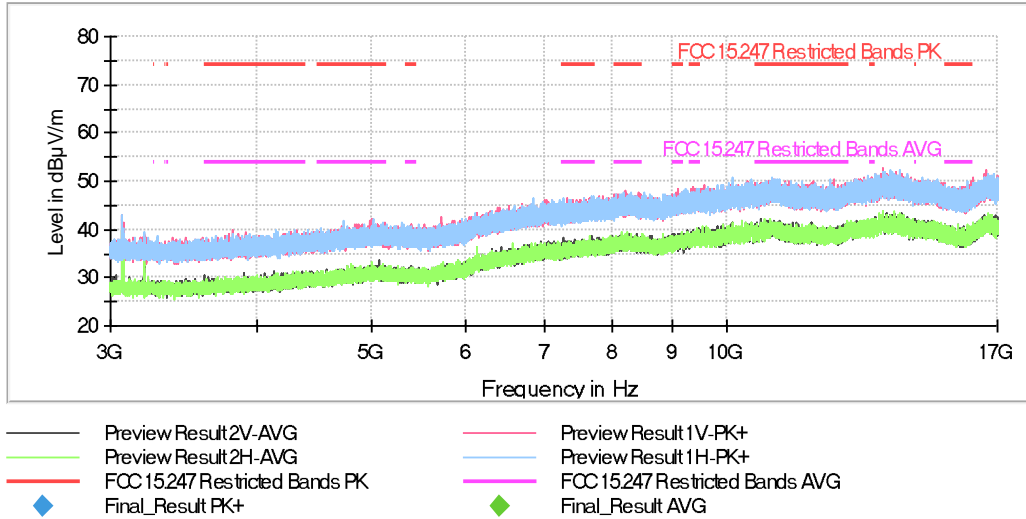
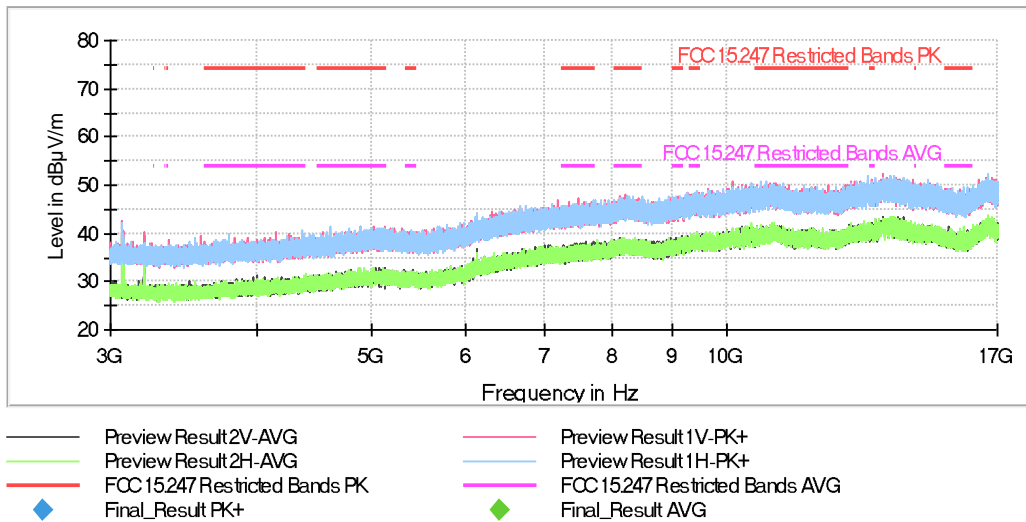


• 8-DPSK modulation (3DH5)

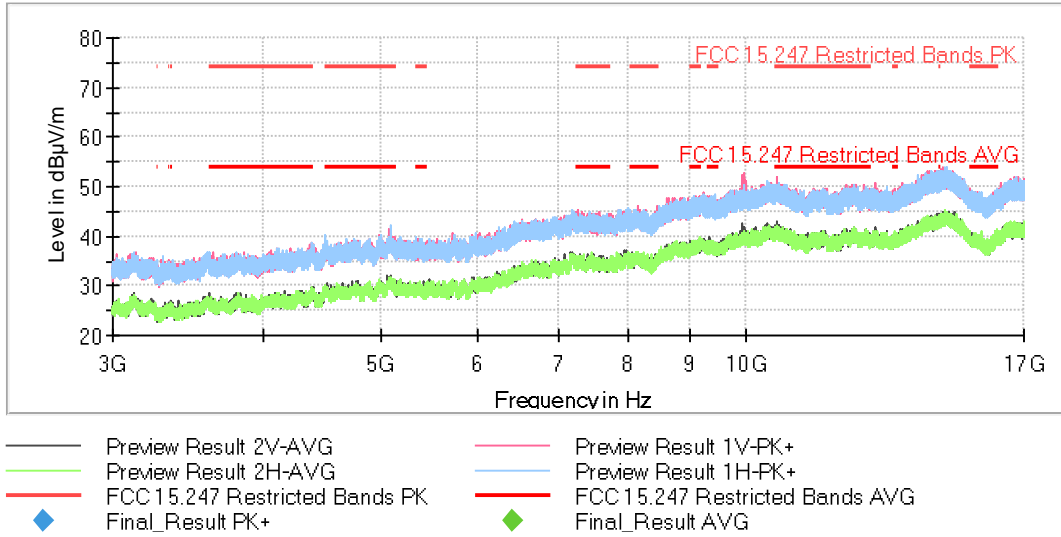
- Low Channel:



- Middle Channel:

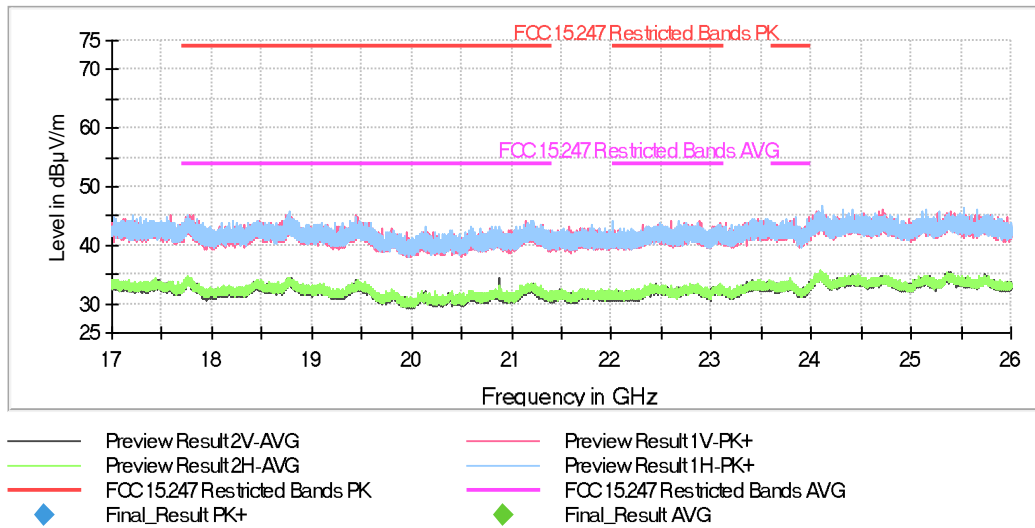


- High Channel:



FREQUENCY RANGE 17 - 26 GHz

This plot is valid for Low, Middle and High Channels and all modulations.



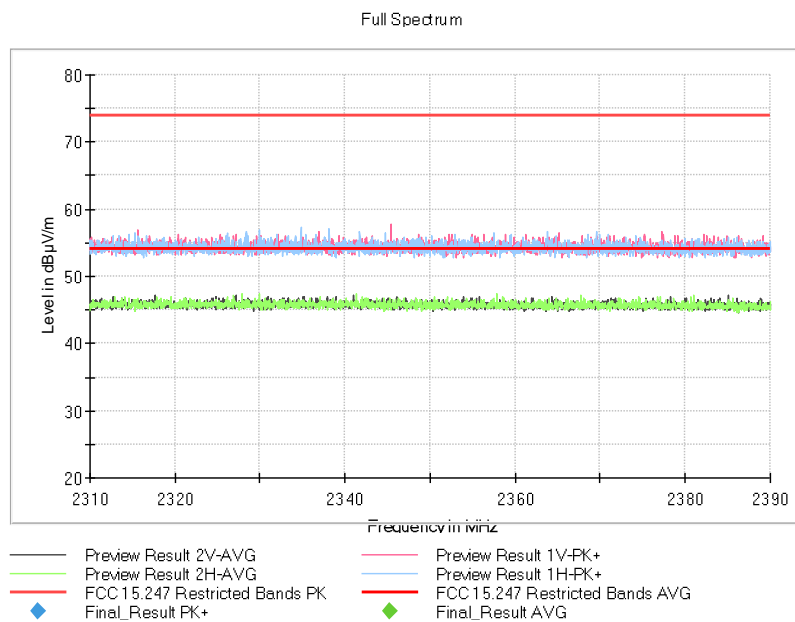
RESTRICTED BAND 2.31-2.39 GHz

• **GFSK modulation (DH5)**

- Low Channel:



- Middle Channel:

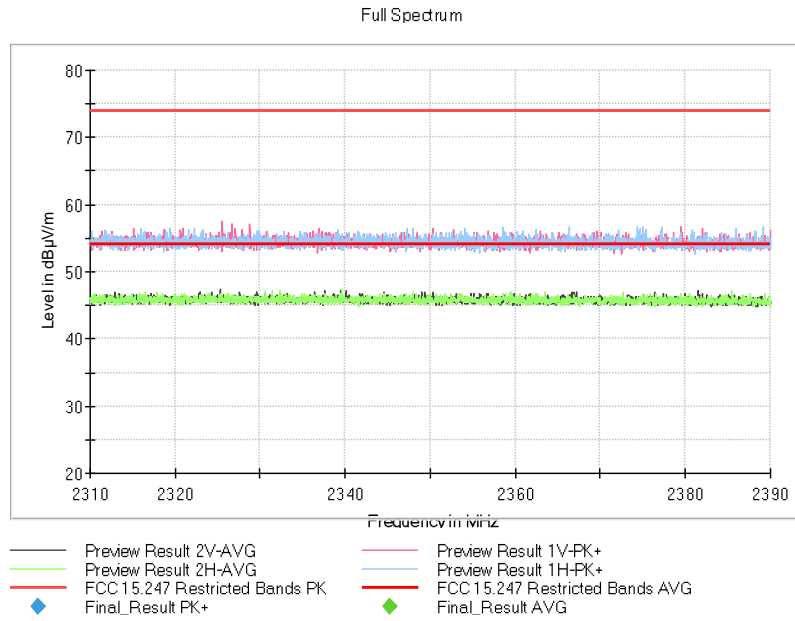


- High Channel:

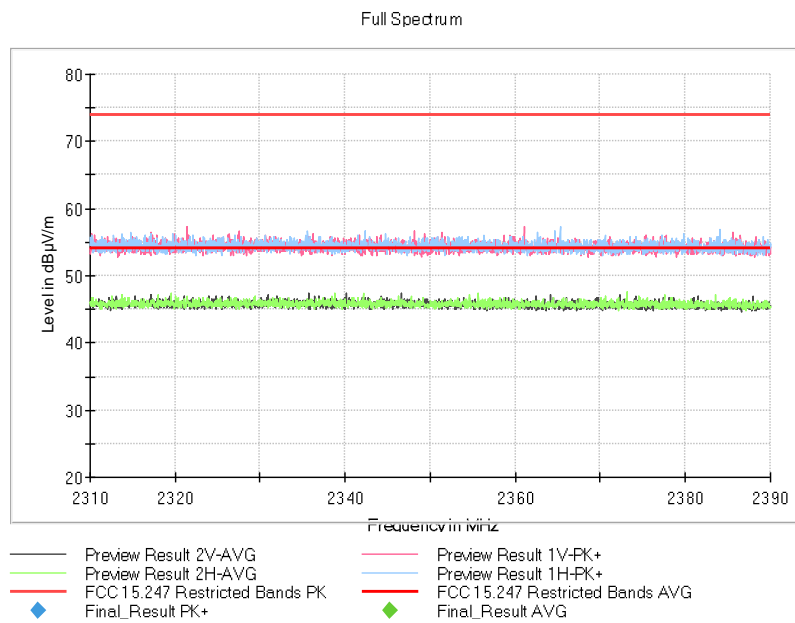


• **Pi/4-DQPSK modulation (2DH5)**

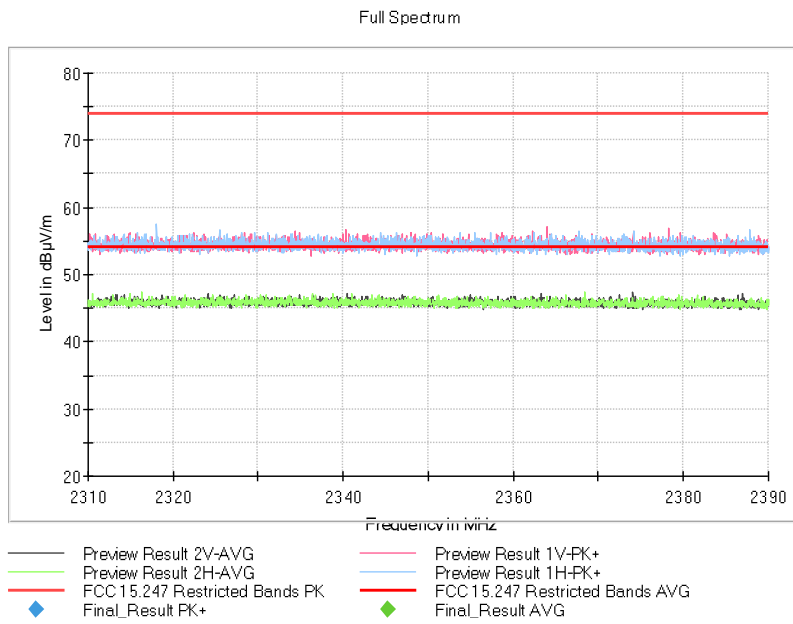
- Low Channel:



- Middle Channel:

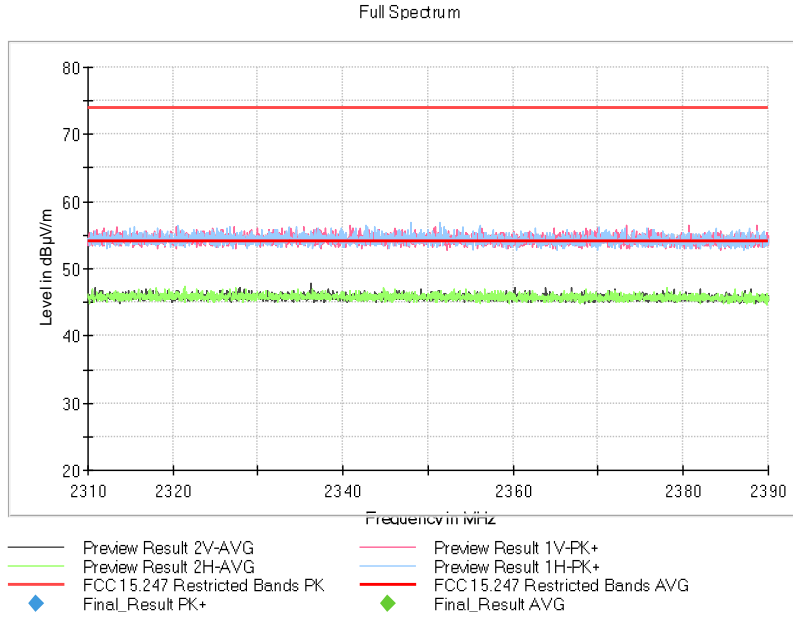


- High Channel:

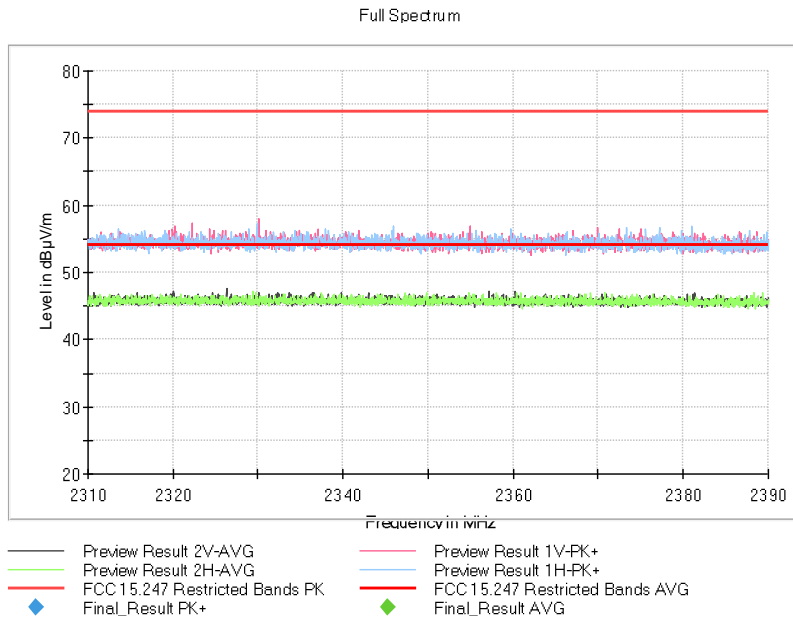


• 8-DPSK modulation (3DH5)

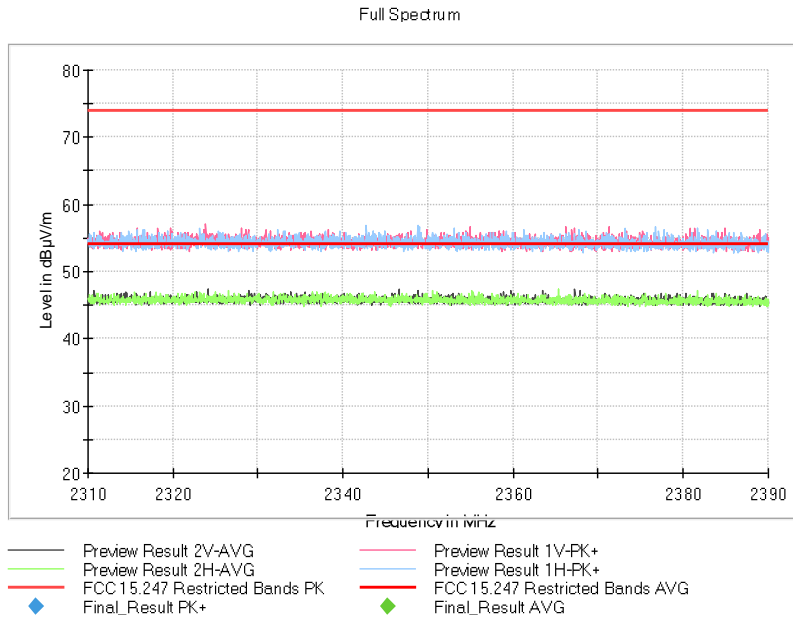
- Low Channel:



- Middle Channel:



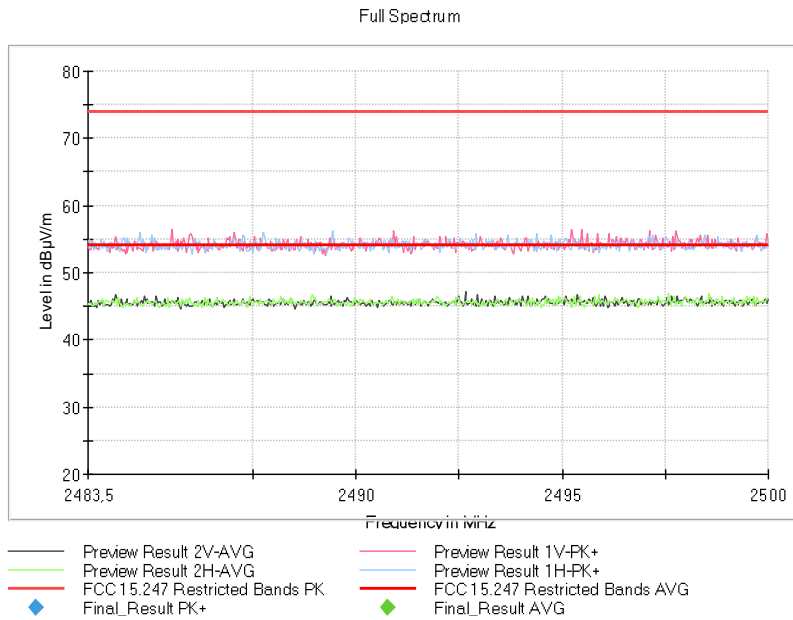
- High Channel:



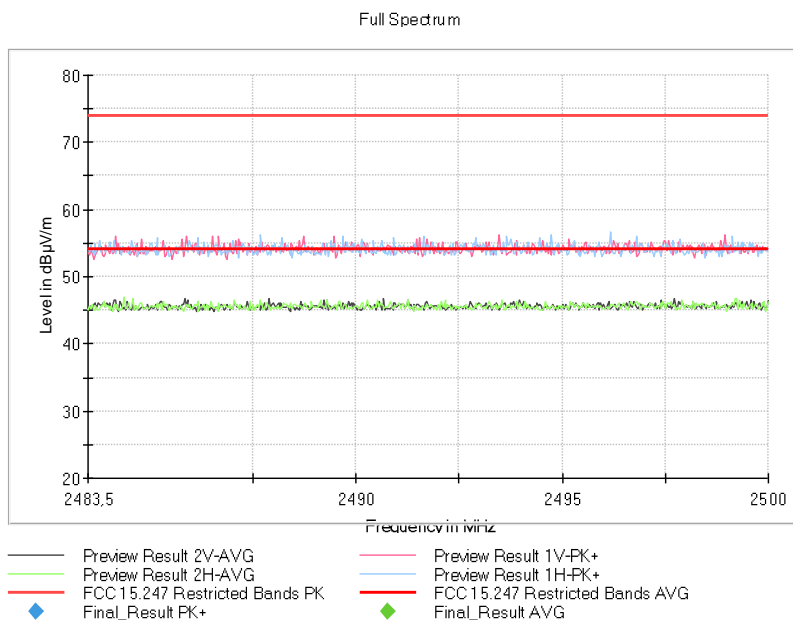
RESTRICTED BAND 2.4835-2.5 GHz

• **GFSK modulation (DH5)**

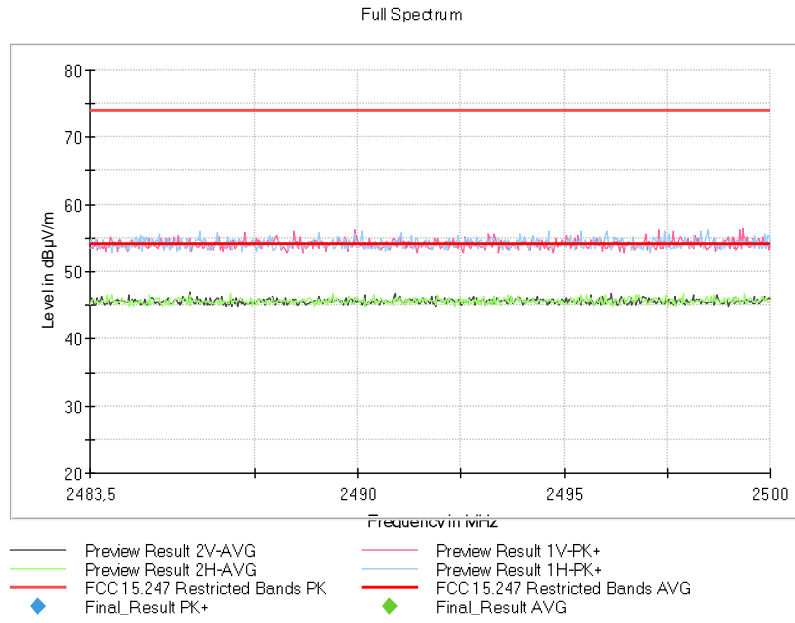
- Low Channel:



- Middle Channel:

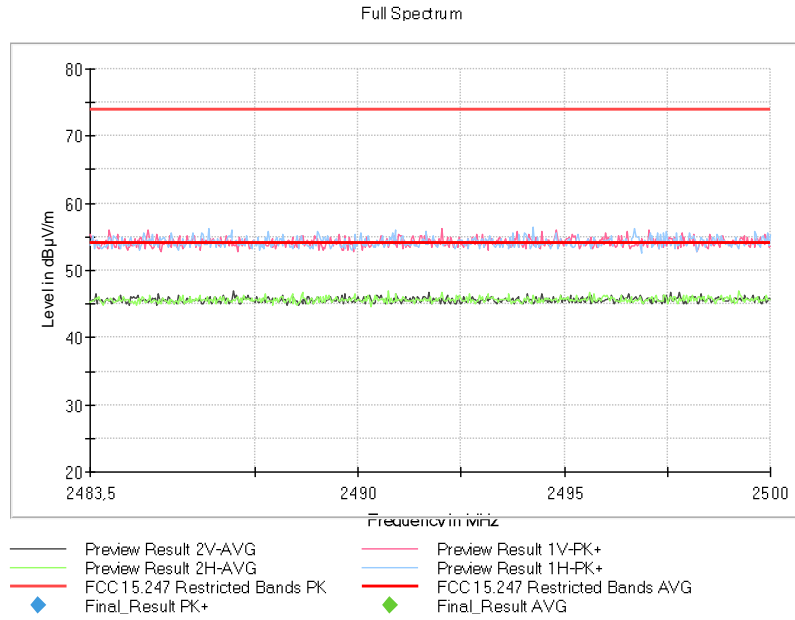


- High Channel:

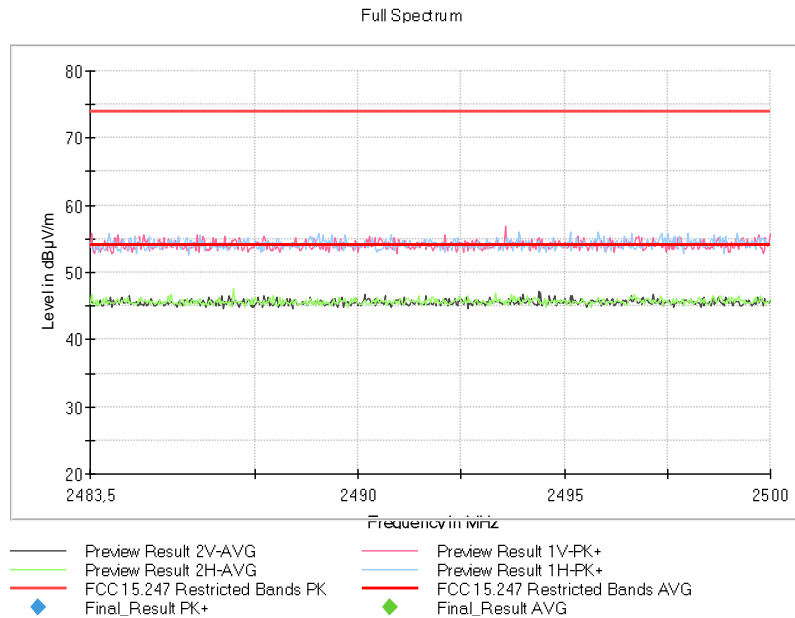


• Pi/4-DQPSK modulation (2DH5)

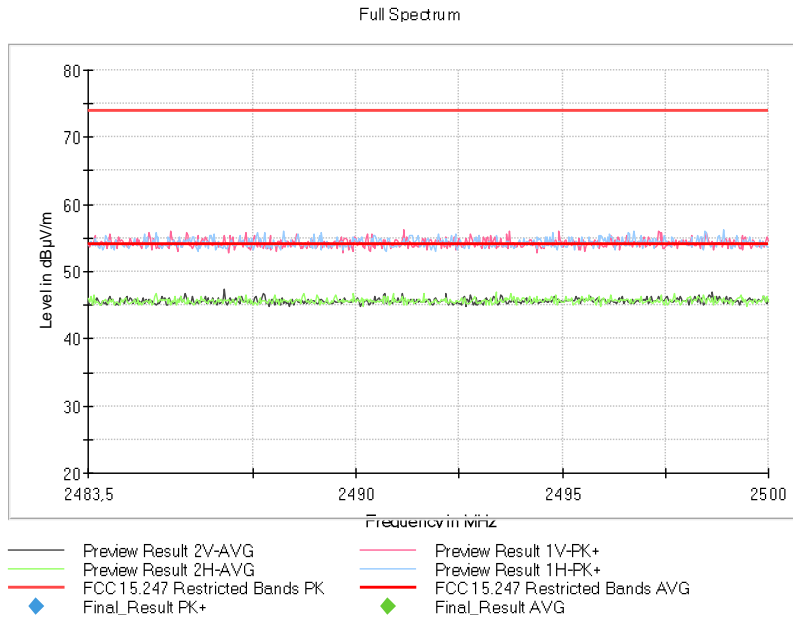
- Low Channel:



- Middle Channel:

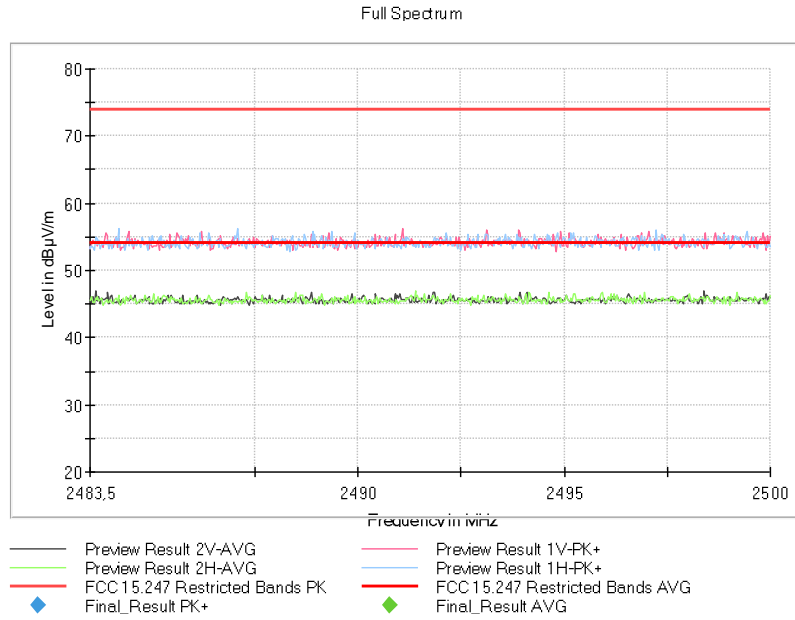


- High Channel:



• 8-DPSK modulation (3DH5)

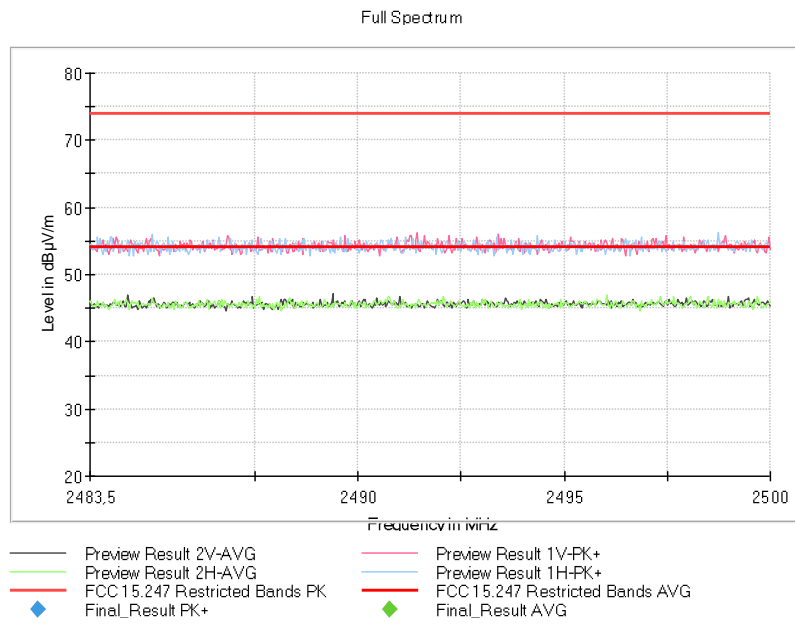
- Low Channel:



- Middle Channel:



- High Channel:



Appendix B: Test results. 802.11 bgn20 1x1

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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 12 Vdc
 Type of Power Supply: External DC.

ANTENNA (*):

Type of Antenna: External (Antenova Dromus SRF2W012).
 Maximum Declared Antenna Gain: +2.8 dBi

TEST FREQUENCIES (*):

Modulation	Data rates	Low Channel:	Middle Channel	High Channel
802.11b:	1 Mbit/s	2412 MHz	2437 MHz	2462 MHz
802.11g:	6 Mbit/s	2412 MHz	2437 MHz	2462 MHz
802.11n:	HT20 MCS0 6.5 Mbit/s	2412 MHz	2437 MHz	2462 MHz
802.11n:	HT40 MCS0 6.5 Mbit/s	2422 MHz	2437 MHz	2452 MHz

During transmitter test the EUT was controlled by a SW tool provided by the client to operate in a continuous transmit mode on the modulation schemes and test channels as required.

CONDUCTED MEASUREMENTS:

The equipment under test was set up in a shielded room and it is connected to the TS8997 using a low loss RF cable. The reading of the spectrum analyser is corrected taking into account the cable loss.



RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range between 30 MHz to 1000 MHz and 1 GHz-17 GHz Double ridge horn antenna) is situated at a distance of 3 m and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (17 GHz-40 GHz horn antenna).

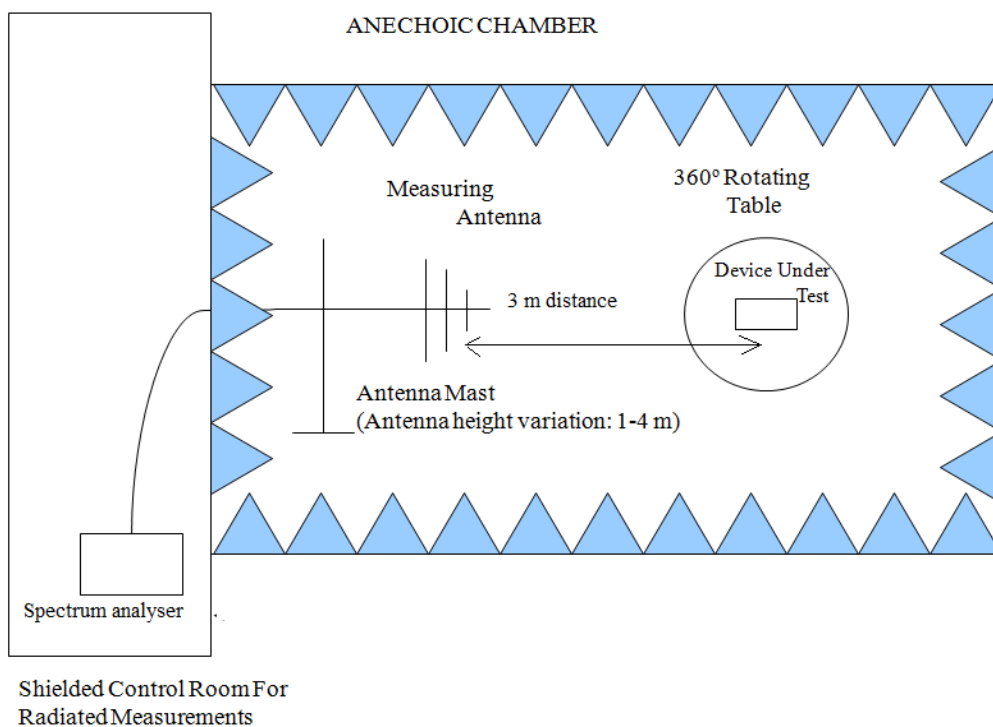
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find the maximum radiated emission.

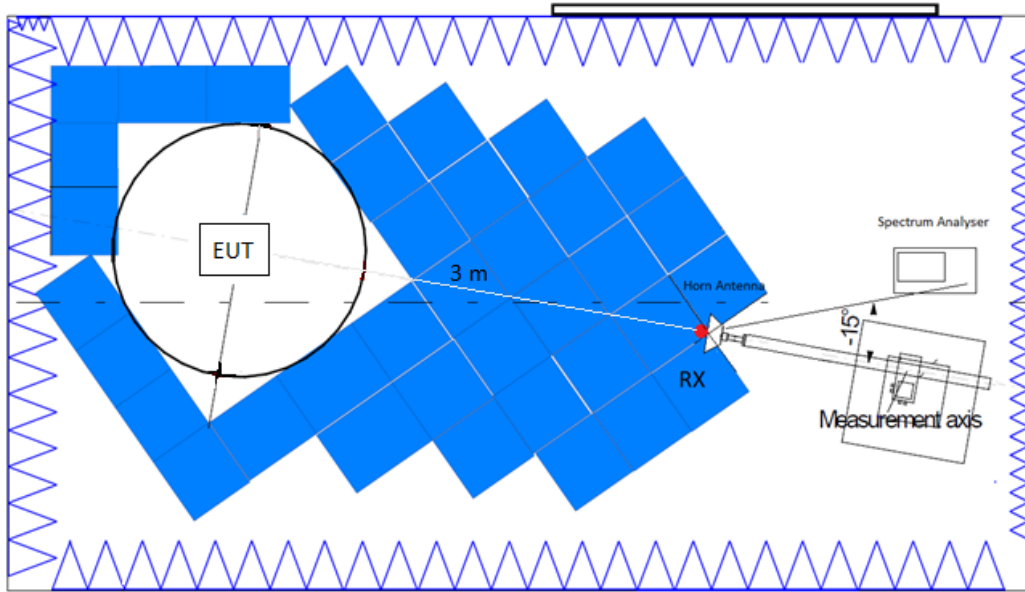
Measurements were made in both horizontal and vertical planes of polarization.

A resolution bandwidth/video bandwidth of 100 kHz / 300 kHz was used for frequencies below 1 GHz and 1 MHz / 3 MHz for frequencies above 1 GHz.

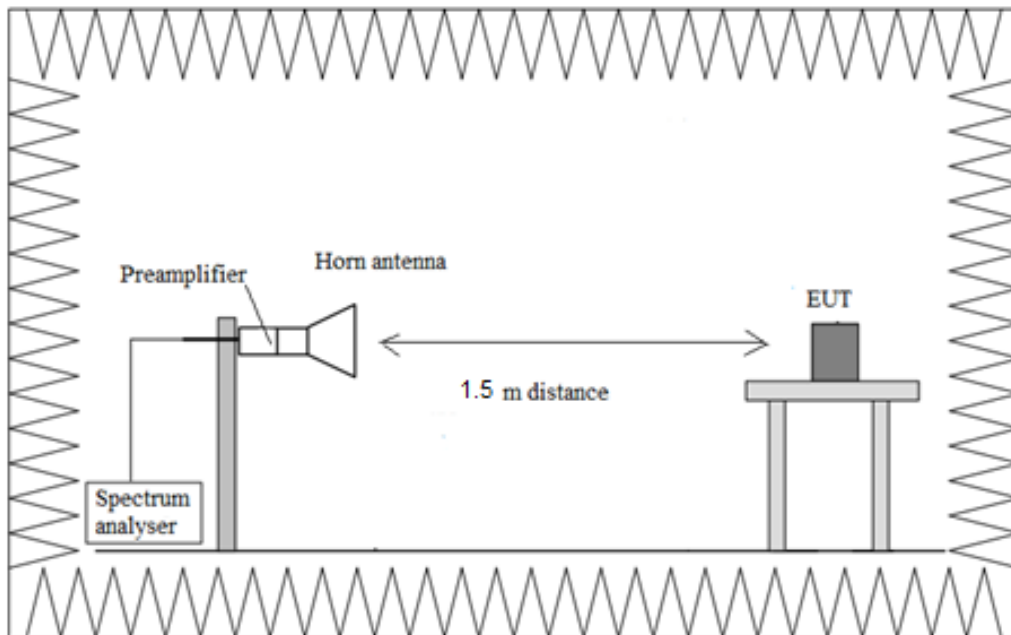
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



TEST CASES DETAILS

FCC 47 CFR Part 15.247 / RSS-247 Occupied Channel Bandwidth 99%

Results

Modulation: 802.11b (DSSS 1 Mbit/s)

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	13.000
		2437.00000		12.900
		2462.00000		13.100

Modulation: 802.11g (OFDM 6 Mbit/s)

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	16.300
		2437.00000		16.200
		2462.00000		16.300

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

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	17.300
		2437.00000		17.400
		2462.00000		17.400

Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	40	2422.00000	1	36.250
		2437.00000		36.000
		2452.00000		35.750

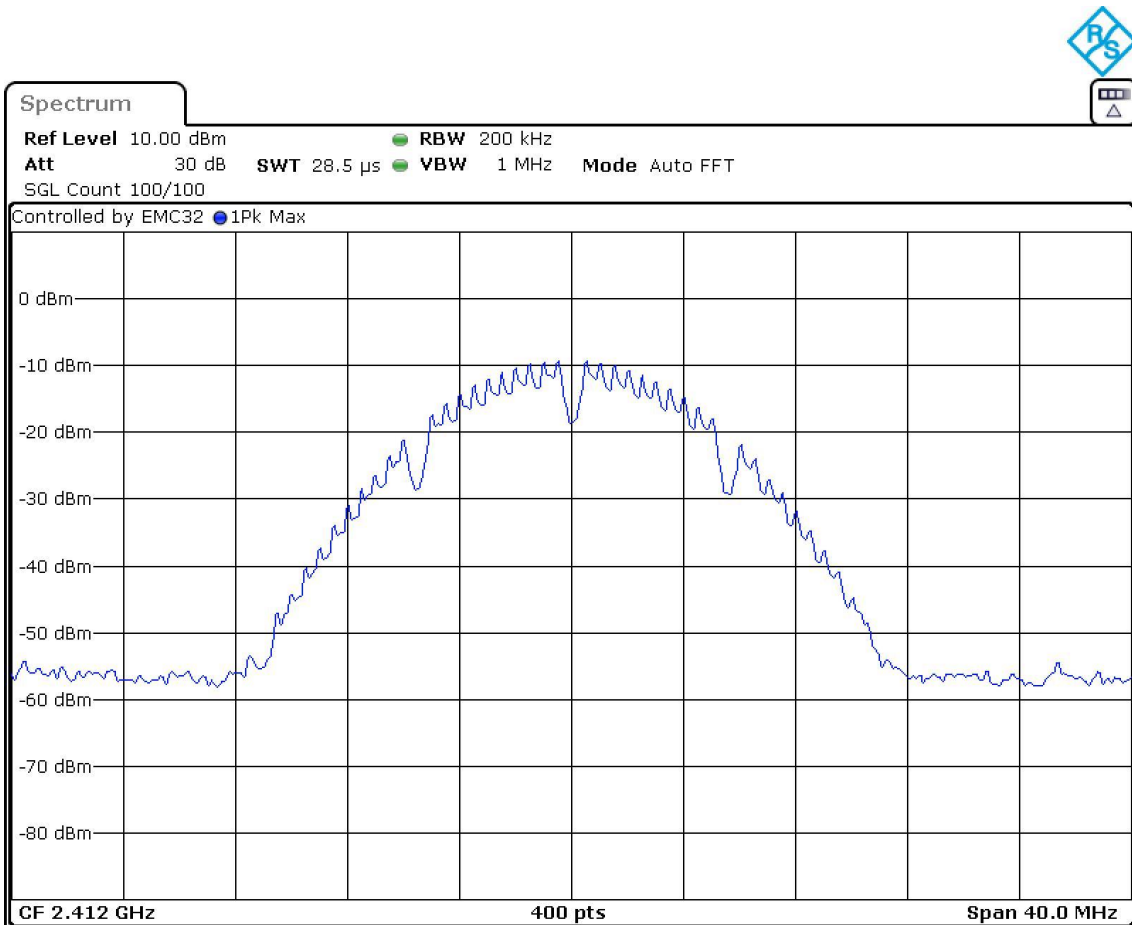
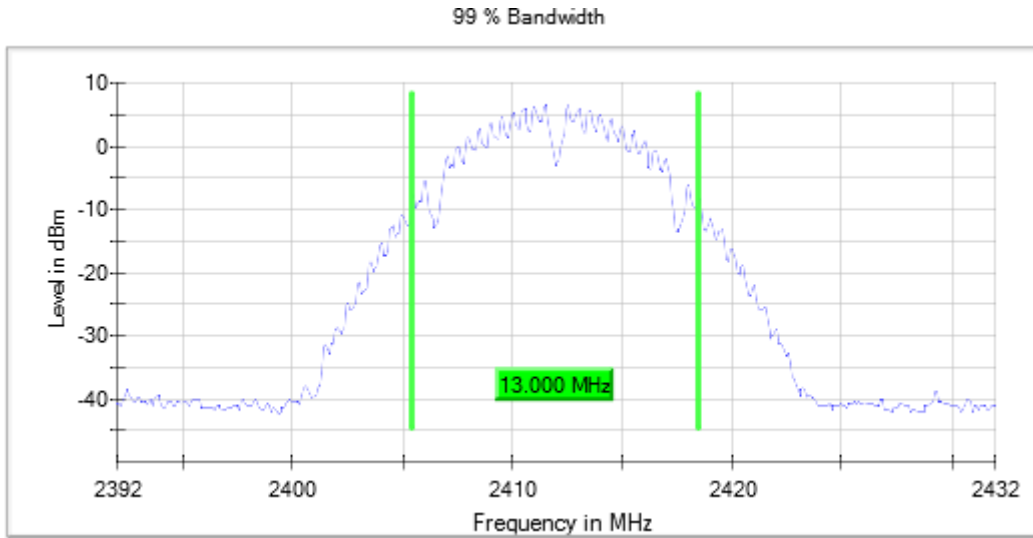
Verdict

Pass

Attachments

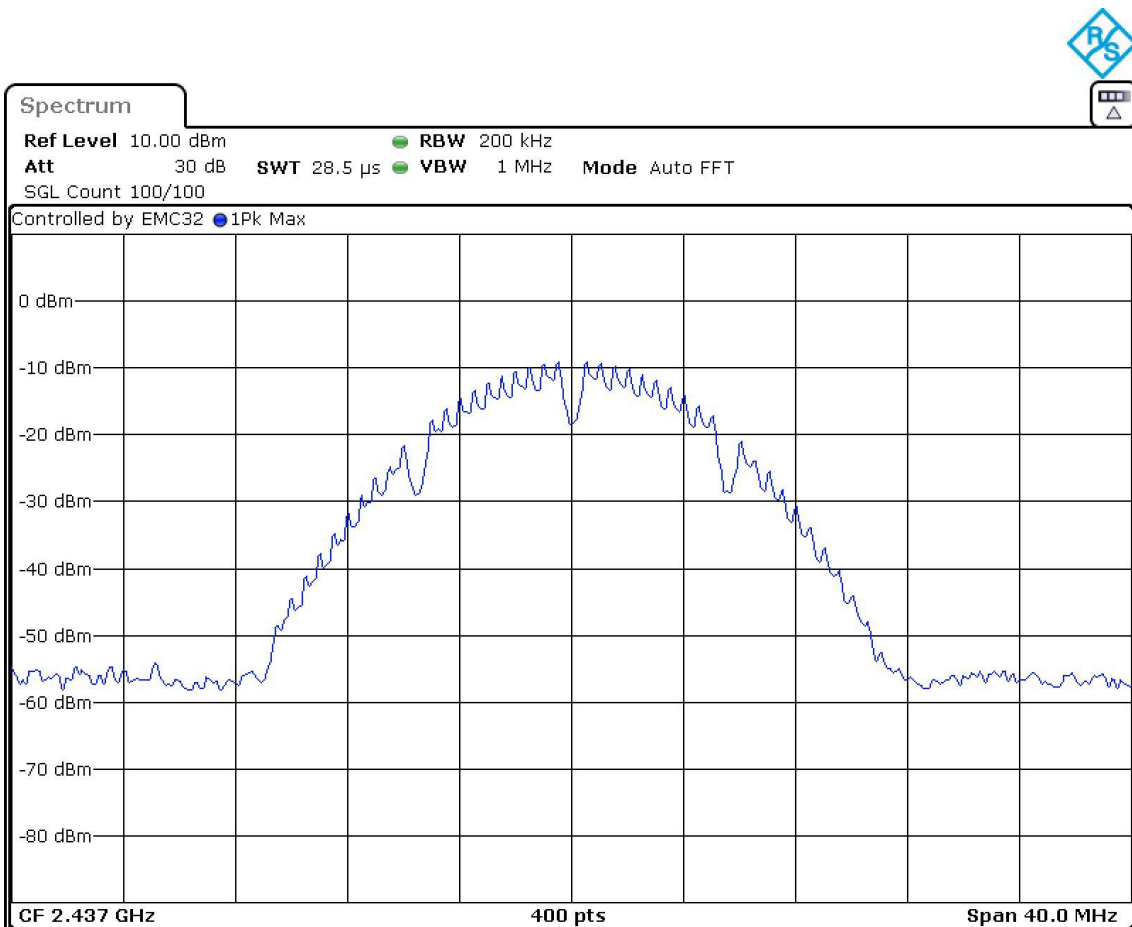
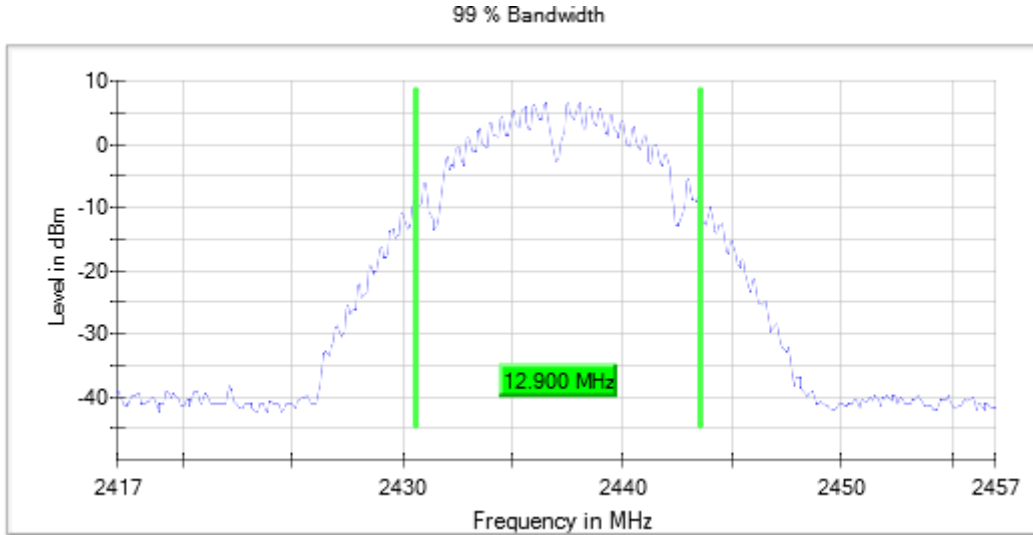
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



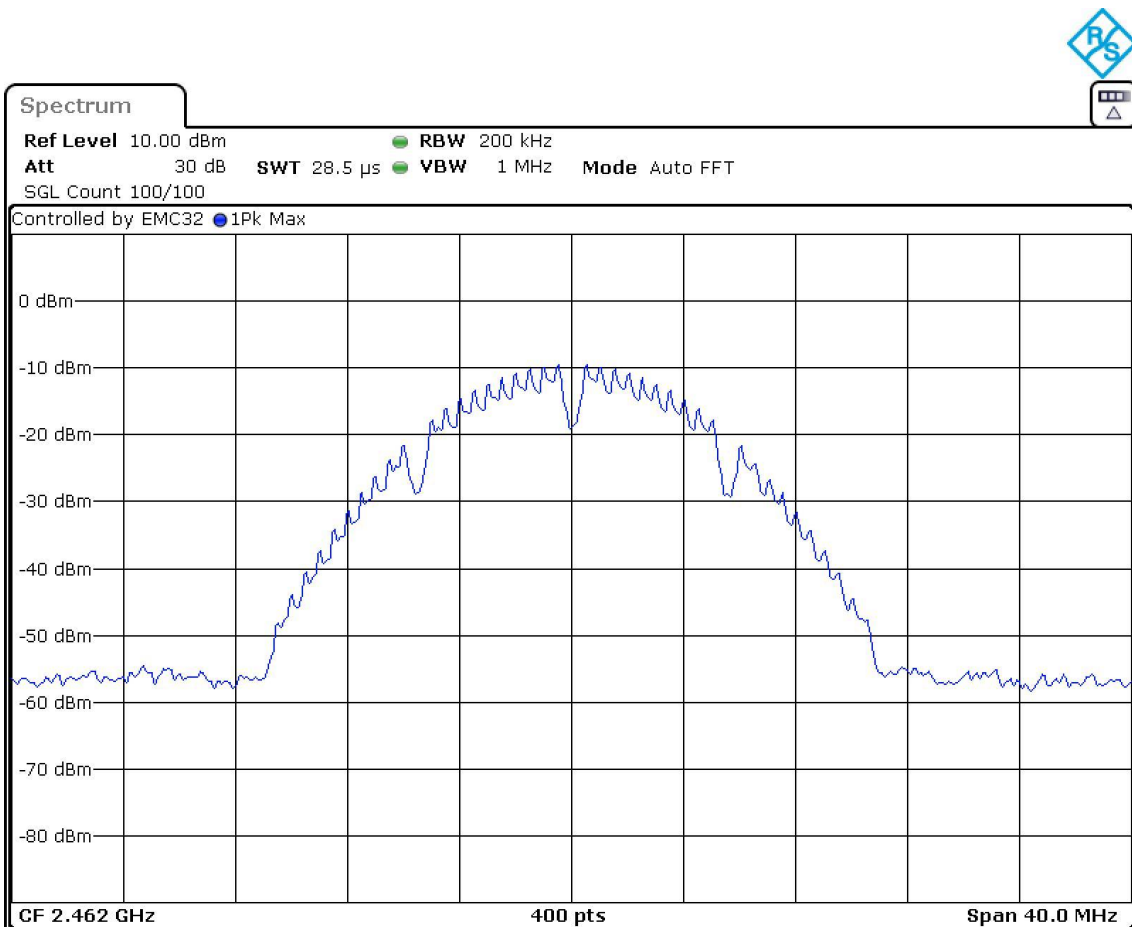
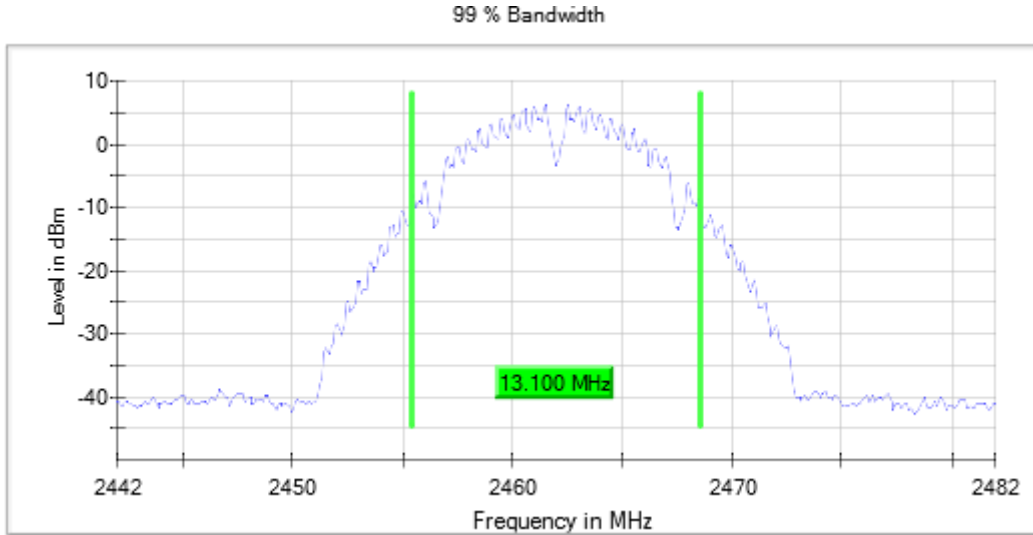
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



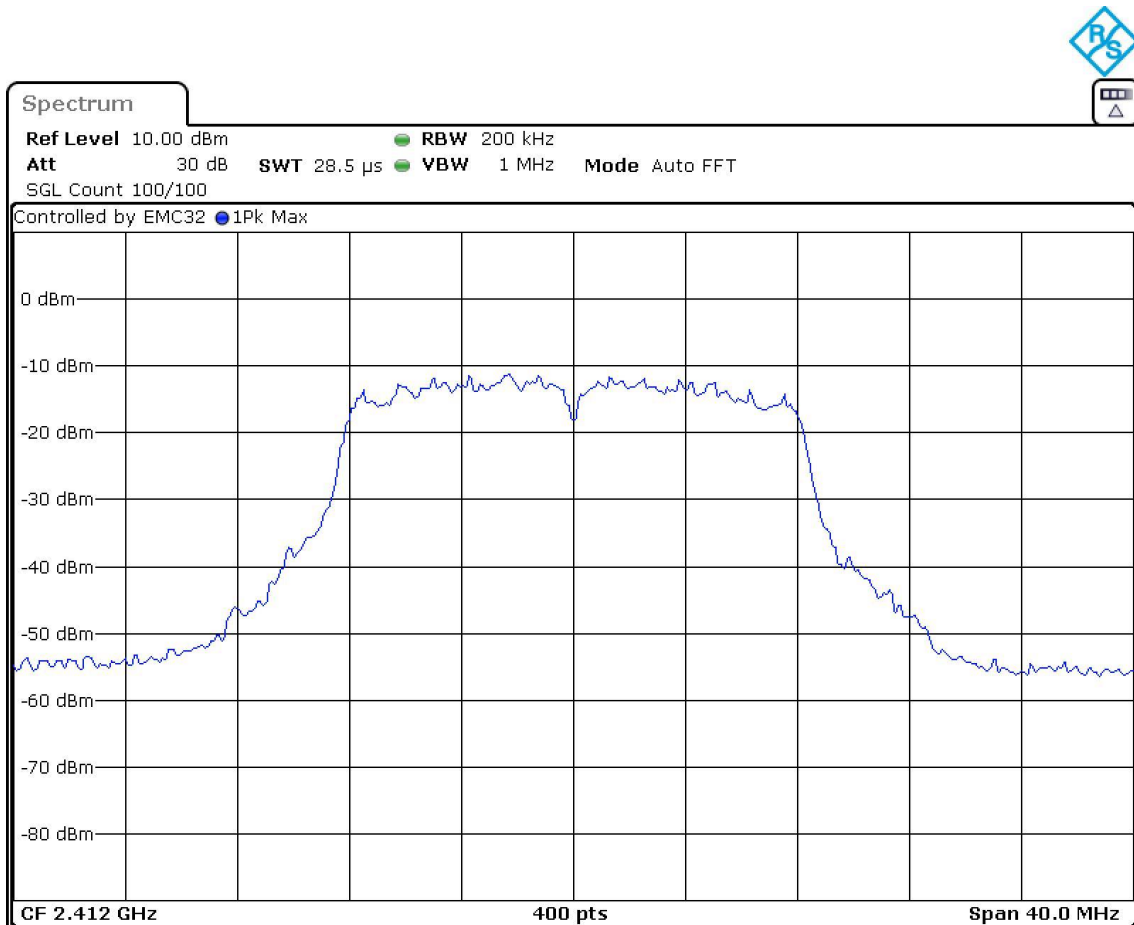
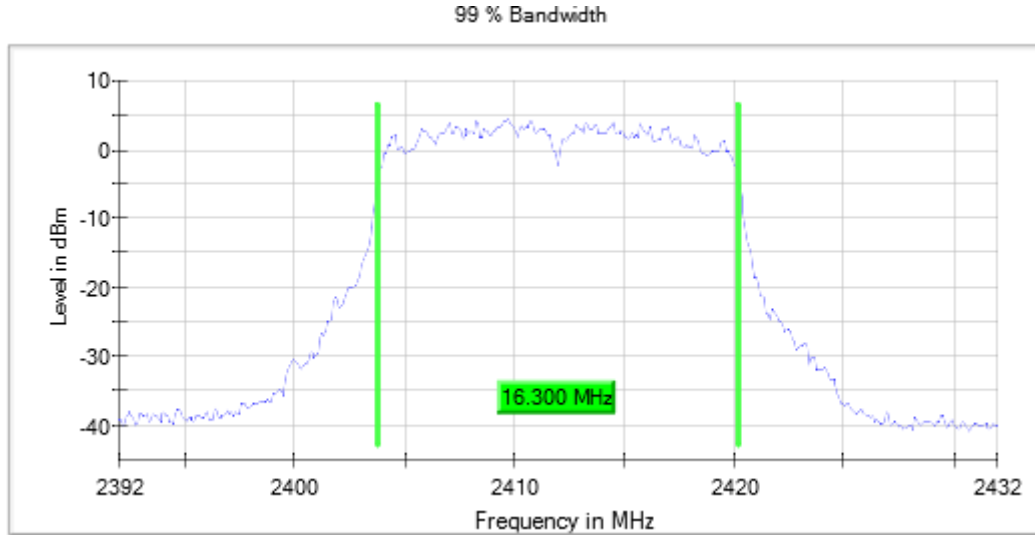
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2462.00000
 MIMO Mode = SISO Active Port = 1

Images:



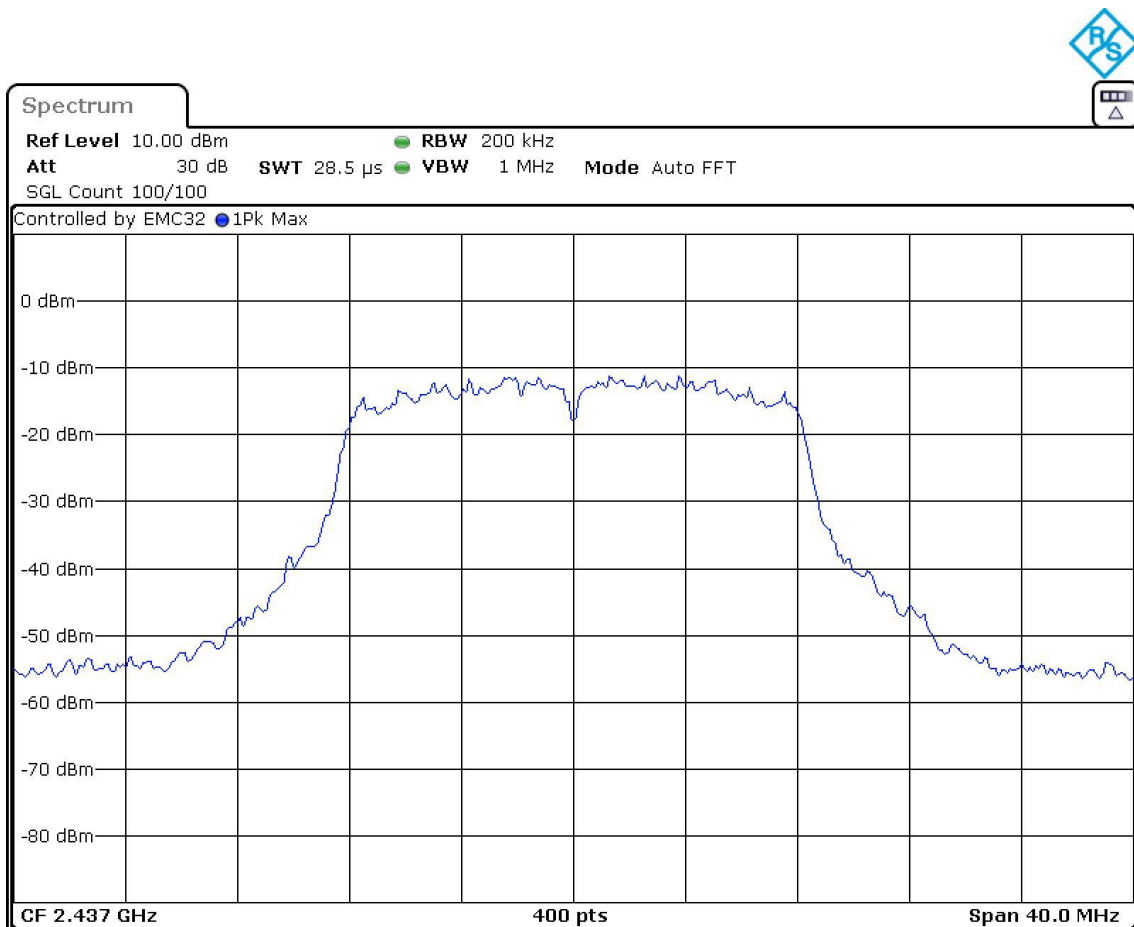
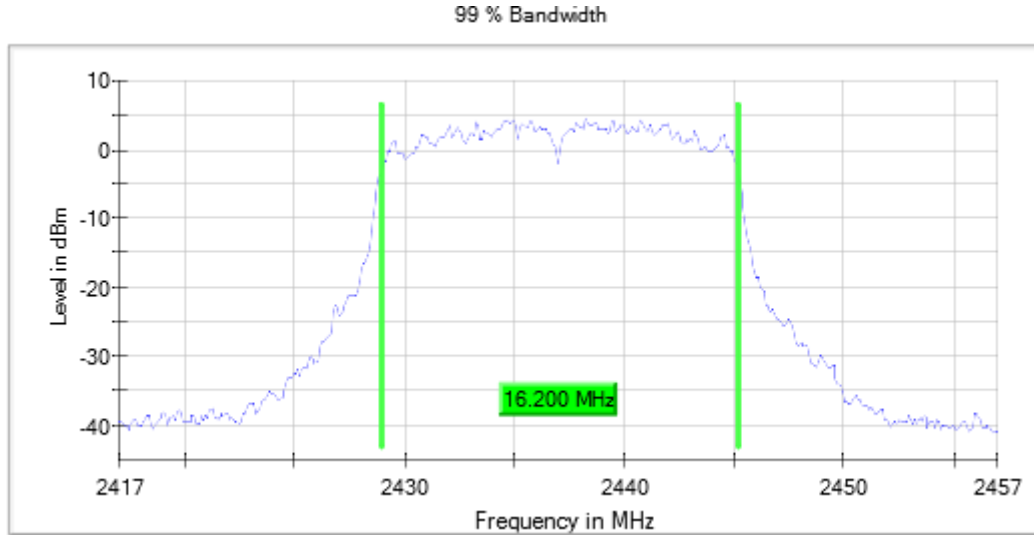
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



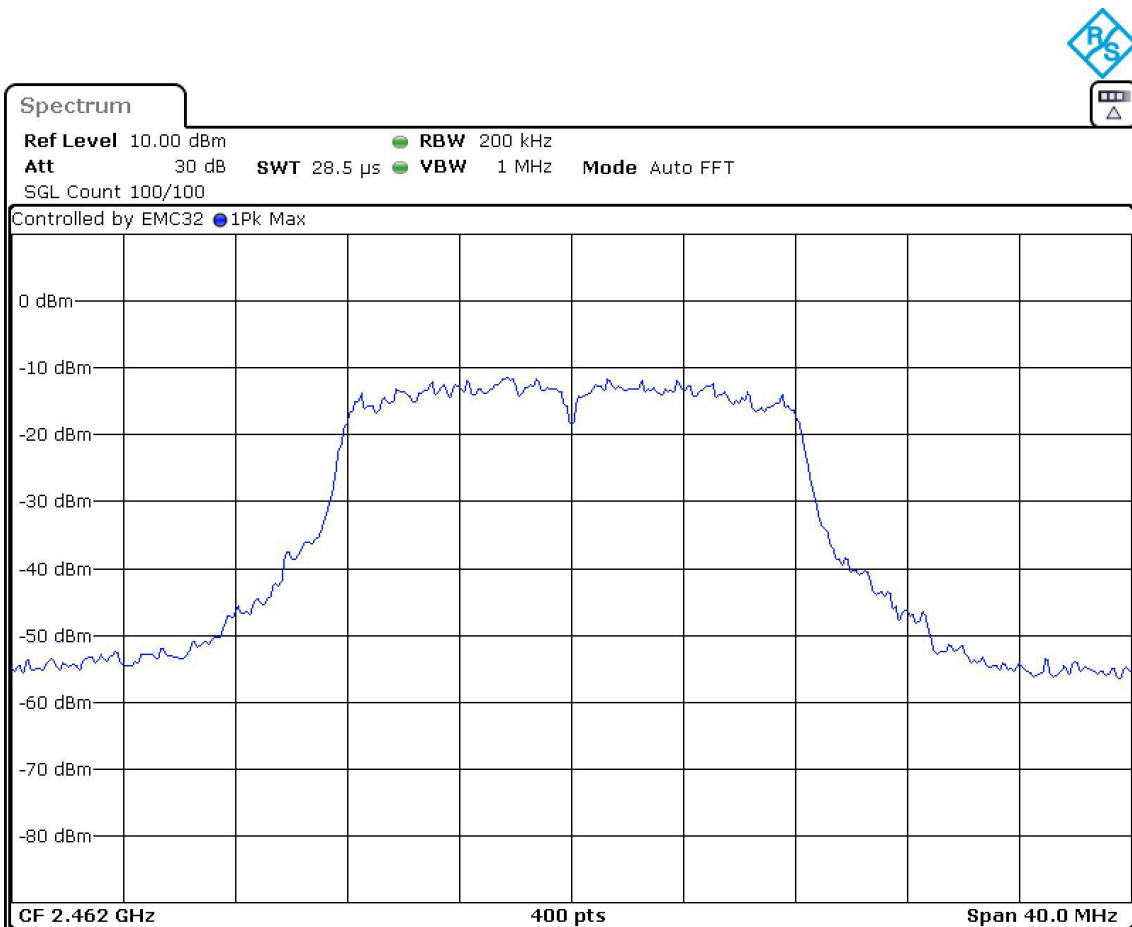
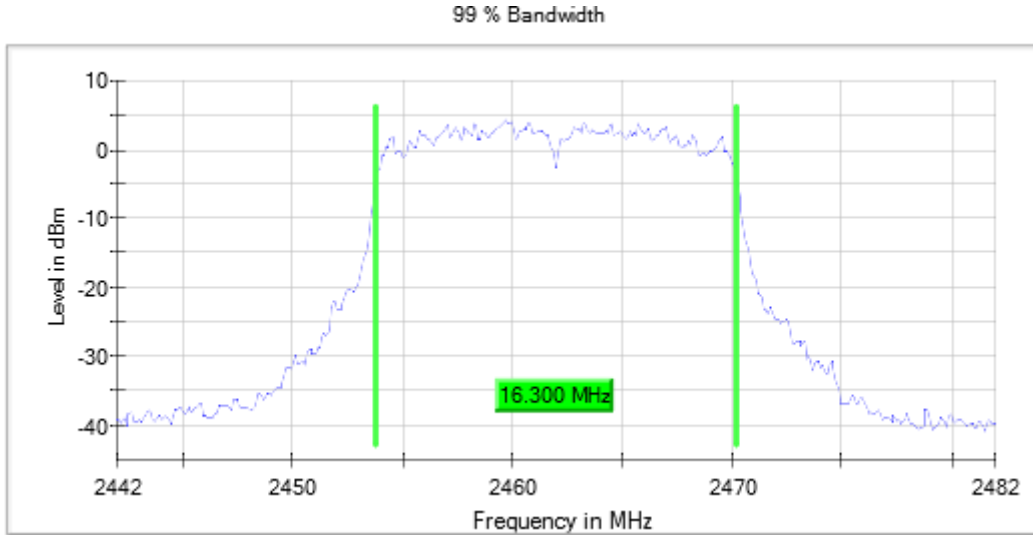
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



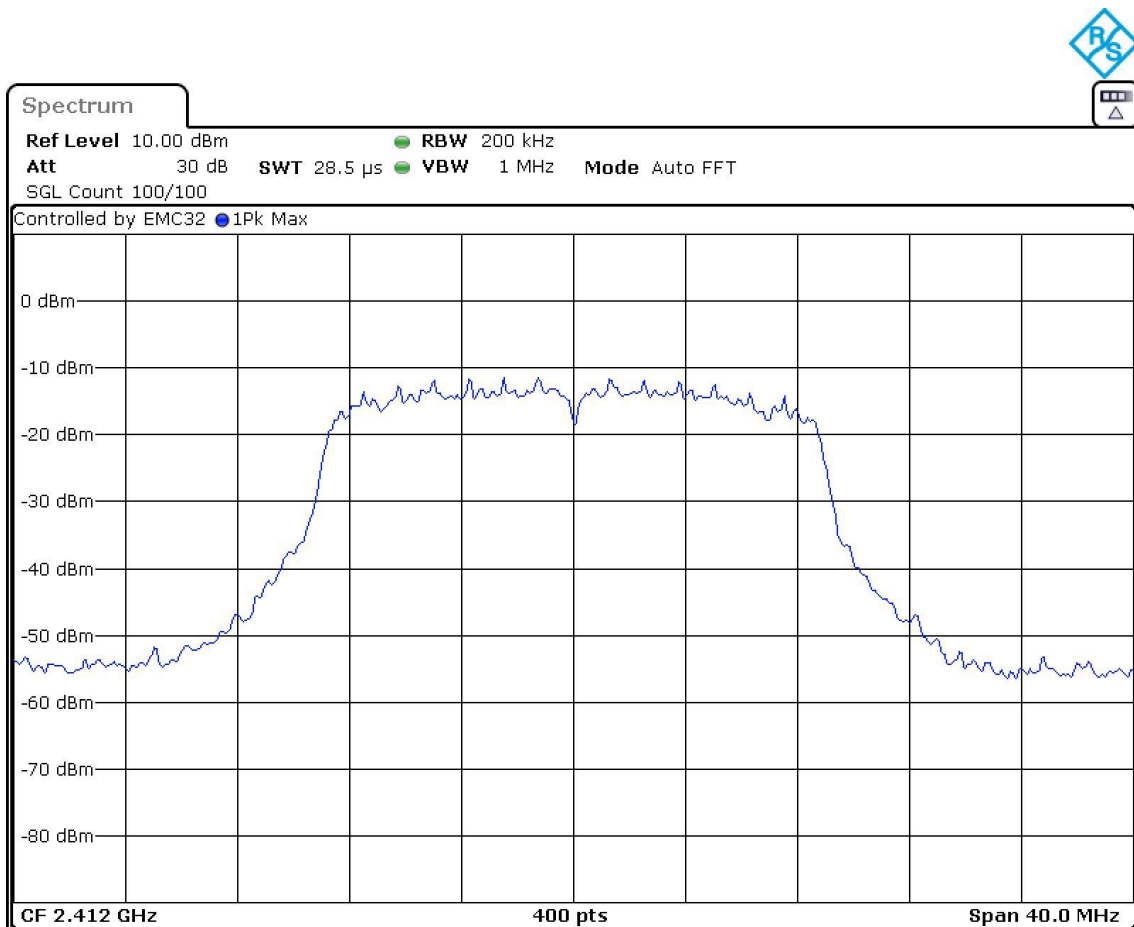
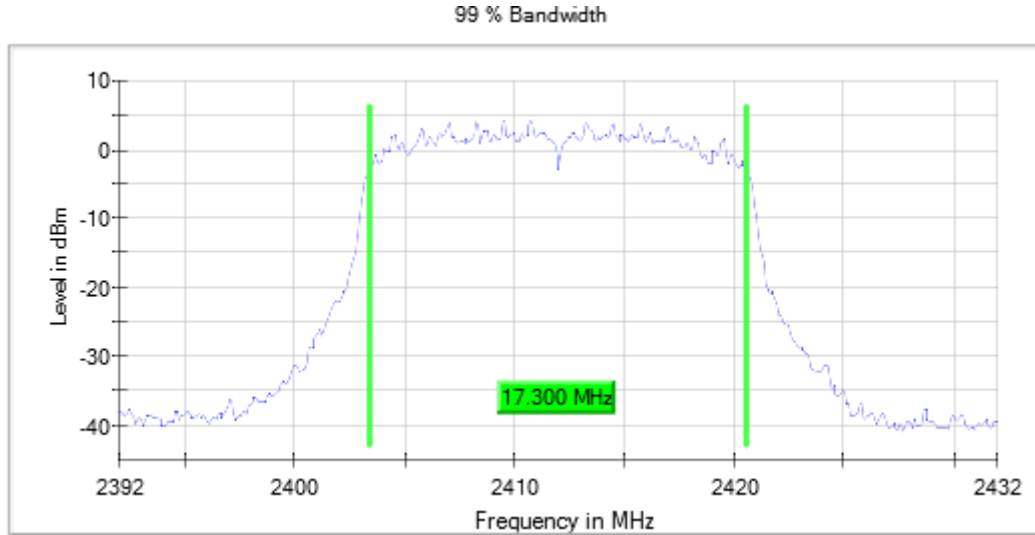
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2462.00000
 MIMO Mode = SISO Active Port = 1

Images:



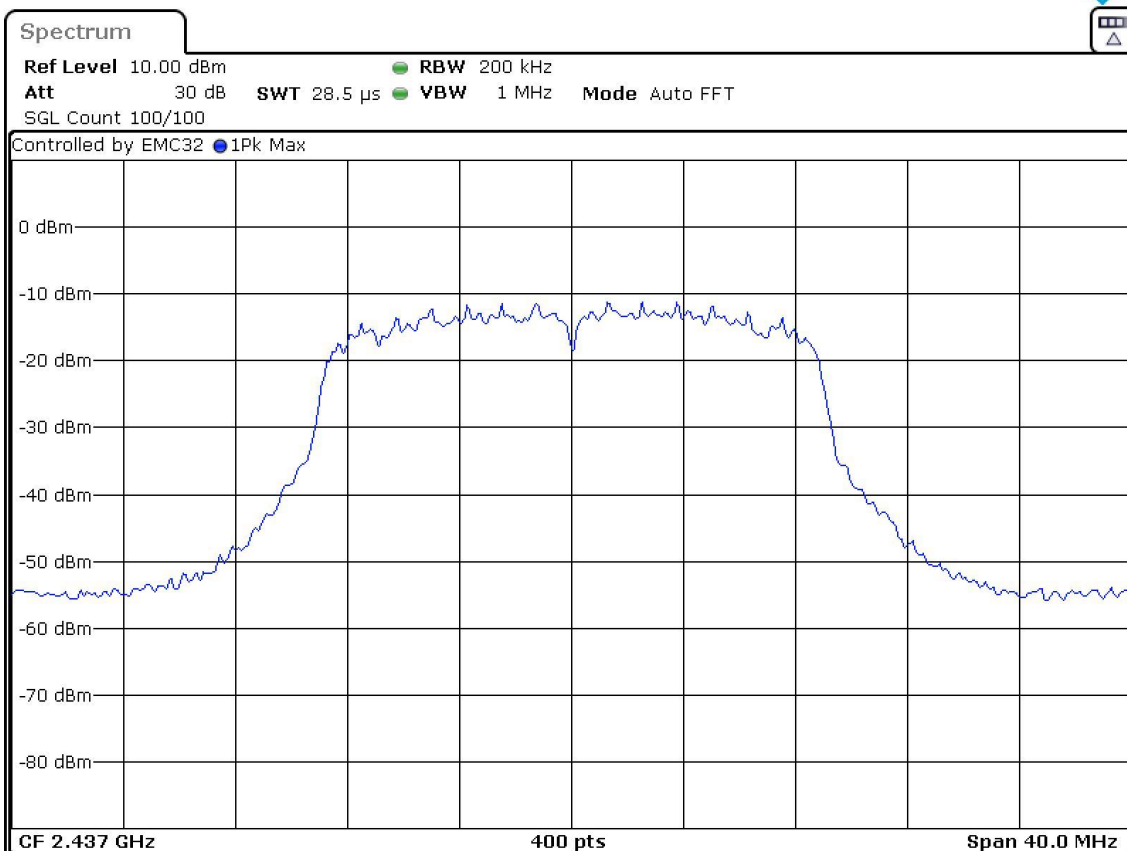
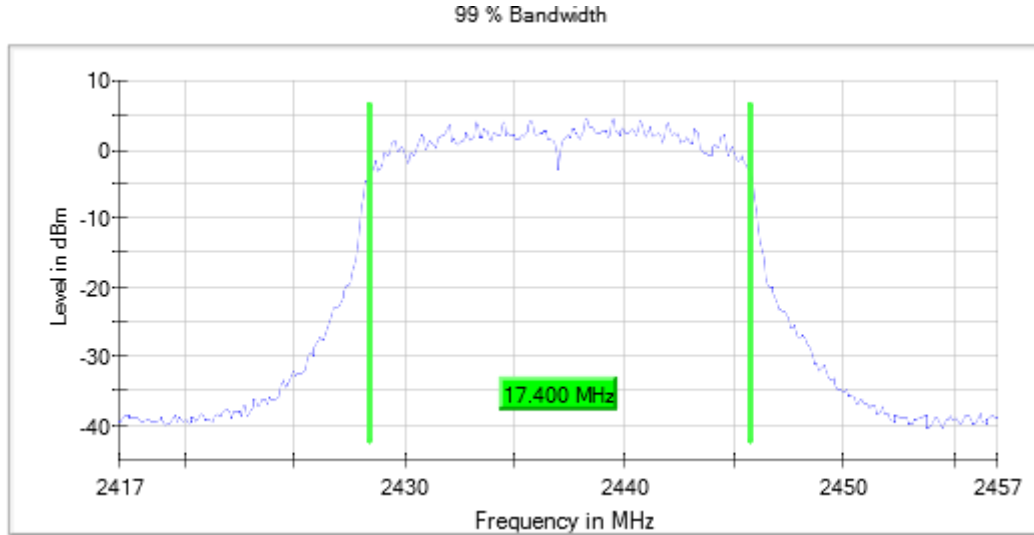
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



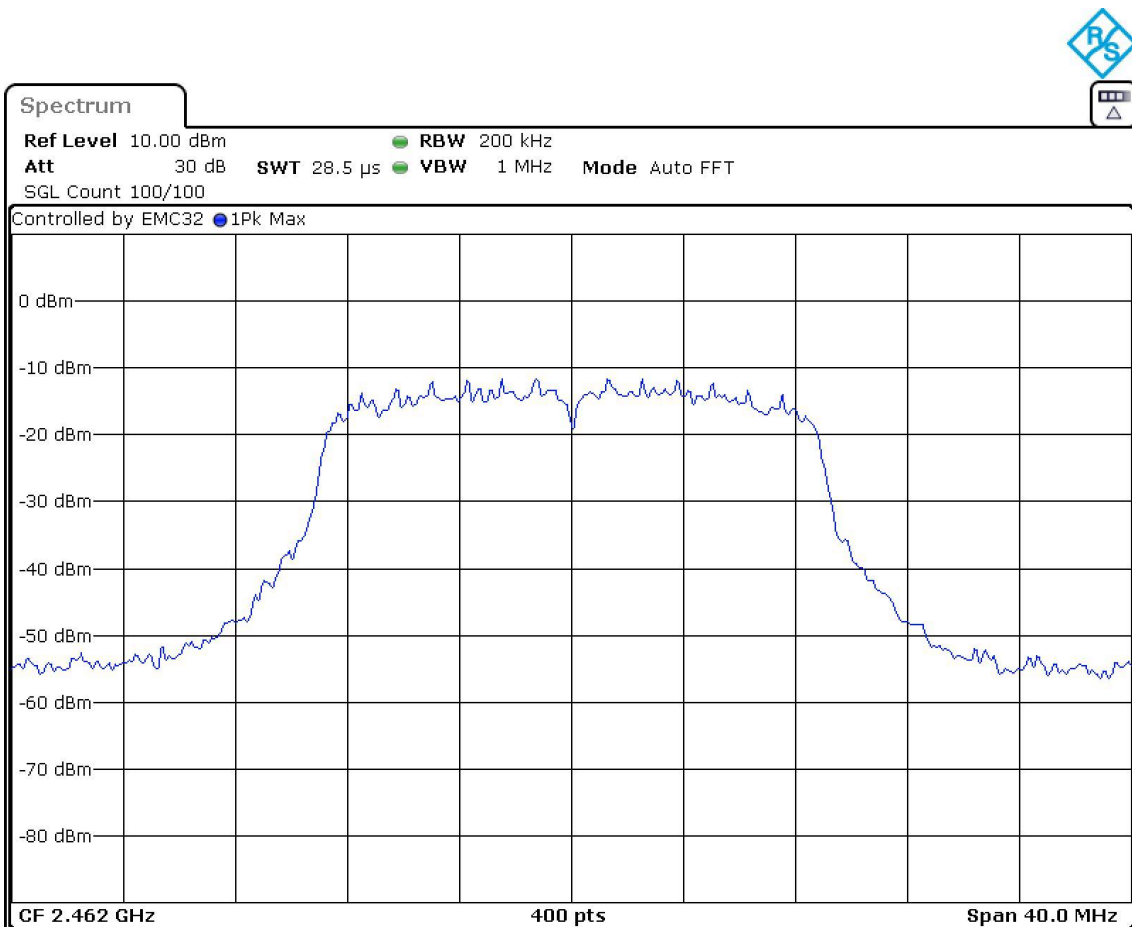
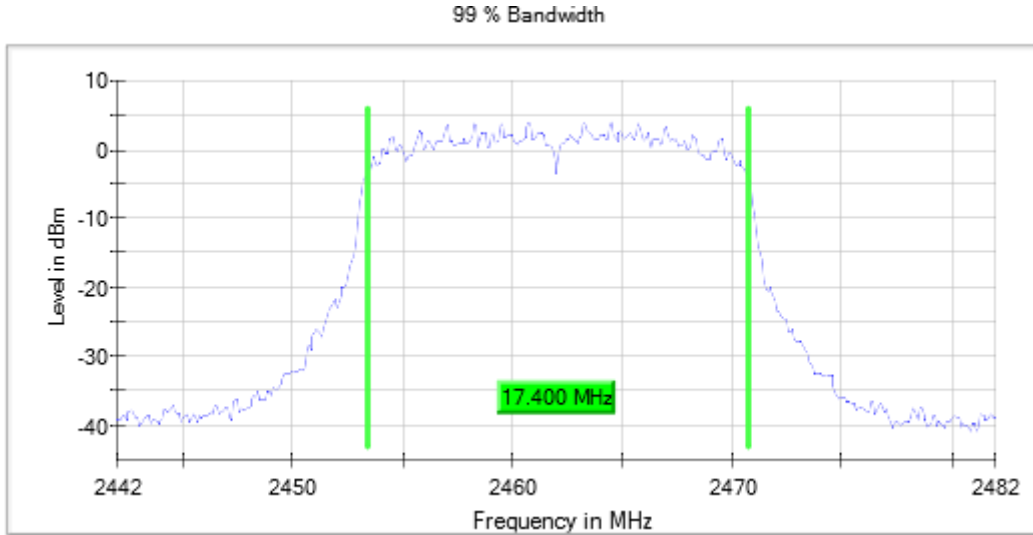
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



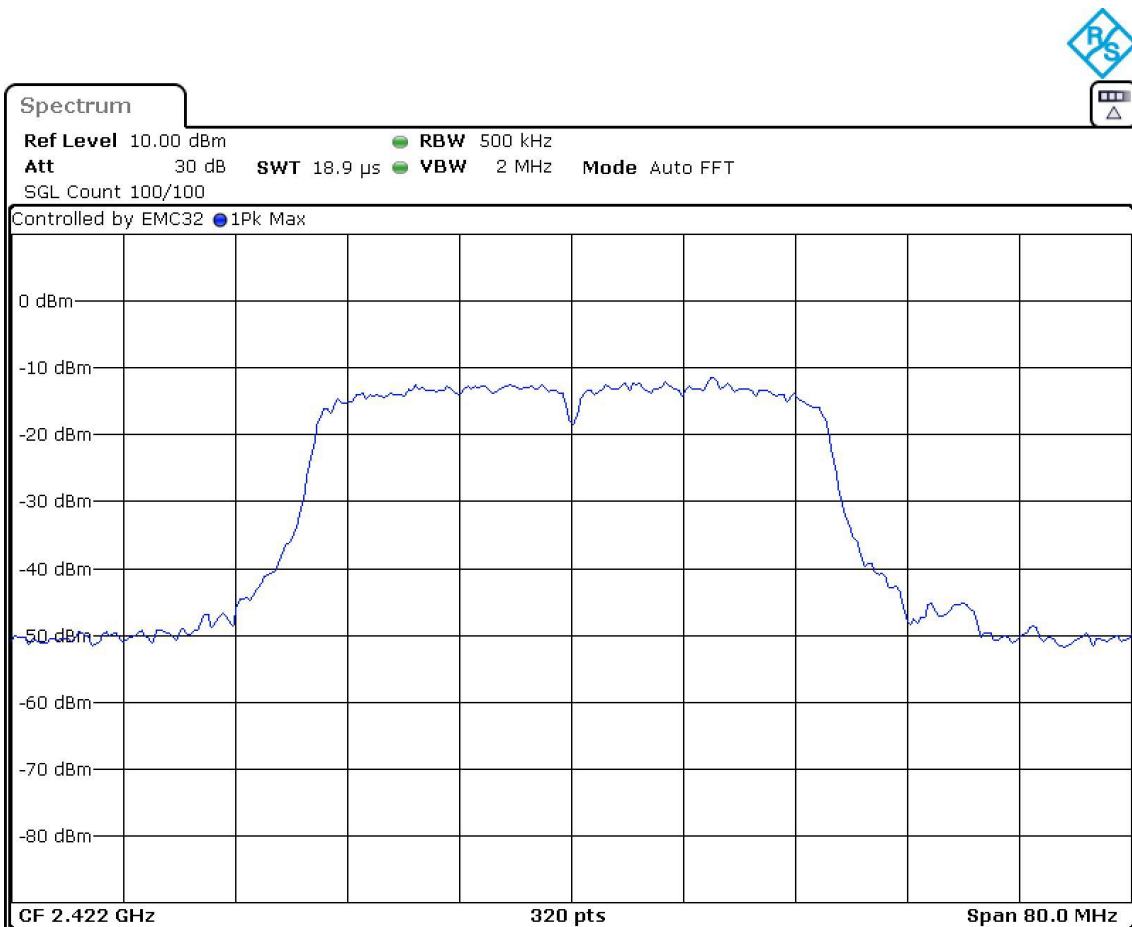
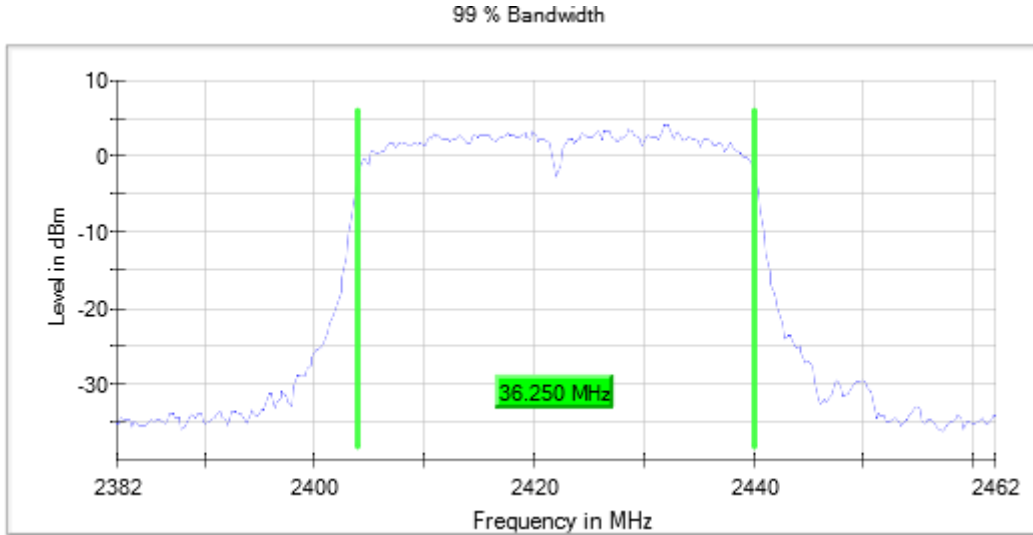
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11n HT20 (OFDM MCS0 6.5 Mbit/s) Frequency MHz = 2462.00000
 MIMO Mode = SISO Active Port = 1

Images:



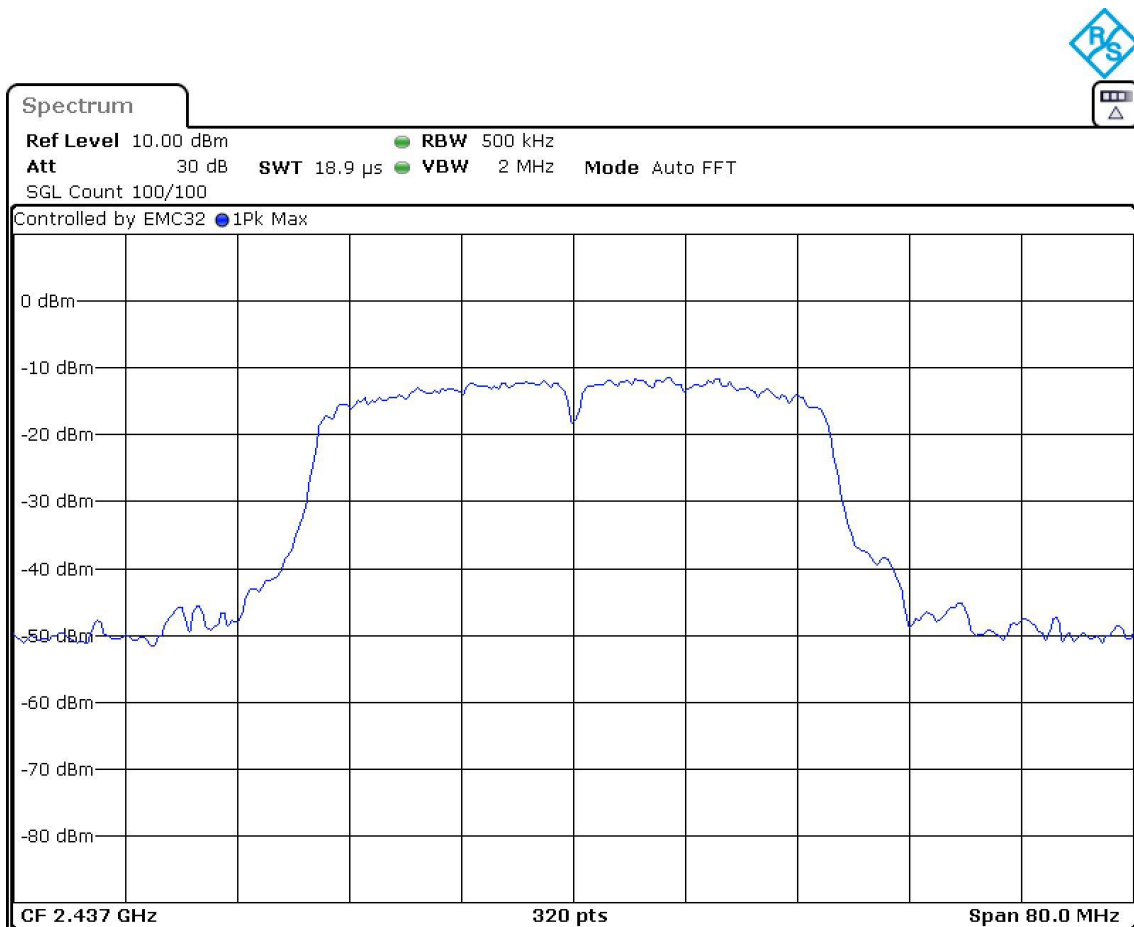
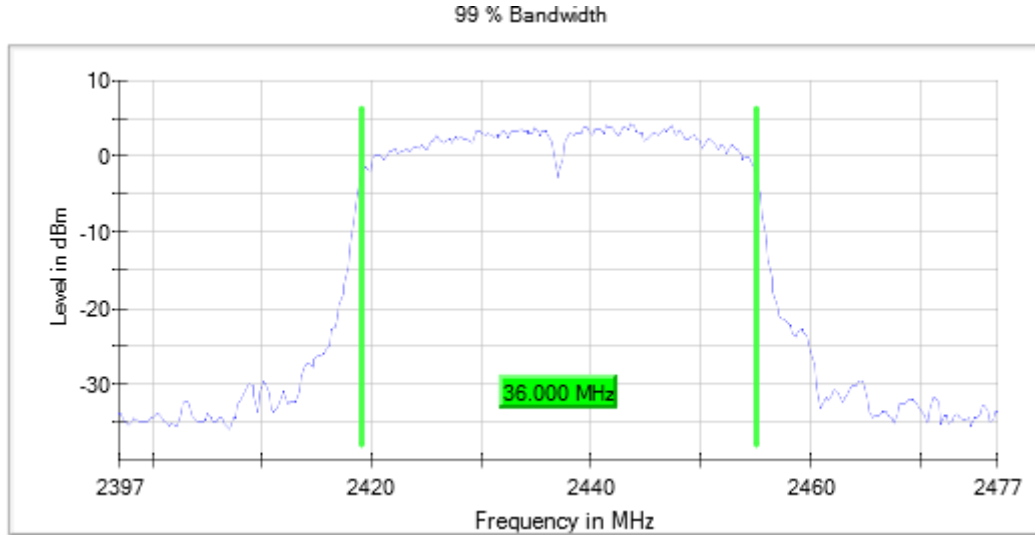
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 40
 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s) Frequency MHz = 2422.00000
 MIMO Mode = SISO Active Port = 1

Images:



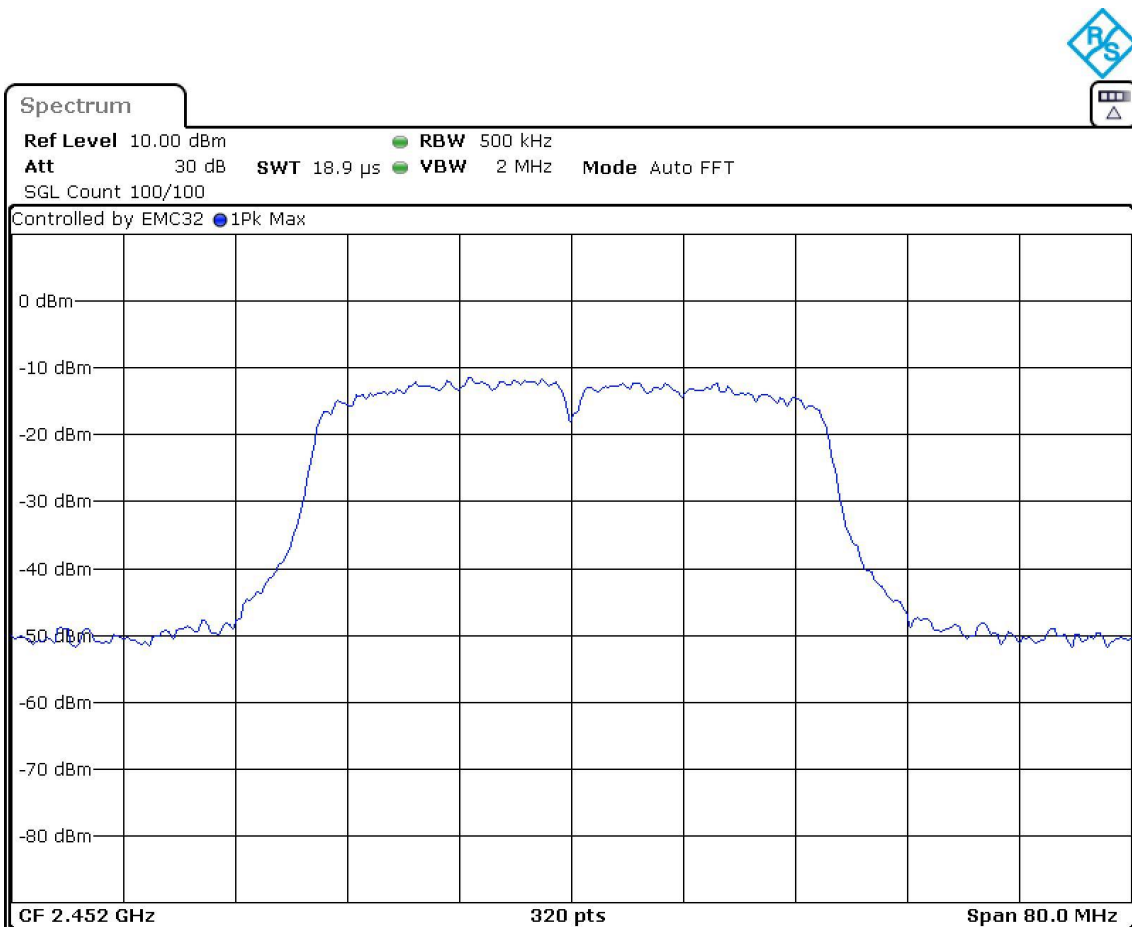
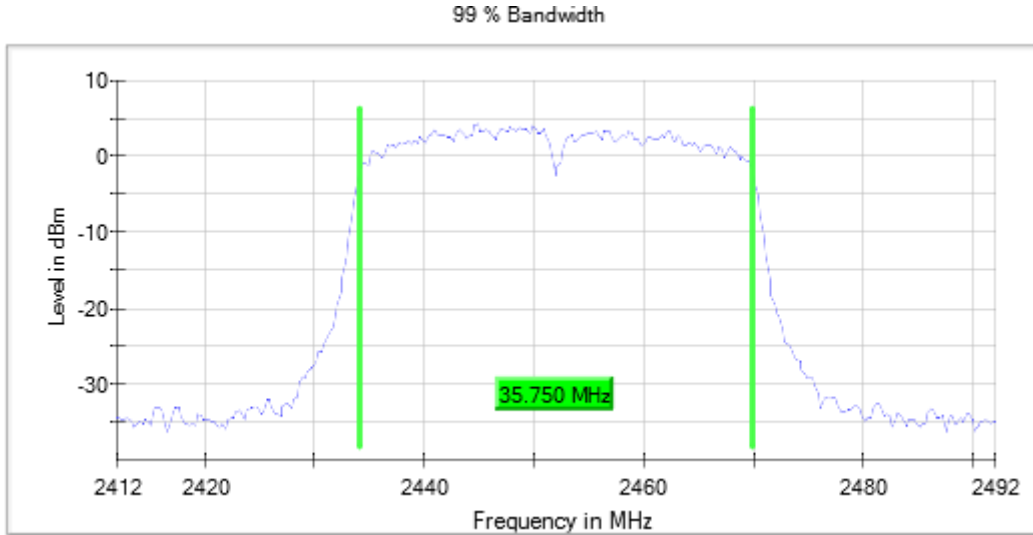
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 40
 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 40
 Modulation = 802.11n HT40 (OFDM MCS0 13.5 Mbit/s) Frequency MHz = 2452.00000
 MIMO Mode = SISO Active Port = 1

Images:



RSS-247 5.1 (b) / FCC 15.247 (a) (1) 20 dB Bandwidth

Limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Results

Modulation: 802.11b (DSSS 1 Mbit/s)

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	15.300
		2437.00000		15.200
		2462.00000		15.300

Modulation: 802.11g (OFDM 6 Mbit/s)

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	17.600
		2437.00000		17.600
		2462.00000		17.600

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

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	18.700
		2437.00000		18.600
		2462.00000		18.800

Modulation: 802.11n HT40 (OFDM MCS0 13.5 Mbit/s)

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Digital Transmission System (DTS)	40	2422.00000	1	39.000
		2437.00000		38.750
		2452.00000		38.750

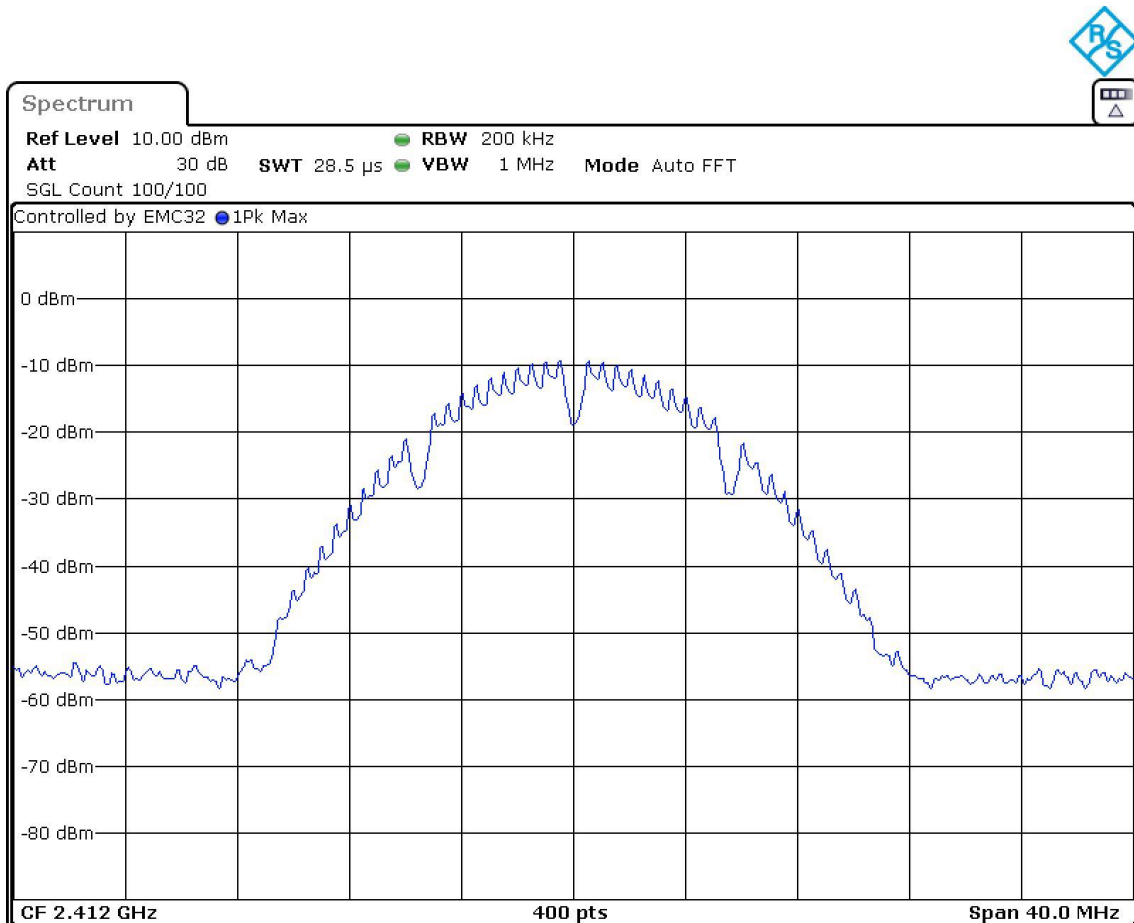
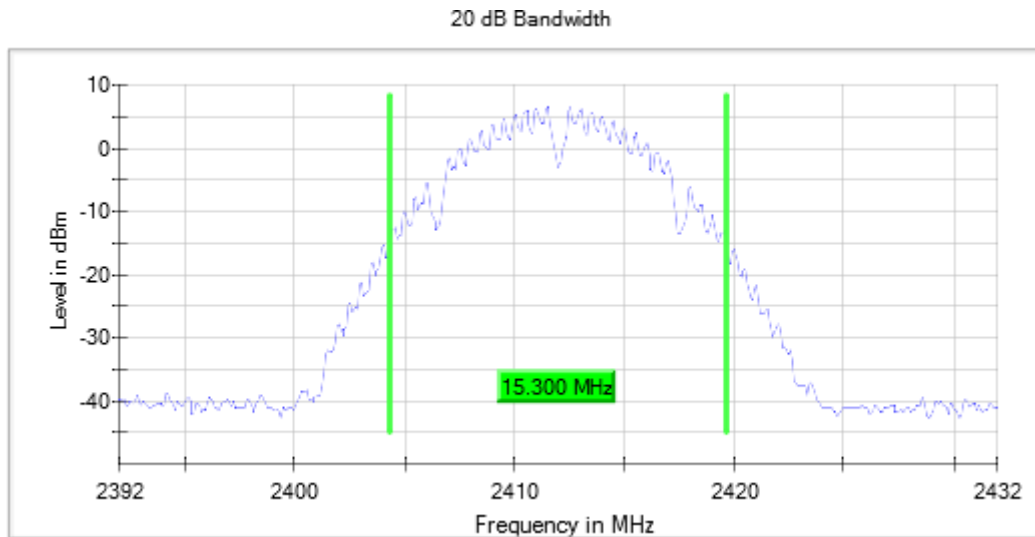
Verdict

Pass

Attachments

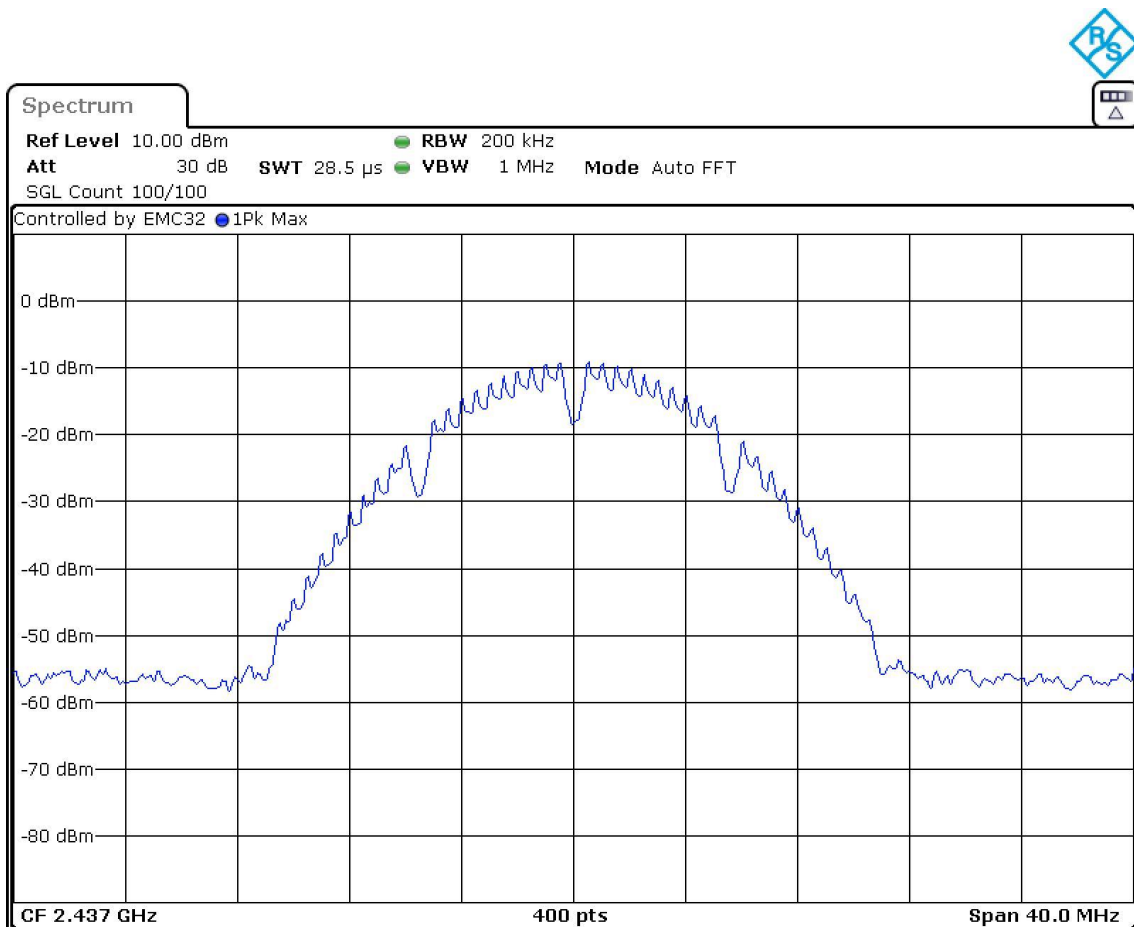
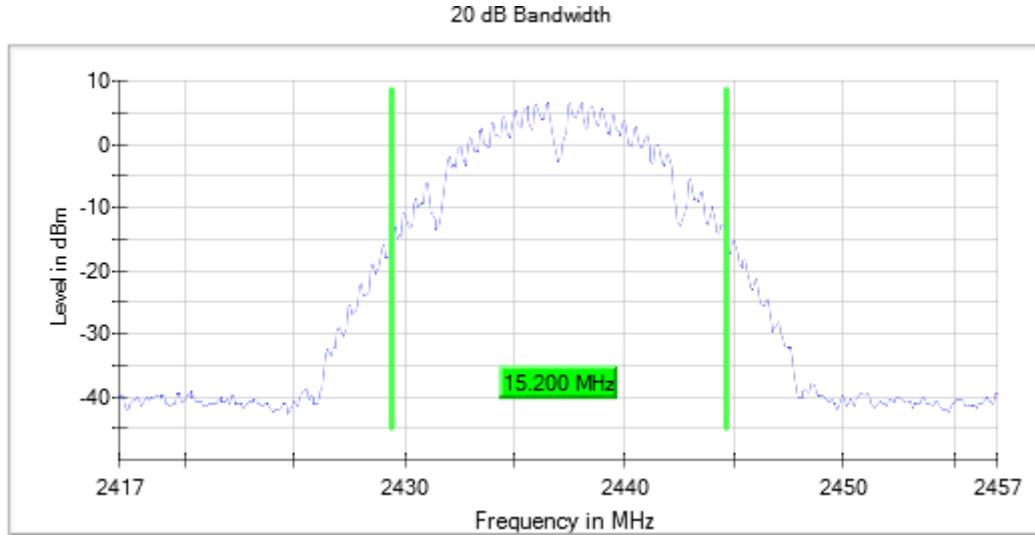
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

Images:



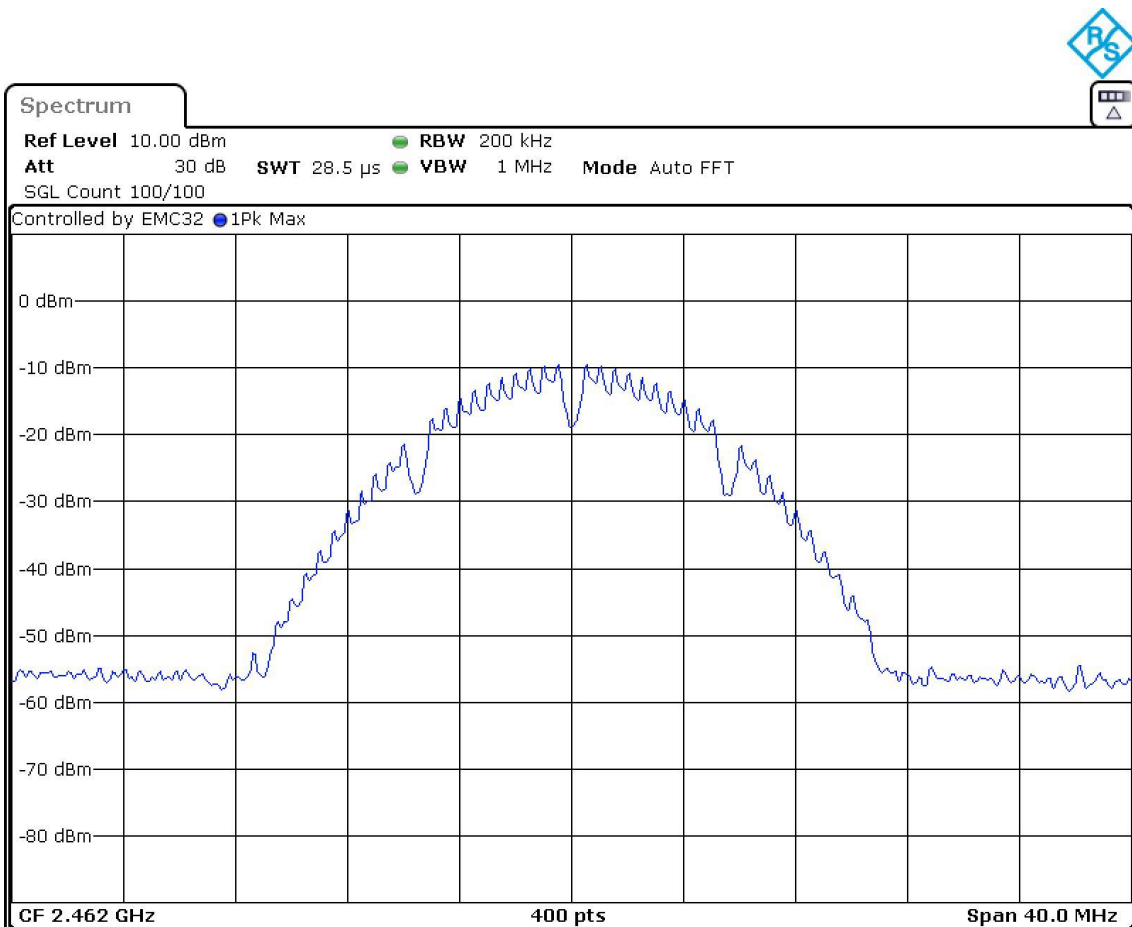
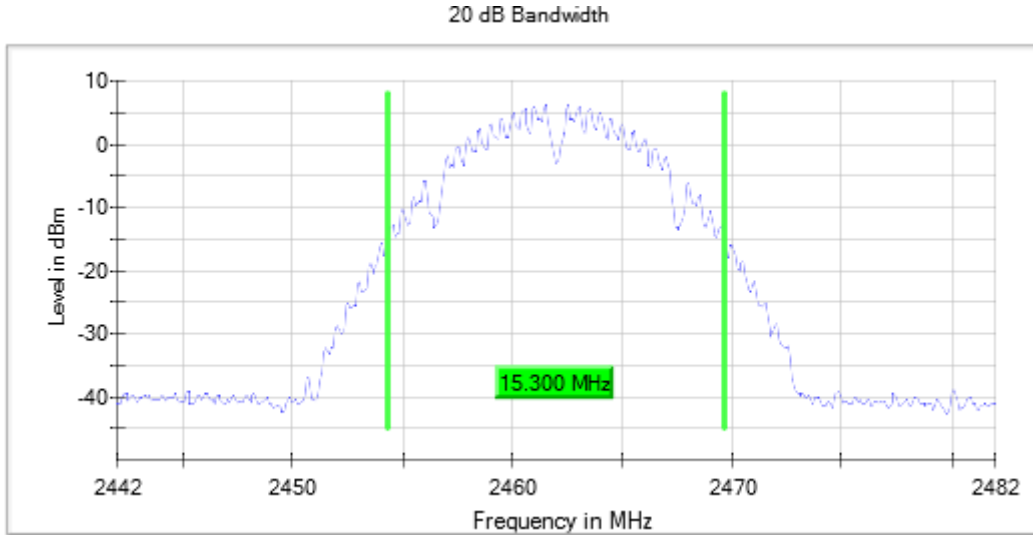
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



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

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:

