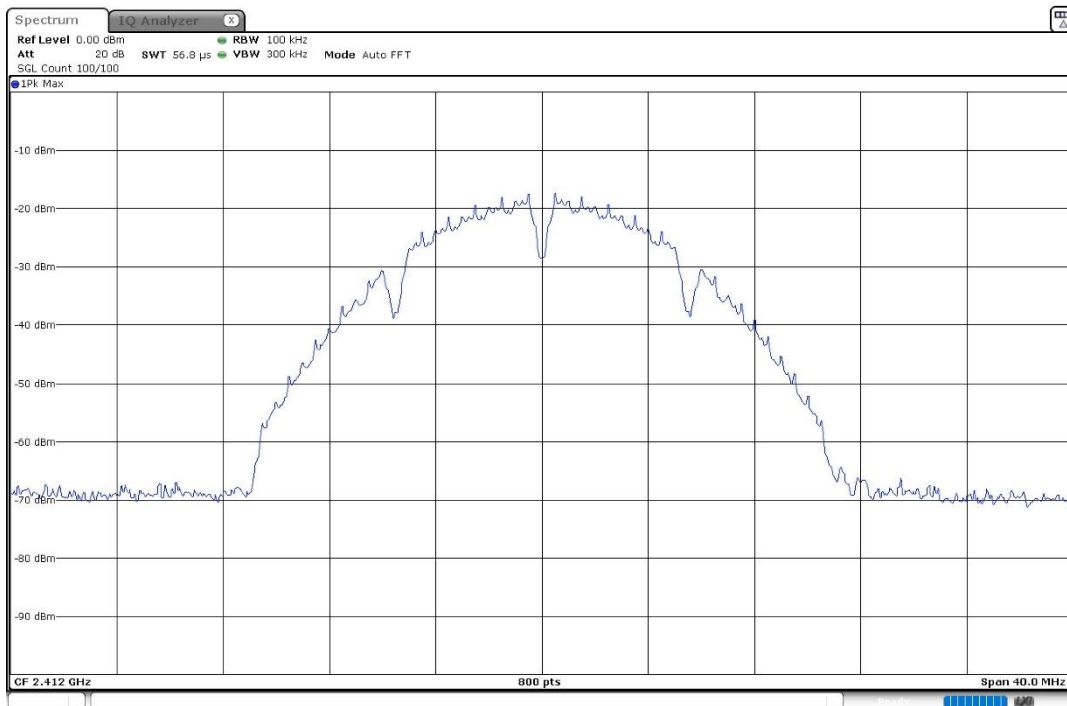
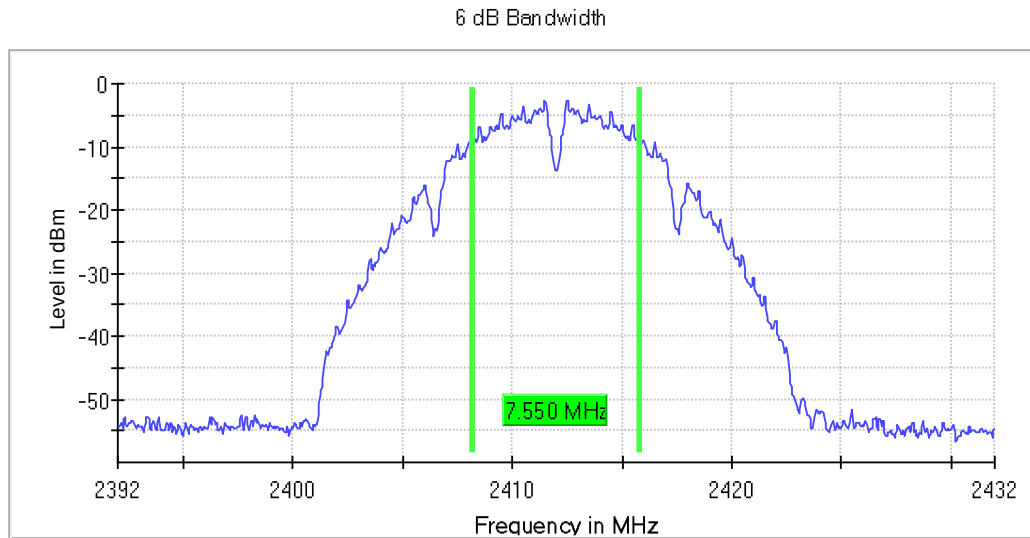


Attachments

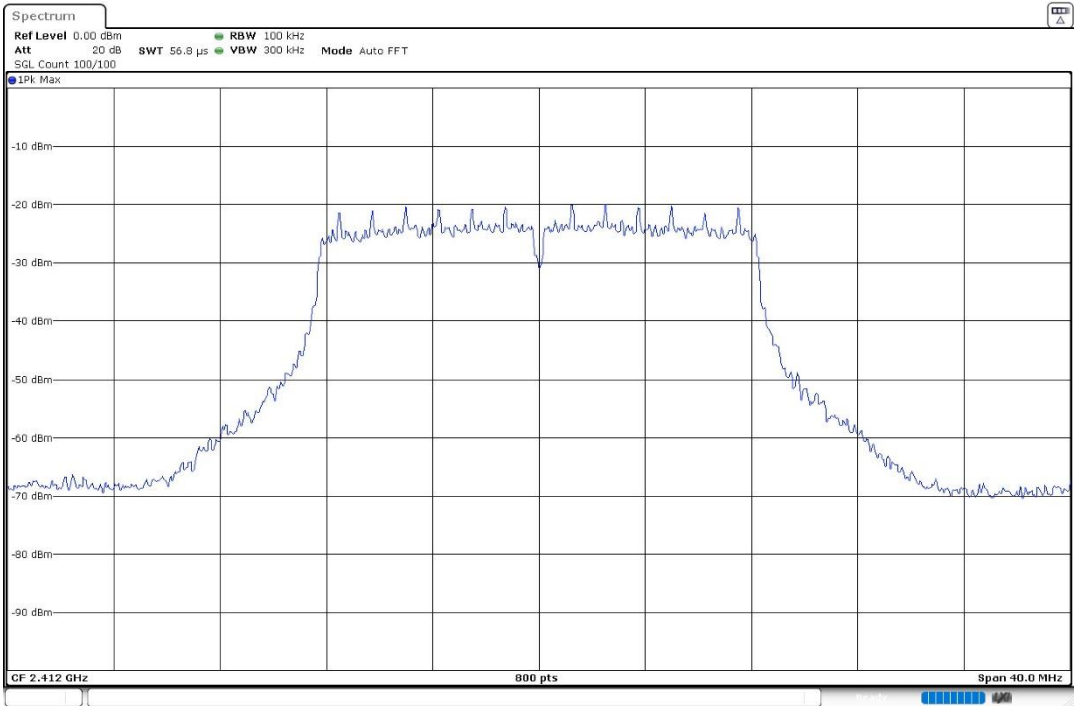
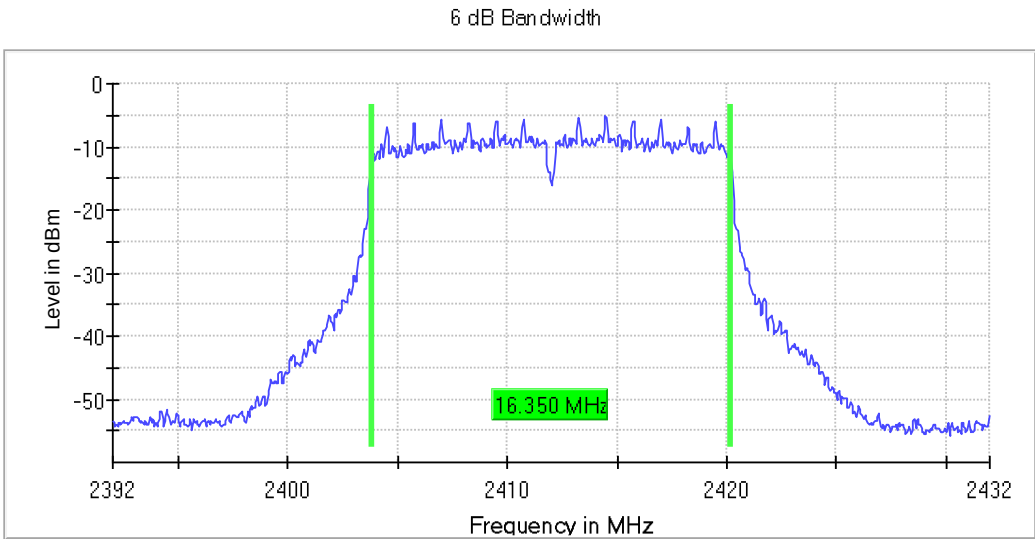
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:



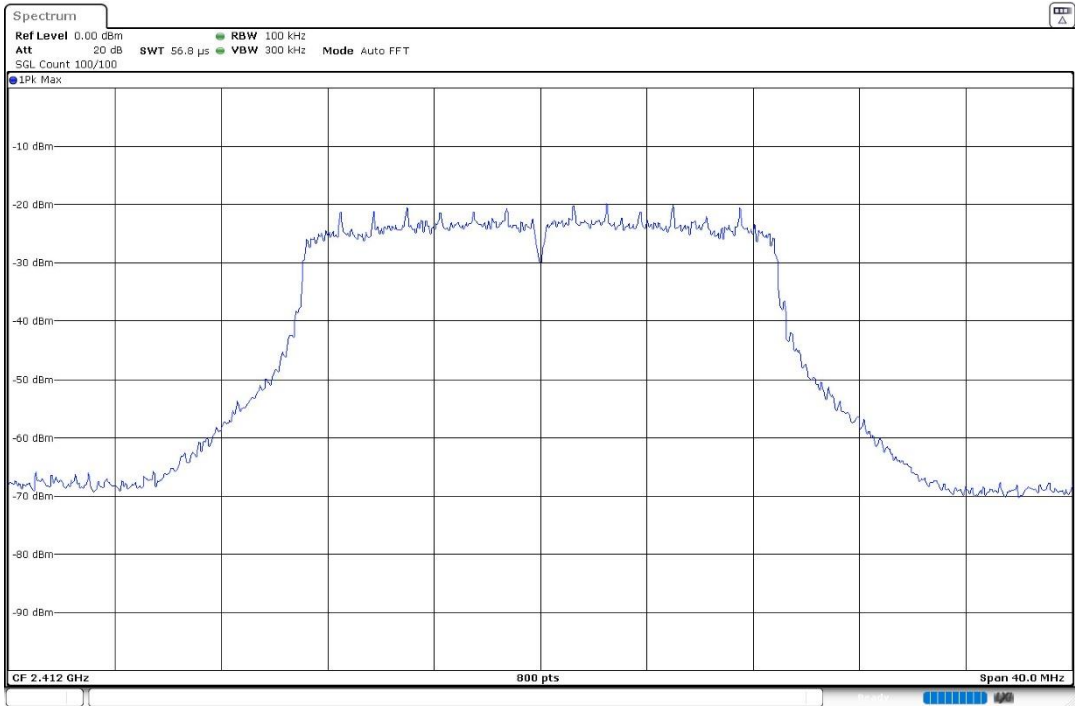
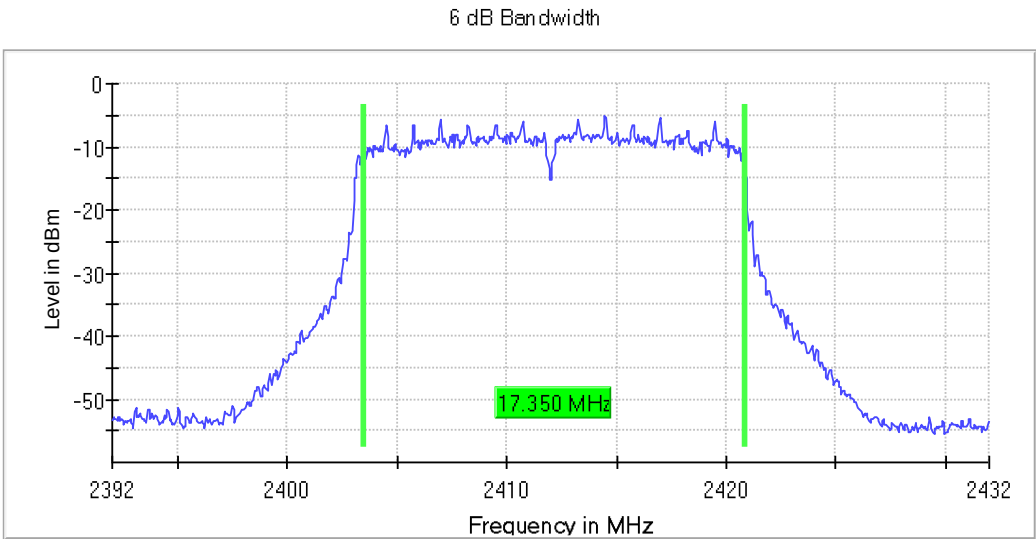
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Plots:



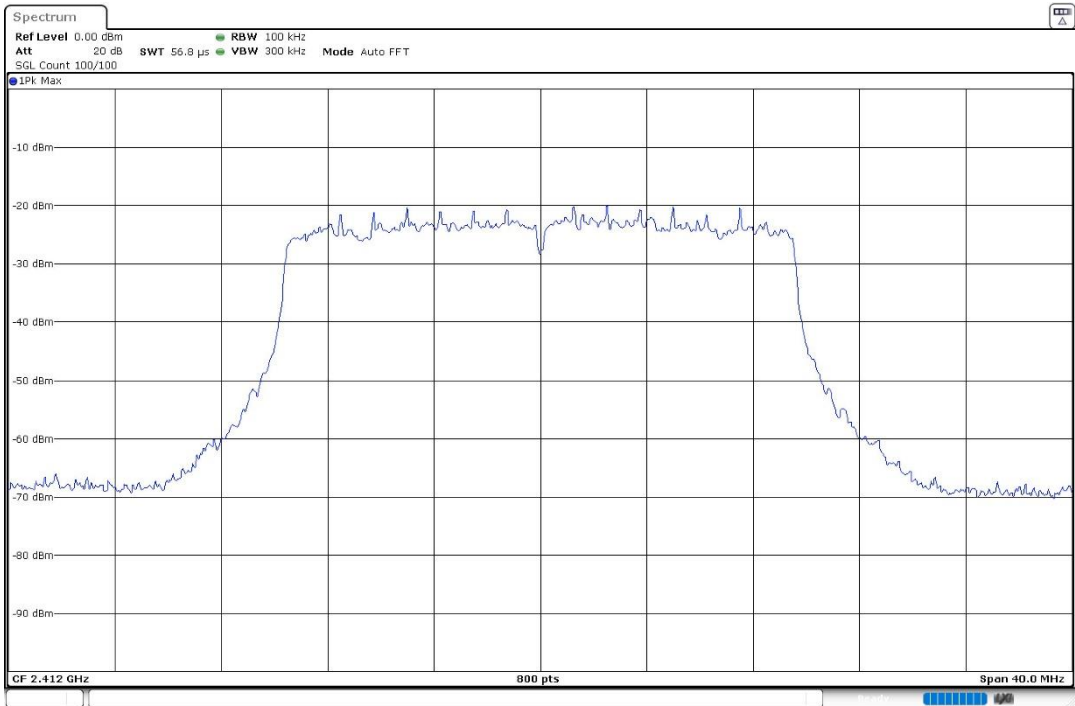
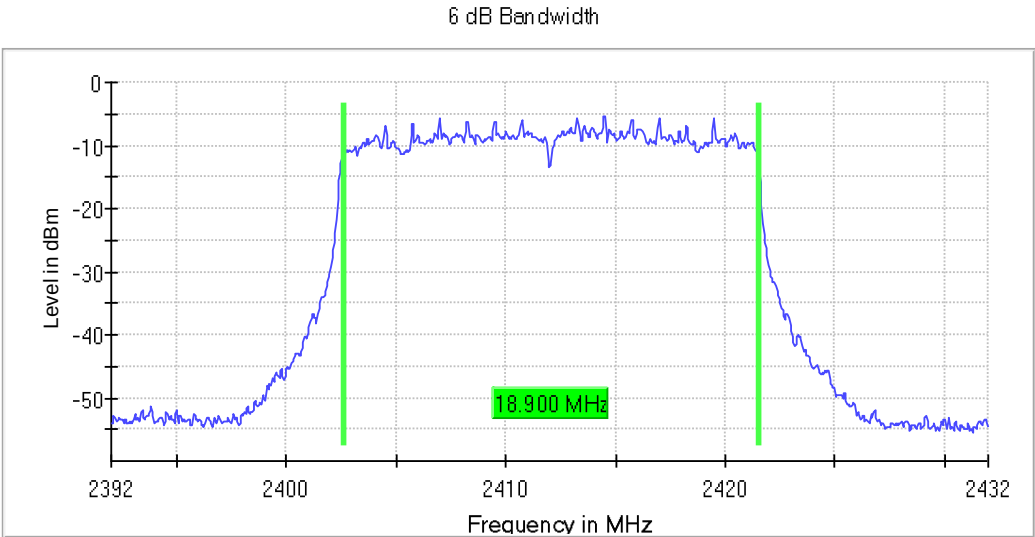
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Plots:



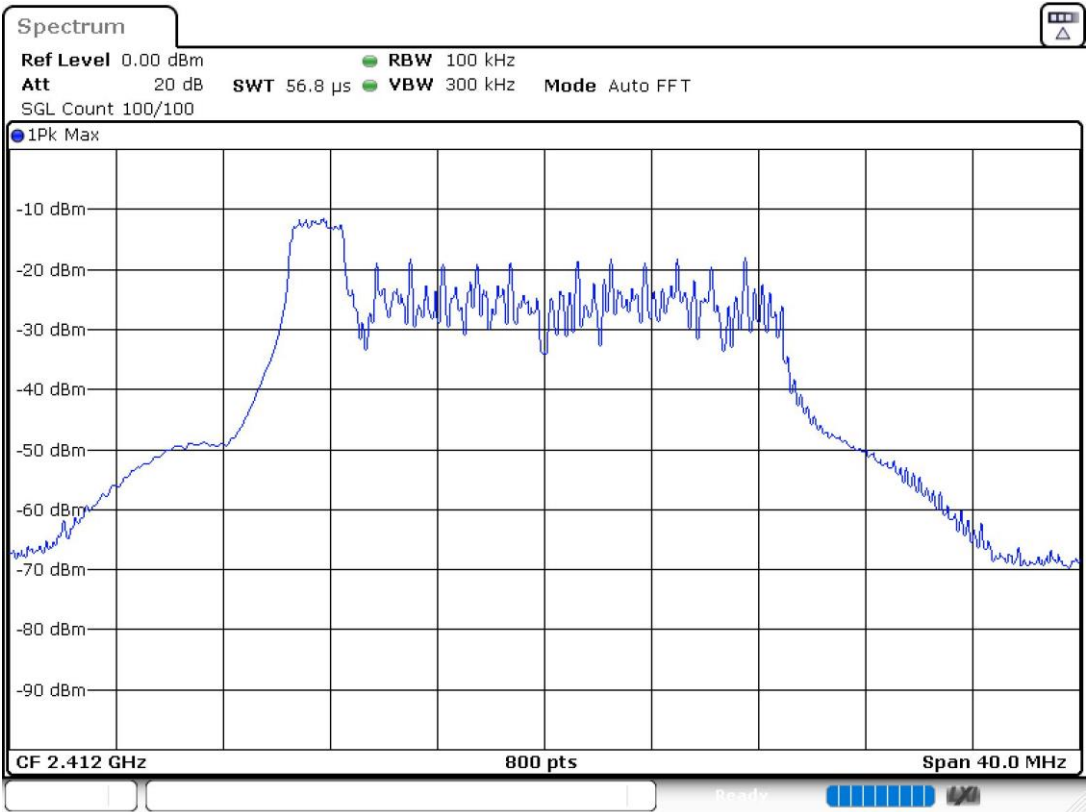
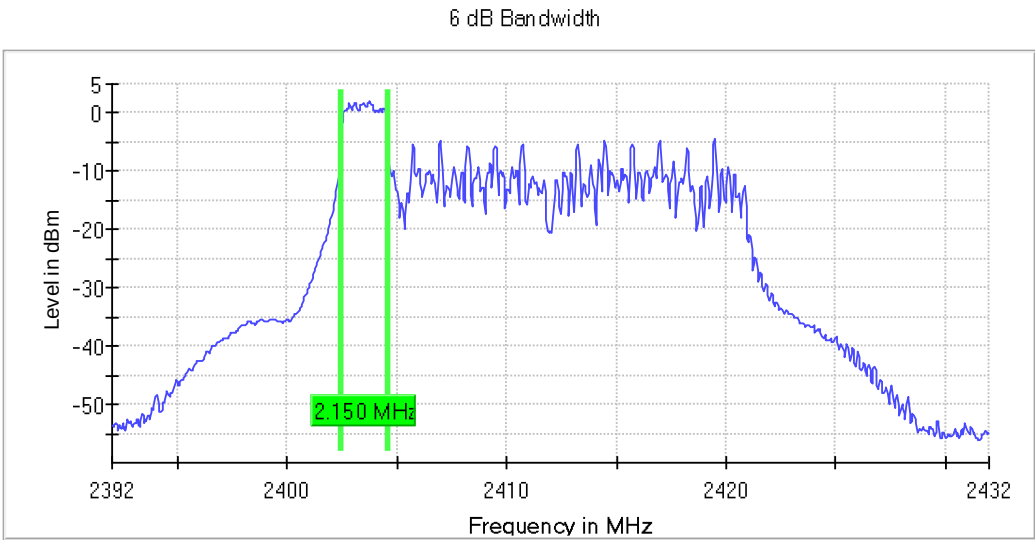
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 SU Full-channel allocation (OFDM MCS0 index), Number of Transmission Chains = 1

Plots:



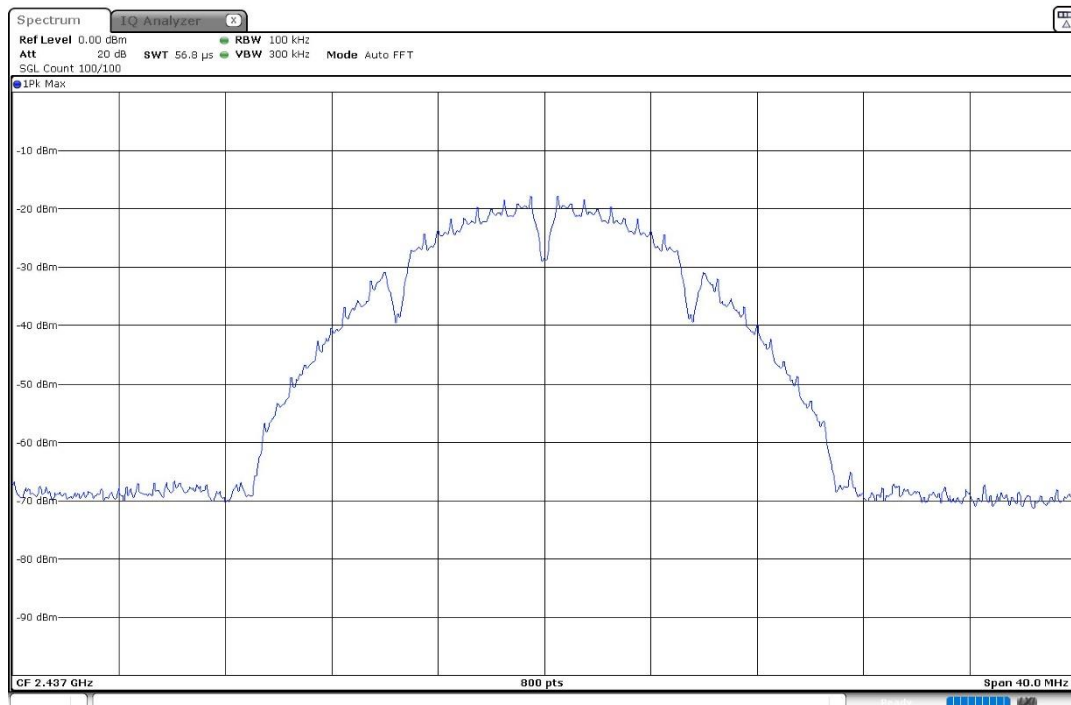
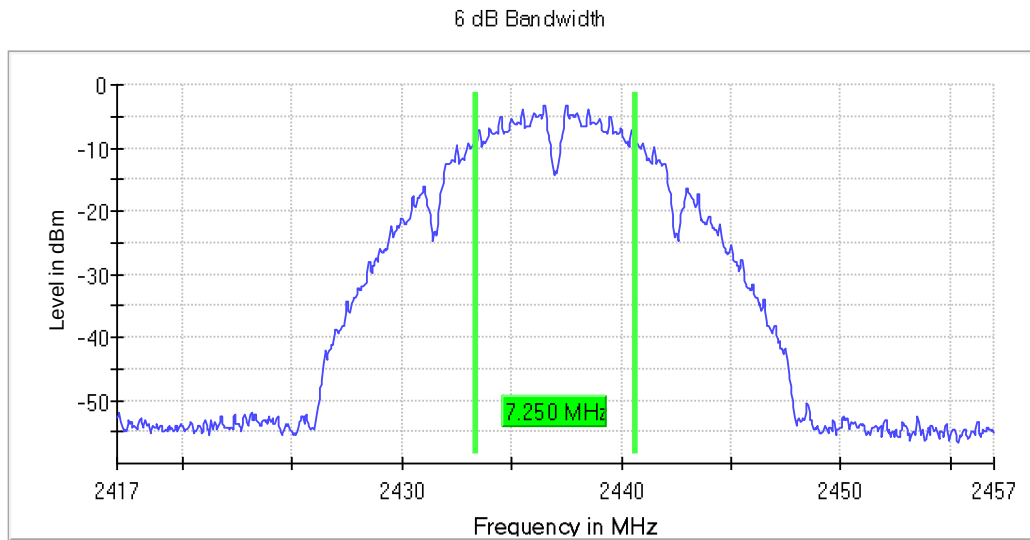
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 RU Subcarrier allocation (OFDMA MCS0 index), Number of Transmission Chains = 1

Plots:



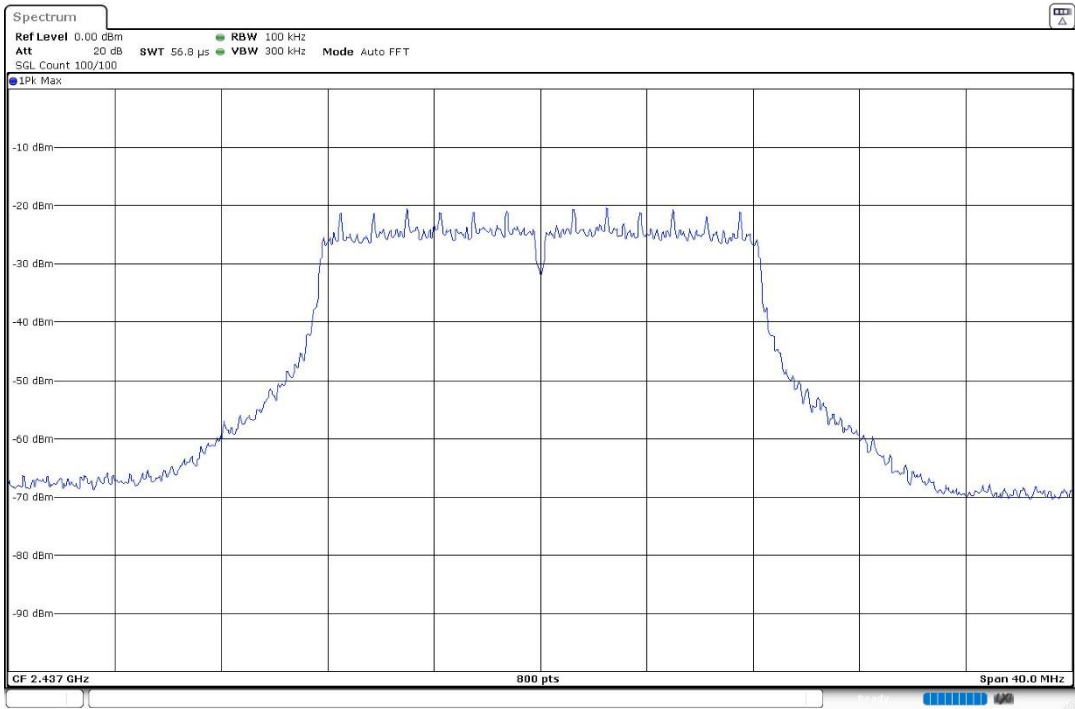
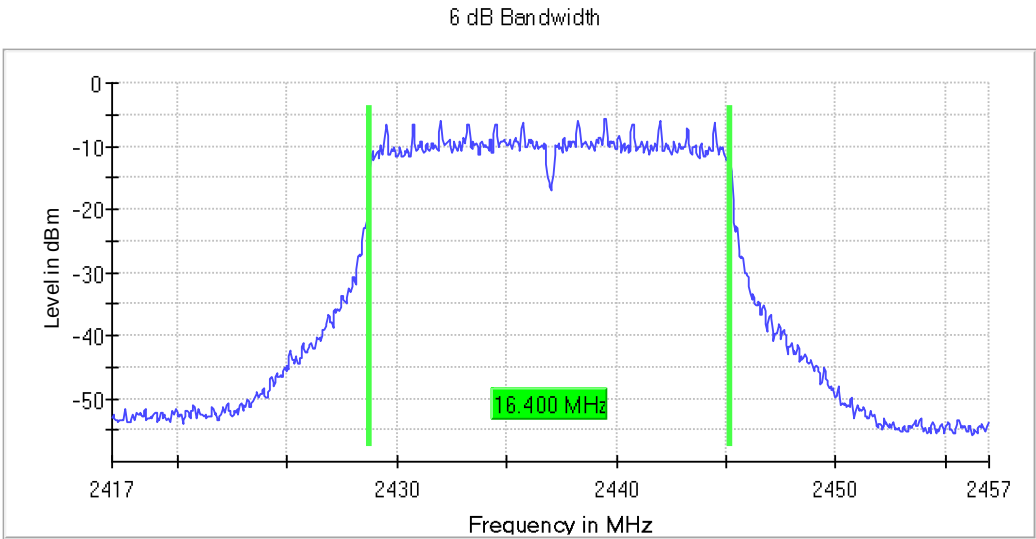
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2437.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:



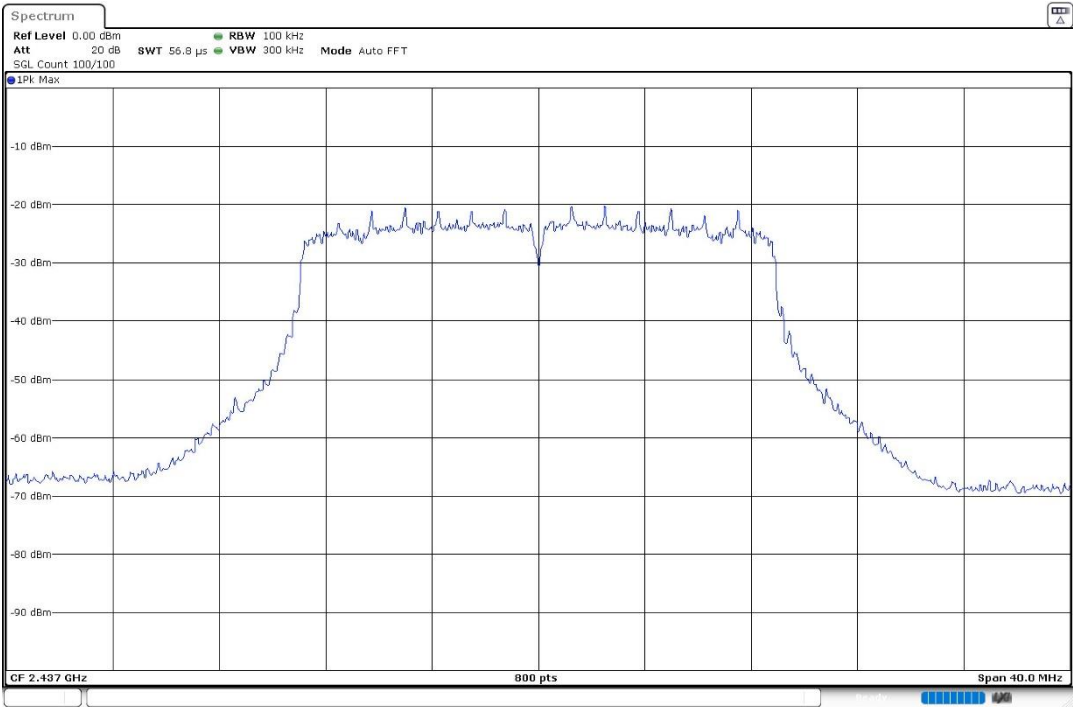
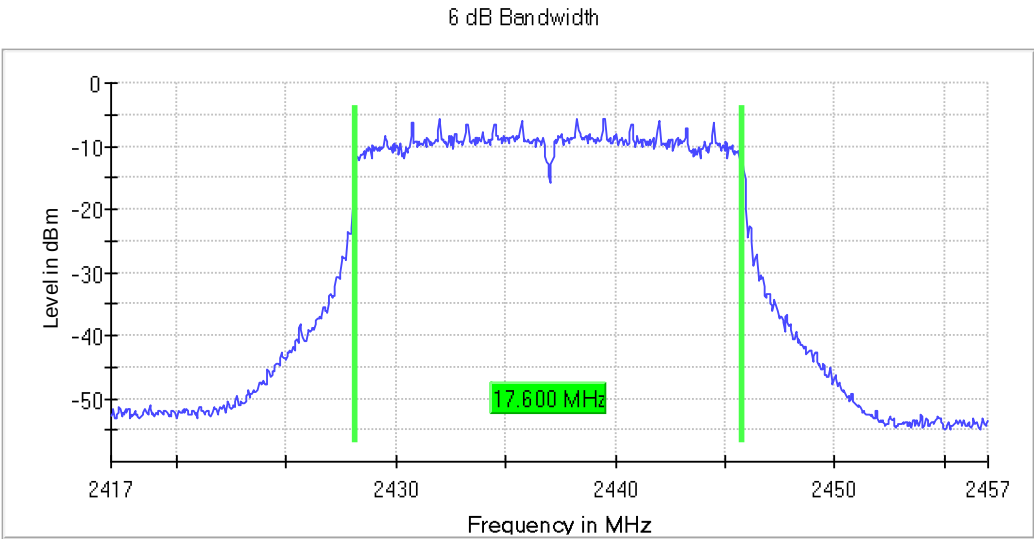
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2437.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Plots:



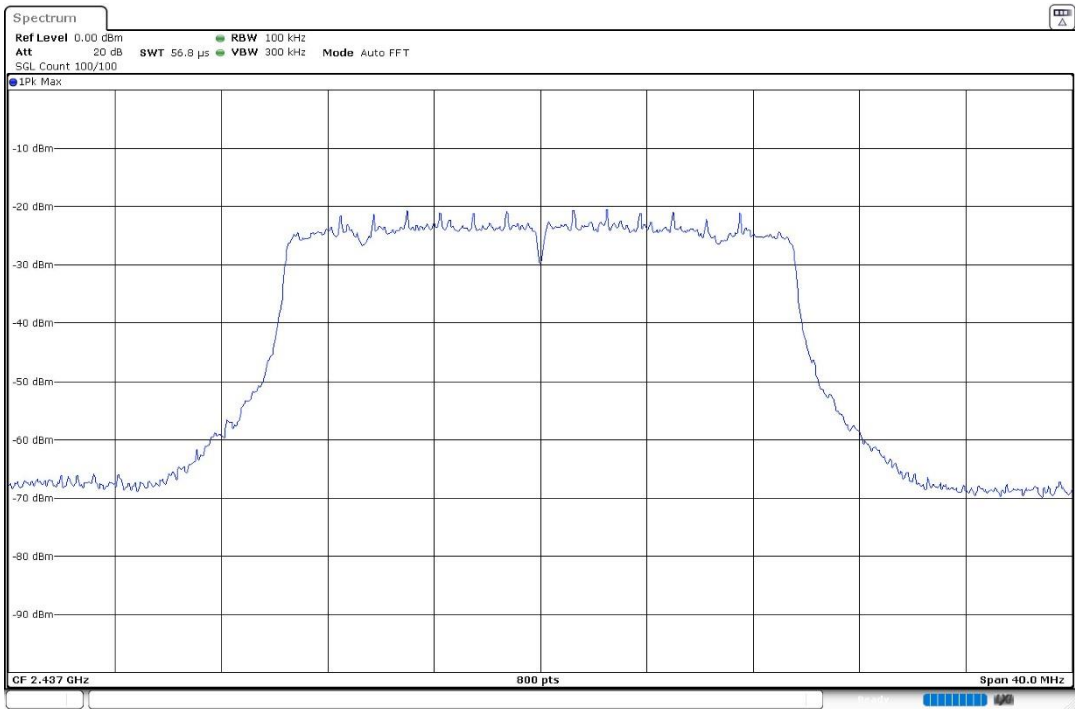
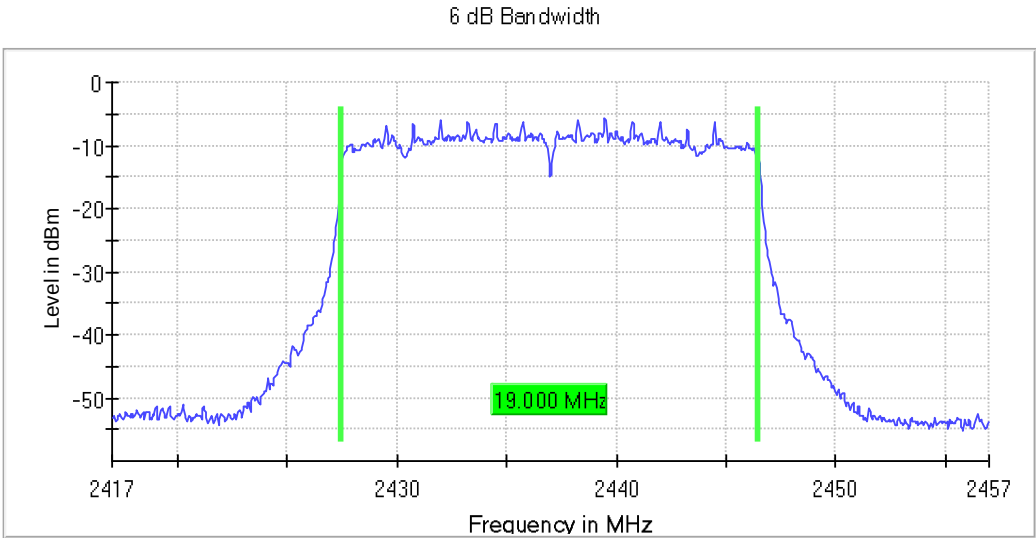
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2437.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Plots:



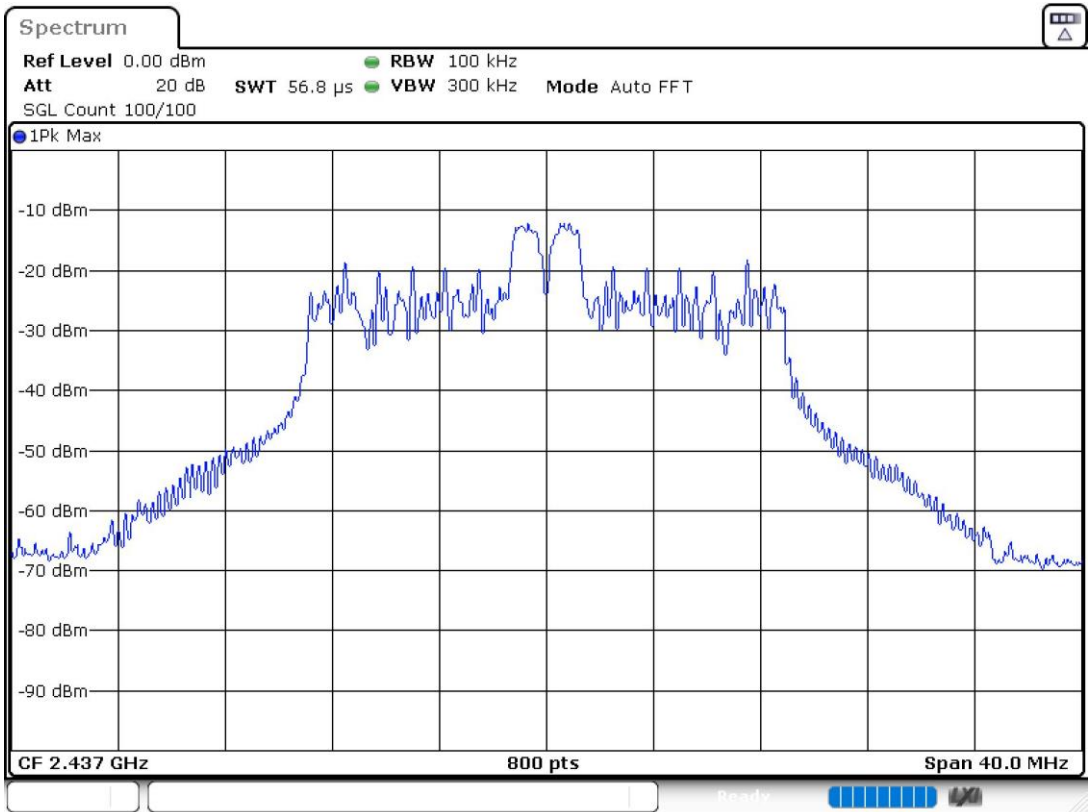
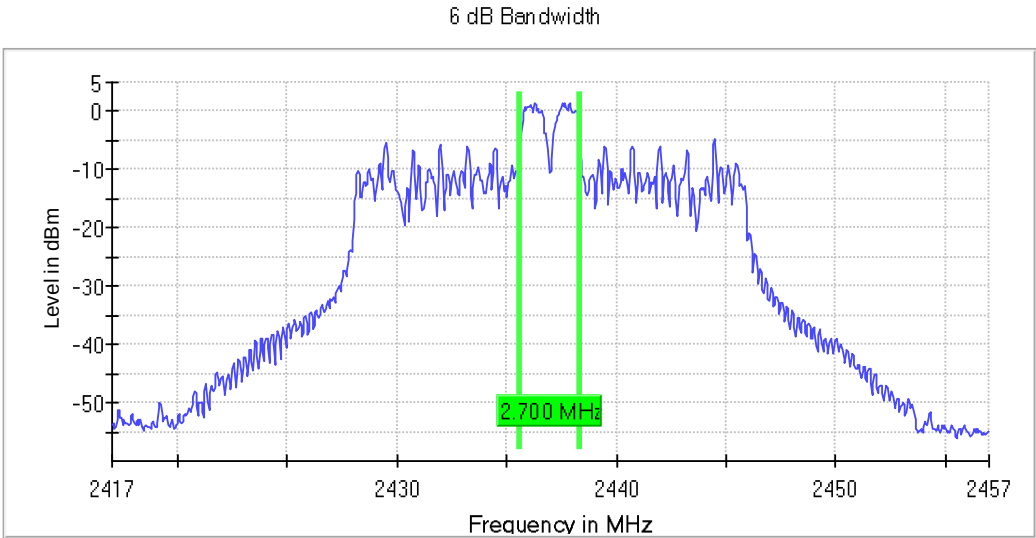
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2437.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 SU Full-channel allocation (OFDM MCS0 index), Number of Transmission Chains = 1

Plots:



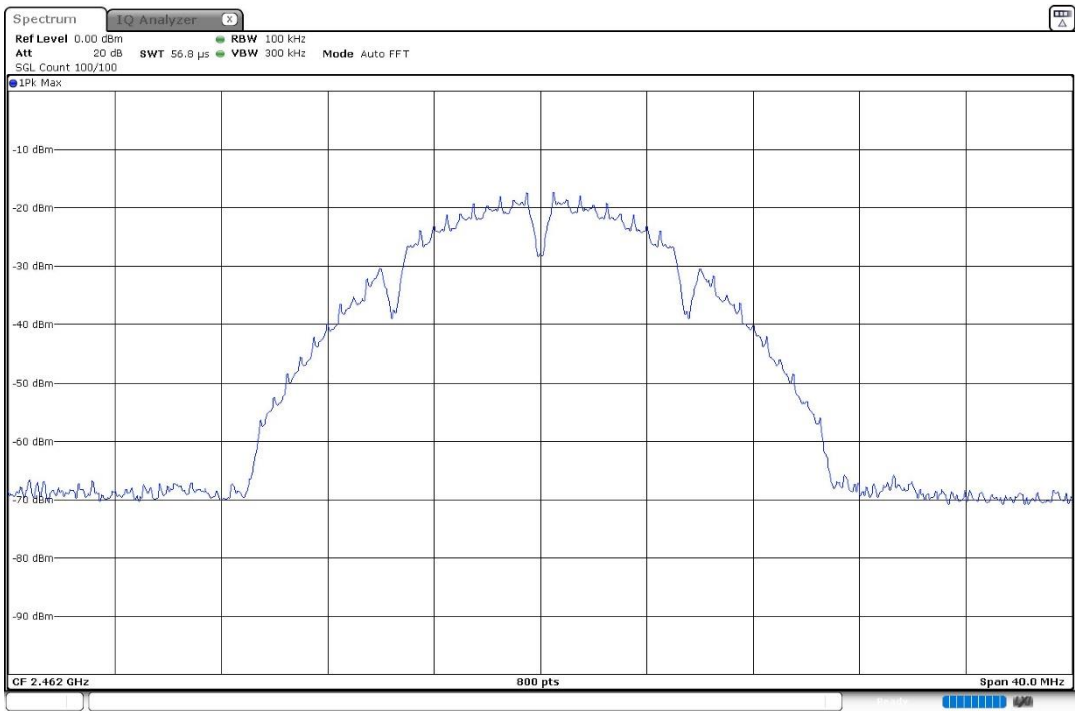
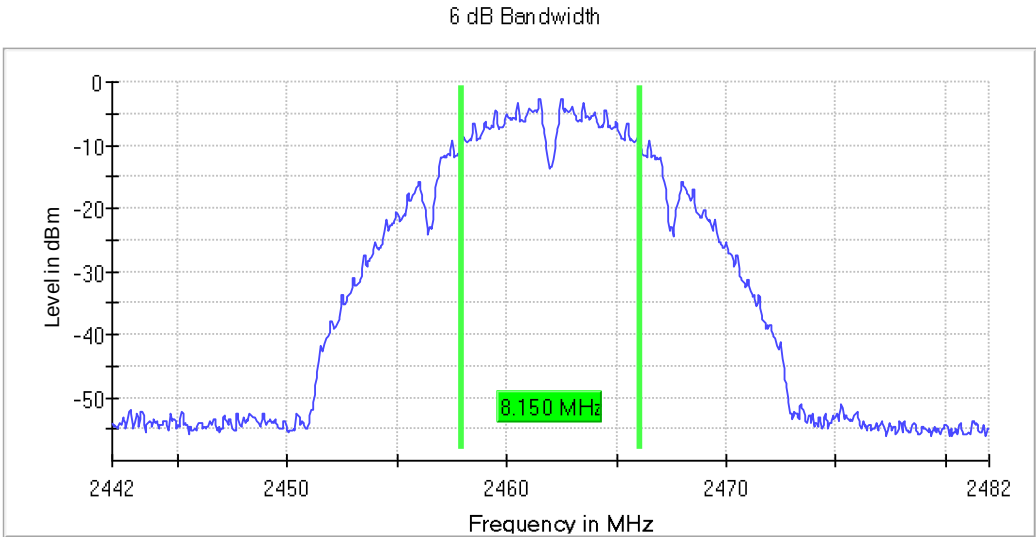
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2437.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 RU Subcarrier allocation (OFDMA MCS0 index), Number of Transmission Chains = 1

Plots:



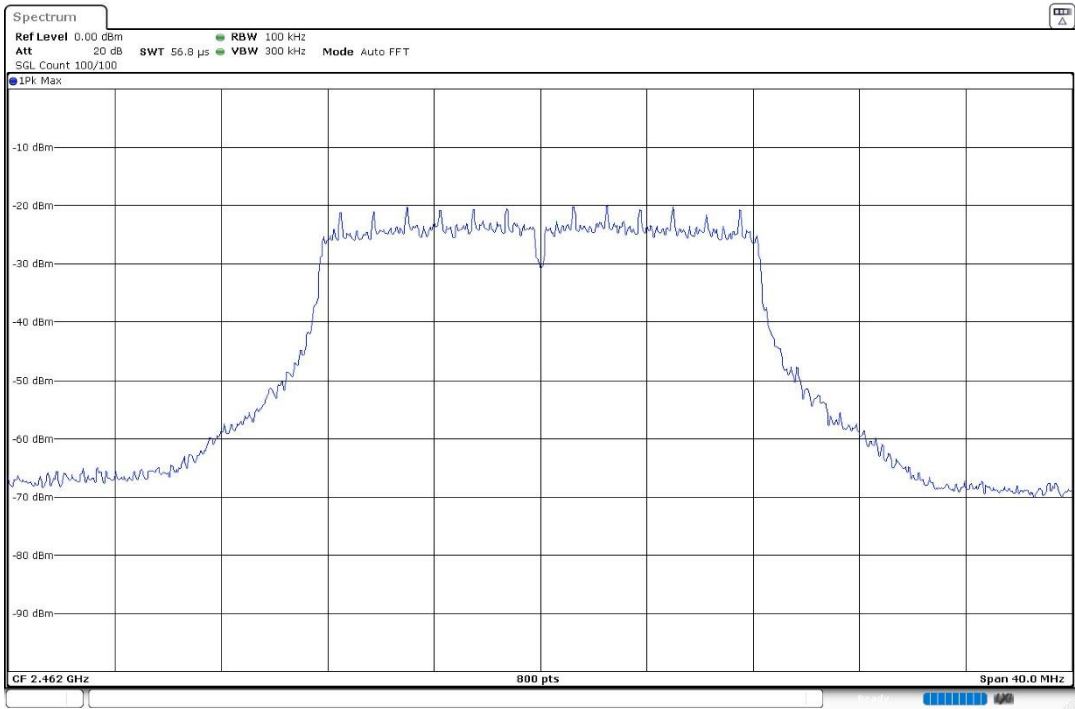
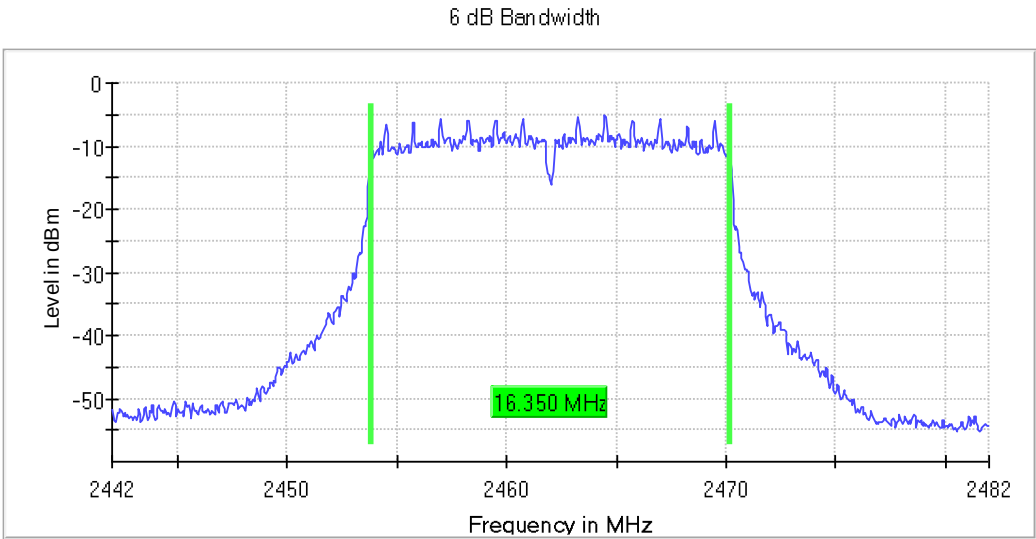
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:



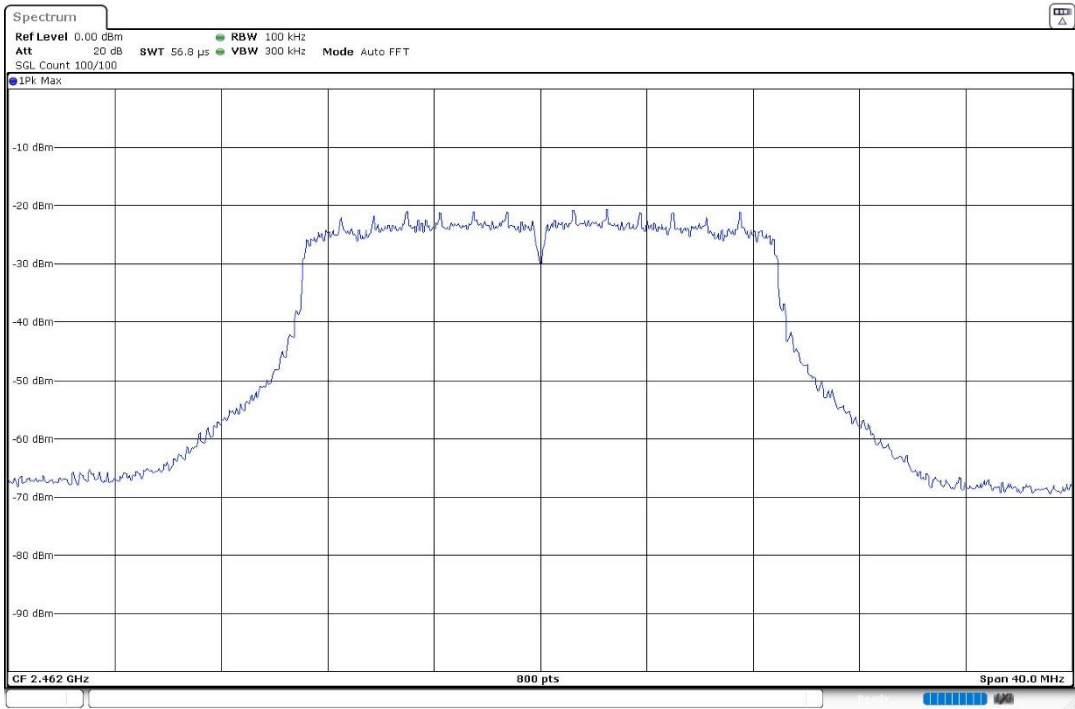
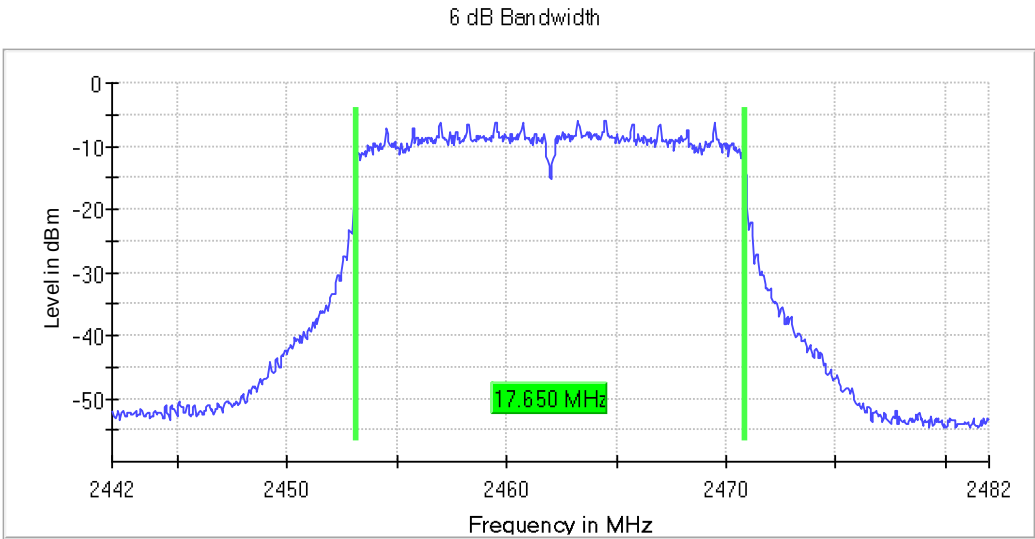
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Plots:



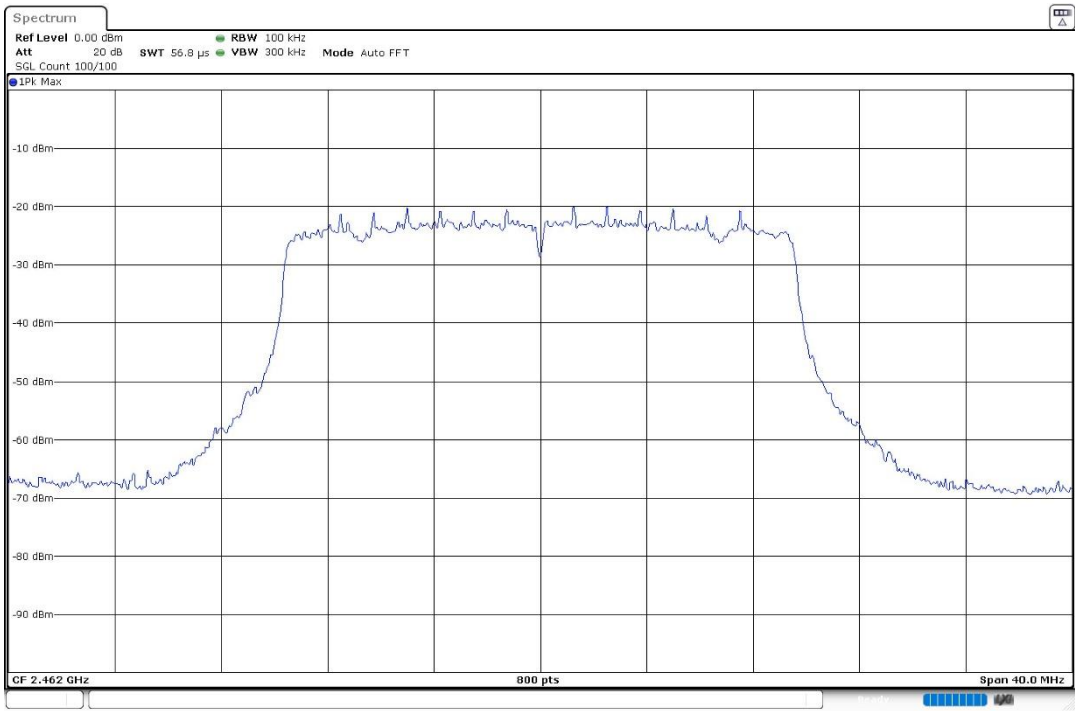
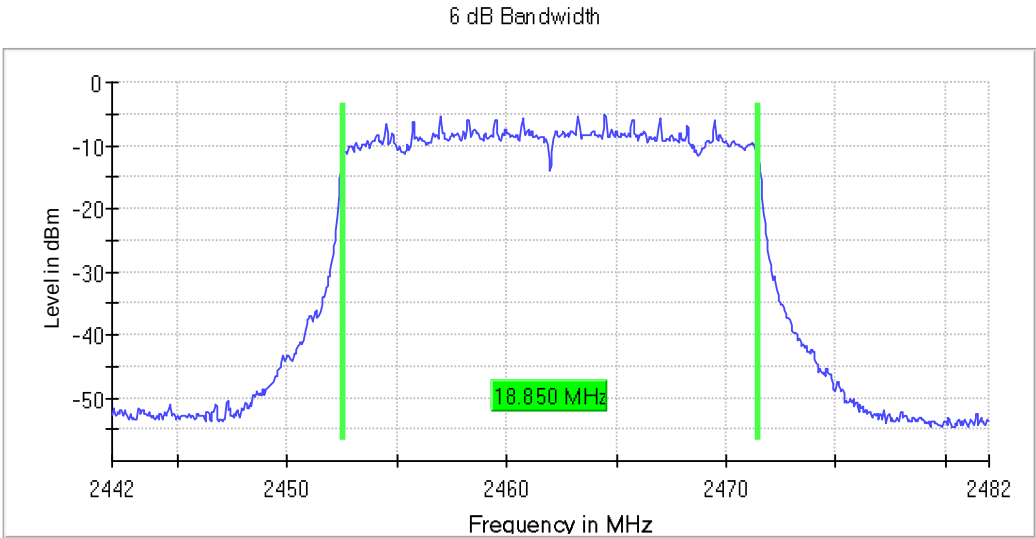
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Plots:



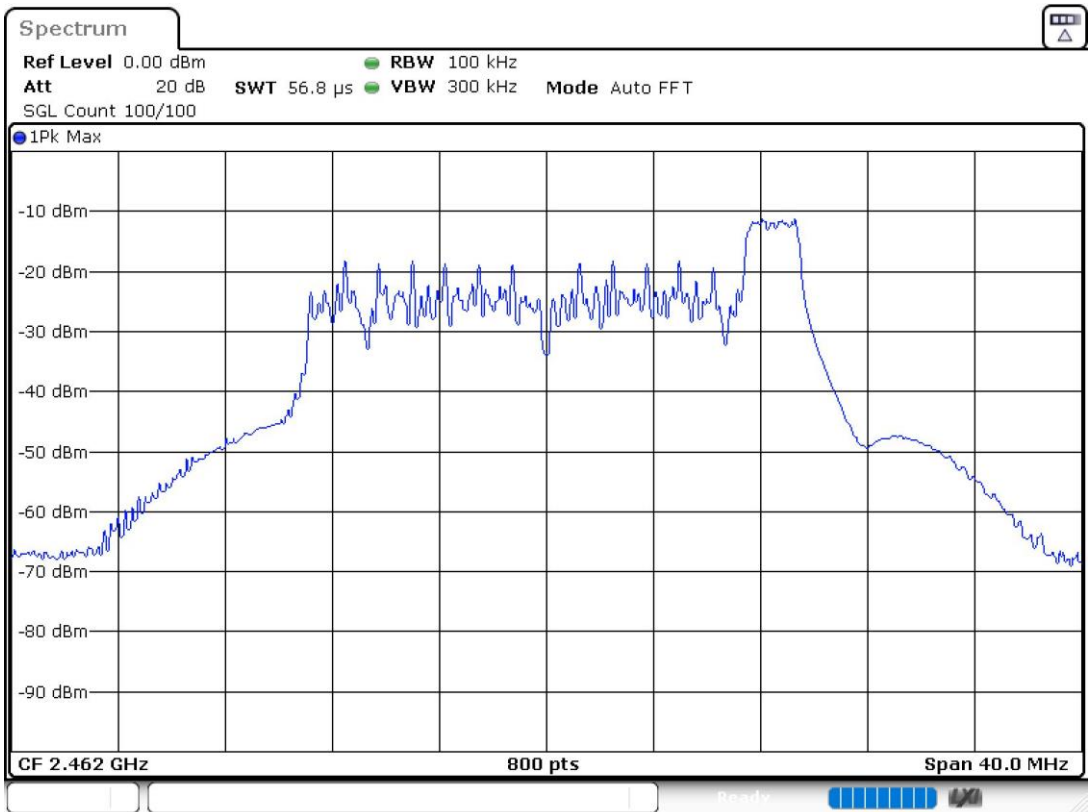
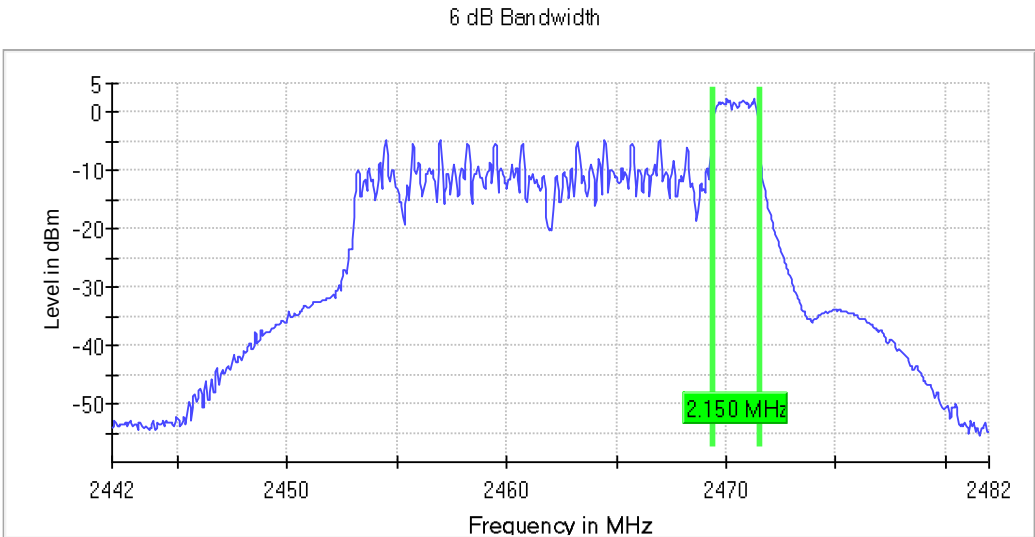
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 SU Full-channel allocation (OFDM MCS0 index), Number of Transmission Chains = 1

Plots:



Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 RU Subcarrier allocation (OFDMA MCS0 index), Number of Transmission Chains = 1

Plots:



FCC 15.247 (b) Maximum output power and antenna gain

Limits

For systems using digital modulation in the 2400-2483.5 MHz band: 1 watt (30 dBm).

Results

The maximum peak conducted output power level of the fundamental emission was measured according to clause 11.9.2.3.2 "Method AVGPM-G" of ANSI C63.10-2013.

The EIRP power (dBm) is calculated by adding the maximum declared antenna gain to the measured conducted power.

Maximum Declared Antenna Gain: Effective antenna gain (antenna gain – cable loss) = 1.65 dBi

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

Modulation: 802.11b (DSSS 1 Mbit/s)

Operation Band (MHz)	Average Conducted Output Power (dBm)	Maximum EIRP Power (dBm)
2412.00	7.322	8.972
2437.00	6.816	8.466
2462.00	7.374	9.024

Modulation: 802.11g (OFDM 6 Mbit/s)

Operation Band (MHz)	Average Conducted Output Power	Maximum EIRP Power (dBm)
2412.00	7.062	8.712
2437.00	6.690	8.340
2462.00	7.145	8.795

Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Operation Band (MHz)	Average Conducted Output Power	Maximum EIRP Power (dBm)
2412.00	6.852	8.502
2437.00	6.464	8.114
2462.00	6.924	8.574

Modulation: 802.11ax20 HE20 (OFDM MCS0 index) – SU Full-channel allocation

Operation Band (MHz)	Average Conducted Output Power	Maximum EIRP Power (dBm)
2412.00	6.955	8.605
2437.00	6.575	8.225
2462.00	7.023	8.673

Modulation: 802.11ax20 HE20 (OFDMA MCS0 index) – RU Subcarrier allocation

Operation Band (MHz)	Average Conducted Output Power	Maximum EIRP Power (dBm)
2412.00	7.041	8.691
2437.00	6.564	8.214
2462.00	7.213	8.863

Verdict

Pass

FCC 15.247 (e) Power spectral density

Limits

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.

Results

Modulation: 802.11b (DSSS 1 Mbit/s)

Freq (MHz)	Equipment	PSD (dBm)
2412.00000	Digital Transmission System (DTS)	-9.978
2437.00000		-10.504
2462.00000		-9.823

Modulation: 802.11g (OFDM 6 Mbit/s)

Freq (MHz)	Equipment	PSD (dBm)
2412.00000	Digital Transmission System (DTS)	-14.172
2437.00000		-14.513
2462.00000		-14.242

Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Freq (MHz)	Equipment	PSD (dBm)
2412.00000	Digital Transmission System (DTS)	-15.132
2437.00000		-15.410
2462.00000		-15.016

Modulation: 802.11ax20 HE20 (OFDM MCS0 index) – SU Full-channel allocation

Freq (MHz)	Equipment	PSD (dBm)
2412.00000	Digital Transmission System (DTS)	-15.758
2437.00000		-16.288
2462.00000		-15.868

Modulation: 802.11ax20 HE20 (OFDMA MCS0 index) – RU Subcarrier allocation

Freq (MHz)	Equipment	PSD (dBm)
2412.00000	Digital Transmission System (DTS)	-5.659
2437.00000		-6.109
2462.00000		-5.225

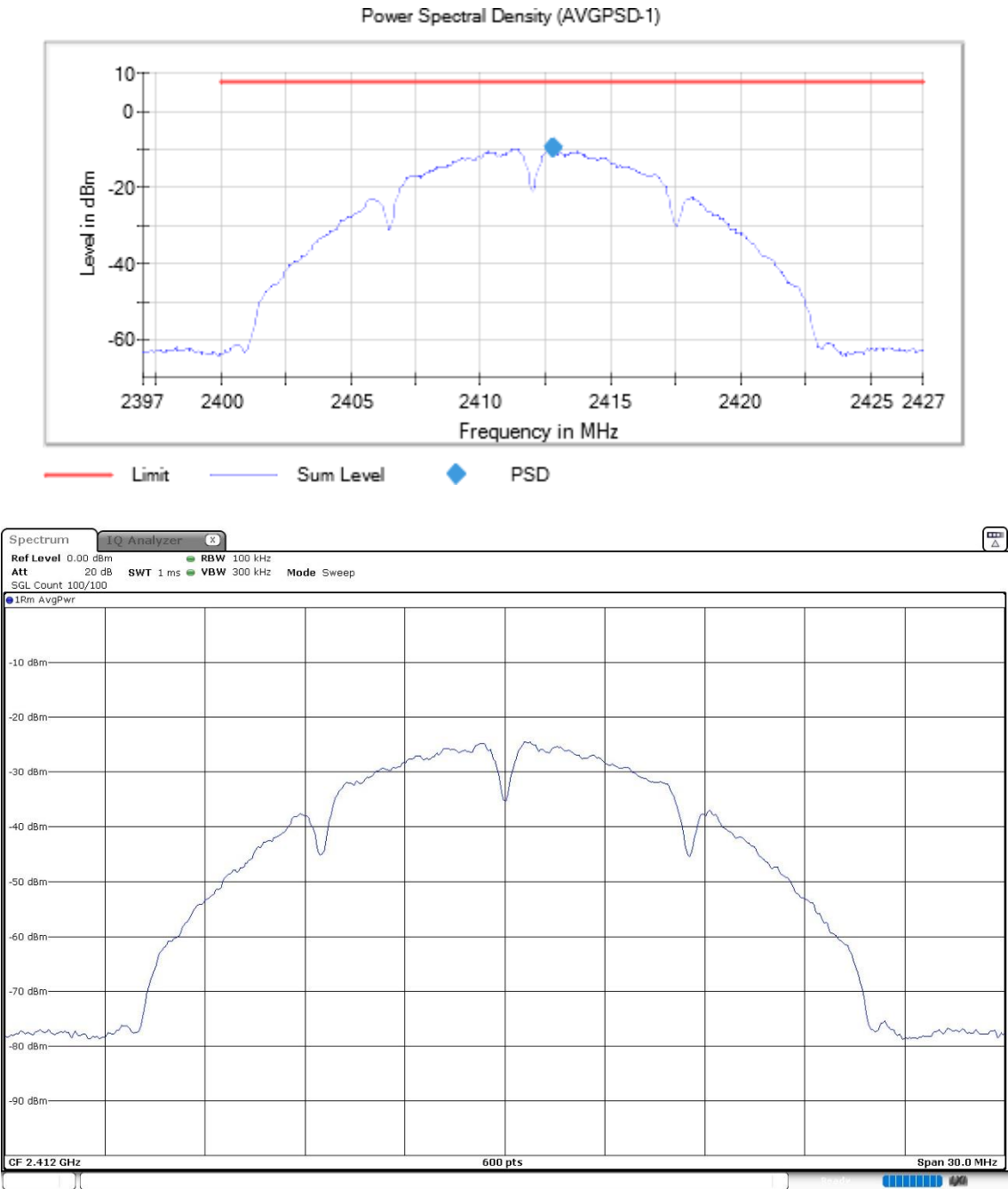
Verdict

Pass

Attachments

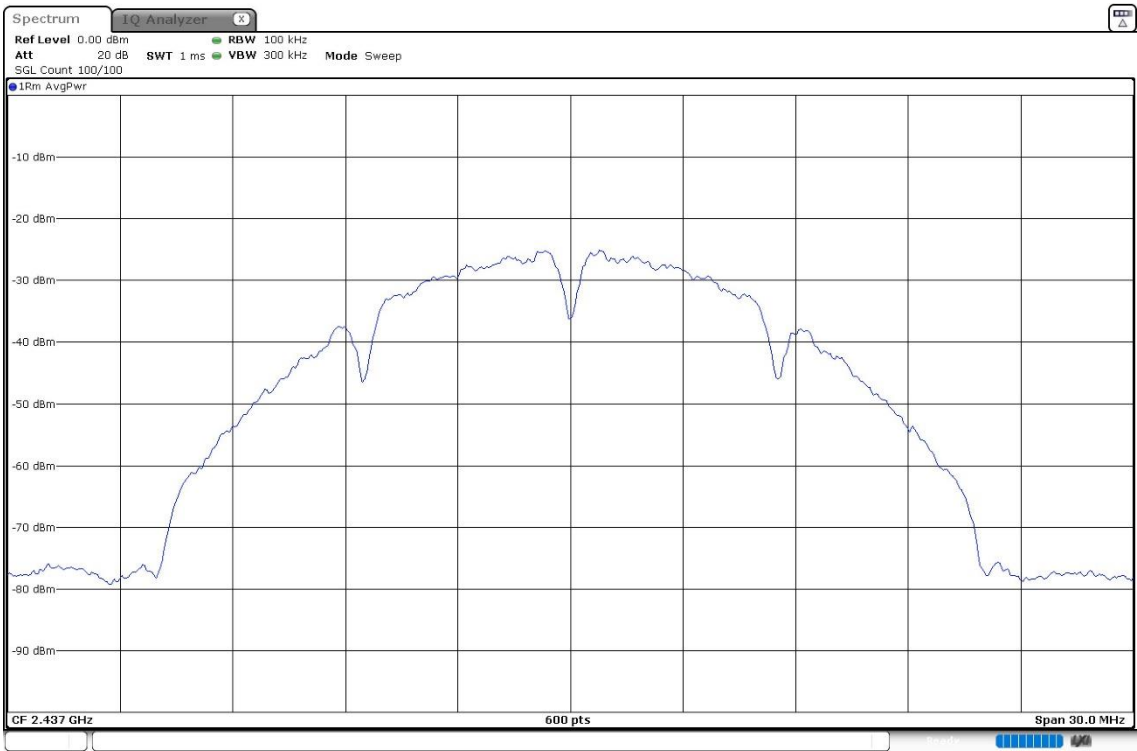
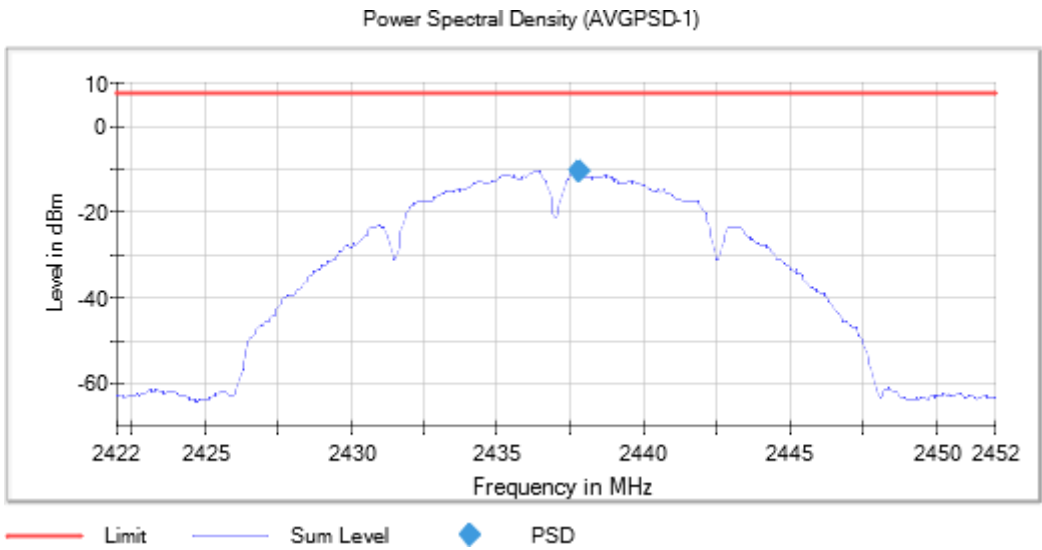
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s)

Images:



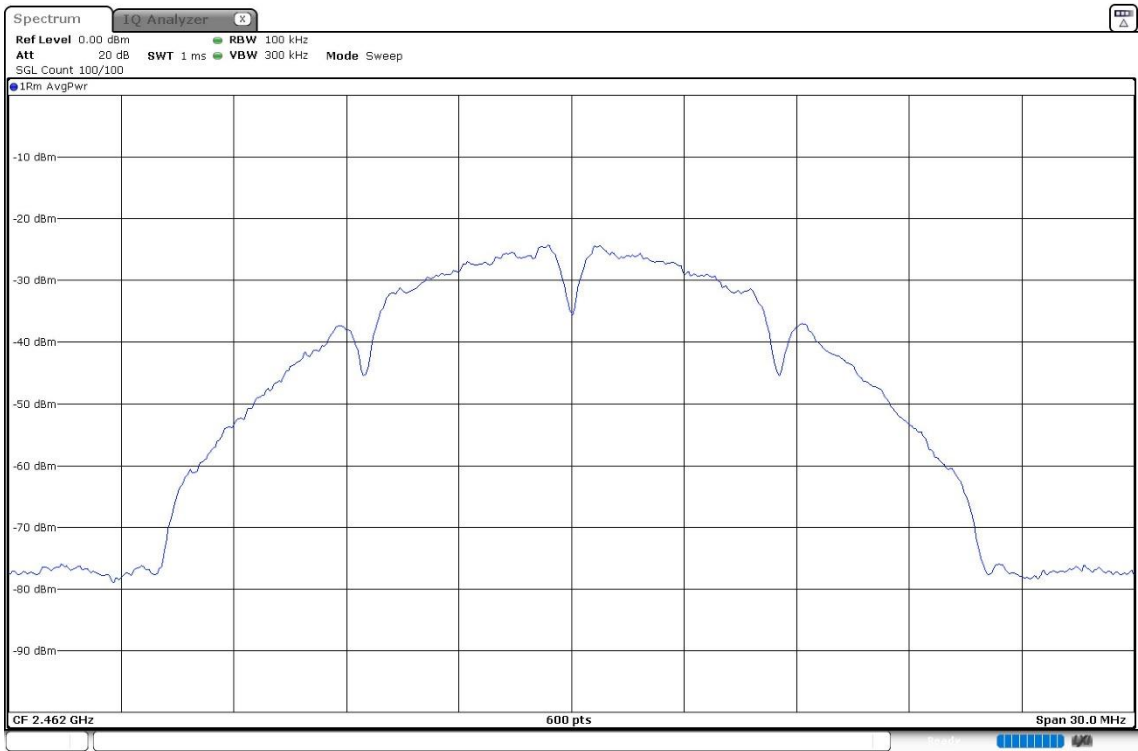
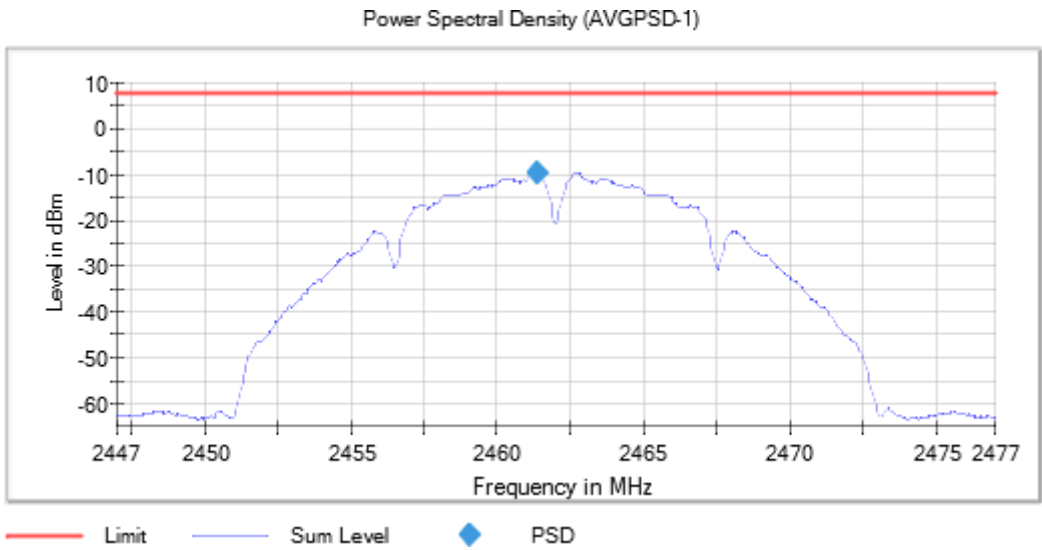
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s)

Images:



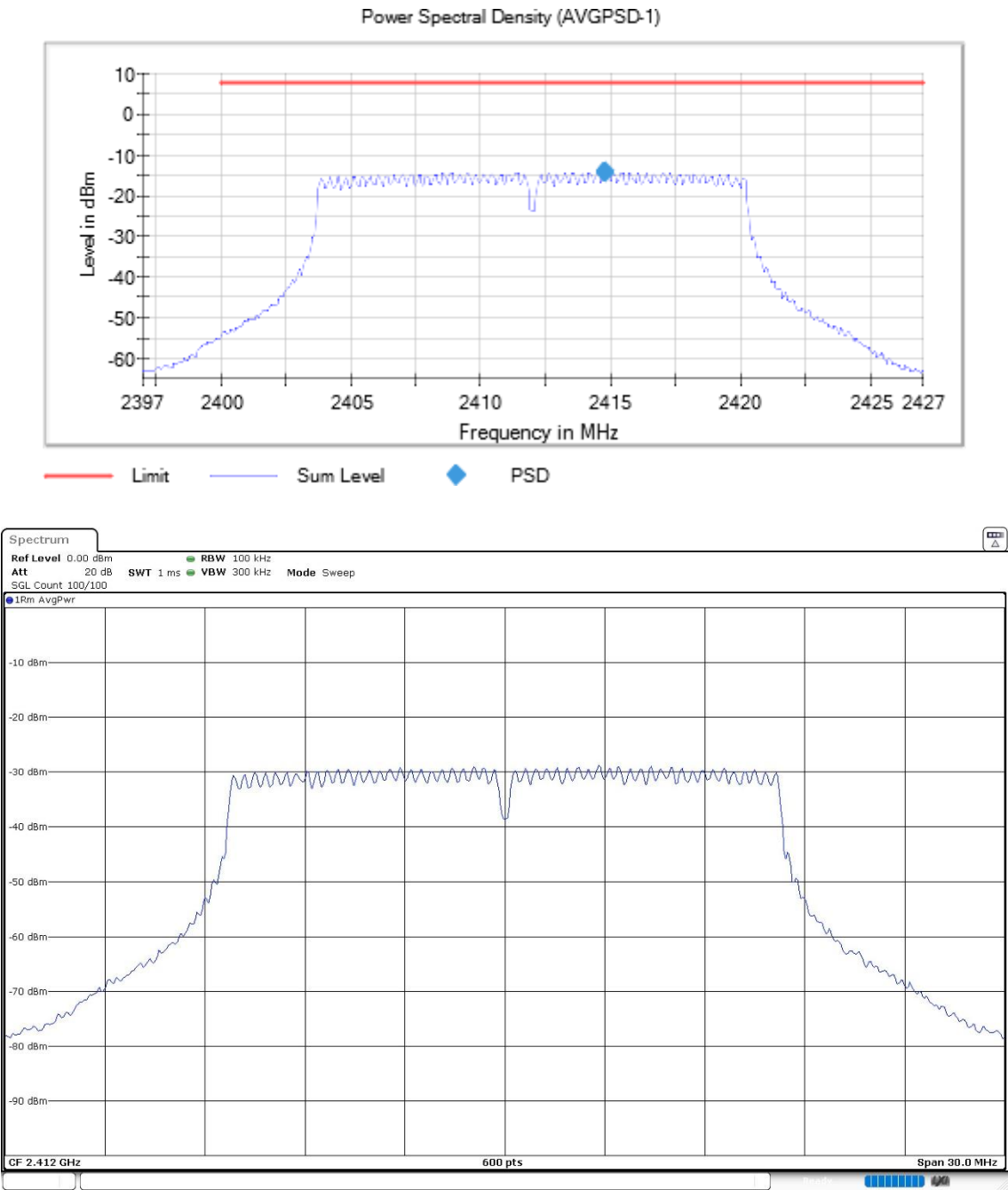
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11b (DSSS 1 Mbit/s)

Images:



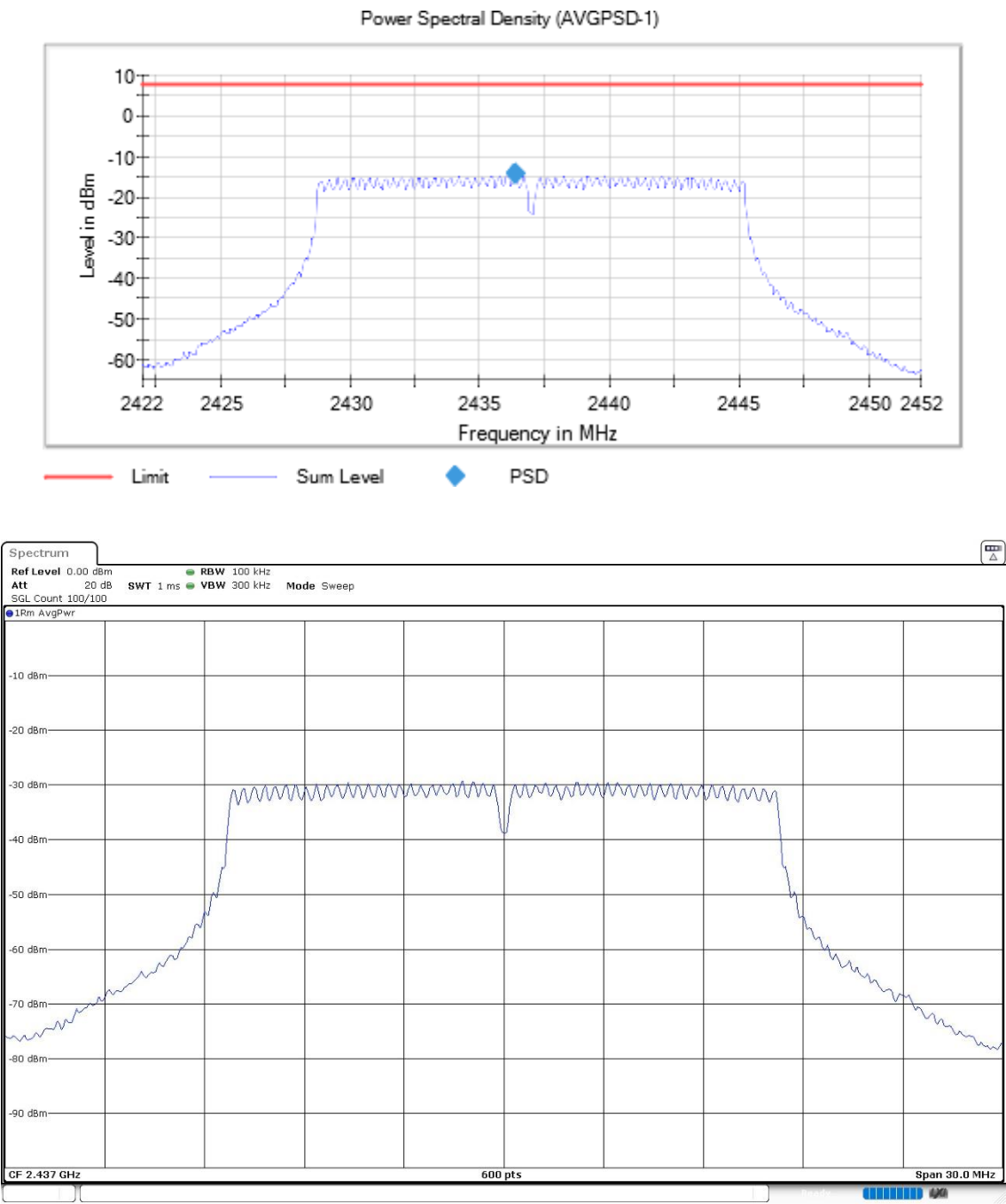
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s)

Images:



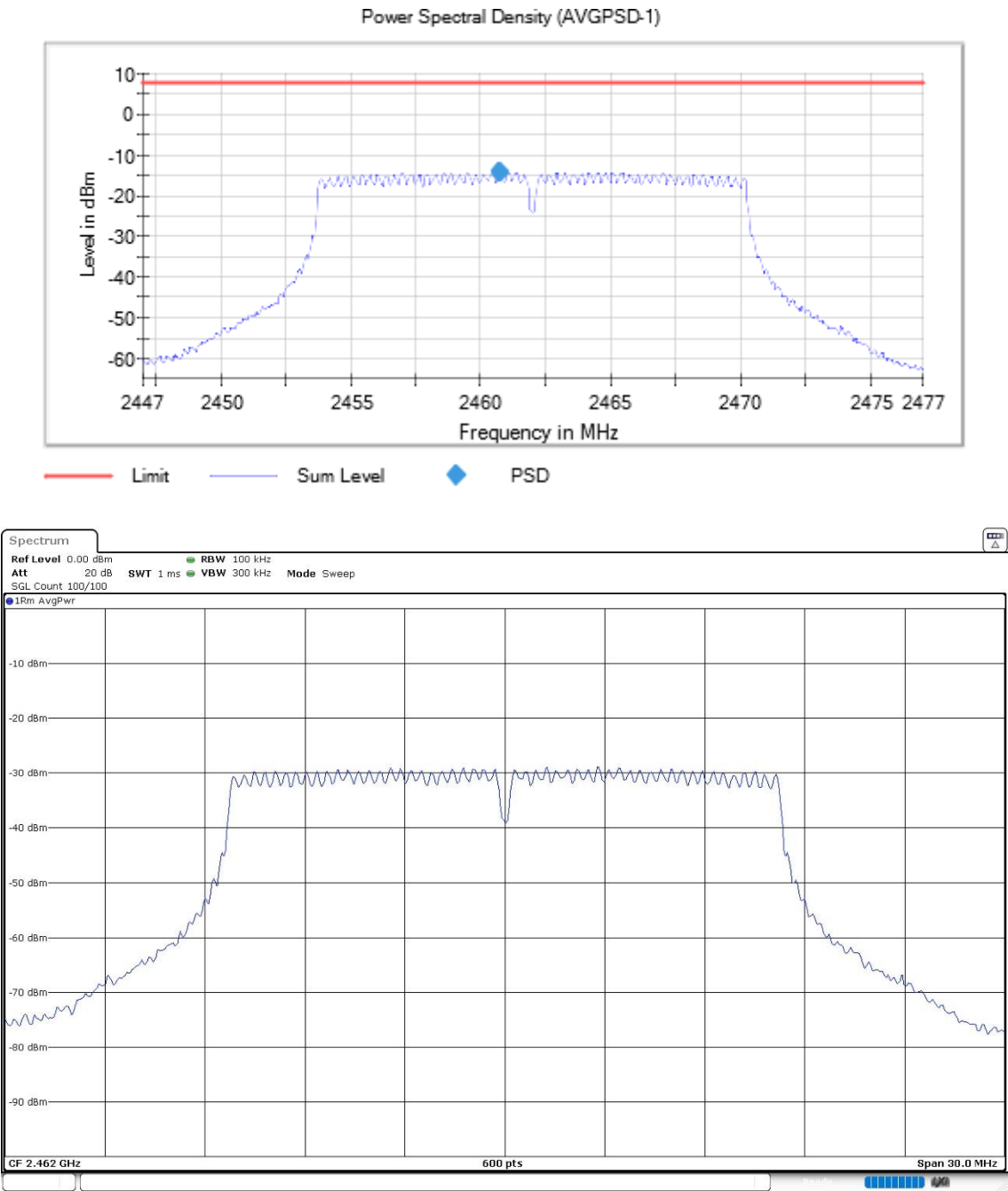
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s)

Images:



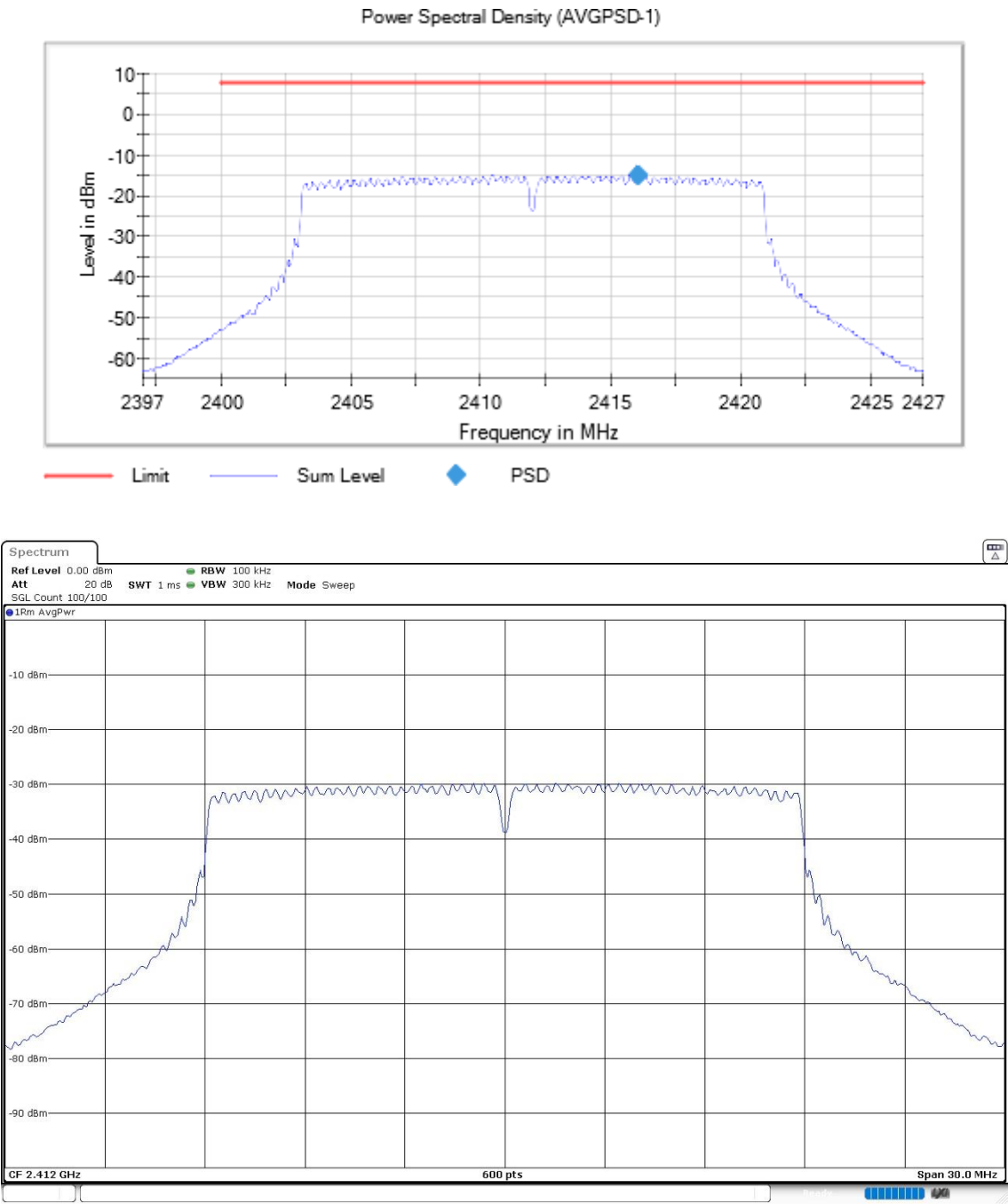
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11g (OFDM 6 Mbit/s)

Images:



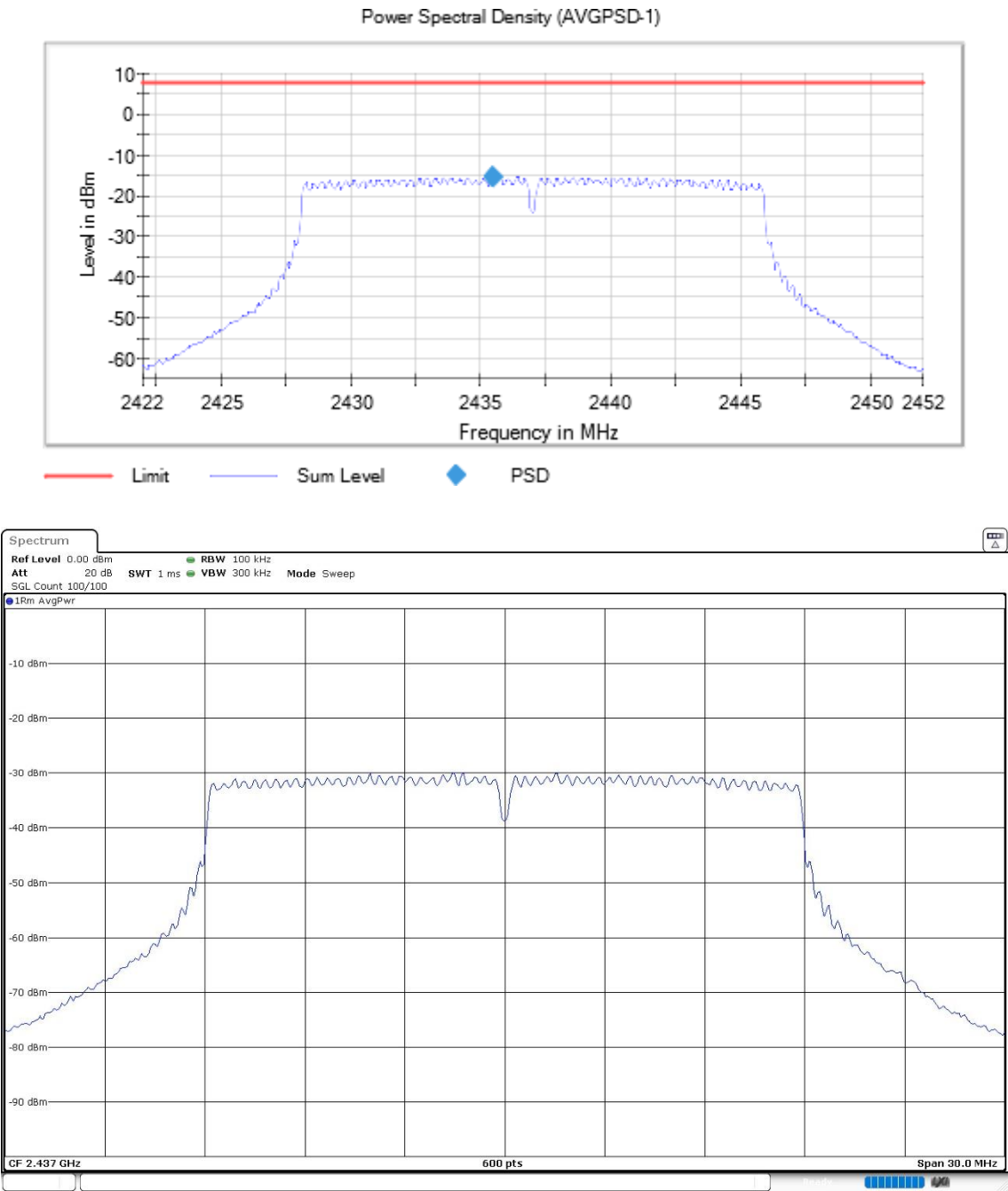
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0)

Images:



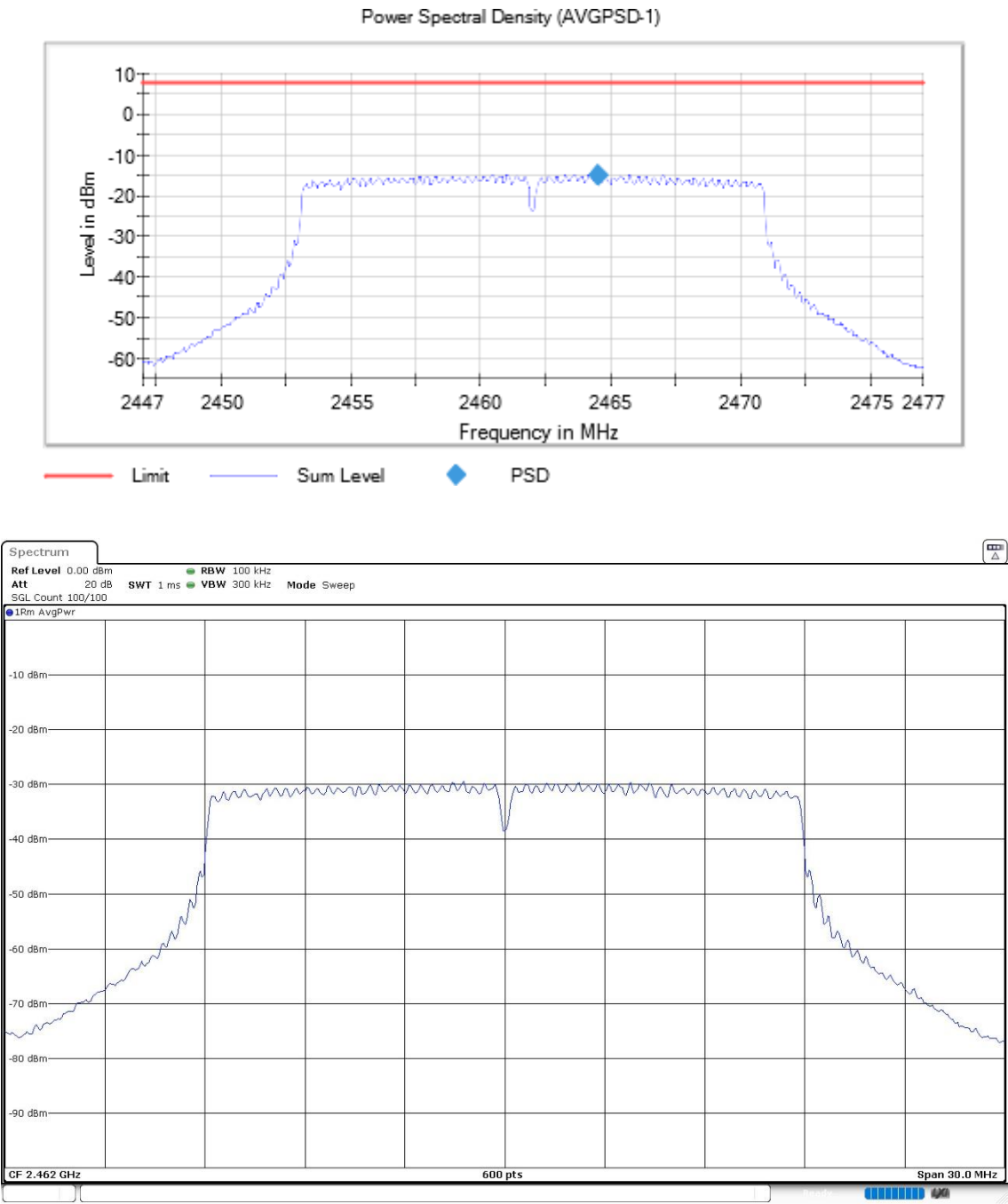
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11n HT20 (OFDM MCS0)

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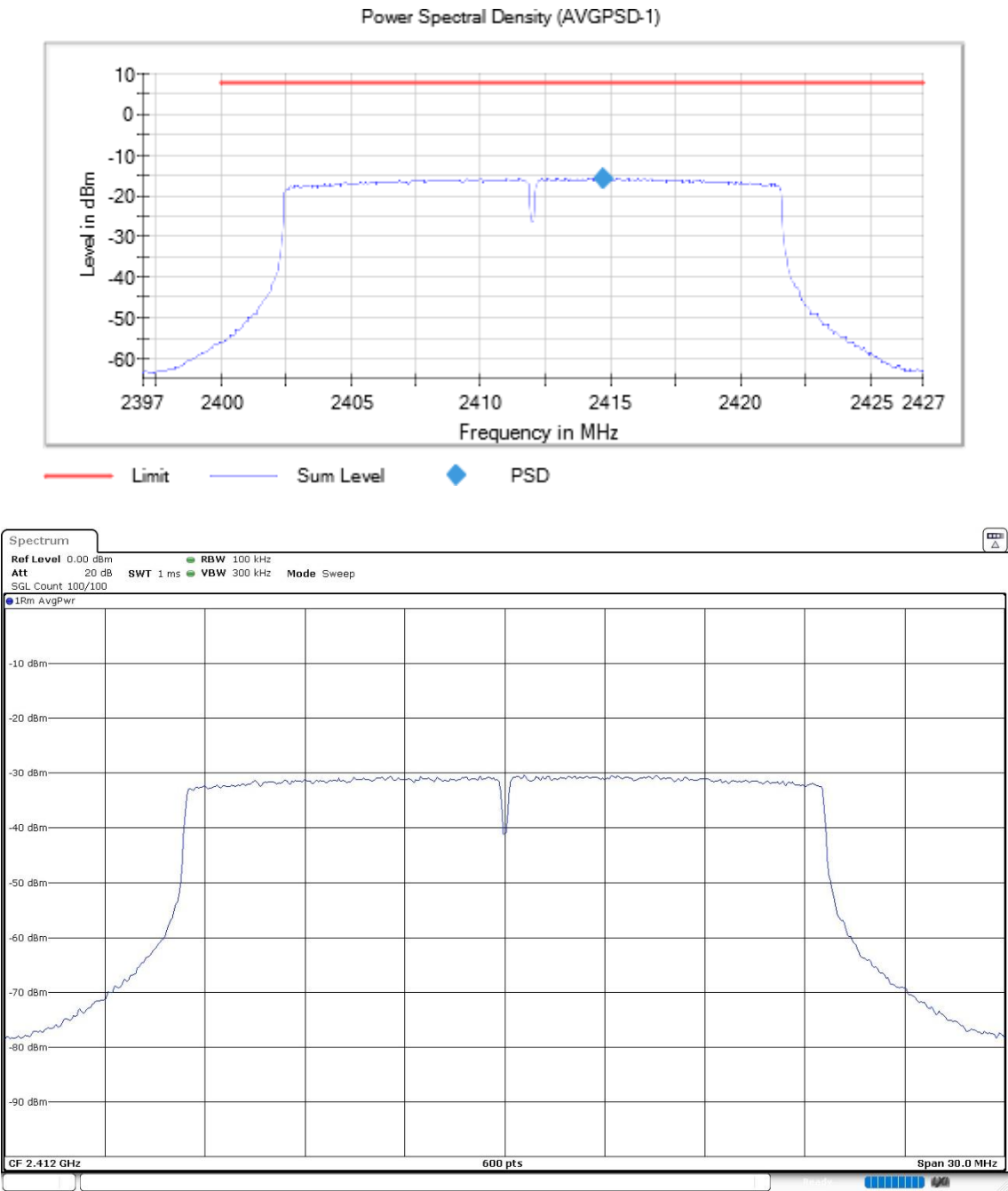
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Images:



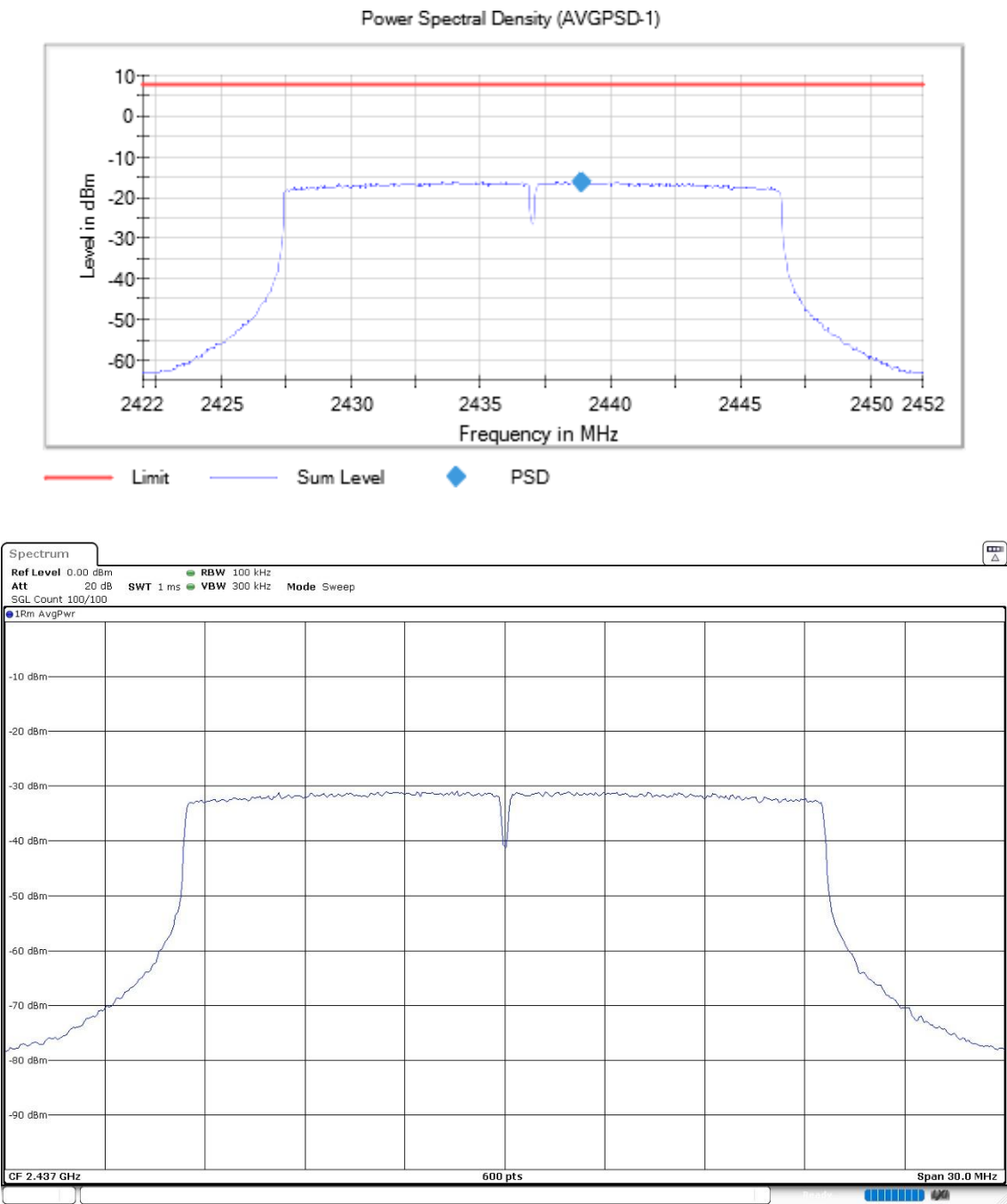
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11ax HE20 SU Full-channel allocation (OFDM MCS0)

Images:



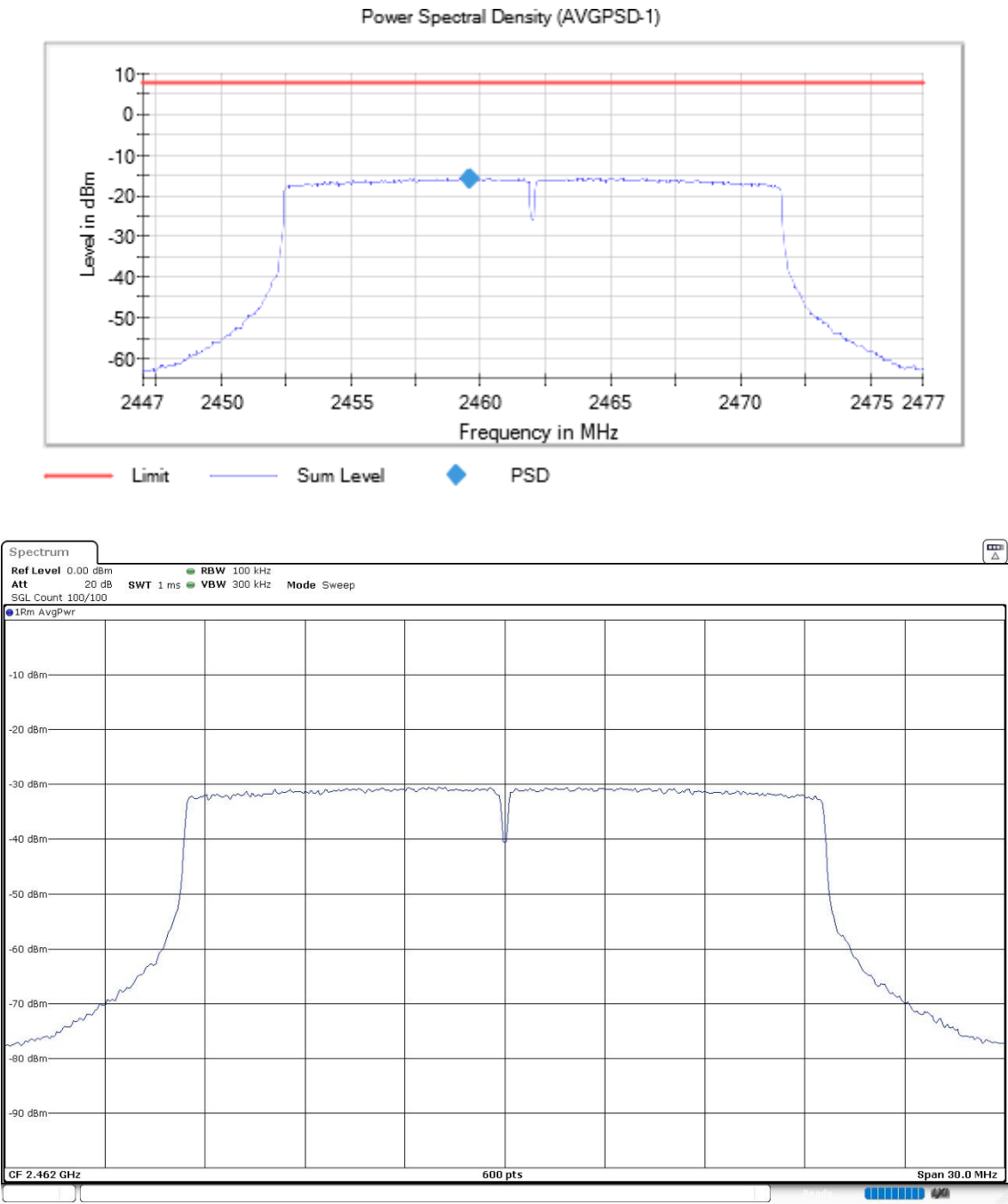
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11ax HE20 (OFDM MCS0)

Images:



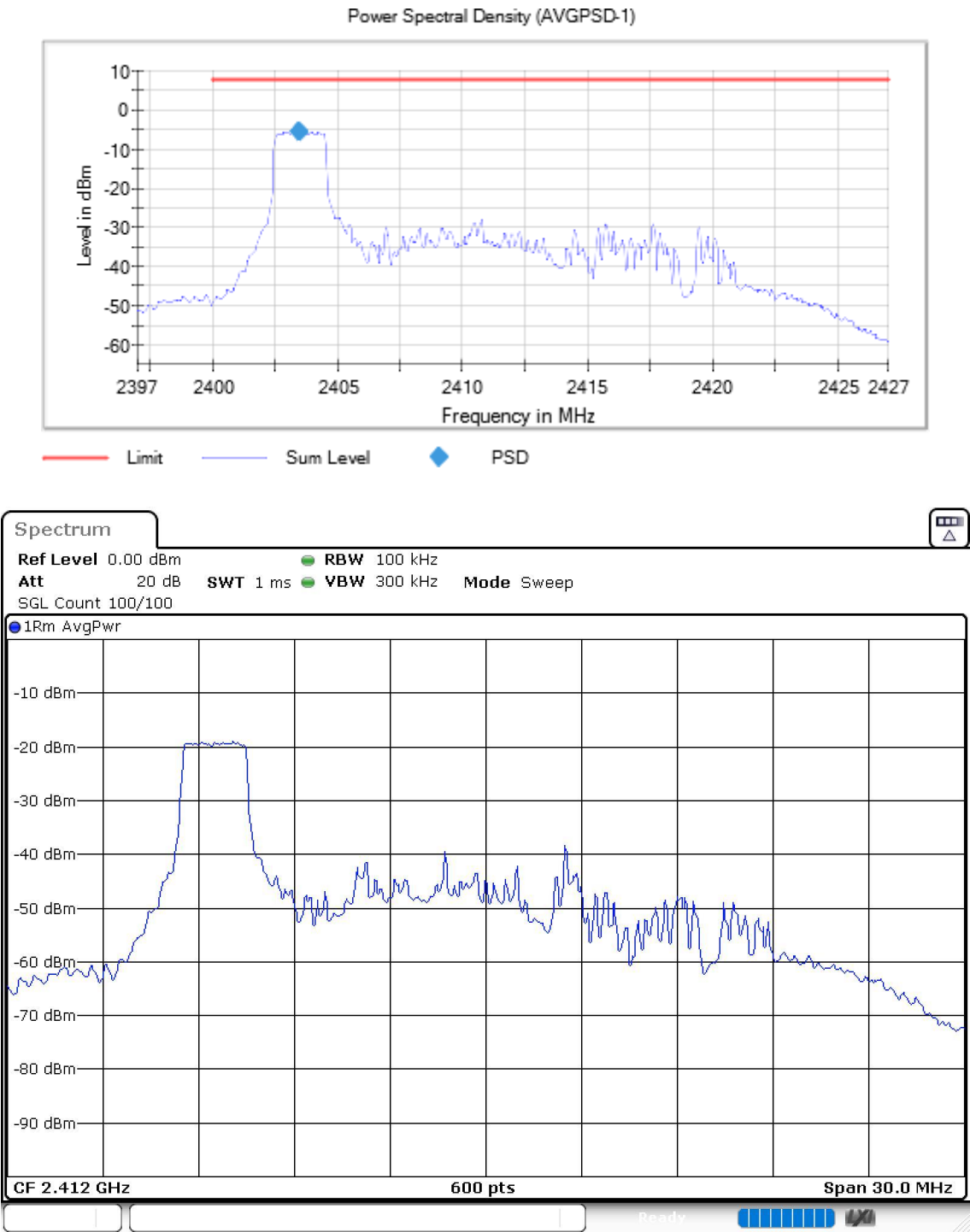
Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11ax HE20 SU Full-channel allocation (OFDM MCS0)

Images:



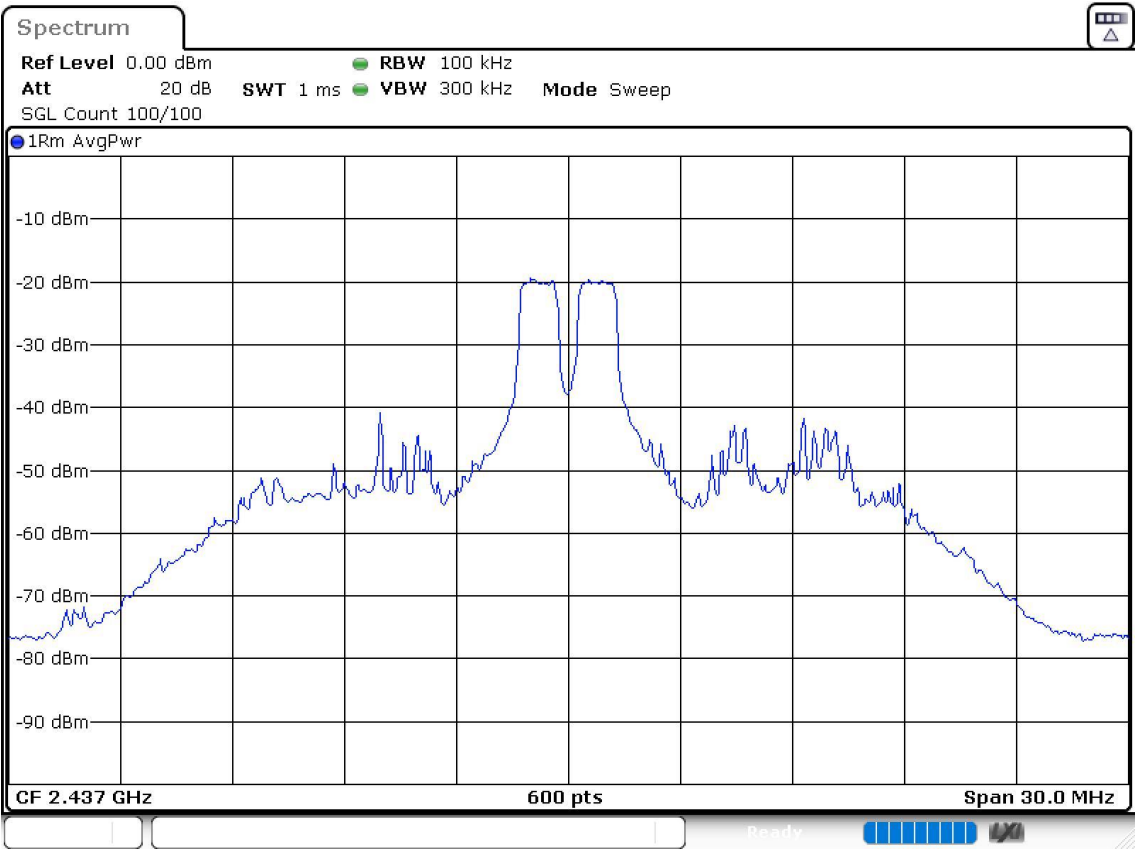
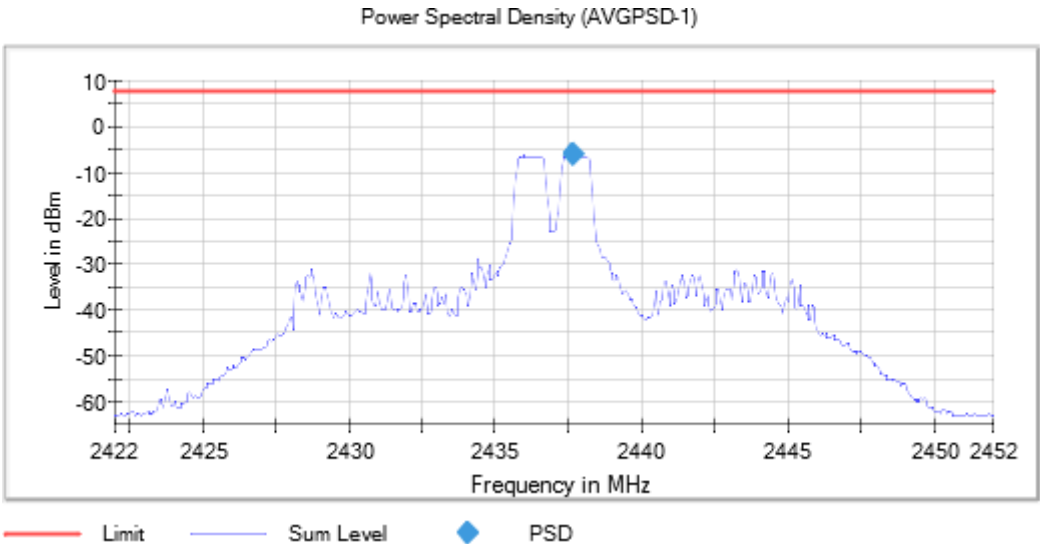
Frequency MHz = 2412.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,
Modulation = 802.11ax HE20 RU Subcarrier allocation (OFDMA MCS0)

Images:



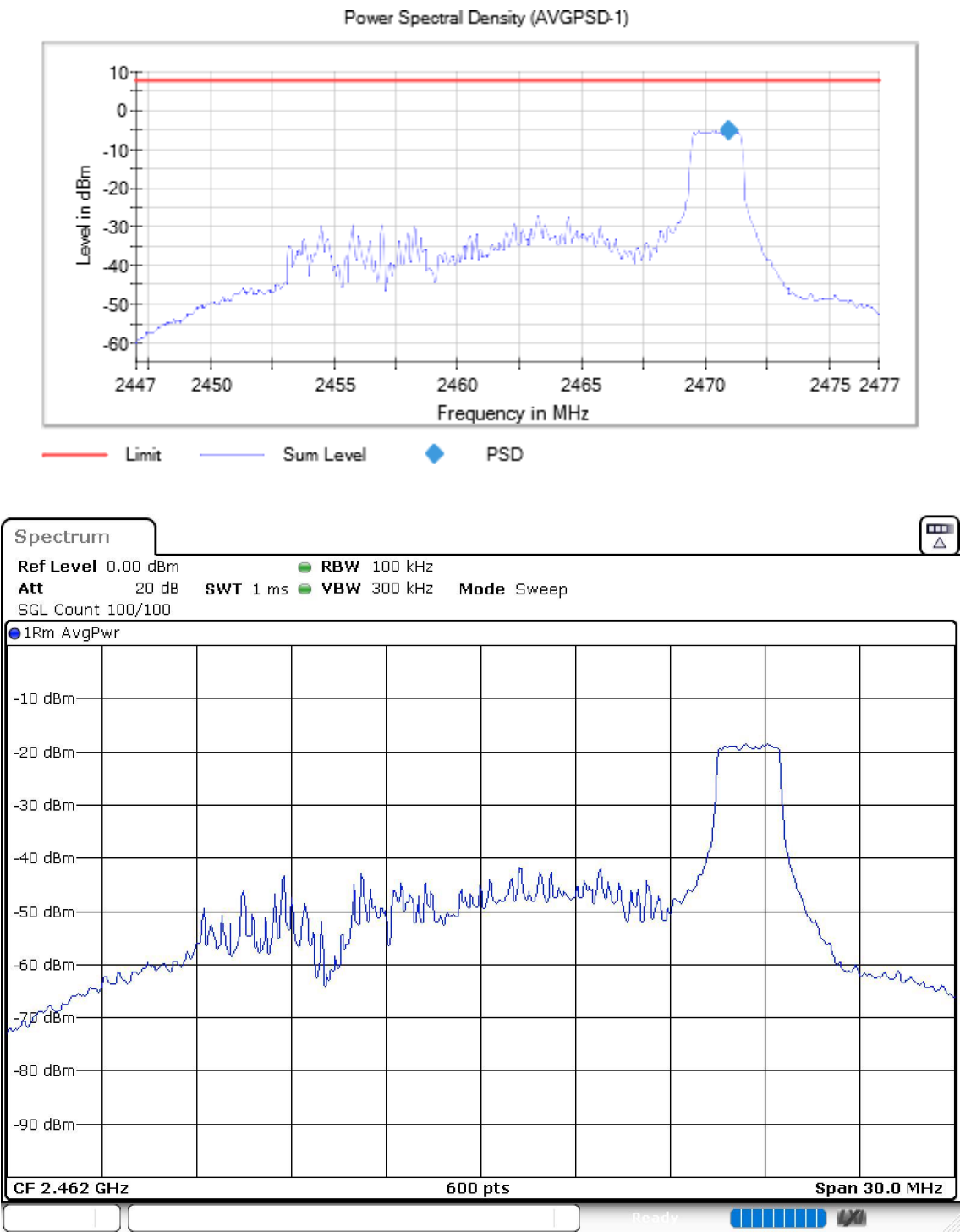
Frequency MHz = 2437.00000, Equipment Type = Digital Transmission System (DTS), Bandwidth MHz = 20,
Modulation = 802.11ax HE20 RU Subcarrier allocation (OFDMA MCS0)

Images:



Frequency MHz = 2462.00000, Equipment Type = Digital Transmission System (DTS), Modulation = 802.11ax HE20 RU Subcarrier allocation (OFDMA MCS0)

Images:



FCC 15.247 (d) 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.

Results

Radiated measurements were used to show compliance with the limits in the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz.

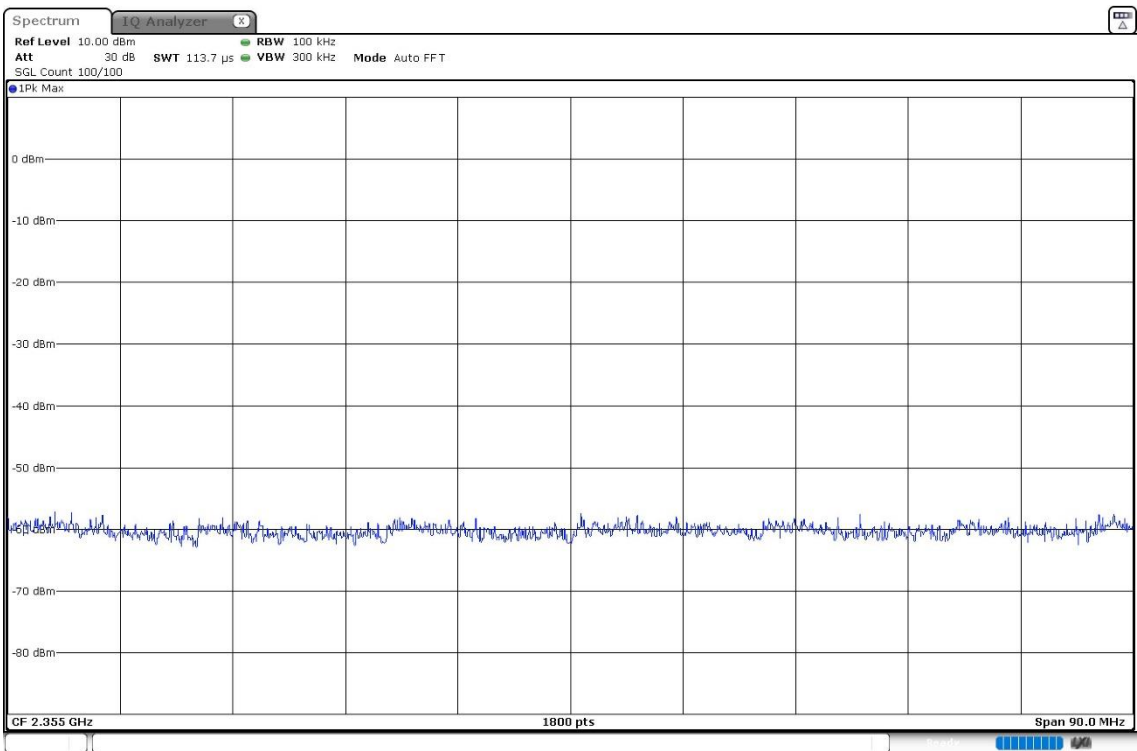
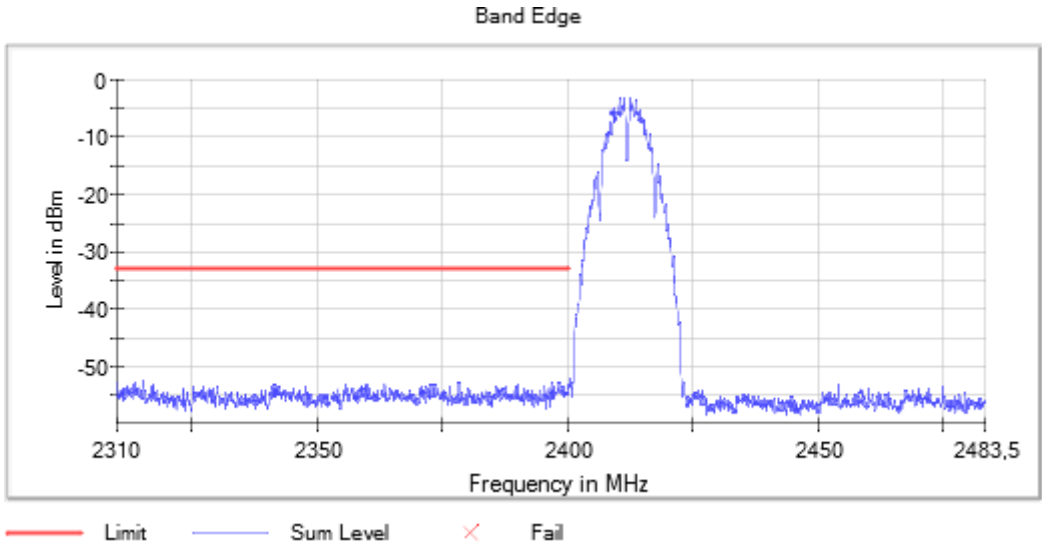
Verdict

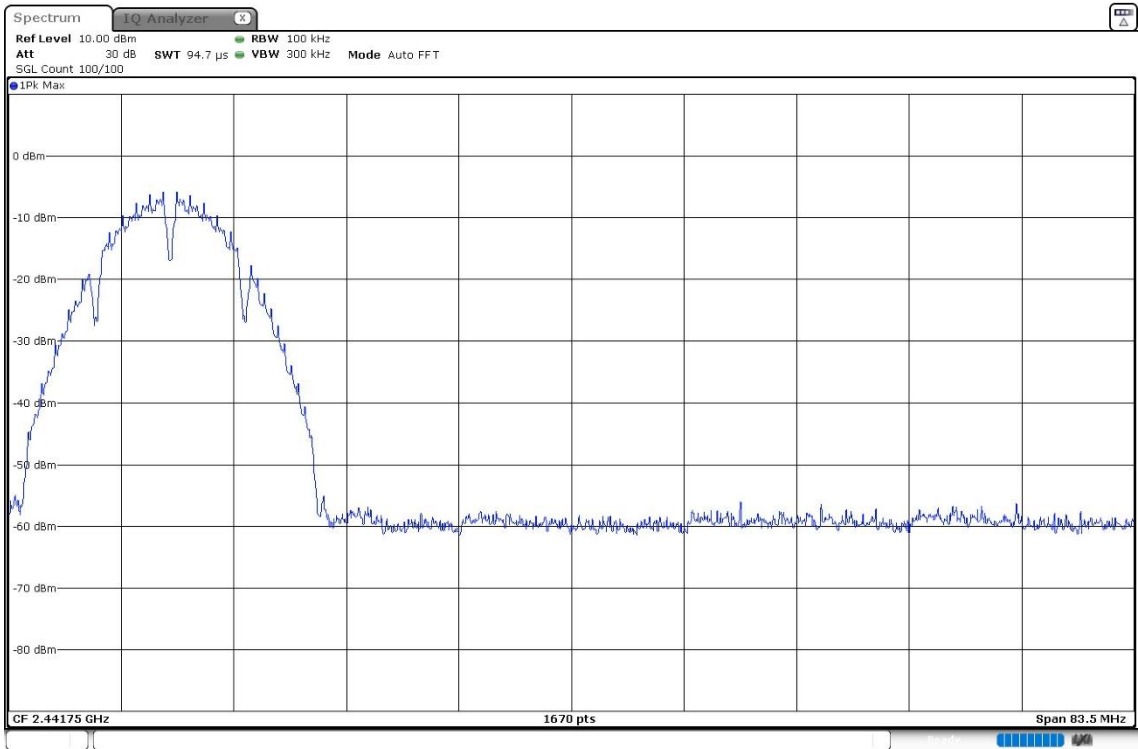
Pass

Attachments

Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

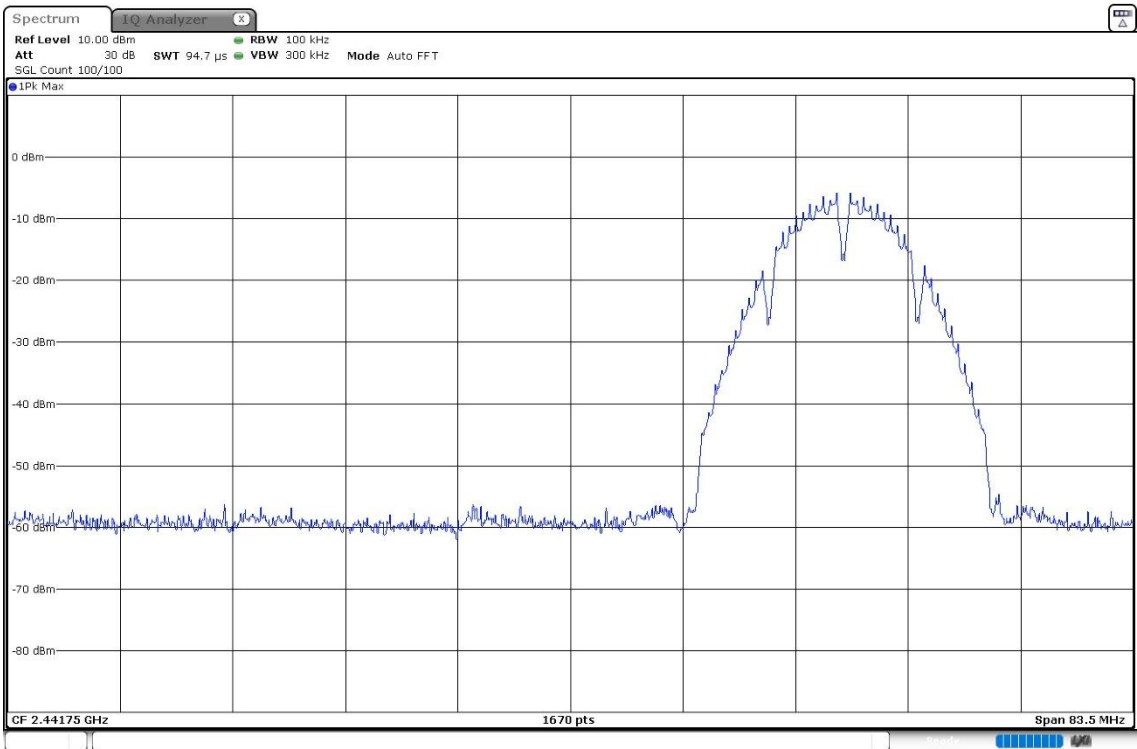
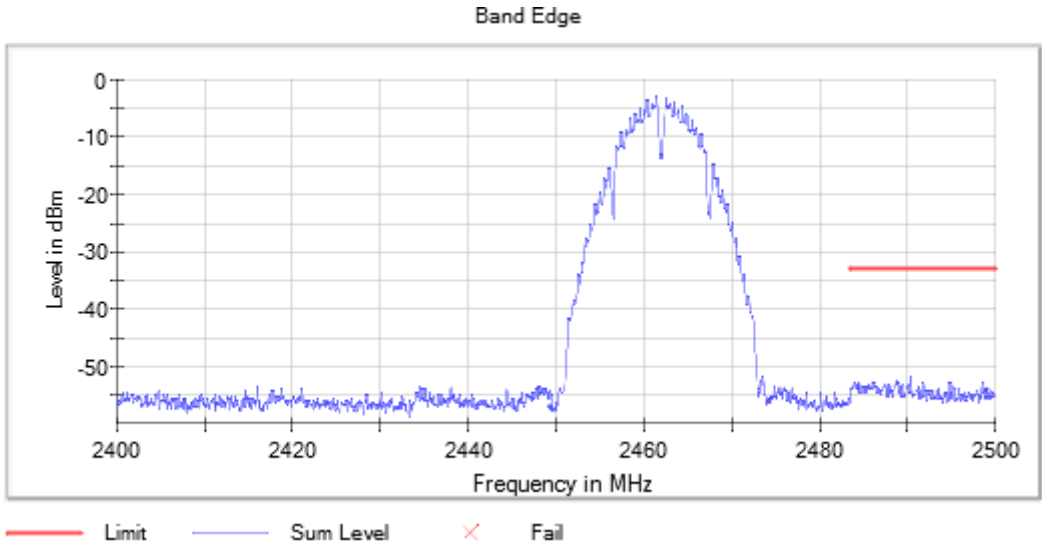
Plots:

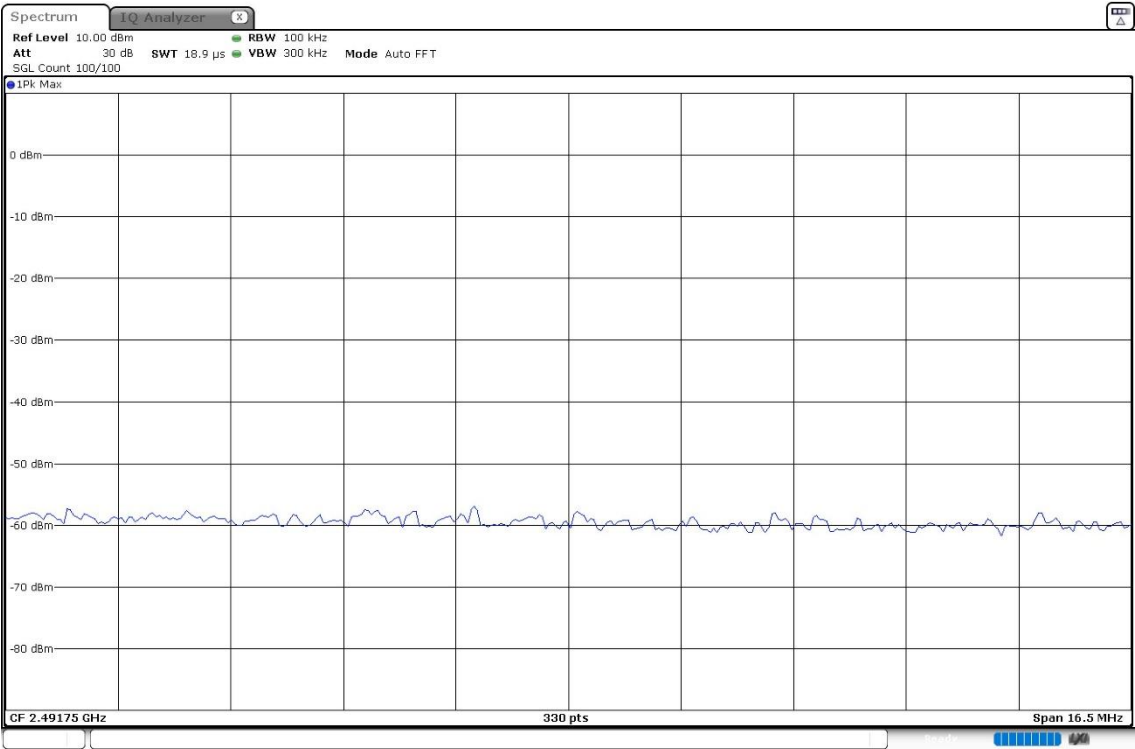




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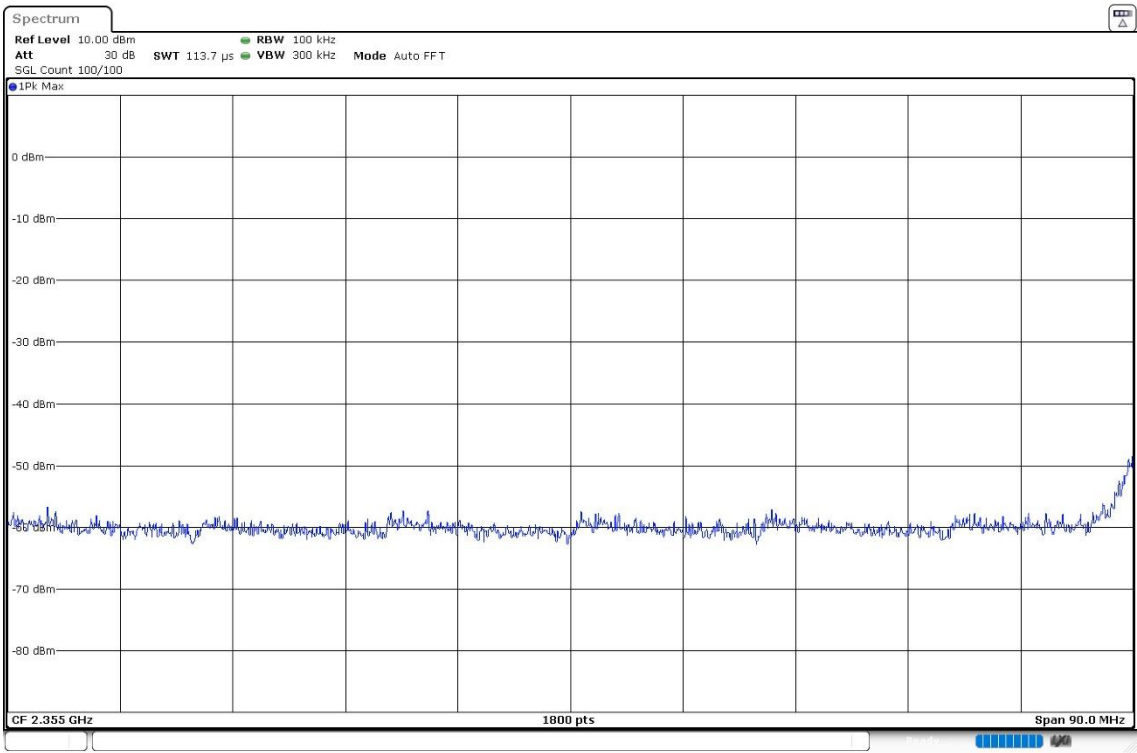
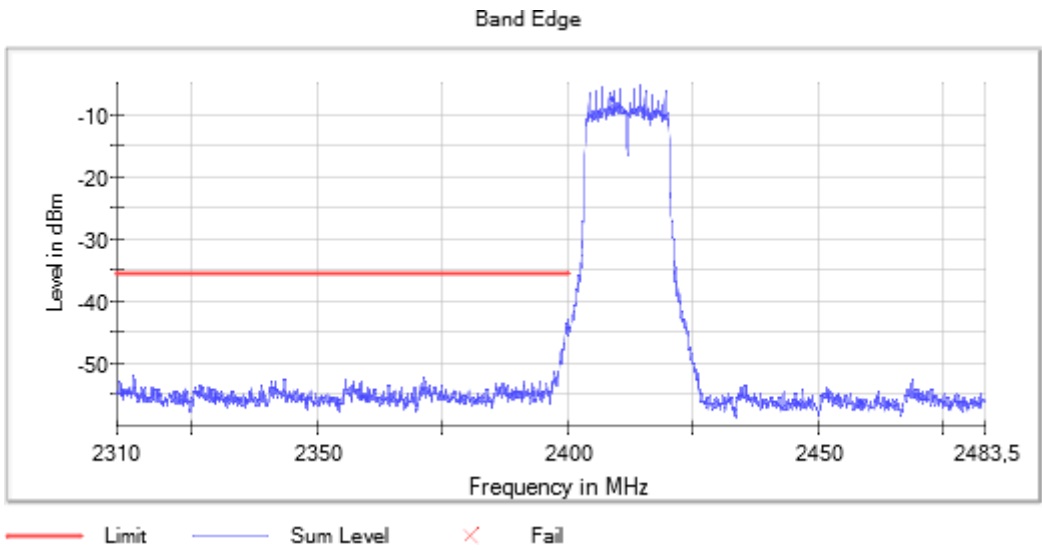
Plots:

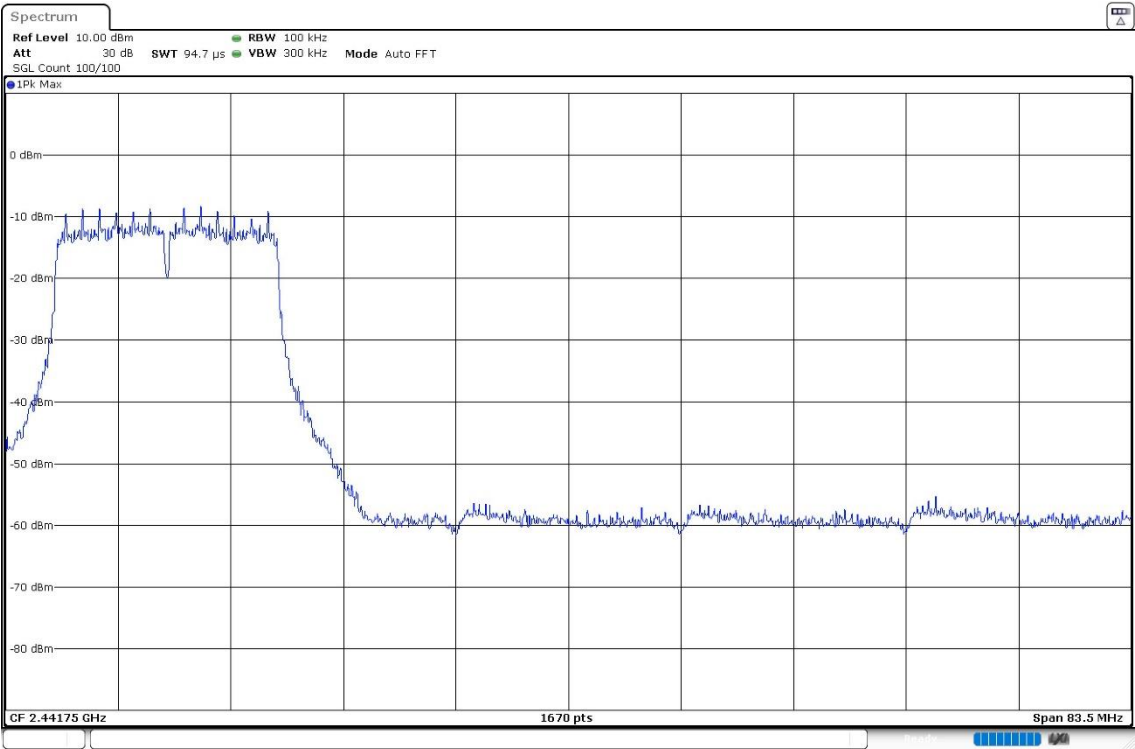




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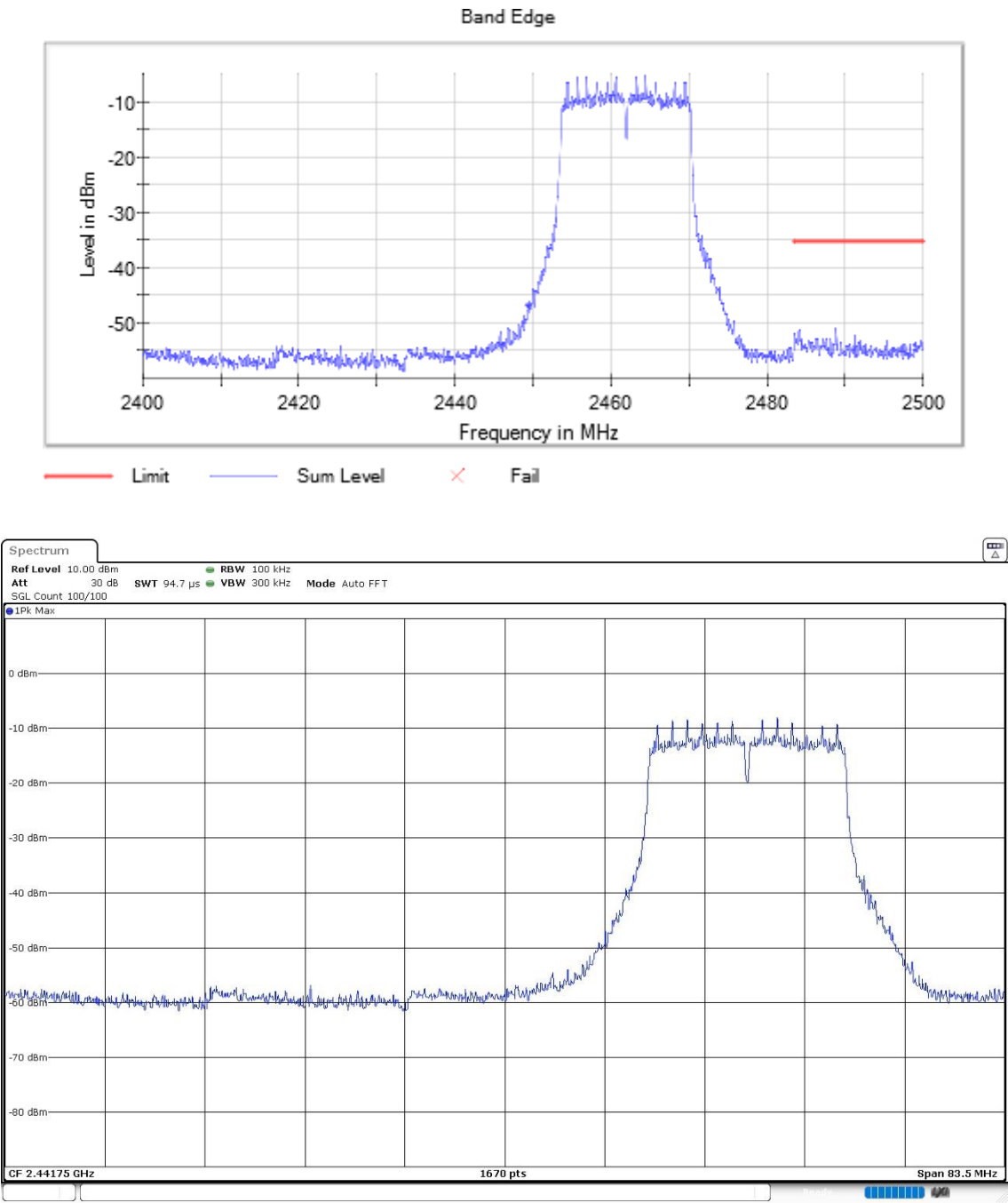
Plots:

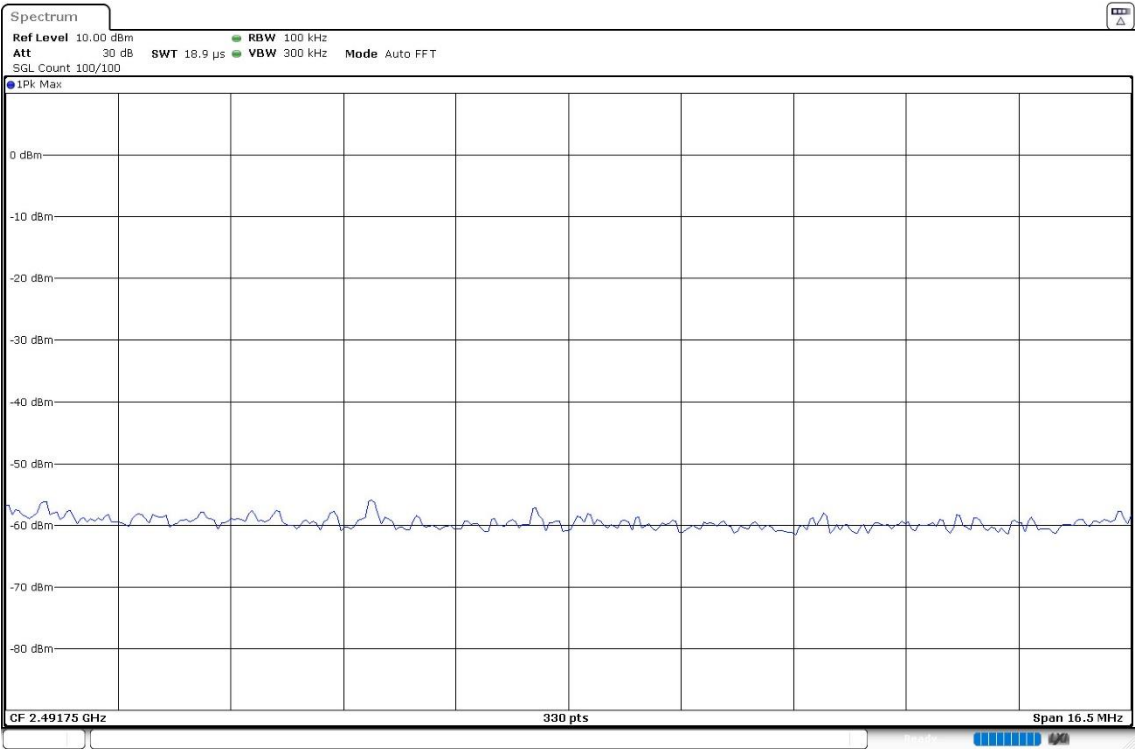




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

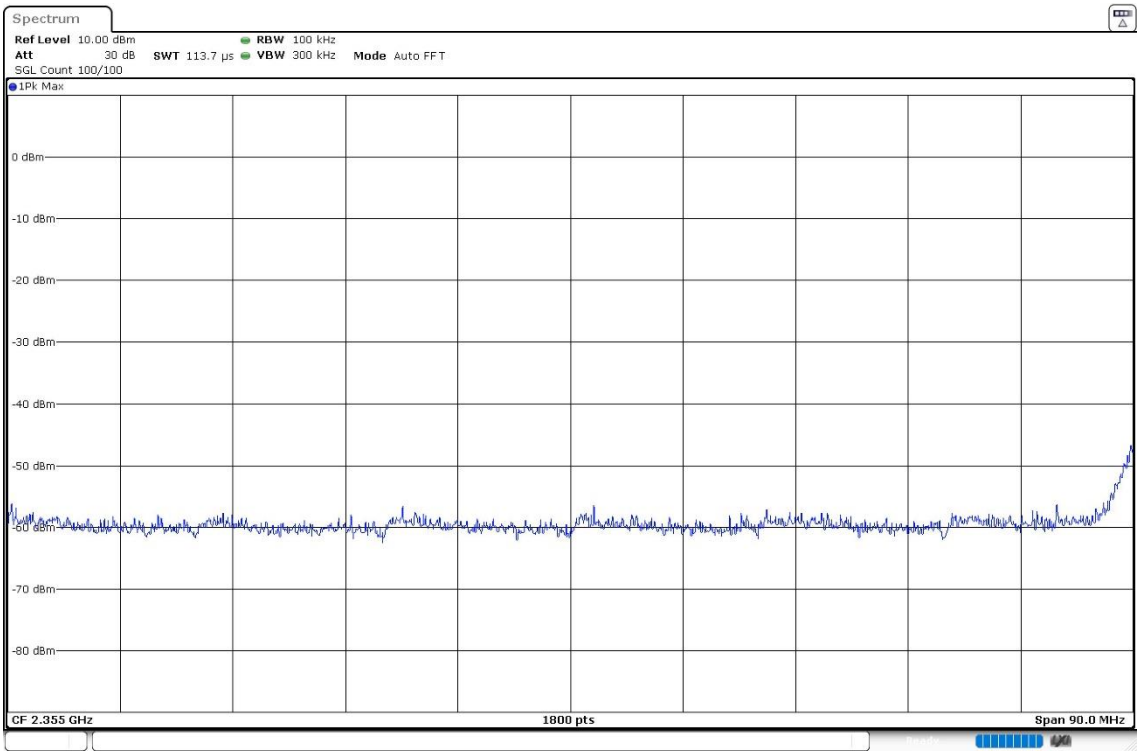
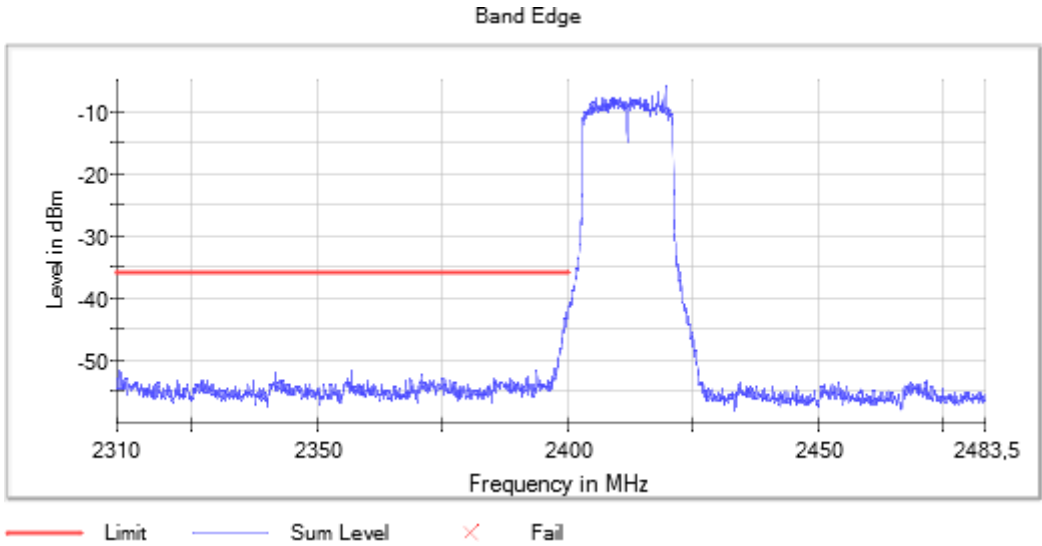
Plots:

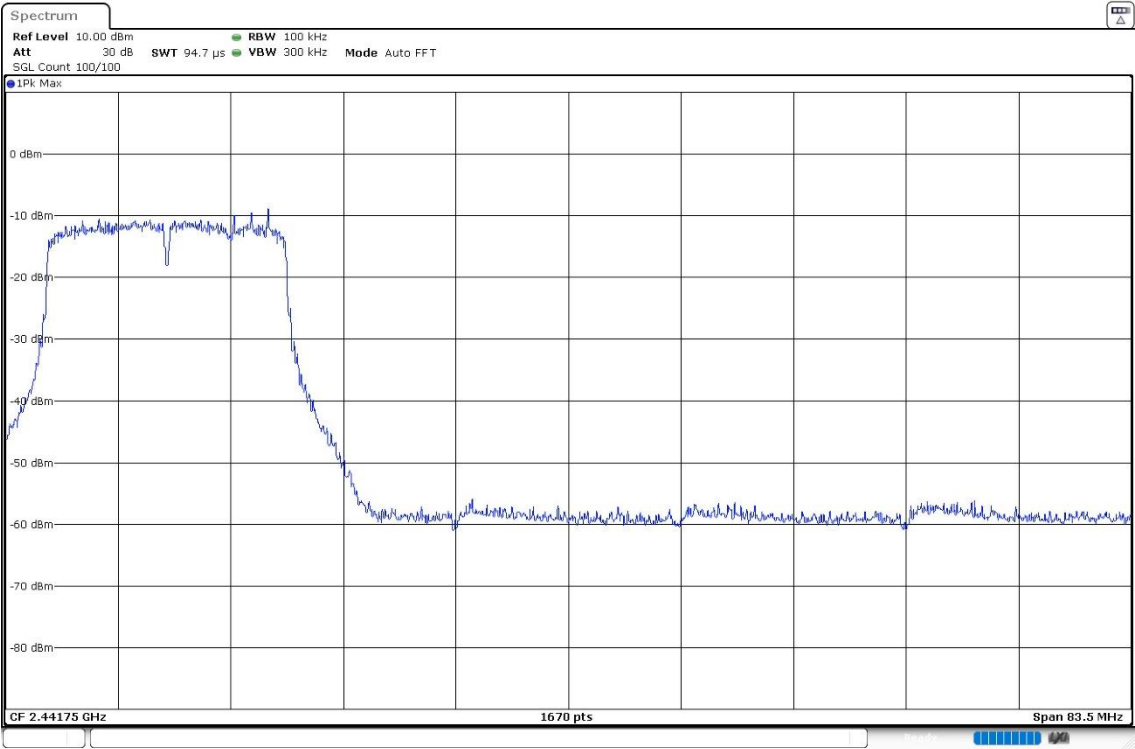




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

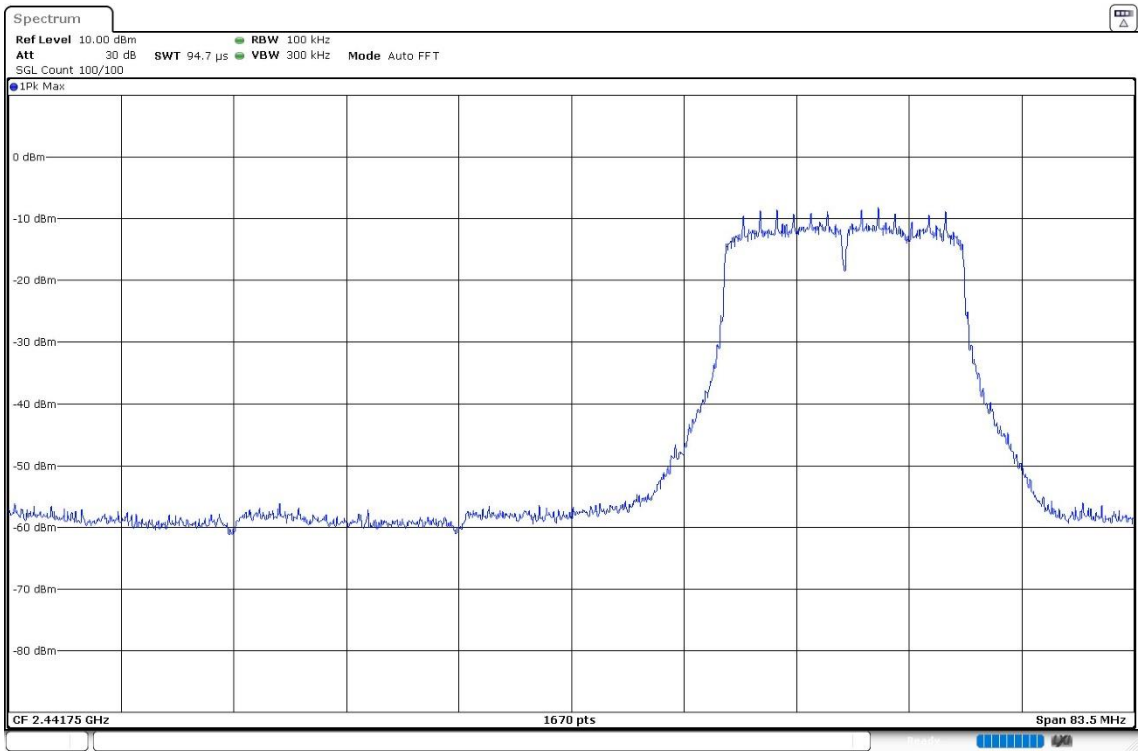
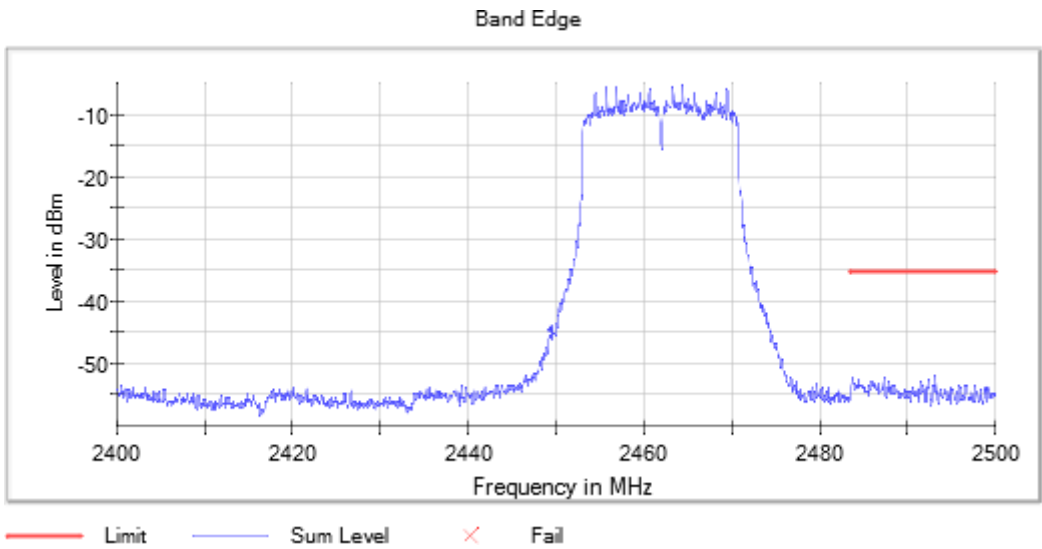
Plots:

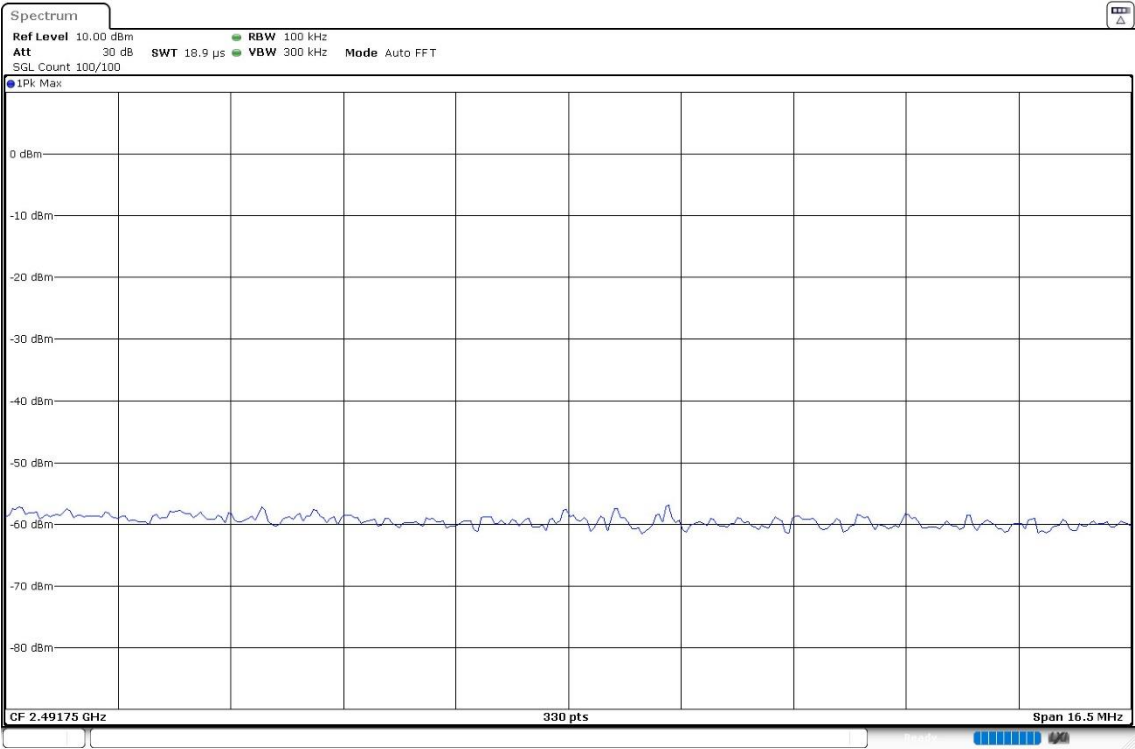




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

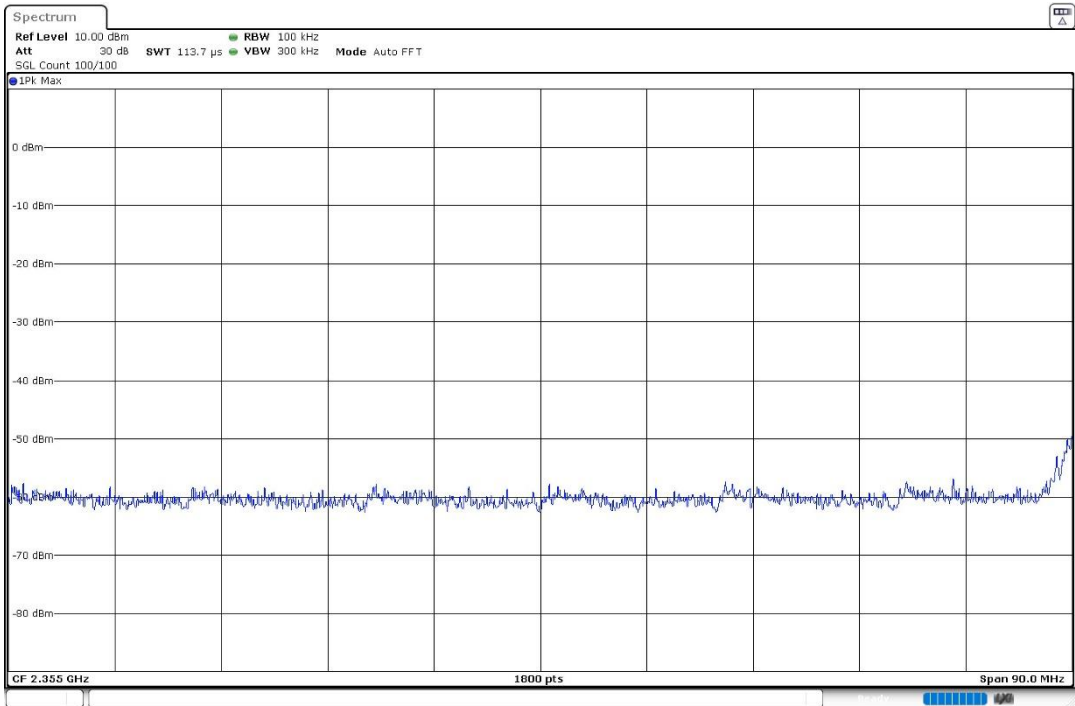
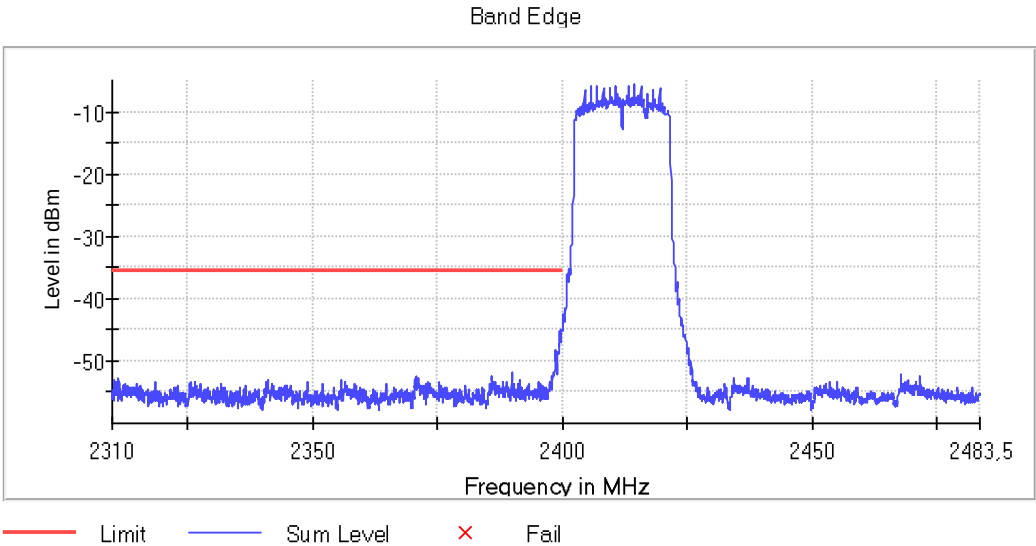
Plots:

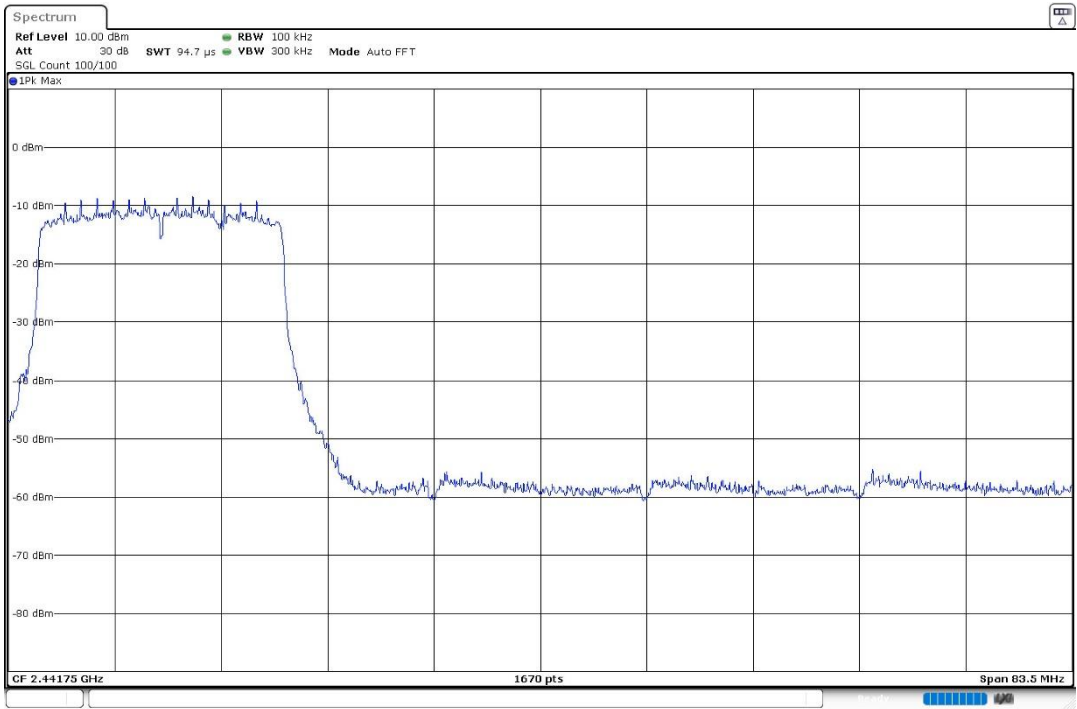




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 SU Full-channel allocation (OFDM MCS0 index), Number of Transmission Chains = 1

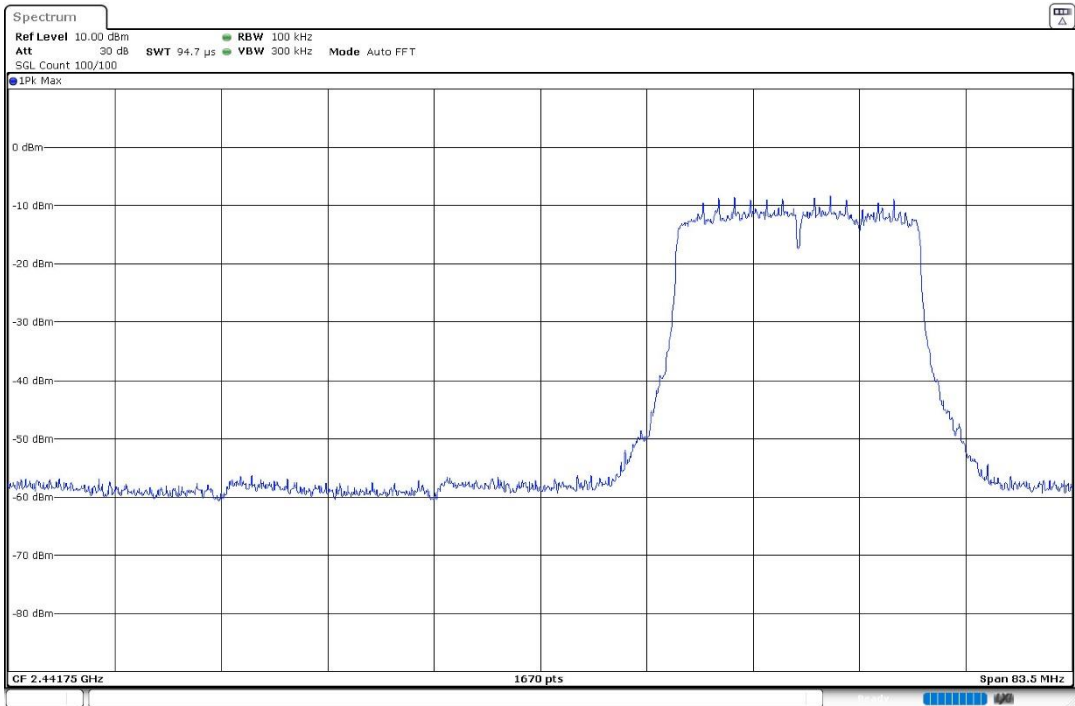
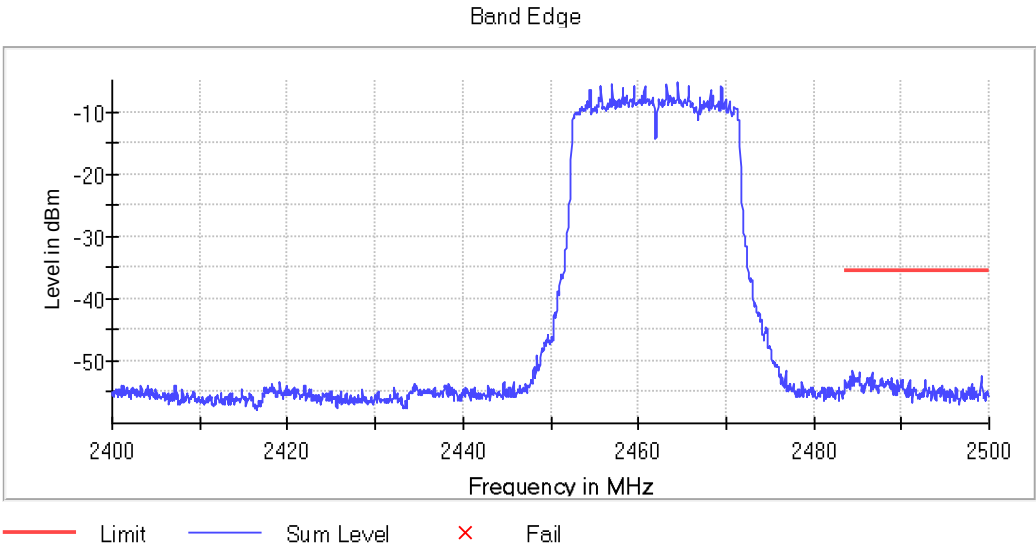
Plots:

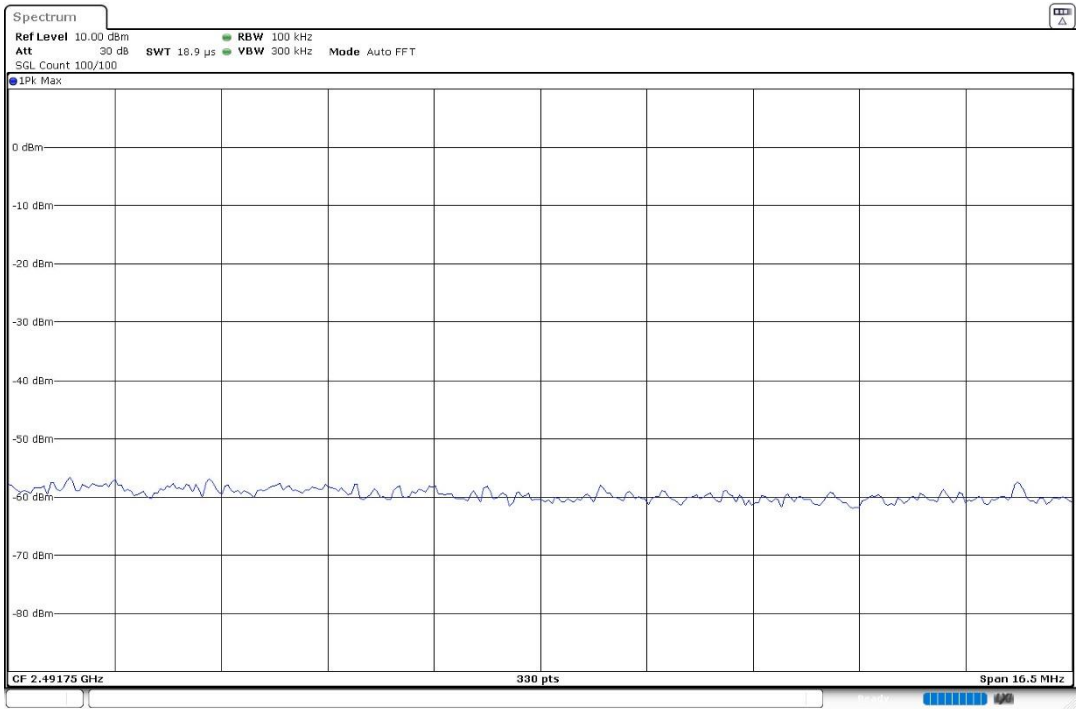




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 SU Full-channel allocation (OFDM MCS0 index), Number of Transmission Chains = 1

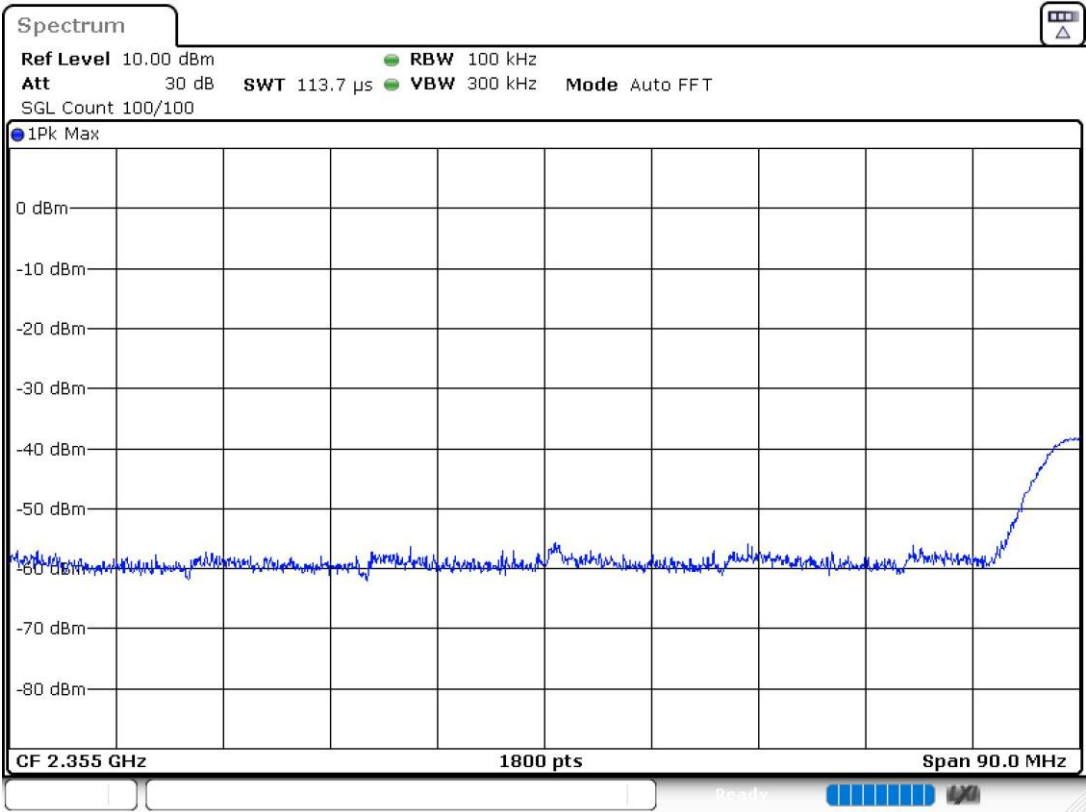
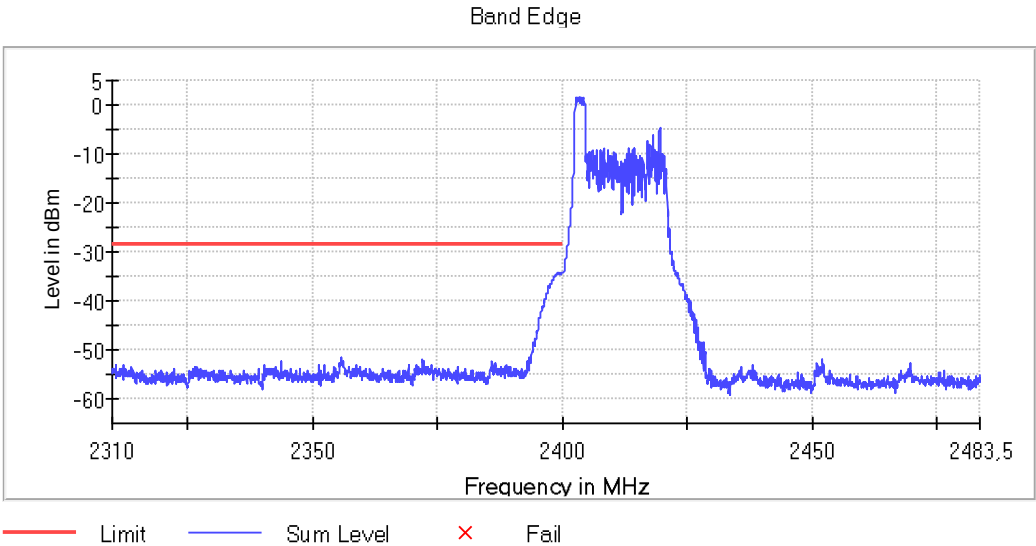
Plots:

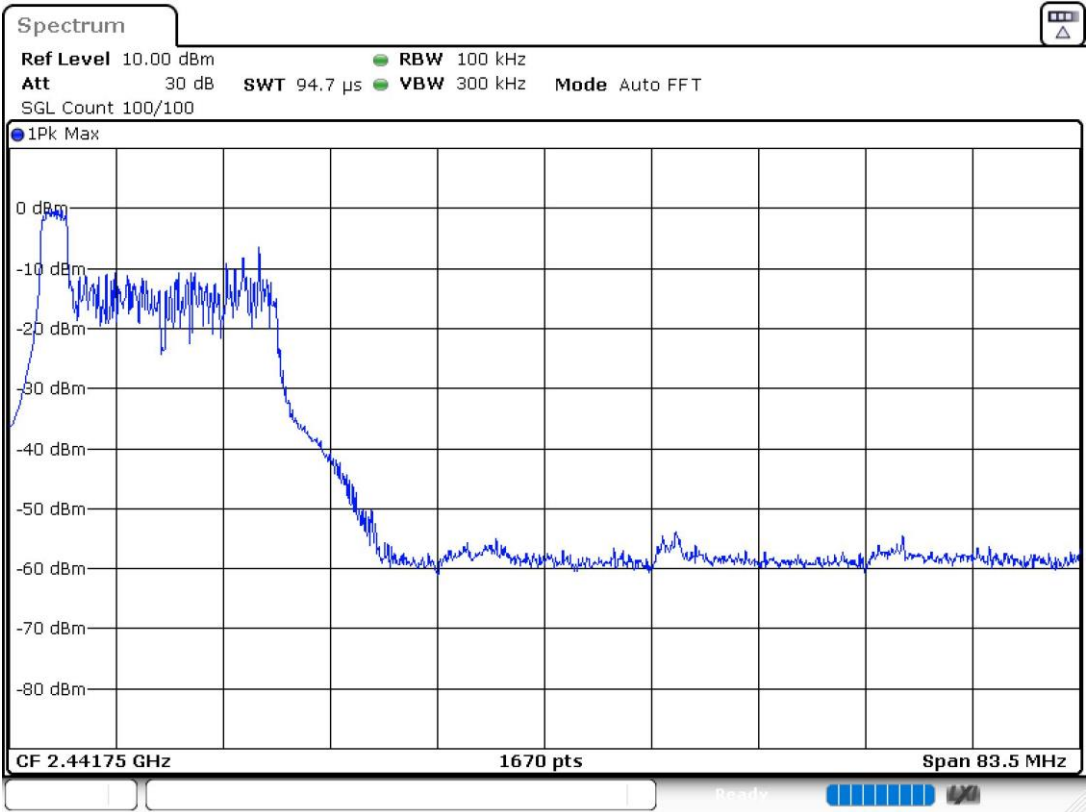




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 RU Subcarrier allocation (OFDMA MCS0 index), Number of Transmission Chains = 1

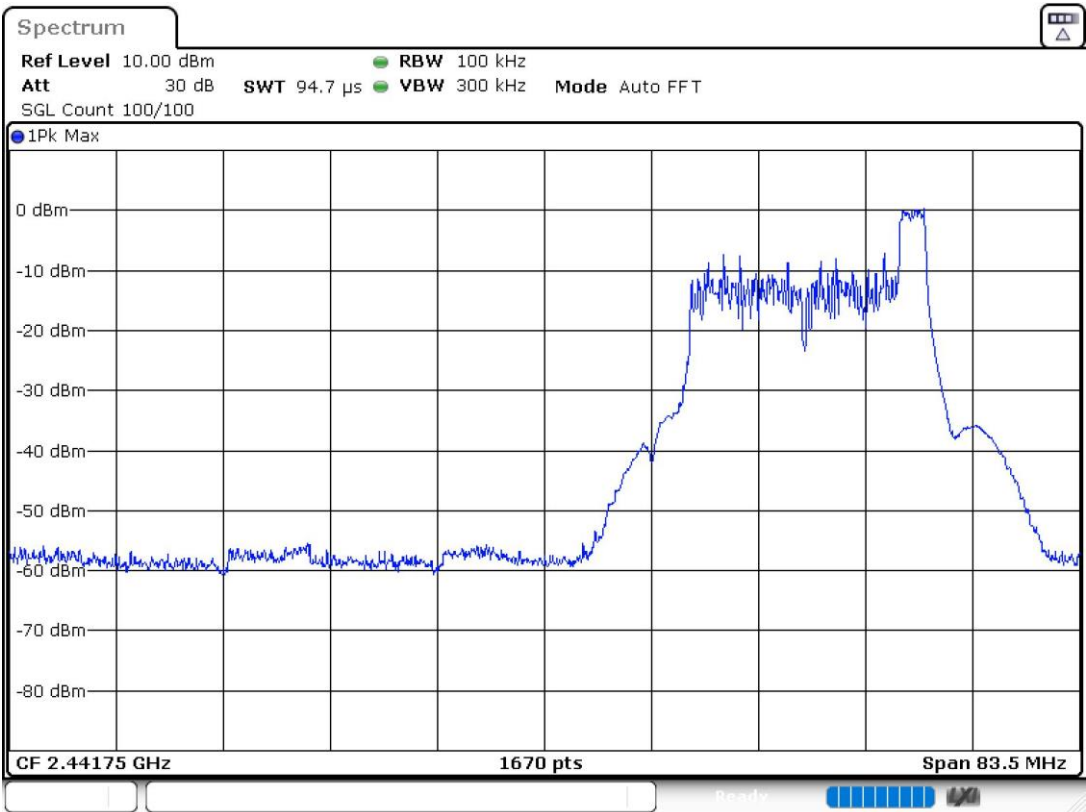
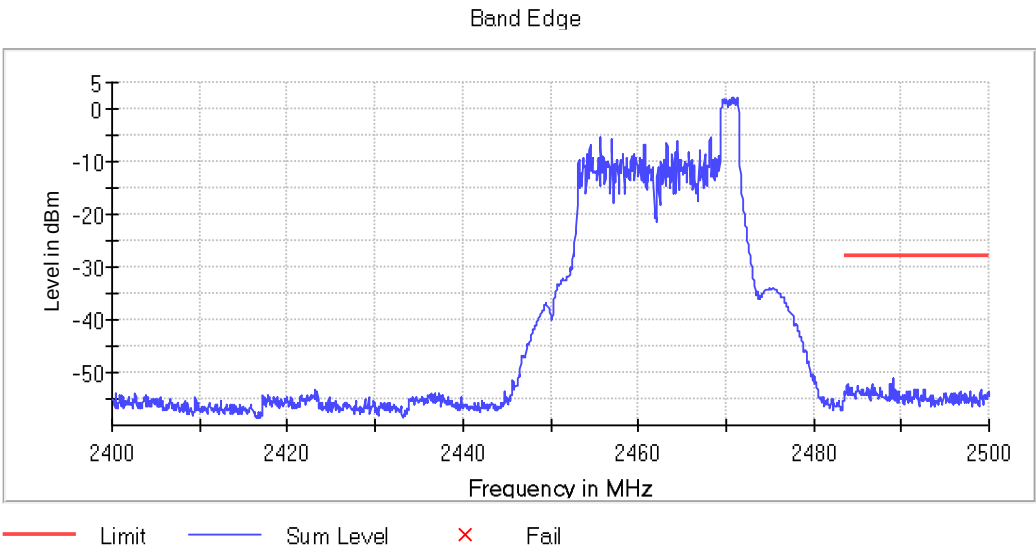
Plots:

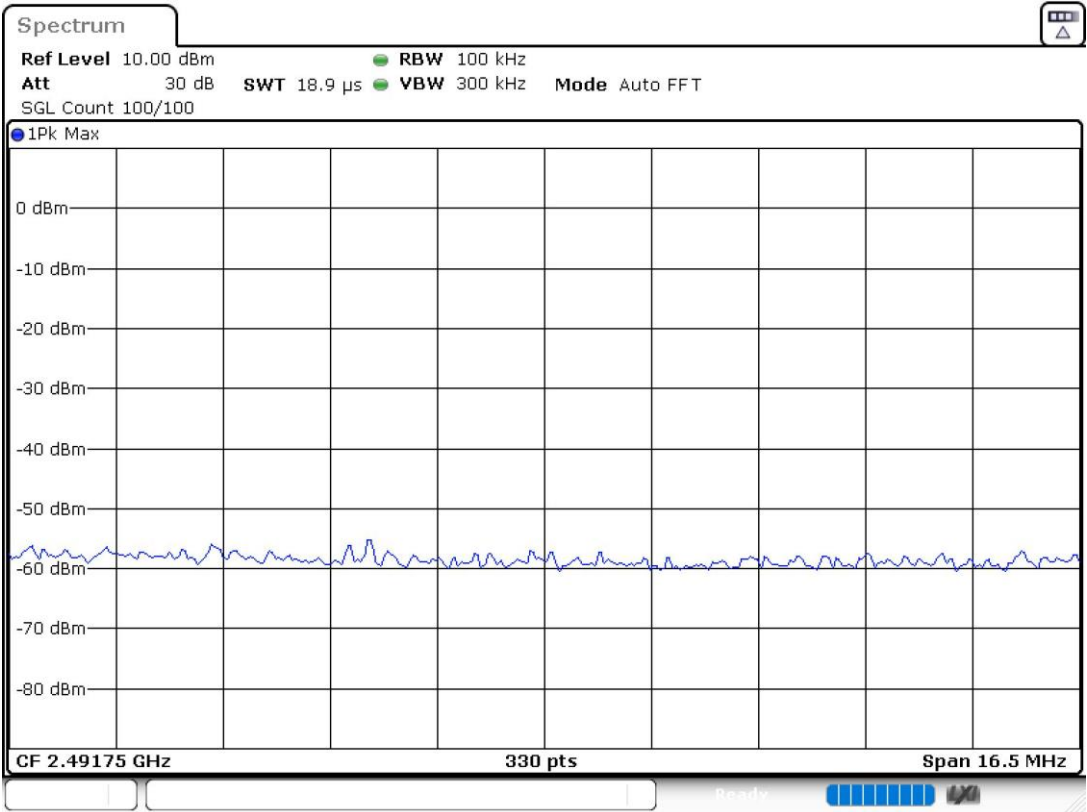




Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11ax20 HE20 RU Subcarrier allocation (OFDMA MCS0 index), Number of Transmission Chains = 1

Plots:





FCC 15.247 (d) 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)):

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.

Results

The results in the next tables show the maximum measured levels in the 1 – 26 GHz range including the restricted bands 2.31 – 2.39 GHz and 2.4835 – 2.5 GHz.

Spurious frequencies with peak levels above the average limit (54 dBμV/m at 3 m) are measured with average detector for compliance checking with the average limit.

Frequency range 30 MHz – 1 GHz:

The spurious frequencies detected do not depend on either the modulation or the operating channel.

Spurious frequencies detected at less than 20 dB below the limit:

Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBμV/m)	Pol	Detector
[0.03, 1]	600.0266	33.28	V	QP
	832.7659	37.74	H	QP
	874.9913	35.54	H	QP

Modulation: 802.11b (DSSS 1 Mbit/s)

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (GHz)	Unwanted Lvl (dBμV/m)	Pol	Detector
2412.0000	[3, 17]	4.9159	46.60	H	Peak
		5.0201	47.88	H	Peak
		5.4431	46.52	V	Peak
2437.0000		4.2333	44.15	V	Peak
		4.9250	44.27	H	Peak
		5.0983	45.20	V	Peak
2462.0000		5.0212	45.61	V	Peak
		5.1172	48.35	V	Peak
		5.4030	44.51	H	Peak

Modulation: 802.11g (OFDM 6 Mbit/s)

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (GHz)	Unwanted Lvl (dBμV/m)	Pol	Detector
2412.0000	[3, 17]	4.2333	44.13	V	Peak
		4.9635	42.51	V	Peak
		5.0598	47.53	V	Peak
2437.0000		4.9737	42.85	V	Peak
		4.9534	42.69	H	Peak
		4.9918	43.25	H	Peak
2462.0000		4.8771	44.55	V	Peak
		4.9062	44.56	H	Peak
		5.0306	44.06	H	Peak

Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (GHz)	Unwanted Lvl (dBμV/m)	Pol	Detector
2412.0000	[3, 17]	5.0213	45.05	V	Peak
		5.1083	48.47	V	Peak
		5.3527	47.88	H	Peak
2437.0000		4.2333	43.58	V	Peak
		4.9348	43.69	H	Peak
		5.0980	45.07	V	Peak
2462.0000		4.8869	44.75	H	Peak
		4.9832	47.95	H	Peak
		5.0213	45.72	V	Peak

Modulation: 802.11ax20 HE20 (OFDM MCS0 index) – SU Full-channel allocation

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (GHz)	Unwanted Lvl (dBμV/m)	Pol	Detector
2412.0000	[3, 17]	4.9348	46.88	H	Peak
		4.9831	48.01	H	Peak
		5.1270	46.44	H	Peak
2437.0000		5.0121	43.23	V	Peak
		5.0602	44.57	V	Peak
		5.3681	48.65	H	Peak
2462.0000		4.2334	41.87	V	Peak
		4.9058	42.93	H	Peak
		5.0598	43.41	V	Peak

Modulation: 802.11ax20 HE20 (OFDMA MCS0 index) – RU Subcarrier allocation

Spurious frequencies detected at less than 20 dB below the limit:

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (GHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2412.0000	[3, 17]	5.0114	45.72	V	Peak
		5.0790	44.62	V	Peak
		5.1172	43.94	H	Peak
2437.0000		4.9636	44.39	V	Peak
		5.0695	45.37	V	Peak
		5.0887	45.63	H	Peak
2462.0000		5.0215	43.97	V	Peak
		5.1749	46.30	V	Peak
		5.7222	50.16	V	Peak

Verdict

Pass

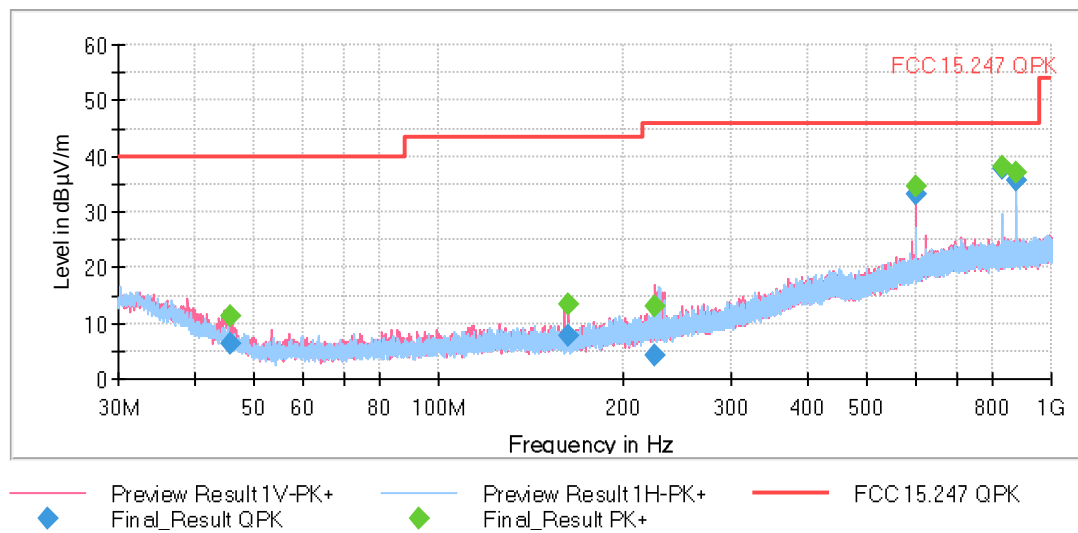
Attachments

The setting for each range of frequency is indicated in the following tables:

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESW 44] 3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	30 dB
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
Receiver: [ESU 40] 17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	0,3 s	0 dB

Operation Band (MHz) = [2400, 2483.5], Equipment Type: Digital Transmission System (DTS), Frequency Range (GHz) = [0.03, 1]

Plots:



This plot is valid for all channel and all modulations