FCC and ISED Test Report

Manufacturer: LEGO System A/S
Model: MOTOR NO. 20

In accordance with FCC 47 CFR Part 15C and ISED RSS-247 and ISED RSS-GEN (2.4 GHz Bluetooth Low Energy)

Prepared for: LEGO System A/S
Aastvej 1
7190 Billund
DENMARK

FCC ID: NPI104902
IC: 3072A-104902

COMMERCIAL-IN-CONFIDENCE

Document 75962743-05 Issue 01

SIGNATURE			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Steve Marshall	Senior Engineer	Authorised Signatory	19 March 2025

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

ENGINEERING STATEMENT
The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Thomas Biddlecombe	19 March 2025	
Testing	Pier-Angelo Lorusso	19 March 2025	

FCC Accreditation
492497/UK2010 Octagon House, Fareham Test Laboratory

ISED Accreditation
12669A/UK0003 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY
A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15C, 2023, ISED RSS-247, Issue 3 (2023-08) and ISED RSS-GEN, Issue 5 (2018-04) + A2 (2021-02) for the tests detailed in section 1.3.

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Contents

1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	19 March 2025

Table 1

1.2 Introduction

Applicant	LEGO System A/S
Manufacturer	LEGO System A/S
Model Number(s)	MOTOR NO. 20
Serial Number(s)	SM_EP2-0290, SM_EP2-0168 and SM_EP2-0225
Hardware Version(s)	EP2
Software Version(s)	0.3.1
Number of Samples Tested	3
Test Specification/Issue/Date	FCC 47 CFR Part 15C, 2023 ISED RSS-247, Issue 3 (2023-08) ISED RSS-GEN, Issue 5 (2018-04) + A2 (2021-02)
Order Number	7000395227
Date	15-October-2024
Date of Receipt of EUT	20-January-2025
Start of Test	21-January-2025
Finish of Test	10-February-2025
Name of Engineer(s)	Pier-Angelo Lorusso and Thomas Biddlecombe
Related Document(s)	ANSI C63.10 (2020)

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C and ISED RSS-247 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15C	RSS-247	RSS-GEN			
Configuration and Mode: 2.4 GHz Bluetooth Low Energy						
	15.203			Antenna Requirement	N/T	The device complies with the provisions of this section, as it uses permanently attached integral antennas.
2.1	15.205	3.3	8.10	Restricted Band Edges	Pass	ANSI C63.10 (2020)
2.2	15.247 (a)(2)	5.2	6.7	Emission Bandwidth	Pass	ANSI C63.10 (2020)
2.3	15.247 (b)	5.4	6.12	Maximum Conducted Output Power	Pass	ANSI C63.10 (2020)
2.4	15.247 (d)	5.5	N/A	Authorised Band Edges	Pass	ANSI C63.10 (2020)
2.5	15.209 and 15.247 (d)	3.3 and 5.5	6.13 and 8.9	Spurious Radiated Emissions	Pass	ANSI C63.10 (2020)
2.6	15.247 (e)	5.2	6.12	Power Spectral Density	Pass	ANSI C63.10 (2020)

Table 2

1.4 Application Form

Equipment Description

Technical Description: *(Please provide a brief description of the intended use of the equipment including the technologies the product supports)*			
Manufacturer:	LEGO System A/S		
Model:	MOTOR NO. 20		
Part Number:	MOTOR NO. 20		
Hardware Version:	EP2		
Software Version:	0.3.1		
FCC ID of the product under test – see guidance here		NPI104902	
IC ID of the product under test – see guidance here		3072A-104902	
Device Category	Mobile ☐	Portable ☒	Fixed ☐
Equipment is fitted with an Audio Low Pass Filter		Yes ☐	No ☒

Table 3

Intentional Radiators

Technology	BLE	RFID				
Frequency Range (MHz to MHz)	2402-2480	13.56				
Conducted Declared Output Power (dBm)	0					
Antenna Gain (dBi)	-3.04					
Supported Bandwidth(s) (MHz) (e.g. 1 MHz, 20 MHz, 40 MHz)	1, 2 MHz	1 KHz				
Modulation Scheme(s) (e.g. GFSK, QPSK etc)	GFSK	ASK				
ITU Emission Designator (see guidance here) (not mandatory for Part 15 devices)	F1D					
Bottom Frequency (MHz)	2402	13.56				
Middle Frequency (MHz)	2442	13.56				
Top Frequency (MHz)	2480	13.56				

Table 4

Un-intentional Radiators

Highest frequency generated or used in the device or on which the device operates or tunes	48 MHz
Lowest frequency generated or used in the device or on which the device operates or tunes	26 kHz
Class A Digital Device (Use in commercial, industrial or business environment) ☐ Class B Digital Device (Use in residential environment only) ☒	

Table 5

~~AC Power Source~~

~~AC supply frequency:~~		~~Hz~~
~~Voltage~~		~~V~~
~~Max current:~~		~~A~~
~~Single Phase ☐ Three Phase ☐~~		

Table 6

~~DC Power Source~~

~~Nominal voltage:~~		~~V~~
~~Extreme upper voltage:~~		~~V~~
~~Extreme lower voltage:~~		~~V~~
~~Max current:~~		~~A~~

Table 7

Battery Power Source

Voltage:	3.85	V
End-point voltage:	2.6	V *(Point at which the battery will terminate)*
Alkaline ☐ Leclanche ☐ Lithium ☒ Nickel Cadmium ☐ Lead Acid* ☐ **(Vehicle regulated)*		
Other ☐ Please detail:		

Table 8

Charging

Can the EUT transmit whilst being charged	Yes ☒ No ☐

Table 9

Temperature

Minimum temperature:	0	°C
Maximum temperature:	35	°C

Table 10

Cable Loss

Adapter Cable Loss (Conducted sample)	Cabel + Connector @ 2480MHz 0.5dB+0.5dB = 1dB	1 dB

Table 11

Antenna Characteristics

Antenna connector ☐			State impedance		Ohm
Temporary antenna connector ☒			State impedance	50	Ohm
Integral antenna ☒	Type:	PCB Antenna	Gain	-3.04	dBi
External antenna ☐	Type:		Gain		dBi
For external antenna only: Standard Antenna Jack ☐ If yes, describe how user is prohibited from changing antenna (if not professional installed): Equipment is only ever professionally installed ☐ Non-standard Antenna Jack ☐ All part 15 applications will need to show how the antenna gain was derived either from a manufacturer data sheet or a measurement. Where the gain of the antenna is inherently accounted for as a result of the measurement, such as field strength measurements on a part 15.249 or 15.231 device, so the gain does not necessarily need to be verified. However, enough information regarding the construction of the antenna shall be provided. Such information maybe photographs, length of wire antenna etc.					

Table 12

Ancillaries (if applicable)

Manufacturer:		Part Number:	
Model:		Country of Origin:	

Table 13

The above information was provided by the applicant.

1.5 Product Information

1.5.1 Technical Description

The Equipment under test (EUT) was a LEGO System A/S, Model: MOTOR NO. 20 incorporating Bluetooth Low Energy and NFC transmitters.

The primary function of the EUT is a Toy for use in a classroom.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Model: MOTOR NO. 20, Serial Number: SM_EP2-0290			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: MOTOR NO. 20, Serial Number: SM_EP2-0168			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: MOTOR NO. 20, Serial Number: SM_EP2-0225			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 14

1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4 GHz Bluetooth Low Energy		
Restricted Band Edges	Pier-Angelo Lorusso	UKAS
Emission Bandwidth	Thomas Biddlecombe	UKAS
Maximum Conducted Output Power	Thomas Biddlecombe	UKAS
Authorised Band Edges	Pier-Angelo Lorusso	UKAS
Spurious Radiated Emissions	Pier-Angelo Lorusso	UKAS
Power Spectral Density	Thomas Biddlecombe	UKAS

Table 15

Office Address: TÜV SÜD, Octagon House
Concorde Way, Fareham, Hampshire
PO15 5RL, United Kingdom

2 Test Details

2.1 Restricted Band Edges

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205
ISED RSS-247 Clause 3.3
ISED RSS-GEN, Clause 8.10

2.1.2 Equipment Under Test and Modification State

MOTOR NO. 20, S/N: SM_EP2-0168 - Modification State 0

2.1.3 Date of Test

30-January-2025 to 10 February 2025

2.1.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 6.10.5 and 11.12.1.

DUT was powered by internal 3.85 V DC Lithium Battery.

The DUT was configured to transmit a modulated package with a 37 byte PRBS payload at max power.

Plots for average measurements were taken in accordance with ANSI C63.10, clause 11.12.2.5.2.

The following conversion can be applied to convert from dBµV/m to µV/m:
10^(Field Strength in dBµV/m/20).

2.1.5 Test Setup Diagram

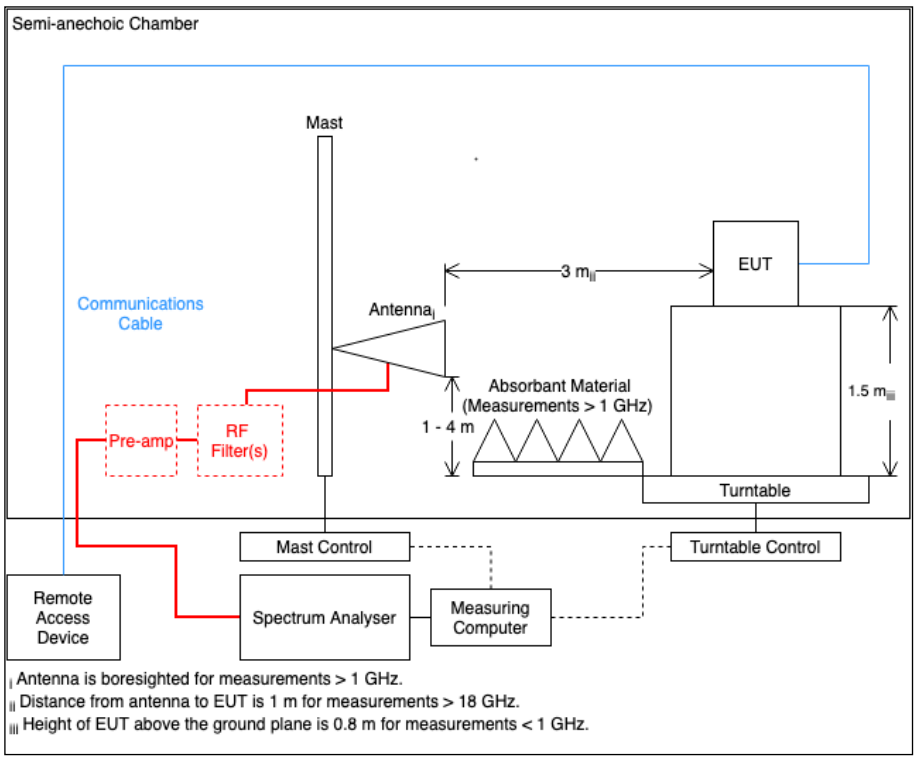


Figure 1

2.1.6 Environmental Conditions

Ambient Temperature	18.2 - 19.0 °C
Relative Humidity	38.3 - 42.2 %

2.1.7 Test Results

2.4 GHz Bluetooth Low Energy

Mode	Modulation	Packet Type	Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
BLE1M	GFSK	37 Bytes PRBS	2402	2390.0	48.76	38.93
BLE1M	GFSK	37 Bytes PRBS	2480	2483.5	53.30	43.71
BLE2M	GFSK	37 Bytes PRBS	2402	2390.0	48.84	41.37
BLE2M	GFSK	37 Bytes PRBS	2480	2483.5	54.78	46.07

Table 16

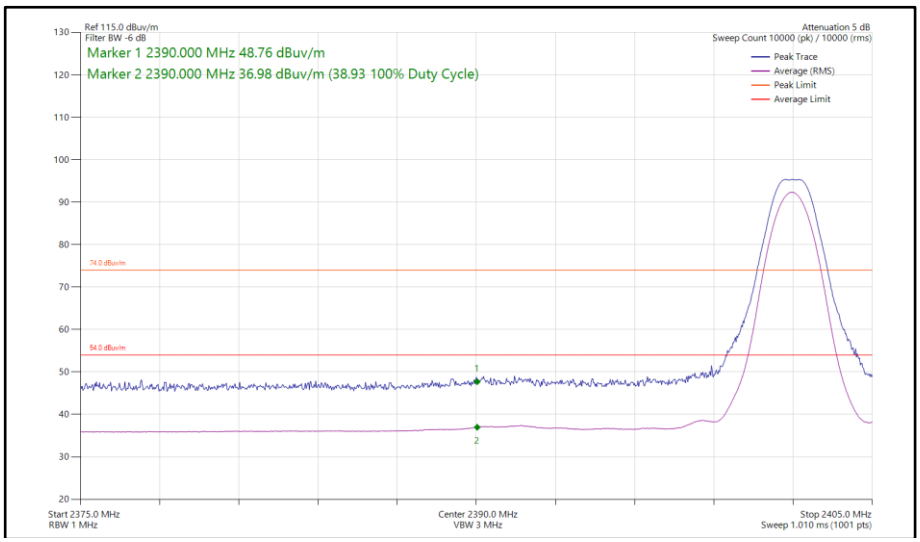


Figure 2 - CH37_LRB_LE1M_Core0_iPA, 2402 MHz, Band Edge Frequency 2390 MHz

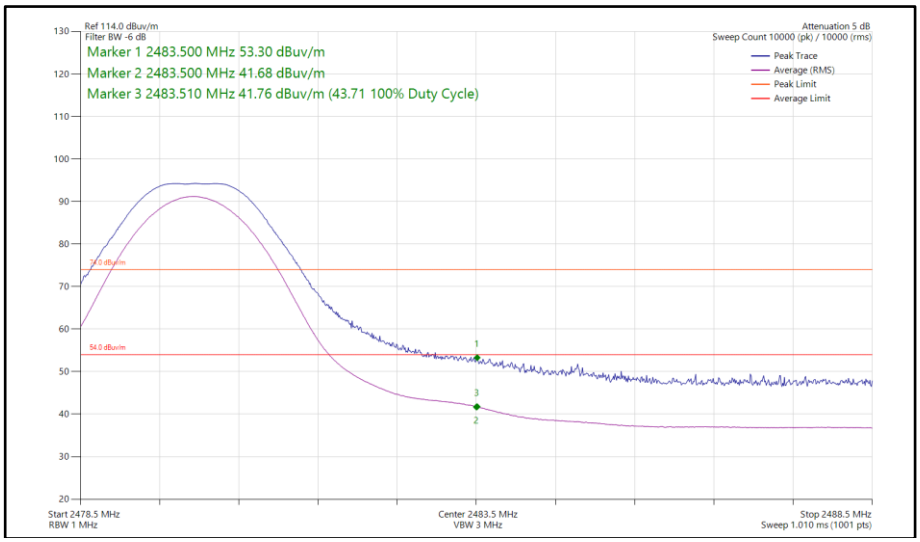


Figure 3 - CH39_URB_LE1M_Core0_iPA, 2480 MHz, Band Edge Frequency 2483.5 MHz

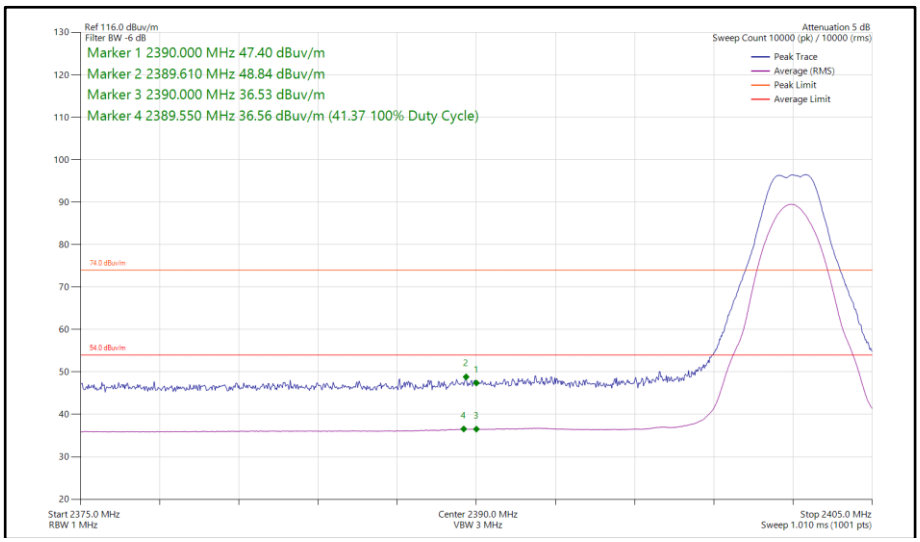


Figure 4 - CH37_LRB_LE2M_Core0_ePA, 2402 MHz, Band Edge Frequency 2390 MHz

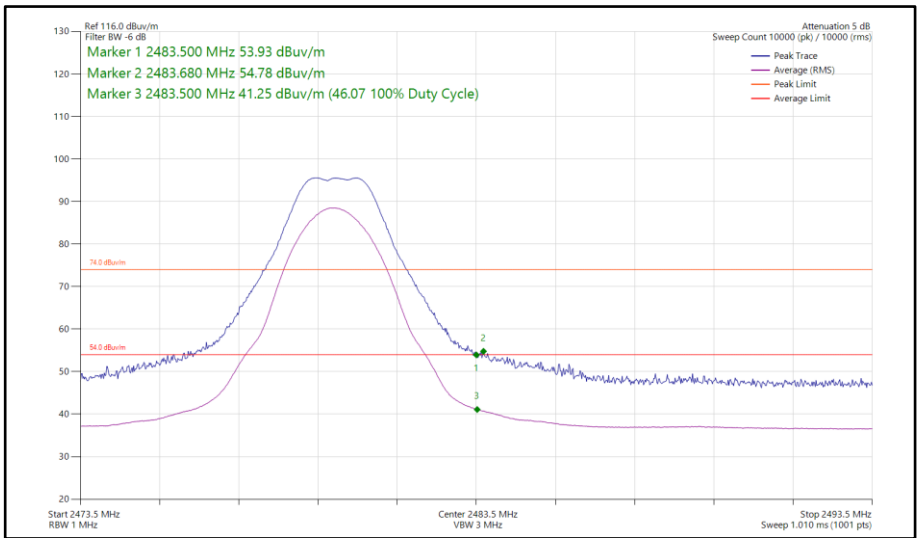


Figure 5 - CH39_URB_LE2M_Core0_ePA, 2480 MHz, Band Edge Frequency 2483.5 MHz

2.1.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength (µV/m at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 17

ISED RSS-GEN, Limit Clause 8.9

Frequency (MHz)	Field Strength (µV/m at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960*	500

Table 18

*Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.

2.1.9 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
HygroPalm	Rotronic	HygroPalm 0	3484	12	13-Sep-2025
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
3m Semi-Anechoic Chamber	Rainford	RF Chamber 11	5136	36	14-Nov-2027
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	5215	12	14-Jul-2025
Test Receiver	Rohde & Schwarz	ESW44	5382	12	09-Sep-2025
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5518	12	18-Apr-2025
Cable (N to N 8m)	Junkosha	MWX221-08000NMSNMS/B	6330	12	17-Feb-2025

Table 19

TU - Traceability Unscheduled

2.2 Emission Bandwidth

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(2)
ISED RSS-247, Clause 5.2
ISED RSS-GEN, Clause 6.7

2.2.2 Equipment Under Test and Modification State

MOTOR NO. 20, S/N: SM_EP2-0290 - Modification State 0

2.2.3 Date of Test

21-January-2025

2.2.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.8.1 for 6 dB BW and 6.9.3 for 99% occupied bandwidth measurements.

The DUT provided by the customer had trailing DC leads to bypass the internal battery. These have been used to power the DUT to keep input voltage consistent across all tests.

The DUT was configured to transmit a modulated package with a 37 byte PRBS payload at max power.

2.2.5 Test Setup Diagram

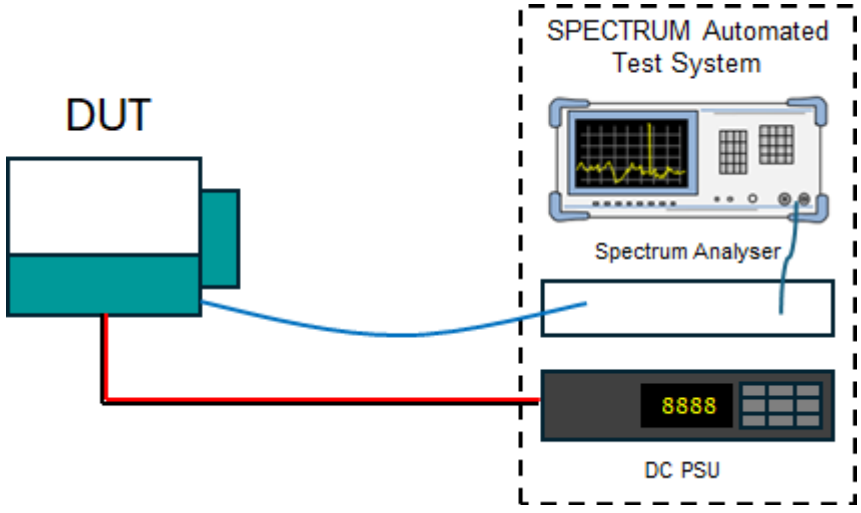


Figure 6

2.2.6 Environmental Conditions

Ambient Temperature	21.6 °C
Relative Humidity	28.3 %

2.2.7 Test Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 5.2 a)	Test Method(s):	C63.10 6.9.3 C63.10 11.8.1
Additional Reference(s):	-		

DUT Configuration			
Mode:	BLE GFSK (LE 1M)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	0.684	-	-	-	≥500.0
2442	0.704	-	-	-	≥500.0
2480	0.696	-	-	-	≥500.0

Table 20 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	1.064	-	-	-	-
2442	1.068	-	-	-	-
2480	1.072	-	-	-	-

Table 21 - 99% Bandwidth Results

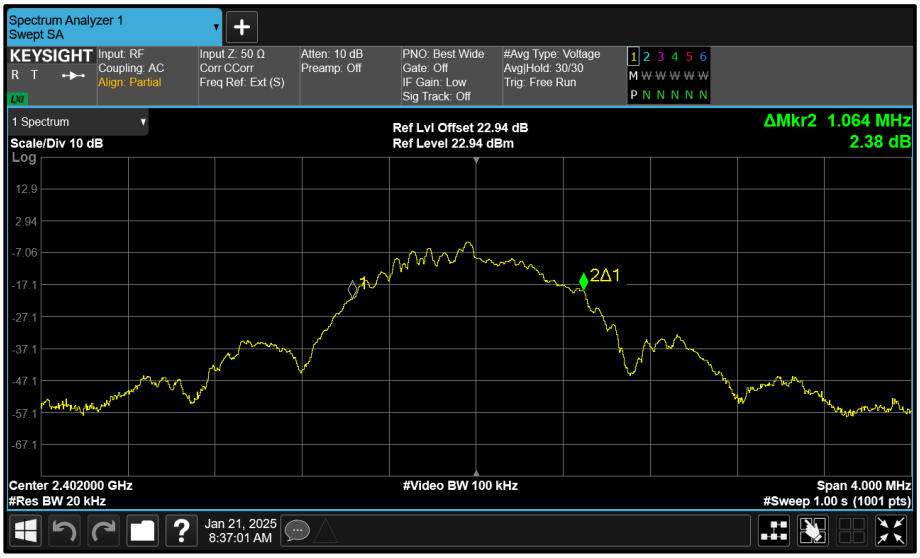


Figure 7 - 2402 MHz (CH37) 99% Bandwidth

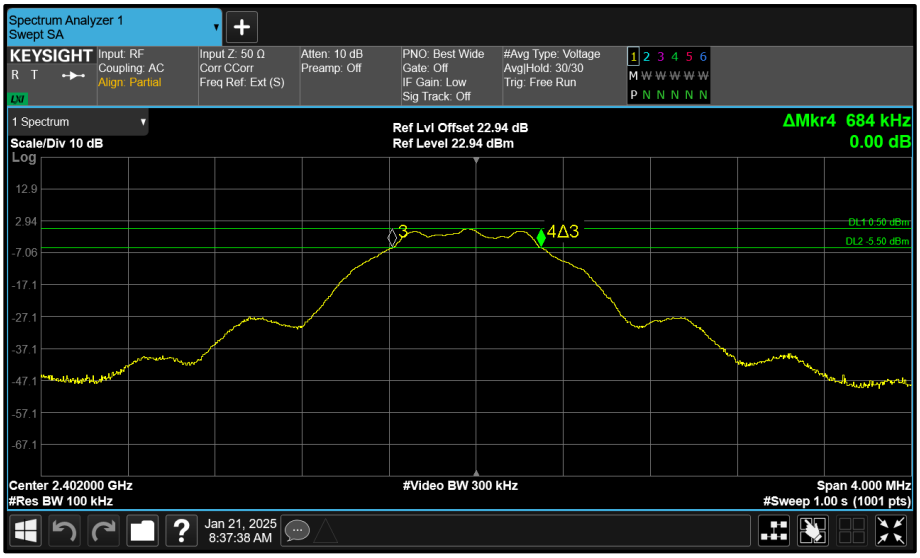


Figure 8 - 2402 MHz (CH37) 6 dB Bandwidth

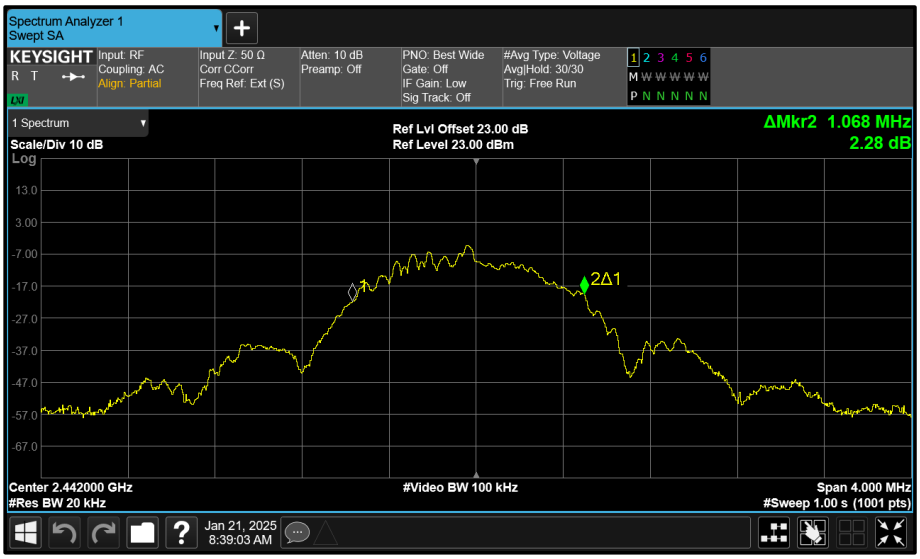


Figure 9 - 2442 MHz (CH18) 99% Bandwidth

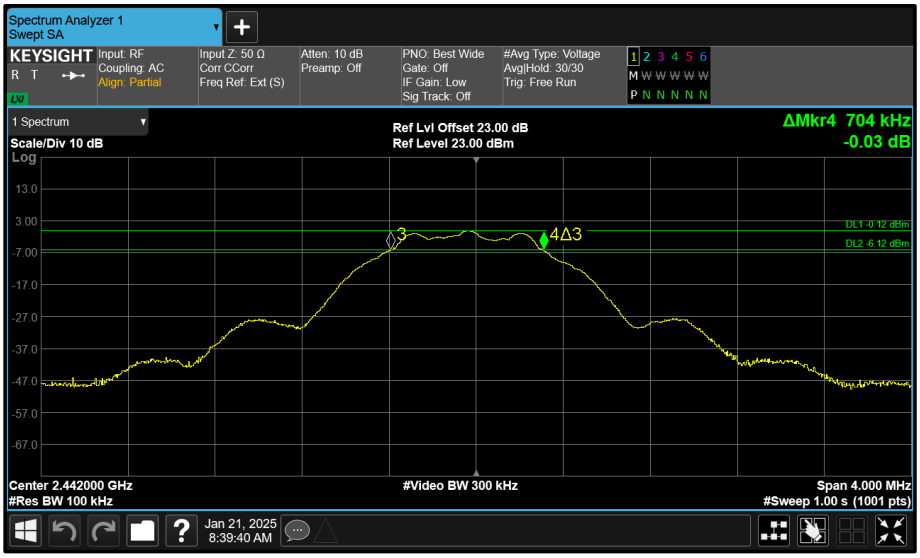


Figure 10 - 2442 MHz (CH18) 6 dB Bandwidth

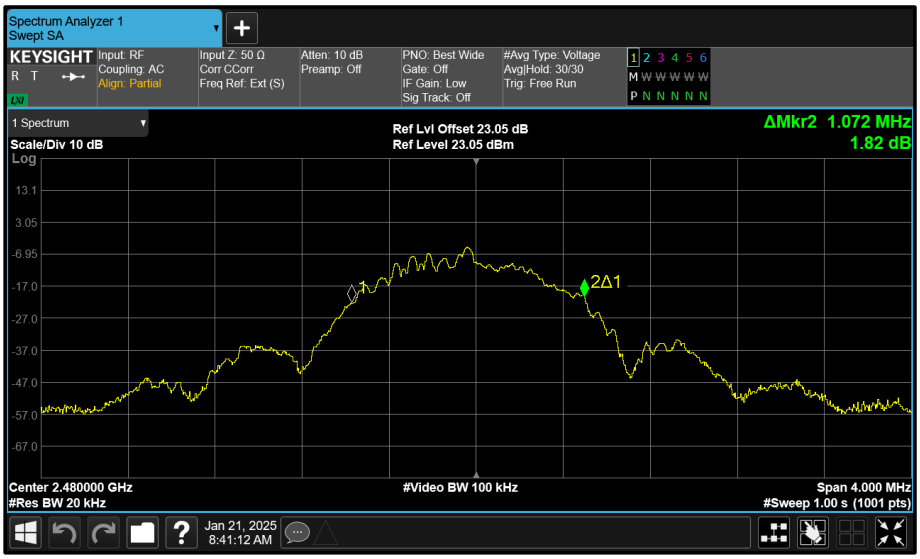


Figure 11 - 2480 MHz (CH39) 99% Bandwidth

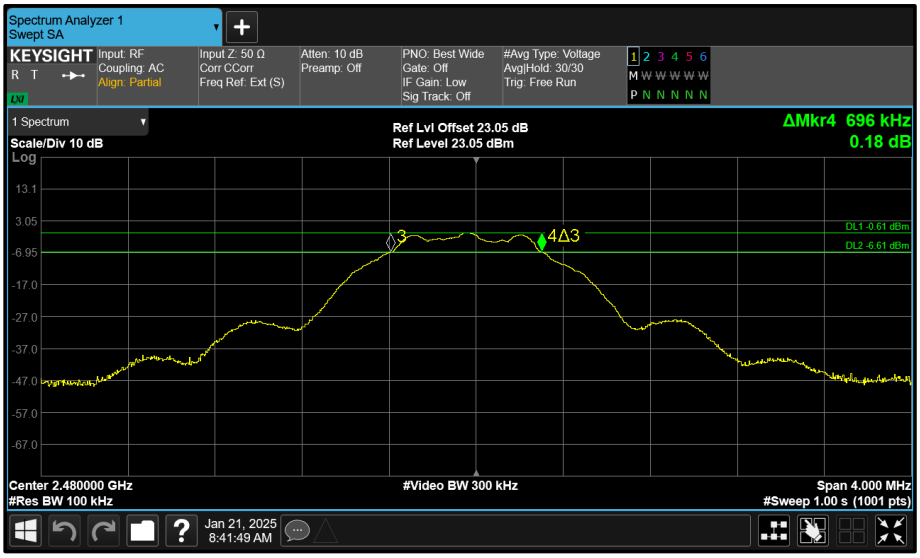


Figure 12 - 2480 MHz (CH39) 6 dB Bandwidth

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 5.2 a)	Test Method(s):	C63.10 6.9.3 C63.10 11.8.1
Additional Reference(s):	-		

DUT Configuration			
Mode:	BLE GFSK (LE 2M)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	1.152	-	-	-	≥500.0
2442	1.184	-	-	-	≥500.0
2480	1.168	-	-	-	≥500.0

Table 22 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	2.024	-	-	-	-
2442	2.048	-	-	-	-
2480	2.040	-	-	-	-

Table 23 - 99% Bandwidth Results

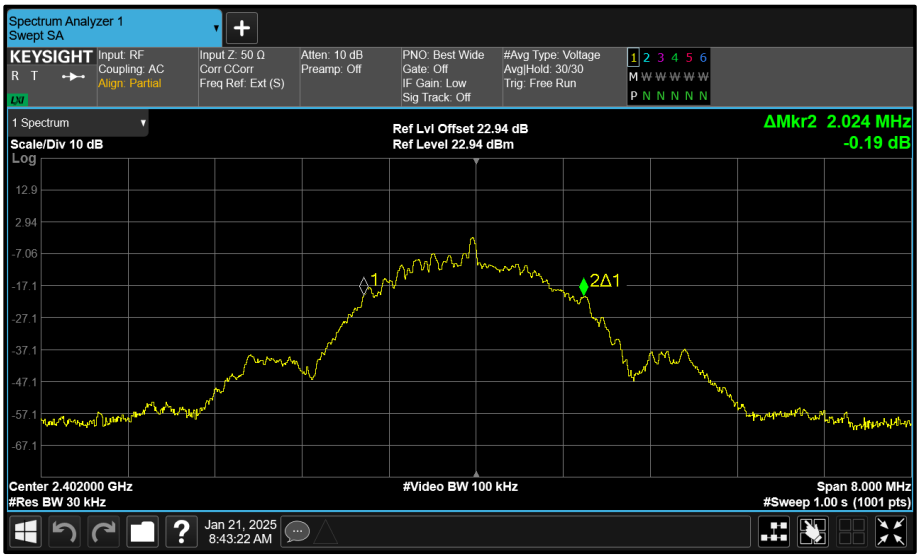


Figure 13 - 2402 MHz (CH37) 99% Bandwidth

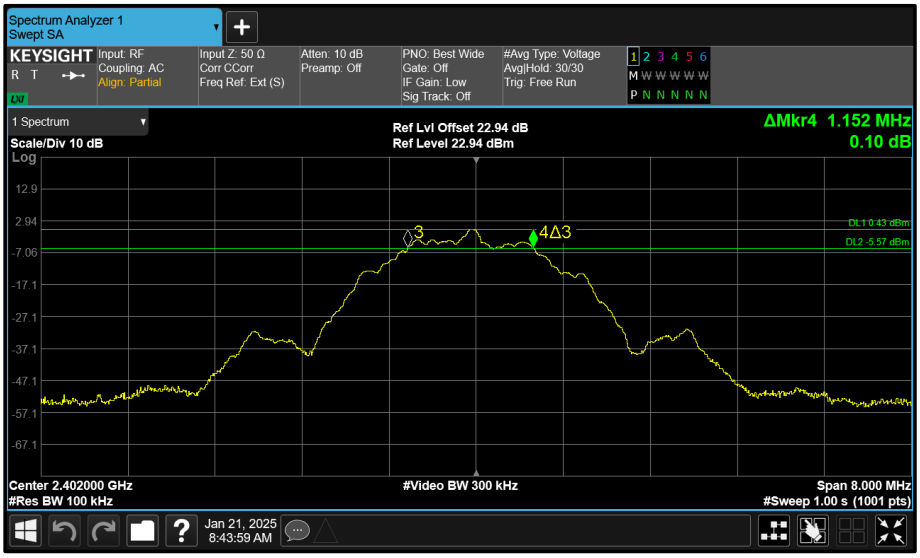


Figure 14 - 2402 MHz (CH37) 6 dB Bandwidth

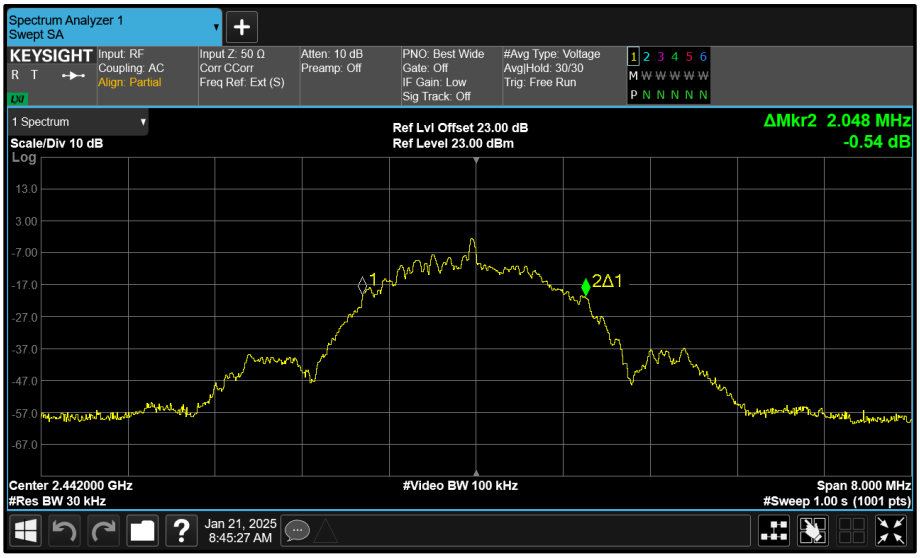


Figure 15 - 2442 MHz (CH18) 99% Bandwidth

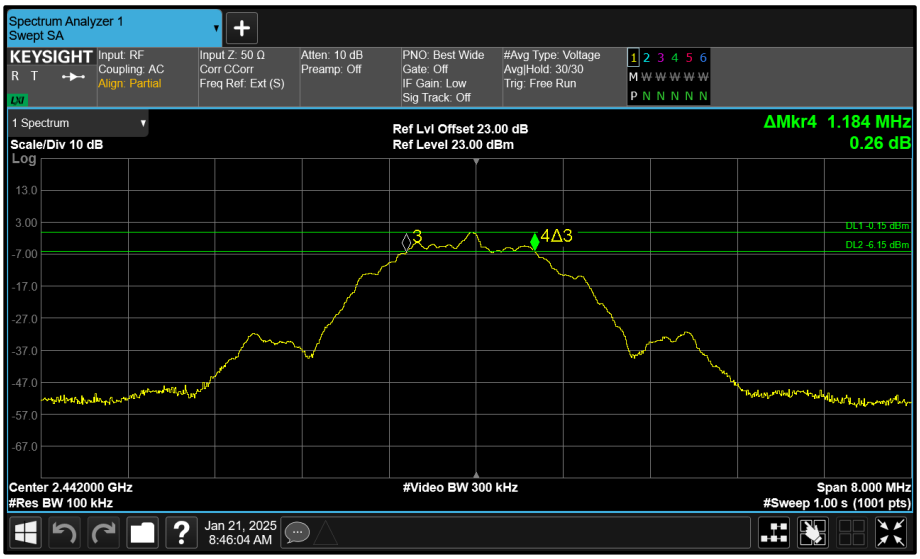


Figure 16 - 2442 MHz (CH18) 6 dB Bandwidth

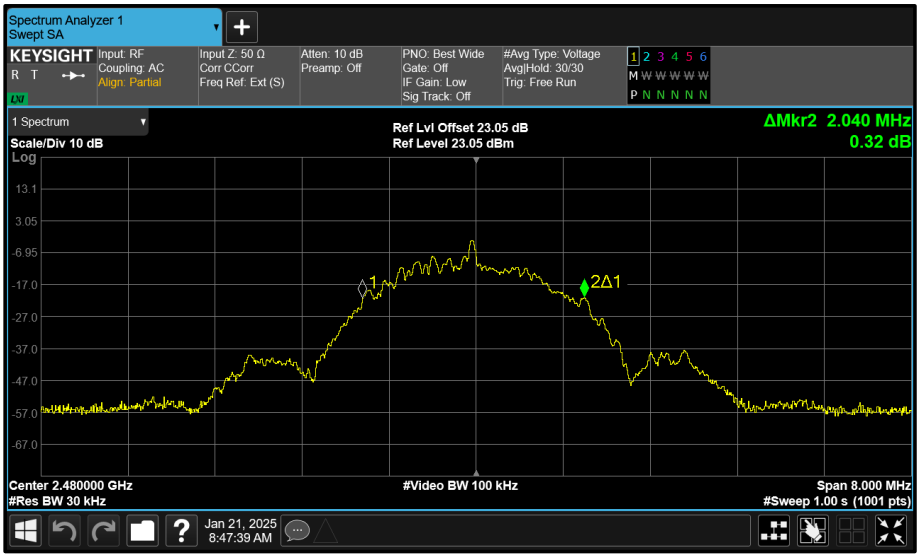


Figure 17 - 2480 MHz (CH39) 99% Bandwidth

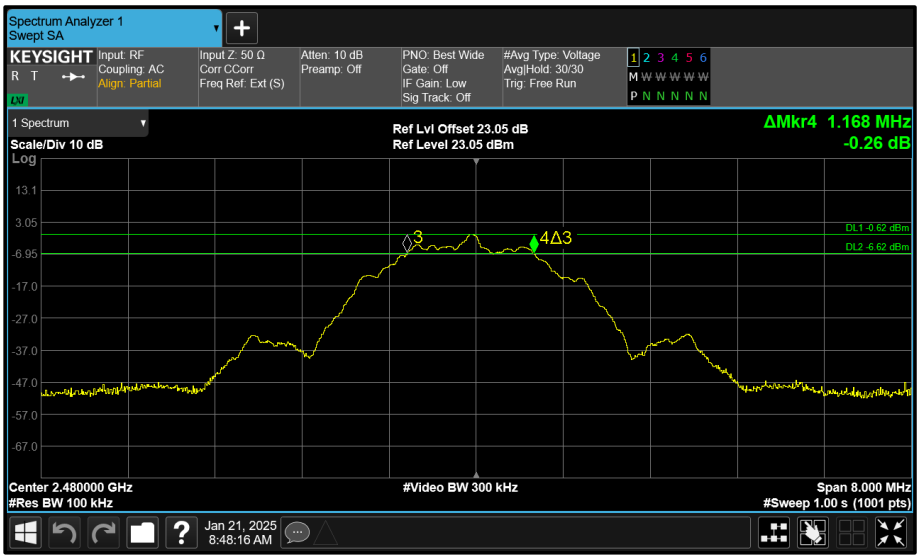


Figure 18 - 2480 MHz (CH39) 6 dB Bandwidth

2.2.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.247(a)(2) and ISED RSS-247, Clause 5.2(a)

The minimum 6 dB Bandwidth shall be at least 500 kHz.

2.2.9 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	White Gold	WG022	190	12	18-Nov-2025
Hygrometer	Rotronic	I-1000	2891	12	02-Dec-2025
GPSDR Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	09-Mar-2025
MXA Signal Analyser	Keysight Technologies	N9020B	5528	24	18-Sep-2025
Modular Power System Mainframe	Keysight Technologies	N6701C	5835	-	TU
DC Power Module 60V 20A 300W	Keysight Technologies	N6754A	5836	-	O/P Mon
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6350	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6638	12	02-Aug-2025

Table 24

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

2.3 Maximum Conducted Output Power

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (b),
ISED RSS-247, Clause 5.4,
ISED RSS-GEN, Clause 6.12

2.3.2 Equipment Under Test and Modification State

MOTOR NO. 20, S/N: SM_EP2-0290 - Modification State 0

2.3.3 Date of Test

21-January-2025

2.3.4 Test Method

The test was performed in accordance with ANSI C63.10 clause 11.9.1.2 Method PKPM1.

The DUT provided by the customer had trailing DC leads to bypass the internal battery. These have been used to power the DUT to keep input voltage consistent at 3.85 VDC across all tests.

The DUT was configured to transmit a modulated package with a 37 byte PRBS payload at max power.

2.3.5 Test Setup Diagram

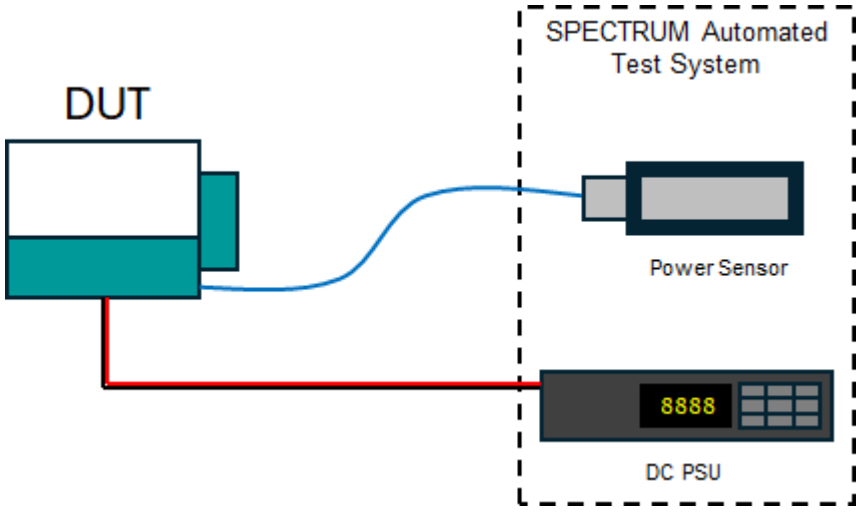


Figure 19

2.3.6 Environmental Conditions

Ambient Temperature	21.6 °C
Relative Humidity	28.3 %

2.3.7 Test Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.1.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	BLE GFSK (LE 1M)	Duty Cycle (%):	63.4
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A	Peak Antenna Gain (dBi):	-3.04

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2402	1.05	-	-	-	-	30.00	-28.95
2442	0.46	-	-	-	-	30.00	-29.54
2480	0.08	-	-	-	-	30.00	-29.92

Table 25 - FCC Maximum Conducted (peak) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2402	1.05	-	-	-	-	30.00	-28.95	-1.99	36.00	-37.99
2442	0.46	-	-	-	-	30.00	-29.54	-2.58	36.00	-38.58
2480	0.08	-	-	-	-	30.00	-29.92	-2.96	36.00	-38.96

Table 26 - ISED Maximum Conducted (peak) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.1.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	BLE GFSK (LE 2M)	Duty Cycle (%):	33.8
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A	Peak Antenna Gain (dBi):	-3.04

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2402	0.95	-	-	-	-	30.00	-29.05
2442	0.44	-	-	-	-	30.00	-29.56
2480	0.07	-	-	-	-	30.00	-29.93

Table 27 - FCC Maximum Conducted (peak) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2402	0.95	-	-	-	-	30.00	-29.05	-2.09	36.00	-38.09
2442	0.44	-	-	-	-	30.00	-29.56	-2.60	36.00	-38.60
2480	0.07	-	-	-	-	30.00	-29.93	-2.97	36.00	-38.97

Table 28 - ISED Maximum Conducted (peak) Output Power Results

2.3.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.247 (b)(3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

ISED RSS-247, Limit Clause 5.4 (d)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e) of the specification.

2.3.9 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	White Gold	WG022	190	12	18-Nov-2025
Hygrometer	Rotronic	I-1000	2891	12	02-Dec-2025
USB Power Sensor	Boonton	RTP5008	5833	12	26-Jul-2025
Modular Power System Mainframe	Keysight Technologies	N6701C	5835	-	TU
DC Power Module 60V 20A 300W	Keysight Technologies	N6754A	5836	-	O/P Mon
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6350	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6638	12	02-Aug-2025

Table 29

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

2.4 Authorised Band Edges

2.4.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d),
ISED RSS-247 Clause 5.5,
ISED RSS-GEN, Clause N/A

2.4.2 Equipment Under Test and Modification State

MOTOR NO. 20, S/N: SM_EP2-0168 - Modification State 0

2.4.3 Date of Test

30-January-2025 to 10 February 2025

2.4.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.10.4.

DUT was powered by internal 3.85 V DC Lithium Battery.

The DUT was configured to transmit a modulated package with a 37 byte PRBS payload at max power.

2.4.5 Test Setup Diagram

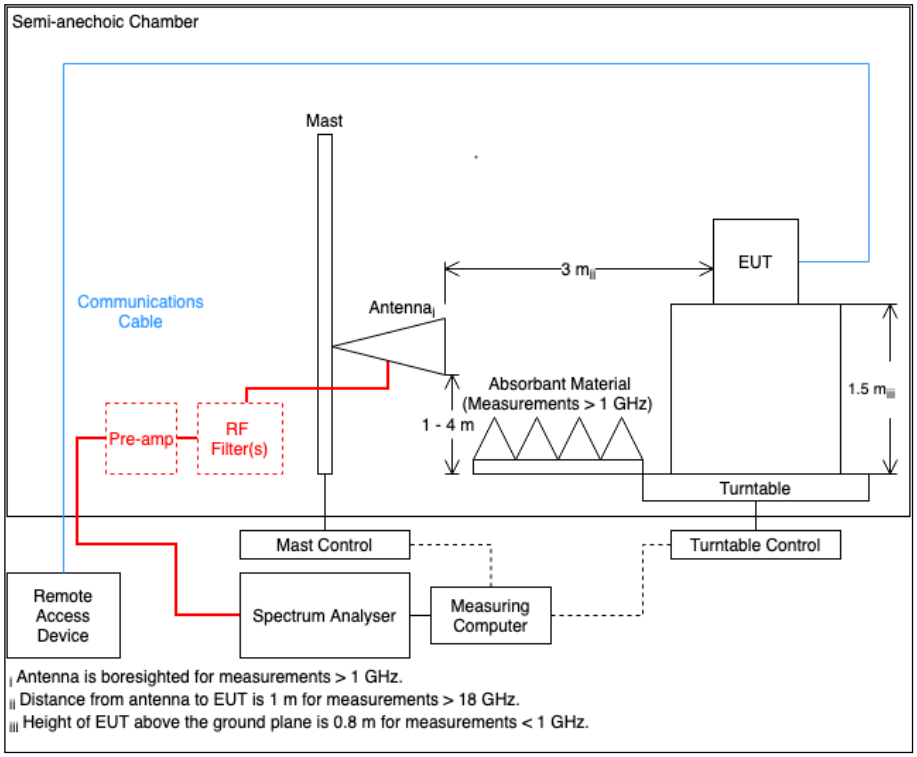


Figure 20

2.4.6 Environmental Conditions

Ambient Temperature	18.2 -19.0 °C
Relative Humidity	38.3 - 42.2 %

2.4.7 Test Results

2.4 GHz Bluetooth Low Energy

Mode	Modulation	Packet Type	Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
BLE1M	GFSK	37 Bytes PRBS	2402	2400.0	45.79
BLE1M	GFSK	37 Bytes PRBS	2480	2483.5	49.91
BLE2M	GFSK	37 Bytes PRBS	2402	2400.0	33.15
BLE2M	GFSK	37 Bytes PRBS	2480	2483.5	50.97

Table 30

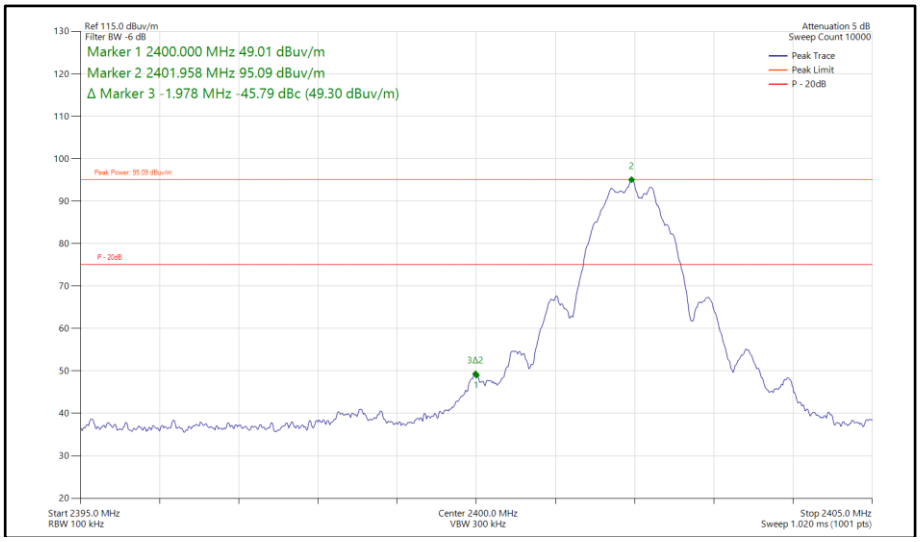


Figure 21 - CH37_LBE_LE1M_Core0_iPA, 2402 MHz, Band Edge Frequency 2400 MHz

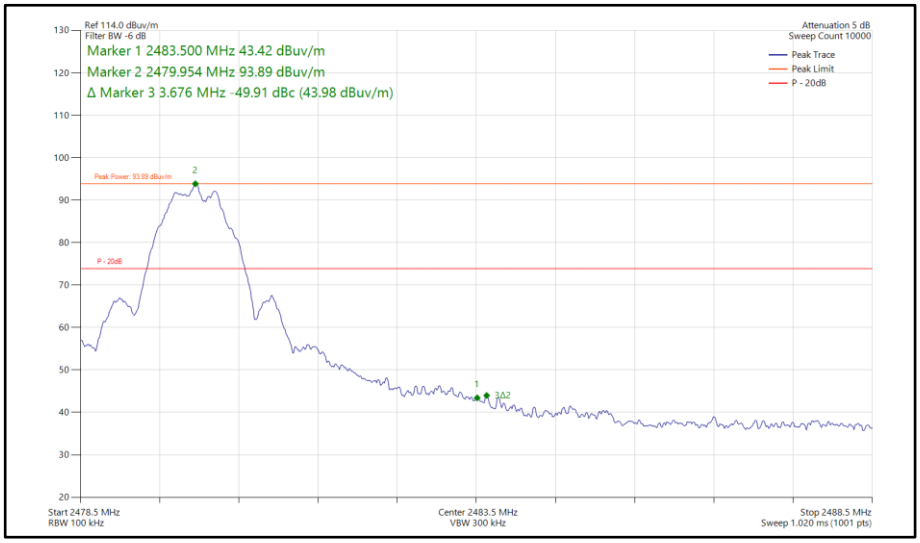


Figure 22 - CH39_UBE_LE1M_Core0_iPA, 2480 MHz, Band Edge Frequency 2483.5 MHz

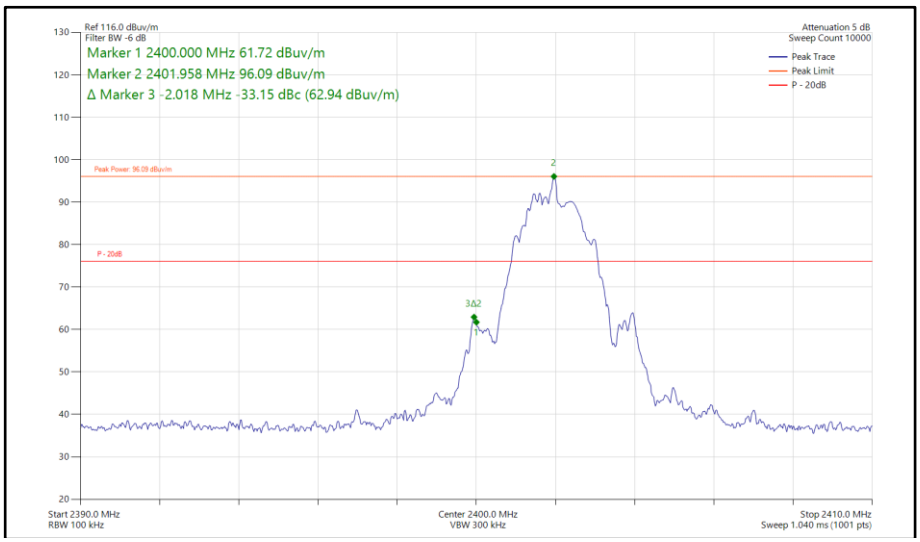


Figure 23 - CH37_LBE_LE2M_Core0_ePA, 2402 MHz, Band Edge Frequency 2400 MHz

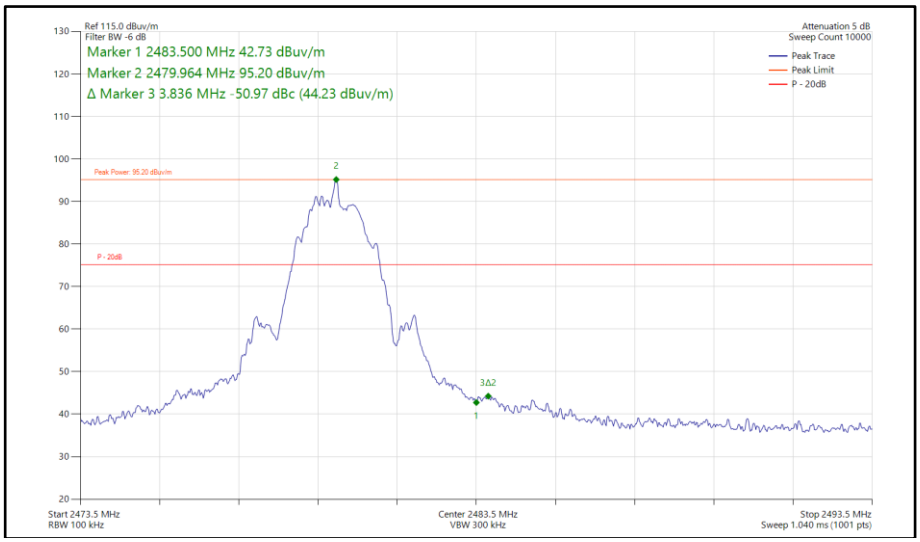


Figure 24 - CH39_UBE_LE2M_Core0_ePA, 2480 MHz, Band Edge Frequency 2483.5 MHz

2.4.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

ISED RSS-247, Limit Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

2.4.9 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
HygroPalm	Rotronic	HygroPalm 0	3484	12	13-Sep-2025
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
3m Semi-Anechoic Chamber	Rainford	RF Chamber 11	5136	36	14-Nov-2027
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	5215	12	14-Jul-2025
Test Receiver	Rohde & Schwarz	ESW44	5382	12	09-Sep-2025
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5518	12	18-Apr-2025
Cable (N to N 8m)	Junkosha	MWX221-08000NMSNMS/B	6330	12	17-Feb-2025

Table 31

TU - Traceability Unscheduled

2.5 Spurious Radiated Emissions

2.5.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d) and 15.209,
ISED RSS-247 Clause 3.3 and 5.5,
ISED RSS-GEN, Clause 6.13 and 8.9

2.5.2 Equipment Under Test and Modification State

MOTOR NO. 20, S/N: SM_EP2-0168 - Modification State 0
MOTOR NO. 20, S/N: SM_EP2-0225 - Modification State 0

2.5.3 Date of Test

29-January-2025 to 03-February-2025

2.5.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.6.

DUT was powered by internal 3.85 V DC Lithium Battery.

The DUT was configured to transmit a modulated package with a 37 byte PRBS payload at max power.

For frequencies > 1 GHz, plots for average measurements were taken in accordance with ANSI C63.10, clause 11.12.2.5.2.

The EUT was placed on the non-conducting platform in a manner typical of a normal installation. As the EUT was considered mobile/portable and therefore reasonable to be used in multiple planes, pre-scans were performed with the EUT orientated in X, Y and Z planes with reference to the ground plane.

The plots shown are the characterisation of the EUT. The limits on the plots represent the most stringent case for restricted bands, (74/54 dBuV/m) when compared to 20 dBc outside restricted bands. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 10 dB of the limits shown on the plots, further investigation was carried out and reported in results tables.

The following conversion can be applied to convert from dBµV/m to µV/m:
10^(Field Strength in dBµV/m/20).

Above 18 GHz, the measurement distance was reduced to 1 m. The limit line was increased by 20*LOG(3/1) = 9.54 dB.

At a measurement distance of 1 meter the limit line was increased by 20*LOG(3/1) = 9.54 dB.

Where formal measurements have been necessary, the results have been presented in the emissions table.

2.5.5 Test Setup Diagram

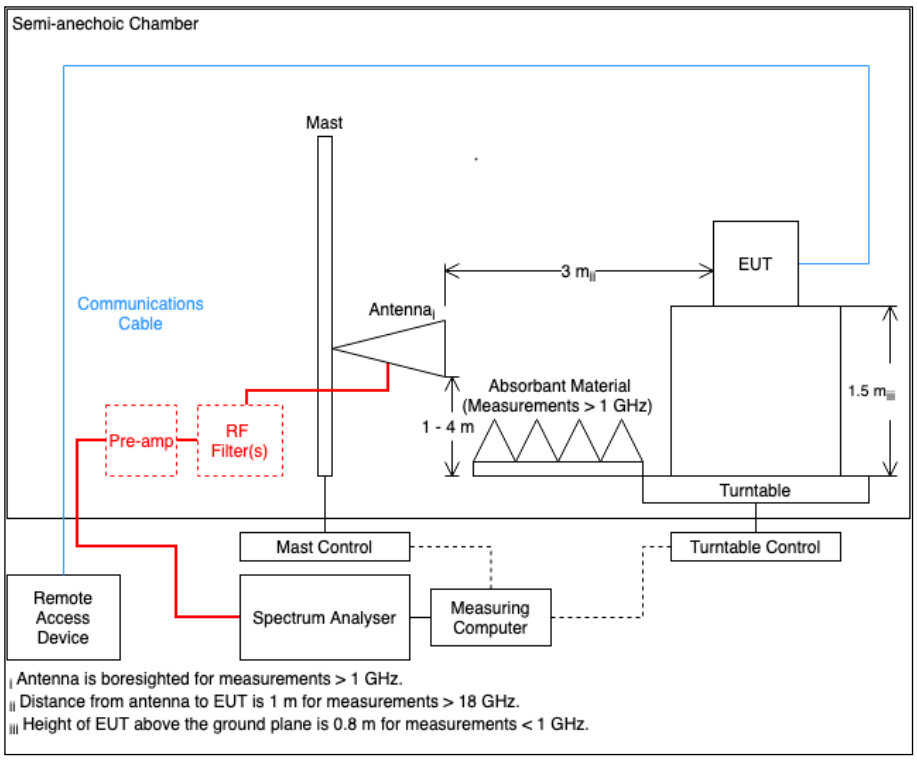


Figure 25

2.5.6 Environmental Conditions

Ambient Temperature	18.2 - 19.0 °C
Relative Humidity	35.9 - 43.9 %

2.5.7 Test Results

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 32 - CH37_LE1M_X Plane, 2402 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

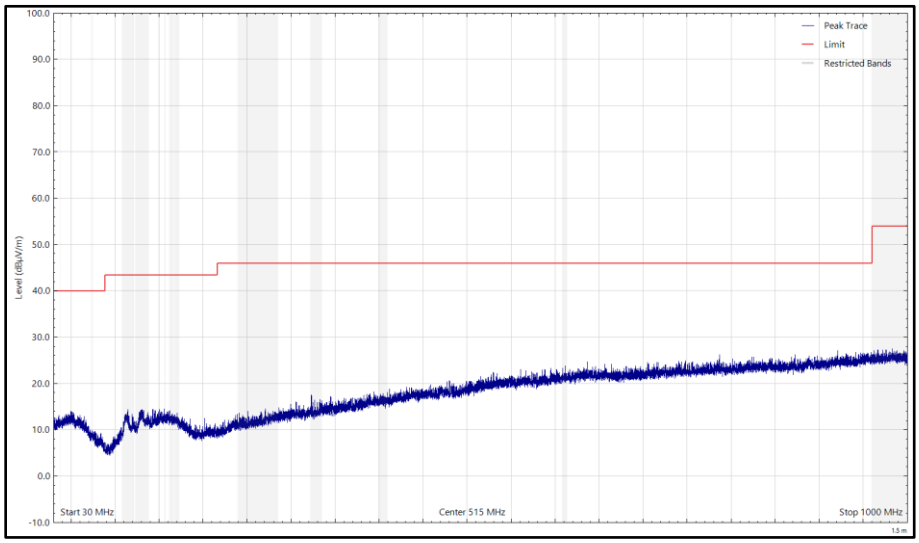


Figure 26 - CH37_LE1M_X Plane, 2402 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

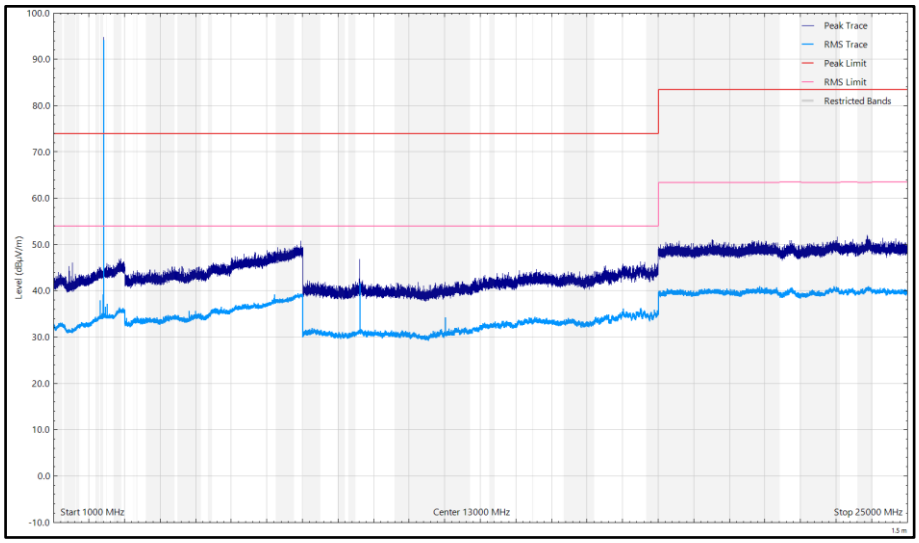


Figure 27 - CH37_LE1M_X Plane, 2402 MHz, 1 GHz to 25 GHz, Horizontal

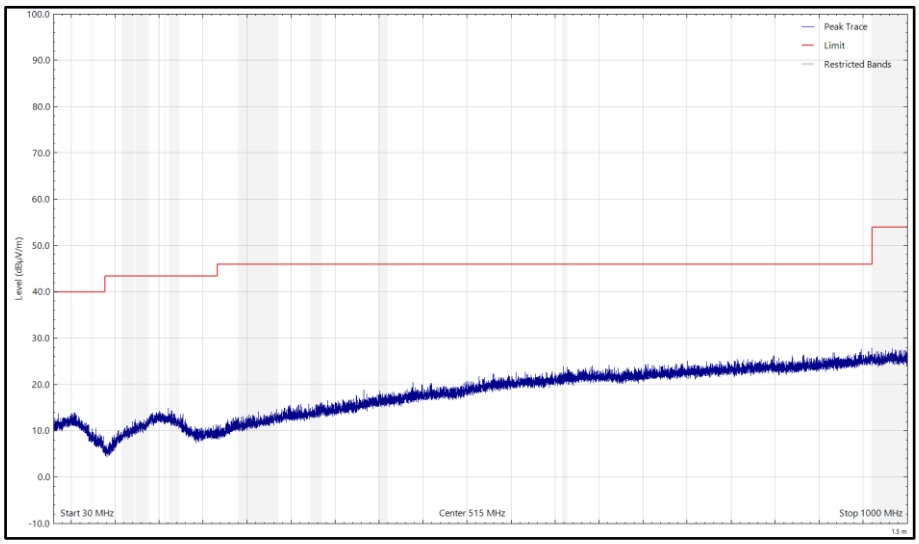


Figure 28 - CH37_LE1M_X Plane, 2402 MHz, 30 MHz to 1 GHz, Vertical (Peak)

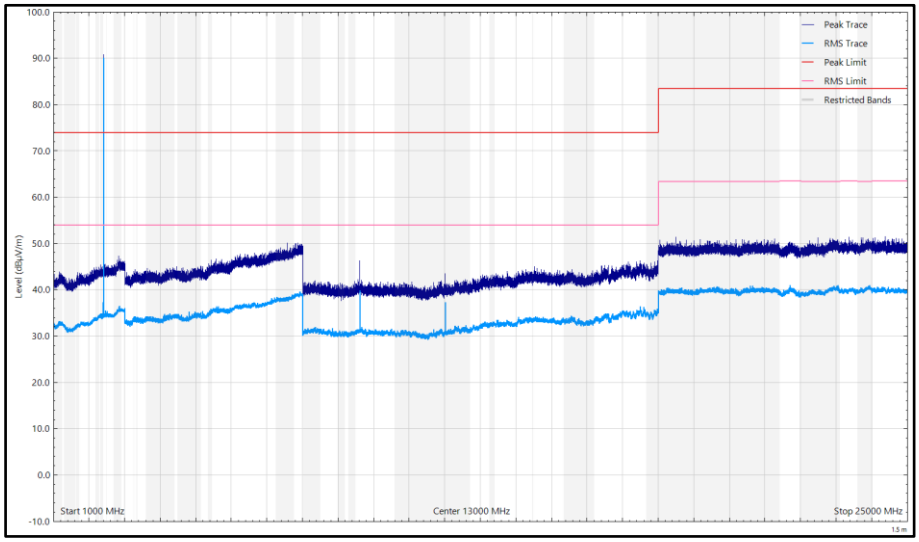


Figure 29 - CH37_LE1M_X Plane, 2402 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 33 - CH37_LE1M_Y Plane, 2402 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

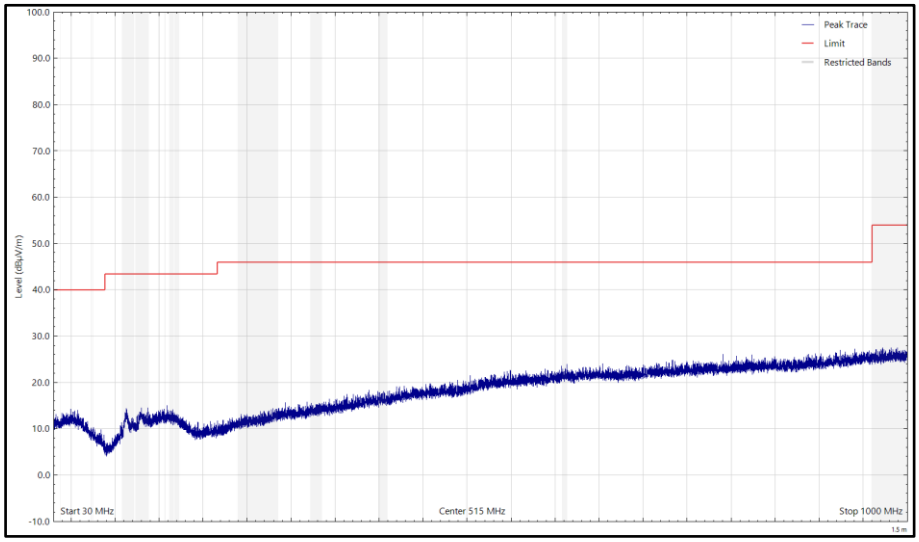


Figure 30 - CH37_LE1M_Y Plane, 2402 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

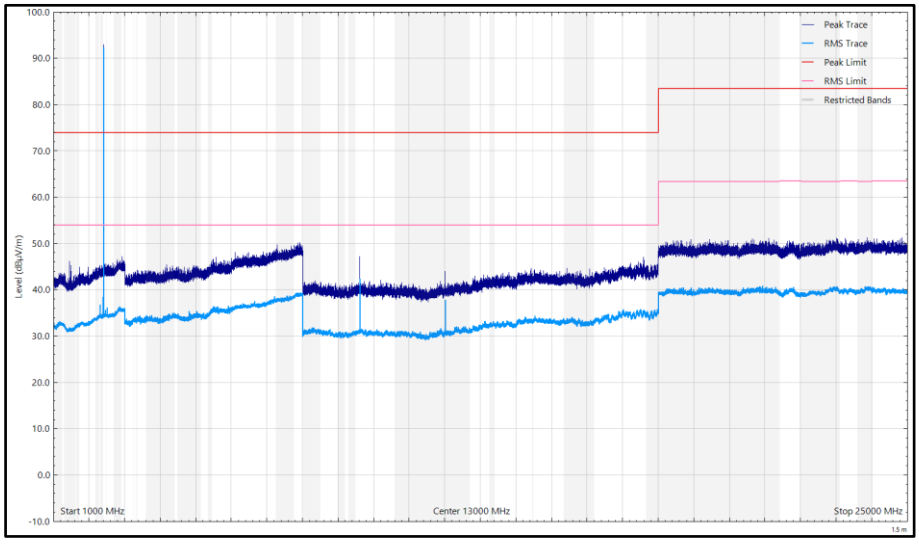


Figure 31 - CH37_LE1M_Y Plane, 2402 MHz, 1 GHz to 25 GHz, Horizontal

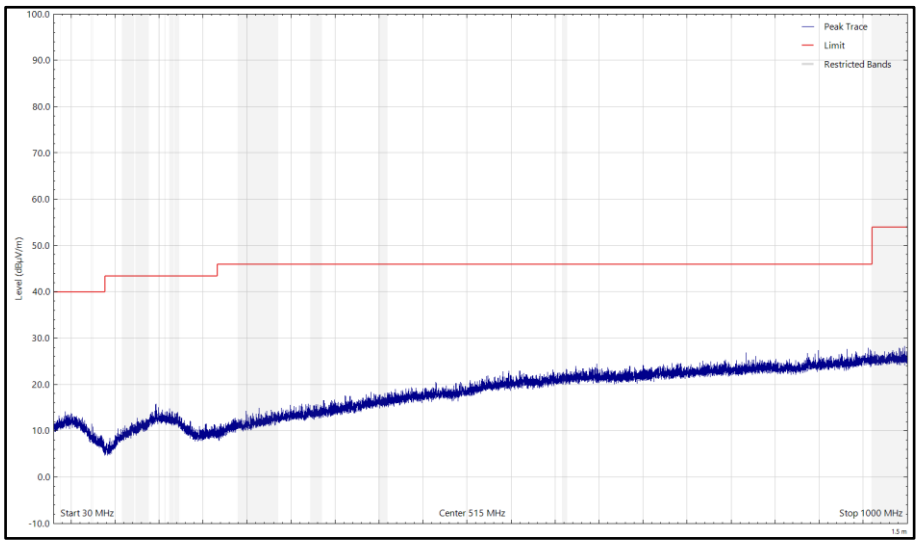


Figure 32 - CH37_LE1M_Y Plane, 2402 MHz, 30 MHz to 1 GHz, Vertical (Peak)

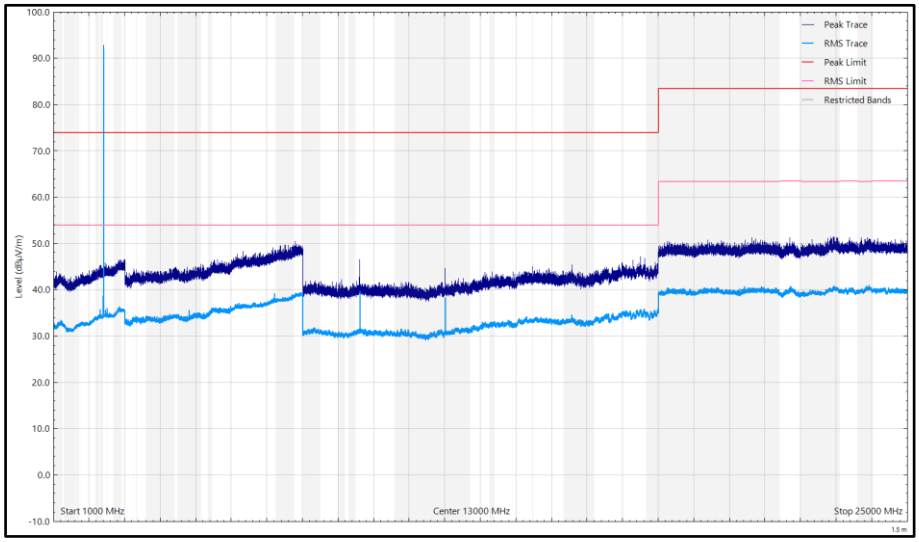


Figure 33 - CH37_LE1M_Y Plane, 2402 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 34 - CH37_LE1M_Z Plane, 2402 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

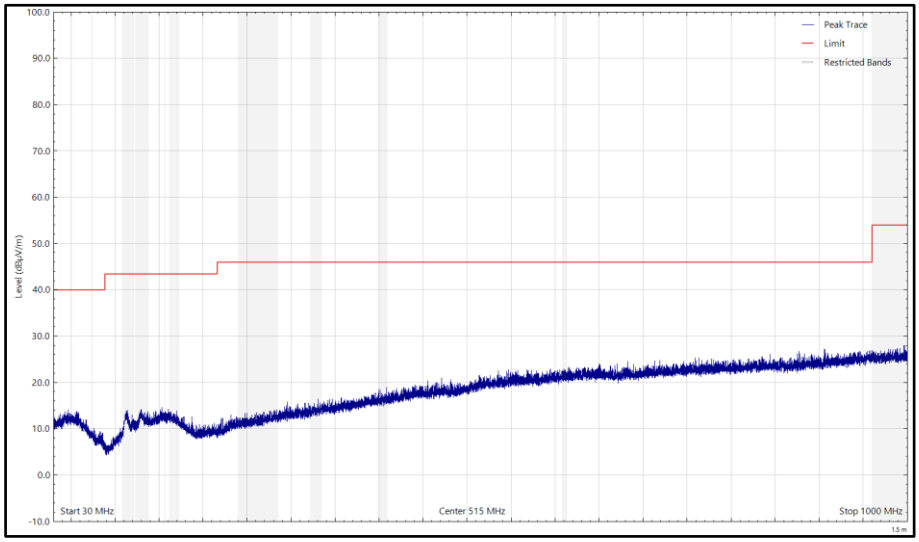


Figure 34 - CH37_LE1M_Z Plane, 2402 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

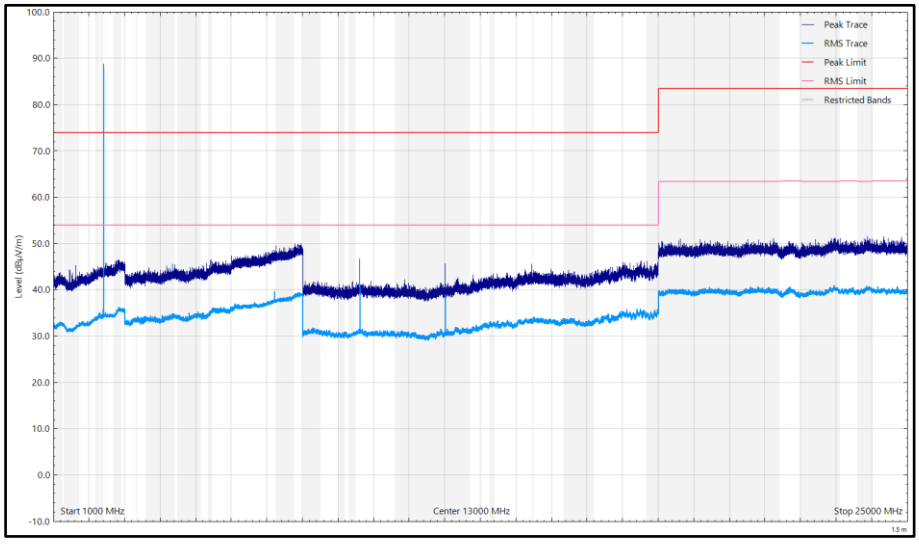


Figure 35 - CH37_LE1M_Z Plane, 2402 MHz, 1 GHz to 25 GHz, Horizontal

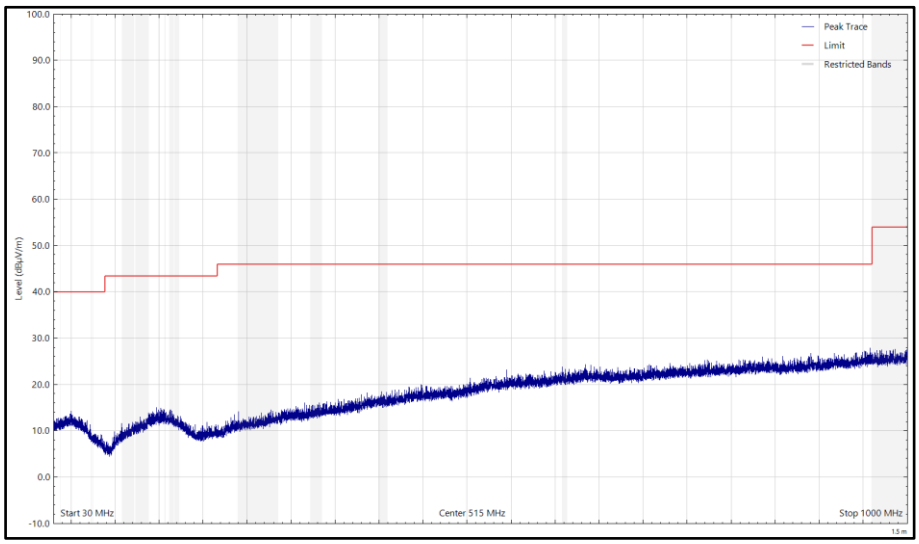


Figure 36 - CH37_LE1M_Z Plane, 2402 MHz, 30 MHz to 1 GHz, Vertical (Peak)

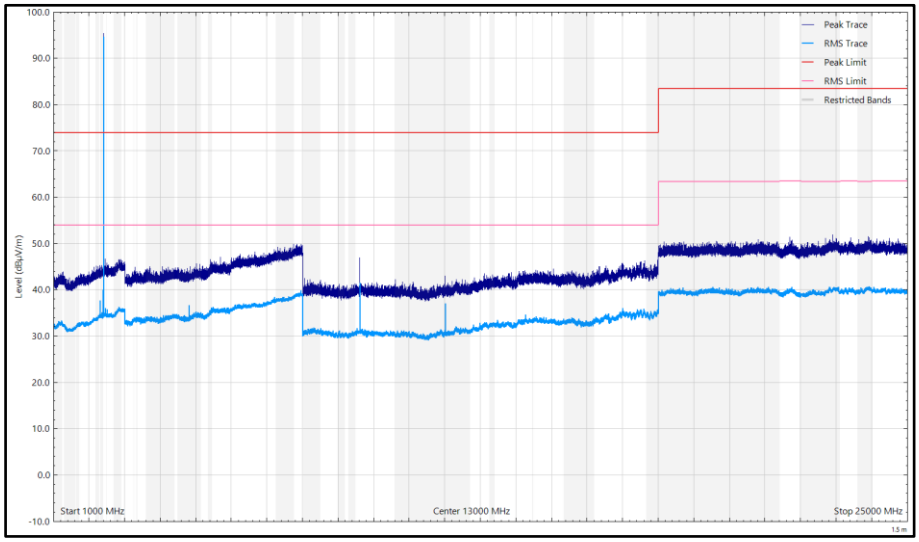


Figure 37 - CH37_LE1M_Z Plane, 2402 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 35 - CH18_LE1M_X Plane, 2442 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

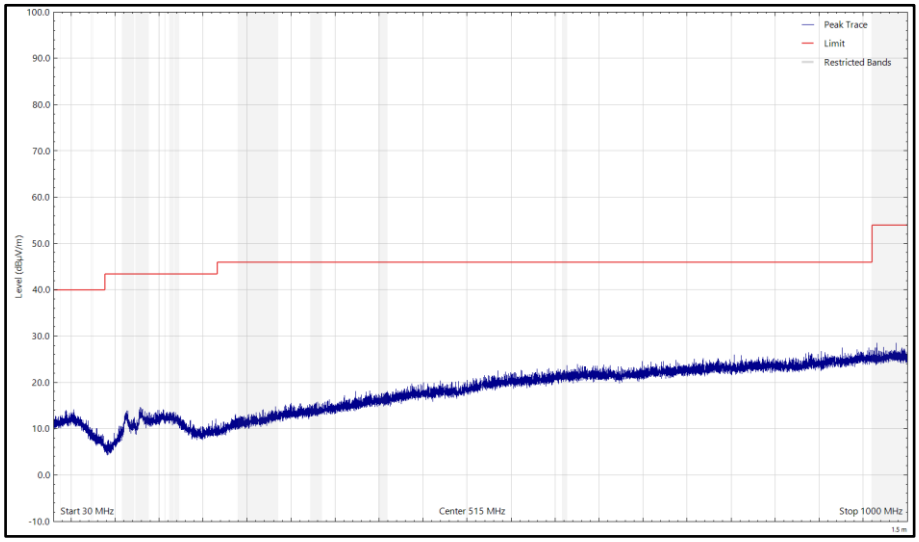


Figure 38 - CH18_LE1M_X Plane, 2442 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

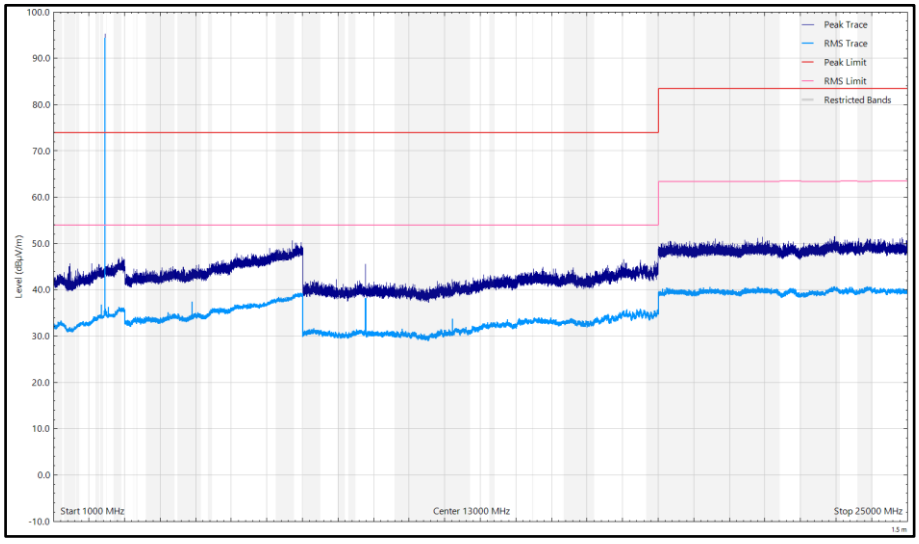


Figure 39 - CH18_LE1M_X Plane, 2442 MHz, 1 GHz to 25 GHz, Horizontal

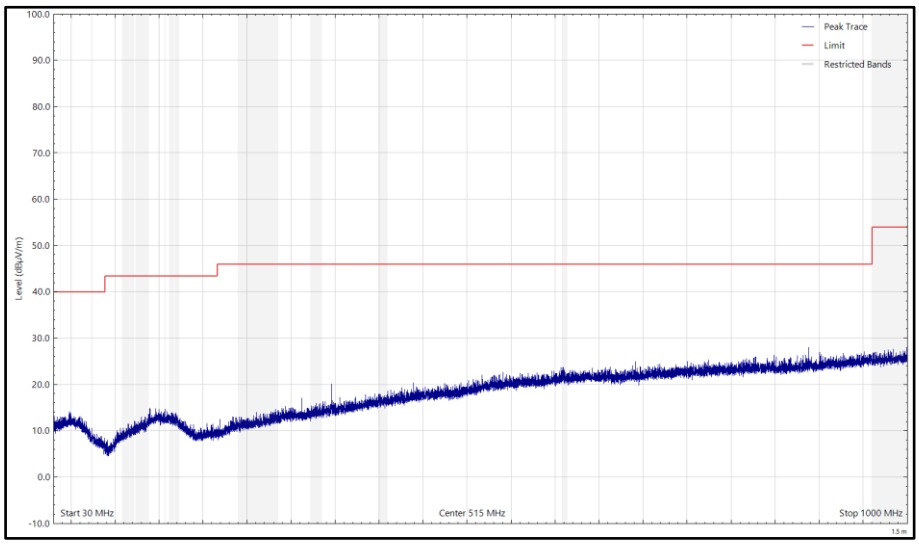


Figure 40 - CH18_LE1M_X Plane, 2442 MHz, 30 MHz to 1 GHz, Vertical (Peak)

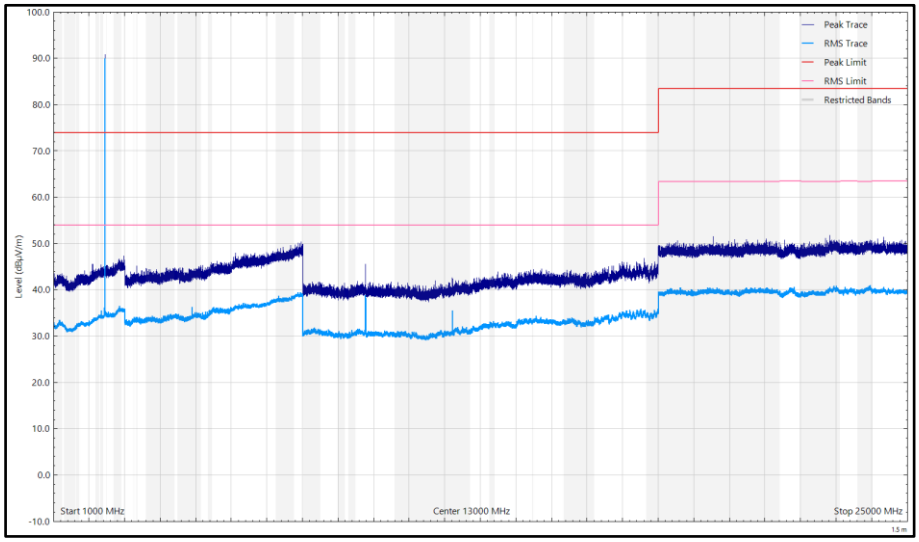


Figure 41 - CH18_LE1M_X Plane, 2442 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 36 - CH18_LE1M_Y Plane, 2442 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

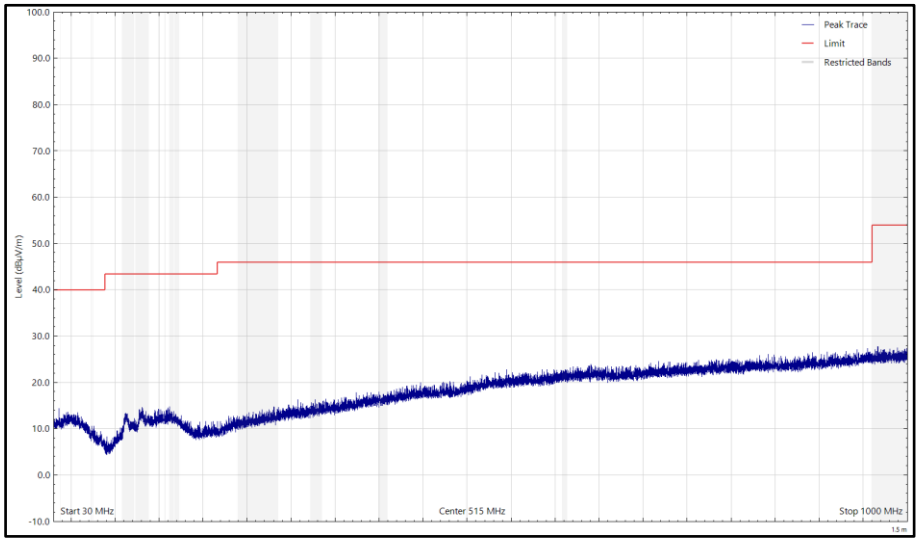


Figure 42 - CH18_LE1M_Y Plane, 2442 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

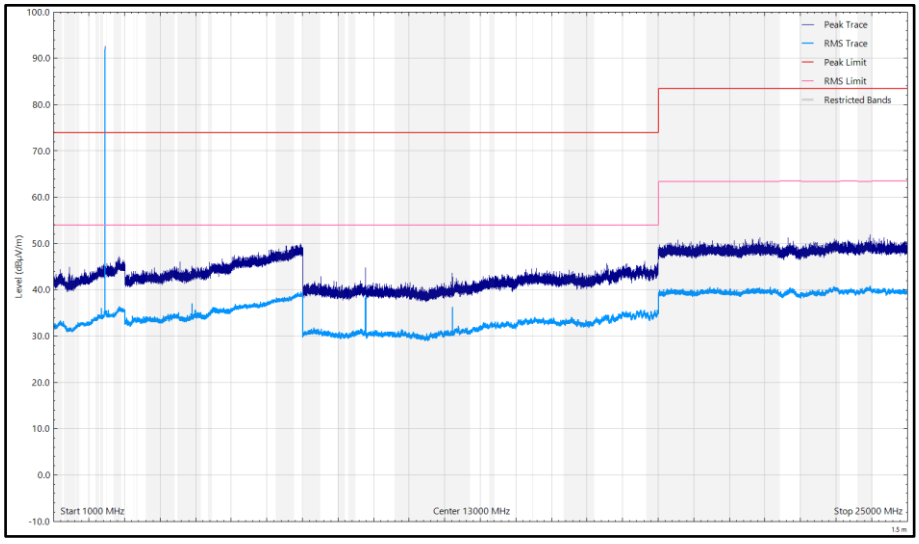


Figure 43 - CH18_LE1M_Y Plane, 2442 MHz, 1 GHz to 25 GHz, Horizontal

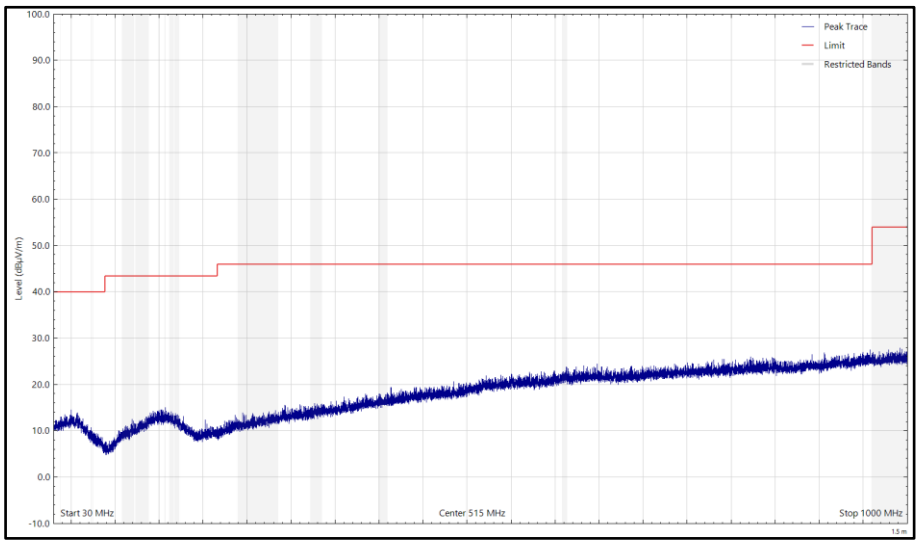


Figure 44 - CH18_LE1M_Y Plane, 2442 MHz, 30 MHz to 1 GHz, Vertical (Peak)

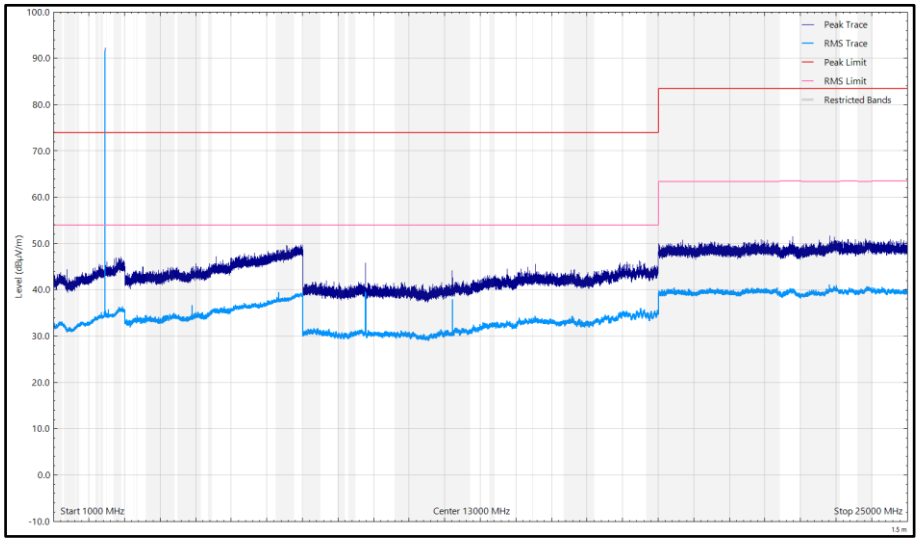


Figure 45 - CH18_LE1M_Y Plane, 2442 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 37 - CH18_LE1M_Z Plane, 2442 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

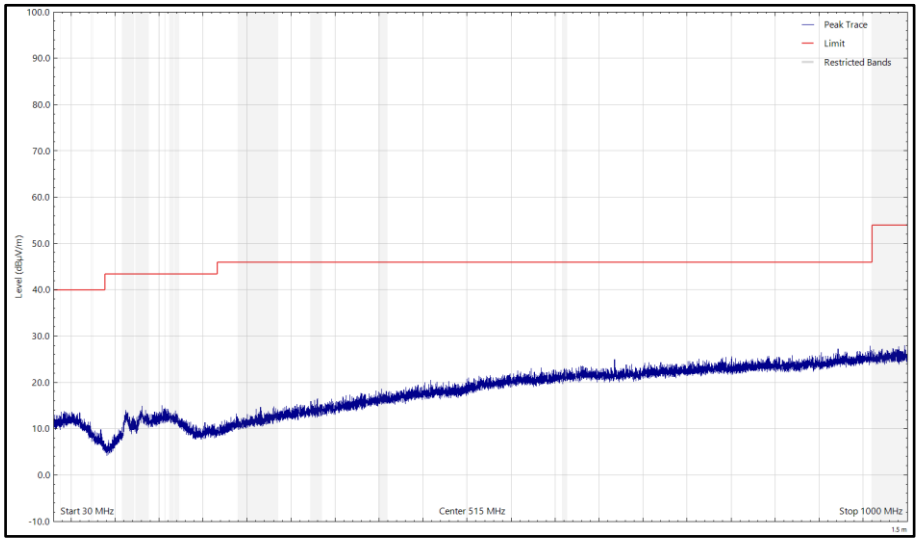


Figure 46 - CH18_LE1M_Z Plane, 2442 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

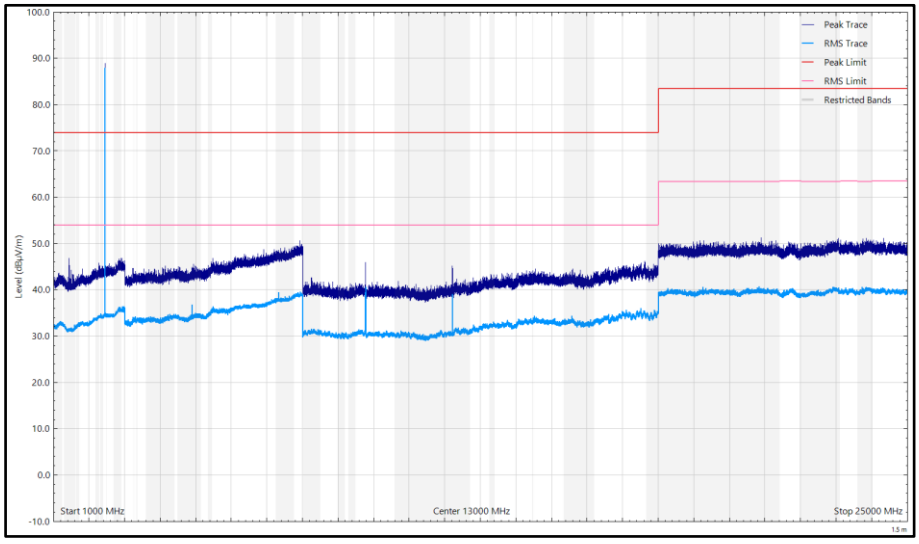


Figure 47 - CH18_LE1M_Z Plane, 2442 MHz, 1 GHz to 25 GHz, Horizontal

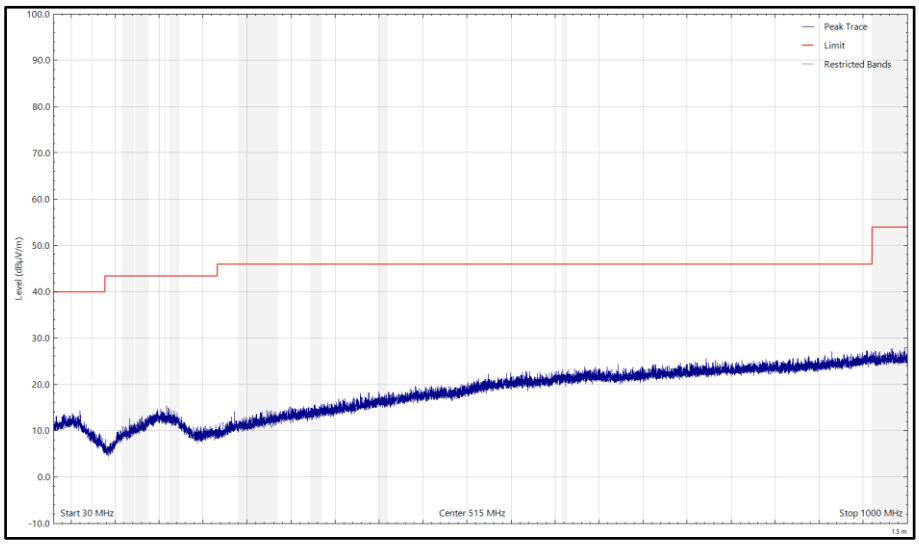


Figure 48 - CH18_LE1M_Z Plane, 2442 MHz, 30 MHz to 1 GHz, Vertical (Peak)

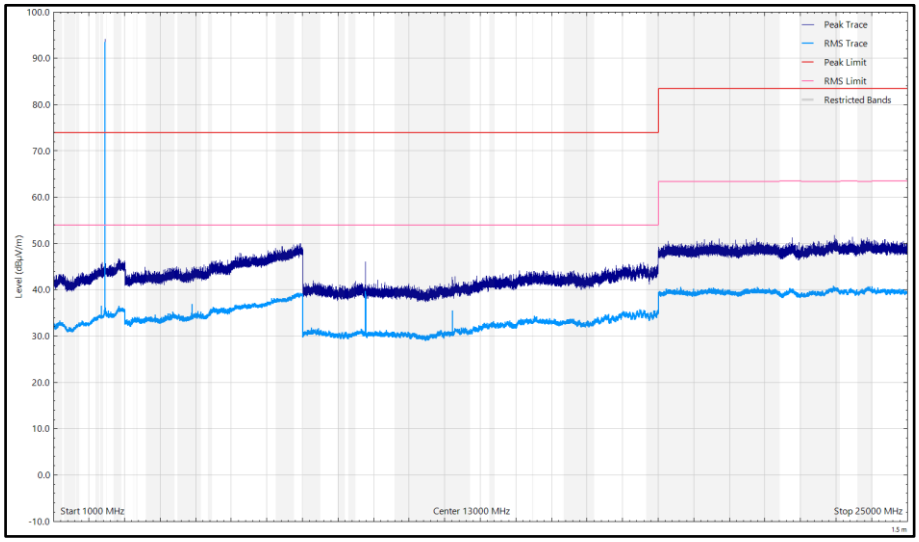


Figure 49 - CH18_LE1M_Z Plane, 2442 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 38 - CH39_LE1M_X Plane, 2480 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

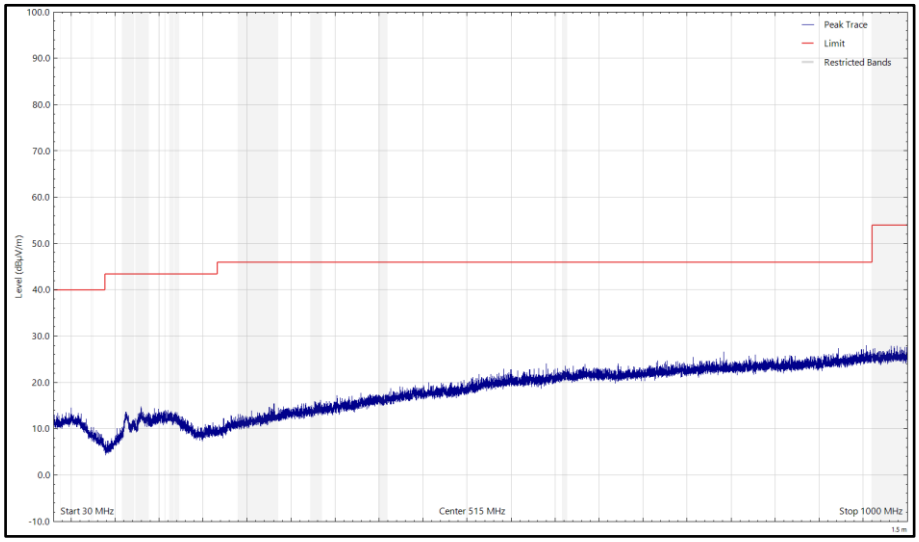


Figure 50 - CH39_LE1M_X Plane, 2480 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

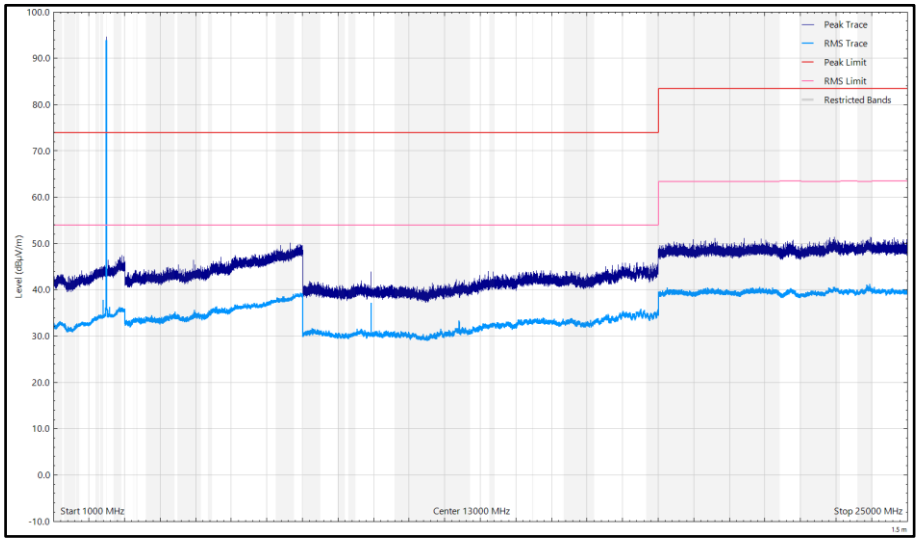


Figure 51 - CH39_LE1M_X Plane, 2480 MHz, 1 GHz to 25 GHz, Horizontal

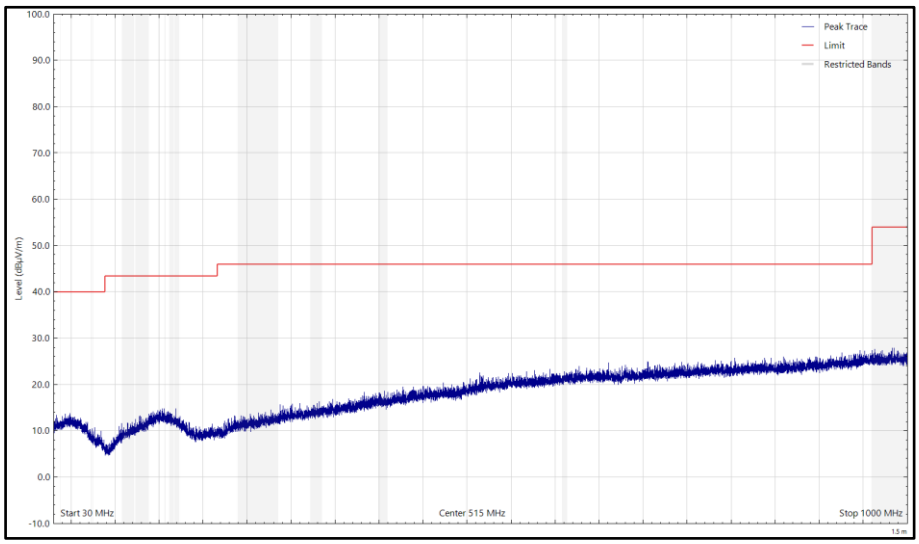


Figure 52 - CH39_LE1M_X Plane, 2480 MHz, 30 MHz to 1 GHz, Vertical (Peak)

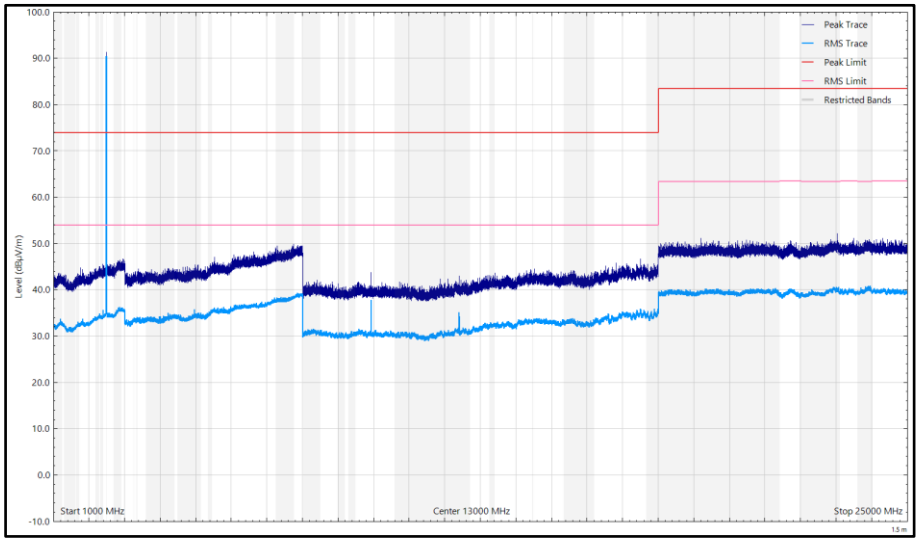


Figure 53 - CH39_LE1M_X Plane, 2480 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 39 - CH39_LE1M_Y Plane, 2480 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

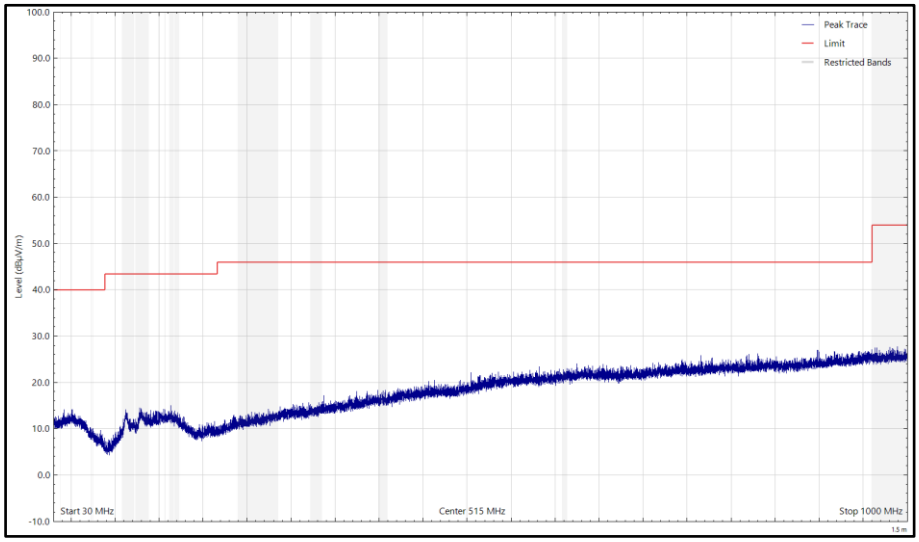


Figure 54 - CH39_LE1M_Y Plane, 2480 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

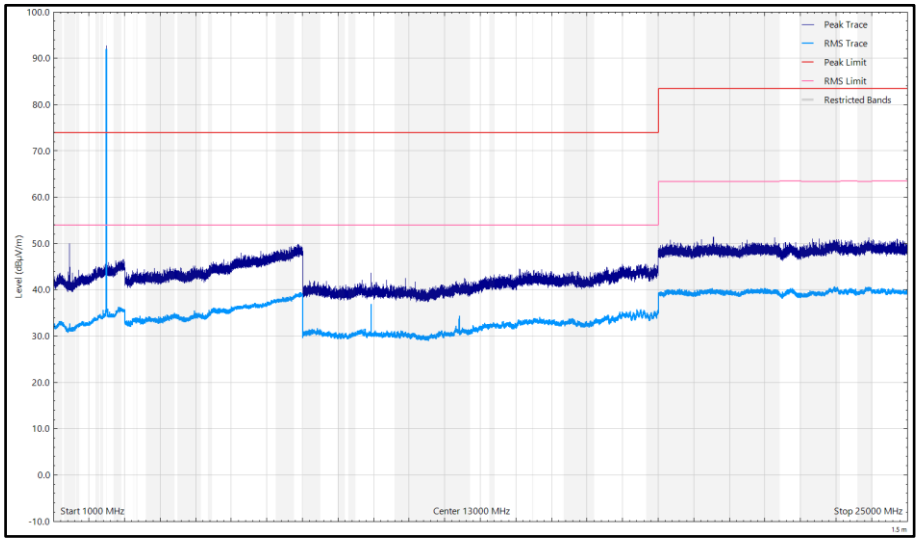


Figure 55 - CH39_LE1M_Y Plane, 2480 MHz, 1 GHz to 25 GHz, Horizontal

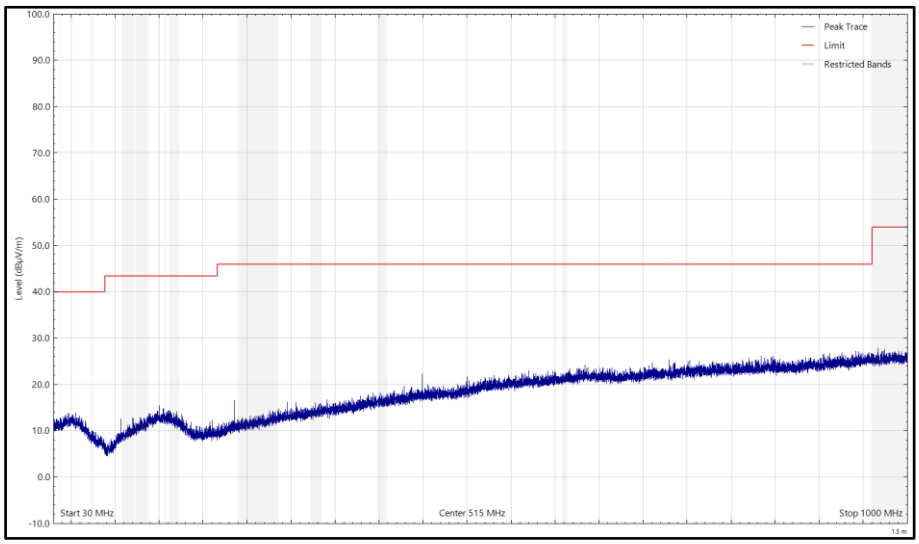


Figure 56 - CH39_LE1M_Y Plane, 2480 MHz, 30 MHz to 1 GHz, Vertical (Peak)

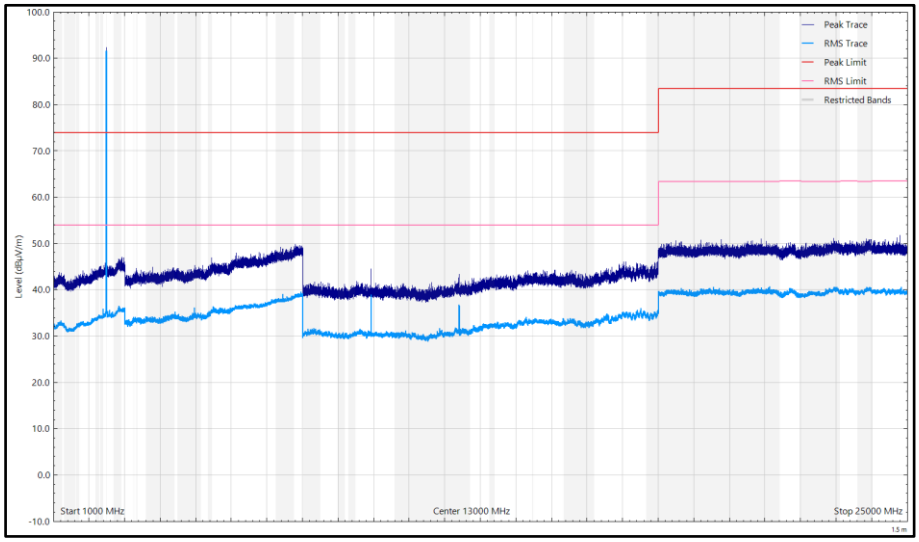


Figure 57 - CH39_LE1M_Y Plane, 2480 MHz, 1 GHz to 25 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 40 - CH39_LE1M_Z Plane, 2480 MHz, 30MHz to 25 GHz

*No emissions found within 10 dB of the limit.

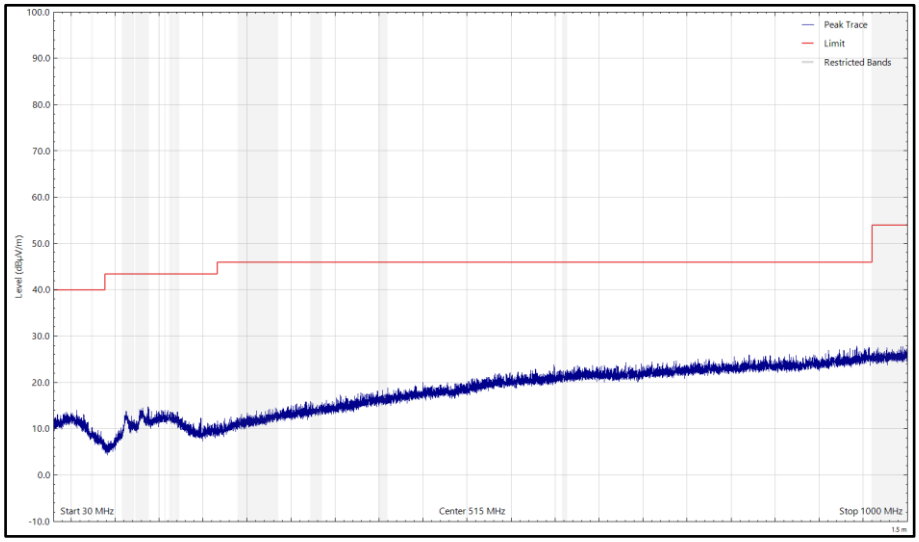


Figure 58 - CH39_LE1M_Z Plane, 2480 MHz, 30 MHz to 1 GHz, Horizontal (Peak)

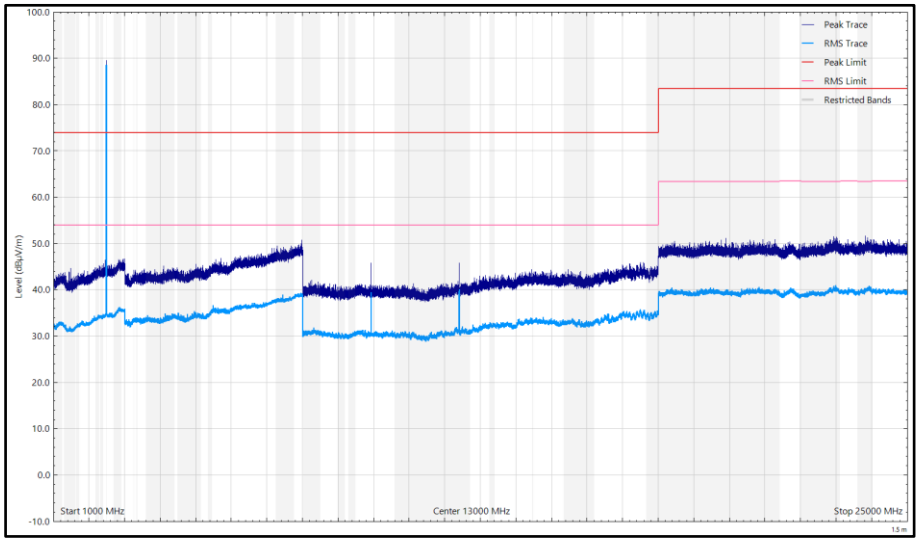


Figure 59 - CH39_LE1M_Z Plane, 2480 MHz, 1 GHz to 25 GHz, Horizontal

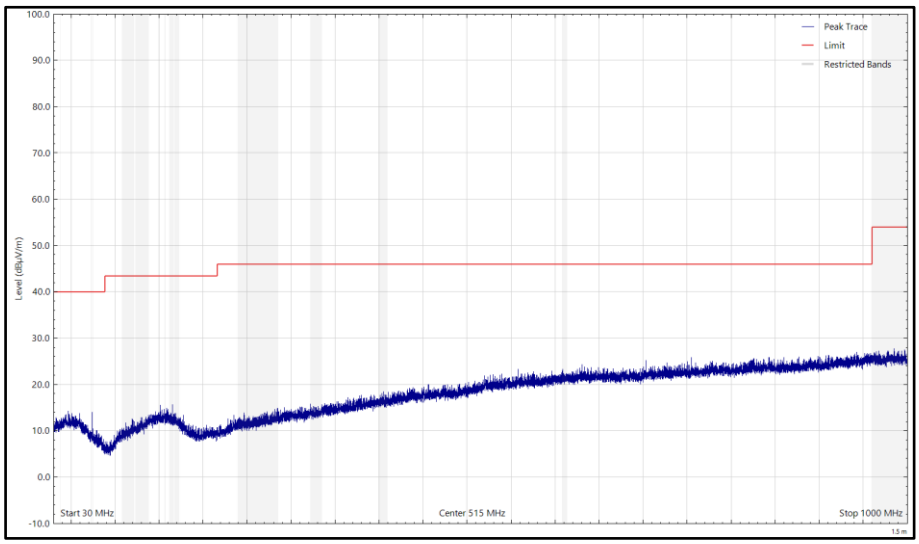


Figure 60 - CH39_LE1M_Z Plane, 2480 MHz, 30 MHz to 1 GHz, Vertical (Peak)

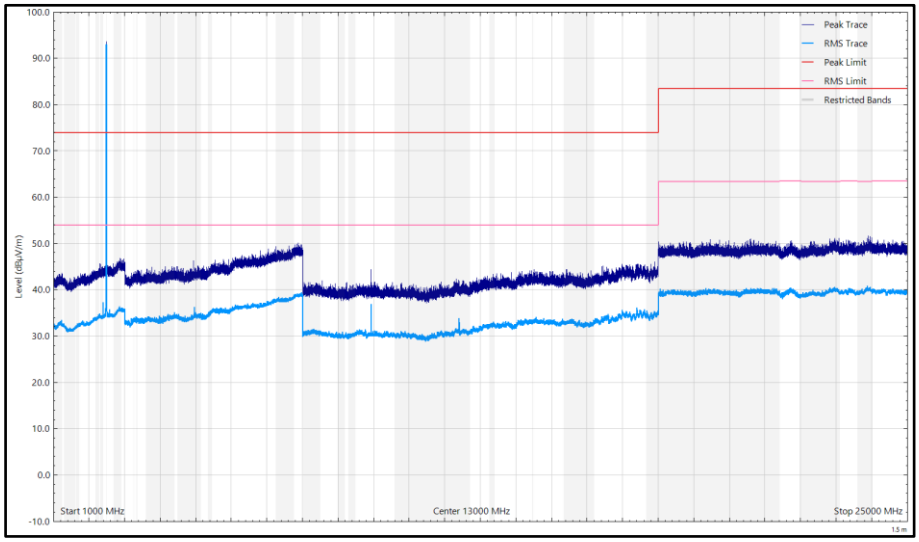


Figure 61 - CH39_LE1M_Z Plane, 2480 MHz, 1 GHz to 25 GHz, Vertical

2.5.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in 15.209(a)
ISED RSS-247, Limit Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in RSS-GEN, clause 8.10, must also comply with the radiated emission limits specified in RSS-GEN clause 8.9.

2.5.9 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Antenna (DRG, 18 GHz to 40 GHz)	Link Microtek Ltd	AM180HA-K-TU2	230	24	08-Oct-2026
Pre-Amplifier (18 GHz to 40 GHz)	Phase One	PSO4-0087	1534	12	16-Aug-2025
Programmable Power Supply	Iso-tech	IPS 2010	2437	-	O/P Mon
HygroPalm	Rotronic	HygroPalm 0	3484	12	13-Sep-2025
True RMS Multimeter	Fluke	179	4006	12	22-Mar-2025
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
3m Semi-Anechoic Chamber	Rainford	RF Chamber 11	5136	36	14-Nov-2027
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	5215	12	14-Jul-2025
Antenna (DRG, 7.5 GHz to 18 GHz)	Schwarzbeck	HWRD750	5216	12	14-Jul-2025
3 GHz High pass filter	Wainwright	WHKX12-2580-3000-18000-80SS	5220	12	03-Apr-2025
Test Receiver	Rohde & Schwarz	ESW44	5382	12	09-Sep-2025
Pre-Amplifier (1 GHz to 26.5 GHz)	Agilent Technologies	8449B	5445	12	23-May-2025
Cable (K-Type to K-Type, 1 m)	Junkosha	MWX241-01000KMSKMS/A	5512	12	23-May-2025
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5518	12	18-Apr-2025
7 GHz High pass Filter	Wainwright	WHKX12-5850-6800-18000-80SS	5550	12	30-May-2025
Pre-Amplifier (8 GHz to 18 GHz)	Wright Technologies	APS06-0061	5595	12	28-Oct-2025
Cable (K-Type to K-Type, 2 m)	Junkosha	MWX241-02000KMSKMS/B	5934	12	20-Jun-2025
Cable (N to N 8m)	Junkosha	MWX221-08000NMSNMS/B	6330	12	17-Feb-2025
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	6635	24	13-Jun-2025

Table 41

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

2.6 Power Spectral Density

2.6.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (e),
ISED RSS-247 Clause 5.2,
ISED RSS-GEN, Clause 6.12

2.6.2 Equipment Under Test and Modification State

MOTOR NO. 20, S/N: SM_EP2-0290 - Modification State 0

2.6.3 Date of Test

21-January-2025

2.6.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.10.2.

The DUT provided by the customer had trailing DC leads to bypass the internal battery. These have been used to power the DUT to keep input voltage consistent at 3.85 VDC across all tests.

The DUT was configured to transmit a modulated package with a 37 byte PRBS payload at max power.

2.6.5 Test Setup Diagram

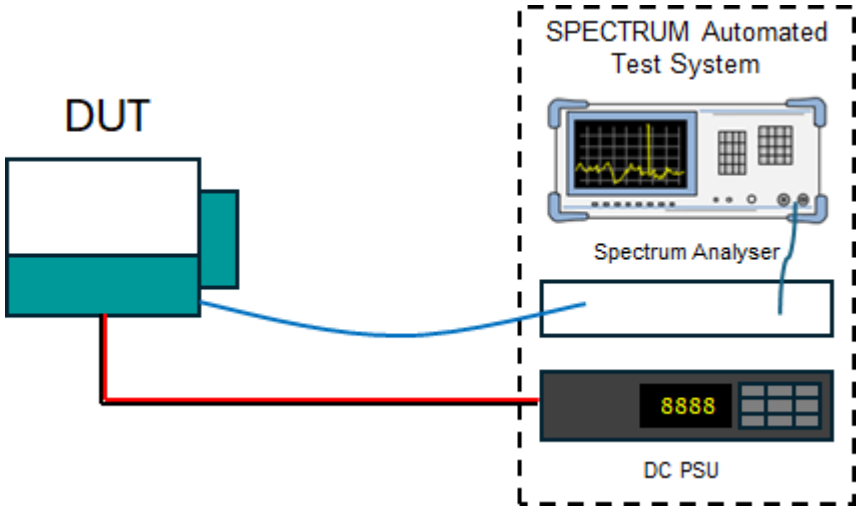


Figure 62

2.6.6 Environmental Conditions

Ambient Temperature	21.6 °C
Relative Humidity	28.3 %

2.6.7 Test Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 5.2 b)	Test Method(s):	C63.10 11.10.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	BLE GFSK (LE 1M)	Duty Cycle (%):	63.4
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	∑		
2402	3.0	-14.89	-	-	-	-	8.00	-22.89
2442	3.0	-15.67	-	-	-	-	8.00	-23.67
2480	3.0	-15.79	-	-	-	-	8.00	-23.79

Table 42 - Maximum Power Spectral Density Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 5.2 b)	Test Method(s):	C63.10 11.10.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	BLE GFSK (LE 2M)	Duty Cycle (%):	33.8
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	∑		
2402	3.0	-16.90	-	-	-	-	8.00	-24.90
2442	3.0	-18.08	-	-	-	-	8.00	-26.08
2480	3.0	-17.54	-	-	-	-	8.00	-25.54

Table 43 - Maximum Power Spectral Density Results

2.6.8 Specification Limits

FCC 47 CFR Part 15, Limit Clause 15.247 (e)

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

ISED RSS-247, Limit Clause 5.2(b)

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission

2.6.9 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	White Gold	WG022	190	12	18-Nov-2025
Hygrometer	Rotronic	I-1000	2891	12	02-Dec-2025
GPSDR Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	09-Mar-2025
MXA Signal Analyser	Keysight Technologies	N9020B	5528	24	18-Sep-2025
Modular Power System Mainframe	Keysight Technologies	N6701C	5835	-	TU
DC Power Module 60V 20A 300W	Keysight Technologies	N6754A	5836	-	O/P Mon
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6350	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6638	12	02-Aug-2025

Table 44

TU - Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

3 Photographs

3.1 Test Setup Photographs

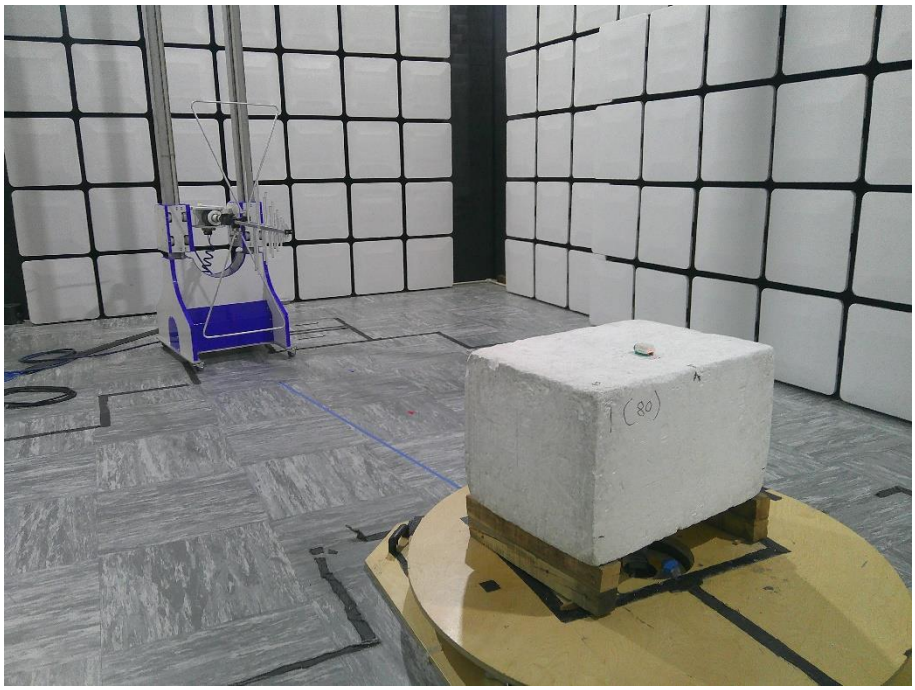


Figure 63 – 30 MHz to 1 GHz X Plane

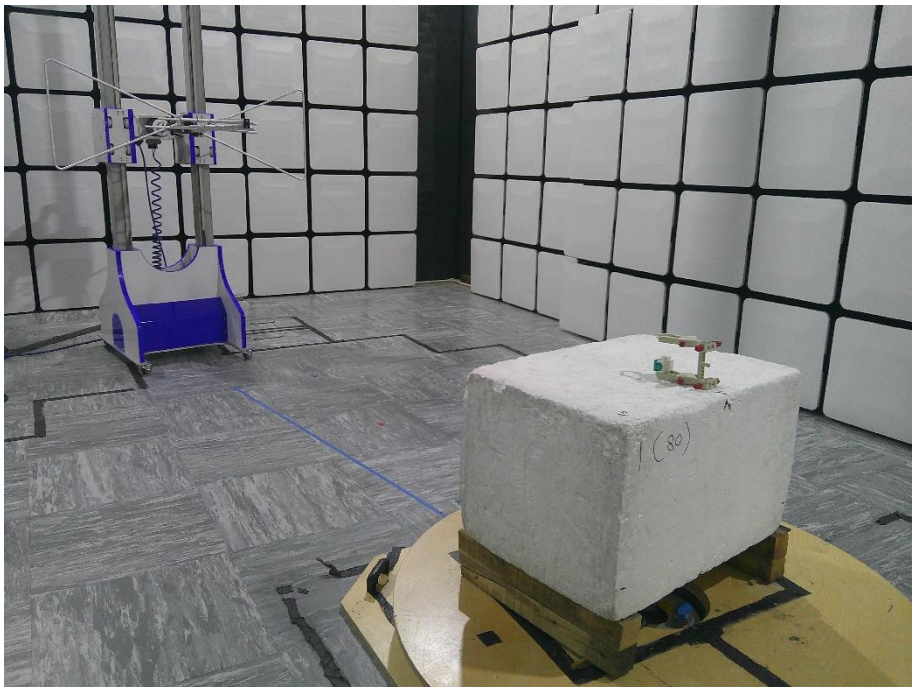


Figure 64 – 30 MHz to 1 GHz Y Plane

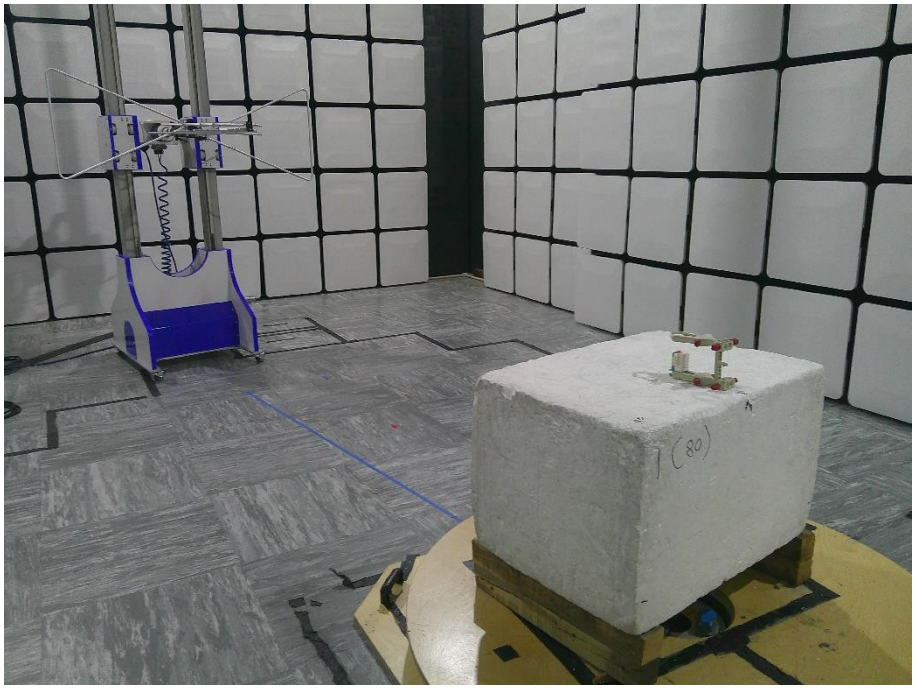


Figure 65 – 30 MHz to 1 GHz Z Plane

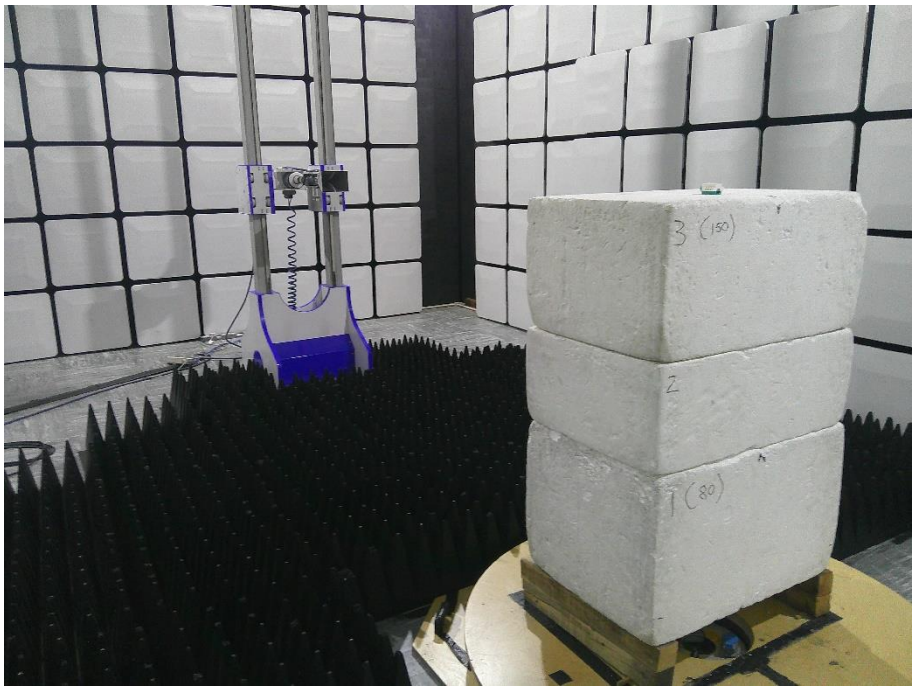


Figure 66 – 1 GHz to 8 GHz X Plane

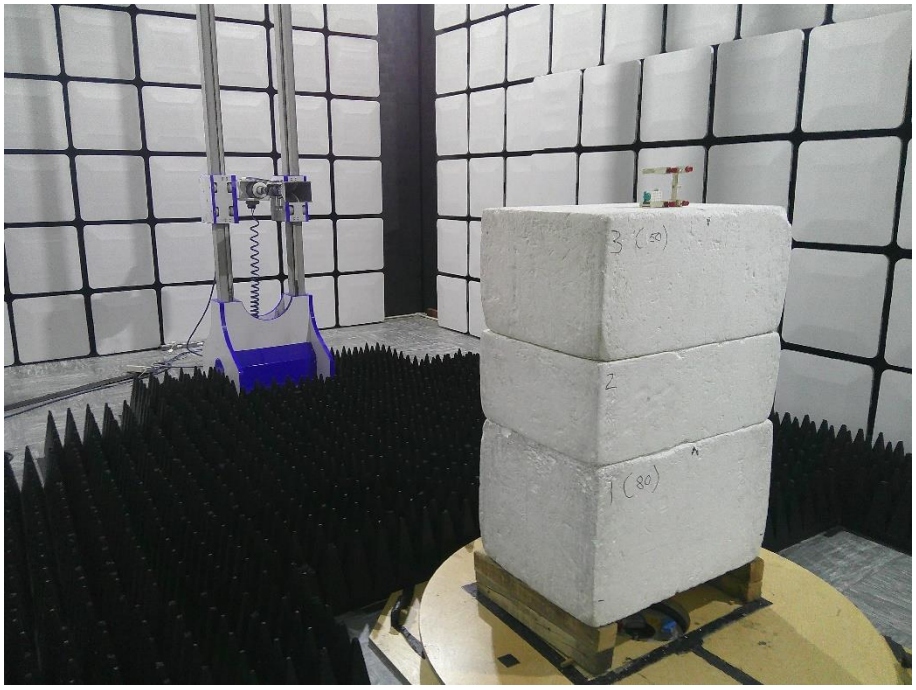
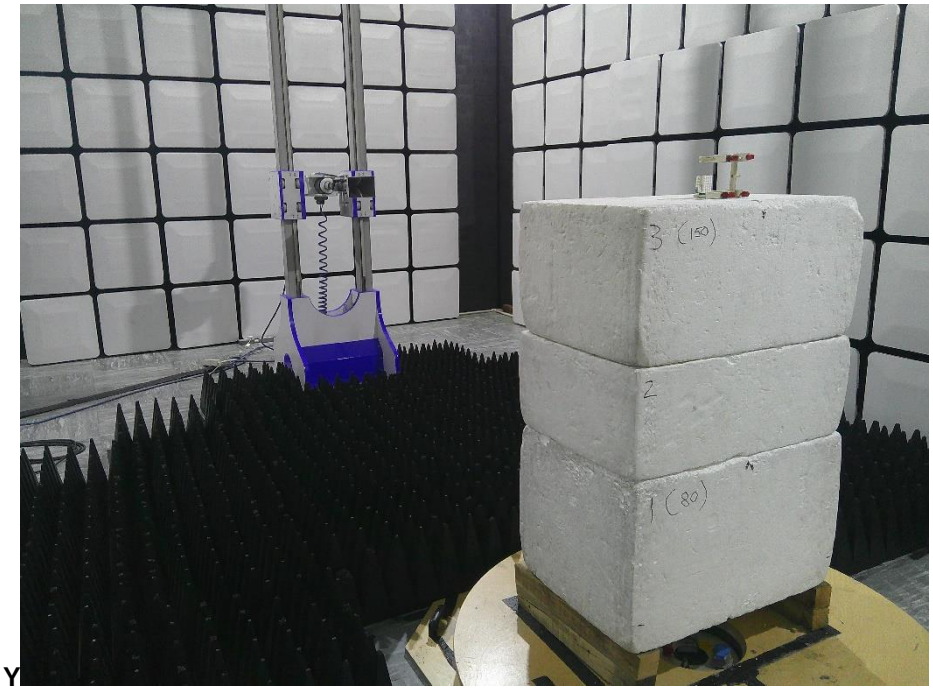


Figure 67 – 1 GHz to 8 GHz Y Plane



Y

Figure 68 – 1 GHz to 8 GHz Z Plane

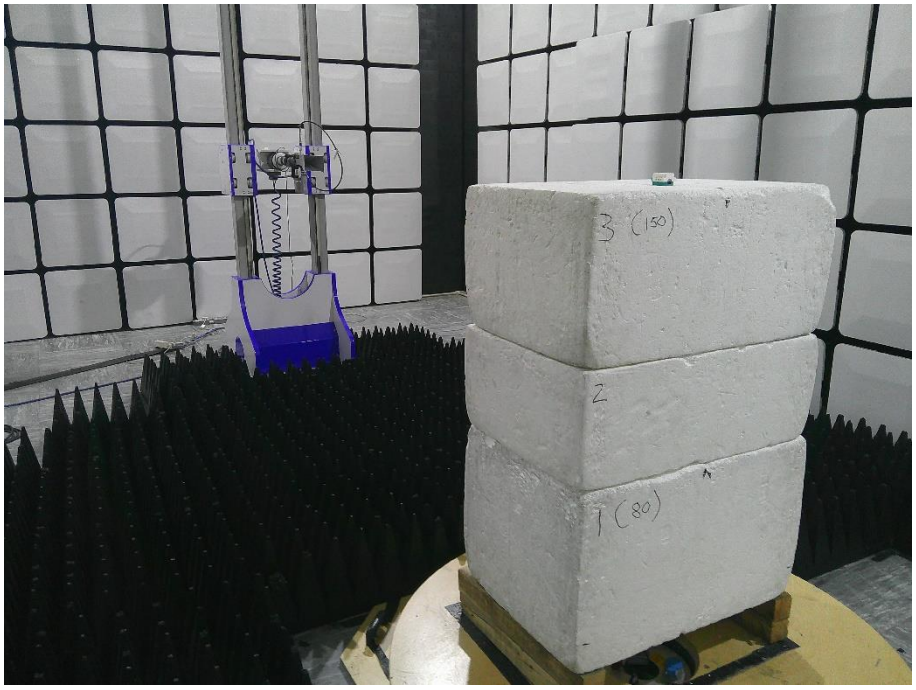


Figure 69 – 8 GHz to 18 GHz X Plane

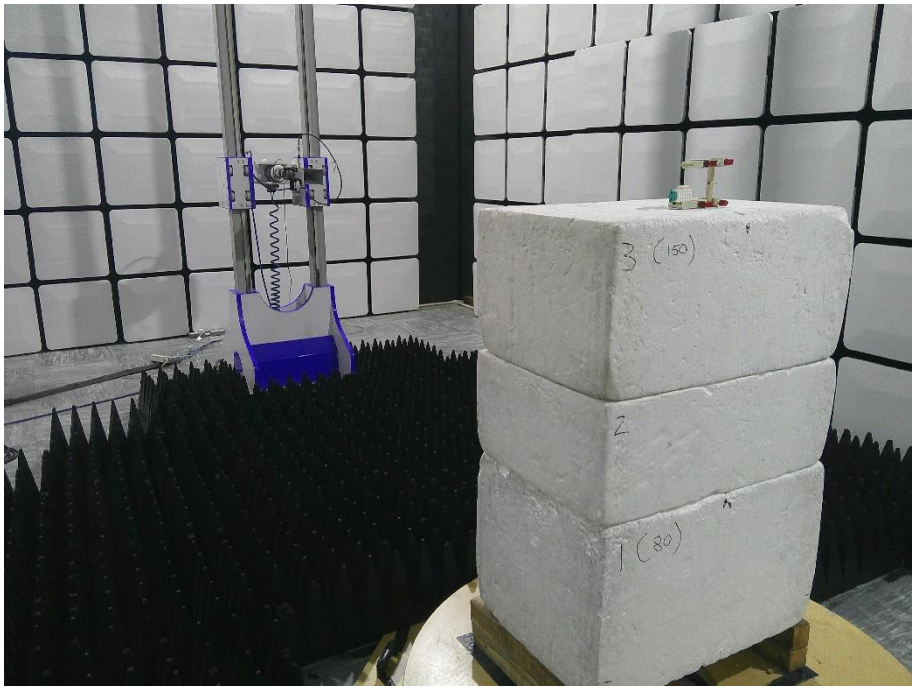


Figure 70 – 8 GHz to 18 GHz Y Plane

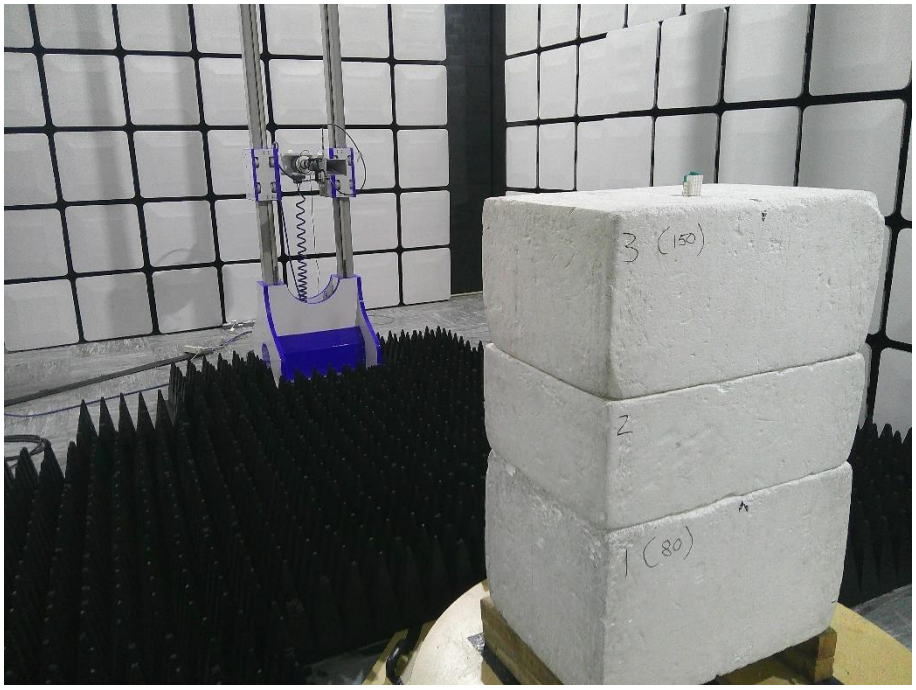


Figure 71 – 8 GHz to 18 GHz Z Plane

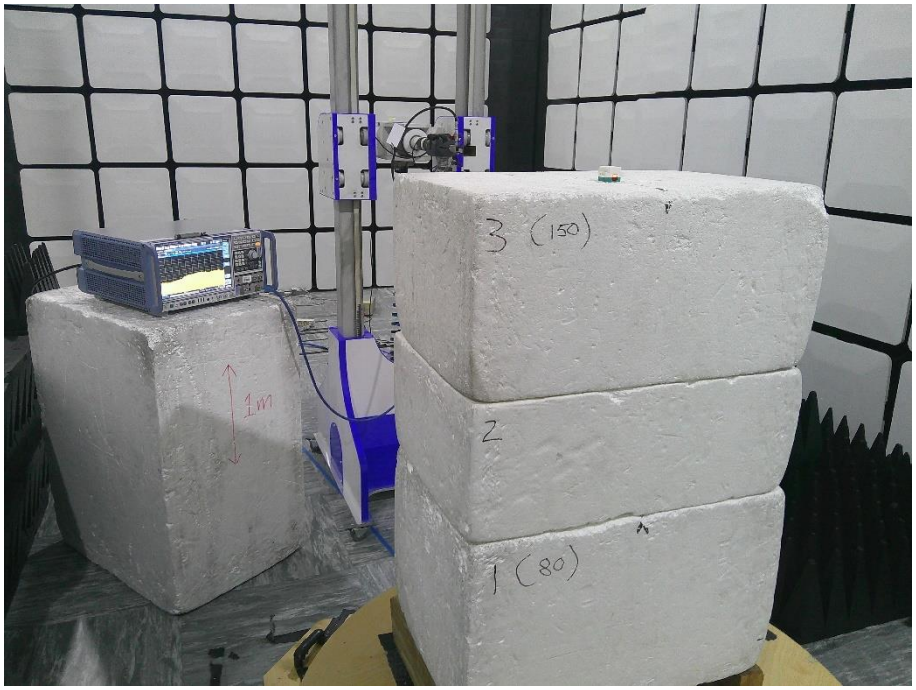


Figure 72 – 18 GHz to 25 GHz X Plane

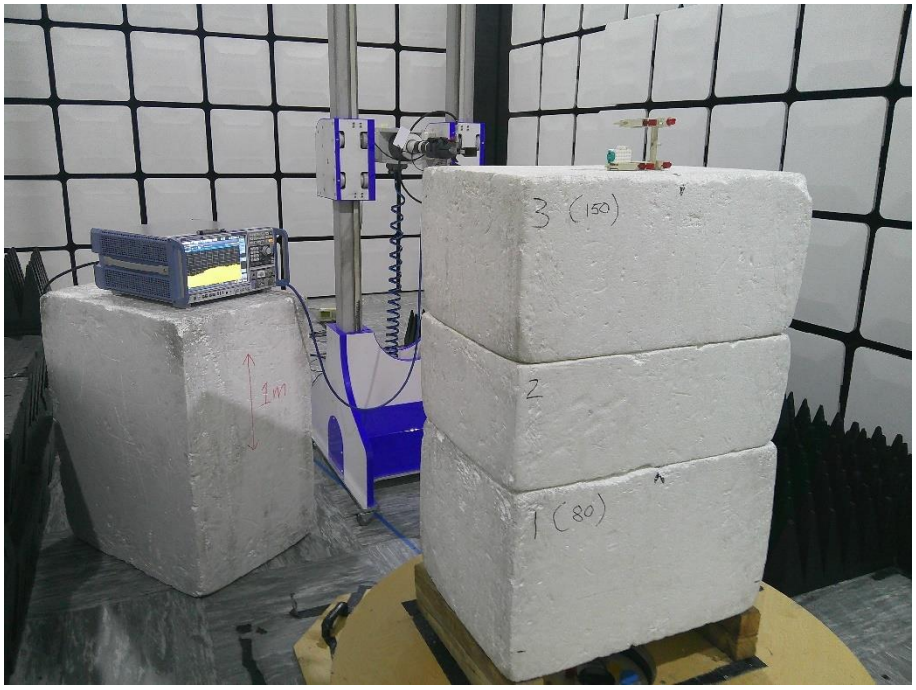


Figure 73 – 18 GHz to 25 GHz Y Plane

Figure 74 – 18 GHz to 25 GHz Z Plane

4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Restricted Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Emission Bandwidth	± 42.87 kHz by Lab
Maximum Conducted Output Power	± 0.65 dB
Authorised Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Power Spectral Density	± 1.00 dB

Table 45

Measurement Uncertainty Decision Rule – Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.