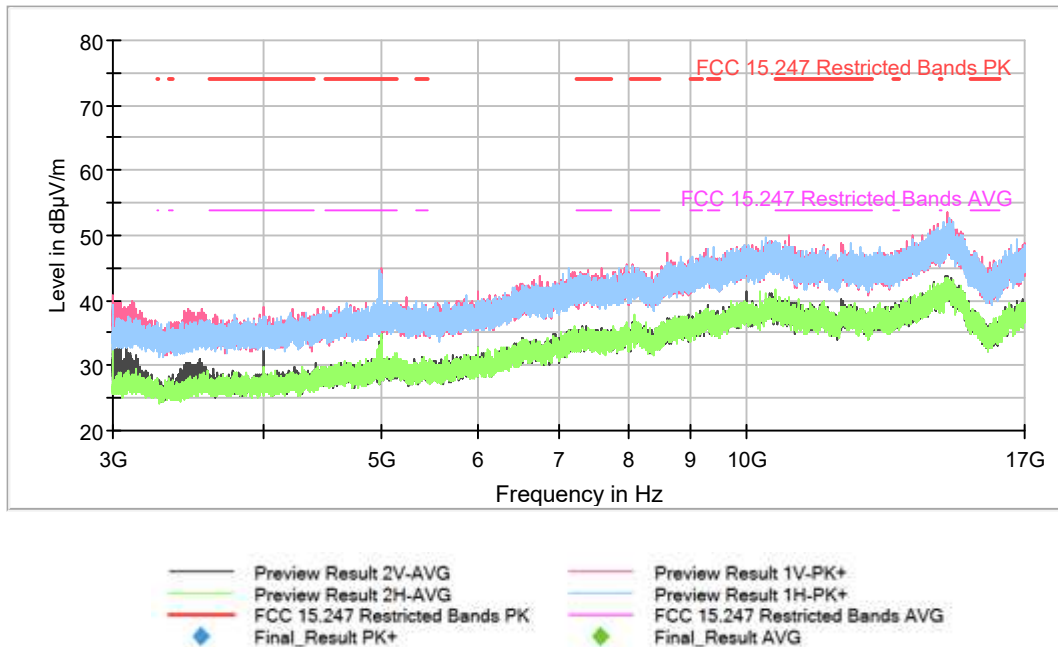


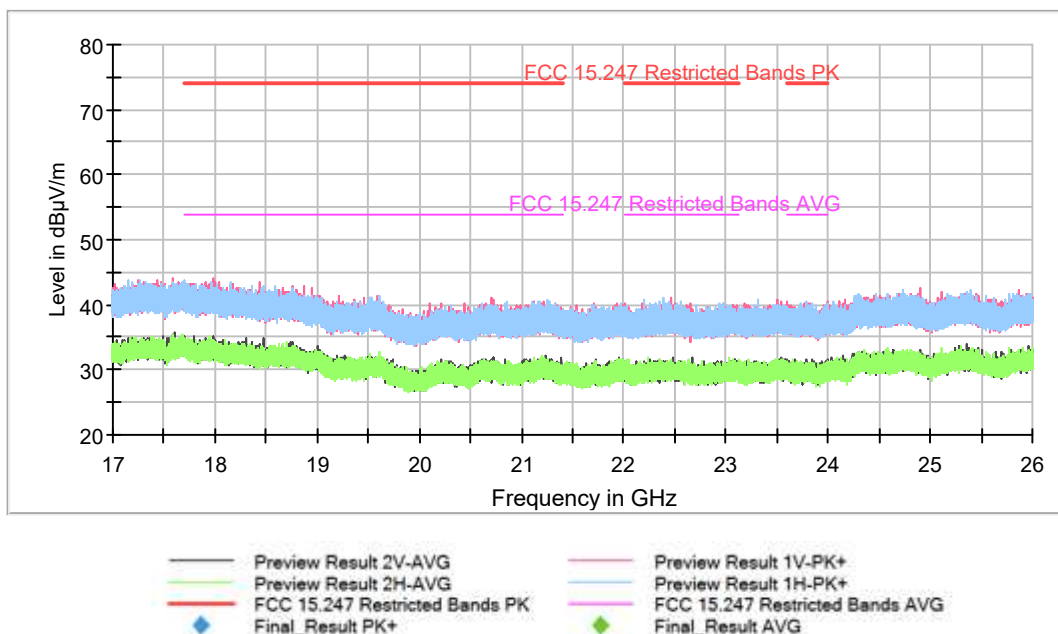
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [3, 17]

Plots:



Operation Band (MHz) = [2400, 2483.5], Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (Pi/4 DQPSK 2-DH5), Frequency Range (GHz) = [17, 26]

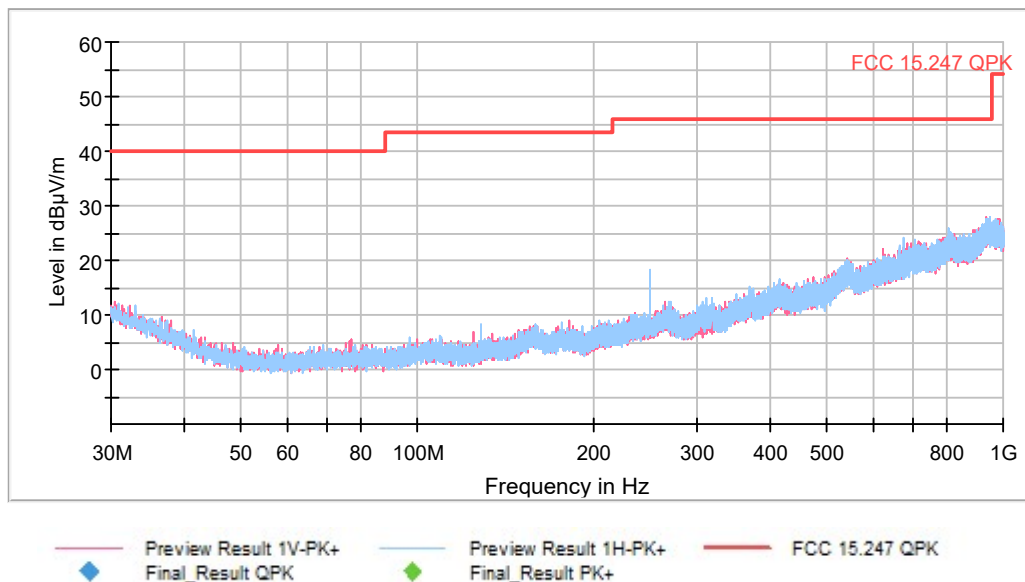
Plots:



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

Operation Band (MHz) = [2400, 2483.5], Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [0.03, 1], Number of Transmission Chains = 1

Plots:

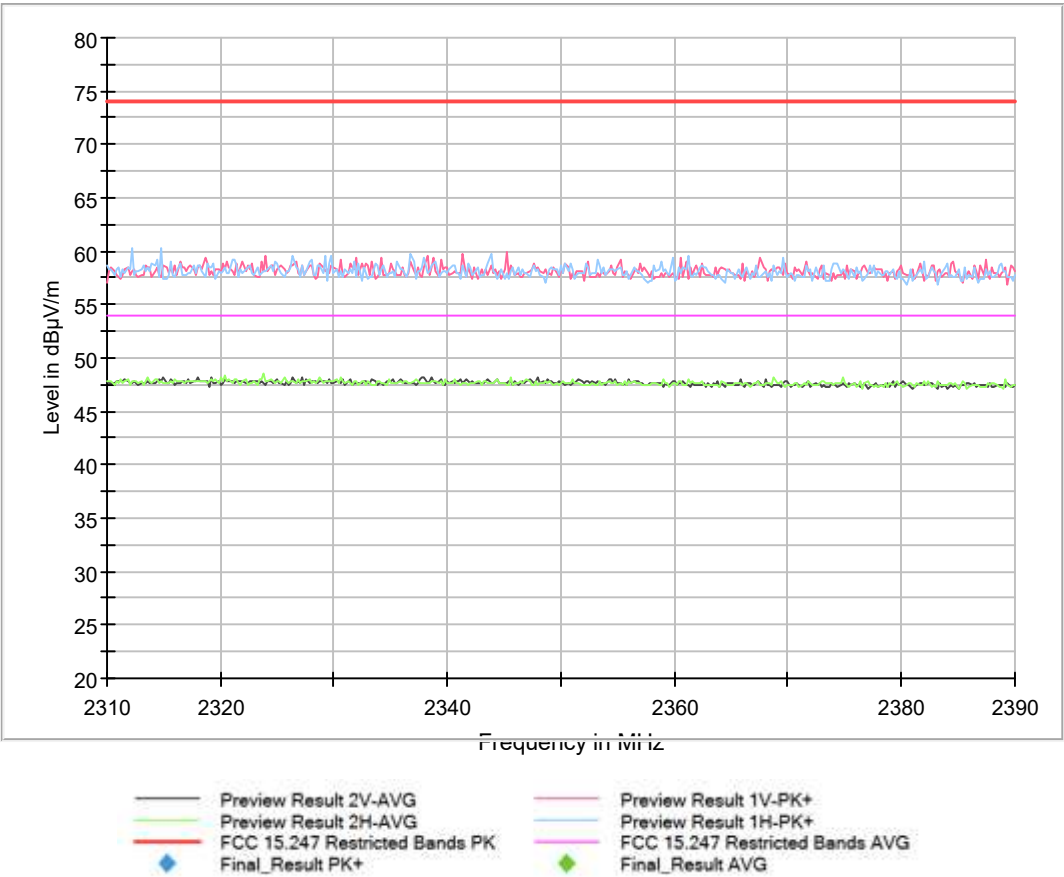
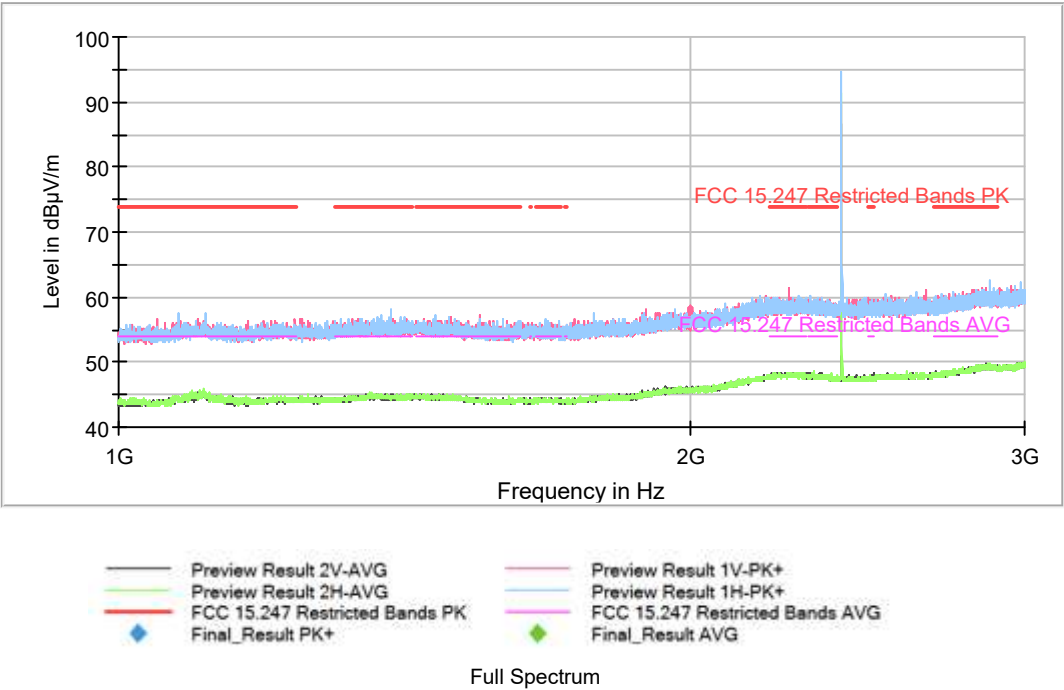


The spurious frequencies detected do not depend on the operating channel.

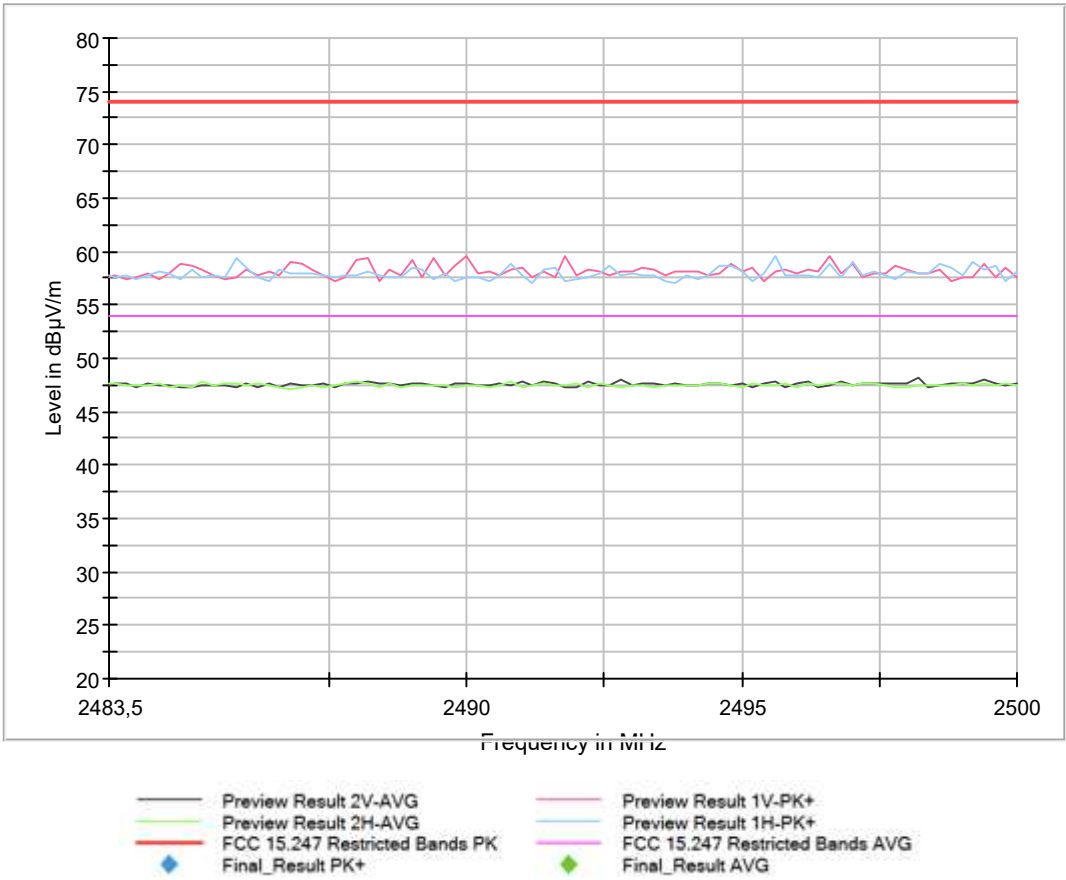
This plot is valid for Low, Middle and High Channels.

Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [1, 3]

Plots:

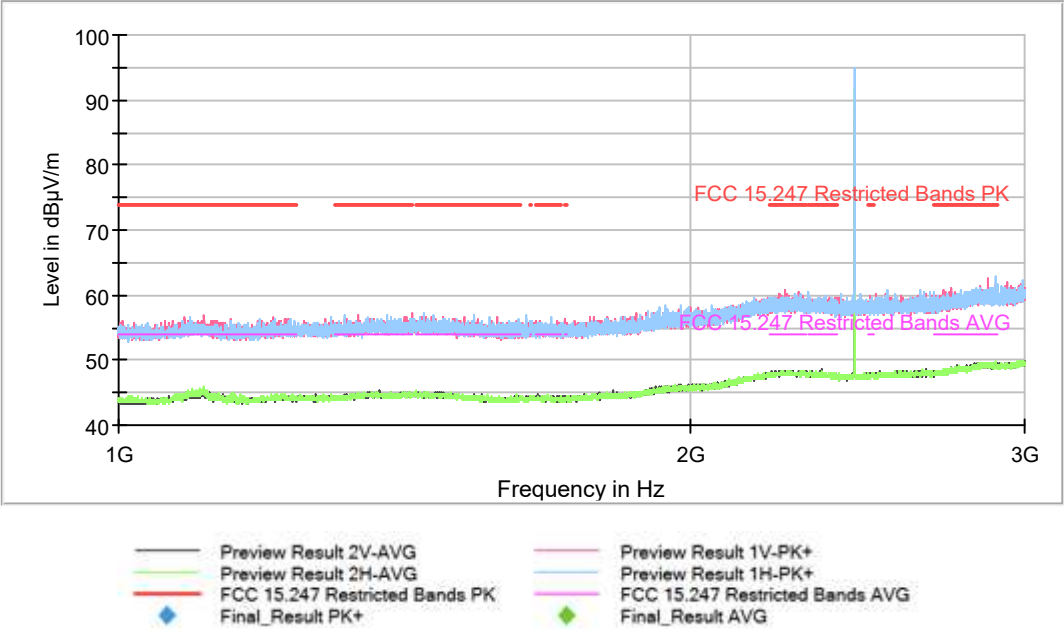


Full Spectrum

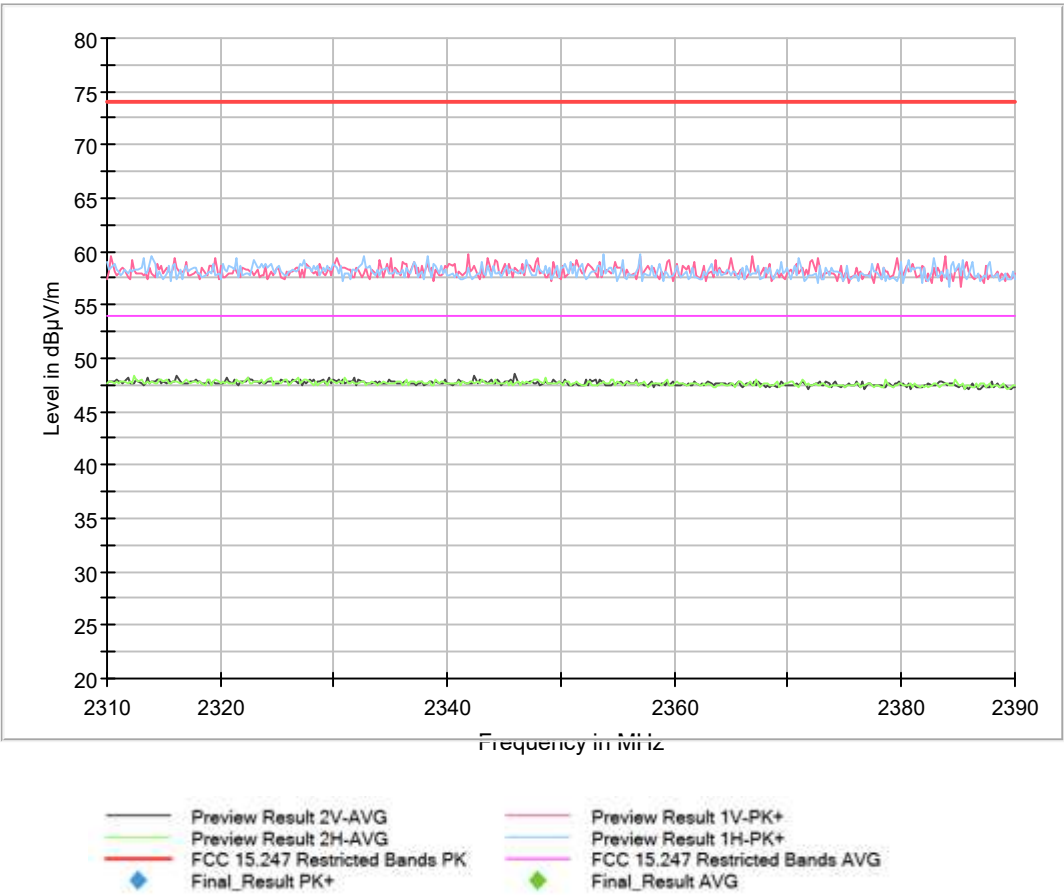


Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2441.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [1, 3]

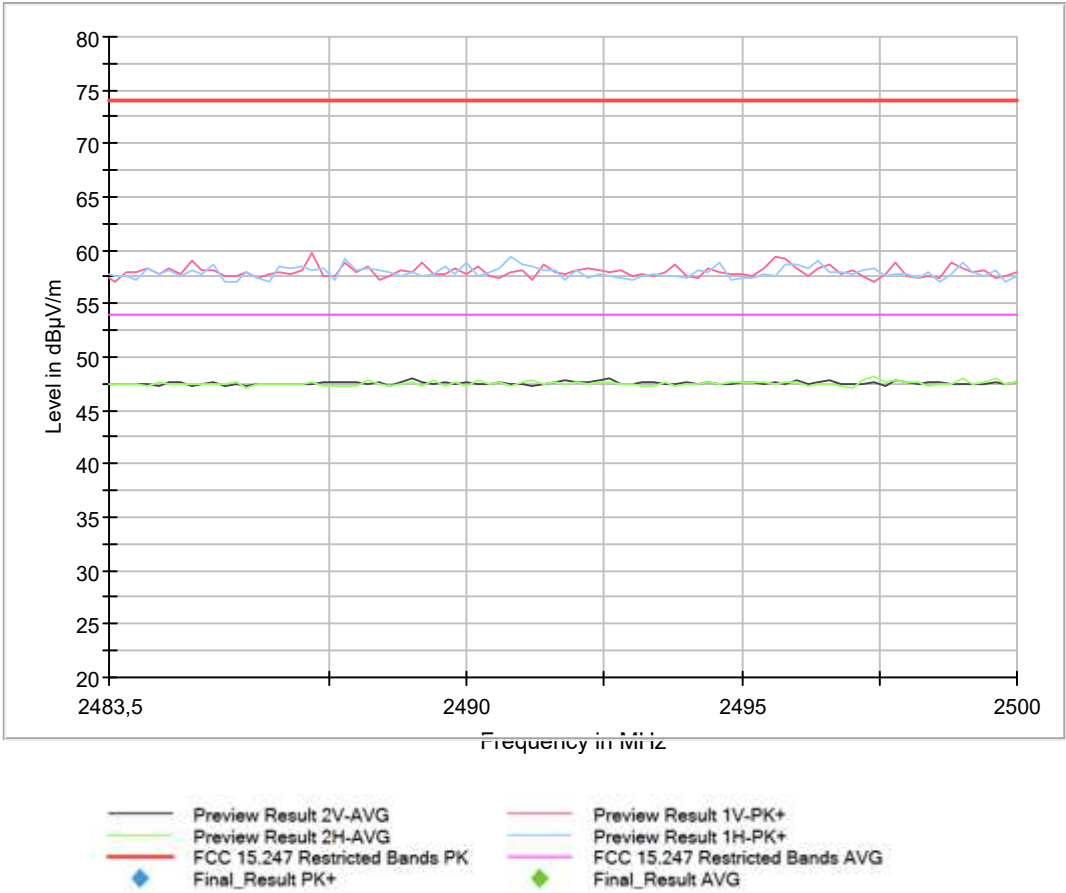
Plots:



Full Spectrum

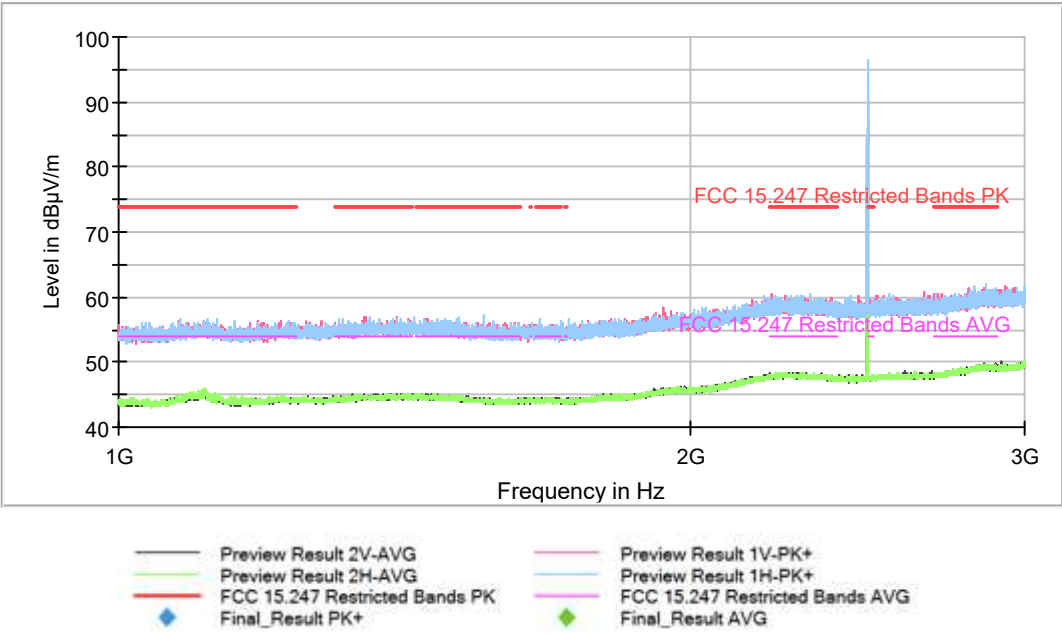


Full Spectrum

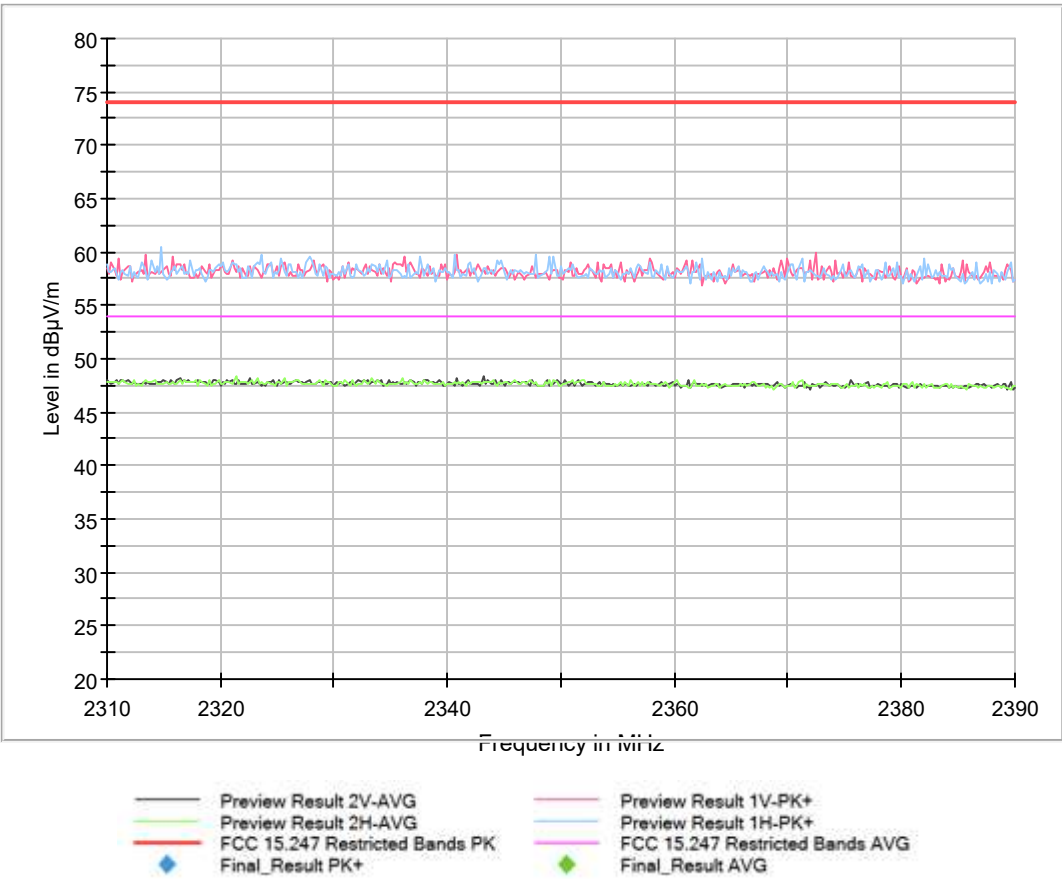


Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [1, 3]

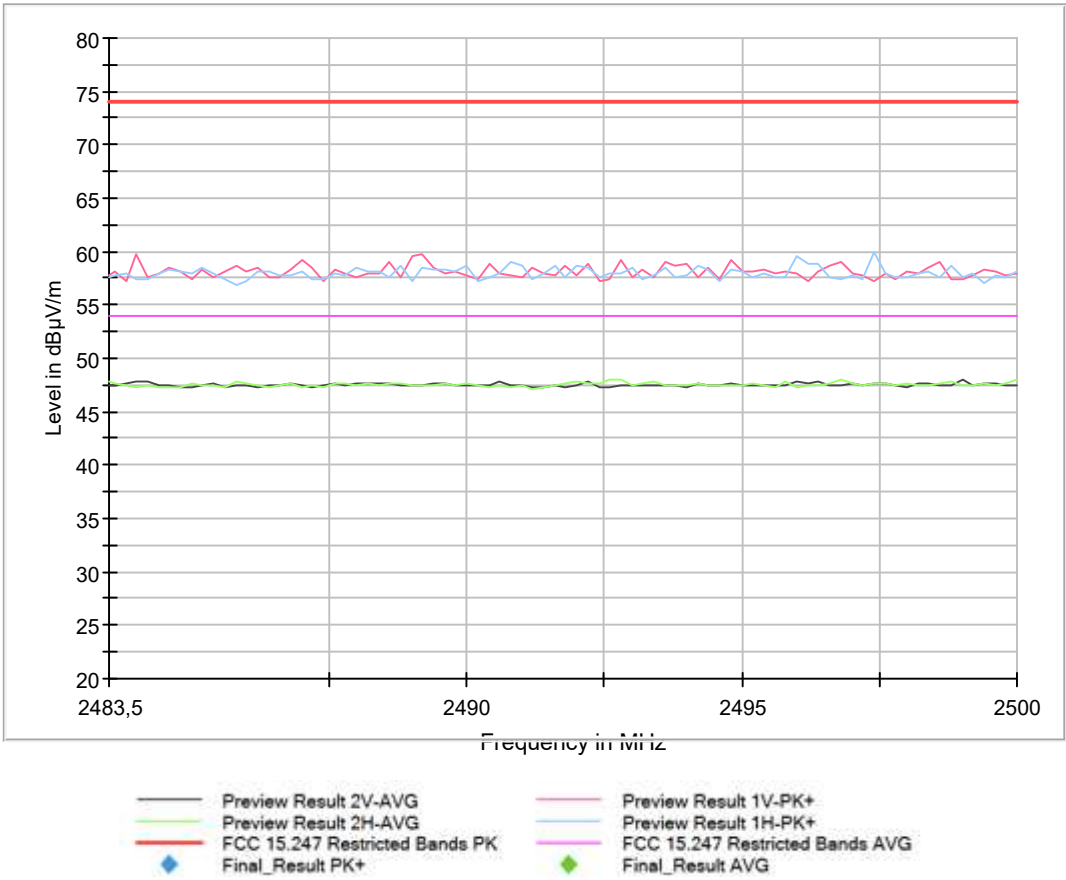
Plots:



Full Spectrum

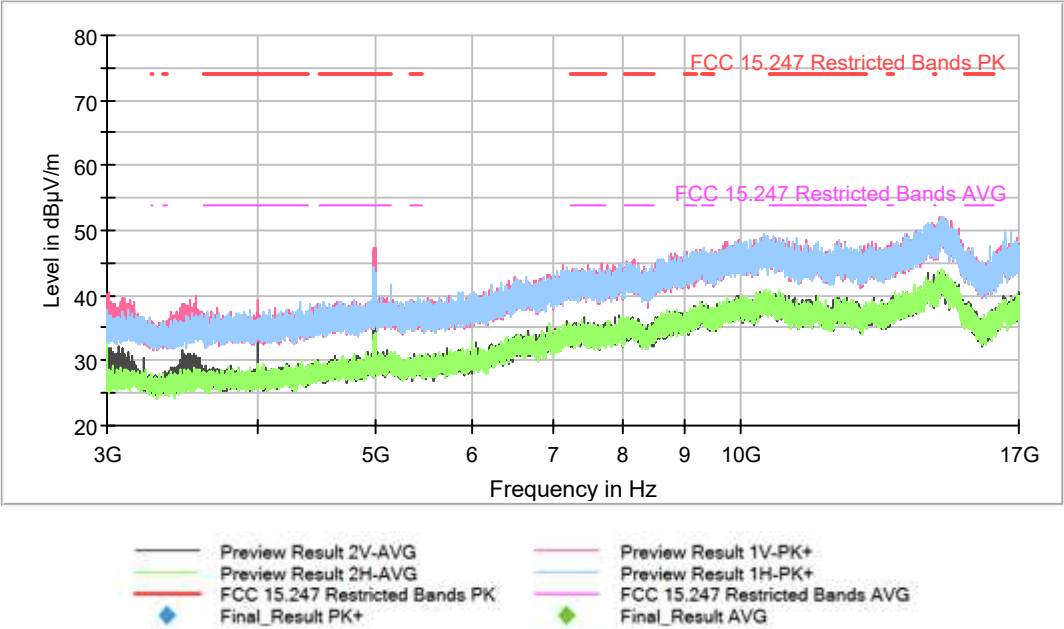


Full Spectrum



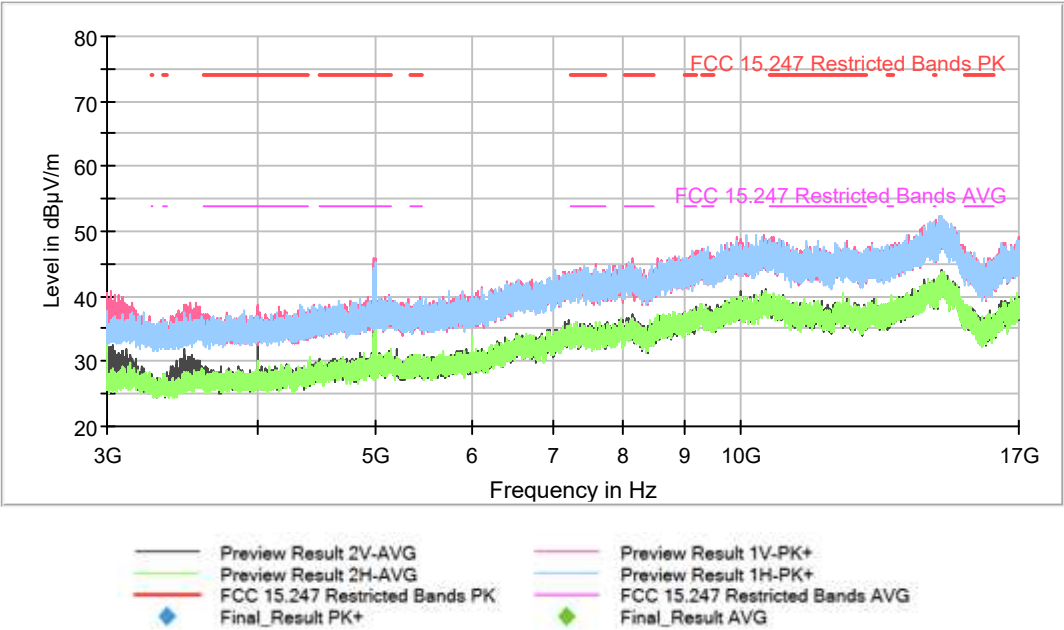
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2402.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [3, 17]

Plots:



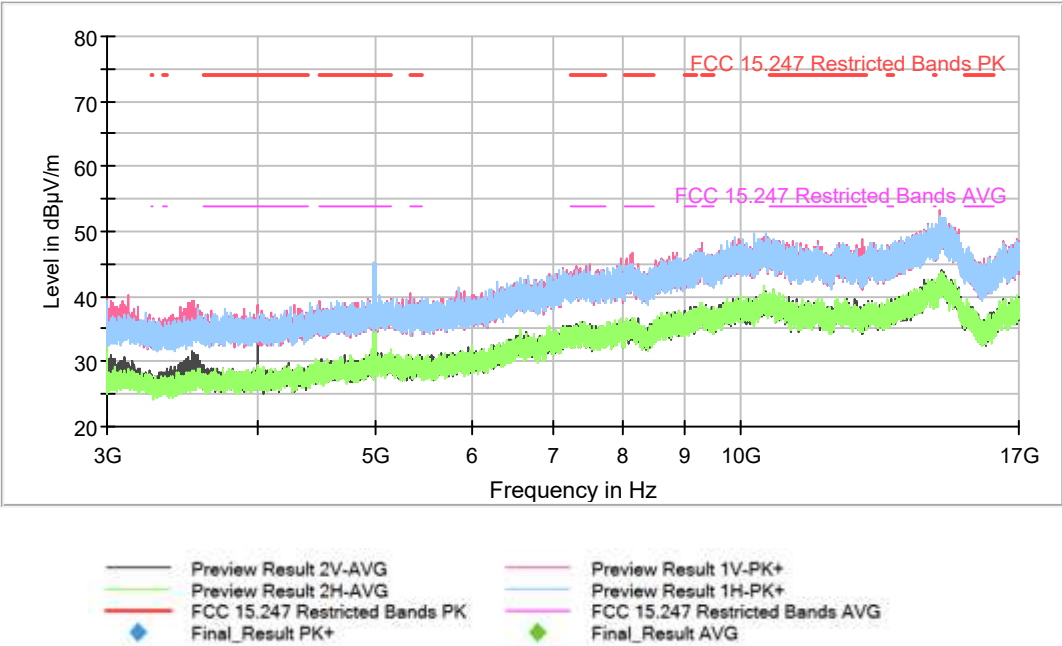
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2441.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [3, 17]

Plots:



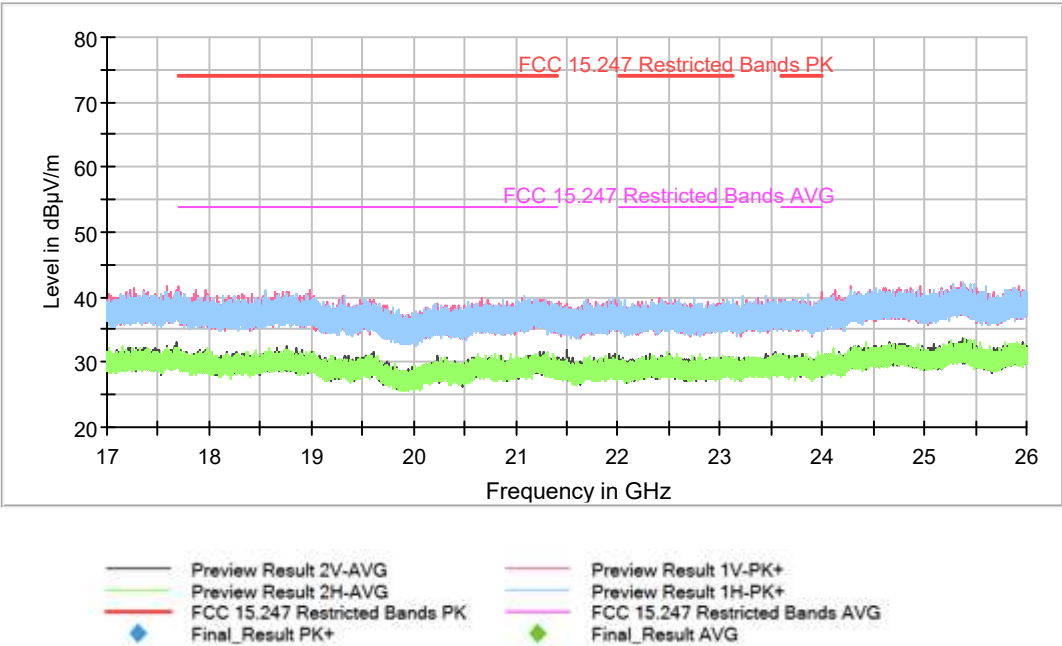
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2480.00000, Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [3, 17]

Plots:



Operation Band (MHz) = [2400, 2483.5], Equipment Type: Frequency Hopping Spread Spectrum systems (DSS), Modulation: BT (8DPSK 3-DH5), Frequency Range (GHz) = [17, 26]

Plots:



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

Appendix B: Test results. 802.11 b/g/n20 MHz 1x1

TEST CONDITIONS	103
TEST CASES DETAILS	107
<i>Occupied Channel Bandwidth 99%</i>	107
<i>RSS-247 5.2 (a) / FCC 15.247 (a)(2) 6 dB Bandwidth</i>	117
<i>RSS-247 5.4 (d) / FCC 15.247 (b) Maximum output power and antenna gain</i>	128
<i>RSS-247 5.2 (b) / FCC 15.247 (e) Power spectral density</i>	139
<i>RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)</i>	149
<i>RSS-247 5.5 / FCC 15.247 (d) Emission limitations radiated (Transmitter)</i>	156

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 13.2Vdc
Type of Power Supply: DC External (Car Battery).

ANTENNA (*):

Type of Antenna: External Antenna
Maximum Declared Antenna Gain: -2.5 dBi

TEST FREQUENCIES (*):

Low Channel: 2412 MHz
Middle Channel: 2442 MHz
High Channel: 2462 MHz

POWER VALUES USED FOR TESTING (*):

Modulation	Channel	Frequency (MHz)	Power setting
802.11b (DSSS 1 Mbit/s)	1	2412	17
	7	2442	17
	11	2462	18
802.11g (OFDM 6 Mbit/s)	1	2412	17
	7	2442	17
	11	2462	18
802.11n HT20 (OFDM MCS0 6.5 Mbit/s)	1	2412	16
	7	2442	16
	11	2462	16

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 from 30 MHz to 1000 MHz and 1 – 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).

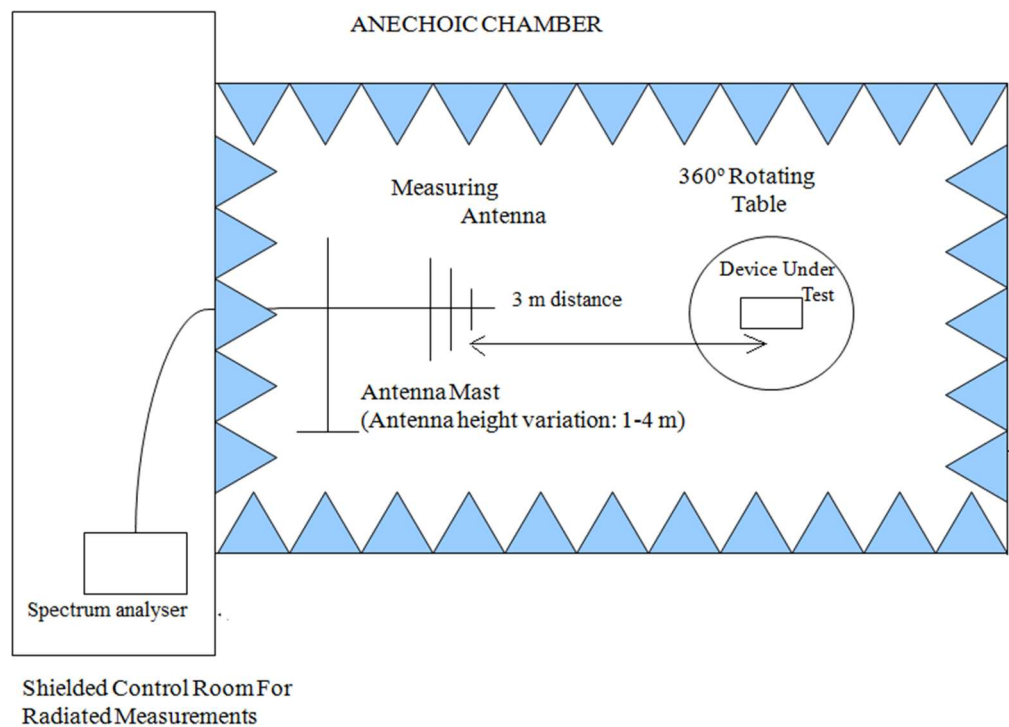
For radiated emissions in the range 17 GHz – 26 GHz performed at a distance closer than the distance specified in standard, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and its situation and orientation were varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters (up to 17GHz) to find the maximum radiated emission.

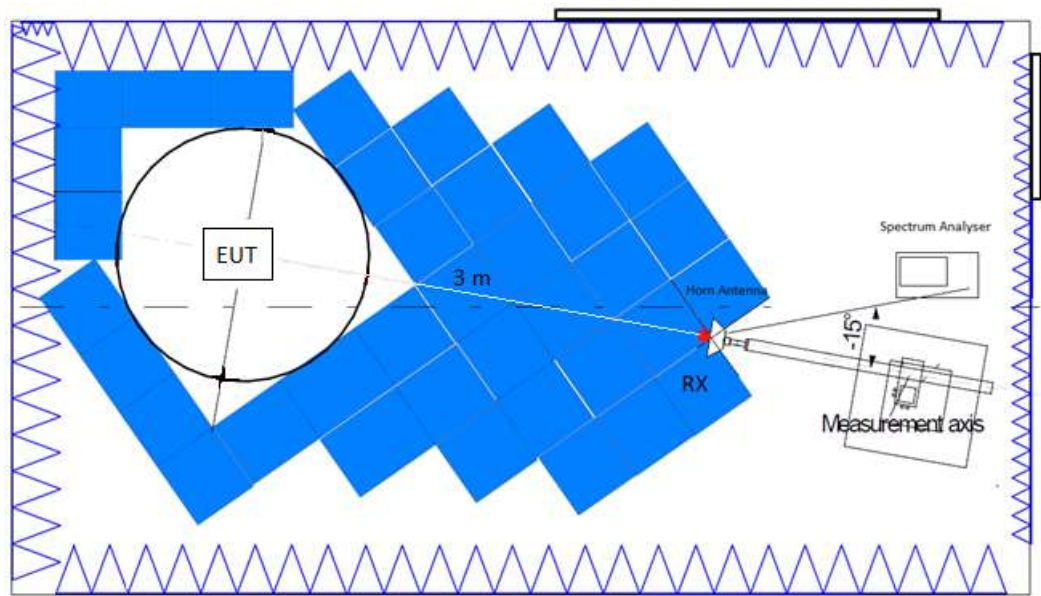
Measurements were made in both horizontal and vertical planes of polarization.

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.

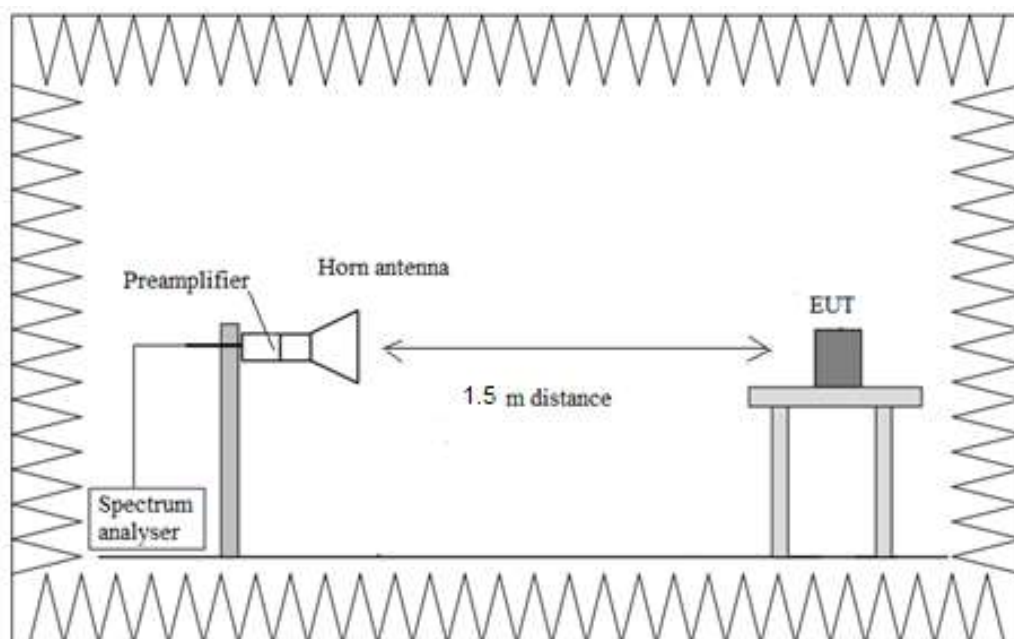
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



TEST CASES DETAILS

Occupied Channel Bandwidth 99%

Results

Modulation: 802.11b (DSSS 1 Mbit/s)

Freq (MHz)	Equipment	Occ Ch BW (MHz)
2412.00	Digital Transmission System (DTS)	13.200000
2442.00		13.200000
2462.00		13.300000

Modulation: 802.11g (OFDM 6 Mbit/s)

Freq (MHz)	Equipment	Occ Ch BW (MHz)
2412.00	Digital Transmission System (DTS)	16.700000
2442.00		16.700000
2462.00		16.600000

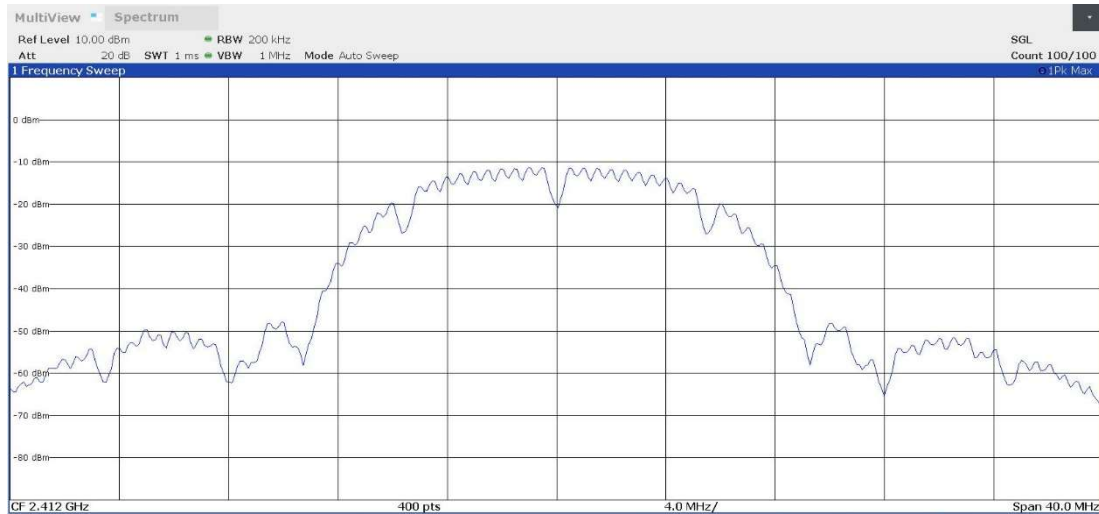
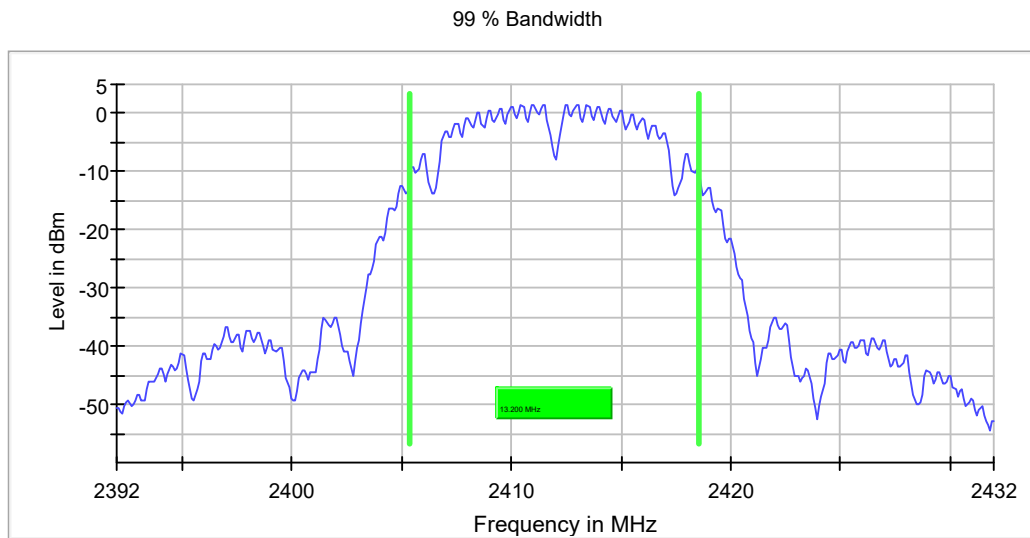
Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s)

Freq (MHz)	Equipment	Occ Ch BW (MHz)
2412.00	Digital Transmission System (DTS)	17.700000
2442.00		17.700000
2462.00		17.700000

Attachments

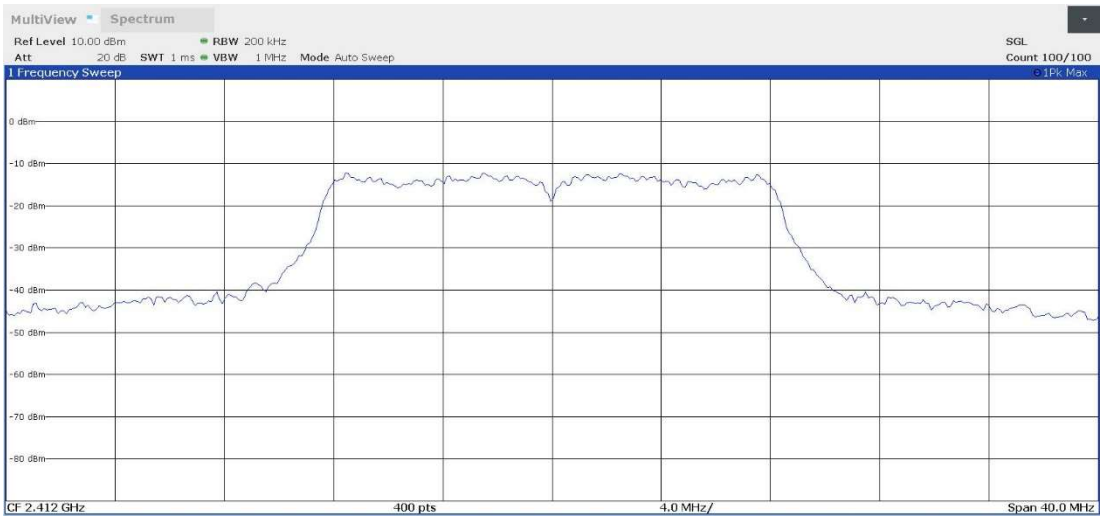
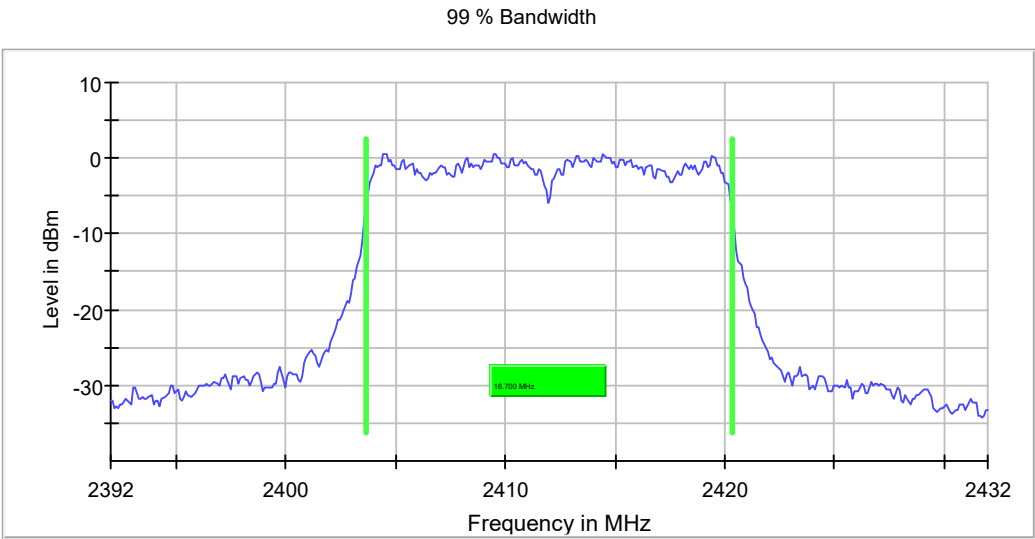
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

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

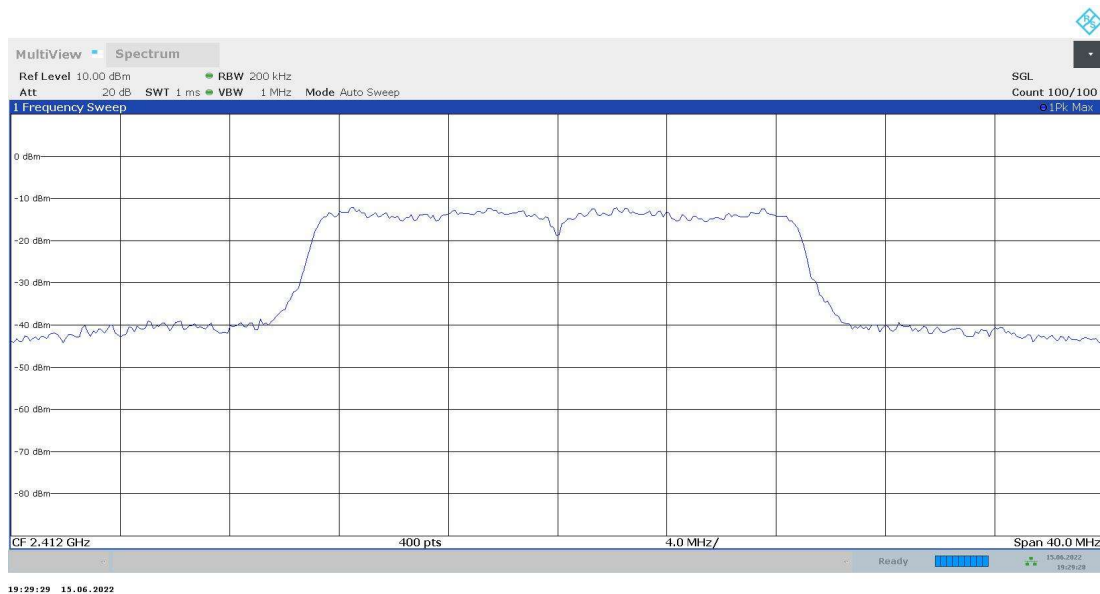
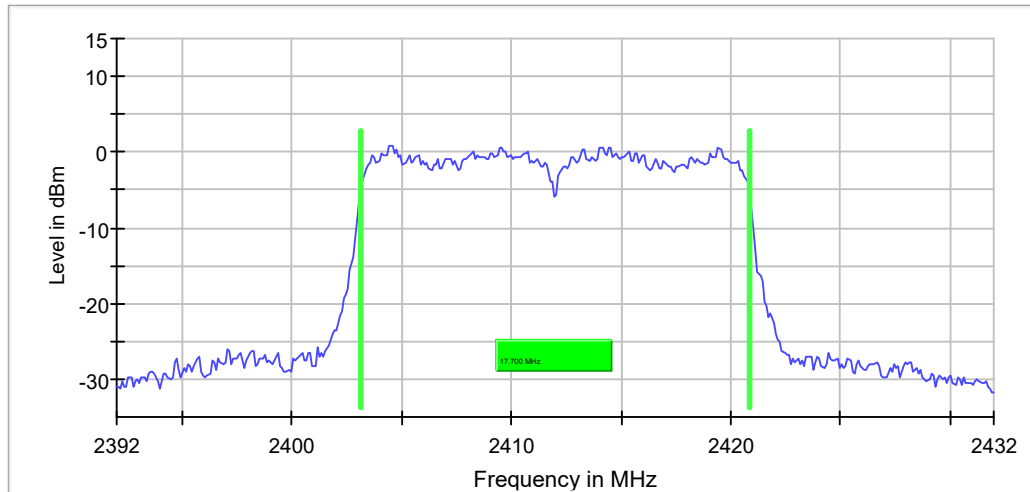
Plots:



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

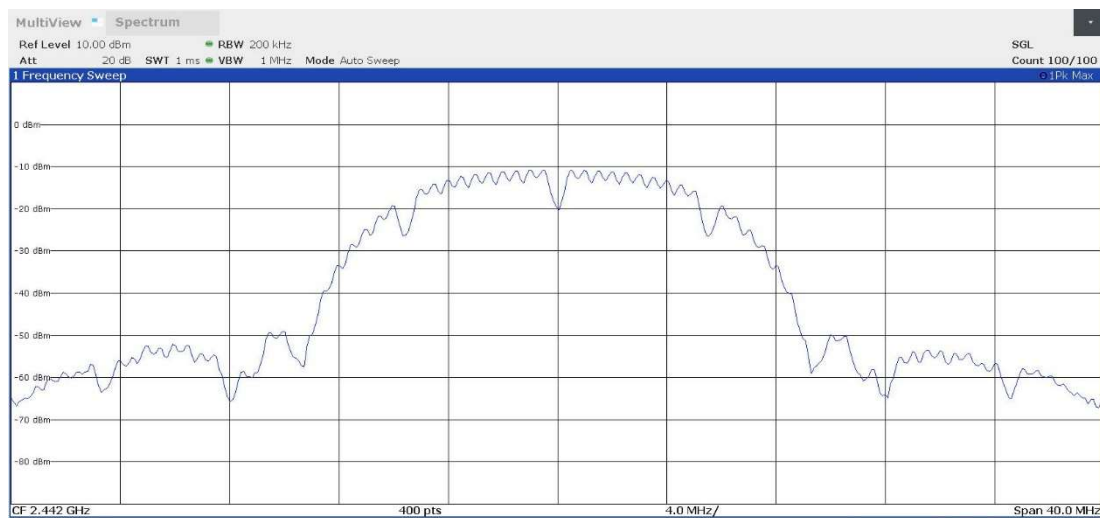
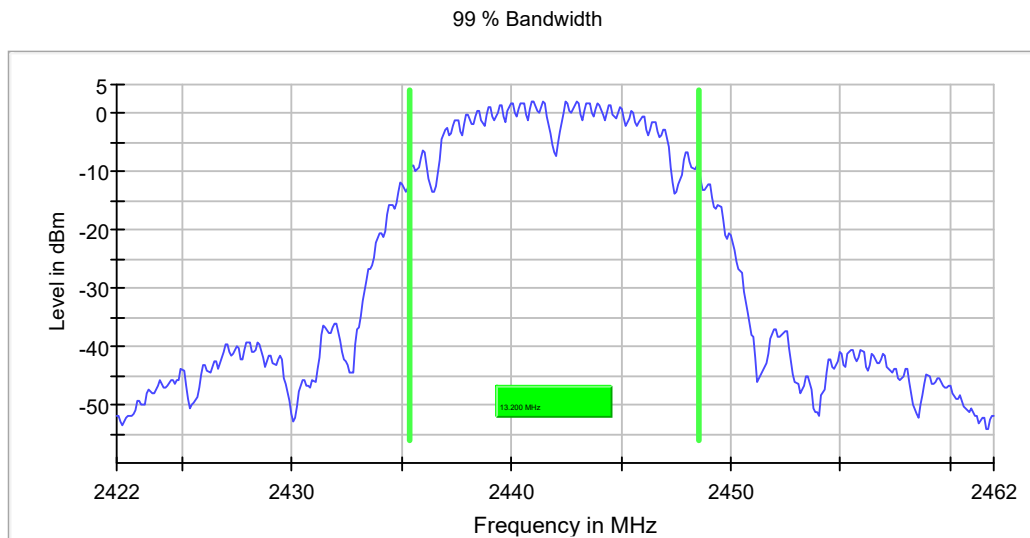
Plots:

99 % Bandwidth



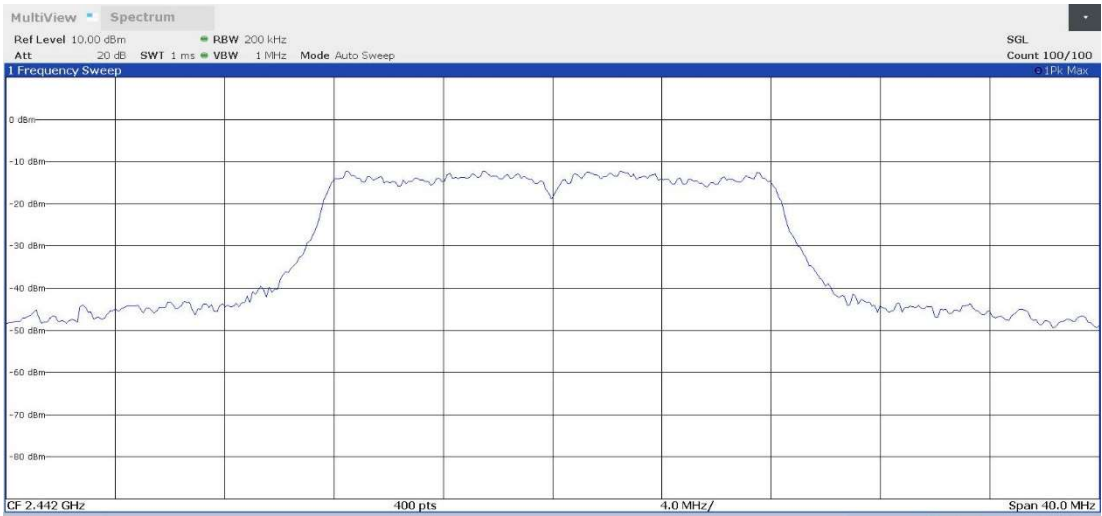
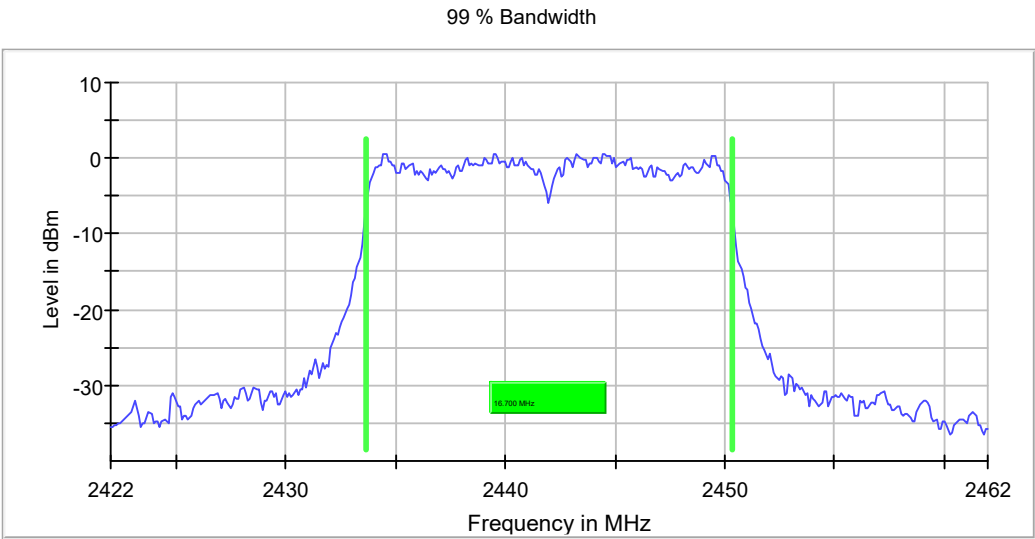
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2442.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:



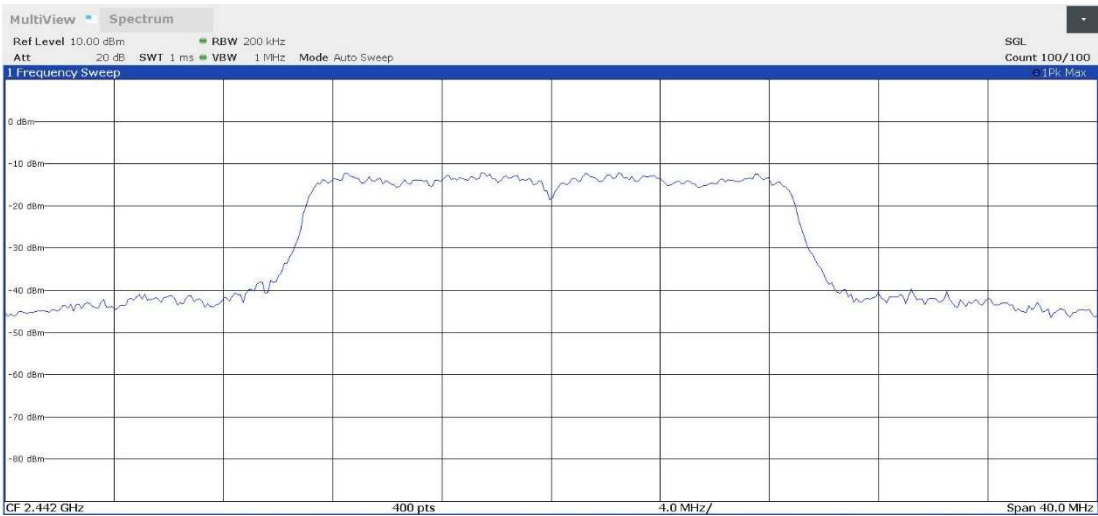
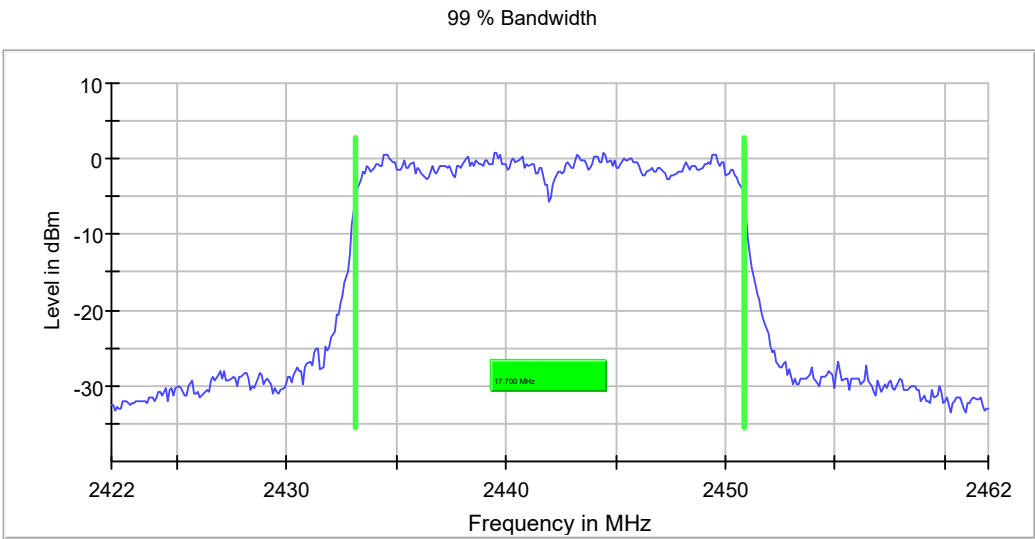
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2442.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

Plots:



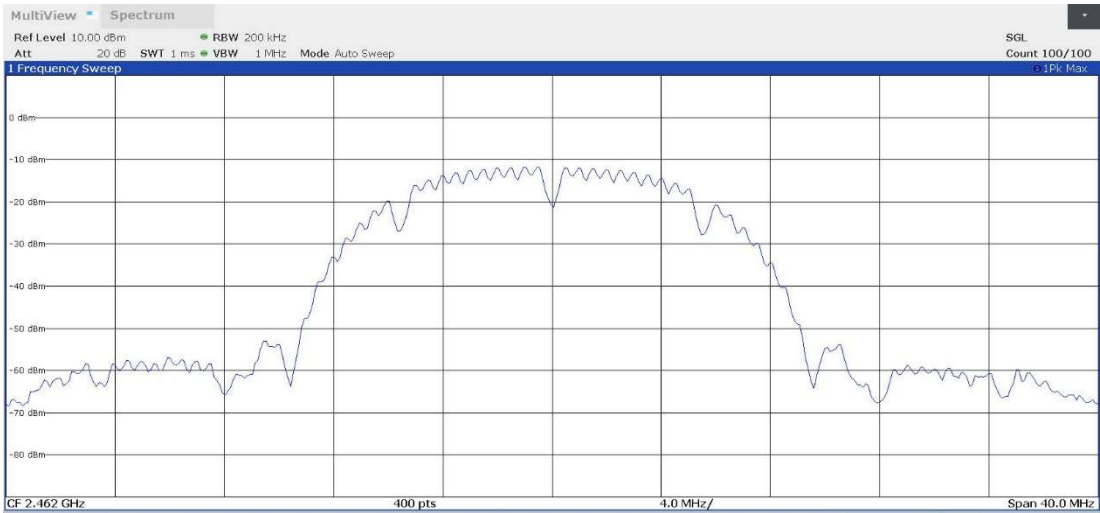
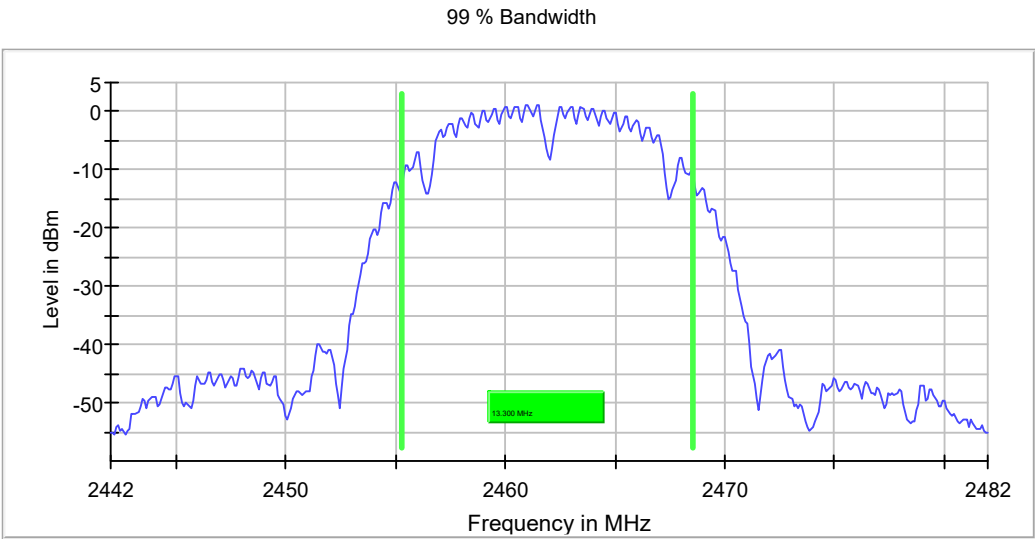
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2442.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11n HT20 (OFDM MCS0 6.5 Mbit/s), Number of Transmission Chains = 1

Plots:



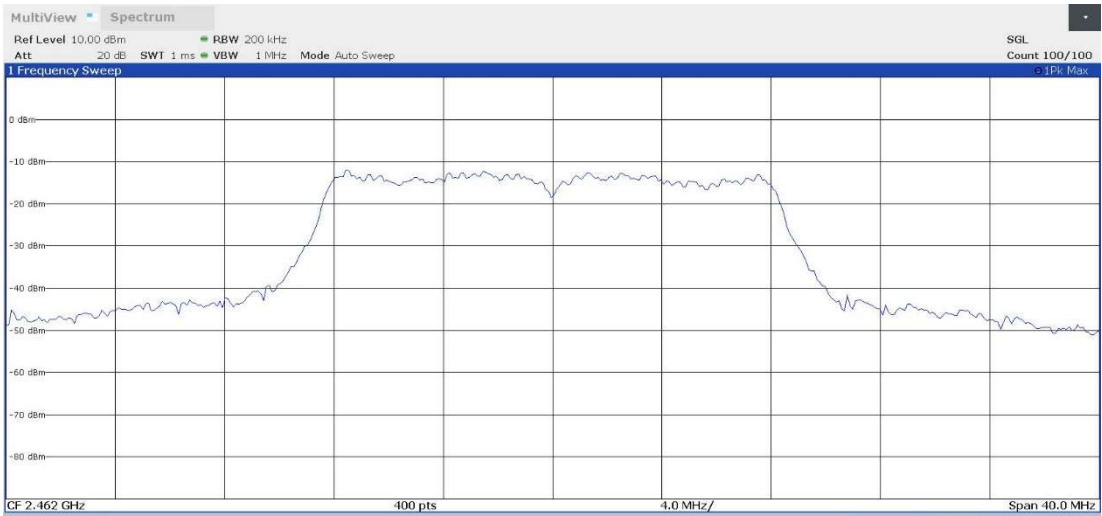
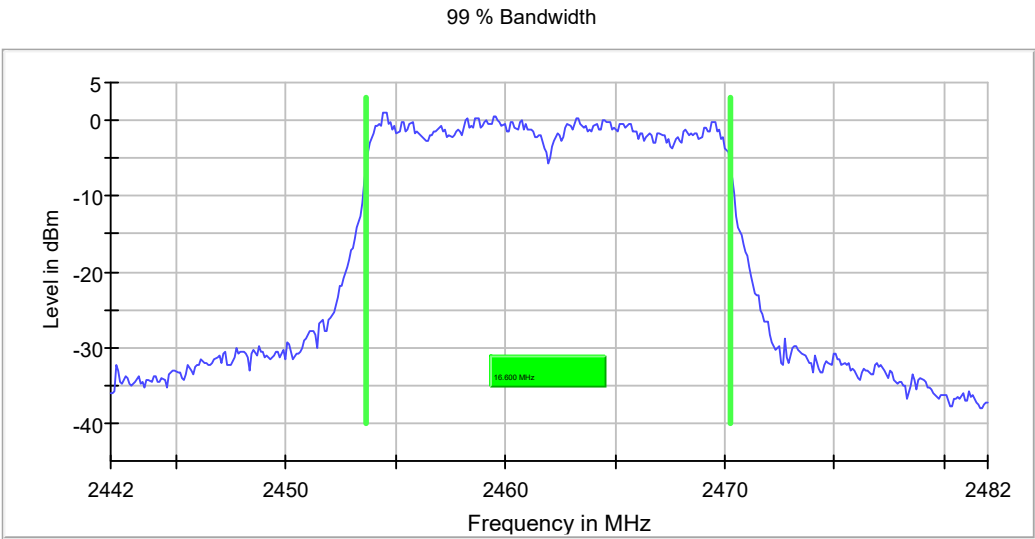
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:



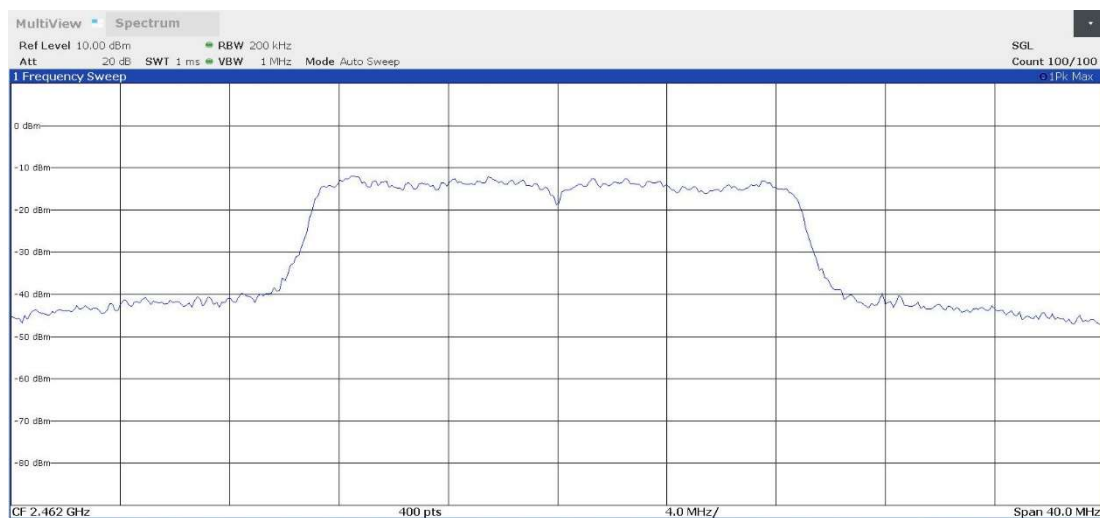
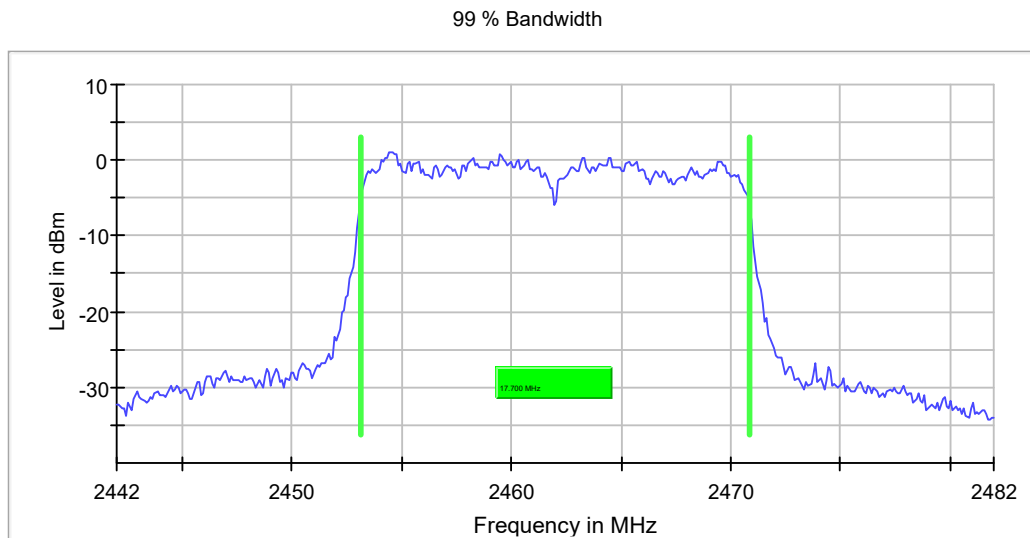
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2462.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

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:



RSS-247 5.2 (a) / FCC 15.247 (a)(2) 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)	Equipment	6dBw (MHz)
2412.00	Digital Transmission System (DTS)	10.1500
2442.00		10.1500
2462.00		10.1500

Modulation: 802.11g (OFDM 6 Mbit/s)

Freq (MHz)	Equipment	6dBw (MHz)
2412.00	Digital Transmission System (DTS)	16.4500
2442.00		16.4000
2462.00		16.4000

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

Freq (MHz)	Equipment	6dBw (MHz)
2412.00	Digital Transmission System (DTS)	17.6500
2442.00		17.6000
2462.00		17.4500

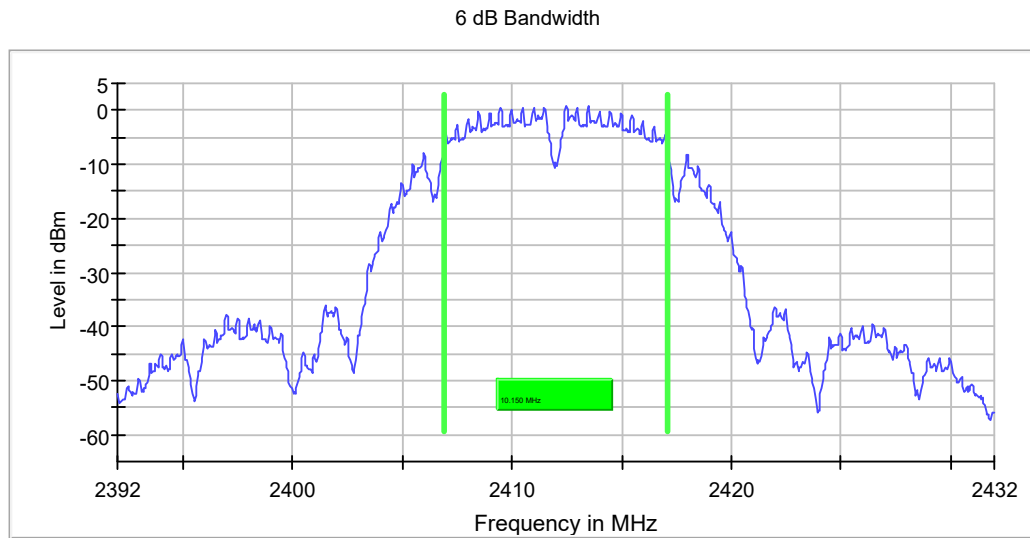
Verdict

Pass

Attachments

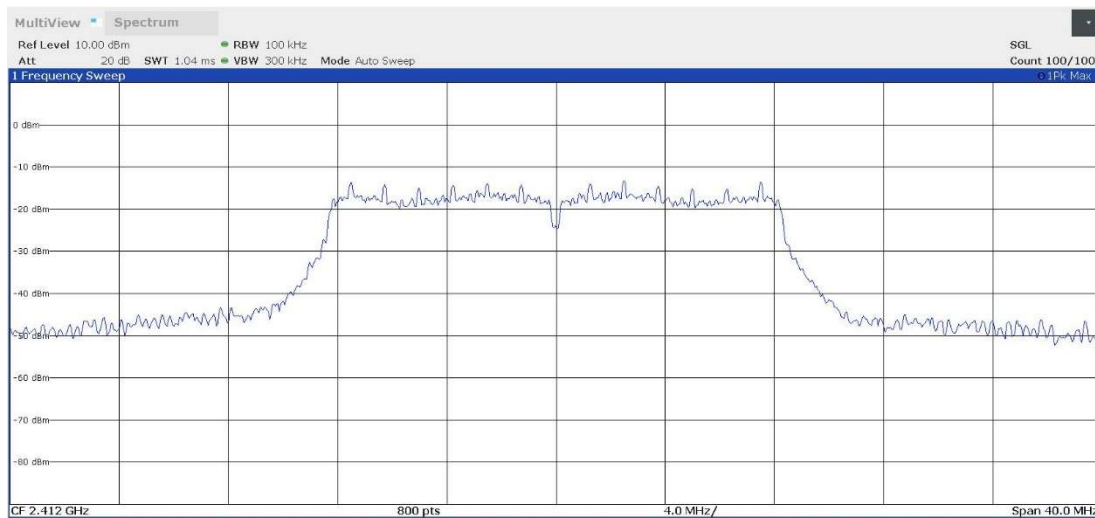
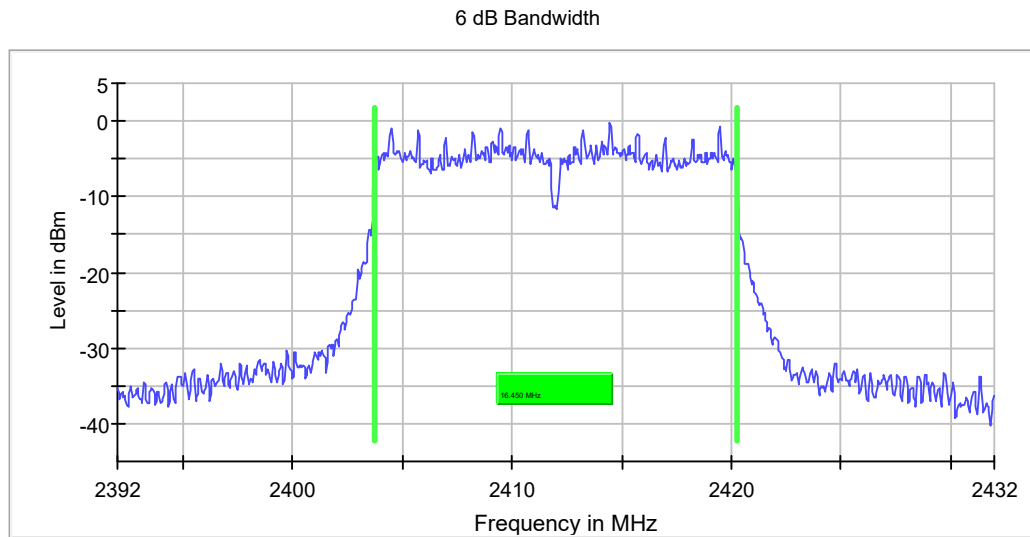
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:



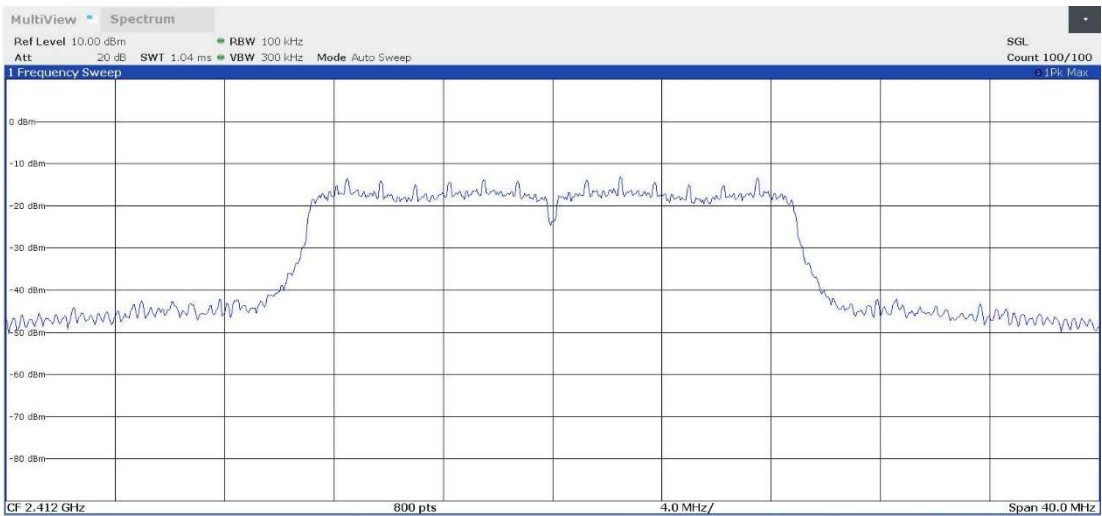
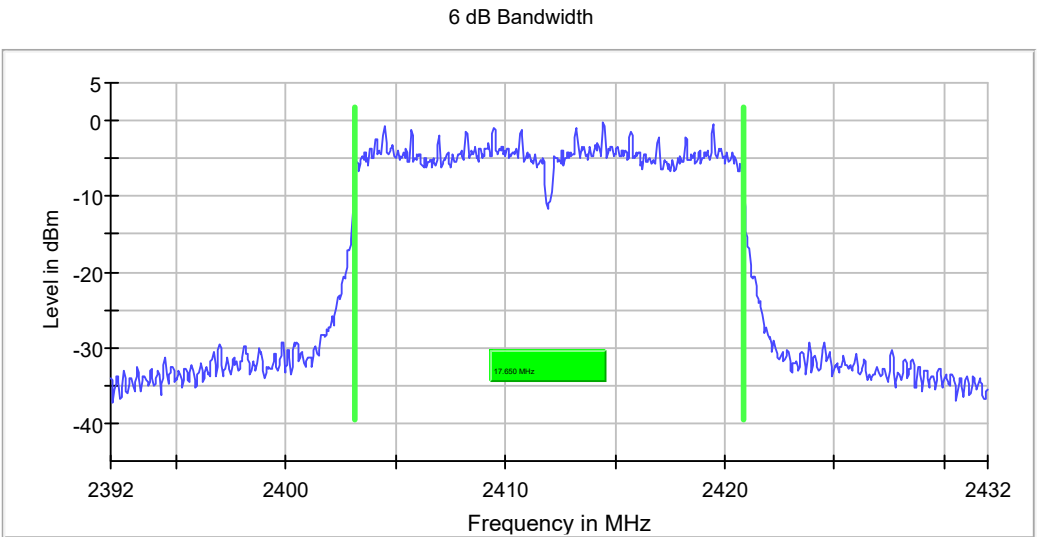
Operation Band (MHz) = [2400, 2483.5], Frequency (MHz) = 2412.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11g (OFDM 6 Mbit/s), Number of Transmission Chains = 1

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) = 2442.00, Equipment Type: Digital Transmission System (DTS), Modulation: 802.11b (DSSS 1 Mbit/s), Number of Transmission Chains = 1

Plots:

