



Test Report Serial Number:

45461626 R1.0

Test Report Date:

4 December 2020

Project Number:

1510

Appendix H - Conducted Tx Spurious Emissions Measurement Plots

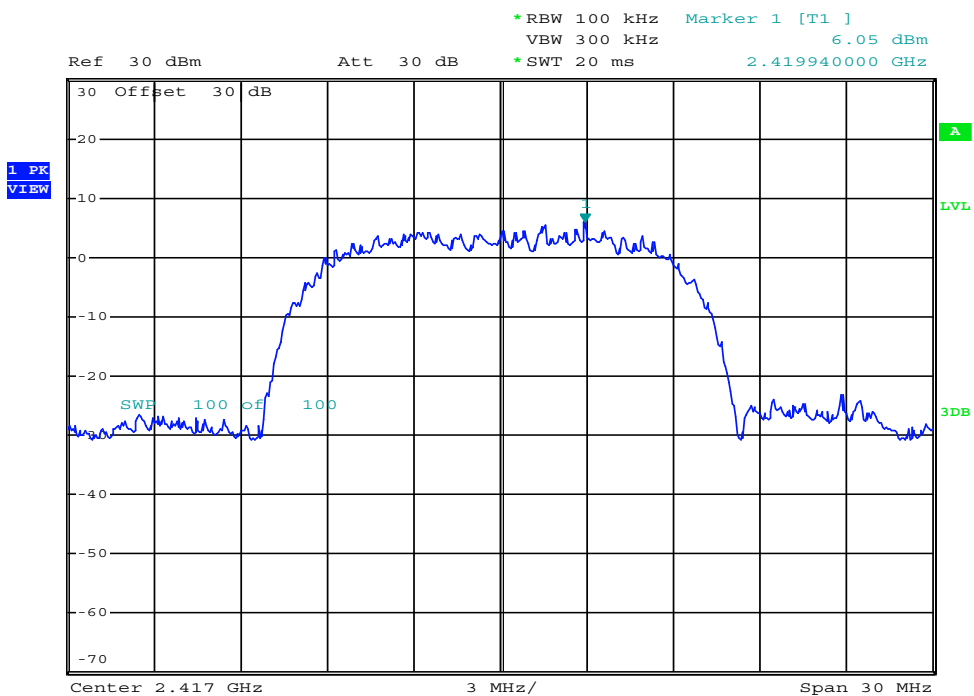
This report shall not be reproduced in any form without the expressed written consent of Celltech Labs Inc.

© 2020 Celltech Labs Inc,

Conducted Spurious Emissions - Reference Measurement

Frequency (MHz)	Modulation	Bit Rate (Mbps)	Measured PSD [P _{Meas}] (dBm)	Required Attenuation [A _R] (dB)	Limit Line [A _L] (dBm)
2412.00	DSSS	5.5	6.05	30	-23.950
2412.00	OFDM	12	0.98	30	-29.020
2412.00	MCS7	-	-1.02	30	-31.020

Power Spectral Density



Date: 2.DEC.2020 13:29:33

Channel Frequency:

2417.00 MHz

DUT Modulation:

DSSS

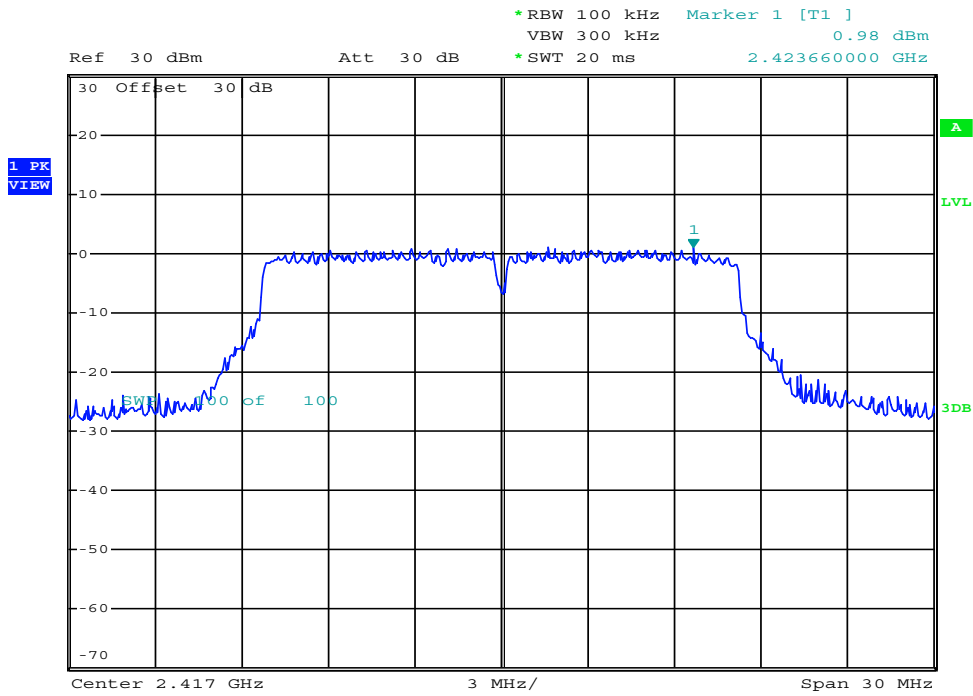
Data Rate:

5.5 Mbps

Measured PSD:

6.05 dBm

Power Spectral Density



Date: 2.DEC.2020 13:31:48

Channel Frequency:

2417.00 MHz

DUT Modulation:

OFDM

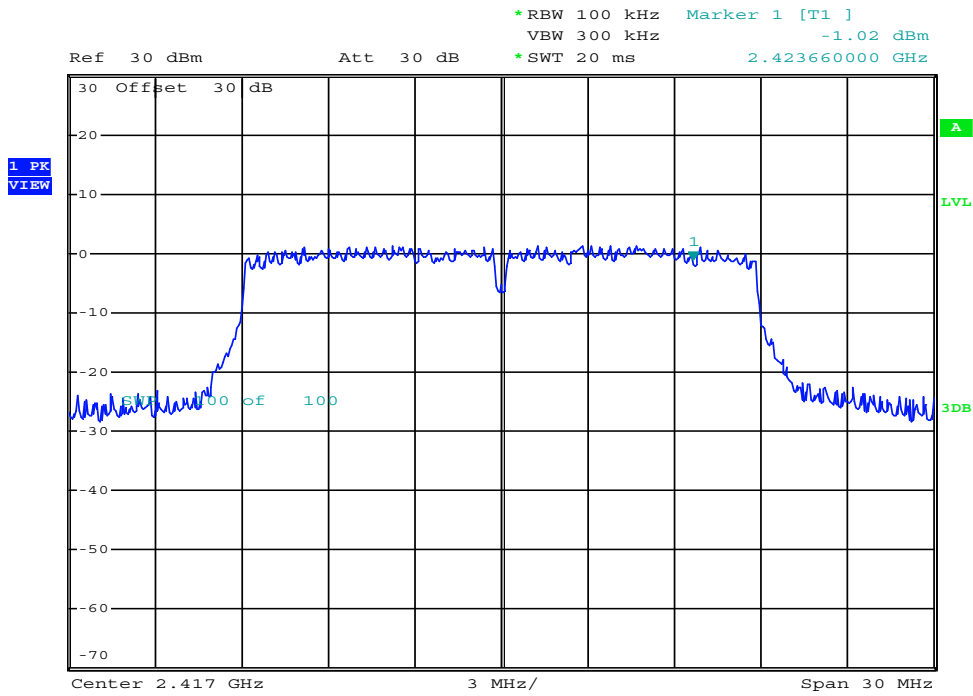
Data Rate:

12 Mbps

Measured PSD:

0.98 dBm

Power Spectral Density



Date: 2.DEC.2020 13:33:11

Channel Frequency:

2417.00 MHz

DUT Modulation:

MCS7

Data Rate:

- Mbps

Measured PSD:

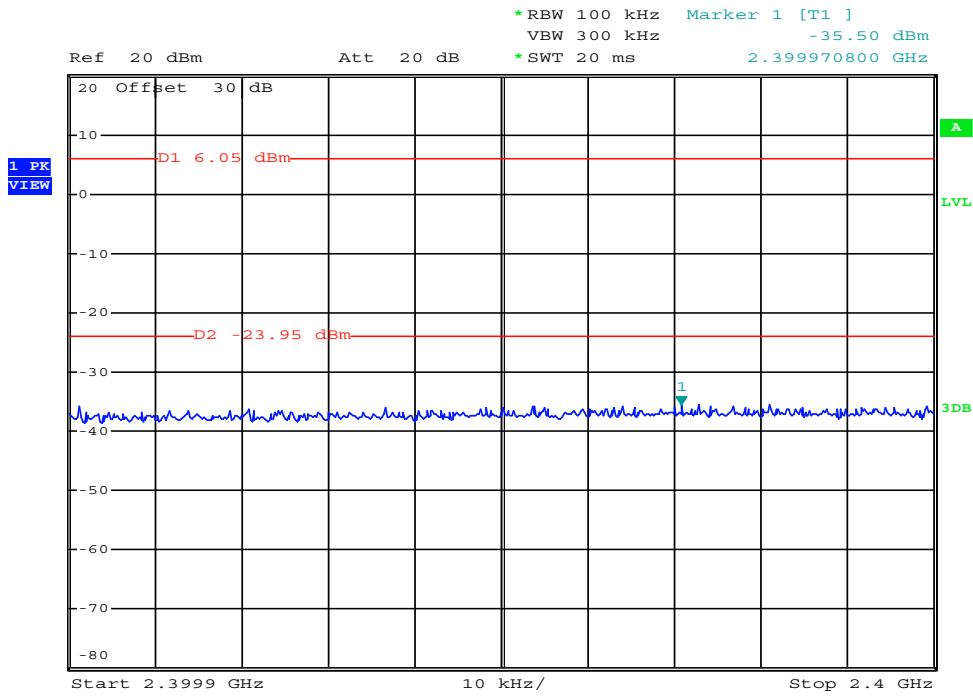
-1.02 dBm

Emission Level Measurement - Band Edge						
Channel Frequency (MHz)	Modulation	Bit Rate (mbps)	Measured Emission [E _{Meas}] (dBm)	Emission Frequency (MHz)	Limit Line [A _L] (dBm)	Margin (dB)
2412	DSSS	5.5	-35.50	2.399	-23.95	11.55
2412	OFDM	12	-33.35	2.399		9.40
2412	MCS7	-	-33.04	2.399		9.09
2462	DSSS	5.5	-41.09	2.483		17.14
2462	OFDM	12	-38.79	2.483		14.84
2462	MCS7	-	-37.89	2.483		13.94
Results:					Complies	

Margin = A_L - E_{MEAS}

Limit Line = Measured PSD - Required Attenuation

Conducted Spurious Emissions - Lower Band Edge



Date: 2.DEC.2020 13:49:34

Channel Frequency:

2412.00 MHz

Emission Frequency:

2.399 MHz

DUT Modulation:

DSSS

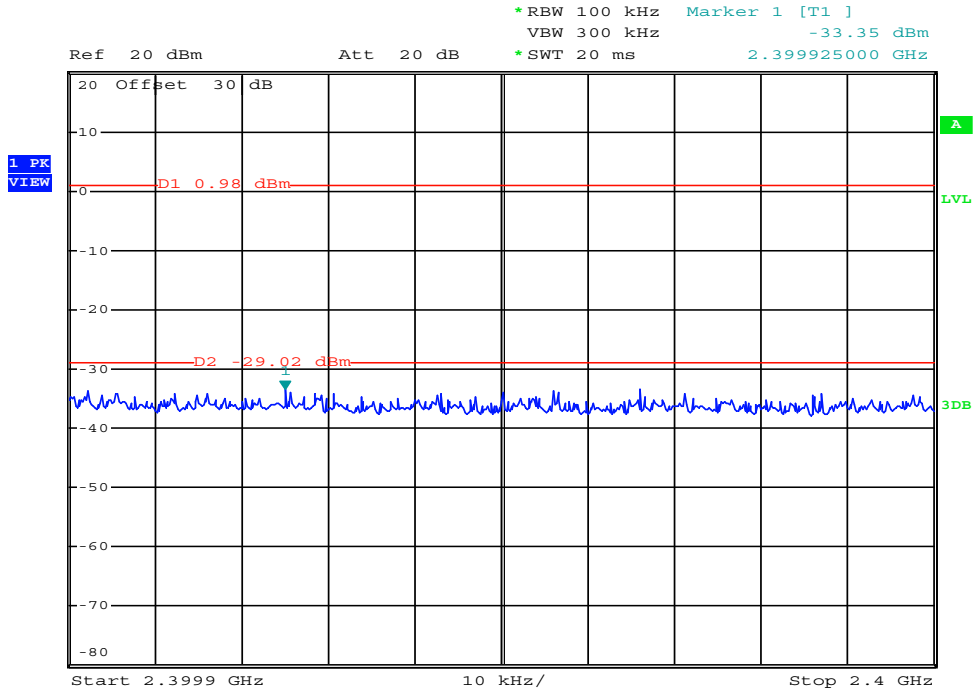
Data Rate:

5.5 Mbps

Measured Emission:

-35.50 dBm

Conducted Spurious Emissions - Lower Band Edge



Date: 2.DEC.2020 13:48:02

Channel Frequency:

2412.00 MHz

Emission Frequency:

2.399 MHz

DUT Modulation:

OFDM

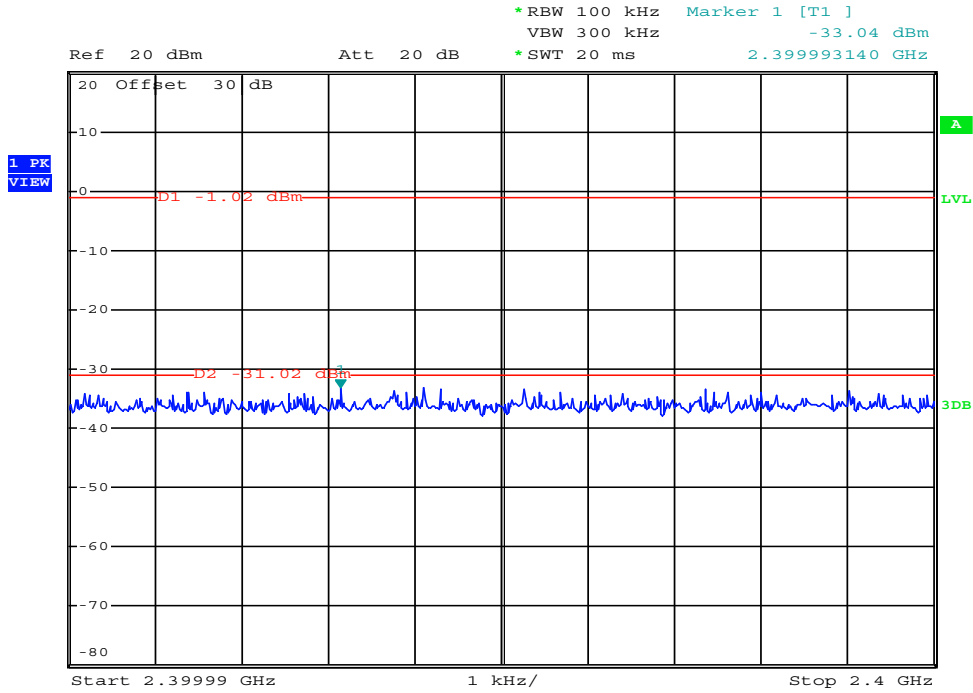
Data Rate:

12 Mbps

Measured Emission:

-33.35 dBm

Conducted Spurious Emissions - Lower Band Edge



Date: 2.DEC.2020 13:42:05

Channel Frequency:

2412.00 MHz

Emission Frequency:

2.399 MHz

DUT Modulation:

MCS7

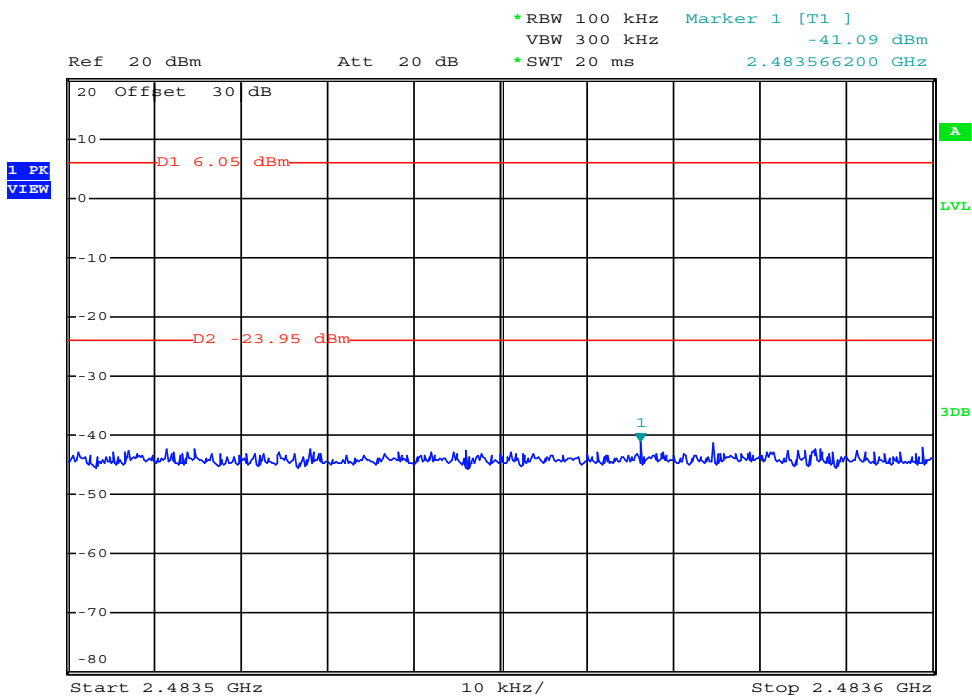
Data Rate:

- Mbps

Measured Emission:

-33.04 dBm

Conducted Spurious Emissions - Upper Band Edge



Date: 2.DEC.2020 13:51:16

Channel Frequency:

2462.00 MHz

Emission Frequency:

2.483 MHz

DUT Modulation:

DSSS

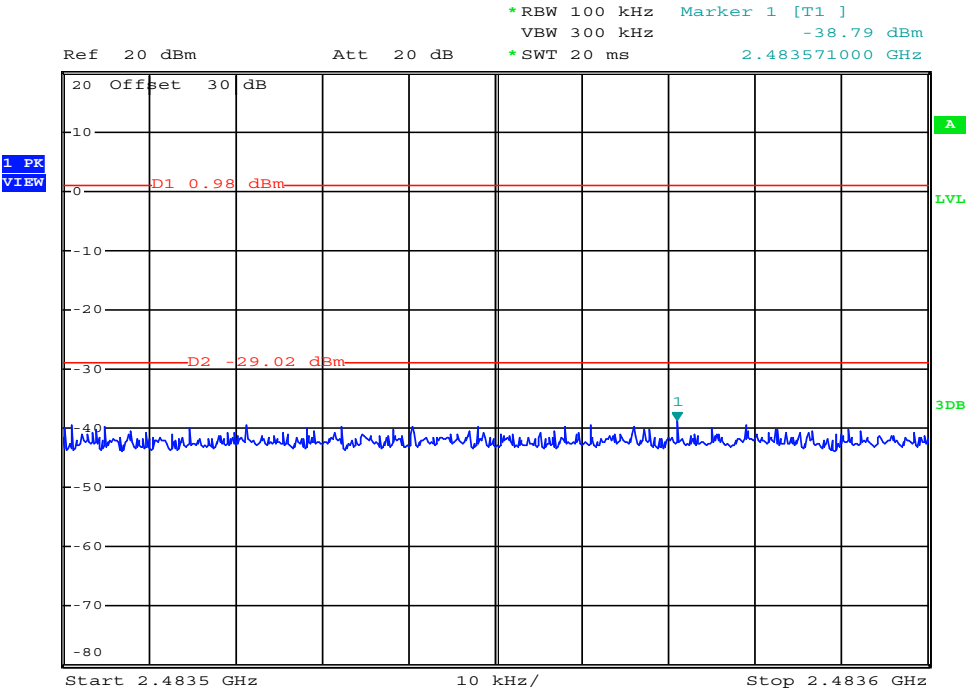
Data Rate:

5.5 Mbps

Measured Emission:

-41.09 dBm

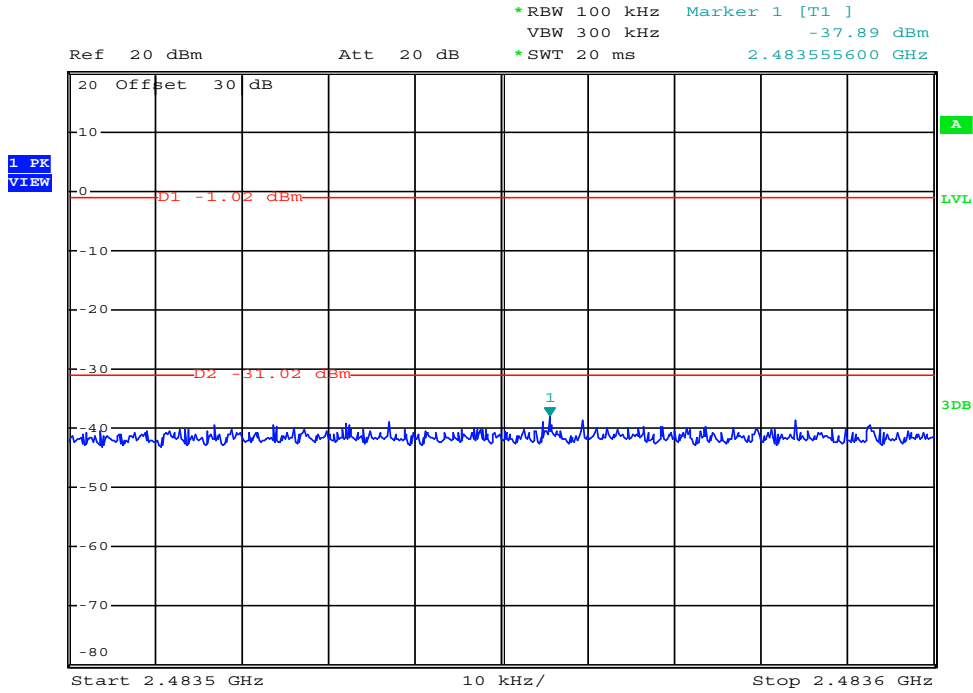
Conducted Spurious Emissions - Upper Band Edge



Date: 2.DEC.2020 13:46:59

Channel Frequency: 2462.00 MHz	Emission Frequency: 2.483 MHz	
DUT Modulation: OFDM	Data Rate: 12 Mbps	Measured Emission: -38.79 dBm

Conducted Spurious Emissions - Upper Band Edge



Date: 2.DEC.2020 13:44:34

Channel Frequency:

2462.00 MHz

Emission Frequency:

2.483 MHz

DUT Modulation:

MCS7

Data Rate:

- Mbps

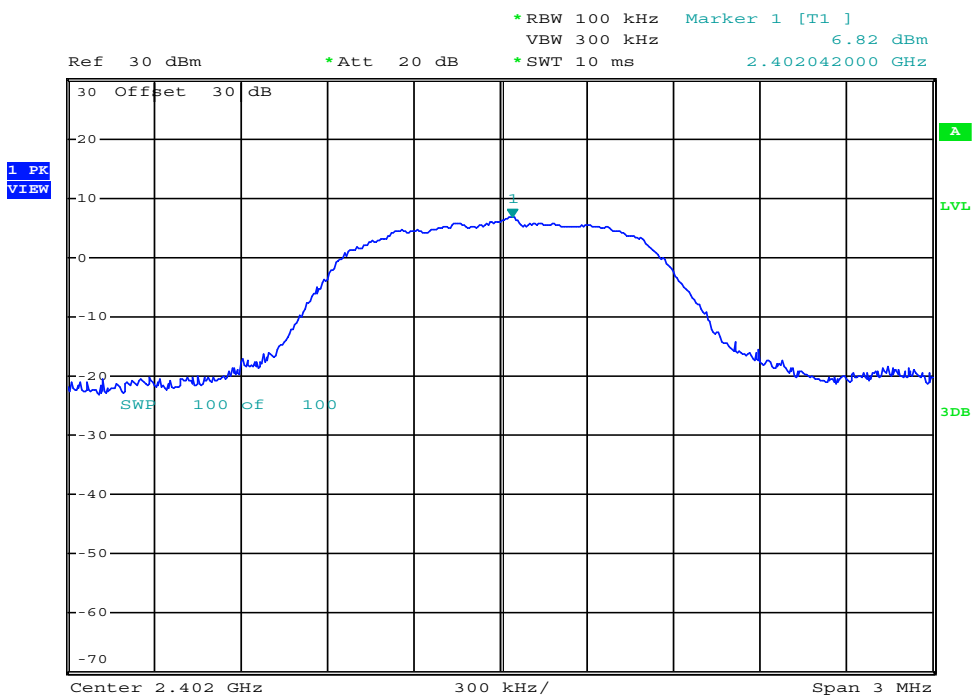
Measured Emission:

-37.89 dBm

Conducted Spurious Emissions - Reference Measurement					
Frequency (MHz)	Modulation	Bit Rate (Mbps)	Measured PSD [P _{Meas}] (dBm)	Required Attenuation [A _R] (dB)	Limit Line [A _L] (dBm)
2402.00	Pi/4-DQPSK	2	6.82	30	-23.18
2442.00			6.62	30	-23.38
2480.00			5.73	30	-24.27

Limit Line = Measured PSD - Required Attenuation

Power Spectral Density



Date: 2.DEC.2020 16:01:01

Channel Frequency:

2402.00 MHz

DUT Modulation:

Pi/4-DQPSK

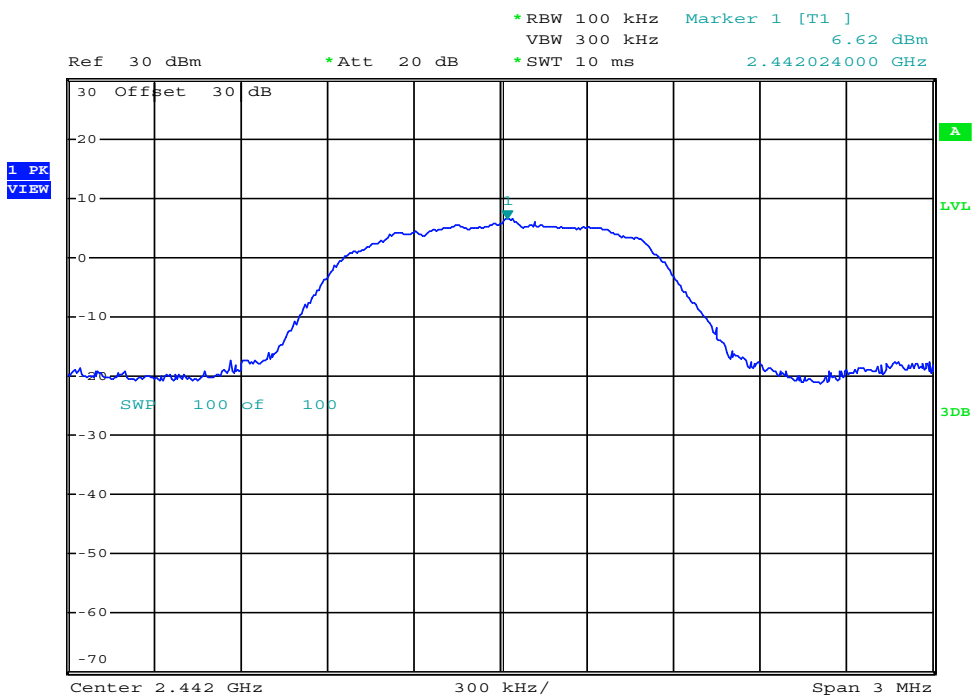
Data Rate:

2 Mbps

Measured PSD:

6.82 dBm

Power Spectral Density



Date: 2.DEC.2020 16:02:45

Channel Frequency:

2442.00 MHz

DUT Modulation:

Pi/4-DQPSK

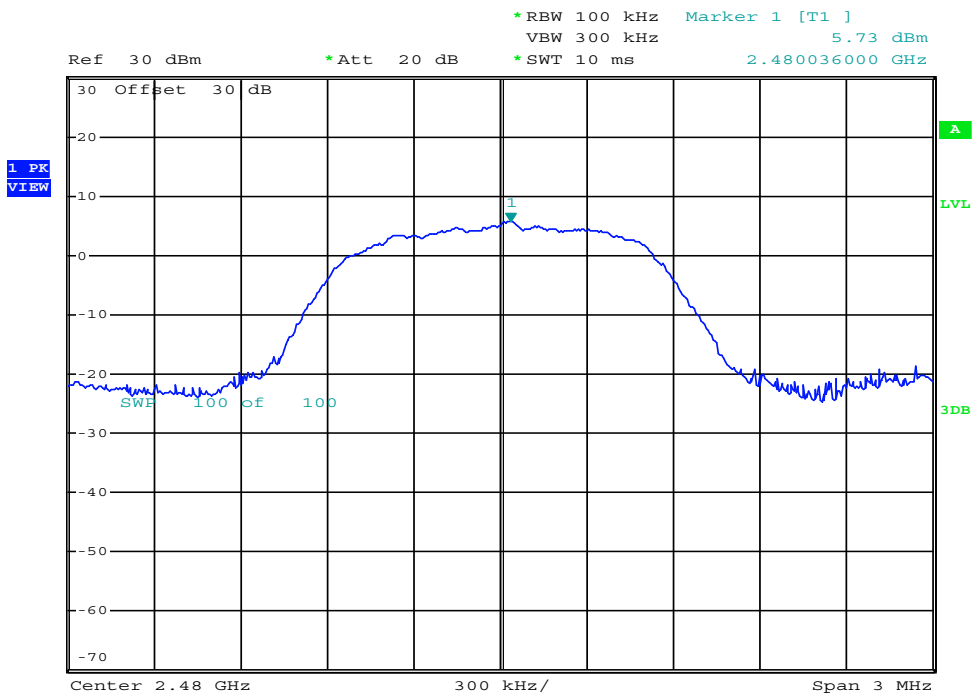
Data Rate:

2 Mbps

Measured PSD:

6.62 dBm

Power Spectral Density



Date: 2.DEC.2020 16:01:46

Channel Frequency:

2408.00 MHz

DUT Modulation:

Pi/4-DQPSK

Data Rate:

2 Mbps

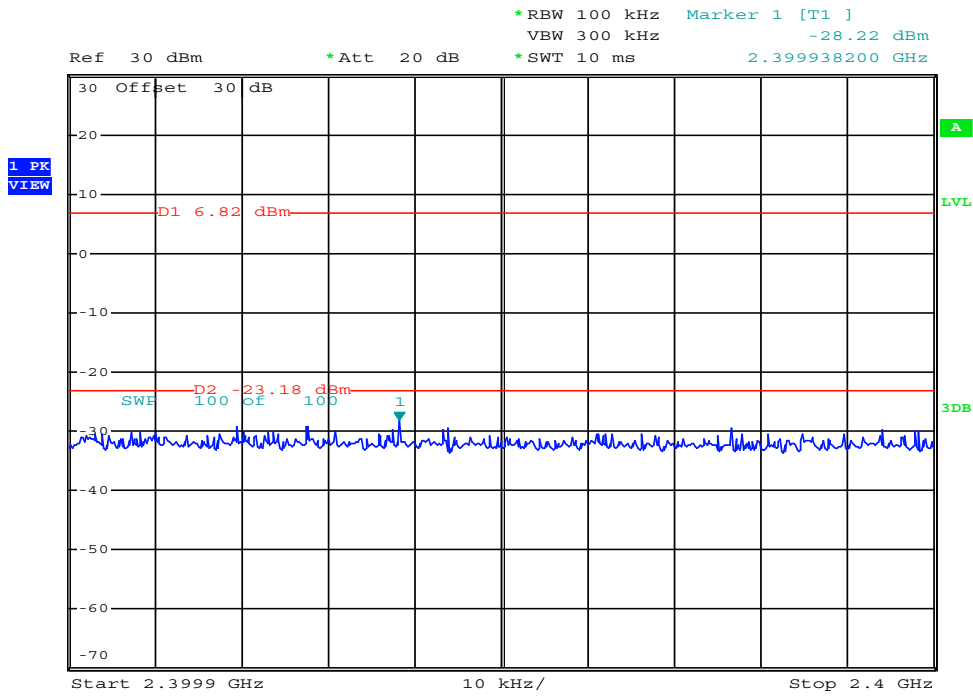
Measured PSD:

5.73 dBm

Emission Level Measurement - Band Edge						
Channel Frequency (MHz)	Modulation	Bit Rate (mbps)	Measured Emission [E _{Meas}] (dBm)	Emission Frequency (MHz)	Limit Line [A _L] (dBm)	Margin (dB)
2402	Pi/4-DQPSK	2	-28.22	2.399	-23.18	5.04
2480	Pi/4-DQPSK	2	-34.31	2.483		11.13
Results:					Complies	

Margin = A_L - E_{MEAS}

Conducted Spurious Emissions - Lower Band Edge



Date: 2.DEC.2020 16:17:45

Channel Frequency:

2402.00 MHz

Emission Frequency:

2.399 MHz

DUT Modulation:

Pi/4-DQPSK

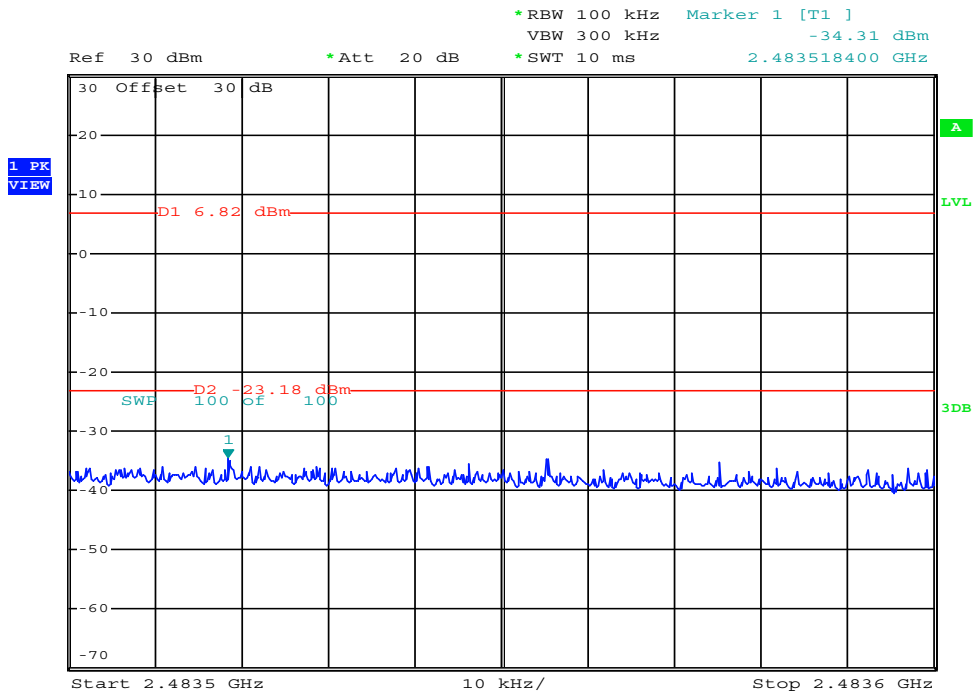
Data Rate:

2 Mbps

Measured Emission:

-28.22 dBm

Conducted Spurious Emissions - Upper Band Edge



Date: 2.DEC.2020 16:18:48

Channel Frequency:

2480.00 MHz

Emission Frequency:

2.483 MHz

DUT Modulation:

Pi/4-DQPSK

Data Rate:

2 Mbps

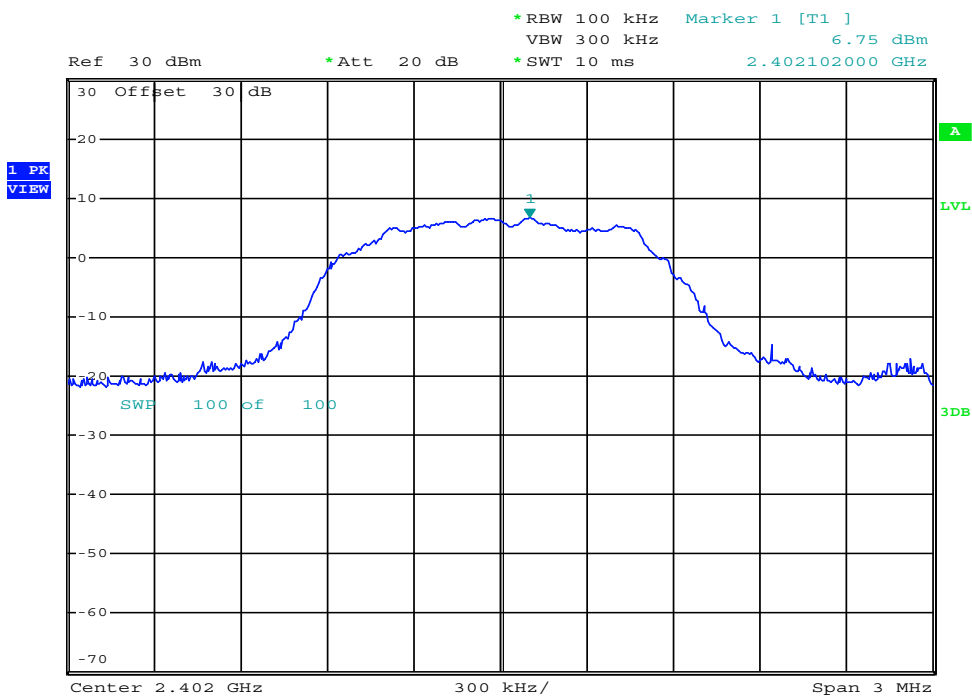
Measured Emission:

-34.31 dBm

Conducted Spurious Emissions - Reference Measurement					
Frequency (MHz)	Modulation	Bit Rate (Mbps)	Measured PSD [P _{Meas}] (dBm)	Required Attenuation [A _R] (dB)	Limit Line [A _L] (dBm)
2402.00	8-DPSK	3	6.75	30	-23.25
2442.00			6.50	30	-23.50
2480.00			5.94	30	-24.06

Limit Line = Measured PSD - Required Attenuation

Power Spectral Density



Date: 2.DEC.2020 15:59:25

Channel Frequency:

2402.00 MHz

DUT Modulation:

8-DPSK

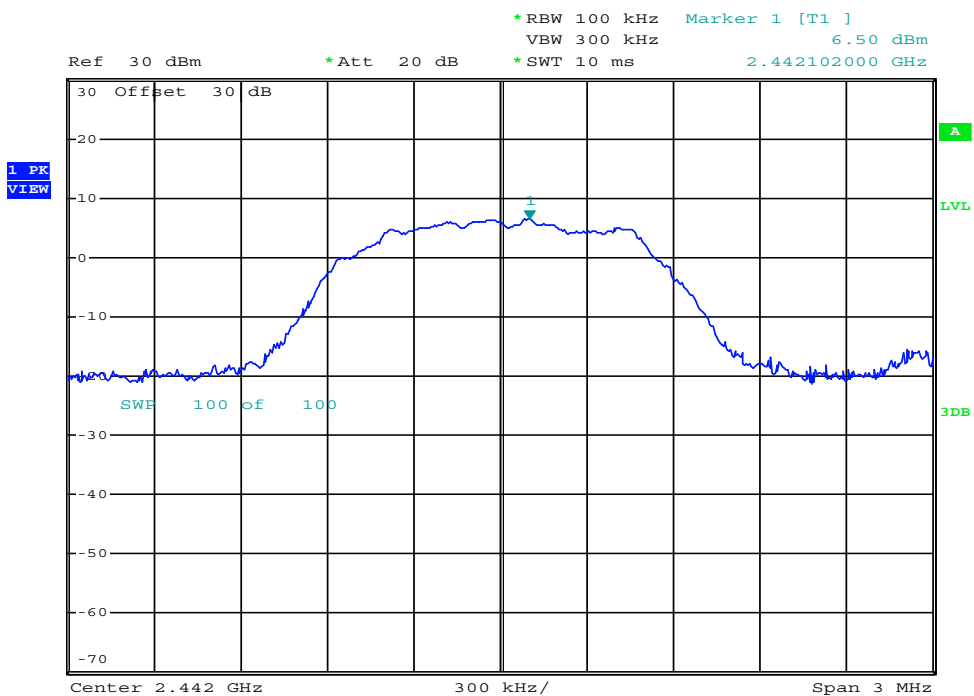
Data Rate:

3 Mbps

Measured PSD:

6.75 dBm

Power Spectral Density



Date: 2.DEC.2020 15:58:32

Channel Frequency:

2442.00 MHz

DUT Modulation:

8-DPSK

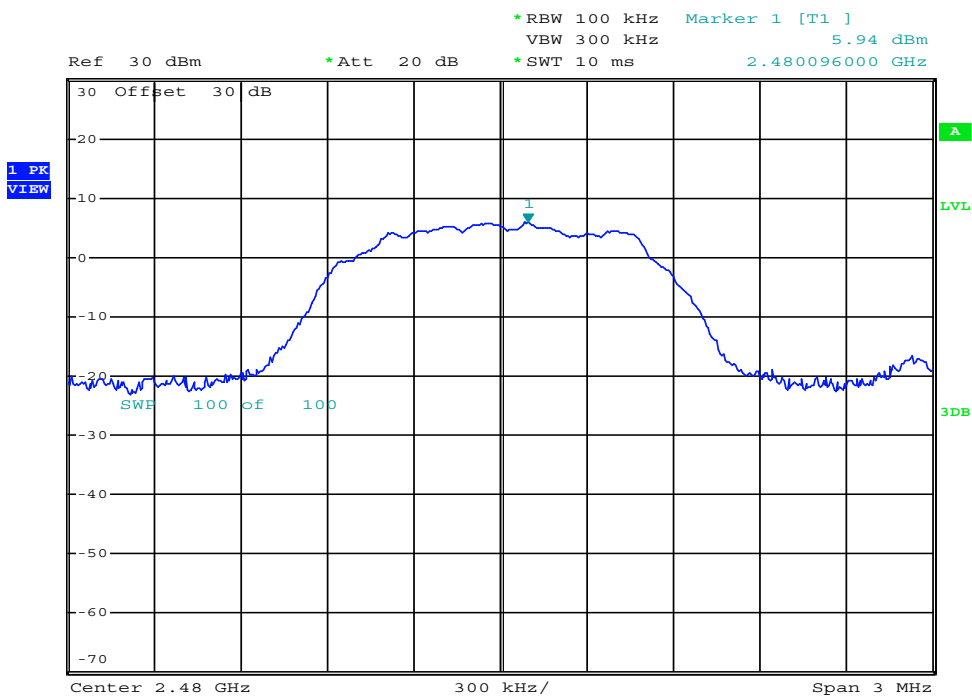
Data Rate:

3 Mbps

Measured PSD:

6.50 dBm

Power Spectral Density



Date: 2.DEC.2020 15:58:00

Channel Frequency:

2480.00 MHz

DUT Modulation:

8-DPSK

Data Rate:

3 Mbps

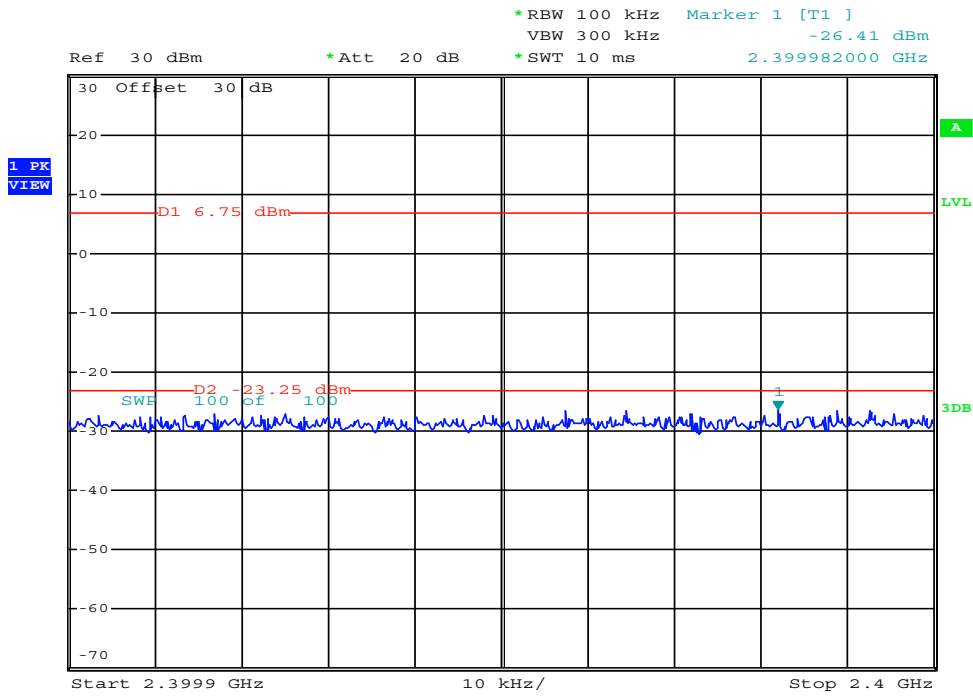
Measured PSD:

5.94 dBm

Emission Level Measurement - Band Edge						
Channel Frequency (MHz)	Modulation	Bit Rate (mbps)	Measured Emission [E _{Meas}] (dBm)	Emission Frequency (MHz)	Limit Line [A _L] (dBm)	Margin (dB)
2402	8-DPSK	3	-26.41	2.399	-23.25	3.16
2480	8-DPSK	3	-34.98	2.483		11.73
Results:					Complies	

Margin = A_L - E_{MEAS}

Conducted Spurious Emissions - Lower Band Edge



Date: 2.DEC.2020 16:20:57

Channel Frequency:

2402.00 MHz

Emission Frequency:

2.399 MHz

DUT Modulation:

8-DPSK

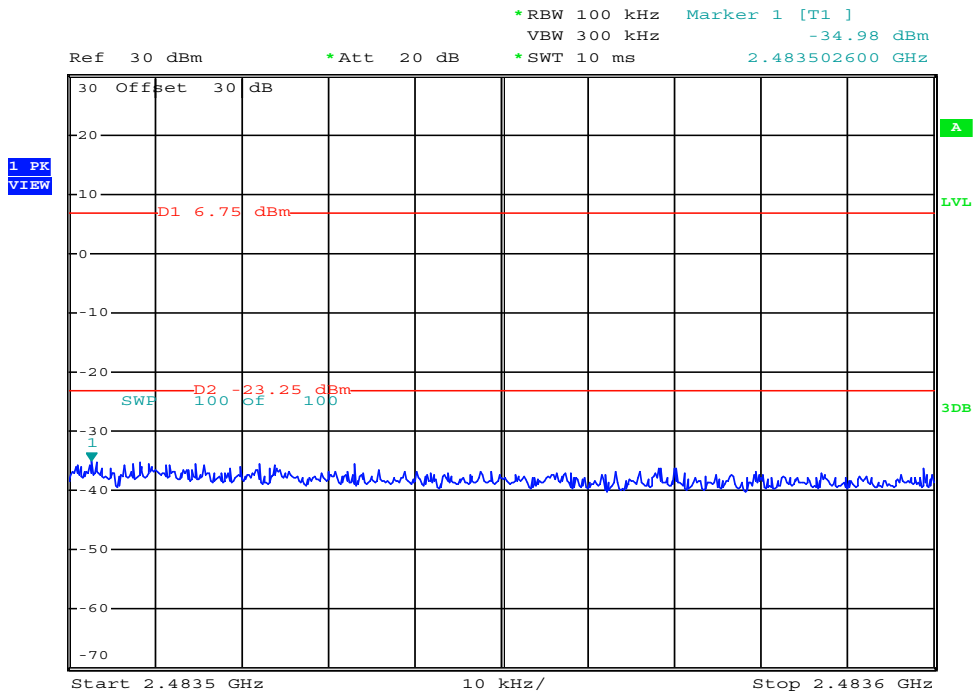
Data Rate:

3 Mbps

Measured Emission:

-26.41 dBm

Conducted Spurious Emissions - Upper Band Edge



Date: 2.DEC.2020 16:19:50

Channel Frequency:

2480.00 MHz

Emission Frequency:

2.483 MHz

DUT Modulation:

8-DPSK

Data Rate:

3 Mbps

Measured Emission:

-34.98 dBm