

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

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

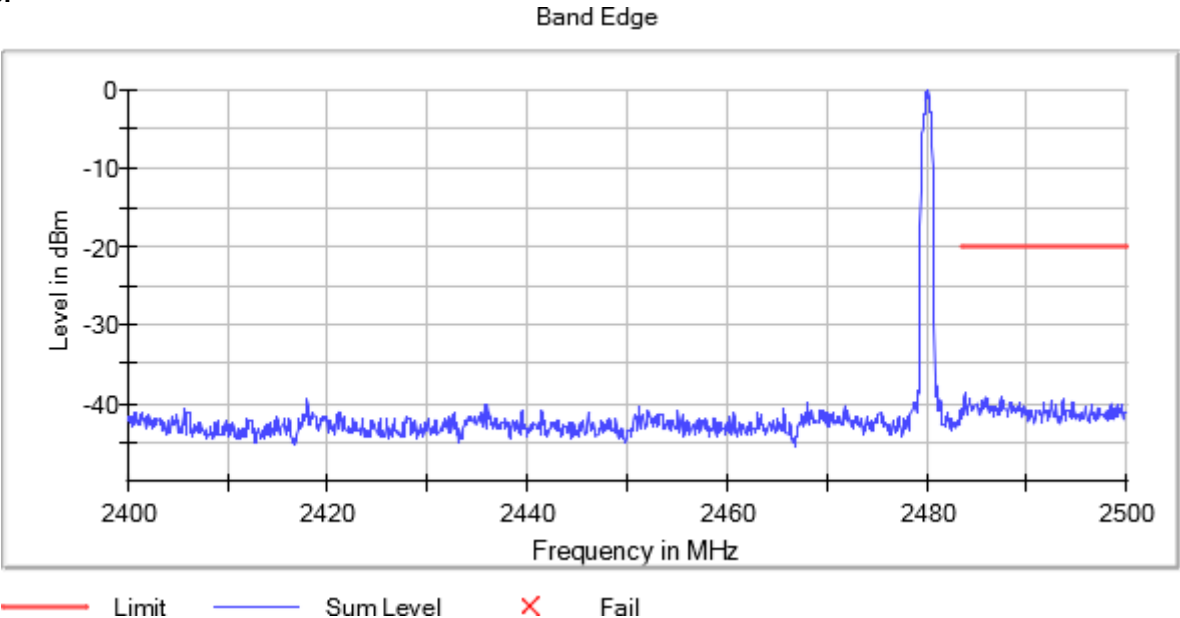
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 2480.00000

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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	140 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Modulation: BT (8DPSK 3-DH5)

MIMO Mode: SISO

Results

Radiated measurements were used to show compliance with the limits in the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz.

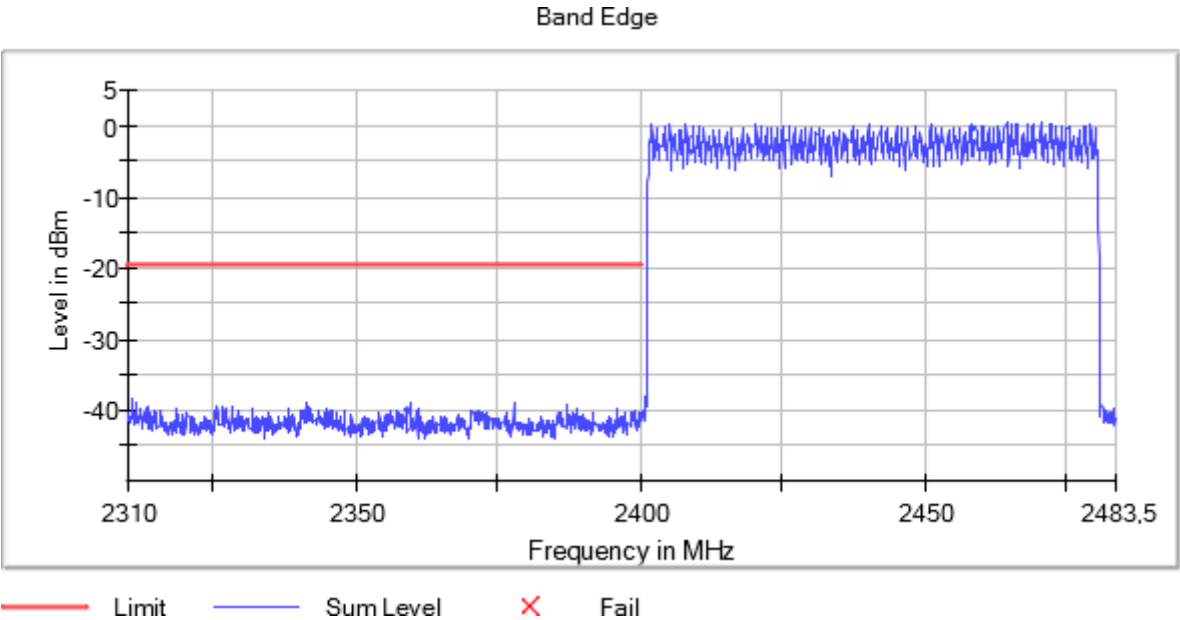
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 0.00000
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	113.672 µs	AUTO
Reference Level	20.000 dBm	20.000 dBm
Attenuation	40.000 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	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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	134 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (8DPSK 3-DH5)

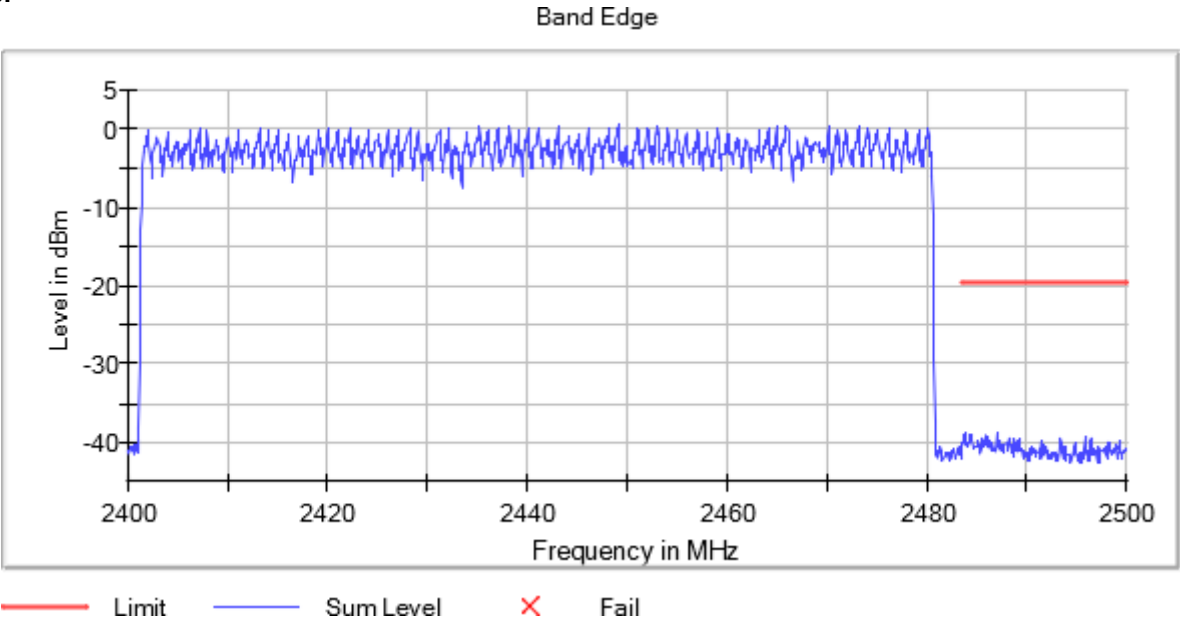
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 0.00000

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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	134 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (8DPSK 3-DH5)

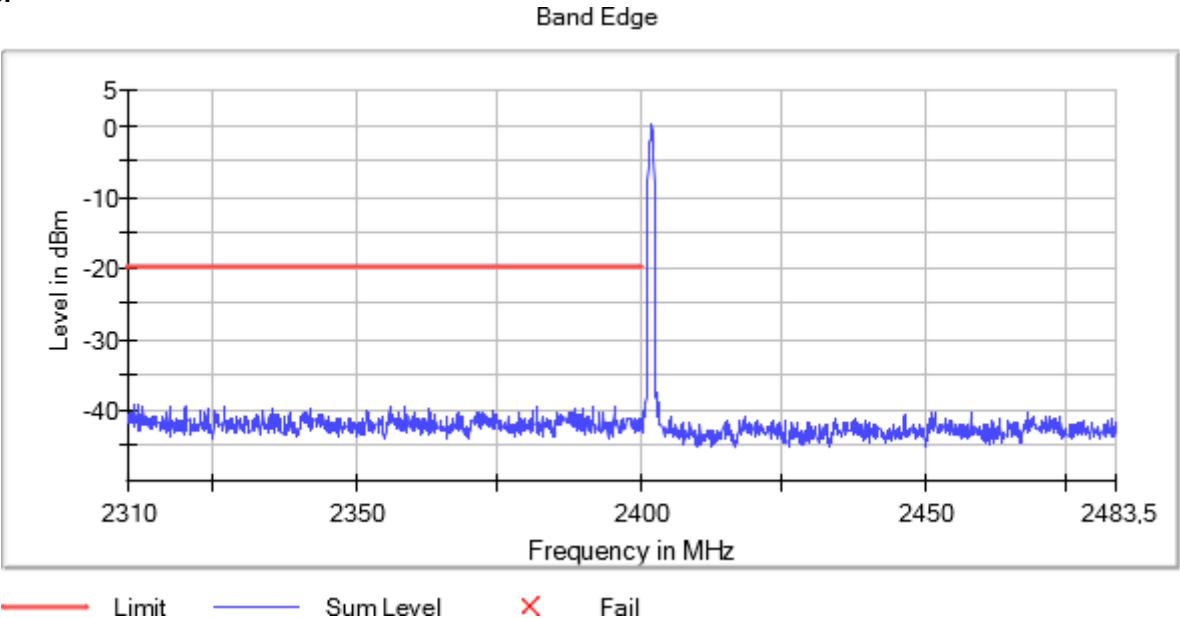
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 2402.00000

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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	134 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (8DPSK 3-DH5)

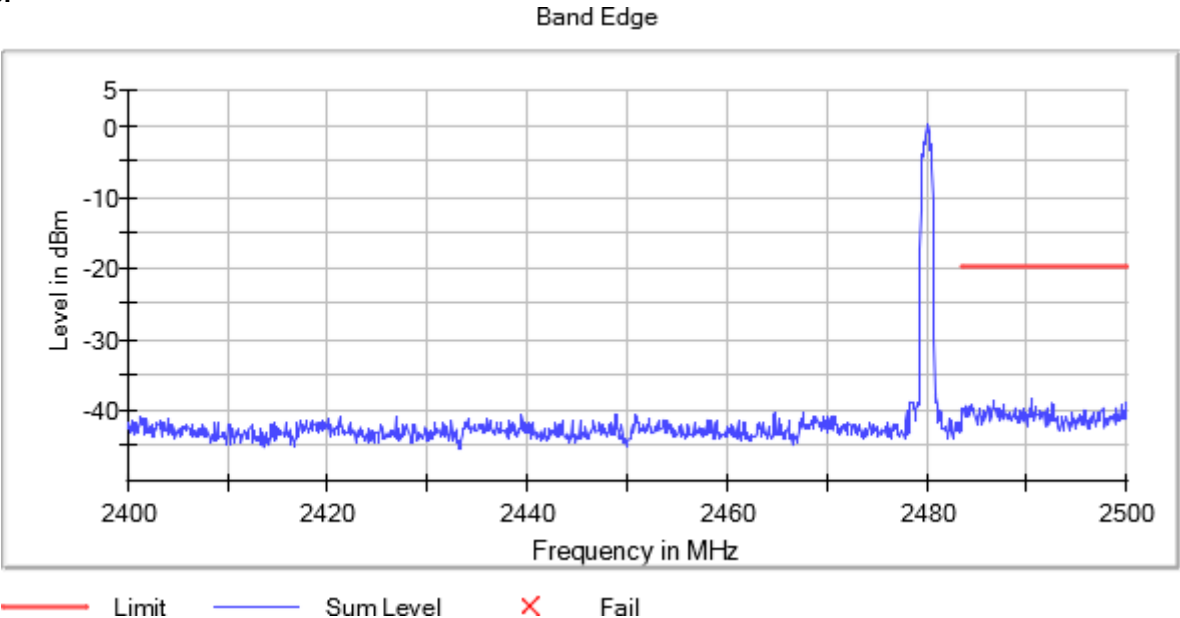
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 2480.00000

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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	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	20.000 dBm	20.000 dBm
Attenuation	40.000 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	134 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.03 dB	0.50 dB

RSS-247 5.5 / FCC 15.247 (d) 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
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, 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.

The setting for each range of frequency is indicated in the following tables:

Subrange Receiver: [ESW 44] 30 MHz - 1 GHz	Step Size 30,312 kHz	Detectors PK+	Bandwidth 100 kHz	Sweep Time 1 s	Preamp 0 dB
Subrange Receiver: [ESW 44] 1 GHz - 3 GHz	Step Size 30,769 kHz	Detectors PK+ ; AVG	Bandwidth 1 MHz	Sweep Time 1 s	Preamp 0 dB
Subrange Receiver: [ESW 44] 3 GHz - 17 GHz	Step Size 140 kHz	Detectors PK+ ; AVG	Bandwidth 1 MHz	Sweep Time 1 s	Preamp 30 dB
Subrange Receiver: [ESW 44] 17 GHz - 26 GHz	Step Size 300 kHz	Detectors PK+ ; AVG	Bandwidth 1 MHz	Sweep Time 0,3 s	Preamp 0 dB

Frequency Range GHz = [0.03, 1]

Modulation: The spurious frequencies detected do not depend on either the modulation or the operating channel.

MIMO Mode: SISO

Freq Rng (GHz)	Equipment	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Corrected RMS Unwanted Lvl (dBµV/m)	Pol	Detector
[0.03, 1]	Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	44.598	11.48	--	V	PK
				--	4.28	V	QP
			57.063	14.04	--	V	PK
				--	8.54	V	QP
			85.678	9.81	--	V	PK
				--	4.49	V	QP
			172.735	16.99	--	H	PK
				--	5.46	H	QP
			327.353	14.39	--	V	PK
				--	8.62	V	QP
			710.746	23.98	--	H	PK
				--	18.06	H	QP

Verdict

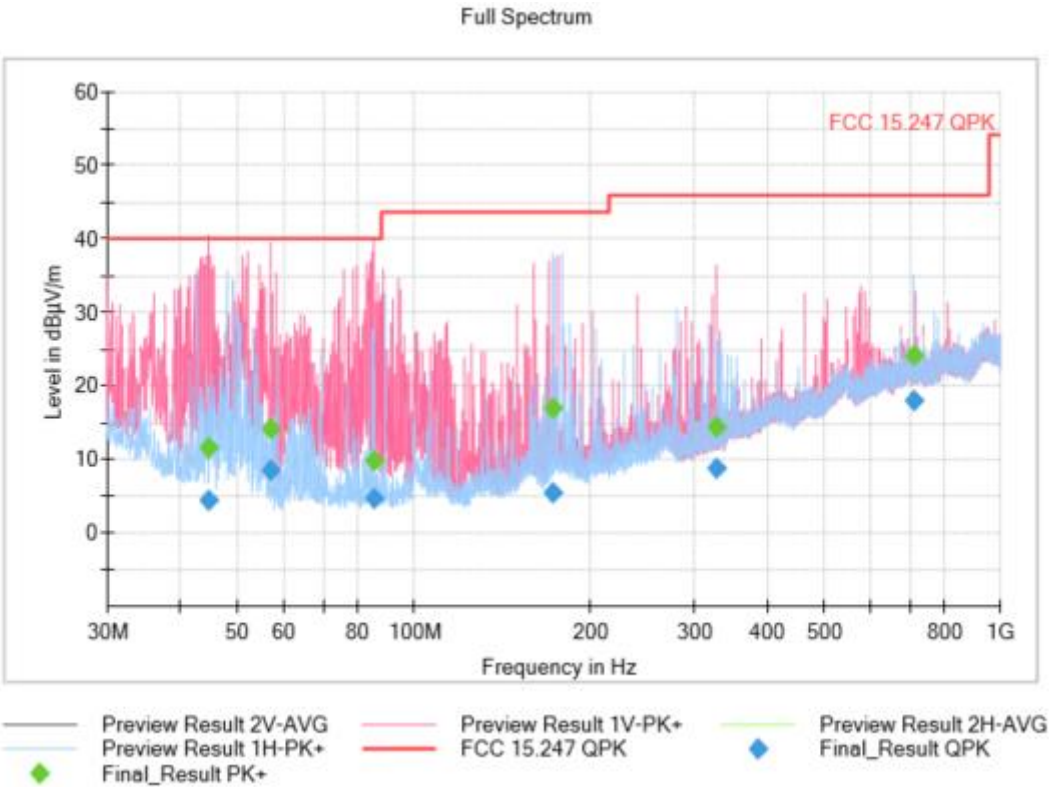
Pass

Attachments

Frequency Range GHz = [0.03, 1]	Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = The spurious frequencies detected do not depend on the modulation	Frequency MHz = The spurious frequencies detected do not depend on the operating channel
MIMO Mode = SISO	Active Port = 1

Images:

Test range performed in worst-case.



Modulation: BT (GFSK 1-DH5)

MIMO Mode: SISO

Results

* Duty Cycle correction factor: 1.15 dB

Freq Rng (GHz)	Equipment	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Corrected RMS Unwanted Lvl (dBµV/m)	Pol	Detector
[1, 17]	Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	4999.667	42.51	--	V	PK
				29.47	30.62	V	AVG

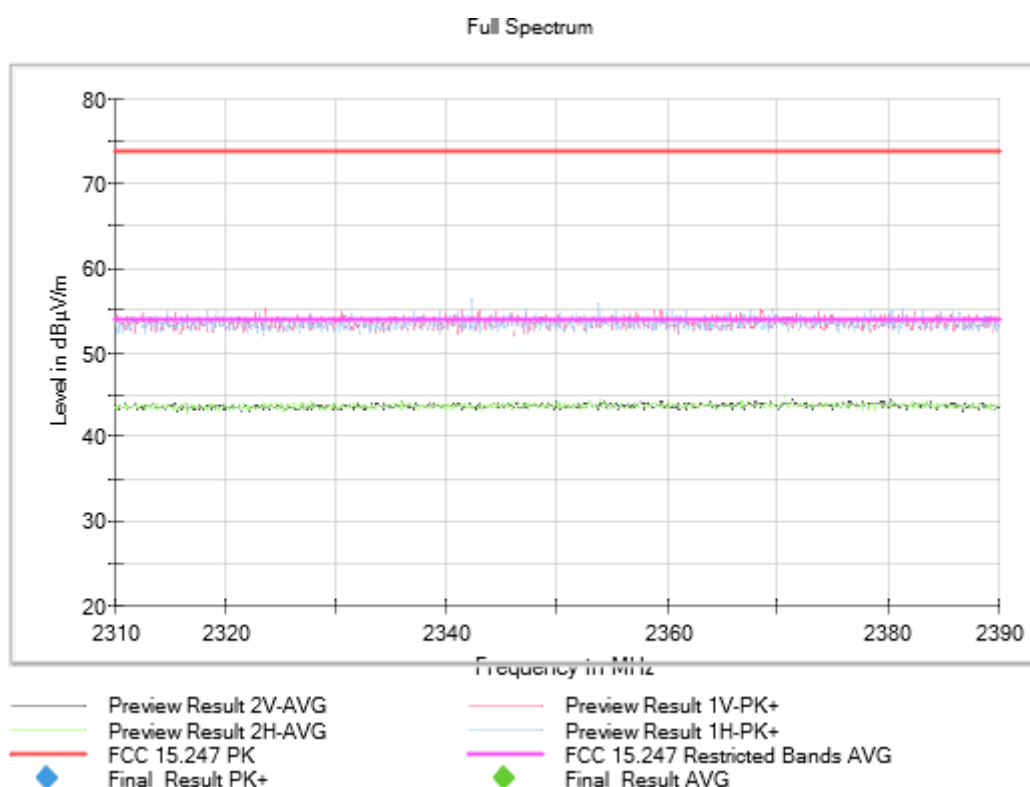
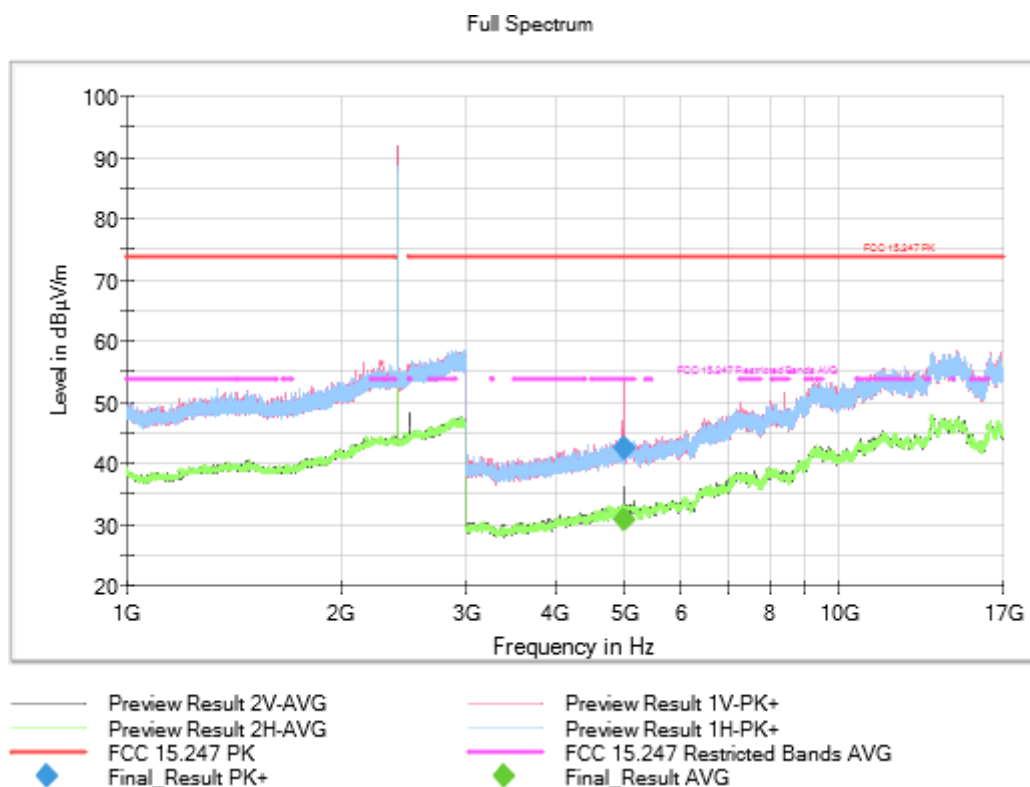
Verdict

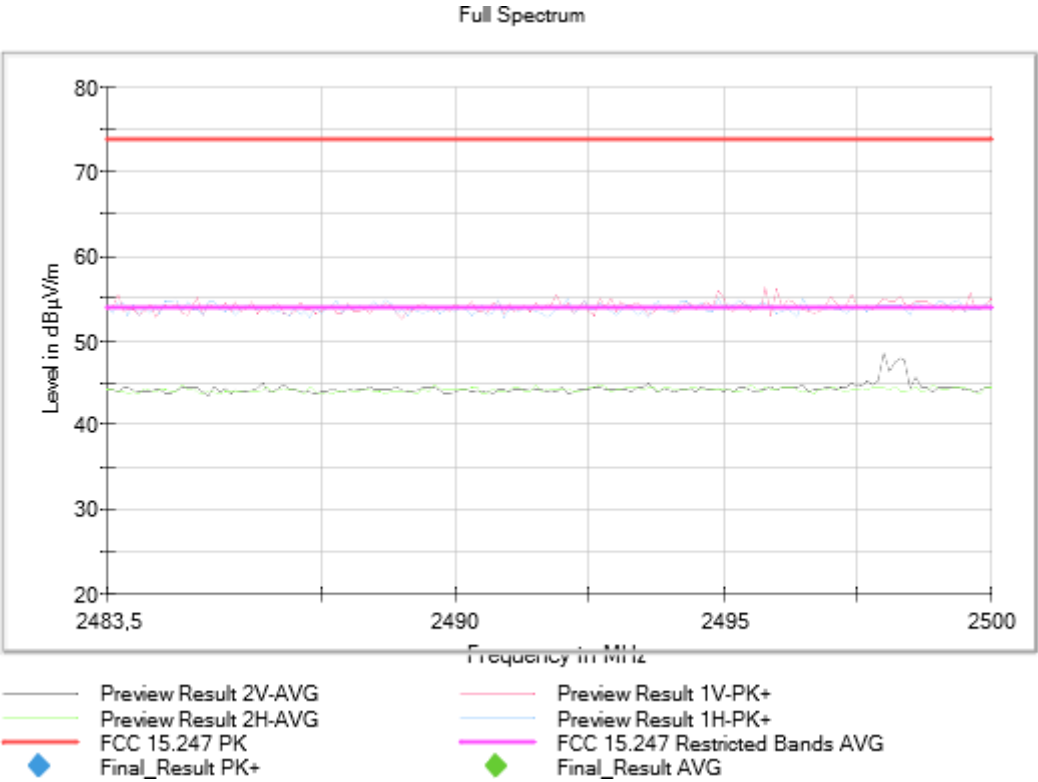
Pass

Attachments

Frequency Range GHz = [1, 17] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

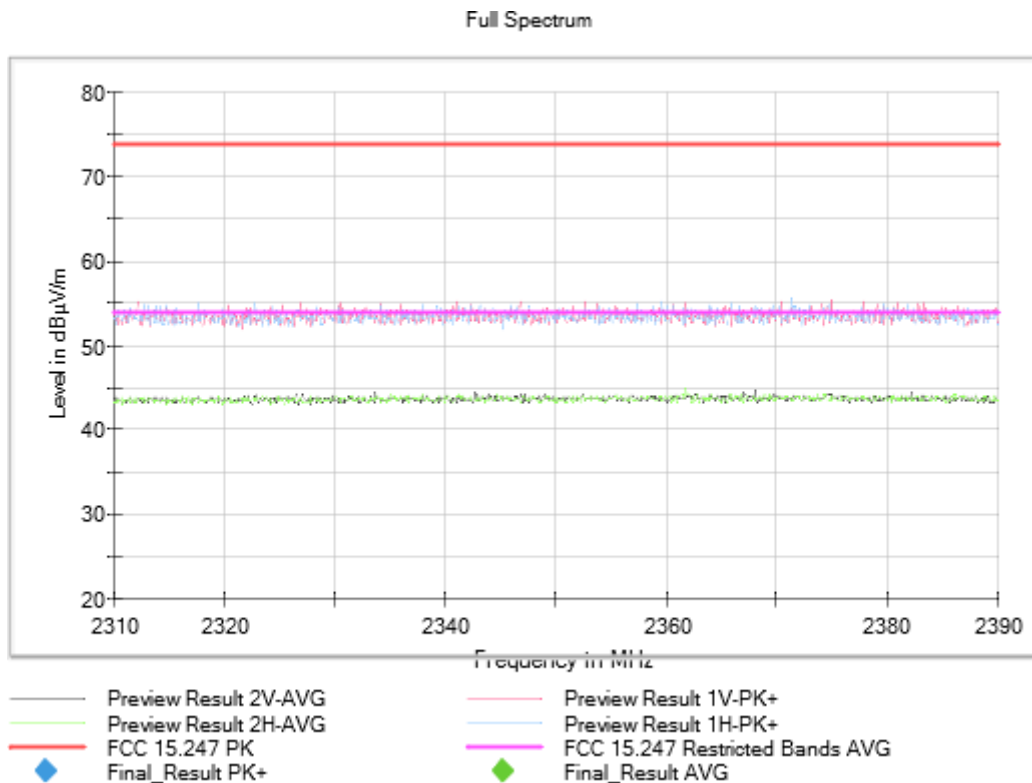
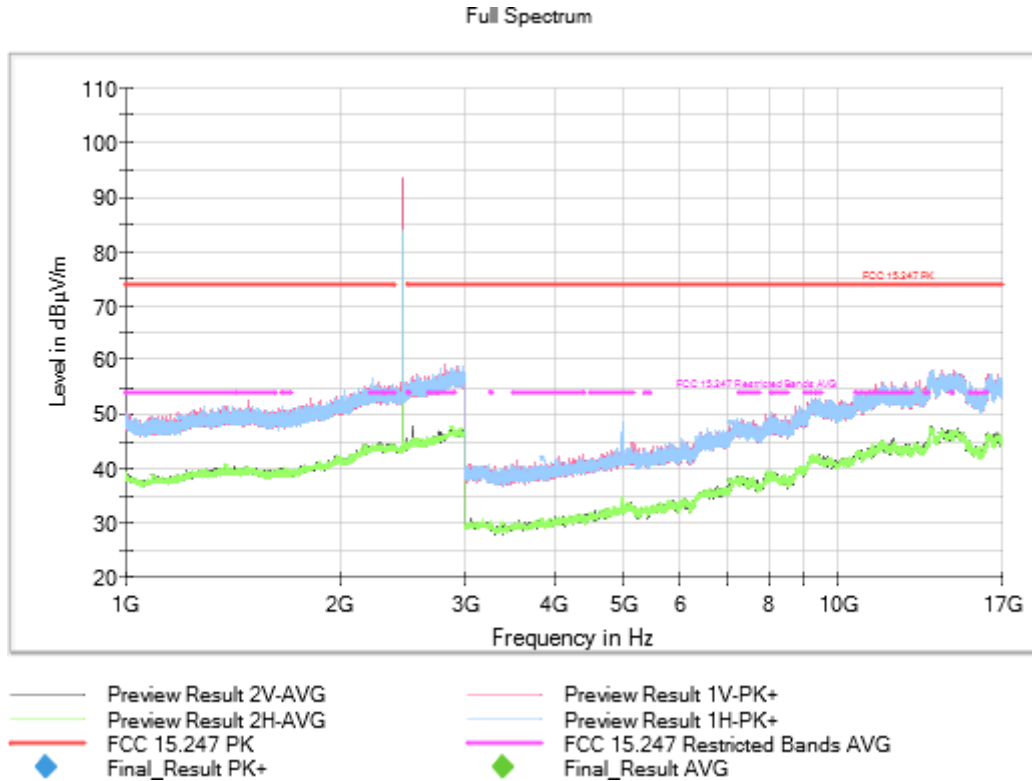
Images:

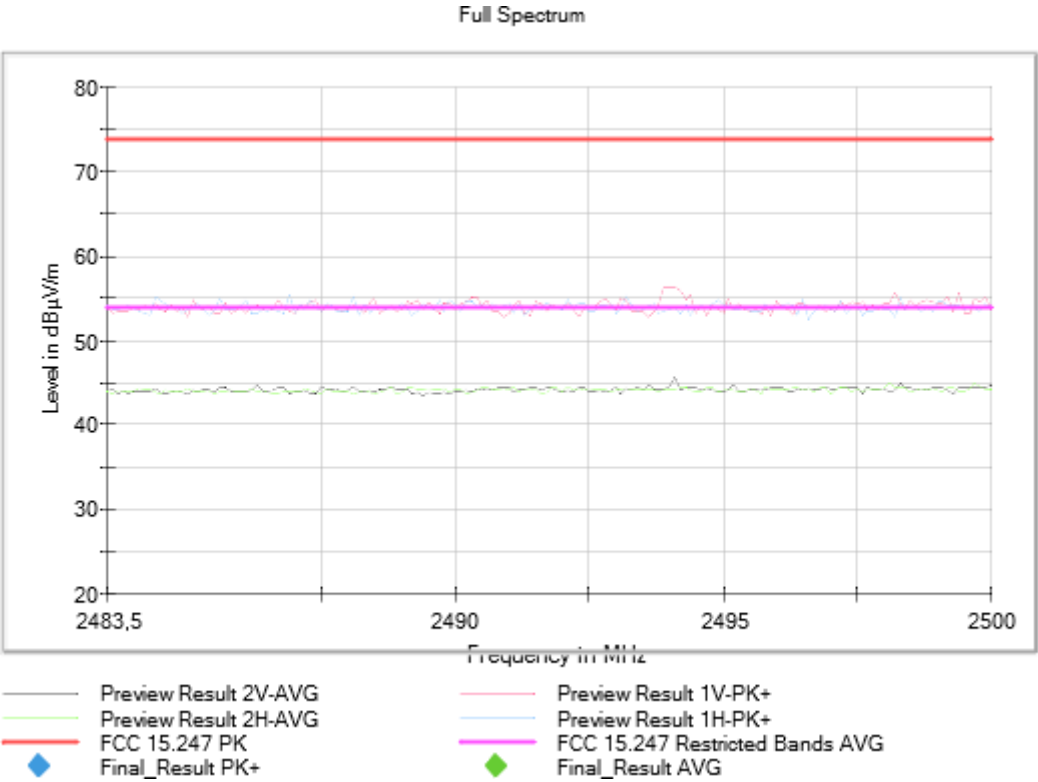




Frequency Range GHz = [1, 17] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

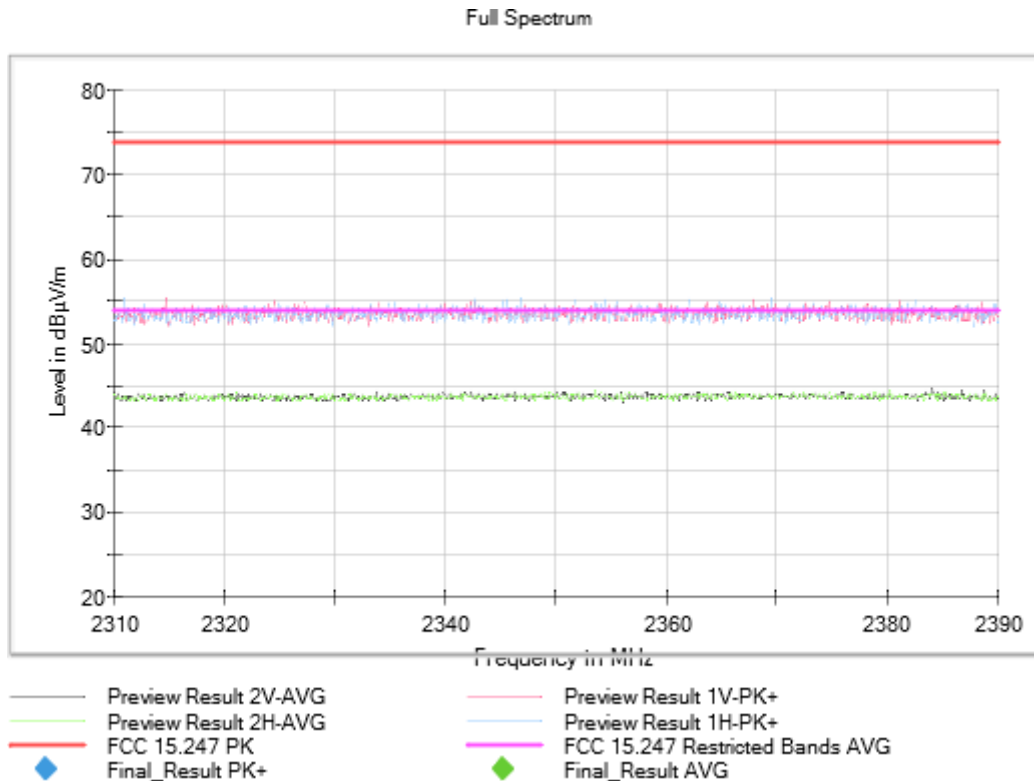
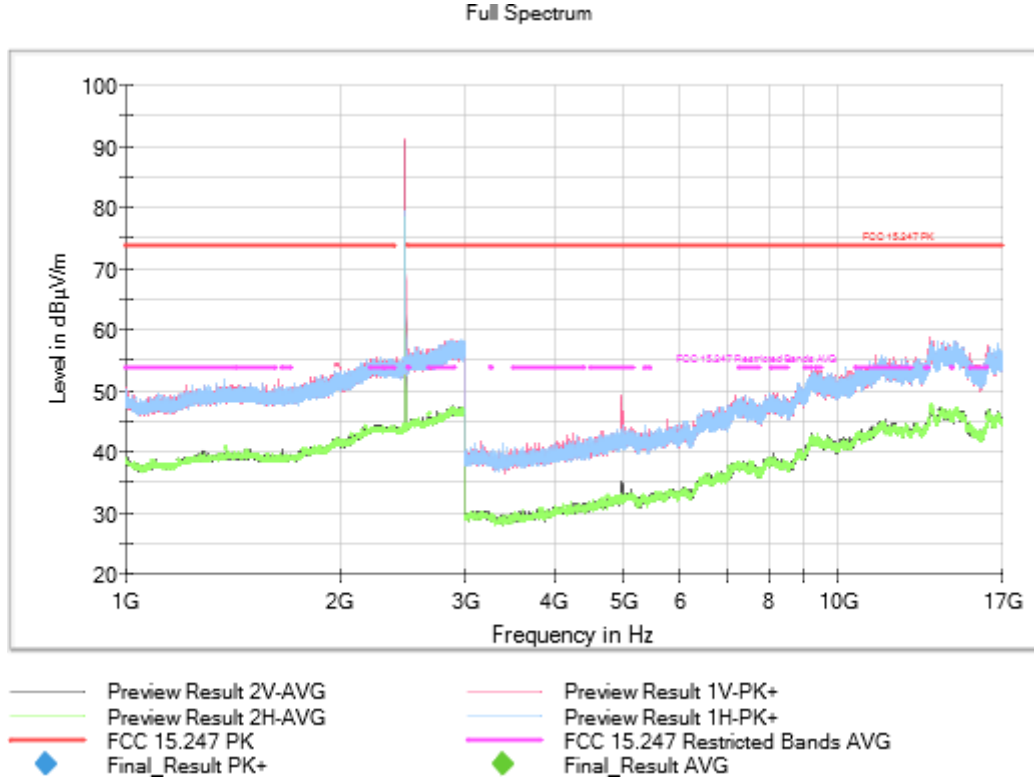
Images:

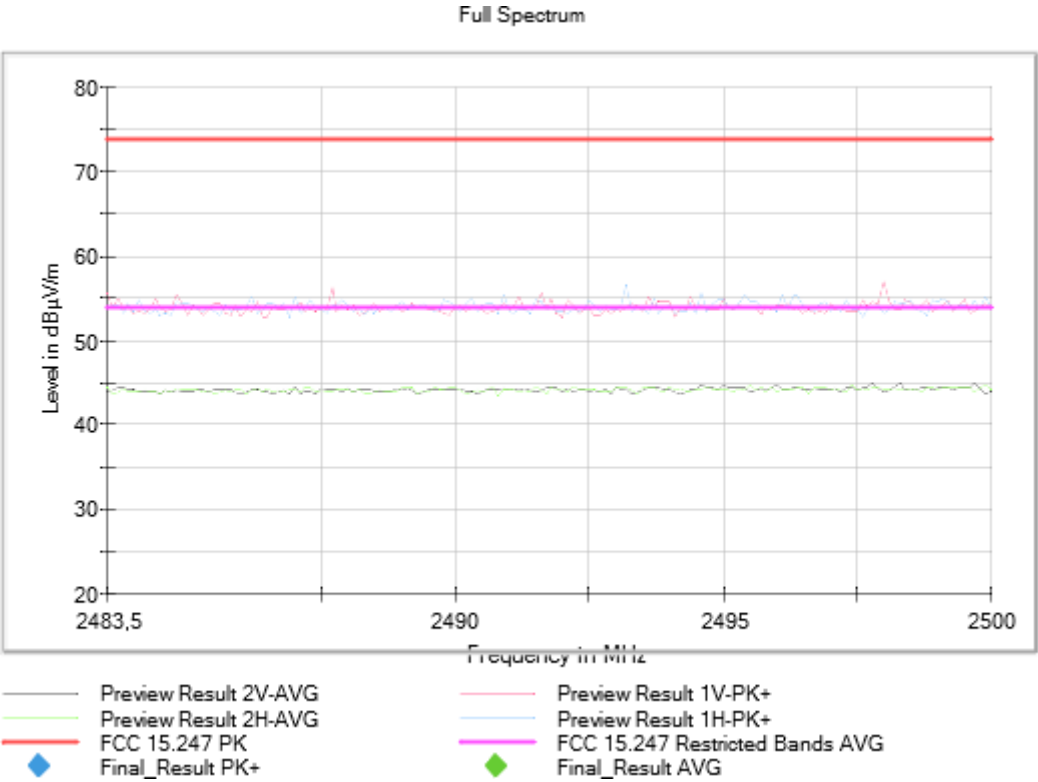




Frequency Range GHz = [1, 17] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:





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

MIMO Mode: SISO

Results

* Duty Cycle correction factor: 1.15 dB

Freq Rng (GHz)	Equipment	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Corrected RMS Unwanted Lvl (dBµV/m)	Pol	Detector
[1, 17]	Frequency Hopping Spread Spectrum systems (DSS)	2441.00000	4995.000	42.47	--	V	PK
				30.79	31.94	V	AVG

Verdict

Pass

Attachments

Frequency Range GHz = [1, 17]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

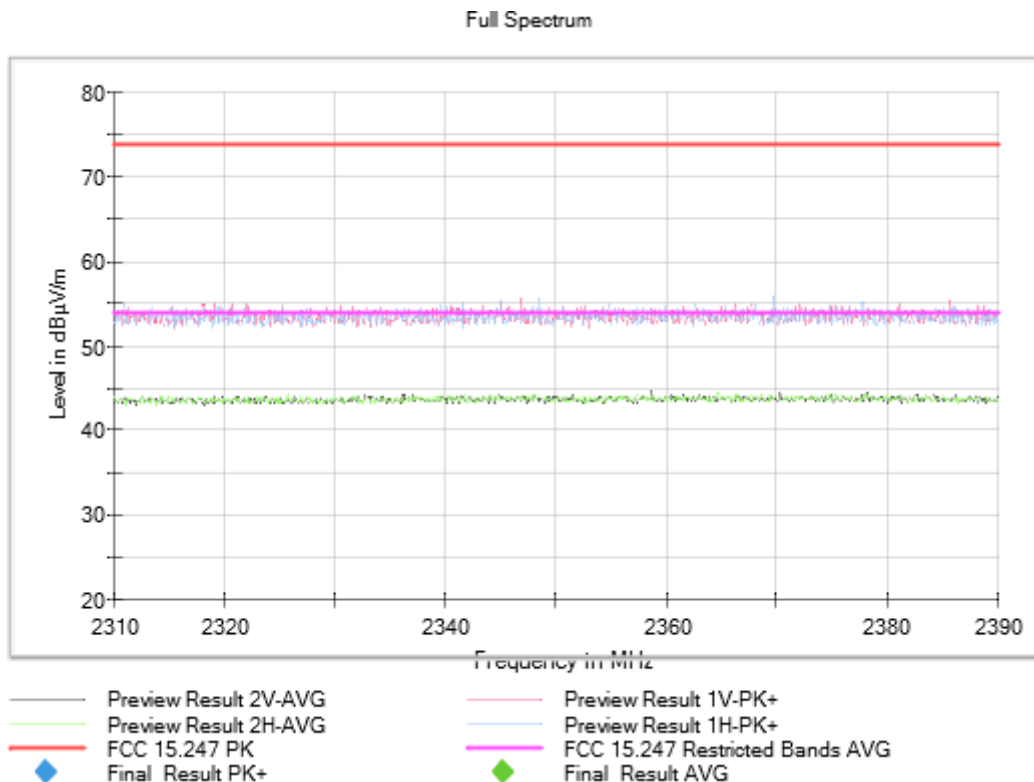
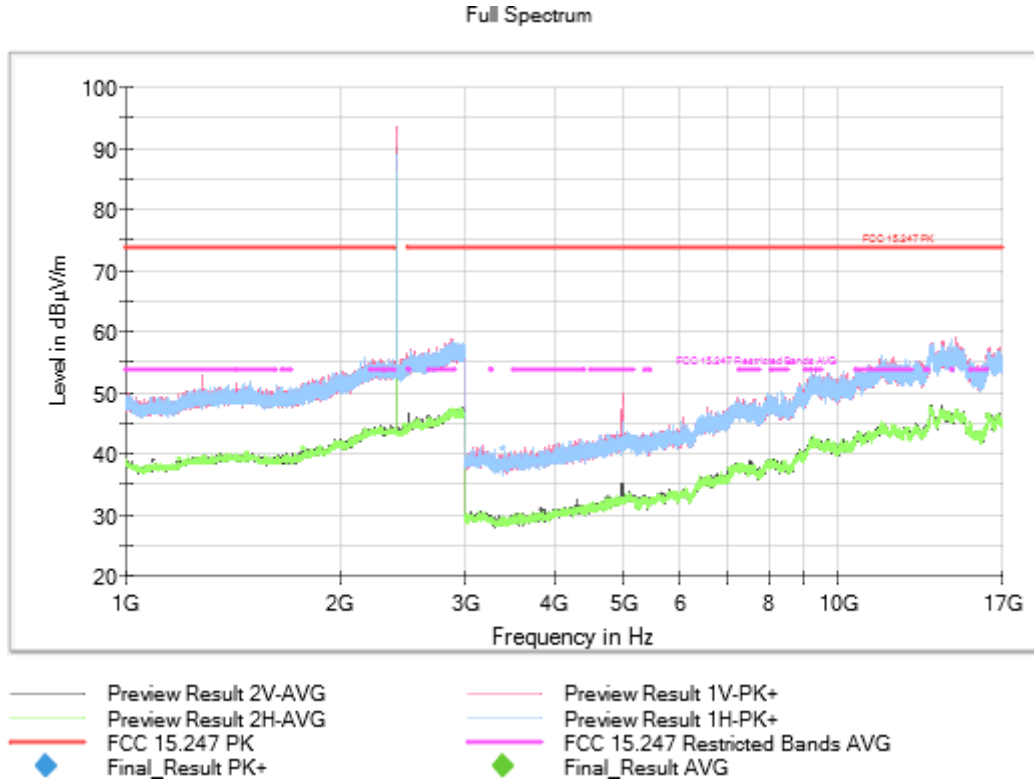
Modulation = BT (Pi/4 DQPSK 2-DH5)

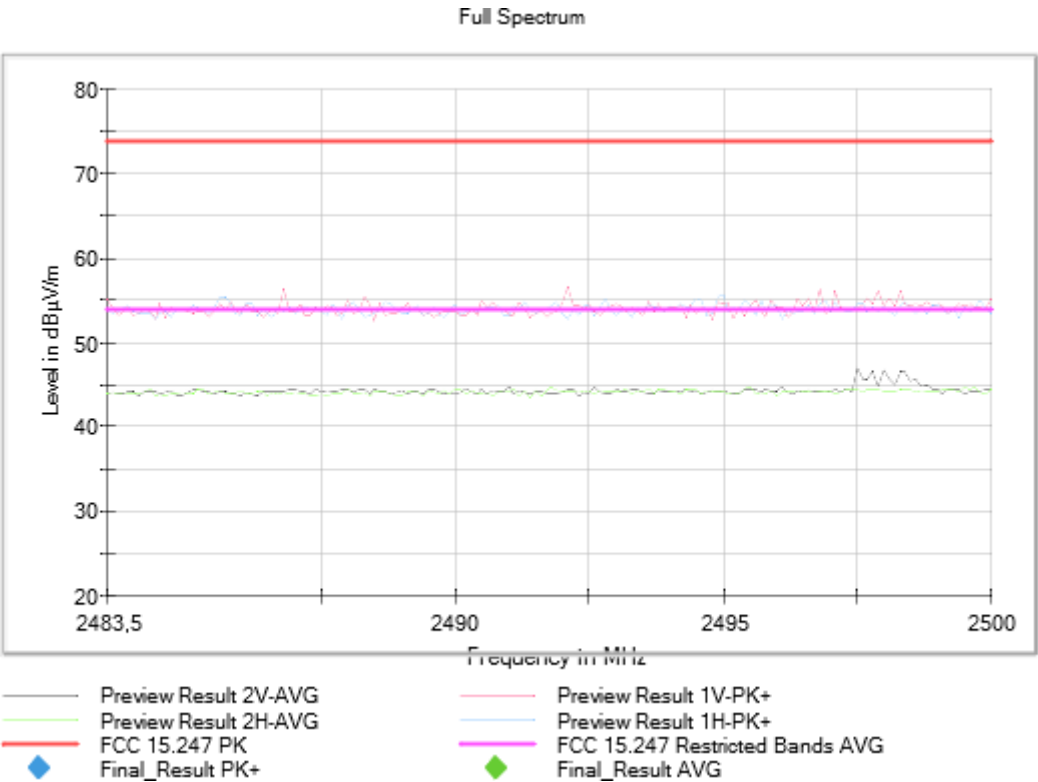
Frequency MHz = 2402.00000

MIMO Mode = SISO

Active Port = 1

Images:





Frequency Range GHz = [1, 17]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

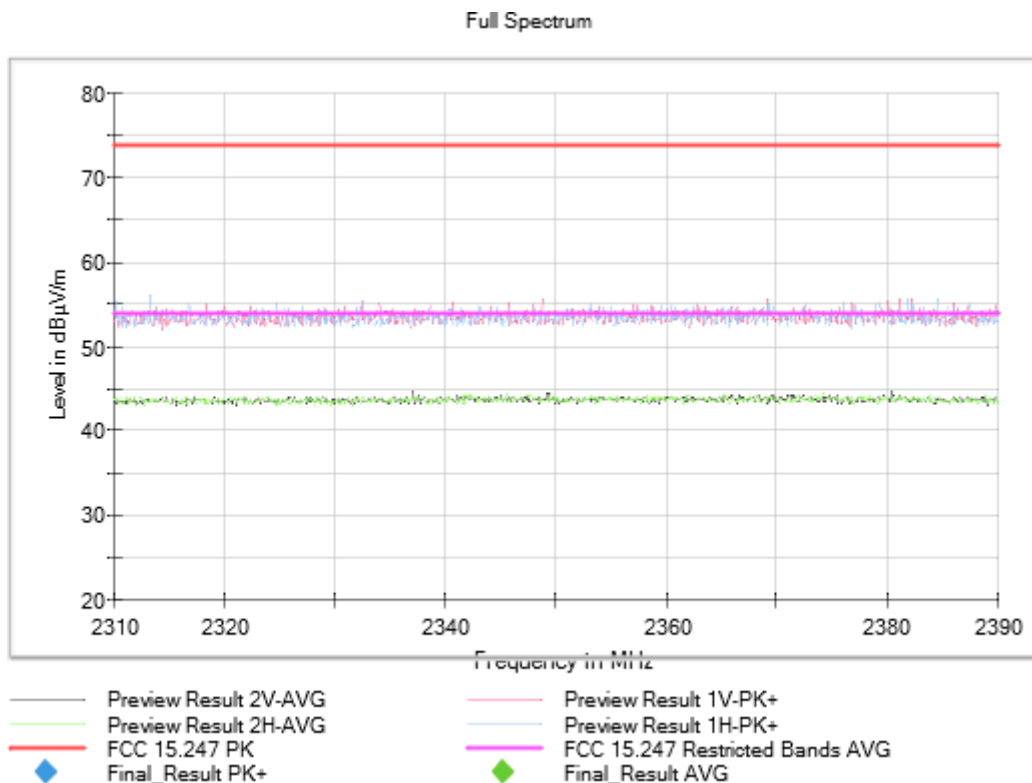
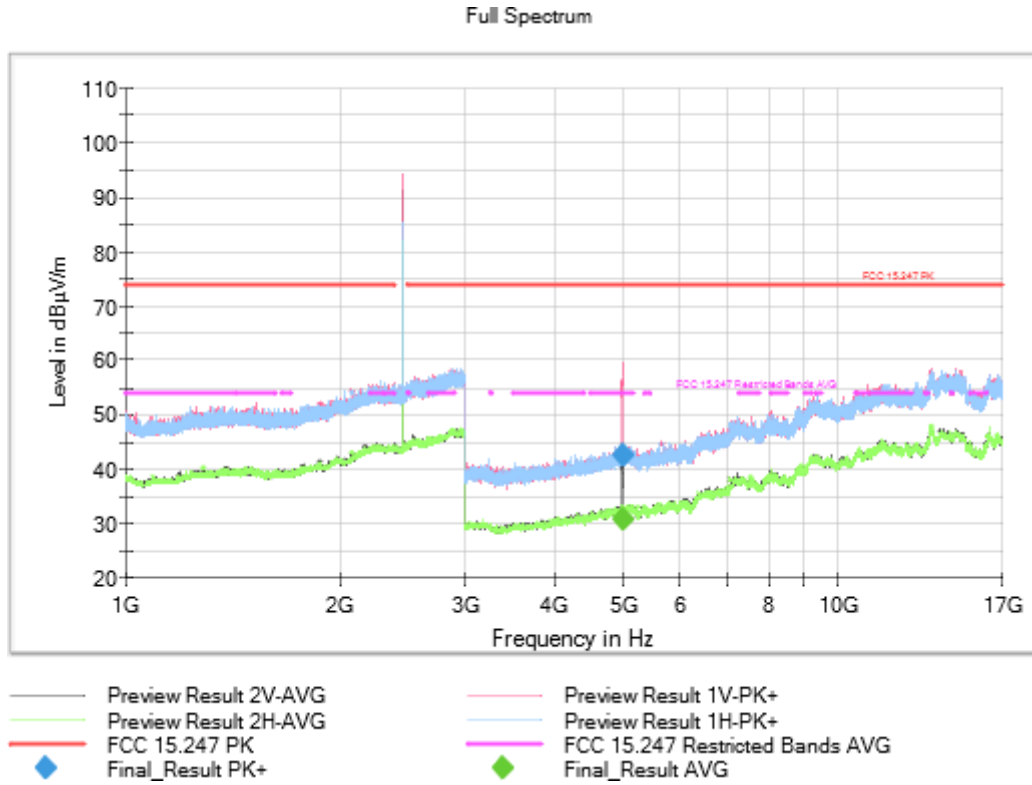
Modulation = BT (Pi/4 DQPSK 2-DH5)

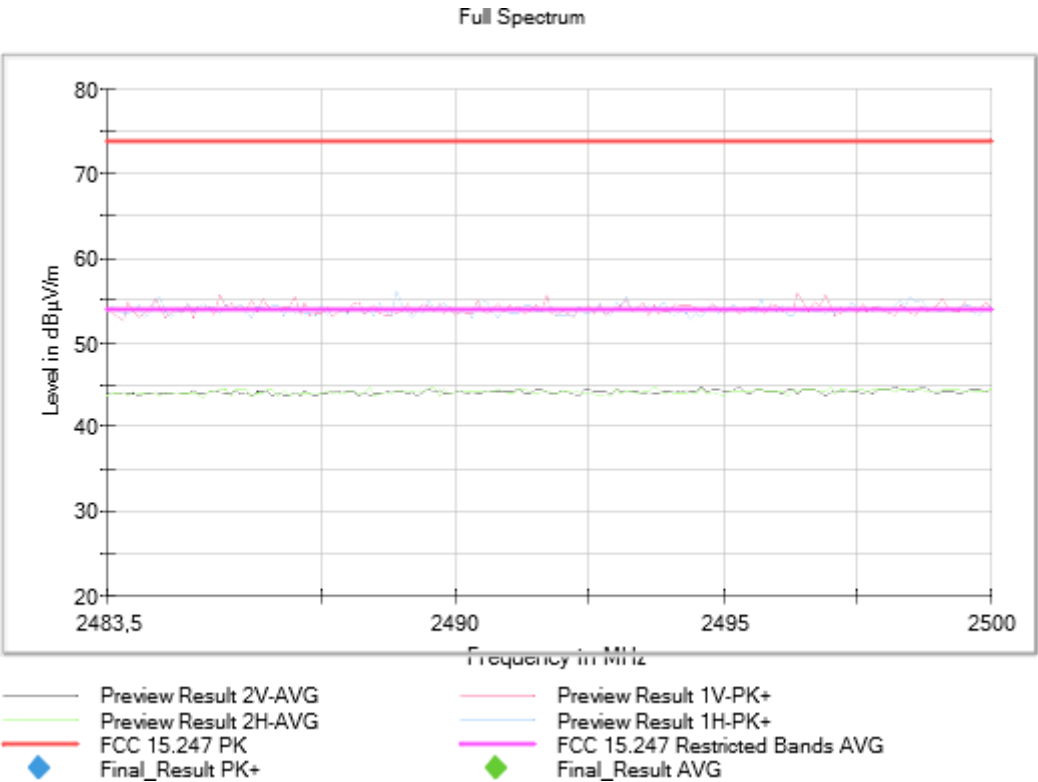
Frequency MHz = 2441.00000

MIMO Mode = SISO

Active Port = 1

Images:





Frequency Range GHz = [1, 17]

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

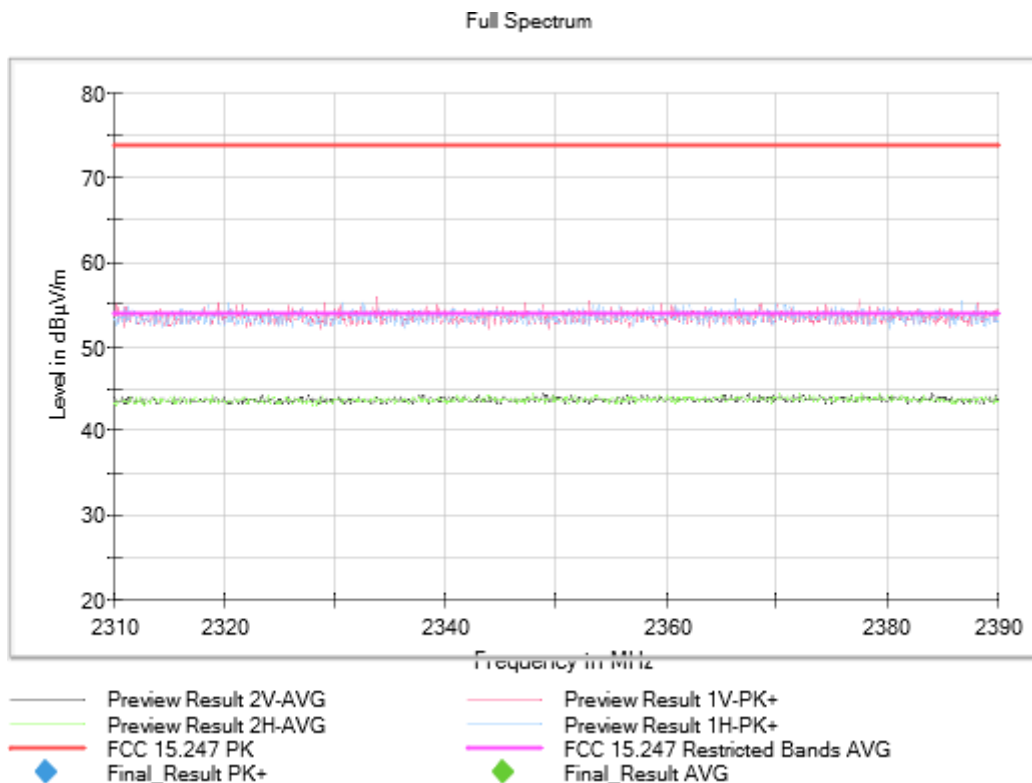
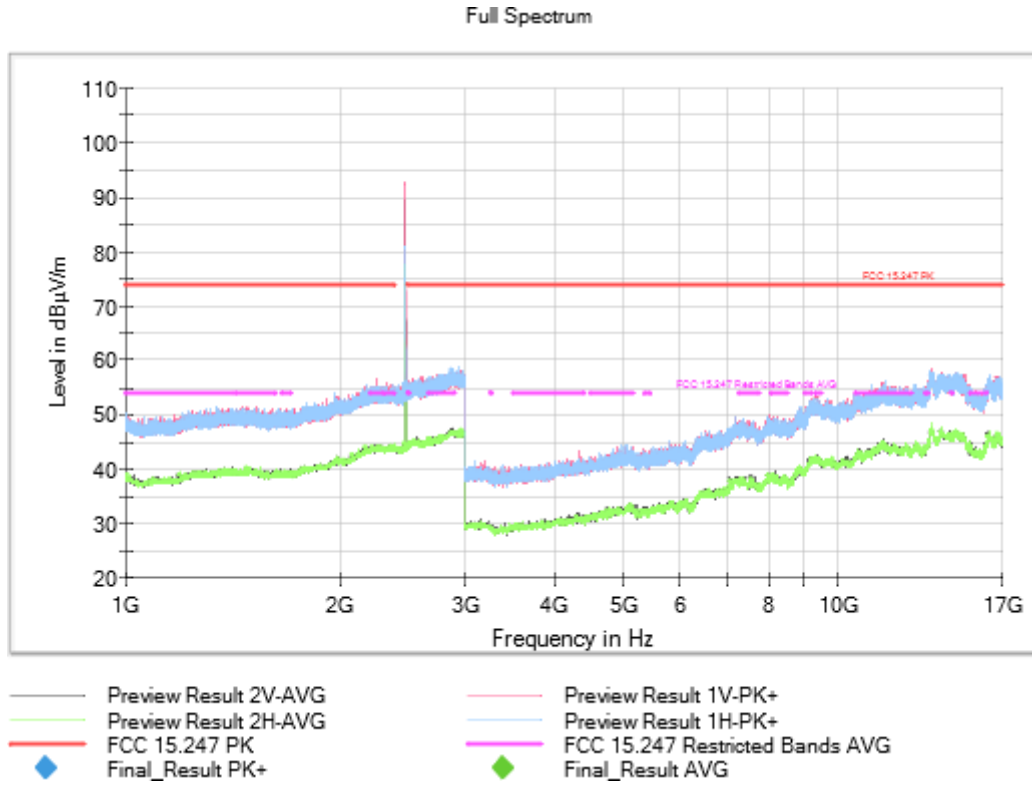
Modulation = BT (Pi/4 DQPSK 2-DH5)

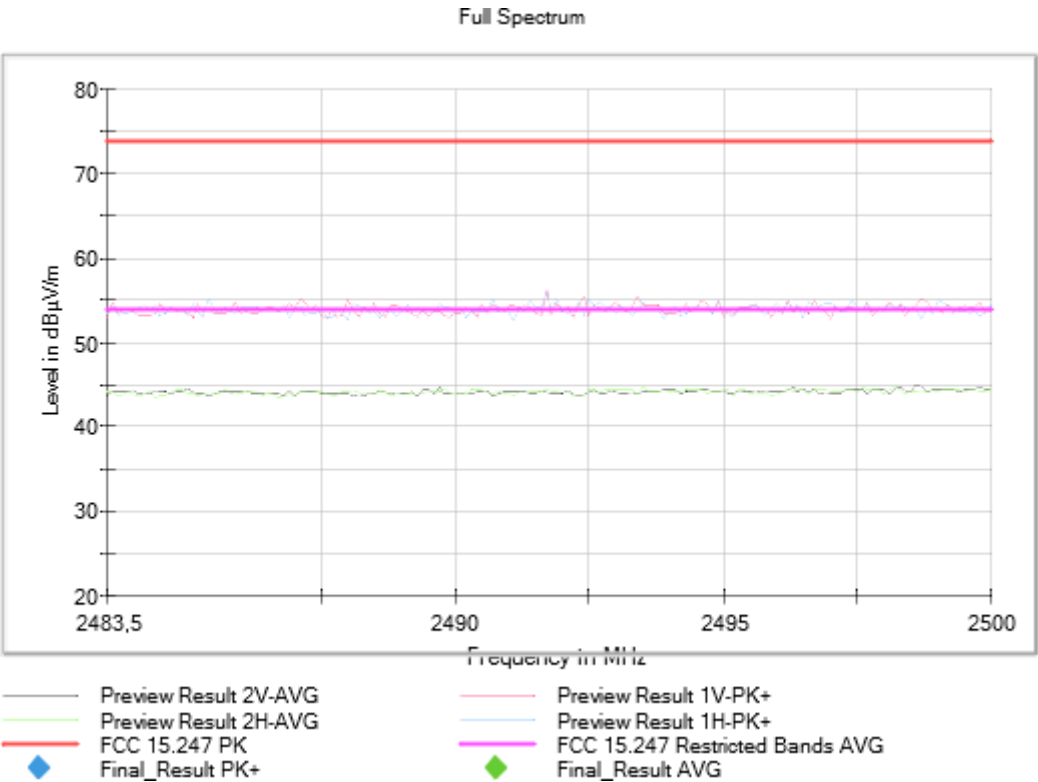
Frequency MHz = 2480.00000

MIMO Mode = SISO

Active Port = 1

Images:





Modulation: BT (8DPSK 3-DH5)

MIMO Mode: SISO

Results

* Duty Cycle correction factor: 1.13 dB

Freq Rng (GHz)	Equipment	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Corrected RMS Unwanted Lvl (dBµV/m)	Pol	Detector
[1, 17]	Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	2498.500	57.06	--	V	PK
				44.73	45.86	V	AVG
		2480.00000	2492.800	58.25	--	V	PK
				44.74	45.87	V	AVG

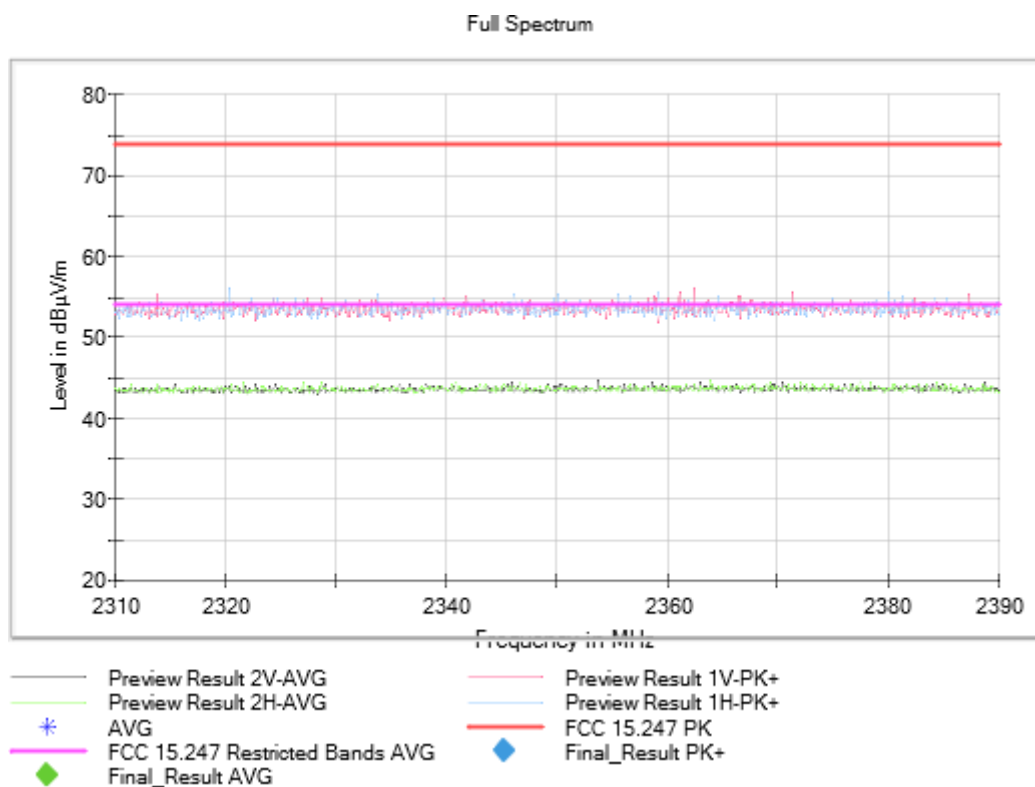
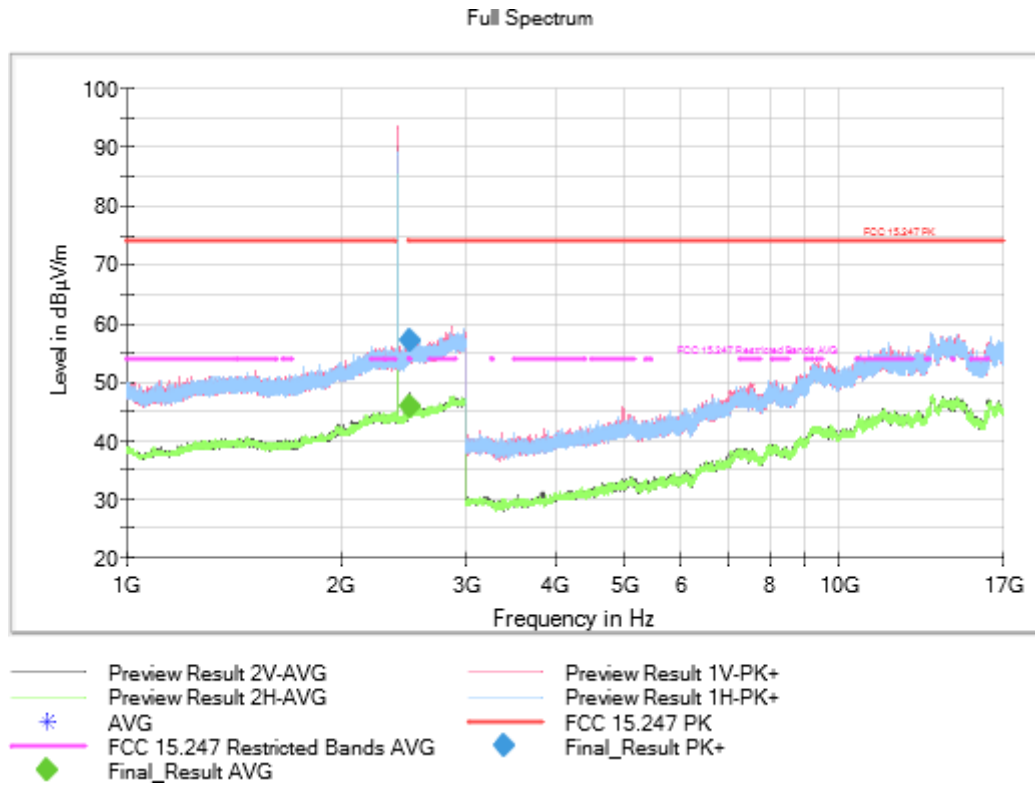
Verdict

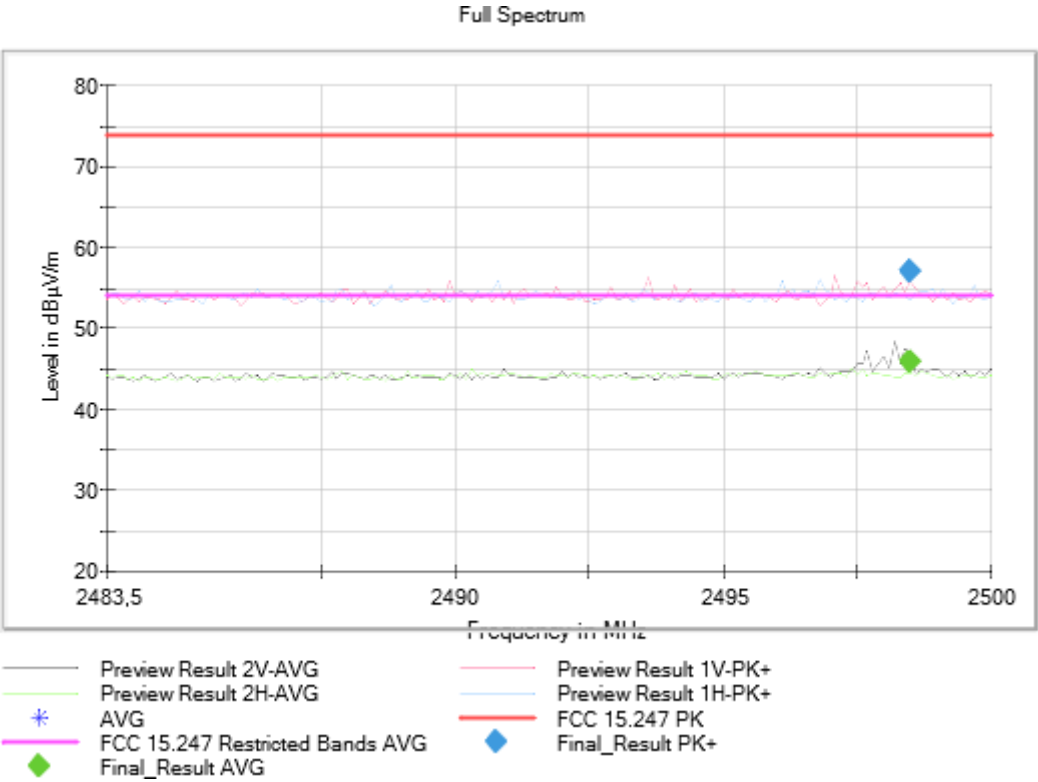
Pass

Attachments

Frequency Range GHz = [1, 17] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

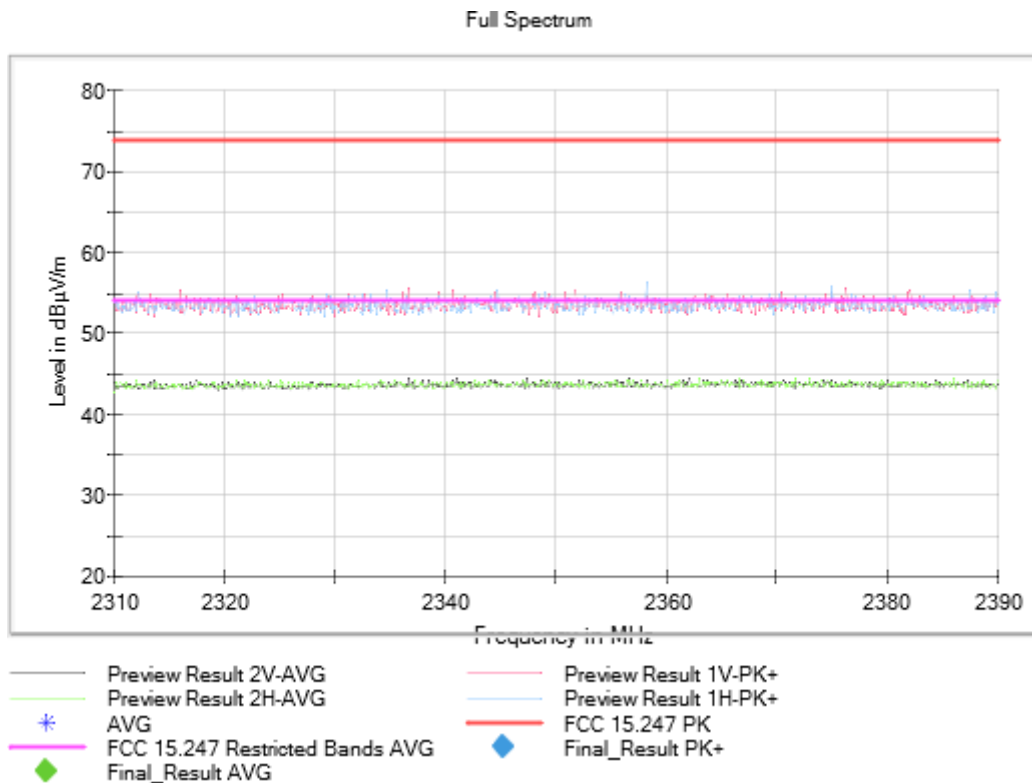
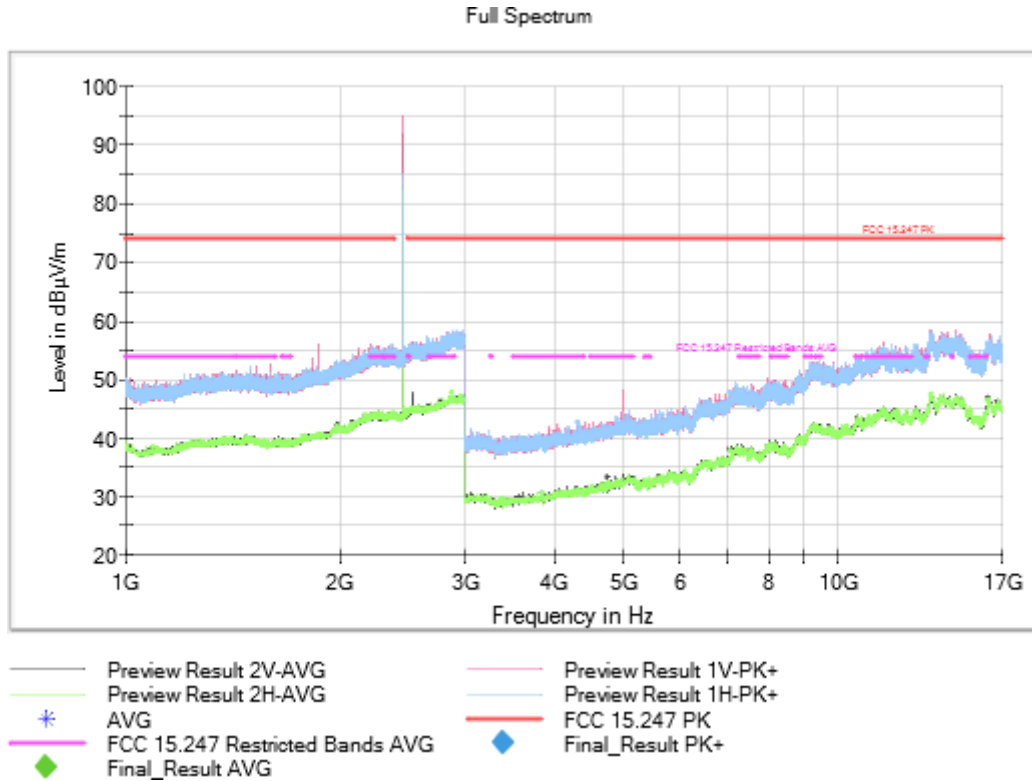
Images:

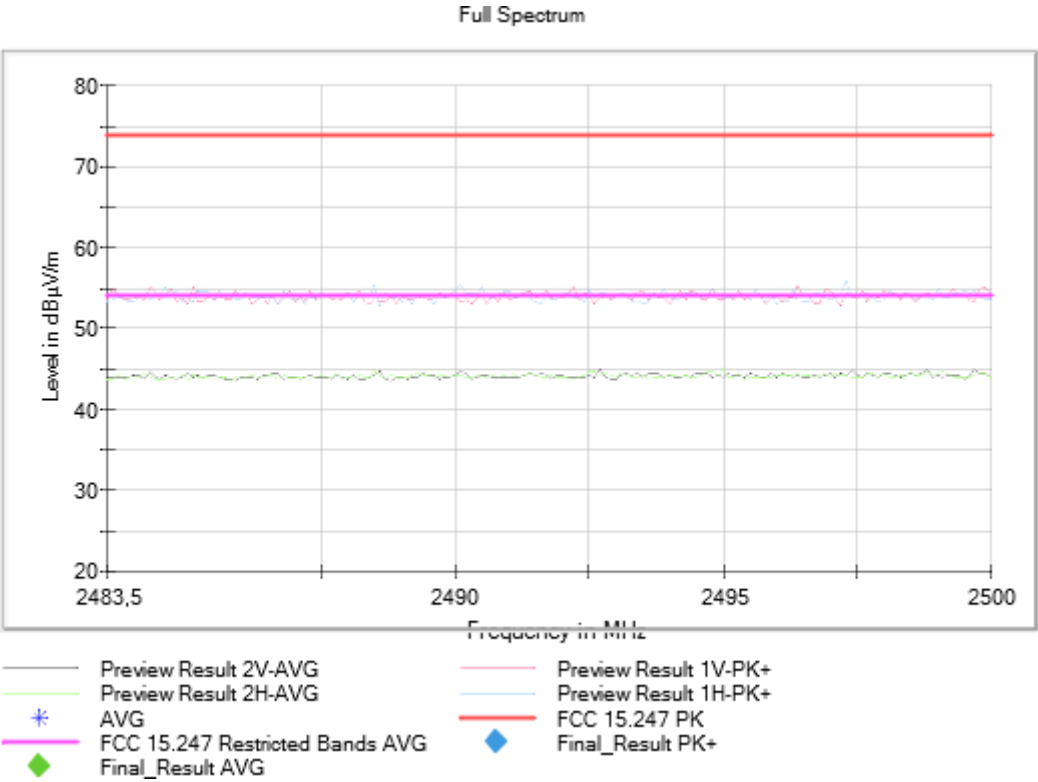




Frequency Range GHz = [1, 17] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

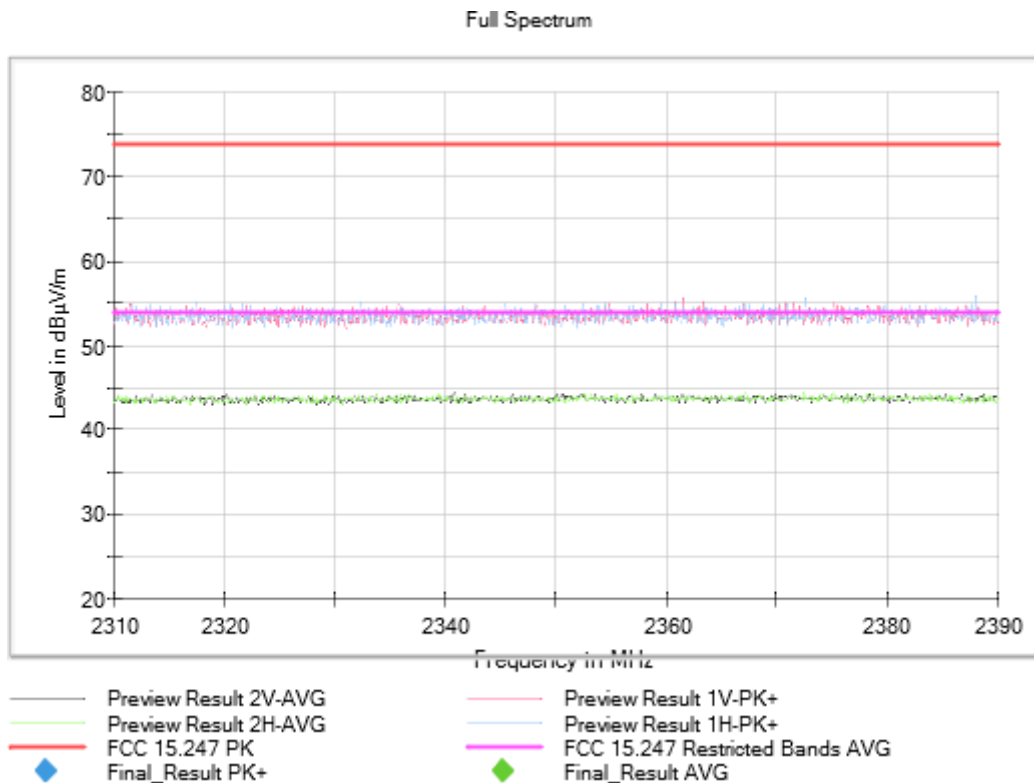
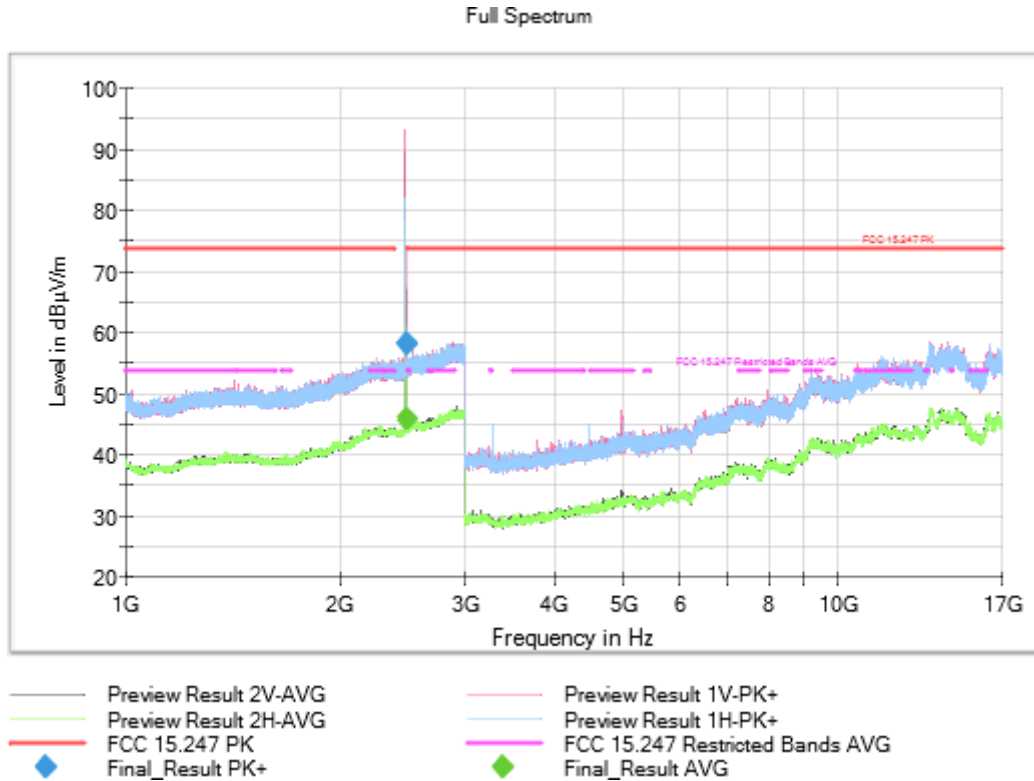
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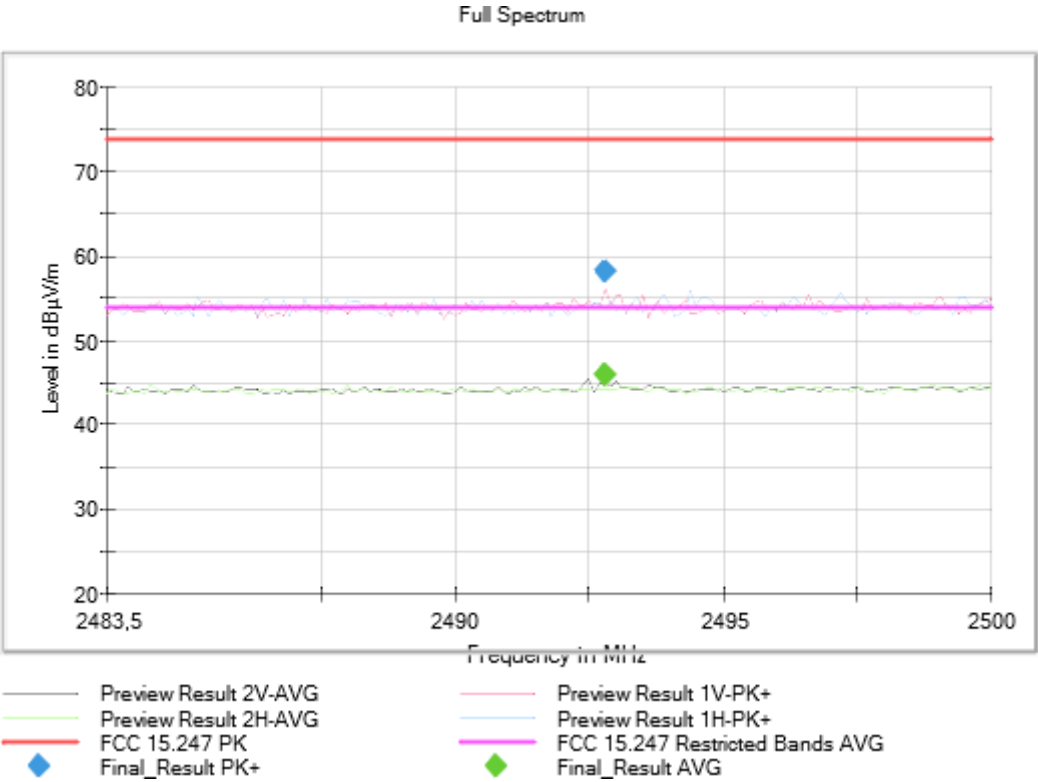




Frequency Range GHz = [1, 17] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:





Frequency Range GHz = [17, 26]

Modulation: The spurious frequencies detected do not depend on either the modulation or the operating channel.

MIMO Mode: SISO

Results

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

Verdict

Pass

Attachments

Frequency Range GHz = [17, 26]

Modulation = The spurious frequencies detected do not depend on the modulation.

MIMO Mode = SISO

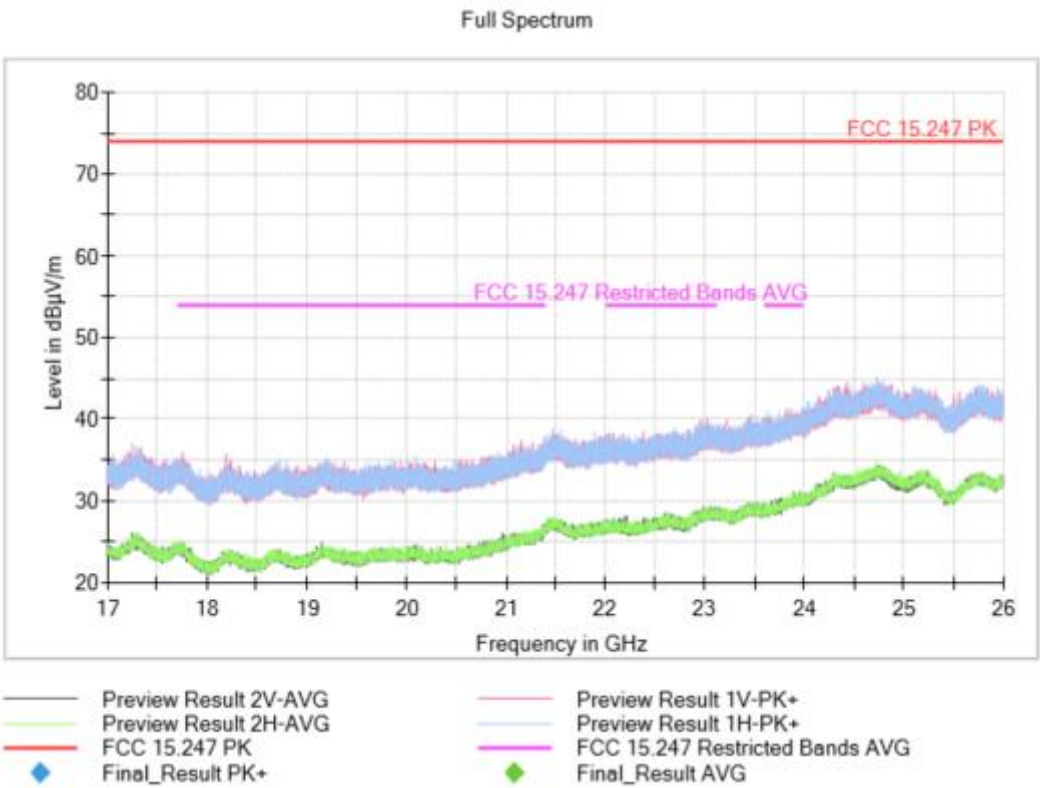
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

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

Active Port = 1

Images:

Test range performed in worst-case.



Appendix C: Test results. Bluetooth EDR. ANT 3

TEST CONDITIONS	255
TEST CASES DETAILS	258
<i>Occupied Channel Bandwidth 99%</i>	<i>258</i>
<i>RSS-247 5.1 (b) / FCC 15.247 (a) (1) 20 dB Bandwidth</i>	<i>270</i>
<i>RSS-247 5.1 (b) / FCC 15.247 (a) (1) Carrier Frequency Separation</i>	<i>282</i>
<i>RSS-247 5.1 (d) / FCC 15.247 (a) (1) (iii) Time of Occupancy (Dwell Time)</i>	<i>291</i>
<i>RSS-247 5.1 (d) / FCC 15.247 (a) (1) (iii) Number of hopping channels</i>	<i>303</i>
<i>RSS-247 5.4 (b) / FCC 15.247 (b) (1) Maximum Peak Conducted output power</i>	<i>309</i>
<i>RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)</i>	<i>321</i>
<i>RSS-247 5.5 / FCC 15.247 (d) Emission limitations radiated (Transmitter)</i>	<i>348</i>

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 12Vdc
Type of Power Supply: Car battery / alternator

ANTENNA (*):

Type of Antenna: Integral antenna
Maximum Declared Antenna Gain: +1.37dBi

TEST FREQUENCIES (*):

Modulation	Data rates	Low Channel:	Middle Channel	High Channel
BTEDR GFSK	1-DH5	2402 MHz	2441 MHz	2480 MHz
BTEDR PI/4 DQPSK	2-DH5	2402 MHz	2441 MHz	2480 MHz
BTEDR 8DPSK	3-DH5	2402 MHz	2441 MHz	2480 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).

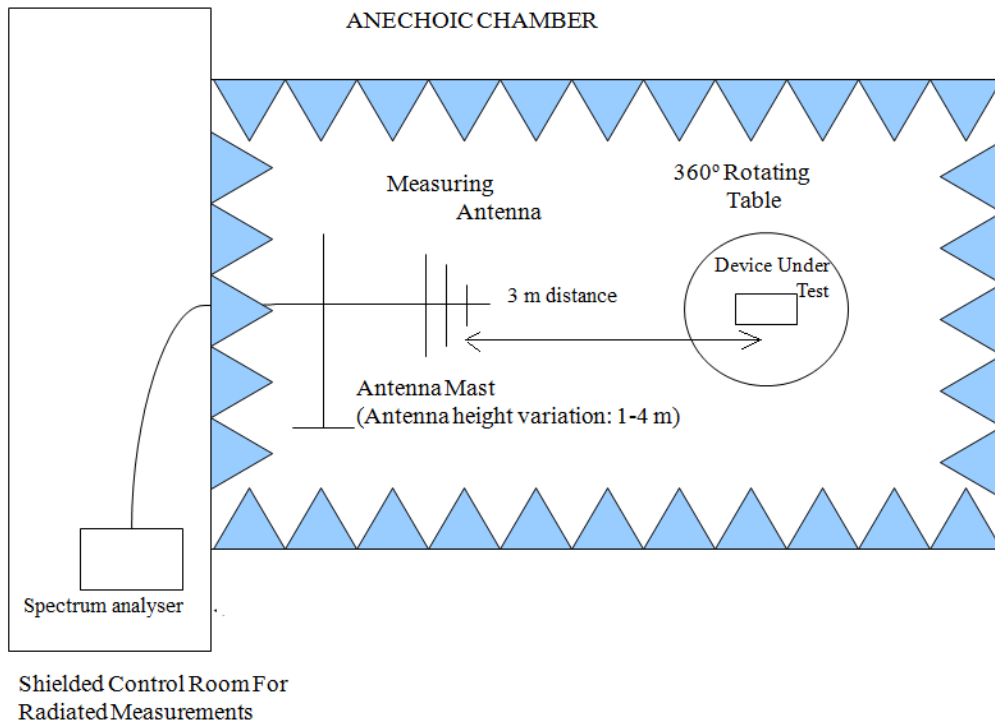
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

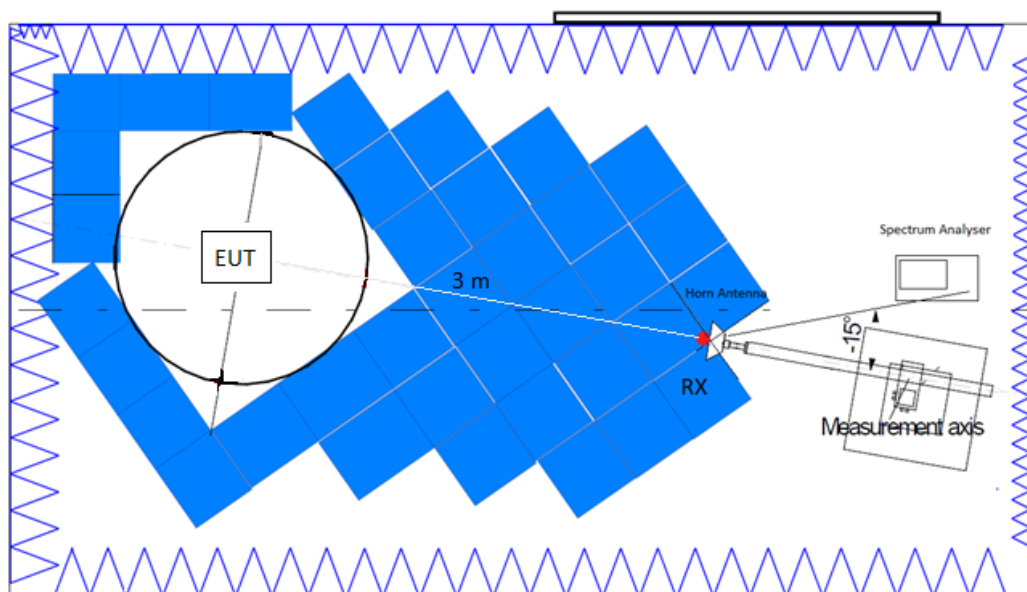
Measurements were made in both horizontal and vertical planes of polarization.

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.

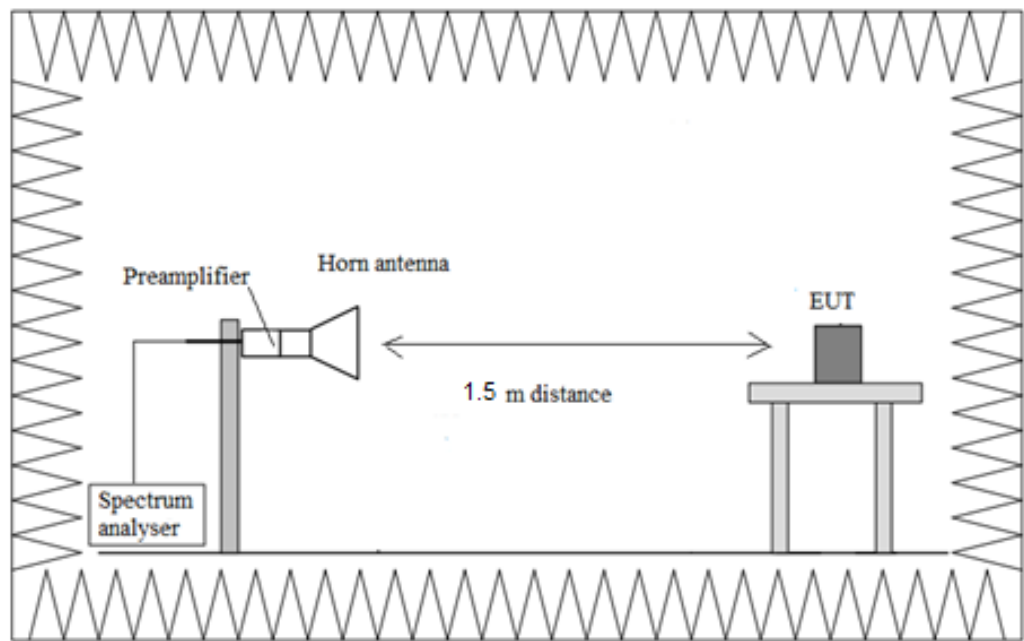
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17\text{ GHz}$:



TEST CASES DETAILS

Occupied Channel Bandwidth 99%

Limits

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: BT (GFSK)

MIMO Mode: SISO

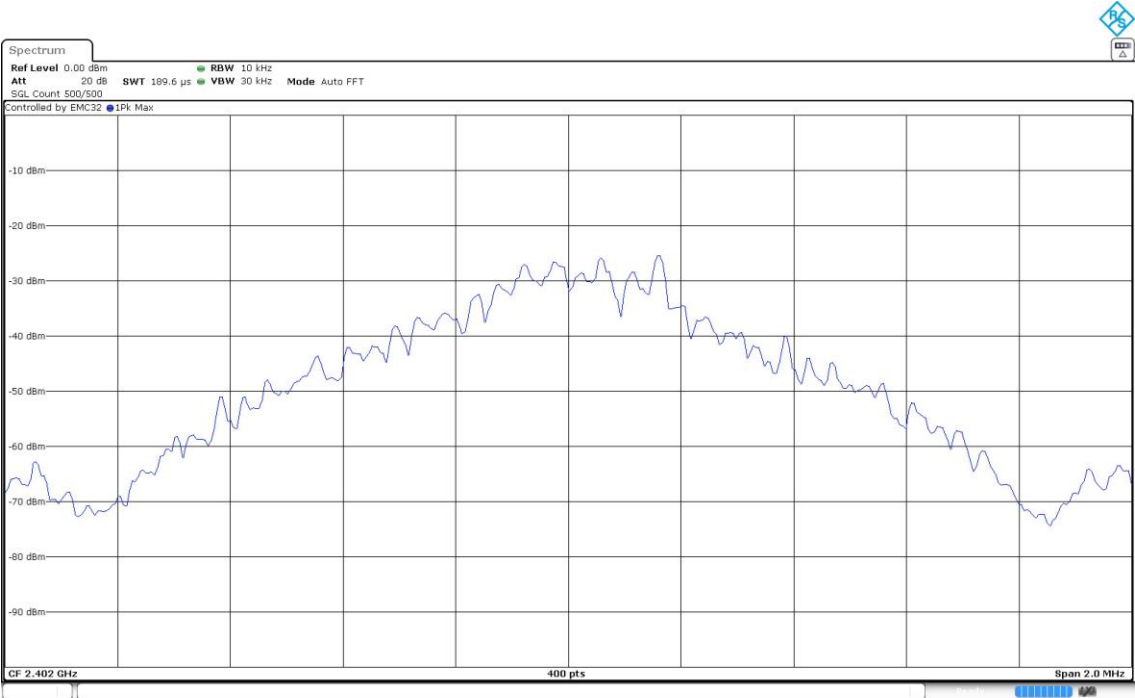
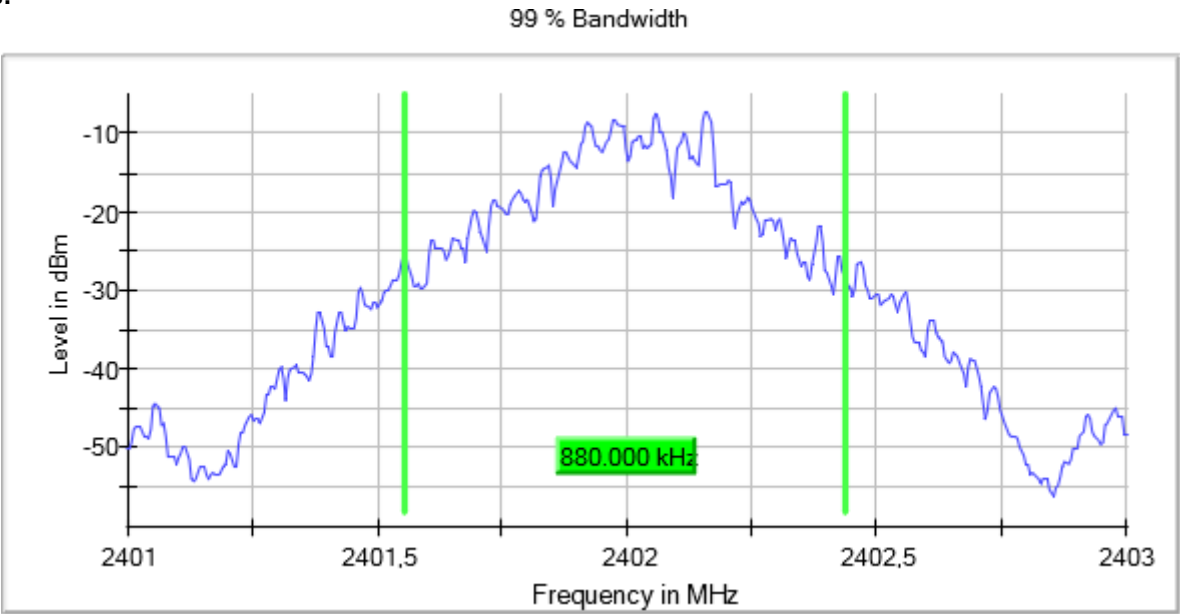
Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	0.880
		2441.00000		0.880
		2480.00000		0.895

Attachments

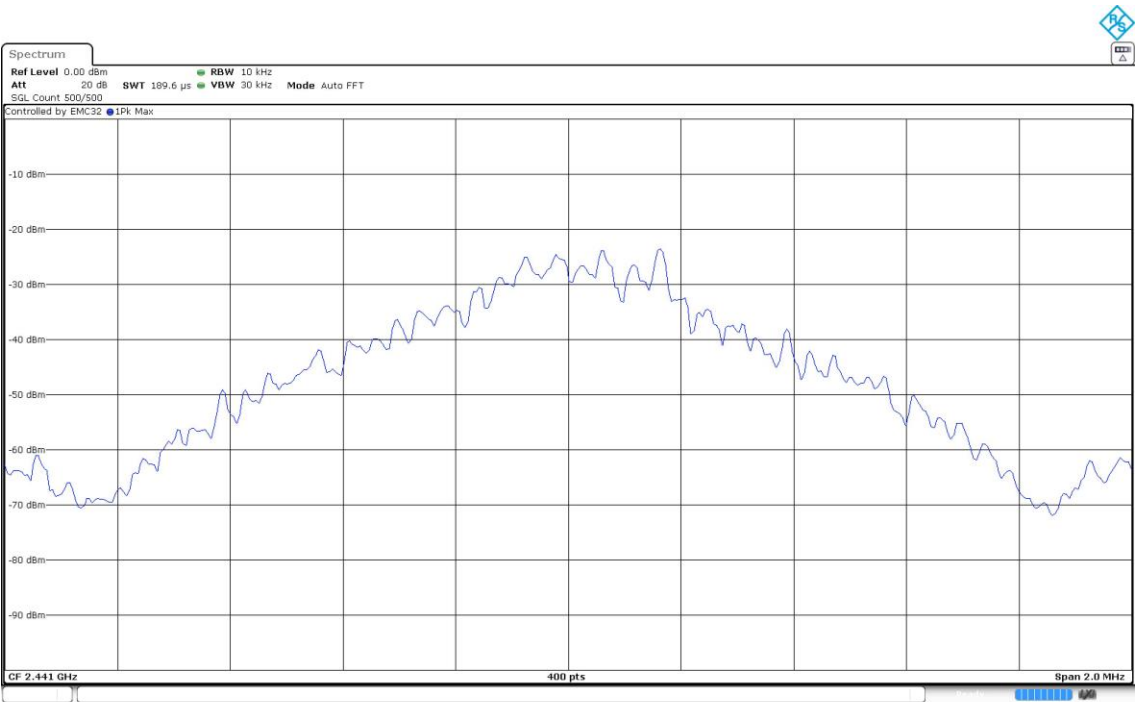
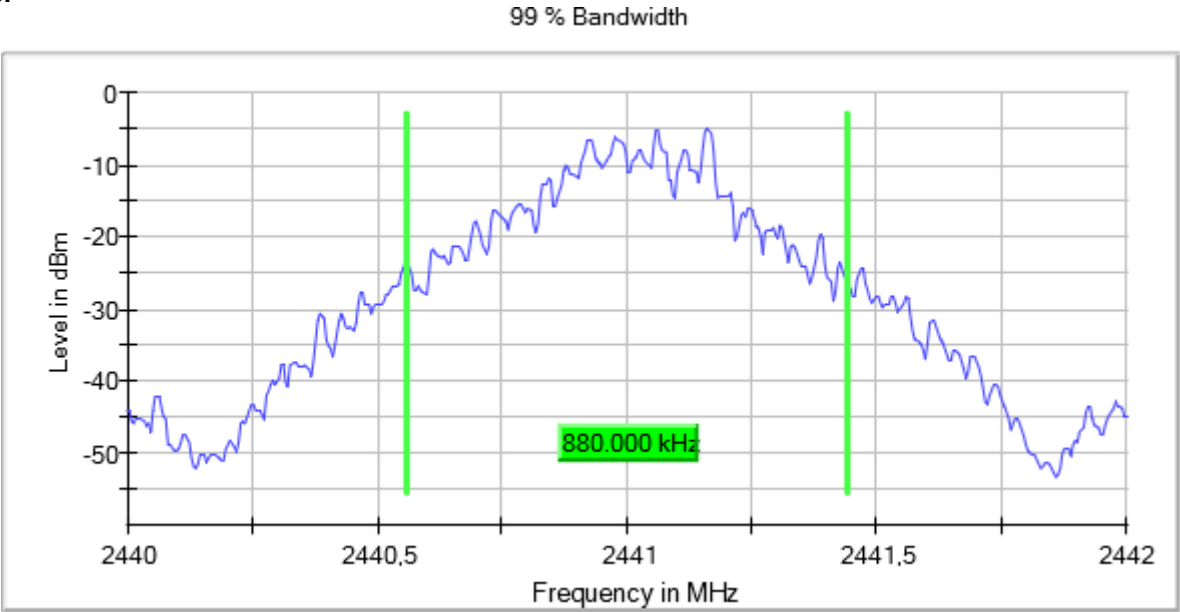
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



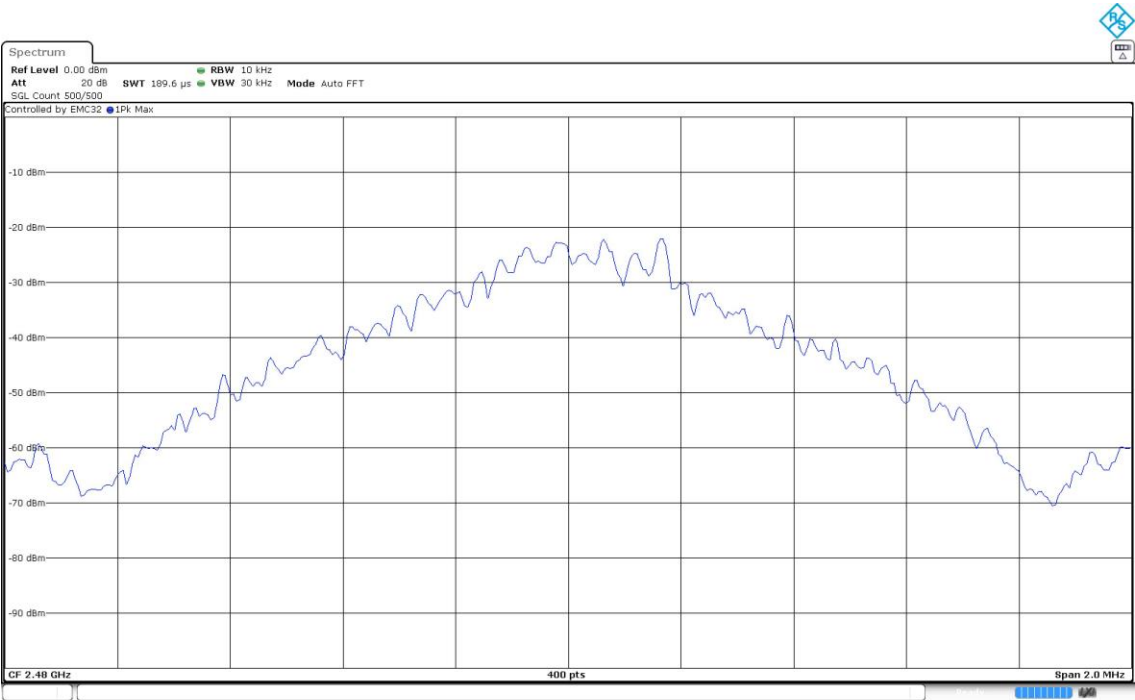
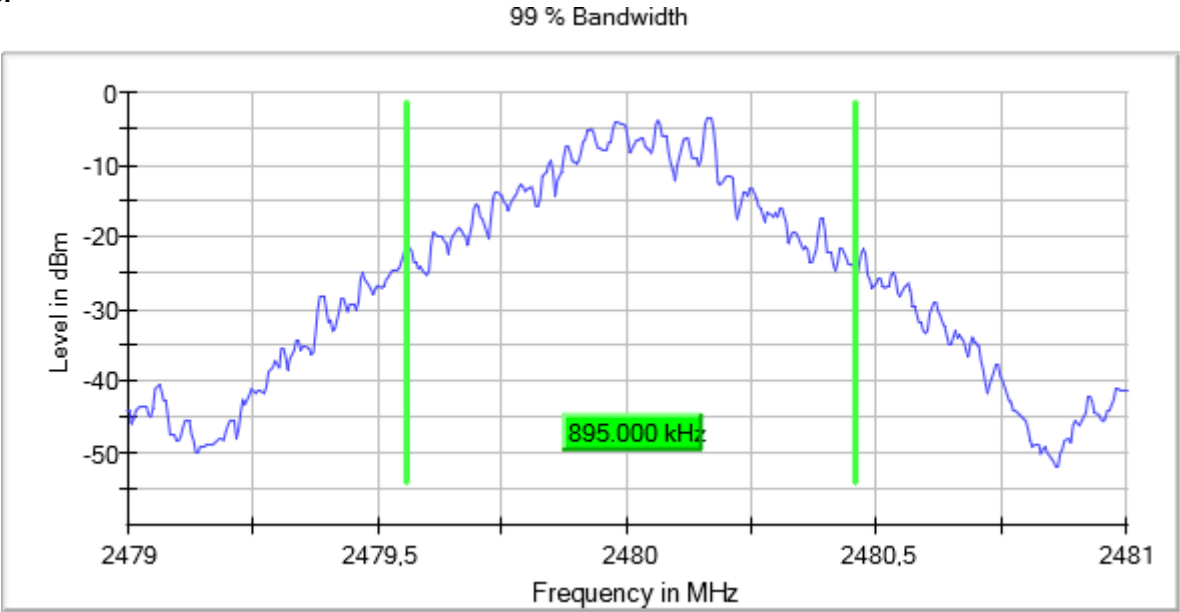
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

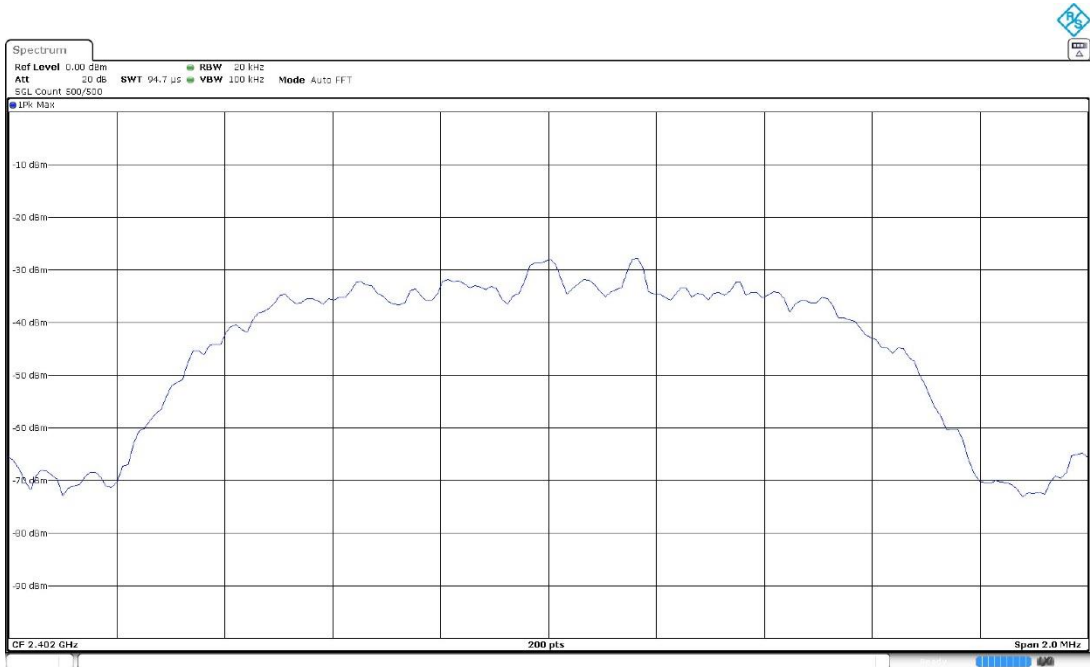
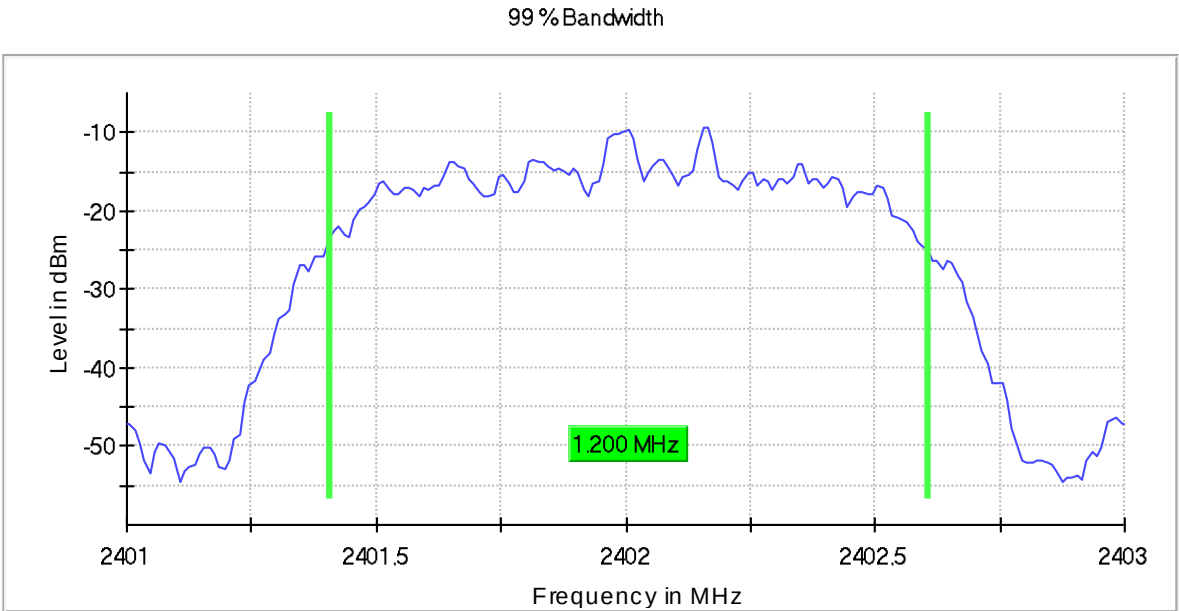
Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	1.200
		2441.00000		1.200
		2480.00000		1.210

Attachments

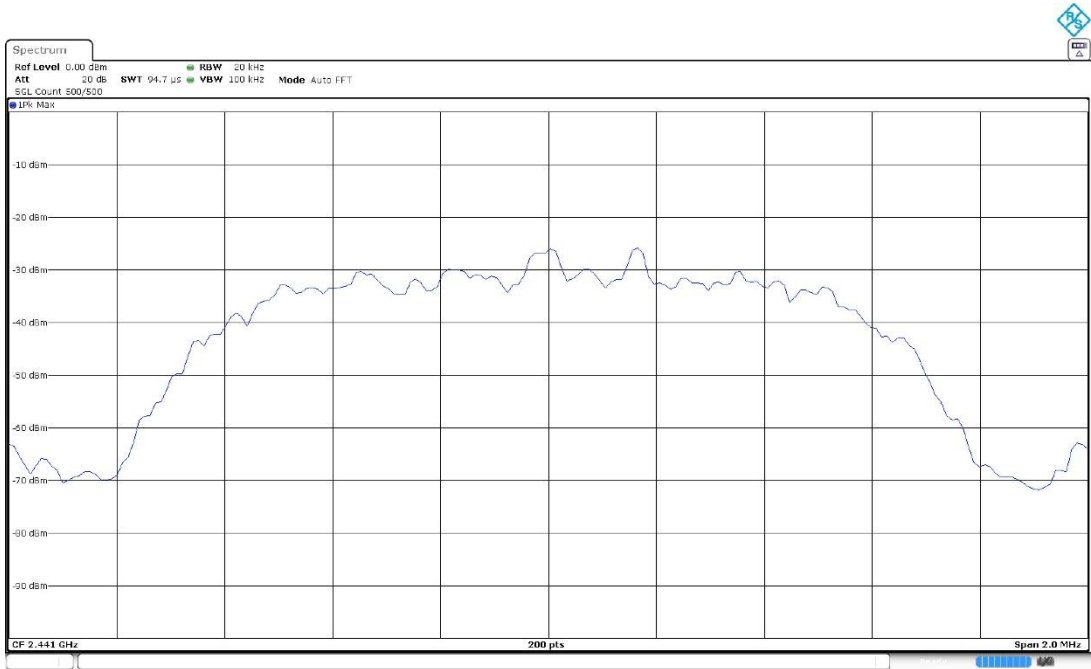
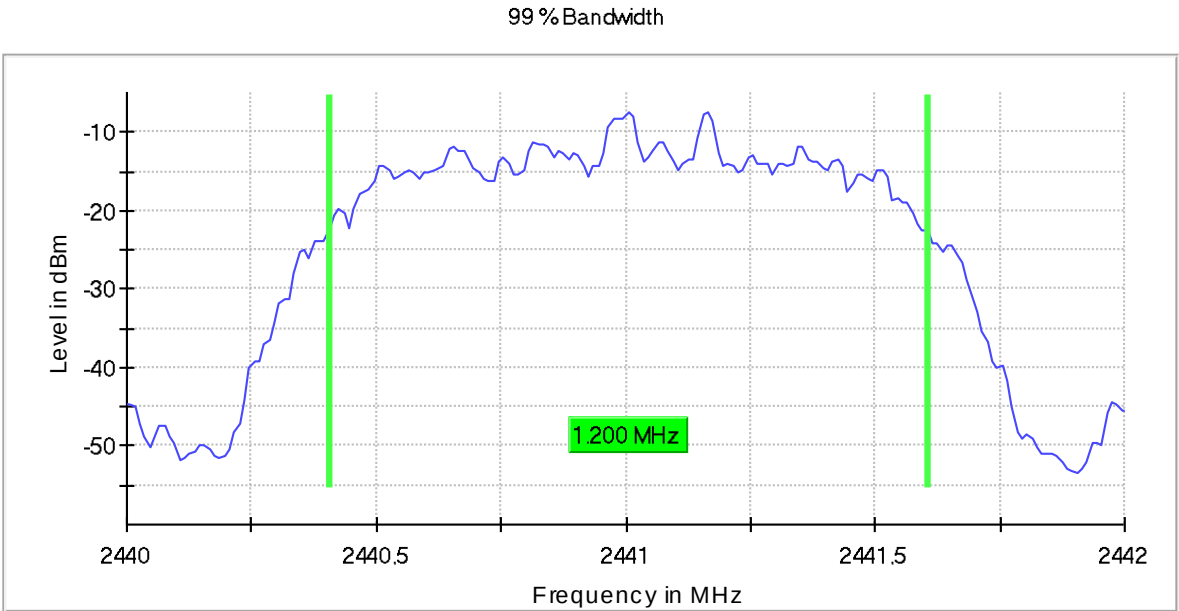
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



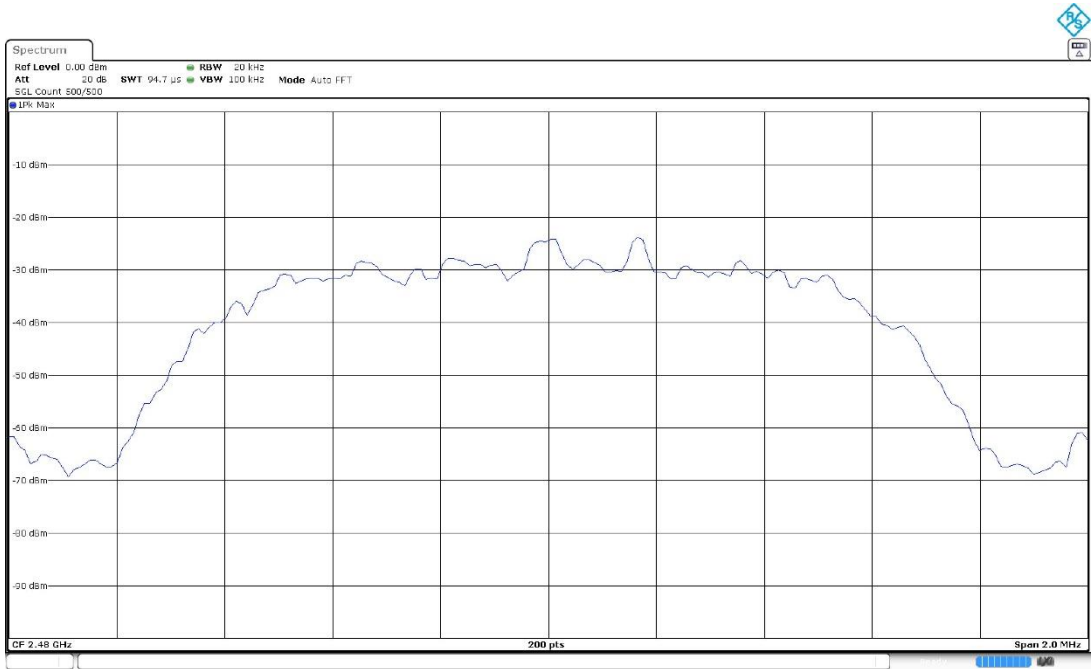
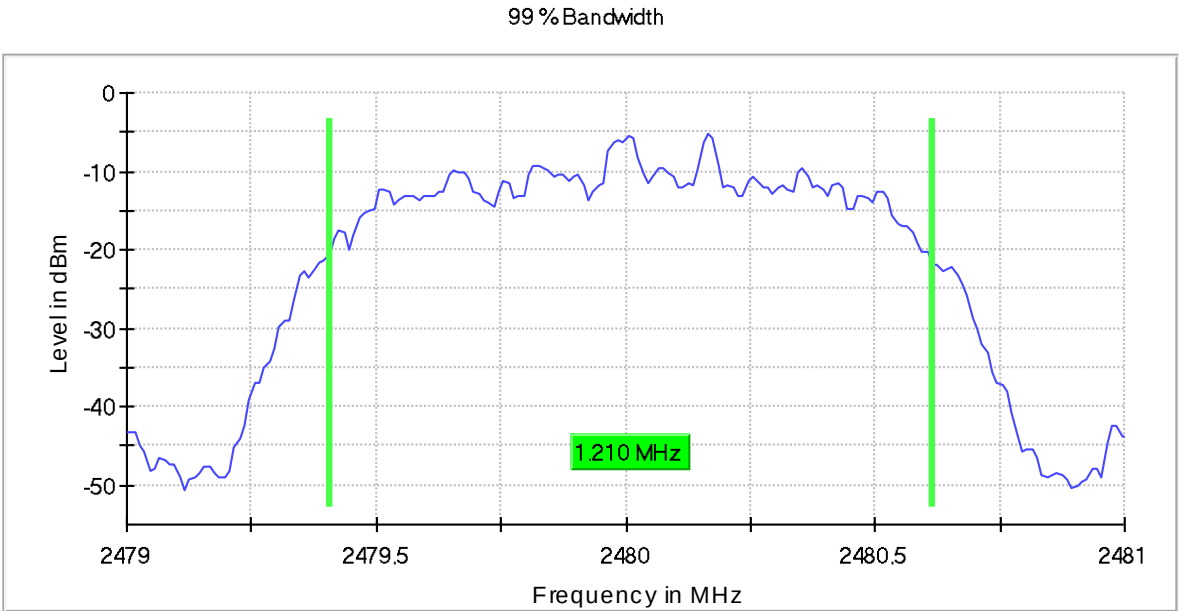
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (8DPSK)

MIMO Mode: SISO

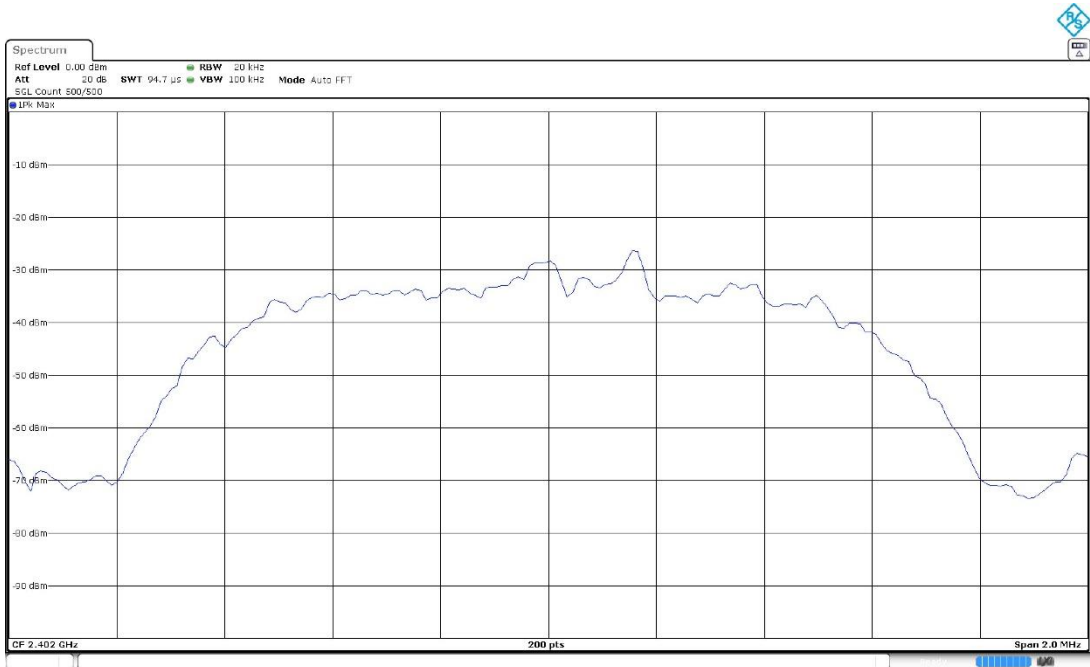
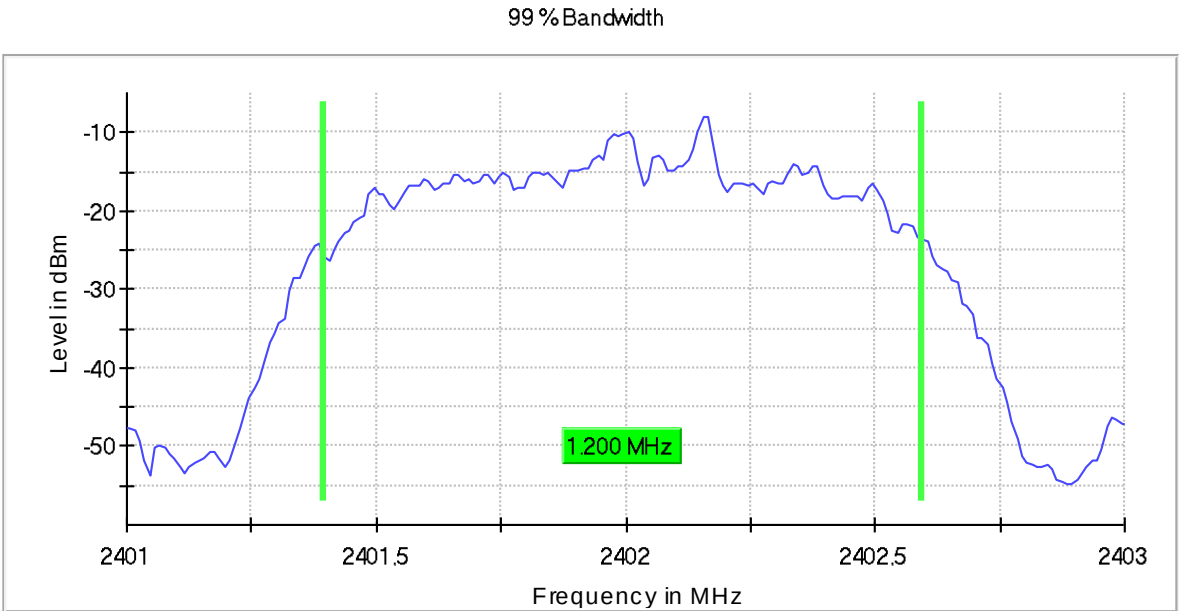
Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	1.200
		2441.00000		1.210
		2480.00000		1.210

Attachments

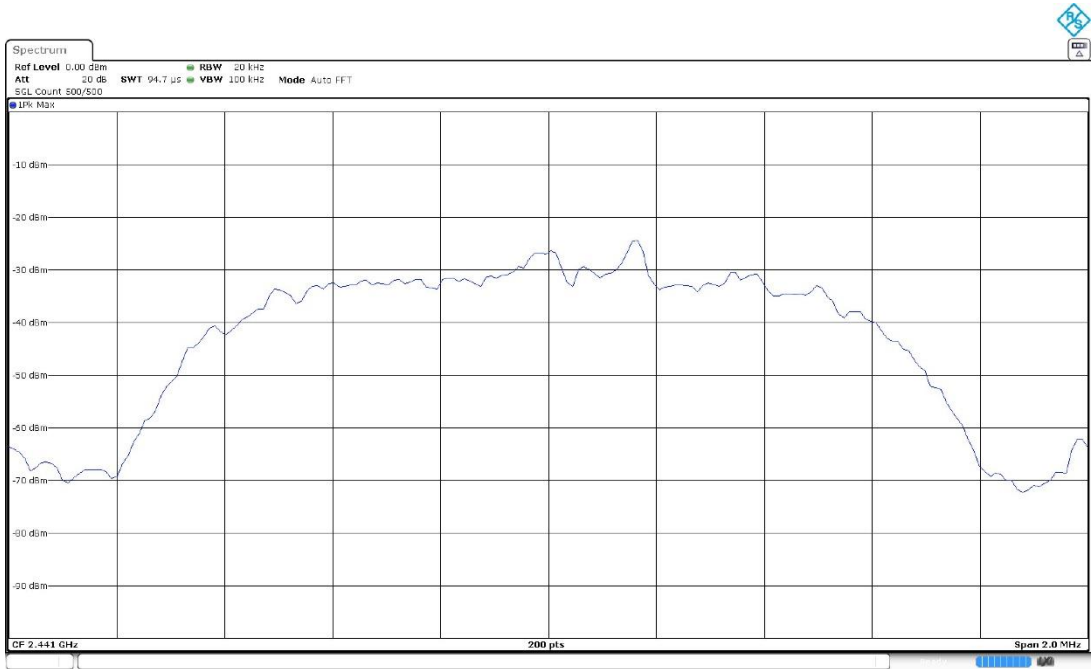
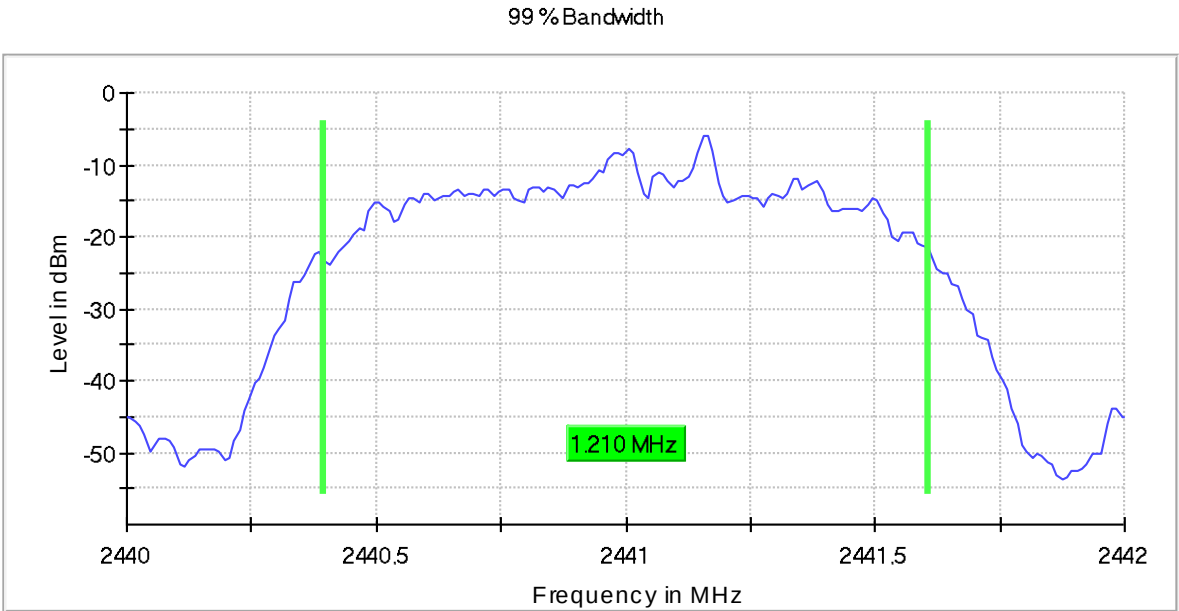
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



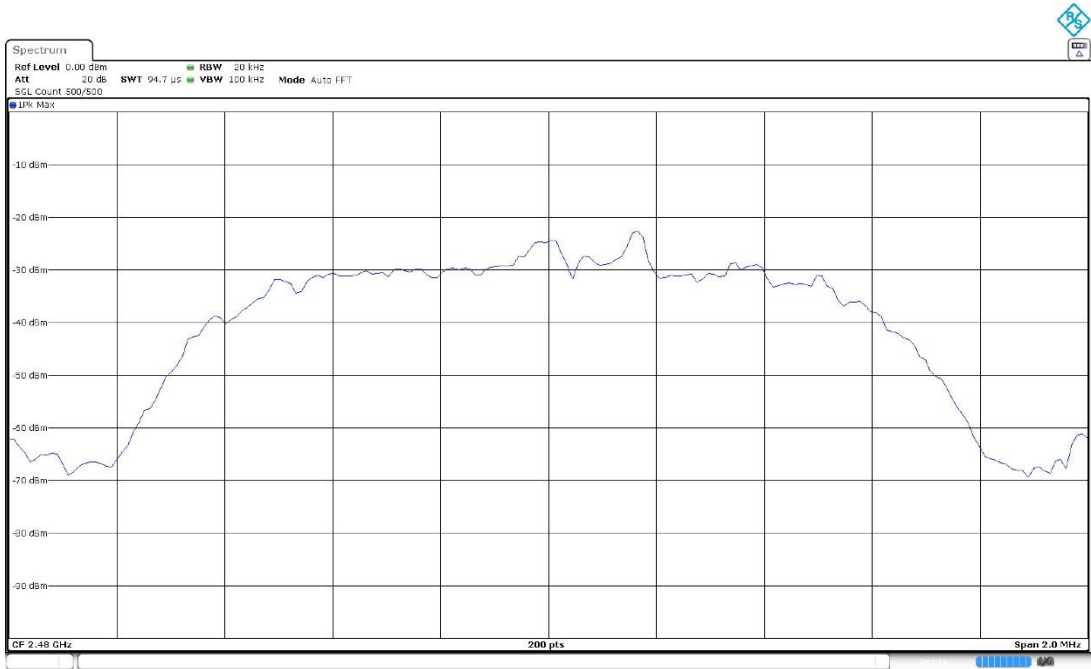
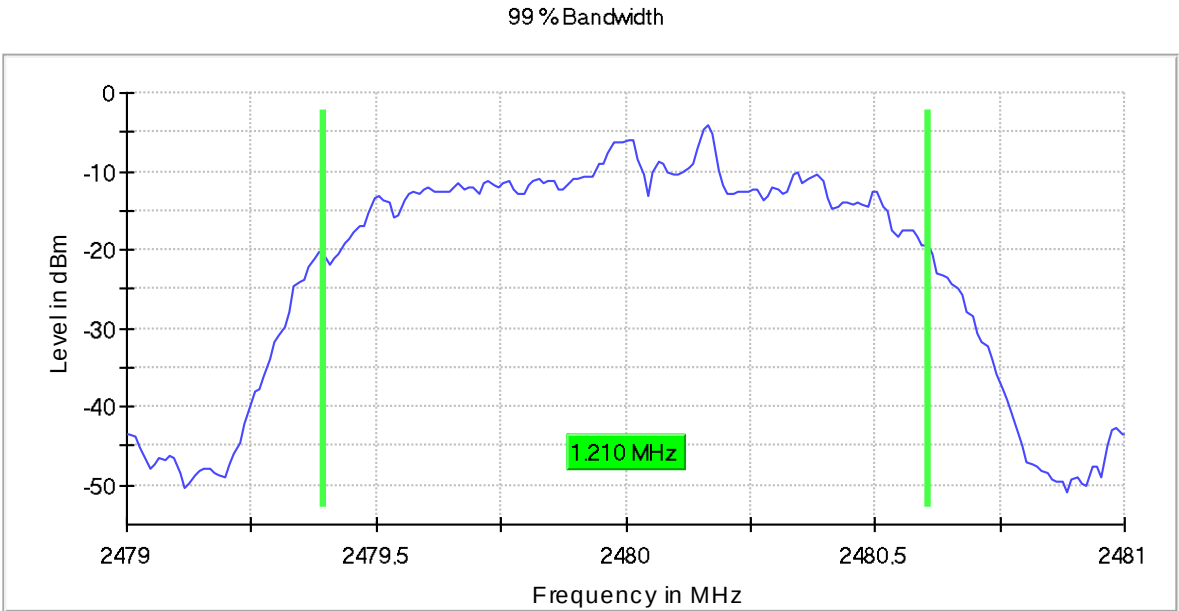
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



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

Limits

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

Modulation: BT (GFSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	0.930
		2441.00000		0.930
		2480.00000		0.935

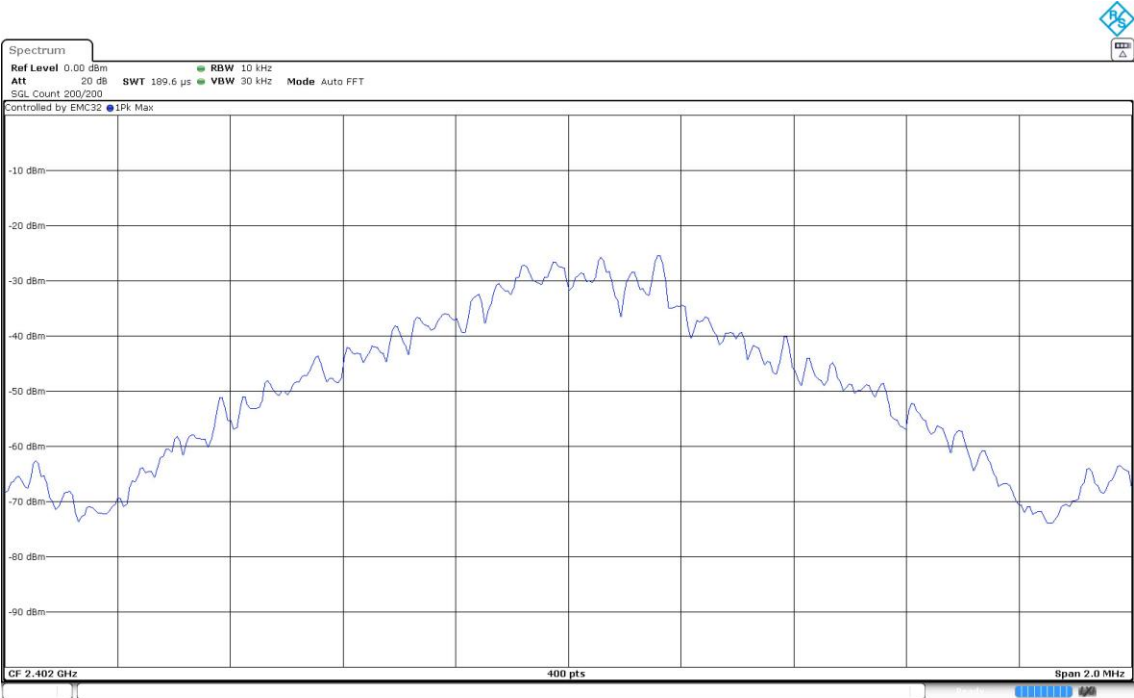
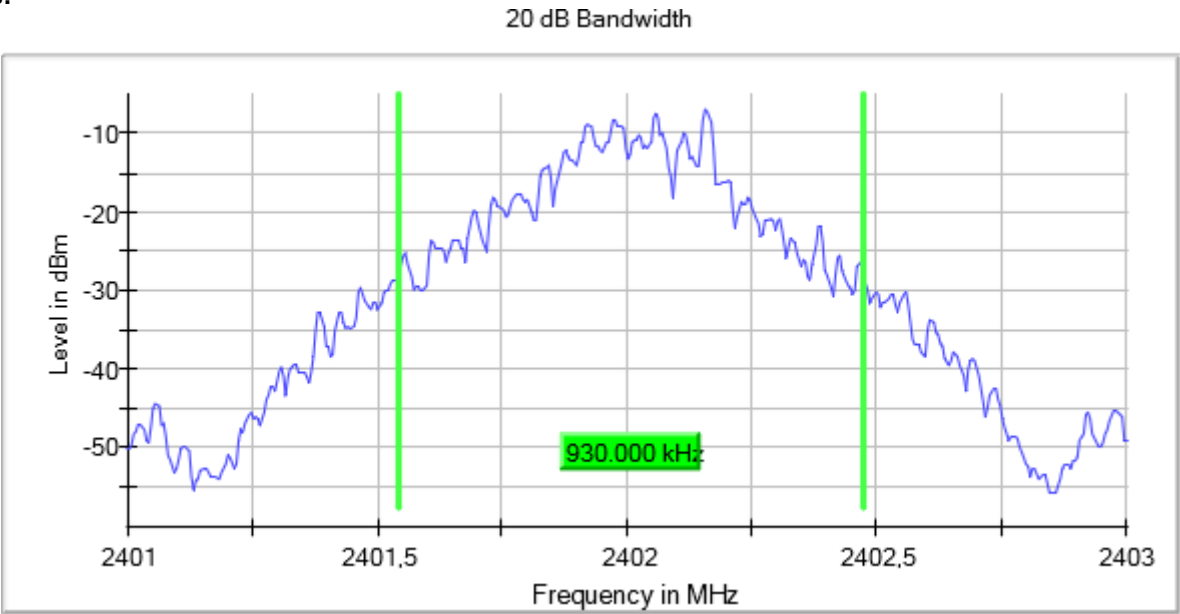
Verdict

Pass

Attachments

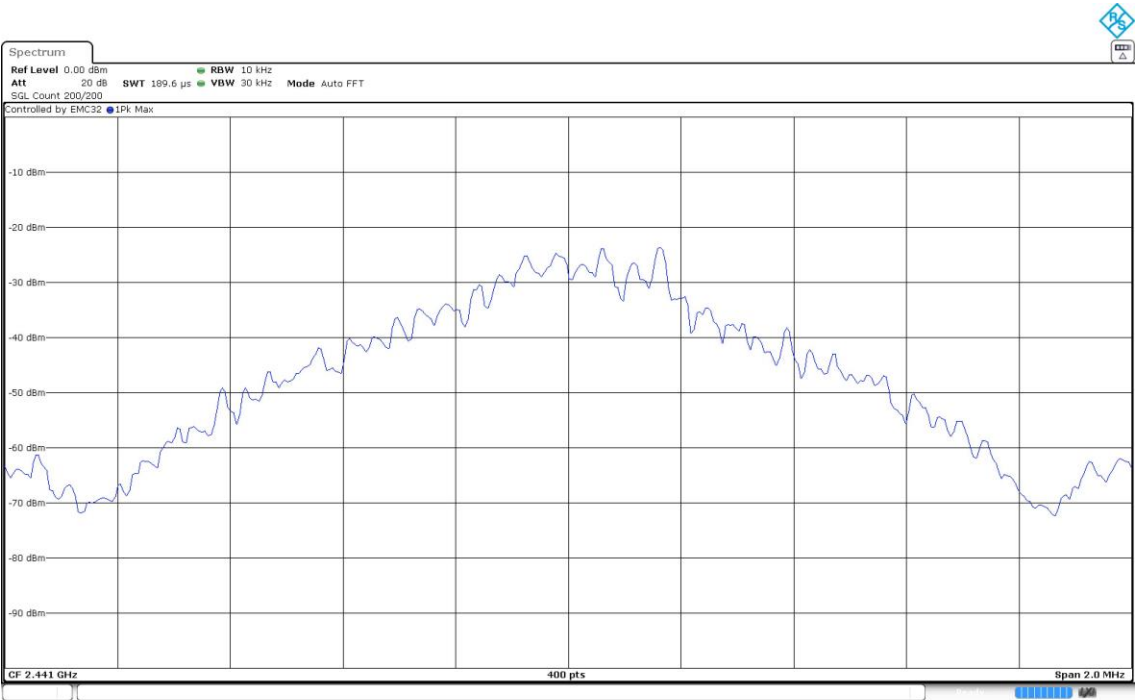
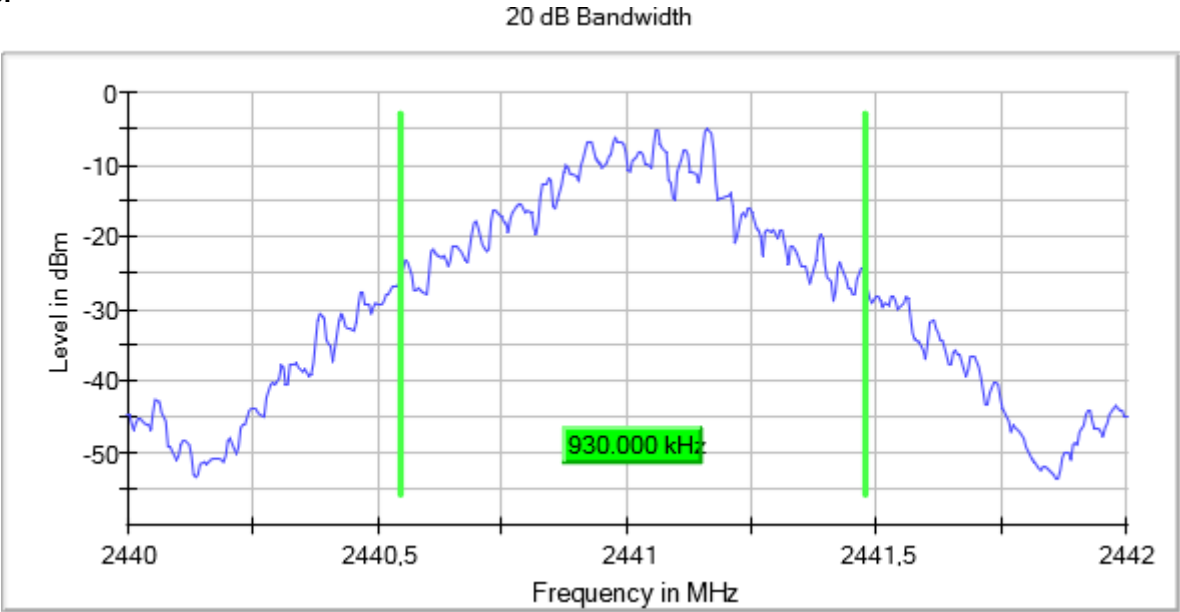
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



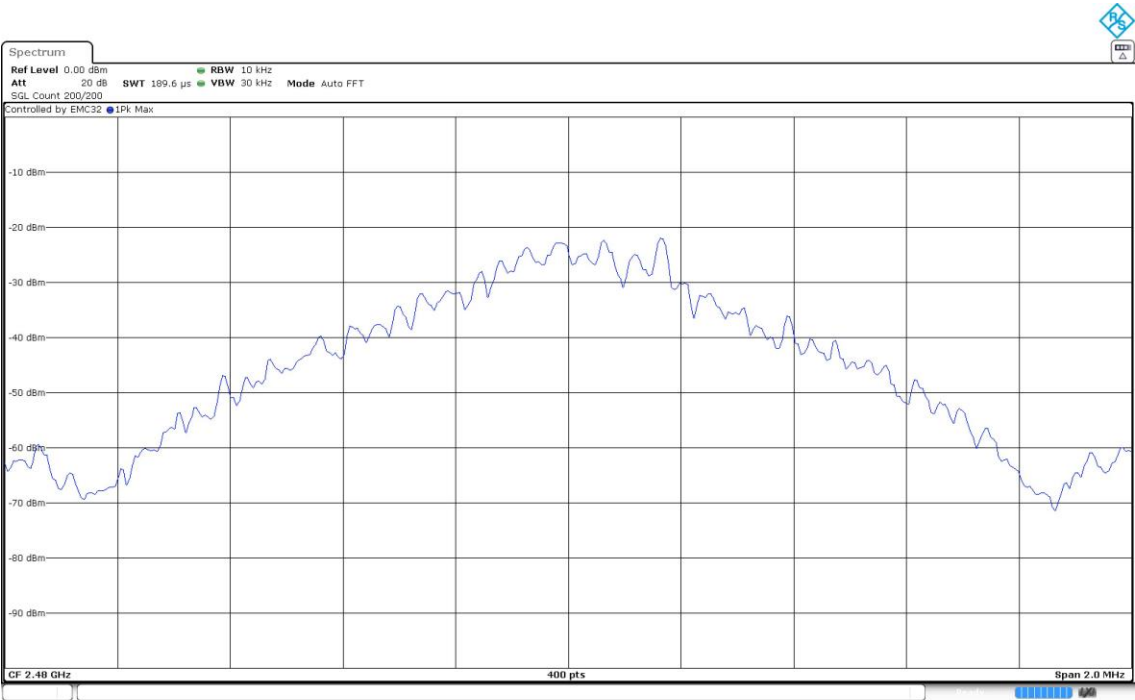
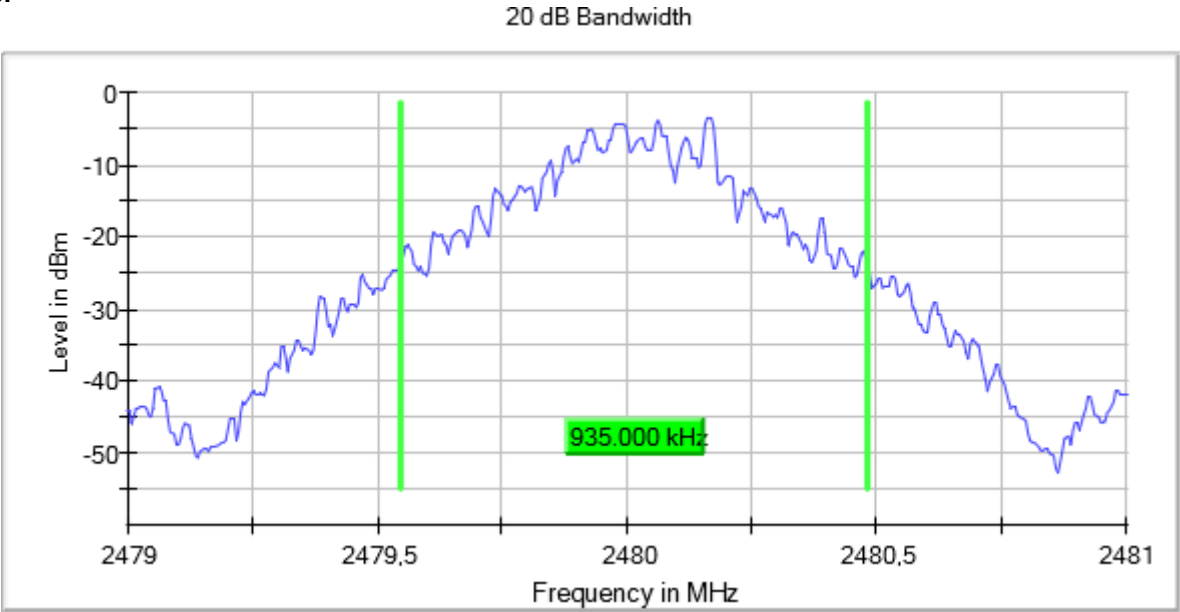
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	1.335
		2441.00000		1.335
		2480.00000		1.335

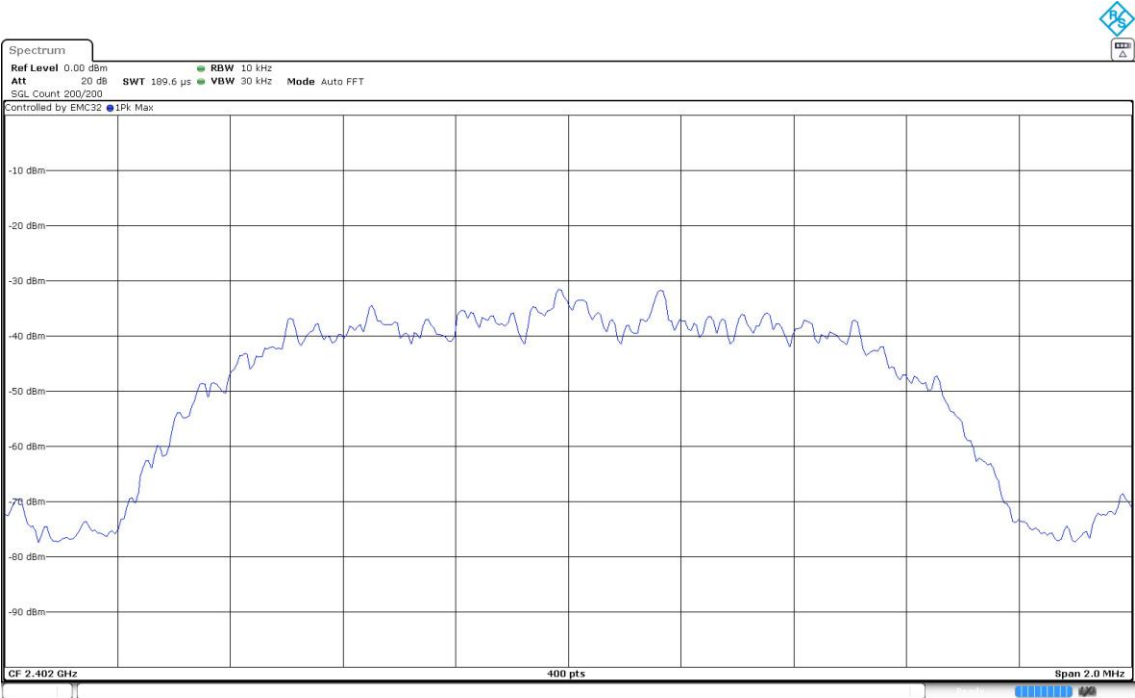
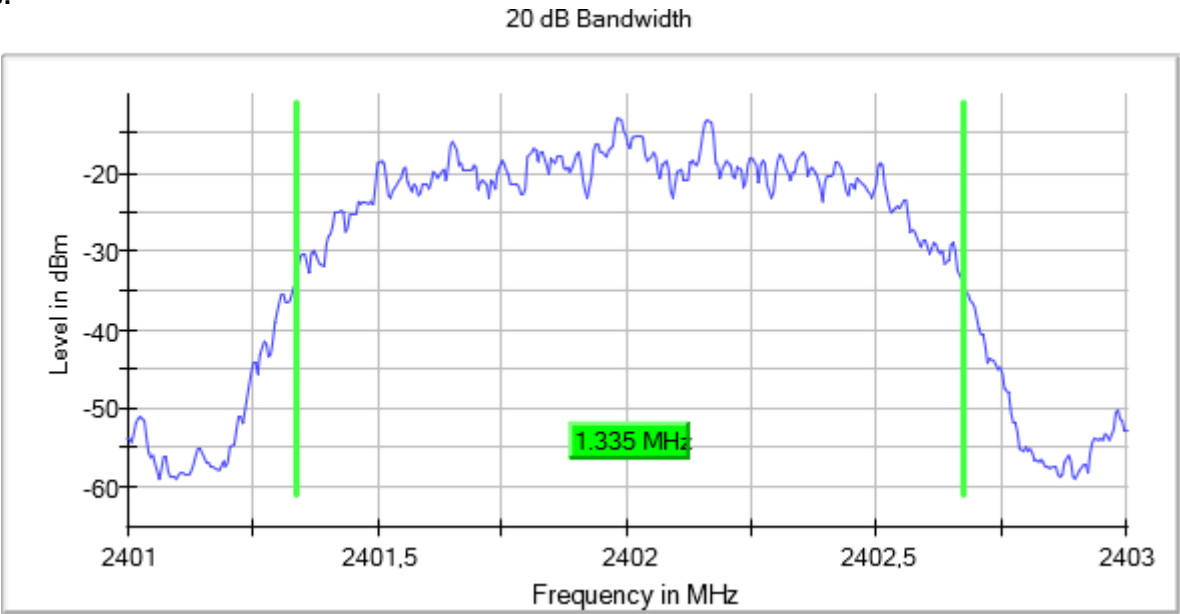
Verdict

Pass

Attachments

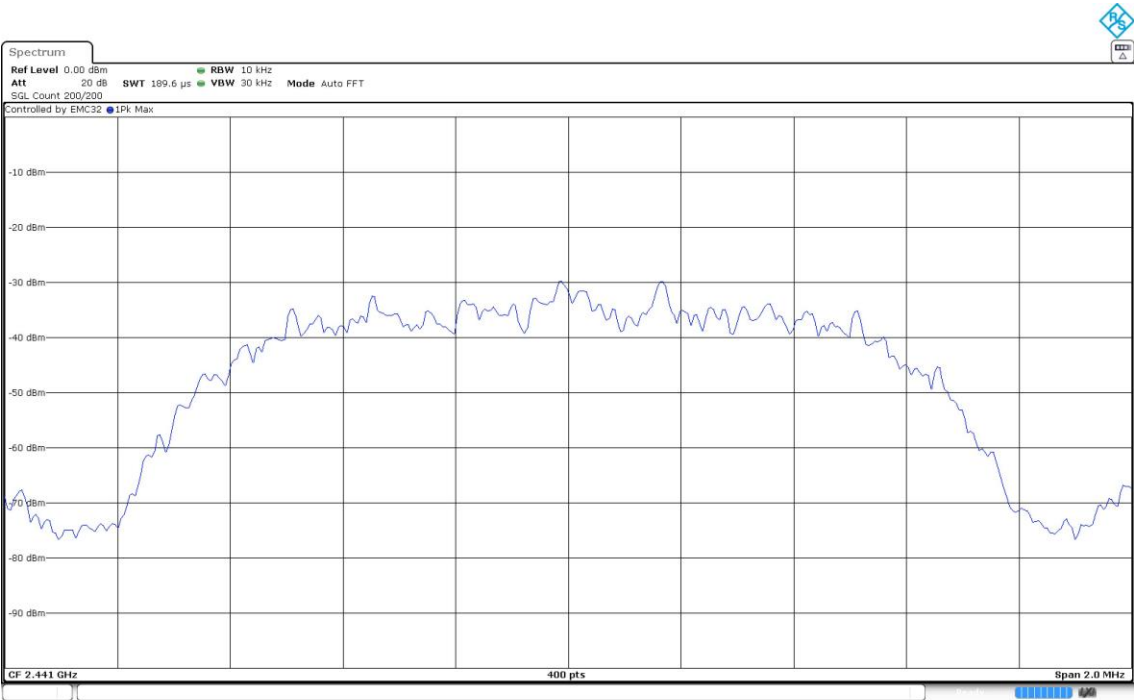
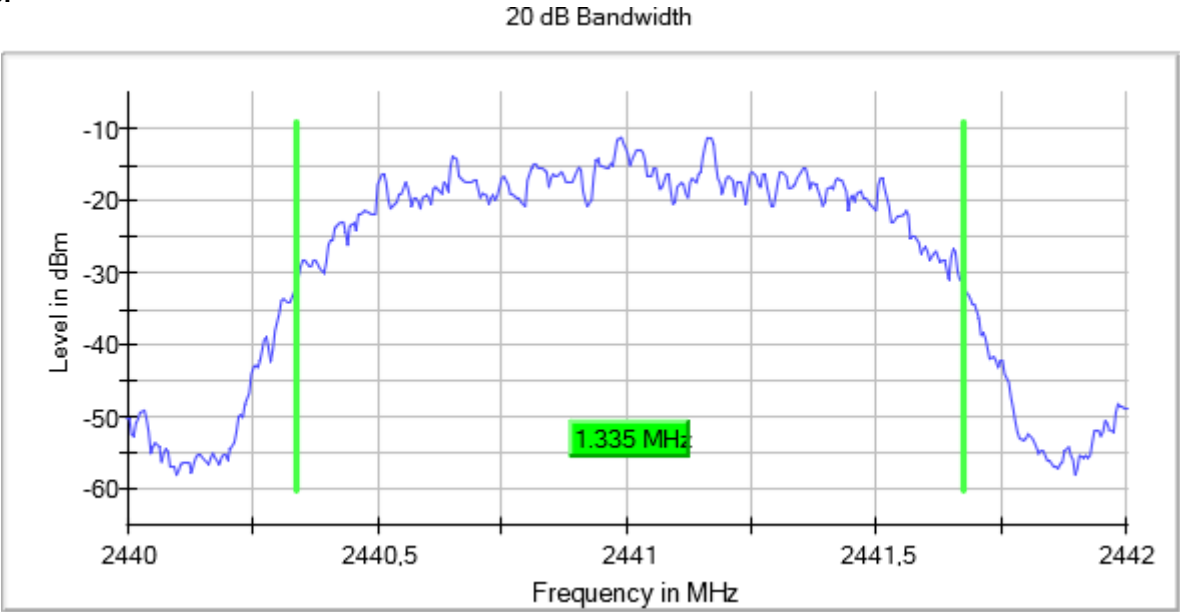
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



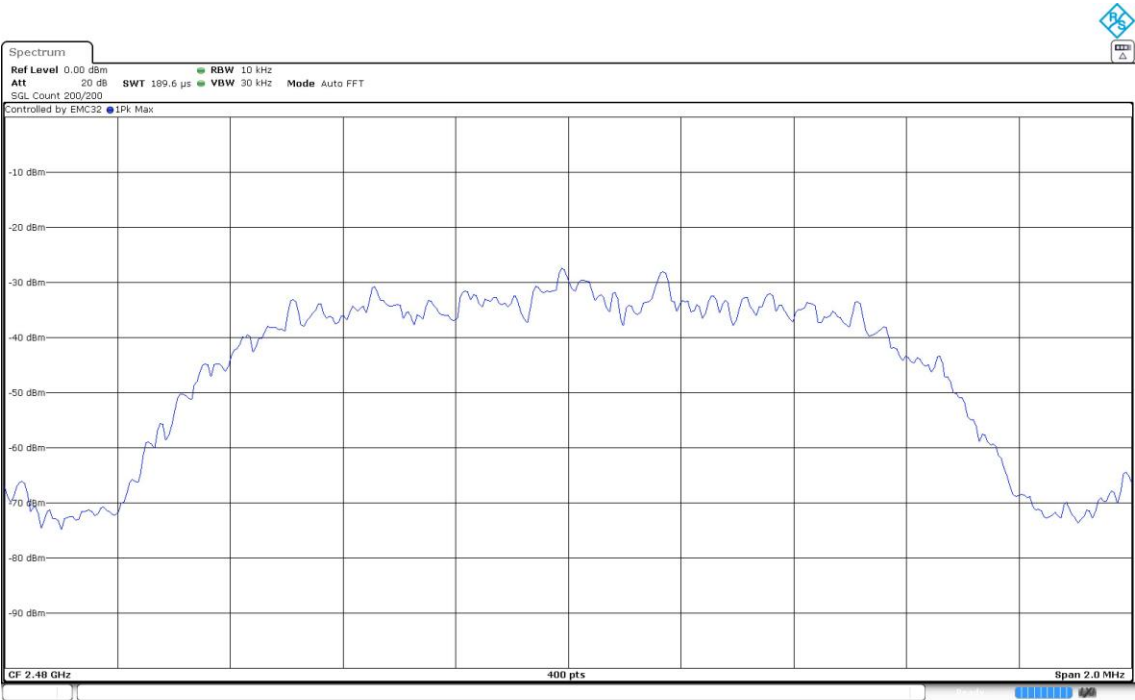
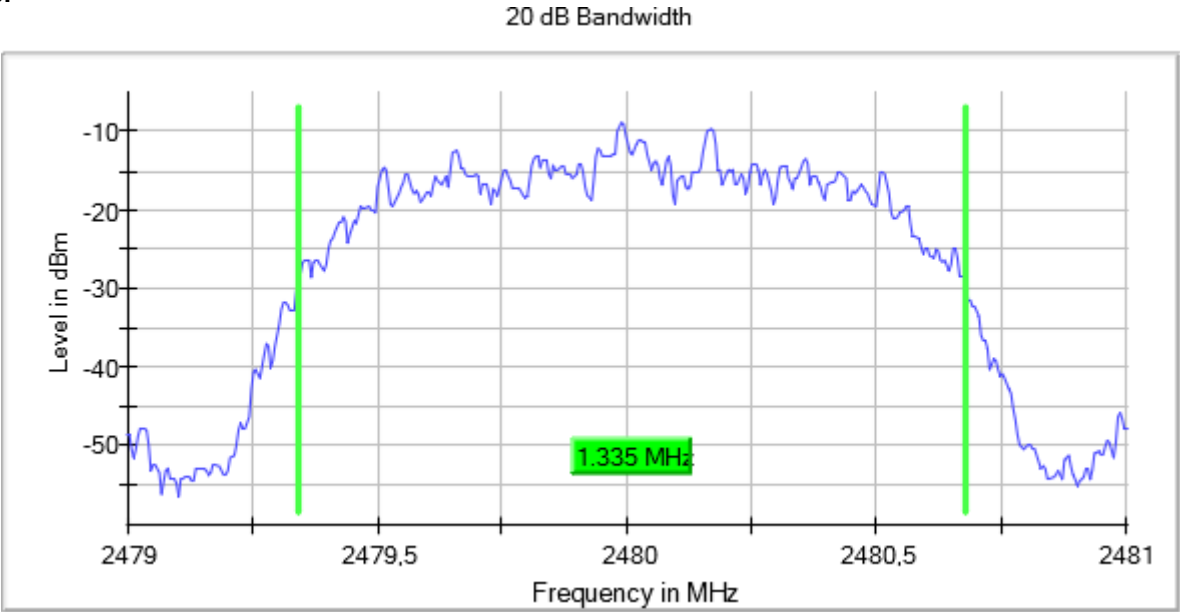
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (8DPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	1.285
		2441.00000		1.275
		2480.00000		1.280

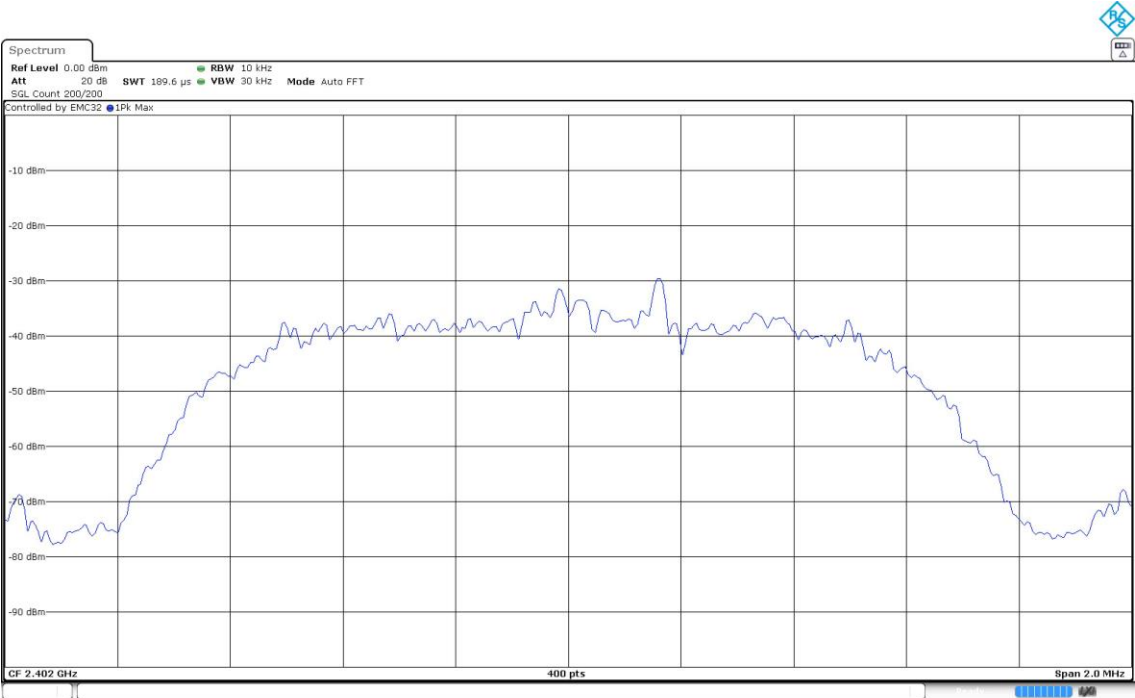
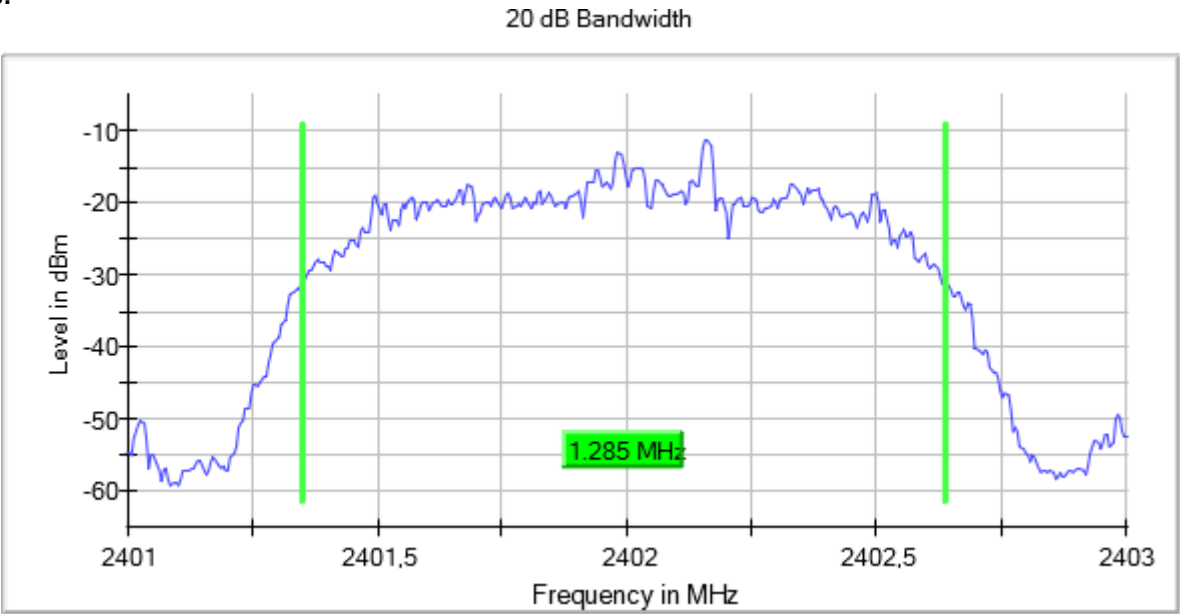
Verdict

Pass

Attachments

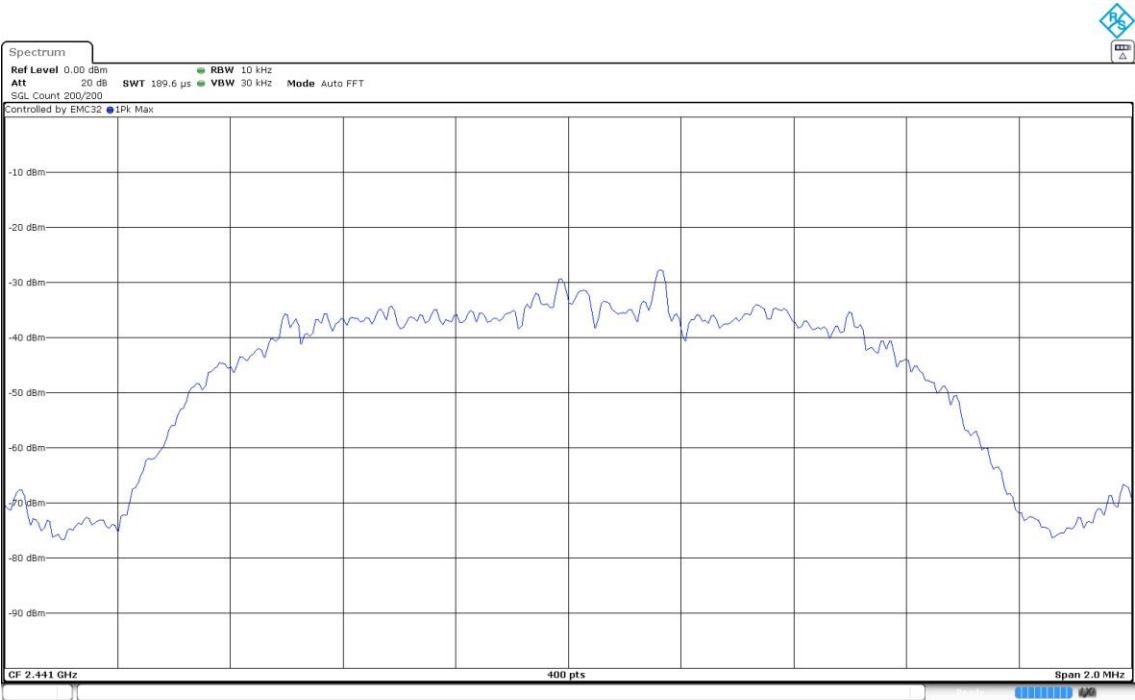
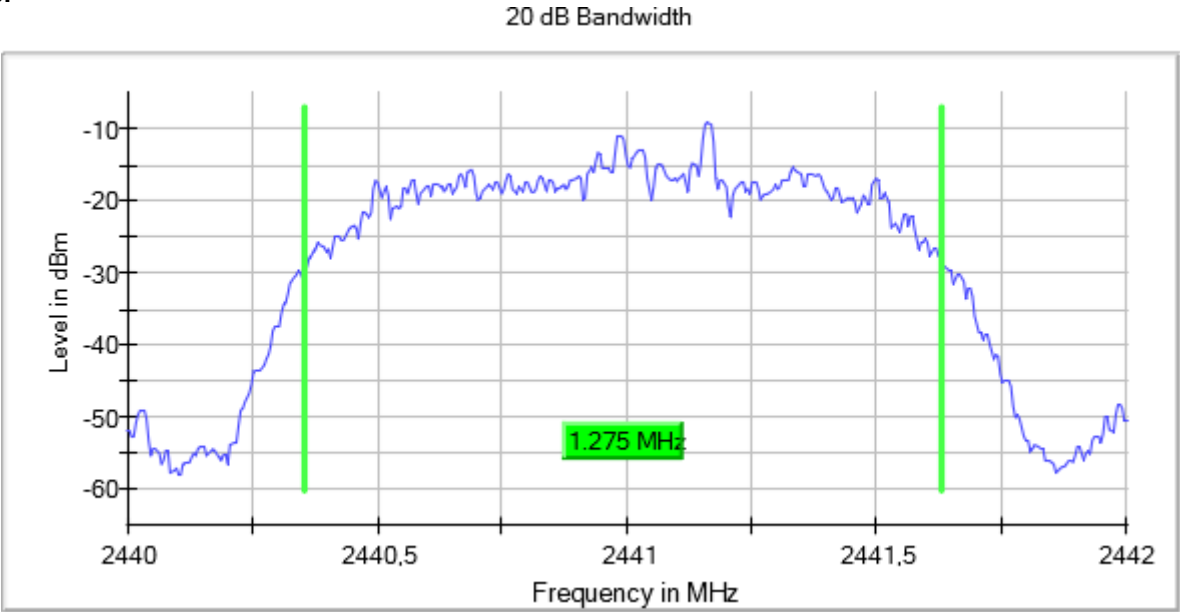
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



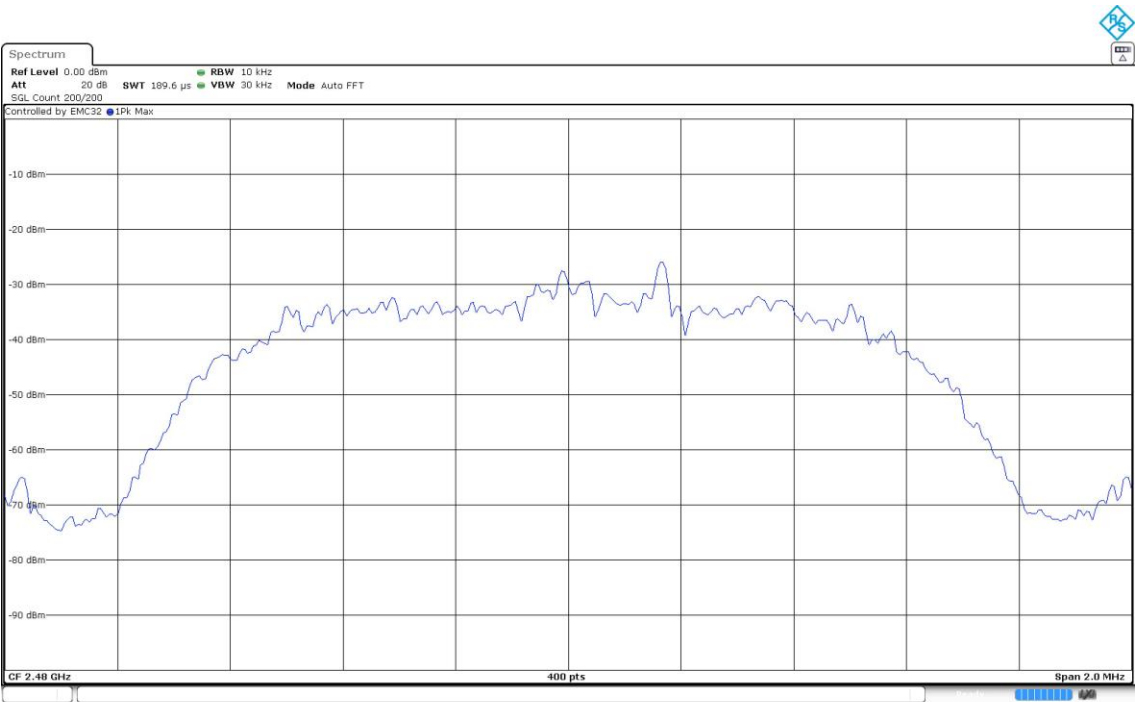
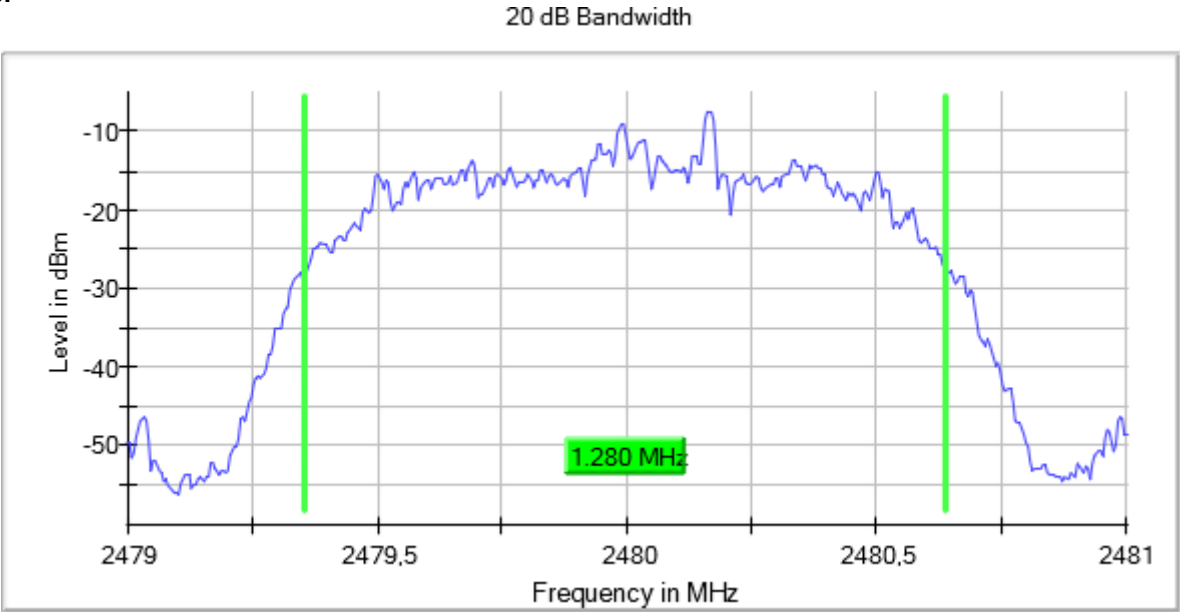
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



RSS-247 5.1 (b) / FCC 15.247 (a) (1) Carrier Frequency Separation

Limits

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

Modulation: BT (GFSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	Freq Sep (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	1.01

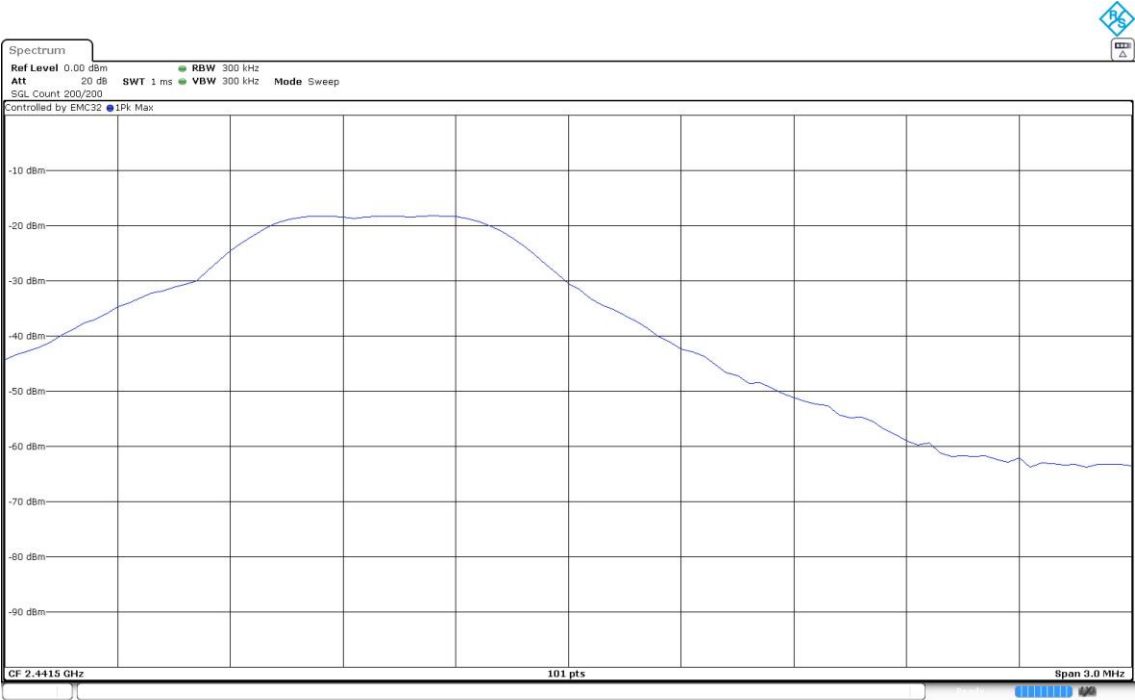
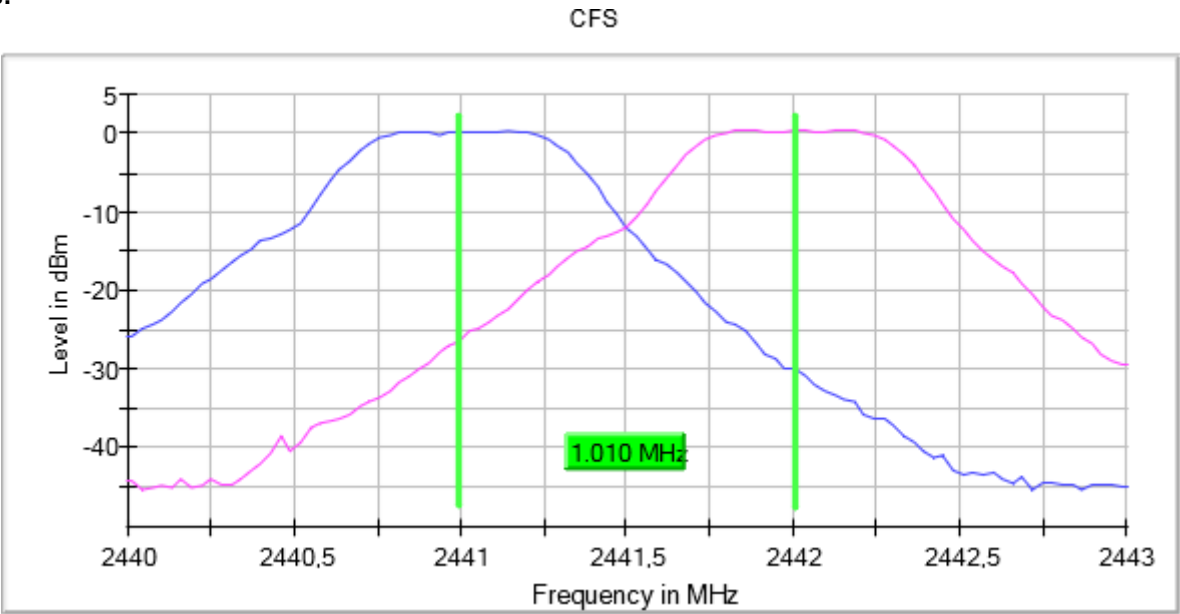
Verdict

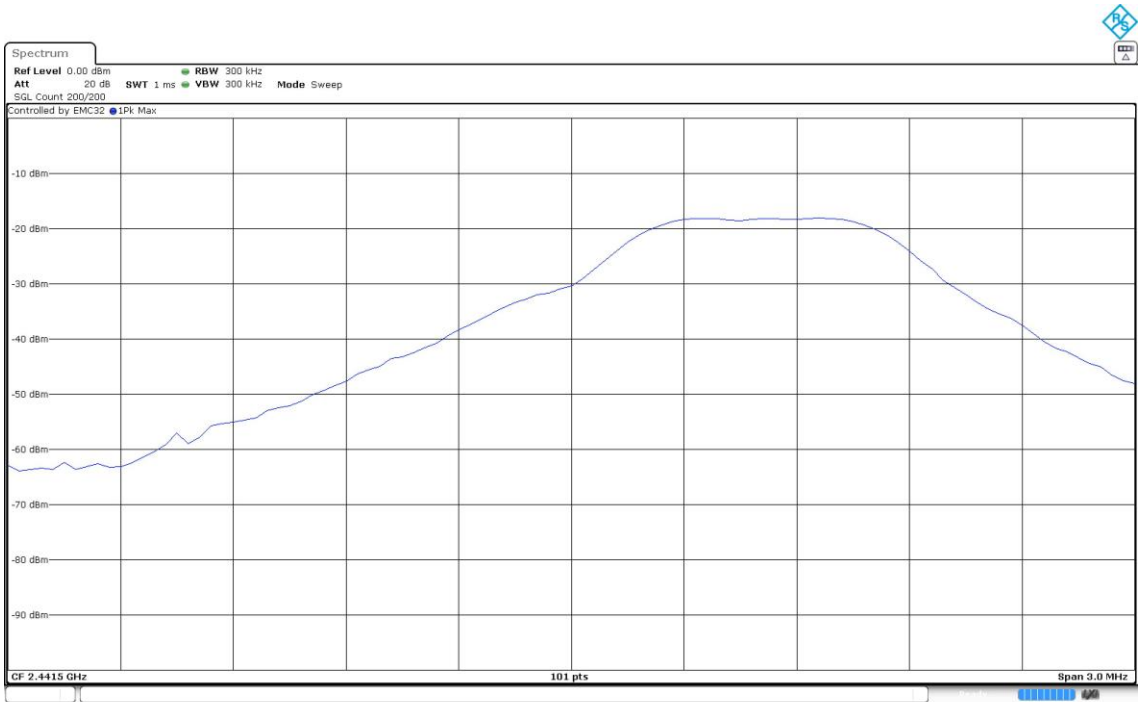
Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) MIMO Mode = SISO
Active Port = 1

Images:





Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	Freq Sep (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	1.01

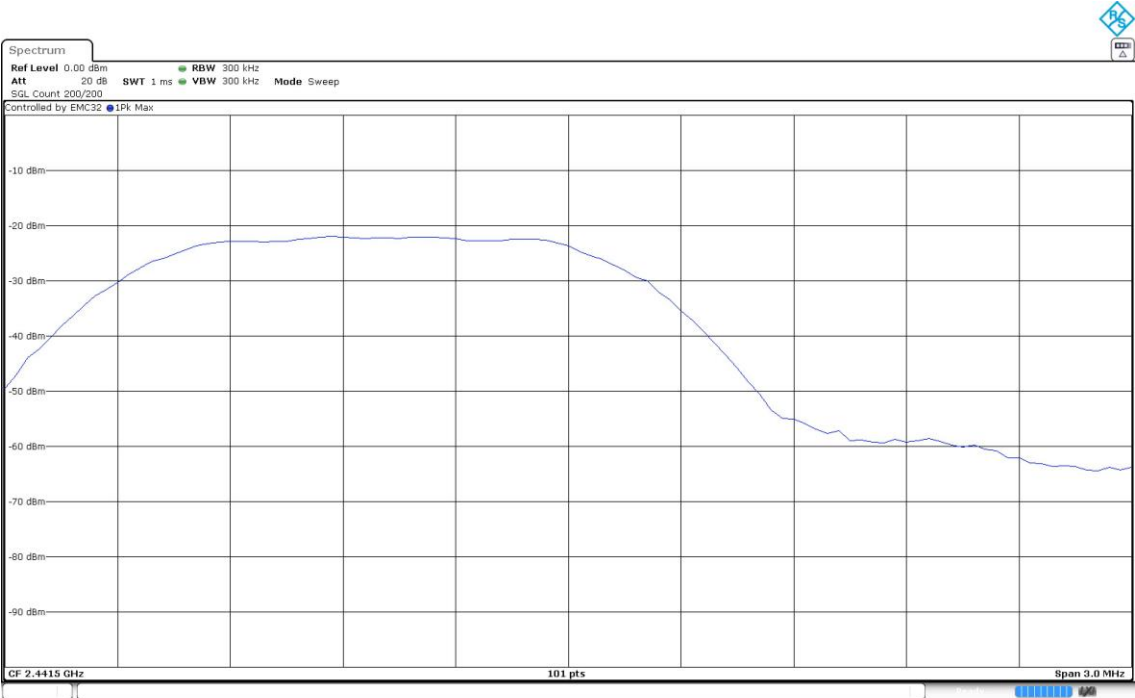
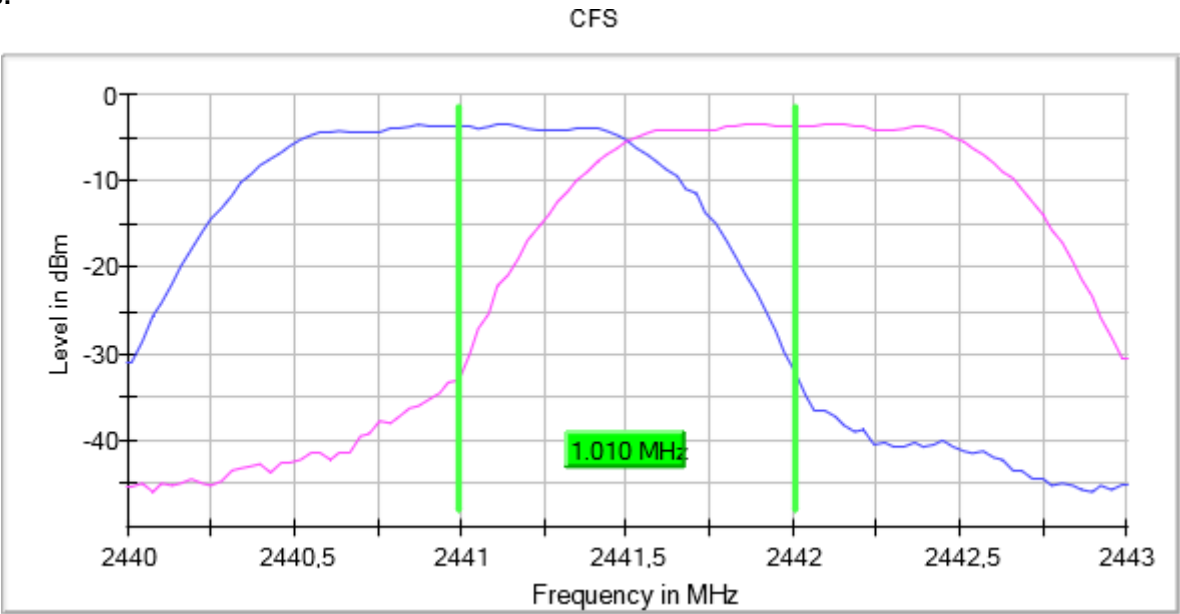
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) MIMO Mode = SISO
Active Port = 1

Images:





Modulation: BT (8DPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	Freq Sep (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	1.01

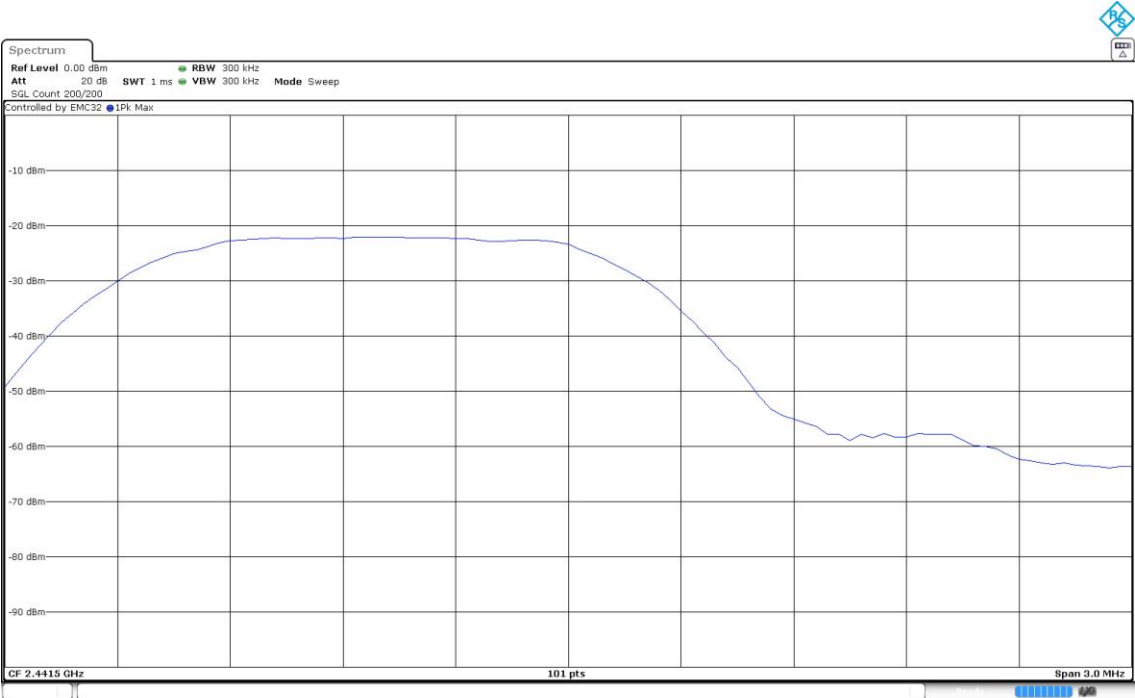
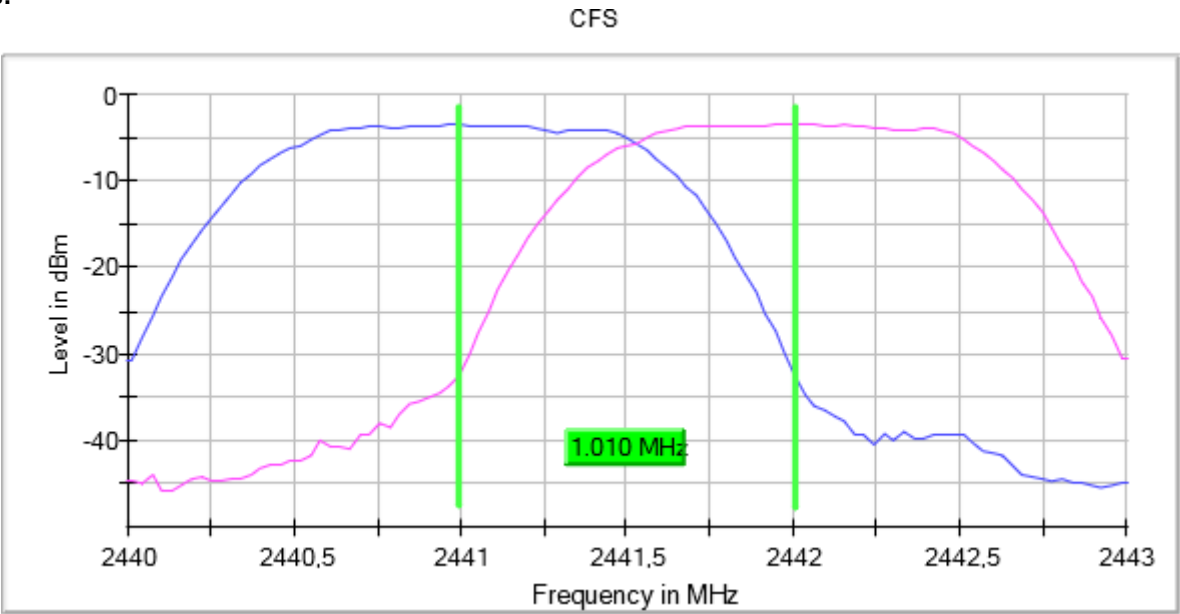
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) MIMO Mode = SISO
Active Port = 1

Images:





RSS-247 5.1 (d) / FCC 15.247 (a) (1) (iii) Time of Occupancy (Dwell Time)

Limits

The average time of occupancy on any channel shall not be greater than 0.4 seconds (400 ms) within a period of 0.4 seconds multiplied by the number of hopping channels employed = 0.4 x 79= 31.6 seconds.

Modulation: BT (GFSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	NHp	Avg COT (ms)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	104	304.17
			99	289.79
			101	295.59

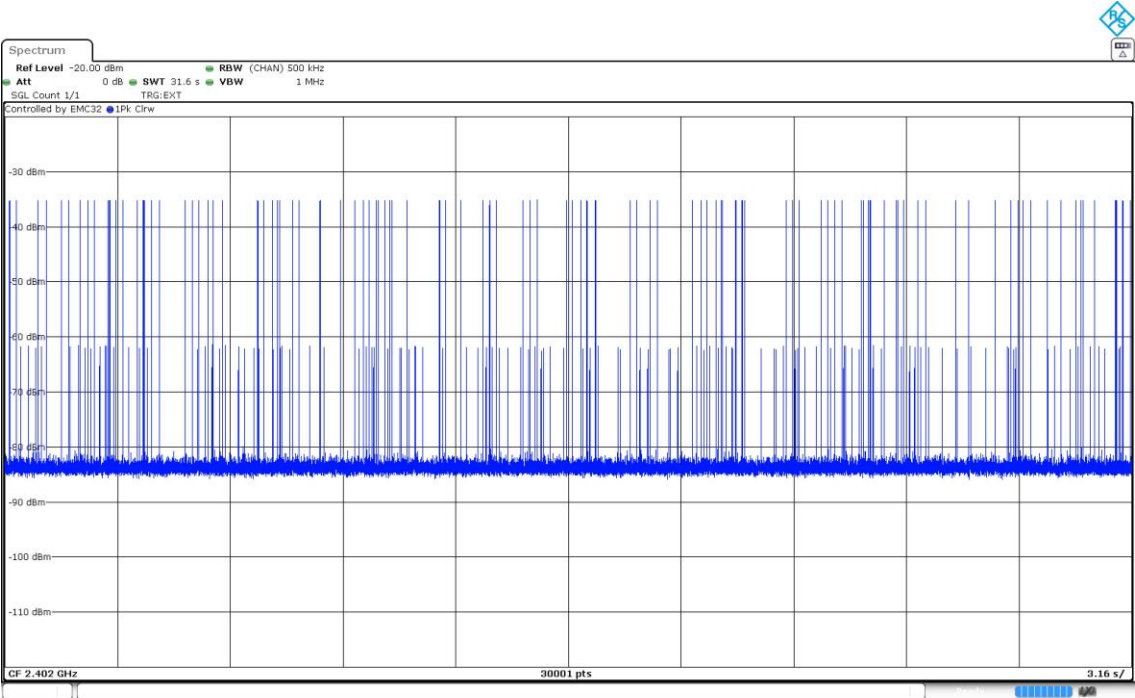
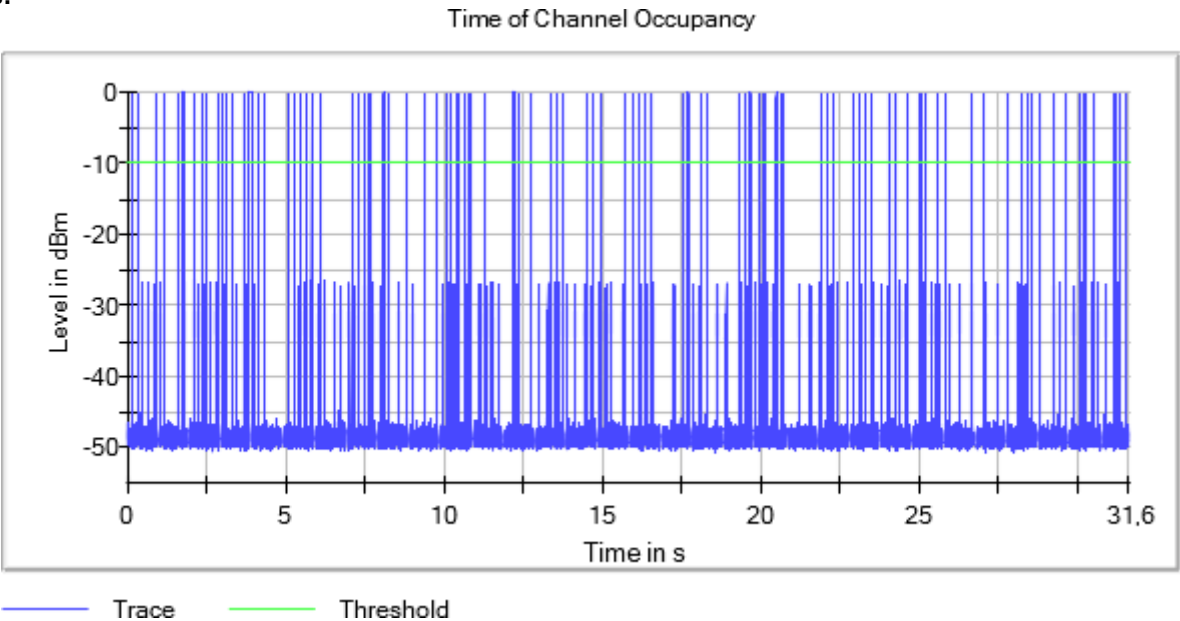
Verdict

Pass

Attachments

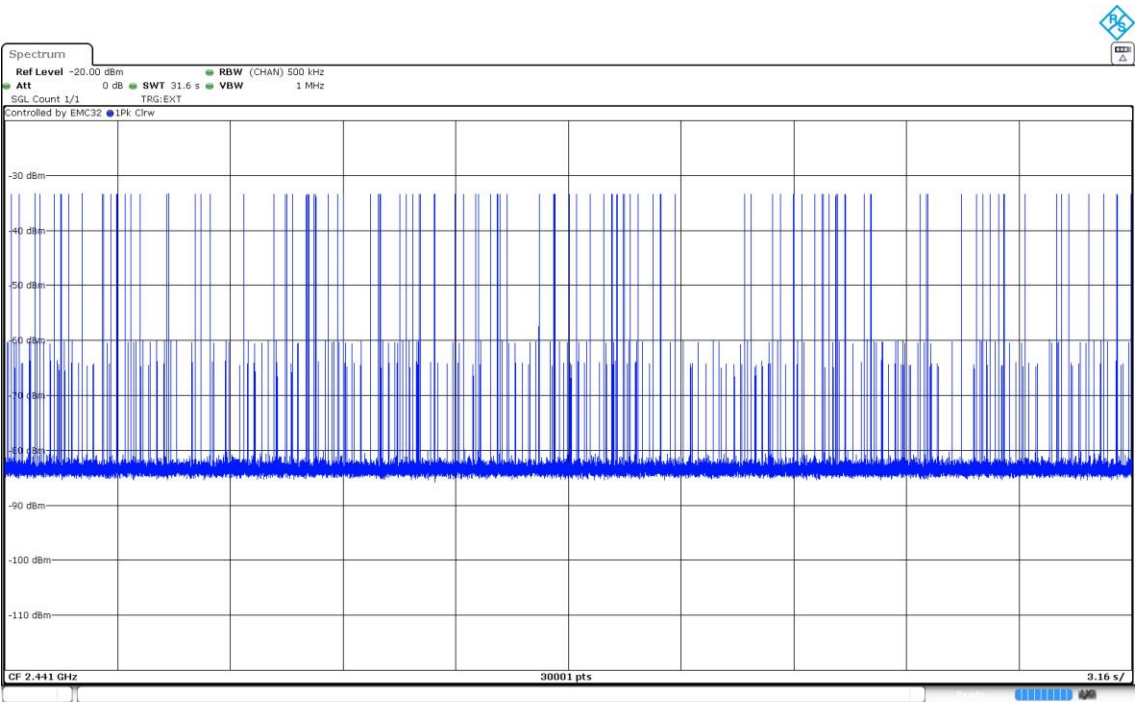
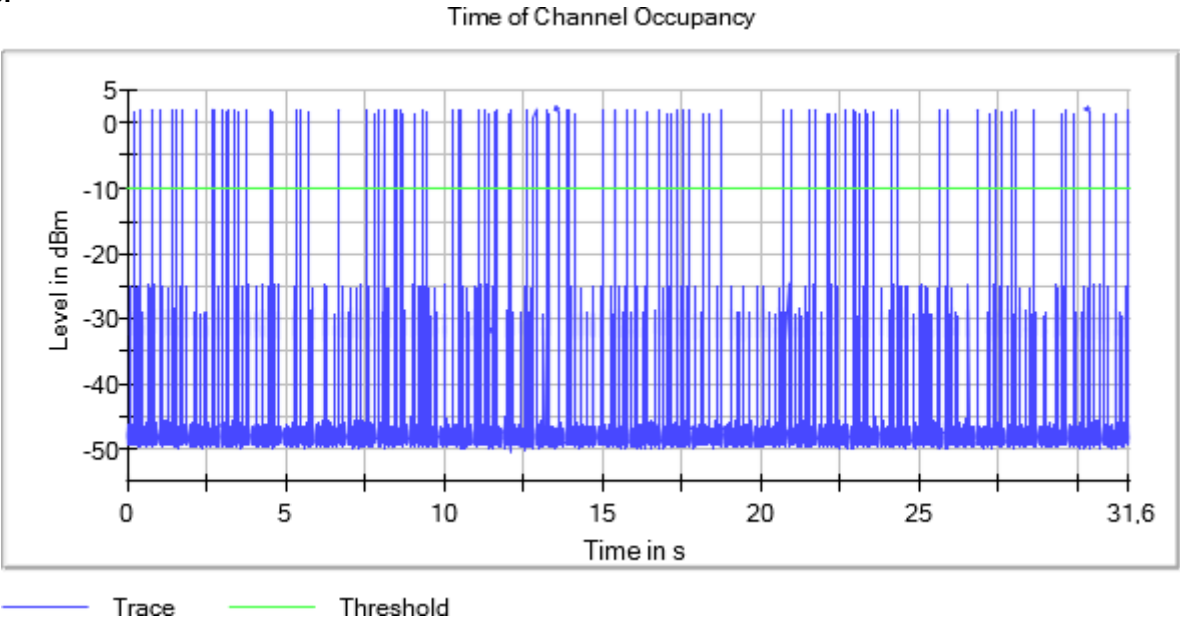
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) MIMO Mode = SISO
Active Port = 1

Images:



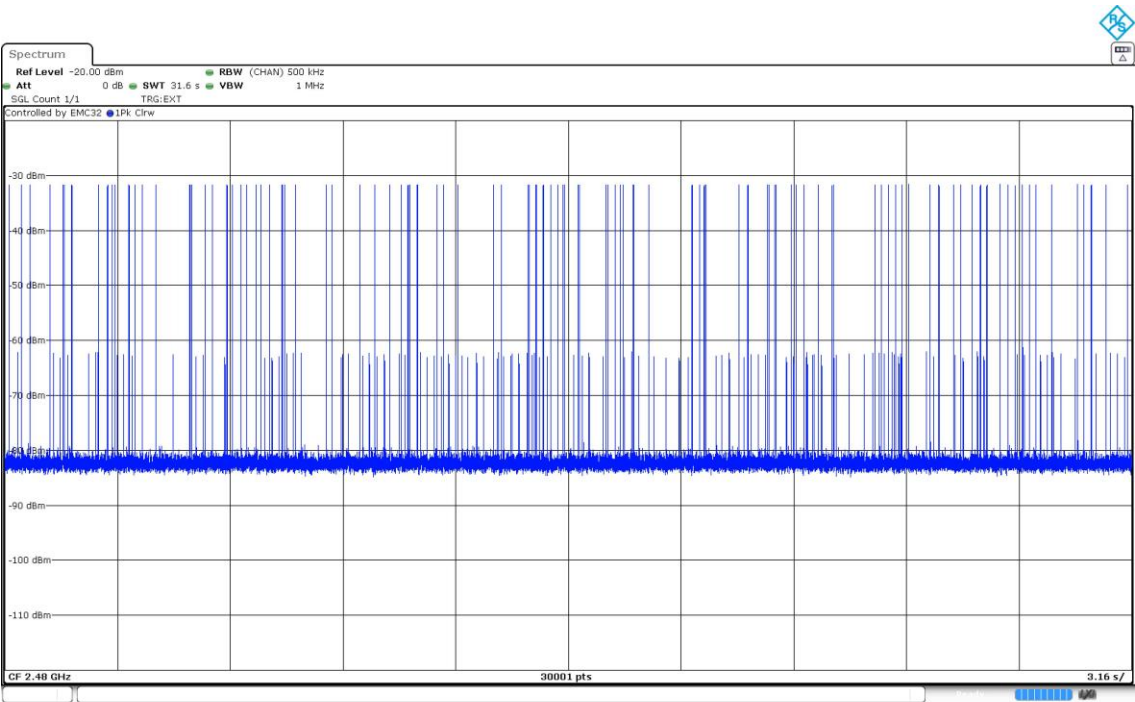
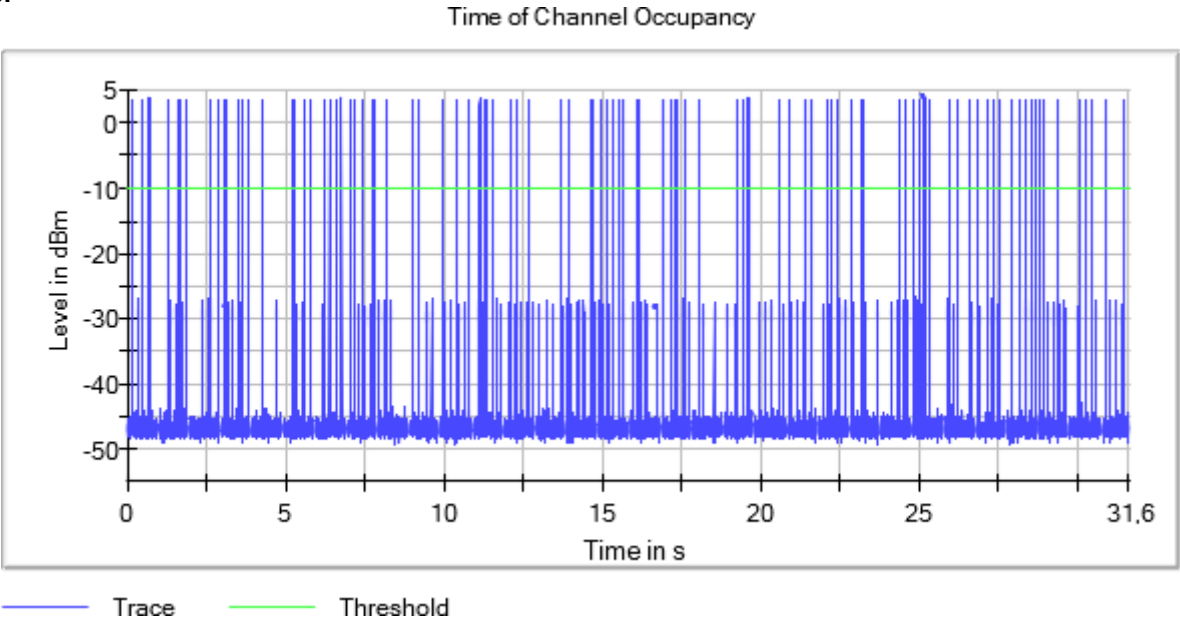
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) MIMO Mode = SISO
Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) MIMO Mode = SISO
Active Port = 1

Images:



Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	NHp	Avg COT (ms)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	109	243.34
			96	257.64
			109	307.46

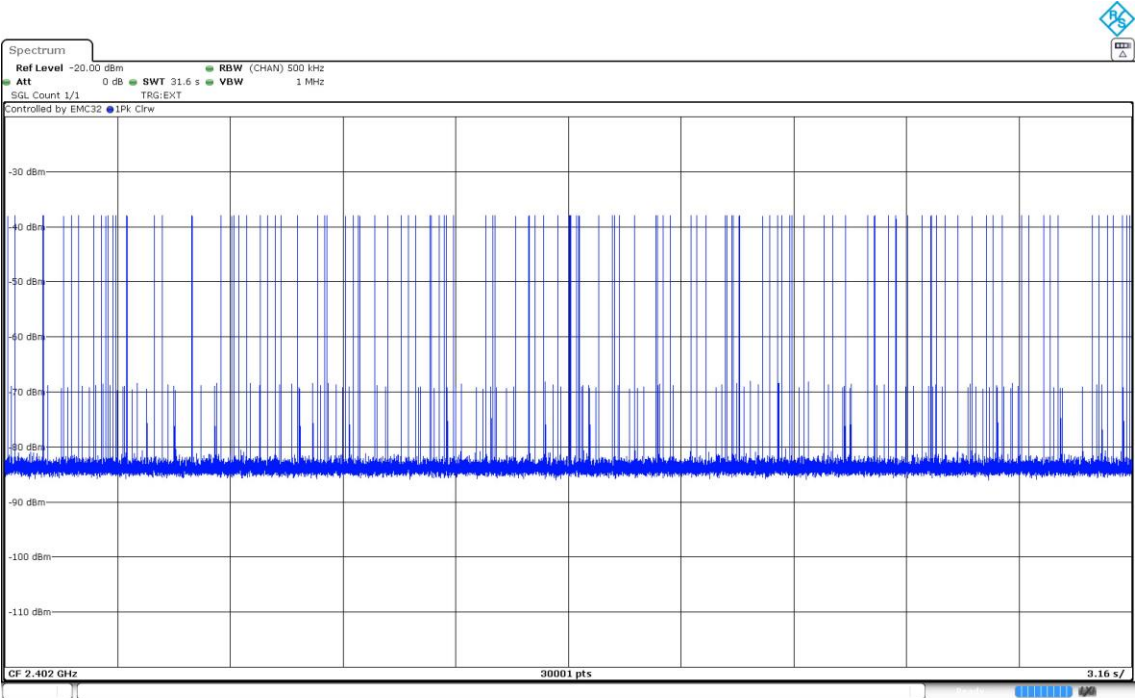
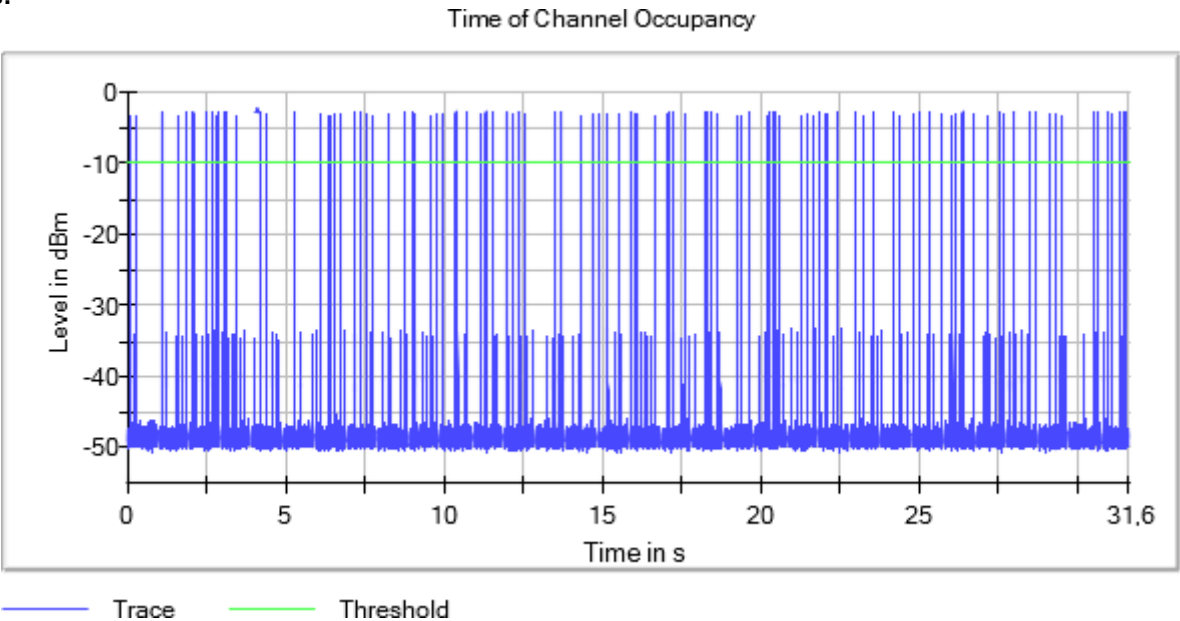
Verdict

Pass

Attachments

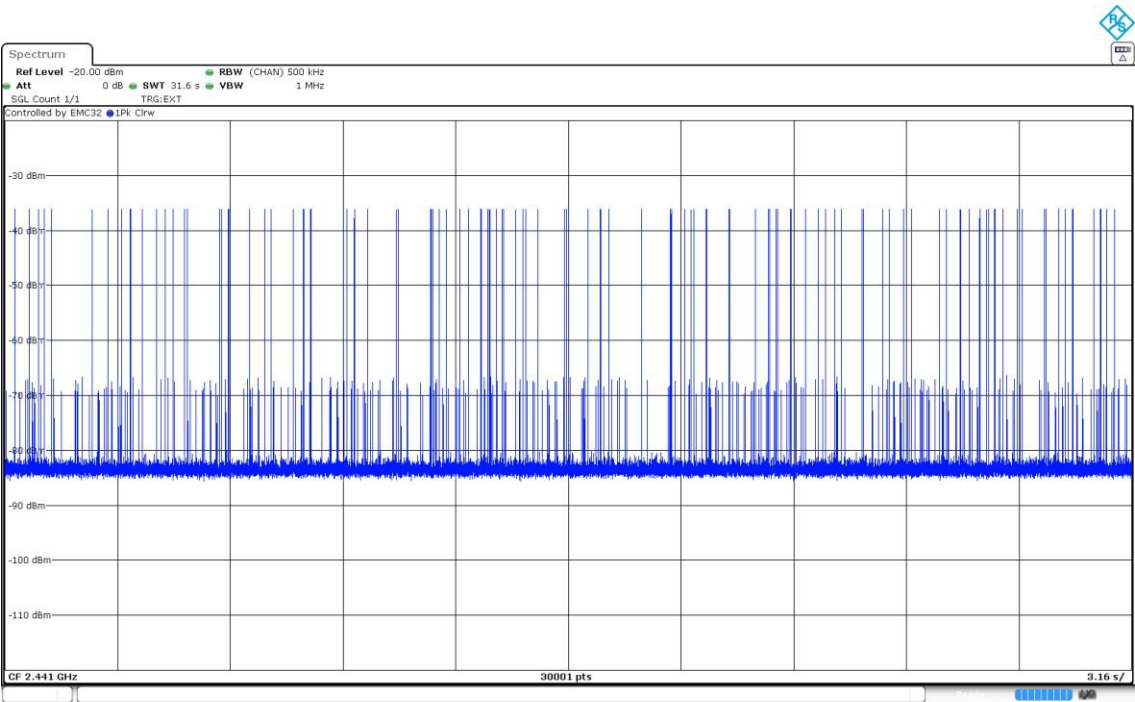
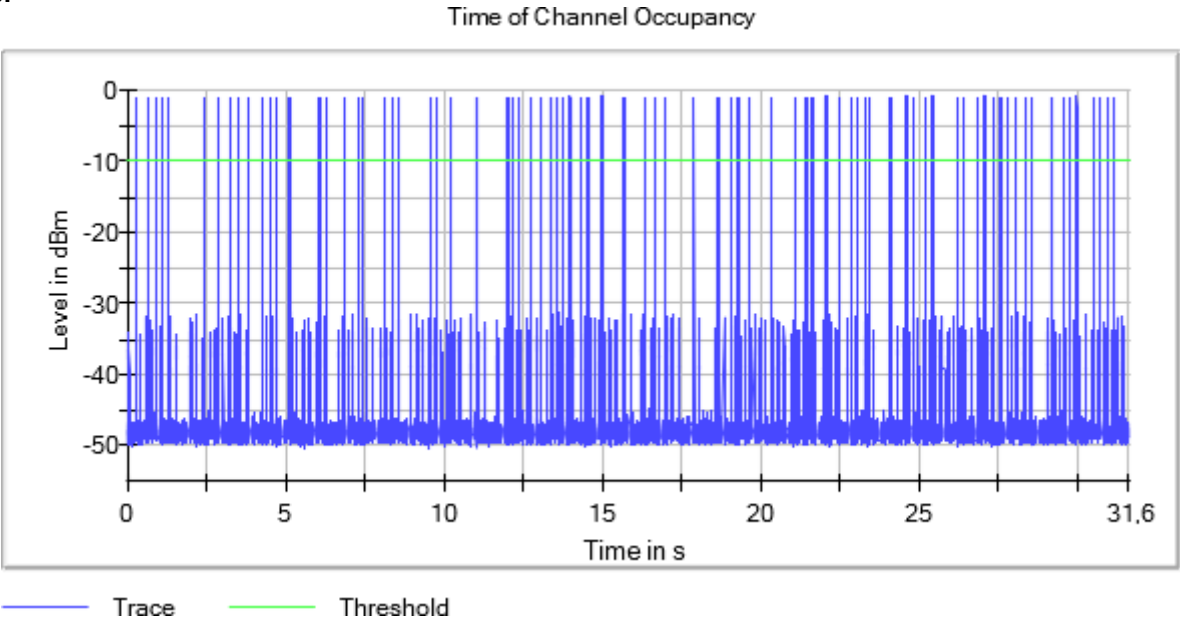
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) MIMO Mode = SISO
Active Port = 1

Images:



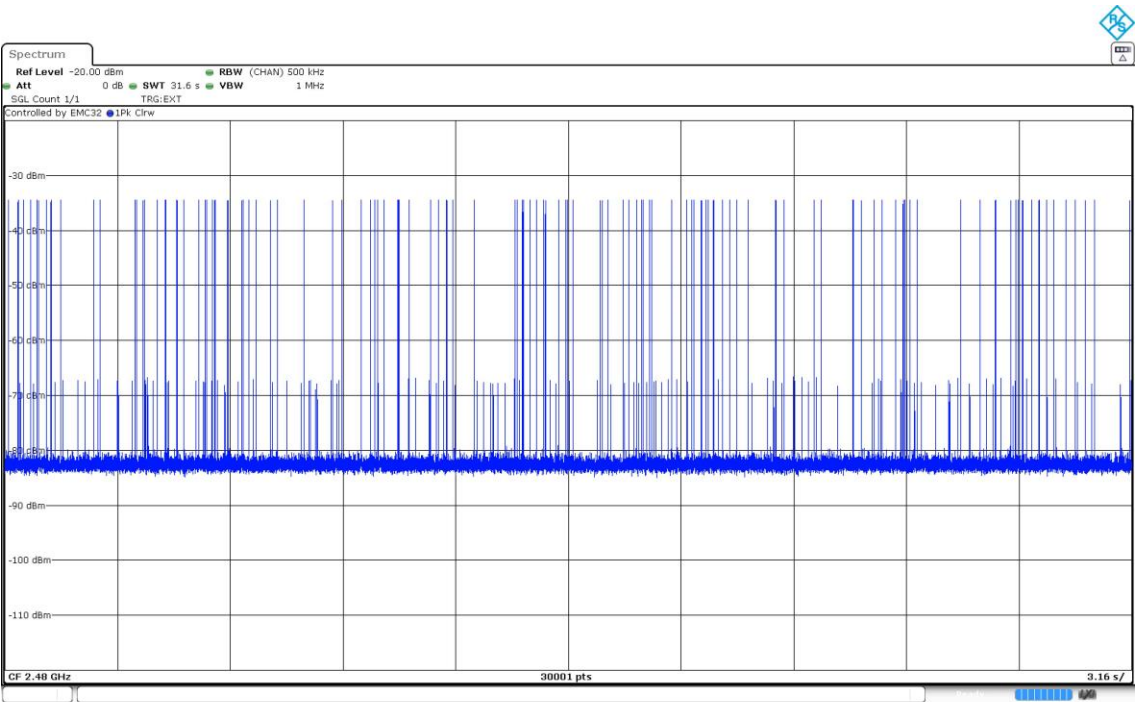
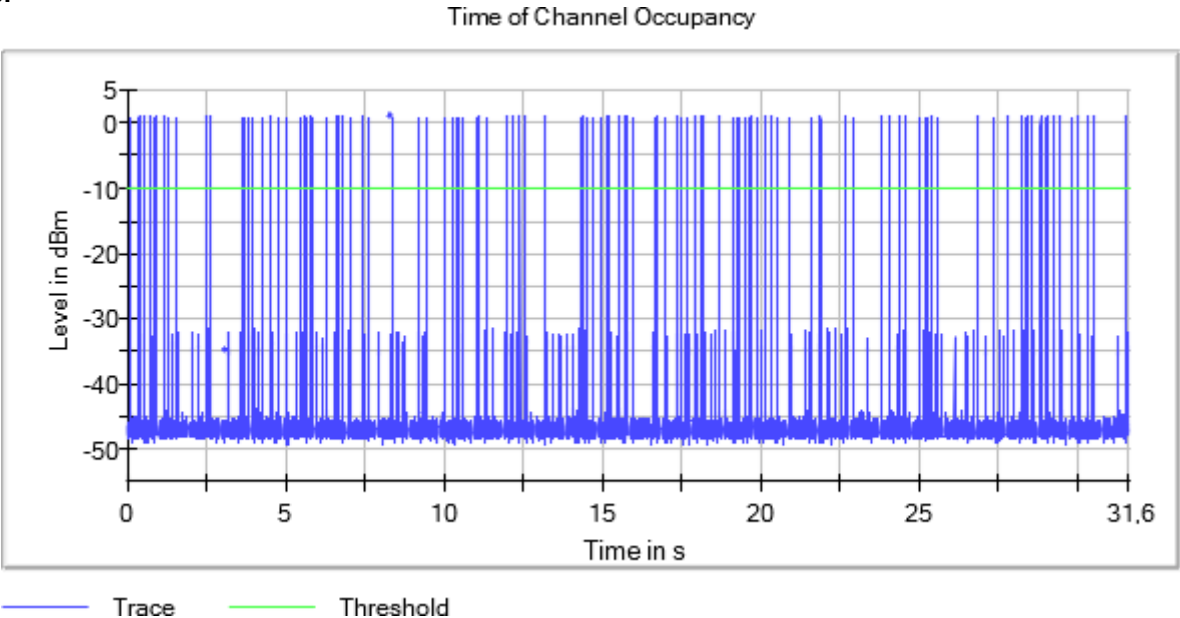
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) MIMO Mode = SISO
Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) MIMO Mode = SISO
Active Port = 1

Images:



Modulation: BT (8DPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	NHp	Avg COT (ms)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	118	266.48
			101	263.21
			112	311.54

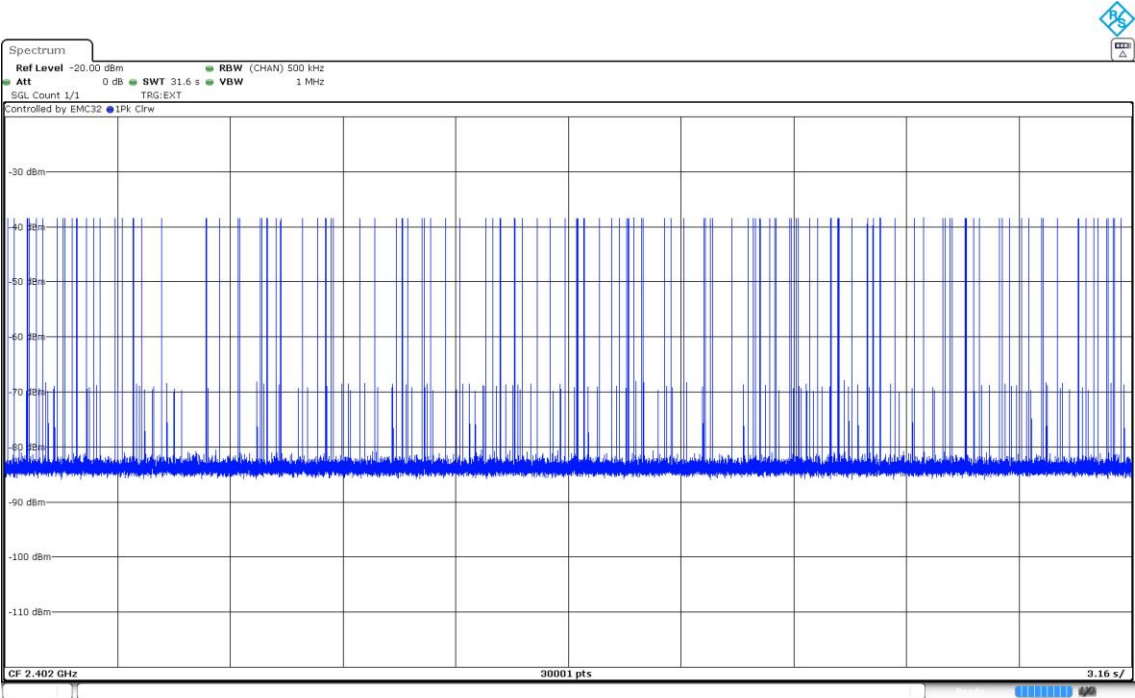
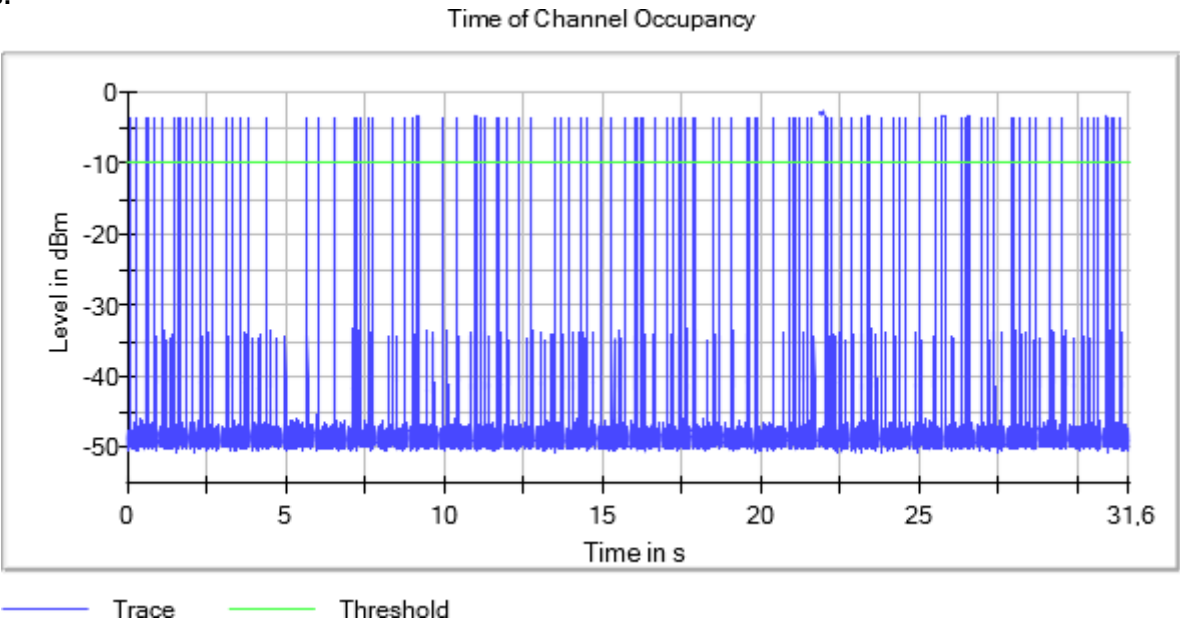
Verdict

Pass

Attachments

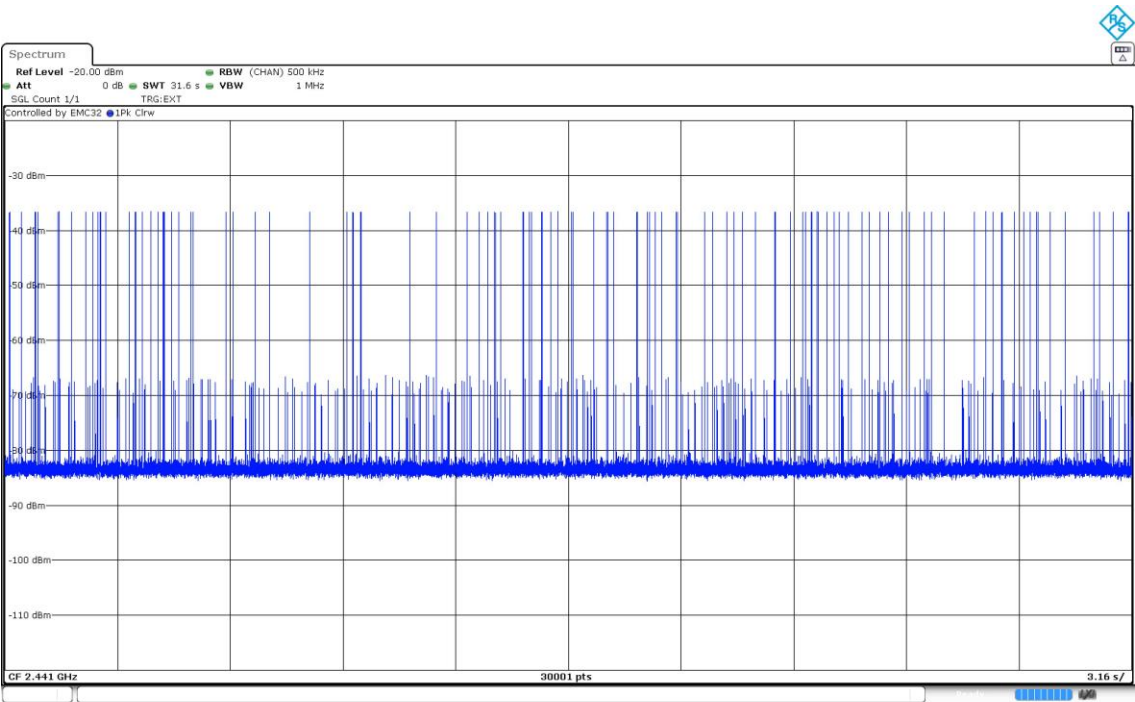
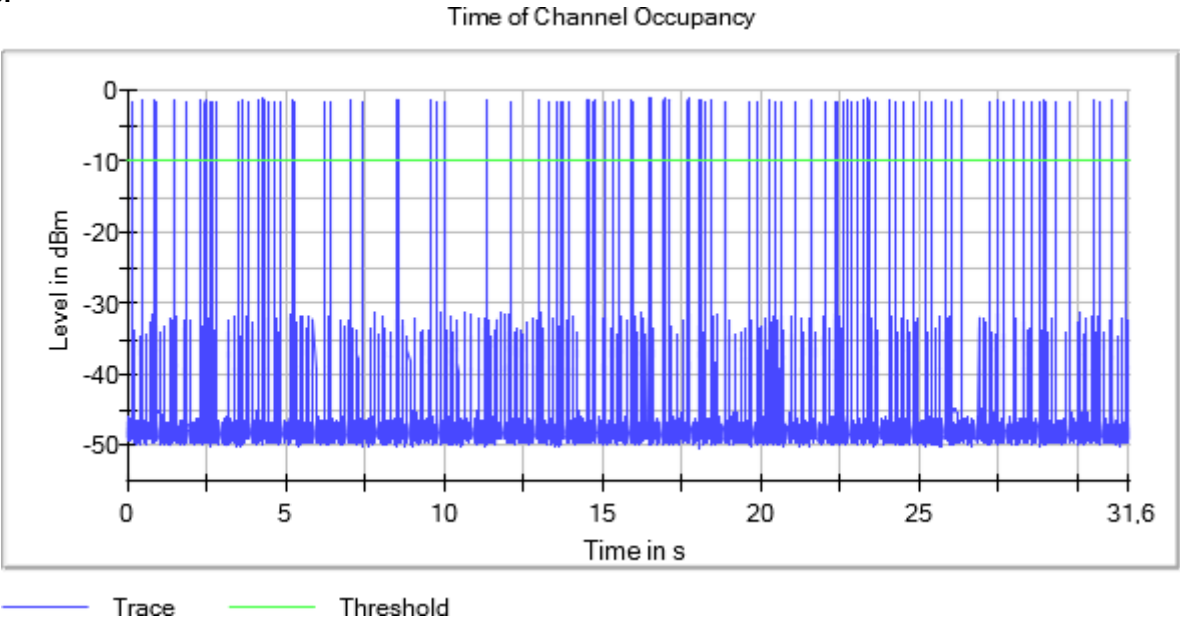
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) MIMO Mode = SISO
Active Port = 1

Images:



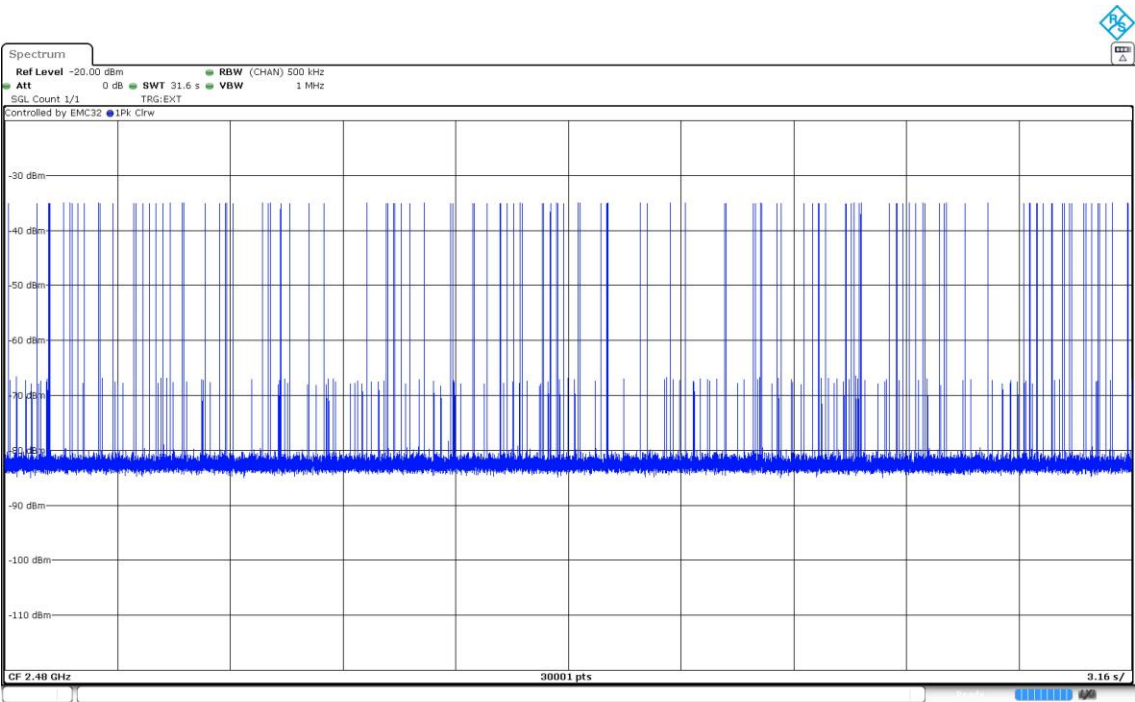
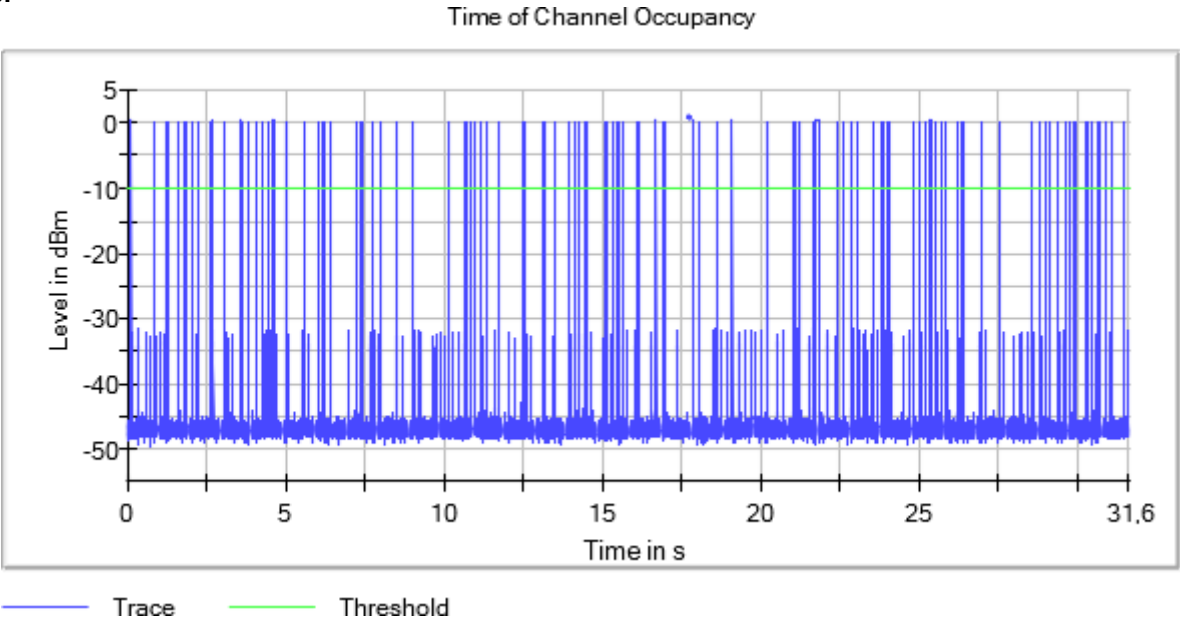
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) MIMO Mode = SISO
Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) MIMO Mode = SISO
Active Port = 1

Images:



RSS-247 5.1 (d) / FCC 15.247 (a) (1) (iii) Number of hopping channels

Limits

Frequency hopping system in the 2400-2483.5 MHz band shall use at least 15 channels.

Modulation: BT (GFSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	NHC
Frequency Hopping Spread Spectrum systems (DSS)	1	1	79

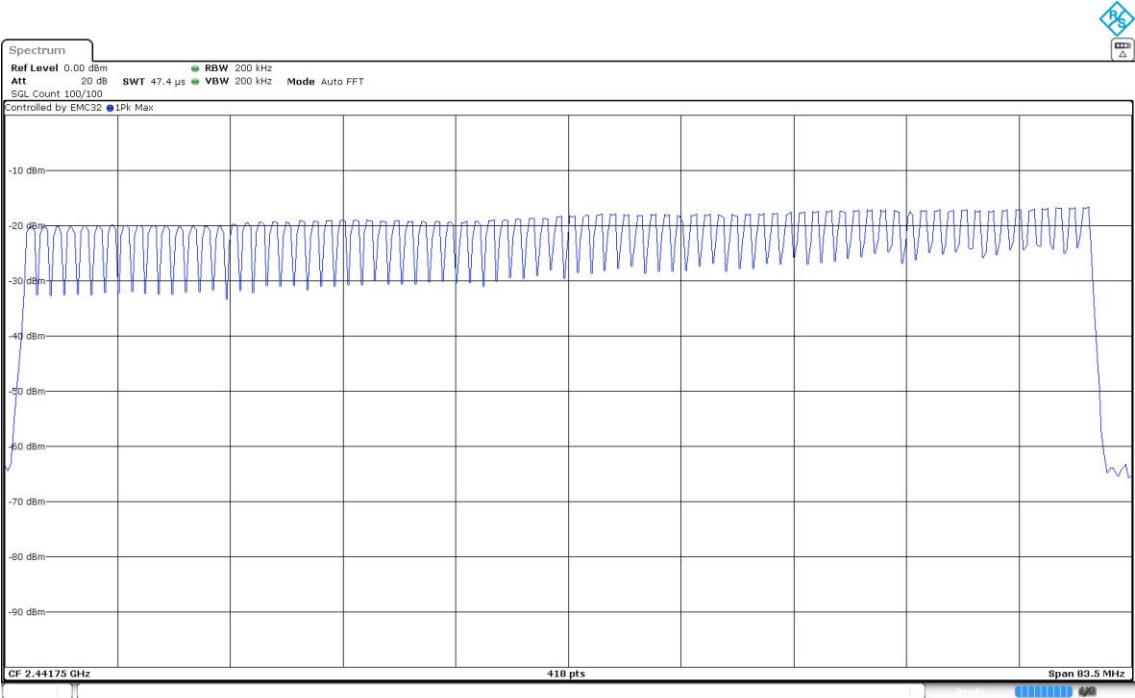
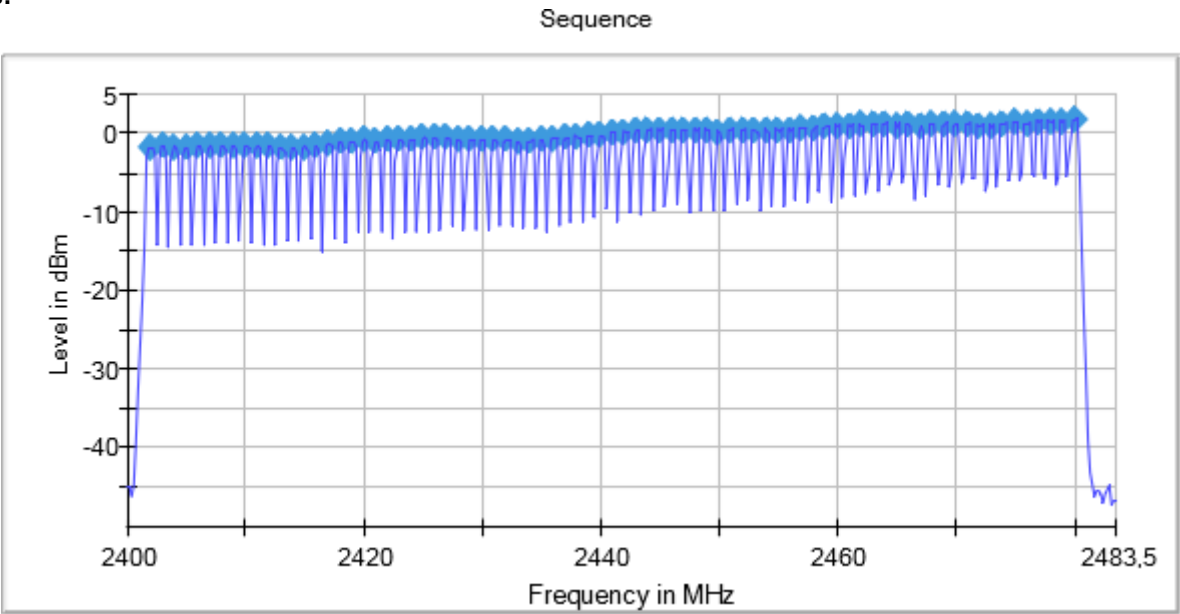
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) MIMO Mode = SISO
Active Port = 1

Images:



Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	NHC
Frequency Hopping Spread Spectrum systems (DSS)	1	1	80

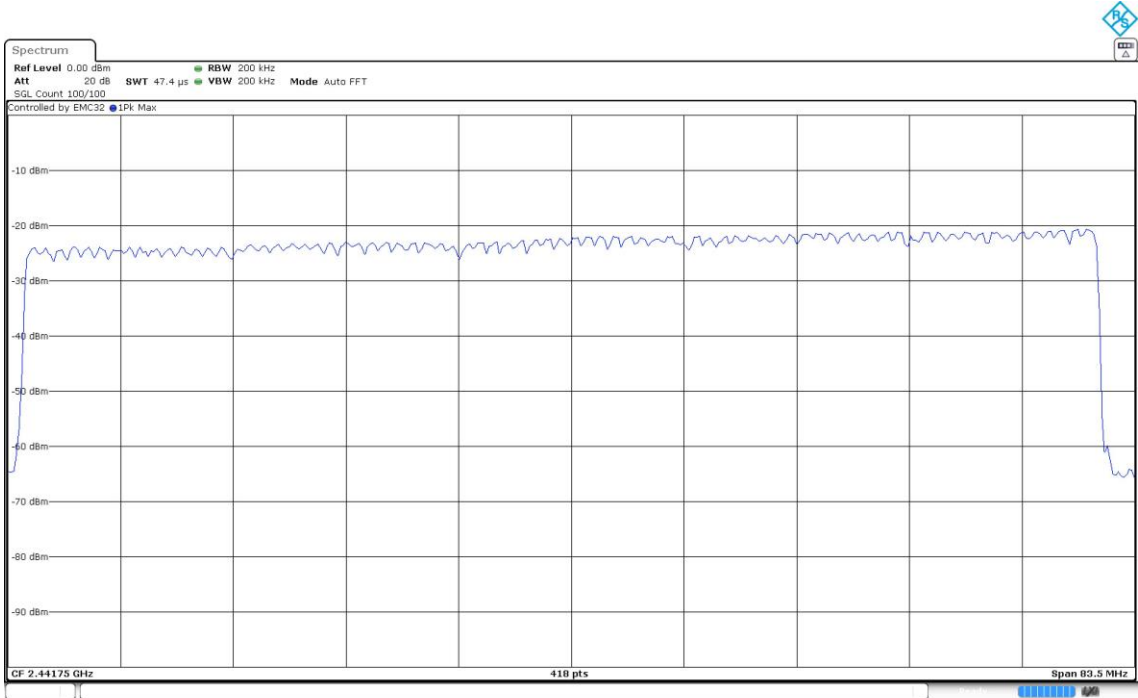
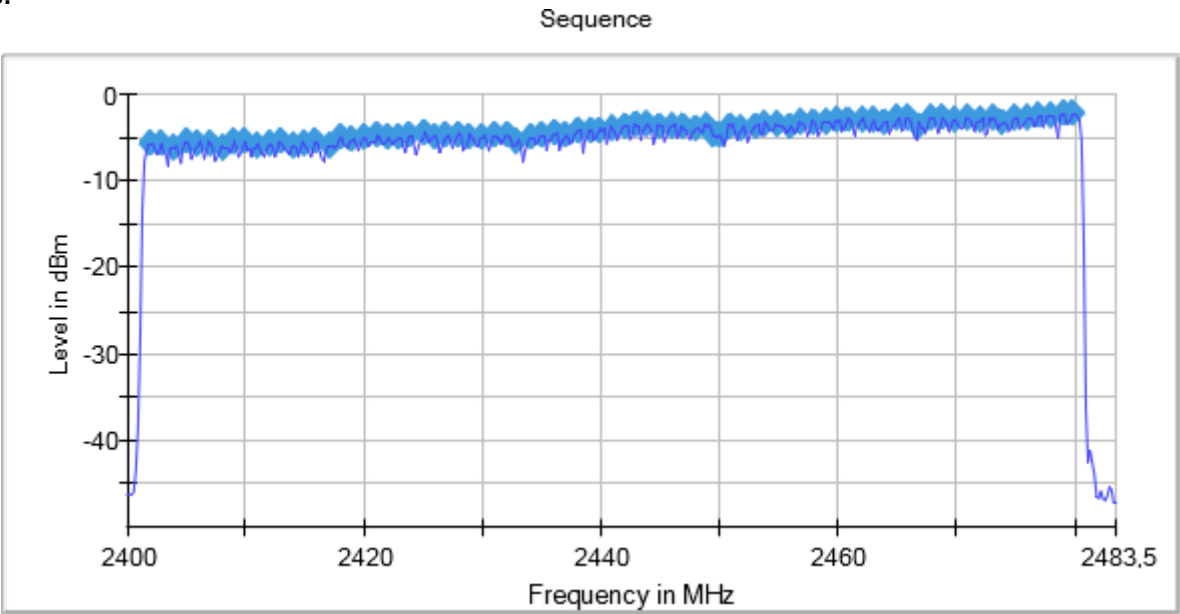
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) MIMO Mode = SISO
Active Port = 1

Images:



Modulation: BT (8DPSK)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Port	NHC
Frequency Hopping Spread Spectrum systems (DSS)	1	1	81

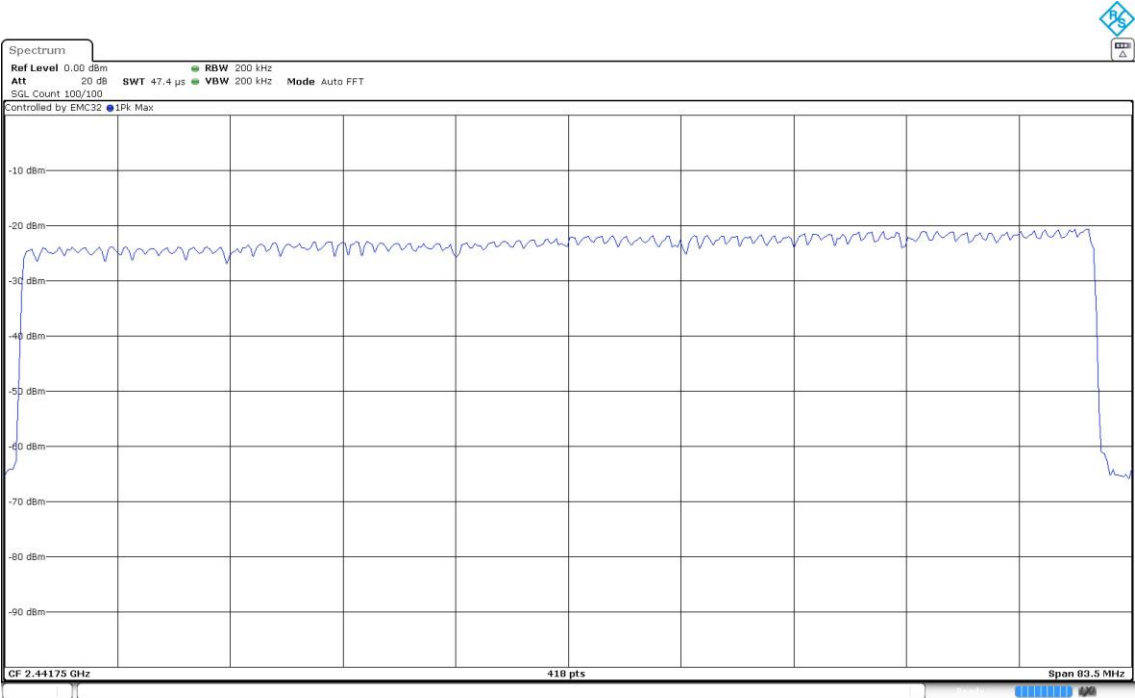
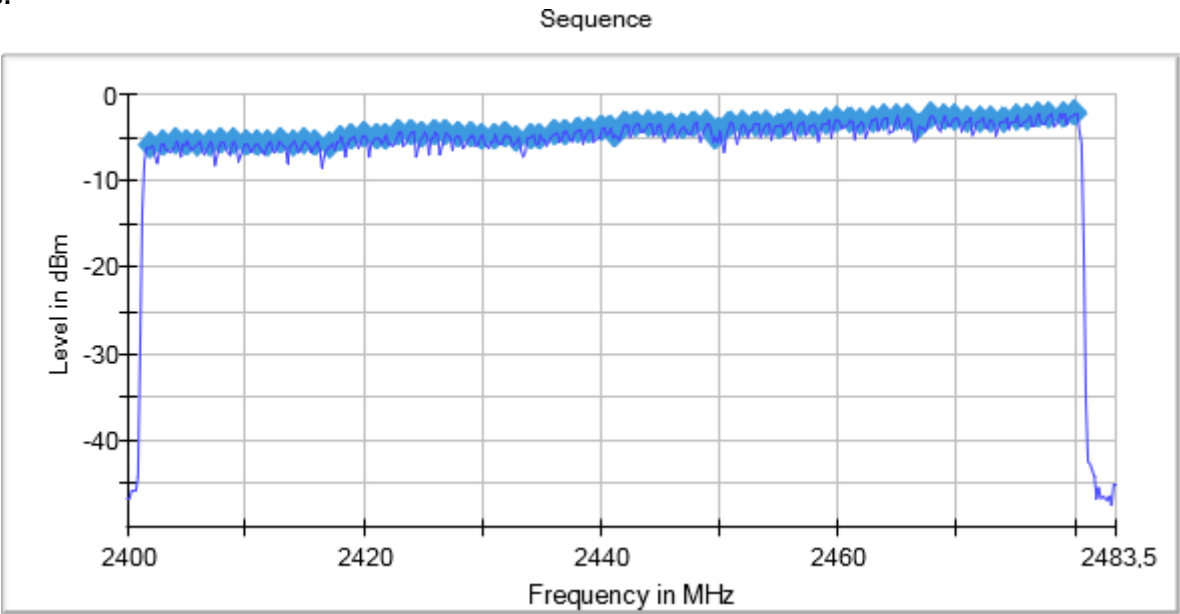
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) MIMO Mode = SISO
Active Port = 1

Images:



RSS-247 5.4 (b) / FCC 15.247 (b) (1) Maximum Peak Conducted output power

Limits

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels: 1 watt (30 dBm).

RSS-247:

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

Results

The maximum peak conducted output power level of the fundamental emission was measured according to clause 7.8.5 “Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices” of ANSI C63.10-2013.

The EIRP power (dBm) is calculated by adding the maximum declared antenna gain to the measured conducted power.

Maximum Declared Antenna Gain: +1.37 dBi

The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

Modulation: BT (GFSK)

MIMO Mode: SISO

Equipment	Freq (MHz)	Port	Peak Power (dBm)	EIRP (dBm)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	1	-1.5960	-0.2260
	2441.00000		0.3520	1.7220
	2480.00000		2.0740	3.4440

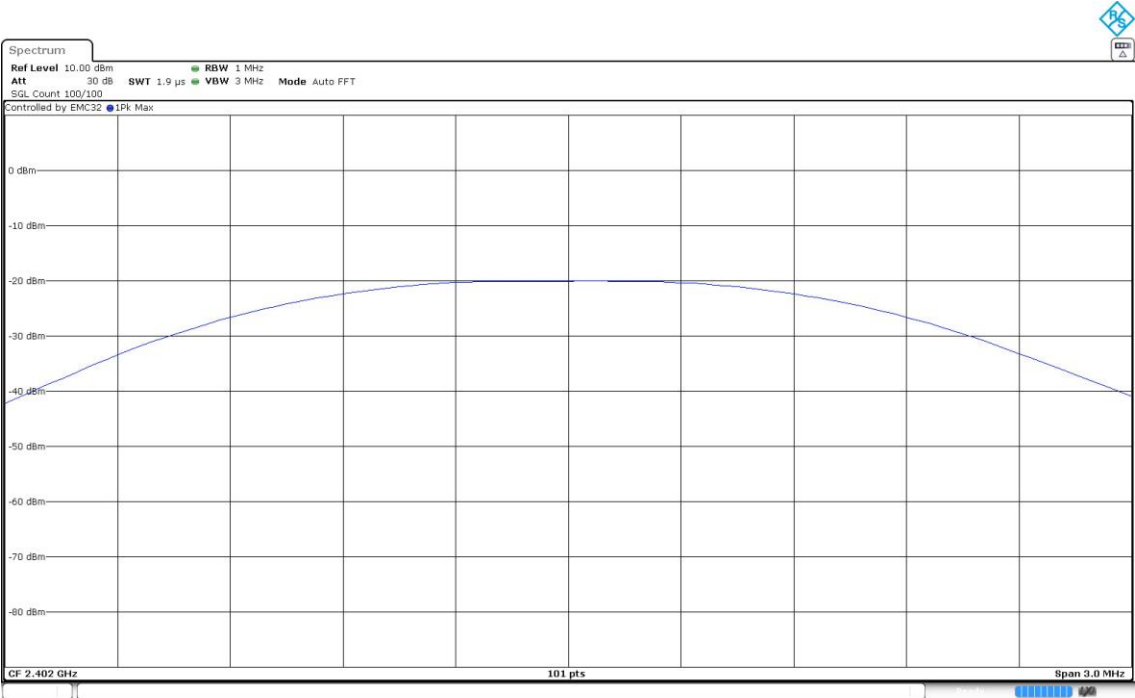
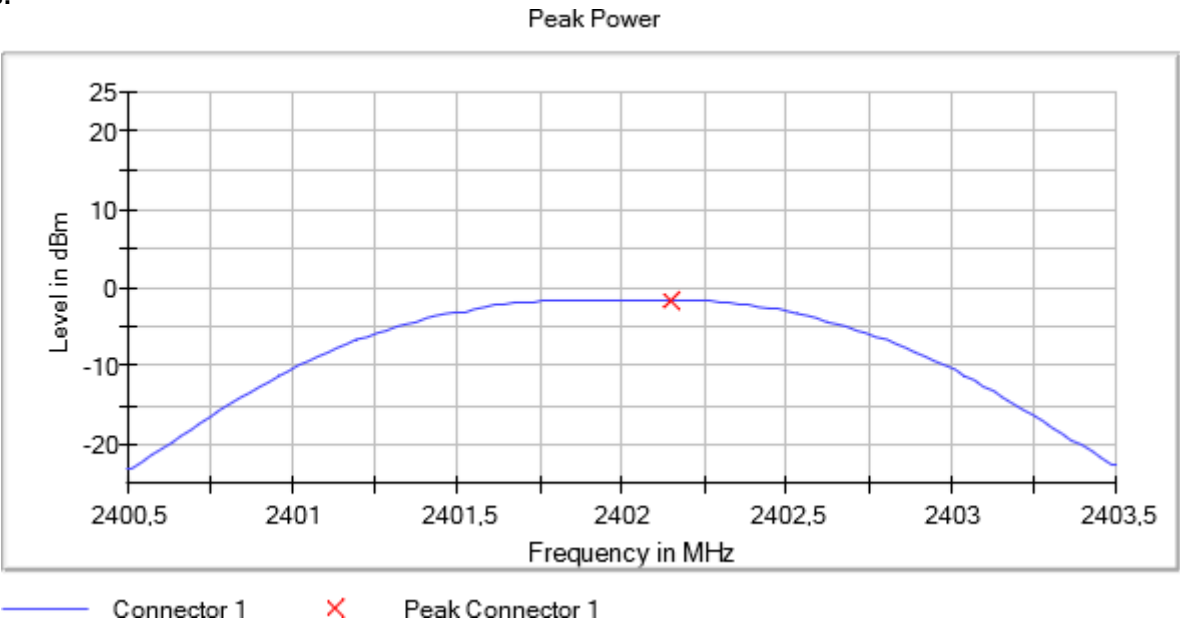
Verdict

Pass

Attachments

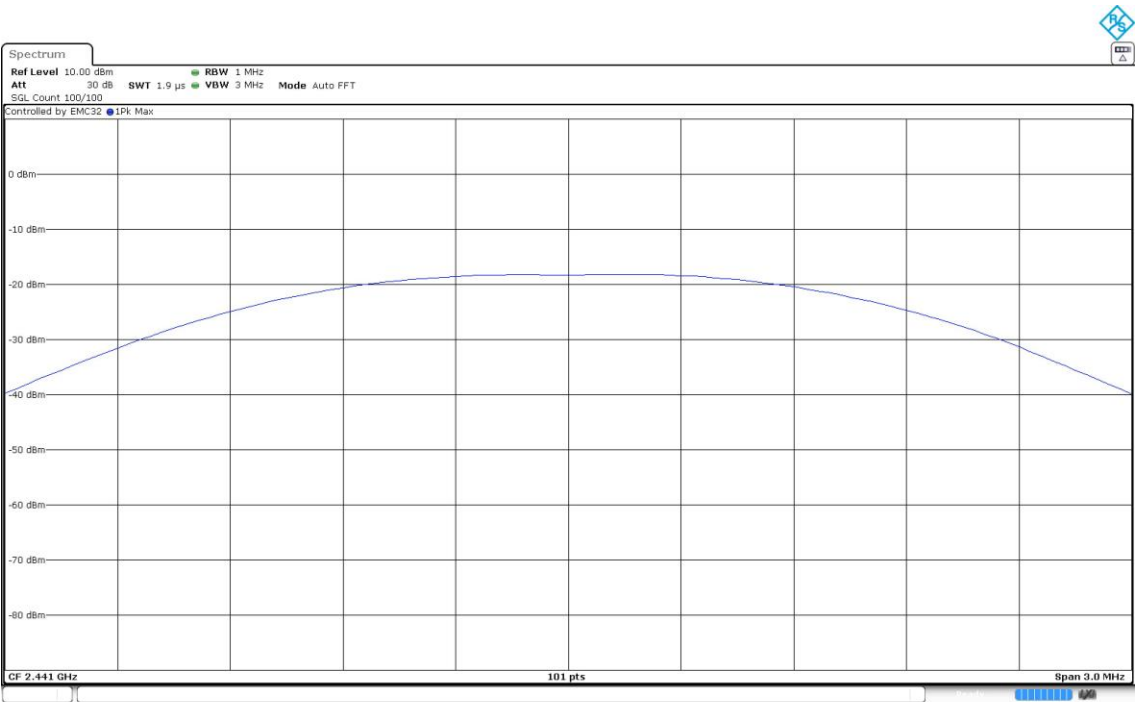
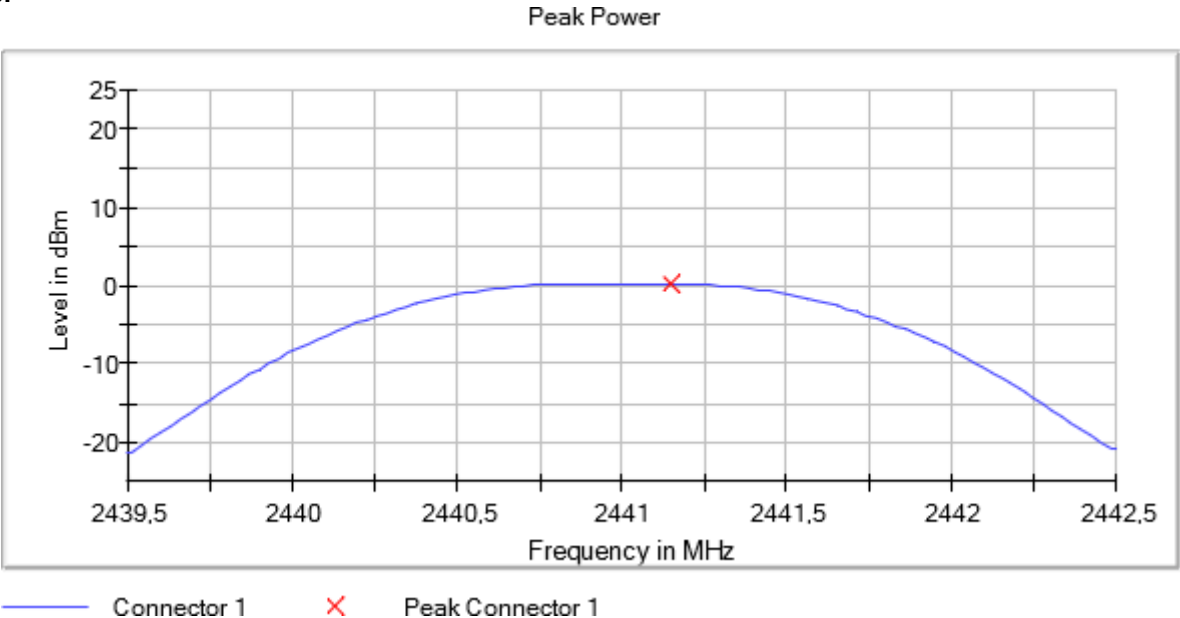
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



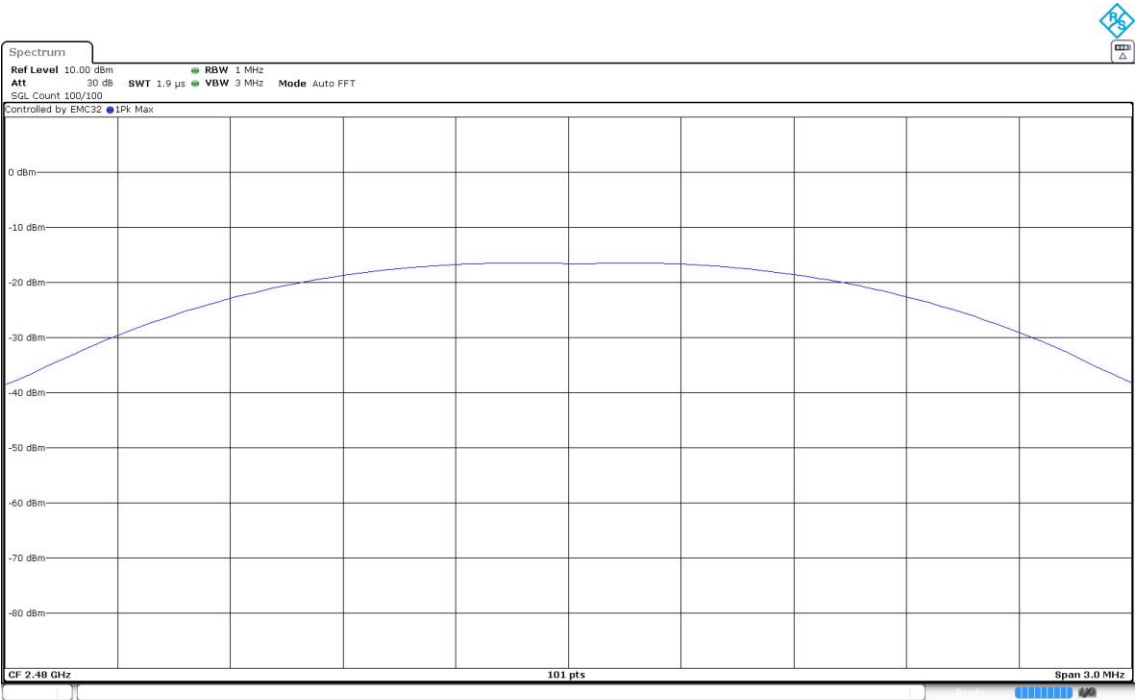
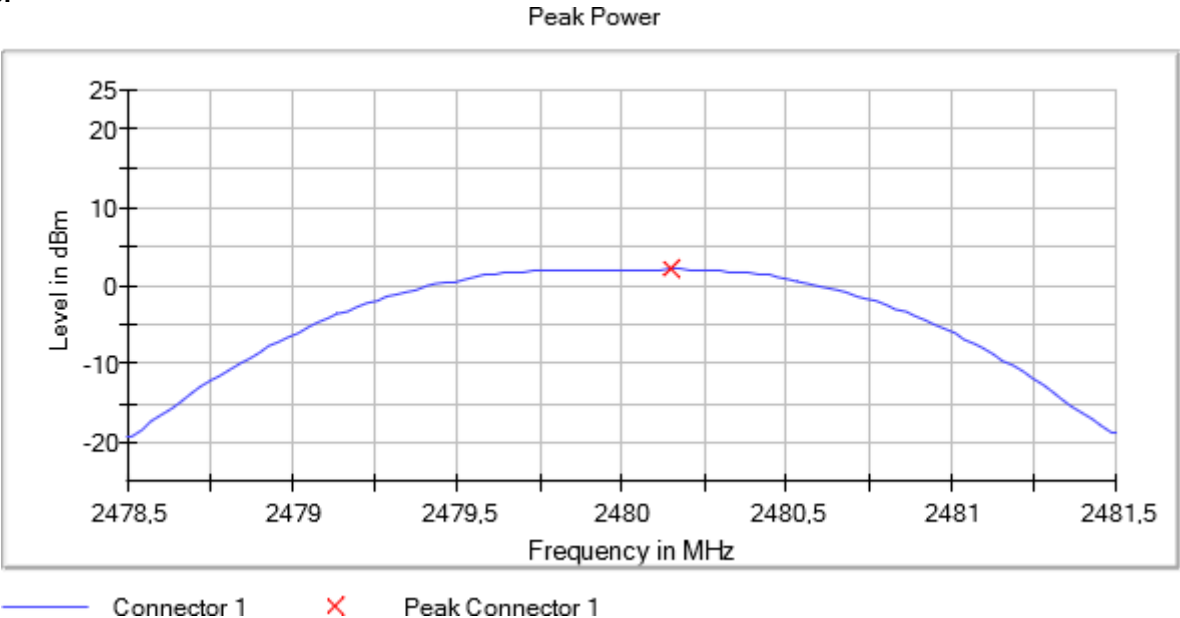
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

Results

Equipment	Freq (MHz)	Port	Peak Power (dBm)	EIRP (dBm)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	1	-3.2590	-1.8890
	2441.00000		-1.3640	0.0060
	2480.00000		0.0400	1.4100

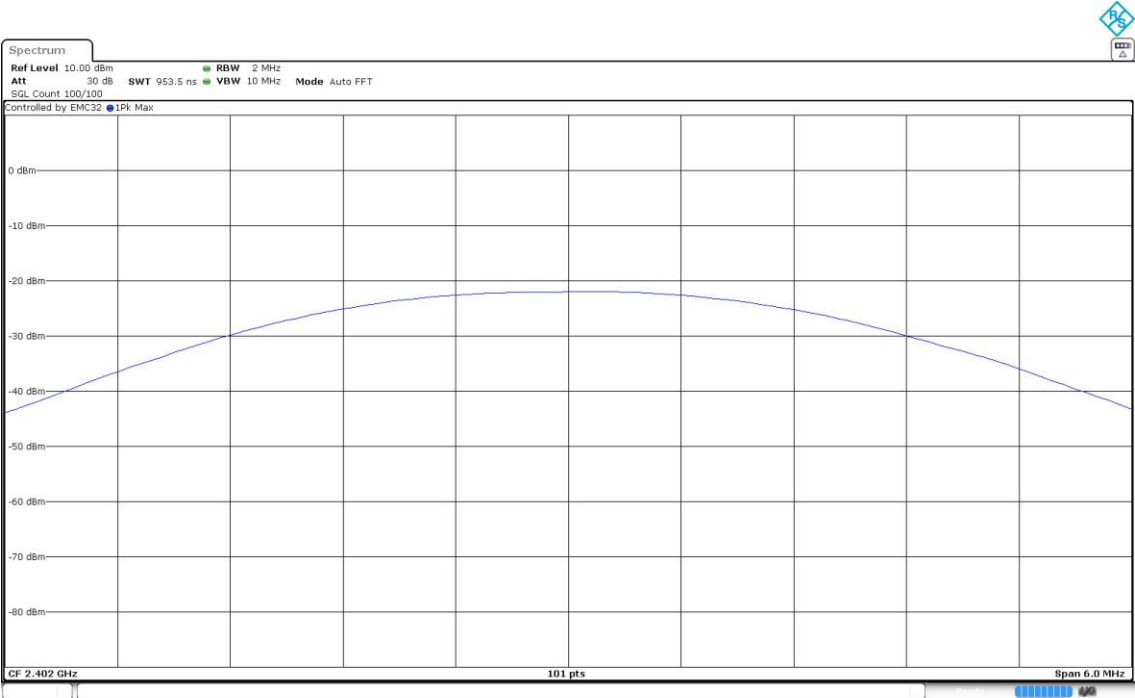
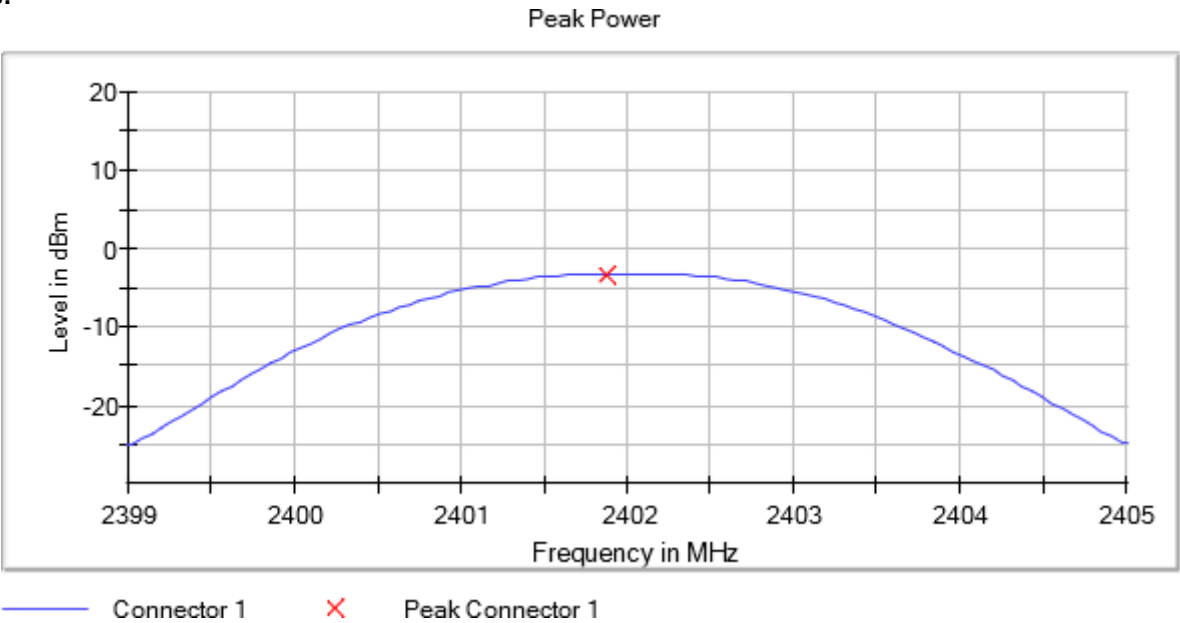
Verdict

Pass

Attachments

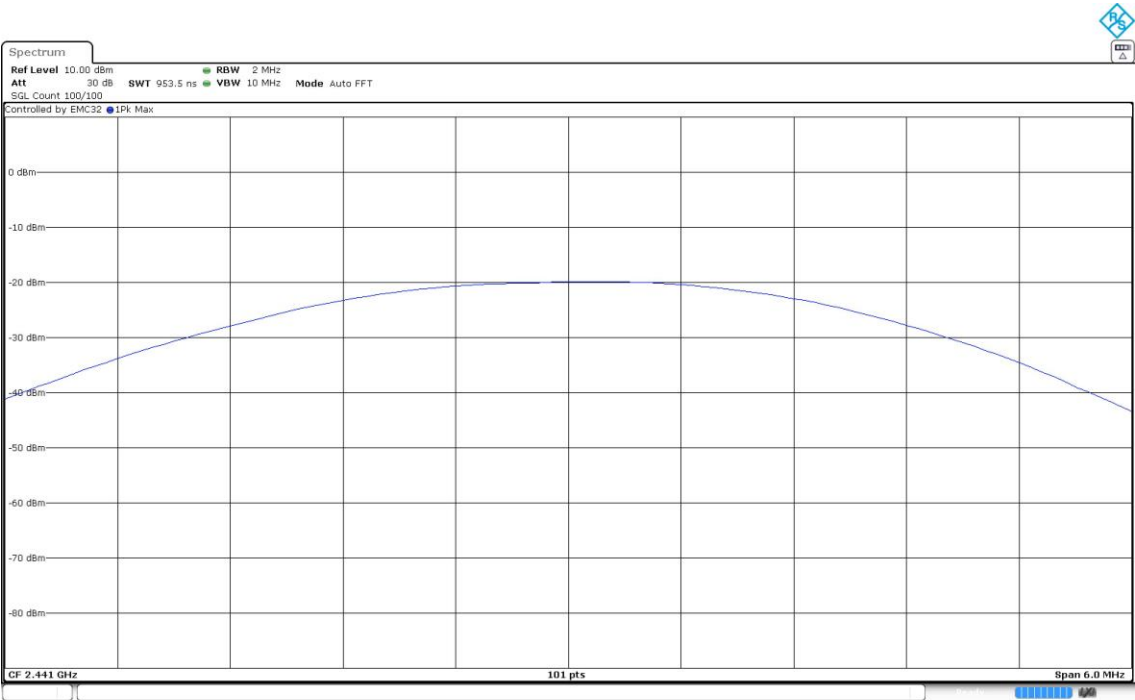
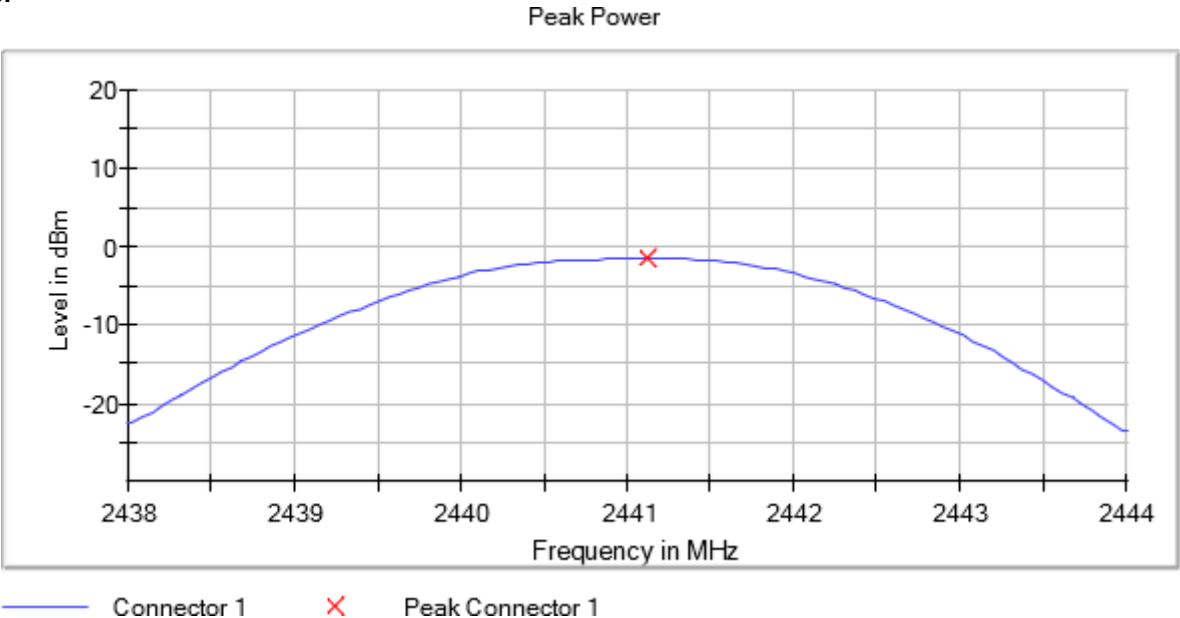
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Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



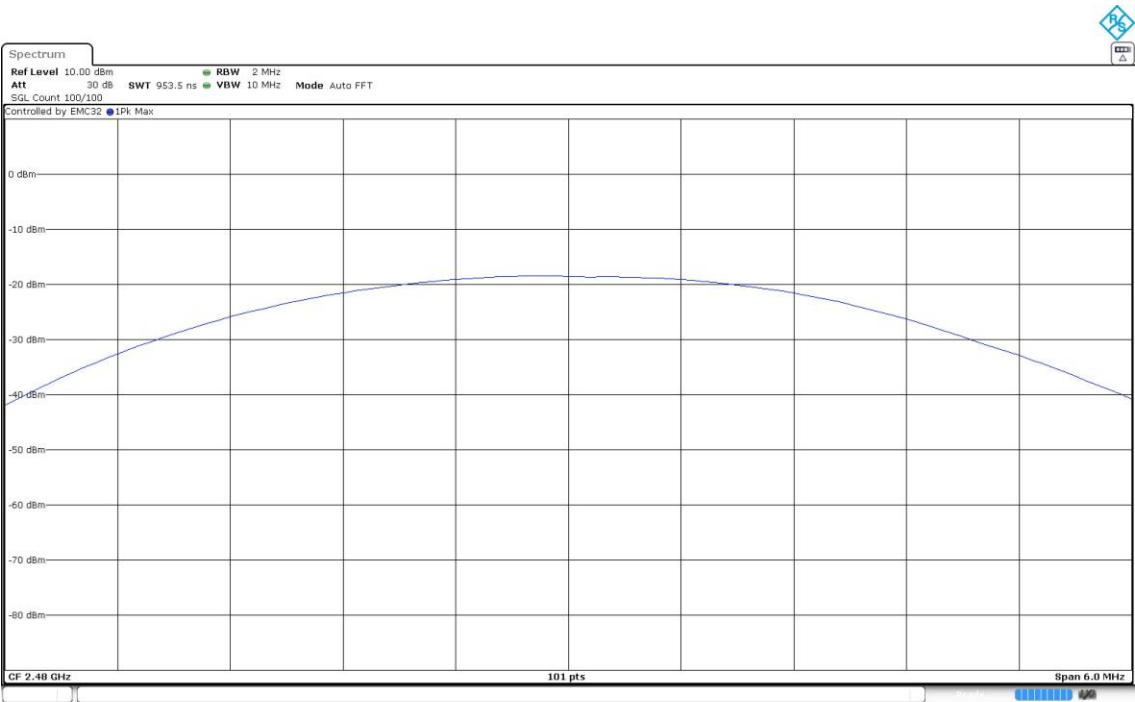
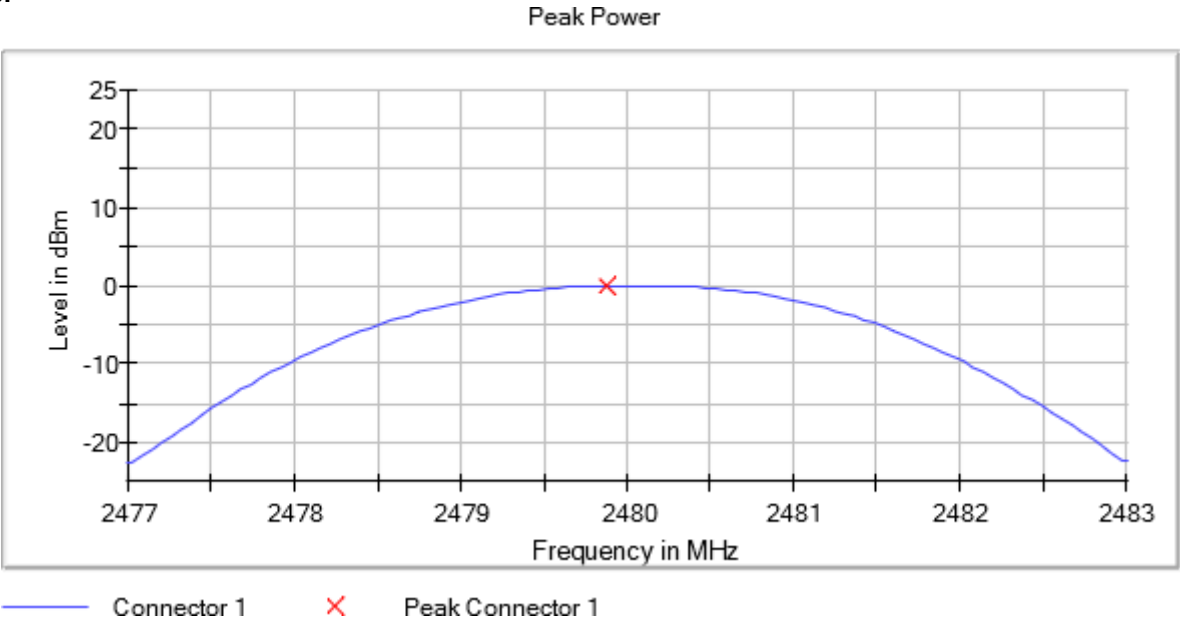
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



Modulation: BT (8DPSK)

MIMO Mode: SISO

Results

Equipment	Freq (MHz)	Port	Peak Power (dBm)	EIRP (dBm)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	1	-3.2740	-1.9040
	2441.00000		-0.6500	0.7200
	2480.00000		0.6470	2.0170

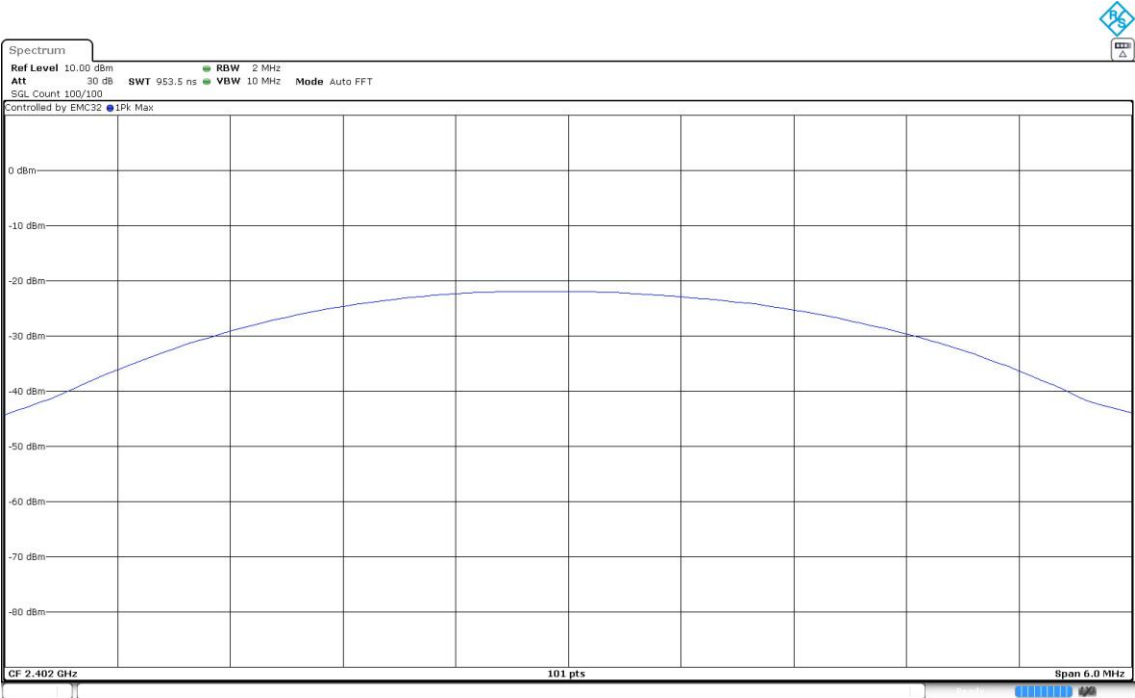
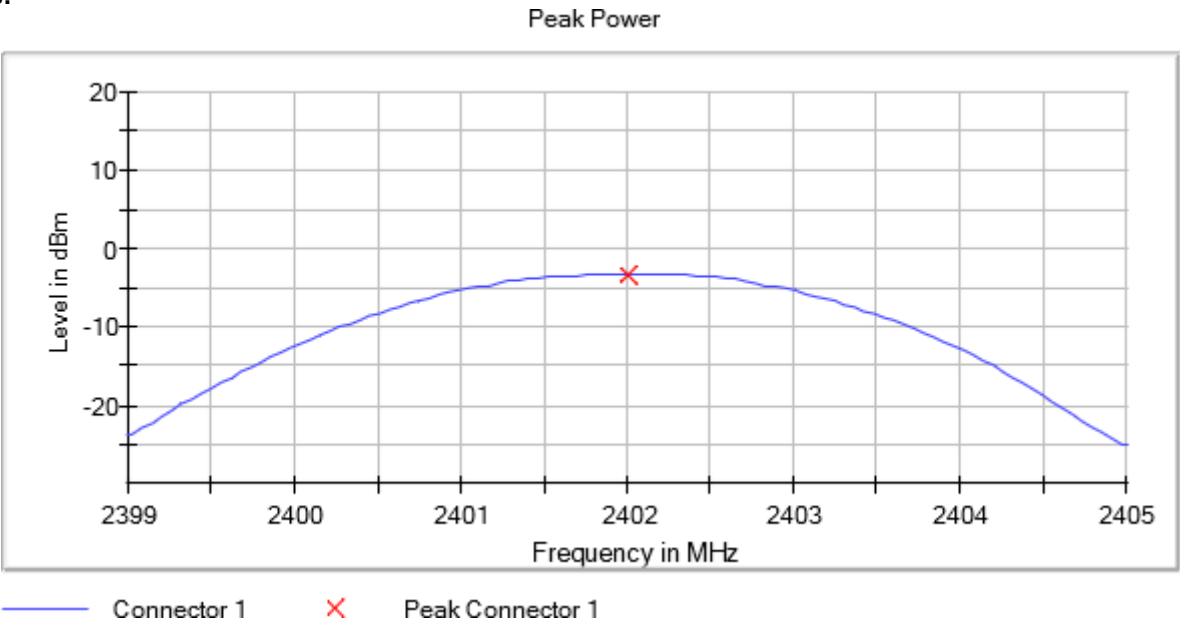
Verdict

Pass

Attachments

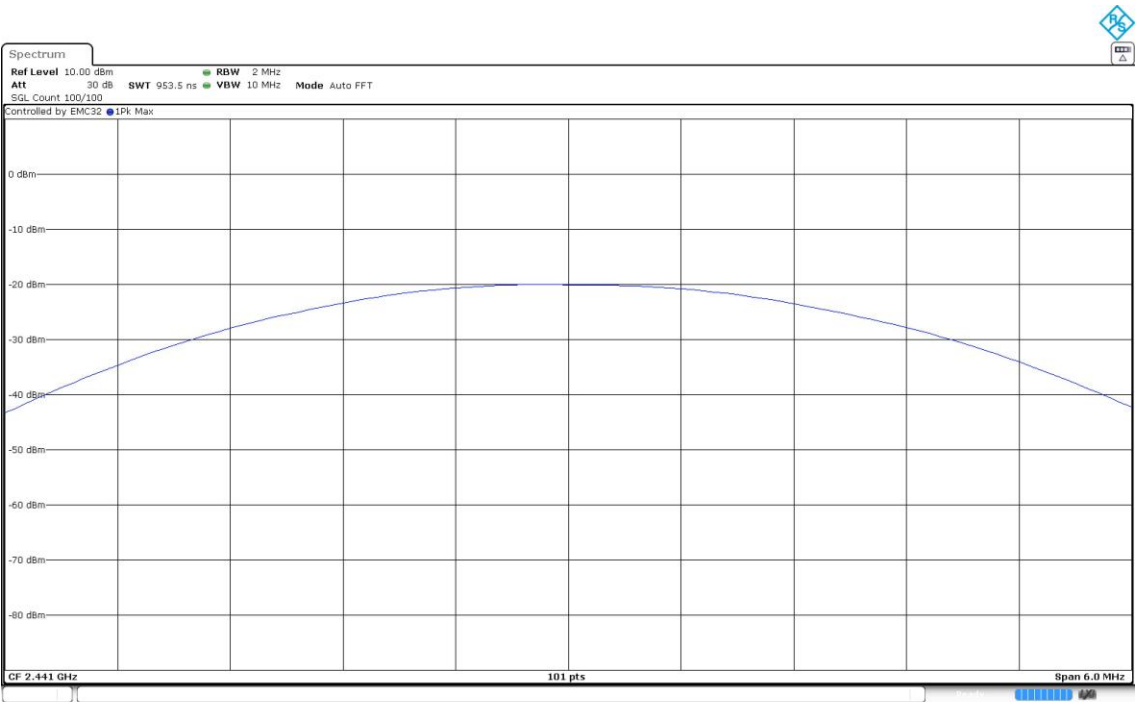
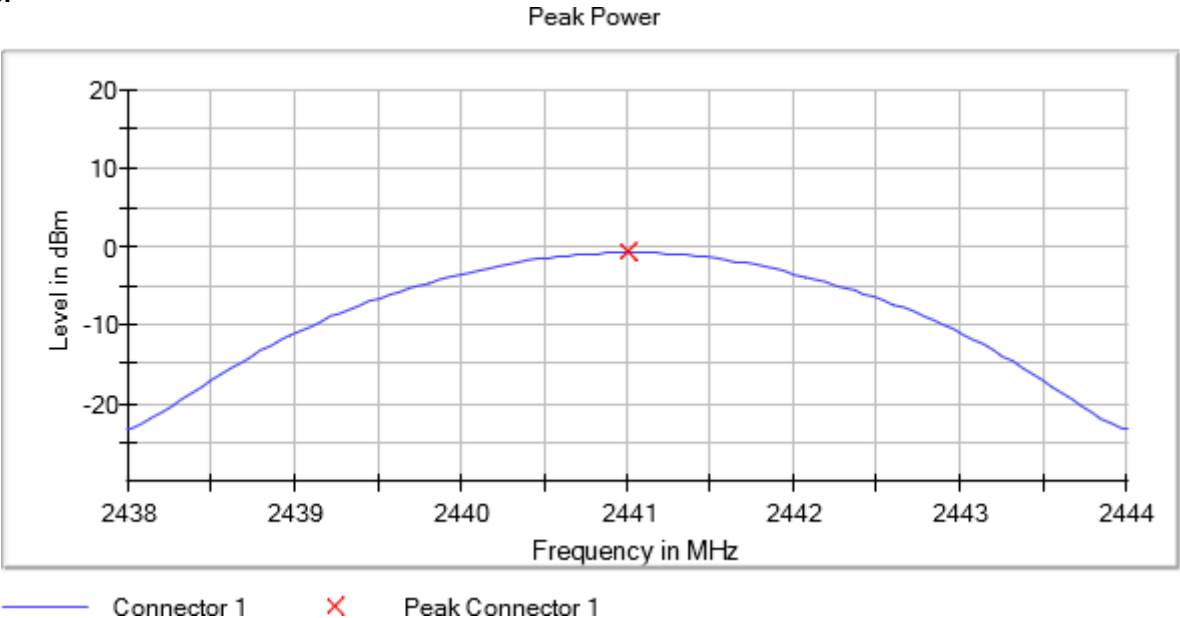
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



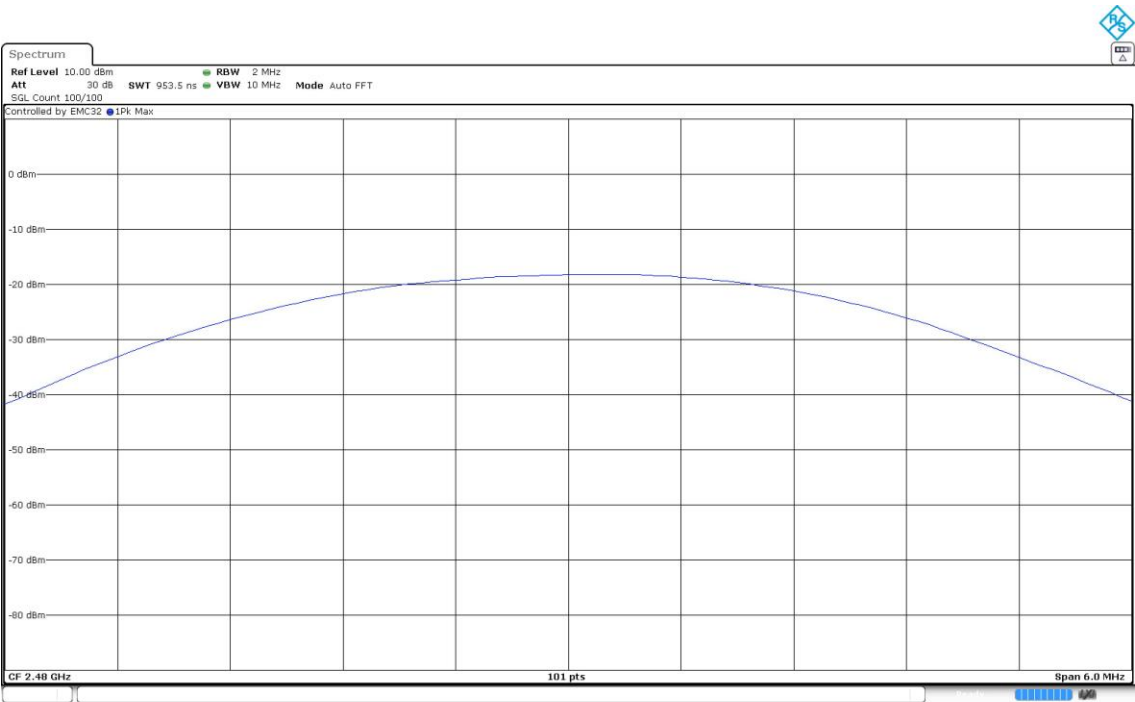
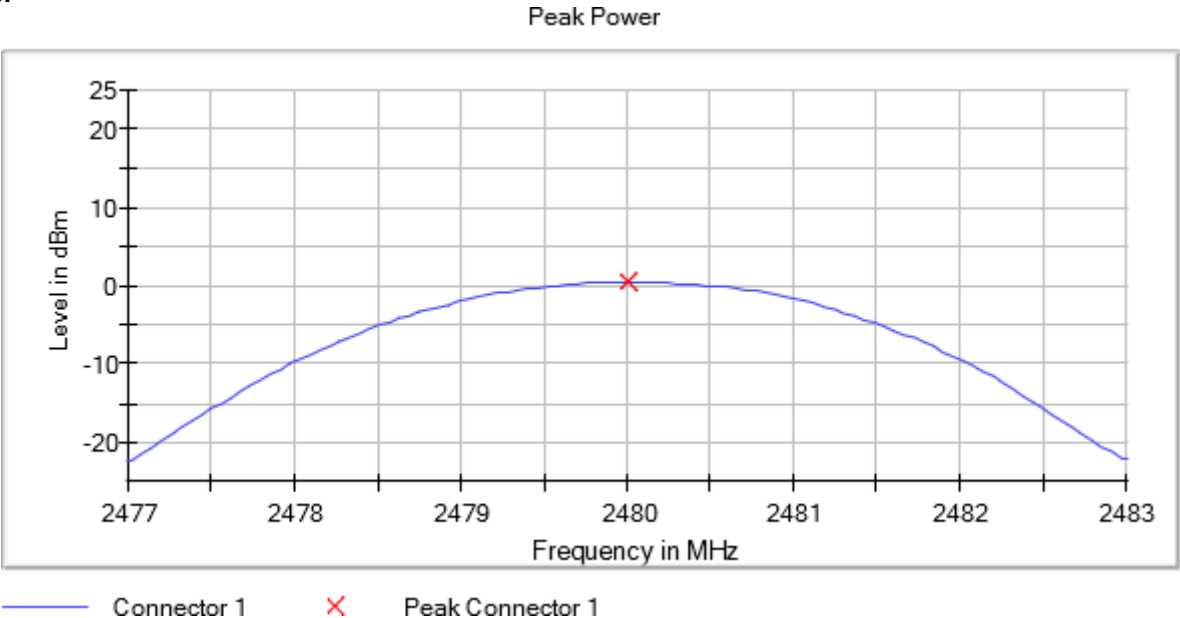
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)

Limits

In any 100 kHz bandwidths outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Modulation: BT (GFSK)

MIMO Mode: SISO

Results

Radiated measurements were used to show compliance with the limits in the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz.

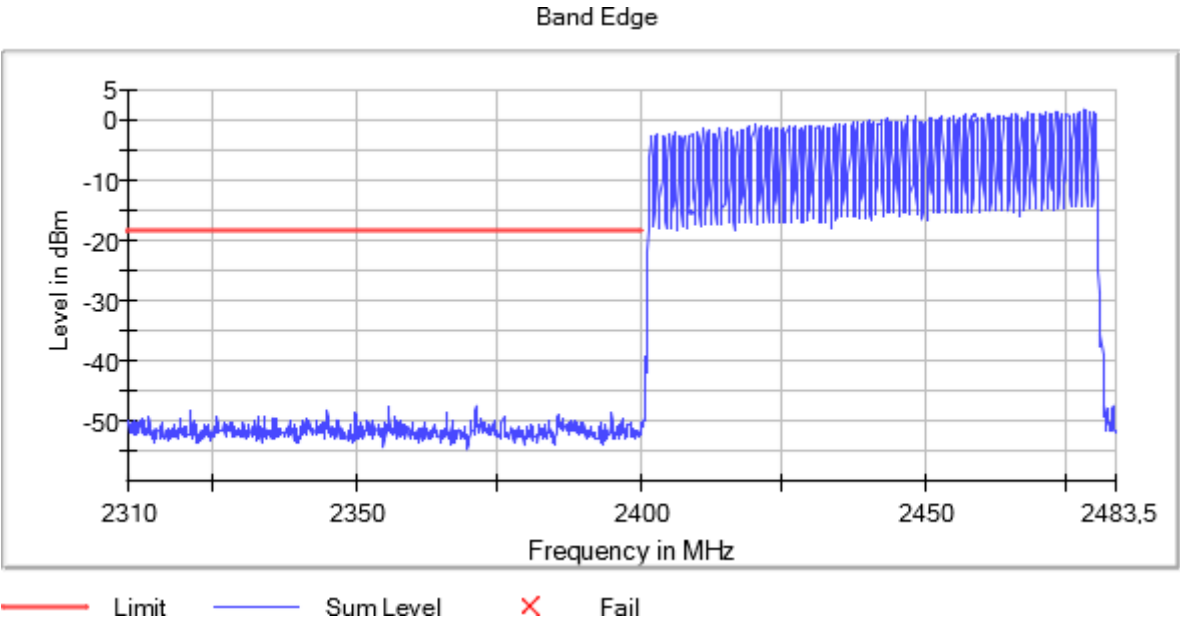
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK) Frequency MHz = 0.00000
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
Sweptime	113.672 μ s	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	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	116 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.42 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (GFSK)

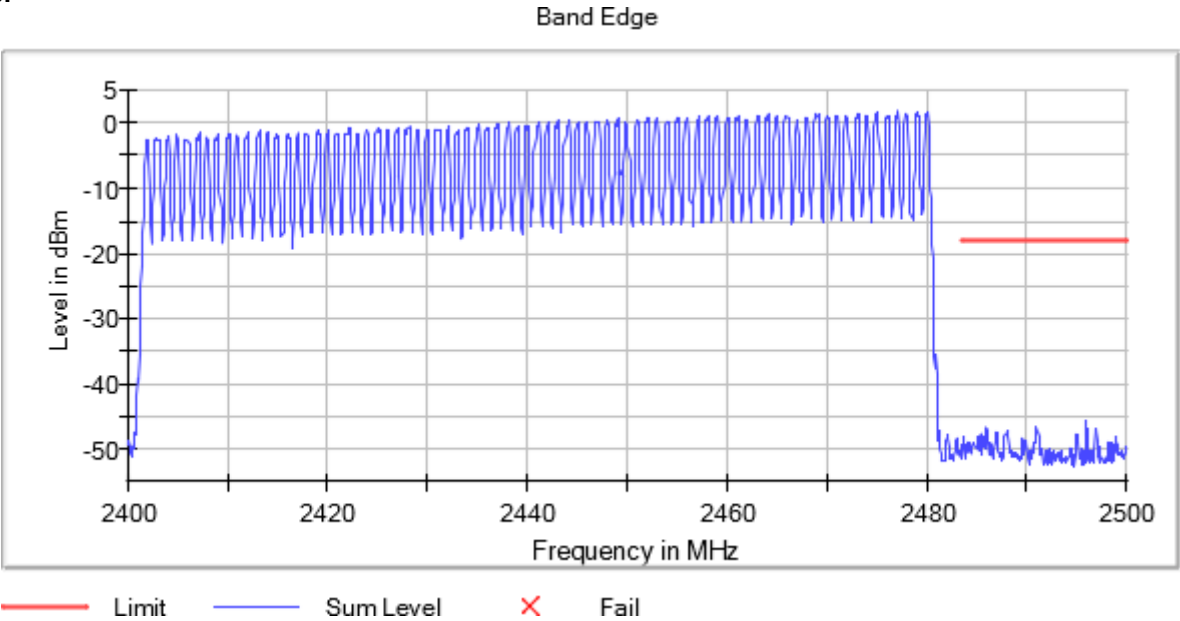
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 0.00000

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
Preamp	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	116 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.42 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (GFSK)

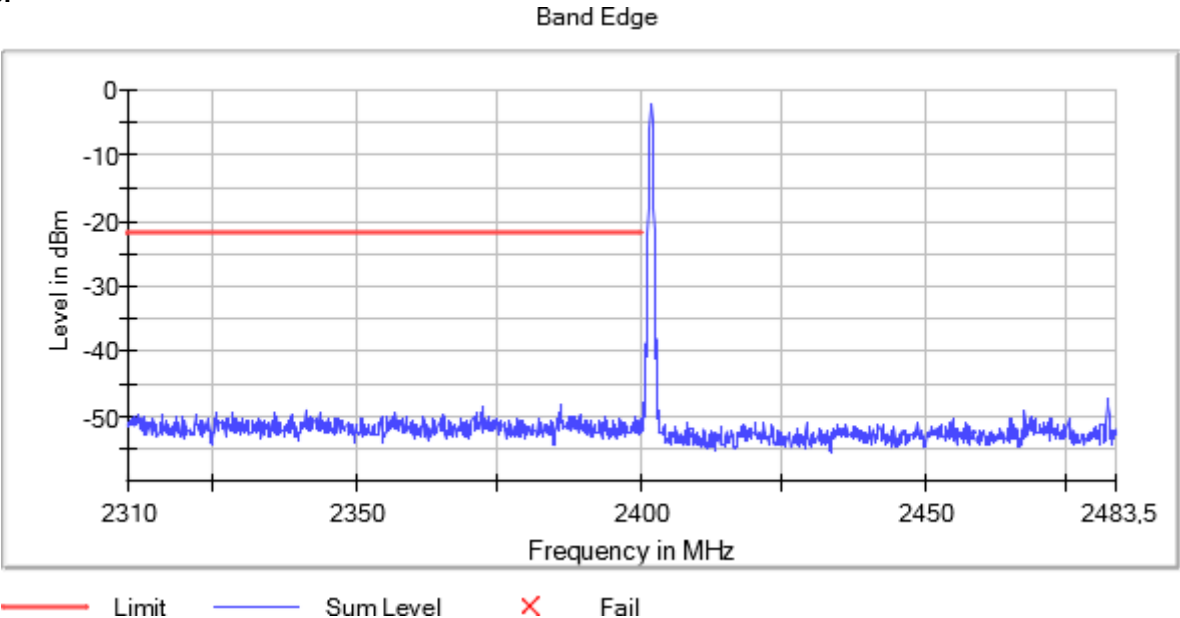
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 2402.00000

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	116 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.42 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (GFSK)

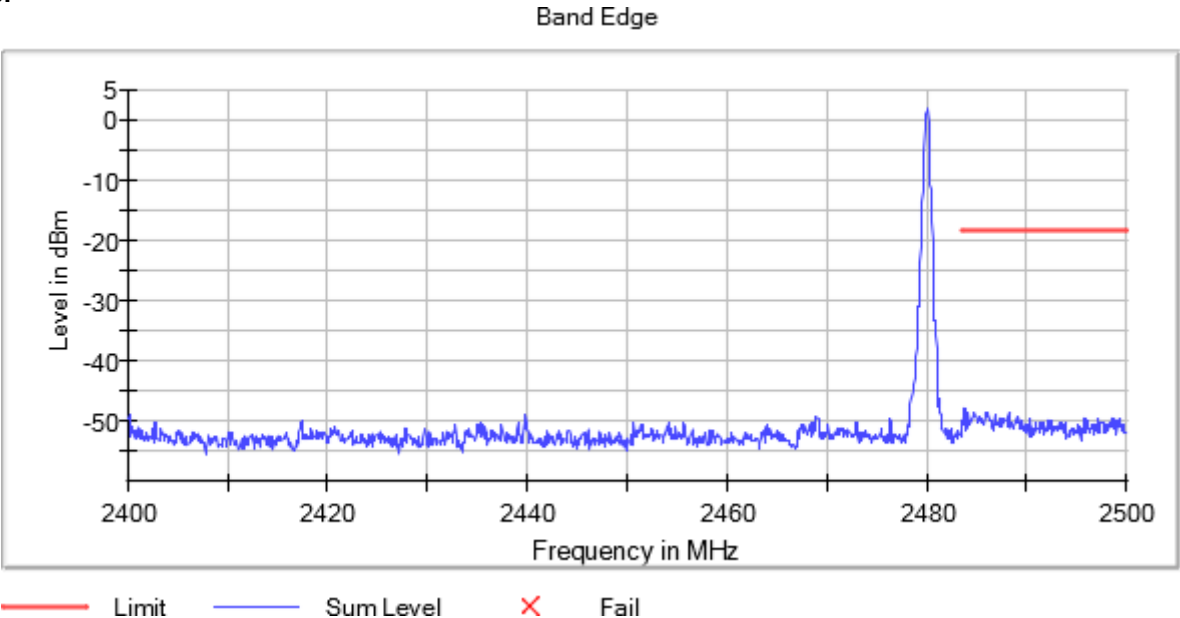
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 2480.00000

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
Preamp	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	116 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.42 dB	0.50 dB

Modulation: BT (Pi/4 DQPSK)

MIMO Mode: SISO

Results

Radiated measurements were used to show compliance with the limits in the restricted bands 2.31-2.39 GHz and 2.4835-2.5 GHz.

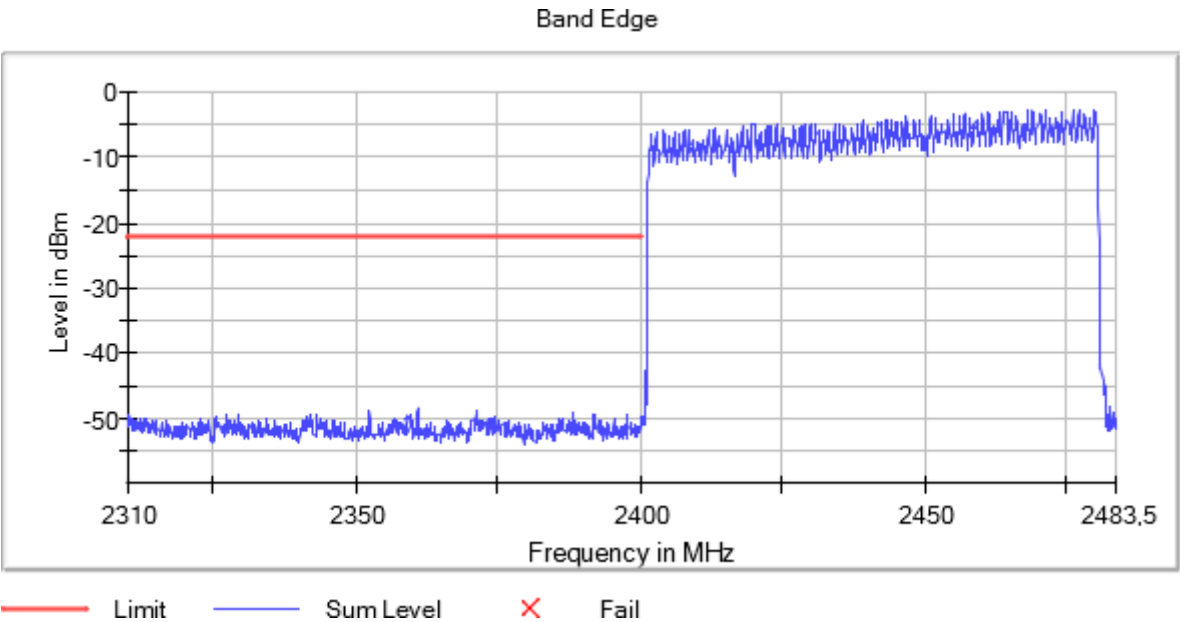
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK) Frequency MHz = 0.00000
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	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
Preamp	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	131 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (Pi/4 DQPSK)

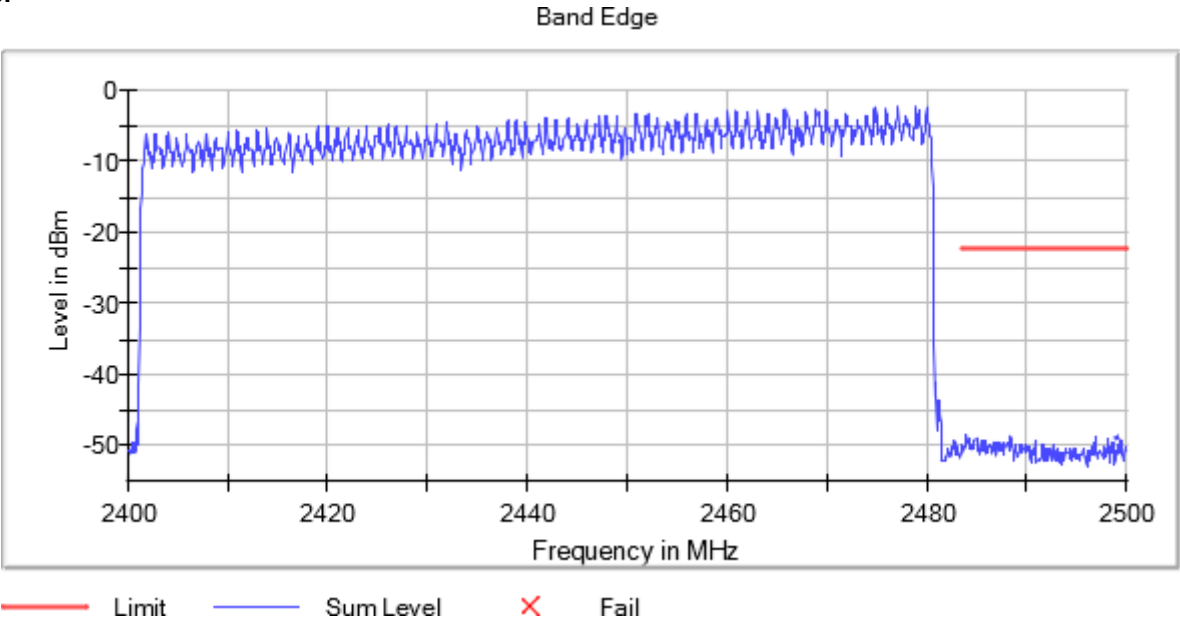
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 0.00000

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
Preamp	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	131 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Modulation = BT (Pi/4 DQPSK)

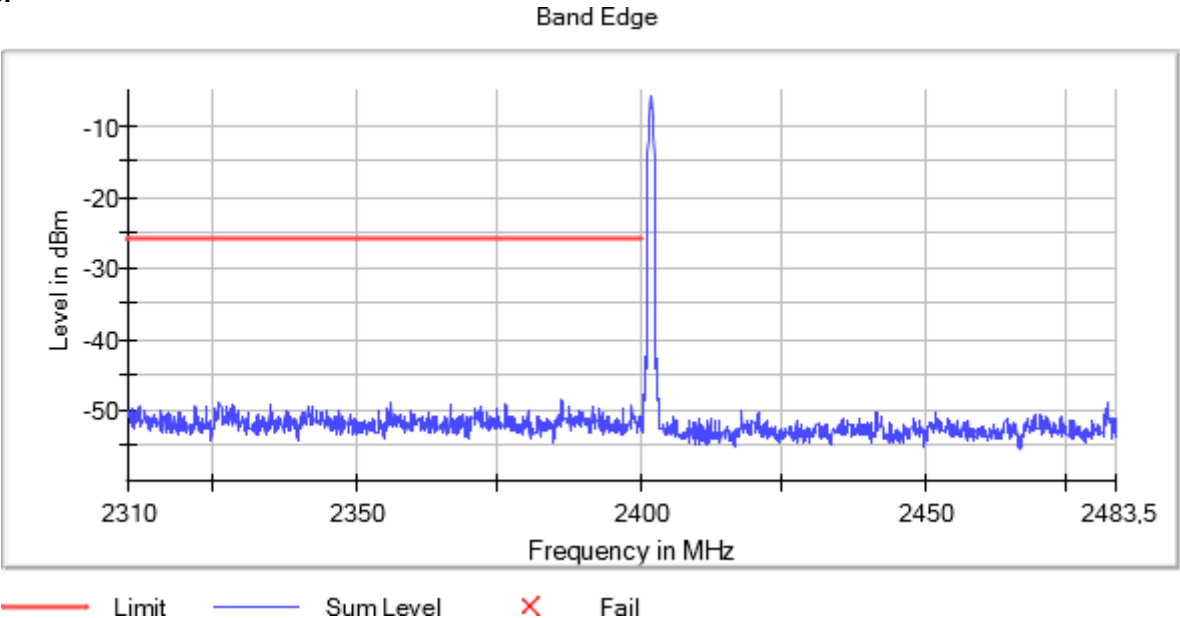
MIMO Mode = SISO

Bandwidth MHz = 1

Frequency MHz = 2402.00000

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
Preamp	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	131 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB