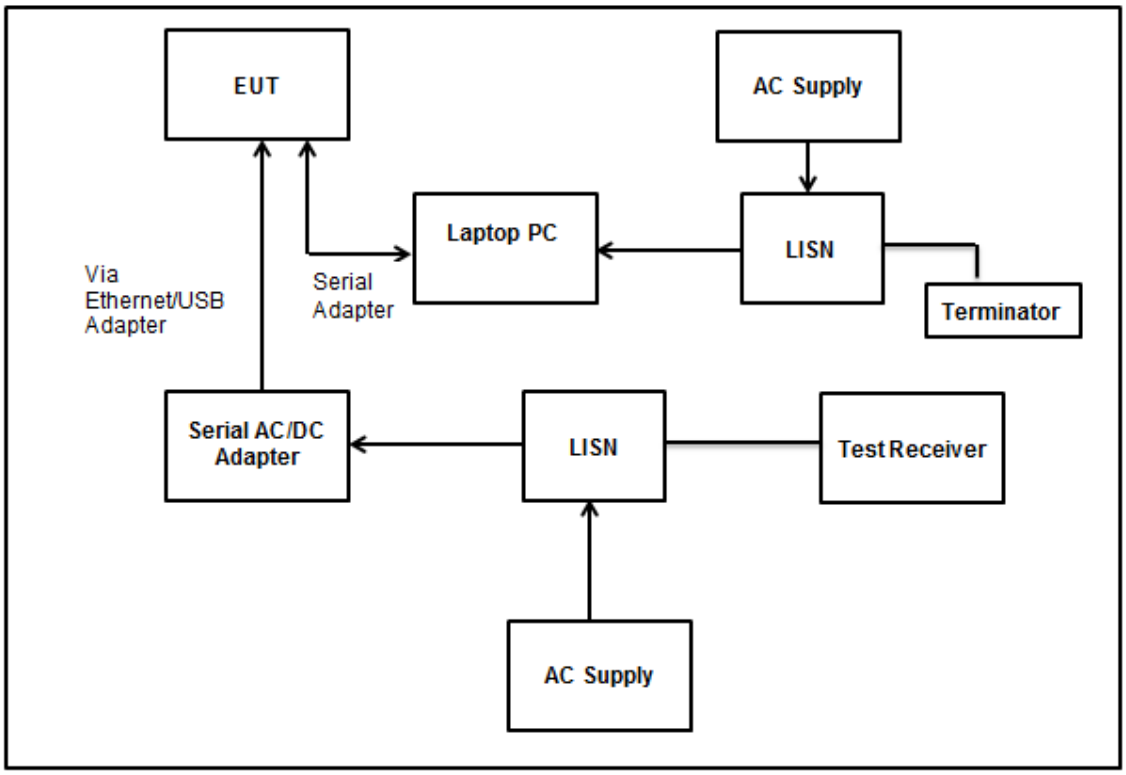
Test setup 1: Valid for TX Mode USB, measured at notebook supply



Test setup 2: Valid for TX Mode when connected via serial Interface



Test setup 3: Valid for TX Mode when connected via serial and measured at serial power supply



TX Mode USB, measured at notebook supply

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.16911	Live	42.4	65.0	22.6	Complied
0.1804	Live	48.7	64.5	15.8	Complied
0.23477	Live	37.2	62.3	25.1	Complied
3.97693	Live	28.6	56.0	27.4	Complied
4.07747	Live	24.5	56.0	31.5	Complied
9.28174	Live	23.0	60.0	37.0	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.16911	Live	22.1	55.0	32.9	Complied
0.1804	Live	31.5	54.5	23.0	Complied
0.23477	Live	18.3	52.3	34.0	Complied
3.97693	Live	15.5	46.0	30.5	Complied
4.07747	Live	15.2	46.0	30.8	Complied
9.28174	Live	20.0	50.0	30.0	Complied

Results: Neutral / Quasi Peak

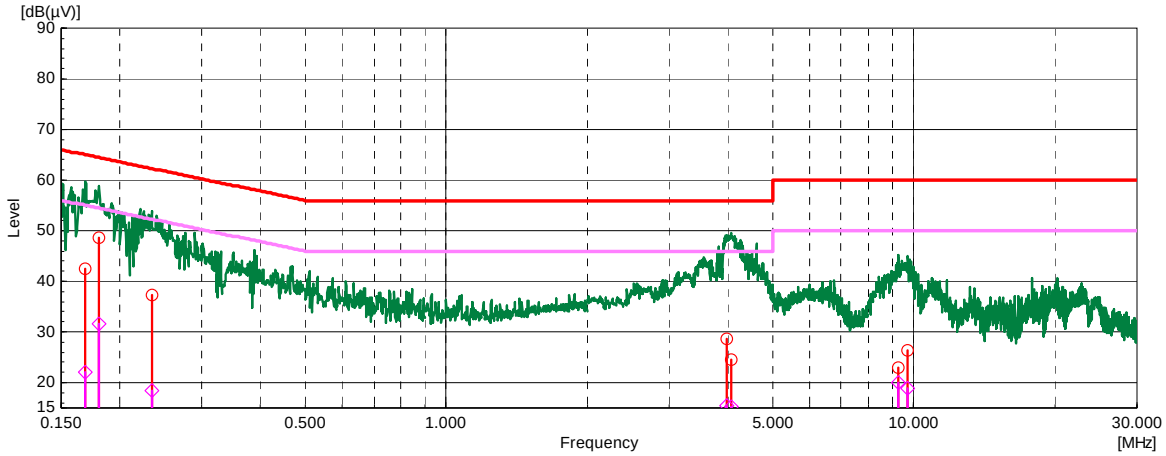
Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.16228	Neutral	46.5	65.3	18.8	Complied
0.17379	Neutral	47.8	64.8	17.0	Complied
0.23033	Neutral	41.3	62.4	21.1	Complied
3.90223	Neutral	22.5	56.0	33.5	Complied
4.14803	Neutral	28.4	56.0	27.6	Complied
9.35623	Neutral	26.6	60.0	33.4	Complied

Results: Neutral / Average

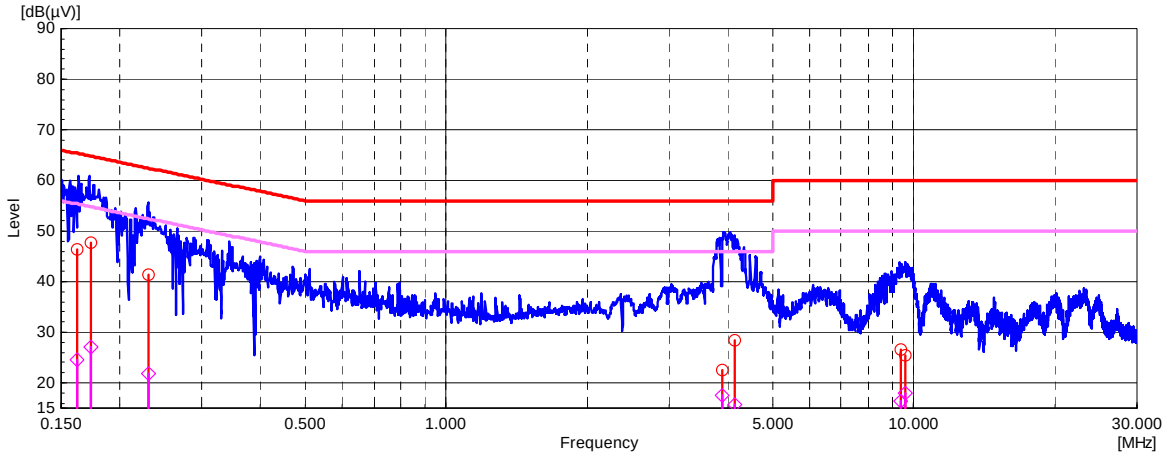
Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.16228	Neutral	24.6	55.3	30.7	Complied
0.17379	Neutral	27.0	54.8	27.8	Complied
0.23033	Neutral	21.7	52.4	30.7	Complied
3.90223	Neutral	17.4	46.0	28.6	Complied
4.14803	Neutral	15.7	46.0	30.3	Complied
9.35623	Neutral	16.3	50.0	33.7	Complied

Result: Pass

Live Line plot



Neutral Line Plot



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

TX mode, connected via serial interface to notebook

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.15608	Live	49.3	65.7	16.4	Complied
0.17696	Live	49.7	64.6	14.9	Complied
0.21825	Live	44.2	62.9	18.7	Complied
0.44814	Live	32.6	56.9	24.3	Complied
3.47008	Live	22.5	56.0	33.5	Complied
10.61587	Live	26.0	60.0	34.0	Complied
22.98792	Live	27.9	60.0	32.1	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.15608	Live	22.8	55.7	32.9	Complied
0.17696	Live	32.1	54.6	22.5	Complied
0.21825	Live	24.4	52.9	28.5	Complied
0.44814	Live	17.8	46.9	29.1	Complied
3.47008	Live	14.7	46.0	31.3	Complied
10.61587	Live	18.4	50.0	31.6	Complied
22.98792	Live	22.8	50.0	27.2	Complied

Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.15396	Neutral	44.6	65.8	21.2	Complied
0.1881	Neutral	43.0	64.1	21.1	Complied
0.22078	Neutral	43.4	62.8	19.4	Complied
0.45862	Neutral	33.7	56.7	23.0	Complied
3.54479	Neutral	23.5	56.0	32.5	Complied
10.02437	Neutral	29.2	60.0	30.8	Complied
22.3825	Neutral	27.6	60.0	32.4	Complied

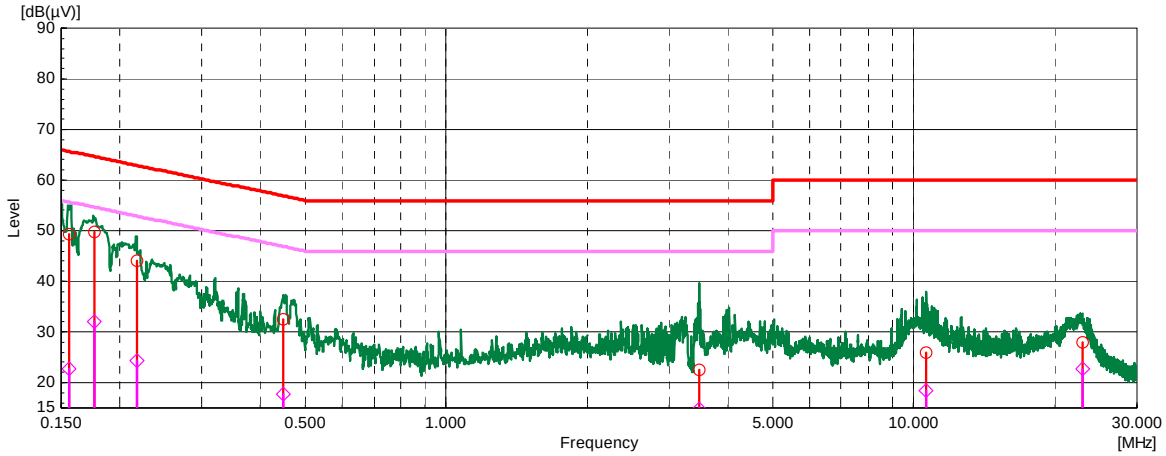
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.15396	Neutral	26.0	55.8	29.8	Complied
0.1881	Neutral	22.1	54.1	32.0	Complied
0.22078	Neutral	22.3	52.8	30.5	Complied
0.45862	Neutral	18.7	46.7	28.0	Complied
3.54479	Neutral	17.8	46.0	28.2	Complied

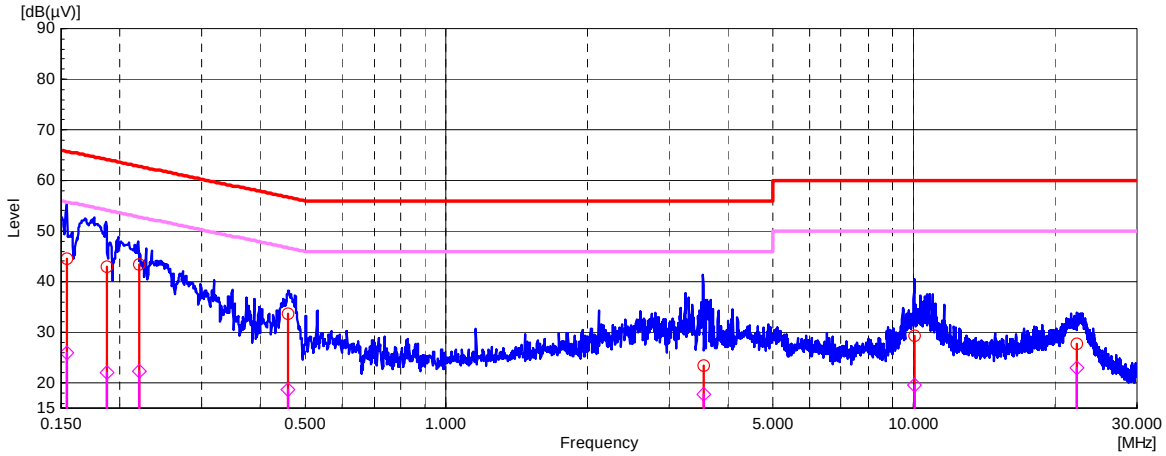
Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
10.02437	Neutral	19.6	50.0	30.4	Complied
22.3825	Neutral	23.0	50.0	27.0	Complied

Result: Pass

Live Line plot



Neutral Line Plot



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

TX mode using serial connection, measured at serial power supply

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.15523	Live	46.8	65.7	18.9	Complied
0.16911	Live	45.4	65.0	19.6	Complied
0.48471	Live	46.6	56.3	9.7	Complied
0.74916	Live	37.0	56.0	19.0	Complied
1.03421	Live	35.1	56.0	20.9	Complied
1.77833	Live	32.8	56.0	23.2	Complied
3.78475	Live	30.7	56.0	25.3	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.15523	Live	34.0	55.7	21.7	Complied
0.16911	Live	33.8	55.0	21.2	Complied
0.48471	Live	41.6	46.3	4.7	Complied
0.74916	Live	31.2	46.0	14.8	Complied
1.03421	Live	28.2	46.0	17.8	Complied
1.77833	Live	26.6	46.0	19.4	Complied
3.78475	Live	22.1	46.0	23.9	Complied

Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.16019	Neutral	41.2	65.5	24.3	Complied
0.19954	Neutral	42.1	63.6	21.5	Complied
0.20069	Neutral	41.7	63.6	21.9	Complied
0.34547	Neutral	41.0	59.1	18.1	Complied
0.34967	Neutral	42.8	59.0	16.2	Complied
1.41088	Neutral	32.7	56.0	23.3	Complied
2.38659	Neutral	31.2	56.0	24.8	Complied

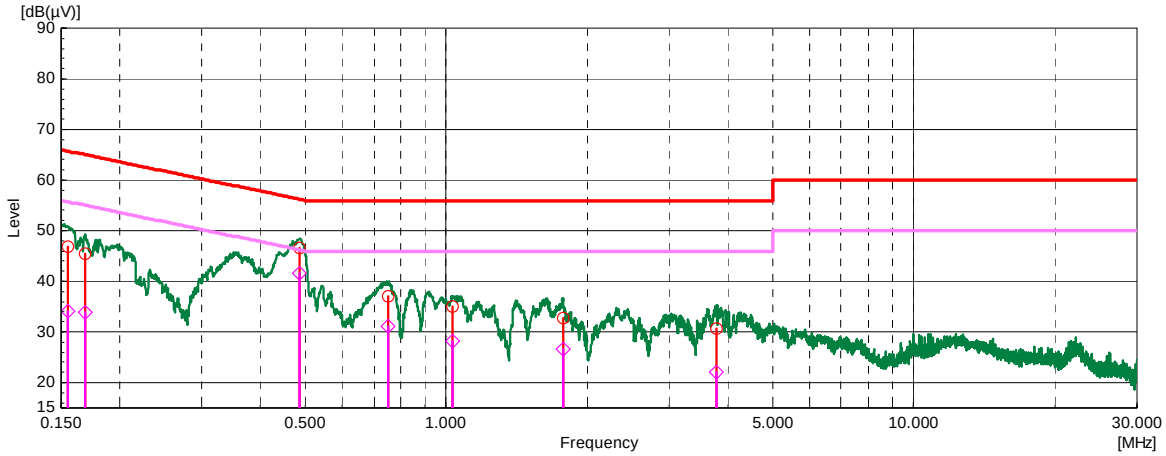
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.16019	Neutral	29.4	55.5	26.1	Complied
0.19954	Neutral	33.0	53.6	20.6	Complied
0.20069	Neutral	32.3	53.6	21.3	Complied
0.34547	Neutral	36.2	49.1	12.9	Complied
0.34967	Neutral	37.9	49.0	11.1	Complied

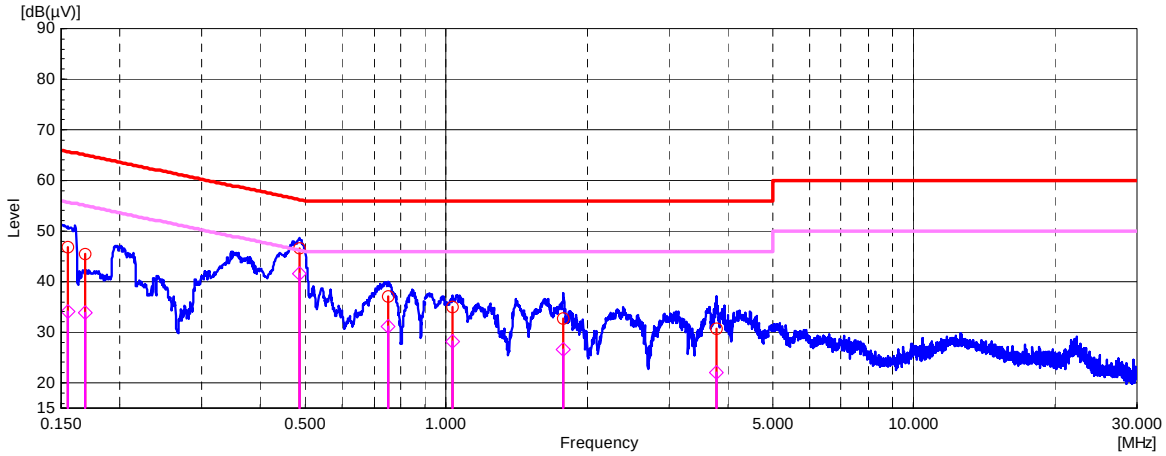
Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
1.41088	Neutral	27.5	46.0	18.5	Complied
2.38659	Neutral	24.4	46.0	21.6	Complied

Result: Pass

Live Line plot



Neutral Line Plot



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.2. Transmitter Fundamental Field Strength

Test Summary:

Test Engineer:	Segun Adeniji	**Test Date:**	07 December 2017
Test Sample Serial Number:	PGMS 10300088		
Test Site Identification	SR 1/2		

FCC Reference:	Part 15.249(a)
Test Method Used:	ANSI C63.10 Section 6.5

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	35

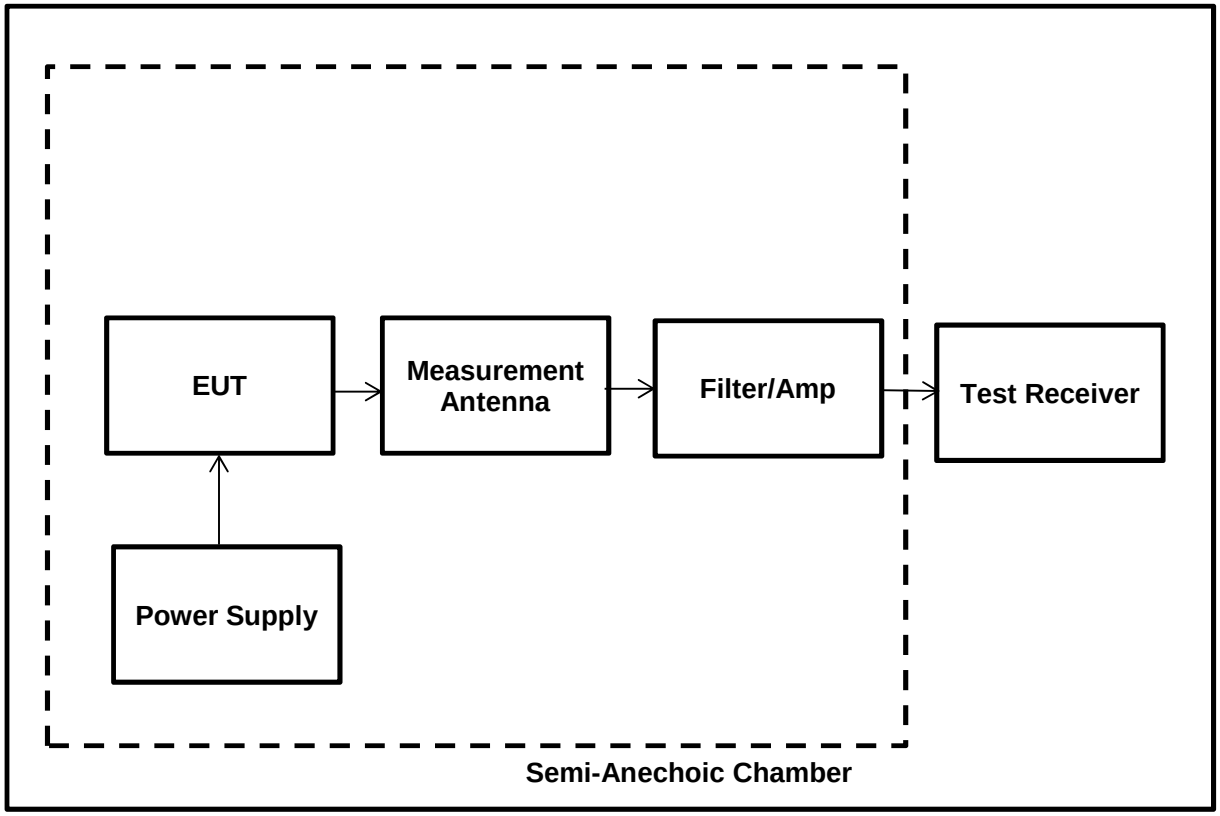
Settings of the Instrument

RBW/VBW	500 KHz/ 2 MHz
Span	1.75 MHz
Sweep time	Auto
Detector	Peak

Note(s):

1. The final measured value in the table below incorporates the calibrated antenna factor and cable loss.
2. The plots of the fundamental shown on the following page were performed using a peak detector with final measurements being made with a quasi-peak detector.

Transmitter Fundamental Field strength test setup



Results: Bottom Channel / Quasi-Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
902.97	Horizontal	92.66	94.00	1.34	Complied

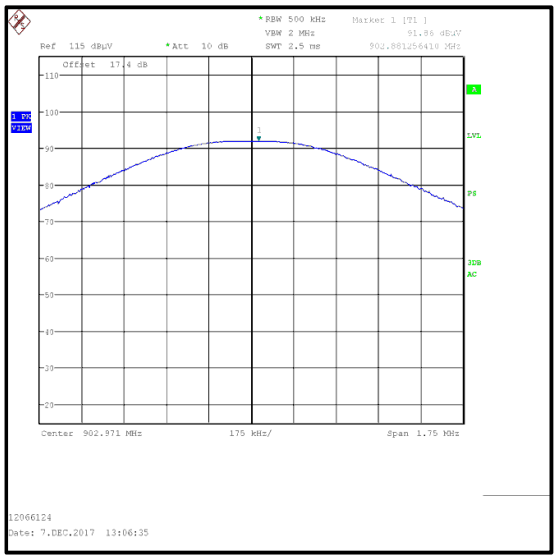
Results: Middle Channel / Quasi-Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
915.00	Horizontal	92.25	94.00	1.75	Complied

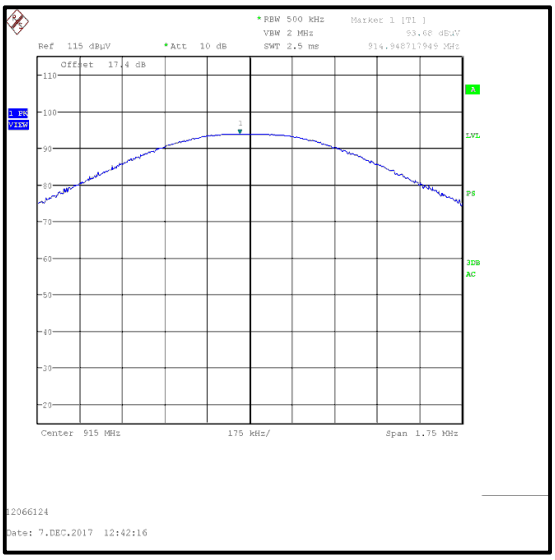
Results: Top Channel / Quasi-Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
926.28	Horizontal	91.02	94.00	2.98	Complied

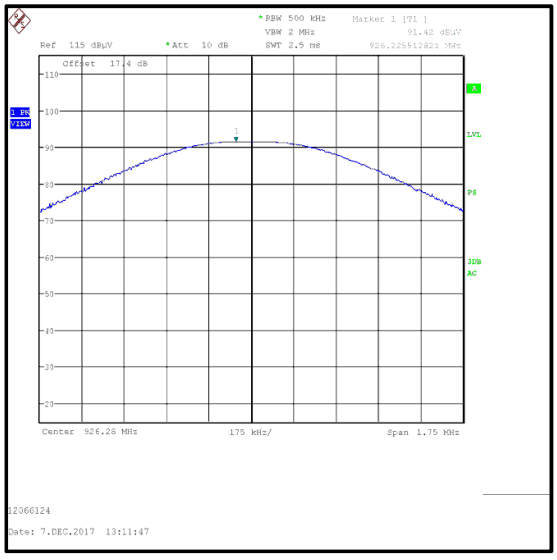
Result: Pass



Bottom Channel



Middle Channel



Top Channel

5.2.3. Transmitter 20 dB Bandwidth

Test Summary:

Test Engineer:	Segun Adeniji	**Test Date:**	08 December 2017
Test Sample Serial Number:	PGMS 10300000		
Test Site Identification	SR 9		

FCC Reference:	Part 2.1049
Test Method Used:	ANSI C63.10 Section 6.9.2

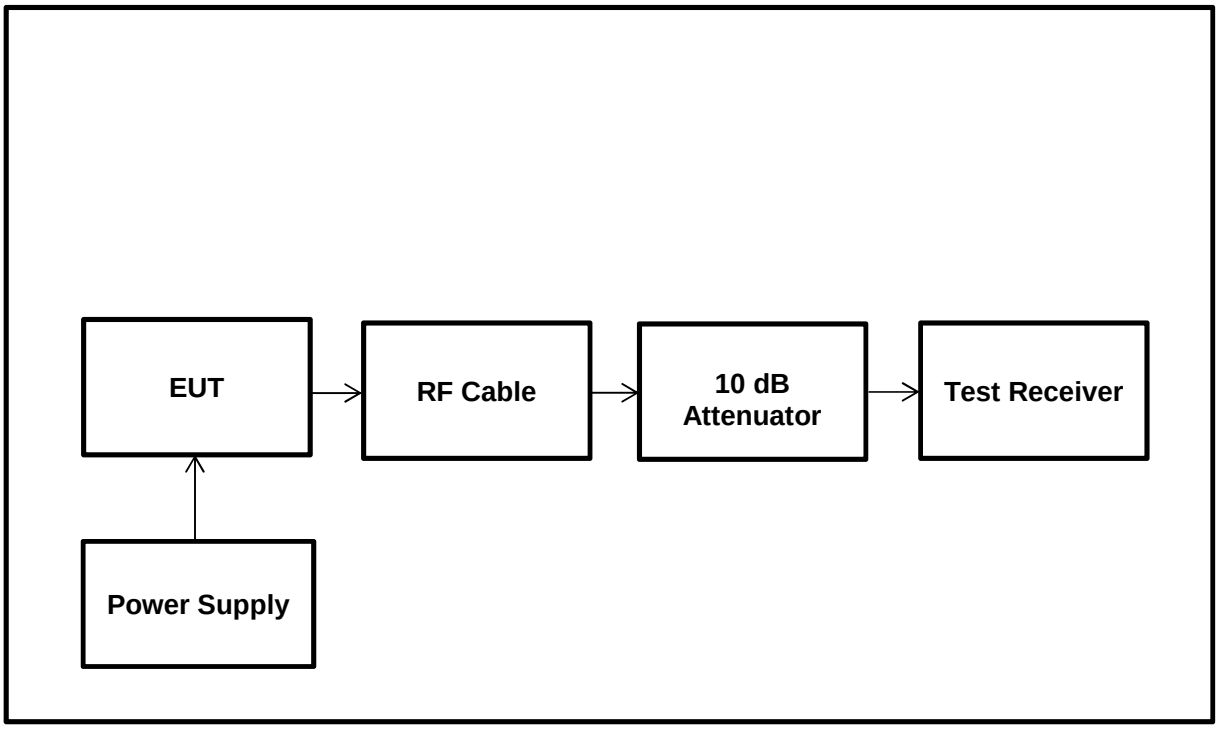
Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	37

Settings of the Instrument

RBW/VBW	10 kHz/ 30 kHz
Span	2 MHz
Sweep time	Auto
Detector	Peak

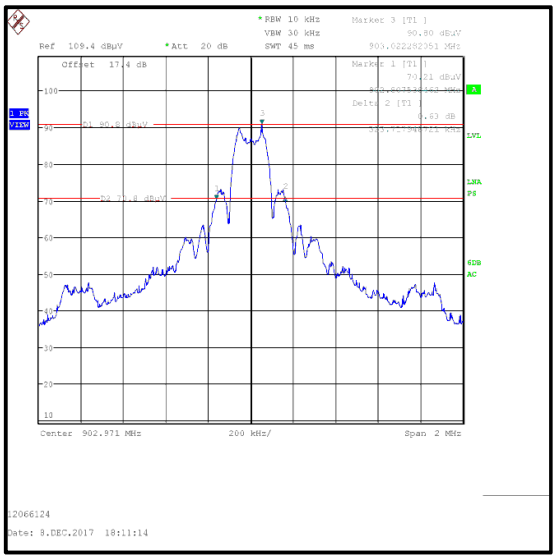
Test setup:



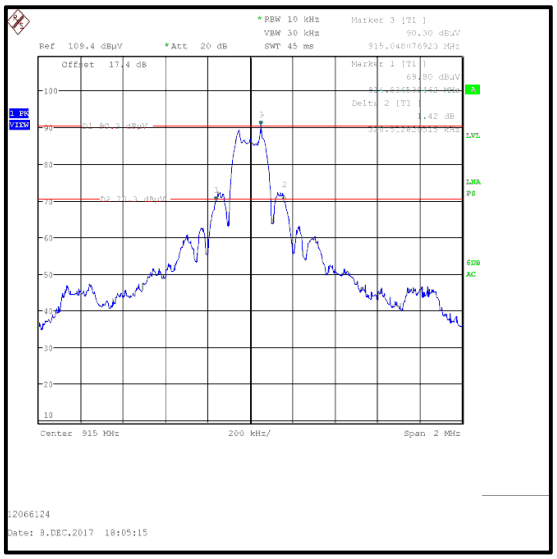
Results:

Channel	20 dB Bandwidth (kHz)
Bottom	323.718
Middle	320.513
Top	326.923

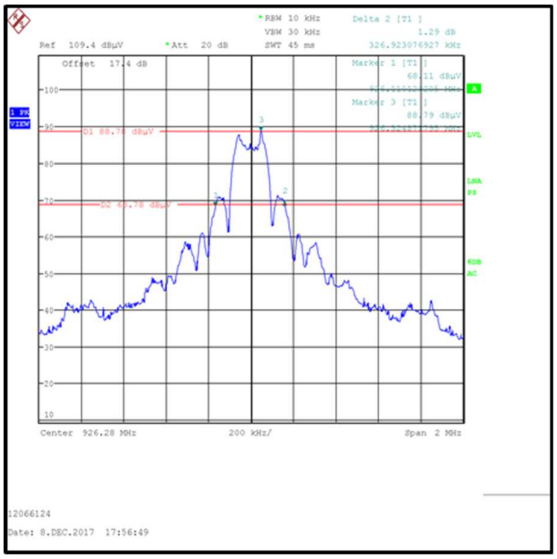
Result: Pass



Bottom Channel



Middle Channel



Top Channel

5.2.4. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Segun Adeniji	**Test Date:**	11 December 2017
Test Sample Serial Number:	PGMS 10300088		
Test Site Identification	SR 1/2		

FCC Reference:	Parts 15.249(a)(d)(e) & 15.209(a)
Test Method Used:	ANSI C63.10 Sections 6.3 and 6.5
Frequency Range	30 MHz to 1000 MHz

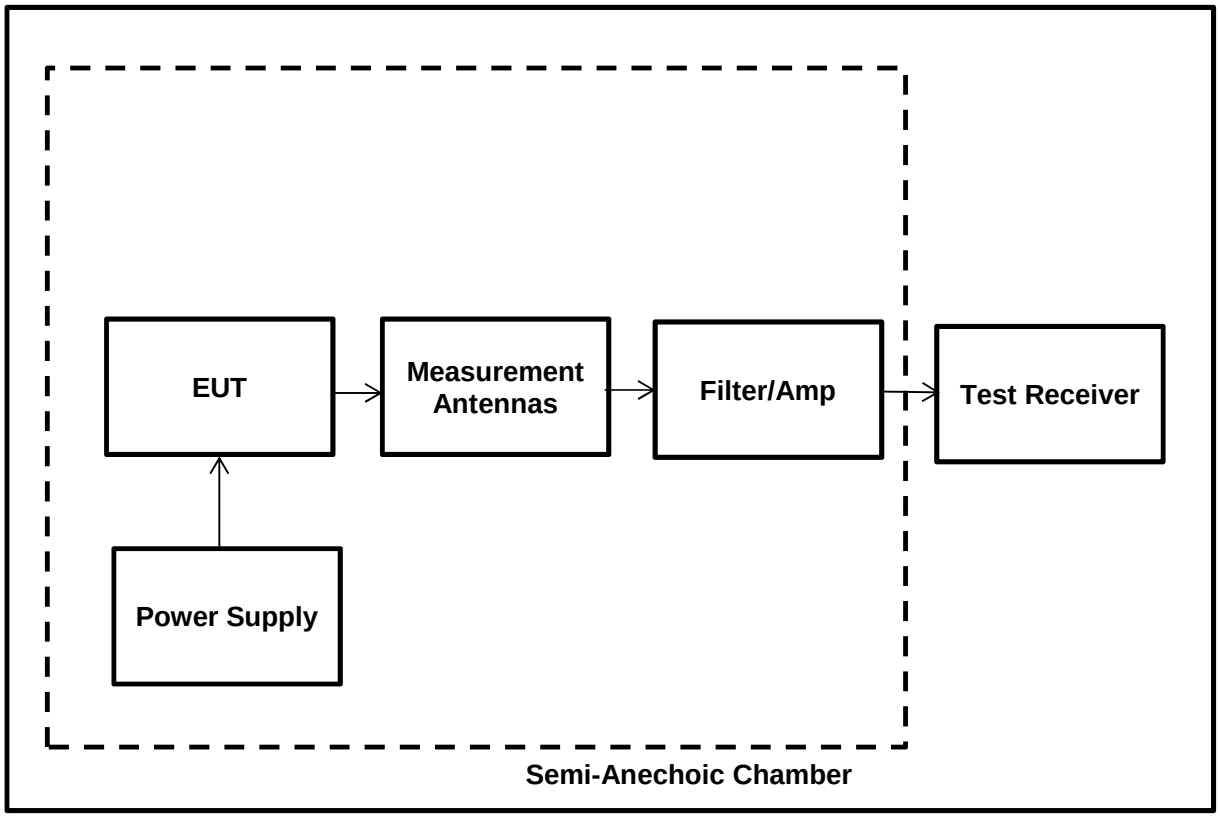
Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	36

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. The emissions shown on the 30 MHz to 1 GHz plot is the EUT fundamental at 902.97 MHz, 915 MHz and 926.28 MHz. Only the spurious emissions found are the ones recorded in the result table.
3. 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.

Test Setup:


EUT
Measurement Antennas
Filter/Amp
Test Receiver
Power Supply
Semi-Anechoic Chamber

Results: Peak/ Bottom Channel

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
51.51	Vertical	29.79	40.00	10.21	Complied
83.82	Vertical	35.24	40.00	4.76	Complied
108.12	Vertical	35.08	43.50	8.42	Complied

Results: Peak/ Middle Channel

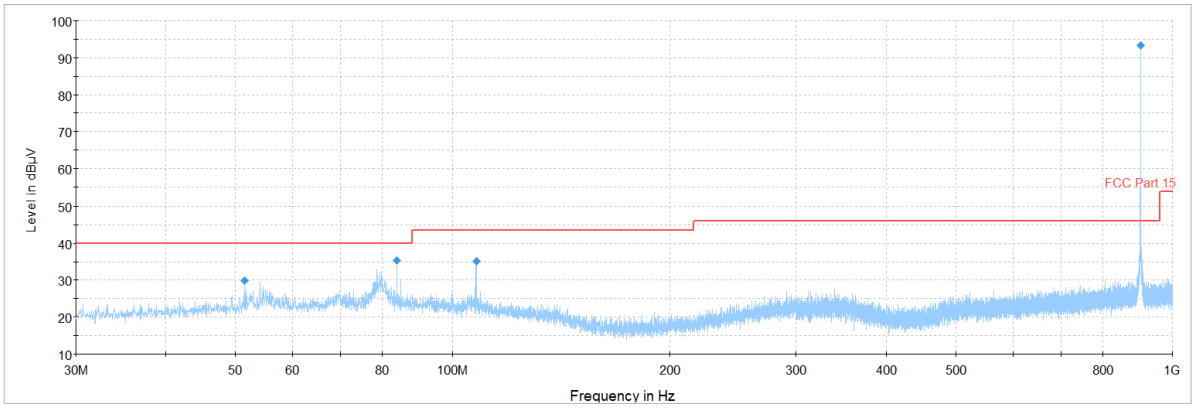
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
54.48	Vertical	29.86	40.00	10.14	Complied
78.56	Vertical	32.64	40.00	7.36	Complied
87.02	Vertical	23.91	40.00	16.09	Complied

Results: Peak/ Top Channel

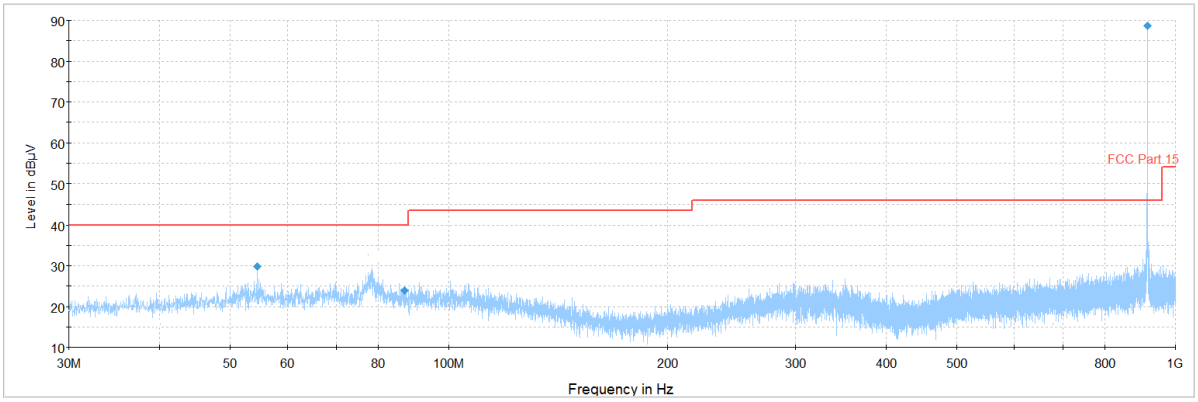
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
52.59	Vertical	30.70	40.00	9.30	Complied
84.14	Vertical	33.66	40.00	6.34	Complied
107.27	Vertical	28.25	43.50	15.25	Complied

Result: Pass

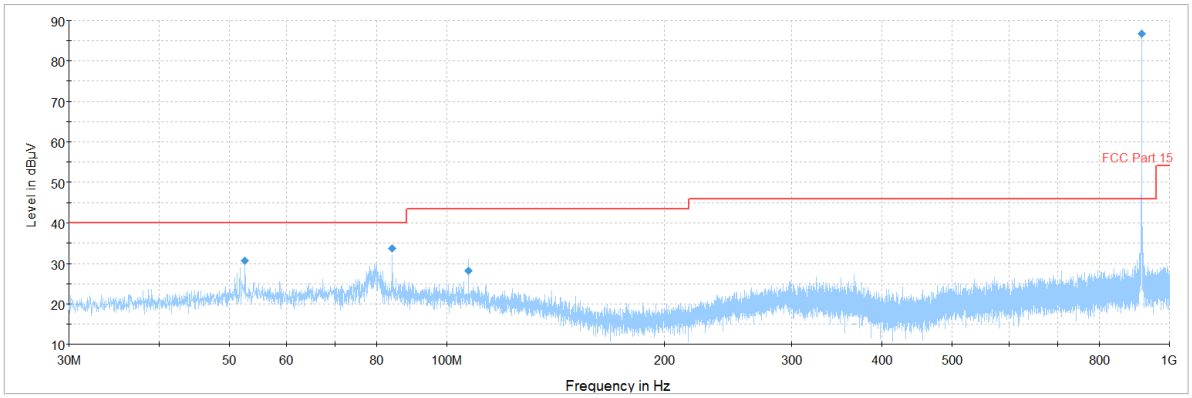
Transmitter Radiated Emissions (Continued)



Bottom Channel



Middle Channel



Top Channel

Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Test Summary:

Test Engineer:	Segun Adeniji	**Test Date:**	11 December 2017
Test Sample Serial Number:	PGMS 10300088		
Test Site Identification	SR 1/2		

FCC Reference:	Parts 15.249(a)(d)(e) & 15.209(a)
Test Method Used:	ANSI C63.10 Sections 6.3 and 6.6
Frequency Range	1 GHz to 18 GHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	36

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. 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 150 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.
3. Pre-scans were performed and a marker placed on the highest measured level of the appropriate plot. The test receiver resolution bandwidth was set to 1 MHz and video bandwidth 3 MHz. The sweep time was set to auto.
4. *In accordance with ANSI C63.10 Section 6.6.4.3, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

Results: Peak / Bottom Channel

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1806.00	Horizontal	53.62	54.00	0.38	Complied

Results: Peak / Middle Channel

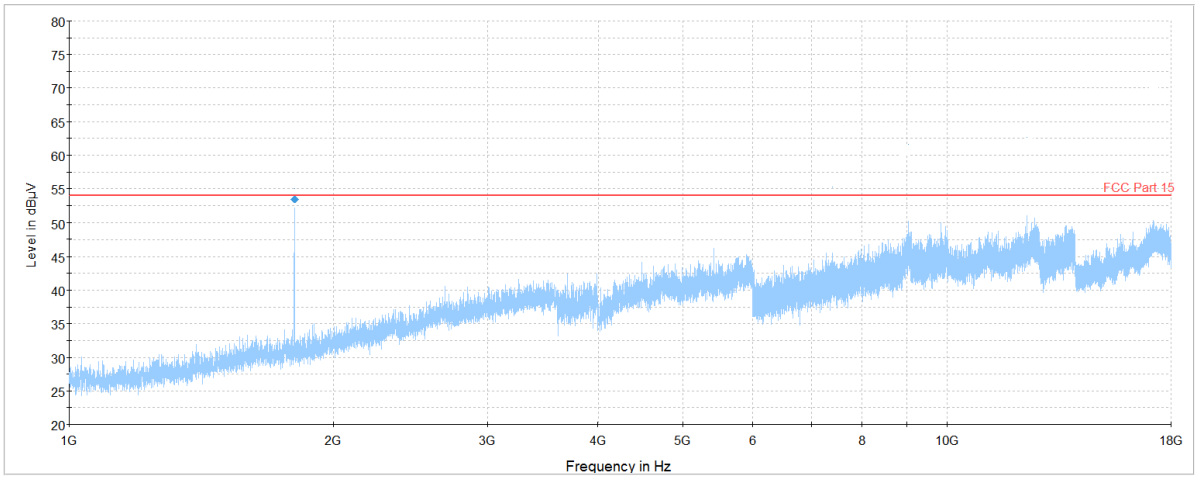
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1830.05	Horizontal	53.55	54.00	0.45	Complied

Results: Peak / Top Channel

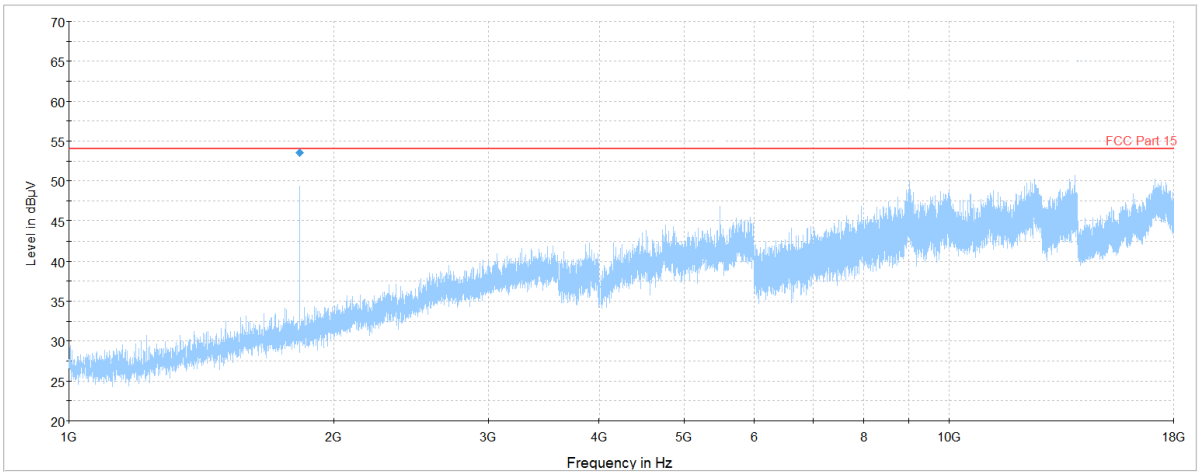
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1852.48	Horizontal	53.84	54.00	0.16	Complied

Result: Pass

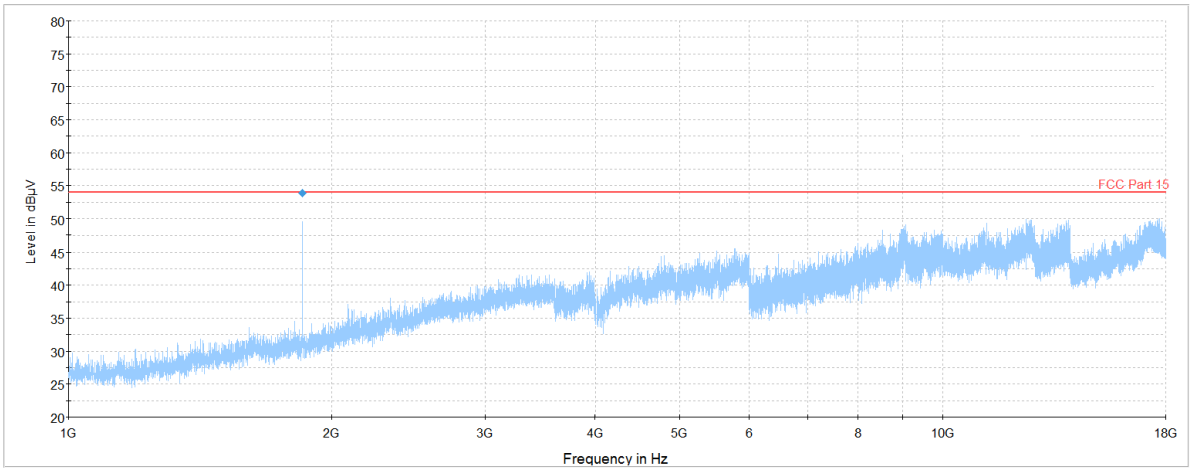
Transmitter Radiated Emissions (Continued)



Bottom Channel



Middle Channel



Top Channel

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.5. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Segun Adeniji	**Test Date:**	11 December 2017
Test Sample Serial Number:	PGMS 10300088		
Test Site Identification	SR 1/2		

FCC Reference:	Parts 15.249(d) & 15.209
Test Method Used:	ANSI C63.10 Section 6.10.4 & 6.10.5

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	36

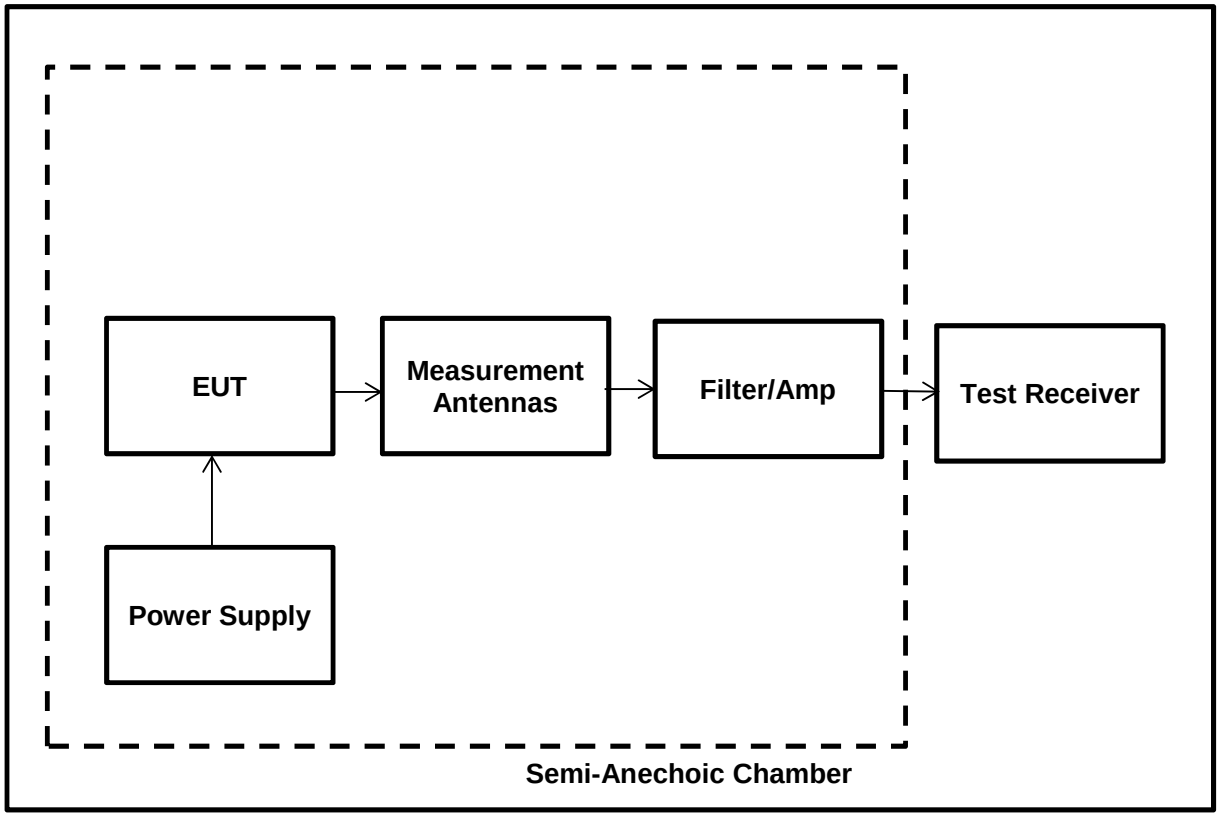
Settings of the Instrument

RBW/VBW	100 kHz/ 300 kHz
Span	50 MHz
Sweep time	Auto
Detector	Peak

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. The plots shown on the following page were performed using a peak detector with final measurements being made with a quasi-peak detector.
3. As it can be seen in the plot, the EUT is failing at the lower band edge with a peak detector, however, with a Quasi peak detector, the EUT complies with the applicable limit.

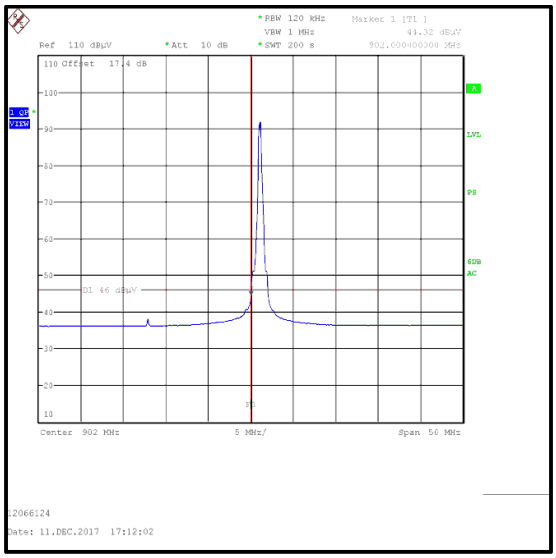
Test Setup:


EUT
Measurement Antennas
Filter/Amp
Test Receiver
Power Supply
Semi-Anechoic Chamber

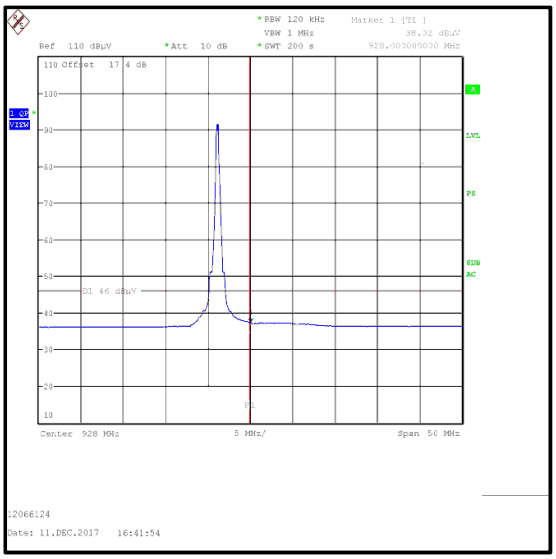
Results: Quasi-Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
902	H	44.32	46.00	1.68	Complied
928	H	38.32	46.00	7.68	Complied

Result: Pass



Lower Band Edge Quasi Peak Measurement



Upper Band Edge Quasi Peak Measurement

6. Measurement Uncertainty

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	95%	±4.69 dB
Transmitter Fundamental Field Strength	95%	±3.10 dB
Radiated Spurious Emissions	95%	±3.10 dB
Band Edge Radiated Emissions	95%	±3.10 dB
20 dB Bandwidth	95%	±0.87 %

The methods used to calculate the above uncertainties 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 appropriate accreditation body is followed.

7. Used equipment

Test site: SR 1/2

ID	Manufacturer	Type	Model	Serial No.	Calibration Date	Cal. Cycle
1	Rohde & Schwarz	Antenna, Loop	HFH2-Z2	831247/012	8/5/2016	36
103	EMCO	Antenna, Horn	3115	9008/3485	7/20/2016	36
104	EMCO	Antenna, Horn	3115	9008/3486	7/20/2016	36
156	Rohde & Schwarz	V-Network	ESH3-Z6	843864/004	7/12/2017	12
350	Rohde & Schwarz	Receiver, EMI Test	ESIB7	836697/014	7/13/2017	12
377	BONN Elektronik	Amplifier, Low Noise Pre	BLMA 0118-1A	025294B	7/11/2017	12
383	Rohde & Schwarz	Antenna, Rod	HFH2-Z1	890151/11	7/14/2017	24
423	Bonn Elektronik	Amplifier, Low Noise Pre	BLMA 1840-1A	055929	7/12/2017	12
424	EMCO	Antenna, Horn	EMCO 3116	00046537	7/28/2016	24
425	Agilent	Generator, CW Signal	E8247C	MY43320849	7/19/2016	24
426	Agilent	Spectrum Analyzer	E4446A	US44020316	7/20/2016	24
460	Deisl	Turntable	DT 4250 S		n/a	n/a
465	Schwarzbeck	Antenna, Trilog Broadband	VULB 9168	9168-240	8/8/2016	36
474	Agilent	Analyzer, ENA Network	E5071C	MY46100912	7/20/2016	24
495	Rohde & Schwarz	Antenna, Log.- Periodical	HL050	100296	7/20/2016	24
496	Rohde & Schwarz	Antenna, log. - periodical	HL050	100297	7/20/2016	24
497	Schwarzbeck	Antenna, Biconical	VHBB 9124	423	7/7/2016	36
499	Schwarzbeck	Antenna, log.-per	VUSLP 9111	317	8/2/2016	36
587	Maturo	antenna mast, tilting	TAM 4.0-E	011/7180311	n/a	n/a
588	Maturo	Controller	NCD	029/7180311	n/a	n/a
591	Rohde & Schwarz	Receiver	ESU 40	100244/040	7/12/2017	12
607	Schwarzbeck	Antenna broadband horn antenna	BBHA 9170	9170-561	7/28/2016	24
608	Rohde & Schwarz	Switch Matrix	OSP 120	101227	4/8/2014	60
363	Wainwright	Notch Filter GSM900	WW-NF9	100002	Lab verification	n/a
611	Wainwright Instruments	Band Reject Filter DL LTE	WRCGV8-	1	Lab verification	n/a
612	Wainwright Instruments	Band Reject Filter UL LTE	WRCGV8-	1	Lab verification	n/a
613	Wainwright Instruments	Band Reject Filter WLAN/ BT	WRCTF12-	1	Lab verification	n/a
614	Wainwright Instruments	Highpass Filter 3GHz	WHKX10-	1	Lab verification	n/a
615	Wainwright Instruments	Highpass Filter 1GHz	WHKX12-	3	Lab verification	n/a
620	Bonn Elektronik	pre-amplifier	BLNA 0110-01N	1510111	7/12/2017	24
624	Wainwright	6 GHz high-pass filter	WHKX10-5850-6500-18000-40SS	5	Lab verification	n/a
628	Maturo	Antenna mast	CAM 4.0-P	224/19590716	n/a	n/a
629	Maturo	Kippeinrichtung	KE 2.5-R-M	MAT002	n/a	n/a

Test site: SR 7/8

ID	Manufacturer	Type	Model	Serial No.	Calibration Date	Cal. Cycle
22	Rohde & Schwarz	Artificial Mains	ESH3-Z5	831767/014	7/12/2017	12
23	Rohde & Schwarz	Artificial Mains	ESH3-Z5	831767/013	7/12/2017	12
215	Rohde & Schwarz	Artificial Mains Network	ESH2-Z5	879675/002	7/12/2017	12
229	Schwarzbeck	Absorbing Clamp	MDS21	03020	7/27/2016	24
349	Rohde & Schwarz	Receiver, EMI Test	ESIB7	836697/009	9/4/2017	12
351	Rohde & Schwarz	network, Artificial Mains	ESH3-Z5	862770/018	12/07/2017	12
505	Luethi Feinmechanik AG	Absorbing clamp	MDS21	100005	7/20/2017	24
514	maturo	Gliderail & Controller	CGR 5.4 & SCU		n/a	0
564	Teseq	Impedance stabilisation network (ISN)	ISN T800	26076	13/7/2017	24
616	Rohde & Schwarz	ISN	ENY81-CA6	101656	13/7/2017	12

Test site: SR 9

ID	Manufacturer	Type	Model	Serial No.	Calibration Date	Cal. Cycle
424	EMCO	Antenna, Horn	EMCO 3116	00046537	7/28/2016	24
472	Rohde & Schwarz	Generator, Vektorsignal	SMU200A	102409	7/11/2017	12
592	Rohde & Schwarz	Wideband Radio Communication tester	CMW 500	119593	8/15/2017	12
622	Rohde & Schwarz	Step Attenuator	RSC	101904	7/13/2017	12
625	Schwarzbeck	Antenna, H-field	HFSL 7101	109	Verification - only relative measurements	n/a
626	Rohde & Schwarz	Bluetooth Tester	CBT	100481	Signaling Only	24
635	Rohde & Schwarz	Signal generator	SMB100A	179875	7/11/2017	12
636	Rohde & Schwarz	switching unit	OSP120	101698	7/14/2017	12
637	Rohde & Schwarz	Spectrum Analyzer	FSV40	101587	7/11/2017	12
423	Bonn Elektronik	Amplifier, Low Noise Pre	BLMA 1840-1A	55929	7/21/2016	24
451	Rohde & Schwarz	Power Meter, Dual Channel	NRVD	101190	7/10/2017	12
427	Rohde & Schwarz	Probe, Power Sensor	NRV-Z5	1019	7/11/2017	12
195	SPS	Power Supply	TOE8842-24	51455	Verified by Multimeter	12
216	Agilent	Multimeter	34401A	US36017458	7/11/2017	24
378	ESPEC/ Thermotec	Climatic Chamber	PL-1FT	5100869	8/9/2016	36

8. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
1.1	7	3.1	Additional EUT description was added
1.2	8	3.5	Charging cradle removed from support equipment
	8	3.5	AC/DC serial adapter information added
	12	5.2.1	Set up diagram added and the previous one also updated.
	26	5.2.3	Serial no. corrected (was rad. But correct is cond.)