Test Report for the EMC Testing of Qubi 3 Model H for QED Advanced Systems

Test Report number B2354TR1

Project number B3809

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Issue	Description						Issue by	Date
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Issue	Date	Modification Details
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Section 1 Test Location

All testing was performed at;

Eurofins York	46 Waverley Road
	Beeches Industrial Estate
	Yate
	Bristol
	BS37 5QT
Tel:	+44 (0) 1454 326998
Website	http://www.yorkemc.com
UKAS Testing No.	1574

1.1 UKAS Accreditation

Tests marked "Not UKAS Accredited" in this report are not included in the UKAS Accreditation Schedule for our laboratory.

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation.

York EMC Services latest accreditation schedule can be found at:

http://www.ukas.org/testing/lab_detail.asp?lab_id=989&location_id=&vMenuOption=3

Section 2 Customer Information

Company name	QED Advanced Systems
Address	The Hive
	Beaufighter Road
	Western-Super-Mare
	Somerset
	BS24 8EE
Tel:	07740177133
Contact	Ian Fisher
Email	Ian.fisher@qedas.com
Customer Representative(s) present during testing	Ian Fisher was present during the testing

Section 3 Equipment Details

3.1 Equipment Under Test (EUT)

Date received:	13-04-2018							
EUT name:	Qubi 3 Model H							
Type/Part no:	Qubi 3 Model H							
Serial no/s:	Q3H100001							
EUT description:	"The EUT's primary function is a bookable workspace management system that allows persons to enter meeting rooms that they have booked. The EUT is intended to operate in a RCLI" environment.							
No of units tested:	One							
EUT power:	120	V	60	Hz	Single phase			
Highest internal frequency:	2.5 GHz							
Cables:	Cable 1		1	m	Screened	Terminated		
Size of EUT (mm)	L: -	0.13	W: -		0.9	H: -	0.025	
Tested as	Table top							
Mode/s of operation	Card reader operating and communicating with external card							
Firmware Version	Issue 5							
Software Version	V1.11.00							
Client modification statement:	N/A							
Modifications incorporated during testing:	N/A							

Radio Module(s)	2.4GHz, WiFi Silicon Labs Module- FCC ID-2ABPY-5B9198
	125kHz RFID Elatec Module- FCC ID-WP5TWN4F4
	13.56 RFID ST Microelectronics Module FCC ID- N/A

3.2 EUT Photos

EUT Front

EUT Rear

EUT LH Side

EUT RH Side

3.3 Configuration of EUT

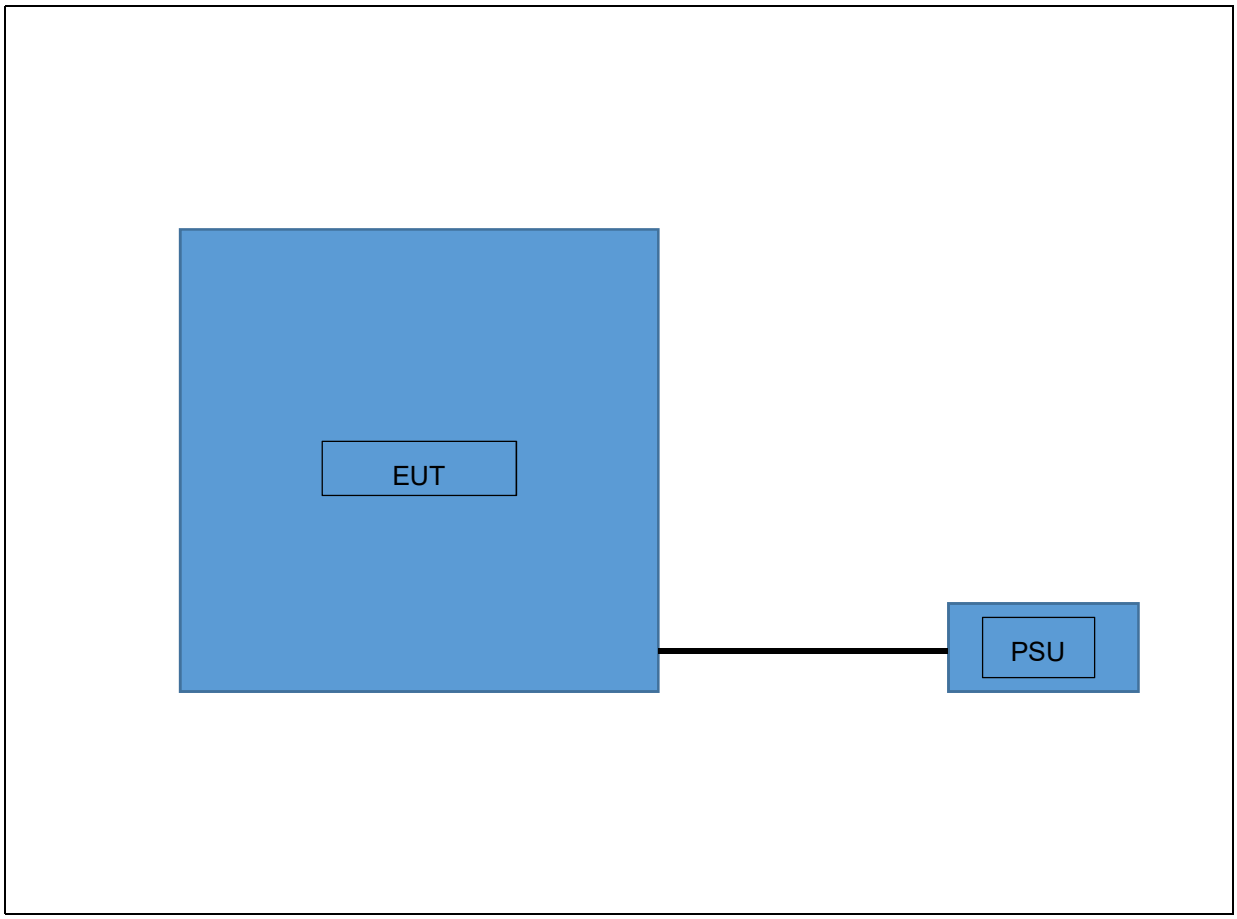

Figure 1: Diagram of EUT

3.4 EUT Monitoring/Auxiliary Equipment

Equipment Name	Type No.	Serial No.
None	N/A	N/A

Section 4 Test Specifications

The tests were performed in accordance with York EMC Services Quotation B3809

The tests were performed in accordance with Customer Test Plan N/A

47CFR Part 15, Sub Part B Unintentional Radiators			
Which references the following specification: -			
ANSI C63-4: 2014 Methods of Measurements of Radio Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range 9kHz to 40GHz.			
Test	**Method**	**Levels**	**Result**
Conducted Emissions (0.15 – 30MHz)	ANSI C63.4: 2014 Section 7	Part 15 Clause 15.107 Class B	Pass
Radiated Emissions Electric Field Measurements (30 – 12.5GHz)	ANSI C63.4: 2014 Section 8	Part 15 Clause 15.109 Class B	Pass See Note 1

Note 1 :All testing was carried out at a test distance of 3m and the limits adjusted accordingly. This is a deviation from the standard as Class A limits are specified at 10m test distance.

4.1 Knowledge Database References

The following KDBs were referenced during the testing of the Qubi 3, Model H

The latest knowledge database references are available via the FCC KDB website at:

https://apps.fcc.gov/kdb

4.1.1 Conducted Emissions

None

4.1.2 Radiated Emissions (30MHz to 1000MHz)

None

4.1.3 Radiated Emissions (1GHz to 12.5 GHz)

Publication Number	Keyword	Publication Date
714737	15B, Average Detector for Unintentional Radiator	30/11/2010
414788	Radiated Emissions Test Site	04/18/2017

4.2 Compliance Statement

The Qubi 3, Model H, as tested, was shown to meet requirements of the standards listed in Section 4 of this report.

4.3 Test Sequence

Test Description	Test Order	Test Repeated	Comment
Radiated Emissions			
30MHz to 1GHz	1a	No	Pass
1GHz to 12.5GHz	1b	No	Pass
Conducted Emissions			
AC Power Ports	2	No	Pass

Table 1: Test Sequence

Section 5 Conducted Emission Results

5.1 Test Specification

Standard	ANSI C63.4:2014
Measurement Uncertainty	The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 % is ±3.34dB (EN55016-4-2:2011 +A1:2014) ESHS30

5.2 Power Line Emission Limits

Frequency (MHz)	Class A (dBµV)		Class B (dBµV)	
	Quasi Peak	Average	Quasi Peak	Average
0.15 – 0.5	79.0	66.0	66 – 56*	56 – 46*
0.5 – 5.0	73.0	60.0	56.0	46.0
5.0 - 30	73.0	60.0	60.0	50.0

Note: * The limit decreases linearly with the logarithm of the frequency in the range

5.3 Receiver Settings

Receiver Parameters	Setting
Detector Function	Quasi Peak and Average
Start Frequency	150kHz
Stop Frequency	30MHz
Resolution Bandwidth	10kHz
Video Bandwidth	Auto

5.4 Procedure and Test Software Version

Eurofins York test procedure	BEP19 Issue 8 20 Nov 2014
Test software	RadiMation Version 2016.1.6

5.4.1 Date of Test

13 Apr 2018

5.4.2 Test Area

LAB 2

5.4.3 Test Setup

This test was applied to the EUT's Live and Neutral lines. The EUT was configured in the screened room on an 80cm high table and was positioned 40cm from the room wall.

A calibrated mains extension lead was used to ensure a known impedance was presented to the EUT

The EUT was then powered from the mains supply via a Line Impedance Stabilisation Network (LISN).

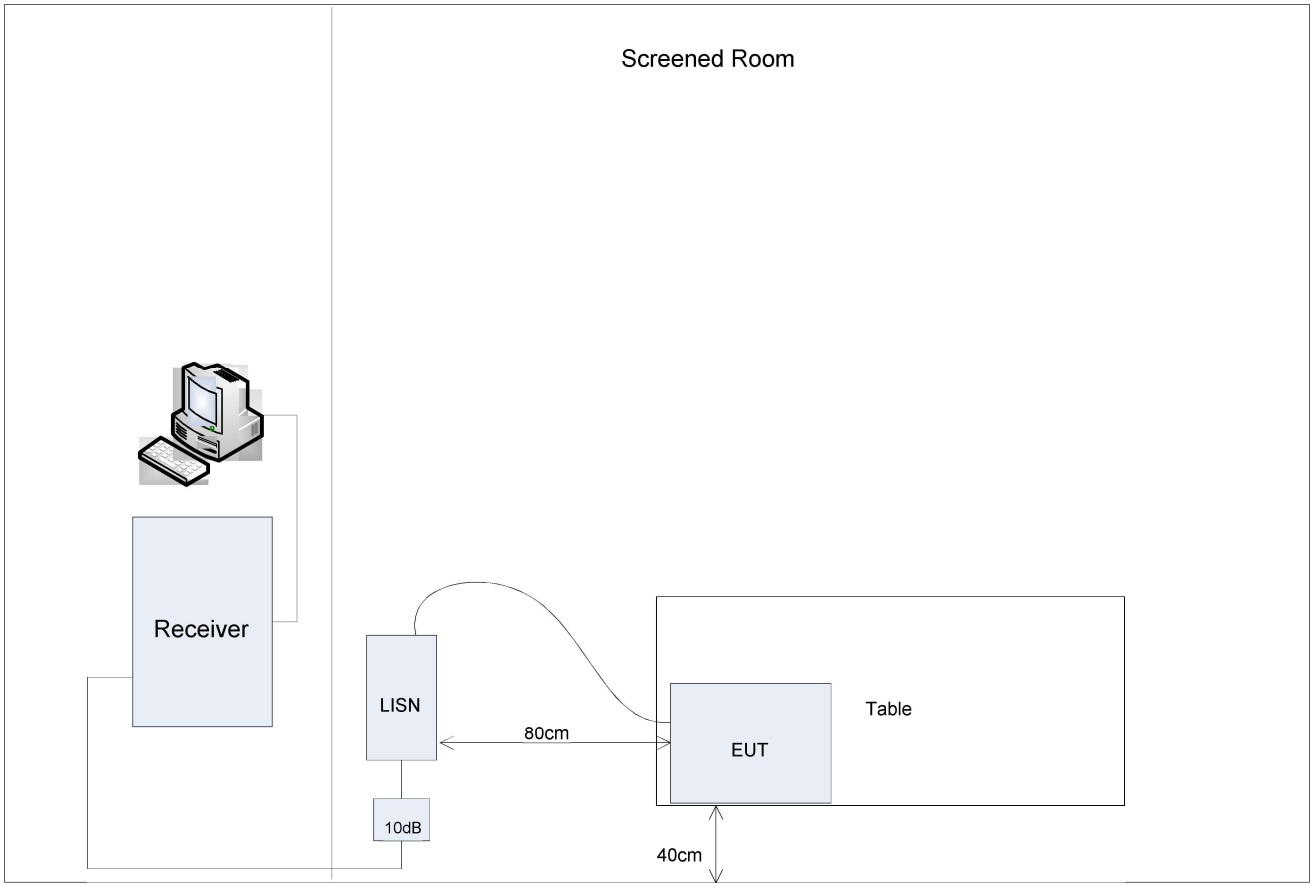

Figure 2: Test setup for Conducted Emissions on the AC power port

The screened room provides an environment that ensures valid, repeatable measurement results that meet the requirements of Clause 5.2 of ANSI C63.4-2014.

5.4.4 Plots

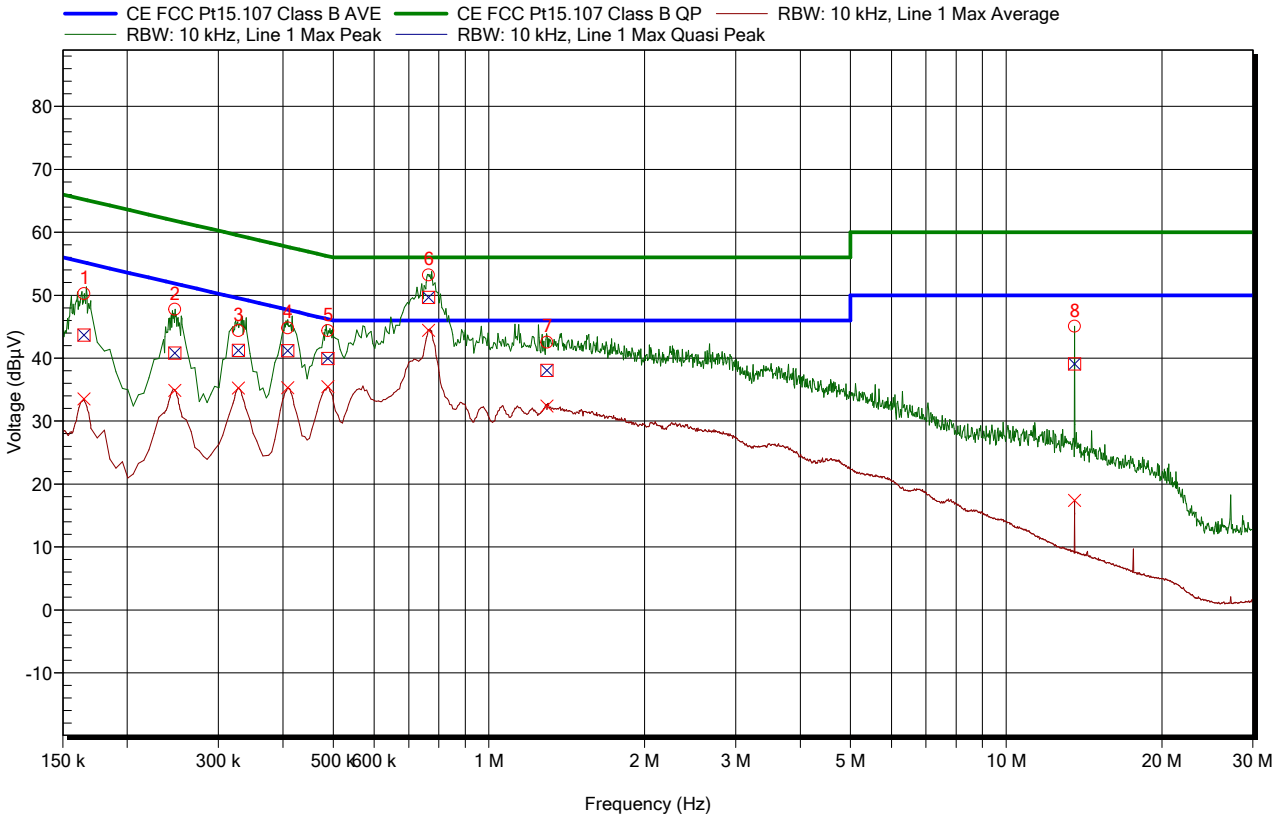

Figure 3: Conducted Emissions Plot - Input Power 120V 60Hz Live

Frequency	Peak	Average	Average Difference	Average Status	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
165 kHz	50.24 dBµV	33.55 dBµV	-21.66 dB	Pass	43.69 dBµV	65.21 dBµV	-21.52 dB	Pass
247 kHz	47.78 dBµV	34.88 dBµV	-16.97 dB	Pass	40.81 dBµV	61.86 dBµV	-21.04 dB	Pass
328 kHz	44.38 dBµV	35.27 dBµV	-14.23 dB	Pass	41.25 dBµV	59.5 dBµV	-18.25 dB	Pass
408.5 kHz	44.78 dBµV	35.3 dBµV	-12.38 dB	Pass	41.17 dBµV	57.68 dBµV	-16.51 dB	Pass
488 kHz	44.37 dBµV	35.46 dBµV	-10.74 dB	Pass	39.94 dBµV	56.2 dBµV	-16.26 dB	Pass
765 kHz	53.2 dBµV	44.4 dBµV	-1.6 dB	Pass	49.64 dBµV	56 dBµV	-6.36 dB	Pass
1.29 MHz	42.51 dBµV	32.39 dBµV	-13.61 dB	Pass	38.05 dBµV	56 dBµV	-17.95 dB	Pass
13.56 MHz	45.04 dBµV	17.39 dBµV	-32.61 dB	Pass	39.1 dBµV	60 dBµV	-20.9 dB	Pass

Table 2: Input Power Live Conducted Emissions Peaks

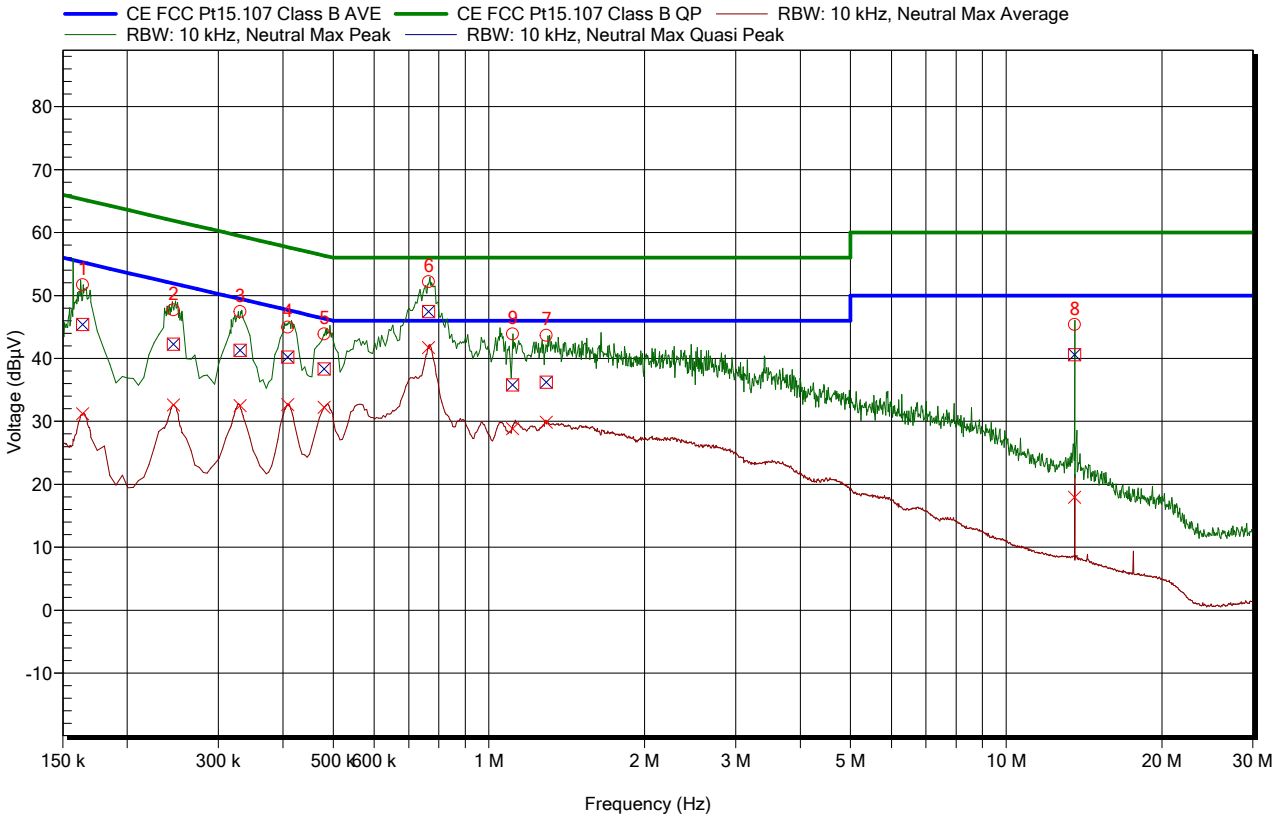

Figure 4: Conducted Emissions Plot - Input Power 120V 60Hz Neutral

Frequency	Peak	Average	Average Difference	Average Status	Quasi-Peak	Quasi-Peak Limit	Quasi-Peak Difference	Quasi-Peak Status
164 kHz	51.69 dBµV	31.21 dBµV	-24.05 dB	Pass	45.4 dBµV	65.26 dBµV	-19.86 dB	Pass
245.5 kHz	47.72 dBµV	32.62 dBµV	-19.29 dB	Pass	42.28 dBµV	61.91 dBµV	-19.63 dB	Pass
330.5 kHz	47.42 dBµV	32.49 dBµV	-16.95 dB	Pass	41.31 dBµV	59.44 dBµV	-18.13 dB	Pass
408.5 kHz	44.98 dBµV	32.68 dBµV	-15 dB	Pass	40.19 dBµV	57.68 dBµV	-17.49 dB	Pass
480 kHz	43.88 dBµV	32.23 dBµV	-14.11 dB	Pass	38.33 dBµV	56.34 dBµV	-18.01 dB	Pass
765 kHz	52.17 dBµV	41.73 dBµV	-4.27 dB	Pass	47.47 dBµV	56 dBµV	-8.53 dB	Pass
1.29 MHz	43.66 dBµV	29.85 dBµV	-16.15 dB	Pass	36.23 dBµV	56 dBµV	-19.77 dB	Pass
13.558 MHz	45.4 dBµV	17.91 dBµV	-32.09 dB	Pass	40.56 dBµV	60 dBµV	-19.44 dB	Pass
1.111 MHz	43.89 dBµV	28.86 dBµV	-17.14 dB	Pass	35.82 dBµV	56 dBµV	-20.18 dB	Pass

Table 3: Input Power 120V 60Hz Neutral Conducted Emissions Peaks

5.4.5 Correction factors

The quasi-peak correction and average correction are shown in the above table. This correction figure consists of LISN Insertion loss (IL), Attenuator loss (AL), Cable loss (CL) and Transient Limiter Loss (TL)

The Actual Signal Level (ASL) is calculated as follows:

ASL (dBµV) = Indicated Signal Level (dBµV) + IL (dB) + AL (dB) + CL (dB) + TL (dB)

Section 6 Radiated Emission Results

6.1 Test Specification

Standard	ANSI C63.4:2014
Measurement Uncertainty	The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95% is 5.16dB (EN55016-4-2:2011 +A1:2014 (<1GHz)) ESU40 4.66dB (EN55016-4-2:2011 +A1:2014 (1-6GHz)) ESU40/HL050 4.96dB (EN55016-4-2:2011 +A1:2014 (6-18GHz)) ESU40/HL050

6.2 Procedure and Test Software Version

Eurofins York test procedure (30MHz to 1GHz)	BEP23 Issue 10 Oct 2016
Eurofins York test procedure (1GHz to 40GHz)	BEP27 Issue 7 7 Oct 2016
Test software	RadiMation Version 2016.1.6

6.3 Radiated Emissions (30MHz to 1GHz)

6.3.1 Limits at 3m

Frequency (MHz)	Class A (dBµV/m)	Class B (dBµV/m)
	Quasi Peak	Quasi Peak
30 - 88	49.5	40.0
88 -216	53.5	43.5
216 - 960	56.4	46.0
960- 1000	59.5	54.0

Note: FCC 47 CFR Part 15 Section 15.109 specifies test limits at 10m for Class A and 3m for Class B.
Please note that for Class A, limits have adjusted by 10dB to correct for the measurement distance of 3m.

6.3.2 Receiver Settings

Receiver Parameters	Setting
Detector Function	Quasi Peak
Start Frequency	30MHz
Stop Frequency	1000MHz
Resolution Bandwidth	120kHz
Video Bandwidth	Auto

6.3.3 Emissions measurements

6.3.4 Date of Test

13 Apr 2018

6.3.5 Test Area

LAB 1 (SAC)

6.3.6 Test Setup

The EUT was configured in the SAC on an 80cm high table.

The measurement was performed with an antenna to EUT separation distance of 3m. The Quasi peak limits are therefore increased by 10dB (from the 10m values), to allow for the reduction in the measurement distance.

The results were maximised in orientation 0-360 degrees and height 1-4m.

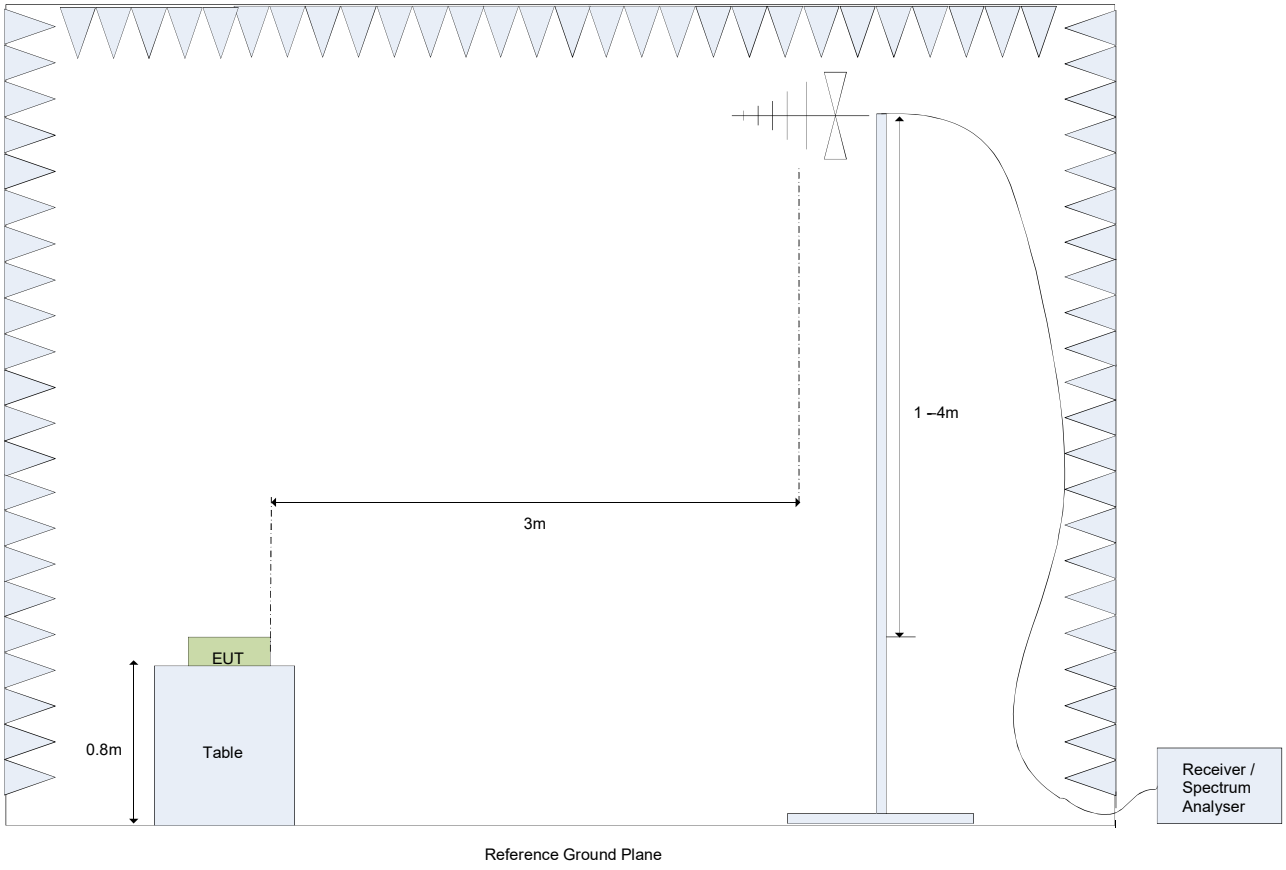

Figure 5: Test Setup for E-Field Measurements from 30MHz to 1GHz

Note 1 : With the EUT de-energized the ambient radio noise and signals met the 6dB peak detection requirement of ANSI C63.4-2014 Clause 5.1.3.

Note 2 : There were no significant environmental temperature changes during the test duration and hence it was not considered necessary to consider any variation in cable loss.

6.3.7 Electric field emissions, 30MHz to 1GHz

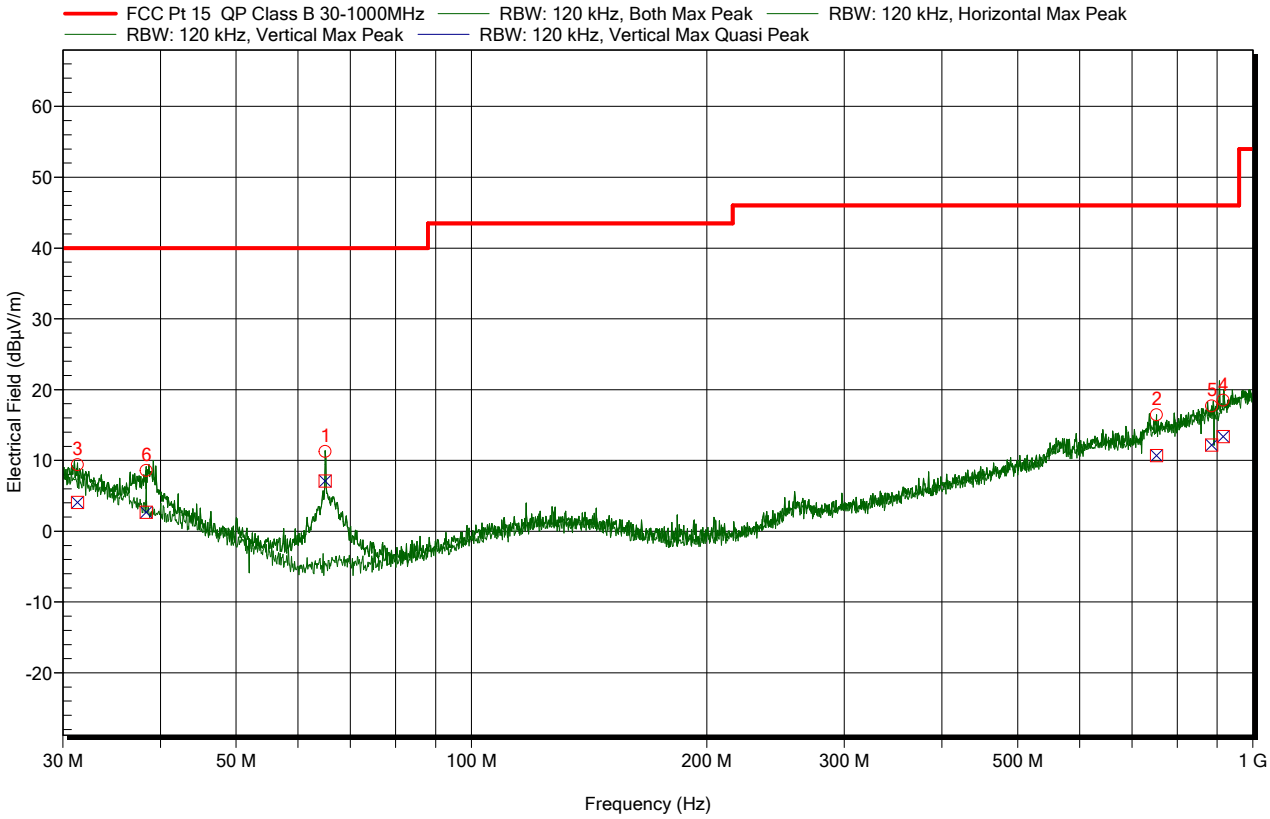

Figure 6: Electric field emissions Plot, 30MHz to 1GHz (125kHz)

Frequency	Peak	Quasi-Peak	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height	Polarization
65.012 MHz	11.24 dBµV/m	7.07 dBµV/m	-32.93 dB	Pass	353 Degree	1.1 m	Vertical
752.331 MHz	16.43 dBµV/m	10.67 dBµV/m	-35.33 dB	Pass	358 Degree	1.7 m	Vertical
31.336 MHz	9.41 dBµV/m	4.07 dBµV/m	-35.93 dB	Pass	327 Degree	1.8 m	Vertical
916.039 MHz	18.51 dBµV/m	13.38 dBµV/m	-32.62 dB	Pass	323 Degree	1.5 m	Vertical
885.247 MHz	17.7 dBµV/m	12.18 dBµV/m	-33.82 dB	Pass	353 Degree	3.5 m	Vertical
38.356 MHz	8.55 dBµV/m	2.67 dBµV/m	-37.33 dB	Pass	328 Degree	1.4 m	Vertical

Table 4: Electric Field Emissions Peaks, 30MHz to 1GHz (125kHz)

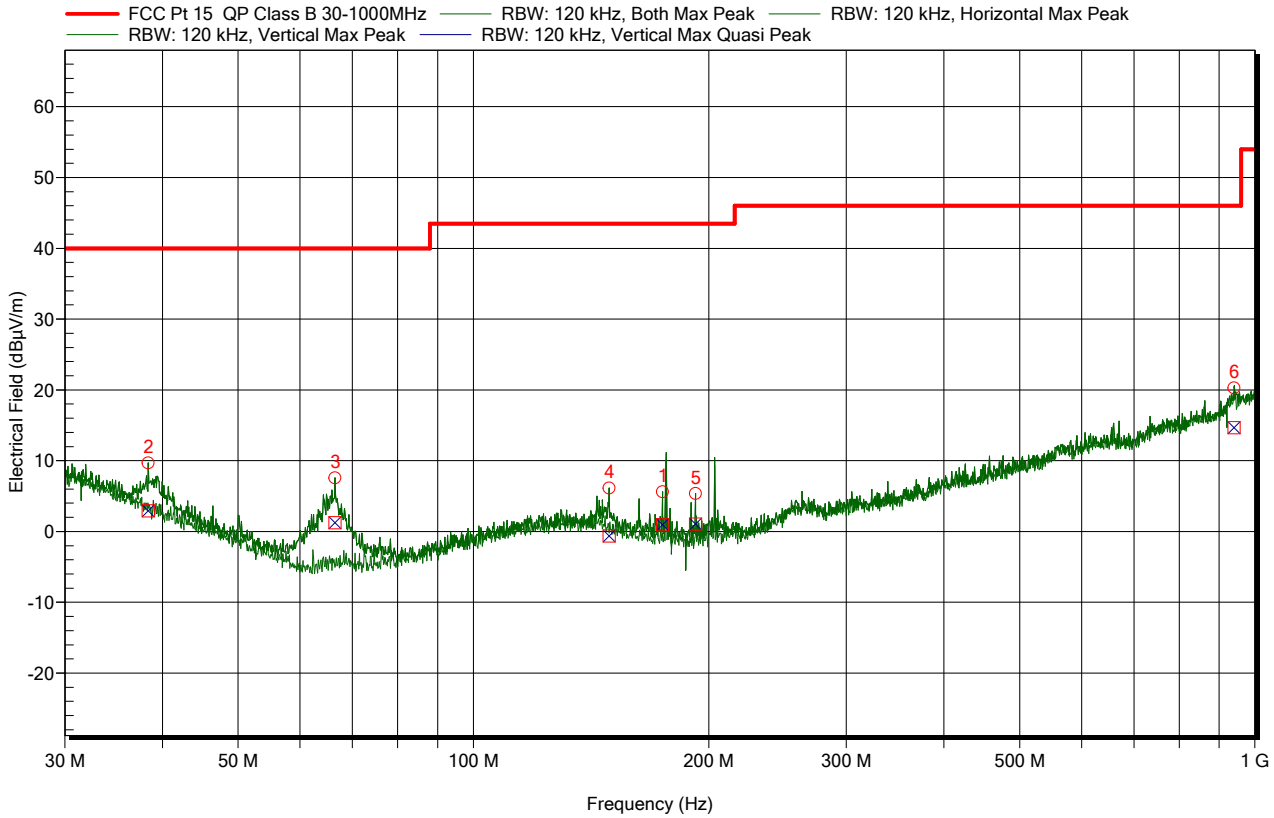

Figure 7: Electric field emissions Plot, 30MHz to 1GHz (13.56MHz)

Frequency	Peak	Quasi-Peak	Quasi-Peak Difference	Quasi-Peak Status	Angle	Height	Polarization
174.568 MHz	5.62 dBµV/m	0.93 dBµV/m	-42.57 dB	Pass	328 Degree	1.1 m	Vertical
38.365 MHz	9.7 dBµV/m	2.93 dBµV/m	-37.07 dB	Pass	313 Degree	1 m	Vertical
66.489 MHz	7.56 dBµV/m	1.26 dBµV/m	-38.74 dB	Pass	328 Degree	1.7 m	Vertical
149.202 MHz	6.11 dBµV/m	-0.63 dBµV/m	-44.13 dB	Pass	333 Degree	1.1 m	Vertical
192.366 MHz	5.35 dBµV/m	1.06 dBµV/m	-42.44 dB	Pass	358 Degree	1.2 m	Vertical
940.691 MHz	20.25 dBµV/m	14.66 dBµV/m	-31.34 dB	Pass	342 Degree	1.8 m	Vertical

Table 5: Electric Field Emissions Peaks, 30MHz to 1GHz (13.56MHz)

6.3.8 Quasi Peak correction factors

The quasi peak correction is shown in the above table. This correction figure consists of Antenna factor (AF); Attenuator loss (AL) and Cable loss (CL).

Field strength (FS) is calculated as follows:

FS (dBµV/m) = Indicated Signal Level (dBµV) + AF (dB) + AL (dB) + CL (dB)

6.4 Radiated Emissions (1GHz to 12.5GHz)

6.4.1 Limits

Frequency (GHz)	Class A (dBµV/m)	Class B (dBµV/m)
	Average	Average
1-12.5	59.5	54.0

6.4.2 Receiver Settings

Receiver Parameters	Setting
Detector Function	Average
Start Frequency	1GHz
Stop Frequency	12.5GHz
Resolution Bandwidth	1MHz
Video Bandwidth	Auto

6.4.3 Emissions measurements

6.4.4 Date of Test

13 Apr 2013

6.4.5 Test Area

LAB 1 (SAC)

6.4.6 Test Setup

The EUT was configured in the SAC on an 80cm high table.

Exploratory measurements on the EUT were carried out to identify suspect frequencies and worst case orientations, see Section 6.4.7.

The measurement was then performed with an antenna to EUT separation distance of 3m.

The antenna was kept in the “cone of radiation” from the EUT and pointed at the area both in azimuth and elevation using the tilt mechanism on the antenna mast.

The results were maximised in orientation 0-360 degrees and height 1-4m.

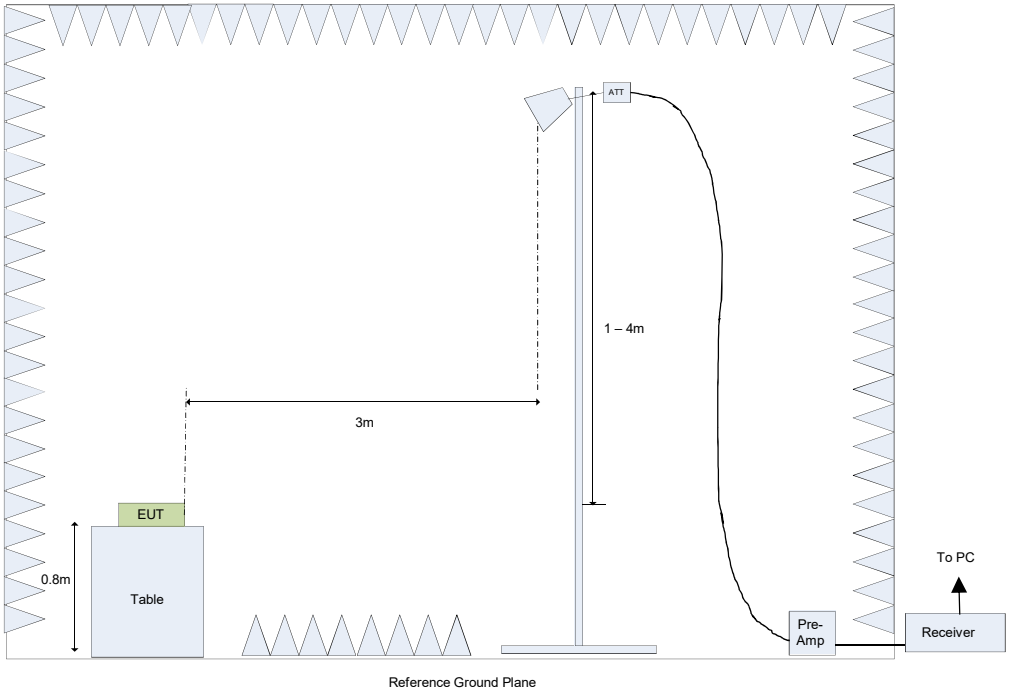

Figure 8: Test Setup for Final E-Field Measurements from 1GHz to 18GHz

Note 1 : With the EUT de-energized the ambient radio noise and signals met the 6dB peak detection requirement of ANSI C63.4-2014 Clause 5.1.3.

Note 2 : There were no significant environmental temperature changes during the test duration and hence it was not considered necessary to consider any variation in cable loss.

6.4.7 Exploratory Radiated Emission Maximization

During exploratory testing, suspect emissions from the EUT were identified both in terms of the frequency and directionality. This was achieved by manually positioning the antenna close to the EUT and also by scanning it over all sides of the EUT whilst observing a spectral display. The typical distance between the surface of the EUT and the scanning antenna was circa 30cm.

Frequency (GHz)	Mode of operation	EUT face *	Emissions Angle (w.r.t. turntable)	Height	Polarization
N/A	N/A	N/A	N/A	N/A	N/A

Table 6: Frequencies identified during Exploratory Radiated Emission maximization

Note 1 : The front face of the EUT is deemed to be 0°, which is then turned in a clockwise direction through 360°.

Note 2 : The method for the exploratory radiated emission maximisation is as detailed in Annex E of ANSI

Note 3 : No emissions of concern were detected during the exploratory process

6.4.8 Electric field emissions, 1GHz to 12.5GHz

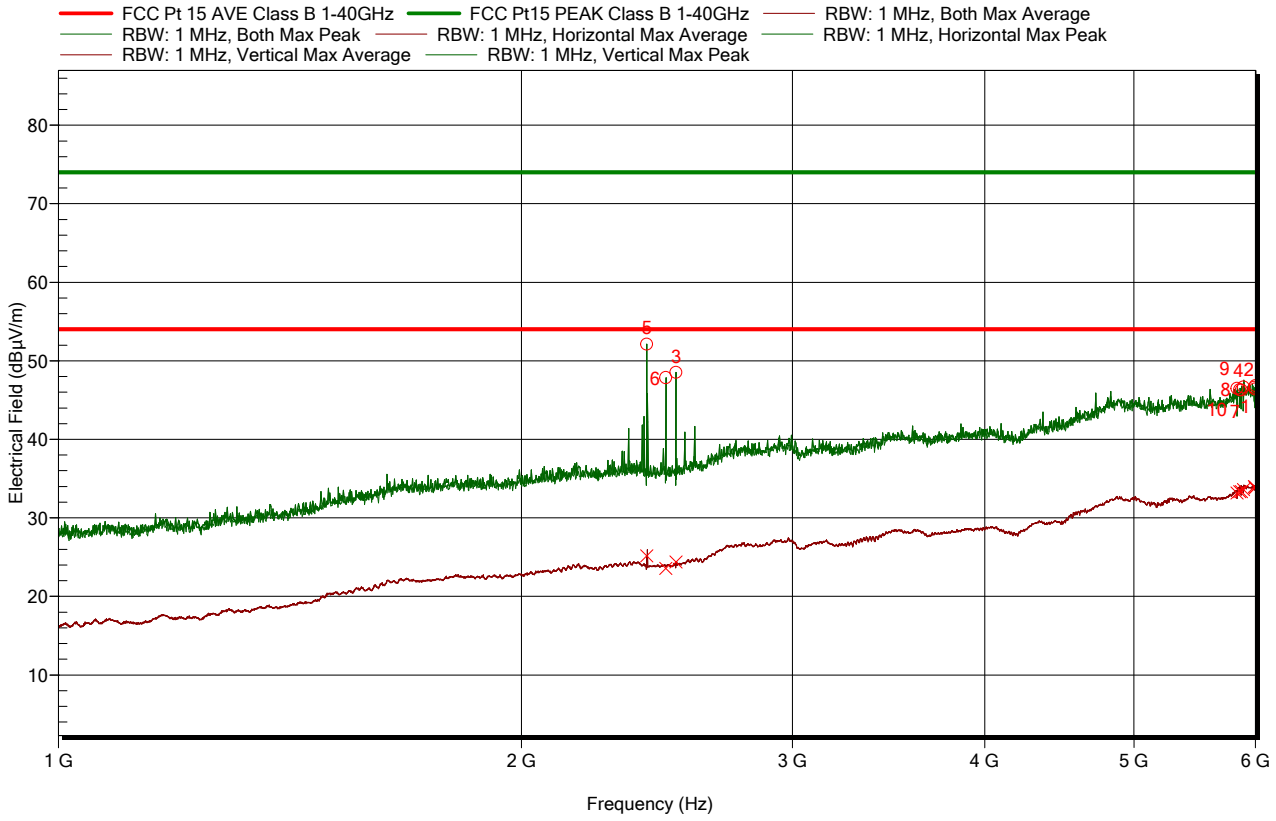

Figure 9: Electric field emissions Plot, 1GHz to 6GHz (125kHz)

Frequency	Peak	Peak Difference	Peak Correction	Peak Status	Average	Average Difference	Average Correction	Average Status	Angle	Height	Polarization
5.859 GHz	46.3 dBµV/m	-27.7 dB	-6.9 dB	Pass	33.35 dBµV/m	-20.65 dB	-6.9 dB	Pass	15 Degree	1 m	Horizontal
5.99 GHz	46.6 dBµV/m	-27.4 dB	-6.8 dB	Pass	34 dBµV/m	-20 dB	-6.8 dB	Pass	89 Degree	1 m	Vertical
2.52 GHz	48.53 dBµV/m	-25.47 dB	-19.1 dB	Pass	24.4 dBµV/m	-29.6 dB	-19.1 dB	Pass	104 Degree	1 m	Horizontal
5.891 GHz	46.67 dBµV/m	-27.33 dB	-6.8 dB	Pass	33.6 dBµV/m	-20.4 dB	-6.8 dB	Pass	119 Degree	1 m	Horizontal
2.412 GHz	52.12 dBµV/m	-21.88 dB	-19.7 dB	Pass	25.15 dBµV/m	-28.85 dB	-19.7 dB	Pass	149 Degree	1 m	Horizontal
2.482 GHz	47.83 dBµV/m	-26.17 dB	-19.3 dB	Pass	23.57 dBµV/m	-30.43 dB	-19.3 dB	Pass	149 Degree	1 m	Horizontal
5.998 GHz	46.83 dBµV/m	-27.17 dB	-6.8 dB	Pass	33.88 dBµV/m	-20.12 dB	-6.8 dB	Pass	164 Degree	1 m	Horizontal
5.996 GHz	46.4 dBµV/m	-27.6 dB	-6.8 dB	Pass	33.83 dBµV/m	-20.17 dB	-6.8 dB	Pass	179 Degree	1 m	Vertical
5.873 GHz	46.27 dBµV/m	-27.73 dB	-6.9 dB	Pass	33.35 dBµV/m	-20.65 dB	-6.9 dB	Pass	239 Degree	1 m	Vertical
5.836 GHz	46.49 dBµV/m	-27.51 dB	-7 dB	Pass	33.17 dBµV/m	-20.83 dB	-7 dB	Pass	284 Degree	1 m	Horizontal

Table 2: Electric Field Emissions Peaks, 1GHz to 6GHz (125kHz)

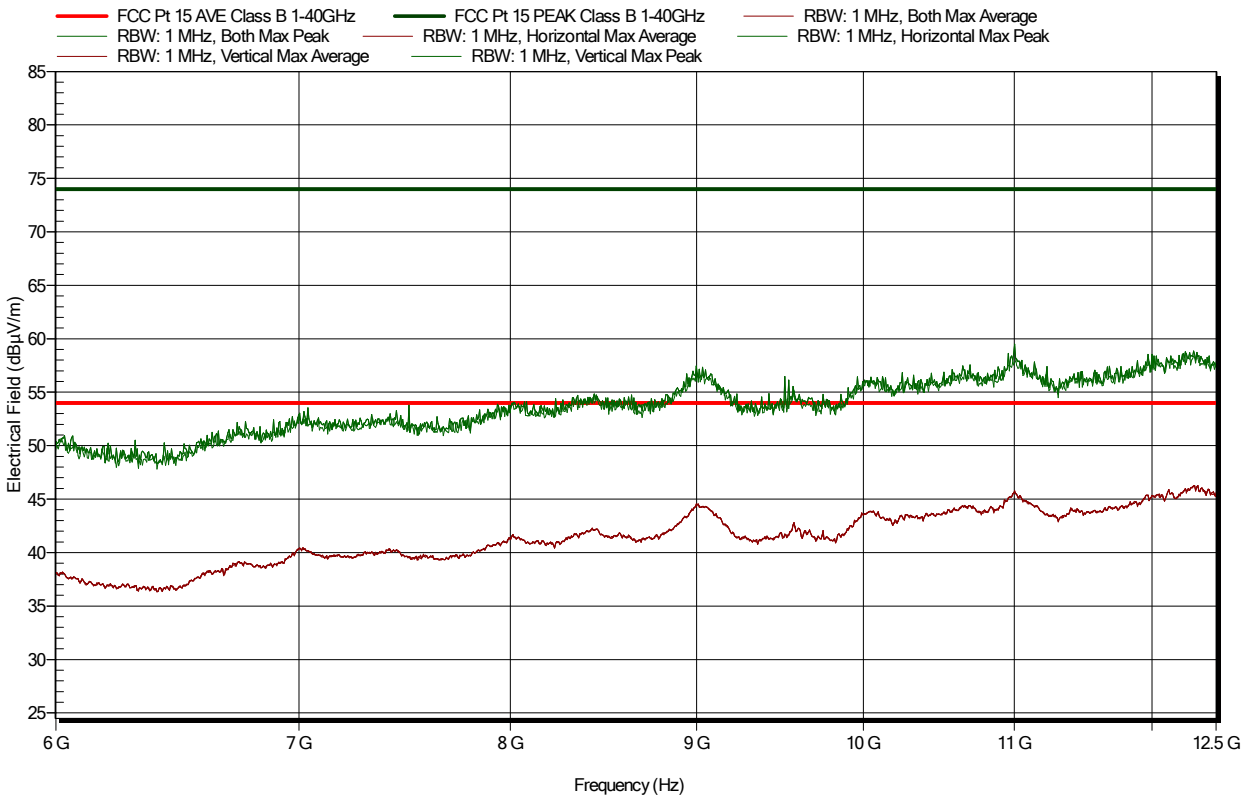

Figure 10: Electric field emissions Plot, 6GHz to 12.5GHz (125kHz)

Note 1 : No max peaks were detected during the scans of the EUT

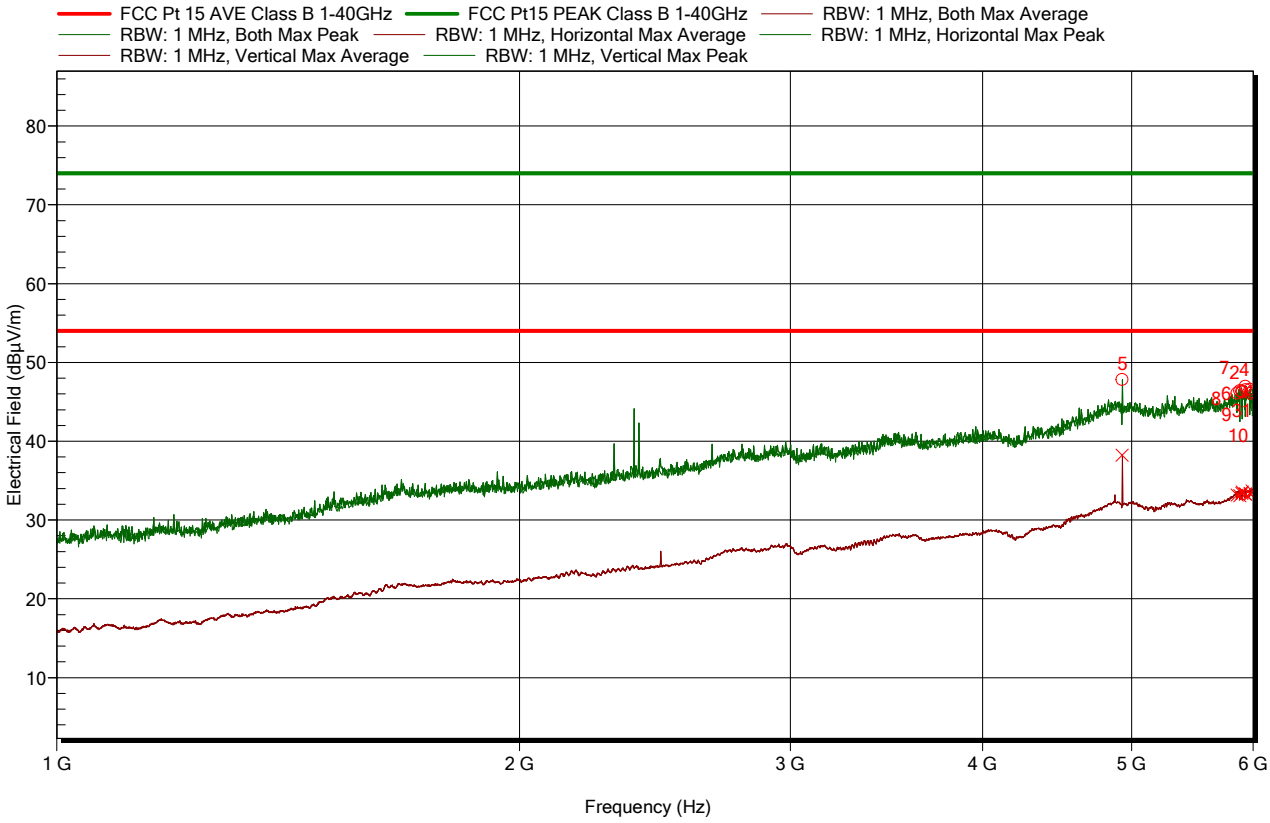

Figure 11: Electric field emissions Plot, 1GHz to 6GHz (13.56GHz)

Frequency	Peak	Peak Difference	Peak Correction	Peak Status	Average	Average Difference	Average Correction	Average Status	Angle	Height	Polarization
5.99 GHz	46.29 dBµV/m	-27.71 dB	-6.8 dB	Pass	33.68 dBµV/m	-20.32 dB	-6.8 dB	Pass	44 Degree	1 m	Horizontal
5.881 GHz	46.38 dBµV/m	-27.62 dB	-6.9 dB	Pass	33.07 dBµV/m	-20.93 dB	-6.9 dB	Pass	74Degree	1 m	Horizontal
5.901 GHz	46.21 dBµV/m	-27.79 dB	-6.8 dB	Pass	33.54 dBµV/m	-20.46 dB	-6.8 dB	Pass	149 Degree	1 m	Vertical
5.97 GHz	46.57 dBµV/m	-27.43 dB	-6.8 dB	Pass	33.37 dBµV/m	-20.63 dB	-6.8 dB	Pass	164Degree	1 m	Horizontal
4.929 GHz	47.85 dBµV/m	-26.15 dB	-9.9 dB	Pass	38.21 dBµV/m	-15.79 dB	-9.9 dB	Pass	224Degree	1 m	Vertical
5.856 GHz	46.09 dBµV/m	-27.91 dB	-6.9 dB	Pass	33.14 dBµV/m	-20.86 dB	-6.9 dB	Pass	224Degree	1 m	Vertical
5.899 GHz	46.35 dBµV/m	-27.65 dB	-6.8 dB	Pass	33.39 dBµV/m	-20.61 dB	-6.8 dB	Pass	239Degree	1 m	Horizontal
5.928 GHz	46.96 dBµV/m	-27.04 dB	-6.7 dB	Pass	33.29 dBµV/m	-20.71 dB	-6.7 dB	Pass	284 Degree	1 m	Horizontal
5.931 GHz	46.53 dBµV/m	-27.47 dB	-6.7 dB	Pass	33.28 dBµV/m	-20.72 dB	-6.7 dB	Pass	329Degree	1 m	Vertical
5.975 GHz	46.06 dBµV/m	-27.94 dB	-6.8 dB	Pass	33.31 dBµV/m	-20.69 dB	-6.8 dB	Pass	344Degree	1 m	Horizontal

Table 3: Electric Field Emissions Peaks, 1GHz to 6GHz (13.56GHz)

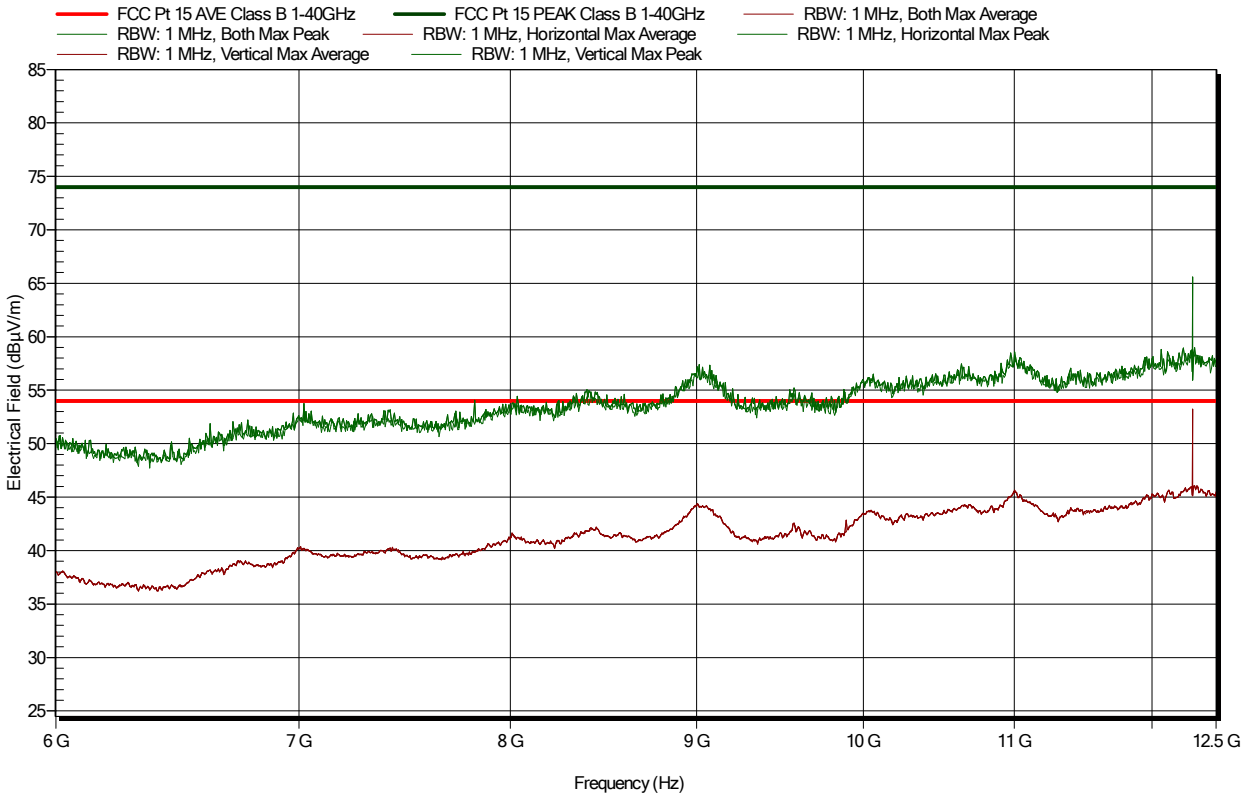

Figure 12: Electric field emissions Plot, 6GHz to 12.5GHz (13.56GHz)

Frequency	Peak	Peak Difference	Peak Correction	Peak Status	Average	Average Difference	Average Correction	Average Status	Angle	Height	Polarization
12.312 GHz	65.58 dBµV/m	-8.42 dB	4.5 dB	Pass	51.76 dBµV/m	-2.24 dB	4.5 dB	Pass	49 Degree	1 m	Vertical

Table 4: Electric Field Emissions Peaks, 6GHz to 12.5GHz (13.56GHz)

6.4.9 Average correction factors (1GHz to 18GHz)

The total average corrections are shown in the above table. This correction figure consists of Preamplifier gain (PG), Antenna factor (AF); Attenuator loss (AL) and Cable loss (CL).

Field strength (FS) is calculated as follows:

FS (dBµV/m) = Indicated Signal Level (dBµV) - PG (dB) + AF (dB) + AL (dB) + CL (dB)

Appendix A EUT Test Photos

Conducted Emissions

Photo 1: Conducted Emissions, Power Line

Radiated Emissions

Photo 2: Radiated Emissions, close-up shot

The cable/wire placement on the test site was setup to produce the highest radiated emissions. The above photograph(s) illustrates the setup tested.

Photo 3: Radiated Emissions, 30MHz to 1GHz

Photo 4: Radiated Emissions, 1GHz to 18GHz

Appendix B Test Equipment List

Conducted Emissions

Item	Serial No.	Last Calibration Date	Calibration Interval
Rainford Screened Room 7.0m x 4.0m x 3.0m	Lab2	N/A	N/A, Note 2
Rohde & Schwarz ESHS10	B0916	20/12/2017	12 Months
Rohde & Schwarz ESHS30 Measuring Receiver	B1401	03/02/2017	12 Months
Rohde & Schwarz ESH3-Z5	B0816	11/05/2017	12 Months
10dB Attenuator / Limiter	B0539	11/10/2017	12 Months
6dB Attenuator	B0949	09/10/2017	12 Months
Agilent Spectrum Analyser 8594E	B0878	31/01/2018	12 Months
CNE V Emission Source	B0855	N/A	N/A
LISN Adapter LSA02	B0914	N/A	N/A
BNC type Test cable	C07	11/10/2017	12 Months
BNC type Test cable	C12	09/10/2017	12 Months
N-type Test cable	B03	09/10/2017	12 Months
Mains cable M04	IEC Lead 1.0m	N/A	N/A
Auriol Scientific Environmental Monitor	B1376	20-06-2017	12 Months

Radiated Emissions Equipment

Item	Serial No.	Last Calibration Date	Calibration Interval
Rainford Shielded Room Ferrite/hybrid lined semi/anechoic chamber 8.9m x 4.8m x 5.4m	LAB1	24/02/2015	36 Months, Note 2
60A Mains Filter DS23335C	(Fixed)	N/A	N/A
R&S ESU40 Measuring Receiver	B0984	26/01/2018	1 year
Chase Bilog Antenna, 30MHz - 1GHz CBL6111A	B0544	15/04/2016	36 Months
6dB Attenuator (3GHz)	B1444	15/04/2016	36 Months
CNE V Emission Source	B0855	N/A	N/A
Agilent Spectrum Analyser 8594E	B0878	31/01/2018	36 Months
R&S HL050 Log Periodic Antenna	B0936	10/11/2016	36 Months
3dB Attenuator (18GHz)	B1327	04/10/2017	12 Months
18GHz Bonn Preamplifier BLM0118-5A	B1333	05/02/2018	12 Months
YES emission reference source CGE01C	B0996	N/A	N/A
Maturo Antenna Mast	B1405	N/A	N/A
Clark Compressor (Mast)	B0953	N/A	N/A
Auriol Scientific Environmental Monitor	B1375	20/06/2017	12 Months
2m 26GHz Gigalink test cable	B0957	02/10/2017	12 Months
5m 26GHz Gigalink test cable	B0959	02/10/2017	12 Months
9m N Type Cable PL800-NMNM-9M	B1591	02/10/2017	12 Months