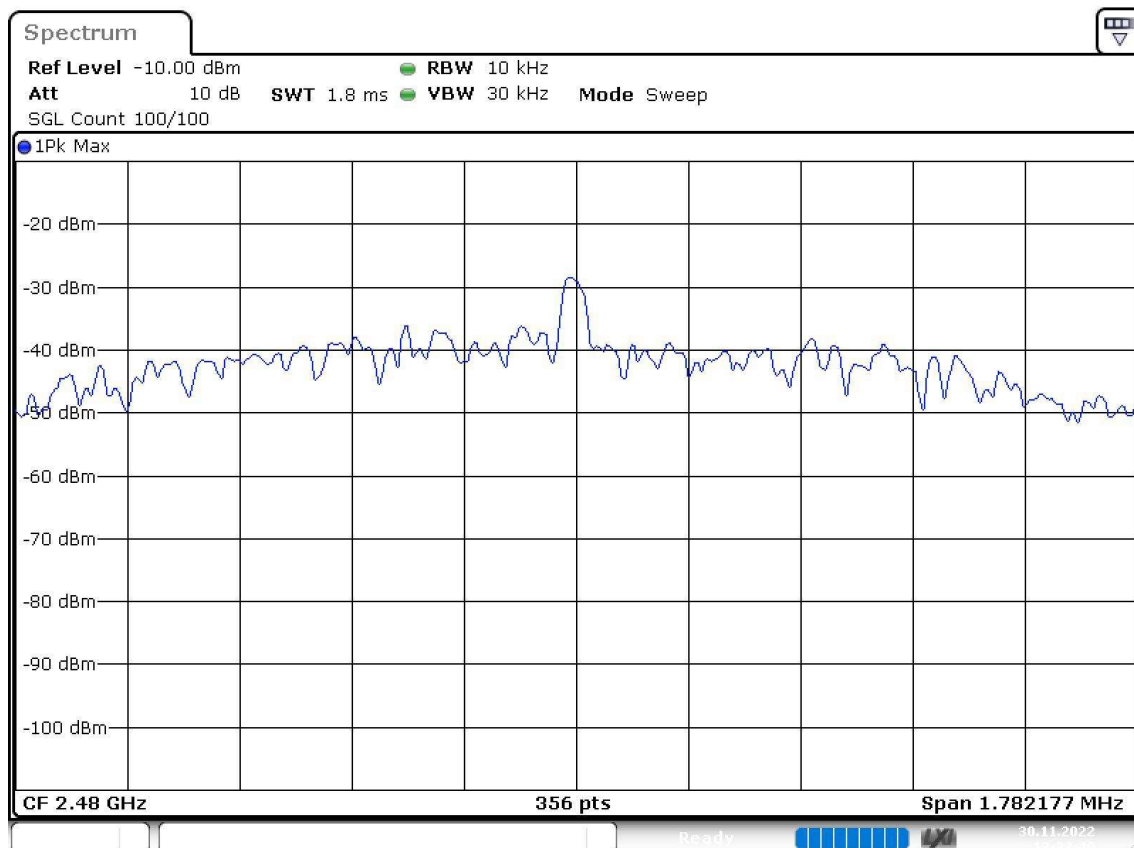
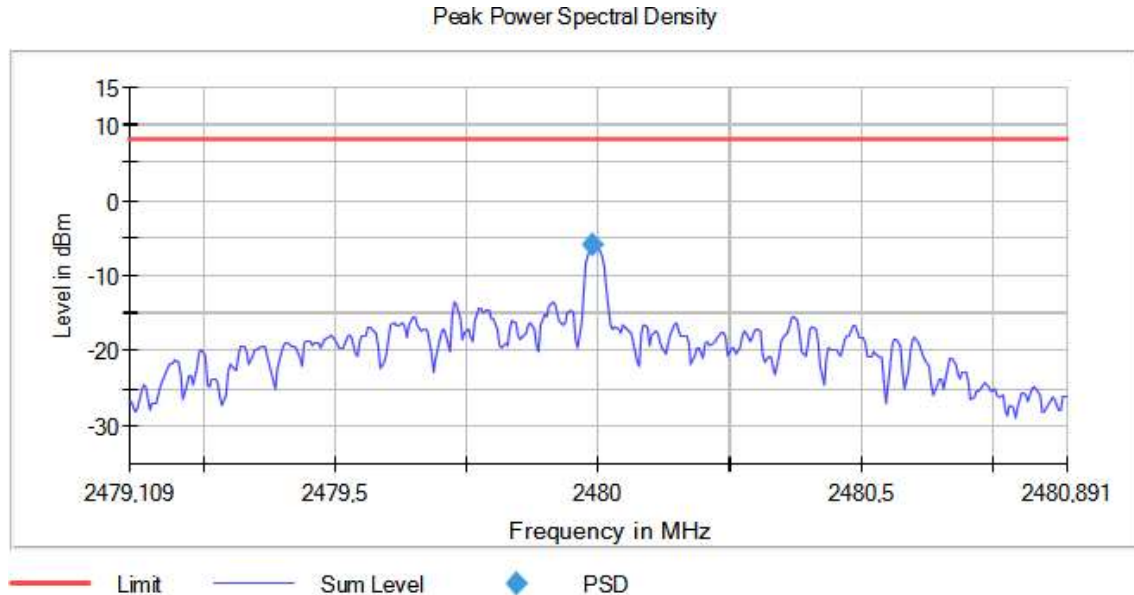


Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 2 Modulation = BTLE 5.0 (GFSK 2 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

Images:



Date: 30.NOV.2022 13:32:49

RSS-247 5.4 (d) / FCC 15.247 (b) (3) [Pkcp] Maximum Peak Conducted output power

Limits

For systems using digital modulation in the 2400-2483.5 MHz band: 1 watt (30 dBm).
The e.i.r.p. shall not exceed 4 W (36 dBm) (Canada).
The maximum peak conducted output power level in the fundamental emission was measured using the method according to point 11.9.1.1 "RBW ≥ DTS bandwidth" of ANSI C.63.10-2013.

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Freq (MHz)	Equipment	BW (MHz)	# of Tx Chains	Port	Peak Power (dBm)
2402.00000	Digital Transmission System (DTS)	1	1	1	-0.7000
2440.00000					-0.6000
2480.00000					-0.6000

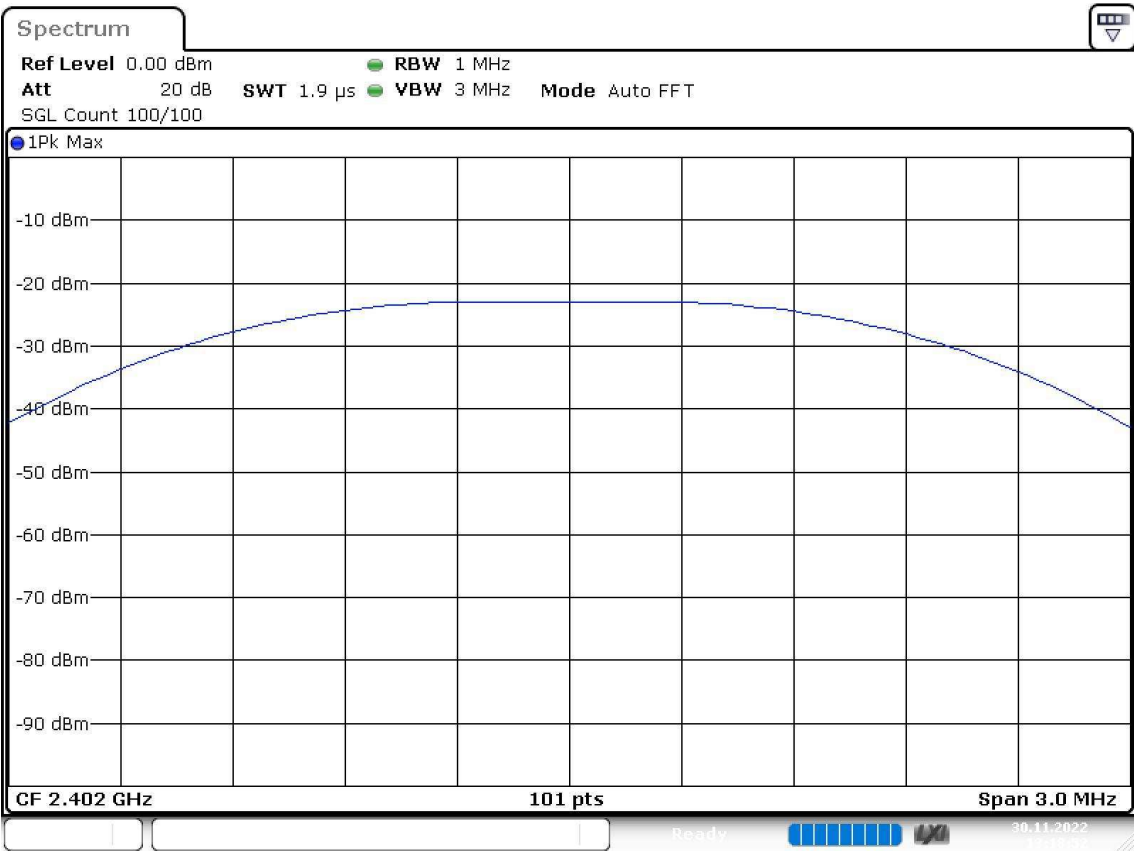
Verdict

Pass

Attachments

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



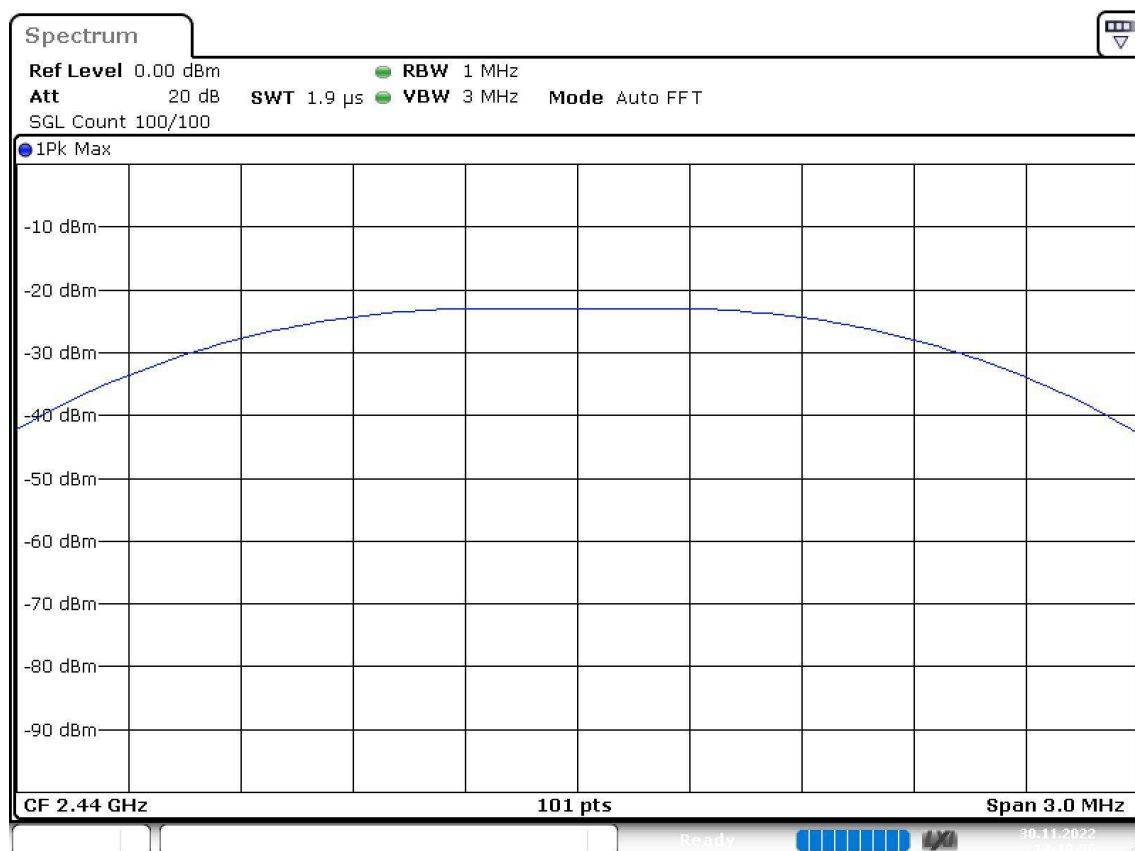
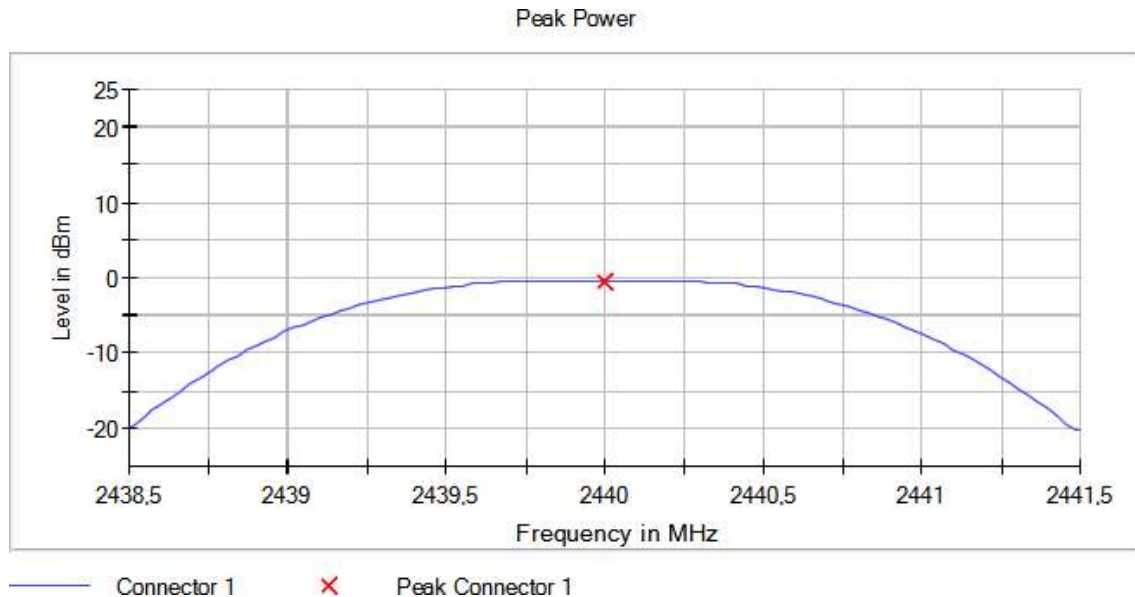
Date: 30.NOV.2022 13:18:53

Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

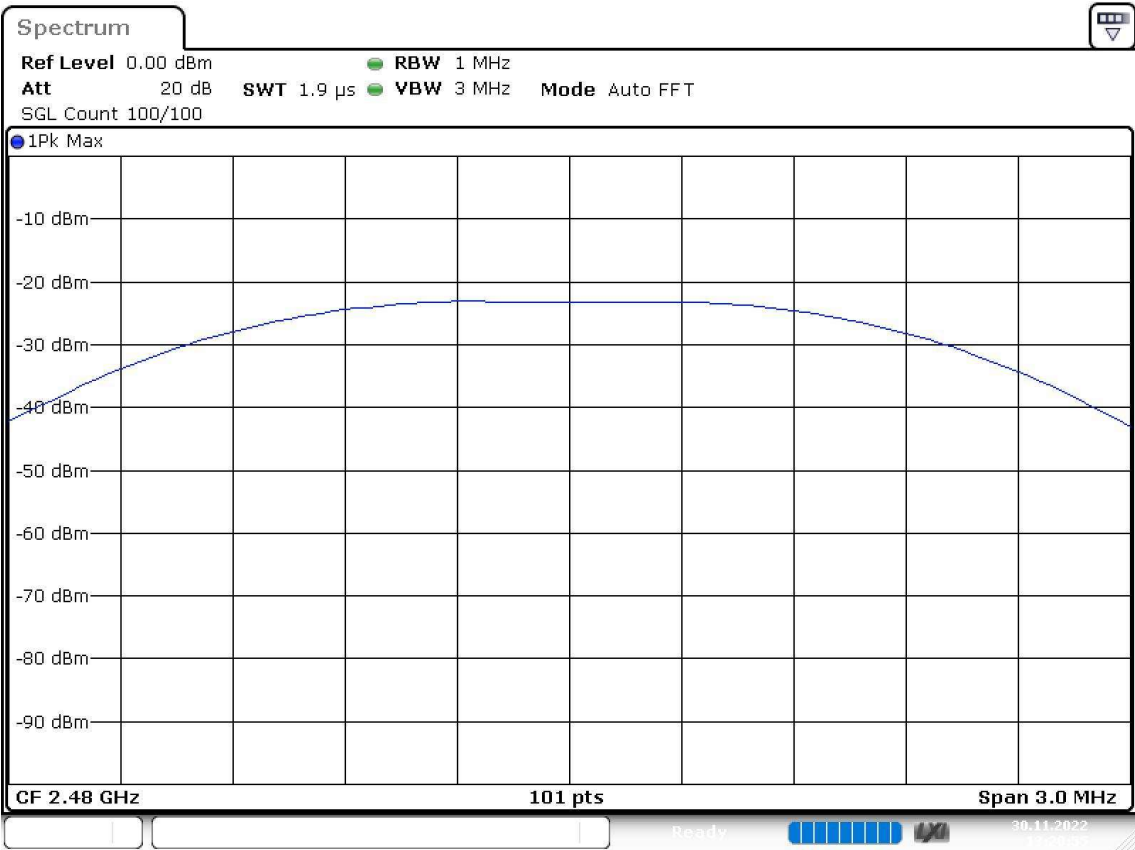
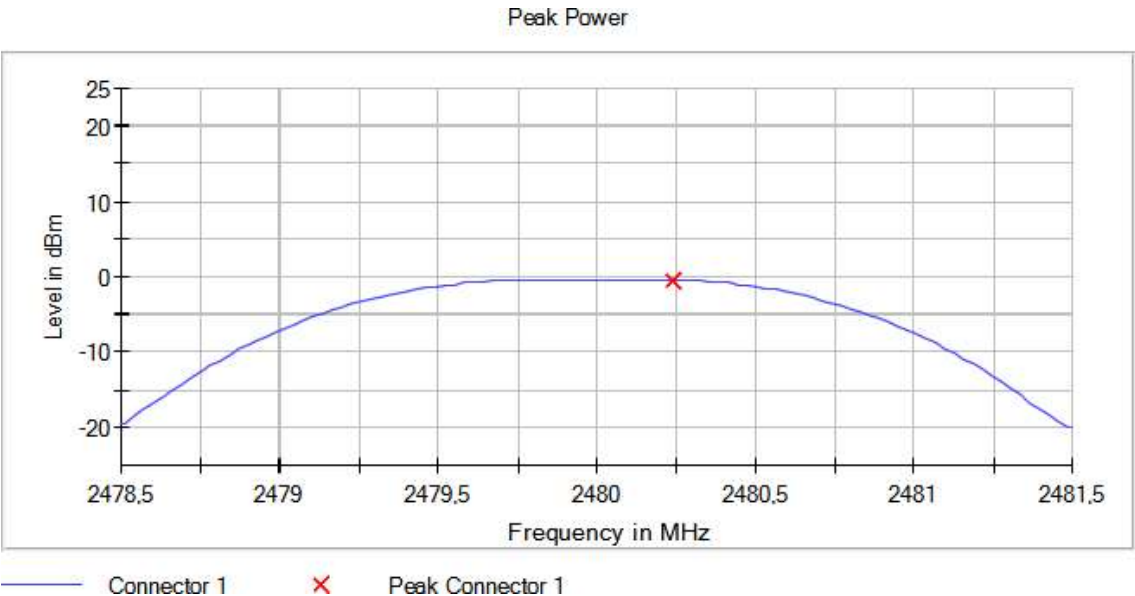
Images:



Date: 30.NOV.2022 13:19:56

Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



Date: 30.NOV.2022 13:20:55

Modulation: BTLE 5.0 (GFSK 2 Mbit/s)

Results

Freq (MHz)	Equipment	BW (MHz)	# of Tx Chains	Port	Peak Power (dBm)
2402.00000	Digital Transmission System (DTS)	2	1	1	-0.9000
2440.00000					-0.8000
2480.00000					-0.7000

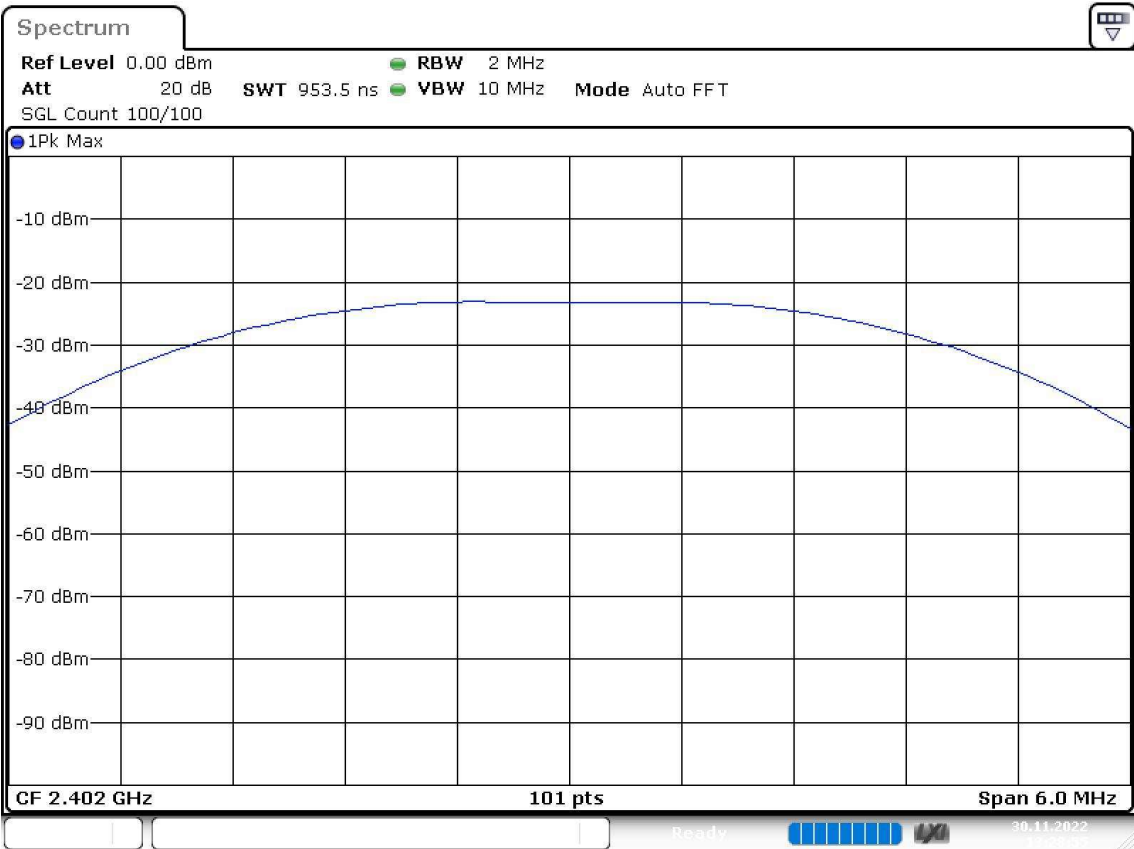
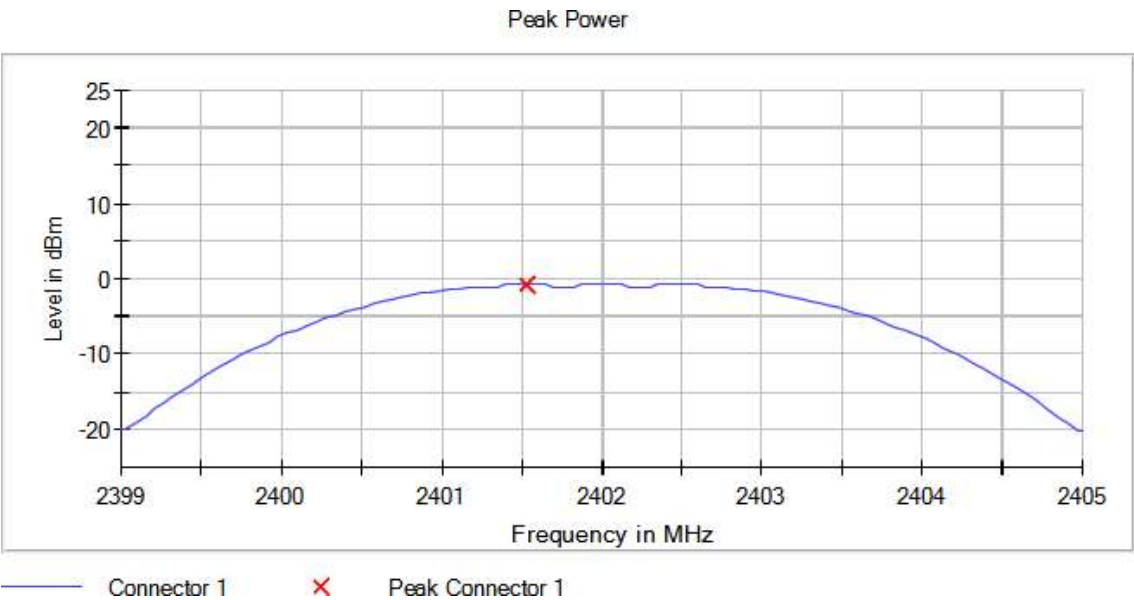
Verdict

Pass

Attachments

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 2 Modulation = BTLE 5.0 (GFSK 2 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



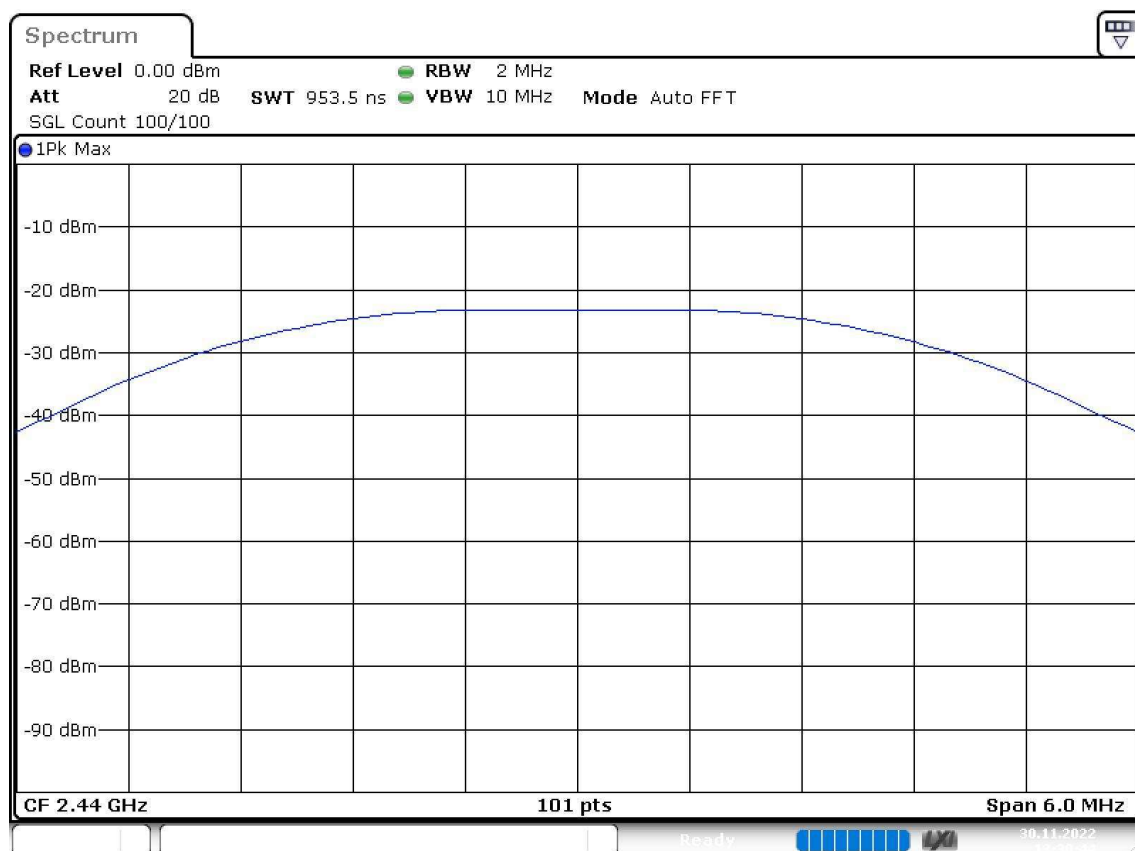
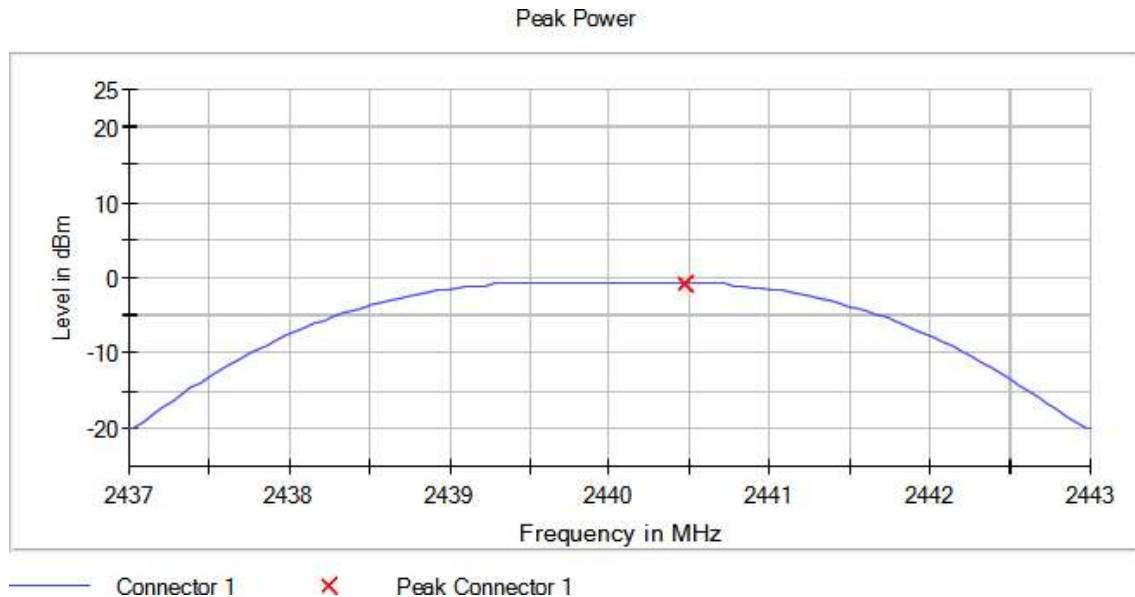
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Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 2 Modulation = BTLE 5.0 (GFSK 2 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

Images:



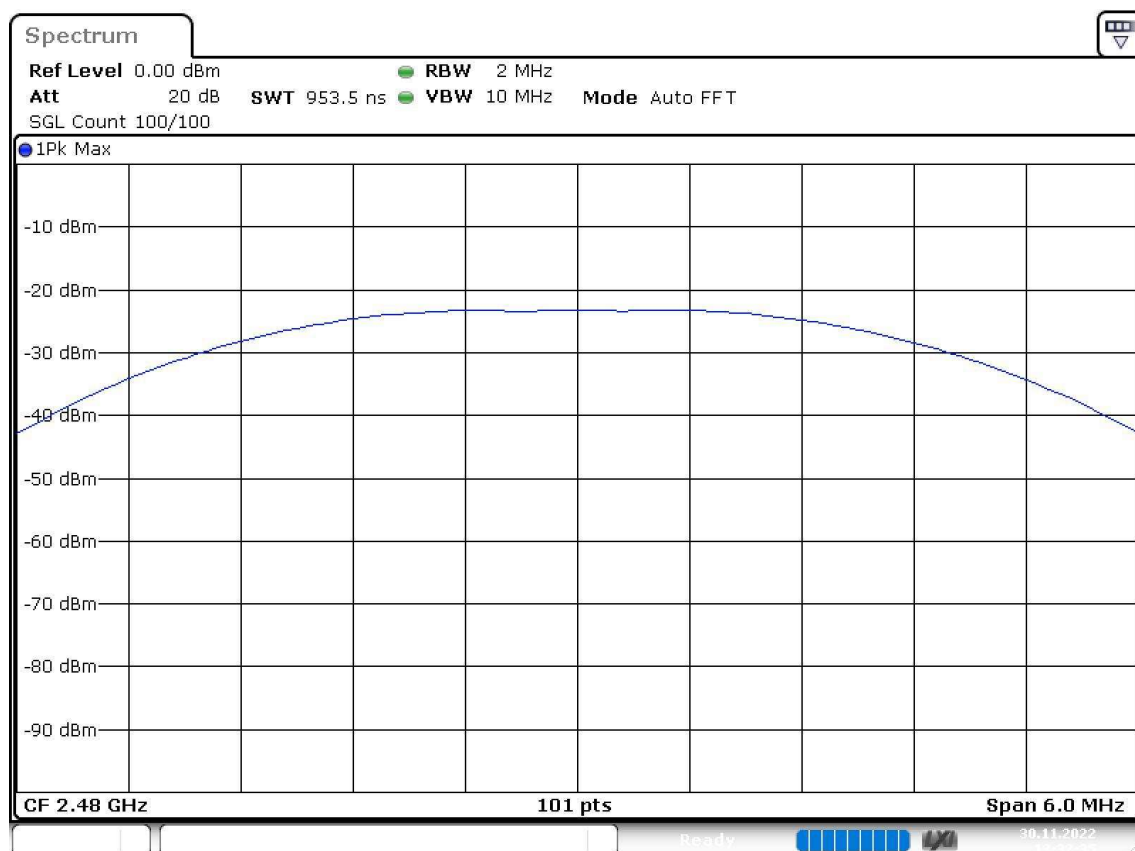
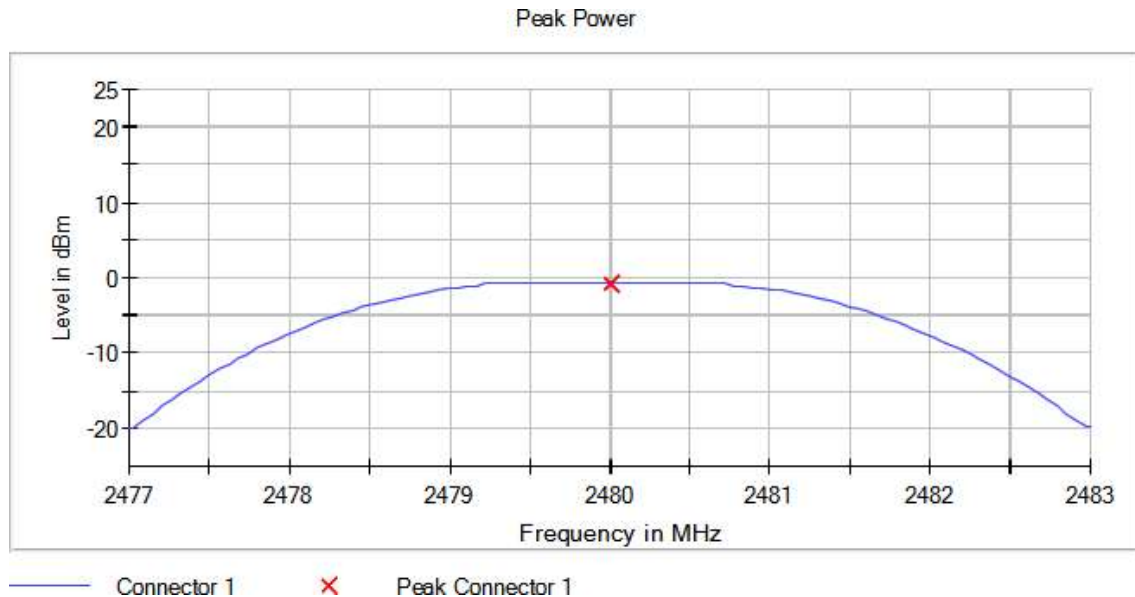
Date: 30.NOV.2022 13:30:44

Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 2 Modulation = BTLE 5.0 (GFSK 2 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

Images:



Date: 30.NOV.2022 13:32:36

RSS-247 5.5 / FCC 15.247 (d) [Bndedge] Band-edge emissions compliance (Transmitter)

Limits

In any 100 kHz bandwidths outside the frequency band in which the 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, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Freq (MHz)	Frequency(MHz)	Level(dBm)	Margin(dB)	Limit(dBm)	Result
2402.00000	2399.925000	-53.889	35.8	-18.110	PASS
	2399.975000	-53.932	35.8	-18.110	PASS
	2317.625000	-54.183	36.1	-18.110	PASS
	2317.575000	-54.463	36.4	-18.110	PASS
	2317.675000	-54.572	36.5	-18.110	PASS
	2399.525000	-55.157	37.0	-18.110	PASS
	2392.475000	-55.164	37.1	-18.110	PASS
	2399.075000	-55.202	37.1	-18.110	PASS
	2392.525000	-55.208	37.1	-18.110	PASS
	2399.825000	-55.274	37.2	-18.110	PASS
	2399.025000	-55.339	37.2	-18.110	PASS
	2399.775000	-55.367	37.3	-18.110	PASS
	2399.275000	-55.453	37.3	-18.110	PASS
	2377.375000	-55.466	37.4	-18.110	PASS
	2399.875000	-55.469	37.4	-18.110	PASS
2480.00000	2483.725000	-53.582	35.7	-17.923	PASS
	2483.825000	-53.777	35.9	-17.923	PASS
	2483.675000	-53.806	35.9	-17.923	PASS
	2484.125000	-53.844	35.9	-17.923	PASS
	2485.925000	-53.909	36.0	-17.923	PASS
	2484.075000	-53.966	36.0	-17.923	PASS
	2485.875000	-54.151	36.2	-17.923	PASS
	2483.875000	-54.193	36.3	-17.923	PASS
	2485.525000	-54.280	36.4	-17.923	PASS
	2483.775000	-54.318	36.4	-17.923	PASS
	2485.475000	-54.338	36.4	-17.923	PASS
	2491.275000	-54.617	36.7	-17.923	PASS
	2484.425000	-54.721	36.8	-17.923	PASS
	2483.925000	-55.007	37.1	-17.923	PASS
	2484.375000	-55.021	37.1	-17.923	PASS

Verdict

Pass

Attachments

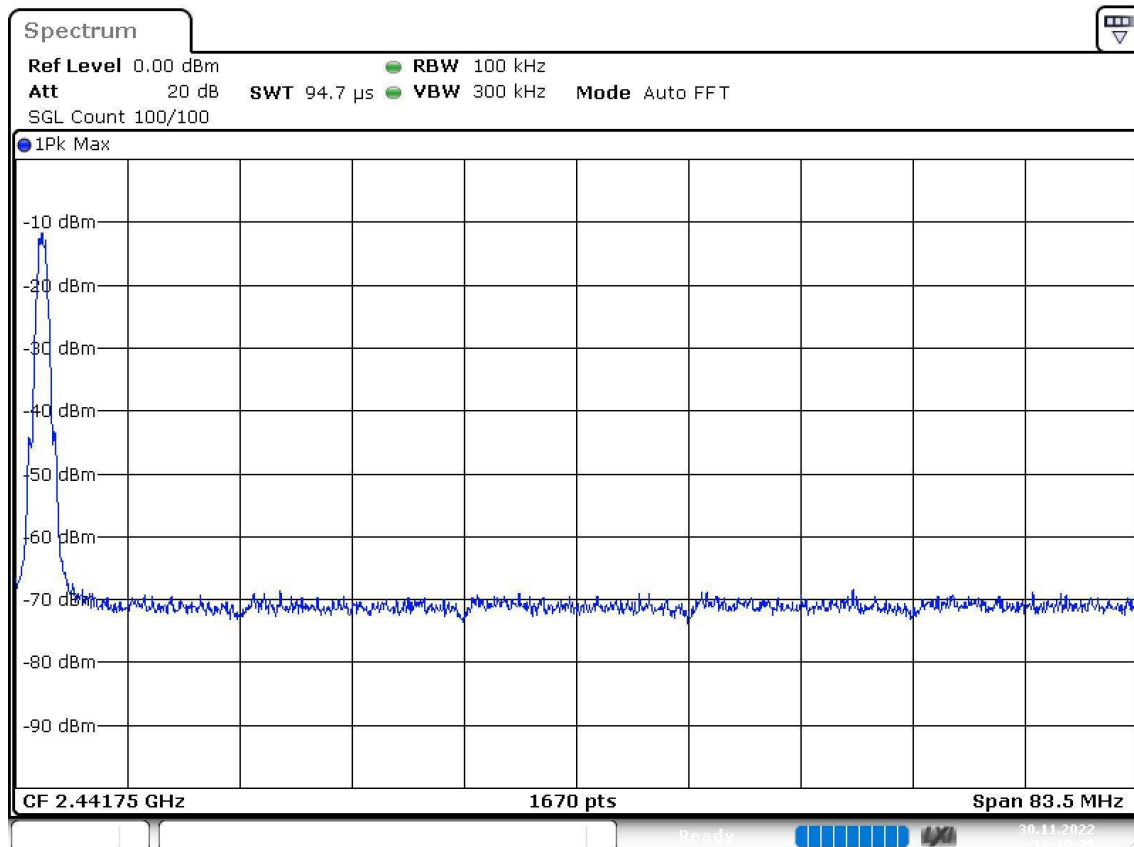
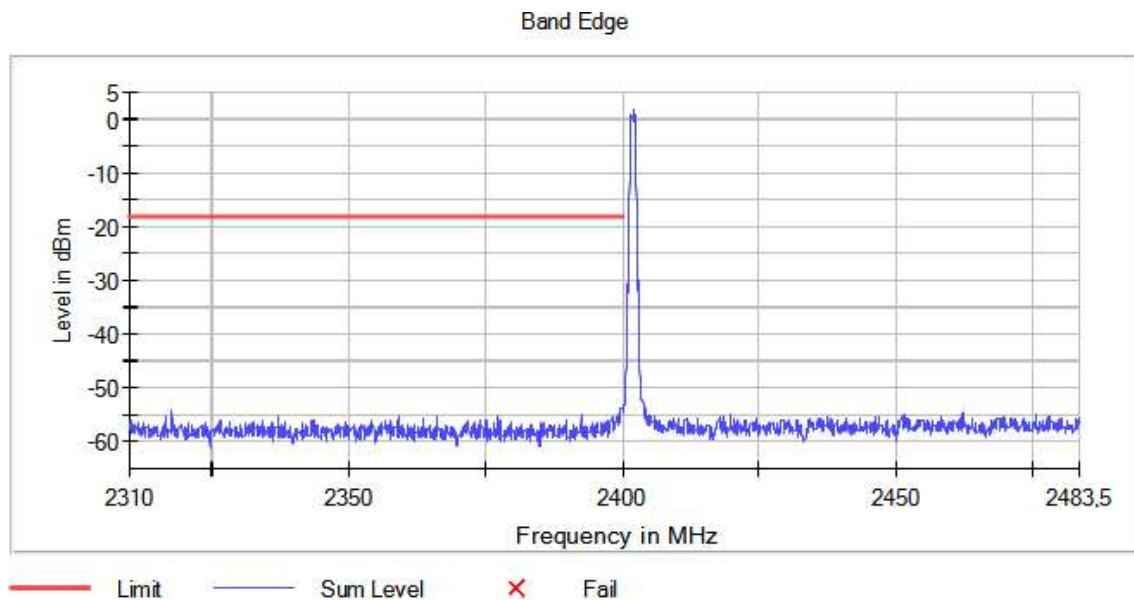
Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

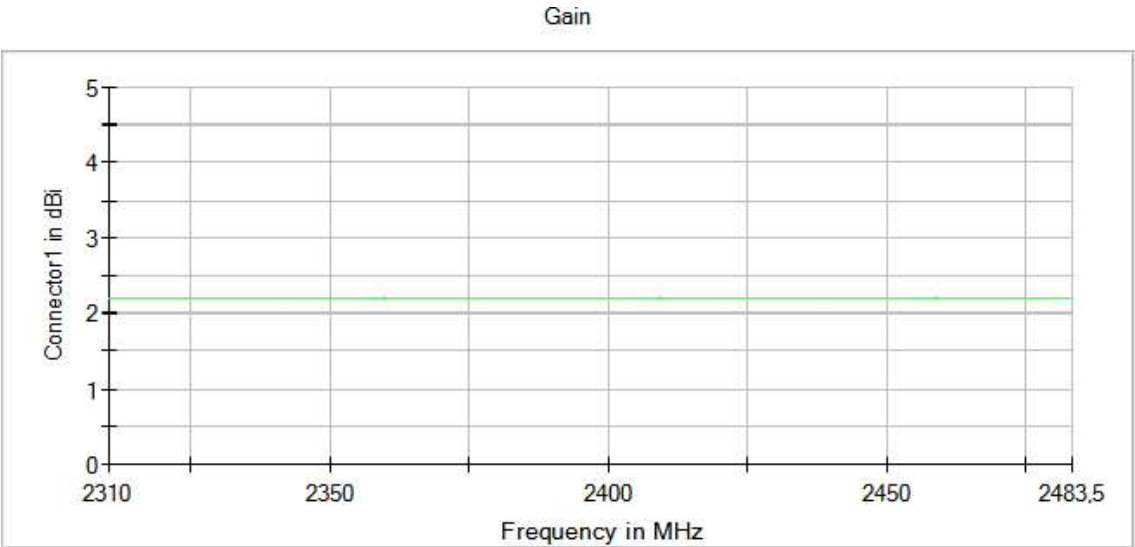
Number of Transmission Chains = 1 Measurement Point = 1

Active Port = 1

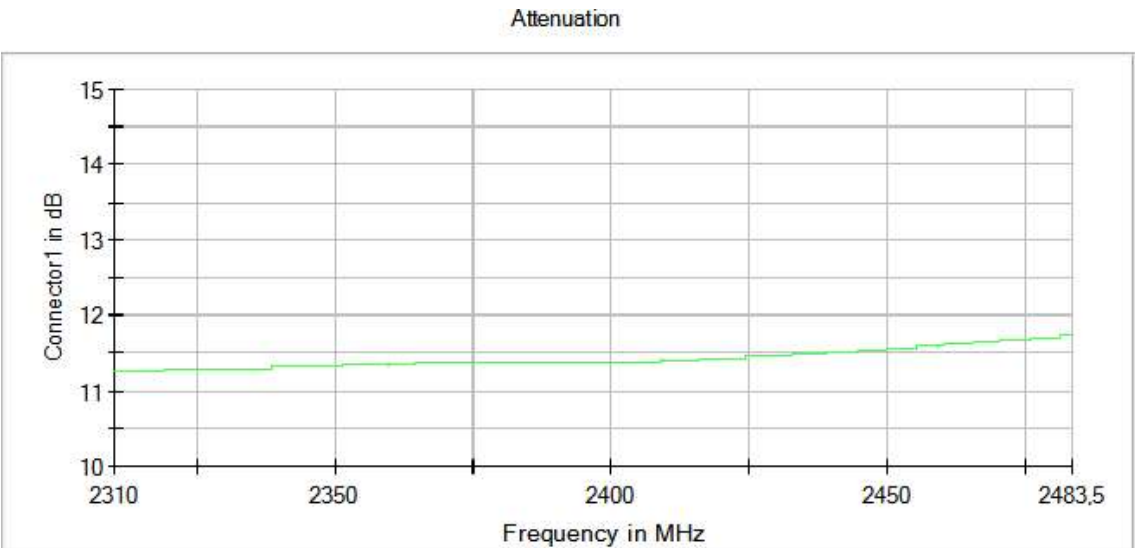
Images:



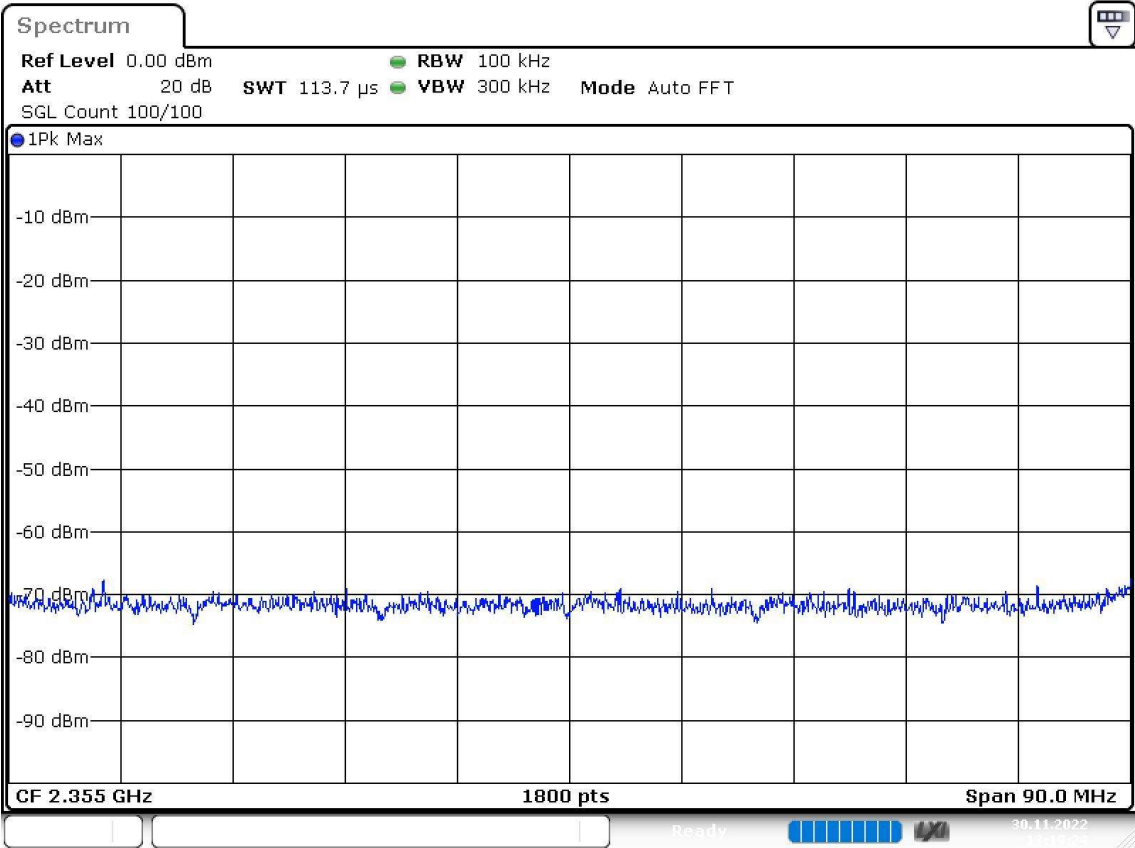
Date: 30.NOV.2022 13:19:37



Connector1



Connector1



Date: 30.NOV.2022 13:19:24

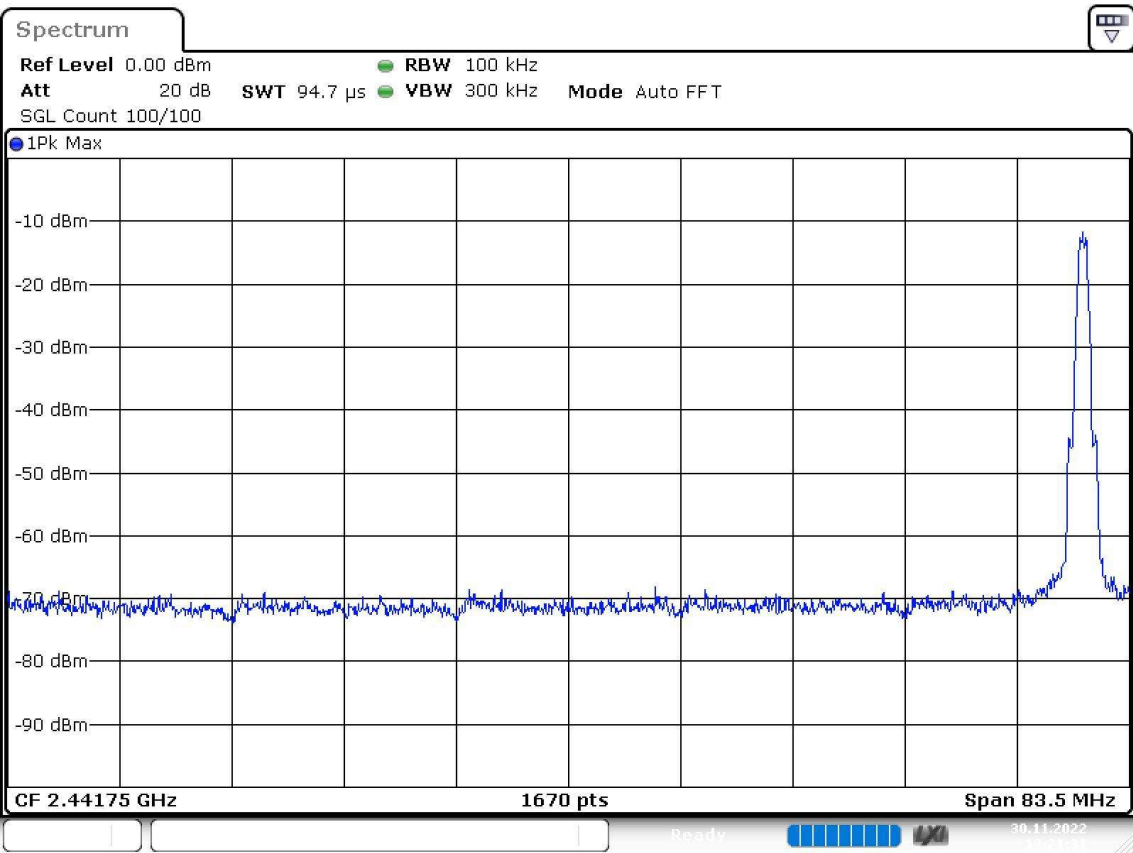
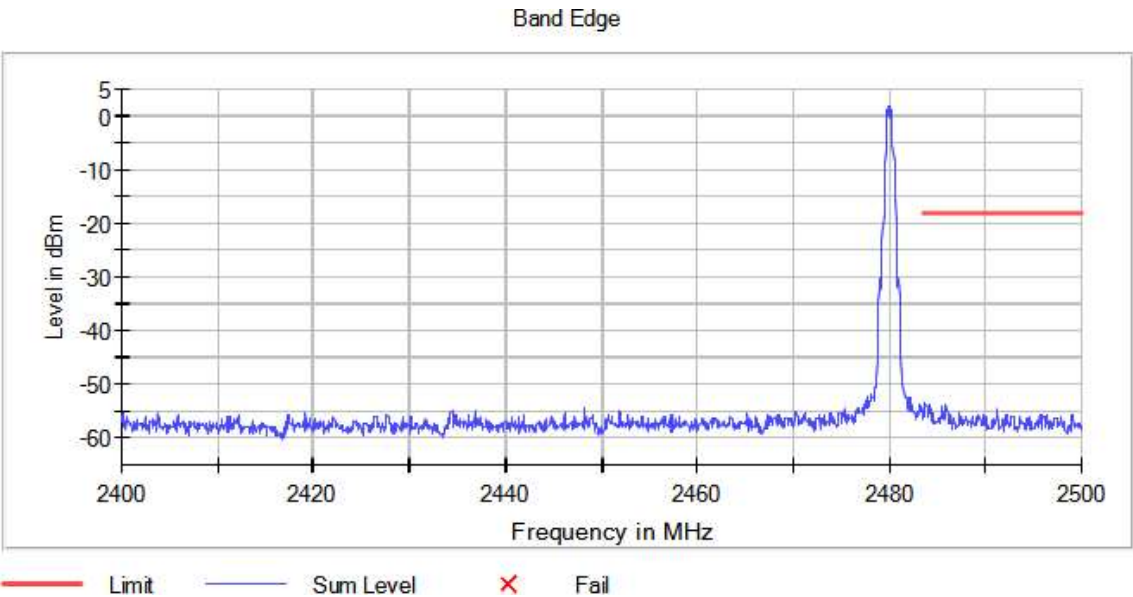
Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Number of Transmission Chains = 1 Measurement Point = 1

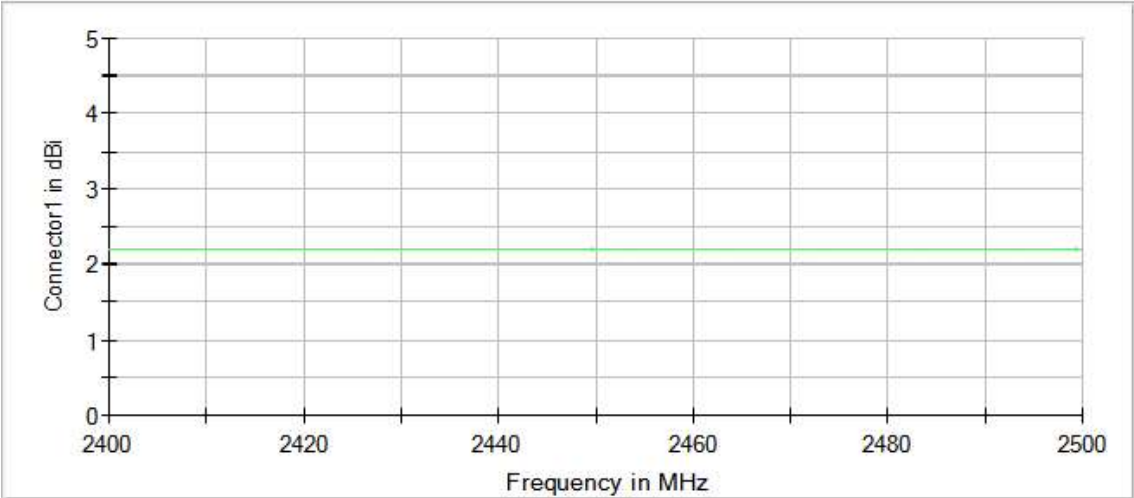
Active Port = 1

Images:



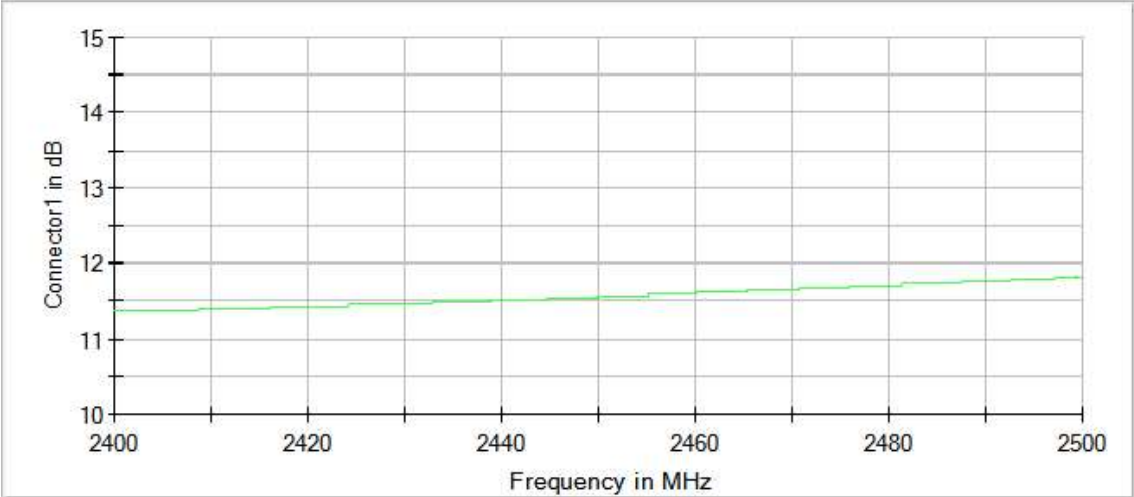
Date: 30.NOV.2022 13:21:31

Gain

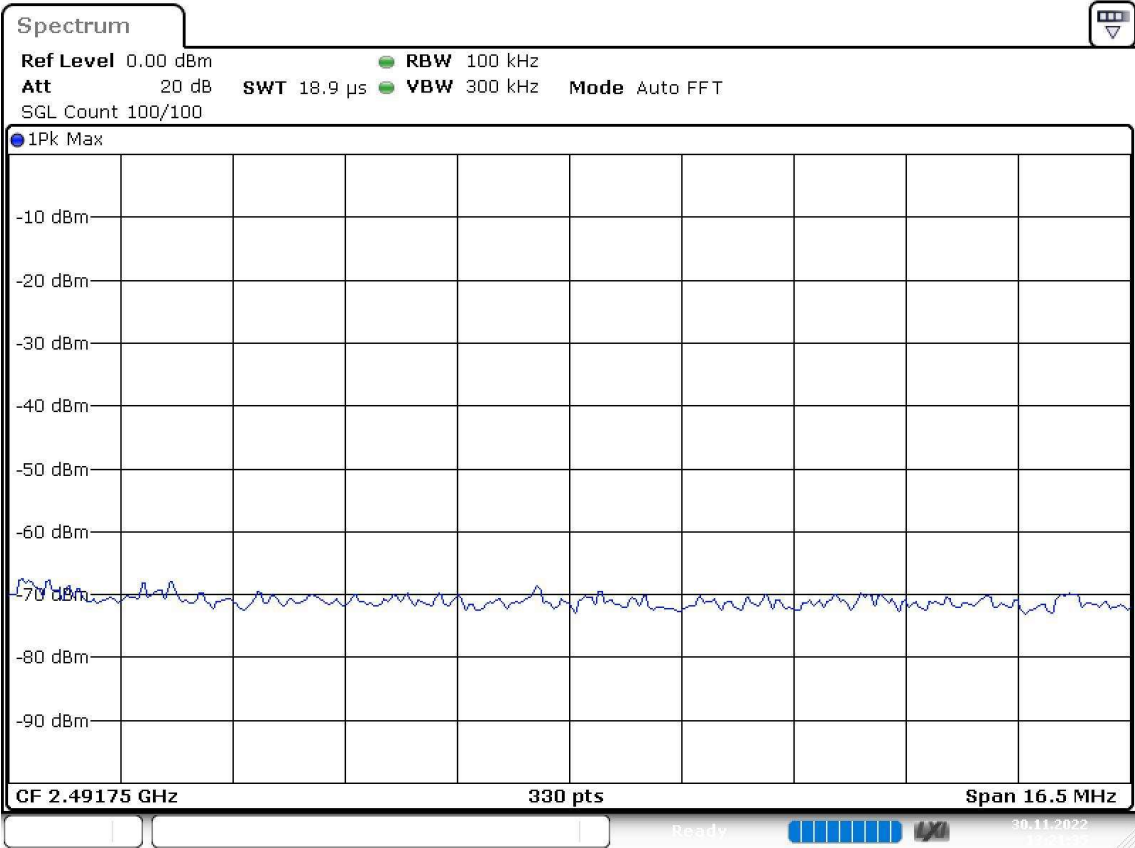


Connector1

Attenuation



Connector1



Date: 30.NOV.2022 13:21:36

Modulation: BTLE 5.0 (GFSK 2 Mbit/s)

Results

Freq (MHz)	Frequency(MHz)	Level(dBm)	Margin(dB)	Limit(dBm)	Result
2402.00000	2399.975000	-31.248	13.0	-18.270	PASS
	2399.925000	-32.678	14.4	-18.270	PASS
	2399.875000	-35.424	17.2	-18.270	PASS
	2399.825000	-38.697	20.4	-18.270	PASS
	2399.775000	-40.255	22.0	-18.270	PASS
	2399.725000	-41.066	22.8	-18.270	PASS
	2399.675000	-44.595	26.3	-18.270	PASS
	2399.625000	-45.478	27.2	-18.270	PASS
	2399.575000	-47.959	29.7	-18.270	PASS
	2399.525000	-48.405	30.1	-18.270	PASS
	2399.475000	-49.055	30.8	-18.270	PASS
	2399.425000	-50.311	32.0	-18.270	PASS
	2399.375000	-52.516	34.2	-18.270	PASS
	2399.325000	-53.472	35.2	-18.270	PASS
	2399.275000	-53.709	35.4	-18.270	PASS
2480.00000	2483.525000	-54.394	36.3	-18.057	PASS
	2485.875000	-54.466	36.4	-18.057	PASS
	2485.825000	-54.518	36.5	-18.057	PASS
	2490.425000	-54.531	36.5	-18.057	PASS
	2483.825000	-54.679	36.6	-18.057	PASS
	2483.775000	-54.752	36.7	-18.057	PASS
	2499.625000	-54.767	36.7	-18.057	PASS
	2499.675000	-54.781	36.7	-18.057	PASS
	2483.675000	-54.843	36.8	-18.057	PASS
	2483.725000	-54.869	36.8	-18.057	PASS
	2490.375000	-54.944	36.9	-18.057	PASS
	2491.475000	-55.372	37.3	-18.057	PASS
	2483.575000	-55.380	37.3	-18.057	PASS
	2488.725000	-55.431	37.4	-18.057	PASS
	2490.475000	-55.589	37.5	-18.057	PASS

Verdict

Pass

Attachments

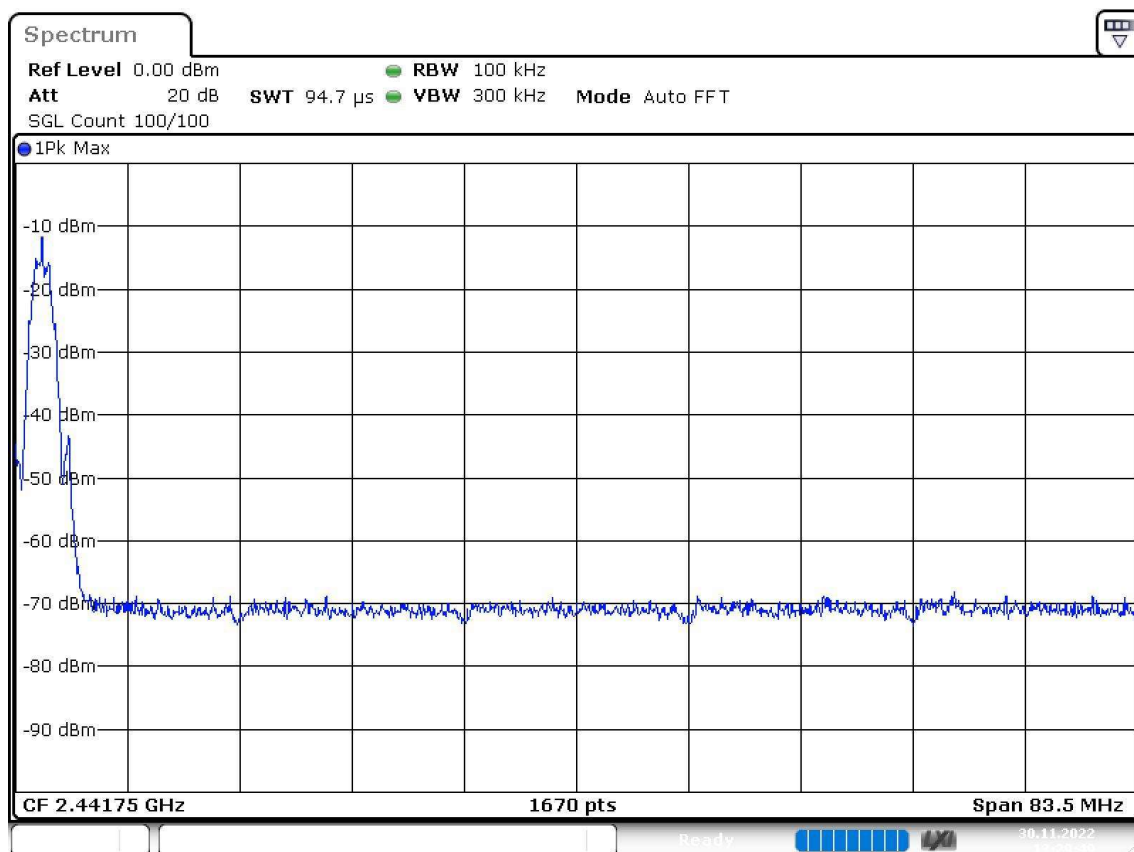
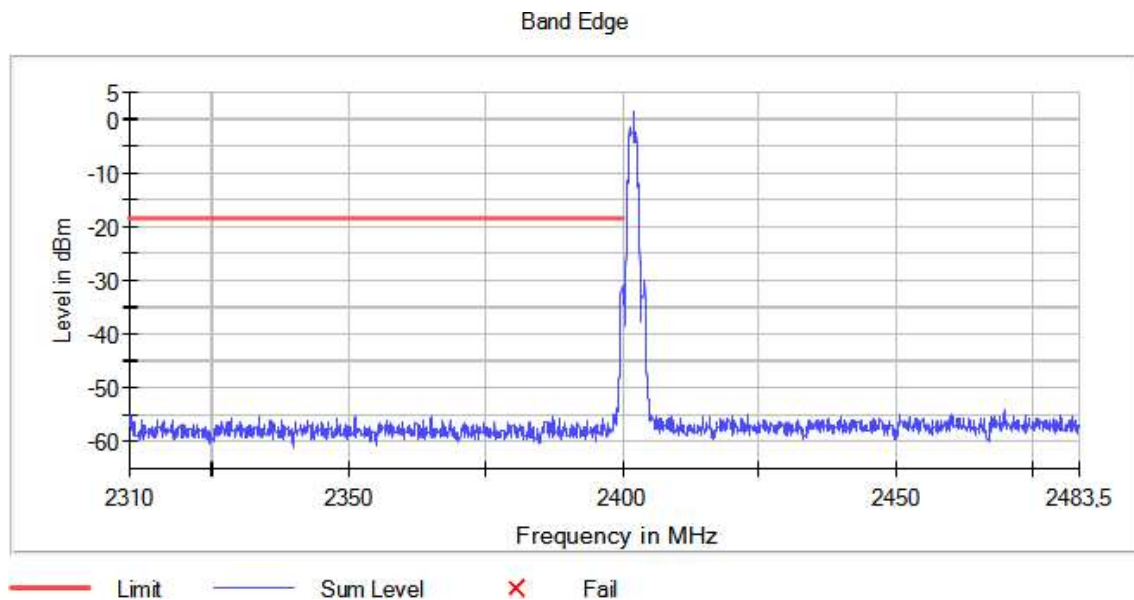
Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 2 Modulation = BTLE 5.0 (GFSK 2 Mbit/s)

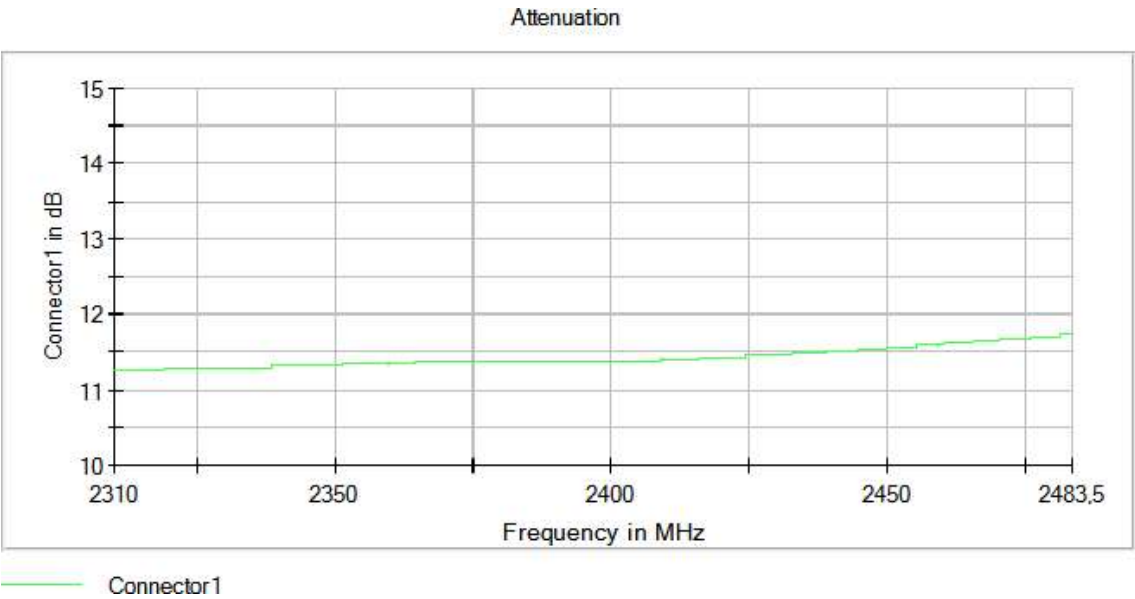
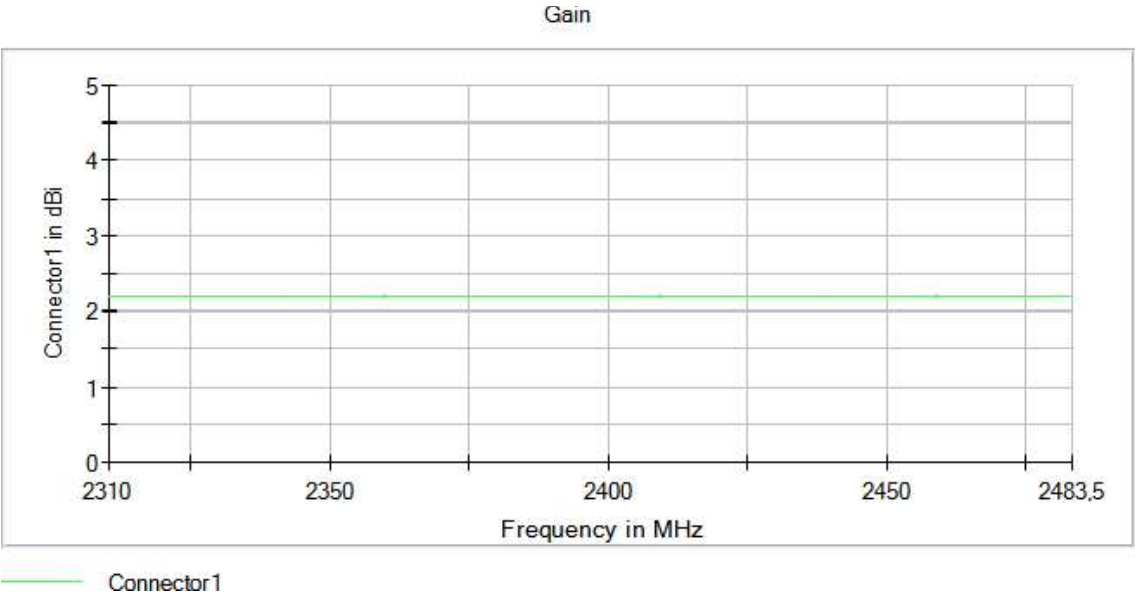
Number of Transmission Chains = 1 Measurement Point = 1

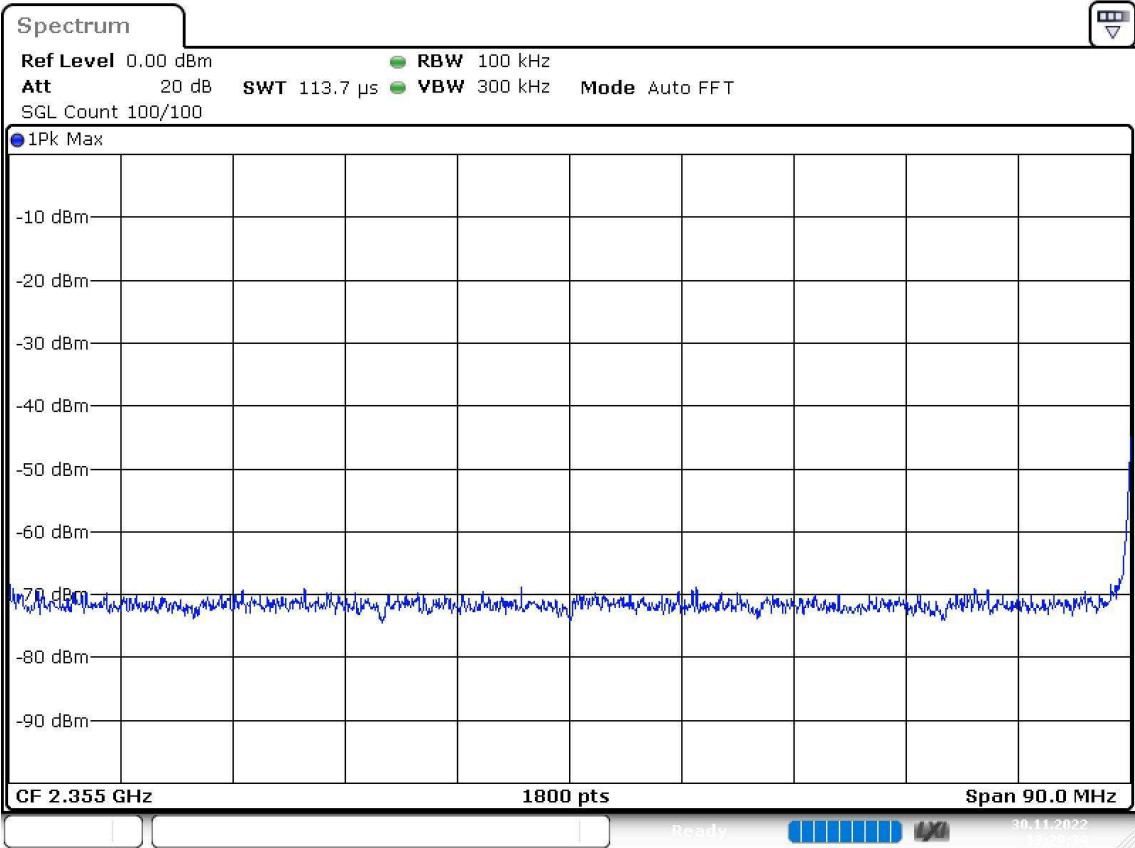
Active Port = 1

Images:



Date: 30.NOV.2022 13:29:49





Date: 30.NOV.2022 13:29:34

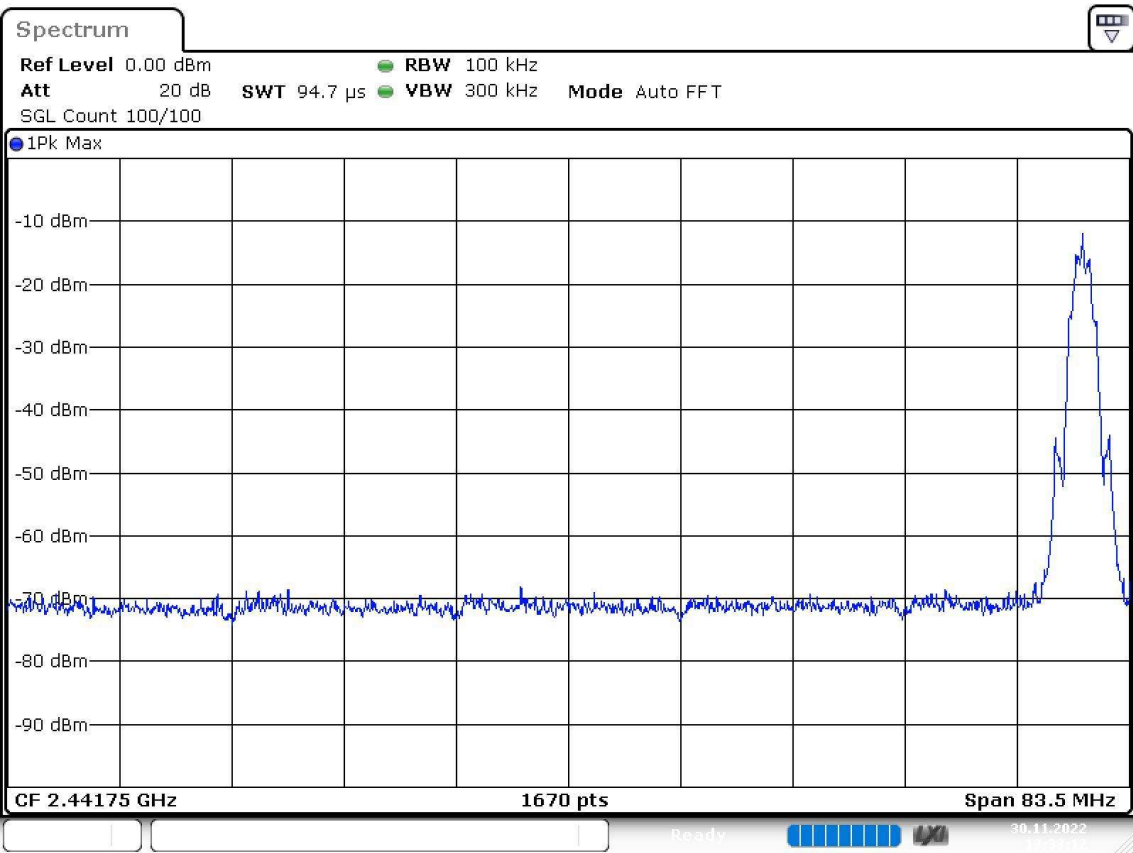
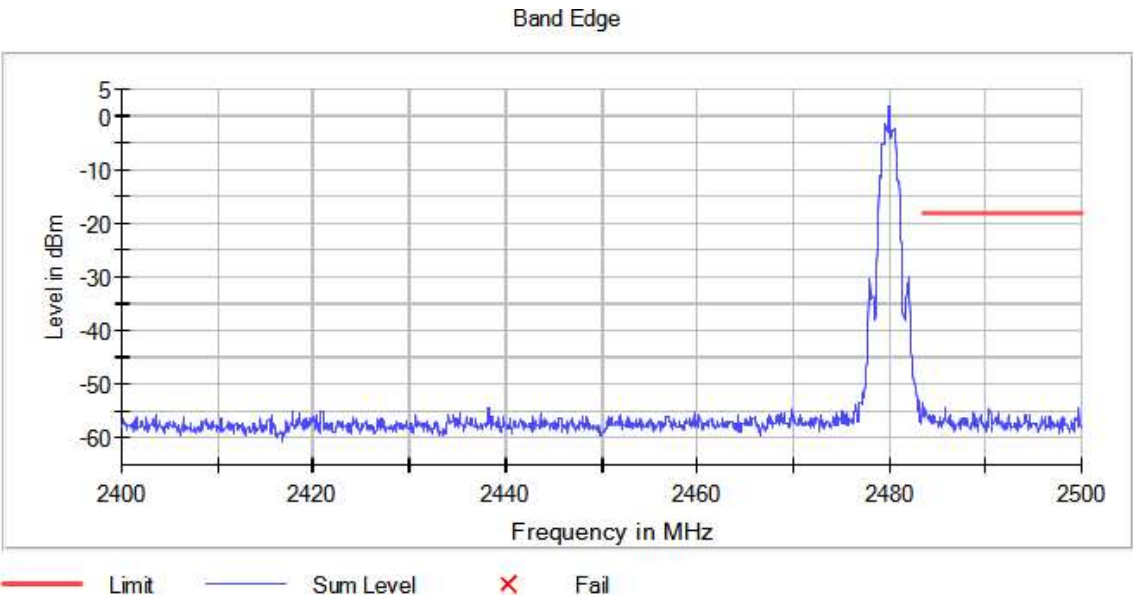
Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 2 Modulation = BTLE 5.0 (GFSK 2 Mbit/s)

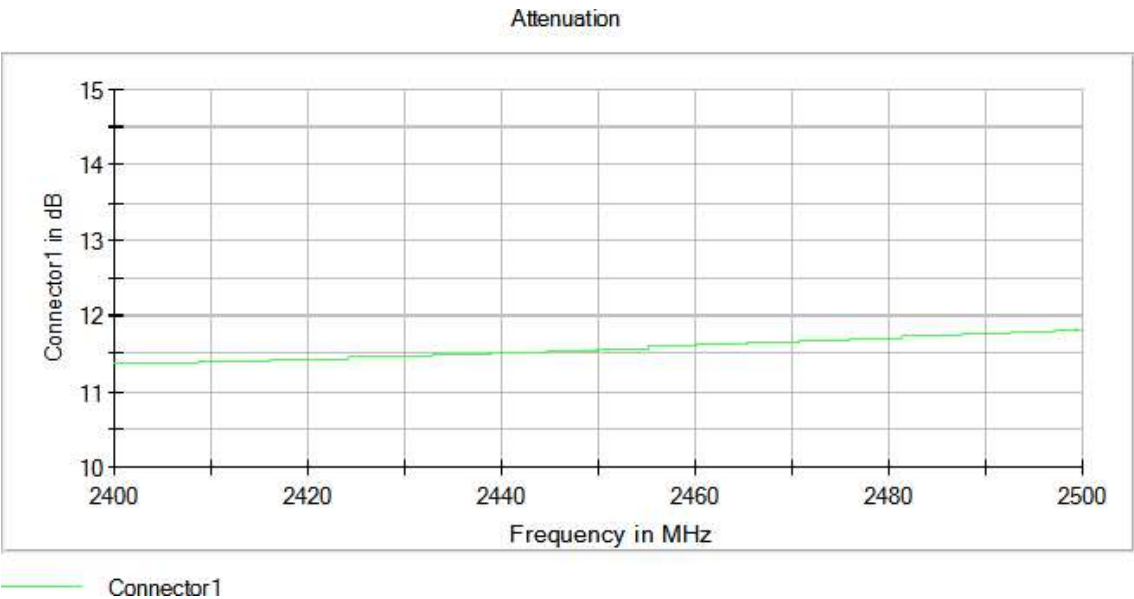
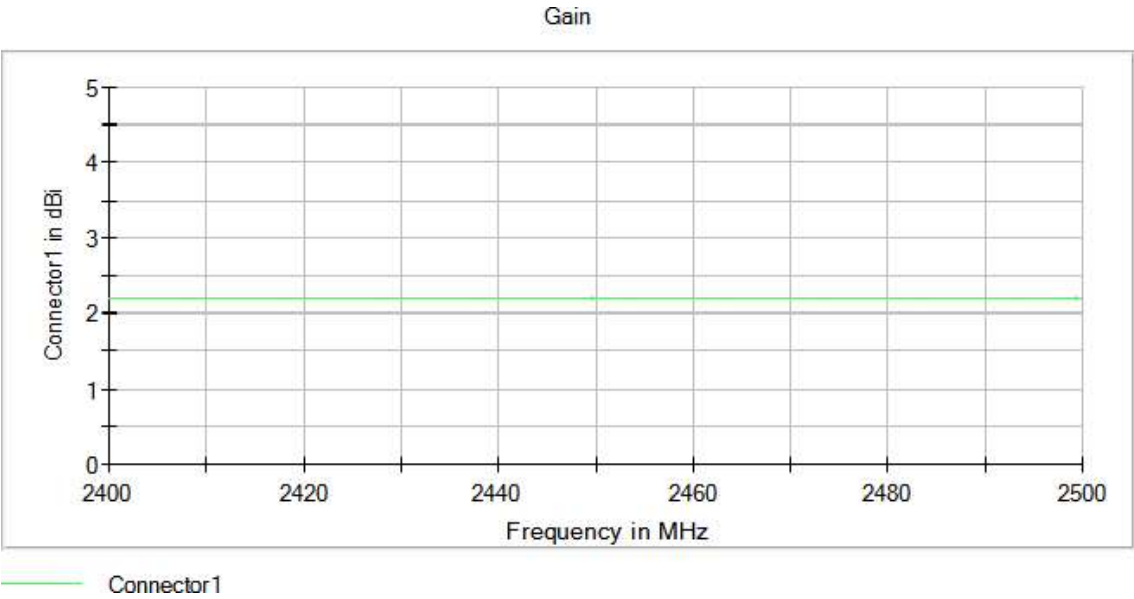
Number of Transmission Chains = 1 Measurement Point = 1

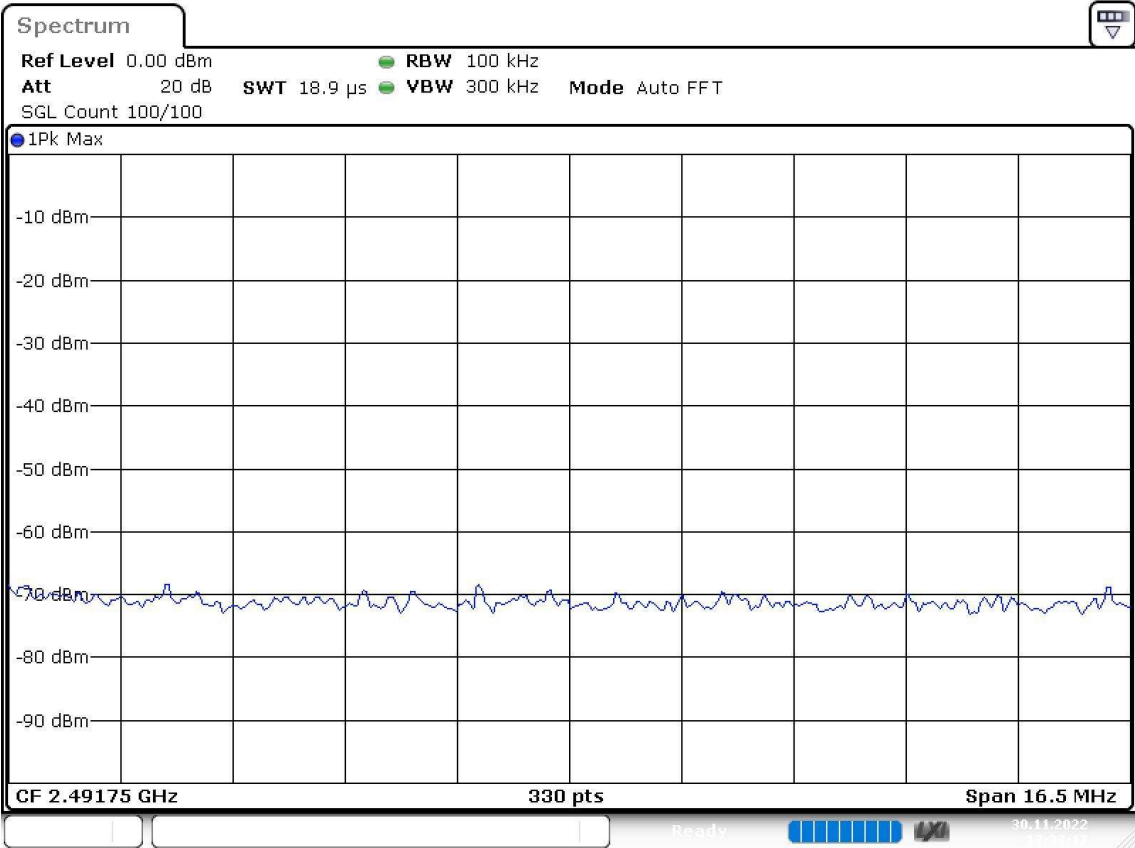
Active Port = 1

Images:



Date: 30.NOV.2022 13:33:12





Date: 30.NOV.2022 13:33:17

RSS-247 5.5 / FCC 15.247 (d) [RSE] Emission limitations radiated (Transmitter)

Limits

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)/RSS-Gen):

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RSS-247: Attenuation below the general field strength limits specified in RSS-Gen is not required.

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Range 30MHz-1GHz

Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
[0.03, 1]	30.9215	19.66	V	QP
	30.9215	28.04	V	PK
	43.7740	20.91	V	QP
	43.7740	26.01	V	PK
	47.8965	10.43	V	QP
	47.8965	18.27	V	PK
	48.4300	5.93	V	QP
	48.4300	15.67	V	PK
	62.9800	17.71	V	QP
	62.9800	23.35	V	PK
	947.7170	13.89	V	QP
	947.7170	24.56	V	PK

Range 1GHz-3GHz

No spurious frequencies detected at less than 20dB below the limit.

Range 30MHz-1GHz

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2402.00000	[3, 17]	4803.5000	57.70	V	PK
			47.98	V	AVG
		7206.5000 (*)	62.51	V	PK
		9608.0000 (*)	60.57	V	PK
2440.00000	[3, 17]	4879.5000	54.01	V	PK
			45.41	V	AVG
		7319.0000	59.61	V	PK
			49.70	V	AVG
2480.00000	[3, 17]	4960.5000	56.49	H	PK
			46.26	H	AVG
		7439.5000	56.78	V	PK
			47.01	V	AVG

(*): This frequency is not within any restricted band. The emission levels were measured with a RBW = 100 kHz and the measured radiated carrier level was 94.37 dBµV/m with RBW = 100 kHz. The emission level is therefore more than 20 dB below the carrier level as indicated in FCC 15.247 (d).

Range 17GHz-26GHz

No spurious frequencies detected at less than 20dB below the limit.

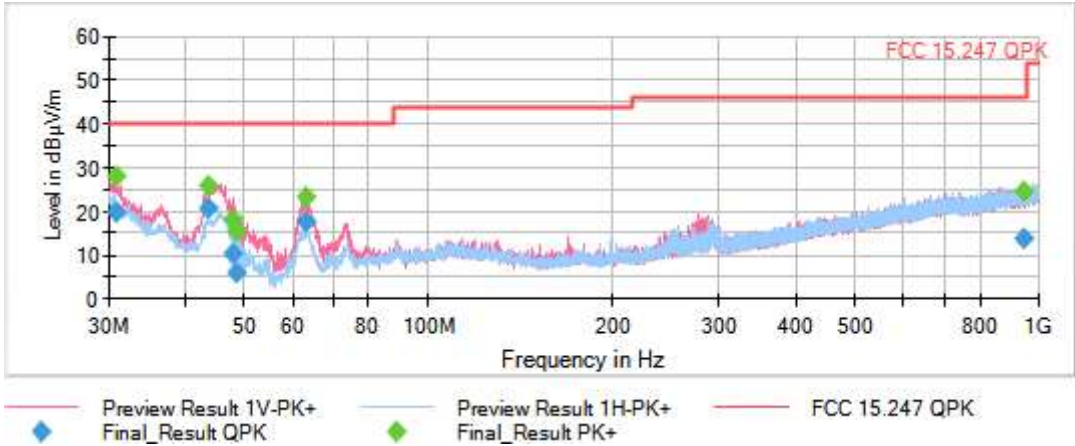
Verdict

Pass

Attachments

Frequency Range GHz = [0.03, 1]
The spurious frequencies detected do not depend on the operating channel.
Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSV 40]					
	30 MHz - 1 GHz	48.5 kHz	PK+	100 kHz	1 s	20 dB

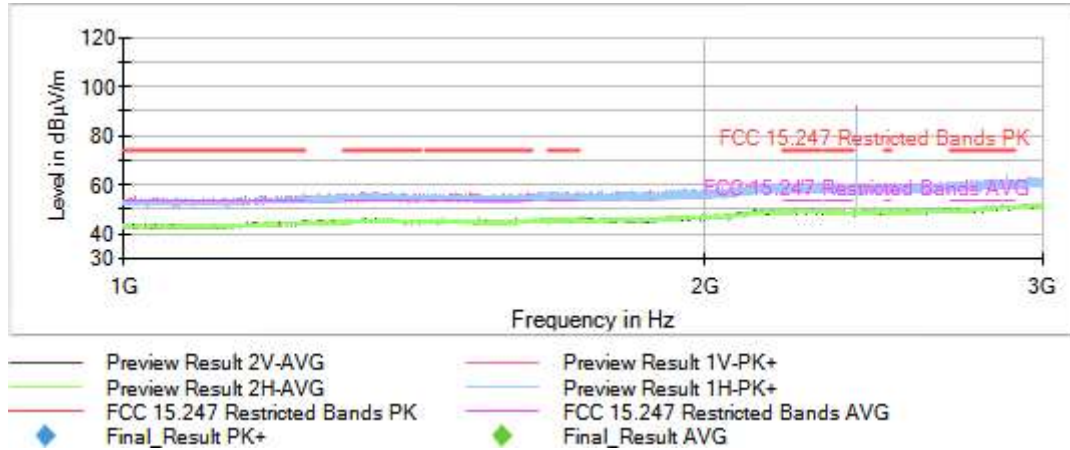
Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)

Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [1, 3]

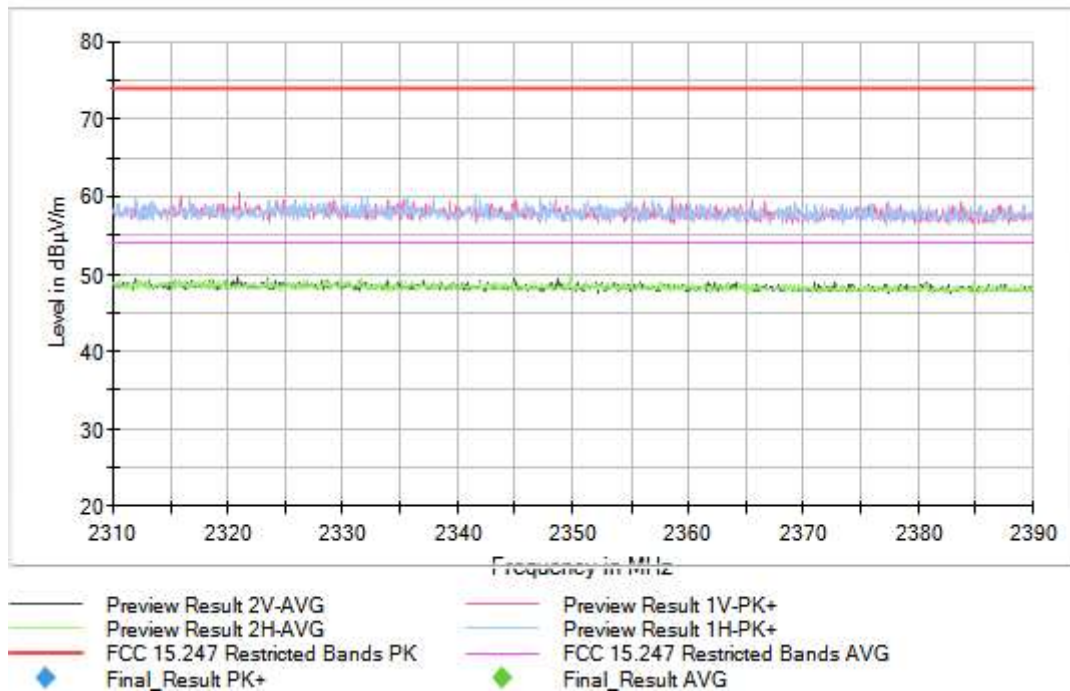
Number of Transmission Chains = 1 Measurement Point = 1

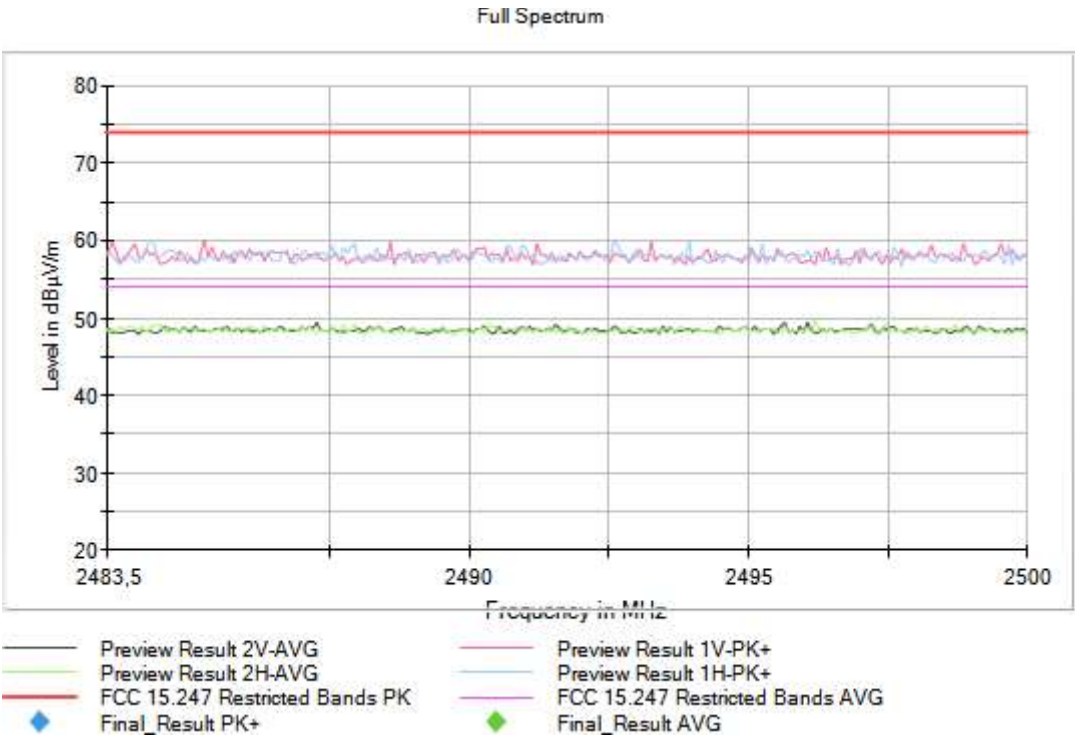
Active Port = 1

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSV 40]					
	1 GHz - 3 GHz	66,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB