



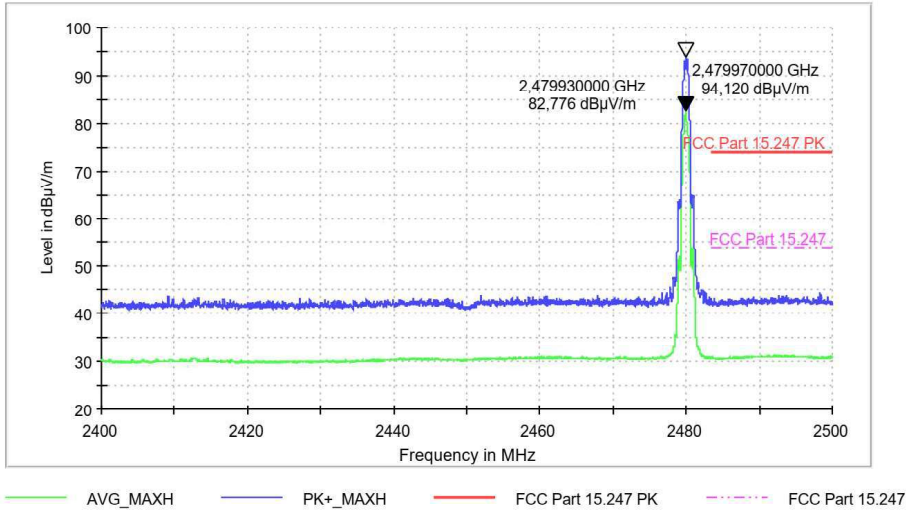
DUT Frequency (MHz)	Result
2480.000000	PASS

EUT Information

EUT:
Operating mode :
Antenna polarization:

Festool CT MIDI I AC
TX, 2480 MHz
Horizontal

FCC_2,4GHz UPPER BAND EDGE

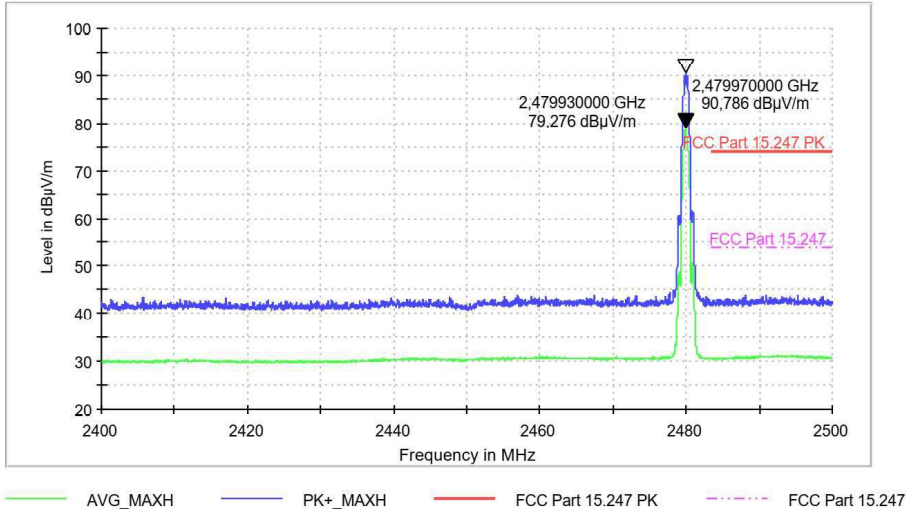


EUT Information

EUT:
Operating mode :
Antenna polarization:

Festool CT MIDI I AC
TX, 2480 MHz
Vertical

FCC_2,4GHz UPPER BAND EDGE



3.8 47 CFR § 15.247 (e) – Power Spectral Density

For digitally modulated systems, 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. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

3.8.1 Test procedure

According ANSI C63.10-2013:

- Set analyser center frequency to EUT channel center frequency
- Set the RBW between 3 kHz to 100 kHz
- Set VBW > 3 x RBW
- Set the frequency span to 1.5 times the EUT bandwidth
- Use peak detector and max hold function. Trace to fully stabilize 3 times.
- If measured value exceeds requirements, then reduce RBW (no less than 3 kHz) and repeat

3.8.2 Test setup

For the test setup refer to chapter 1.4.

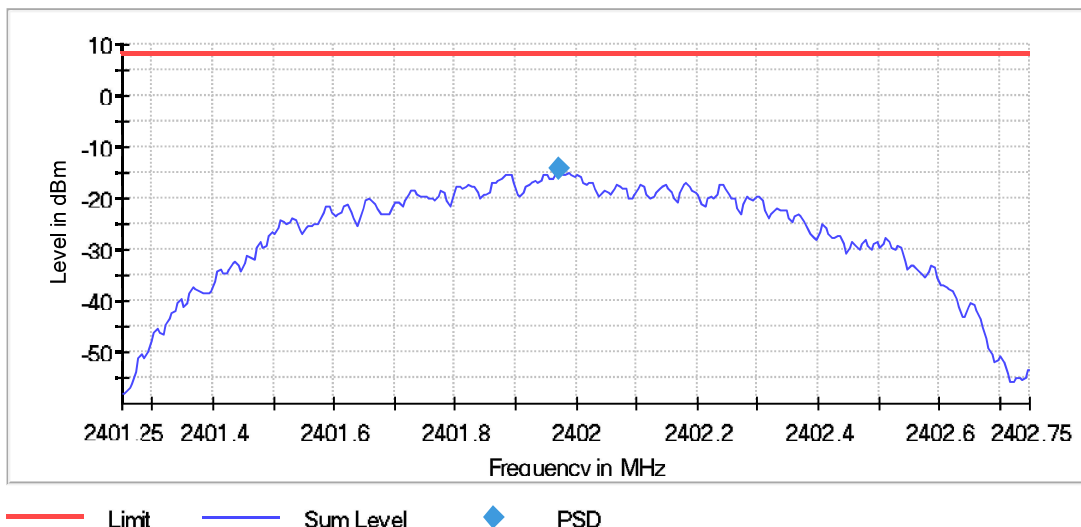
3.8.3 Test equipment

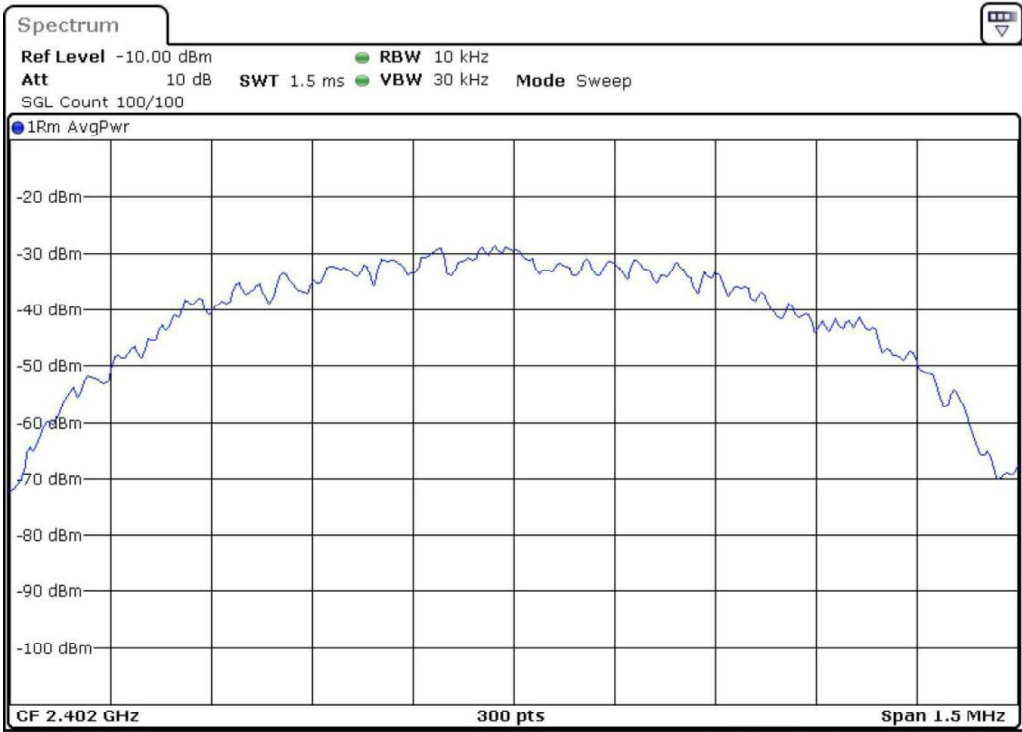
For the test setup refer to chapter 1.3.

3.8.4 Test results

DUT Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	1	2401.972500	-14.249	8.0	PASS

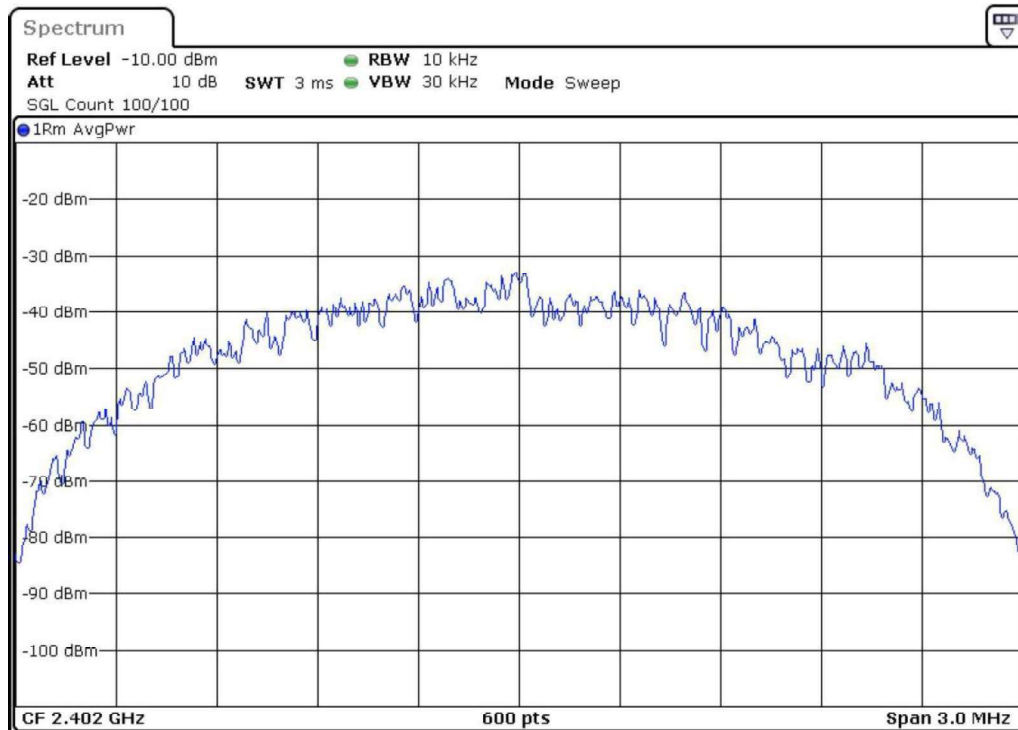
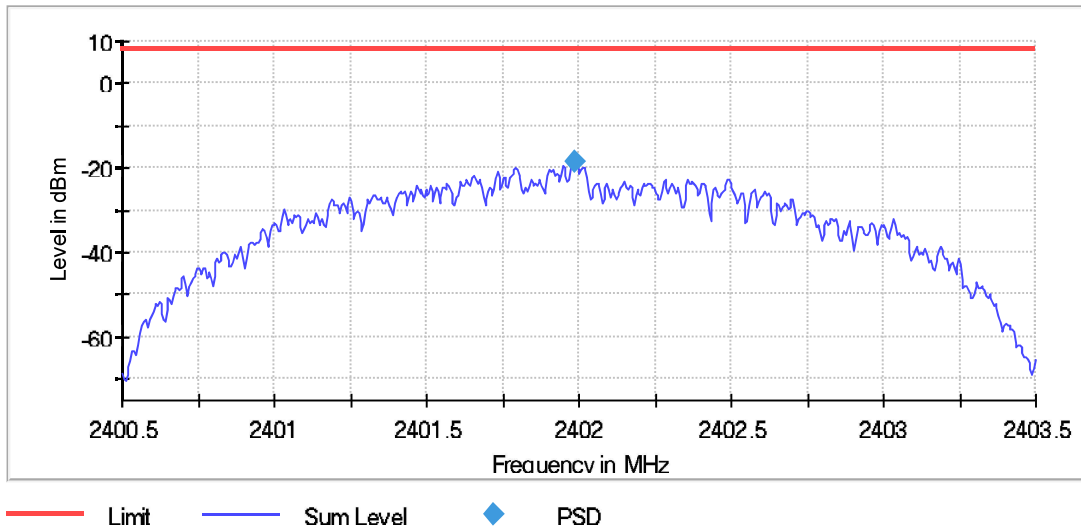
Power Spectral Density (AVG/PSD-1)





DUT Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2	2401.987500	-18.417	8.0	PASS

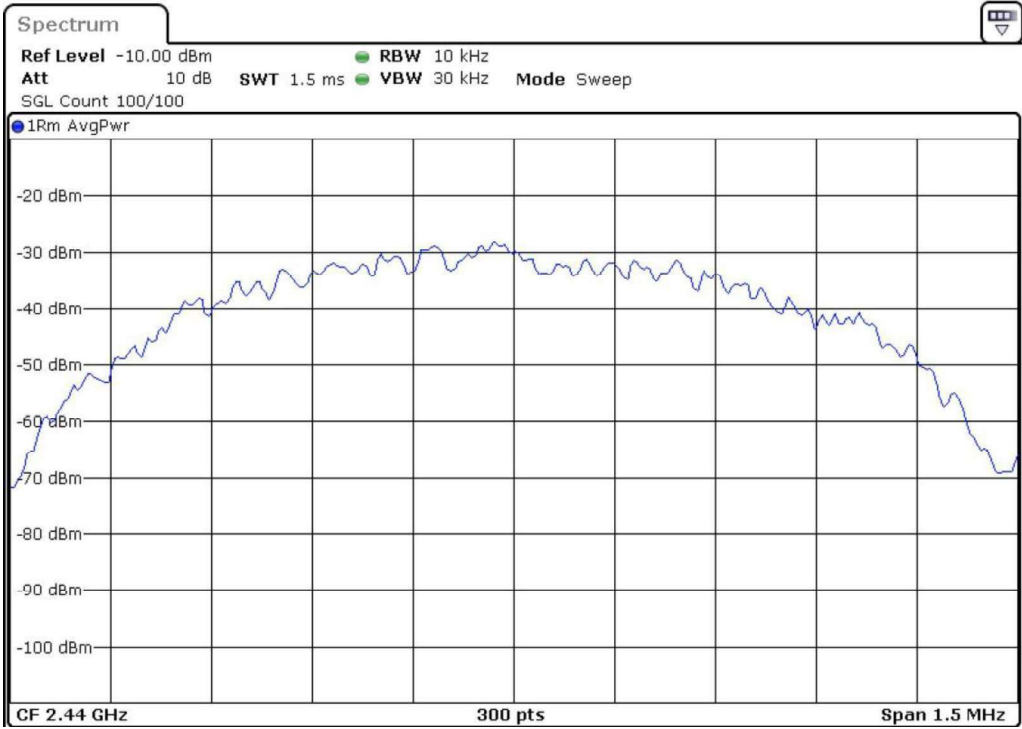
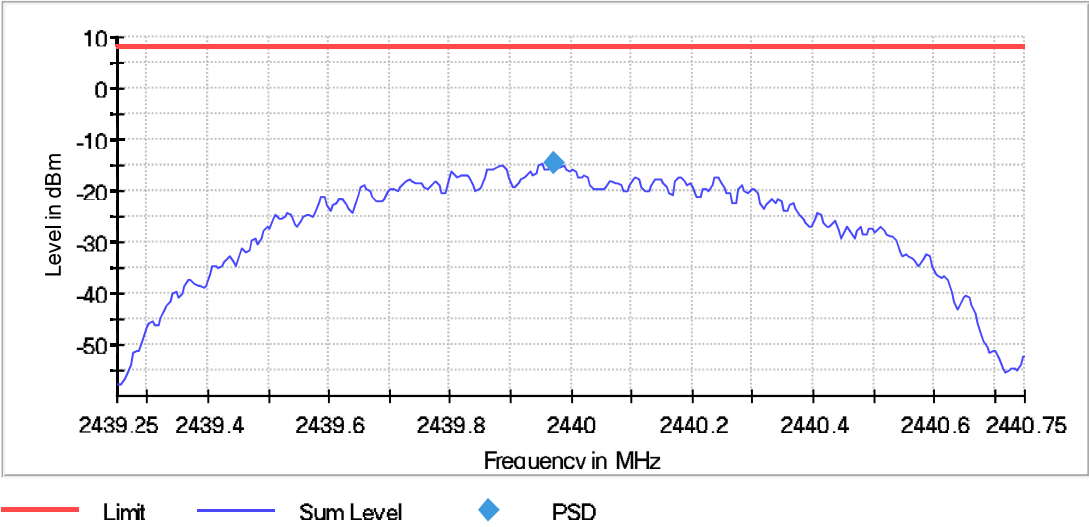
Power Spectral Density (AVG/PSD-1)





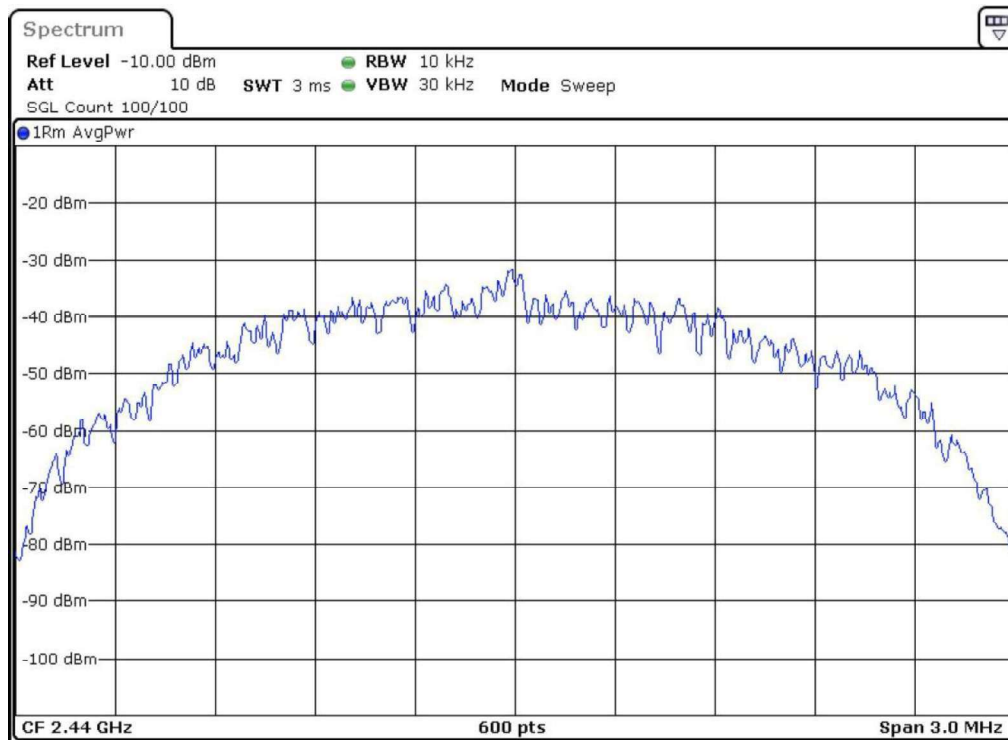
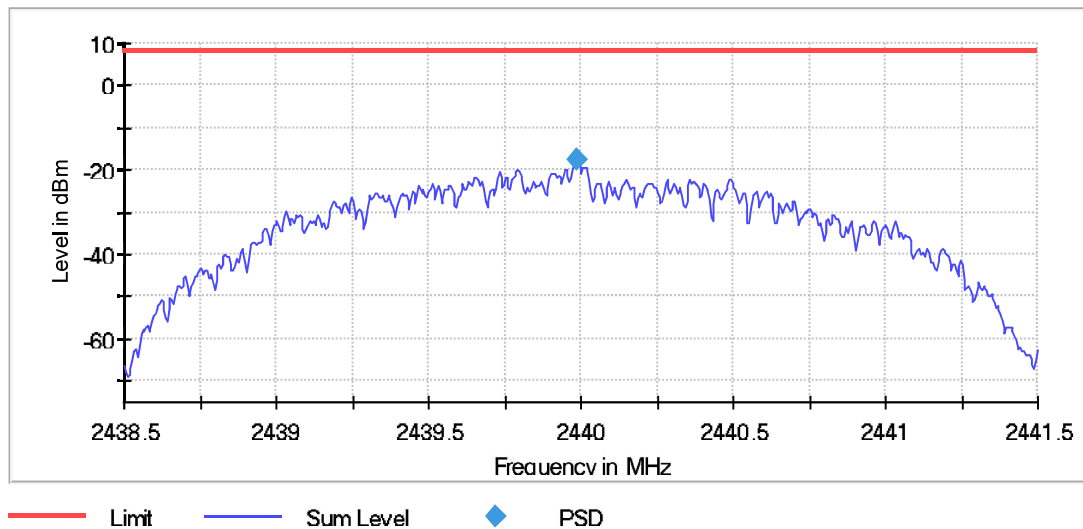
DUT Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2440.000000	1	2439.972500	-14.492	8.0	PASS

Power Spectral Densitiv (AVGPSD-1)



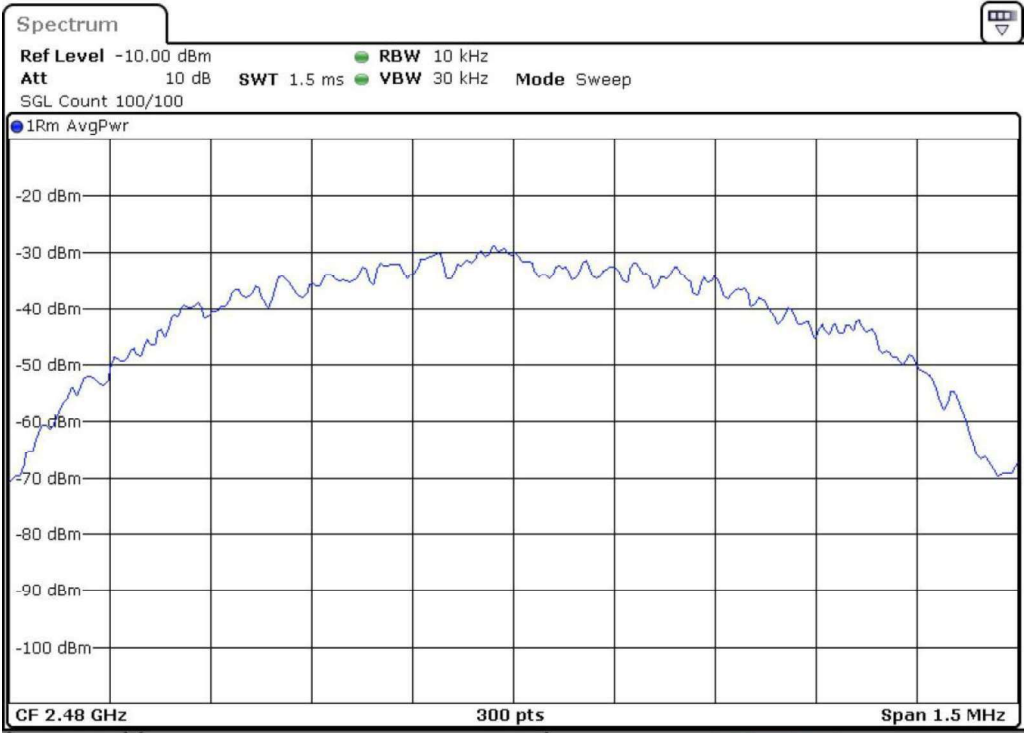
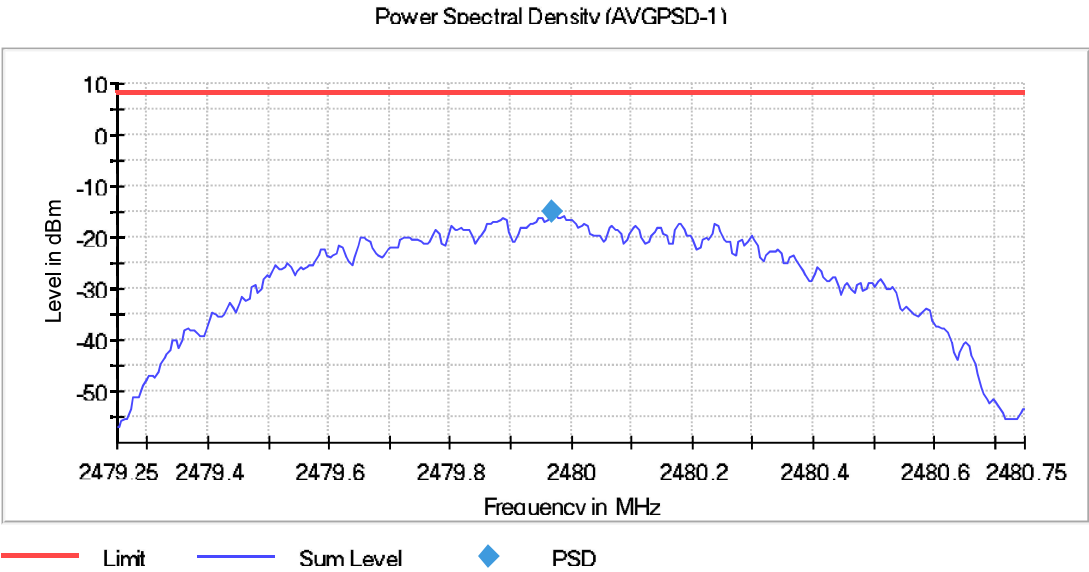
DUT Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2440.000000	2	2439.987500	-17.633	8.0	PASS

Power Spectral Density (AVG/PSD-1)



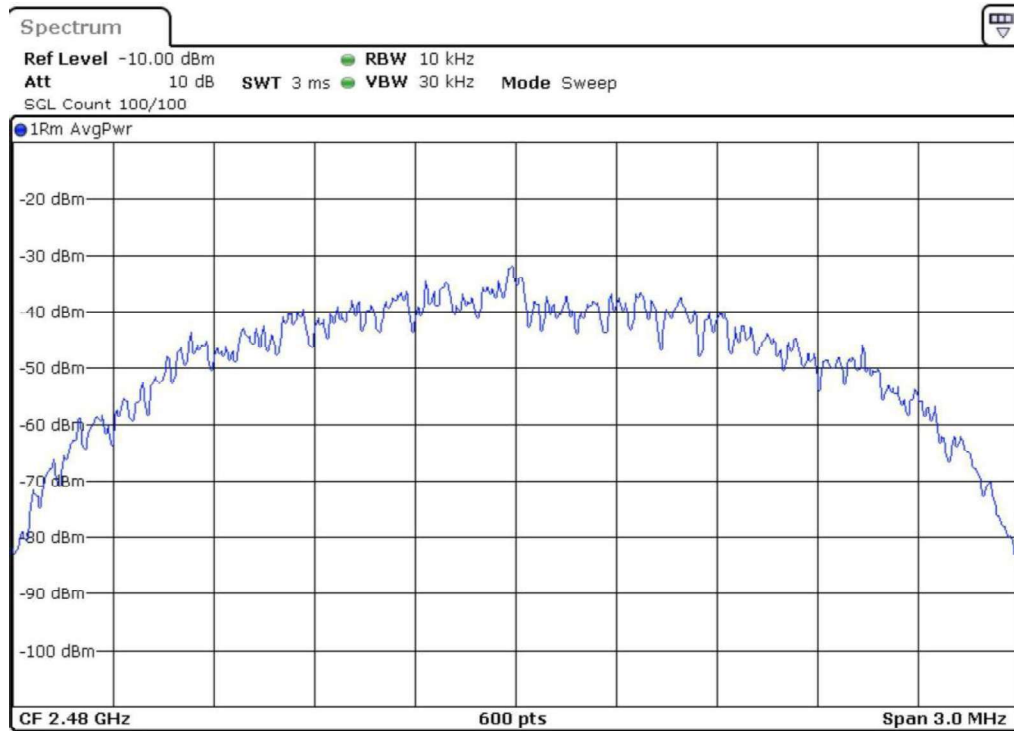
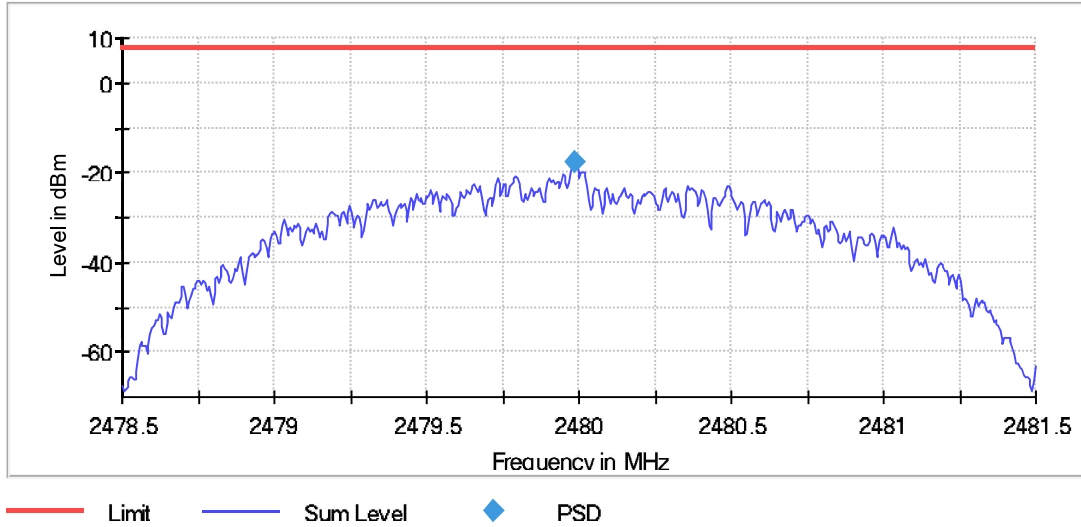


DUT Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	1	2479.967500	-15.099	8.0	PASS



DUT Frequency (MHz)	Bandwidth (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2	2479.987500	-17.902	8.0	PASS

Power Spectral Densitv (AVGPSD-1)





4 Annex I – Additional data

Cross-reference table				
Test	47 CFR requirements	IC requirements	Section within the report	Conclusion
Antenna Requirement	§ 15.203	RSS-Gen Issue 5 §6.8	3.1	PASS
AC Line Conducted Emission	§ 15.207 (a)	RSS-Gen Issue 5 §8.8	3.2	PASS
Spurious emission	§ 15.205, § 15.209, § 15.247 (d)	RSS-Gen Issue 5 §8.9* RSS-Gen Issue 5 §8.10* RSS-247 Issue 2 §5.5*	3.3	PASS
6 dB Emission Bandwidth	§ 15.247 (a) (2)	RSS-247 Issue 2 §5.2(a)	3.4	PASS
Maximum peak output power	§ 15.247 (b) (3)	RSS-247 Issue 2 §5.4(d)	3.5	PASS
100 kHz Bandwidth of Frequency Band Edge	§ 15.247 (d)	RSS-247 Issue 2 §5.5	3.6	PASS
Power Spectral Density	§ 15.247 (e)	RSS-247 Issue 2 §5.2(b)	3.7	PASS
*Note: Radiated measurements performed in laboratory recognized by ISED Canada: – CAB identifier: SI0001 – ISED#: 21434				

4.1 Occupied bandwidth (99% emission bandwidth)

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained.

4.1.1 Test procedure

According to ANSI C63.10-2013:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2.
- d) Steps a) through c) might require iteration to adjust within the specified tolerances.
- e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.
- f) Set detection mode to peak and trace mode to max hold.
- g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyser marker to the highest level of the displayed trace (this is the reference value).
- h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - xx]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument.
- i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyser and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).
- j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.
- k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.1.2 Test setup

For the test setup refer to chapter 1.4.



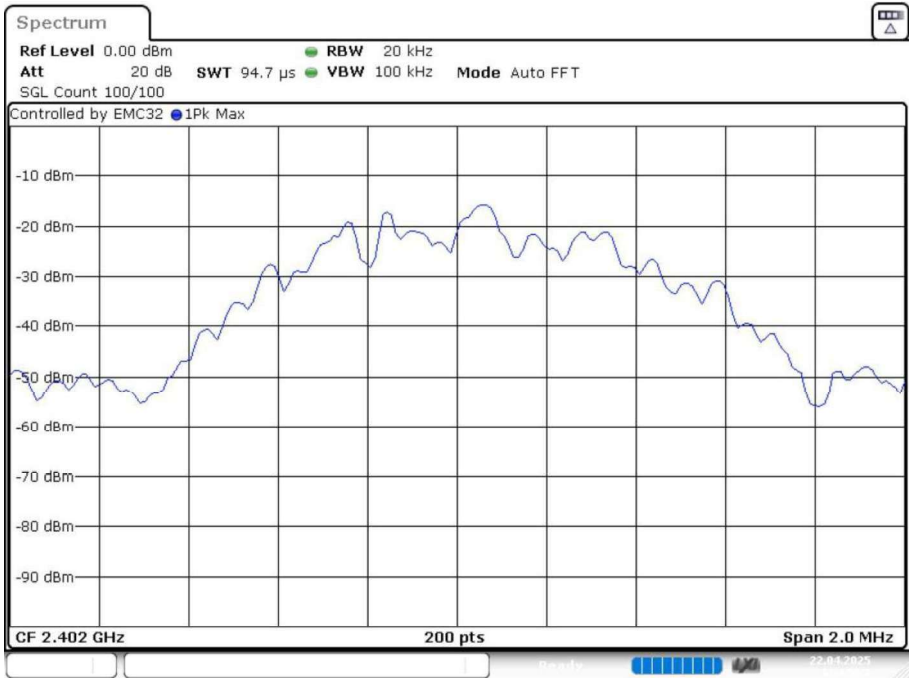
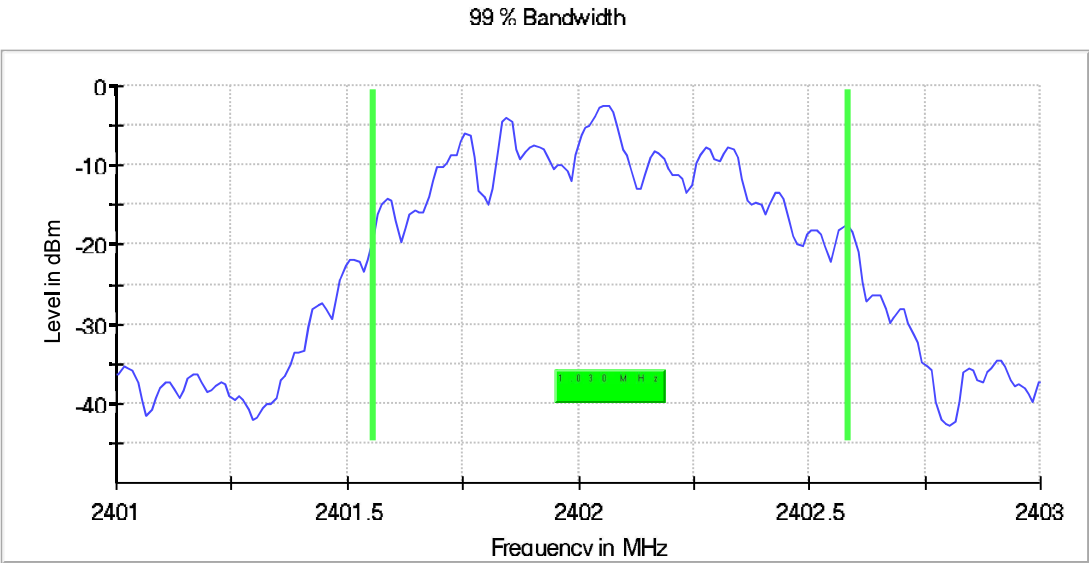
4.1.3 Test equipment

For the test setup refer to chapter 1.3.

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.030000	---	---	2401.555000	2402.585000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

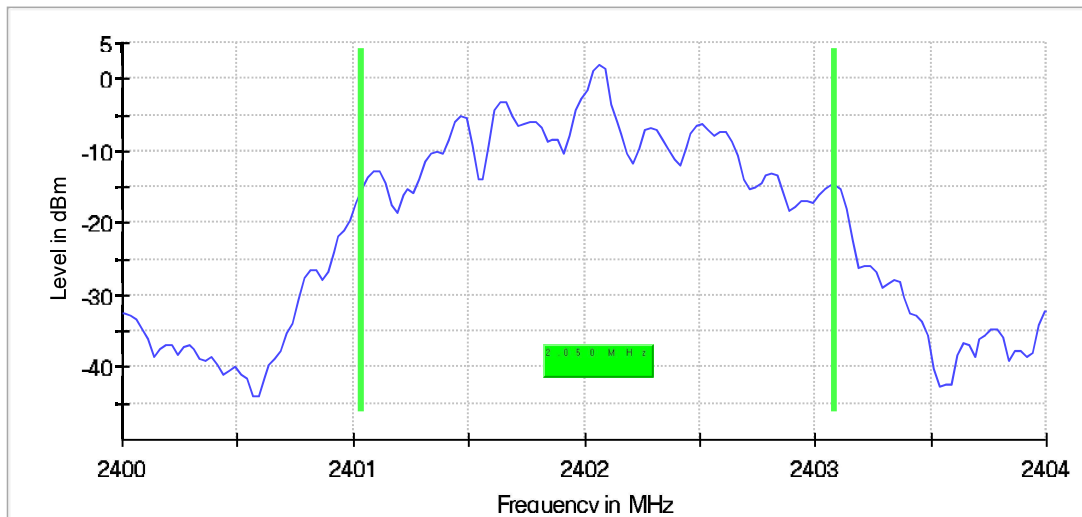


DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	2.050000	---	---	2401.037500	2403.087500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

99 % Bandwidth



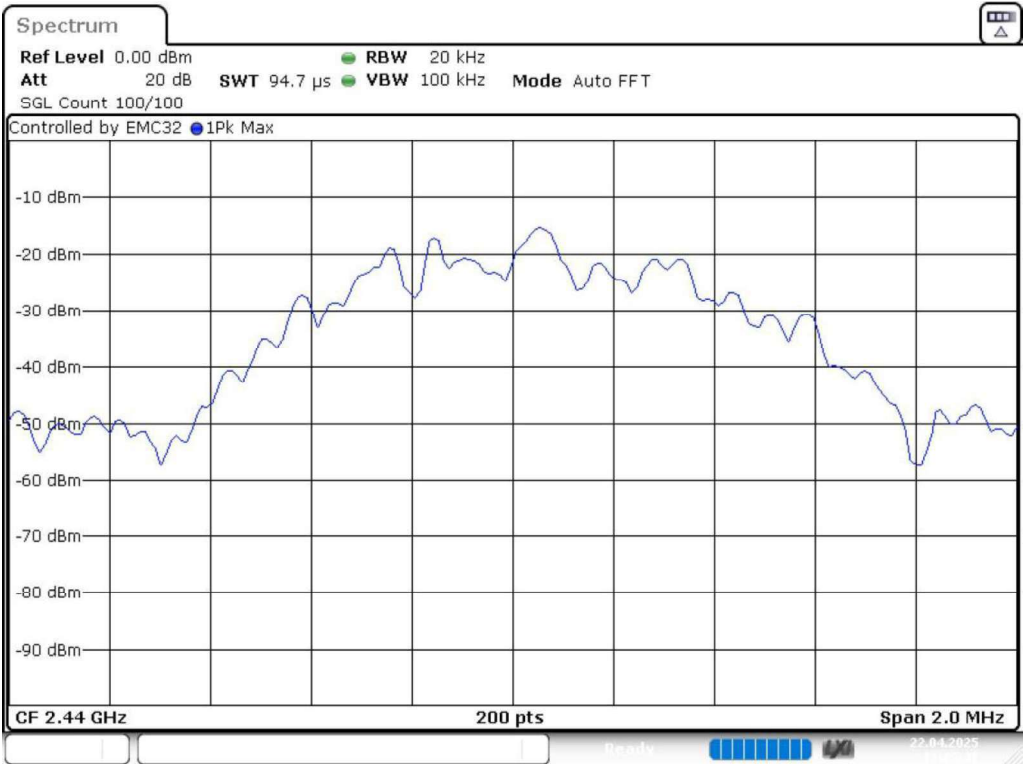
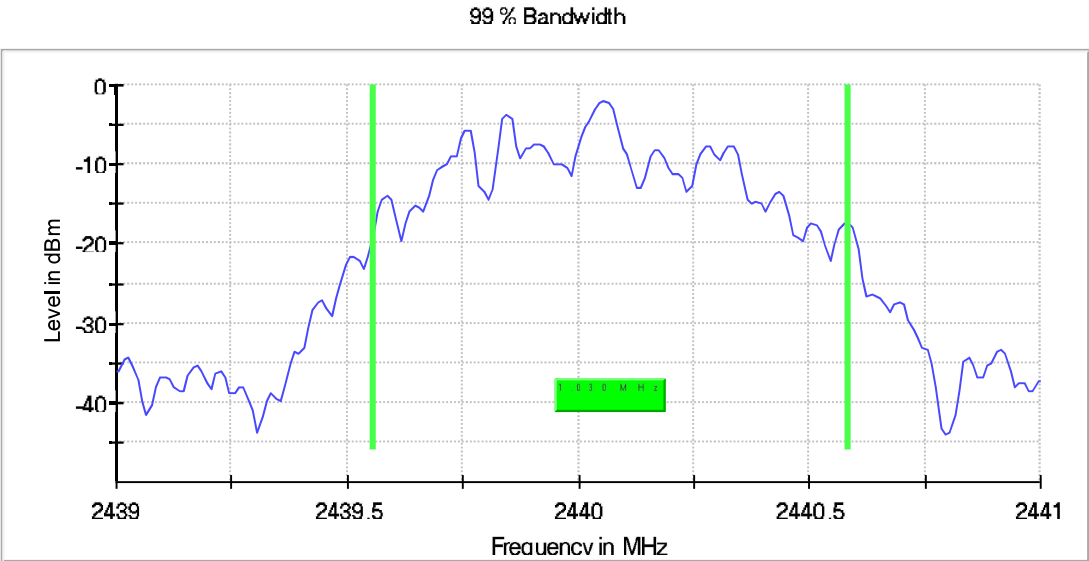
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DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	1.030000	---	---	2439.555000	2440.585000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2440.000000	PASS

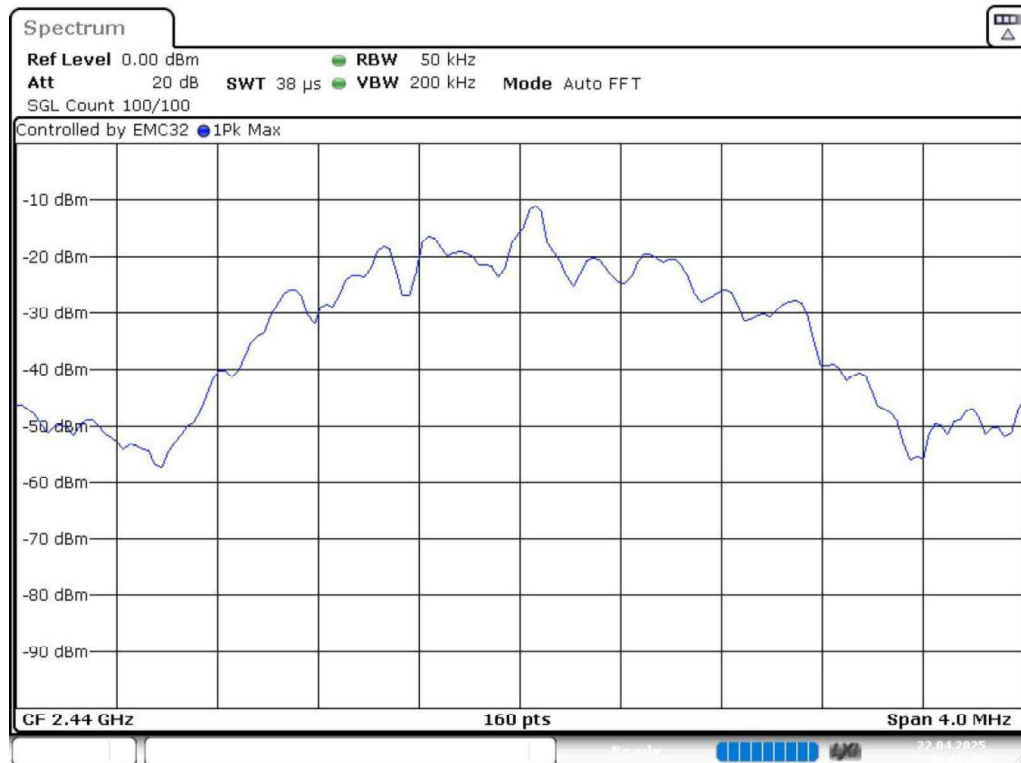
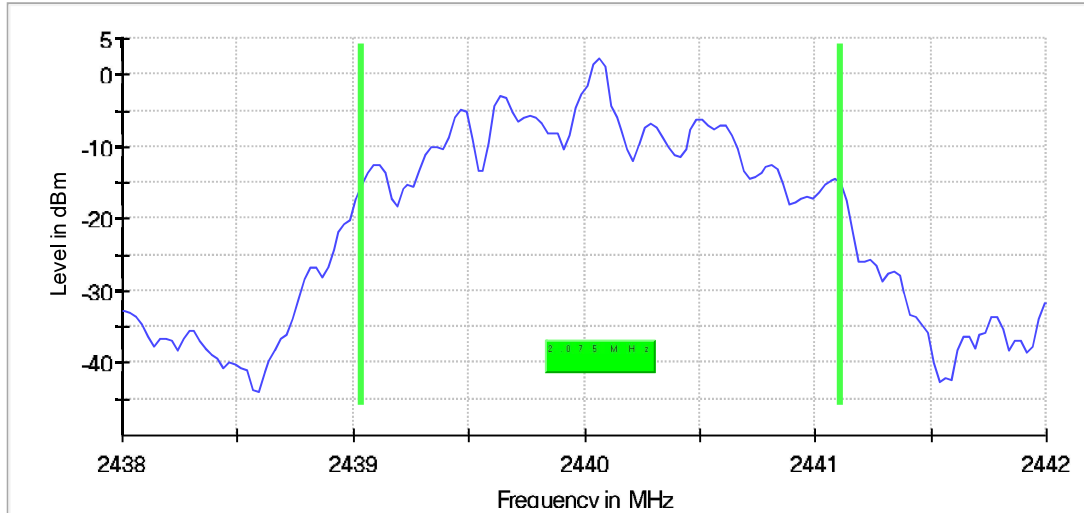


DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	2.075000	---	---	2439.037500	2441.112500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2440.000000	PASS

99 % Bandwidth



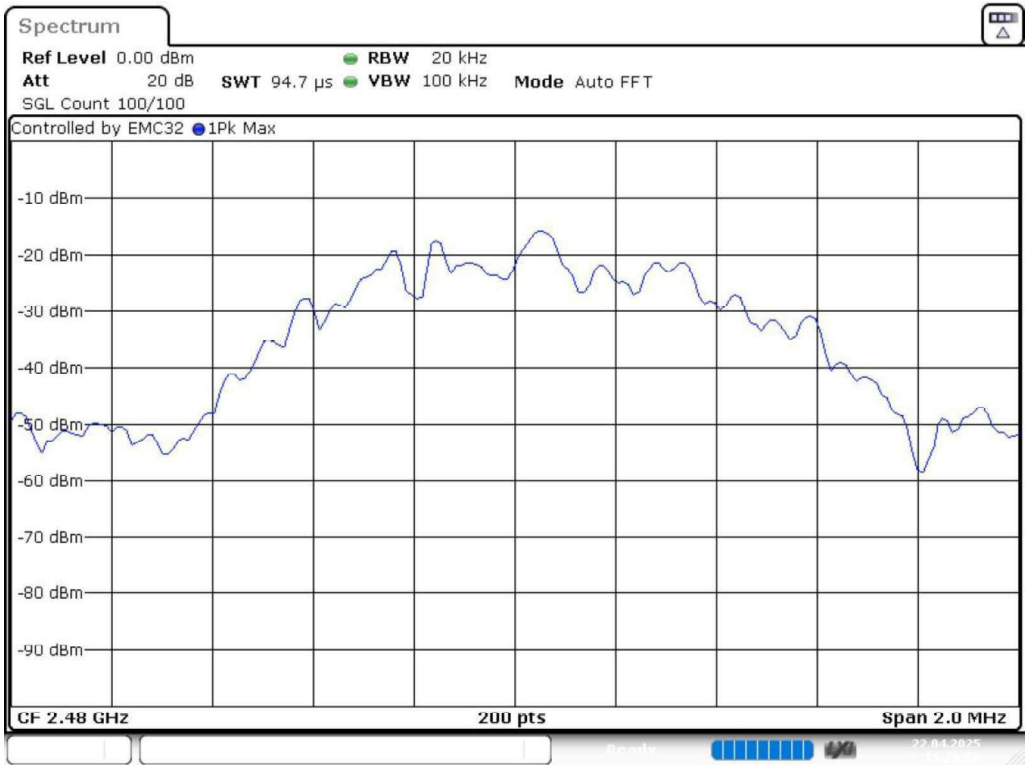
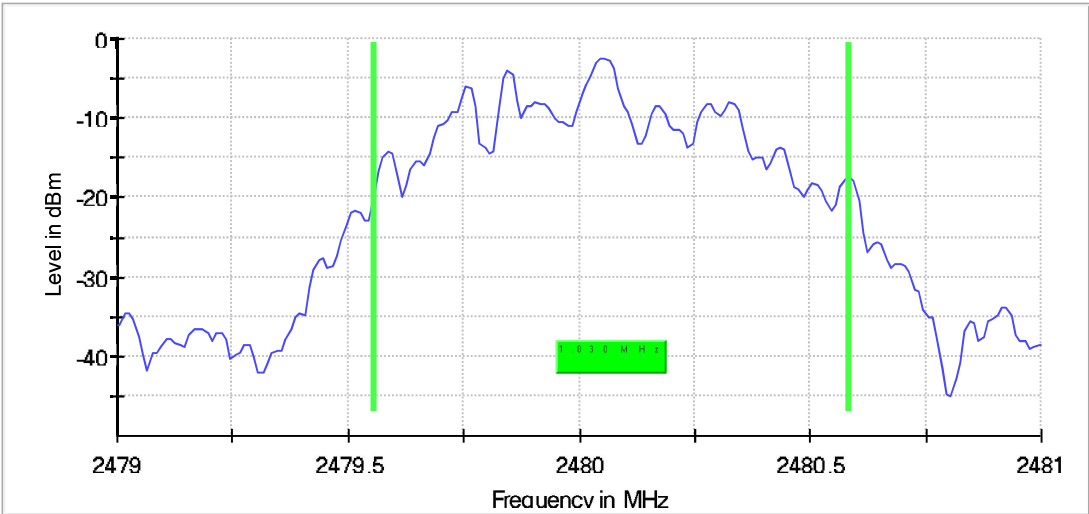


DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.030000	---	---	2479.555000	2480.585000

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth

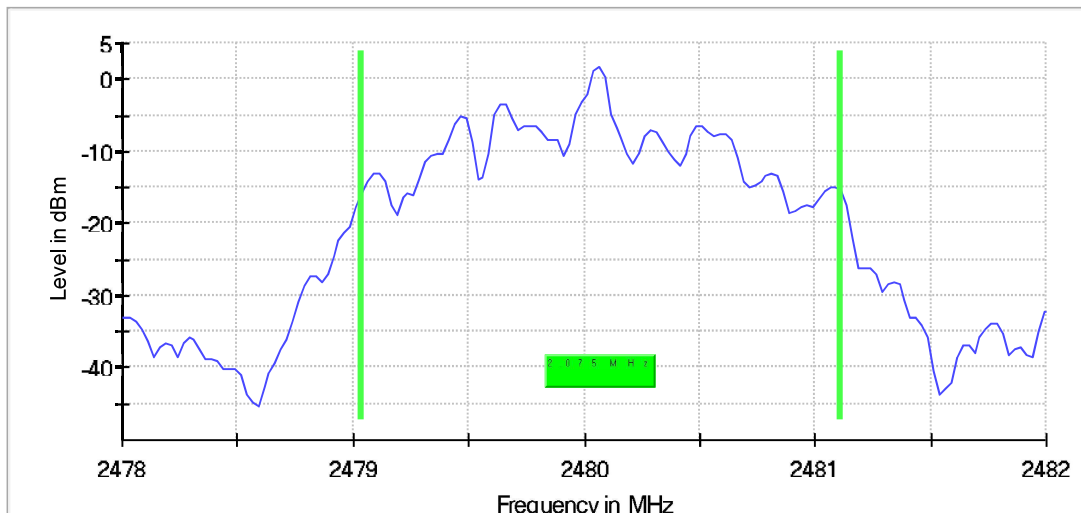


DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	2.075000	---	---	2479.037500	2481.112500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth



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-----END OF TEST REPORT-----