

EMC Test Report	
For:	Symetrica Inc
Product:	Symetrica VeriFinder Gamma & Neutron Radiation Detector
Model:	SN23-N, 4G (PN: 410-1317)
 	
Project Engineers:	Graeme Lawler and Richard Beckett
	
Approval Signatory:	Dan Tiroke

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1.0 OVERVIEW

1.1 Introduction

The equipment under test (EUT) as described within this document was submitted for testing as agreed with the customer.

1.2 Objective

The purpose of the test was to measure and report the EUT against limits and methods of the requested standards as listed in section 2.0 Test Summary.

1.3 Product Modifications

None to sample submitted.

1.4 Conclusion

The EUT met the emission and immunity requirements of the tests defined in section 2.0 Test Summary.

This report relates to the sample tested and may not represent the entire population. It is valid only for the product identified, either in part or in full, to the standards and/or tests covered in this document.

1.5 EMC Test Lab Reference

Eurofins Electrical & Electronic UK Ltd File Ref: H5894

1.6 Test Deviations

None.

2.0 TEST SUMMARY

2.1 Summary

The EUT, as described and reported within this document, complies with the applied requested sections of the standards listed below.

The EUT met the emissions and immunity test requirements of the following standards:			
Description	General Standard	Referenced Standard	Status
Radiated Emissions	FCC CFR 47: Part 15b 15.109 and 15.107, Class B	ANSI C63.4: 2014	Pass
Conducted Emissions			Pass
Radiated Emissions	EN 55032: 2015 + A11: 2020 EN IEC 61326-1: 2021	CISPR 32:2015, Class B CISPR 11:2024, Class B	Pass
Conducted Emissions			Pass
Radiated Emissions	ANSI N42.34: 2021† EN 62327: 2019†	ANSI N42.34: 2021† IEC 62706:2019†	Pass
Radiated Emissions	ETSI EN 301 489-1 V2.2.3 ETSI EN 301 489-17 V3.2.4	CISPR 32: 2015, Class B	Pass
Conducted Emissions			Pass
Radiated Spurious Emissions	ETSI EN 300 328 V2.2.2 Clause 4.3.1.10	ETSI EN 300 328 V2.2.2 Clause 5.4.9	Pass
Radiated Spurious Emissions	ETSI EN 300 328 V2.2.2 Clause 4.3.2.9	ETSI EN 300 328 V2.2.2 Clause 5.4.9	Pass
Radiated Spurious Emissions	ETSI EN 301 908 V15.2.1	ETSI EN 301 908 V15.2.1 Clause 4.2.2	Pass
Radiated Spurious Emissions	ETSI EN 301 511 V12.5.1† Clause 4.2.16	ETSI TS 151 010-1 V12.8.0† Clause 12.2.1	Pass
Radiated Spurious Emissions	FCC CFR 47 Part 15C: 15.247(d) 15.209 and 15.205	ANSI C16.10: 2013	Pass
Simultaneous Transmission Radiated Spurious Emissions	FCC CFR 47 Part 15C: 15.247(d) FCC CFR 47 Part 22: 22.917 (a)†	ANSI C16.10: 2013 ANSI C63.26: 2014†	Pass
Simultaneous Transmission Radiated Spurious Emissions	FCC CFR 47 Part 15C: 15.247(d) FCC CFR 47 Part 24: 24.238 (a)†	ANSI C16.10: 2013 ANSI C63.26: 2014†	Pass
Simultaneous Transmission Radiated Spurious Emissions	FCC CFR 47 Part 15C: 15.247(d) FCC CFR 47 Part 27: 27.53 (g)†	ANSI C16.10: 2013 ANSI C63.26: 2014†	Pass
Simultaneous Transmission Radiated Spurious Emissions	ETSI EG 203 367 V1.1.1	ETSI EG 203 367 V1.1.1 Clause 6.2	Pass
Radiated RF Immunity	EN IEC 61326-1: 2021 Industrial Immunity Requirement (Table 2)	EN IEC 61000-4-3:2020	Pass
Conducted Immunity	ETSI EN 301 489-1 V2.2.3 ETSI EN 301 489-17 V3.2.4 ETSI EN 301 489-19†	EN IEC 61000-4-6:2023	Pass
Power Frequency Magnetic Field	ANSI N42.34: 2021† EN 62327: 2019† (Ref: IEC 62706:2019†)	EN 61000-4-8:2010 IEC 61000-4-8:2009	Pass

Note(s):

- The highest internal operating frequency declared by the manufacturer is 2600 MHz.

†This test standard is not currently included in the UKAS Accreditation Schedule for Eurofins Electrical & Electronic UK Ltd.

3.0 EQUIPMENT AND TEST DETAILS

3.1 General

Product (EUT):	Symetrica VeriFinder Gamma & Neutron Radiation Detector		
Model:	SN23-N, 4G (PN: 410-1317)	Serial Number:	240019
FCC ID:	Contains FCC ID 2APOG-VeriFinder0001 and FCC ID 2APOG-VeriFinder0004		
Sample Build:	Production Sample		
EUT Power:	230 V 50 Hz AC and 110 V 60 Hz		
Customer Test Plan:	417-0313_VeriFinder ITEP		
Alternate Models:	The customer has stated that the following models are electrically identical, SN23-N, 4G (PN: 410-1317) and SL23-N, 4G (PN: 410-1316). The model SN23-N, 4G (PN: 410-1317) was used for all testing.		
EUT Manufacturer:	Symetrica Inc		
Company Name:	Symetrica Inc		
Company Address:	4 Lyberty Way Ste 1 Westford MA 01886 United States		
Test Commissioned By:	Richard Haines		
Date EUT Received:	21 st November 2024		
Test Date(s):	21 st November 2024 to 9 th January 2025		
EMC Measurement Site:	Eurofins Electrical & Electronic UK Ltd Hursley Laboratory Trafalgar Close, Chandlers Ford, Hampshire, United Kingdom		
Product Category:	Electrical Equipment for Measurement, Control and Laboratory use		

3.2 EUT Description

The Symetrica VeriFinder is a handheld, battery powered, gamma and neutron detector or a radioisotope identifier.

3.3 Support Equipment

Description	Manufacturer	Model	Serial Number
Radioactive Source Cobalt 60	Not Applicable	Not Applicable	995-0101 to 107
Radioactive Source Barium 133	Not Applicable	Not Applicable	995-0061 to 0064
Radioactive Source Californium-252	Not Applicable		995-0113
Eurofins Test Laptop	Dell	Latitude D630	Not Applicable
Router	Netgear	WNDR4500v3	3W3154510004D
Mains Charger	Delta Electronics	(Manufacturer P/N: MEA-065A12C) (Symetrica P/N: 410-0381)	Not Applicable

3.4 EUT Test Exerciser

3.4.2 Radio Test Modes

Single Transmit			
Test Mode	Technology	Test Channel	Frequency (MHz)
1	2.4 GHz WLAN 802.11b	1	2412
2	2.4 GHz WLAN 802.11b	11	2462
3	2.4 GHz WLAN 802.11b	13	2472
4	Bluetooth Classic	1	2402
5	Bluetooth Classic	78	2480
6	LTE Band 3	19575	1747.5
7	LTE Band 7	21100	2535.0
8	LTE Band 20	24300	847.0
9	GPRS 900	62	902.4
Simultaneous Transmit			
10	Bluetooth DH5	1	2402
	E-GPRS 850	189	836.4
11	Wi-Fi 802.11B 1Mbits/s	1	2412
	LTE Band 2	18900	1880
12	Wi-Fi 802.11B 1Mbits/s	11	2462
	LTE Band 12	23095	707.5
13	Wi-Fi 802.11b 1Mbits/s	1	2412
	E-GPRS 900	62	902.4
14	Bluetooth DH5	1	2402
	LTE Band 8	21625	897.5

3.5 Immunity Performance Criterion

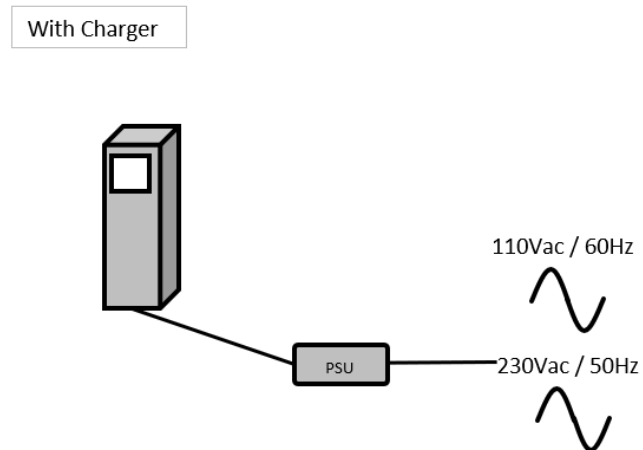
Criteria A:	The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases, the performance level may be replaced by a permissible loss of performance. If the performance level or the permissible level is not specified by the manufacturer, then either of these may be derived from the EUT description and documentation and what the user may reasonably expect from the apparatus if used as intended.
Criteria B:	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases, the performance level may be replaced by a permissible loss of performance. During the test degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible level is not specified by the manufacturer, then either of these may be derived from the EUT description and documentation and what the user may reasonably expect from the apparatus if used as intended.
Criteria C:	Temporary loss of function is allowed provided the loss of function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

Customer Specific EUT Performance Criteria

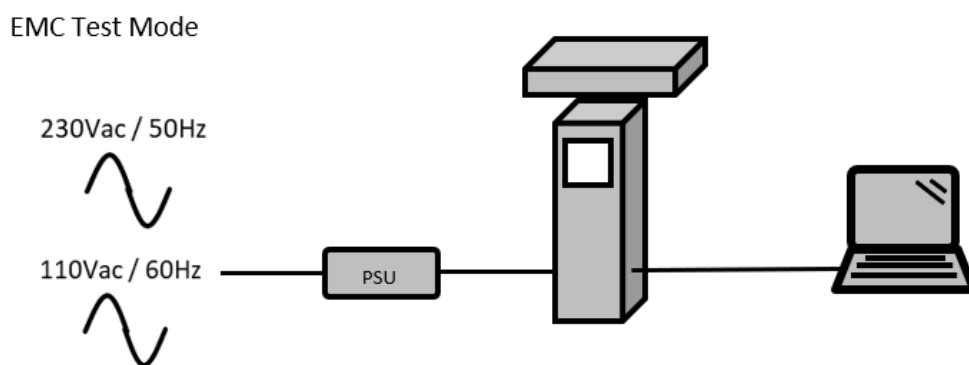
EUT performance as specified in ANSI N42.34-2021 and EB 62327-2019. The gamma and neutron count rate must remain within the observational range, based on pre-test measurements with radioactive sources.

3.6 EUT Test Configuration

3.6.1 EUT Test Configuration #1



3.6.2 EUT Test Configuration #2



3.7 EUT Ports

Port	Type	Length	Shielded
AC Power Port	230 V 50 Hz	2.5m	No
USB	Mini B	1 m	No

4.0 Radio Transmitter Details

4.1 Wi-Fi – European region

Technology Type:	Wi-Fi		
Operating Band:	2400 – 2484		MHz
FHSS:	N		Y/N
If FHSS, can it be disabled for testing?	N/A		Y/N
20 MHz Channel Frequencies:	Bottom	2412	MHz
	Top	2472	MHz
Nominal Channel Bandwidth	20		MHz
Maximum RF conducted output power:	+17.3		dBm
Antenna Type (Integrated / External):	Integrated		
Antenna Gain:	+1.8		dBi
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level:	+17.3	dBm
	Bandwidth:	20	MHz
	Data Rate:	1	MBits/s

4.2 Wi-Fi – North America region

Technology Type:	Wi-Fi		
Operating Band:	2400 – 2484		MHz
FHSS:	N		Y/N
If FHSS, can it be disabled for testing?	N/A		Y/N
20 MHz Channel Frequencies:	Bottom	2412	MHz
	Middle	2437	MHz
	Top	2462	MHz
Nominal Channel Bandwidth	20		MHz
Maximum RF conducted output power:	+17.3		dBm
Antenna Type (Integrated / External):	Integrated		
Antenna Gain:	+1.8		dBi
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level:	+17.3	dBm
	Bandwidth:	20	MHz
	Data Rate:	1	MBits/s

4.3 Bluetooth

Technology Type:	Bluetooth (Classic)		
Operating Band:	2400 – 2480		MHz
FHSS:	Y		Y/N
If FHSS, can it be disabled for testing?	Y		Y/N
Channel Frequencies:	Bottom	2402	MHz
	Middle	2441	MHz
	Top	2480	MHz
Nominal Channel Bandwidth	1		MHz
Maximum RF conducted output power (BDR):	+11.7		dBm
Antenna Type (Integrated / External):	Integrated		
Antenna Gain:	+1.8		dBi
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level:	+11.7	dBm
	Bandwidth:	1	MHz
	Data Rate:	1	MBits/s

4.4 2G Cellular – European region

Technology Type:	GPRS		
Operating Band:	900		MHz
Channel Frequencies:	Bottom	880	MHz
	Top	915	MHz
Maximum Effective Radiated Power (E.R.P)	+33		dBm
Antenna Type (Integrated / External):	Integrated		
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level	+33	dBm
	Uplink	Single Timeslot	

4.5 2G Cellular North America Region

Technology Type:	GPRS		
Operating Band:	850		MHz
Channel Frequencies:	Bottom	824	MHz
	Top	849	MHz
Maximum Effective Radiated Power (E.R.P)	+33		dBm
Antenna Type (Integrated / External):	Integrated		
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level	+33	dBm
	Uplink	Single Timeslot	

4.6 LTE - European Region

Technology Type:	LTE Band 3		
Operating Band:	1800		MHz
Channel Frequencies:	Bottom	1710	MHz
	Top	1785	MHz
Technology Type:	LTE Band 7		
Operating Band:	2600		MHz
Channel Frequencies:	Bottom	2500	MHz
	Top	2570	MHz
Technology Type:	LTE Band 8		
Operating Band:	900		MHz
Channel Frequencies:	Bottom	880	MHz
	Top	915	MHz
Technology Type:	LTE Band 20		
Operating Band:	800		MHz
Channel Frequencies:	Bottom	832	MHz
	Top	862	MHz
Maximum Radiated Power	+23		dBm
Antenna Type (Integrated / External):	Integrated		
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level	+23	dBm
	Channel BW	10	MHz
	Uplink	1 Resource Block with mid Offset	

4.7 LTE – North America Region

Technology Type:	LTE Band 2		
Operating Band:	1900		MHz
Channel Frequencies:	Bottom	1850	MHz
	Top	1910	MHz
Technology Type:	LTE Band 12		
Operating Band:	700		MHz
Channel Frequencies:	Bottom	699	MHz
	Top	716	MHz
Maximum Radiated Power	+23		dBm
Antenna Type (Integrated / External):	Integrated		
Worst Case Mode for TX Unwanted Emissions in Spurious Domain:	Power level	+23	dBm
	Channel BW	10	MHz
	Uplink	1 Resource Block mid Offset	

5.0 TEST RESULTS

5.1 Radiated Emissions; FCC (110 V 60 Hz)

5.1.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on a 360-degree rotation of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, each emission from the EUT was maximised. Measurements were carried out at a distance of three metres using the specified detector in a CISPR 16-1-4 compliant semi-anechoic chamber. Antenna and turntable positions were then finally adjusted to produce the maximum emission levels. The worst-case results are reported below.

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
250	1	Hewlett Packard	8449B	3008A01077	Pre-Amplifier	08/03/2025
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
516	1	Sucoflex	Cable N-Type	-	Cable N-Type for #250	05/03/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
741	0	California instruments	MX45	55282	3 phase voltage/ frequency supply	Not Required
750	1	Global	CISPR16	-	11 x 7 x 6.2m, Chamber (Jupiter)	20/12/2025
762	3	Schwarzbeck	VULB9162	129	Trilog Broadband Antenna (30MHz - 7GHz)	12/03/2027
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver (44GHz)	05/09/2025
821	0	York EMC	CNE	542	Comparison Noise Emitter	Not Required
822	0	York EMC	CNE BP01	CGE03C	Comparison Noise Emitter	Not Required
823	0	York EMC	CNE	6057	Comparison Noise Emitter	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
952	3	Schwarzbeck	HWRD 750	66	Horn Antenna (7GHz - 18GHz)	21/06/2026
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions		
Frequency	Below 1 GHz	Above 1 GHz
Temperature	13.1° Celsius	19.9° Celsius
Relative Humidity	45 %	38 %
Atmospheric Pressure	1019.5 millibars	1034.5 millibars
Test Date:	9 th January 2025	9 th January 2025
Test Engineer:	Graeme Lawler	Graeme Lawler

Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.1.2 Test Configuration

Please refer to EUT Test Configuration #2.

5.1.3 Set-up Photos, X Orientation

Radiated Emissions; Below 1 GHz



5.1.4 Set-up Photos, Y Orientation

Radiated Emissions; Below 1 GHz



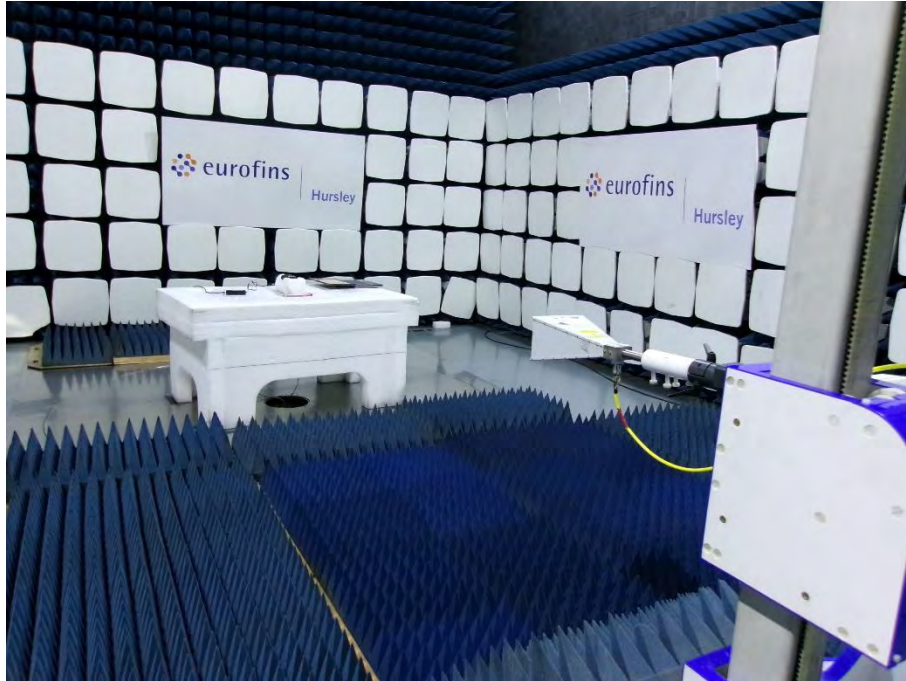
5.1.5 Set-up Photos, Z Orientation

Radiated Emissions; Below 1 GHz



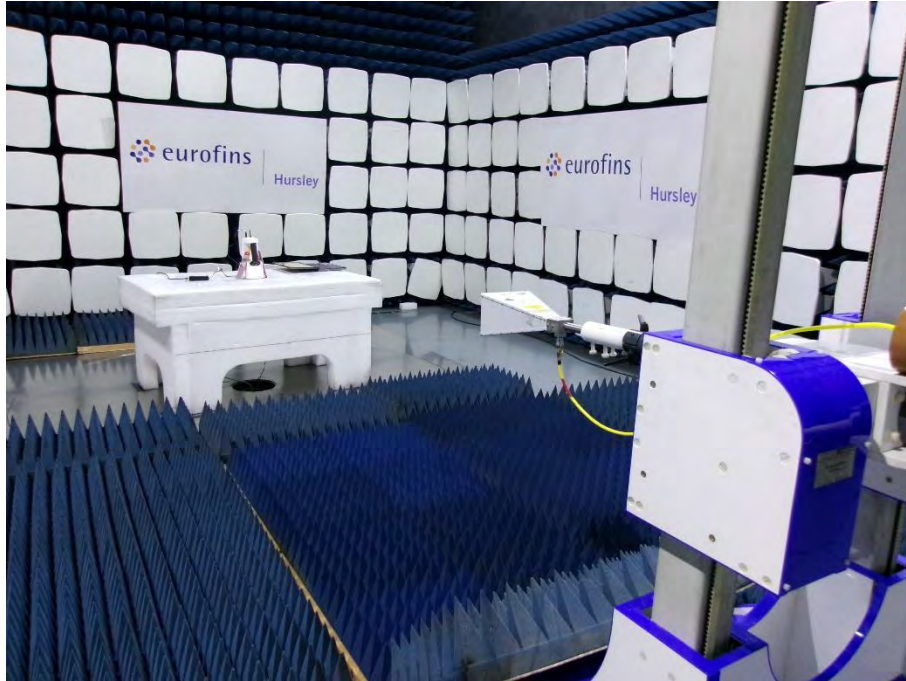
5.1.6 Set-up Photos, X Orientation (Continued)

Radiated Emissions; Above 1 GHz



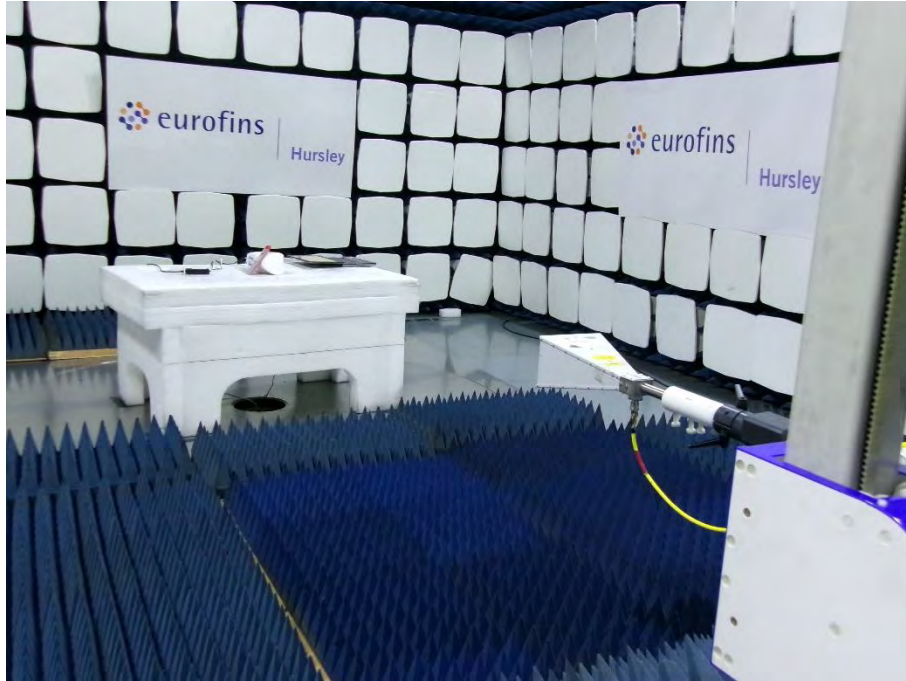
5.1.7 Set-up Photos, Y Orientation (Continued)

Radiated Emissions; Above 1 GHz



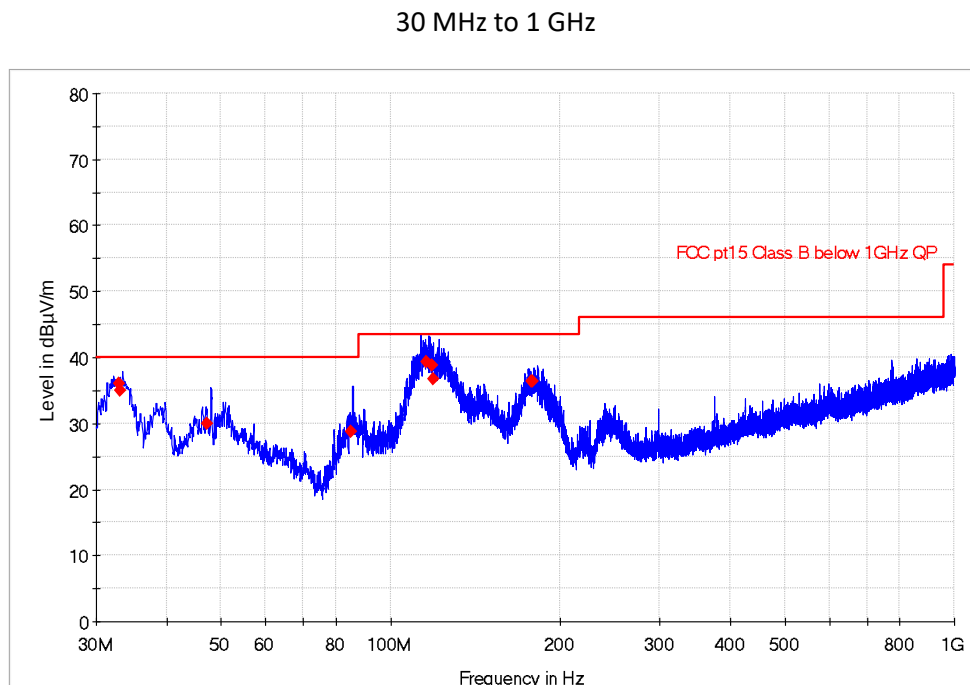
5.1.8 Set-up Photos, Z Orientation (Continued)

Radiated Emissions; Above 1 GHz



5.1.9 Profile; 30 MHz to 1 GHz, X Orientation, FCC (110 V 60 Hz)

Maximum peak hold trace with quasi-peak values (◆)



5.1.10 Data; 30 MHz to 1 GHz, X Orientation, FCC (110 V 60 Hz)

Emission Frequency	Measured Quasi-Peak Value	Class B Specified Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
32.935847	35.96	40.00	4.04	V	114.0	38.0	Pass
33.144834	35.05	40.00	4.95	V	100.0	56.0	Pass
47.111323	29.88	40.00	10.12	V	121.0	51.0	Pass
84.998901	28.75	40.00	11.25	V	127.0	160.0	Pass
115.429517	39.28	43.50	4.22	V	147.0	148.0	Pass
118.345890	38.72	43.50	4.78	V	115.0	137.0	Pass
119.175416	36.69	43.50	6.81	V	100.0	74.0	Pass
177.733000	36.30	43.50	7.20	H	179.0	64.0	Pass
178.184423	36.37	43.50	7.13	H	196.0	75.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

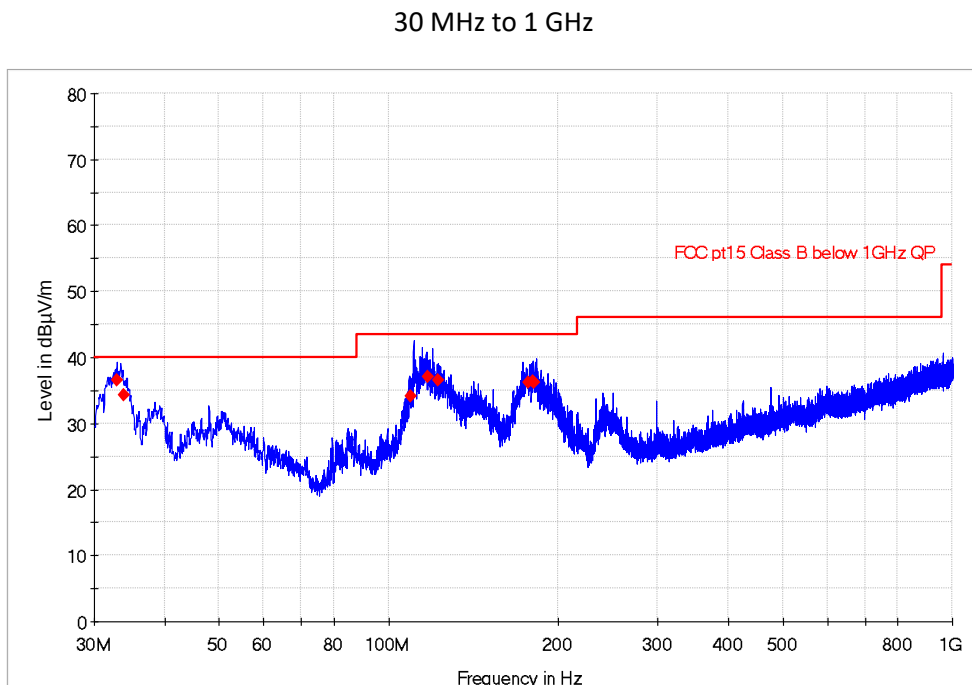
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.11 Profile; 30 MHz to 1 GHz, Y Orientation, FCC (110 V 60 Hz)

Maximum peak hold trace with quasi-peak values (◆)



5.1.12 Data; 30 MHz to 1 GHz, Y Orientation, FCC (110 V 60 Hz)

Emission Frequency	Measured Quasi-Peak Value	Class B Specified Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
32.922921	36.53	40.00	3.47	V	104.0	288.0	Pass
33.816508	34.27	40.00	5.73	V	107.0	107.0	Pass
109.418875	34.10	43.50	9.40	V	114.0	89.0	Pass
117.489376	36.98	43.50	6.52	H	272.0	102.0	Pass
122.118528	36.61	43.50	6.89	H	156.0	97.0	Pass
176.679793	36.23	43.50	7.27	H	114.0	79.0	Pass
180.373118	36.41	43.50	7.09	H	151.0	53.0	Pass
181.379679	36.15	43.50	7.35	H	107.0	63.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

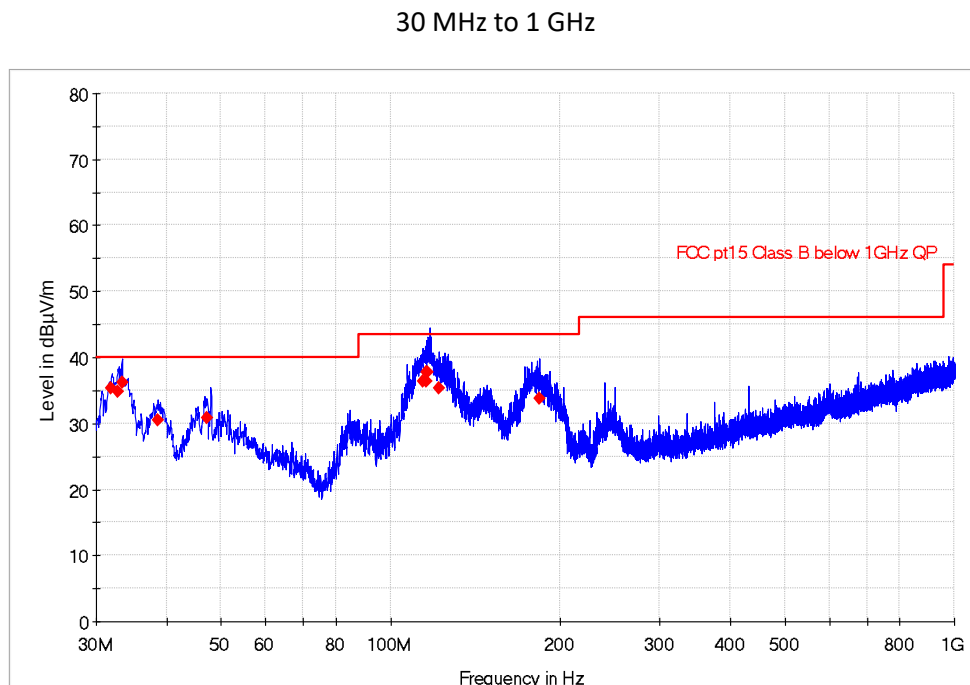
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.13 Profile; 30 MHz to 1 GHz, Z Orientation, FCC (110 V 60 Hz)

Maximum peak hold trace with quasi-peak values (♦)



5.1.14 Data; 30 MHz to 1 GHz, Z Orientation, FCC (110 V 60 Hz)

Emission Frequency	Measured Quasi-Peak Value	Class B Specified Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	Status
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	
31.949981	35.25	40.00	4.75	V	100.0	3.0	Pass
32.783176	34.78	40.00	5.22	V	107.0	68.0	Pass
33.418098	36.28	40.00	3.72	V	104.0	341.0	Pass
38.620381	30.43	40.00	9.57	V	111.0	90.0	Pass
47.242545	30.74	40.00	9.26	V	137.0	78.0	Pass
113.996891	36.33	43.50	7.17	V	167.0	133.0	Pass
115.488843	37.77	43.50	5.73	V	135.0	173.0	Pass
115.692754	36.44	43.50	7.06	V	111.0	109.0	Pass
116.073214	37.66	43.50	5.84	V	104.0	156.0	Pass
121.929062	35.27	43.50	8.23	V	127.0	168.0	Pass
183.531824	33.82	43.50	9.68	H	196.0	71.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

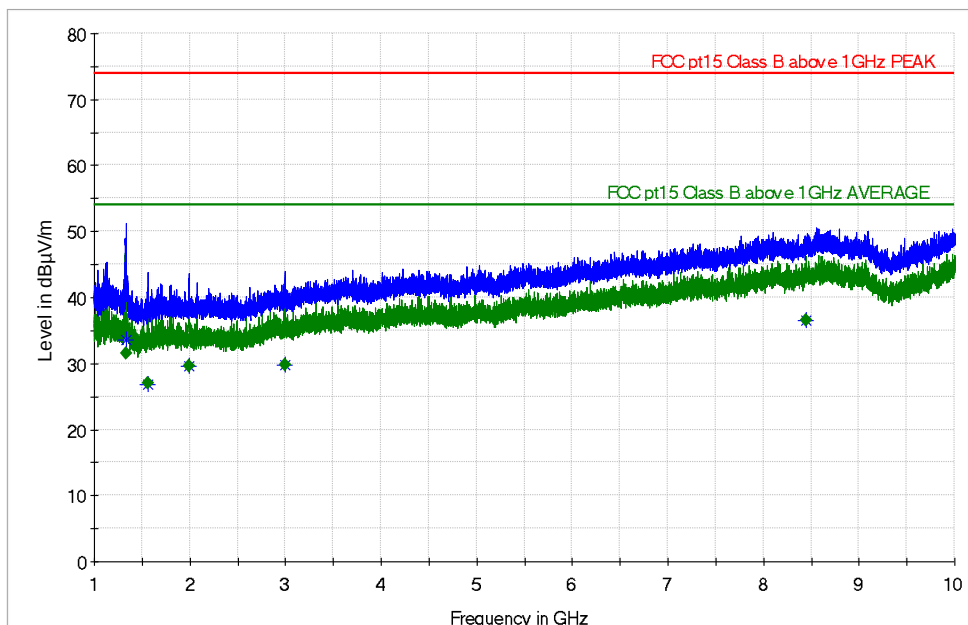
Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.15 Profile; 1 to 10 GHz, X Orientation, FCC (110 V 60 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

1 to 10 GHz



5.1.16 Data; 1 to 10 GHz, X Orientation, FCC (110 V 60 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
1328.949056	---	31.55	54.00	22.45	130.0	V	280.0	-8.2	Pass
1559.793944	---	26.99	54.00	27.01	107.0	H	161.0	-8.8	Pass
1991.500944	---	29.60	54.00	24.40	187.0	H	72.0	-7.7	Pass
2990.792000	---	29.87	54.00	24.13	150.0	V	131.0	-5.3	Pass
8447.500944	---	36.48	54.00	17.52	141.0	H	357.0	4.9	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

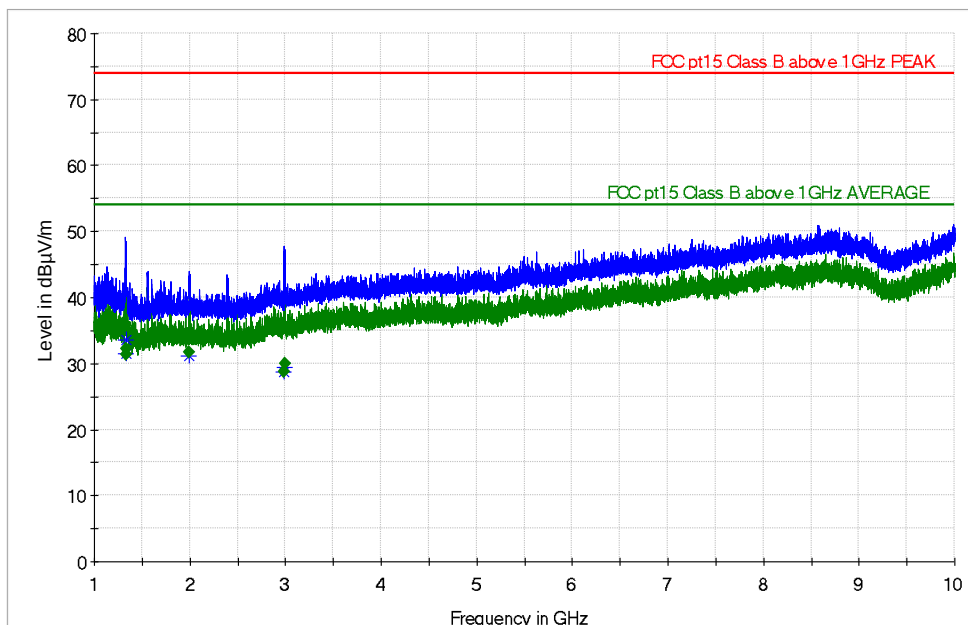
Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.17 Profile; 1 to 10 GHz, Y Orientation, FCC (110 V 60 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

1 to 10 GHz



5.1.18 Data; 1 to 10 GHz, Y Orientation, FCC (110 V 60 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
1328.999056	---	32.15	54.00	21.85	337.0	V	337.0	-8.2	Pass
1336.000000	---	31.33	54.00	22.67	114.0	V	334.0	-8.3	Pass
1993.504000	---	31.63	54.00	22.37	332.0	V	93.0	-7.7	Pass
2985.793000	---	28.69	54.00	25.31	122.0	V	120.0	-5.3	Pass
2997.245000	---	29.89	54.00	24.11	100.0	V	130.0	-5.3	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

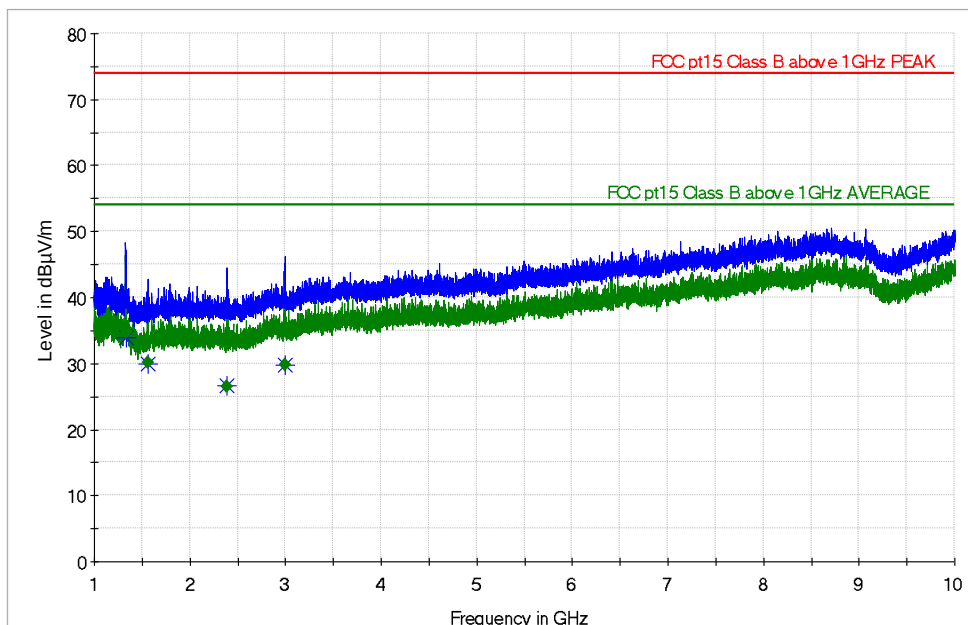
Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.19 Profile; 1 to 10 GHz, Z Orientation, FCC (110 V 60 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

1 to 10 GHz



5.1.20 Data; 1 to 10 GHz, Z Orientation, FCC (110 V 60 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
1328.999056	---	34.63	54.00	19.37	258.0	V	280.0	-8.2	Pass
1556.029000	---	30.12	54.00	23.88	235.0	V	98.0	-8.9	Pass
2391.000000	---	26.48	54.00	27.52	134.0	V	38.0	-7.1	Pass
2991.999056	---	29.87	54.00	24.13	144.0	V	101.0	-5.3	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

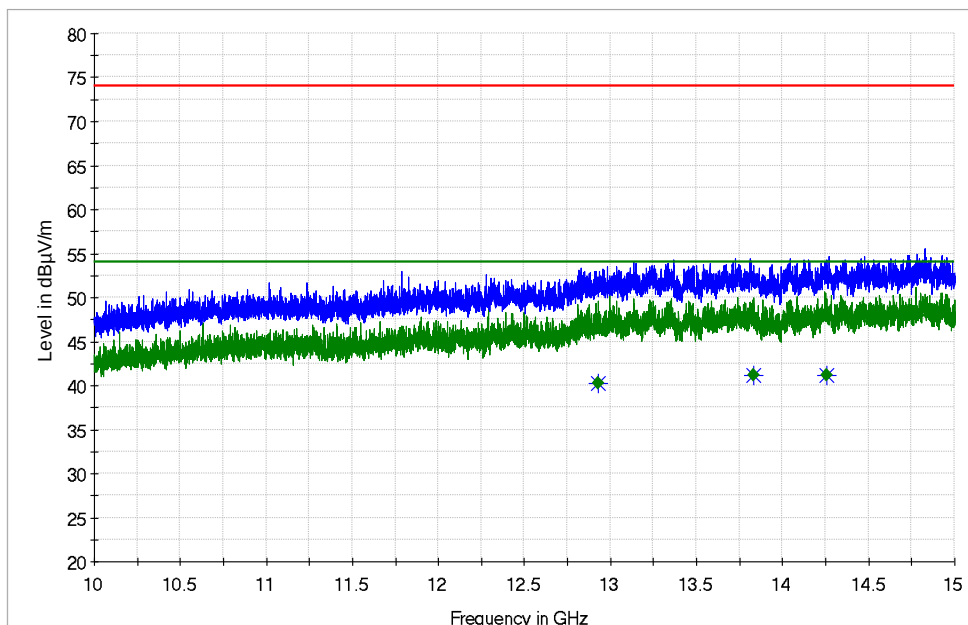
Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.21 Profile; 10 to 15 GHz, X Orientation, FCC (110 V 60 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

10 to 15 GHz



5.1.22 Data; 10 to 15 GHz, X Orientation, FCC (110 V 60 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
12930.57993	---	40.26	54.00	13.74	100.0	H	63.0	10.0	Pass
13830.46806	---	41.17	54.00	12.83	298.0	V	261.0	11.3	Pass
14258.50093	---	41.11	54.00	12.89	215.0	V	285.0	11.2	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

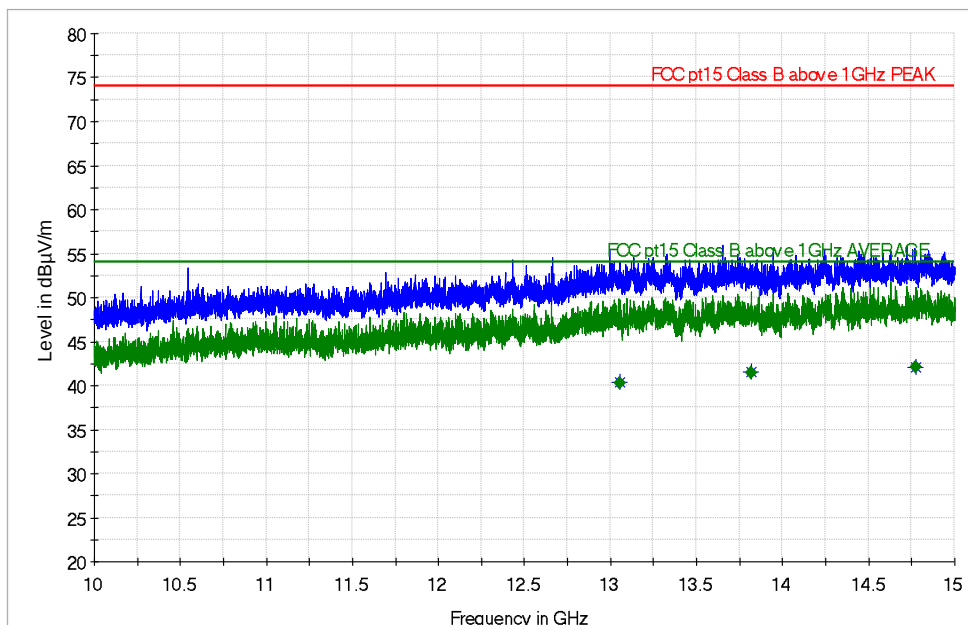
Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.23 Profile; 10 to 15 GHz, Y Orientation, FCC (110 V 60 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

10 to 15 GHz



5.1.24 Data; 10 to 15 GHz, Y Orientation, FCC (110 V 60 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
13055.93500	---	40.30	54.00	13.70	134.0	V	7.0	10.4	Pass
13819.37806	---	41.47	54.00	12.53	231.0	V	285.0	11.4	Pass
14777.00000	---	42.08	54.00	11.92	114.0	H	57.0	11.3	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

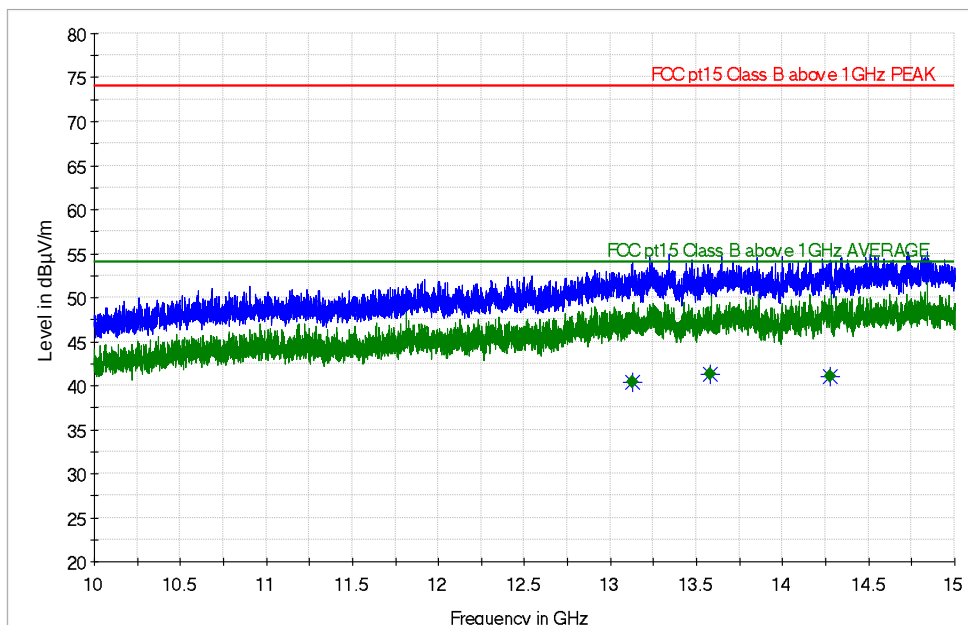
Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.1.25 Profile; 10 to 15 GHz, Z Orientation, FCC (110 V 60 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

10 to 15 GHz



5.1.26 Data; 10 to 15 GHz, Z Orientation, FCC (110 V 60 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
13130.50000	---	40.37	54.00	13.63	275.0	V	10.0	10.6	Pass
13579.86800	---	41.32	54.00	12.68	337.0	V	3.0	11.4	Pass
14279.00093	---	40.98	54.00	13.02	190.0	V	295.0	11.2	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.2 Radiated Emissions; CISPR (230 V 50 Hz)

5.2.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on eight azimuths of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, each emission from the EUT was maximised. Measurements were carried out at a distance of three metres using the specified detector in a CISPR 16-1-4 compliant semi-anechoic chamber. Antenna and turntable positions were then finally adjusted to produce the maximum emission levels. The worst-case results are reported below.

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
250	1	Hewlett Packard	8449B	3008A01077	Pre-Amplifier	08/03/2025
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
516	1	Sucoflex	Cable N-Type	-	Cable N-Type for #250	05/03/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
750	1	Global	CISPR16	-	11 x 7 x 6.2m, Chamber (Jupiter)	20/12/2025
762	3	Schwarzbeck	VULB9162	129	Trilog Broadband Antenna (30MHz - 7GHz)	12/03/2027
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver (44GHz)	05/09/2025
821	0	York EMC	CNE	542	Comparison Noise Emitter	Not Required
870	0	Rohde & Schwarz	CMW500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
949	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN2	High Pass Filter (1.5GHz)	11/06/2025
951	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN16	High Pass Filter (3GHz)	11/06/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions		
Frequency	Below 1 GHz	Above 1 GHz
Temperature	19.1° Celsius	20.5° Celsius
Relative Humidity	51 %	37 %
Atmospheric Pressure	1014.3 millibars	1034.9 millibars
Test Date:	27 th November 2024	11 th December 2024
Test Engineer:	Graeme Lawler	Graeme Lawler

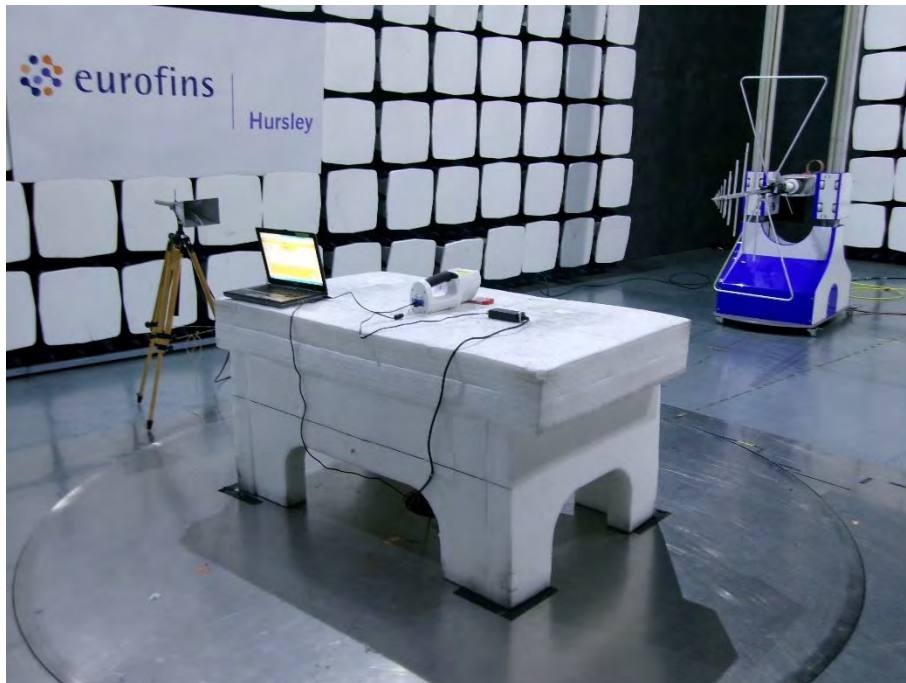
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.2.2 Test Configuration

Please refer to EUT Test Configuration #2.

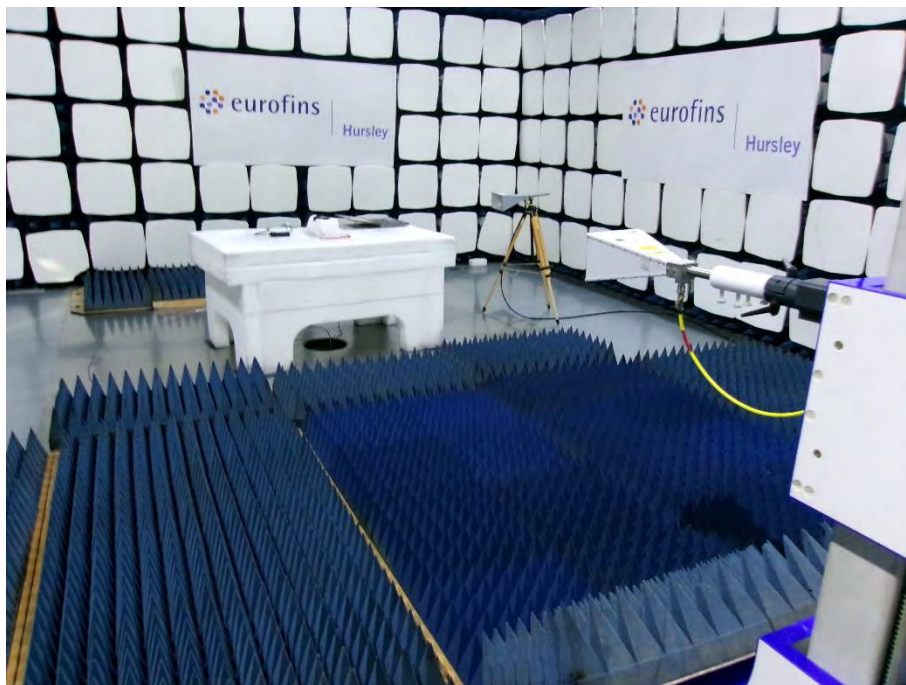
5.2.3 Set-up Photos

Radiated Emissions; Below 1 GHz



5.2.4 Set-up Photos (Continued)

Radiated Emissions; Above 1 GHz

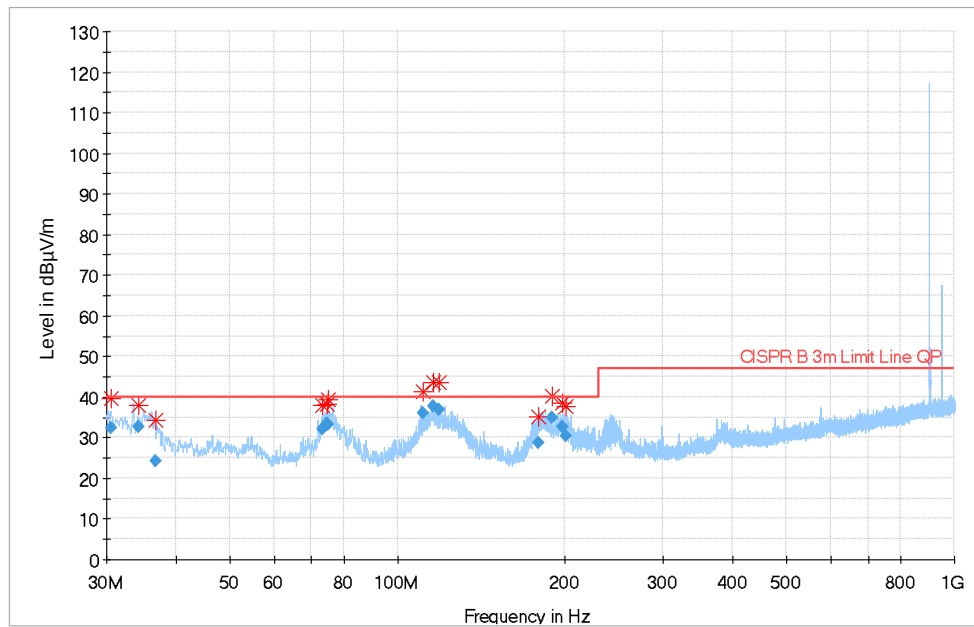


5.2.5 Profile; 30 MHz to 1 GHz, CISPR (230 V 50 Hz)

Maximum peak hold trace with quasi-peak values (◆)

Peak measurements (✱)

30 MHz to 1 GHz



5.2.6 Data; 30 MHz to 1 GHz, CISPR (230 V 50 Hz)

Emission Frequency	Measured Quasi-Peak Value	Class B Specified Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dB μ V/m	dB μ V/m	dB	H/V	cm	deg	Status
30.607450	32.44	40.00	7.56	V	104.0	190.0	Pass
34.279500	32.56	40.00	7.44	V	100.0	121.0	Pass
36.735289	24.10	40.00	15.90	V	120.0	352.0	Pass
73.433366	32.21	40.00	7.79	V	117.0	200.0	Pass
74.813758	33.52	40.00	6.48	V	100.0	194.0	Pass
74.865480	33.29	40.00	6.71	V	164.0	170.0	Pass
111.072390	35.98	40.00	4.02	H	300.0	49.0	Pass
115.817965	37.66	40.00	2.34	H	234.0	42.0	Pass
118.763515	36.82	40.00	3.18	H	296.0	196.0	Pass
178.879835	28.78	40.00	11.22	H	201.0	98.0	Pass
189.580243	34.81	40.00	5.19	H	183.0	243.0	Pass
197.337142	32.76	40.00	7.24	H	161.0	78.0	Pass
200.412837	30.36	40.00	9.64	H	117.0	102.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

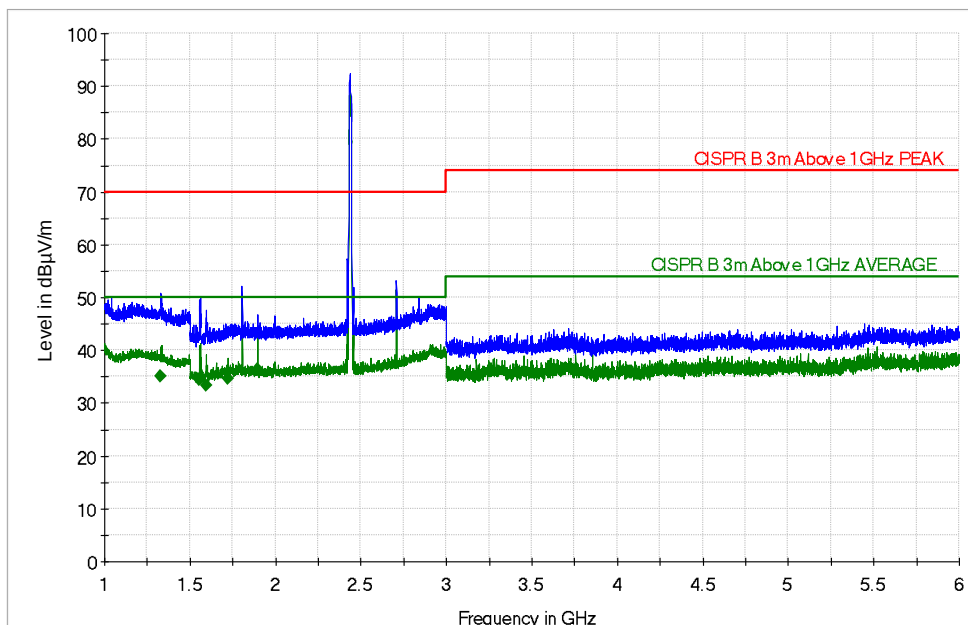
Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.2.7 Profile; 1 to 6 GHz, CISPR (230 V 50 Hz)

Maximum hold trace with peak values (◆)

Average measurements (◆)

1 to 6 GHz



5.2.8 Data; 1 to 6 GHz, CISPR (230 V 50 Hz)

Frequency	Peak	CISPR Average	Class B Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBμV/m	dBμV/m	dBμV/m	dB	cm	H/V	Deg	dB/m	Status
1328.930000	---	35.05	50.00	14.95	119.0	V	337.0	31.2	Pass
1555.835000	---	34.50	50.00	15.50	169.0	V	98.0	31.7	Pass
1595.441667	---	33.39	50.00	16.61	124.0	V	142.0	31.6	Pass
1722.476667	---	34.59	50.00	15.41	129.0	H	75.0	32.2	Pass
1894.635000	---	36.42	50.00	13.58	100.0	V	87.0	31.9	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the CISPR Class B limits and take into account the correction factor*. Measurements made according to the CISPR test standard and Eurofins E&E UK test procedure RAD-03.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.3 Radiated Spurious Emissions; Simultaneous Transmit – FCC 15.247(d) and FCC Part 22.917(a), Bluetooth and GSM850

5.3.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on a 360-degree rotation of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using a max hold trace with a peak detector. The worst-case results are recorded.

Test Equipment for Jupiter Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
399	3	Q-Par Angus	WBH18-40	10300	Horn Antenna (18GHz - 40GHz)	27/02/2026
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
741	0	California instruments	MX45	55282	3 phase voltage/ frequency supply	Not Required
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver	15/09/2025
821	0	York EMC	CNE	542	Comparison Noise Emitter	Not Required
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
823	0	York EMC	CNE	6507	Comparison Noise Emitter	Not Required
870	0	Rohde & Schwarz	CMW500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
949	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN2	High Pass Filter (1.5GHz)	11/06/2025
951	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN16	High Pass Filter (3GHz)	11/06/2025
952	3	Schwarzbeck	HWRD 750	66	Horn Antenna (7GHz - 18GHz)	21/06/2026
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions		
Temperature	19.9° Celsius	13.9° Celsius
Relative Humidity	38 %	47 %
Atmospheric Pressure	1034.5 millibars	1013.8 millibars
Test Date:	12 th December 2024	9 th January 2025
Test Engineer:	Graeme Lawler	Graeme Lawler

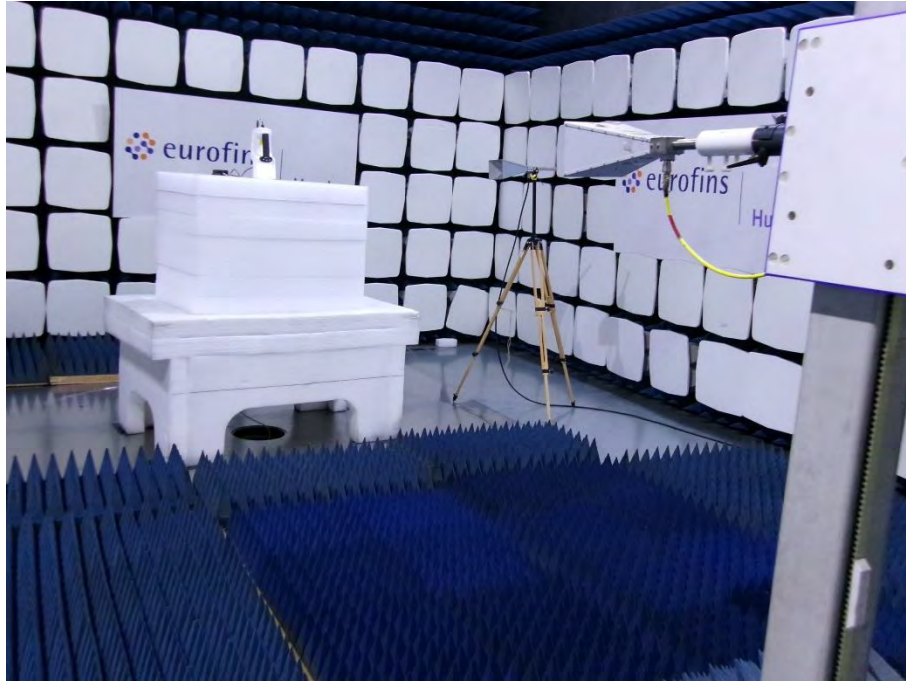
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.3.2 Test Configuration

Please refer to EUT Test Configuration #1 and Mode #10.

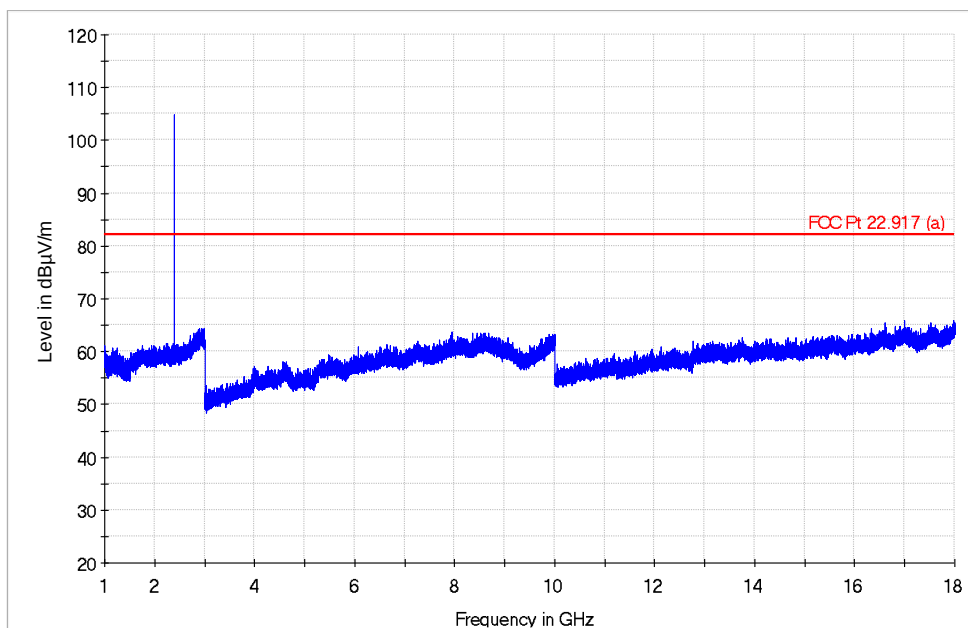
5.3.3 Set-up Photos; Simultaneous Transmit – FCC 15.247(d) and FCC Part 22.917(a), Bluetooth and GSM850

Radiated Spurious Emissions; 1 to 18 GHz



5.3.4 Profile; Simultaneous Transmit – FCC 15.247(d) and FCC Part 22.917(a), Bluetooth and GSM850

1 to 18 GHz



5.3.5 Data; Simultaneous Transmit – FCC 15.247(d) and FCC Part 22.917(a), Bluetooth and GSM850

Peak (dBm)							Status
Frequency	Measured	Specified FCC 22.917(a) Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	Status
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC CFR Part 22.917(a) limits and take into account the correction factor*.

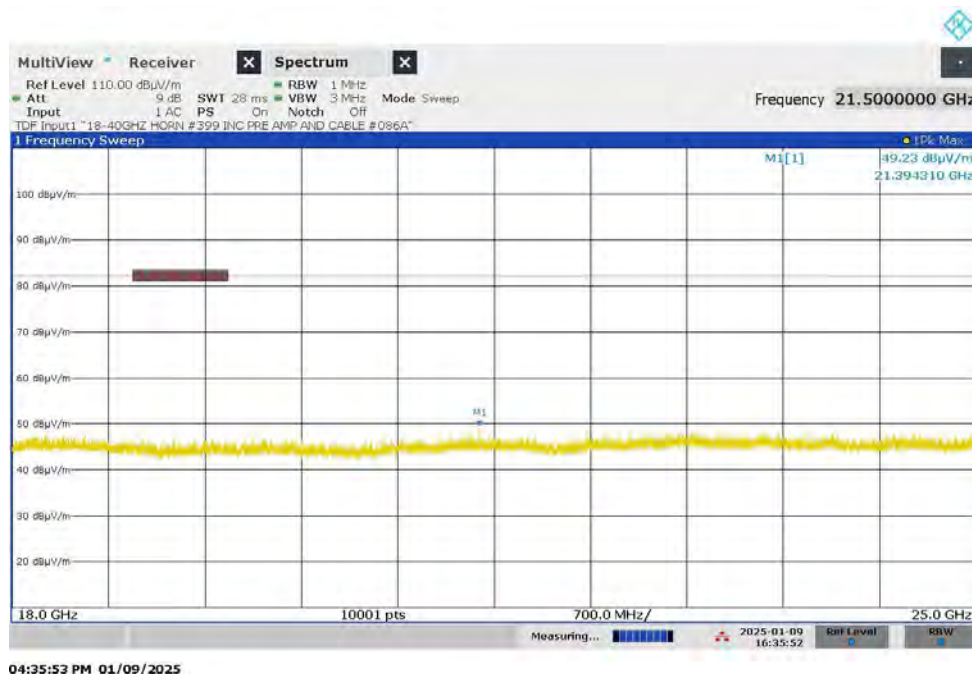
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.3.6 Profile; Simultaneous Transmit – FCC 15.247(d) and FCC Part 22.917(a), Bluetooth and GSM850 Maximum hold trace with Peak values (◆)

18 to 25 GHz



5.3.7 Data; Simultaneous Transmit – FCC 15.247(d) and FCC Part 22.917(a), Bluetooth and GSM850

		Peak (dBm)					Status
Frequency	Measured	Specified FCC 22.917(a) Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI TS 151 010-1 limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.4 Radiated Spurious Emissions; Simultaneous Transmit – FCC 15.247(d) and FCC Part 24.238(a), Wi-Fi and LTE Band 2

5.4.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on a 360-degree rotation of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using a max hold trace with a peak detector. The worst-case results are recorded.

Test Equipment for Jupiter Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
399	3	Q-Par Angus	WBH18-40	10300	Horn Antenna (18GHz-40GHz)	27/02/2026
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
741	0	California instruments	MX45	55282	3 phase voltage/ frequency supply	Not Required
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver	15/09/2025
821	0	York EMC	CNE	542	Comparison Noise Emitter	Not Required
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
823	0	York EMC	CNE	6507	Comparison Noise Emitter	Not Required
870	0	Rohde & Schwarz	CMW500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
951	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN16	High Pass Filter (3GHz)	11/06/2025
952	3	Schwarzbeck	HWRD 750	66	Horn Antenna (7GHz - 18GHz)	21/06/2026
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions		
Temperature	19.9° Celsius	13.9° Celsius
Relative Humidity	38 %	47 %
Atmospheric Pressure	1034.5 millibars	1013.8 millibars
Test Date:	12 th December 2024	9 th January 2025
Test Engineer:	Graeme Lawler	Graeme Lawler

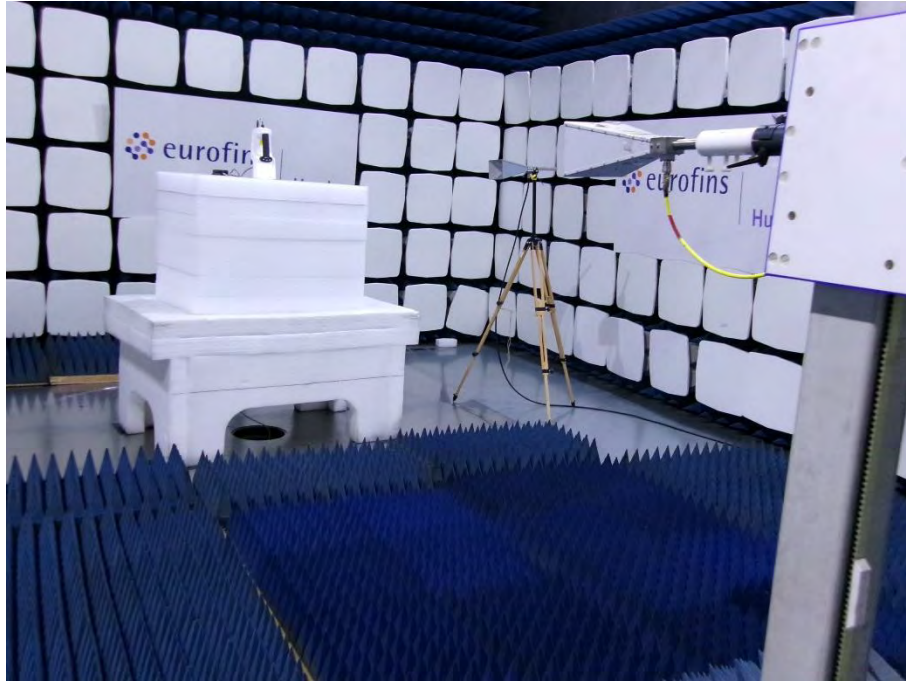
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.4.2 Test Configuration

Please refer to EUT Test Configuration #1 and Mode #11.

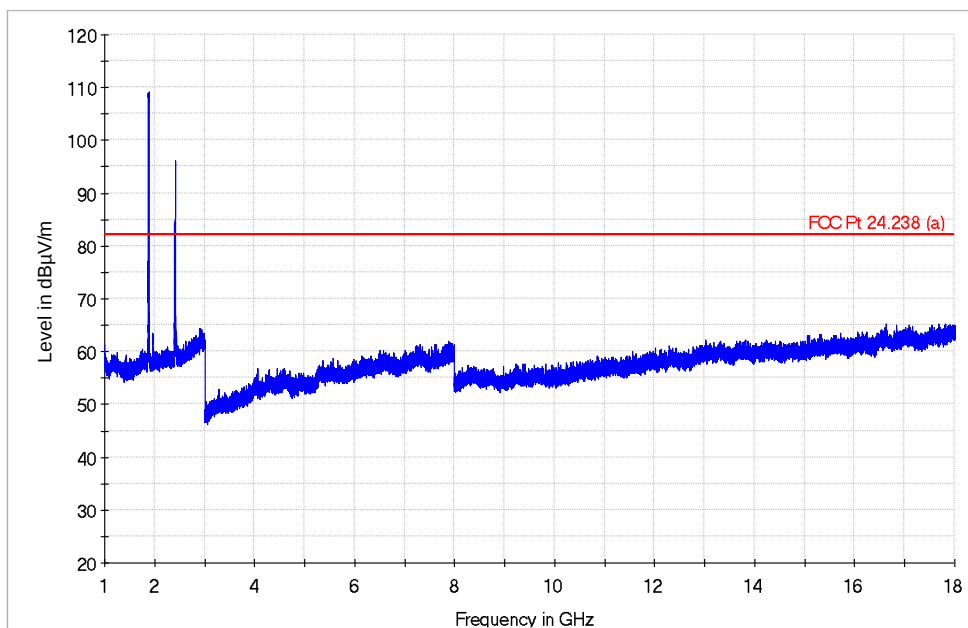
5.4.3 Set-up Photos; Simultaneous Transmit – FCC 15.247(d) and FCC Part 24.238(a), Wi-Fi and LTE Band 2

Radiated Spurious Emissions; 1 to 18 GHz



5.4.4 Profile; Simultaneous Transmit – FCC 15.247(d) and FCC Part 24.238(a), Wi-Fi and LTE Band 2

1 to 18 GHz



5.4.5 Data; Simultaneous Transmit – FCC 15.247(d) and FCC Part 24.238(a), Wi-Fi and LTE Band 2

Peak (dBm)						
Frequency	Measured	Specified FCC 24.238(a) Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth
MHz	dBm	dBm	dB	H/V	cm	deg
No significant peaks found						Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC CFR Part 24.238(a) limits and take into account the correction factor*.

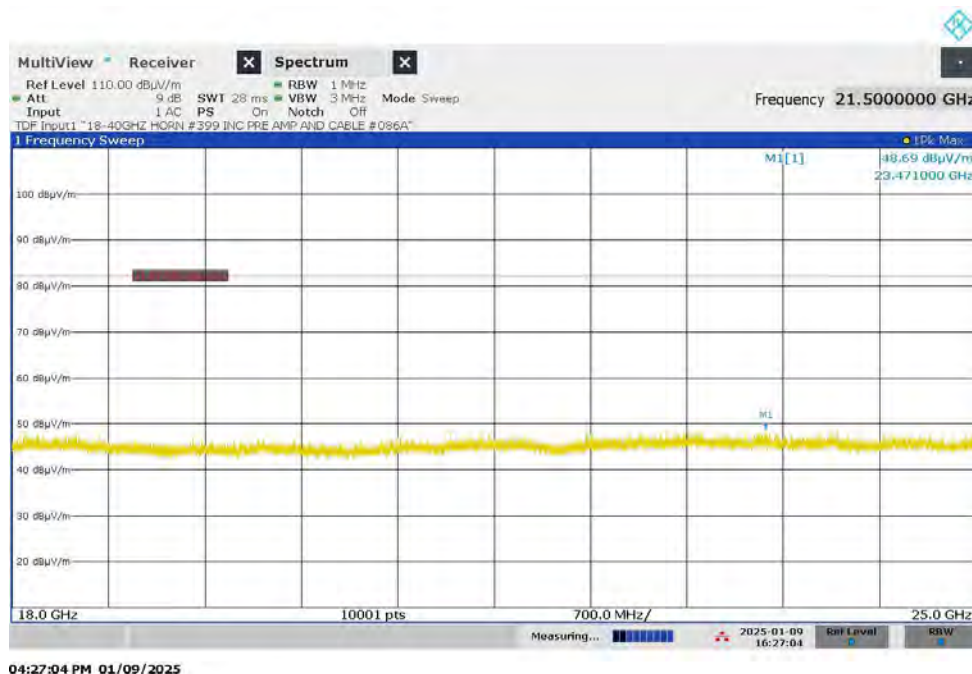
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.4.6 Profile; Simultaneous Transmit – FCC 15.247(d) and FCC Part 24.238(a), Wi-Fi and LTE Band 2 Maximum hold trace with Peak values (◆)

18 to 25 GHz



5.4.7 Data; Simultaneous Transmit – FCC 15.247(d) and FCC Part 24.238(a), Wi-Fi and LTE Band 2

Peak (dBm)							Status
Frequency	Measured	Specified FCC 24.238(a) Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC CFR Part 24.238(a) limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.5 Radiated Spurious Emissions; Simultaneous Transmit – FCC 15.247(d) and FCC Part 27.53(g), Wi-Fi and LTE Band 12

5.5.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on a 360-degree rotation of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using a max hold trace with a peak detector. The worst-case results are recorded.

Test Equipment for Jupiter Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
399	3	Q-Par Angus	WBH18-40	10300	Horn Antenna (18GHz-40GHz)	27/02/2026
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
741	0	California instruments	MX45	55282	3 phase voltage/ frequency supply	Not Required
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver	15/09/2025
821	0	York EMC	CNE	542	Comparison Noise Emitter	Not Required
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
823	0	York EMC	CNE	6507	Comparison Noise Emitter	Not Required
870	0	Rohde & Schwarz	CMW500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
949	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN2	High Pass Filter (1.5GHz)	11/06/2025
951	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN16	High Pass Filter (3GHz)	11/06/2025
952	3	Schwarzbeck	HWRD 750	66	Horn Antenna (7GHz - 18GHz)	21/06/2026
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	13.9° Celsius
Relative Humidity	47 %
Atmospheric Pressure	1013.8 millibars
Test Date:	9 th January 2025
Test Engineer:	Graeme Lawler

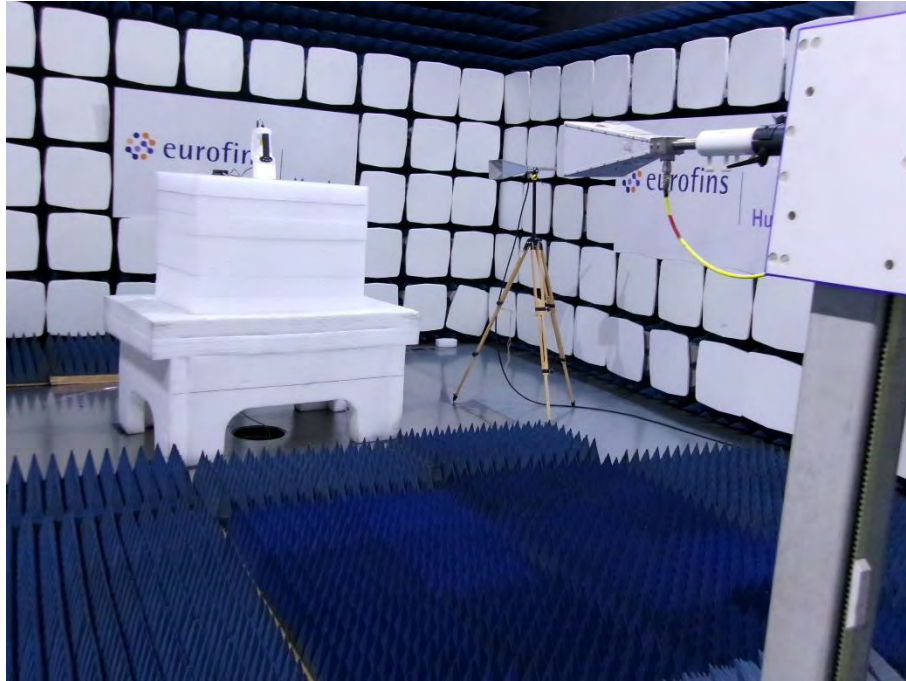
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.5.2 Test Configuration

Please refer to EUT Test Configuration #1 and mode #12.

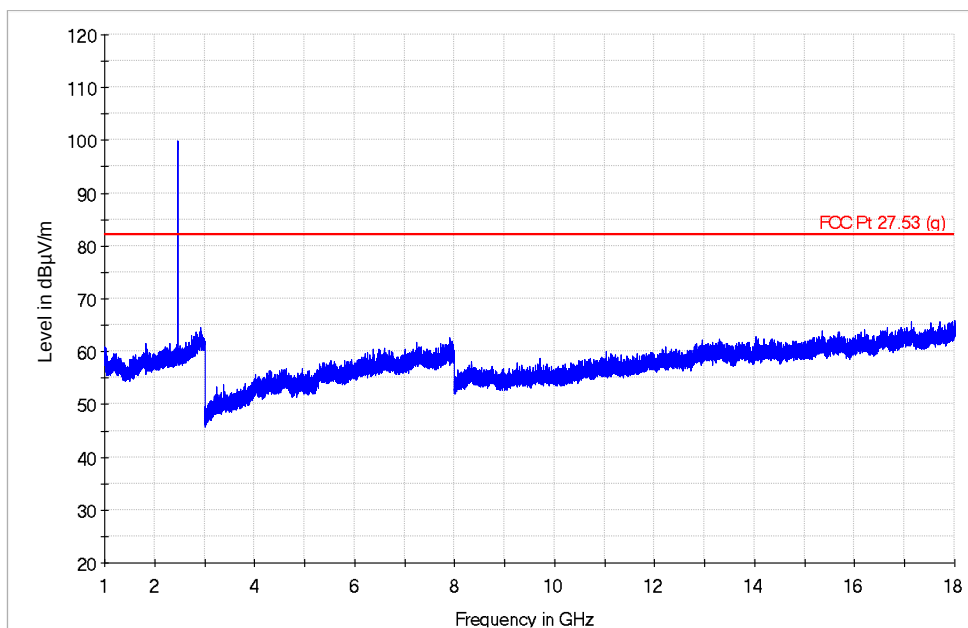
5.5.3 Set-up Photos; Simultaneous Transmit – FCC 15.247(d) and FCC Part 27.53(g), Wi-Fi and LTE Band 12

Radiated Spurious Emissions; 1 to 18 GHz



5.5.4 Profile; Simultaneous Transmit – FCC 15.247(d) and FCC Part 27.53(g), Wi-Fi and LTE Band 12

1 to 8 GHz



5.5.5 Data; Simultaneous Transmit – FCC 15.247(d) and FCC Part 27.53(g), Wi-Fi and LTE Band 12

Peak (dBm)						
Frequency	Measured	Specified FCC 27.53(g) Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth
MHz	dBm	dBm	dB	H/V	cm	deg
No significant peaks found						Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC CFR Part 27.53(g) limits and take into account the correction factor*.

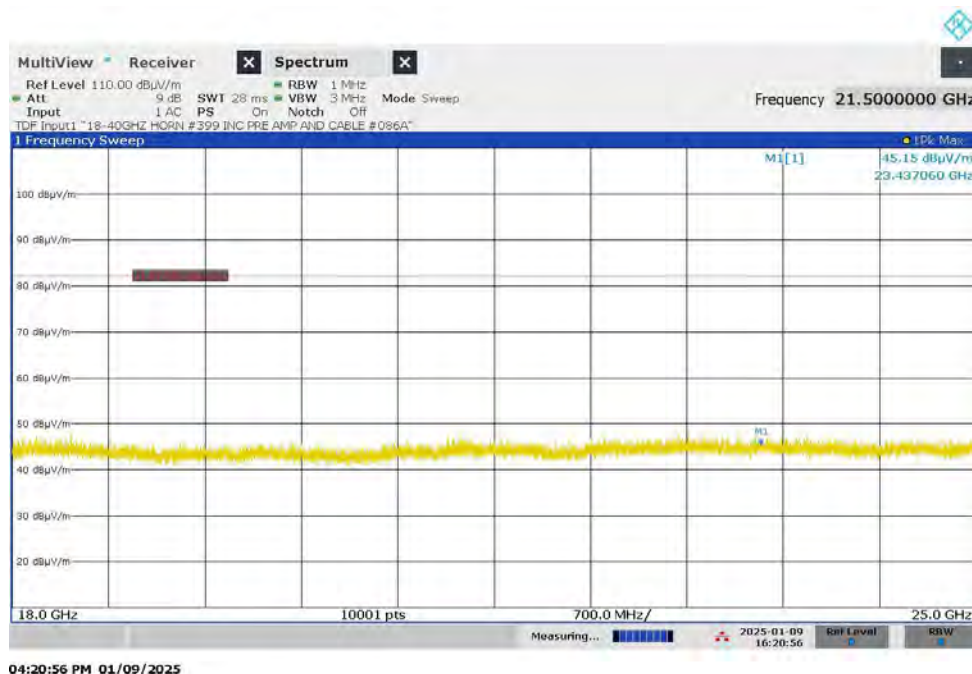
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.5.6 Profile; Simultaneous Transmit – FCC 15.247(d) and FCC Part 27.53(g), Wi-Fi and LTE Band 12 Maximum hold trace with Peak values (◆)

18 to 25GHz



5.5.7 Data; Simultaneous Transmit – FCC 15.247(d) and FCC Part 27.53(g), Wi-Fi and LTE Band 12

Peak (dBm)							Status
Frequency	Measured	Specified FCC 27.53(g) Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC CFR Part 27.53(g) limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.6 Radiated Spurious Emissions; Wi-Fi Mode, ETSI EN 300 328

5.6.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on a 360-degree rotation of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using a max hold trace with an RMS detector. The worst-case results are recorded.

Test Equipment for Jupiter Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
250	1	Hewlett Packard	8449B	3008A01077	Pre-Amplifier	08/03/2025
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
516	1	Sucoflex	Cable N-Type	-	Cable N-Type for #250	05/03/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver	15/09/2025
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
823	0	York EMC	CNE	6507	Comparison Noise Emitter	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
951	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN16	High Pass Filter (3GHz)	11/06/2025
952	3	Schwarzbeck	HWRD 750	66	Horn Antenna (7GHz - 18GHz)	21/06/2026
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	20.6° Celsius
Relative Humidity	39 %
Atmospheric Pressure	1035.1 millibars
Test Date:	10 th December 2024
Test Engineer:	Graeme Lawler

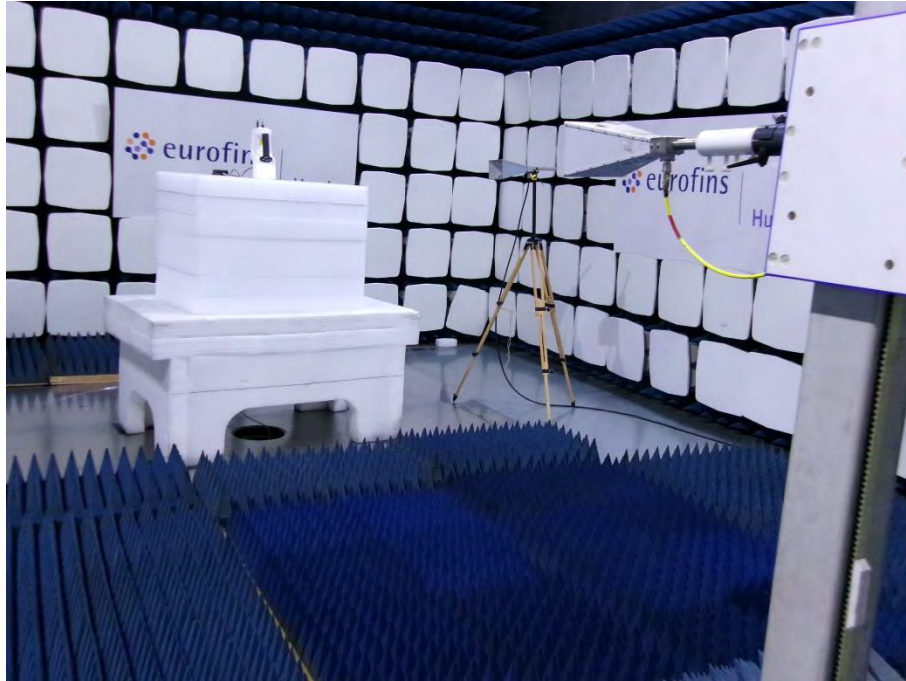
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.6.2 Test Configuration

Please refer to EUT Test Configuration #1, Modes #1 and #3

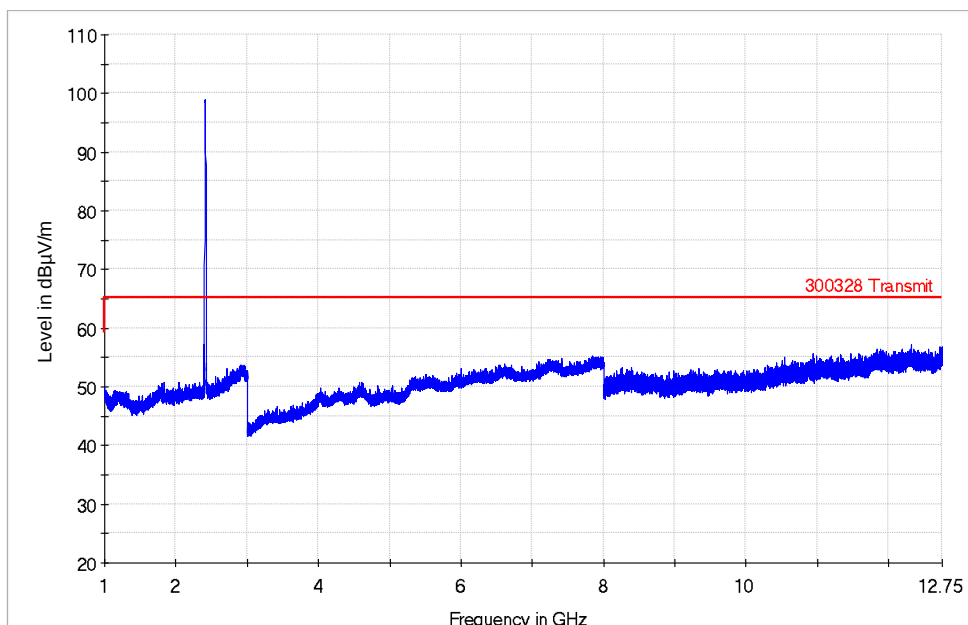
5.6.3 Set-up Photos; Wi-Fi Mode, ETSI EN 300 328

Radiated Spurious Emissions; 1 to 12.75 GHz



5.6.4 Profile; Wi-Fi Mode, ETSI EN 300 328, 1 to 12.75 GHz (Bottom Channel)

1 to 12.75 GHz



5.6.5 Data; Wi-Fi Mode, ETSI EN 300 328, 1 to 12.75 GHz (Bottom Channel)

RMS (dBm)							Status
Frequency	Measured	Specified EN 300 328 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the EN 300 328 limits and take into account the correction factor*.

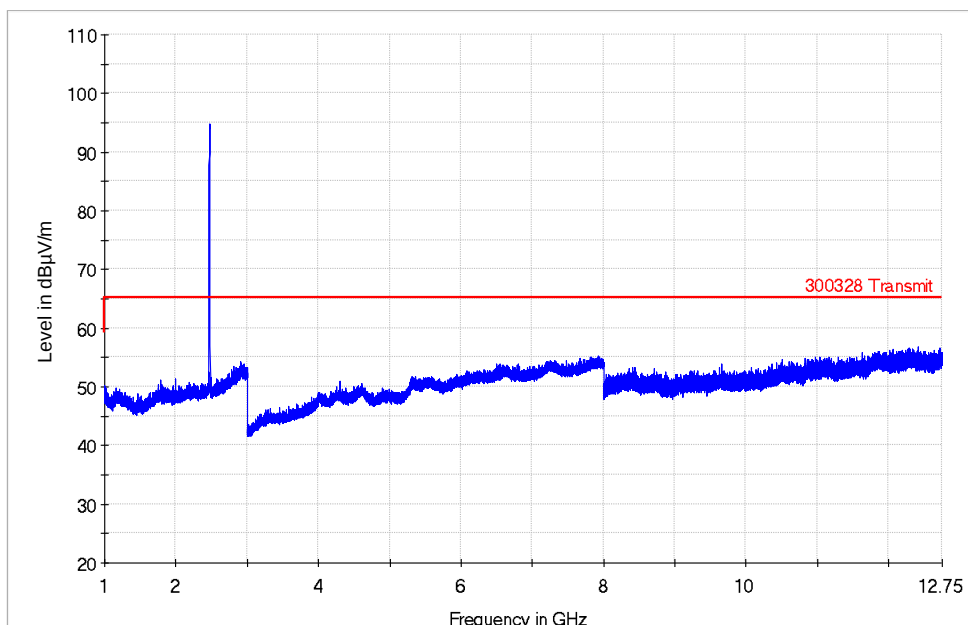
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.6.6 Profile; Wi-Fi Mode, ETSI EN 300 328, 1 to 12.75 GHz (Top Channel)

1 to 12.75 GHz



5.6.7 Data; Wi-Fi Mode, ETSI EN 300 328, 1 to 12.75 GHz (Top Channel)

RMS (dBm)						
Frequency	Measured	Specified EN 300 328 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth
MHz	dBm	dBm	dB	H/V	cm	deg
No significant peaks found						Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the EN 300 328 802.11b limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).
The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.7 Radiated Spurious Emissions; Bluetooth Mode, ETSI EN 300 328

5.7.1 Test Parameters

A profile scan was taken using an EMI receiver at a distance of three metres on a 360-degree rotation of the EUT in both the vertical and horizontal polarisation of the field within a semi-anechoic chamber.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using a max hold trace with an RMS detector. The worst-case results are recorded.

Test Equipment for Jupiter Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
250	1	Hewlett Packard	8449B	3008A01077	Pre-Amplifier	08/03/2025
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
516	1	Sucoflex	Cable N-Type	-	Cable N-Type for #250	05/03/2025
644	1	Intelliconnect	Cable SMA to N-Type	15072	SMA to N-Type Cable 10m	16/04/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver	15/09/2025
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
823	0	York EMC	CNE	6507	Comparison Noise Emitter	Not Required
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
951	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN16	High Pass Filter (3GHz)	11/06/2025
952	3	Schwarzbeck	HWRD 750	66	Horn Antenna (7GHz - 18GHz)	21/06/2026
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	20.6° Celsius
Relative Humidity	39 %
Atmospheric Pressure	1035.1 millibars
Test Date:	10 th December 2024
Test Engineer:	Graeme Lawler

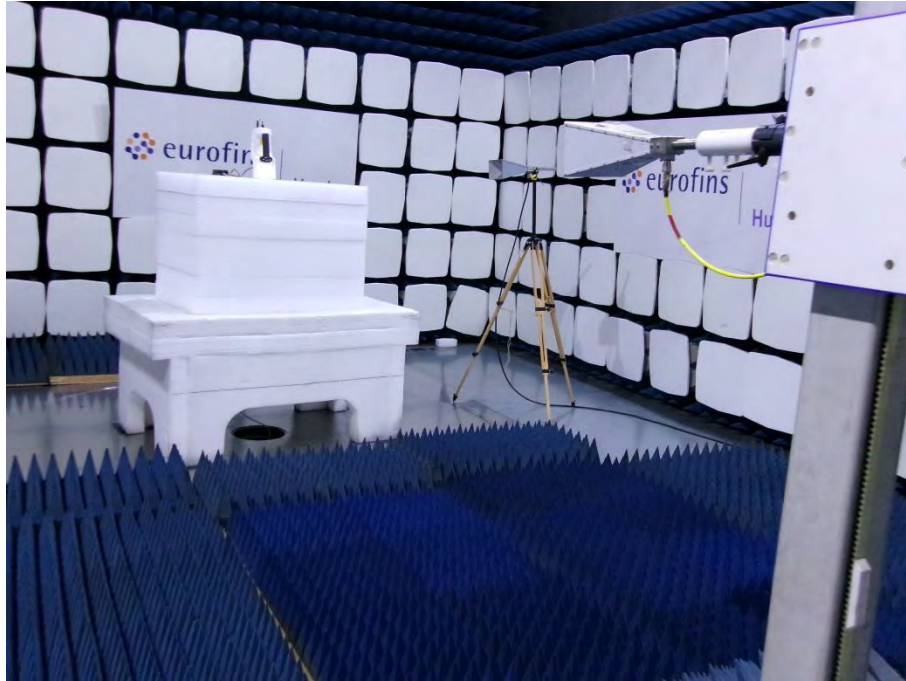
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.7.2 Test Configuration

Please refer to EUT Test Configuration #1, Modes #4 and #5

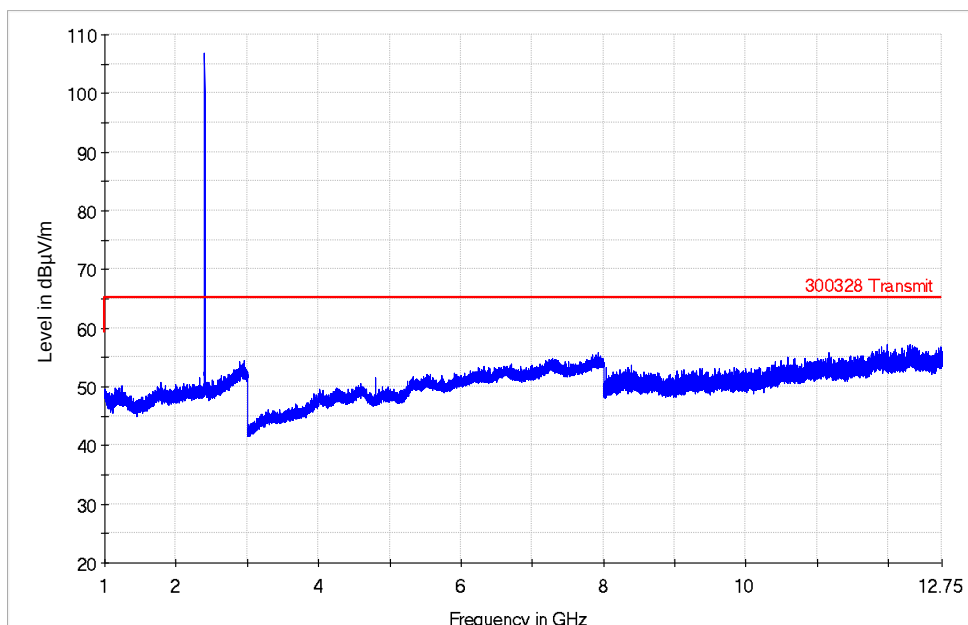
5.7.3 Set-up Photos; Bluetooth Mode, ETSI EN 300 328

Radiated Spurious Emissions; 1 to 12.75 GHz



5.7.4 Profile; Bluetooth Mode, ETSI EN 300 328, 1 to 12.75 GHz (Bottom Channel)

1 to 12.75 GHz



5.7.5 Data; Bluetooth Mode, ETSI EN 300 328, 1 to 12.75 GHz (Bottom Channel)

RMS (dBm)							Status
Frequency	Measured	Specified EN 300 328 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the EN 300 328 limits and take into account the correction factor*.

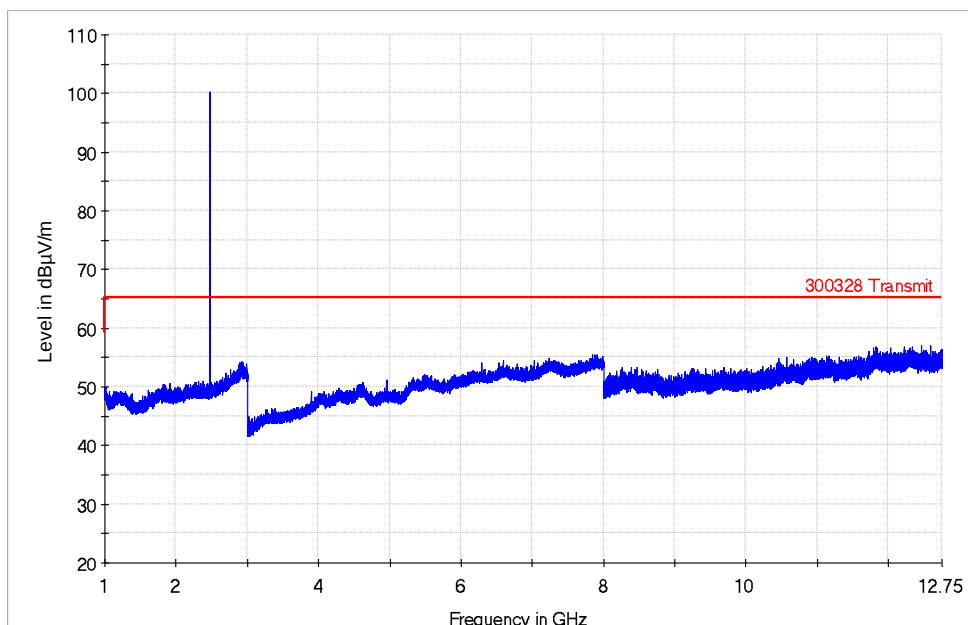
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.7.6 Profile; Bluetooth Mode, ETSI EN 300 328, 1 to 12.75 GHz (Top Channel)

1 to 12.75 GHz



5.7.7 Data; Bluetooth Mode, ETSI EN 300 328, 1 to 12.75 GHz (Top Channel)

RMS (dBm)						
Frequency	Measured	Specified EN 300 328 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth
MHz	dBm	dBm	dB	H/V	cm	deg
No significant peaks found						Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the EN 300 328 802.11b limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).
The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.8 Radiated Spurious Emissions; LTE Modes, ETSI EN 301 908

5.8.1 Test Parameters

Radiated emissions pre-scan profile measurements were taken at a distance of three metres on a 360-degree rotation of the EUT in both horizontal and vertical antenna polarisations in a fully anechoic room using an EMI receiver.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using the specified detector in ETSI EN 301 908. The worst-case results are recorded.

Test Equipment for Pluto Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
430	0	EMCO	11/07/1908	9704-5166	Horn Antenna	Not Required
435	1	Rhophase	NPS-2803-1000-NPS	H0869	Cable	08/11/2025
653	1	TFA	Weather Station	Pluto	Weather Station	05/11/2025
795	1	Huber & Suhner	Cable SMA	1938472	Cable SMA	08/11/2025
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
870	0	Rohde & Schwarz	CMW 500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
893	1	Rohde & Schwarz	ESW44	103044	EMI Test Receiver (44GHz)	28/01/2025
948	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN 1	High Pass Filter (1.5GHz)	11/06/2025
950	1	Wainwright Instruments	WHKX12-2580-3000-18000-80SS	SN15	High Pass Filter (3GHz)	11/06/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	17.9° Celsius
Relative Humidity	43 %
Atmospheric Pressure	1018.3 millibars
Test Date:	26 th November 2024
Test Engineer:	Graeme Lawler

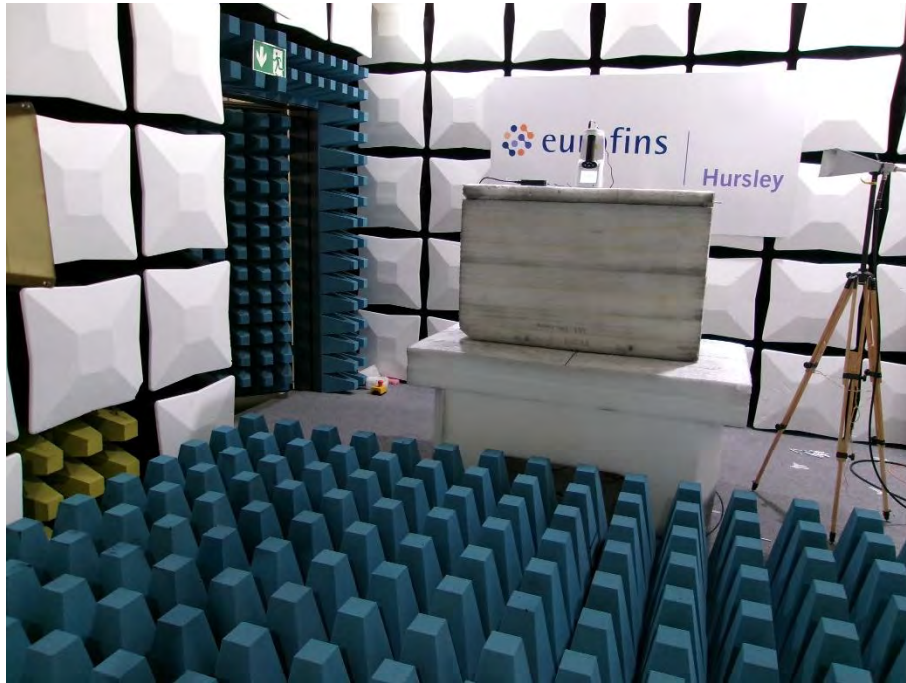
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.8.2 Test Configuration

Please refer to EUT Test Configuration #1, Modes #6, #7 and #8.

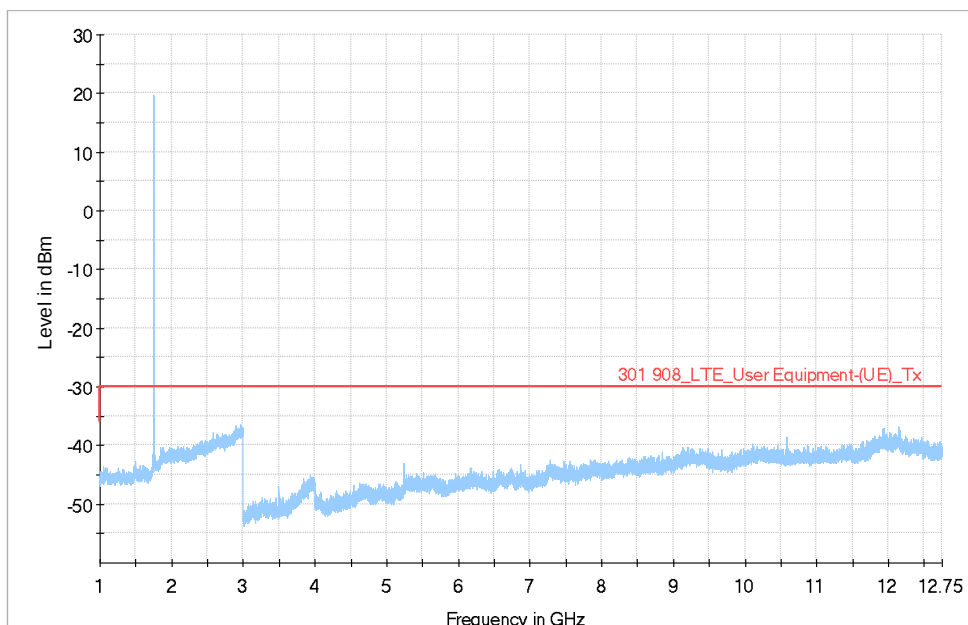
5.8.3 Set-up Photos; LTE Mode, ETSI EN 301 908

Radiated Spurious Emissions; 1 to 12.75 GHz



5.8.4 Profile; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 3 – Flat Side)

1 to 12.75 GHz



5.8.5 Data; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 3 – Flat Side)

RMS (dBm)							Status
Frequency	Measured	Specified ETSI EN 301 908 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	Status
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI EN 301 908 limits and take into account the correction factor*.

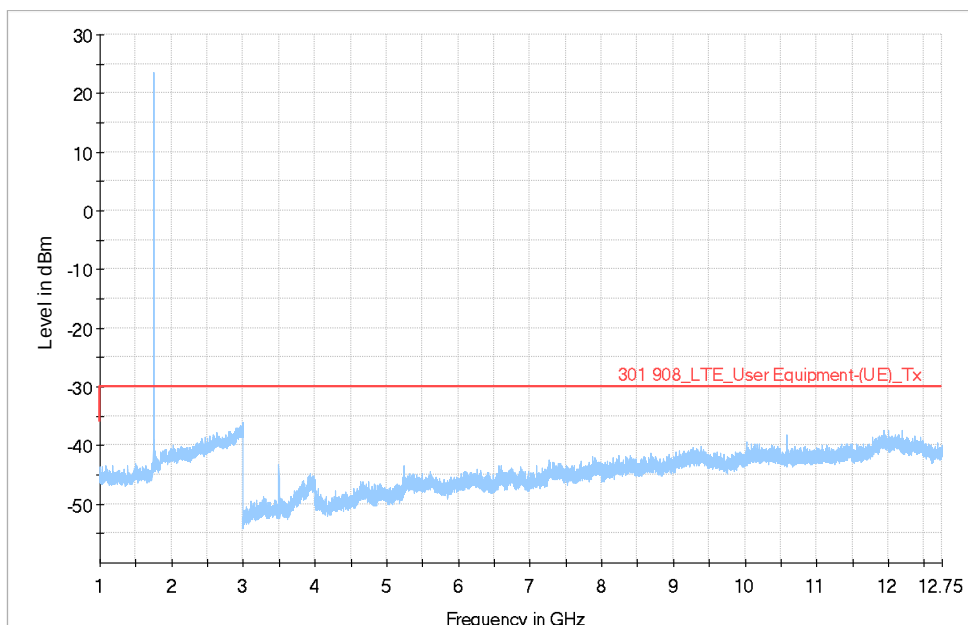
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.8.6 Profile; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 3 – Upright Side)

1 to 12.75 GHz



5.8.7 Data; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 3 – Upright Side)

RMS (dBm)							Status
Frequency	Measured	Specified ETSI EN 301 908 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI EN 301 908 limits and take into account the correction factor*.

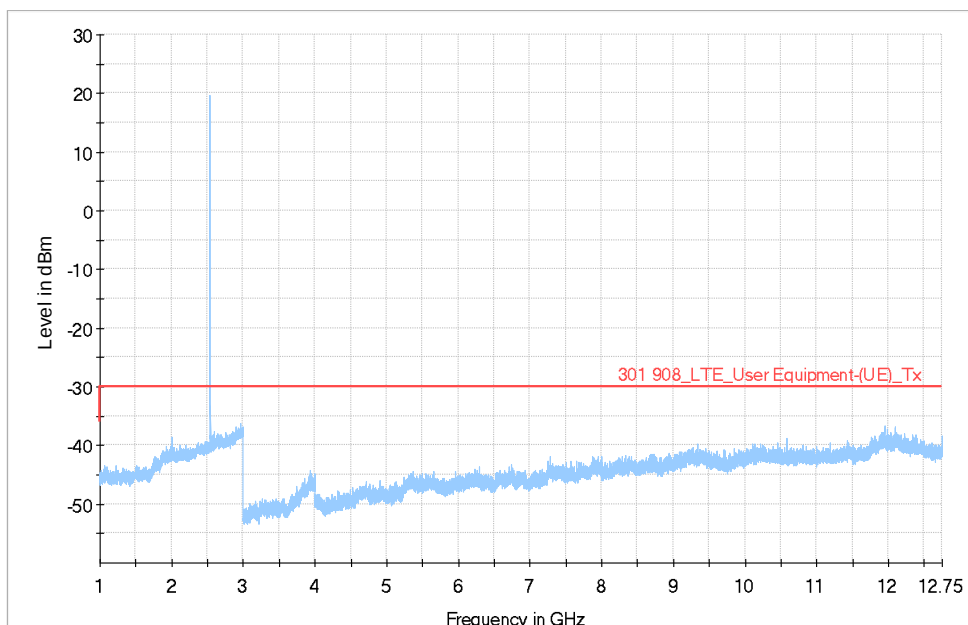
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.8.8 Profile; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 7 – Flat Side)

1 to 12.75 GHz



5.8.9 Data; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 7 – Flat Side)

RMS (dBm)							Status
Frequency	Measured	Specified ETSI EN 301 908 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI EN 301 908 limits and take into account the correction factor*.

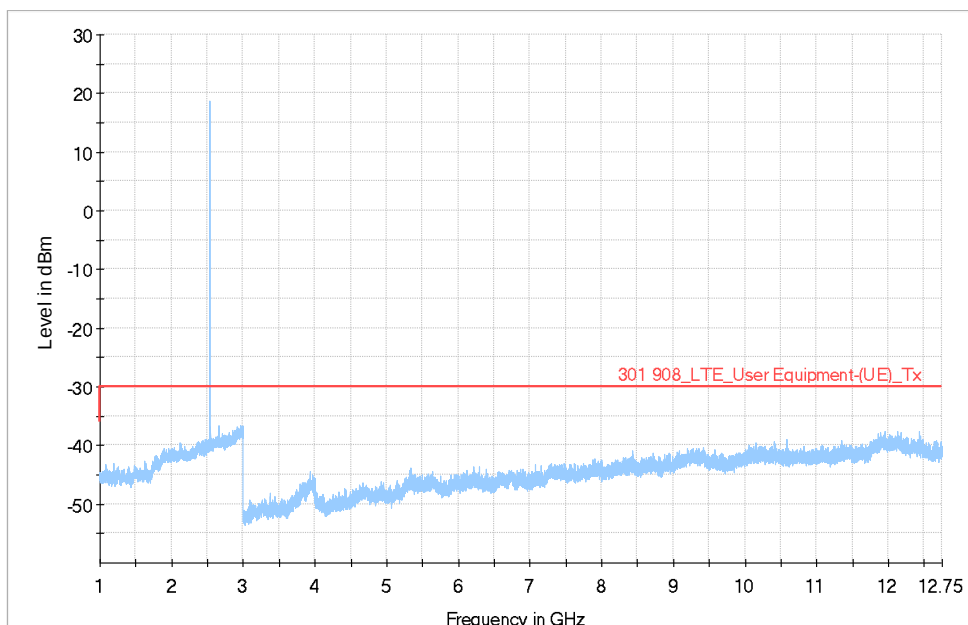
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.8.10 Profile; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 7 – Upright Side)

1 to 12.75 GHz



5.8.11 Data; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 7 – Upright Side)

RMS (dBm)							Status
Frequency	Measured	Specified ETSI EN 301 908 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI EN 301 908 limits and take into account the correction factor*.

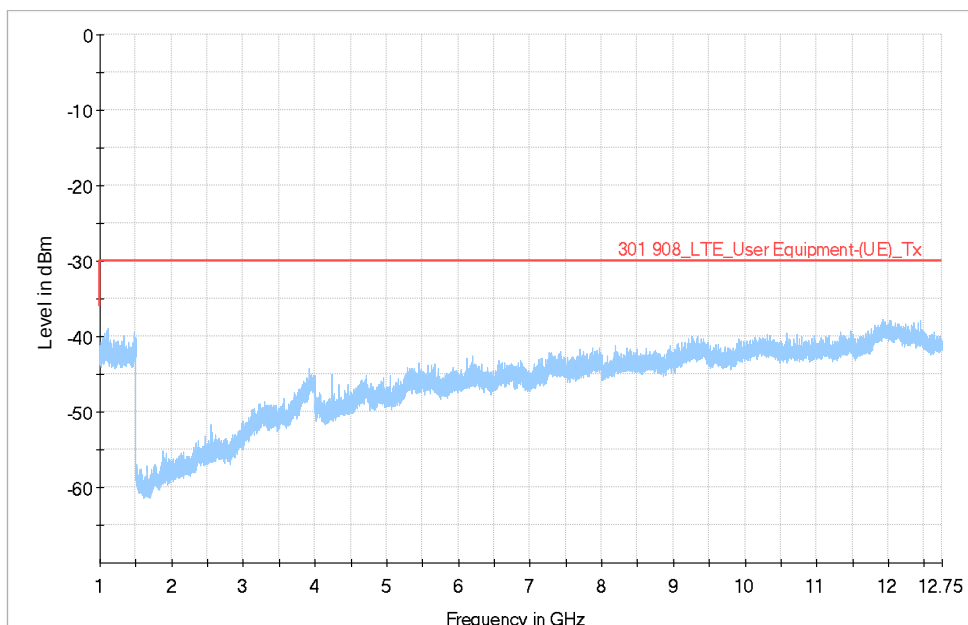
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.8.12 Profile; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 20 – Flat Side)

1 to 12.75 GHz



5.8.13 Data; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 20 – Flat Side)

RMS (dBm)							Status
Frequency	Measured	Specified ETSI EN 301 908 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI EN 301 908 limits and take into account the correction factor*.

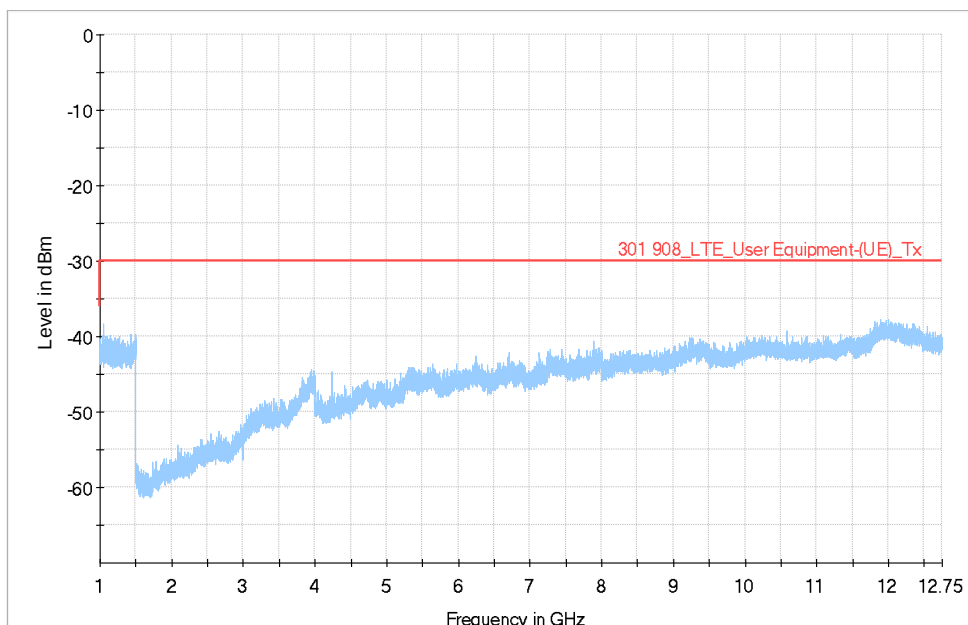
*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.8.14 Profile; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 20 – Upright Side)

1 to 12.75 GHz



5.8.15 Data; LTE Mode, ETSI EN 301 908, 1 to 12.75 GHz (Band 20 – Upright Side)

RMS (dBm)							Status
Frequency	Measured	Specified ETSI EN 301 908 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI EN 301 908 limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.9 Radiated Spurious Emissions; GPRS 900 Mode, ETSI EN 301 511

5.9.1 Test Parameters

Radiated emissions pre-scan profile measurements were taken at a distance of three metres on a 360-degree rotation of the EUT in both horizontal and vertical antenna polarisations in a fully anechoic room using an EMI receiver.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using the specified detector in ETSI TS 151 010-1. The worst-case results are recorded.

Test Equipment for Pluto Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
430	0	EMCO	11/07/1908	9704-5166	Horn Antenna	Not Required
435	1	Rhophase	NPS-2803-1000-NPS	H0869	Cable	08/11/2025
653	1	TFA	Weather Station	Pluto	Weather Station	05/11/2025
795	1	Huber & Suhner	Cable SMA	1938472	Cable SMA	08/11/2025
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
856	0	Rohde & Schwarz	Software	-	EMC32 v11.30.00 (Pluto)	Not Required
870	0	Rohde & Schwarz	CMW 500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
893	1	Rohde & Schwarz	ESW44	103044	EMI Test Receiver (44GHz)	28/01/2025
948	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN 1	High Pass Filter (1.5GHz)	11/06/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	17.9° Celsius
Relative Humidity	43 %
Atmospheric Pressure	1018.3 millibars
Test Date:	26 th November 2024
Test Engineer:	Graeme Lawler

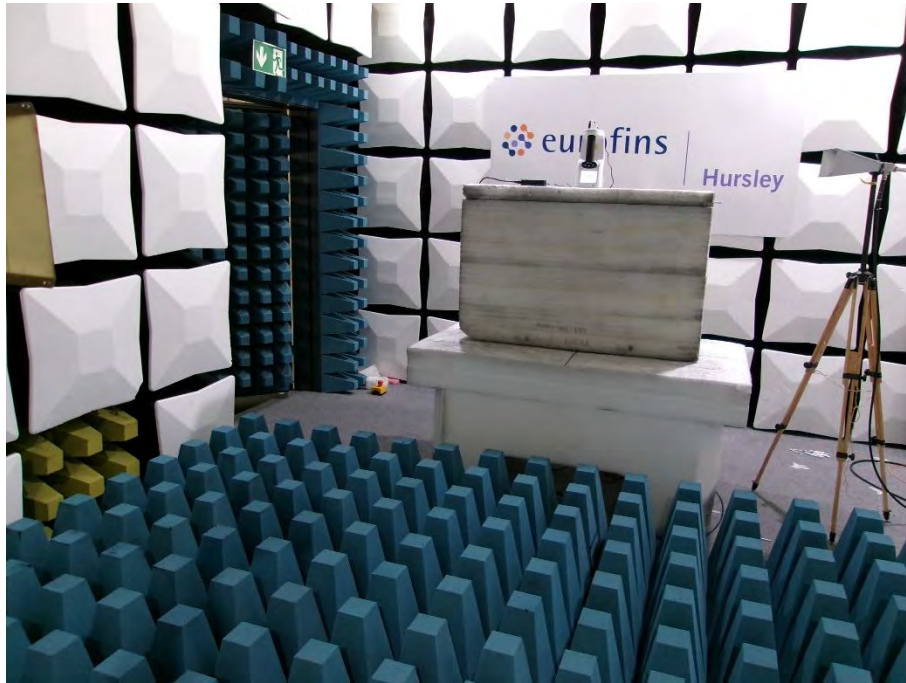
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.9.2 Test Configuration

Please refer to EUT Test Configuration #1, Mode #9.

5.9.3 Set-up Photos; GPRS 900 Mode

Radiated Spurious Emissions; 1 to 4 GHz

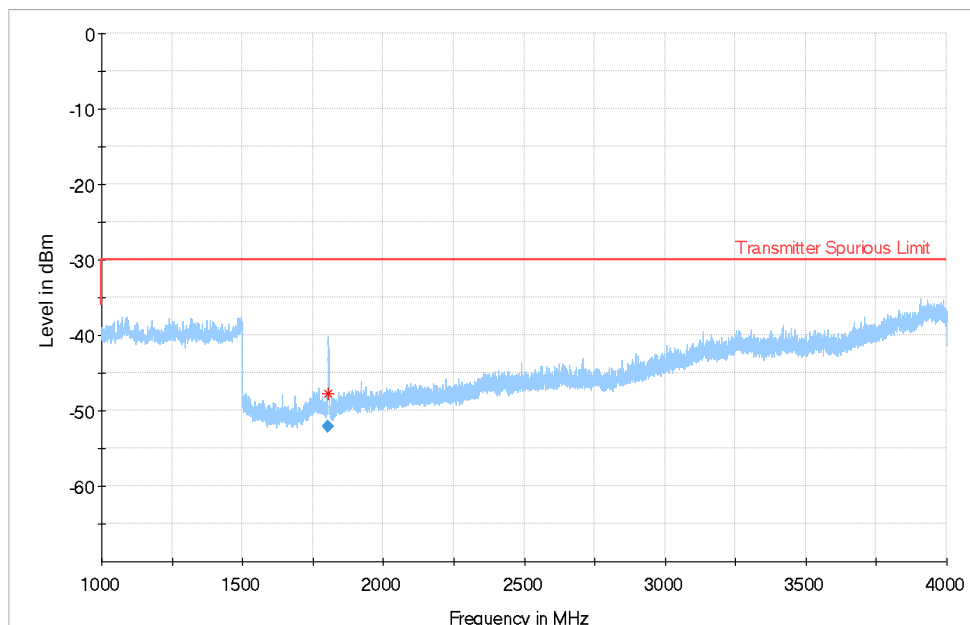


5.9.4 Profile; GPRS 900 Mode, ETSI EN 301 511, 1 to 4 GHz

Maximum peak hold trace with quasi-peak values (◆)

Peak measurements (✱)

1 to 4 GHz



5.9.5 Data; GPRS 900 Mode, ETSI EN 301 511, 1 to 4 GHz

Peak (dBm)							Status
Frequency	Measured	Specified ETSI TS 151 010-1 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
No significant peaks found							Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI TS 151 010-1 limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.10 Radiated Spurious Emissions; Simultaneous Transmit – ETSI EG 203367, Wi-Fi and GPRS900

5.10.1 Test Parameters

Radiated emissions pre-scan profile measurements were taken at a distance of three metres on a 360-degree rotation of the EUT in both horizontal and vertical antenna polarisations in a fully anechoic room using an EMI receiver.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using the specified detector in ETSI TS 151 010-1. The worst-case results are recorded.

Test Equipment for Pluto Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
430	0	EMCO	11/07/1908	9704-5166	Horn Antenna	Not Required
435	1	Rhophase	NPS-2803-1000-NPS	H0869	Cable	08/11/2025
653	1	TFA	Weather Station	Pluto	Weather Station	05/11/2025
795	1	Huber & Suhner	Cable SMA	1938472	Cable SMA	08/11/2025
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
856	0	Rohde & Schwarz	Software	-	EMC32 v11.30.00 (Pluto)	Not Required
870	0	Rohde & Schwarz	CMW 500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
893	1	Rohde & Schwarz	ESW44	103044	EMI Test Receiver (44GHz)	28/01/2025
948	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN 1	High Pass Filter (1.5GHz)	11/06/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	20.1° Celsius
Relative Humidity	37 %
Atmospheric Pressure	1034.3 millibars
Test Date:	11 th December 2024
Test Engineer:	Graeme Lawler

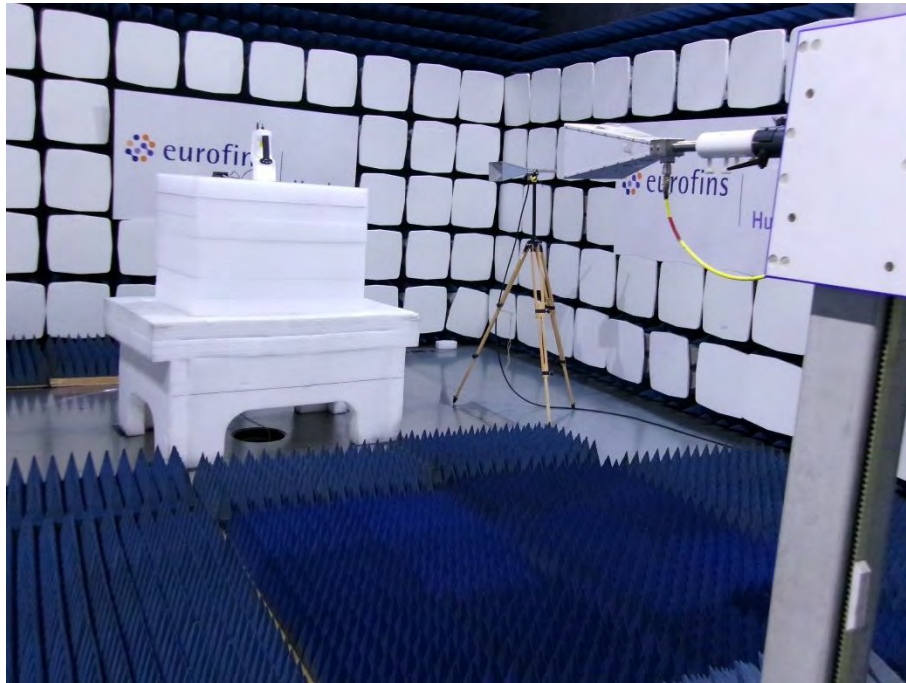
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.10.2 Test Configuration

Please refer to EUT Test Configuration #1, Mode 13

5.10.3 Set-up Photos; Simultaneous Transmit – ETSI EG 203367, Wi-Fi and GPRS900

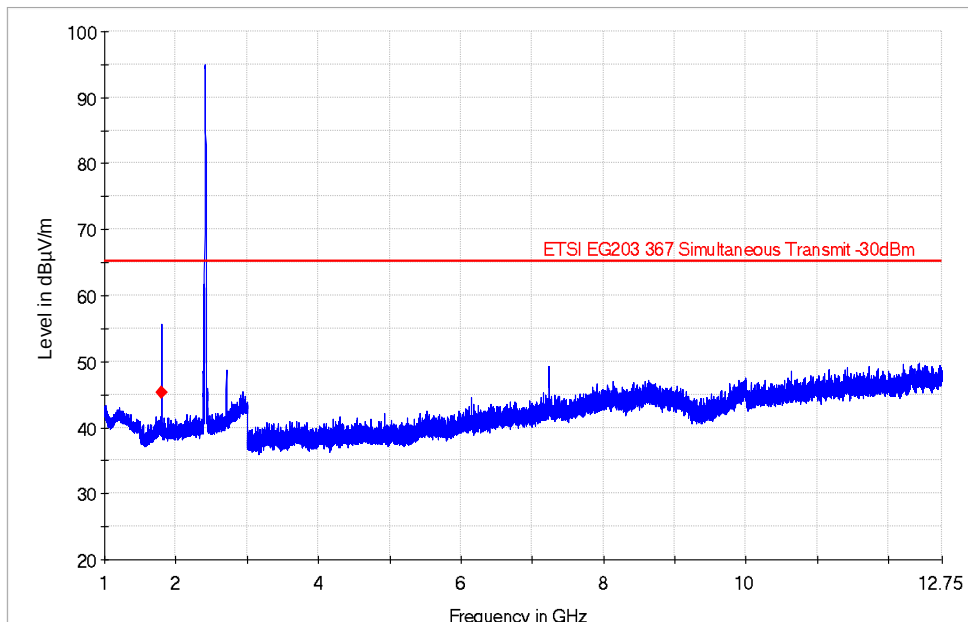
Radiated Spurious Emissions; 1 to 12.75 GHz



5.10.4 Profile; Simultaneous Transmit – ETSI EG 203367, Wi-Fi and GPRS900

Maximum hold trace with Peak values (◆)

1 to 12.75 GHz



5.10.5 Data; Simultaneous Transmit – ETSI EG 203367, Wi-Fi and GPRS900

		RMS (dBm)					Status
Frequency	Measured	Specified ETSI EN 300 328 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	
1804.981667	55.25	65.20	9.95	V	163.0	253.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI TS 151 010-1 limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.11 Radiated Spurious Emissions; Simultaneous Transmit – ETSI EG 203367, Bluetooth and LTE Band 8

5.11.1 Test Parameters

Radiated emissions pre-scan profile measurements were taken at a distance of three metres on a 360-degree rotation of the EUT in both horizontal and vertical antenna polarisations in a fully anechoic room using an EMI receiver.

Using the pre-scan results as a guide, significant emissions from the EUT were maximised. Measurements were carried out at a distance of three metres using the specified detector in ETSI TS 151 010-1. The worst-case results are recorded.

Test Equipment for Pluto Chamber						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
430	0	EMCO	11/07/1908	9704-5166	Horn Antenna	Not Required
435	1	Rhophase	NPS-2803-1000-NPS	H0869	Cable	08/11/2025
653	1	TFA	Weather Station	Pluto	Weather Station	05/11/2025
795	1	Huber & Suhner	Cable SMA	1938472	Cable SMA	08/11/2025
822	0	York EMC	BP01	CGE03C	Comparison Noise Emitter	Not Required
856	0	Rohde & Schwarz	Software	-	EMC32 v11.30.00 (Pluto)	Not Required
870	0	Rohde & Schwarz	CMW 500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
893	1	Rohde & Schwarz	ESW44	103044	EMI Test Receiver (44GHz)	28/01/2025
948	1	Wainwright Instruments	WHKX12-1290-1500-15000-80SS	SN 1	High Pass Filter (1.5GHz)	11/06/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	20.1° Celsius
Relative Humidity	37 %
Atmospheric Pressure	1034.3 millibars
Test Date:	11 th December 2024
Test Engineer:	Graeme Lawler

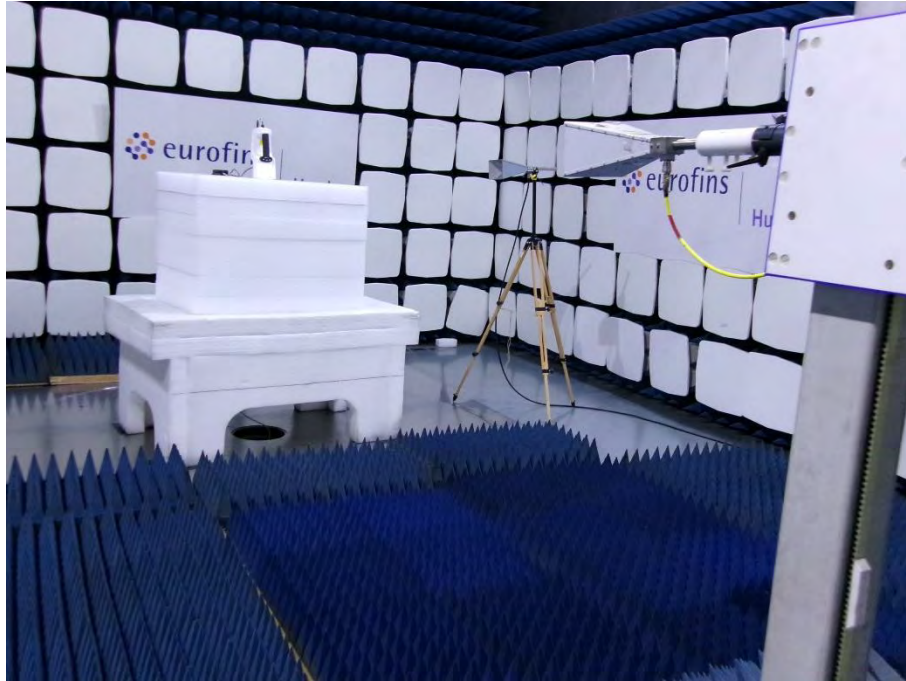
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.11.2 Test Configuration

Please refer to EUT Test Configuration #1, Mode 14.

5.11.3 Set-up Photos; Simultaneous Transmit – ETSI EG 203367, Bluetooth

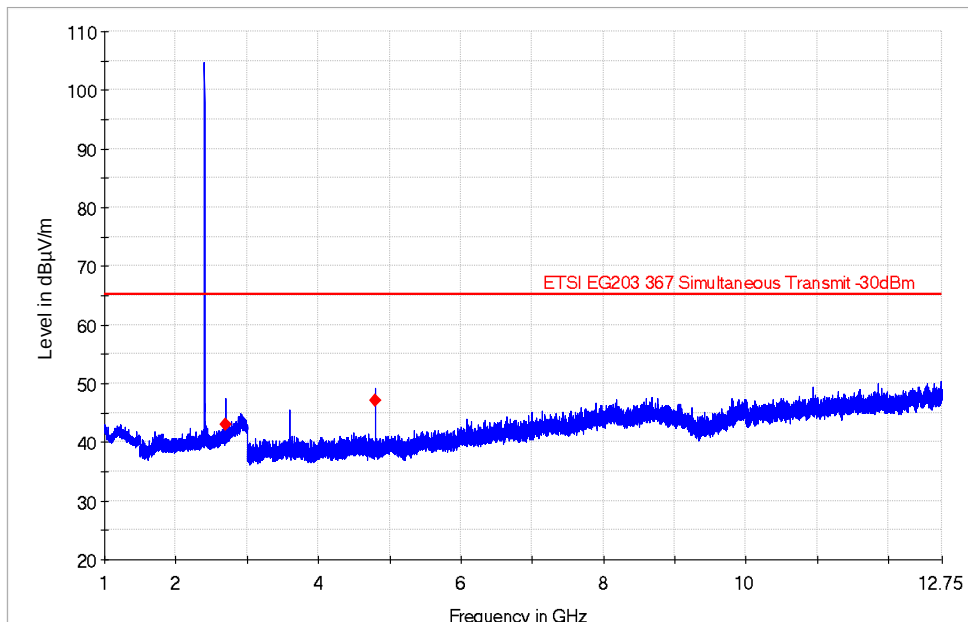
Radiated Spurious Emissions; 1 to 12.75 GHz



5.11.4 Profile; Simultaneous Transmit – ETSI EG 203367, Bluetooth and LTE Band 8

Maximum hold trace with Peak values (◆)

1 to 12.75 GHz



5.11.5 Data; Simultaneous Transmit – ETSI EG 203367, Bluetooth and LTE Band 8

RMS (dBm) at 3m							
Frequency	Measured	Specified ETSI EN 300 328 Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBm	dBm	dB	H/V	cm	deg	Status
2692.843333	43.00	65.20	22.20	H	173.0	89.0	Pass
4803.843929	47.10	65.20	18.10	H	156.0	166.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the ETSI TS 151 010-1 limits and take into account the correction factor*.

*Correction factor (dB) = cable and antenna losses as summed positive values (dB) – pre-amp gain where applicable (dB).

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

Note: Path losses are factored into the limit value, and given by the test standard. Chamber calibration data contributes to the measurement uncertainty figure.

5.12 Conducted Emissions; FCC (110 V 60 Hz)

5.12.1 Test Parameters

A filtered supply was fed to the EUT via a 50Ω/50μH Artificial Mains Network (AMN). The AMN was bonded to a conductive ground plane. Line and neutral phases were measured separately.

An EMI receiver was set to scan between 0.15 MHz and 30.0 MHz with a 20s measurement time. A CISPR Average and Quasi-Peak trace was generated and compared to the limits and take into account the correction factor. Measurements made according to the test standard and Eurofins E&E UK test procedure CON-03.

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
116	1	Rohde & Schwarz	ESH3-Z2	M458	Pulse Limiter (BNC)	24/05/2025
482	1	-	Cable BNC	-	Cable BNC	08/02/2025
699	1	Gauss	TDEM130M	1506001	Time Domain Conducted Receiver	28/01/2025
674	1	Rohde & Schwarz	ESH3-Z5	838576-018	Single Phase LISN ANSI & CISPR	03/10/2025
785	0	Eurofins E&E	Ground plane	Neptune	Ground Plane Work Area	Not Required
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
857	0	Gauss	Software	0	TDMI 30 v5.00	Not required

Environmental Test Conditions	
Temperature	21.9° Celsius
Relative Humidity	34 %
Atmospheric Pressure	1028.3 millibars
Test Date:	13 th December 2024
Test Engineer:	Rich Beckett

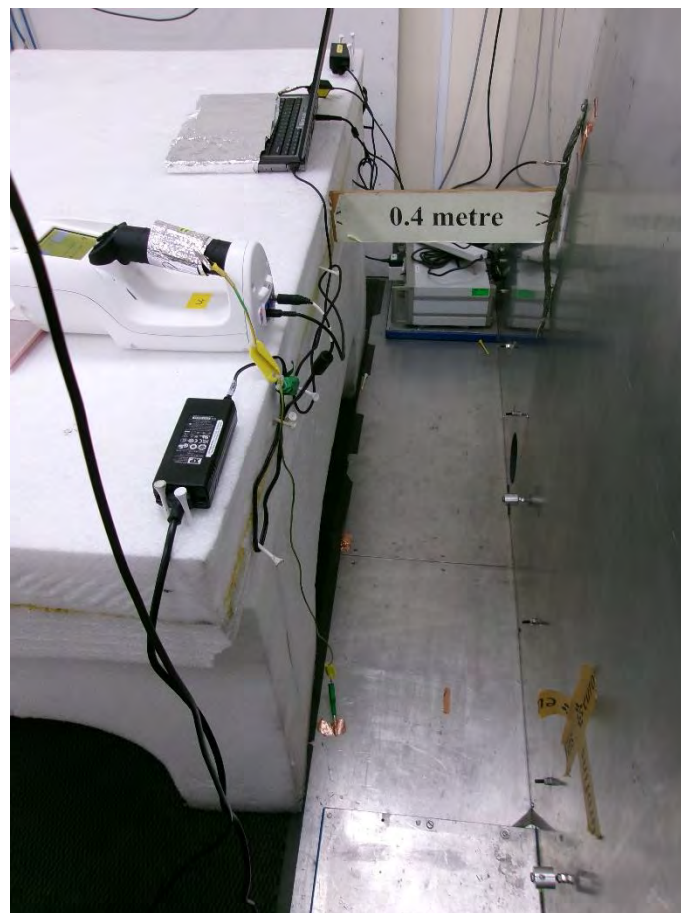
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.12.2 Test Configuration

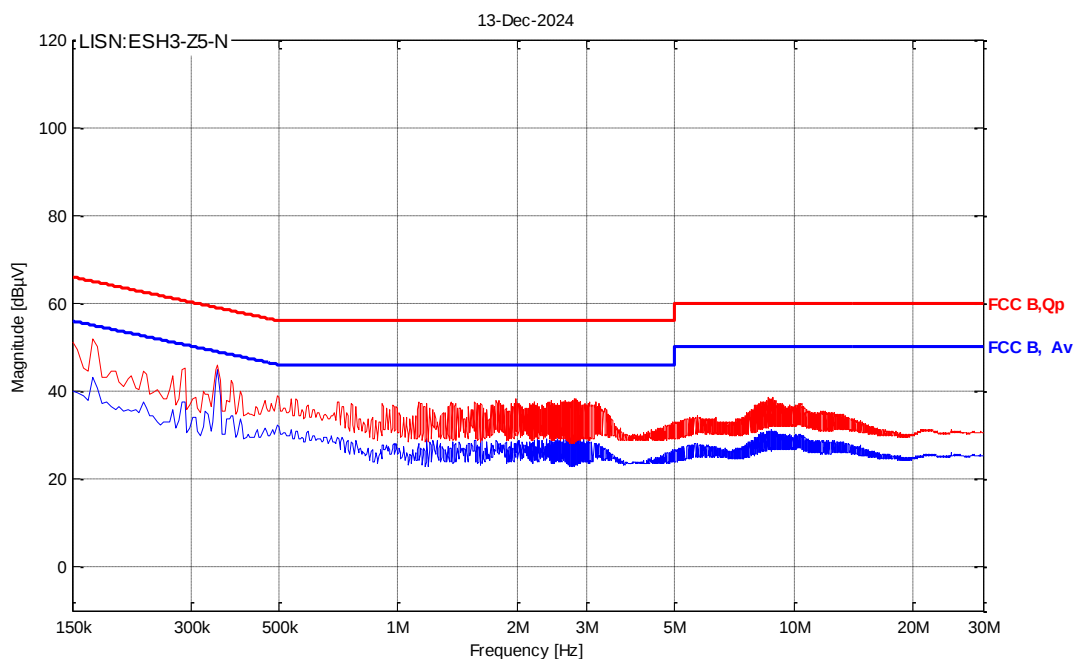
Please refer to EUT Test Configuration #2.

5.12.3 Set-up Photos

Conducted Emissions



5.12.4 Profile; Mains Neutral, FCC (110 V 60 Hz)



5.12.5 Data; Mains Neutral, FCC (110 V 60 Hz)

Quasi-peak value (dBμV)				
Frequency	Measured	Class B Limit	Margin	Status
350.475 kHz	45.98	58.95	12.97	Pass
8.852 MHz	38.53	60.00	21.47	Pass
10.359 MHz	37.28	60.00	22.72	Pass
15.104 MHz	32.46	60.00	27.54	Pass
22.066 MHz	31.33	60.00	28.67	Pass
28.336 MHz	30.85	60.00	29.15	Pass

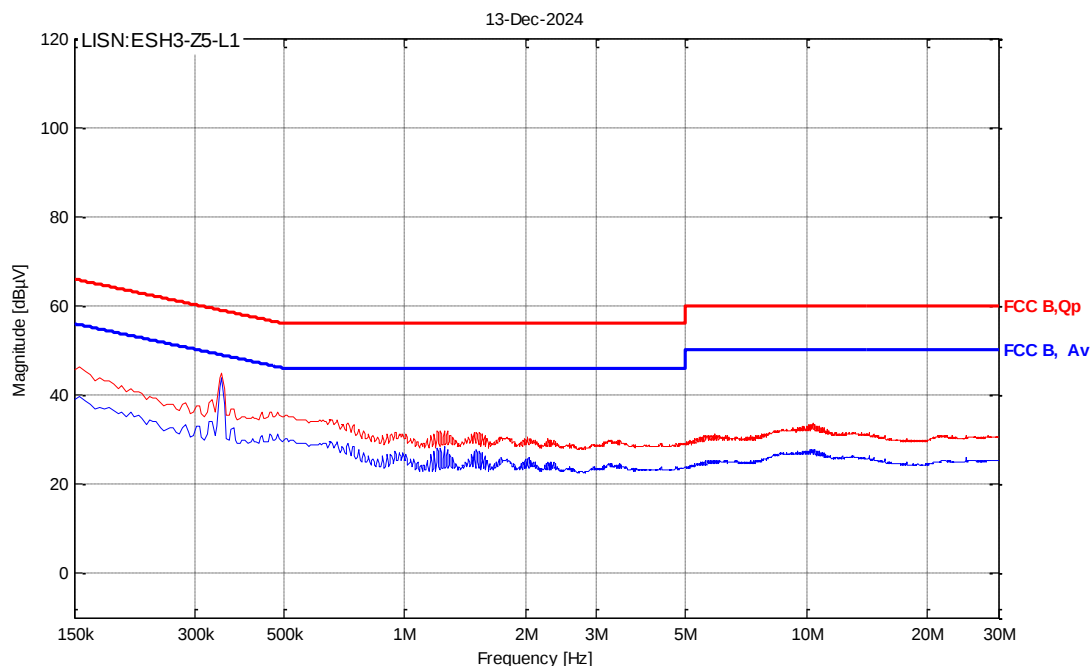
CISPR Average value (dBμV)				
Frequency	Measured	Class B Limit	Margin	Status
350.475 kHz	44.98	48.95	3.97	Pass
8.795 MHz	31.02	50.00	18.98	Pass
10.378 MHz	30.25	50.00	19.75	Pass
15.104 MHz	26.76	50.00	23.24	Pass
24.998 MHz	25.89	50.00	24.11	Pass
28.336 MHz	25.54	50.00	24.46	Pass

The measured value takes into account the correction factor.

Correction factor (dB) = cable, AMN, and pulse limiter losses as summed positive values (dB)

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

5.12.6 Profile; Mains Line, FCC (110 V 60 Hz)



5.12.7 Data; Mains Line, FCC (110 V 60 Hz)

Quasi-peak value (dBμV)				
Frequency	Measured	Class B Limit	Margin	Status
350.475 kHz	44.83	58.95	14.12	Pass
9.930 MHz	33.09	60.00	26.91	Pass
10.350 MHz	33.57	60.00	26.43	Pass
15.666 MHz	30.71	60.00	29.29	Pass
24.998 MHz	30.98	60.00	29.02	Pass
28.336 MHz	30.79	60.00	29.21	Pass

CISPR Average value (dBμV)				
Frequency	Measured	Class B Limit	Margin	Status
350.475 kHz	43.61	48.95	5.34	Pass
10.059 MHz	27.45	50.00	22.55	Pass
10.345 MHz	27.79	50.00	22.21	Pass
15.666 MHz	25.40	50.00	24.60	Pass
24.998 MHz	25.80	50.00	24.20	Pass
28.336 MHz	25.43	50.00	24.57	Pass

The measured value takes into account the correction factor.

Correction factor (dB) = cable, AMN, and pulse limiter losses as summed positive values (dB)

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

5.13 Conducted Emissions; CISPR (230 V 50 Hz)

5.13.1 Test Parameters

A filtered supply was fed to the EUT via a 50Ω/50μH Artificial Mains Network (AMN). The AMN was bonded to a conductive ground plane. Line and neutral phases were measured separately.

An EMI receiver was set to scan between 0.15 MHz and 30.0 MHz with a 20s measurement time. A CISPR Average and Quasi-Peak trace was generated and compared to the limits and take into account the correction factor. Measurements made according to the test standard and Eurofins E&E UK test procedure CON-03.

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
116	1	Rohde & Schwarz	ESH3-Z2	M458	Pulse Limiter (BNC)	24/05/2025
482	1	-	Cable BNC	-	Cable BNC	08/02/2025
699	1	Gauss	TDEM130M	1506001	Time Domain Conducted Receiver	28/01/2025
674	1	Rohde & Schwarz	ESH3-Z5	838576-018	Single Phase LISN ANSI & CISPR	03/10/2025
785	0	Eurofins E&E	Ground plane	Neptune	Ground Plane Work Area	Not Required
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
857	0	Gauss	Software	0	TDMI 30 v5.00	Not required

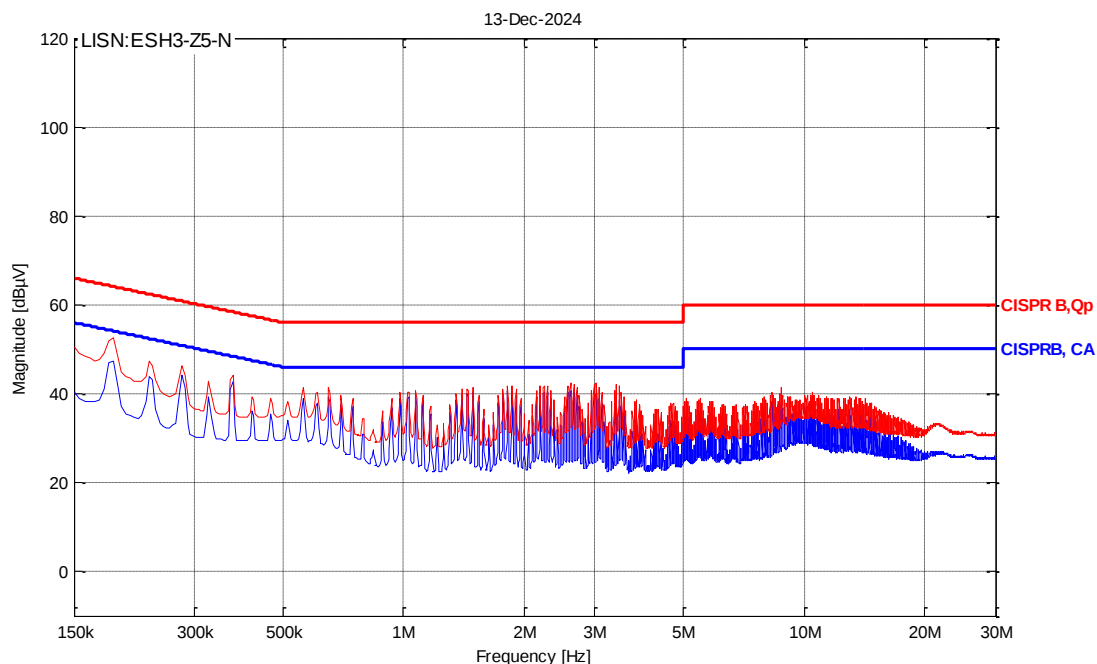
Environmental Test Conditions	
Temperature	21.9° Celsius
Relative Humidity	34 %
Atmospheric Pressure	1028.3 millibars
Test Date:	13 th December 2024
Test Engineer:	Rich Beckett

Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.13.2 Test Configuration

Please refer to EUT Test Configuration #1.

5.13.4 Profile; Mains Neutral, CISPR (230 V 50 Hz)



5.13.5 Data; Mains Neutral, CISPR (230 V 50 Hz)

Quasi-peak value (dBµV)				
Frequency	Measured	Class B Limit	Margin	Status
188.351 kHz	52.41	64.11	11.70	Pass
8.762 MHz	41.22	60.00	18.78	Pass
10.483 MHz	40.41	60.00	19.59	Pass
15.099 MHz	36.81	60.00	23.19	Pass
21.107 MHz	33.34	60.00	26.66	Pass
25.909 MHz	31.65	60.00	28.35	Pass

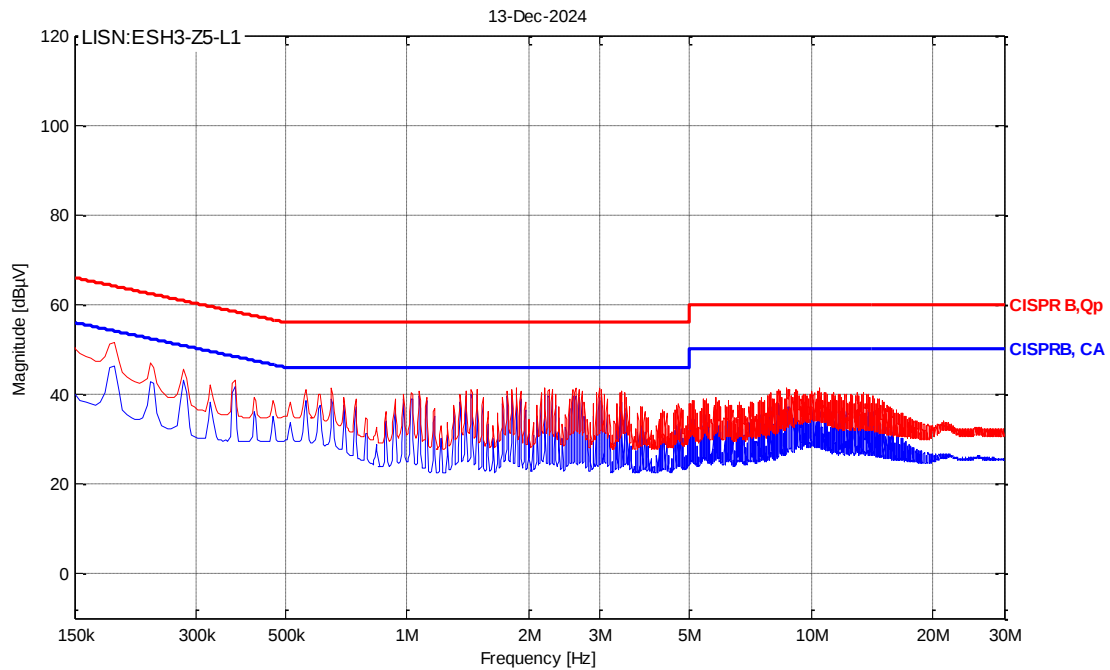
CISPR Average value (dBµV)				
Frequency	Measured	Class B Limit	Margin	Status
2.611 MHz	40.80	46.00	5.20	Pass
8.342 MHz	38.01	50.00	11.99	Pass
10.483 MHz	38.44	50.00	11.56	Pass
15.099 MHz	33.25	50.00	16.75	Pass
20.735 MHz	27.04	50.00	22.96	Pass
25.814 MHz	26.25	50.00	23.75	Pass

The measured value takes into account the correction factor.

Correction factor (dB) = cable, AMN, and pulse limiter losses as summed positive values (dB)

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

5.13.6 Profile; Mains Line, CISPR (230 V 50 Hz)



5.13.7 Data; Mains Line, CISPR (230 V 50 Hz)

Quasi-peak value (dBμV)				
Frequency	Measured	Class B Limit	Margin	Status
188.351 kHz	51.56	64.11	12.55	Pass
8.709 MHz	41.17	60.00	18.83	Pass
10.483 MHz	41.16	60.00	18.84	Pass
15.094 MHz	38.11	60.00	21.89	Pass
21.293 MHz	33.80	60.00	26.20	Pass
25.952 MHz	32.54	60.00	27.46	Pass

CISPR Average value (dBμV)				
Frequency	Measured	Class B Limit	Margin	Status
1.862 MHz	40.15	46.00	5.85	Pass
8.295 MHz	37.96	50.00	12.04	Pass
10.483 MHz	38.14	50.00	11.86	Pass
15.094 MHz	33.71	50.00	16.29	Pass
21.155 MHz	26.74	50.00	23.26	Pass
25.861 MHz	26.11	50.00	23.89	Pass

The measured value takes into account the correction factor.

Correction factor (dB) = cable, AMN, and pulse limiter losses as summed positive values (dB)

The recorded measured value (dB) = measured receiver value (dB) + correction factor (dB).

5.14 Radiated RF Immunity

5.14.1 Test Parameters

Test Method	EN 61000-4-3 REFERENCING PROCEDURE: RES-03
Test Details:	
Test Severity	80 MHz to 2.7 GHz; 10 V/m 2.7 GHz to 6 GHz; 3 V/m 80 % Amplitude Modulation at 1 kHz 1 % Frequency Steps, 3 Seconds Dwell Time
Exerciser Program During Test	Reference Section 3.4
Specified Test Criterion	Criterion 'A'
EUT Performance Criterion	Criterion 'A'

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
173	2	Rohde & Schwarz		942451	Absorbing clamp	14/02/2025
363	1	Narda	769-3	2782	Attenuator (3dB)	08/02/2025
385	1	Rohde & Schwarz	NRVD	846074/028	Dual Port Power Meter	08/05/2025
443	1	Marconi	6534-1	-	Attenuator N-Type (3dB)	08/02/2025
653	1	TFA	Weather Station	Pluto	Weather Station	05/11/2025
783	3	-	CMAD CISPR 16-1-4	-	CMAD CISPR 16-1-4 (Blue Ferrite)	30/05/2026
790	1	Rohde & Schwarz	NRV-Z1	100106	Power Sensor (10MHz - 18GHz)	08/05/2025
791	1	Rohde & Schwarz	NRV-Z1	100286	Power Sensor (10MHz - 18GHz)	08/05/2025
792	0	Rohde & Schwarz	BBA100	101242	Amplifier (80MHz - 1GHz)	Not Required
793	0	Rohde & Schwarz	BBA150	103438	Amplifier (1GHz - 6GHz)	Not Required
856	0	Rohde & Schwarz	Software	-	EMC32 v11.30.00 (Pluto)	Not Required
870	0	Rohde & Schwarz	CMW 500	1201.0002K50-157444	Wideband Radio Communication Tester	Not Required
872	3	Rohde & Schwarz	SMB100A	114926	Signal Generator (9kHz - 6GHz)	22/08/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
856	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	18.5° Celsius
Relative Humidity	54 %
Atmospheric Pressure	1002.4 millibars
Test Date:	25 November 2024
Test Engineer:	Graeme Lawler

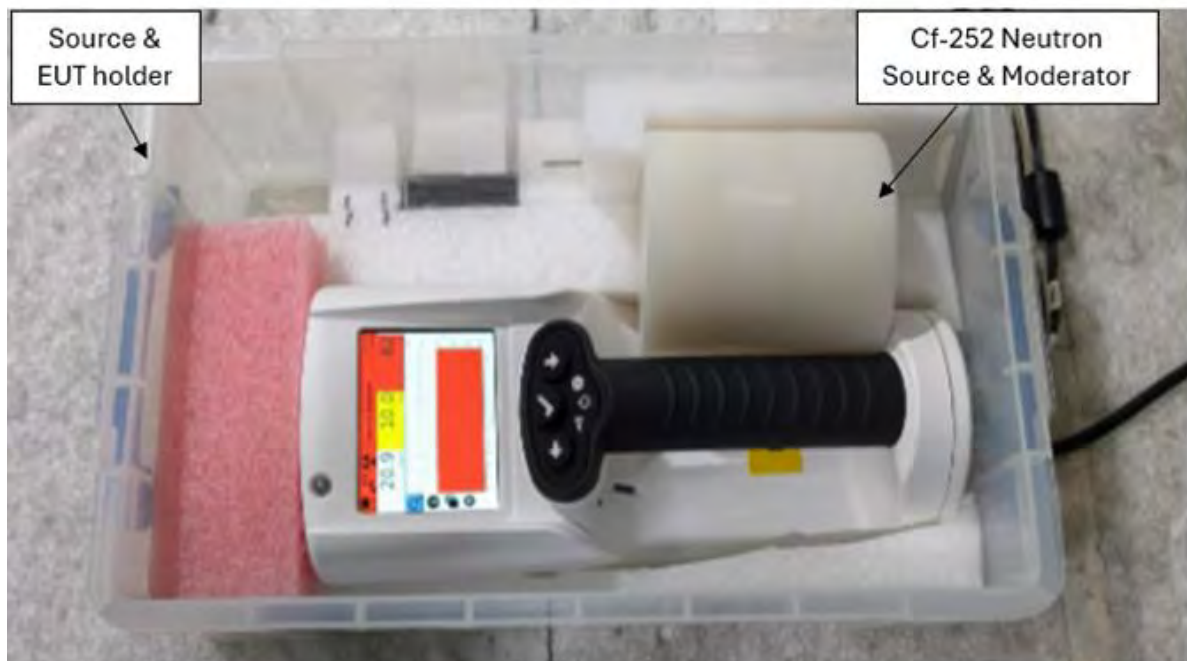
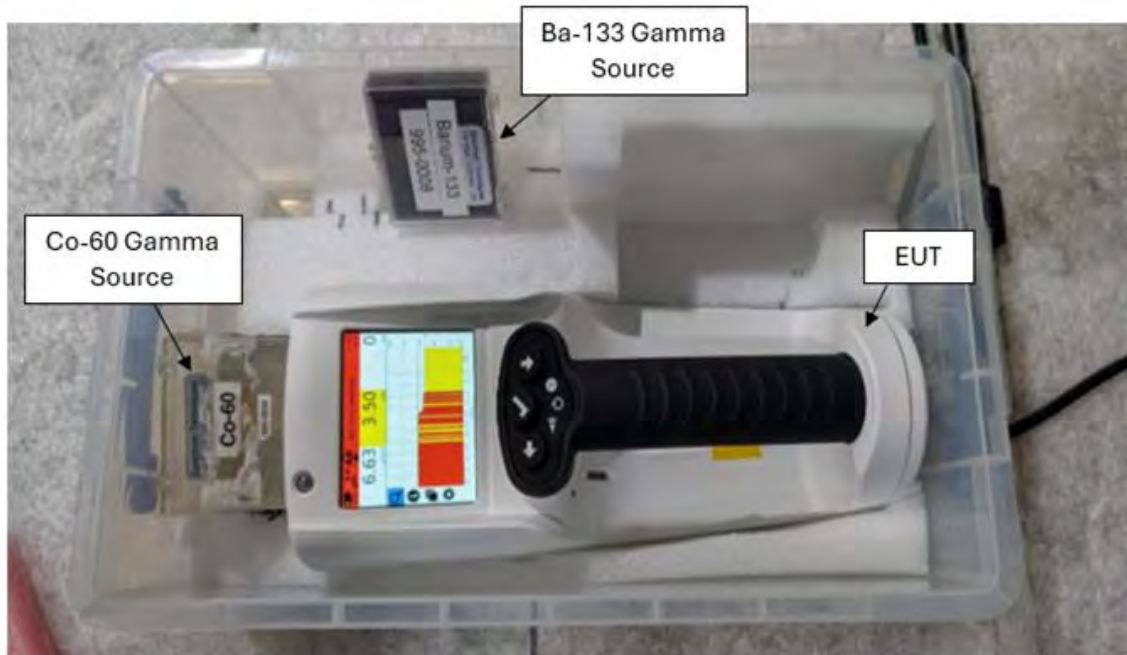
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.14.2 Test Configuration

Please refer to EUT Test Configuration #2.

5.14.3 Set-up Photos

Radiated RF Immunity – Internal View



5.14.4 Set-up Photos; With Sources (Orientation 1)

Radiated RF Immunity



5.14.5 Set-up Photos; With Sources (Orientation 2)

Radiated RF Immunity



5.14.6 Set-up Photos; With Sources (Orientation 3)

Radiated RF Immunity



5.14.7 Set-up Photos; Without Sources (Orientation 4)

Radiated RF Immunity



5.14.8 Set-up Photos; Without Sources (Orientation 5)

Radiated RF Immunity



5.14.9 Set-up Photos; Without Sources (Orientation 6)

Radiated RF Immunity



5.14.10 Data

EUT faces exposed to RF field With Sources Present	Antenna Polarisation	Field Level Swept Frequency	Met Criterion
Orientation 1	Horizontal and Vertical	Please refer to section 4.6.1	A
Orientation 2	Horizontal and Vertical		A
Orientation 3	Horizontal and Vertical		A

5.14.11 Data

EUT faces exposed to RF field Without Sources Present	Antenna Polarisation	Field Level Swept Frequency	Met Criterion
Orientation 4	Horizontal and Vertical	Please refer to section 4.6.1	A
Orientation 5	Horizontal and Vertical		A
Orientation 6	Horizontal and Vertical		A

Comment: The EUT met the specified test criterion with no observed performance effects.

5.15 Conducted Immunity

5.15.1 Test Parameters

Test Method	EN 61000-4-6 REFERENCING PROCEDURE: CES-02
Test Details:	
Test Severity	10 V rms, 0.15 to 80 MHz 1 kHz, 80 % Amplitude Modulation 1 % Frequency Increments, 1 Second Dwell Time
Exerciser Program During Test	Reference Section 3.4
Specified Test Criterion	Criterion 'A'
EUT Performance Criterion	Criterion 'A'

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
121a	2	Bird	100-A-MFN-06	9639	Attenuator (6dB)	11/01/2026
213	1	Fischer	801-M3-16	1051	CDN M3	06/01/2026
255	3	Rohde & Schwarz	SMC100A	101214	Signal Generator (9kHz - 3.2GHz)	08/02/2025
785	0	Eurofins E&E	Ground plane	Neptune	Ground Plane Work Area	Not Required
845	1	-	Cable BNC	-	Cable BNC 3m	08/11/2025
906	0	Rohde & Schwarz	BBA150	2065	Broadband Amplifier	Not Required
908	1	Rohde & Schwarz	Power Sensor	103579	NRP6A Average Power Sensor (9kHz - 6GHz)	24/01/2025
Test Equipment Software						
#ID	CP	Manufacturer	Type		Description	Calibration Due Date
935	0	Rohde & Schwarz	Software	0	EMC32 v11.30.0	Not required

Environmental Test Conditions	
Temperature	20.9° Celsius
Relative Humidity	39 %
Atmospheric Pressure	1028.8 millibars
Test Date:	13 th December 2024
Test Engineer:	Rich Beckett

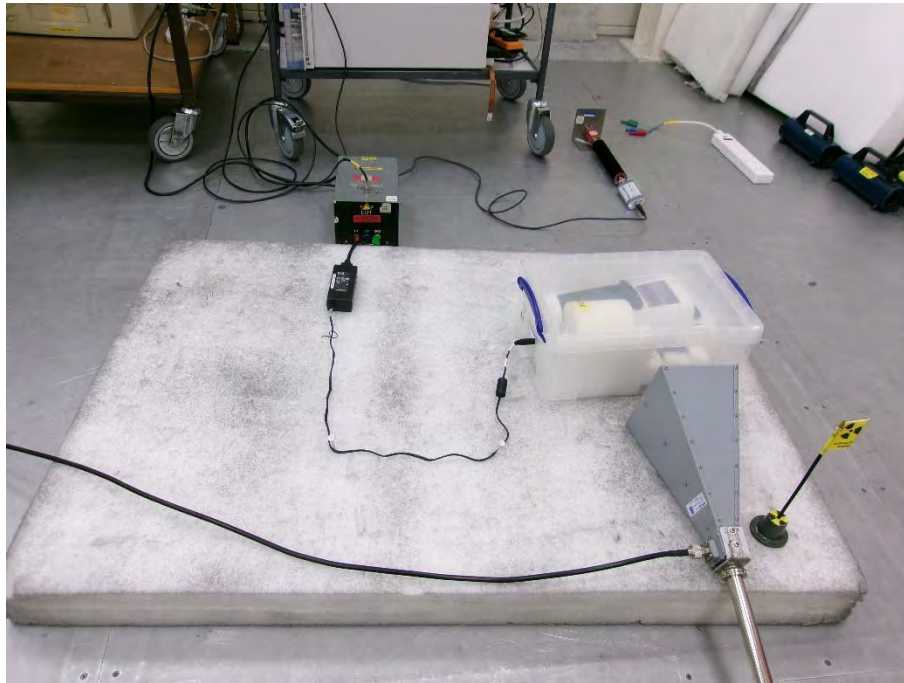
Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.15.2 Test Configuration

Please refer to EUT Test Configuration #1.

5.15.3 Set-up Photos

Conducted Immunity



5.15.4 Data

Coupling Method: CDN		
Port	Test Voltage	Met Criterion
AC Power Port (With Source)	10 V rms	A
AC Power Port (Without Source)	10 V rms	A

Comment: The EUT met the specified test criterion with no observed performance effects.

5.16 Power Frequency Magnetic Field

5.16.1 Test Parameters

Test Method	EN 61000-4-8 REFERENCING PROCEDURE: MAG-01
Test Details:	
Test Severity	100 A/m, 50 Hz and 60 Hz
Exerciser Program During Test	Reference Section 3.4
Specified Test Criterion	Criterion 'A'
EUT Performance Criterion	Criterion 'A'

Test Equipment						
#ID	CP	Manufacturer	Type	Serial Number	Description	Calibration Due Date
785	0	Eurofins E&E	Ground plane	Neptune	Ground Plane Work Area	Not Required
211	0	EMCO	6406	9102-21-2	HelmHoltz (1.83m 64turn0	Not Required
165	0	Walker SI	ELF-90D	K714250-50	Magnetic field meter	Not Required

Environmental Test Conditions	
Temperature	21.7° Celsius
Relative Humidity	34 %
Atmospheric Pressure	1028.6 millibars
Test Date:	13 th December 2024
Test Engineer:	Rich Beckett

Note: "Calibration due date" means the instrument is certified within UKAS or traceable calibration certificate. "Internal" means the instrument is calibrated using Eurofins E&E UK procedures. "Not required" means the asset does not require calibration. "CP" is the interval period [year] prescribed for external calibration.

5.16.2 Test Configuration

Please refer to EUT Test Configuration #1.

5.16.3 Set-up Photos

Power Frequency Magnetic Field



5.16.4 Set-up Photos (Continued)

Power Frequency Magnetic Field



5.16.5 Data

With Source on charge

Test Position	Field Level	Met Criteria
X-Axis	100 A/m	A
Y-Axis	100 A/m	A
Z-Axis	100 A/m	A

With Source on off charge

Test Position	Field Level	Met Criteria
X-Axis	100 A/m	A
Y-Axis	100 A/m	A
Z-Axis	100 A/m	A

Without source on charge

Test Position	Field Level	Met Criteria
X-Axis	100 A/m	A
Y-Axis	100 A/m	A
Z-Axis	100 A/m	A

Without source off charge

Test Position	Field Level	Met Criteria
X-Axis	100 A/m	A
Y-Axis	100 A/m	A
Z-Axis	100 A/m	A

Comment: The EUT met the specified test criteria with no observed performance effects.

6.0 MEASUREMENT UNCERTAINTIES

Emissions Tests

For all emissions tests, measurement uncertainties have been calculated in line with the requirements of CISPR 16-4-2 to give a confidence level of greater than 95 %. In all cases the laboratories calculated uncertainty values (known as U_{lab}) are equal to or are less than the expected uncertainty values contained in CISPR 16-4-2 (known as U_{cispr}).

Below is a list of the laboratories calculated measurement uncertainties:

Conducted emissions:

Via AMN/LISN:	±3.27 dB (9 kHz – 150 kHz), ±3.27 dB (150 kHz – 30 MHz)
Via AAN/ISN:	±5.00 dB (150 kHz – 30 MHz)
Via CVP:	±3.47 dB (150 kHz – 30 MHz)
Via CP:	±2.69 dB (150 kHz – 30 MHz)
Via 100 Ω:	±2.68 dB (150 kHz – 30 MHz)
Clicks:	±2.79 dB (150 kHz – 30 MHz)
Harmonics:	±1.50 % (100 Hz – 2 kHz)
Flicker:	±1.24 % (worst case for all parameters)

Radiated emissions:

H-Field:	±2.84 dB (9 kHz – 3 MHz), ±2.92 dB (3 MHz – 30 MHz)
D = 3.0 m (Horizontal):	±4.02 dB (30 MHz – 1 GHz SAC), ±3.82 dB (30 MHz – 1 GHz FAC)
D = 3.0 m (Vertical):	±3.92 dB (30 MHz – 1 GHz SAC), ±3.82 dB (30 MHz – 1 GHz FAC)
D = 3.0 m:	±5.04 dB (1 GHz – 6 GHz SAC), ±5.16 dB (1 GHz – 10 GHz SAC), ±3.64 dB (10 GHz – 18 GHz SAC), ±3.15 dB (18 GHz – 40 GHz SAC), ±3.05 dB (1 GHz – 6 GHz FAC)

Radiated spurious emissions (RSE): ±1.71 dB (30 MHz – 1 GHz), ±1.81 dB (1 – 12.75 GHz),
±2.07 dB (12.75 – 18 GHz)

Conducted RF Measurements:

±3.11 dB (30 MHz – 40 GHz)

Immunity Tests

Radiated Fields in Close Proximity (EN 61000-4-39): ±1.93 dB (30 kHz & 134.2 kHz)

Radiated Fields in Close Proximity (EN 61000-4-39): ±2.02 dB (13.56 MHz)

For IEC 61000-4-2, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-8, IEC 61000-4-9,
IEC 61000-4-11 tests, the following applies:

Measurement uncertainty has been calculated or calibrated for the various required parameters to provide a confidence level of 95 % (k=2). These parameters have been compared to the basic standard tolerance requirements for each of the various parameters. In all cases the calculated or calibrated uncertainty meets the basic standard requirements.

For IEC 61000-4-3, IEC 61000-4-6 tests, the following applies:

Measurement uncertainty has been calculated to provide a confidence level of 95 %, or k=2, but this has not been applied to the applied test level, therefore the applied test level has an uncertainty of ±50 %. This is in accordance with CENELEC and other international guidance.

In the case of Maritime equipment tested to EN/IEC 60945, there is a specific requirement that the applied test level be increased by the calculated measurement uncertainty. This is done by applying a coverage factor of k=1.64, which provides a 95 % confidence that the applied test level has been achieved.

Test Results - Decision Rules

As the decision is generally inherent in the standard for Commercial EMC a simple acceptance rule can be applied. The following statement will be added to EMC quotes and reports. "The Decision Rule is applied on the basis of CISPR16-4-2 and/or EN61000-4-x (TR61000-1-6) These standards provide guidance on how to calculate and apply measurement uncertainty whilst providing maximum uncertainties allowance. Due consideration will also be given to JCGM 106:2012, ILAC-G8:09/2019 and LAB 48. This laboratory has demonstrated by calibrating its equipment and facilities, and calculating its own uncertainties, that it complies with the above requirements and therefore no allowance of uncertainties has been given to the tolerances." Where a result is considered marginal in respect of its proximity to the limit line, for example, the customer would be made aware of situation so that they can make an informed decision on how to proceed."

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