

ISED CABid: ES1909

Lab. Company Number: 4621A

Test Report No:

85236RRF.001A1

Test Report

USA FCC Part 15.247, 15.209

CANADA RSS-247, RSS-Gen

(*) Identification of item tested	An instrument cluster with Bluetooth® & WiFi for operation in a vehicle.
(*) Trademark	BOSCH
(*) Model and /or type reference	10inColorD
Other identification of the product	FCC ID: 2AUXS-10INCOLORD IC: 25847-10INCOLORD
(*) Features	Bluetooth, Bluetooth LE, 802.11@2,4GHz, 802.11@5GHz HW version: C4.0 SW version: BRP10-0.0.SWP25.5.951
Applicant	Robert Bosch GmbH Robert-Bosch-Strasse 20 31139 Hildesheim, Germany
Test method requested, standard	USA FCC Part 15.247 (10-1-24 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-24 Edition): Radiated emission limits; general requirements. CANADA RSS-247 Issue 4 (July 2025). CANADA RSS-Gen Issue 5 amendment 2 (February 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 C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024: 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	2026-05-29
Report template No	FDT08_27 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
Detector	Detector used
Ebw	Emission Bandwidth
Equipment	Equipment Type
Freq	Frequency
Freq Rng	Frequency Range
Inband Peak Lvl	Inband Peak Level
Lvl	Level
MP	Measurement Point
Mod	Modulation
Occ Ch BW	Occupied Channel Bandwidth
Operation Band	Operation Band
PSD	Power Spectral Density
Peak Power	Maximum Peak Conducted Output Power
Pol	Polarization
Port	Active Port
RU	Resource Unit
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

Competences and guarantees

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

DEKRA Testing and Certification S.A.U. 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 S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification S.A.U. 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 S.A.U. at the time of performance of the test.

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

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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
- RF Average Output Power: Measurement uncertainty $\leq \pm 0,99$ dB
- Power Spectral Density: Measurement uncertainty $\leq \pm 0,99$ dB
- 6dB Bandwidth: Measurement uncertainty $\leq \pm 2,84$ %
- Occupied Channel Bandwidth: Measurement uncertainty $\leq \pm 1,17$ %
- Conducted Band-edge spurious emissions: Measurement uncertainty $\leq \pm 1,76$ dB
- Accumulated Dwell Time: Measurement uncertainty $\leq \pm 0,16$ %
- Minimum Frequency Occupation Time: Measurement uncertainty $\leq \pm 0,53$ %

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 consists of an instrument cluster with Bluetooth® & WiFi for operation in a vehicle.

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 results. The laboratory is not responsible for such information and it is not covered by accreditation.

Usage of samples

Samples undergoing test have been selected by: The client.

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	85236_175.1	Instrument cluster	10inColorD	--	2026-03-11	Element Under Test
S/01	85236_153.1	AC/DC adapter	--	--	2026-02-26	Auxiliary Element
S/01	85236_154.1	USB Cable + Push Button	--	--	2026-02-26	Auxiliary Element
S/01	85236_155.1	Harness	--	--	2026-02-26	Auxiliary Element
S/01	85236_156.1	VGA - USB Cable	--	--	2026-02-26	Auxiliary Element
S/01	85236_157.1	Ethernet Cable	--	--	2026-02-26	Auxiliary Element
S/01	85236_42.1	Raspberry with SIM	--	--	2026-02-23	Auxiliary Element
S/02	85236_41.1	Instrument cluster	10inColorD	--	2026-02-23	Element Under Test
S/02	85236_11.1	Raspberry Pi 4	--	23	2026-02-05	Auxiliary Element
S/02	85236_172.1	Harness	--	--	2026-02-26	Auxiliary Element
S/02	85236_21.1	USB to VGA Cable	--	--	2026-02-06	Auxiliary Element
S/03	85236_12.1	Instrument cluster	10inColorD	--	2026-02-06	Element Under Test
S/03	85236_122.1	USB Cable + Push Button	--	--	2026-02-26	Auxiliary Element
S/03	85236_158.1	Raspberry Pi	--	--	2026-02-26	Auxiliary Element
S/03	85236_172.1	Harness	--	--	2026-02-26	Auxiliary Element
S/03	85236_186.1	AC/DC adapter	--	--	2026-03-11	Auxiliary Element
S/03	85236_43.1	VGA - USB Cable	--	--	2026-02-23	Auxiliary Element
S/04	85236_2.1	Instrument cluster	10inColorD	--	2026-02-05	Element Under Test
S/04	85236_11.1	Raspberry Pi 4	--	23	2026-02-05	Auxiliary Element
S/04	85236_153.1	AC/DC adapter	--	--	2026-02-26	Auxiliary Element
S/04	85236_154.1	USB Cable + Push Button	--	--	2026-02-26	Auxiliary Element
S/04	85236_155.1	Harness	--	--	2026-02-26	Auxiliary Element

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/04	85236_156.1	VGA - USB Cable	--	--	2026-02-26	Auxiliary Element
S/04	85236_157.1	Ethernet Cable	--	--	2026-02-26	Auxiliary Element

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for radiated tests for Bluetooth LE
S/02	Sample used for conducted tests
S/03	Sample used for radiated tests for Bluetooth EDR
S/04	Sample used for radiated tests for WiFi2.4GHz

Test sample description

Ports..... :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded			
	WLAN	0.1	[X]	[]			
	BT Smartphone	0.1	[X]	[]			
	BT Headset	0.1	[X]	[]			
	GNSS	0.1	[X]	[]			
	Main connector	2	[X]	[]			
.....		[]	[]				
Supplementary information to the ports..... :							
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[]	AC:	[]	[]	[]	[]	[]
[X]	DC: 12V						
Rated Power							
Clock frequencies.....							
Other parameters							
Software version	BRP10-0.0.SWP25.5.951						
Hardware version	C4.0						
Dimensions in cm (W x H x D)	27,285 x 13,033 x 4,617						
Mounting position	[]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[]	Other:					
Modules/parts.....	Module/parts of test item		Type	Manufacturer			
	Description		Type	Manufacturer			

Accessories (not part of the test item)			
Documents as provided by the applicant	Description	File name	Issue date

Identification of the client

Robert Bosch GmbH
Robert-Bosch-Platz 1
70839 Gerlingen, Germany

Testing period and place

Test Location	DEKRA TESTING AND CERTIFICATION S.A.U. C/ Margarita Salas Boulevard, 26 - Parque Tecnológico de Andalucía; 29590 Campanillas (Málaga) (Location D)
Date (start)	2026-03-16
Date (finish)	2026-05-07

Document history

Report number	Date	Description
85236RRF.001	2026-05-21	First release.
85236RRF.001A1	2026-05-29	Second release. Modification due to typos. This modification test report cancels and replaces the test report 85236RRF.001.

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: Karla Castilla Alcalde, Rubén Mora Fernandez and Victoria Olmedo Villalba.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
08130	SEMIANECHOIC ABSORBER LINED CHAMBER	P29419	ALBATROSS	N/A
08134	SHIELDED ROOM	P29419	ALBATROSS PROJECTS GMBH	N/A
07550	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2027-05-05
07549	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2027-05-05
09968	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2026-09-22
07769	PREAMPLIFIER 30dB 500MHz-18GHz	BBV 9718 C	SCHWARZBECK	2027-04-08
07763	HORN ANTENNA 1-18GHz	BBHA 9120D	SCHWARZBECK MESS-ELEKTRONIK	2029-03-11
06495	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2027-07-11
07862	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-3G	BONN ELEKTRONIK	2026-07-09
10304	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2026-10-01
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
08661	SHIELDED ROOM	-	SIEPEL	N/A
07552	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2027-05-05
07040	EXTENSION FOR OPEN SWITCH UNIT UP TO 40GHz	OSP-B157Wx	ROHDE AND SCHWARZ	2027-08-26
07039	OPEN SWITCH UNIT UP TO 6 GHz	OSP-B157W8	ROHDE AND SCHWARZ	2027-08-14
07794	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2027-06-10
08835	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz	FSW50	ROHDE AND SCHWARZ	2027-04-15
07798	WMS32	WMS32	ROHDE AND SCHWARZ	N/A

Testing verdicts

Fail	F
Inconclusive	I
Not applicable	N/A
Not measured	N/M
Pass	P

Summary

Bluetooth Low Energy (1M). Appendix A

FCC PART 15 PARAGRAPH/ RSS-247			
Requirement – Test case		Verdict	Remark
FCC 15.247 (a)(2) / RSS-247 5.2. (a)	6 dB Bandwidth	P	-
FCC 15.247 (b) / RSS-247 5.4. (d)	Maximum output power and antenna gain	P	-
FCC 15.247 (d) / RSS-247 5.5.	Band-edge emissions compliance (Transmitter)	P	-
FCC 15.247 (e) / RSS-247 5.2. (b)	Power spectral density	P	-
FCC 15.247 (d) / RSS-247 5.5.	Emission limitations radiated (Transmitter)	P	-
<u>Supplementary information and remarks:</u>			
None			

Bluetooth EDR. Headset. Appendix B

Requirement – Test case	FCC PART 15 PARAGRAPH / RSS-247	Verdict	Remark
FCC 15.247 (a) (1) / RSS-247 6.2.3.1 (a)	20 dB Bandwidth	P	--
FCC 15.247 (a) (1) (iii) / RSS-247 6.2.3.1 (b)	Time of Occupancy (Dwell Time)	P	--
FCC 15.247 (b) / RSS-247 6.2.3.2	Maximum peak output power and	P	--
FCC 15.247 (a) (1) (iii) / RSS-247 6.2.3.1 (b)	Number of hopping channels	P	--
FCC 15.247 (d) / RSS-247 6.6	Band-edge emissions compliance	P	--
FCC 15.247 (d) / RSS-247 6.6	Emission limitations radiated (Transmitter)	P	--
<u>Supplementary information and remarks:</u> None			

Bluetooth EDR. Smartphone. Appendix C

Requirement – Test case	FCC PART 15 PARAGRAPH / RSS-247	Verdict	Remark
FCC 15.247 (a) (1) / RSS-247 6.2.3.1 (a)	20 dB Bandwidth	P	--
FCC 15.247 (a) (1) (iii) / RSS-247 6.2.3.1 (b)	Time of Occupancy (Dwell Time)	P	--
FCC 15.247 (b) / RSS-247 6.2.3.2	Maximum peak output power and	P	--
FCC 15.247 (a) (1) (iii) / RSS-247 6.2.3.1 (b)	Number of hopping channels	P	--
FCC 15.247 (d) / RSS-247 6.6	Band-edge emissions compliance	P	--
FCC 15.247 (d) / RSS-247 6.6	Emission limitations radiated (Transmitter)	P	--
<u>Supplementary information and remarks:</u> None			

WLAN 2.4 GHz. Appendix D:

FCC PART 15 PARAGRAPH/ RSS-247			
Requirement – Test case		Verdict	Remark
FCC 15.247 (a)(2) / RSS-247 5.2. (a)	6 dB Bandwidth	P	--
FCC 15.247 (b) / RSS-247 5.4. (d)	Maximum output power and antenna gain	P	--
FCC 15.247 (d) / RSS-247 5.5.	Band-edge emissions compliance (Transmitter)	P	--
FCC 15.247 (e) / RSS-247 5.2. (b)	Power spectral density	P	--
FCC 15.247 (d) / RSS-247 5.5.	Emission limitations radiated (Transmitter)	P	--
<u>Supplementary information and remarks:</u>			
None.			

Appendix A: Test results. Bluetooth Low Energy (1M)

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TEST CASES DETAILS	20
<i>Occupied Channel Bandwidth 99%</i>	<i>20</i>
<i>RSS-247 6.3.1 (a) / FCC 15.247 (a) (2) 6 dB Bandwidth</i>	<i>24</i>
<i>RSS-247 6.3.1. (b) / FCC 15.247 (e) Power Spectral Density</i>	<i>28</i>
<i>RSS-247 6.3.2 / FCC 15.247 (b) Maximum Peak Conducted Output Power</i>	<i>32</i>
<i>RSS-247 6.6 / FCC 15.247 (d) Band-edge emissions compliance (Transmitter)</i>	<i>36</i>
<i>RSS-247 6.6 / FCC 15.247 (d) Emission limitations radiated (Transmitter)</i>	<i>42</i>

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 12Vdc
Type of Power Supply: External DC (vehicle battery).

ANTENNA (*):

Type of Antenna: Internal antenna
Maximum Declared Antenna Gain: 2.4dBi

TEST FREQUENCIES (*):

Modulation	Data rates	Low Channel	Middle Channel	High Channel
BTLE GFSK	1M 1 Mbit/s	2402 MHz	2440 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.



RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Bilog antenna for the range between 30 MHz to 1000 MHz and 1 GHz-17 GHz Double ridge horn antenna) is situated at a distance of 3 m and at a distance of 1.5 m for the frequency range 17 GHz-26 GHz (17 GHz-40 GHz horn antenna).

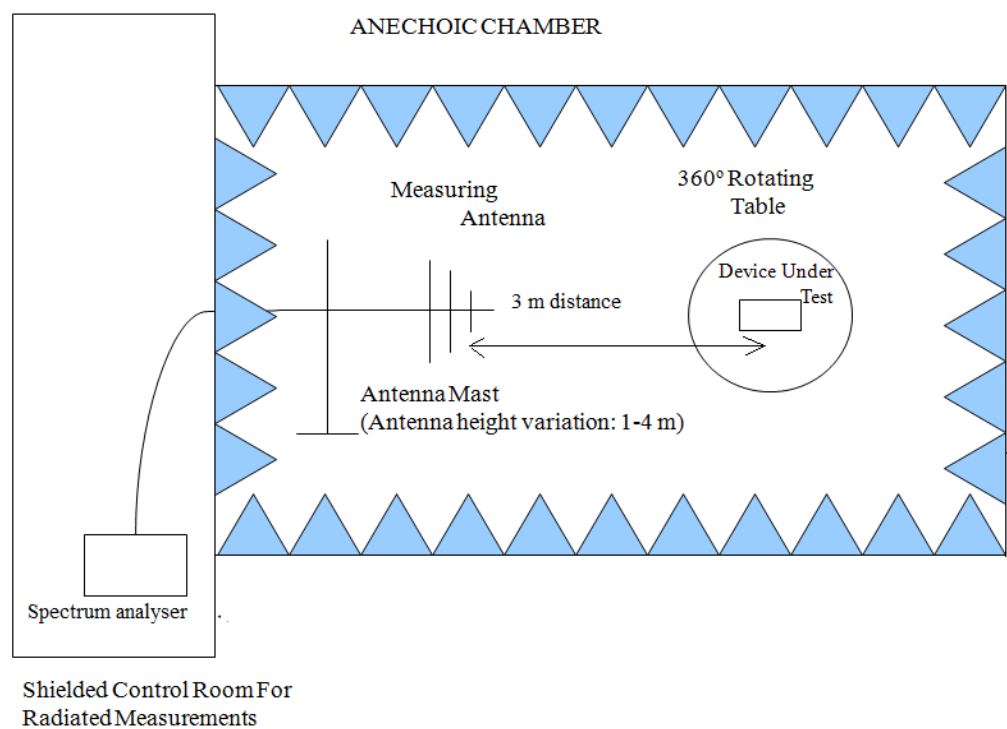
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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

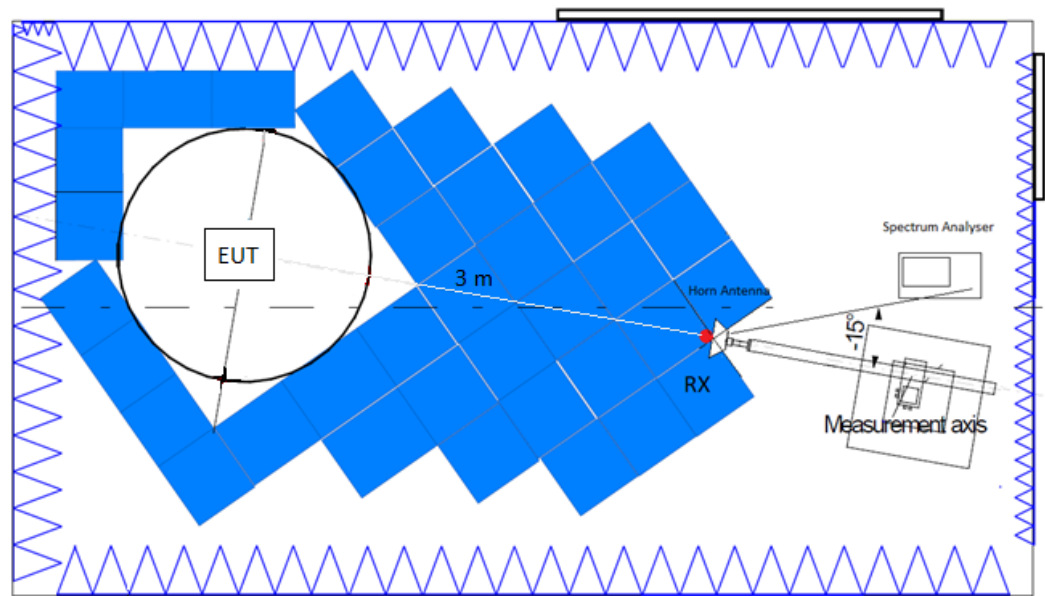
Measurements were made in both horizontal and vertical planes of polarization.

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

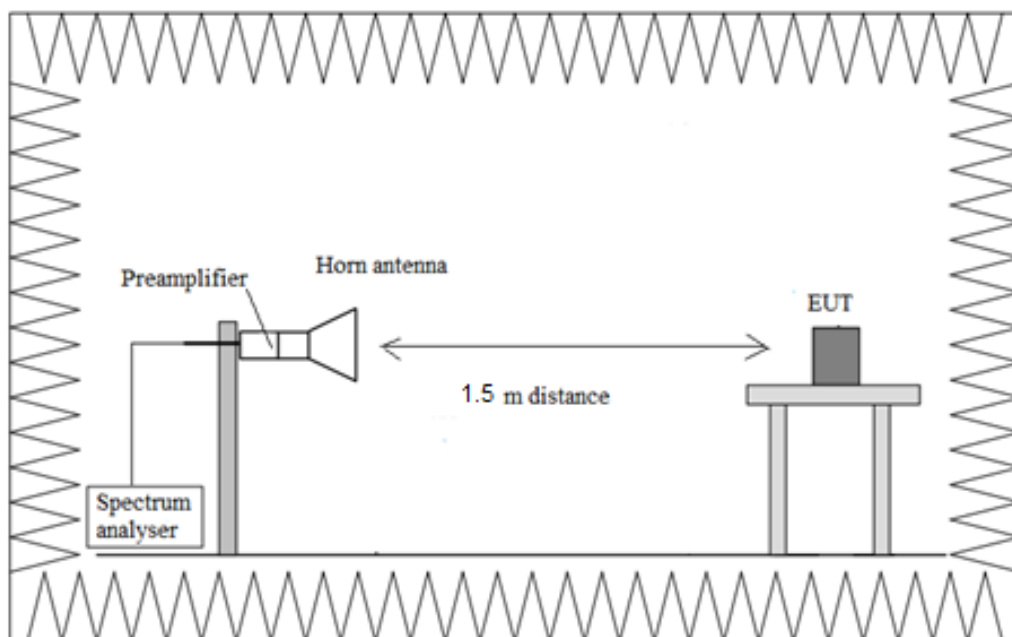
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



SAMPLE CALCULATION

For radiated measurements:

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

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

Where,

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

Preamp (dB): Path loses due to preamplifier

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

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

Cable loss (dB): Cable loss

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

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

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

TEST CASES DETAILS

Occupied Channel Bandwidth 99%

Specifications

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: BTLE 5.0 (GFSK 1 Mbit/s)

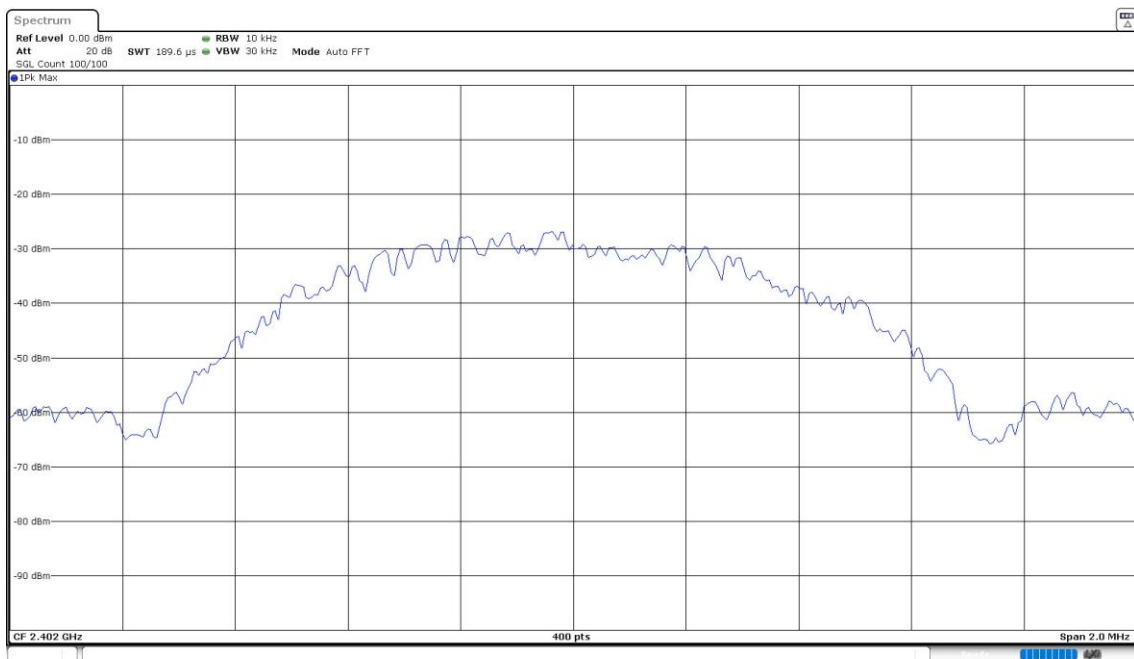
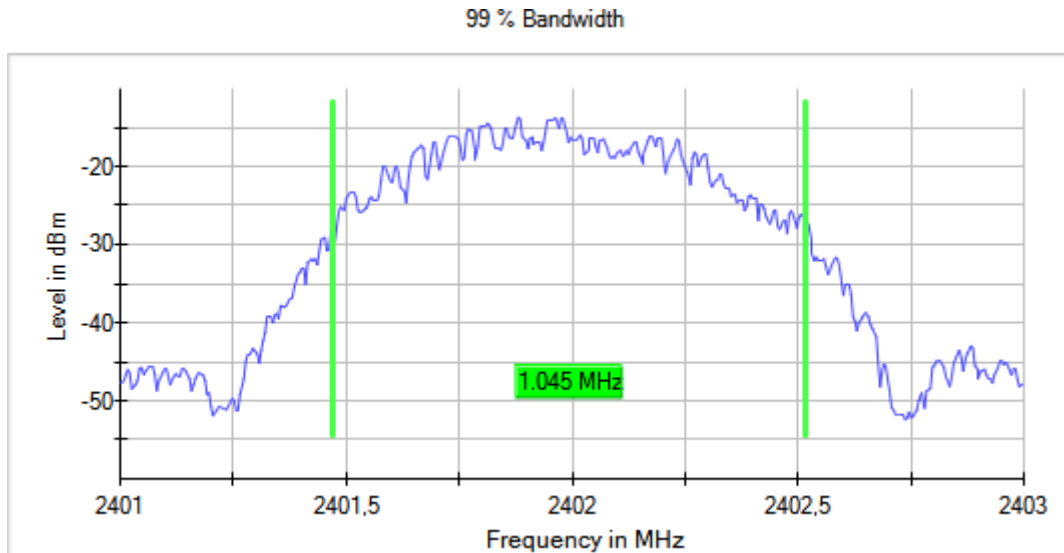
Results

Equipment	Freq (MHz)	Occ Ch BW (MHz)
Digital Transmission System (DTS)	2402.00000	1.045
	2440.00000	1.050
	2480.00000	1.050

Attachments

Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
 Frequency MHz = 2402.00000 Active Port = 1
 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Operation Band MHz = [2400, 2483.5]

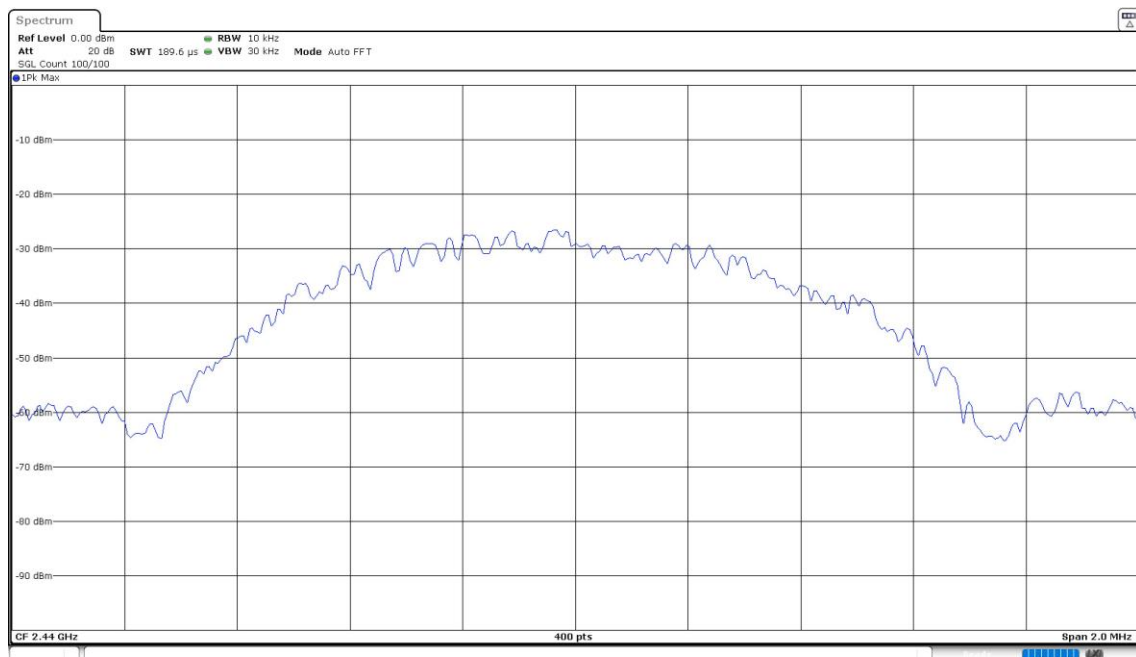
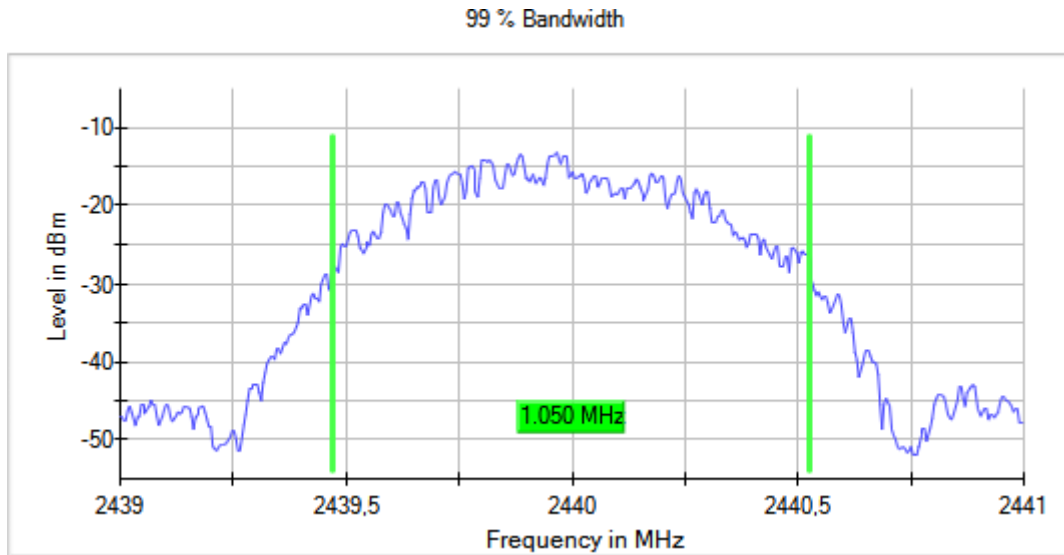
Equipment Type = Digital Transmission System (DTS)

Frequency MHz = 2440.00000

Active Port = 1

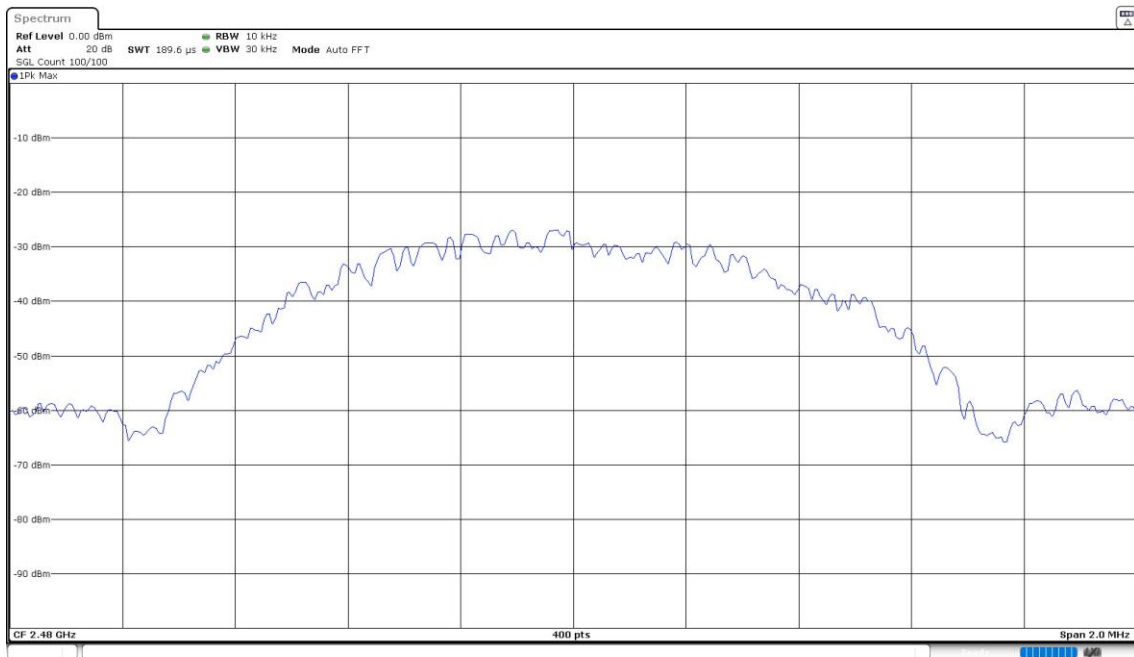
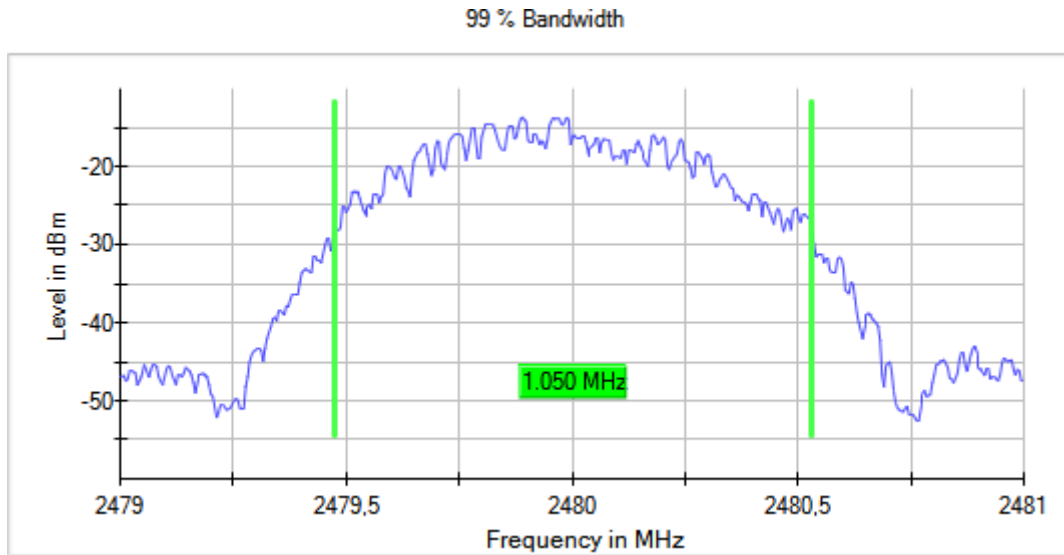
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
 Frequency MHz = 2480.00000 Active Port = 1
 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



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

Limits

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

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Equipment	Freq (MHz)	6dB Bandwidth (MHz)
Digital Transmission System (DTS)	2402.00000	0.752
	2440.00000	0.733
	2480.00000	0.752

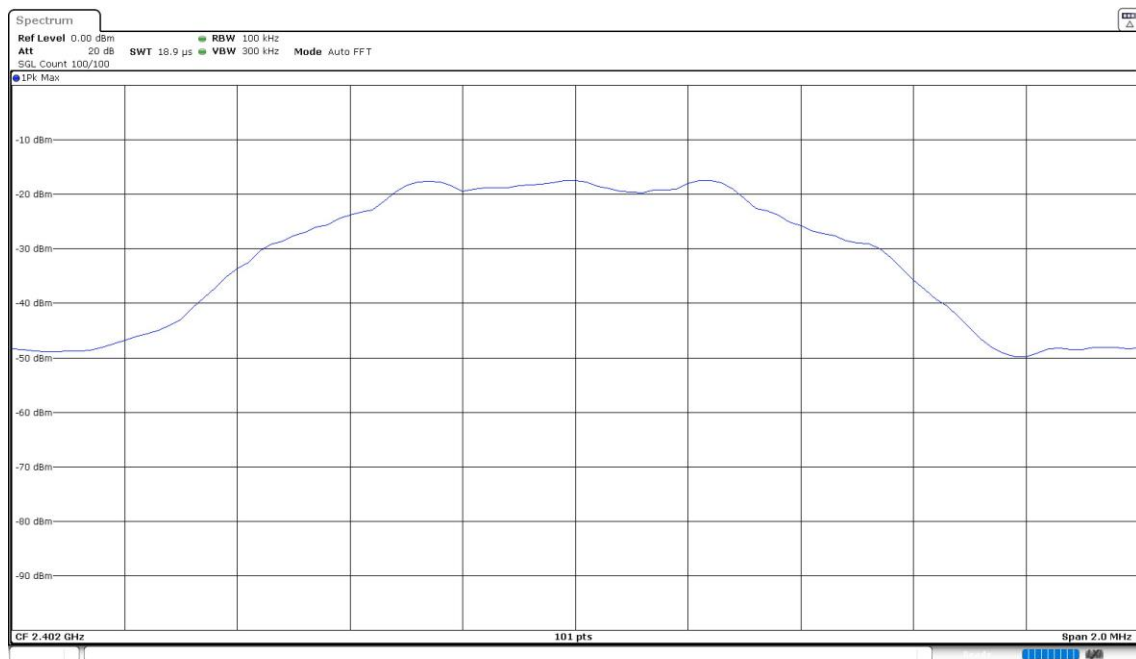
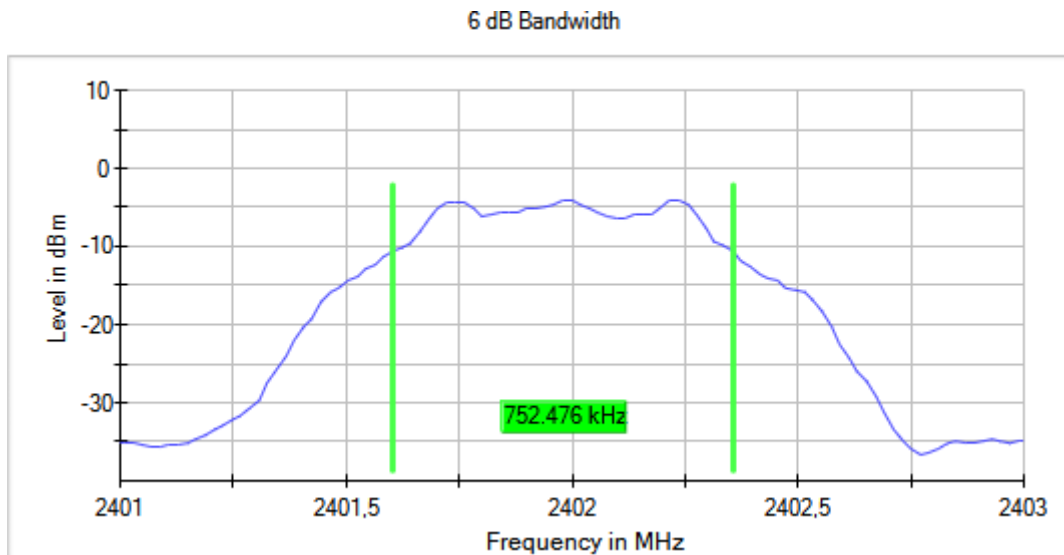
Verdict

Pass

Attachments

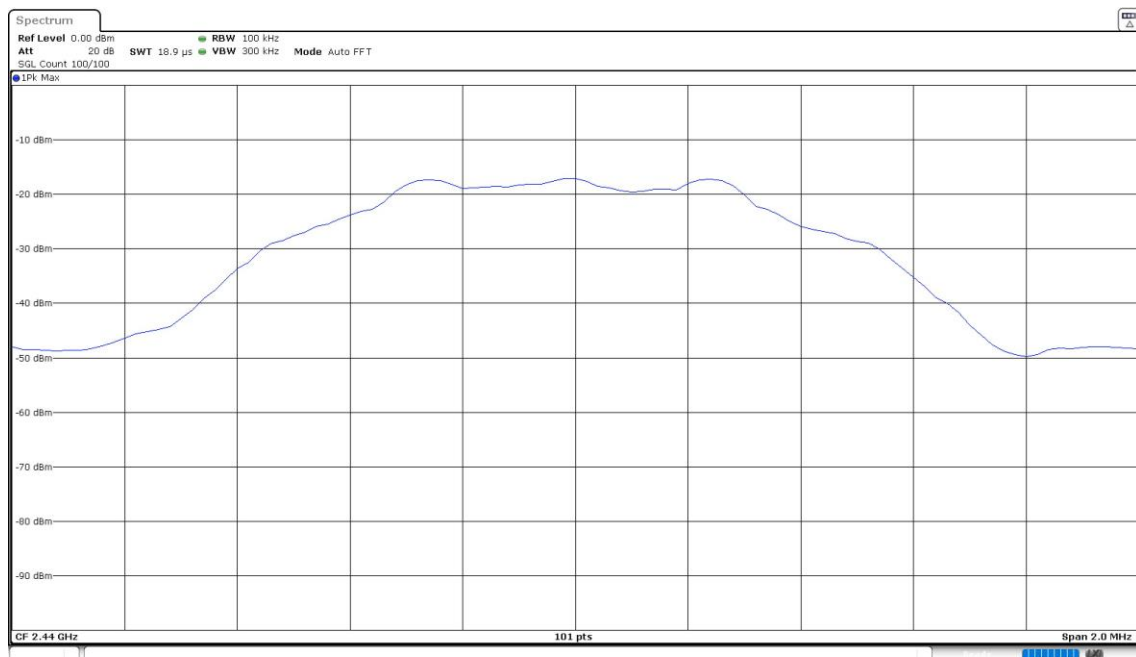
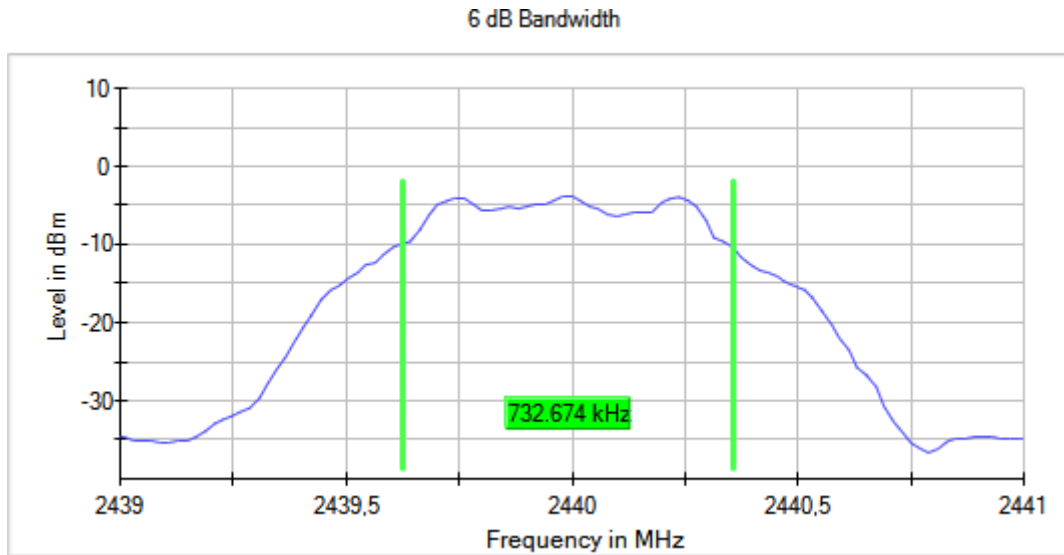
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
 Frequency MHz = 2402.00000 Active Port = 1
 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2440.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Operation Band MHz = [2400, 2483.5]

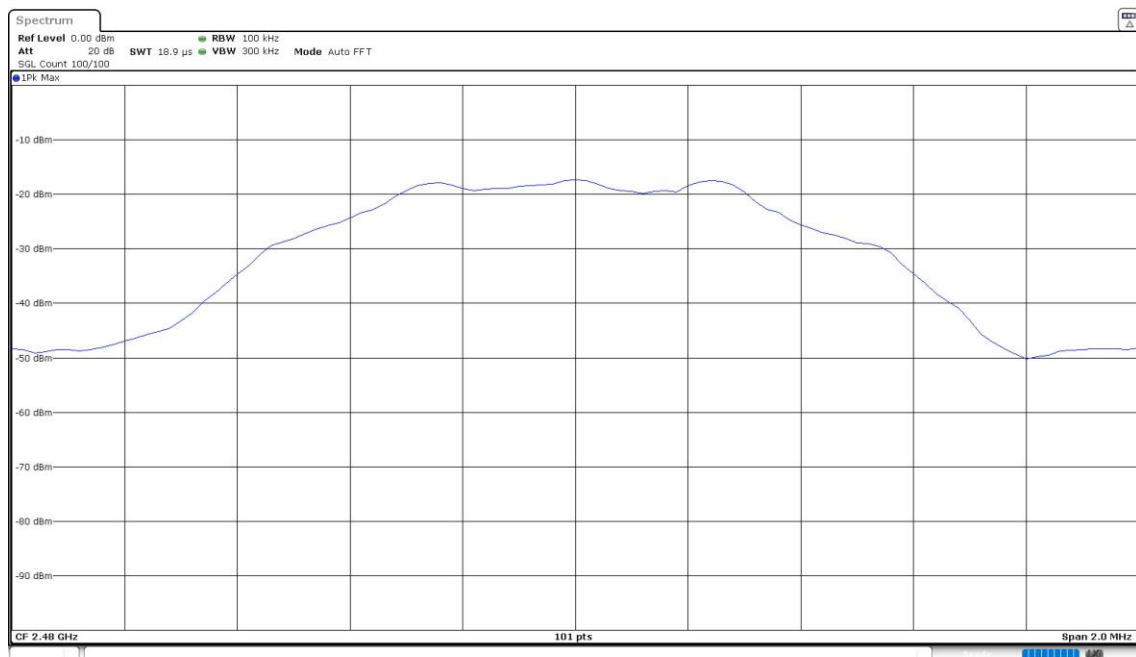
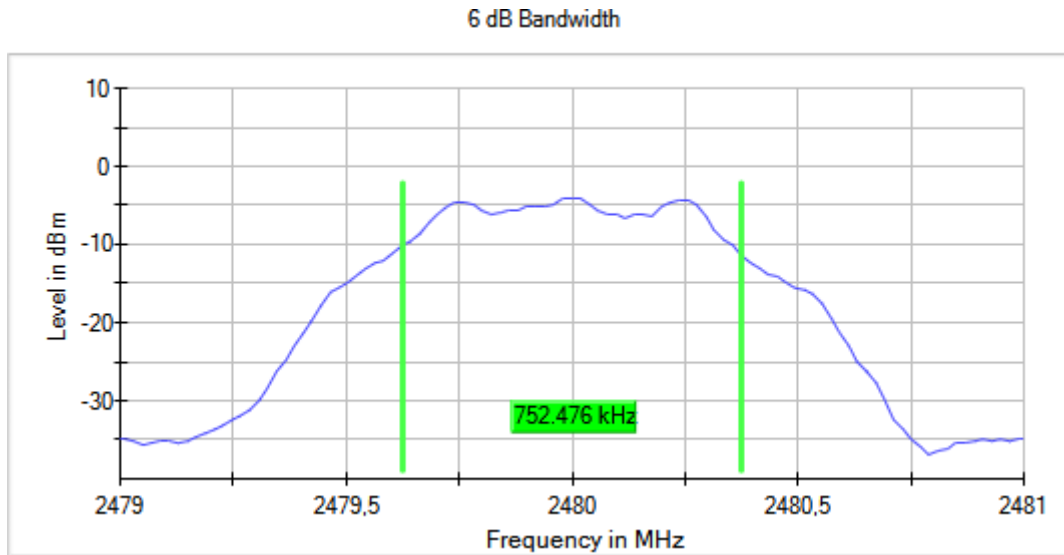
Equipment Type = Digital Transmission System (DTS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



RSS-247 6.3.1. (b) / FCC 15.247 (e) Power Spectral Density

Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Equipment	Freq (MHz)	PSD (dBm)
Digital Transmission System (DTS)	2402.00000	-13.59
	2440.00000	-13.03
	2480.00000	-13.41

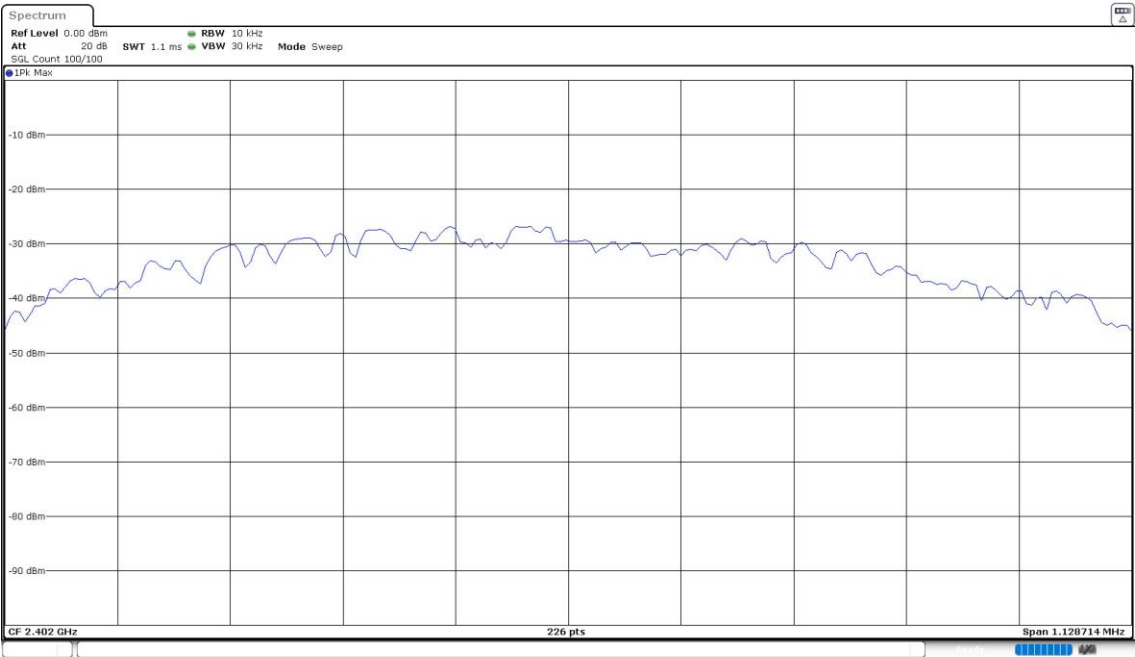
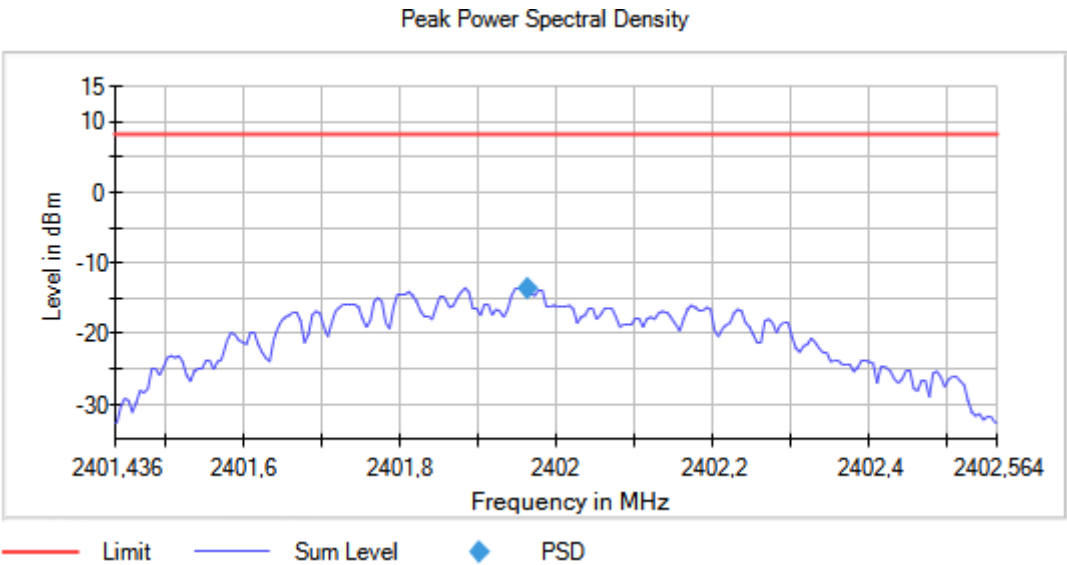
Verdict

Pass

Attachments

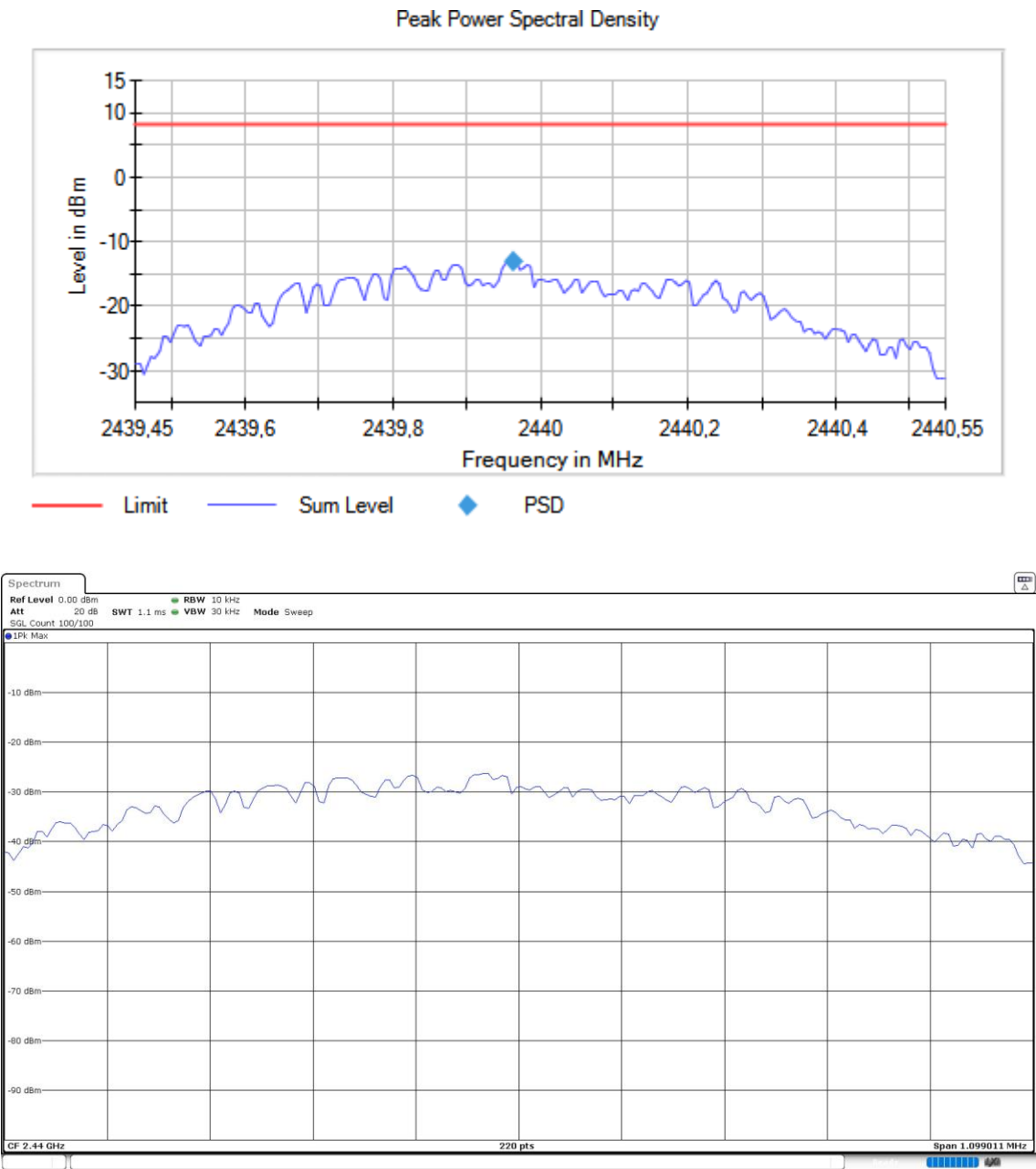
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2402.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



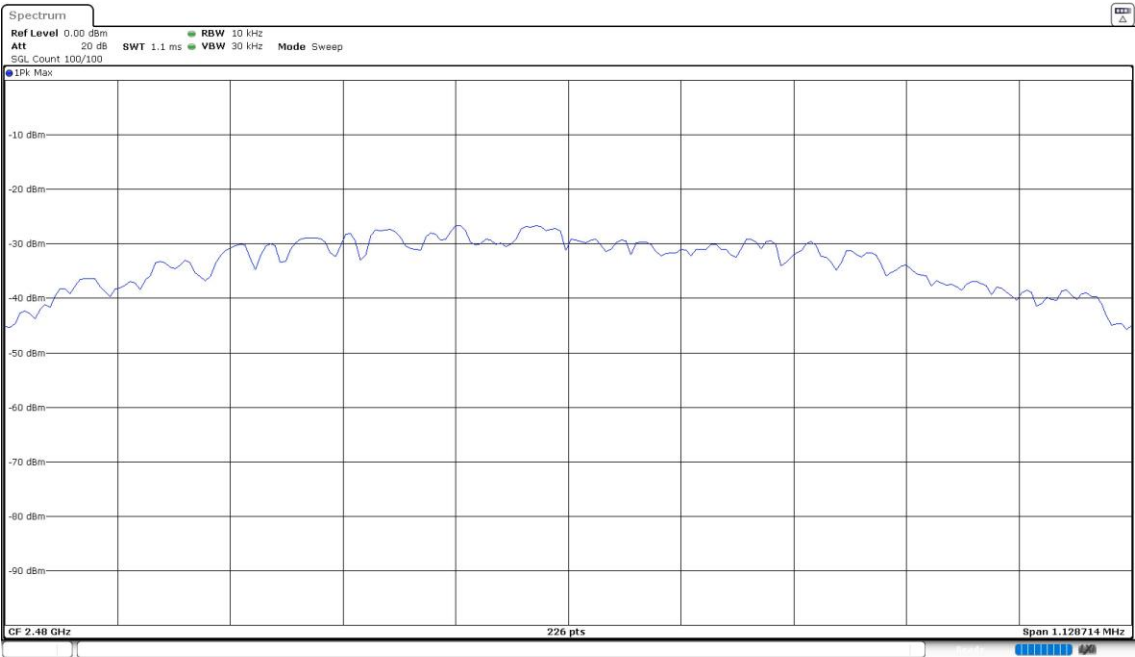
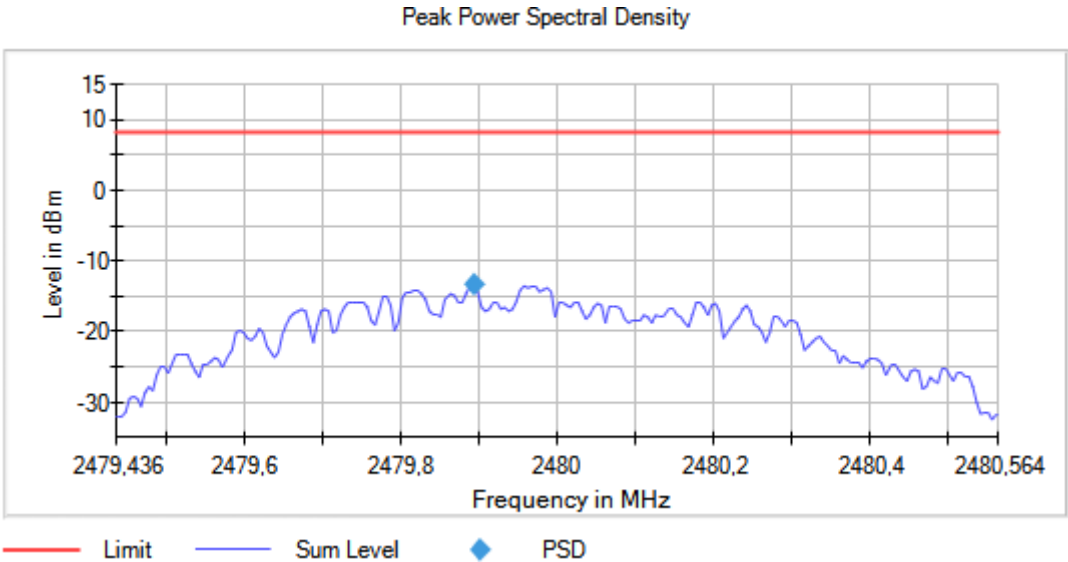
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2440.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2480.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



RSS-247 6.3.2 / FCC 15.247 (b) Maximum Peak Conducted Output Power

Limits

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

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

The maximum peak conducted output power level in the fundamental emission was measured using the method according to point 11.9.1.1 "RBW $\geq$ DTS bandwidth" of ANSI C.63.10-2013.

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

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Equipment	Freq (MHz)	Peak Power (dBm)	E.I.R.P. (dBm)
Digital Transmission System (DTS)	2402.00000	-3.342	-0.942
	2440.00000	-3.058	-0.658
	2480.00000	-3.210	-0.810

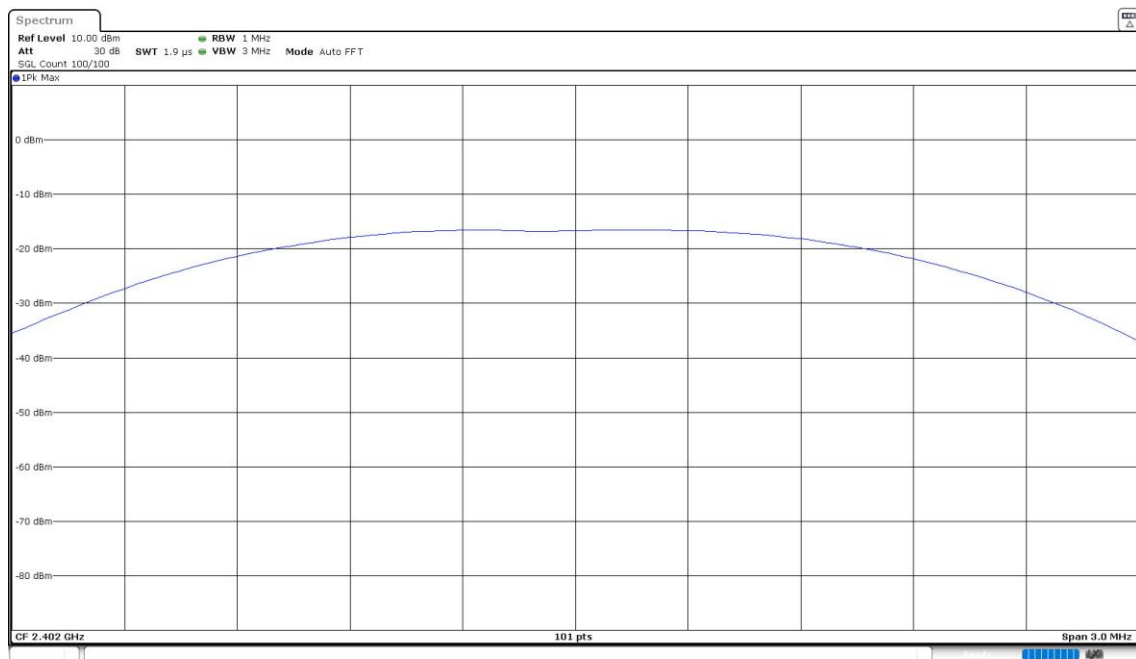
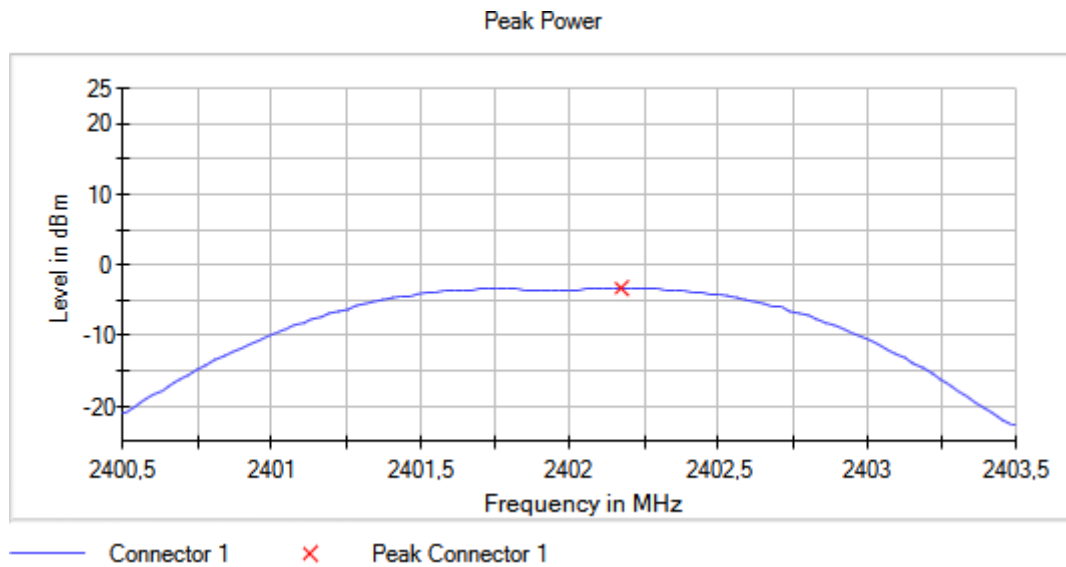
Verdict

Pass

Attachments

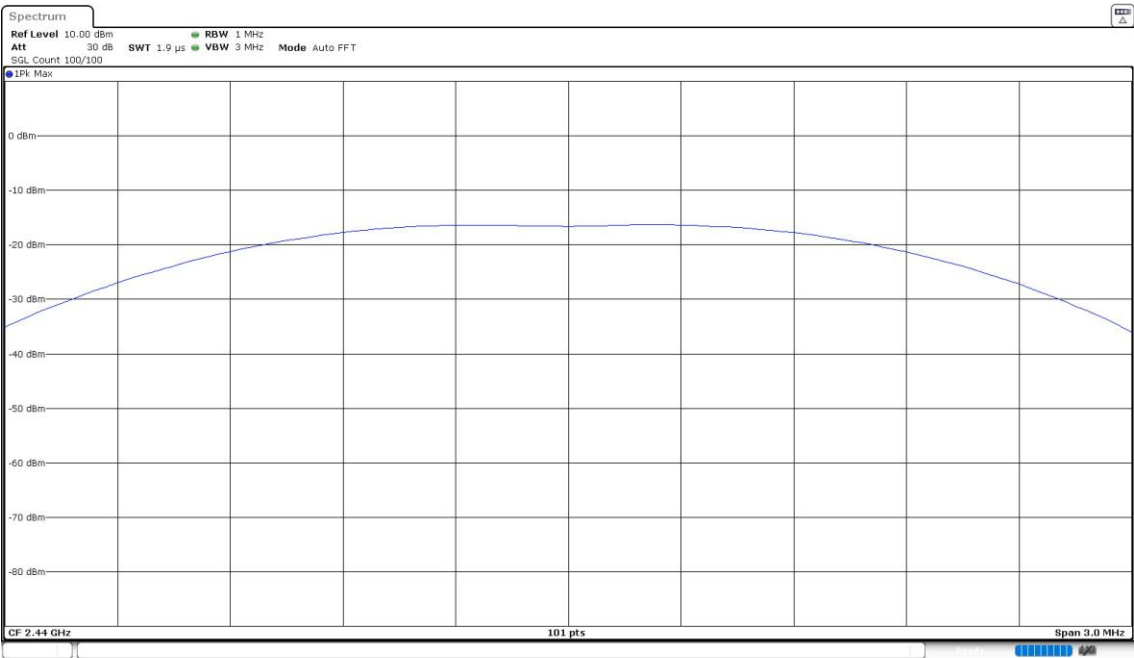
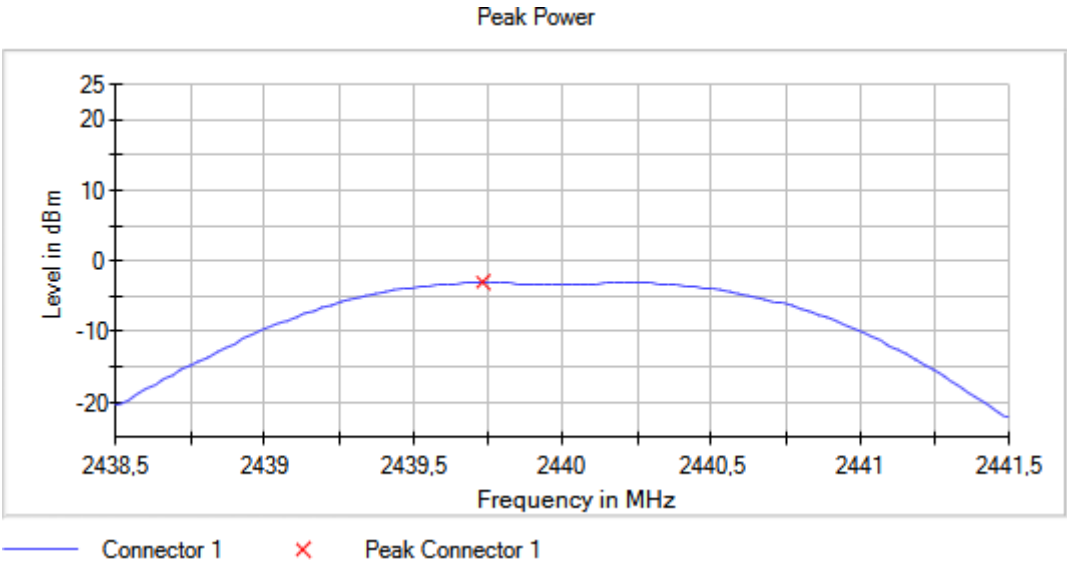
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
 Frequency MHz = 2402.00000 Active Port = 1
 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



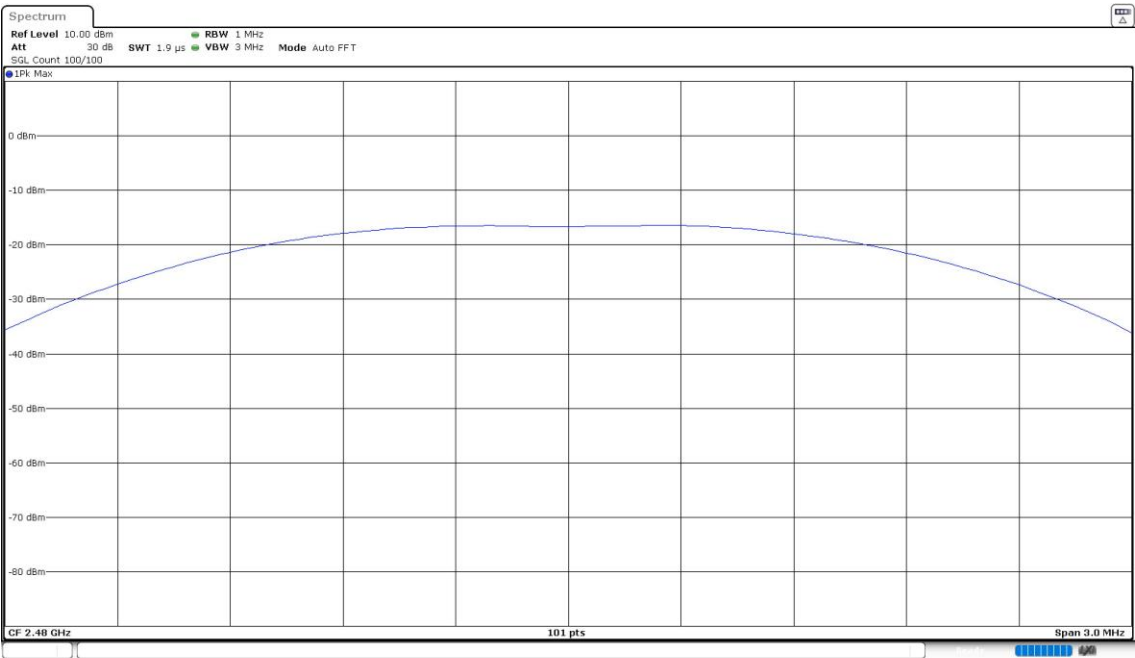
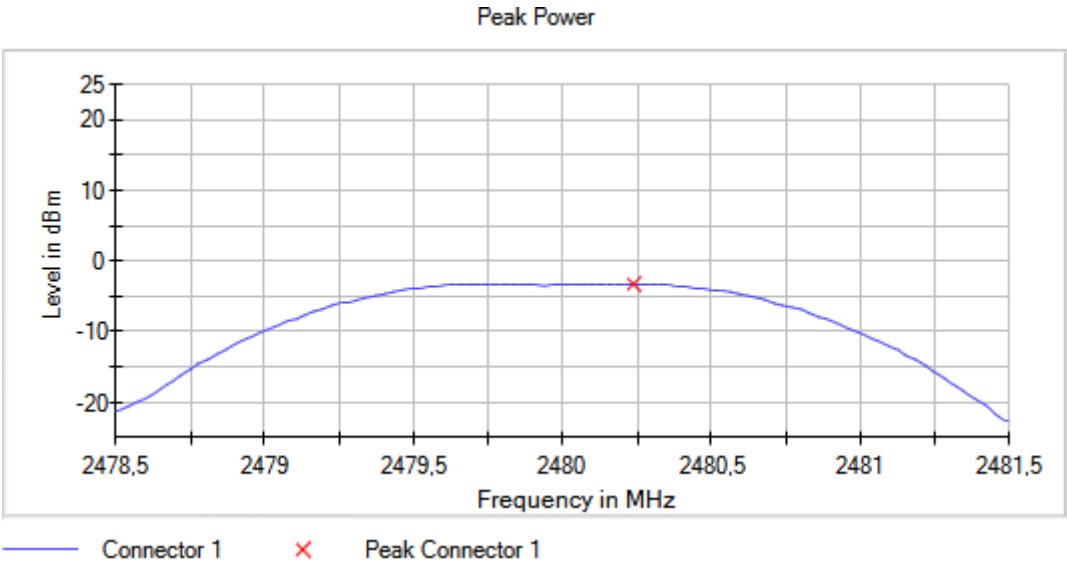
Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2440.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2480.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



RSS-247 6.6 / 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: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Equipment	Freq (MHz)	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)
Digital Transmission System (DTS)	2402.00000	0.380	2400.000000	-48.9
		0.380	2371.575000	-49.9
		0.380	2371.625000	-50.0
		0.380	2341.075000	-50.3
		0.380	2341.125000	-50.3
		0.380	2374.175000	-50.5
		0.380	2310.275000	-50.5
		0.380	2342.675000	-50.6
		0.380	2355.525000	-50.6
		0.380	2340.825000	-50.7
		0.380	2387.825000	-50.8
		0.380	2374.125000	-50.8
		0.380	2340.775000	-50.9
		0.380	2356.175000	-50.9
		0.380	2371.525000	-50.9

Equipment	Freq (MHz)	Inband Peak Lvl (dBm)	Freq (MHz)	Lvl (dBm)
Digital Transmission System (DTS)	2480.00000	0.532	2485.725000	-49.2
		0.532	2484.175000	-49.8
		0.532	2484.125000	-49.8
		0.532	2485.675000	-49.9
		0.532	2485.825000	-50.0
		0.532	2491.325000	-50.2
		0.532	2485.275000	-50.3
		0.532	2488.925000	-50.3
		0.532	2491.275000	-50.3
		0.532	2487.725000	-50.4
		0.532	2485.225000	-50.4
		0.532	2487.775000	-50.4
		0.532	2488.975000	-50.4
		0.532	2484.575000	-50.5
		0.532	2488.575000	-50.5

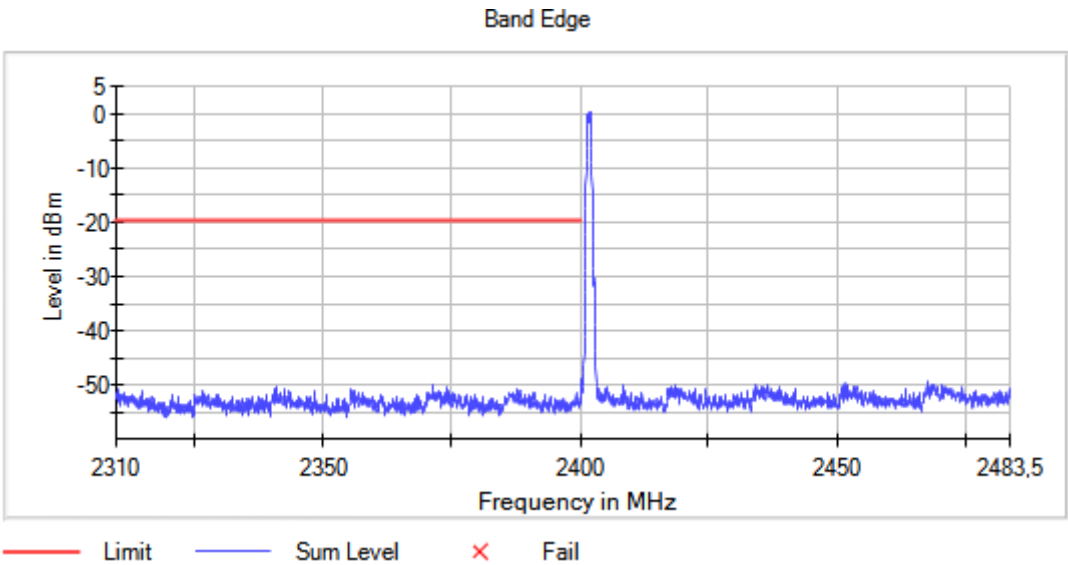
Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2402.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:

Spectrum Analyzer Parameters 1

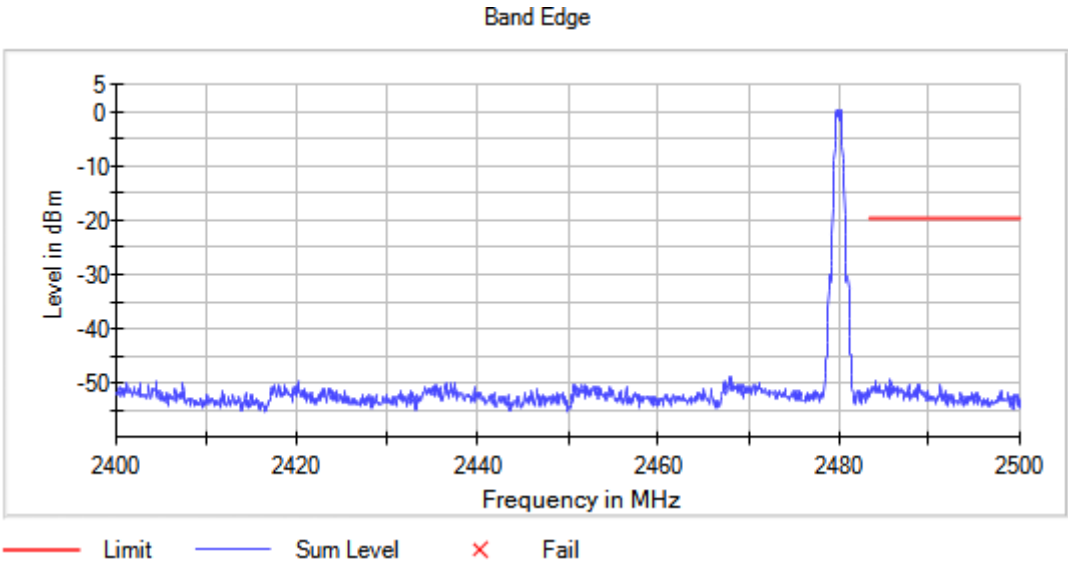
Setting	Instrument Value	Target Value
Start Frequency	2.31000 GHz	2.31000 GHz
Stop Frequency	2.40000 GHz	2.40000 GHz
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
SweepTime	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	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	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.12 dB	0.50 dB

Operation Band MHz = [2400, 2483.5] Equipment Type = Digital Transmission System (DTS)
Frequency MHz = 2480.00000 Active Port = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:

Spectrum Analyzer Parameters 1

Setting	Instrument Value	Target Value
Start Frequency	2.31000 GHz	2.31000 GHz
Stop Frequency	2.40000 GHz	2.40000 GHz
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
Sweeptime	113.672 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	4 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

Spectrum Analyzer Parameters 2

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	94.727 µs	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	30.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	7 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.12 dB	0.50 dB

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

Limits

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

Frequency Range (MHz)	Field strength ($\mu\text{V/m}$)	Field strength (dB $\mu\text{V/m}$)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

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

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

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

Frequency range tested for Radiated emissions:

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

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

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Freq Rng (GHz)	Equipment	Freq (MHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector	Sig Path (dB)	Preamp (dB)	Trd Corr. (dB/m)	Raw Rec (dBµV)
[0.03, 1]	Digital Transmission System (DTS)	2402.00000	40.428	26.40	V	PK	1.0	0.0	10.0	15.4
			40.428	20.70	V	QP	1.0	0.0	10.0	9.7
			401.656	34.96	H	PK	2.8	0.0	17.8	14.3
			401.656	30.12	H	QP	2.8	0.0	17.8	9.5
			52.746	31.02	V	PK	1.1	0.0	6.2	23.7
			52.746	26.12	V	QP	1.1	0.0	6.2	18.8
			549.968	37.22	V	PK	3.4	0.0	21.6	12.2
			549.968	34.92	V	QP	3.4	0.0	21.6	9.9
			75.687	27.98	V	PK	1.2	0.0	7.3	19.5
			75.687	21.44	V	QP	1.2	0.0	7.3	12.9
			934.768	30.55	V	PK	4.4	0.0	26.1	0.0
			934.768	21.26	V	QP	4.4	0.0	26.1	-9.3
		2440.00000	38.876	28.30	V	PK	0.9	0.0	10.8	16.6
			38.876	21.41	V	QP	0.9	0.0	10.8	9.7
			394.623	35.85	H	PK	2.8	0.0	17.4	15.7
			394.623	31.06	H	QP	2.8	0.0	17.4	10.9
			53.135	30.89	V	PK	1.1	0.0	6.2	23.6
			53.135	25.02	V	QP	1.1	0.0	6.2	17.7
			549.920	35.88	V	PK	3.4	0.0	21.6	10.9
			549.920	33.42	V	QP	3.4	0.0	21.6	8.4
			80.052	32.10	V	PK	1.3	0.0	6.9	23.9
			80.052	25.53	V	QP	1.3	0.0	6.9	17.4
			951.355	30.42	H	PK	4.5	0.0	25.7	0.2
			951.355	20.89	H	QP	4.5	0.0	25.7	-9.3
		2480.00000	399.958	35.58	H	PK	2.8	0.0	17.8	15.0
			399.958	30.66	H	QP	2.8	0.0	17.8	10.1
			40.525	30.17	V	PK	1.0	0.0	9.9	19.3
			40.525	24.79	V	QP	1.0	0.0	9.9	13.9
			49.109	27.90	V	PK	1.0	0.0	6.4	20.4
			49.109	21.72	V	QP	1.0	0.0	6.4	14.3
			53.765	30.79	V	PK	1.1	0.0	6.3	23.4
			53.765	25.32	V	QP	1.1	0.0	6.3	17.9
			549.920	36.07	V	PK	3.4	0.0	21.6	11.1
			549.920	33.22	V	QP	3.4	0.0	21.6	8.2
			944.177	29.90	H	PK	4.5	0.0	25.9	-0.5
			944.177	20.95	H	QP	4.5	0.0	25.9	-9.4

Verdict

Pass

Attachments

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [0.03, 1]

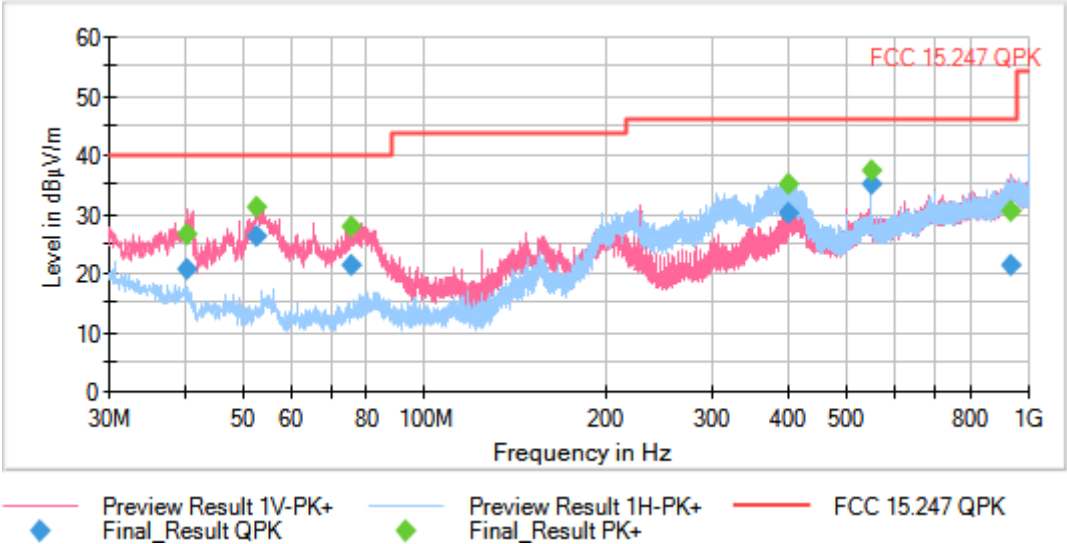
Equipment Type = Digital Transmission System (DTS)

Frequency MHz = 2402.00000

Active Port = 1

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48,5 kHz	PK+	100 kHz	1 s	30 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Digital Transmission System (DTS)

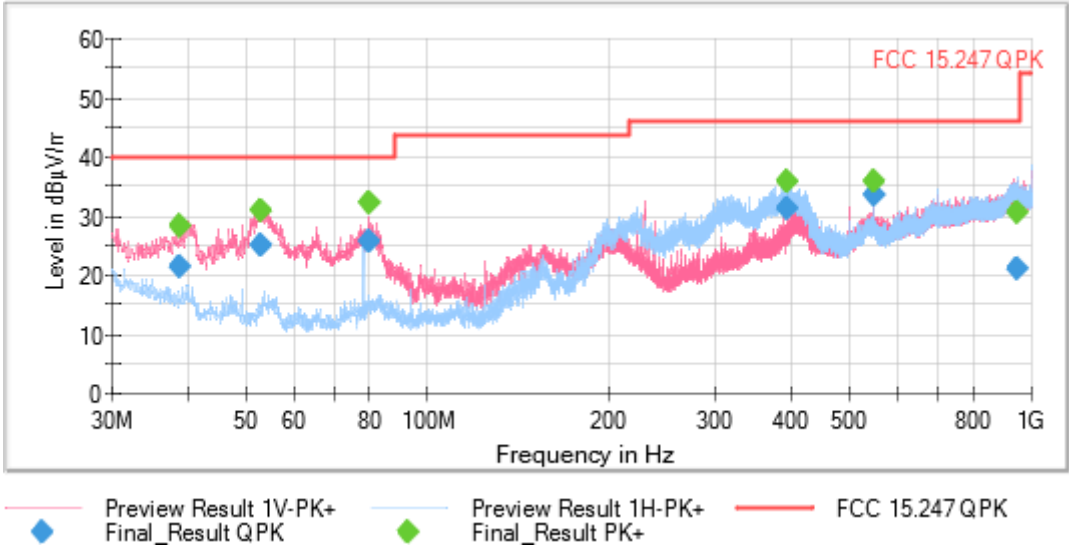
Active Port = 1

Frequency Range GHz = [0.03, 1]

Frequency MHz = 2440.00000

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48,5 kHz	PK+	100 kHz	1 s	30 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Digital Transmission System (DTS)

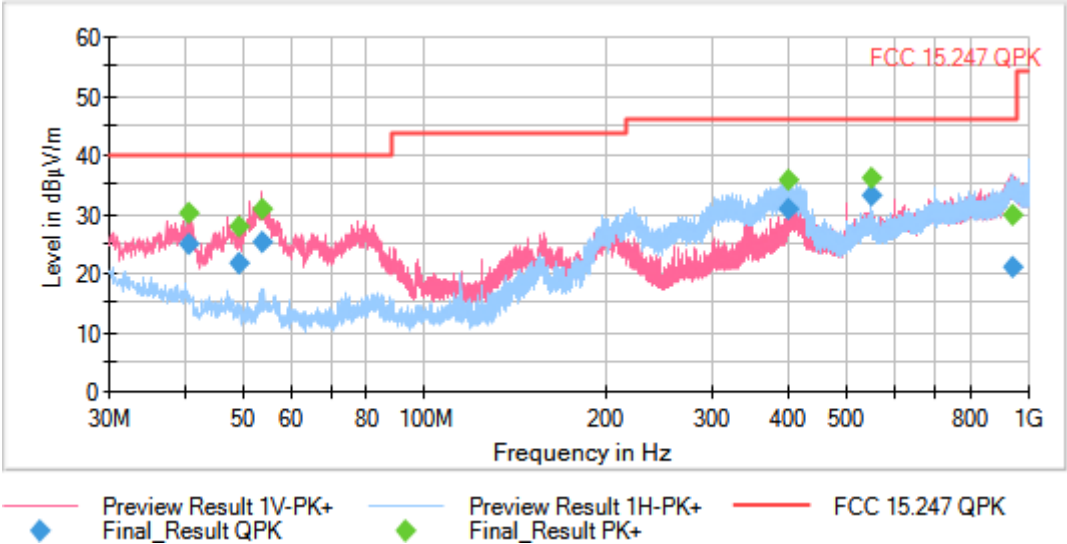
Active Port = 1

Frequency Range GHz = [0.03, 1]

Frequency MHz = 2480.00000

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48,5 kHz	PK+	100 kHz	1 s	30 dB

Operation Band MHz = [2400, 2483.5]

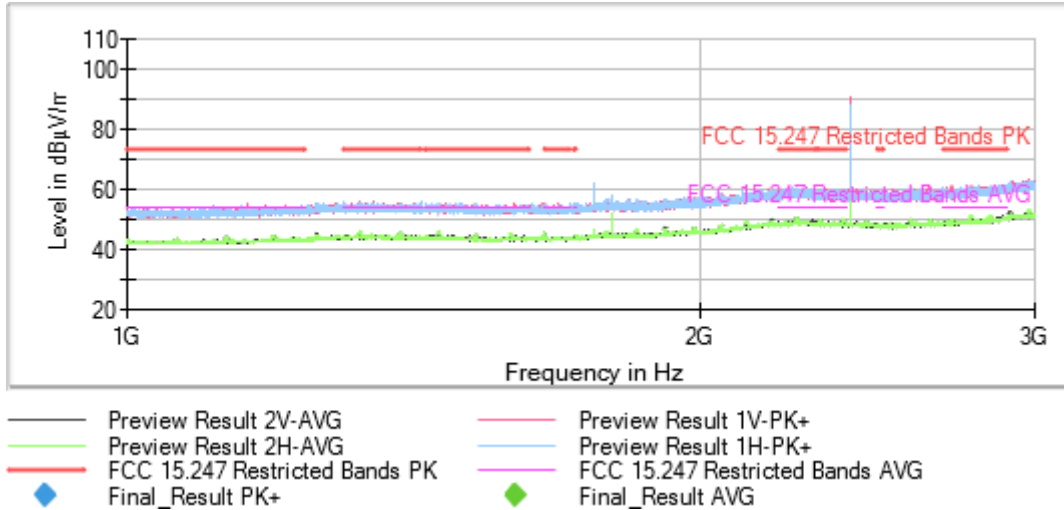
Frequency Range GHz = [1, 3]

Equipment Type = Digital Transmission System (DTS) Frequency MHz = 2402.00000

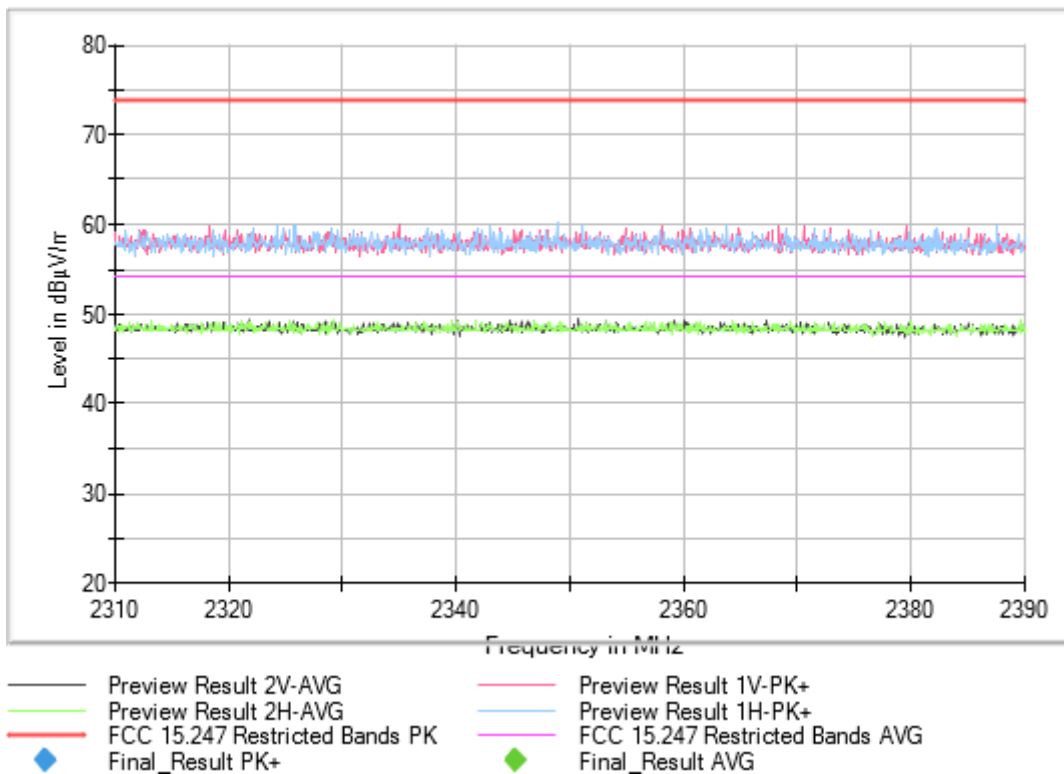
Active Port = 1

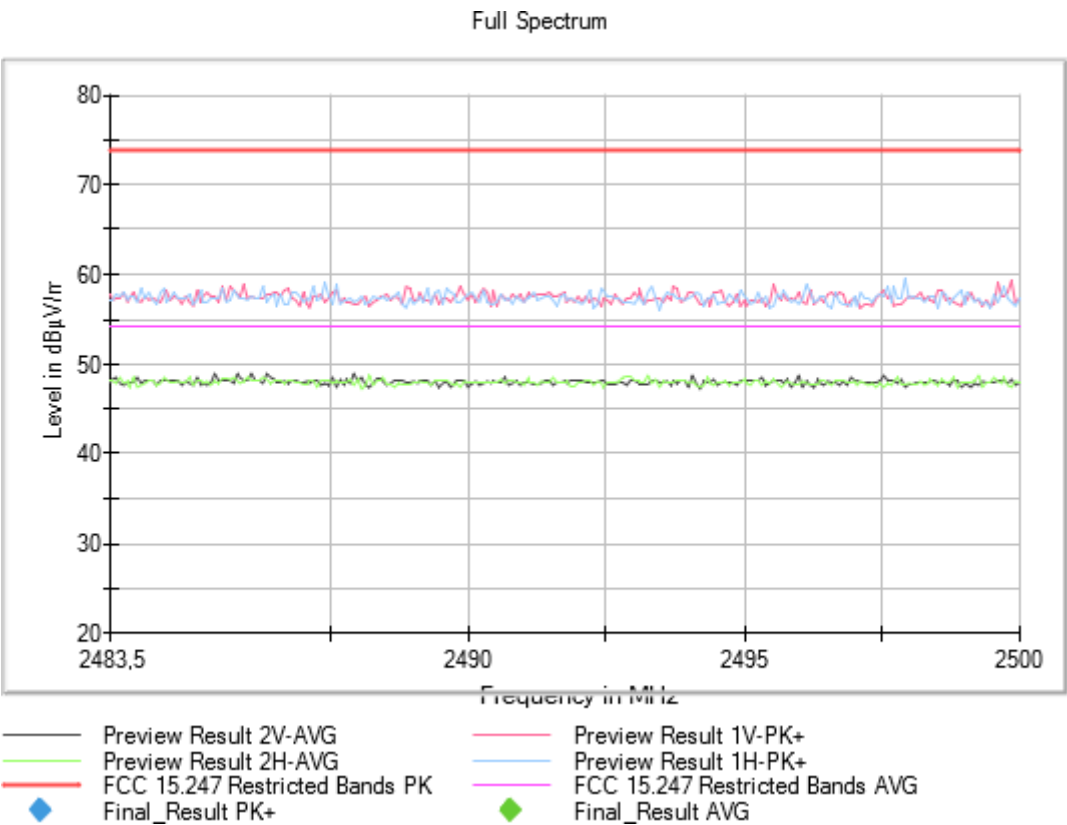
Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 3 GHz	66,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

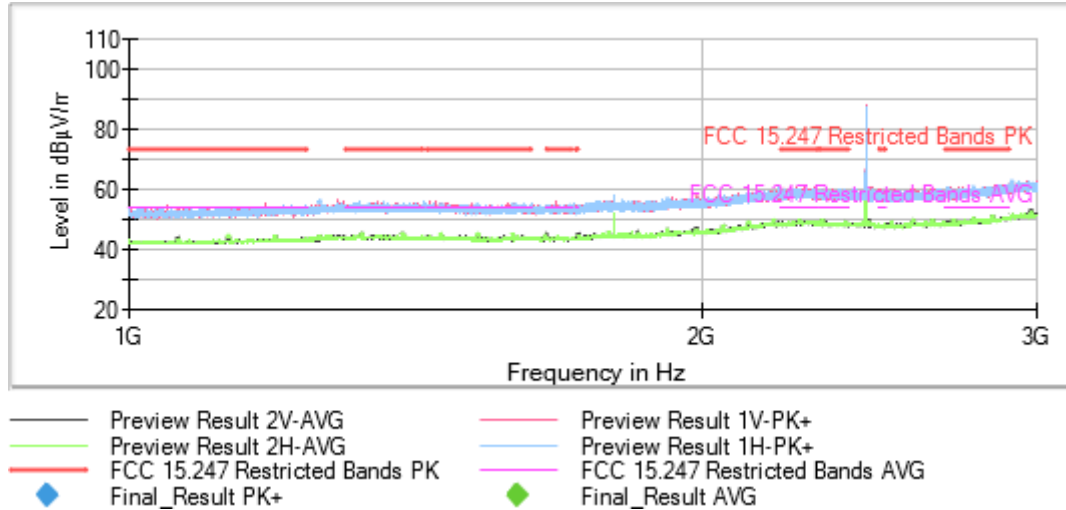
Frequency Range GHz = [1, 3]

Equipment Type = Digital Transmission System (DTS) Frequency MHz = 2440.00000

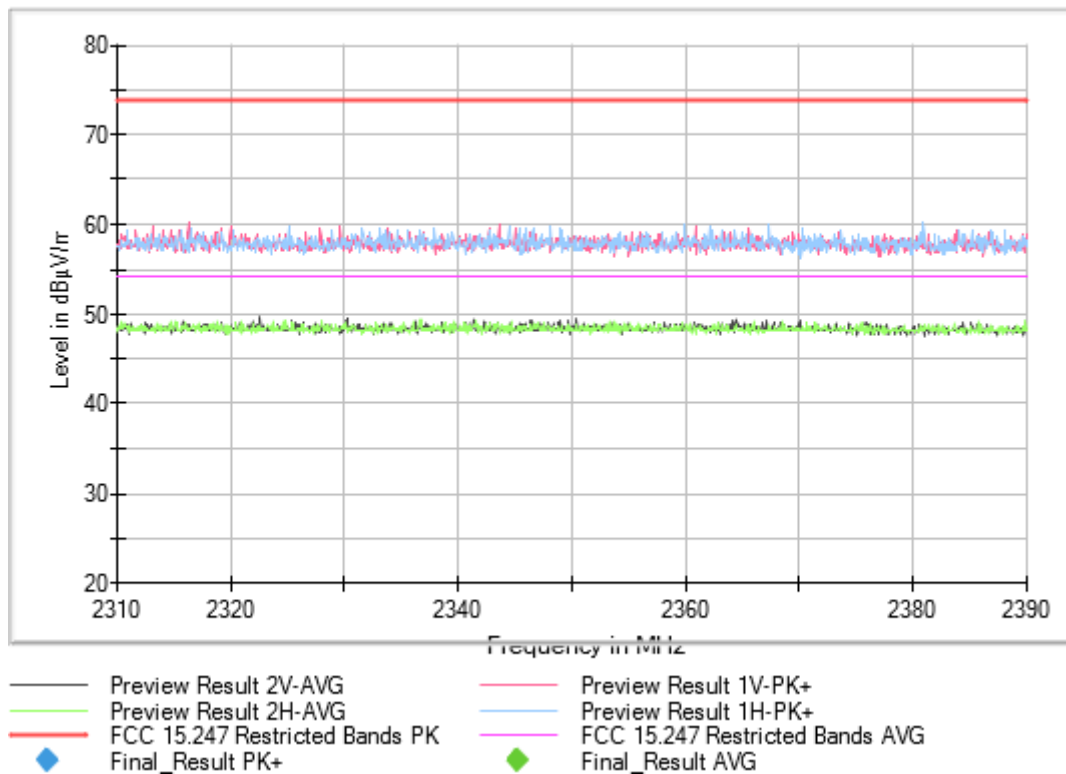
Active Port = 1

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 3 GHz	66,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

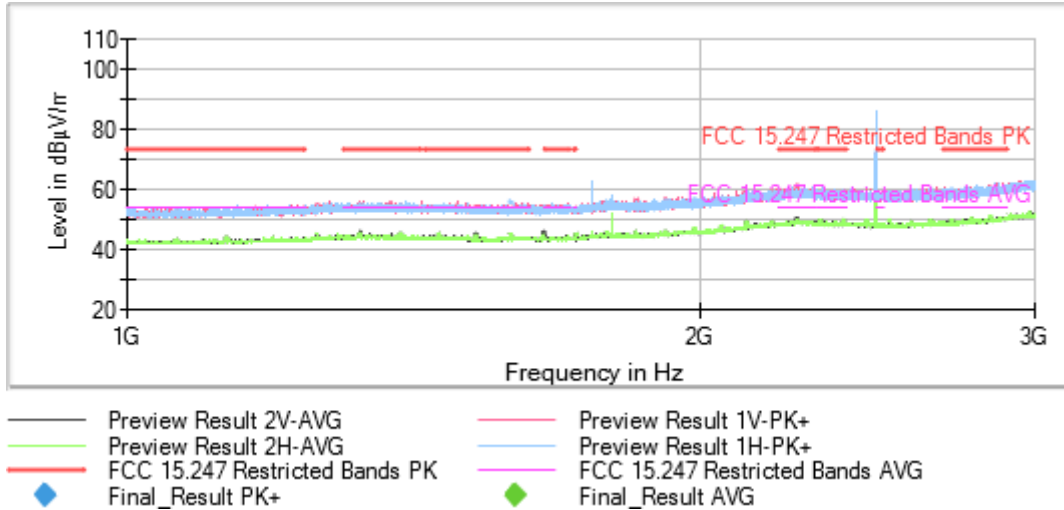
Frequency Range GHz = [1, 3]

Equipment Type = Digital Transmission System (DTS) Frequency MHz = 2480.00000

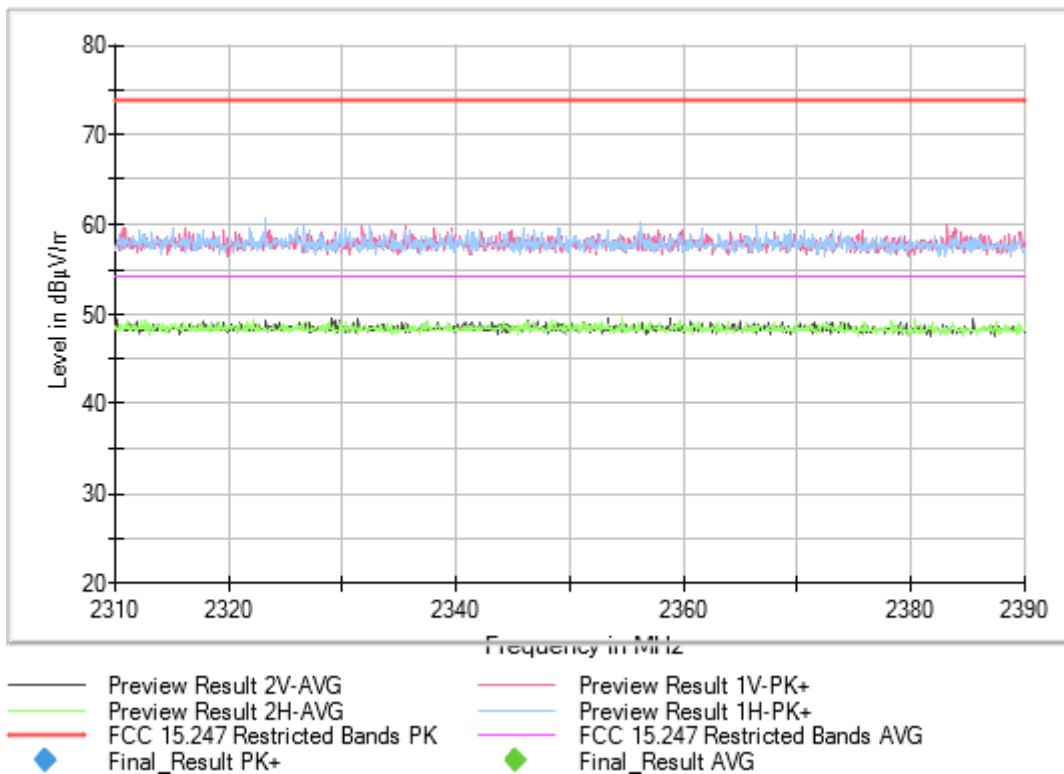
Active Port = 1

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Full Spectrum





Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
1 GHz - 3 GHz	66,667 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Digital Transmission System (DTS)

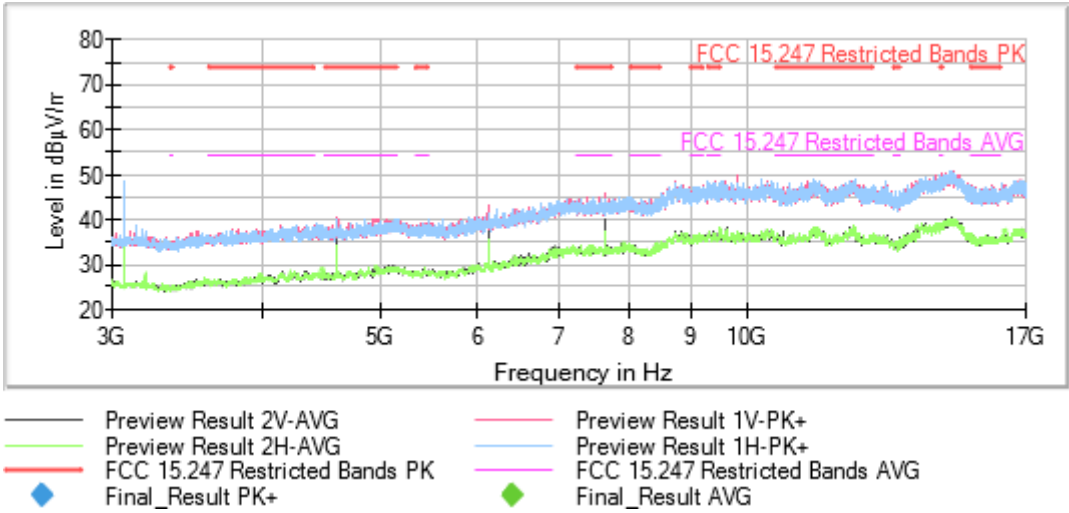
Active Port = 1

Frequency Range GHz = [3, 17]

Frequency MHz = 2402.00000

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
3 GHz - 17 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

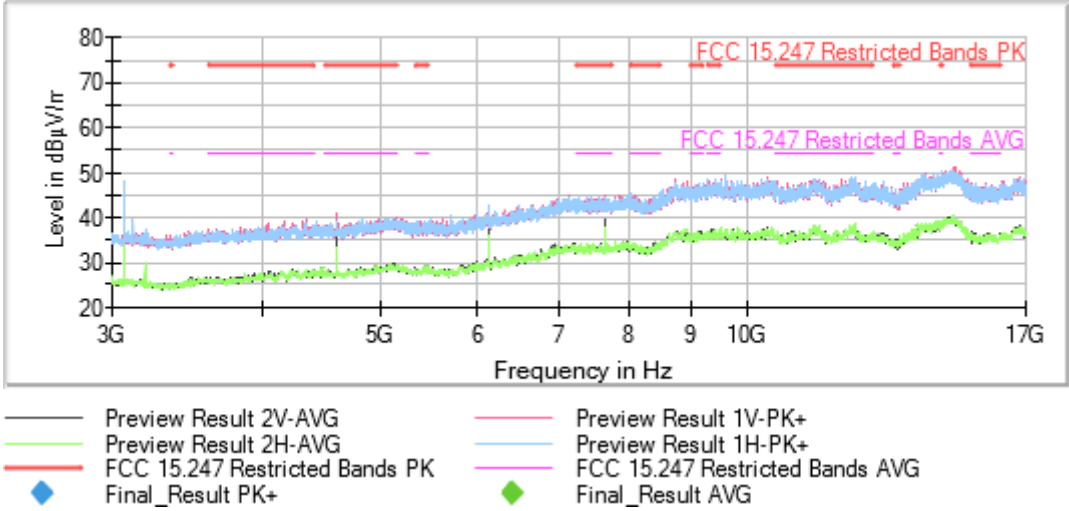
Equipment Type = Digital Transmission System (DTS)

Frequency MHz = 2440.00000

Active Port = 1

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
3 GHz - 17 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Frequency Range GHz = [3, 17]

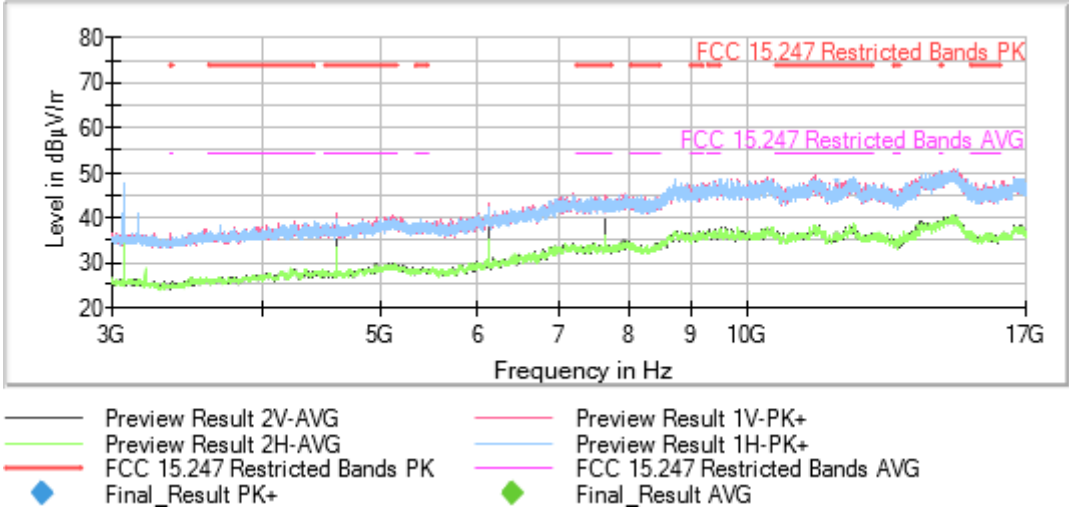
Equipment Type = Digital Transmission System (DTS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:

Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
3 GHz - 17 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Digital Transmission System (DTS)

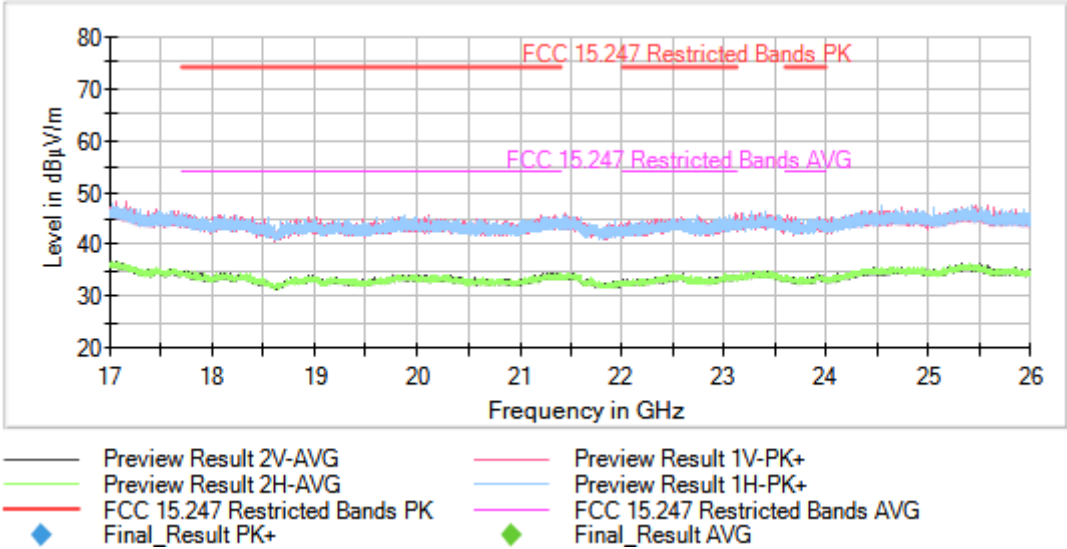
Active Port = 1

Frequency Range GHz = [17, 26]

Frequency MHz = 2402.00000

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
17 GHz - 26 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Digital Transmission System (DTS)

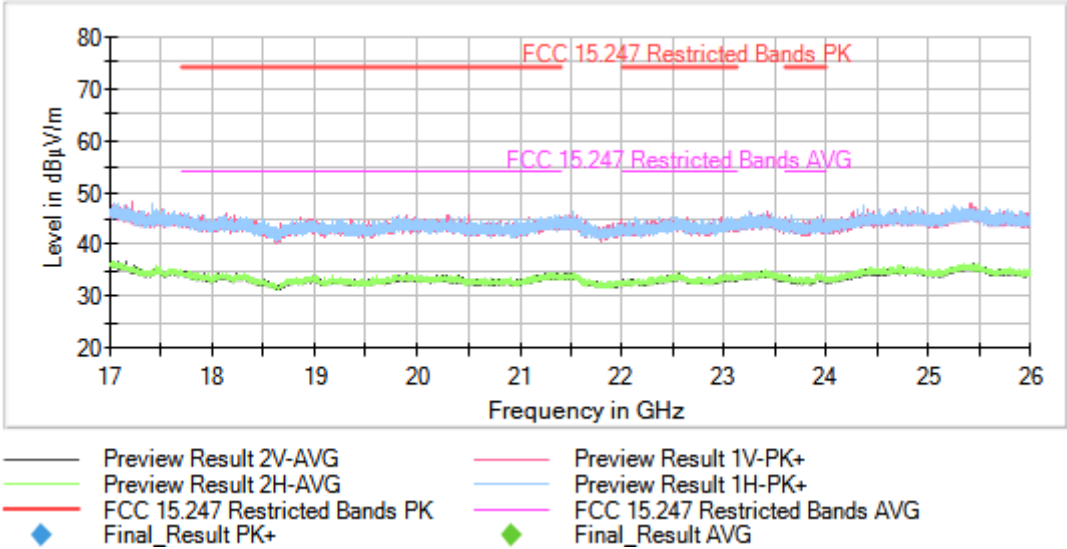
Active Port = 1

Frequency Range GHz = [17, 26]

Frequency MHz = 2440.00000

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
17 GHz - 26 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Operation Band MHz = [2400, 2483.5]

Equipment Type = Digital Transmission System (DTS)

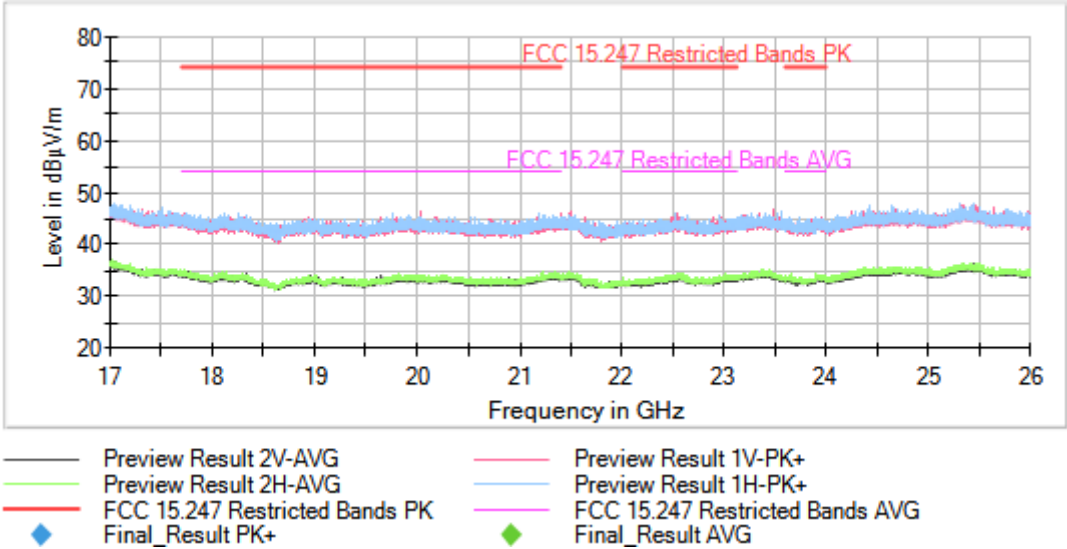
Active Port = 1

Frequency Range GHz = [17, 26]

Frequency MHz = 2480.00000

Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Tables:
Spectrum Analyzer Parameters

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
17 GHz - 26 GHz	500 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Appendix B: Test results. Bluetooth EDR. Headset

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<i>RSS-247 6.2.3.1 (b) / FCC 15.247 (a) (1) (iii) Time of Occupancy (Dwell Time)</i>	98
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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal: 12Vdc
Type of Power Supply: External DC (vehicle battery).

ANTENNA (*):

Type of Antenna: Internal antenna
Maximum Declared Antenna Gain: 3.4dBi

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).

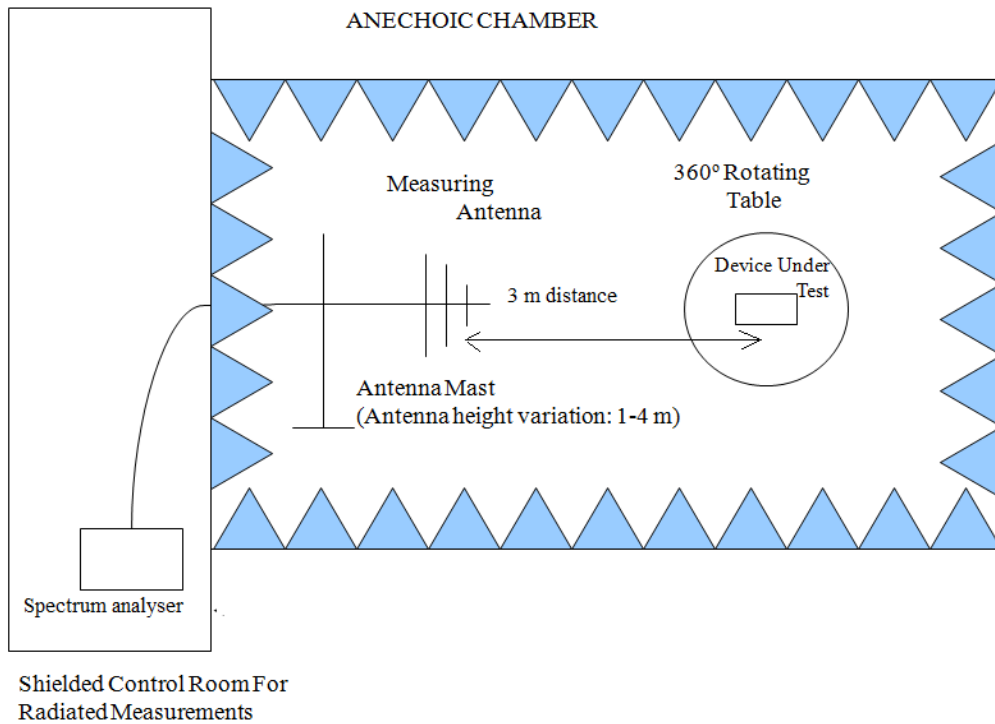
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

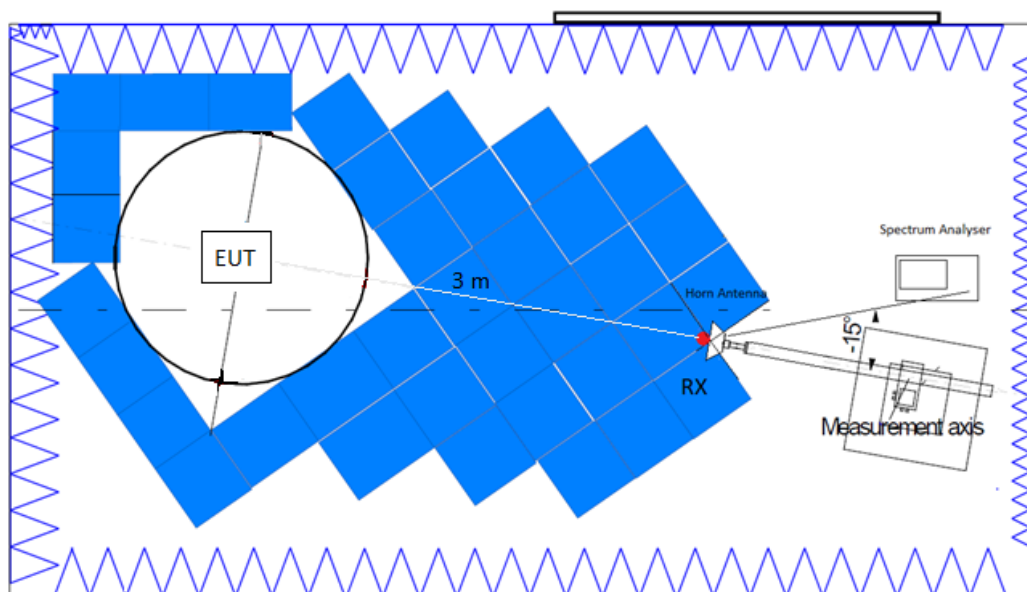
Measurements were made in both horizontal and vertical planes of polarization.

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.

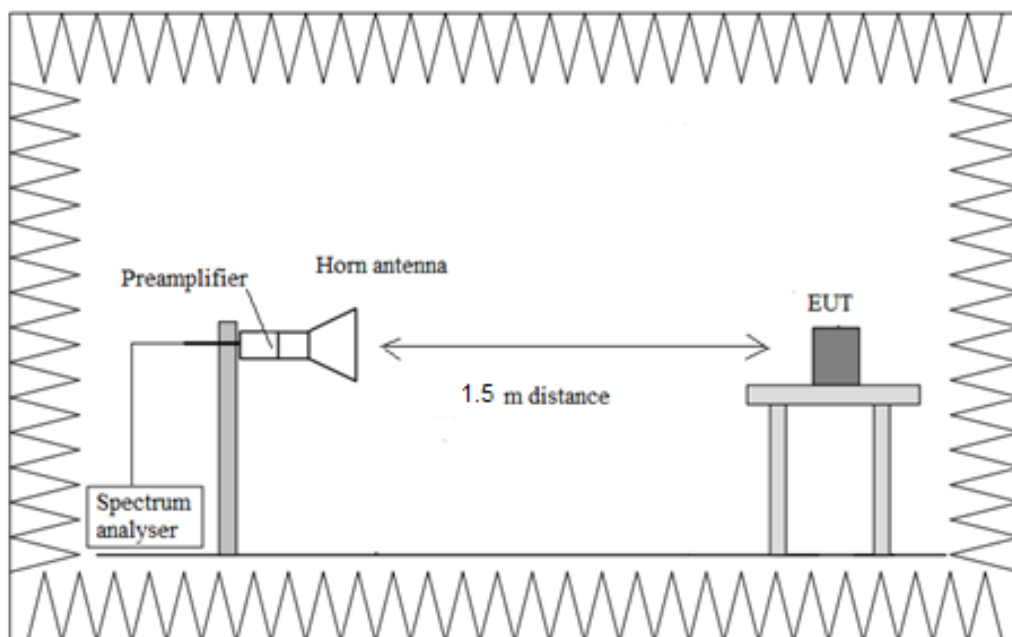
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



SAMPLE CALCULATION

For radiated measurements:

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

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

Where,

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

Preamp (dB): Path loses due to preamplifier

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

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

Cable loss (dB): Cable loss

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

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

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

TEST CASES DETAILS

Occupied Channel Bandwidth 99%

Specification

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

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

Modulation: BT (GFSK 1-DH5)

Results

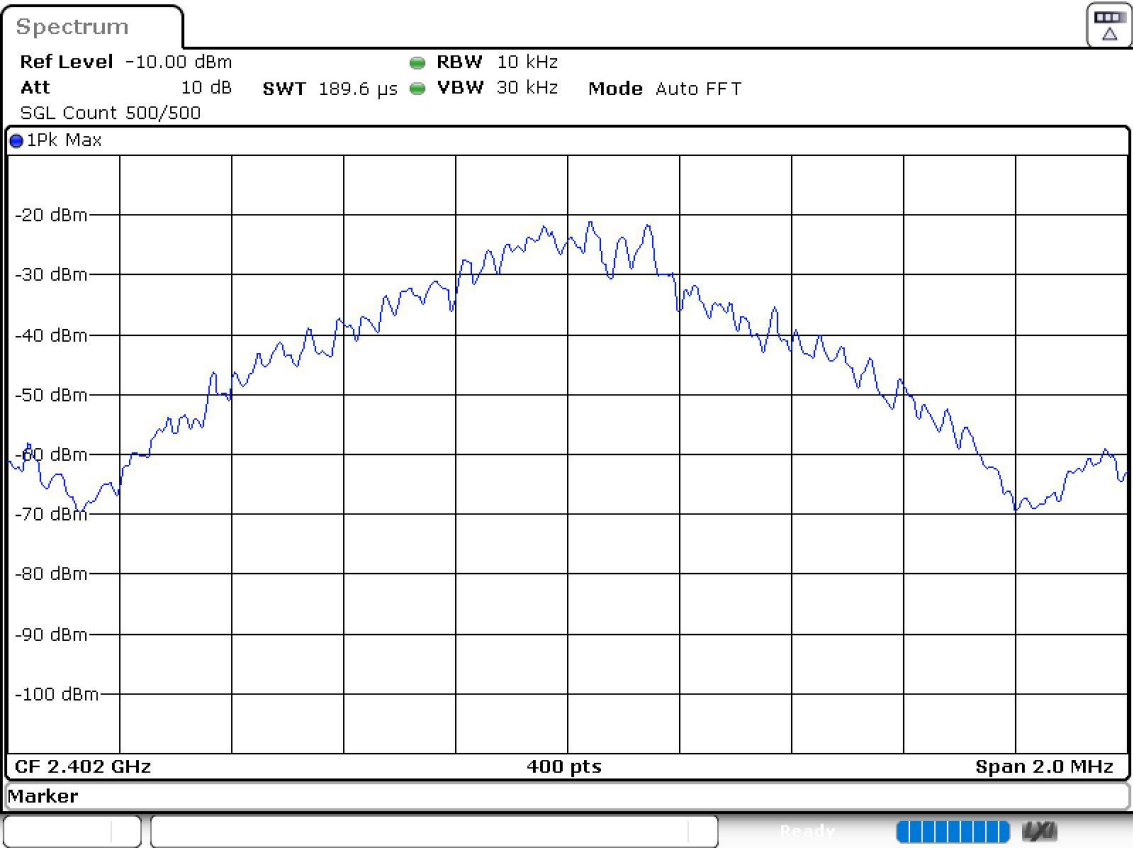
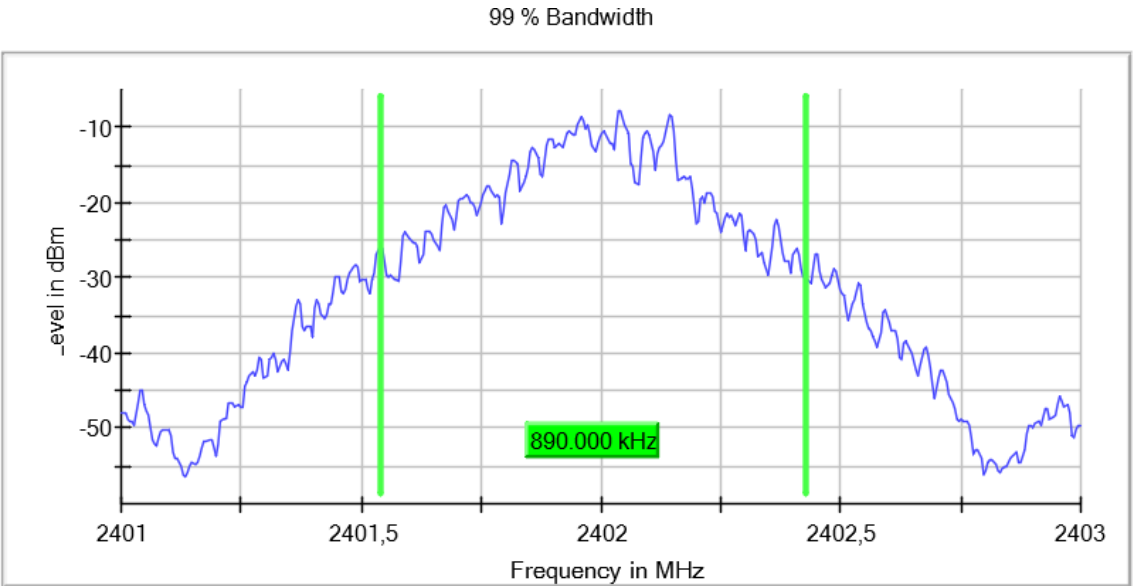
Equipment	Freq (MHz)	Occ Ch BW (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	0.895
	2441.00000	0.895
	2480.00000	0.895

Attachments

Operation Band MHz = [2400, 2483.5]
Frequency MHz = 2402.00000
Modulation = BT (GFSK 1-DH5)

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Active Port = 1

Images:



Operation Band MHz = [2400,
2483.5]

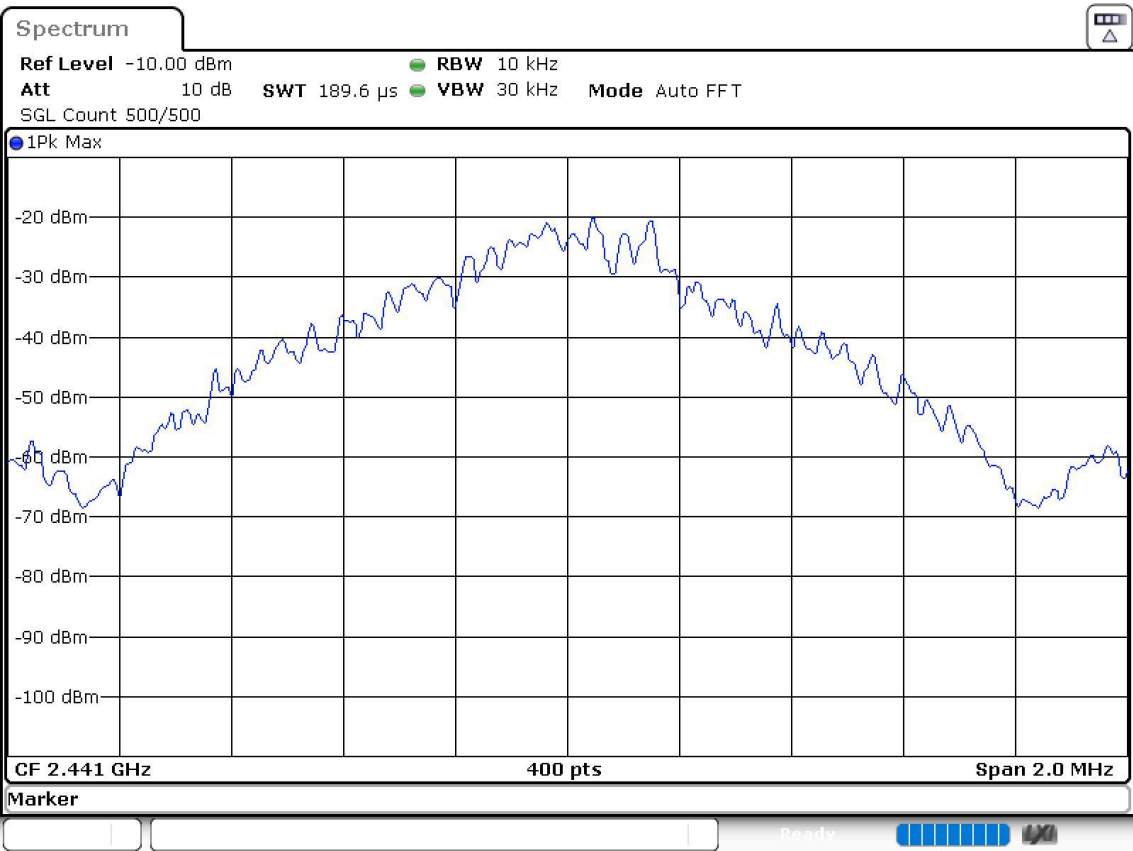
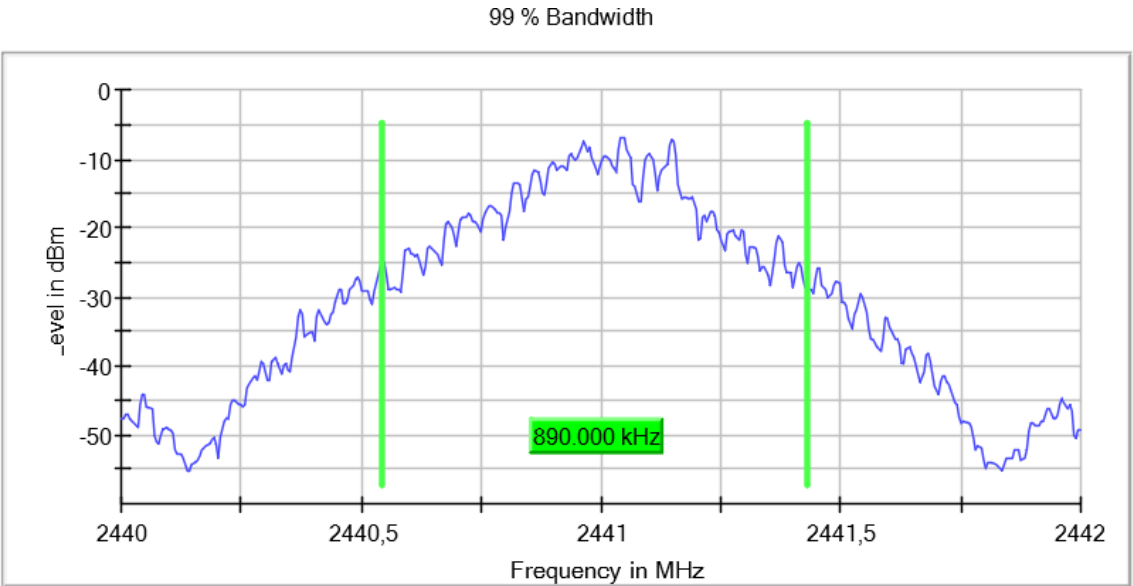
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2441.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

Images:



Operation Band MHz = [2400,
2483.5]

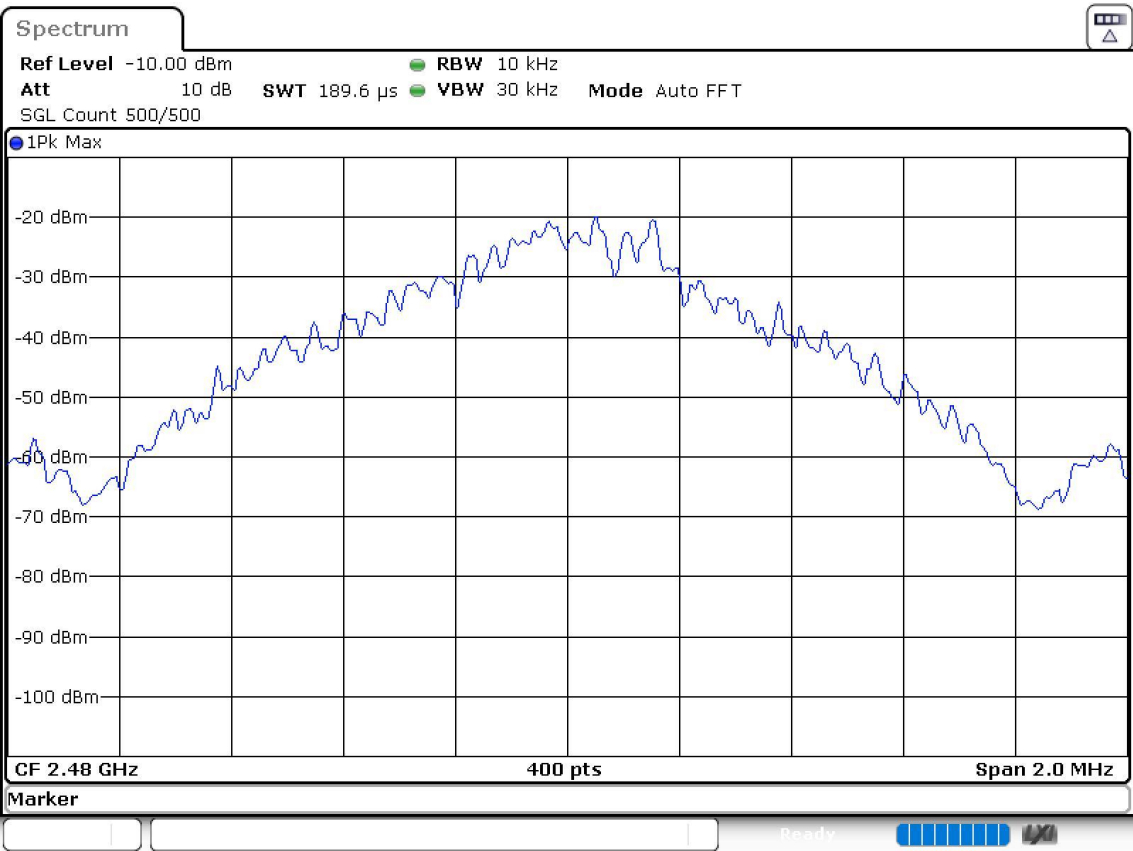
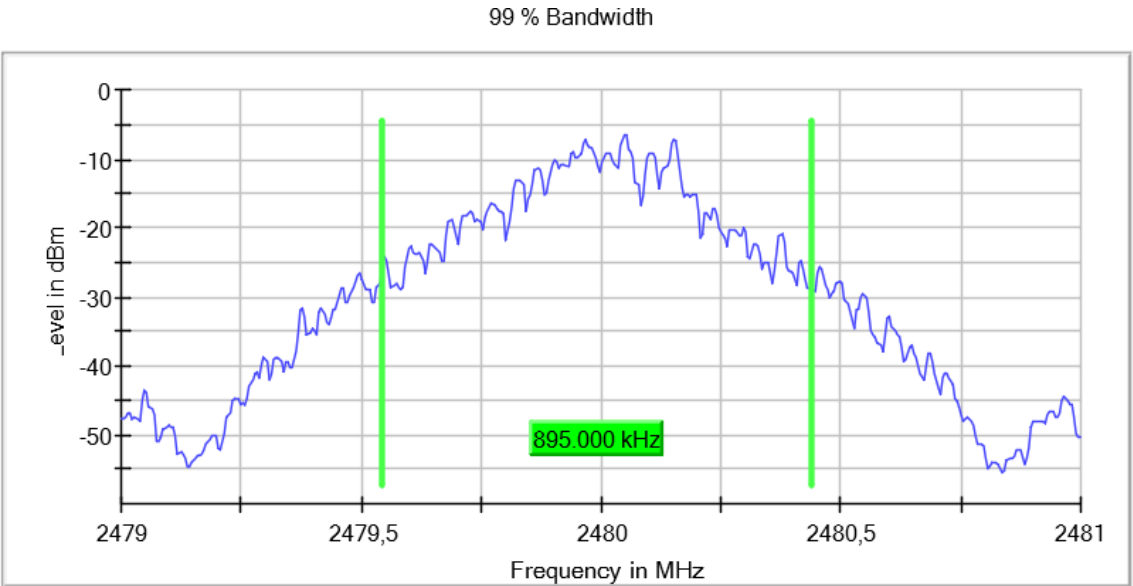
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BT (GFSK 1-DH5)

Images:



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

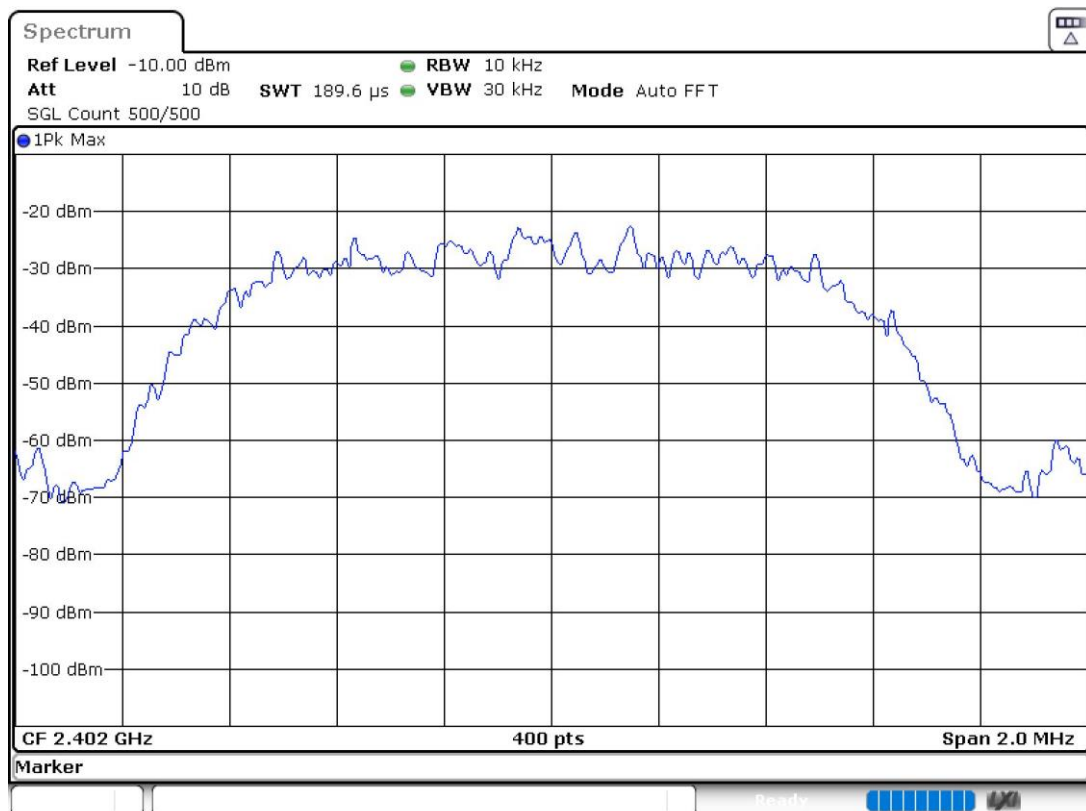
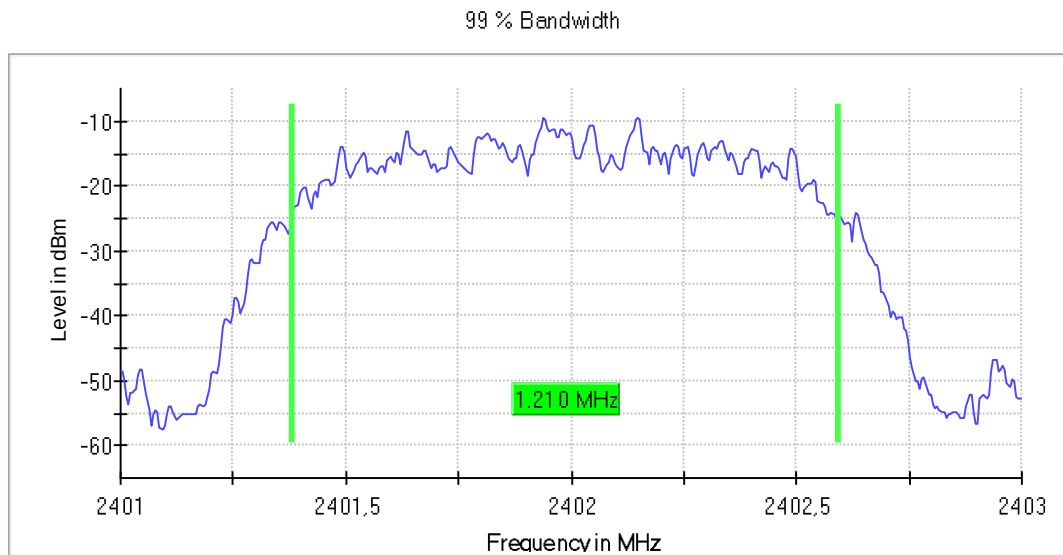
Results

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

Attachments

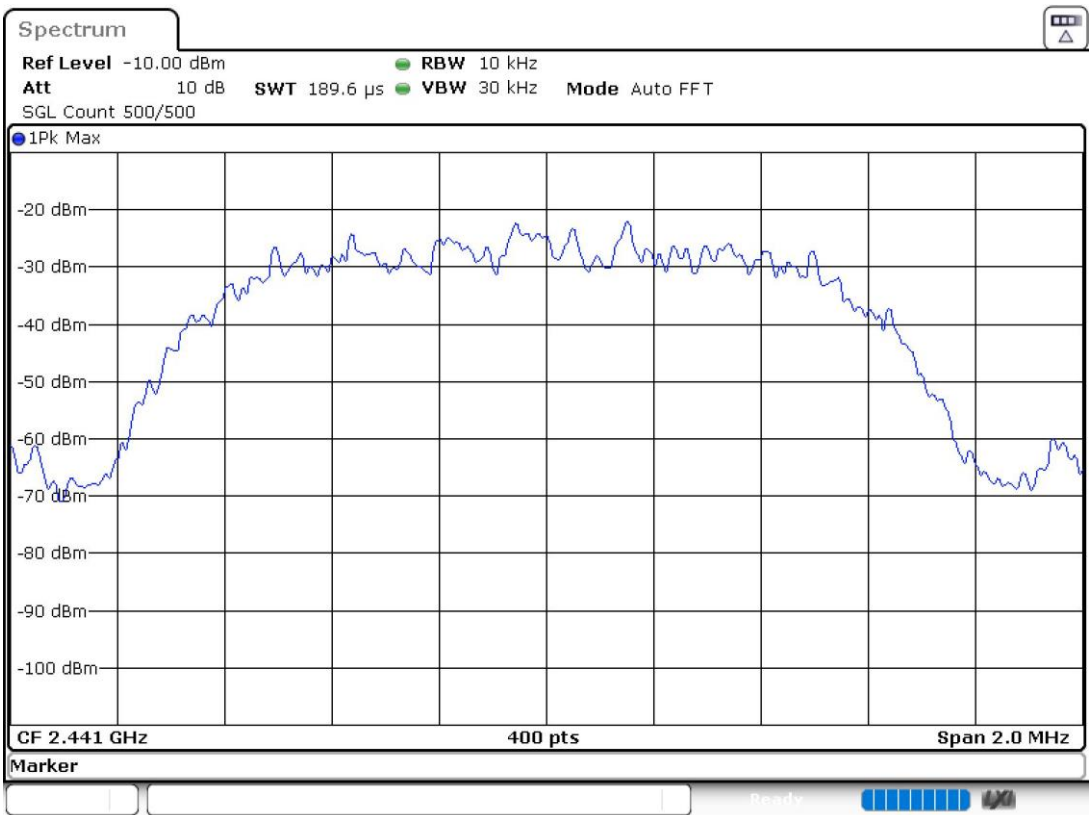
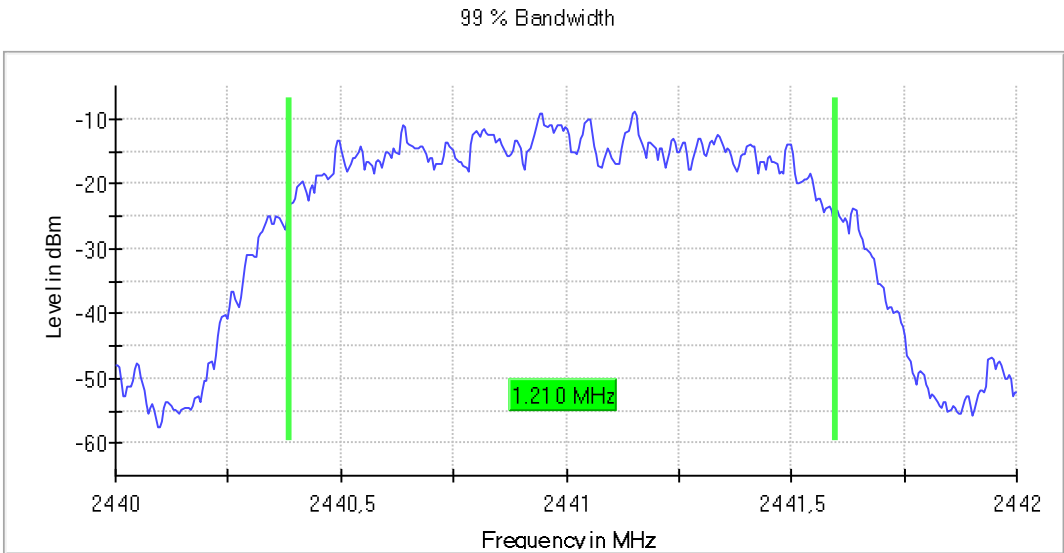
Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Frequency MHz = 2402.00000 Active Port = 1
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:



Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)
Frequency MHz = 2441.00000 Active Port = 1
Modulation = BT (Pi/4 DQPSK 2-DH5)

Images:

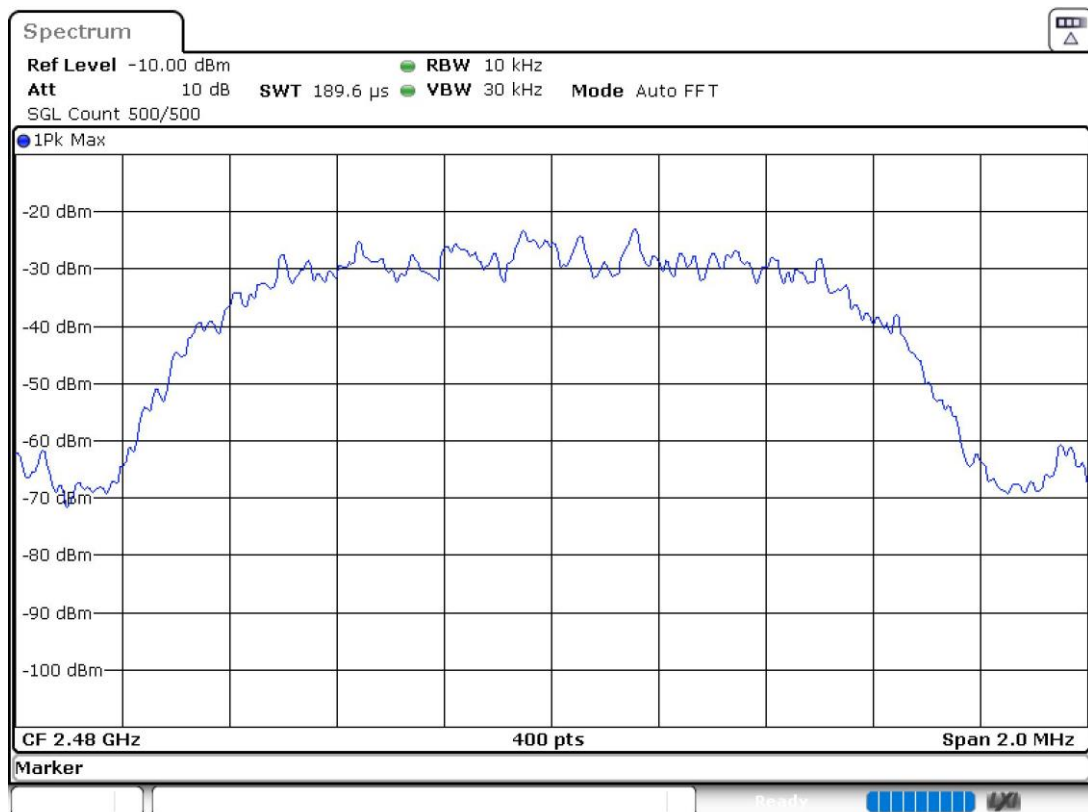
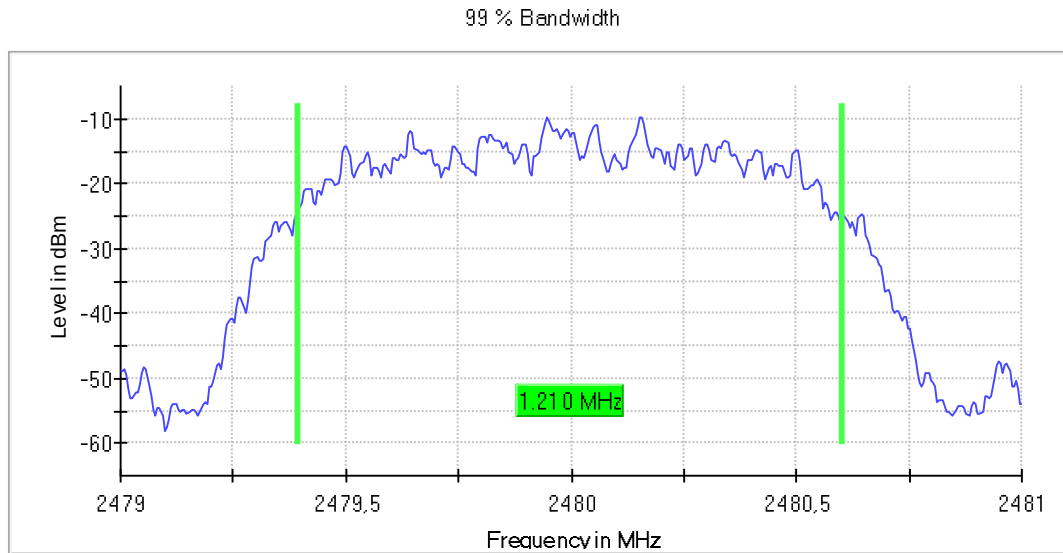


Operation Band MHz = [2400, 2483.5] Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000 Active Port = 1

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

Images:



Modulation: BT (8DPSK 3-DH5)

Results

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

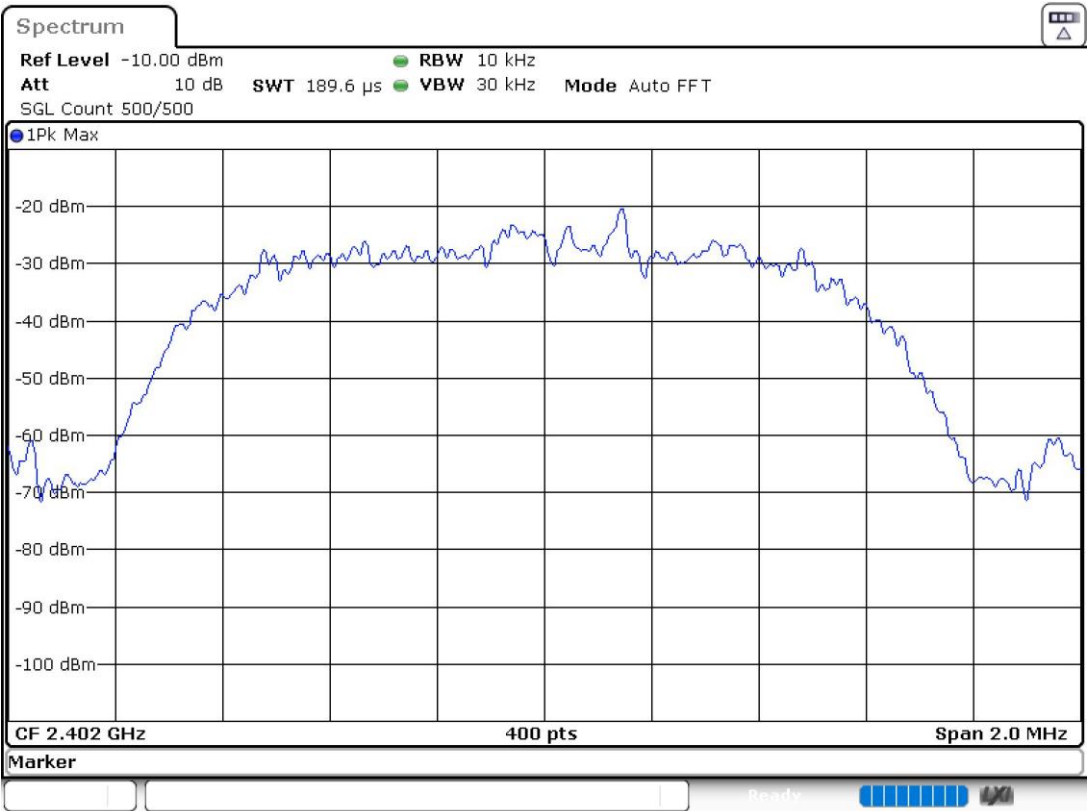
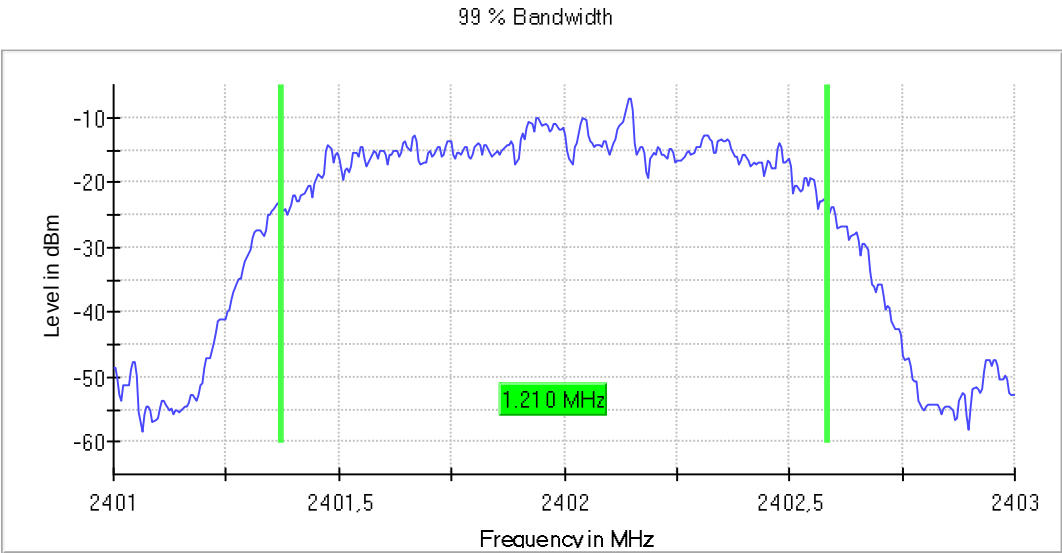
Attachments

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

Frequency MHz = 2402.00000 Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Images:



Operation Band MHz = [2400,
2483.5]

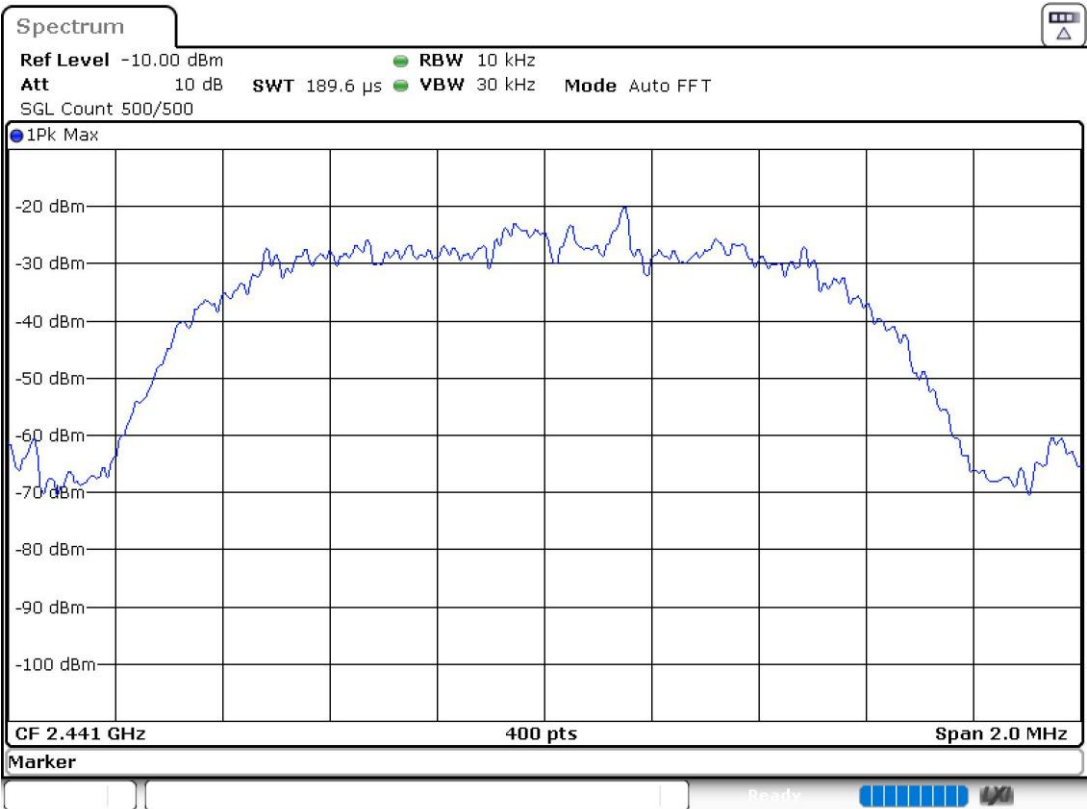
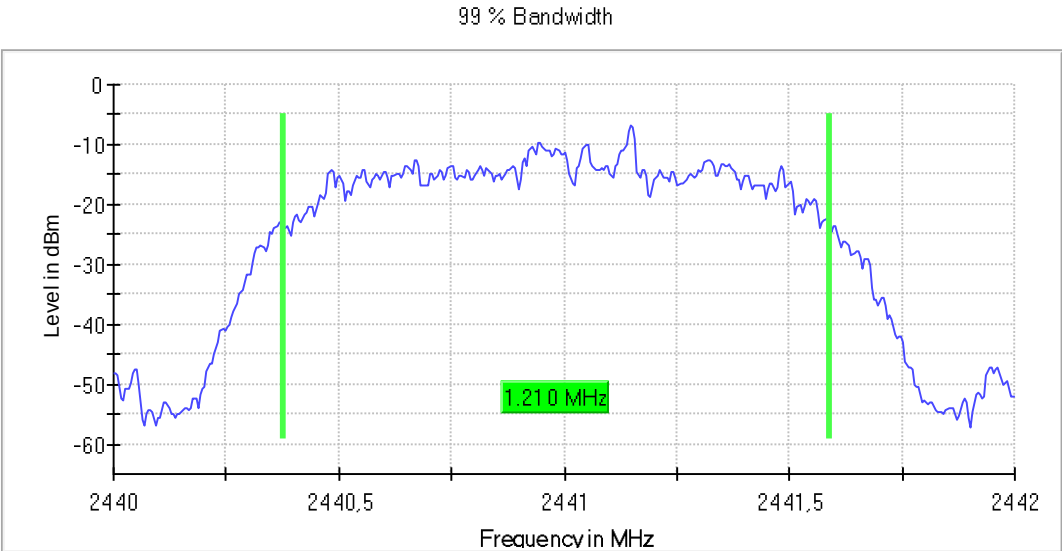
Equipment Type = Frequency Hopping Spread Spectrum systems
(DSS)

Frequency MHz = 2441.00000

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Images:



Operation Band MHz = [2400, 2483.5]

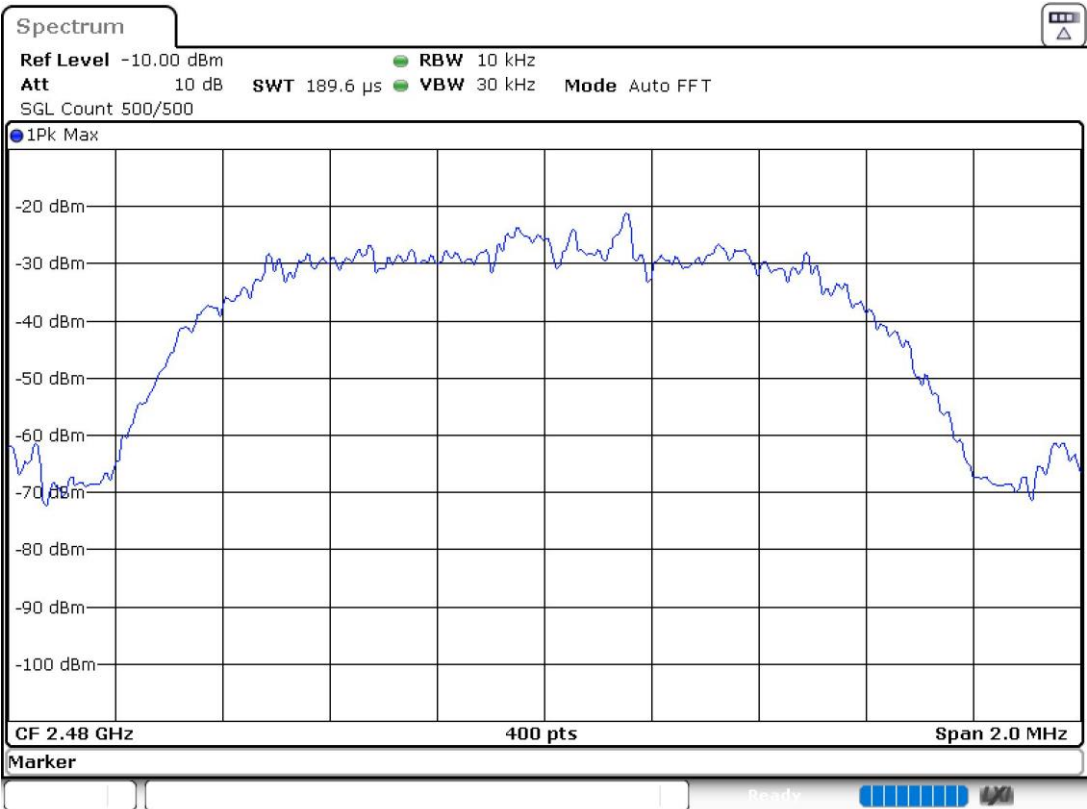
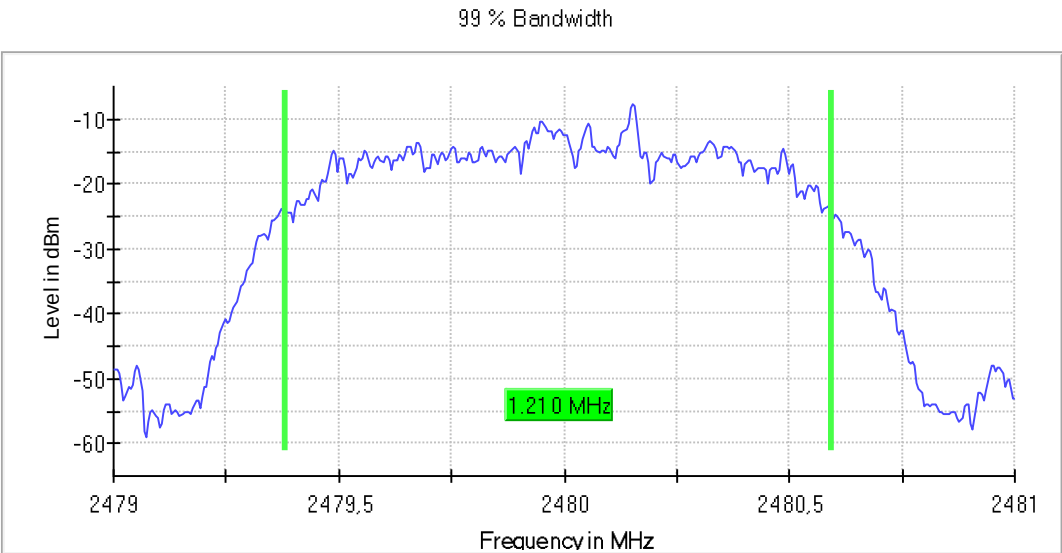
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Frequency MHz = 2480.00000

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

Images:



RSS-247 6.2.3.1 (a) / 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 1-DH5)

Results

Equipment	Freq (MHz)	20 dB Bandwidth (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	0.930
	2441.00000	0.930
	2480.00000	0.930

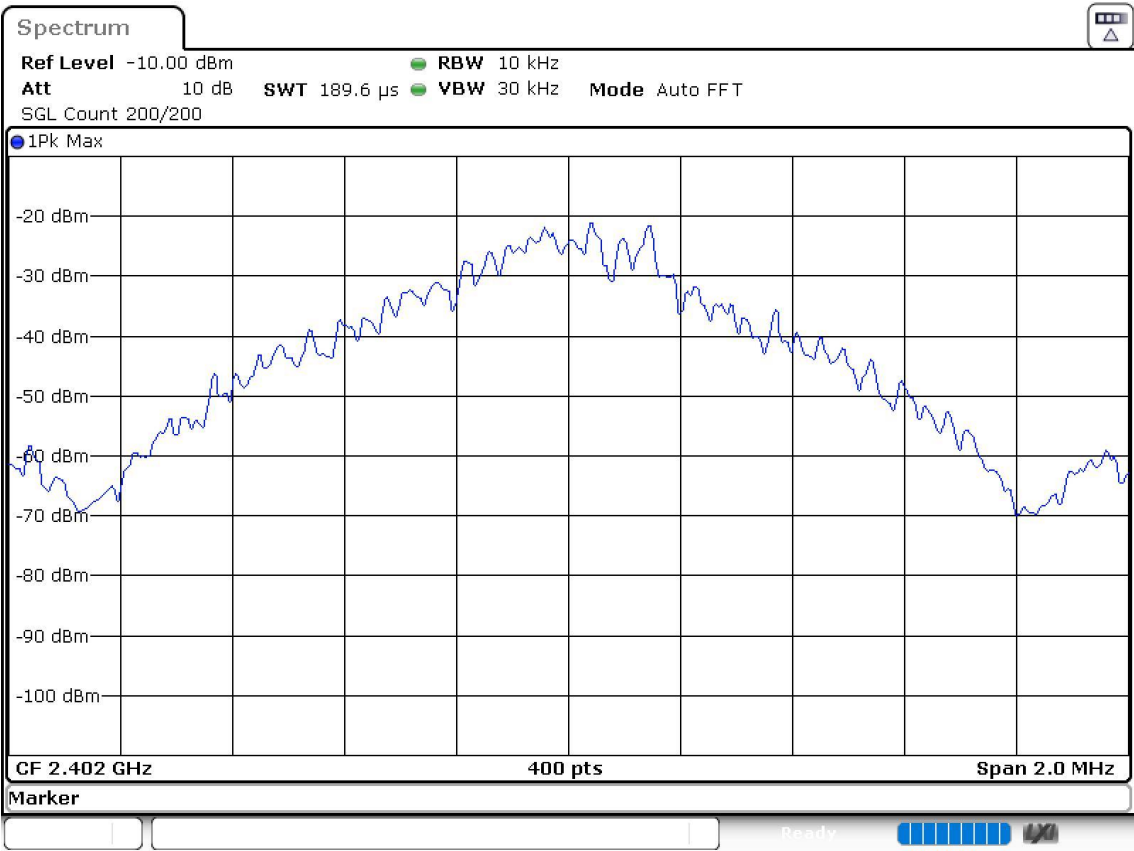
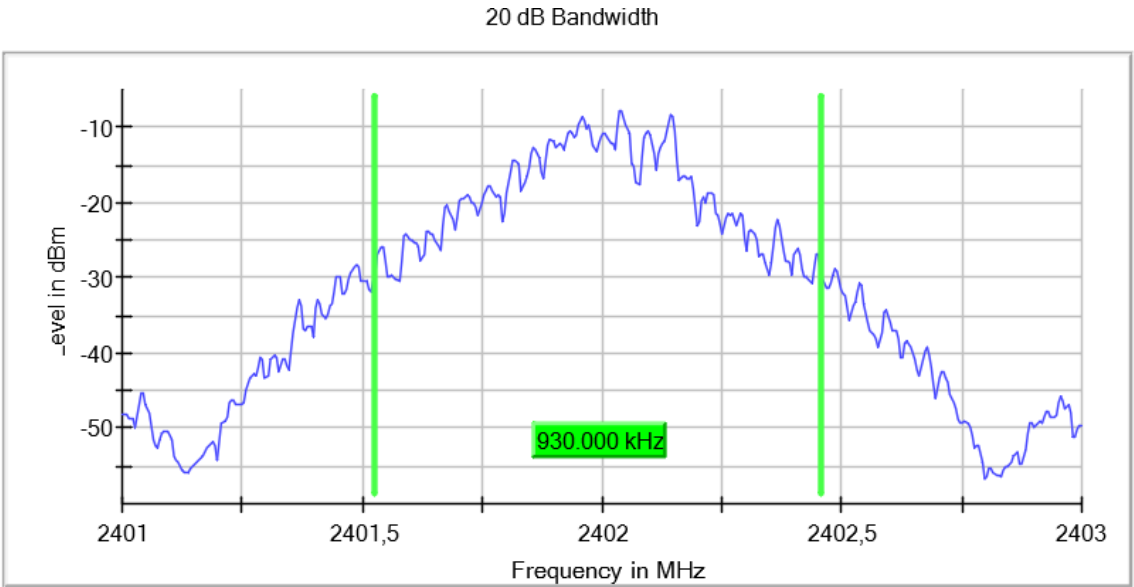
Verdict

Pass

Attachments

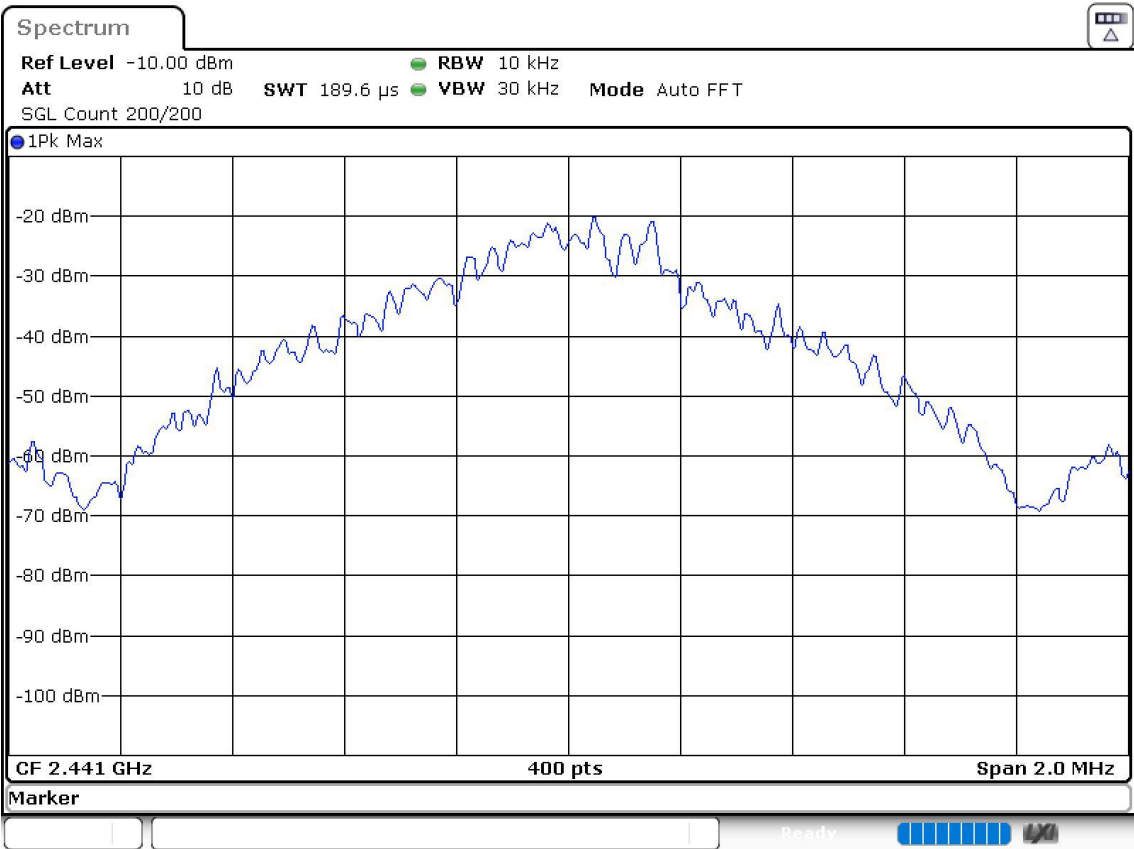
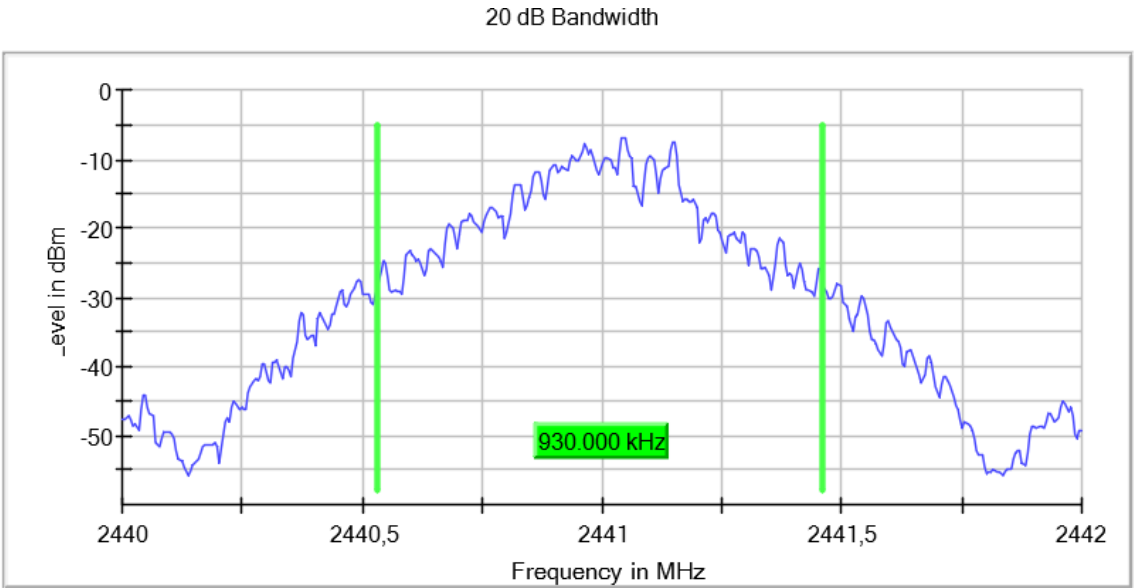
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Frequency MHz = 2402.00000
Active Port = 1 Modulation = BT (GFSK 1-DH5)

Images:



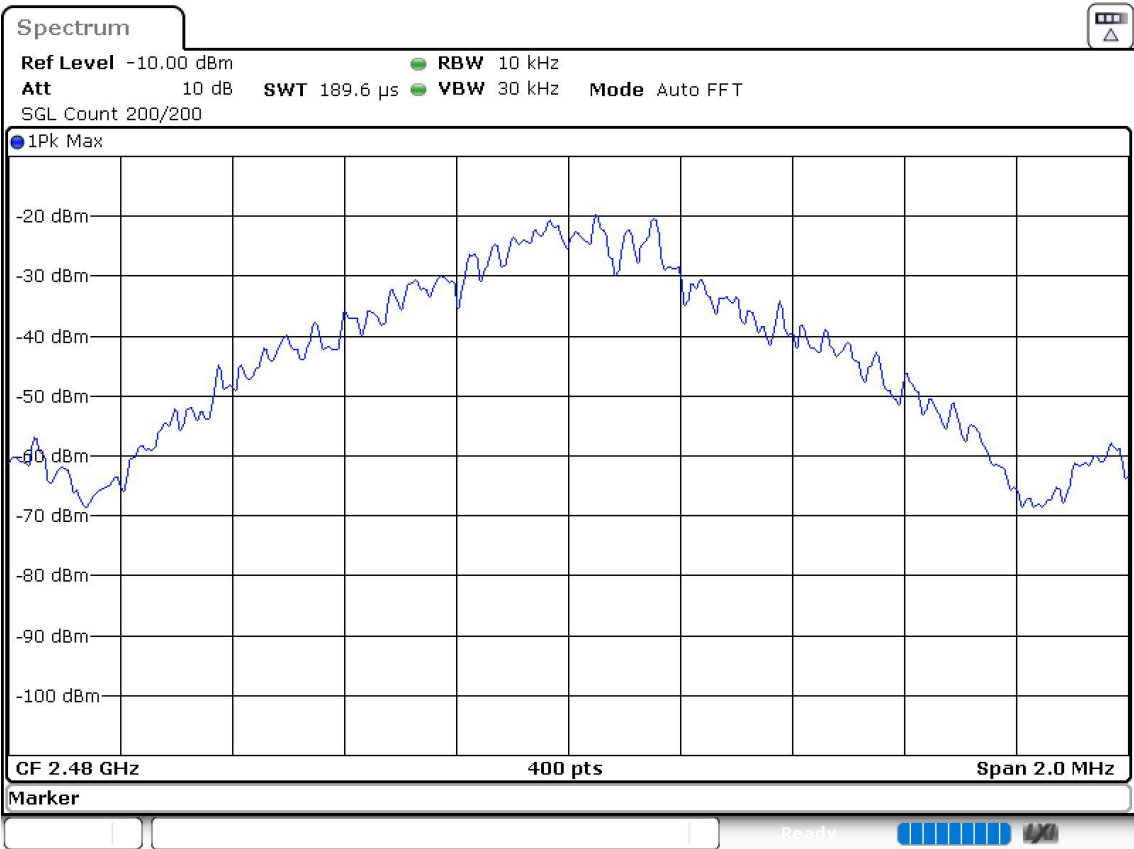
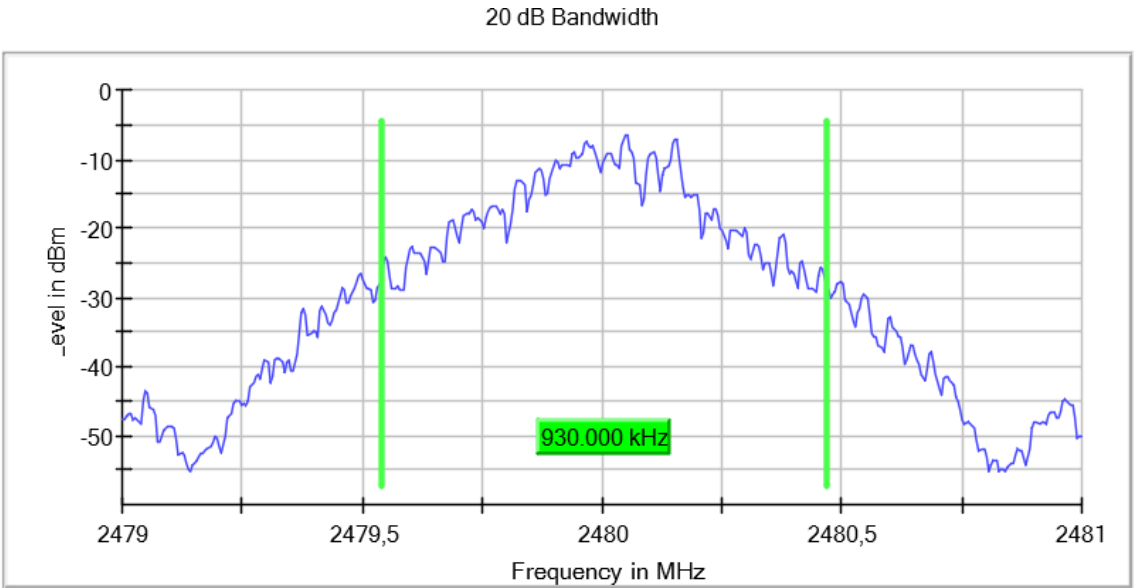
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Frequency MHz = 2441.00000
Active Port = 1 Modulation = BT (GFSK 1-DH5)

Images:



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

Images:



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

Results

Equipment	Freq (MHz)	20 dB Bandwidth (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	1.350
	2441.00000	1.350
	2480.00000	1.350

Verdict

Pass

Attachments

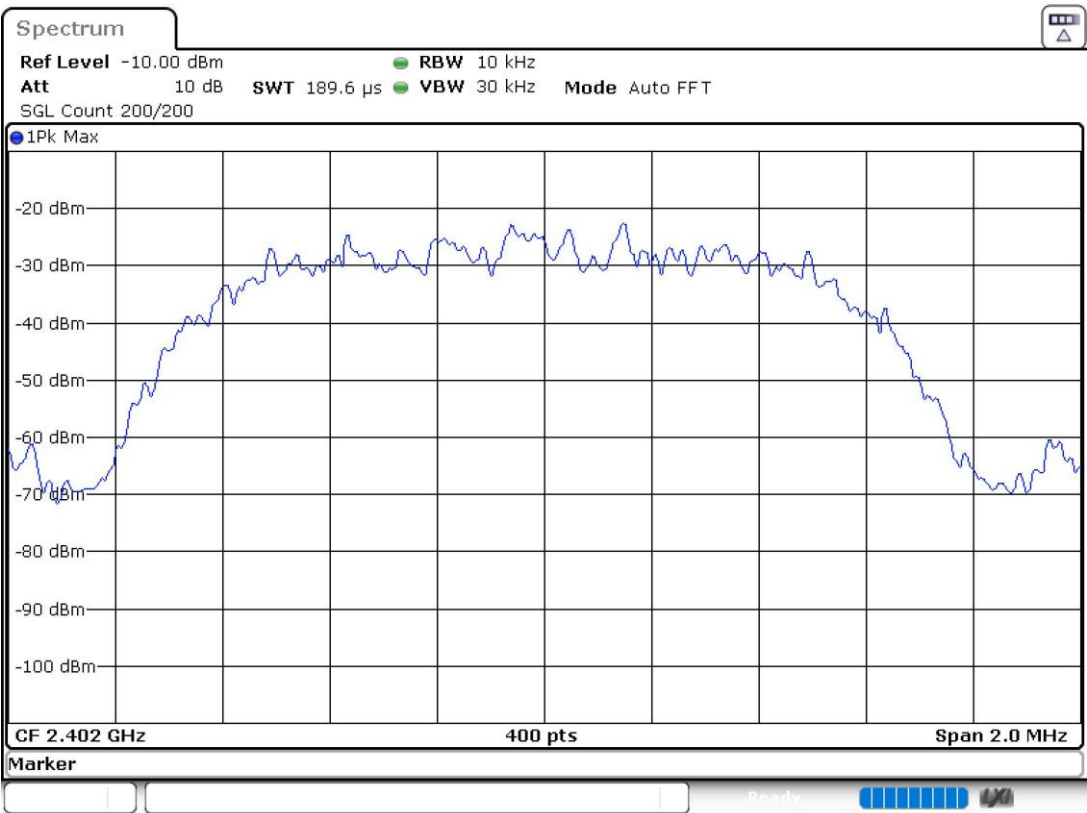
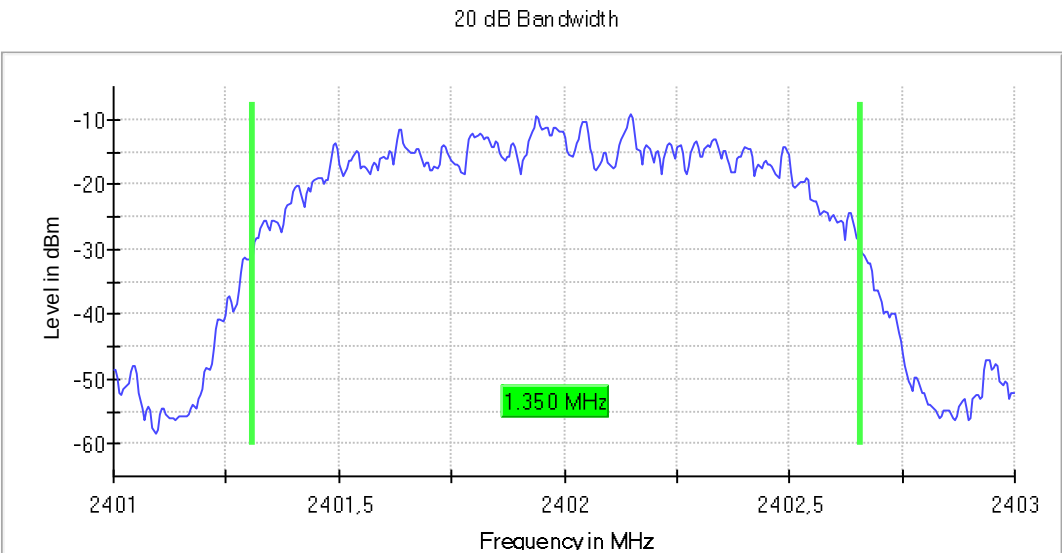
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Active Port = 1

Frequency MHz = 2402.00000

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

Images:



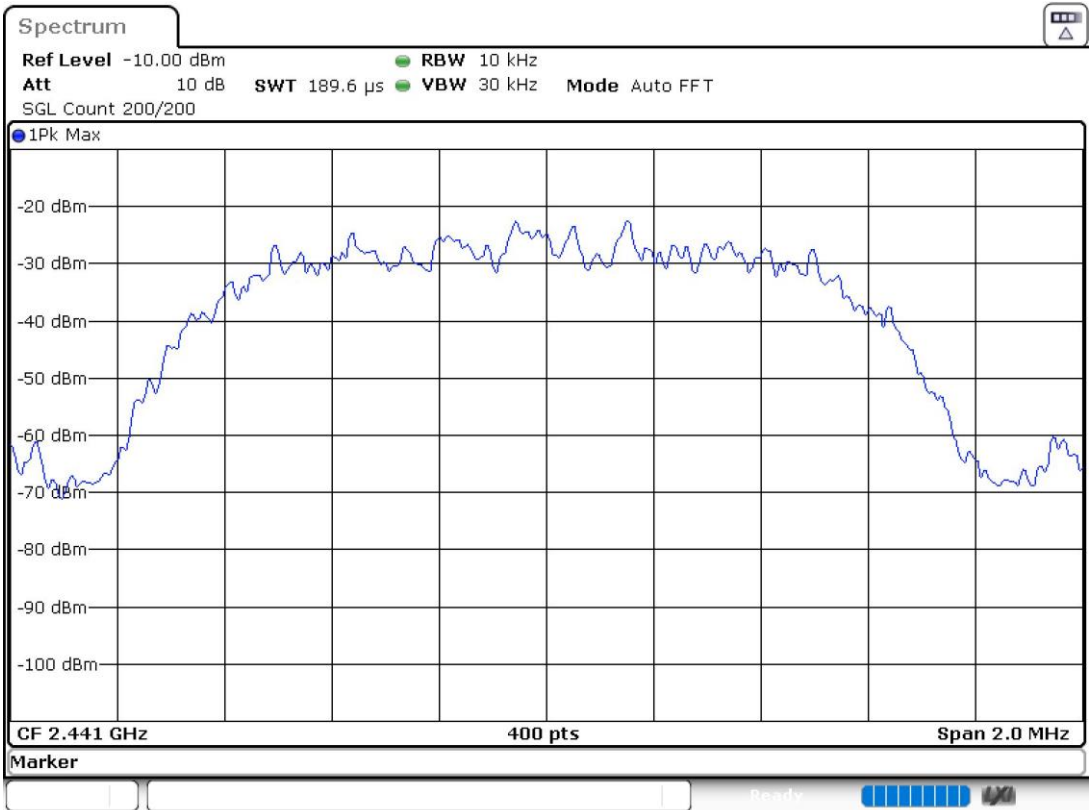
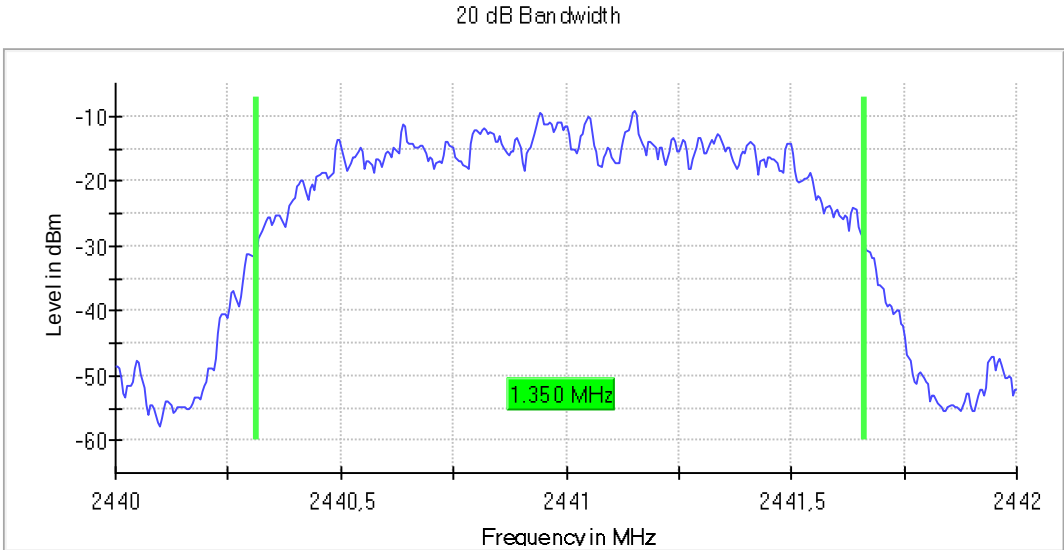
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Active Port = 1

Frequency MHz = 2441.00000

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

Images:



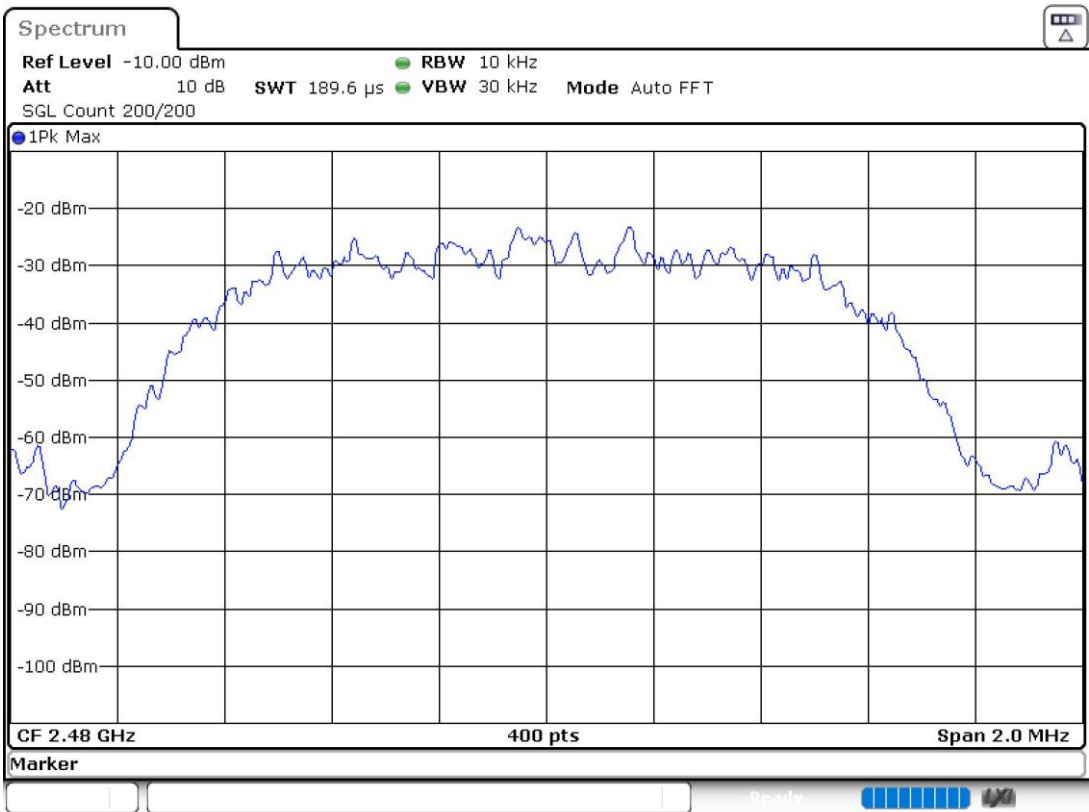
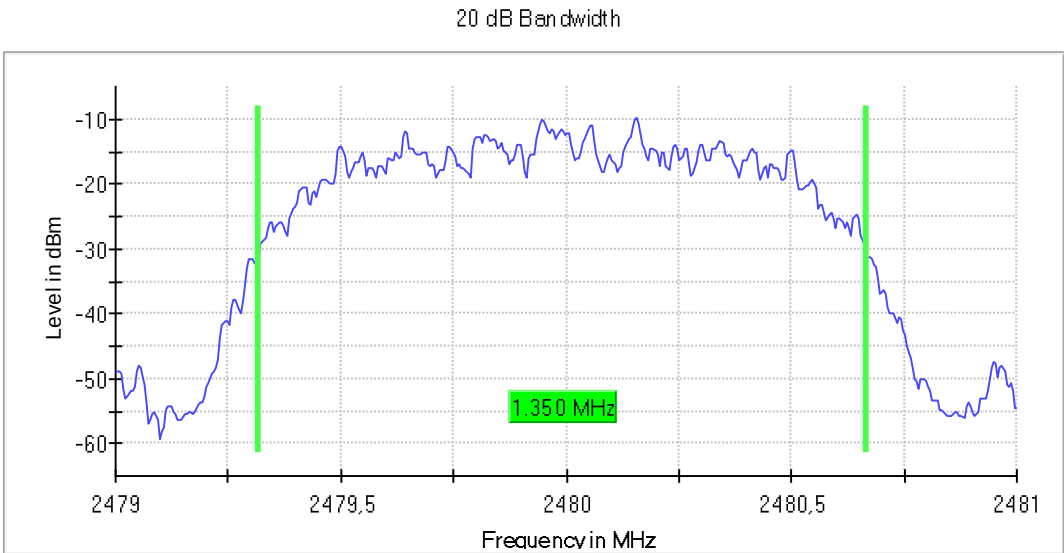
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS)

Active Port = 1

Frequency MHz = 2480.00000

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

Images:



Modulation: BT (8DPSK 3-DH5)

Results

Equipment	Freq (MHz)	20 dB Bandwidth (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	2402.00000	1.295
	2441.00000	1.295
	2480.00000	1.295

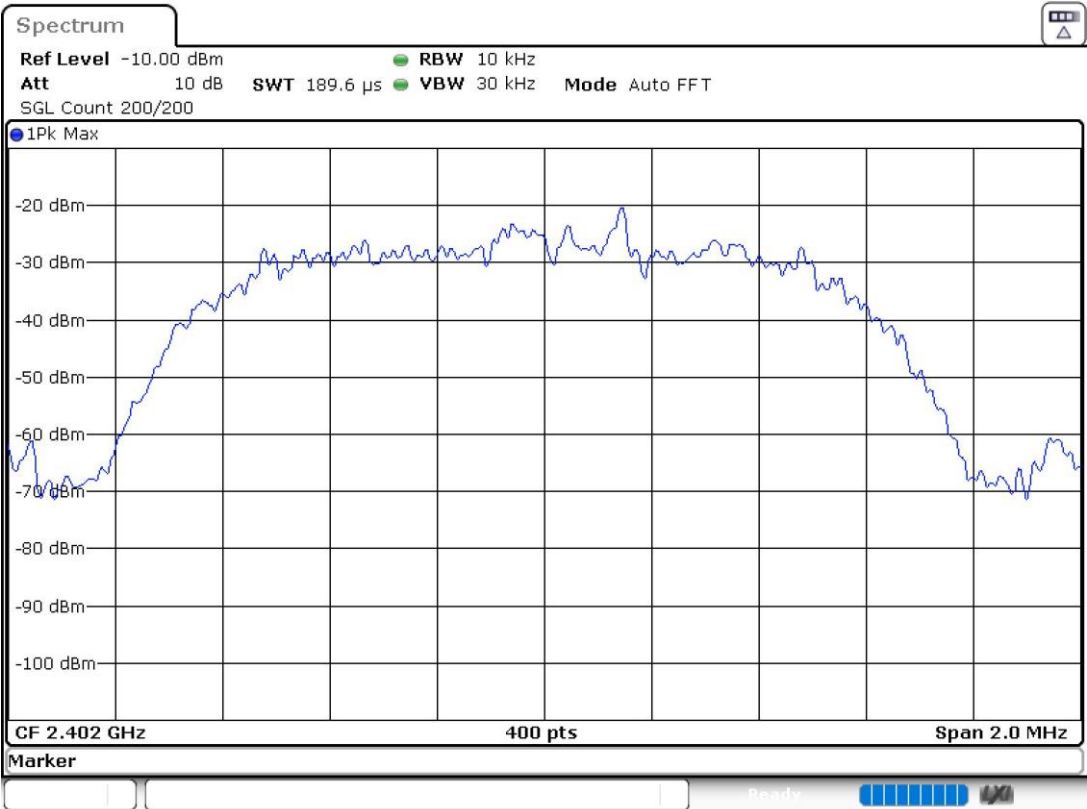
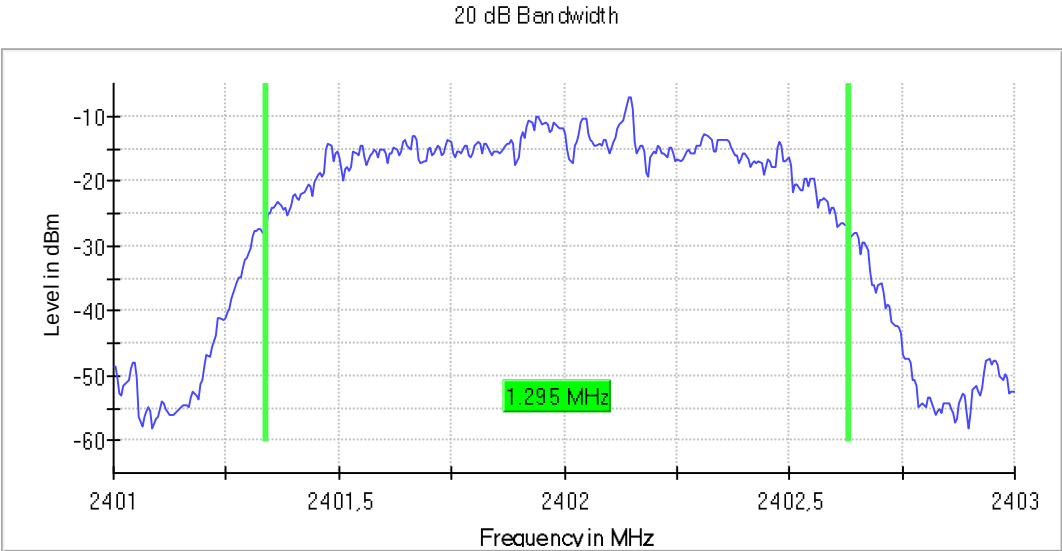
Verdict

Pass

Attachments

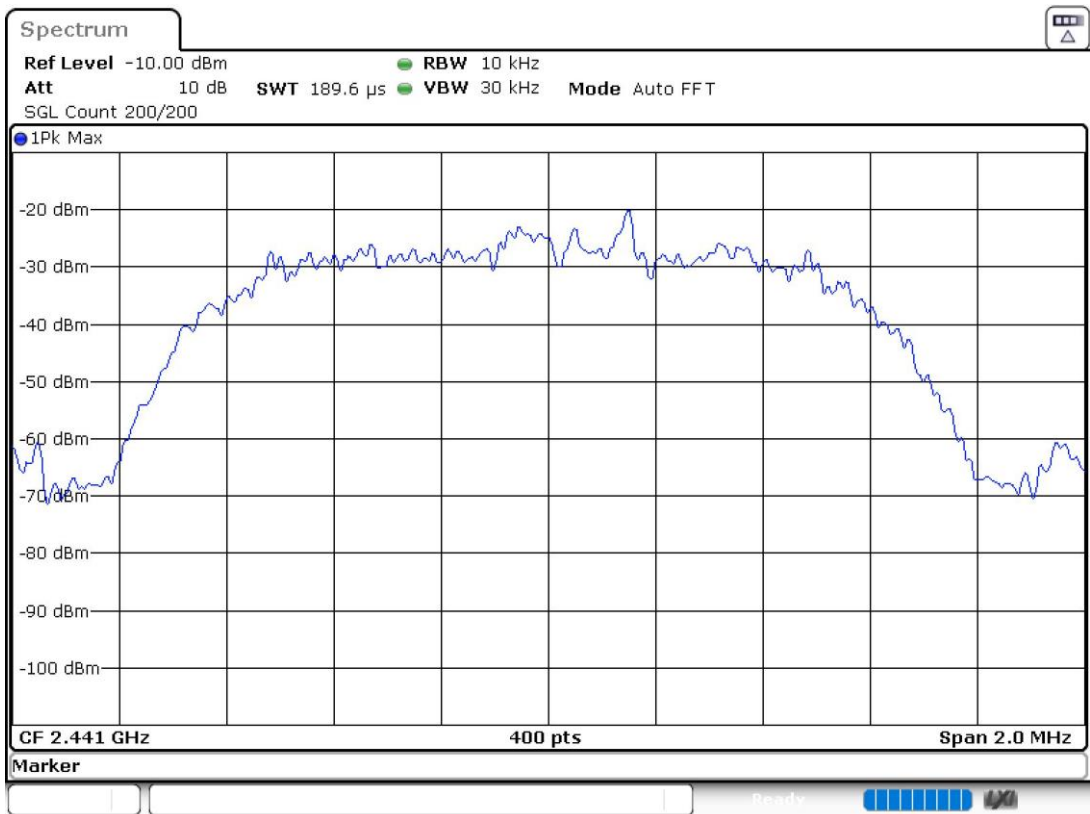
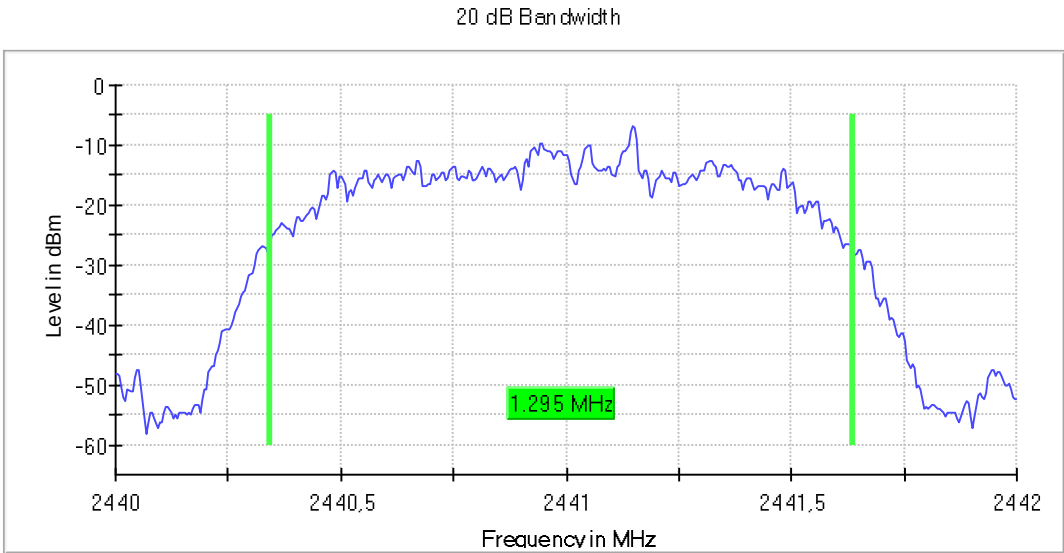
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Frequency MHz = 2402.00000
Active Port = 1 Modulation = BT (8DPSK 3-DH5)

Images:



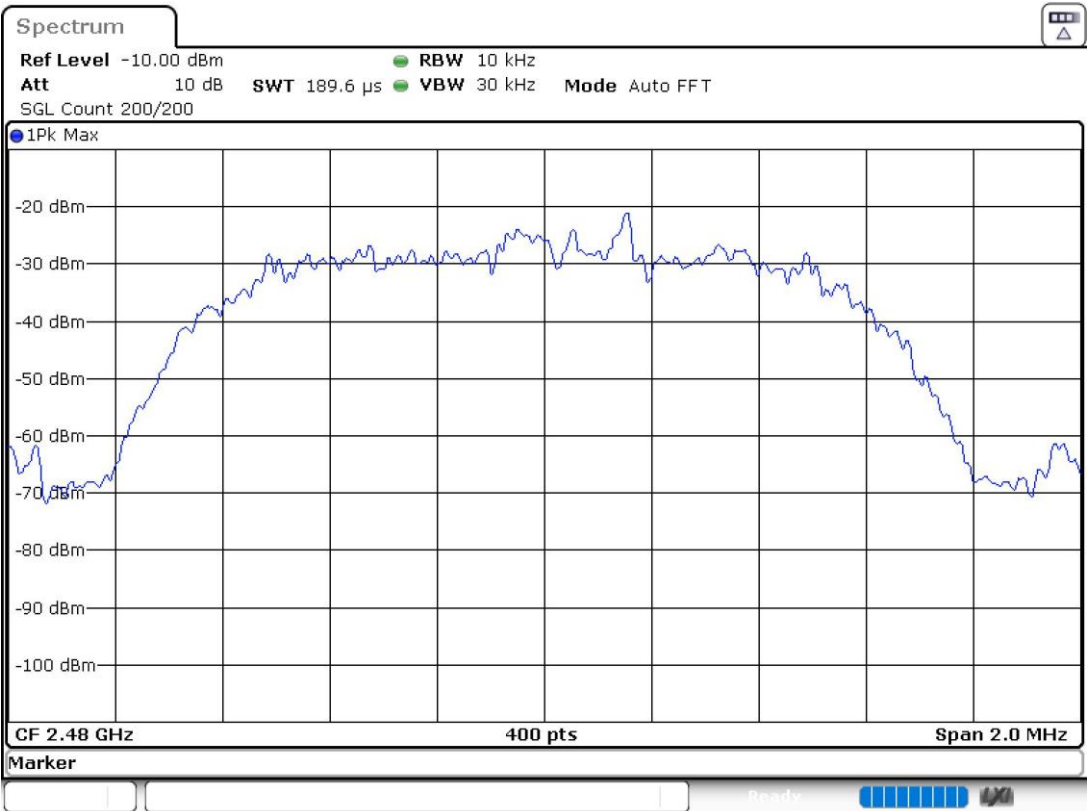
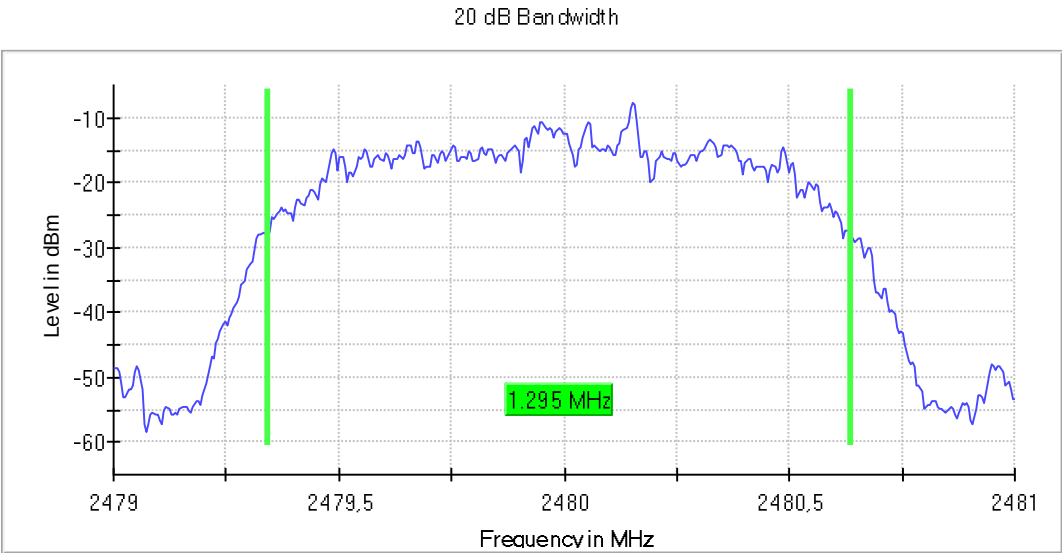
Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Frequency MHz = 2441.00000
Active Port = 1 Modulation = BT (8DPSK 3-DH5)

Images:



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

Images:



RSS-247 6.2.3.1 (a) / 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 1-DH5)

Results

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

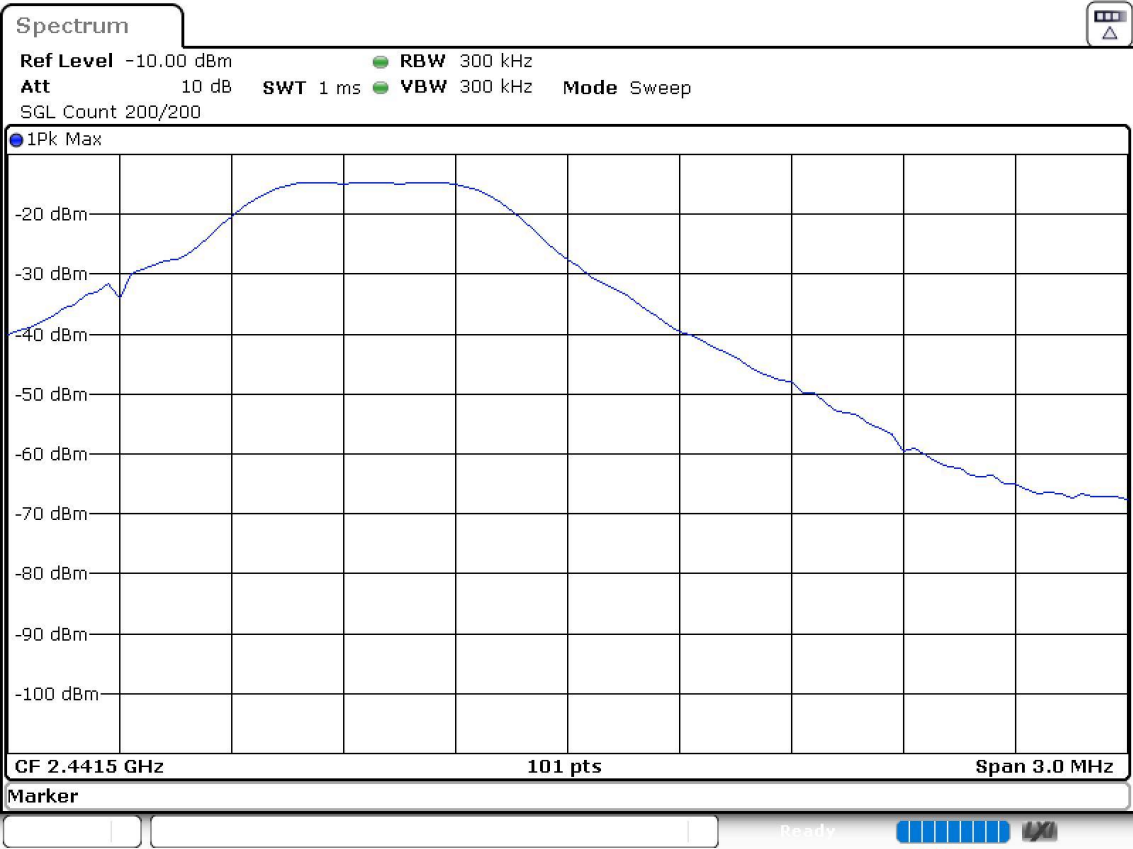
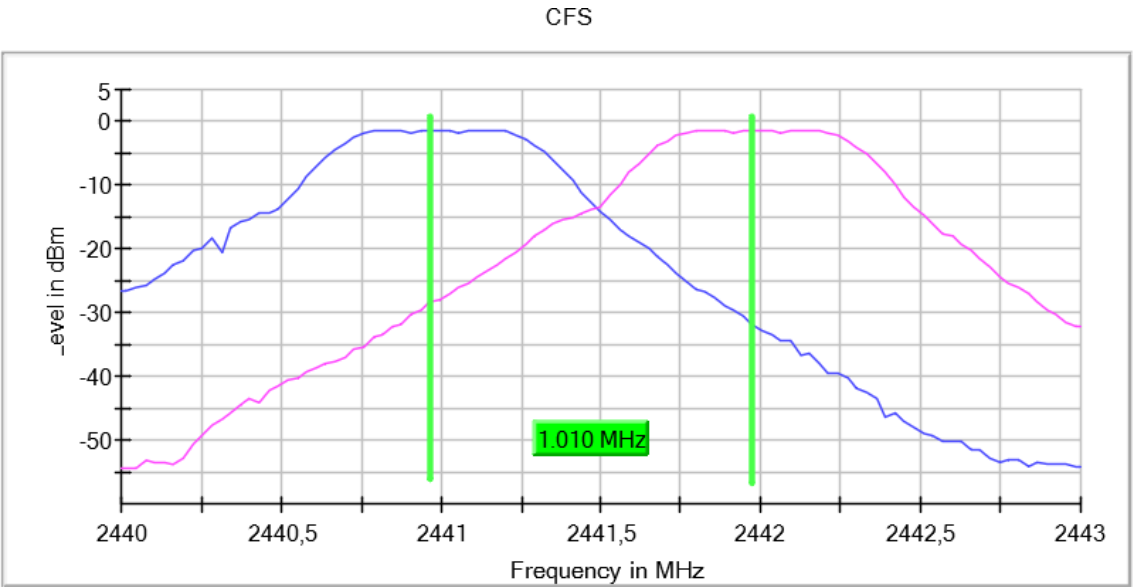
Verdict

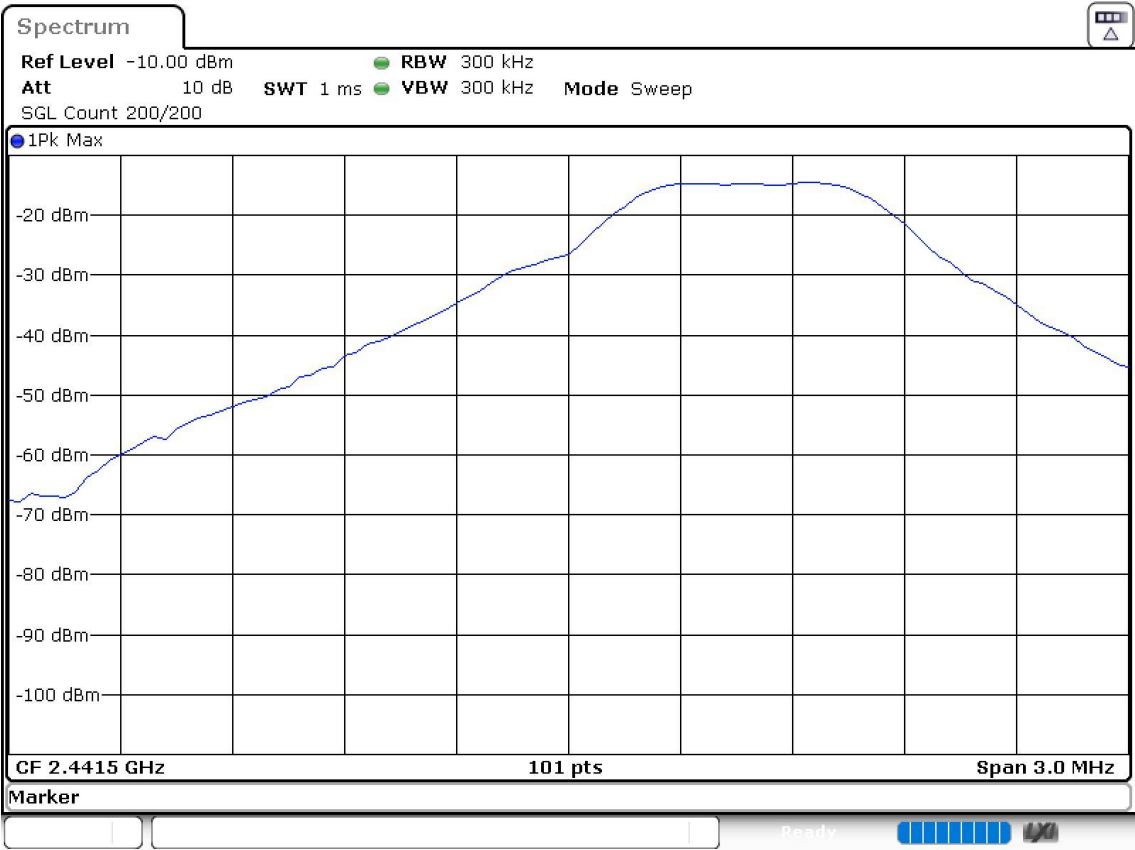
Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Active Port = 1
Modulation = BT (GFSK 1-DH5)

Images:





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

Results

Equipment	Freq Sep (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	0.98

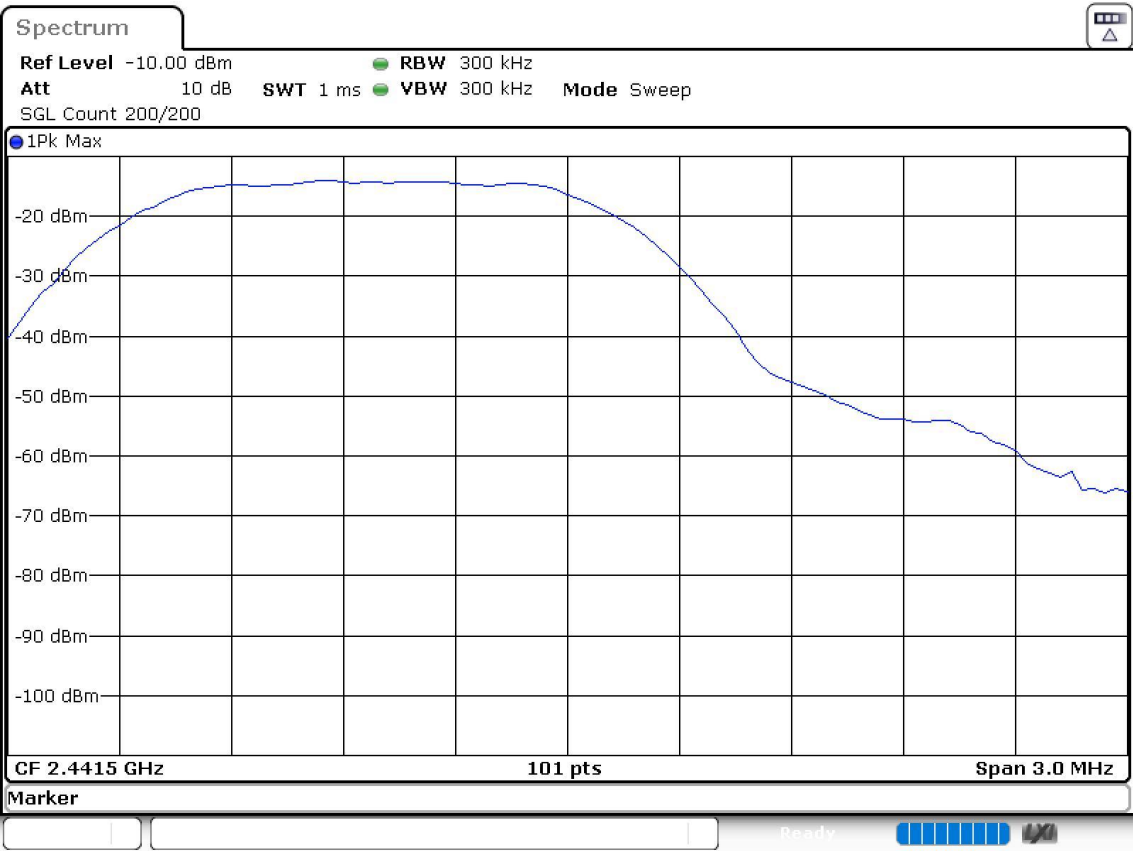
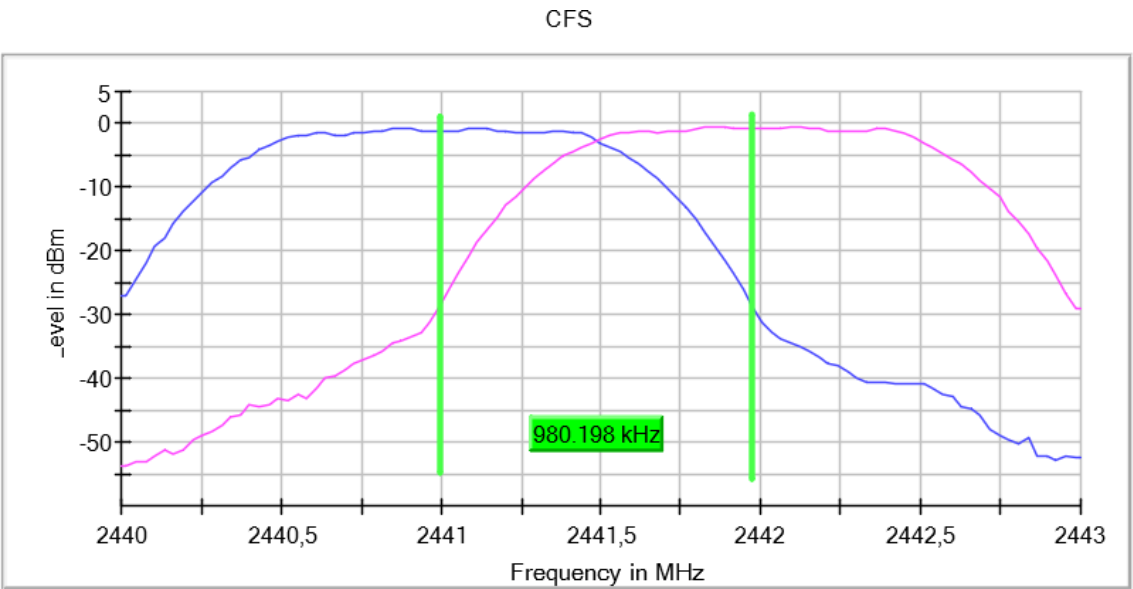
Verdict

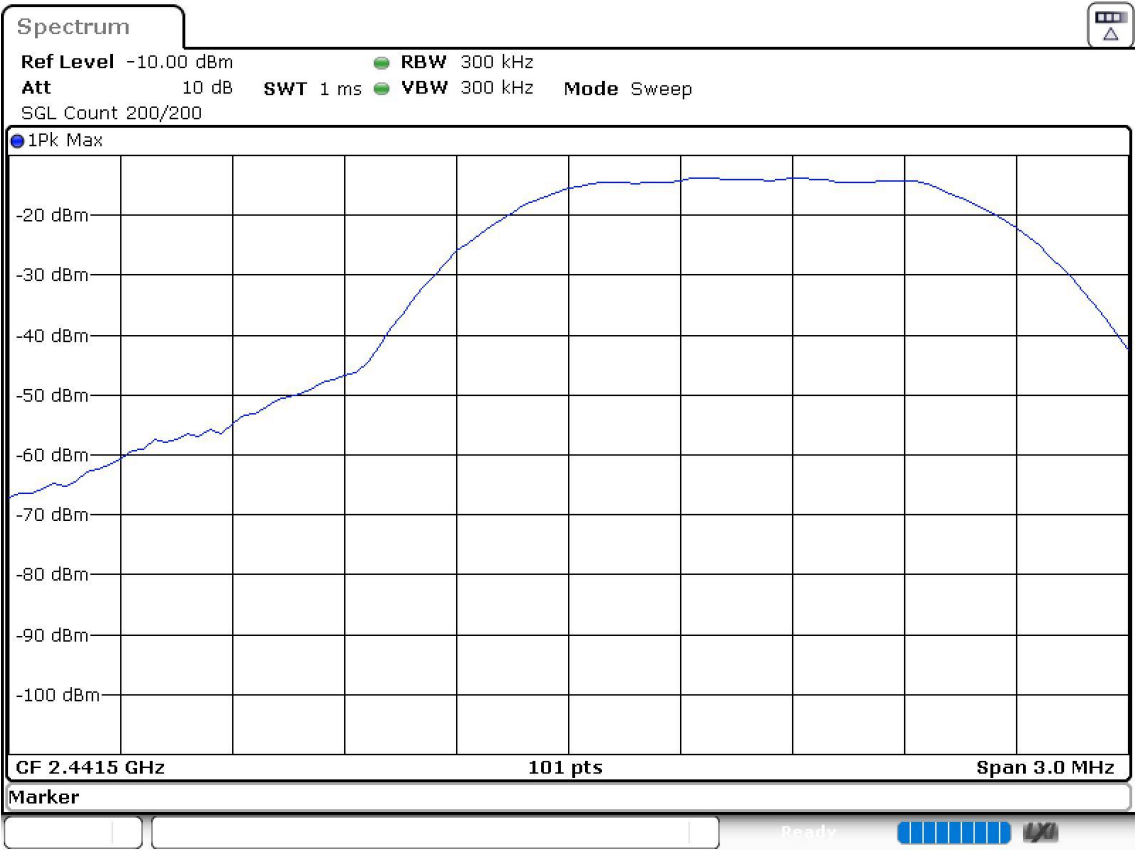
Pass

Attachments

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

Images:





Modulation: BT (8DPSK 3-DH5)

Results

Equipment	Freq Sep (MHz)
Frequency Hopping Spread Spectrum systems (DSS)	0.98

Verdict

Pass

Attachments

Equipment Type = Frequency Hopping Spread Spectrum systems (DSS) Active Port = 1
Modulation = BT (8DPSK 3-DH5)

Images:

