



TEST REPORT

Test Report No. : UL-RPT-RP13627946-816A

Manufacturer : Ubisense
Model No. : D4UWBBLE
FCC ID : SEAUWBBLE
Technology : Wide Band Transmitter
Test Standard(s) : FCC Parts 15.209 & 15.250

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 1.0

Date of Issue: 10 June 2021

Checked by:

Sarah Williams
RF Operations Leader, Radio Laboratory

Company Signatory:

Ben Mercer
Lead Project Engineer, Radio Laboratory



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1. Customer Information

Company Name:	Ubisense
Address:	St Andrew's House, St Andrew's Road, Chesterton Cambridge CB4 1DL United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.250
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.250
Specification Reference:	47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.209
Site Registration:	685609
Lab. Designation No.:	UK2011
Location of Testing:	Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	16 February 2021 to 22 March 2021

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.250(a) & (b)	Transmitter -10 dB Bandwidth	
Part 15.250(a)	Transmitter Frequency Stability	
Parts 15.250(d)(4) & 15.209(a)	Transmitter Radiated Emissions Below 960 MHz	
Part 15.250(d)(1) & (2)	Transmitter Radiated Emissions Above 960 MHz	
Part 15.250(d)(3)	Transmitter Emission Peak Level	
Key to Results  = Complied  = Did not comply		

2.3. Methods and Procedures

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

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	UBISENSE
Model Name or Number:	D4UWBBLE
Test Sample Serial Number:	0011ce00000061b1 (<i>Radiated sample</i>)
Hardware Version:	RevD
Firmware Version:	0.1
FCC ID:	SEAUWBBLE

Brand Name:	Ubisense
Model Name or Number:	D4UWBBLE
Test Sample Serial Number:	0011ce00000061ab (<i>Conducted sample</i>)
Hardware Version:	RevD
Firmware Version:	0.1
FCC ID:	SEAUWBBLE

3.2. Description of EUT

The equipment under test was a location-tracking tag containing a proprietary BLE based transmitter and a wide band transmitter operating in the 5925 MHz to 7250 MHz band. The unit has an integral antenna and is normally powered by battery from a nominal 3.0 VDC supply.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	Wide Band Transmitter	
Power Supply Requirement:	Nominal	3.0 VDC
Type of Unit:	Transmitter	
Type of Equipment:	Module	
Modulation:	OOK of a 1 Mpps (pulse-per-second) pulse train	
Duty Cycle:	100%	
Transmit Frequency Range:	5925 to 7250 MHz	
Transmit Channel Tested:	Channel ID	Channel Frequency (MHz)
	Single	6500

3.5. Support Equipment

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

Description:	Bar Magnet
Brand Name:	Not marked or stated
Model Name or Number:	Not marked or stated
Serial Number:	Not marked or stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Constantly transmitting at full power with a wide band modulated pulse train representing the maximum possible data payload.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- The customer pre-loaded test software/firmware prior to testing. A bar magnet was used to activate the magnetic sensor on the EUT to switch between the relevant pre-loaded test modes. This enabled the EUT to transmit in wide band test mode with a modulated pulse train.
- For radiated tests, the EUT was powered by a 3.0 V lithium battery. The battery was soldered on the PCB. The battery voltage was monitored throughout testing.
- Frequency stability measurements were performed using sample with serial number 0011ce00000061ab. This sample was connected to a variable power supply in order to vary the voltage. This was monitored by a calibrated digital voltmeter throughout the test. All other measurements were performed using sample with serial number 0011ce00000061b1.

5. Measurements, Examinations and Derived Results

5.1. General Comments

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

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

5.2. Test Results

5.2.1. Transmitter -10 dB Bandwidth

Test Summary:

Test Engineer:	Jose Bayona	Test Date:	16 February 2021
Test Sample Serial Number:	0011ce00000061b1		

FCC Reference:	Part 15.250(a) & (b)
Test Method Used:	Part 15.250(e)(4) & ANSI C63.10 Section 10.1

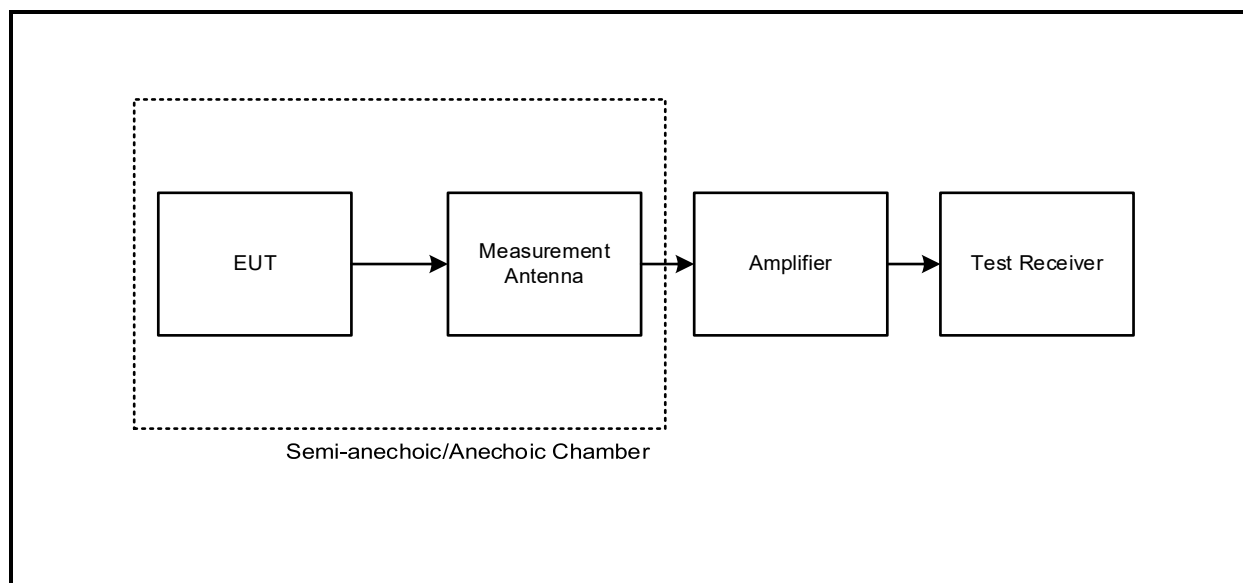
Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	34 to 36

Note(s):

1. The -10 dB bandwidth was measured using a peak detector in a 1 MHz resolution bandwidth and a video bandwidth greater than or equal to the resolution bandwidth. Markers were placed on the lower and upper -10 dB points and the frequencies recorded.
2. The -10 dB Bandwidth was calculated in accordance with ANSI C63.10 section 10.1

Test Setup Diagram:

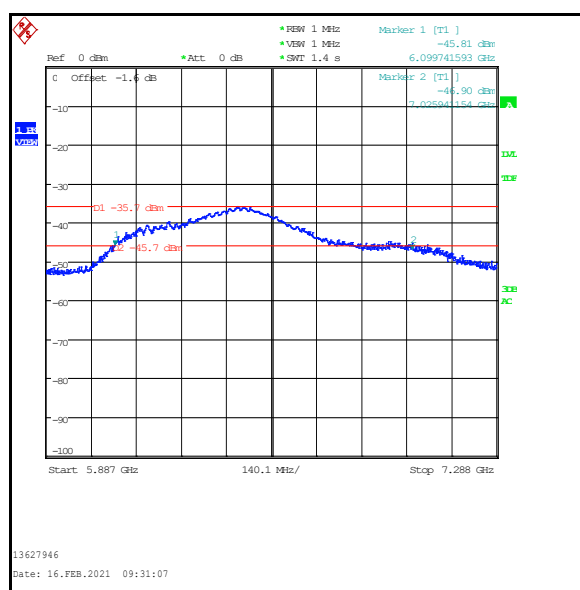


Transmitter -10 dB Bandwidth (continued)**Results: 15.250(a)**

Lower -10 dB Frequency (MHz)	Upper -10 dB Frequency (MHz)	Lower Limit (MHz)	Upper Limit (MHz)	Result
6099.742	7025.941	5925	7250	Complied

Results: 15.250(b)

-10 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
926.199	>50	876.199	Complied

**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2040	Thermohygrometer	Testo	608-H1	45124934	10 Dec 2021	12
K0001	3m RSE Chamber	Rainford EMC	N/A	N/A	14 Oct 2021	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	14 Apr 2021	12
A3155	Pre-Amplifier	Com-Power	PAM-118A	18010037	29 Sep 2021	12
A3138	Antenna	Schwarzbeck	BBHA 9120 B	00702	06 Oct 2021	12
G0614	Signal Generator	Rohde & Schwarz	SMB100A	177687	19 May 2023	36
M1435	Power Meter	Hewlett Packard	437B	3125U14631	15 Jul 2021	12
M1227	Power Sensor	Agilent	8487D	3318A02122	18 May 2021	12
M1649	Attenuator	Hewlett Packard	11708A	26584	16 Nov 2021	12
A2937	Attenuator	AtlanTecRF	AN18W5-06	208147#1	03 Feb 2022	12
A3097	Antenna	Link Microtek	AM1-18HA	15275	30 Aug 2021	36

5.2.2. Transmitter Frequency Stability (Temperature Variation)**Test Summary:**

Test Engineer:	Jose Bayona	Test Date:	22 March 2021
Test Sample Serial Number:	0011ce00000061ab		

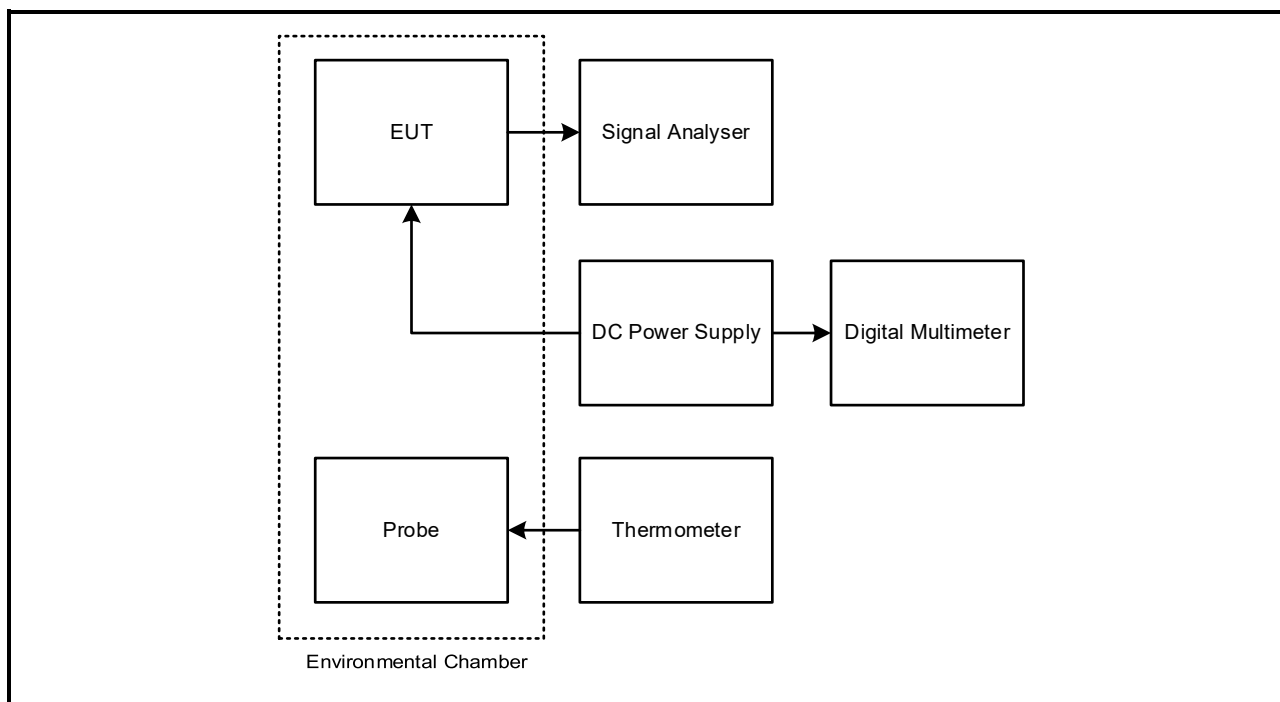
FCC Reference:	Part 15.250(a)
Test Method Used:	Part 15.250(e)(4) and Notes below

Environmental Conditions:

Ambient Temperature (°C):	21
Ambient Relative Humidity (%):	39

Note(s):

1. The -10 dB bandwidth was measured using a peak detector in a 1 MHz resolution bandwidth and a video bandwidth greater than or equal to the resolution bandwidth. -10 dB points were measured at the manufacturer's stated minimum and maximum temperatures of -20°C and +70°C. Markers were placed on the lower and upper -10 dB points and the results recorded in the table below.
2. A sufficient stabilisation period was allowed at each temperature level and temperature was monitored throughout the test with a calibrated digital thermometer.
3. 3.0 VDC was the nominal voltage used throughout the test.
4. Result plots are archived on the company IT server and available for inspection if required.

Test Setup Diagram:

Transmitter Frequency Stability (Temperature Variation) (continued)**Results:**

Temperature	Lower -10 dB Frequency (MHz)	Upper -10 dB Frequency (MHz)	Lower Limit (MHz)	Upper Limit (MHz)	Result
-20°C	6152.200	6916.800	5925	7250	Complied
21°C	6154.200	6843.800	5925	7250	Complied
70°C	6151.200	6723.900	5925	7250	Complied

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2001	Thermohygrometer	Testo	608-H1	45041824	10 Dec 2021	12
M2033	Signal Analyser	Rohde & Schwarz	FSV13	101667	24 Jul 2021	12
S0564	DC Power Supply	TTi	PL330P	62941	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	09 Apr 2021	12
M1815	Environmental Chamber	Votsch/Heraeus	VT4002	521/83083	Calibrated before use	-
M1643	Thermometer	Fluke	52II	18890136	27 Sep 2021	12

5.2.3. Transmitter Frequency Stability (Voltage Variation)**Test Summary:**

Test Engineer:	Jose Bayona	Test Date:	22 March 2021
Test Sample Serial Number:	0011ce00000061ab		

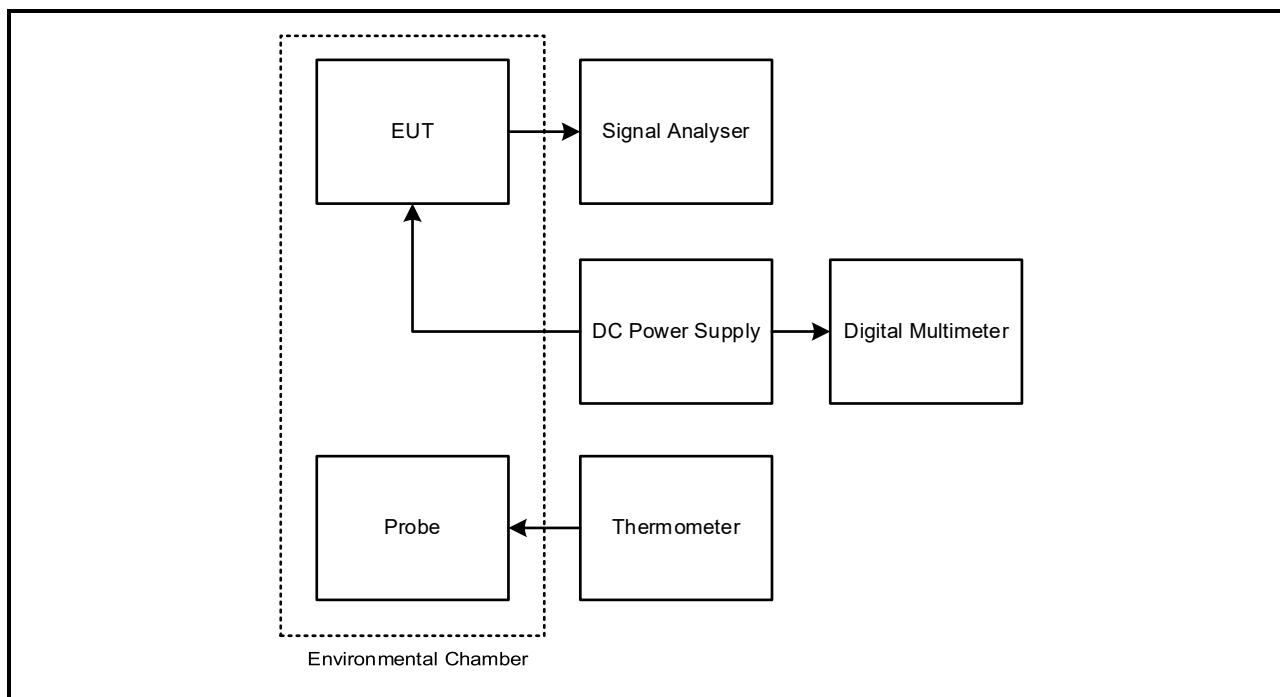
FCC Reference:	Part 15.250(a)
Test Method Used:	Parts 15.250(e)(4) and Notes below

Environmental Conditions:

Ambient Temperature (°C):	21
Ambient Relative Humidity (%):	39

Note(s):

1. The -10 dB bandwidth was measured using a peak detector in a 1 MHz resolution bandwidth and a video bandwidth greater than or equal to the resolution bandwidth. -10 dB points were measured at the manufacturer's stated minimum, nominal and maximum voltages. Markers were placed on the lower and upper -10 dB points and the results recorded in the table below.
2. Voltage was monitored throughout the test with a calibrated digital voltmeter.
3. Result plots are archived on the company IT server and available for inspection if required.

Test Setup Diagram:

Transmitter Frequency Stability (Voltage Variation) (continued)**Results:**

Voltage (DC)	Lower -10 dB Frequency (MHz)	Upper -10 dB Frequency (MHz)	Lower Limit (MHz)	Upper Limit (MHz)	Result
2.0	6154.200	6842.800	5925	7250	Complied
3.0	6154.200	6843.800	5925	7250	Complied
3.1	6155.200	6842.800	5925	7250	Complied

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2001	Thermohygrometer	Testo	608-H1	45041824	10 Dec 2021	12
M2033	Signal Analyser	Rohde & Schwarz	FSV13	101667	24 Jul 2021	12
S0564	DC Power Supply	TTi	PL330P	62941	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	9 Apr 2021	12

5.2.4. Transmitter Radiated Emissions Below 960 MHz**Test Summary:**

Test Engineers:	Jose Bayona & Andrew Edwards	Test Date:	18 February 2021
Test Sample Serial Number:	0011ce00000061b1		

FCC Reference:	Parts 15.250(d)(4) & 15.209(a)
Test Method Used:	ANSI C63.10 Sections 6.3, 6.4 and 6.5
Frequency Range	9 kHz to 960 MHz

Environmental Conditions:

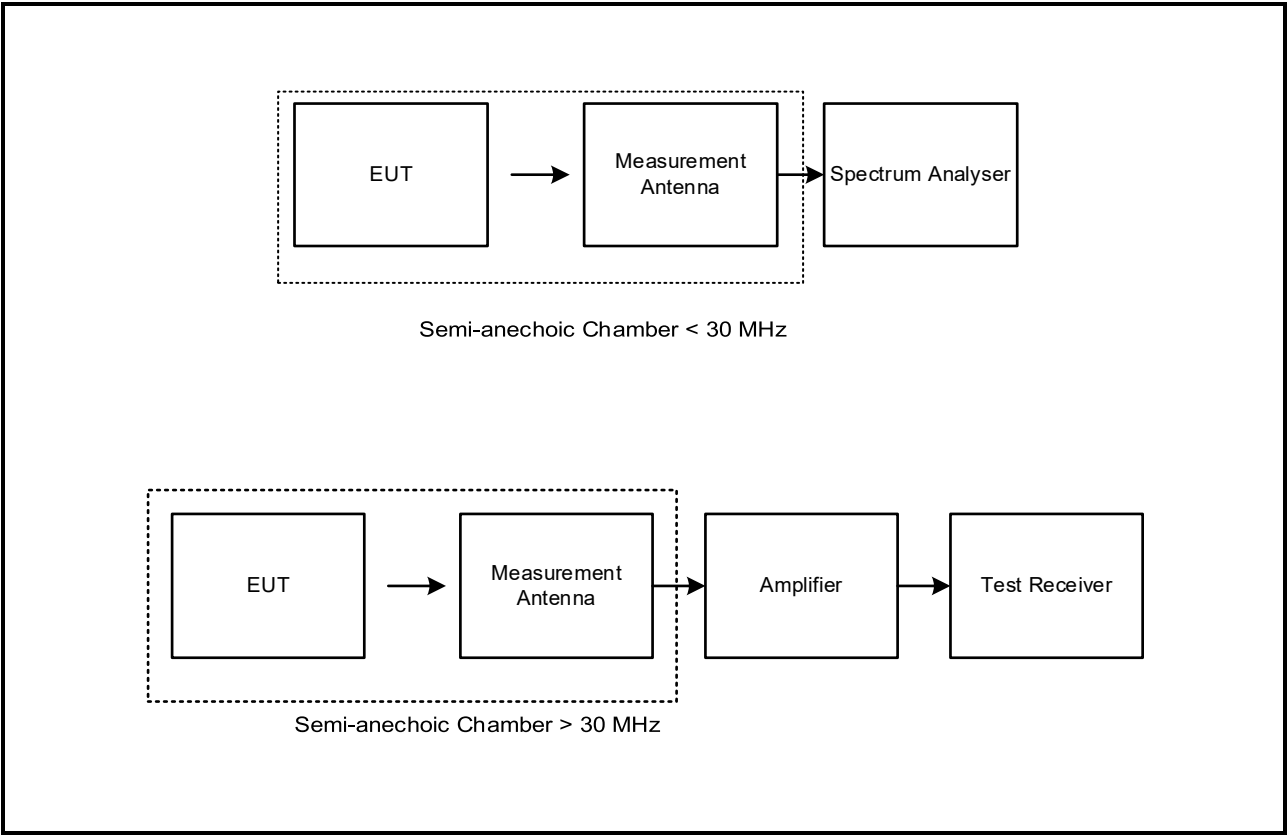
Temperature (°C):	15 to 22
Relative Humidity (%):	38 to 67

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver, therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
3. Measurements below 30 MHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. The limit was extrapolated to 3 metres in accordance with ANSI C63.10 Section 6.4.4.2. Correlation data between the semi-anechoic chamber and an open-field test site is available upon request.
4. Measurements above 30 MHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
5. Pre-scans were performed and markers placed on the highest measured levels. The test receiver was configured as follows: For 9 kHz to 150 kHz, the resolution bandwidth was set to 300 Hz and video bandwidth 1 kHz. A peak detector was used and trace mode was Max Hold. For 150 kHz to 30 MHz, the resolution bandwidth was set to 10 kHz and video bandwidth 30 kHz, trace mode was Max Hold. For 30 MHz to 960 MHz, the resolution bandwidth was set to 120 kHz and video bandwidth 500 kHz. The sweep time was set to auto. A peak detector was used, sweep time was set to auto and trace mode was Max Hold.

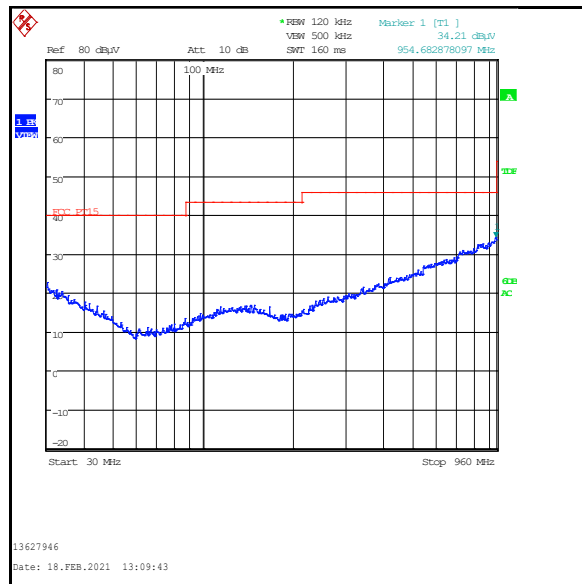
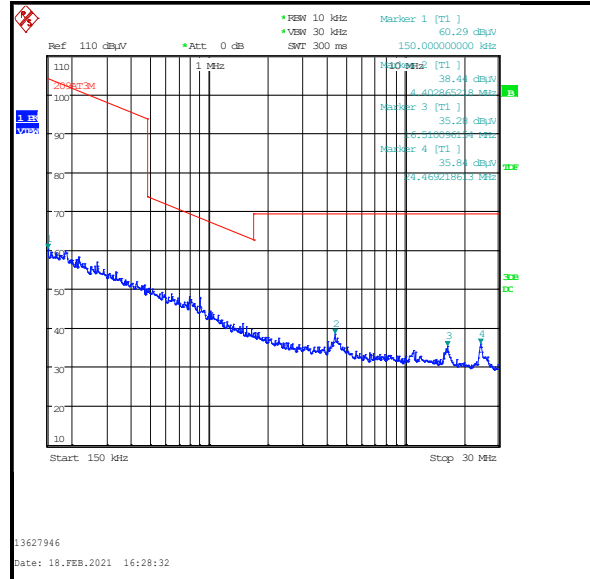
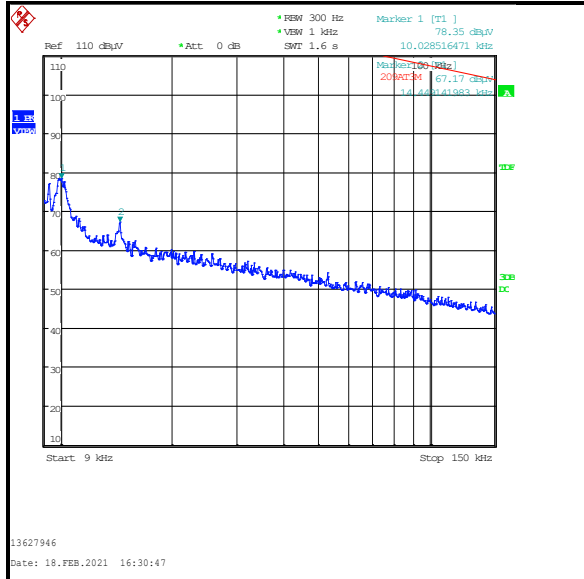
Transmitter Radiated Emissions Below 960 MHz (continued)

Test Setup Diagram:



Transmitter Radiated Emissions Below 960 MHz (continued)**Results: Peak**

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
954.683	Vertical	34.2	46.0	11.8	Complied



Transmitter Radiated Emissions Below 960 MHz (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2040	Thermohygrometer	Testo	608-H1	45124934	10 Dec 2021	12
K0001	3m RSE Chamber	Rainford EMC	N/A	N/A	14 Oct 2021	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	14 Apr 2021	12
A3154	Pre-Amplifier	Com-Power	PAM-103	18020012	29 Sep 2021	12
A553	Antenna	Chase	CBL6111A	1593	21 Sep 2021	12
A3198	Magnetic Loop Antenna	ETS-Lindgren	6502	00221887	01 Apr 2021	12

5.2.5. Transmitter Radiated Emissions Above 960 MHz**Test Summary:**

Test Engineer:	Jose Bayona	Test Dates:	16 February 2021 to 18 February 2021
Test Sample Serial Number:	0011ce00000061b1		

FCC Reference:	Part 15.250(d)(1)(2)
Test Method Used:	Part 15.250(e)(1) & ANSI C63.10 Sections 6.3, 6.6 & 10.3
Frequency Range	960 MHz to 40 GHz

Environmental Conditions:

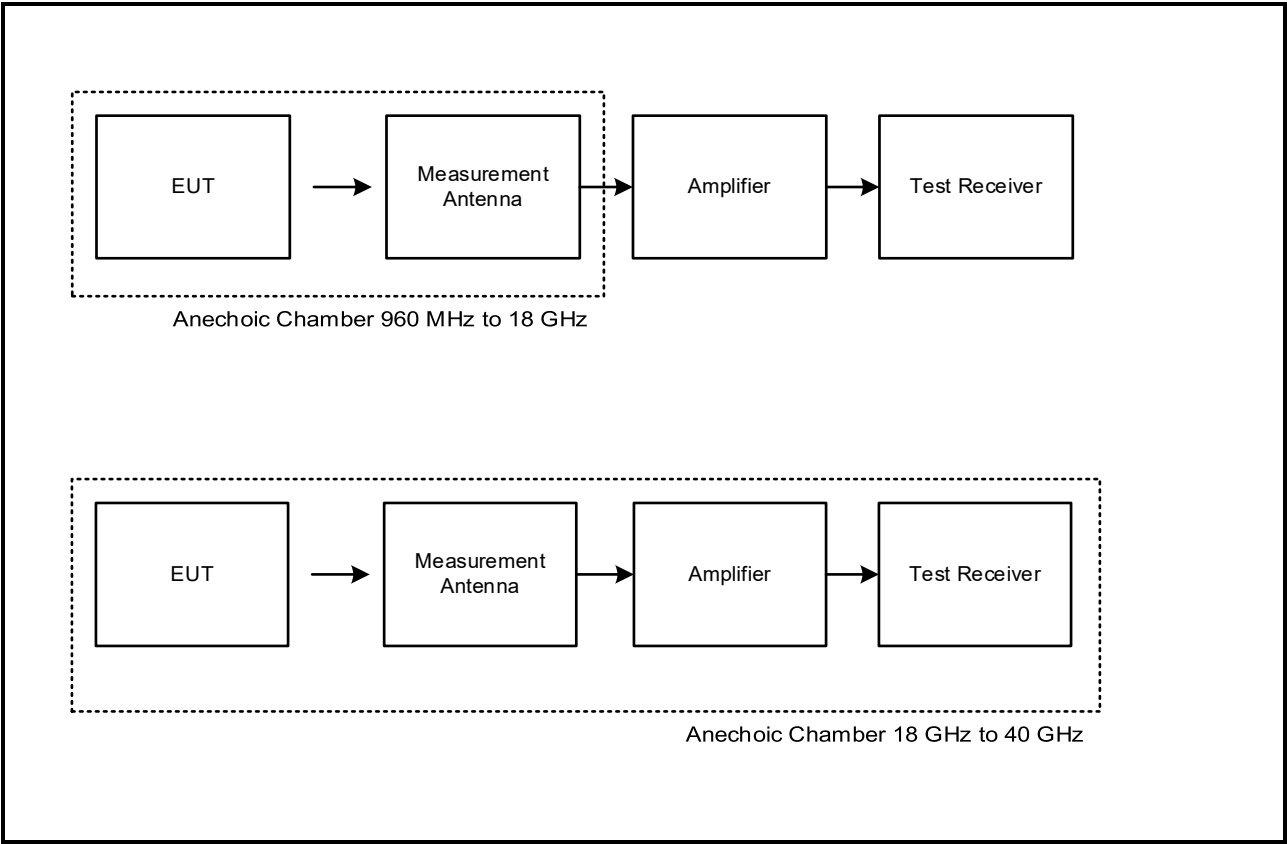
Temperature (°C):	20 to 21
Relative Humidity (%):	36 to 37

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. The emission shown on the 5.887 GHz to 7.288 GHz plot at approximately 6501 MHz is the EUT fundamental.
3. The emissions shown on the 1.559 GHz to 1.610 GHz plot at approximately 1556 MHz and 1560MHz were investigated and found to be ambient.
4. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest noise floor reading of the measuring receiver was recorded in the table below.
5. In certain frequency ranges it was not possible to perform the measurements at the required distance due to the level of the measurement system noise floor compared with the limit. Therefore the test distance was reduced and a correction offset was applied to the measurements.
6. Pre-scans below 1 GHz were performed in a fully anechoic chamber (Asset Number K0001) at a distance of 2 metres. The EUT was placed at a height of 80 cm above the test chamber floor in the centre of the chamber turntable. The measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT.
7. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0001) at a distance between 0.2 to 3 metres (the test distance for each range is stated in Appendix 1 of this test report). The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in an anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
8. Pre-scans were performed and a marker placed on the highest measured level of the appropriate plot. The test receiver resolution bandwidth was set to 1 MHz and video bandwidth 1 MHz. The sweep time was set in accordance with FCC Part 15.250(e)(1).
9. Due to limitations of the test receiver it was necessary to overlap the start and stop frequencies of pre-scan measurement ranges to satisfy the sweep point requirement in FCC Part 15.250(e)(1). Pre-scan measurements < 1 GHz were performed between 799 MHz to 1 GHz; a frequency line has been placed at 960 MHz to indicate the actual measurement start frequency. Appendix 1 of this report details the frequency range, sweep points and sweep time used.

Transmitter Radiated Emissions Above 960 MHz (continued)

Test Setup Diagrams:

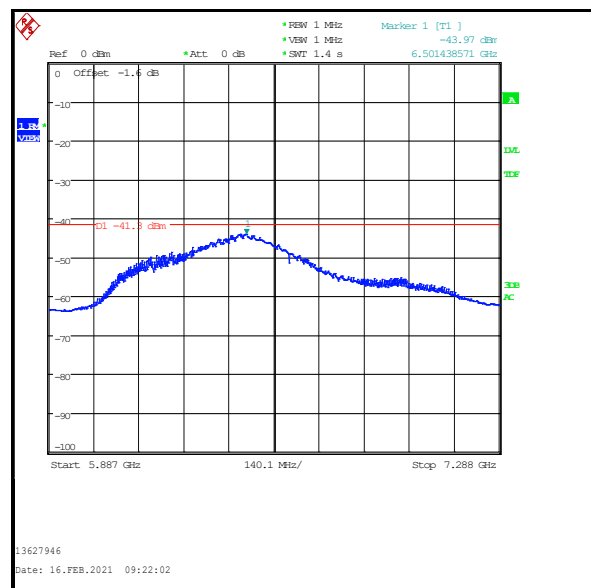
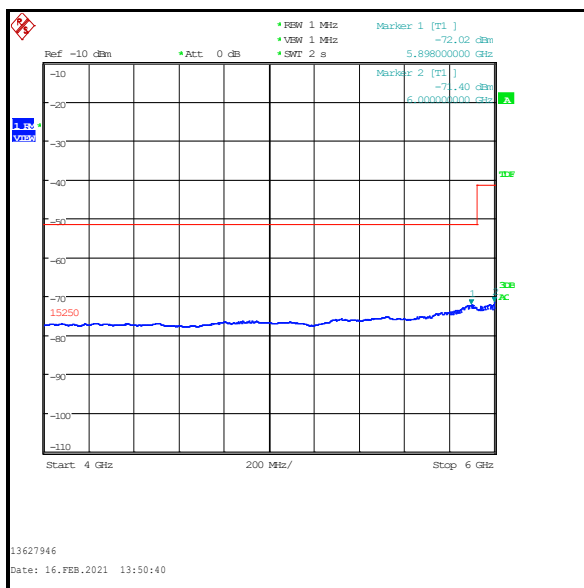
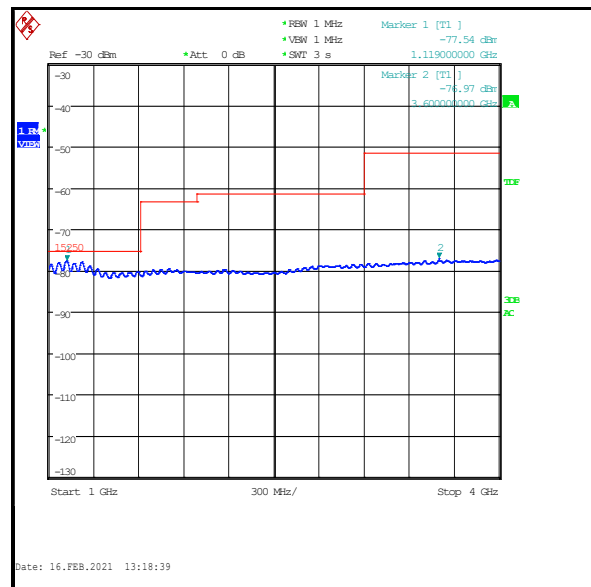
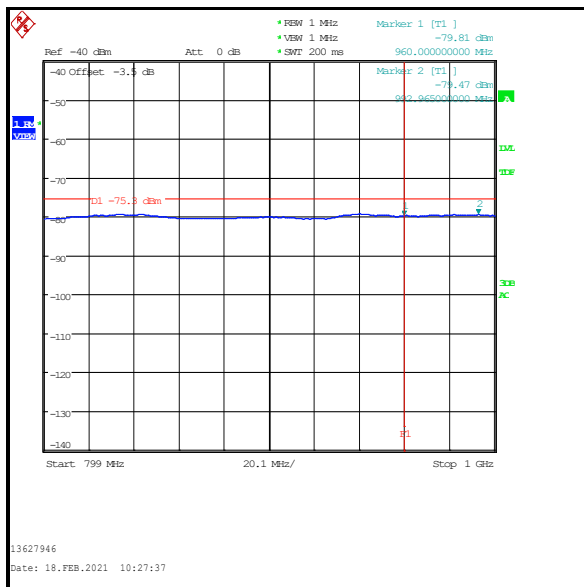


Transmitter Radiated Emissions Above 960 MHz (continued)**Results: Part 15.250(d)(1)**

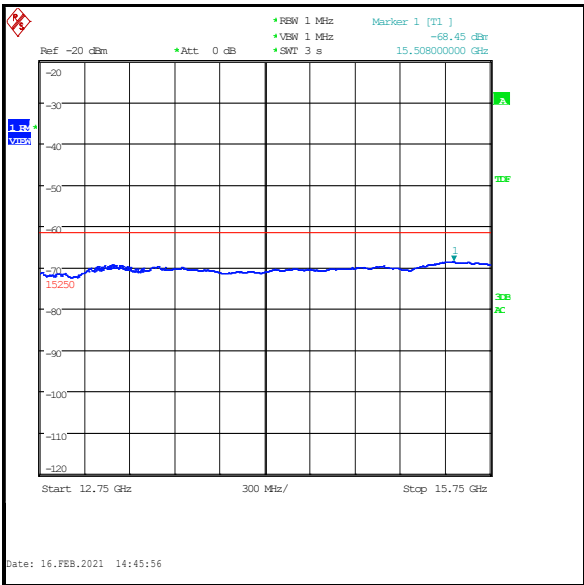
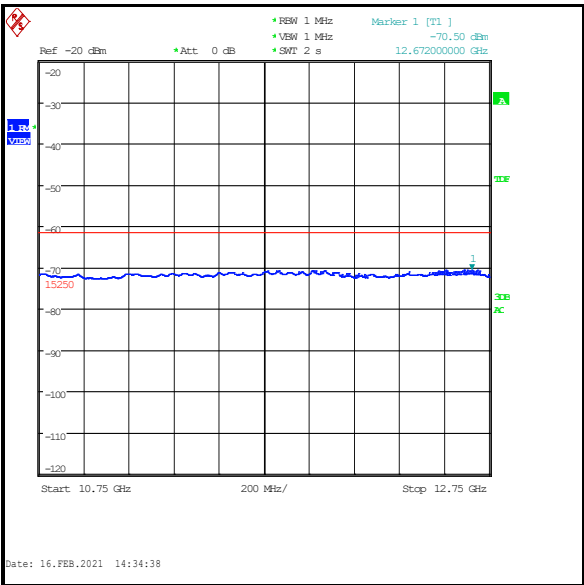
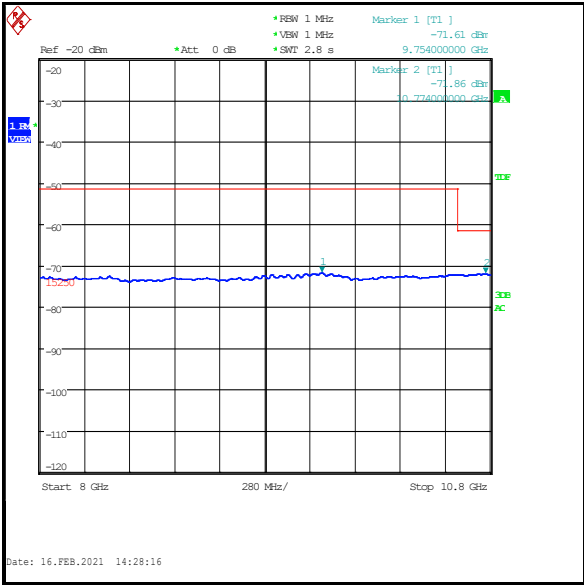
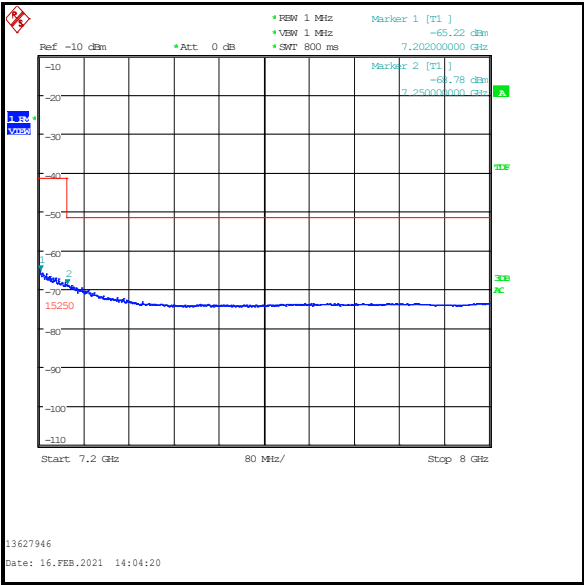
Frequency (MHz)	Antenna Polarity	RMS Level (dBm)	Limit (dBm)	Margin (dB)	Result
6501.439	Vertical	-44.0	-41.3	2.7	Complied

Results: Part 15.250(d)(2)

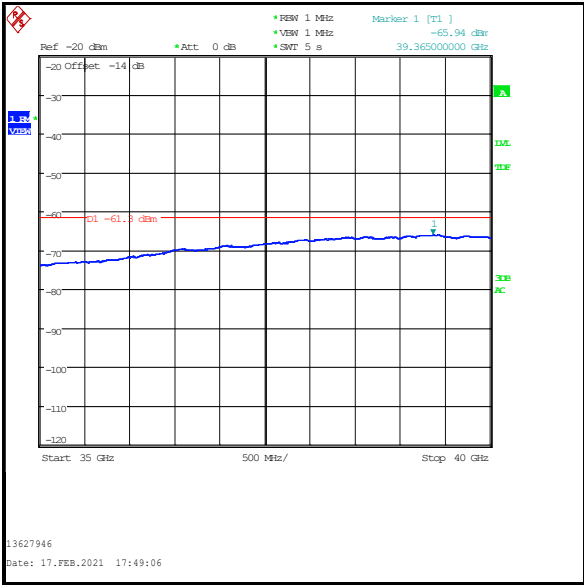
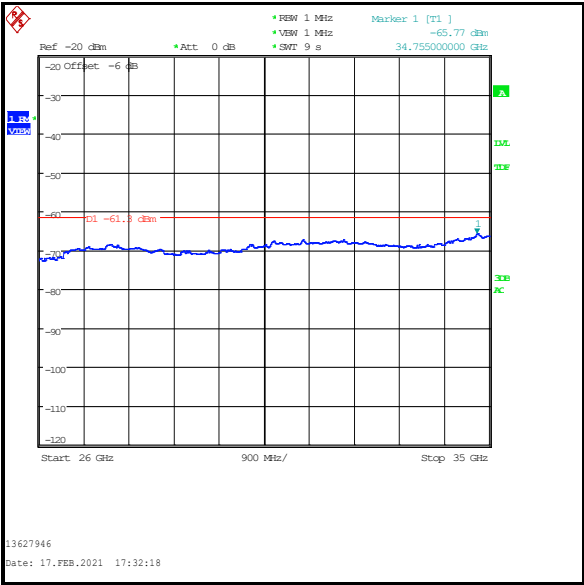
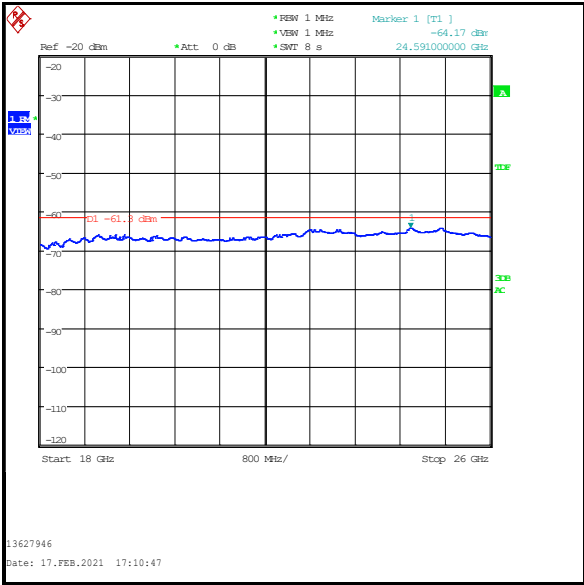
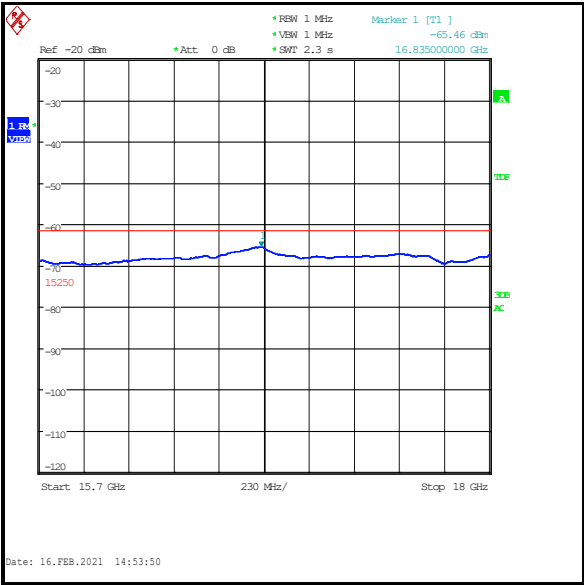
Frequency (MHz)	Antenna Polarity	RMS Level (dBm)	Limit (dBm)	Margin (dB)	Result
1224.946	Vertical	-91.2	-85.3	5.9	Complied
1599.950	Vertical	-90.3	-85.3	5.0	Complied

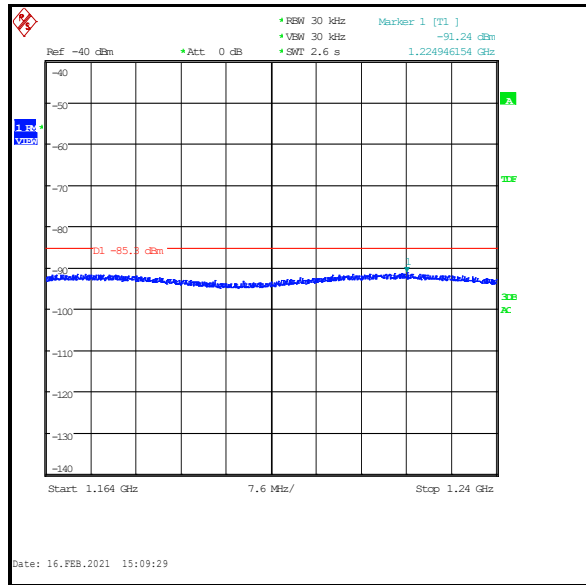
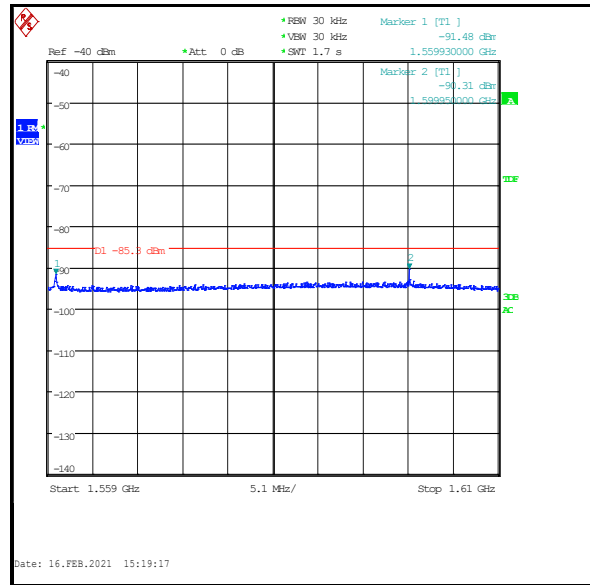


Transmitter Radiated Emissions Above 960 MHz (continued)



Transmitter Radiated Emissions Above 960 MHz (continued)



Transmitter Radiated Emissions Above 960 MHz (continued)**1164 to 1240 MHz****-85.3 dBm limit / 30 kHz resolution bandwidth****1559 to 1610 MHz****-85.3 dBm limit / 30 kHz resolution bandwidth****Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2040	Thermohygrometer	Testo	608-H1	45124934	10 Dec 2021	12
K0001	3m RSE Chamber	Rainford EMC	N/A	N/A	14 Oct 2021	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	14 Apr 2021	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	07 Dec 2021	12
A3154	Pre-Amplifier	Com-Power	PAM-103	18020012	29 Sep 2021	12
A553	Antenna	Chase	CBL6111A	1593	21 Sep 2021	12
A3155	Pre-Amplifier	Com-Power	PAM-118A	18010037	29 Sep 2021	12
A3138	Antenna	Schwarzbeck	BBHA 9120 B	00702	06 Oct 2021	12
A3139	Antenna	Schwarzbeck	HWRD750	00027	06 Oct 2021	12
A2895	Antenna	Schwarzbeck	BBHA 9170	9170-728	16 Feb 2022	12
A2896	Pre-Amplifier	Schwarzbeck	BBV 9721	9721-023	16 Feb 2022	12
G0614	Signal Generator	Rohde & Schwarz	SMB100A	177687	19 May 2023	36
M1435	Power Meter	Hewlett Packard	437B	3125U14631	15 Jul 2021	12
M1227	Power Sensor	Agilent	8487D	3318A02122	18 May 2021	12
M1649	Attenuator	Hewlett Packard	11708A	26584	16 Nov 2021	12
A2937	Attenuator	AtlanTecRF	AN18W5-06	208147#1	03 Feb 2022	12
A3097	Antenna	Link Microtek	AM1-18HA	15275	30 Aug 2021	36

5.2.6. Transmitter Emissions Peak Level**Test Summary:**

Test Engineer:	Jose Bayona	Test Date:	16 February 2021
Test Sample Serial Number:	0011ce00000061b1		

FCC Reference:	Part 15.250(d)(3)
Test Method Used:	Part 15.250(e)(2) & ANSI C63.10 Section 10.3.6

Environmental Conditions:

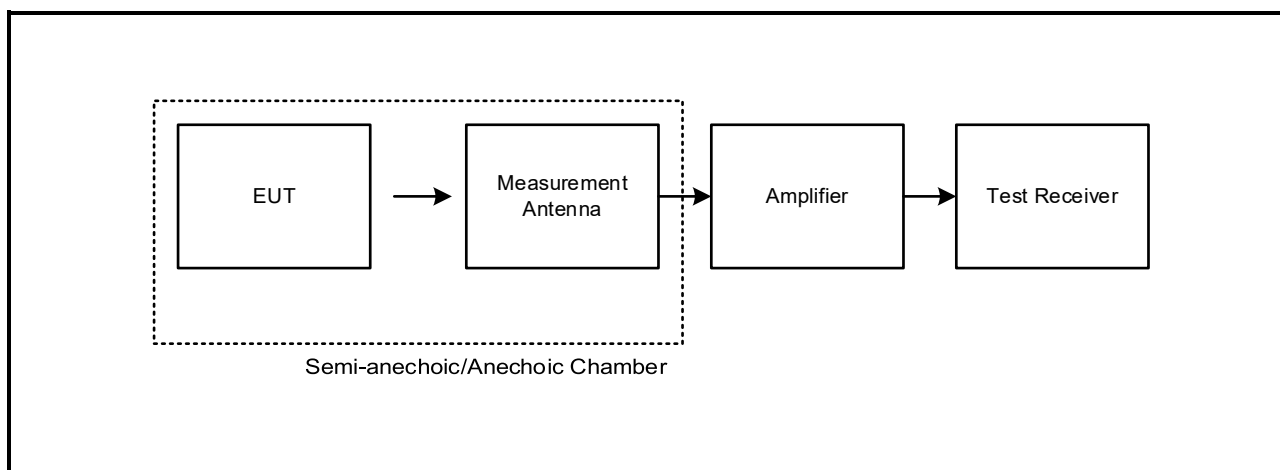
Temperature (°C):	21
Relative Humidity (%):	34 to 36

Note(s):

1. The test receiver was set to the maximum available resolution bandwidth of 10 MHz and video bandwidth of 10 MHz. The measurement span was set to 1401 MHz and a sweep time of 1.4s with 1401 sweep points were used. The test receiver was set to the centre frequency of the peak signal. A peak detector and max hold function were used.
2. The measurement was performed using a 10 MHz RBW and in accordance with Part 15.250(d)(3) the limit has been calculated as:

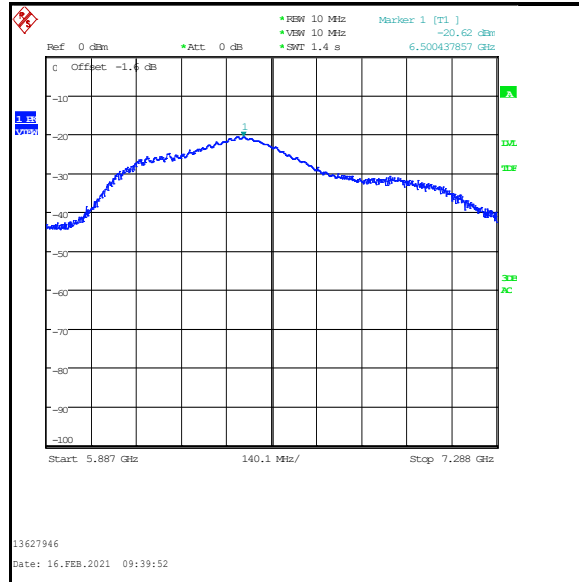
$$20 \text{ Log (RBW/50) dBm}$$

$$20 * \text{Log (10/50)} = -14.0 \text{ dBm/10 MHz}$$

Test Setup Diagram:

Transmitter Emissions Peak Level (continued)**Results:**

Frequency FM (MHz)	Antenna Polarity	Level (dBm/10 MHz)	Limit (dBm/10 MHz)	Margin (dB)	Result
6500.438	Vertical	-20.6	-14.0	6.6	Complied

**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2040	Thermohygrometer	Testo	608-H1	45124934	10 Dec 2021	12
K0001	3m RSE Chamber	Rainford EMC	N/A	N/A	14 Oct 2021	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	14 Apr 2021	12
A3155	Pre-Amplifier	Com-Power	PAM-118A	18010037	29 Sep 2021	12
A3138	Antenna	Schwarzbeck	BBHA 9120 B	00702	06 Oct 2021	12
G0614	Signal Generator	Rohde & Schwarz	SMB100A	177687	19 May 2023	36
M1435	Power Meter	Hewlett Packard	437B	3125U14631	15 Jul 2021	12
M1227	Power Sensor	Agilent	8487D	3318A02122	18 May 2021	12
M1649	Attenuator	Hewlett Packard	11708A	26584	16 Nov 2021	12
A2937	Attenuator	AtlanTecRF	AN18W5-06	208147#1	03 Feb 2022	12
A3097	Antenna	Link Microtek	AM1-18HA	15275	30 Aug 2021	36

6. Measurement Uncertainty & Decision Rule

Overview

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

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

Decision Rule

The decision rule applied is based upon the accuracy method criteria. The measurement uncertainty is met and the result is considered in conformance with the requirement criteria if the observed value is within the prescribed limit.

Measurement Uncertainty

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

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Transmitter -10 dB Bandwidth	5.925 GHz to 7.250 GHz	95%	±4.59 %
Frequency Stability	5.925 GHz to 7.250 GHz	95%	±4.59 %
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±5.32 dB
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±4.65 dB
Radiated Spurious Emissions	1 GHz to 40 GHz	95%	±2.54 dB
Transmitter Emissions Peak Level	5.925 GHz to 7.250 GHz	95%	±2.54 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version

8. Appendix 1

In accordance with FCC 15.250(e)(1), the test receiver span, sweep time and sweep points must be set to achieve a 1 ms dwell time over each 1 MHz segment. The test receiver settings used during testing are detailed in the table below.

Using a 1 MHz Bandwidth

Frequency Range (GHz)	Span (MHz)	Sweep Points	Sweep Time (s)	Test Distance (m)
0.03 to 0.96	930 MHz	625	Auto coupled	3.0
0.799 to 1	201	201	0.2	2.0
1 to 4	3000	3001	3.0	1.0
4 to 6	2000	2001	2.0	1.0
5.887 to 7.288	1401	1401	1.4	3.0
7.2 to 8	800	801	0.8	1.0
8 to 10.8	2800	2801	2.8	1.0
10.75 to 12.75	2000	2001	2.0	1.0
12.75 to 15.75	3000	3001	3.0	1.0
15.7 to 18	2300	2301	2.3	1.0
18 to 26	8000	8001	8.0	1.0
26 to 35	9000	9001	9.0	0.5
35 to 40	5000	5001	5.0	0.2

Using a 30 kHz Bandwidth

Frequency Range (GHz)	Span (MHz)	Sweep Points	Sweep Time (s)	Test Distance (m)
1.164 to 1.24	76	2601	2.6	1.0
1.559 to 1.61	51	1701	1.7	1.0

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