EMC Test Report	
For:	**Oscium, LLC**
Product:	**WLAN Pi Go**
Model:	**OSCWiFix1**
FCC ID:	**2BNM5-BE200NG**
	
Project Engineer:	**Graeme Lawler**
	
Approval Signatory:	**Dan Tiroke**

Document Reference:	**H5978 ER**

Issue Number:	**Date:**	**Test Report Revisions History:**
1	4th March 2025	Original report issued
2	12th June 2025	Updated with editorial corrections
3	16th June 2025	Updated with editorial corrections

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Contents

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 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: H5978

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** test requirements of the following standards:			
Description	**General Standard**	**Referenced Standard**	**Status**
Radiated Emissions	FCC/CFR 47: Part 15C 15.247(d) and 15.205	ANSI C63.10: 2013	Pass
Radiated Emissions	FCC/CFR 47: Part 15E 15.407(b) (4) (1) and 15.205		Pass

Note(s):

- The highest internal operating frequency declared by the manufacturer is 5825 MHz.

3.0 EQUIPMENT AND TEST DETAILS

3.1 General

Product (EUT):	WLAN Pi Go		
Model:	OSCWiFix1	**Serial Number:**	13370026003c513050022035384b
Sample Build:	Production Sample		
EUT Power:	USB		
Customer Test Plan:	SC_BW_TP03_A		
Alternate Models:	Not Applicable		
EUT Manufacturer:	Oscium, LLC		
Company Name:	Oscium, LLC		
Company Address:	8604 NW 155th PL Edmond OK 73013 USA		
Test Commissioned By:	Charlie Blackham, Sulis Consultants Limited		
Date EUT Received:	17th January 2025		
Test Date(s):	17th to 23rd January 2025		
EMC Measurement Site:	Eurofins Electrical & Electronic UK Ltd | Hursley Laboratory Trafalgar Close, Chandlers Ford, Hampshire, United Kingdom		
Product Category:	IT and Multimedia Electrical Equipment		

3.2 EUT Description

The Oscium WLAN Pi Go is powered over a short USB 3.0 cable by an Apple iPhone.

3.3 Support Equipment

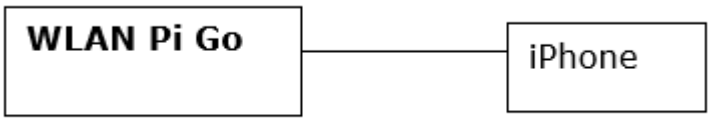
Description	Manufacturer	Model	Serial Number
Mobile Phone	Apple	iPhone 16	MY7M0PVL90

3.4 EUT Test Exerciser

The following test frequencies were used to cover the full band of operation of the device:

Mode	Band	Test channel
1	2.4 GHz	1 and 13
2	5 GHz	136

3.5 EUT Test Configuration #1



4.0 TEST RESULTS

4.1 Radiated Emissions; FCC 15.247(d), 2.4 GHz Wi-Fi

4.1.1 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	HP	8449B	3008A01077	Pre-Amplifier (1GHz - 26.5GHz)	05/03/2025
516	1	Sucoflex	Cable N-Type	-	Cable N-Type for #250	15/03/2025
399	3	Q-par Angus	WBH18-40k	10300	Horn Antenna (18GHz - 40GHz)	27/02/2026
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
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
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver (44GHz)	05/09/2025
877	1	Huber & Suhner	SUCOTEST_18A	602608/18A	ST_18A/Nm/Nm (3m)	08/11/2025
242	3	Rohde & Schwarz	HFH2-Z2	881056/4	Loop Antenna 9kHz - 30MHz	14/05/2027
951	1	Wainwight Instruments	WHKX12-2580-3000-18000-80SS	SN16	Highpass 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		
Frequency	**Below 30 MHz**	**Below 1 GHz**	**Above 1 GHz**
Temperature	18.2° Celsius	21.1° Celsius	14.5° Celsius
Relative Humidity	43	37 %	51 %
Atmospheric Pressure	1006.5	1039 millibars	1004 millibars
Test Date:	23rd January 2025	17th January 2025	7th January 2025
Test Engineer:	Graeme Lawler	Graeme Lawler	Richard Pennell

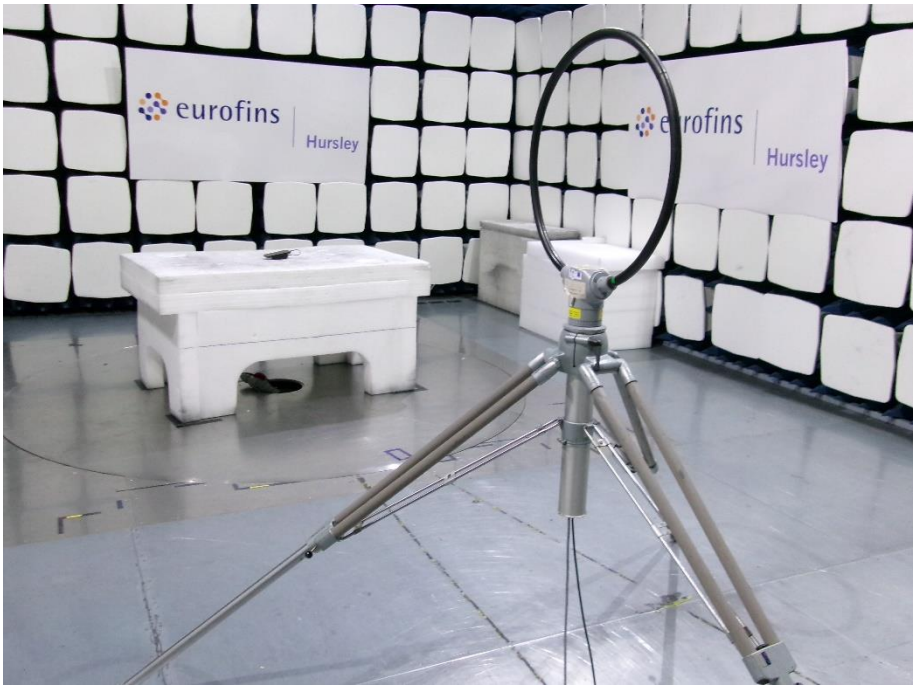
Note: “Calibration due date” means the instrument is certified within UKAS or traceable calibration certificate. “Internal” means the instrument is calibrated using Eurofins E&E UK procedures. “Not required” means the asset does not require calibration. “CP” is the interval period [year] prescribed for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

4.1.2 Test Configuration

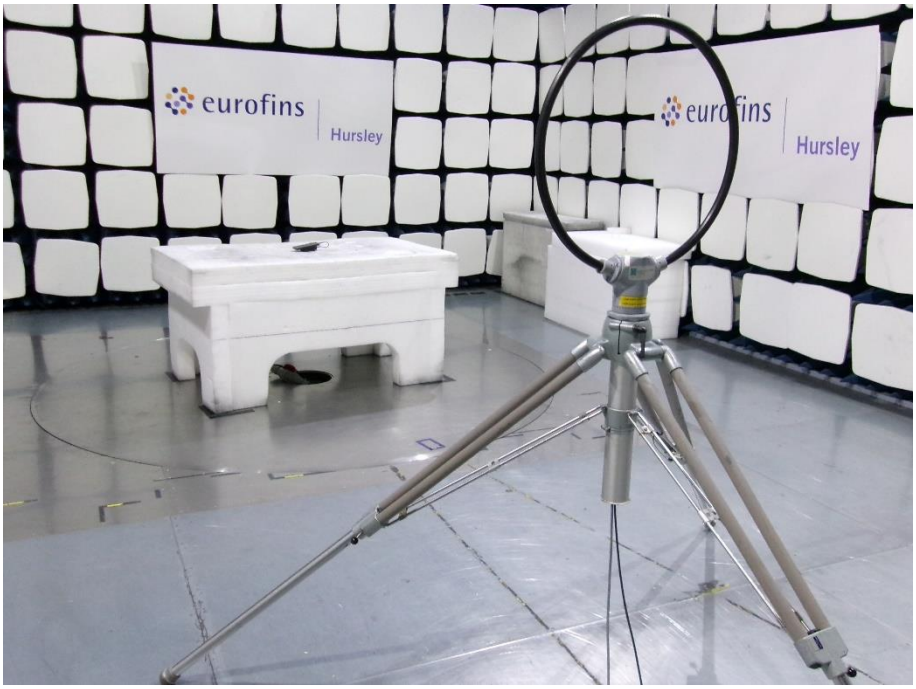
Please refer to EUT Test Configuration #1, Mode #1.

4.1.3 Set-up Photos

Radiated Emissions 9 kHz to 30 MHz



X-Orientation

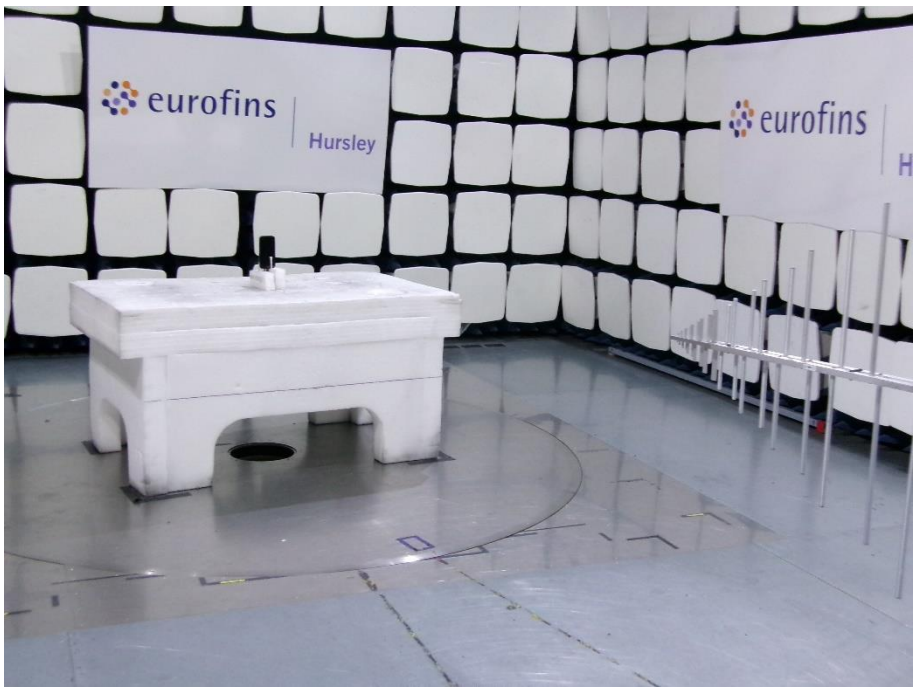


X-Orientation

Set-up Photos - continued

Radiated Emissions 30 MHz to 1 GHz

X-Orientation



Y-Orientation

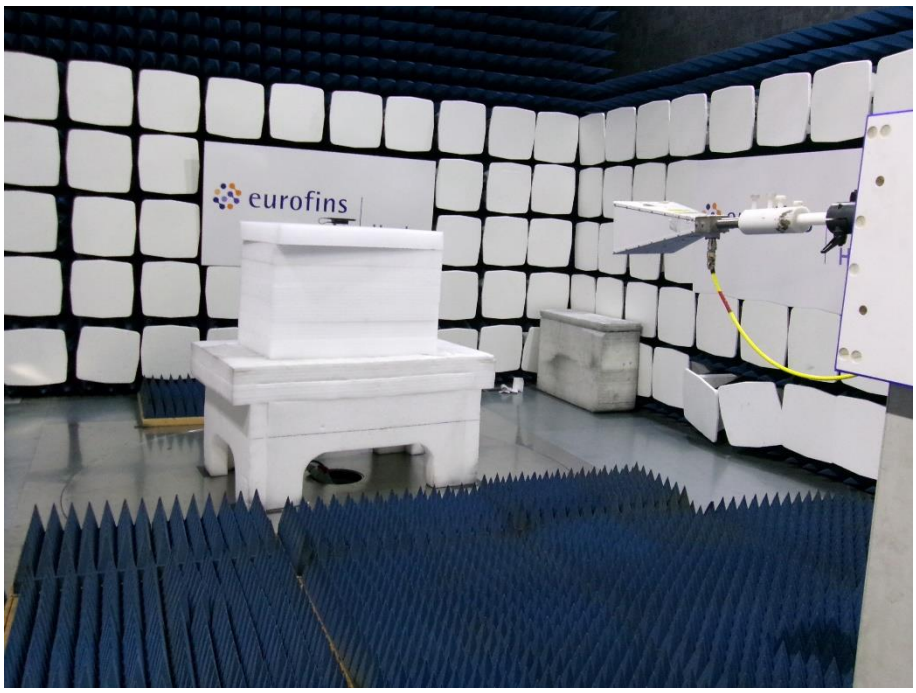
Set-up Photos - continued

Radiated Emissions 30 MHz to 1 GHz

Z-Orientation

Set-up Photos - continued

Radiated Emissions 1 GHz to 18 GHz

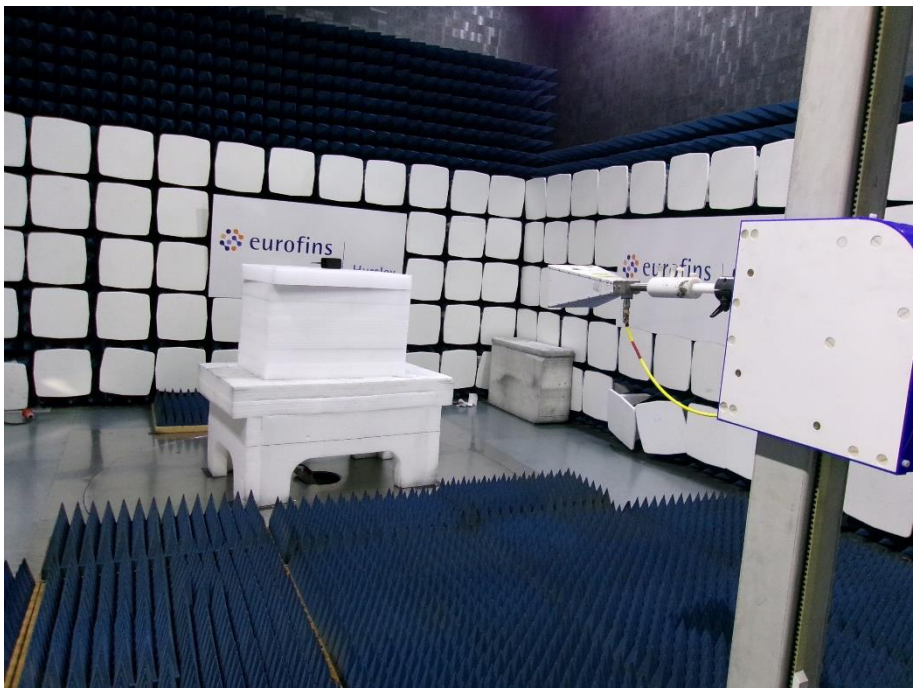


X-Orientation

Y-Orientation

Set-up Photos – continued

Radiated Emissions 1 GHz to 18 GHz

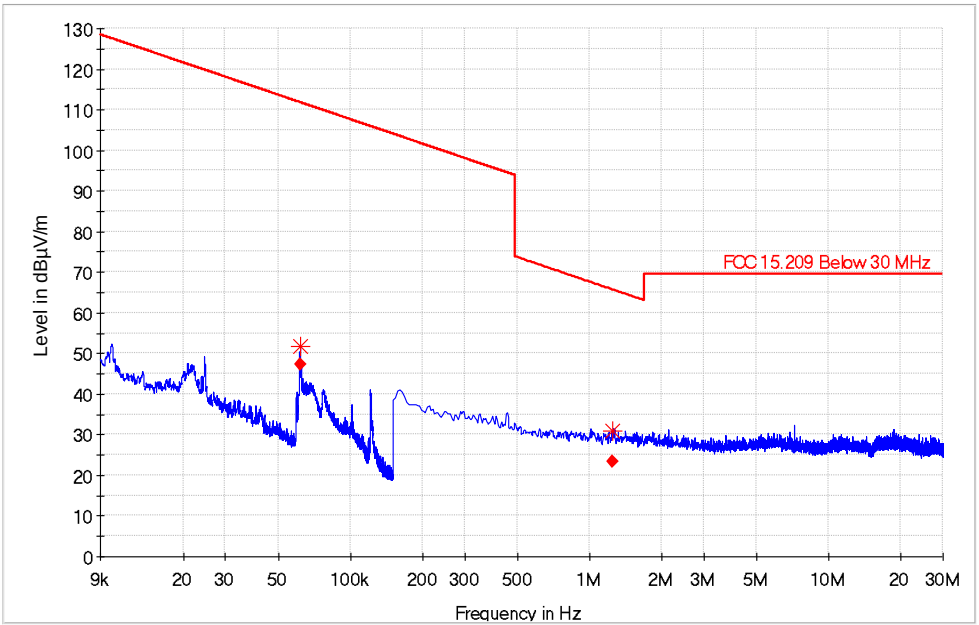


Z-Orientation

4.1.4 Profile; 9 kHz to 30 MHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Maximum peak hold trace with quasi-peak values (◆)
Peak measurements (✳)

9 kHz to 30 MHz



4.1.5 Data; 9 kHz to 30 MHz, 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Emission Frequency	Measured Quasi-Peak Value	Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
0.061487	47.24	111.82	64.58	H	150.0	284.0	Pass
1.248218	23.43	65.68	42.25	V	150.0	48.0	Pass

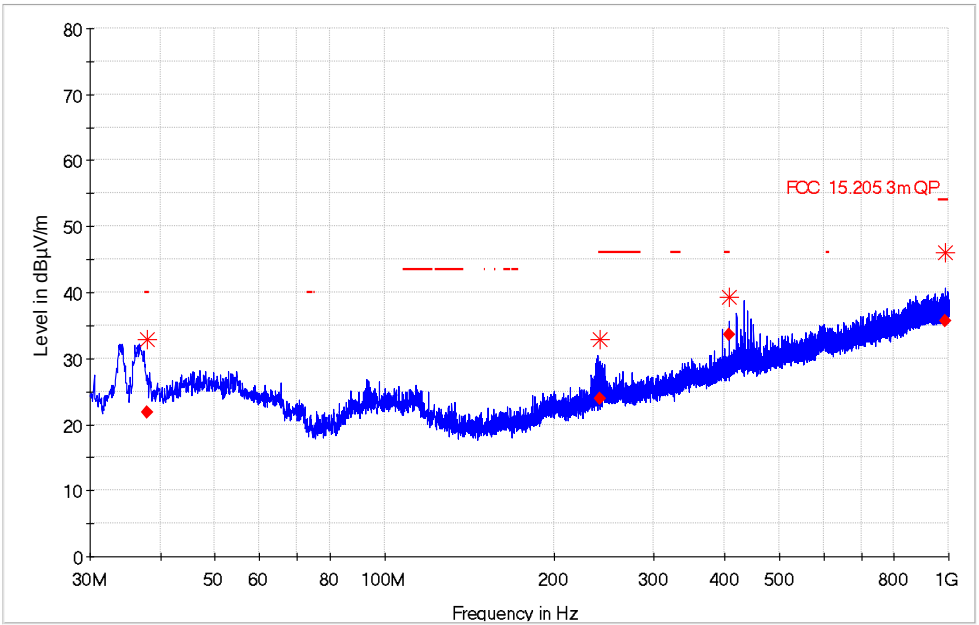
V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.1.6 Profile; 30 MHz to 1 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Maximum peak hold trace with quasi-peak values (◆)
Peak measurements (✳)

30 MHz to 1 GHz



4.1.7 Data; 30 MHz to 1 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Emission Frequency	Measured Quasi-Peak Value	Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
37.907540	21.77	40.00	18.23	H	194.0	172.0	Pass
240.598500	23.84	46.00	22.16	H	170.0	10.0	Pass
408.366280	33.65	46.00	12.35	H	104.0	333.0	Pass
986.285922	35.66	54.00	18.34	H	167.0	302.0	Pass

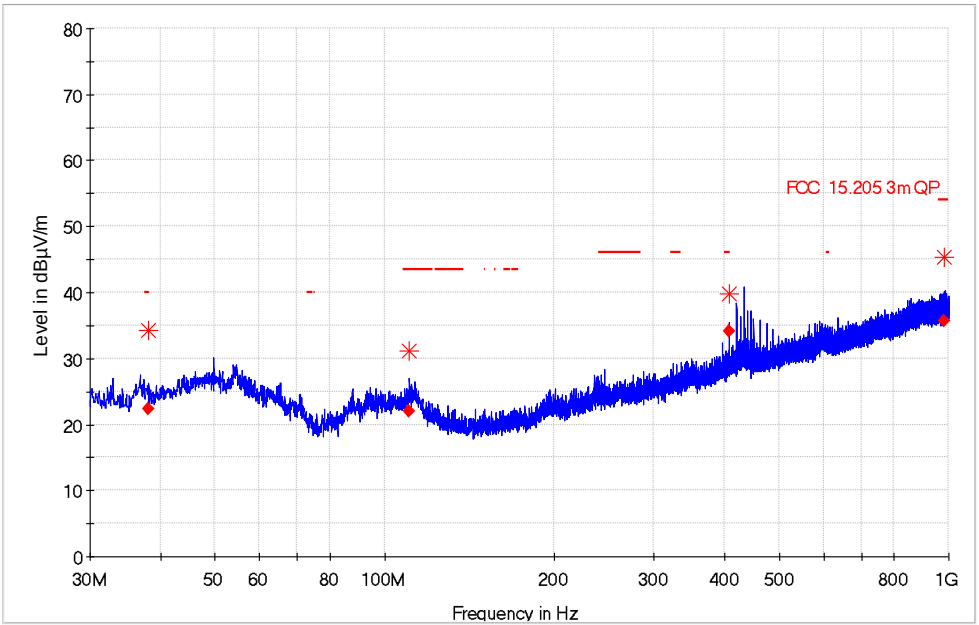
V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.1.8 Profile; 30 MHz to 1 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Y-Orientation

Maximum peak hold trace with quasi-peak values (◆)
Peak measurements (✳)

30 MHz to 1 GHz



4.1.9 Data; 30 MHz to 1 GHz, 15.247(d), 2.4 GHz Wi-Fi, Y-Orientation

Emission Frequency	Measured Quasi-Peak Value	Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
38.149560	22.25	40.00	17.75	V	243.0	116.0	Pass
110.628000	21.93	43.50	21.57	H	104.0	68.0	Pass
408.363746	34.10	46.00	11.90	V	121.0	202.0	Pass
983.401614	35.71	54.00	18.29	H	157.0	72.0	Pass

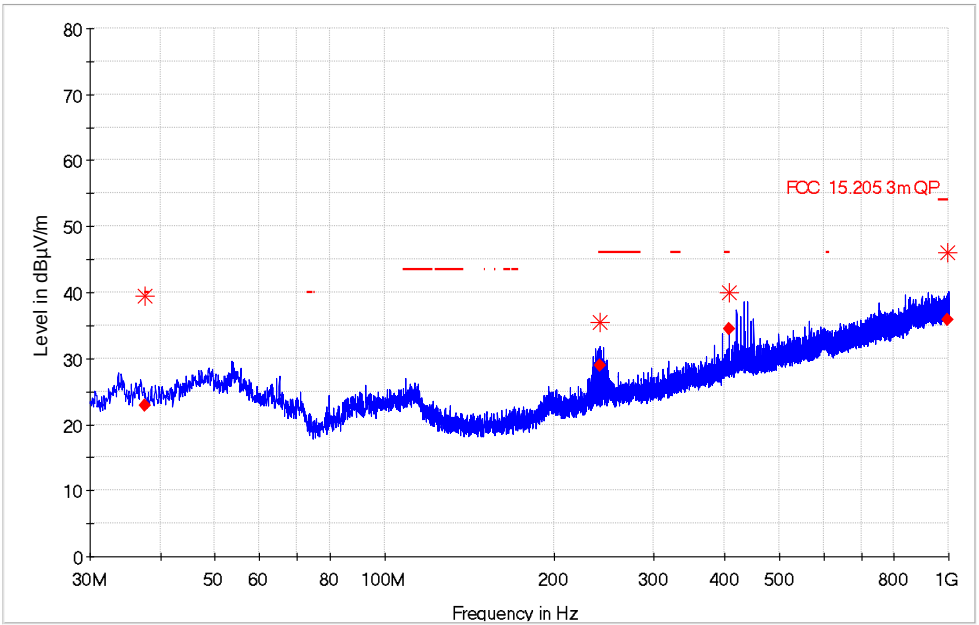
V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.1.10 Profile; 30 MHz to 1 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Z-Orientation

Maximum peak hold trace with quasi-peak values (◆)
Peak measurements (✳)

30 MHz to 1 GHz



4.1.11 Data; 30 MHz to 1 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Z-Orientation

Emission Frequency	Measured Quasi-Peak Value	Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
37.558334	22.89	40.00	17.11	V	262.0	229.0	Pass
241.026154	28.85	46.00	17.15	H	141.0	352.0	Pass
408.384626	34.51	46.00	11.49	H	248.0	31.0	Pass
993.842900	35.92	54.00	18.08	V	292.0	61.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

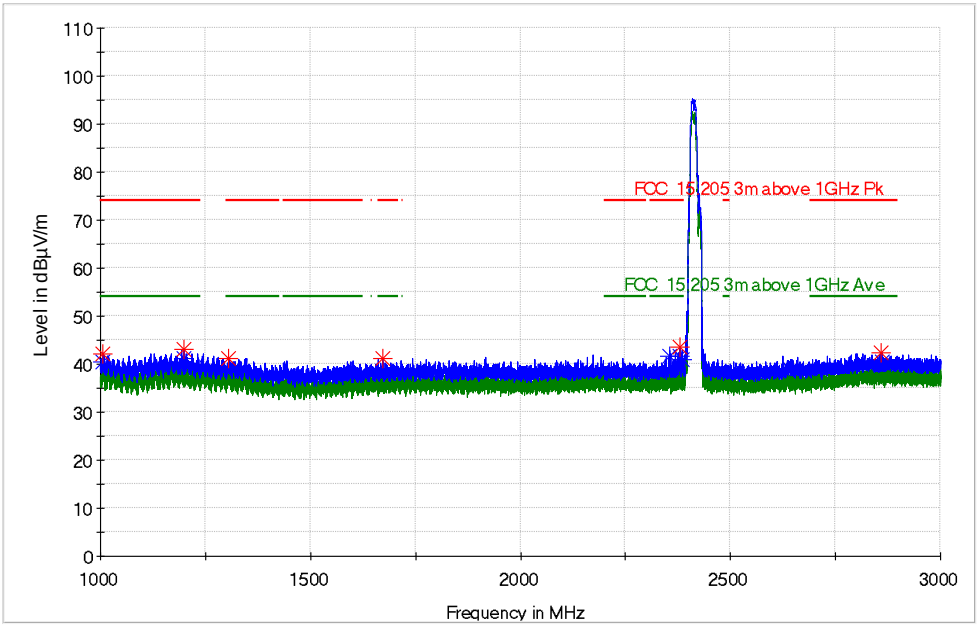
4.1.12 Profile; 1 GHz to 3 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Maximum hold trace with peak values (◆)

Peak measurements (✳)

Average measurements (◆)

1 GHz to 3 GHz



4.1.13 Data; 1 GHz to 3 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

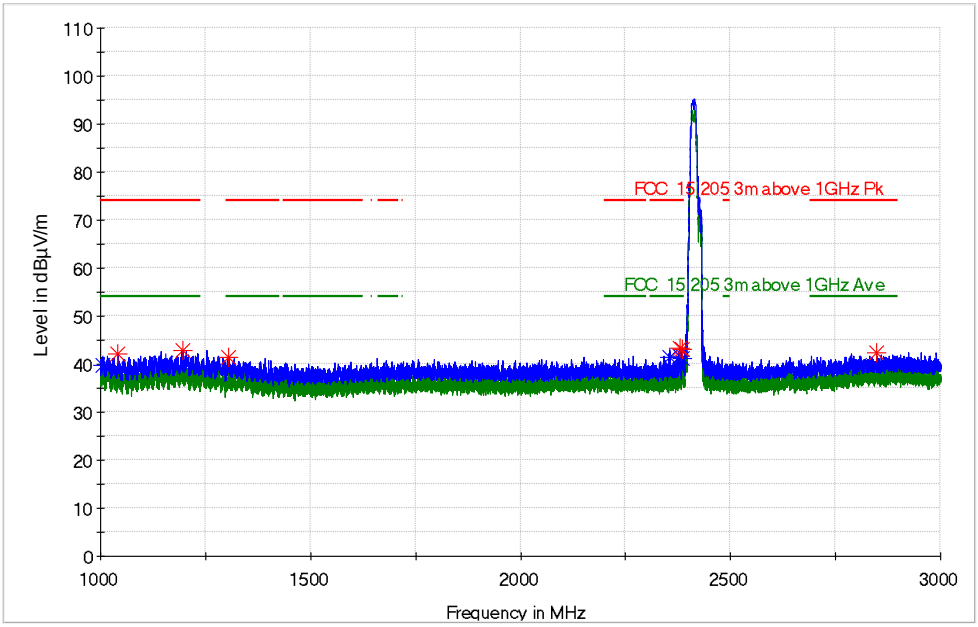
4.1.14 Profile; 1 GHz to 3 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Y-Orientation

Maximum hold trace with peak values (◆)

Peak measurements (✳)

Average measurements (◆)

1 GHz to 3 GHz



4.1.15 Data; 1 GHz to 3 GHz, 15.247(d), 2.4 GHz Wi-Fi, Y-Orientation

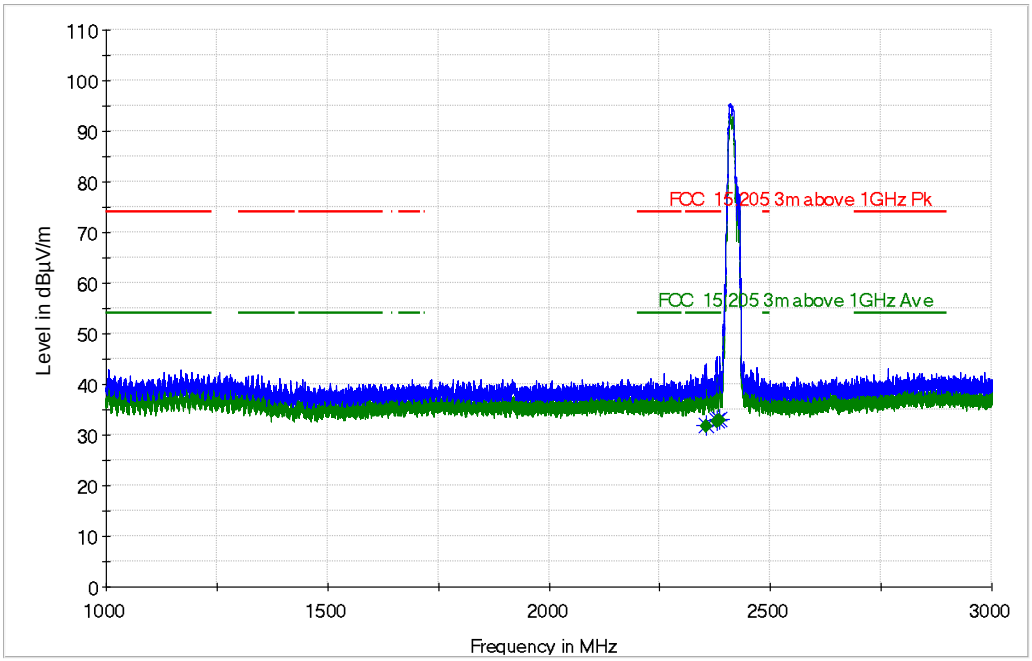
No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.1.16 Profile; 1 GHz to 3 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Z-Orientation

Maximum hold trace with peak values (◆)
Peak measurements (✳)
Average measurements (◆)

1 GHz to 3 GHz



4.1.17 Data; 1 GHz to 3 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Z-Orientation

Frequency	Peak	CISPR Average	Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBµV/m	dBµV/m	dBµV/m	dB	cm	H/V	Deg	dB/m	Status
1149.722222	---	31.76	54.00	22.25	172.0	V	0.0	32.1	Pass
4594.888889	---	32.55	54.00	21.45	117.0	V	0.0	36.3	Pass
7225.722222	---	32.85	54.00	32.85	202.0	V	0.0	40.9	Pass

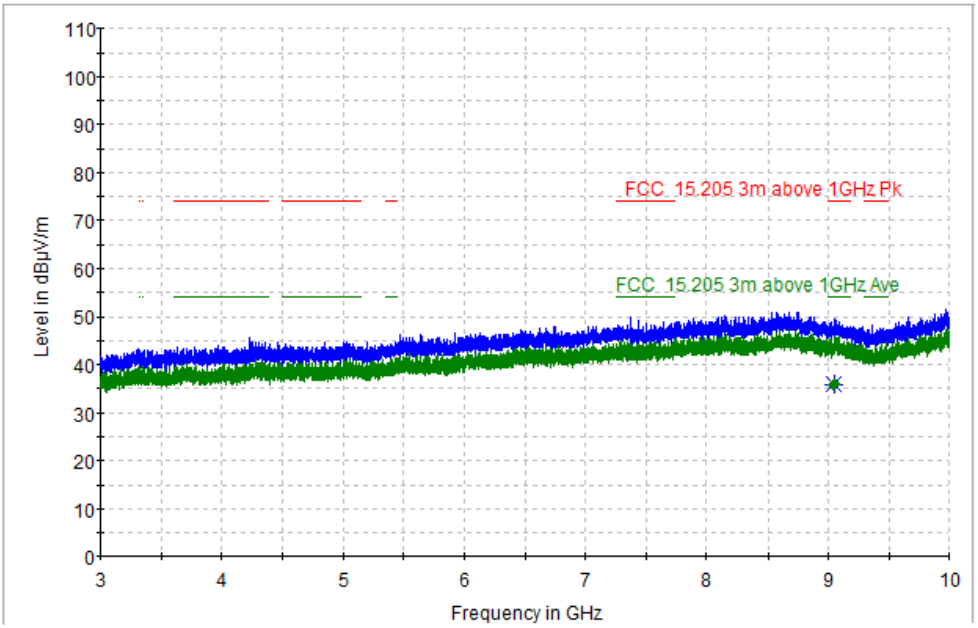
V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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

4.1.18 Profile; 3 GHz to 10 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Maximum hold trace with peak values (◆)
Peak measurements (✳)
Average measurements (◆)

3 GHz to 10 GHz



4.1.19 Data; 3 GHz to 10 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Frequency	Peak	CISPR Average	Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBµV/m	dBµV/m	dBµV/m	dB	cm	H/V	Deg	dB/m	Status
1149.722222	---	31.76	54.00	22.25	172.0	V	0.0	32.1	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

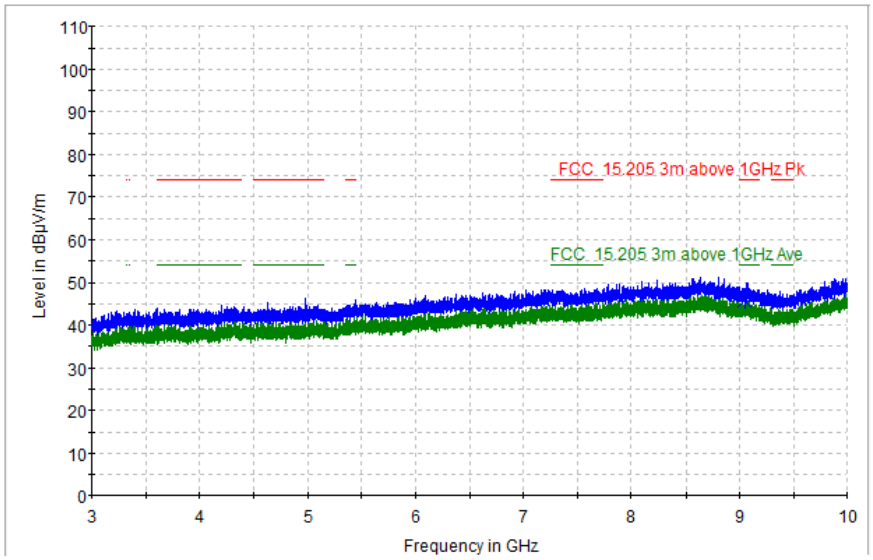
4.1.20 Profile; 3 GHz to 10 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Z-Orientation

Maximum hold trace with peak values (◆)

Peak measurements (✳)

Average measurements (◆)

3 GHz to 10 GHz



4.1.21 Data; 3 GHz to 10 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, Z-Orientation

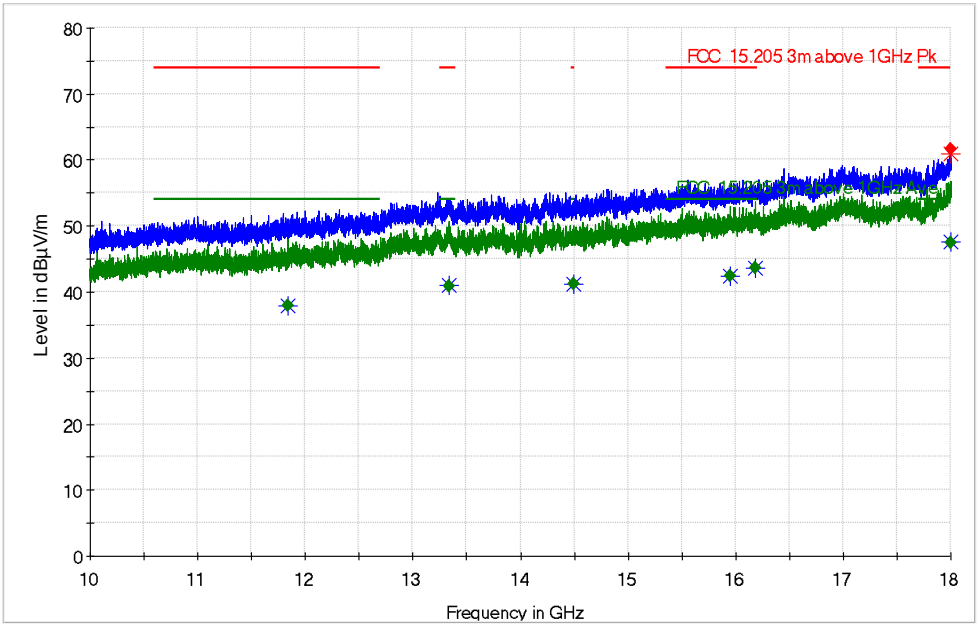
No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.1.22 Profile; 10 GHz to 18 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Maximum hold trace with peak values (◆)
Peak measurements (✳)
Average measurements (◆)

10 GHz to 18 GHz



4.1.23 Data; 10 GHz to 18 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi, X-Orientation

Frequency	Peak	CISPR Average	Limit	Margin	Height	Pol	Azimuth	
MHz	dBµV/m	dBµV/m	dBµV/m	dB	cm	H/V	Deg	Status
11839.50000	---	37.88	54.00	16.12	330.0	V	37.0	Pass
13331.00000	---	40.94	54.00	13.06	254.0	V	132.0	Pass
14494.50000	---	41.16	54.00	12.84	176.0	V	169.0	Pass
15945.00000	---	42.43	54.00	11.57	331.0	H	113.0	Pass
16183.00000	---	43.60	54.00	10.40	314.0	V	235.0	Pass
17995.50000	---	47.53	54.00	6.47	127.0	H	238.0	Pass
18000.00000	61.60	---	74.00	12.40	326.0	H	305.0	Pass

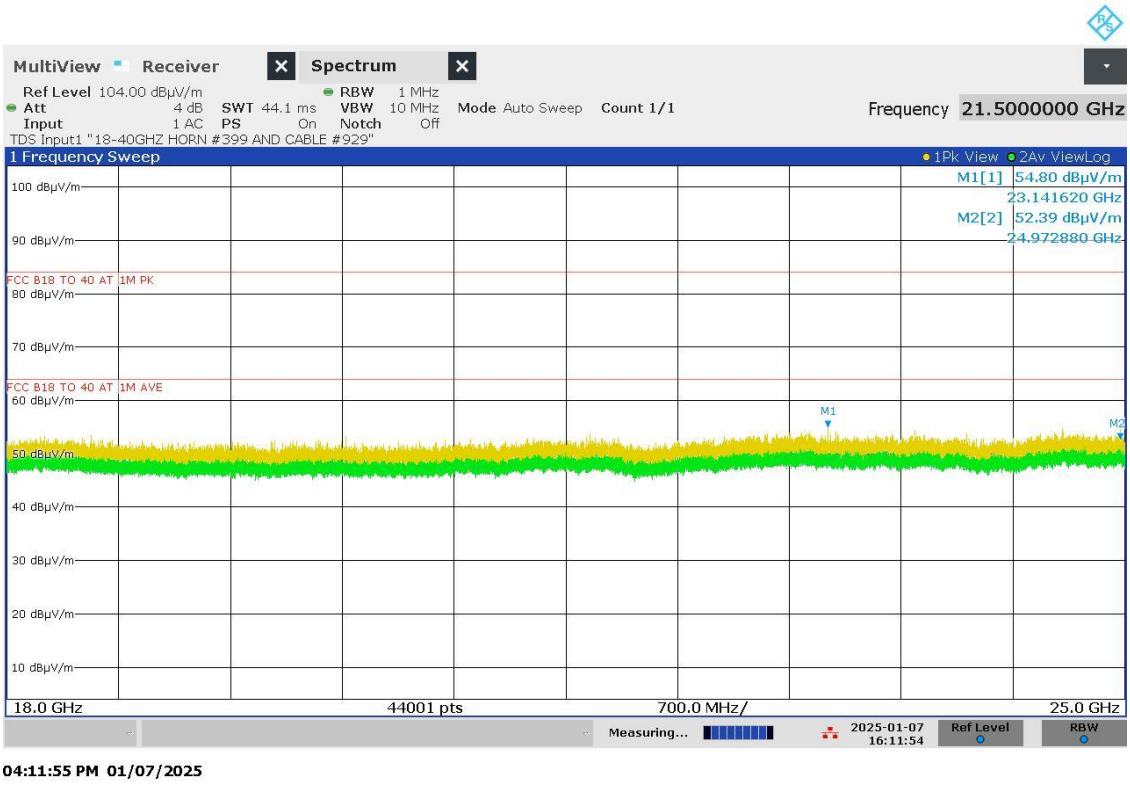
V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.1.24 Profile; 18 GHz to 25 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi

Maximum hold trace with peak values (◆)

18 GHz to 25 GHz



4.1.25 Data; 18 GHz to 25 GHz, FCC 15.247(d), 2.4 GHz Wi-Fi

No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.2 Radiated Emissions; FCC 15.407(b), 5 GHz Wi-Fi

4.2.1 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	HP	8449B	3008A01077	Pre-Amplifier (1GHz - 26.5GHz)	05/03/2025
516	1	Sucoflex	Cable N-Type	-	Cable N-Type for #250	15/03/2025
399	3	Q-par Angus	WBH18-40k	10300	Horn Antenna (18GHz - 40GHz)	27/02/2026
466	3	Schwarzbeck	BBHA9120B	571	Horn Antenna (1GHz - 10GHz)	04/08/2025
652	1	TFA	Weather Station	Jupiter	Weather Station	05/11/2025
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
788	1	Rohde & Schwarz	ESW44	101799	EMI Test Receiver (44GHz)	05/09/2025
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	21.1° Celsius	19.2° Celsius
Relative Humidity	37 %	45 %
Atmospheric Pressure	1039 millibars	1003 millibars
Test Date:	17th January 2025	23rd January 2025
Test Engineer:	Graeme Lawler	Graeme Lawler

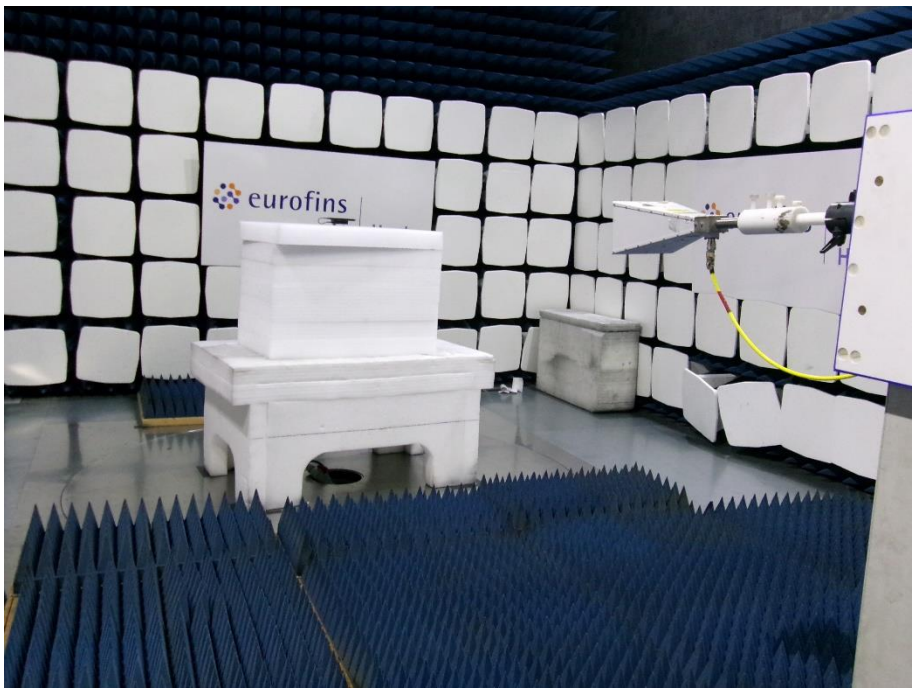
Note: “Calibration due date” means the instrument is certified within UKAS or traceable calibration certificate. “Internal” means the instrument is calibrated using Eurofins E&E UK procedures. “Not required” means the asset does not require calibration. “CP” is the interval period [year] prescribed for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

4.2.2 Test Configuration

Please refer to EUT Test Configuration #2.

4.2.3 Set-up Photos

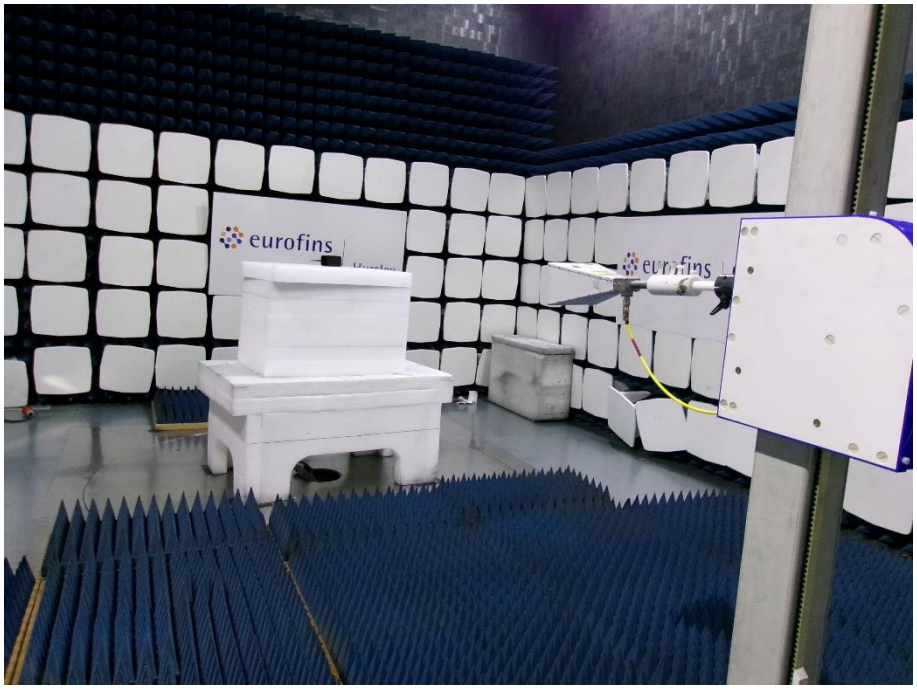
Radiated Emissions 1 GHz to 18 GHz



X-Orientation

Y-Orientation

Set-up Photos - Continued

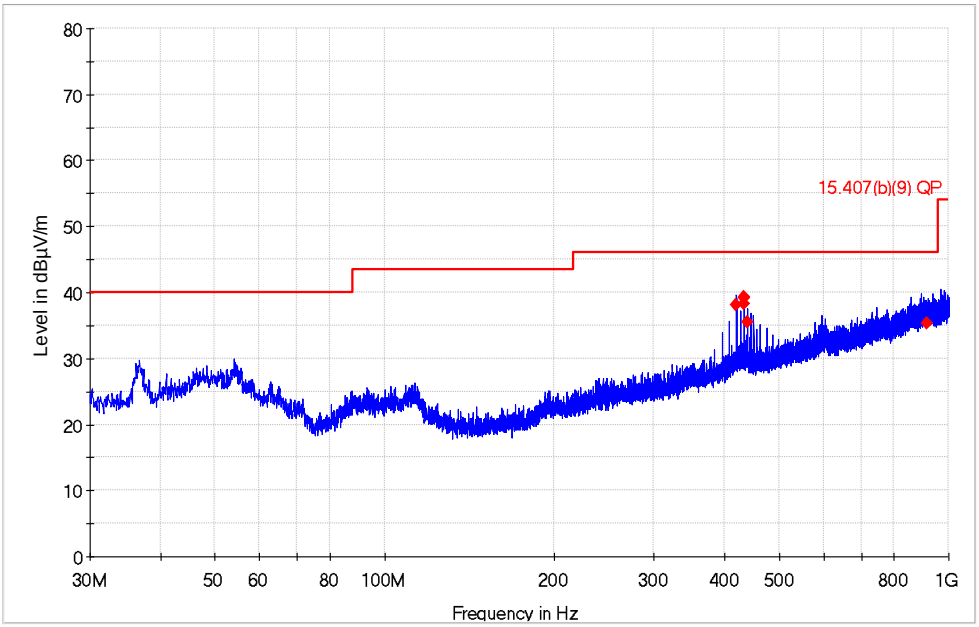


Z-Orientation

4.2.4 Profile; 30 MHz to 1 GHz, FCC 15.407(b), 5 GHz Wi-Fi

Maximum peak hold trace with quasi-peak values (◆)
Peak measurements (✳)

30 MHz to 1 GHz



4.2.5 Data; 30 MHz to 1 GHz, FCC 15.407(b), 5 GHz Wi-Fi

Emission Frequency	Measured Quasi-Peak Value	Quasi-Peak Limit	Pass Margin	Antenna Polarisation	Antenna Height	Turntable Azimuth	
MHz	dBµV/m	dBµV/m	dB	H/V	cm	deg	Status
420.568397	38.13	46.00	7.87	V	110.0	145.0	Pass
432.754819	39.17	46.00	6.83	V	107.0	120.0	Pass
432.761690	39.29	46.00	6.71	V	111.0	64.0	Pass
432.786663	38.26	46.00	7.74	V	124.0	117.0	Pass
438.836676	35.42	46.00	10.58	V	129.0	3.0	Pass
917.009627	35.36	46.00	10.64	V	232.0	46.0	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

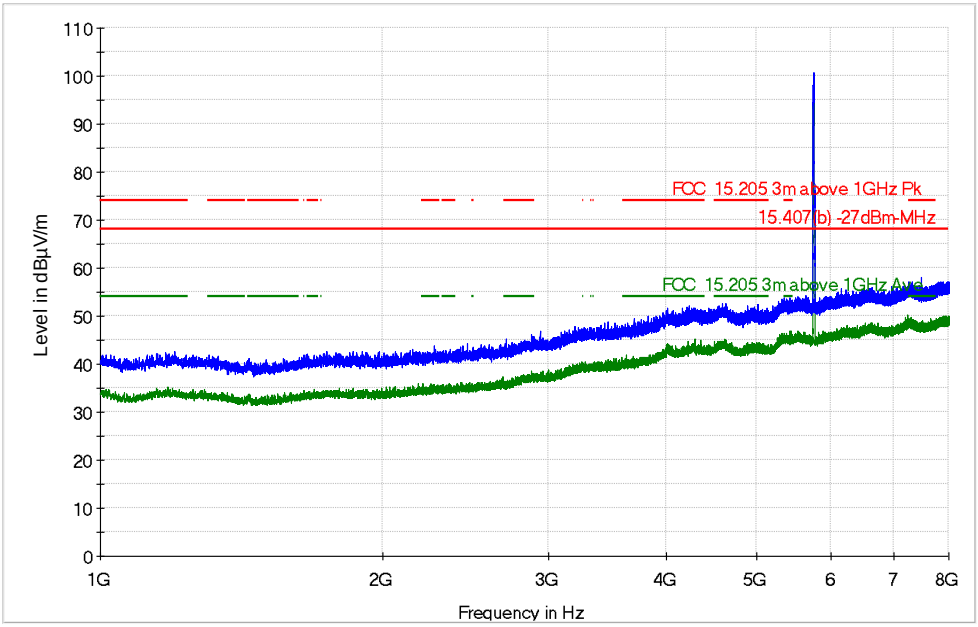
4.2.6 Profile; 1 to 8 GHz, FCC 15.407(b), 5 GHz Wi-Fi, X-Orientation

Maximum hold trace with peak values (◆)

Peak measurements (✳)

Average measurements (◆)

1 to 8 GHz



4.2.7 Data; 1 to 8 GHz, FCC 15.407(b), 5 GHz Wi-Fi, X-Orientation

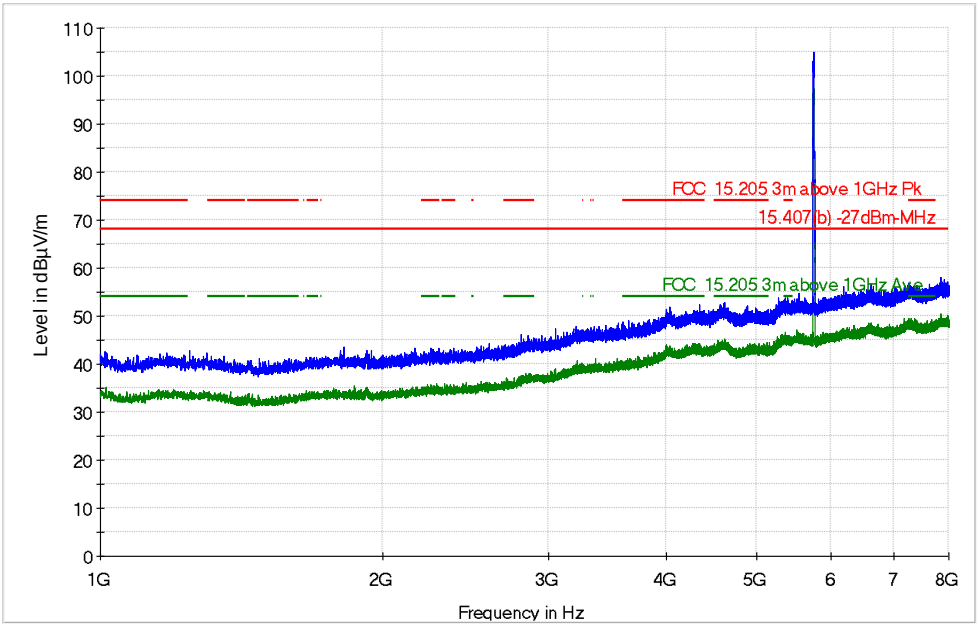
No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.2.8 Profile; 1 to 8 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Y-Orientation

Maximum hold trace with peak values (◆)
Peak measurements (✳)
Average measurements (◆)

1 to 8 GHz



4.2.9 Data; 1 to 8 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Y-Orientation

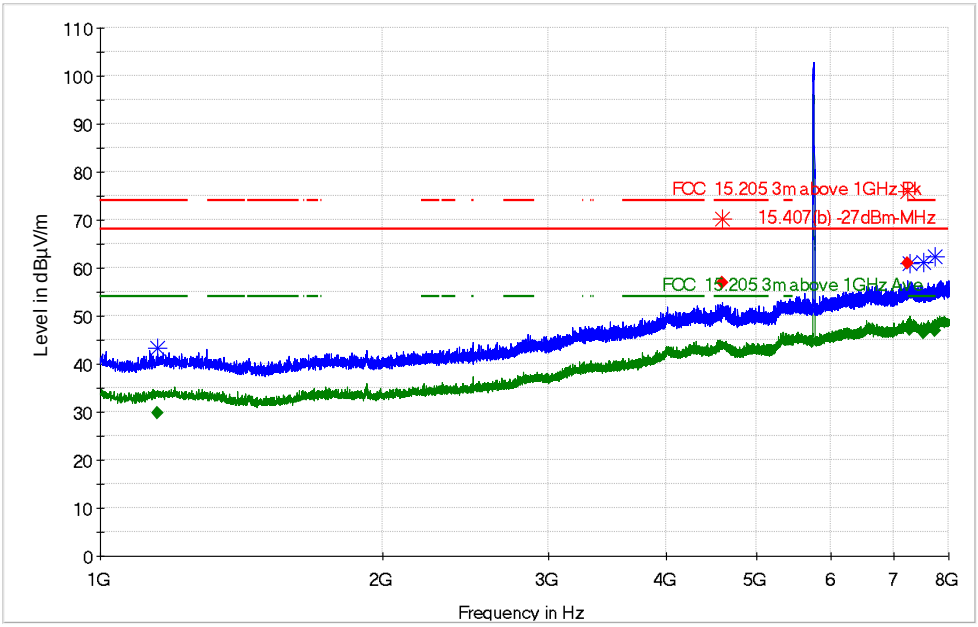
No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.2.10 Profile; 1 to 8 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Z-Orientation

Maximum hold trace with peak values (◆)
Peak measurements (✳)
Average measurements (◆)

1 to 8 GHz



4.2.11 Data; 1 to 8 GHz, 15.407(b), 5 GHz Wi-Fi, Z-Orientation

Frequency	Peak	CISPR Average	Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBµV/m	dBµV/m	dBµV/m	dB	cm	H/V	Deg	dB/m	Status
1149.722222	---	29.86	54.00	24.14	355.0	V	94.0	32.1	Pass
4594.888889	57.00	---	74.00	17.00	250.0	H	278.0	36.3	Pass
7225.722222	60.84	---	68.20	7.36	121.0	V	262.0	40.9	Pass
7279.777778	---	47.16	54.00	6.84	164.0	H	169.0	41.0	Pass
7521.666667	---	46.39	54.00	7.61	322.0	H	131.0	41.0	Pass
7727.000000	---	46.97	54.00	7.04	311.0	V	162.0	41.5	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

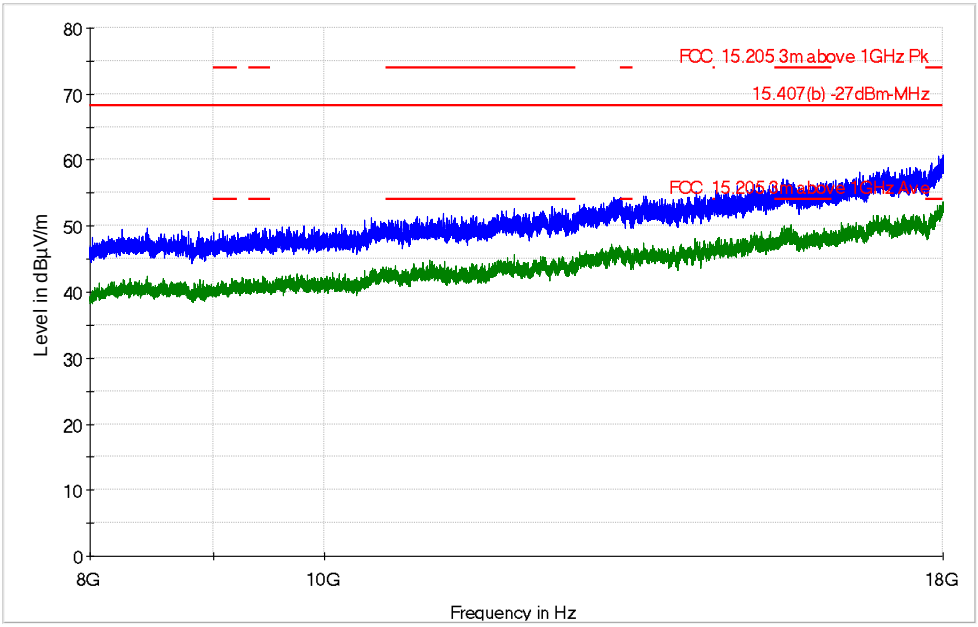
4.2.12 Profile; 8 to 18 GHz, FCC 15.407(b), 5 GHz Wi-Fi, X-Orientation

Maximum hold trace with peak values (◆)

Peak measurements (✳)

Average measurements (◆)

8 to 18 GHz



4.2.13 Data; 8 to 18 GHz, FCC 15.407(b), 5 GHz Wi-Fi, X-Orientation

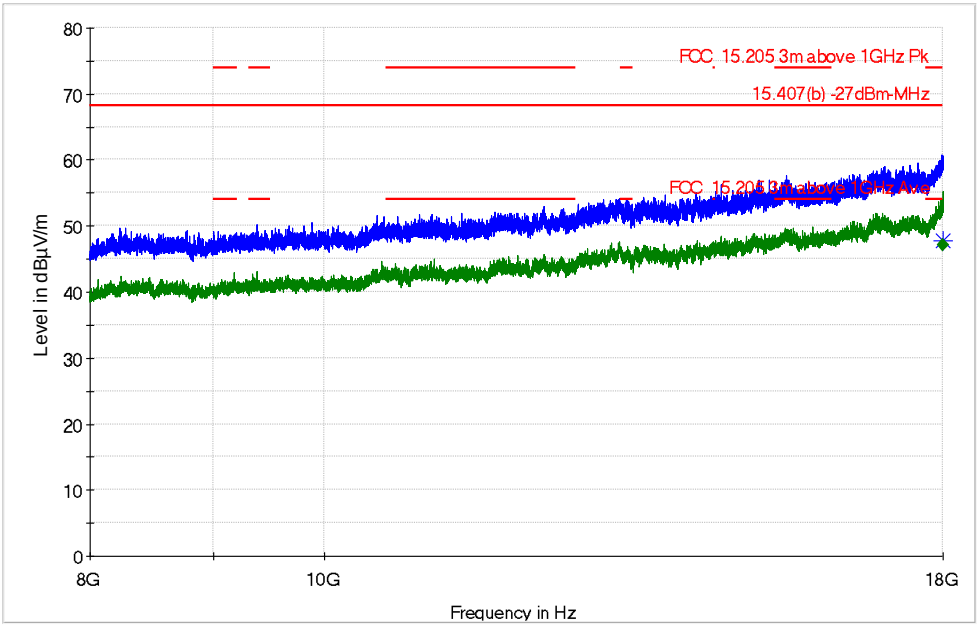
No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.2.14 Profile; 8 to 18 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Y-Orientation

Maximum hold trace with peak values (◆)
Peak measurements (✳)
Average measurements (◆)

8 to 18 GHz



4.2.15 Data; 8 to 18 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Y-Orientation

Frequency	Peak	CISPR Average	Limit	Margin	Height	Pol	Azimuth	Corr.	
MHz	dBµV/m	dBµV/m	dBµV/m	dB	cm	H/V	Deg	dB/m	Status
17997.00000	---	47.09	54.00	6.91	387.0	V	324.0	15.5	Pass

V = Vertical / H = Horizontal

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

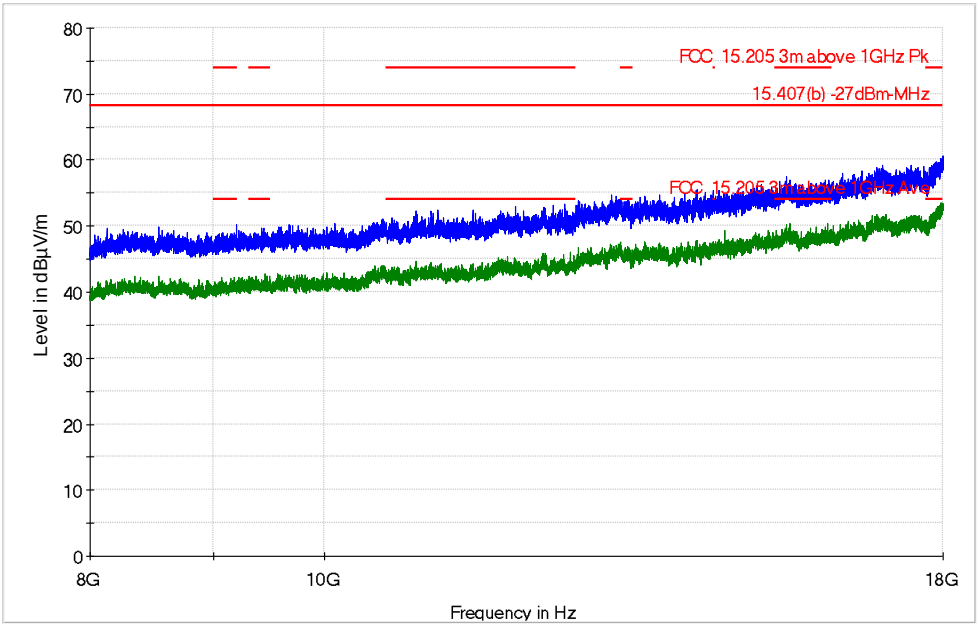
4.2.16 Profile; 8 to 18 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Z-Orientation

Maximum hold trace with peak values (◆)

Peak measurements (✳)

Average measurements (◆)

8 to 18 GHz



4.2.17 Data; 8 to 18 GHz, FCC 15.407(b), 5 GHz Wi-Fi, Z-Orientation

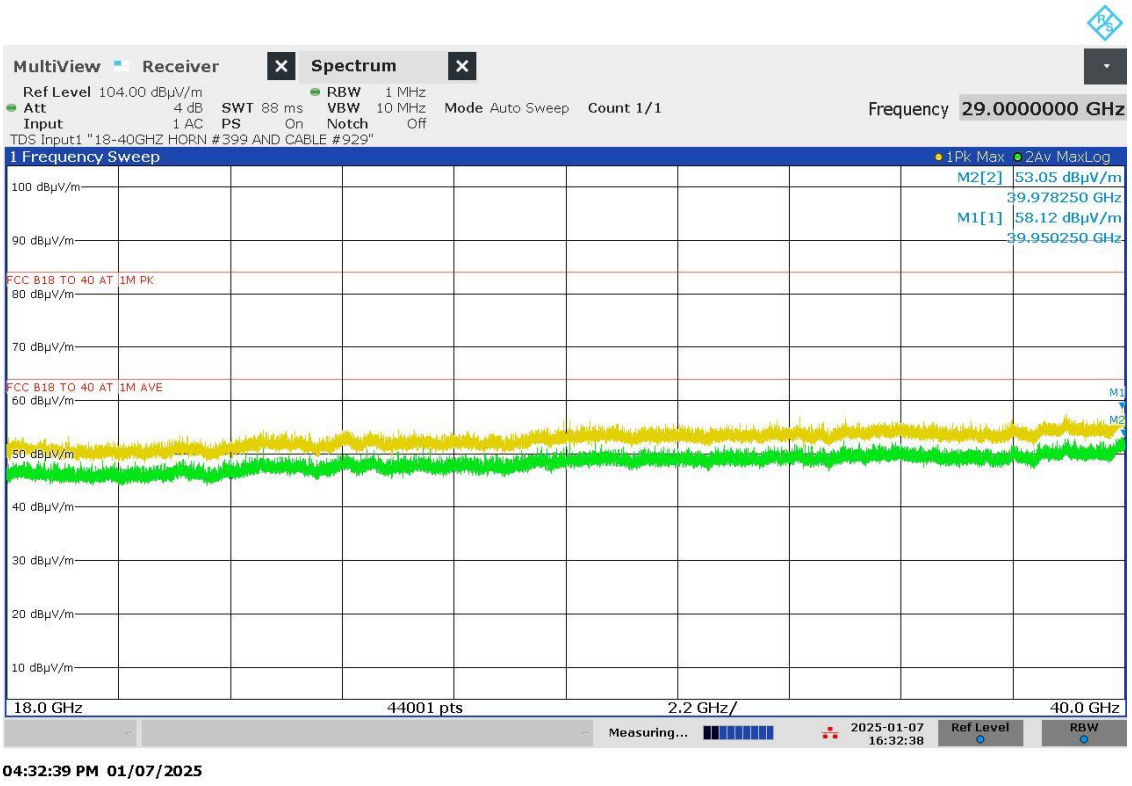
No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

4.2.18 Profile; 18 to 40 GHz, FCC 15.407(b), 5 GHz Wi-Fi

Maximum hold trace with peak values (◆)

18 to 40 GHz



4.2.19 Data; 18 to 40 GHz, FCC 15.407(b), 5 GHz Wi-Fi

No measurements were taken based on the max peak data values high margins relative to the limit lines.

The measurements reported are the highest emissions relative to the FCC/CISPR 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.

5.0 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 Ulab) are equal to or are less than the expected uncertainty values contained in CISPR 16-4-2 (known as Ucispr). 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 – 3 0 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), ±3.64dB (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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