



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR8	0-1	2404	2400.0	-64.31

Table 69 - Authorised Band Edge Results

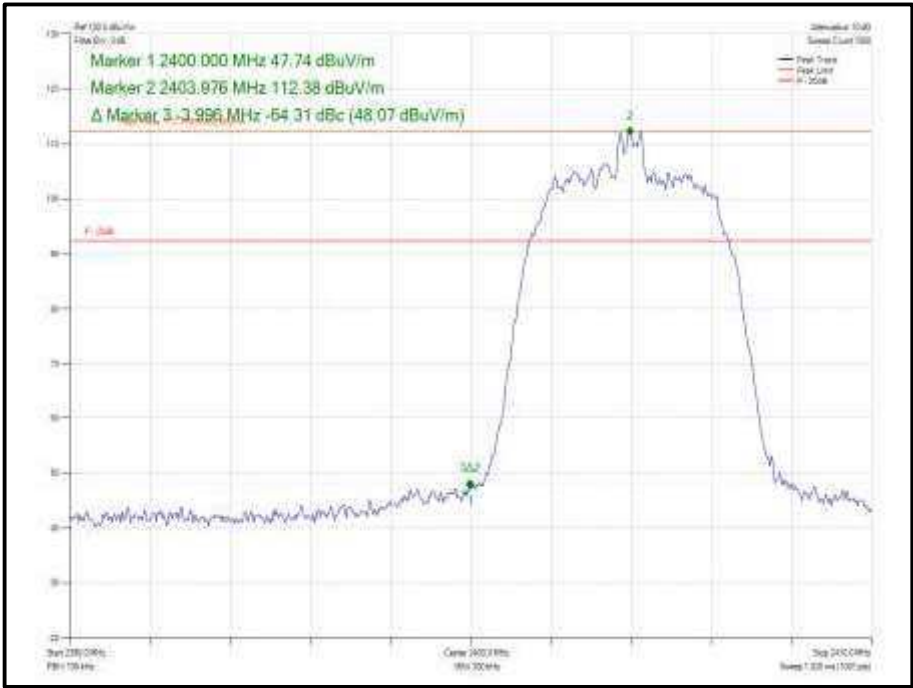


Figure 174 - Static - Core 0-1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2400.0 MHz



ePA - LE1M

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-66.76

Table 70 - Authorised Band Edge Results

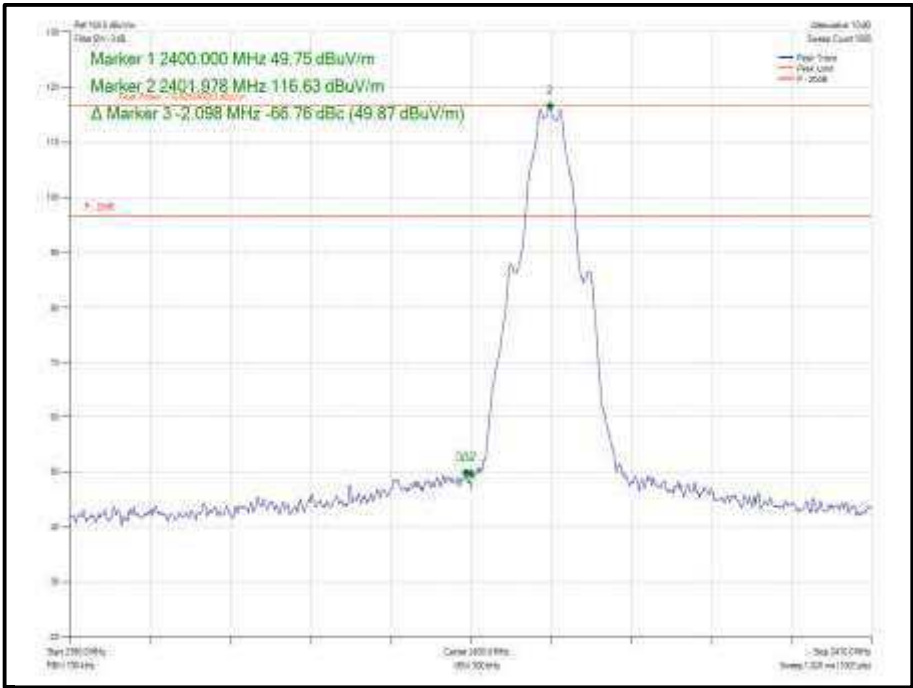


Figure 175 - Static - Core 0 - GFSK/DH1- 2404 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-66.89

Table 71 - Authorised Band Edge Results

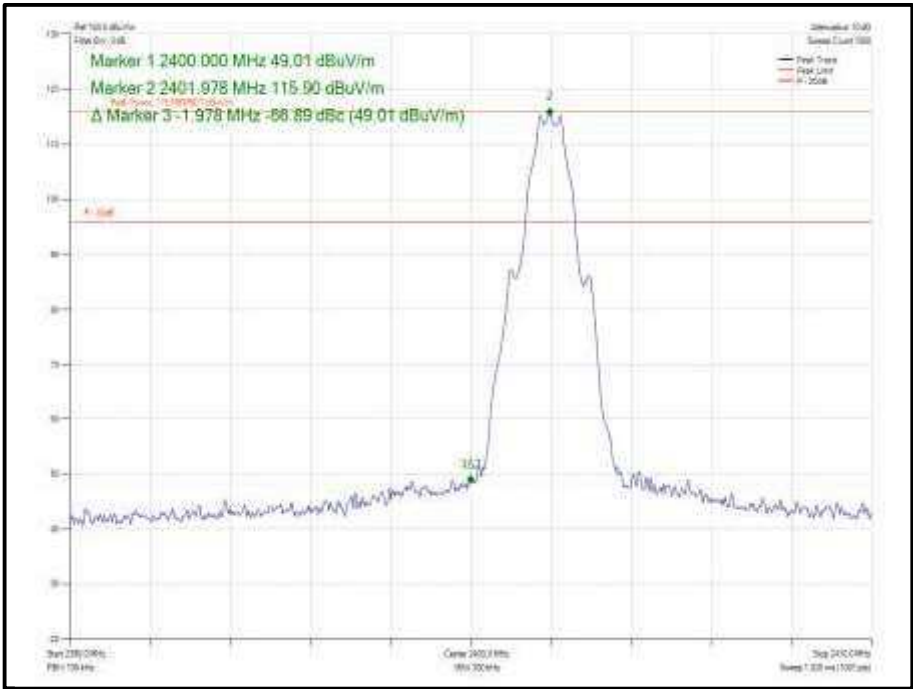


Figure 176 - Static - Core 1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-68.18

Table 72 - Authorised Band Edge Results

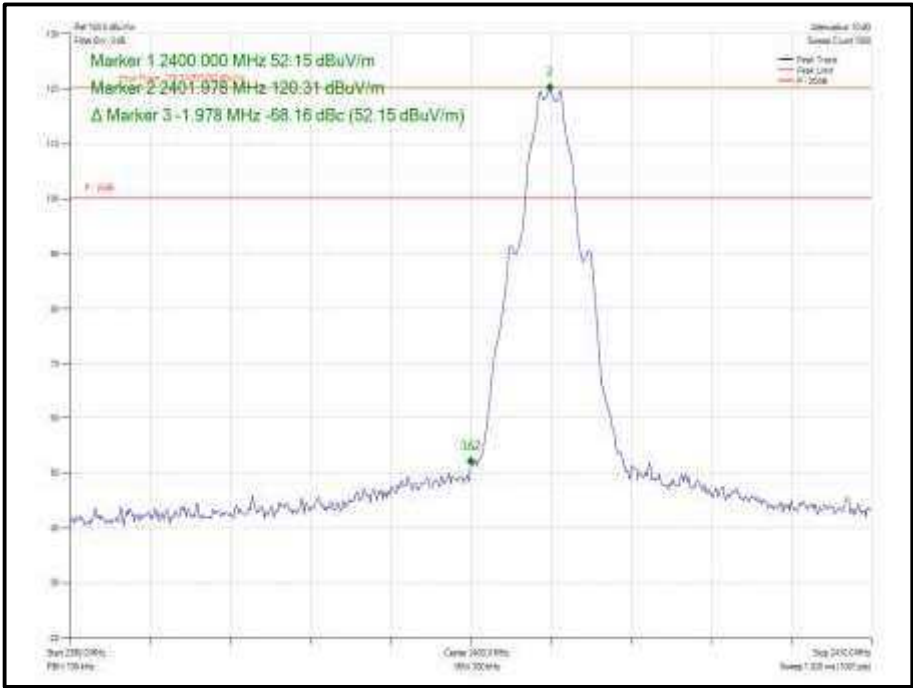


Figure 177 - Static - Core 0-1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



LE2M

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-45.27

Table 73 - Authorised Band Edge Results

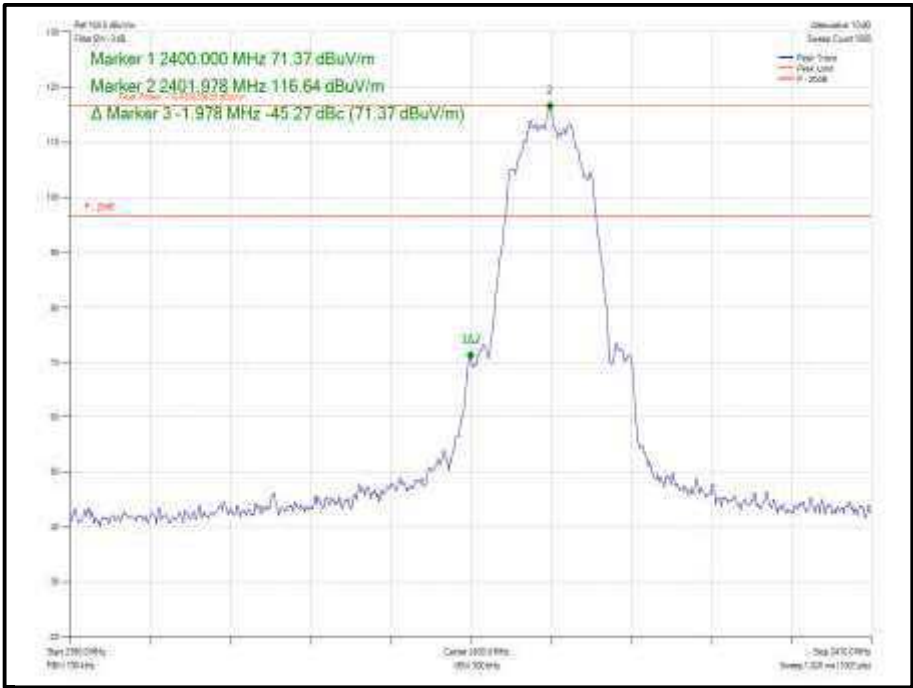


Figure 178 - Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-43.52

Table 74 - Authorised Band Edge Results

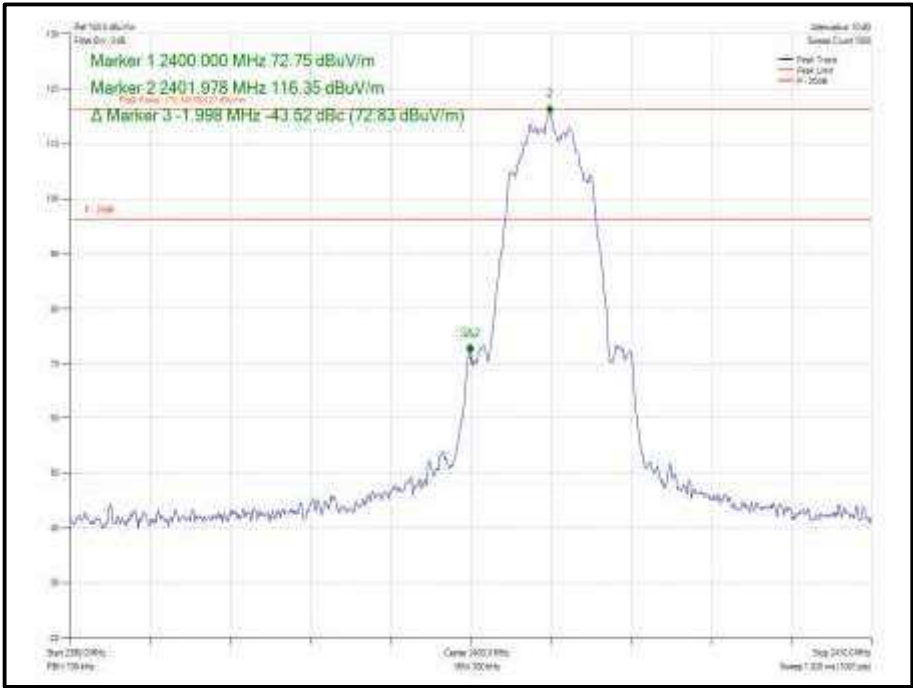


Figure 179 - Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-44.26

Table 75 - Authorised Band Edge Results

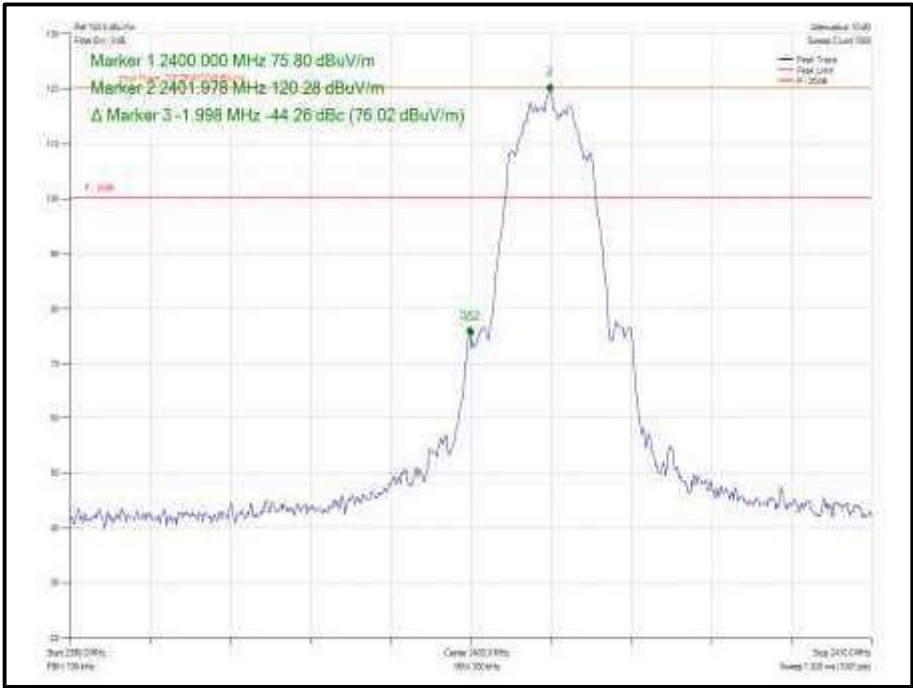


Figure 180 - Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



iPA - HDR4

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR4	0	2404	2400.0	-59.55

Table 76 - Authorised Band Edge Results

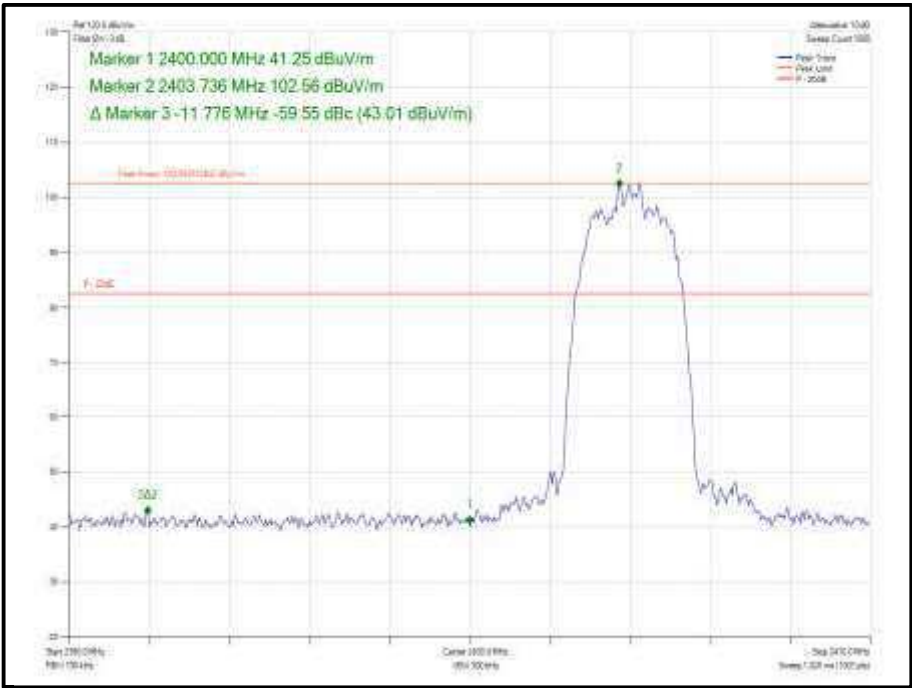


Figure 181 - Static - Core 0 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR4	1	2404	2400.0	-59.49

Table 77 - Authorised Band Edge Results

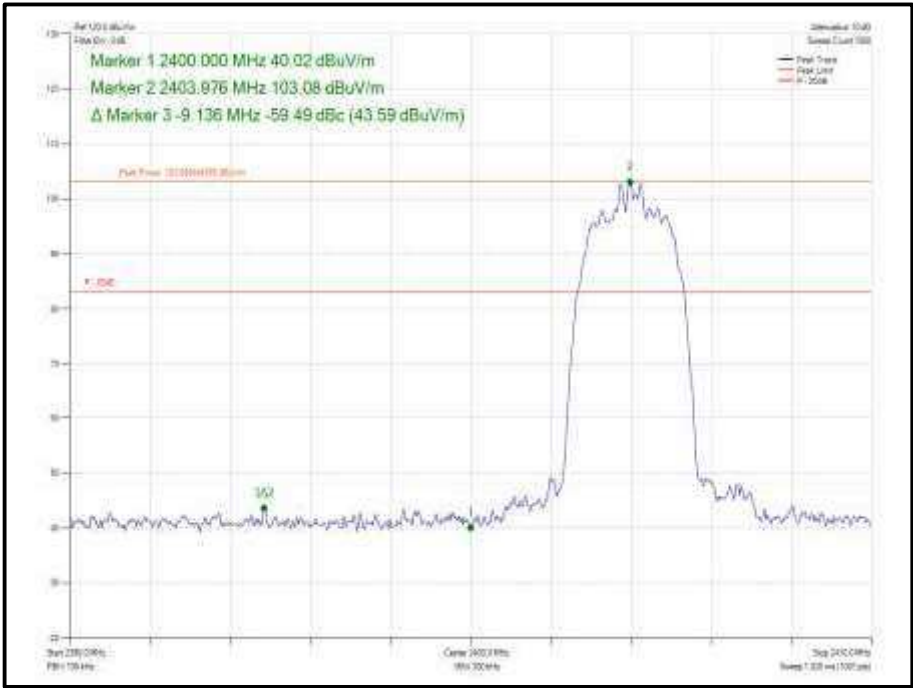


Figure 182 - Static - Core 1 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR4	2	2404	2400.0	-59.26

Table 78 - Authorised Band Edge Results

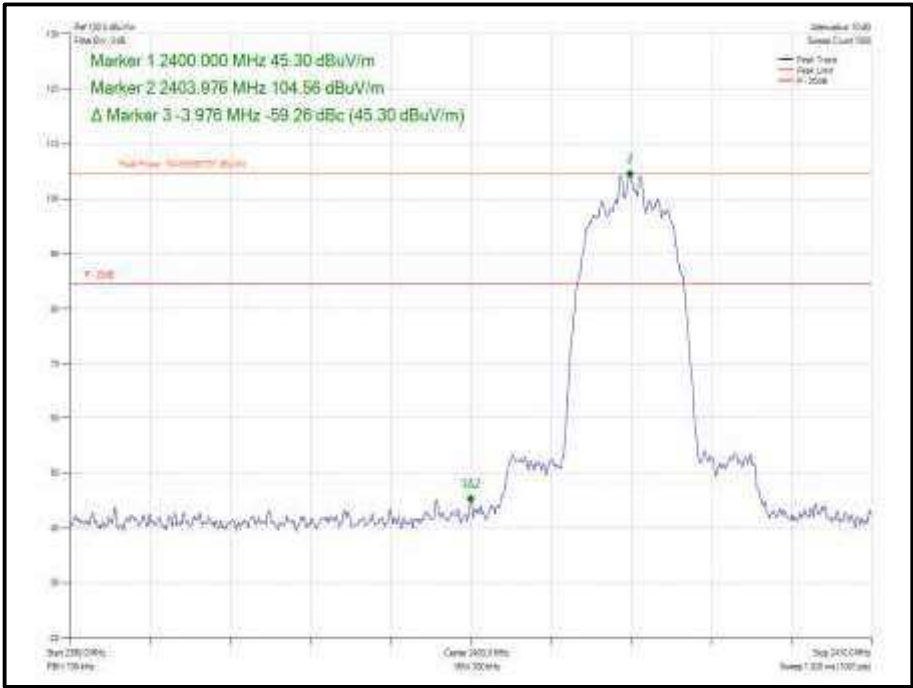


Figure 183 - Static - Core 2 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR4	0-1	2404	2400.0	-62.36

Table 79 - Authorised Band Edge Results

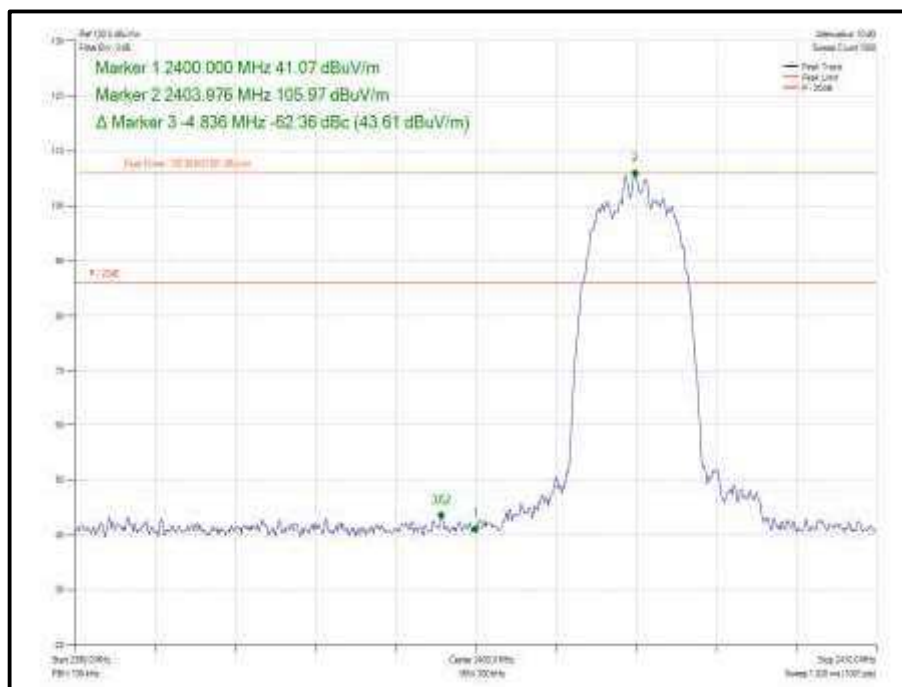


Figure 184 - Static - Core 0-1 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz



HDR8

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR8	0	2404	2400.0	-57.93

Table 80 - Authorised Band Edge Results

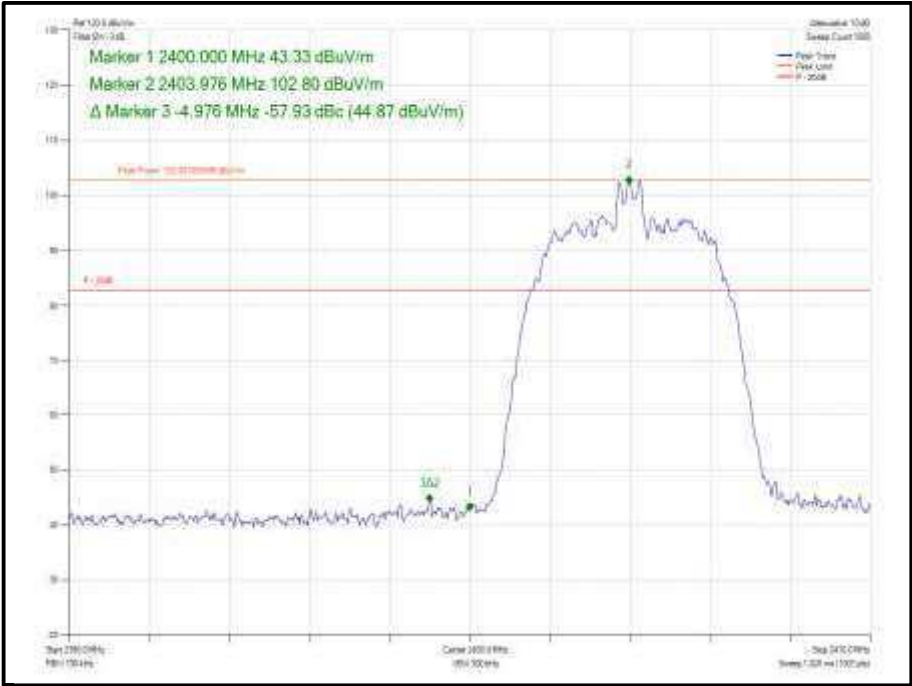


Figure 185 - Static - Core 0 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR8	1	2404	2400.0	-57.85

Table 81 - Authorised Band Edge Results

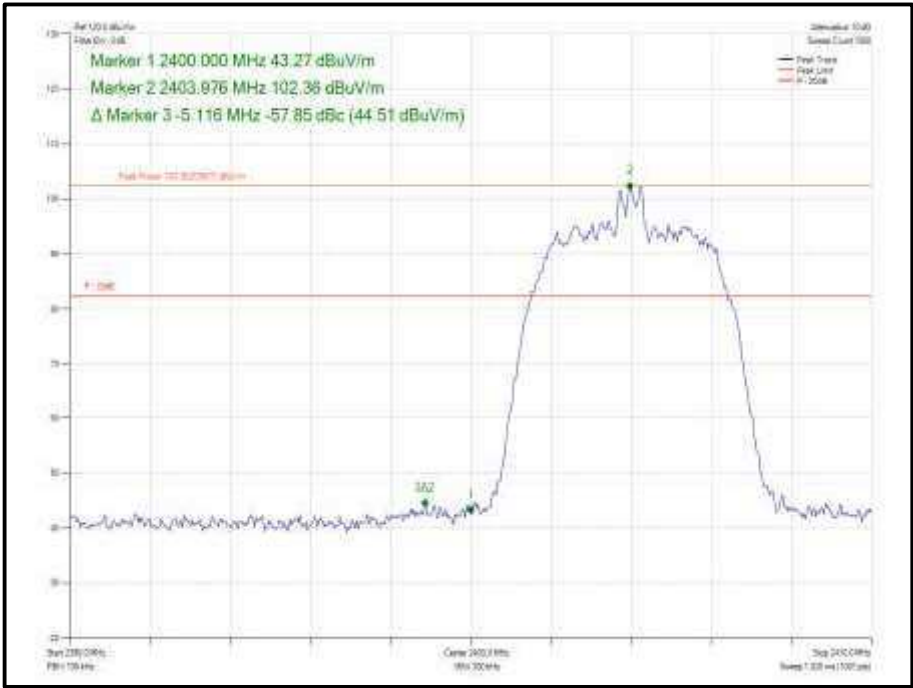


Figure 186 - Static - Core 1 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR8	2	2404	2400.0	-53.86

Table 82 - Authorised Band Edge Results

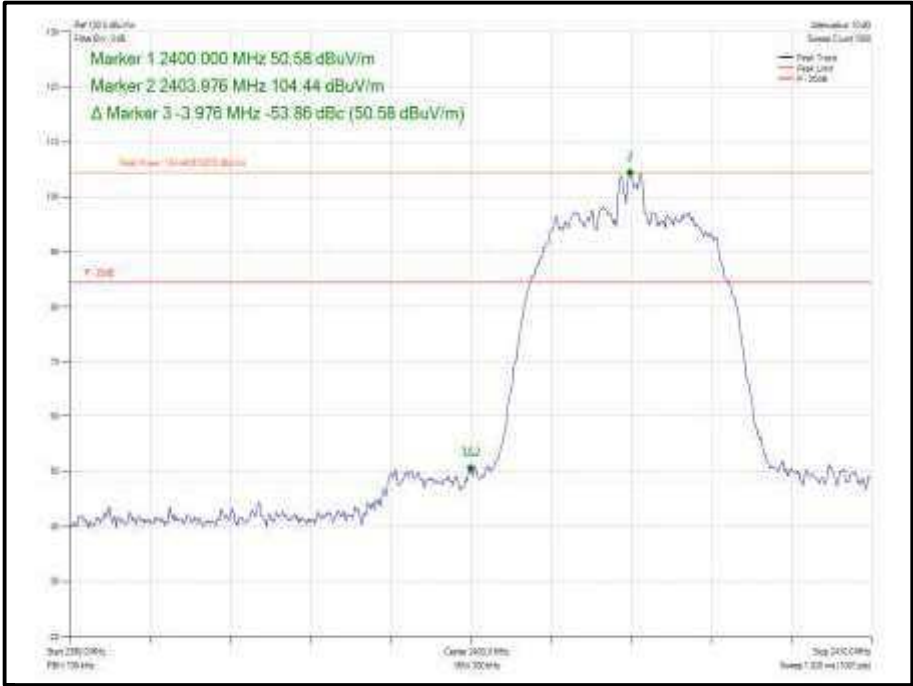


Figure 187 - Static - Core 2 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
$\pi/4$ DQPSK	HDR8	0-1	2404	2400.0	-60.26

Table 83 - Authorised Band Edge Results

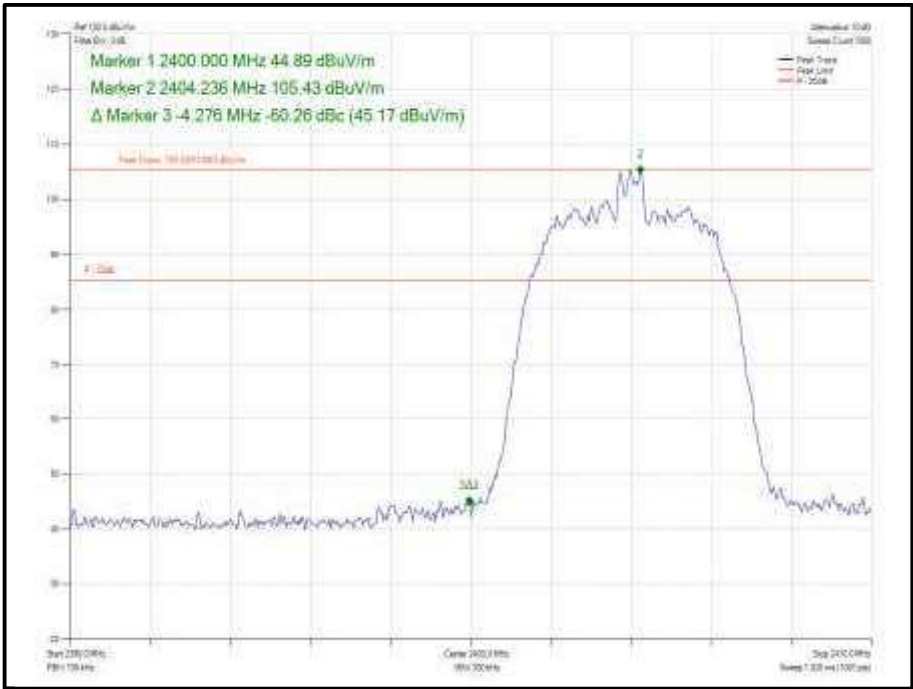


Figure 188 - Static - Core 0-1 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



LE1M

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-57.70

Table 84 - Authorised Band Edge Results

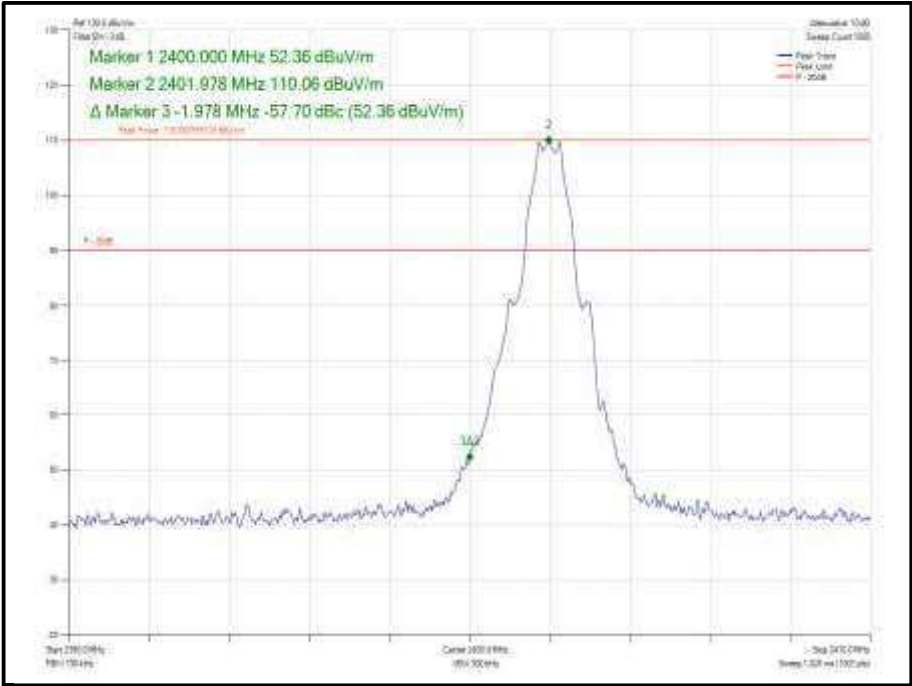


Figure 189 - Static - Core 0 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-56.34

Table 85 - Authorised Band Edge Results

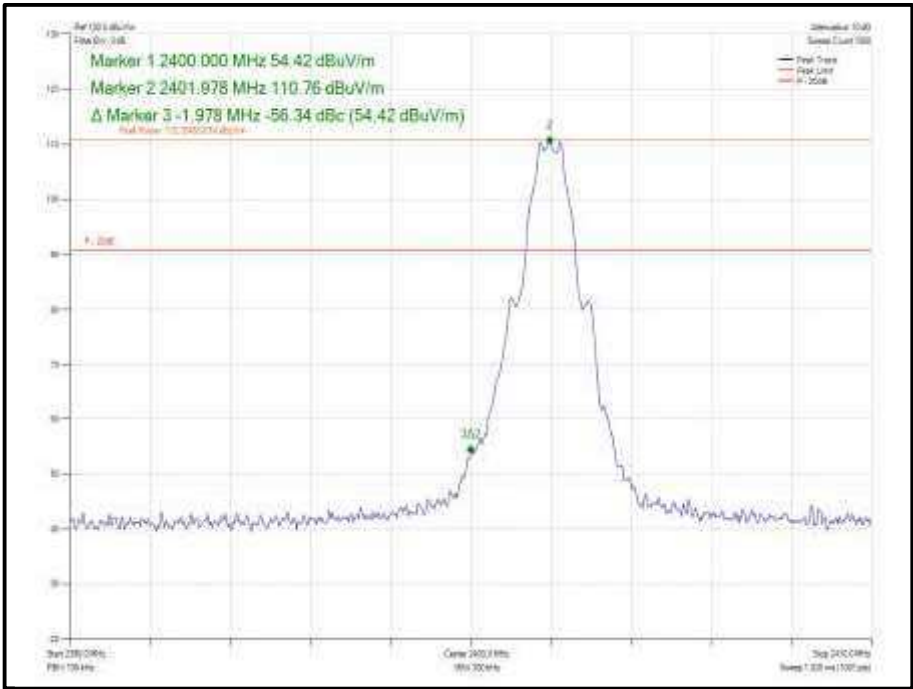


Figure 190 - Static - Core 1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	2	2402	2400.0	-63.07

Table 86 - Authorised Band Edge Results

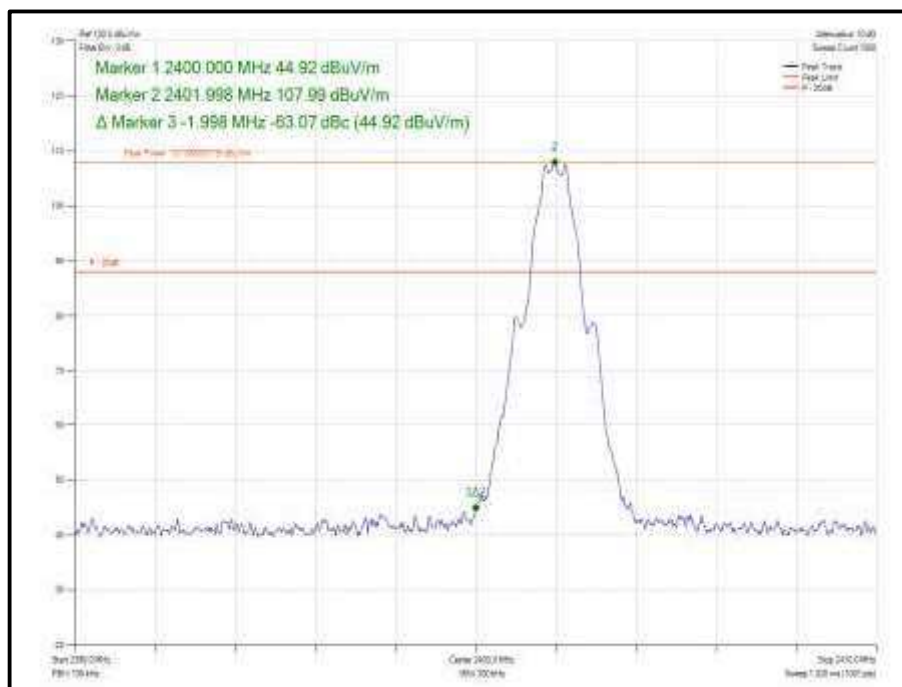


Figure 191 - Static - Core 2 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-58.40

Table 87 - Authorised Band Edge Results

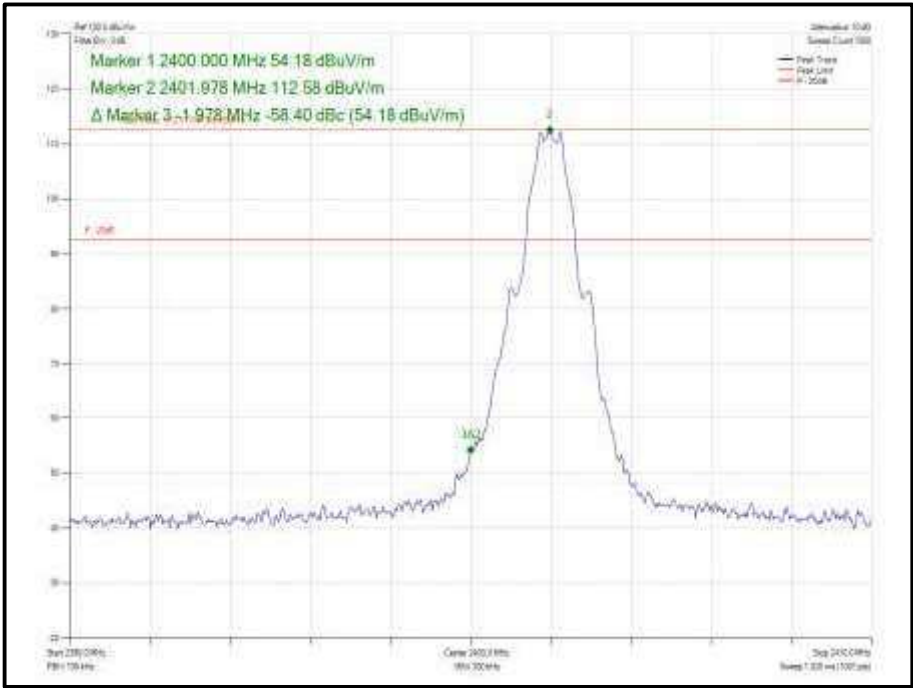


Figure 192 - Static - Core 0-1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



LE2M

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-32.89

Table 88 - Authorised Band Edge Results

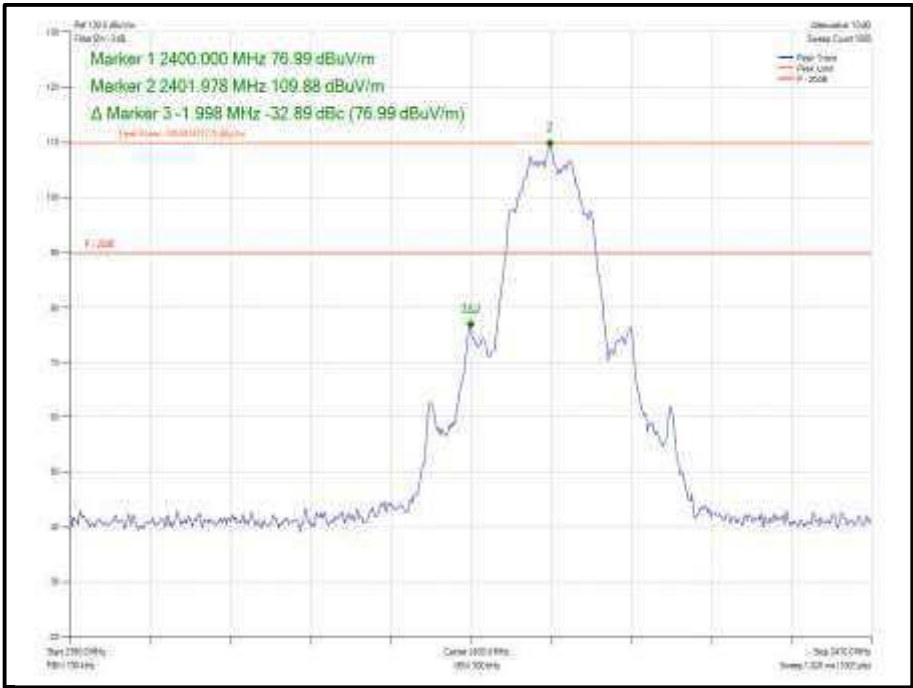


Figure 193 - Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-33.13

Table 89 - Authorised Band Edge Results

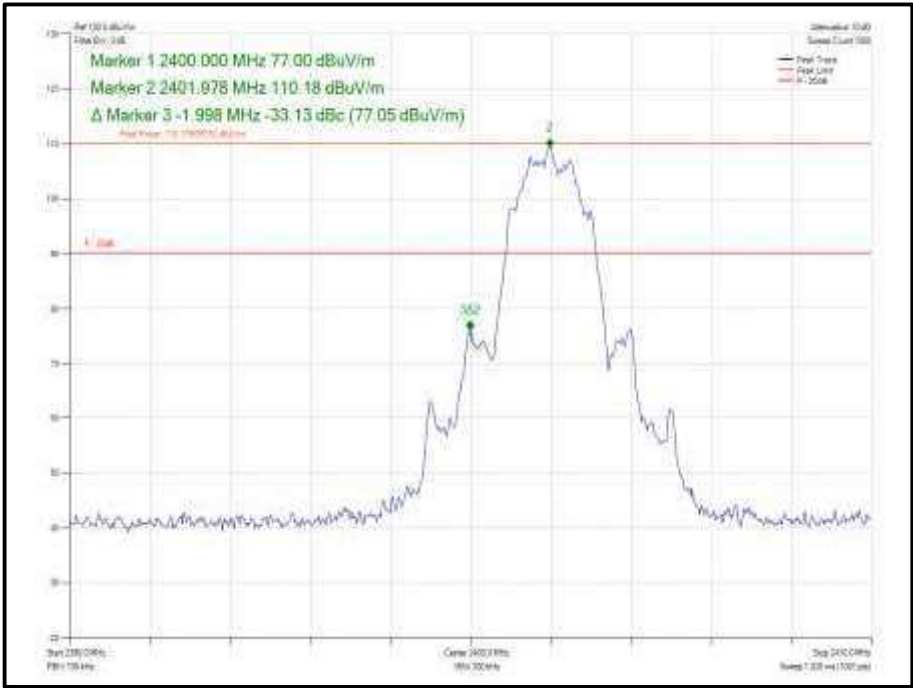


Figure 194 - Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	2	2402	2400.0	-35.48

Table 90 - Authorised Band Edge Results

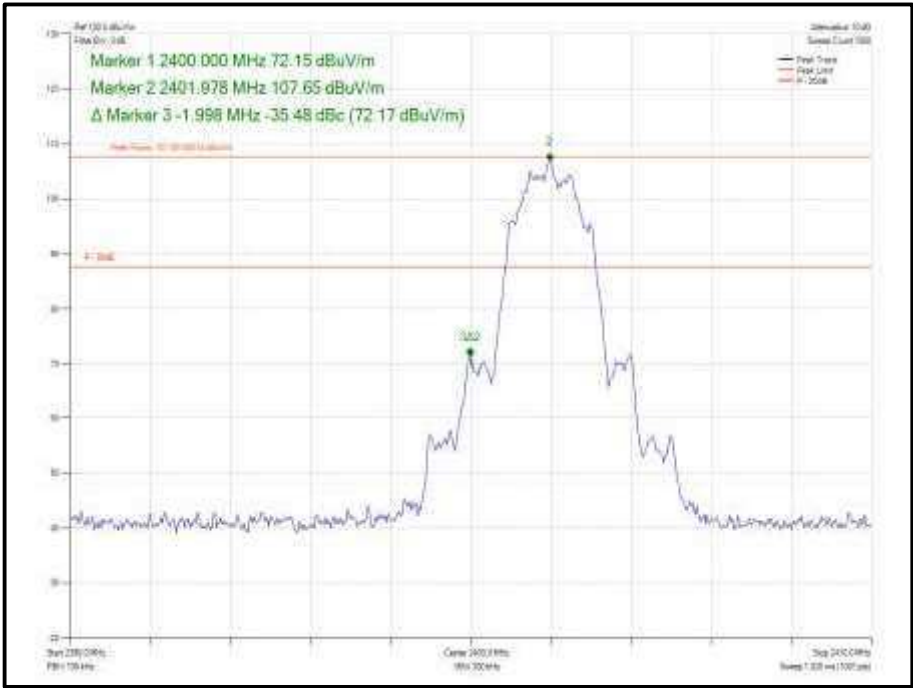


Figure 195 - Static - Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-33.40

Table 91 - Authorised Band Edge Results

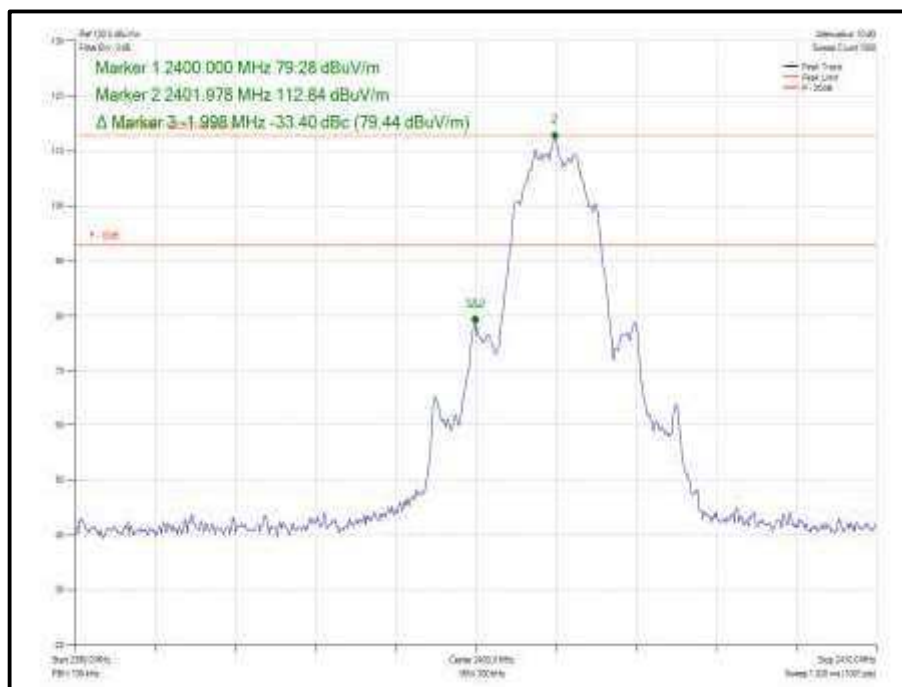


Figure 196 - Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



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.

2.3.7 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 Due
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	08-Nov-2020
Multimeter	Iso-tech	IDM101	2424	12	12-Dec-2020
Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	08-Nov-2020
Climatic Chamber	Aralab	FitoTerm 300E45	4823	12	19-Mar-2021
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	28-Nov-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	12-Oct-2021
Cable (18 GHz)	Rosenberger	LU7-071-1000	5103	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5103	12	12-Oct-2021
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	09-Dec-2020
EmX Emissions Software	TUV SUD	V2.0.1	5125	-	Software
Screened Room (11)	Rainford	Rainford	5136	36	01-Nov-2021
Pressure Transducer	Omega	PXM409-002BAUSBH	5156	-	TU
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU
Horn Antenna (1-10GHz)	Schwarzbeck	BBHA 9120 B	5215	12	10-Mar-2021
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
Pre Amp 1 - 26.5 GHz	Agilent Technologies	8449B	5445	12	06-May-2021



Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Thermo-Hygro-Barometer	PCE Instruments	PCE -THB-40	5475	12	17-Mar-2021
Attenuator 5W 10dB DC-18GHz	Aaren	AT40A-4041-D18-10	5494	12	14-Apr-2021
2m SMA Cable	Junkosha	MWX221-02000AMSAMS/A	5518	12	01-Apr-2021
8m N Type Cable	Junkosha	MWX221-08000NMSNMS/B	5522	12	24-Mar-2021
MXA Signal Analyser	Keysight Technologies	N9020B	5528	24	04-Mar-2022
Signal Commissioning Unit	TUV SUD	SCU001	5546	12	15-Apr-2021
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB 40	5605	12	08-Sep-2021

Table 92

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



2.4 Restricted Band Edges

2.4.1 Specification Reference

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

2.4.2 Equipment Under Test and Modification State

A2169, S/N: C07CL0AMQ4TG - Modification State 0

2.4.3 Date of Test

24-June-2020 to 27-July-2020

2.4.4 Test Method

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

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.3.

These are shown for information purposes and were used to determine the worst-case measurement point. Final average measurements were then taken in accordance with ANSI C63.10 clause 4.1.4.2.2. to obtain the measurement result recorded in the test results tables.

The following conversion can be applied to convert from dB μ V/m to μ V/m:
 $10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$.

2.4.5 Environmental Conditions

Ambient Temperature	20.7 °C to 23.8 °C
Relative Humidity	44.8 % to 53.7 %



2.4.6 Test Results

2.4 GHz Bluetooth - DTS

ePA - HDR4

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	$\pi/4$ DQPSK	0	HDR4	2404	2390.0	54.46	39.84
Static	$\pi/4$ DQPSK	0	HDR4	2478	2483.5	55.09	41.11

Table 93 - Restricted Band Edge Results

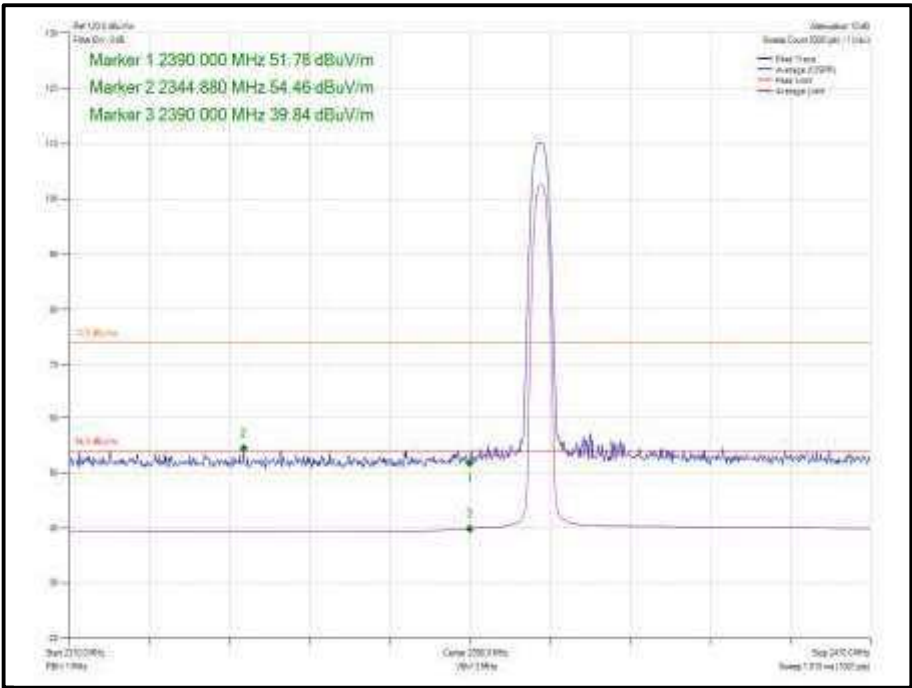


Figure 197 - Static - Core 0 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

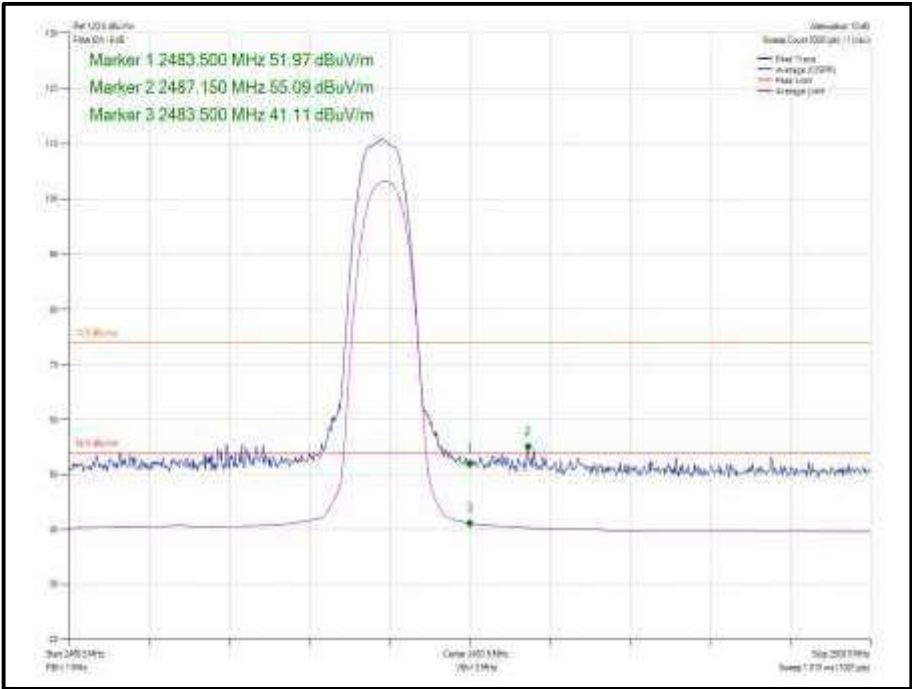


Figure 198 - Static - Core 0 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	$\pi/4$ DQPSK	1	HDR4	2404	2390.0	55.89	39.93
Static	$\pi/4$ DQPSK	1	HDR4	2478	2483.5	54.39	40.91

Table 94 - Restricted Band Edge Results

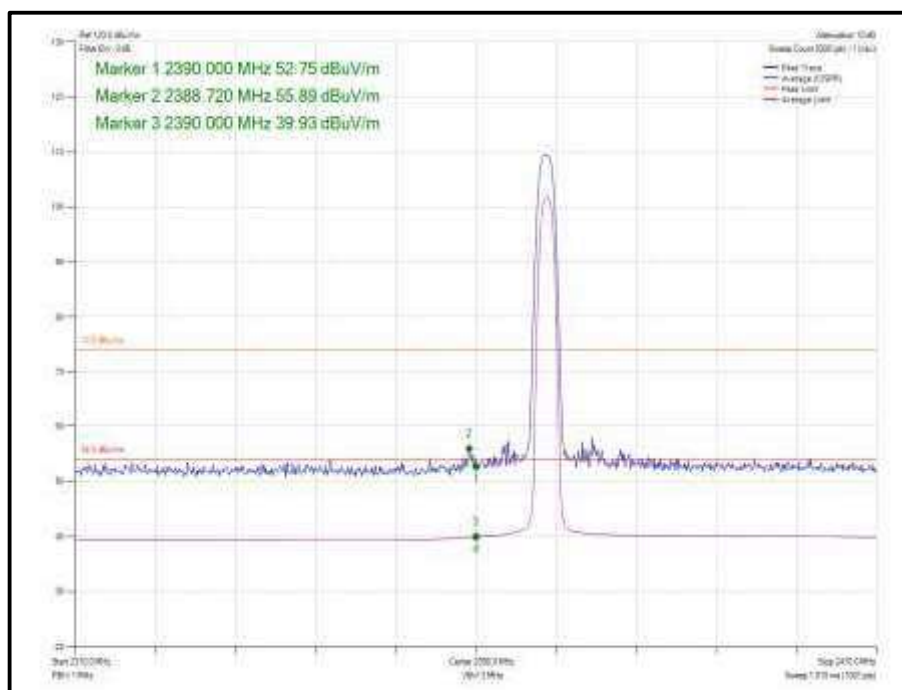


Figure 199 - Static - Core 1 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

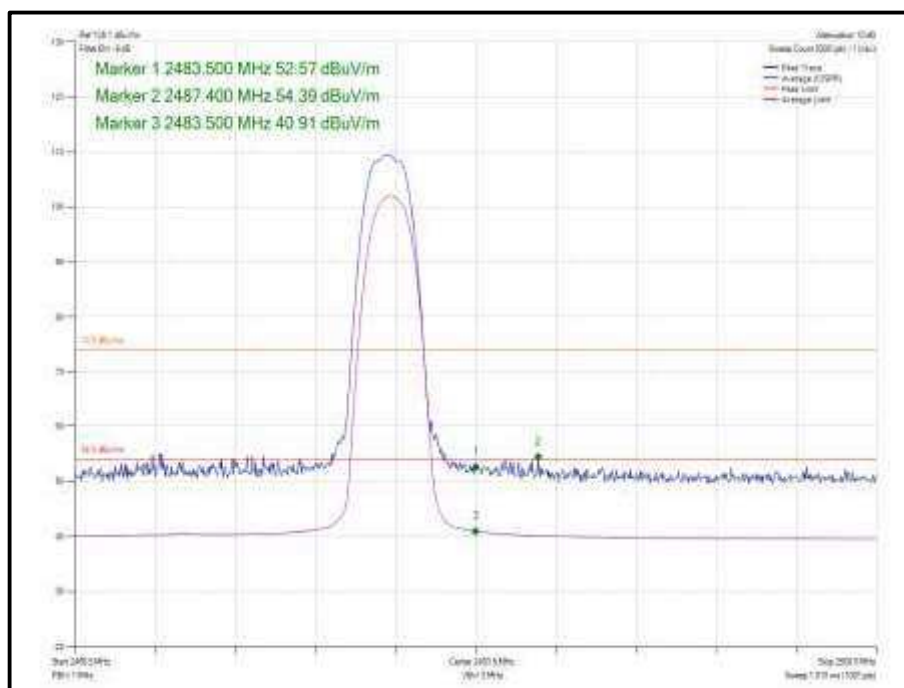


Figure 200 - Static - Core 1 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	π/4 DQPSK	0-1	HDR4	2404	2390.0	54.93	39.97
Static	π/4 DQPSK	0-1	HDR4	2478	2483.5	56.95	41.94

Table 95 - Restricted Band Edge Results

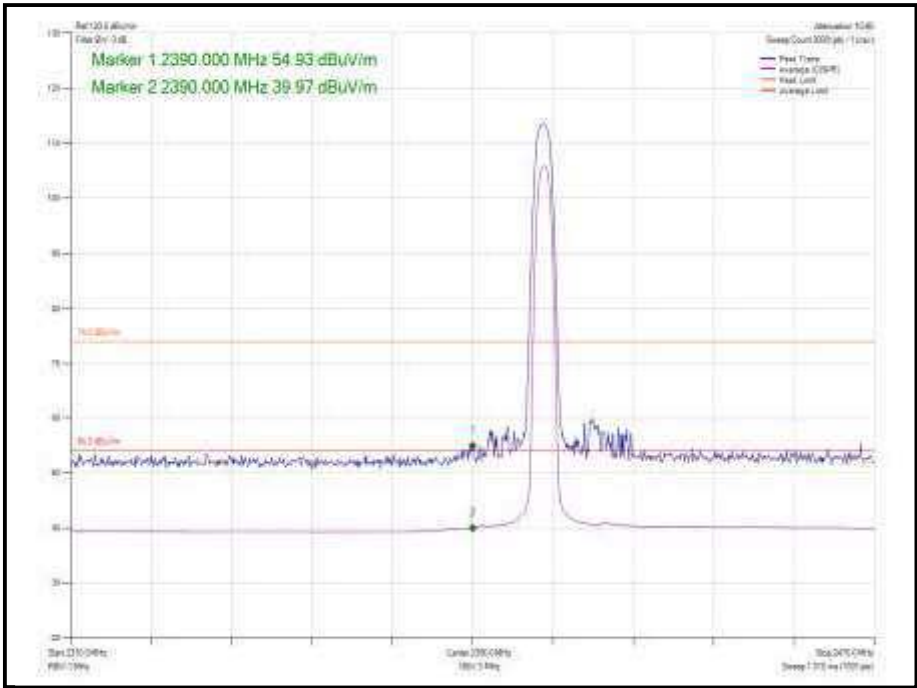
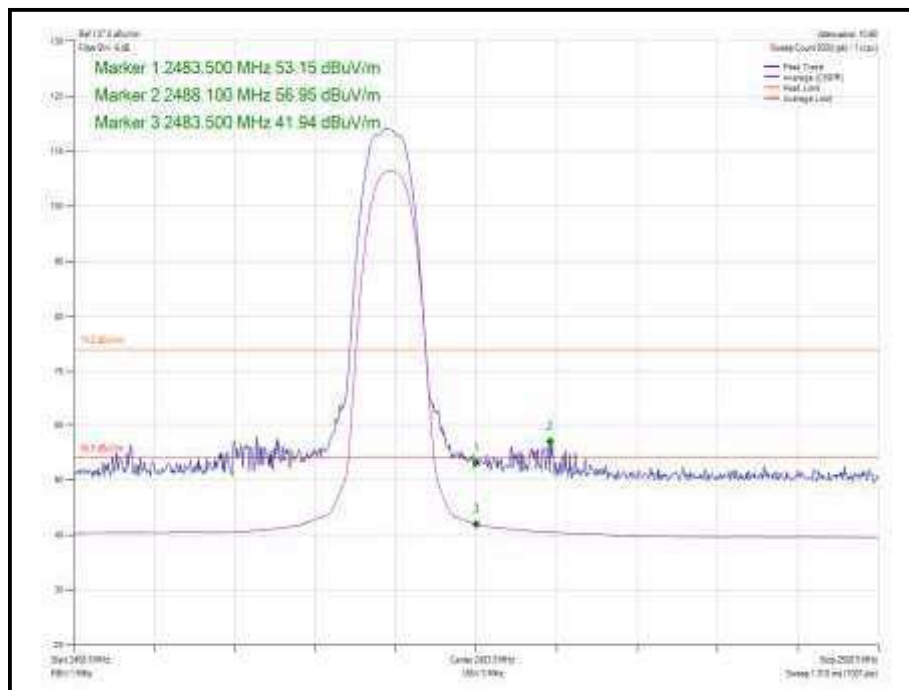


Figure 201 - - Static – Core 0–1 GFSK/HDR4 - 2404 MHz -
Band Edge Frequency 2390.0 MHz



**Figure 202 - Static – Core 0–1 - GFSK/HDR4 - 2478 MHz -
Band Edge Frequency 2483.5 MHz**



ePA - HDR8

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	π/4 DQPSK	0	HDR8	2404	2390.0	53.88	39.85
Static	π/4 DQPSK	0	HDR8	2478	2483.5	57.77	44.40

Table 96 - Restricted Band Edge Results

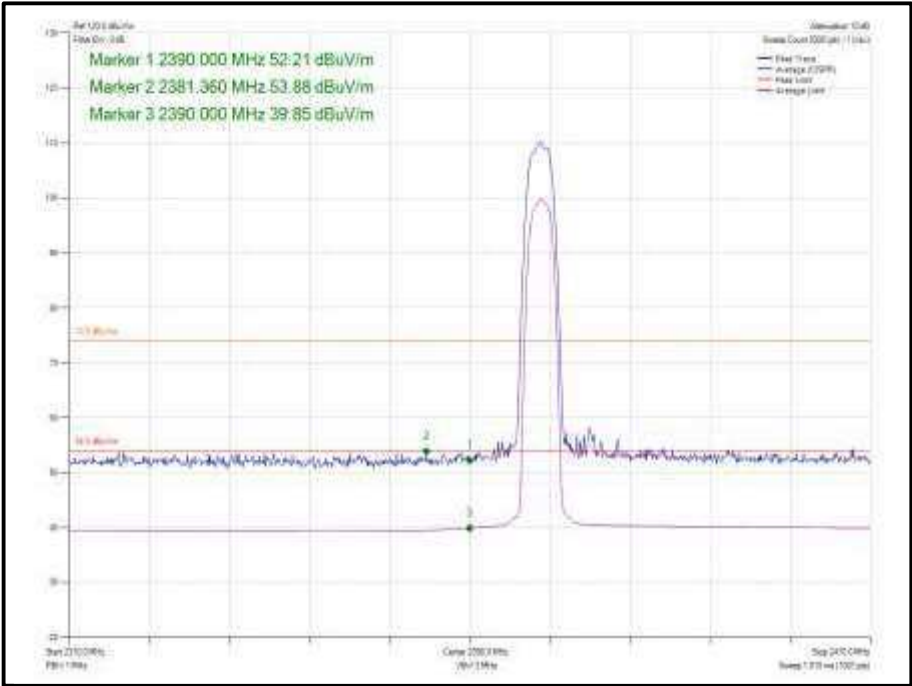


Figure 203- Static - Core 0 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

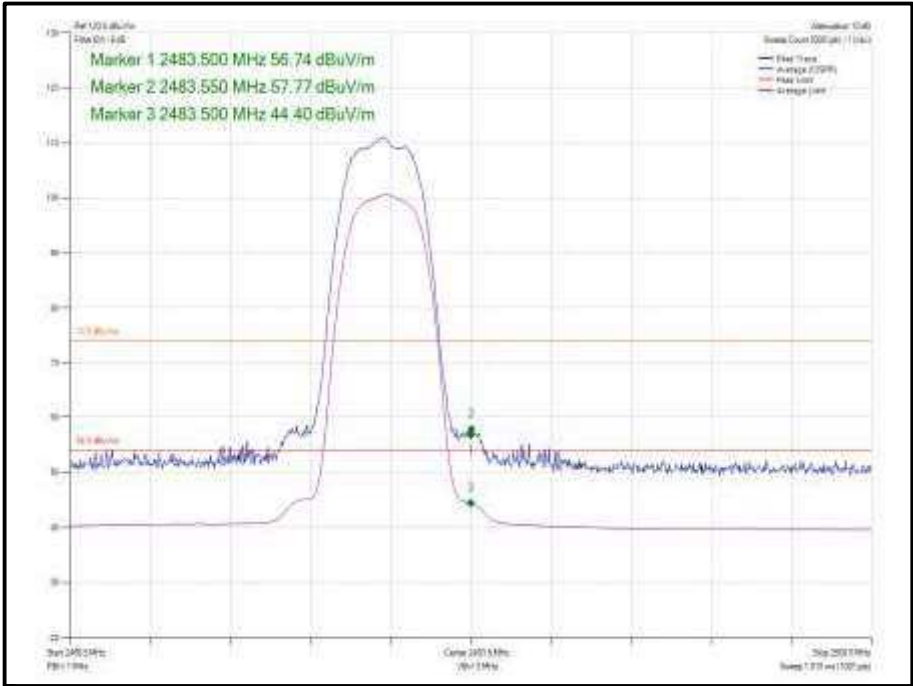


Figure 204 - Static - Core 0 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	π/4 DQPSK	1	HDR8	2404	2390.0	55.27	39.85
Static	π/4 DQPSK	1	HDR8	2478	2483.5	55.59	42.51

Table 97 - Restricted Band Edge Results

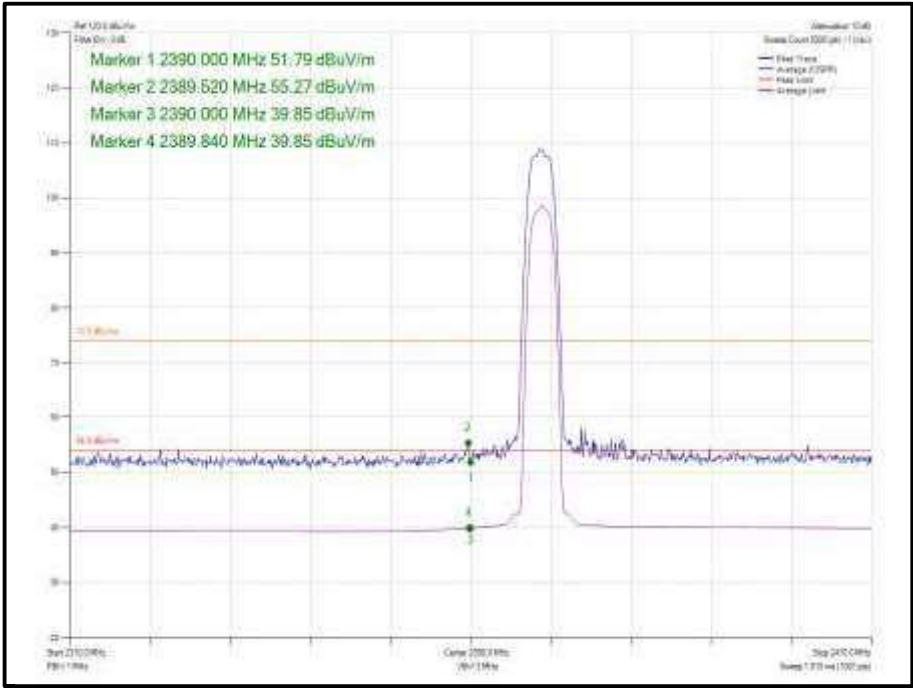


Figure 205- Static - Core 1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

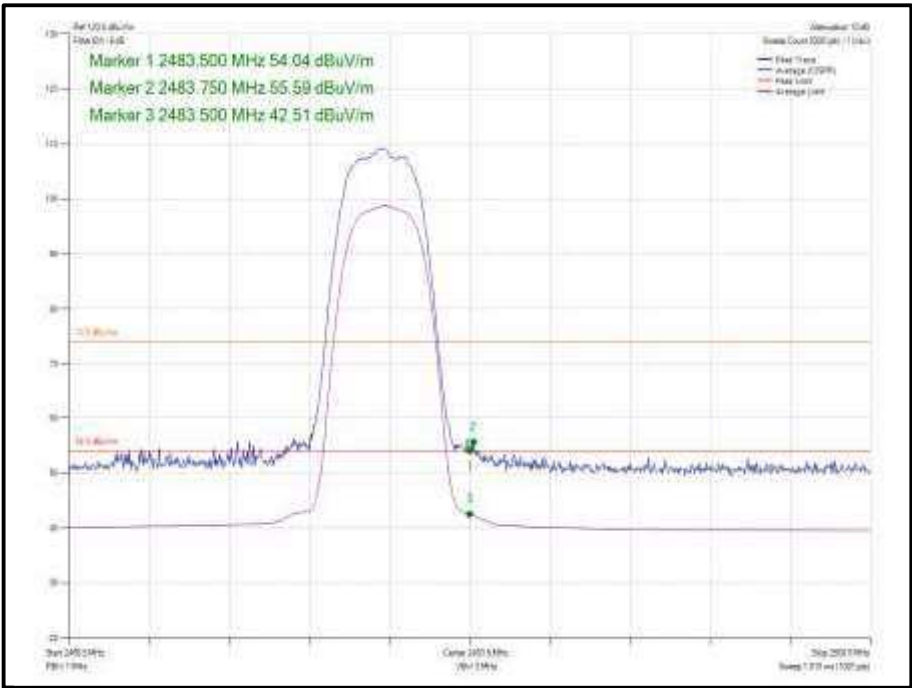


Figure 206 - Static - Core 1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	$\pi/4$ DQPSK	0-1	HDR8	2404	2390.0	54.38	40.11
Static	$\pi/4$ DQPSK	0-1	HDR8	2478	2483.5	59.84	46.63

Table 98 - Restricted Band Edge Results

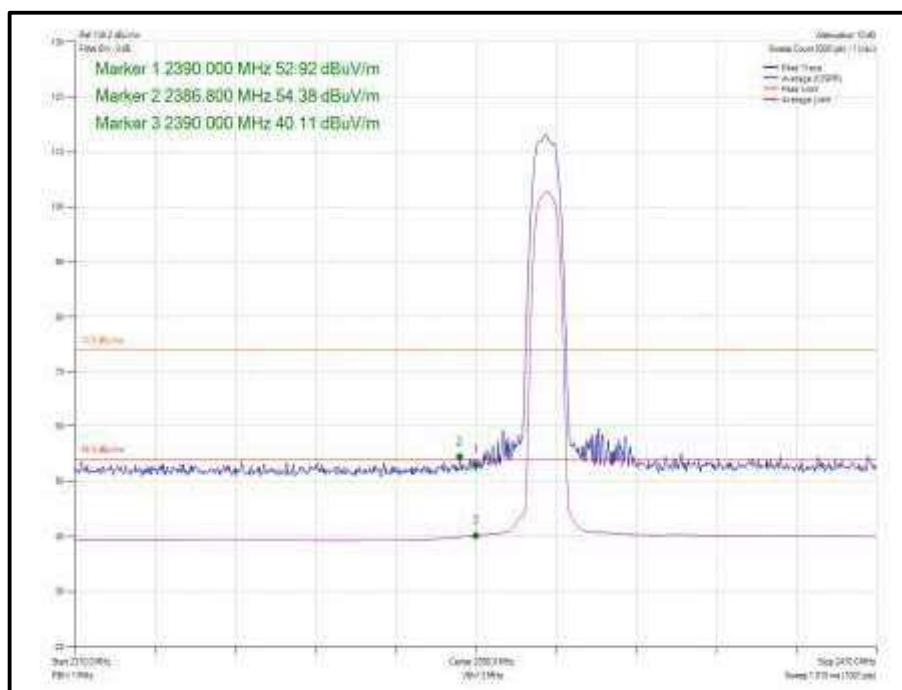


Figure 207- Static - Core 0-1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

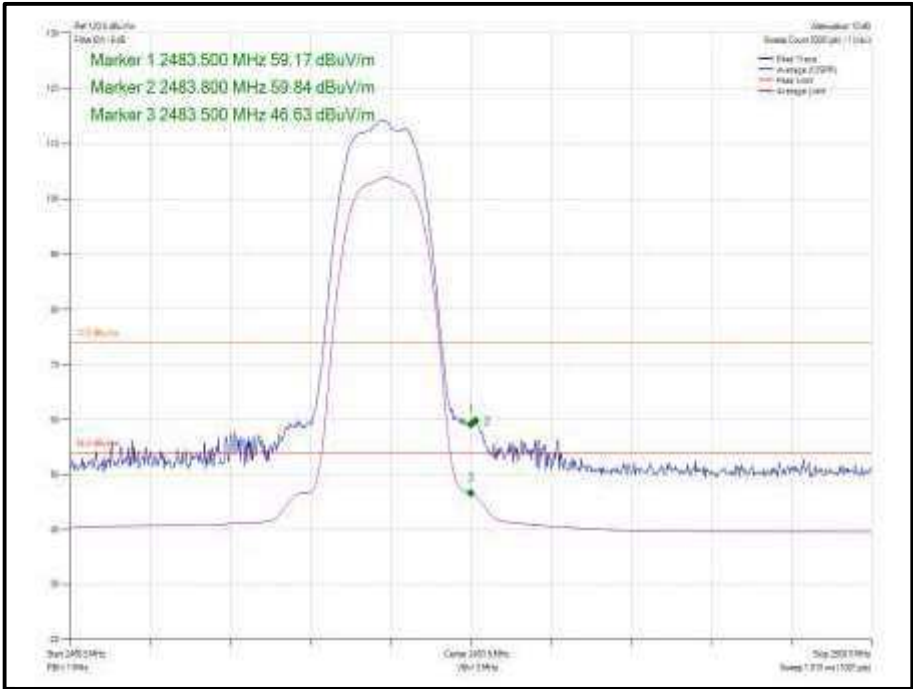


Figure 208 - Static - Core 0-1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



ePA – LE1M

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0	2390.0	54.00	40.19
GFSK/DH1	2480	0	2483.5	57.33	44.36

Table 99 - Restricted Band Edge Results

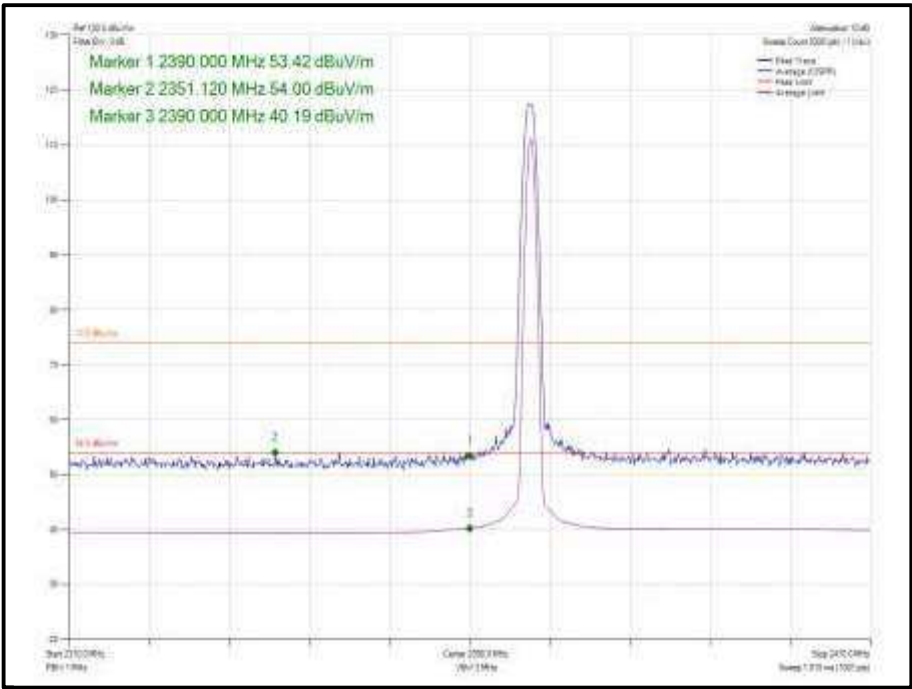


Figure 209 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

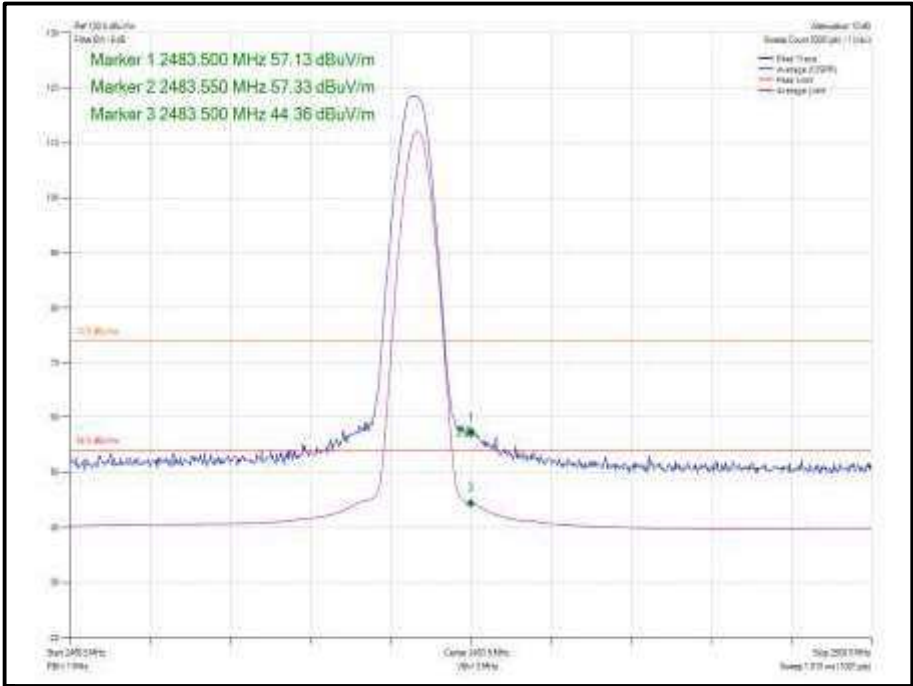


Figure 210 – Static - Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	1	2390.0	54.51	40.13
GFSK/DH1	2480	1	2483.5	56.43	43.38

Table 100 - Restricted Band Edge Results

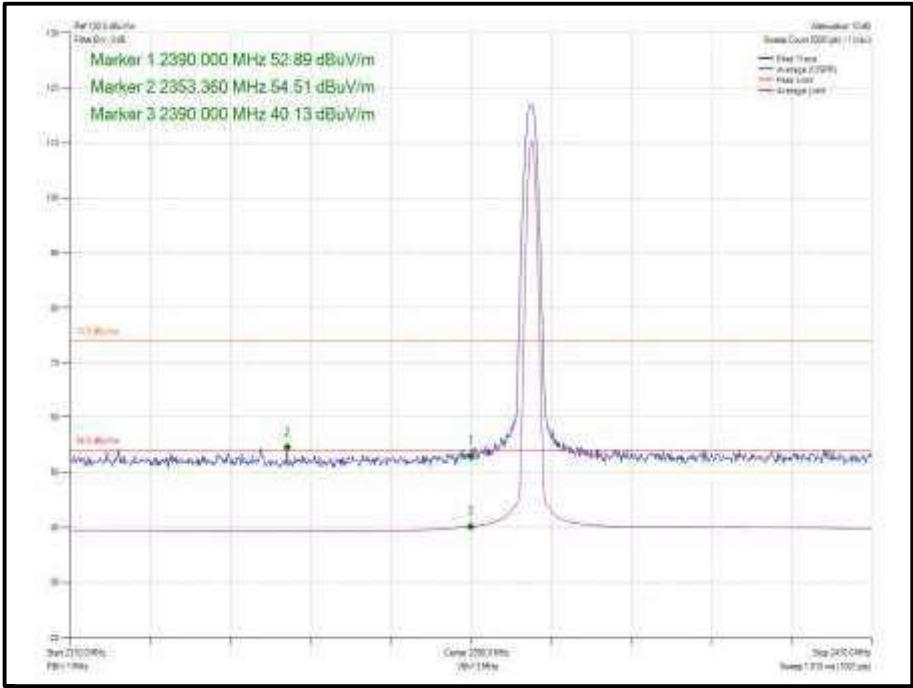


Figure 211 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

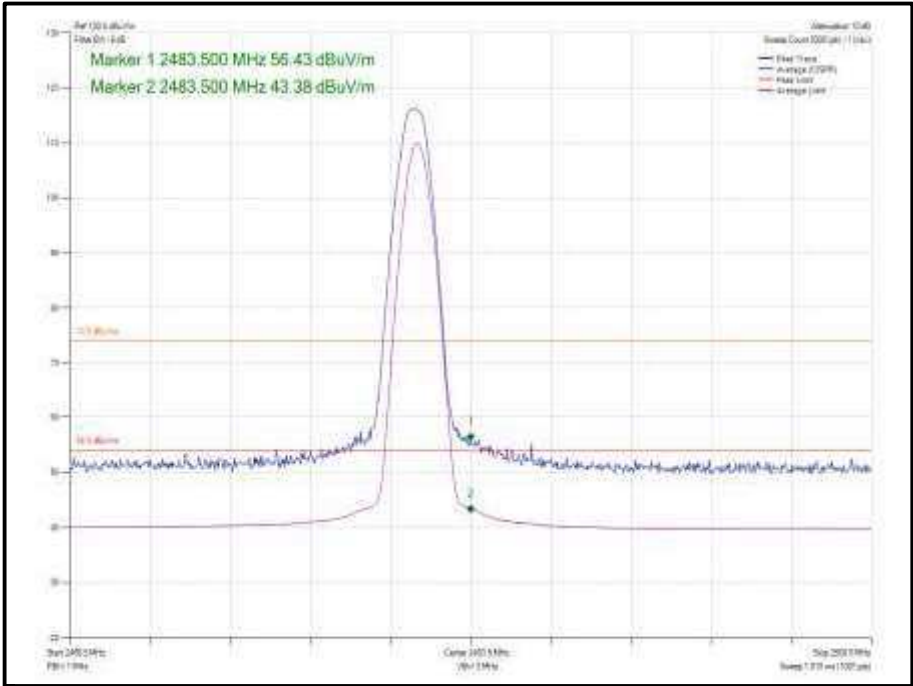


Figure 212 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0-1	2390.0	53.49	40.08
GFSK/DH1	2480	0-1	2483.5	59.32	45.37

Table 101 - Restricted Band Edge Results

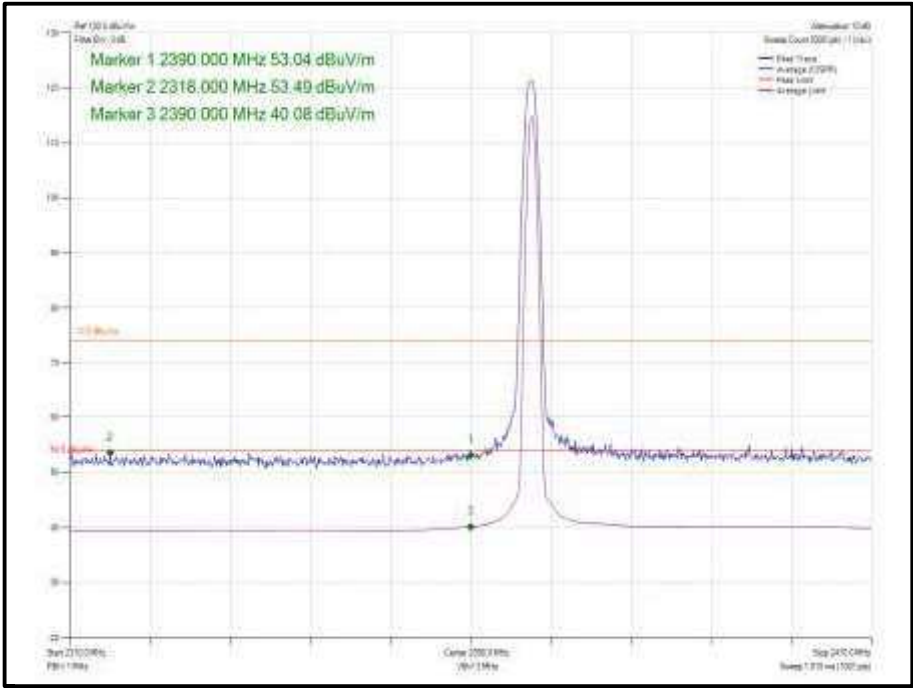


Figure 213 — Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

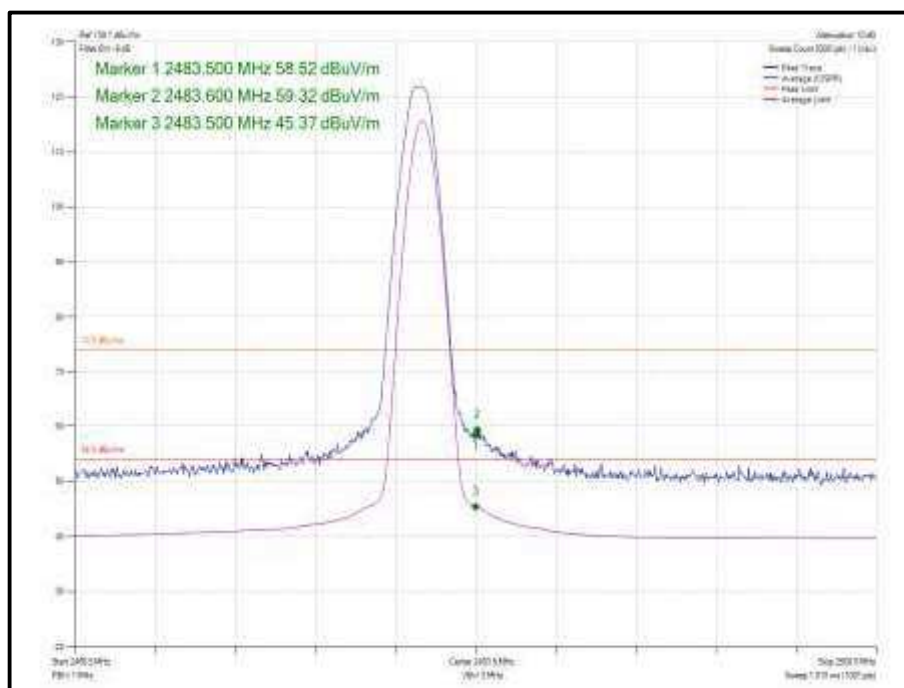


Figure 214 — Static - Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



ePA – LE2M

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0	2390.0	54.13	39.85
GFSK/DH1	2480	0	2483.5	58.29	43.65

Table 102 - Restricted Band Edge Results

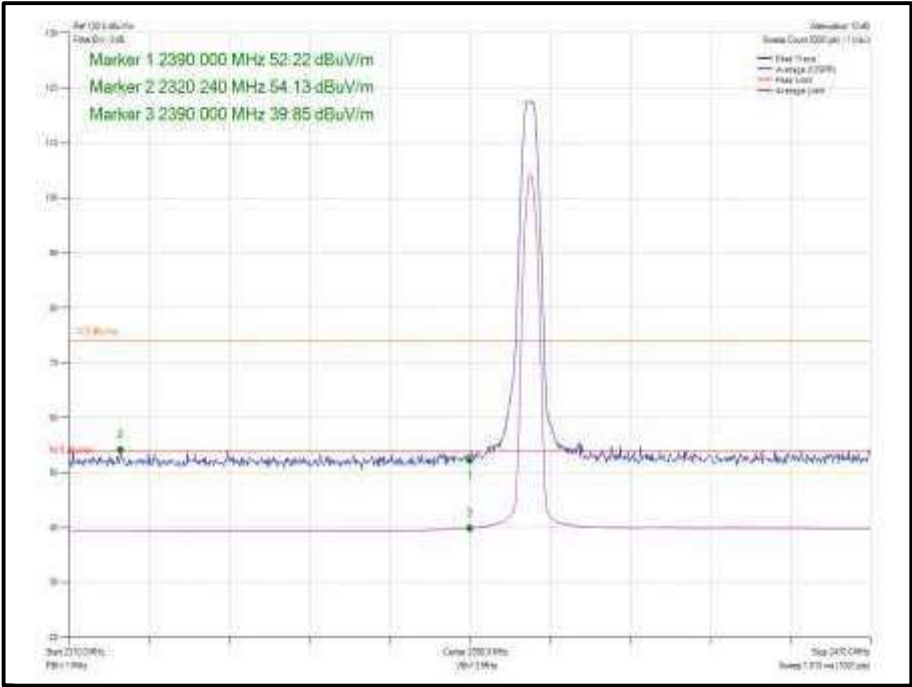


Figure 215 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

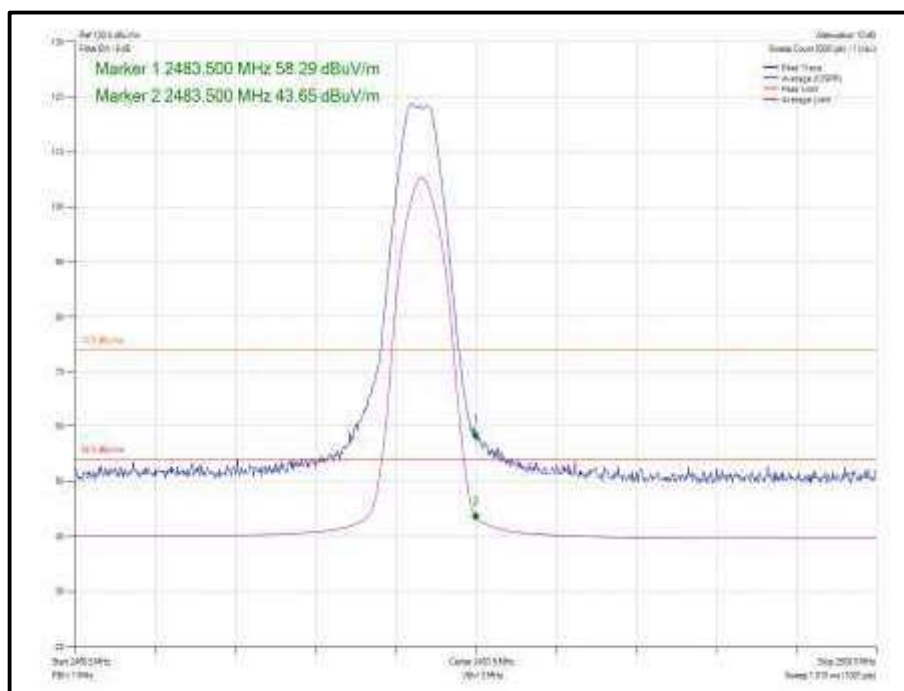


Figure 216 – Static - Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dB μ V/m)	Average Level (dB μ V/m)
GFSK/DH1	2402	1	2390.0	54.23	39.78
GFSK/DH1	2480	1	2483.5	57.81	43.31

Table 103 - Restricted Band Edge Results

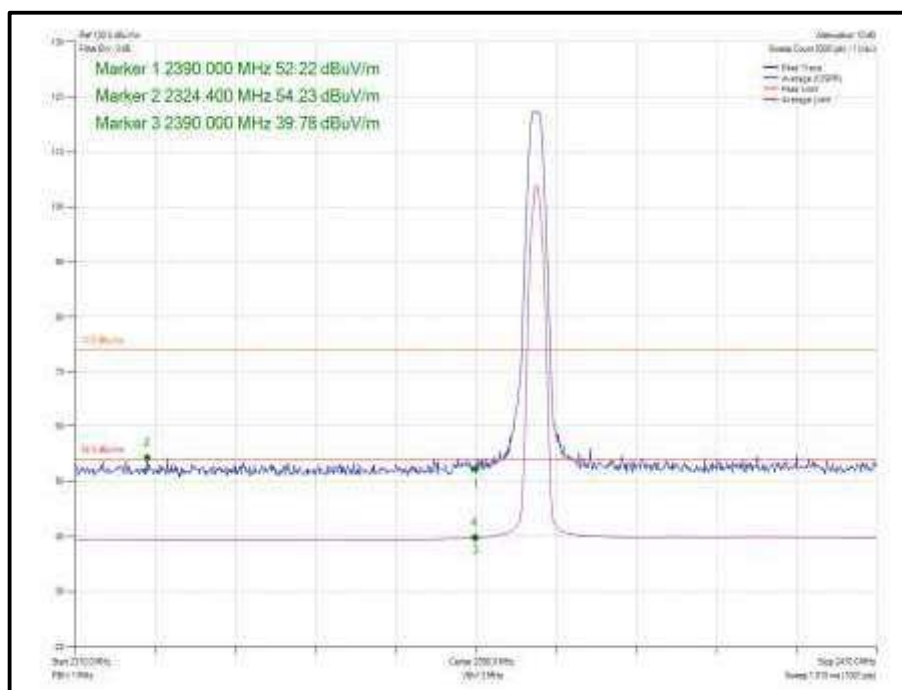


Figure 217 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

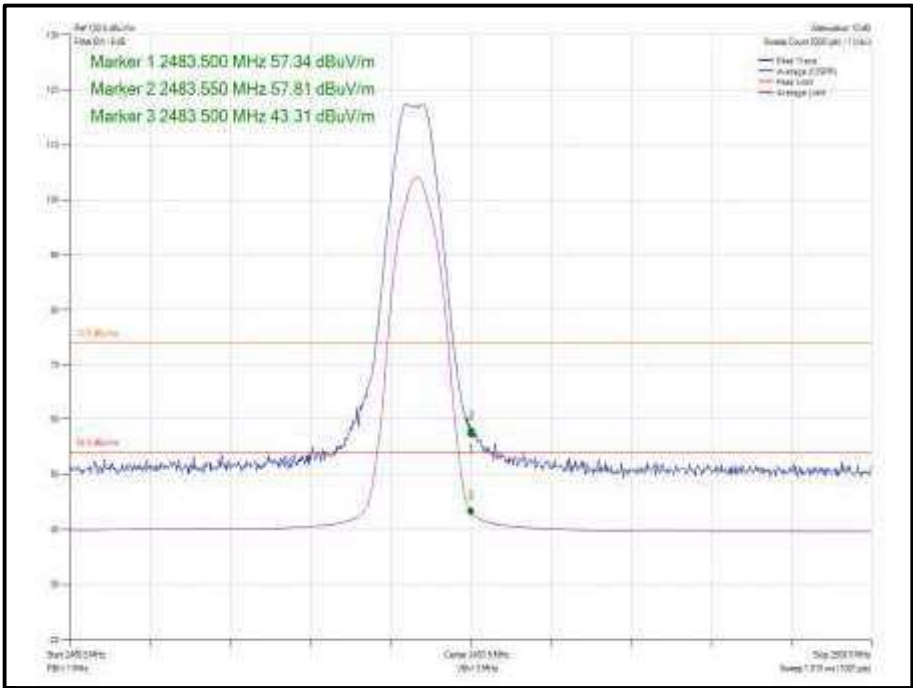


Figure 218 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0-1	2390.0	54.46	39.78
GFSK/DH1	2480	0-1	2483.5	62.11	45.82

Table 104 - Restricted Band Edge Results

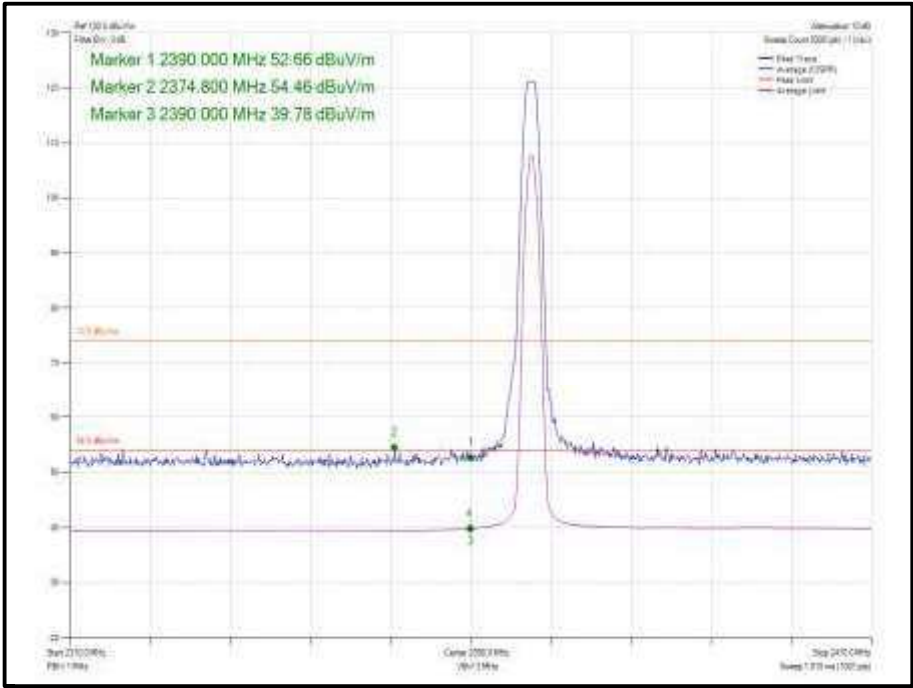


Figure 219 – GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

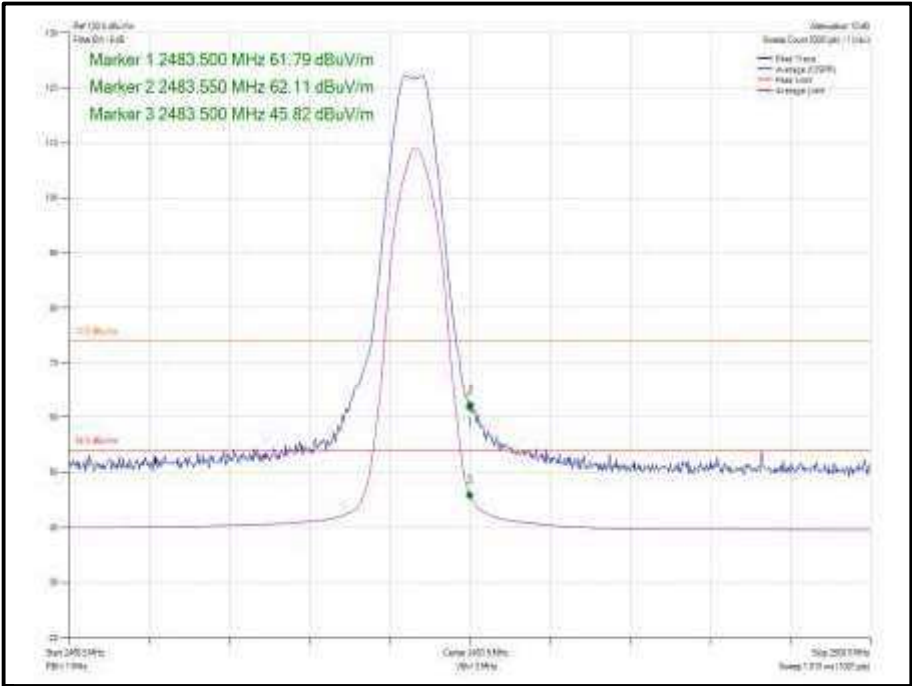


Figure 220 – GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



iPA- HDR4

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	$\pi/4$ DQPSK	0	HDR4	2404	2390.0	54.31	39.52
Static	$\pi/4$ DQPSK	0	HDR4	2478	2483.5	52.85	39.91

Table 105 - Restricted Band Edge Results

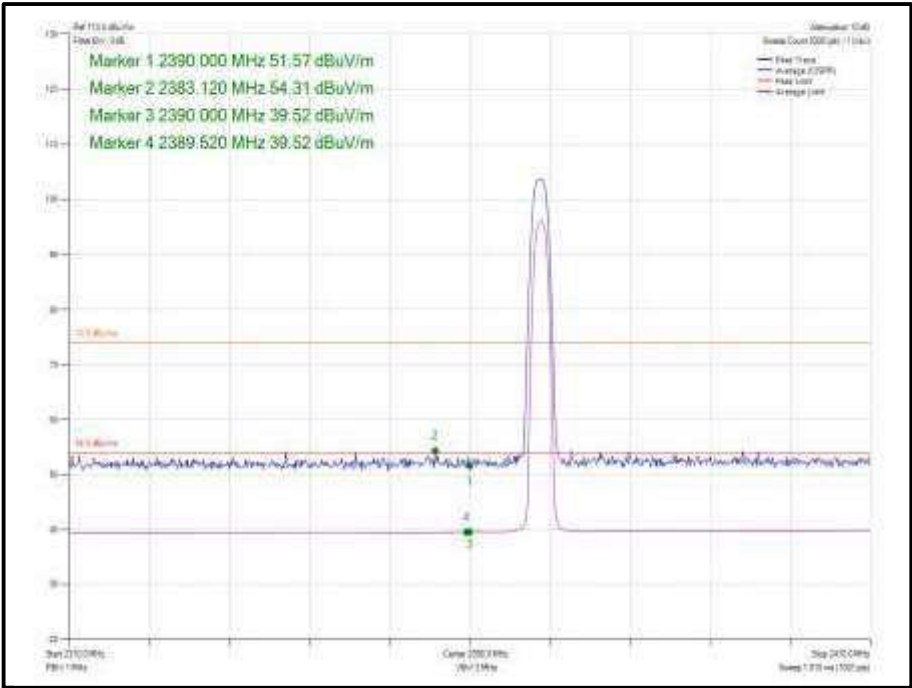


Figure 221 - Static - Core 0 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

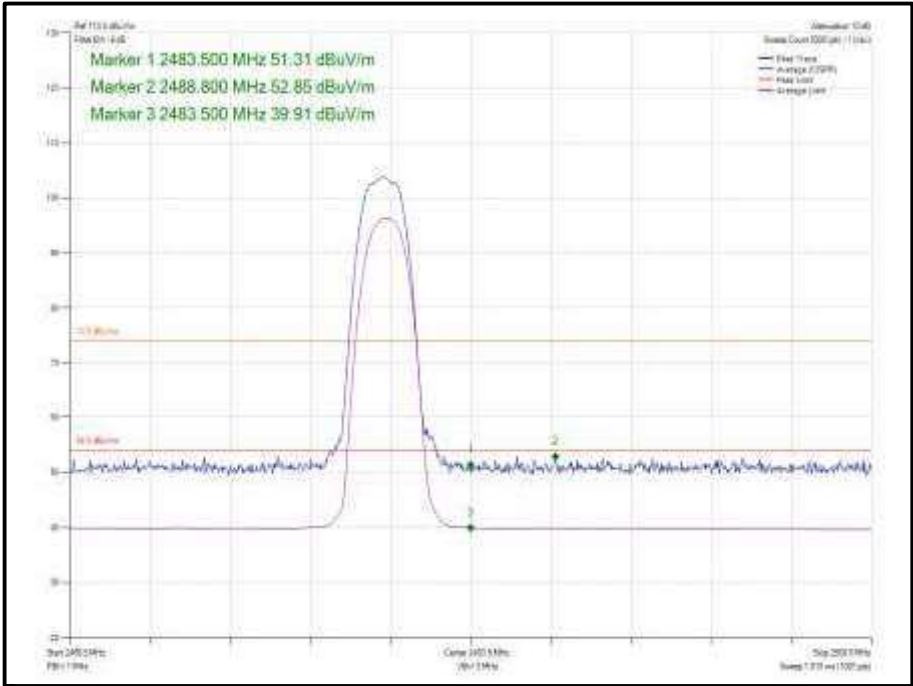


Figure 222 - Static - Core 0 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	$\pi/4$ DQPSK	1	HDR4	2404	2390.0	54.03	39.59
Static	$\pi/4$ DQPSK	1	HDR4	2478	2483.5	52.34	39.74

Table 106 - Restricted Band Edge Results

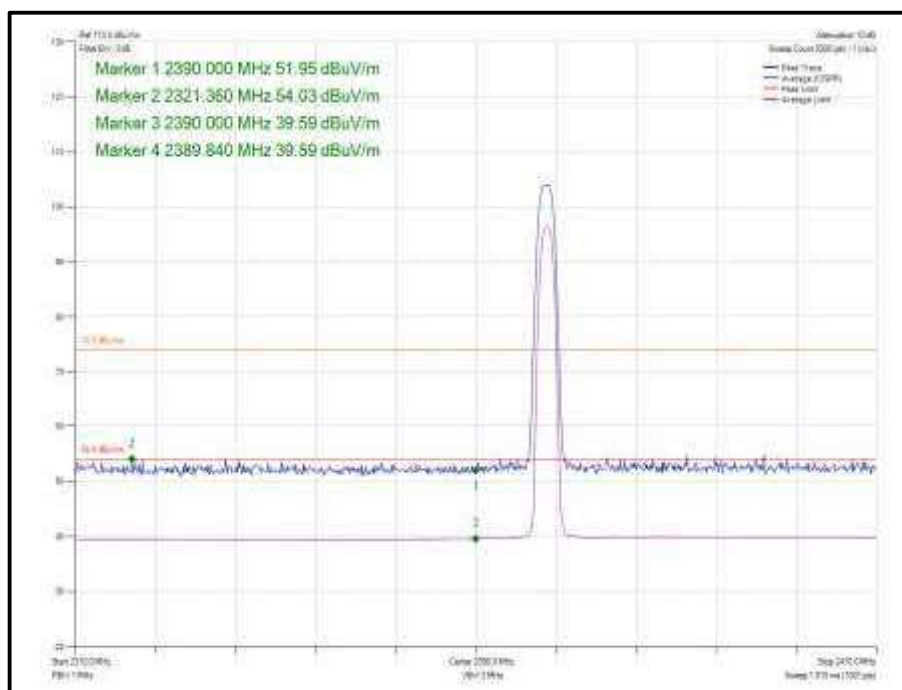


Figure 223 - Static - Core 1 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

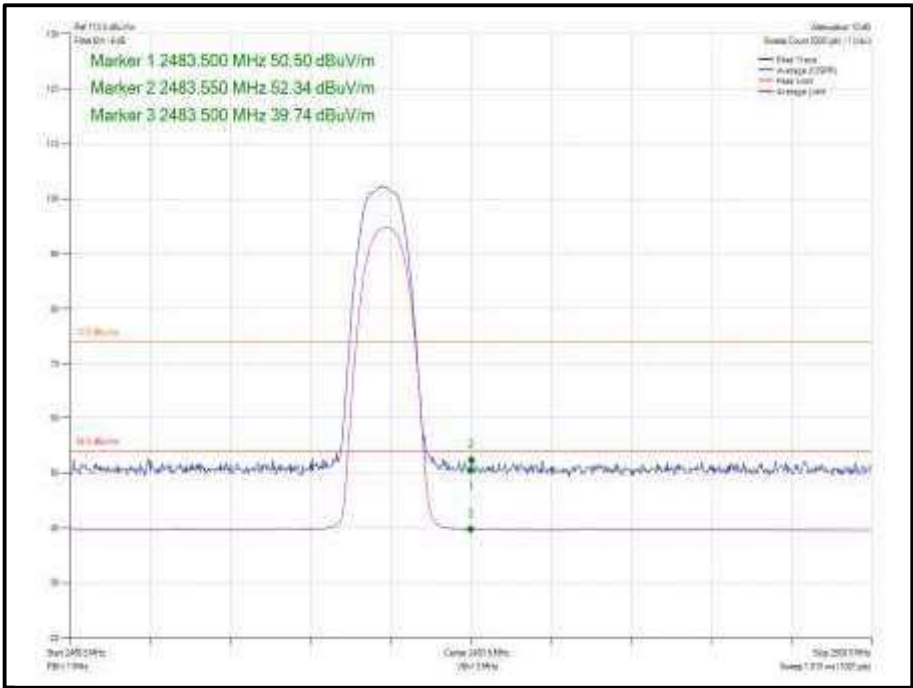


Figure 224 - Static - Core 1 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	π/4 DQPSK	2	HDR4	2404	2390.0	53.96	39.55
Static	π/4 DQPSK	2	HDR4	2478	2483.5	52.38	39.96

Table 107 - Restricted Band Edge Results

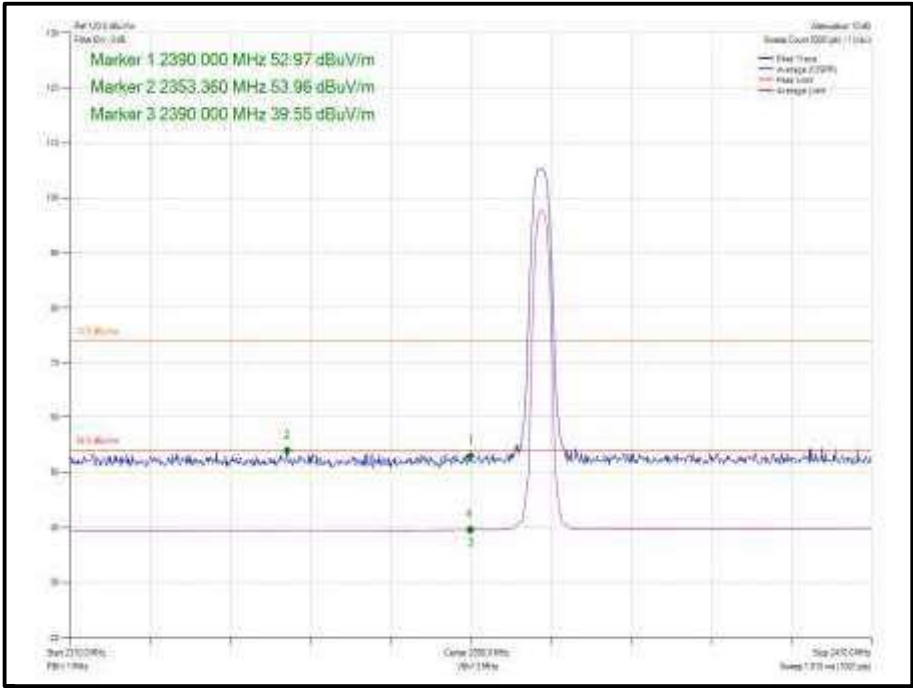


Figure 225 - Static - Core 2 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

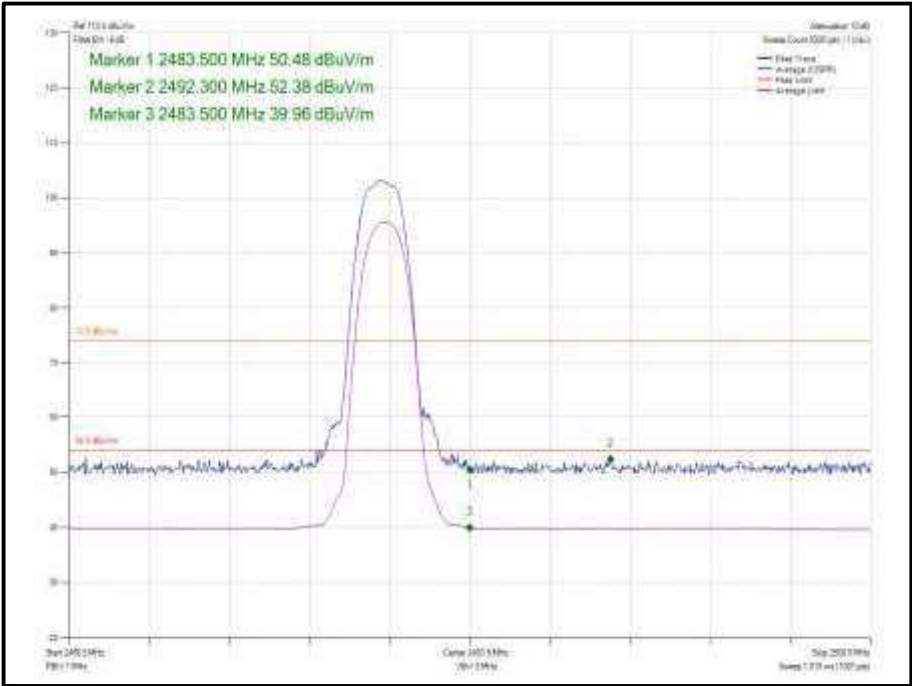


Figure 226 - Static - Core 2 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	$\pi/4$ DQPSK	0-1	HDR4	2404	2390.0	53.84	39.52
Static	$\pi/4$ DQPSK	0-1	HDR4	2478	2483.5	53.09	40.14

Table 108 - Restricted Band Edge Results

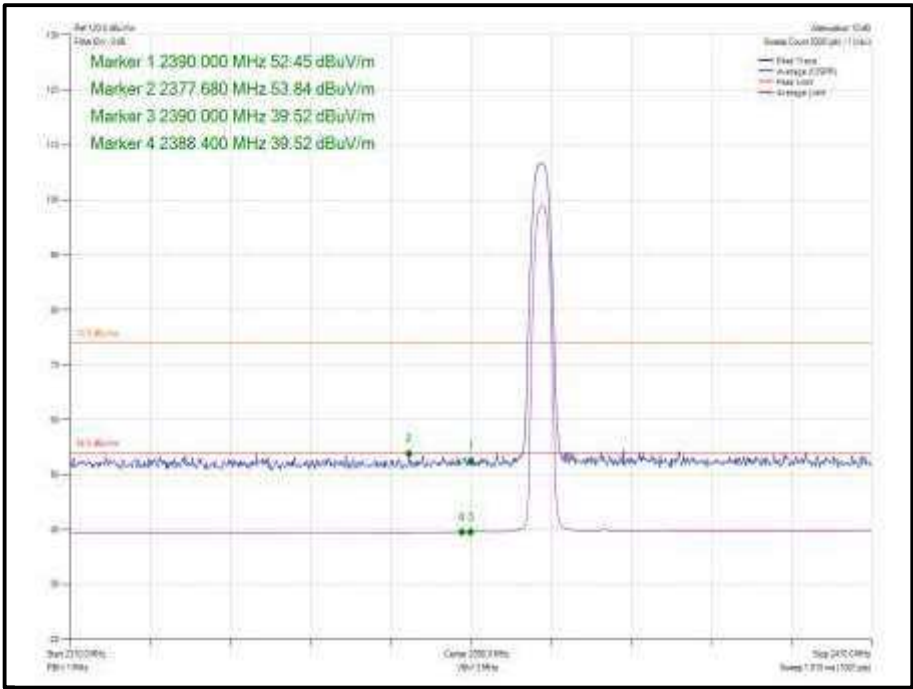


Figure 227 - Static - Core 0-1 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

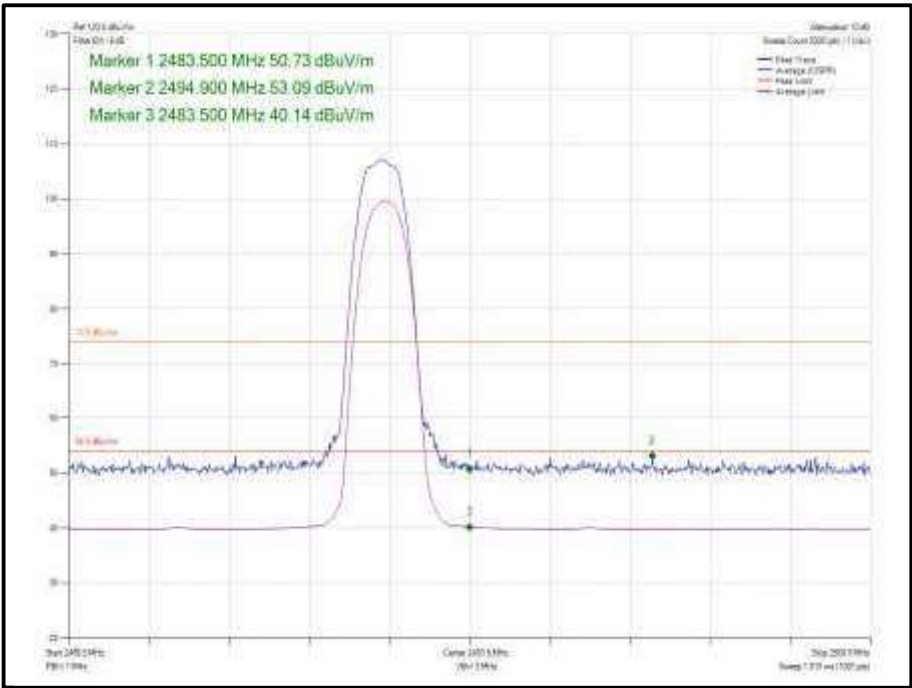


Figure 228 - Static - Core 0-1 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



iPA- HDR8

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	$\pi/4$ DQPSK	0	HDR4	2404	2390.0	53.78	39.51
Static	$\pi/4$ DQPSK	0	HDR4	2478	2483.5	55.35	42.23

Table 109 - Restricted Band Edge Results

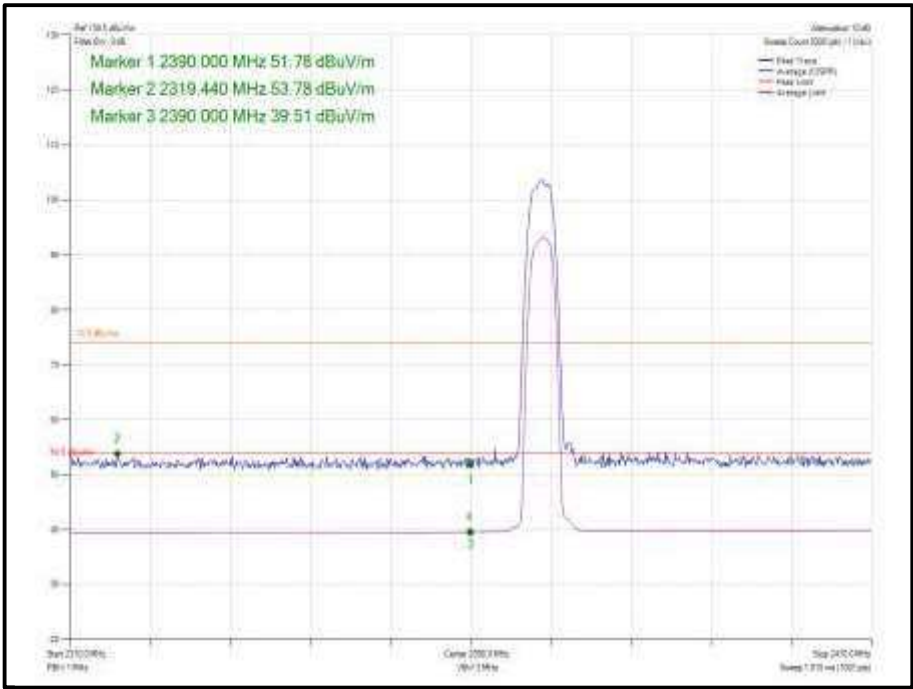


Figure 229- Static - Core 0 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

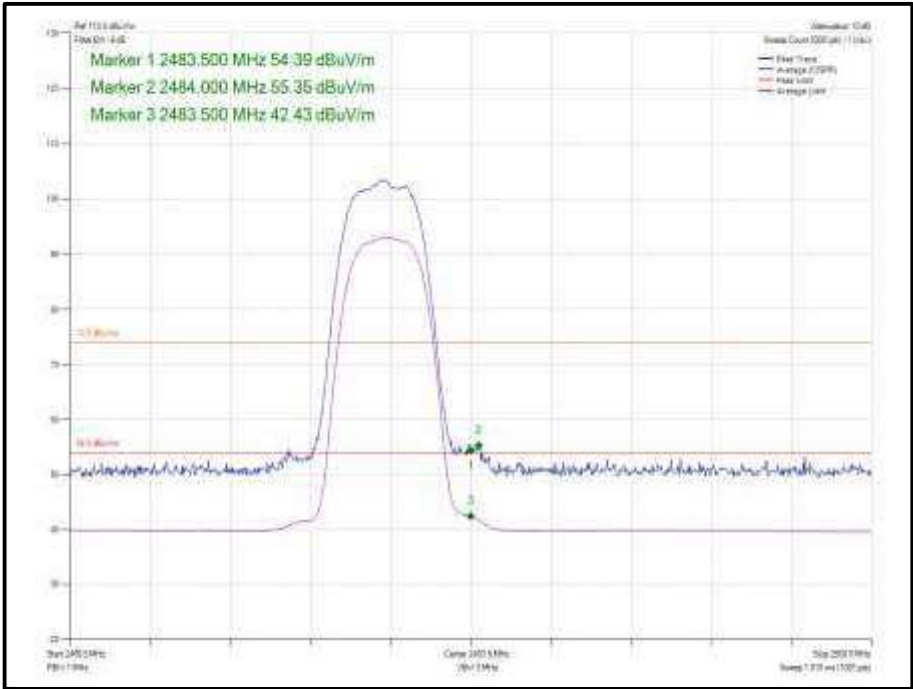


Figure 230 - Static - Core 0 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	$\pi/4$ DQPSK	1	HDR4	2404	2390.0	53.64	39.50
Static	$\pi/4$ DQPSK	1	HDR4	2478	2483.5	52.76	40.38

Table 110 - Restricted Band Edge Results

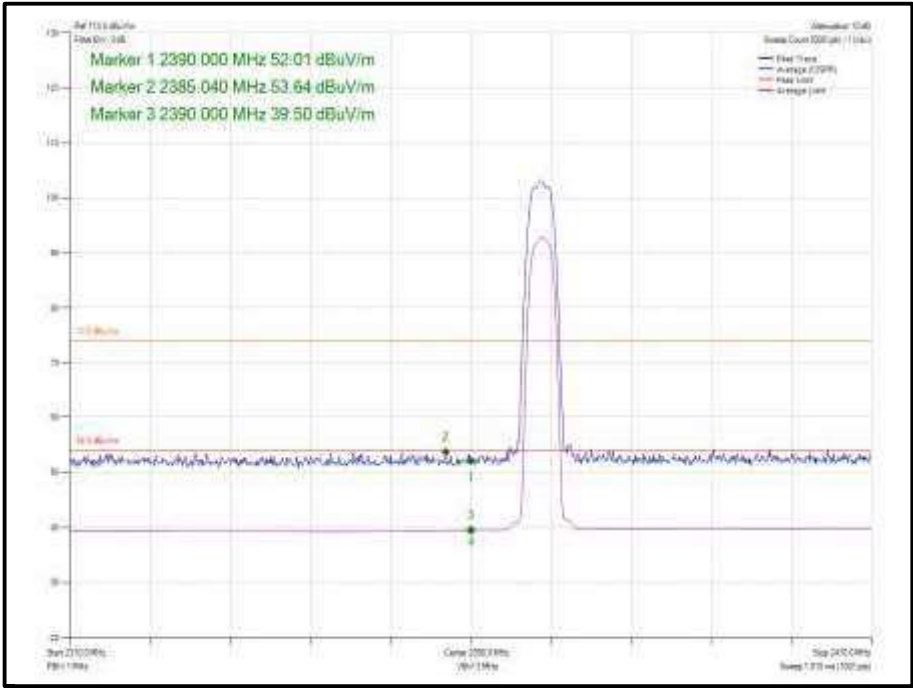


Figure 231- Static - Core 1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

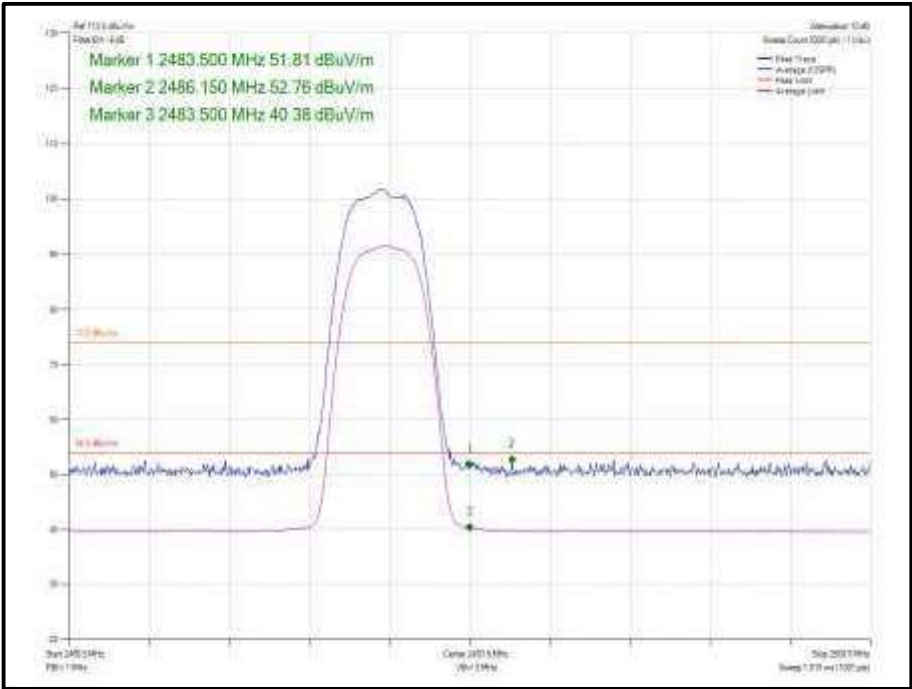


Figure 232 - Static - Core 1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	$\pi/4$ DQPSK	2	HDR8	2404	2390.0	54.15	39.59
Static	$\pi/4$ DQPSK	2	HDR8	2478	2483.5	58.60	45.21

Table 111 - Restricted Band Edge Results

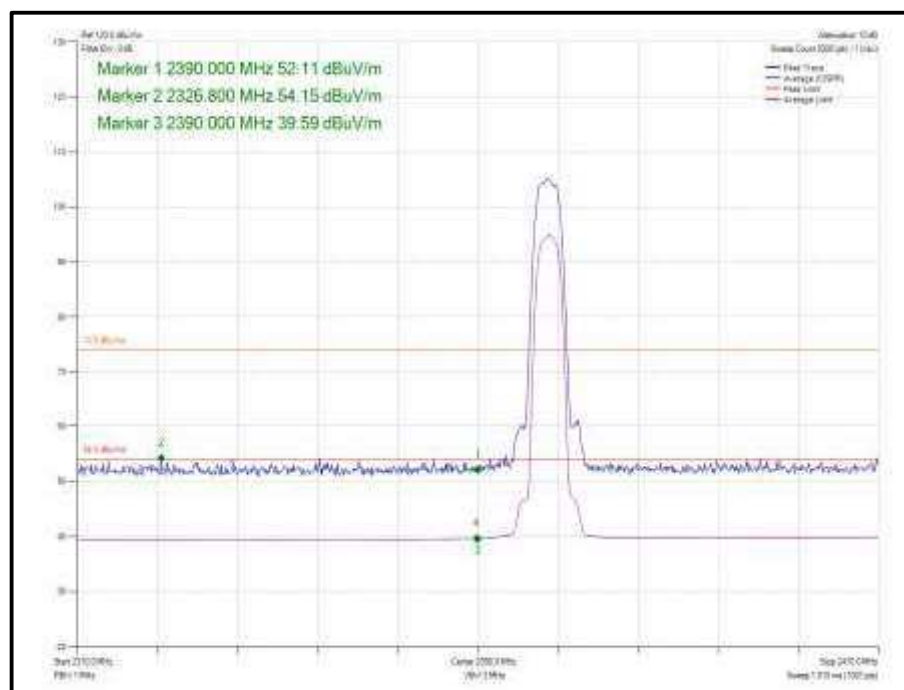


Figure 233- Static - Core 2 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

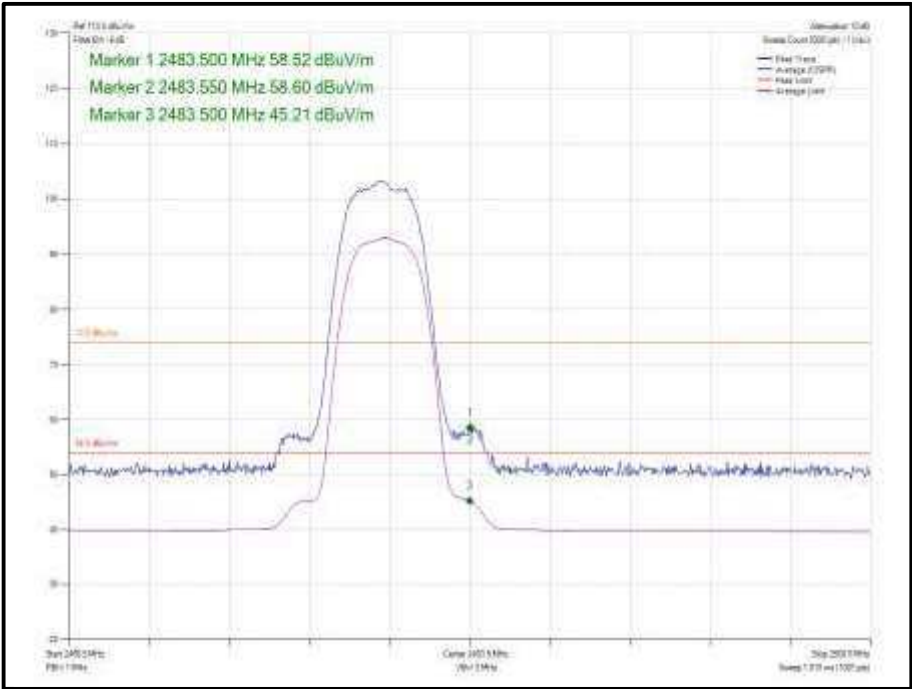


Figure 234 - Static - Core 2 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	$\pi/4$ DQPSK	0-1	HDR8	2404	2390.0	53.95	39.57
Static	$\pi/4$ DQPSK	0-1	HDR8	2478	2483.5	56.47	43.08

Table 112 - Restricted Band Edge Results

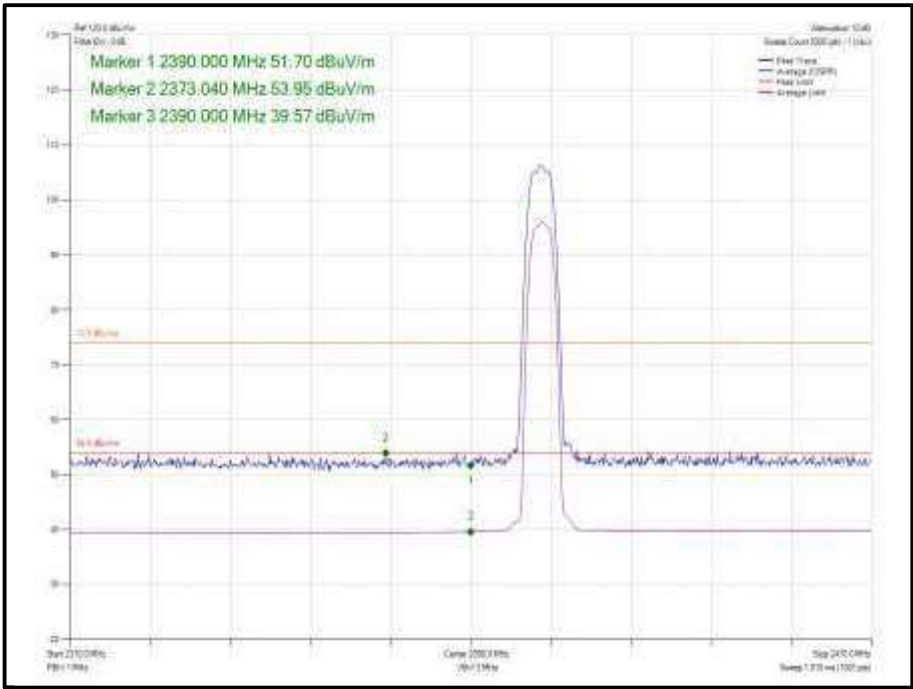
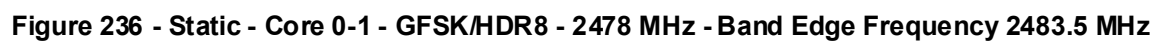


Figure 235- Static - Core 0-1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz



iPA - LE1M

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0	2390.0	53.80	39.55
GFSK/DH1	2480	0	2483.5	53.29	41.06

Table 113 - Restricted Band Edge Results

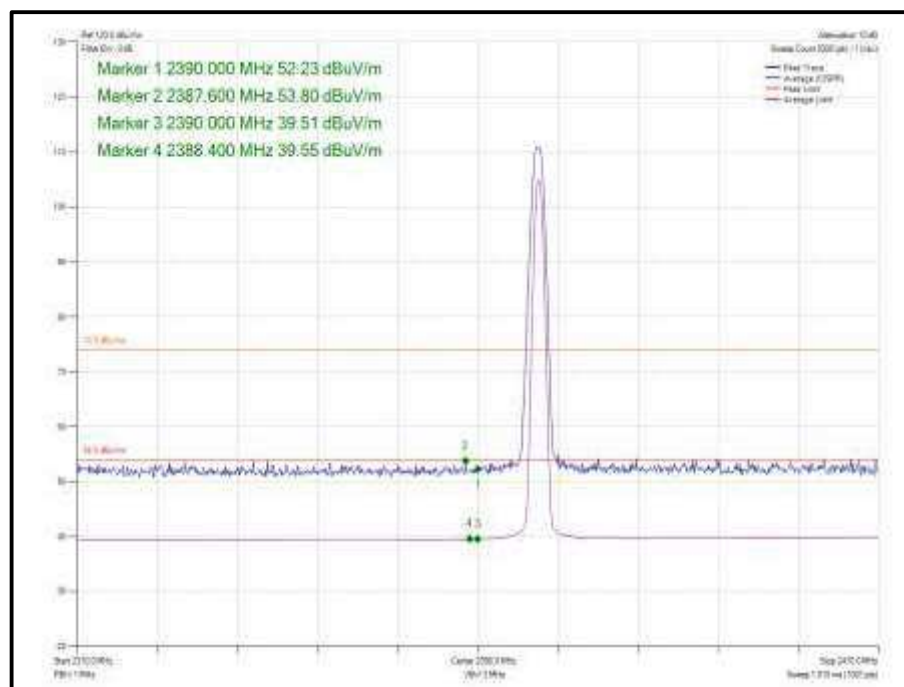


Figure 237 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

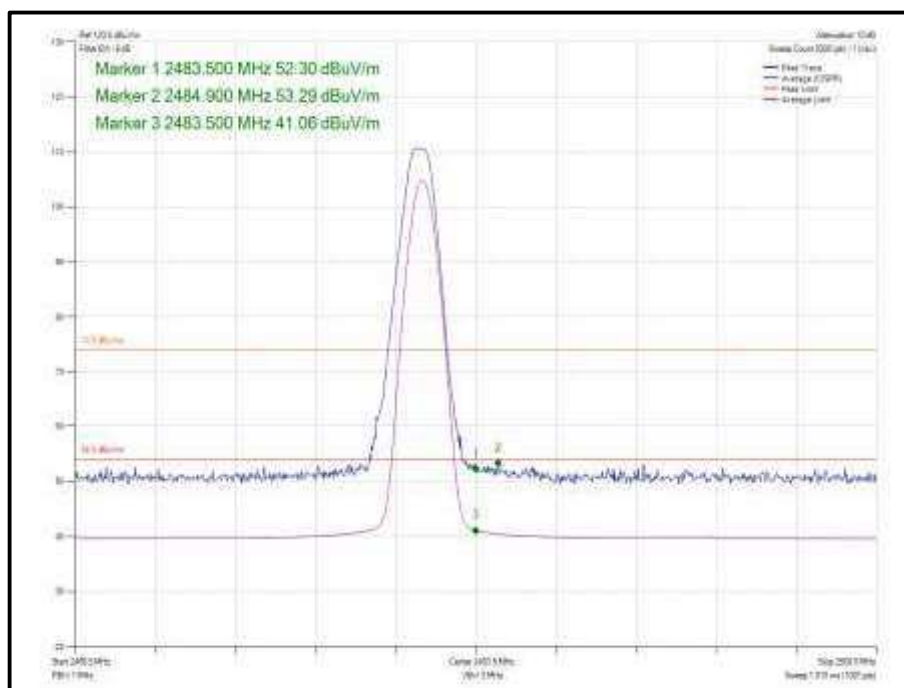


Figure 238 – Static - Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	1	2390.0	54.30	39.53
GFSK/DH1	2480	1	2483.5	53.48	41.24

Table 114 - Restricted Band Edge Results

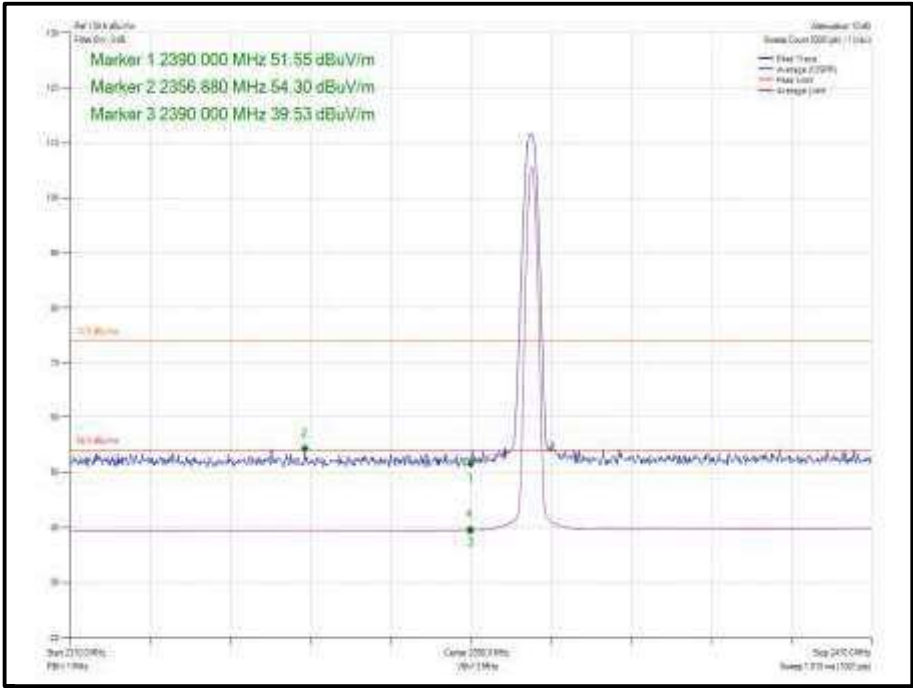


Figure 239 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

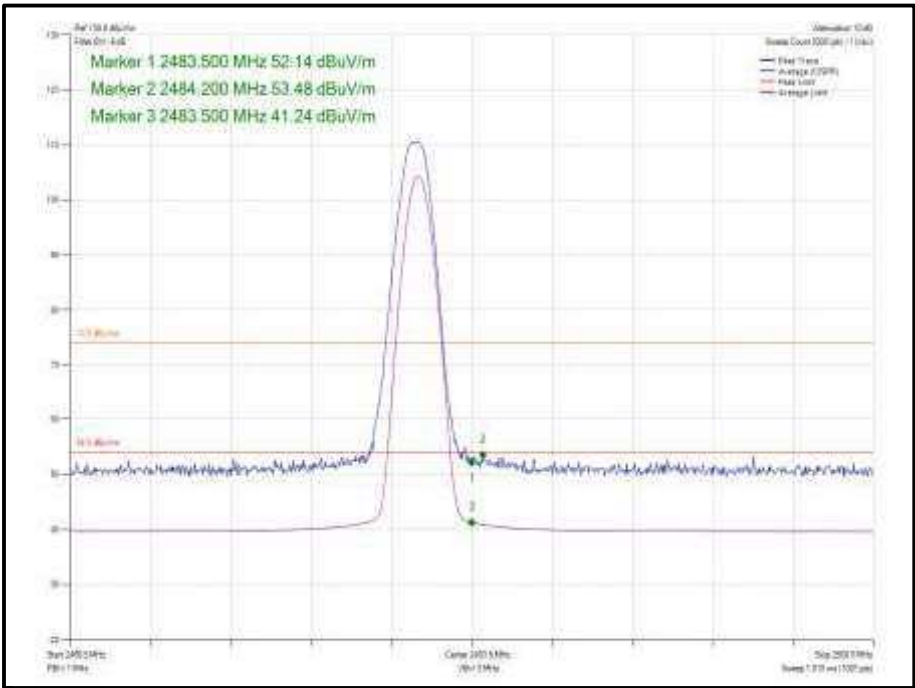


Figure 240 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	2	2390.0	55.48	39.43
GFSK/DH1	2480	2	2483.5	54.23	40.25

Table 115 - Restricted Band Edge Results



Figure 241 – Static - Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

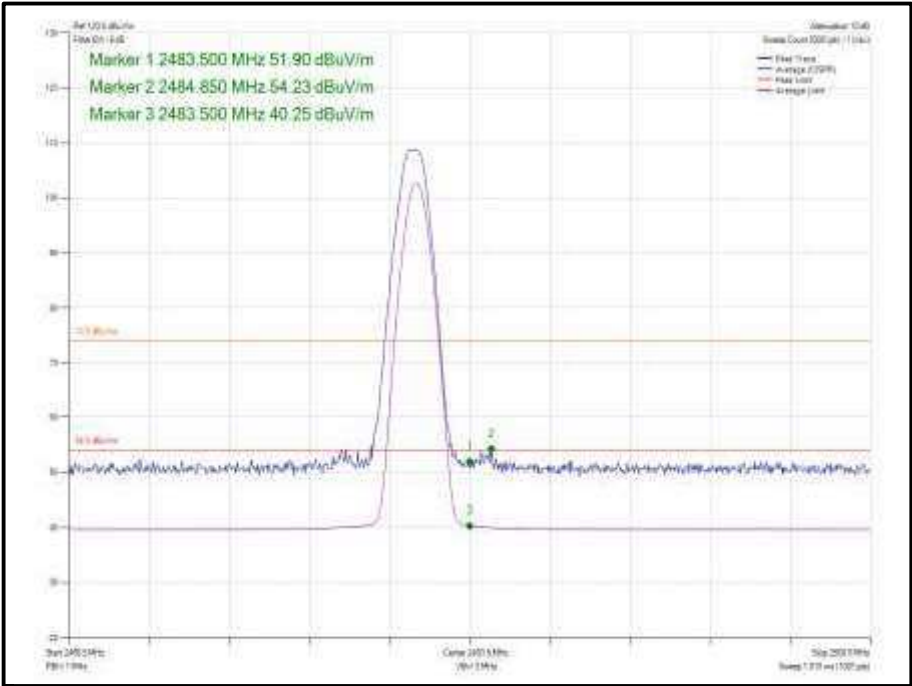


Figure 242 – Static - Core 2 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0-1	2390.0	54.11	39.66
GFSK/DH1	2480	0-1	2483.5	55.36	42.29

Table 116 - Restricted Band Edge Results

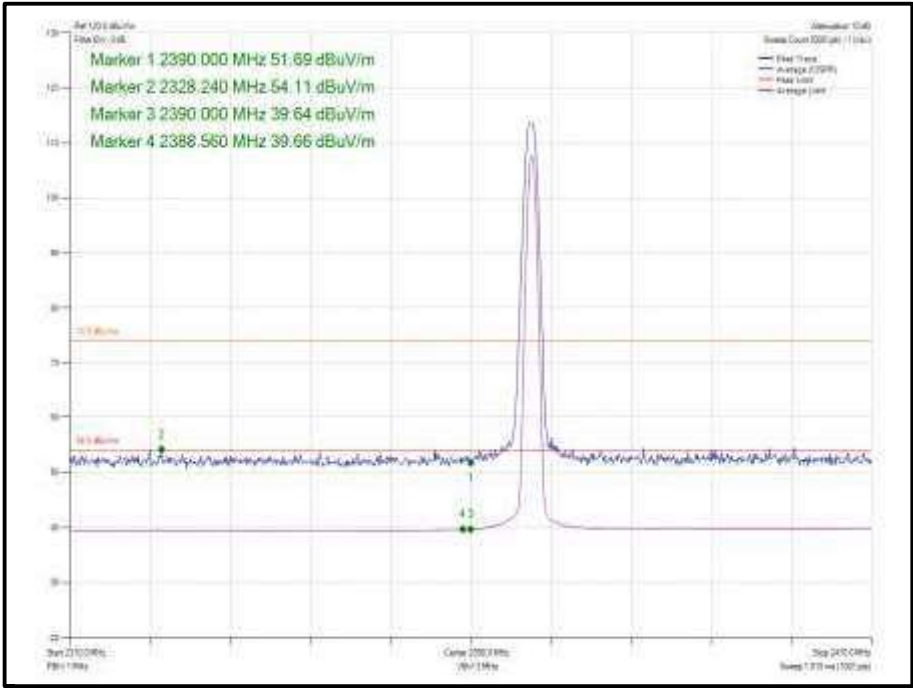


Figure 243 – Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

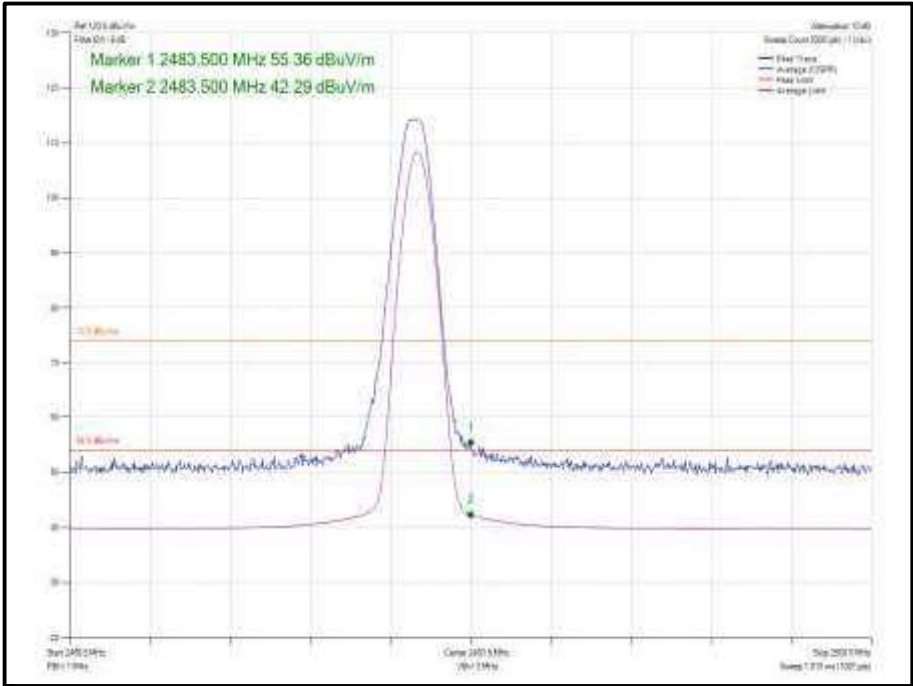


Figure 244 – GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

iPA – LE2M

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dB μ V/m)	Average Level (dB μ V/m)
GFSK/DH1	2402	0	2390.0	53.98	39.44
GFSK/DH1	2480	0	2483.5	60.16	46.70

Table 117 - Restricted Band Edge Results

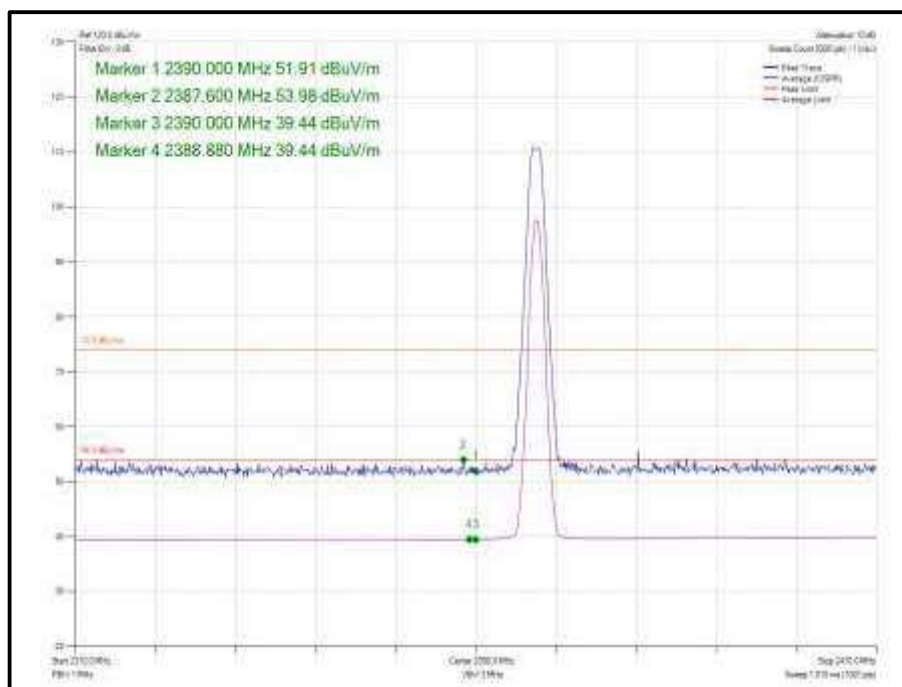


Figure 245 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

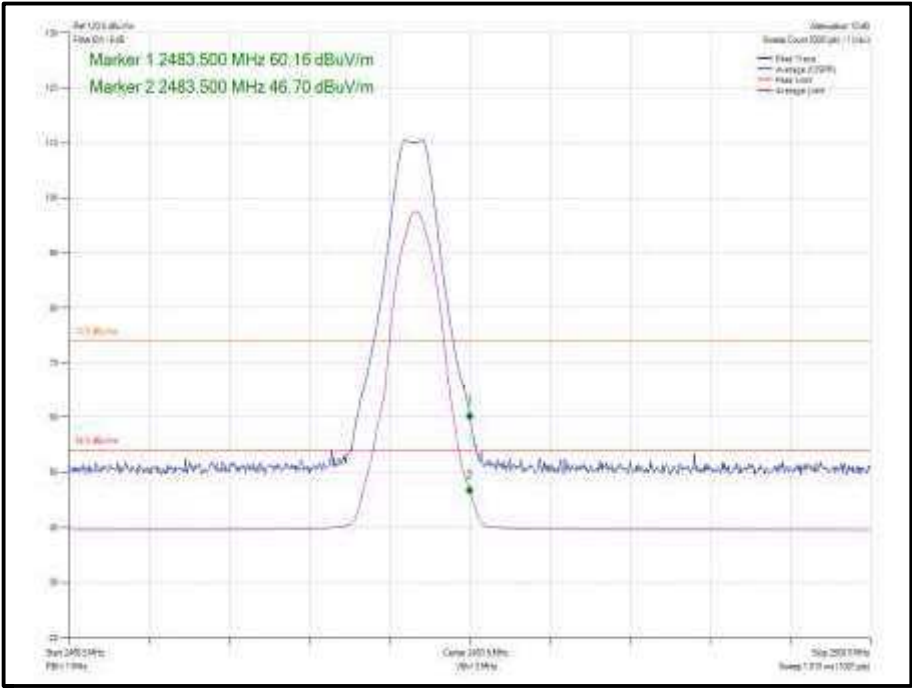


Figure 246 – Static - Core 0 GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	1	2390.0	54.82	39.59
GFSK/DH1	2480	1	2483.5	58.71	46.42

Table 118 - Restricted Band Edge Results

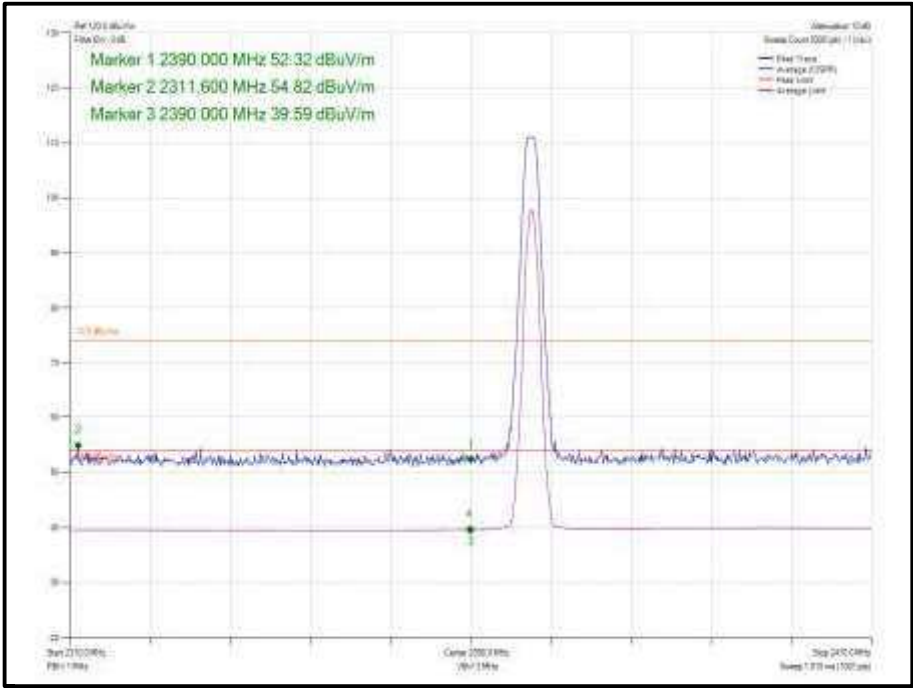


Figure 247 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

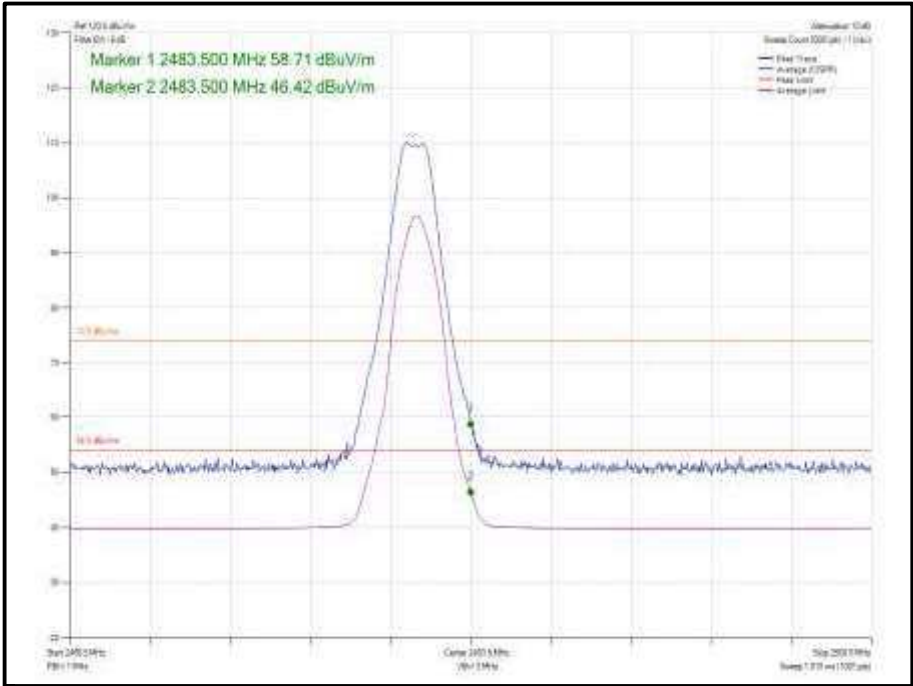


Figure 248 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	2	2390.0	54.16	39.39
GFSK/DH1	2480	2	2483.5	57.01	44.45

Table 119 - Restricted Band Edge Results

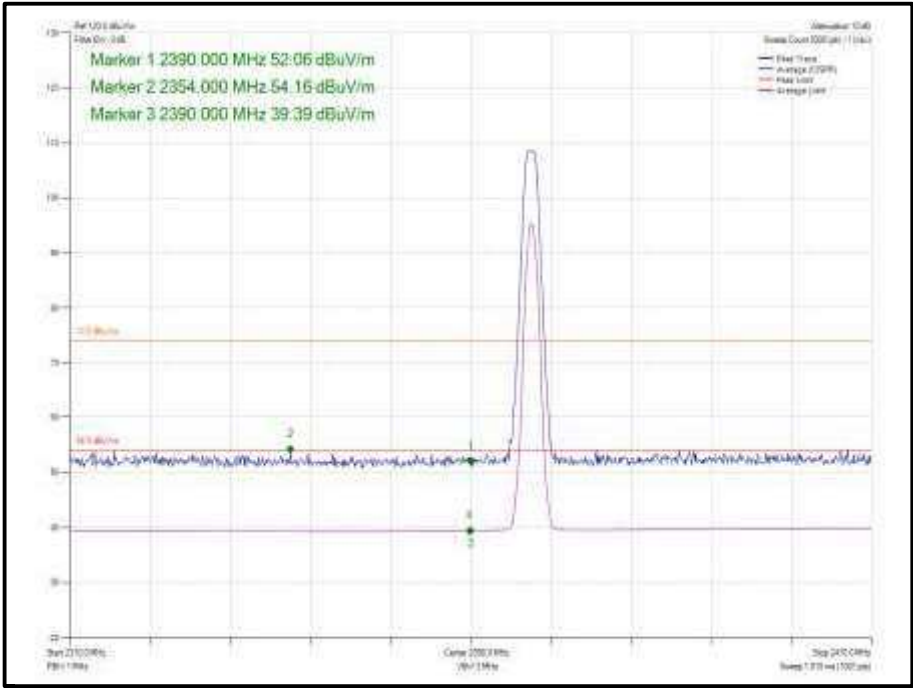


Figure 249 – Static - Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

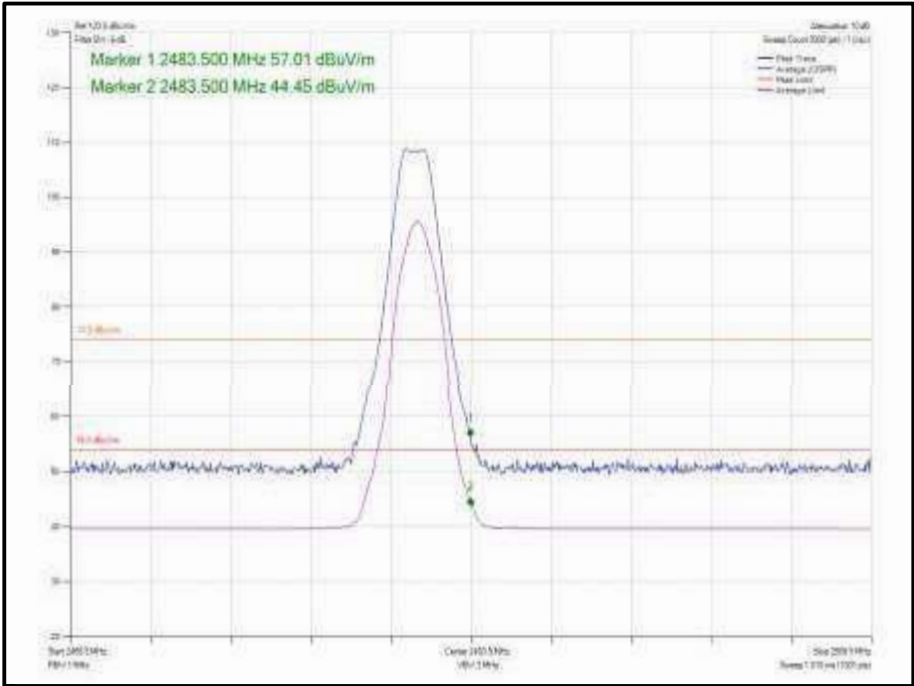


Figure 250 – Static - Core 2 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0-1	2390.0	54.16	39.53
GFSK/DH1	2480	0-1	2483.5	62.90	49.16

Table 120 - Restricted Band Edge Results

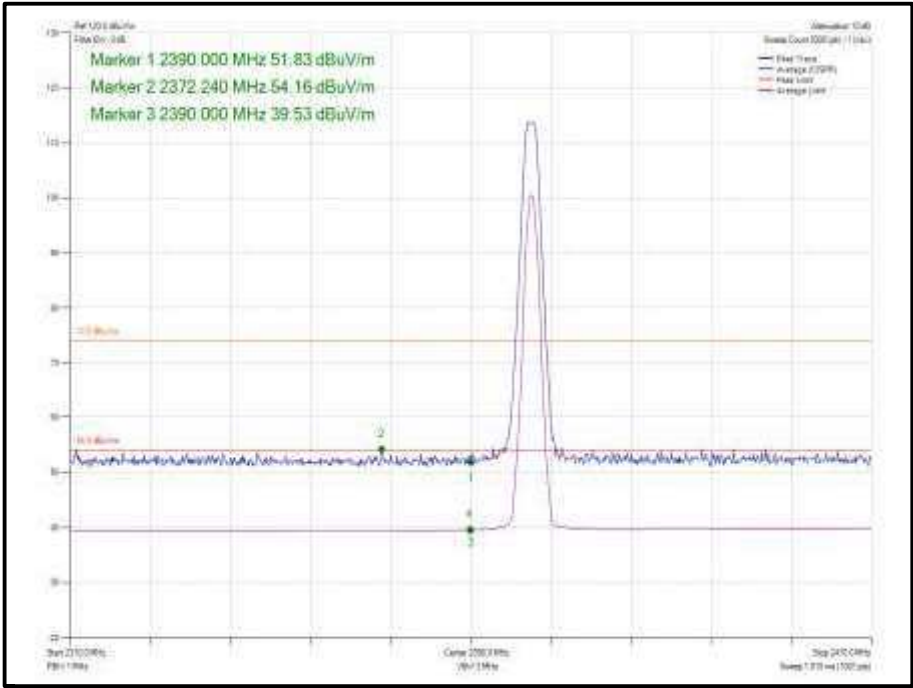


Figure 251 – Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

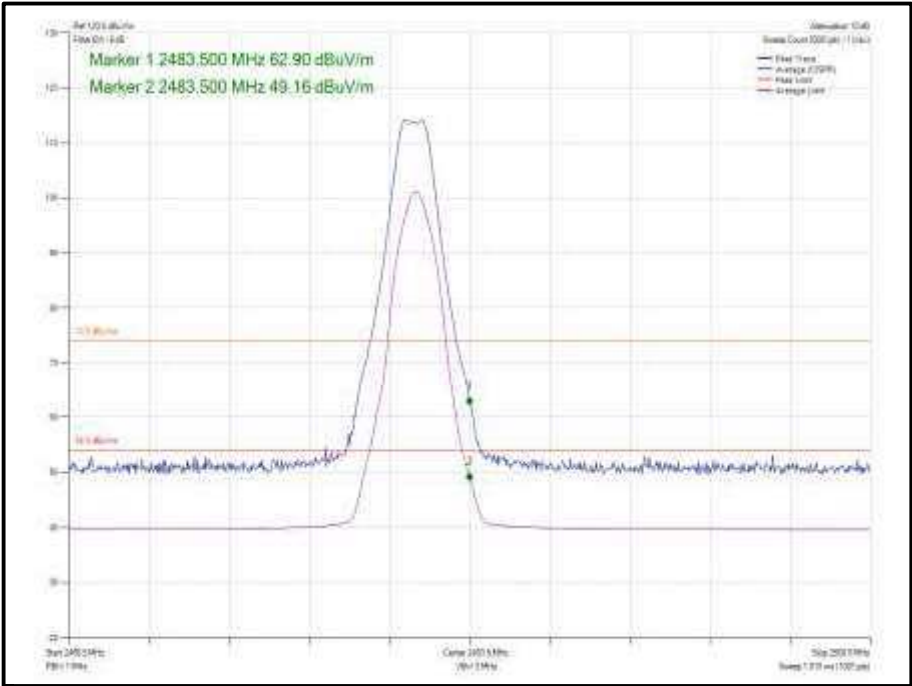


Figure 252 – Static - Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$ at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 121

ISED RSS-GEN, Limit Clause 8.9

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$ at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960*	500

Table 122

*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.



2.4.7 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 Due
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	28-Nov-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5103	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	09-Dec-2020
EmX Emissions Software	TUV SUD	V2.0.1	5125	-	Software
Screened Room (11)	Rainford	Rainford	5136	36	01-Nov-2021
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15 WF	5160	-	TU
Horn Antenna (1-10GHz)	Schwarzbeck	BBHA 9120 B	5215	12	10-Mar-2021
Pre Amp 1 - 26.5 GHz	Agilent Technologies	8449B	5445	12	06-May-2021
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5475	12	17-Mar-2021
Attenuator 5W 10dB DC-18GHz	Aaren	AT40A-4041-D18-10	5494	12	14-Apr-2021
2m SMA Cable	Junkosha	MWX221-02000AMSA/MS/A	5518	12	01-Apr-2021
8m N Type Cable	Junkosha	MWX221-08000NMSN/MS/B	5522	12	24-Mar-2021

Table 123

TU - Traceability Unscheduled



2.5 Spurious Radiated Emissions

2.5.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d) and 15.205
ISED RSS-247, Clause 5.5
ISED RSS-GEN, Clause 6.13

2.5.2 Equipment Under Test and Modification State

A2169, S/N: C07CL0AMQ4TG - Modification State 0

2.5.3 Date of Test

10-September-2020 to 06-October-2020

2.5.4 Test Method

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

In the 30 MHz to 1 GHz range pre-scans were only performed on the main radio mid channel (2442 MHz) and any emissions identified then measured on bottom (2412 MHz) and top (2472 MHz).

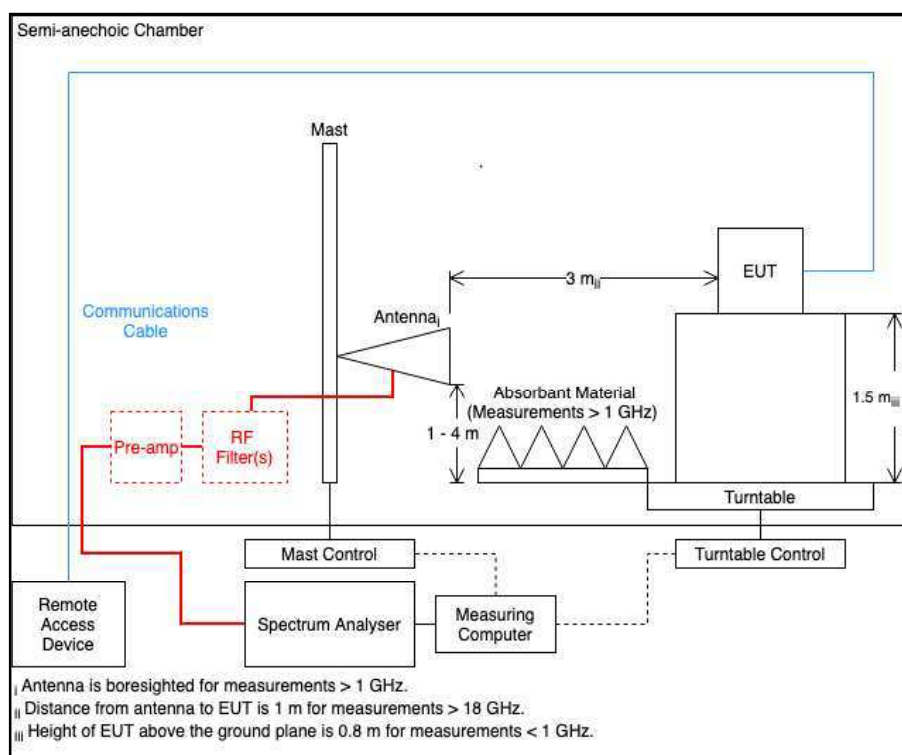
The plots shown are the characterization of the EUT. The limits on the plots represent the most stringent case for restricted bands, (54/74 dBuV/m @ 3m and 64/84 dBuV/m @ 1m) when compared to 20 dBc (Peak) and 30 dBc (Average) outside restricted bands. The limits shown have been used as a threshold to 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 dBuV/m to uV/m:
 $10^{(\text{Field Strength in dBuV/m} / 20)}$

Spurious Radiated Emissions measurements were performed, with the device operating in MIMO 2TX during tests on the Main Radio, as this was defined as worst case.

Measurements displayed within this report, have been limited to one mode only for each radio, as tests on other modes have been shown to provide a similar emissions profile.

Further measurements are held on file by TÜV SÜD and are available if required.



Frequency (MHz)	Level (dBuv/m)	Limit (dBuv/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4803.831	40.0	54.0	-14.0	RMS	344	103	Vertical

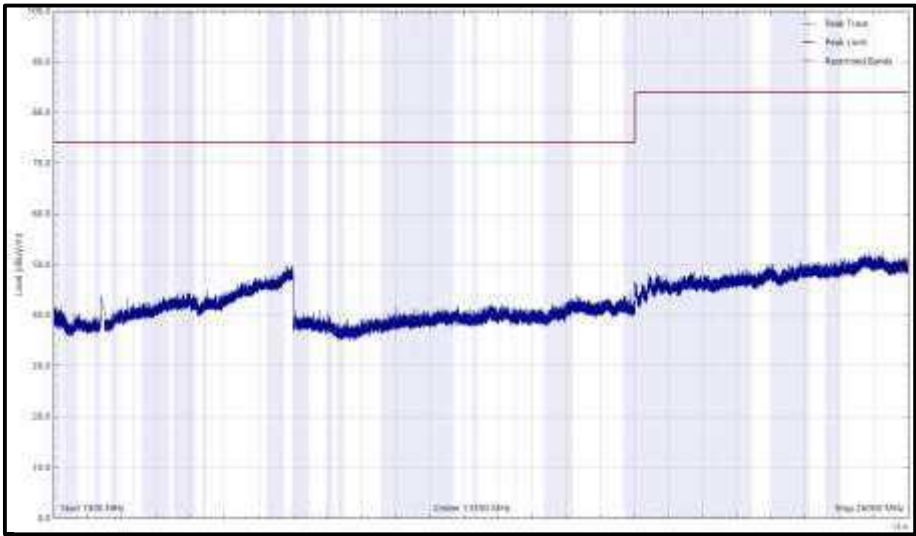


Figure 254 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

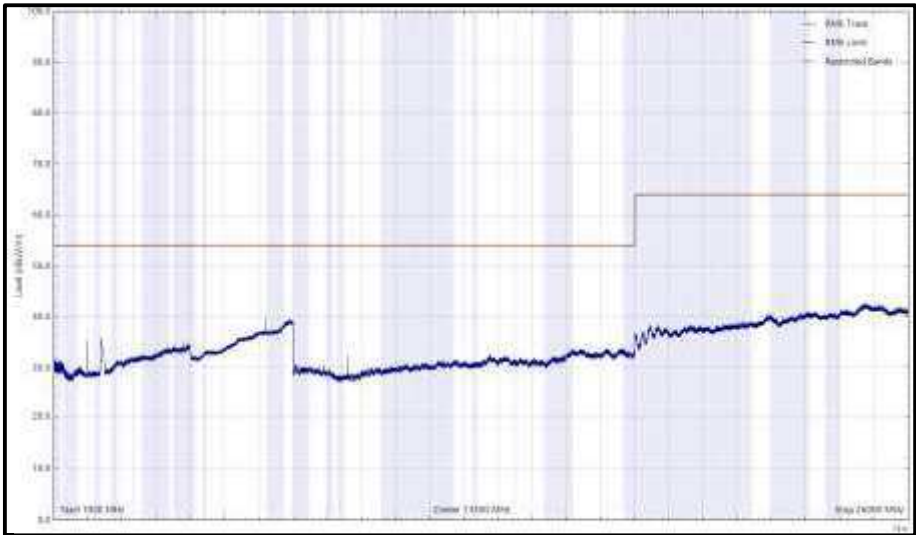


Figure 255 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

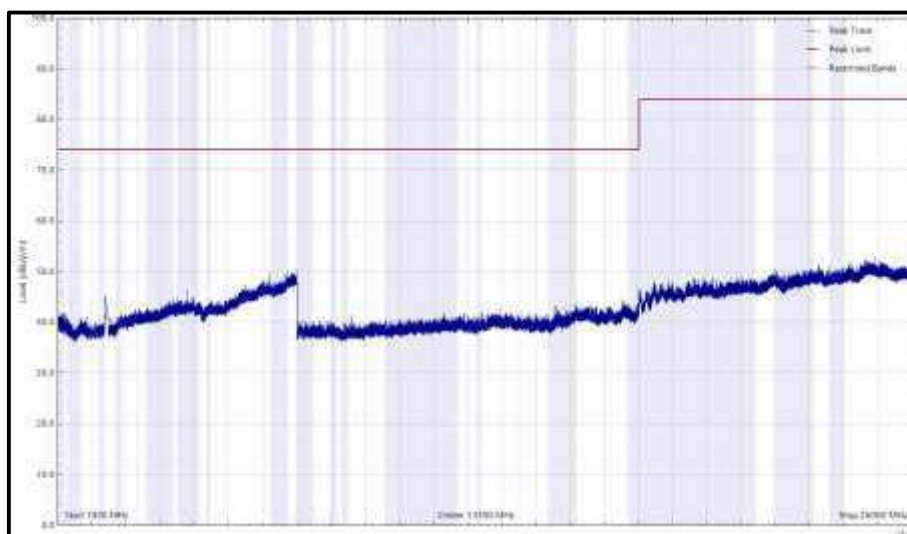


Figure 256 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

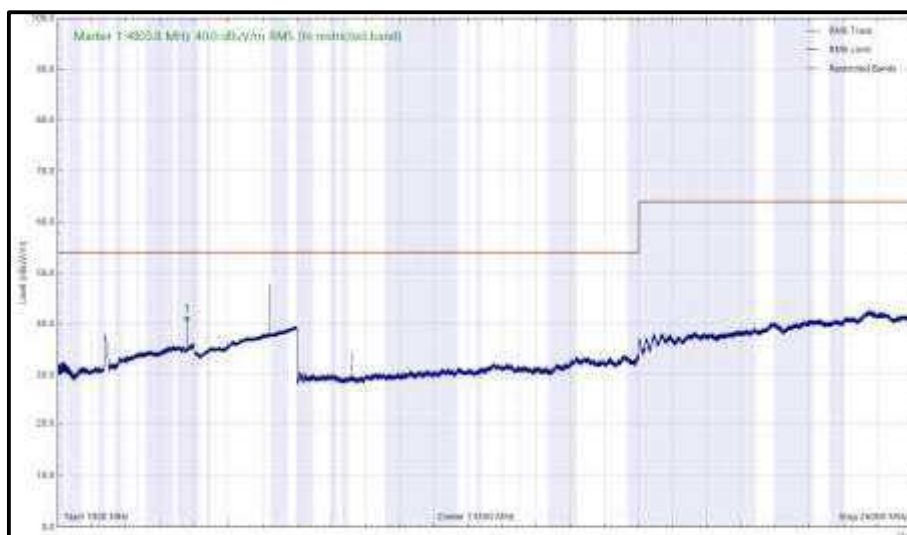


Figure 257 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuv/m)	Limit (dBuv/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
7319.305	45.6	54.0	-8.4	RMS	352	284	Horizontal
7319.530	46.7	54.0	-7.3	RMS	98	122	Vertical

Table 125 - 2440 MHz (CH17), LE1M, ePA, Core 0, 30 MHz to 26 GHz

No other emissions found within 6 dB of the limit.

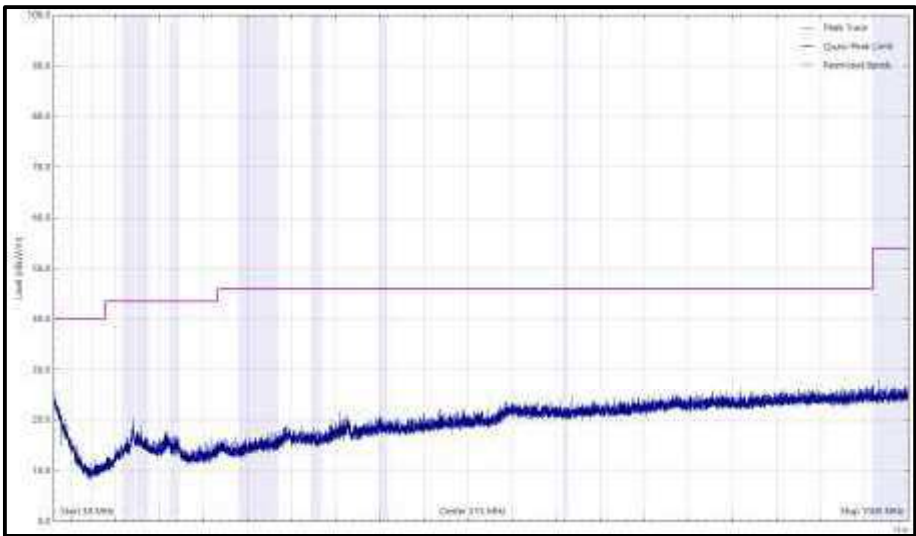


Figure 258 - 2440 MHz (CH17), LE1M, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

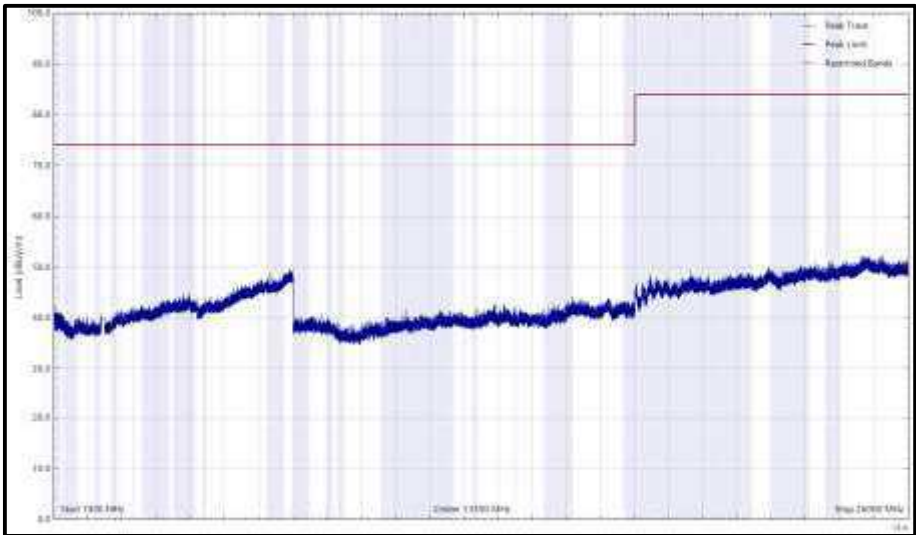


Figure 259 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

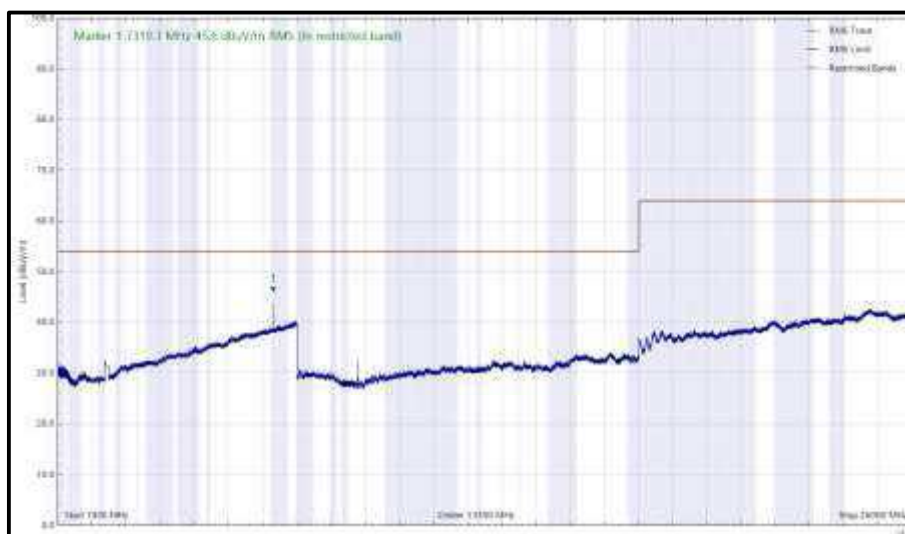


Figure 260 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

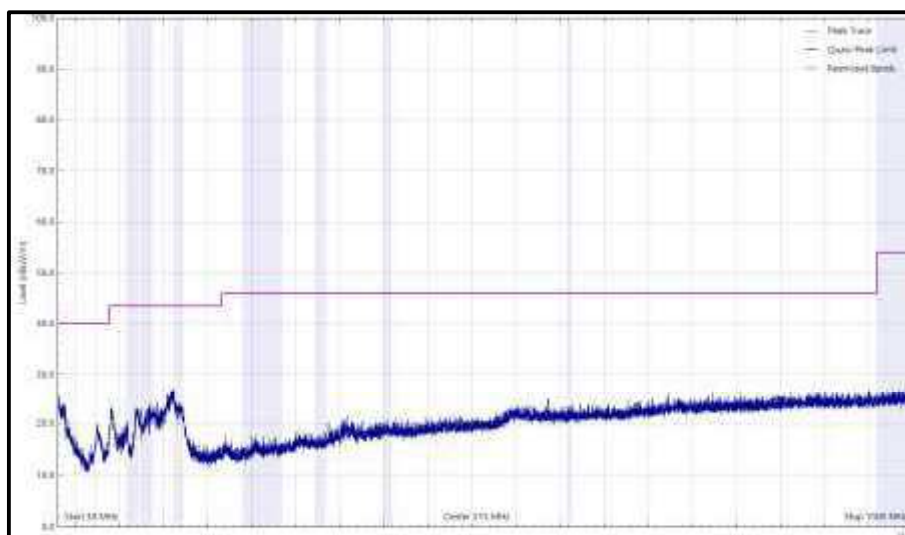


Figure 261 - 2440 MHz (CH17), LE1M, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

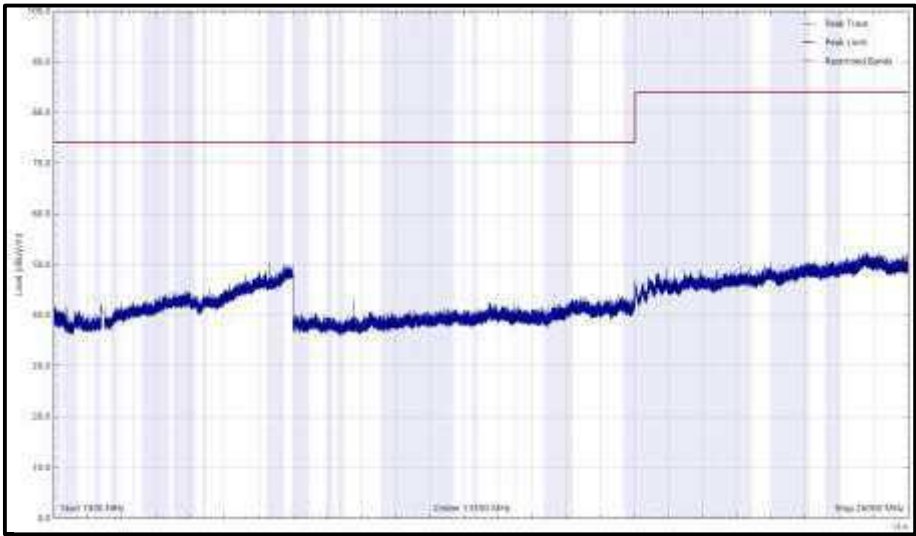


Figure 262 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

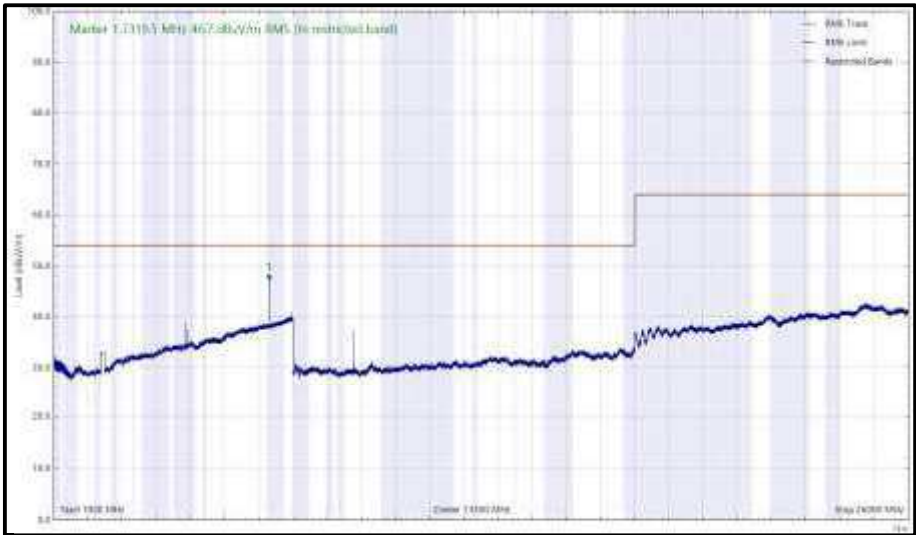


Figure 263 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4959.842	39.4	54.0	-14.6	RMS	346	101	Vertical
7439.407	39.2	54.0	-14.8	RMS	159	143	Horizontal
7439.422	39.9	54.0	-14.2	RMS	196	109	Vertical
7439.573	57.3	74.0	-16.7	Peak	358	335	Horizontal

Table 126 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

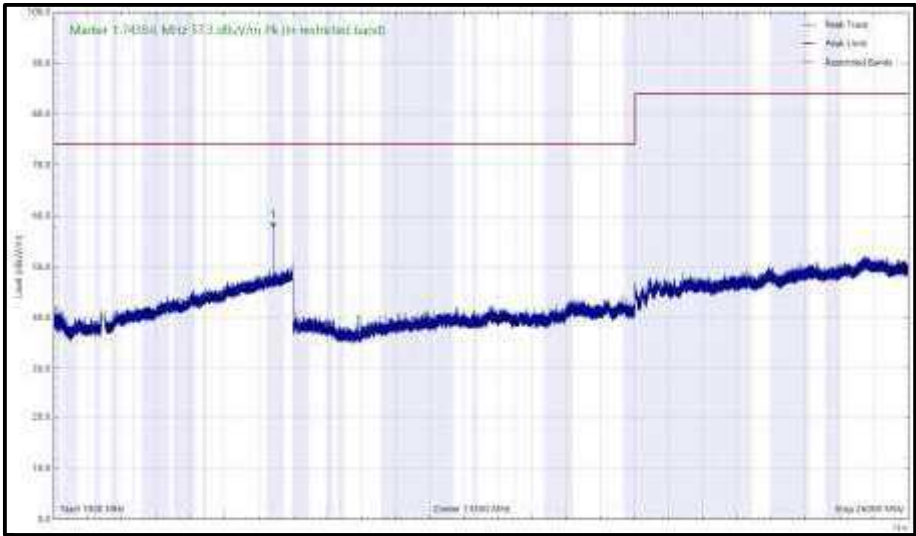


Figure 264 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

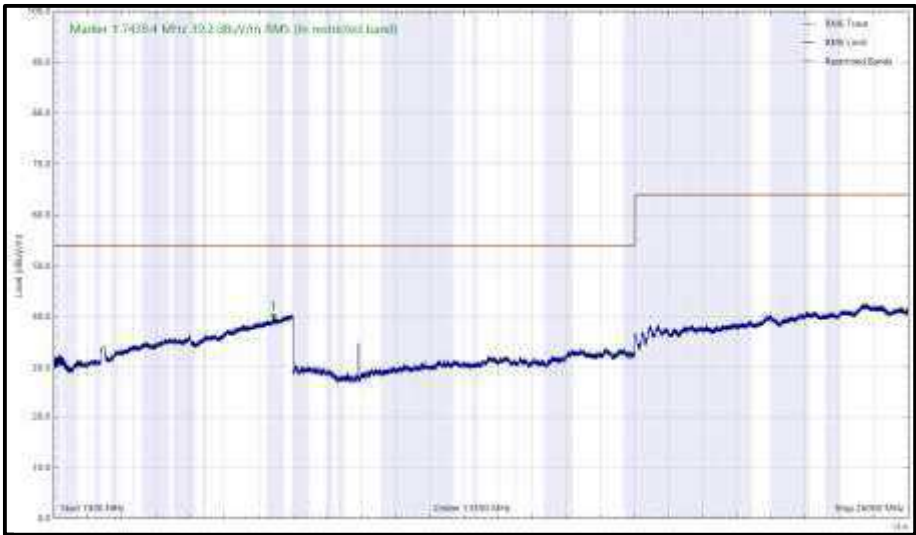


Figure 265 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

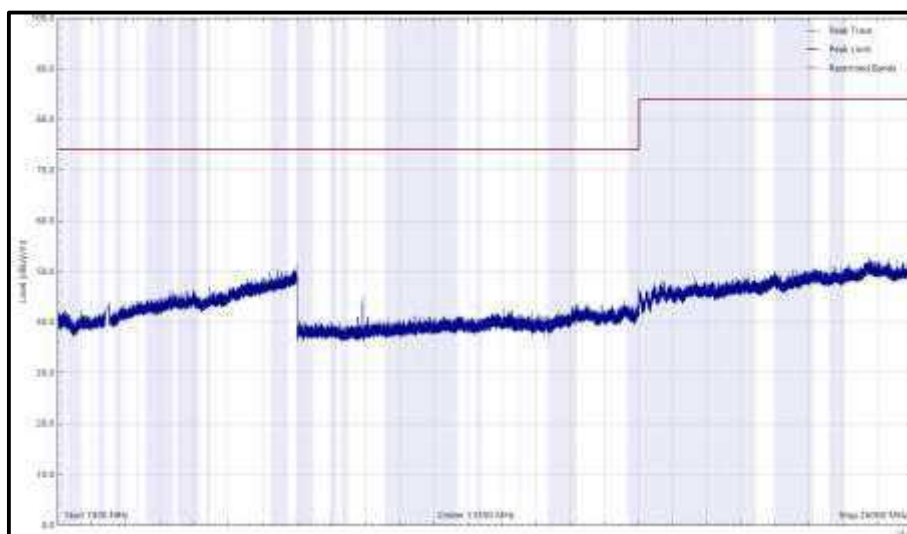


Figure 266 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

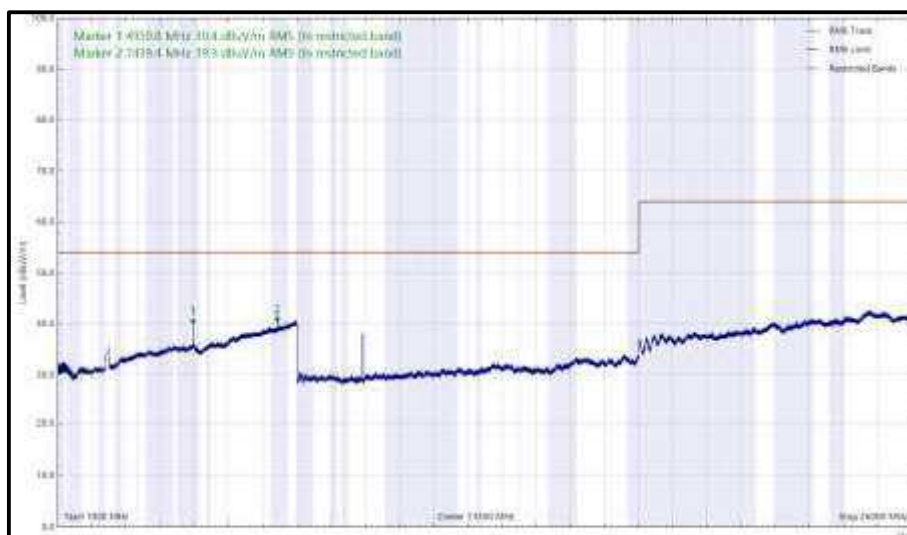


Figure 267 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4803.901	37.5	54.0	-16.5	RMS	356	147	Vertical
7206.728	54.6	74.0	-19.4	Peak	6	103	Vertical

Table 127 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

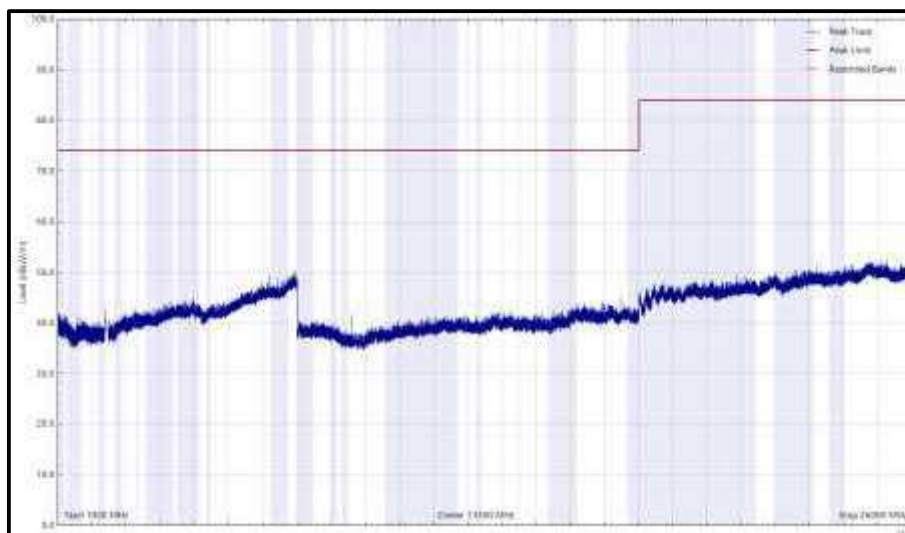


Figure 268 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

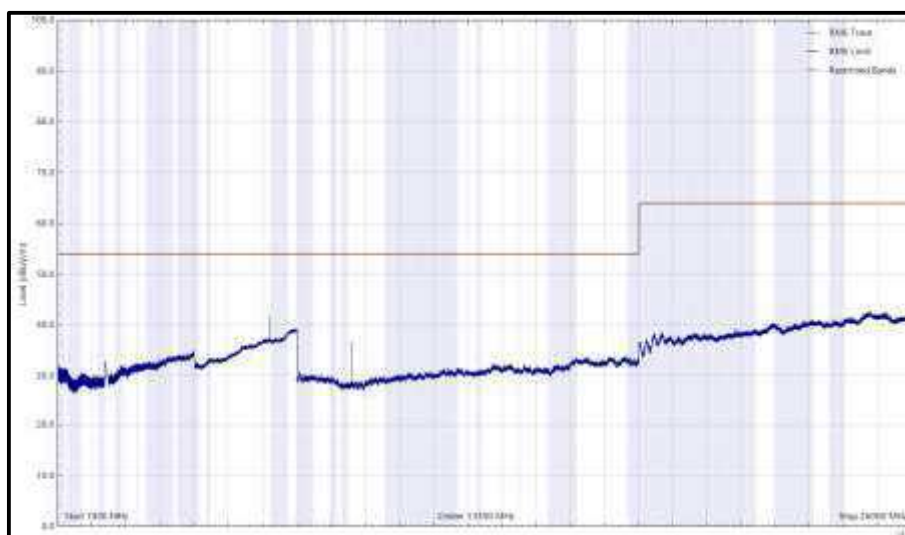


Figure 269 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

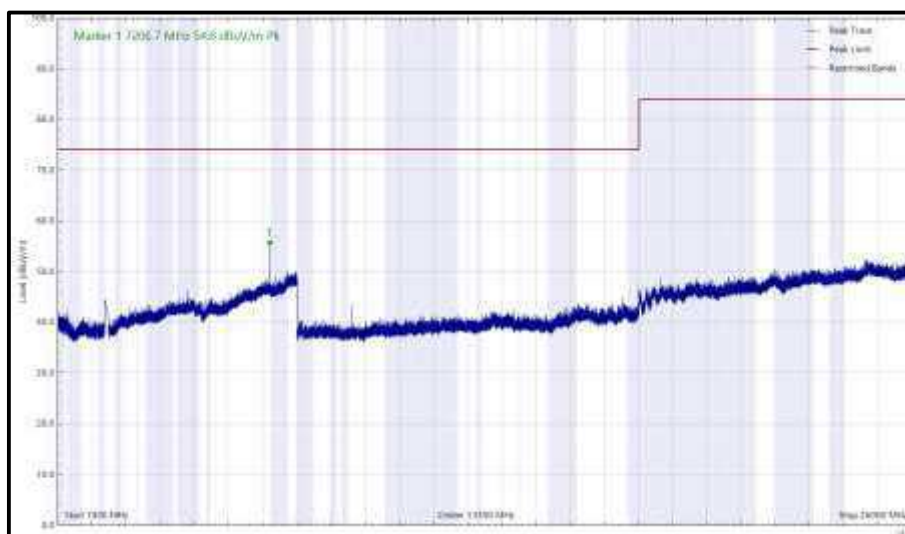


Figure 270 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)

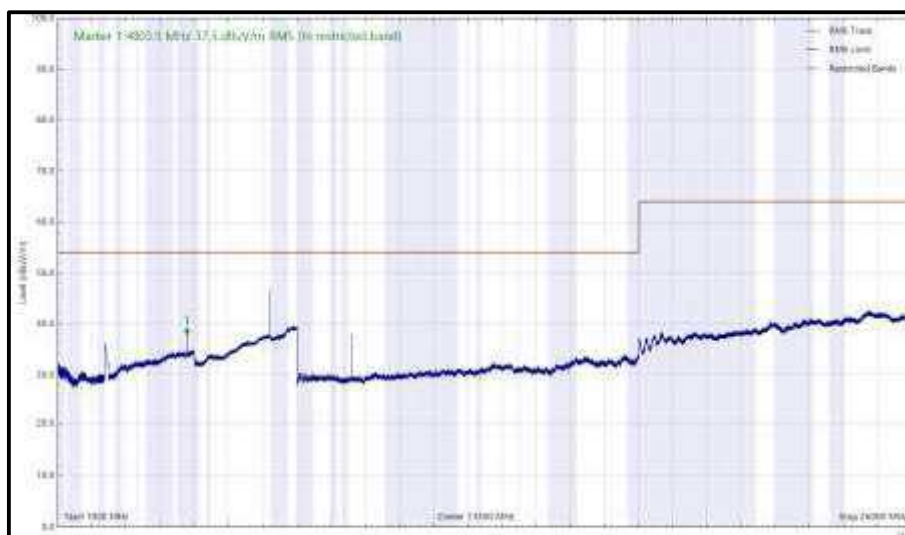


Figure 271 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4879.841	38.3	54.0	-15.7	RMS	338	109	Vertical

Table 128 - 2440 MHz (CH17), LE1M, ePA, Core 1, 30 MHz to 26 GHz

No other emissions found within 6 dB of the limit.

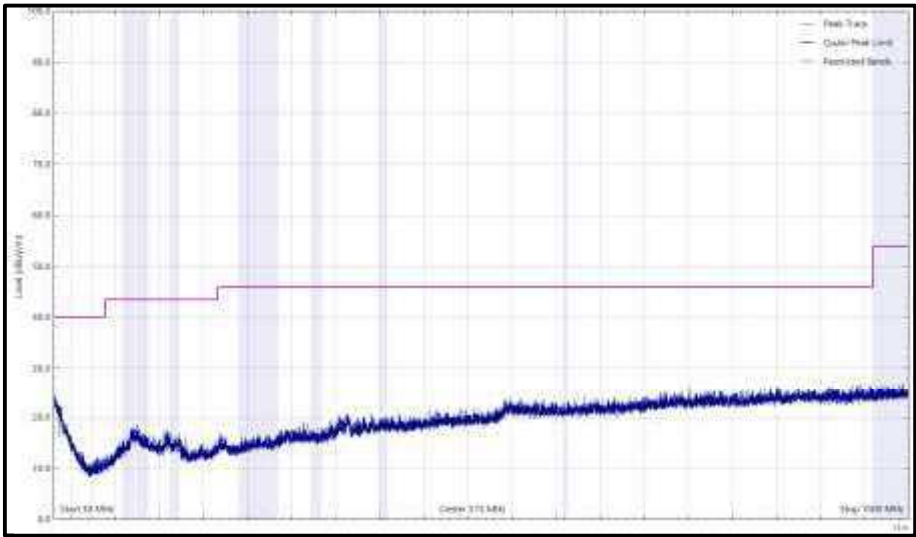


Figure 272 - 2440 MHz (CH17), LE1M, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

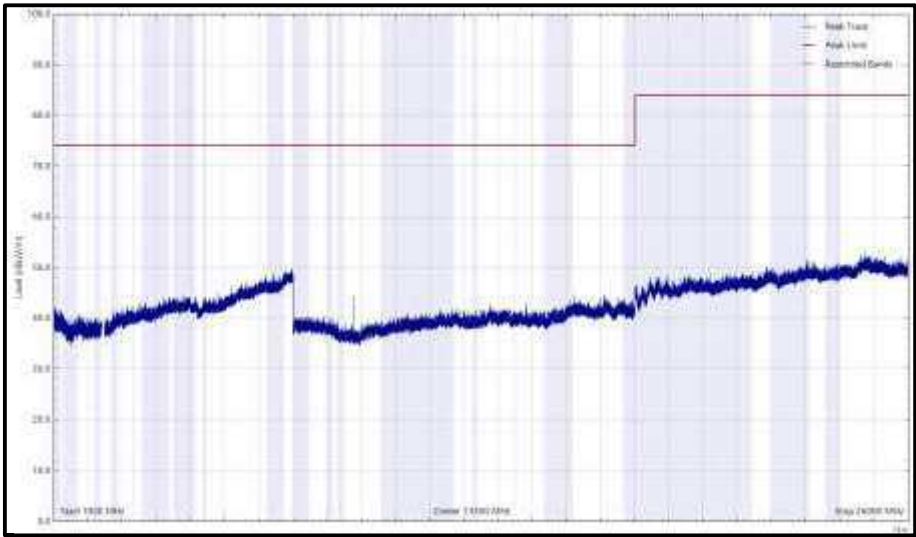


Figure 273 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

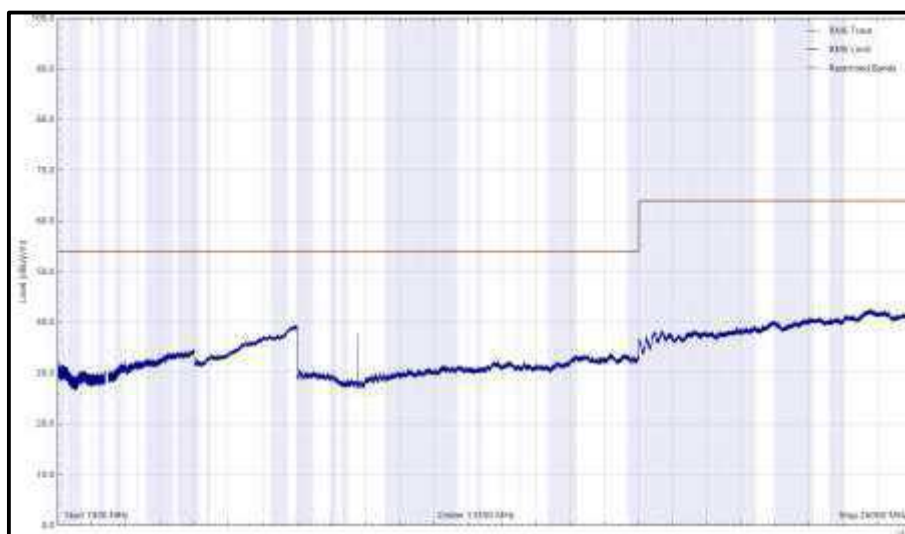


Figure 274 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

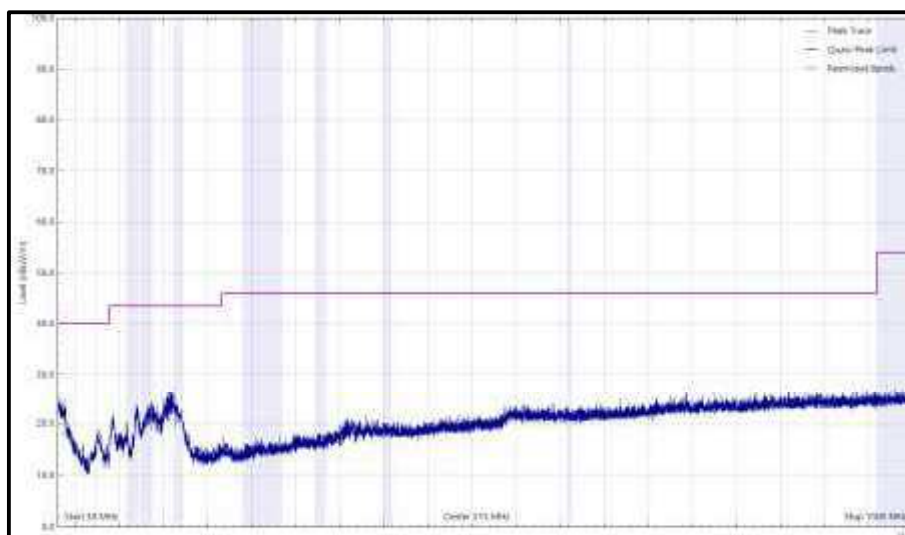


Figure 275 - 2440 MHz (CH17), LE1M, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

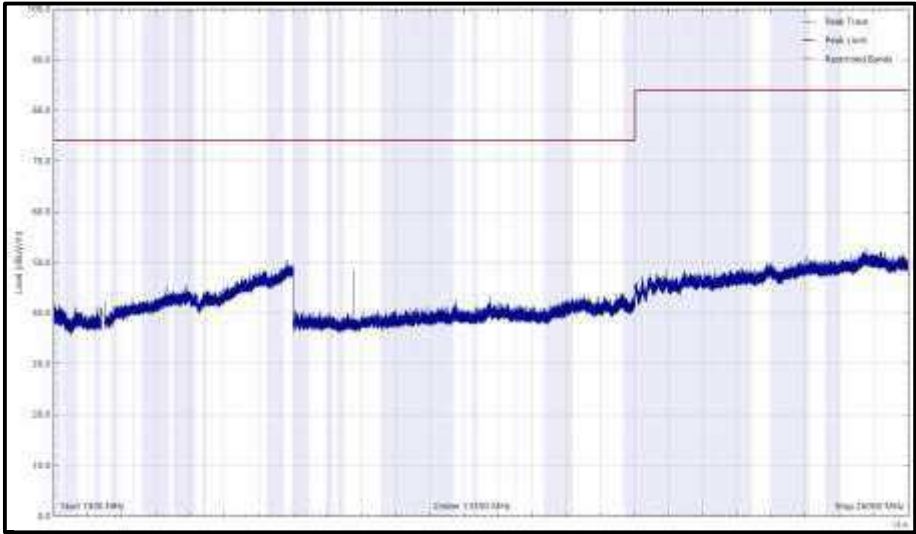


Figure 276 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)



Figure 277 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4959.742	39.6	54.0	-14.4	RMS	348	103	Vertical
7439.510	37.9	54.0	-16.1	RMS	21	378	Vertical

Table 129 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

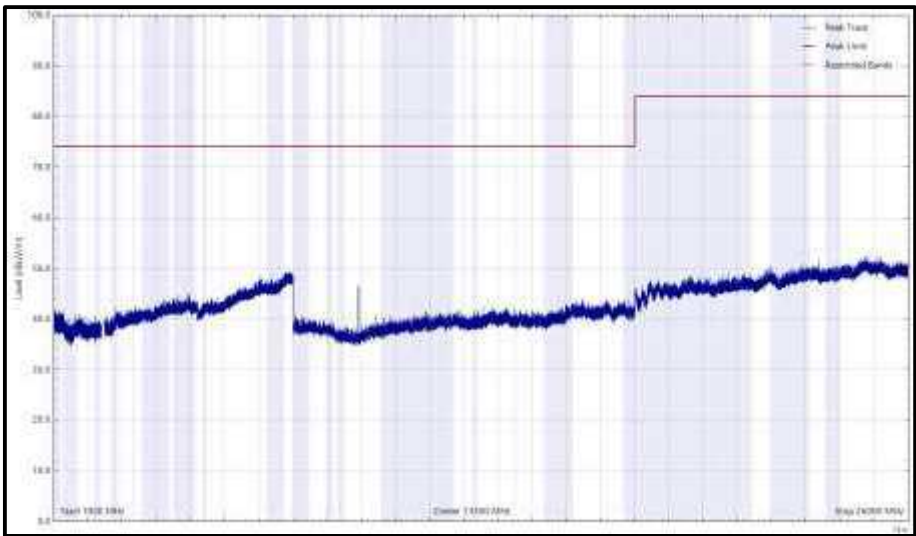


Figure 278 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

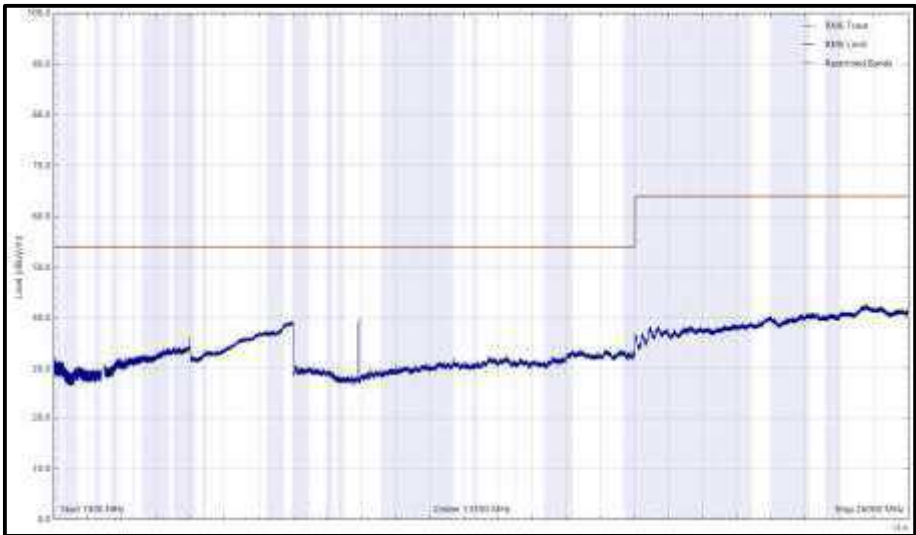


Figure 279 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

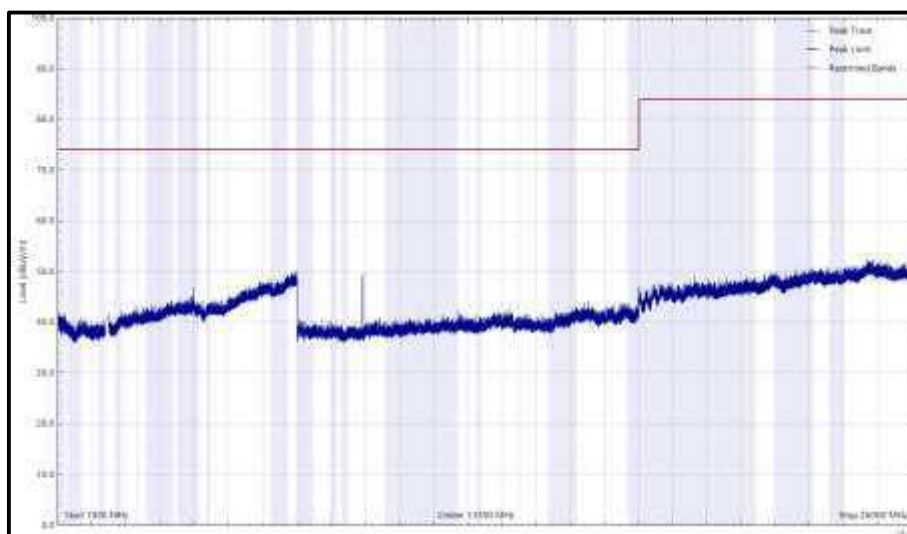


Figure 280 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)

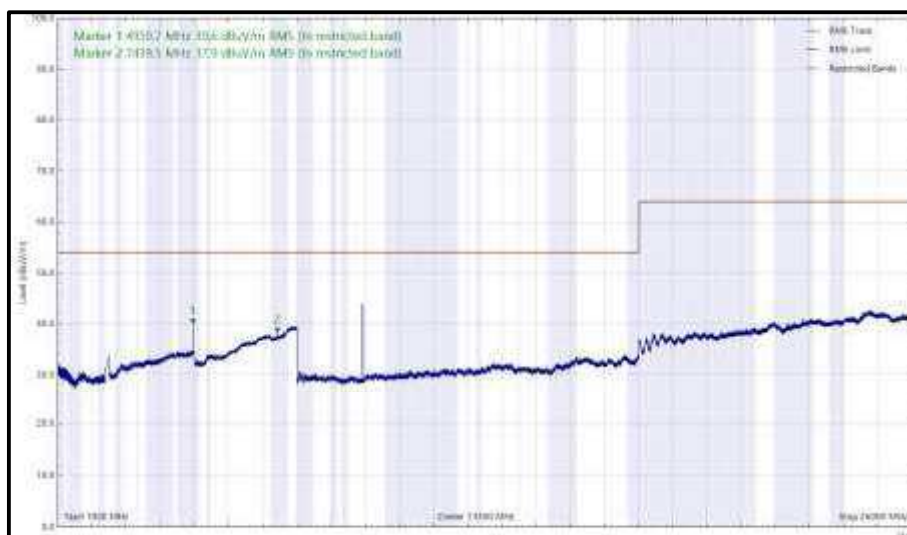


Figure 281 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



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

Table 130 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz

*No emissions found within 6 dB of the limit.

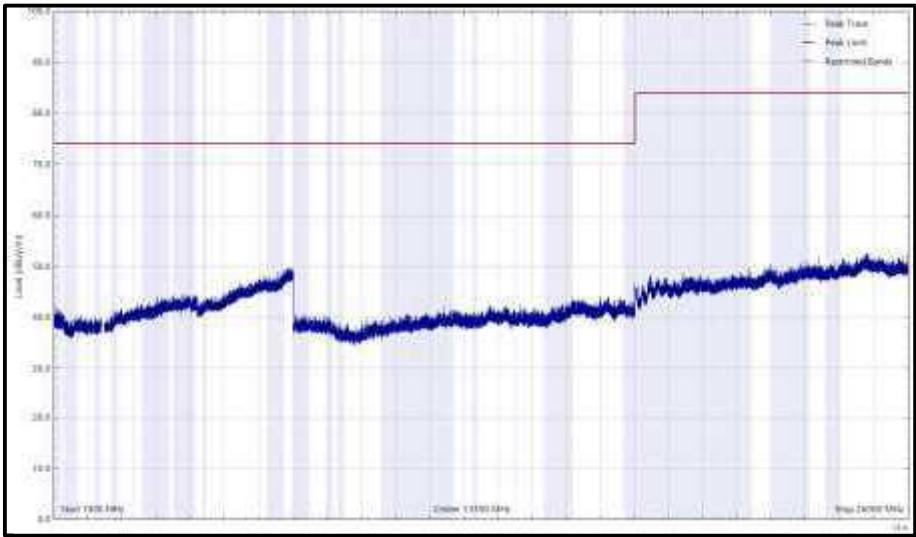


Figure 282 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

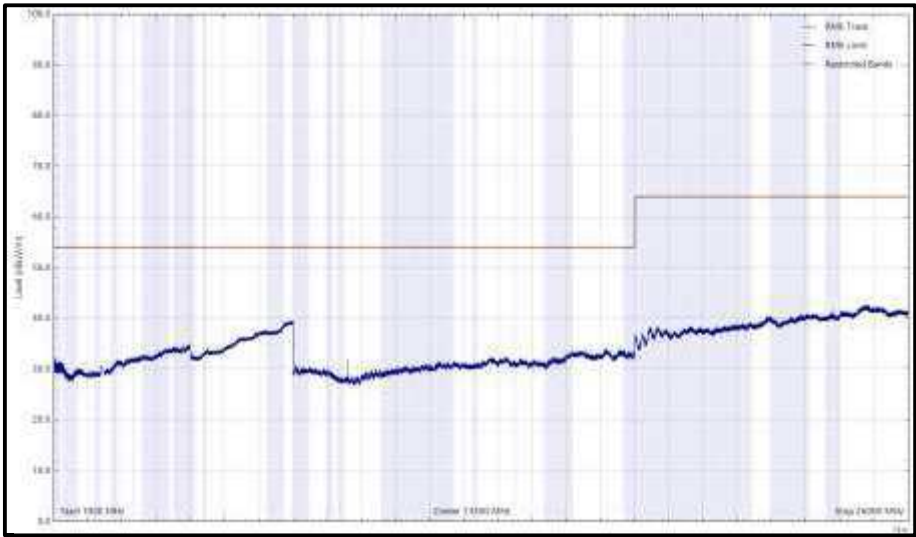


Figure 283 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

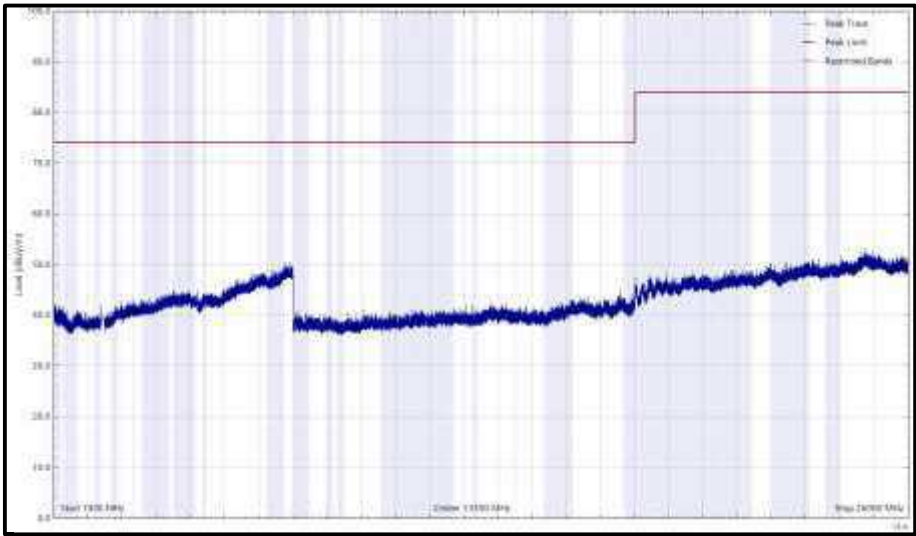


Figure 284 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)



Figure 285 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
7319.467	57.5	74.0	-16.5	Peak	356	366	Horizontal

Table 131 - 2440 MHz (CH17), LE1M, iPA, Core 0, 30 MHz to 26 GHz

No other emissions found within 6 dB of the limit.

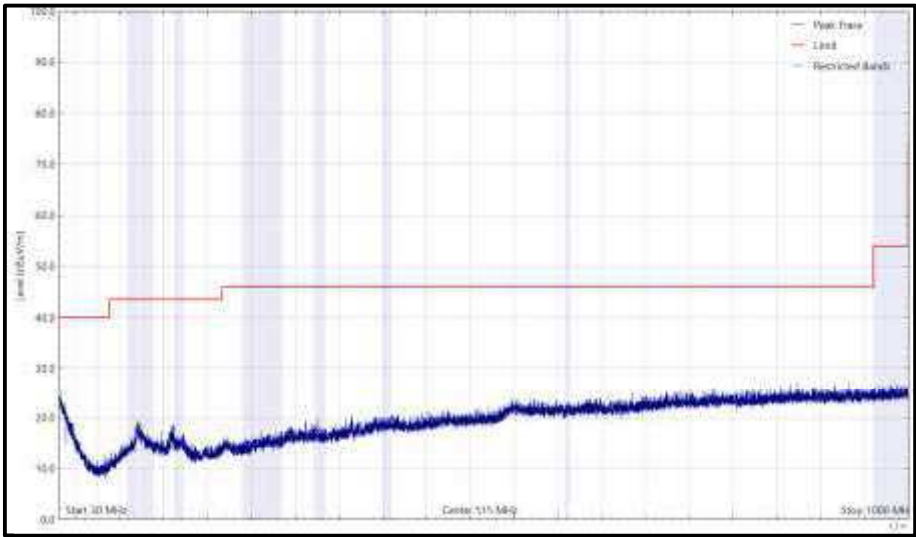


Figure 286 - 2440 MHz (CH17), LE1M, iPA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

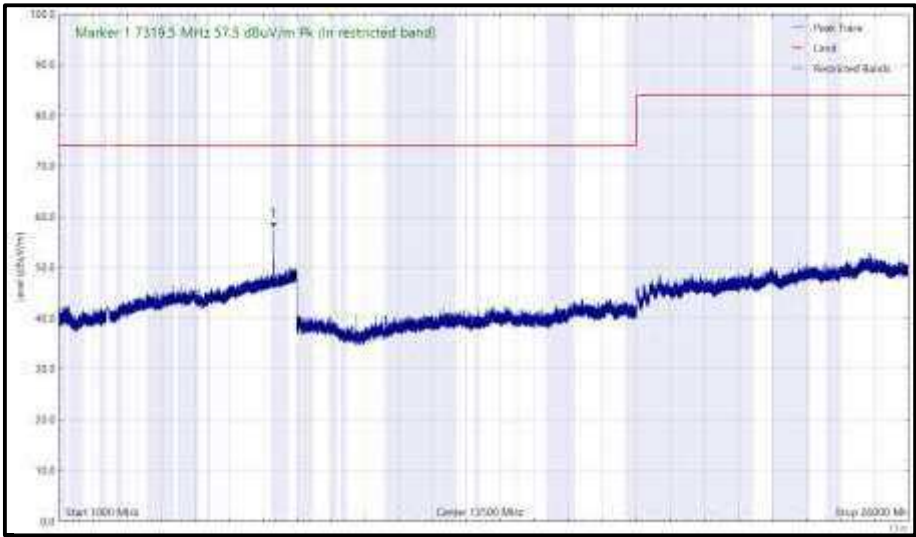


Figure 287 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

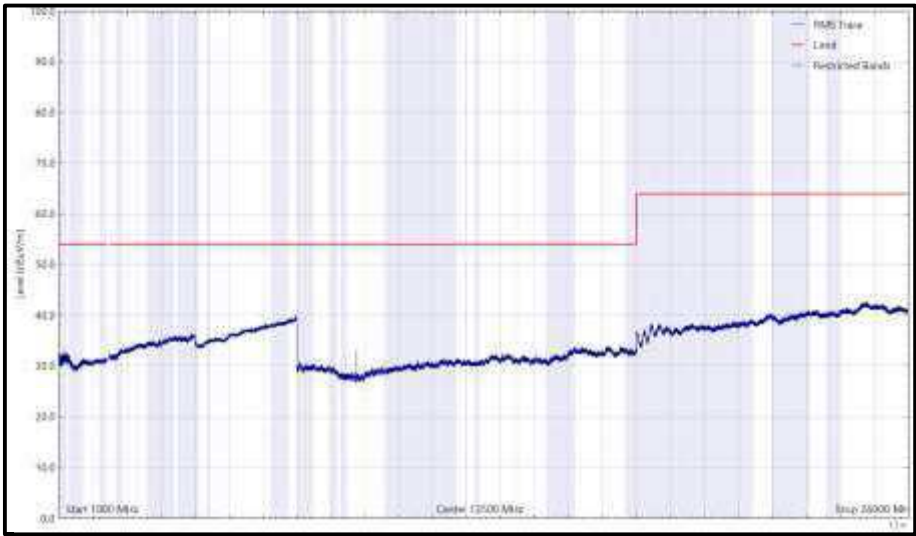


Figure 288 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

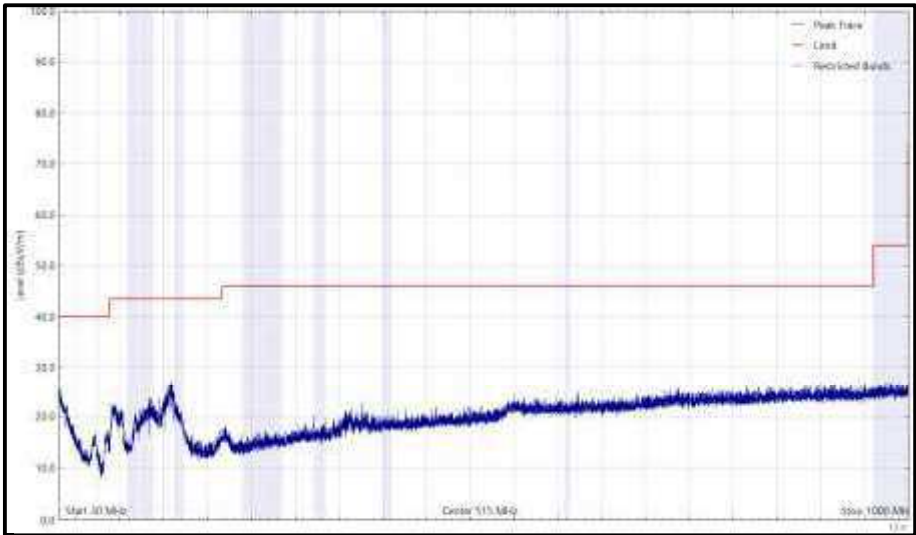


Figure 289 - 2440 MHz (CH17), LE1M, iPA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

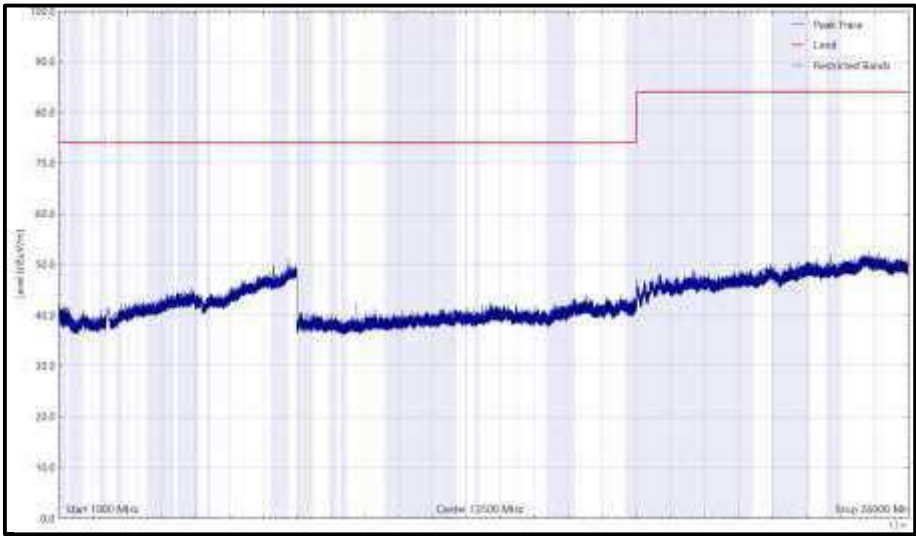


Figure 290 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

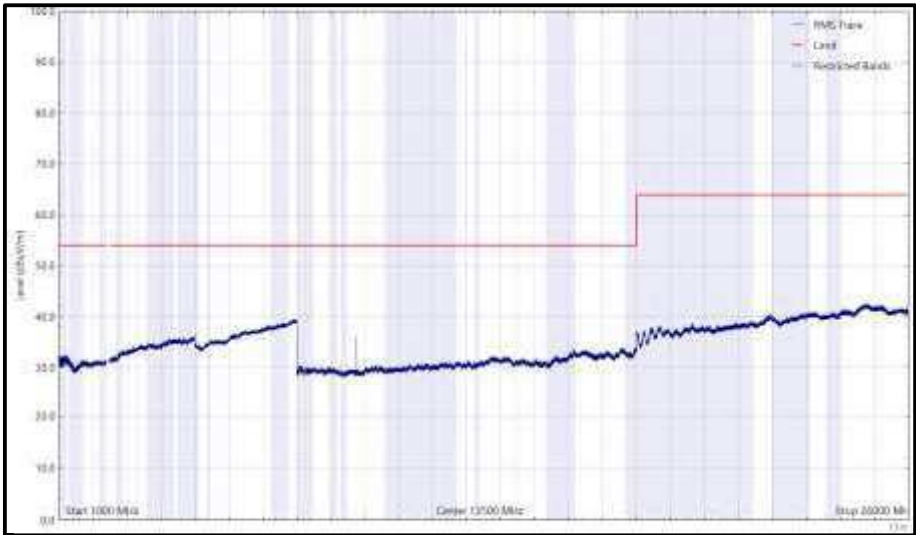


Figure 291 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4959.822	35.9	54.0	-18.2	RMS	10	100	Vertical

Table 132 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

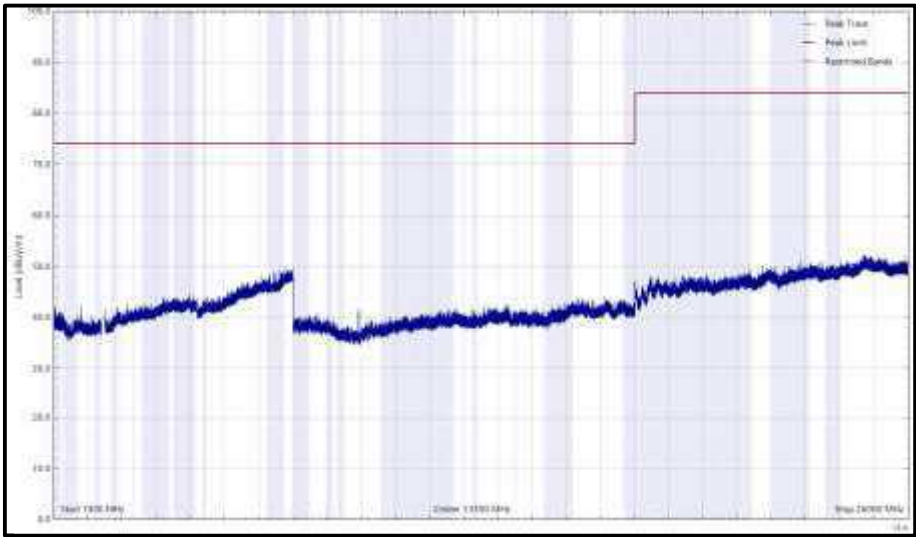


Figure 292 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

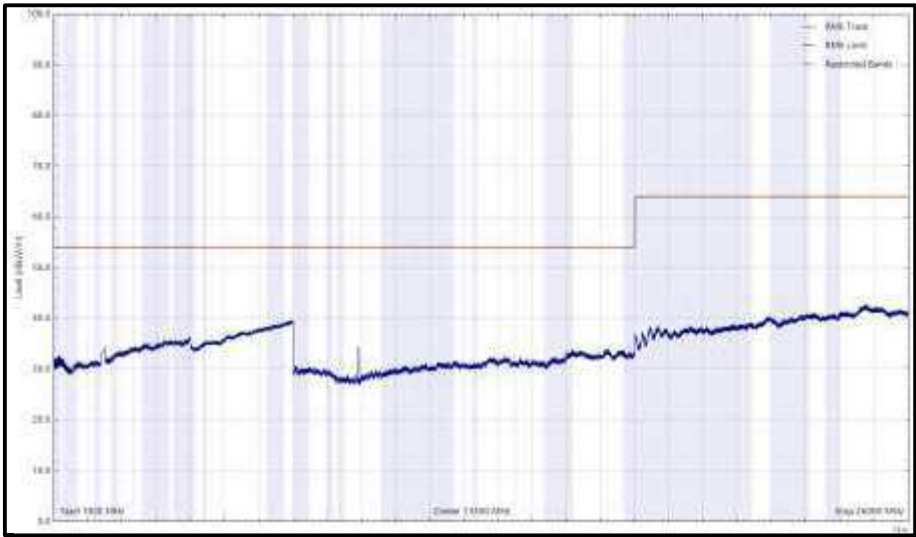


Figure 293 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

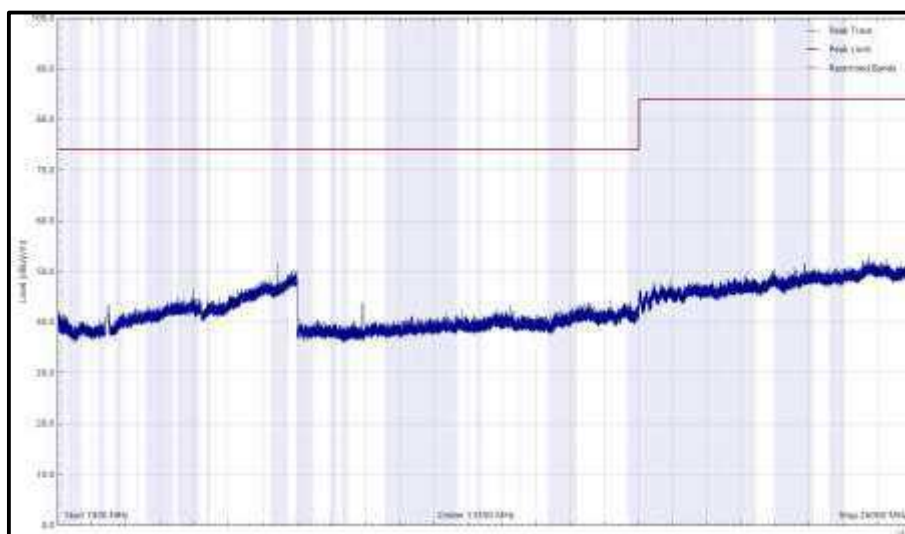


Figure 294 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

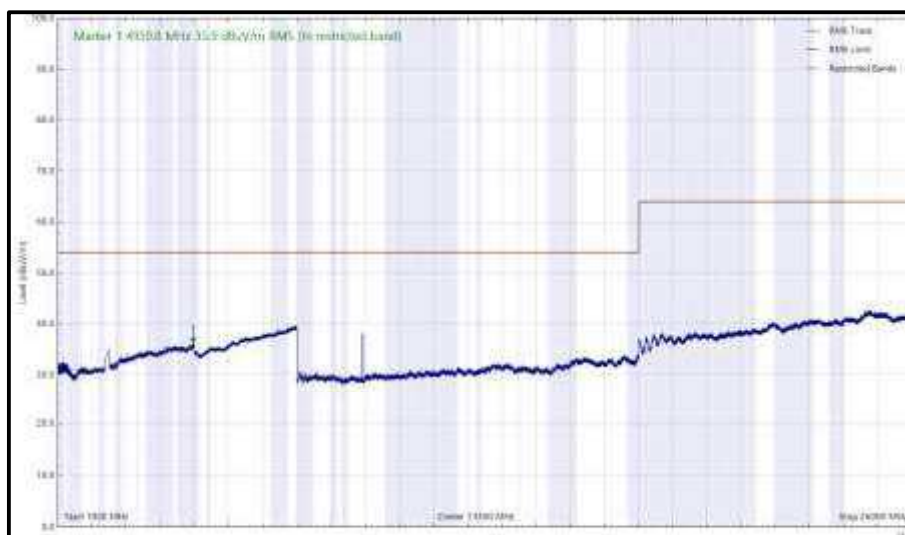


Figure 295 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4803.771	38.6	54.0	-15.4	RMS	333	100	Vertical

Table 133 - 2402 MHz (CH0), LE1M, iPA, Core 1, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

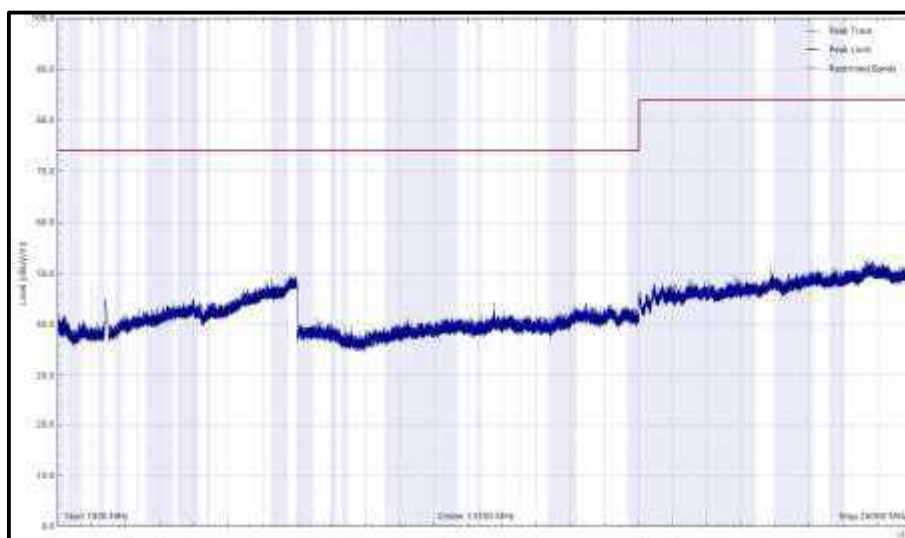


Figure 296 - 2402 MHz (CH0), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

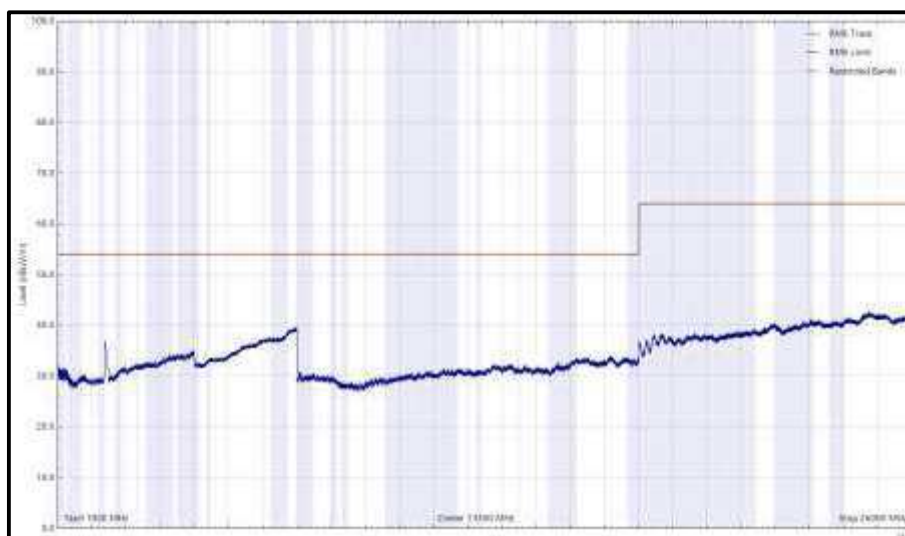


Figure 297 - 2402 MHz (CH0), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

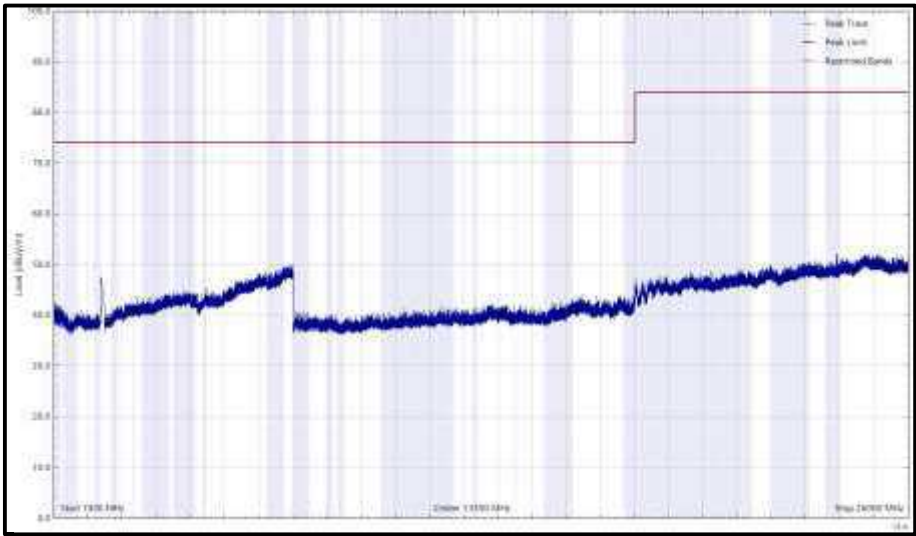


Figure 298 - 2402 MHz (CH0), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)



Figure 299 - 2402 MHz (CH0), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4880.066	38.8	54.0	-15.2	RMS	342	115	Vertical

Table 134 - 2440 MHz (CH17), LE1M, iPA, Core 1, 30 MHz to 26 GHz

No other emissions found within 6 dB of the limit.

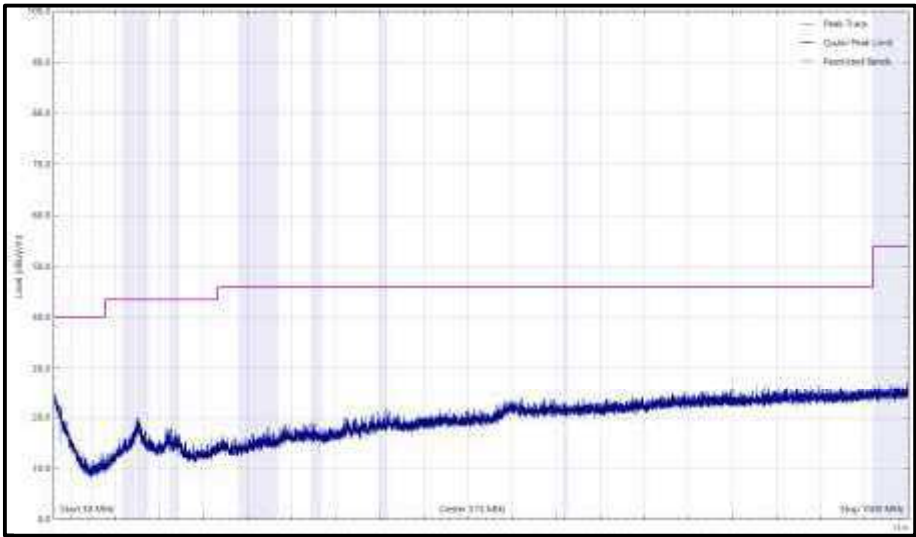


Figure 300 - 2440 MHz (CH17), LE1M, iPA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

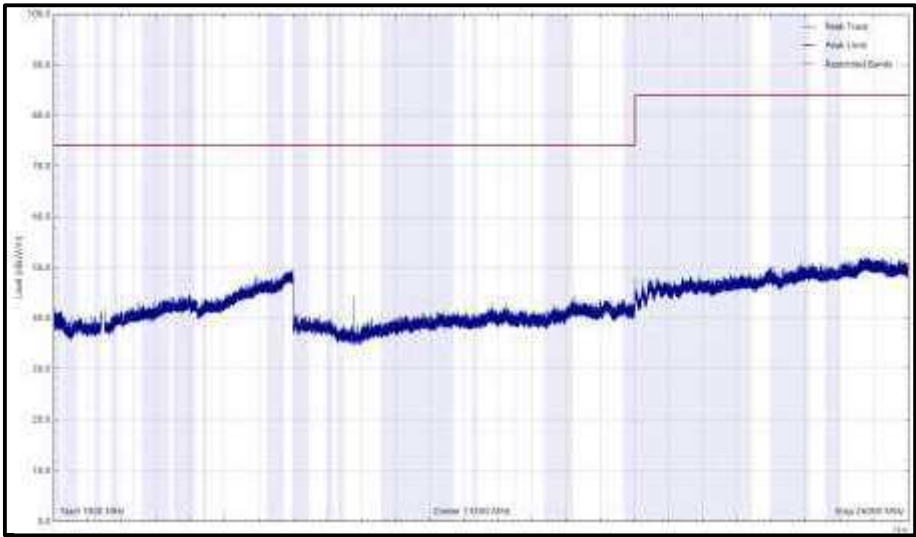


Figure 301 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

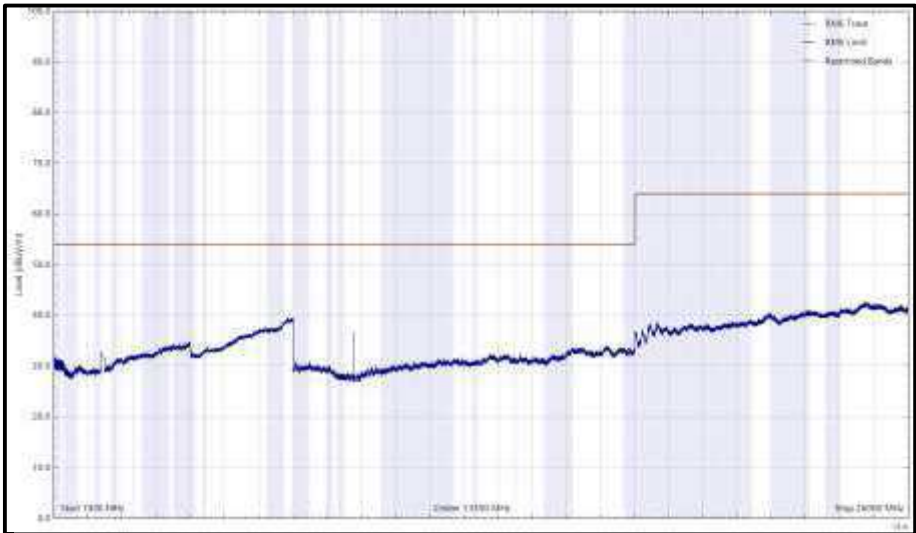


Figure 302 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

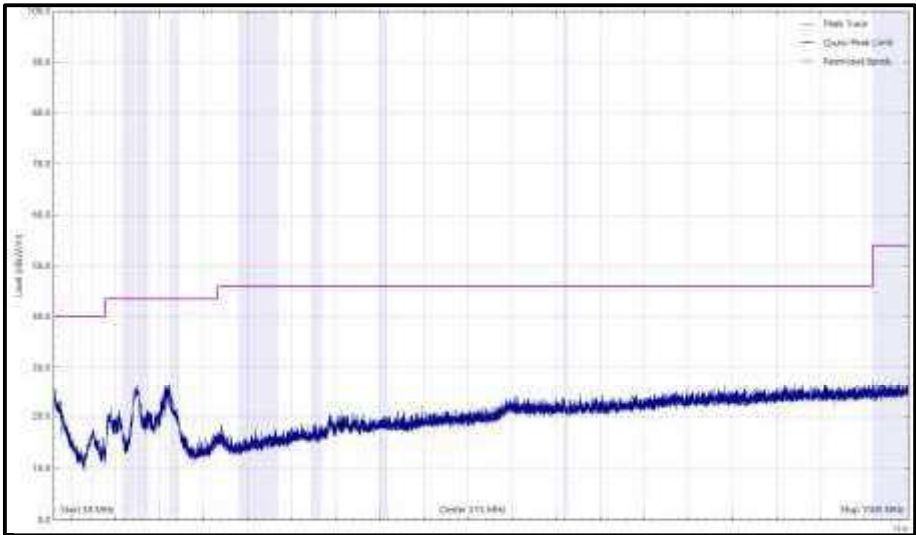


Figure 303 - 2440 MHz (CH17), LE1M, iPA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

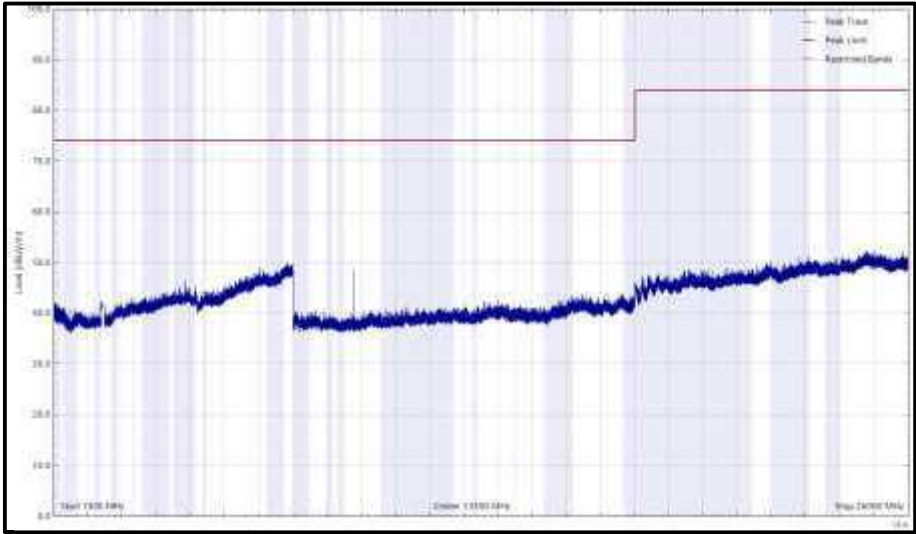


Figure 304 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)



Figure 305 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4959.868	40.0	54.0	-14.1	RMS	348	118	Vertical

Table 135 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

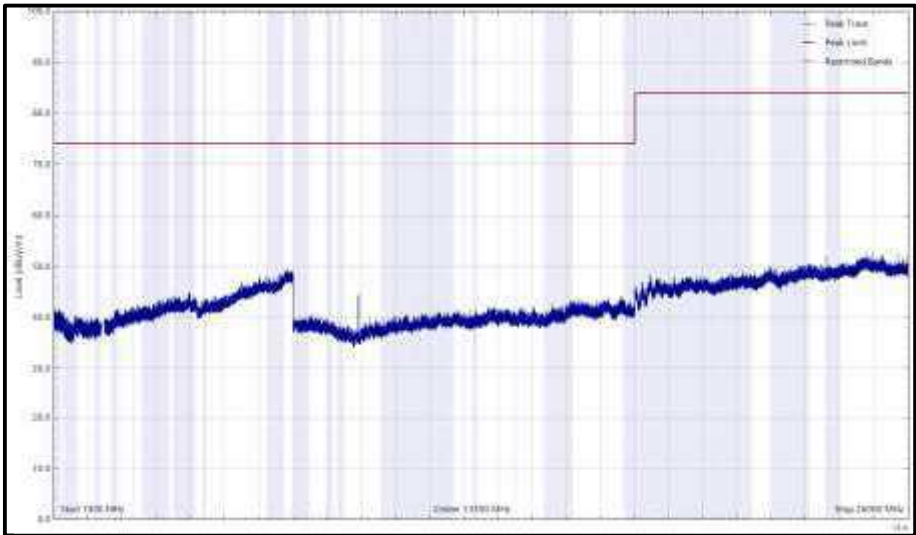


Figure 306 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

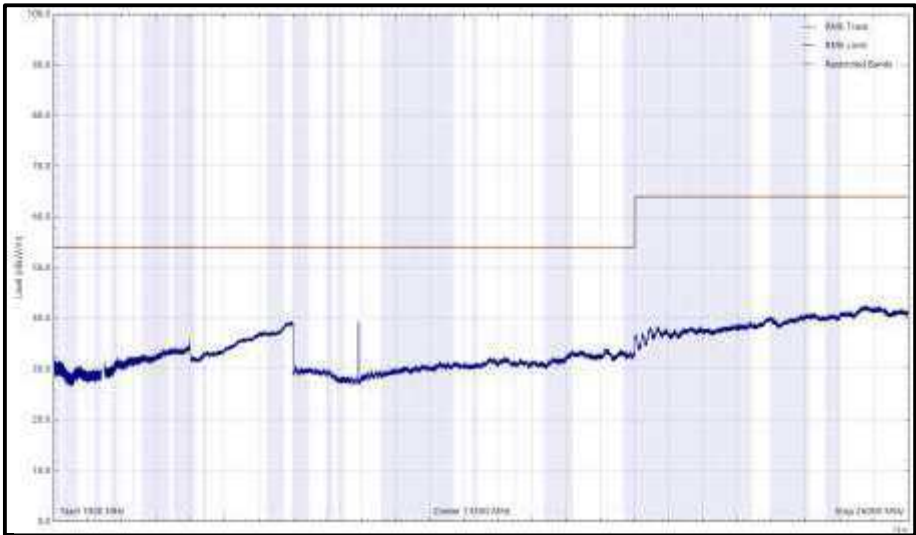


Figure 307 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

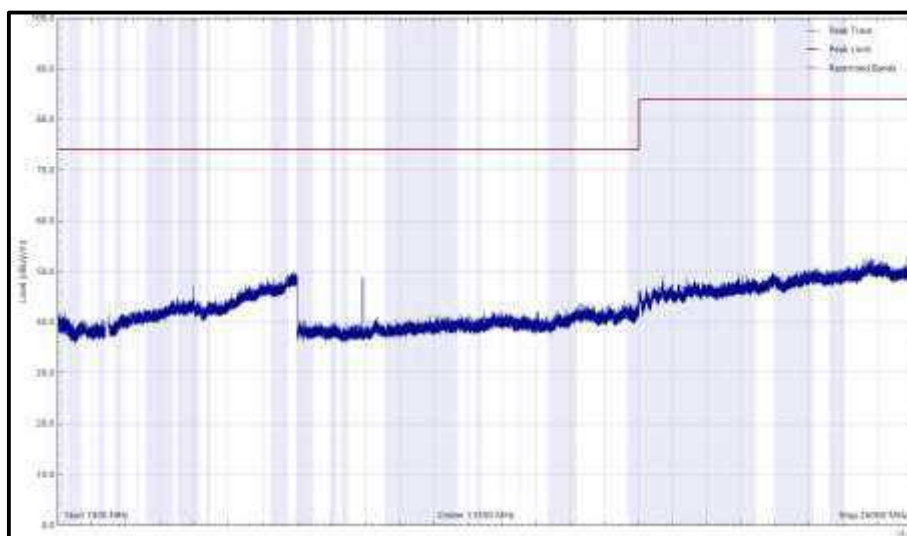


Figure 308 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)

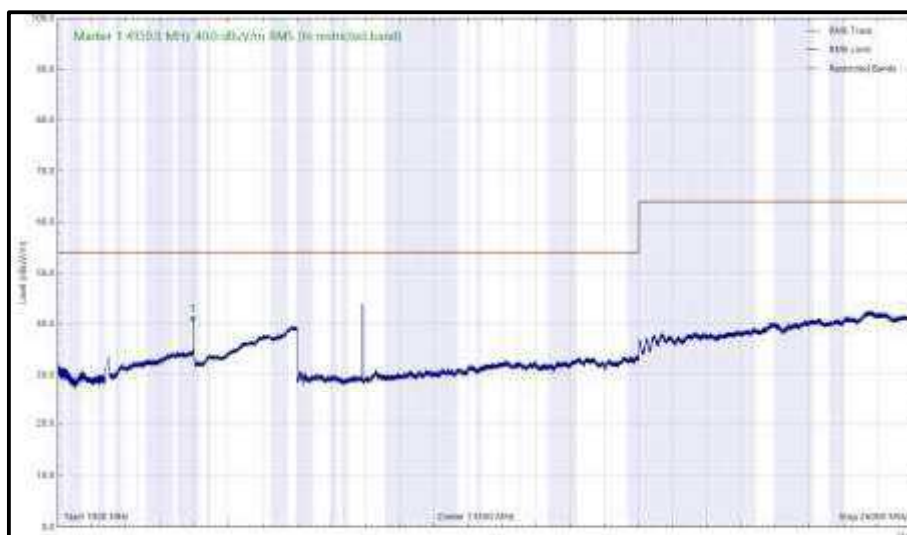


Figure 309 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



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

Table 136 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz

*No emissions found within 6 dB of the limit.

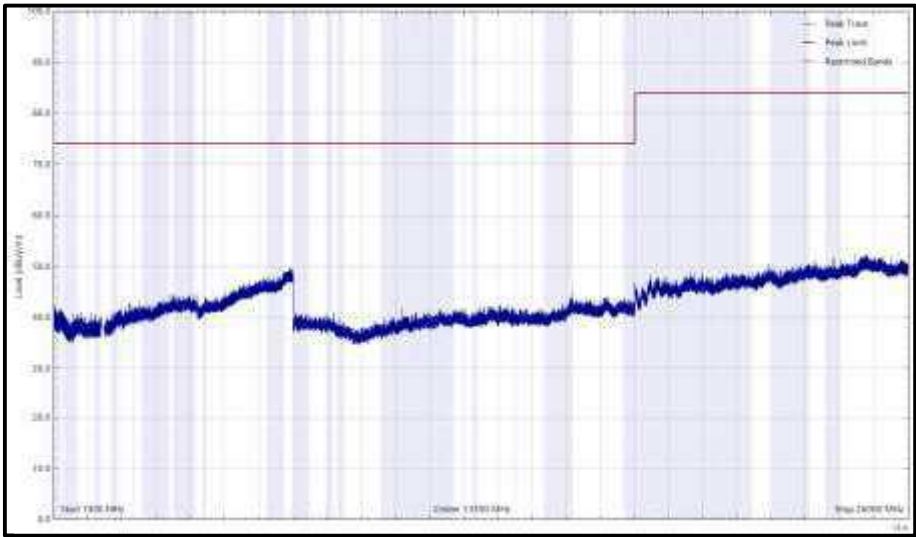


Figure 310 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (Peak)

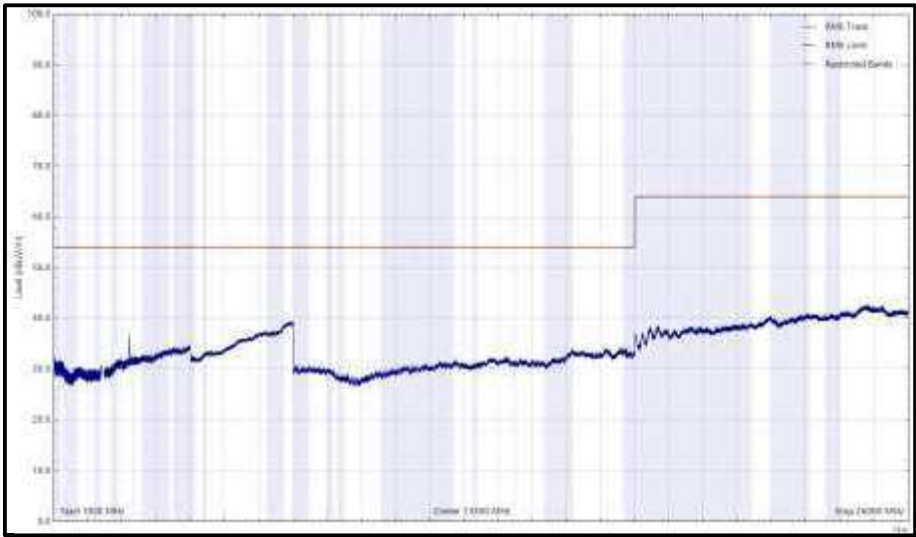


Figure 311 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (RMS)

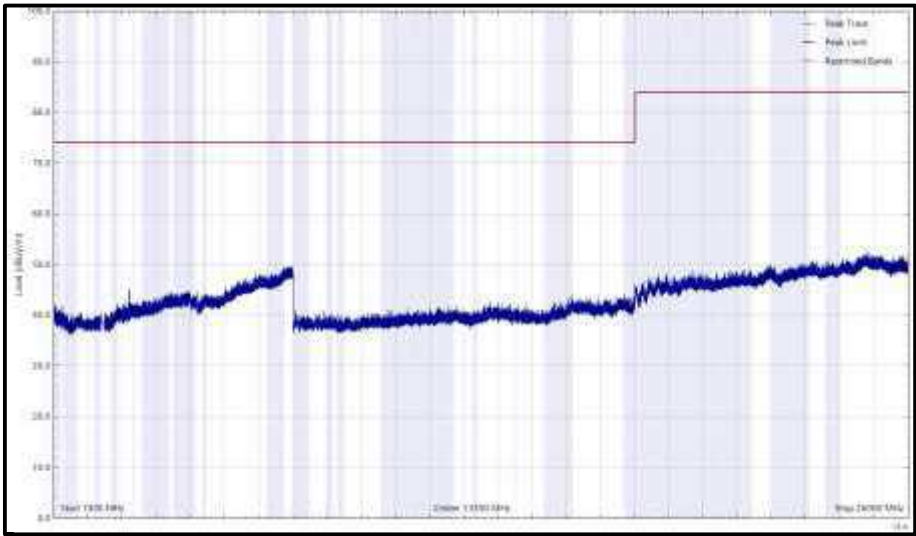


Figure 312 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (Peak)

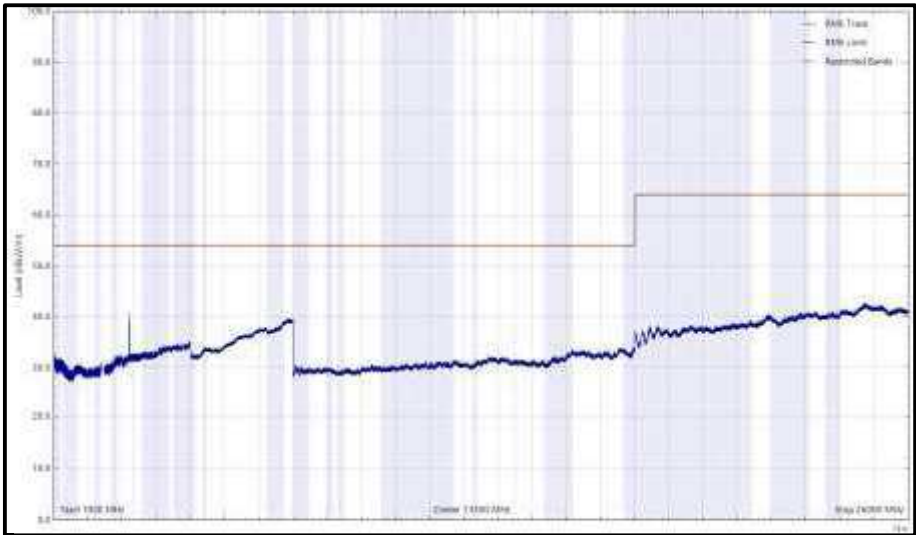


Figure 313 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (RMS)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4879.836	39.8	54.0	-14.2	Peak	354	102	Vertical

Table 137 - 2440 MHz (CH17), LE1M, iPA, Core 2, 30 MHz to 26 GHz

No other emissions found within 6 dB of the limit.

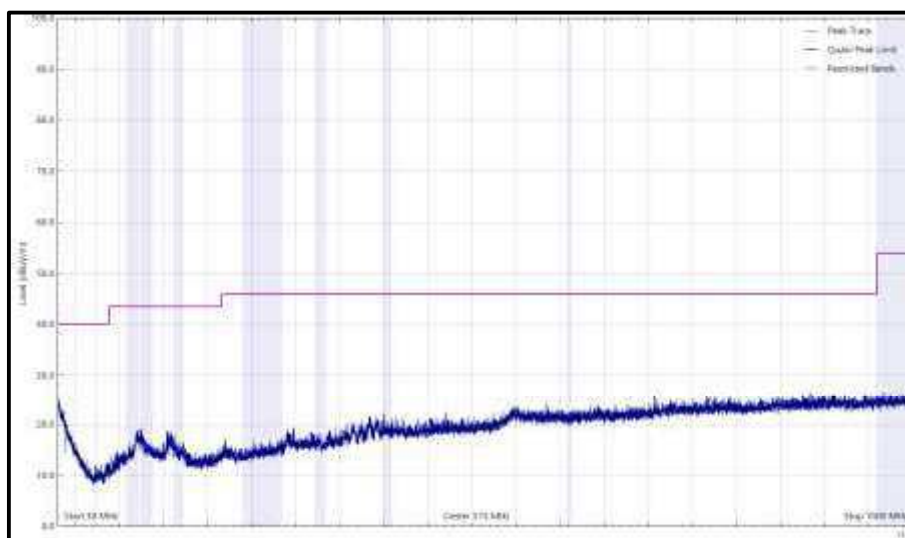


Figure 314 - 2440 MHz (CH17), LE1M, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

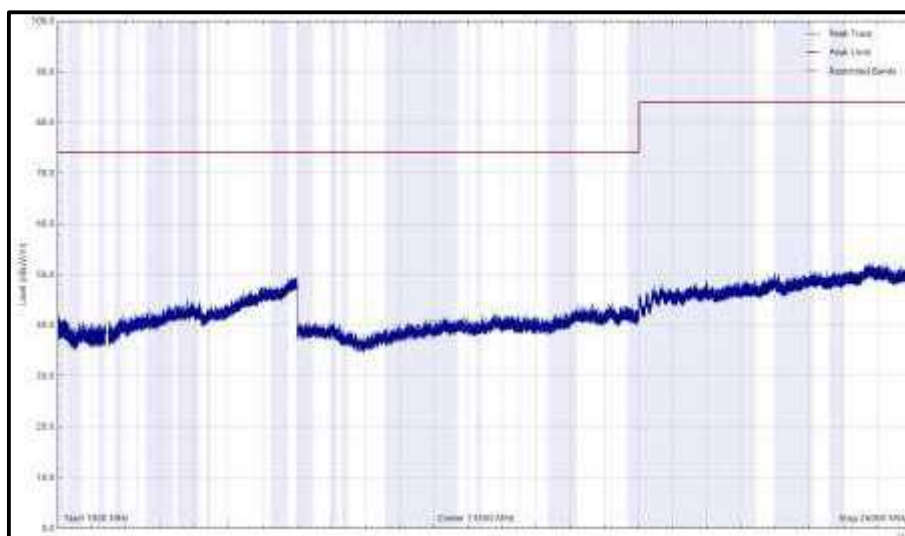


Figure 315 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (Peak)

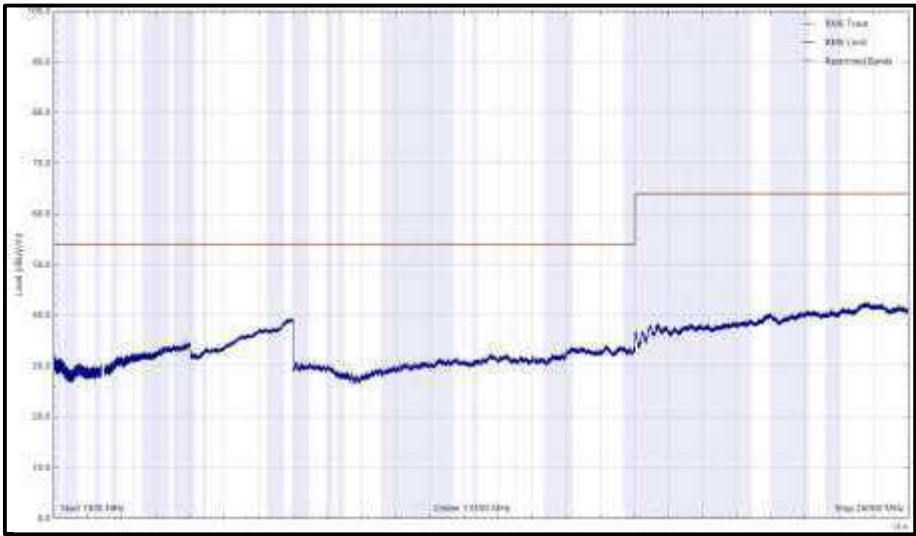


Figure 316 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (RMS)

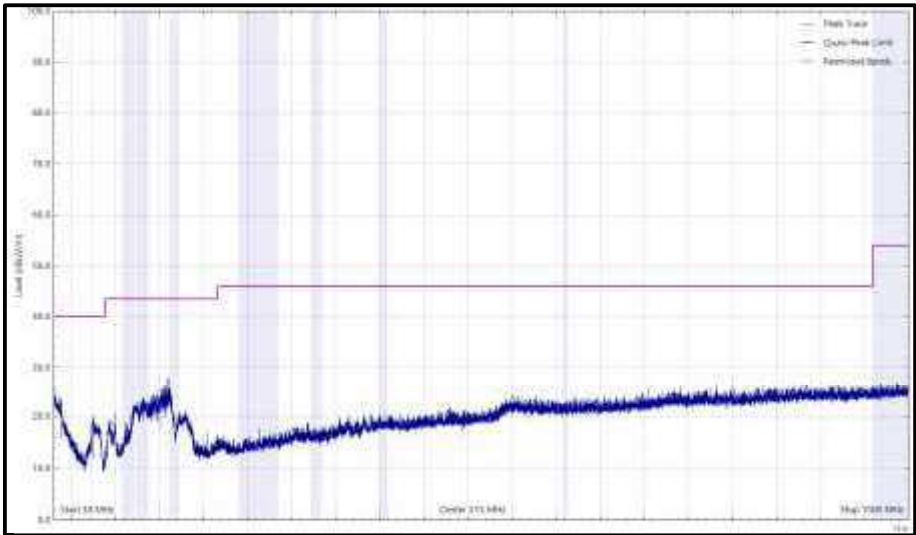


Figure 317 - 2440 MHz (CH17), LE1M, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

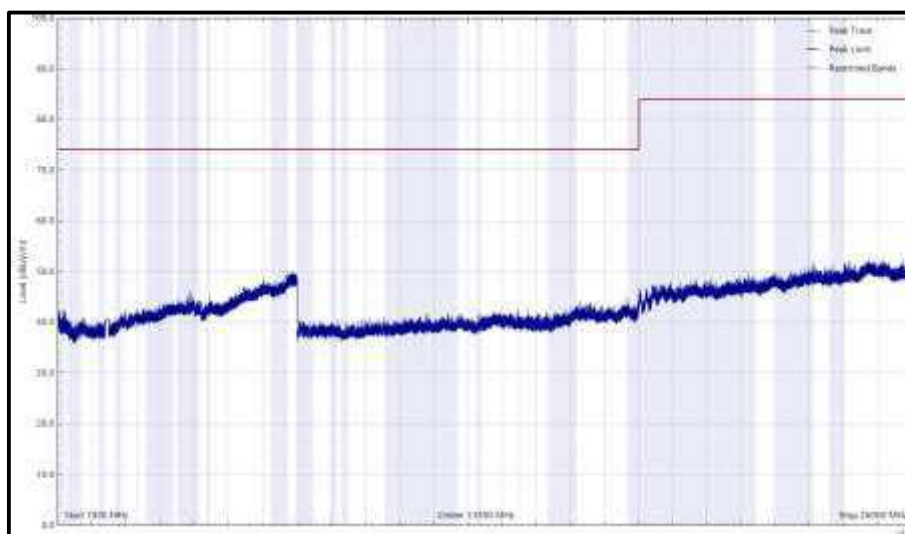


Figure 318 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (Peak)



Figure 319 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (RMS)



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

Table 138 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz

*No emissions found within 6 dB of the limit.

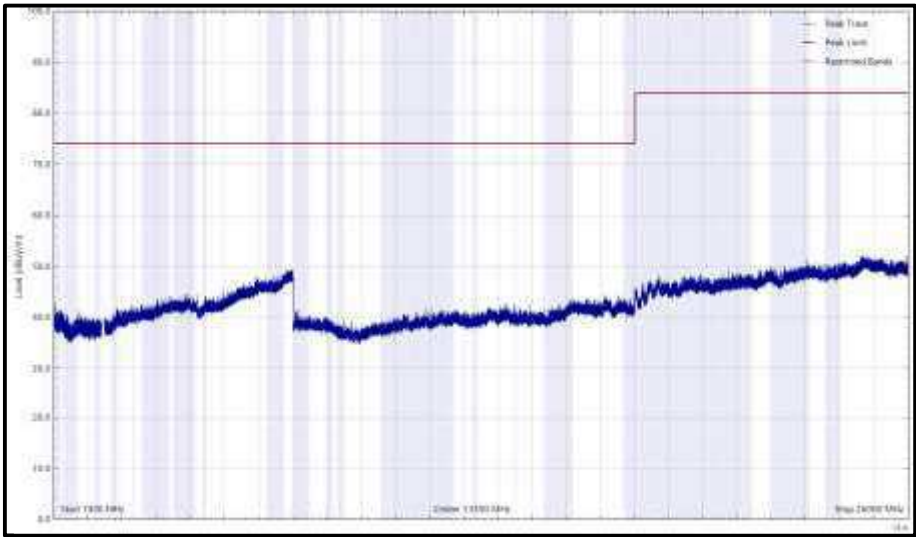


Figure 320 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (Peak)

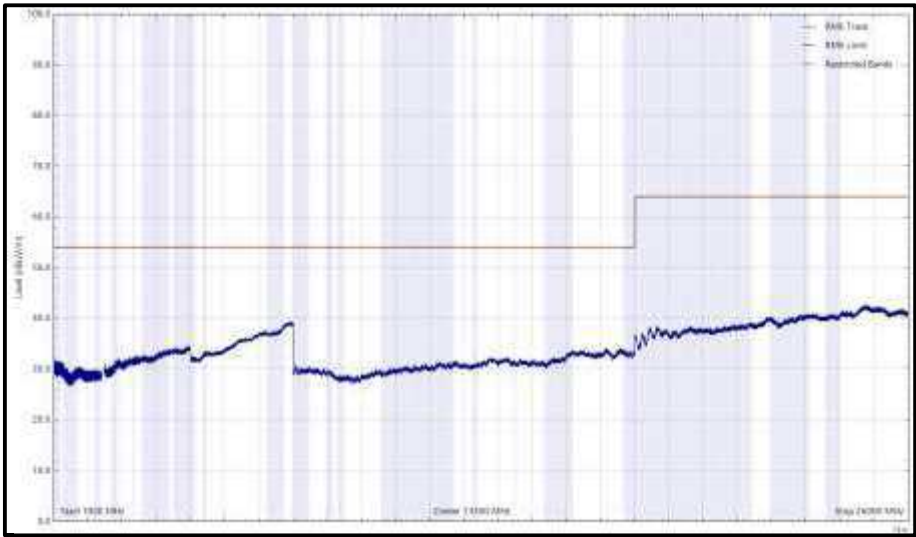


Figure 321 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (RMS)

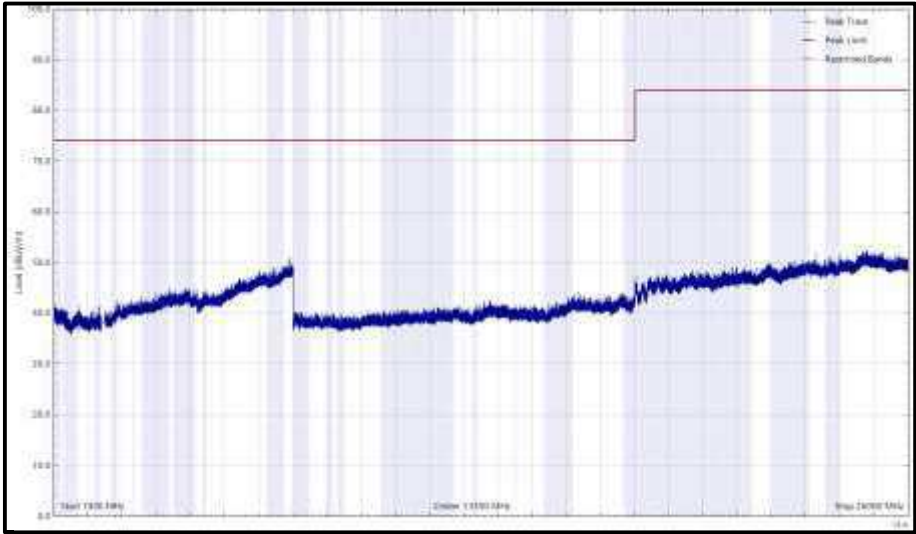


Figure 322 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (Peak)

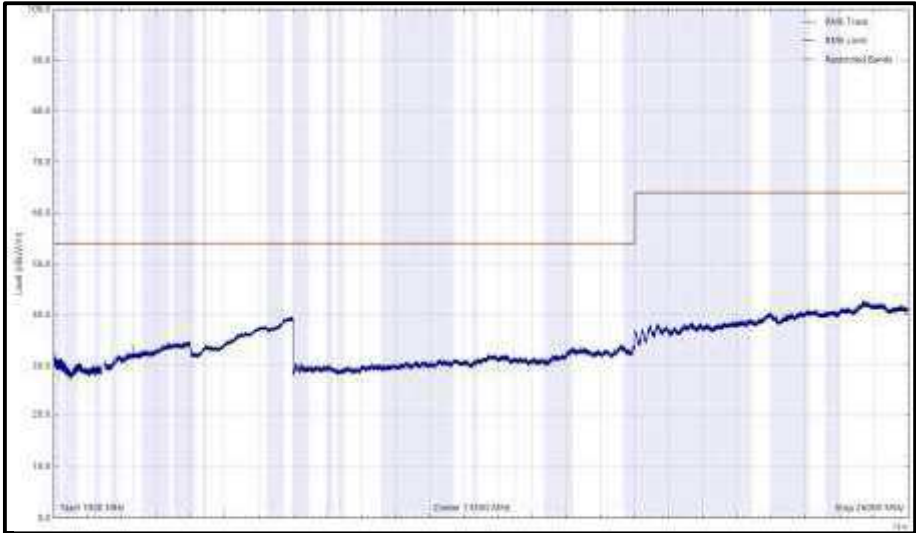


Figure 323 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (RMS)



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.



2.5.8 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 Due
Screened Room (5)	Rainford	Rainford	1545	36	23-Jan-2021
Tumtable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna with permanent attenuator (Bilog)	Chase	CBL6143	2904	24	30-Sep-2021
Mast Controller	Maturo GmbH	NCD	4810	-	TU
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	10-Mar-2021
Band Reject Filter - 2.425 GHz	Wainwright	WRCGV14-2390-2400-2450-2460-50SS	5067	12	02-Oct-2021
Band Reject Filter - 2.425 GHz	Wainwright	WRCGV14-2390-2400-2450-2460-50SS	5067	12	02-Oct-2021
Band Reject Filter - 2.4585 GHz	Wainwright	WRCGV14-2423.5-2433.5-2483.5-2493.5-50SS	5069	12	12-Oct-2021
Band Reject Filter - 2.4585 GHz	Wainwright	WRCGV14-2423.5-2433.5-2483.5-2493.5-50SS	5069	12	12-Oct-2021
Band Reject Filter - 5.795 GHz	Wainwright	WRCJV10-5725-5755-5835-5865-50SS	5071	12	30-Sept-2021
Band Reject Filter - 5.22 GHz	Wainwright	WRCJV12-5120-5150-5290-5320-50SS	5073	12	02-Oct-2021
Band Reject Filter - 5.28 GHz	Wainwright	WRCJV12-5180-5210-5350-5380-50SS	5075	12	30-Sep-2021
Band Reject Filter - 5.775 GHz	Wainwright	WRCJV10-5700-5735-5815-5850-50SS	5077	12	10-Oct-2021
Band Reject Filter - 5.570 GHz	Wainwright	WRCJV10-5440-5490-5650-5700-50SS	5079	12	10-Oct-2021
Band Reject Filter - 5.690 GHz	Wainwright	WRCJV8-5635-5670-5710-5745-50SS	5081	12	02-Oct-2021
Cable (18 GHz)	Rosenberger	LU7-071-1000	5103	12	12-Oct-2021
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5216	12	10-Mar-2021
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	5217	12	12-Oct-2020
Preamplifier (30dB 1GHz to 18GHz)	Schwarzbeck	BBV 9718 C	5261	12	07-Apr-2021
1m -SMA Cable	Junkosha	MWX221-01000AMS/MS/A	5513	12	01-Apr-2021



Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
1m -SMA Cable	Junkosha	MWX221-01000AMSA MS/A	5514	12	01-Apr-2021
1m -SMA Cable	Junkosha	MWX221-01000AMSA MS/A	5515	12	01-Apr-2021
2m SMA Cable	Junkosha	MWX221-02000AMSA MS/A	5517	12	01-Apr-2021
2m SMA Cable	Junkosha	MWX221-02000AMSA MS/A	5518	12	01-Apr-2021
8m N-Type Cable	Junkosha	MWX221-08000NMSNMS/B	5520	12	24-Mar-2021
8m N Type Cable	Junkosha	MWX221-08000NMSNMS/B	5522	12	24-Mar-2021
2 m K Type Cable	Junkosha	MWX241-02000KMSK MS/A	5523	12	03-Apr-2021
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	06-Feb-2021
3 GHz High pass Filter	Wainwright	WHKX12-2580-3000-18000-80SS	5548	12	05-May-2021
7 GHz High pass Filter	Wainwright	WHKX12-5850-6800-18000-80SS	5549	12	23-May-2021
7 GHz High pass Filter	Wainwright	WHKX12-5850-6800-18000-80SS	5550	12	23-May-2021
1200 MHz Low Pass Filter (01)	Mini-Circuits	VLF-1200+	5559	12	23-May-2021
8 - 18 GHz Amplifier	Wright Technologies	APS06-0061	5595	12	25-Aug-2021
8 - 18 GHz Amplifier	Wright Technologies	APS06-0061	5596	12	25-Aug-2021

Table 139

TU - Traceability Unscheduled



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

A2169, S/N: C07CM0EKQ4TG - Modification State 0

2.6.3 Date of Test

02-November-2020 to 03-November-2020

2.6.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.10.5 (AVGPSD-2).

The antenna port/port combination with the highest antenna gain was tested in accordance with the supplied target powers.

Summing from multiple outputs of the transmitter was performed in accordance with KDB 662911 D01, clause E)1).

Where the EUT duty cycle was < 98 % and repeatable within 2%, the spectrum analyser was set to trace (power) averaging and a duty cycle correction was added as calculated in the result tables below.

2.6.5 Environmental Conditions

Ambient Temperature 20.9 - 23.3 °C
Relative Humidity 33.1 - 40.7 %

2.6.6 Test Results

2.4 GHz Bluetooth - DTS

ePA

Antenna Port Configuration: SISO

Modulation: $\pi/4$ DQPSK (HDR4)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)
			Core 1
2404	3.0	1.1	-9.1
2441	3.0	1.1	-9.1
2478	3.0	1.1	-9.0

Table 140 - Maximum Power Spectral Density Results



Modulation: $\pi/4$ DQPSK (HDR8)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)
			Core 1
2404	3.0	1.1	-11.6
2441	3.0	1.1	-11.3
2478	3.0	1.1	-11.3

Table 141 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)
			Core 1
2402	3.0	2.2	-1.9
2440	3.0	2.2	-1.7
2480	3.0	2.2	-1.7

Table 142 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)
			Core 1
2402	3.0	5.0	-2.3
2440	3.0	5.0	-3.2
2480	3.0	5.0	-2.2

Table 143 - Maximum Power Spectral Density Results



Antenna Port Configuration: Beamforming

Modulation: $\pi/4$ DQPSK (HDR4)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2404	3.0	1.1	-8.6	-9.6	-6.1
2441	3.0	1.1	-8.8	-9.6	-6.2
2478	3.0	1.1	-7.8	-9.5	-5.6

Table 144 - Maximum Power Spectral Density Results

Modulation: $\pi/4$ DQPSK (HDR8)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2404	3.0	1.1	-11.5	-11.5	-8.5
2441	3.0	1.1	-11.5	-11.5	-8.5
2478	3.0	1.1	-10.7	-11.2	-7.9

Table 145 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2402	3.0	2.2	-2.1	-2.3	0.8
2440	3.0	2.2	-1.9	-2.1	1.0
2480	3.0	2.2	-1.1	-1.9	1.5

Table 146 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2402	3.0	5.0	-2.4	-2.3	0.7
2440	3.0	5.0	-2.2	-2.6	0.6
2480	3.0	5.0	-2.4	-3.0	0.3

Table 147 - Maximum Power Spectral Density Results



iPA

Antenna Port Configuration: SISO

Modulation: $\pi/4$ DQPSK (HDR4)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)	
			Core 2	Core 1
2404	3.0	1.1	-14.5	-15.1
2441	3.0	1.1	-13.6	-15.8
2478	3.0	1.1	-13.9	-15.6

Table 148 - Maximum Power Spectral Density Results

Modulation: $\pi/4$ DQPSK (HDR8)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)	
			Core 2	Core 1
2404	3.0	1.1	-16.3	-18.4
2441	3.0	1.1	-15.9	-18.1
2478	3.0	1.1	-16.5	-18.2

Table 149 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)	
			Core 2	Core 1
2402	3.0	2.2	-5.4	-5.6
2440	3.0	2.2	-5.3	-5.2
2480	3.0	2.2	-5.6	-5.3

Table 150 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)	
			Core 2	Core 1
2402	3.0	5.0	-6.6	-5.7
2440	3.0	5.0	-6.2	-5.9
2480	3.0	5.0	-5.9	-6.0

Table 151 - Maximum Power Spectral Density Results



Antenna Port Configuration: Beamforming

Modulation: $\pi/4$ DQPSK (HDR4)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2404	3.0	1.1	-14.7	-16.8	-12.7
2441	3.0	1.1	-16.9	-16.7	-13.8
2478	3.0	1.1	-15.3	-15.4	-12.4

Table 152 - Maximum Power Spectral Density Results

Modulation: $\pi/4$ DQPSK (HDR8)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2404	3.0	1.1	-18.2	-19.0	-15.6
2441	3.0	1.1	-17.6	-18.6	-15.1
2478	3.0	1.1	-17.9	-18.9	-15.3

Table 153 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2402	3.0	2.2	-5.1	-5.9	-2.4
2440	3.0	2.2	-5.3	-5.8	-2.5
2480	3.0	2.2	-5.1	-5.5	-2.3

Table 154 - Maximum Power Spectral Density Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	RBW (kHz)	DCCF (dB)	PSD (dBm)		
			Core 0	Core 1	Σ
2402	3.0	5.0	-5.5	-6.4	-2.9
2440	3.0	5.0	-6.0	-6.4	-3.2
2480	3.0	5.0	-5.4	-6.0	-2.7

Table 155 - Maximum Power Spectral Density Results



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

2.6.7 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 Due
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	08-Nov-2020
Multimeter	Iso-tech	IDM101	2424	12	12-Dec-2020
Hygrometer	Rotronic	I-1000	3220	12	16-Oct-2021
Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	08-Nov-2020
Climatic Chamber	Aralab	FitoTerm 300E45	4823	12	19-Mar-2021
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
MXA Signal Analyser	Keysight Technologies	N9020B	5528	24	04-Mar-2022
Signal Commissioning Unit	TUV SUD	SCU001	5546	12	15-Apr-2021
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB 40	5605	12	08-Sep-2021

Table 156

O/P Mon – Output Monitored using calibrated equipment



3 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
Authorised Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Restricted 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
Maximum Conducted Output Power	± 3.2 dB
Power Spectral Density	± 3.2 dB
Emission Bandwidth	± 51.643 kHz

Table 157

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.