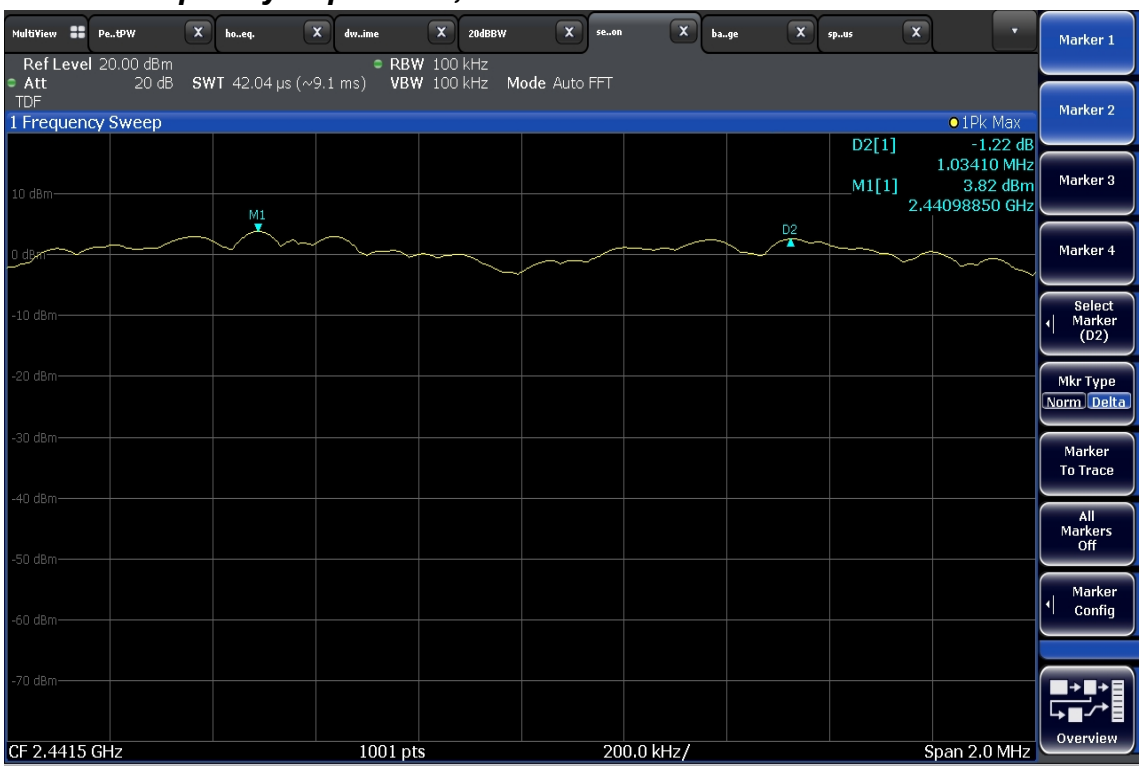
PLOTS OF EMISSIONS

Carrier Frequency Separation, 8DPSK modulation



8.5 Transmitter Average Time of Occupancy

FCC §15.247(a)(1), IC RSS-247 Issue 2, 5.1

Test mode : Set to Hopping mode

Result

Mode	Pulse width (ms)	*)Numbers of slots	**) Average time of Occupancy (ms)	Limit (ms)	Margin (ms)
1x/EDR	2.88	106.67	307.52	400	92.48
AFH	2.88	53.33	153.60	400	246.40

1x/EDR mode

1) This result was measured at DH5 mode in **1x/EDR mode**, which has longest time in one transmission burst.
2) Bluetooth 1x/EDR mode has a channel hopping rate of 1600 hops/s and 79 hopping channels.
3) The average time of occupancy in the specified 31.6 second period (79 channels x 0.4 s) is equal to pulse width x (hopping rate / 6) / 79 x (0.4 x hopping channels).
4) *) Numbers of slots in 31.6 sec = (1600 / 6) / 79 x 31.6
5) **) Average time of Occupancy = 2.88 ms x 106.67 = 307.52 ms

AFH mode

1) This result was measured at DH5 mode in **AFH mode**, which has longest time in one transmission burst.
2) Bluetooth AFH mode has a channel hopping rate of 800 hops/s and 20 hopping channels.
3) The average time of occupancy in the specified 8 second period (20 channels x 0.4 s) is equal to pulse width x (hopping rate / 6) / 20 x (0.4 x hopping channels).
4) *) Numbers of slots in 20 sec = (800 / 6) / 20 x 8
5) **) Average time of Occupancy = 2.88 ms x 53.33 = 153.60 ms

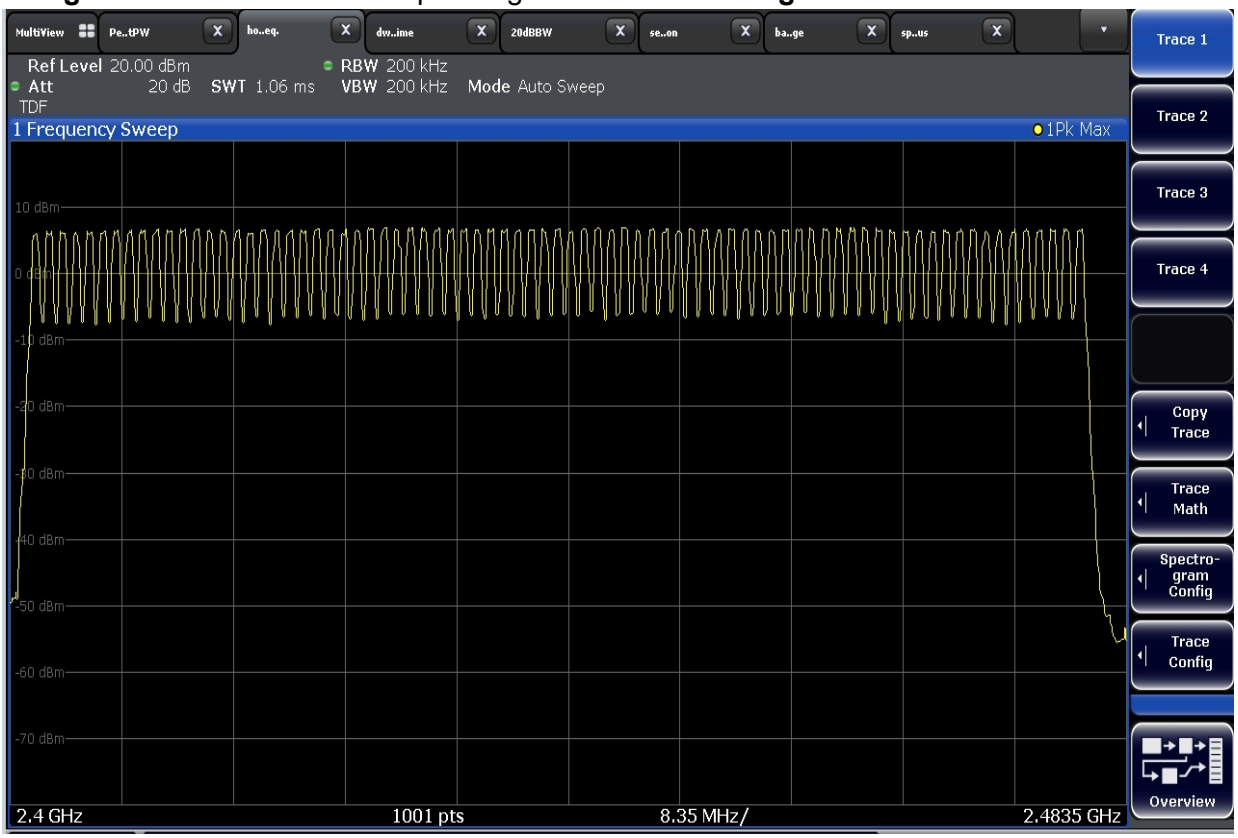
8.6 Number of Hopping Channels

FCC §15.247(a)(1)(iii), IC RSS-247 Issue 2, 5.1

Test mode : Set to Hopping mode

Result

The EUT complies with the minimum number of hopping channels when it is operating **1x/EDR mode using 79 channels** and when operating in **AFH mode using 20 channels**.



8.7 Peak Output Power and E.I.R.P.

FCC §15.247(b)(3), IC RSS-247 Issue 2 5.4

Test Mode : Set to Lowest channel, Middle channel and Highest channel,

Result

Modulation	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)
GFSK	Lowest	2402	6.86	30.00	12.46	36.00
GFSK	Middle	2441	7.37	30.00	12.97	36.00
GFSK	Highest	2480	7.09	30.00	12.69	36.00
π/4DQPSK	Lowest	2402	6.88	30.00	12.48	36.00
π/4DQPSK	Middle	2441	6.76	30.00	12.36	36.00
π/4DQPSK	Highest	2480	6.74	30.00	12.34	36.00
8DPSK	Lowest	2402	6.84	30.00	12.44	36.00
8DPSK	Middle	2441	7.13	30.00	12.73	36.00
8DPSK	Highest	2480	7.00	30.00	12.60	36.00

TEST DATA

Note:

1. E.I.R.P was calculated by following equation according to KDB412172 D01 Determining ERP and EIRP v01r01.

$E.I.R.P = P_T + G_T – Lc$

P_T = Peak outputpower (dBm)

*G_T = Gain of the transmitting antenna in dBi, Directional antenna gain is **5.6 dBi.***

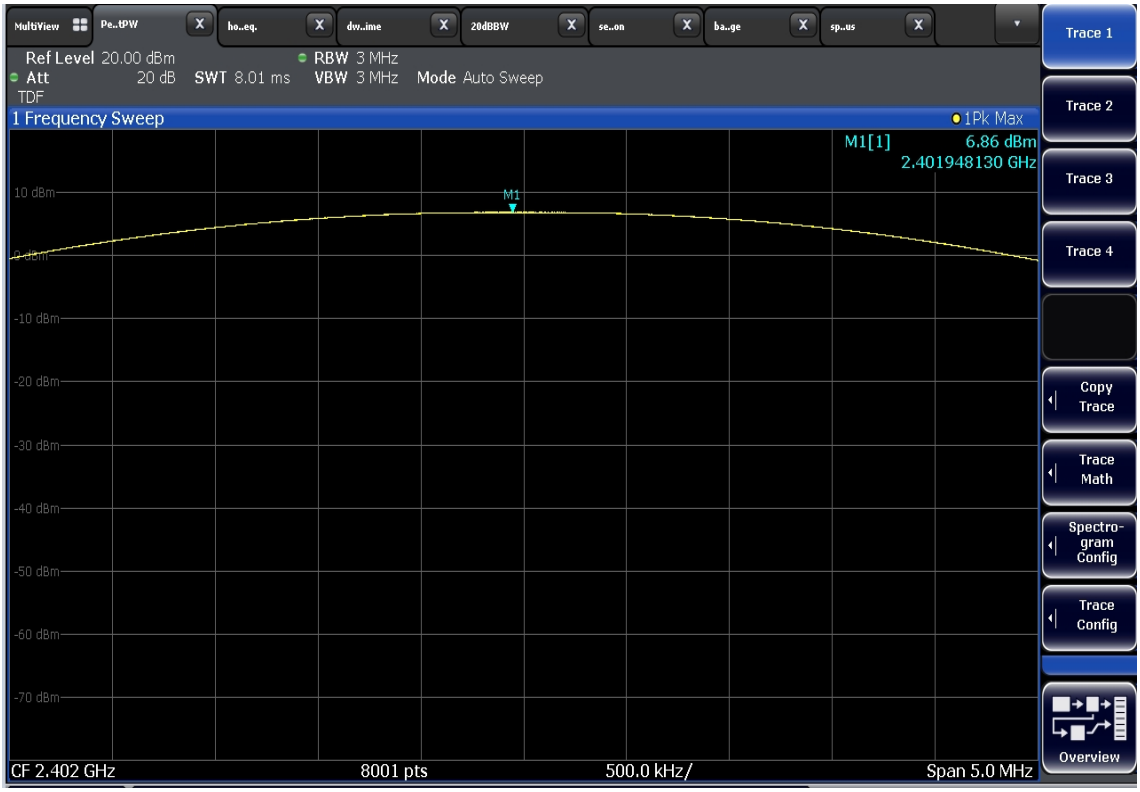
L_C = Signal attenuation in the connecting cable between the transmitter and antenna in dB. This factor of an integral antenna is negligible.

2. The following equation was used for spectrum offset:

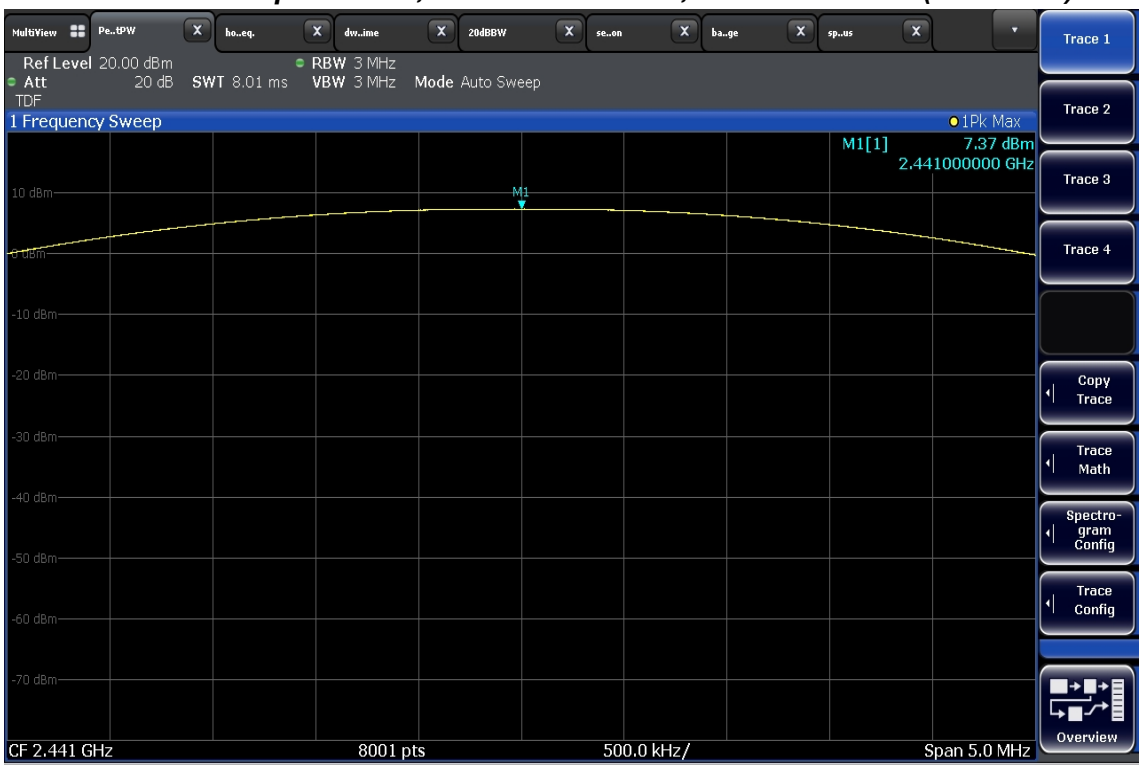
Spectrum offset (dB) = Attenuator (dB) + Cable Loss (dB) + SMA Type Connector Loss (dB)

PLOTS OF EMISSIONS

Maximum Peak Output Power, GFSK modulation, Lowest Channel (2402 MHz)

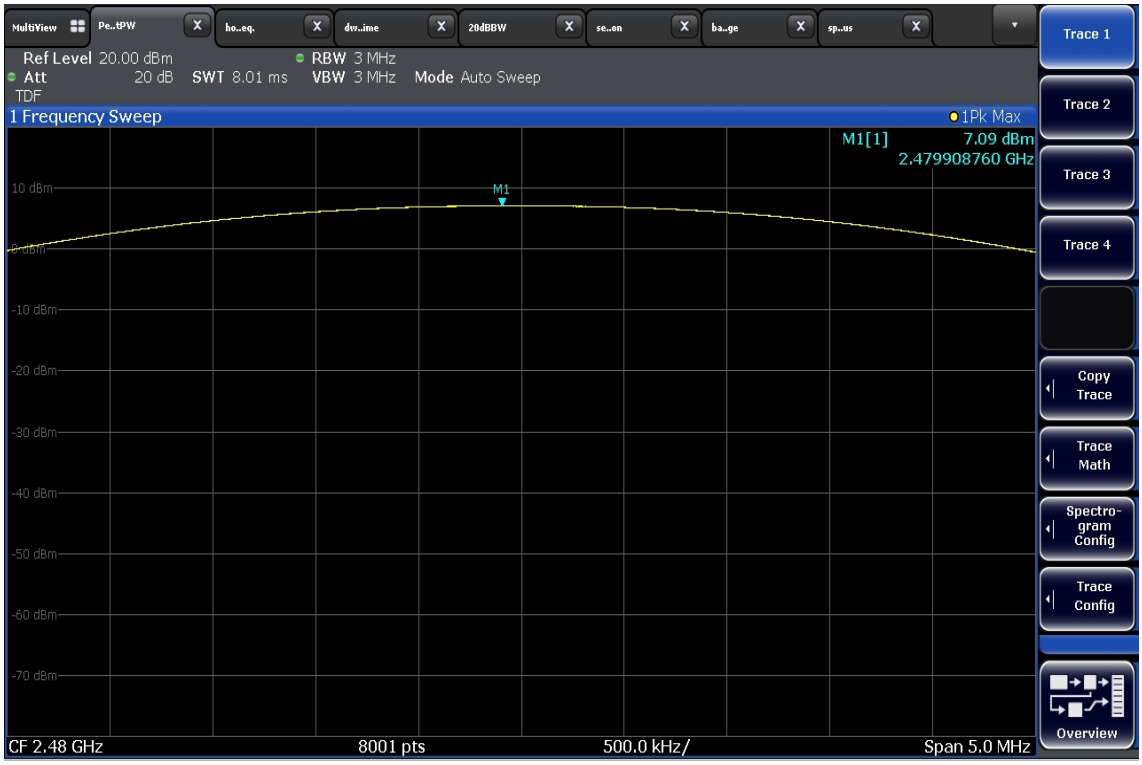


Maximum Peak Output Power, GFSK modulation, Middle Channel (2441 MHz)

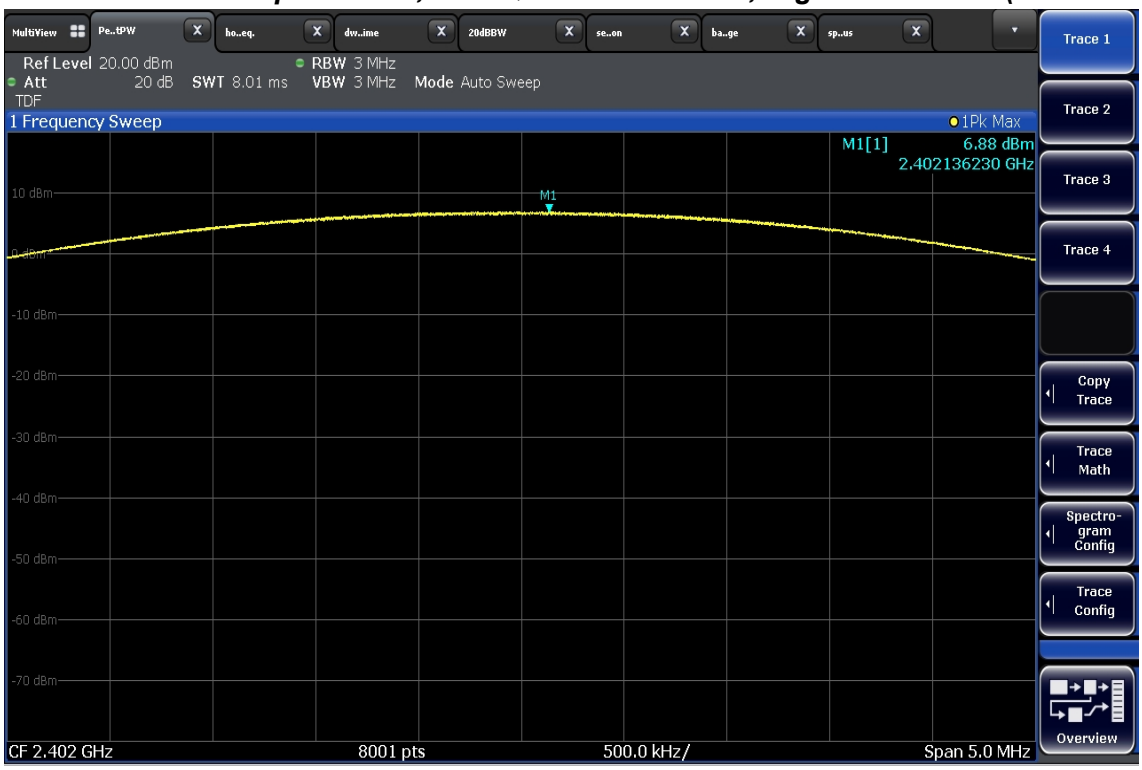


PLOTS OF EMISSIONS

Maximum Peak Output Power, GFSK modulation, Highest Channel (2480 MHz)

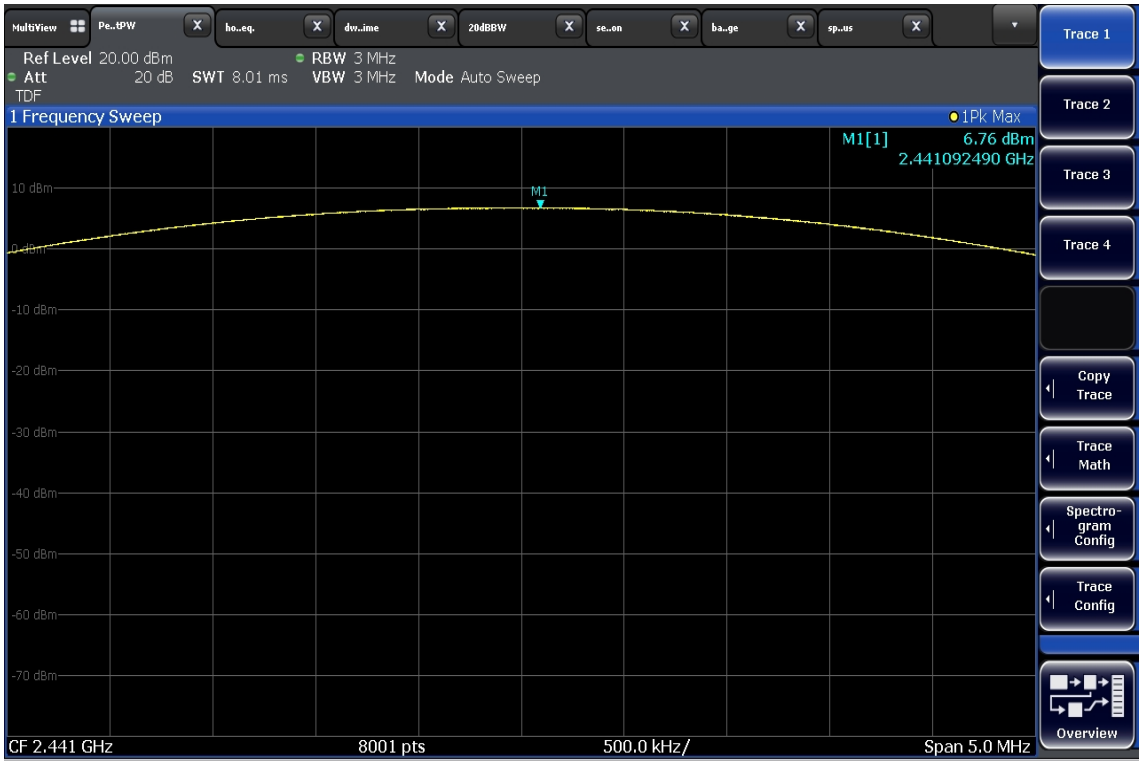


Maximum Peak Output Power, π/4DQPSK modulation, Highest Channel (2402 MHz)

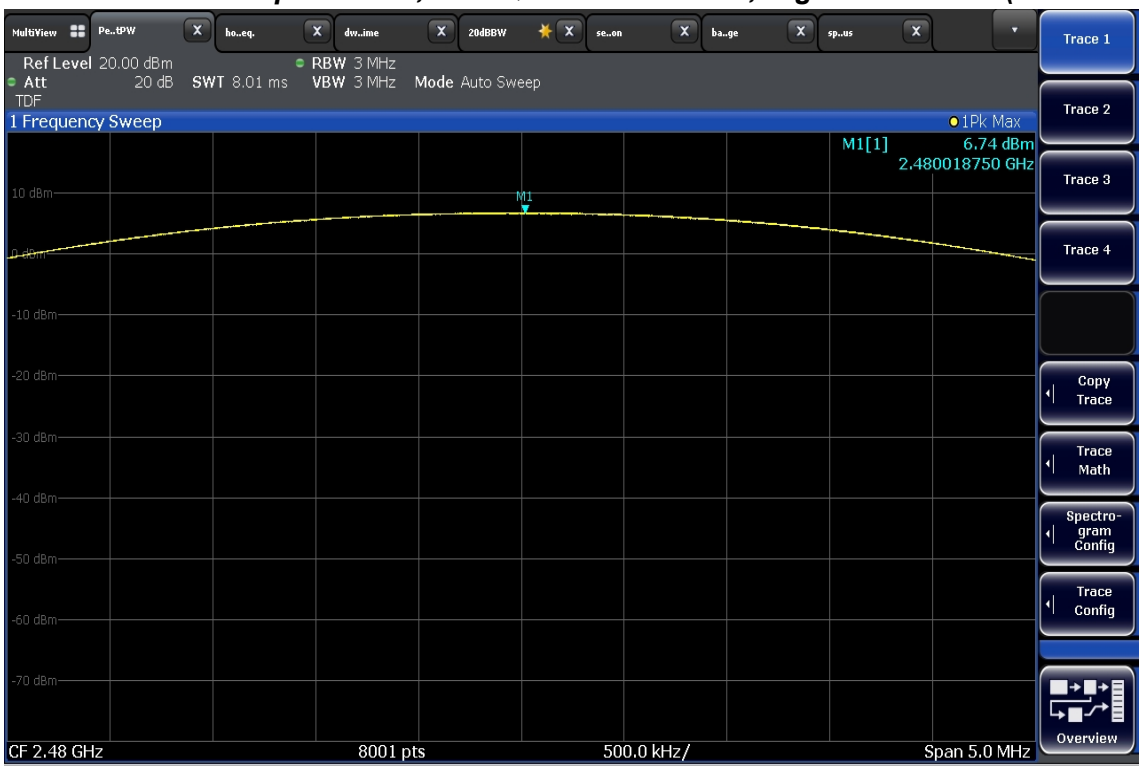


PLOTS OF EMISSIONS

Maximum Peak Output Power, π/4DQPSK modulation, Highest Channel (2441 MHz)

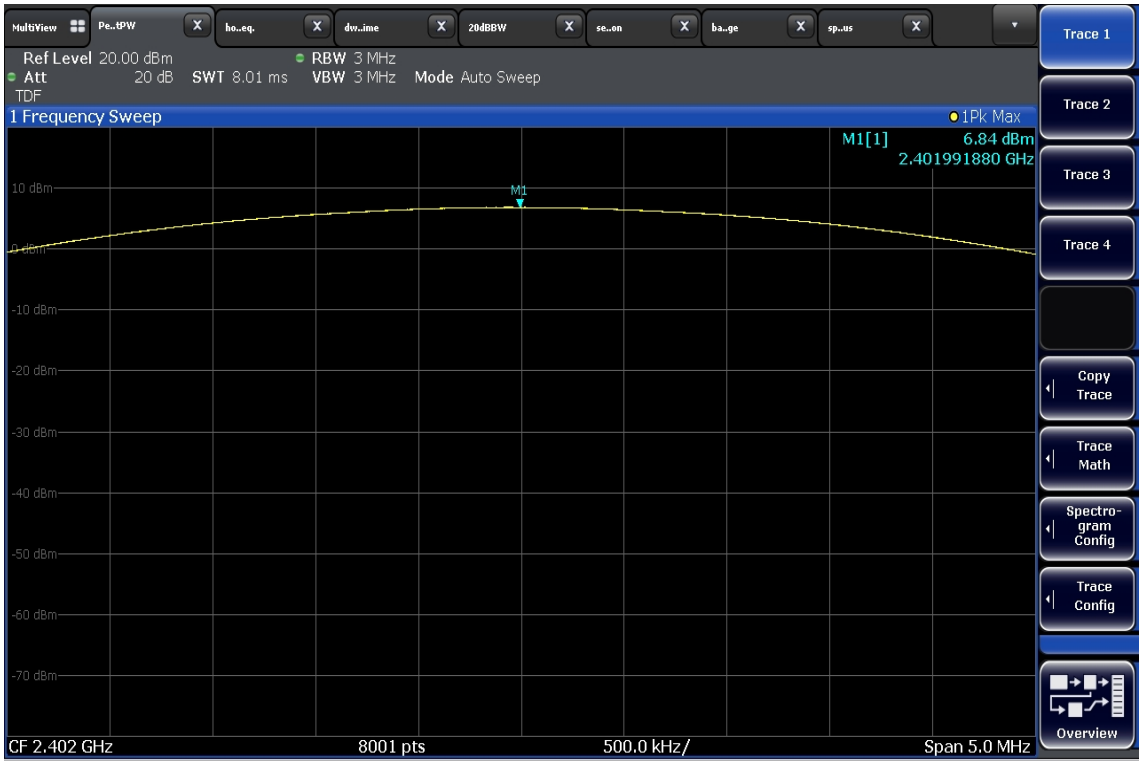


Maximum Peak Output Power, π/4DQPSK modulation, Highest Channel (2480 MHz)

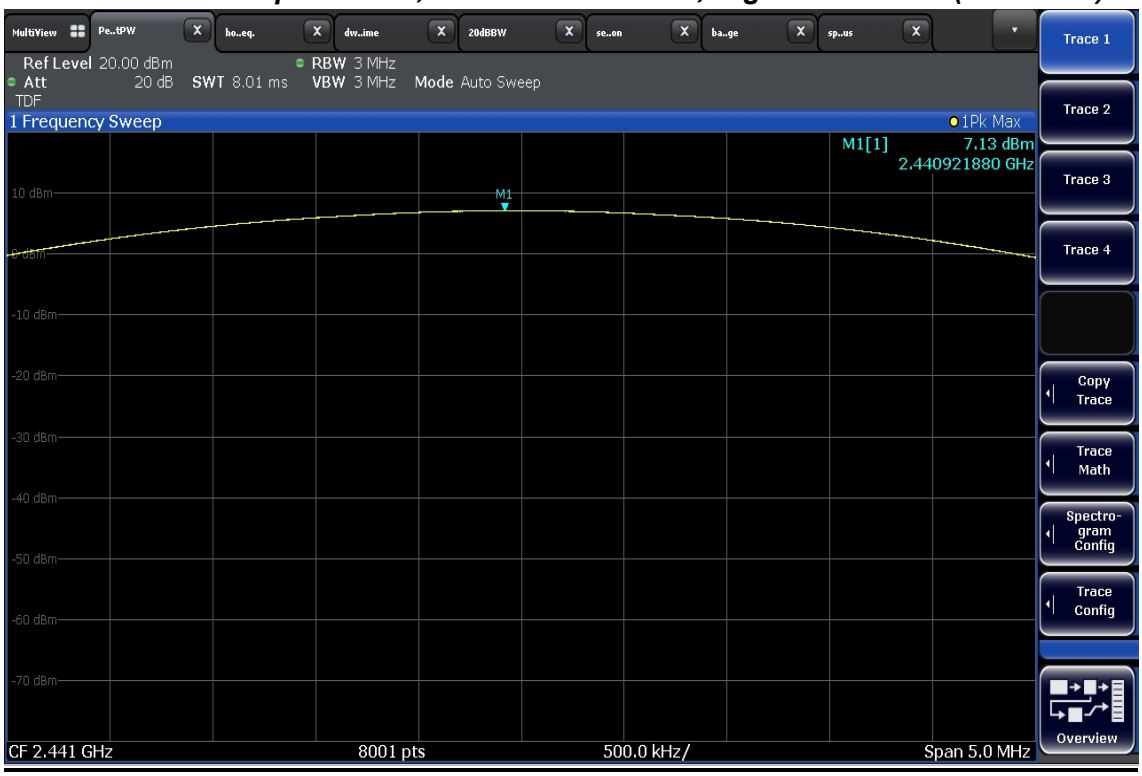


PLOTS OF EMISSIONS

Maximum Peak Output Power, 8DPSK modulation, Highest Channel (2402 MHz)

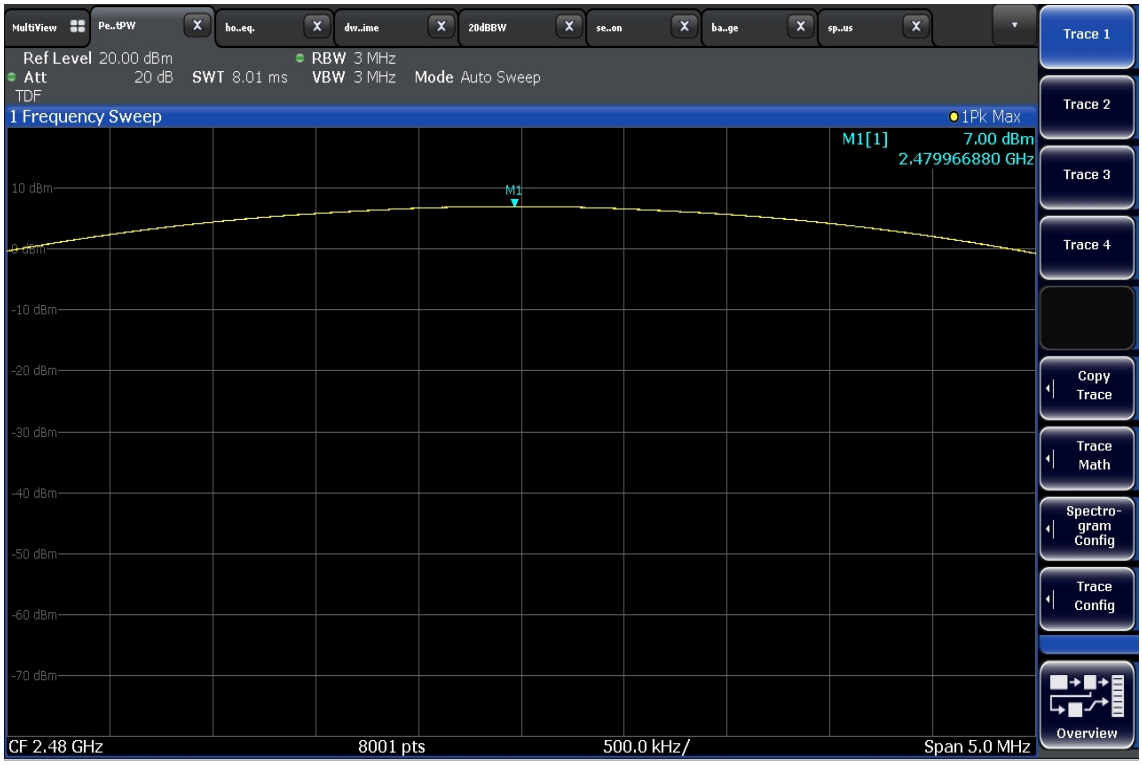


Maximum Peak Output Power, 8DPSK modulation, Highest Channel (2441 MHz)



PLOTS OF EMISSIONS

Maximum Peak Output Power, 8DPSK modulation, Highest Channel (2480 MHz)



8.8 Conducted Spurious Emissions

FCC §15.247(d), IC RSS-247 Issue 2 5.5

Test Mode : Set to Lowest channel, Middle channel and Highest channel,

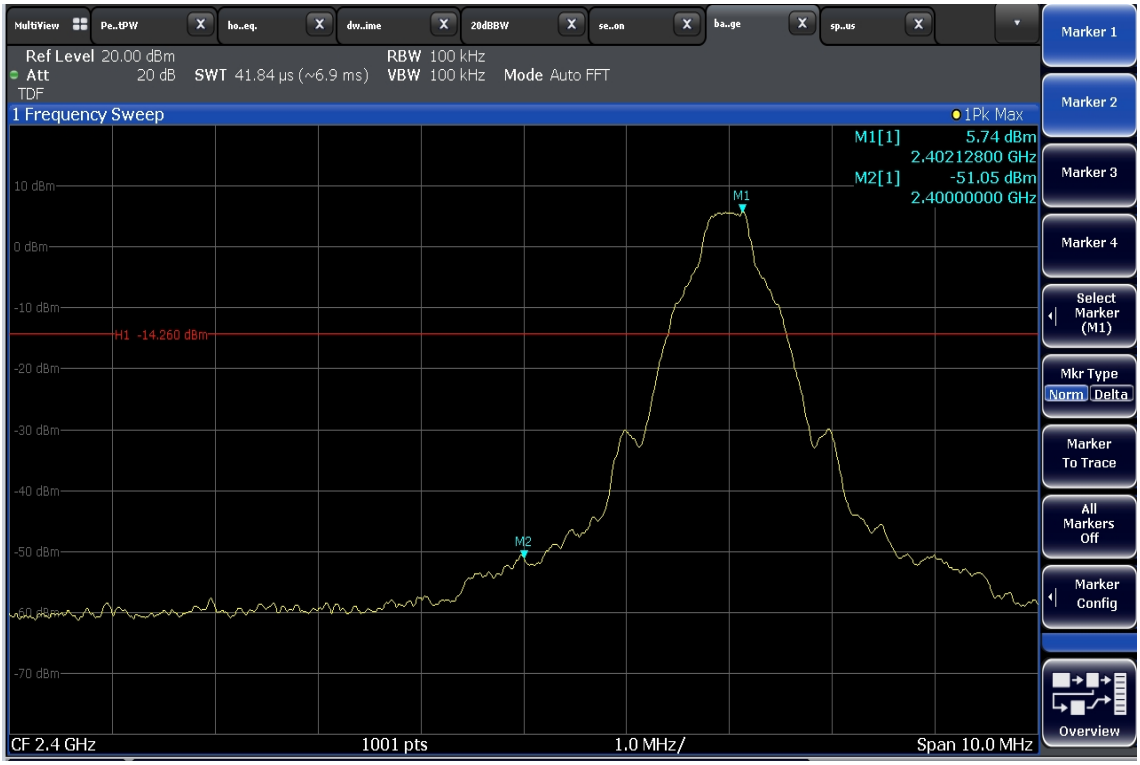
Result

Modulation	Channel	Frequency (MHz)	Conducted Spurious Emissions (dBc)	Limit (dBc)
GFSK	Lowest	2402	More than 20 dBc	20
GFSK	Middle	2441	More than 20 dBc	20
GFSK	Highest	2480	More than 20 dBc	20
π/4DQPSK	Lowest	2402	More than 20 dBc	20
π/4DQPSK	Middle	2441	More than 20 dBc	20
π/4DQPSK	Highest	2480	More than 20 dBc	20
8DPSK	Lowest	2402	More than 20 dBc	20
8DPSK	Middle	2441	More than 20 dBc	20
8DPSK	Highest	2480	More than 20 dBc	20

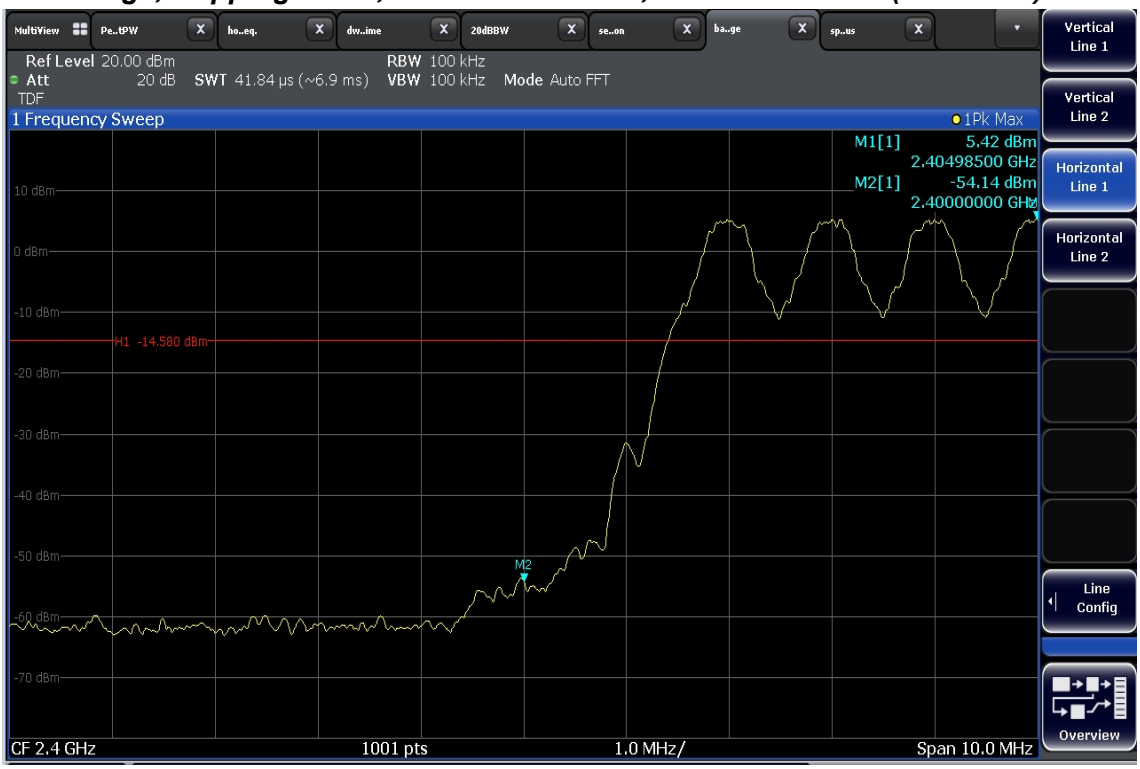
Notes:
The cable and attenuator loss from 30 MHz to 26.5 GHz was reflected in spectrum analyzer with correction factor for the spurious emissions test.

PLOTS OF EMISSIONS

Band Edge, Single channel mode, GFSK modulation, Lowest Channel (2402 MHz)

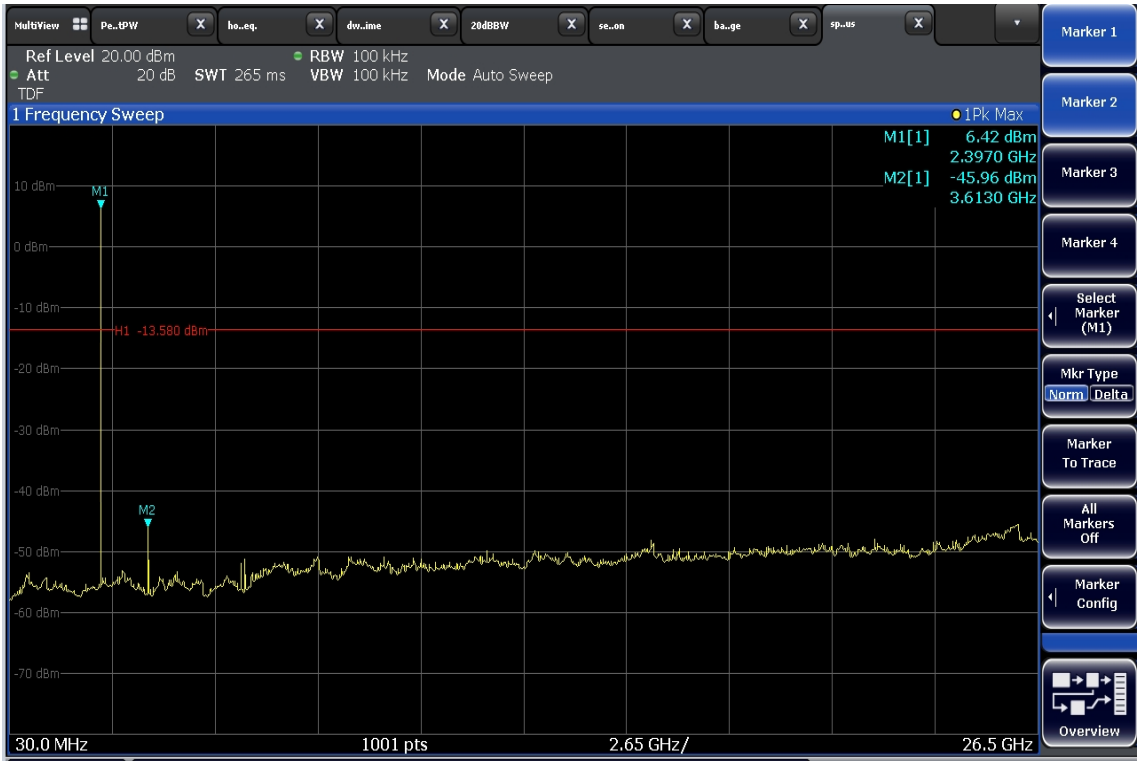


Band Edge, Hopping mode, GFSK modulation, Lowest Channel (2402 MHz)

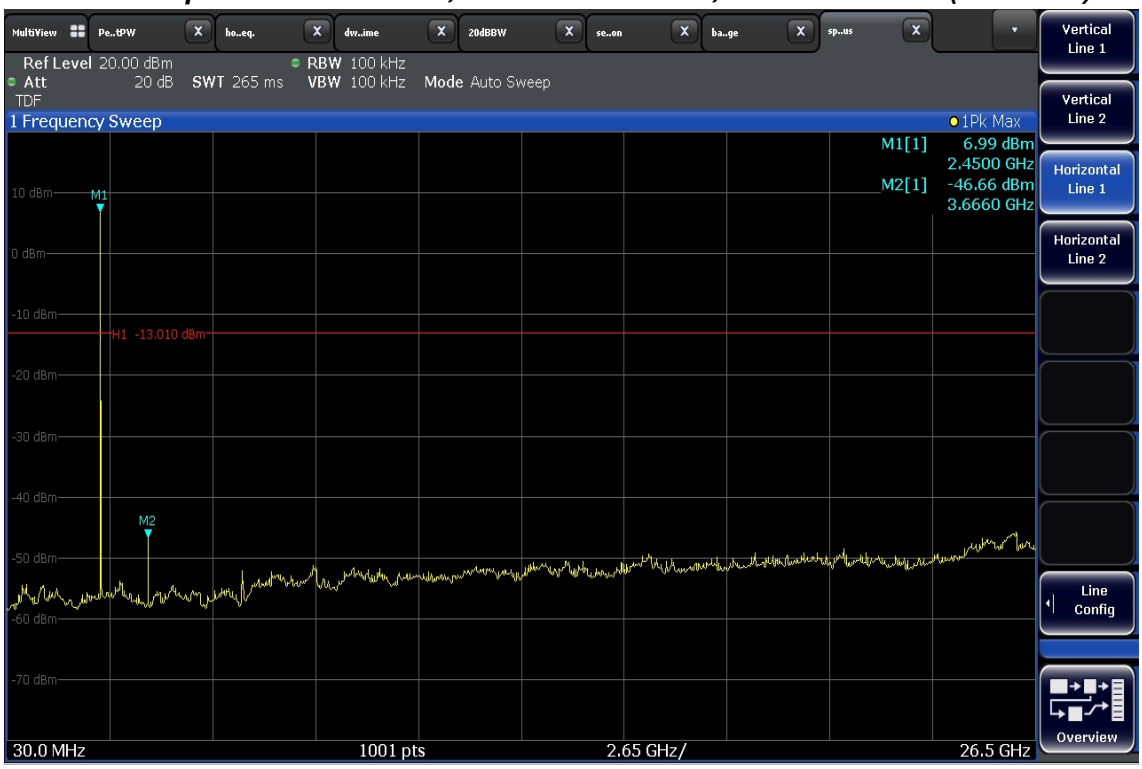


PLOTS OF EMISSIONS

Conducted Spurious Emissions, GFSK modulation, Lowest channel (2402MHz)

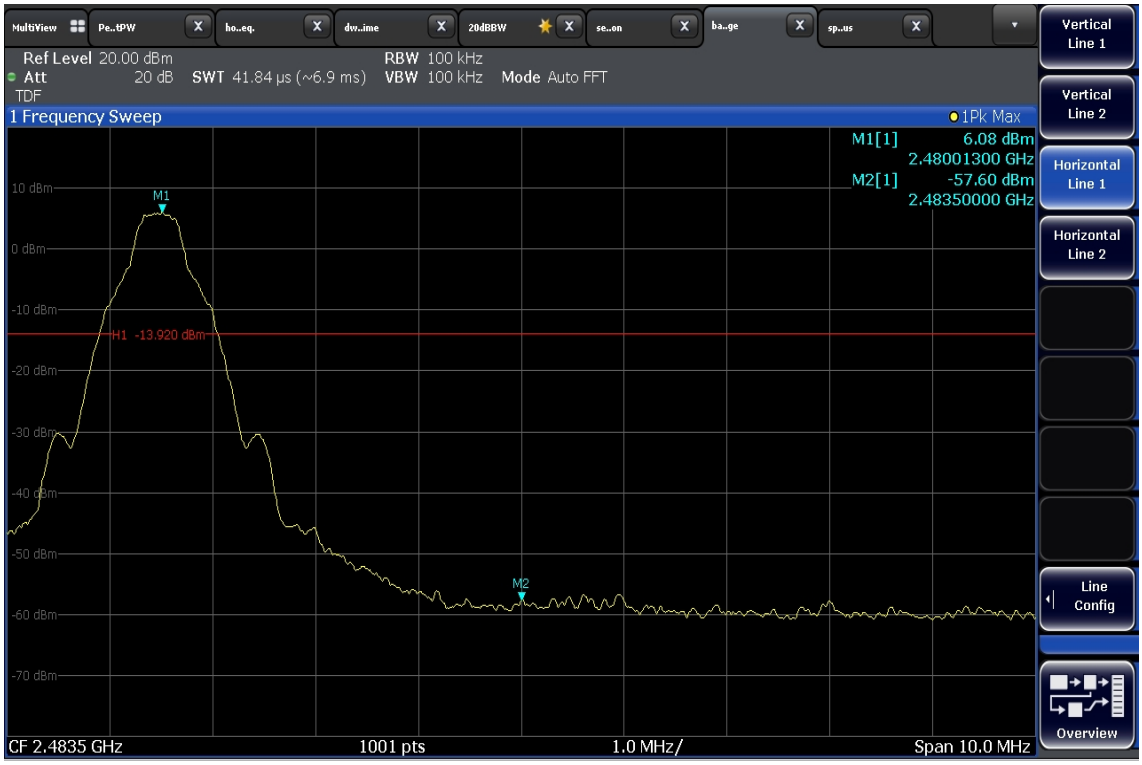


Conducted Spurious Emissions, GFSK modulation, Middle channel (2441MHz)

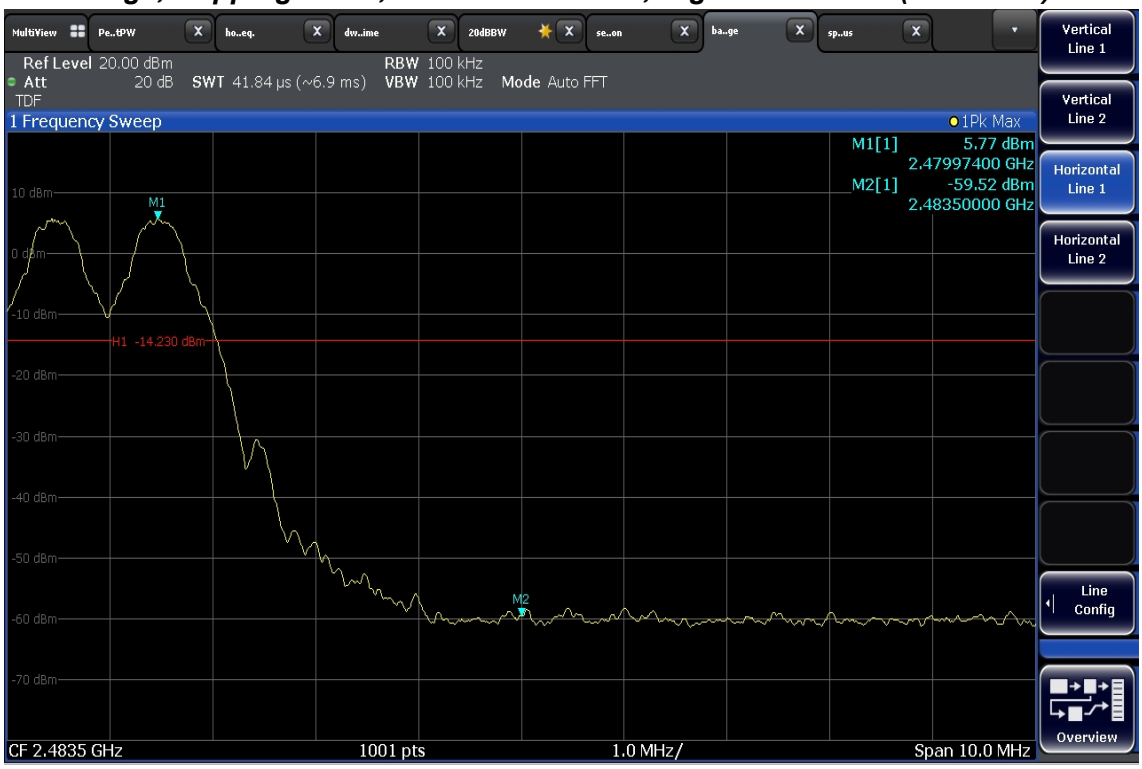


PLOTS OF EMISSIONS

Band Edge, Single channel mode, GFSK modulation, Highest Channel (2480 MHz)

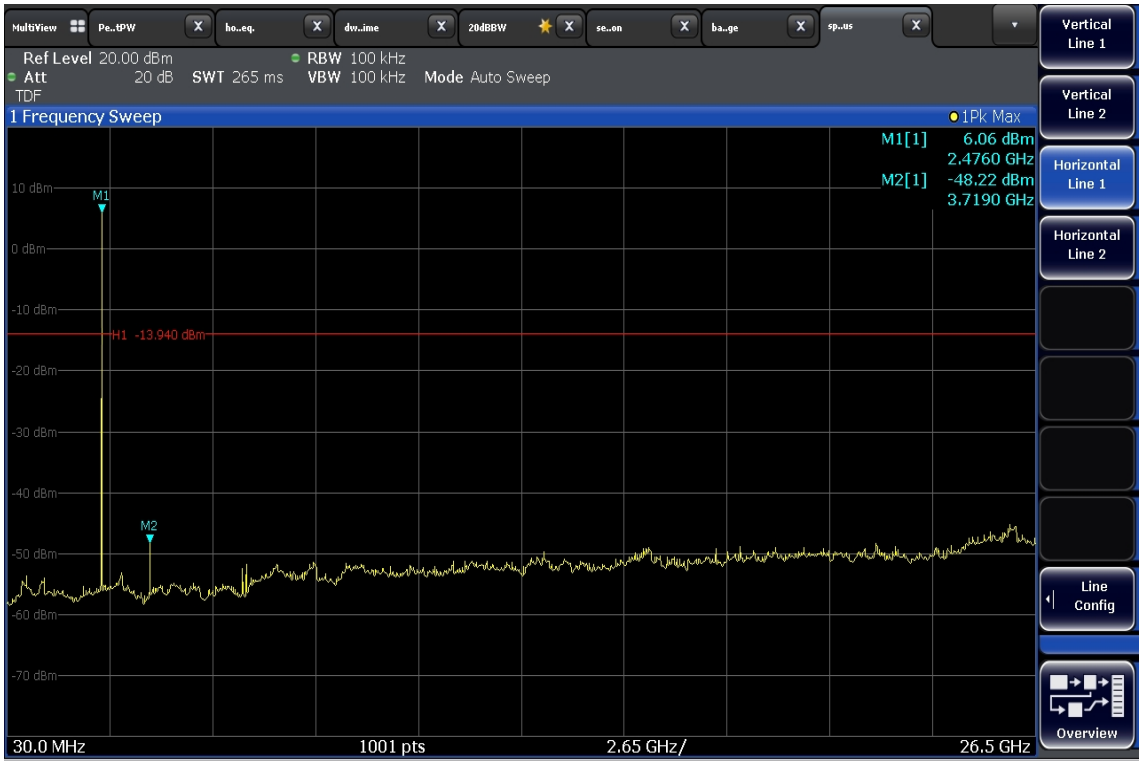


Band Edge, Hopping mode, GFSK modulation, Highest Channel (2480 MHz)



PLOTS OF EMISSIONS

Conducted Spurious Emissions, GFSK modulation, Highest channel (2480MHz)



Band Edge, Single channel mode, π/4DQPSK modulation, Lowest Channel (2402 MHz)