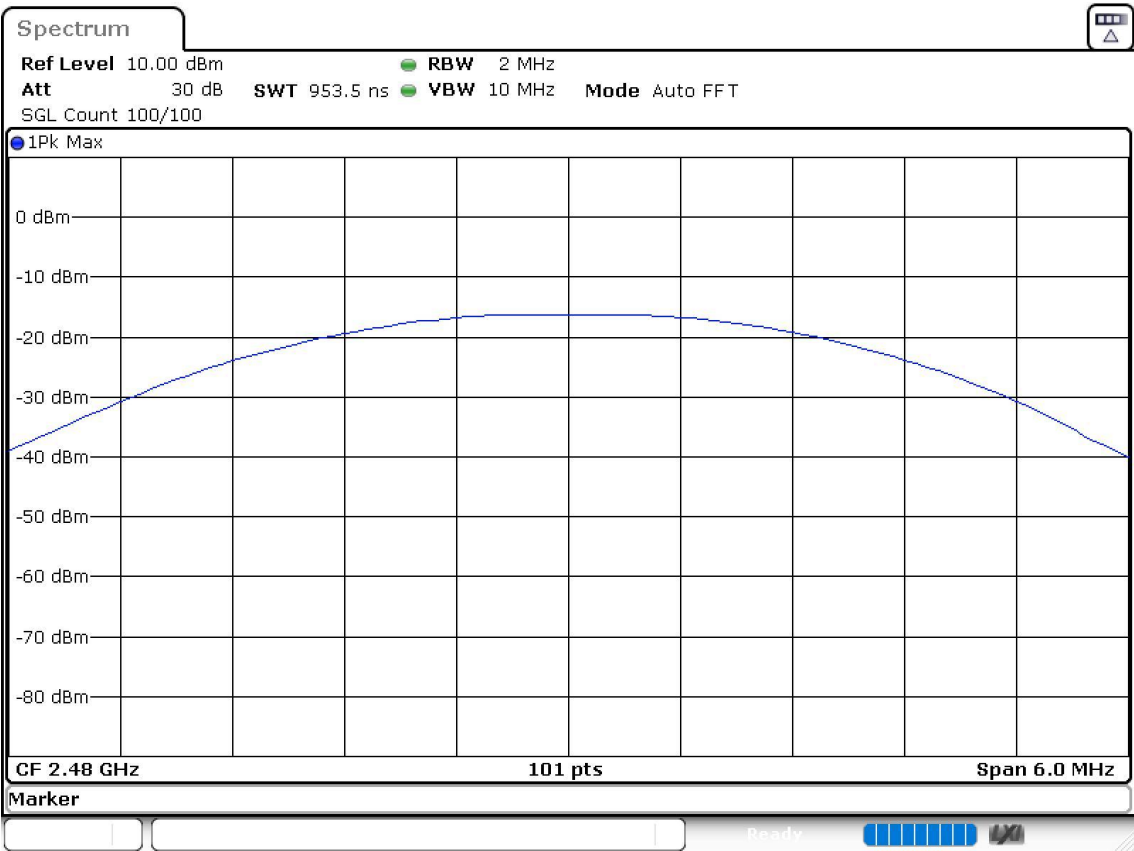
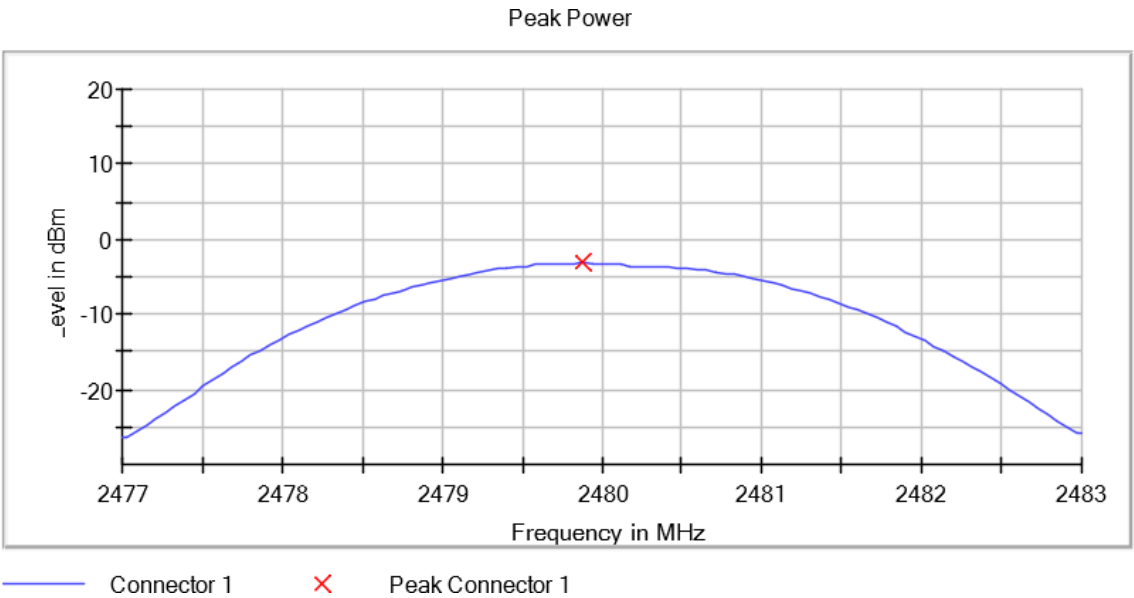


Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Frequency MHz = 2480.00000 Active Port = 1
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Modulation: BT (8DPSK 3-DH5)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Peak Power (dBm)	E.I.R.P. (dBm)
[2400, 2483.5]	Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	1	-2.5990	0.07
		2441.00000		-2.6050	0.06
		2480.00000		-3.3500	-0.68

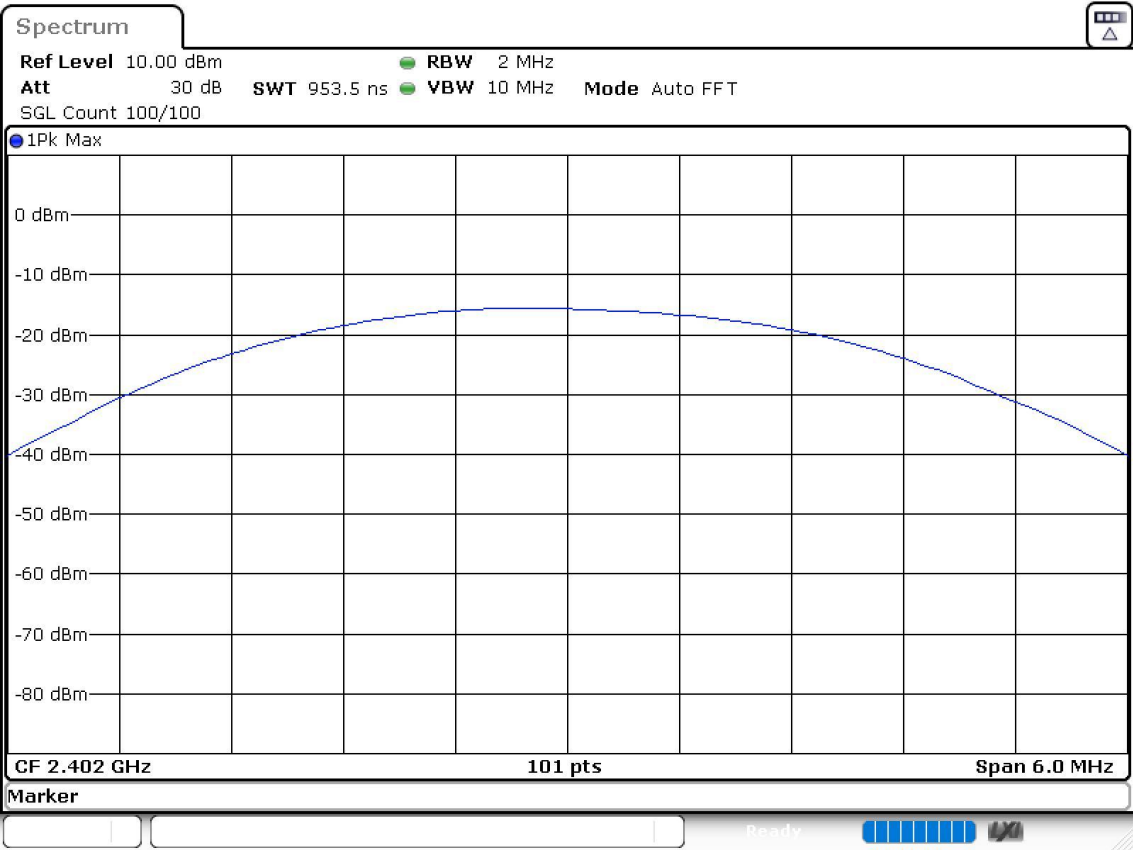
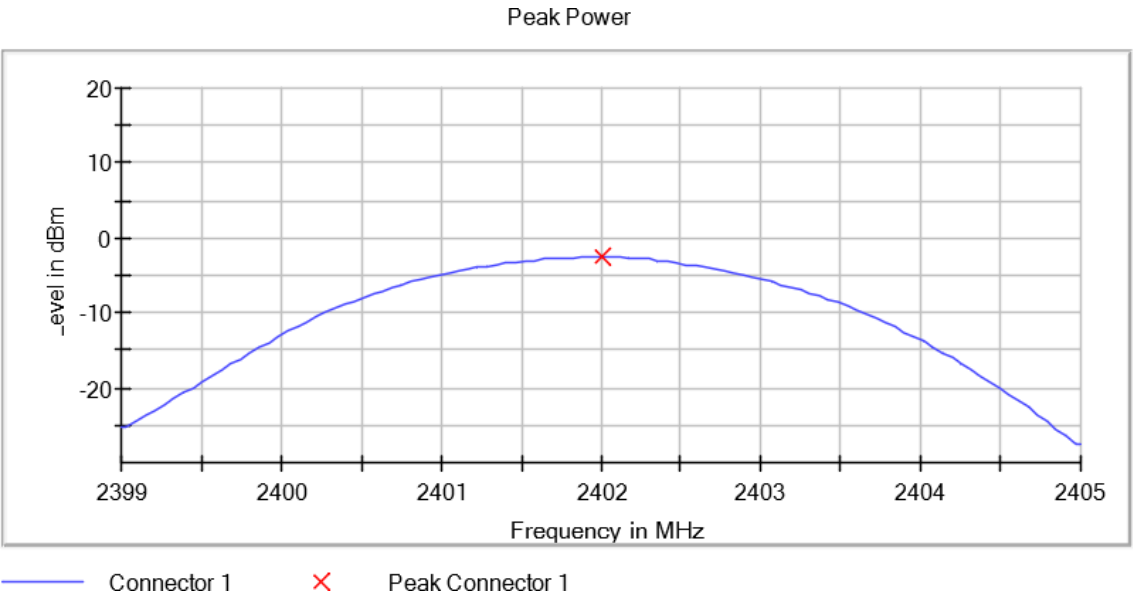
Verdict

Pass

Attachments

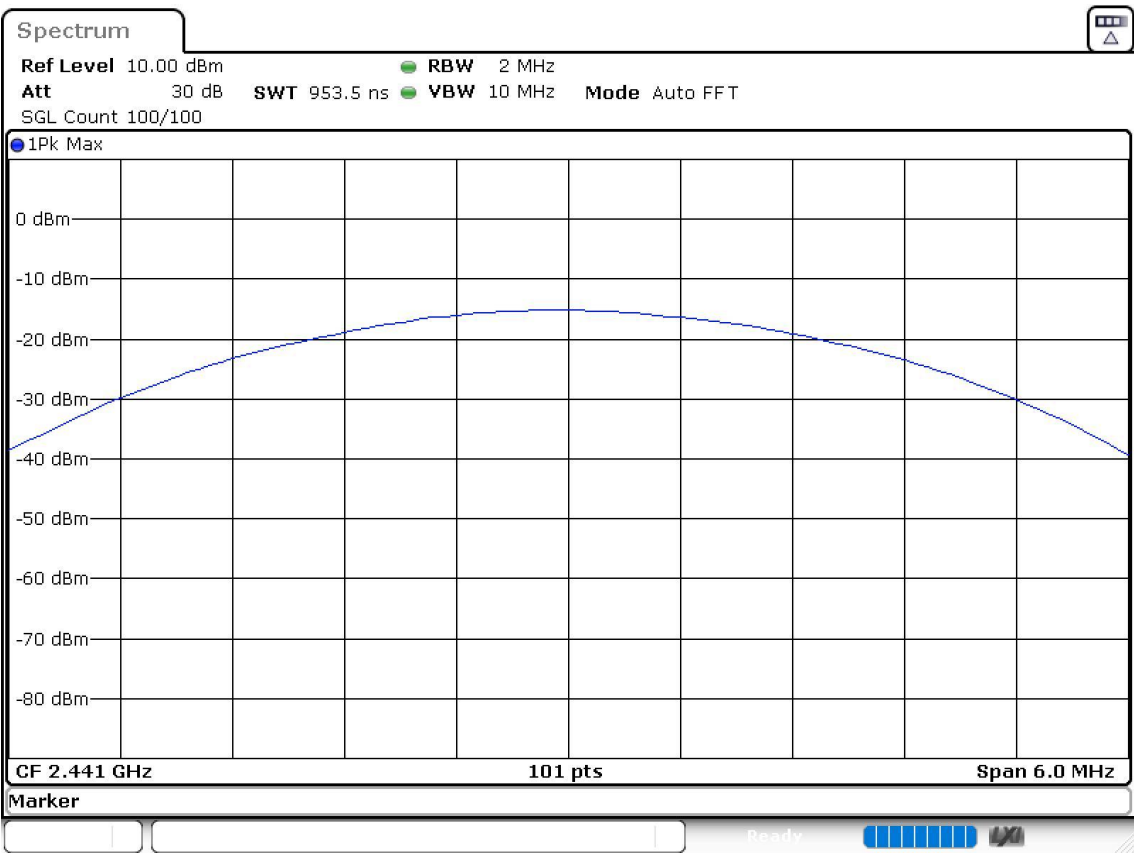
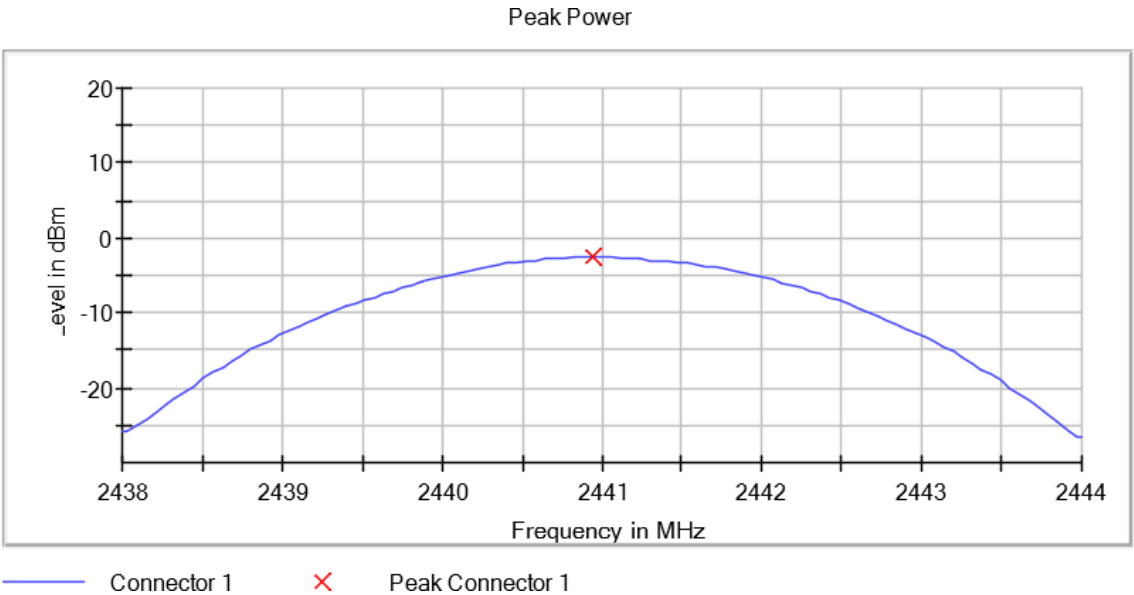
Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Frequency MHz = 2402.00000 Active Port = 1
Modulation = BT (8DPSK 3-DH5)

Images:



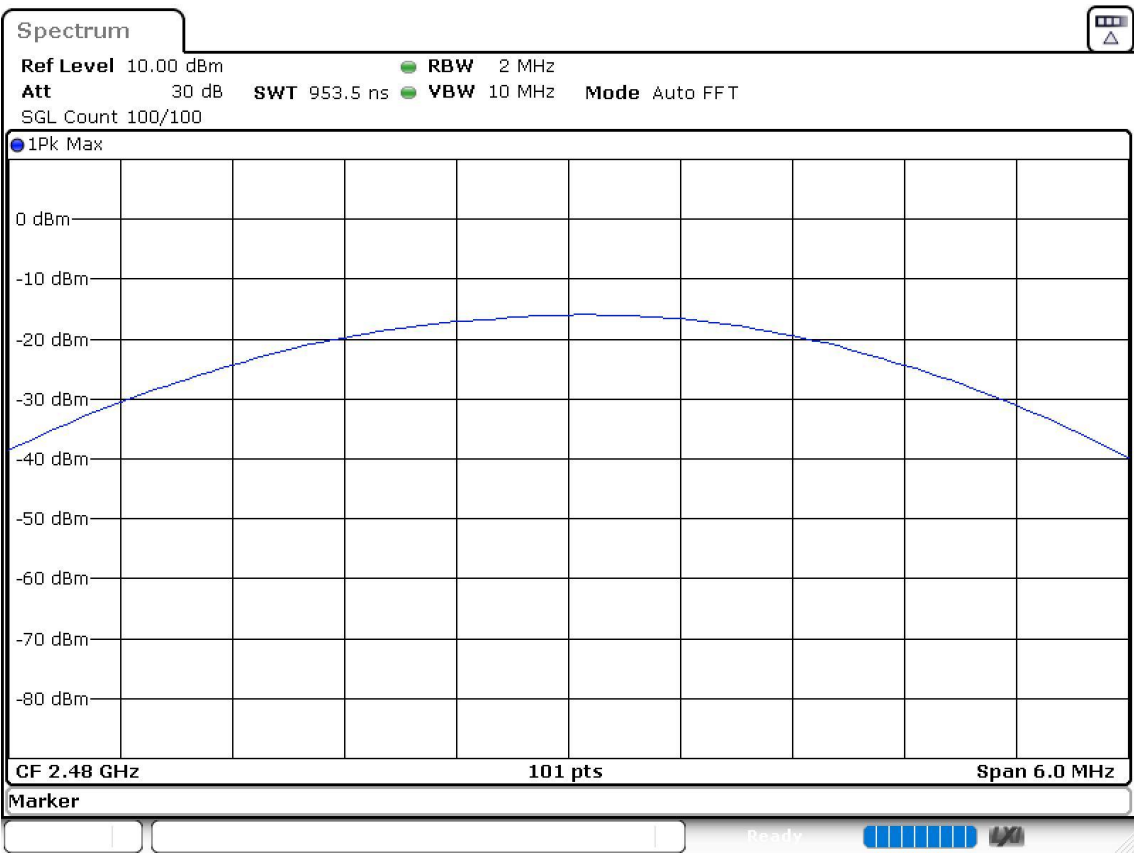
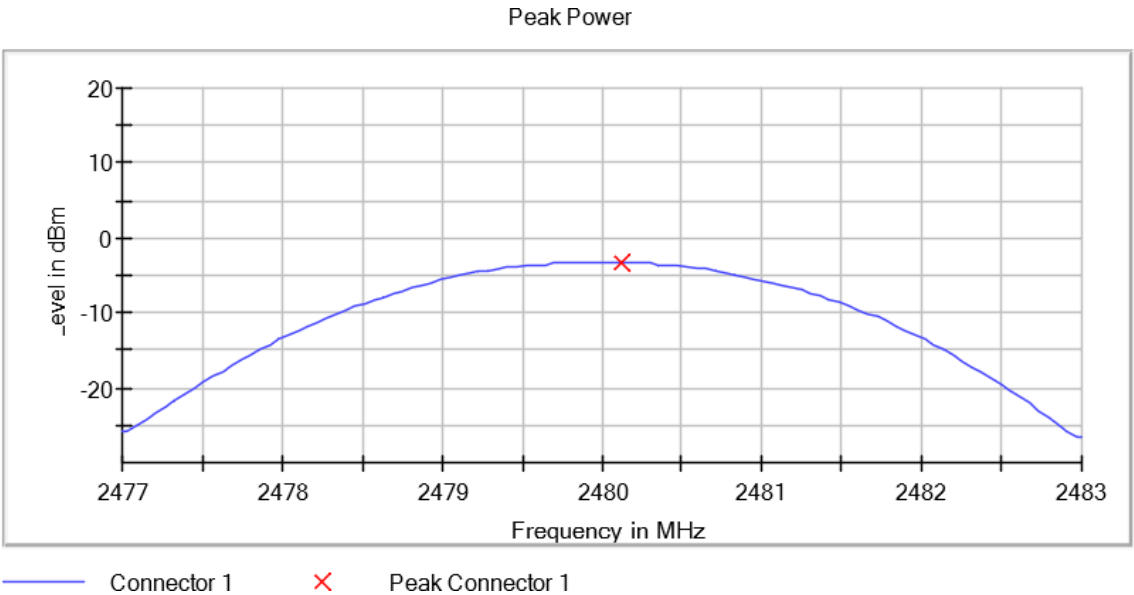
Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Frequency MHz = 2441.00000 Active Port = 1
Modulation = BT (8DPSK 3-DH5)

Images:



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

Images:



RSS-247 6.6 / FCC 15.247 (d) [Bndedge] 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: BT (GFSK 1-DH5)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)
[2400, 2483.5]	Frequency Hopping Spread Spectrum systems (DSS)	Hopping mode	1	-0.368	2486.075000	-51.0
				-0.392	2400.000000	-51.1
				-0.368	2486.025000	-51.3
				-0.392	2359.575000	-52.1
				-0.392	2359.625000	-52.2
				-0.368	2492.325000	-51.6
				-0.368	2492.375000	-51.6
				-0.392	2387.475000	-52.3
				-0.368	2400.000000	-51.7
				-0.392	2311.125000	-52.4
				-0.368	2483.575000	-51.7
				-0.392	2315.225000	-52.4
				-0.392	2362.225000	-52.5
				-0.368	2489.725000	-51.8
				-0.368	2486.125000	-51.9
				-0.392	2342.225000	-52.5
				-0.392	2356.525000	-52.5
				-0.368	2483.525000	-51.9
				-0.368	2489.675000	-52.1
				-0.392	2386.875000	-52.5
				-0.368	2488.925000	-52.1
				-0.392	2328.775000	-52.6
				-0.368	2485.375000	-52.1
				-0.392	2315.275000	-52.6
				-0.368	2493.925000	-52.3
				-0.392	2311.175000	-52.6
				-0.392	2386.925000	-52.6
				-0.368	2489.775000	-52.3

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)	
				-0.368	2483.775000	-52.3	
				-0.392	2340.475000	-52.6	
		2402.00000		-0.722	2355.725000	-51.3	
				-0.722	2355.675000	-51.8	
				-0.722	2313.475000	-52.1	
				-0.722	2355.775000	-52.2	
				-0.722	2313.525000	-52.2	
				-0.722	2375.425000	-52.2	
				-0.722	2312.375000	-52.3	
				-0.722	2312.425000	-52.4	
				-0.722	2375.375000	-52.4	
				-0.722	2316.975000	-52.4	
				-0.722	2382.525000	-52.4	
				-0.722	2317.025000	-52.4	
				-0.722	2357.475000	-52.5	
				-0.722	2374.125000	-52.5	
				-0.722	2313.425000	-52.5	
				2480.00000	-1.065	2486.125000	-51.7
					-1.065	2486.175000	-51.8
					-1.065	2487.225000	-51.9
		-1.065			2486.225000	-52.0	
		-1.065			2486.475000	-52.0	
		-1.065			2487.175000	-52.0	
		-1.065			2483.775000	-52.0	
		-1.065			2484.525000	-52.1	
		-1.065			2483.725000	-52.1	
		-1.065			2485.175000	-52.1	
		-1.065			2486.275000	-52.1	
		-1.065			2486.725000	-52.1	
		-1.065			2485.775000	-52.1	
		-1.065			2495.975000	-52.1	
		-1.065		2486.525000	-52.2		

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5]

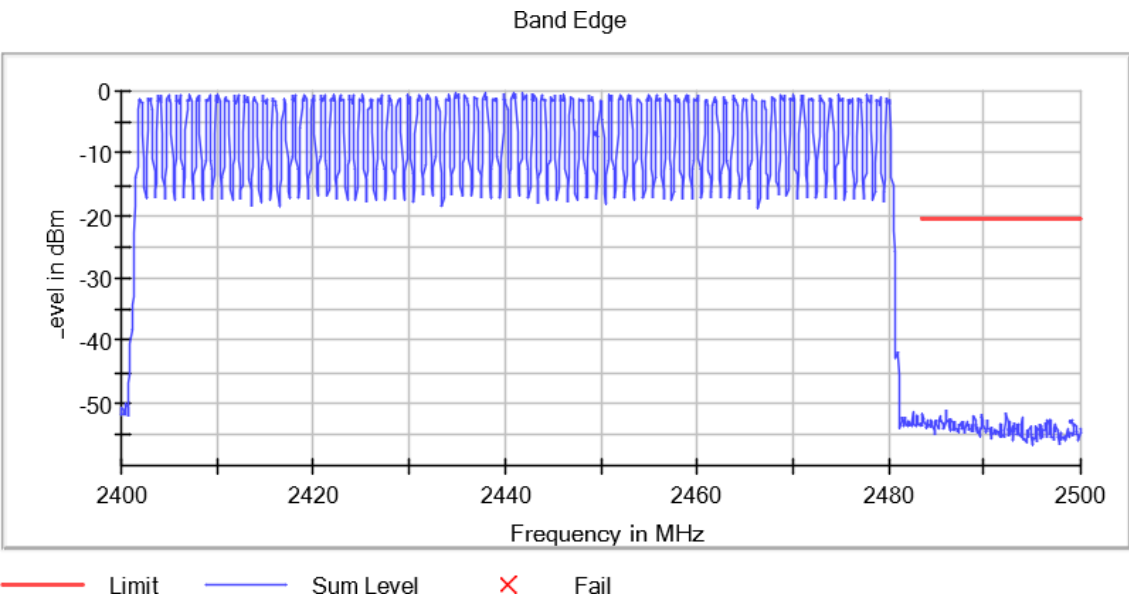
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = Hopping mode

Active Port = 1

Modulation = BT (GFSK 1-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3

Setting	Instrument Value	Target Value
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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400, 2483.5]

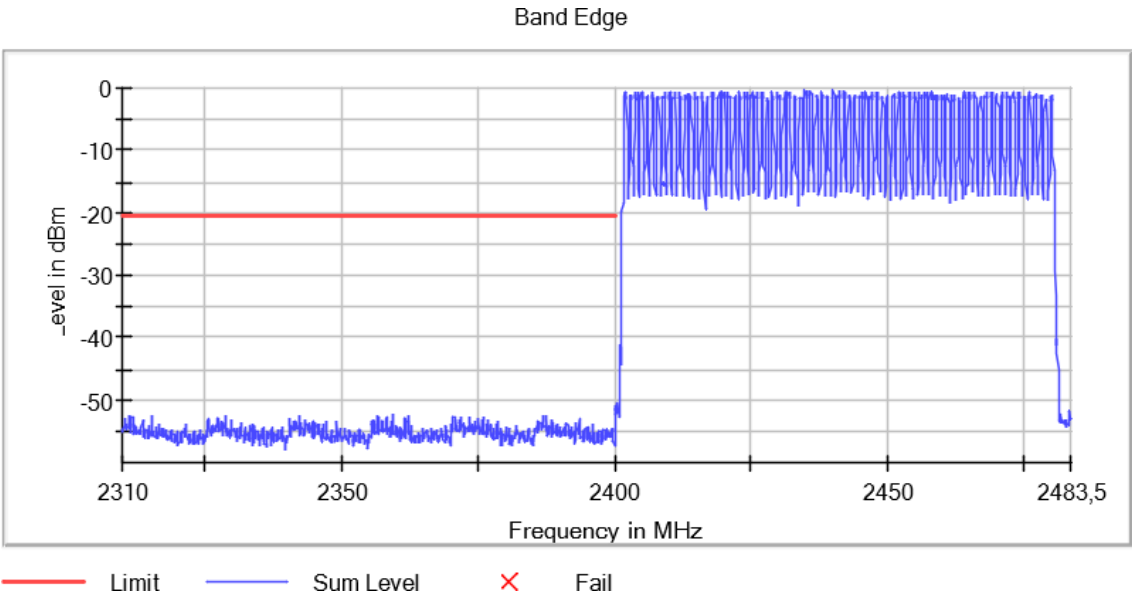
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = Hopping mode

Active Port = 1

Modulation = BT (GFSK 1-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / 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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400,
2483.5]

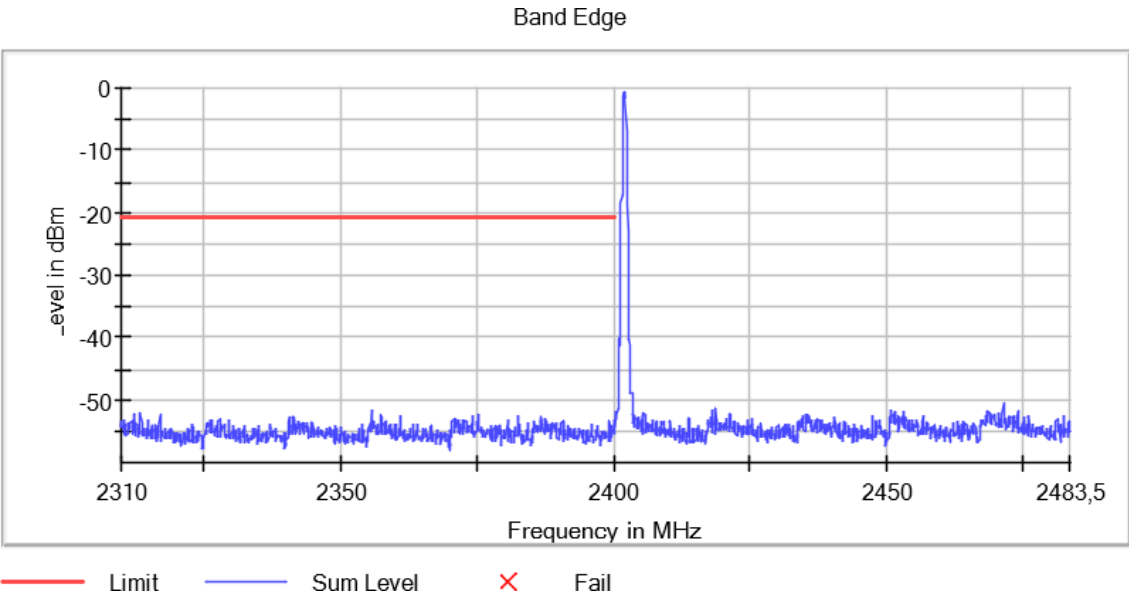
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2402.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / 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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400,
2483.5]

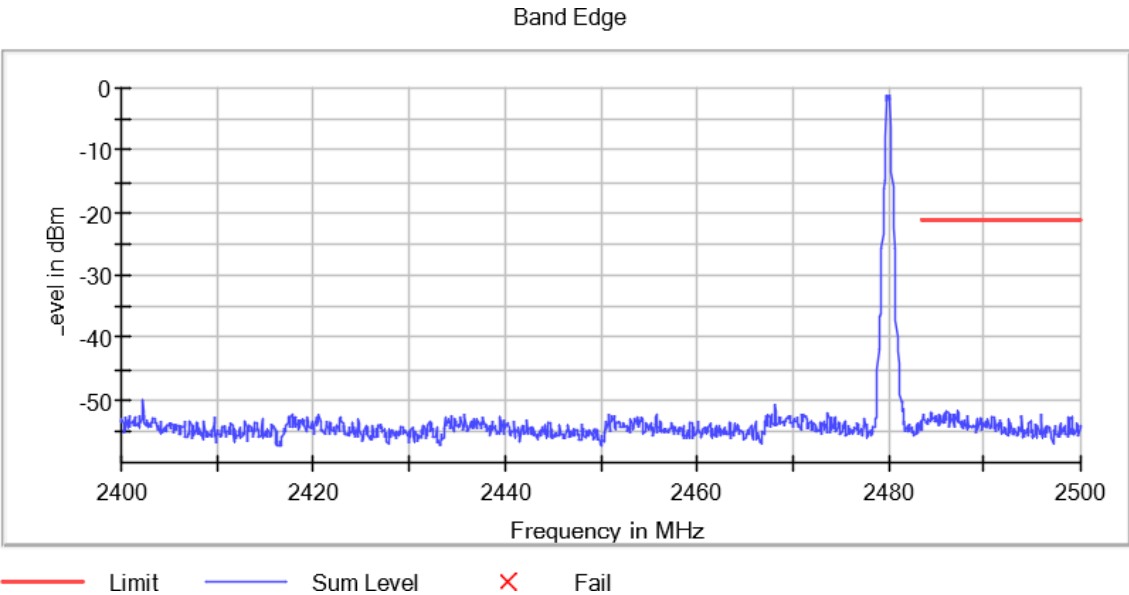
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / 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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Modulation: BT (Pi/4 DQPSK 2-DH5)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)	
[2400, 2483.5]	Frequency Hopping Spread Spectrum systems (DSS)	Hopping mode	1	-1.994	2400.000000	-50.8	
				-2.018	2372.675000	-51.2	
				-1.994	2486.625000	-51.0	
				-2.018	2372.725000	-51.4	
				-1.994	2485.575000	-51.2	
				-2.018	2386.875000	-51.9	
				-1.994	2486.575000	-51.2	
				-2.018	2372.625000	-52.0	
				-1.994	2485.625000	-51.2	
				-2.018	2355.825000	-52.1	
				-1.994	2484.625000	-51.5	
				-2.018	2400.000000	-52.1	
				-1.994	2485.225000	-51.5	
				-2.018	2355.875000	-52.2	
				-2.018	2386.925000	-52.3	
				-1.994	2492.575000	-51.6	
				-1.994	2484.675000	-51.6	
				-2.018	2370.975000	-52.3	
				-2.018	2341.175000	-52.5	
				-1.994	2489.425000	-51.6	
				-1.994	2489.375000	-51.7	
				-2.018	2386.375000	-52.6	
				-1.994	2492.625000	-51.8	
				-2.018	2341.925000	-52.8	
				-1.994	2485.275000	-51.8	
				-2.018	2341.225000	-52.8	
				-1.994	2484.575000	-51.8	
				-2.018	2371.025000	-52.9	
				-1.994	2483.525000	-51.9	
				-2.018	2370.625000	-52.9	
		2402.00000		-1.574	2358.025000	-51.6	
				-1.574	2357.975000	-51.7	
				-1.574	2370.875000	-51.9	
				-1.574	2328.225000	-52.1	
				-1.574	2370.925000	-52.1	
				-1.574	2311.775000	-52.2	
				-1.574	2371.725000	-52.2	
				-1.574	2328.175000	-52.2	

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)	
				-1.574	2371.675000	-52.3	
				-1.574	2400.000000	-52.3	
				-1.574	2386.275000	-52.4	
				-1.574	2386.175000	-52.5	
				-1.574	2386.125000	-52.5	
				-1.574	2370.825000	-52.5	
				-1.574	2311.725000	-52.5	
		2480.0000		-2.401	2400.000000	-52.0	
				-2.401	2488.075000	-52.2	
				-2.401	2488.025000	-52.2	
				-2.401	2485.925000	-52.2	
				-2.401	2483.675000	-52.2	
				-2.401	2485.875000	-52.3	
				-2.401	2485.575000	-52.3	
				-2.401	2483.575000	-52.3	
				-2.401	2483.625000	-52.3	
				-2.401	2483.875000	-52.3	
				-2.401	2485.525000	-52.4	
				-2.401	2485.025000	-52.5	
				-2.401	2486.725000	-52.5	
				-2.401	2485.075000	-52.5	
				-2.401	2485.625000	-52.5	

Verdict

Pass

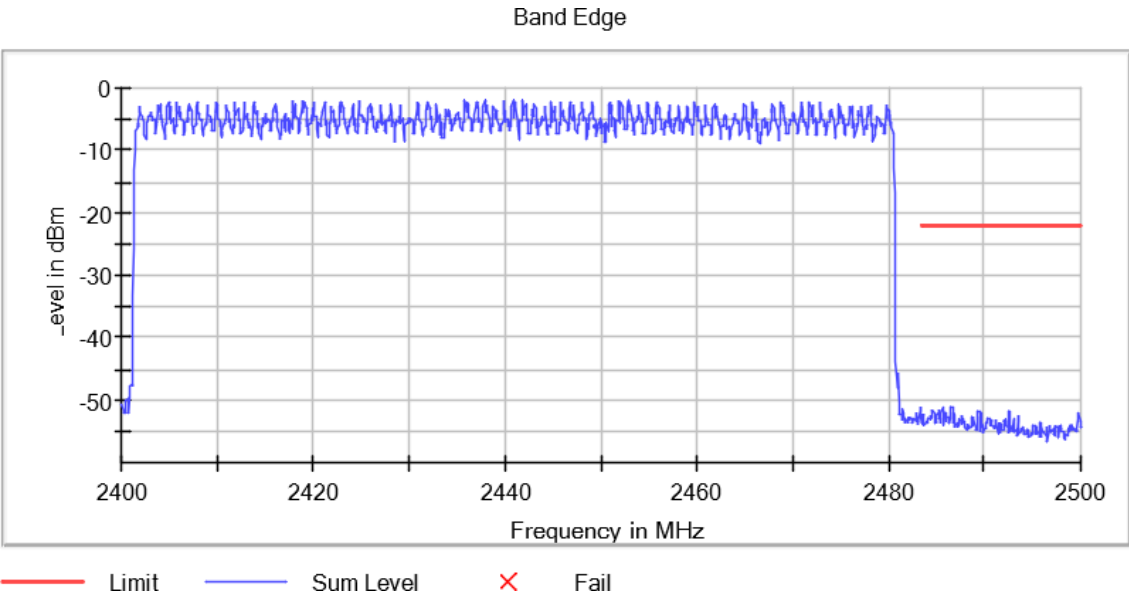
Attachments

Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = Hopping mode Active Port = 1

Modulation = BT (Pi/4 DQPSK 2-DH5)

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
Sweptime	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3

Setting	Instrument Value	Target Value
Max Stable Difference	0.00 dB	0.50 dB

Spectrum Analyzer Parameters 2

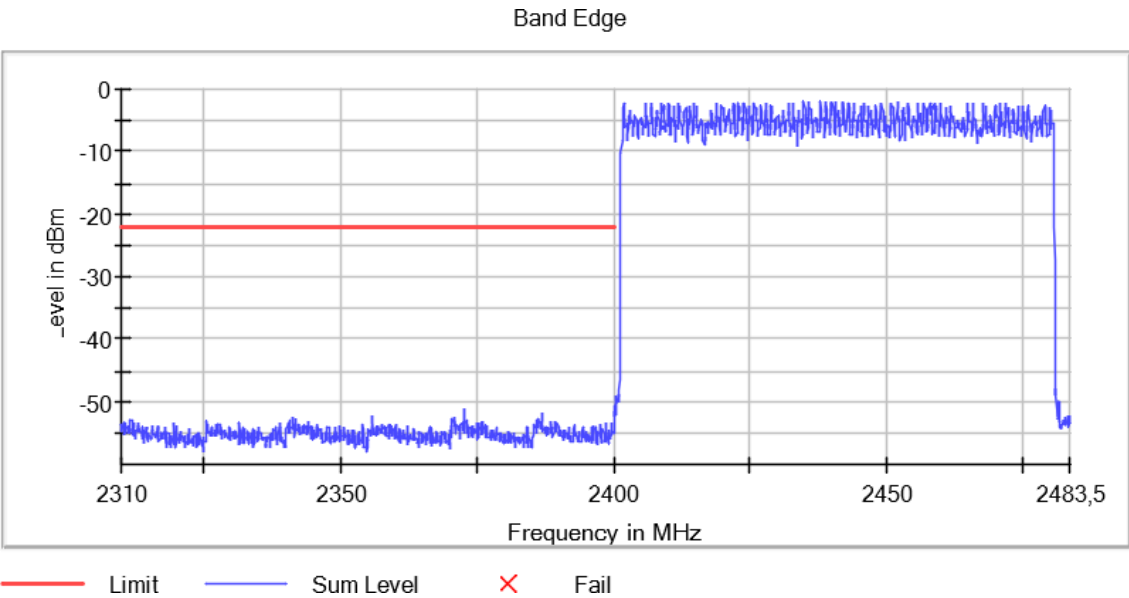
Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
Sweeptime	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = Hopping mode Active Port = 1

Modulation = BT (Pi/4 DQPSK 2-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Spectrum Analyzer Parameters 2

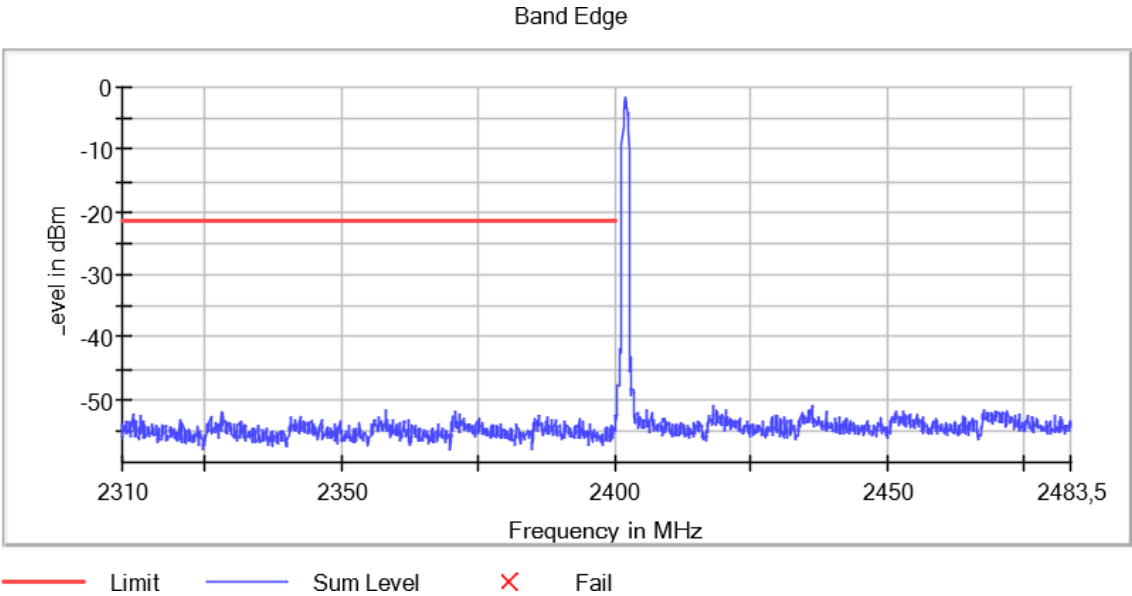
Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2402.00000 Active Port = 1

Modulation = BT (Pi/4 DQPSK 2-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Spectrum Analyzer Parameters 2

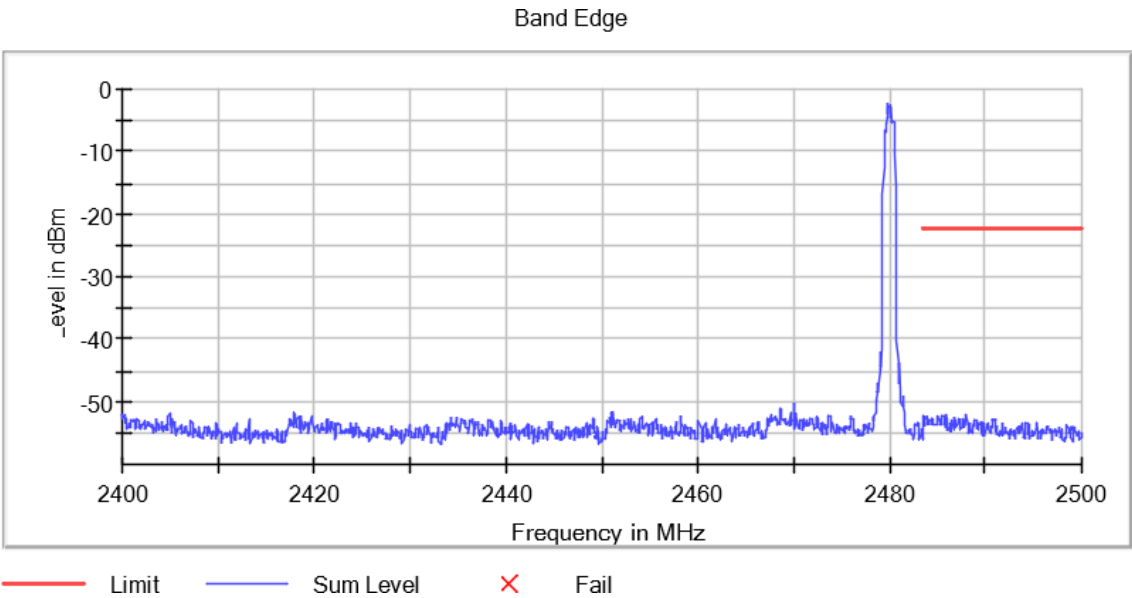
Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000 Active Port = 1

Modulation = BT (Pi/4 DQPSK 2-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / 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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Modulation: BT (8DPSK 3-DH5)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)	
[2400, 2483.5]	Frequency Hopping Spread Spectrum systems (DSS)	Hopping mode	1	-1.823	2484.075000	-51.0	
				-1.740	2400.000000	-51.9	
				-1.823	2486.225000	-51.2	
				-1.740	2371.825000	-52.2	
				-1.740	2371.875000	-52.3	
				-1.823	2484.125000	-51.3	
				-1.823	2486.275000	-51.4	
				-1.740	2370.975000	-52.3	
				-1.823	2485.275000	-51.5	
				-1.740	2371.075000	-52.4	
				-1.823	2484.375000	-51.6	
				-1.740	2377.025000	-52.4	
				-1.740	2385.875000	-52.4	
				-1.823	2484.025000	-51.7	
				-1.740	2340.575000	-52.4	
				-1.823	2485.325000	-51.7	
				-1.823	2484.425000	-51.8	
				-1.740	2340.525000	-52.5	
				-1.740	2343.425000	-52.5	
				-1.823	2484.525000	-51.9	
				-1.823	2491.075000	-51.9	
				-1.740	2385.675000	-52.6	
				-1.823	2486.375000	-52.0	
				-1.740	2343.475000	-52.6	
				-1.823	2483.575000	-52.0	
				-1.740	2385.625000	-52.6	
				-1.740	2386.275000	-52.6	
				-1.823	2486.425000	-52.0	
				-1.740	2370.875000	-52.6	
				-1.823	2484.475000	-52.1	
		2402.00000		-2.175	2370.825000	-51.5	
				-2.175	2370.875000	-51.5	
				-2.175	2356.475000	-52.0	
				-2.175	2359.575000	-52.1	
				-2.175	2356.525000	-52.2	
				-2.175	2373.075000	-52.2	
				-2.175	2370.775000	-52.2	
				-2.175	2373.025000	-52.3	

Operation Band (MHz)	Equipment	Freq (MHz)	Port	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)	
				-2.175	2359.625000	-52.3	
				-2.175	2355.725000	-52.3	
				-2.175	2386.775000	-52.4	
				-2.175	2342.625000	-52.6	
				-2.175	2342.675000	-52.6	
				-2.175	2327.775000	-52.6	
				-2.175	2343.875000	-52.7	
		2480.00000		-2.256	2400.000000	-51.3	
				-2.256	2484.275000	-51.5	
				-2.256	2484.325000	-51.6	
				-2.256	2484.225000	-51.6	
				-2.256	2488.275000	-51.7	
				-2.256	2484.975000	-51.7	
				-2.256	2488.225000	-51.7	
				-2.256	2484.375000	-51.9	
				-2.256	2487.675000	-51.9	
				-2.256	2484.175000	-52.0	
				-2.256	2485.175000	-52.0	
				-2.256	2483.725000	-52.1	
				-2.256	2483.775000	-52.1	
				-2.256	2485.225000	-52.1	
				-2.256	2484.925000	-52.1	

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5]

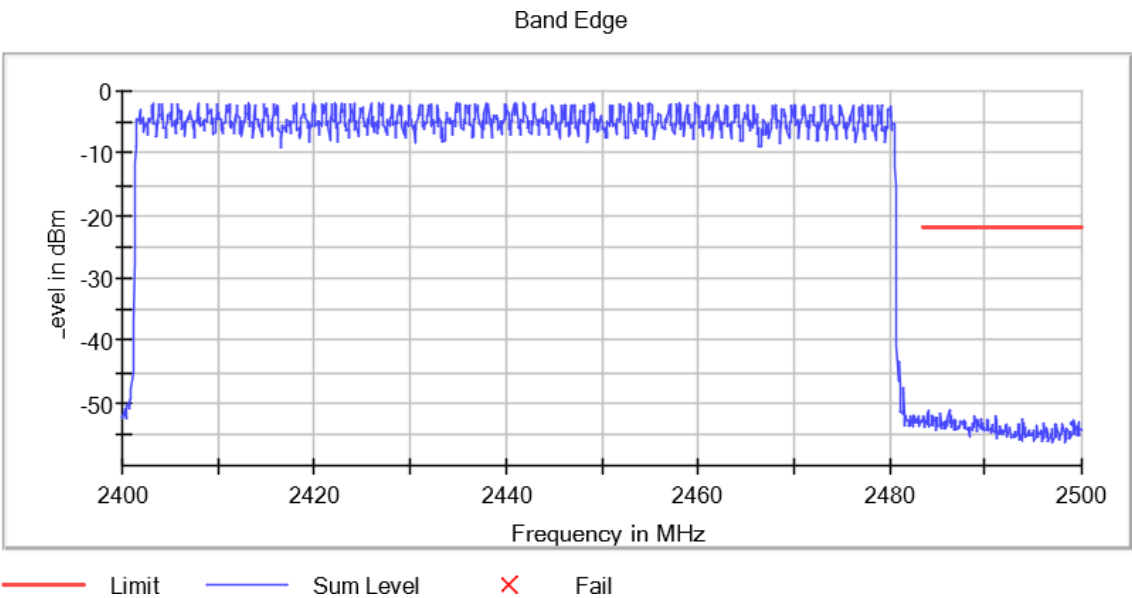
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = Hopping mode

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3

Setting	Instrument Value	Target Value
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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400, 2483.5]

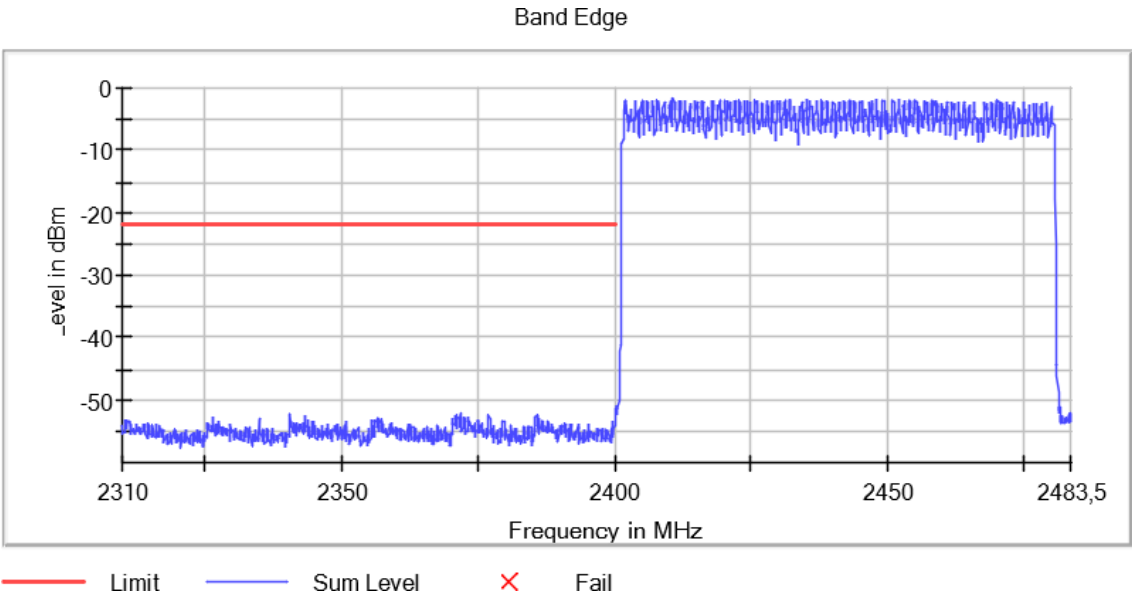
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = Hopping mode

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / 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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400,
2483.5]

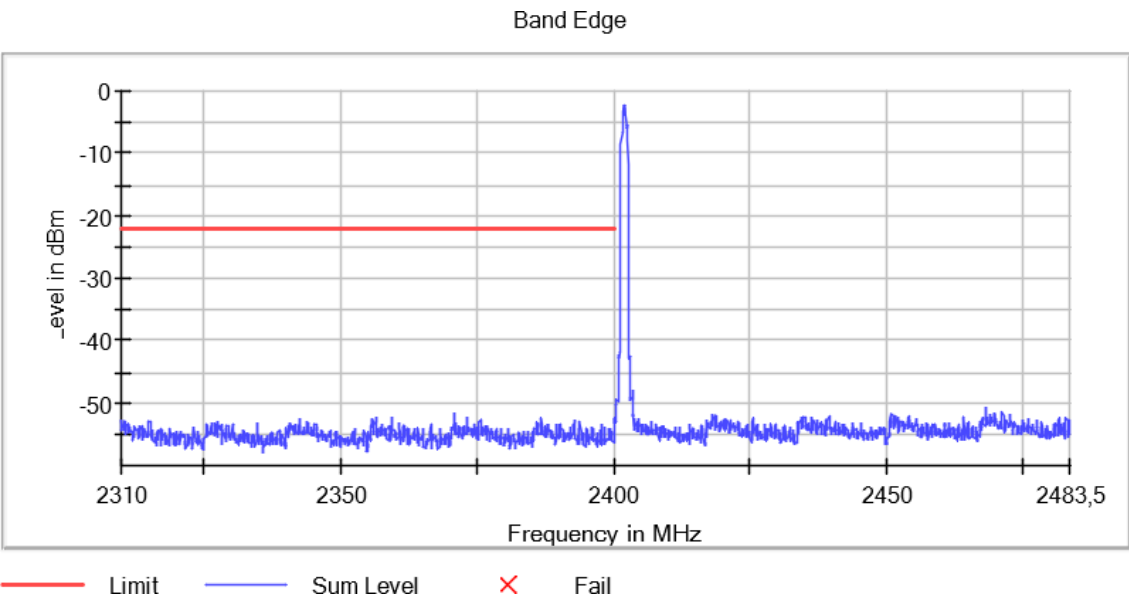
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2402.00000

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

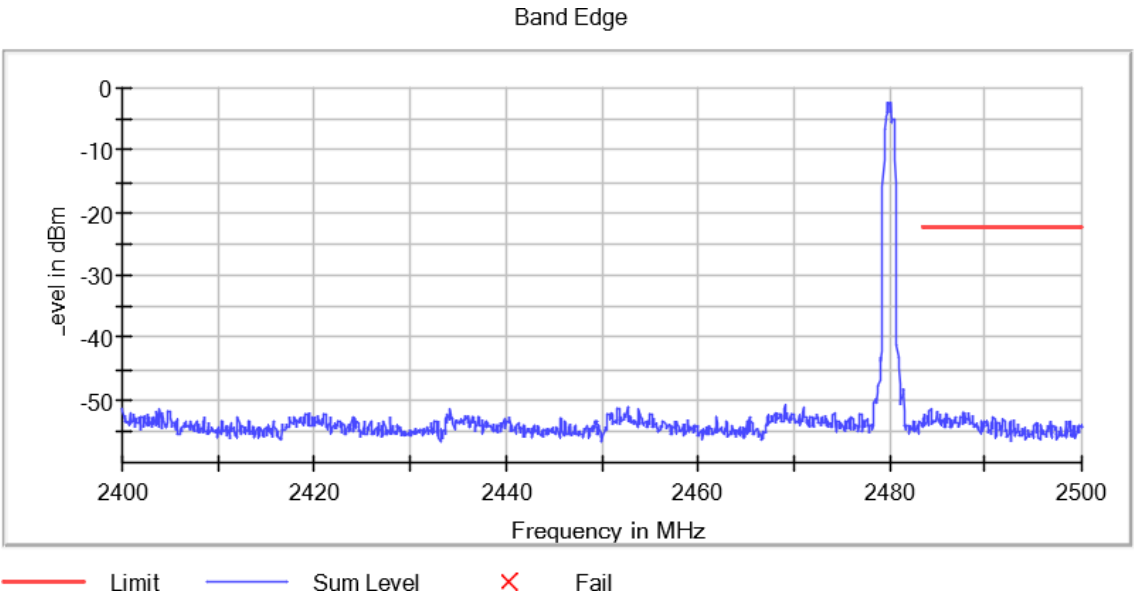
Spectrum Analyzer Parameters 2

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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

Operation Band MHz = [2400, 2483.5]
Frequency MHz = 2480.00000
Modulation = BT (8DPSK 3-DH5)

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
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	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / 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	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	133 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.35 dB	0.50 dB

RSS-247 6.6 / FCC 15.247 (d) [RSE] Emission limitations radiated (Transmitter)

Limits

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)/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
Above 960	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

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

Frequency range tested for Radiated emissions:

Start frequency: no radiofrequency signal generated in the device found below 10th sub-harmonic, no further investigation required.

Stop frequency: it has been performed the radiated spurious emissions until 10th harmonic.

Modulation: BT (GFSK 1-DH5)

Results

- Frequency range [30MHz - 1GHz]

The spurious frequencies do not depend on modulation and channel operation.

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

Operation Band (MHz)	Freq Rng (GHz)	Freq (MHz)	Port	Unwanted Freq (MHz)	Unwanted Lvl (dBμV/m)	Pol	Detector	Sig Path (dB)	Preamp (dB)	Trd Corr. (dB/m)	Raw Rec (dBμV)	
[2400, 2483.5]	[0.03, 1]	2402.00000	1	43.321	40.36	V	PK	-43.1	3	8.9	64.7	
				43.321	33.52	V	QP	-43.1	3	8.9	71.6	
				46.425	42.43	V	PK	-43.0	3	7.8	68.5	
				46.425	36.27	V	QP	-43.0	3	7.8	74.7	
				479.983	47.33	V	PK	-40.3	3	7.1	62.9	
				479.983	35.27	V	QP	-40.3	3	7.1	68.2	
				559.976	42.16	V	PK	-40.4	3	18.7	66.0	
				559.976	40.02	V	QP	-40.4	3	18.7	53.9	
				575.011	40.17	V	PK	-40.4	3	20.3	59.2	
				575.011	37.99	V	QP	-40.4	3	20.3	57.1	
				719.993	37.75	V	PK	-40.1	3	20.3	55.1	
				719.993	33.98	V	QP	-40.1	3	20.3	57.3	
				78.080	35.71	V	PK	-42.5	3	22.5	48.6	
				78.080	30.41	V	QP	-42.5	3	22.5	52.4	
		2441.00000		319.998	38.43	V	PK	-41.0	3	8.9	64.7	
				319.998	35.51	V	QP	-41.0	3	8.9	71.6	
				45.197	42.98	V	PK	-43.1	3	7.8	68.5	
				45.197	35.33	V	QP	-43.1	3	7.8	74.7	
				477.170	37.49	V	PK	-40.3	3	7.1	62.9	
				477.170	30.67	V	QP	-40.3	3	7.1	68.2	
				559.976	42.28	V	PK	-40.4	3	18.7	66.0	
				559.976	40.36	V	QP	-40.4	3	18.7	53.9	

- Frequency range [1 - 17GHz]

No spurious frequencies detected at less than 20 dB below the limit.

- Frequency range [17 - 26GHz]

The spurious frequencies do not depend on modulation and channel operation.

No spurious frequencies detected at less than 20 dB below the limit.

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [0.03, 1]

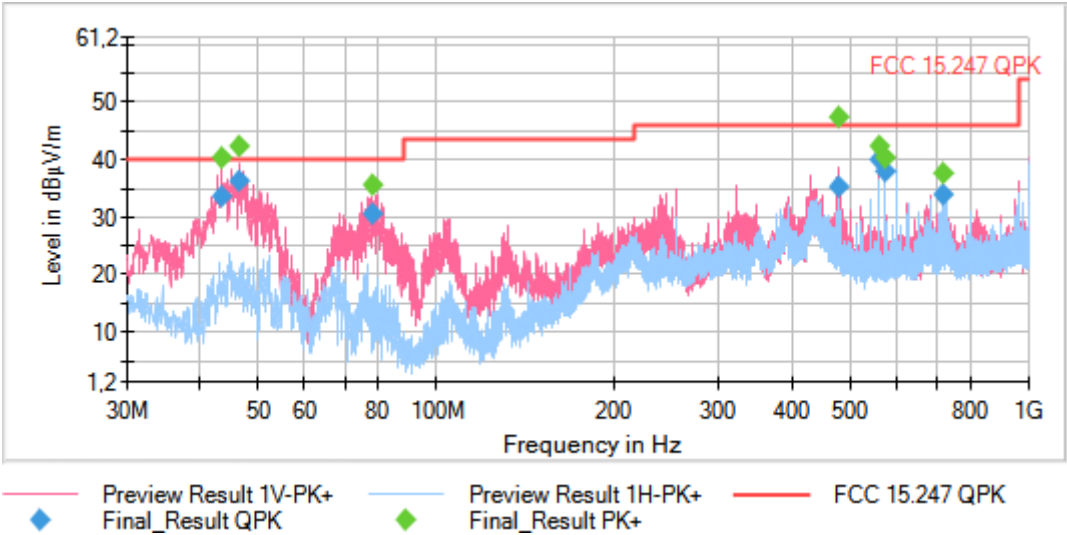
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2402.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	30 MHz - 1 GHz	32,333 kHz	PK+	100 kHz	Coupled	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

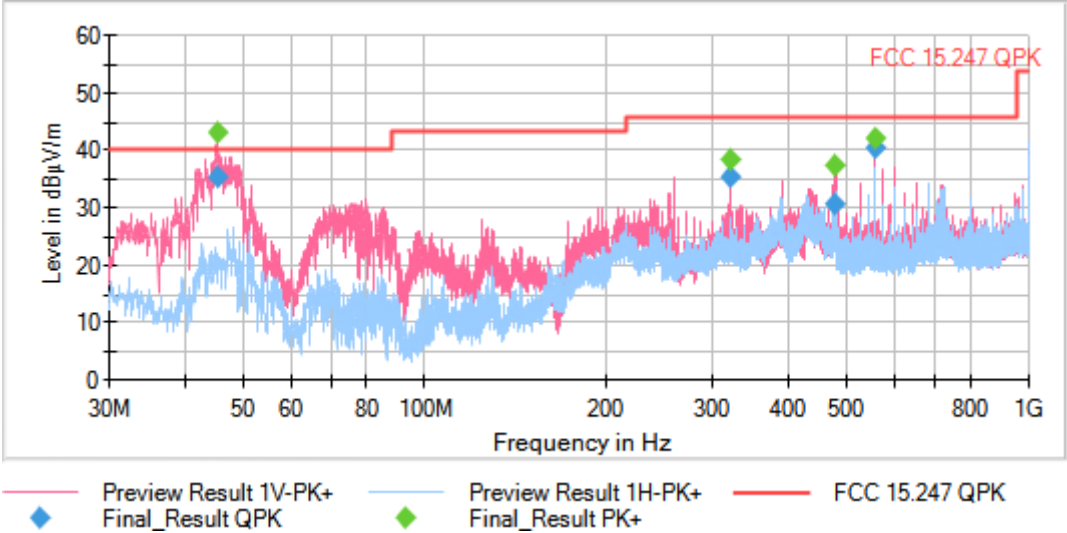
Active Port = 1

Frequency Range GHz = [0.03, 1]

Frequency MHz = 2441.00000

Modulation = BT (GFSK 1-DH5)

Images:



Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	30 MHz - 1 GHz	32,333 kHz	PK+	100 kHz	Coupled	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

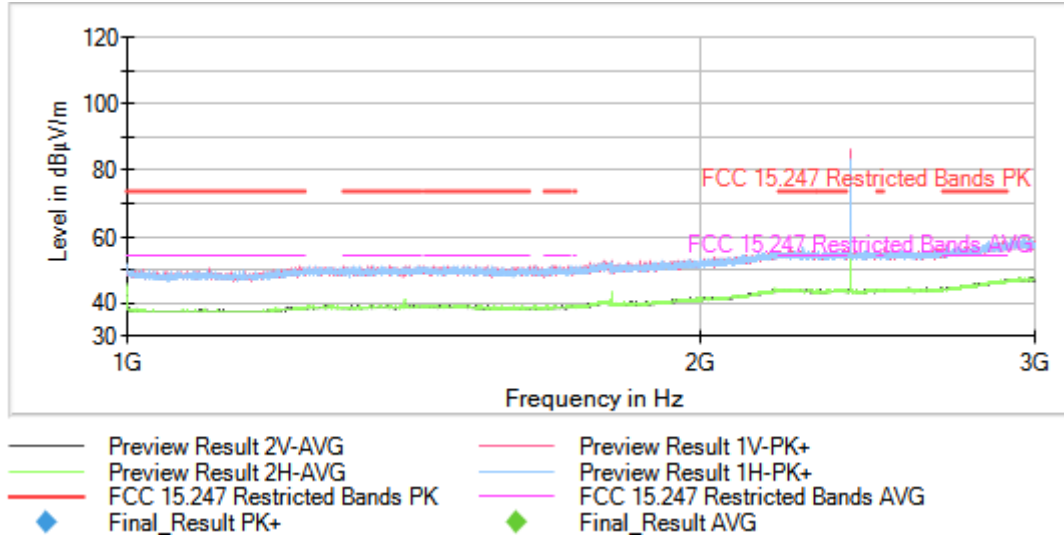
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2402.00000

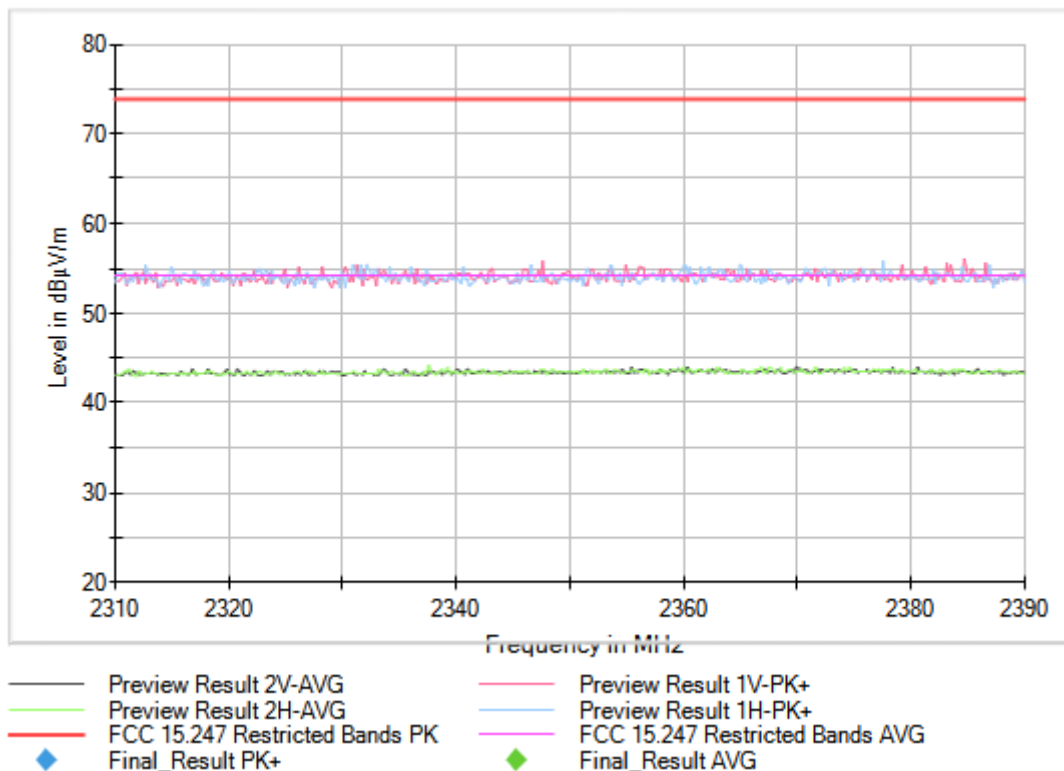
Active Port = 1

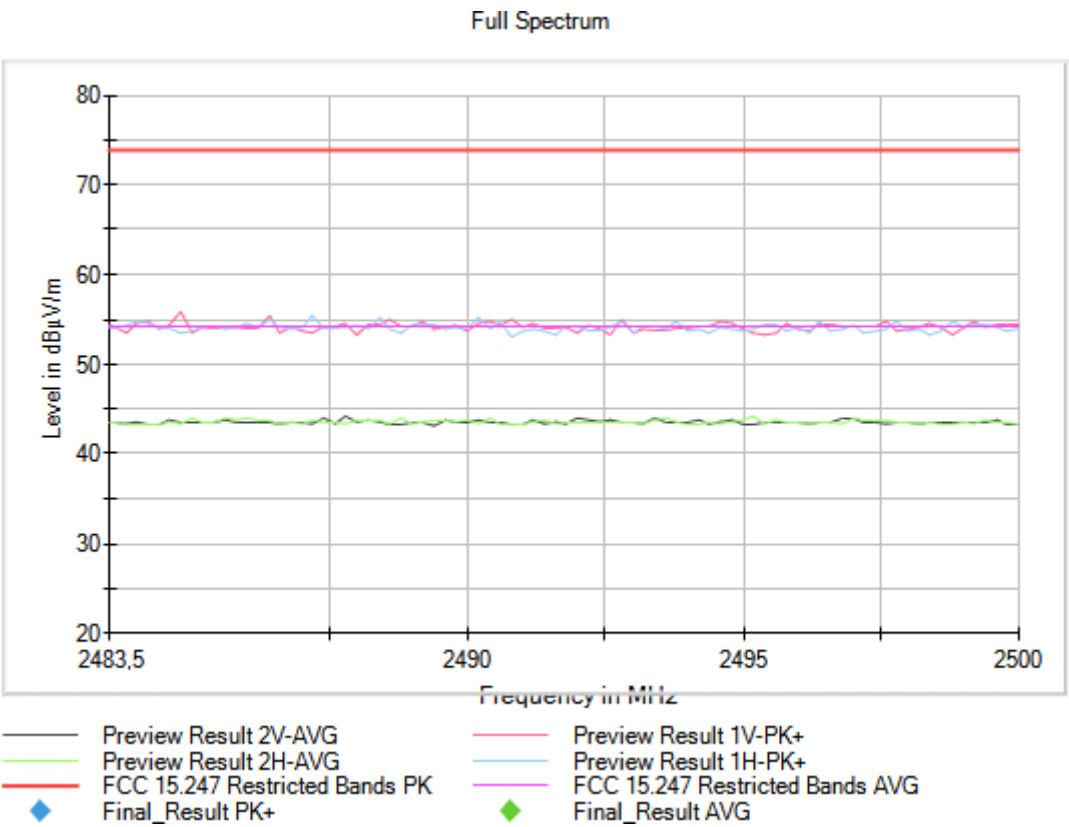
Modulation = BT (GFSK 1-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

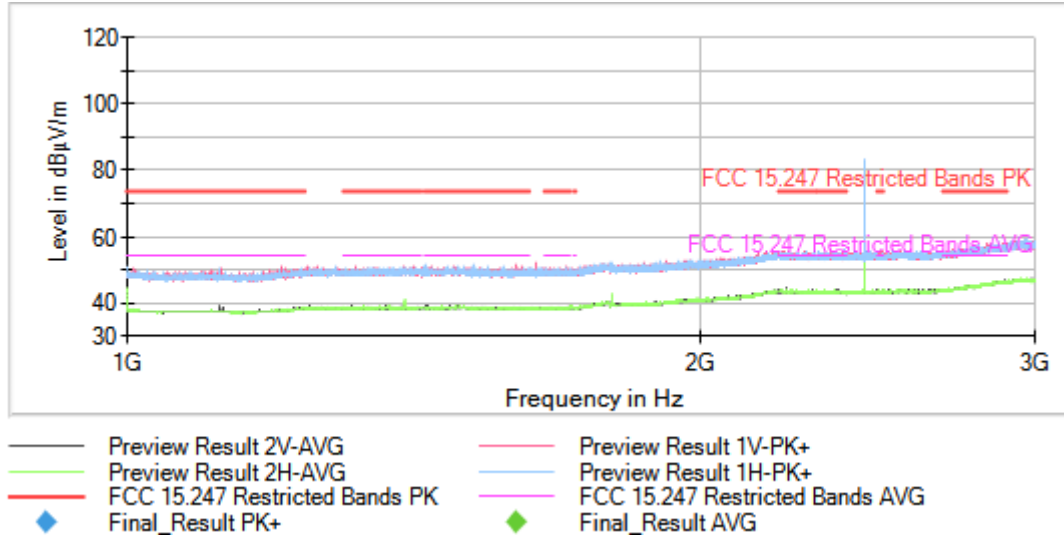
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2441.00000

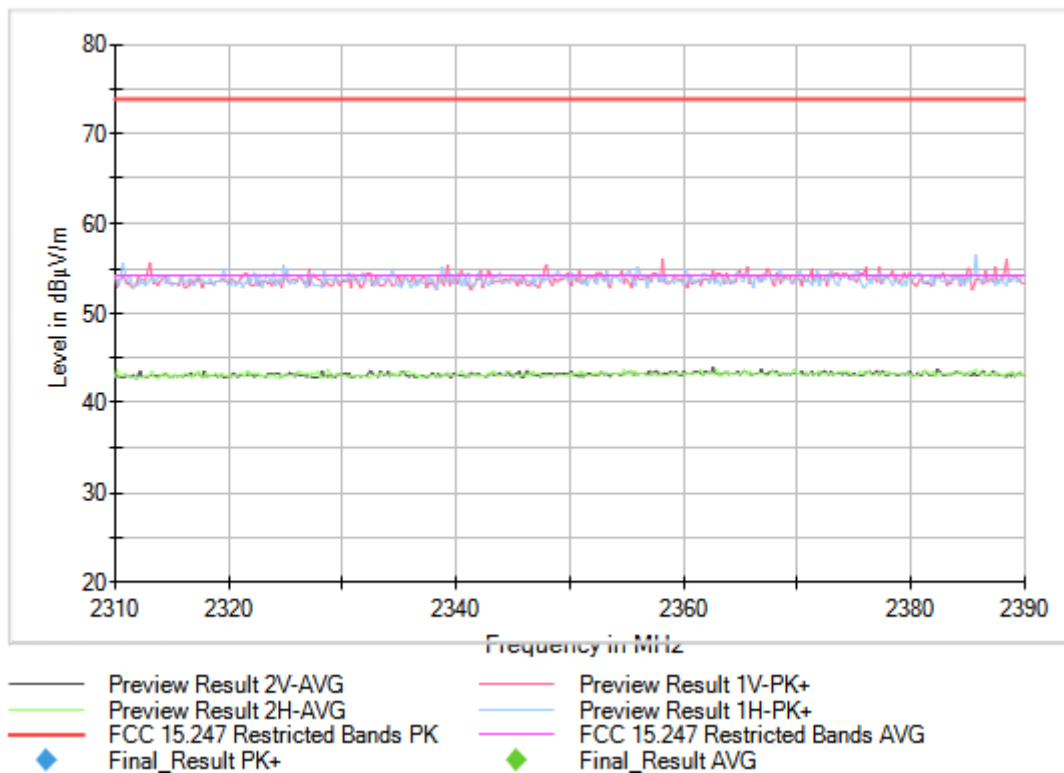
Active Port = 1

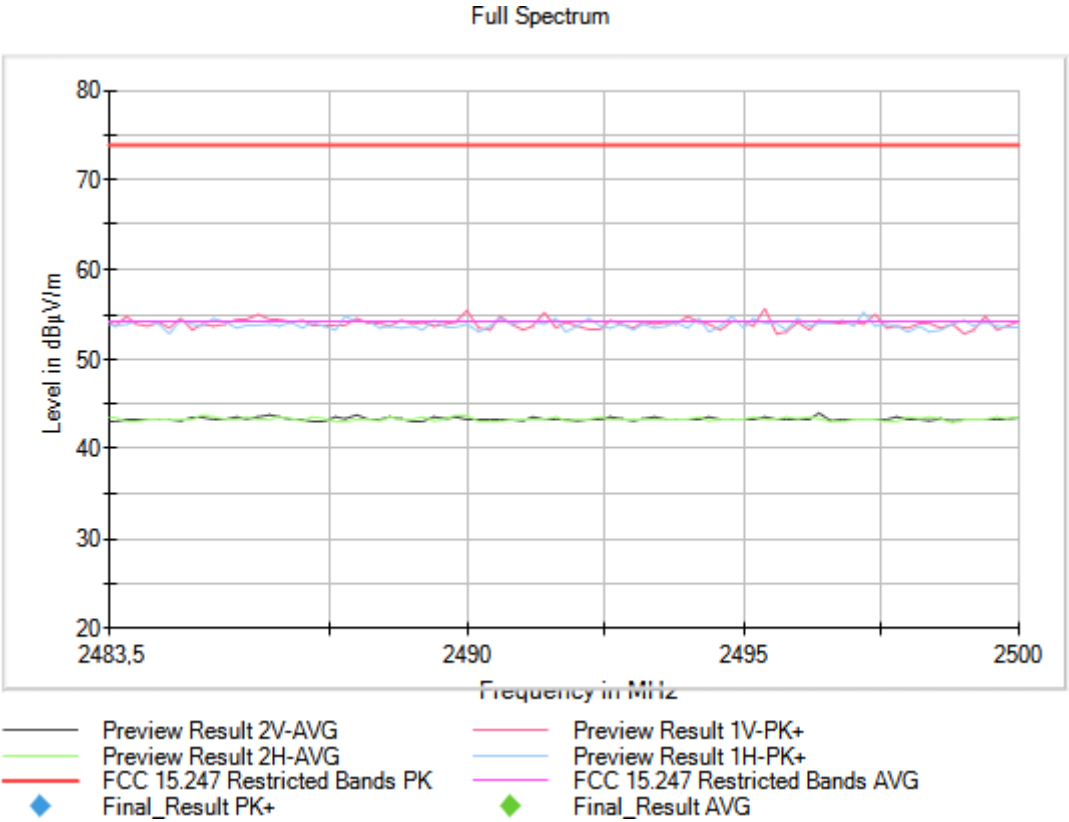
Modulation = BT (GFSK 1-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

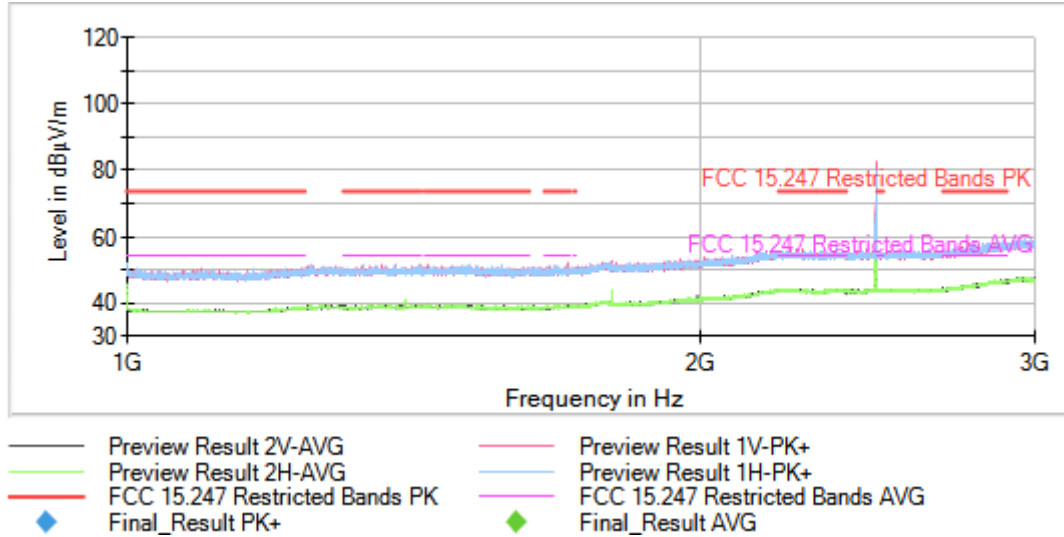
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000

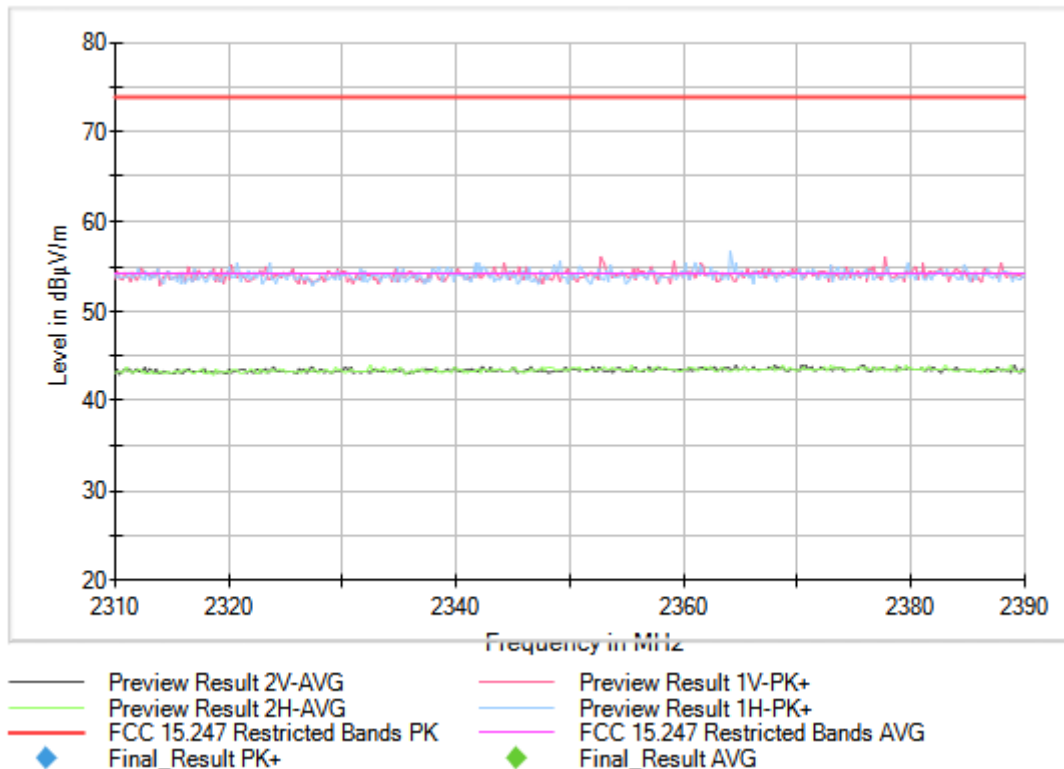
Active Port = 1

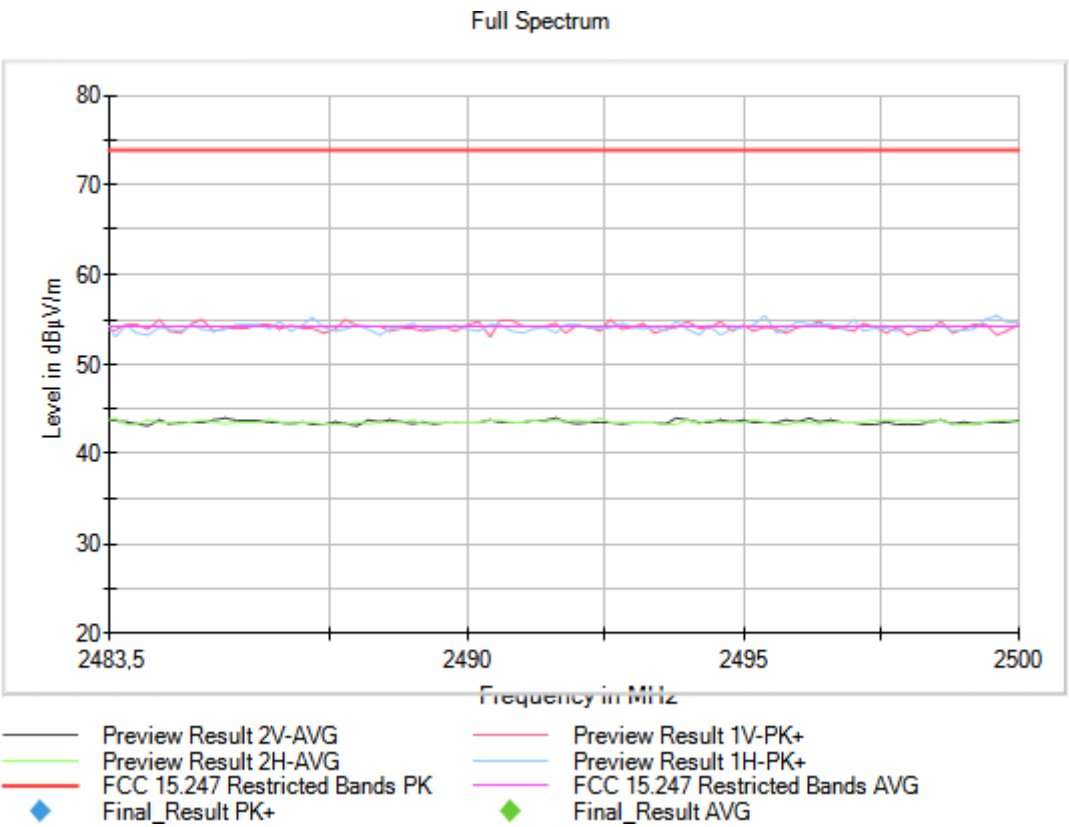
Modulation = BT (GFSK 1-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

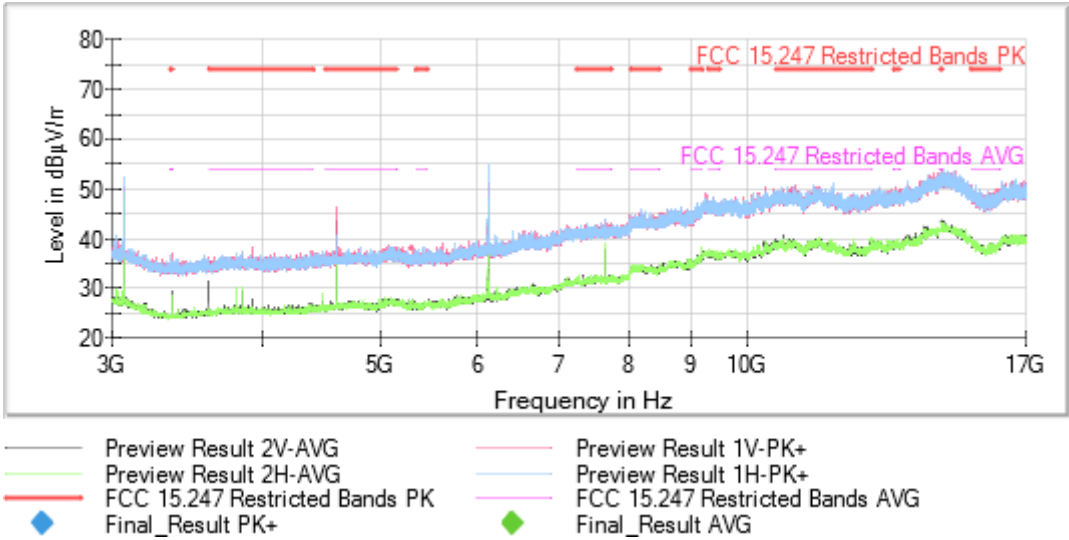
Active Port = 1

Frequency Range GHz = [3, 17]

Frequency MHz = 2402.00000

Modulation = BT (GFSK 1-DH5)

Images:



Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

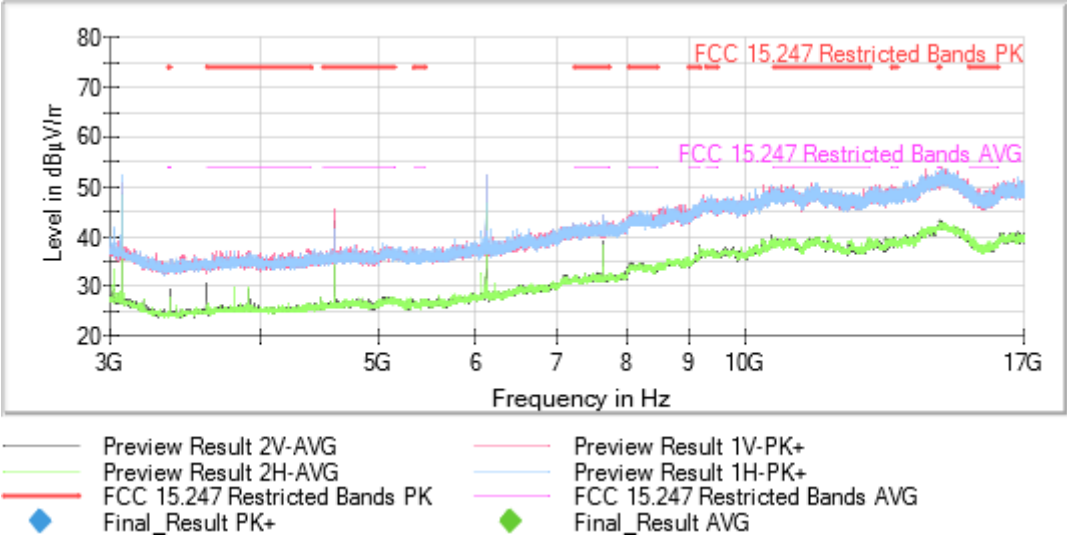
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2441.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

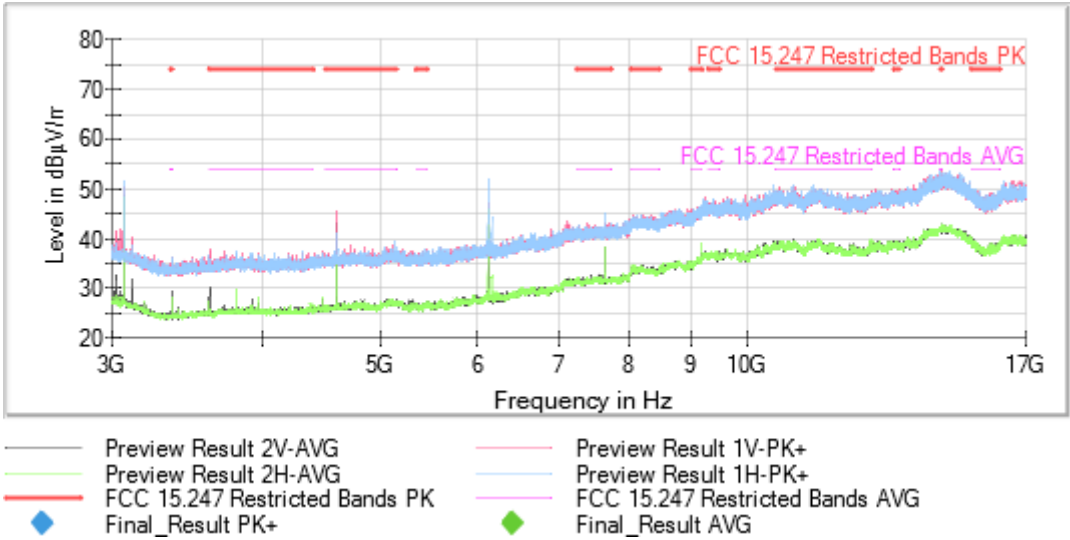
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

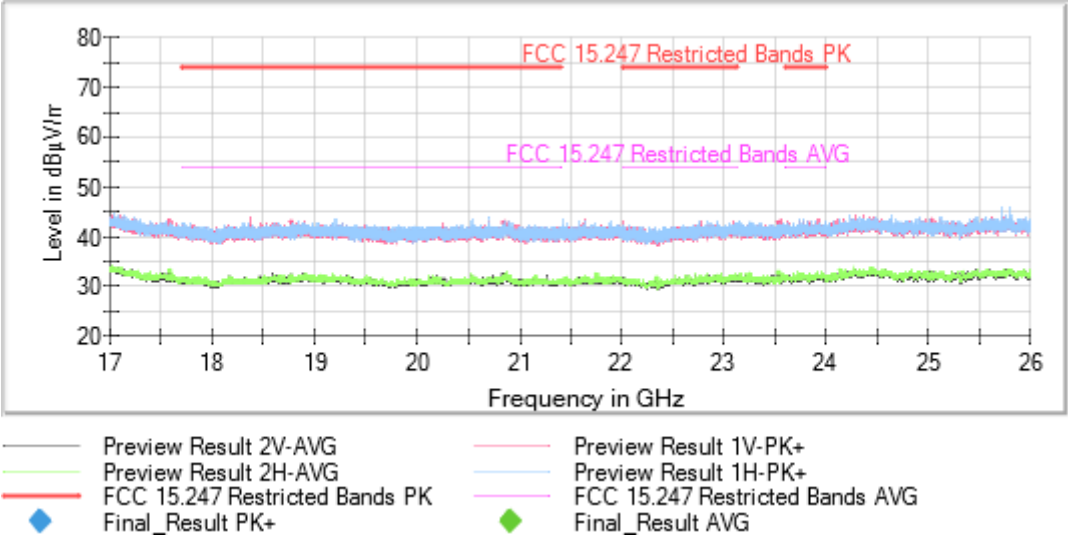
Active Port = 1

Frequency Range GHz = [17, 26]

Frequency MHz = 2402.00000

Modulation = BT (GFSK 1-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSV 40]					
	17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

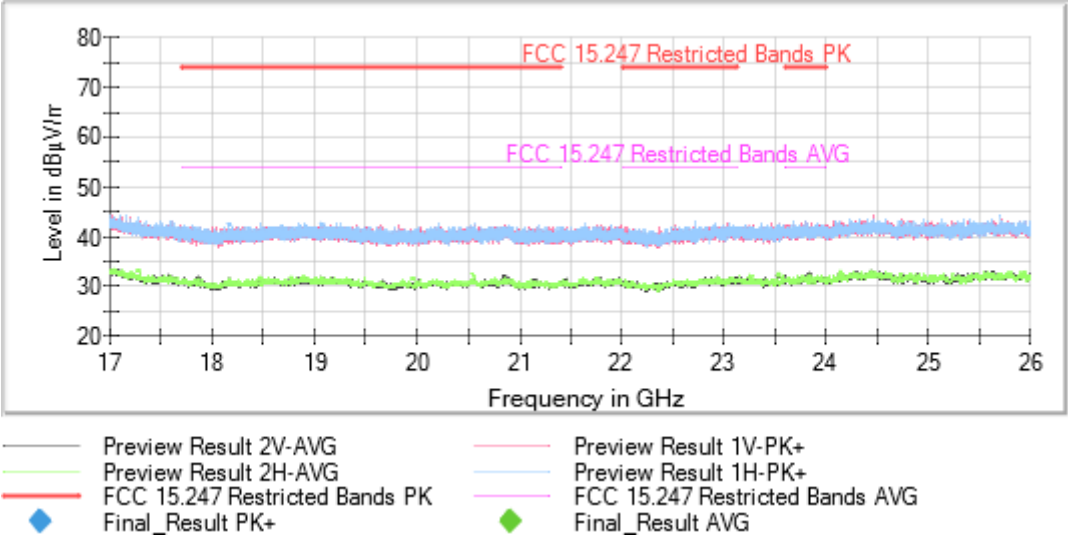
Active Port = 1

Frequency Range GHz = [17, 26]

Frequency MHz = 2441.00000

Modulation = BT (GFSK 1-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSV 40]					
	17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Modulation: BT (Pi/4 DQPSK 2-DH5)

Results

- Frequency range [30MHz - 1GHz]

The spurious frequencies do not depend on modulation and channel operation.

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

Operation Band (MHz)	Freq Rng (GHz)	Freq (MHz)	Port	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector	Sig Path (dB)	Preamp (dB)	Trd Corr. (dB/m)	Raw Rec (dBµV)
[2400, 2483.5]	[0.03, 1]	2402.00000	1	319.998	39.08	V	PK	-41.0	3.0	8.9	64.7
				319.998	36.62	V	QP	-41.0	3.0	8.9	71.6
				392.715	38.54	V	PK	-40.8	3.0	7.8	68.5
				392.715	36.73	V	QP	-40.8	3.0	7.8	74.7
				43.709	40.77	V	PK	-43.1	3.0	7.1	62.9
				43.709	32.42	V	QP	-43.1	3.0	7.1	68.2
				47.331	41.65	V	PK	-43.0	3.0	18.7	66.0
				47.331	35.34	V	QP	-43.0	3.0	18.7	53.9
				559.943	41.36	V	PK	-40.4	3.0	20.3	59.2
				559.943	39.36	V	QP	-40.4	3.0	20.3	57.1
				575.011	42.15	V	PK	-40.4	3.0	20.3	55.1
				575.011	40.76	V	QP	-40.4	3.0	20.3	57.3
				600.004	42.47	V	PK	-40.4	3.0	22.5	48.6
				600.004	39.62	V	QP	-40.4	3.0	22.5	52.4

- Frequency range [1 - 17GHz]

No spurious frequencies detected at less than 20 dB below the limit.

- Frequency range [17 - 26GHz]

The spurious frequencies do not depend on modulation and channel operation.

No spurious frequencies detected at less than 20 dB below the limit.

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

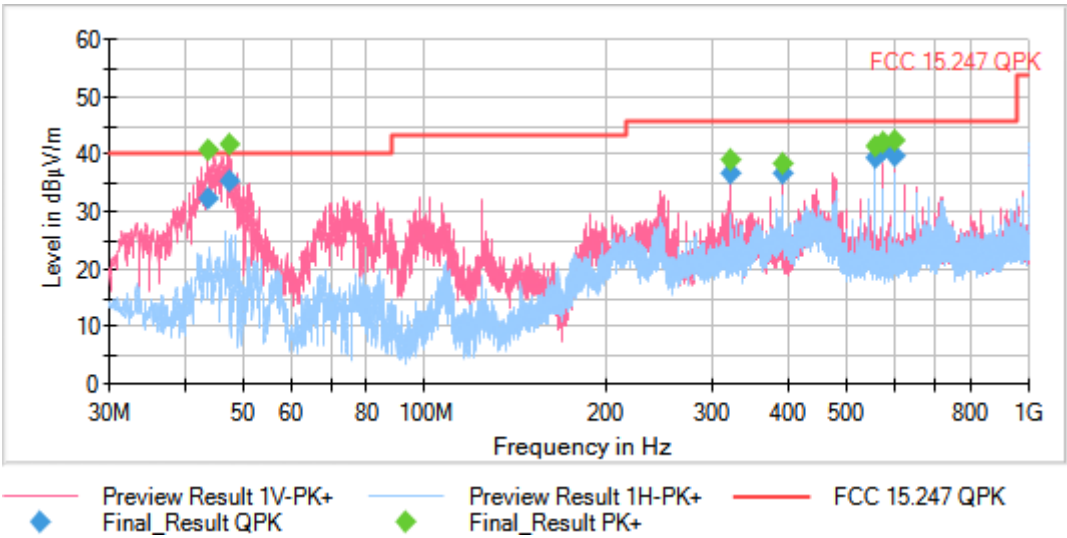
Active Port = 1

Frequency Range GHz = [0.03, 1]

Frequency MHz = 2402.00000

Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	30 MHz - 1 GHz	32,333 kHz	PK+	100 kHz	Coupled	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

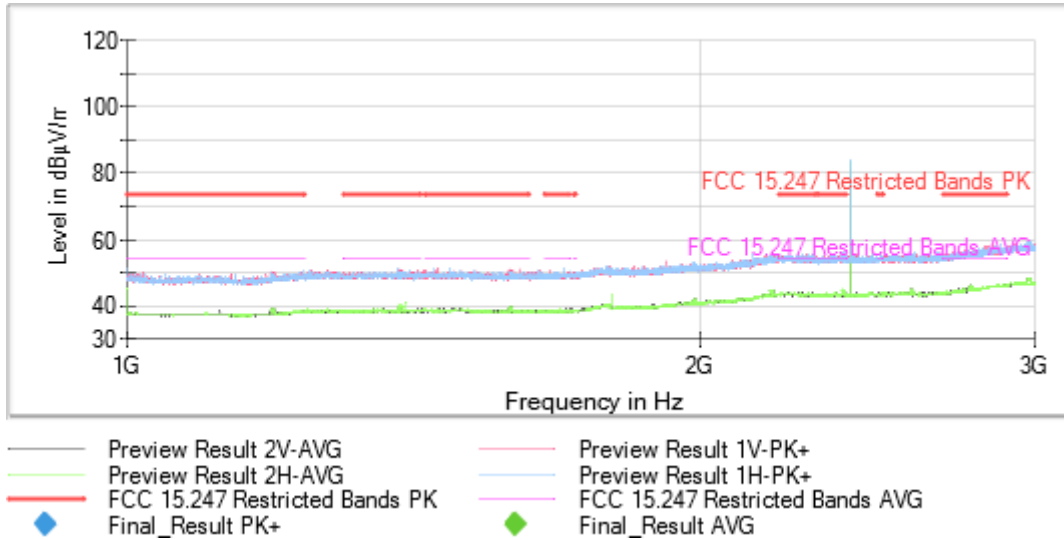
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2402.00000

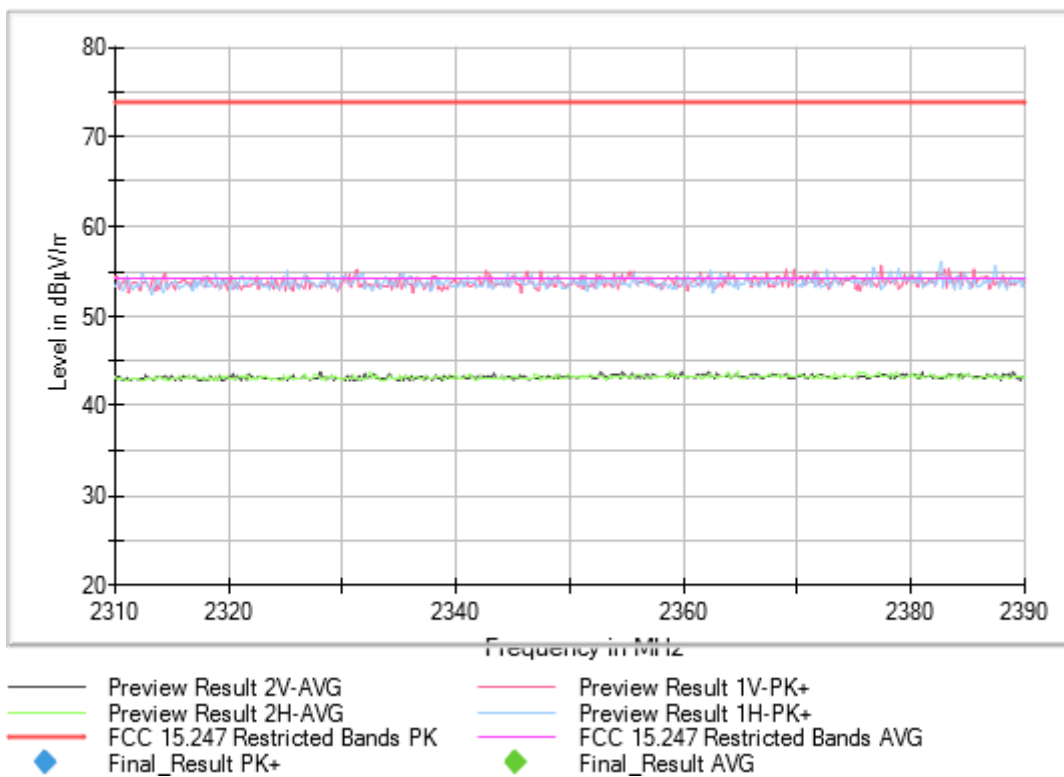
Active Port = 1

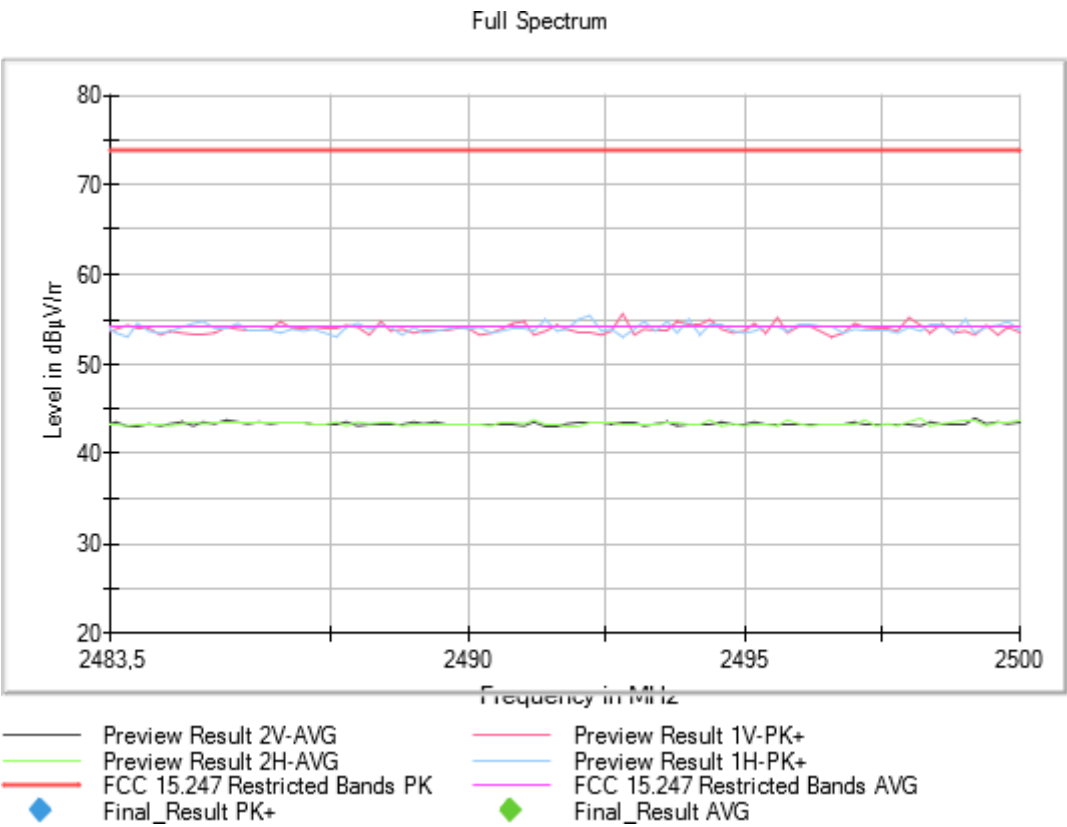
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

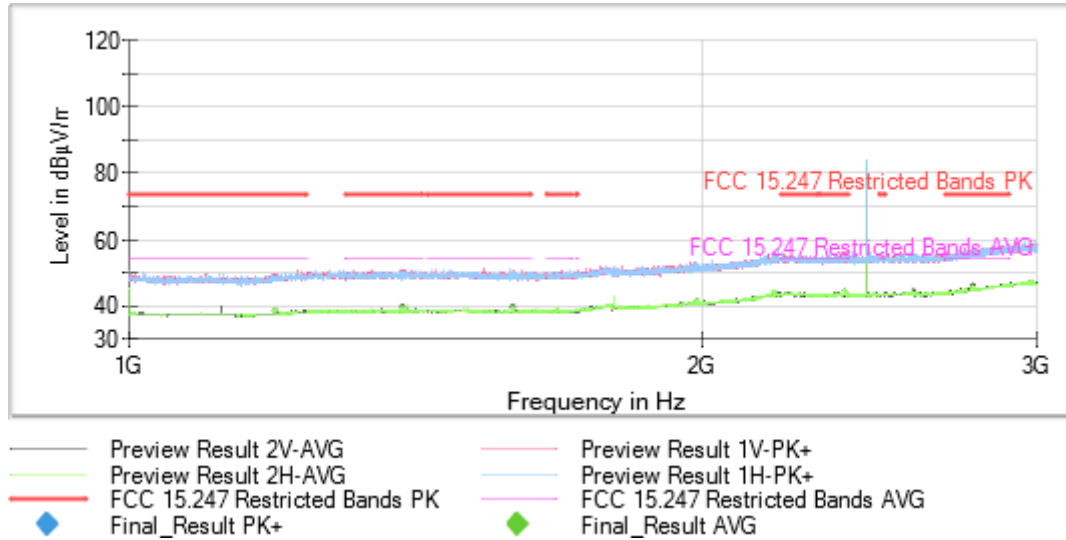
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2441.00000

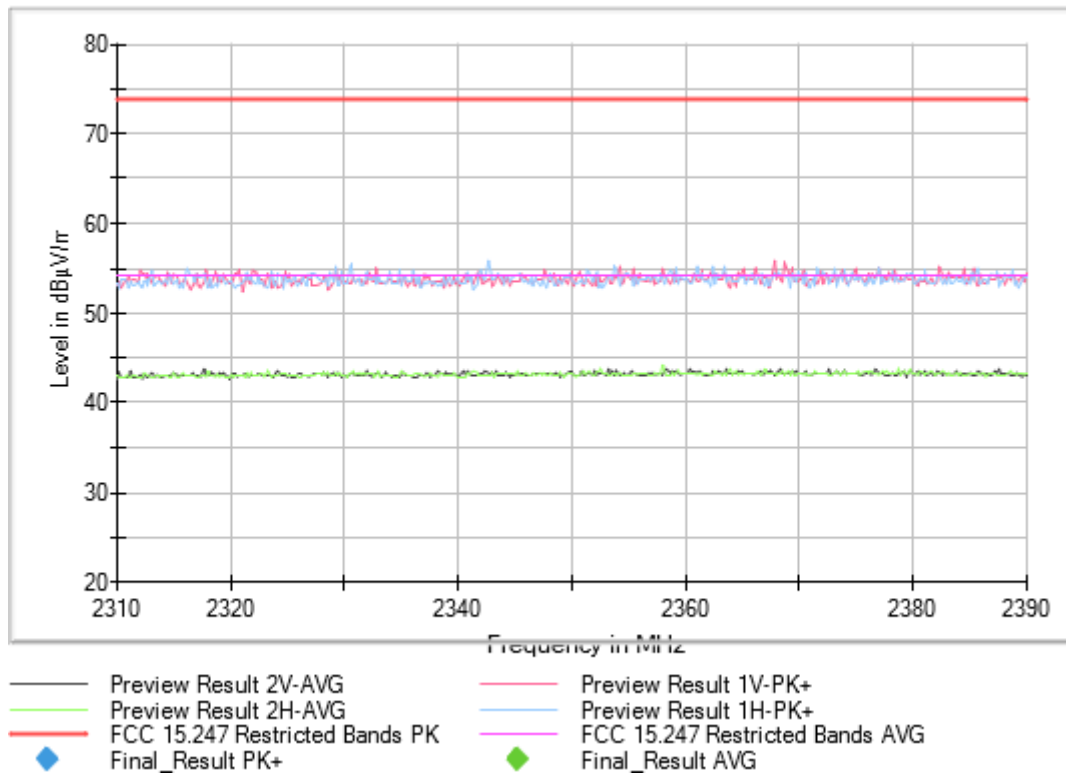
Active Port = 1

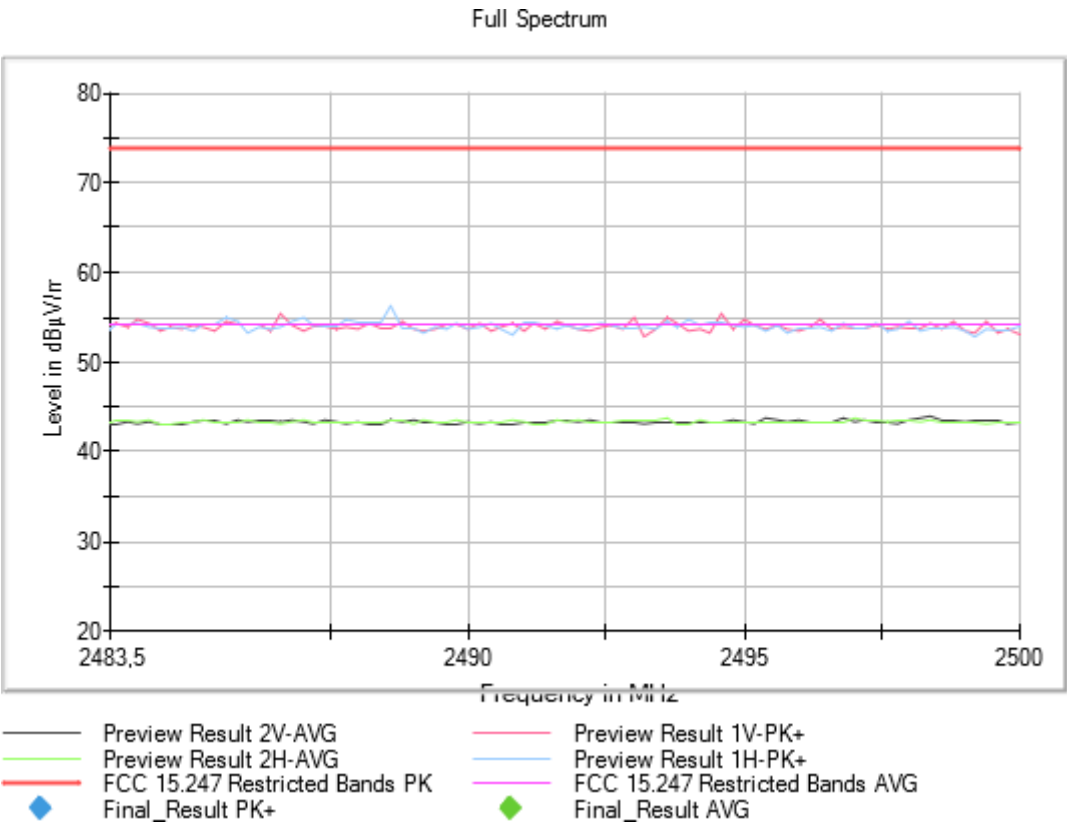
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

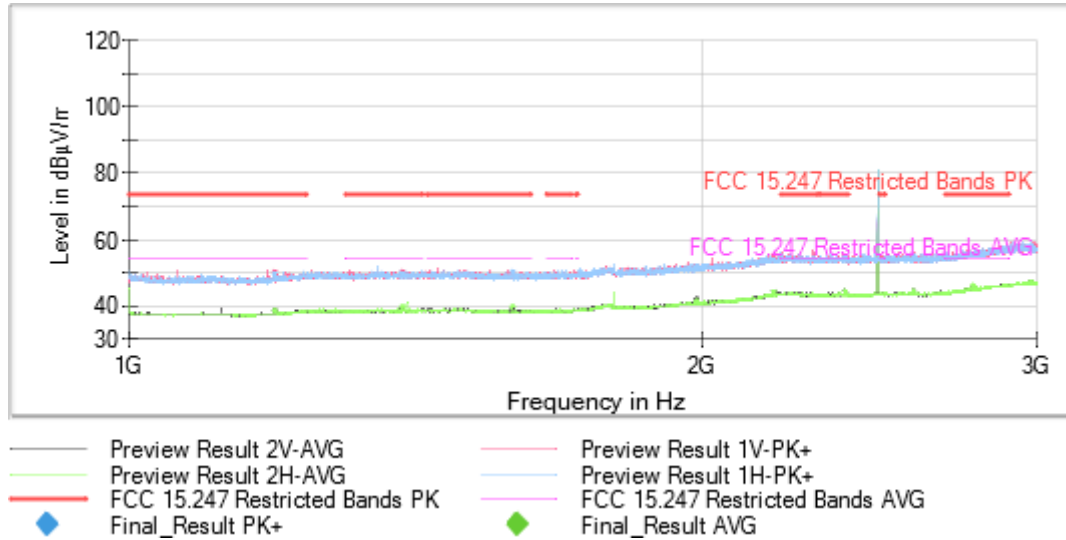
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2480.00000

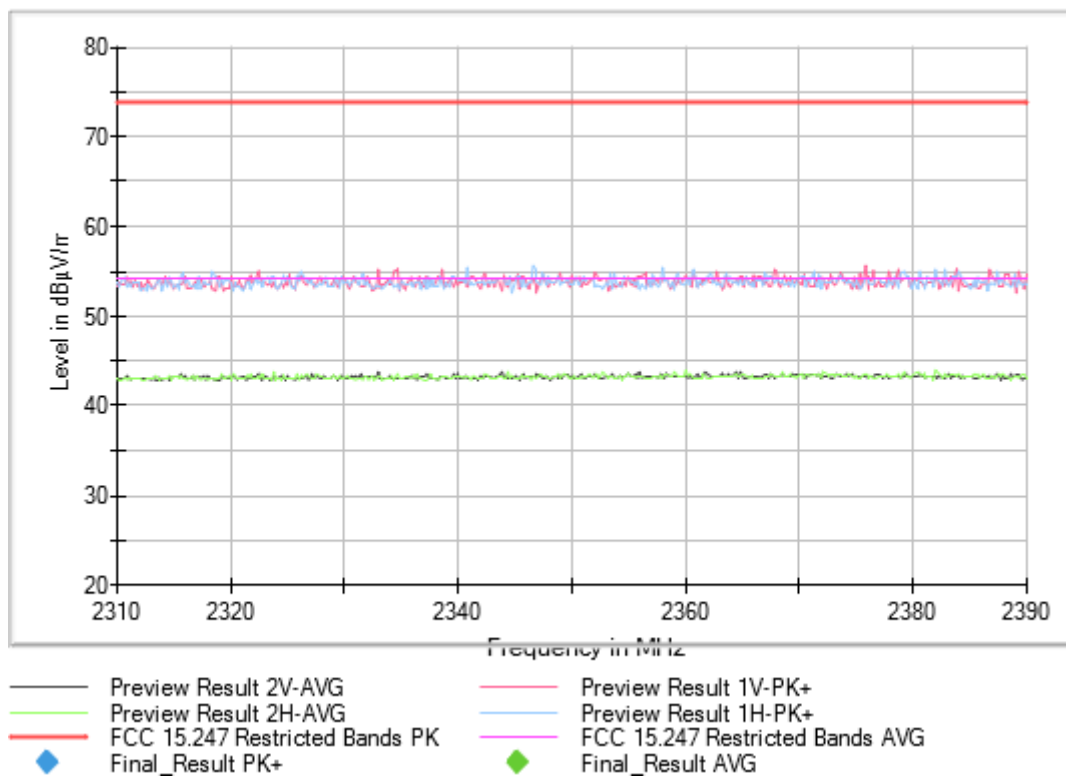
Active Port = 1

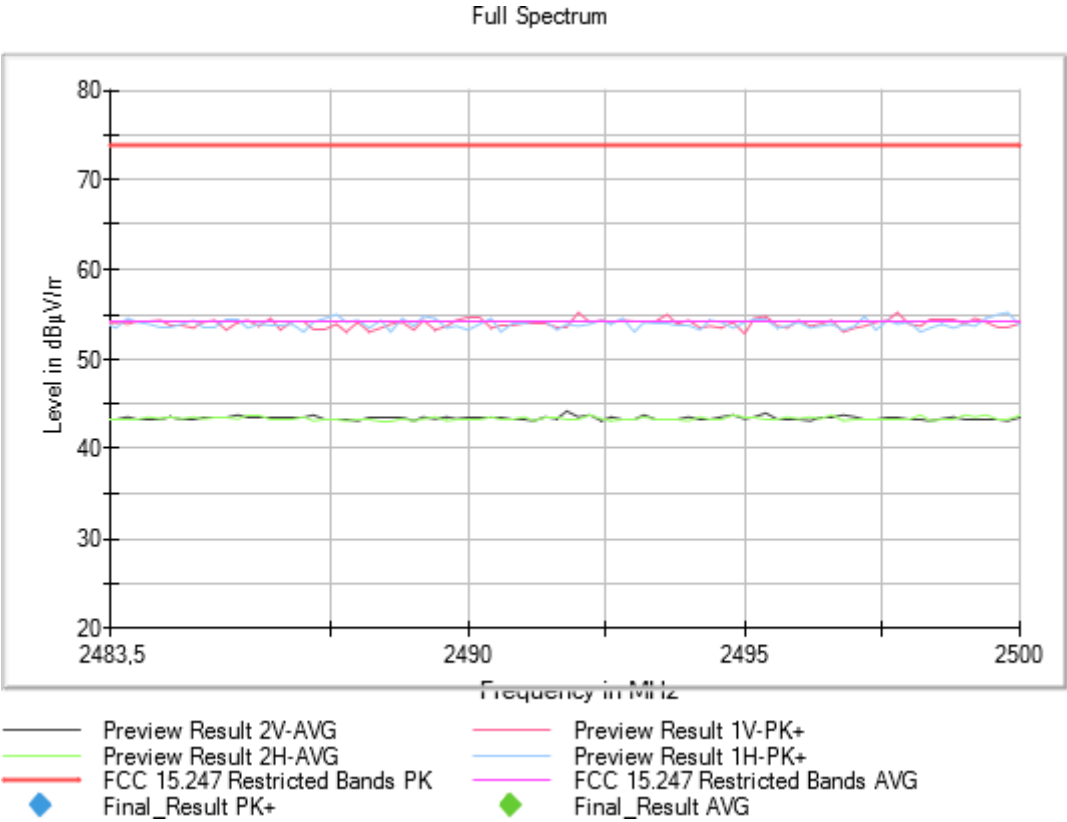
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Full Spectrum





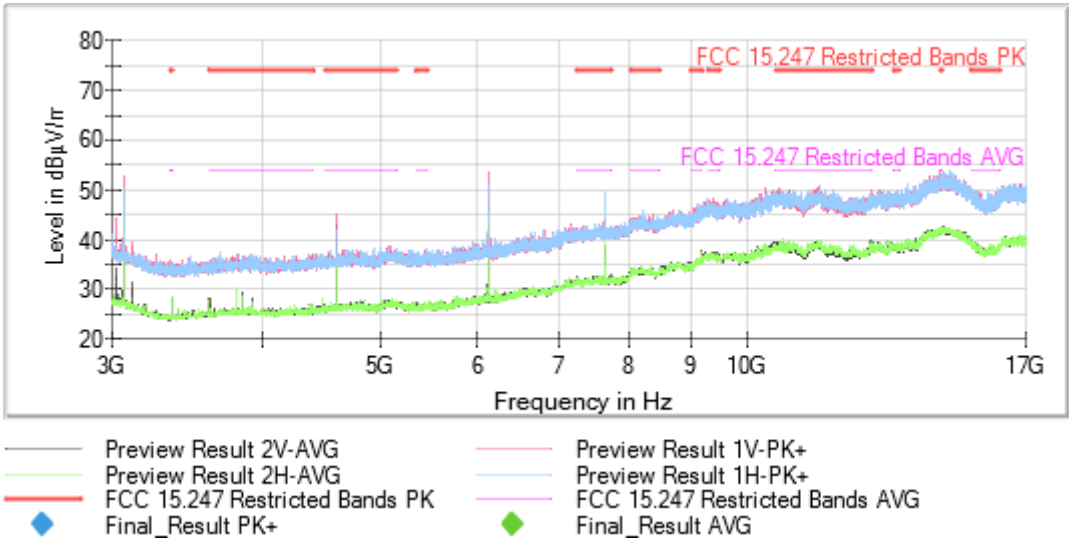
Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Active Port = 1

Frequency Range GHz = [3, 17]
Frequency MHz = 2402.00000
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



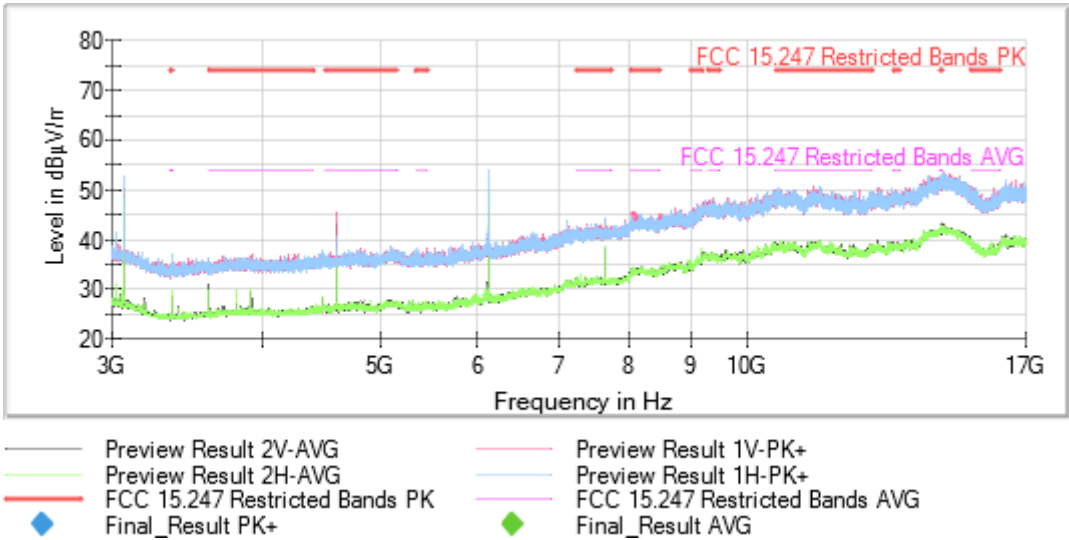
Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Active Port = 1

Frequency Range GHz = [3, 17]
Frequency MHz = 2441.00000
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



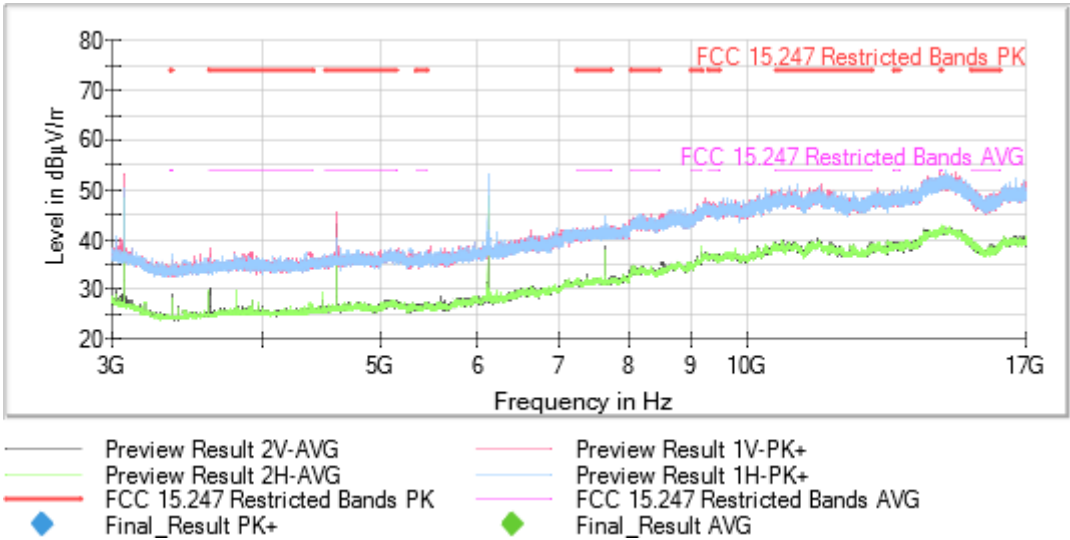
Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Active Port = 1

Frequency Range GHz = [3, 17]
Frequency MHz = 2480.00000
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [17, 26]

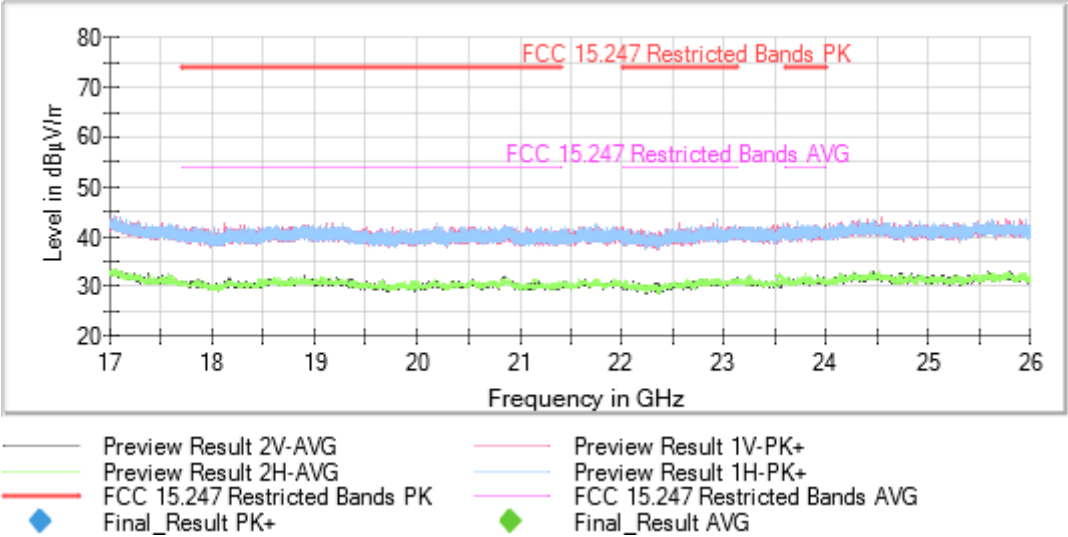
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2402.00000

Active Port = 1

Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSV 40]					
	17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Modulation: BT (8DPSK 3-DH5)

Results

- Frequency range [30MHz - 1GHz]

The spurious frequencies do not depend on modulation and channel operation.

No spurious frequencies detected at less than 20 dB below the limit.

- Frequency range [1 - 17GHz]

No spurious frequencies detected at less than 20 dB below the limit.

- Frequency range [17 - 26GHz]

The spurious frequencies do not depend on modulation and channel operation.

No spurious frequencies detected at less than 20 dB below the limit.

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

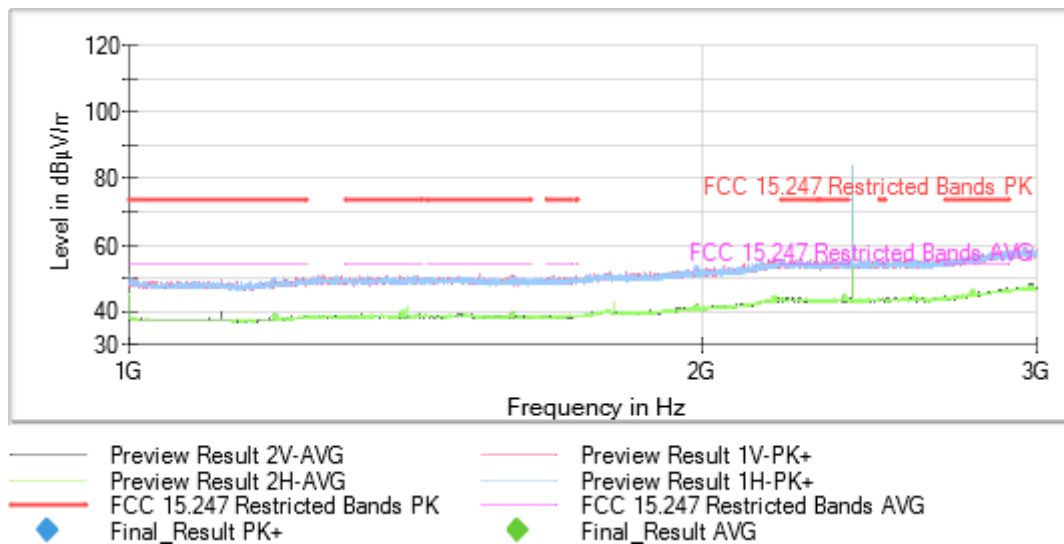
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2402.00000

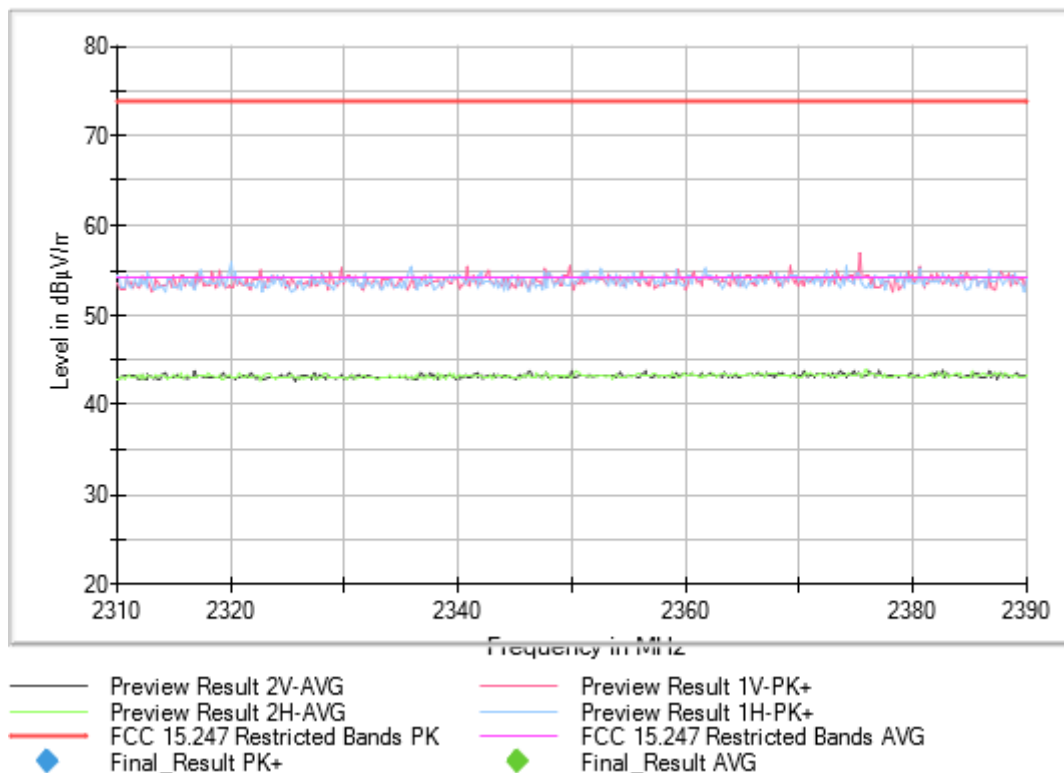
Active Port = 1

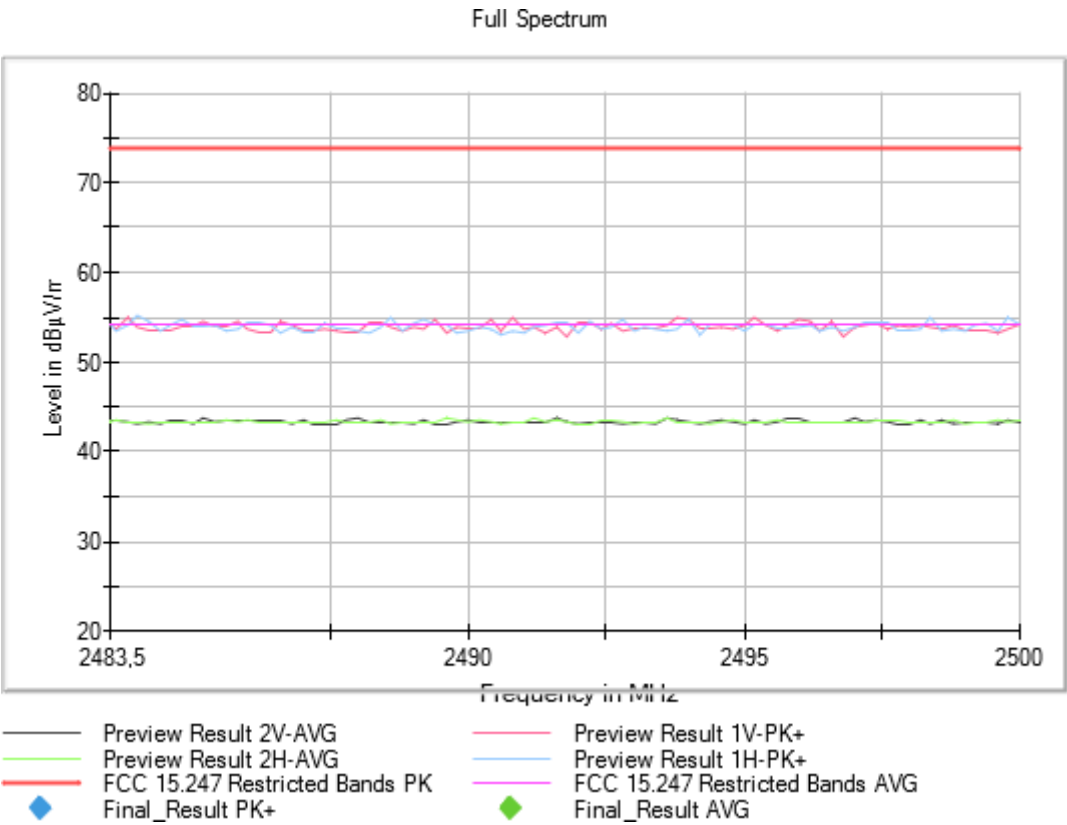
Modulation = BT (8DPSK 3-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

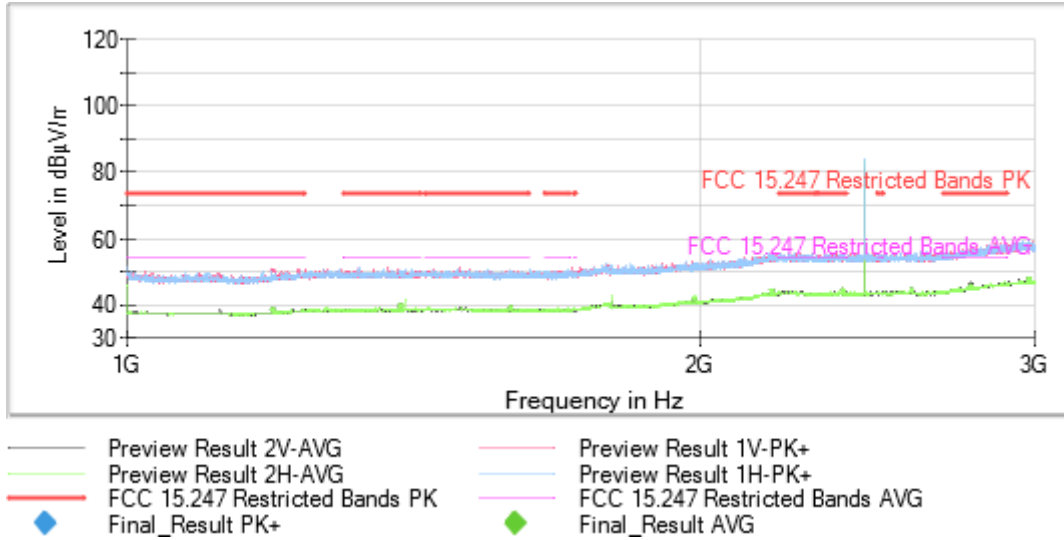
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2441.00000

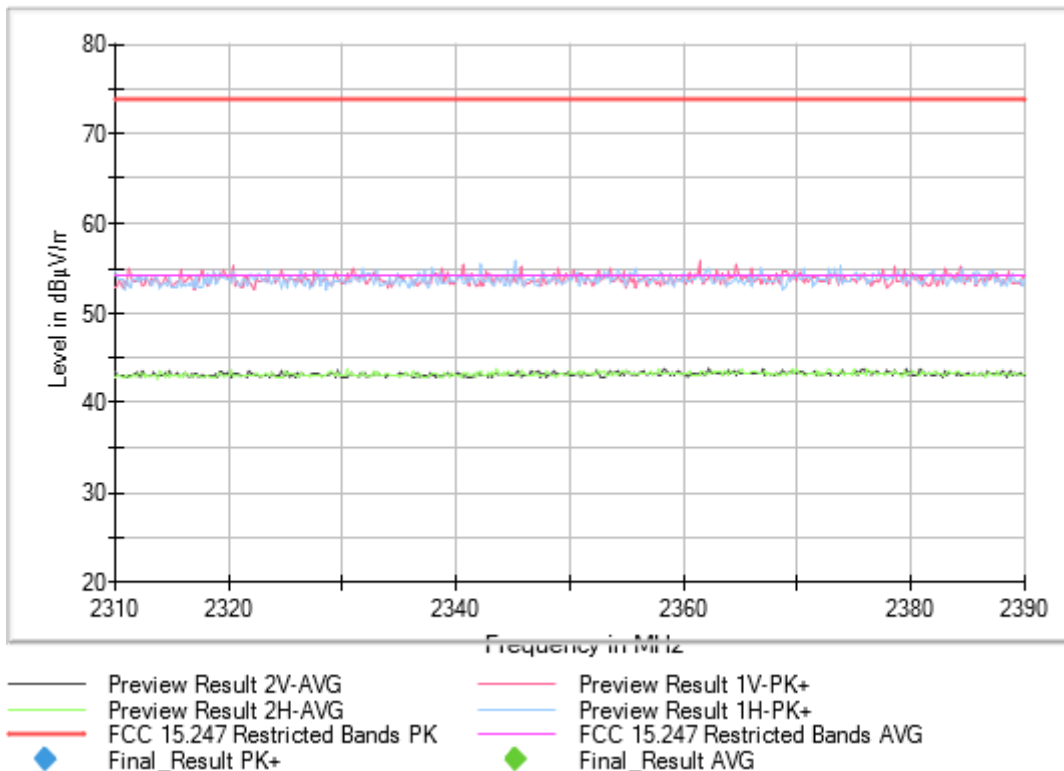
Active Port = 1

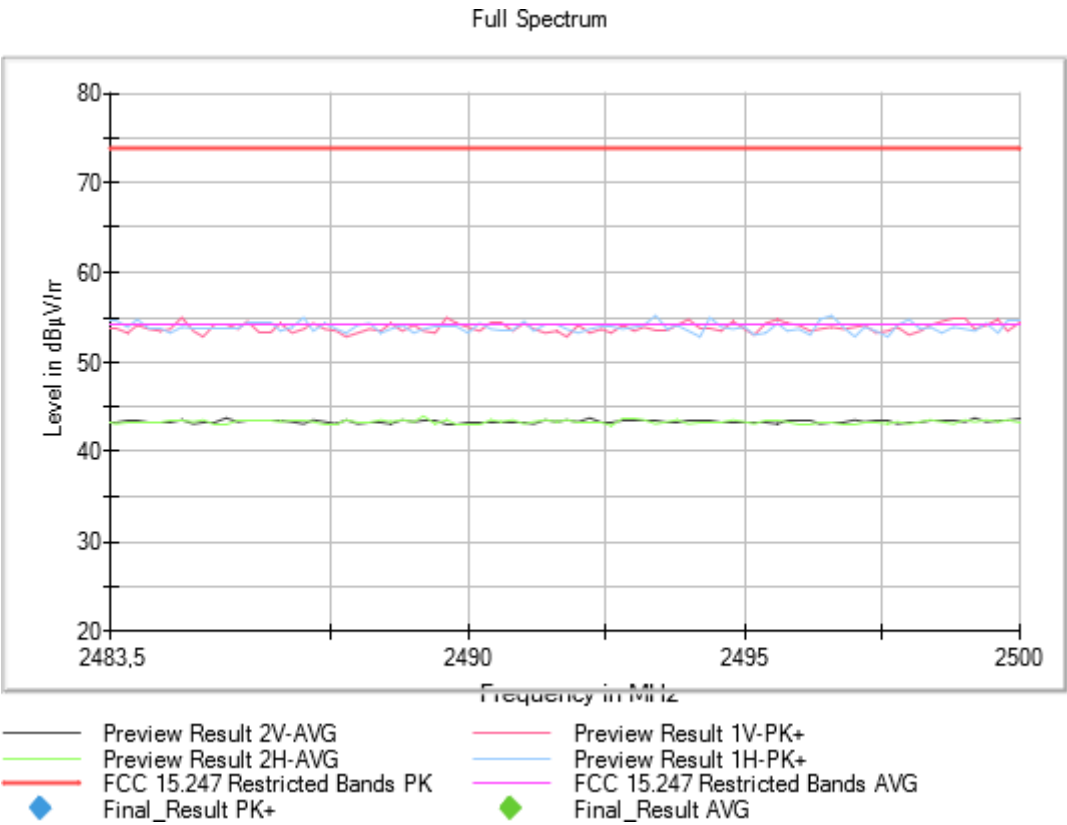
Modulation = BT (8DPSK 3-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [1, 3]

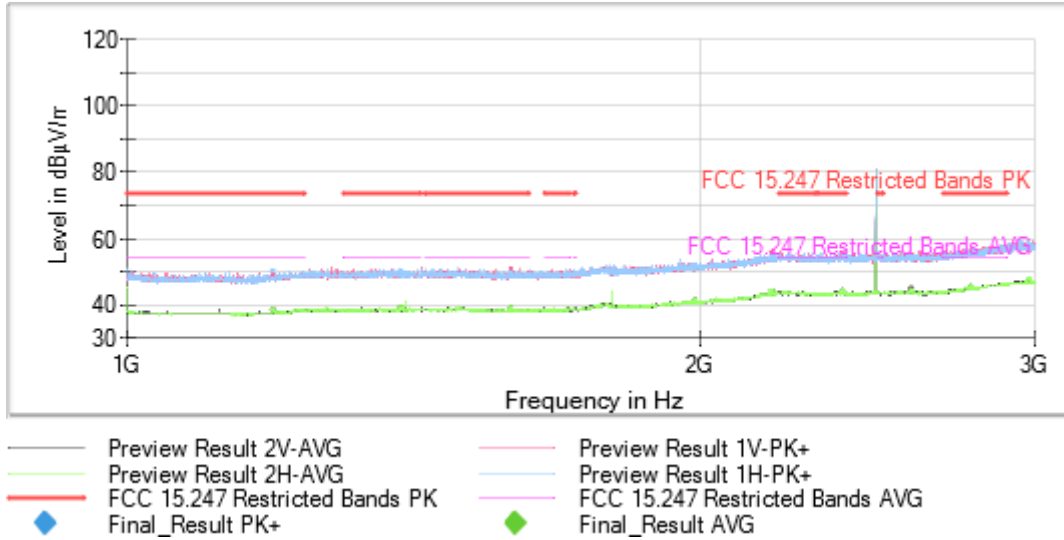
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000

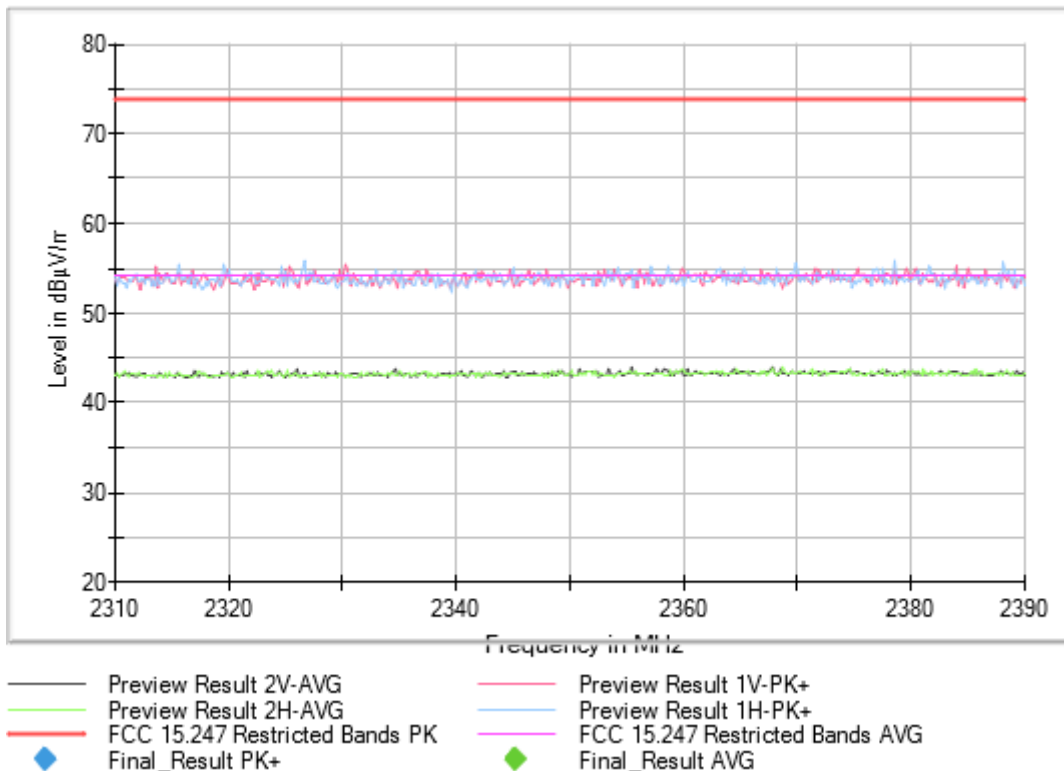
Active Port = 1

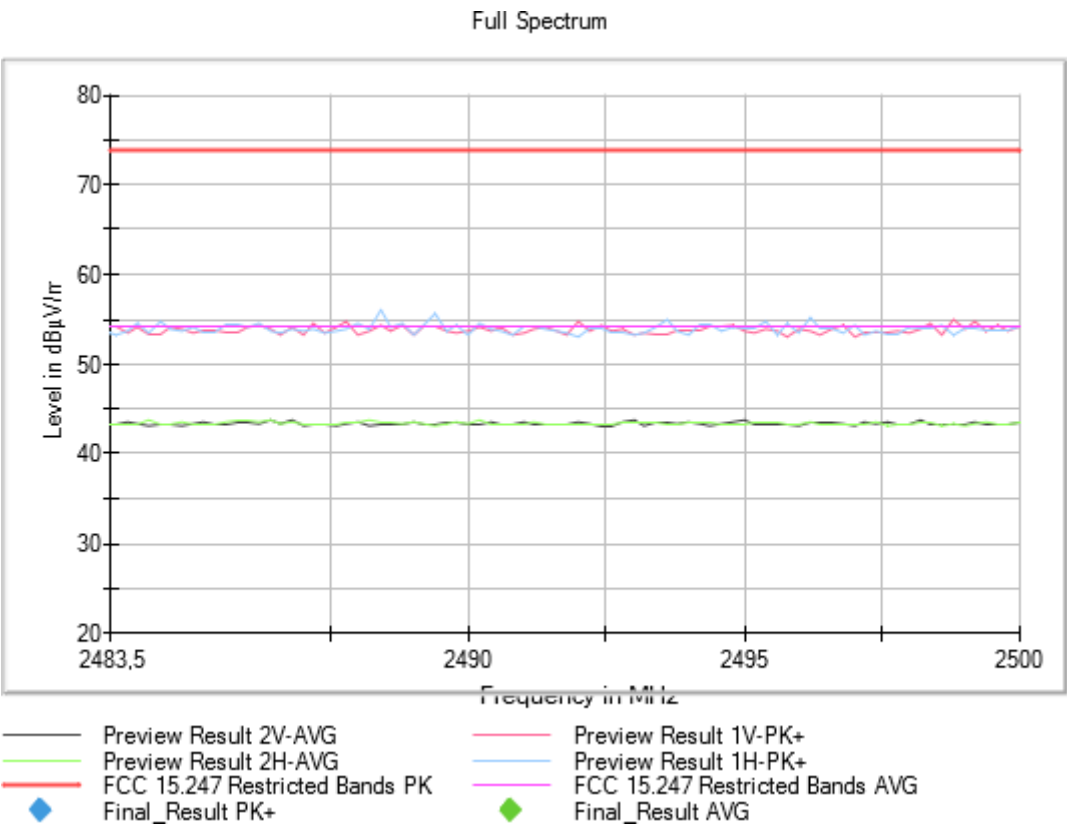
Modulation = BT (8DPSK 3-DH5)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	1 GHz - 3 GHz	200 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

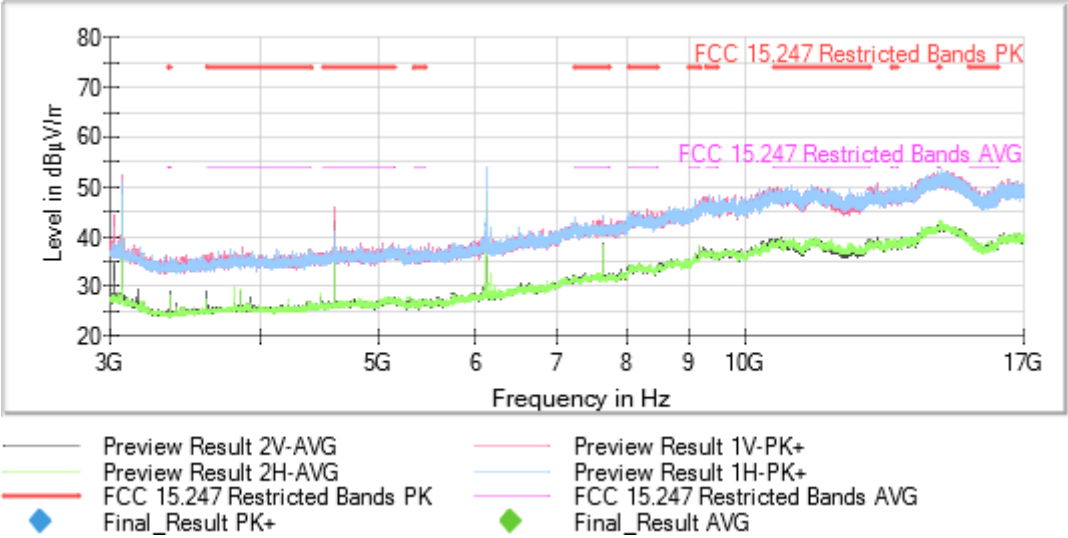
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2402.00000

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

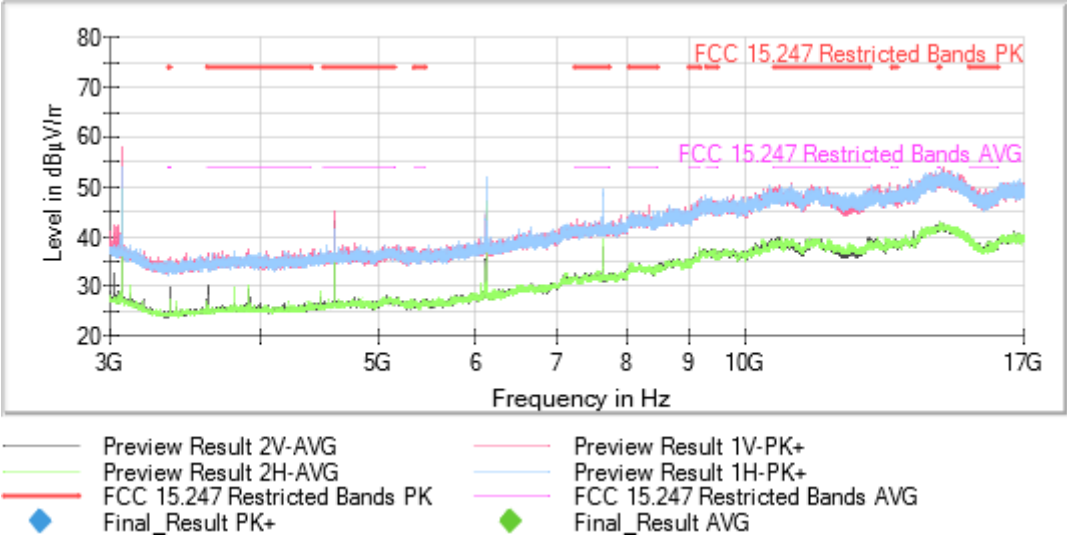
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2441.00000

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

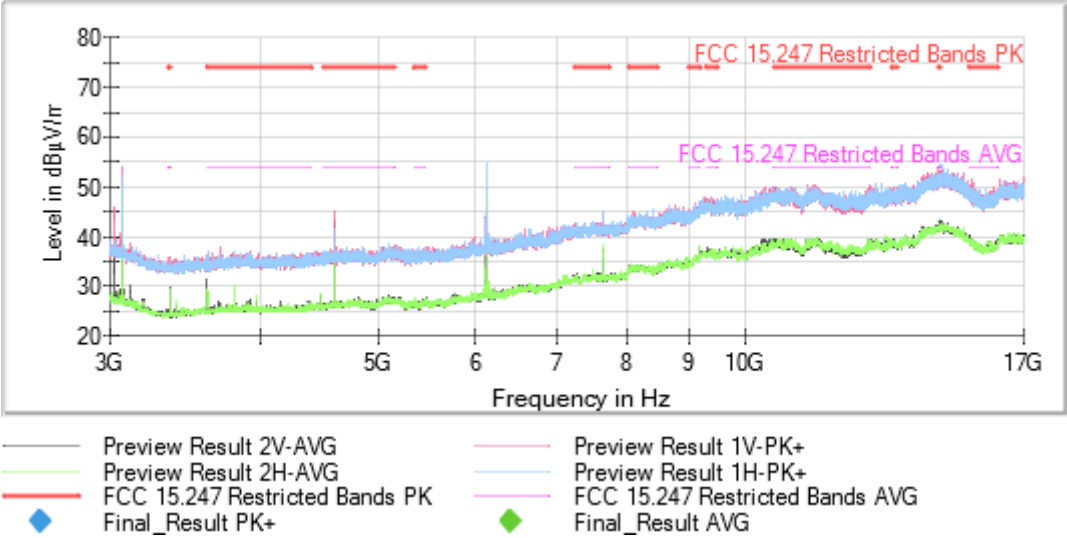
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Images:



Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESW 44]					
	3 GHz - 17 GHz	466,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Appendix C: Test results. 802.11bgnax

TEST CONDITIONS	315
SAMPLE CALCULATION	318
TEST CASES DETAILS	319
<i>99dBw Occupied Channel Bandwidth 99%</i>	319
<i>RSS-247 6.3.1 (a) / FCC 15.247 (a) (2) [6dBw] 6 dB Bandwidth</i>	331
<i>RSS-247 6.3.1. (b) / FCC 15.247 (e) [PSD] Power Spectral Density</i>	343
<i>RSS-247 6.3.2 / FCC 15.247 (b) [Avcp] Maximum Average Conducted Output Power</i>	355
<i>RSS-247 6.6 / FCC 15.247 (d) [Bndedge] Band-edge emissions compliance (Transmitter)</i>	367
<i>RSS-247 6.6 / FCC 15.247 (d) [RSE] Emission limitations radiated (Transmitter)</i>	383

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 12Vdc
Type of Power Supply: External power supply

ANTENNA (*):

Type of Antenna: PCB integrated slot antenna
Maximum Declared Antenna Gain: -1.67 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

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).

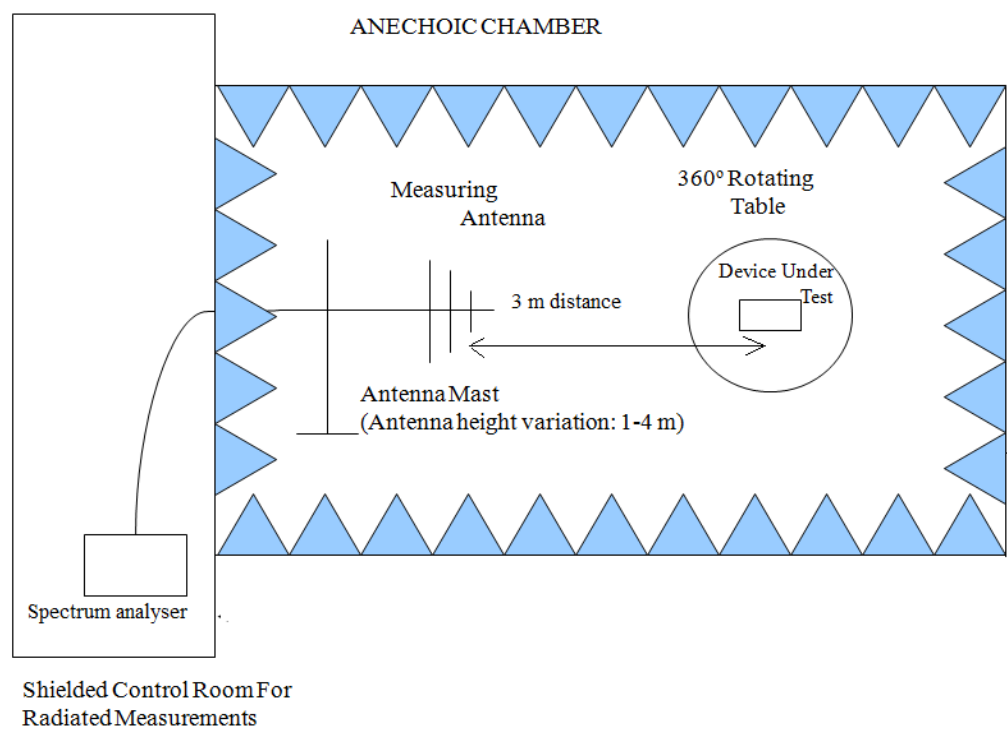
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

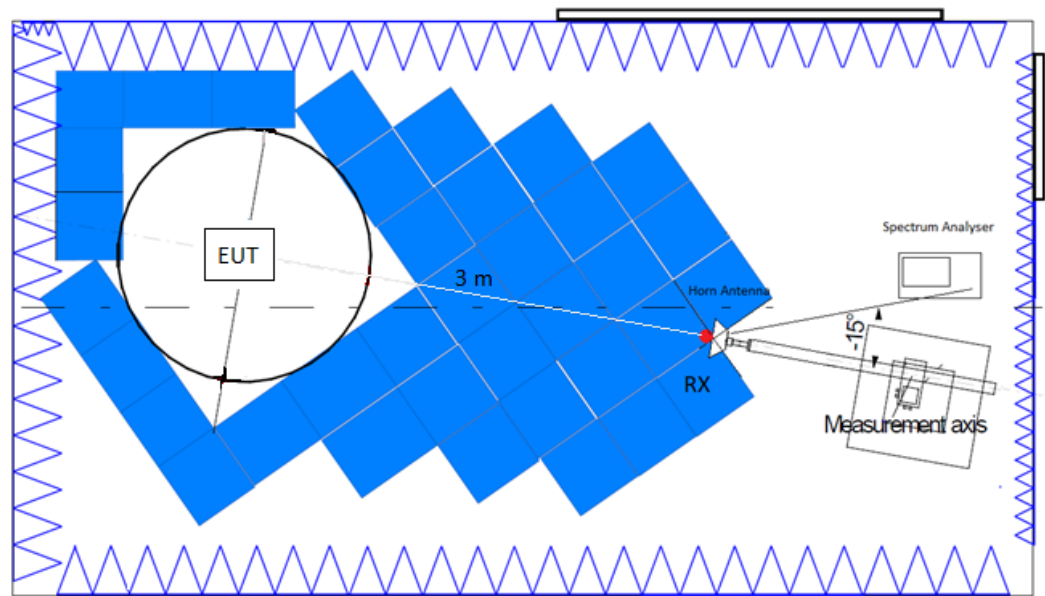
Measurements were made in both horizontal and vertical planes of polarization.

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.

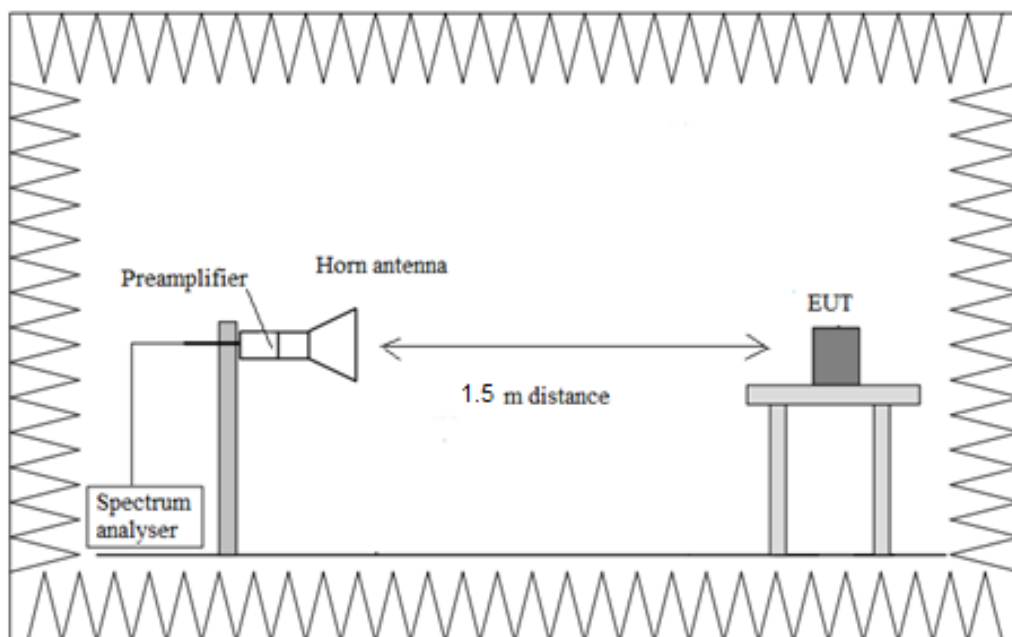
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



SAMPLE CALCULATION

For radiated measurements:

Values measures by the test receiver / analyzer are converted to field strength, in dBuV/m, at the regulatory distance using the following calculation:

$$\text{Unwanted Lvl (dBuV/m)} = \text{Raw Rec (dBuV)} + \text{Preamp (dB)} + \text{Trd Corre. (dB/m)} + \text{SigPath (dB)}$$

Where,

Raw Rec (dBuV): Measured voltage in the receiver / spectrum analyzer in dBuV

Preamp (dB): Path loses due to preamplifier

Trd Corr. (dB/m): Antenna factor in dB/m

SigPath (dB) = Cable loss (dB) – External Gain amplifier (dB) – Distance factor (dB)

Cable loss (dB): Cable loss

External Gain amplifier (dB): Gain from external amplifier (when used)

Distance factor (dB): Distance factor in dB. When measurement distance is different to limit distance

The field strength, calculated by this way is compared with the regulatory limit.

TEST CASES DETAILS

99dBw Occupied Channel Bandwidth 99%

Limits

RSS-Gen 6.7 / FCC 2.1049 - Occupied Channel Bandwidth 99%

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained.

Modulation: 802.11b (DSSS 1 Mbit/s)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	RU (Tone/Index)	Occ Ch BW (MHz)
[2400, 2483.5]	Digital Transmission System (DTS)	2412.00000	1	-	11.400
		2437.00000			11.300
		2462.00000			11.500

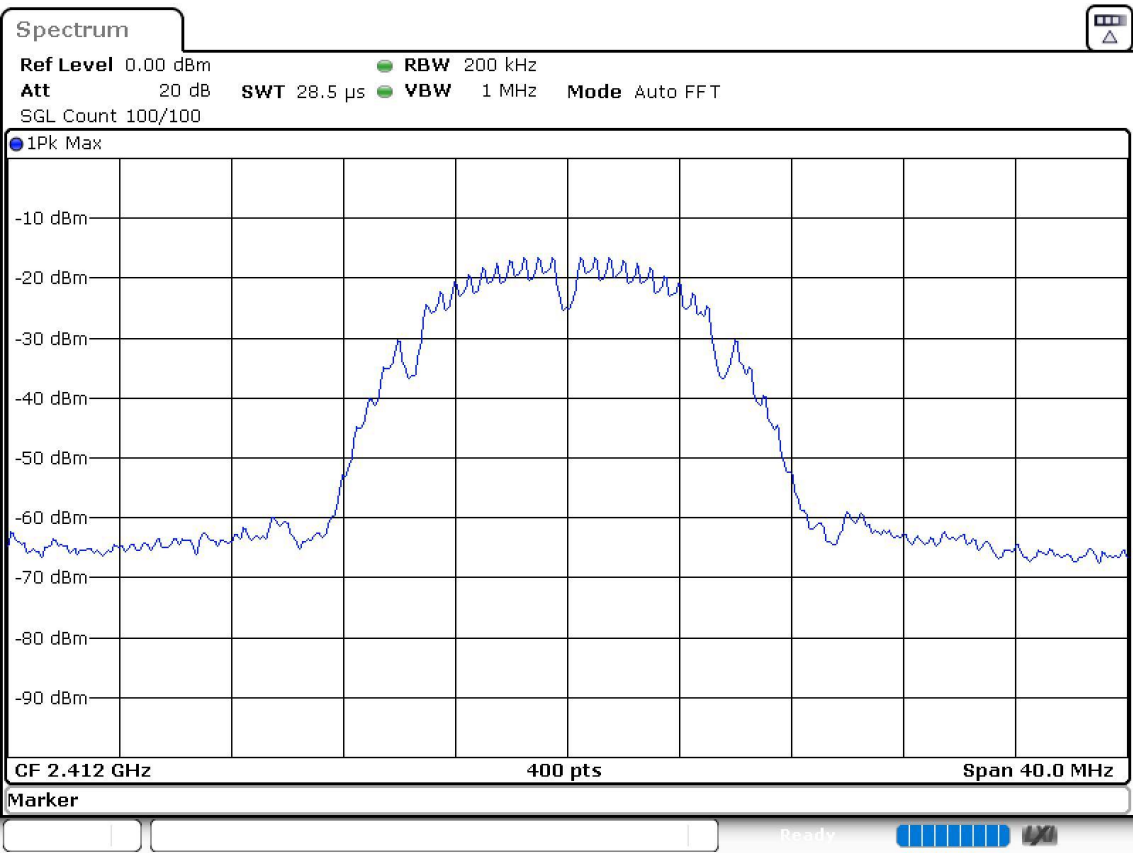
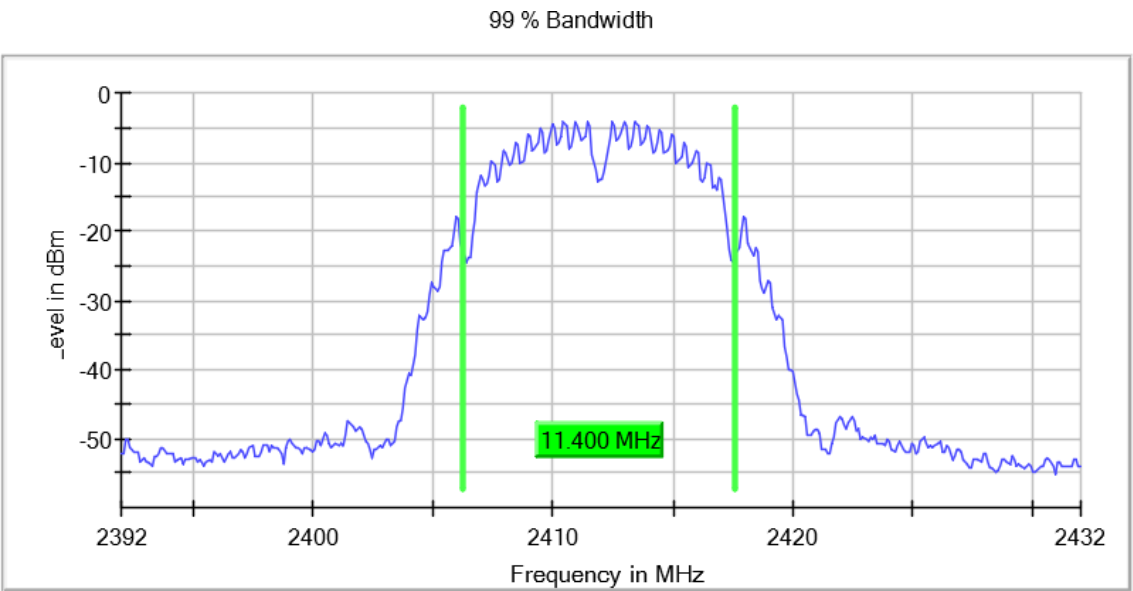
Verdict

Pass

Attachments

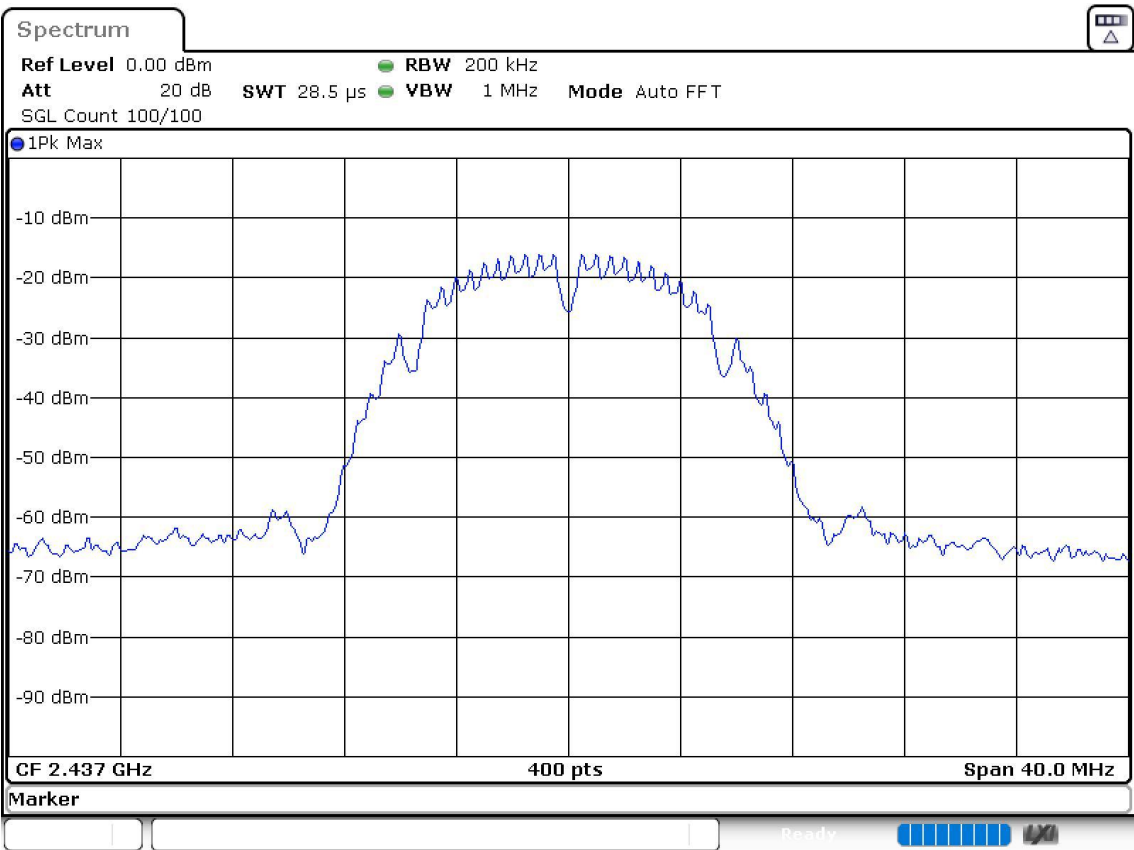
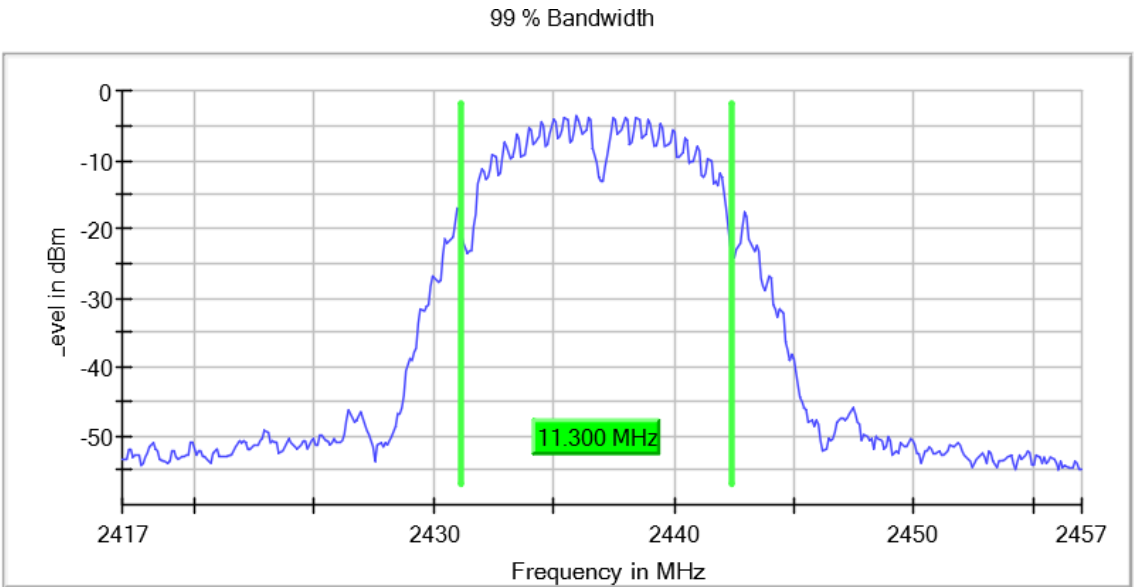
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2412.00000 Active Port = 1
Modulation = 802.11b (DSSS 1 Mbit/s) Resource Unit Tone/Index = -

Images:



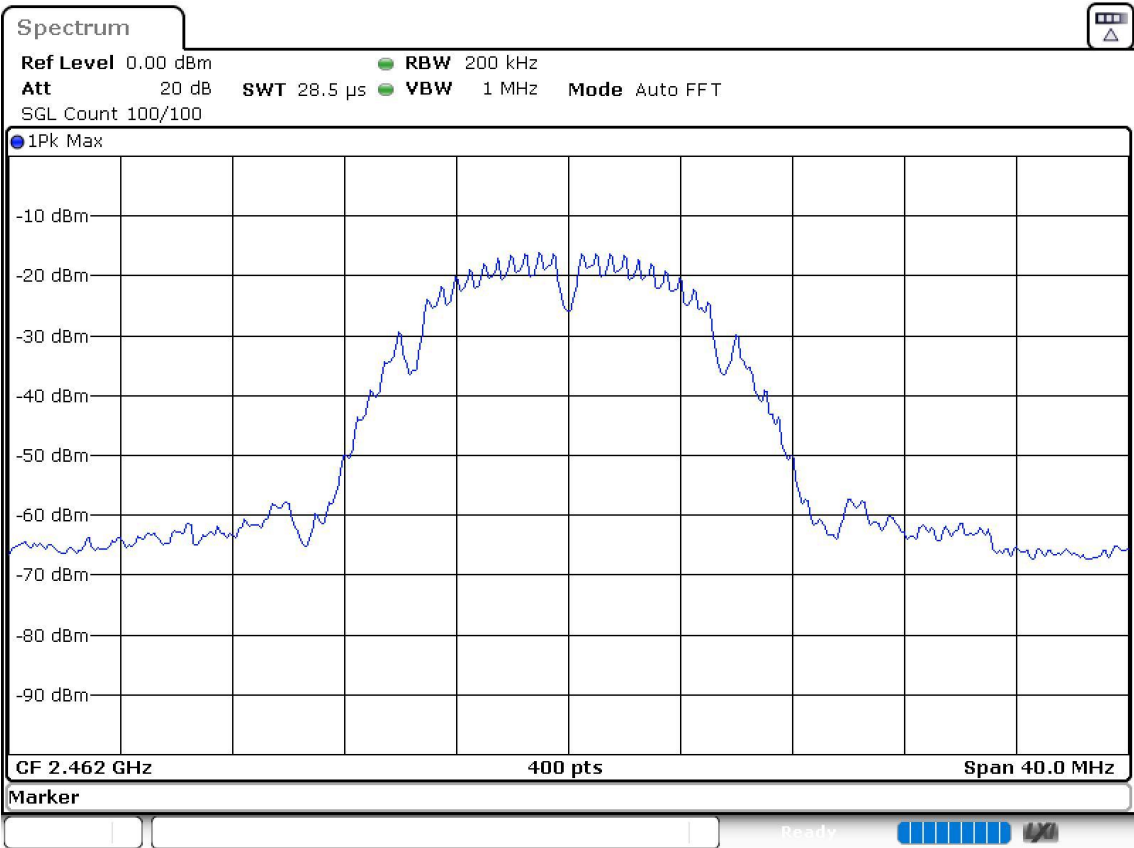
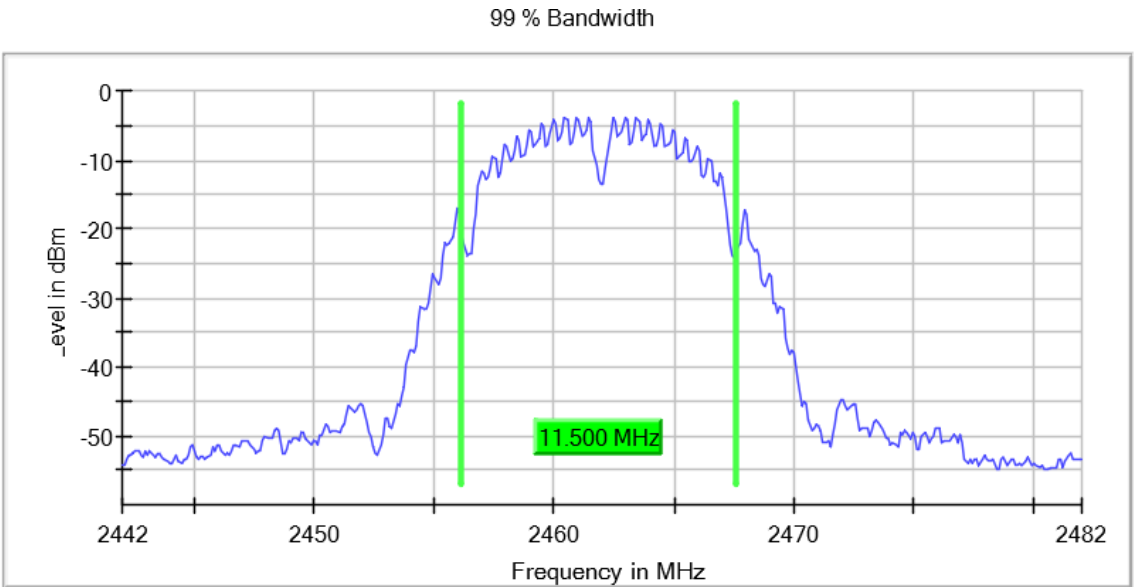
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2437.00000 Active Port = 1
Modulation = 802.11b (DSSS 1 Mbit/s) Resource Unit Tone/Index = -

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2462.00000 Active Port = 1
Modulation = 802.11b (DSSS 1 Mbit/s) Resource Unit Tone/Index = -

Images:



Modulation: 802.11g (OFDM 6 Mbit/s)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	RU (Tone/Index)	Occ Ch BW (MHz)
[2400, 2483.5]	Digital Transmission System (DTS)	2412.00000	1	-	16.700
		2437.00000			16.800
		2462.00000			16.800

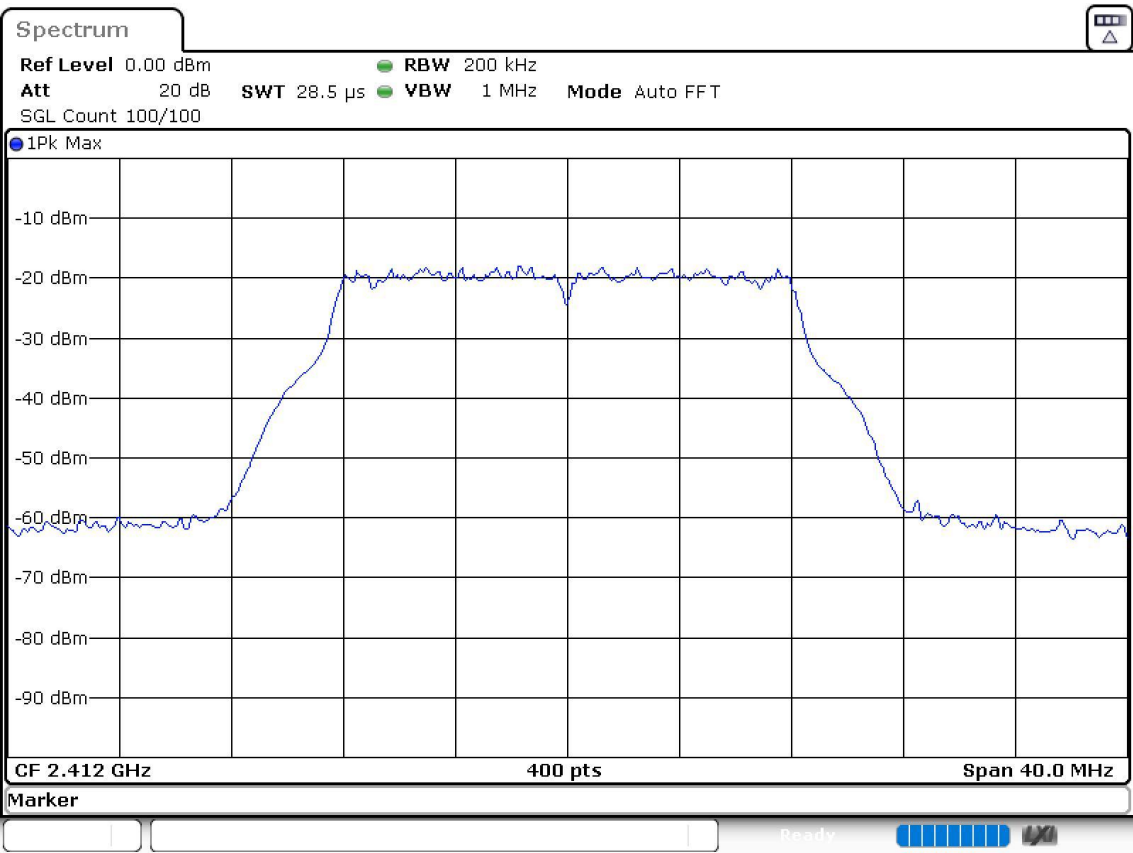
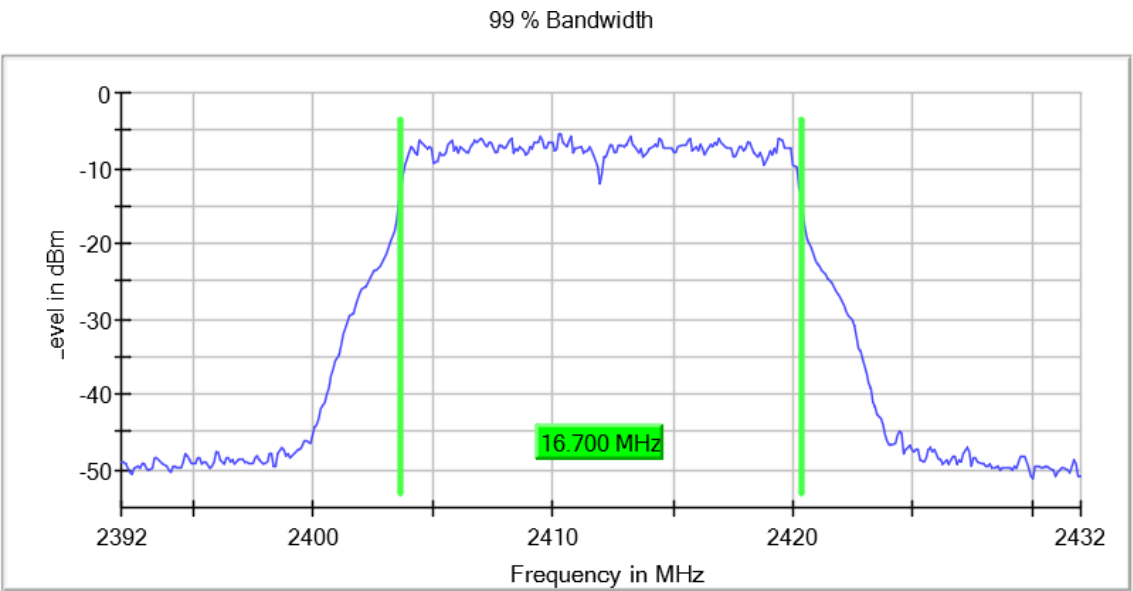
Verdict

Pass

Attachments

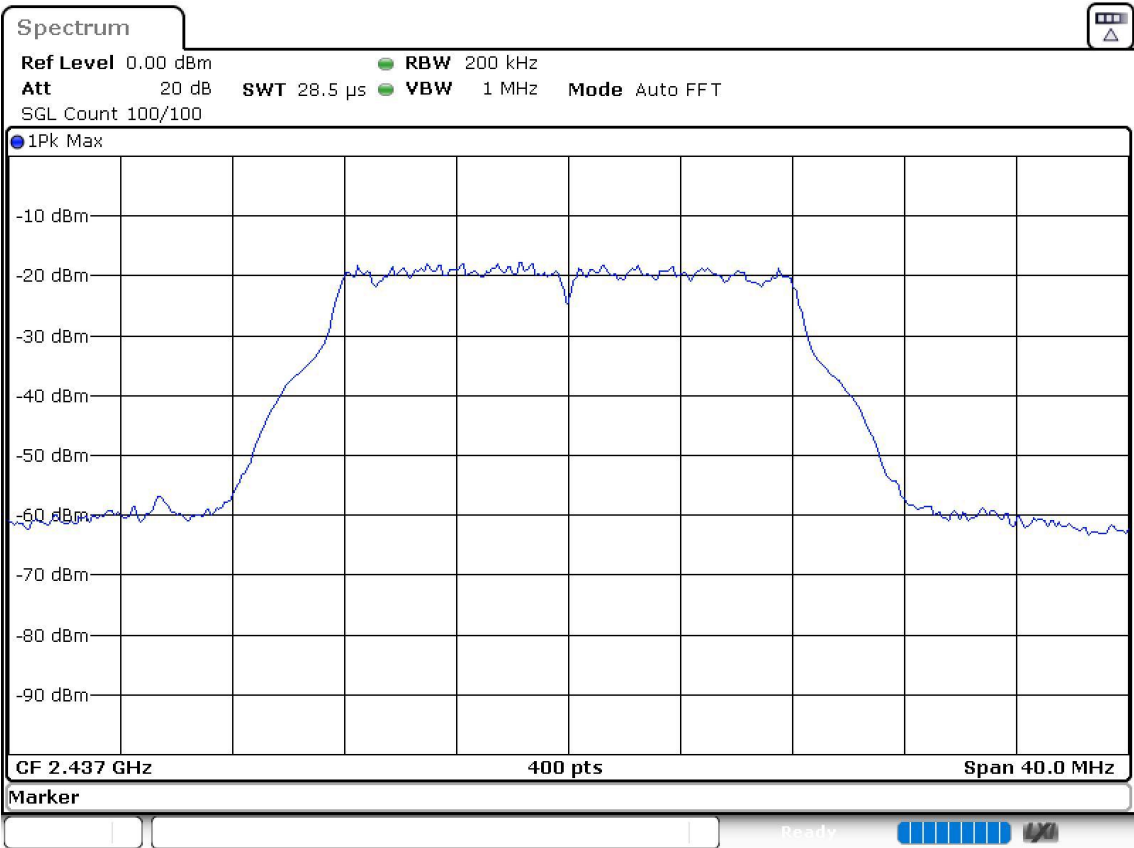
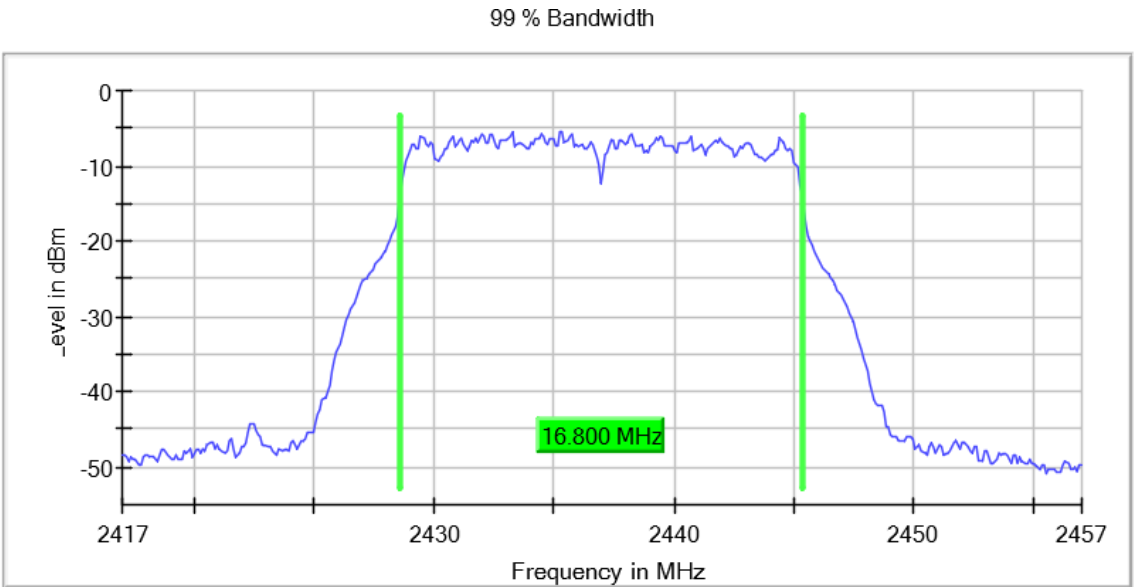
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2412.00000 Active Port = 1
Modulation = 802.11g (OFDM 6 Mbit/s) Resource Unit Tone/Index = -

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2437.00000 Active Port = 1
Modulation = 802.11g (OFDM 6 Mbit/s) Resource Unit Tone/Index = -

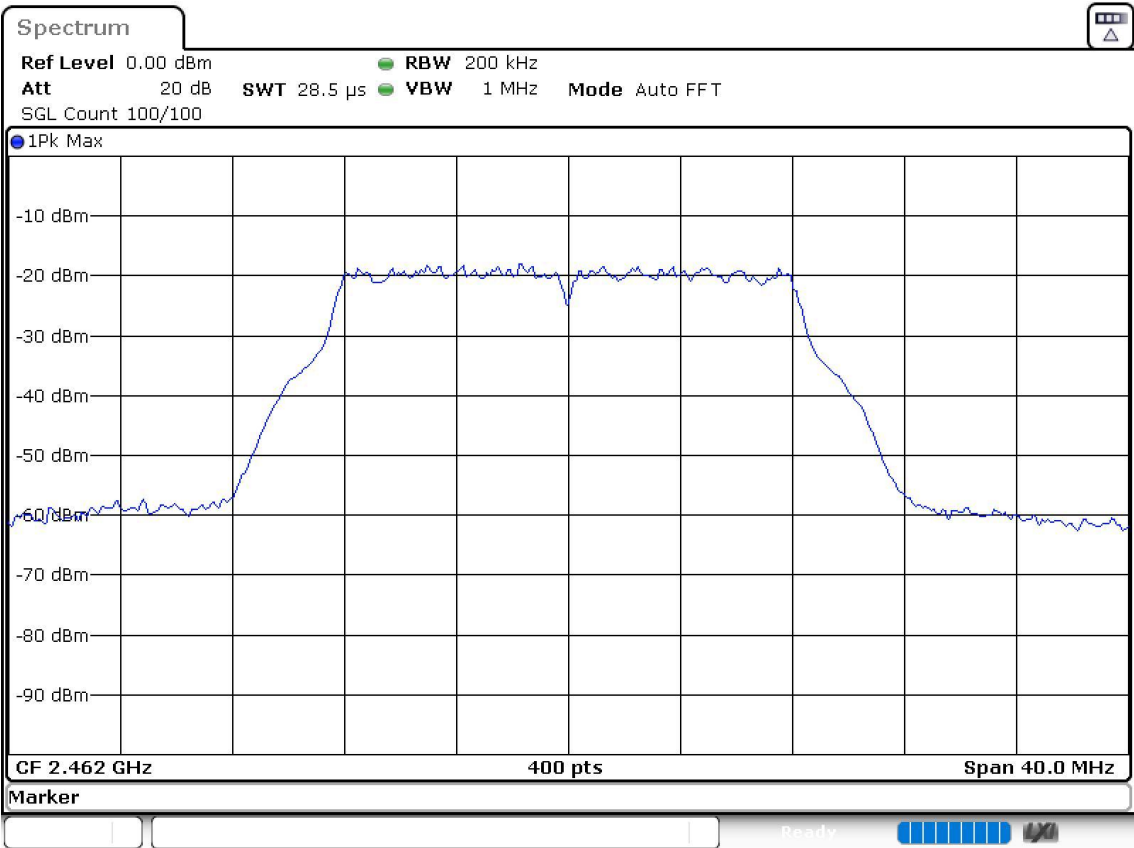
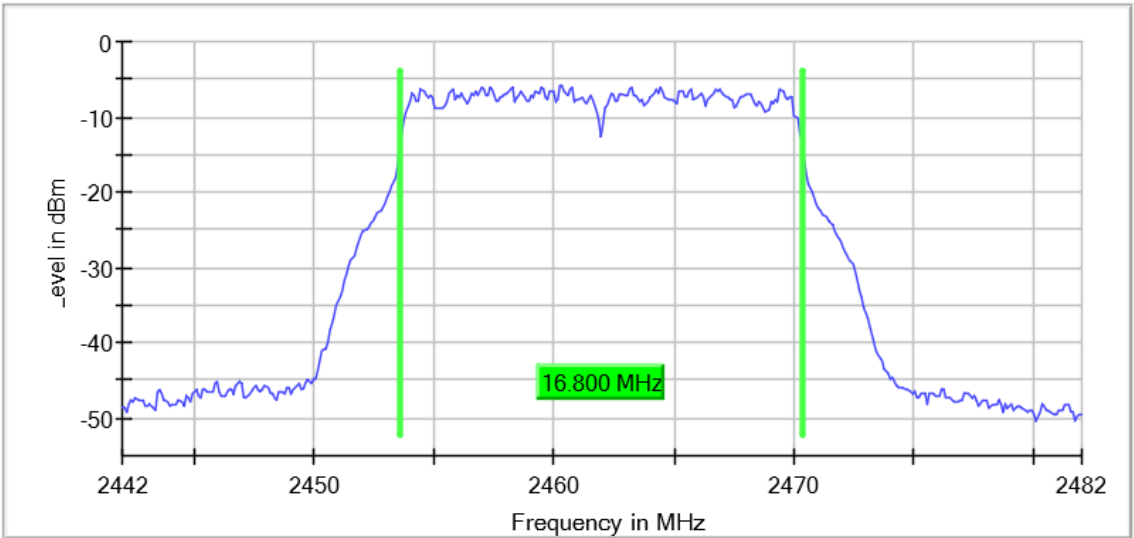
Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2462.00000 Active Port = 1
Modulation = 802.11g (OFDM 6 Mbit/s) Resource Unit Tone/Index = -

Images:

99 % Bandwidth



Modulation: 802.11n HT20 (OFDM MCS0)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	RU (Tone/Index)	Occ Ch BW (MHz)
[2400, 2483.5]	Digital Transmission System (DTS)	2412.00000	1	-	18.000
		2437.00000			18.000
		2462.00000			18.100

Verdict

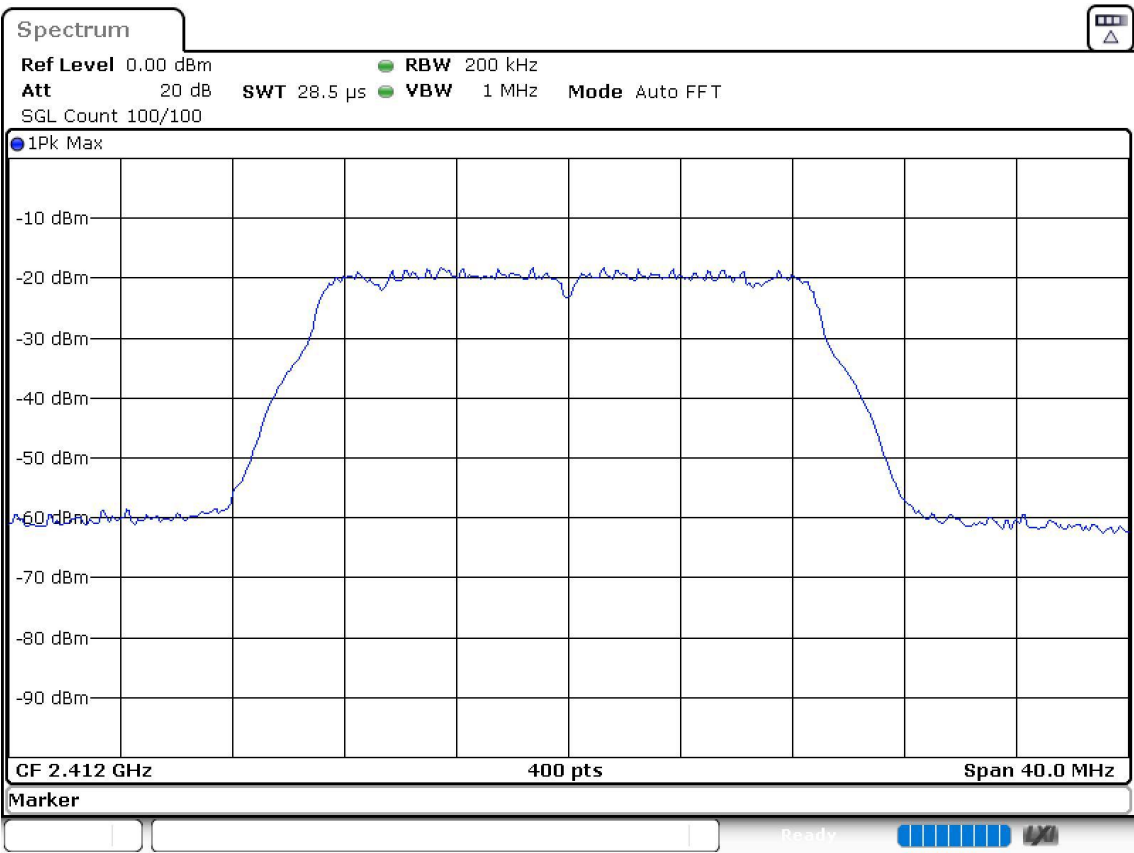
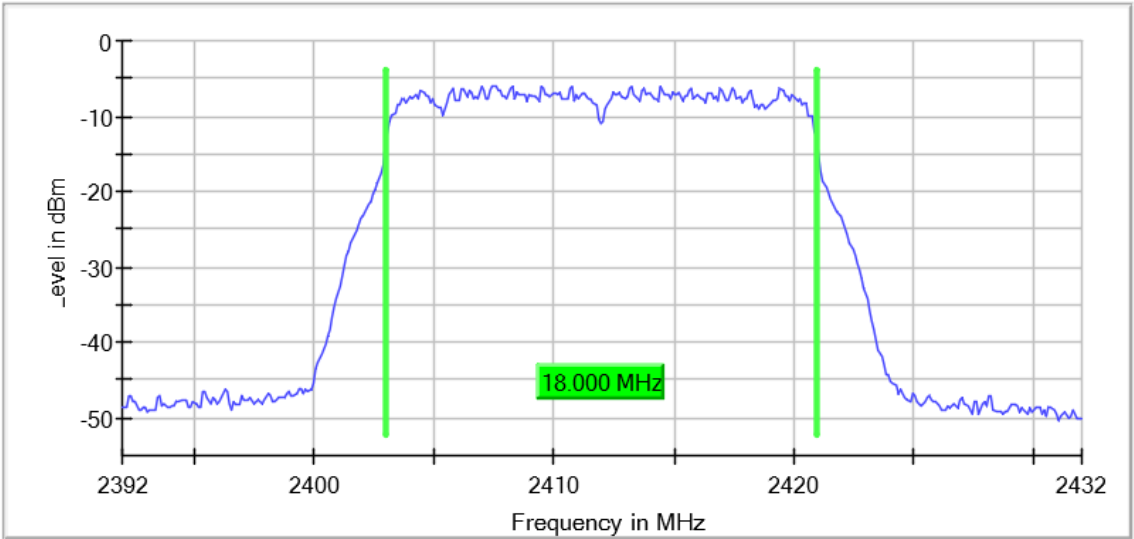
Pass

Attachments

Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2412.00000 Active Port = 1
Modulation = 802.11n HT20 (OFDM MCS0) Resource Unit Tone/Index = -

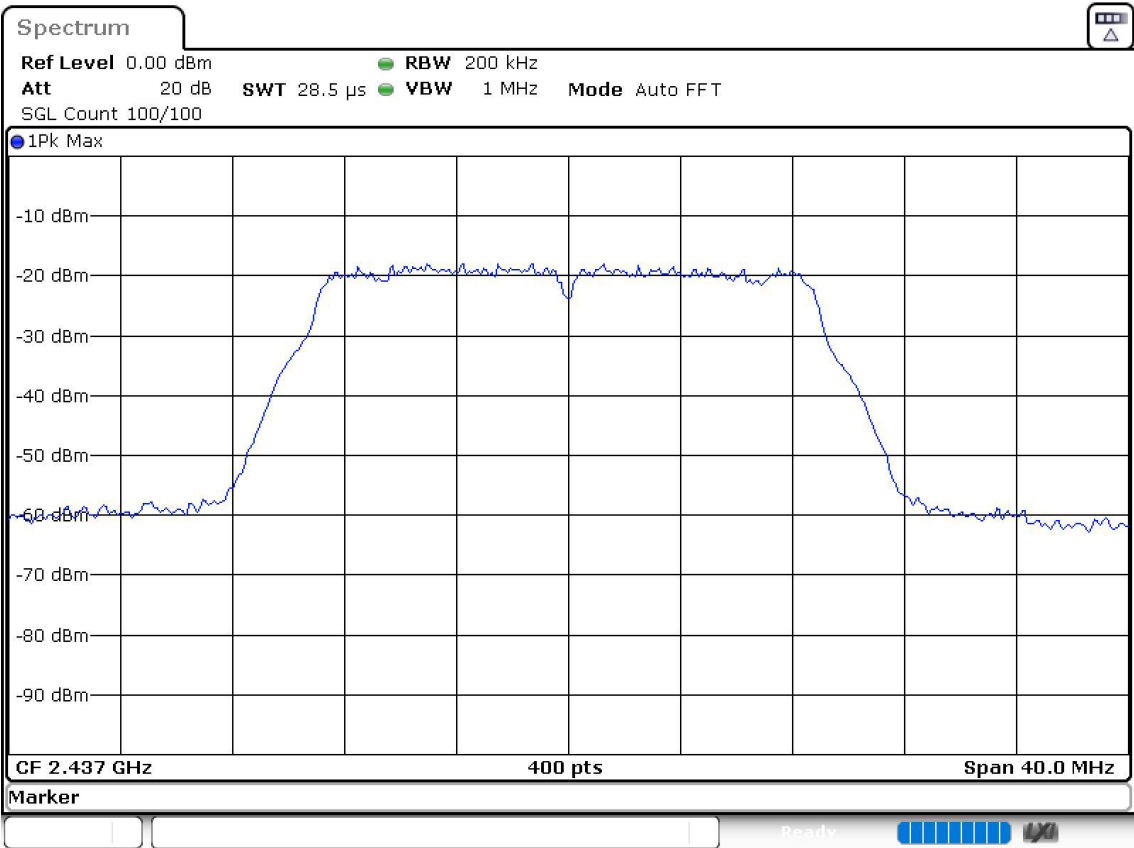
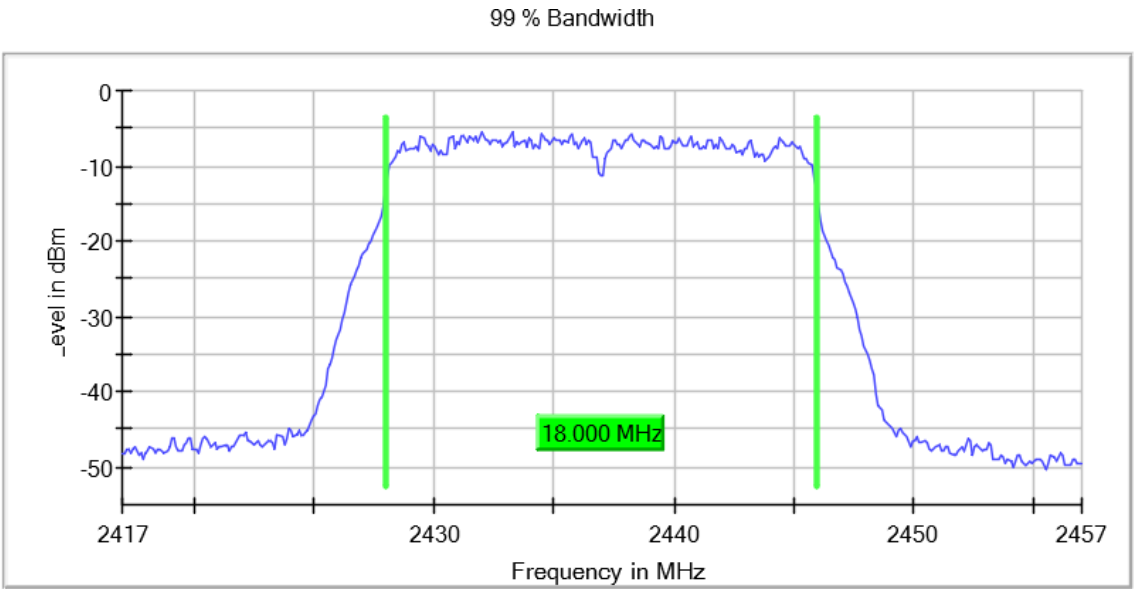
Images:

99 % Bandwidth



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2437.00000 Active Port = 1
Modulation = 802.11n HT20 (OFDM MCS0) Resource Unit Tone/Index = -

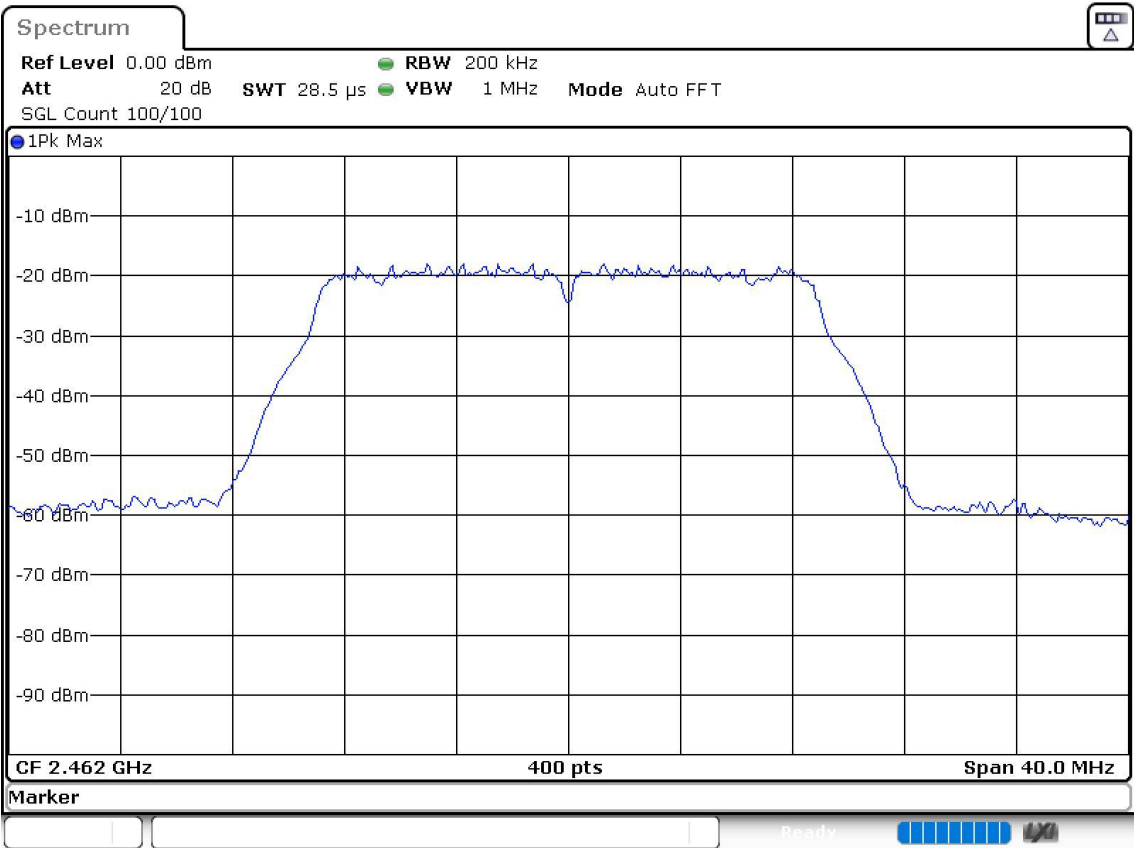
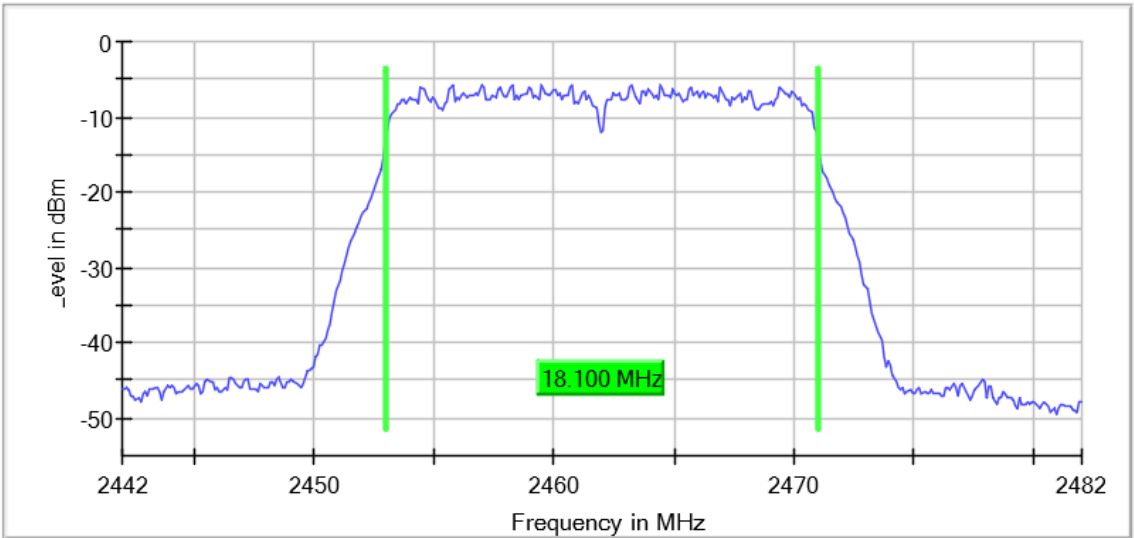
Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2462.00000 Active Port = 1
Modulation = 802.11n HT20 (OFDM MCS0) Resource Unit Tone/Index = -

Images:

99 % Bandwidth



RSS-247 6.3.1 (a) / FCC 15.247 (a) (2) [6dBw] 6 dB Bandwidth

Limits

Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Modulation: 802.11b (DSSS 1 Mbit/s)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	RU (Tone/Index)	Ebw (MHz)
[2400, 2483.5]	Digital Transmission System (DTS)	2412.00000	1	-	9.250
		2437.00000			8.839
		2462.00000			8.839

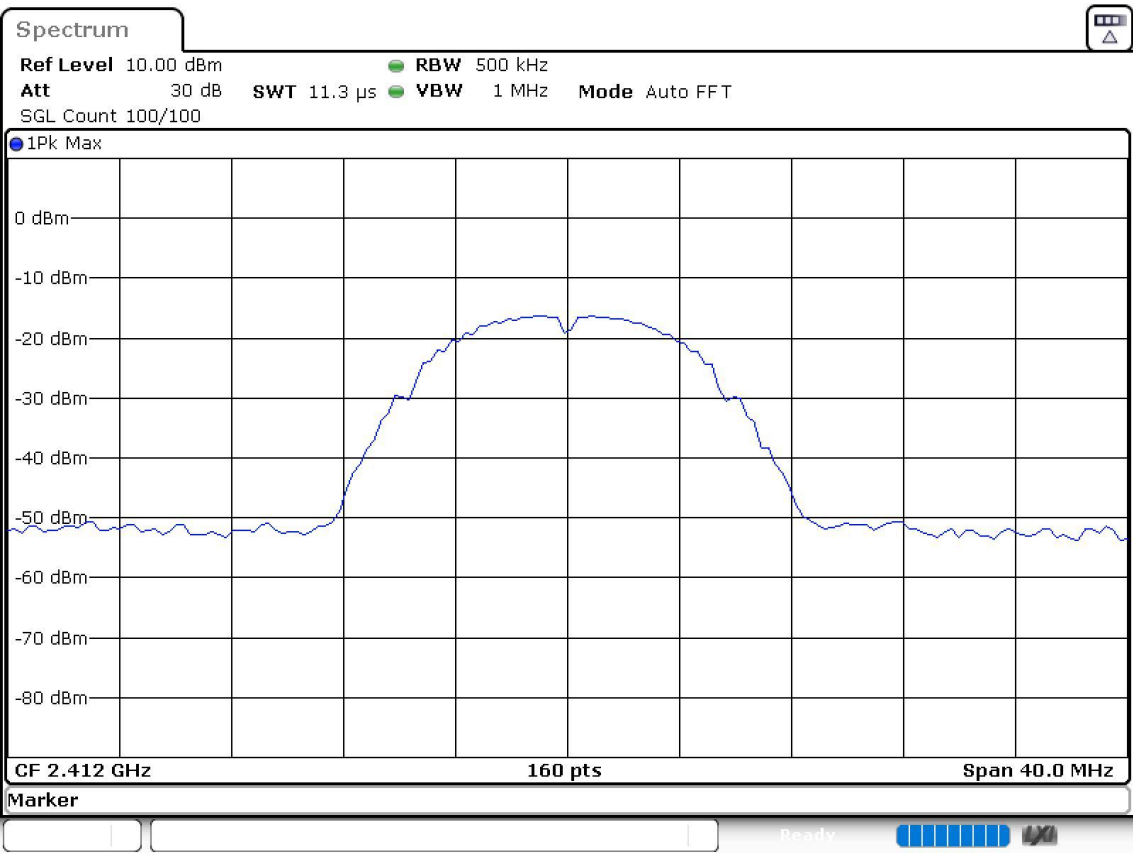
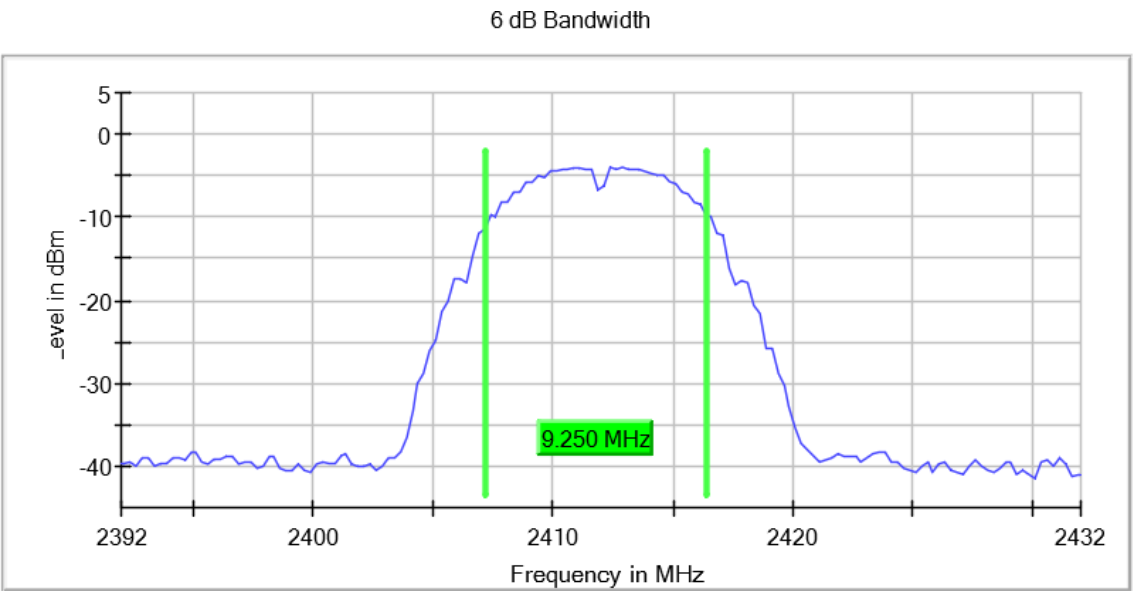
Verdict

Pass

Attachments

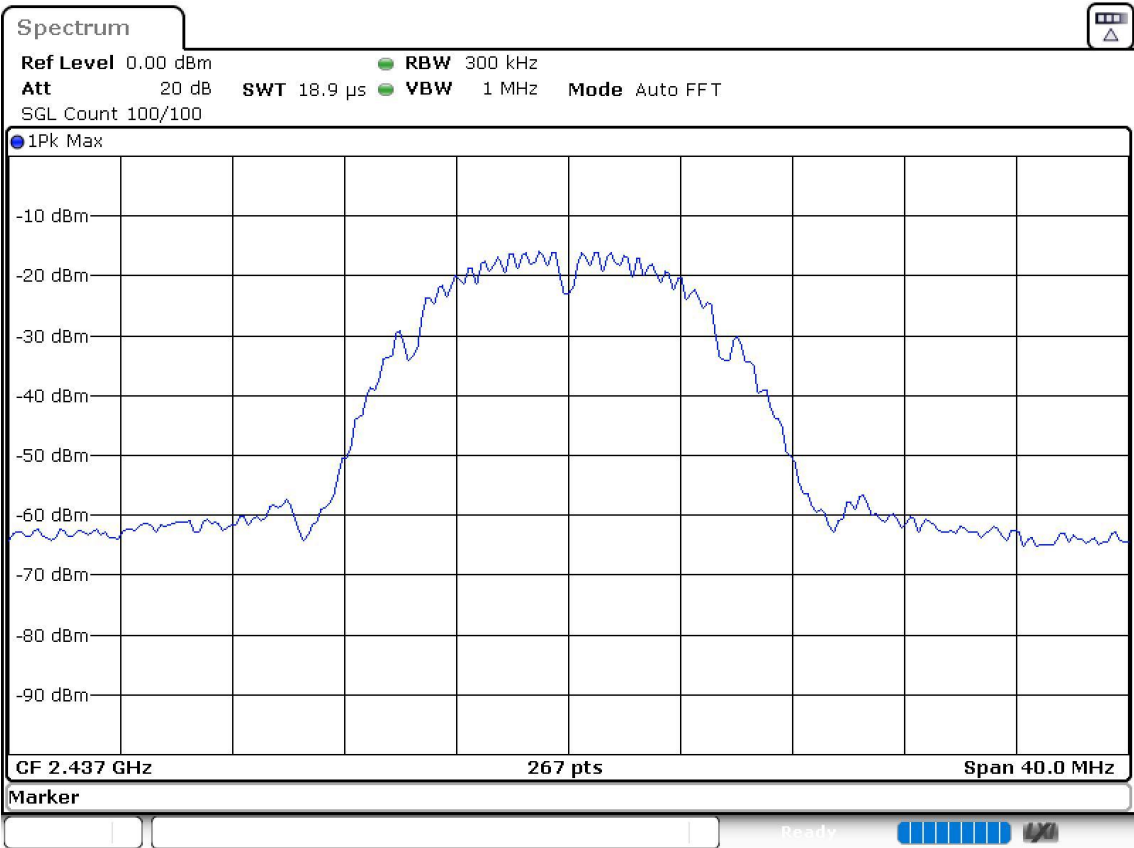
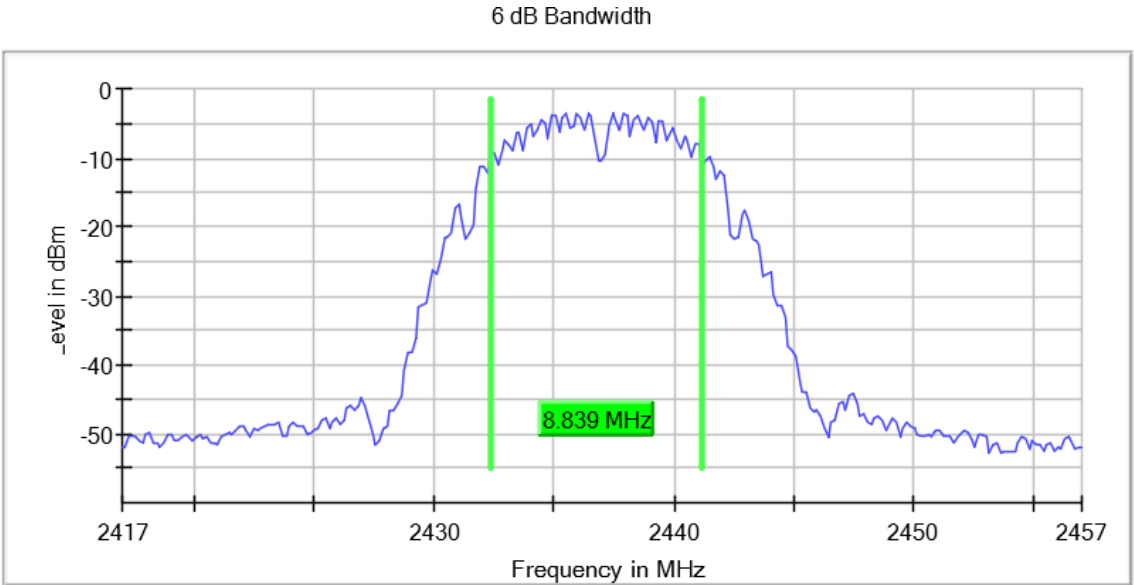
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2412.00000 Active Port = 1
Modulation = 802.11b (DSSS 1 Mbit/s) Resource Unit Tone/Index = -

Images:



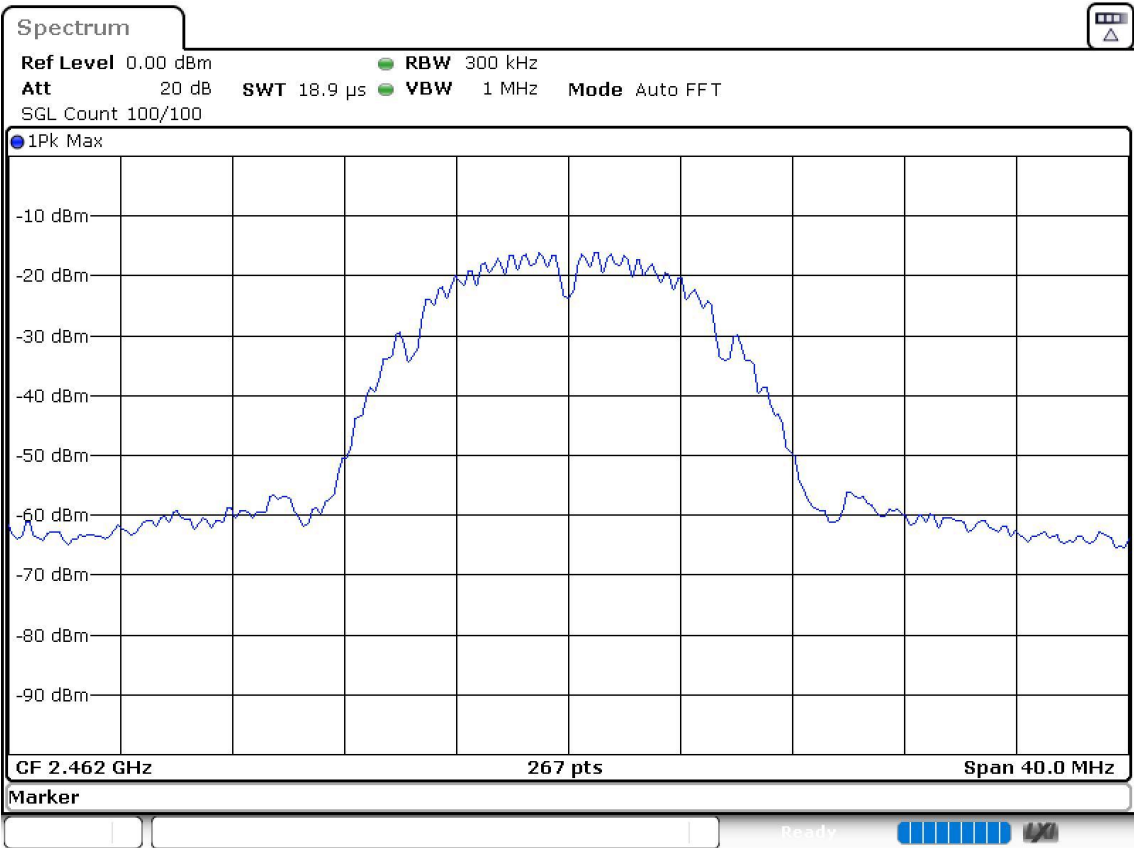
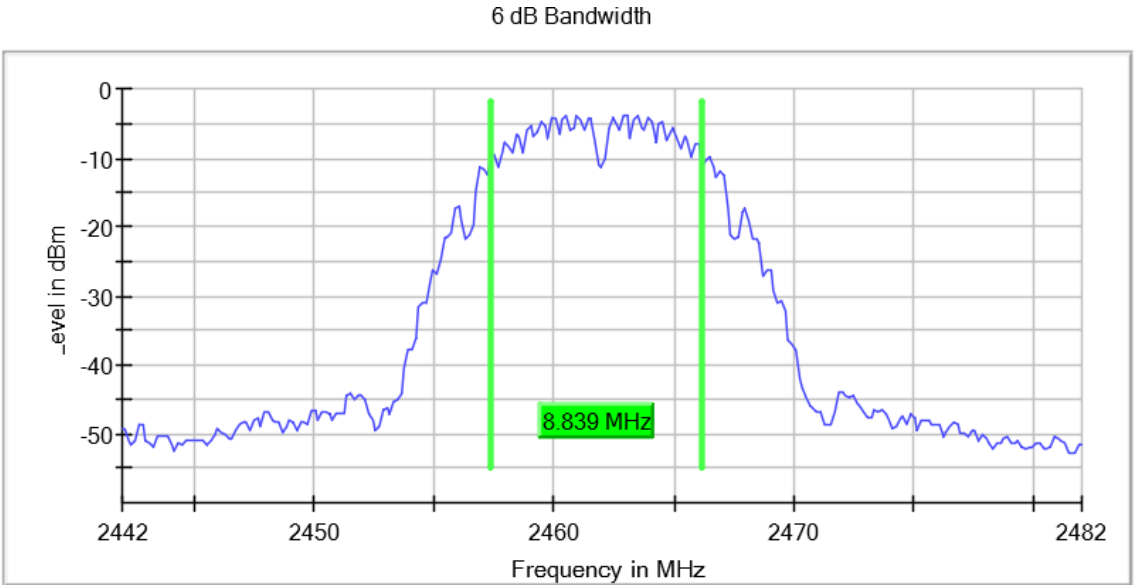
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2437.00000 Active Port = 1
Modulation = 802.11b (DSSS 1 Mbit/s) Resource Unit Tone/Index = -

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2462.00000 Active Port = 1
Modulation = 802.11b (DSSS 1 Mbit/s) Resource Unit Tone/Index = -

Images:



Modulation: 802.11g (OFDM 6 Mbit/s)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	RU (Tone/Index)	Ebw (MHz)
[2400, 2483.5]	Digital Transmission System (DTS)	2412.00000	1	-	16.629
		2437.00000			17.000
		2462.00000			17.250

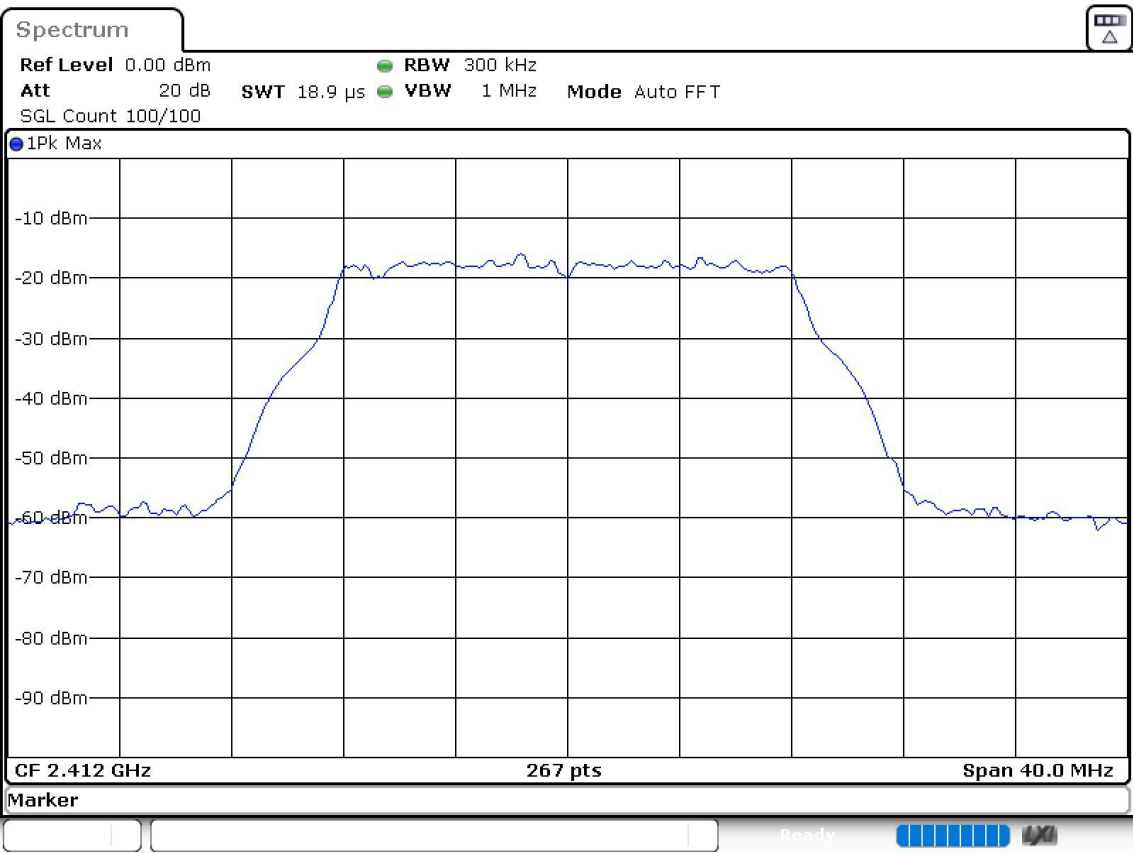
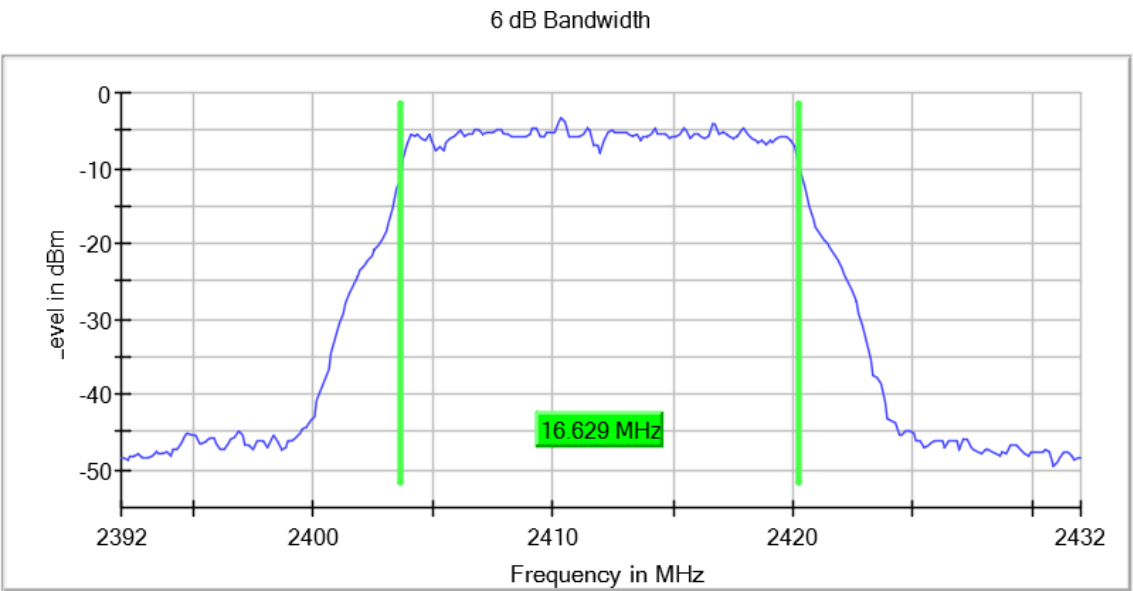
Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2412.00000 Active Port = 1
Modulation = 802.11g (OFDM 6 Mbit/s) Resource Unit Tone/Index = -

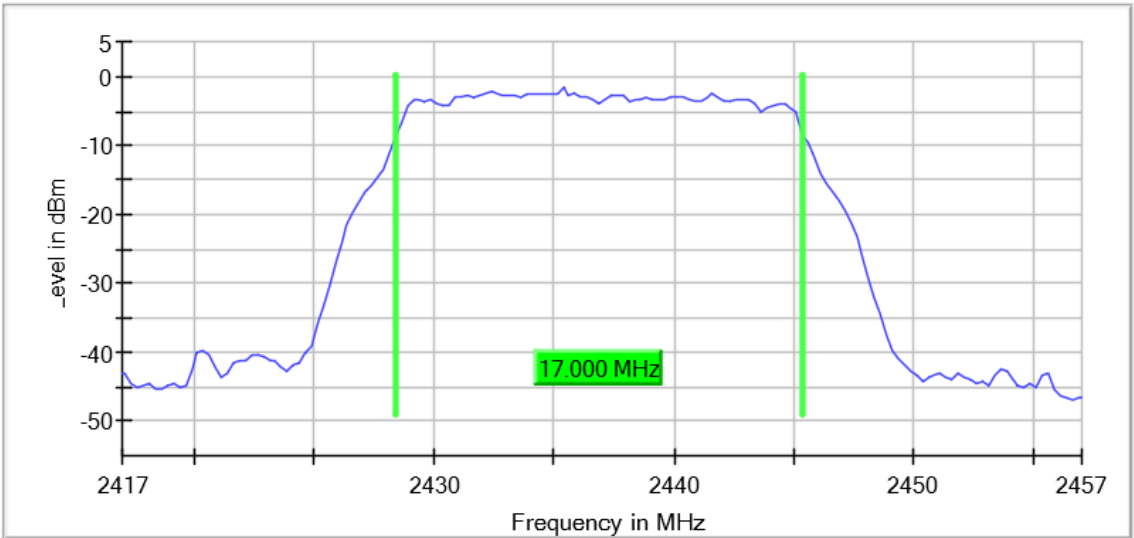
Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2437.00000 Active Port = 1
Modulation = 802.11g (OFDM 6 Mbit/s) Resource Unit Tone/Index = -

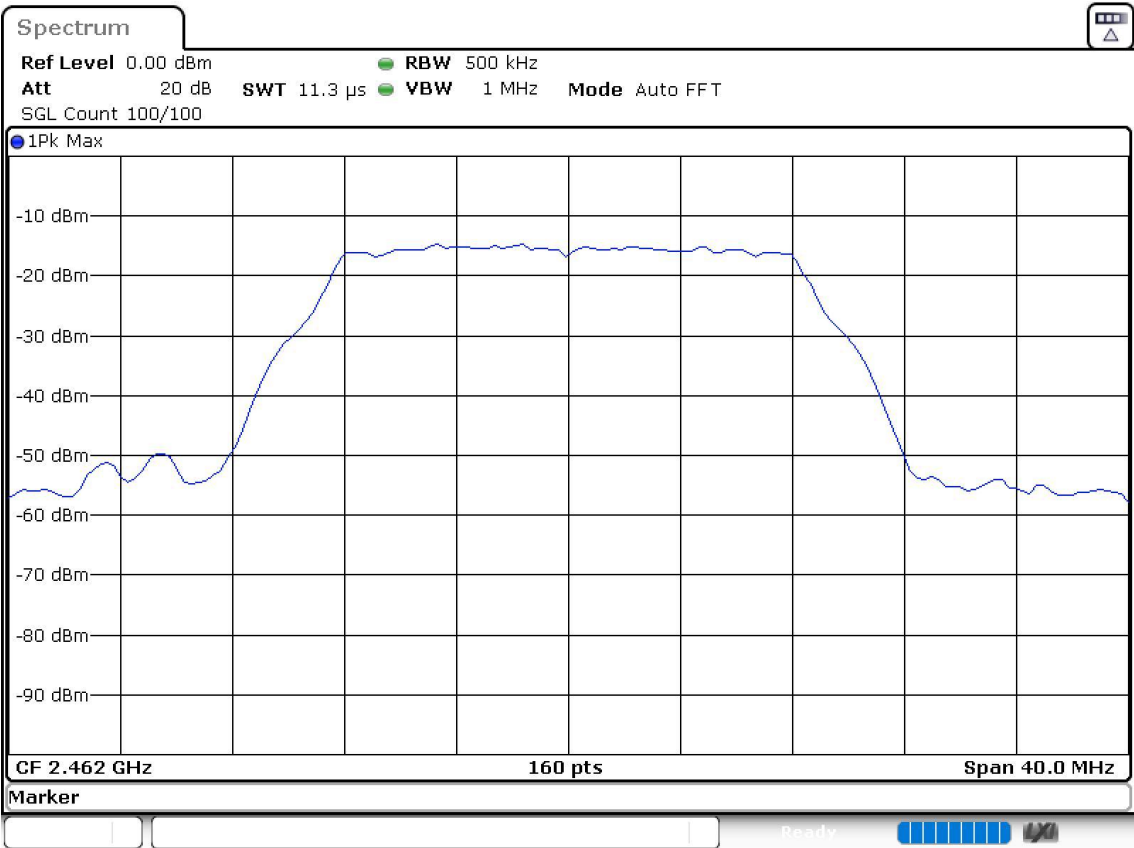
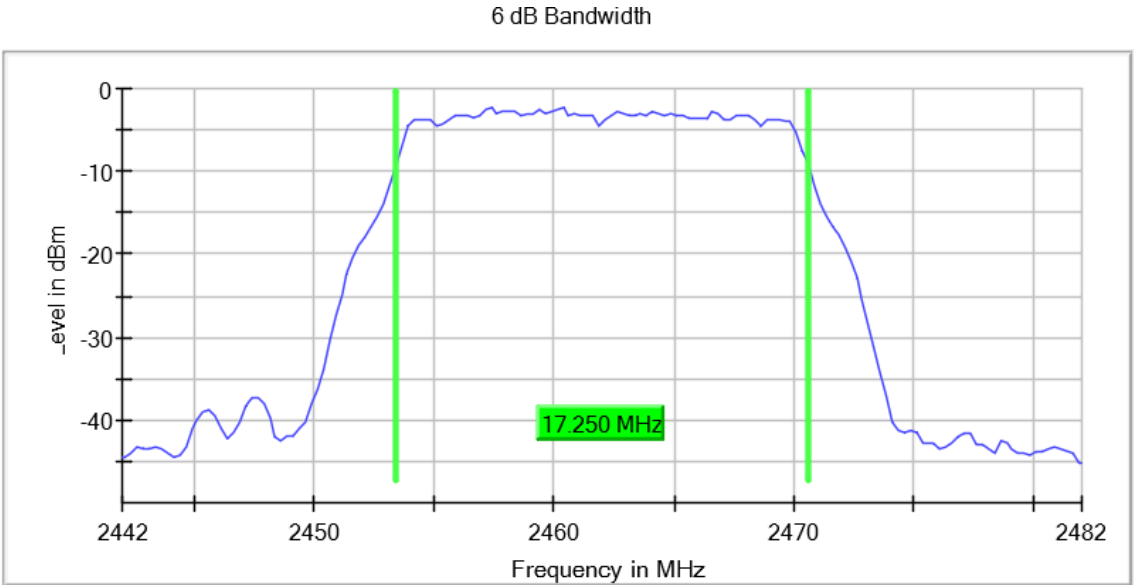
Images:

6 dB Bandwidth



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2462.00000 Active Port = 1
Modulation = 802.11g (OFDM 6 Mbit/s) Resource Unit Tone/Index = -

Images:



Modulation: 802.11n HT20 (OFDM MCS0)

Results

Operation Band (MHz)	Equipment	Freq (MHz)	Port	RU (Tone/Index)	Ebw (MHz)
[2400, 2483.5]	Digital Transmission System (DTS)	2412.00000	1	-	18.250
		2437.00000			18.250
		2462.00000			18.250

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2412.00000 Active Port = 1
Modulation = 802.11n HT20 (OFDM MCS0) Resource Unit Tone/Index = -

Images:

