



2.1.7 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	A1	2760	12	02-Jan-2021
Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	08-Nov-2020
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

Table 46

TU - Traceability Unscheduled

O/P Mon – Output Monitored using calibrated equipment



2.2 Maximum Conducted Output Power

2.2.1 Specification Reference

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

2.2.2 Equipment Under Test and Modification State

A2348, S/N: C07D100D02DH - Modification State 0

2.2.3 Date of Test

30-September-2020

2.2.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 11.9.2.3.2

MIMO output port summing was performed in accordance with KDB 662911 D01:

For transmit beamforming (TxBF) mode it was calculated in accordance with clause E)1.

2.2.5 Environmental Conditions

Ambient Temperature	22.4 °C
Relative Humidity	48.7 %



2.2.6 Test Results

2.4 GHz Bluetooth Low Energy (DTS)

iPA

Antenna Port Configuration: SISO

Modulation: 8-DPSK (HDR4)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)			
	Average Power		Peak Power	
	Core 0	Core 2	Core 0	Core 2
2404	5.7	5.6	8.5	8.4
2441	5.8	5.4	8.6	8.1
2478	5.7	5.5	8.5	8.2

Table 47 - Maximum Conducted (average) Output Power Results

Modulation: 8-DPSK (HDR8)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)			
	Average Power		Peak Power	
	Core 0	Core 2	Core 0	Core 2
2404	5.7	5.7	9.2	9.1
2441	5.8	6.0	9.3	9.4
2478	5.6	5.5	9.0	9.0

Table 48 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)			
	Average Power		Peak Power	
	Core 0	Core 2	Core 0	Core 2
2402	12.1	11.9	12.9	12.6
2440	12.1	11.5	12.9	12.4
2480	12.4	11.7	13.1	12.6

Table 49 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)			
	Average Power		Peak Power	
	Core 0	Core 2	Core 0	Core 2
2402	11.9	11.9	12.9	12.8
2440	12.4	11.6	13.3	12.6
2480	12.1	11.9	12.9	12.8

Table 50 - Maximum Conducted (average) Output Power Results



Antenna Port Configuration: Beamforming

Modulation: 8-DPSK (HDR4)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2404	5.5	5.6	8.6	8.3	8.4	11.4
2441	5.8	5.7	8.8	8.6	8.5	11.5
2478	5.7	6.0	8.9	8.5	8.8	11.6

Table 51 - Maximum Conducted (average) Output Power Results

Modulation: 8-DPSK (HDR8)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2404	5.7	5.6	8.7	9.1	9.0	12.1
2441	5.8	6.0	8.9	9.2	9.4	12.3
2478	5.6	5.0	8.3	9.0	8.5	11.7

Table 52 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2402	12.2	12.5	15.4	13.1	13.3	16.2
2440	12.3	12.2	15.3	13.0	13.0	16.0
2480	12.4	12.0	15.2	13.0	12.8	15.9

Table 53 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2402	12.4	12.3	15.4	13.3	13.2	16.3
2440	12.4	12.4	15.4	13.2	13.3	16.2
2480	12.5	12.2	15.4	13.2	13.1	16.2

Table 54 - Maximum Conducted (average) Output Power Results



ePA

Antenna Port Configuration: SISO

Modulation: 8-DPSK (HDR4)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)	
	Average Power	Peak Power
	Core 0	Core 0
2404	12.8	15.5
2441	12.8	15.6
2478	12.8	15.5

Table 55 - Maximum Conducted (average) Output Power Results

Modulation: 8-DPSK (HDR8)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)	
	Average Power	Peak Power
	Core 0	Core 0
2404	12.6	16.0
2441	12.9	16.3
2478	13.0	16.4

Table 56 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)	
	Average Power	Peak Power
	Core 0	Core 0
2402	19.9	21.0
2440	19.6	20.8
2480	19.7	20.9

Table 57 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)	
	Average Power	Peak Power
	Core 0	Core 0
2402	19.7	20.9
2440	19.7	20.8
2480	19.9	21.1

Table 58 - Maximum Conducted (average) Output Power Results



Antenna Port Configuration: Beamforming

Modulation: 8-DPSK (HDR4)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2404	12.4	12.8	15.6	15.1	15.5	18.3
2441	12.5	12.5	15.5	15.2	15.2	18.2
2478	12.6	12.3	15.5	15.3	15.0	18.2

Table 59 - Maximum Conducted (average) Output Power Results

Modulation: 8-DPSK (HDR8)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2404	12.7	12.6	15.6	16.1	15.9	19.0
2441	12.5	12.6	15.6	15.9	15.9	18.9
2478	12.7	12.8	15.8	16.1	16.2	19.1

Table 60 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 1M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2402	13.6	13.8	16.7	14.2	14.3	17.2
2440	13.4	13.5	16.5	14.0	14.1	17.0
2480	13.4	13.5	16.5	13.9	14.1	17.0

Table 61 - Maximum Conducted (average) Output Power Results

Modulation: GFSK (LE 2M)

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					
	Average Power			Peak Power		
	Core 0	Core 1	Σ	Core 0	Core 1	Σ
2402	13.6	13.8	16.7	14.2	14.4	17.3
2440	13.5	13.6	16.6	14.1	14.2	17.2
2480	13.5	13.6	16.6	13.9	14.2	17.1

Table 62 - Maximum Conducted (average) Output Power Results



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

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt (30 dBm).

ISED RSS-247, Limit Clause 5.4 (b)

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

2.2.7 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
Multimeter	Iso-tech	IDM101	2424	12	12-Dec-2020
Hygrometer	Rotronic	A1	2760	12	02-Jan-2021
USB Power Sensor	Boonton	RTP5006	5184	12	09-Jan-2021
USB Power Sensor	Boonton	RTP5006	5187	12	09-Jan-2021
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
USB Power Sensor	Boonton	RTP5006	5278	12	27-Apr-2021
Signal Commissioning Unit	TUV SUD	SCU001	5546	12	15-Apr-2021

Table 63

TU - Traceability Unscheduled

O/P Mon – Output Monitored using calibrated equipment



2.3 Authorised Band Edges

2.3.1 Specification Reference

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

2.3.2 Equipment Under Test and Modification State

A2348, S/N: C07D100W02H7 - Modification State 0

2.3.3 Date of Test

18-July-2020 to 24-August-2020

2.3.4 Test Method

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

2.3.5 Environmental Conditions

Ambient Temperature	20.7-27.2°C
Relative Humidity	48.1-61.1%

2.3.6 Test Results

2.4 GHz Bluetooth Low Energy (DTS)

LE1M

iPA

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-51.92

Table 64 - Authorised Band Edge Results

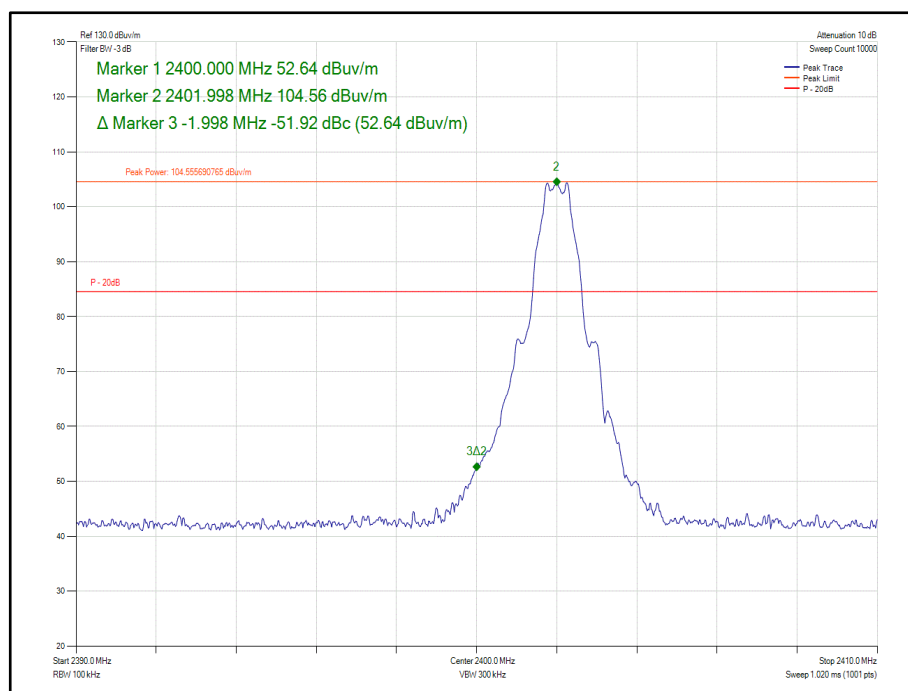


Figure 85 - Core 0 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-52.81

Table 65 - Authorised Band Edge Results

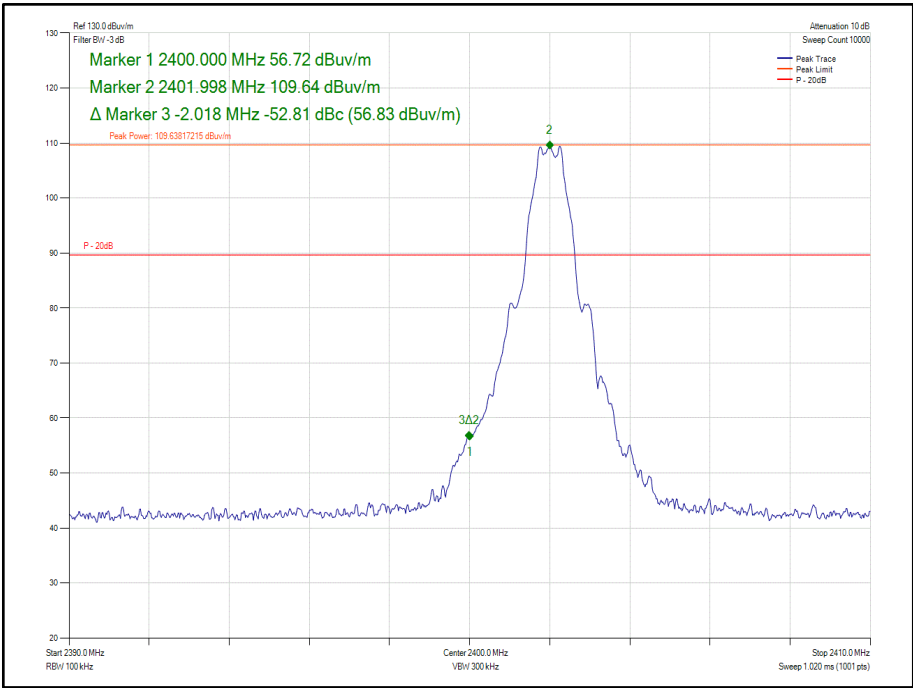


Figure 86 - Core 1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	2	2402	2400.0	-54.05

Table 66 - Authorised Band Edge Results

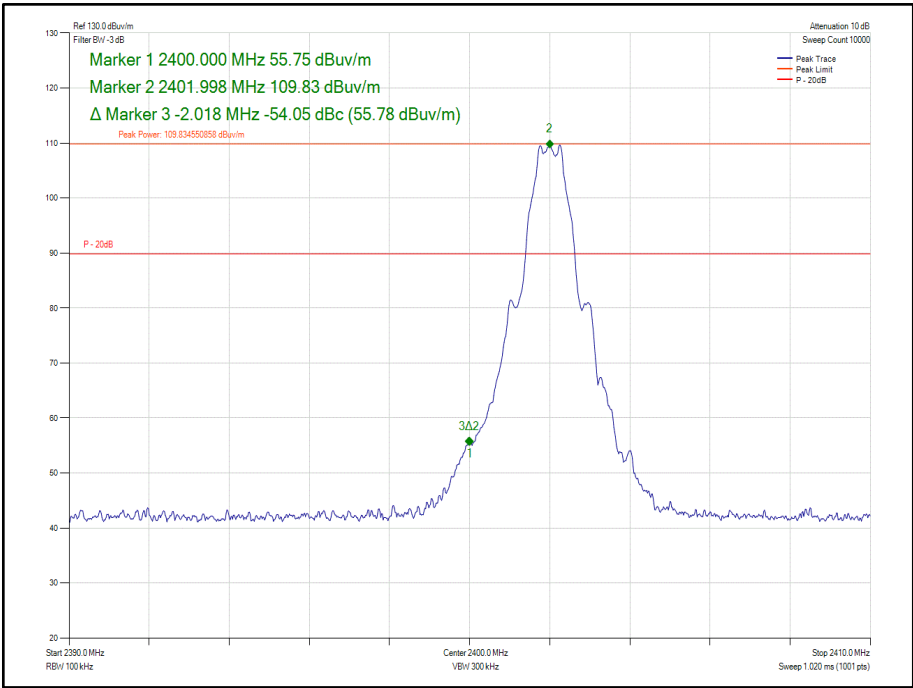


Figure 87 - Core 2 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-51.78

Table 67 - Authorised Band Edge Results

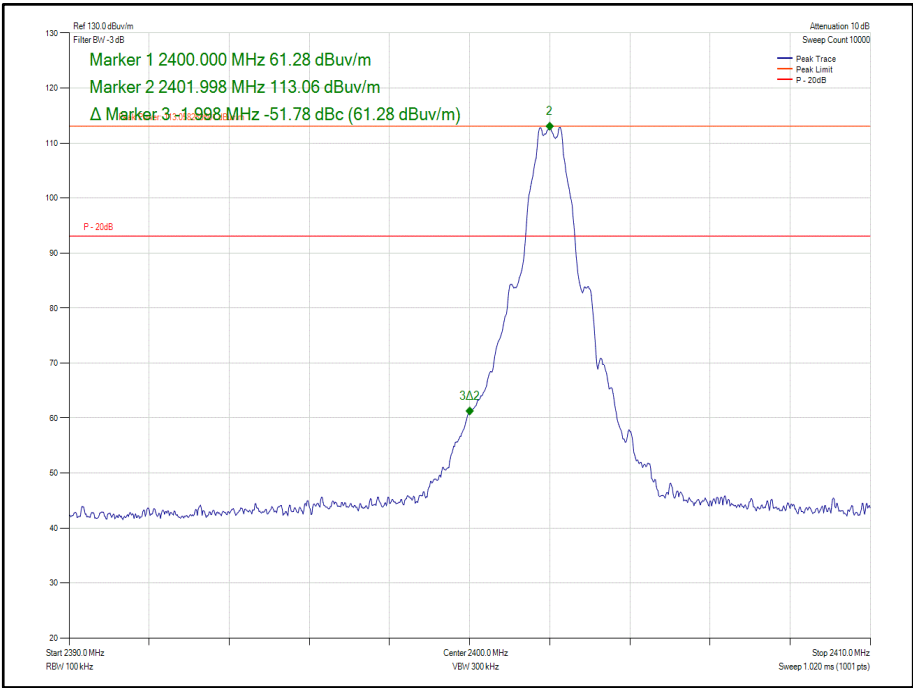


Figure 88 - Core 0-1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



ePA

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-65.48

Table 68 - Authorised Band Edge Results

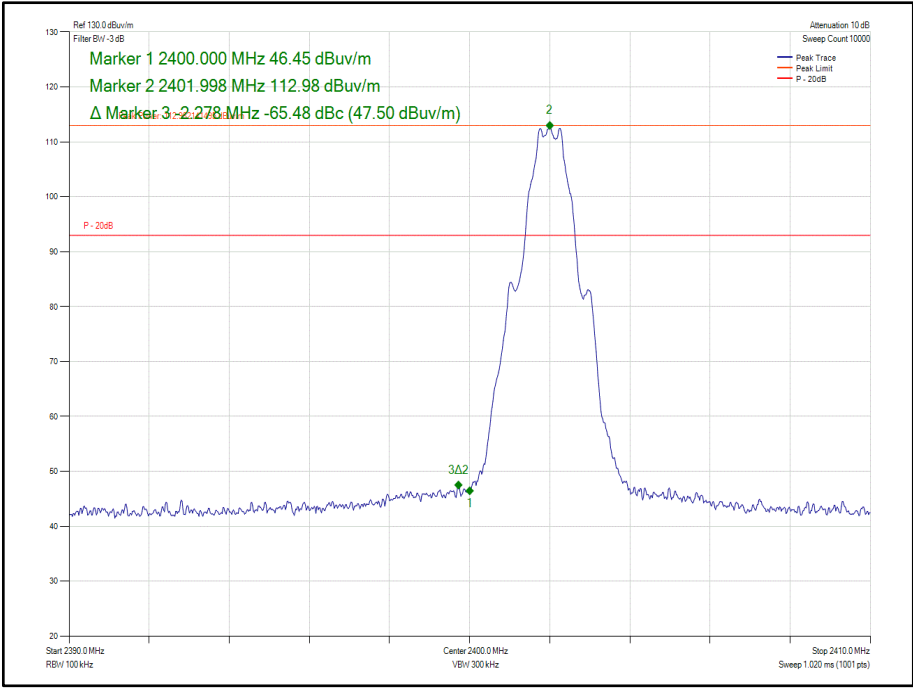


Figure 89 - Core 0 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-65.29

Table 69 - Authorised Band Edge Results

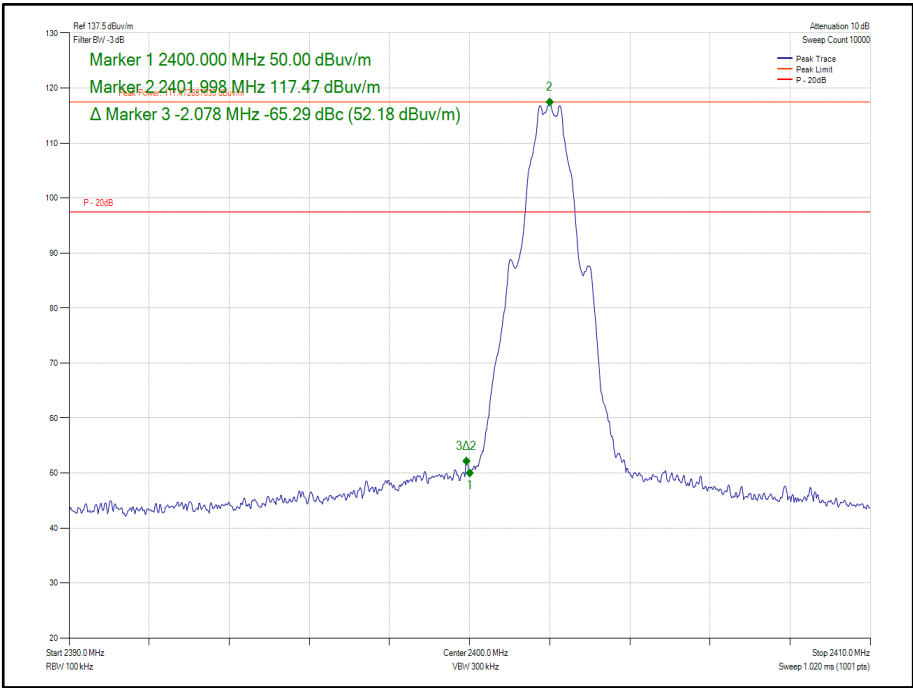


Figure 90 - Core 1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-67.93

Table 70 - Authorised Band Edge Results

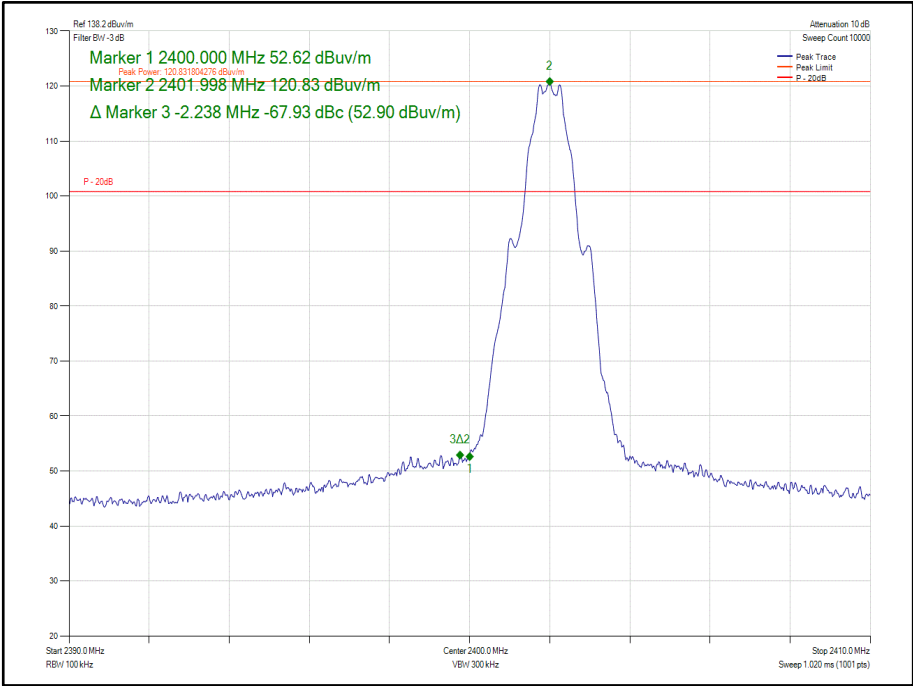


Figure 91 - Core 0-1 - GFSK/DH1- 2402 MHz – Band Edge Frequency 2400.0 MHz



LE2M

iPA

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-30.79

Table 71 - Authorised Band Edge Results

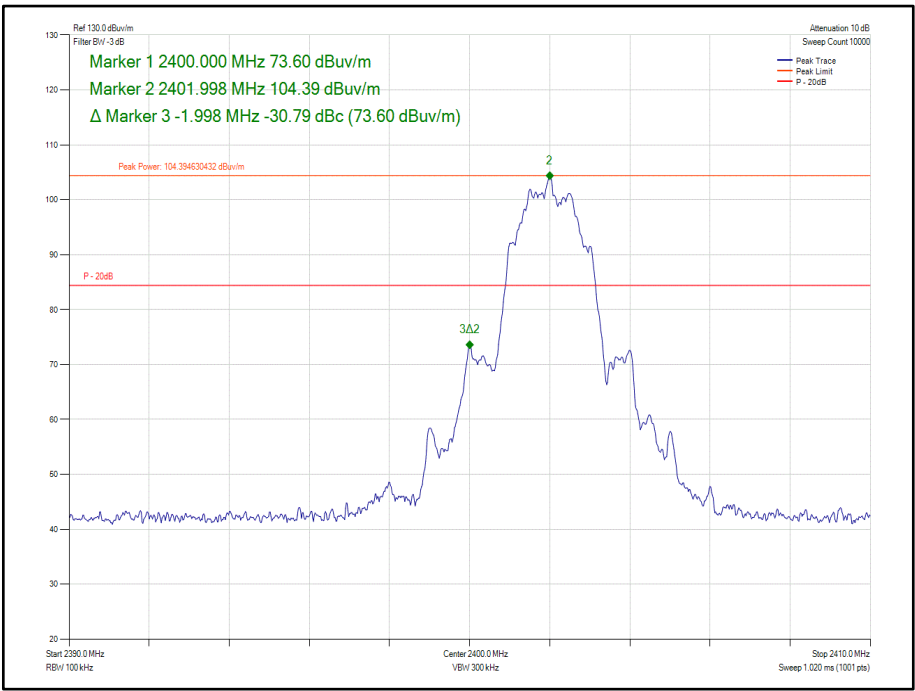


Figure 92 - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-31.04

Table 72 - Authorised Band Edge Results

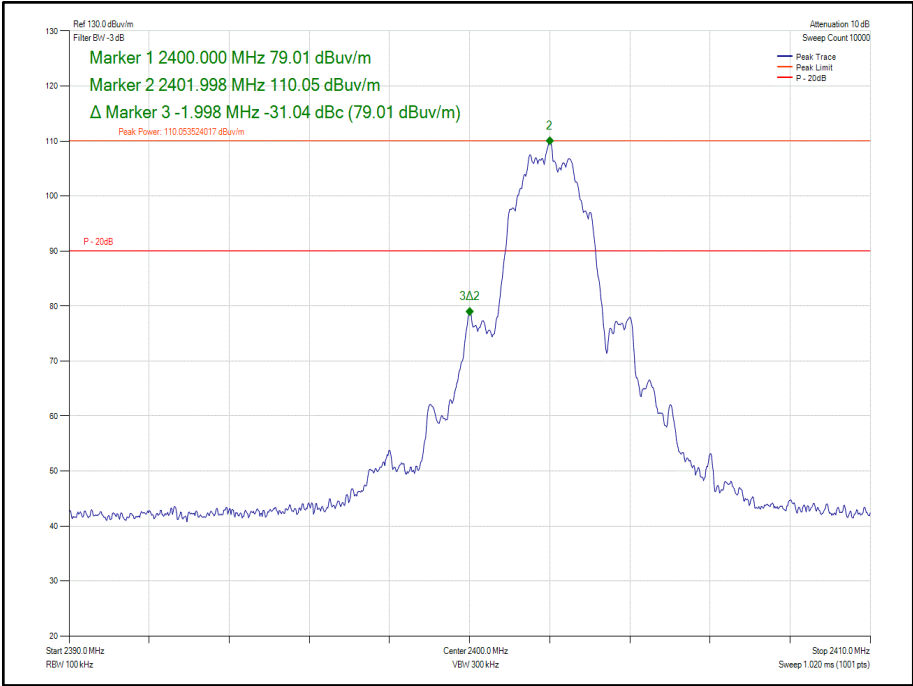


Figure 93 - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	2	2402	2400.0	-30.96

Table 73 - Authorised Band Edge Results

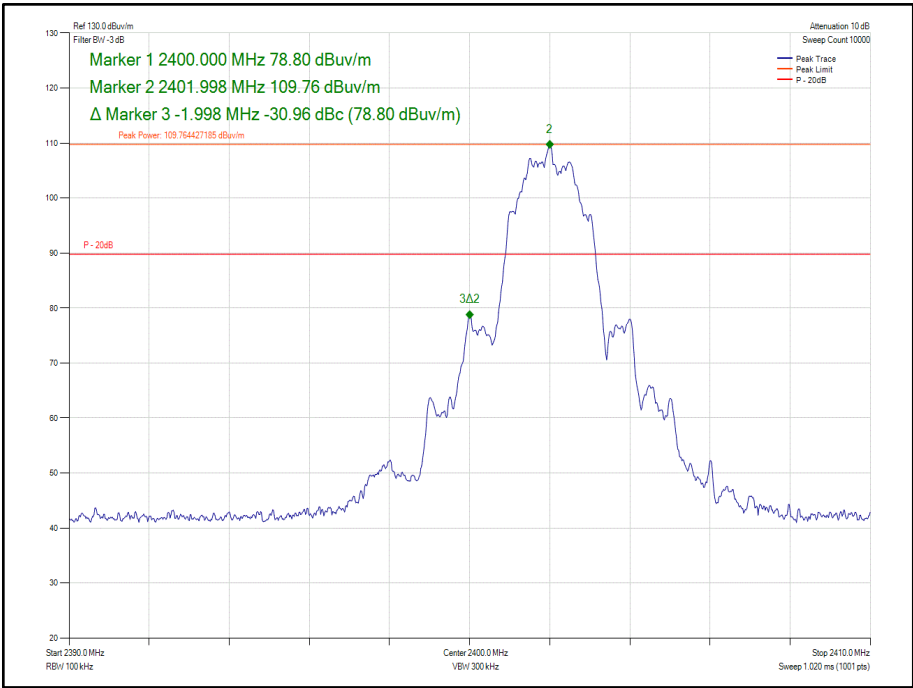


Figure 94 - Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-30.91

Table 74 - Authorised Band Edge Results

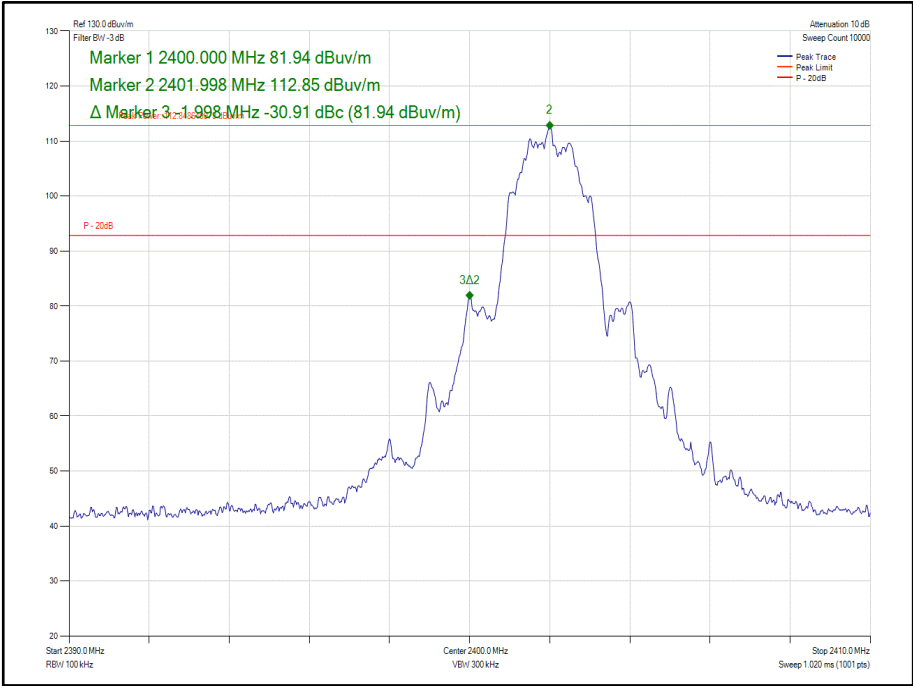


Figure 95 - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



HDR4

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	0	2402	2400.0	-52.54

Table 75 - Authorised Band Edge Results

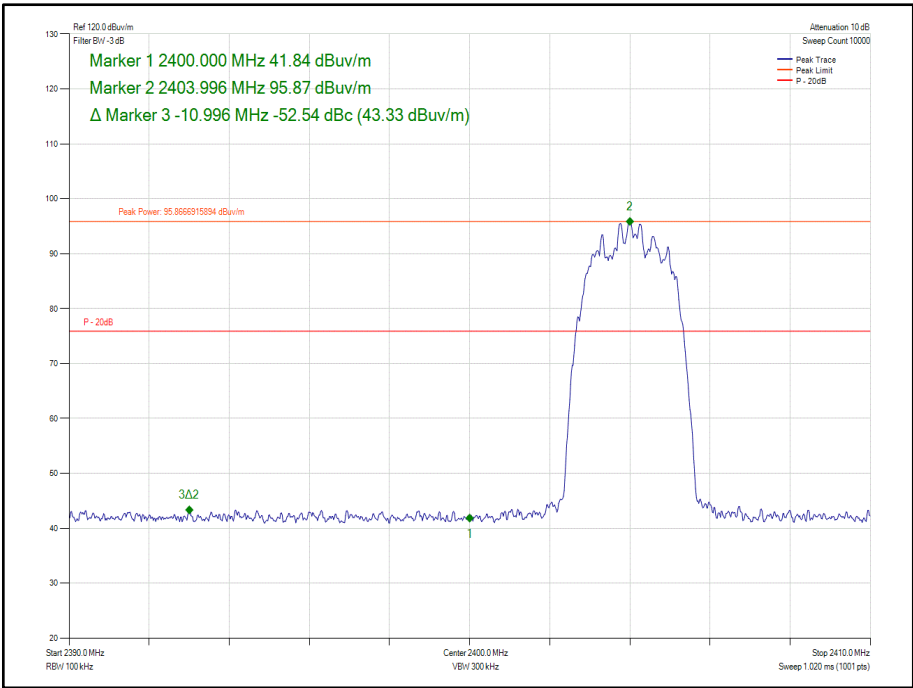


Figure 96 - Core 0 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	1	2402	2400.0	-57.25

Table 76 - Authorised Band Edge Results

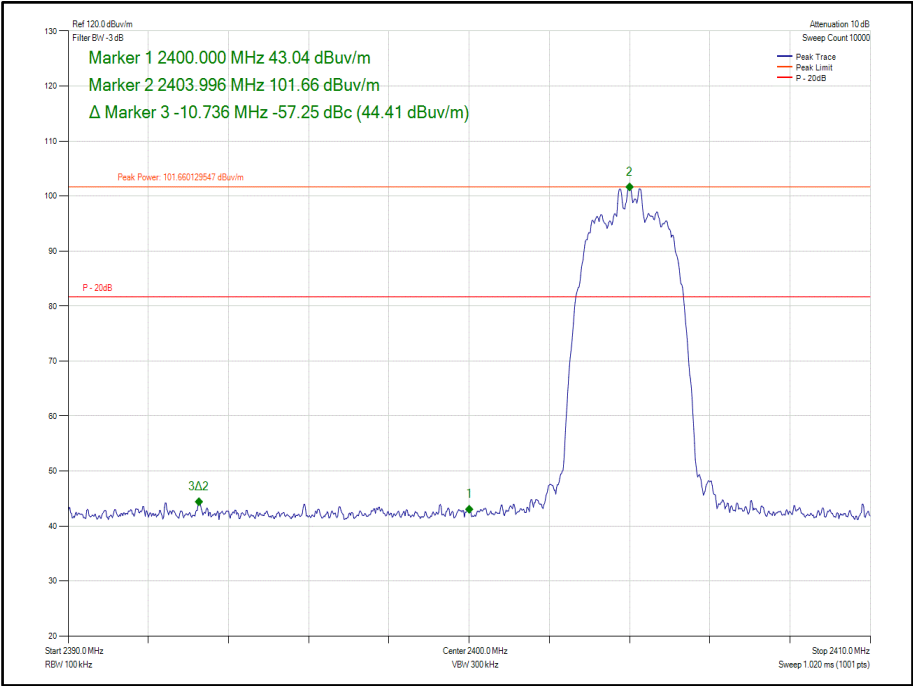


Figure 97 - Core 1 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	2	2402	2400.0	-56.87

Table 77 - Authorised Band Edge Results

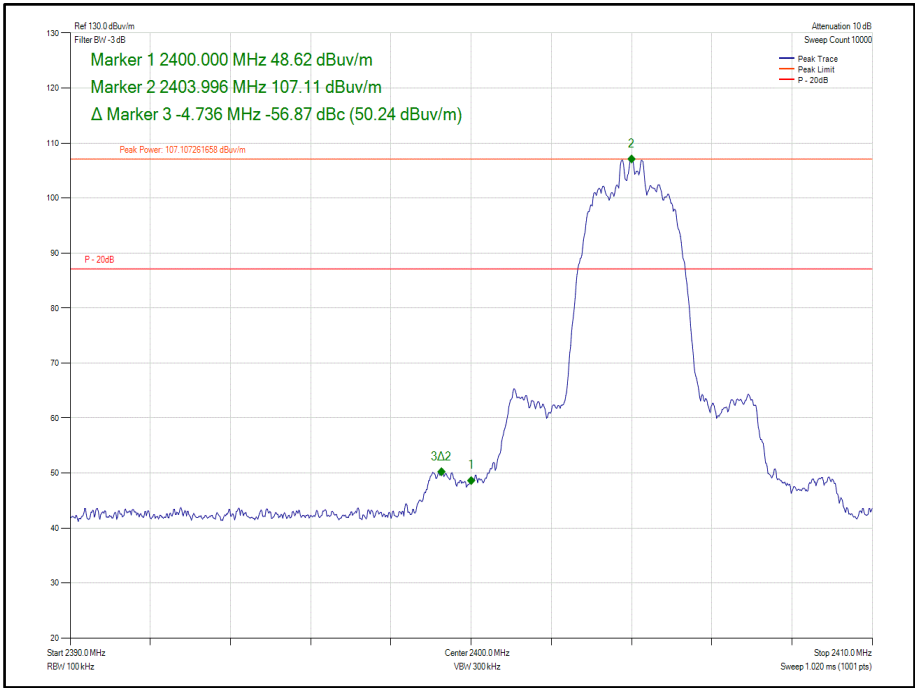


Figure 98 - Core 2 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	0-1	2402	2400.0	-62.56

Table 78 - Authorised Band Edge Results

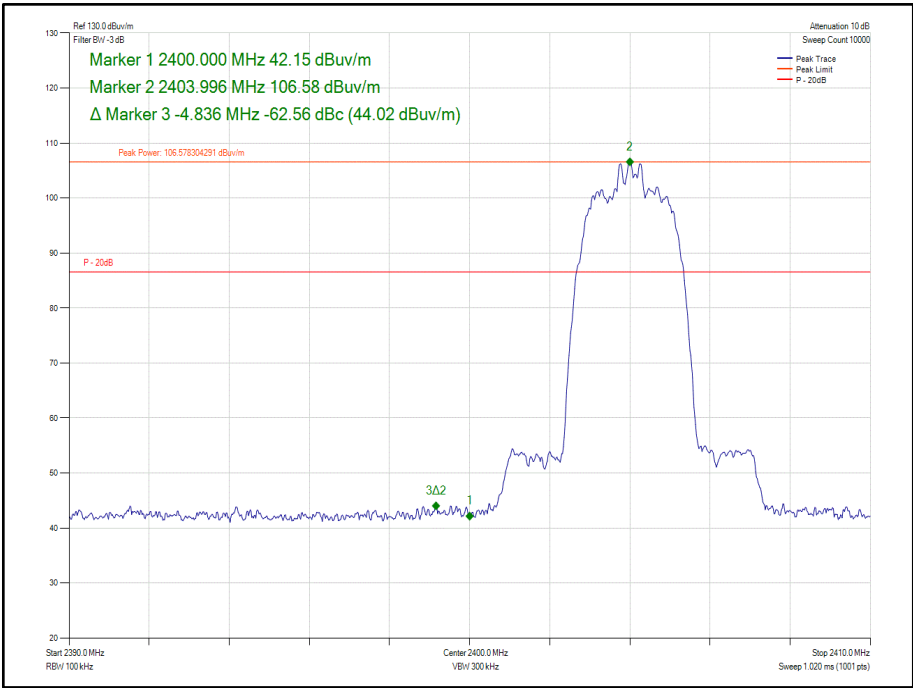


Figure 99 - Core 0-1 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	0	2402	2400.0	-53.87

Table 79 - Authorised Band Edge Results

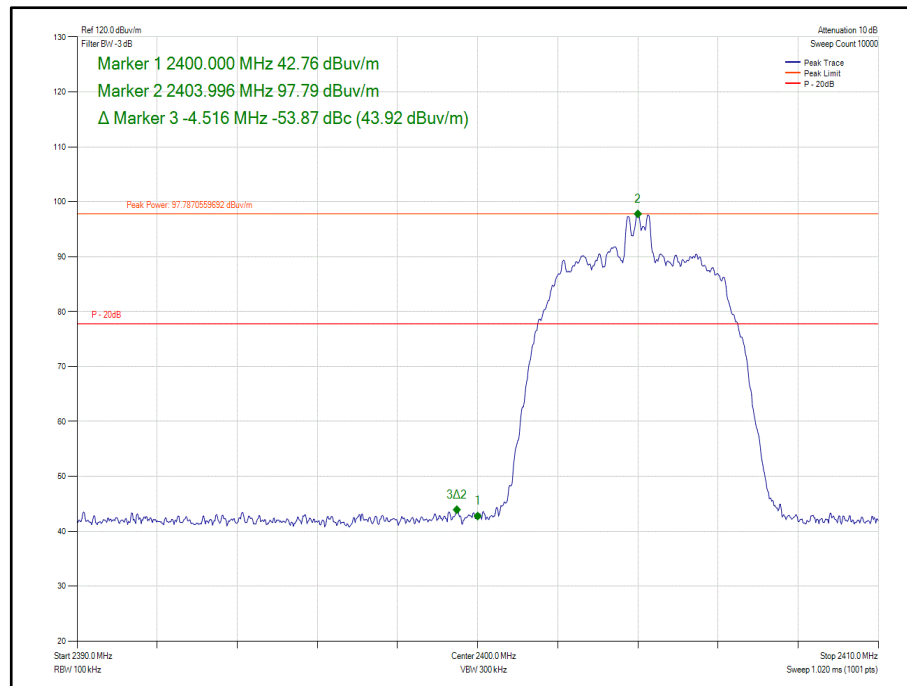


Figure 100 - Core 0 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	1	2402	2400.0	-58.34

Table 80 - Authorised Band Edge Results

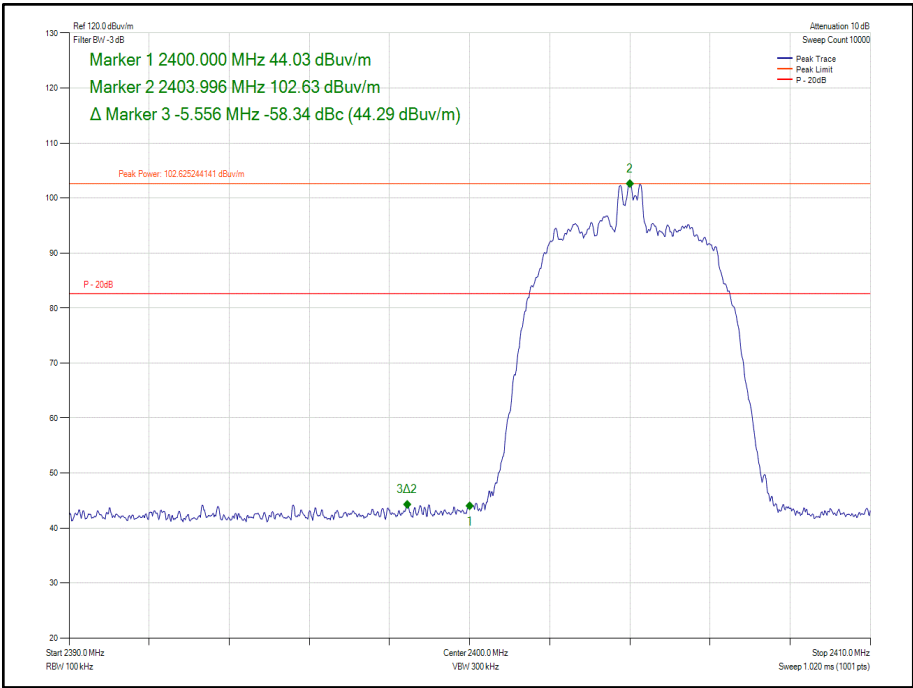


Figure 101 - Core 1 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	2	2402	2400.0	-45.39

Table 81 - Authorised Band Edge Results

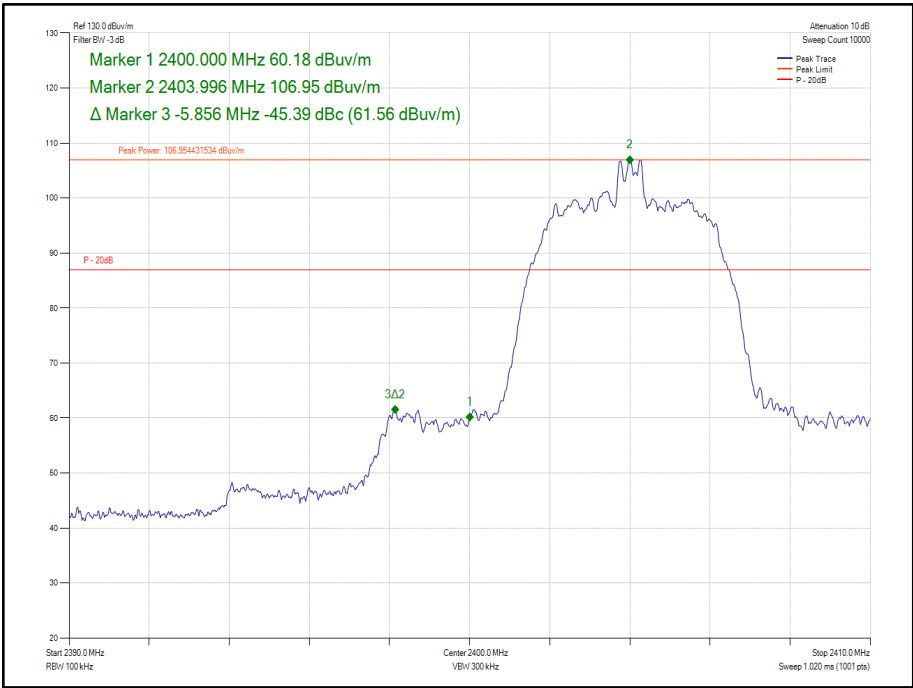


Figure 102 - Core 2 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	0-1	2402	2400.0	-56.18

Table 82 - Authorised Band Edge Results

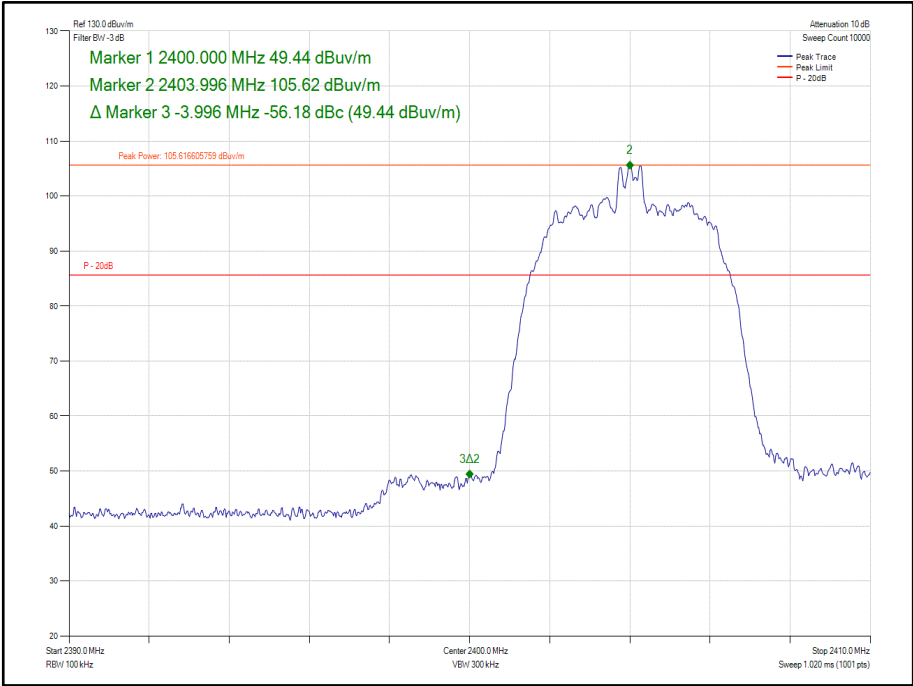


Figure 103 - Core 0-1 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz



ePA

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0	2402	2400.0	-39.84

Table 83 - Authorised Band Edge Results

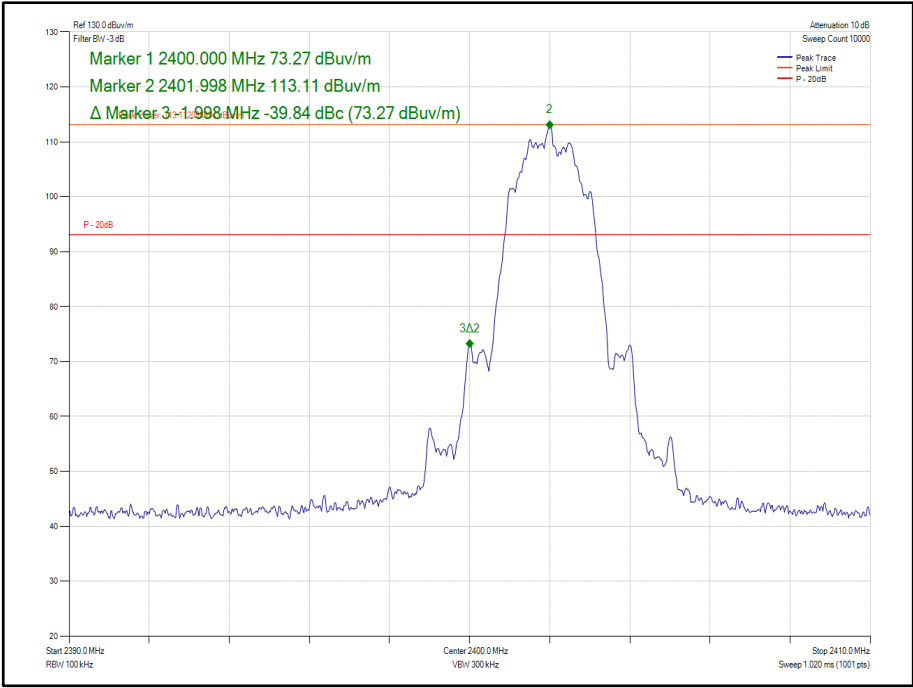


Figure 104 - Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	1	2402	2400.0	-43.51

Table 84 - Authorised Band Edge Results

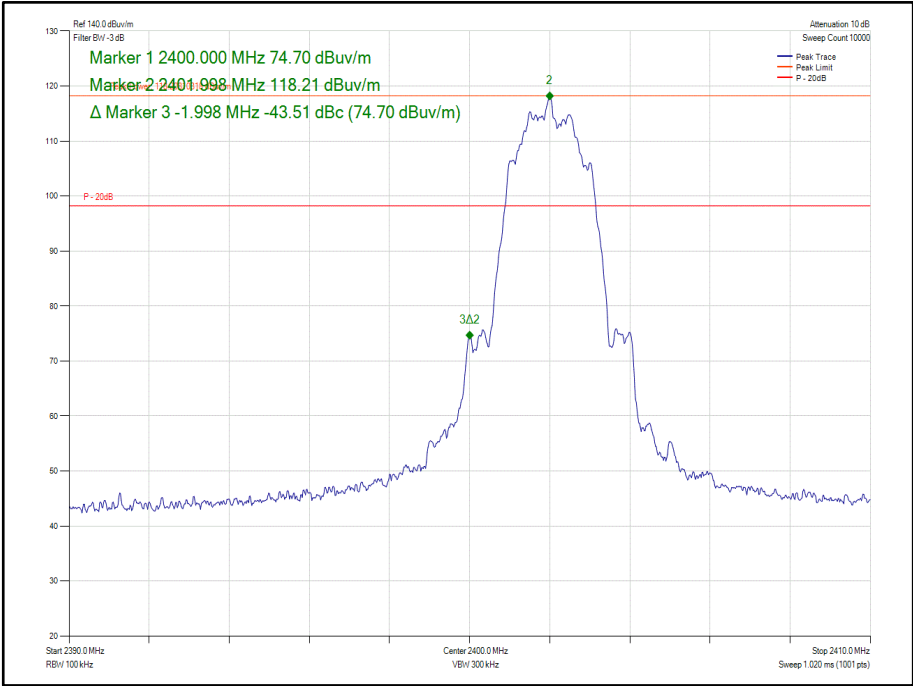


Figure 105 - Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	DH1	0-1	2402	2400.0	-41.50

Table 85 - Authorised Band Edge Results

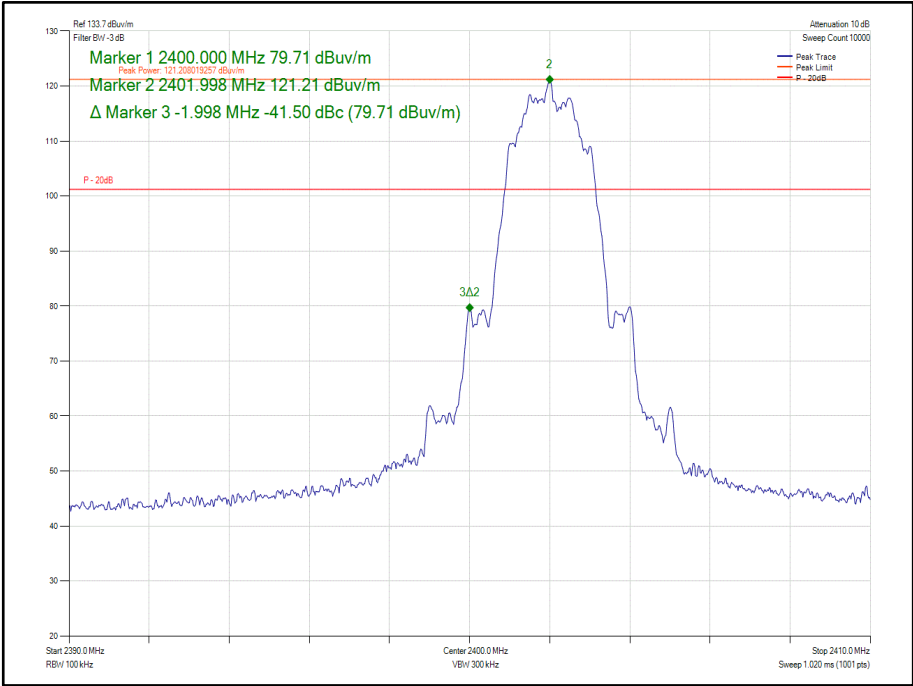


Figure 106 - Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2400.0 MHz



HDR4

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	0	2402	2400.0	-56.65

Table 86 - Authorised Band Edge Results

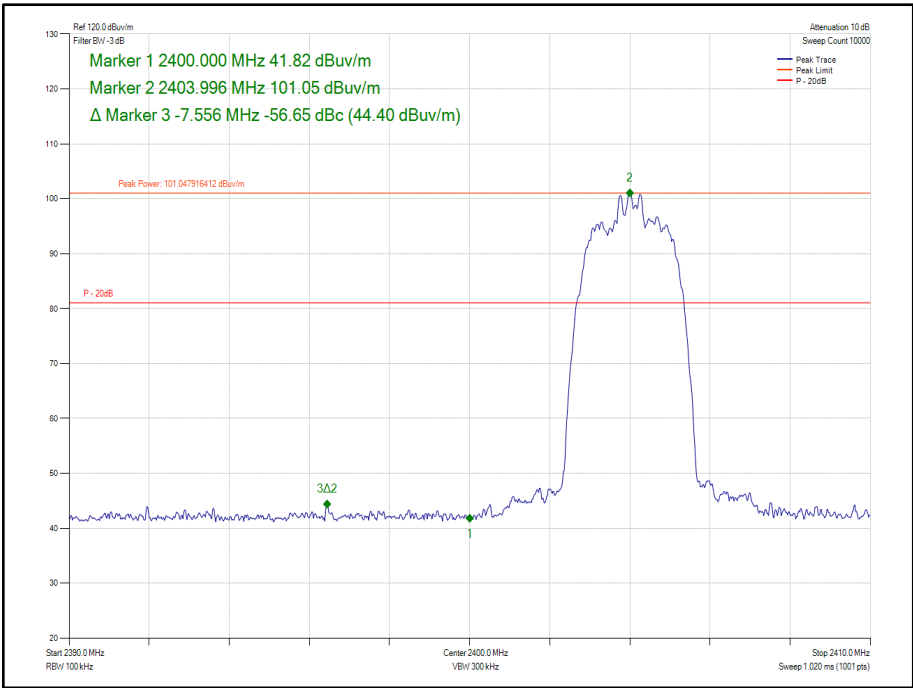


Figure 107 -Core 0 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	1	2402	2400.0	-64.42

Table 87 - Authorised Band Edge Results

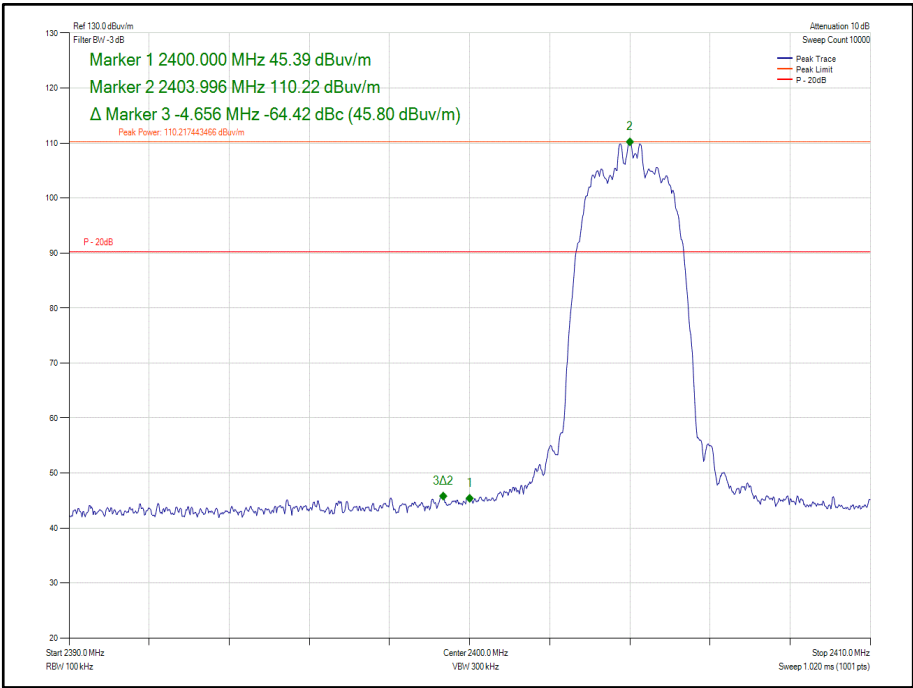


Figure 108 - Core 1 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	4DH5	0-1	2402	2400.0	-66.67

Table 88 - Authorised Band Edge Results

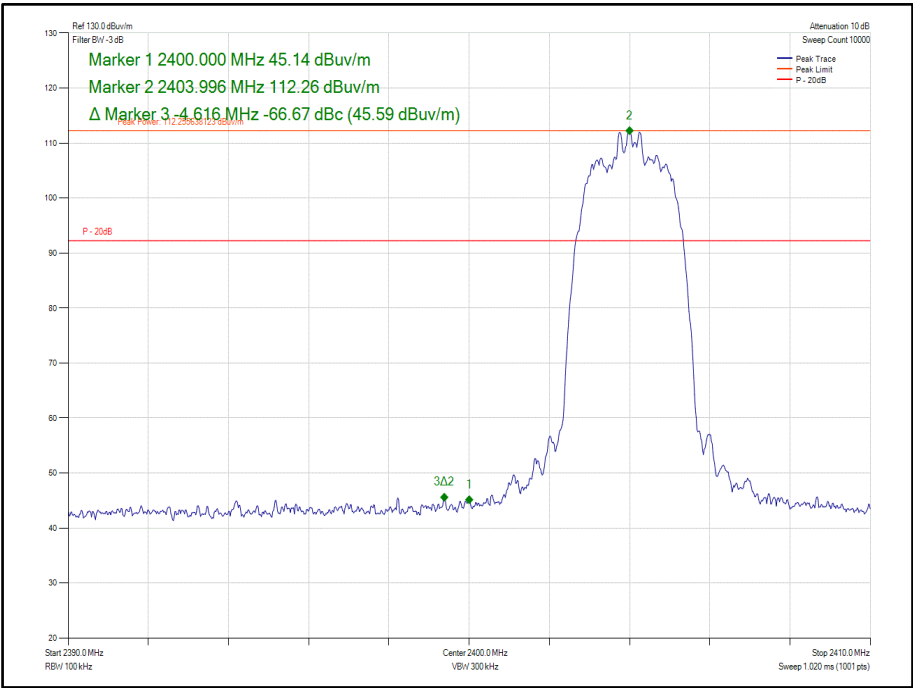


Figure 109 - Core 0-1 - GFSK/4DH5- 2402 MHz – Band Edge Frequency 2400.0 MHz



HDR8

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	0	2402	2400.0	-55.34

Table 89 - Authorised Band Edge Results

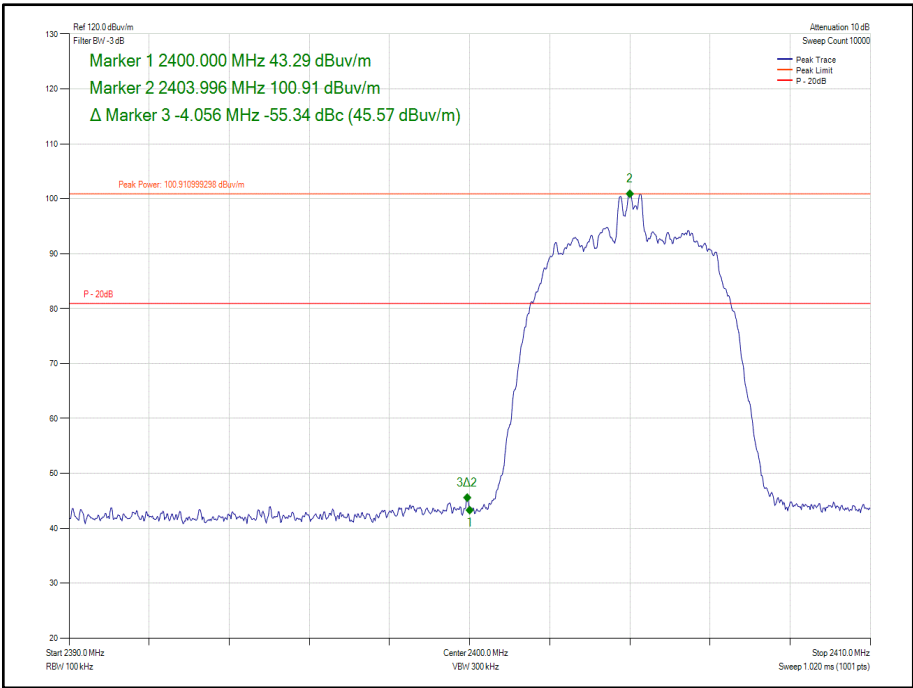


Figure 110 - Core 0 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz



Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	1	2402	2400.0	-62.00

Table 90 - Authorised Band Edge Results

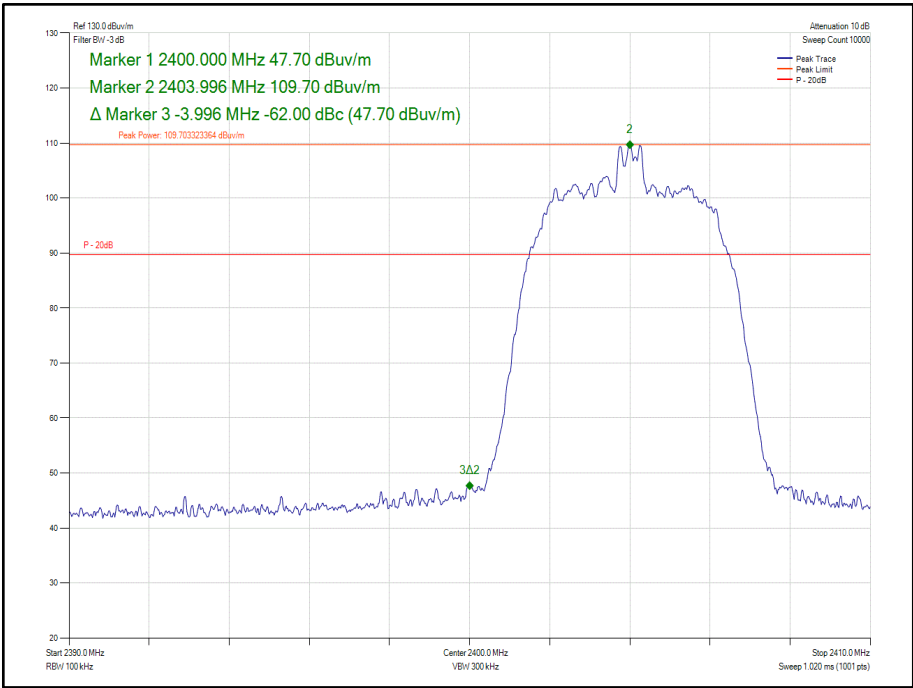


Figure 111 - Core 1 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz

Modulation	Packet Type	Core	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
GFSK	8DH5	0-1	2402	2400.0	-64.93

Table 91 - Authorised Band Edge Results

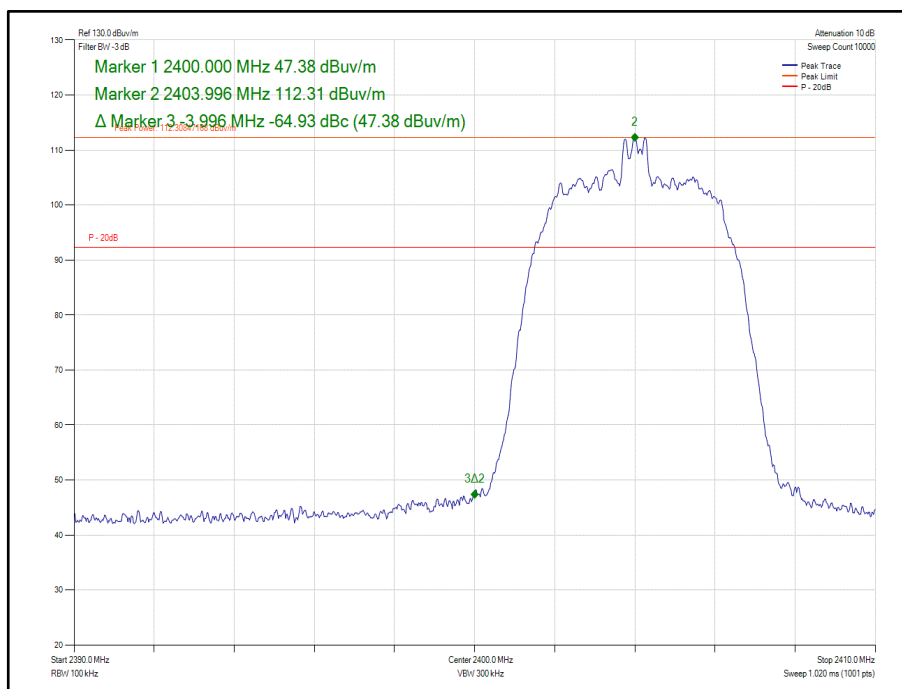


Figure 112 - Core 0-1 - GFSK/8DH5 - 2402 MHz - Band Edge Frequency 2400.0 MHz

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 EMC Chamber 5 and RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Screened Room (5)	Rainford	Rainford	1545	36	23-Jan-2021
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Multimeter	Iso-tech	IDM101	2419	12	28-Nov-2021
Mast Controller	Maturo GmbH	NCD	4810	-	TU
Tilt Antenna Mast	Maturo GmbH	TAM 4.0-P	4811	-	TU
Horn Antenna (1-10GHz)	Schwarzbeck	BBHA 9120 B	4848	12	10-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	5103	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	09-Dec-2020
EmX Emissions Software	TUV SUD	EmX	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 15WF	5160	-	TU
Horn Antenna (1-10GHz)	Schwarzbeck	BBHA 9120 B	5215	12	10-Mar-2021
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5470	12	16-Mar-2021
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB-40	5475	12	17-Mar-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
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	06-Feb-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

A2348, S/N: C07D100W02H7 - Modification State 0

2.4.3 Date of Test

18-August-2020 to 24-August-2020

2.4.4 Test Method

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

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

2.4.5 Environmental Conditions

Ambient Temperature	20.7-27.2°C
Relative Humidity	48.1-61.1%

2.4.6 Test Results

2.4 GHz Bluetooth Low Energy (DTS)

LE1M

iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0	2390.0	54.30	42.00
GFSK/DH1	2480	0	2483.5	53.20	41.17

Table 93 - Restricted Band Edge Results

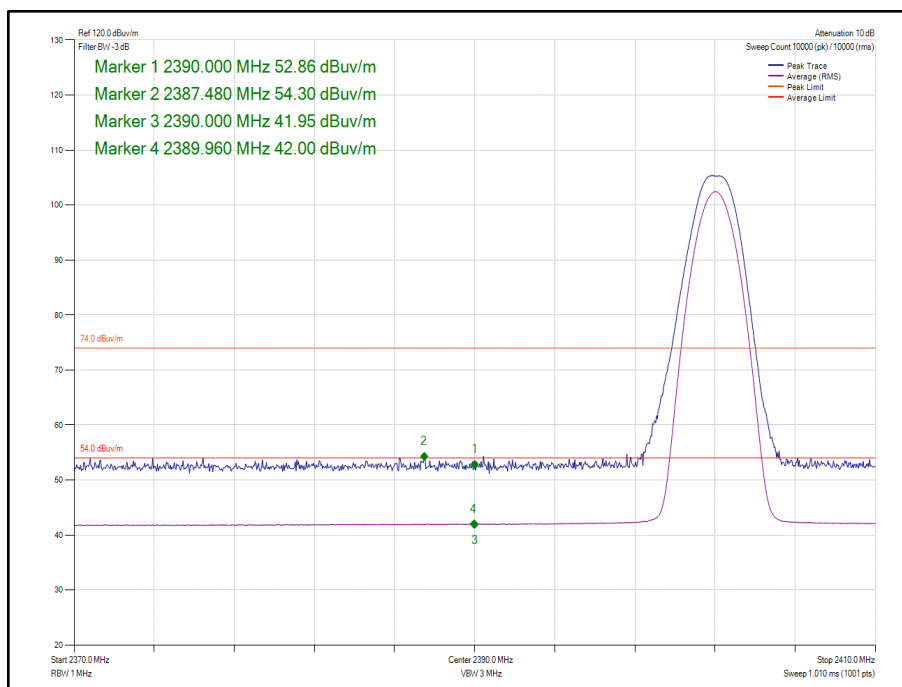


Figure 113 – Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

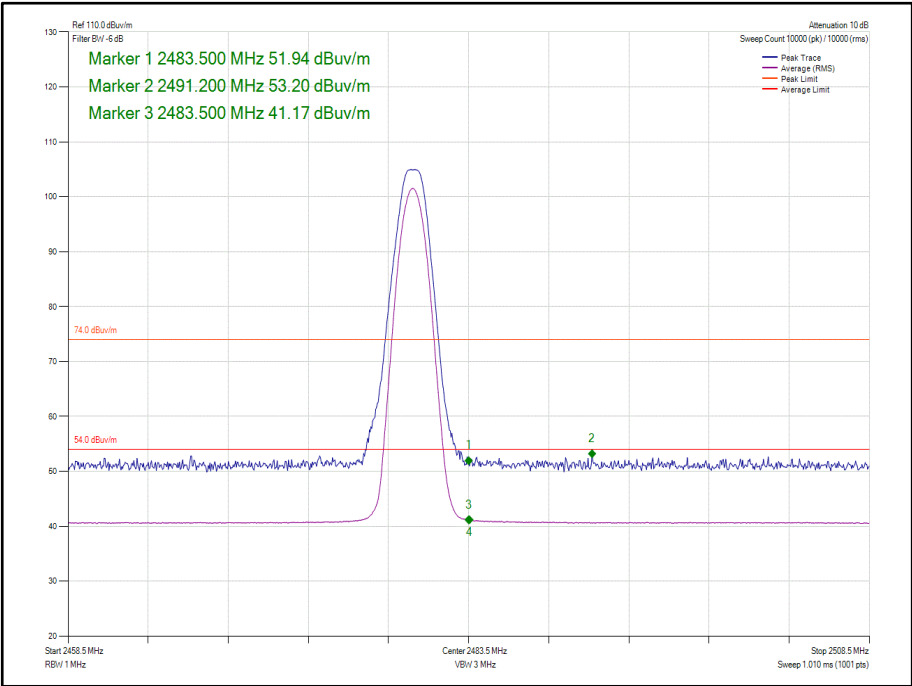


Figure 114 – Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	1	2390.0	54.11	42.11
GFSK/DH1	2480	1	2483.5	54.03	42.05

Table 94 - Restricted Band Edge Results

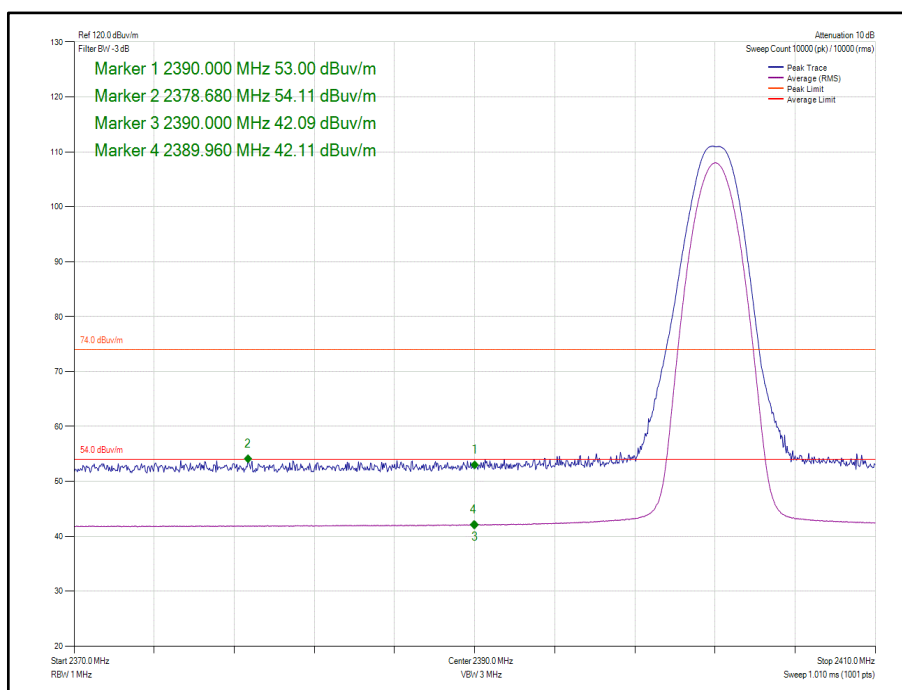


Figure 115 – Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

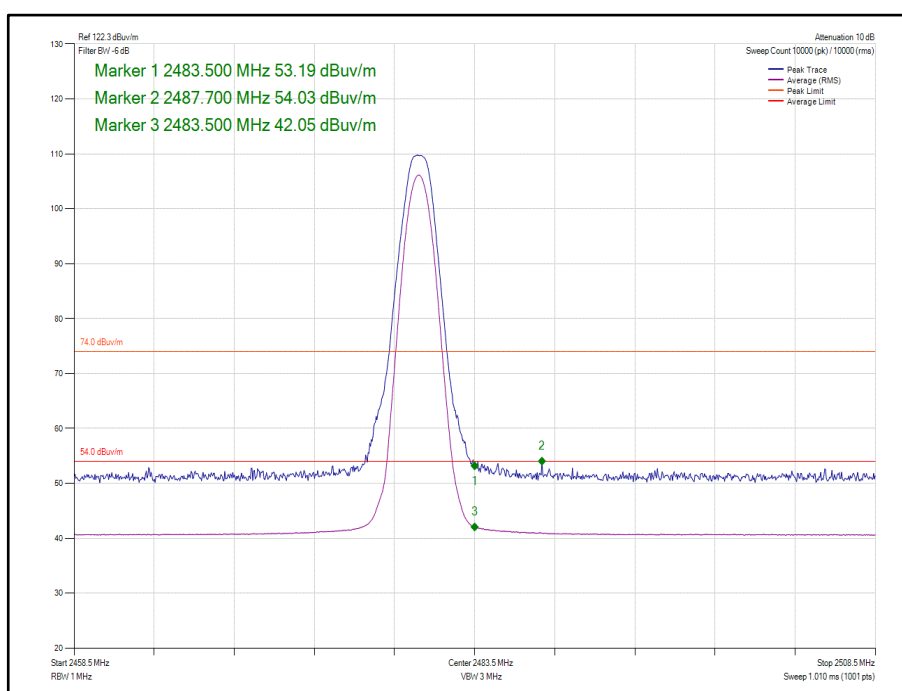


Figure 116 – Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0-1	2390.0	54.11	42.23
GFSK/DH1	2480	0-1	2483.5	54.70	42.40

Table 95 - Restricted Band Edge Results

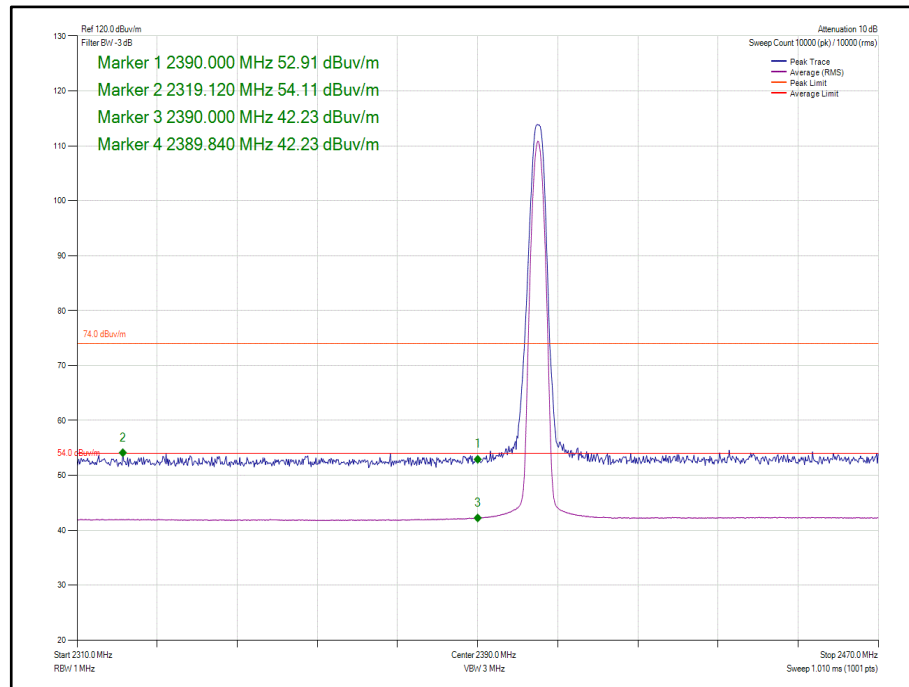


Figure 117 – Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

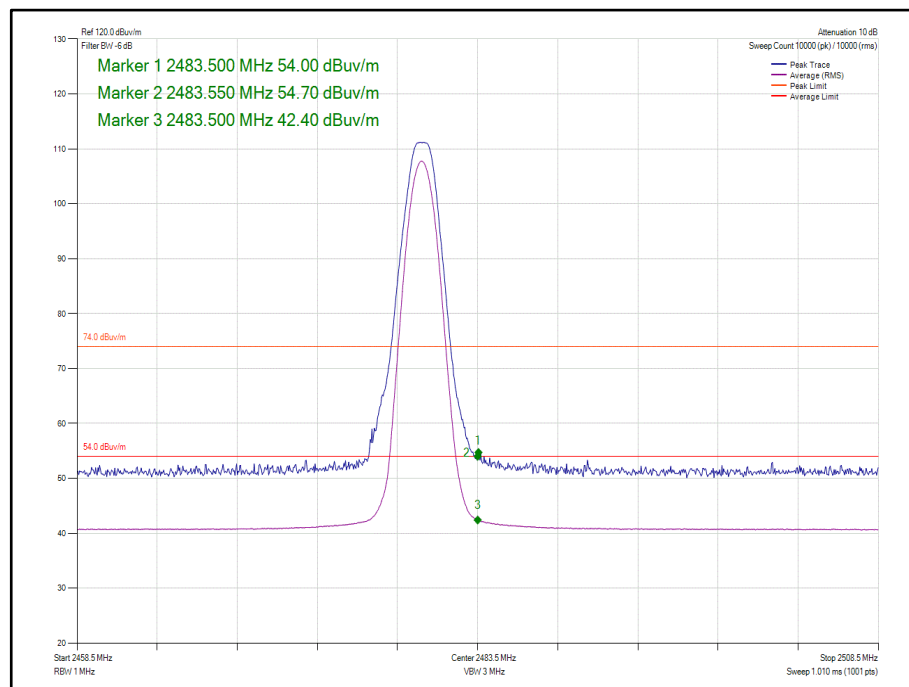


Figure 118 – Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	2	2390.0	54.19	41.99
GFSK/DH1	2480	2	2483.5	52.96	41.06

Table 96 - Restricted Band Edge Results

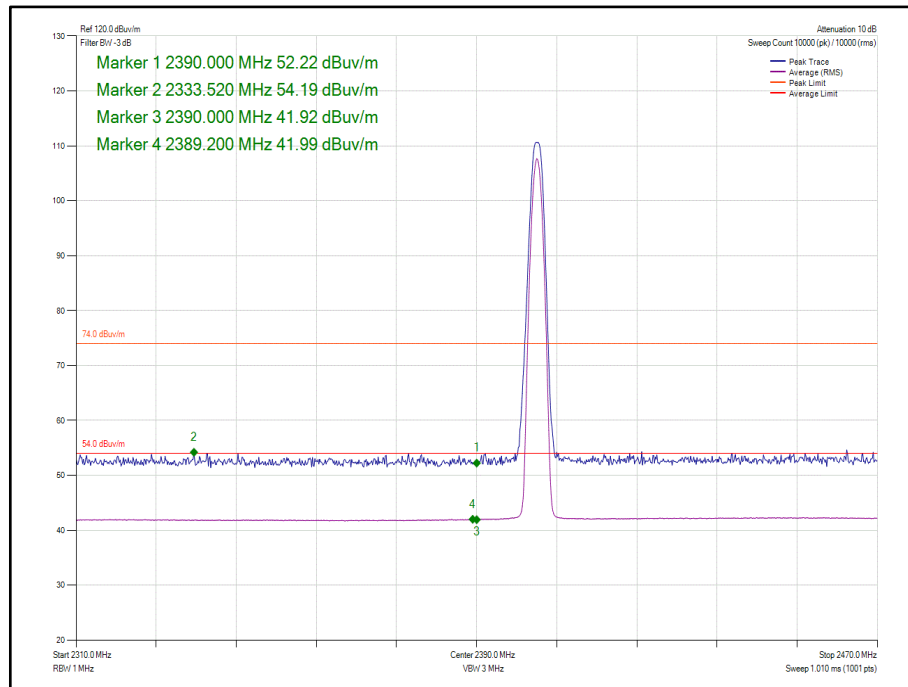


Figure 119 – Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

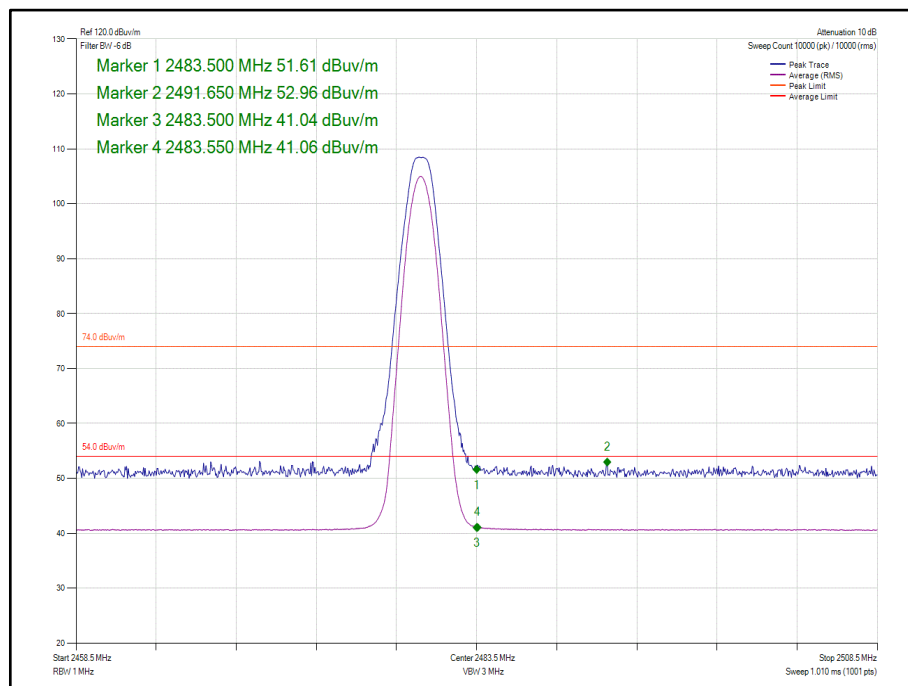


Figure 120 – Core 2 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

ePA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0	2390.0	55.03	42.24
GFSK/DH1	2480	0	2483.5	55.52	43.31

Table 97 - Restricted Band Edge Results

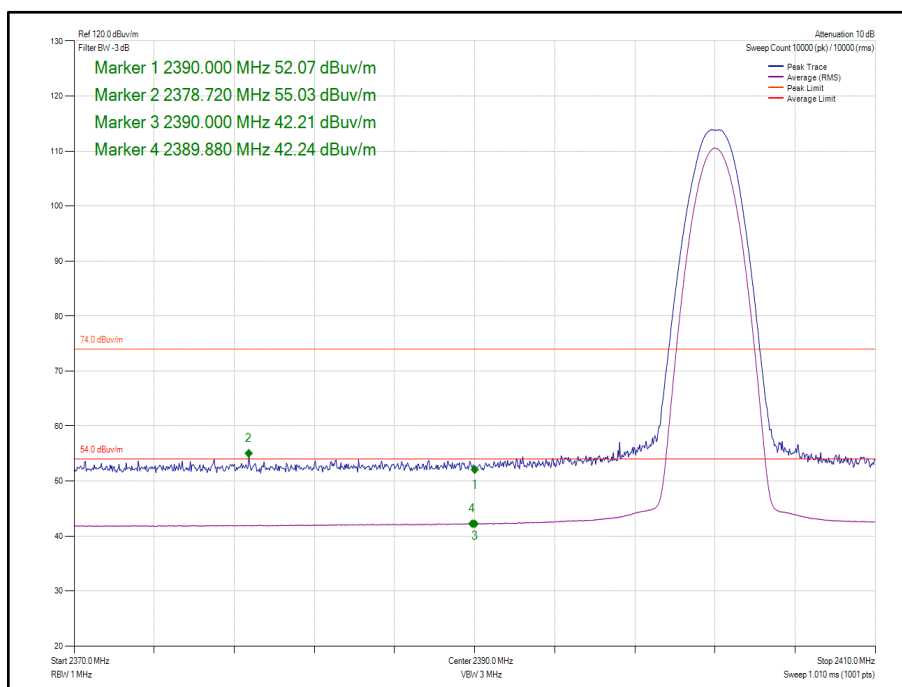


Figure 121 – Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

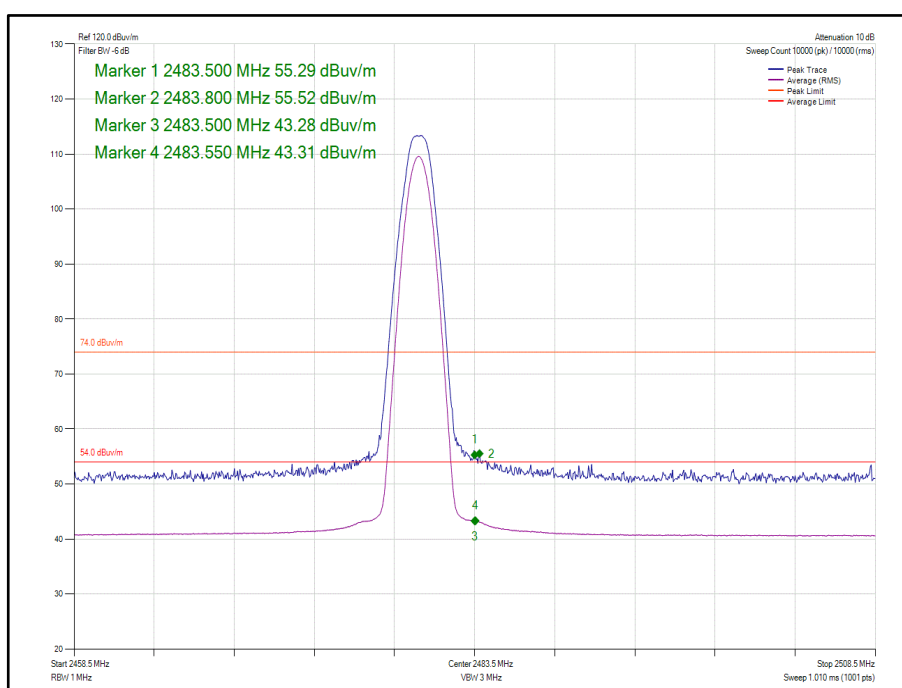


Figure 122 – Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	1	2390.0	55.00	43.26
GFSK/DH1	2480	1	2483.5	57.76	45.68

Table 98 - Restricted Band Edge Results

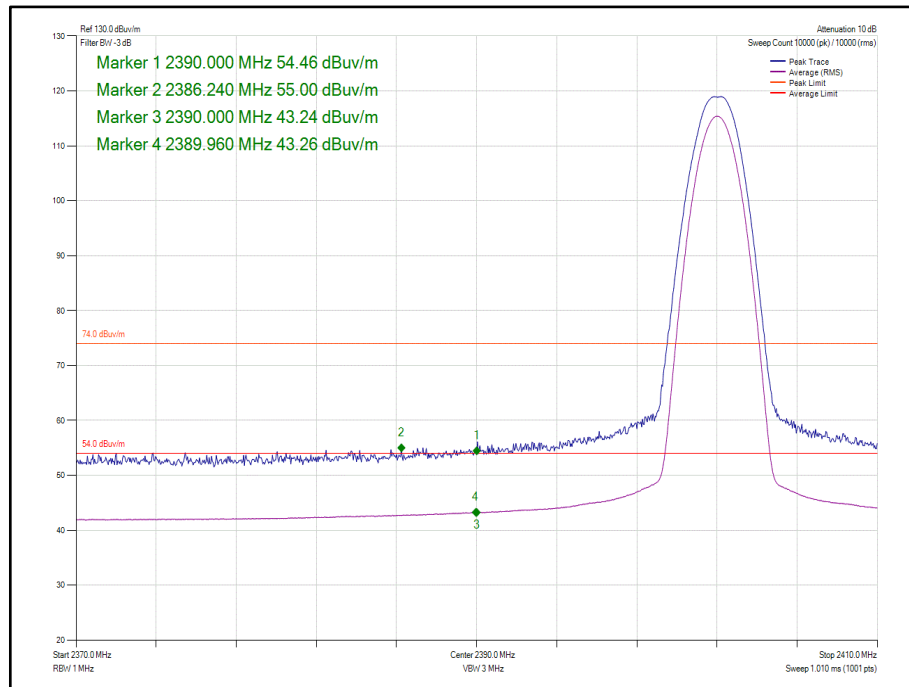


Figure 123 – Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

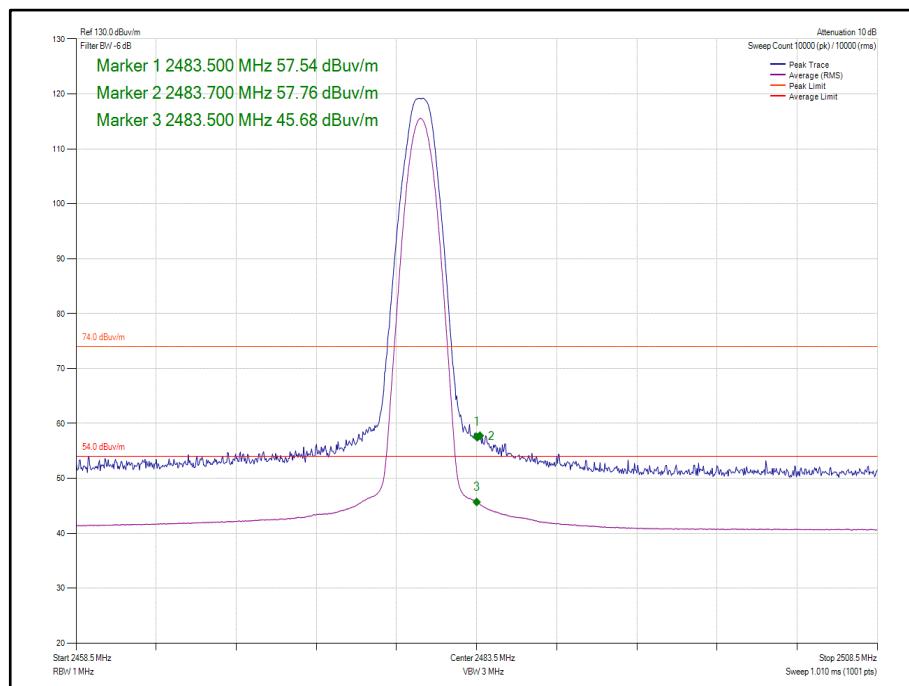


Figure 124 – Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0-1	2390.0	55.20	43.53
GFSK/DH1	2480	0-1	2483.5	57.64	45.79

Table 99 - Restricted Band Edge Results

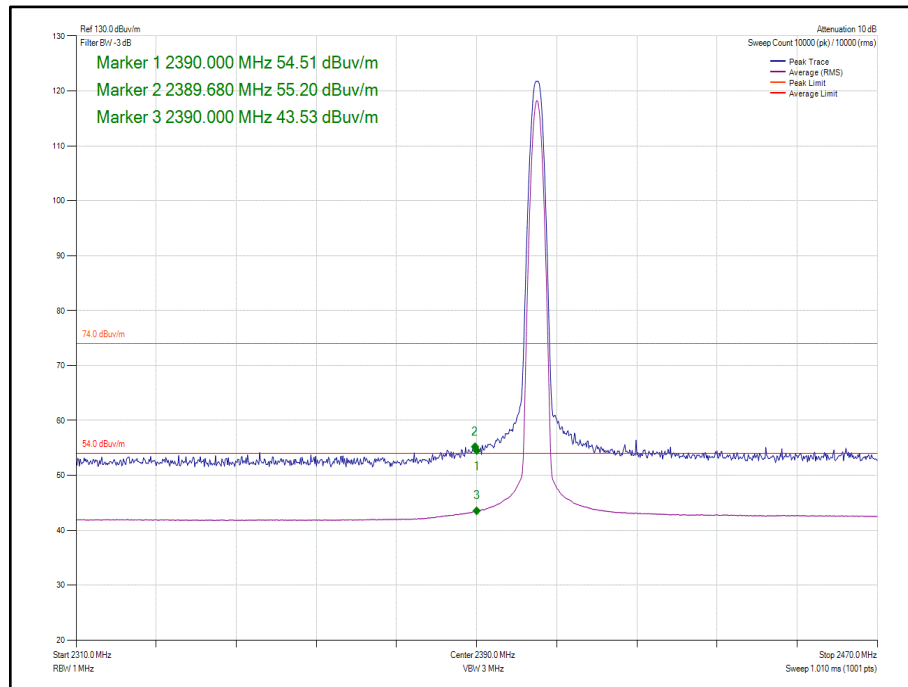


Figure 125 – Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

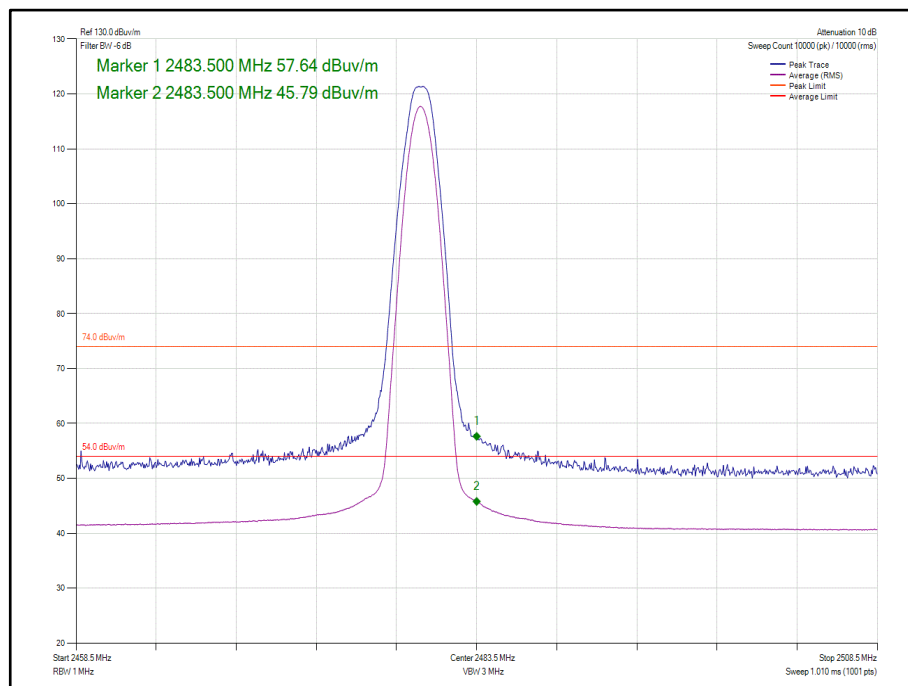


Figure 126 – Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



LE2M

iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	0	2390.0	54.17	41.96
GFSK/DH1	2480	0	2483.5	59.32	46.97

Table 100 - Restricted Band Edge Results

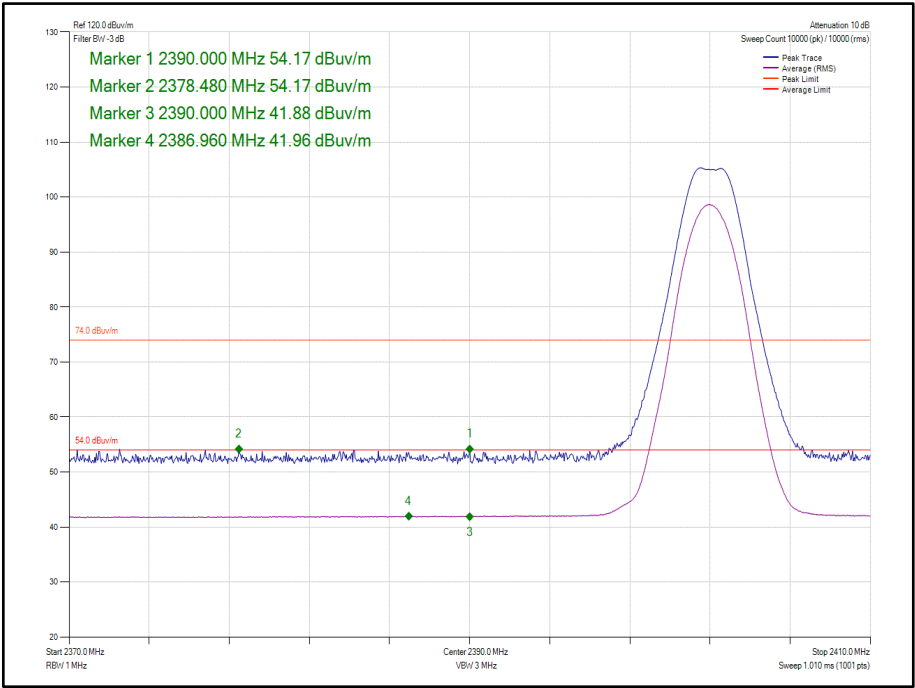


Figure 127 – Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

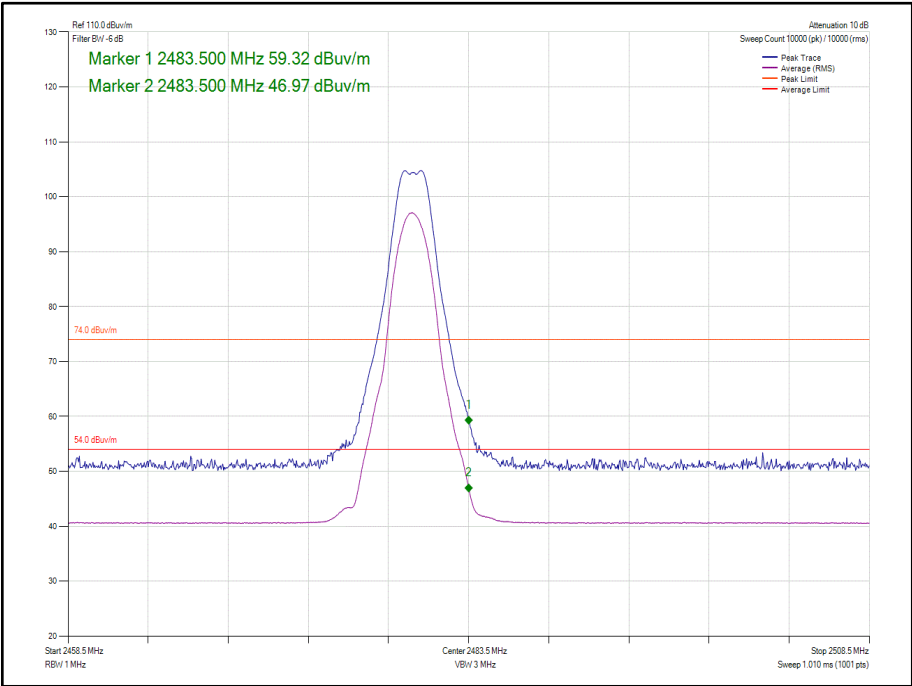


Figure 128 – Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	1	2390.0	54.10	42.04
GFSK/DH1	2480	1	2483.5	64.53	51.41

Table 101 - Restricted Band Edge Results

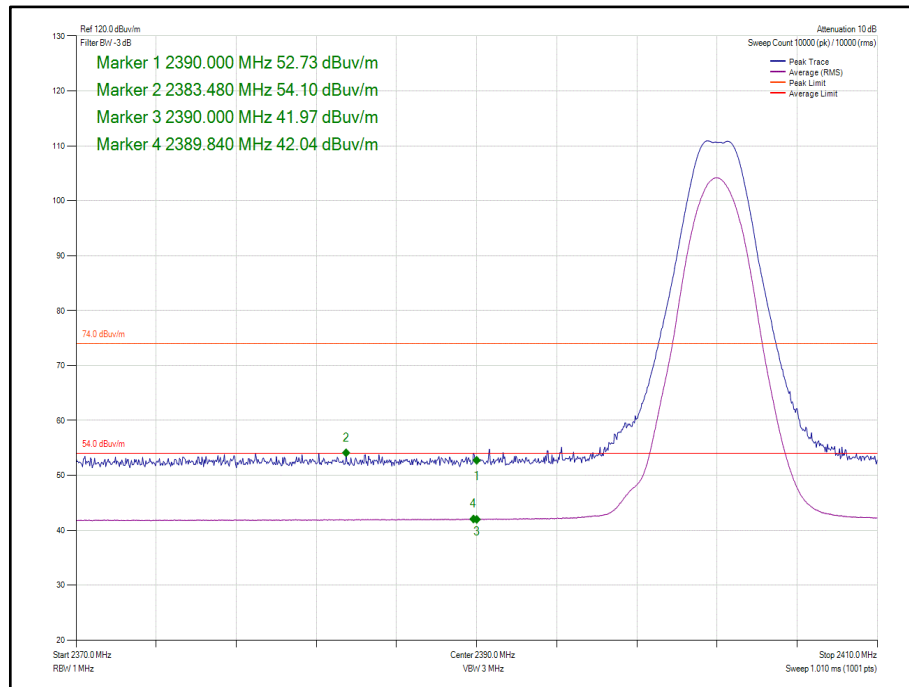


Figure 129 – Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

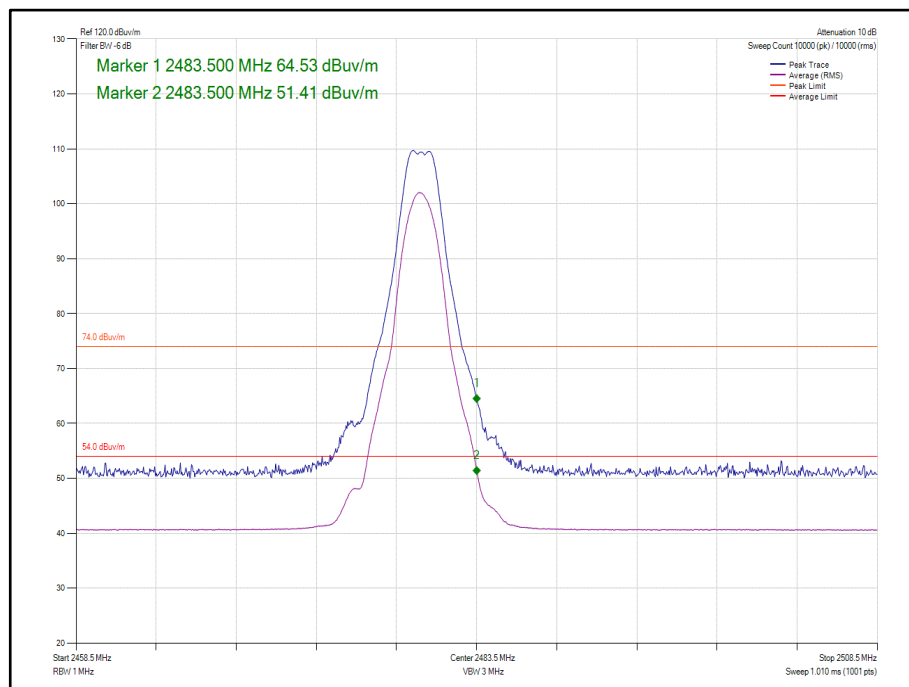


Figure 130 – Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	2	2390.0	53.85	41.96
GFSK/DH1	2480	2	2483.5	62.28	49.96

Table 102 - Restricted Band Edge Results

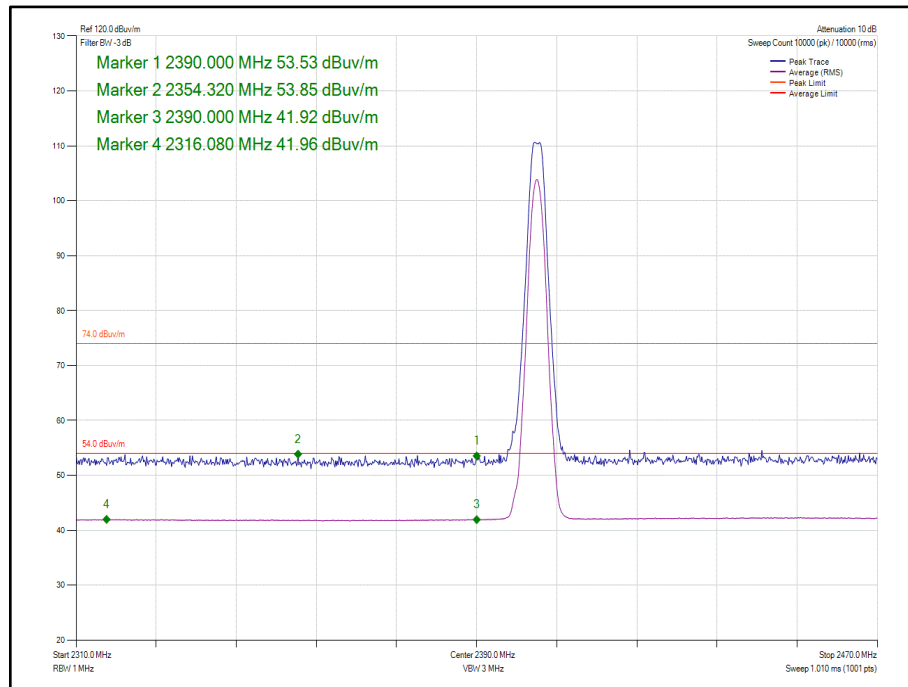


Figure 131 – Core 2 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

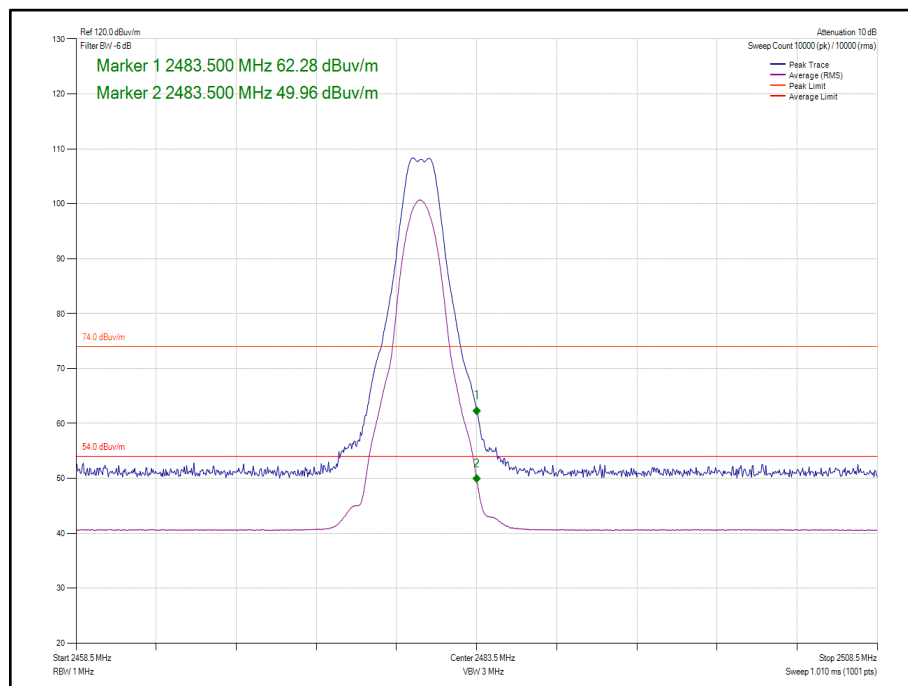


Figure 132 – Core 2 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0-1	2390.0	54.56	52.08
GFSK/DH1	2480	0-1	2483.5	65.18	52.17

Table 103 - Restricted Band Edge Results

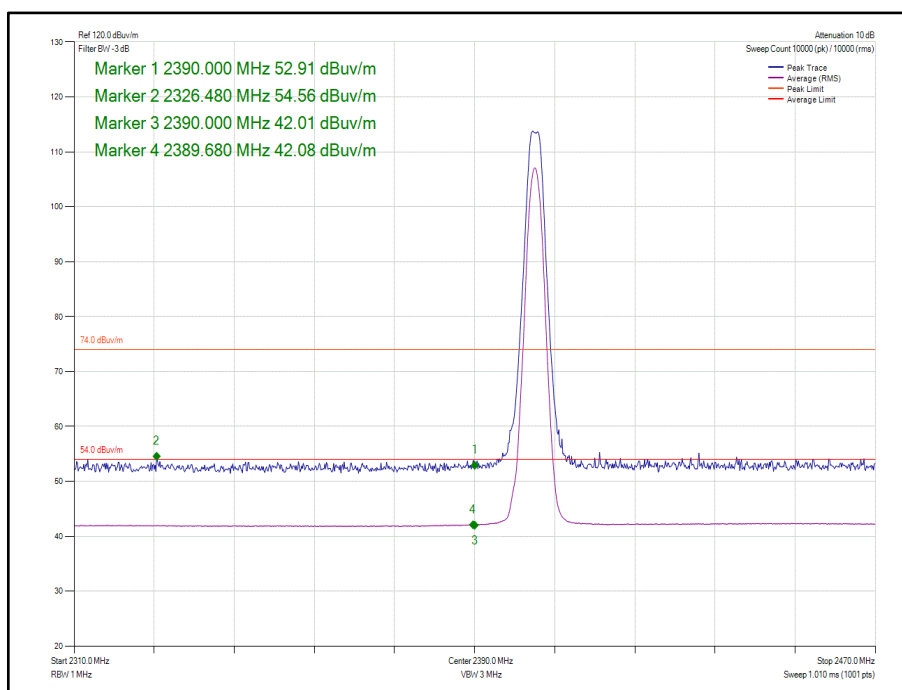


Figure 133 – Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

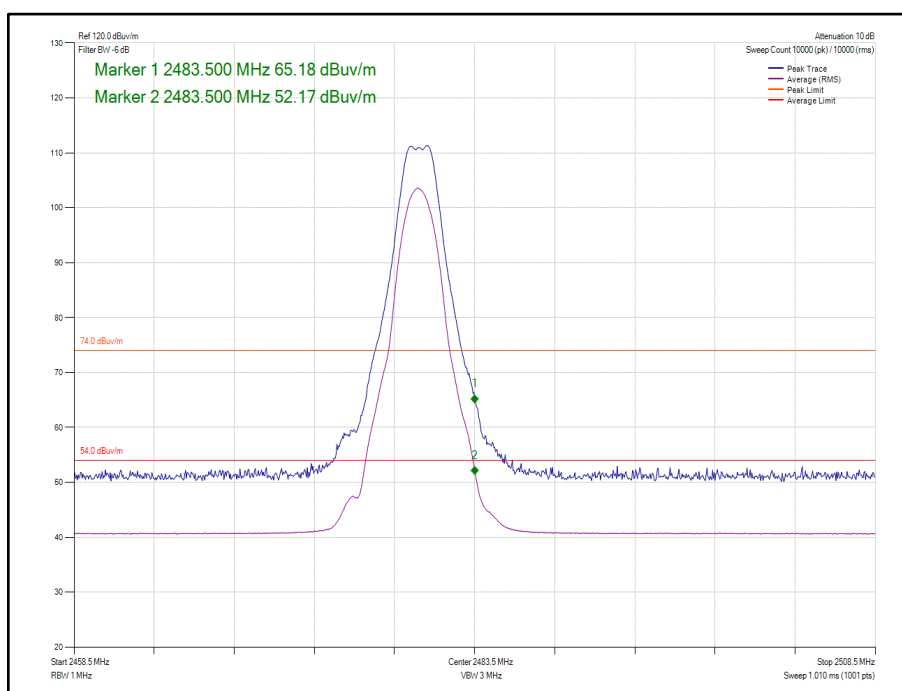


Figure 134 – Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz



HDR4

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	0	4DH5	2404	2390.0	54.19	41.95
Static	GFSK	0	4DH5	2478	2483.5	53.24	40.71

Table 104 - Restricted Band Edge Results

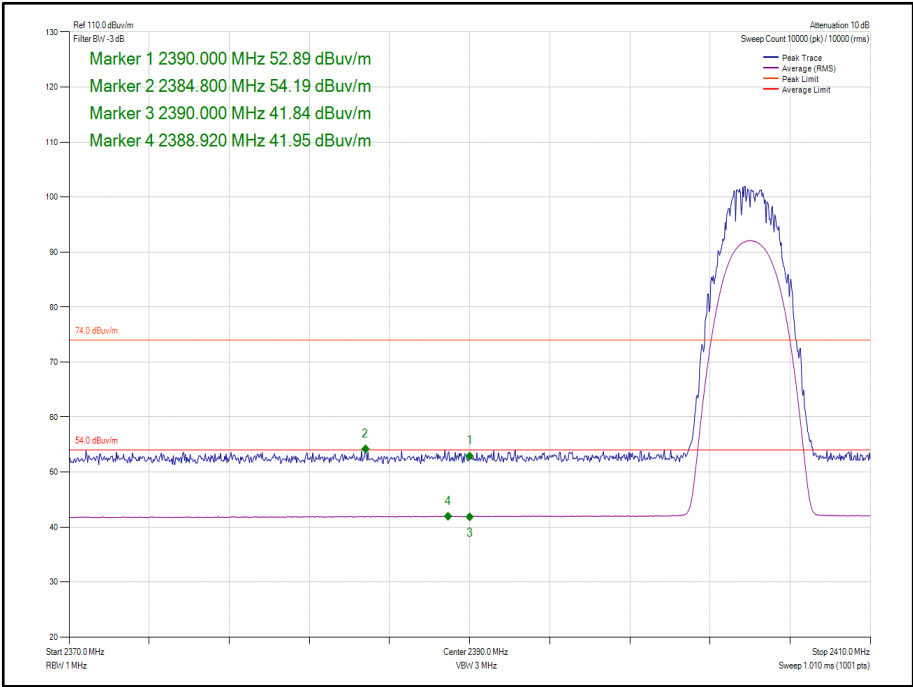


Figure 135 - Core 0 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

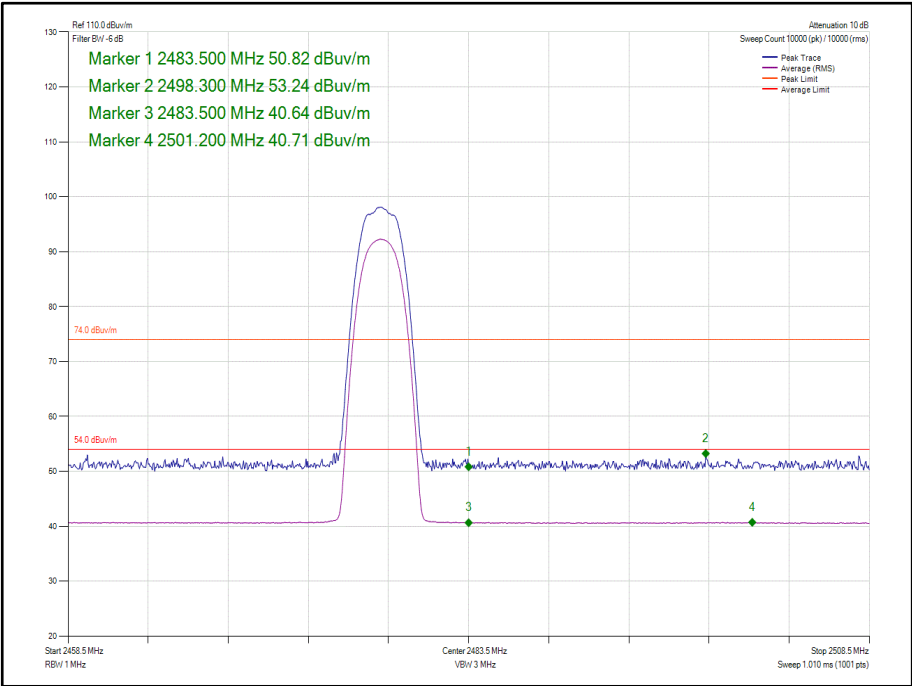


Figure 136 - Core 0 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	1	4DH5	2404	2390.0	56.43	42.05
Static	GFSK	1	4DH5	2478	2483.5	56.27	40.95

Table 105 - Restricted Band Edge Results

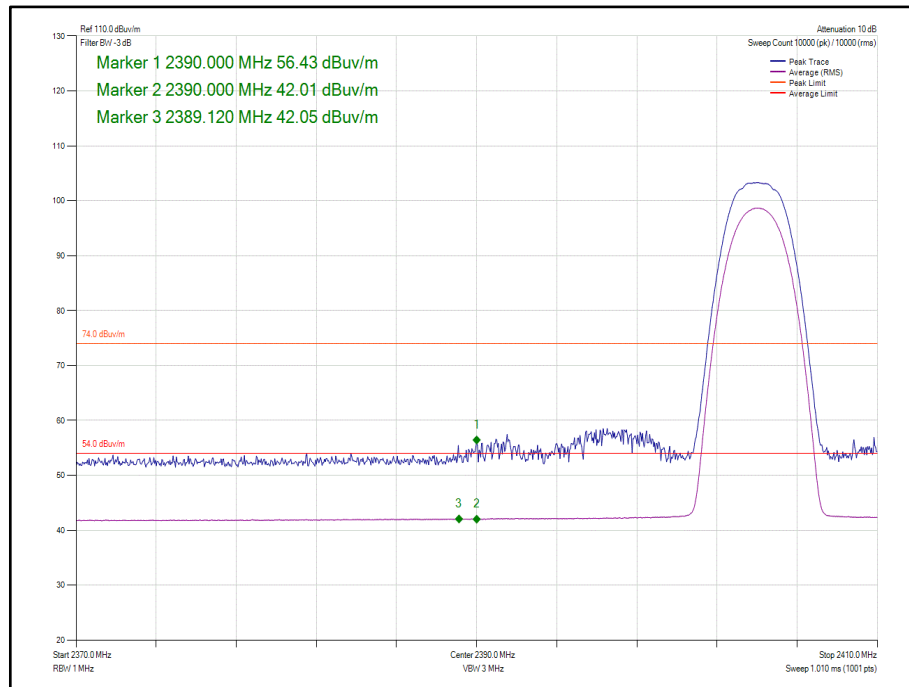


Figure 137 - Core 1 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

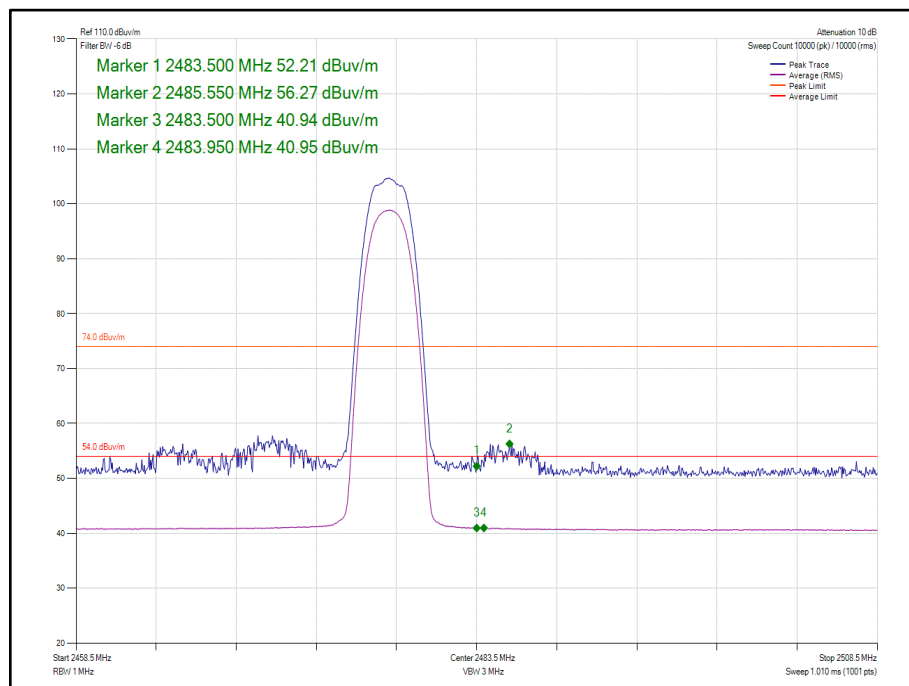


Figure 138 - Core 1 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0-1	4DH5	2404	2390.0	57.10	42.51
Static	GFSK	0-1	4DH5	2478	2483.5	52.97	40.86

Table 106 - Restricted Band Edge Results

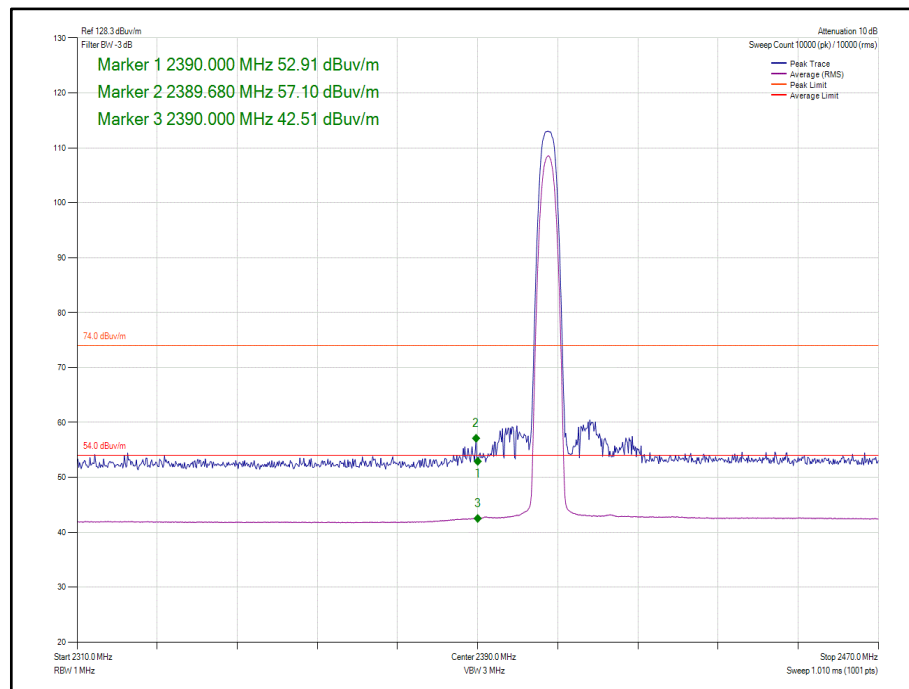


Figure 139 - Core 0-1 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

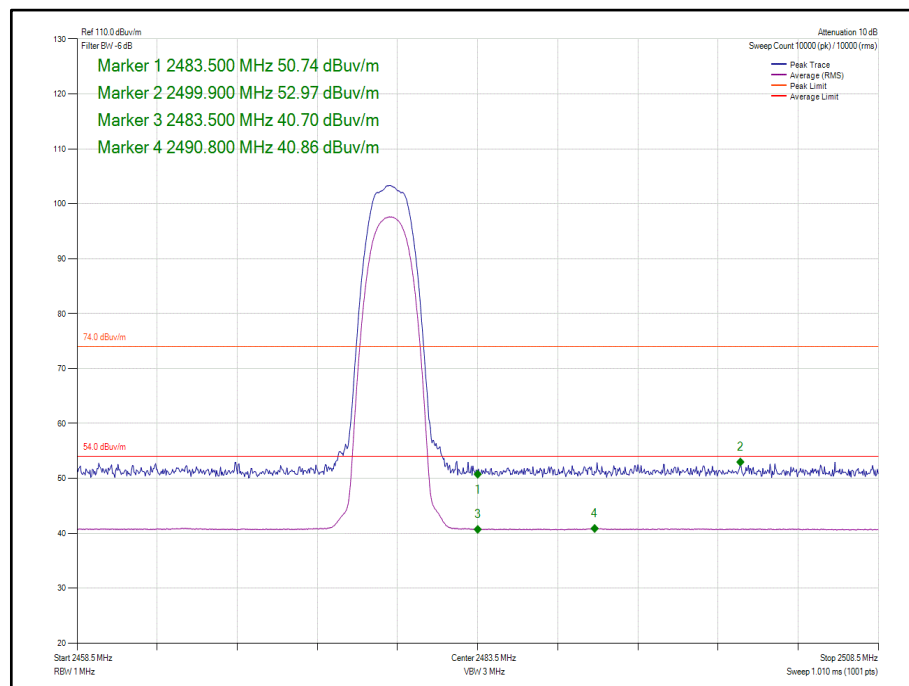


Figure 140 - Core 0-1 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	2	4DH5	2404	2390.0	54.12	42.15
Static	GFSK	2	4DH5	2478	2483.5	53.04	41.03

Table 107 - Restricted Band Edge Results

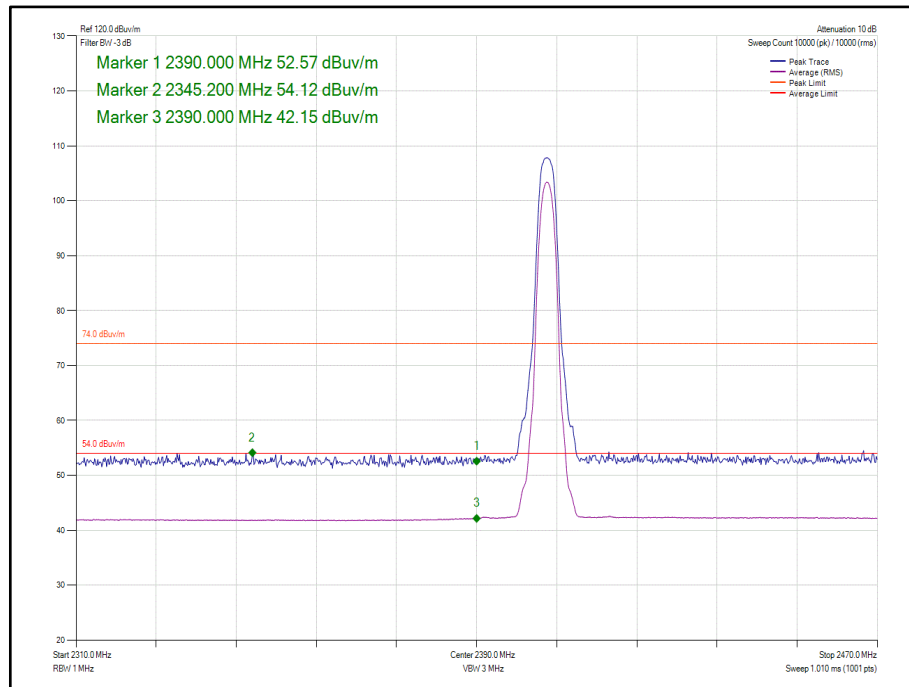


Figure 141 - Core 2 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

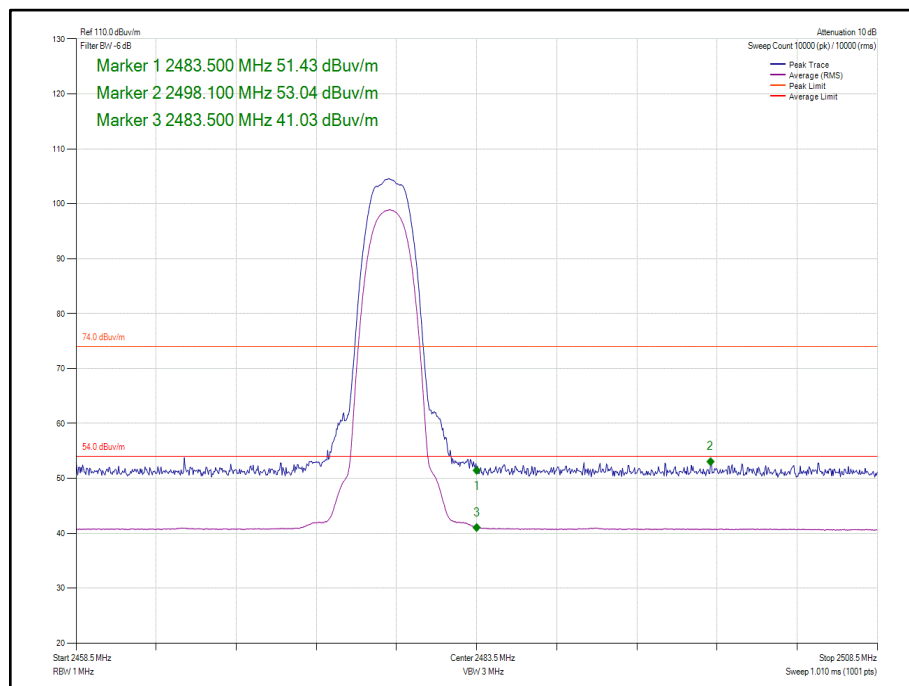


Figure 142 - Core 2 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

HDR8

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0	8DH5	2404	2390.0	54.97	41.97
Static	GFSK	0	8DH5	2478	2483.5	53.25	40.68

Table 108 - Restricted Band Edge Results

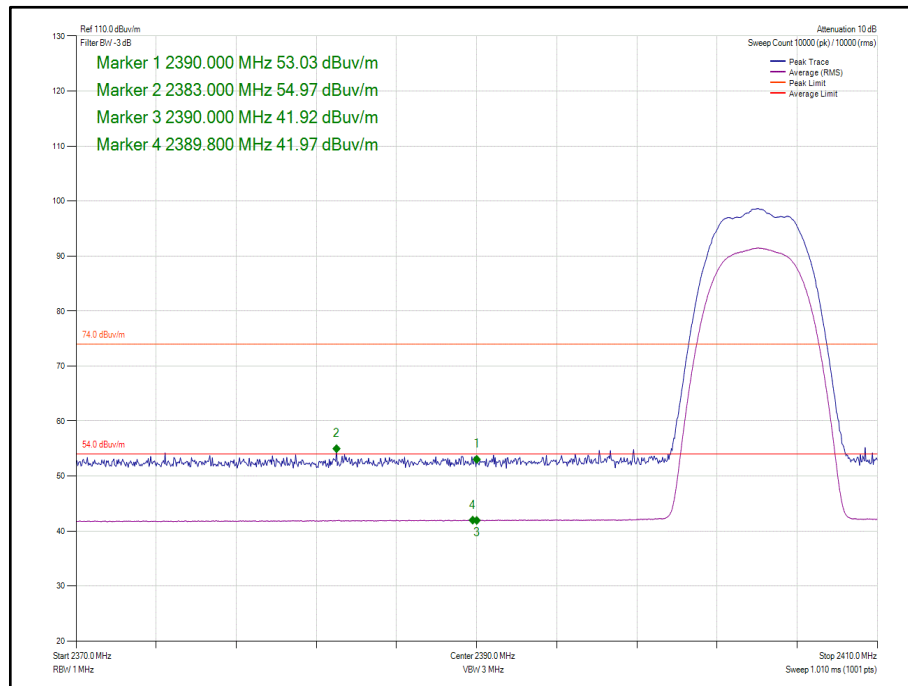


Figure 143- Core 0 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

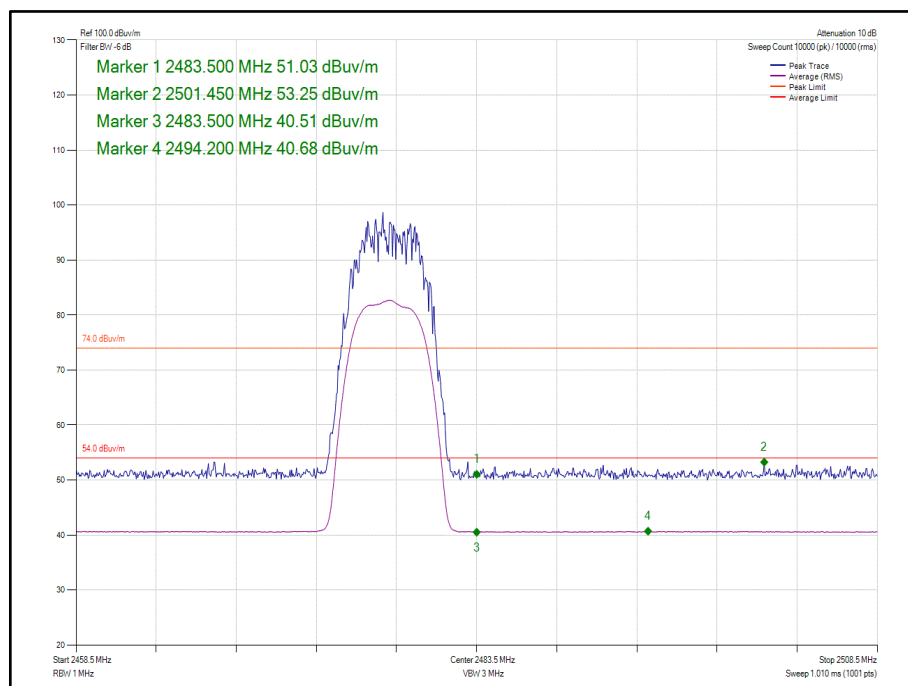


Figure 144 - Core 0 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	1	8DH5	2404	2390.0	56.51	42.10
Static	GFSK	1	8DH5	2478	2483.5	57.15	41.20

Table 109 - Restricted Band Edge Results

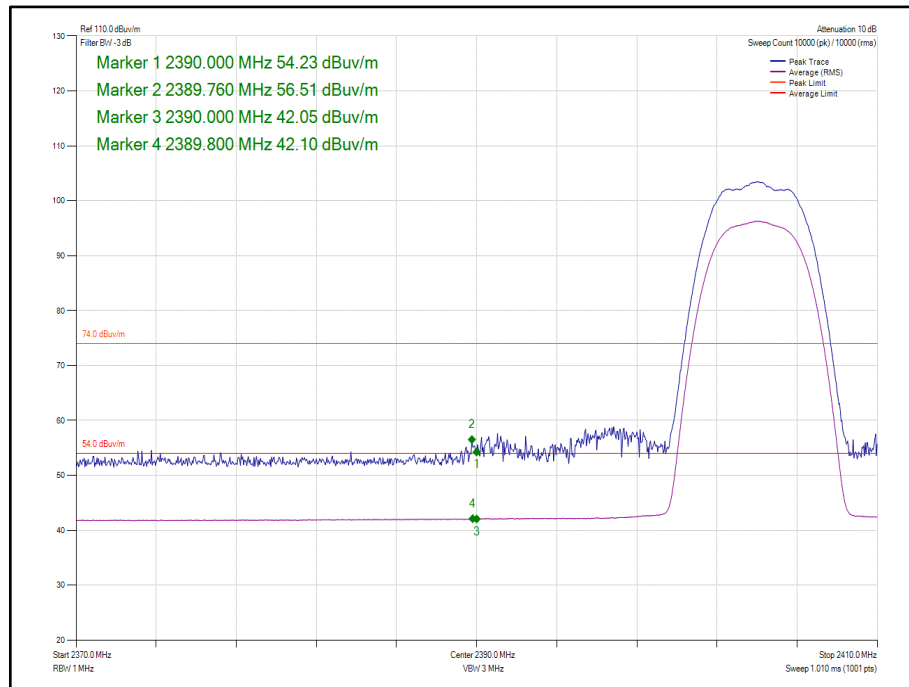


Figure 145- Core 1 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

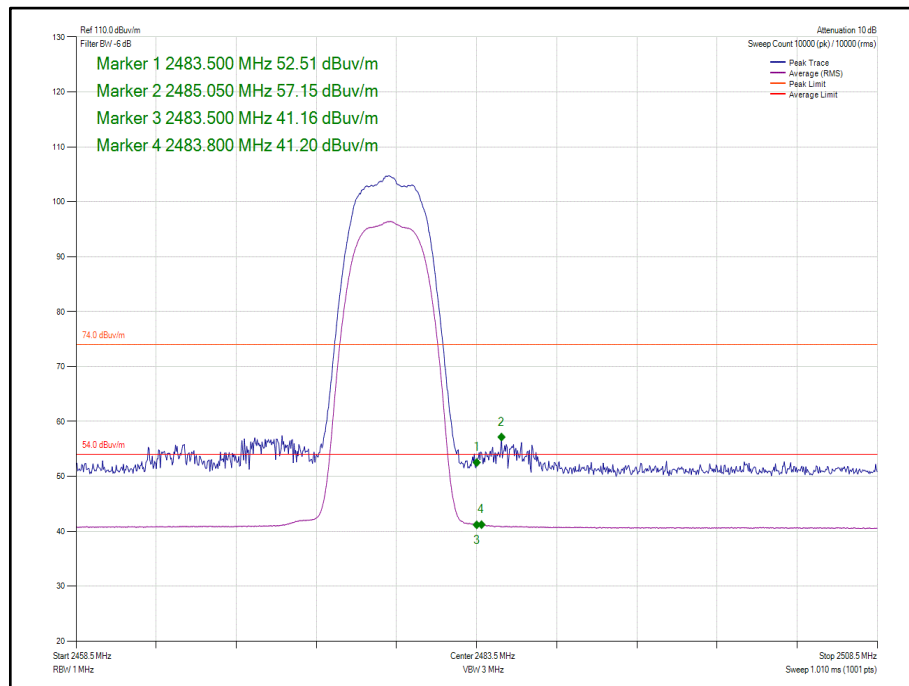


Figure 146 - Core 1 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0-1	8DH5	2404	2390.0	54.06	42.15
Static	GFSK	0-1	8DH5	2478	2483.5	56.83	43.90

Table 110 - Restricted Band Edge Results

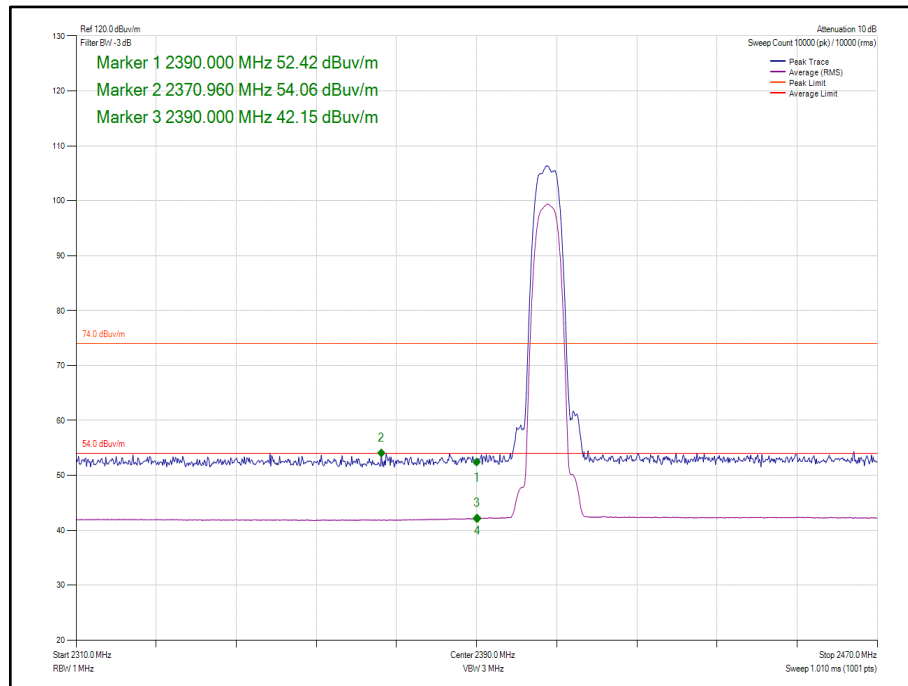


Figure 147- Core 0-1 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

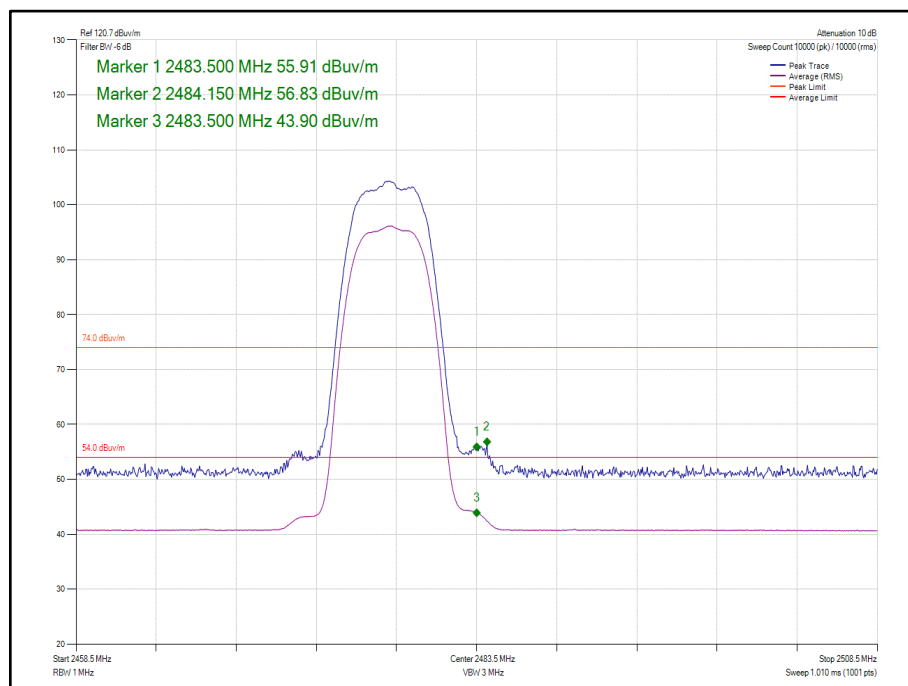


Figure 148 - Core 0-1 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

ePA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dB μ V/m)	Average Level (dB μ V/m)
GFSK/DH1	2402	0	2390.0	54.17	42.11
GFSK/DH1	2480	0	2483.5	56.52	42.94

Table 111 - Restricted Band Edge Results

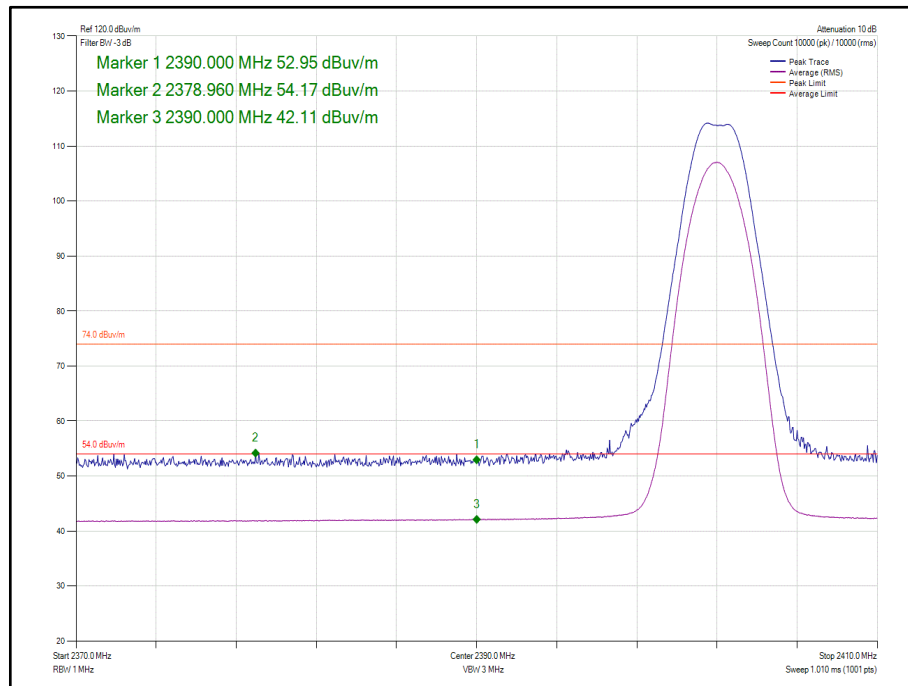


Figure 149 – Core 0 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

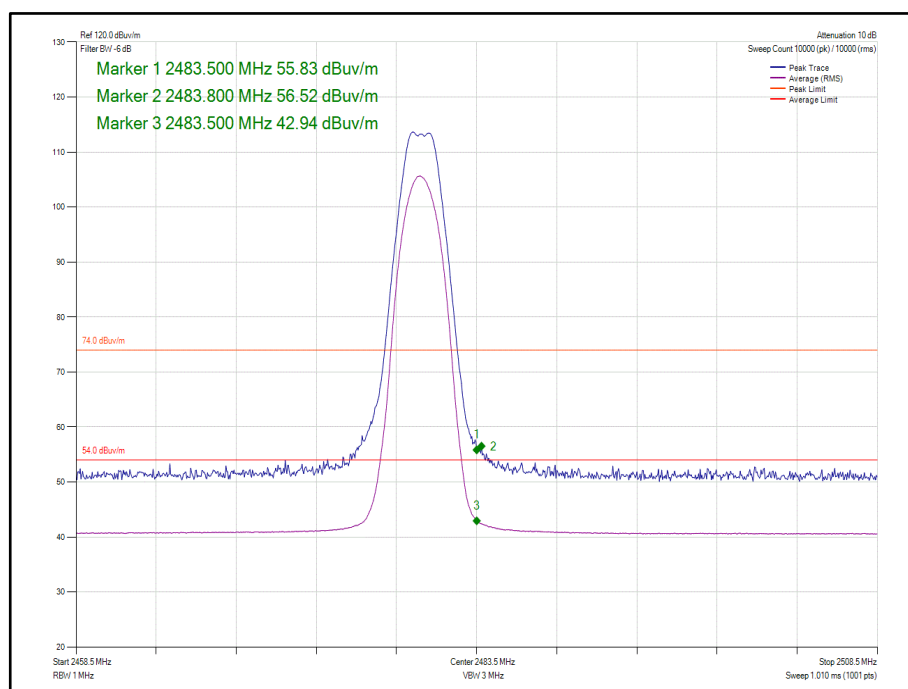


Figure 150 – Core 0 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	1	2390.0	55.11	42.74
GFSK/DH1	2480	1	2483.5	63.94	48.07

Table 112 - Restricted Band Edge Results

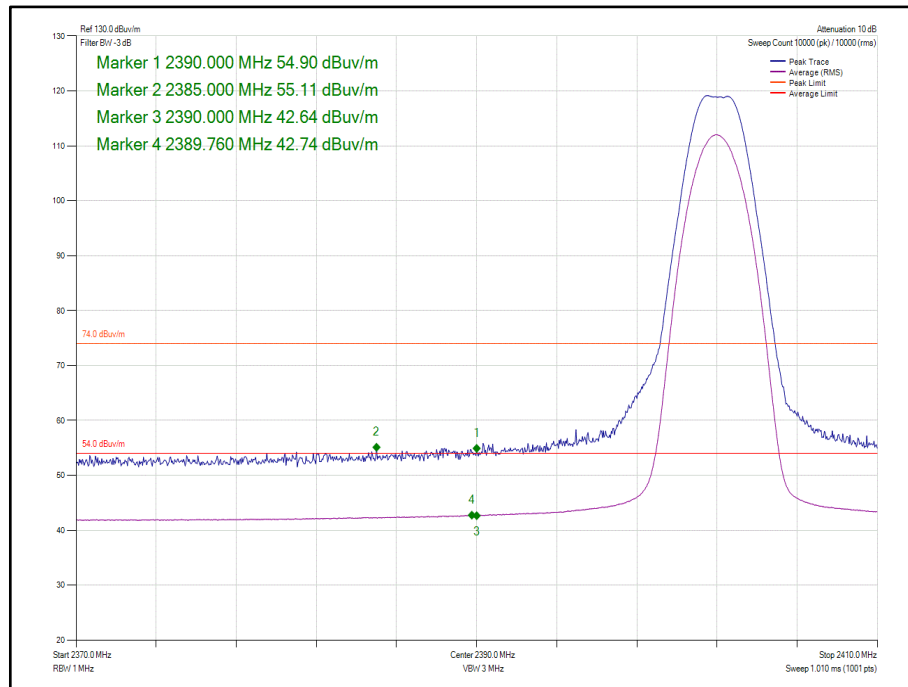


Figure 151 – Core 1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

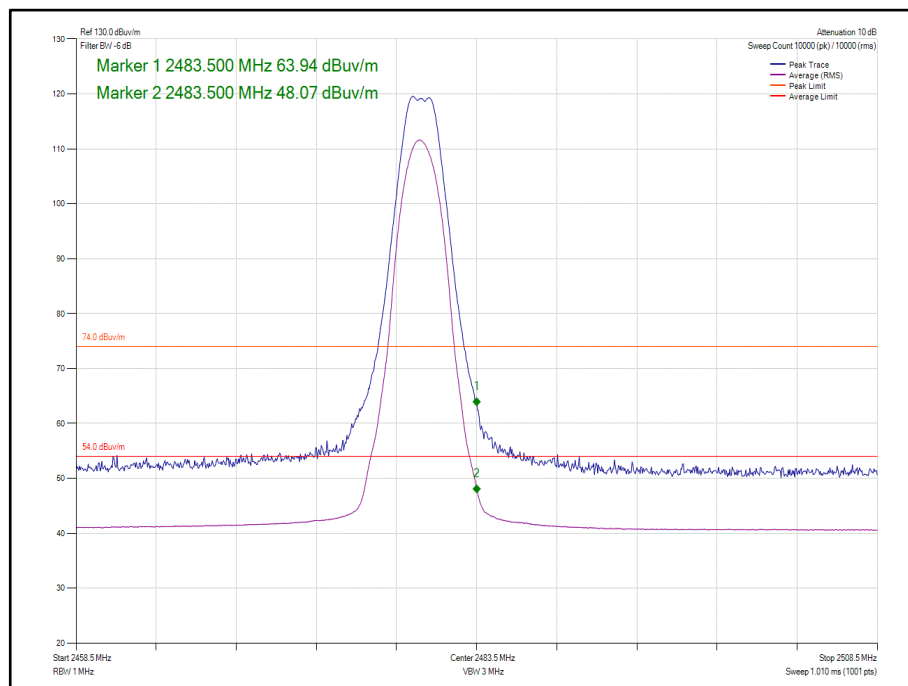


Figure 152 – Core 1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
GFSK/DH1	2402	0-1	2390.0	54.48	42.66
GFSK/DH1	2480	0-1	2483.5	64.90	49.57

Table 113 - Restricted Band Edge Results

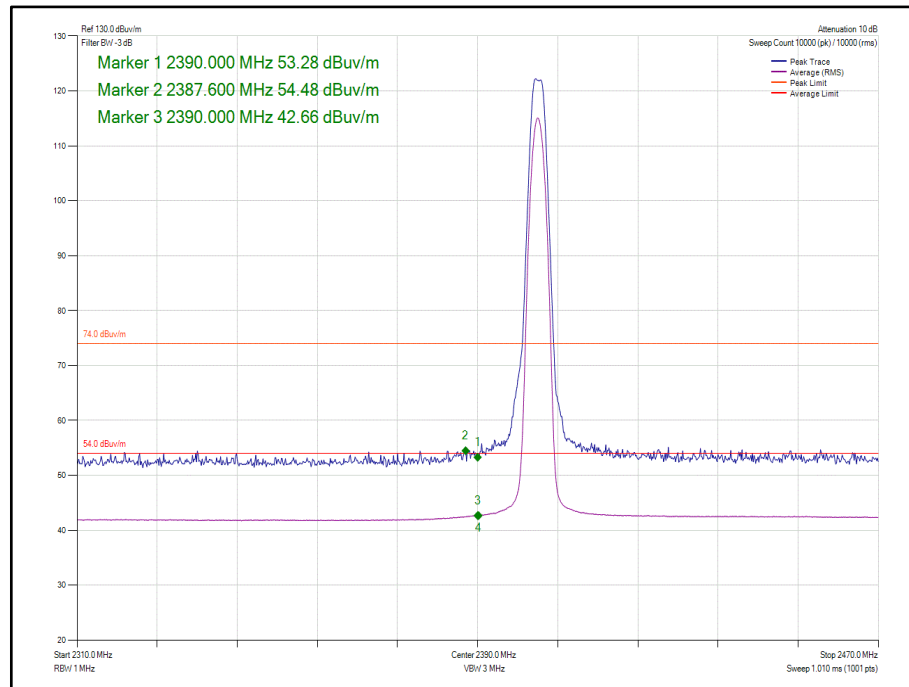


Figure 153 – Core 0-1 - GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

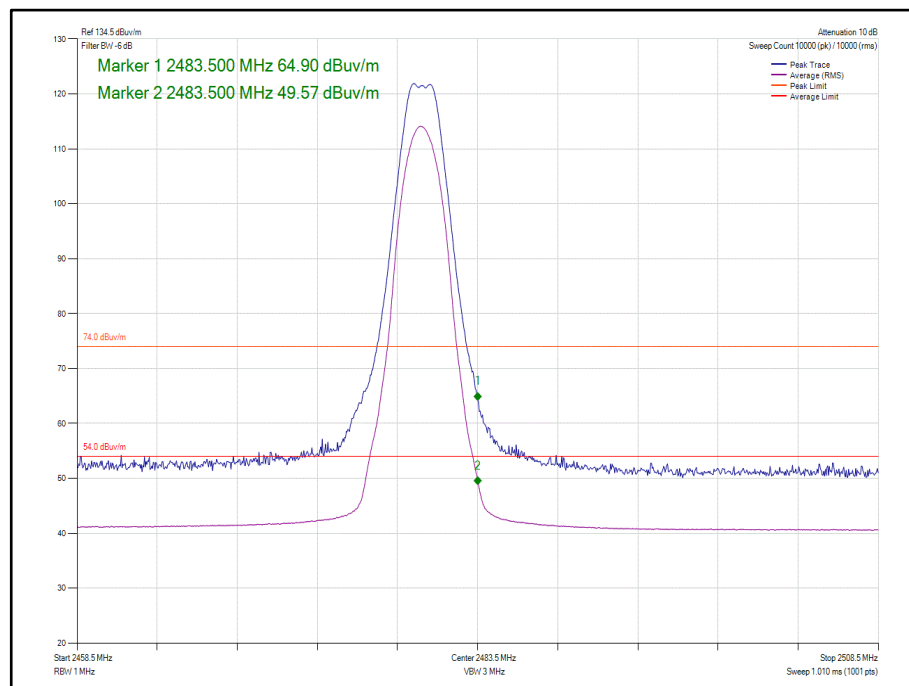


Figure 154 – Core 0-1 - GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

HDR4

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0	4DH5	2404	2390.0	54.38	42.22
Static	GFSK	0	4DH5	2478	2483.5	52.91	41.02

Table 114 - Restricted Band Edge Results

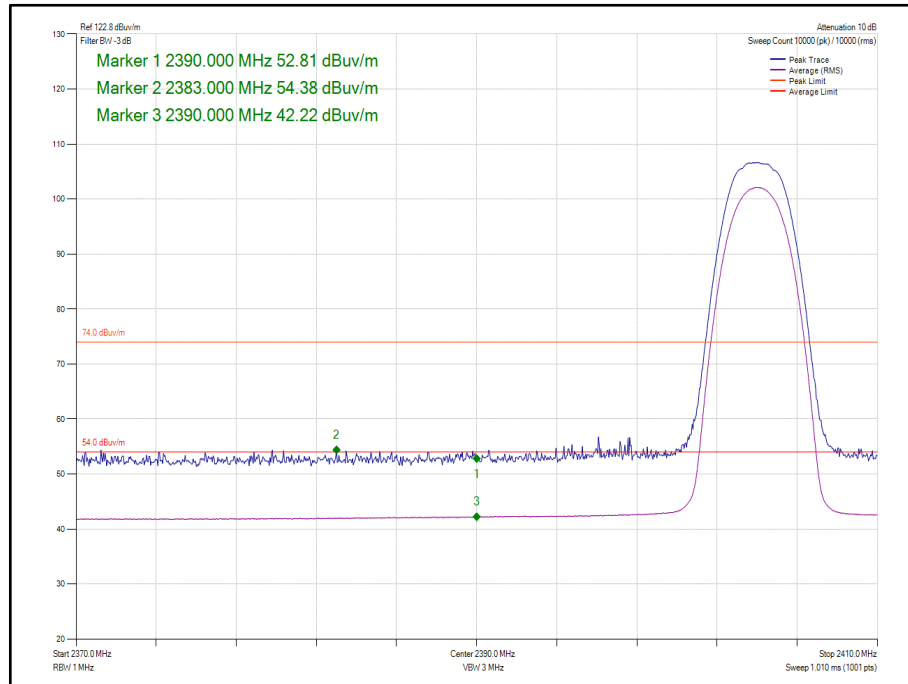


Figure 155 - Core 0 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

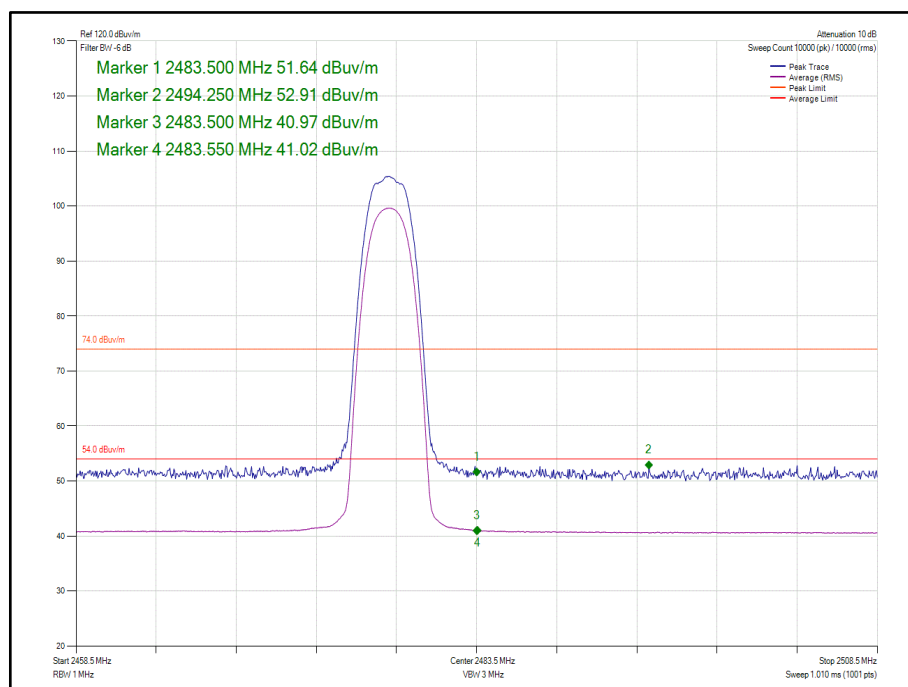


Figure 156 - Core 0 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	1	4DH5	2404	2390.0	58.03	42.76
Static	GFSK	1	4DH5	2478	2483.5	57.34	42.42

Table 115 - Restricted Band Edge Results

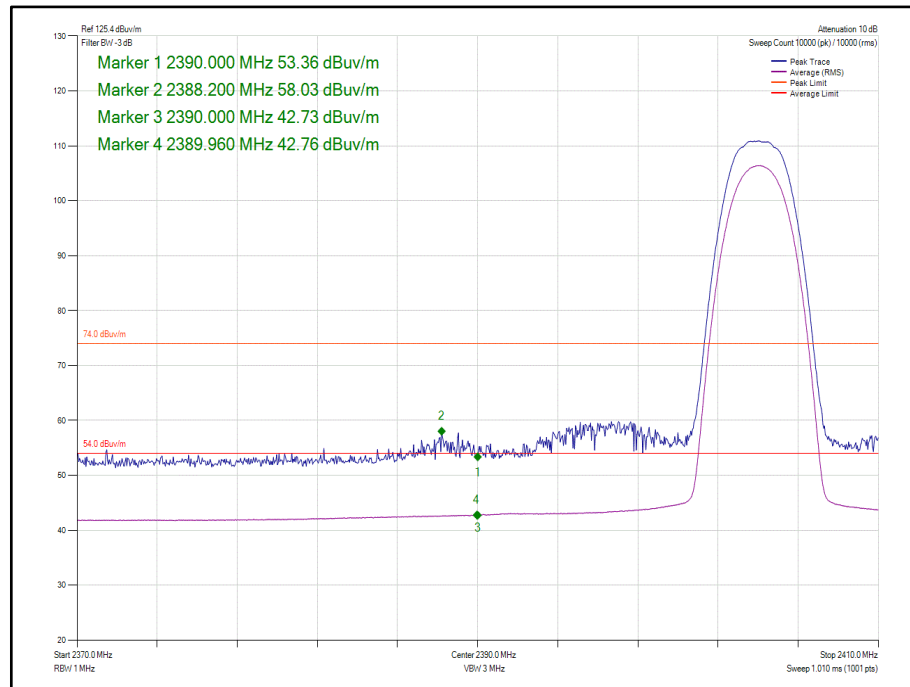


Figure 157 - Core 1 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

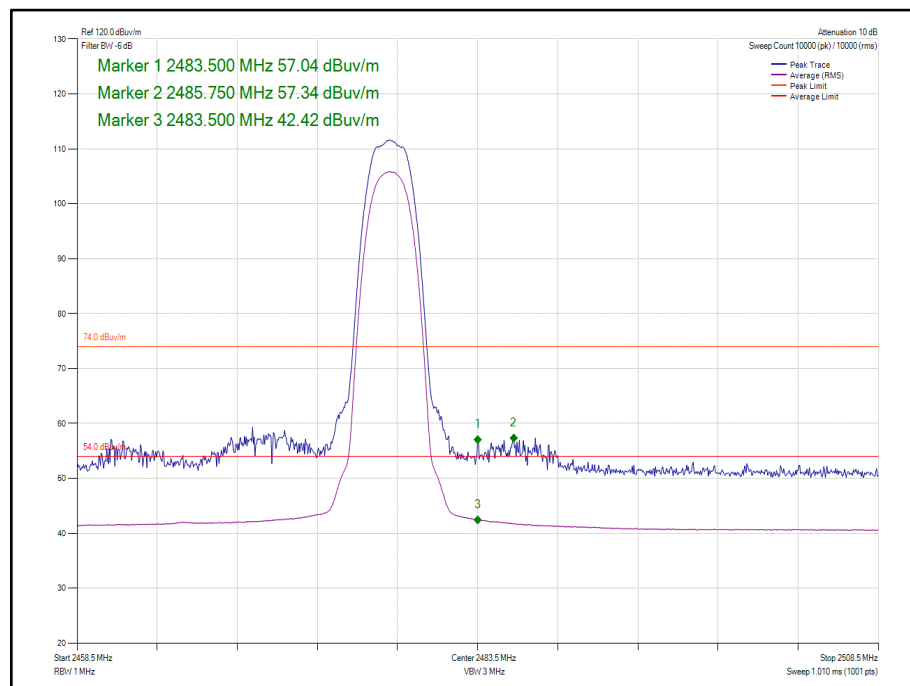


Figure 158 - Core 1 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core 0-1	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0-1,	4DH5	2404	2390.0	54.07	42.14
Static	GFSK	0-1	4DH5	2478	2483.5	55.96	41.86

Table 116 - Restricted Band Edge Results

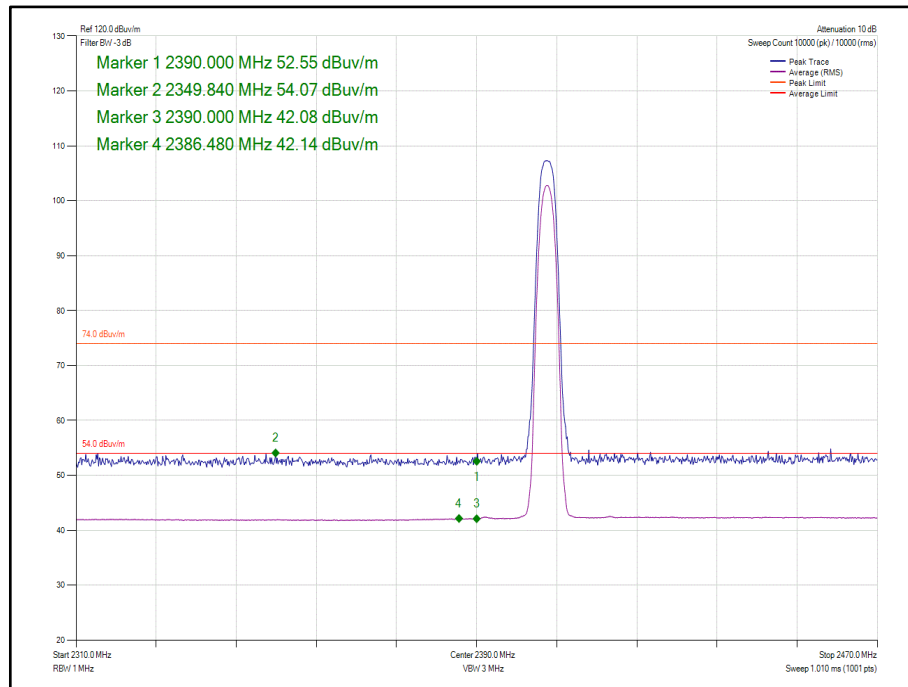


Figure 159 - Core 0-1 - Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

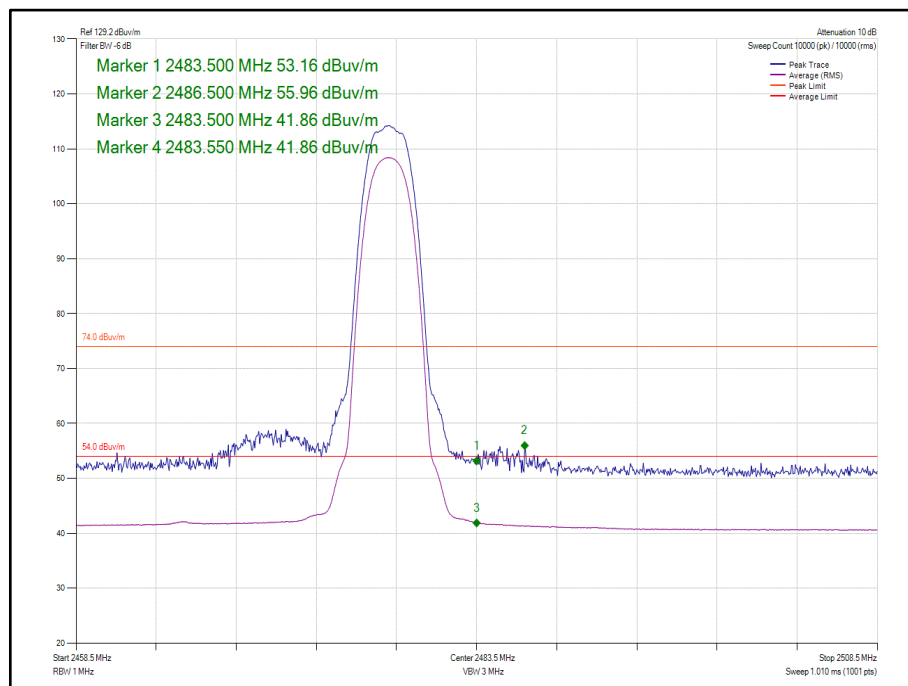


Figure 160 - Core 0-1 - Static - GFSK/4DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

HDR8

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0	8DH5	2404	2390.0	54.18	42.08
Static	GFSK	0	8DH5	2478	2483.5	53.53	41.87

Table 117 - Restricted Band Edge Results

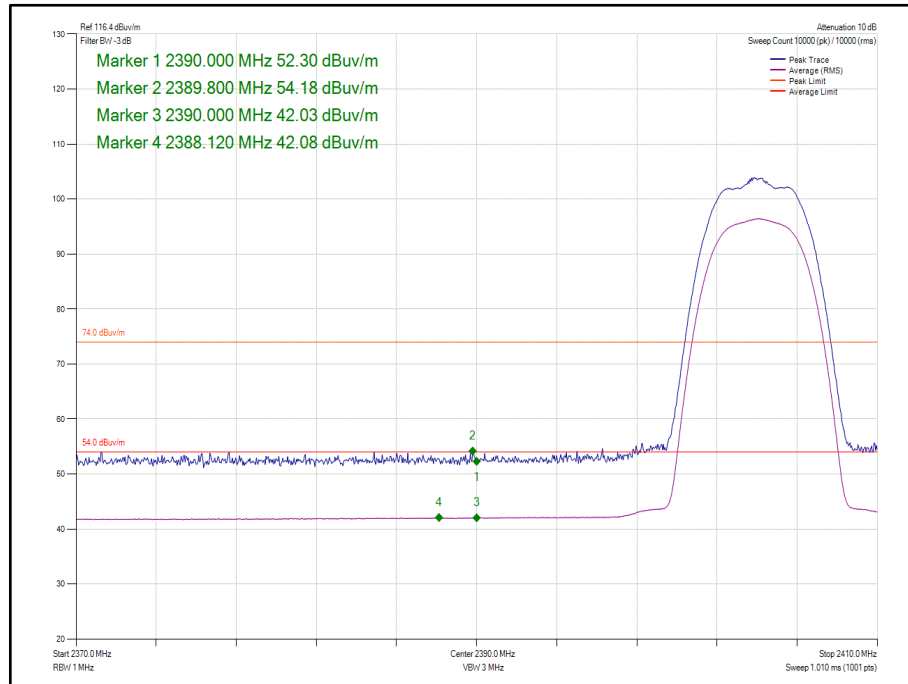


Figure 161 - Core 0 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

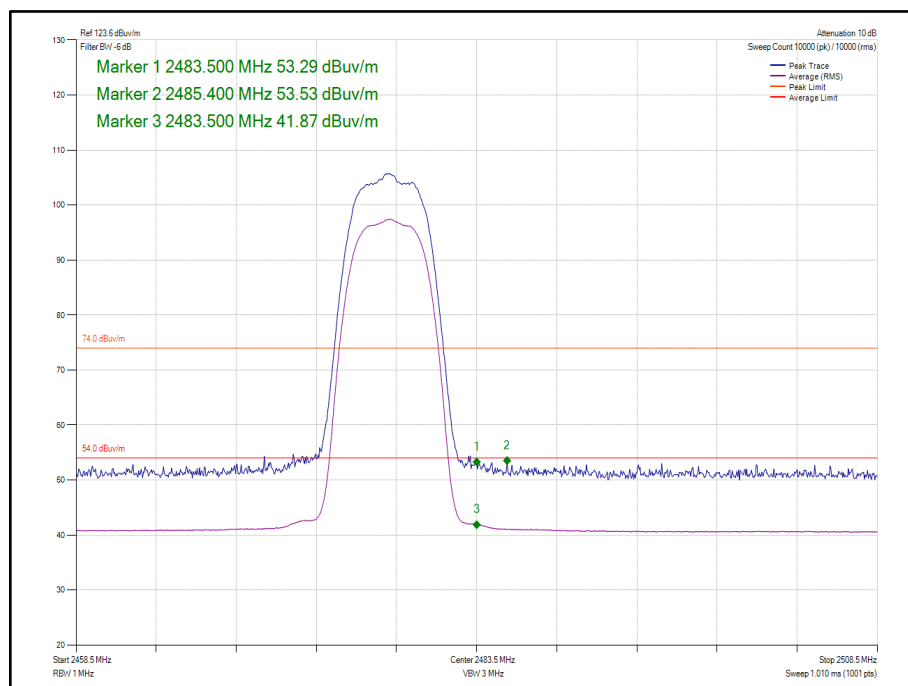


Figure 162 - Core 0 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	1	8DH5	2404	2390.0	57.82	42.81
Static	GFSK	1	8DH5	2478	2483.5	60.03	47.98

Table 118 - Restricted Band Edge Results

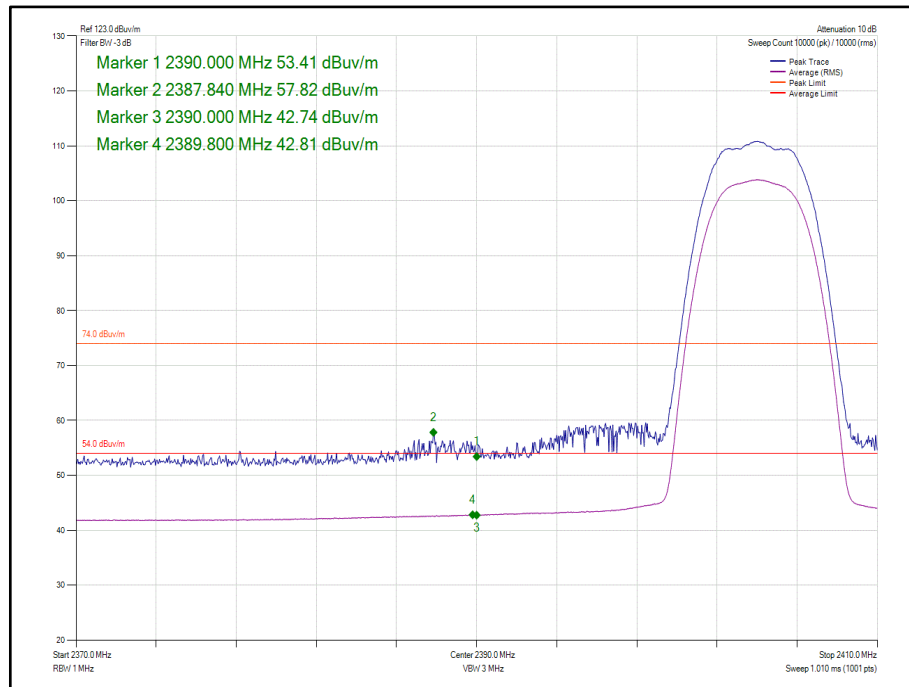


Figure 163- Core 1 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

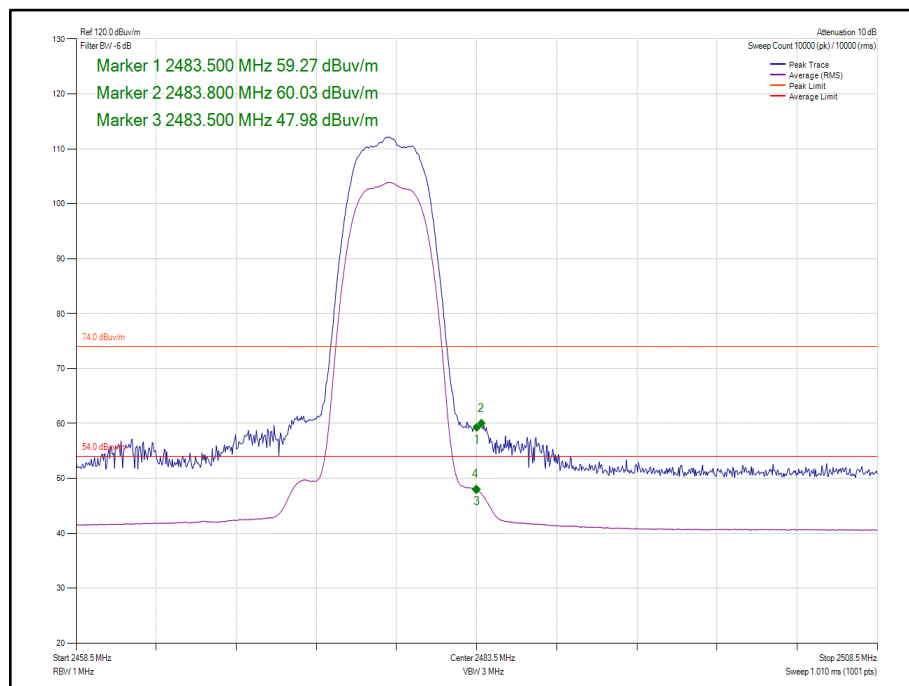


Figure 164 - Core 1 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	0-1	8DH5	2404	2390.0	55.97	42.58
Static	GFSK	0-1	8DH5	2478	2483.5	60.28	48.18

Table 119 - Restricted Band Edge Results

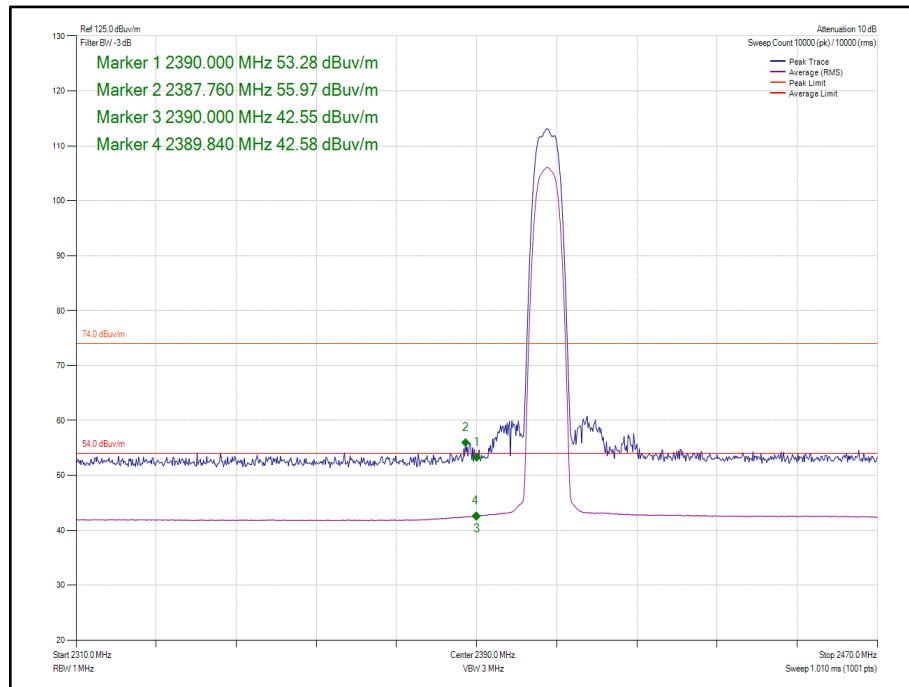


Figure 165- Core 0-1 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

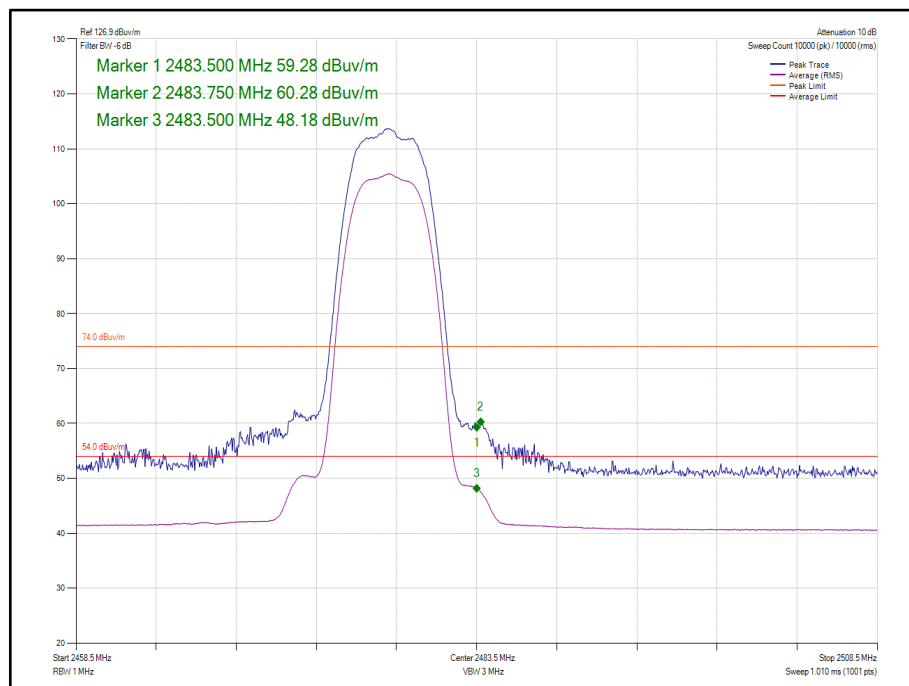


Figure 166 - Core 0-1 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Static	GFSK	2	8DH5	2404	2390.0	53.90	42.17
Static	GFSK	2	8DH5	2478	2483.5	61.16	48.28

Table 120 - Restricted Band Edge Results

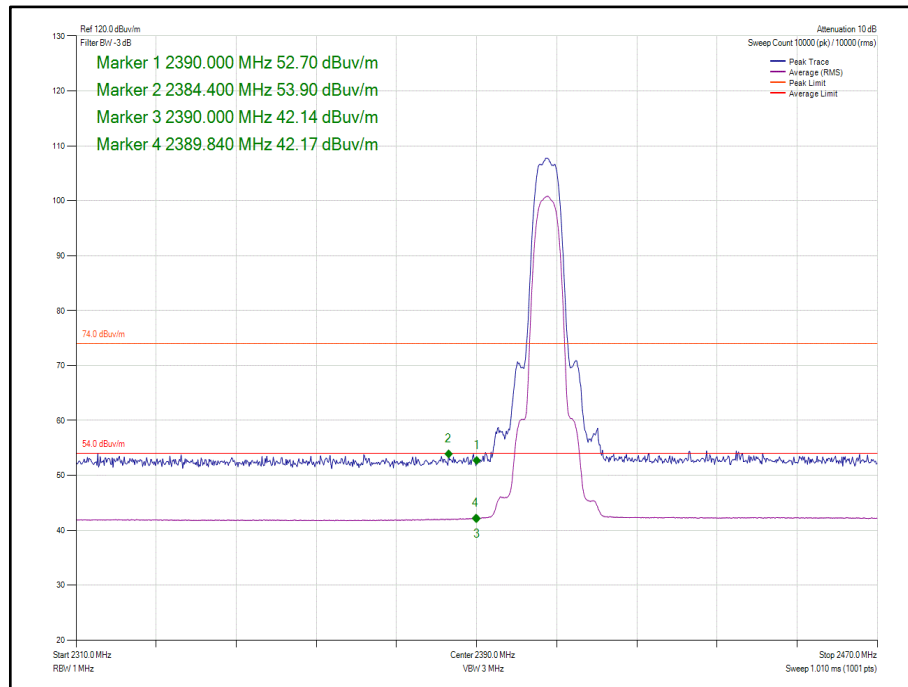


Figure 167- Core 2 - Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

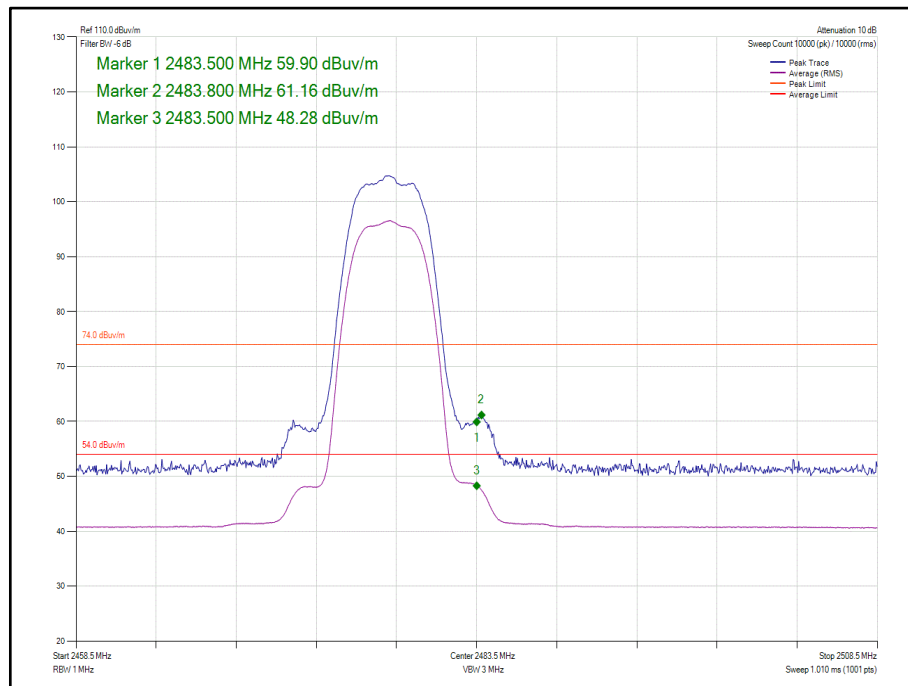


Figure 168 - Core 2 - Static - GFSK/8DH5 - 2478 MHz - Band Edge Frequency 2483.5 MHz



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.