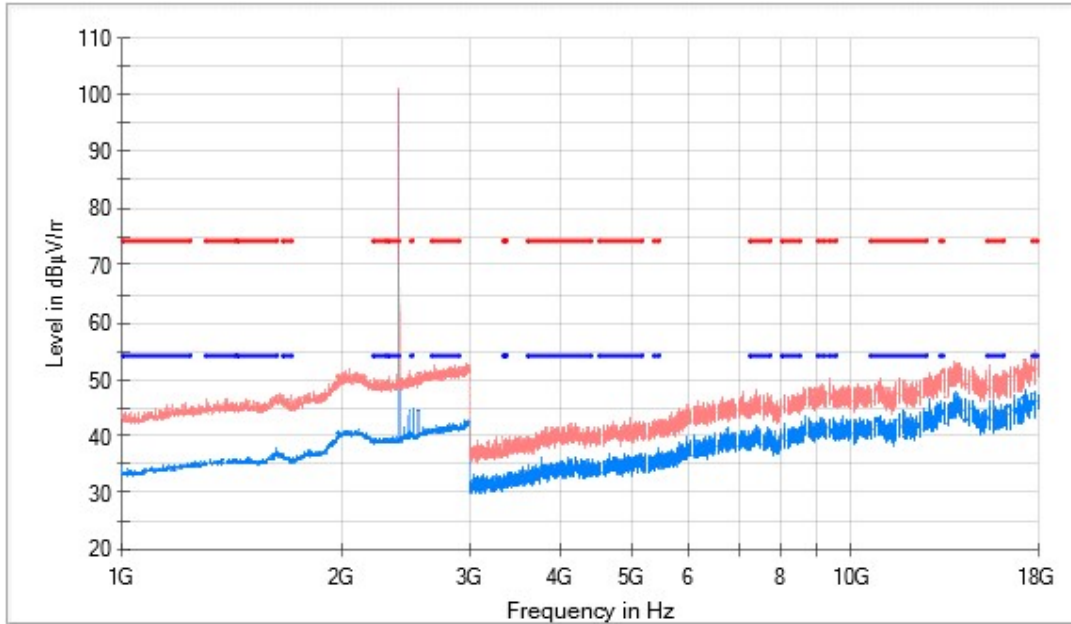


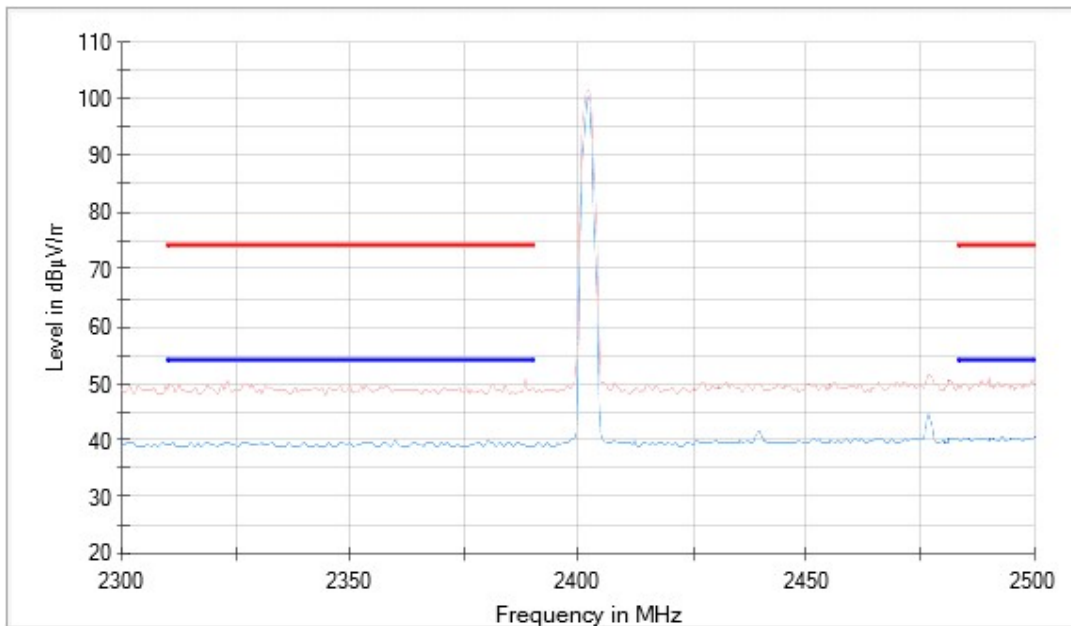
Attachments

Frequency Range GHz = [1, 18] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (Pi/4 DQPSK 2-DH3) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



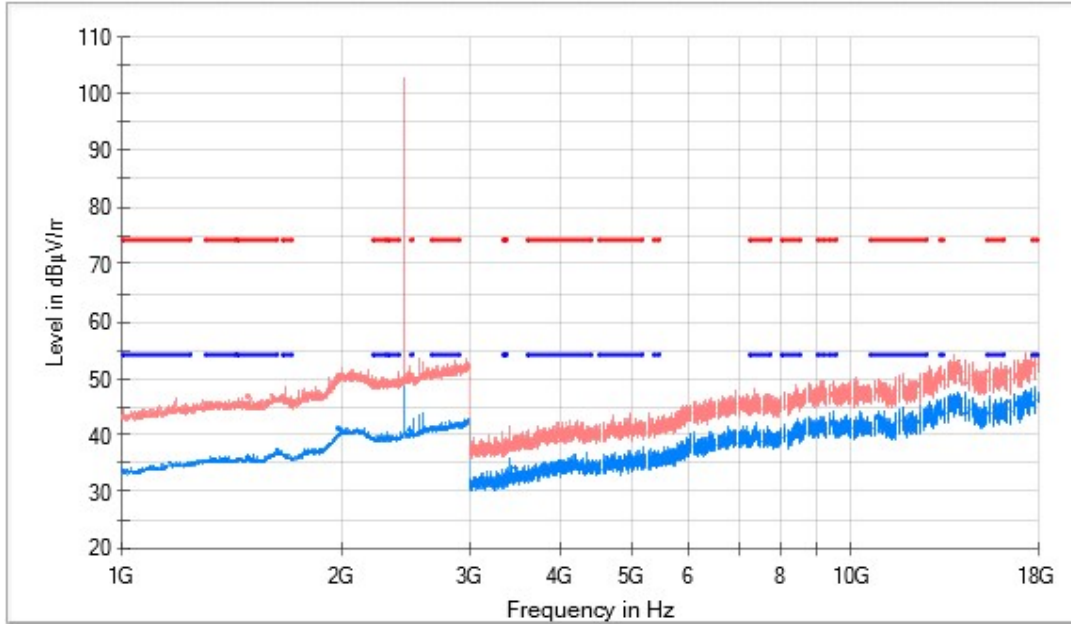
— AVG_MAXH
— PK+_MAXH
— TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
— TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit



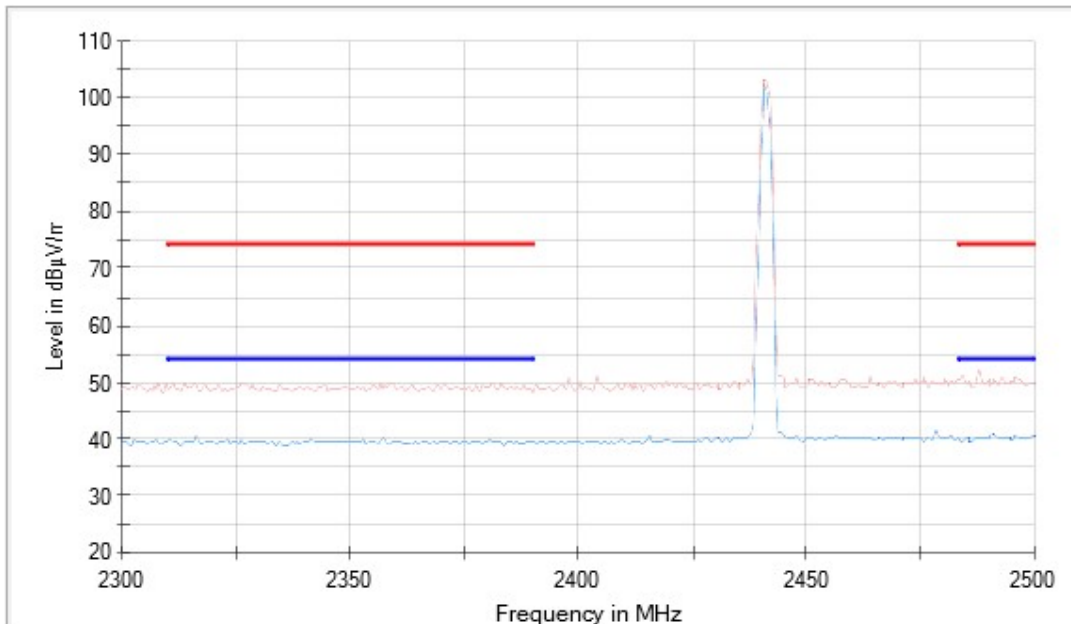
— AVG_MAXH
— PK+_MAXH
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— TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

Frequency Range GHz = [1, 18] Equipment Type = Frequency Hopping Spread Spectrum systems
 Modulation = BT (Pi/4 DQPSK 2-DH3) Frequency MHz = 2441.00000
 MIMO Mode = SISO Active Port = 1

Images:



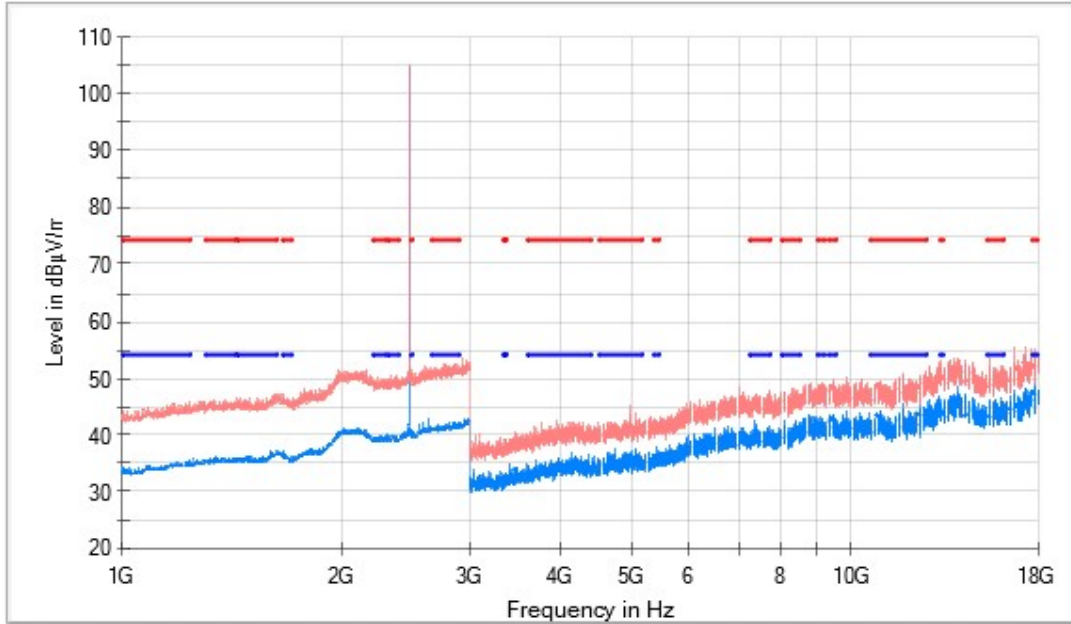
— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit



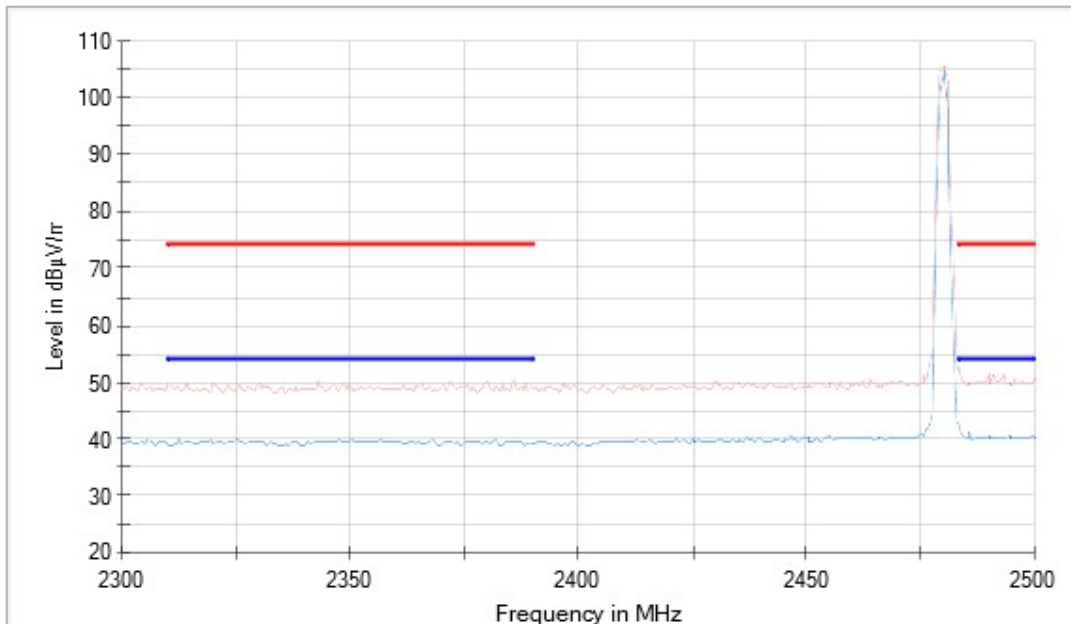
— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

Frequency Range GHz = [1, 18] Equipment Type = Frequency Hopping Spread Spectrum systems
 Modulation = BT (Pi/4 DQPSK 2-DH3) Frequency MHz = 2480.00000
 MIMO Mode = SISO Active Port = 1

Images:



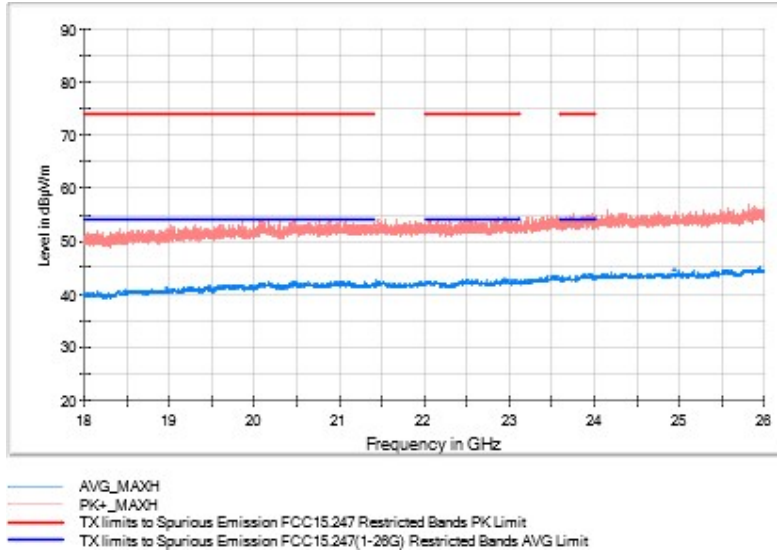
— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit



— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

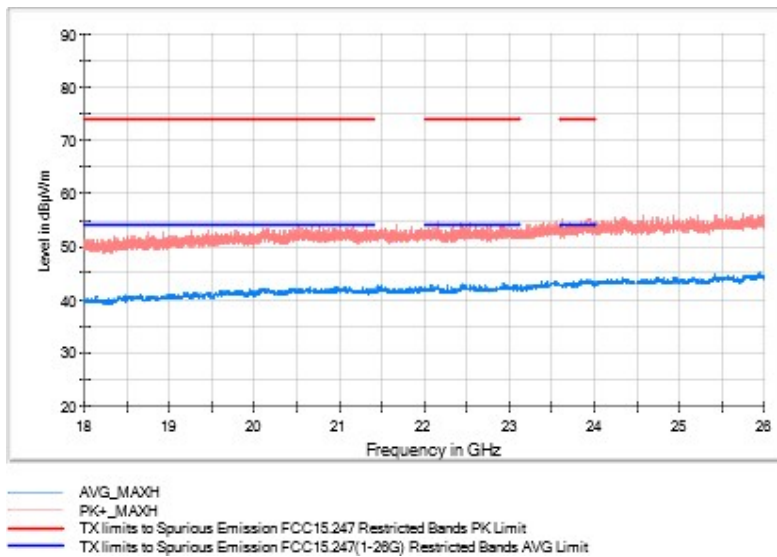
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Modulation = BT (Pi/4 DQPSK 2-DH3) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



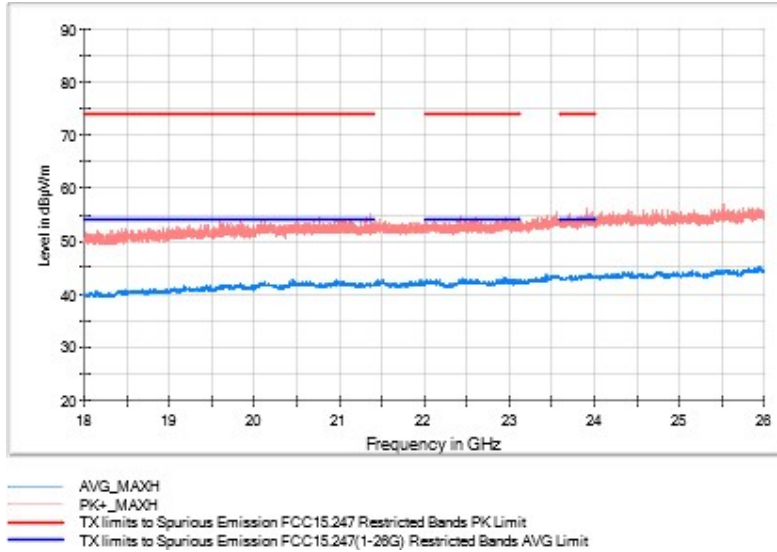
Frequency Range GHz = [18, 26] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (Pi/4 DQPSK 2-DH3) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Frequency Range GHz = [18, 26] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (Pi/4 DQPSK 2-DH3) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (8DPSK 3-DH3)

MIMO Mode: SISO

Results

Freq Rng (GHz)	Equipment	Freq (MHz)	Port	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector	
[1, 18]	Frequency Hopping Spread Spectrum systems	2402.00000	1	15660.000	44.20	V	AVG	
				2402.000	100.70*	H	AVG	
				2441.00000	2441.000	102.30*	H	AVG
				4262.500	37.20	V	AVG	
				2480.00000	2480.000	104.7*	H	AVG
				12512.500	45.9	V	AVG	
[18, 26]		2402.00000		20191.500	42.40	H	AVG	
		2441.00000		23065.000	42.90	V	AVG	
				18461.000	41.10	H	AVG	
				23065.000	42.90	V	AVG	
				2480.00000	20167.000	42.60	V	AVG
					23894.000	44.10	V	AVG

*Bluetooth Fundamental

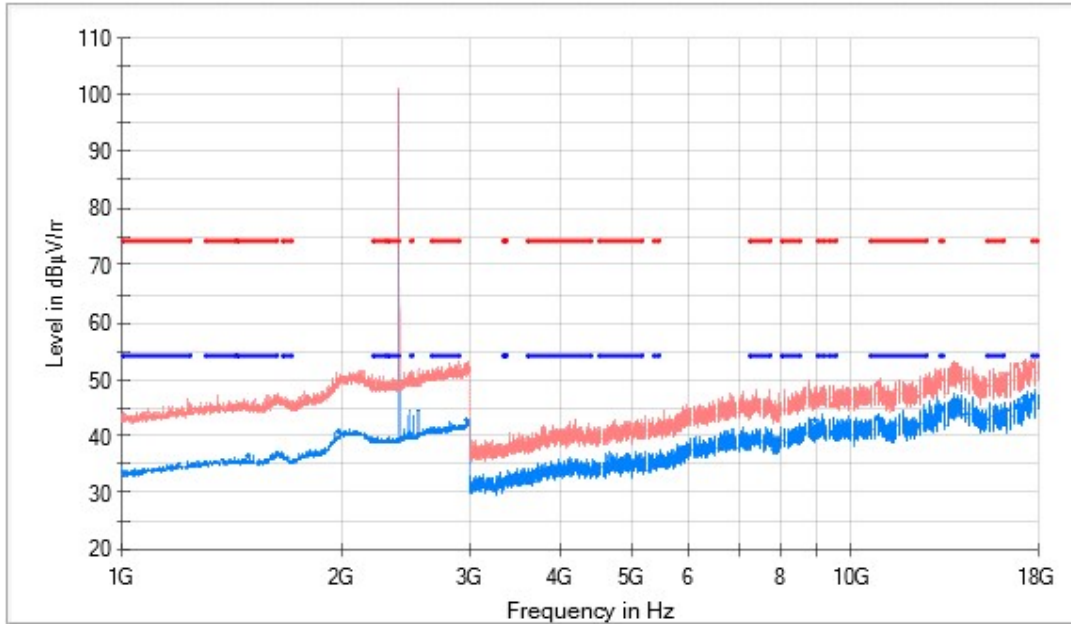
Verdict

Pass

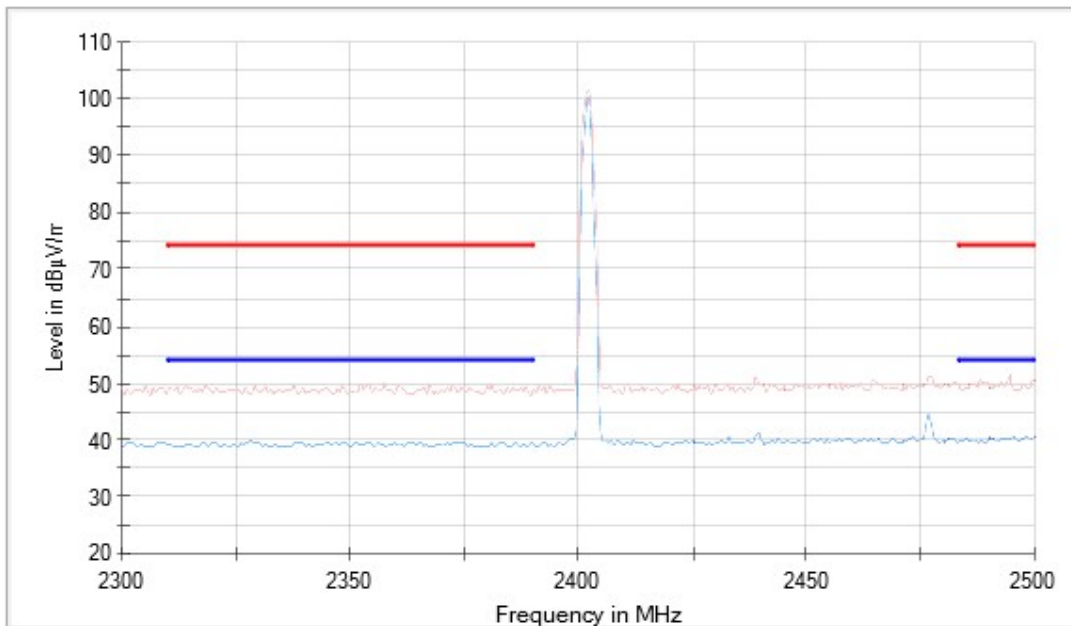
Attachments

Frequency Range GHz = [1, 18] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (8DPSK 3-DH3) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



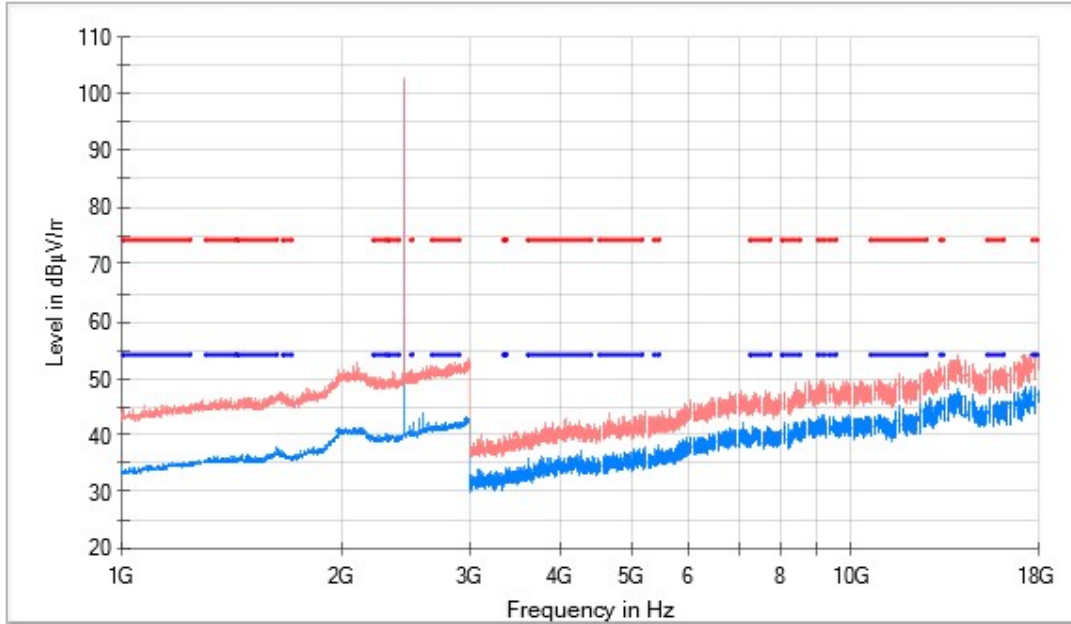
— AVG_MAXH
— PK+_MAXH
— TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
— TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit



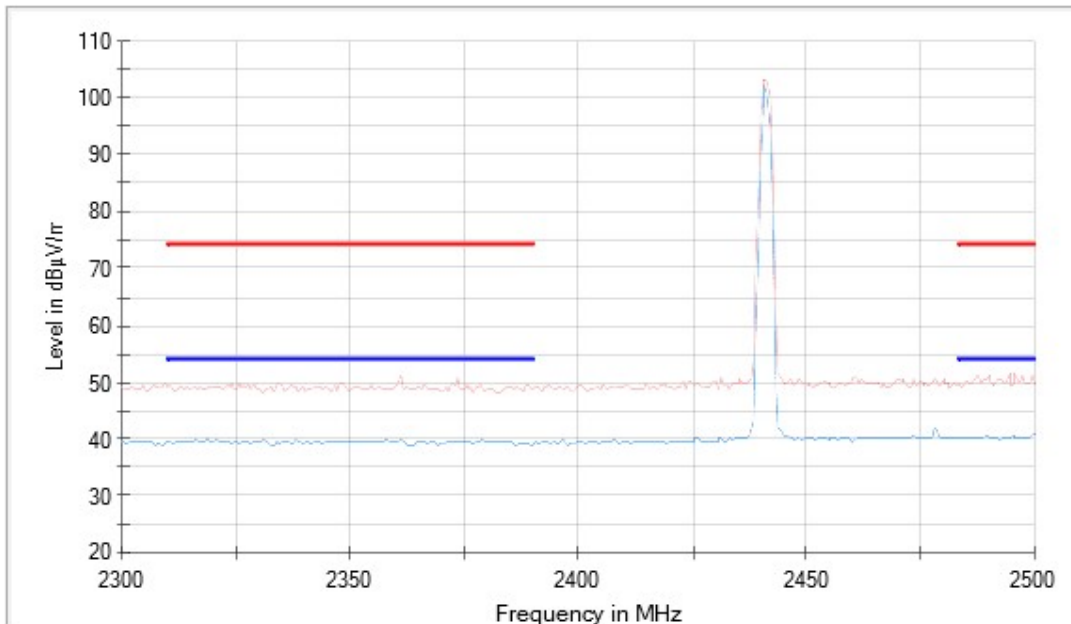
— AVG_MAXH
— PK+_MAXH
— TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
— TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

Frequency Range GHz = [1, 18] Equipment Type = Frequency Hopping Spread Spectrum systems
 Modulation = BT (8DPSK 3-DH3) Frequency MHz = 2441.00000
 MIMO Mode = SISO Active Port = 1

Images:



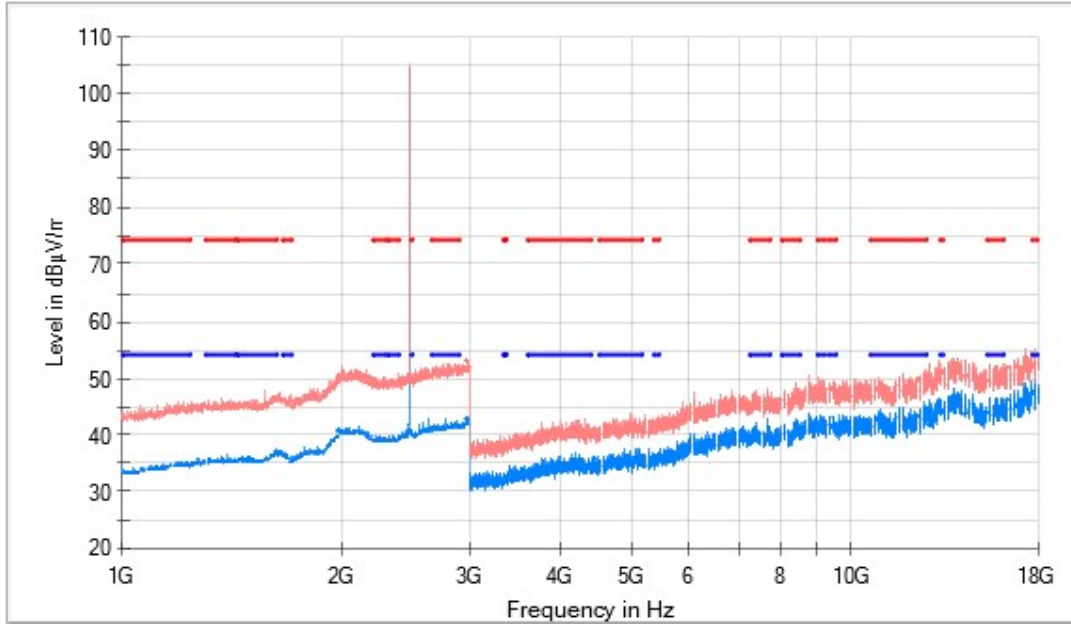
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 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit



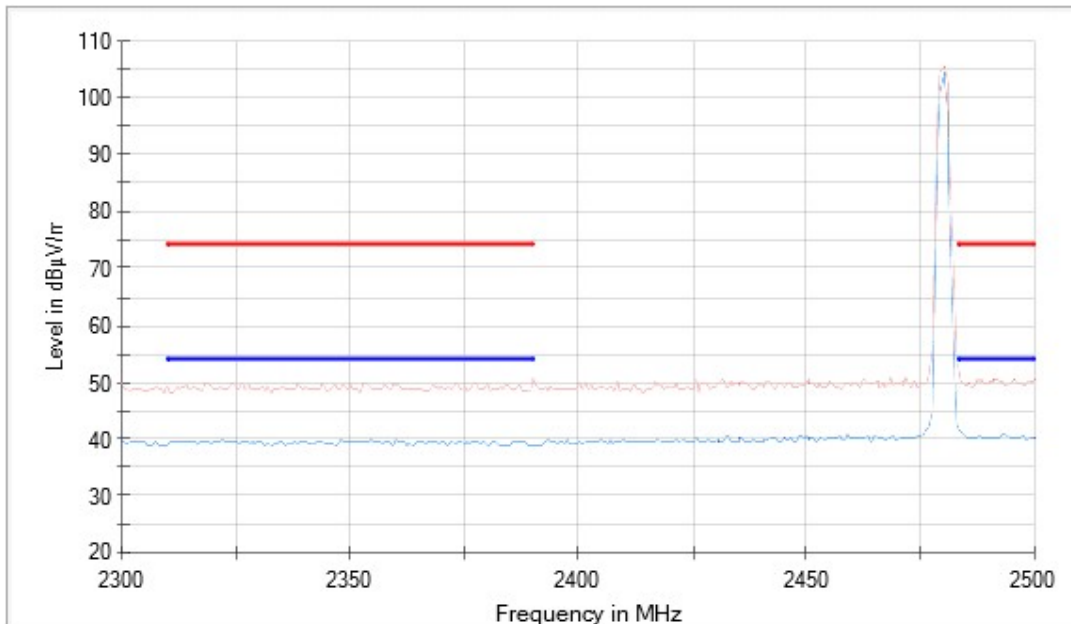
— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

Frequency Range GHz = [1, 18] Equipment Type = Frequency Hopping Spread Spectrum systems
 Modulation = BT (8DPSK 3-DH3) Frequency MHz = 2480.00000
 MIMO Mode = SISO Active Port = 1

Images:



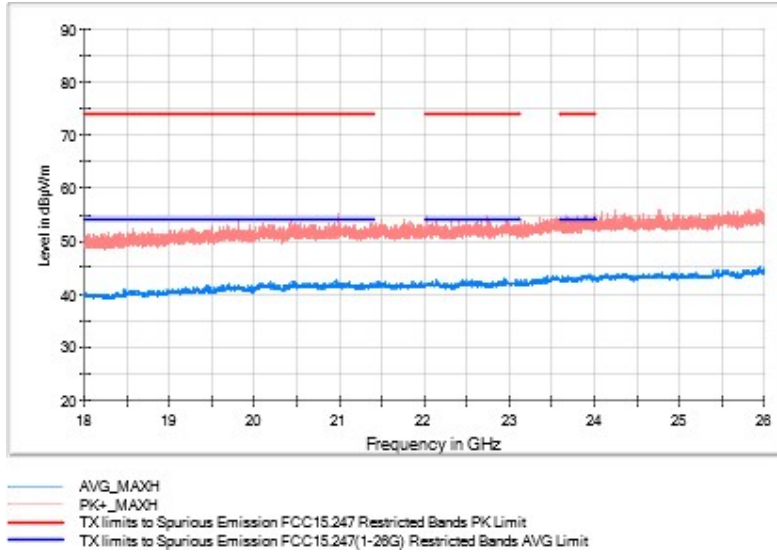
— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit



— AVG_MAXH
 — PK+_MAXH
 — TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
 — TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

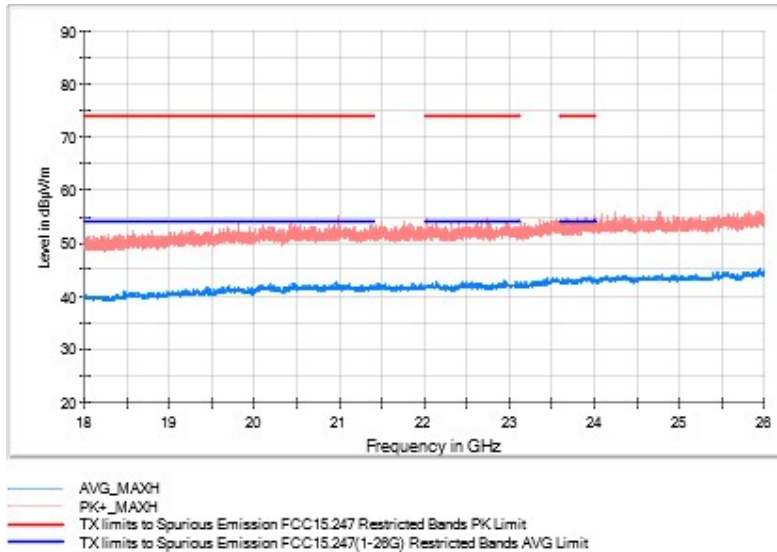
Frequency Range GHz = [18, 26] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (8DPSK 3-DH3) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



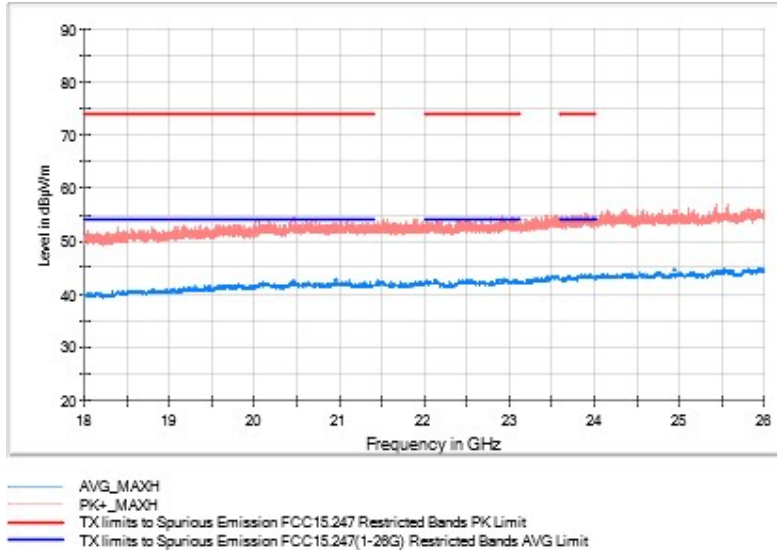
Frequency Range GHz = [18, 26] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (8DPSK 3-DH3) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Frequency Range GHz = [18, 26] Equipment Type = Frequency Hopping Spread Spectrum systems
Modulation = BT (8DPSK 3-DH3) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Appendix B: Test results. Wi-Fi 2.4GHz

TEST CONDITIONS	104
TEST CASES DETAILS	106
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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 12 V nominal Car battery, 8V to 16V max V
Type of Power Supply:

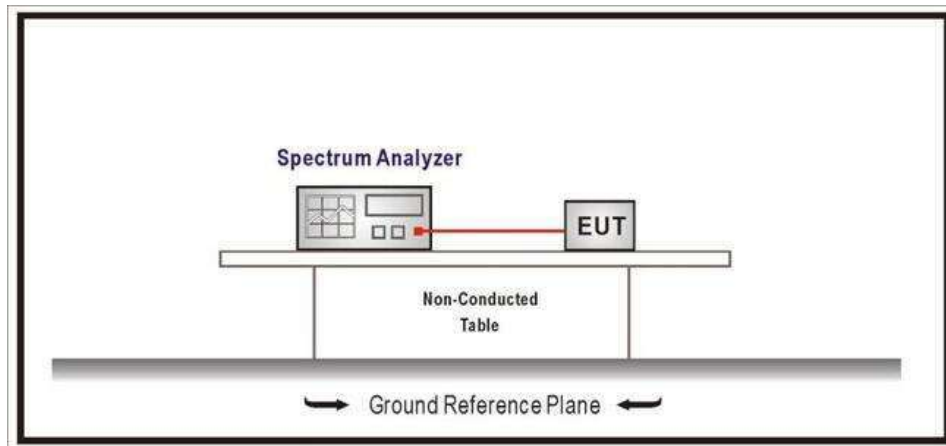
ANTENNA (*):

Type of Antenna: Internal PCB trace antenna
Maximum Declared Antenna Gain: 3.15 dBi @Wi-Fi 2.4GHz and 3.82 dBi @BT.

TEST FREQUENCIES (*):

Low Channel: 2412 MHz
Middle Channel: 2437 MHz
High Channel: 2462 MHz

CONDUCTED MEASUREMENTS:



RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz Double ridge horn antennas, and 1m for the frequency range 18 GHz- 26 GHz Double ridge horn antenna.

For radiated emissions in the range 18 - 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 was varied from 1 to 4 meters to find the maximum radiated emission.

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

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

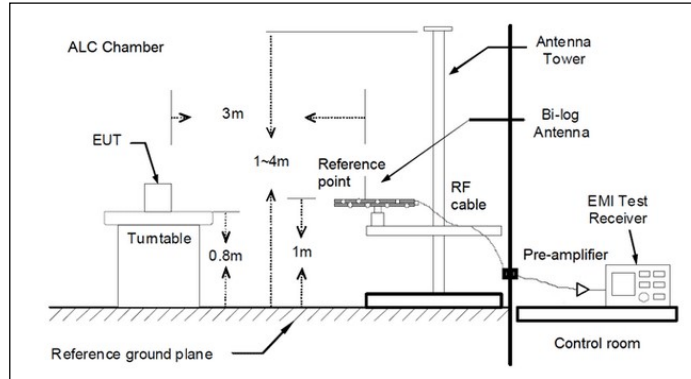


Fig A1: Radiated measurements Setup $f < 1$ GHz

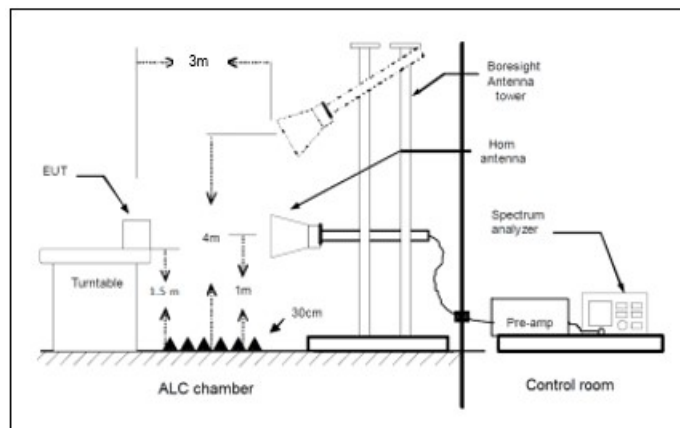


Fig A2: Radiated measurements setup $f > 1-18$ GHz

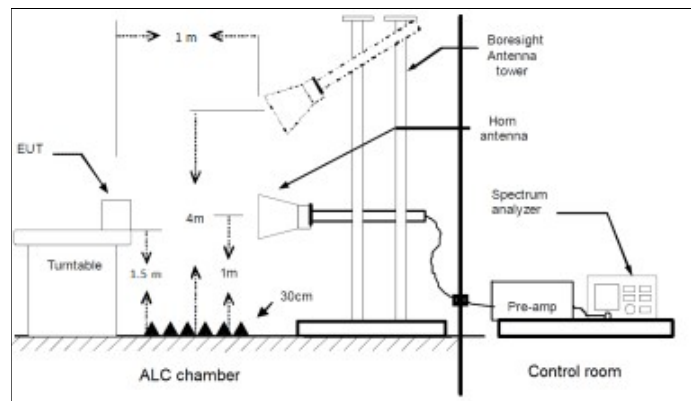


Fig A3: Radiated measurements setup $f > 18$ GHz

TEST CASES DETAILS

FCC 47 CFR Part 15.247 / RSS-247

FCC 2.1049 / 99dBw Occupied Channel Bandwidth 99%

Limits

No Limit has been set to this test case

Results

Modulation: 802.11b (DSSS 5.5 Mbit/s)
MIMO Mode: SISO

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	11.400
		2437.00000		11.500
		2462.00000		11.400

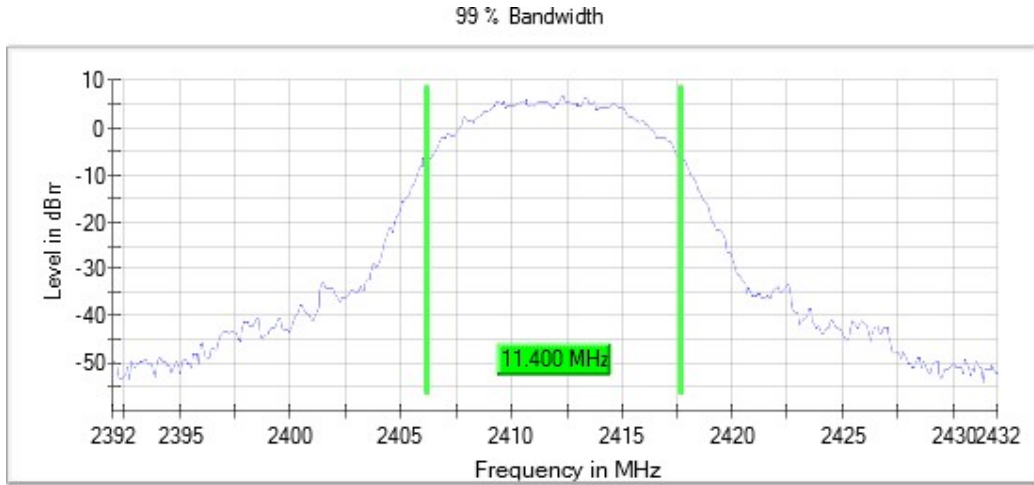
Verdict

Pass

Attachments

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

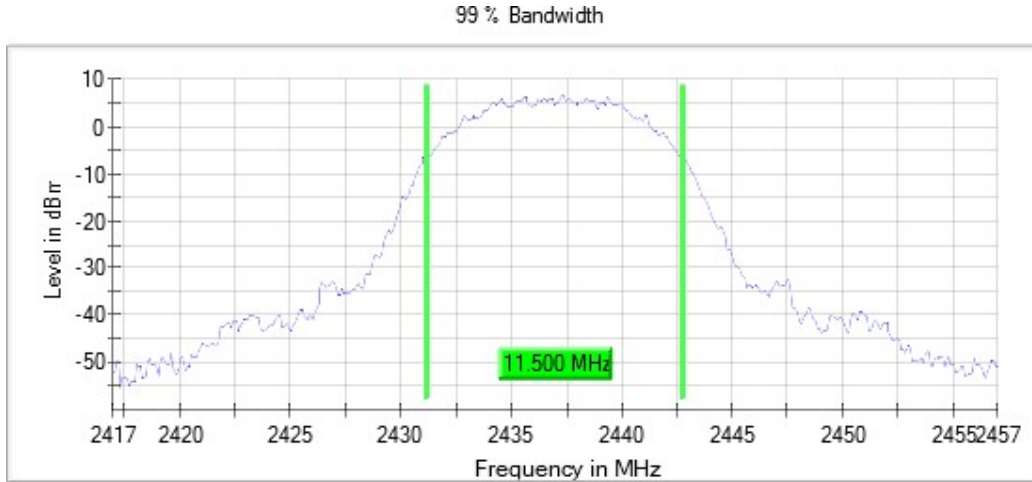
Images:



11:46:10 19.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

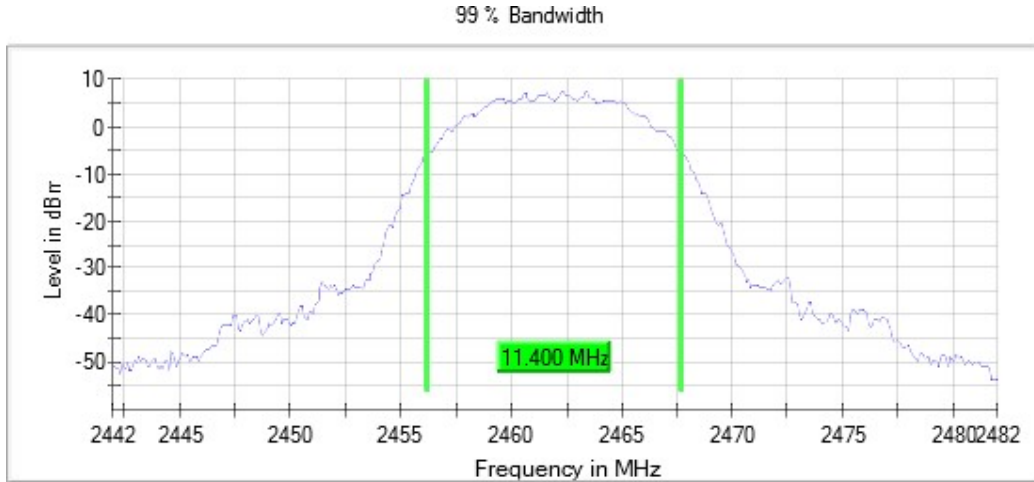
Images:



12:05:44 19.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



12:21:21 19.04.2024

Modulation: 802.11g (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	16.700
		2437.00000		16.700
		2462.00000		16.700

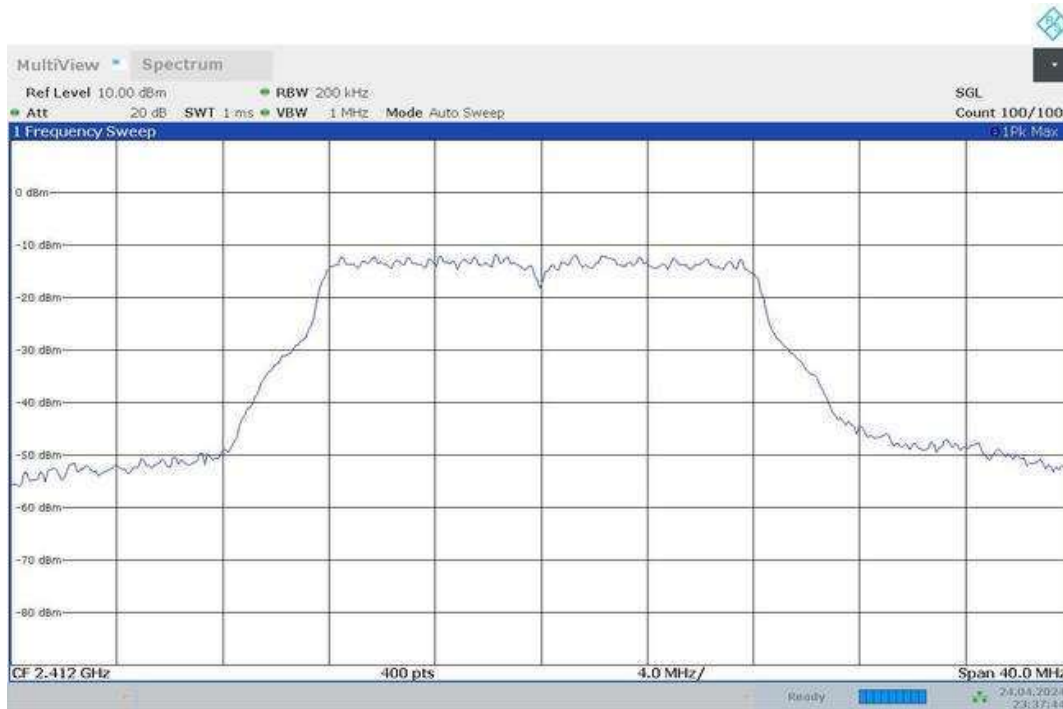
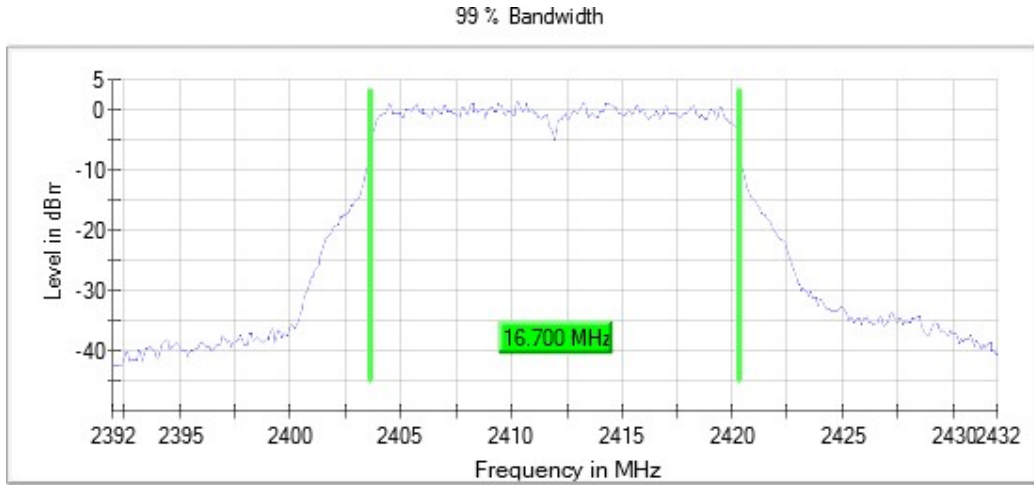
Verdict

Pass

Attachments

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

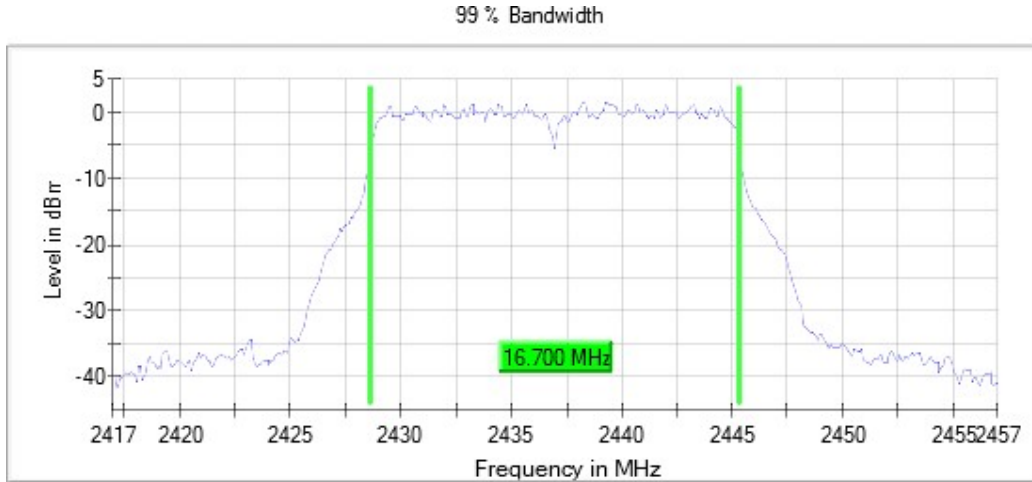
Images:



23:37:45 24.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

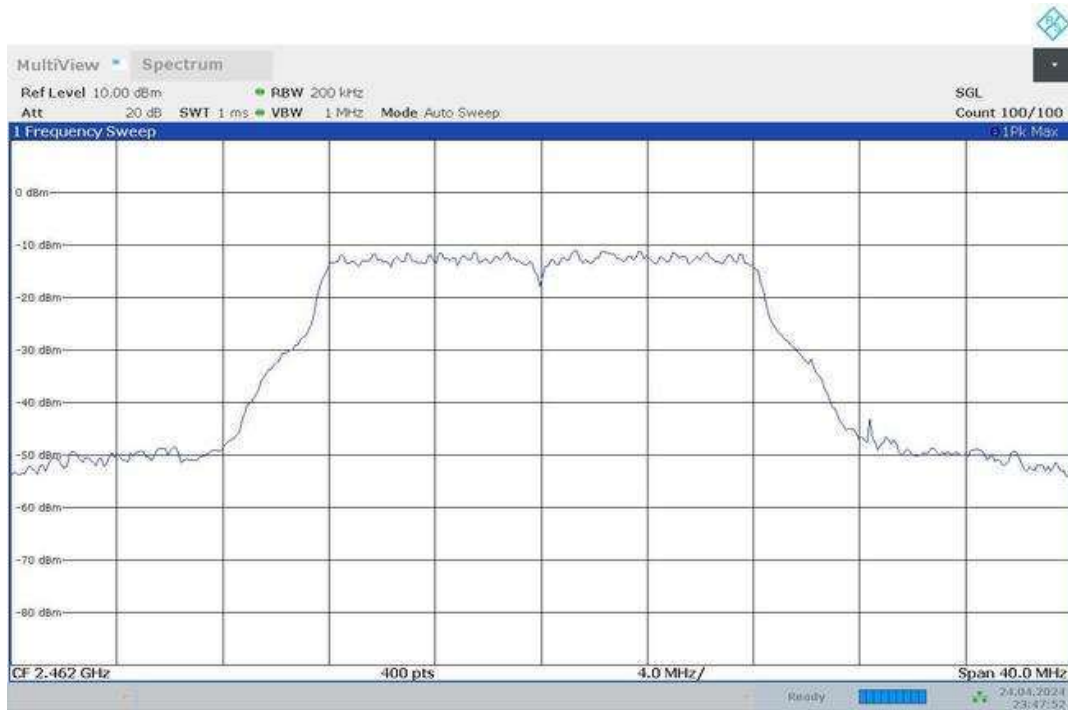
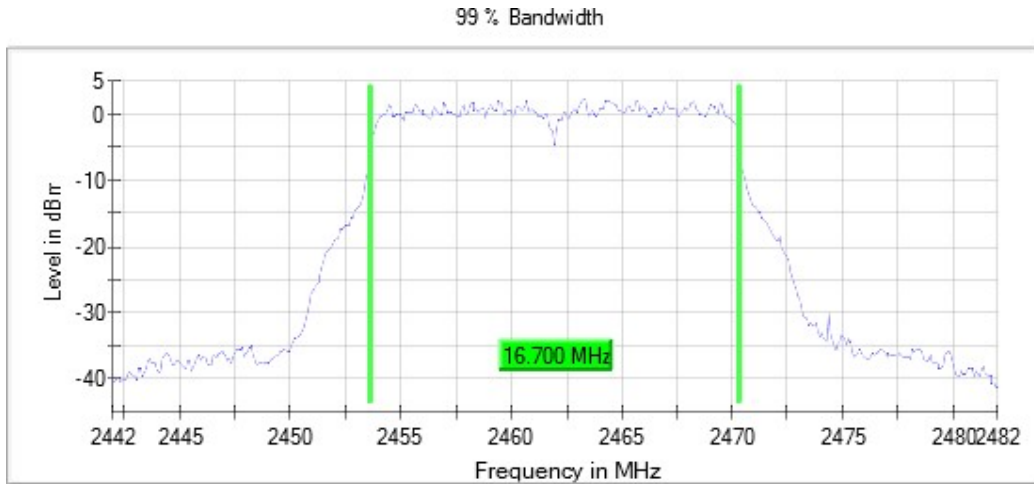
Images:



23:42:52 24.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



23:47:52 24.04.2024

Modulation: 802.11n HT20 (OFDM MCS2)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	17.800
		2437.00000		17.800
		2462.00000		17.800

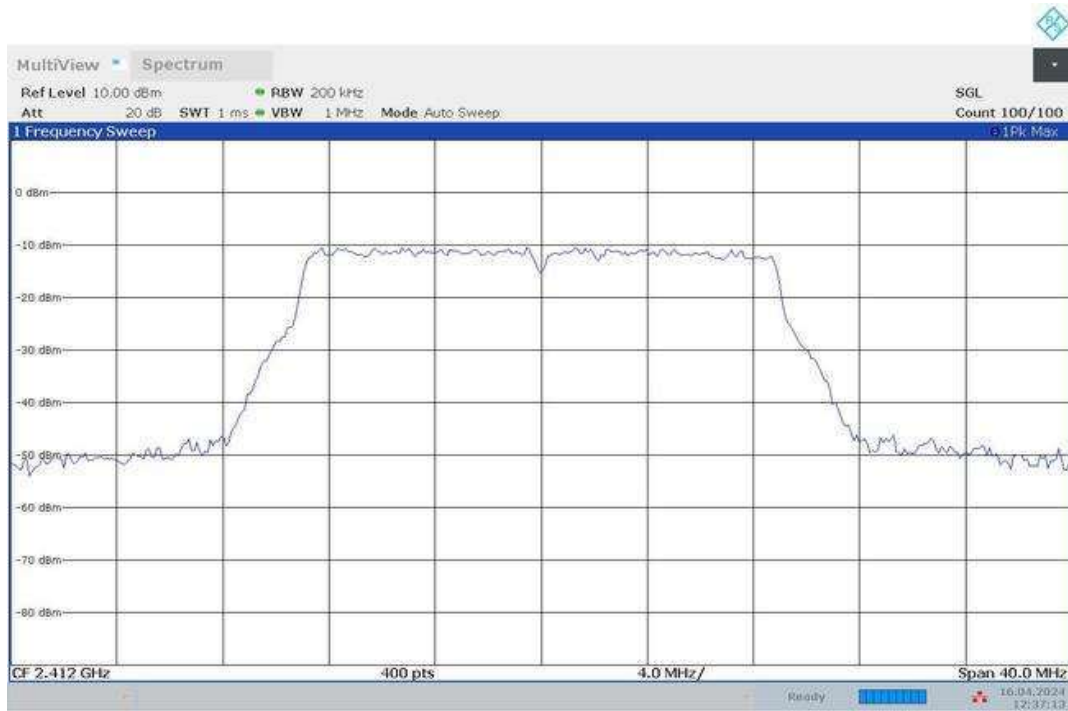
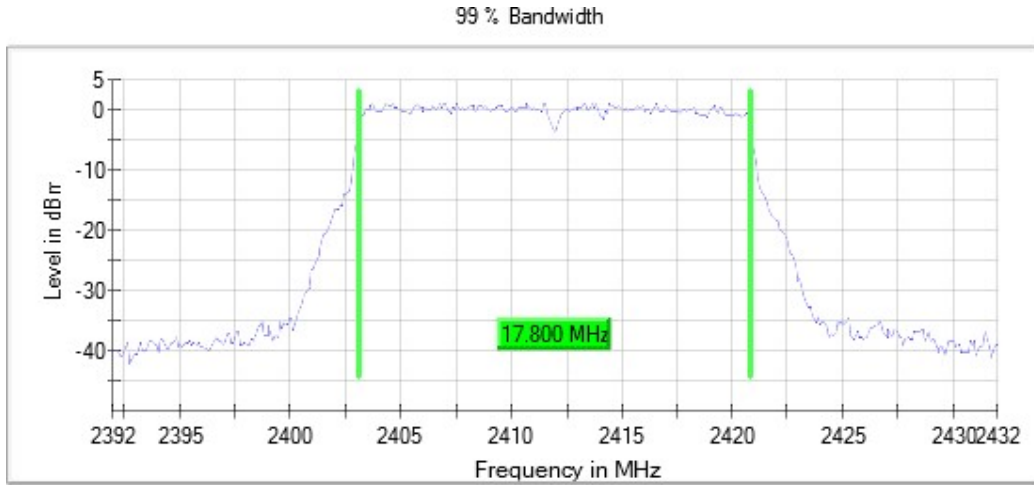
Verdict

Pass

Attachments

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

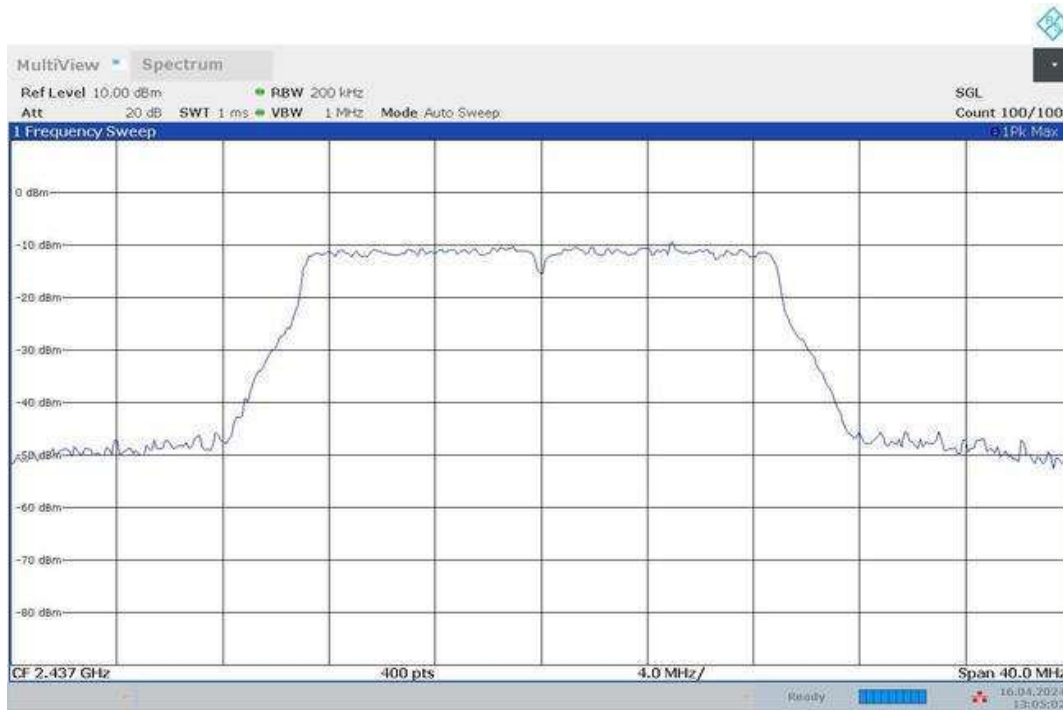
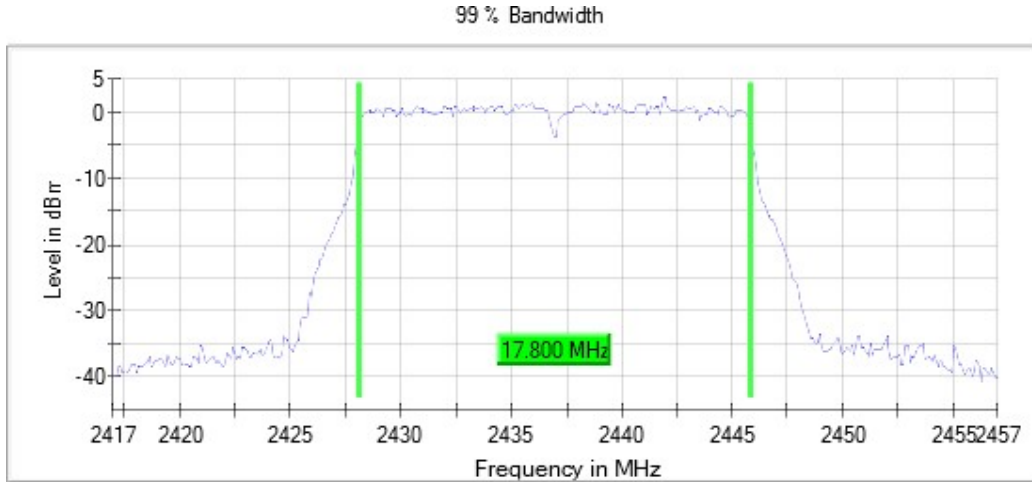
Images:



12:37:13 16.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

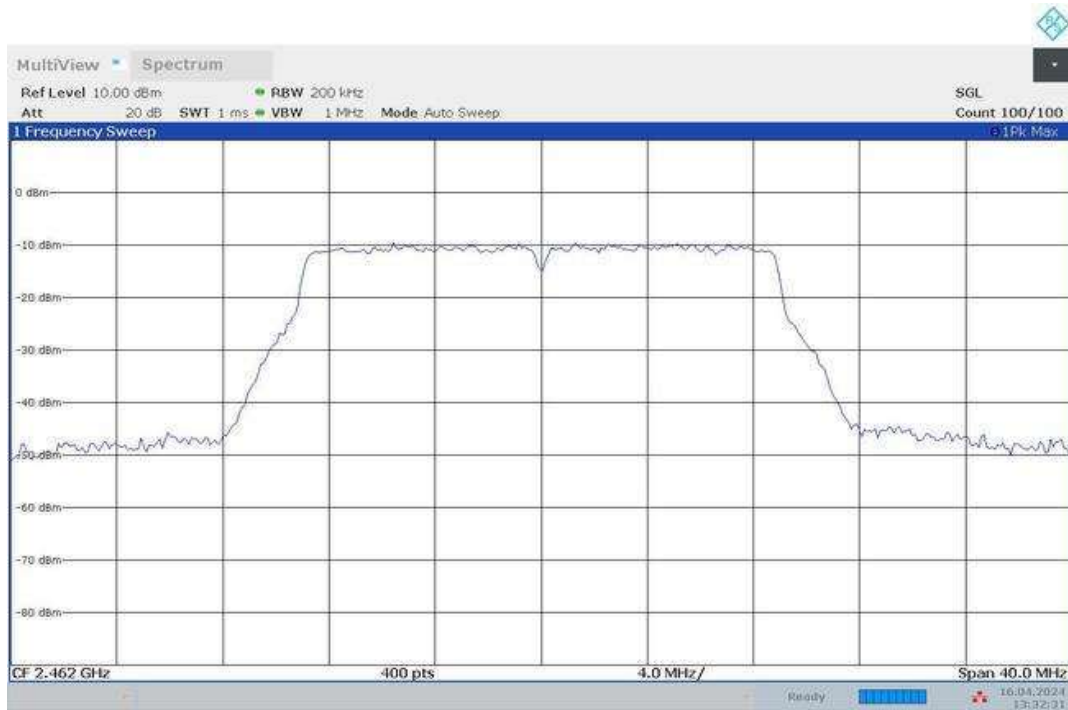
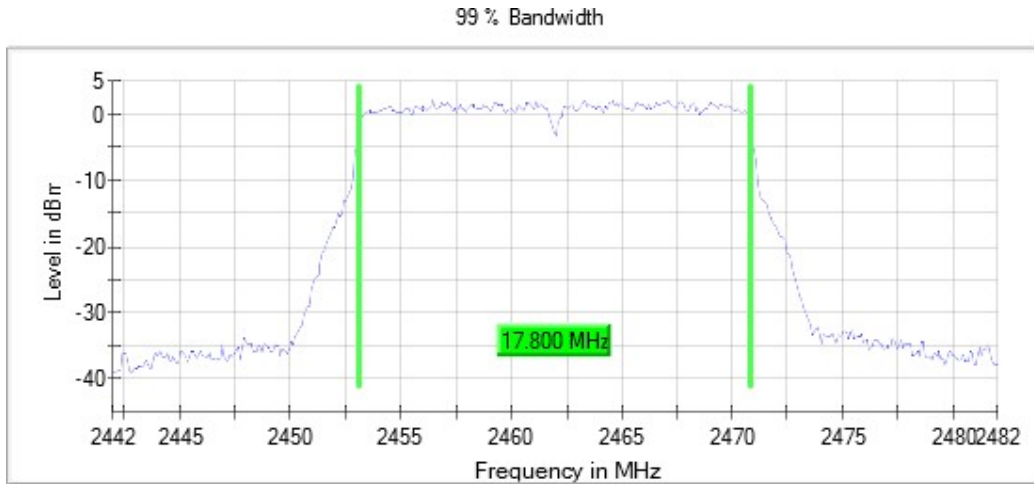
Images:



13:05:02 16.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



13:32:31 16.04.2024

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

Limits

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

Results

Modulation: 802.11b (DSSS 5.5 Mbit/s)
MIMO Mode: SISO

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
20	2412.00000	1	8.300
	2437.00000		8.400
	2462.00000		8.400

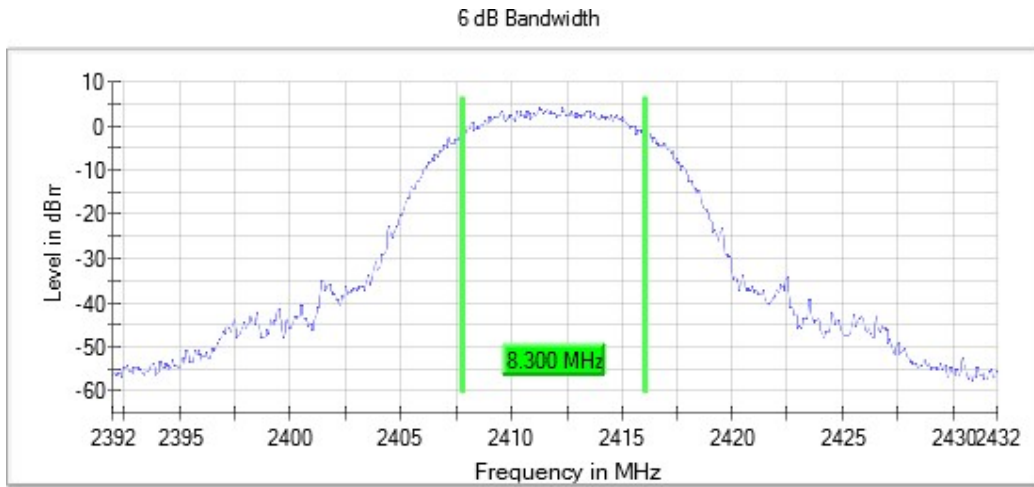
Verdict

Pass

Attachments

Bandwidth MHz = 20 Modulation = 802.11b (DSSS 5.5 Mbit/s)
Frequency MHz = 2412.00000 MIMO Mode = SISO
Active Port = 1

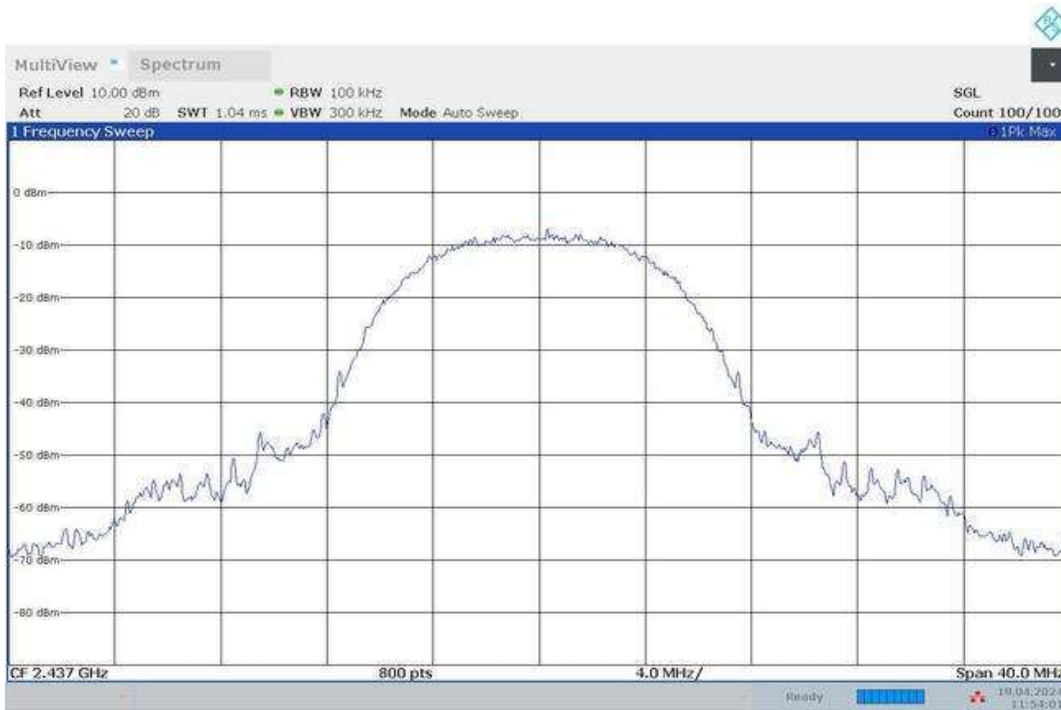
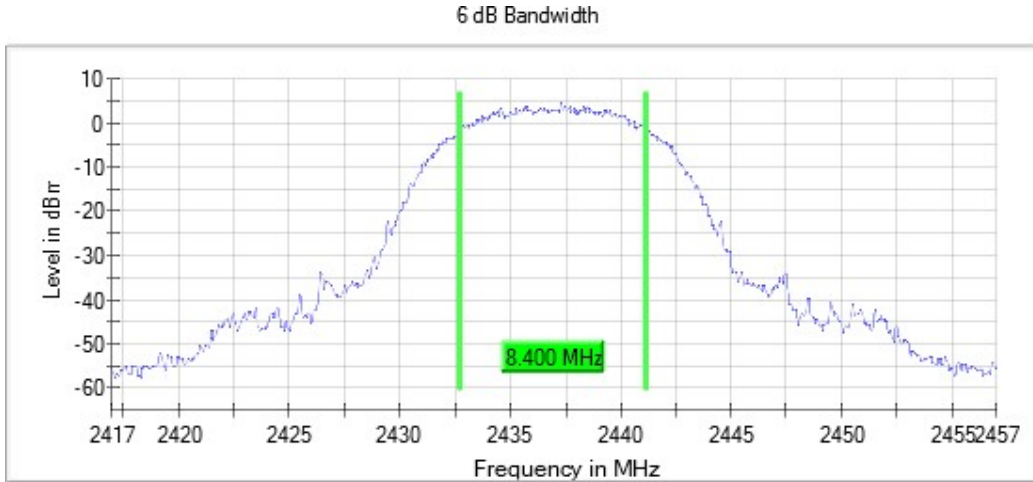
Images:



11:35:30 19.04.2024

Bandwidth MHz = 20 Modulation = 802.11b (DSSS 5.5 Mbit/s)
Frequency MHz = 2437.00000 MIMO Mode = SISO
Active Port = 1

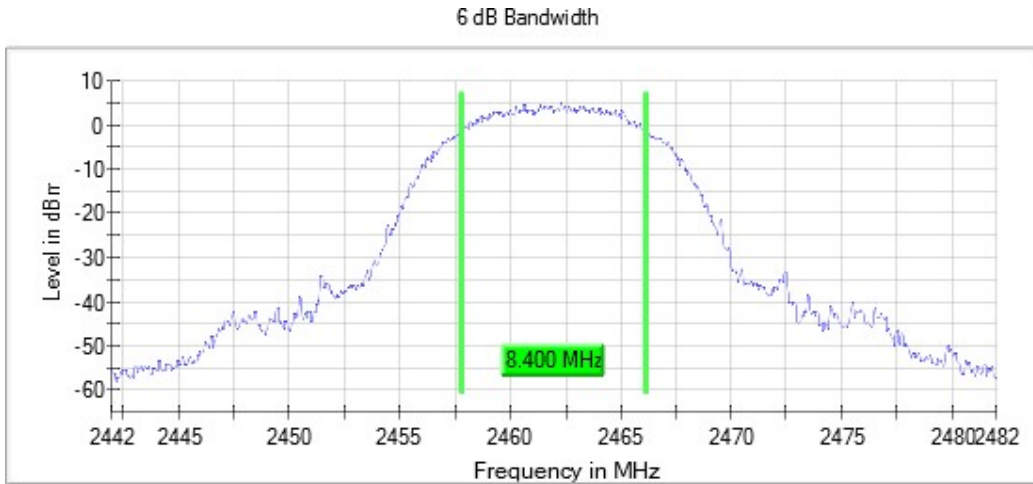
Images:



11:54:02 19.04.2024

Bandwidth MHz = 20 Modulation = 802.11b (DSSS 5.5 Mbit/s)
Frequency MHz = 2462.00000 MIMO Mode = SISO
Active Port = 1

Images:



12:09:21 19.04.2024

Modulation: 802.11g (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
20	2412.00000	1	16.400
	2437.00000		16.400
	2462.00000		16.400

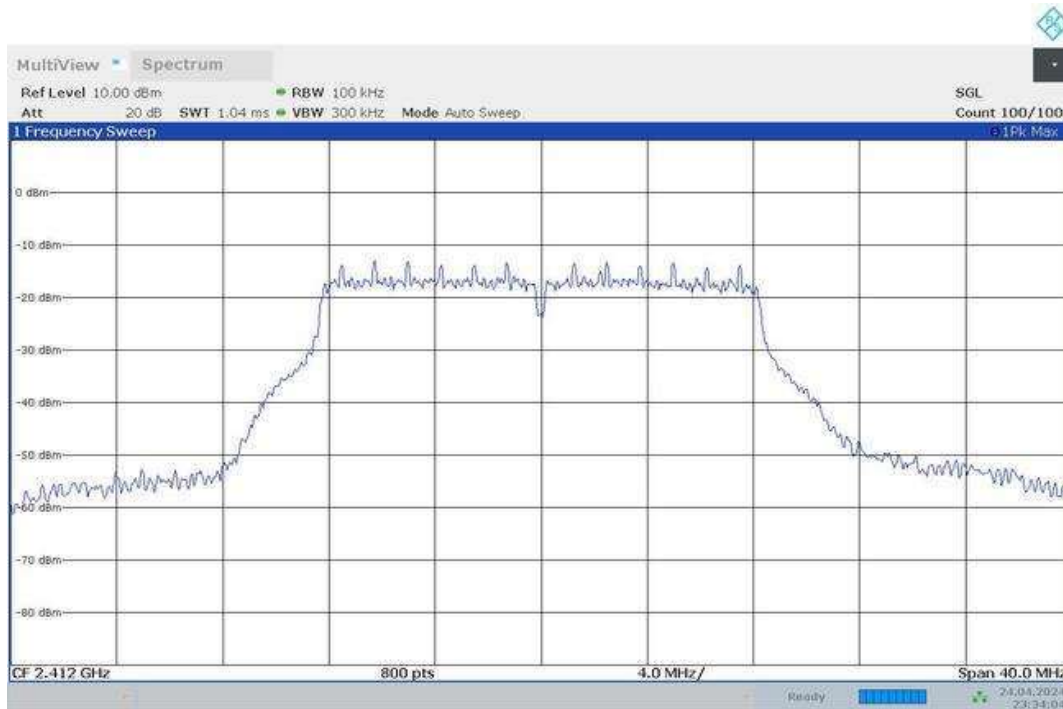
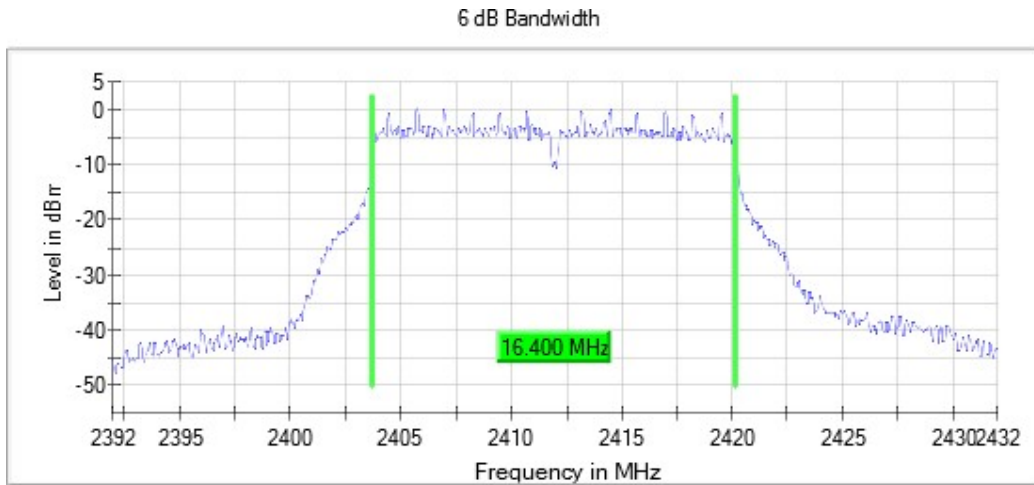
Verdict

Pass

Attachments

Bandwidth MHz = 20 Modulation = 802.11g (OFDM 9 Mbit/s)
Frequency MHz = 2412.00000 MIMO Mode = SISO
Active Port = 1

Images:

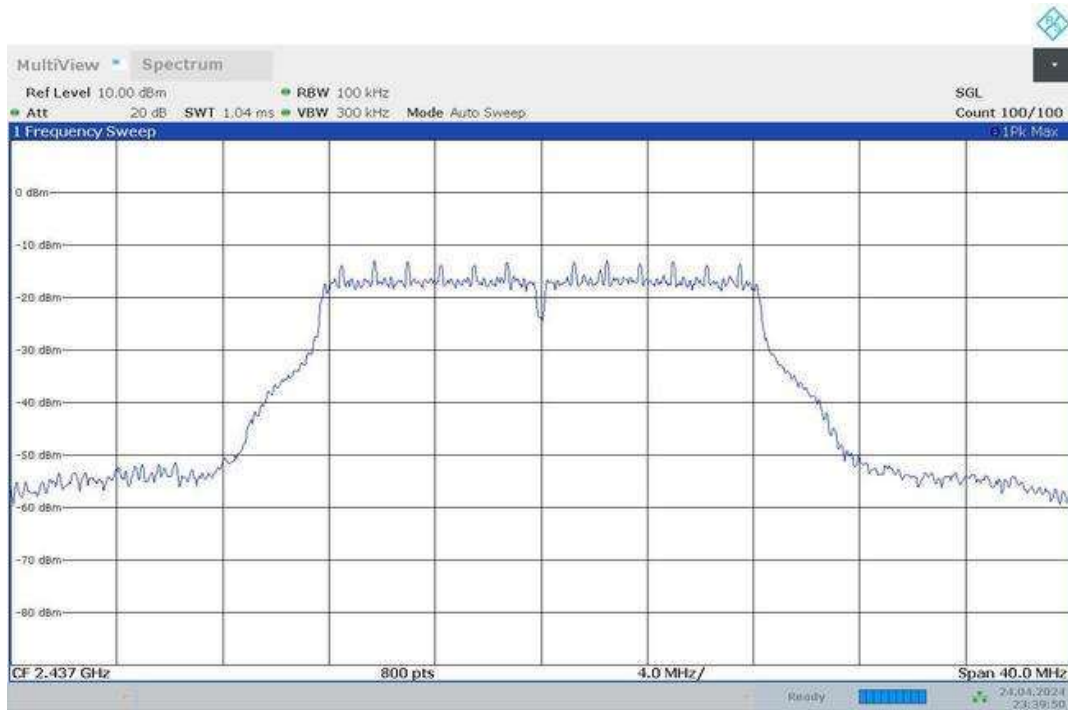
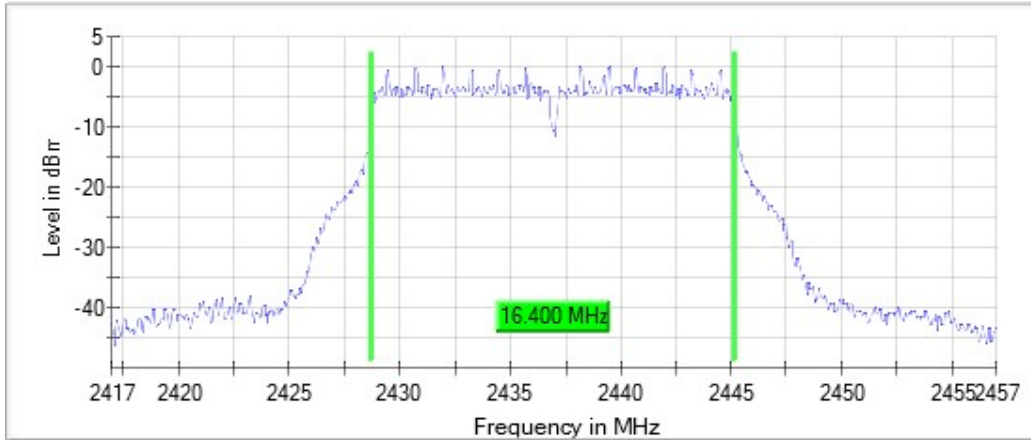


23:34:05 24.04.2024

Bandwidth MHz = 20 Modulation = 802.11g (OFDM 9 Mbit/s)
Frequency MHz = 2437.00000 MIMO Mode = SISO
Active Port = 1

Images:

6 dB Bandwidth

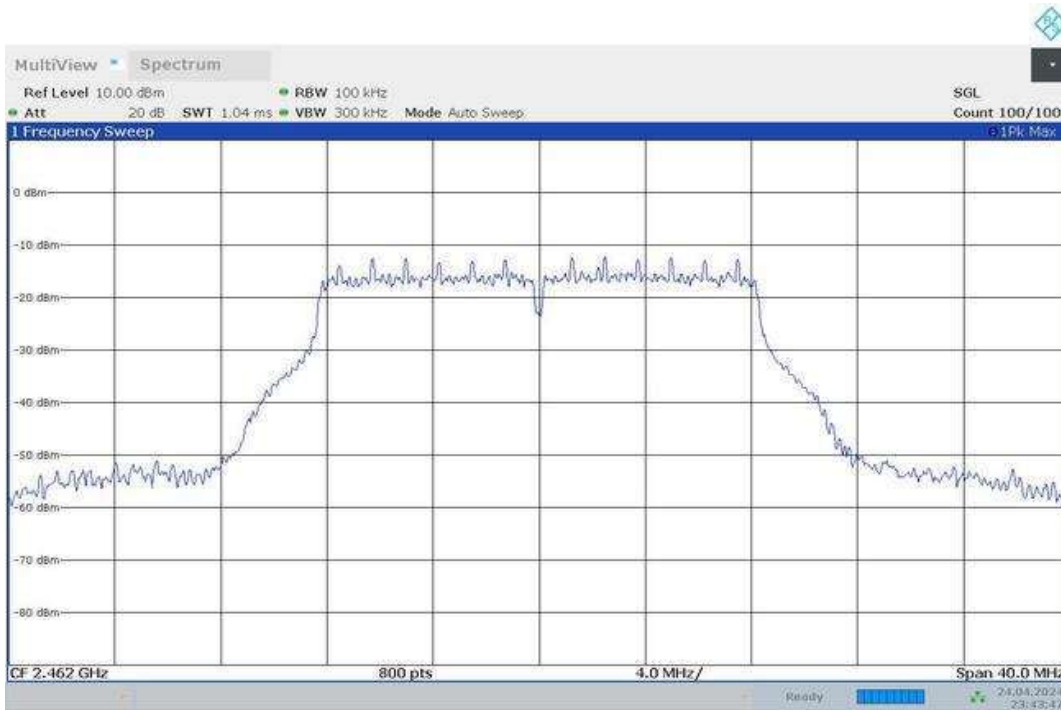
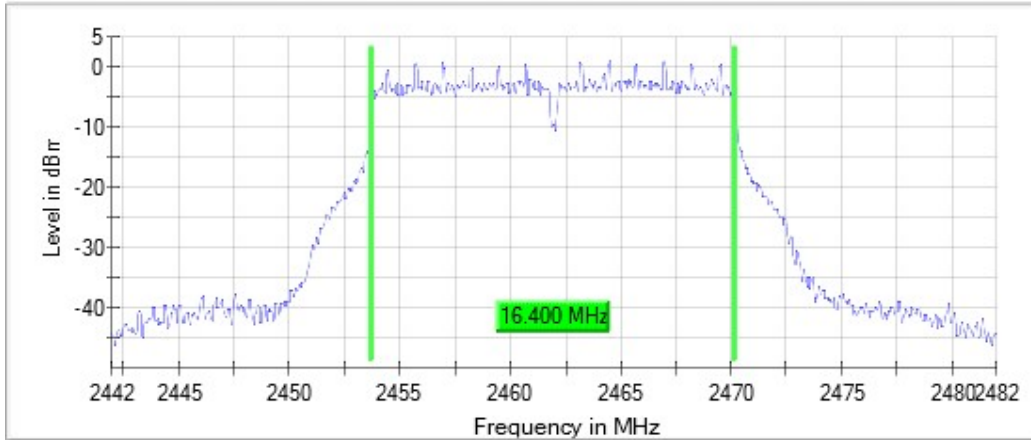


23:39:50 24.04.2024

Bandwidth MHz = 20 Modulation = 802.11g (OFDM 9 Mbit/s)
Frequency MHz = 2462.00000 MIMO Mode = SISO
Active Port = 1

Images:

6 dB Bandwidth



Modulation: 802.11n HT20 (OFDM MCS2)

MIMO Mode: SISO

Results

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
20	2412.00000	1	17.800
	2437.00000		17.800
	2462.00000		17.800

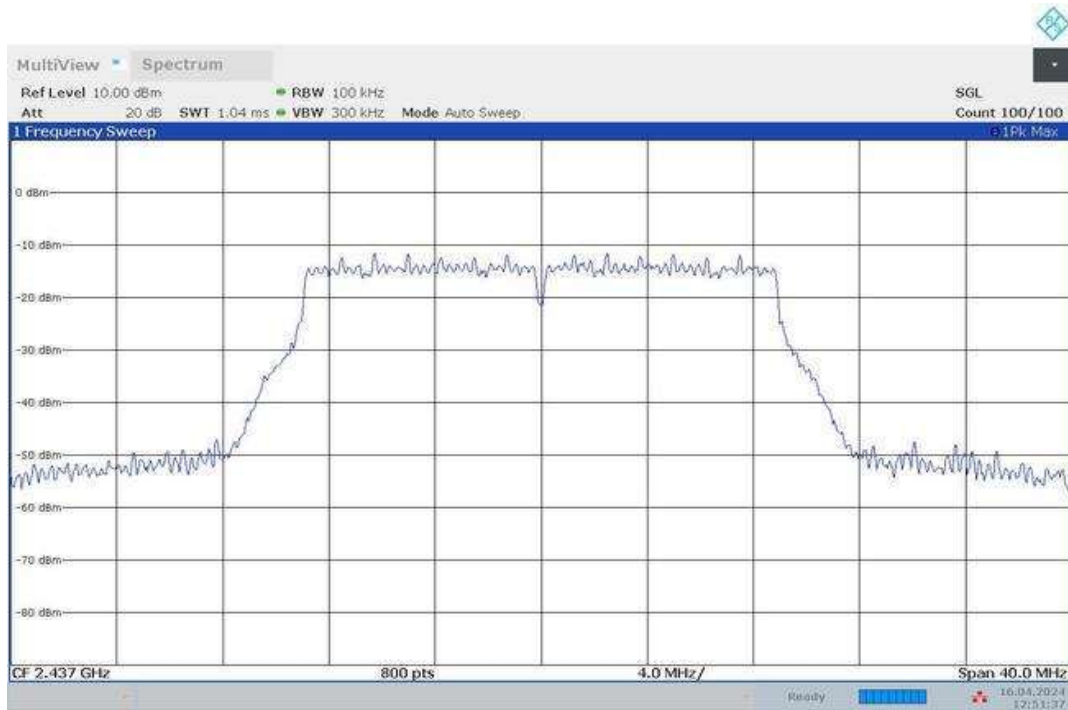
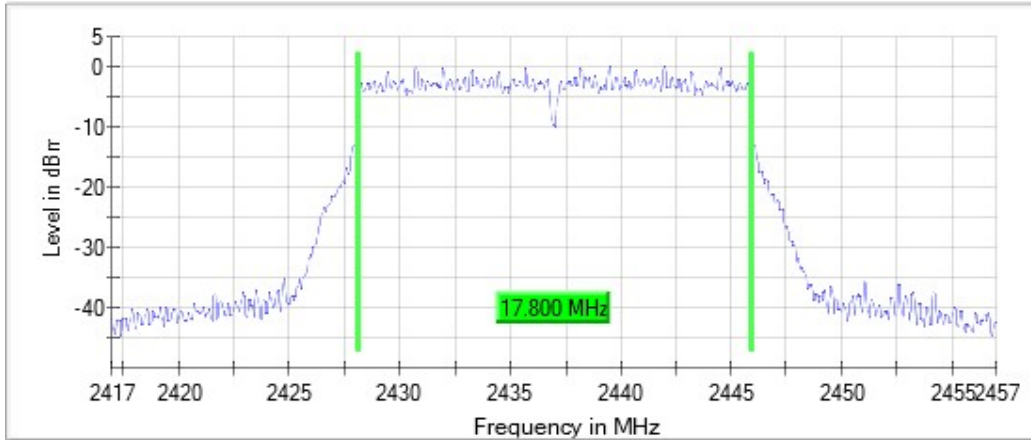
Verdict

Pass

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS2)
Frequency MHz = 2437.00000 MIMO Mode = SISO
Active Port = 1

Images:

6 dB Bandwidth

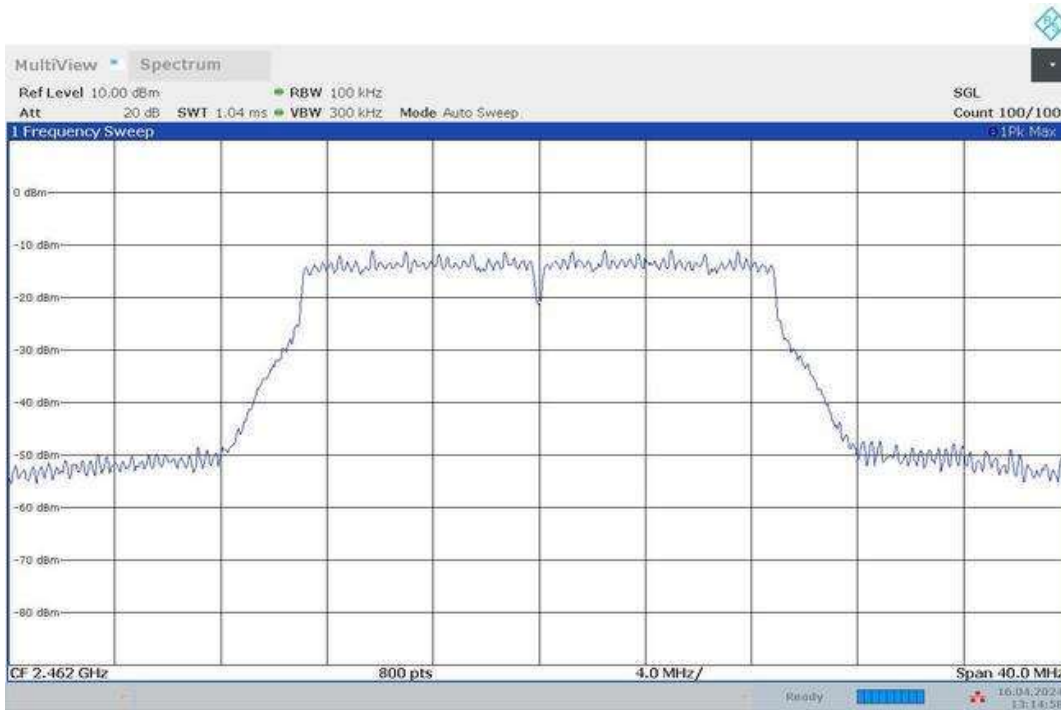
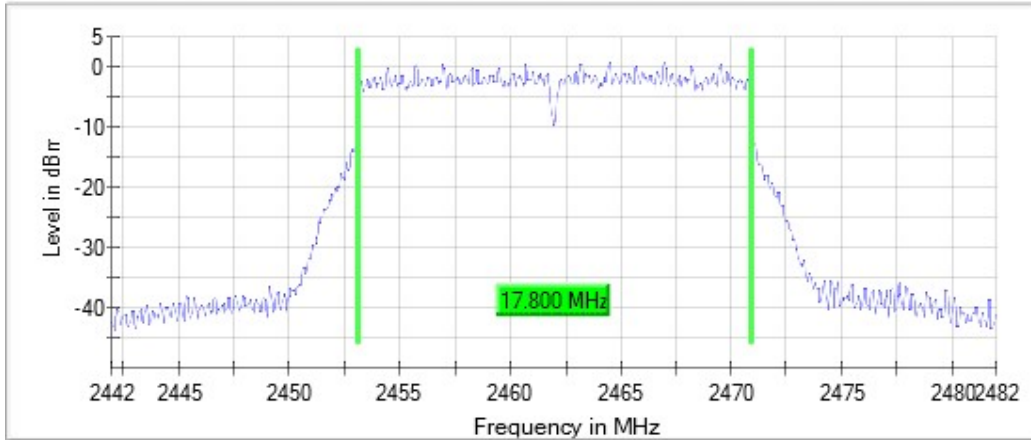


12:51:37 16.04.2024

Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS2)
Frequency MHz = 2462.00000 MIMO Mode = SISO
Active Port = 1

Images:

6 dB Bandwidth



13:14:59 16.04.2024

RSS-247 5.2 (b) / FCC 15.247 (e) [PSD] 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 5.5 Mbit/s)
MIMO Mode: SISO

Equipment	BW (MHz)	Freq (MHz)	Port	PSD (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	1.55
		2437.00000		1.69
		2462.00000		2.29

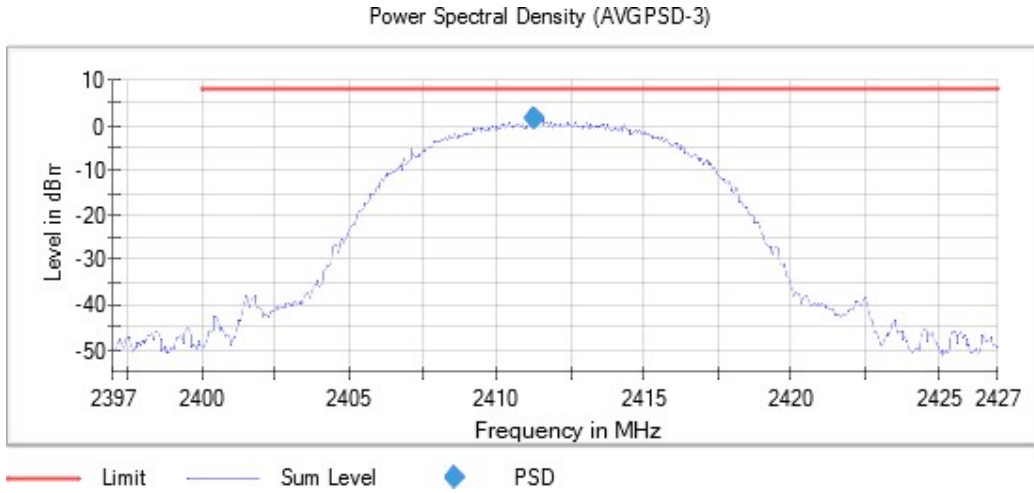
Verdict

Pass

Attachments

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

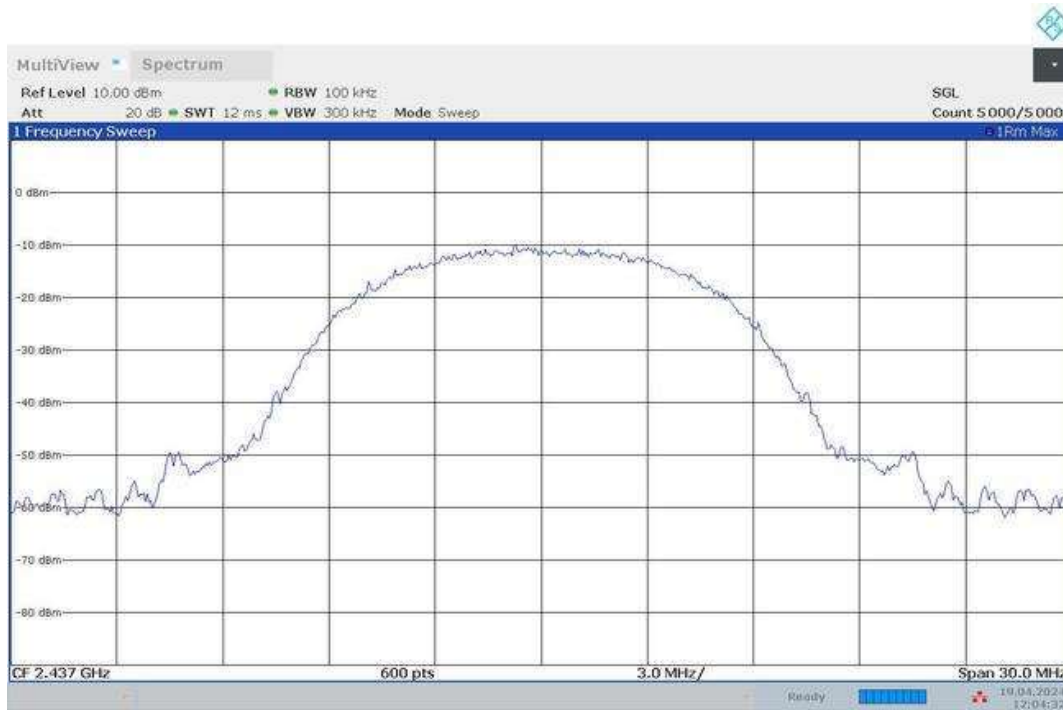
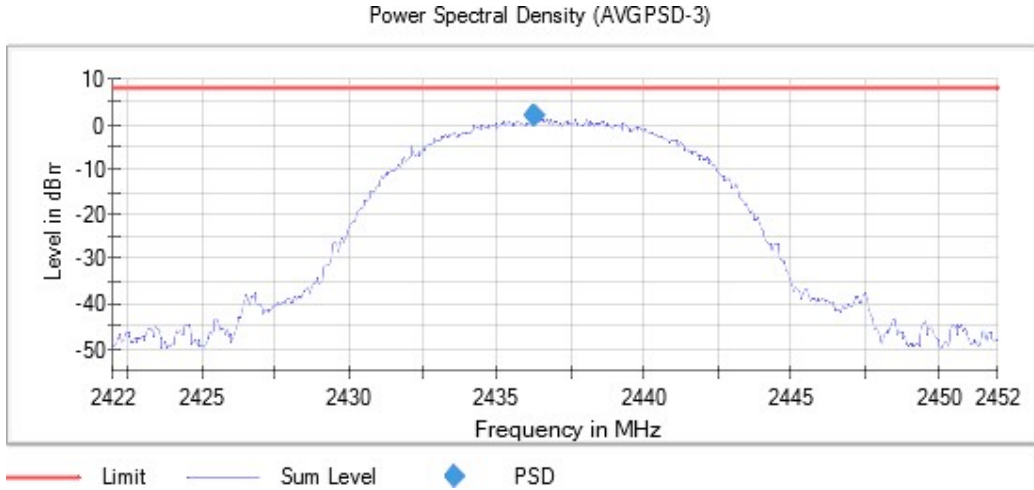
Images:



11:44:58 19.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

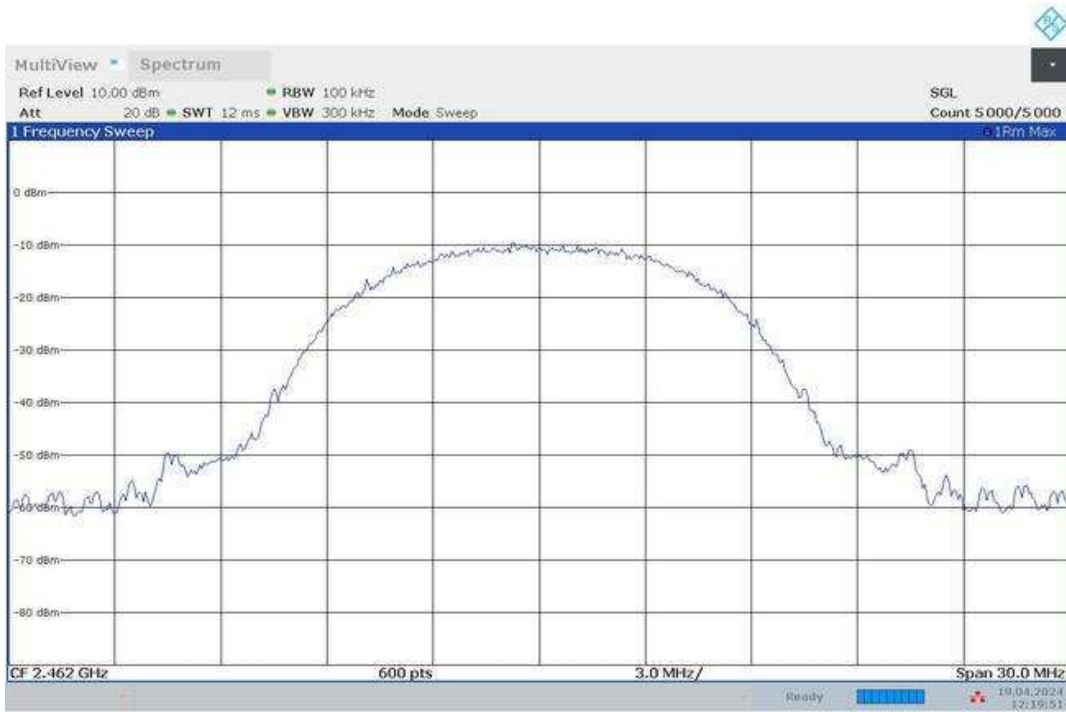
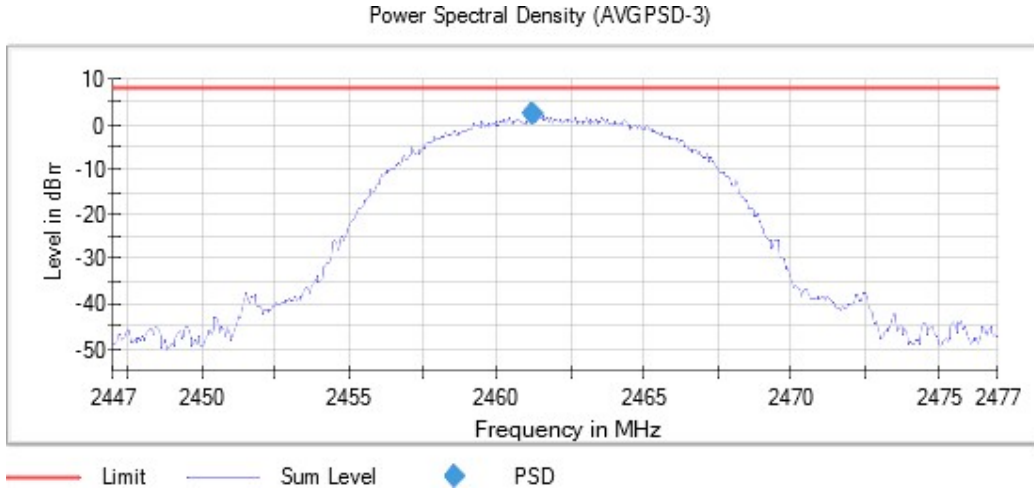
Images:



12:04:33 19.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



12:19:52 19.04.2024

Modulation: 802.11g (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	PSD (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	-3.39
		2437.00000		-3.12
		2462.00000		-2.29

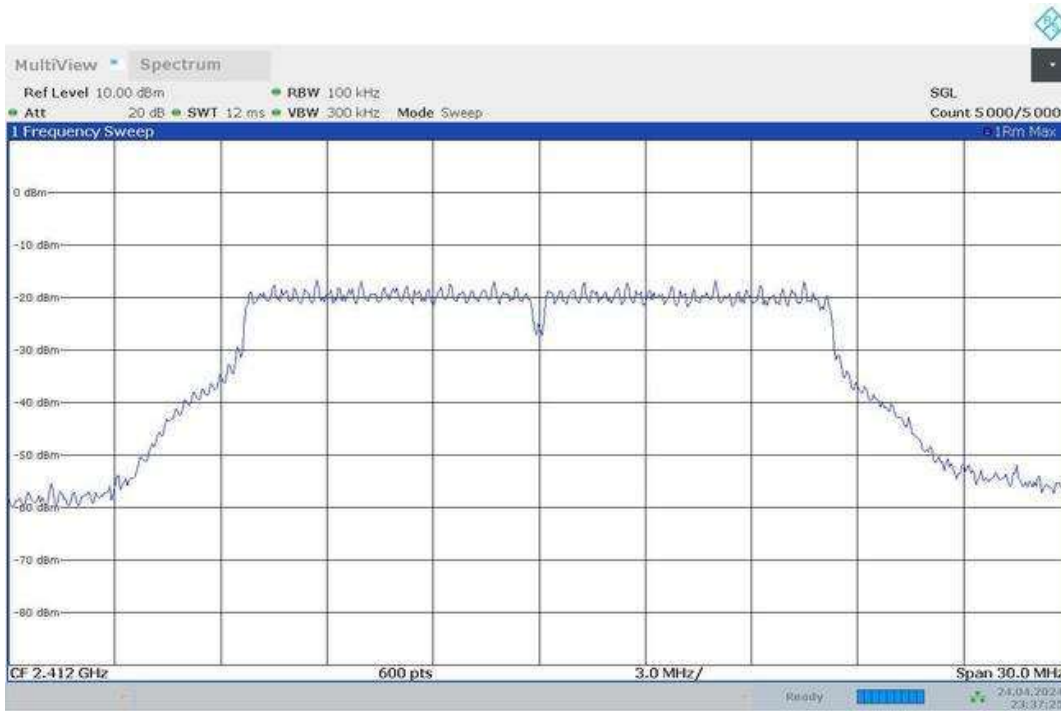
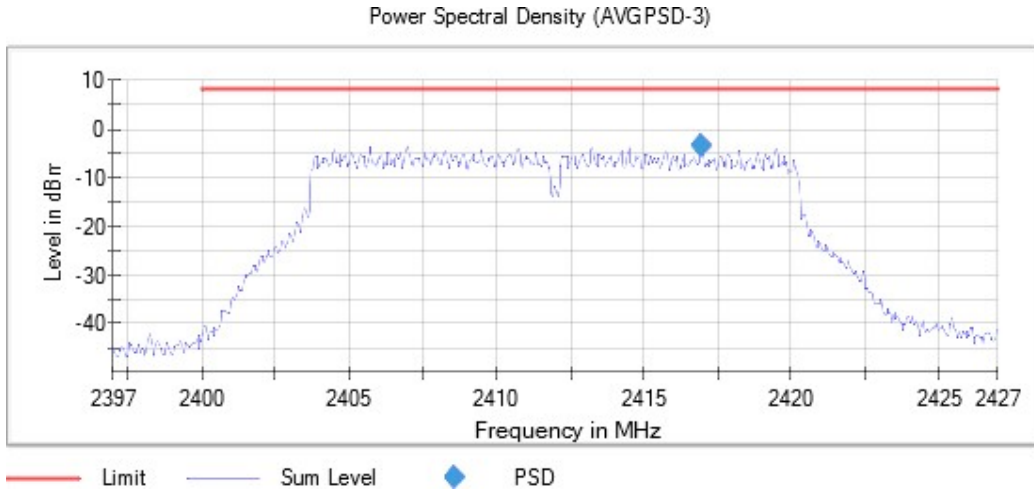
Verdict

Pass

Attachments

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

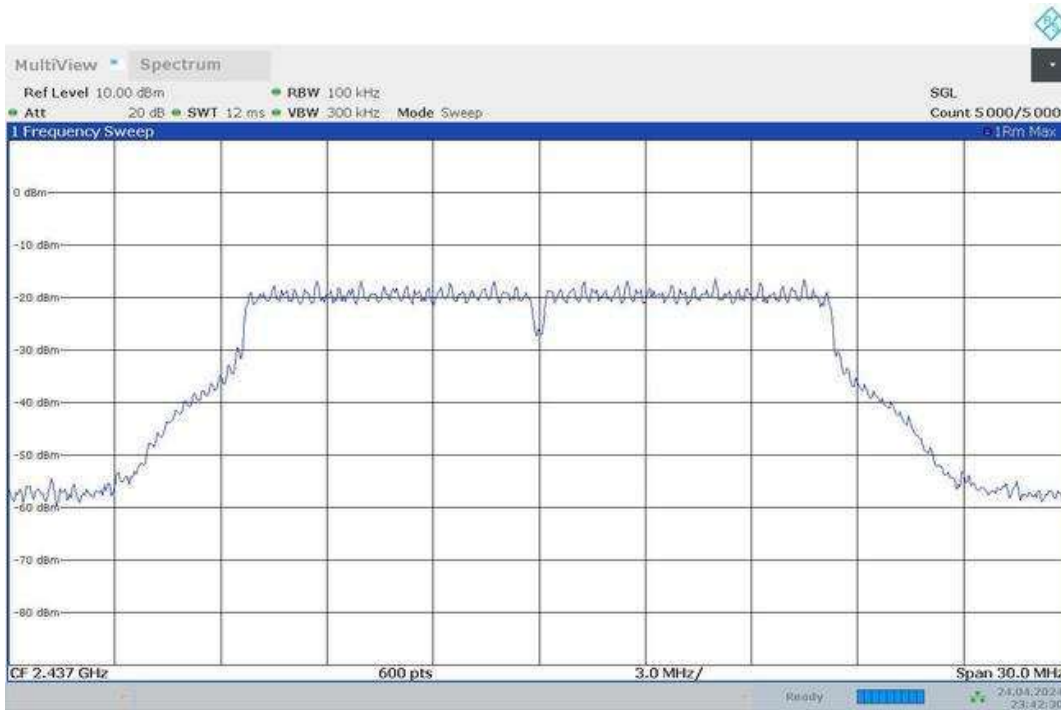
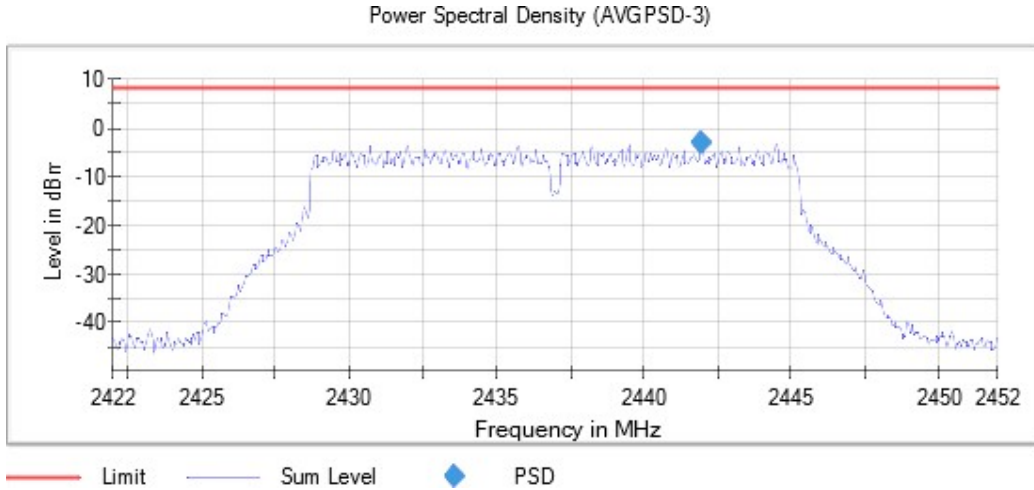
Images:



23:37:25 24.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

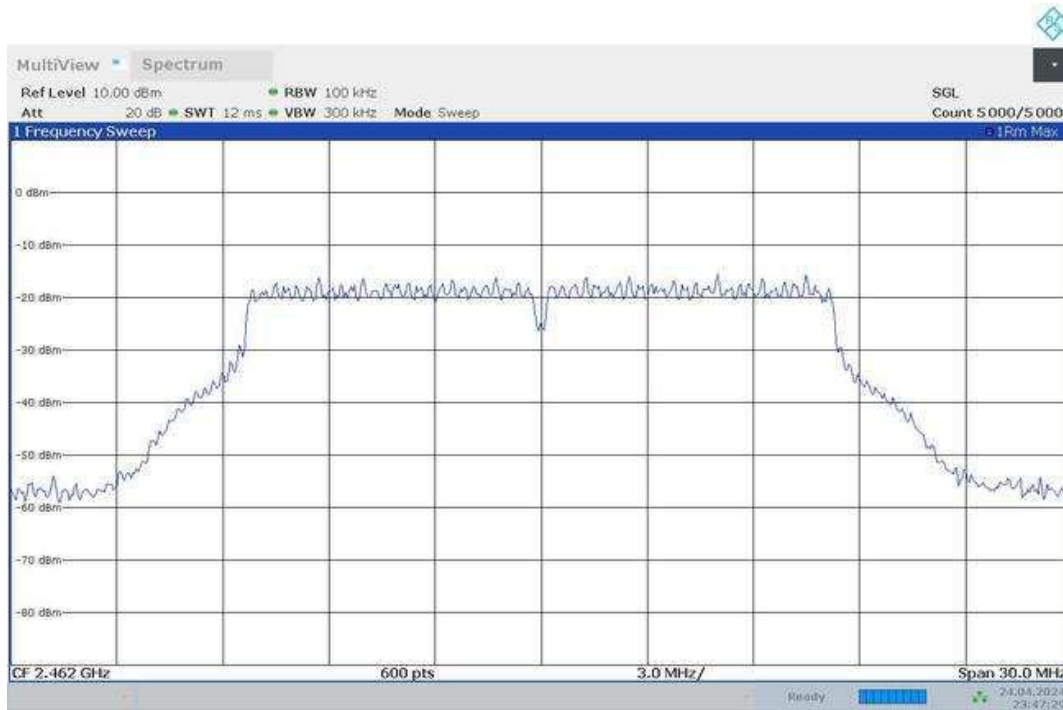
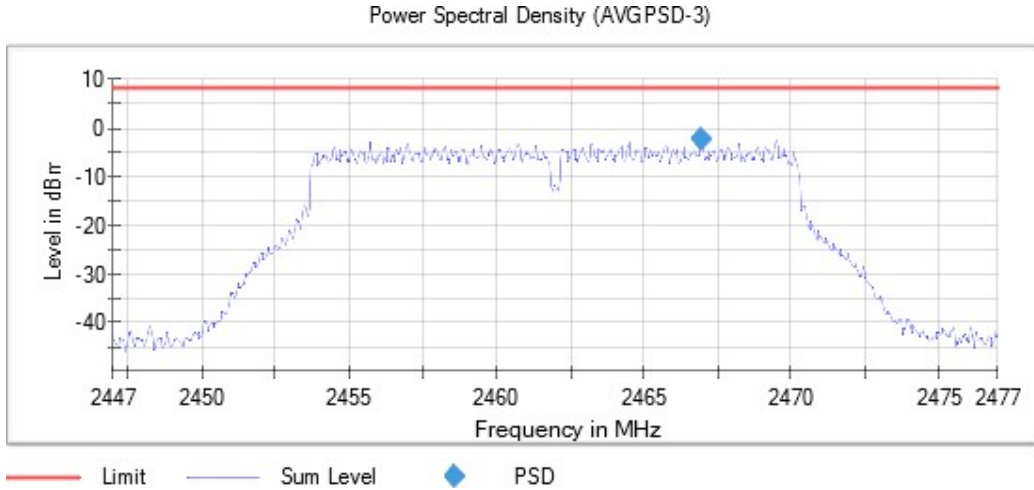
Images:



23:42:31 24.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



23:47:30 24.04.2024

Modulation: 802.11n HT20 (OFDM MCS2)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	PSD (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	-2.24
		2437.00000		-2.79
		2462.00000		-1.76

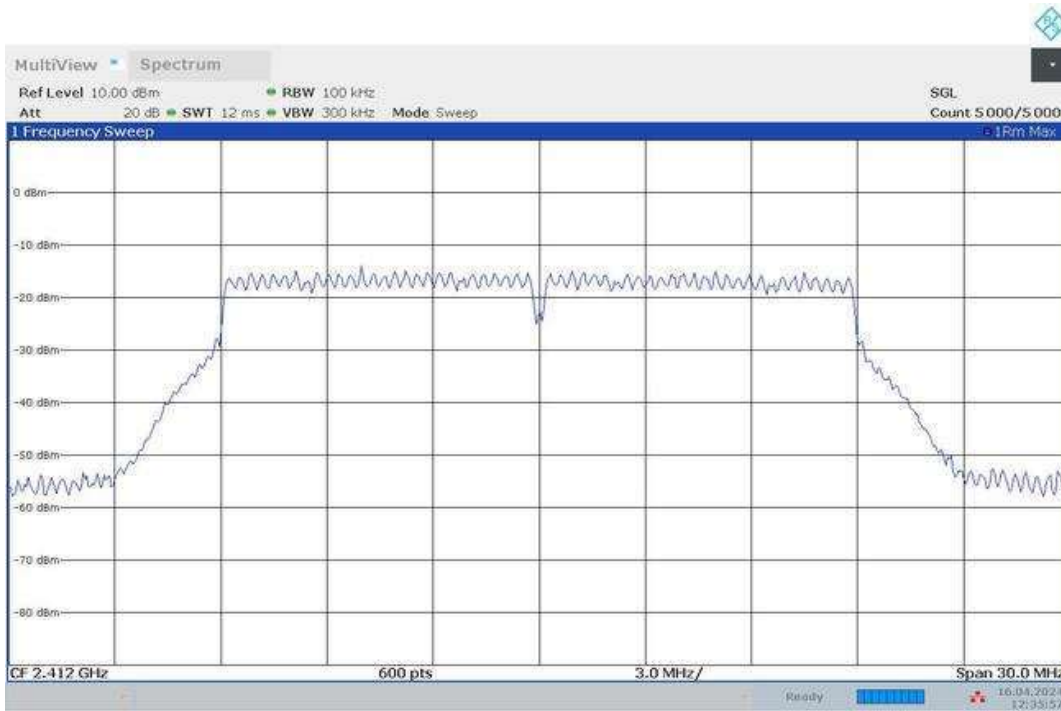
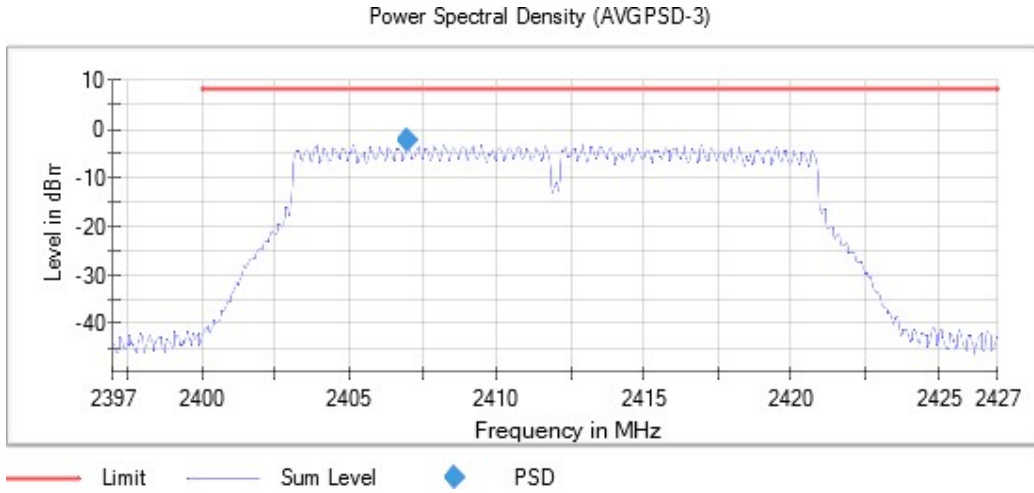
Verdict

Pass

Attachments

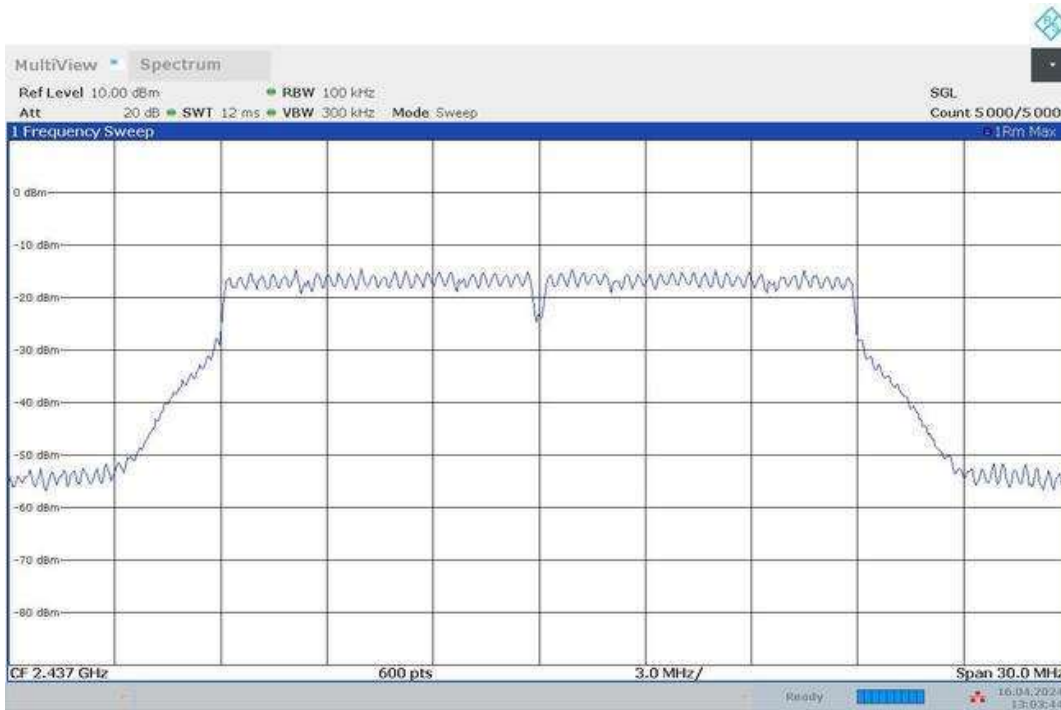
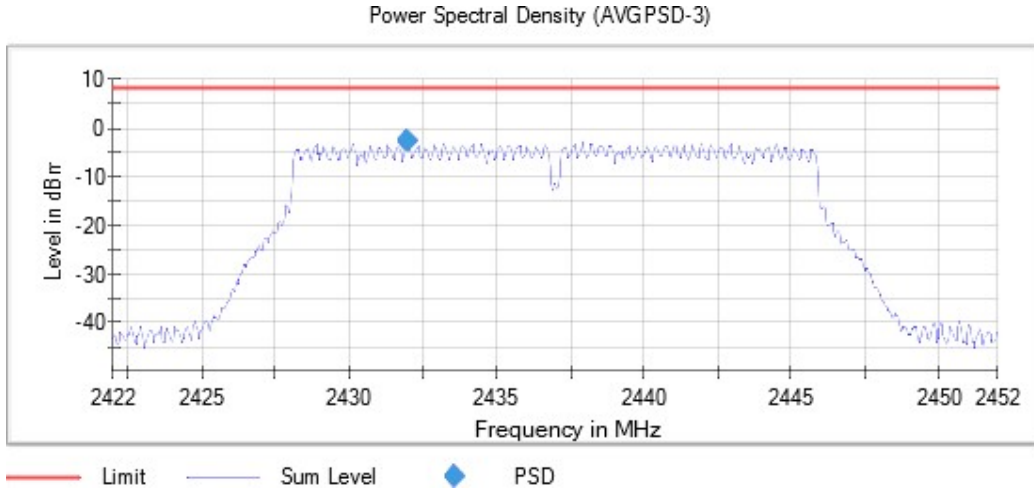
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

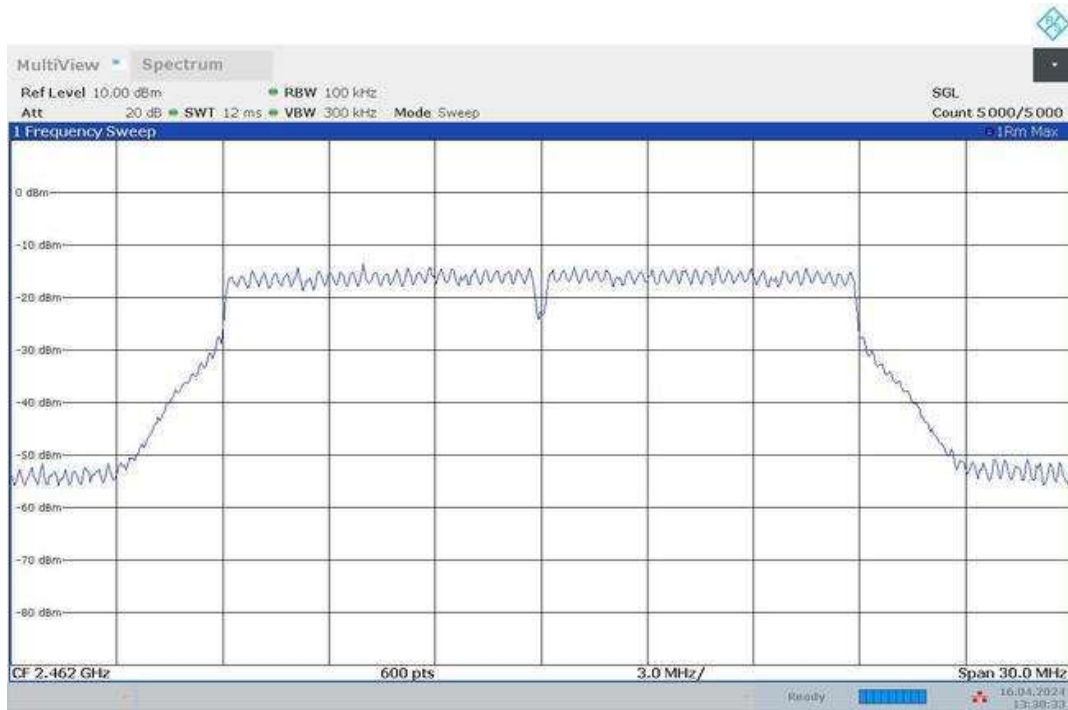
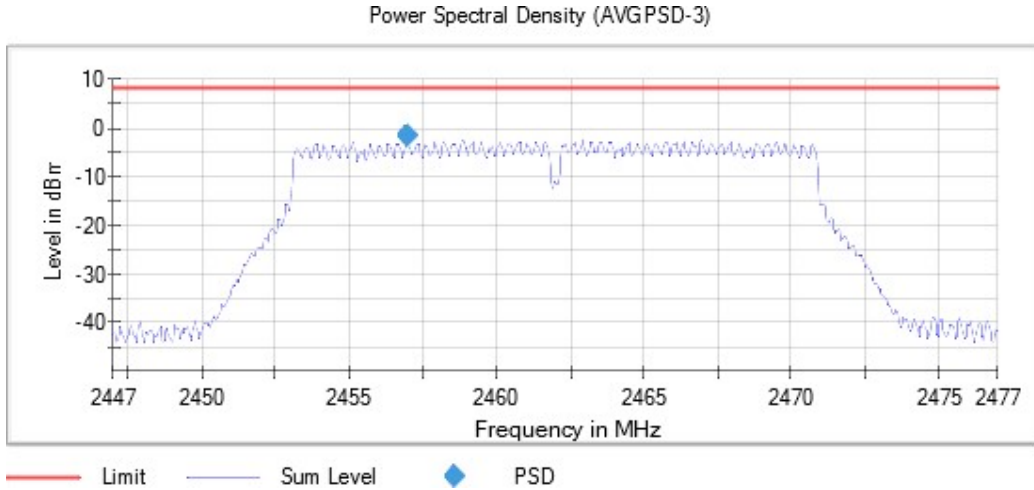
Images:



13:03:45 16.04.2024

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



13:30:34 16.04.2024

RSS-247 5.4 (d) / FCC 15.247 (b) (1) [AVCP] Maximum Average Conducted output Power

Limits

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

The e.i.r.p. shall not exceed 4 W (36 dBm) (RSS-247).

Results

Maximum declared antenna gain: 3.15 dBi

Modulation: 802.11b (DSSS 5.5 Mbit/s)

MIMO Mode: SISO

Equipment	BW (MHz)	Freq (MHz)	Port	Avg Power (dBm)	E.I.R.P. (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	12.00	15.15
Digital Transmission System (DTS)	20	2437.00000	1	12.26	15.41
Digital Transmission System (DTS)	20	2462.00000	1	12.74	15.89

Verdict

Pass

Attachments

Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

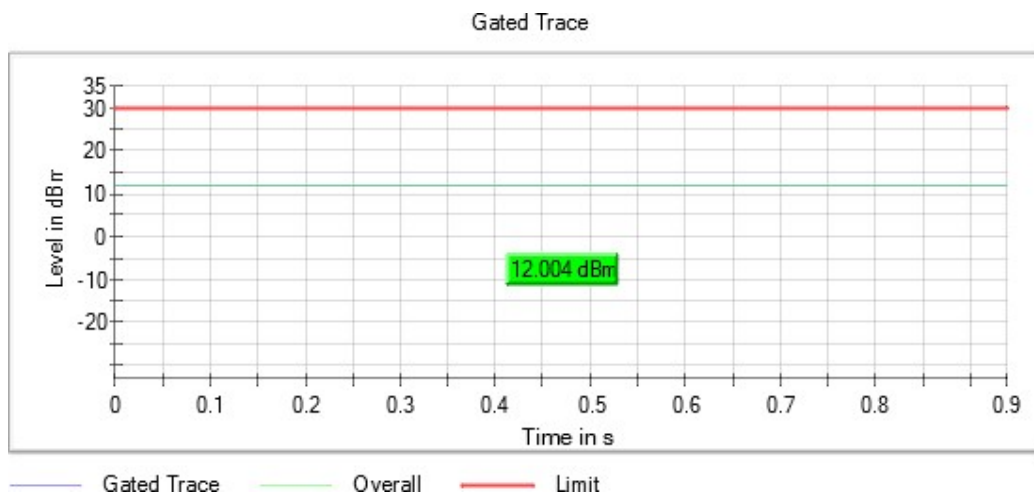
Modulation = 802.11b (DSSS 5.5 Mbit/s)

Frequency MHz = 2412.00000

MIMO Mode = SISO

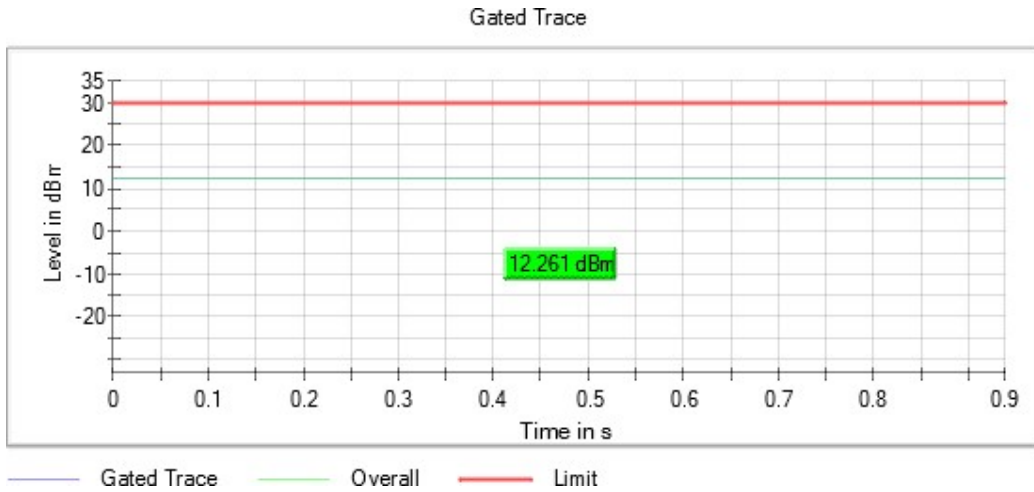
Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: 802.11g (OFDM 9 Mbit/s)

MIMO Mode: SISO

Equipment	BW (MHz)	Freq (MHz)	Port	Avg Power (dBm)	E.I.R.P. (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	11.85	15.00
Digital Transmission System (DTS)	20	2437.00000	1	12.16	15.31
Digital Transmission System (DTS)	20	2462.00000	1	12.67	15.82

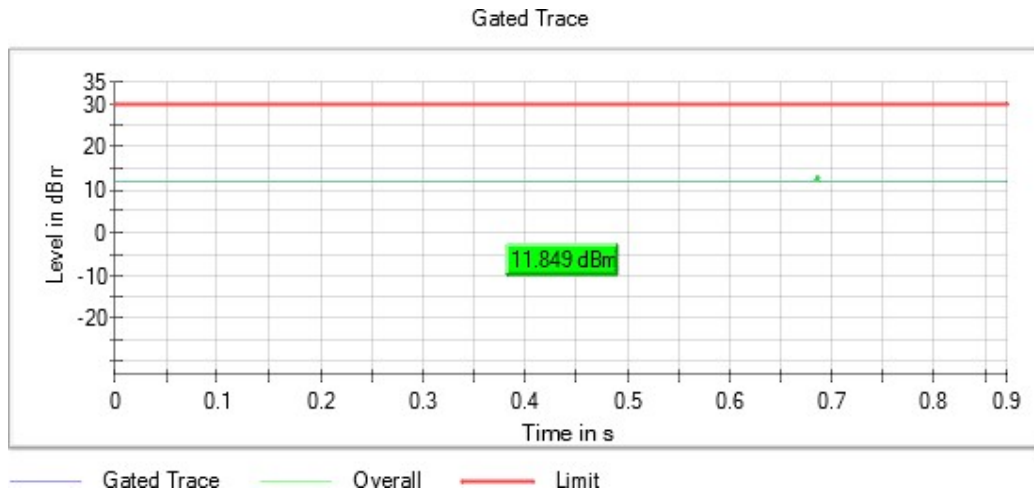
Verdict

Pass

Attachments

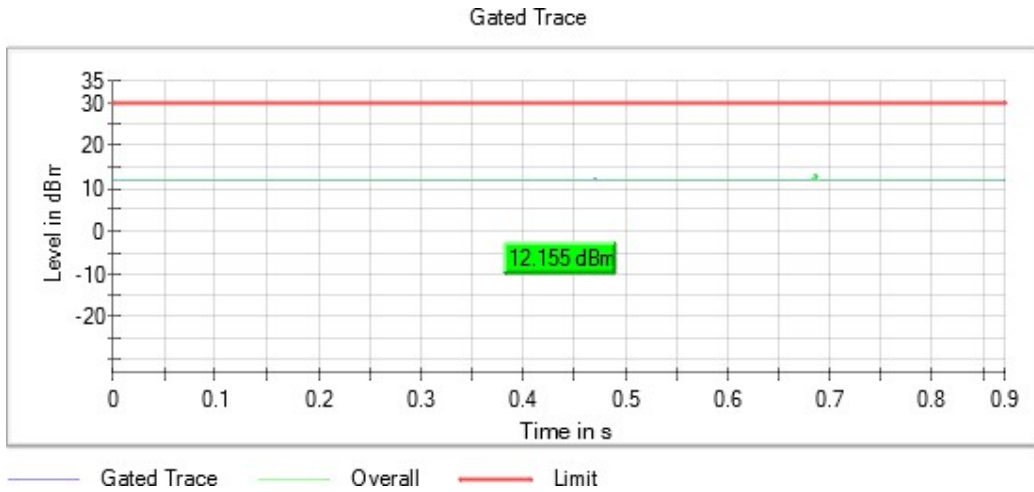
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



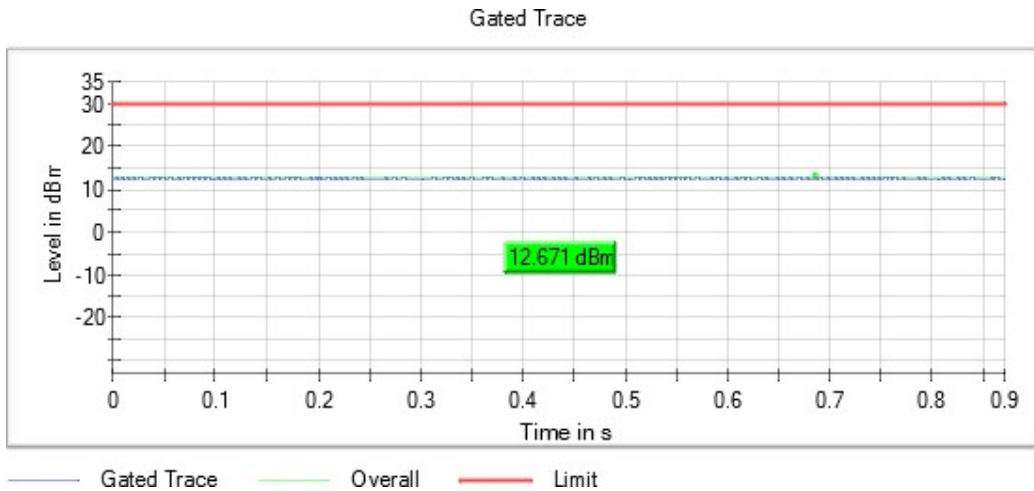
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS2)

MIMO Mode: SISO

Equipment	BW (MHz)	Freq (MHz)	Port	Avg Power (dBm)	E.I.R.P. (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	11.47	14.62
Digital Transmission System (DTS)	20	2437.00000	1	11.78	14.93
Digital Transmission System (DTS)	20	2462.00000	1	12.26	15.41

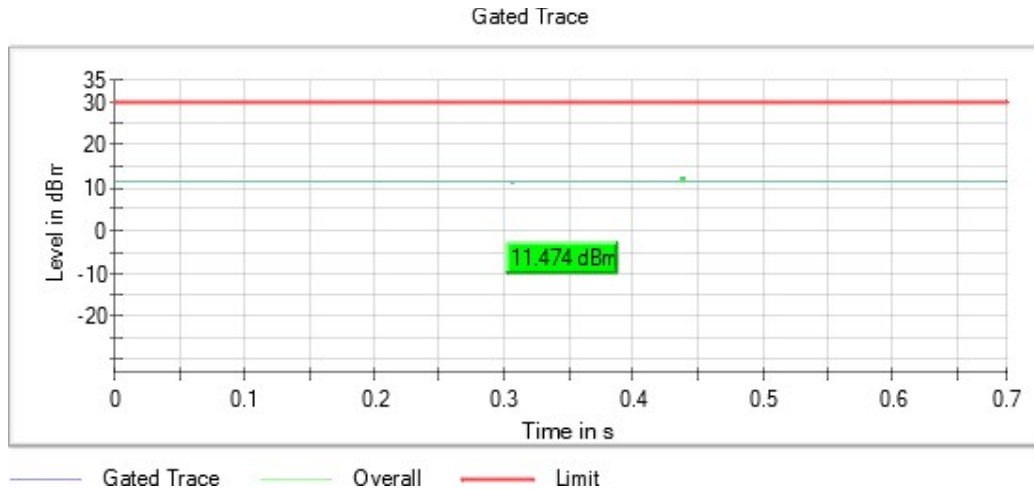
Verdict

Pass

Attachments

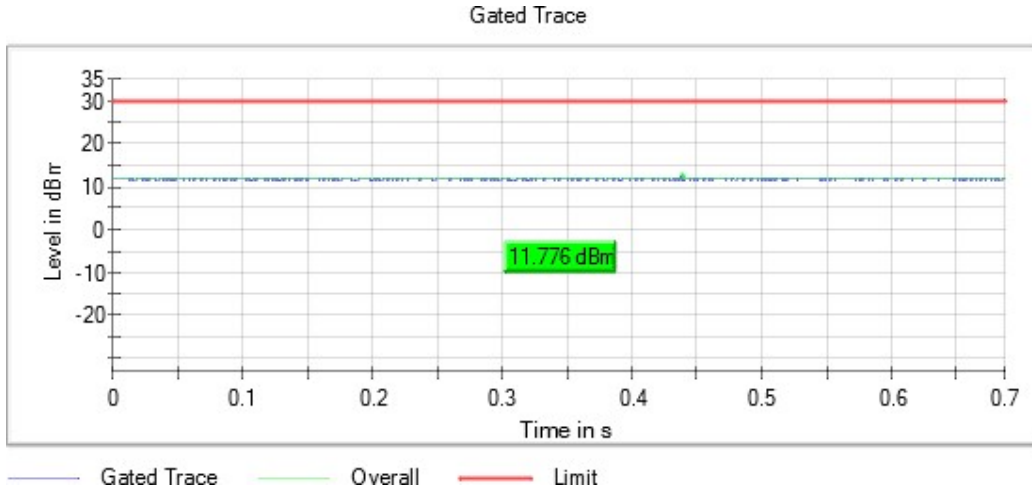
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



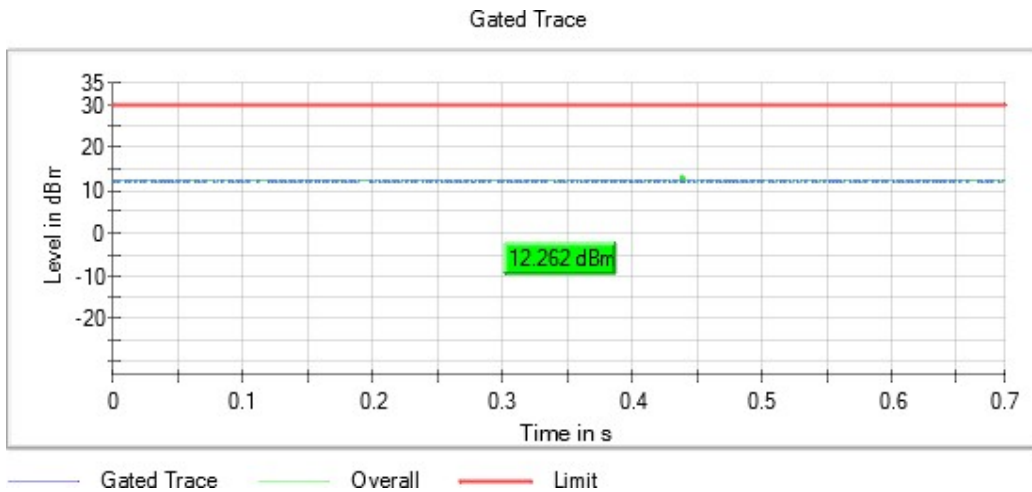
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
 Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2462.00000
 MIMO Mode = SISO Active Port = 1

Images:



Tables:

Spectrum Analyzer Parameters

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 μ s	1.000 μ s

RSS-247 5.5 / FCC 15.247 (d) [Bandedge] 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.

Modulation: 802.11b (DSSS 5.5 Mbit/s)

MIMO Mode: SISO

Results

Freq (MHz)	Lvl (dBm)
2398.475000	-39.9
2398.525000	-40.2
2399.475000	-40.3
2398.425000	-40.4
2399.525000	-40.5
2336.475000	-40.7
2336.425000	-40.7
2336.675000	-40.7
2336.725000	-40.9
2338.575000	-41.2
2337.725000	-41.3
2336.275000	-41.3
2338.675000	-41.4
2337.675000	-41.4
2336.325000	-41.4
2486.475000	-53.7
2486.425000	-54.4
2486.525000	-54.6
2483.725000	-54.7
2483.925000	-54.9
2486.925000	-55.2
2486.975000	-55.2
2489.125000	-55.2
2488.925000	-55.4
2492.675000	-55.4
2489.175000	-55.5
2488.975000	-55.5
2486.075000	-55.6
2491.675000	-55.6
2492.725000	-55.6

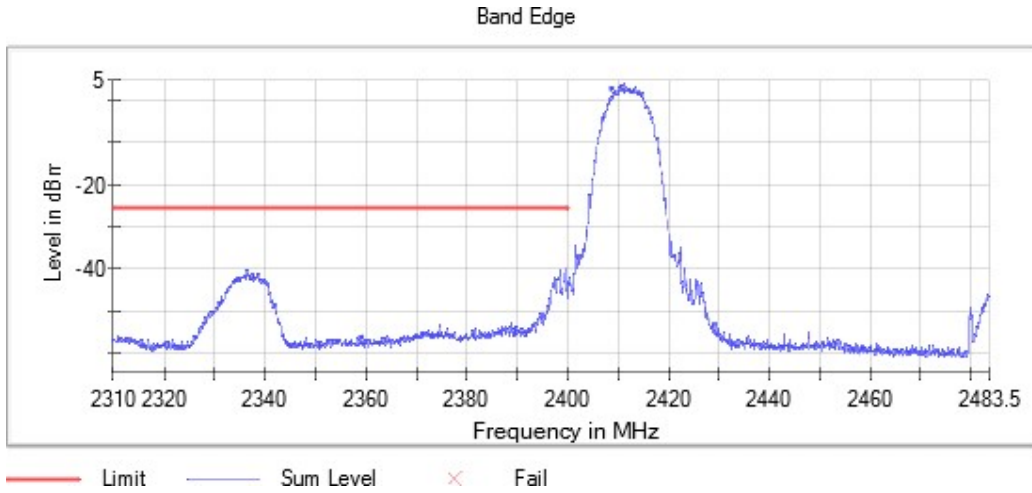
Verdict

Pass

Attachments

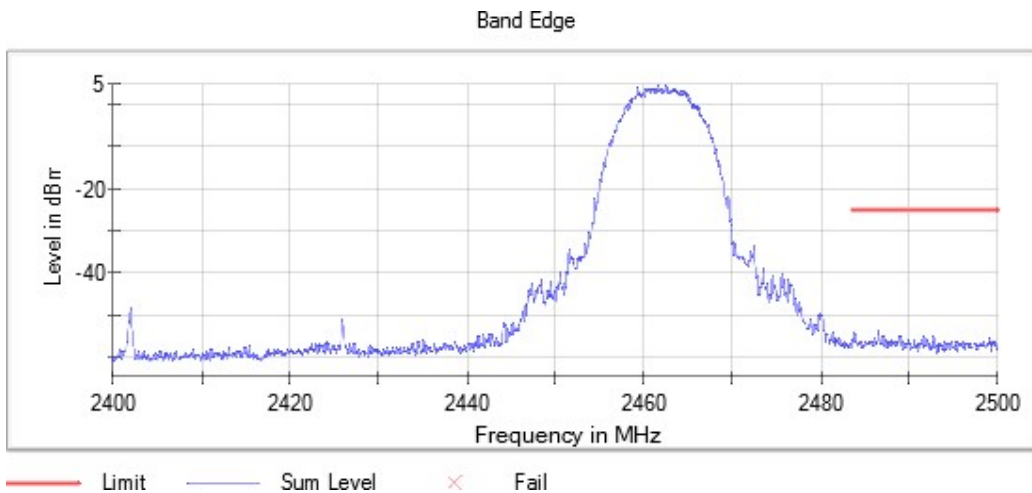
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: 802.11g (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Freq (MHz)	Lvl (dBm)
2396.975000	-37.5
2396.925000	-37.6
2398.225000	-37.6
2399.975000	-37.7
2399.175000	-37.9
2398.475000	-38.0
2399.775000	-38.0
2395.975000	-38.0
2399.825000	-38.0
2398.175000	-38.1
2399.475000	-38.2
2399.125000	-38.3
2395.925000	-38.4
2397.575000	-38.4
2398.425000	-38.4
2483.525000	-44.3
2483.625000	-44.5
2483.575000	-44.5
2483.825000	-44.9
2483.775000	-45.2
2483.875000	-45.4
2484.125000	-45.6
2484.075000	-45.8
2484.025000	-45.9
2484.575000	-46.0
2483.725000	-46.2
2483.975000	-46.2
2484.325000	-46.4
2484.375000	-46.4
2484.225000	-46.4

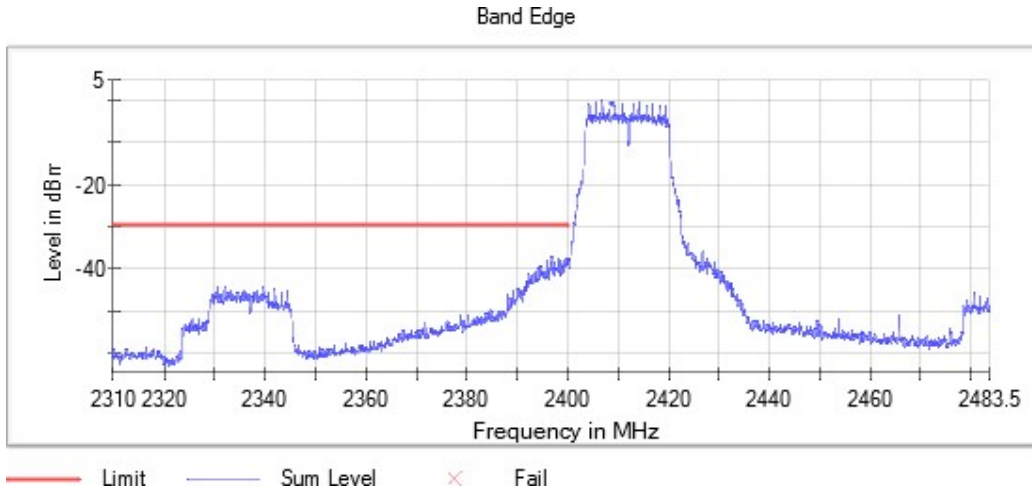
Verdict

Pass

Attachments

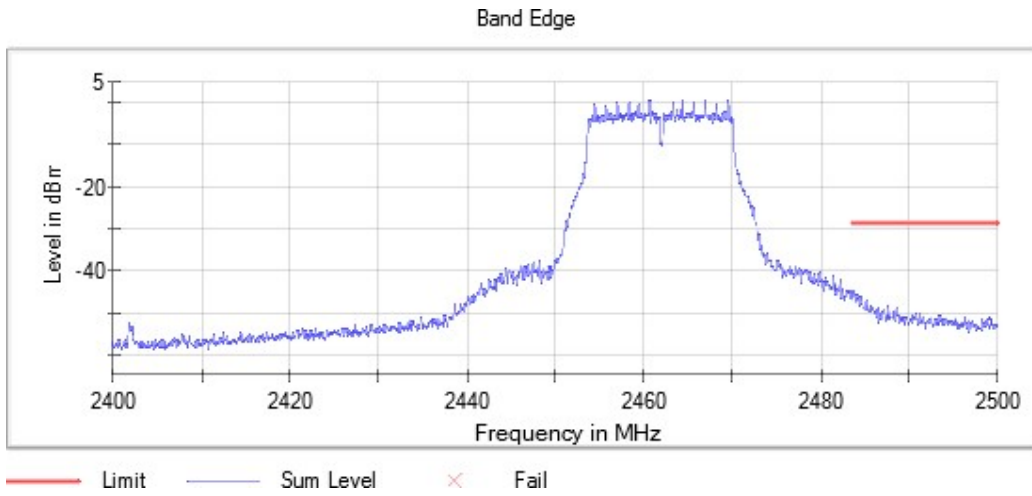
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: 802.11n HT20 (OFDM MCS2)

MIMO Mode: SISO

Results

Freq (MHz)	Lvl (dBm)
2399.775000	-35.1
2399.825000	-35.6
2399.725000	-35.7
2399.125000	-37.3
2399.975000	-37.3
2396.925000	-37.3
2399.175000	-37.3
2396.975000	-37.3
2399.475000	-37.5
2399.425000	-37.6
2398.625000	-37.7
2398.675000	-37.8
2398.575000	-37.9
2398.775000	-38.0
2398.525000	-38.1
2484.475000	-39.4
2483.725000	-40.2
2483.775000	-40.7
2484.425000	-40.8
2484.525000	-41.1
2483.875000	-41.1
2484.825000	-41.3
2484.775000	-41.3
2483.825000	-41.4
2484.875000	-41.9
2484.575000	-42.3
2483.575000	-42.5
2484.175000	-42.5
2483.525000	-42.6
2484.075000	-42.8

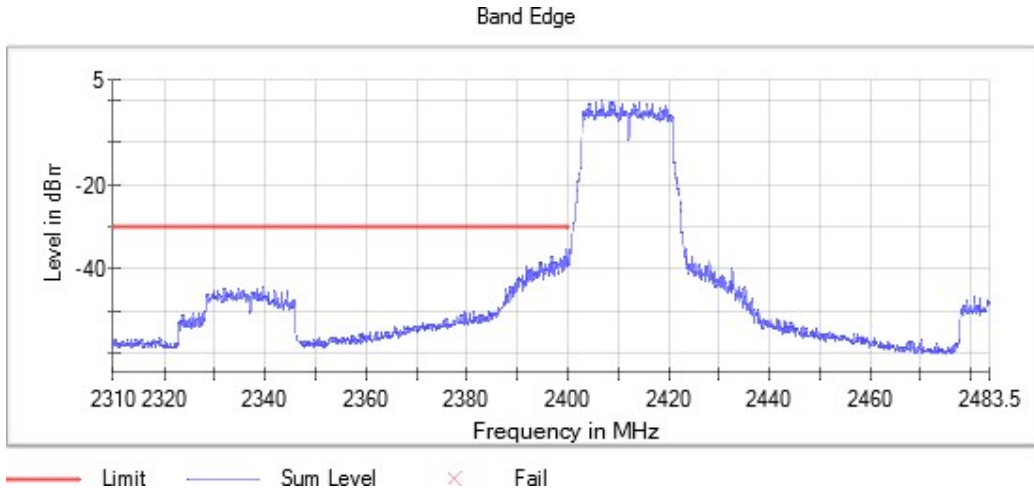
Verdict

Pass

Attachments

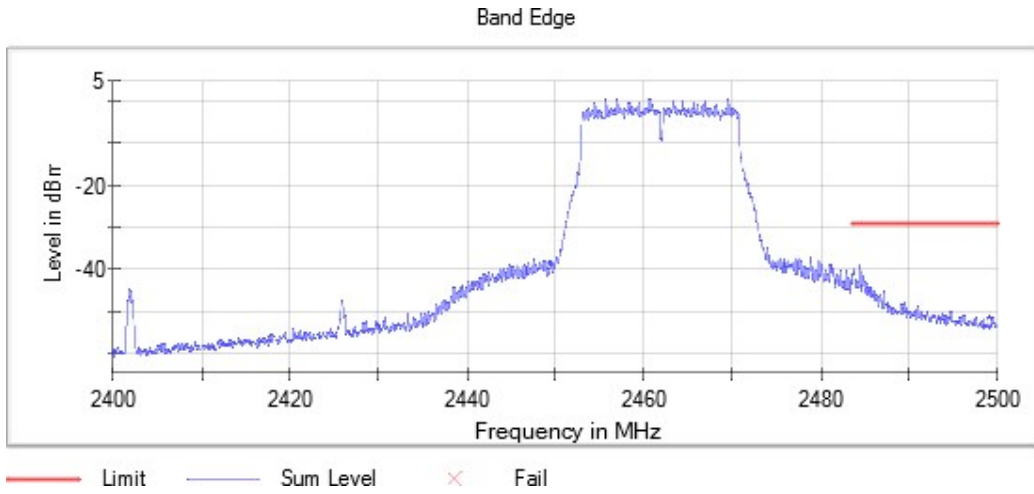
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS2) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



Tables:
 Spectrum Analyzer Parameters 1

Setting	Instrument Value	Target Value
Start Frequency	2.31000 GHz	2.31000 GHz
Stop Frequency	2.40000 GHz	2.40000 GHz
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
Sweeptime	1.800 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	52 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Spectrum Analyzer Parameters 2

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
Sweeptime	1.670 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	71 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

RSS-247 5.5 / FCC 15.247 (d) [RSE] Emission limitations radiated (Transmitter)

Limits

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

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
960 - 25000	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.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required

Results

Modulation: 802.11b (DSSS 5.5 Mbit/s)
 MIMO Mode: SISO

Freq Rng (GHz)	Equipment	Freq (MHz)	Port	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
[0.03, 1]	Digital Transmission System (DTS)	2441.00000	1	129.328	10.70	H	QP
				171.038	12.90	V	QP
				251.596	19.80	V	QP
				328.275	15.70	H	QP
				37.760	16.00	H	QP
				611.321	25.50	V	QP
[1, 18]		2412.00000		2335.500	48.90	V	AVG
				2412.500	101.80	V	AVG
				2488.500	49.50	V	AVG
				9024.500	43.70	H	AVG
		2437.00000		1599.500	37.80	H	AVG
				2361.000	49.70	V	AVG
				2438.500	100.40	V	AVG
				7702.500	39.30	H	AVG
		2462.00000		11311.500	44.00	H	AVG
				2387.500	51.20	V	AVG
				2462.000	100.50	V	AVG
				4929.500	39.60	V	AVG
[18, 26]	2412.00000	19439.625	40.20	H	AVG		
		23847.875	40.90	V	AVG		
	2437.00000	19441.000	39.60	V	AVG		
		23865.750	40.40	H	AVG		
	2462.00000	19438.250	39.90	V	AVG		
		22699.750	39.40	H	AVG		

Verdict

Pass

Frequency range 9KHz – 30 MHz

No radiofrequency signal generated in the device found below 10° sub-harmonic, no further investigation required.

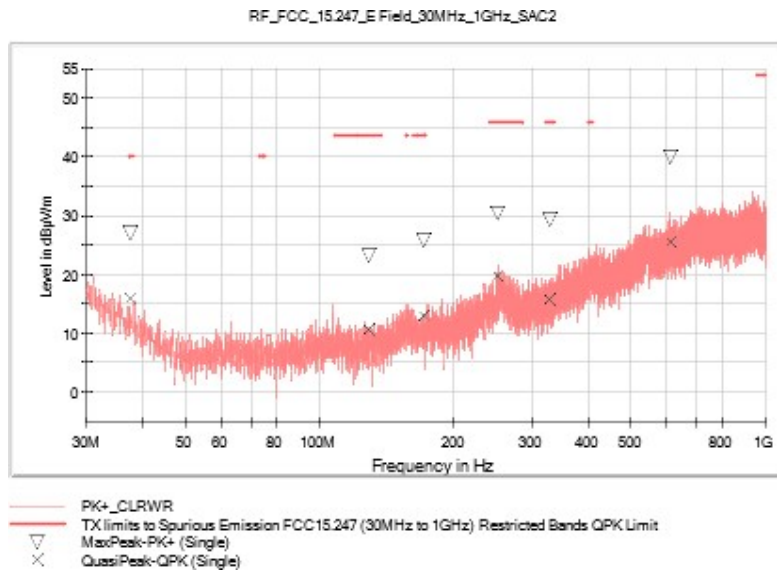
Frequency range 30 MHz – 1000 MHz

The spurious emissions below 1 GHz do not depend on the operating channel and modulation selected in the EUT.

Attachments

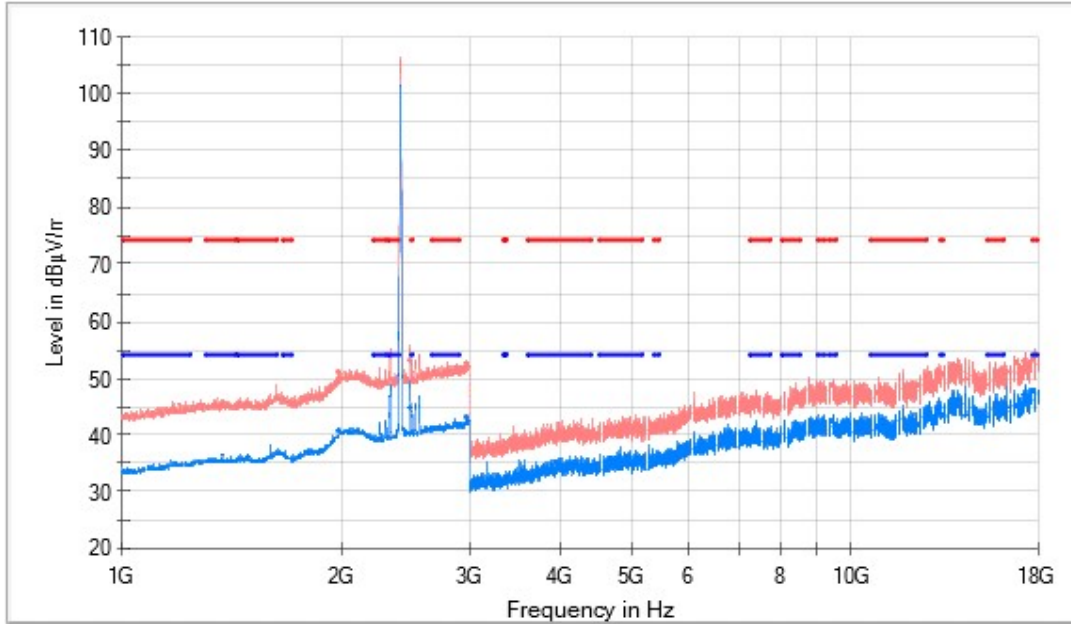
Frequency Range GHz = [0.03, 1] Equipment Type = Digital Transmission System (DTS)
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:

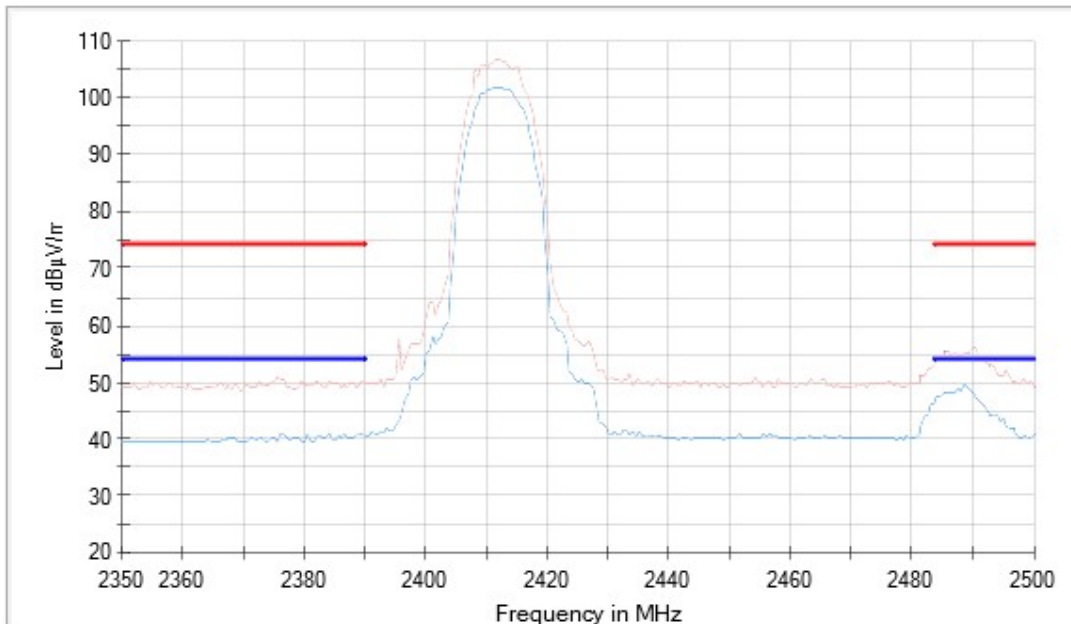


Frequency Range GHz = [1, 18] Equipment Type = Digital Transmission System (DTS)
 Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



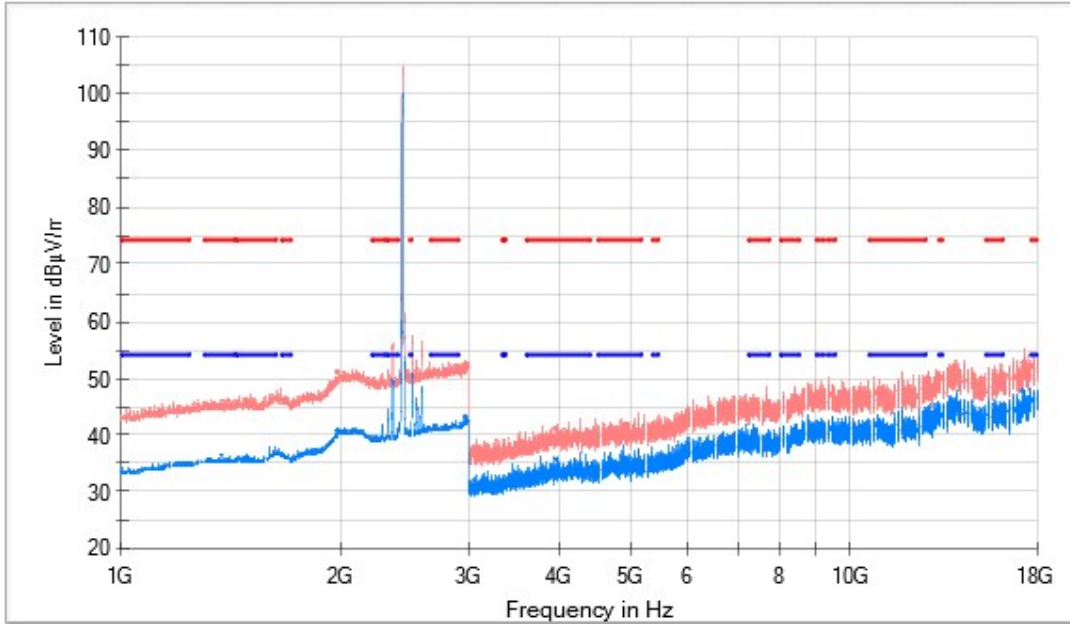
- PK+_MAXH
- TXlimits to Spurious Emission FCC15.247(1-26G) Restricted Bands AVG Limit
- TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit
- AVG_MAXH



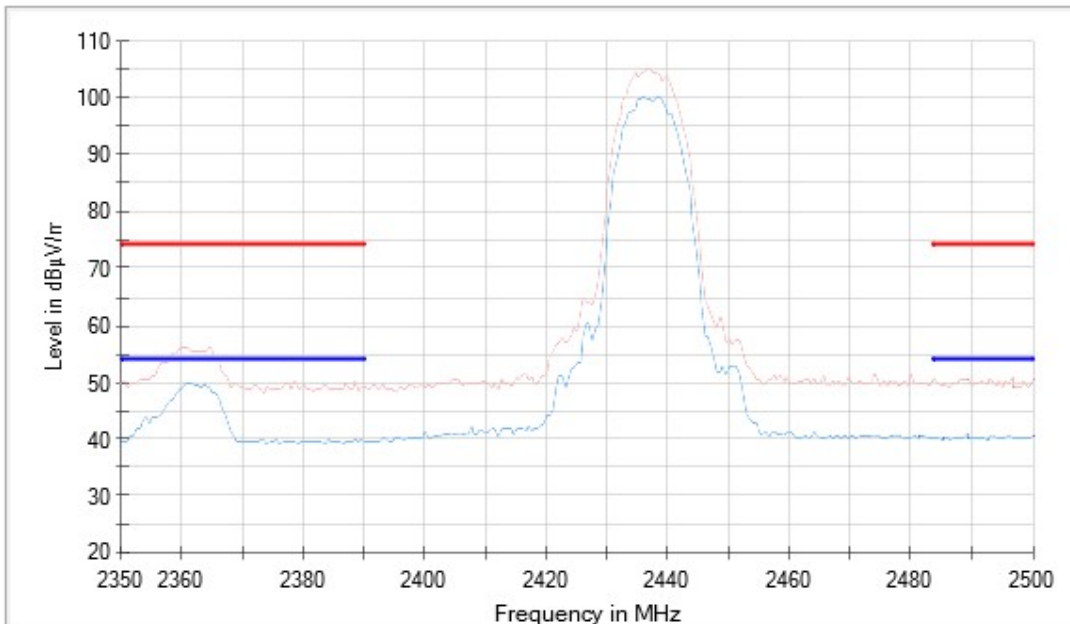
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- TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

Frequency Range GHz = [1, 18] Equipment Type = Digital Transmission System (DTS)
 Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



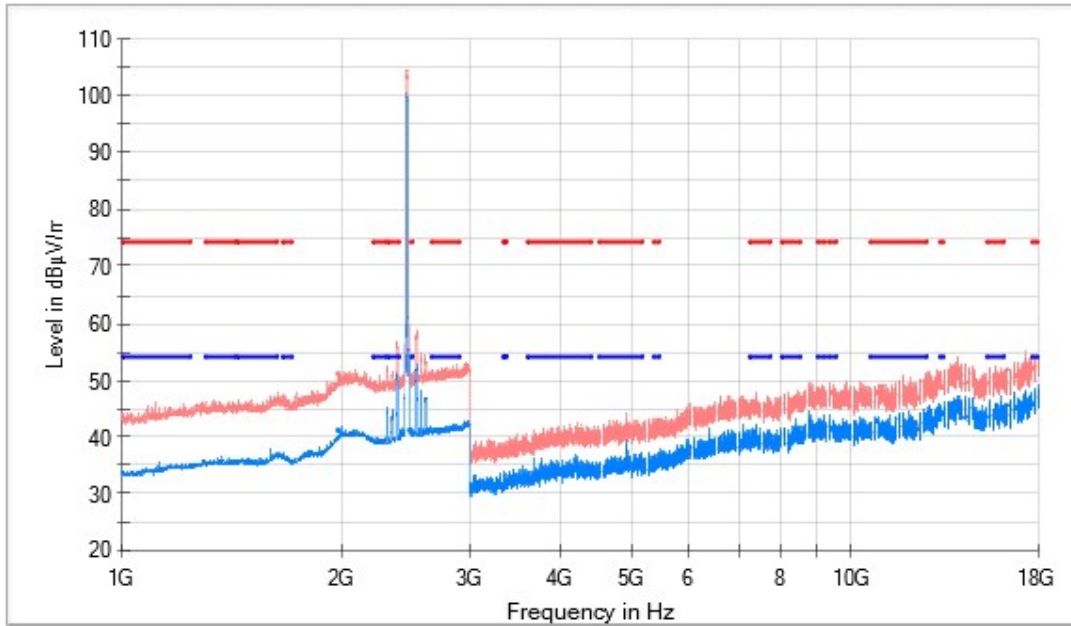
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- AVG_MAXH



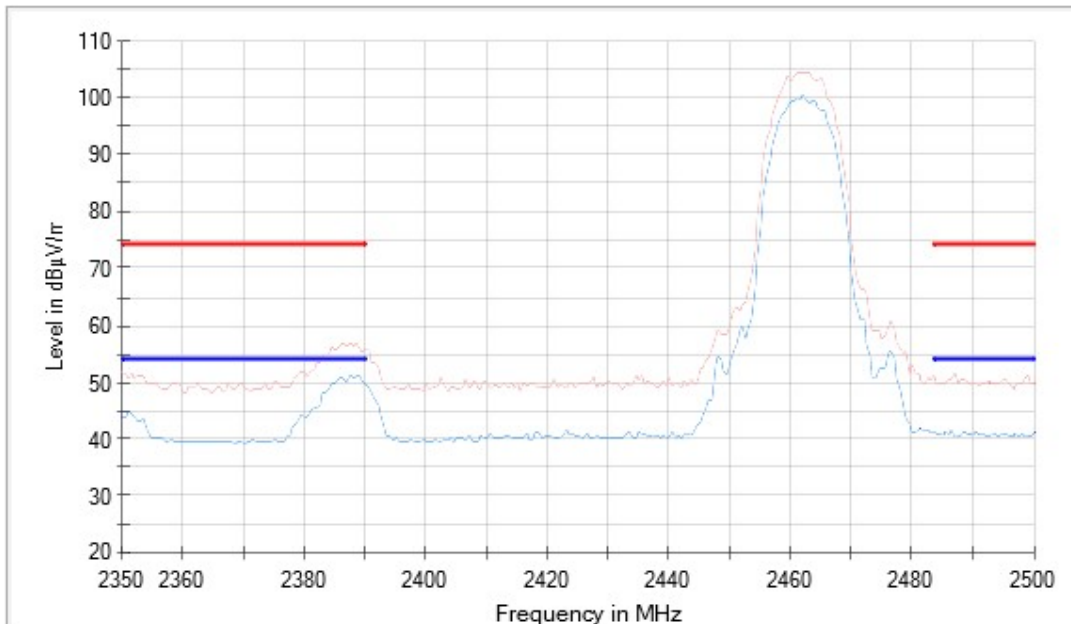
- AVG_MAXH
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- TXlimits to Spurious Emission FCC15.247 Restricted Bands PK Limit

Frequency Range GHz = [1, 18] Equipment Type = Digital Transmission System (DTS)
 Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2462.00000
 MIMO Mode = SISO Active Port = 1

Images:



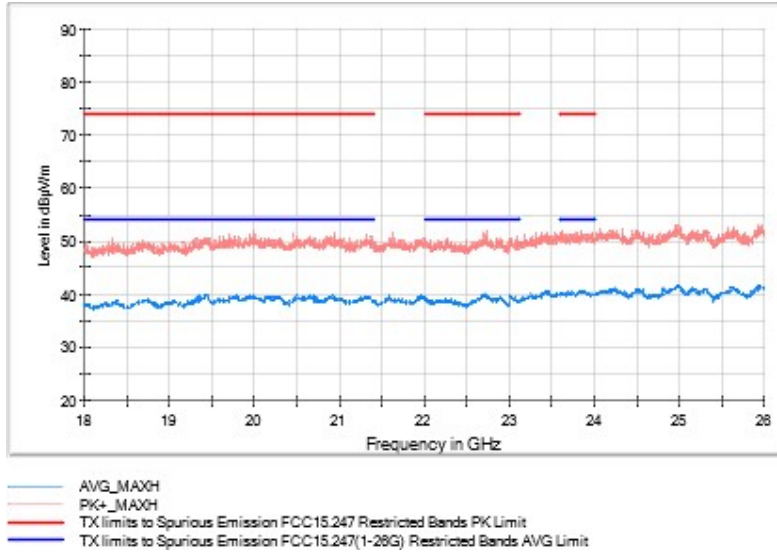
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- AVG_MAXH



- AVG_MAXH
- PK+_MAXH
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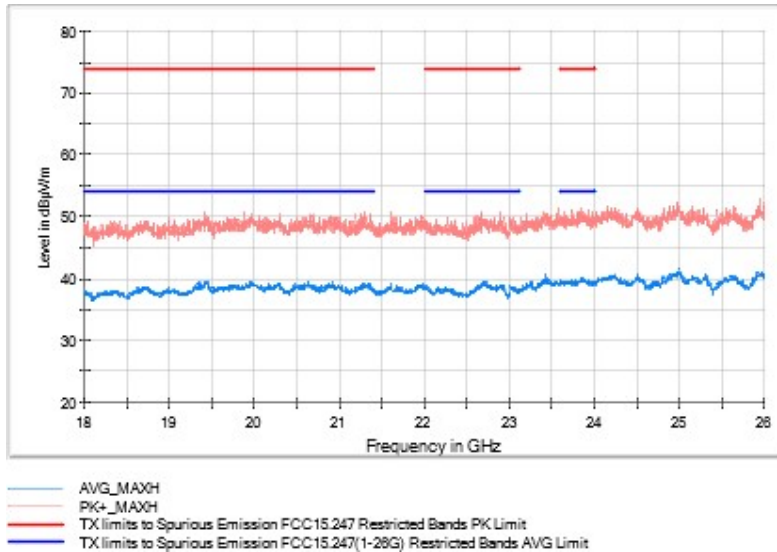
Frequency Range GHz = [18, 26] Equipment Type = Digital Transmission System (DTS)
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

Images:



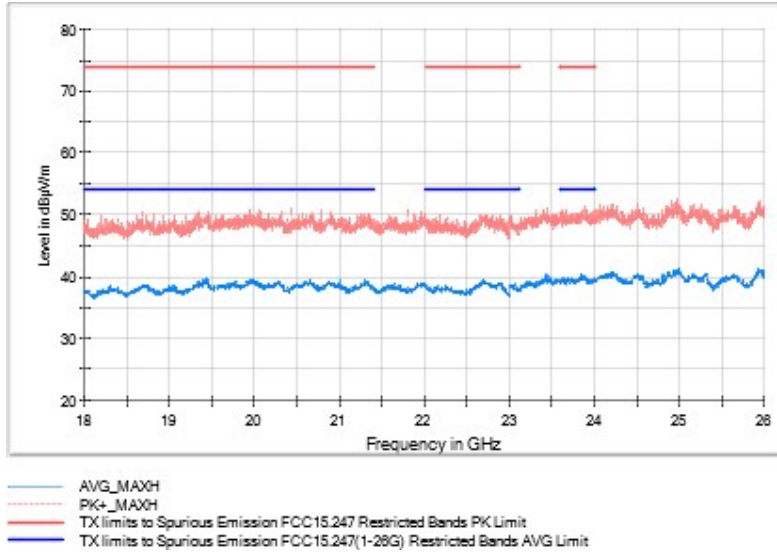
Frequency Range GHz = [18, 26] Equipment Type = Digital Transmission System (DTS)
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

Images:



Frequency Range GHz = [18, 26] Equipment Type = Digital Transmission System (DTS)
Modulation = 802.11b (DSSS 5.5 Mbit/s) Frequency MHz = 2462.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: 802.11g (OFDM 9 Mbit/s)

MIMO Mode: SISO

Results

Freq Rng (GHz)	Equipment	Freq (MHz)	Port	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
[1, 18]	Digital Transmission System (DTS)	2412.00000	1	2408.500	96.60*	V	AVG
				4823.500	37.50	V	AVG
				8305.500	40.70	V	AVG
				2490.000	55.98	V	PK
		2437.00000		15477.500	44.90	H	AVG
				2435.000	95.20*	V	AVG
				4876.000	38.50	V	AVG
				2364.500	56.29	V	PK
		2462.00000		15669.000	43.50	V	AVG
				1600.000	38.30	H	AVG
				2466.500	94.60*	V	AVG
				4921.500	39.00	V	AVG
[18, 26]		2412.00000	9056.500	40.80	H	AVG	
			2387.000	56.74	V	PK	
		2437.00000	19893.500	39.90	H	AVG	
			23906.000	40.70	V	AVG	
		2462.00000	19570.500	38.20	V	AVG	
			19964.000	39.60	V	AVG	
			22706.500	37.40	V	AVG	
			20036.500	38.10	H	AVG	
		23846.000	36.90	H	AVG		

*Wi-Fi Fundamental

Low Range (0.03-1) is already tested for b mode (20 MHz) as it is only tested one time per Bandwidth.

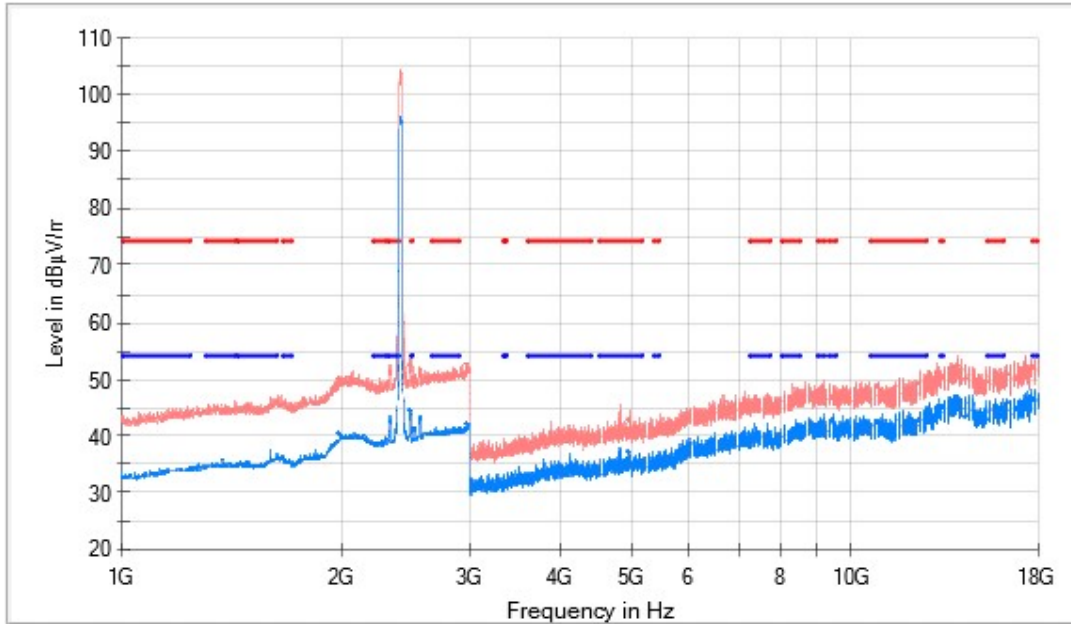
Verdict

Pass

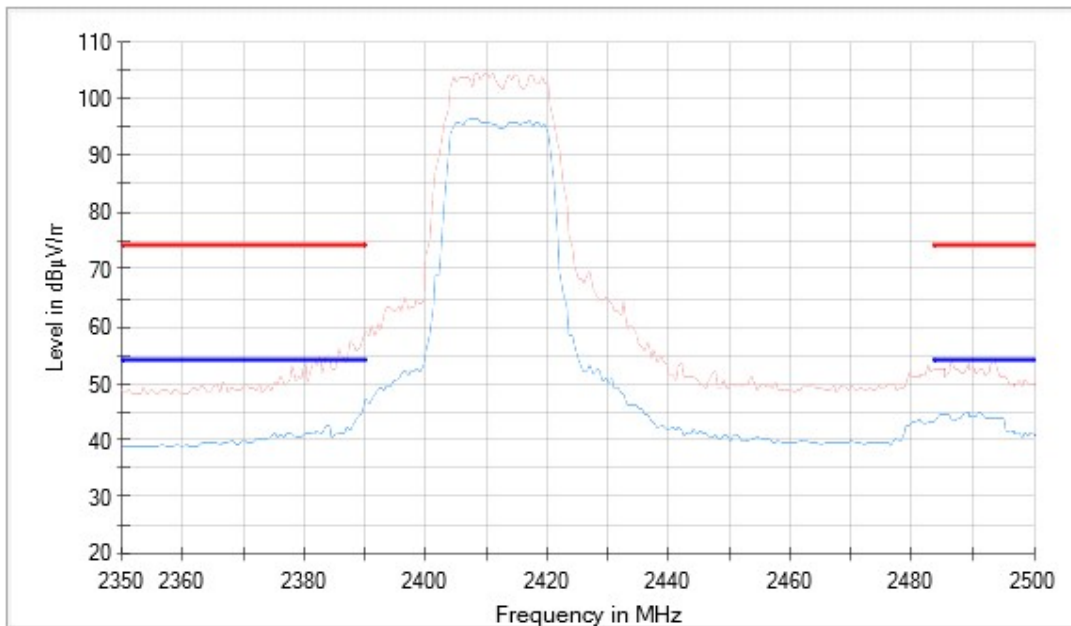
Attachments

Frequency Range GHz = [1, 18] Equipment Type = Digital Transmission System (DTS)
 Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2412.00000
 MIMO Mode = SISO Active Port = 1

Images:



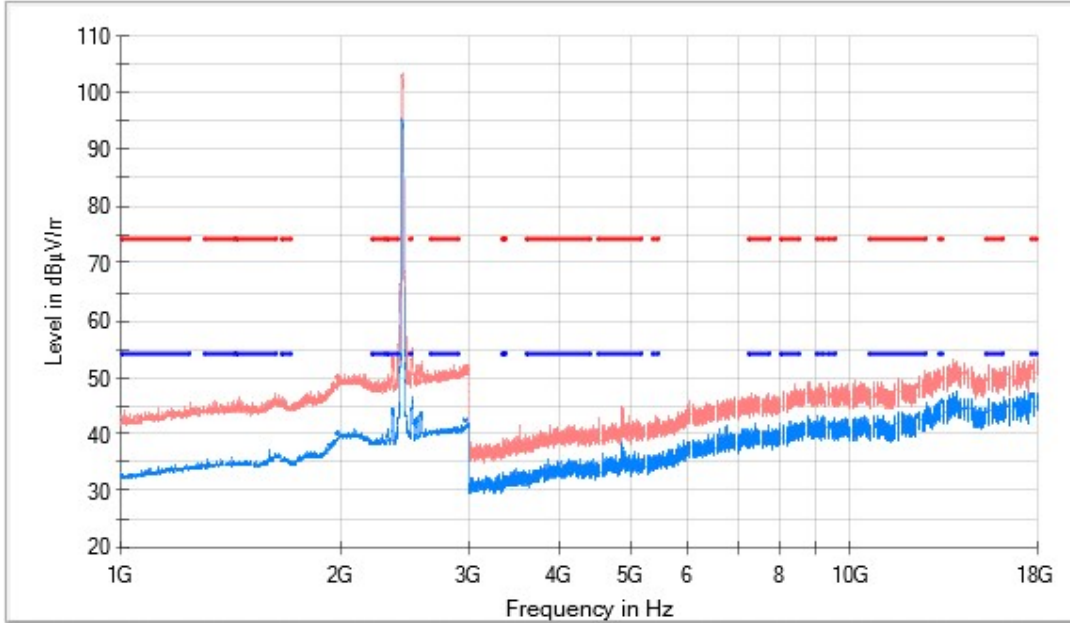
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 — AVG_MAXH



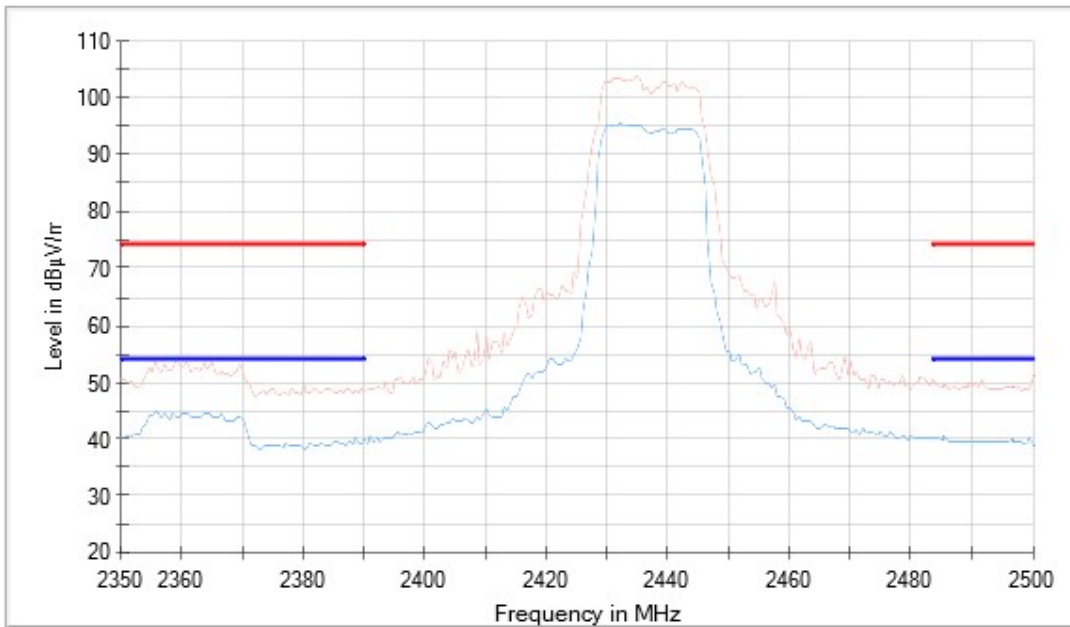
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Frequency Range GHz = [1, 18] Equipment Type = Digital Transmission System (DTS)
 Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2437.00000
 MIMO Mode = SISO Active Port = 1

Images:



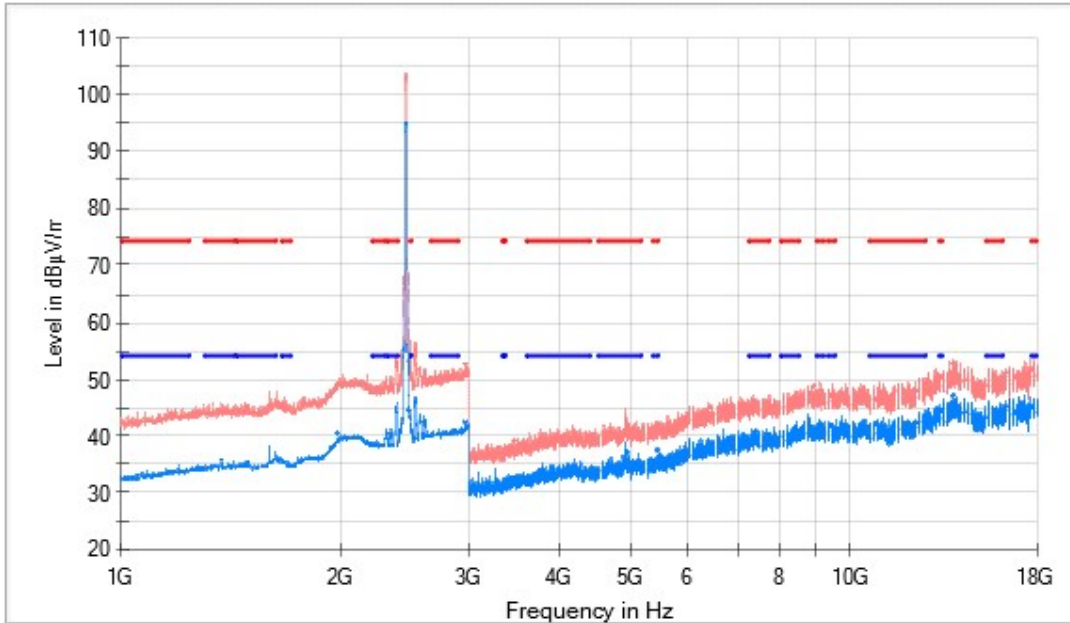
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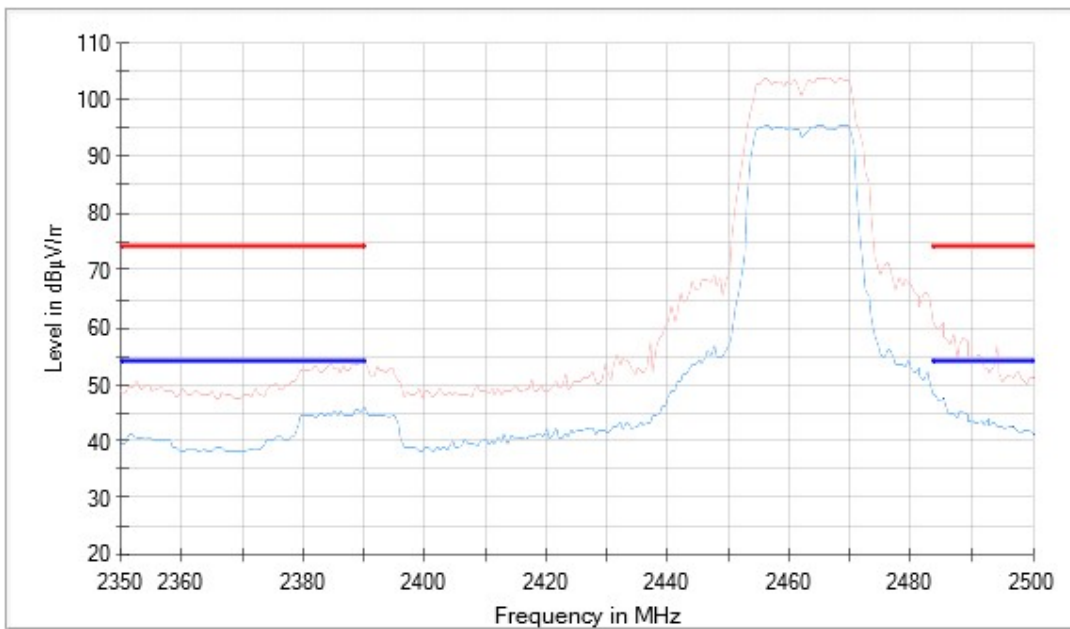
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Frequency Range GHz = [1, 18] Equipment Type = Digital Transmission System (DTS)
 Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2462.00000
 MIMO Mode = SISO Active Port = 1

Images:



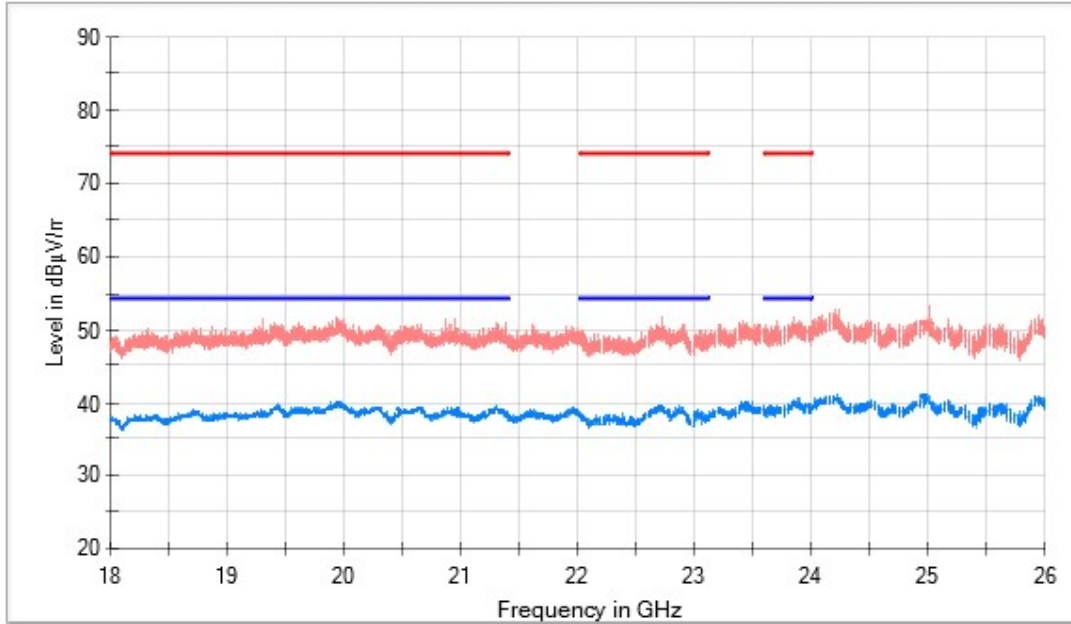
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Frequency Range GHz = [18, 26] Equipment Type = Digital Transmission System (DTS)
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2412.00000
MIMO Mode = SISO Active Port = 1

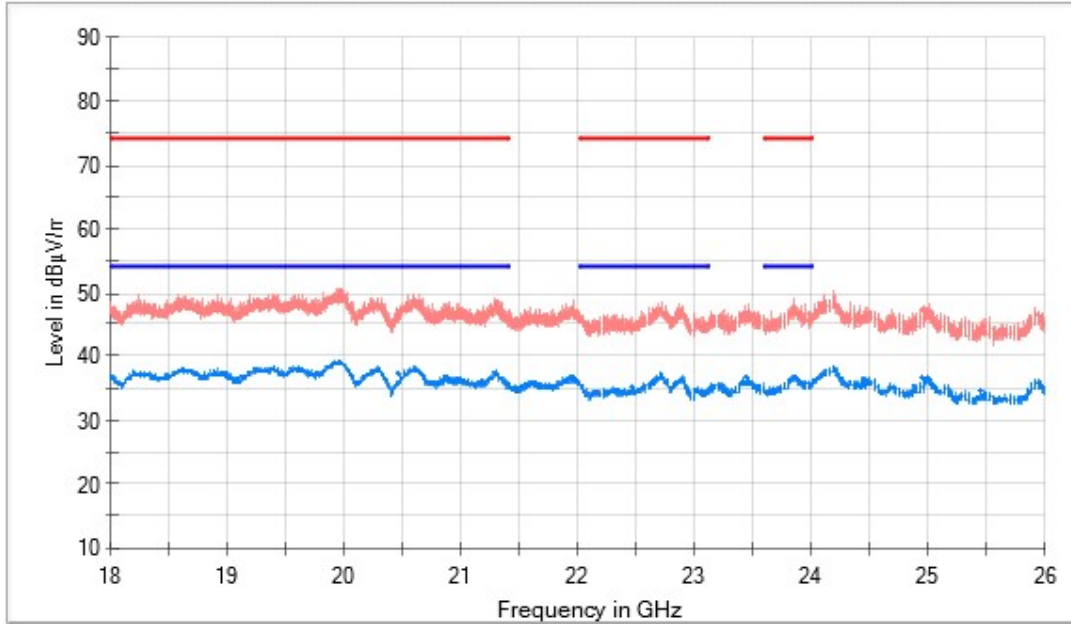
Images:



— AVG_MAXH
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Frequency Range GHz = [18, 26] Equipment Type = Digital Transmission System (DTS)
Modulation = 802.11g (OFDM 9 Mbit/s) Frequency MHz = 2437.00000
MIMO Mode = SISO Active Port = 1

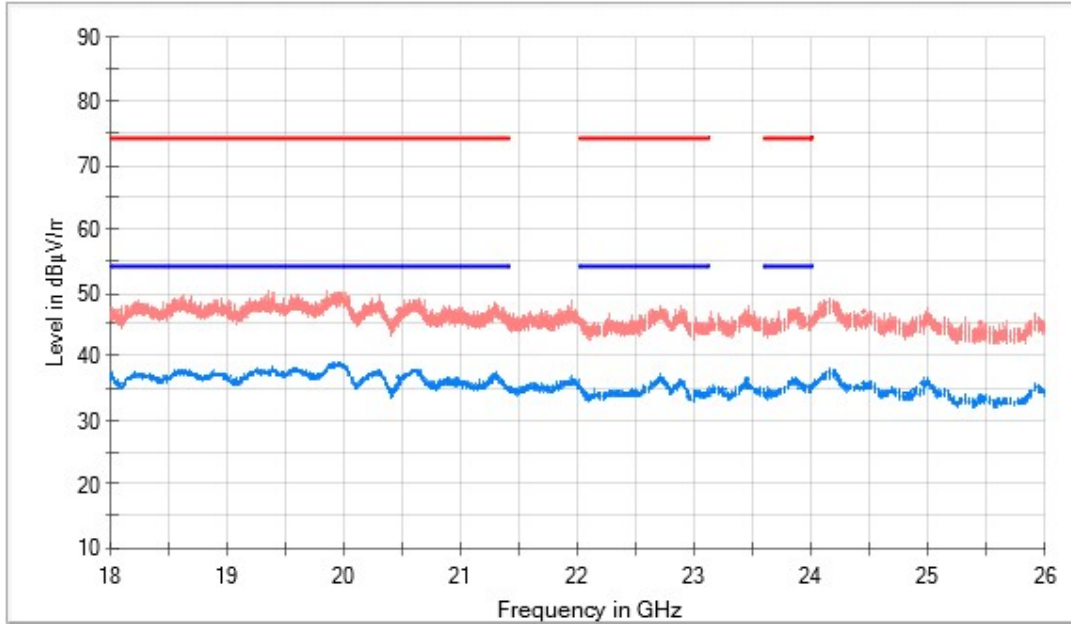
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