FCC 15.247 (a) (2) / RSS-247 5.2 (a) 6 dB Bandwidth

Limits

The minimum 6 dB bandwidth shall be at least 500 kHz.

Results

Modulation: 802.11b (DSSS 1 Mbit/s)

Freq (MHz)	# of Tx Chains	Port	Ebw (MHz)
2412.00	1	1	7.60
2437.00			7.65
2462.00			7.65

Modulation: 802.11g (OFDM 6 Mbit/s)

Freq (MHz)	# of Tx Chains	Port	Ebw (MHz)
2412.00	1	1	16.15
2437.00			16.45
2462.00			15.80

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

Freq (MHz)	# of Tx Chains	Port	Ebw (MHz)
2412.00	1	1	17.40
2437.00			17.70
2462.00			16.15
2412.00	2	1+2	16.50
2437.00			17.70
2462.00			16.40

Verdict

Pass

Attachments

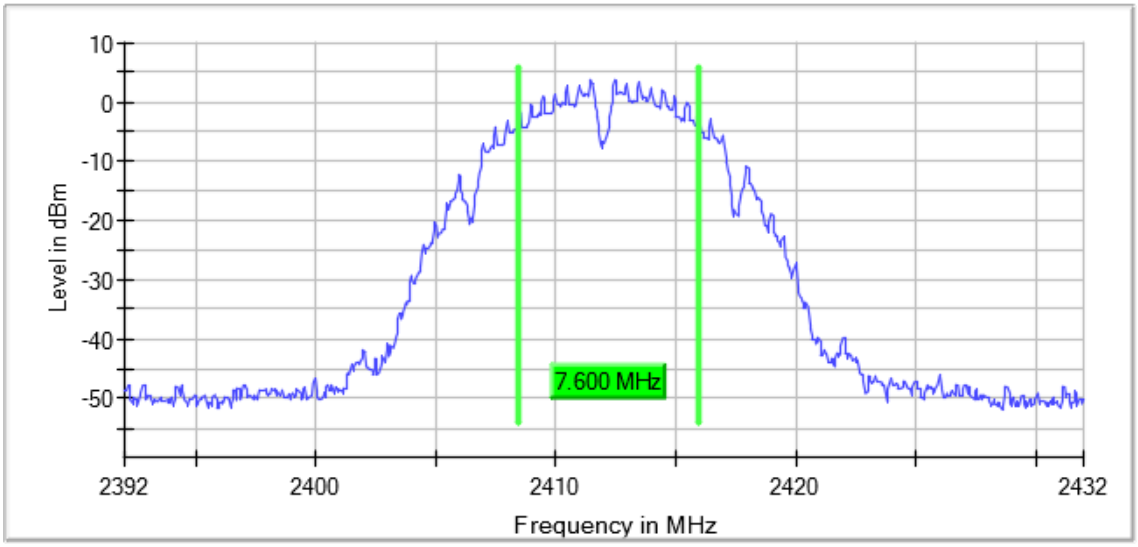
Frequency MHz = 2412.00000 Bandwidth MHz = 20

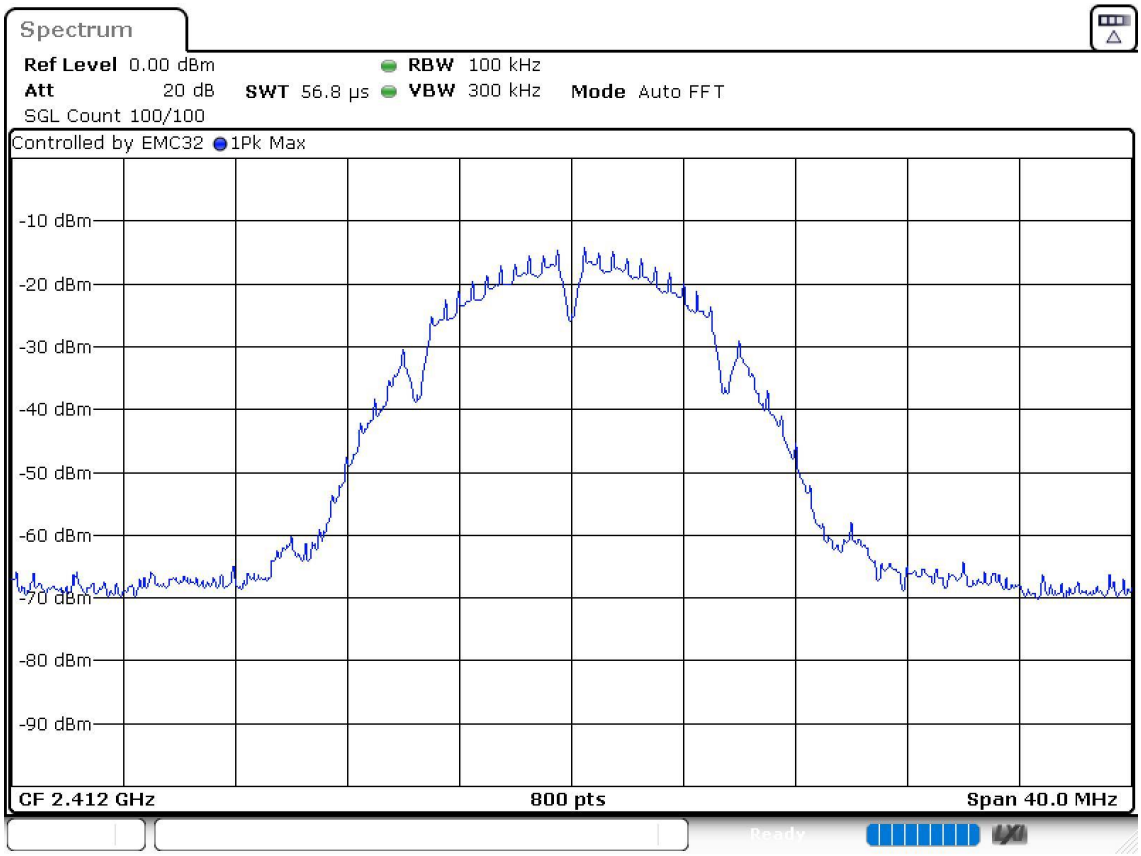
Modulation = 802.11b (DSSS 1 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:

6 dB Bandwidth



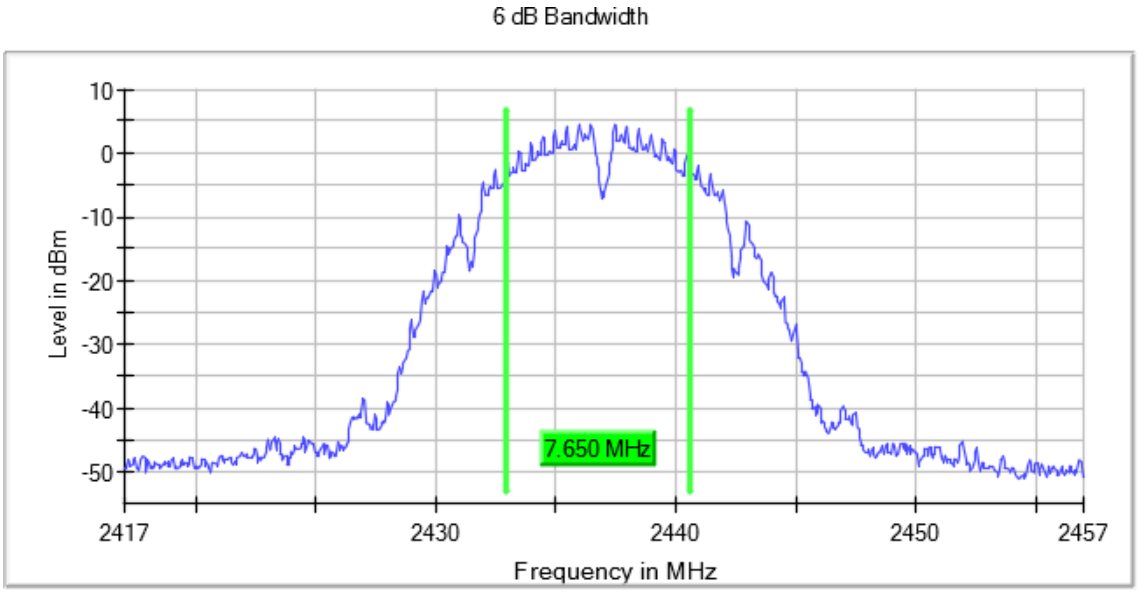


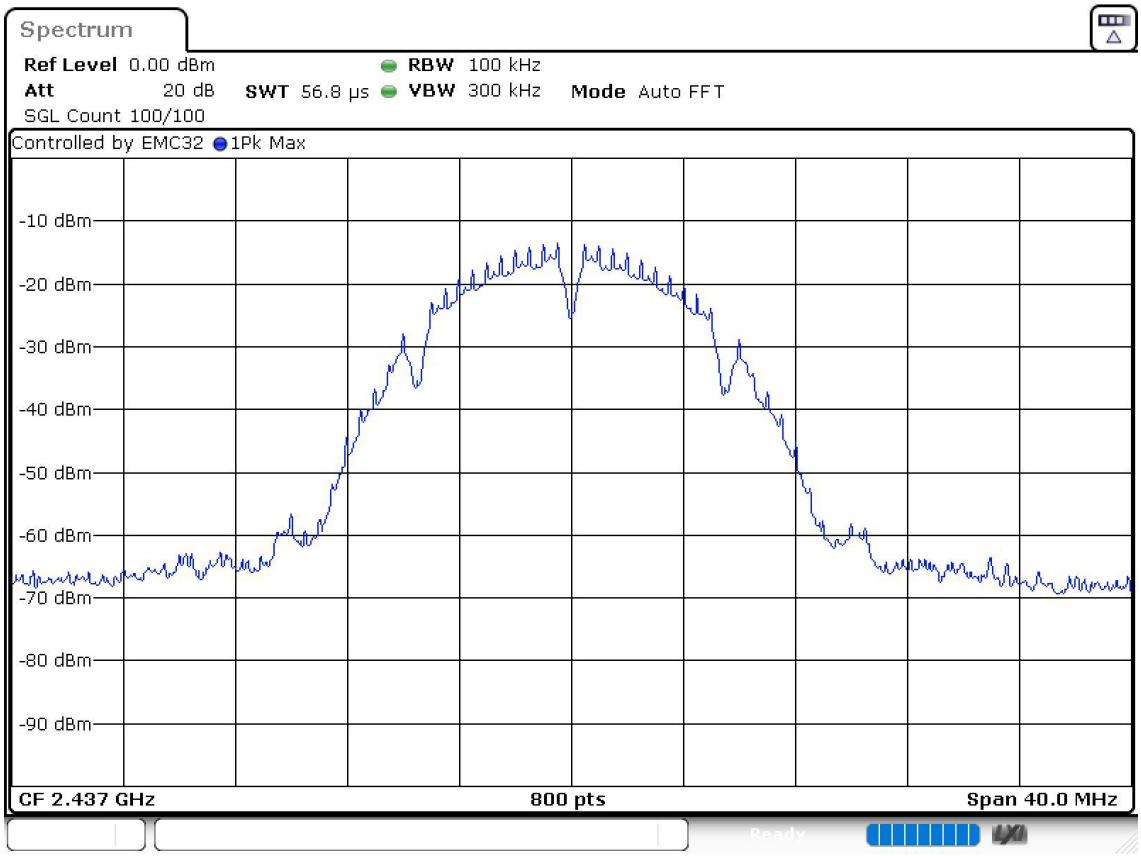
Frequency MHz = 2437.00000 Bandwidth MHz = 20

Modulation = 802.11b (DSSS 1 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:



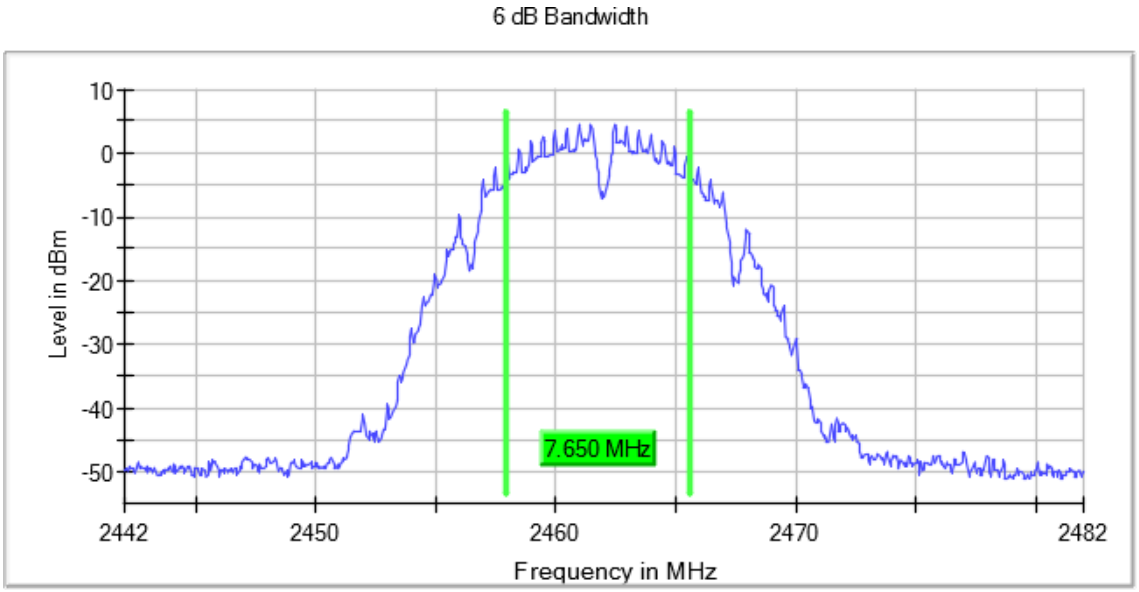


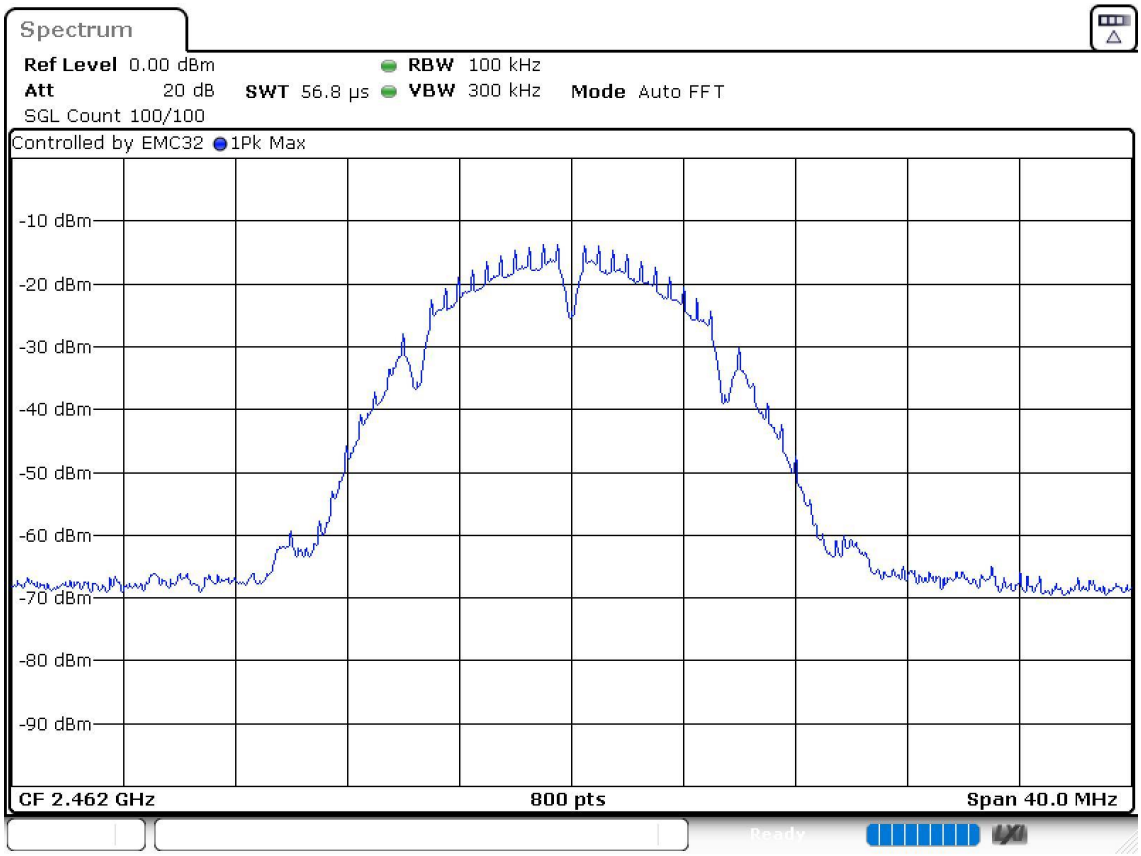
Frequency MHz = 2462.00000 Bandwidth MHz = 20

Modulation = 802.11b (DSSS 1 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:



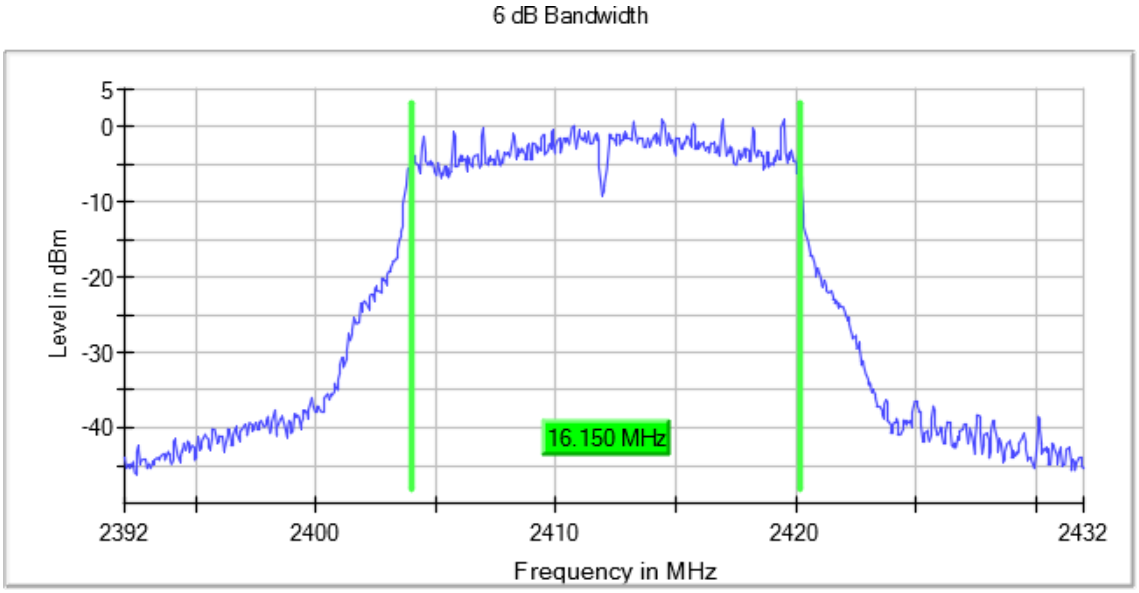


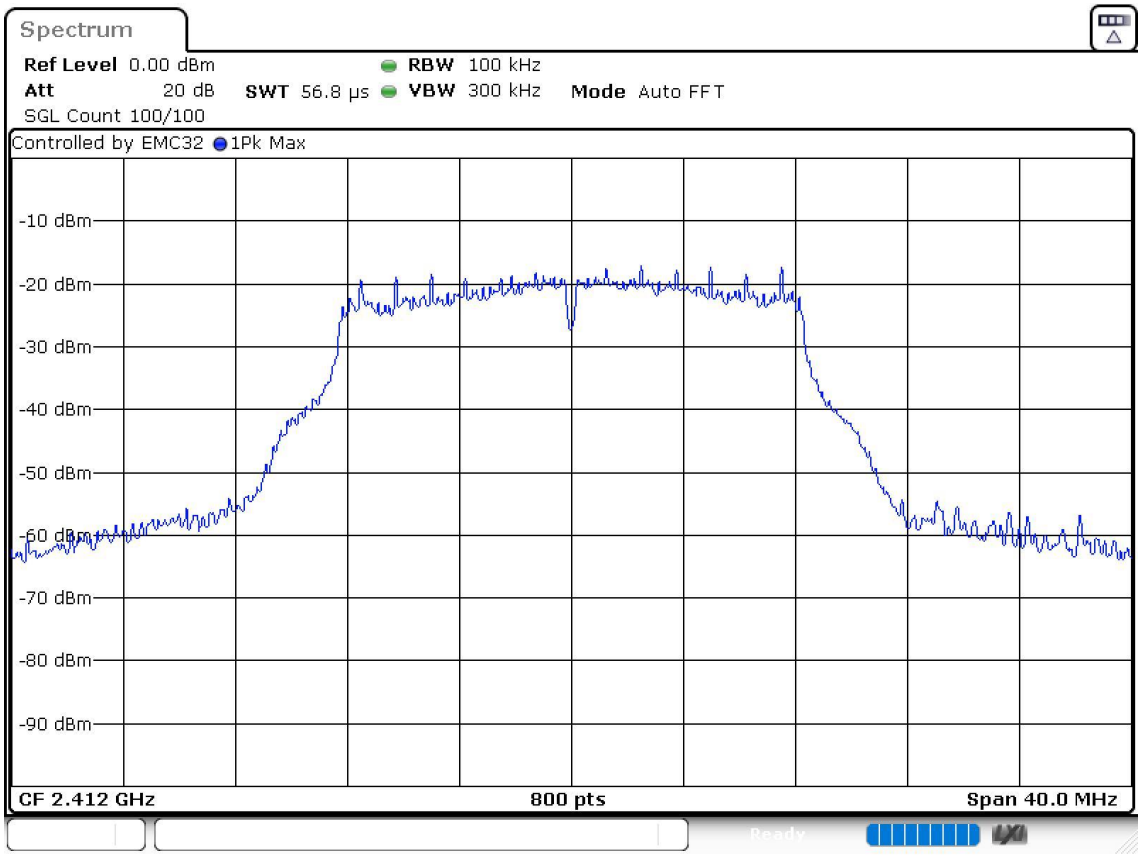
Frequency MHz = 2412.00000 Bandwidth MHz = 20

Modulation = 802.11g (OFDM 6 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:



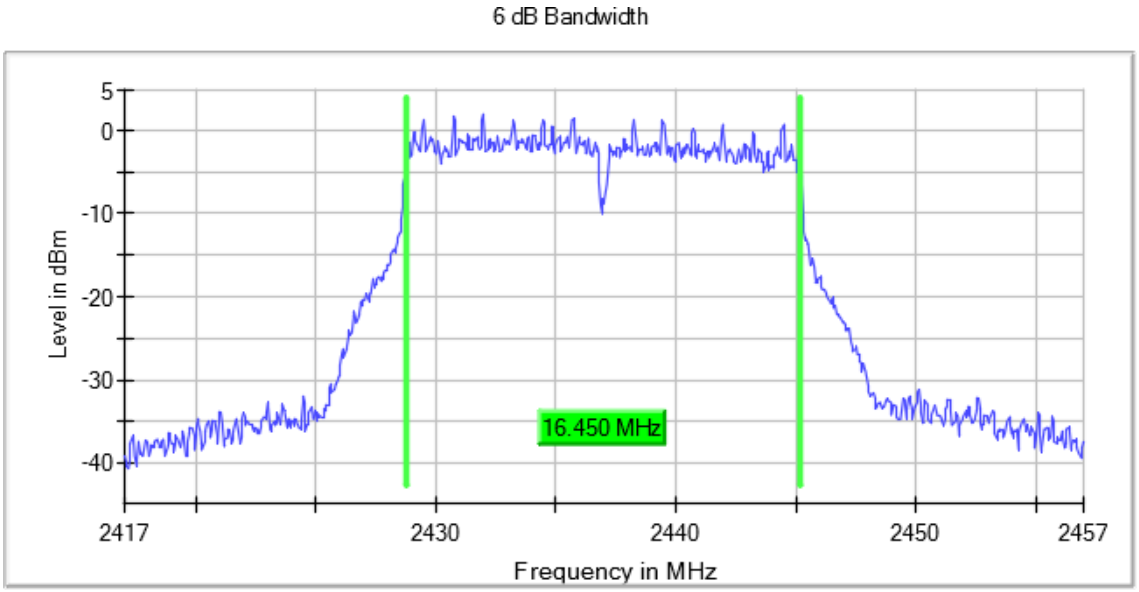


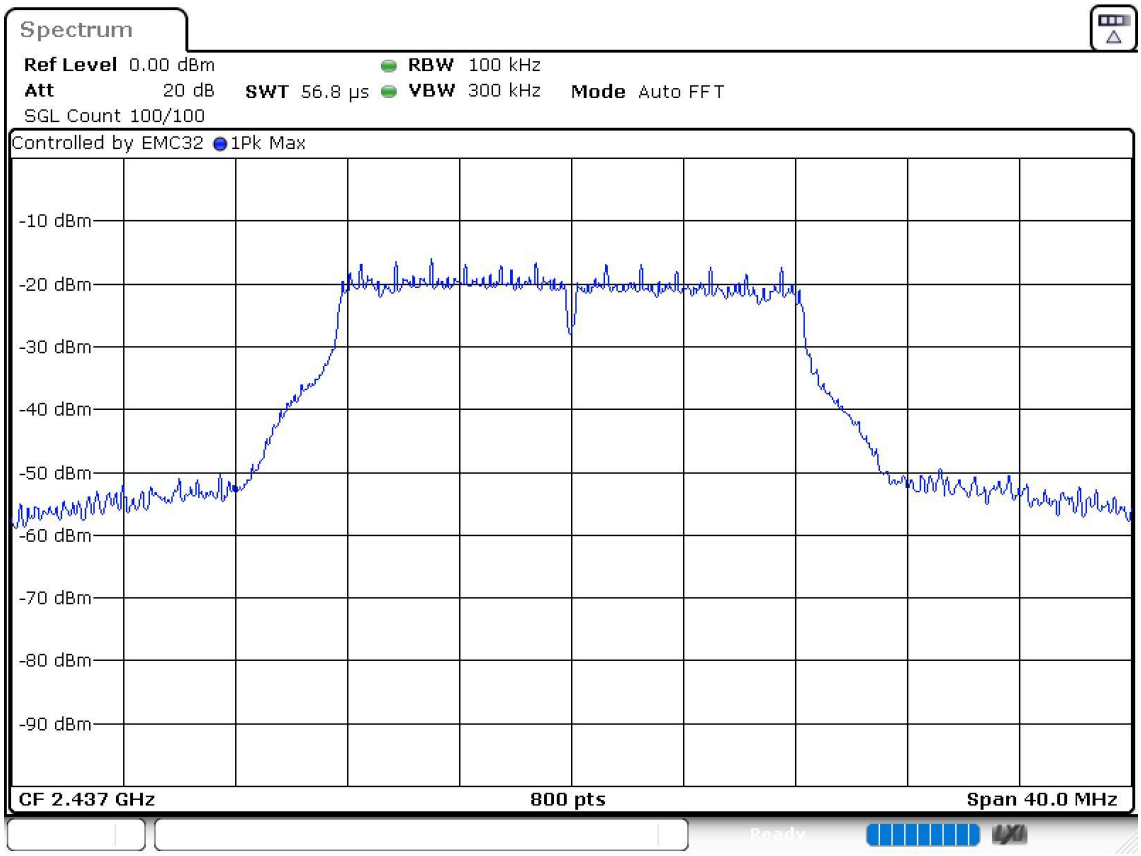
Frequency MHz = 2437.00000 Bandwidth MHz = 20

Modulation = 802.11g (OFDM 6 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:





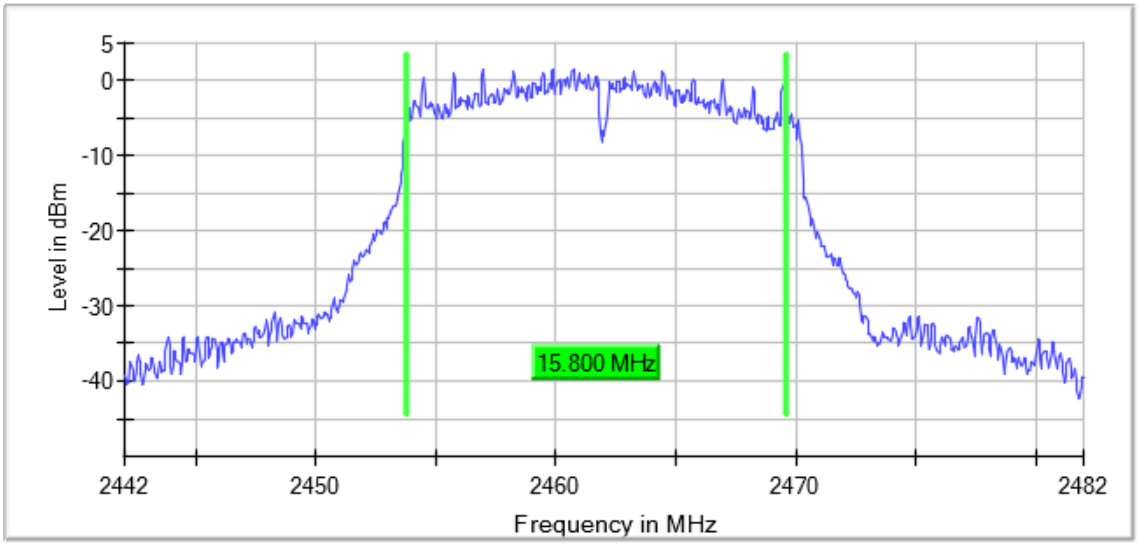
Frequency MHz = 2462.00000 Bandwidth MHz = 20

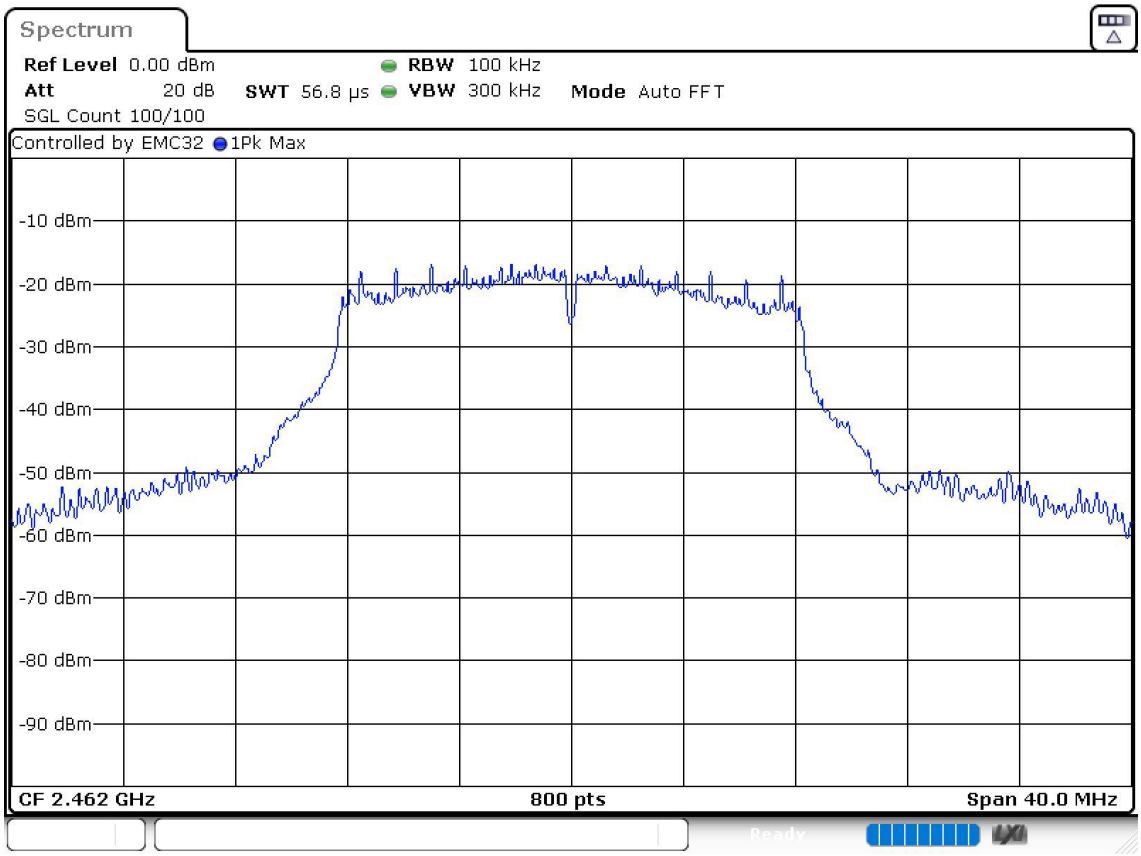
Modulation = 802.11g (OFDM 6 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:

6 dB Bandwidth





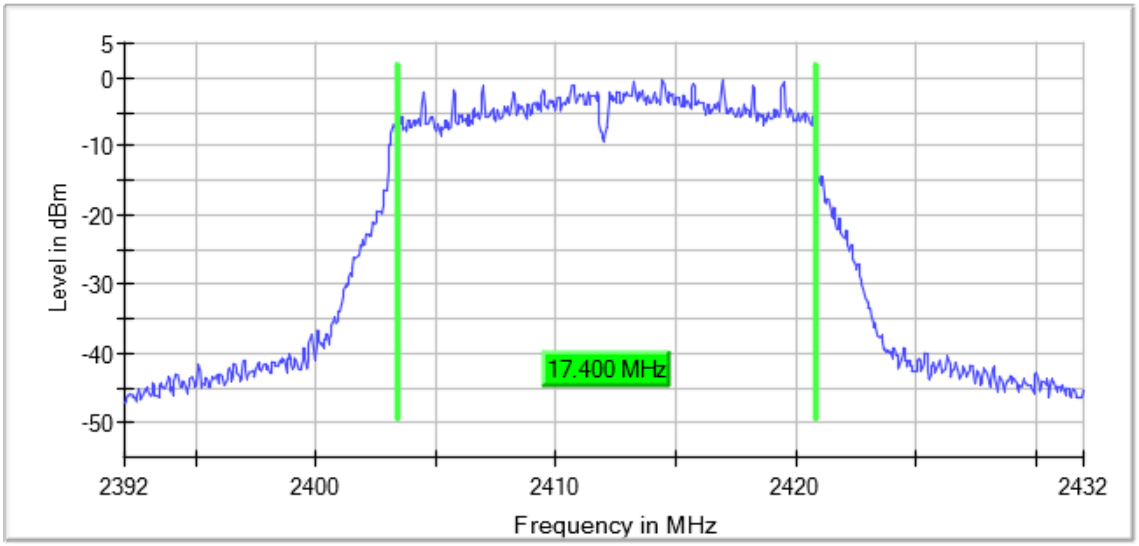
Frequency MHz = 2412.00000 Bandwidth MHz = 20

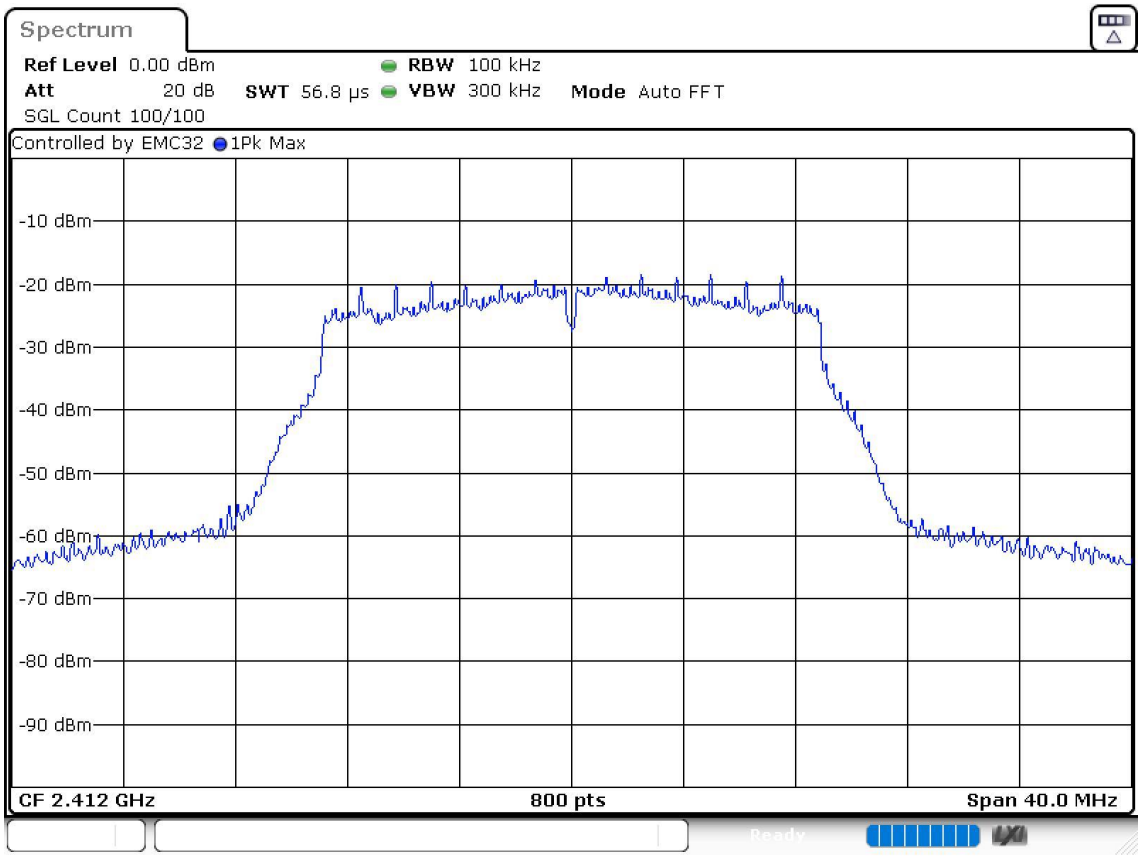
Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:

6 dB Bandwidth





Frequency MHz = 2437.00000

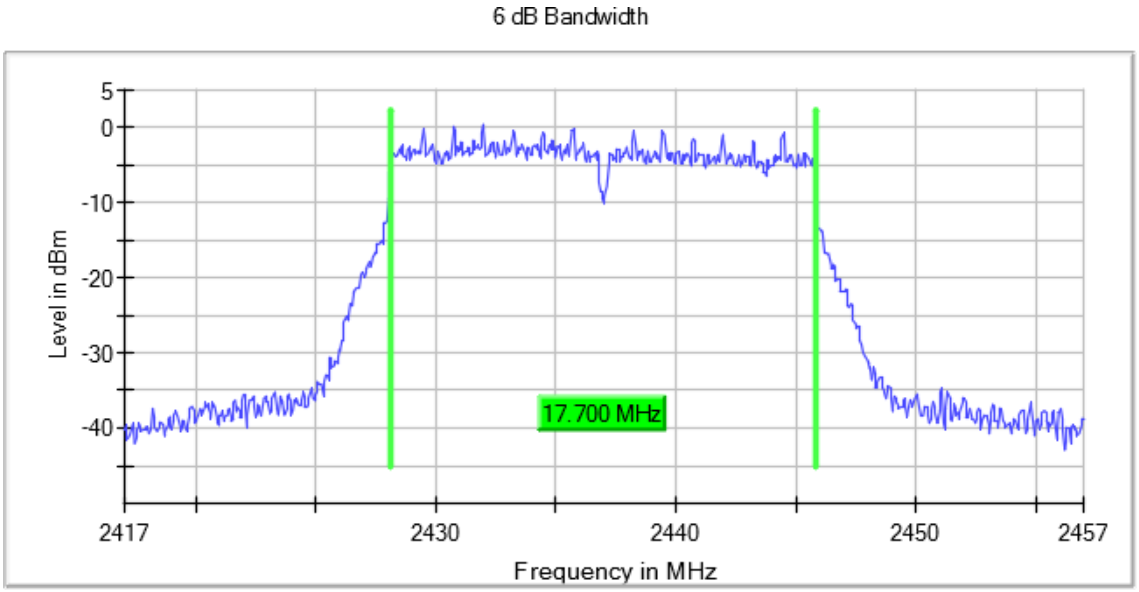
Bandwidth MHz = 20

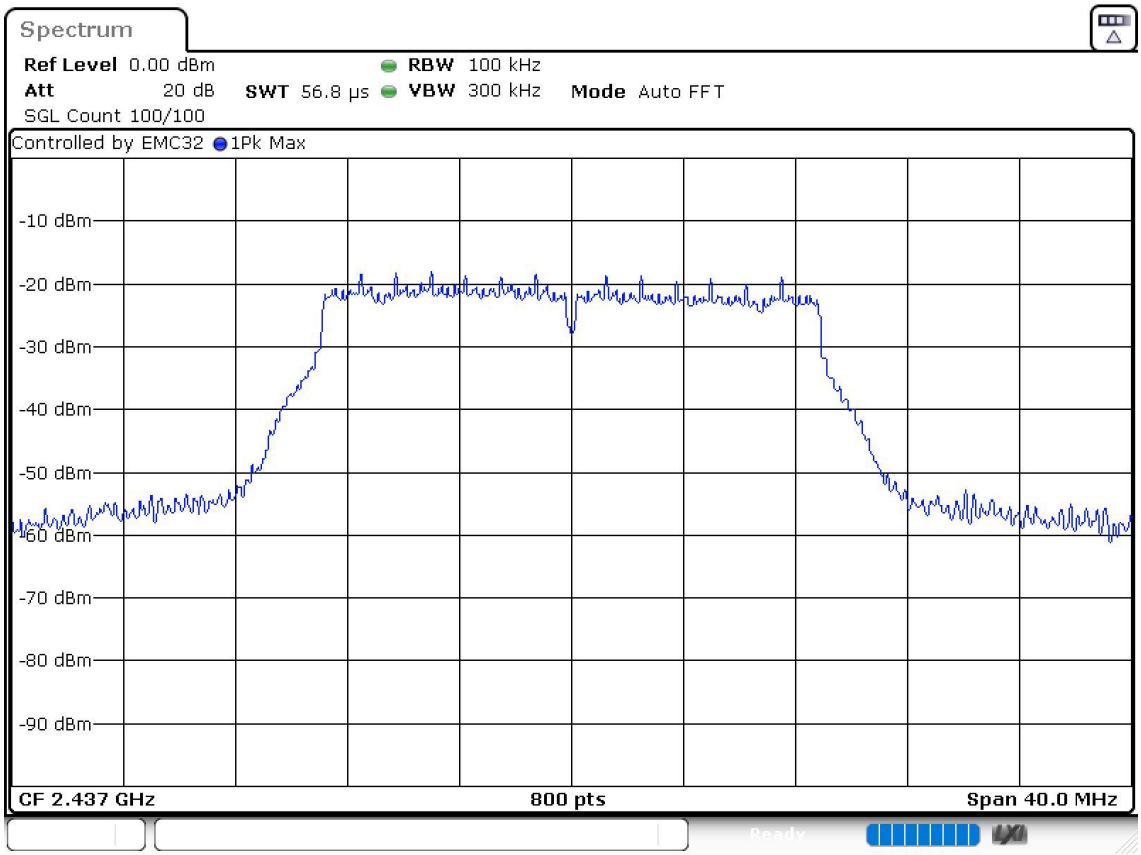
Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 1

Active Port = 1

Images:



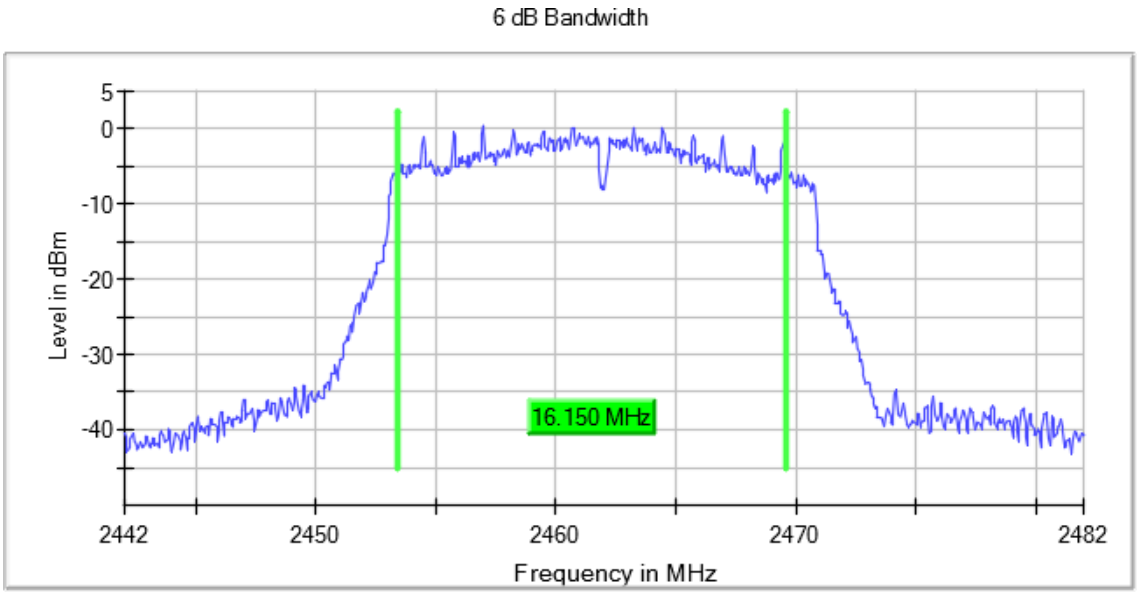


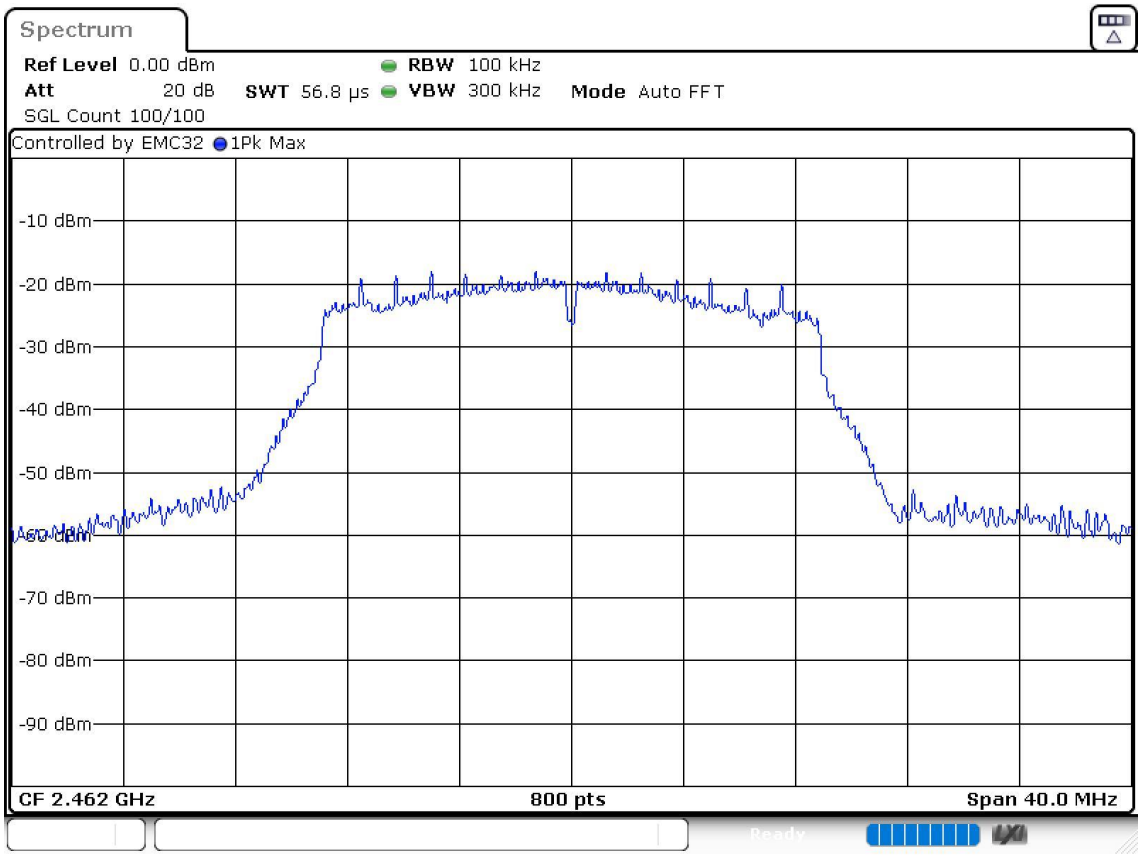
Frequency MHz = 2462.00000 Bandwidth MHz = 20

Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Number of Transmission Chains = 1

Active Port = 1

Images:



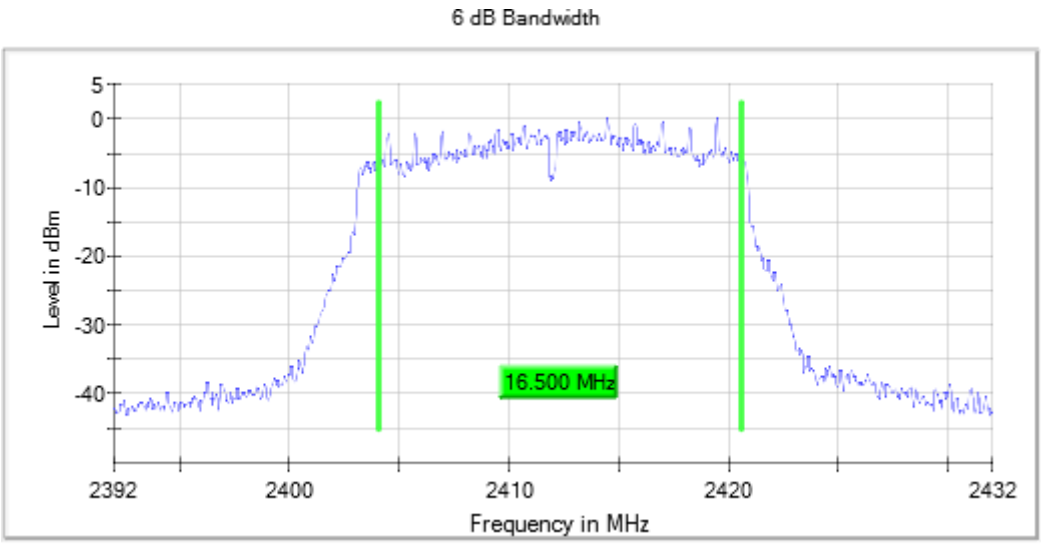


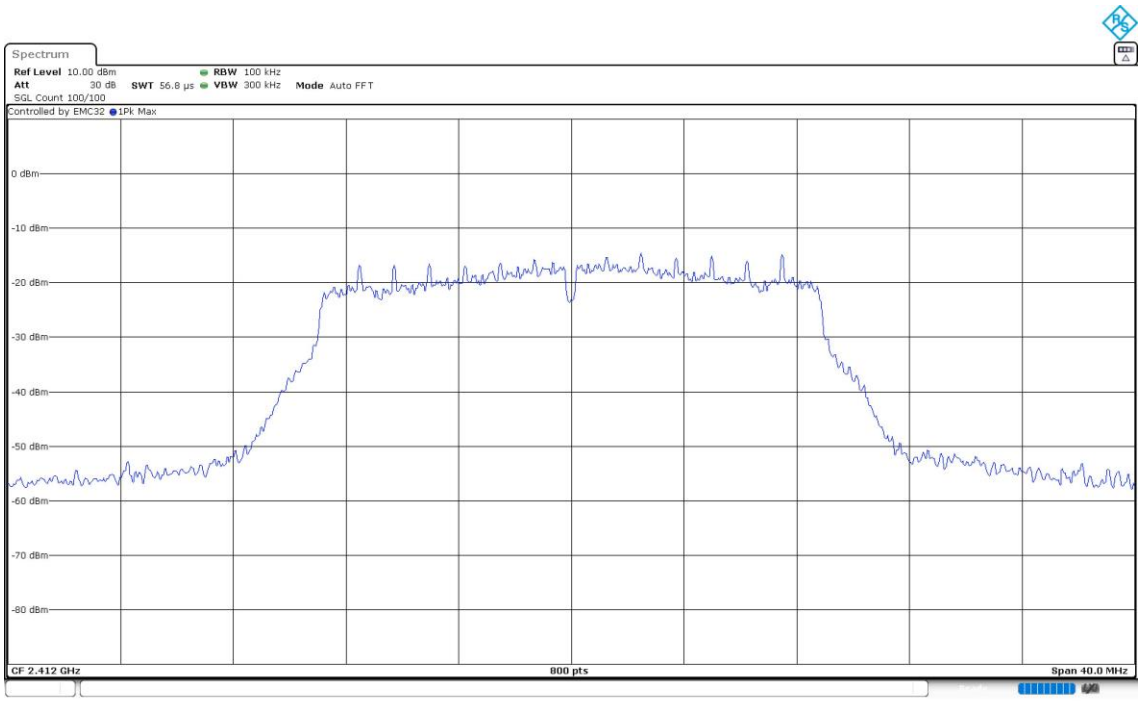
Frequency MHz = 2412.00000 Bandwidth MHz = 20

Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Number of Transmission Chains = 2

Active Port = 1+2

Images:



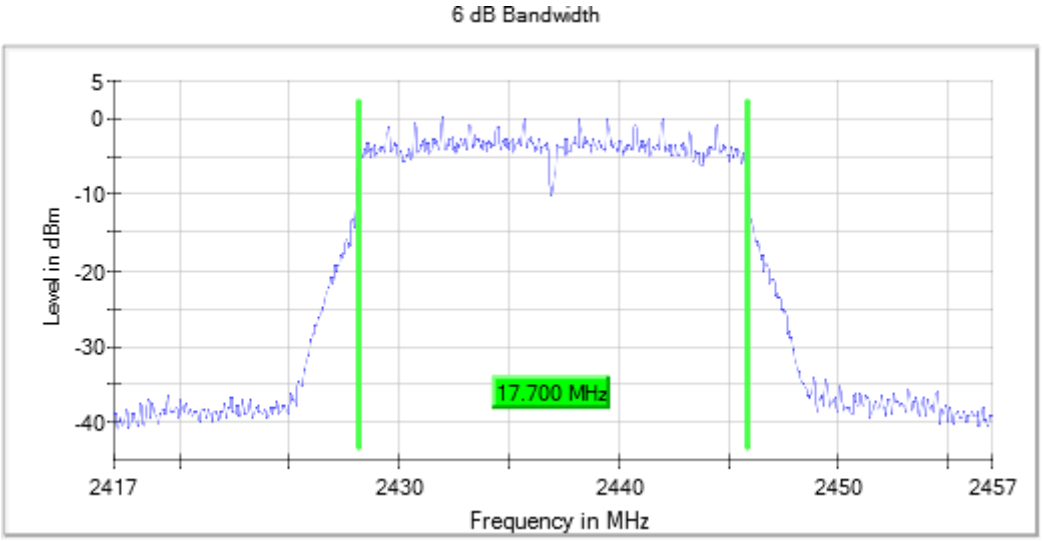


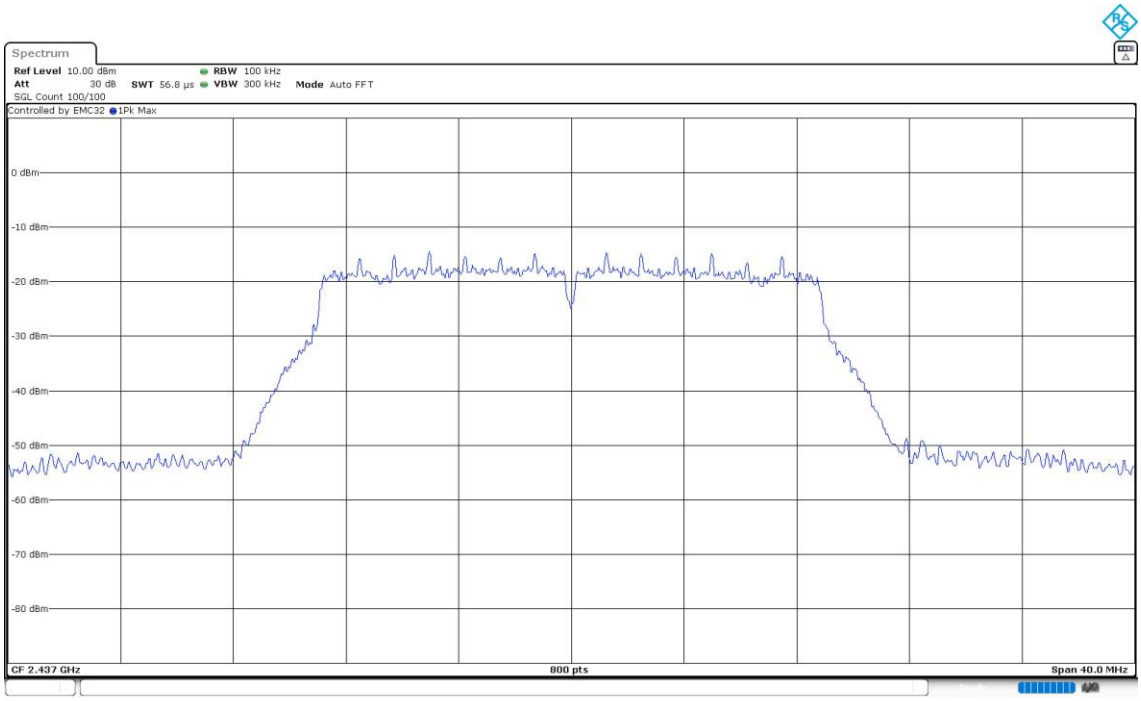
Frequency MHz = 2437.00000 Bandwidth MHz = 20

Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Number of Transmission Chains = 2

Active Port = 1+2

Images:



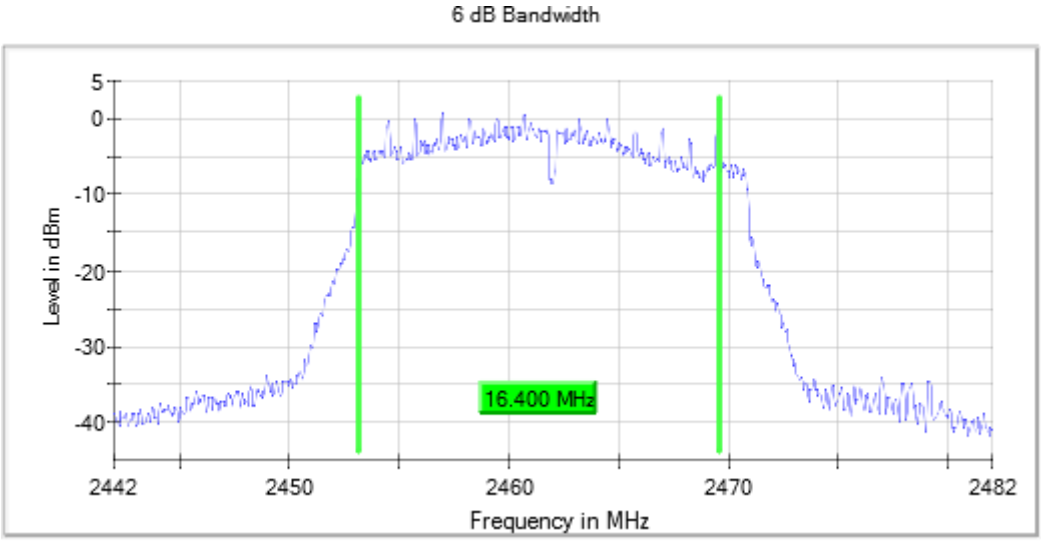


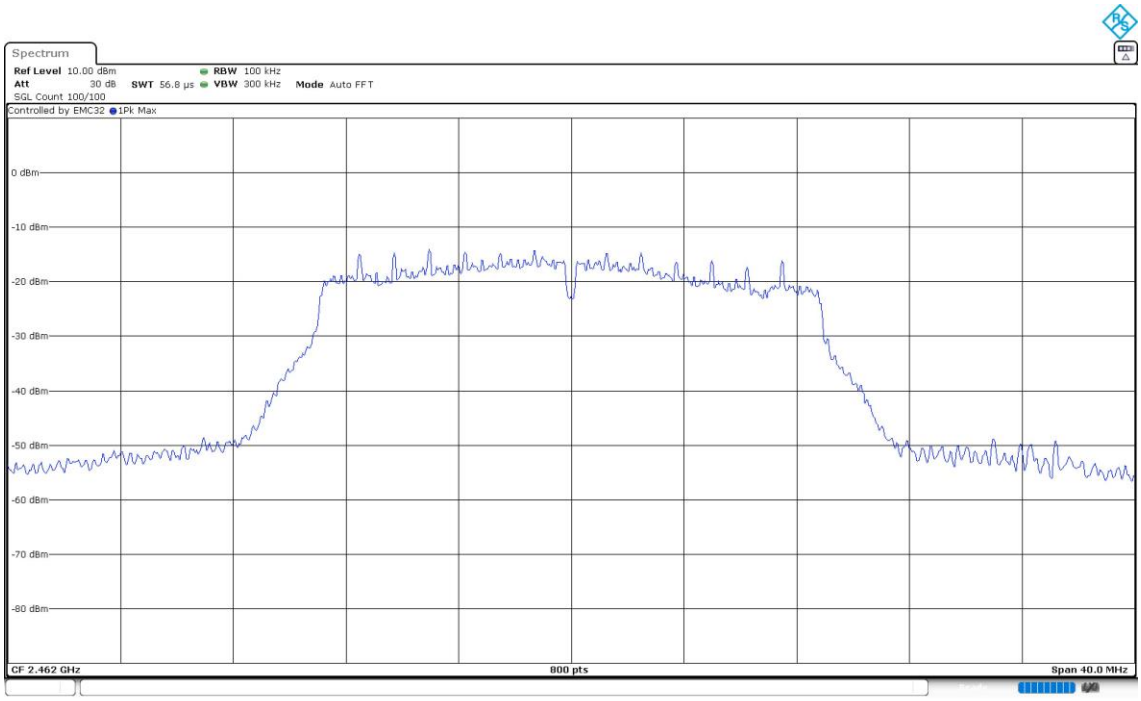
Frequency MHz = 2462.00000 Bandwidth MHz = 20

Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Number of Transmission Chains = 2

Active Port = 1+2

Images:





FCC 15.247 (b) (1) / RSS-247 5.4 (d) Maximum output power and antenna gain

Limits

For systems using digital modulation in the 902-928 MHz band: 1 watt (30 dBm).

The e.i.r.p. shall not exceed 4 W (36 dBm) (Canada).

Results

The maximum 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:

SISO Antenna 1 (worst case):	+2.20 dBi
MIMO Antenna 0 + Antenna 1:	+4.77 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)

Freq (MHz)	# of Tx Chains	Port	Avg Power (dBm)	EIRP (dBm)
2412.00	1	1	13.72	15.92
2437.00			14.20	16.40
2462.00			13.50	15.70

Modulation: 802.11g (OFDM 6 Mbit/s)

Freq (MHz)	# of Tx Chains	Port	Avg Power (dBm)	EIRP (dBm)
2412.00	1	1	13.91	16.11
2437.00			14.44	16.64
2462.00			14.63	16.83

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

Freq (MHz)	# of Tx Chains	Port	Avg Power (dBm)	EIRP (dBm)
2412.00	1	1	12.30	14.50
2437.00			13.10	15.30
2462.00			12.80	15.00
2412.00	2	1+2	13.20	17.97
2437.00			14.05	18.82
2462.00			13.80	18.57

Verdict

Pass

FCC 15.247 (e) / RSS-247 5.2 (b) 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)	# of Tx Chains	Port	PSD (dBm)
2412.00	1	1	-4.68
2437.00			-3.65
2462.00			-4.29

Modulation: 802.11g (OFDM 6 Mbit/s)

Freq (MHz)	# of Tx Chains	Port	PSD (dBm)
2412.00	1	1	-6.88
2437.00			-6.98
2462.00			-5.54

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

Freq (MHz)	# of Tx Chains	Port	PSD (dBm)
2412.00	1	1	-8.43
2437.00			-8.54
2462.00			-7.36
2412.00	2	1+2	-7.93
2437.00			-8.33
2462.00			-7.12

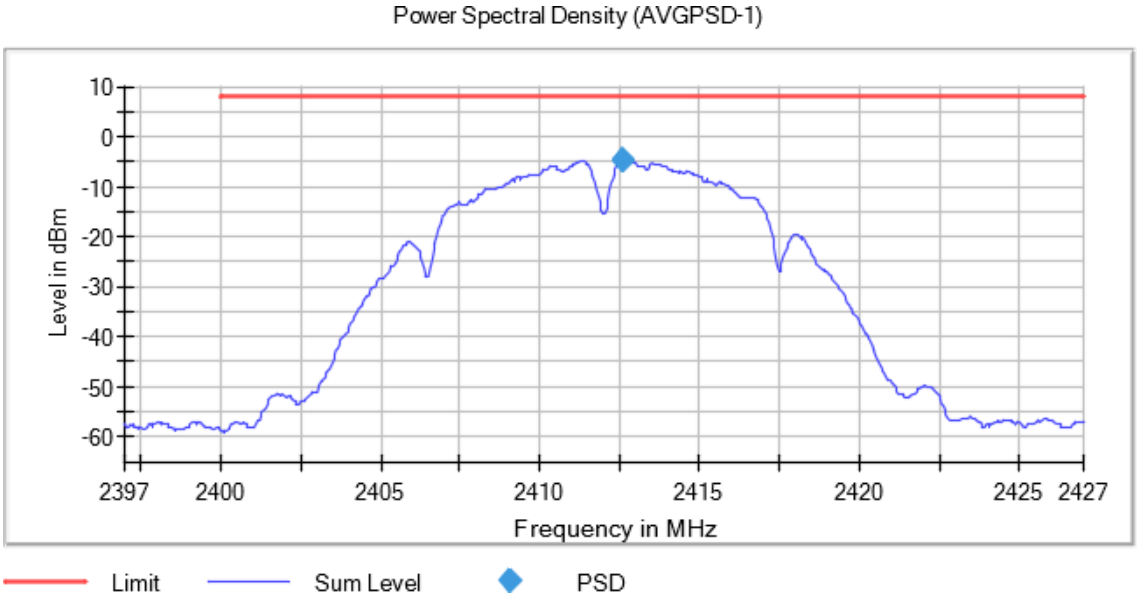
Verdict

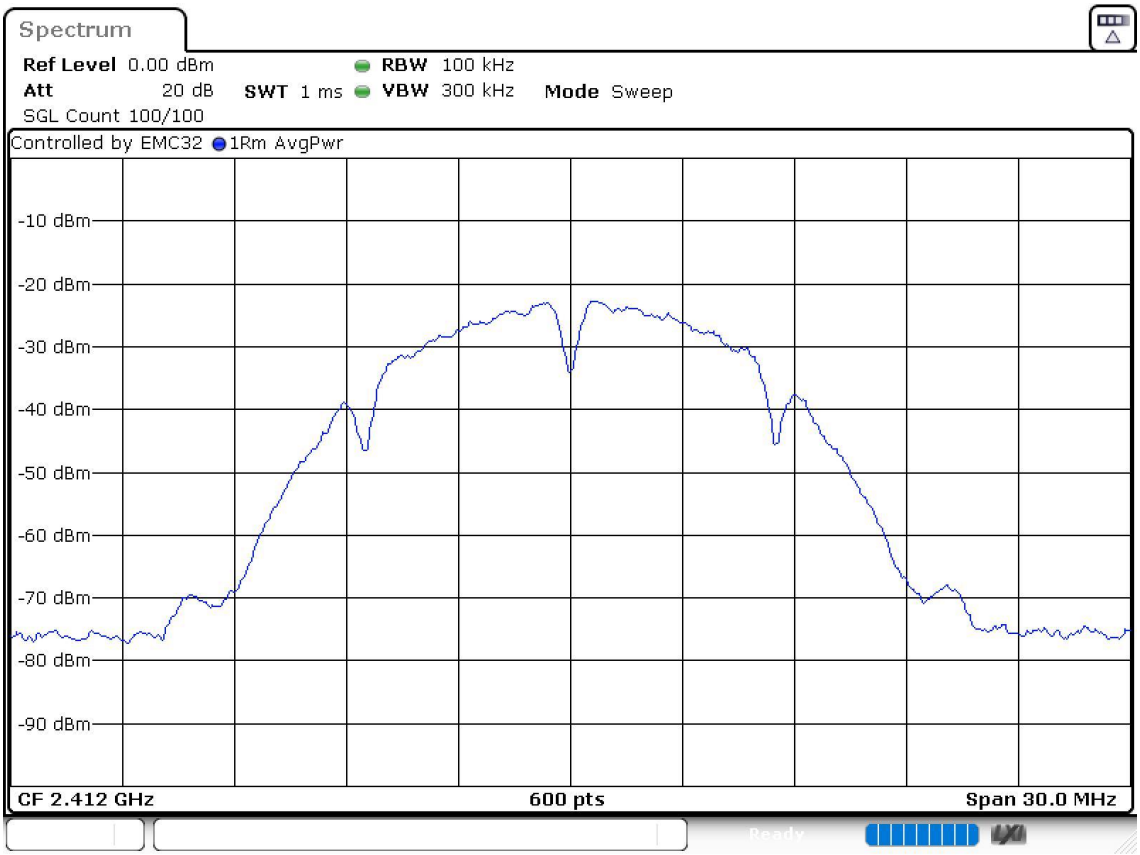
Pass

Attachments

Frequency MHz = 2412.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11b (DSSS 1 Mbit/s)
Number of Transmission Chains = 1	Active Port = 1

Images:



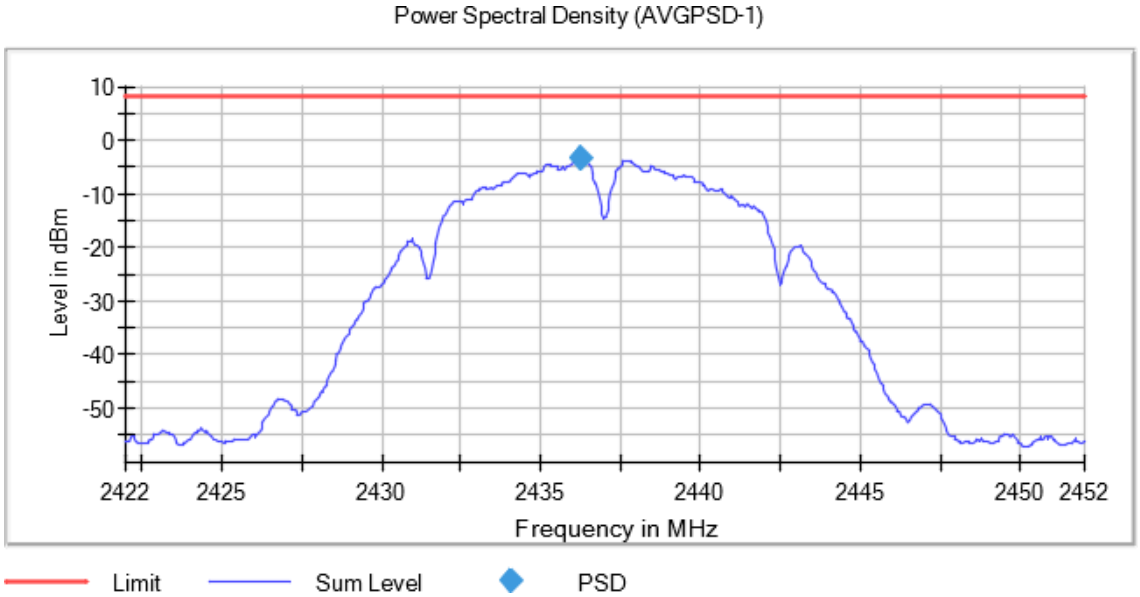


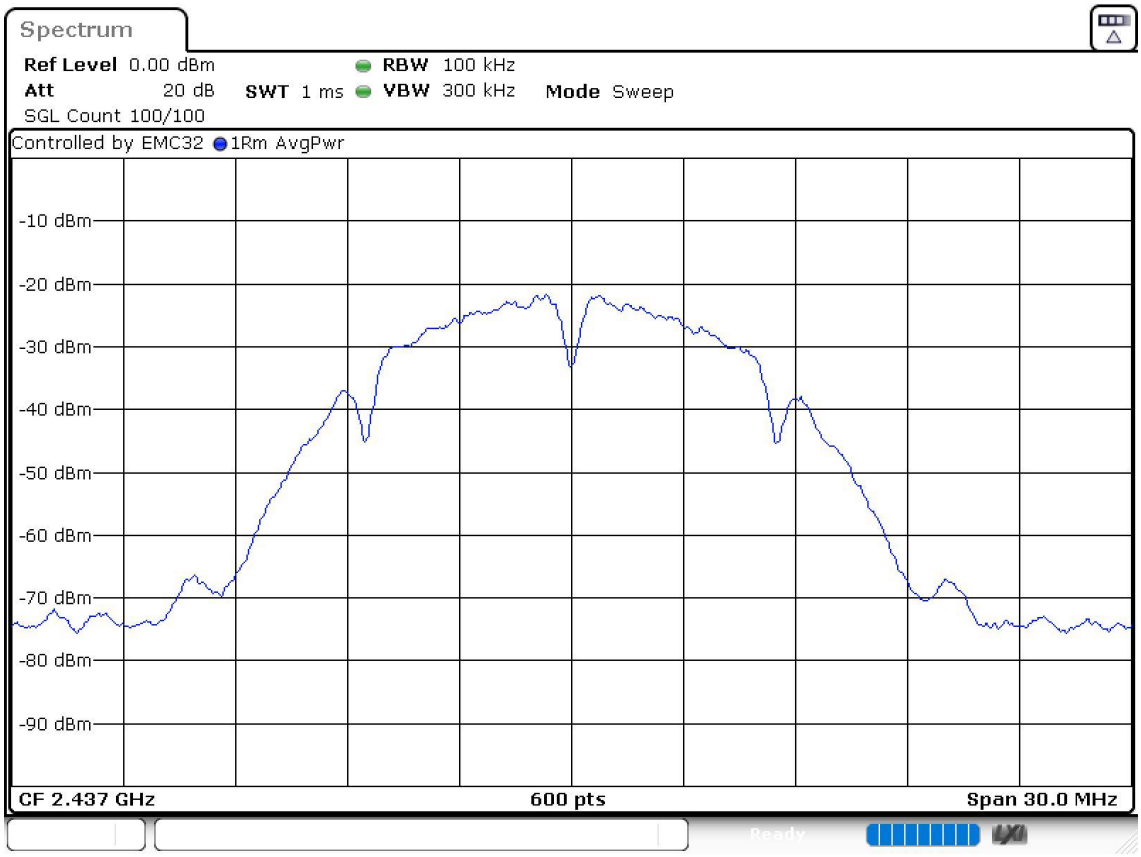
Frequency MHz = 2437.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11b (DSSS 1 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

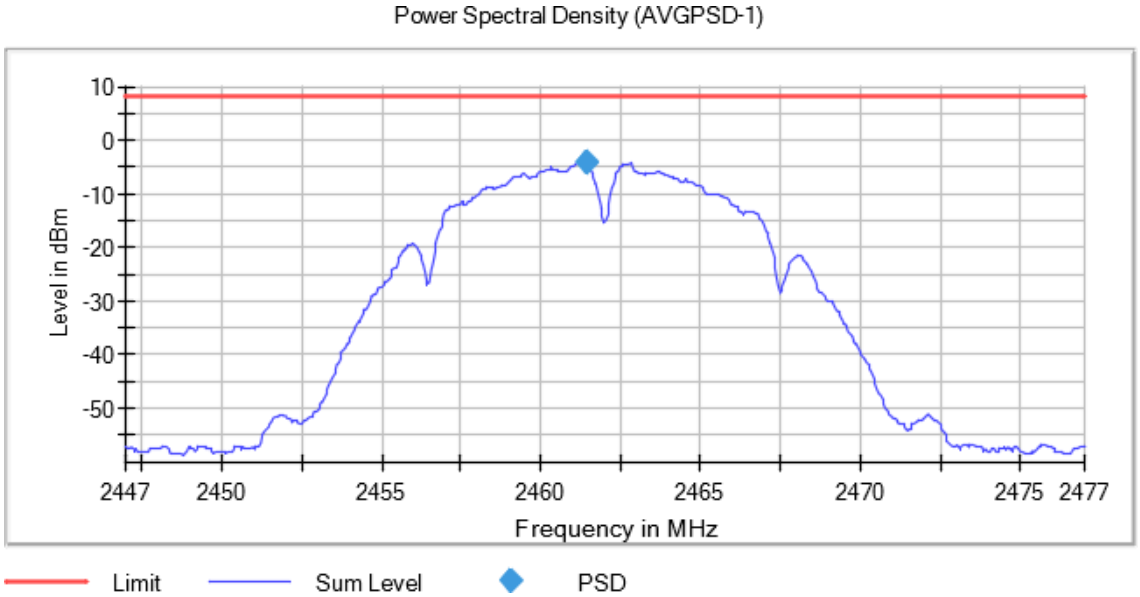
Images:

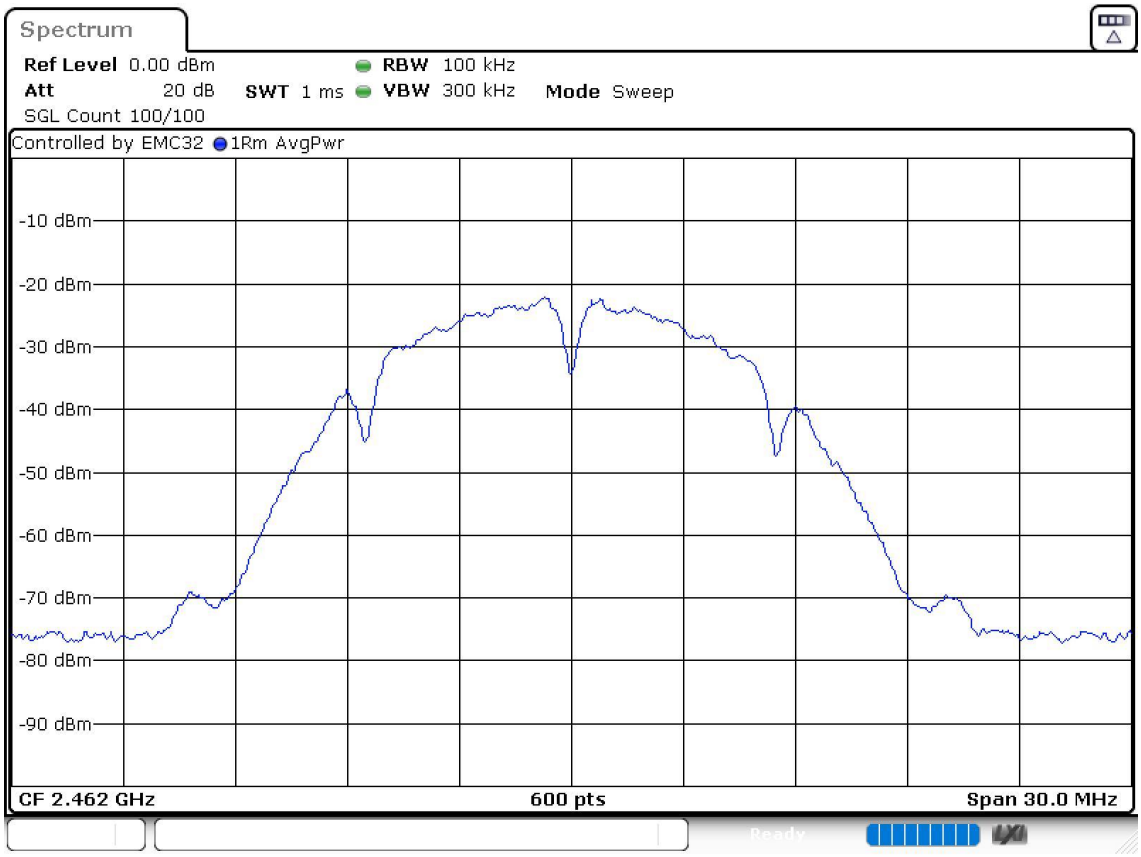




Frequency MHz = 2462.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11b (DSSS 1 Mbit/s)
Number of Transmission Chains = 1	Active Port = 1

Images:



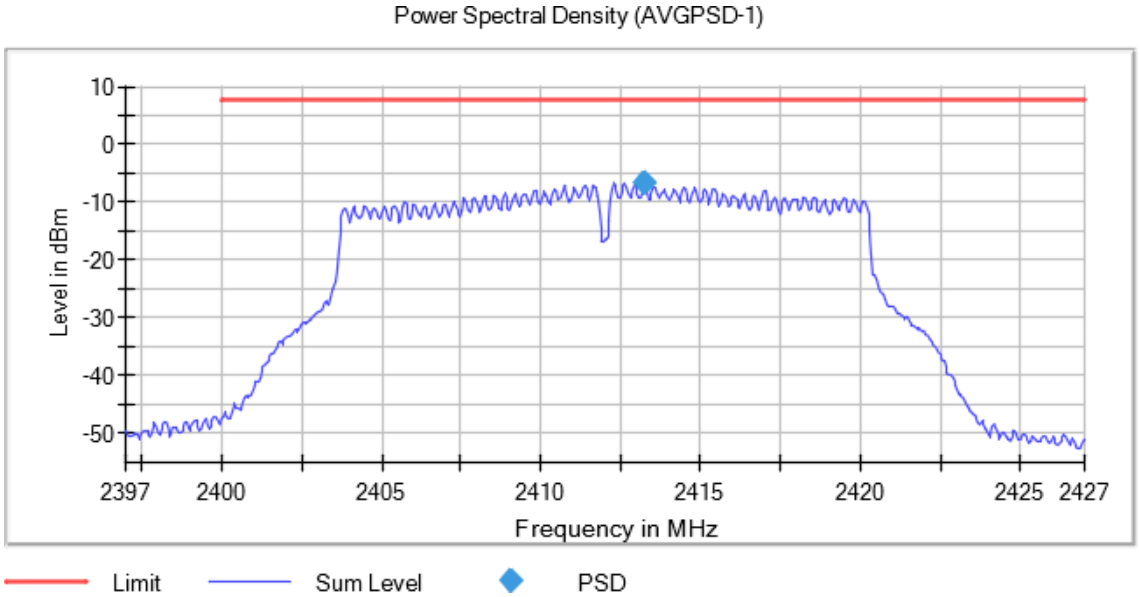


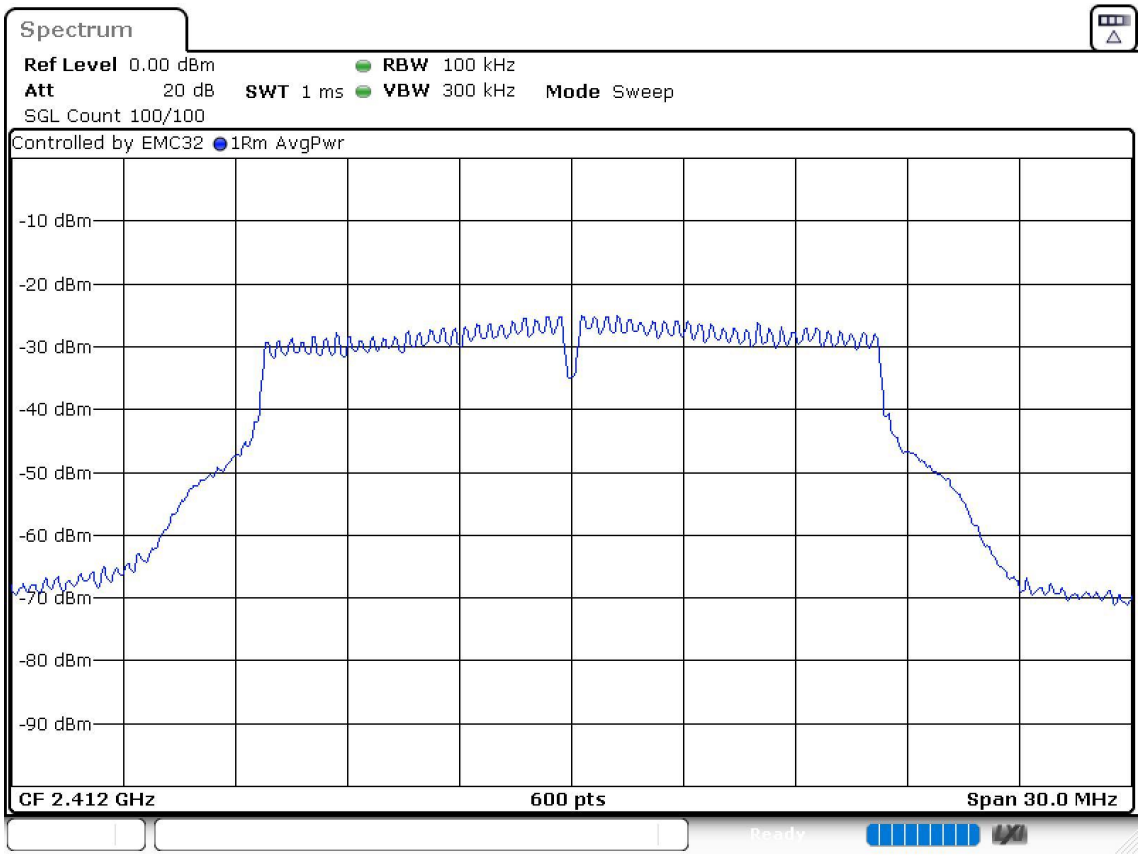
Frequency MHz = 2412.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11g (OFDM 6 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

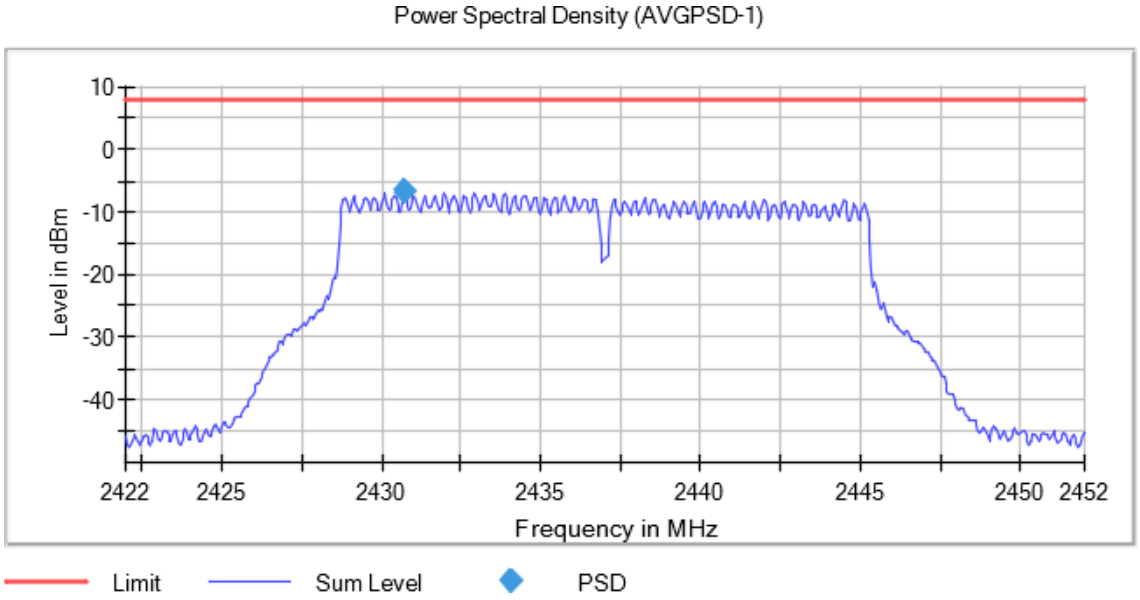
Images:

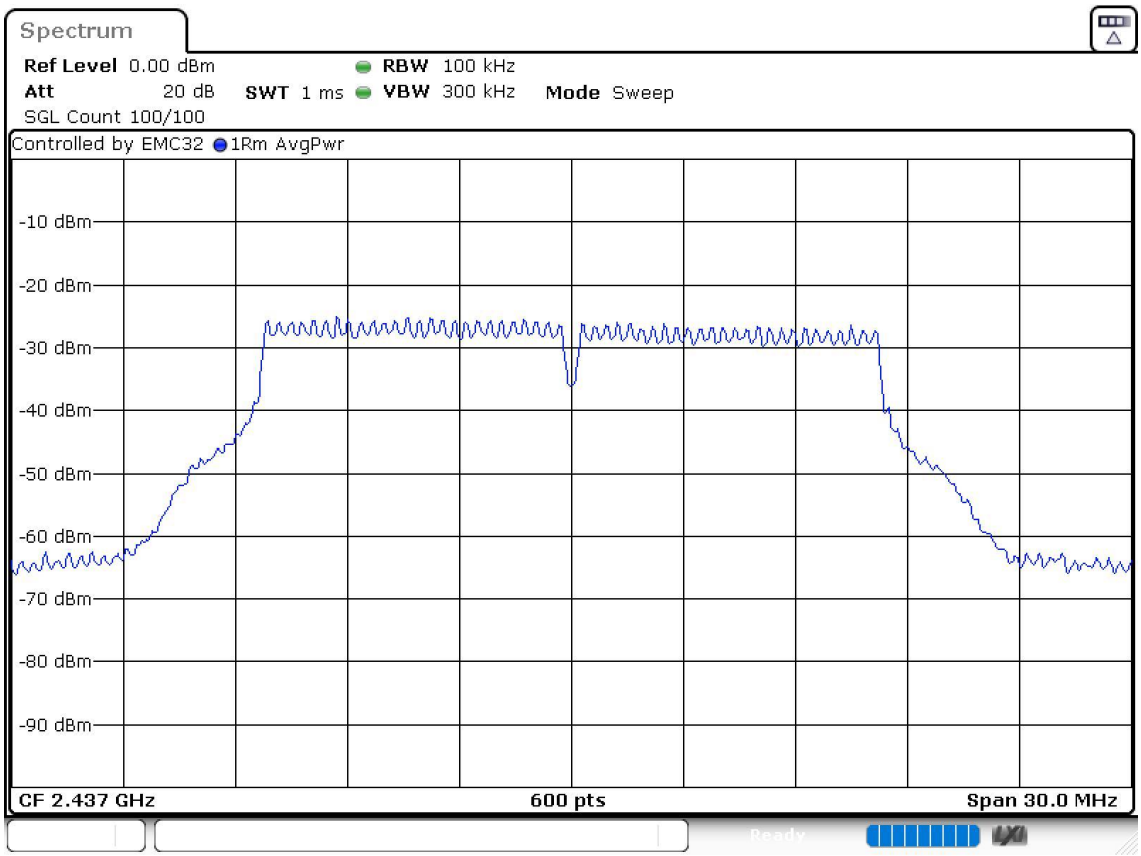




Frequency MHz = 2437.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11g (OFDM 6 Mbit/s)
Number of Transmission Chains = 1	Active Port = 1

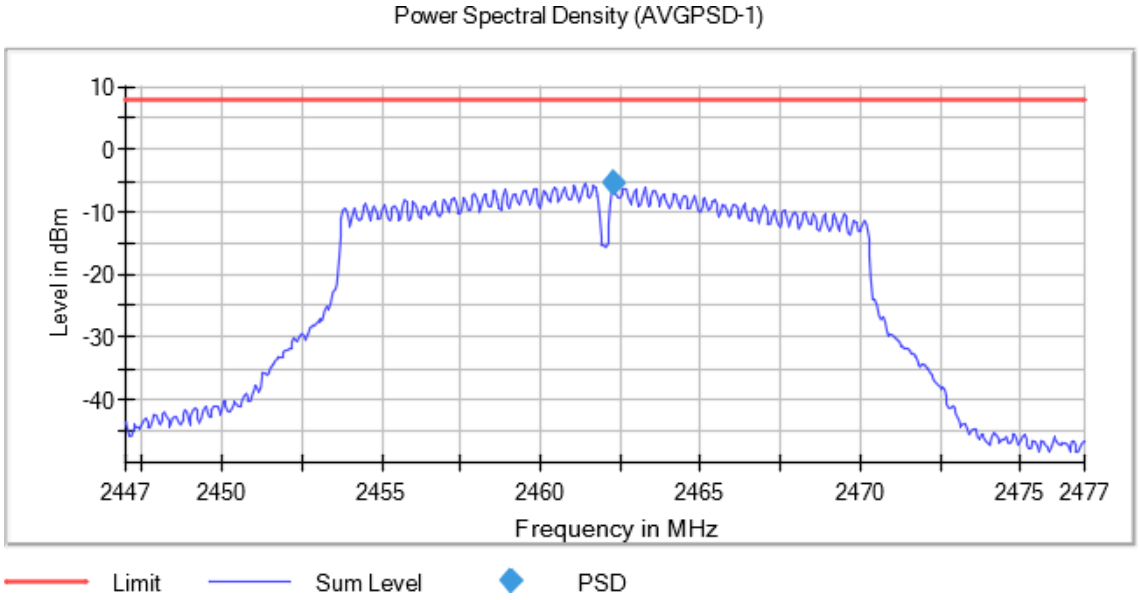
Images:

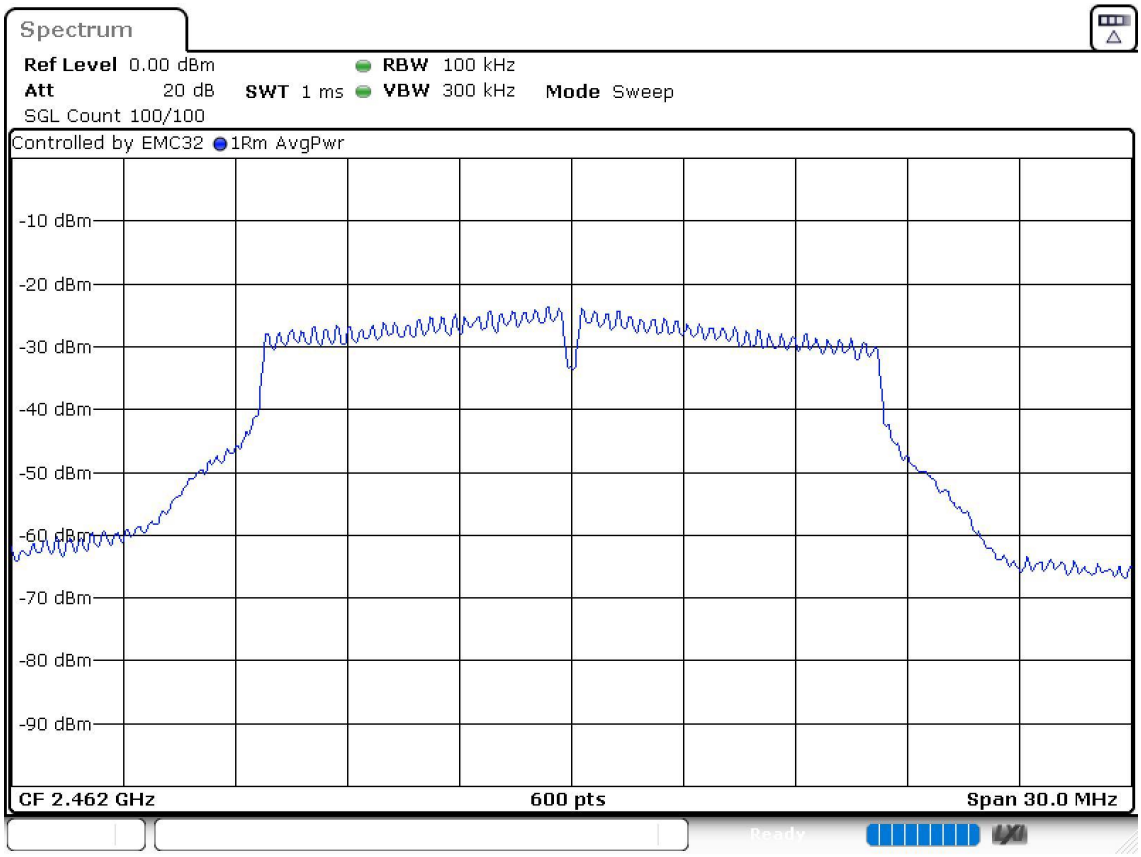




Frequency MHz = 2462.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11g (OFDM 6 Mbit/s)
Number of Transmission Chains = 1	Active Port = 1

Images:



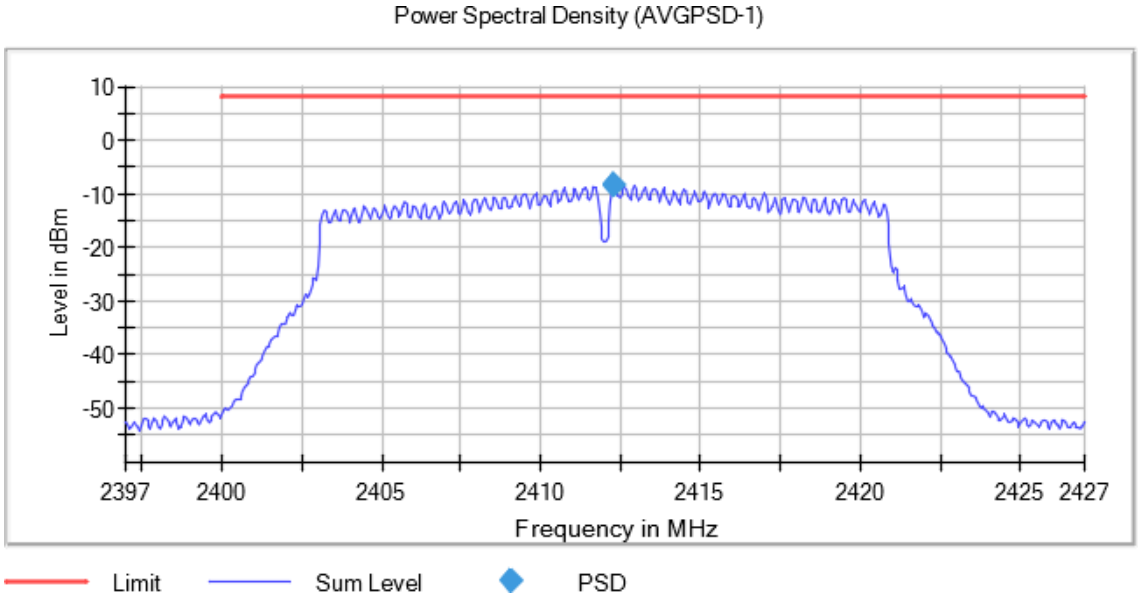


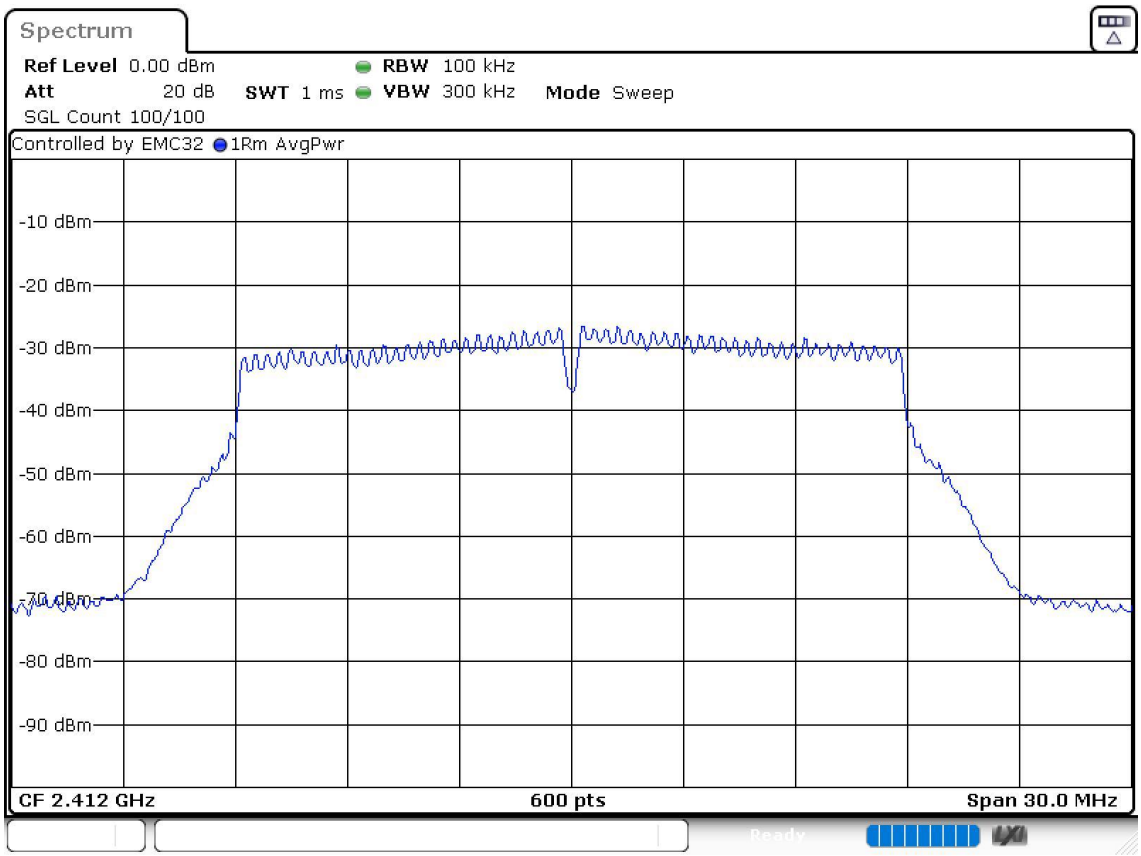
Frequency MHz = 2412.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

Images:



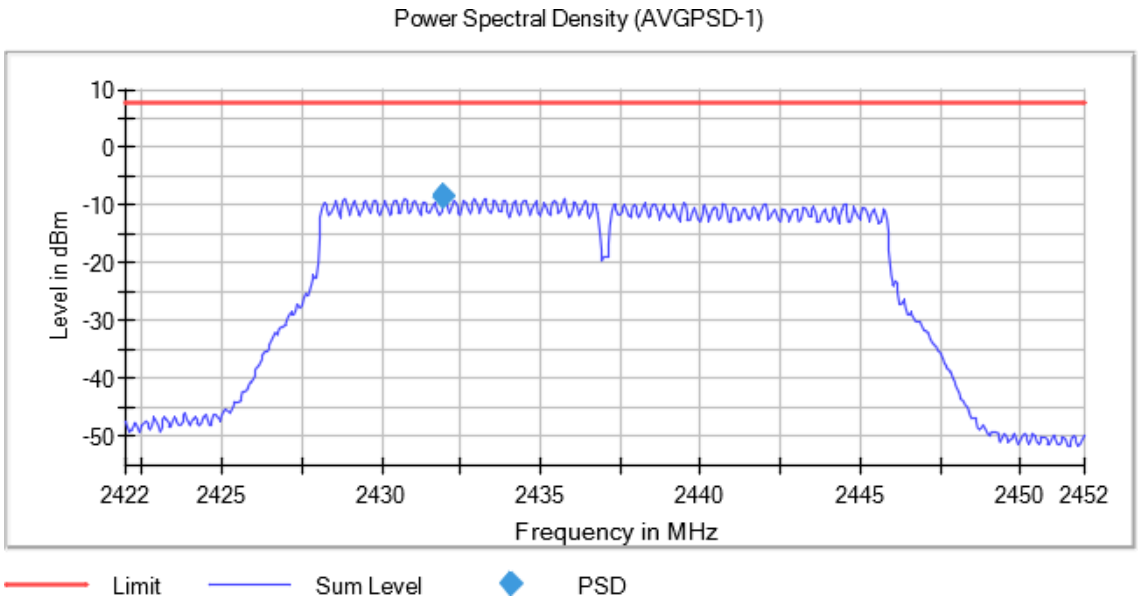


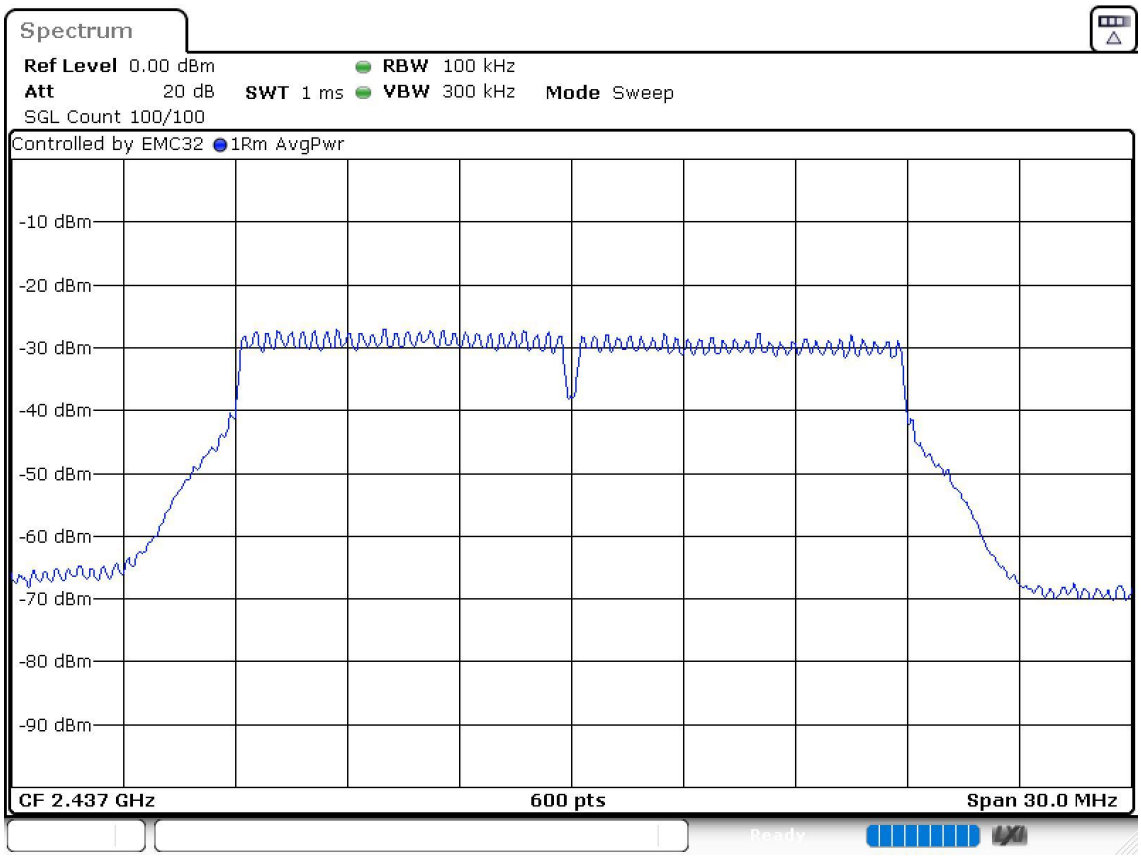
Frequency MHz = 2437.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 1 Active Port = 1

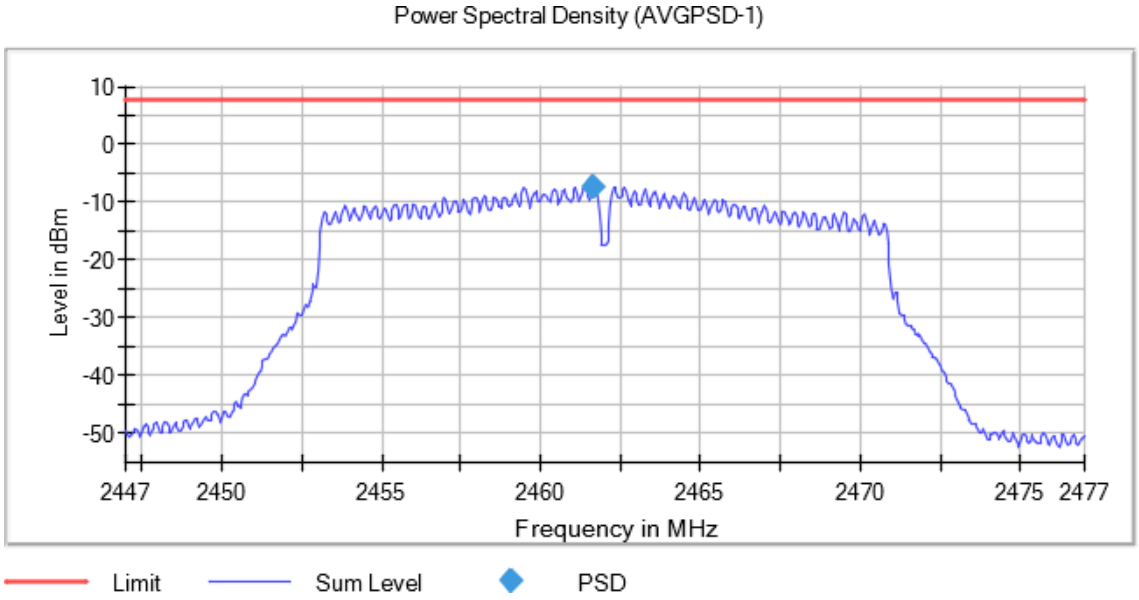
Images:

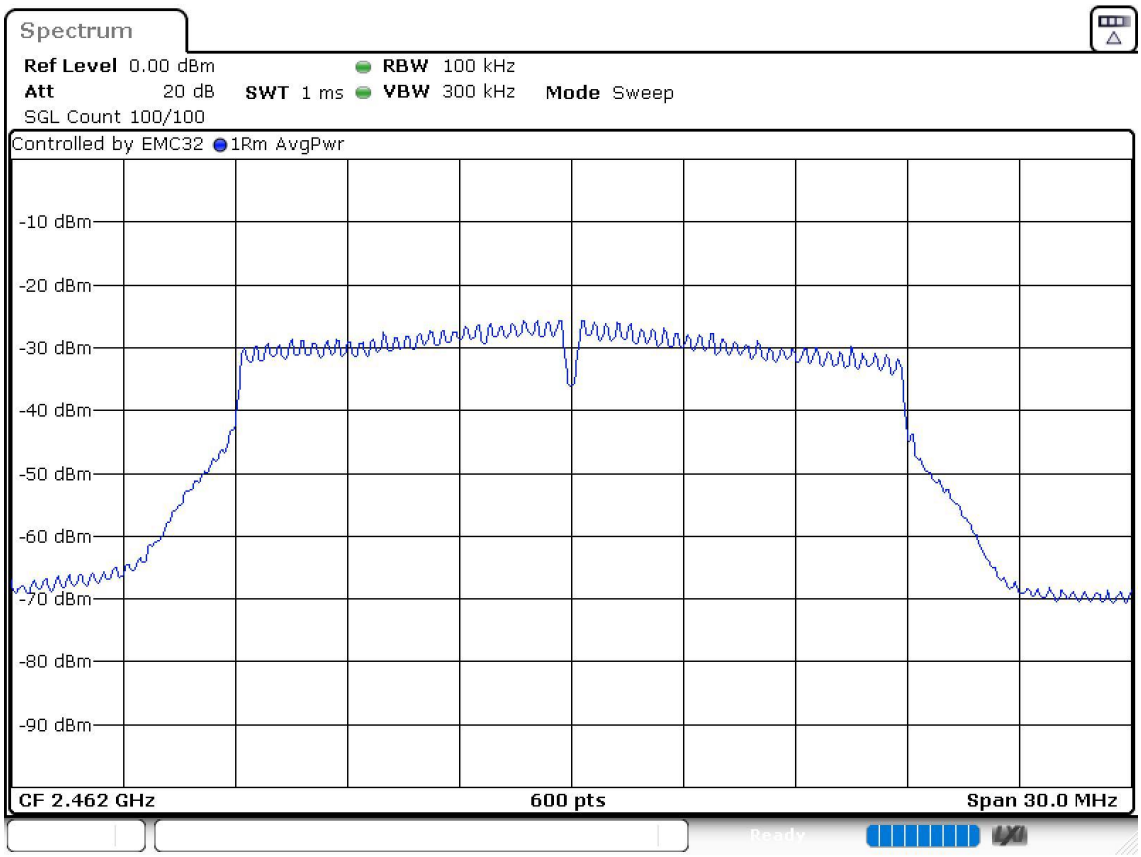




Frequency MHz = 2462.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Number of Transmission Chains = 1	Active Port = 1

Images:



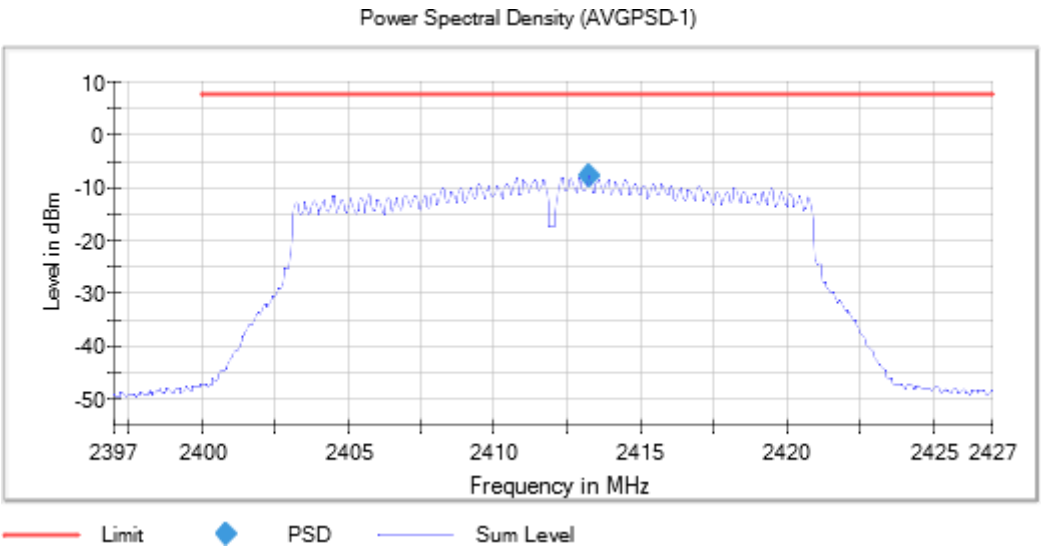


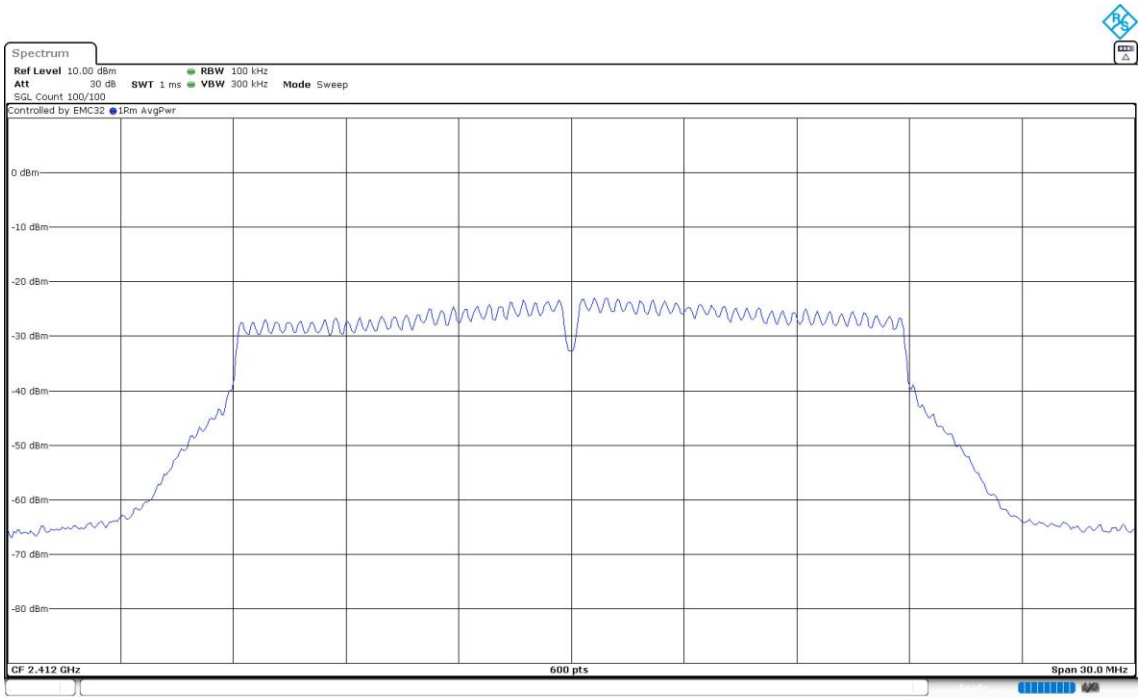
Frequency MHz = 2412.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 2 Active Port = 1+2

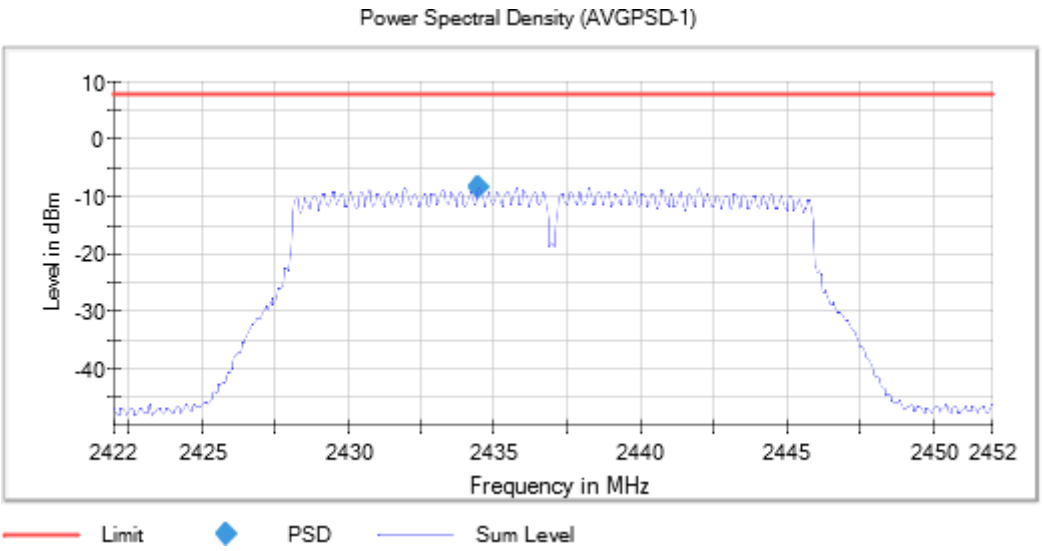
Images:

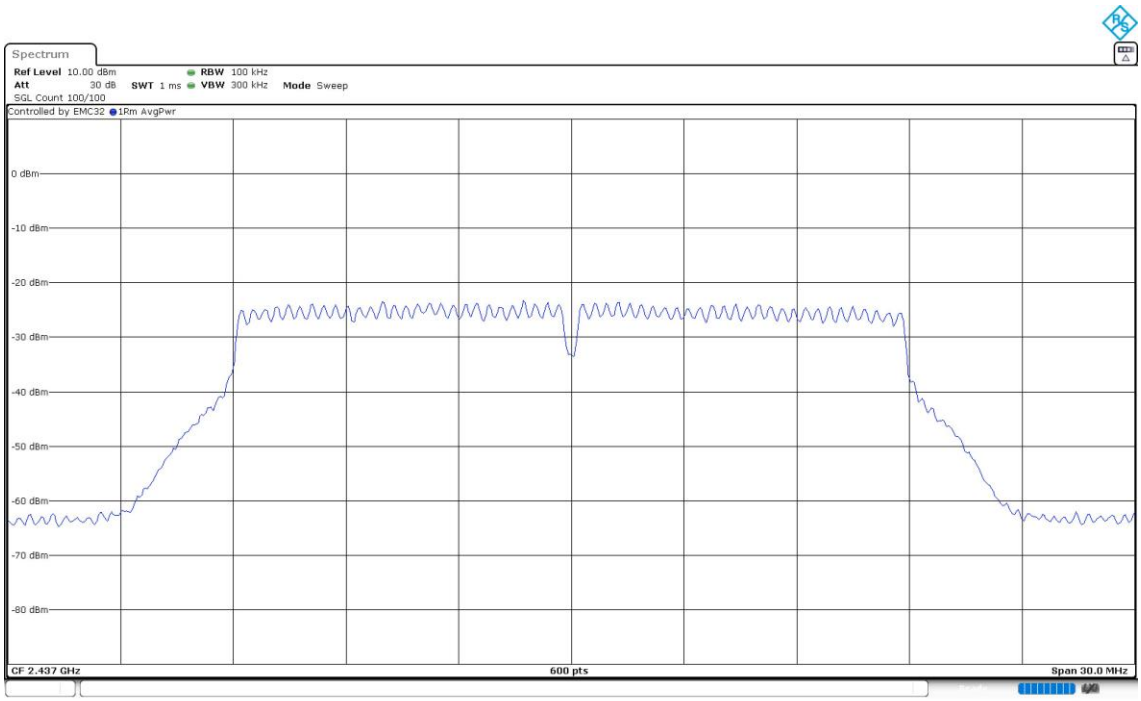




Frequency MHz = 2437.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Number of Transmission Chains = 2	Active Port = 1+2

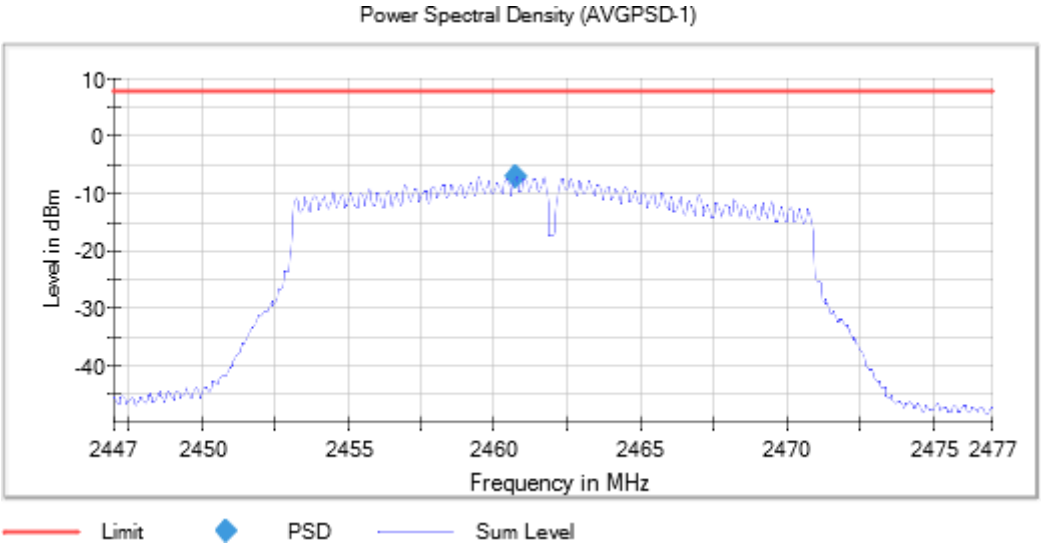
Images:

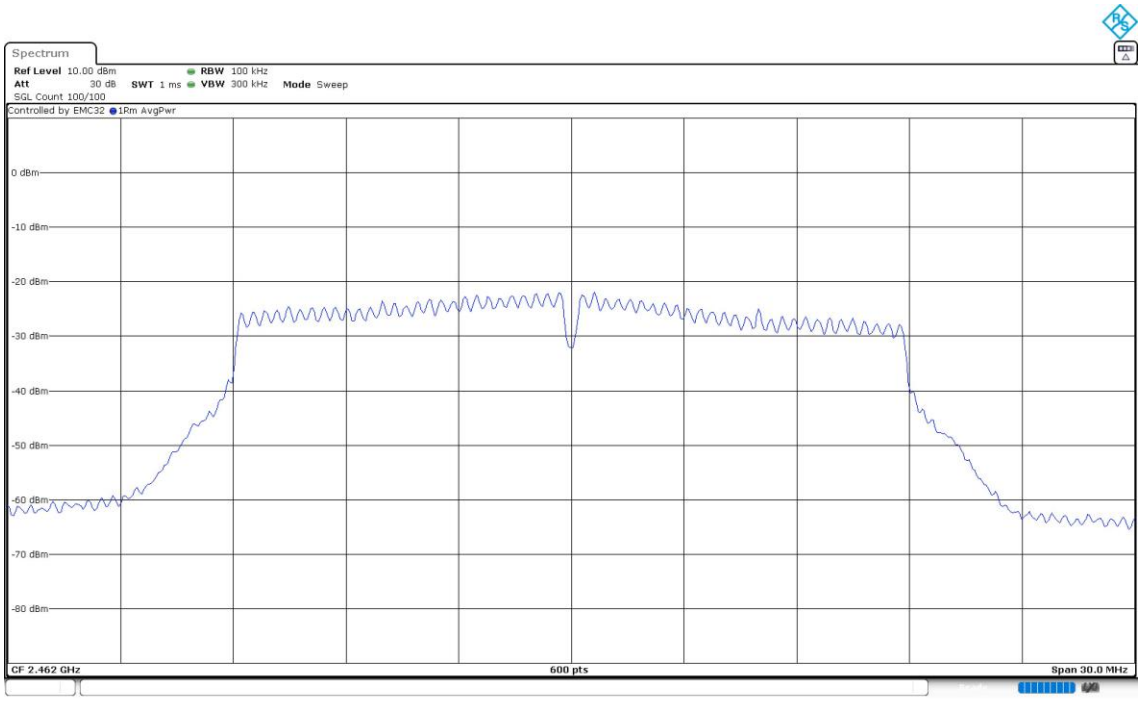




Frequency MHz = 2462.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)
Number of Transmission Chains = 2	Active Port = 1+2

Images:





RSS-247 5.5 / 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

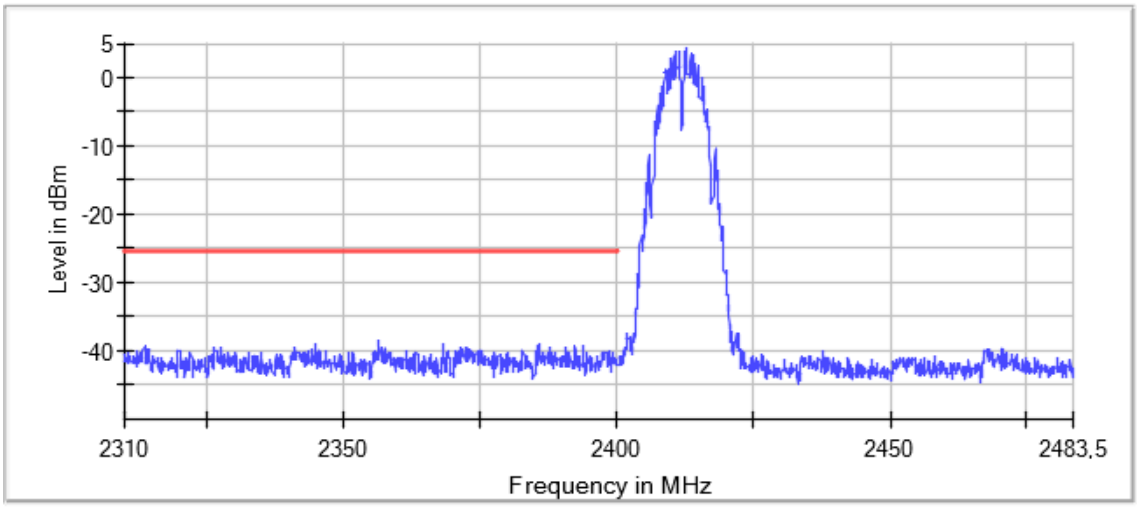
Pass

Attachments

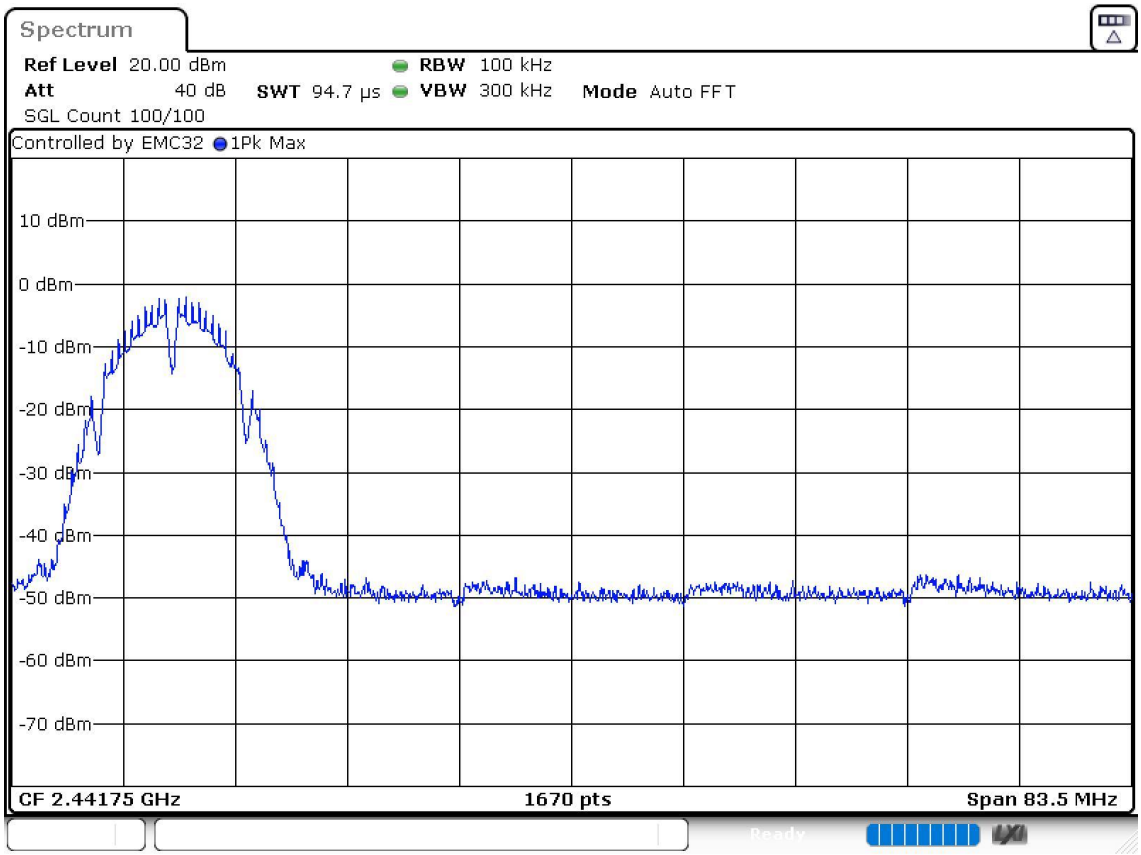
Frequency MHz = 2412.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11b (DSSS 1 Mbit/s)
Number of Transmission Chains = 1	Measurement Point = 1
Active Port = 1	

Images:

Band Edge



Limit Sum Level Fail



Frequency MHz = 2462.00000 Equipment Type = Digital Transmission System (DTS)

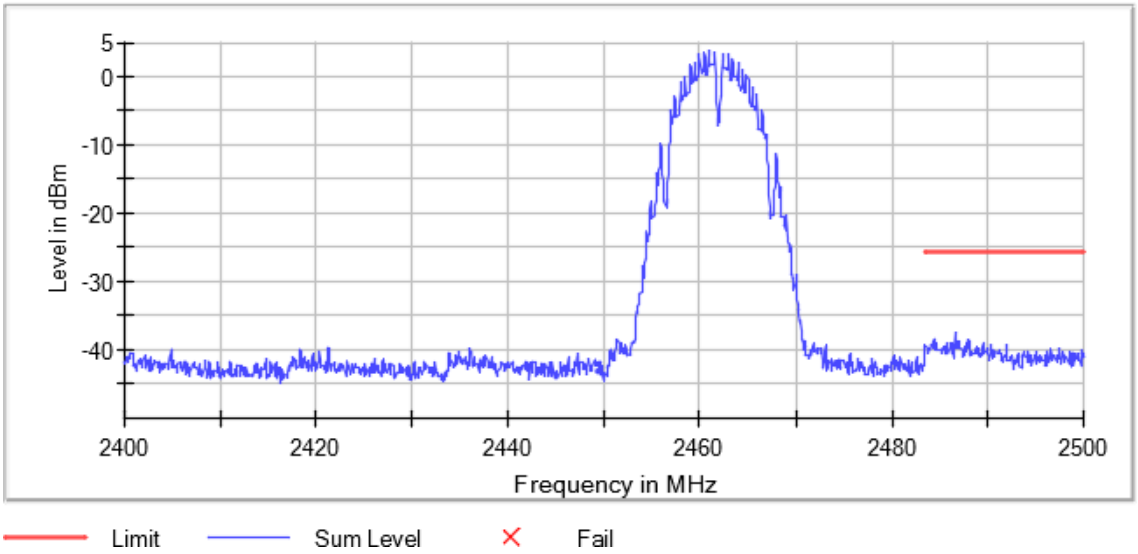
Bandwidth MHz = 20 Modulation = 802.11b (DSSS 1 Mbit/s)

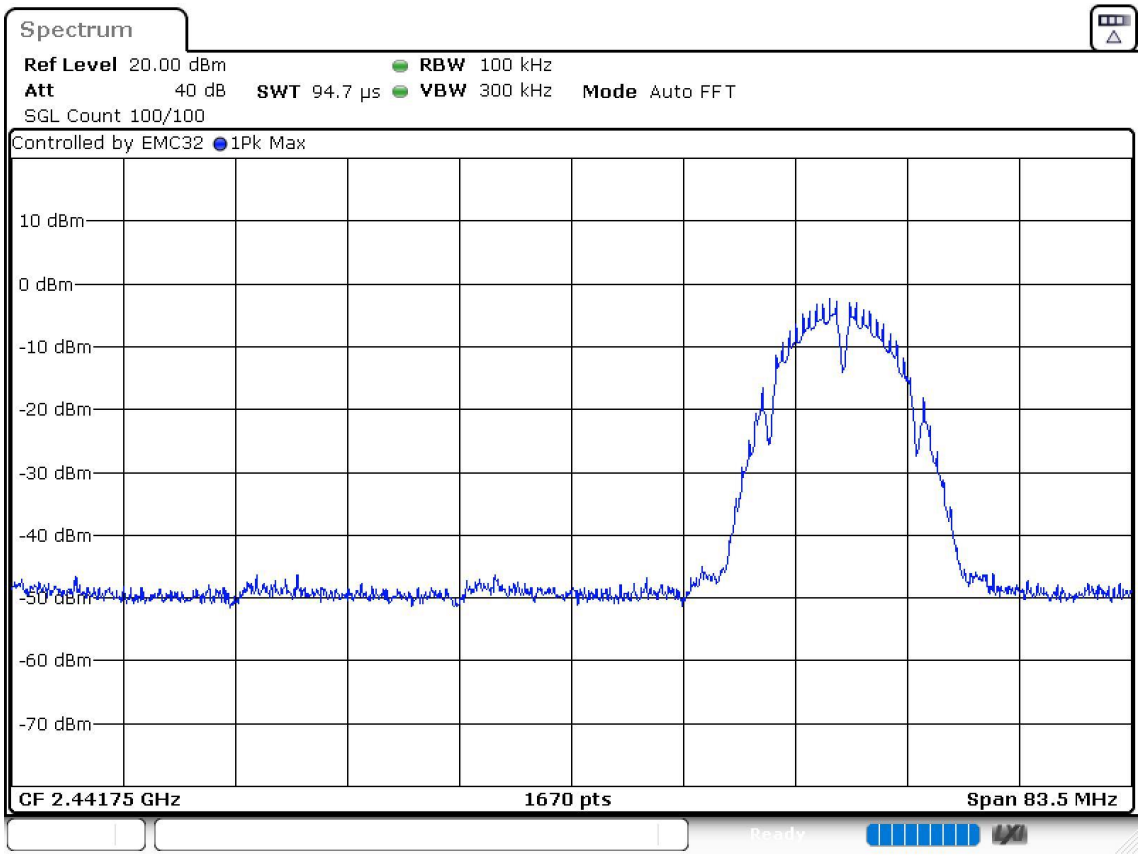
Number of Transmission Chains = 1 Measurement Point = 1

Active Port = 1

Images:

Band Edge



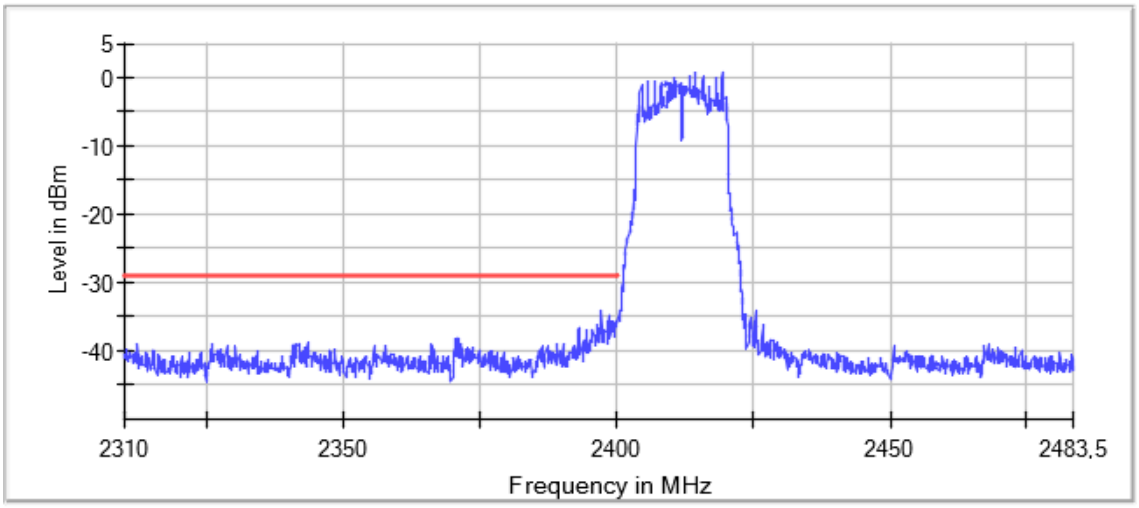


Attachments

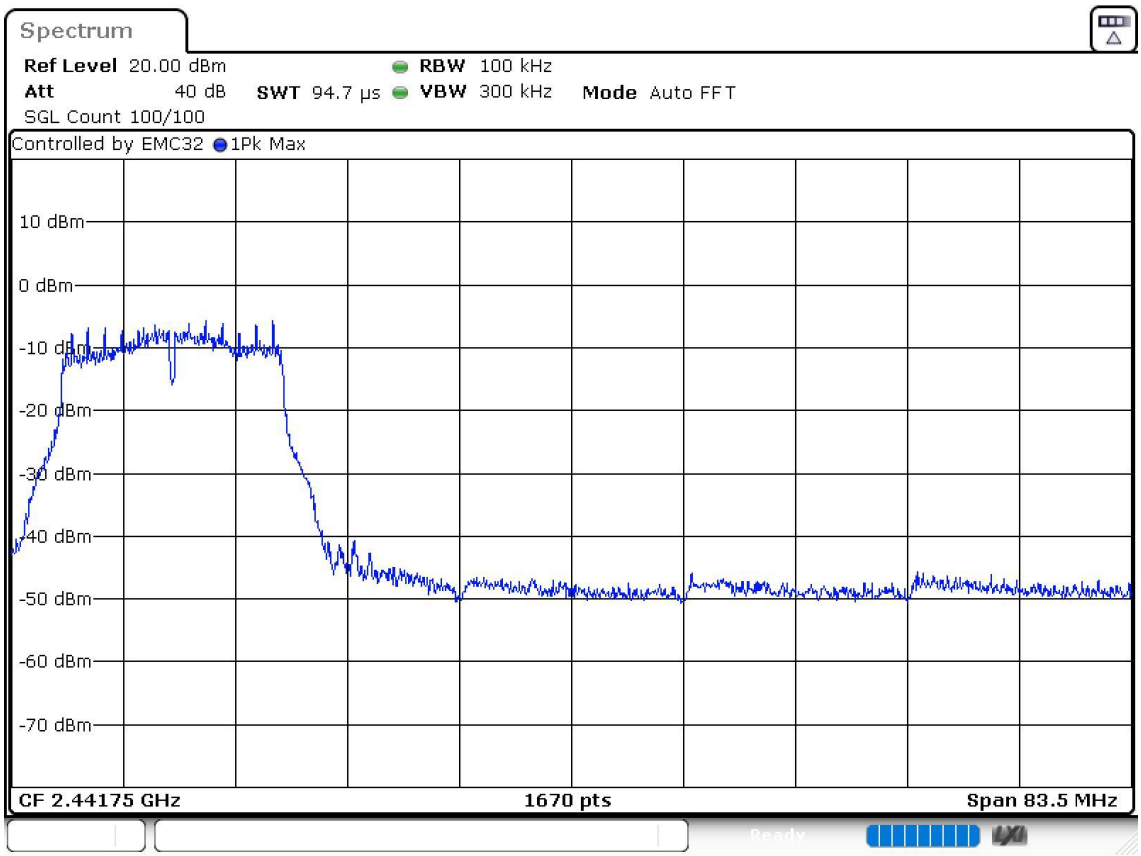
Frequency MHz = 2412.00000	Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20	Modulation = 802.11g (OFDM 6 Mbit/s)
Number of Transmission Chains = 1	Measurement Point = 1
Active Port = 1	

Images:

Band Edge



Limit Sum Level Fail



Tables:

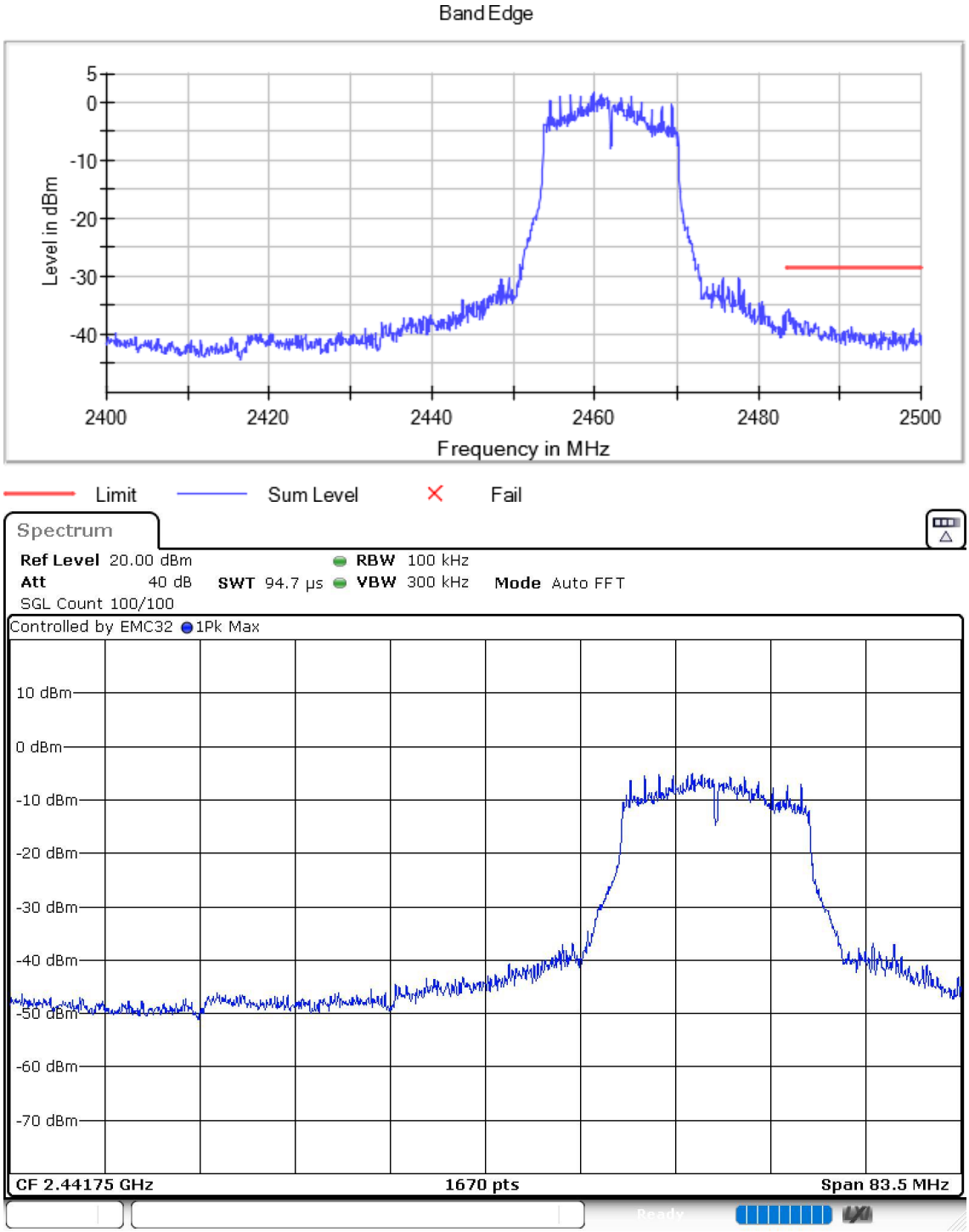
Frequency MHz = 2462.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11g (OFDM 6 Mbit/s)

Number of Transmission Chains = 1 Measurement Point = 1

Active Port = 1

Images:



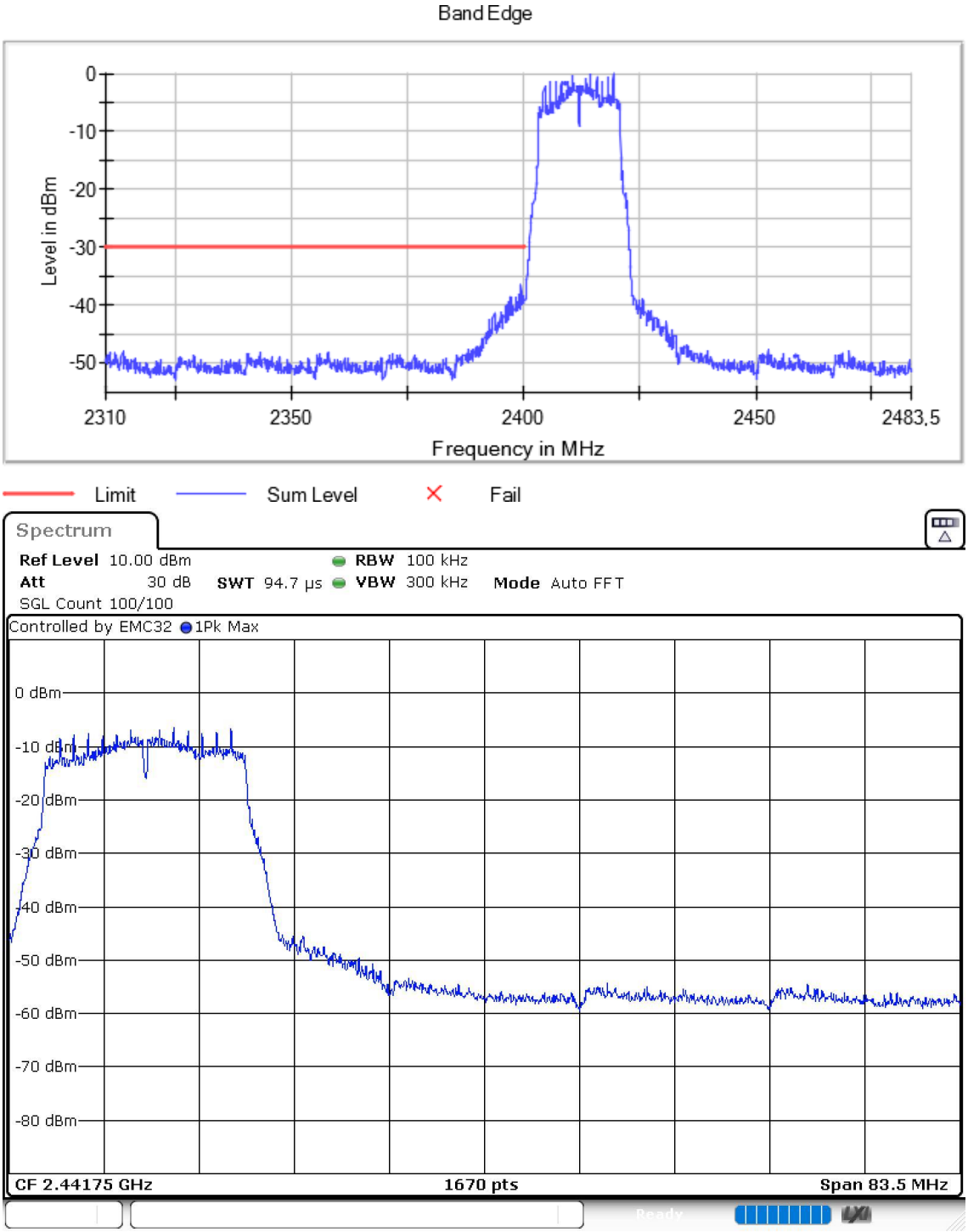
Frequency MHz = 2412.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 1 Measurement Point = 1

Active Port = 1

Images:



Frequency MHz = 2462.00000 Equipment Type = Digital Transmission System (DTS)

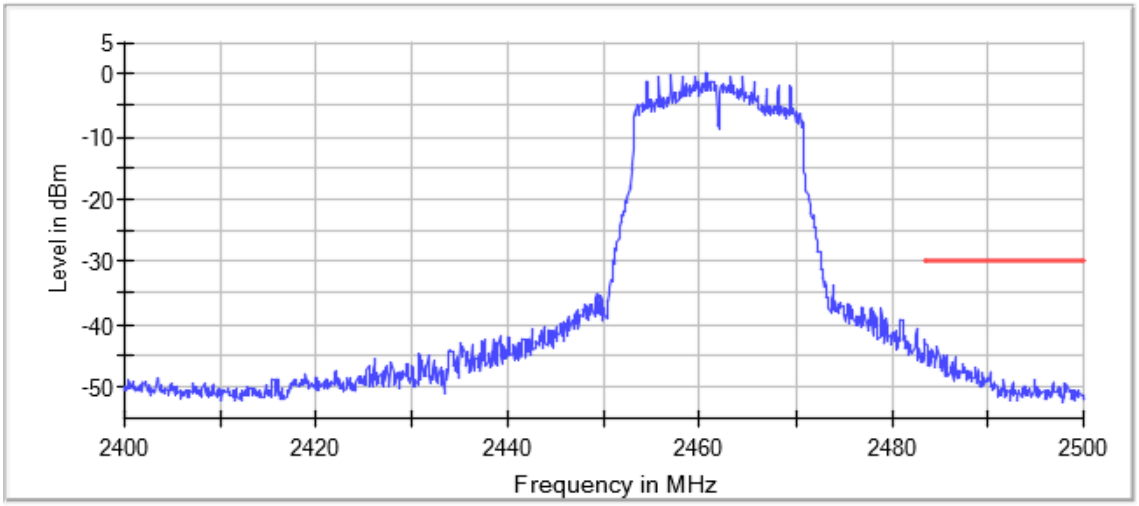
Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 1 Measurement Point = 1

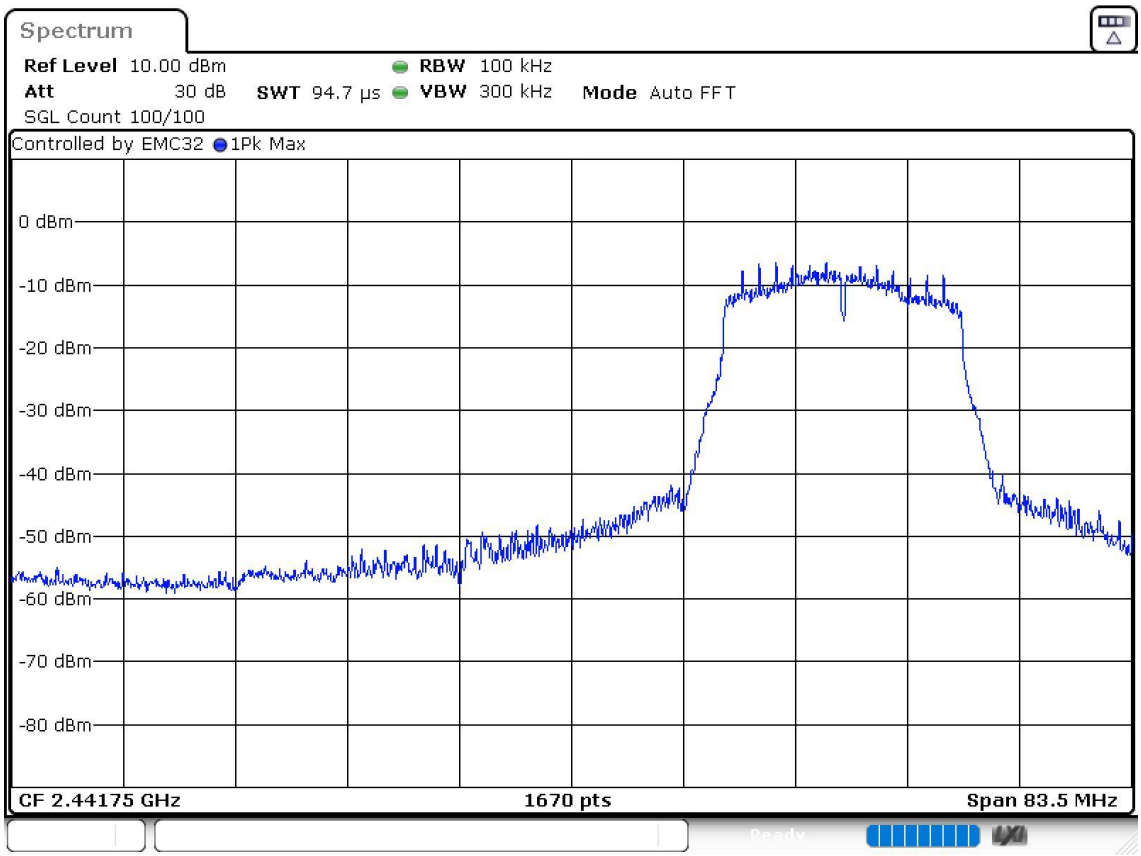
Active Port = 1

Images:

Band Edge



Limit Sum Level Fail



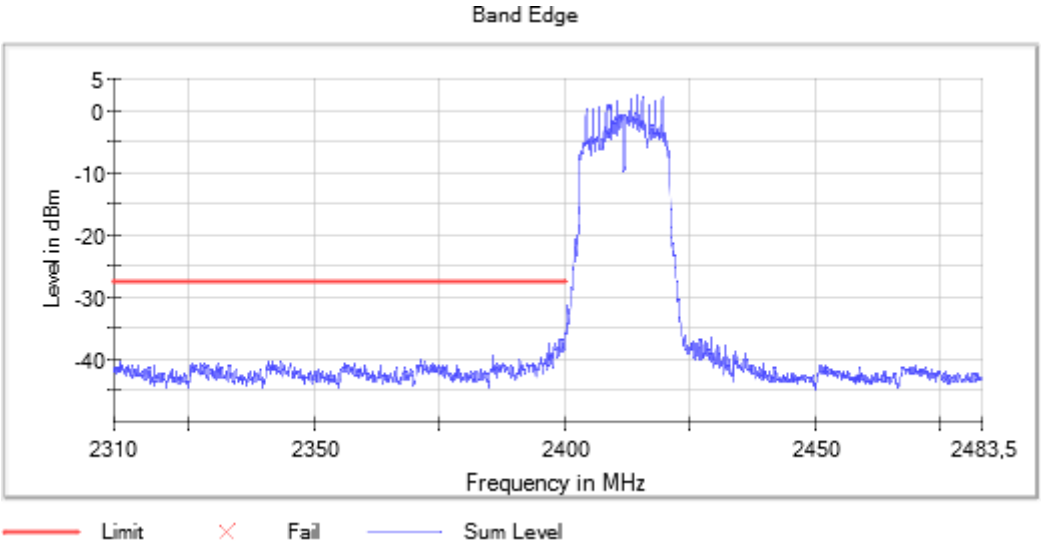
Frequency MHz = 2412.00000 Equipment Type = Digital Transmission System (DTS)

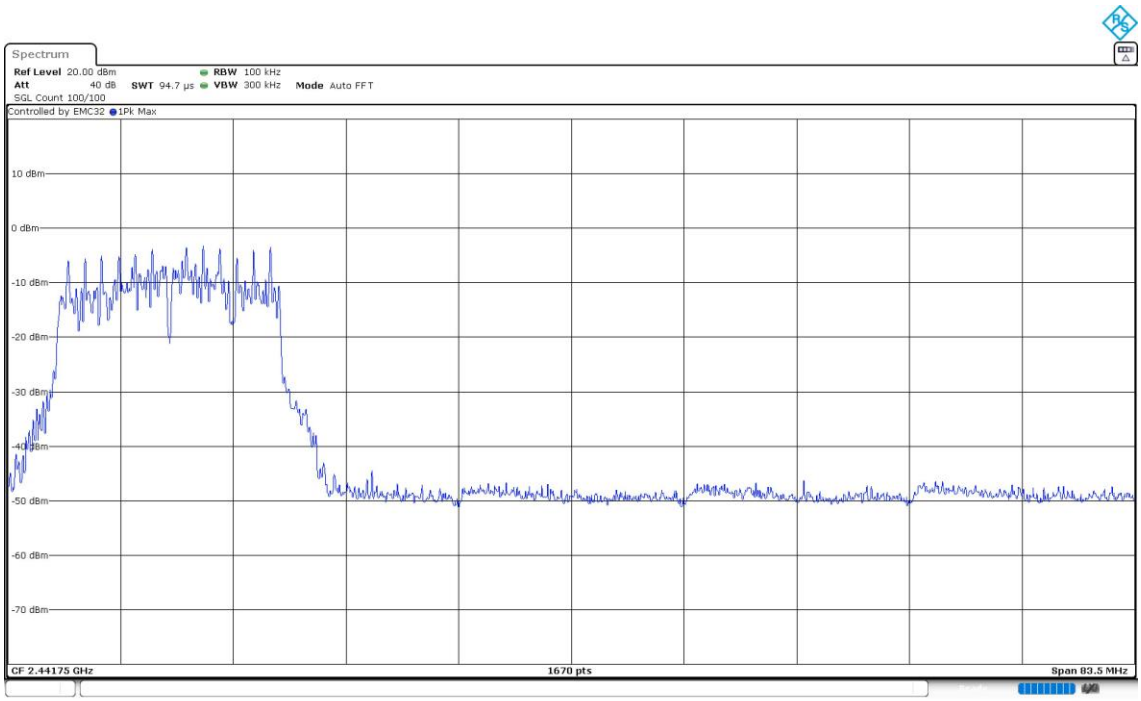
Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 2 Measurement Point = 1

Active Port = 1+2

Images:

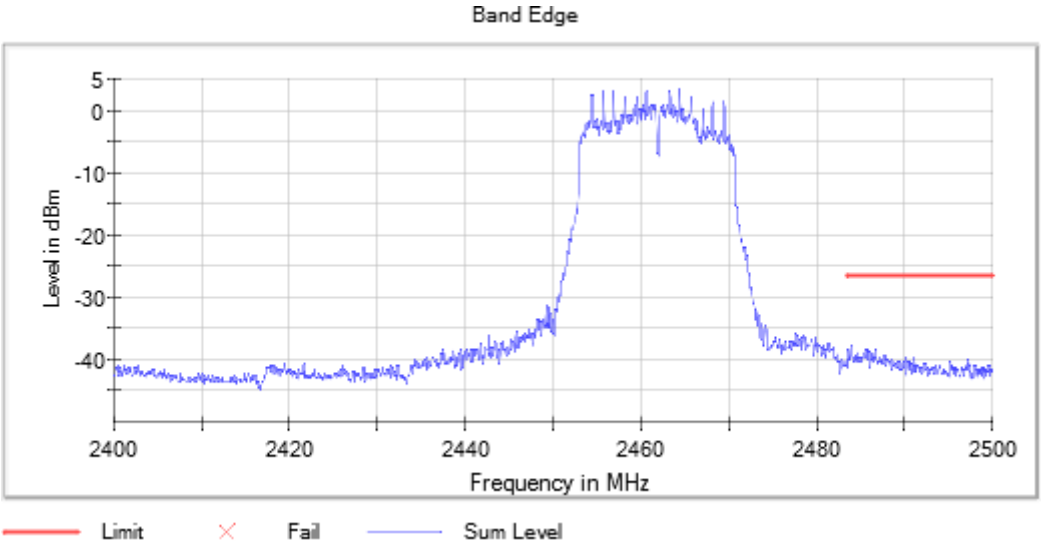
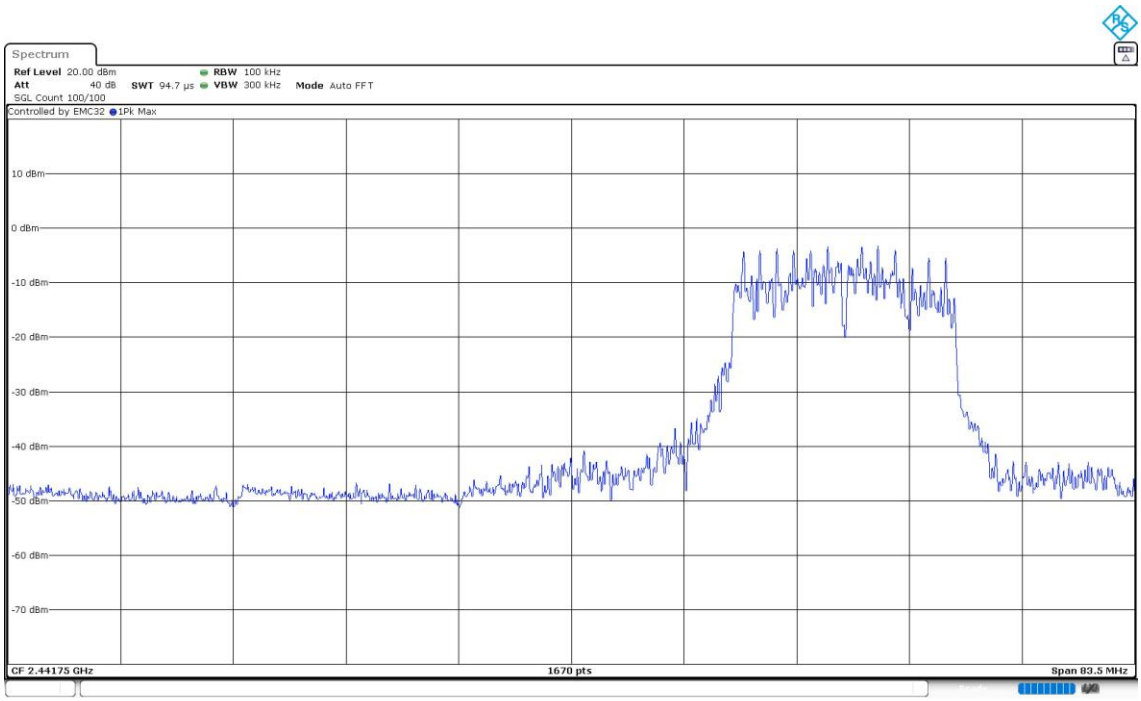




Frequency MHz = 2462.00000 Equipment Type = Digital Transmission System (DTS)

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Number of Transmission Chains = 2 Measurement Point = 1

Active Port = 1+2

Images: