



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

Table 69 - Authorised Band Edge Results

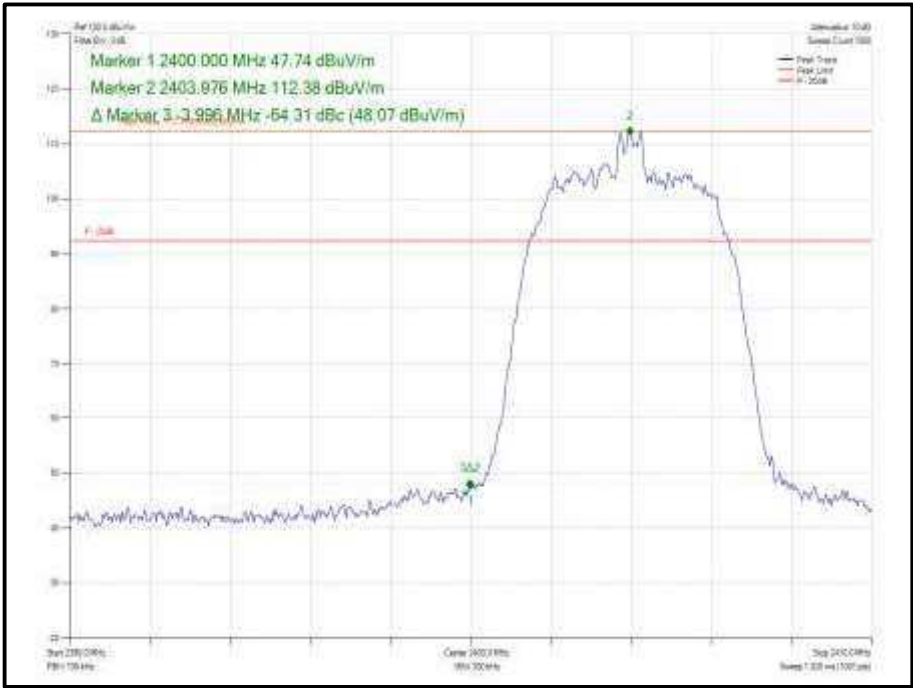


Figure 174 - Static - Core 0-1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2400.0 MHz



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

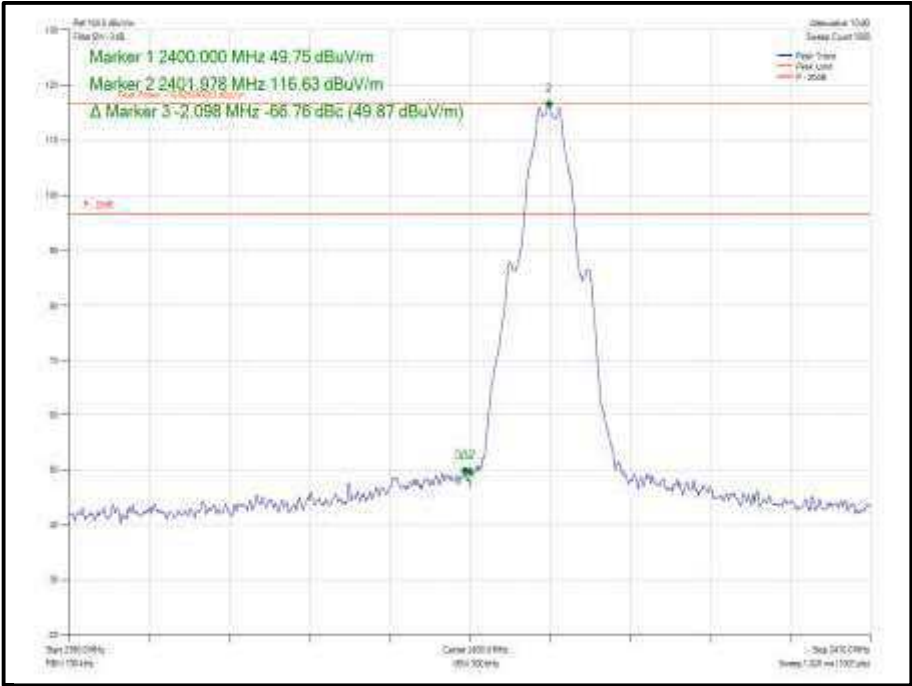


Figure 175 - Static - Core 0 - GFSK/DH1- 2404 MHz – Band Edge Frequency 2400.0 MHz



| 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

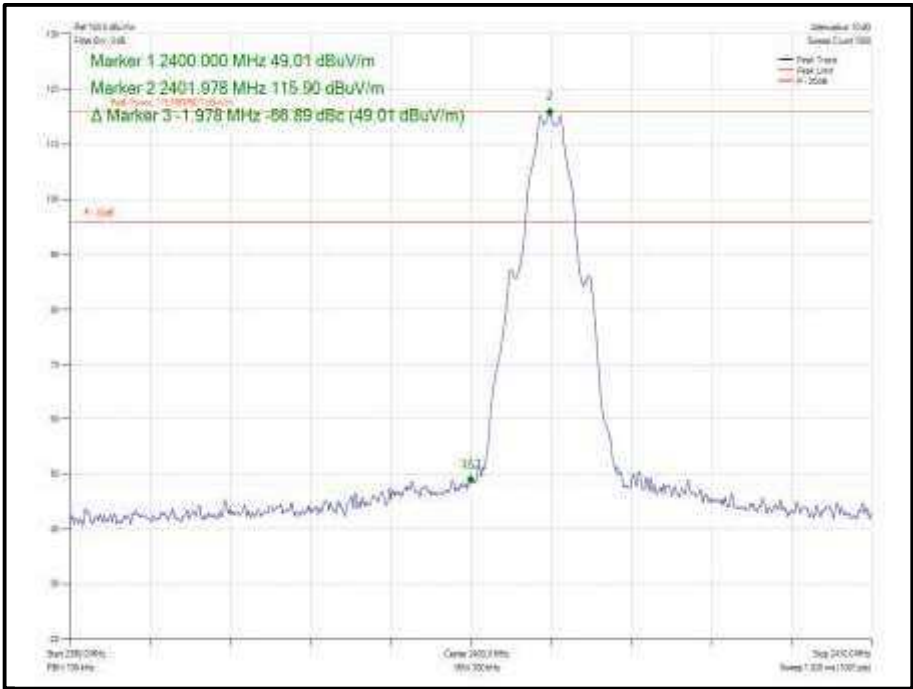


Figure 176 - Static - Core 1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



| 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

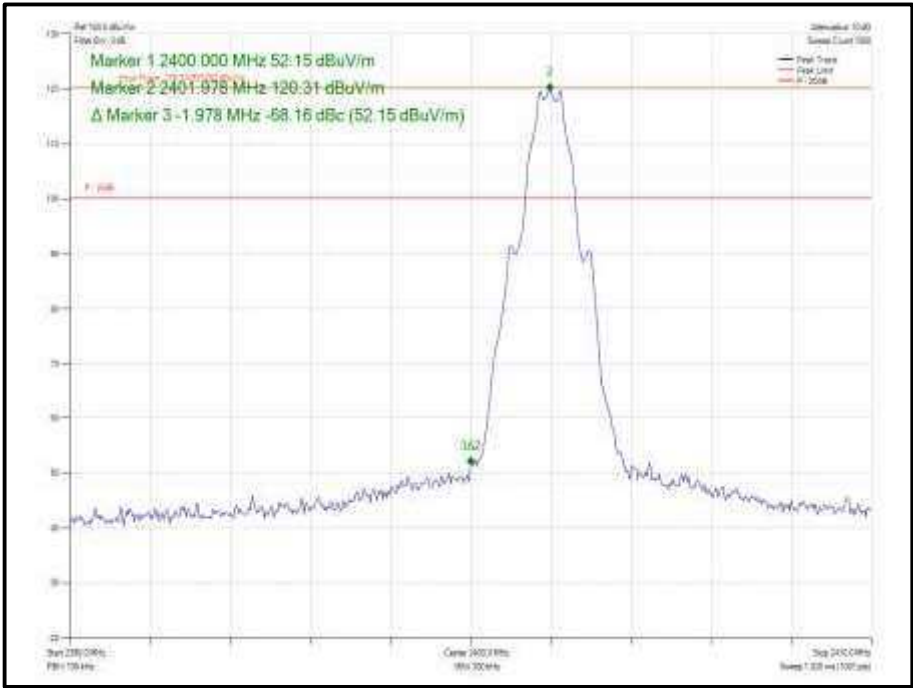


Figure 177 - Static - Core 0-1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



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

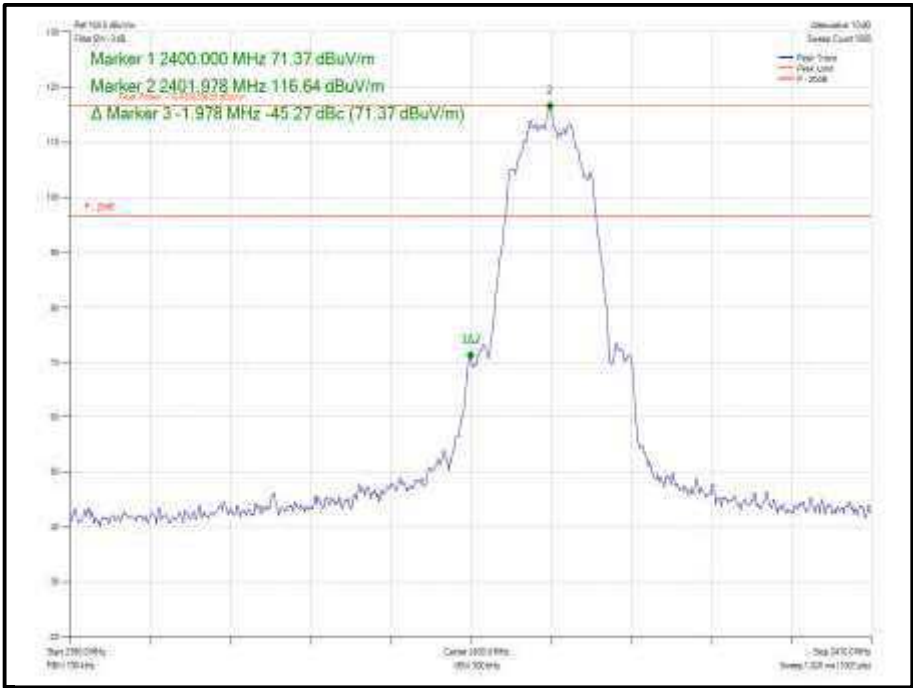


Figure 178 - Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

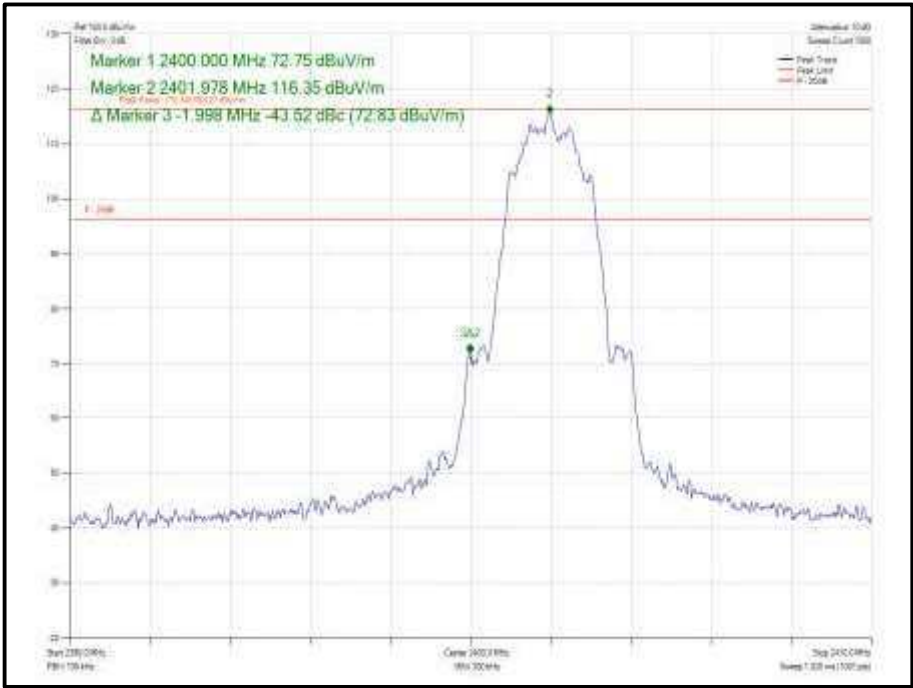


Figure 179 - Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

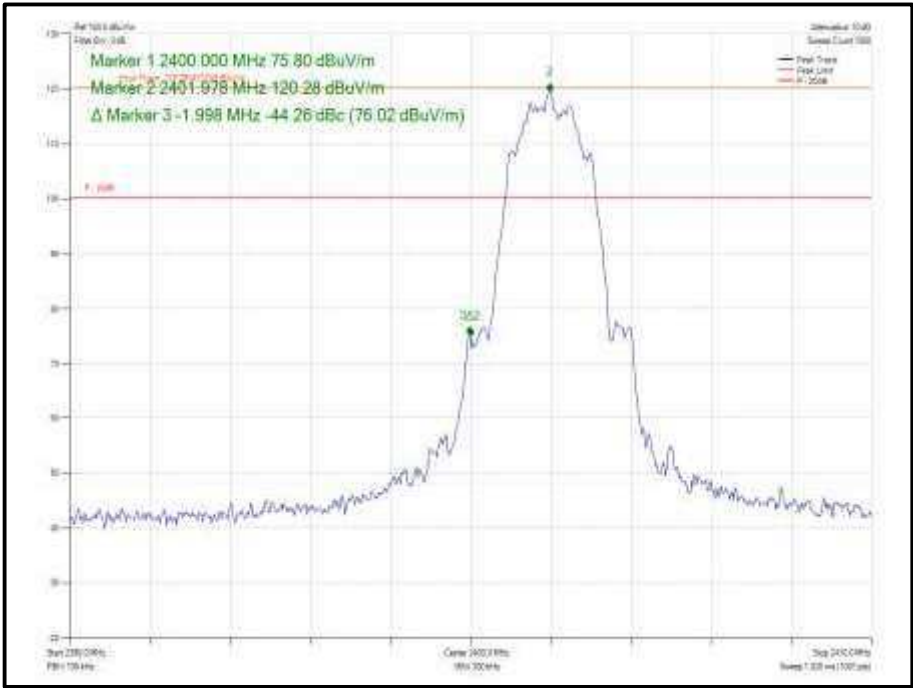


Figure 180 - Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



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

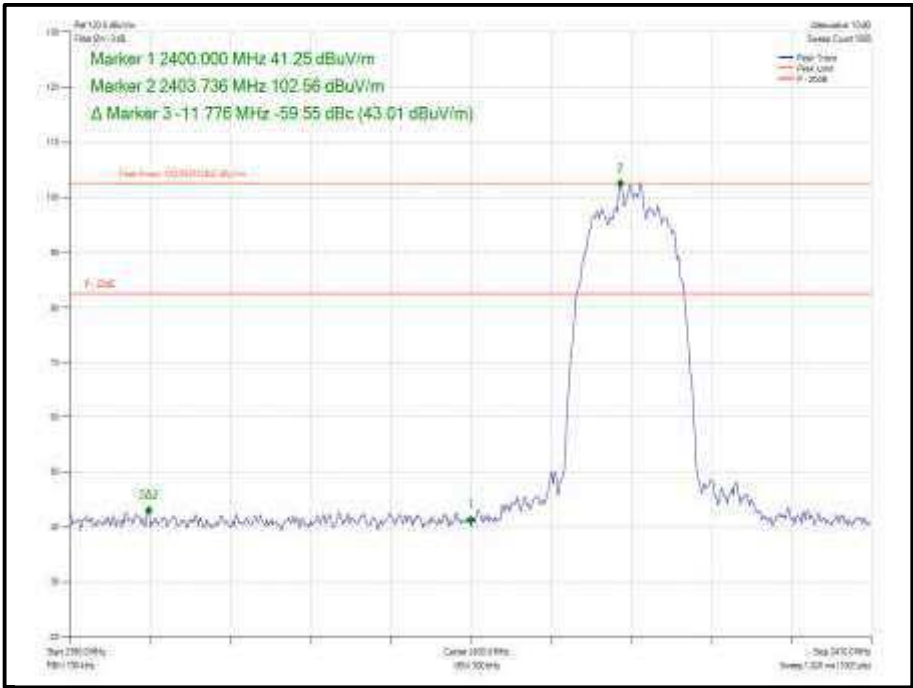


Figure 181 - Static - Core 0 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz



| 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

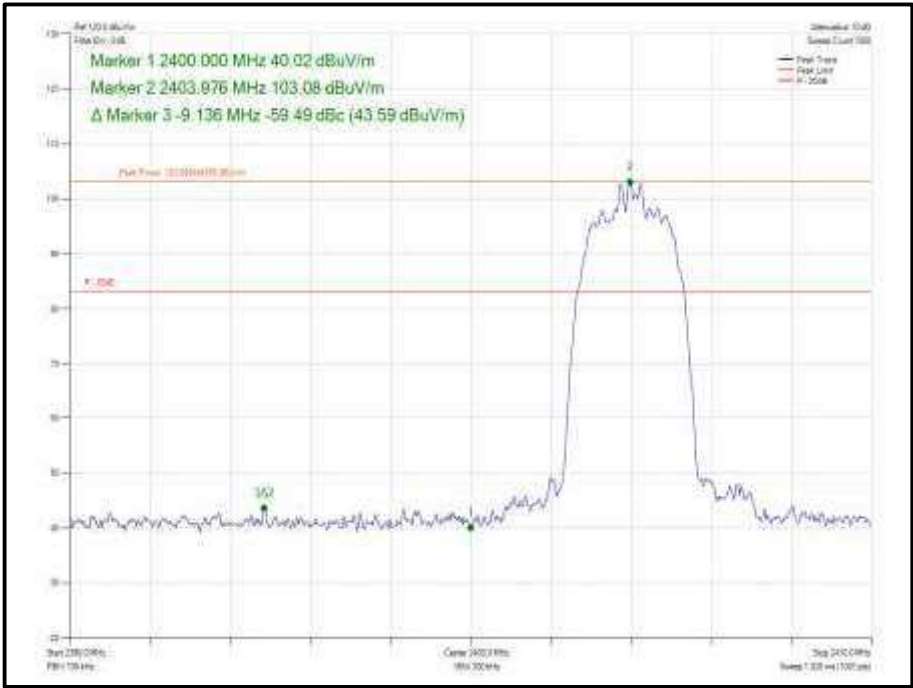


Figure 182 - Static - Core 1 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz



| 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

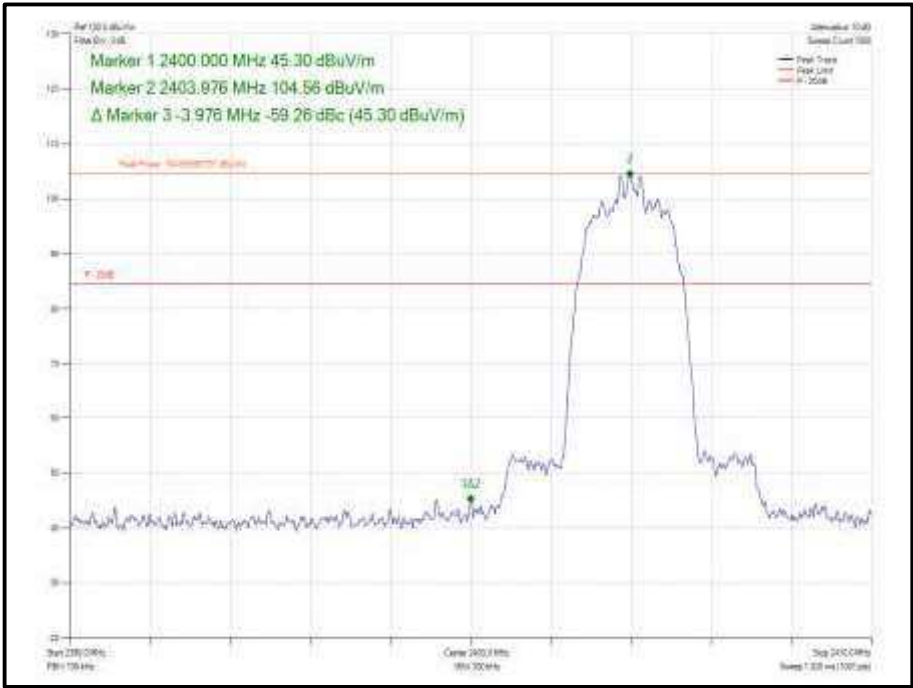
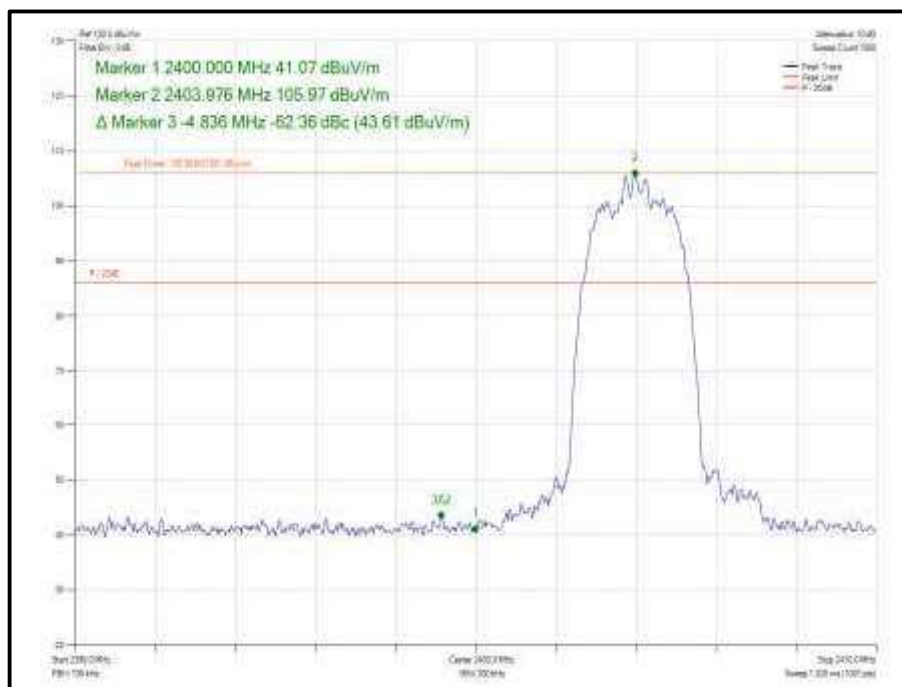


Figure 183 - Static - Core 2 - GFSK/HDR4- 2402 MHz – Band Edge Frequency 2400.0 MHz

| 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

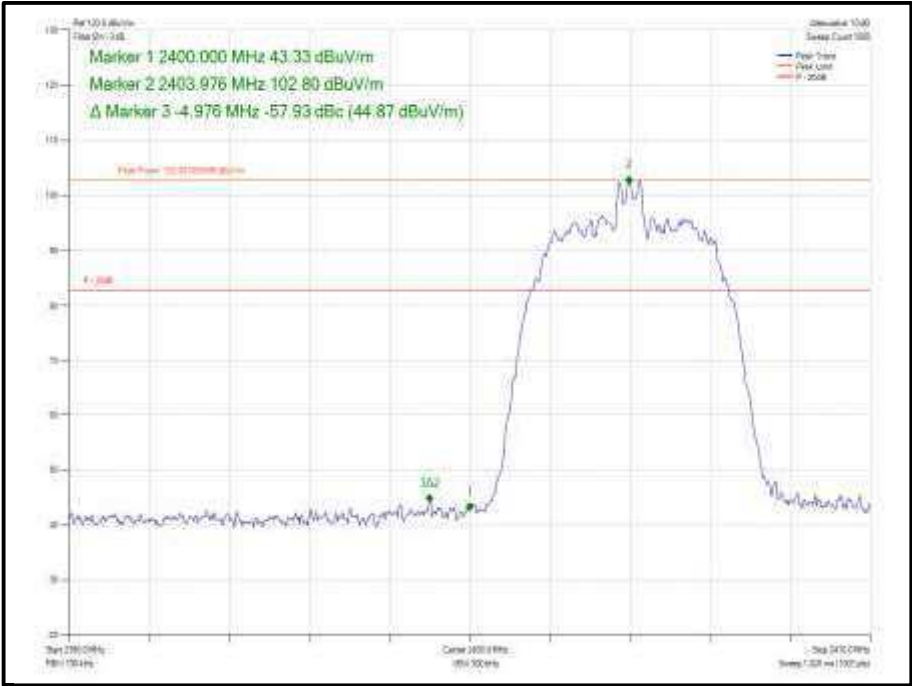


Figure 185 - Static - Core 0 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

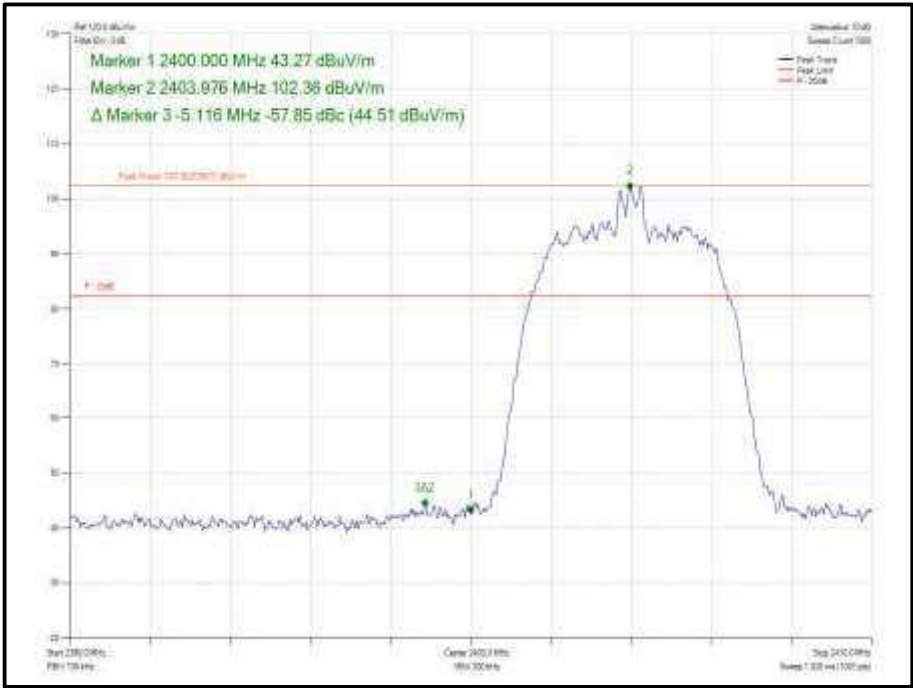


Figure 186 - Static - Core 1 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

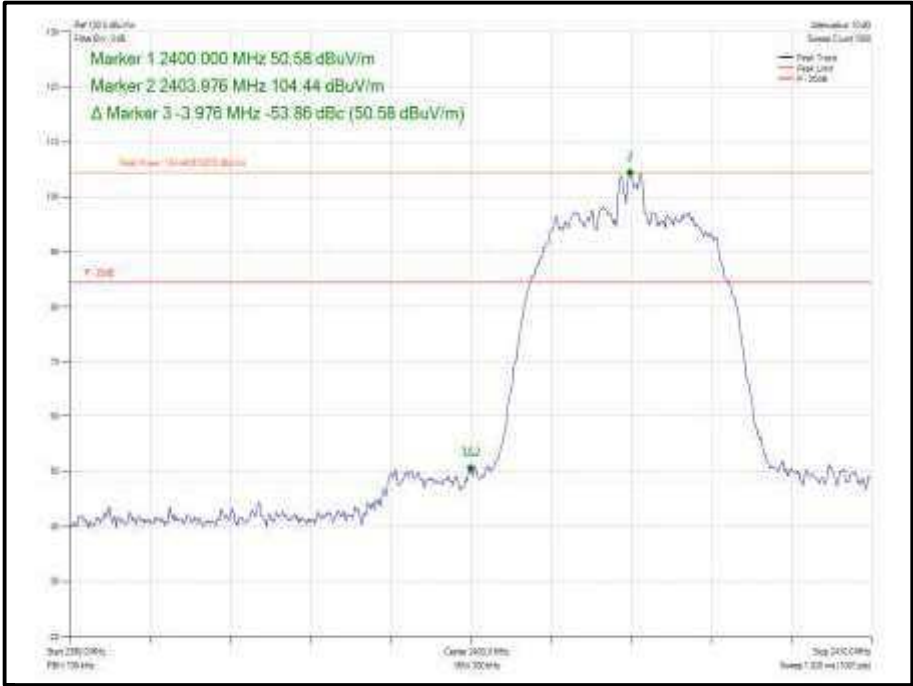


Figure 187 - Static - Core 2 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

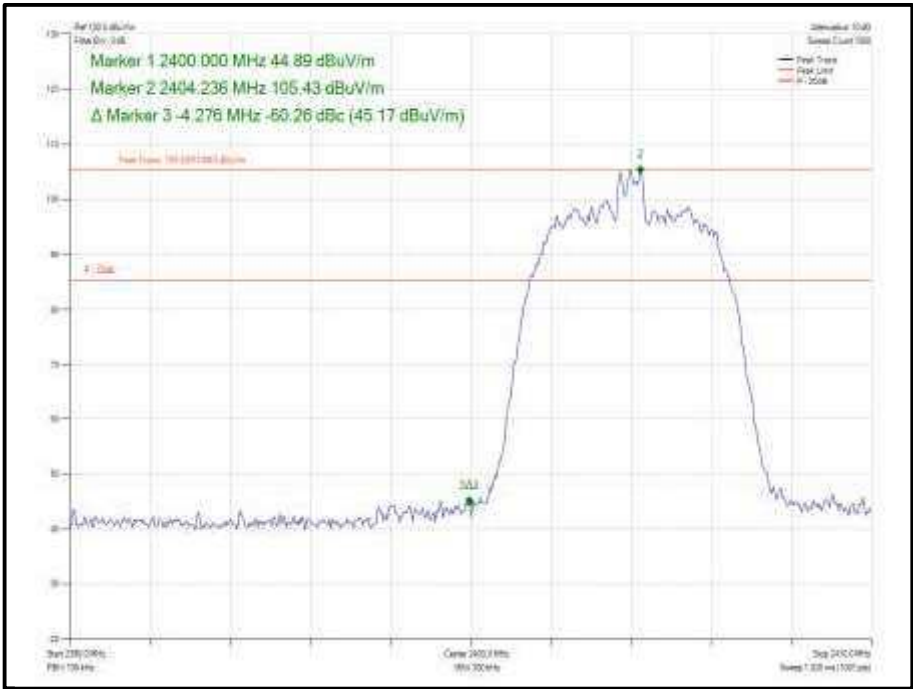


Figure 188 - Static - Core 0-1 - GFSK/HDR8 - 2402 MHz - Band Edge Frequency 2400.0 MHz



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

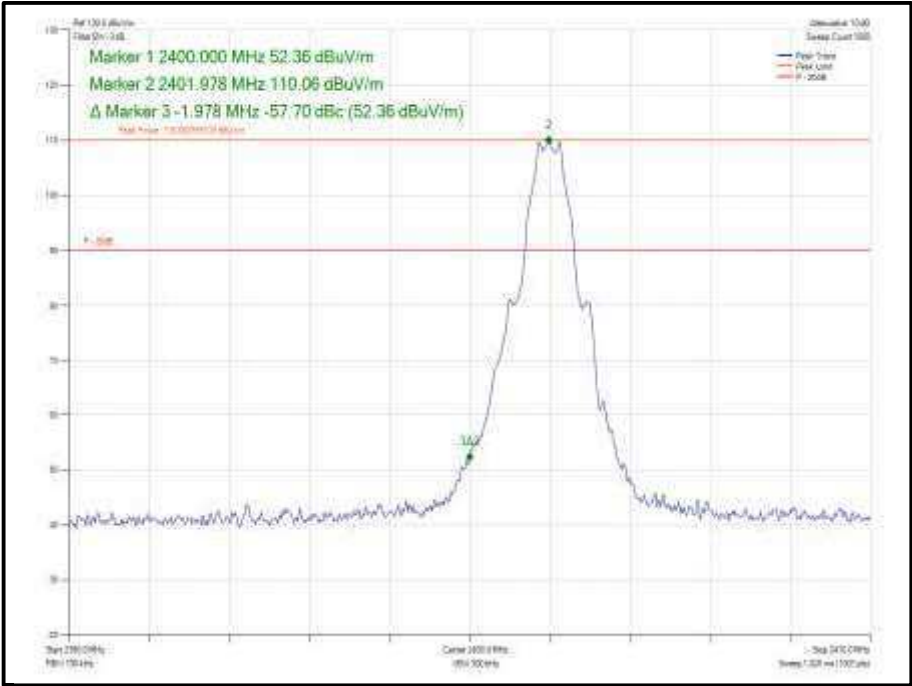


Figure 189 - Static - Core 0 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



| 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

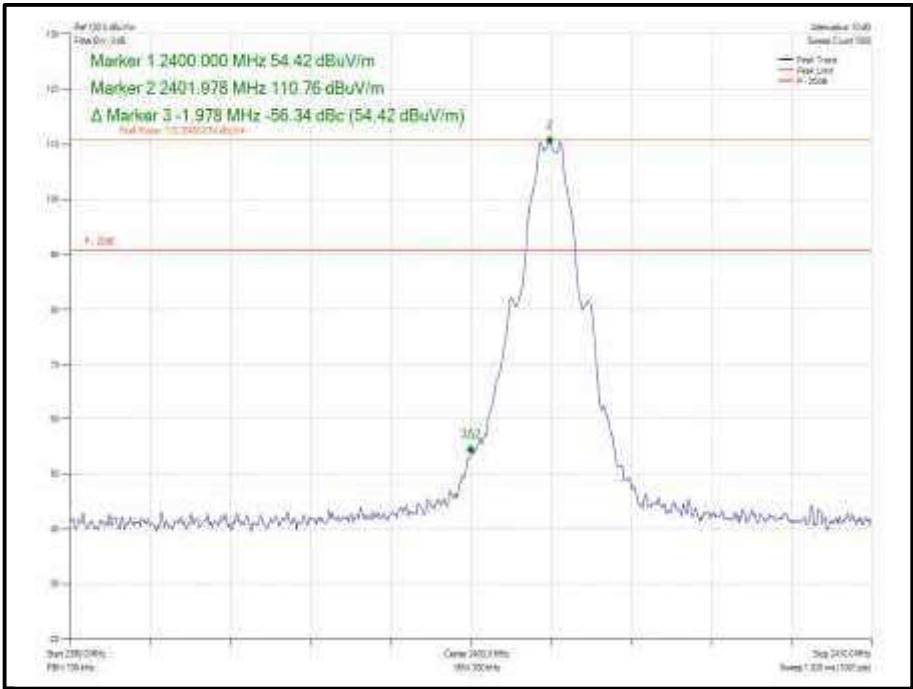
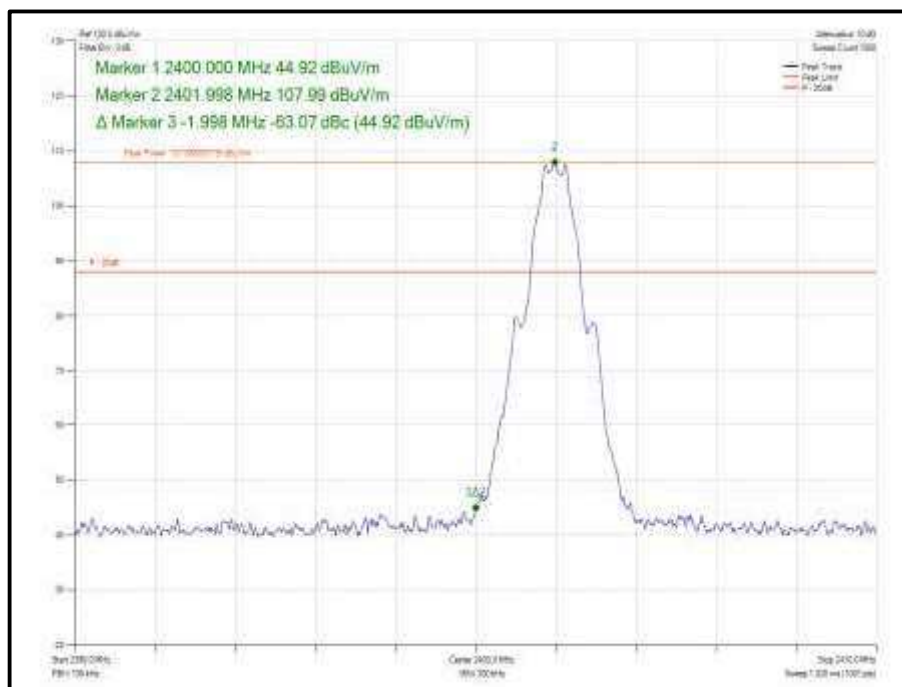


Figure 190 - Static - Core 1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz

| 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

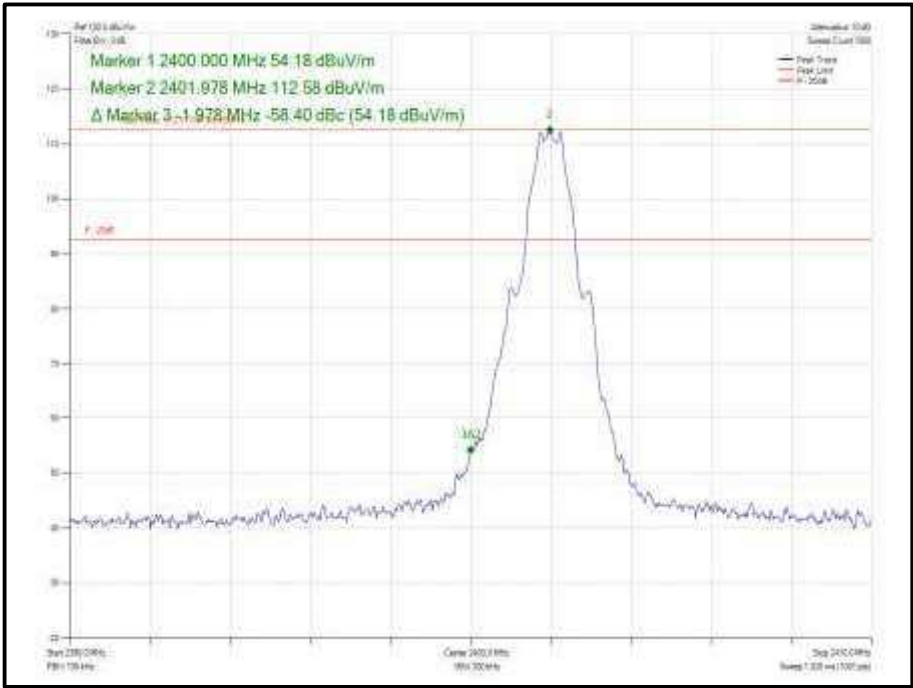


Figure 192 - Static - Core 0-1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



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

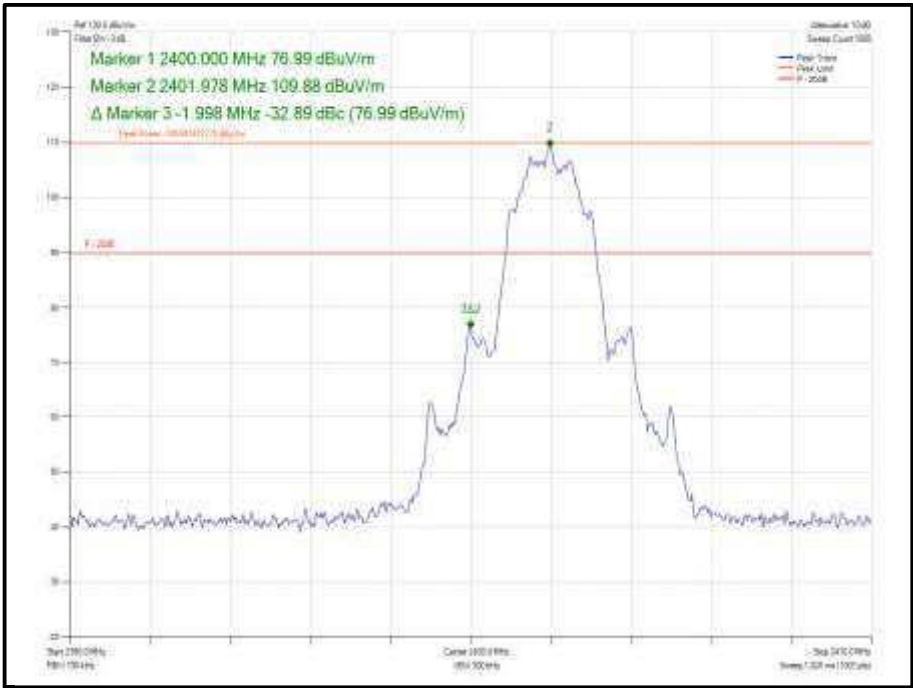


Figure 193 - Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

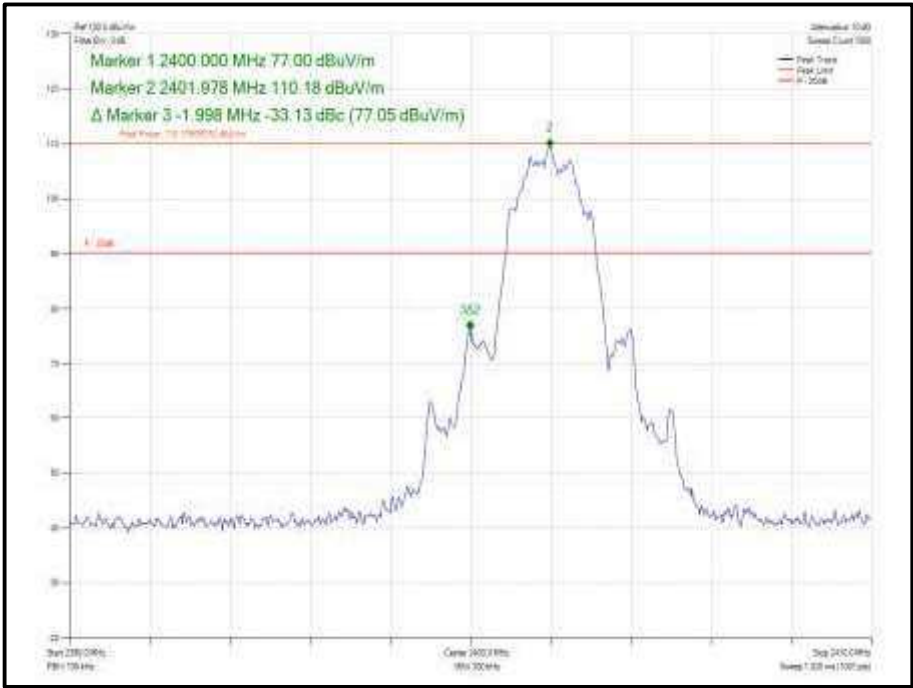


Figure 194 - Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



| 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

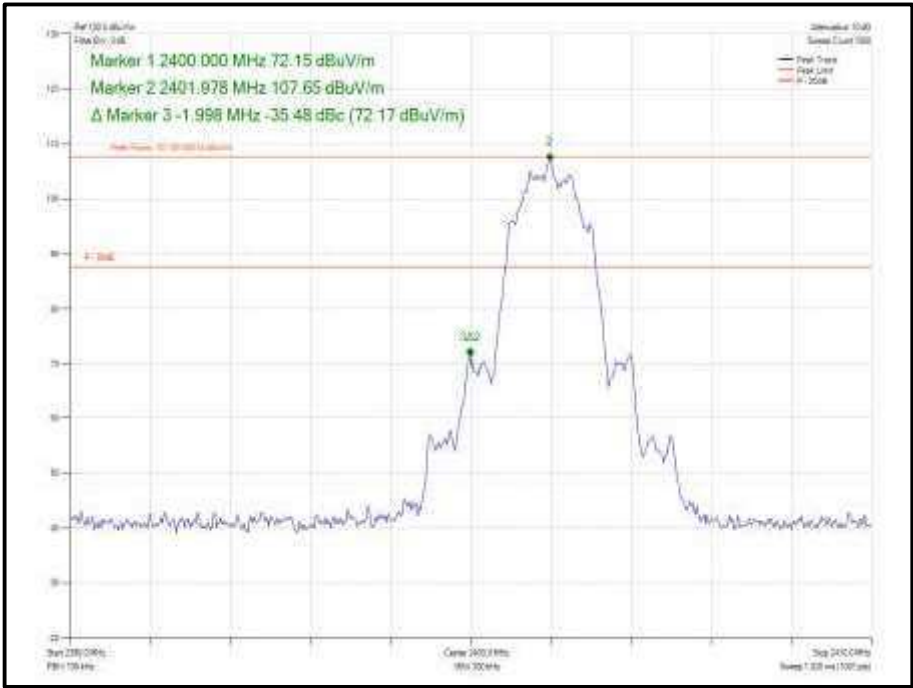
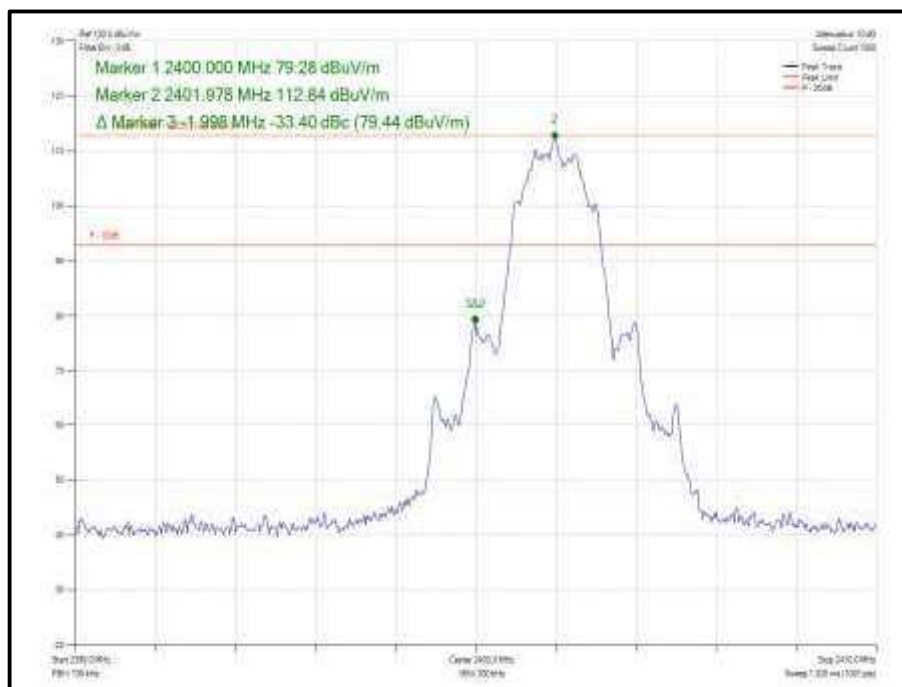


Figure 195 - Static - Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz

| 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 dBμV/m to μV/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

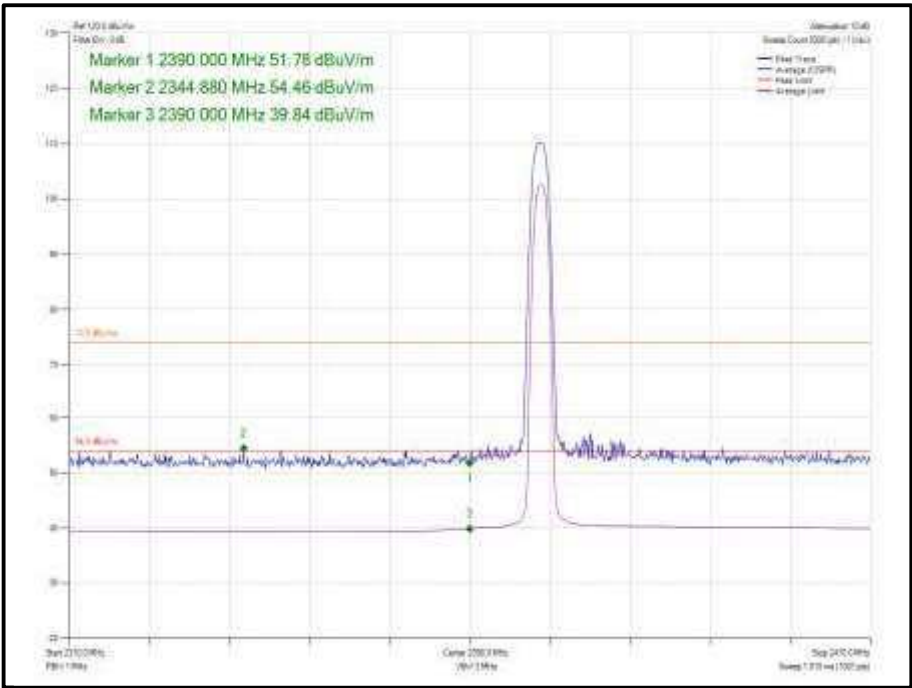


Figure 197 - Static - Core 0 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

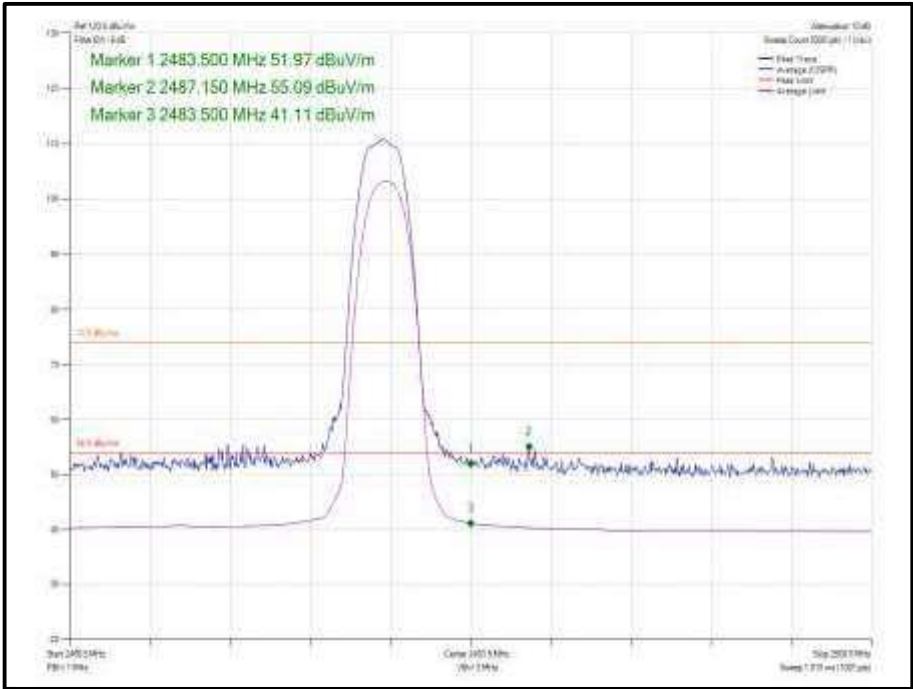
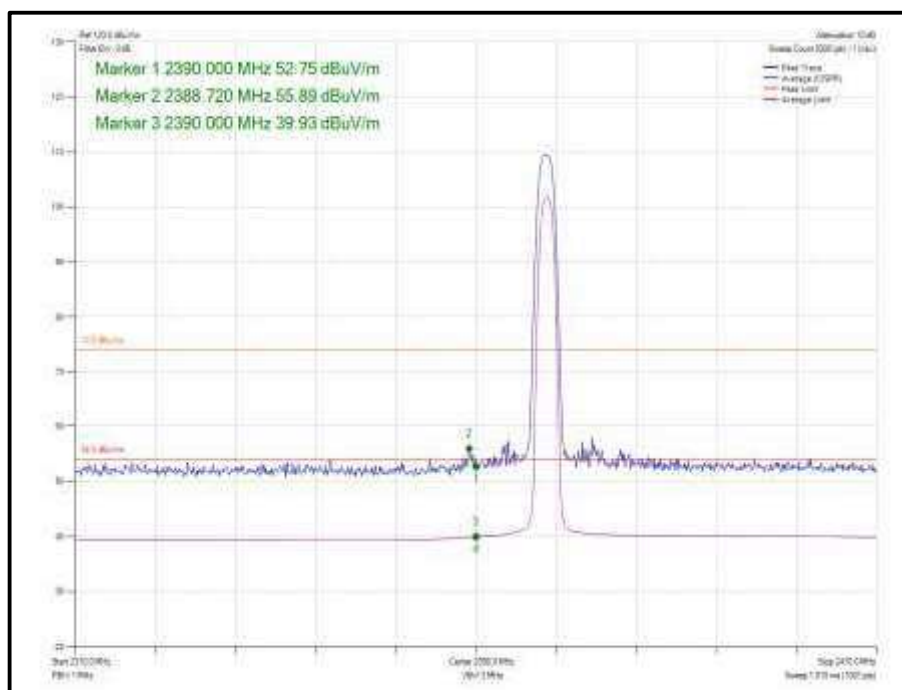


Figure 198 - Static - Core 0 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz

| 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**

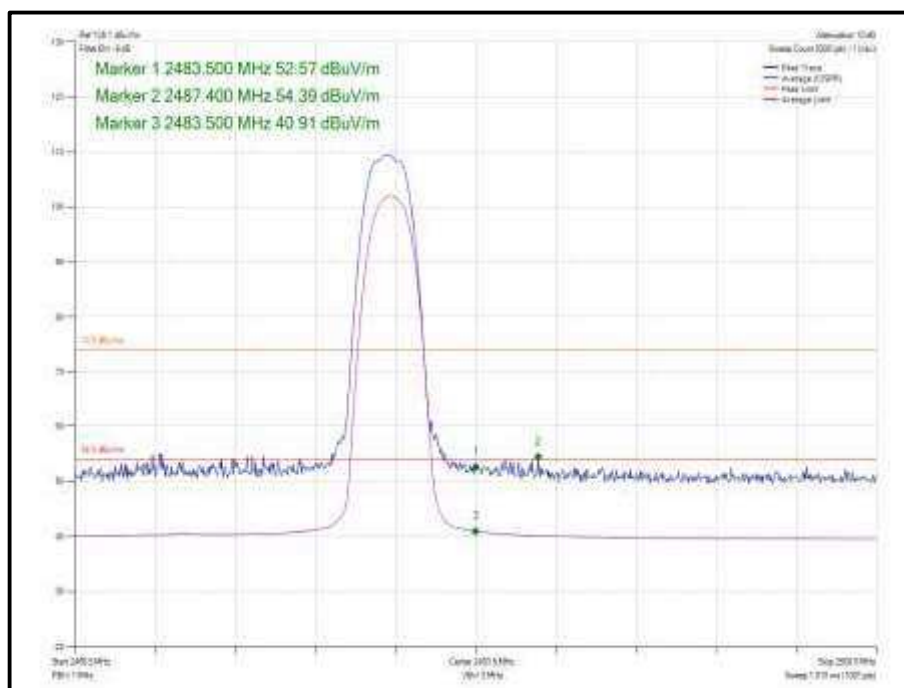


Figure 200 - Static - Core 1 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



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

Table 95 - Restricted Band Edge Results

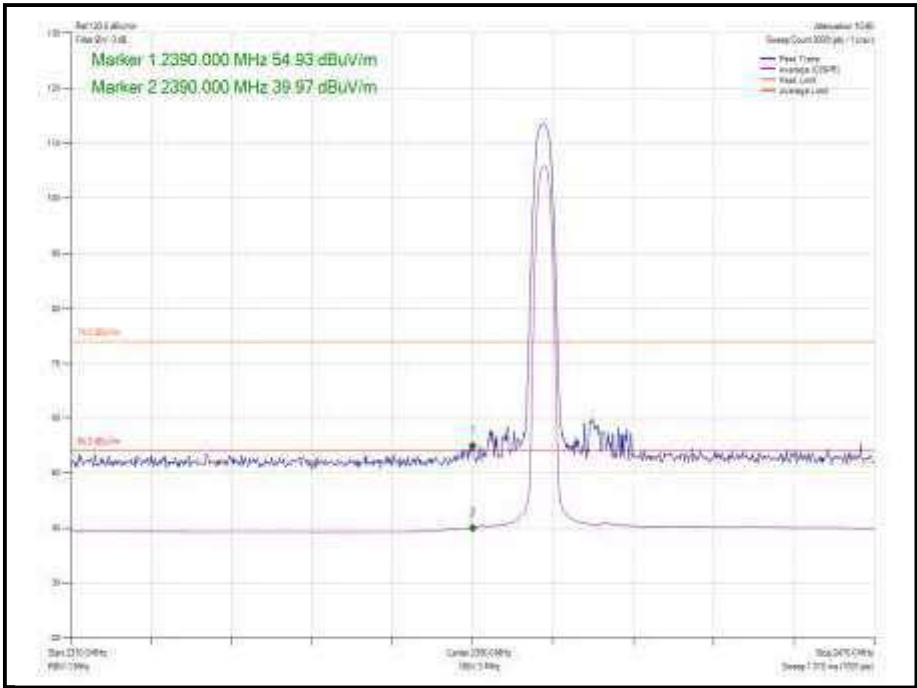


Figure 201 - - Static – Core 0–1 GFSK/HDR4 - 2404 MHz -  
Band Edge Frequency 2390.0 MHz

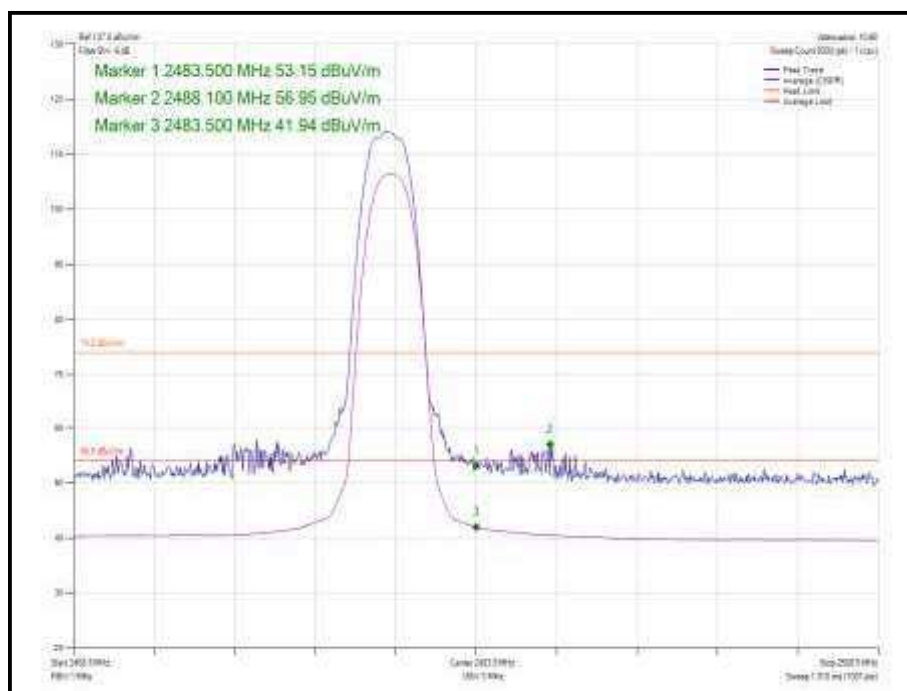


Figure 202 - Static – Core 0–1 - GFSK/HDR4 - 2478 MHz -  
Band Edge Frequency 2483.5 MHz



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

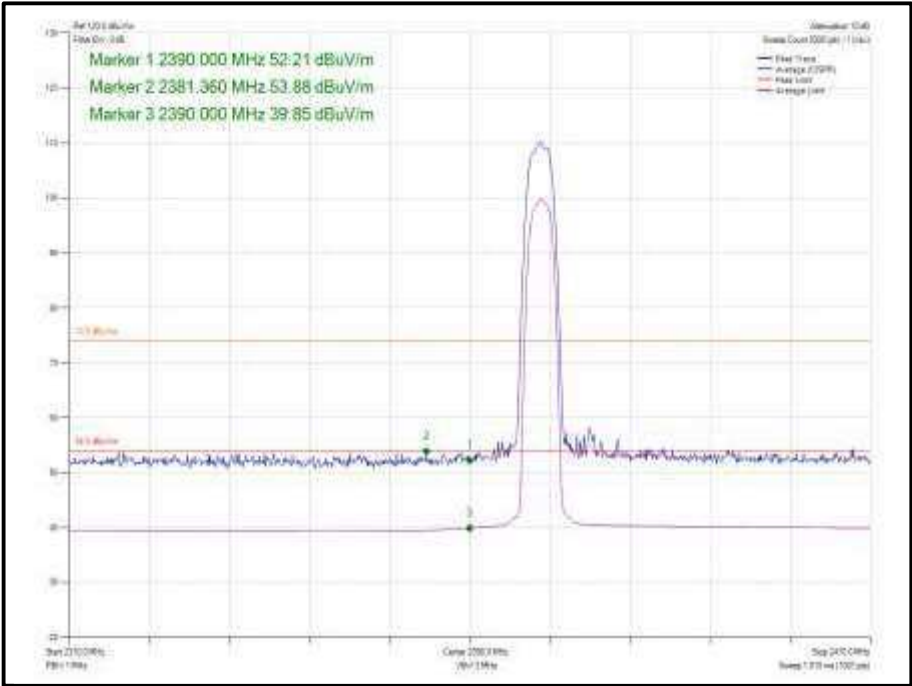


Figure 203- Static - Core 0 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

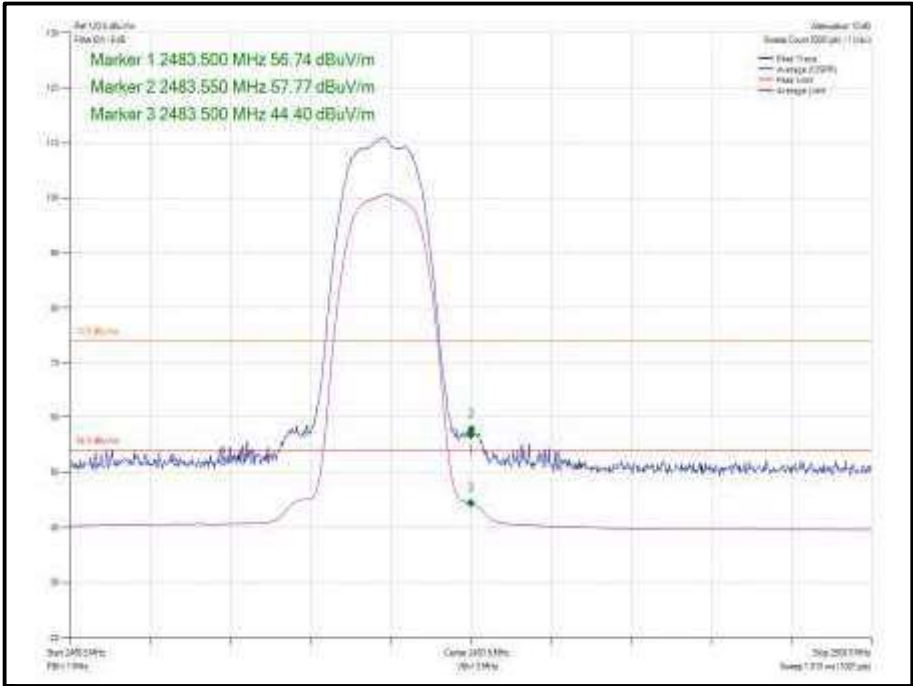


Figure 204 - Static - Core 0 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



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

Table 97 - Restricted Band Edge Results

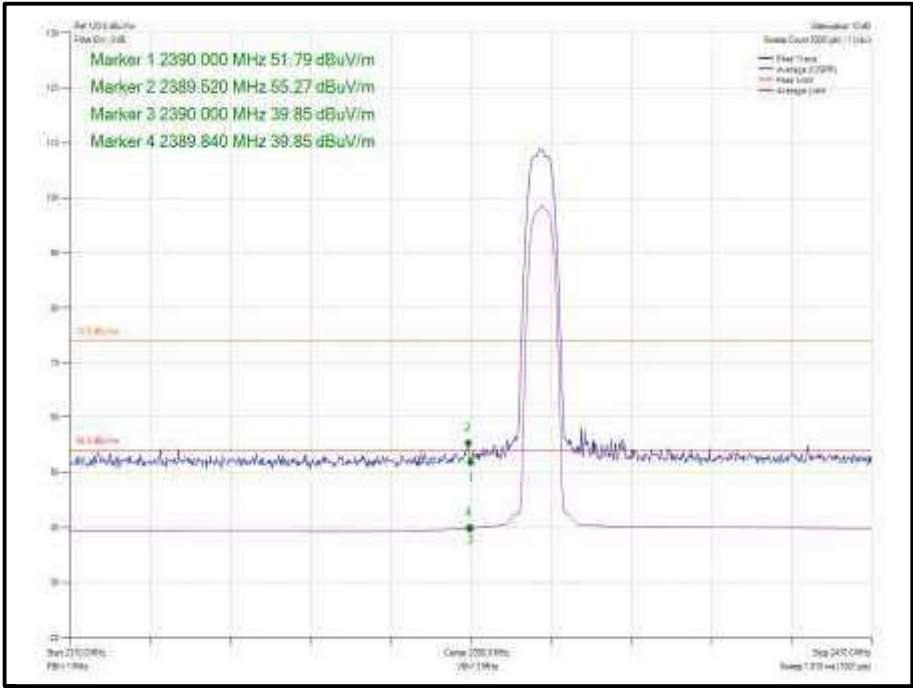


Figure 205- Static - Core 1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

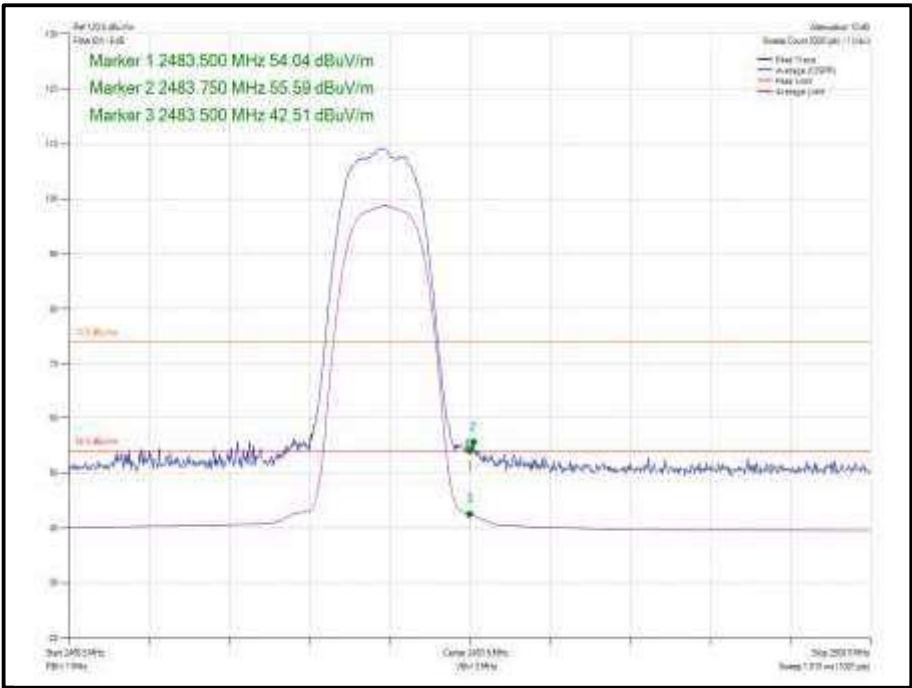
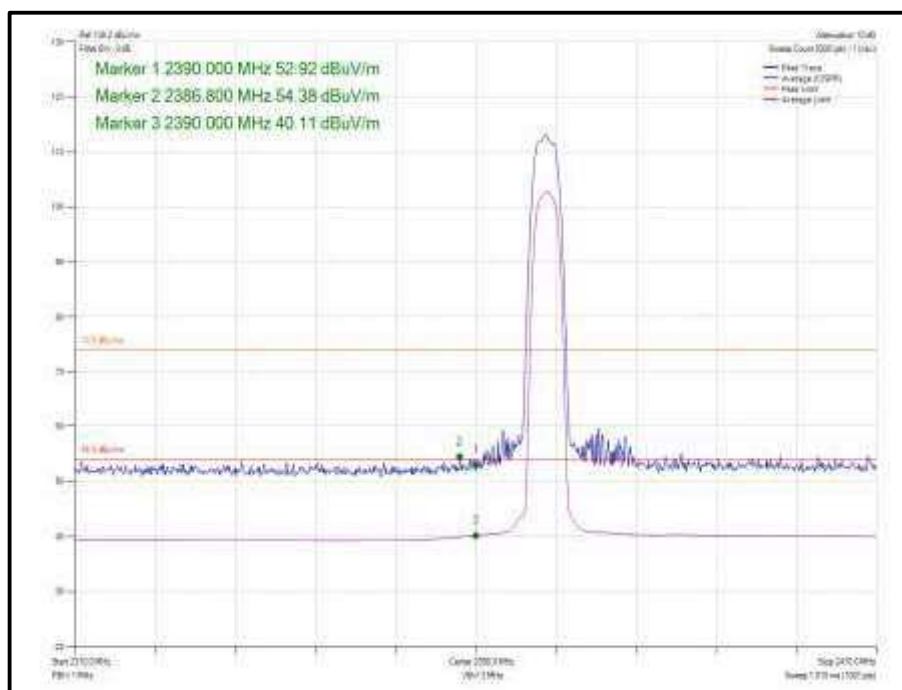


Figure 206 - Static - Core 1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz

| 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**

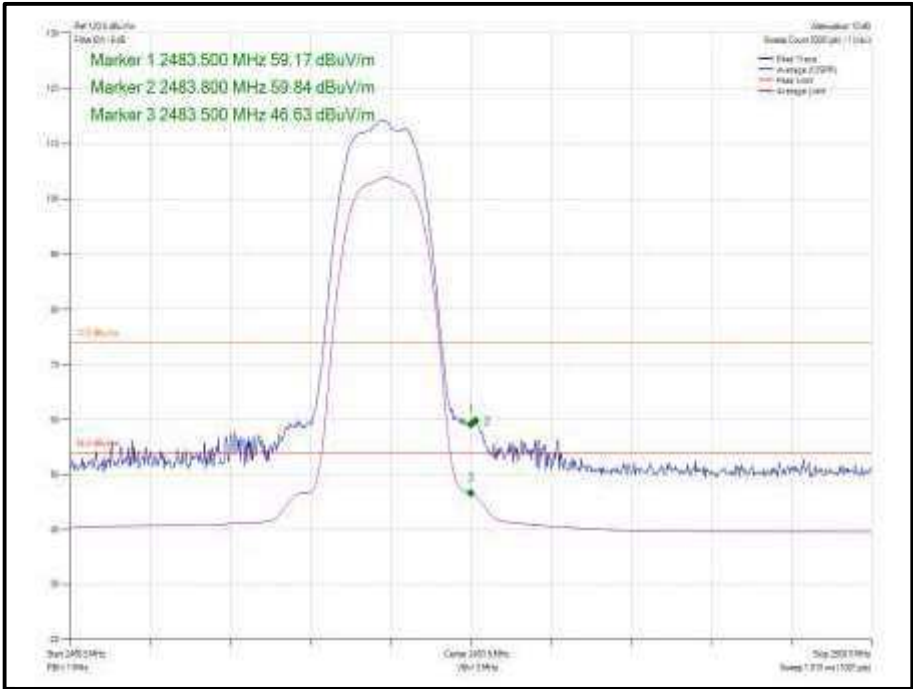


Figure 208 - Static - Core 0-1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



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

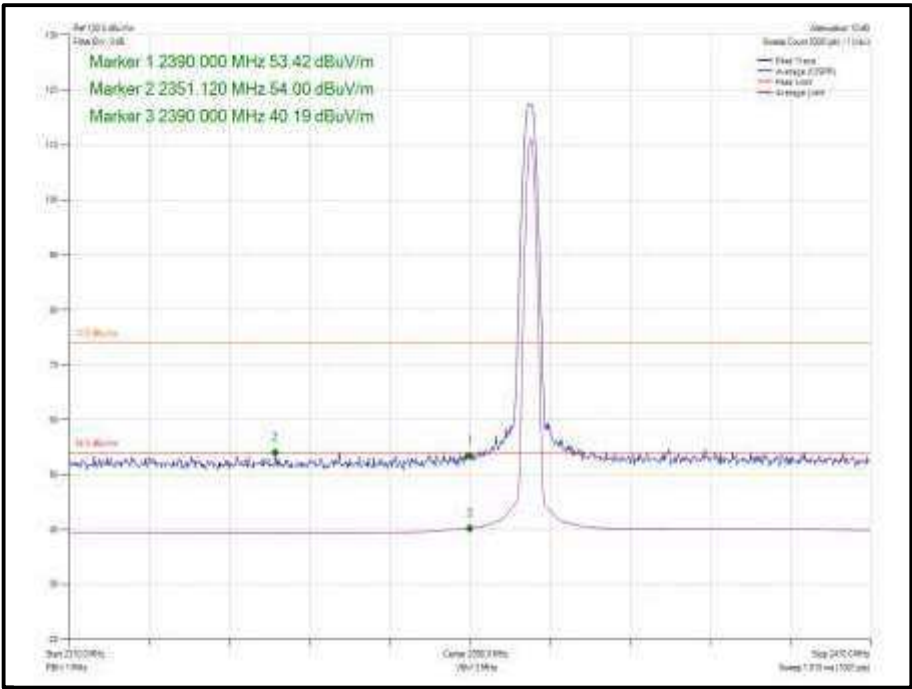


Figure 209 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

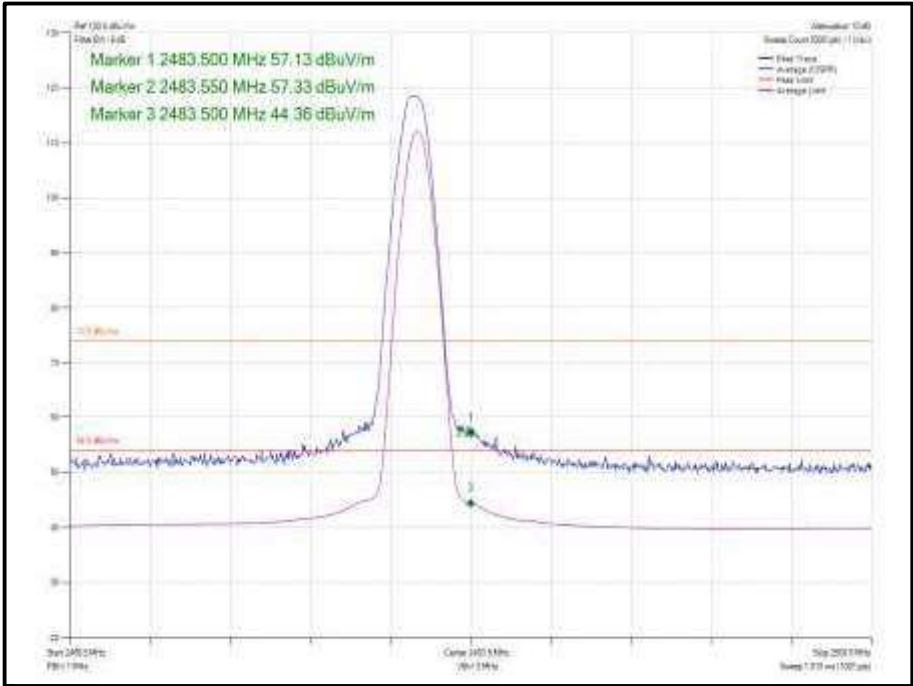


Figure 210 – Static - Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

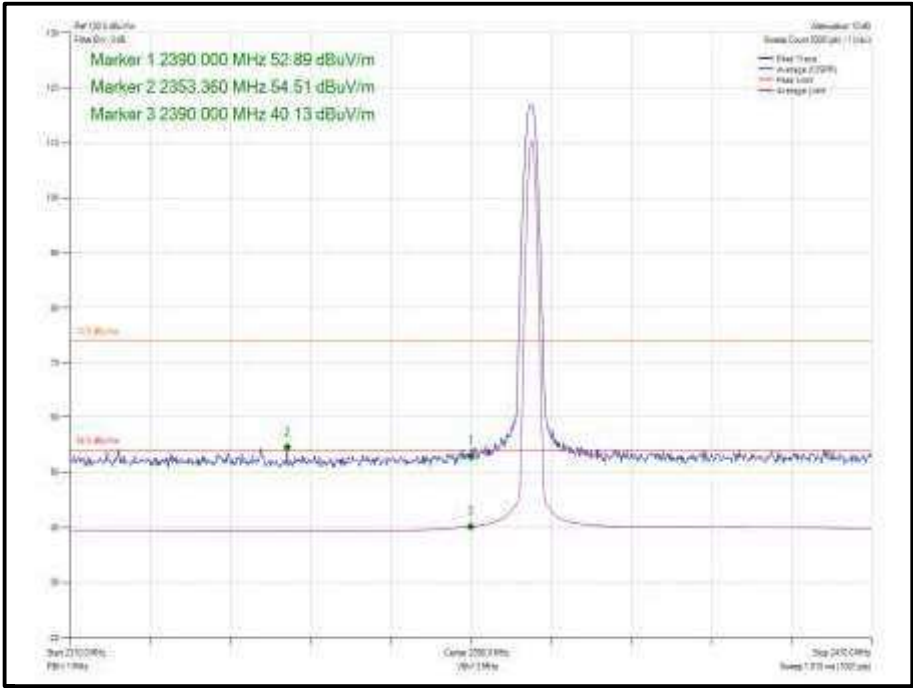


Figure 211 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

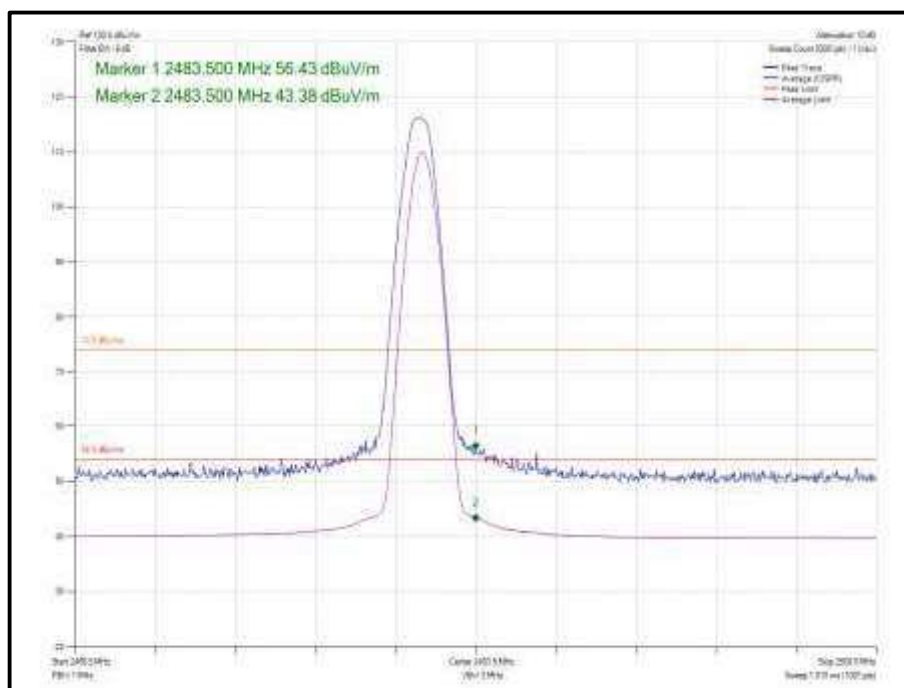


Figure 212 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

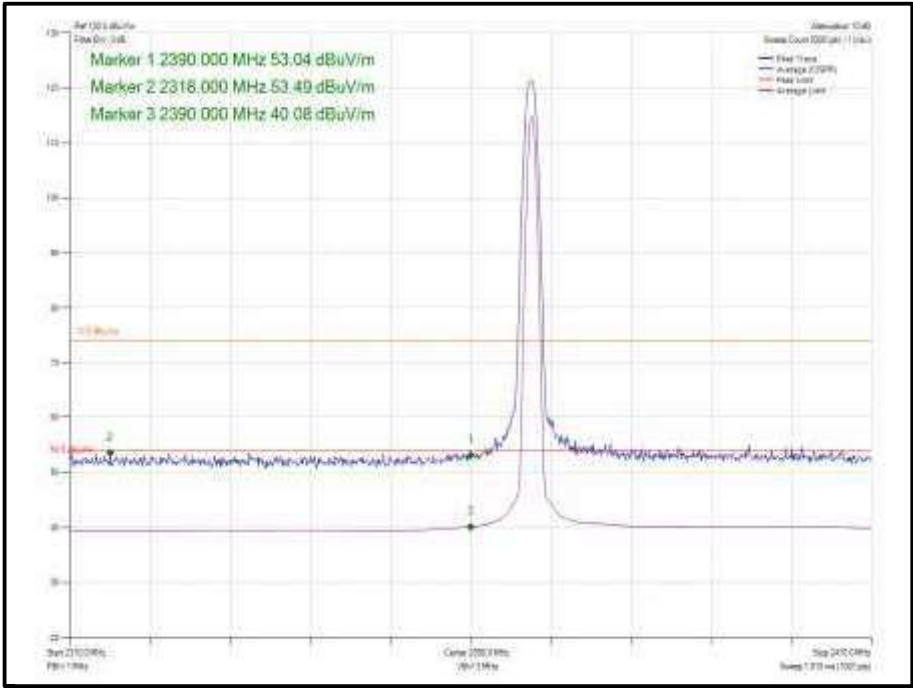


Figure 213 — Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

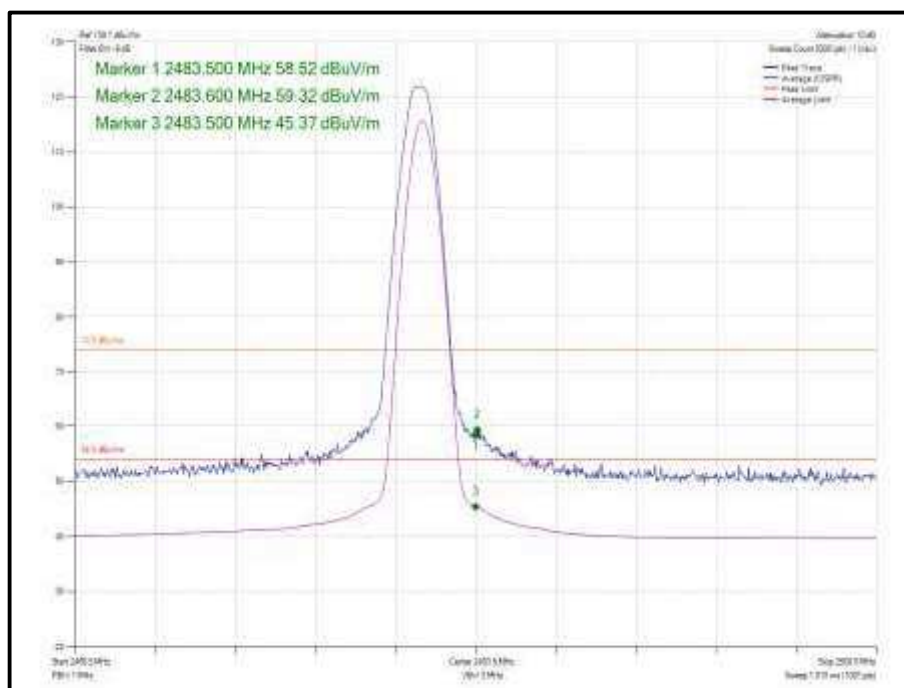


Figure 214 — Static - Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



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

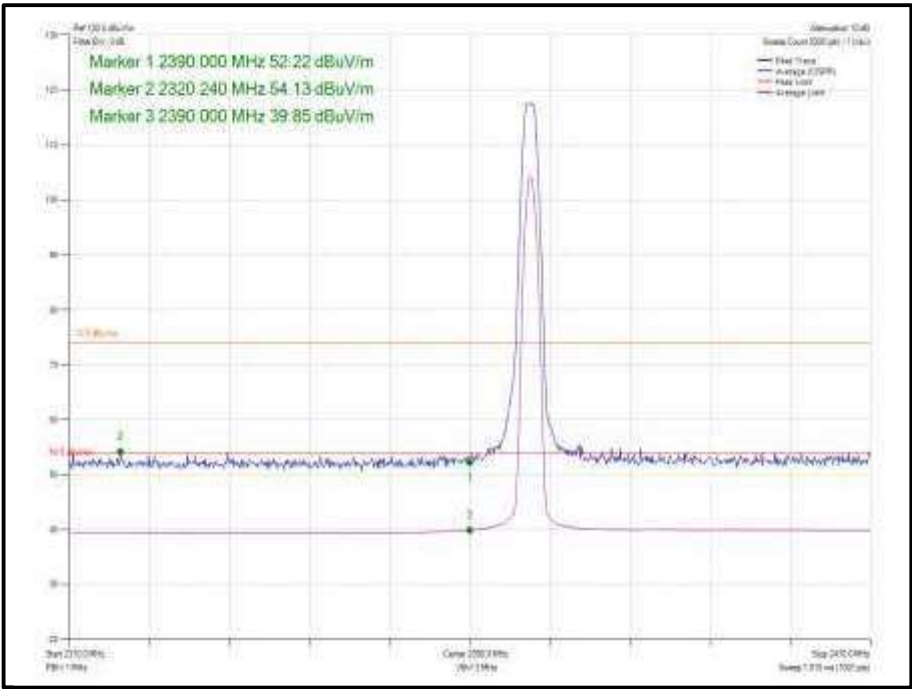


Figure 215 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

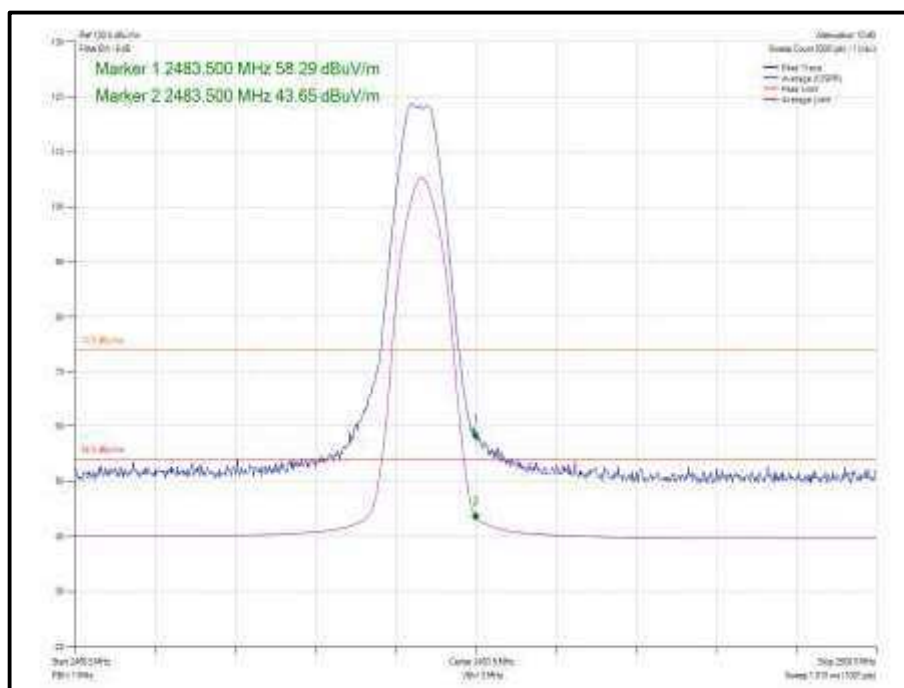
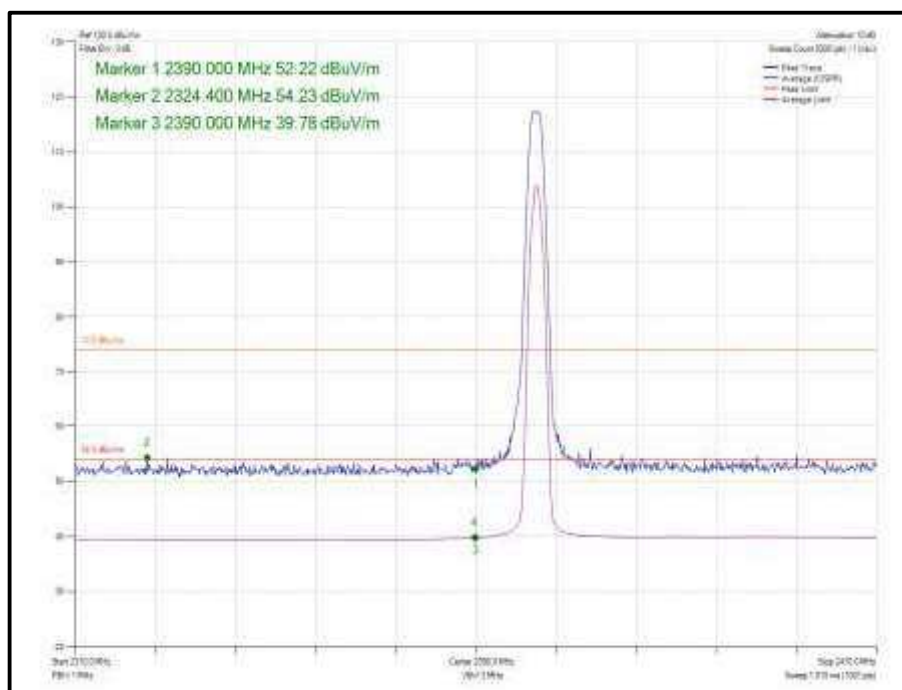


Figure 216 – Static - Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

| Modulation | Tx Frequency (MHz) | Core | Band Edge Frequency (MHz) | Peak Level (dB $\mu$ V/m) | Average Level (dB $\mu$ 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**

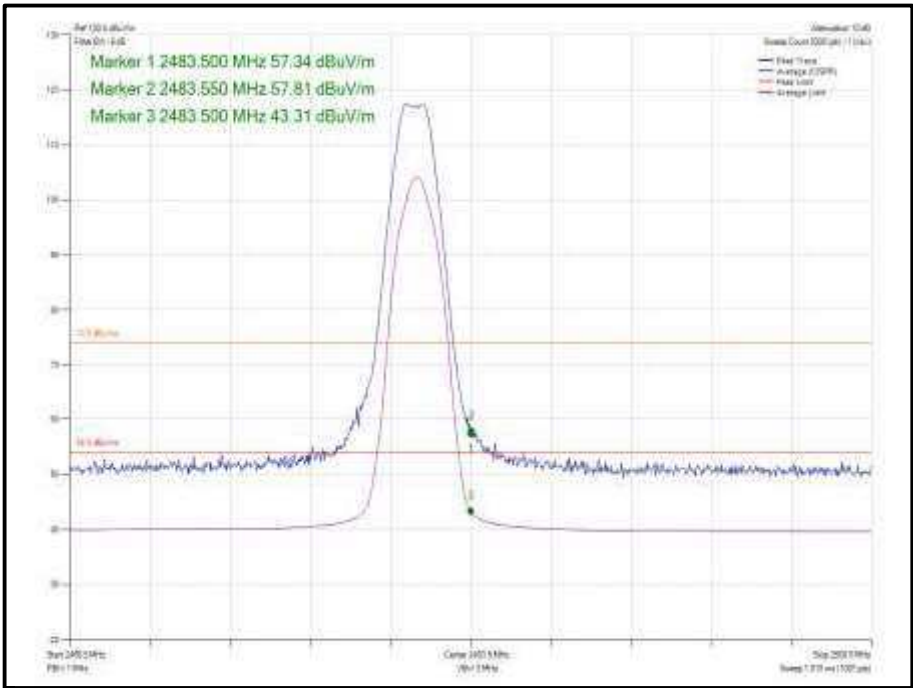


Figure 218 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

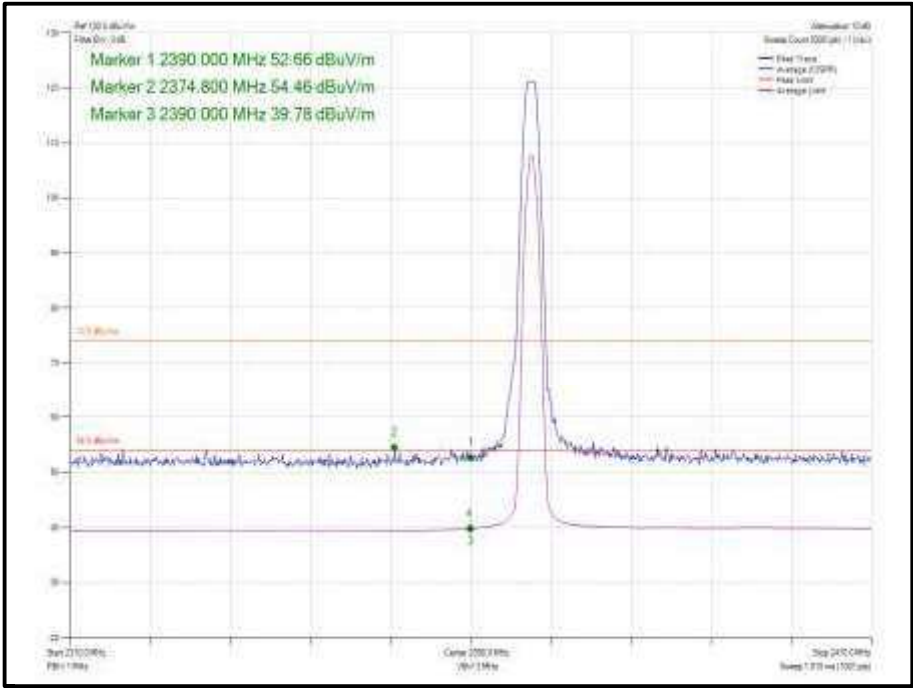


Figure 219 – GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

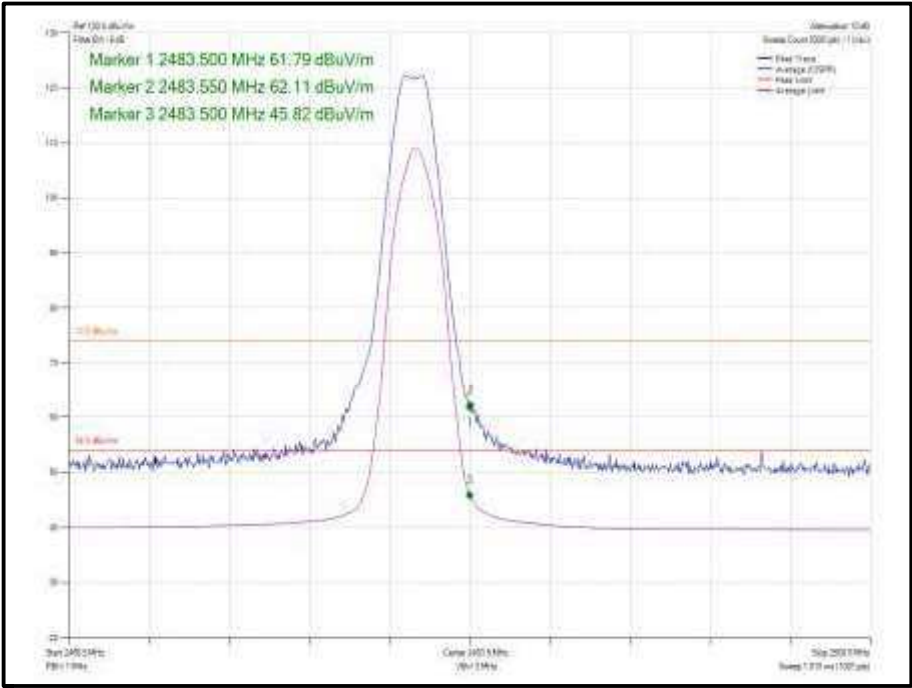


Figure 220 – GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



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

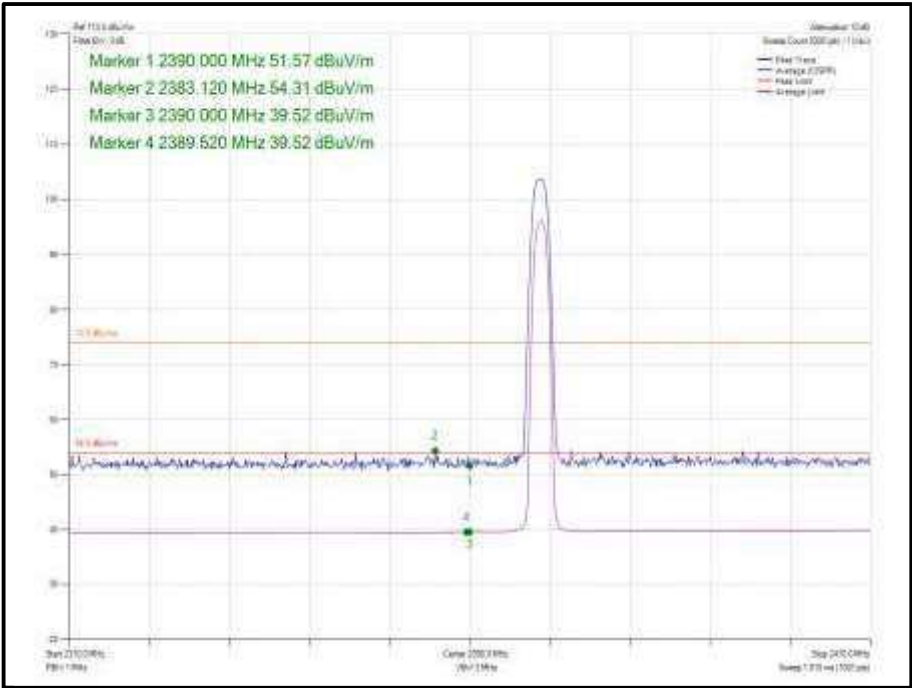


Figure 221 - Static - Core 0 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

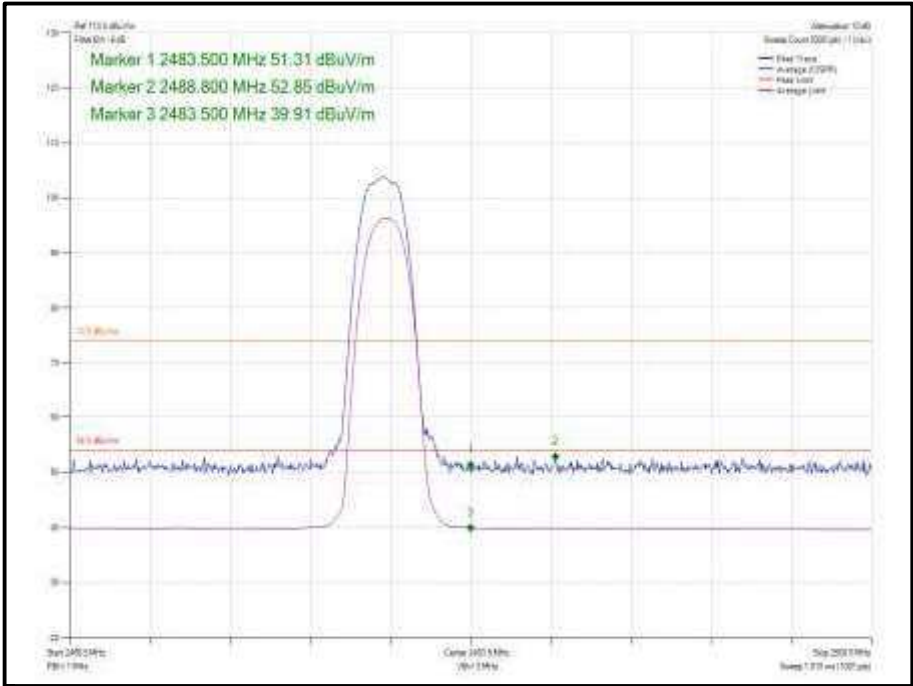
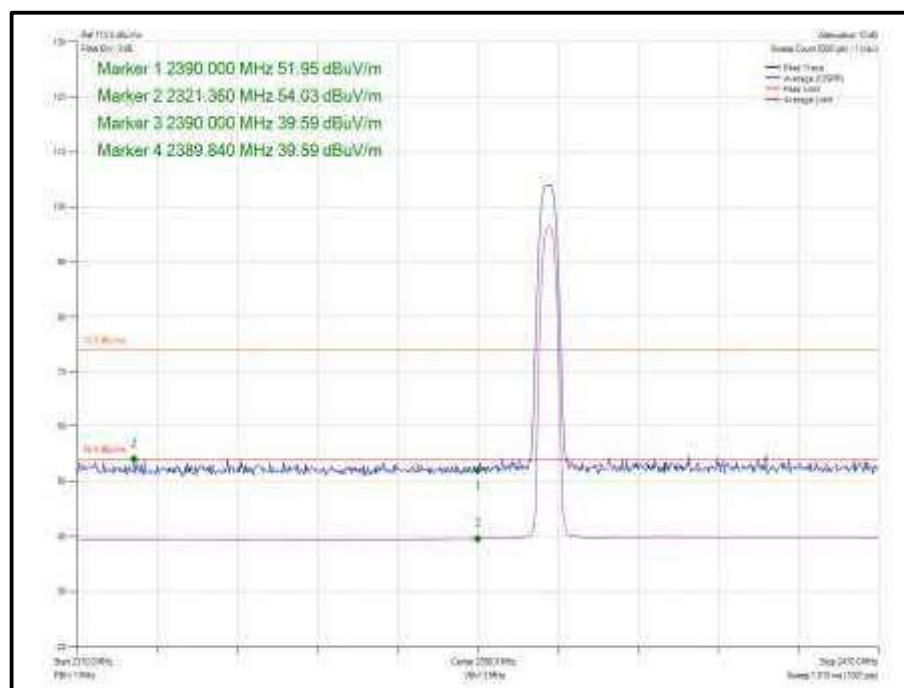


Figure 222 - Static - Core 0 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz

| 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**

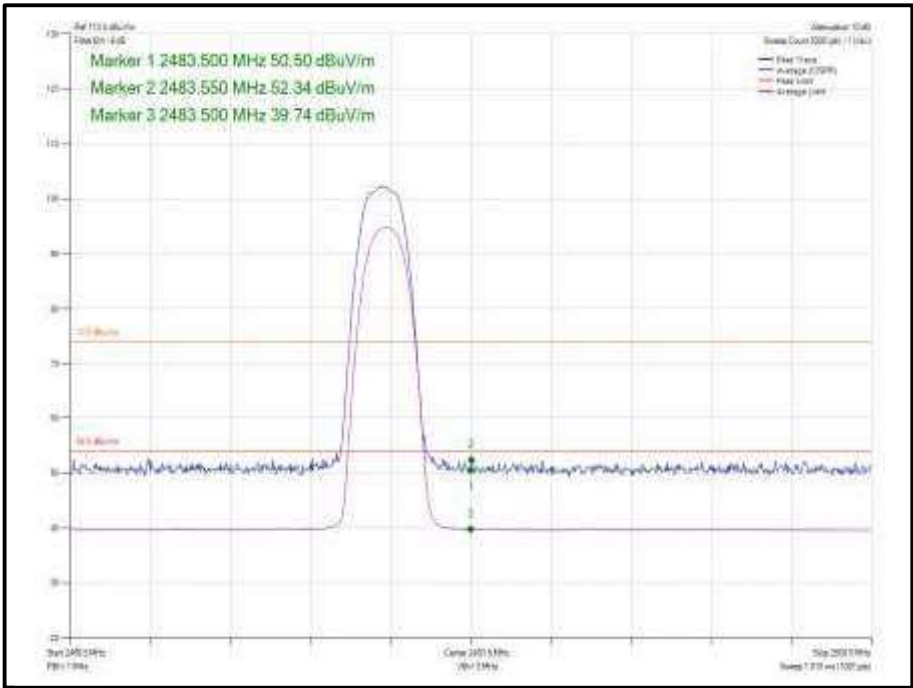


Figure 224 - Static - Core 1 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



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

Table 107 - Restricted Band Edge Results

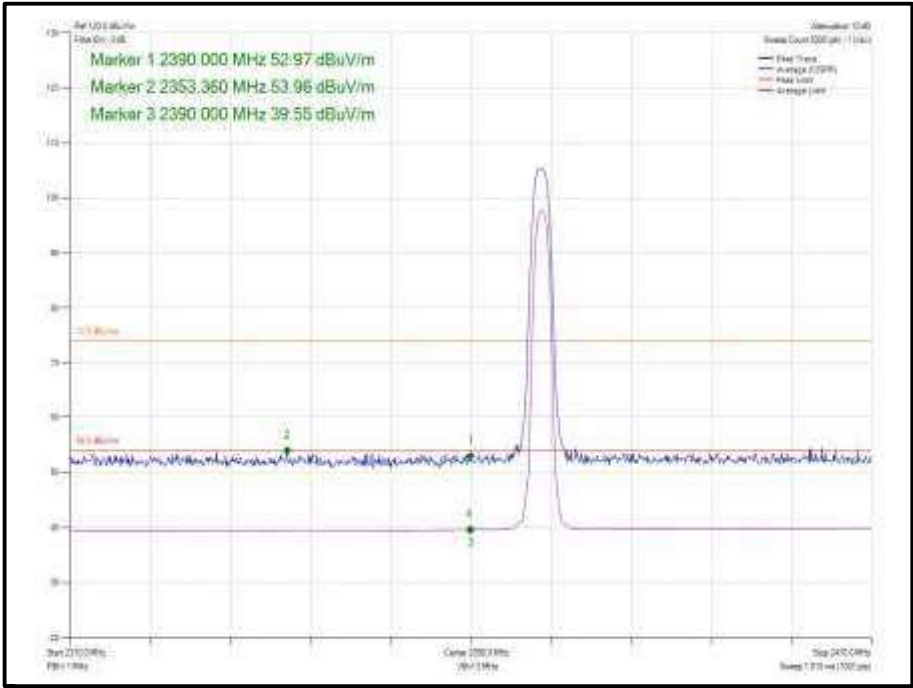


Figure 225 - Static - Core 2 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

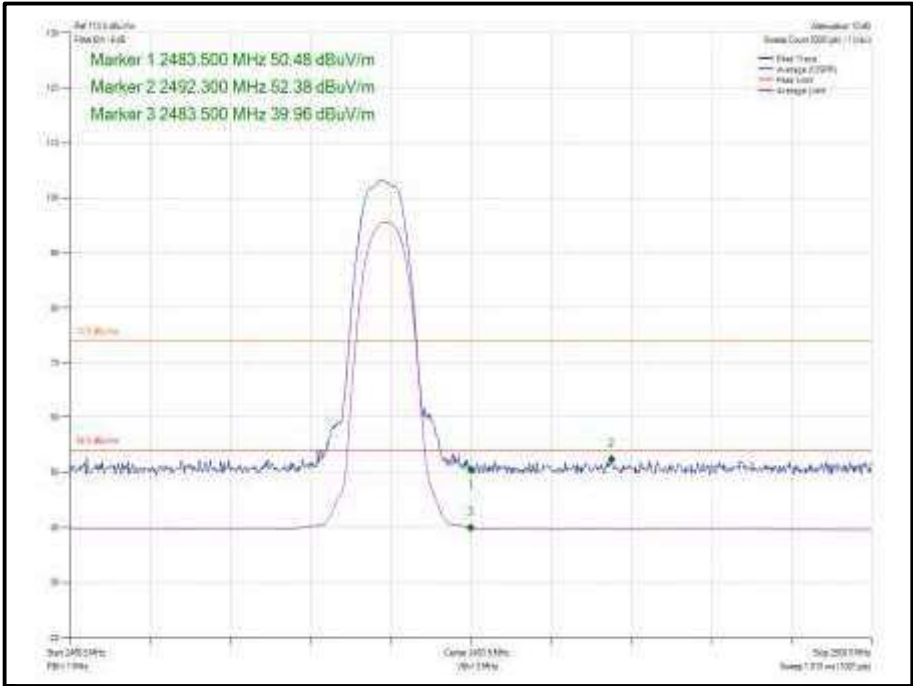


Figure 226 - Static - Core 2 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



| 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

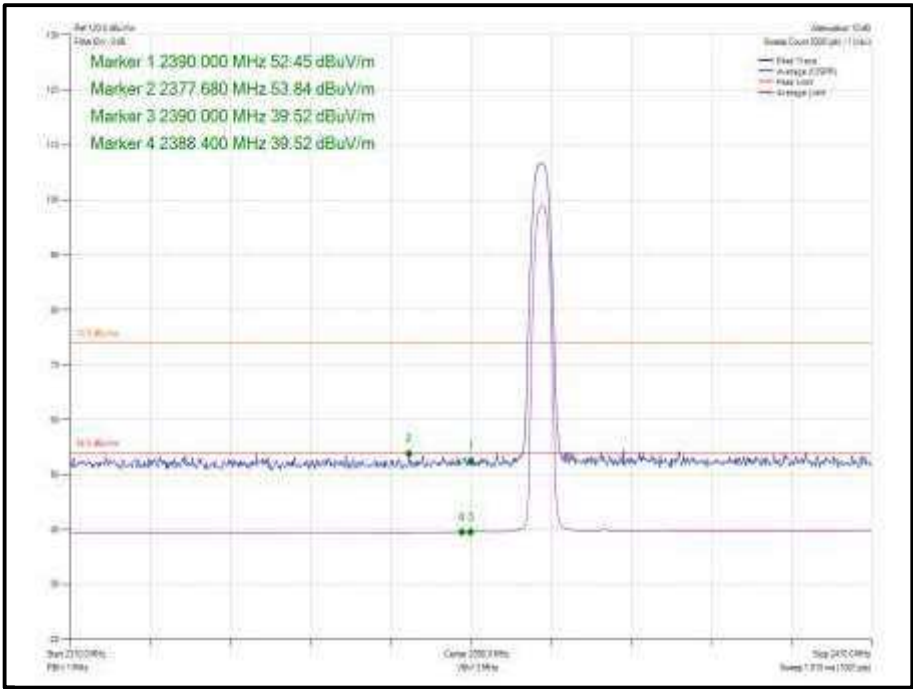


Figure 227 - Static - Core 0-1 - GFSK/HDR4 - 2404 MHz - Band Edge Frequency 2390.0 MHz

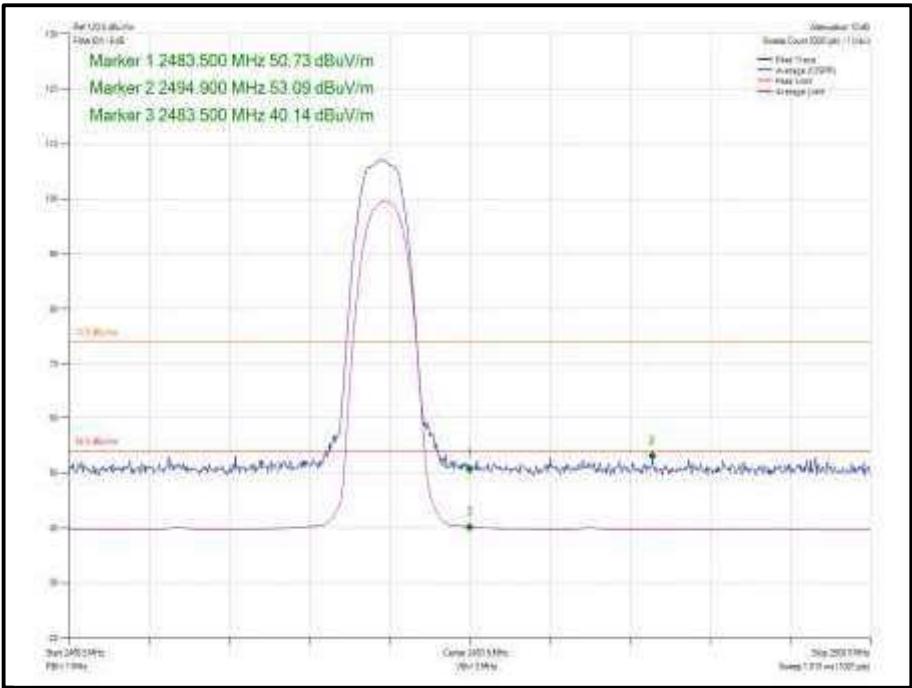


Figure 228 - Static - Core 0-1 - GFSK/HDR4 - 2478 MHz - Band Edge Frequency 2483.5 MHz



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

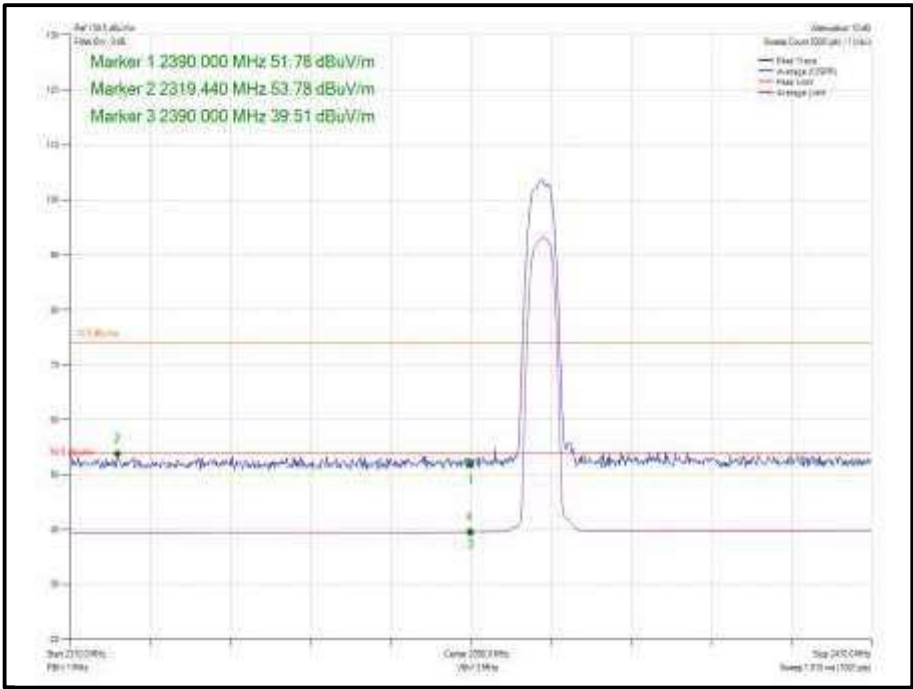


Figure 229- Static - Core 0 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

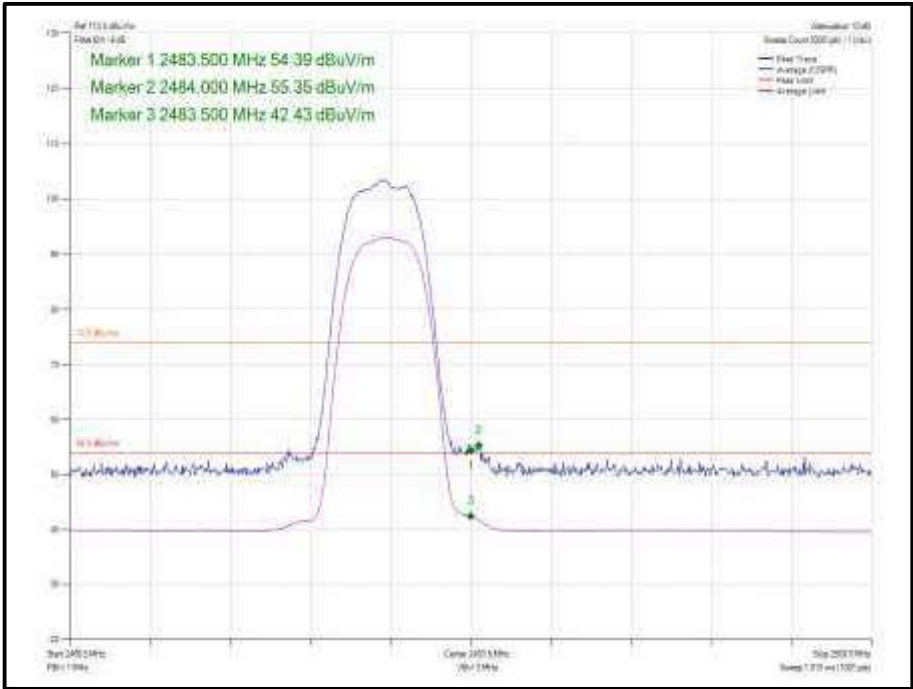


Figure 230 - Static - Core 0 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



| 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

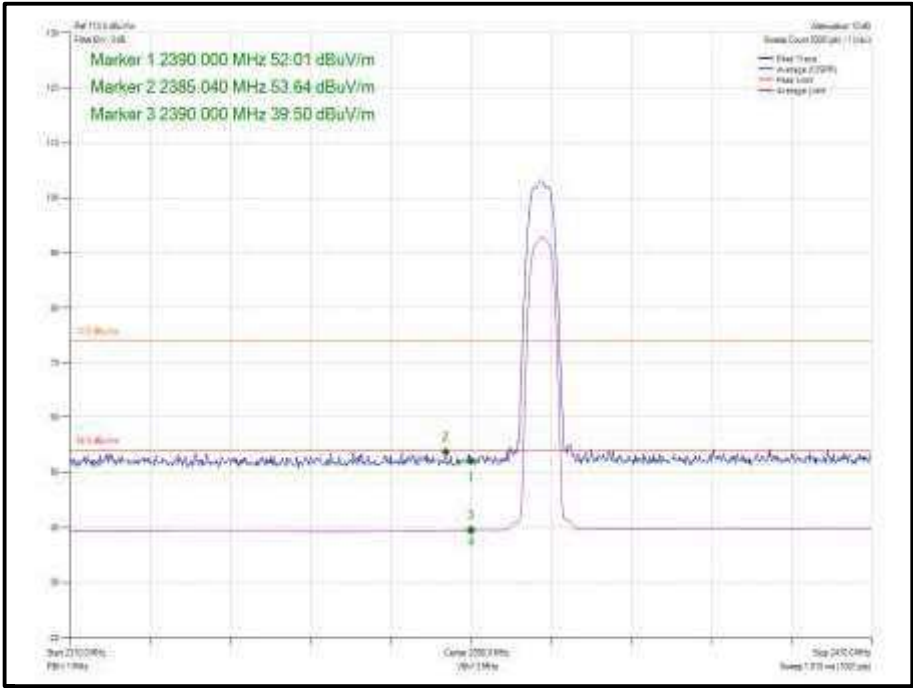


Figure 231- Static - Core 1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

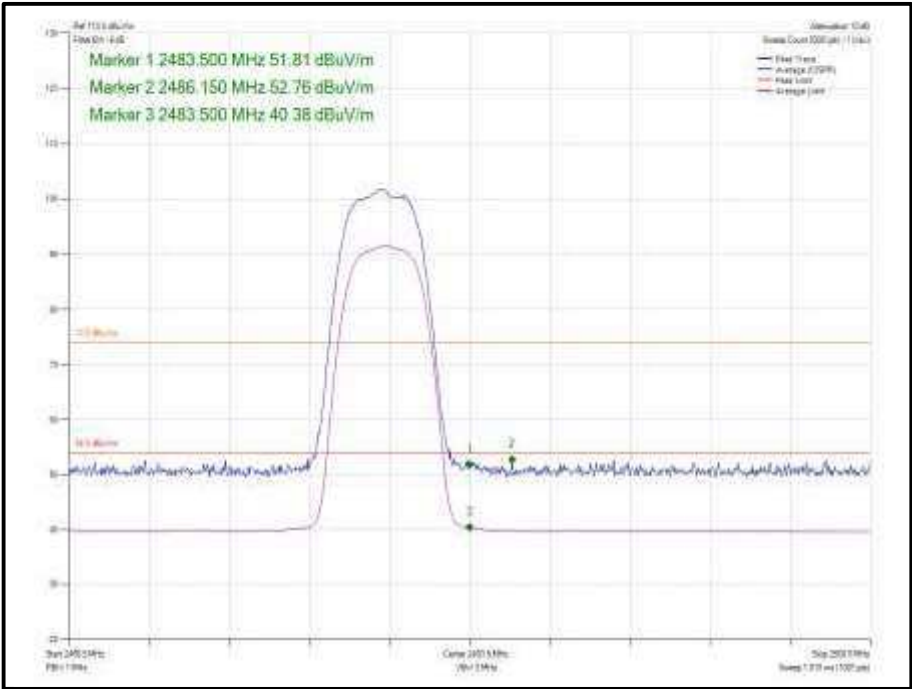
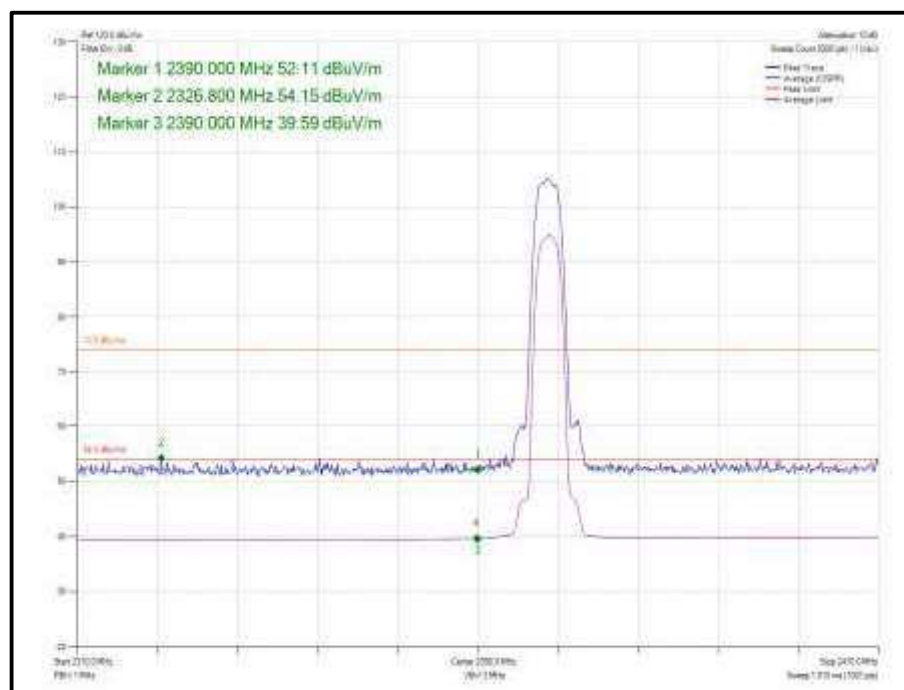


Figure 232 - Static - Core 1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz

| 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**

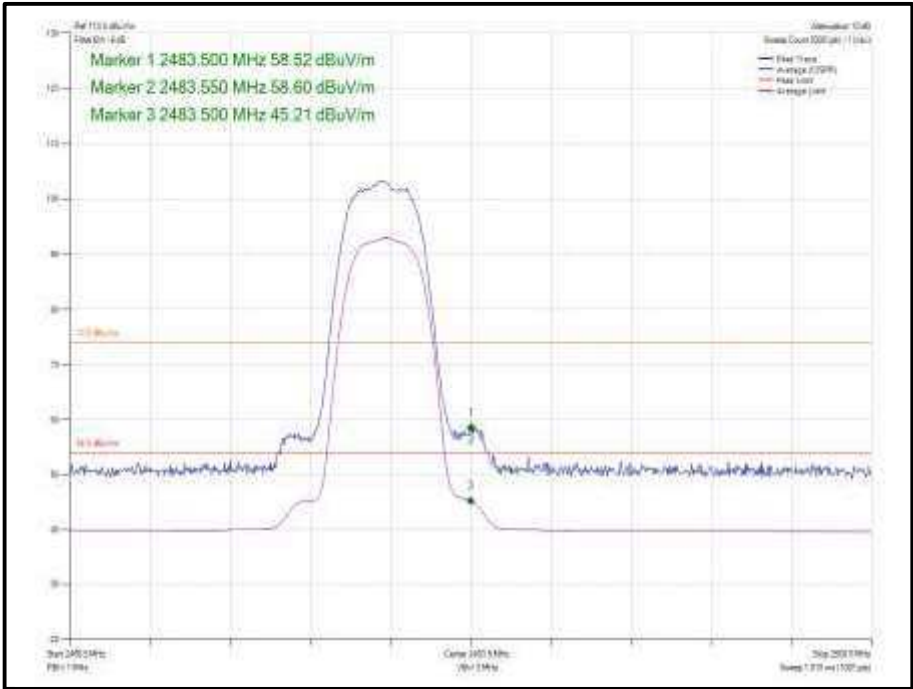


Figure 234 - Static - Core 2 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz



| 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

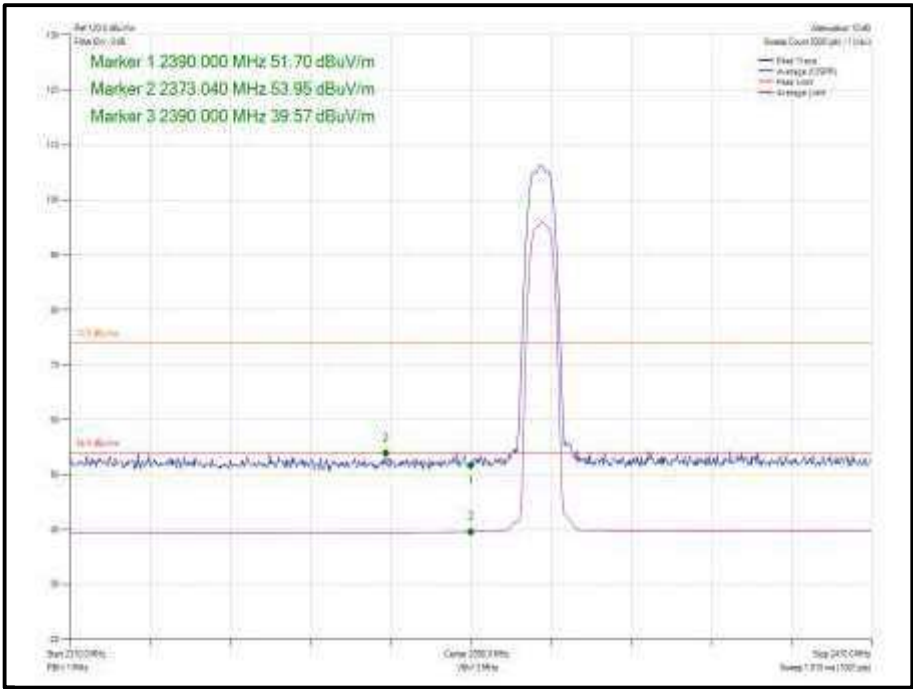


Figure 235- Static - Core 0-1 - GFSK/HDR8 - 2404 MHz - Band Edge Frequency 2390.0 MHz

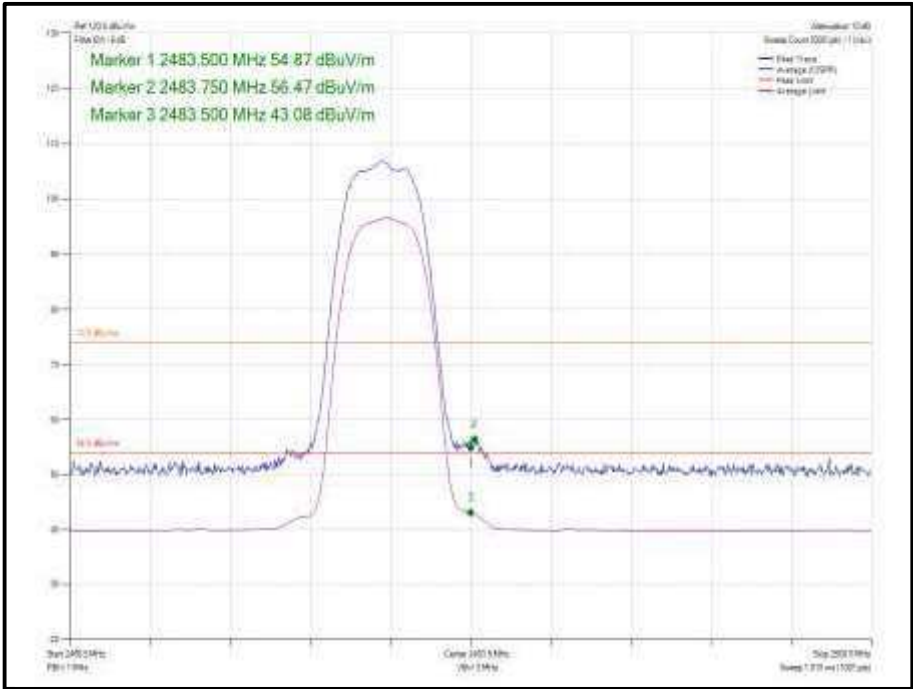


Figure 236 - Static - Core 0-1 - GFSK/HDR8 - 2478 MHz - Band Edge Frequency 2483.5 MHz

iPA - LE1M

| Modulation | Tx Frequency (MHz) | Core | Band Edge Frequency (MHz) | Peak Level (dB $\mu$ V/m) | Average Level (dB $\mu$ V/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

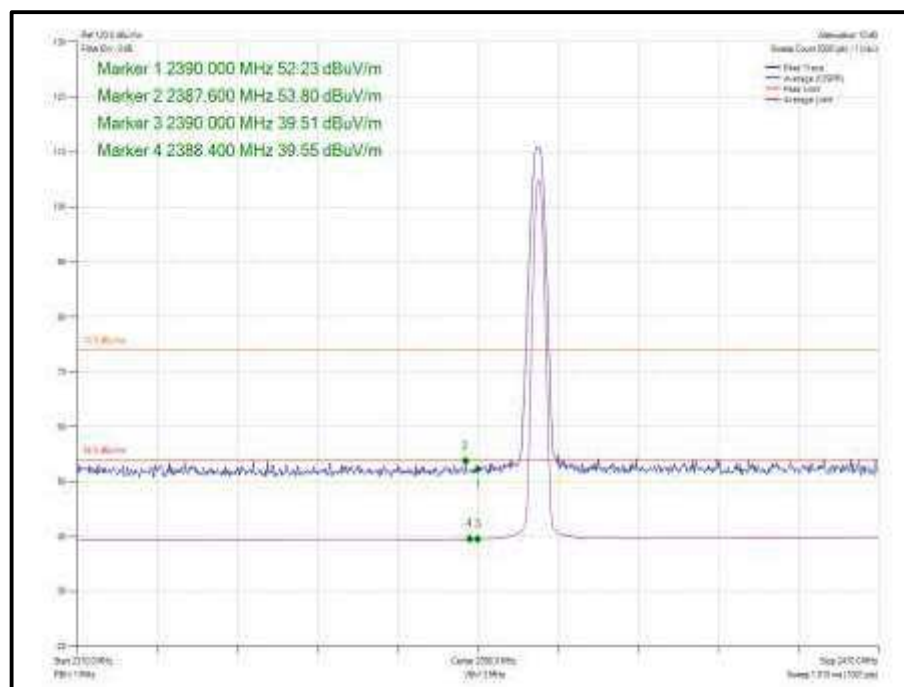


Figure 237 – Static - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

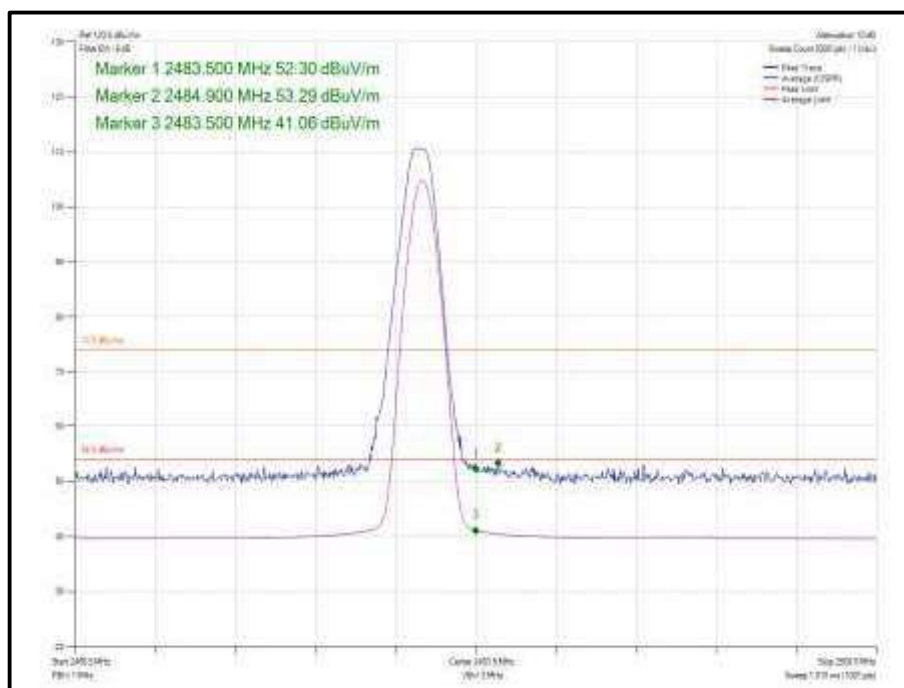


Figure 238 – Static - Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

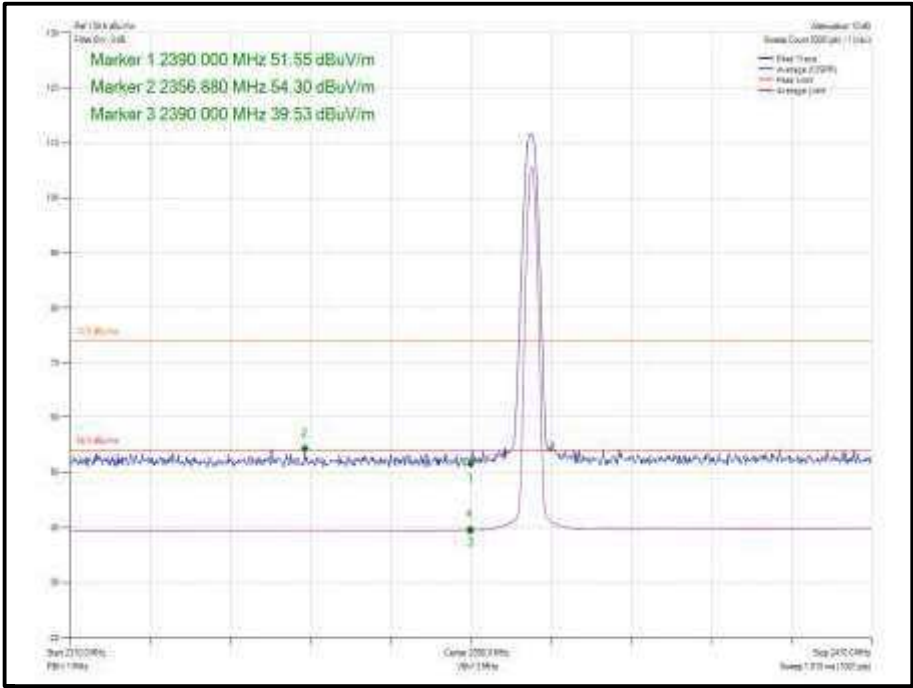


Figure 239 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

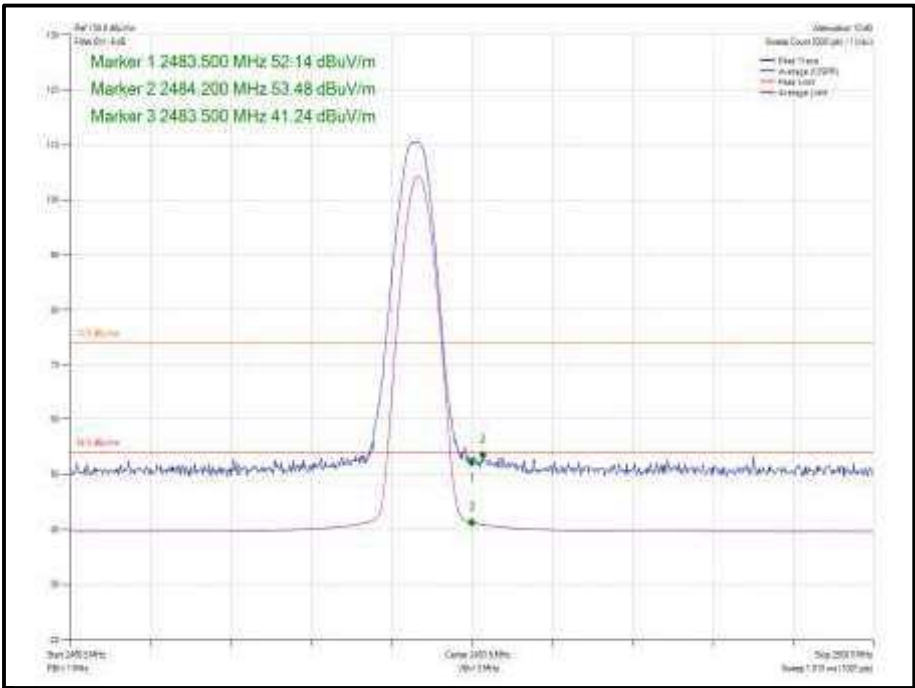


Figure 240 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

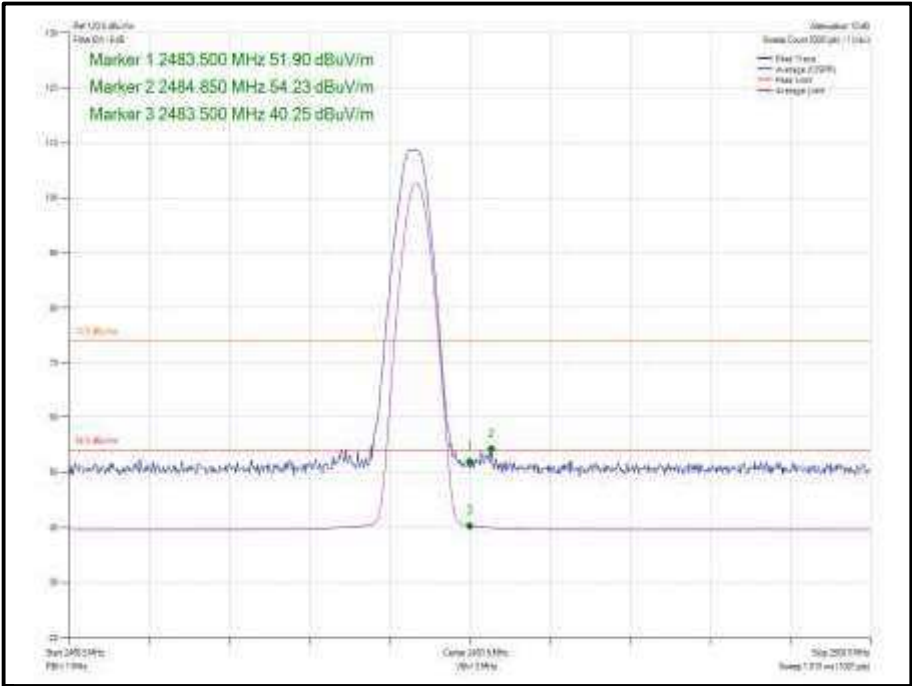


Figure 242 – Static - Core 2 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

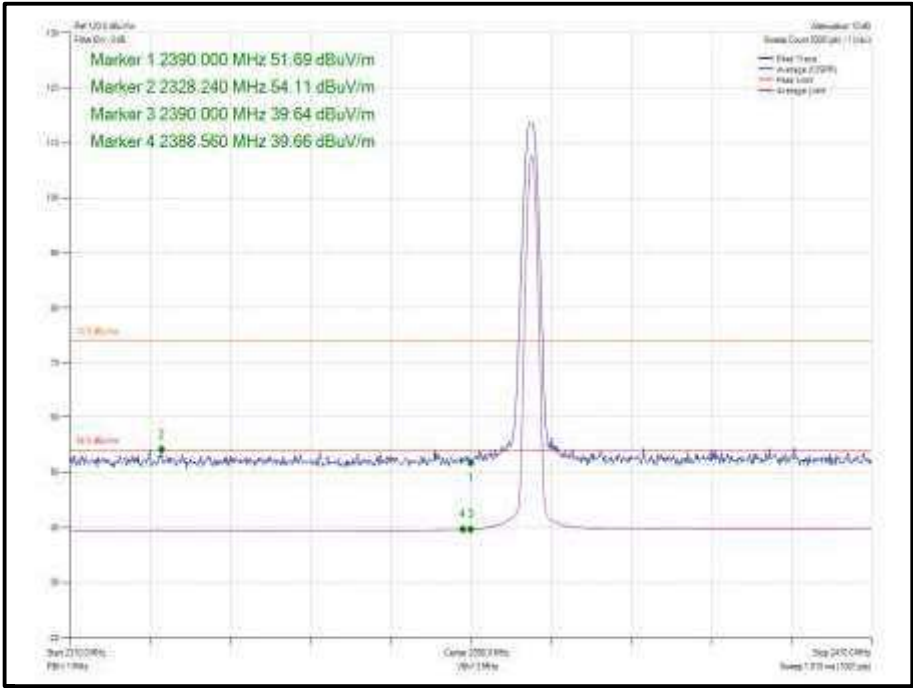


Figure 243 – Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

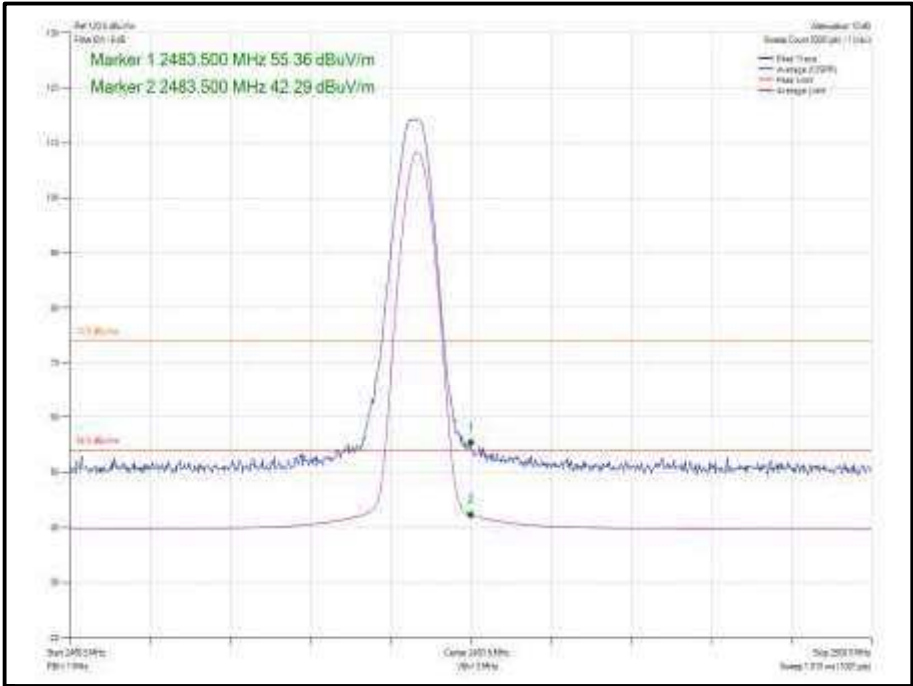
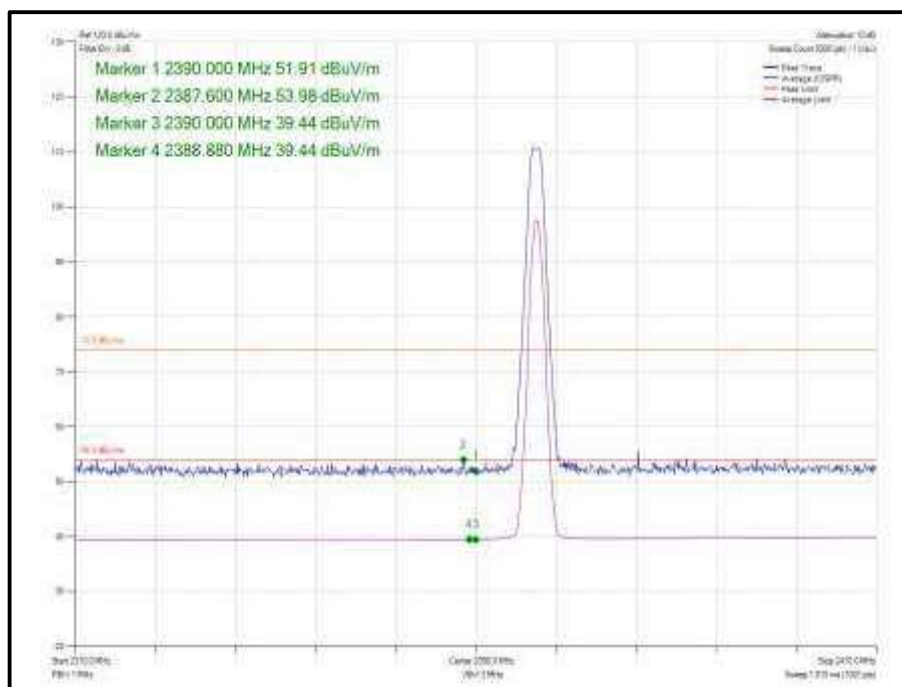


Figure 244 – GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

iPA – LE2M

| Modulation | Tx Frequency (MHz) | Core | Band Edge Frequency (MHz) | Peak Level (dBμV/m) | Average Level (dBμV/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**

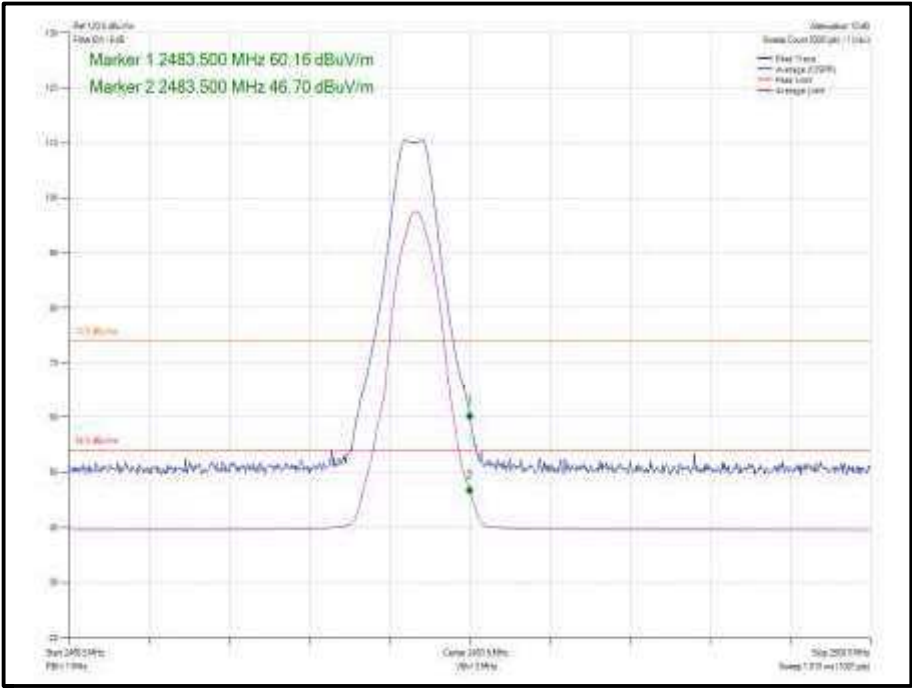


Figure 246 – Static - Core 0 GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

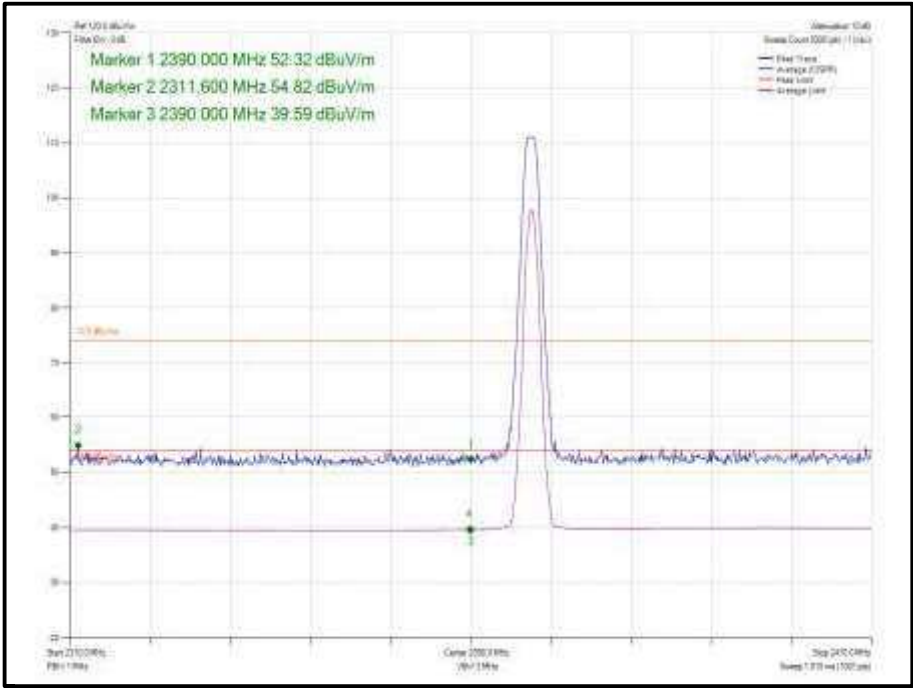


Figure 247 – Static - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

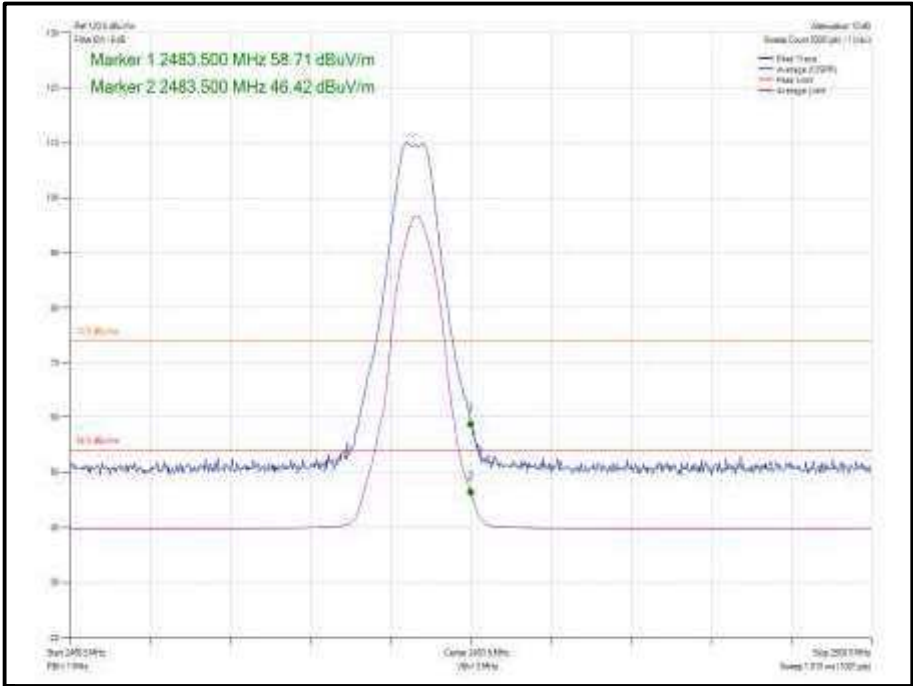


Figure 248 – Static - Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

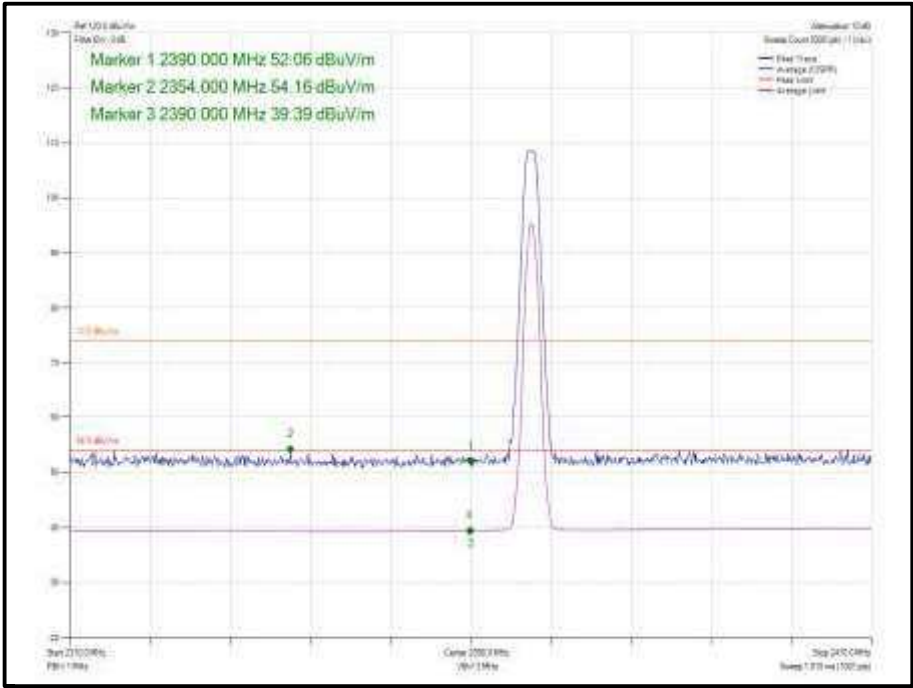


Figure 249 – Static - Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

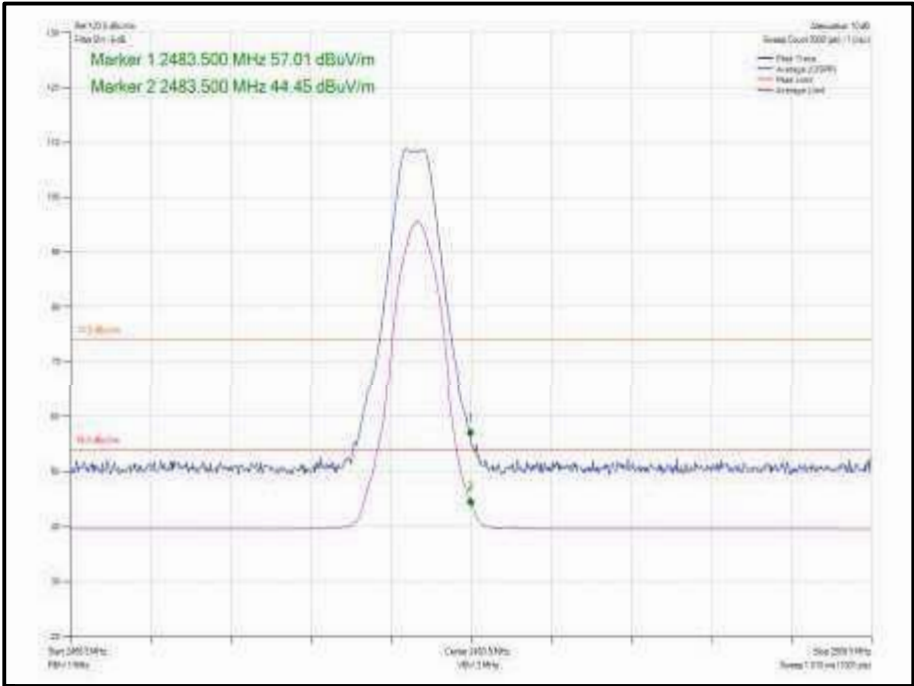


Figure 250 – Static - Core 2 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



| 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

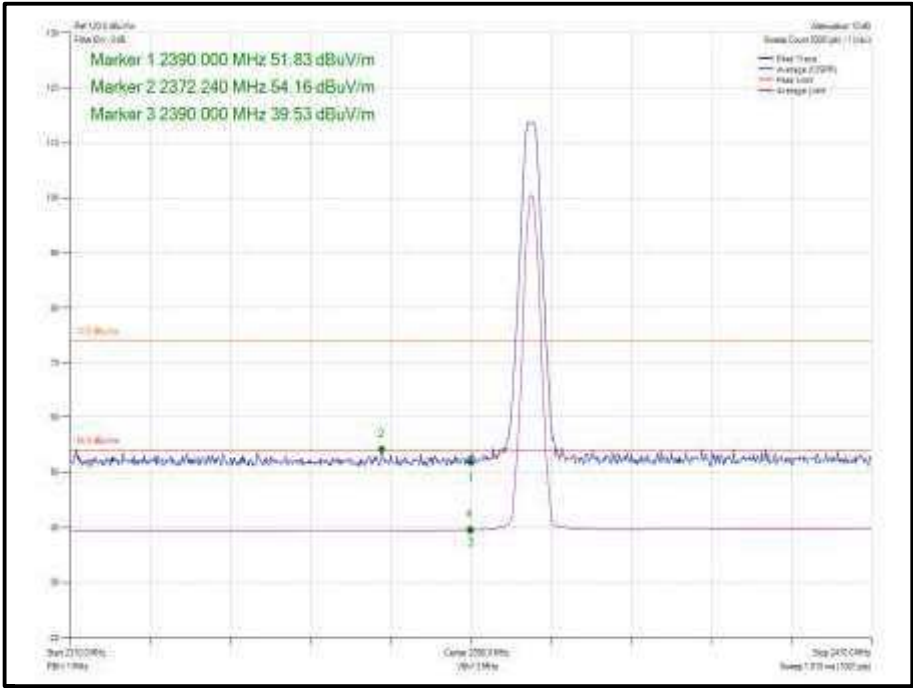


Figure 251 – Static - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

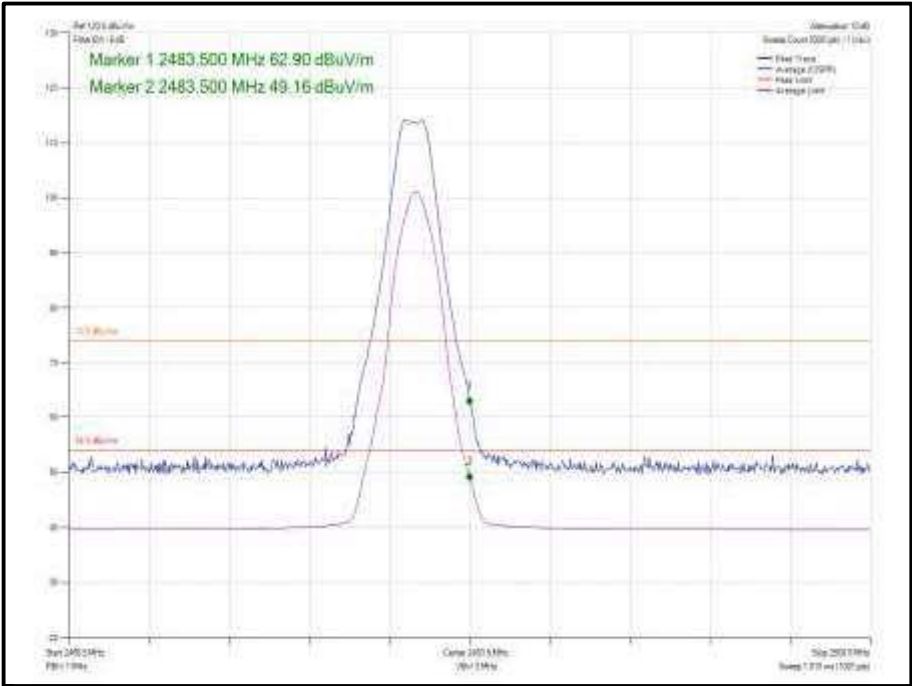


Figure 252 – Static - Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



FCC 47 CFR Part 15, Limit Clause 15.209

| Frequency (MHz) | Field Strength ( $\mu\text{V/m}$ 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 ( $\mu\text{V/m}$ 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 dBμV/m to μV/m:  
 $10^{(\text{Field Strength in dB}\mu\text{V/m} / 20)}$

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.



2.5.5 Example Test Setup Diagram

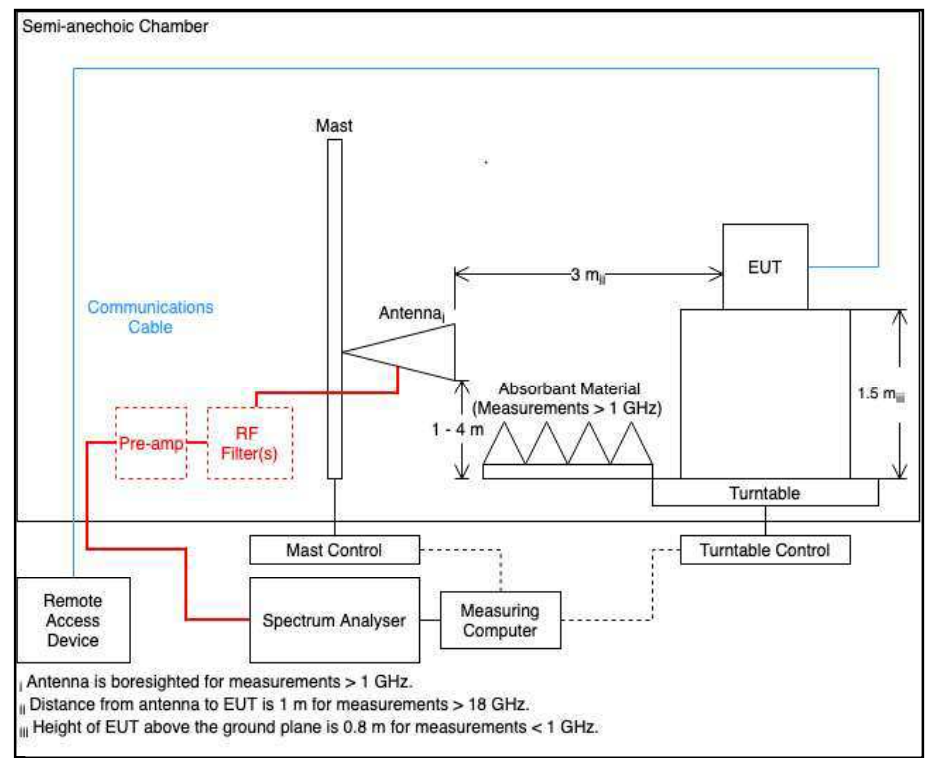


Figure 253

2.5.6 Environmental Conditions

Ambient Temperature 19.3 - 25.6 °C  
Relative Humidity 44.3 - 60.1 %

2.5.7 Test Results

2.4 GHz Bluetooth - DTS

| 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     |

Table 124 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz

No other emissions found within 6 dB of the limit.

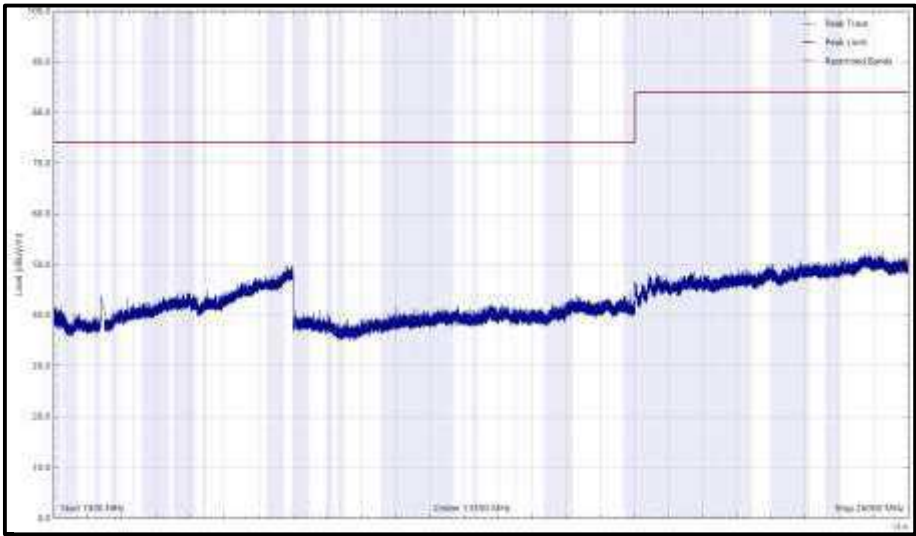


Figure 254 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

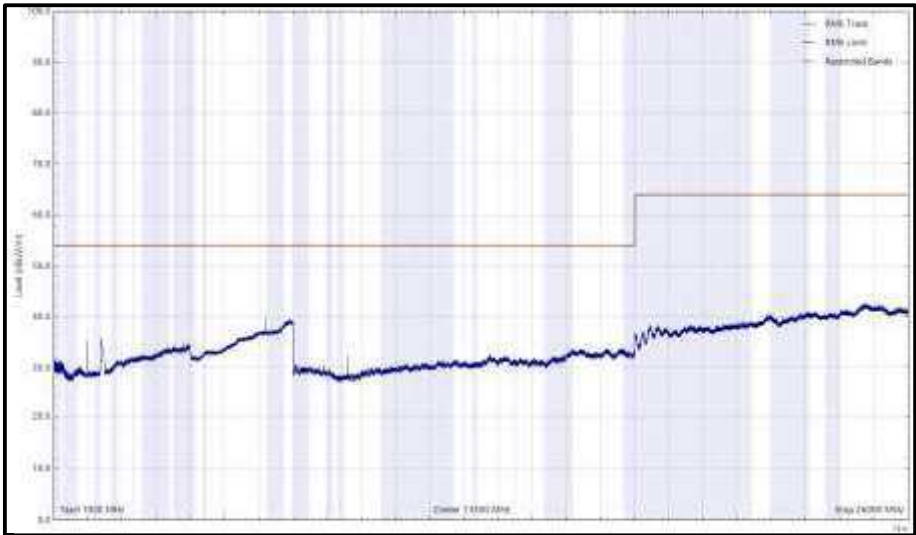


Figure 255 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

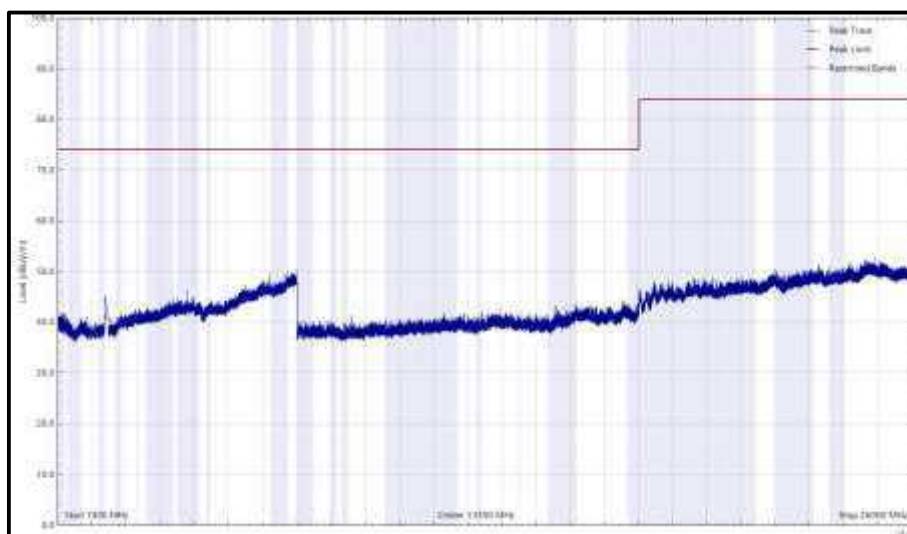


Figure 256 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

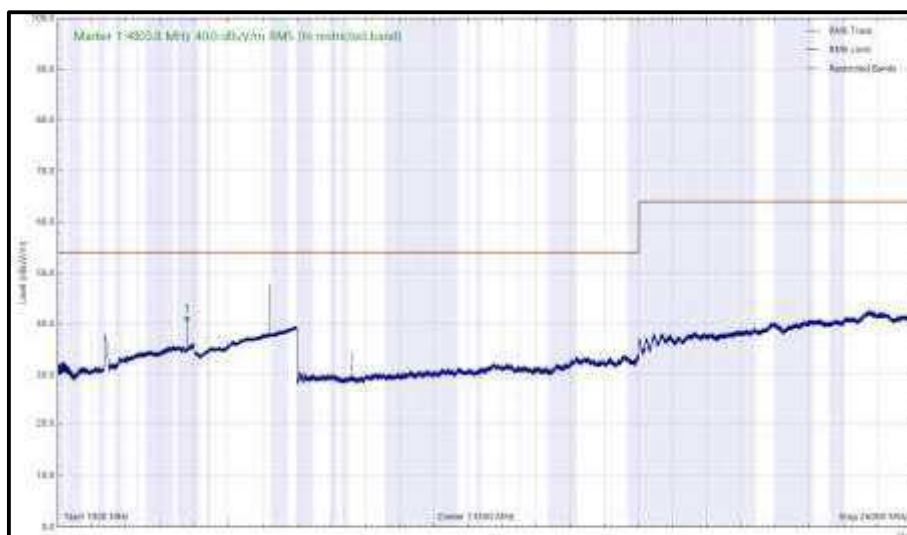


Figure 257 - 2402 MHz (CH0), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

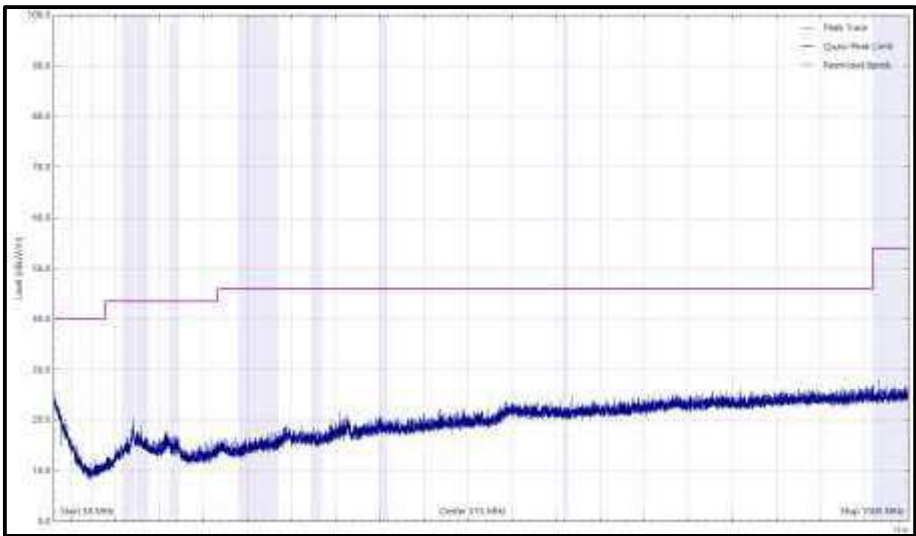


Figure 258 - 2440 MHz (CH17), LE1M, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

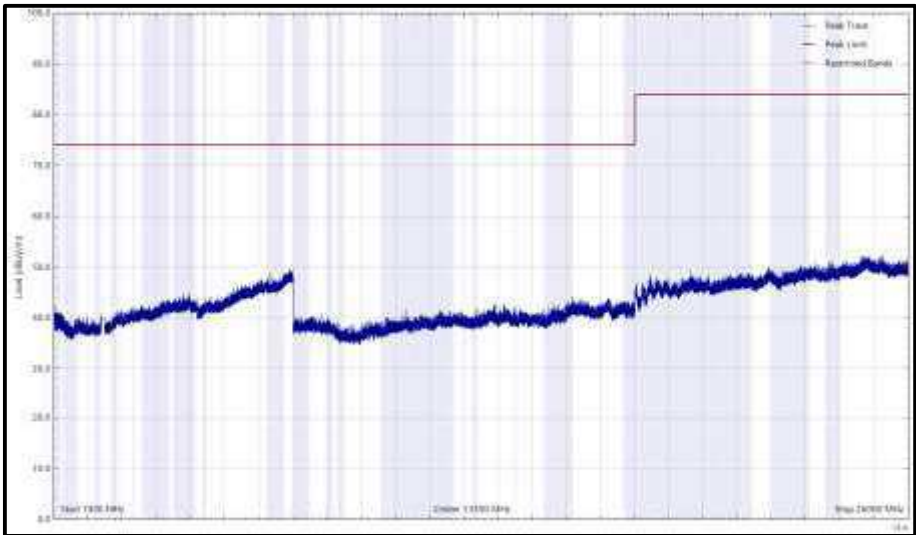


Figure 259 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

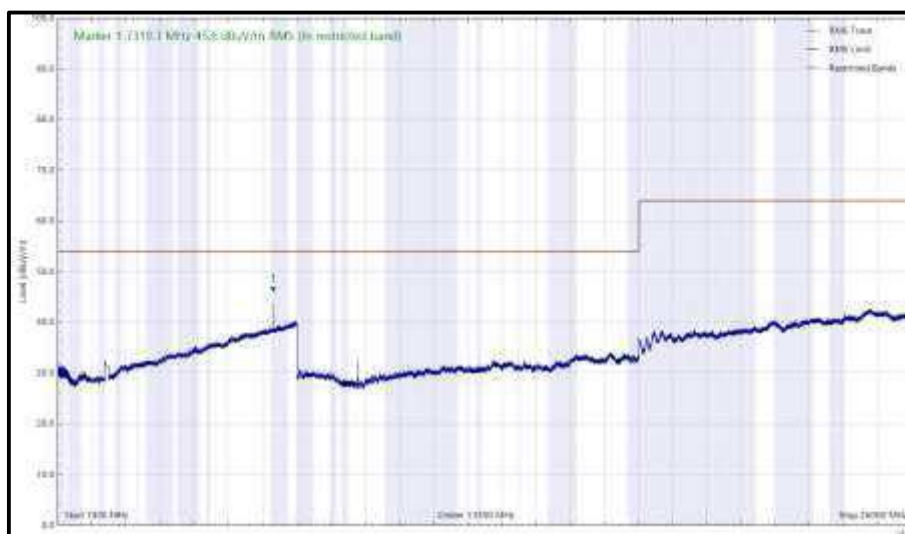


Figure 260 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

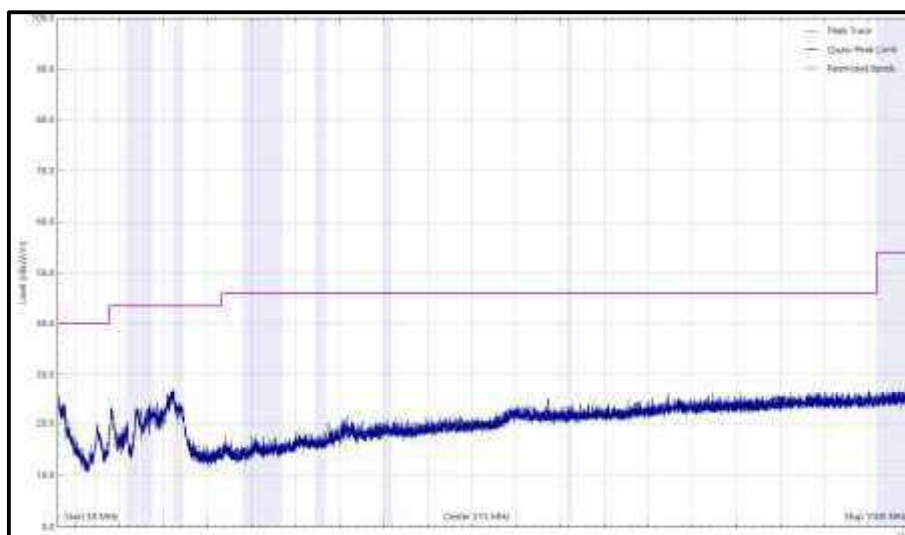


Figure 261 - 2440 MHz (CH17), LE1M, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

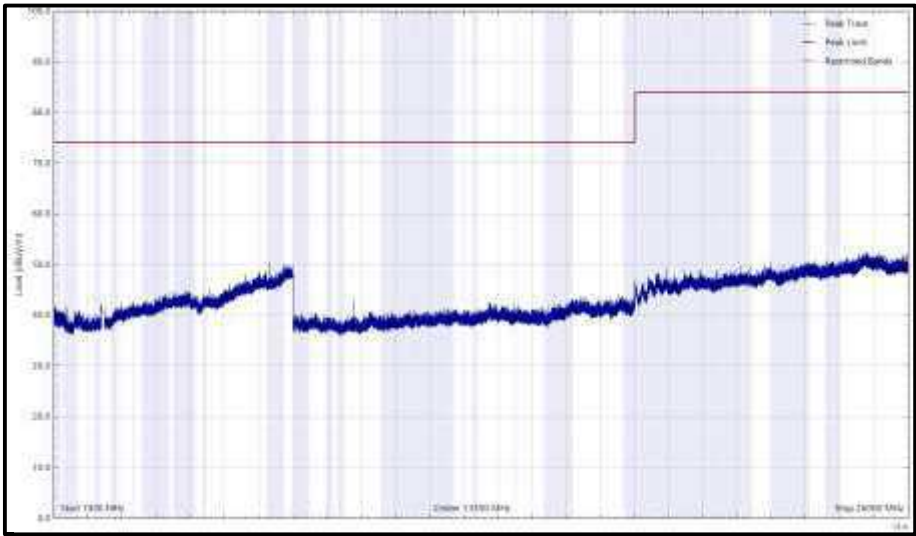


Figure 262 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

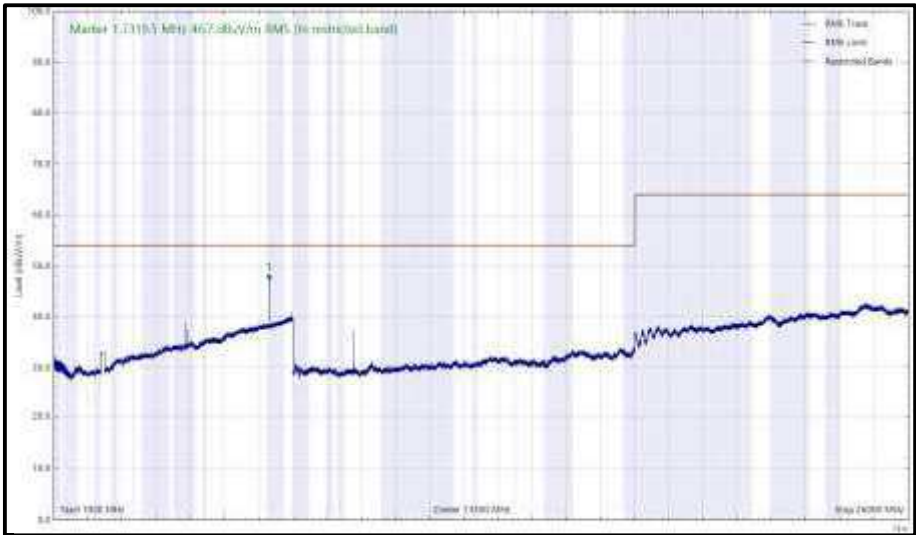


Figure 263 - 2440 MHz (CH17), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

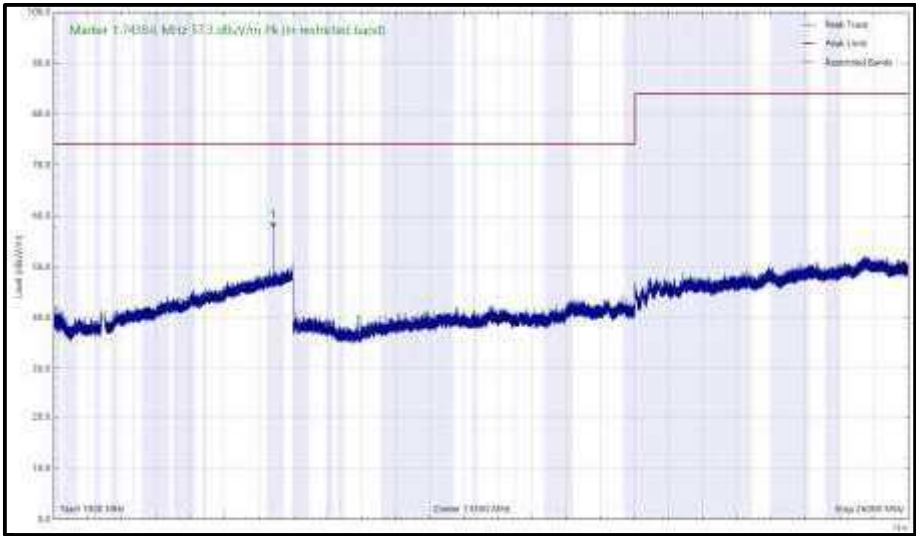


Figure 264 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

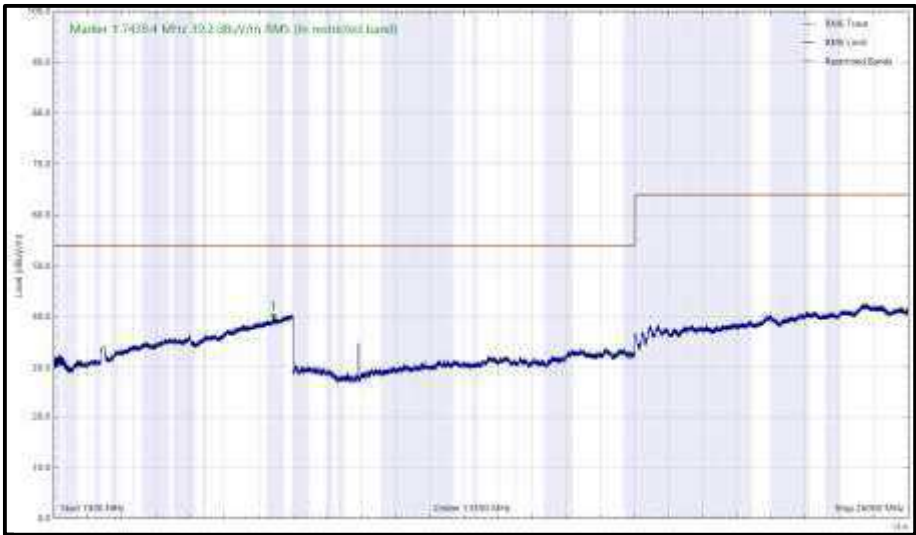


Figure 265 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

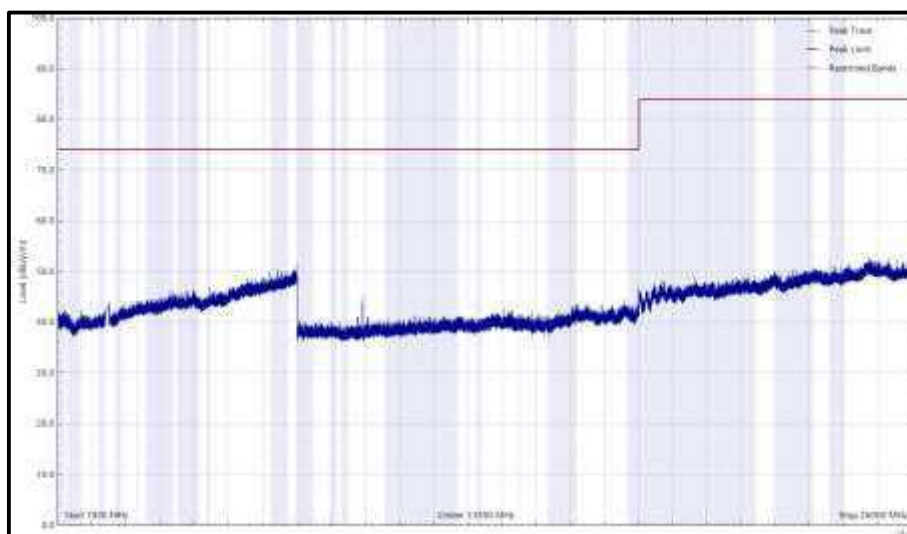


Figure 266 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

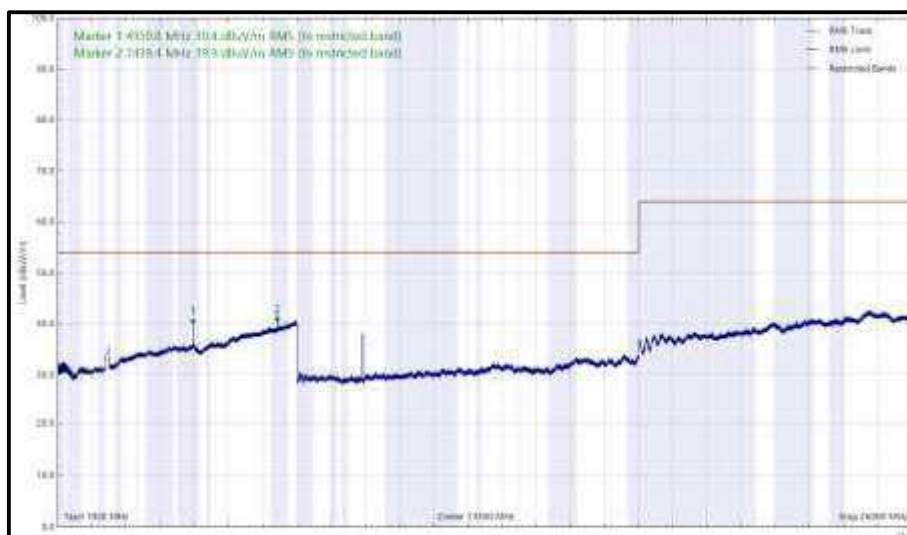
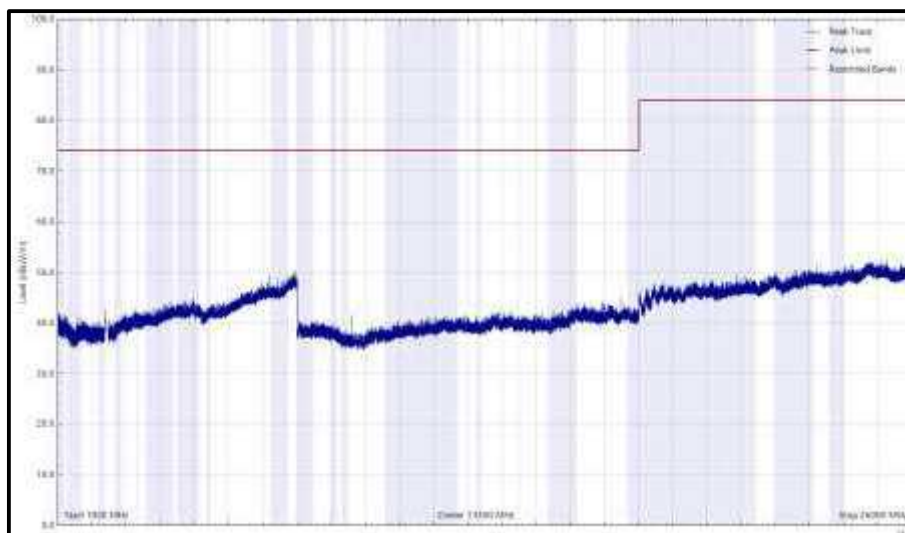


Figure 267 - 2480 MHz (CH39), LE1M, ePA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)

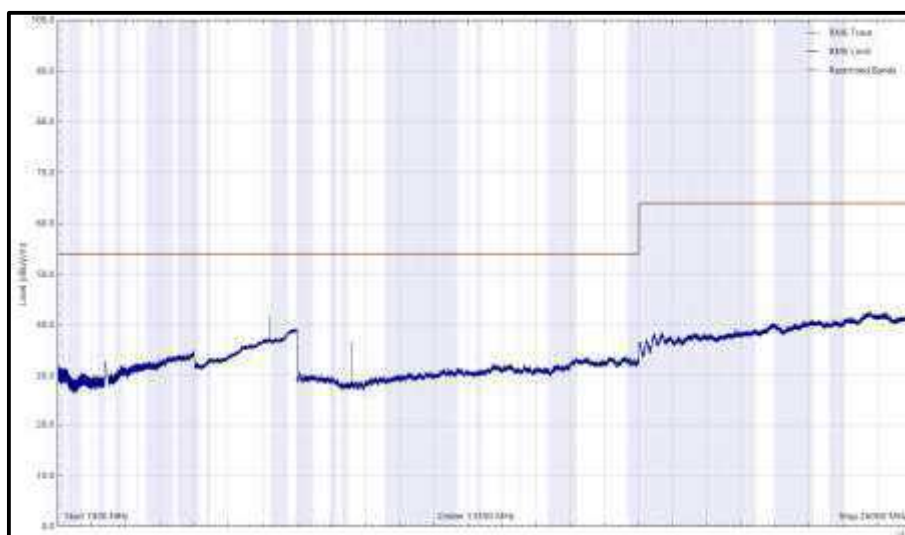
| Frequency (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 4803.901        | 37.5           | 54.0           | -16.5       | 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)**

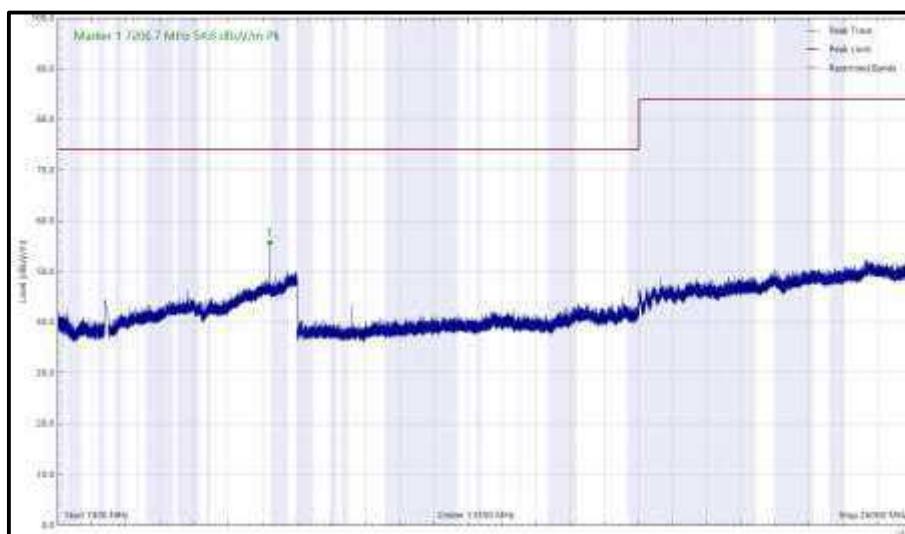


Figure 270 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)

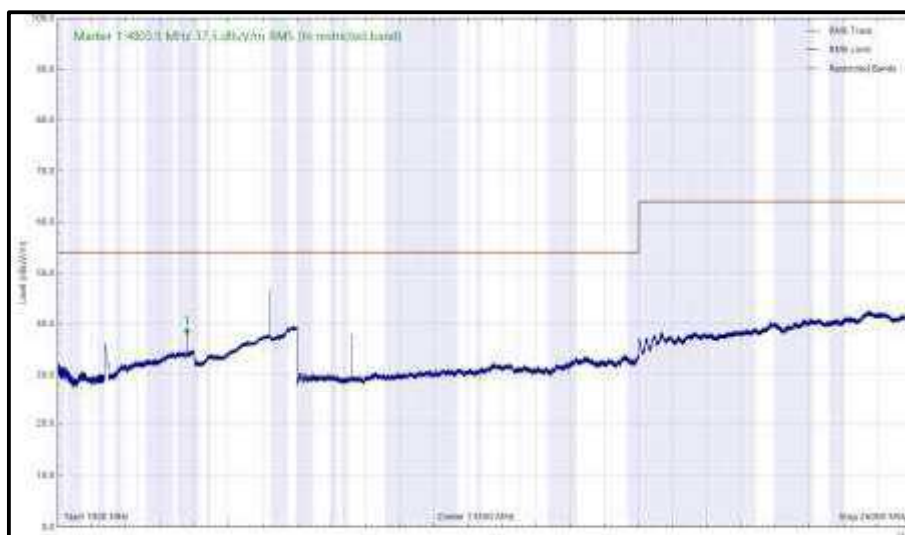


Figure 271 - 2402 MHz (CH0), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

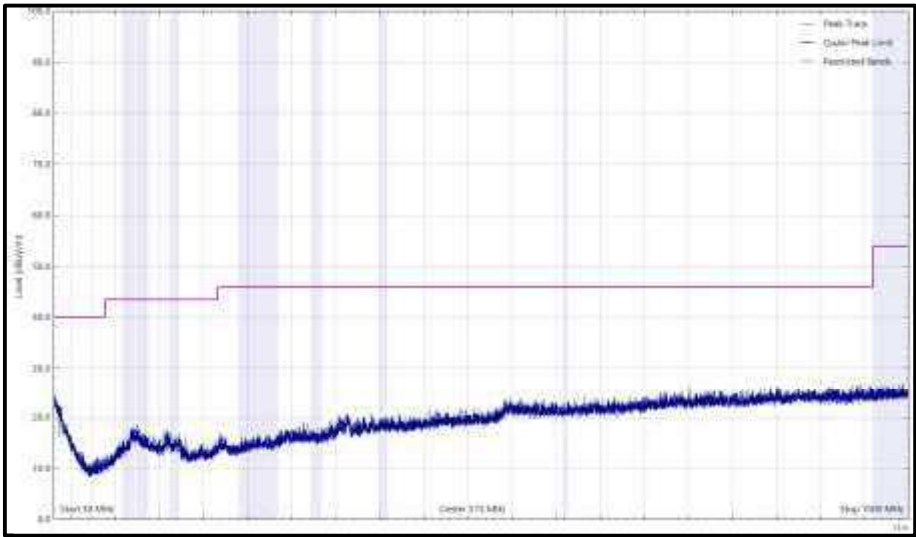


Figure 272 - 2440 MHz (CH17), LE1M, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

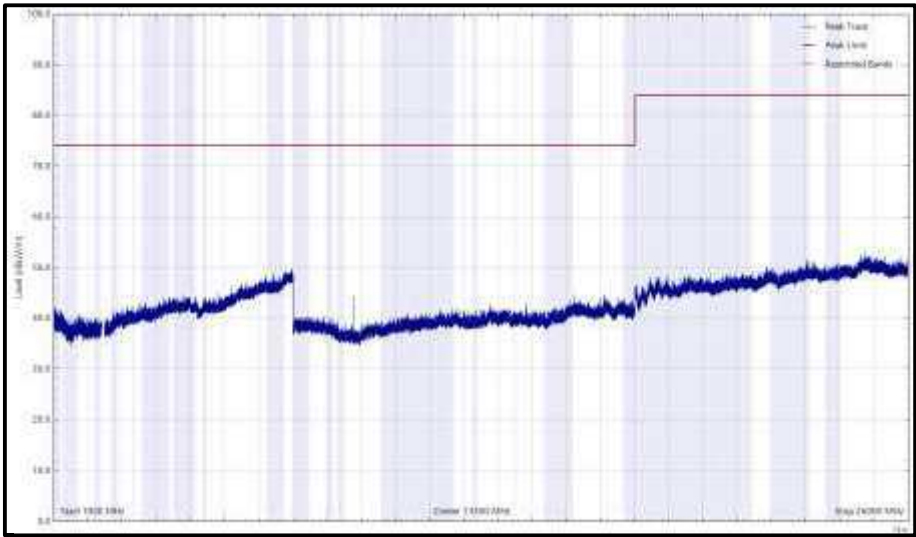


Figure 273 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

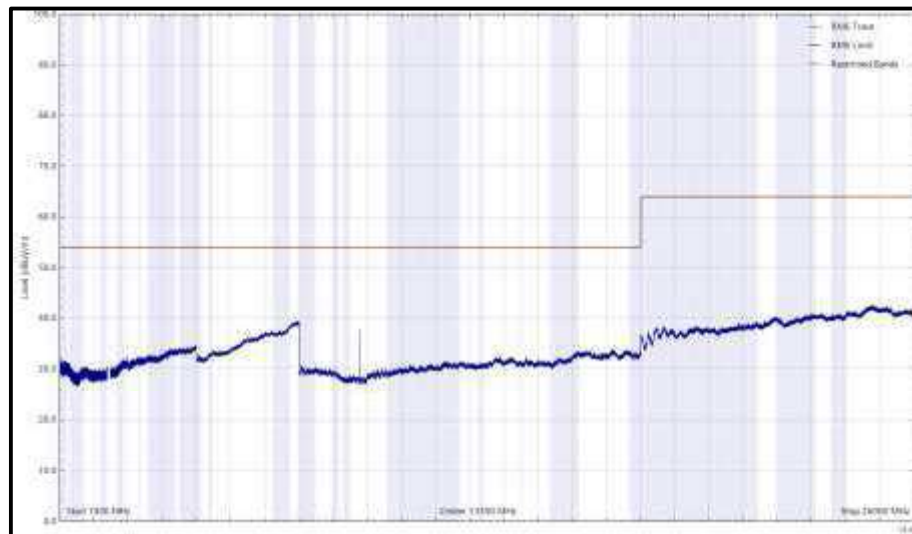


Figure 274 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

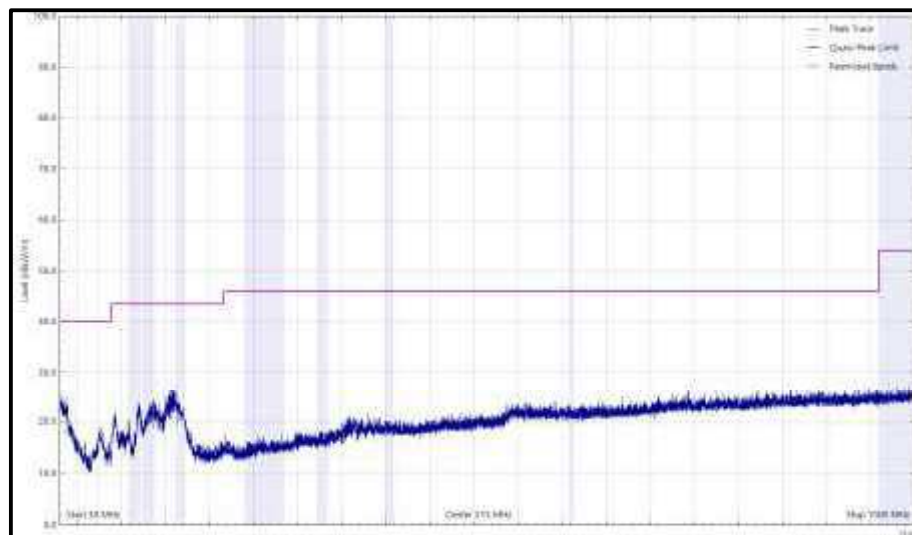


Figure 275 - 2440 MHz (CH17), LE1M, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

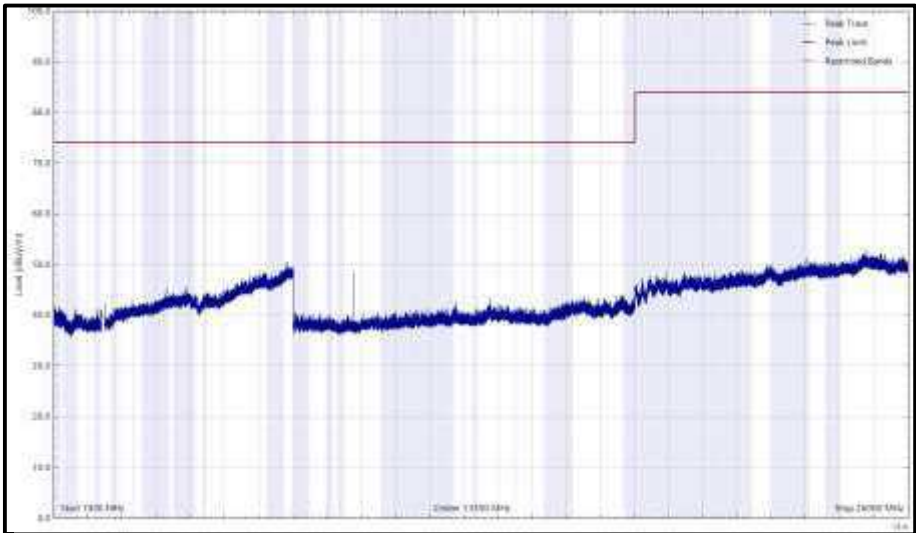


Figure 276 - 2440 MHz (CH17), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)



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.

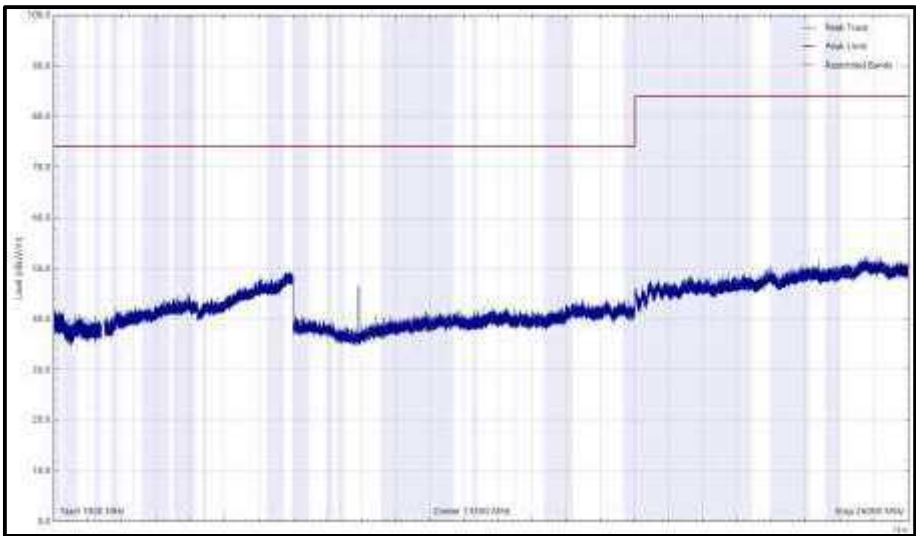


Figure 278 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

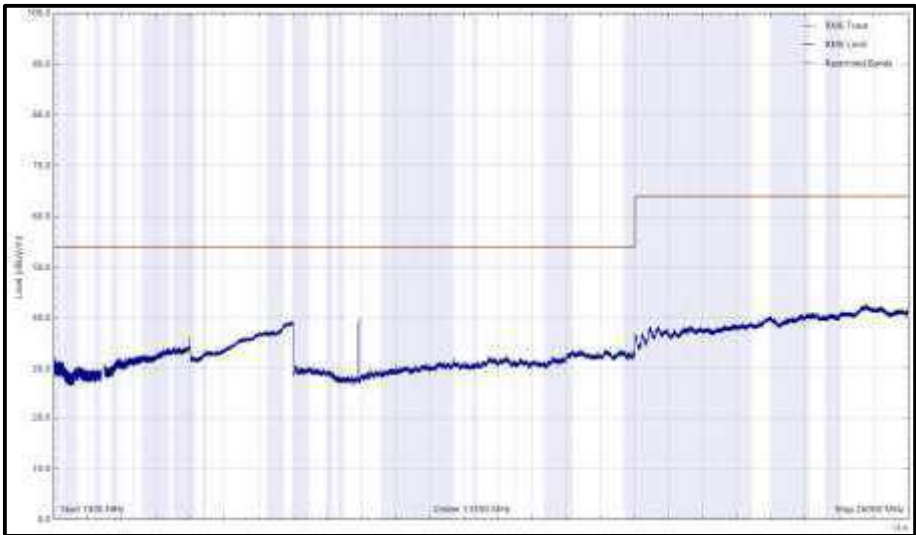


Figure 279 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

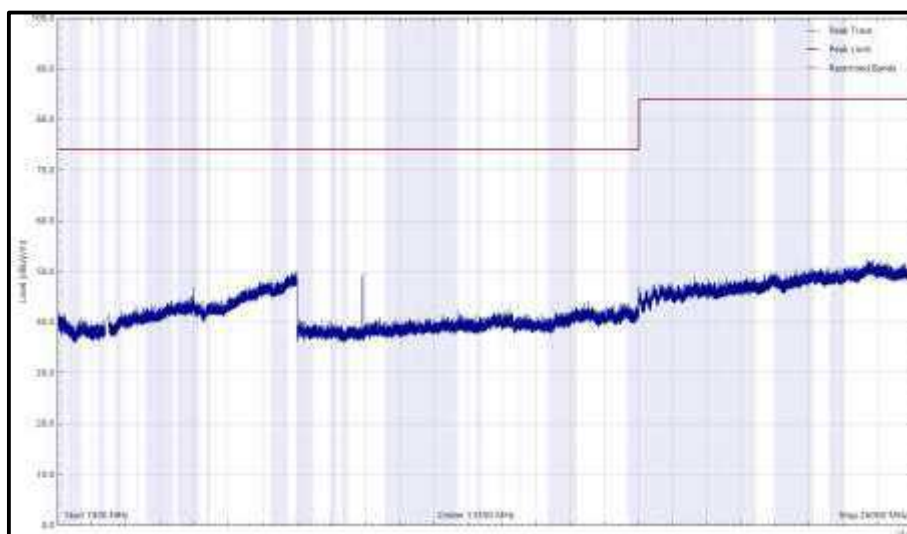


Figure 280 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)

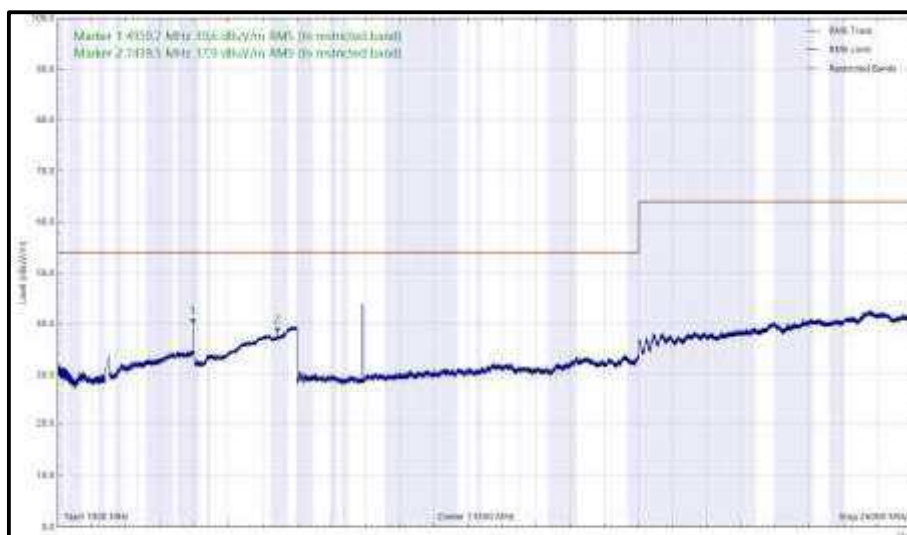


Figure 281 - 2480 MHz (CH39), LE1M, ePA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

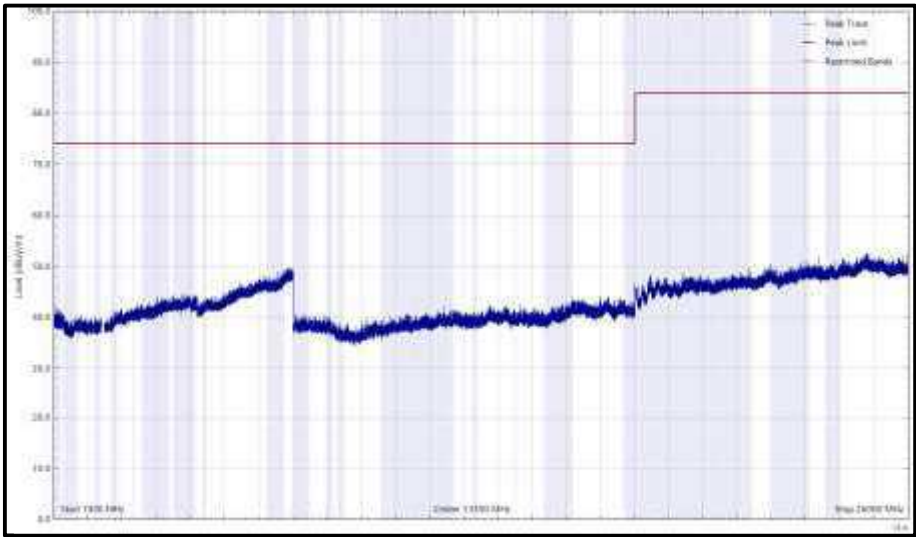


Figure 282 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

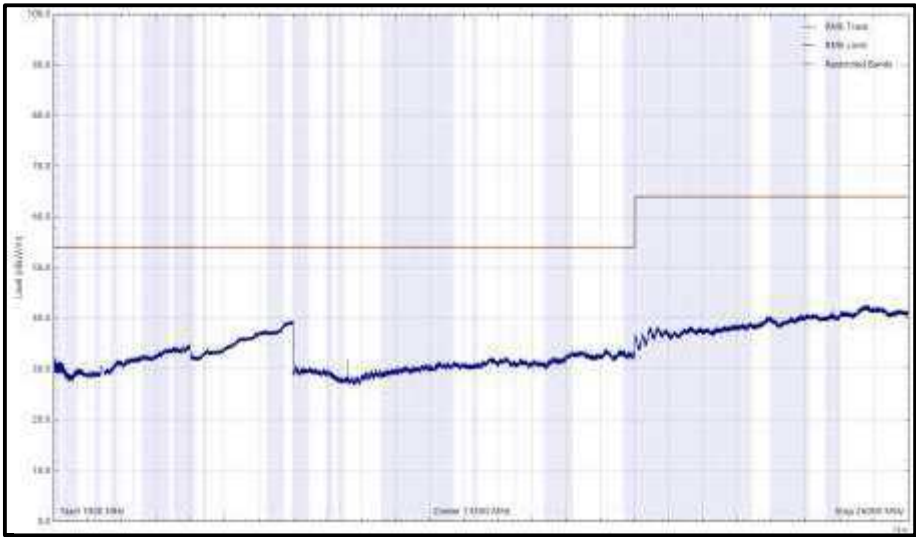


Figure 283 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

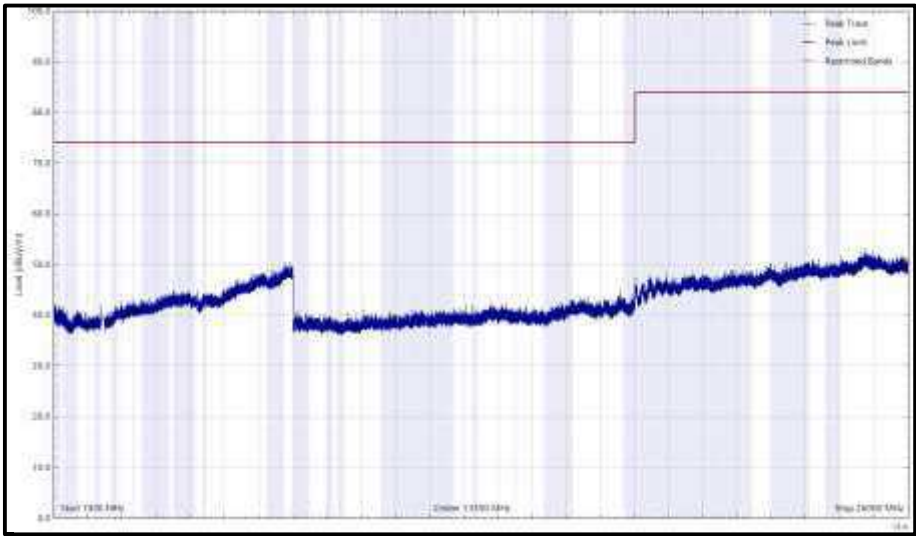


Figure 284 - 2402 MHz (CH0), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)



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.

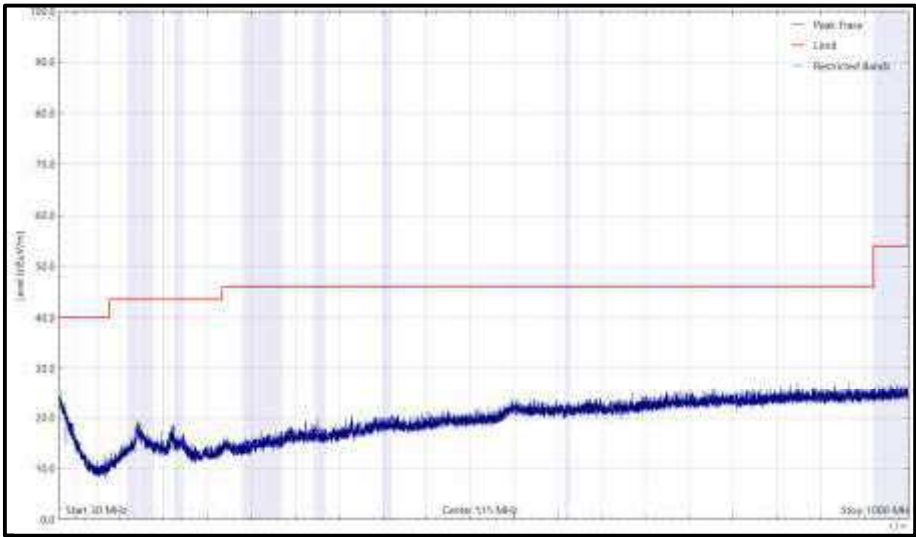


Figure 286 - 2440 MHz (CH17), LE1M, iPA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

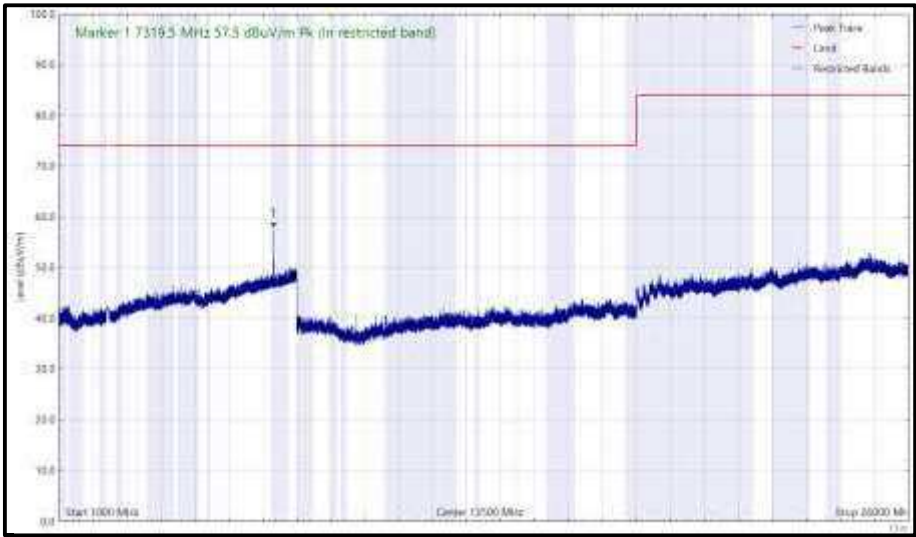


Figure 287 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

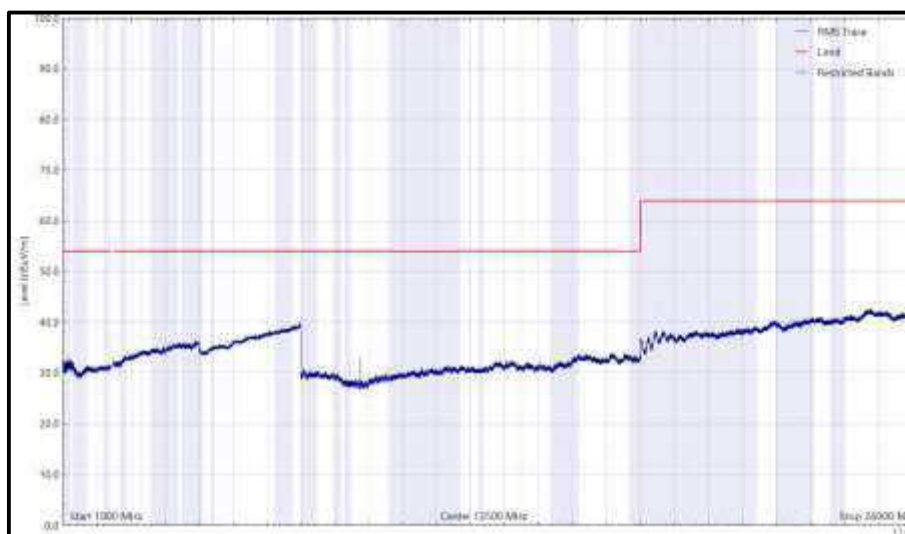


Figure 288 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

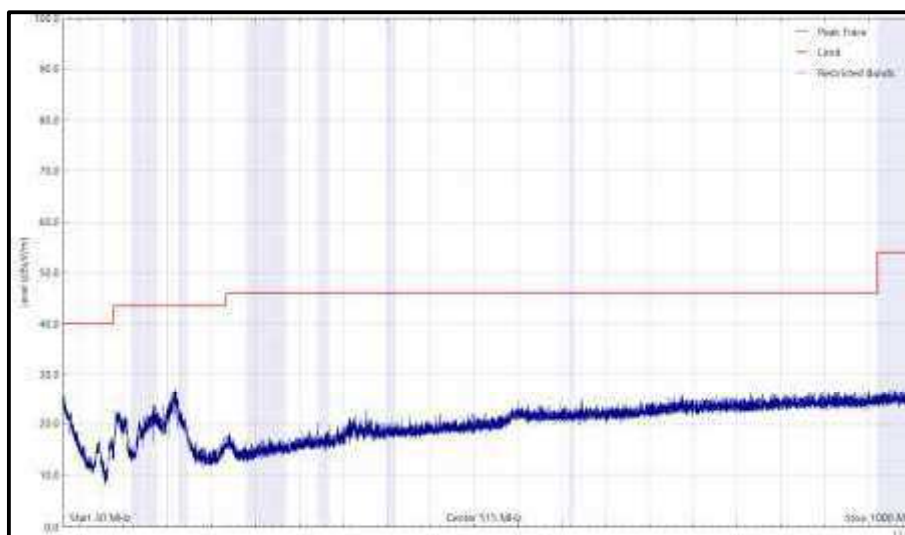


Figure 289 - 2440 MHz (CH17), LE1M, iPA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

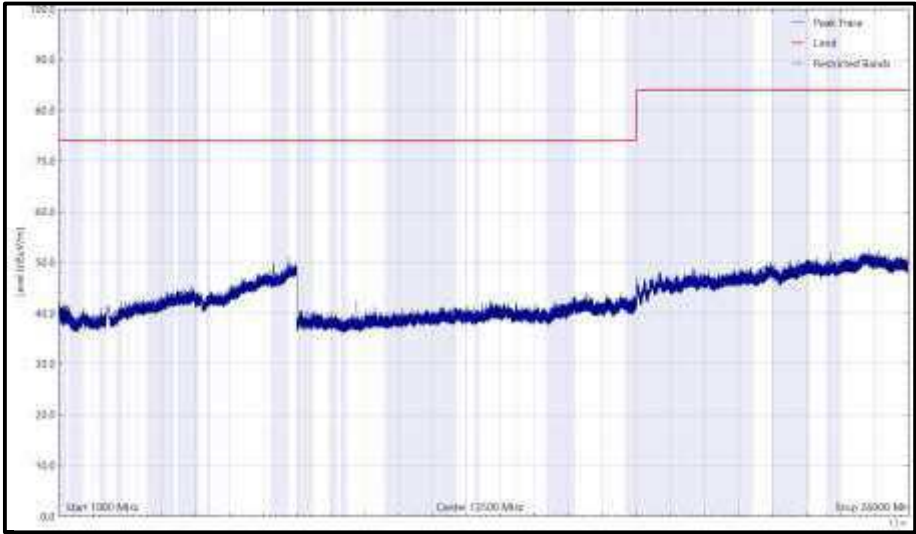


Figure 290 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

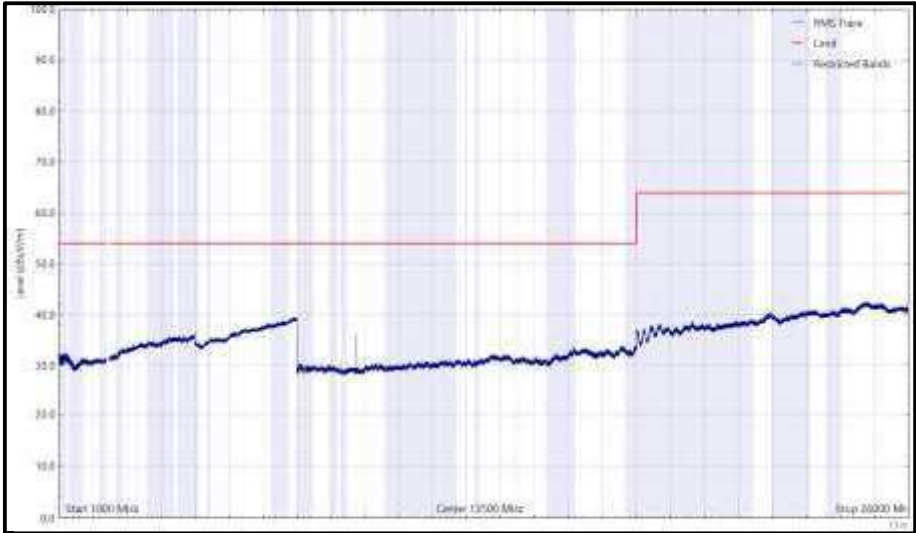


Figure 291 - 2440 MHz (CH17), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

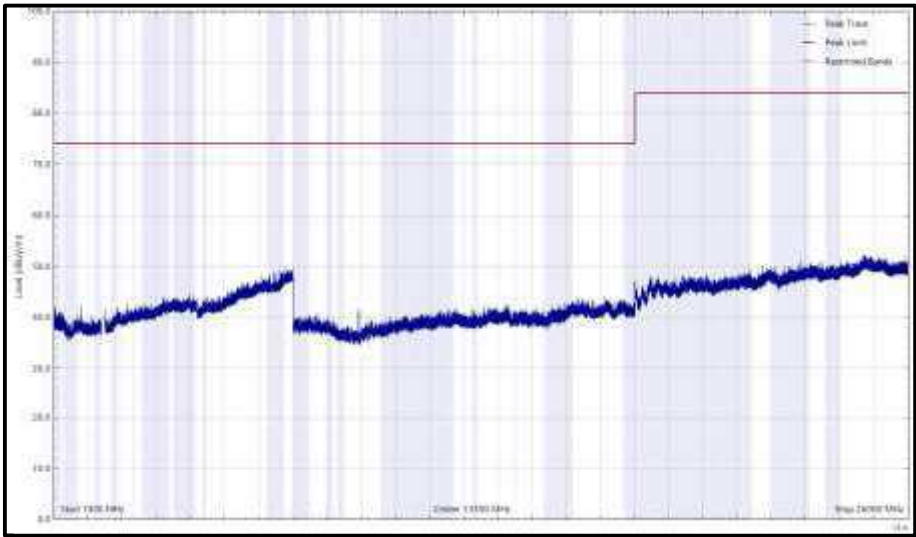


Figure 292 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (Peak)

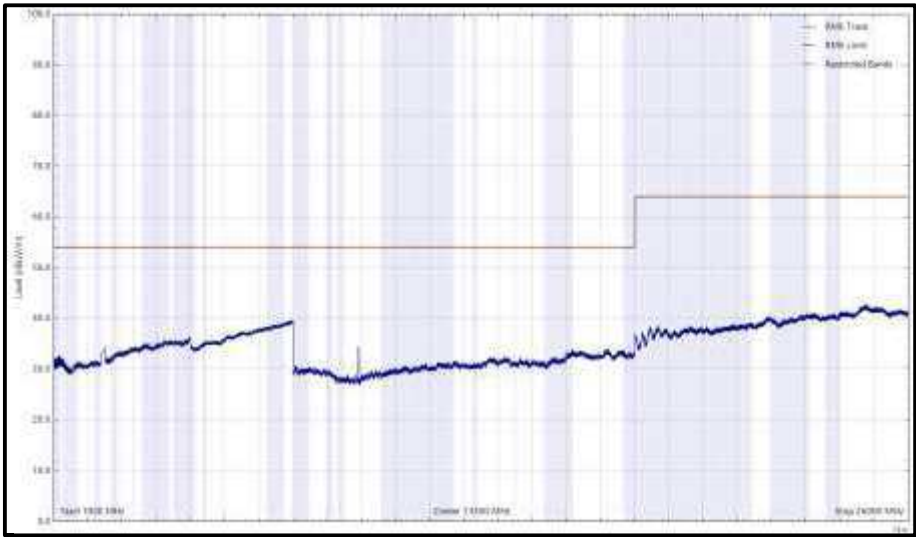


Figure 293 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Horizontal (RMS)

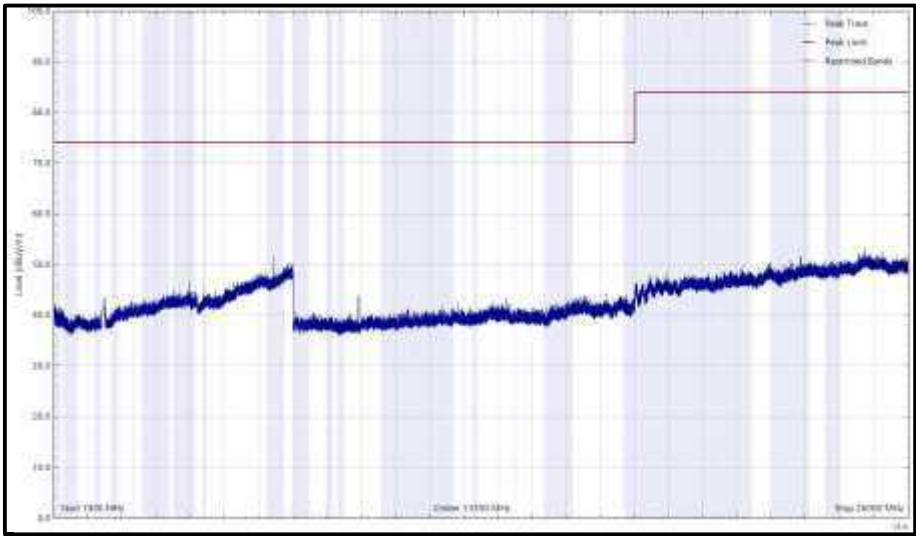


Figure 294 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (Peak)

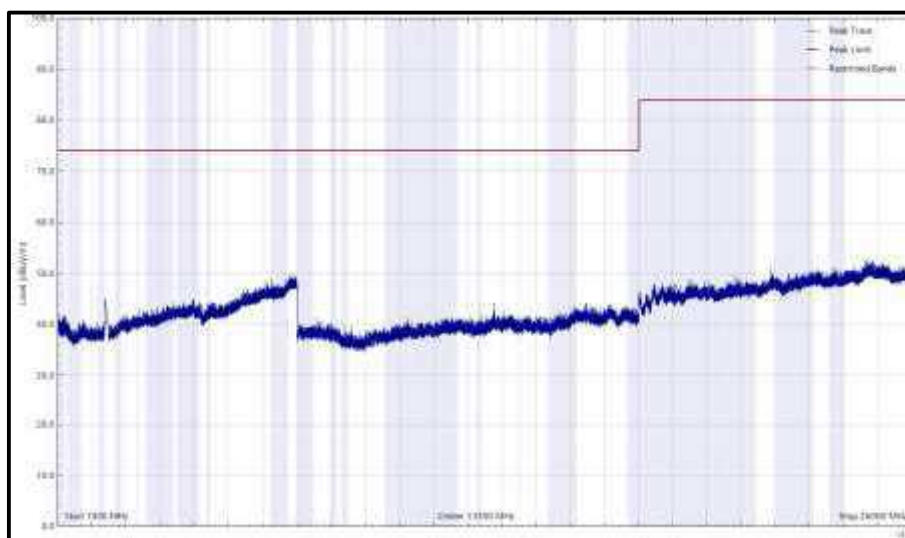


Figure 295 - 2480 MHz (CH39), LE1M, iPA, Core 0, 1 GHz to 26 GHz, Vertical (RMS)

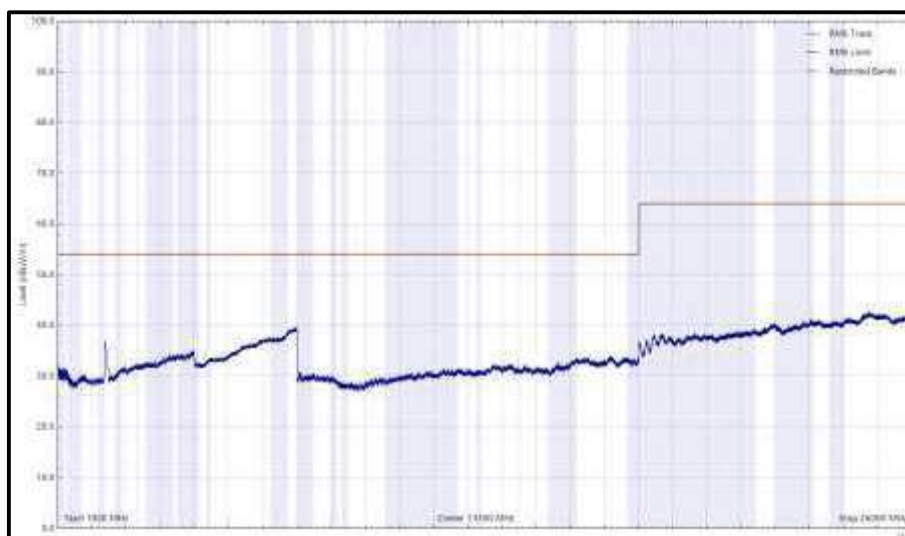
| Frequency (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 4803.771        | 38.6           | 54.0           | -15.4       | 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)**





| 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.

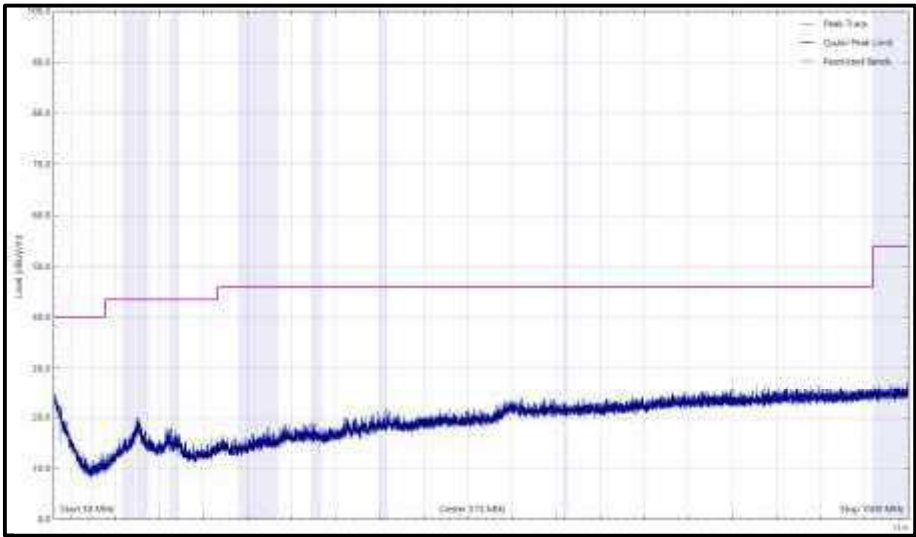


Figure 300 - 2440 MHz (CH17), LE1M, iPA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

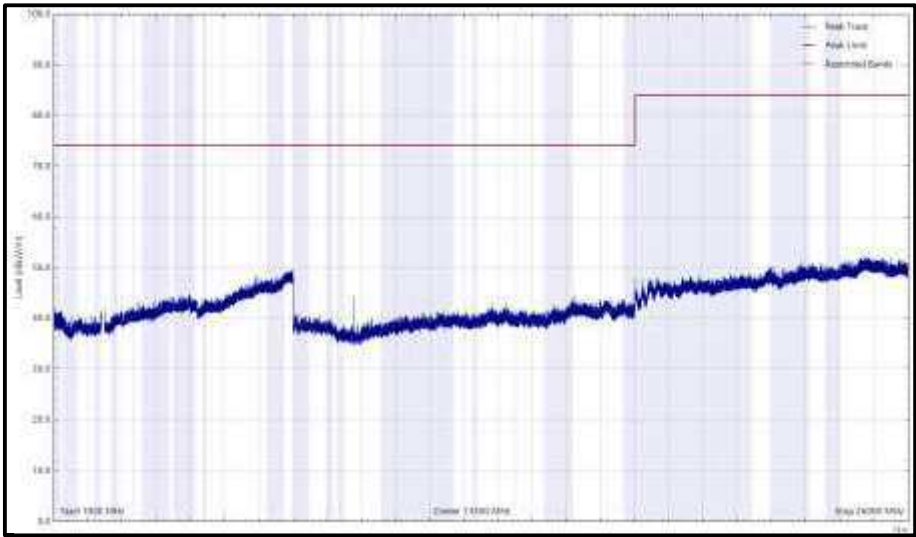


Figure 301 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

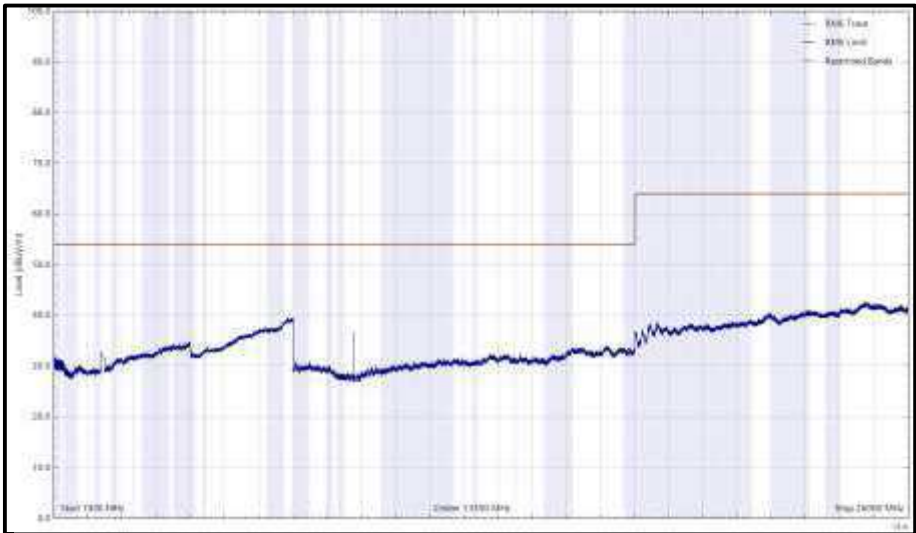


Figure 302 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

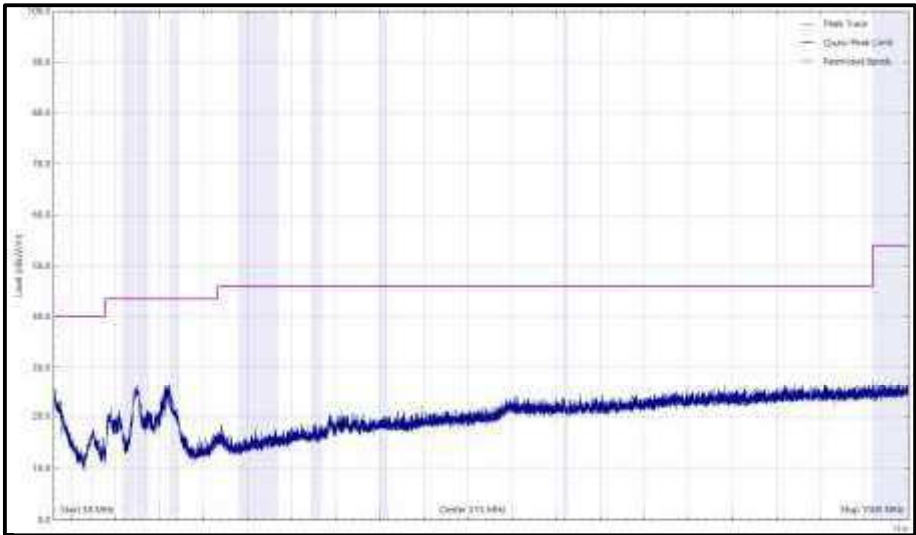


Figure 303 - 2440 MHz (CH17), LE1M, iPA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

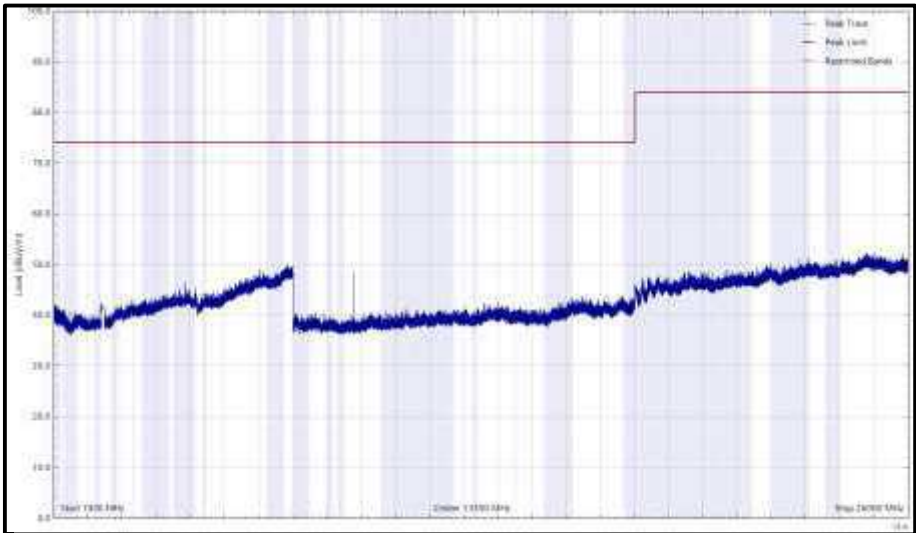


Figure 304 - 2440 MHz (CH17), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)



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.

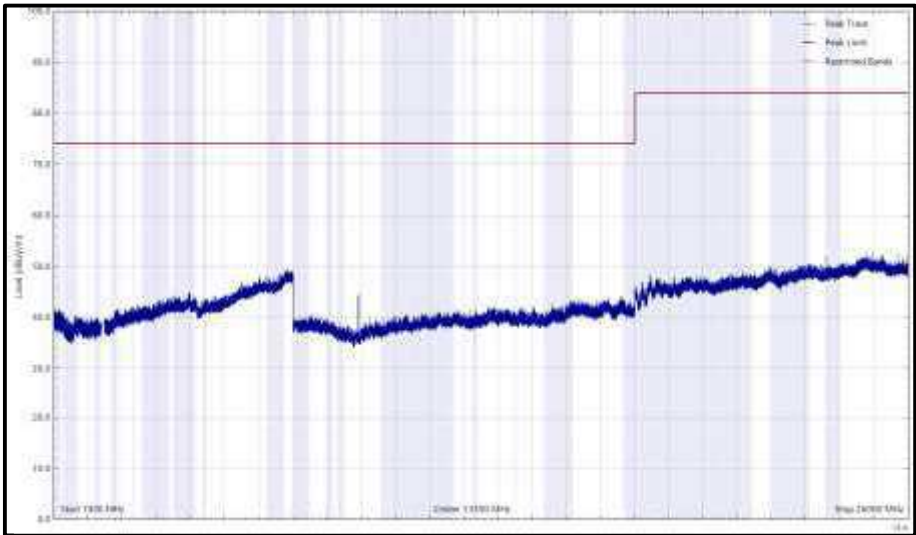


Figure 306 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (Peak)

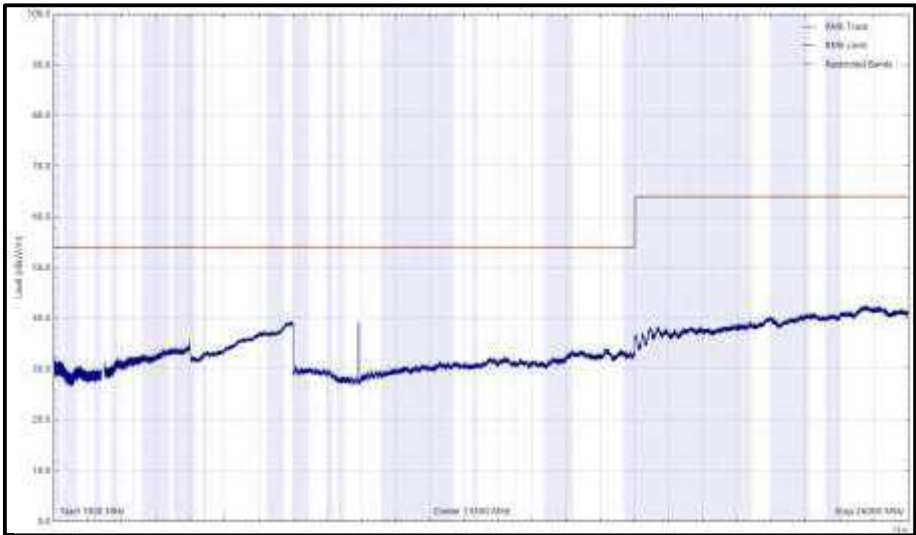


Figure 307 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Horizontal (RMS)

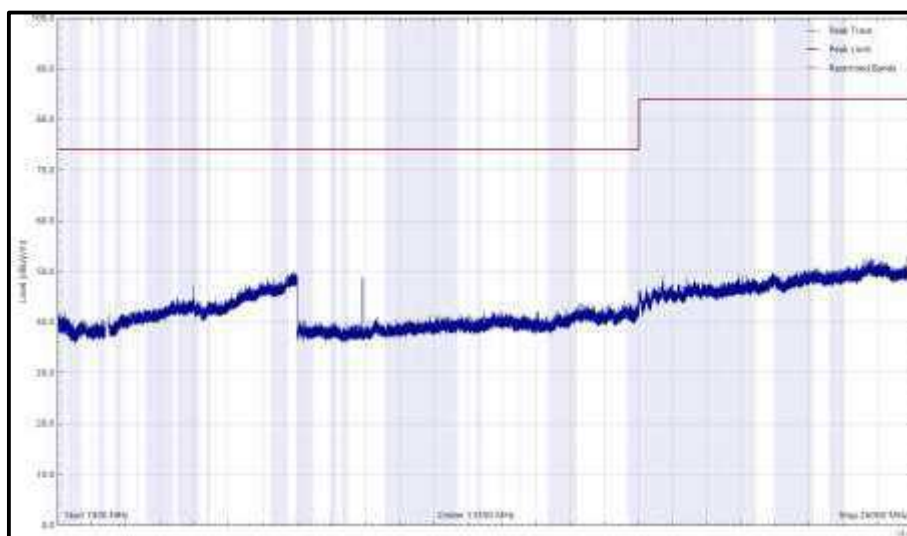


Figure 308 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (Peak)

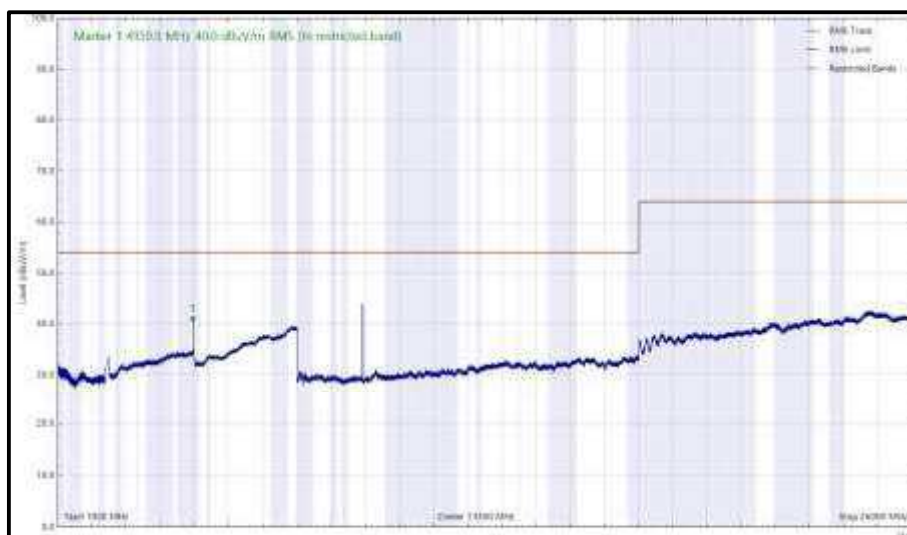


Figure 309 - 2480 MHz (CH39), LE1M, iPA, Core 1, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

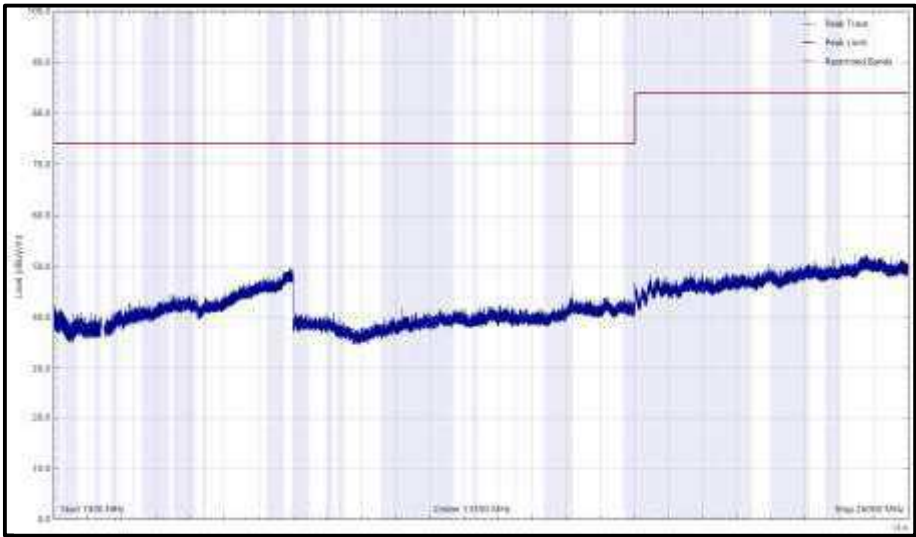


Figure 310 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (Peak)

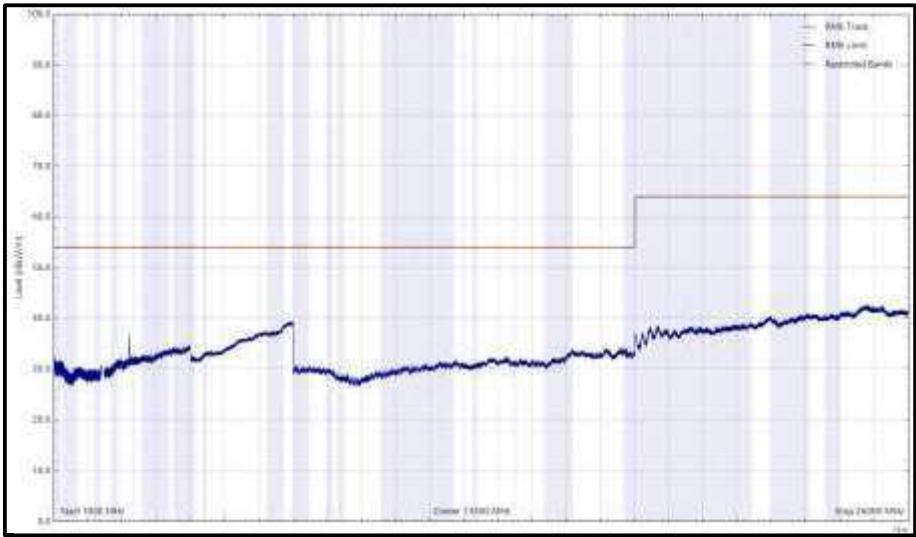


Figure 311 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (RMS)

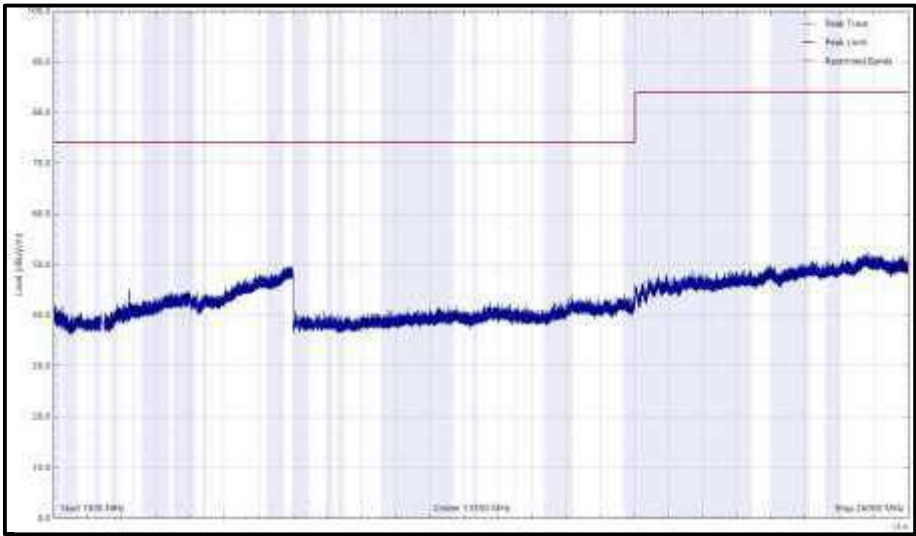


Figure 312 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (Peak)

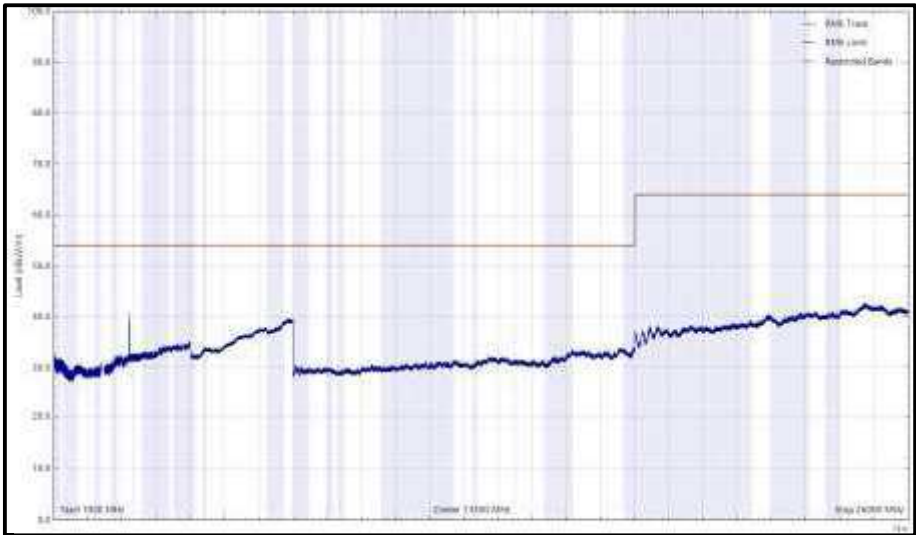
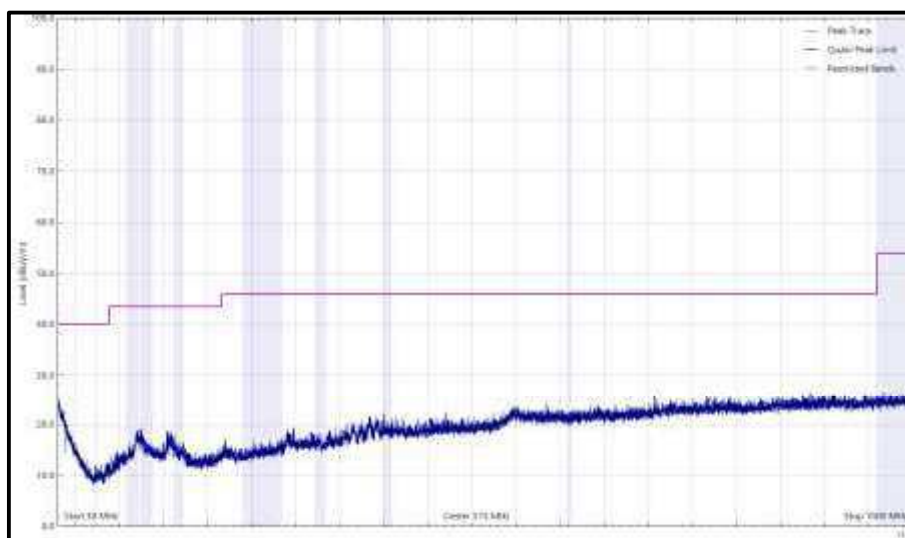


Figure 313 - 2402 MHz (CH0), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (RMS)

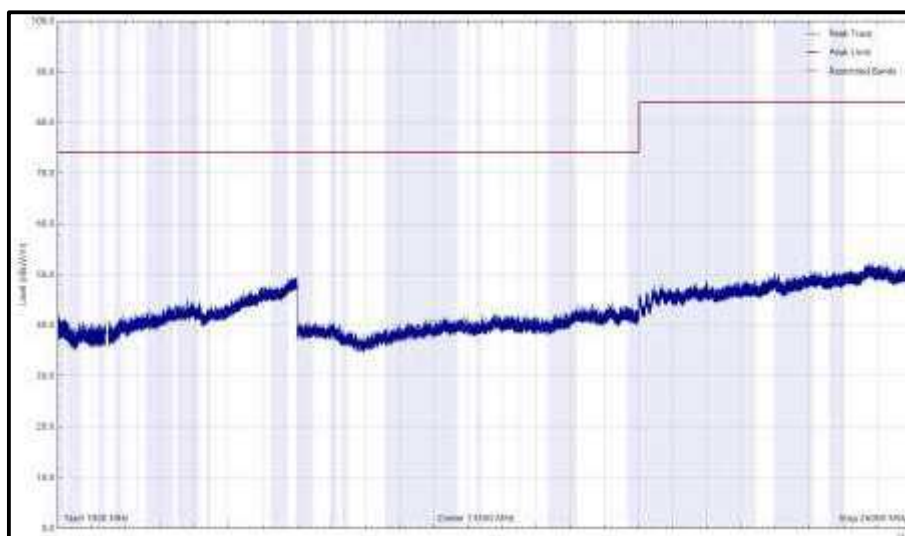
| Frequency (MHz) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 4879.836        | 39.8           | 54.0           | -14.2       | 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)**

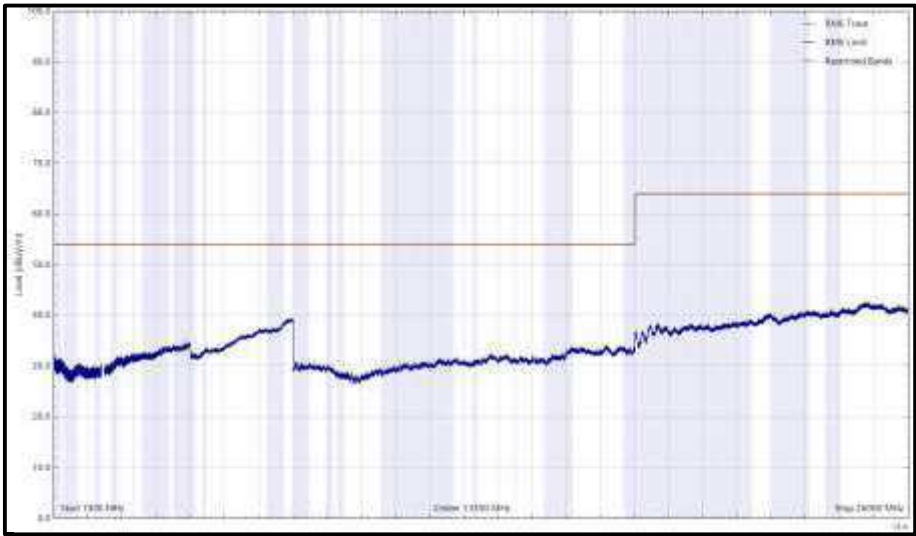


Figure 316 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (RMS)

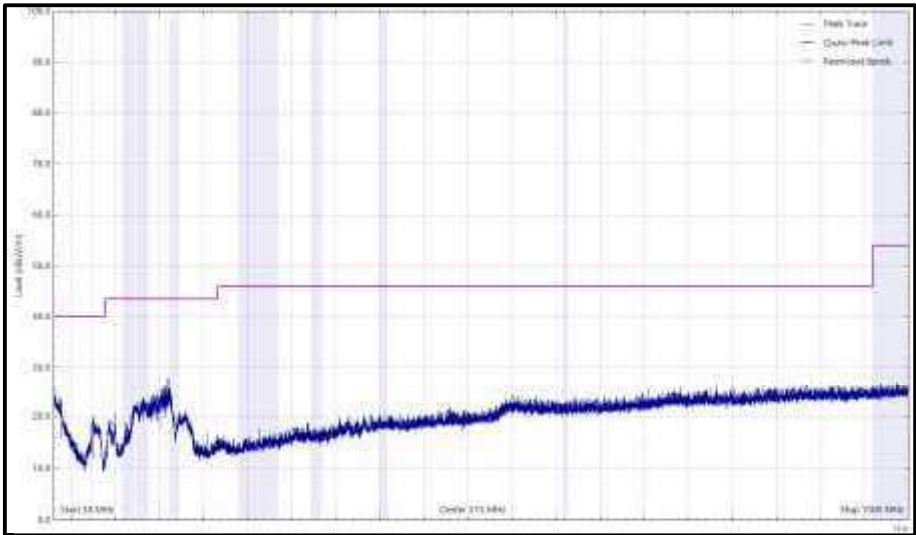


Figure 317 - 2440 MHz (CH17), LE1M, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

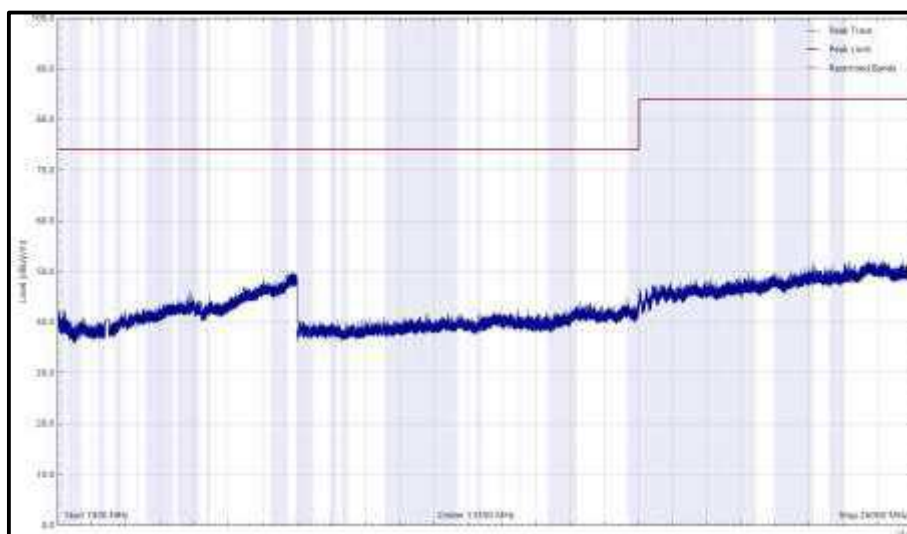


Figure 318 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (Peak)

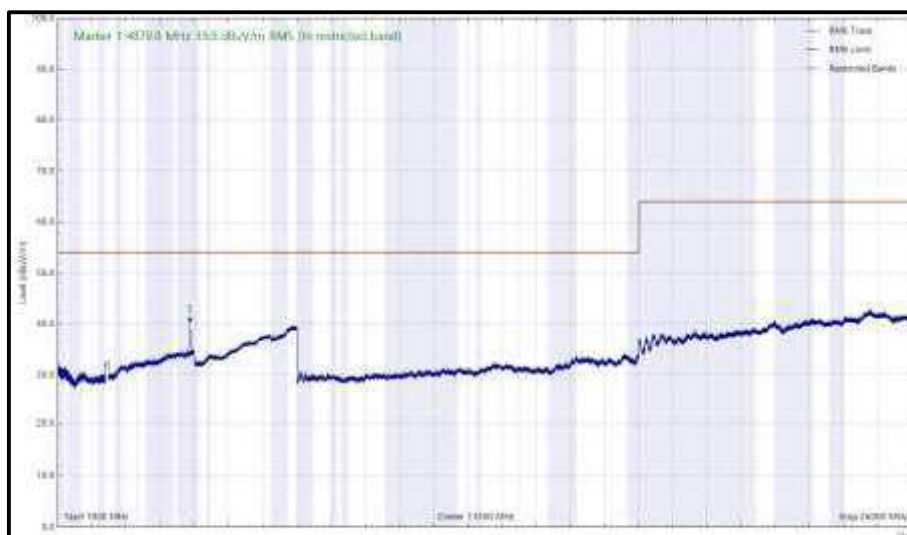


Figure 319 - 2440 MHz (CH17), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (RMS)



| 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.

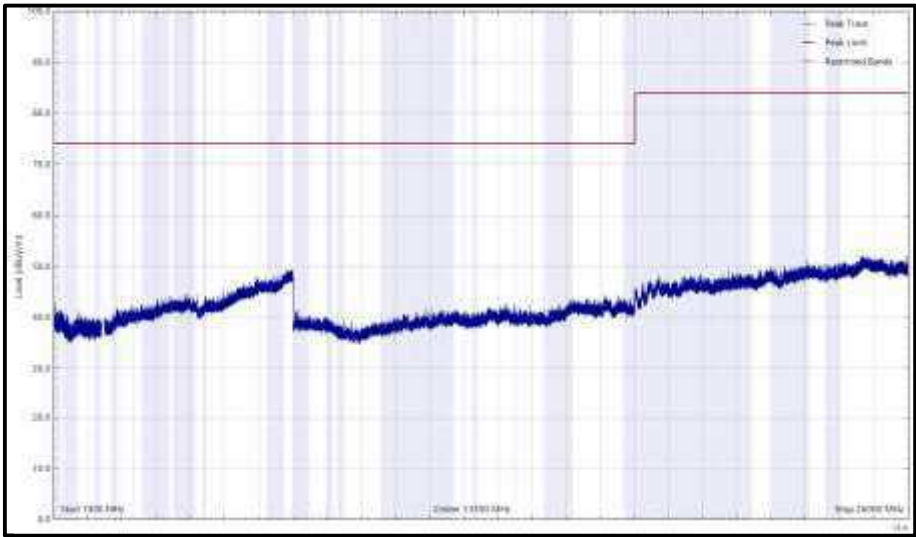


Figure 320 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (Peak)

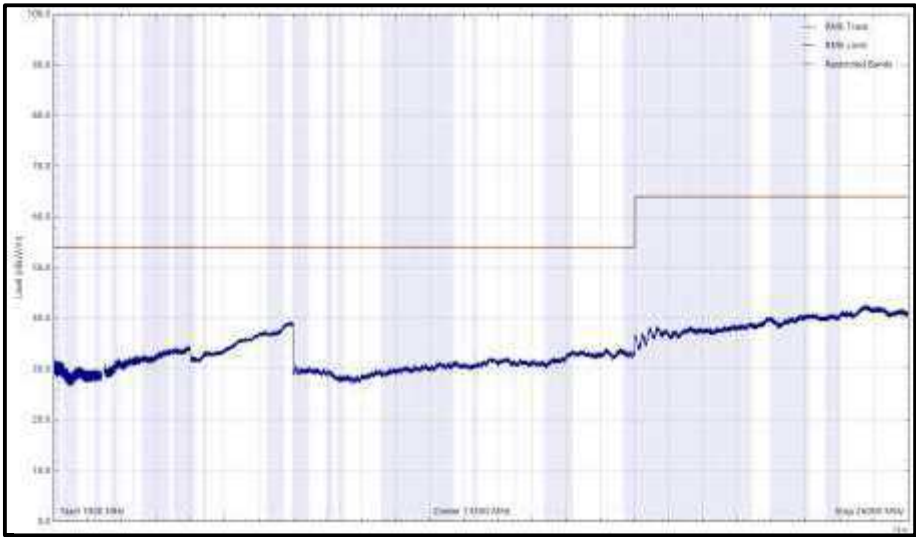


Figure 321 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Horizontal (RMS)

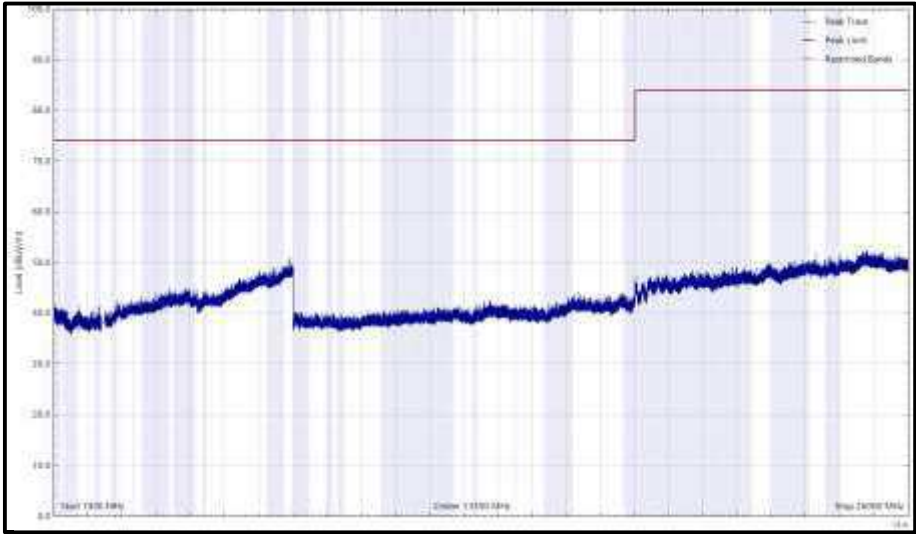


Figure 322 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (Peak)

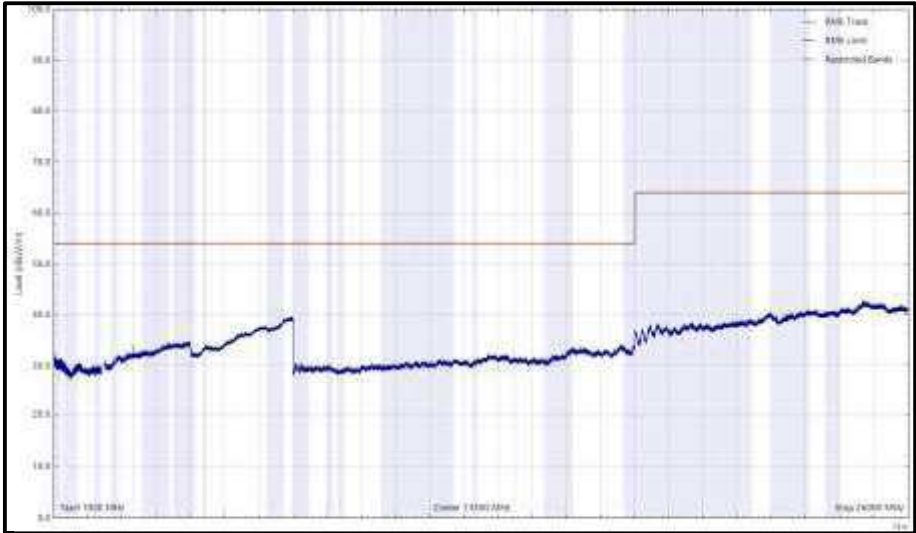


Figure 323 - 2480 MHz (CH39), LE1M, iPA, Core 2, 1 GHz to 26 GHz, Vertical (RMS)



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     | MWX221-01000AMSAMS/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 (AVG PSD-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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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 | $\Sigma$ |
| 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: $\pm 5.2$ dB<br>1 GHz to 40 GHz: $\pm 6.3$ dB |
| Restricted Band Edges          | 30 MHz to 1 GHz: $\pm 5.2$ dB<br>1 GHz to 40 GHz: $\pm 6.3$ dB |
| Spurious Radiated Emissions    | 30 MHz to 1 GHz: $\pm 5.2$ dB<br>1 GHz to 40 GHz: $\pm 6.3$ dB |
| Maximum Conducted Output Power | $\pm 3.2$ dB                                                   |
| Power Spectral Density         | $\pm 3.2$ dB                                                   |
| Emission Bandwidth             | $\pm 51.643$ 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.