

ISED CABid: ES1909
Lab. Company Number: 4621A

Test Report No:
75564RRF.003A2

Test Report

USA FCC Part 15.247, 15.209

CANADA RSS-247, RSS-Gen

(*) Identification of item tested	iCG120 GNSS Receiver
(*) Trademark	Leica
(*) Model and /or type reference	iCG120
Other identification of the product	FCC ID: RFD-ICG120 IC: 3177A-ICG120
(*) Features	Bluetooth, 802.11@2.4GHz, GNSS HW version: 3B SW version: 3.0.0
Applicant	LEICA GEOSYSTEMS AG Heinrich-Wild-Strasse, 9435 Heerbrugg, Switzerland
Test method requested, standard	USA FCC Part 15.247 (10-1-21) Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-21) Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (Feb. 2017). CANADA RSS-Gen Issue 5 Amendment 1 (Mar. 2019) + Amendment 2 (Feb. 2021). Guidance for Performing Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid Systems Devices Operating Under Section 15.247 of the FCC Rules. 558074 D01 Meas Guidance v05r02 dated April 2, 2019. ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager
Date of issue	2023-12-11
Report template No.	FDT08_24 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Testing and Certification is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación) to perform the tests indicated in the Certificate No. 51/LE 147.

DEKRA Testing and Certification is an FCC-recognized accredited testing laboratory with appropriate scope of accreditation that covers the performed tests in this report.

DEKRA Testing and Certification is an ISED-recognized accredited testing laboratory, CABid: ES1909, Company Number: 4621A, with the appropriate scope of accreditation that covers the performed tests in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and it is based on the knowledge and technical facilities available at DEKRA Testing and Certification at the time of performance of the test.

DEKRA Testing and Certification is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.A.U. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification S.A.U. internal document PODT000.

The total uncertainty of the measurement system for the radiated emissions of EUT from 30 MHz to 1 GHz is:
Measurement uncertainty $\leq \pm 5.35$ dB with factor ($k = 2$).

The total uncertainty of the measurement system for the radiated emissions of EUT from 1 GHz to 17 GHz is:
Measurement uncertainty $\leq \pm 4.32$ dB with factor ($k = 2$).

The total uncertainty of the measurement system for the radiated emissions of EUT from 17 GHz to 26 GHz is:
Measurement uncertainty $\leq \pm 5.51$ dB with factor ($k = 2$).

The total uncertainty of the measurement system for the conducted testing of EUT is:

RF Peak Output Power: Measurement uncertainty $\leq \pm 0.80$ dB

Power Spectral Density: Measurement uncertainty ≤ 0.99 dB

Accumulated Dwell Time: Measurement uncertainty $\leq \pm 0.16$ %

Minimum Frequency Occupation Time: Measurement uncertainty $\leq \pm 0.53$ %

Hopping Frequency Separation: Measurement uncertainty $\leq \pm 1.74$ %

Occupied Channel Bandwidth: Measurement uncertainty $\leq \pm 1.40$ %

6dB Bandwidth: Measurement uncertainty $\leq \pm 1.14$ %

Conducted Band-edge spurious emissions: Measurement uncertainty $\leq \pm 1.76$ dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested").
2. The sample of the model iCG120 is a GNSS Positioning Receiver for On-machine use with Bluetooth.

DEKRA Testing and Certification S.A.U. declines any responsibility with respect to the information provided by the client and that may affect the validity of result.

Usage of samples

Samples undergoing test have been selected by: The client.

- Sample S/01 is composed of the following elements:

Control No.	Description	Model	Serial No.	Reception
75564/004	iCG120 GNSS Receiver	iCG120	4740057	30-05-2023
75564/005	iCG120 GNSS Receiver	iCG120	4740064	30-05-2023

Auxiliary elements used with the Sample S/01:

Control No.	Description	Model	Serial No.	Reception
69743/095	Media Convert	100BASE-T1	050501D2	02-12-2021
69743/098	Media Convert	100BASE-T1	050501E0	02-12-2021
69743/288	BT Loopback Box	780743	315	13-03-2023
69743/289	Small Antenna	731642	-	13-03-2023
69743/097	Media Convert	100BASE-T1	0505020F	02-12-2021
69743/035	USB-RS232 Adaptor	-	-	02-12-2021
69743/164	Ethernet Cable	-	-	03-06-2022
69743/111	AEC M12T M/F 5,0m Cable	950559	-	20-01-2022

Sample S/01 has undergone the test(s): The Radiated tests indicated in the Appendix A.

- Sample S/02 is composed of the following elements:

Control No.	Description	Model	Serial No.	Reception
75564/001	iCG120 GNSS Receiver	iCG120	4740067	30-05-2023

Auxiliary elements used with the Sample S/02:

Control No.	Description	Model	Serial No.	Reception
69743/095	Media Convert	100BASE-T1	050501D2	02-12-2021
69743/098	Media Convert	100BASE-T1	050501E0	02-12-2021
69743/288	BT Loopback Box	780743	315	13-03-2023
69743/289	Small Antenna	731642	-	13-03-2023
69743/097	Media Convert	100BASE-T1	0505020F	02-12-2021
69743/035	USB-RS232 Adaptor	-	-	02-12-2021
69743/164	Ethernet Cable	-	-	03-06-2022
69743/111	AEC M12T M/F 5,0m Cable	950559	-	20-01-2022

Sample S/02 has undergone the test(s): The Radiated tests indicated in the Appendix B.

- Sample S/03 is composed of the following elements:

Control No.	Description	Model	Serial No.	Reception
75564/006	iCG120 GNSS Receiver	iCG120	4740052	30-05-2023

Auxiliary elements used with the Sample S/03:

Control No.	Description	Model	Serial No.	Reception
69743/098	Media Convert	100BASE-T1	050501E0	02-12-2021
69743/202	D9+Power Cable	-	-	13-06-2022
69743/210	USB Adapter Cable	-	-	15-06-2022
69743/031	USB-RS232 Adaptor	-	-	02-12-2021
69743/037	USB-RS232 Adaptor	-	-	02-12-2021
69743/098	Media Convert	100BASE-T1	050501ED	02-12-2021

Sample S/03 has undergone the test(s): The Conducted tests indicated in the Appendix A and B.

Test sample description

Ports.....:	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾		
	-	-	☐	☐	☐		
Supplementary information to the ports.....:	-						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 9-34VDC					
Rated Power.....:	6W						
Clock frequencies.....:	-						
Other parameters	-						
Software version.....:	3.0.0						
Hardware version	3B						
Dimensions in cm (W x H x D) ...:	150mm x 145mm x 40mm						
Mounting position	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☒	Other: On a vehicle body					
Modules/parts.....:	Module/parts of test item		Type		Manufacturer		
	GNSS Module		OEM7720		Novatel		
Accessories (not part of the test item)	Description		Type		Manufacturer		
	-				-		
Documents as provided by the applicant	Description		File name		Issue date		
	-		-		-		

⁽³⁾ Only for Medical Equipment

Identification of the client

LEICA GEOSYSTEMS AG
Heinrich-Wild-Strasse, 9435 Heerbrugg, Switzerland

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-07-04
Date (finish)	2023-08-23

Document history

Report number	Date	Description
75564RRF003	2023-09-05	First release.
75564RRF003A1	2023-11-20	Second release. Modification due to typos. This modification test report cancels and replaces the test report 75564RRF003
75564RRF003A2	2023-12-11	Third release. Modification to include up to full testing. This modification test report cancels and replaces the test report 75564RRF003A1

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %

Remarks and comments

The tests have been performed by the technical personnel: Pablo Redondo, Fernando Chito, Rafael Fernández.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
6791	SEMIANECHOIC ABSORBER LINED CHAMBER IV	FACT 3 200 STP	ETS LINDGREN	2024-06
6792	SHIELDED ROOM	S101	ETS LINDGREN	N/A
6143	Biconical/Log Antenna 30 MHz - 6 GHz	3142E	ETS LINDGREN	2023-10
6142	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	2024-06
7817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2023-12
7760	DIGITAL MULTIMETER	175	FLUKE	2023-11
4611	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2026-01
5705	RF Preamplifier, 40 dB, 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2023-07
4716	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz	FSW50	ROHDE AND SCHWARZ	2024-08
4825	Semianechoic Absorber Lined Chamber	FACT 3 200 STP	ETS LINDGREN	N/A
4826	SHIELDED ROOM	S101	ETS LINDGREN	N/A
7758	Digital Multimeter	175	FLUKE	2023-11
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
6668	Signal and Spectrum Analyzer 10 Hz - 40 GHz	FSV40	ROHDE AND SCHWARZ	2024-05
7796	Extension for Open Switch Unit up to 40 GHz	OSP-B157Wx	ROHDE AND SCHWARZ	N/A
8848	OPEN SWITCH UNIT UP TO 7.5 GHz	OSP-B157W8 PLUS	ROHDE & SCHWARZ	2023-08
0922	POWER SUPPLY DC 40 V / 40 A	NGPE 40/40	ROHDE AND SCHWARZ	N/A
6793	SHIELDED ROOM	S101	ETS LINDGREN	N/A
7798	EMC/RF MEASUREMENT SOFTWARE	WMS32	ROHDE AND SCHWARZ	N/A

Testing verdicts

Not applicable:	N/A
Pass:	P
Fail:	F
Not measured:	N/M

Summary

1. Bluetooth EDR:

FCC PART 15 / RSS-247			
Requirement – Test case		Verdict	Remark
15.247 (a)(1) / RSS-247 5.1 (b)	20 dB Bandwidth and Carrier frequency separation	P	
15.247 (a)(1)(iii) / RSS-247 5.1 (d)	Number of hopping channels	P	
15.247 (a)(1)(iii) / RSS-247 5.1 (d)	Time of occupancy (Dwell Time)	P	
15.247 (b) / RSS-247 5.4 (b)	Maximum peak output power and antenna gain	P	
15.247 (d) / RSS-247 5.5	Band-edge emissions compliance (Transmitter)	P	
15.247 (d) / RSS-247 5.5	Emission limitations radiated (Transmitter)	P	
<u>Supplementary information and remarks:</u> (1) Test not requested.			

2. WLAN 2.4 GHz (802.11 bgn20 1x1):

FCC PART 15 / RSS-247			
Requirement – Test case		Verdict	Remark
15.247 (a)(2) / RSS-247 5.2 (a)	6 dB Bandwidth	P	
15.247 (b) / RSS-247 5.4 (d)	Maximum output power and antenna gain	P	
15.247 (e) / RSS-247 5.2 (b)	Power spectral density	P	
15.247 (d) / RSS-247 5.5	Band-edge emissions compliance (Transmitter)	P	
15.247 (d) / RSS-247 5.5	Emission limitations radiated (Transmitter)	P	
<u>Supplementary information and remarks:</u> (1) Test not requested.			

Appendix A: Test results. Bluetooth EDR

TEST CONDITIONS	14
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FCC 47 CFR PART 15.247 / RSS-247	17
<i>Occupied Channel Bandwidth 99%</i>	17
<i>RSS-247 5.1 (b) / FCC 15.247 (a) (1) 20 dB Bandwidth</i>	27
<i>RSS-247 5.1 (b) / FCC 15.247 (a) (1) Carrier Frequency Separation</i>	37
<i>RSS-247 5.1 (d) / FCC 15.247 (a) (1) (iii) Time of Occupancy (Dwell Time)</i>	41
<i>RSS-247 5.1 (d) / FCC 15.247 (a) (1) (iii) Number of hopping channels</i>	51
<i>RSS-247 5.4 (b) / FCC 15.247 (b) (1) Maximum Peak Conducted output power and antenna gain</i>	55
<i>RSS-247 5.5 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)</i>	65
<i>FCC 15.247 (d) / RSS-247 5.5 Emission limitations radiated (Transmitter)</i>	90

TEST CONDITIONS

(*) : Data provided by the client.

POWER SUPPLY (*):

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

ANTENNA (*):

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

TEST FREQUENCIES (*):

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

During transmitter test the EUT was being controlled by the SW tool provided by the client to operate in a continuous transmit mode on the test channel as required and in each of the different modulation modes.

The EUT has four separate antennas which correspond to one port of the equipment.

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-18 GHz Double ridge horn antenna is situated at a distance of 3 m and a distance of 1.5 m for the frequency range 17 GHz-26 GHz (18 GHz-40 GHz horn antenna).

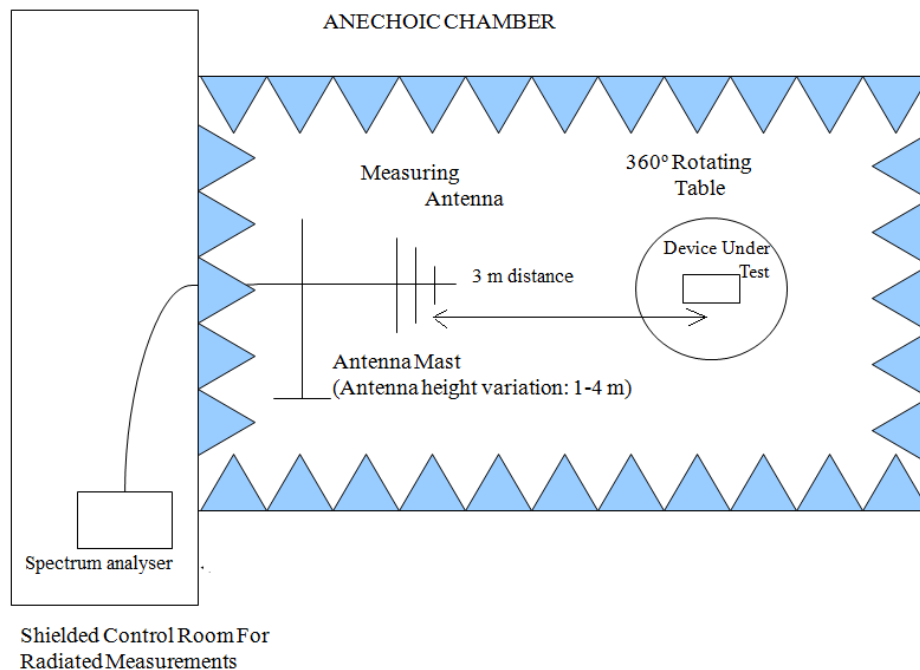
For radiated emissions in the range 17 GHz-26 GHz performed at a distance closer than the distance specified in the standard, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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

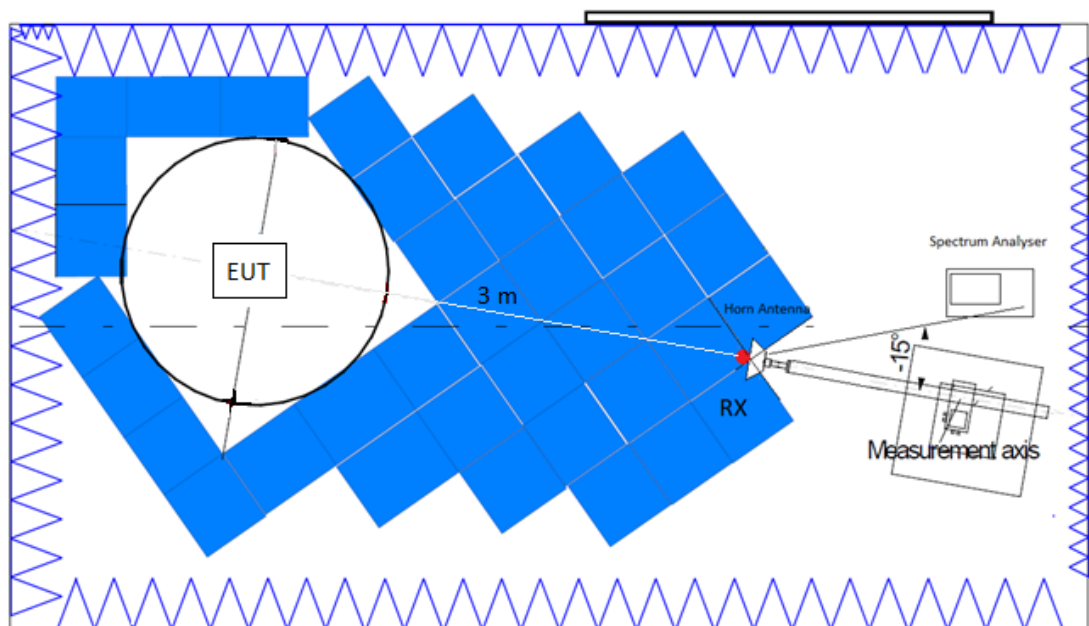
Measurements were made in both horizontal and vertical planes of polarization.

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

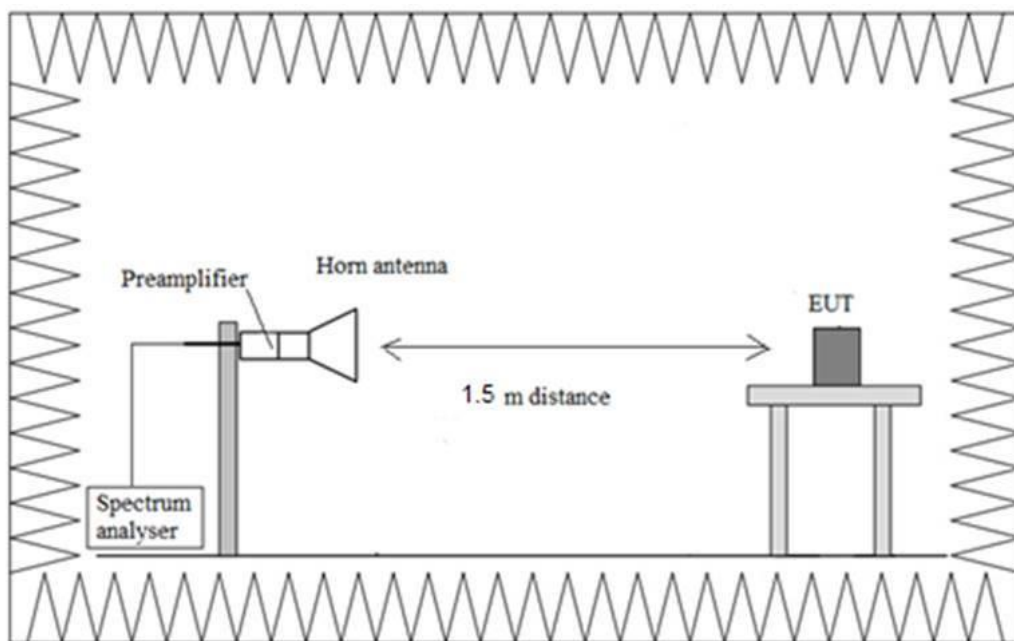
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



TEST CASES DETAILS

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

Results

Modulation: BT (GFSK 1-DH5)

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	0.910
		2441.00000		0.910
		2480.00000		0.910

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

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		1.200

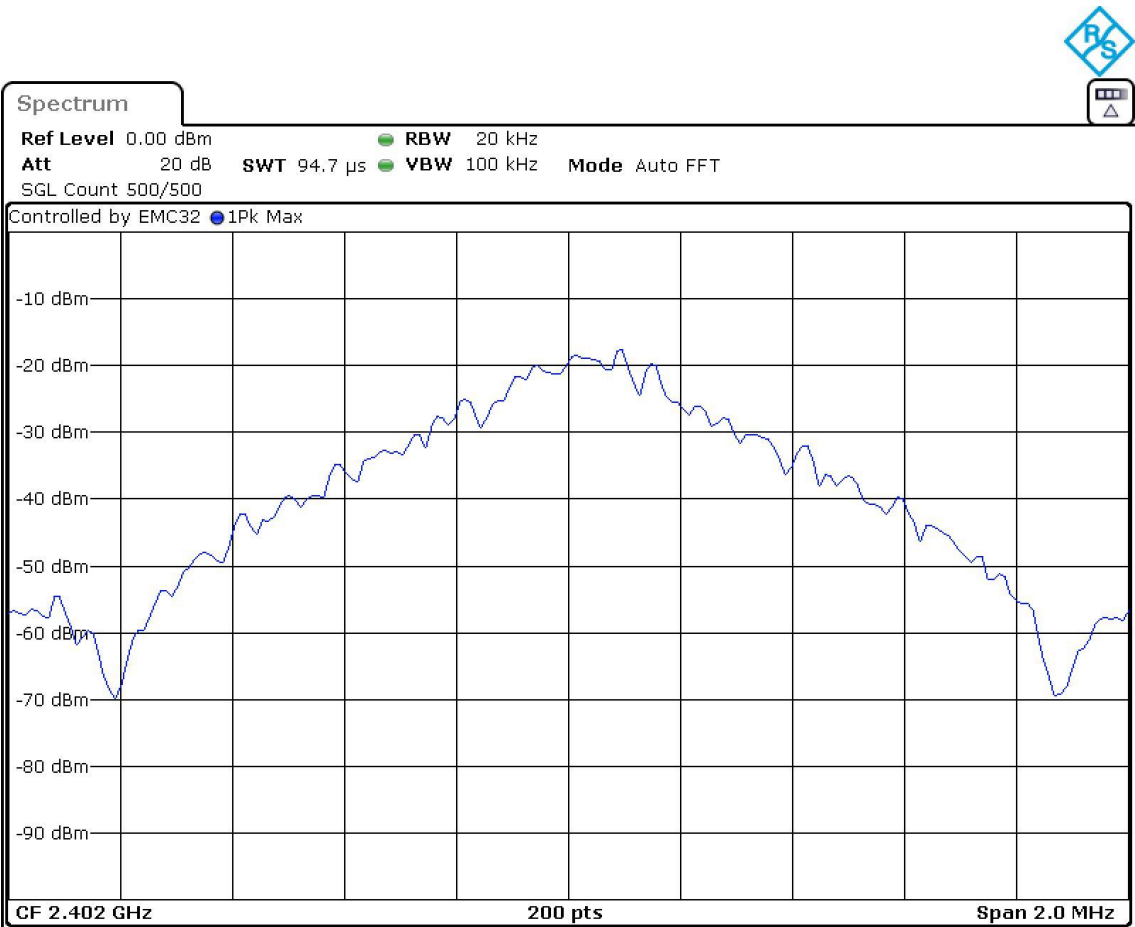
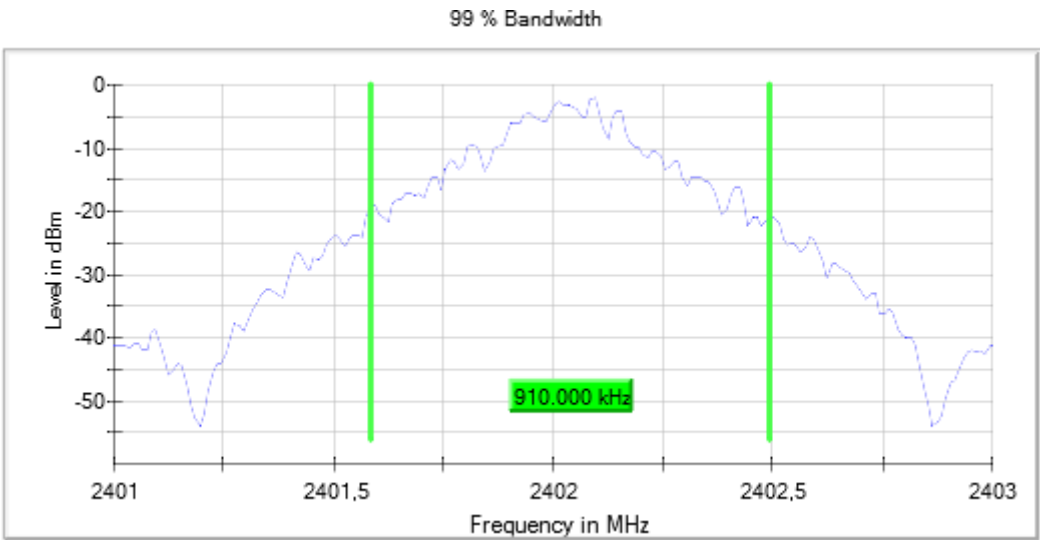
Modulation: BT (8DPSK 3-DH5)

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		1.200

Attachments

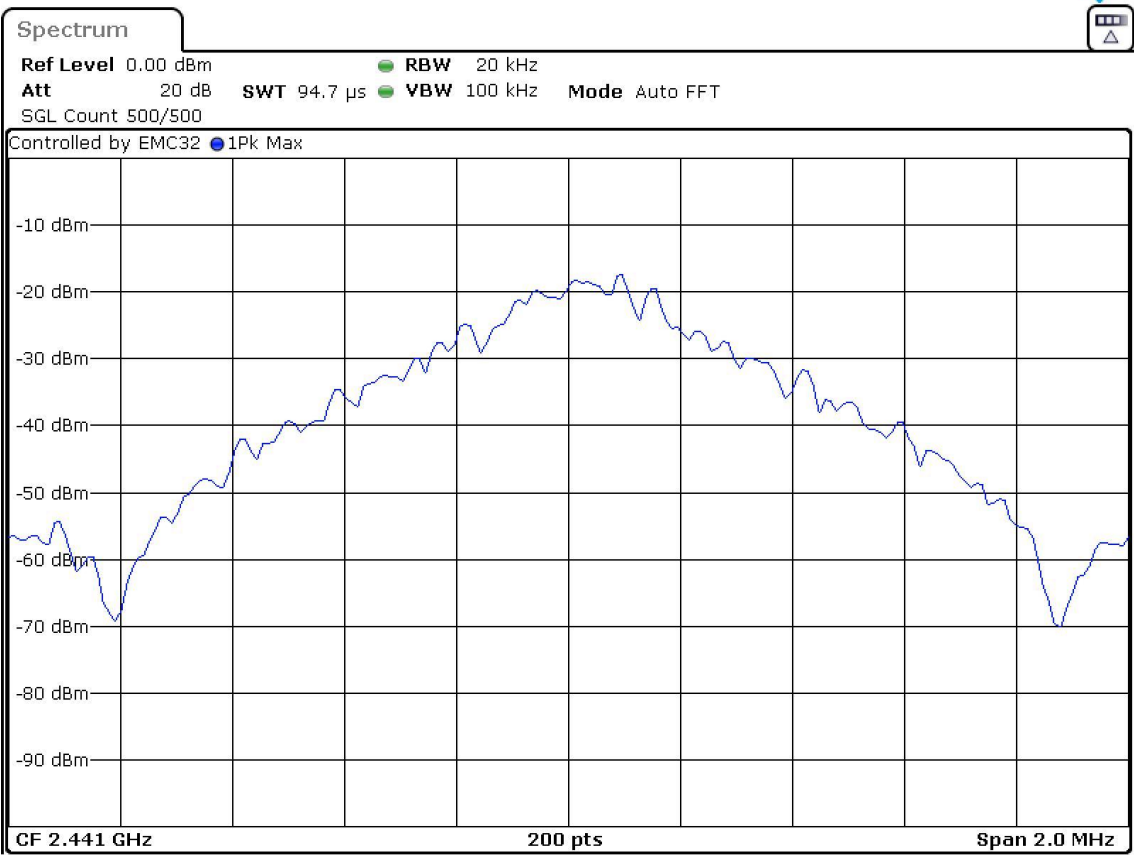
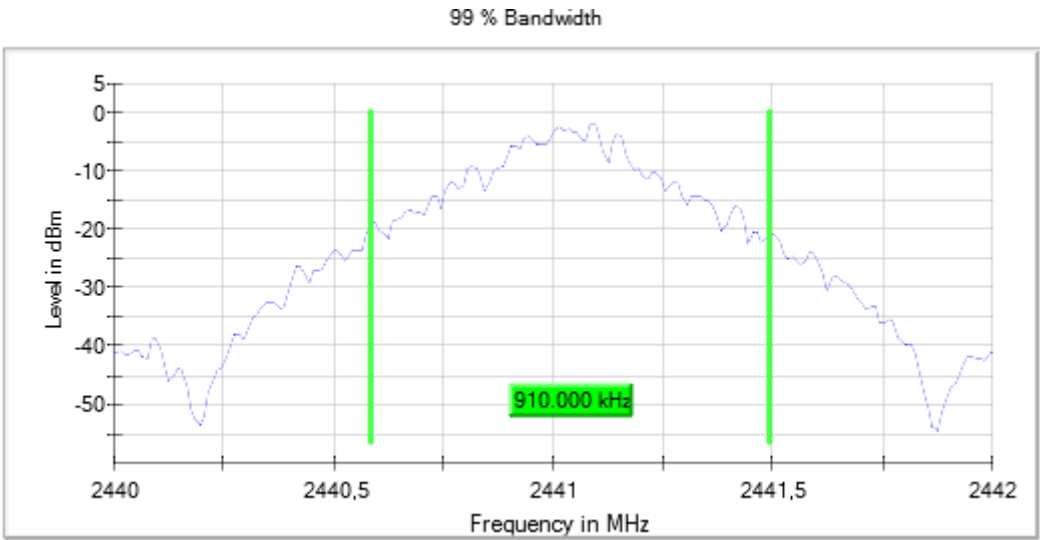
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



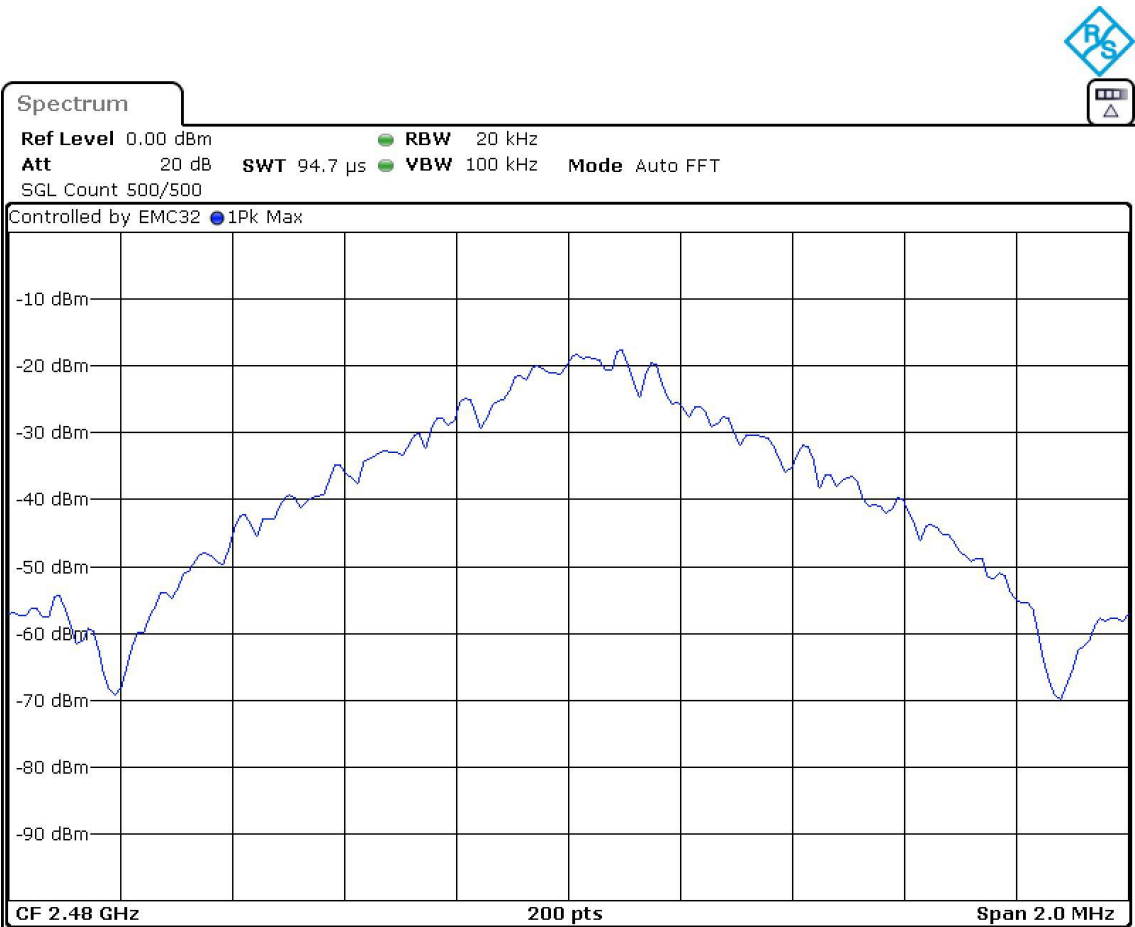
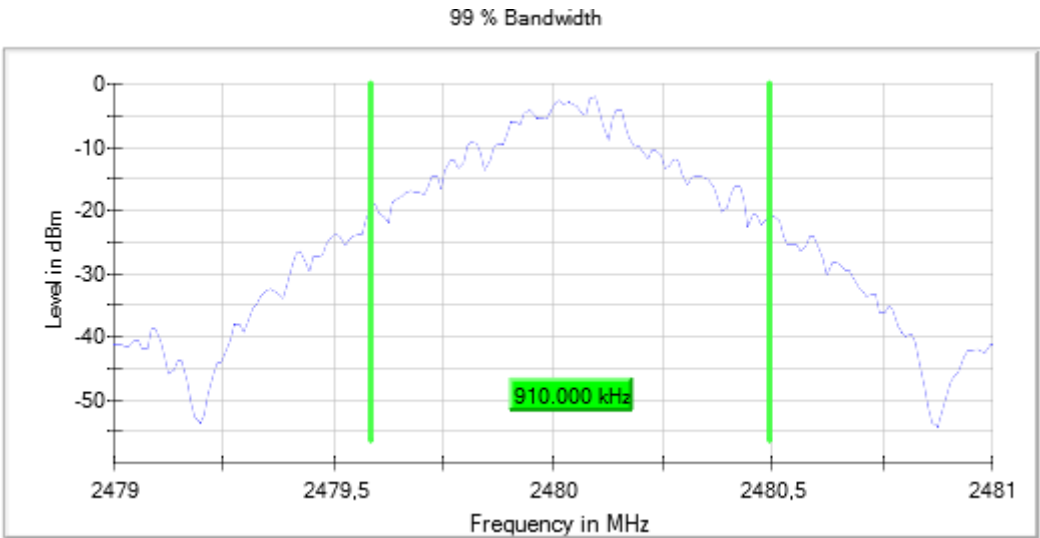
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



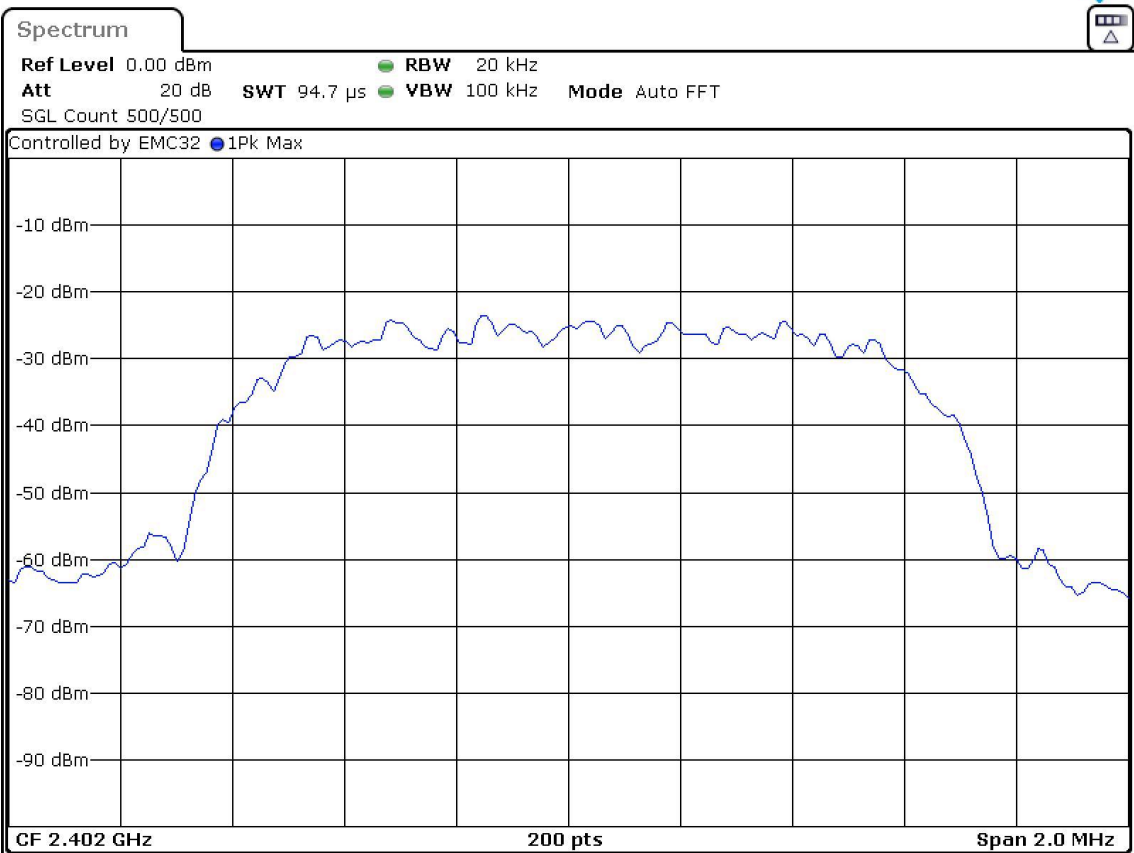
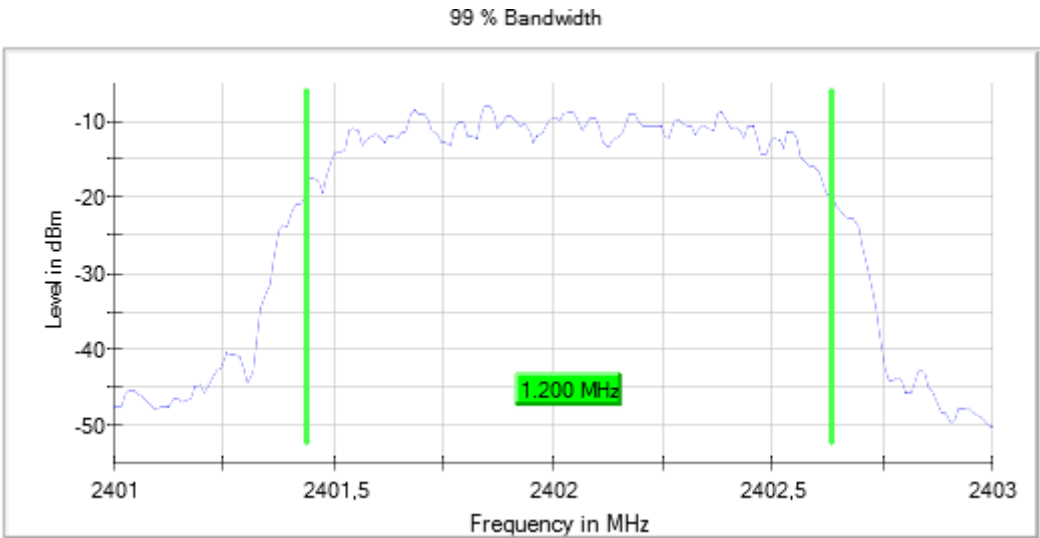
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Modulation = BT (GFSK 1-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



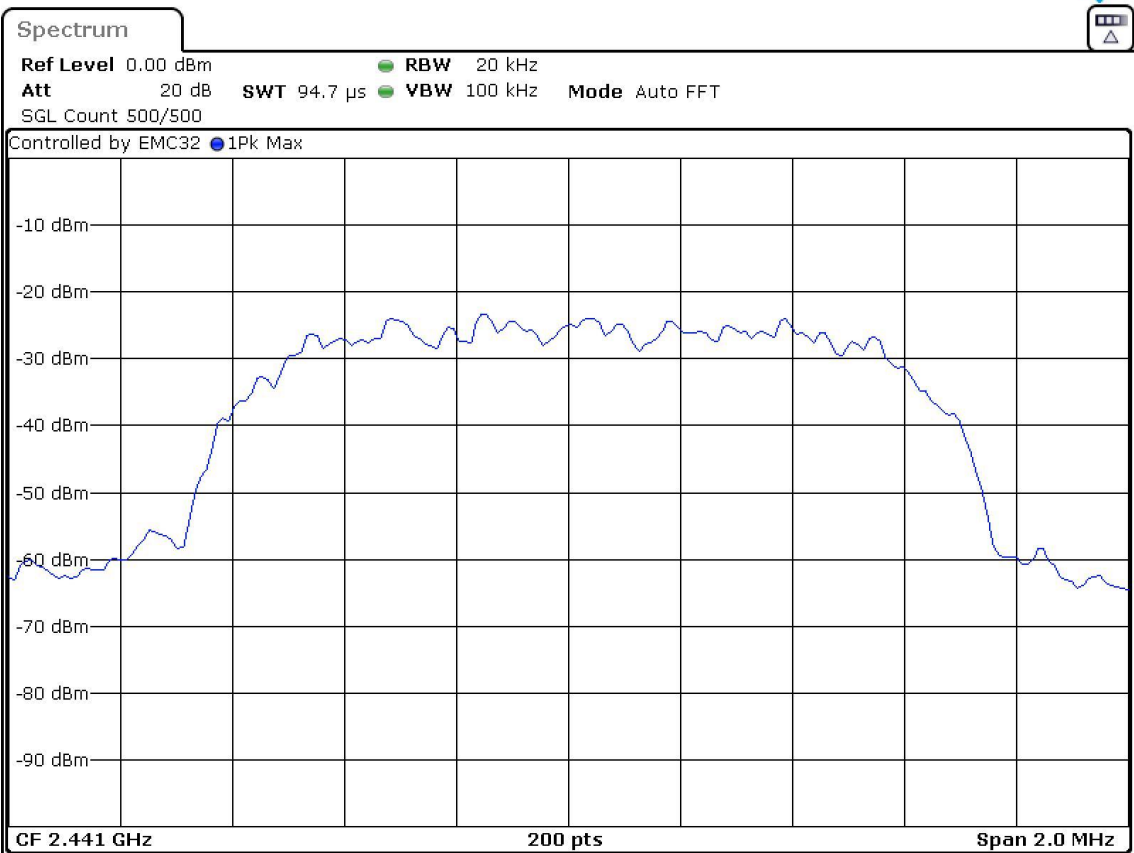
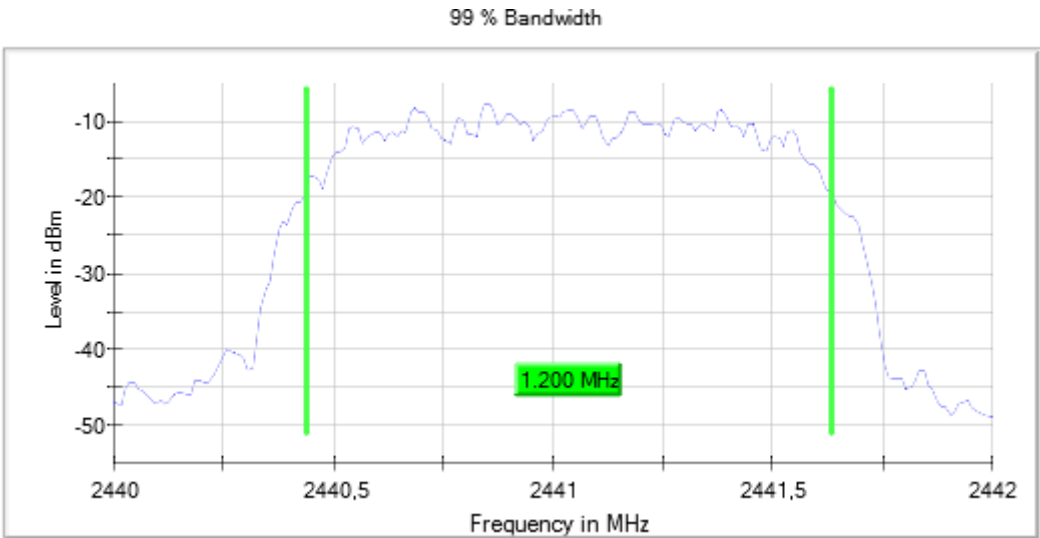
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Modulation = BT (Pi/4 DQPSK 2-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



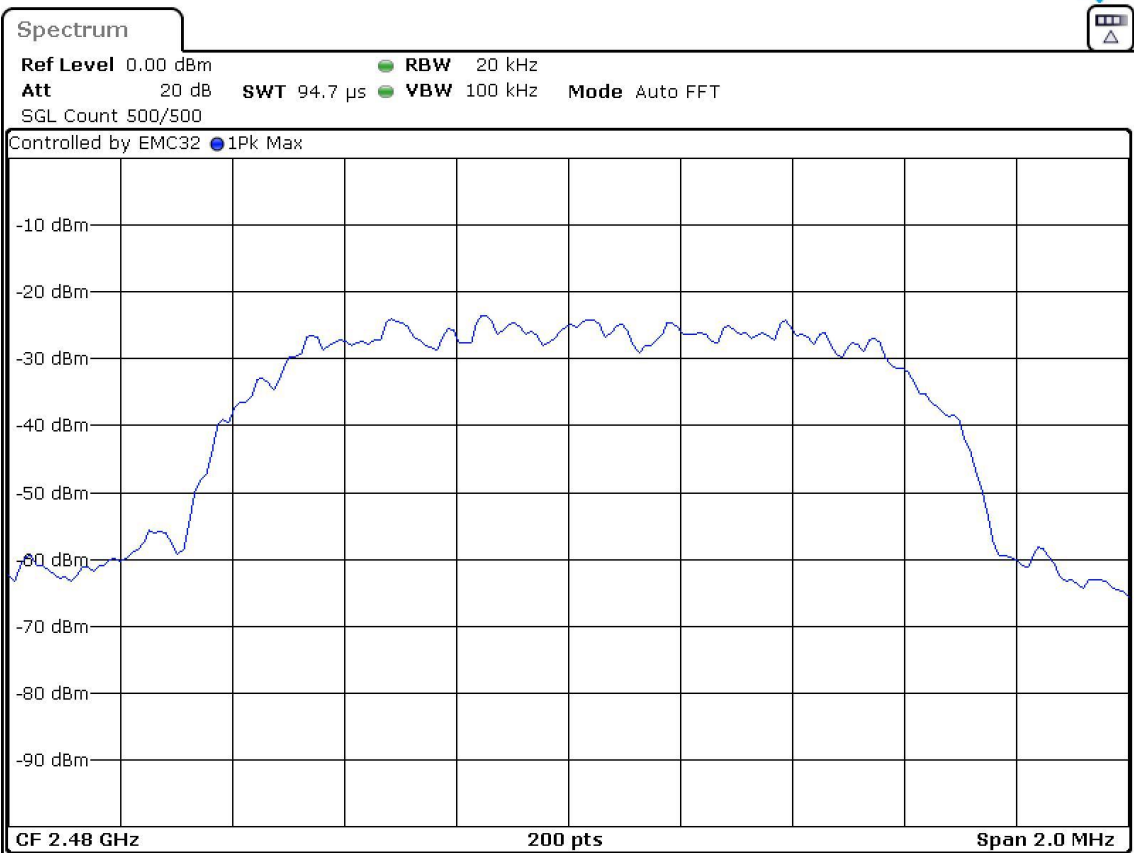
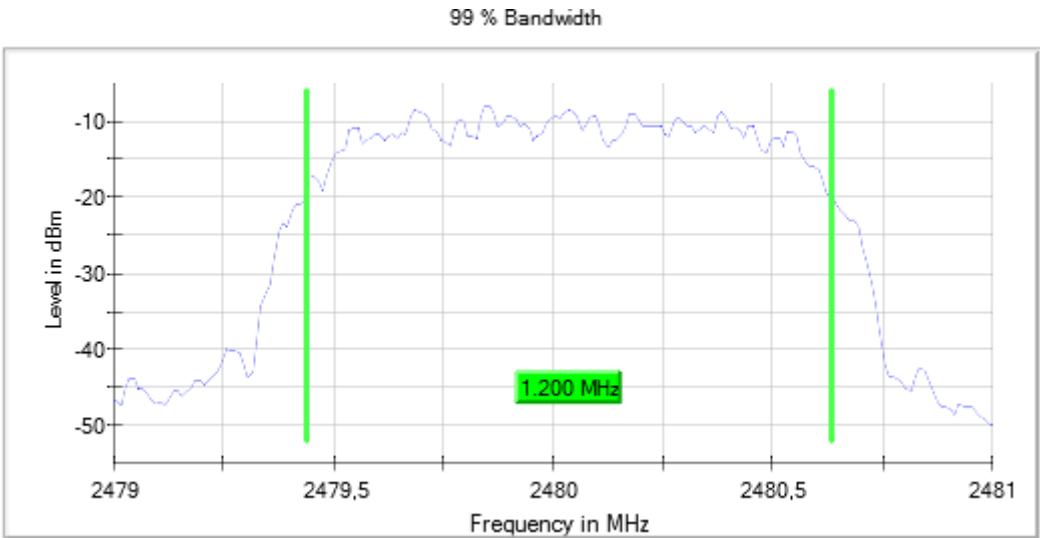
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK 2-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



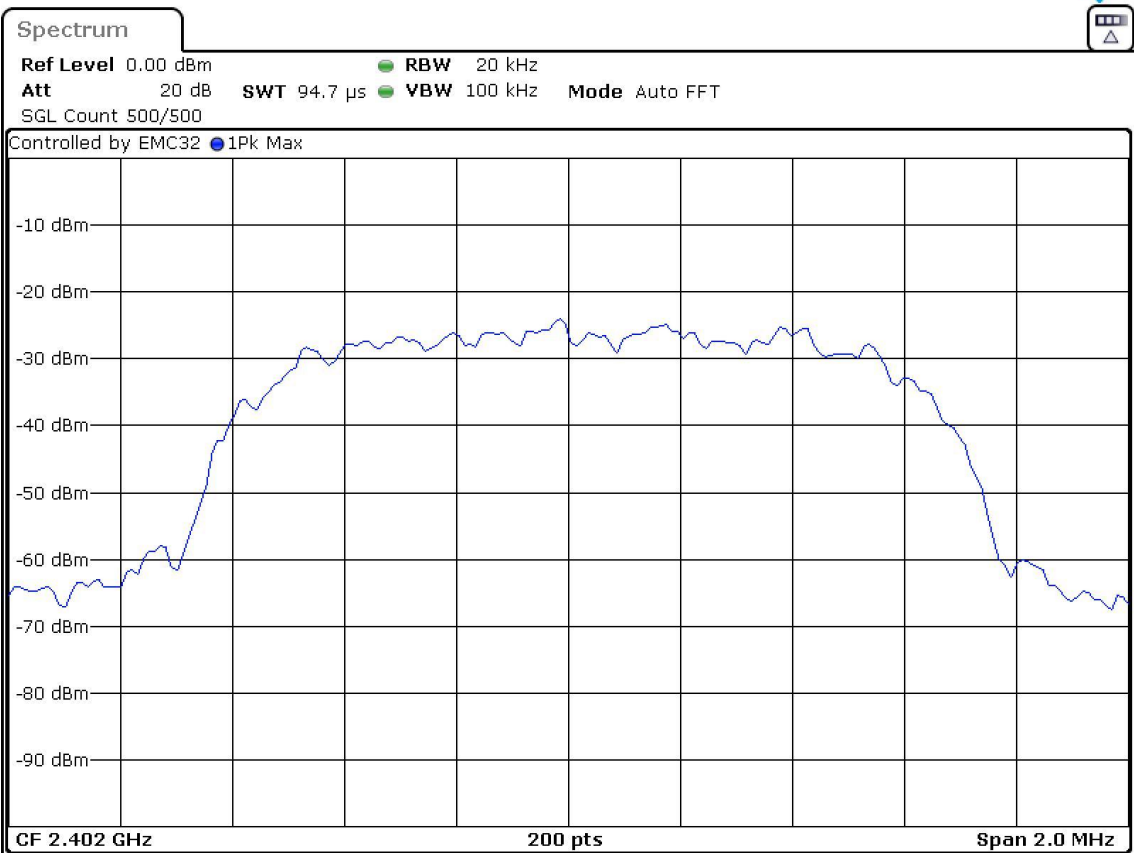
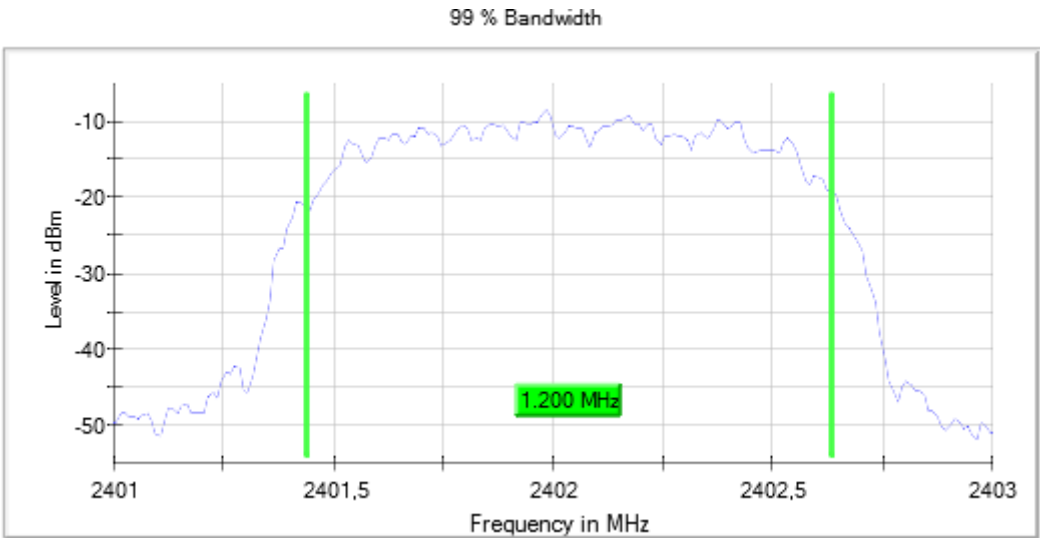
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK 2-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



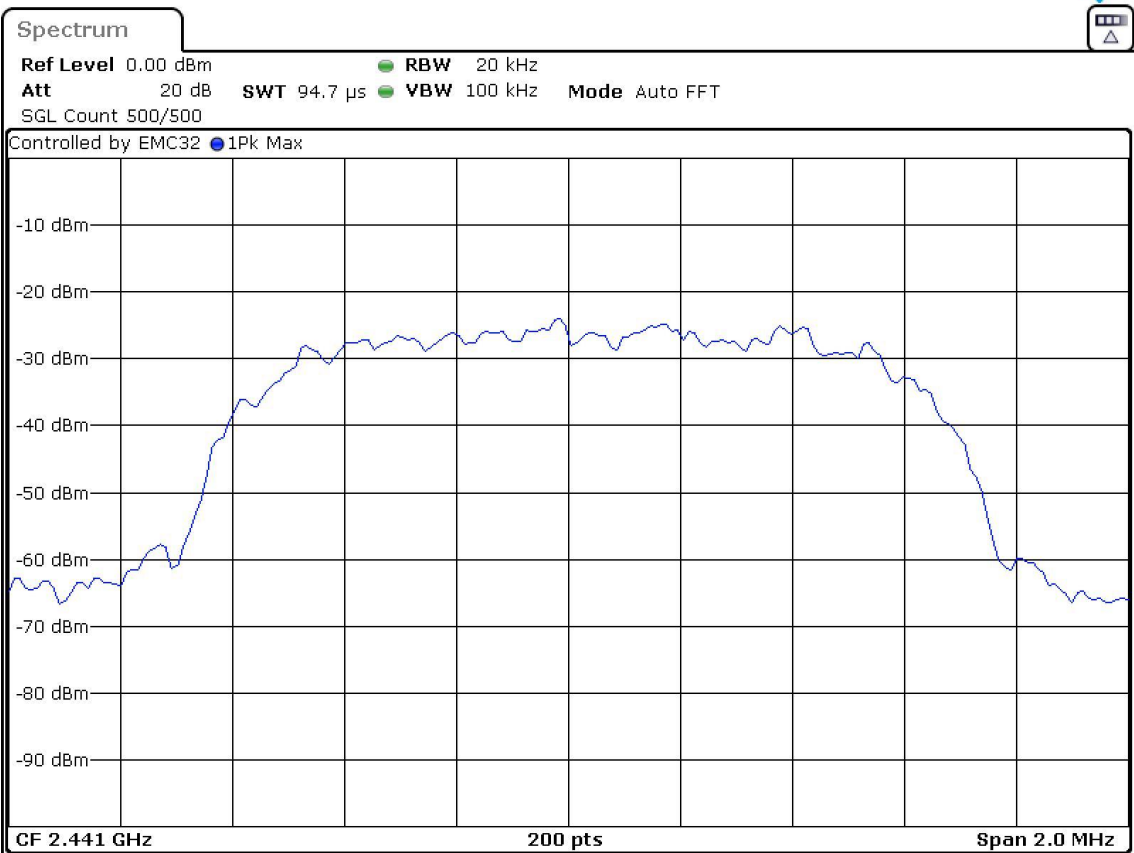
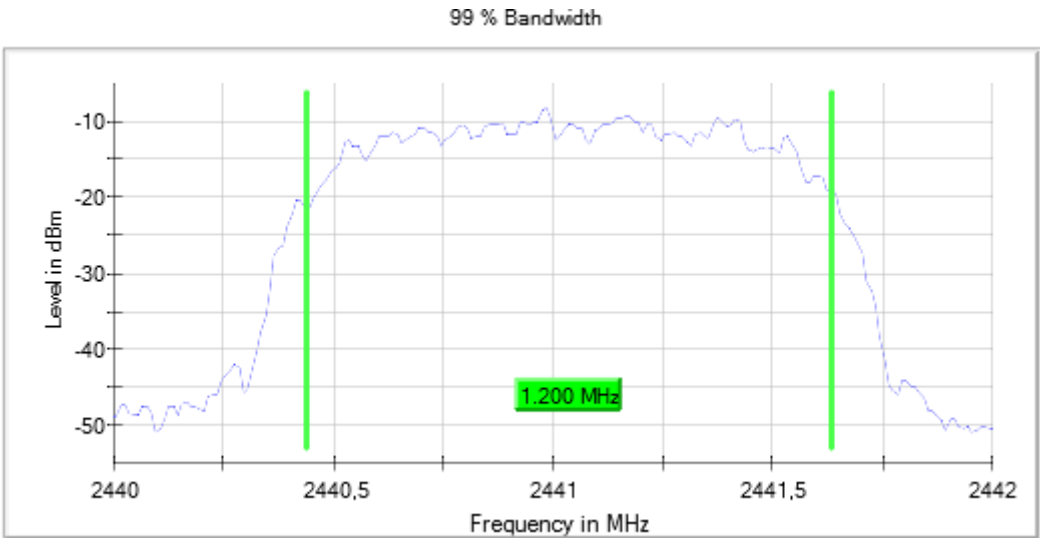
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



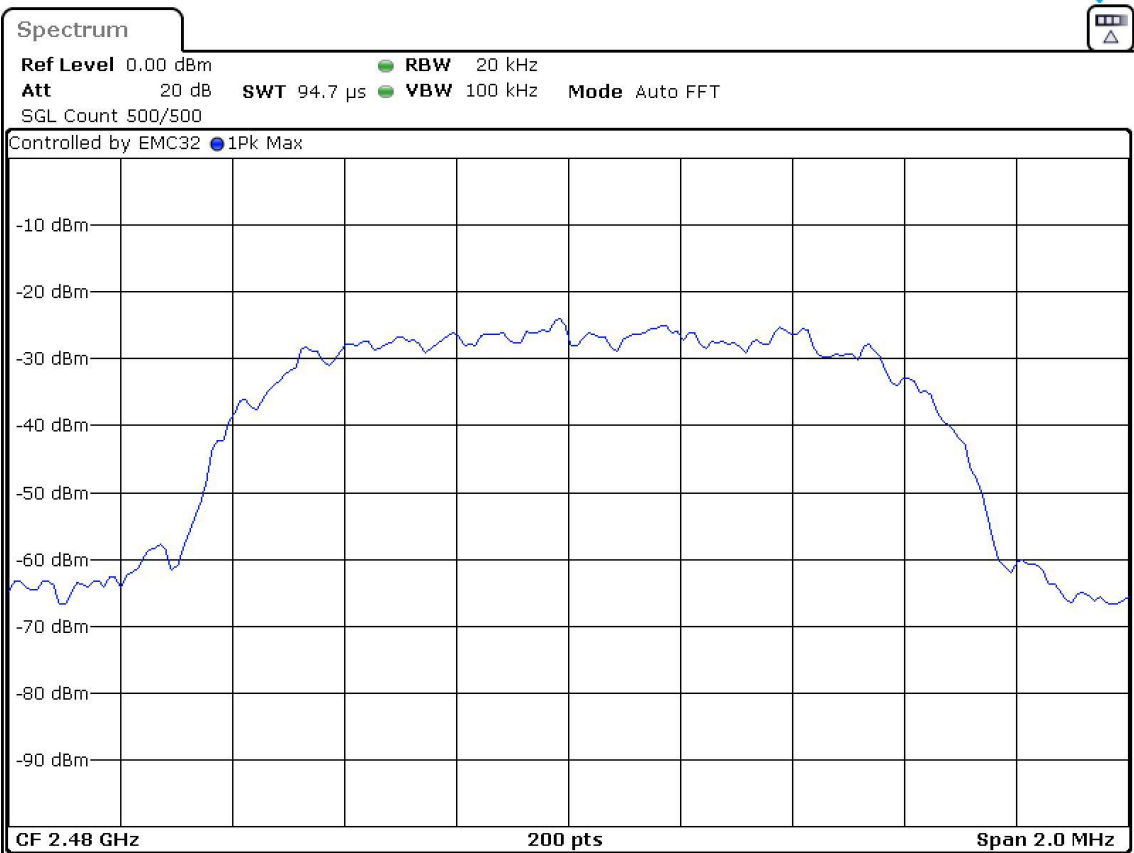
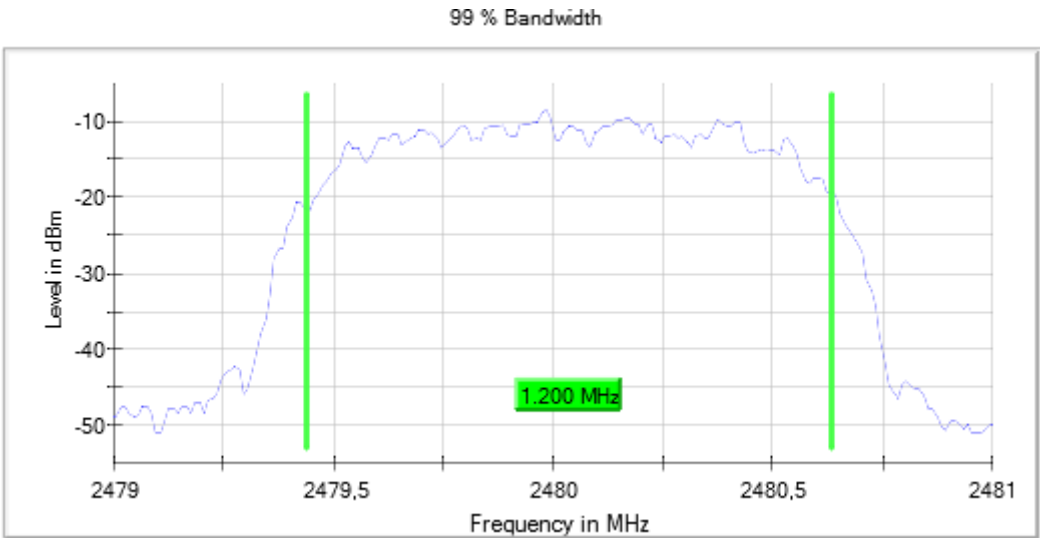
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) 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.

Results

Modulation: BT (GFSK 1-DH5)

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		0.930

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

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	1.330
		2441.00000		1.330
		2480.00000		1.330

Modulation: BT (8DPSK 3-DH5)

Equipment	BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	2402.00000	1	1.320
		2441.00000		1.325
		2480.00000		1.320

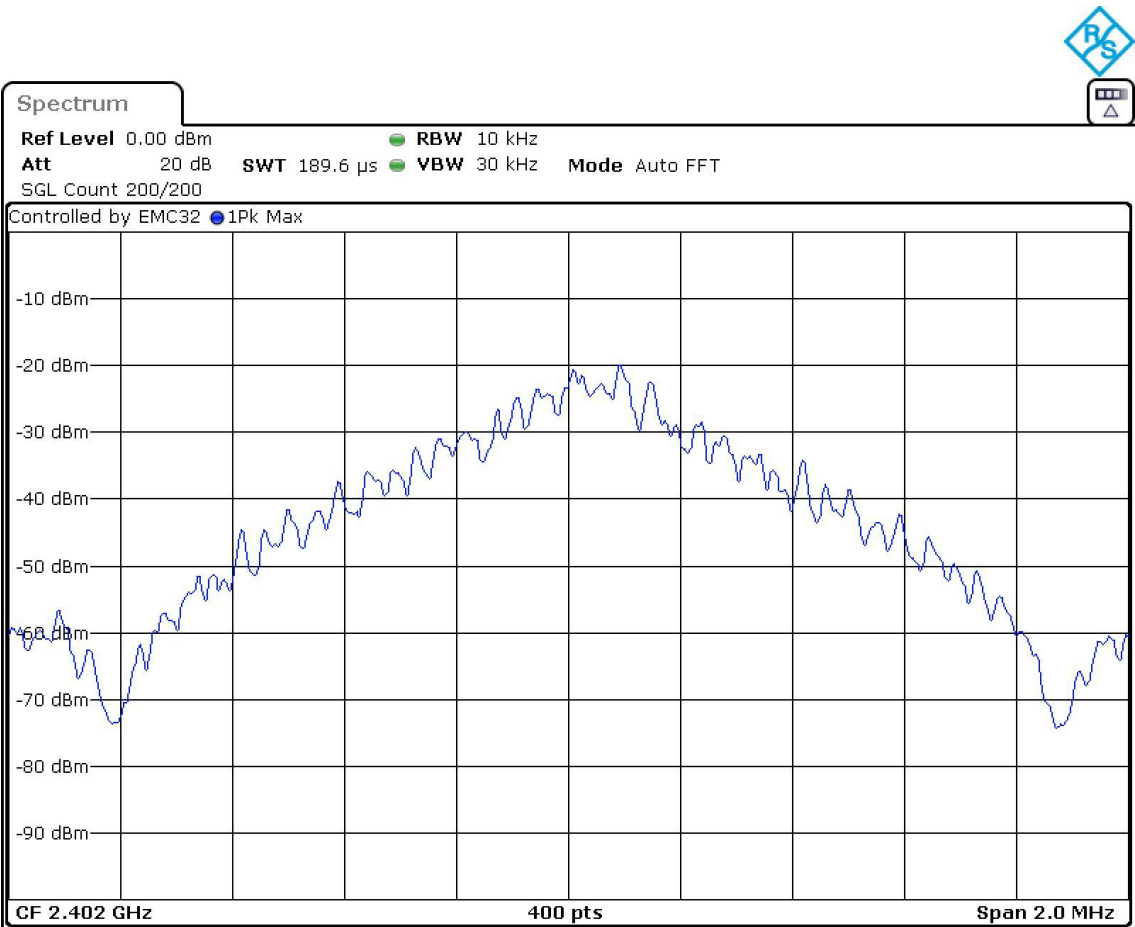
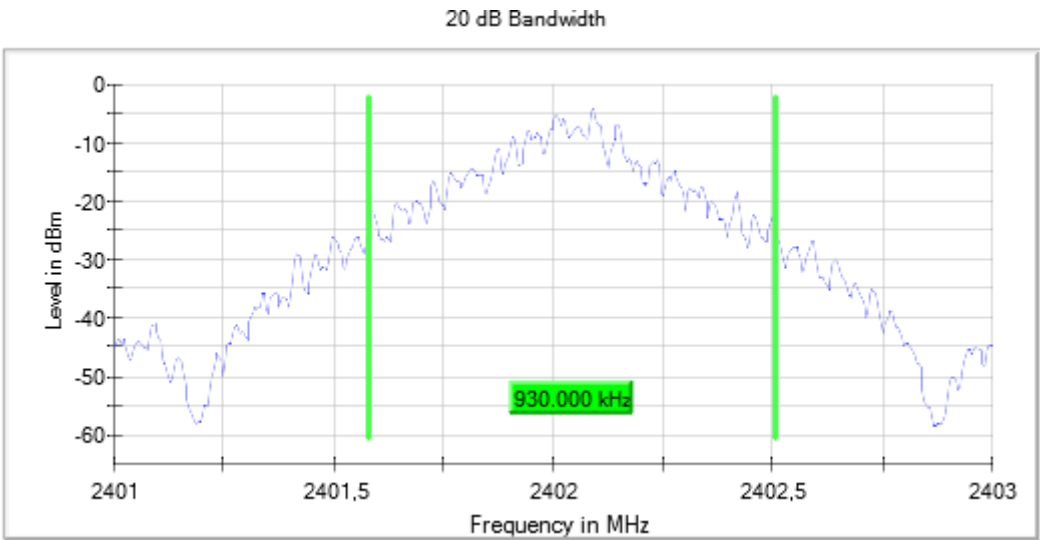
Verdict

Pass

Attachments

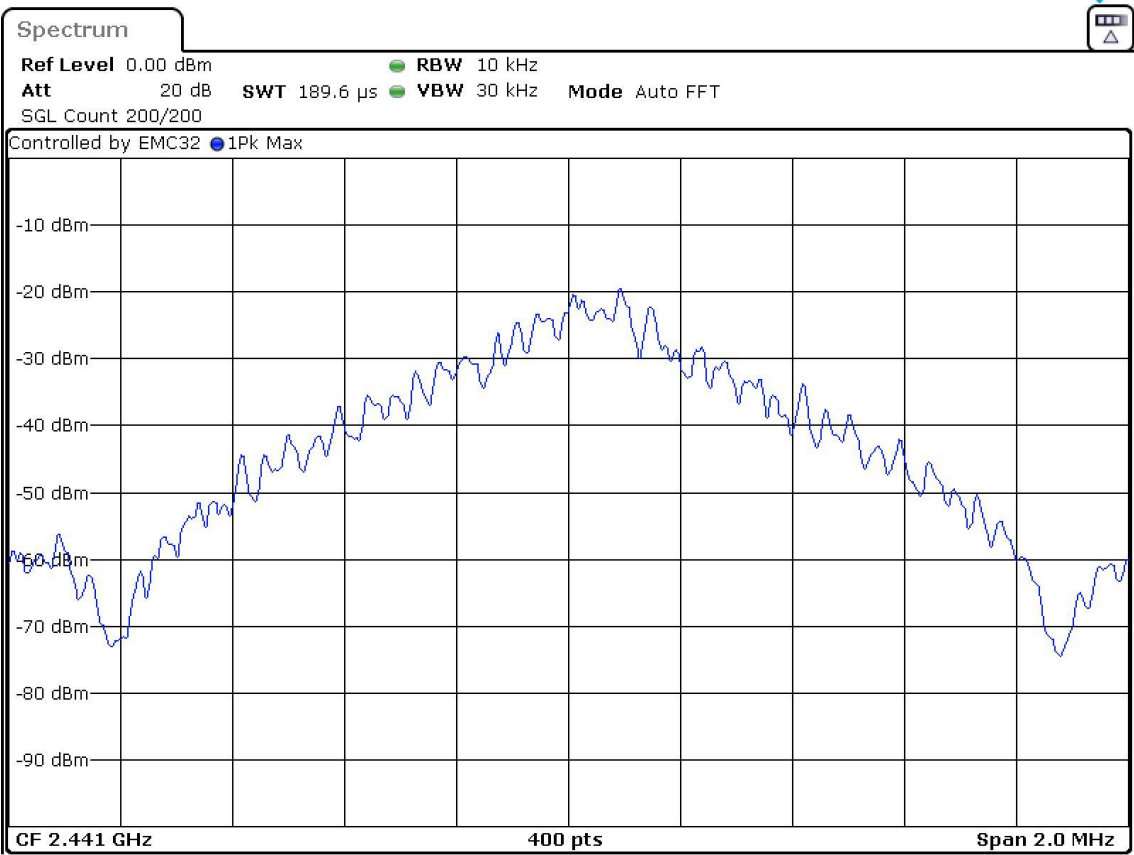
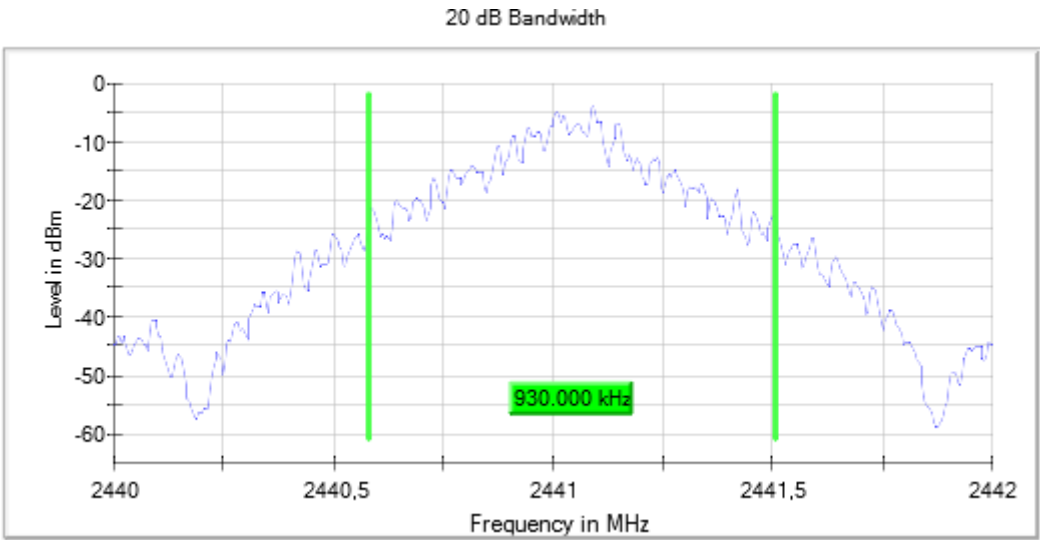
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



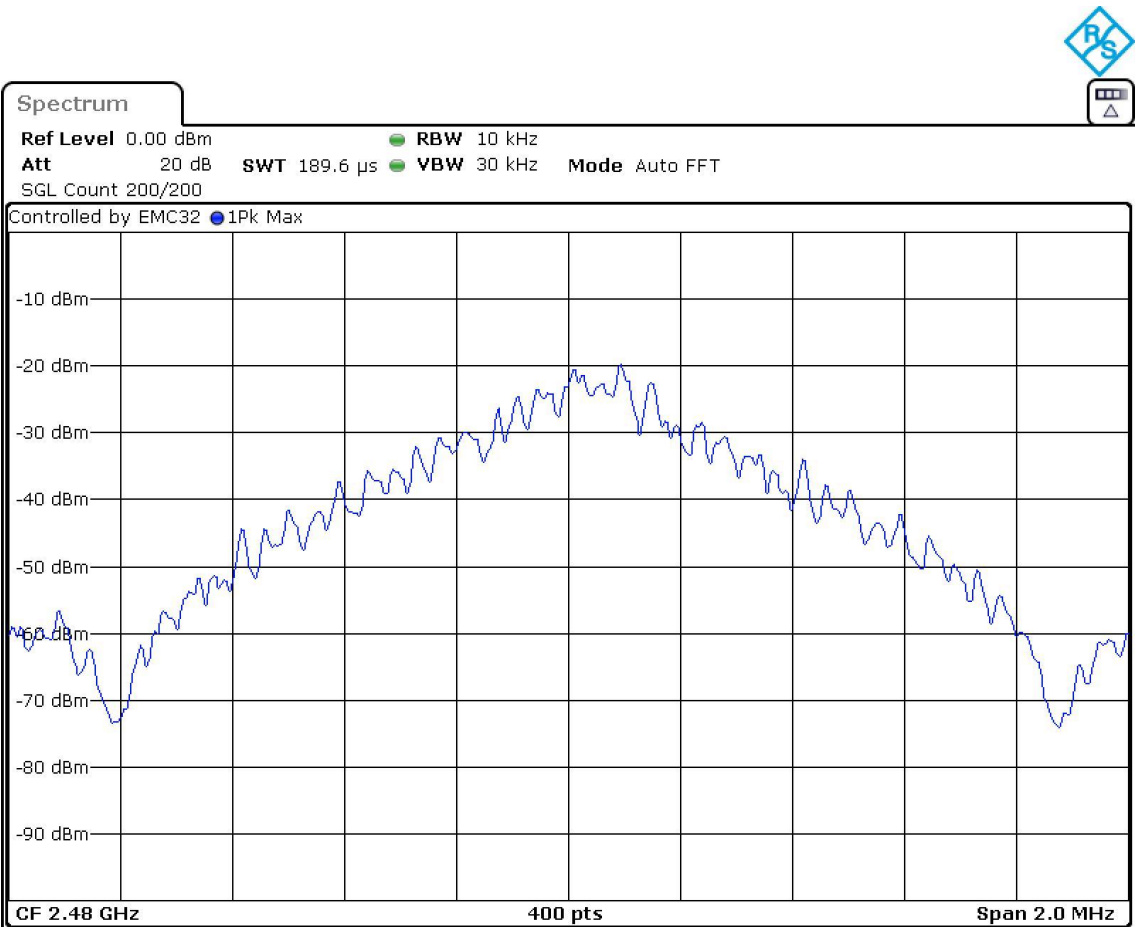
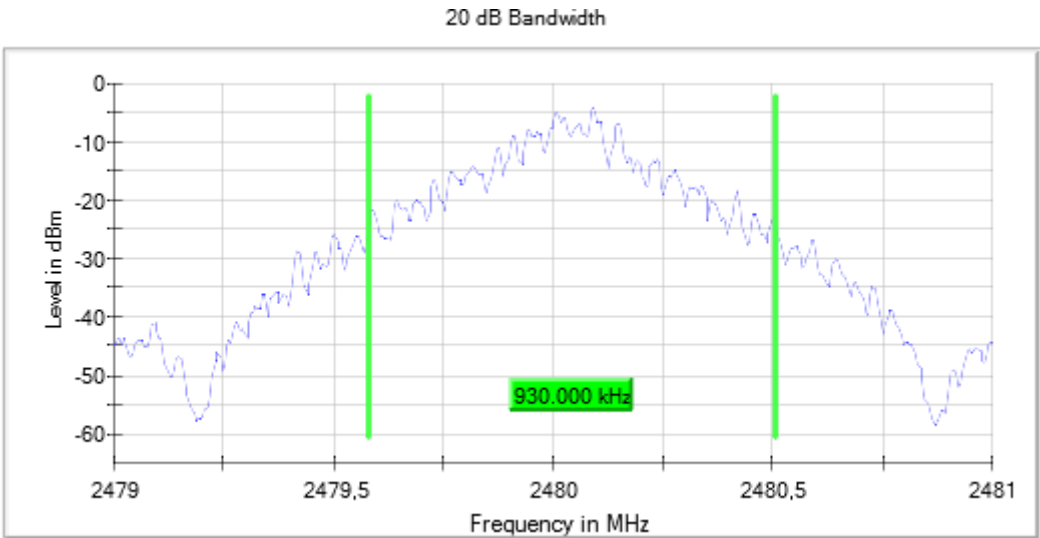
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



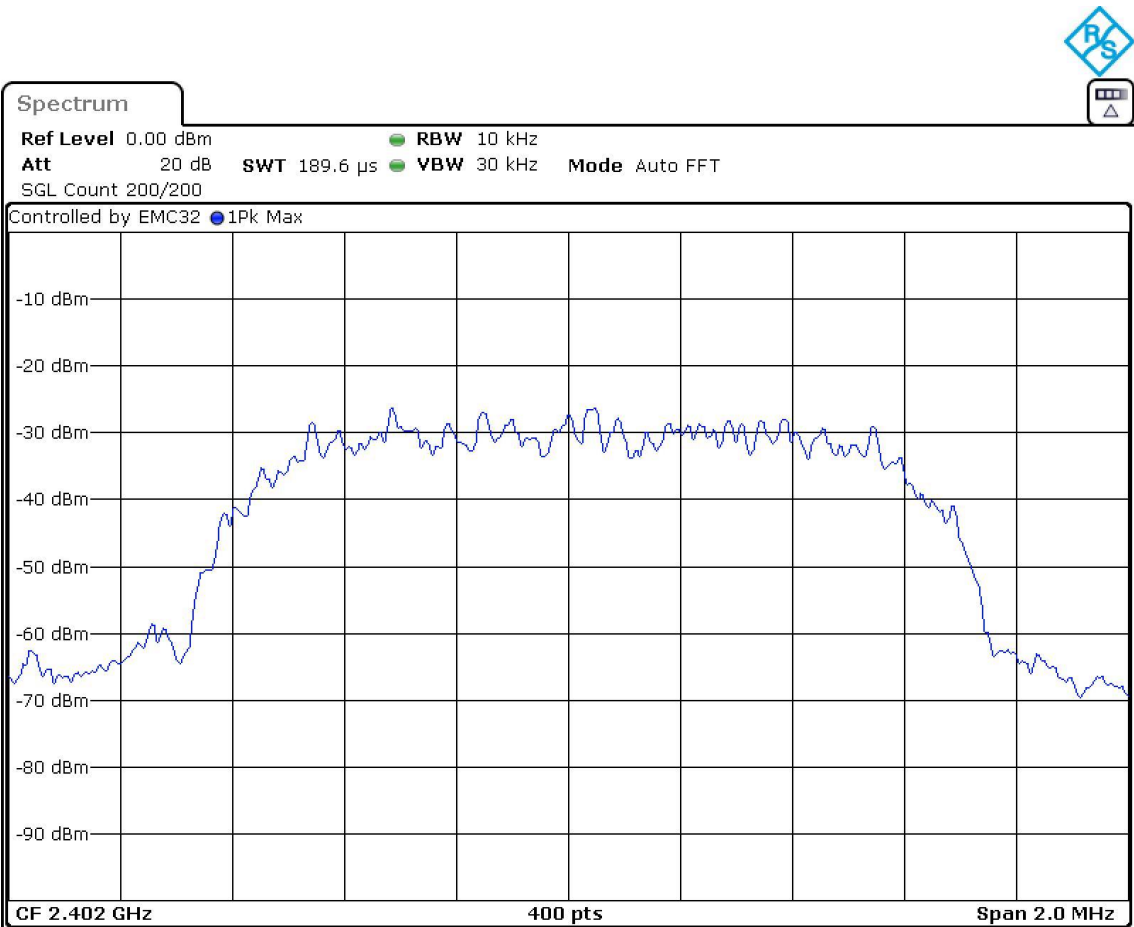
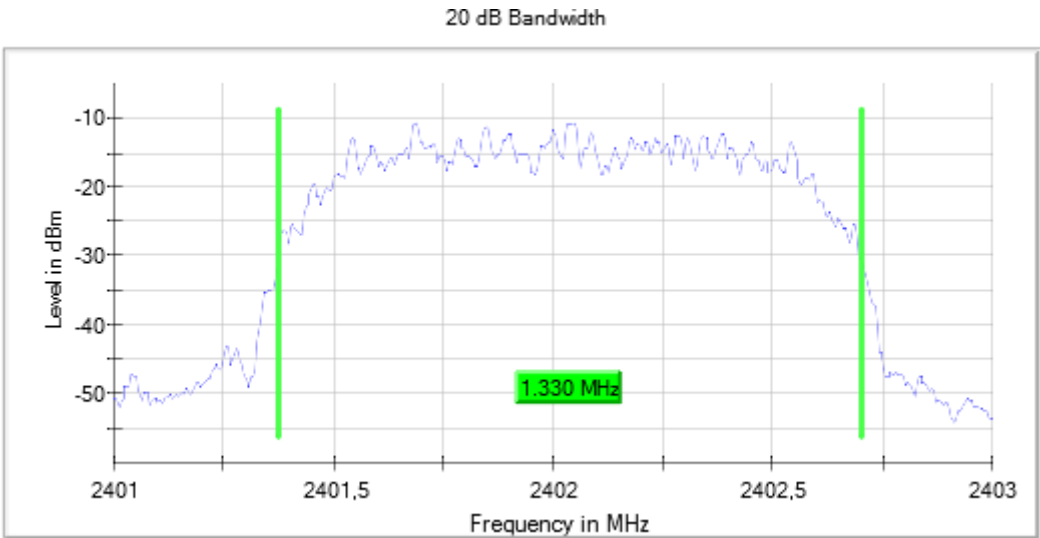
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



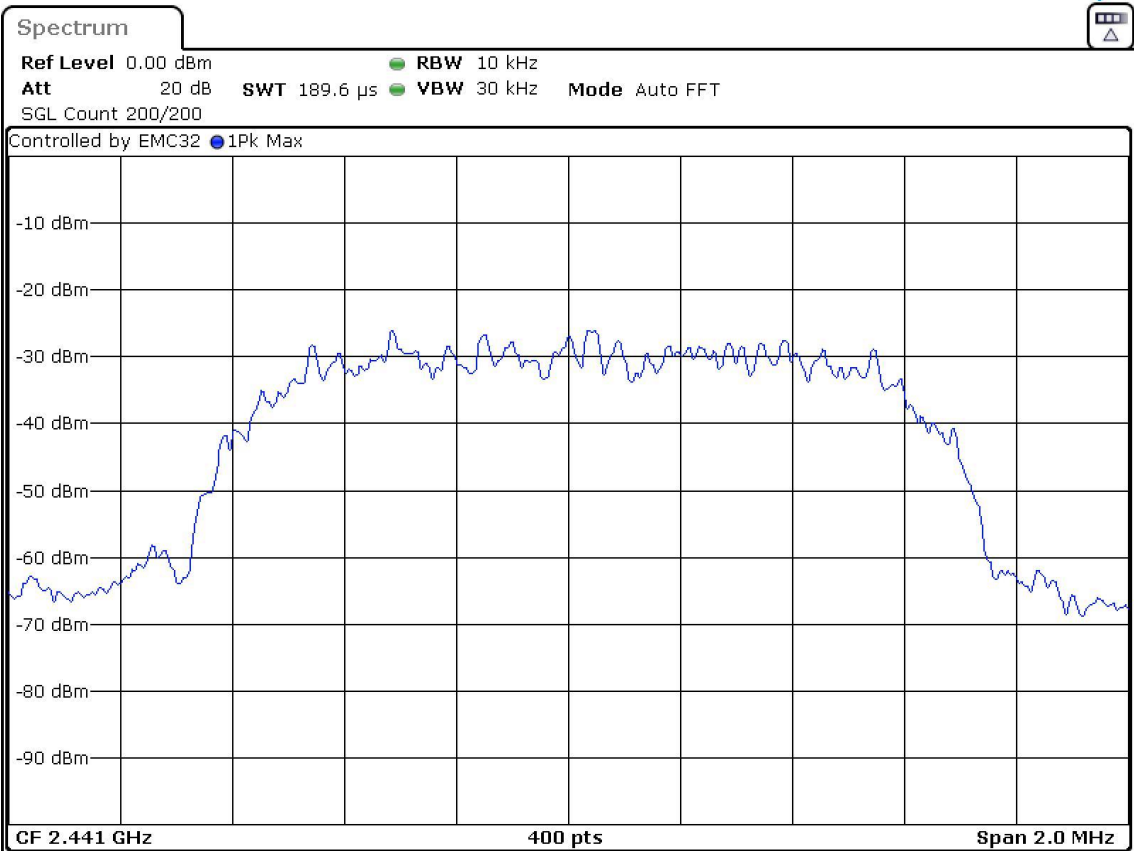
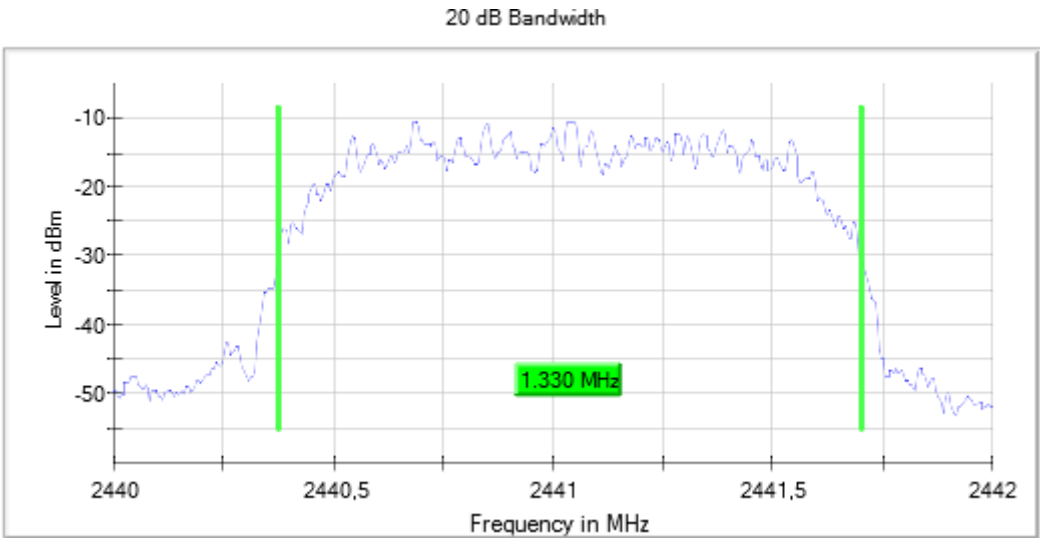
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK 2-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



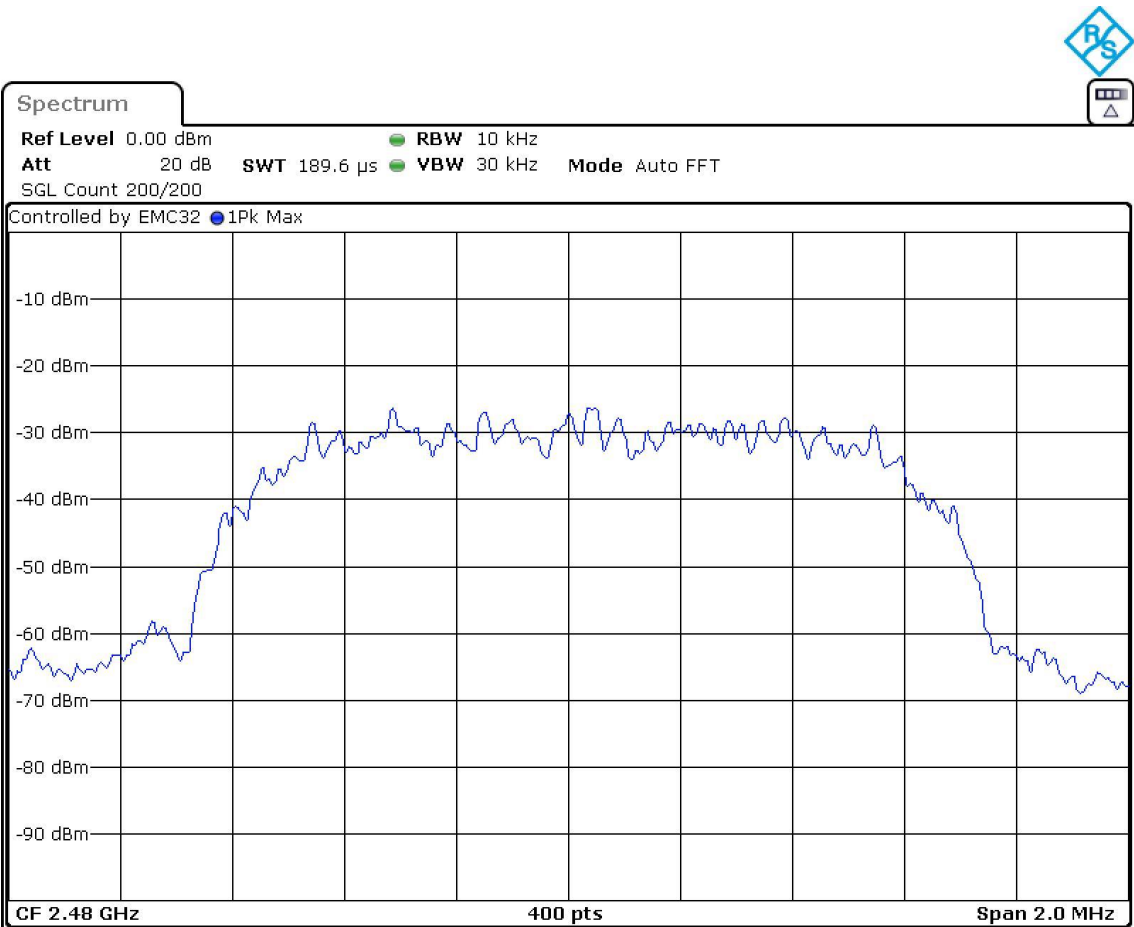
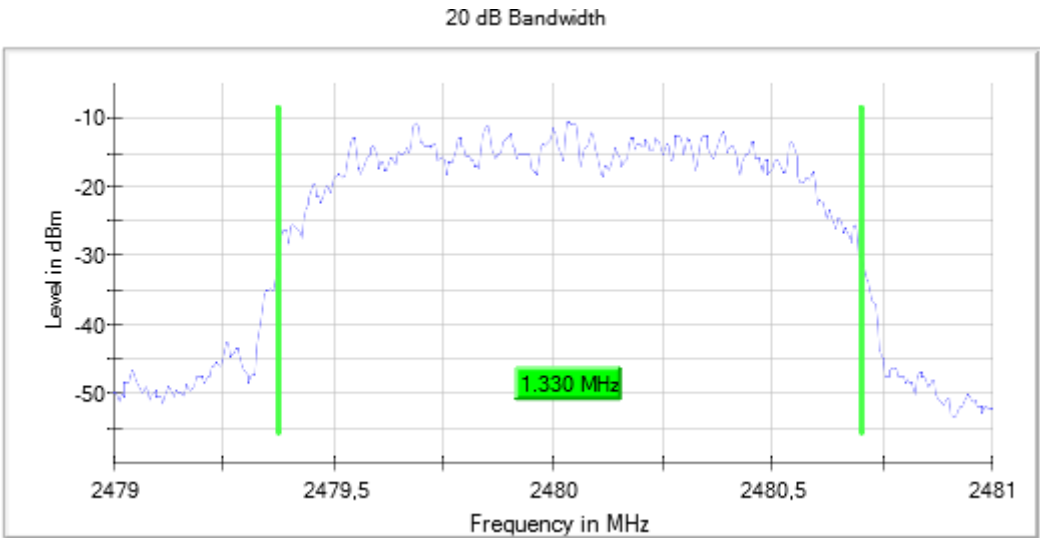
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK 2-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



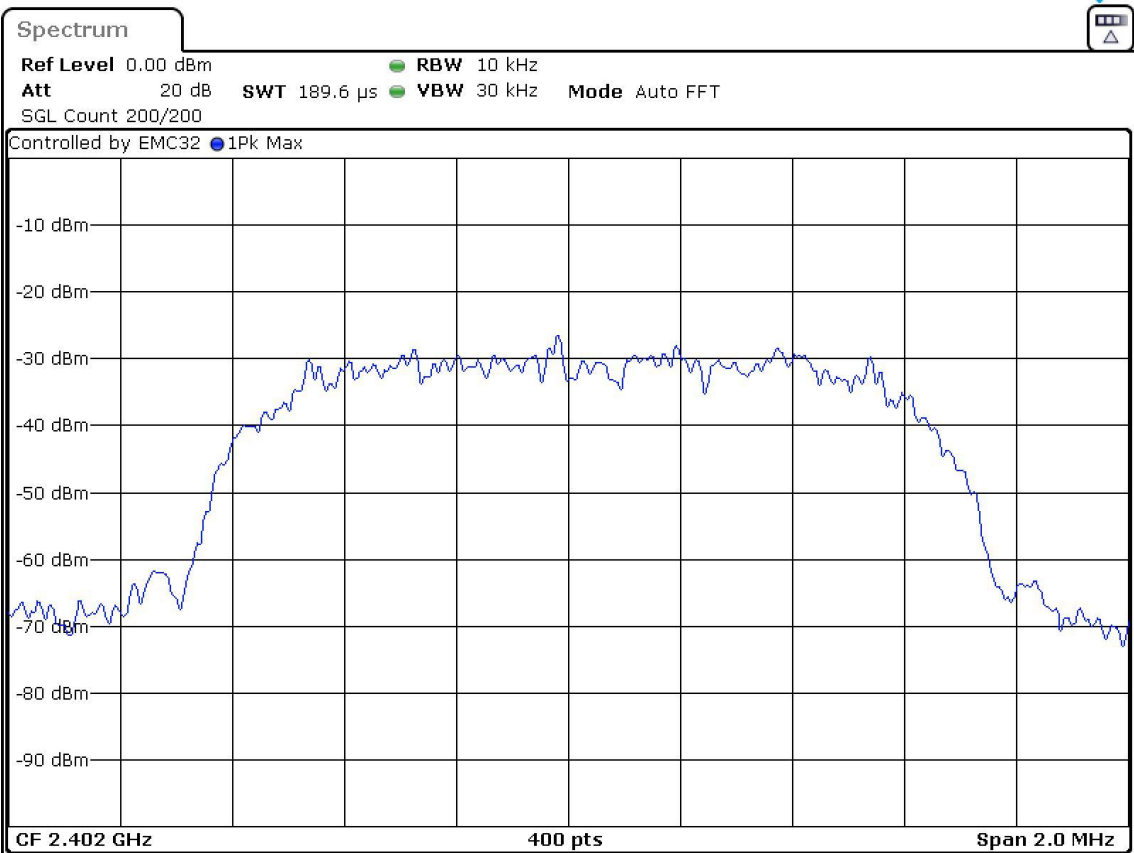
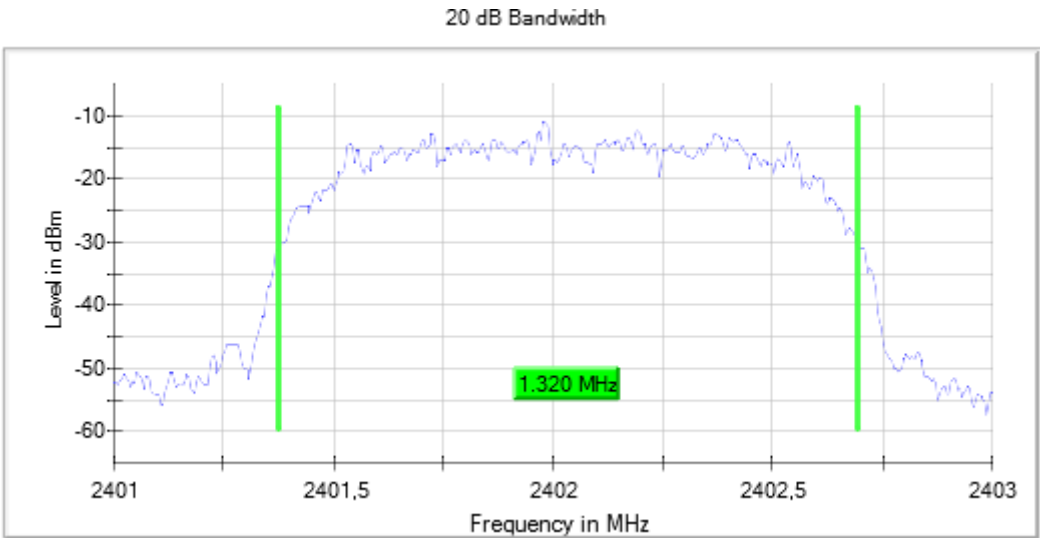
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK 2-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



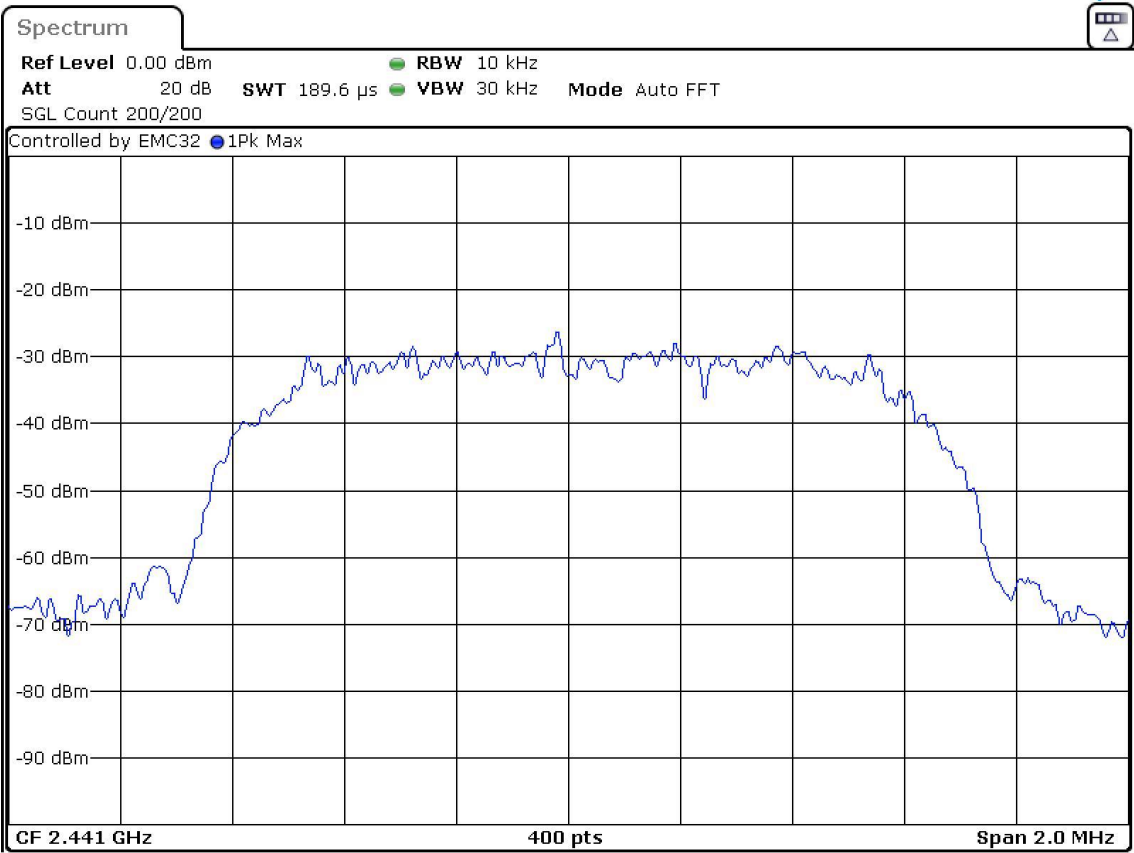
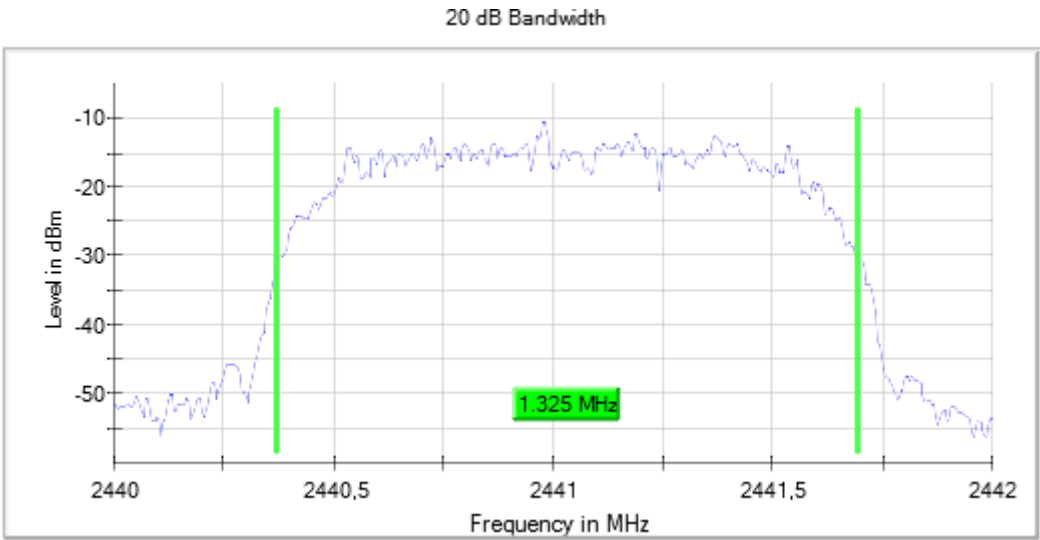
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2402.00000
MIMO Mode = SISO Active Port = 1

Images:



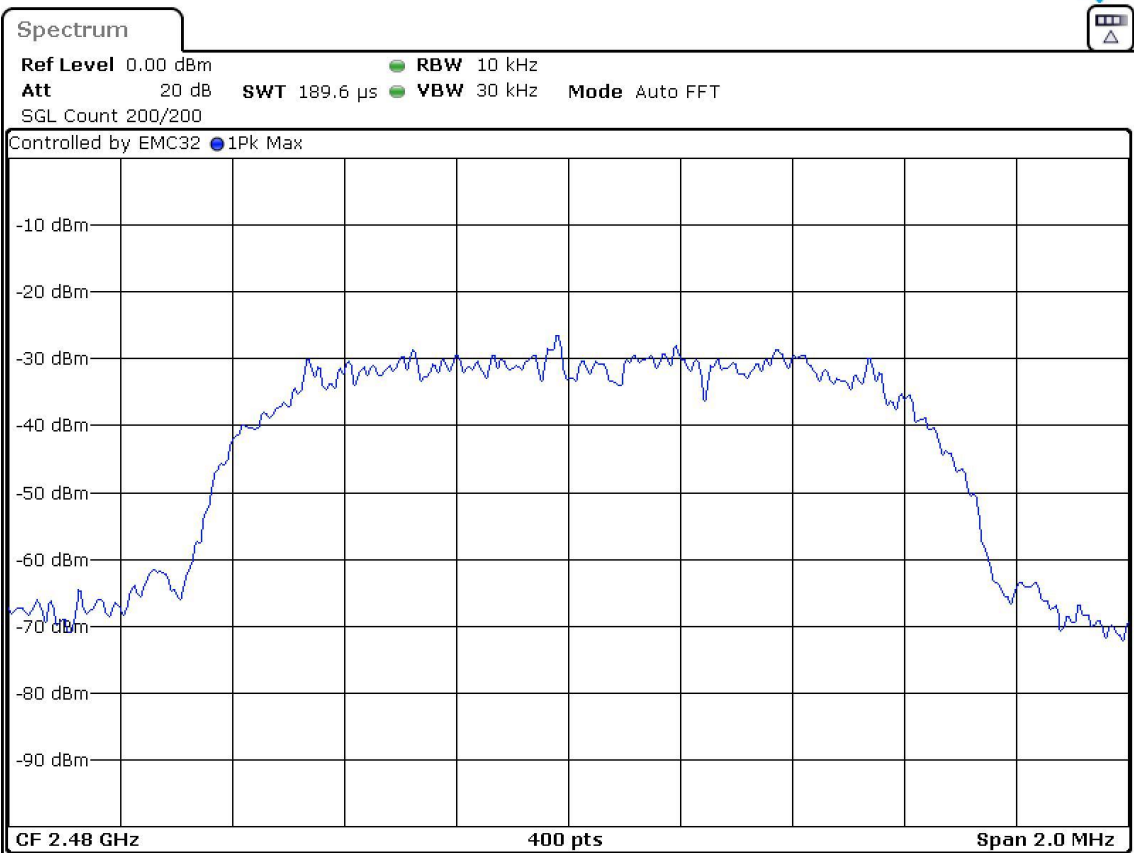
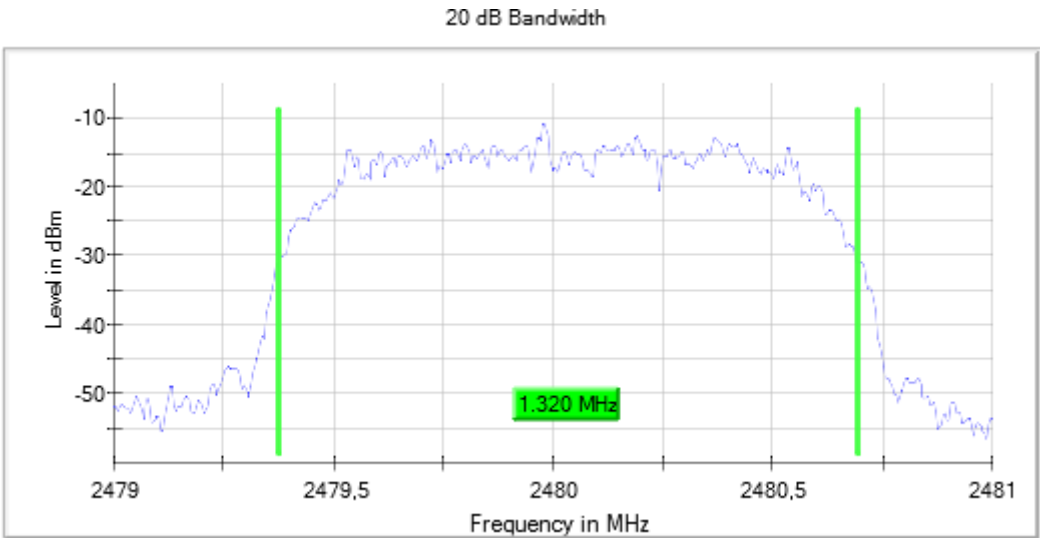
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2441.00000
MIMO Mode = SISO Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) Frequency MHz = 2480.00000
MIMO Mode = SISO Active Port = 1

Images:



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

Results

Modulation: BT (GFSK 1-DH5)

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

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

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

Modulation: BT (8DPSK 3-DH5)

Equipment	BW (MHz)	Port	Freq Sep (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	1.04

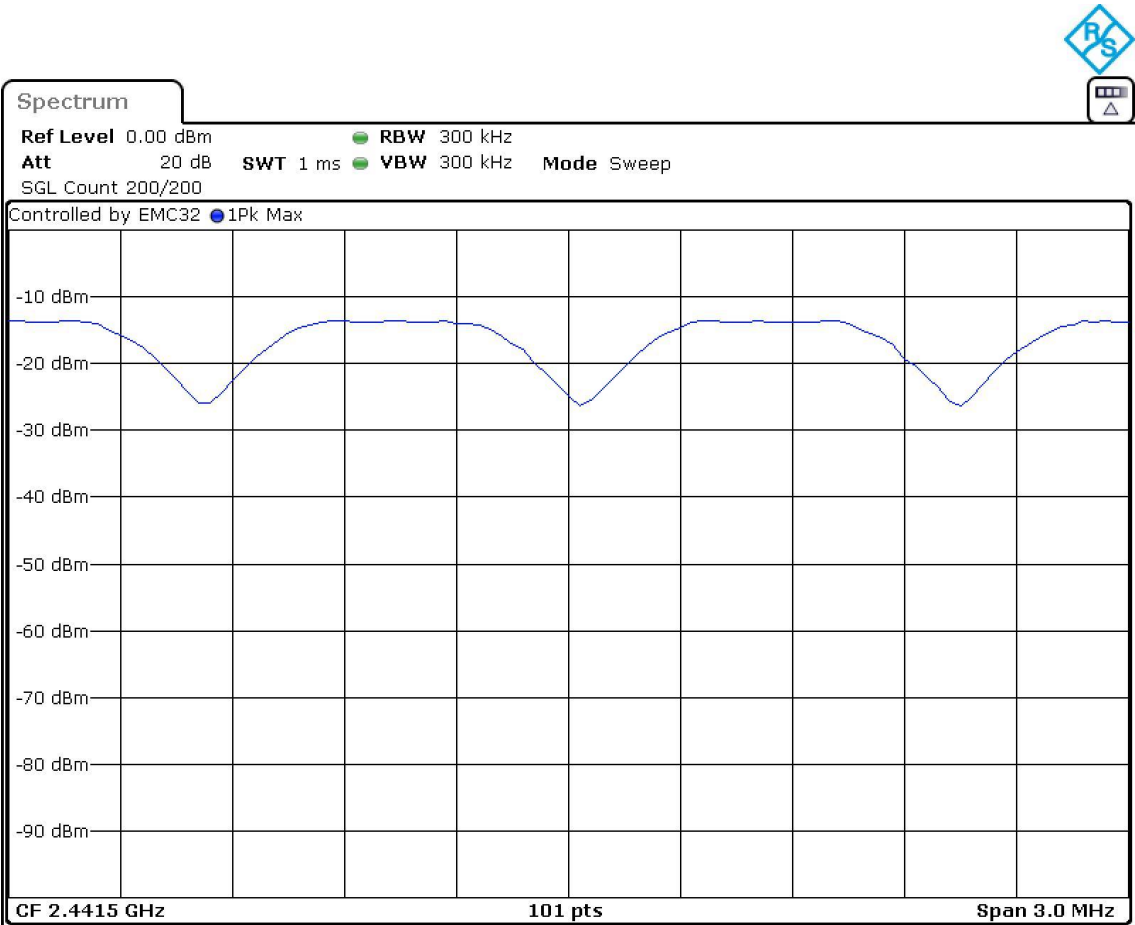
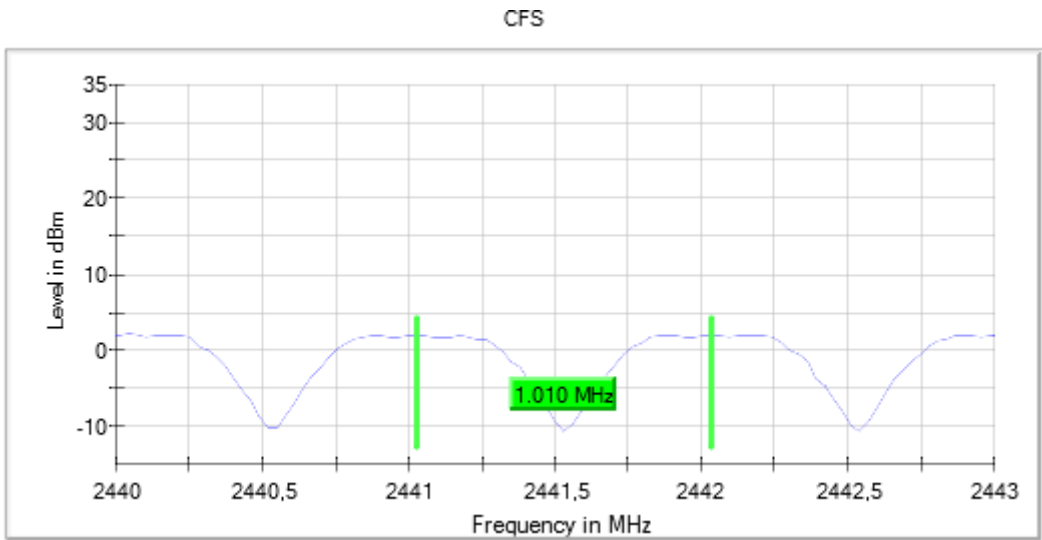
Verdict

Pass

Attachments

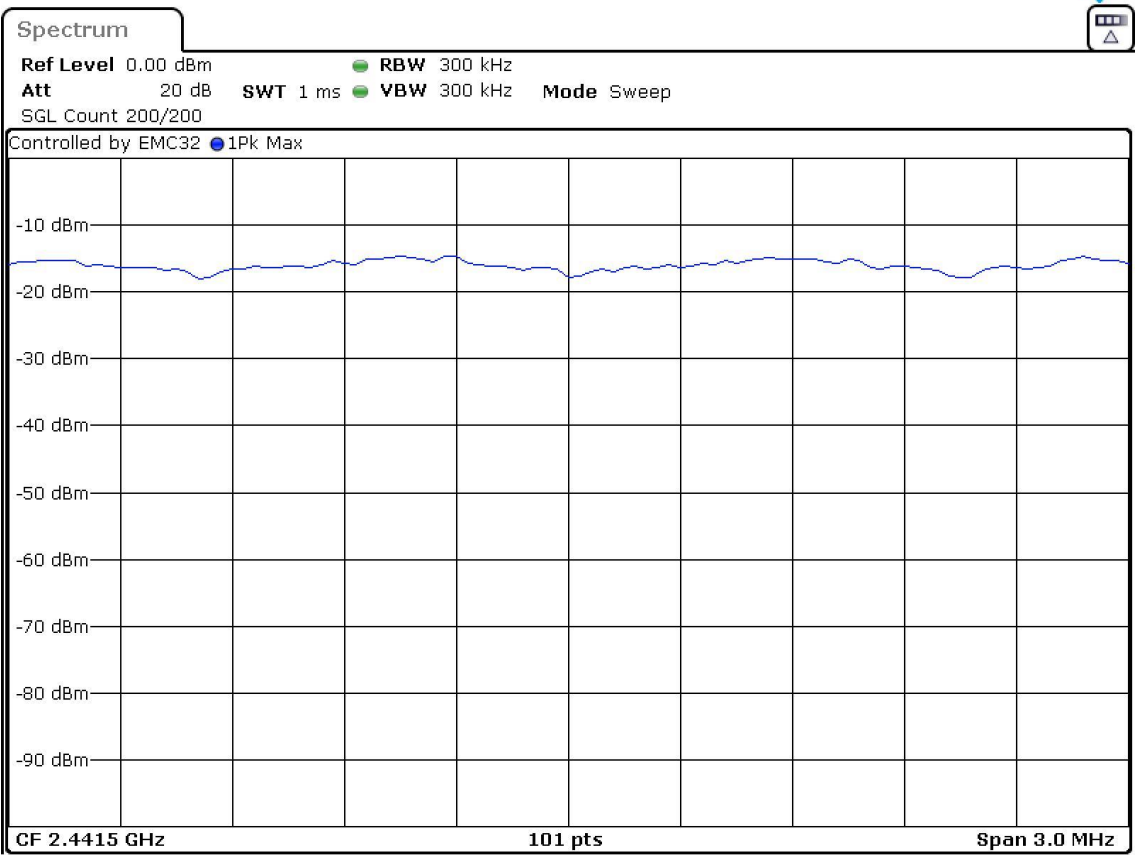
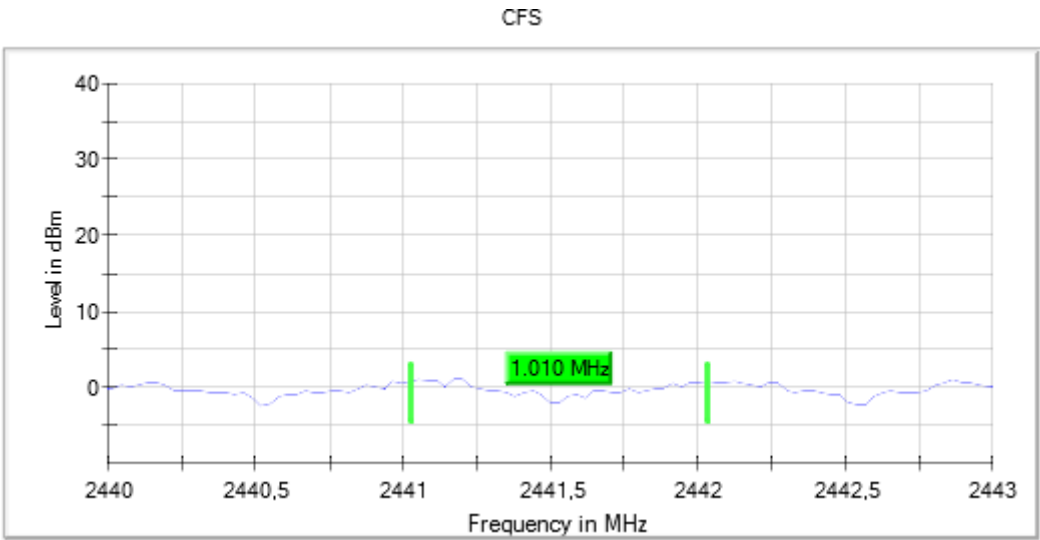
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) MIMO Mode = SISO
Active Port = 1

Images:



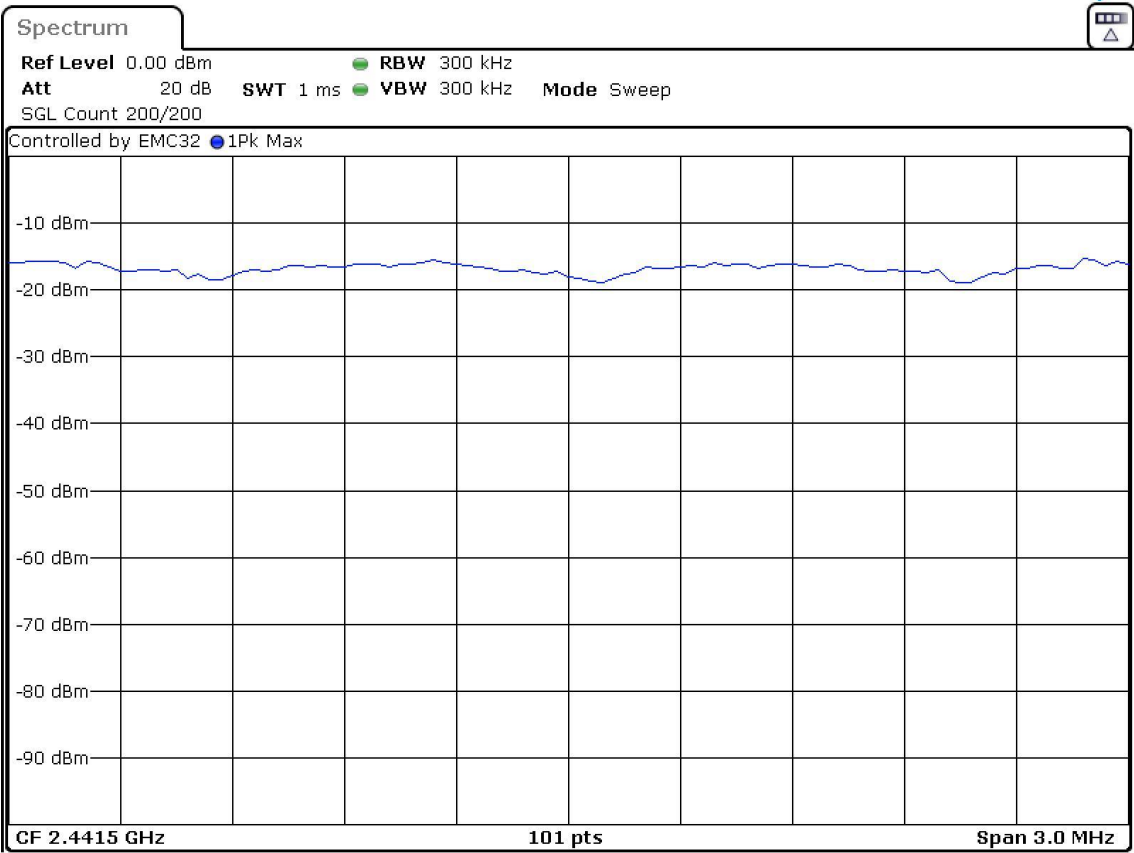
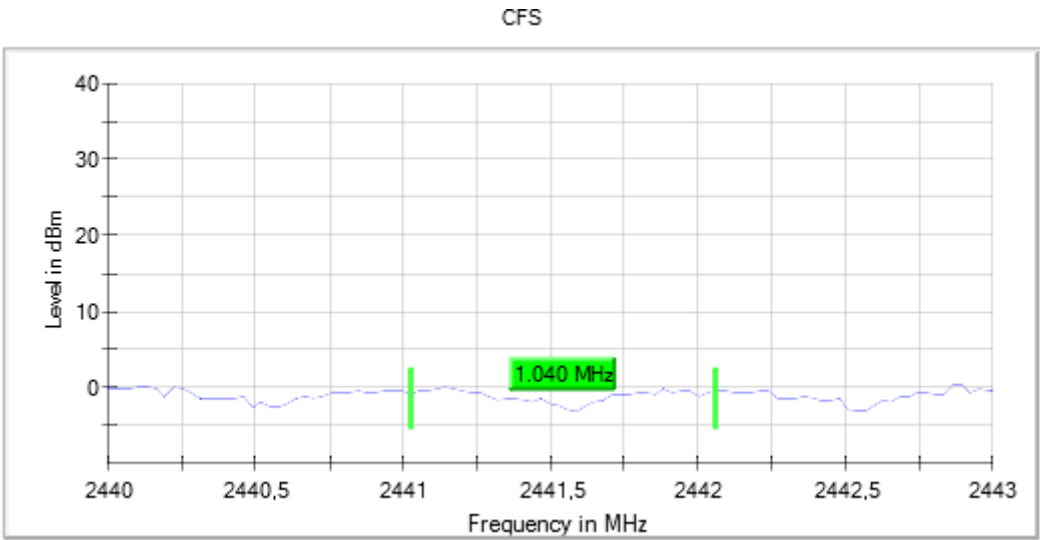
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (Pi/4 DQPSK 2-DH5) MIMO Mode = SISO
Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (8DPSK 3-DH5) 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 = $0.4 \times 79 = 31.6$ seconds.

Results

Modulation: BT (GFSK 1-DH5)

Equipment	BW (MHz)	Port	NHp	Avg COT (ms)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	104	304.17
			102	298.25
			103	304.04

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

Equipment	BW (MHz)	Port	NHp	Avg COT (ms)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	115	333.82
			90	260.00
			106	304.65

Modulation: BT (8DPSK 3-DH5)

Equipment	BW (MHz)	Port	NHp	Avg COT (ms)
Frequency Hopping Spread Spectrum systems (DSS)	1	1	99	277.77
			108	304.04
			109	307.65

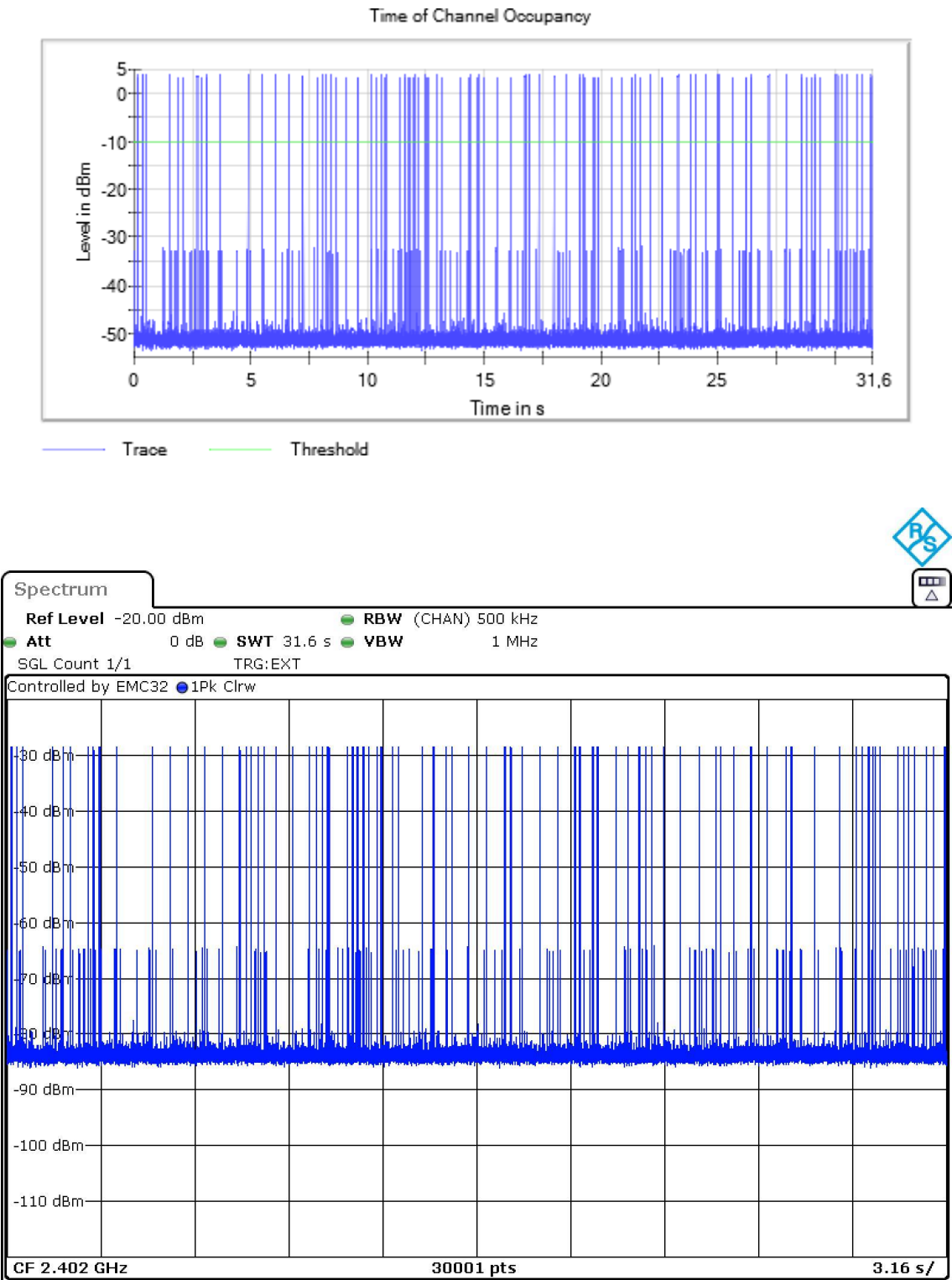
Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
Modulation = BT (GFSK 1-DH5) MIMO Mode = SISO
Active Port = 1

Images:



Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Bandwidth MHz = 1
 Modulation = BT (GFSK 1-DH5) MIMO Mode = SISO
 Active Port = 1

Images:

