

ISED CABid: ES1909

Lab. Company Number: 4621A

Test Report No:

73655RRF.001

Test Report

USA FCC Part 15.247, 15.209

CANADA RSS-247, RSS-Gen

(*) Identification of item tested	e-bike user interface controller
(*) Trademark	Bosch
(*) Model and /or type reference	BRC3800
Other identification of the product	FCC ID: 2AWRC-BRC3800 IC: 26294-BRC3800
(*) Features	Bluetooth Low Energy HW version: 4.0.1 SW version: ETS-EMC 20221212
Applicant	Robert Bosch GmbH – eBike Systems Markwiesenstraße, 58, 72770, Reutlingen, Germany
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 (February 2017). CANADA RSS-Gen Issue 5 amendment 1 (March 2019). 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: American National Standard Of Procedures For Compliance Testing Of Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager
Date of issue	2023-03-27
Report template No	FDT08_24 (*) "Data provided by the client"

Index

Index.....	2
Acronyms.....	3
Competences and guarantees	3
General conditions	4
Uncertainty	4
Data provided by the client.....	4
Usage of samples	5
Test sample description	6
Identification of the client.....	8
Testing period and place.....	8
Document history	8
Environmental conditions	8
Remarks and comments	9
Testing verdicts.....	10
Summary	10
Appendix A: Test results. Bluetooth Low Energy (1M).....	11

Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
BW	Bandwidth
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
PSD	Power Spectrum Density
Peak Power	Maximum Peak Conducted Output Power
Pol	Polarization
Port	Active Port
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.

DEKRA Testing and Certification S.A.U. 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.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA Testing and Certification S.A.U.

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.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification S.A.U.
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

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

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 a e-bike user interface controller. e-bike user interface controller with BLE.

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.

Usage of samples

Samples undergoing test have been selected by: The client.

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

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	73655B_27.1	Bycycle control display (Radiated)	BRC3800	28007-0137-01-057-00000	2023-02-01	Element Under Test
S/01	73655B_14.1	Y split red/black	--	--	2023-01-30	Auxiliary Element
S/01	73655_24.1	Bicycle handlebars	--	--	2023-01-30	Auxiliary Element

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

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

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/02	73655B_17.1	Bycycle control display (Radiated)	BRC3800	27529-2672-01-057-00	2023-01-30	Element Under Test

Sample S/02 has undergone the following test(s): The Conducted tests indicated in the Appendix A.

Test sample description

Ports..... :	Port name and description	Cable				
		Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾	
	USB service port (USB-C interface for service)	< 3m	[]	[]	[]	
	System cable connector (Supply+CAN FD) connected to ebike	< 3m	[X]	[]	[]	
			[]	[]	[]	
			[]	[]	[]	
			[]	[]	[]	
			[]	[]	[]	
Supplementary information to the ports..... :						
Rated power supply	Voltage and Frequency		Reference poles			
			L1	L2	L3	N PE
	[]	AC:	[]	[]	[]	[] []
	[]	AC:	[]	[]	[]	[] []
	[X]	DC: USB port, nom. 5 VDC				
	[X]	DC: System cable, nom. 13,5 VDC				
Rated Power	System cable: max. 2,7 W (13,5 V/ 0,2 A) / USB port: max. 2,5 W (5 V/ 0,5 A)					
Clock frequencies.....	160 MHz, 80 MHz, 53,3 MHz, 48 MHz, 40 MHz, 2 MHz, 1,1 MHz					
Other parameters						
Software version	ETS-EMC 20221212					
Hardware version	4.0.1					
Dimensions in cm (W x H x D)	85 mm x 54 mm x 60 mm					
Mounting position	[]	Table top equipment				

	☐	Wall/Ceiling mounted equipment		
	☐	Floor standing equipment		
	☐	Hand-held equipment		
	☒	Other: Bicycle handlebar		
Modules/parts.....:	Module/parts of test item		Type	Manufacturer
				
				
				
				
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

Bittium Wireless OY
Ritaharjuntie 1, 90590 Oulu, Finland

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2023-02-02
Date (finish)	2023-02-16

Document history

Report number	Date	Description
73655RRF.001	2023-03-07	First release.

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: Fernando Chito Solis and Valentin Andarias Diaz.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
6165	EMI TEST RECEIVER 9kHz-7GHz	ESR7	ROHDE AND SCHWARZ	2023-11
7796	EXTENSION FOR OPEN SWITCH UNIT UP TO 40GHz	OSP-B157Wx	ROHDE AND SCHWARZ	2024-03
7287	HIGH PASS FILTER 18-40 GHZ	ST-18G-40G-798S	TEMSTRON/TEM WELL	N/A
4611	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK MESS-ELEKTRONIK	2026-01
4657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2023-05
4578	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2023-04
6142	RF PREAMPLIFIER, G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2023-06
8848	OPEN SWITCH UNIT UP TO 7.5 GHz	OSP-B157W8 PLUS	ROHDE & SCHWARZ	2024-12
0922	POWER SUPPLY DC 40 V / 40 A	NGPE 40/40	ROHDE AND SCHWARZ	N/A
8856	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-4A	BONN ELEKTRONIK	2023-11
5705	PRE-AMPLIFIER G>40dB 1-18 GHz	BLMA 0118-1M	BONN ELEKTRONIK	2023-07
4825	SEMIANECHOIC ABSORBER LINED CHAMBER	FACT 3 200 STP	ETS LINDGREN	N/A
4826	SHIELDED ROOM	S101	ETS LINDGREN	N/A
5880	DC POWER SUPPLY, 30V/5A	U8002A	KEYSIGHT TECHNOLOGIES	N/A
7758	DIGITAL MULTIMETER	175	FLUKE	2023-11
7794	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2023-02
4716	SIGNAL AND SPECTRUM ANALYZER 2Hz-50GHz	FSW50	ROHDE AND SCHWARZ	2024-08
4848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
7798	WMS32	WMS32	ROHDE AND SCHWARZ	N/A
5850	DIGITAL MULTIMETER	179	FLUKE	2023-11

Testing verdicts

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

Summary

Bluetooth Low Energy (1M):

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)

INDEX

TEST CONDITIONS	13
TEST CASES DETAILS.....	16
FCC 47 CFR Part 15.247 / RSS-247.....	16
99dBw Occupied Channel Bandwidth 99%	16
RSS-247 5.2 (a) / FCC 15.247 (a) (2) [6dBw] 6 dB Bandwidth	20
RSS-247 5.2 (b) / FCC 15.247 (e) [Psd] Power spectral density	24
RSS-247 5.4 (d) / FCC 15.247 (b) (3) [Pkcp] Maximum Peak Conducted output power.....	28
RSS-247 5.5 / FCC 15.247 (d) [Bndedge] Band-edge emissions compliance (Transmitter)	32
RSS-247 5.5 / FCC 15.247 (d) [RSE] Emission limitations radiated (Transmitter)	36

TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	13.5 VDC
Type of Power Supply:	System cable

ANTENNA (*):

Type of Antenna:	IFA
Maximum Declared Antenna Gain:	5 dBi

TEST FREQUENCIES (*):

Low Channel:	2402 MHz
Middle Channel:	2440 MHz
High Channel:	2480 MHz

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).

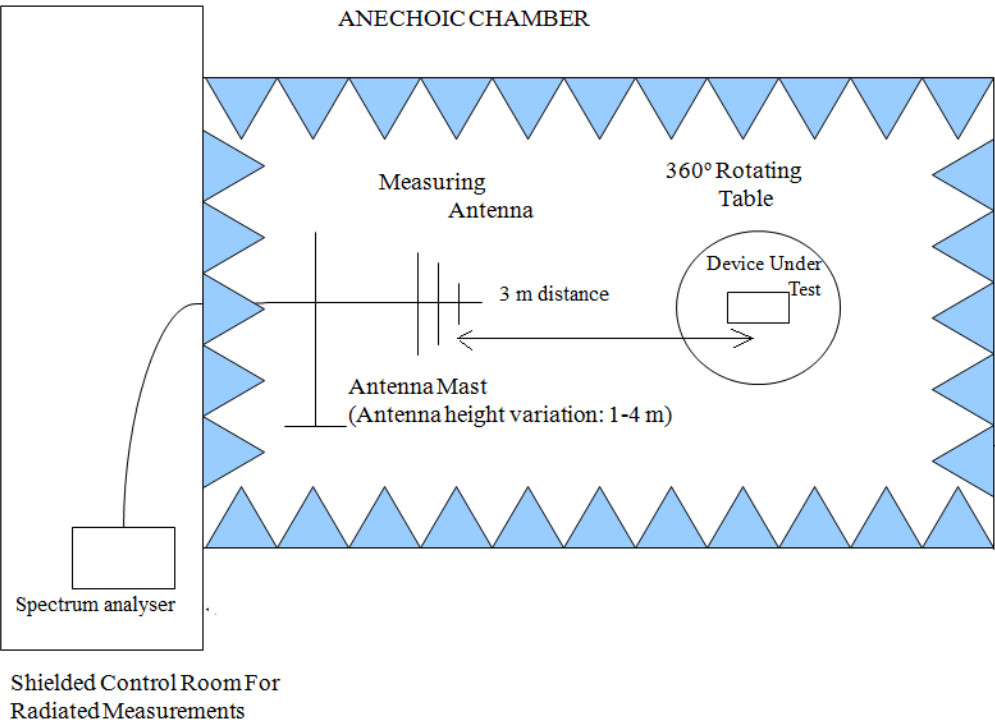
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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.

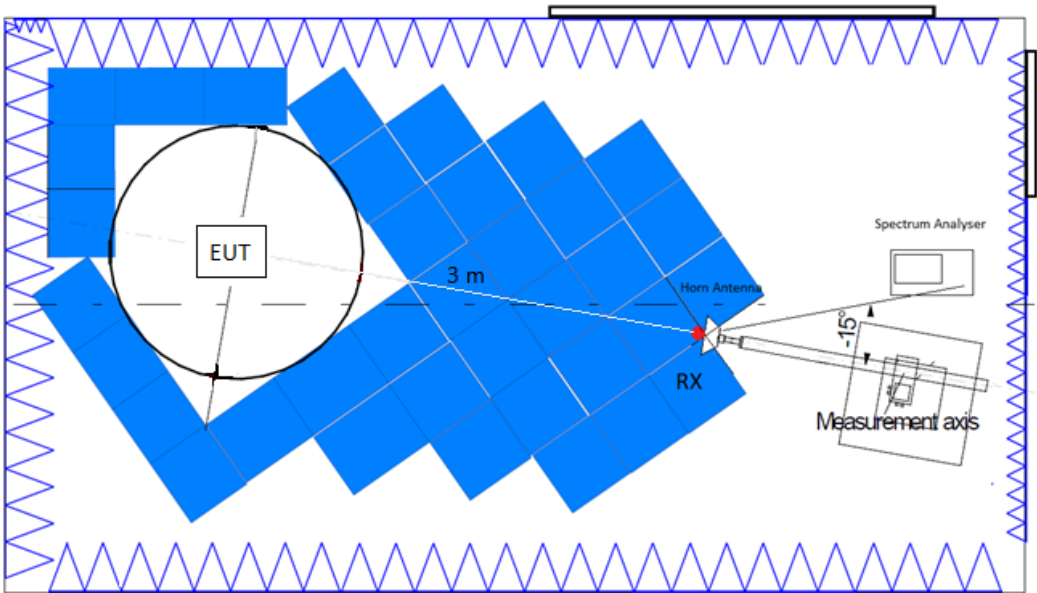
Measurements were made in both horizontal and vertical planes of polarization.

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.

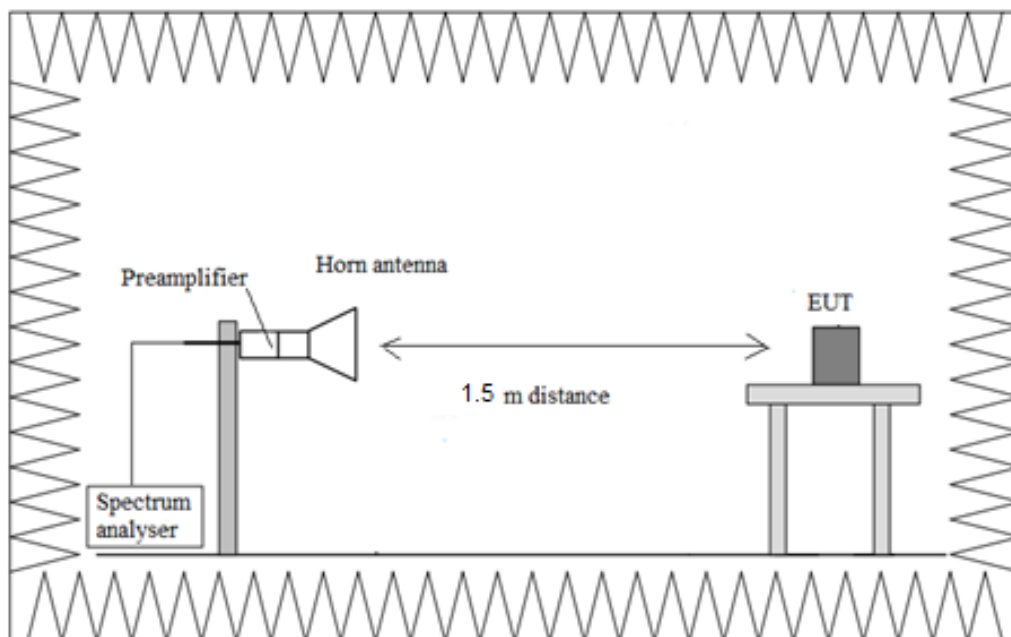
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup $f > 17$ GHz:



TEST CASES DETAILS

FCC 47 CFR Part 15.247 / RSS-247

99dBw Occupied Channel Bandwidth 99%

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

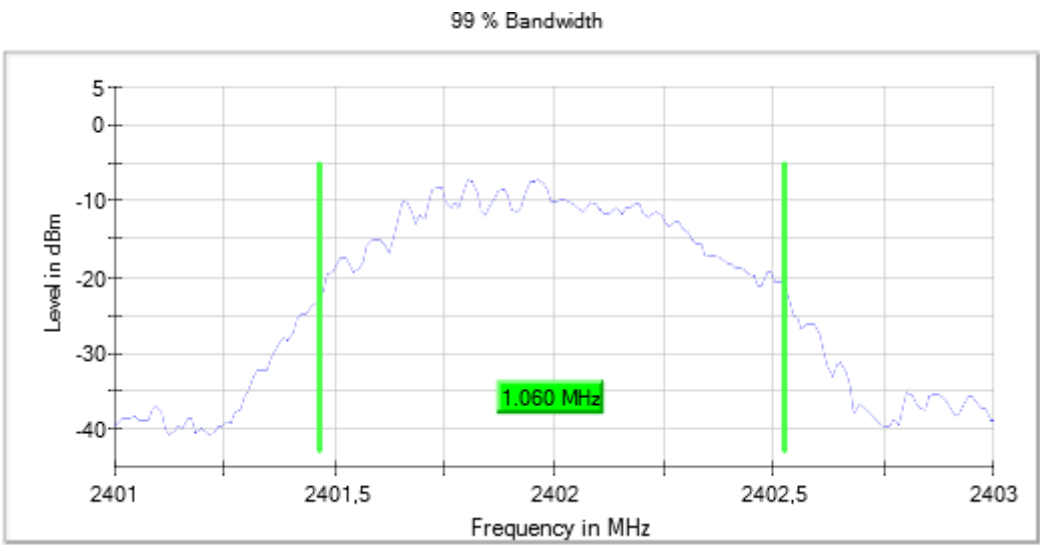
Results

Freq (MHz)	Equipment	BW (MHz)	Occ Ch BW (MHz)
2402.00000	Digital Transmission System (DTS)	1	1.060
2440.00000	Digital Transmission System (DTS)	1	1.080
2480.00000	Digital Transmission System (DTS)	1	1.070

Attachments

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

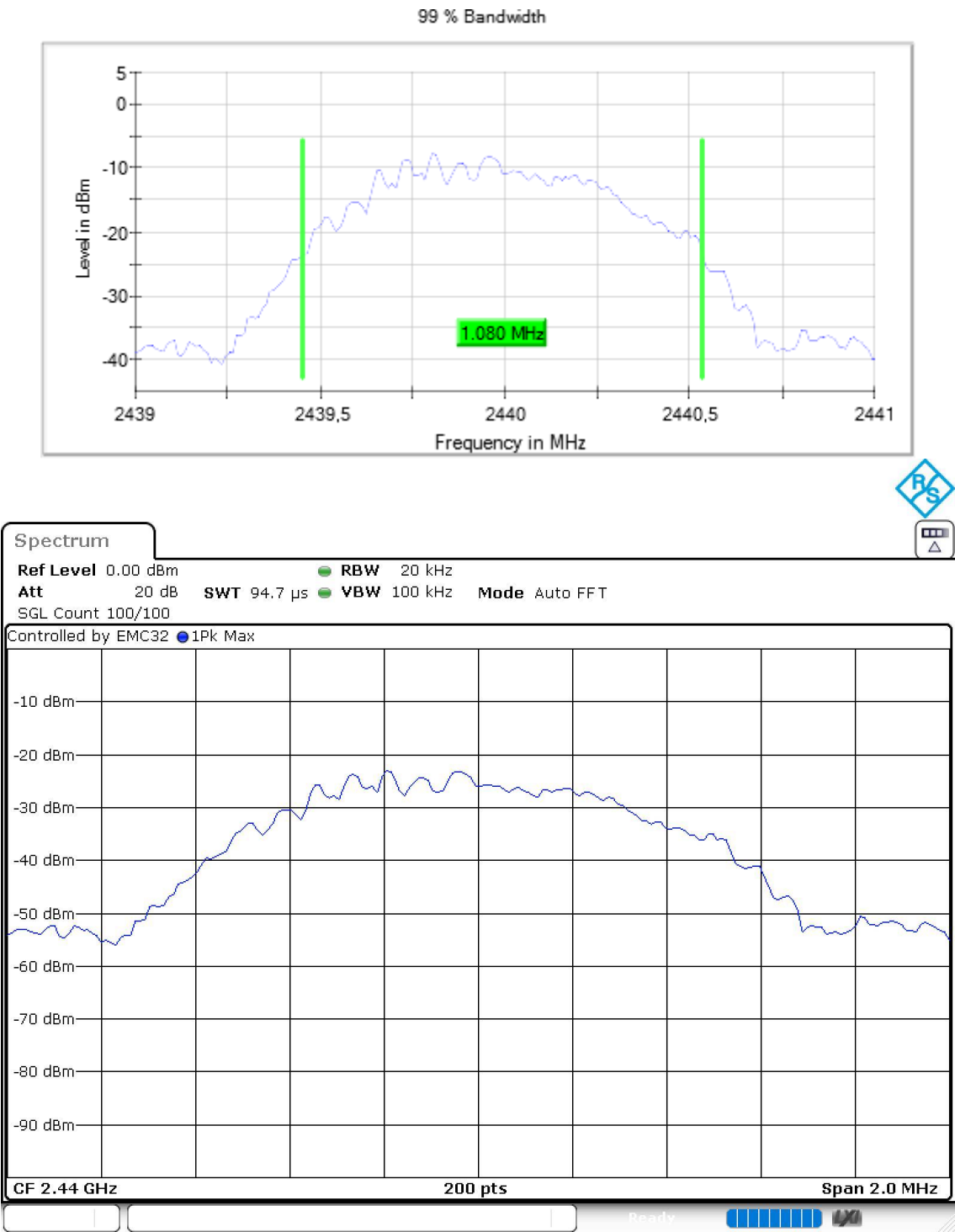
Images:





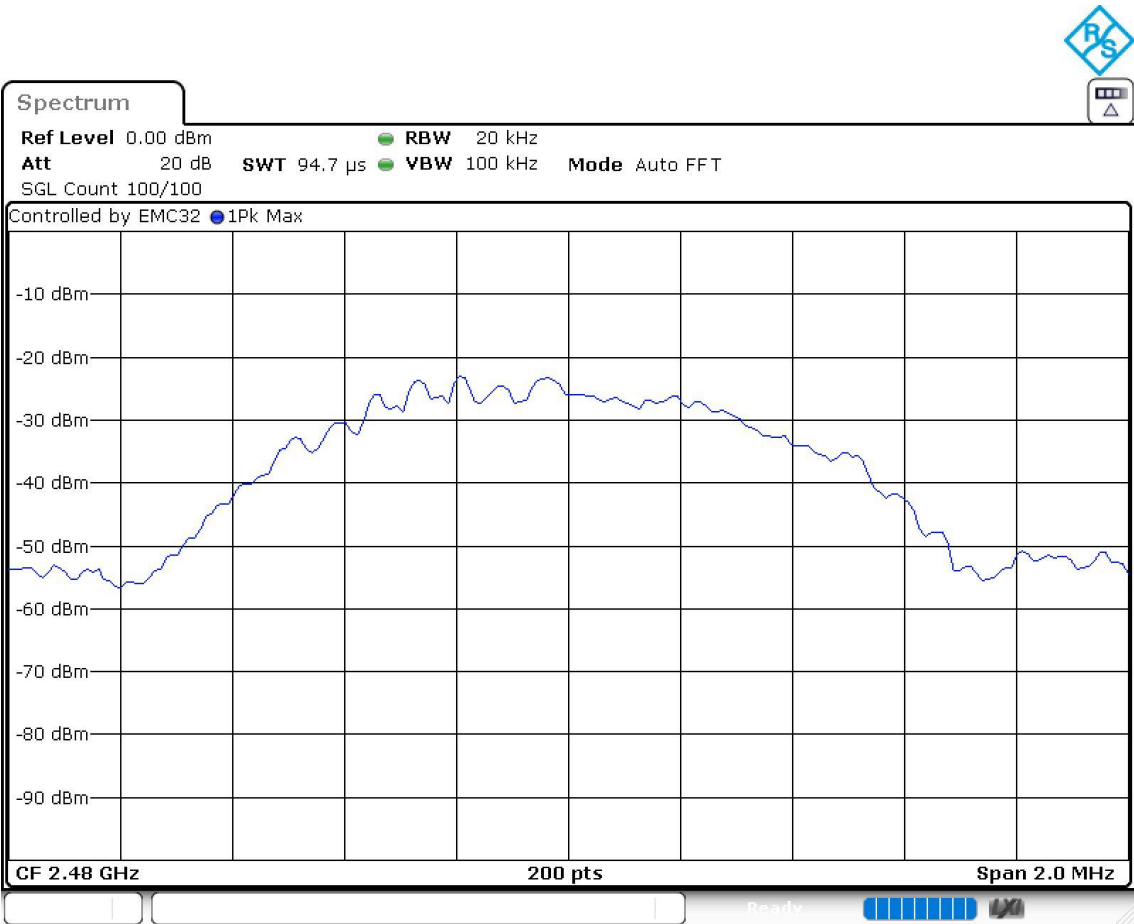
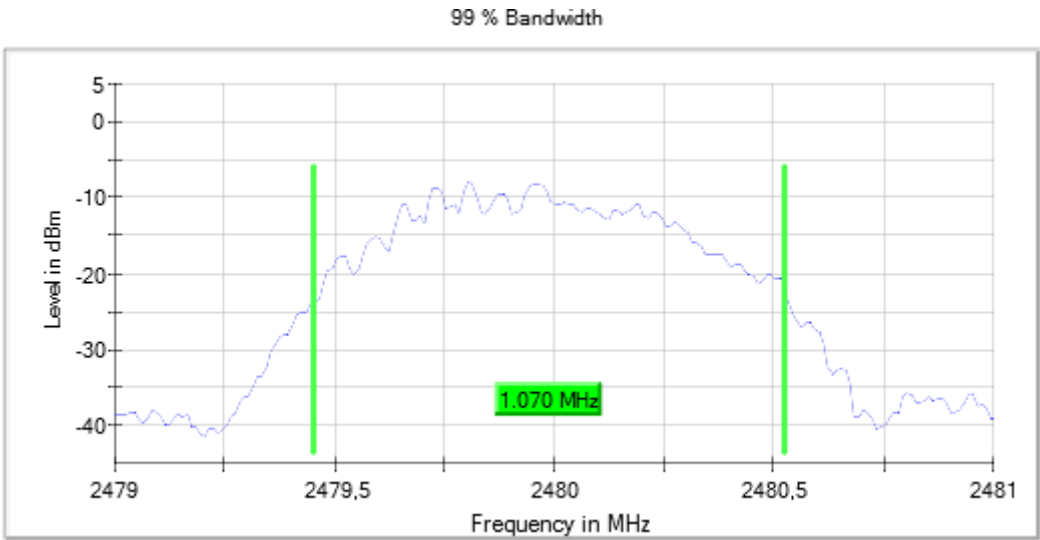
Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)

Images:



Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



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

Limits

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

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Freq (MHz)	BW (MHz)	# of Tx Chains	Port	Ebw (MHz)
2402.00000	1	1	1	0.752
2440.00000				0.733
2480.00000				0.733

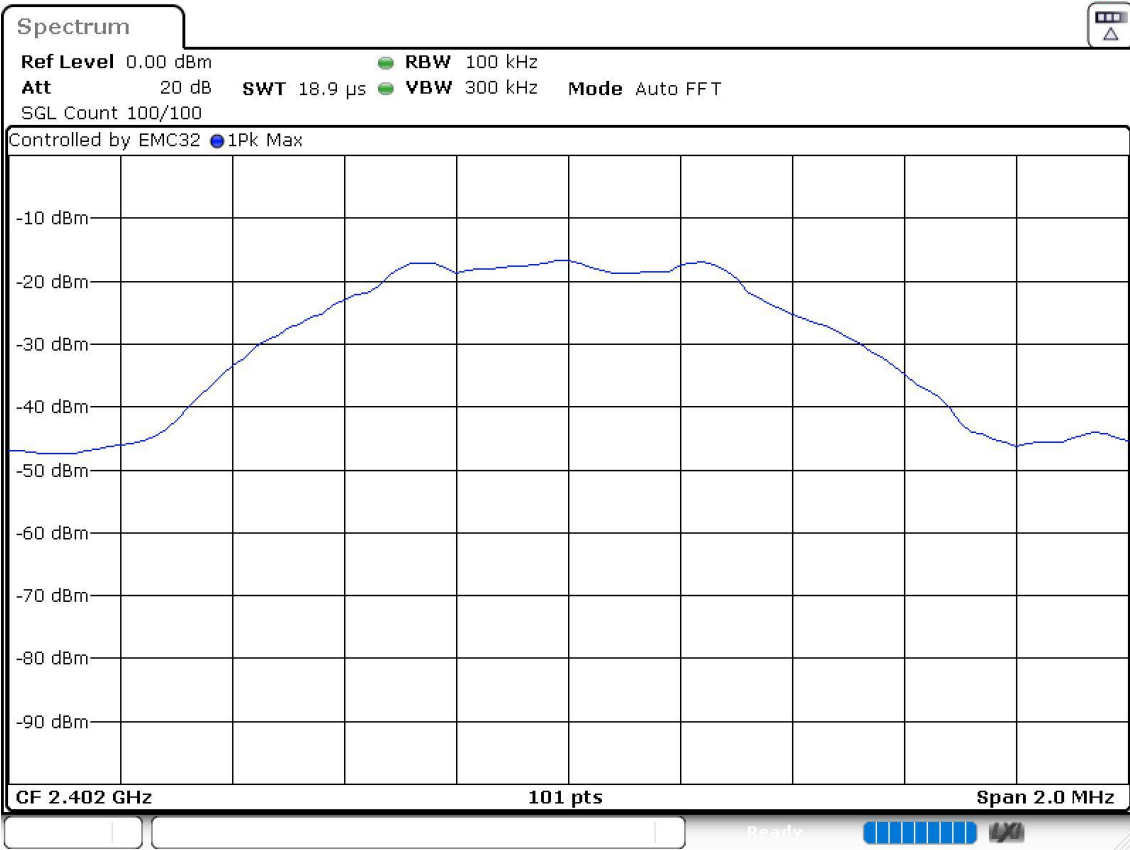
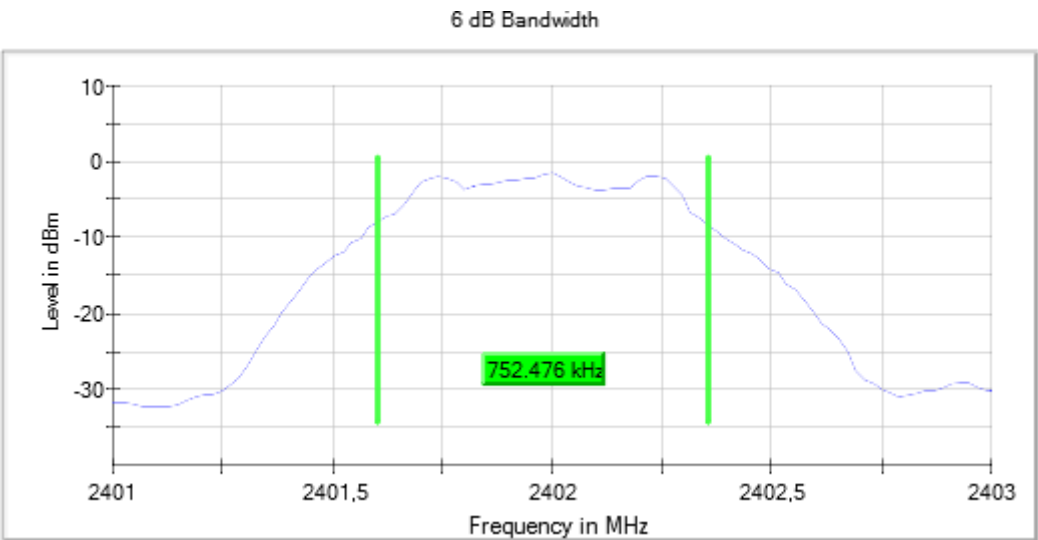
Verdict

Pass

Attachments

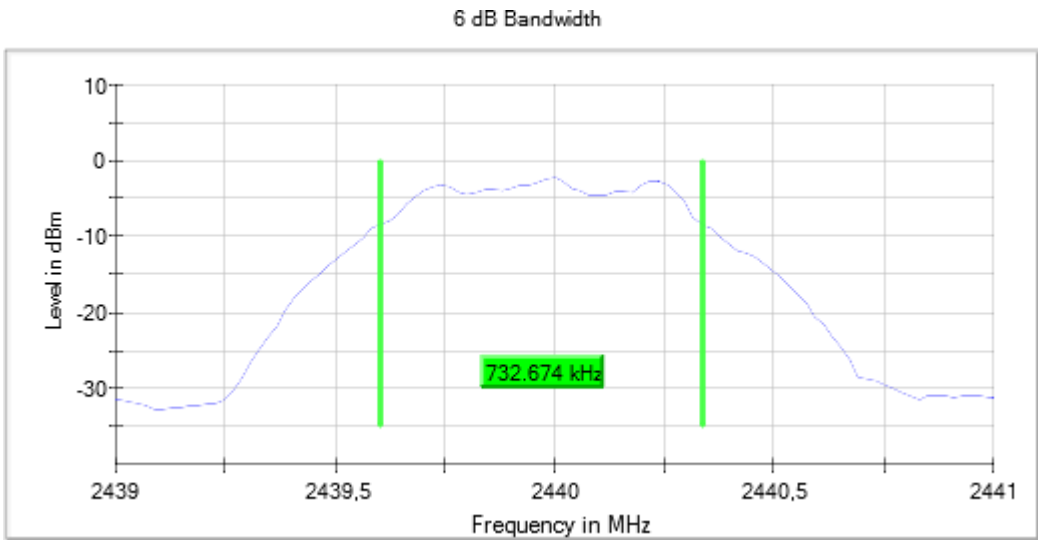
Frequency MHz = 2402.00000 Bandwidth MHz = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Number of Transmission Chains = 1
Active Port = 1

Images:



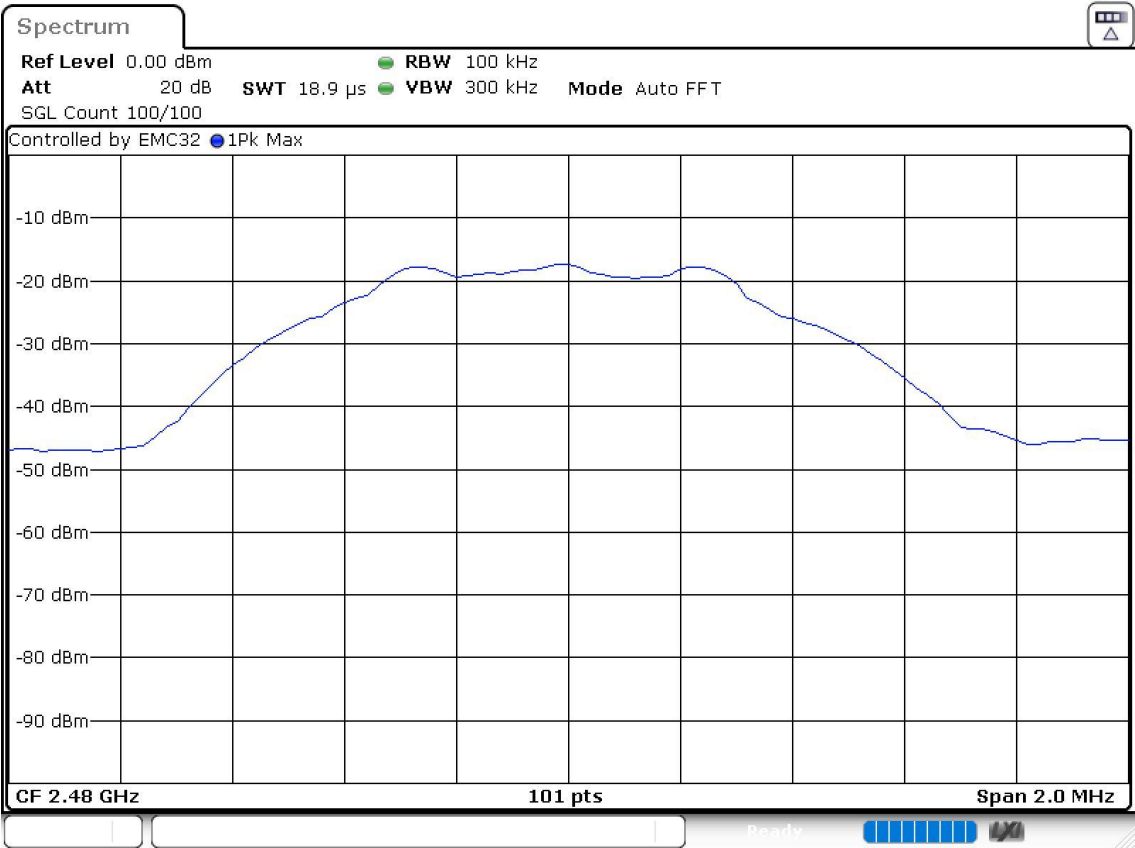
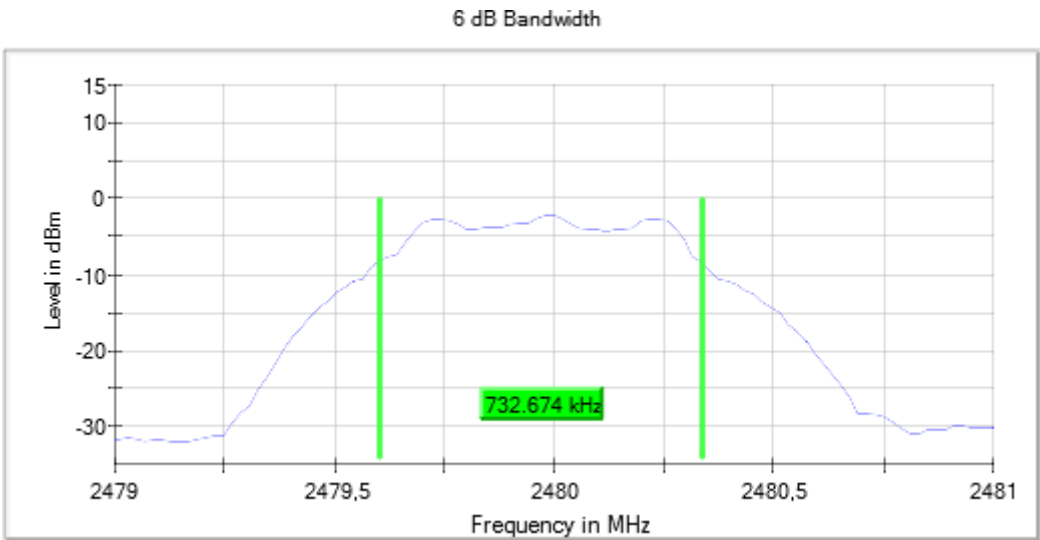
Frequency MHz = 2440.00000 Bandwidth MHz = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Number of Transmission Chains = 1
Active Port = 1

Images:



Frequency MHz = 2480.00000 Bandwidth MHz = 1
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Number of Transmission Chains = 1
Active Port = 1

Images:



RSS-247 5.2 (b) / FCC 15.247 (e) [Psd] Power spectral density

Limits

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

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Freq (MHz)	BW (MHz)	# of Tx Chains	Port	PSD (dBm)
2402.00000	1	1	1	-10.87
2440.00000				-11.73
2480.00000				-11.68

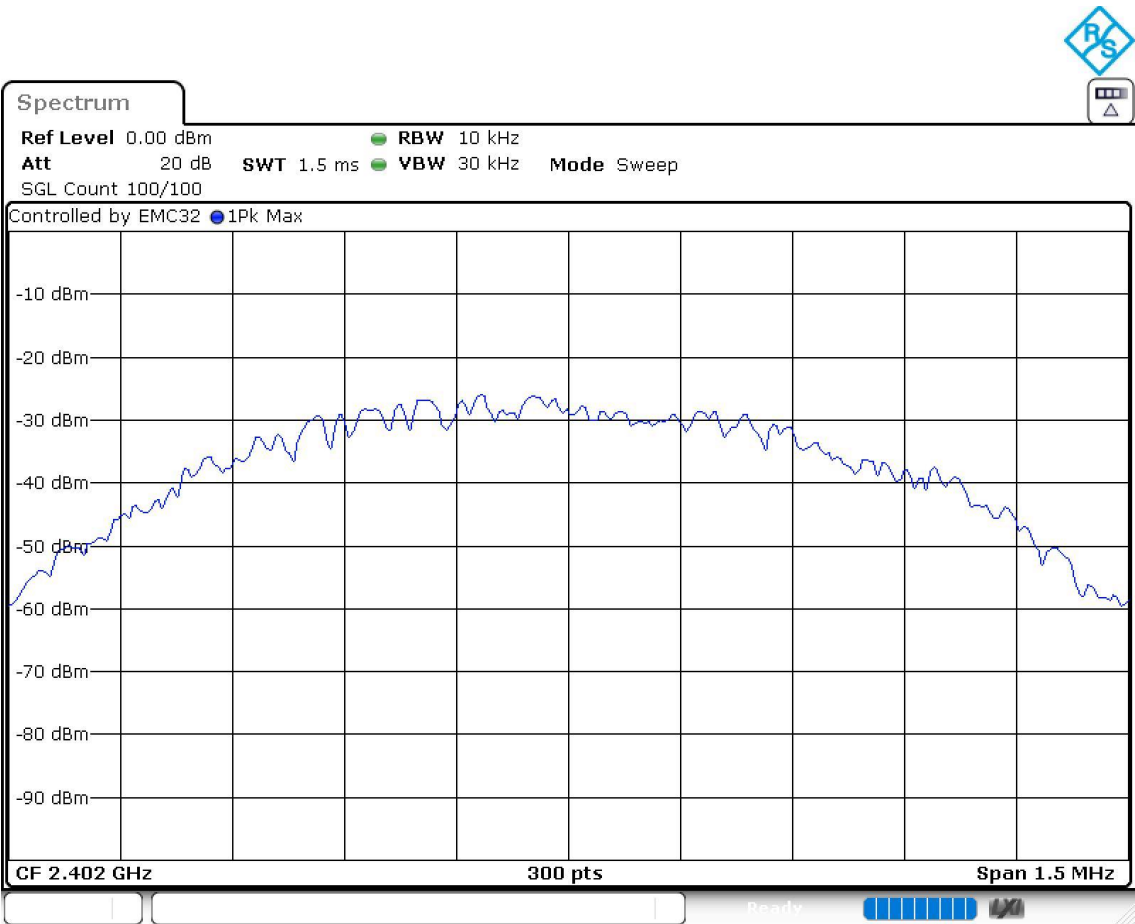
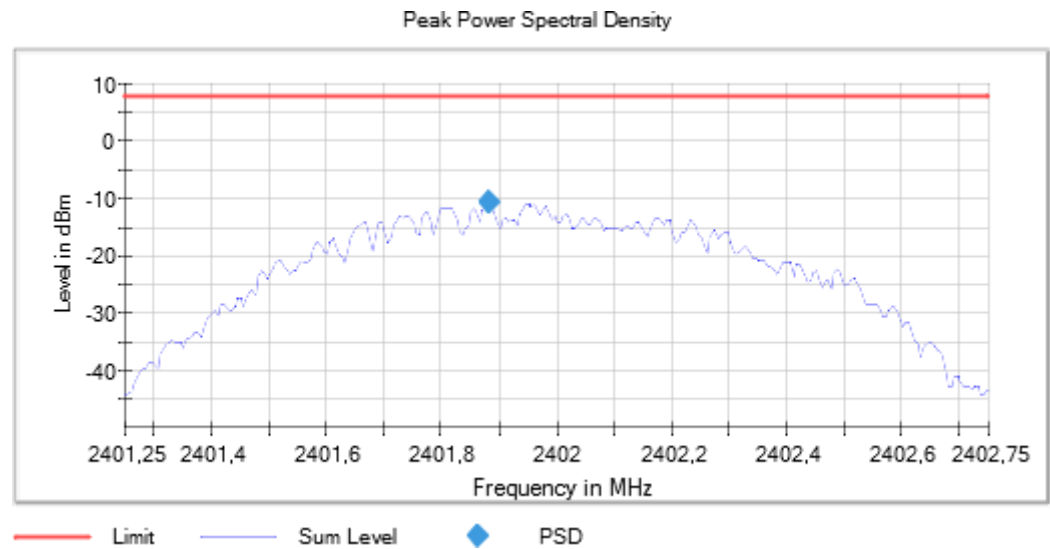
Verdict

Pass

Attachments

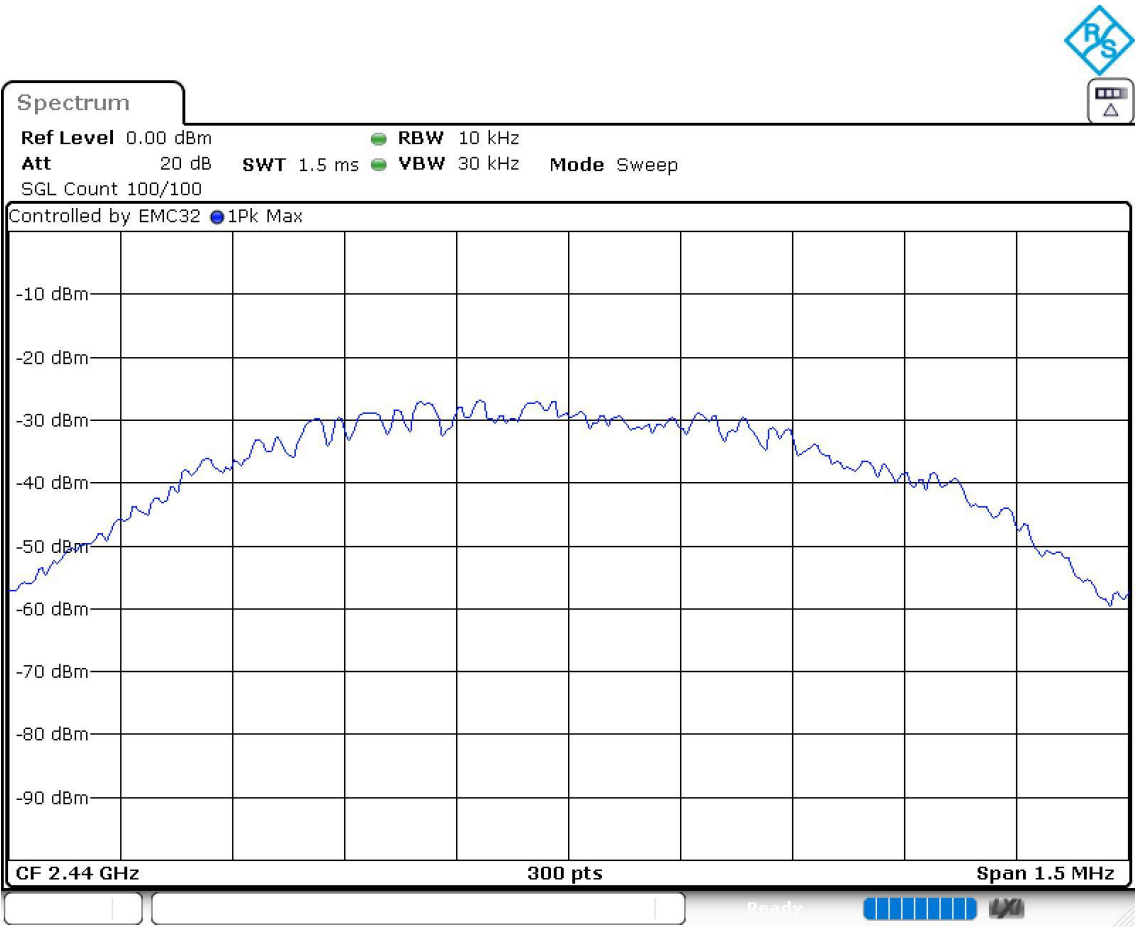
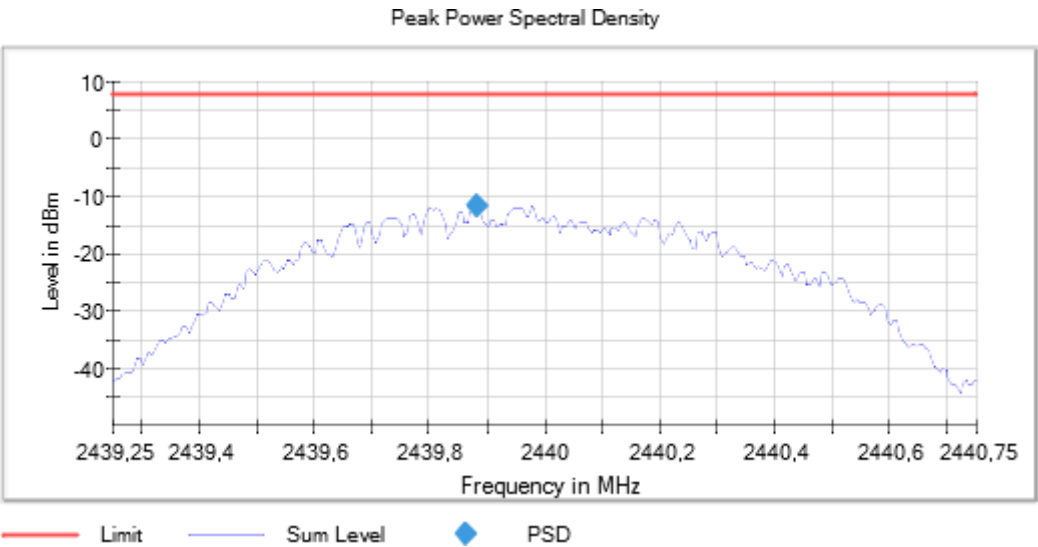
Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



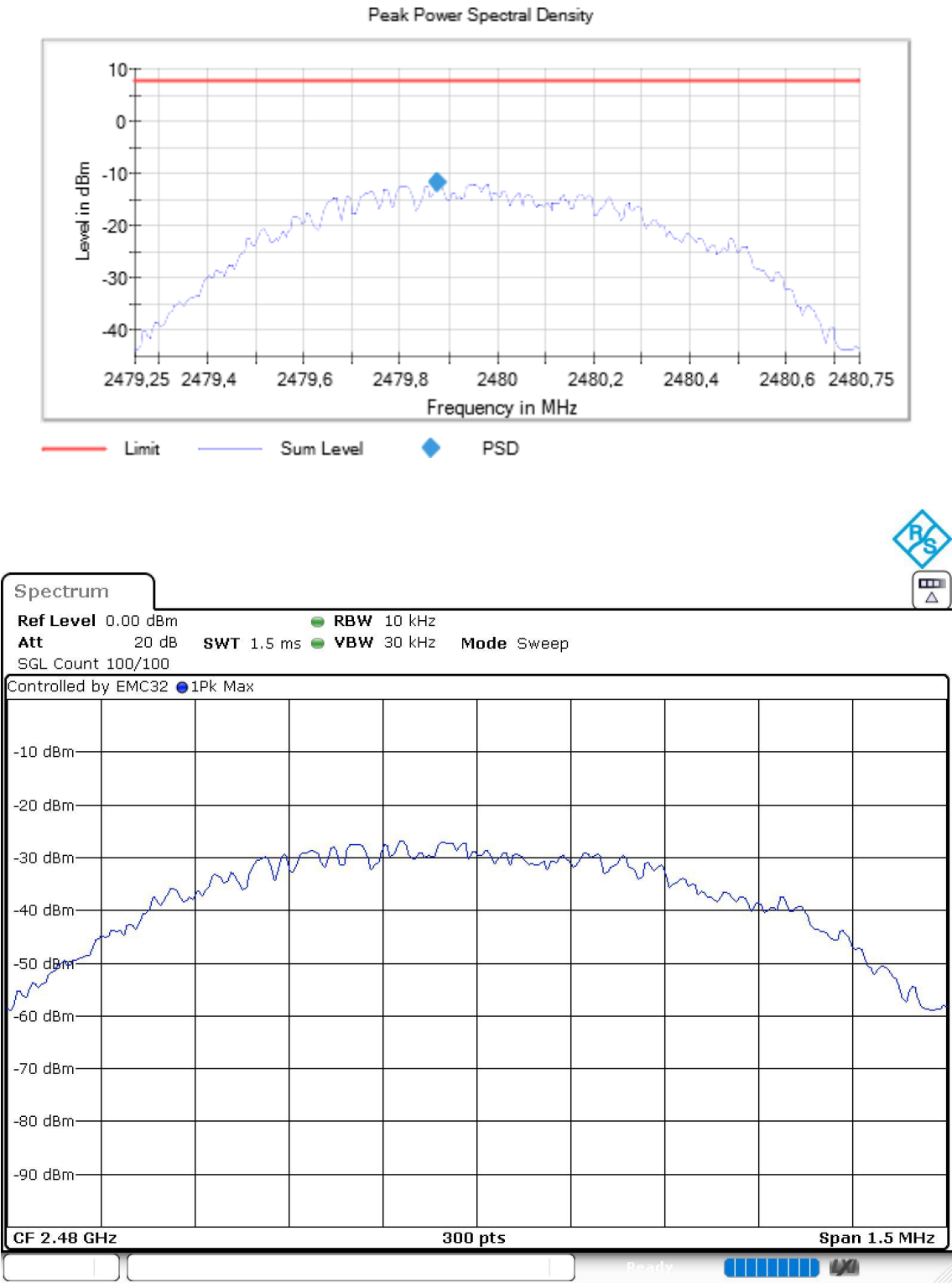
Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



RSS-247 5.4 (d) / FCC 15.247 (b) (3) [P_{kcp}] 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).

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

The maximum peak conducted output power level of the fundamental emission was measured according to clause 11.9.1.1 "RBW $\geq$ DTS bandwidth" of ANSI C63.10-2013.

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

Maximum Declared Antenna Gain: +5 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.

Freq (MHz)	Equipment	BW (MHz)	# of Tx Chains	Port	Peak Power (dBm)	Power E.I.R.P (dBm)
2402.00000	Digital Transmission System (DTS)	1	1	1	-0.94	4,06
2440.00000	Digital Transmission System (DTS)	1	1	1	-1.68	3,32
2480.00000	Digital Transmission System (DTS)	1	1	1	-1.55	3,45

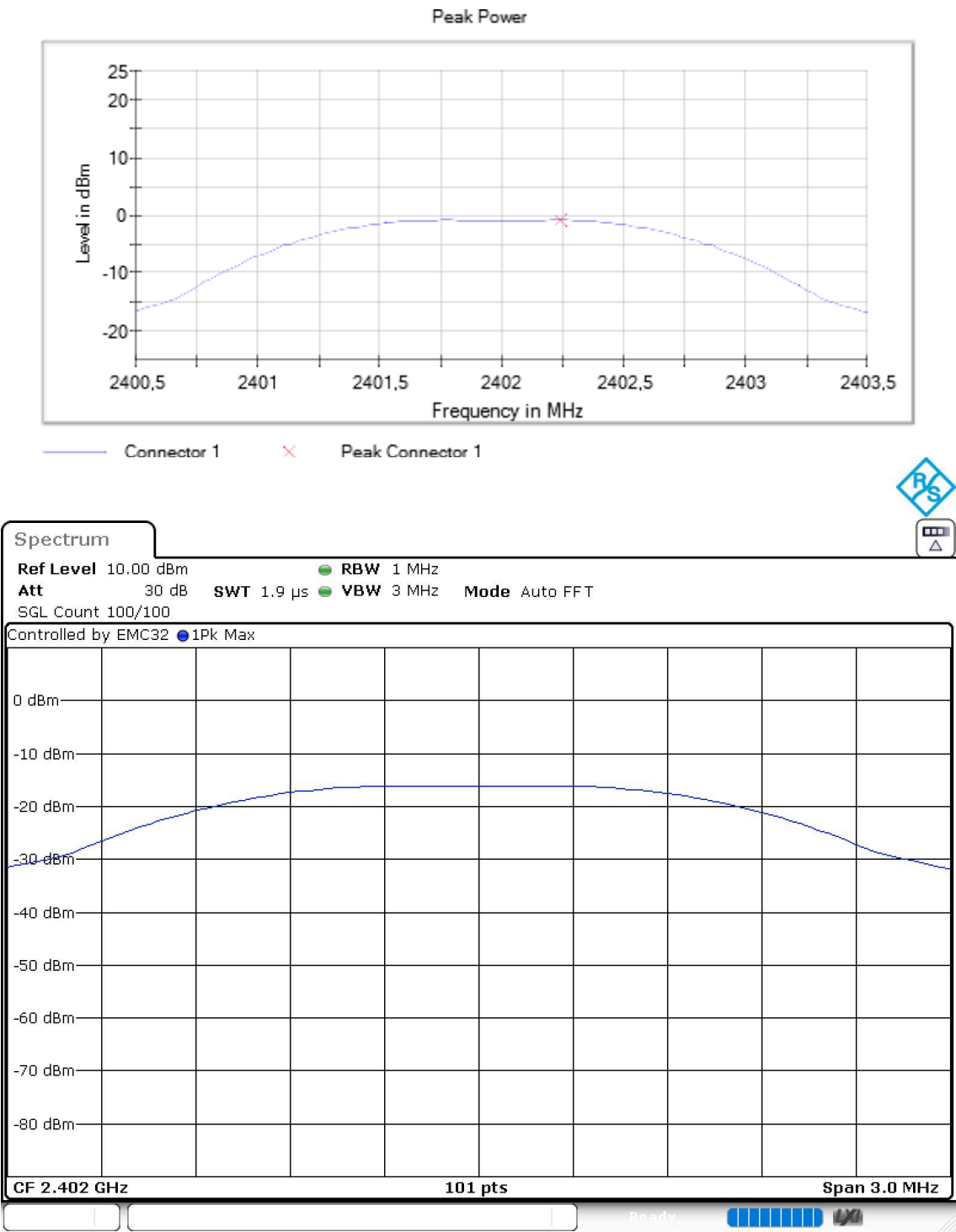
Verdict

Pass

Attachments

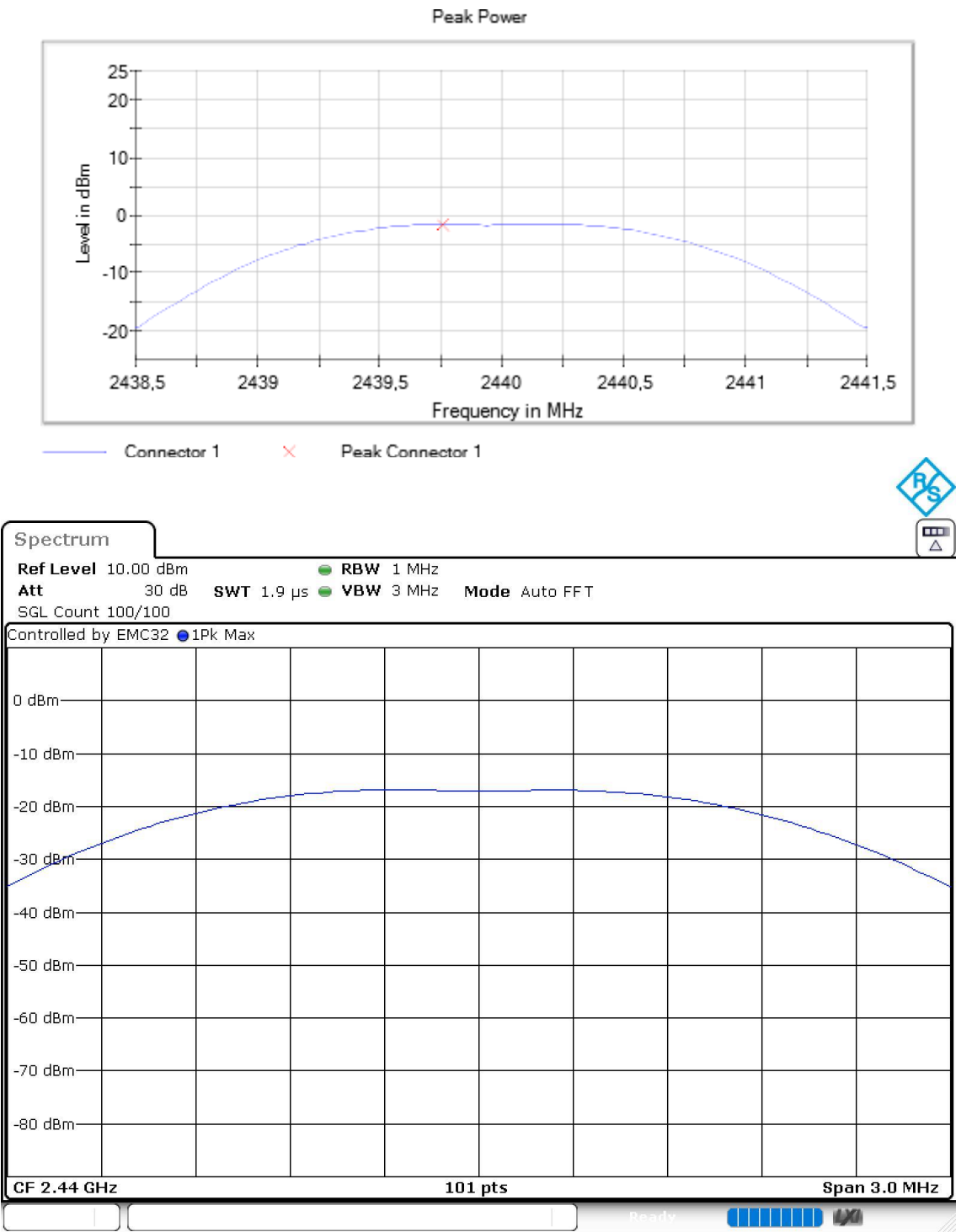
Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



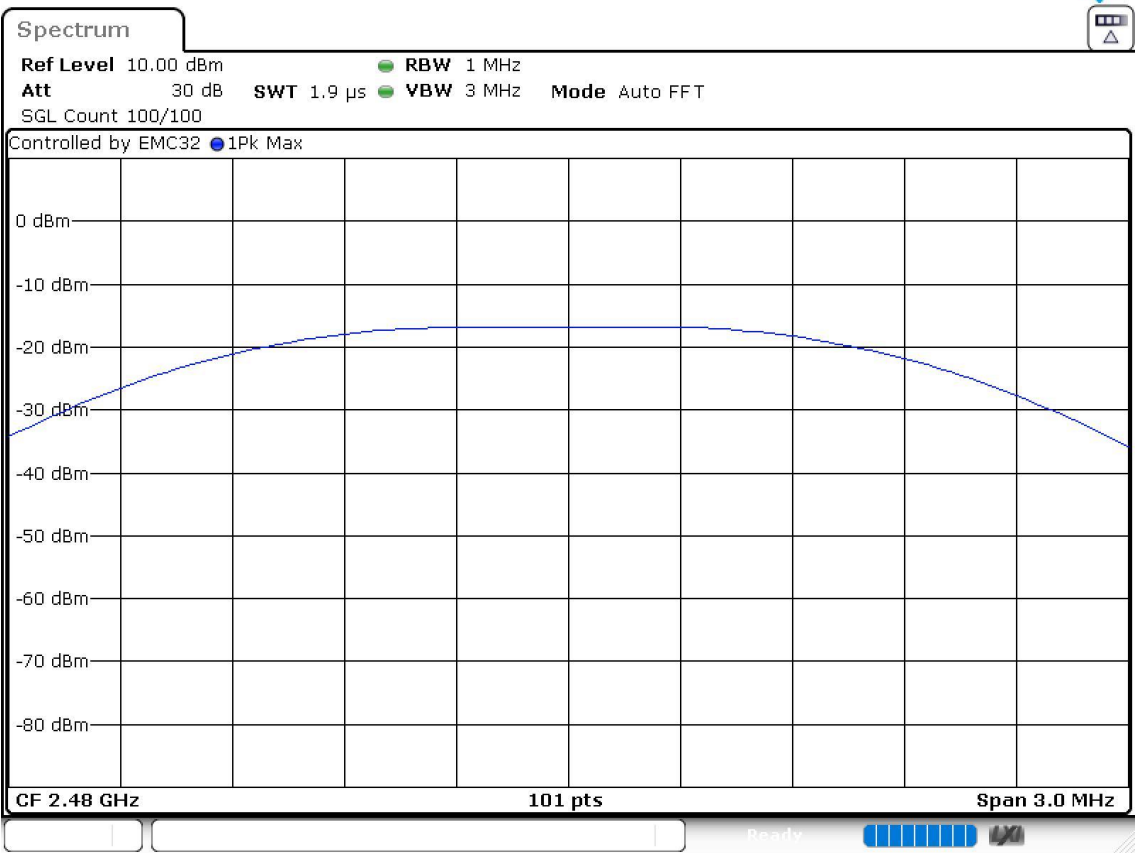
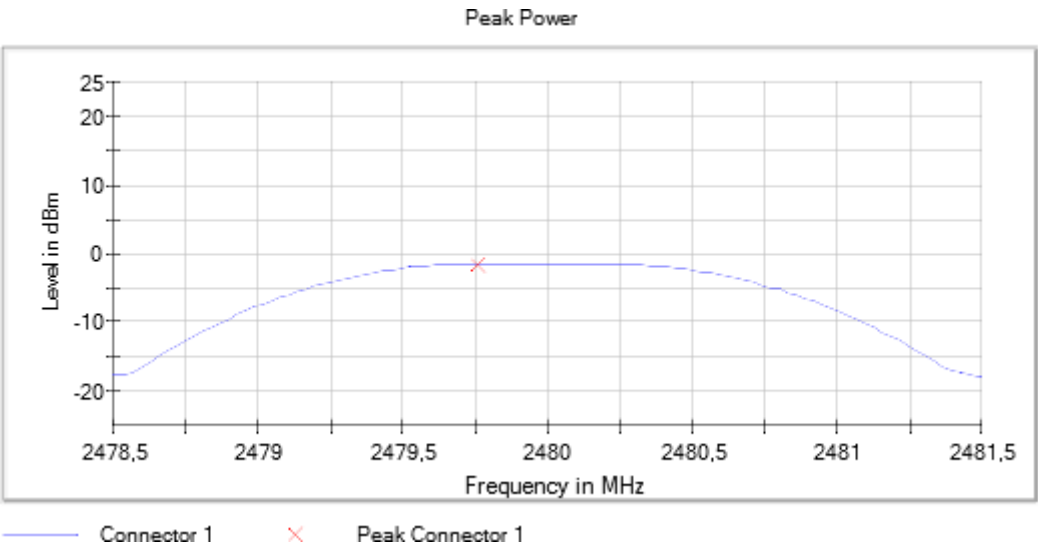
Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Active Port = 1

Images:



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

Limits

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

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

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.

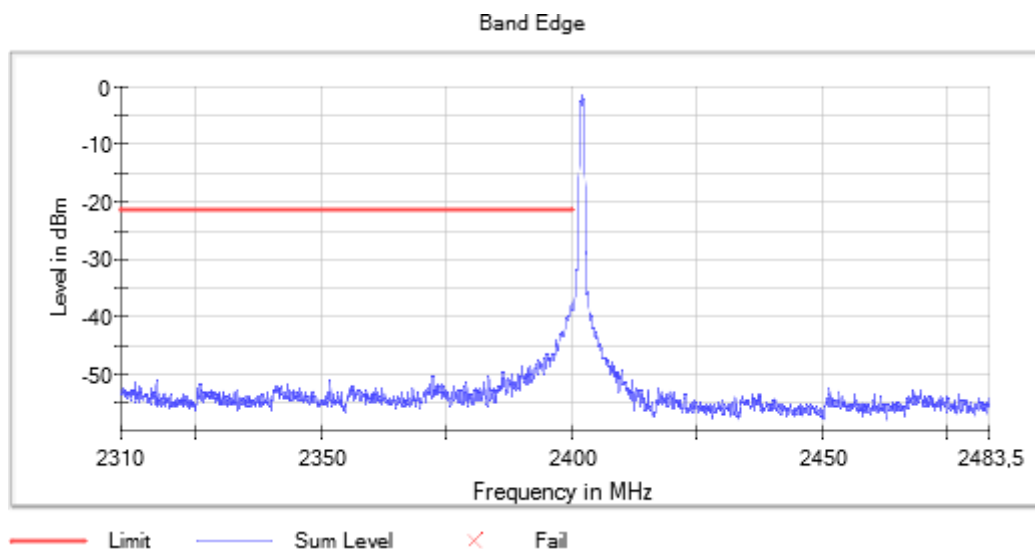
Verdict

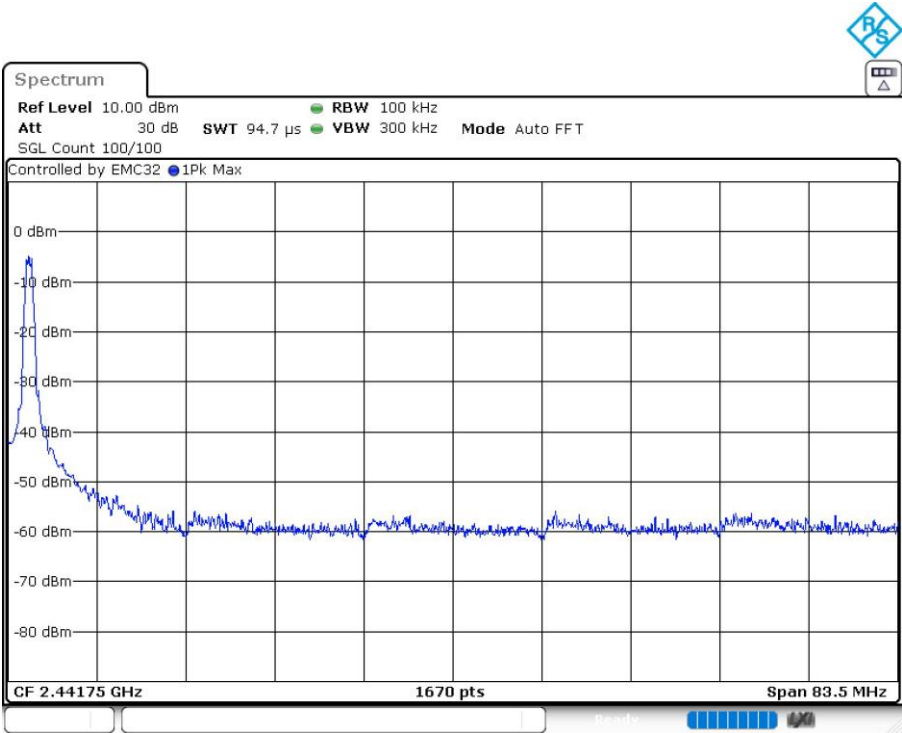
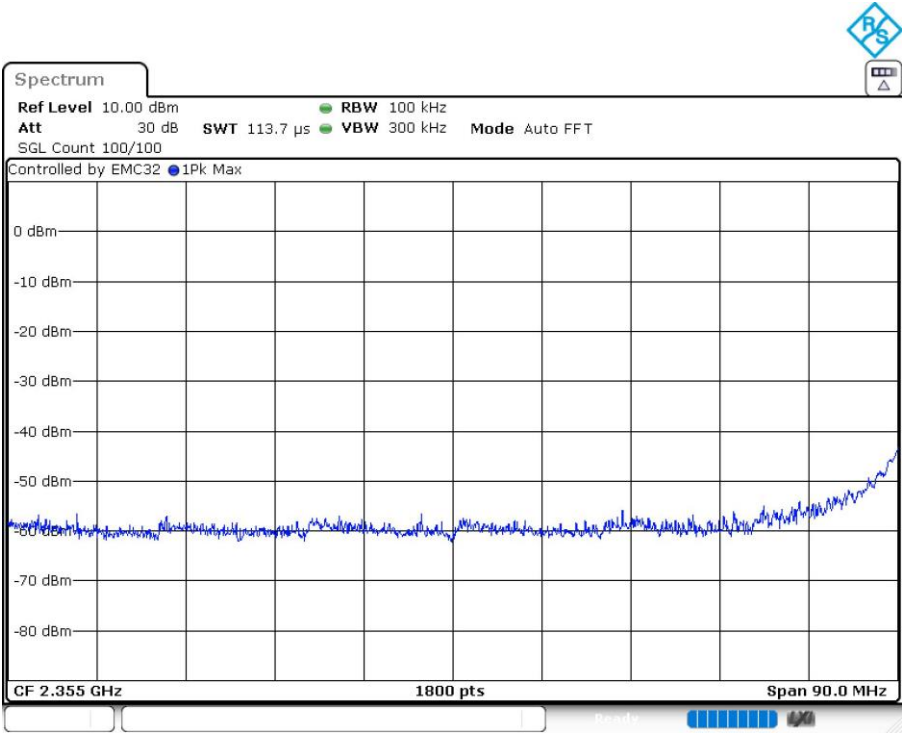
Pass

Attachments

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

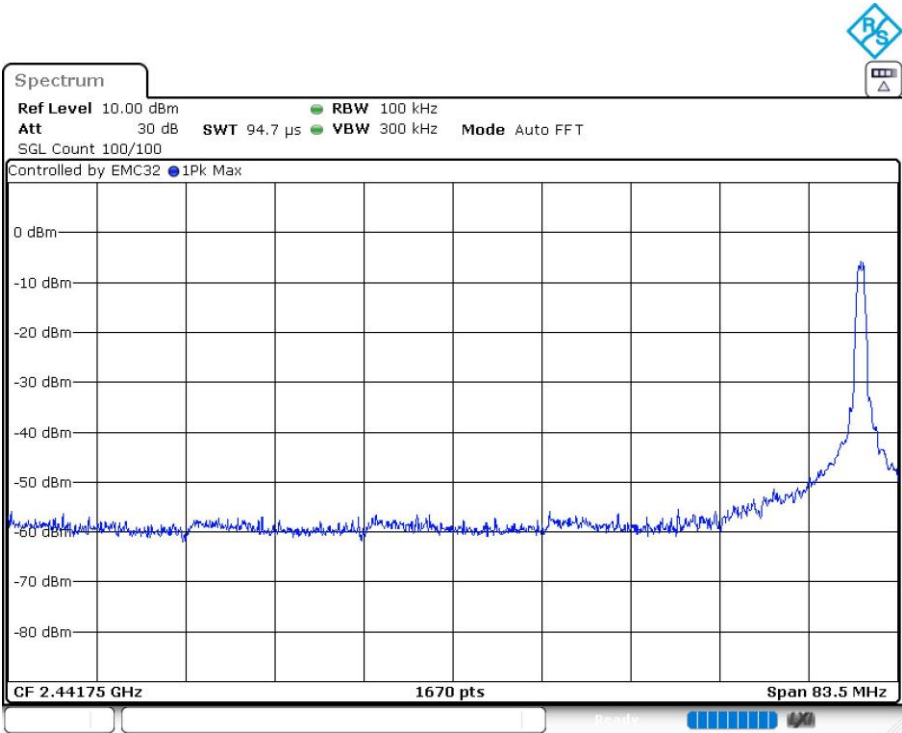
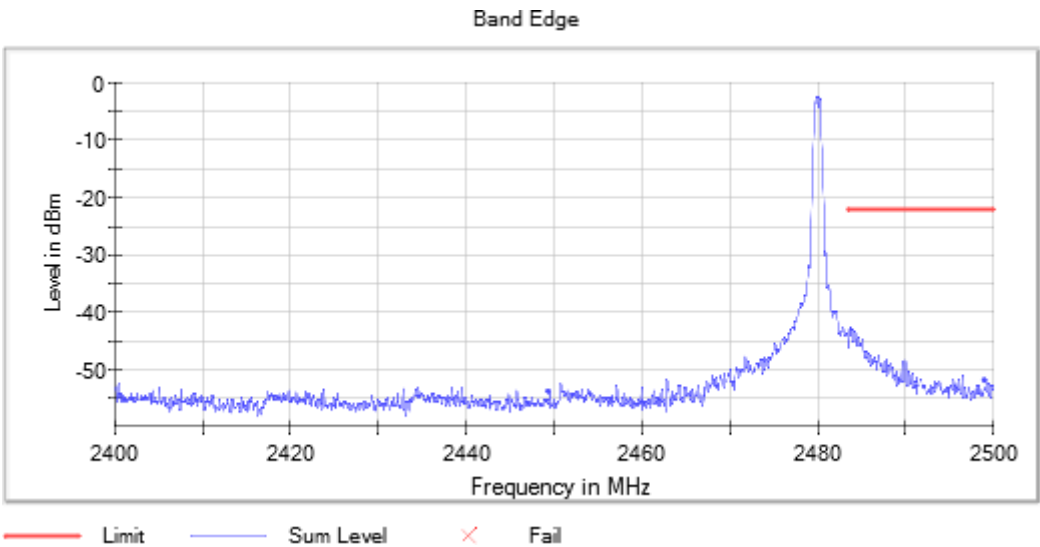
Images:

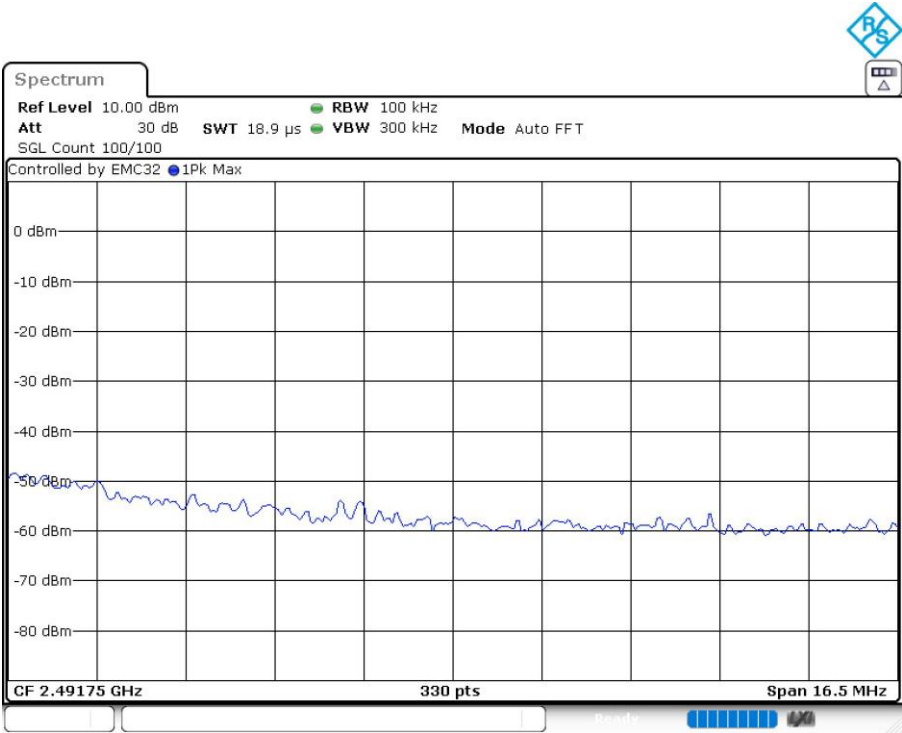




Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 1 Modulation = BTLE 5.0 (GFSK 1 Mbit/s)
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:





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

Limits

Radiated emissions which fall in the restricted bands, as defined in 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 ($\text{dB}\mu\text{V/m}$)	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.

Modulation: BTLE 5.0 (GFSK 1 Mbit/s)

Results

Freq (MHz)	Freq Rng (GHz)	Unwanted Freq (MHz)	Unwanted Lvl (dBµV/m)	Pol	Detector
2402.00000	[0.03, 1]	63.980	31.92	V	PK
2402.00000	[0.03, 1]	63.980	16.64	V	QP
2402.00000	[1, 3]	2380.400	54.72	H	PK
2402.00000	[1, 3]	2380.400	44.63	H	AVG
2402.00000	[1, 3]	2389.169	55.92	H	PK
2402.00000	[1, 3]	2389.169	44.73	H	AVG
2402.00000	[1, 3]	2389.938	56.41	H	PK
2402.00000	[1, 3]	2389.938	44.48	H	AVG
2402.00000	[3, 17]	4803.620	43.07	H	PK
2480.00000	[1, 3]	2483.877	62.25	H	PK
2480.00000	[1, 3]	2483.877	44.47	H	AVG
2480.00000	[1, 3]	2484.369	64.65	H	PK
2480.00000	[1, 3]	2484.369	44.62	H	AVG
2480.00000	[1, 3]	2485.138	61.59	H	PK
2480.00000	[1, 3]	2485.138	44.36	H	AVG
2480.00000	[1, 3]	2485.600	61.76	H	PK
2480.00000	[1, 3]	2485.600	44.34	H	AVG
2480.00000	[1, 3]	2486.400	61.27	H	PK
2480.00000	[1, 3]	2486.400	44.64	H	AVG
2480.00000	[1, 3]	2486.862	59.61	H	PK
2480.00000	[1, 3]	2486.862	44.35	H	AVG
2480.00000	[1, 3]	2487.631	59.45	H	PK
2480.00000	[1, 3]	2487.631	44.43	H	AVG
2480.00000	[3, 17]	7438.980	47.81	V	PK

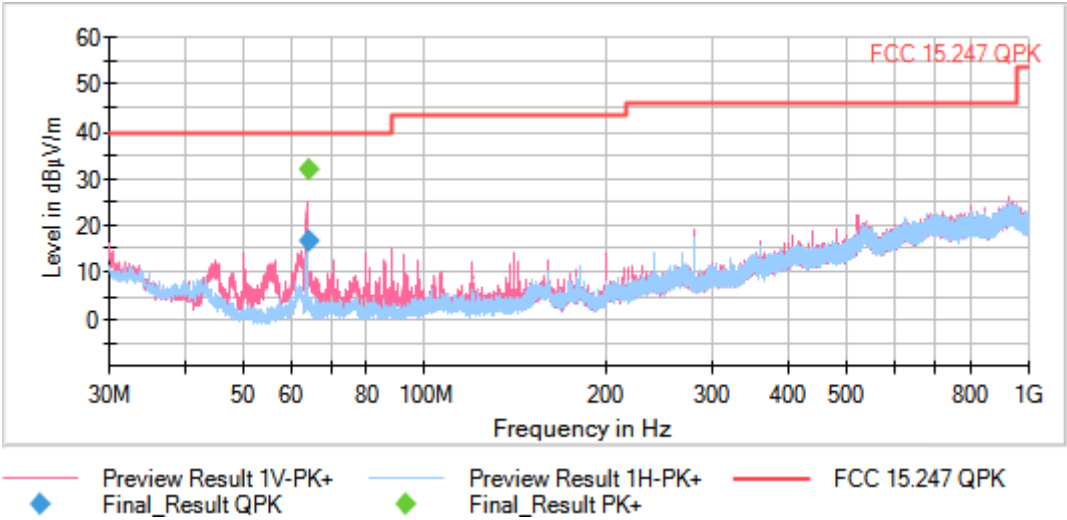
Verdict

Pass

Attachments

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [0.03, 1]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



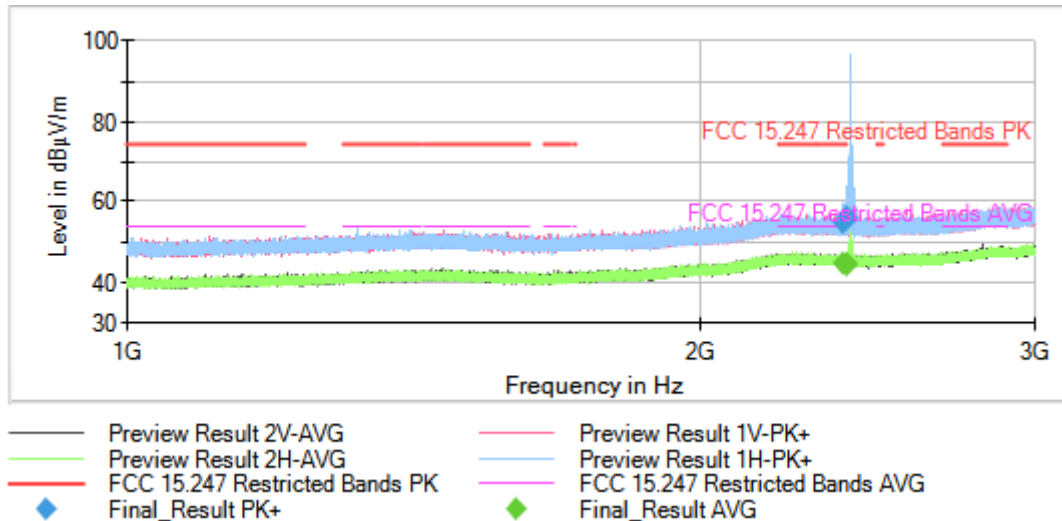
Tables:

Spectrum Analyzer Parameters

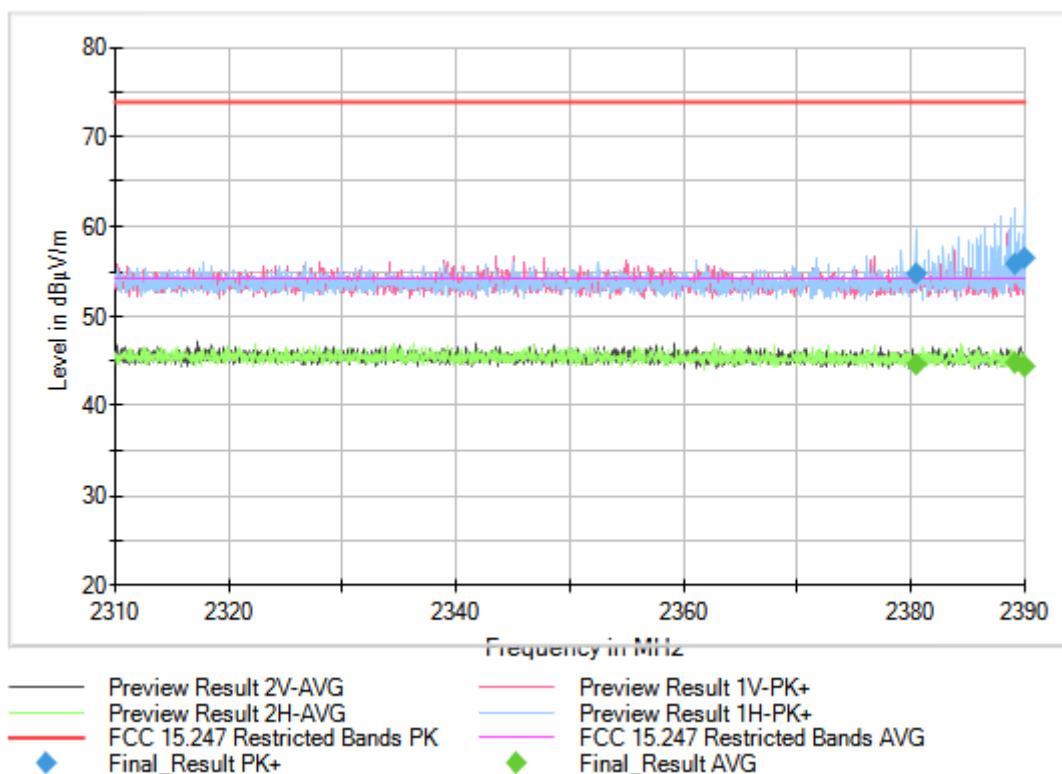
	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESR 7]					
	30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB

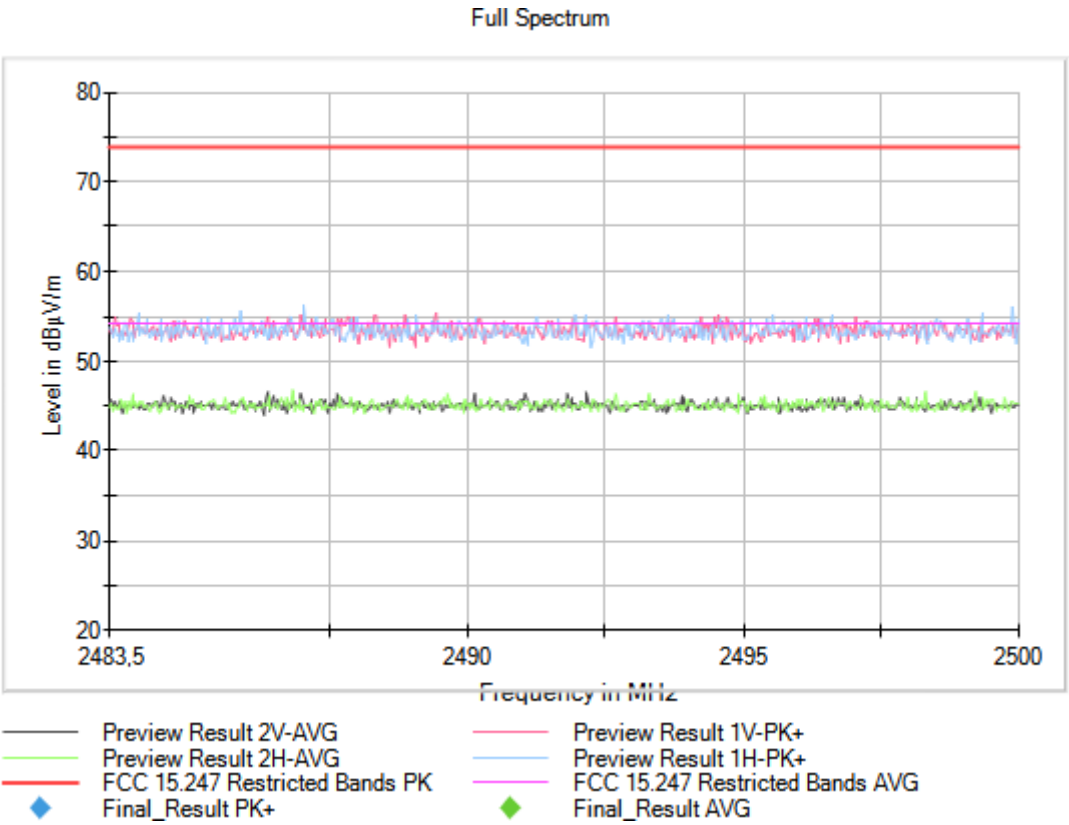
Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [1, 3]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



Full Spectrum



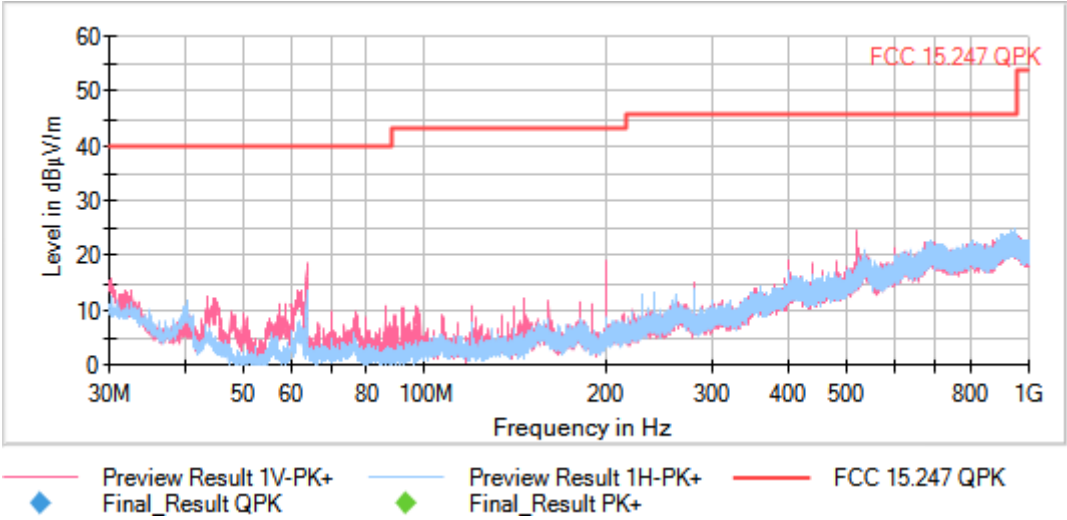


Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [0.03, 1]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:

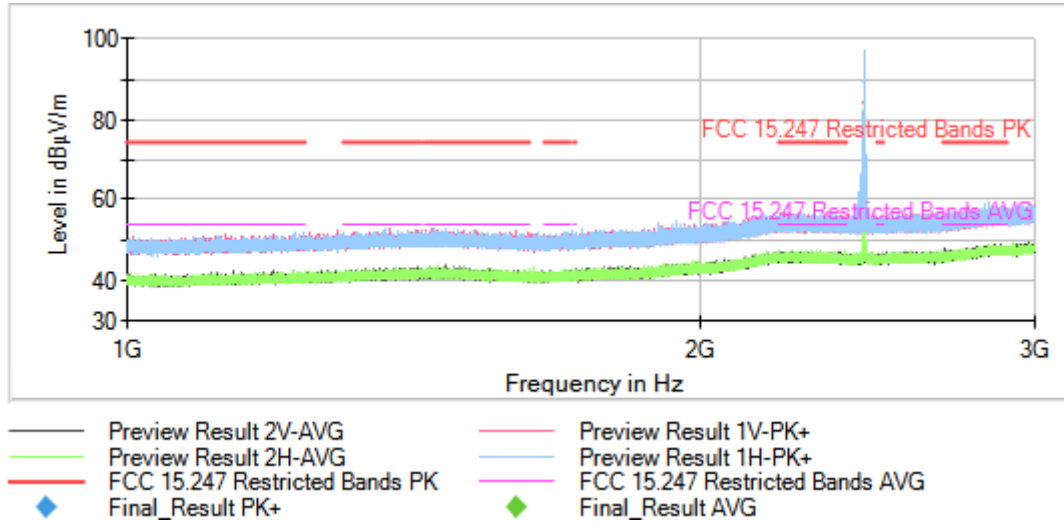


Tables:
Spectrum Analyzer Parameters

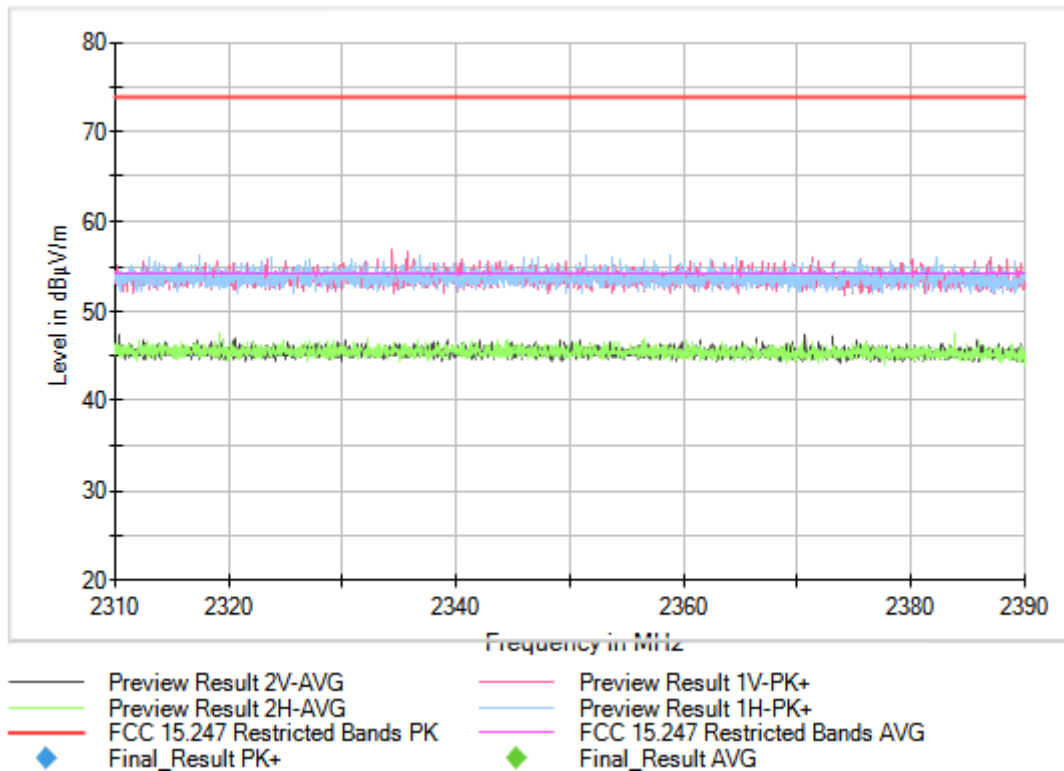
	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESR 7]					
	30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB

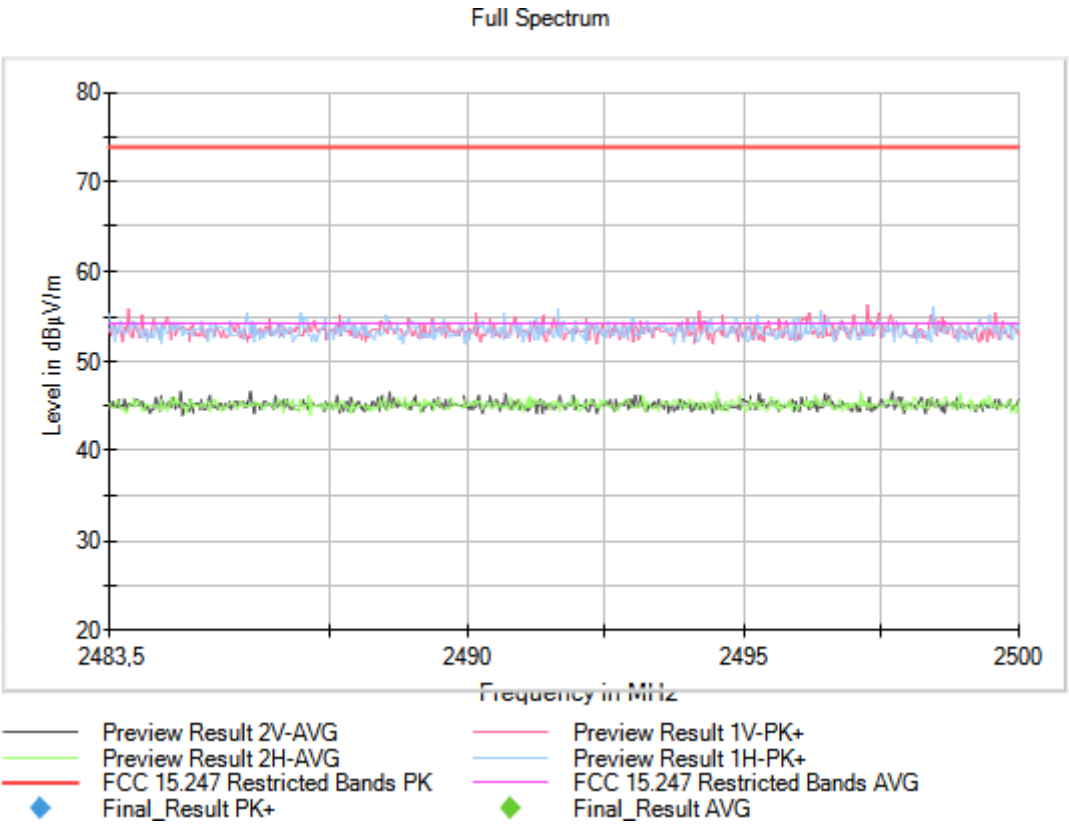
Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [1, 3]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



Full Spectrum



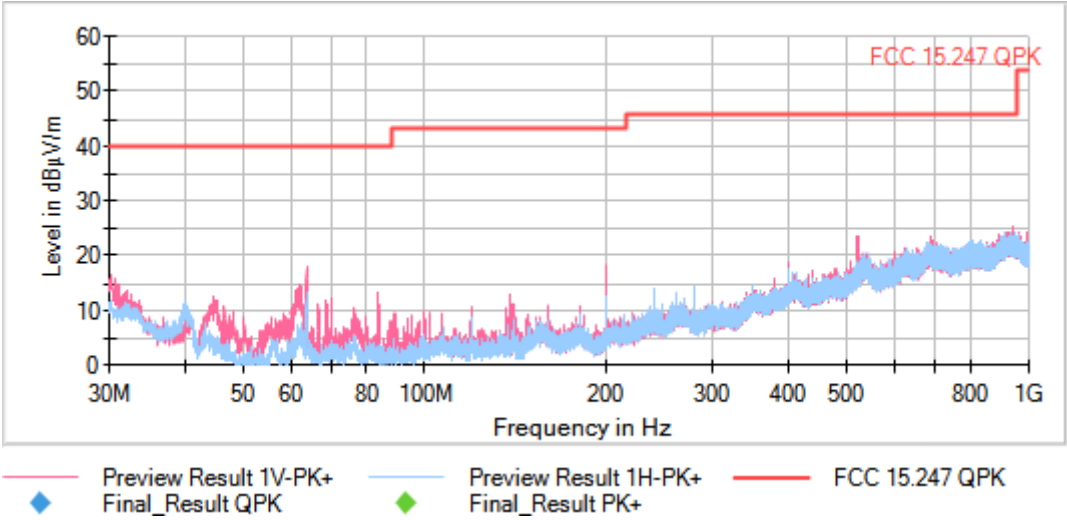


Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [0.03, 1]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:

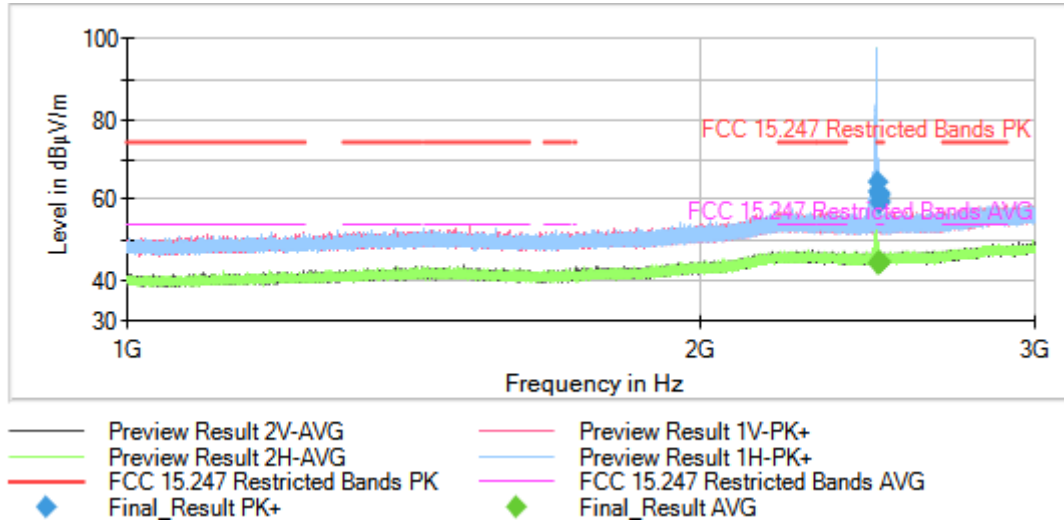


Tables:
Spectrum Analyzer Parameters

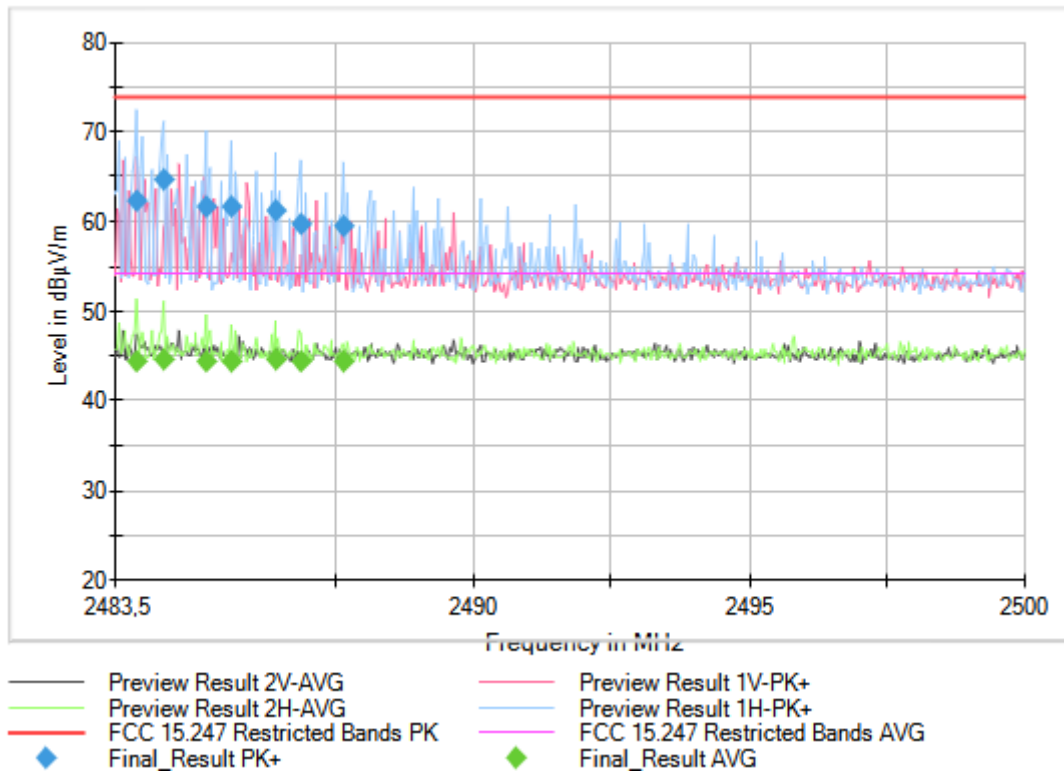
	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [ESR 7]					
	30 MHz - 1 GHz	30,312 kHz	PK+	100 kHz	1 s	0 dB

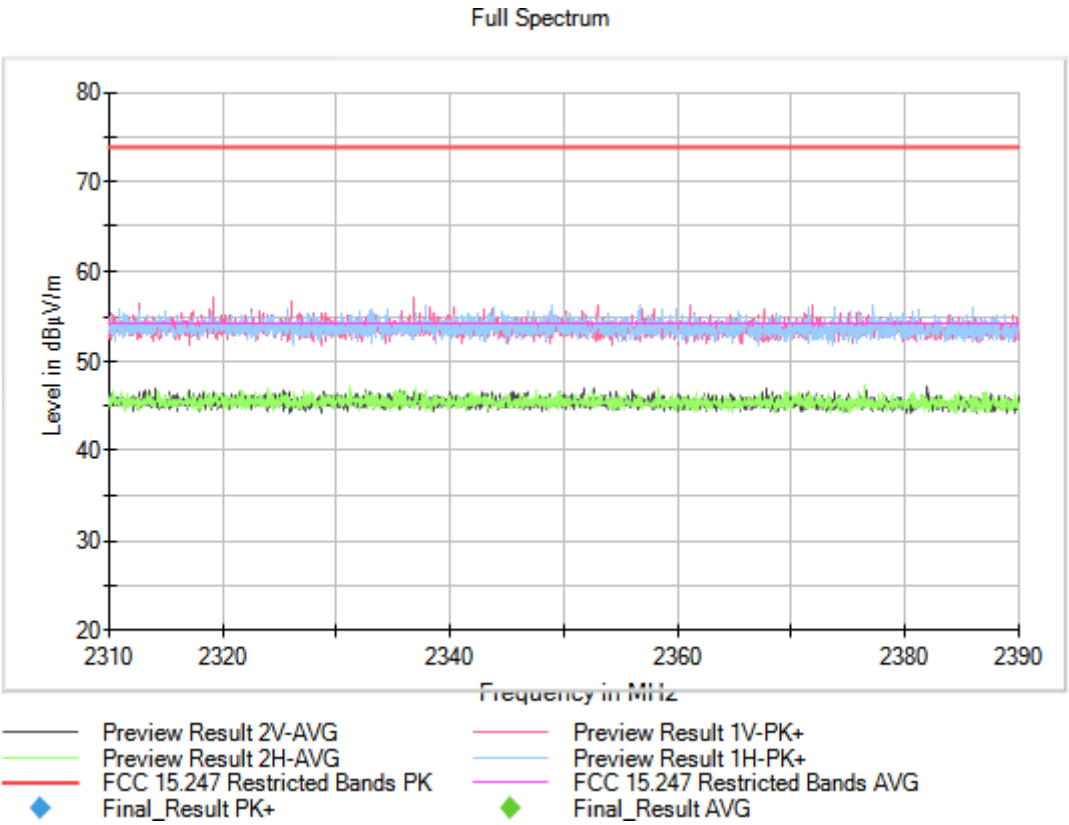
Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [1, 3]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



Full Spectrum



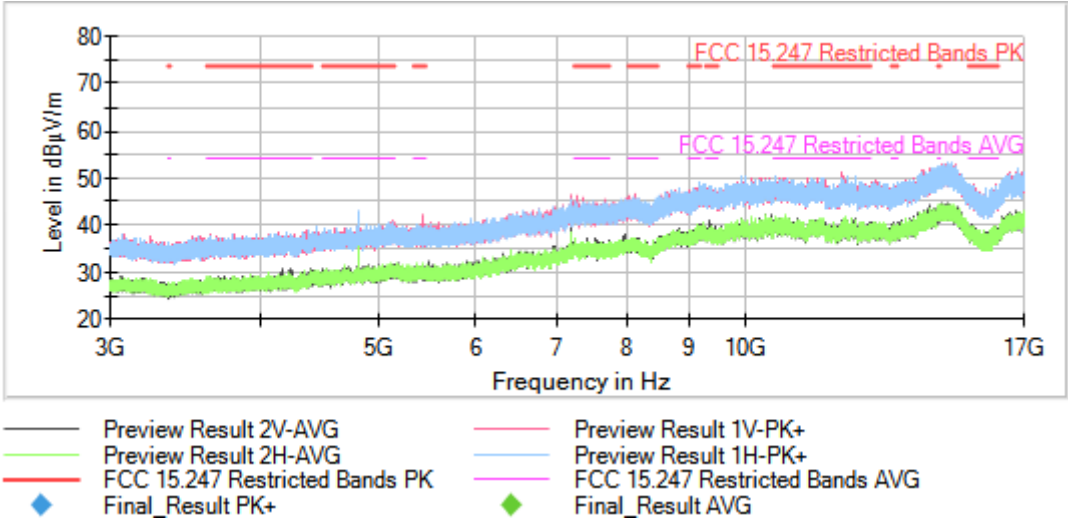


Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	1 GHz - 3 GHz	30,769 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [3, 17]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:

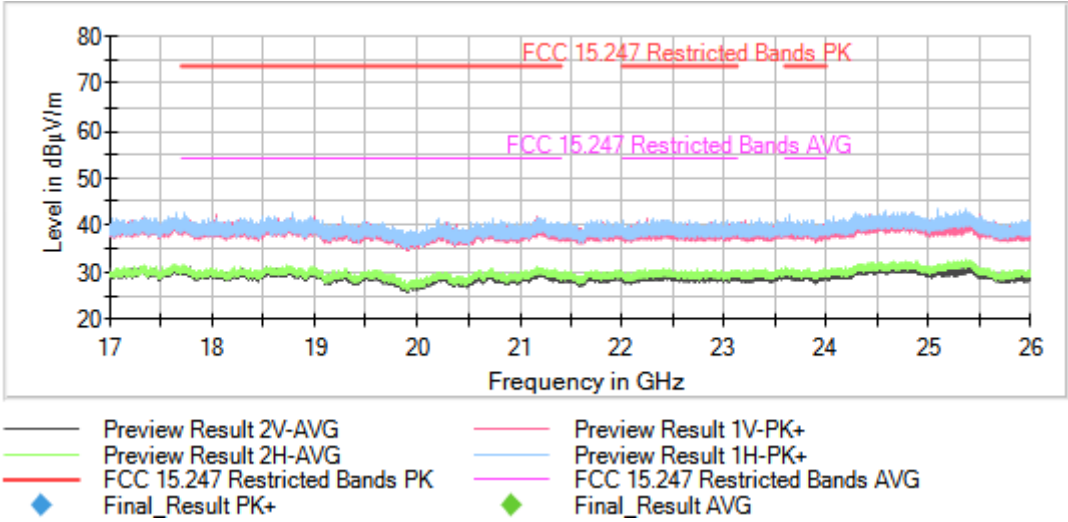


Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2402.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [17, 26]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



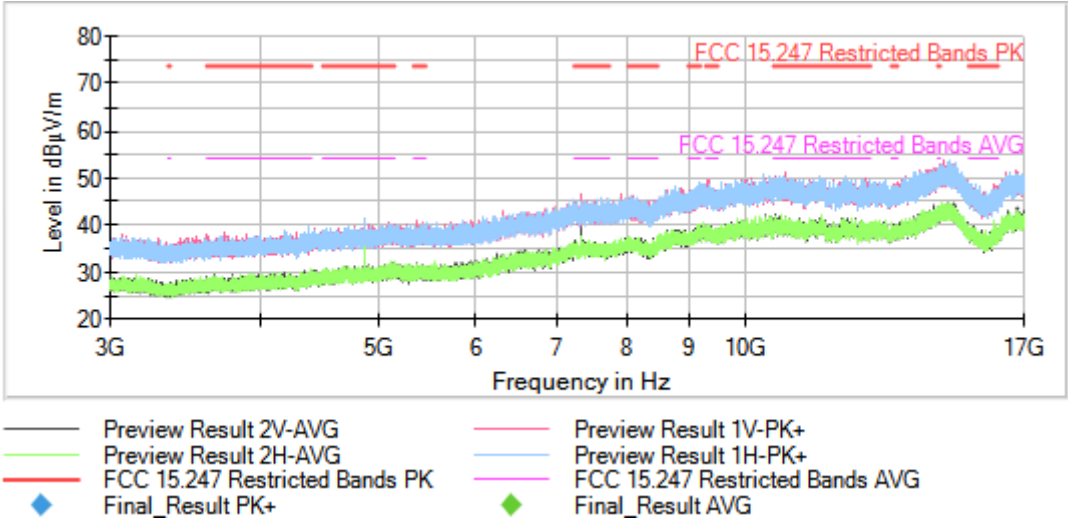
Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [3, 17]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



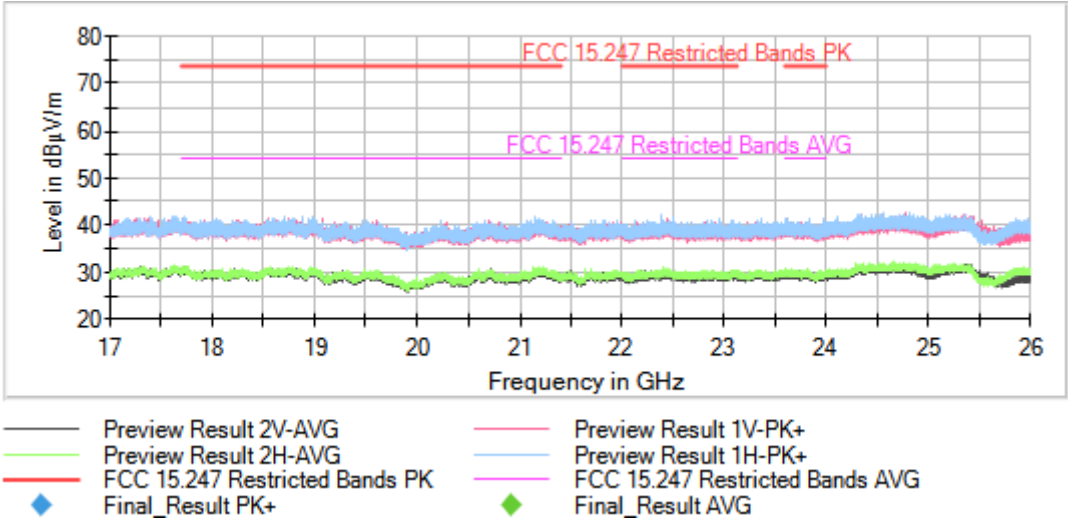
Tables:

Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2440.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [17, 26]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:

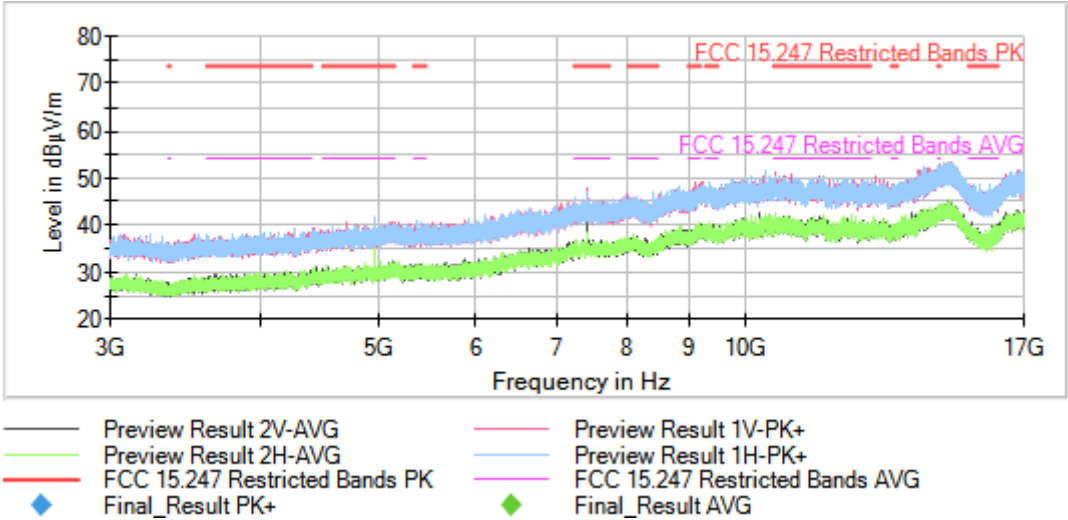


Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [3, 17]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:

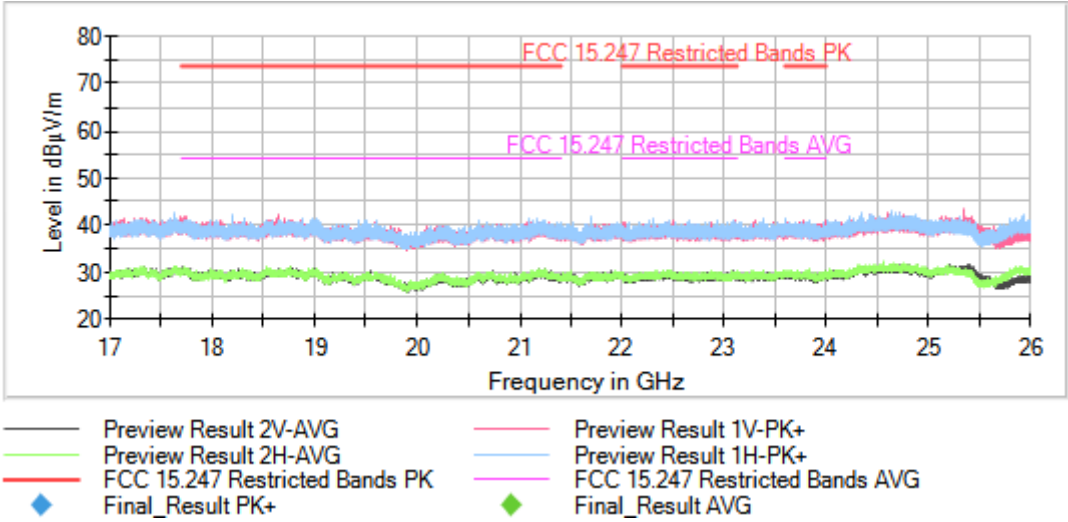


Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	3 GHz - 17 GHz	140 kHz	PK+ ; AVG	1 MHz	1 s	0 dB

Frequency MHz = 2480.00000 Equipment Type = Digital Transmission System (DTS)
Modulation = BTLE 5.0 (GFSK 1 Mbit/s) Frequency Range GHz = [17, 26]
Number of Transmission Chains = 1 Measurement Point = 1
Active Port = 1

Images:



Tables:
Spectrum Analyzer Parameters

	Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
	Receiver: [FSW 50]					
	17 GHz - 26 GHz	300 kHz	PK+ ; AVG	1 MHz	1 s	0 dB