DEKRA Testing and Certification, S.A.U.
Parque Tecnológico de Andalucía,
c/ Severo Ochoa nº 2 · 29590 Campanillas · Málaga · España
C.I.F. A29507456

ISED CABid: ES1909
Lab. Company Number: 4621A

Test Report No:
78973RRF.001A1

Test Report

USA FCC Part 15.247, 15.209
CANADA RSS-247, RSS-Gen

(*) Identification of item tested	Radio Navigation Systems (NAV), Display Audio systems (DA)
(*) Trademark	BOSCH
(*) Model and /or type reference	MMCSBXNAR
Other identification of the product	FCC ID: 2AUXS -MMCSBXNAR IC: 25847 - MMCSBXNAR
(*) Features	AM/FM, BT, Wi-Fi, GNSS, Highspeed CAN -M-CAN and V-CAN, USB, Ethernet HW version: 001 SW version: 6830_240319
Applicant	Robert Bosch GmbH Robert-Bosch-Platz 1, 70839 Gerlingen
Test method requested, standard	USA FCC Part 15.247 (10-1-23 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz. USA FCC Part 15.209 (10-1-23 Edition): Radiated emission limits; general requirements. CANADA RSS-247 Issue 3 (August 2023). 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 C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	IN COMPLIANCE
Approved by (name / position & signature)	José Manuel Gómez Galván EMC Consumer & RF Lab. Manager Firmado digitalmente por 53680346W JOSE MANUEL GOMEZ (C:A29507456)
Date of issue	2024-12-03
Report template No	FDT08_25 (*) "Data provided by the client"

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Acronyms

Acronym ID	Acronym Description
	E.I.R.P.
Avg Power	Maximum Average Conducted Output Power
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
Mode	MIMO Mode
Occ Ch BW	Occupied Channel Bandwidth
PSD	Power Spectral Density
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.

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 ≤ ± 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 ≤ ± 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 ≤ ± 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 ≤ ± 0,80 dB
RF Average Output Power: Measurement uncertainty ≤ ± 0,99 dB
Power Spectral Density: Measurement uncertainty ≤ ± 0,99 dB
6dB Bandwidth: Measurement uncertainty ≤ ± 1,14 %
Occupied Channel Bandwidth: Measurement uncertainty ≤ ± 1,40 %
Conducted Band-edge spurious emissions: Measurement uncertainty ≤ ± 1,76 dB
Accumulated Dwell Time: Measurement uncertainty ≤ ± 0,16 %
Minimum Frequency Occupation Time: Measurement uncertainty ≤ ± 0,53 %
Hopping Frequency Separation: Measurement uncertainty ≤ ± 1,74 %

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 Radio Navigation Systems (NAV). Display Audio systems (DA) with following features:
   - Units without fascia and keys
   - Linux-based software
   - Key Features:
     - Connectivity (Highspeed CAN -M-CAN and V-CAN bus- 500kbit/s, BT, Wi-Fi SISO, Ethernet)
     - USB
   - 1st port: Connect Molex or Mitsumi USB hub 2port hub. The hub supports connection to MSC or MTP devices containing media playback data or download data. Also supporting connection to devices supporting Apple iPod playback, Apple Carplay and Android Auto

- 2nd port: Connect TCU box. Using USB subclass CDC-EEM for data transmission (Telematic / eCall box)
    - Smartphone integration
    - GNSS localization (details see GNSS chapter)
    - Audio: Arkamys, ESE
    - Radio: AM/FM, SXM (optional only NAR)
    - Display of vehicle functions HMI
    - LVDS connection to RearViewCamera, RearSeatEntertainment, Media Player and external Display
    - Analogue RearViewCamera
    - LVDS audio connection A2B for external amplifier with digital A2B input

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 Nº	Date of Reception	Application
S/01	78973_5.1	Headunit	MMCSBXNAR	000732525915W016P	2024-06-24	Element Under Test
S/02	78973_4.1	Headunit	MMCSBXNAR	000732225915W016P	2024-06-24	Element Under Test
S/01 & S/02	78973_1.1	Display	CID UNIT CENTRAL DISPLAY	D000XMI120230922000001	2024-06-24	Element Under Test
S/01 & S/02	78973_10.1	Signal distributor smalll box	-	-	2024-07-10	Auxiliary Element
S/01 & S/02	78973_2.1	Harness small	LVDS CABLE	-	2024-06-24	Auxiliary Element
S/01 & S/02	78973_27.1	Ethernet cable	-	-	2024-07-10	Auxiliary Element
S/01 & S/02	78973_28.1	USB A female-mini B Cable	-	-	2024-07-10	Auxiliary Element
S/01 & S/02	78973_29.1	Erhernet-USB adapter	-	-	2024-07-10	Auxiliary Element
S/01 & S/02	78973_9.1	Load box	A-IVI 2	-	2024-07-10	Auxiliary Element

Notes referenced to samples during the project:

Id	Type
S/01	Sample used for radiated testing
S/02	Sample used for conducted testing

Test sample description

Ports…… :	Port name and description	Cable					
		Specified max length [m]	Attached during test	Shielded	Coupled to patient(3)		
	WiFi connector	2m	[X]	[ ]	[ ]		
	FM2 connector	2m	[X]	[ ]	[ ]		
	FM1/AM connector	2m	[X]	[ ]	[ ]		
	GNSS connector	2m	[X]	[ ]	[ ]		
	SBX connector	2m	[X]	[ ]	[ ]		
	A2B connector	2m	[X]	[ ]	[ ]		
	ETH2/REC connector	2m	[X]	[ ]	[ ]		
	ETHA/CGW connector	2m	[X]	[ ]	[ ]		
	RVC LVDS connector	2m	[X]	[ ]	[ ]		
	TCU/IVCC USB2 connector	2m	[X]	[ ]	[ ]		
	LVDS out connector	2m	[X]	[ ]	[ ]		
	MCH/USB1 connector	2m	[X]	[ ]	[ ]		
	MAIN connector	2m	[X]	[ ]	[ ]		
	--		[ ]	[ ]	[ ]		
Supplementary information to the ports…… :							
Rated power supply .....:	Voltage and Frequency			Reference poles			
				L1	L2	L3	N	PE
	[ ]	AC:		[ ]	[ ]	[ ]	[ ]	[ ]
	[X]	DC: 12Vdc						
Rated Power .....:	--							
Clock frequencies.....:	--							
Other parameters .....:	--							
Software version .....:	6830_240319							
Hardware version .....:	001							
Dimensions in cm (W x H x D) ....:	--							
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
	--			
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

Robert Bosch GmbH

Robert-Bosch-Platz 1, 70839 Gerlingen, Germany

Testing period and place

Test Location	DEKRA Testing and Certification S.A.U.
Date (start)	2024-04-11
Date (finish)	2024-09-25

Document history

Report number	Date	Description
78973RRF.001	2024-11-21	First release.
78973RRF.001A1	2024-12-03	Second release. It is modified due to some typos. This modification test report cancels and replaces the test report 78973RRF.001

Environmental conditions

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

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

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

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

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

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

Remarks and comments

The tests have been performed by the technical personnel: Alvaro Gutierrez Naranjo, Carmen Vazquez Perez and Rafael Fernandez Martin.

Used instrumentation:

Control No.	Equipment	Model	Manufacturer	Next Calibration
07445	DC POWER SUPPLY 30V/5A	U8002A	KEYSIGHT TECHNOLOGIES	N/A
05850	DIGITAL MULTIMETER	179	FLUKE	2024-11-02
07760	DIGITAL MULTIMETER	175	FLUKE	2024-11-08
07817	EMI TEST RECEIVER 2Hz-44GHz	ESW44	ROHDE AND SCHWARZ	2026-07-01
06609	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2025-04-22
06615	ETHERNET TEMPERATURE AND HUMIDITY LOGGER	HWg-STE	HW GROUP	2025-04-04
04953	HIGH PASS FILTER 1.1-8GHz	WHK10-990-1100-8000-40SS	WAINWRIGHT INSTRUMENTS	2025-02-14
09029	HIGH PASS FILTER 17-40 GHZ	STHP-17-40G-92	TEMSTRON/TEMWELL	2025-03-29
08770	HIGH PASS FILTER 3-18 GHZ	ST-3GA2833-HS	TEMSTRON/TEMWELL	2025-08-02
06496	HORN ANTENNA 1-18GHz	BBHA 9120 D	SCHWARZBECK	2026-12-01
04657	HORN ANTENNA 18-40GHz	BBHA 9170	SCHWARZBECK	2026-06-12
06143	HYBRID BILOG ANTENNA 30MHz-6GHz	3142E	ETS LINDGREN	2027-01-22
07656	LOW PASS FILTER TEMSTRON/TEMWELL DC - 1 GHZ	ST-1GA3250-LS	TEMSTRON/TEMWELL	2025-02-02
07193	MULTI-DEVICE CONTROLLER	CO3000	INNCO	N/A
08848	OPEN SWITCH UNIT UP TO 7.5 GHz	OSP-B157W8 PLUS	ROHDE & SCHWARZ	2024-12-21
00922	POWER SUPPLY DC 40 V / 40 A	Type 4231	BRüEL & KJæR	2027-10-02
08856	PRE-AMPLIFIER G>30dB 18-40GHz	BLMA 1840-4A	BONN ELEKTRONIK	2025-02-27
03783	PRE-AMPLIFIER G>30dB 1GHz-18GHz	BLMA 0118-3A	BONN ELEKTRONIK	2025-03-15
06142	PRE-AMPLIFIER G>38dB 30MHz-6GHz	BLNA 0360-01N	BONN ELEKTRONIK	2025-07-25
06144	PRE-AMPLIFIER G>40dB 10MHz-6GHz	BLNA 0160-01N	BONN ELEKTRONIK	2025-07-22

Control No.	Equipment	Model	Manufacturer	Next Calibration
06791	SEMIANECHOIC ABSORBER LINED CHAMBER IV	FACT 3 200 STP	ETS LINDGREN	N/A
06793	SHIELDED ROOM	S101	ETS LINDGREN	N/A
06668	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2024-12-14
07794	SIGNAL AND SPECTRUM ANALYZER 10Hz-40GHz	FSV40	ROHDE AND SCHWARZ	2025-04-21
07791	SIGNAL GENERATOR 8kHz-6GHz	SMB100B	ROHDE AND SCHWARZ	2026-03-15
07793	SIGNAL GENERATOR 8kHz-6GHz	SMBV100B	ROHDE AND SCHWARZ	2026-03-11
04848	SOFTWARE FOR EMC/RF TESTING	EMC32	ROHDE AND SCHWARZ	N/A
06611	TEMPERATURE AND HUMIDITY PROBE	HWg-STE	HW GROUP	2025-04-04
08847	VECTOR SIGNAL GENERATOR 100kHz-7.5GHz	SMW200A	ROHDE AND SCHWARZ	2025-09-29
07795	WIRELESS CONNECTIVITY TESTER BW 160 MHz	CMW270	ROHDE AND SCHWARZ	2025-03-13
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

WLAN 2.4 GHz:

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	
Supplementary information and remarks: None.			

Bluetooth EDR:

Requirement – Test case	**FCC PART 15 PARAGRAPH / RSS-247**	**Verdict**	**Remark**
FCC 15.247 (a) (1) / RSS-247 5.1 (b)	20 dB Bandwidth	P	
FCC 15.247 (a) (1) (iii) / RSS-247 5.1 (d)	Time of Occupancy (Dwell Time)	P	
FCC 15.247 (b) / RSS-247 5.4. (b)	Maximum peak output power and	P	
FCC 15.247 (a) (1) (iii) / RSS-247 5.1 (d)]	Number of hopping channels	P	
FCC 15.247 (d) / RSS-247 5.5	Band-edge emissions compliance	P	
FCC 15.247 (d) / RSS-247 5.5	Emission limitations radiated (Transmitter)	P	
Supplementary information and remarks: None			

Appendix A: Test results. WLAN 2.4 GHz

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TEST CONDITIONS

(*): Data provided by the client.

POWER SUPPLY (*):

Vnominal:	12 V DC
Type of Power Supply:	External power supply

ANTENNA (*):

Type of Antenna:	External.
Maximum Declared Antenna Gain:	+2.9 dBi

TEST FREQUENCIES (*):

Modulation	Data rates	Low Channel:	Middle Channel	High Channel
802.11b:	1 Mbit/s	2412 MHz	2437 MHz	2462 MHz
802.11g:	6 Mbit/s	2412 MHz	2437 MHz	2462 MHz
802.11n:	HT20 MCS0 6.5 Mbit/s	2412 MHz	2437 MHz	2462 MHz
802.11n:	HT40 MCS0 6.5 Mbit/s	2422 MHz	2437 MHz	2452 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).

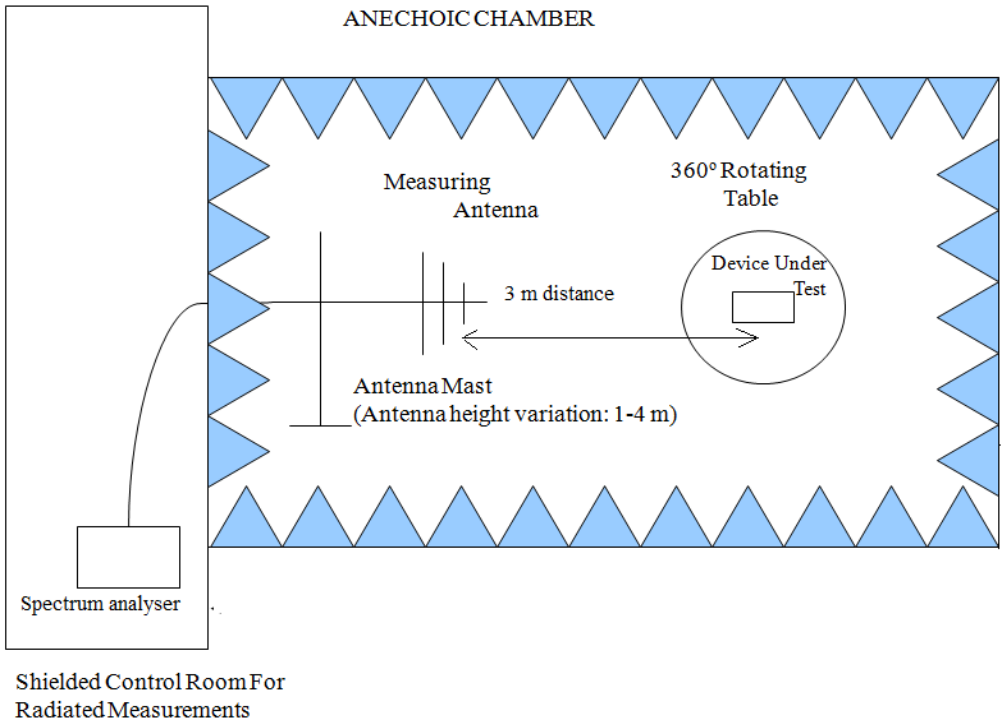
For radiated emissions in the range 17 GHz-26 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

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 360º and the antenna height (Bilog antenna and Double ridge horn antenna) was varied from 1 to 4 meters to find the maximum radiated emission.

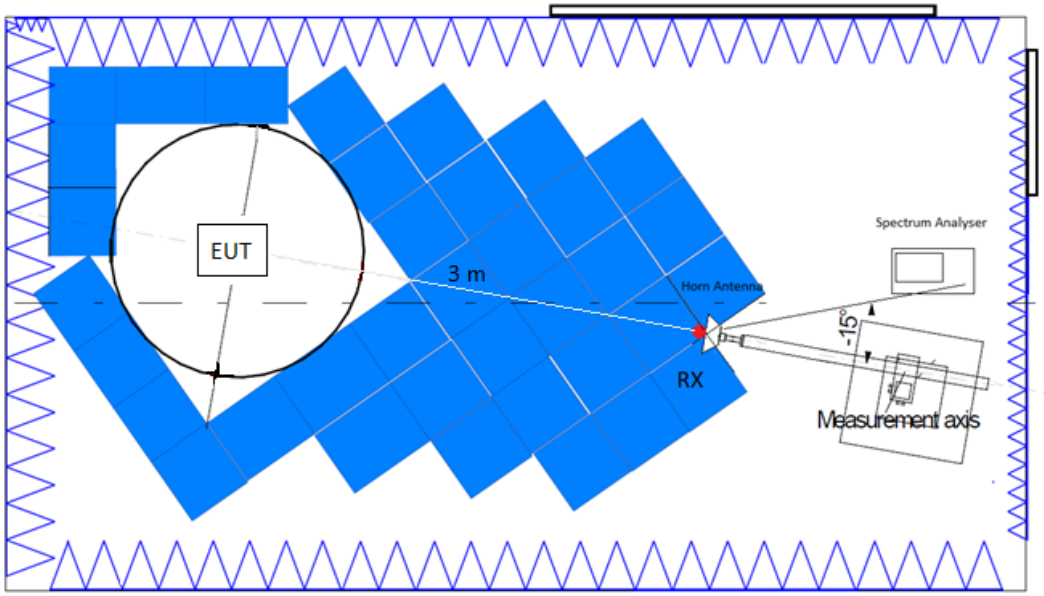
Measurements were made in both horizontal and vertical planes of polarization.

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.

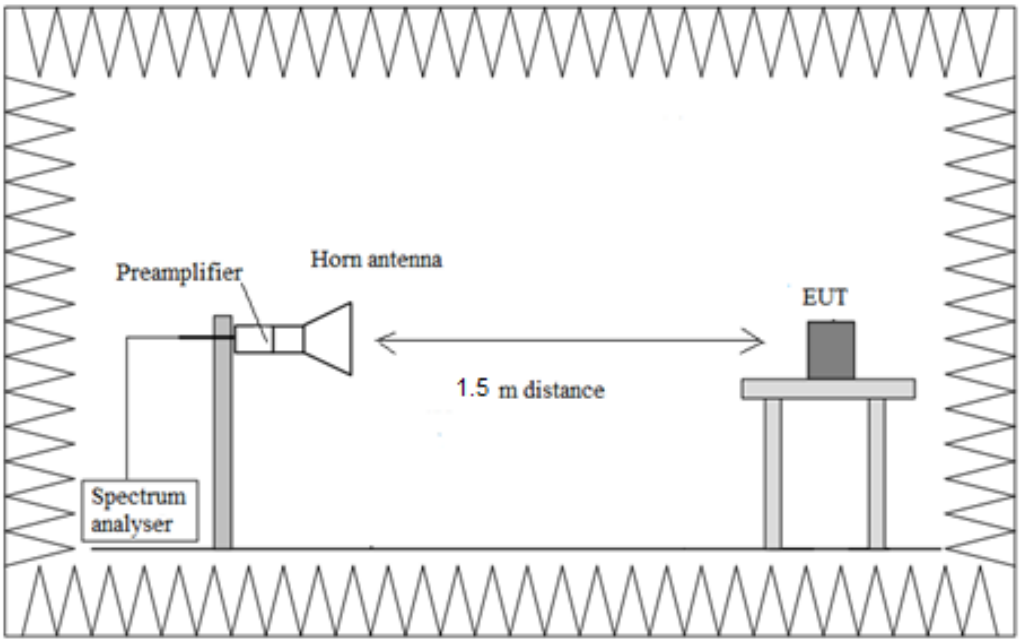
Radiated measurements setup from 30 MHz to 1 GHz:



Radiated measurements setup from 1 GHz to 17 GHz:



Radiated measurements setup f > 17 GHz:



TEST CASES DETAILS

99dBw Occupied Channel Bandwidth 99%

Limits

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

Modulation: 802.11b (DSSS 1 Mbit/s)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	13.200
		2437.00000		13.100
		2462.00000		13.200

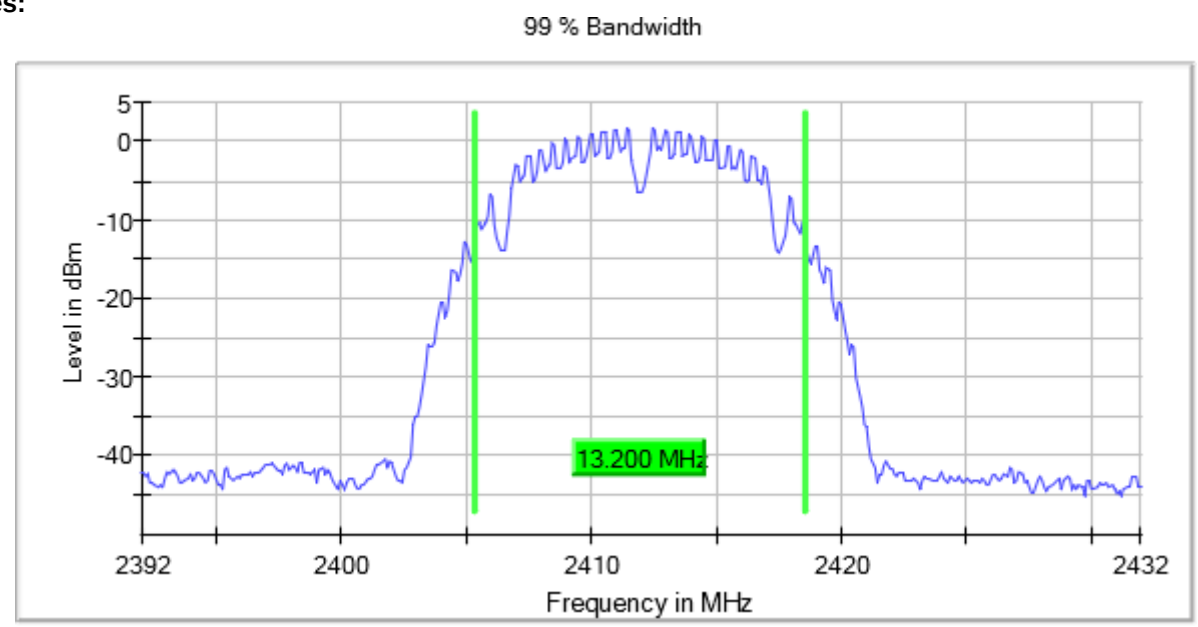
Verdict

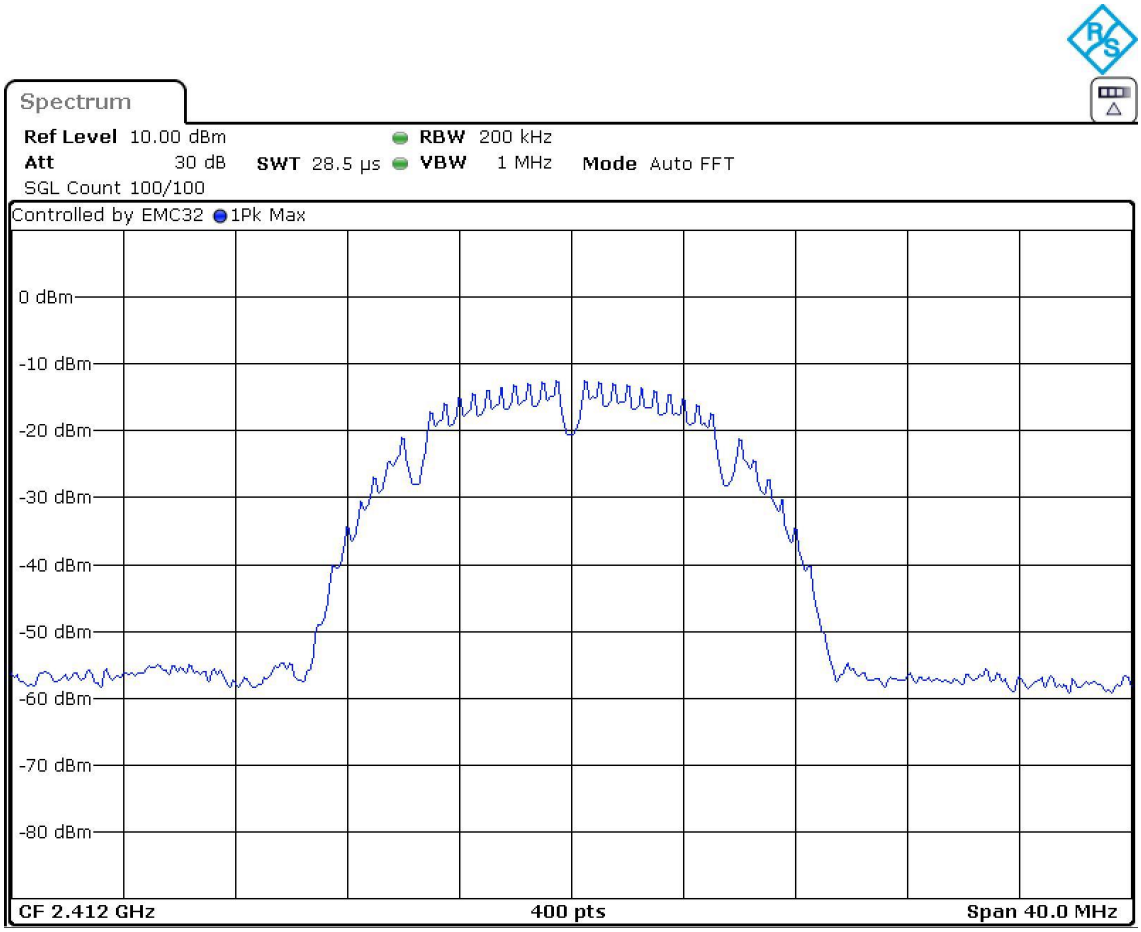
Pass

Attachments

Equipment Type = Digital Transmission System (DTS)	Bandwidth MHz = 20
Modulation = 802.11b (DSSS 1 Mbit/s)	Frequency MHz = 2412.00000
MIMO Mode = SISO	Active Port = 1

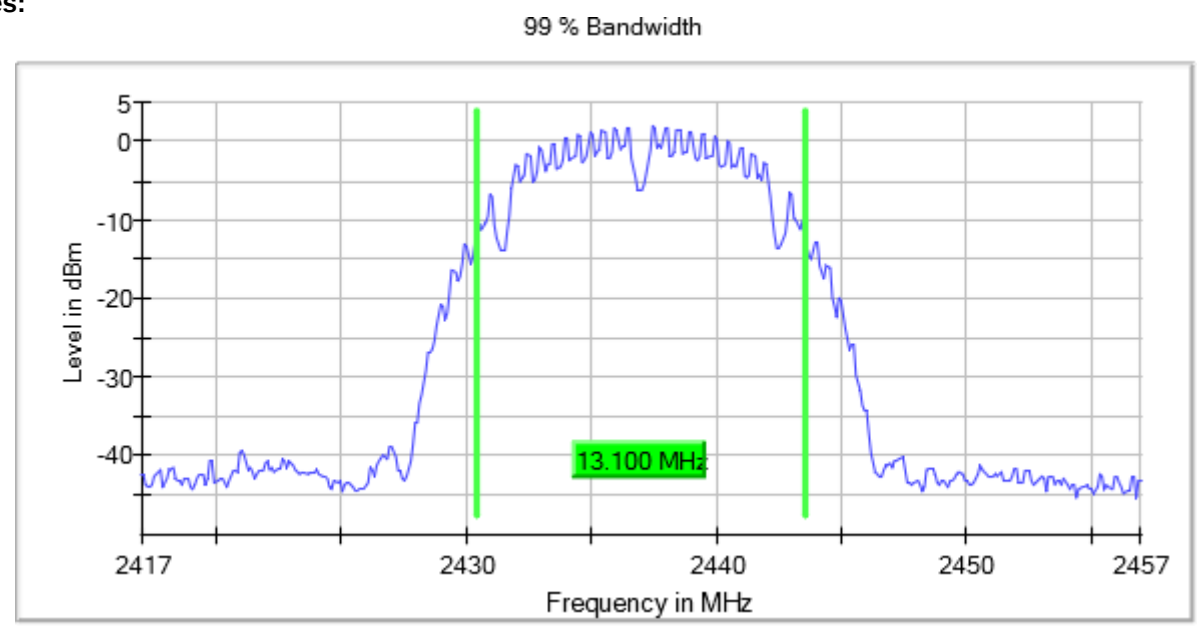
Images:

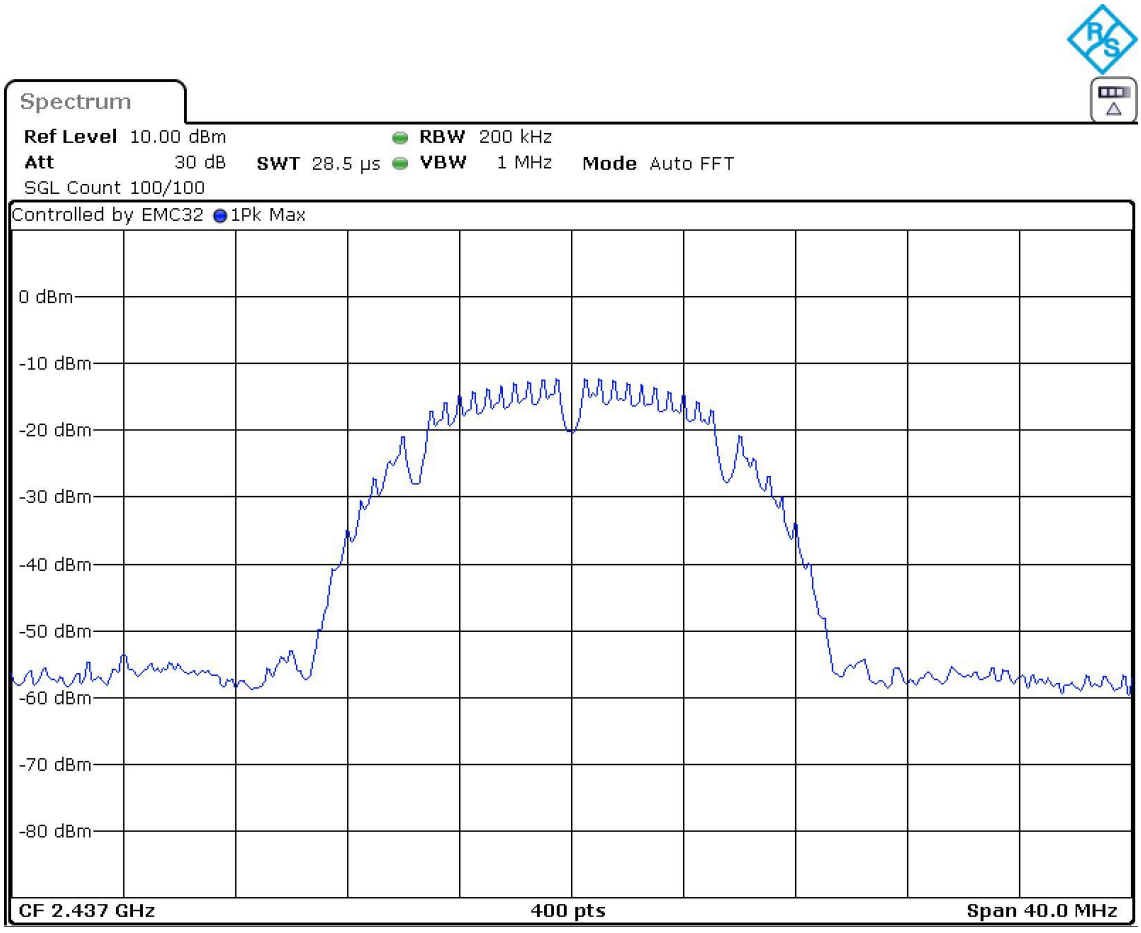




Equipment Type = Digital Transmission System (DTS)
Bandwidth MHz = 20
Modulation = 802.11b (DSSS 1 Mbit/s)
Frequency MHz = 2437.00000
MIMO Mode = SISO
Active Port = 1

Images:



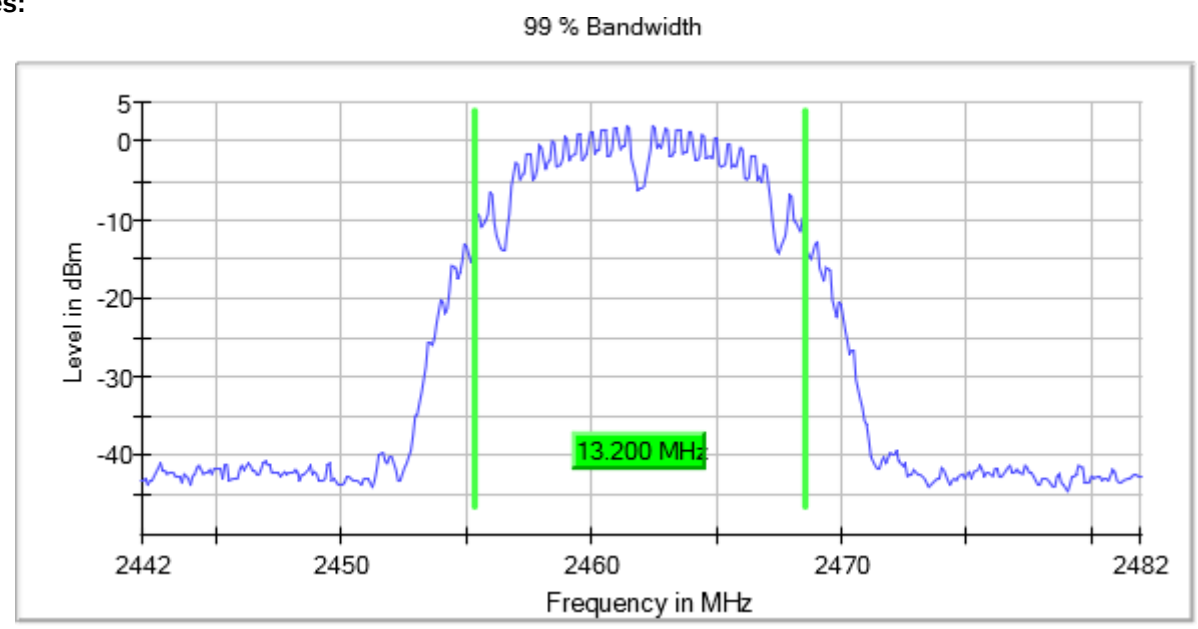


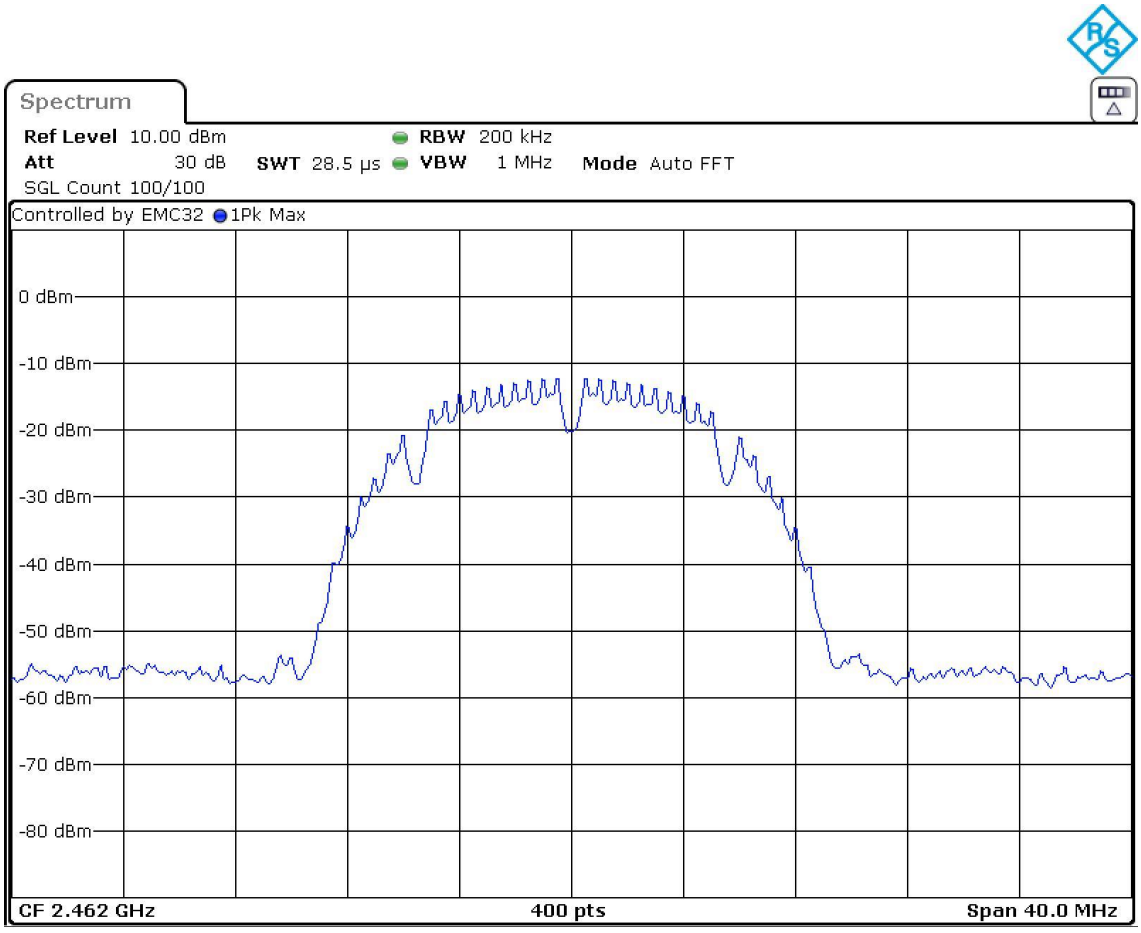
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2462.00000

MIMO Mode = SISO Active Port = 1

Images:





Modulation: 802.11g (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	16.600
		2437.00000		16.600
		2462.00000		16.600

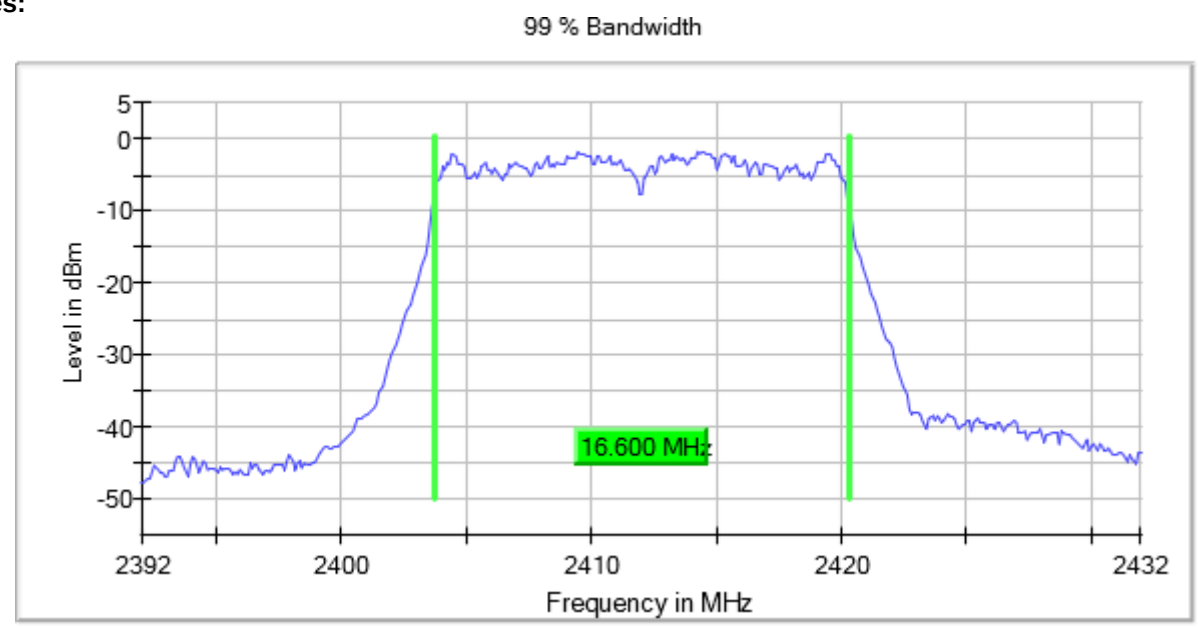
Verdict

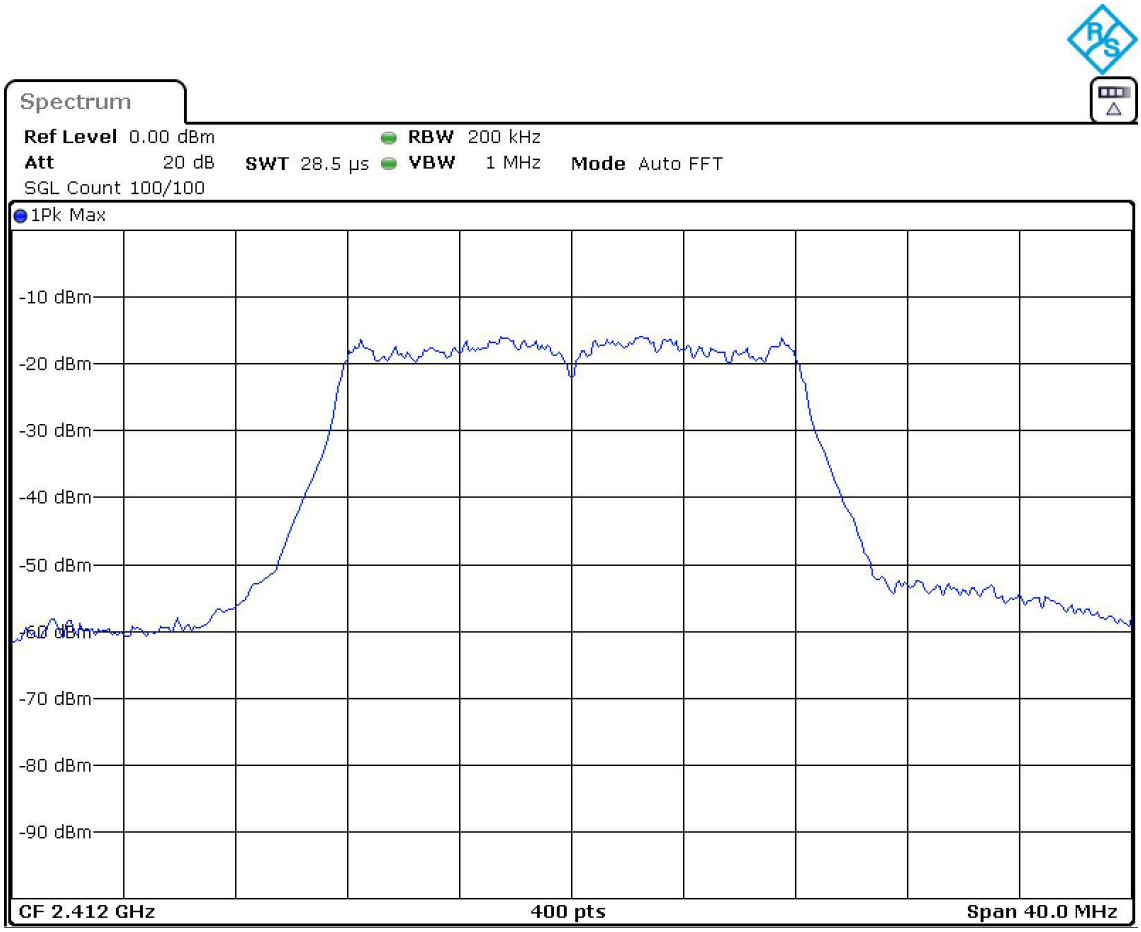
Pass

Attachments

Equipment Type = Digital Transmission System (DTS)	Bandwidth MHz = 20
Modulation = 802.11g (OFDM 6 Mbit/s)	Frequency MHz = 2412.00000
MIMO Mode = SISO	Active Port = 1

Images:



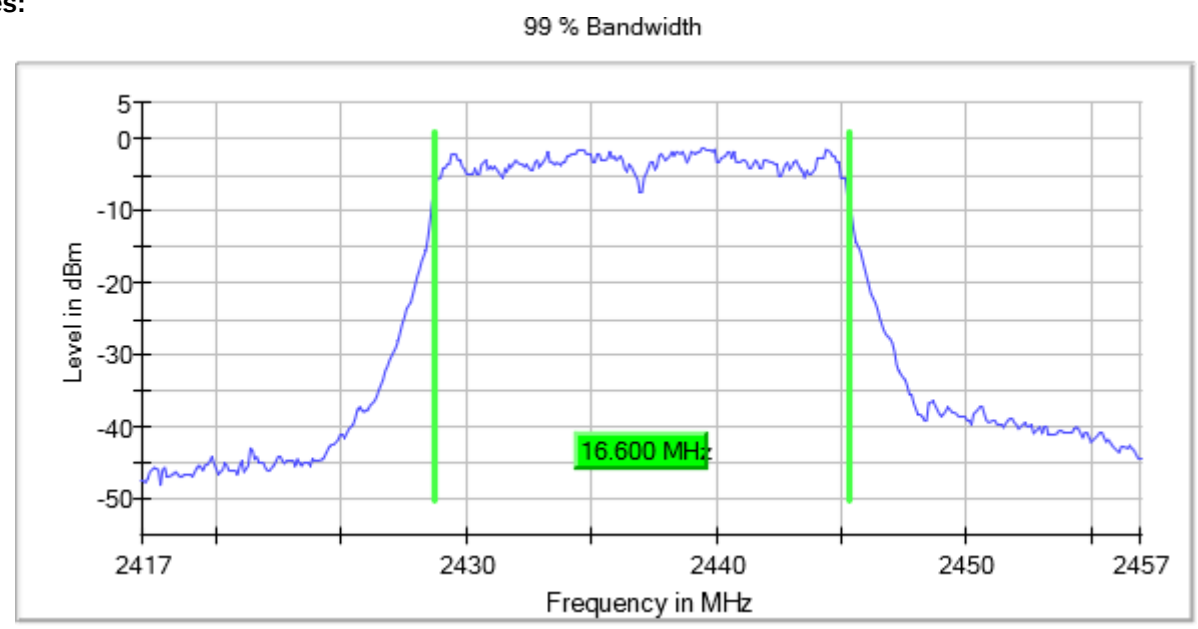


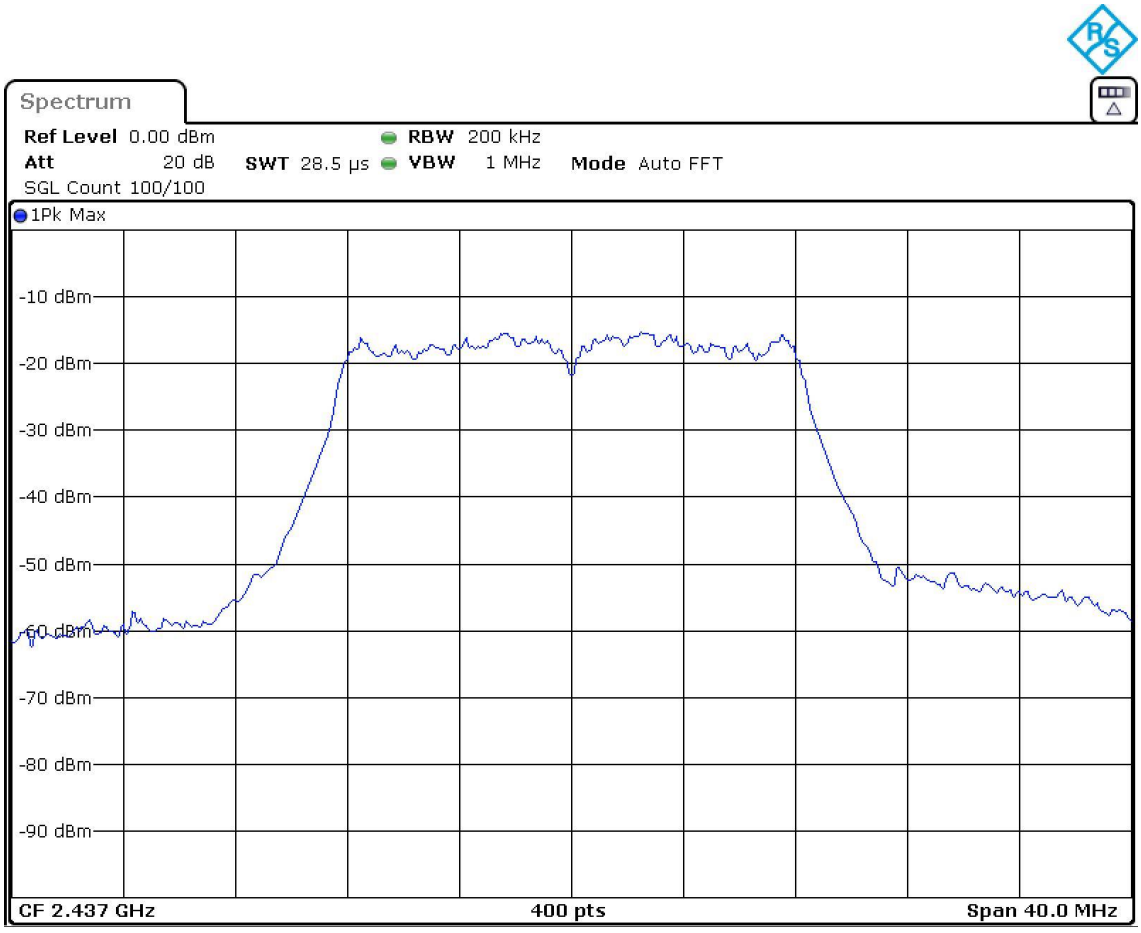
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2437.00000

MIMO Mode = SISO Active Port = 1

Images:



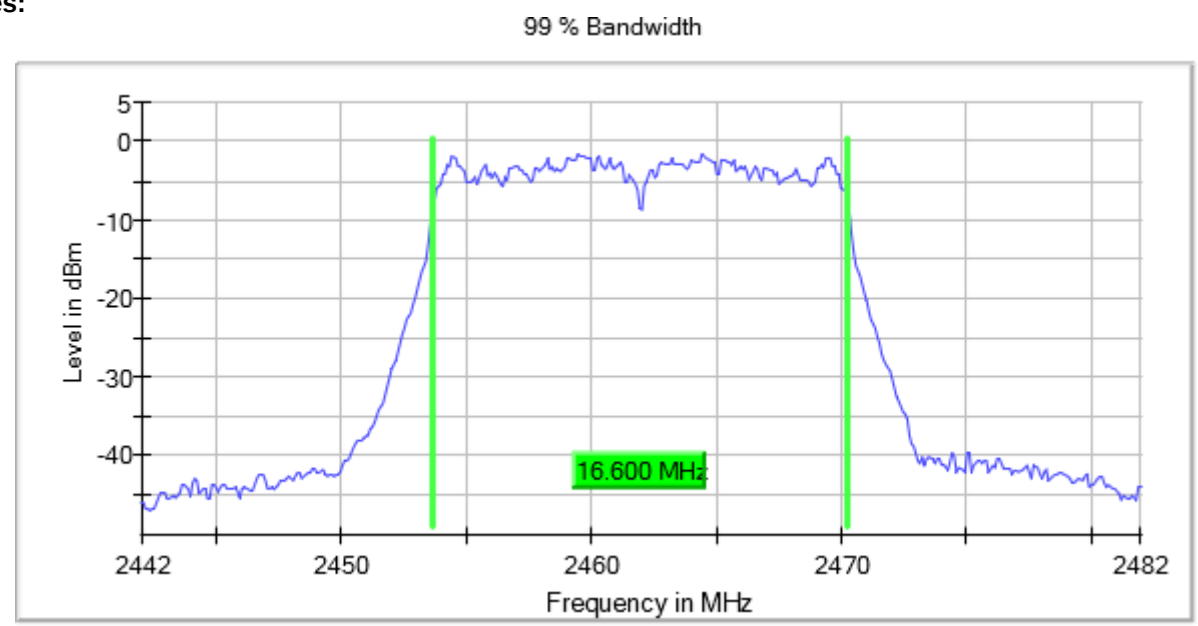


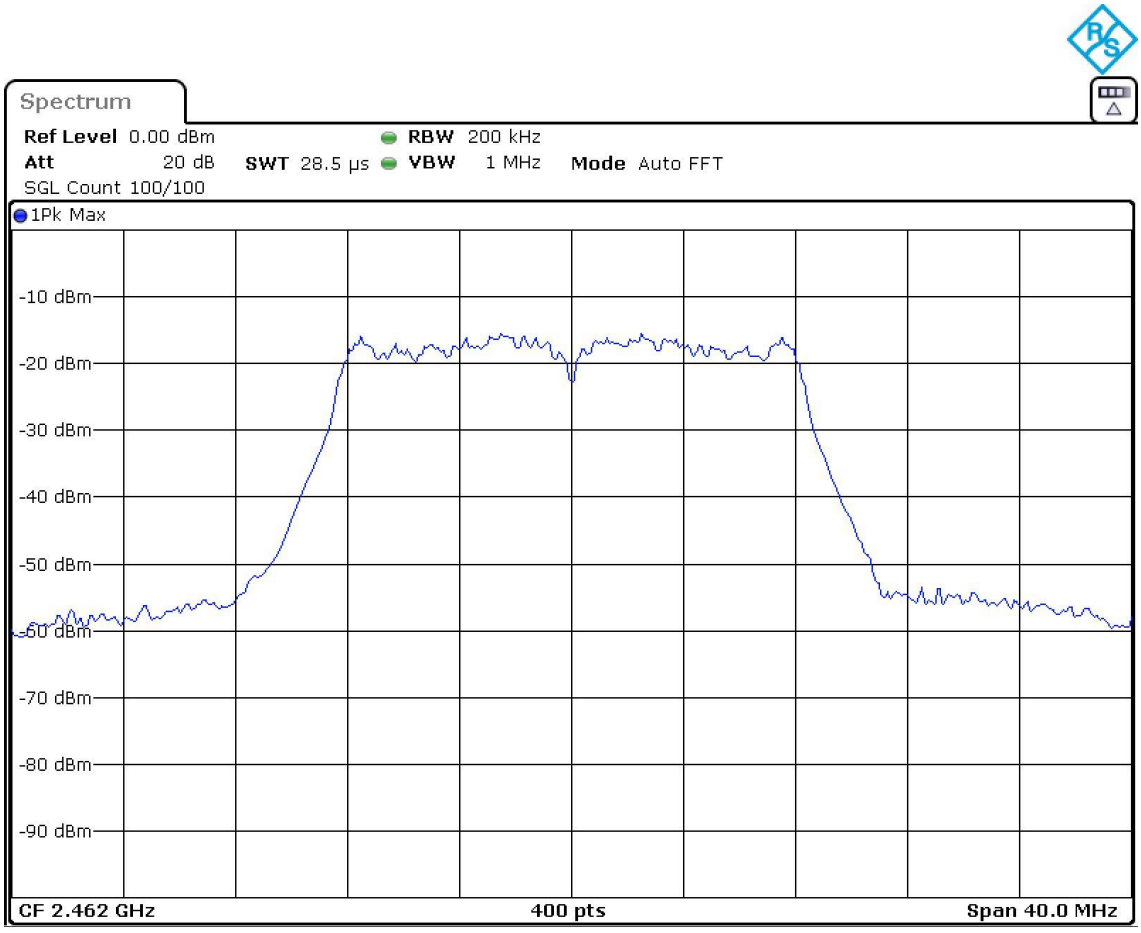
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2462.00000

MIMO Mode = SISO Active Port = 1

Images:





Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	20	2412.00000	1	17.700
		2437.00000		17.600
		2462.00000		17.700

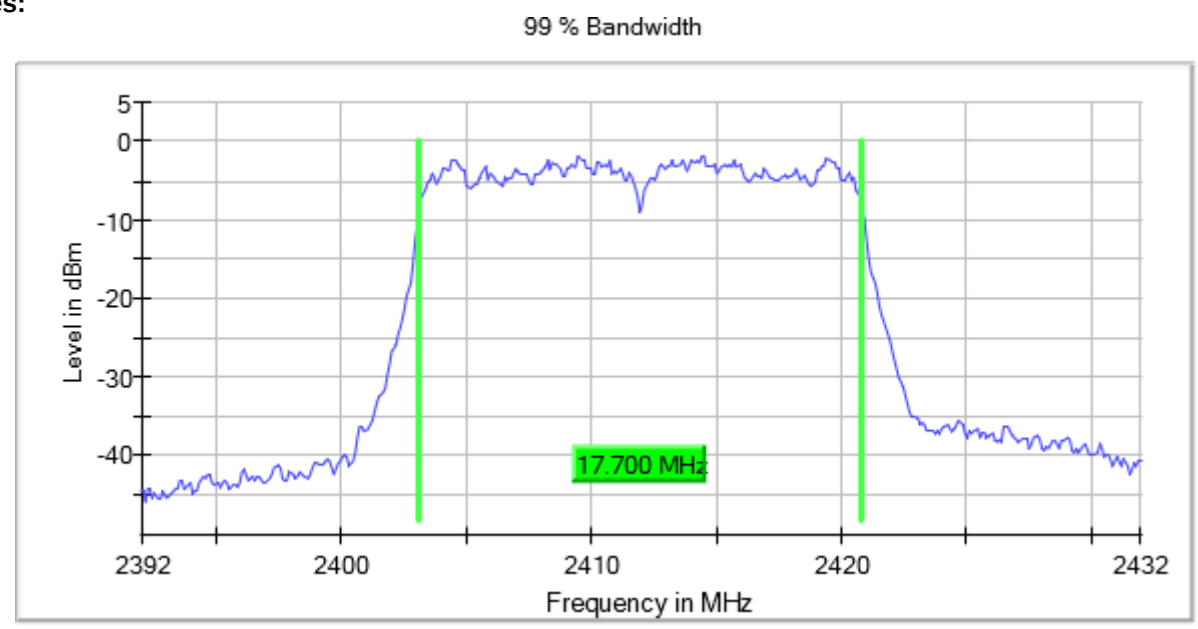
Verdict

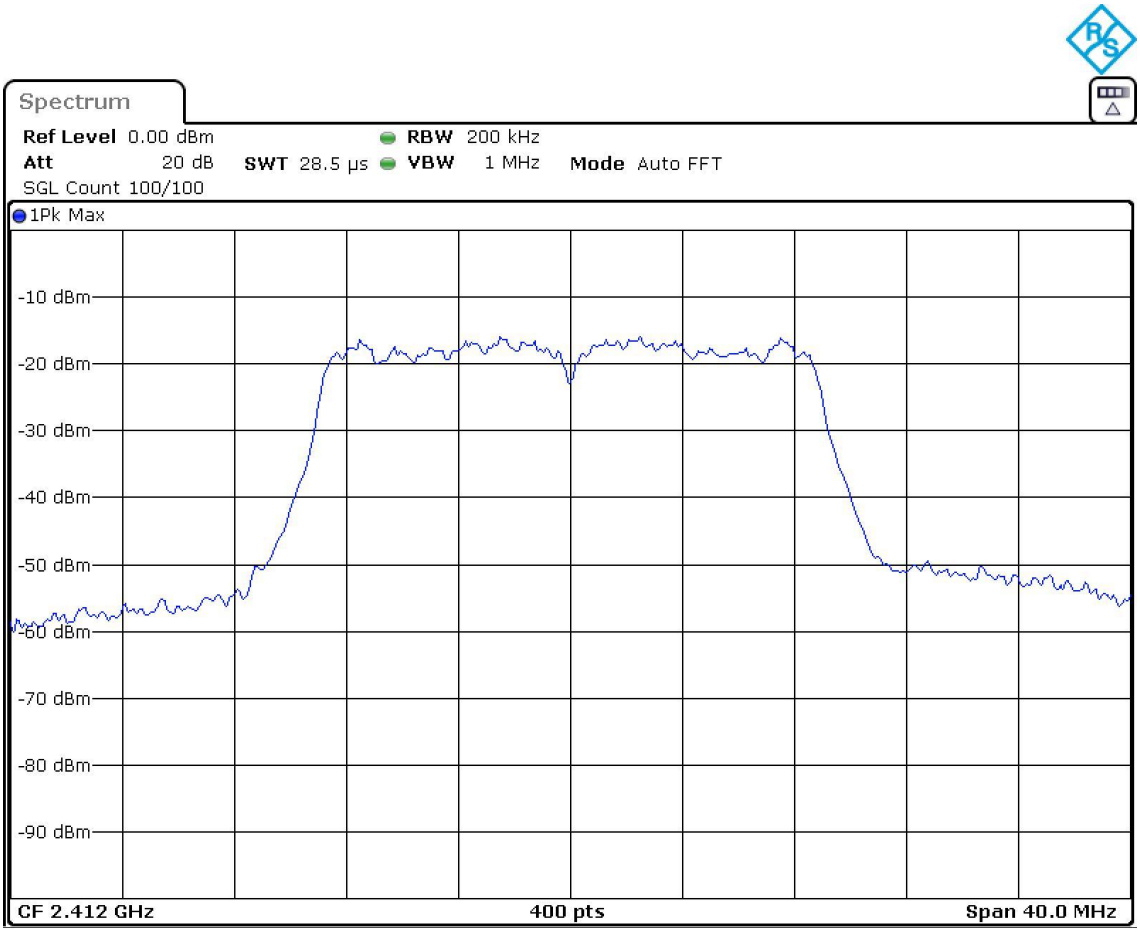
Pass

Attachments

Equipment Type = Digital Transmission System (DTS)	Bandwidth MHz = 20
Modulation = 802.11n HT20 (OFDM MCS0)	Frequency MHz = 2412.00000
MIMO Mode = SISO	Active Port = 1

Images:



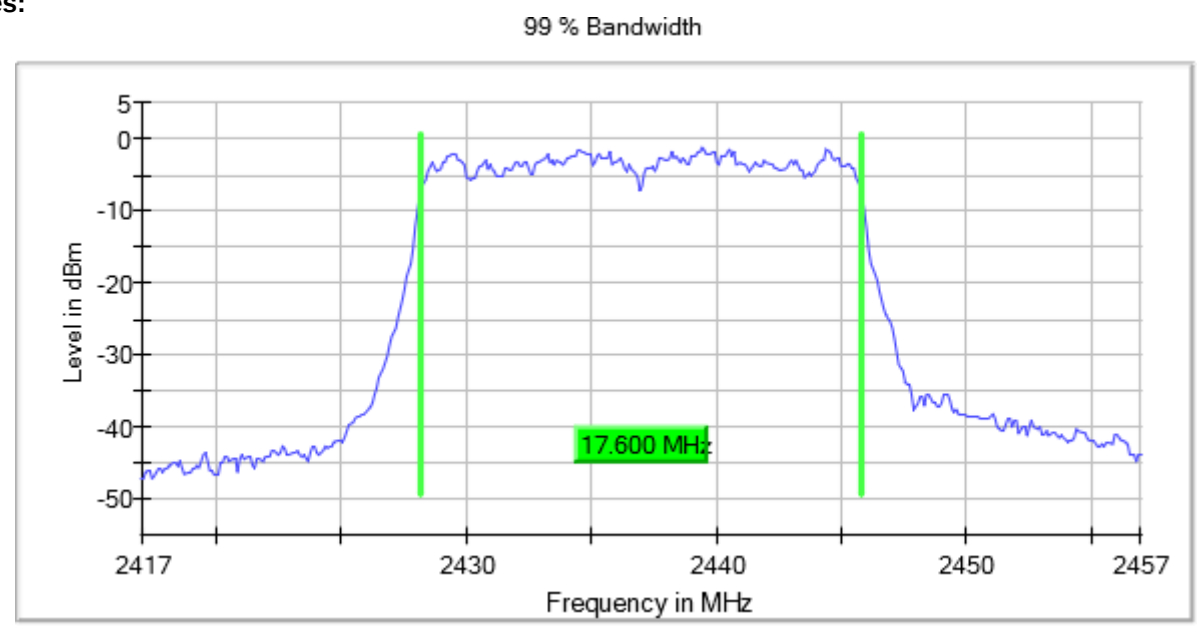


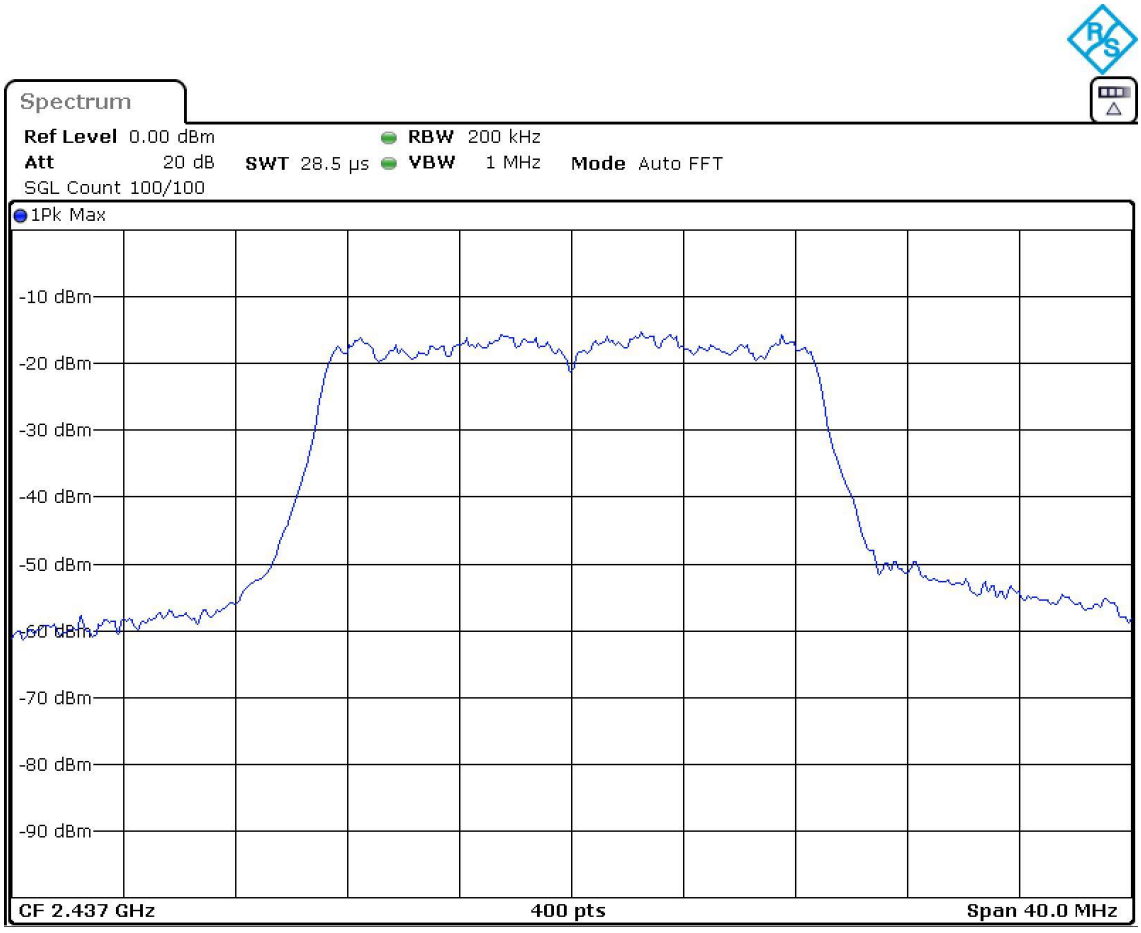
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11n HT20 (OFDM MCS0) Frequency MHz = 2437.00000

MIMO Mode = SISO Active Port = 1

Images:



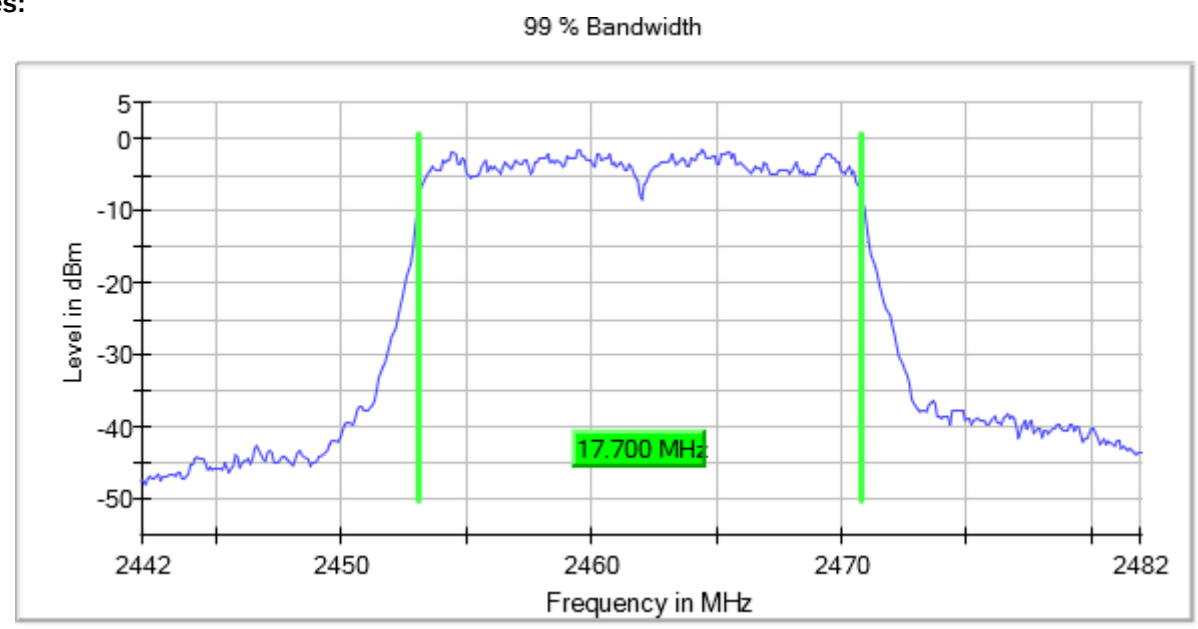


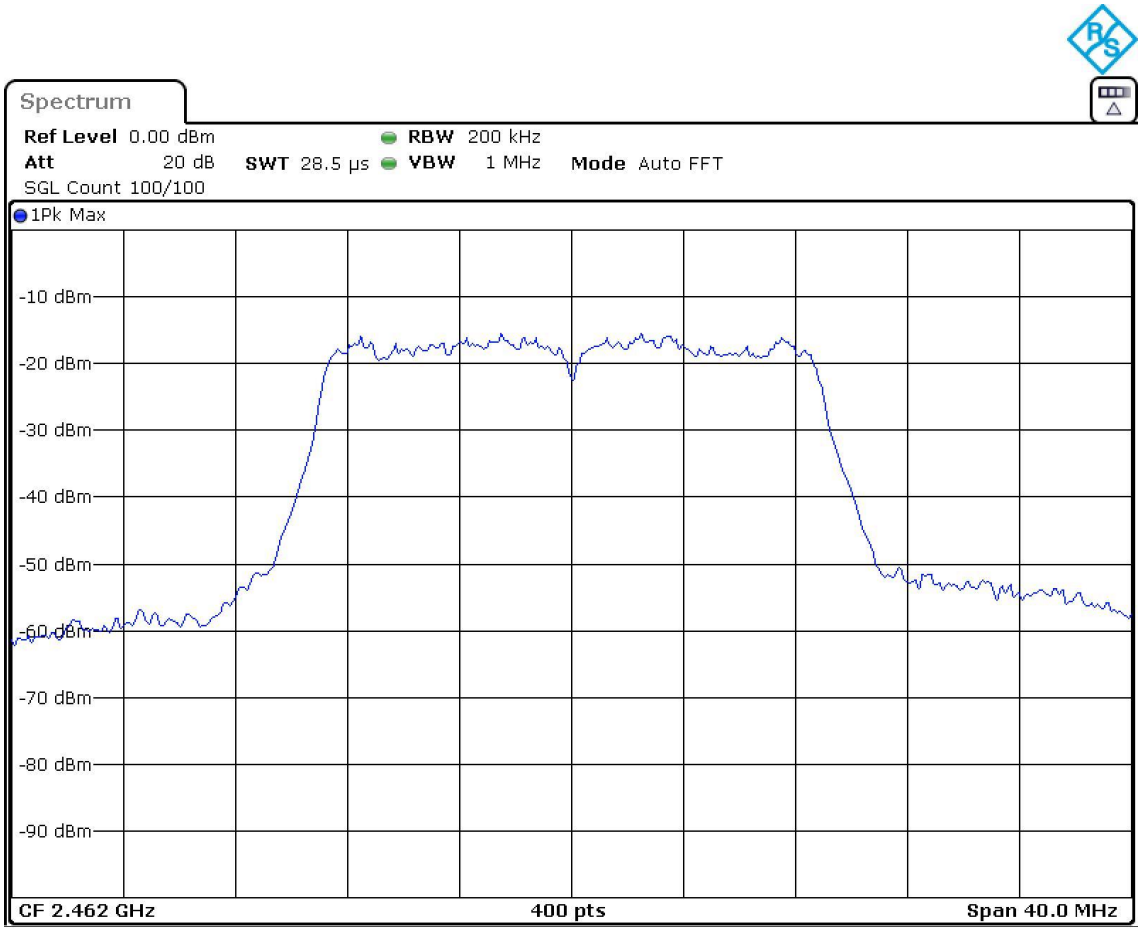
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11n HT20 (OFDM MCS0) Frequency MHz = 2462.00000

MIMO Mode = SISO Active Port = 1

Images:





Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	Occ Ch BW (MHz)
Digital Transmission System (DTS)	40	2422.00000	1	36.250
		2437.00000		36.250
		2452.00000		36.250

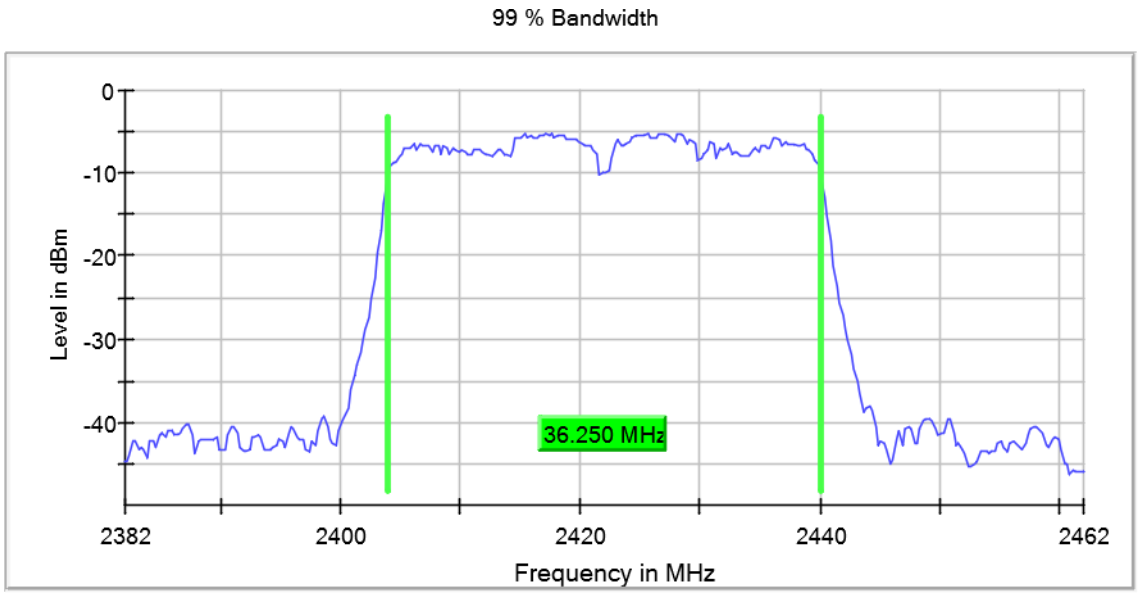
Verdict

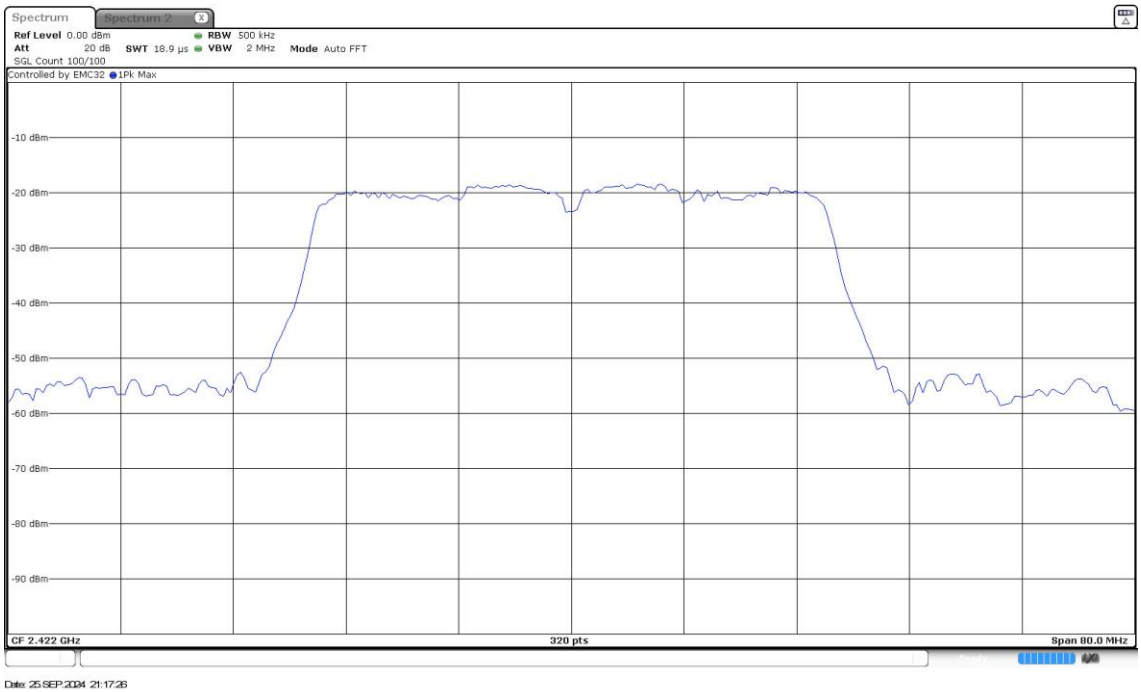
Pass

Attachments

Equipment Type = Digital Transmission System (DTS)	Bandwidth MHz = 40
Modulation = 802.11n HT40 (OFDM MCS0)	Frequency MHz = 2422.00000
MIMO Mode = SISO	Active Port = 1

Images:





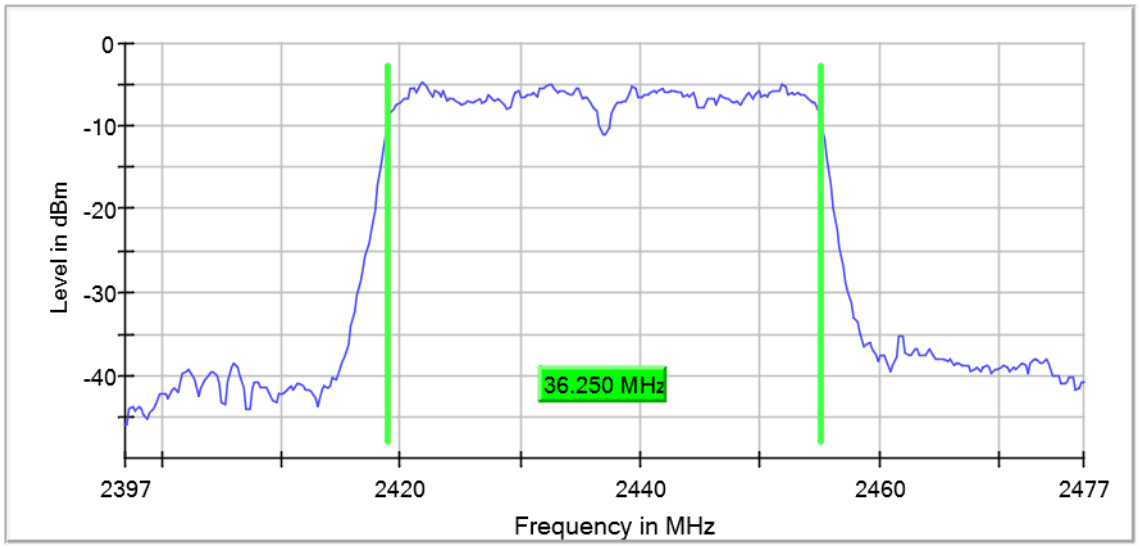
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 40

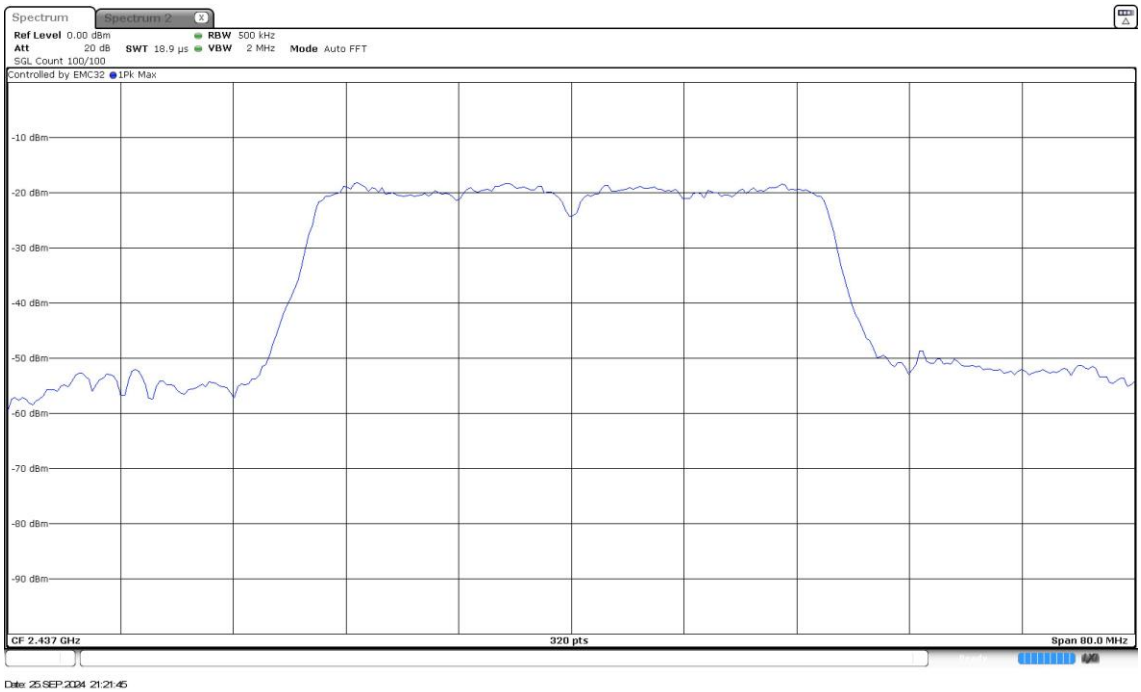
Modulation = 802.11n HT40 (OFDM MCS0) Frequency MHz = 2437.00000

MIMO Mode = SISO Active Port = 1

Images:

99 % Bandwidth



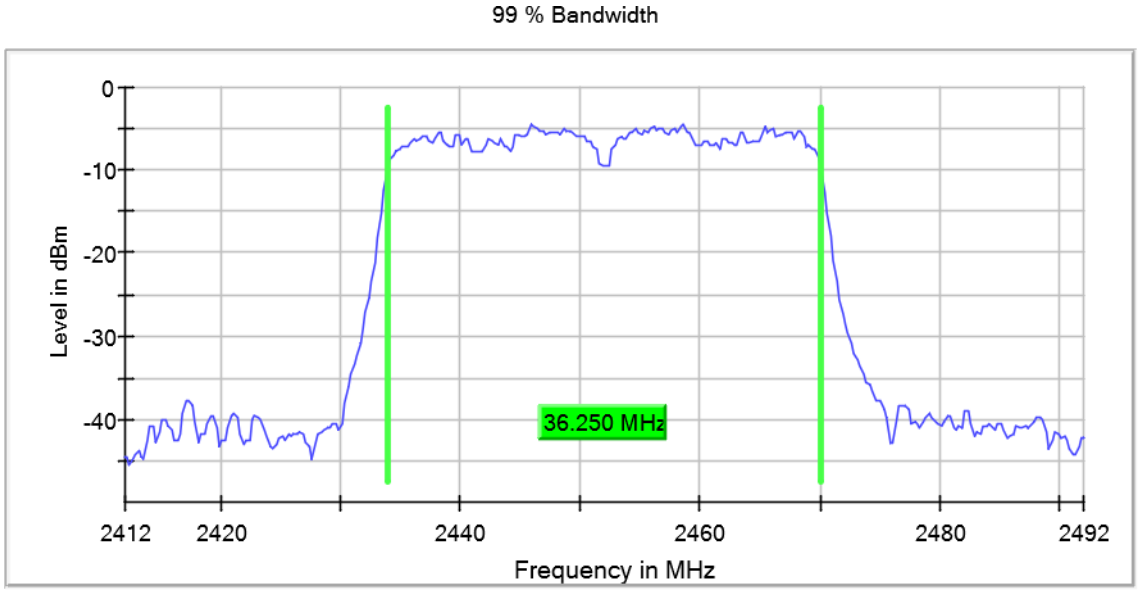


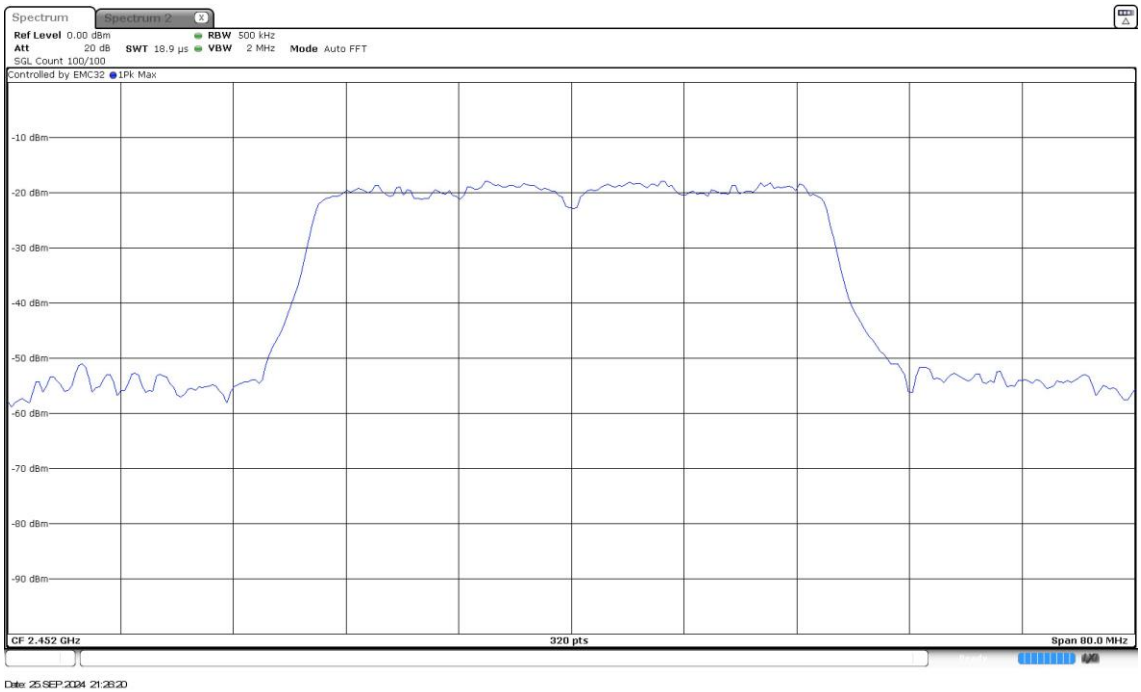
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 40

Modulation = 802.11n HT40 (OFDM MCS0) Frequency MHz = 2452.00000

MIMO Mode = SISO 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: 802.11b (DSSS 1 Mbit/s)

MIMO Mode: SISO

Results

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
20	2412.00000	1	10.150
	2437.00000		10.150
	2462.00000		10.150

Verdict

Pass

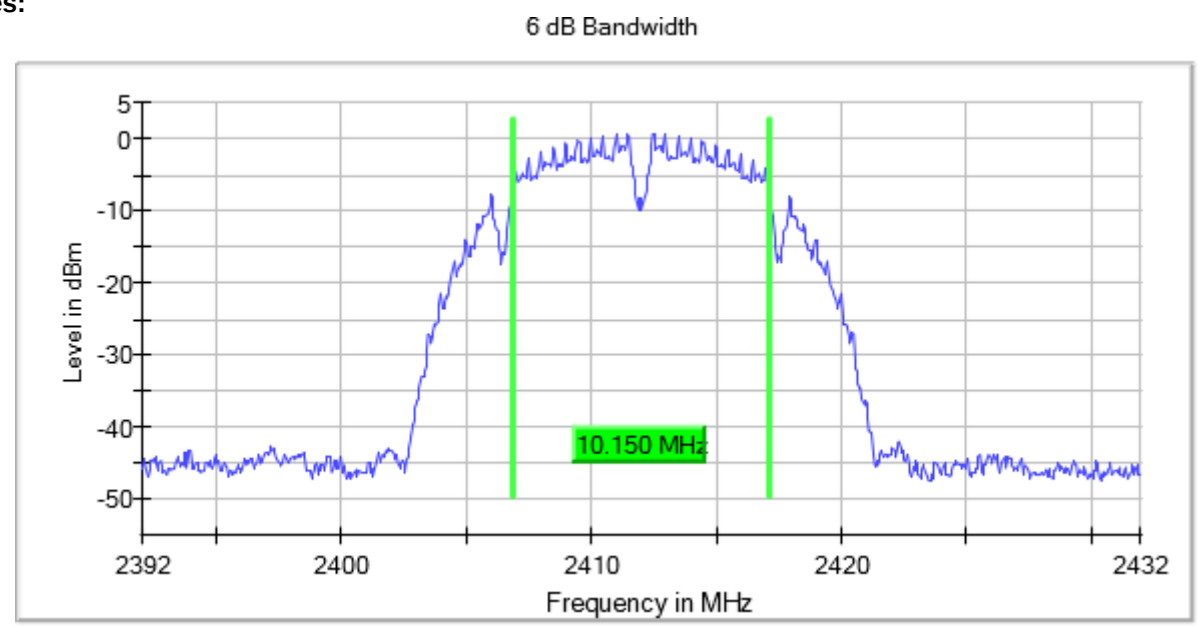
Attachments

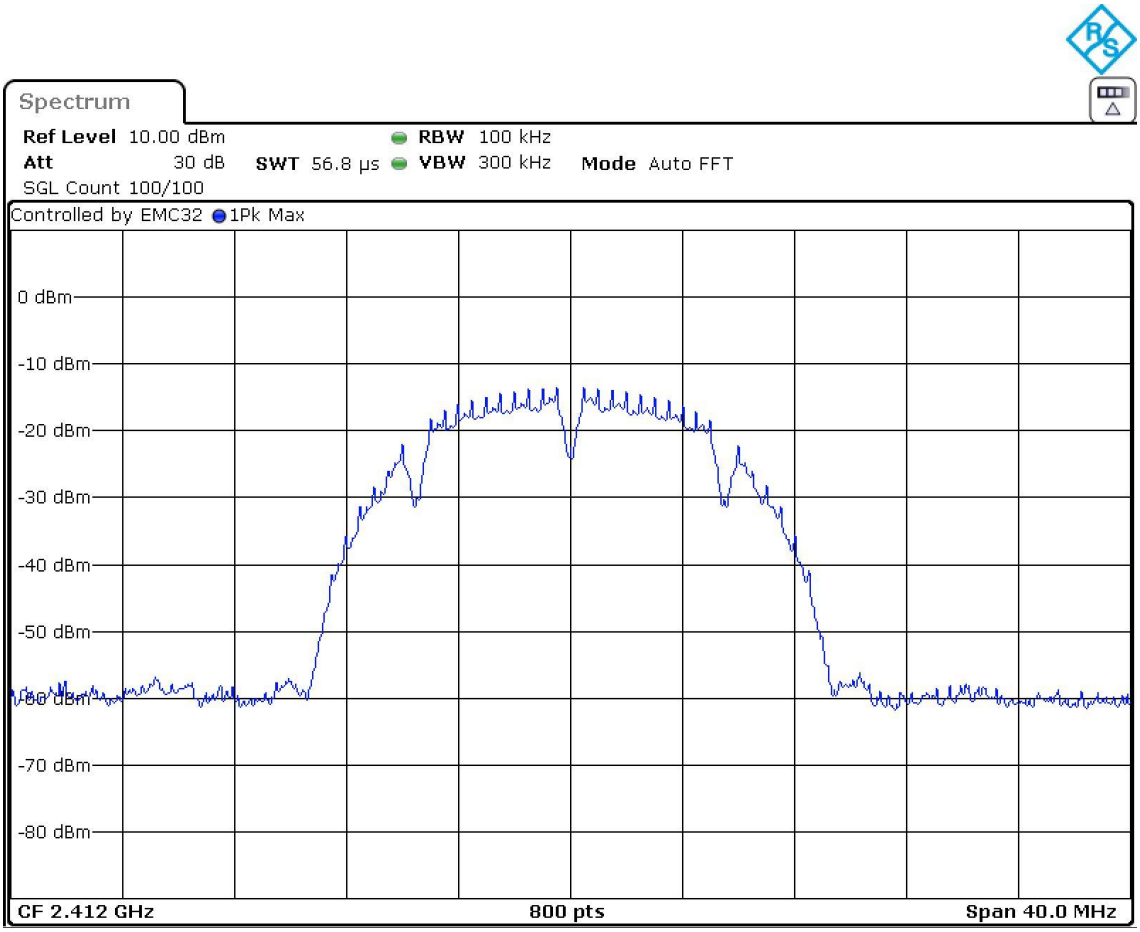
Bandwidth MHz = 20 Modulation = 802.11b (DSSS 1 Mbit/s)

Frequency MHz = 2412.00000 MIMO Mode = SISO

Active Port = 1

Images:



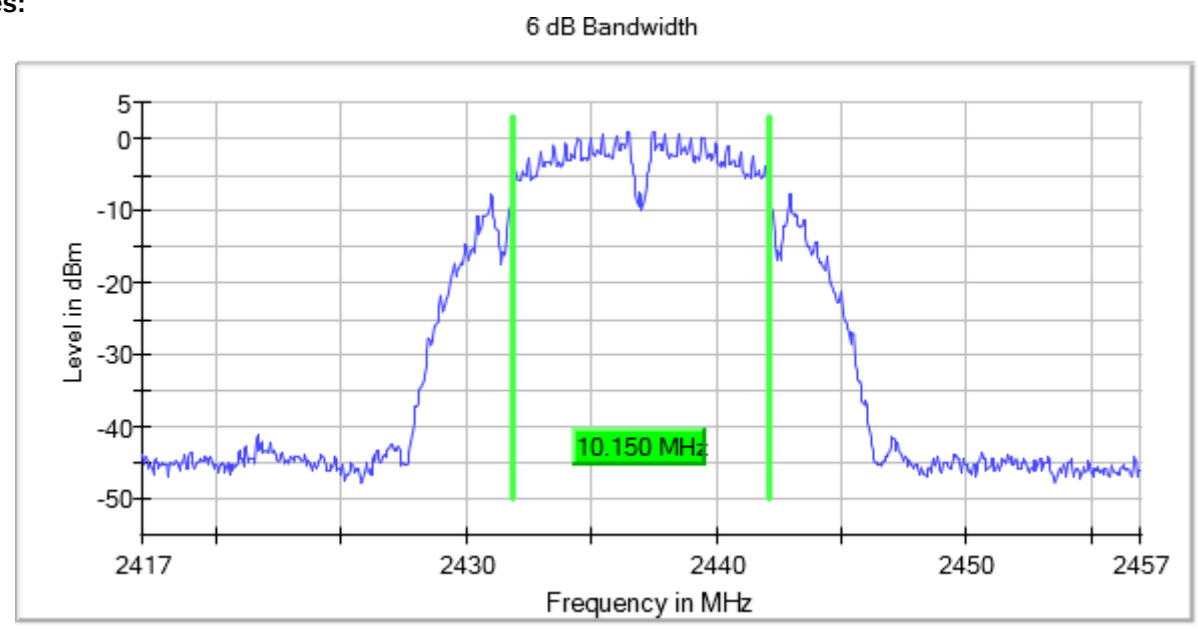


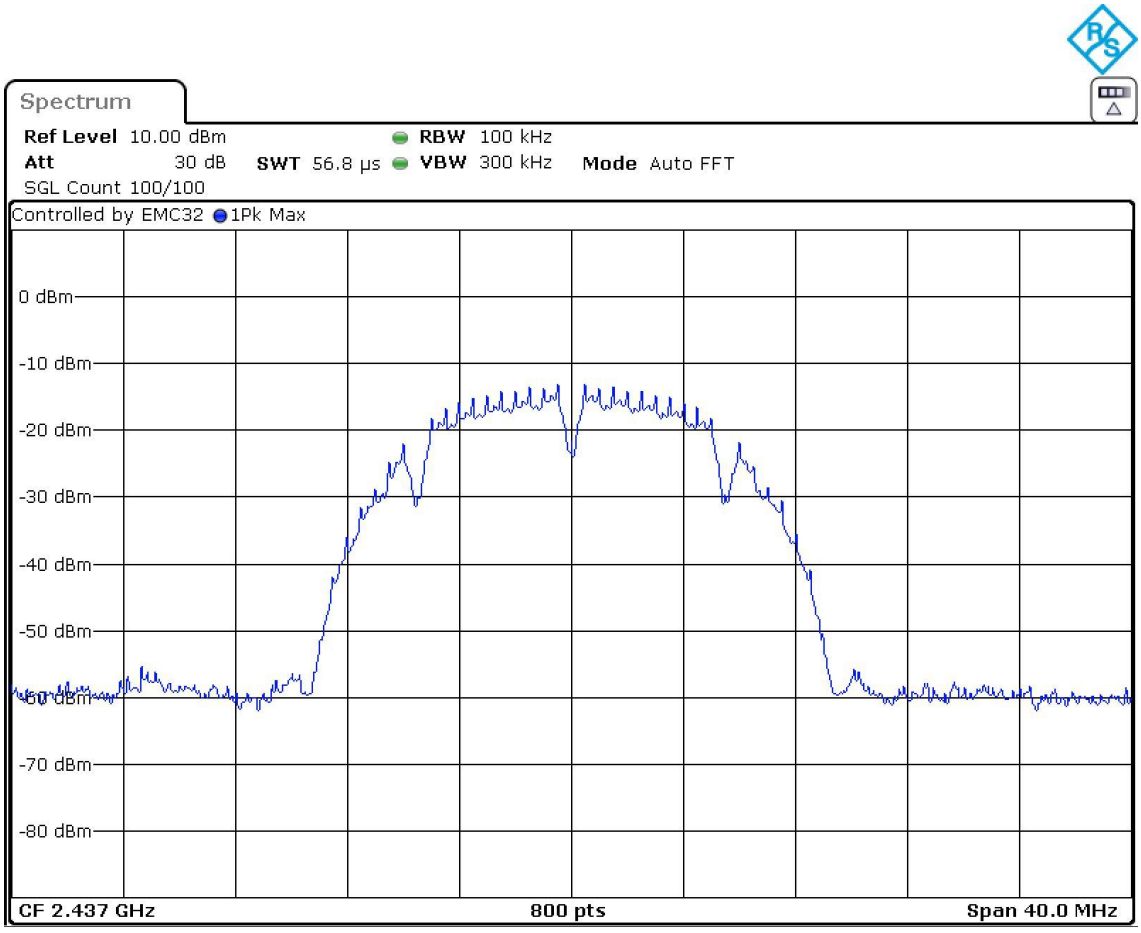
Bandwidth MHz = 20 Modulation = 802.11b (DSSS 1 Mbit/s)

Frequency MHz = 2437.00000 MIMO Mode = SISO

Active Port = 1

Images:



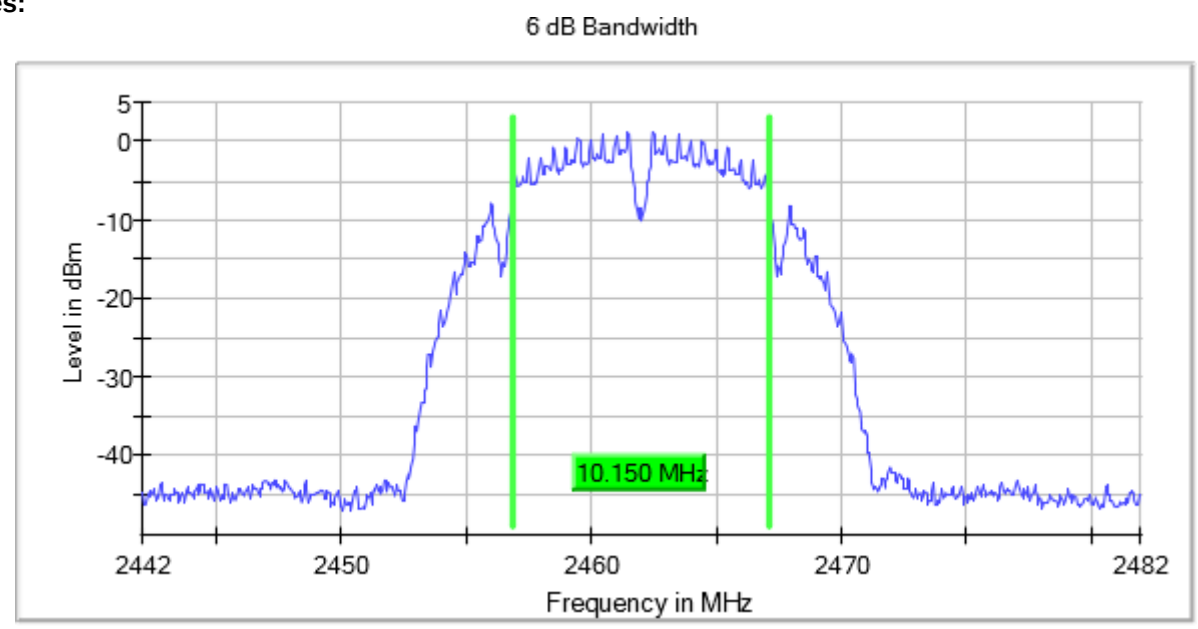


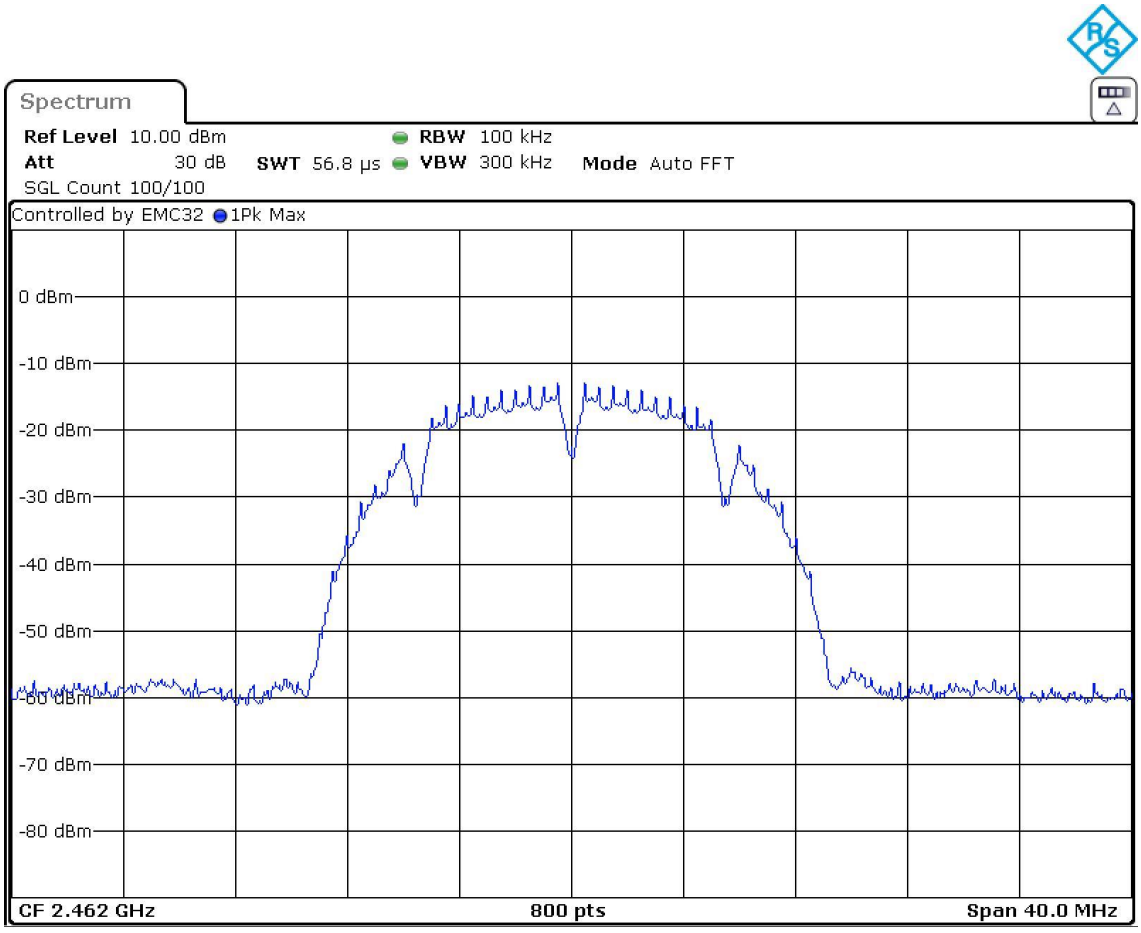
Bandwidth MHz = 20 Modulation = 802.11b (DSSS 1 Mbit/s)

Frequency MHz = 2462.00000 MIMO Mode = SISO

Active Port = 1

Images:





Modulation: 802.11g (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
20	2412.00000	1	16.450
	2437.00000		16.450
	2462.00000		16.450

Verdict

Pass

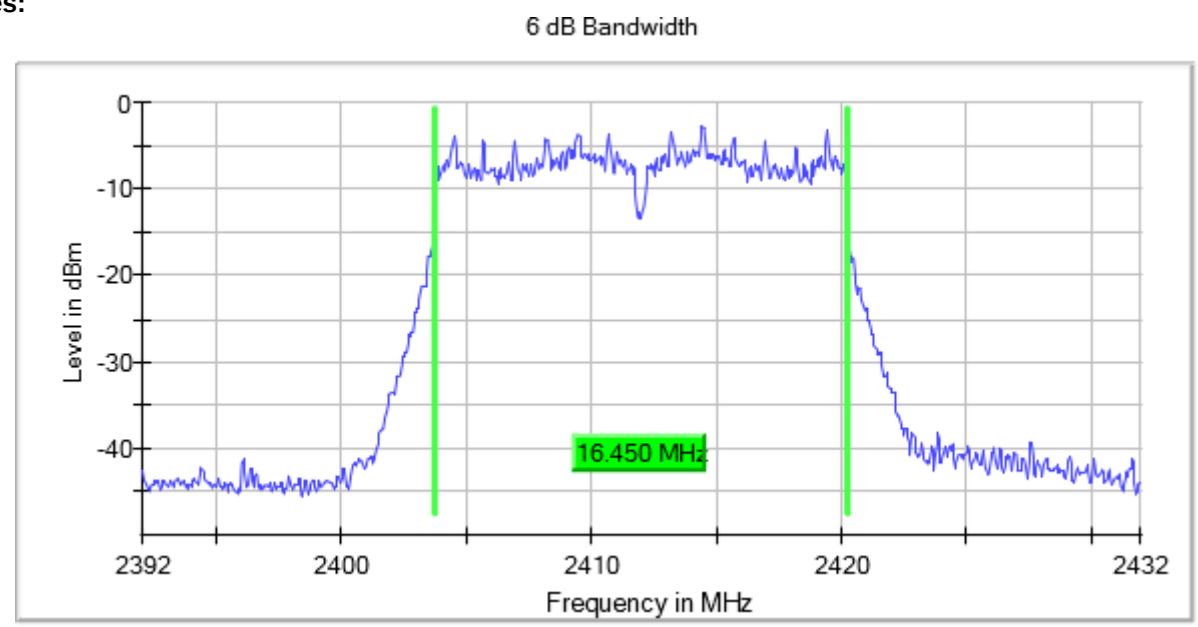
Attachments

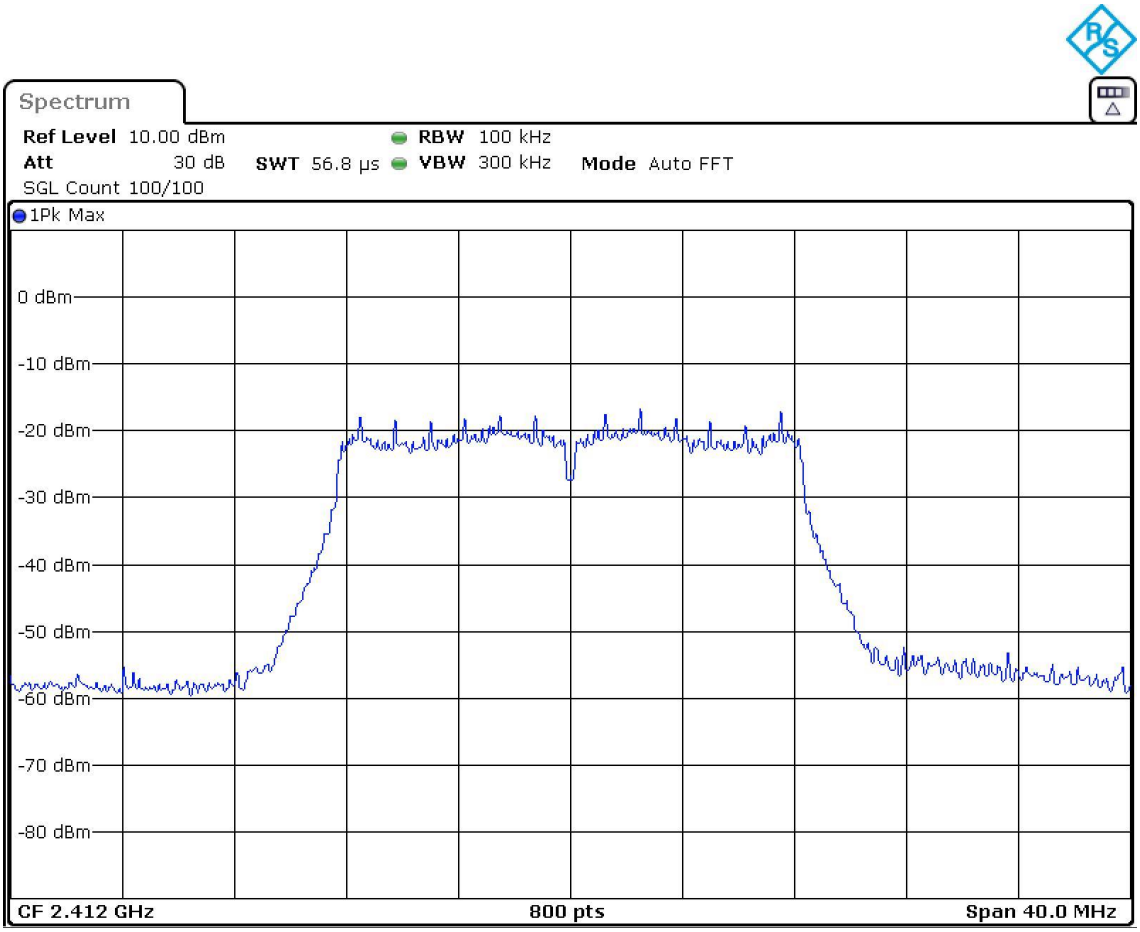
Bandwidth MHz = 20 Modulation = 802.11g (OFDM 6 Mbit/s)

Frequency MHz = 2412.00000 MIMO Mode = SISO

Active Port = 1

Images:



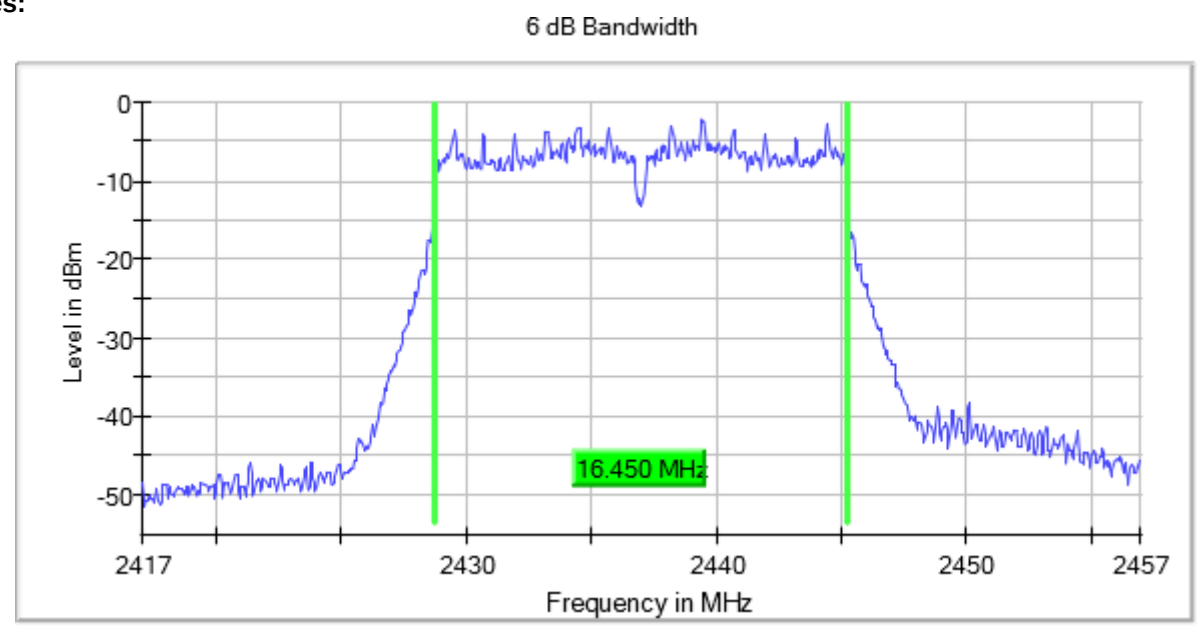


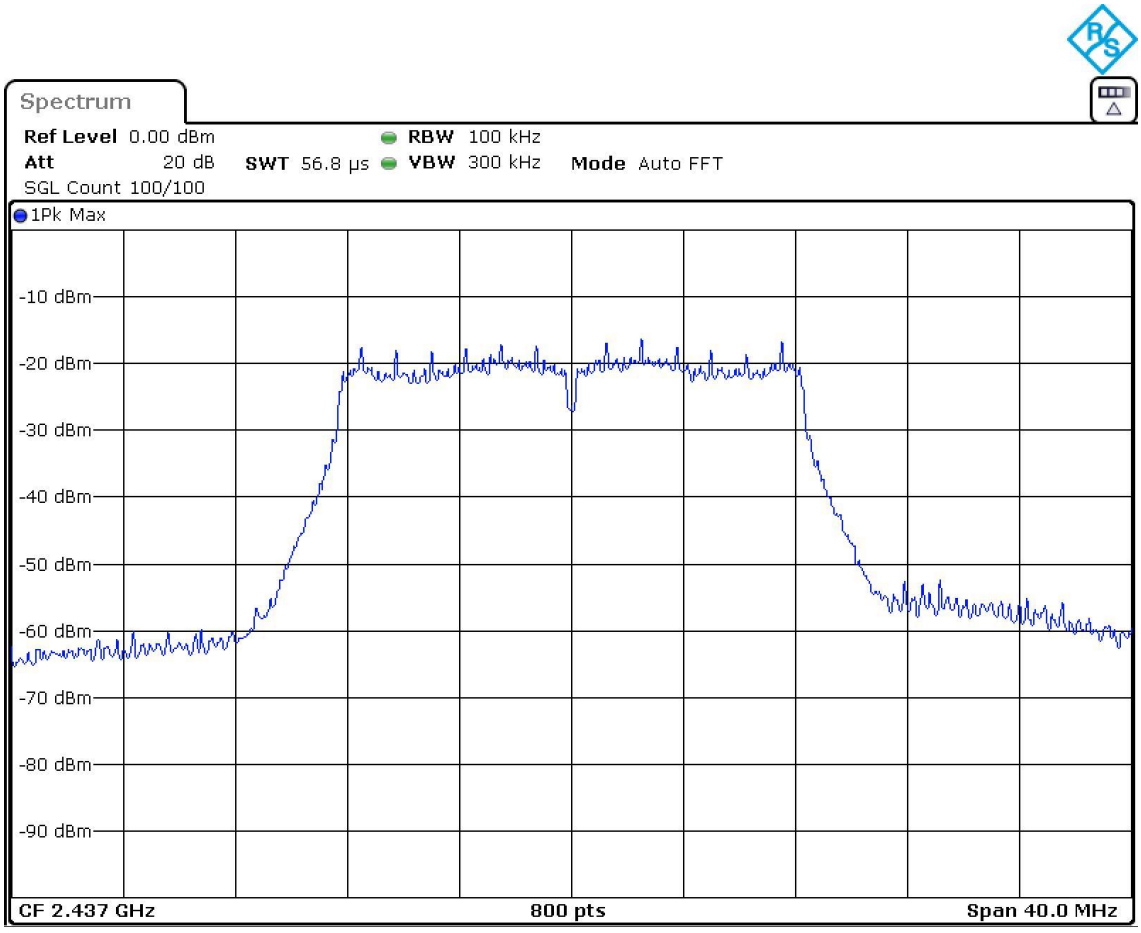
Bandwidth MHz = 20 Modulation = 802.11g (OFDM 6 Mbit/s)

Frequency MHz = 2437.00000 MIMO Mode = SISO

Active Port = 1

Images:



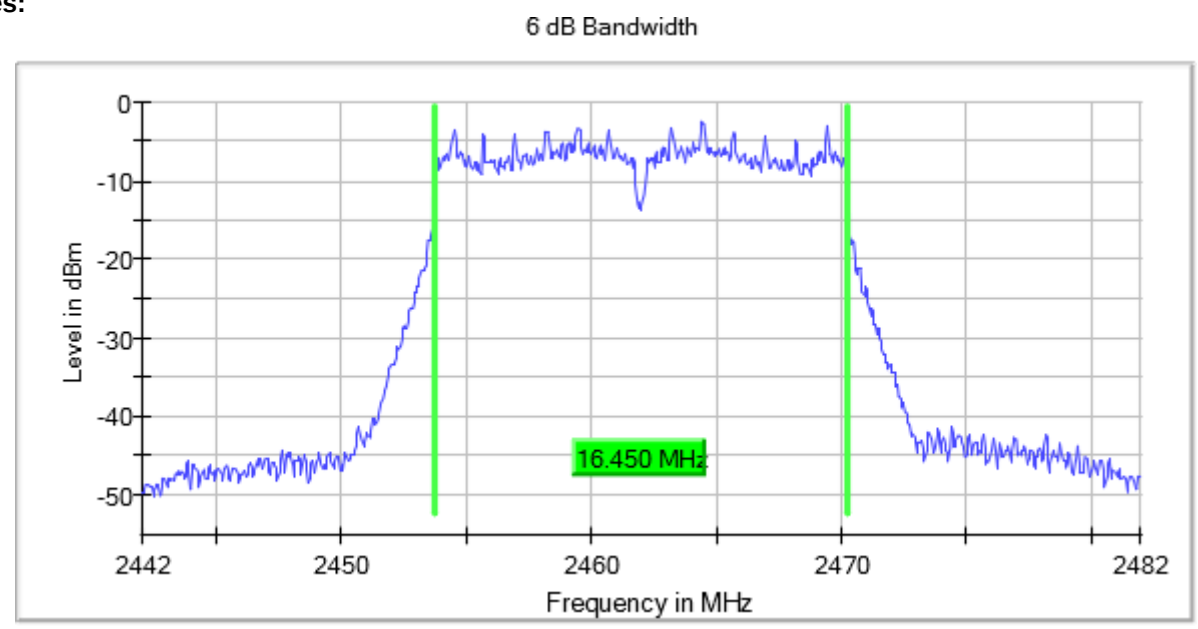


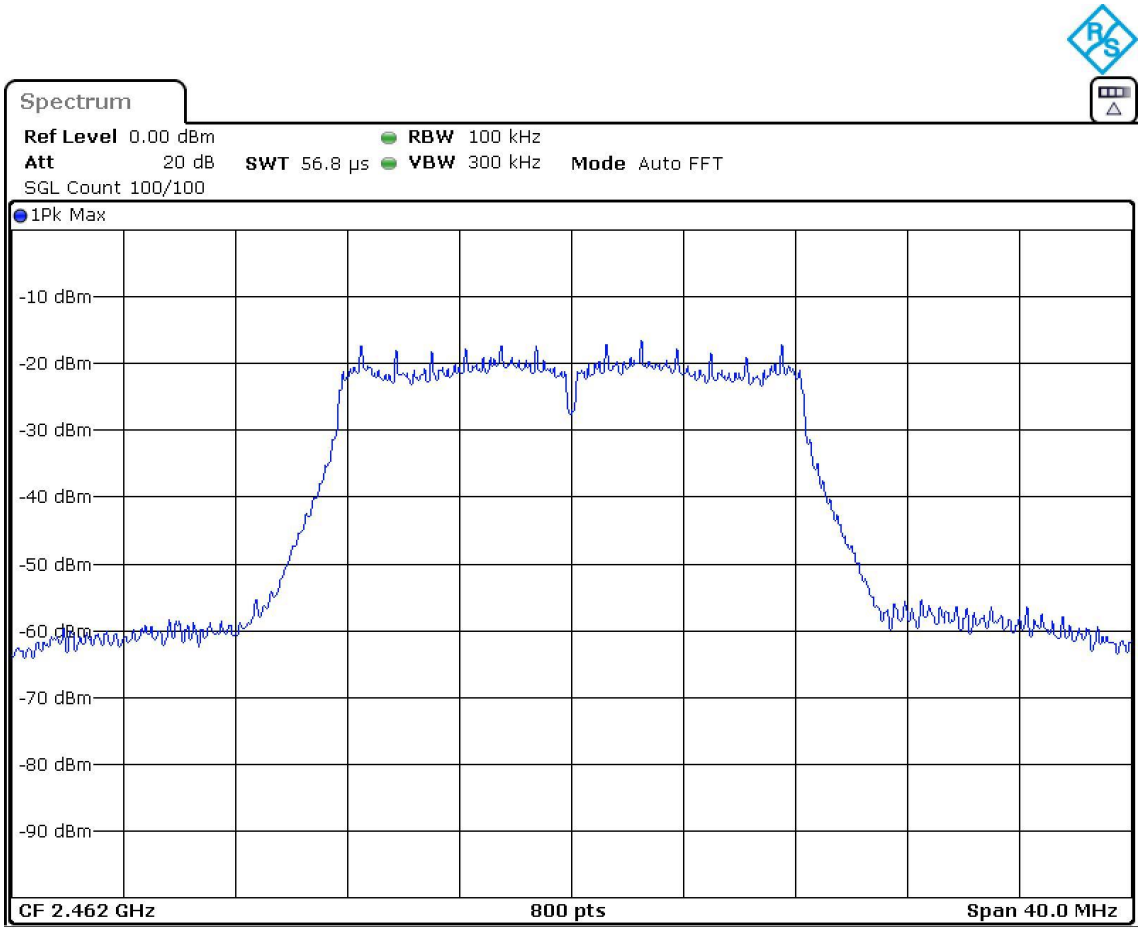
Bandwidth MHz = 20 Modulation = 802.11g (OFDM 6 Mbit/s)

Frequency MHz = 2462.00000 MIMO Mode = SISO

Active Port = 1

Images:





Modulation: 802.11n HT20 (OFDM MCS0)

MIMO Mode: SISO

Results

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
20	2412.00000	1	17.650
	2437.00000		17.400
	2462.00000		17.650

Verdict

Pass

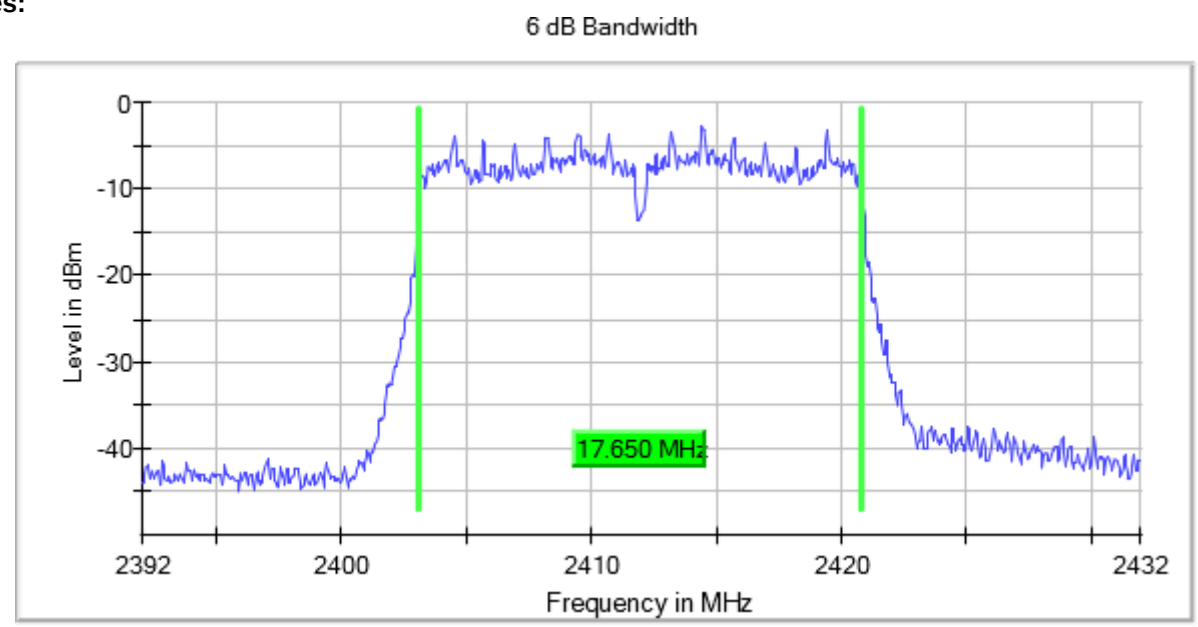
Attachments

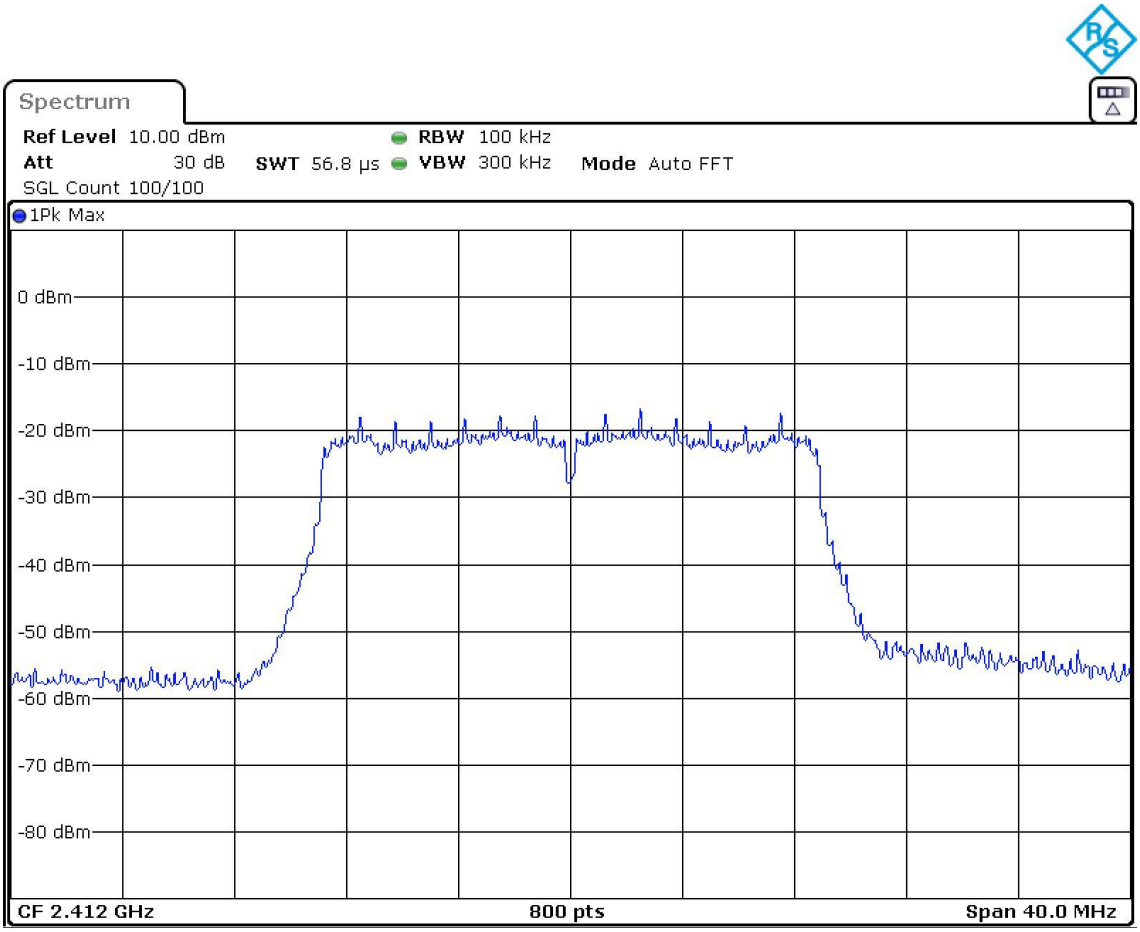
Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0)

Frequency MHz = 2412.00000 MIMO Mode = SISO

Active Port = 1

Images:



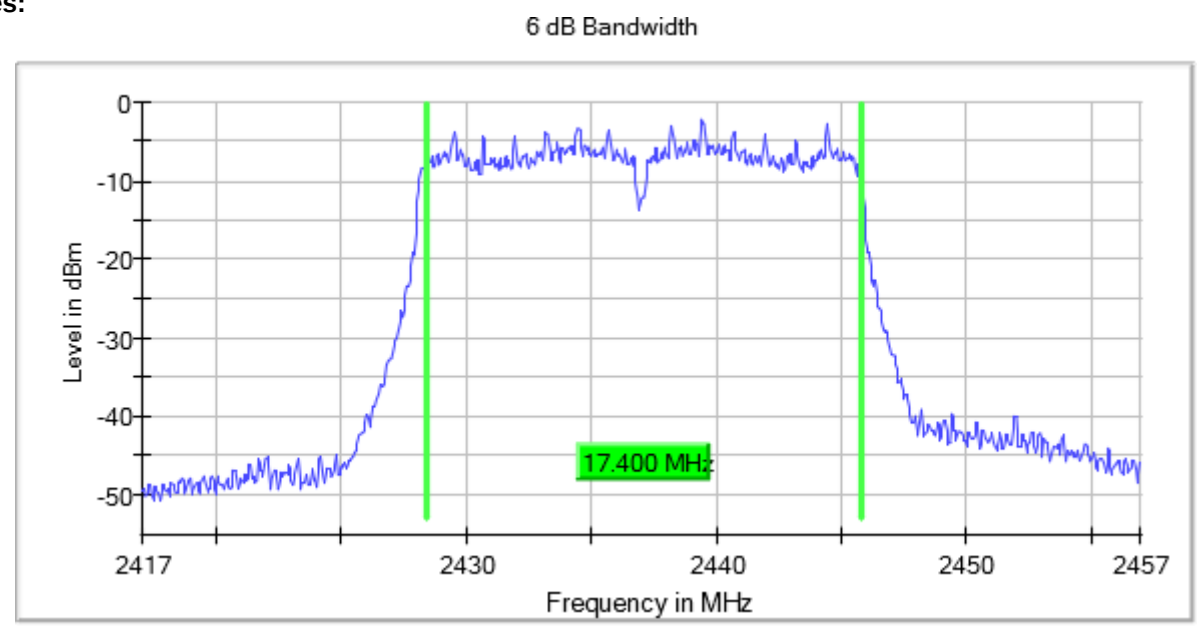


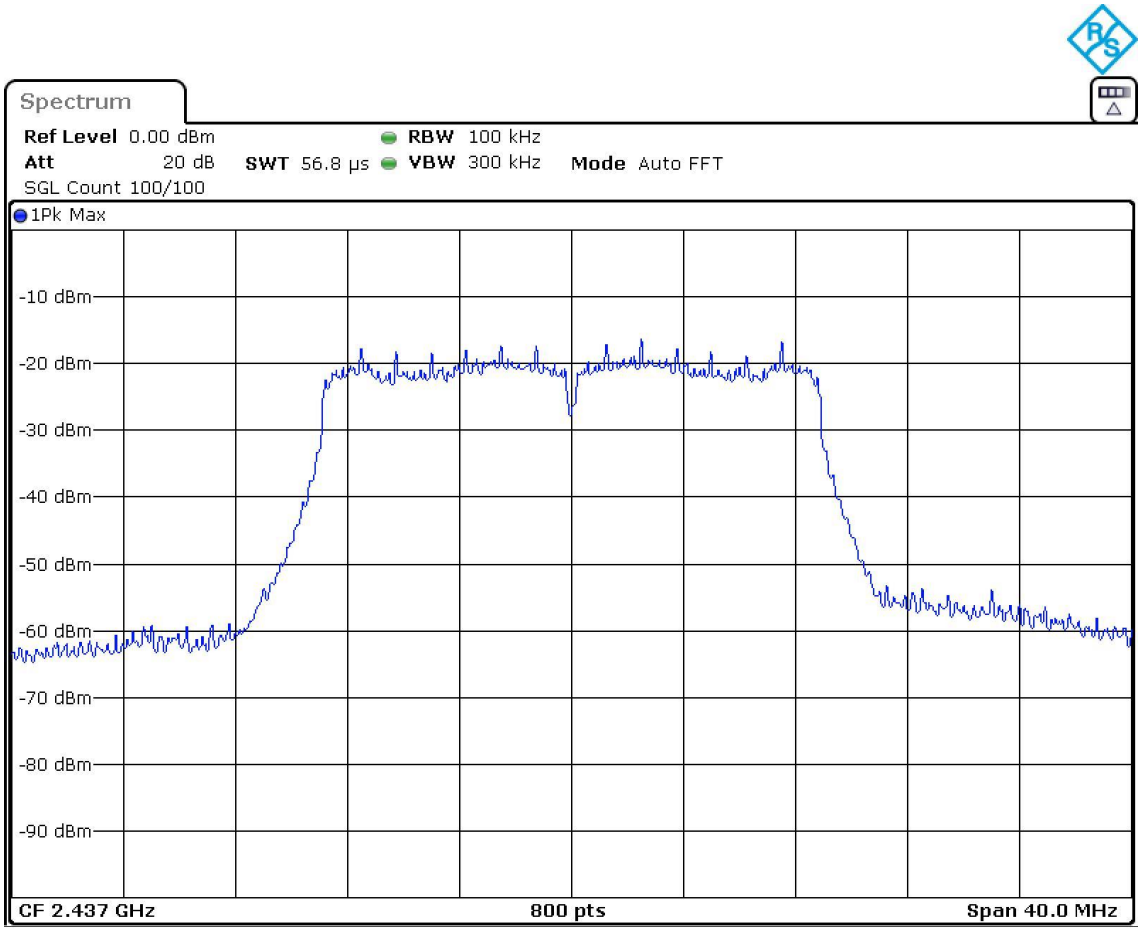
Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0)

Frequency MHz = 2437.00000 MIMO Mode = SISO

Active Port = 1

Images:



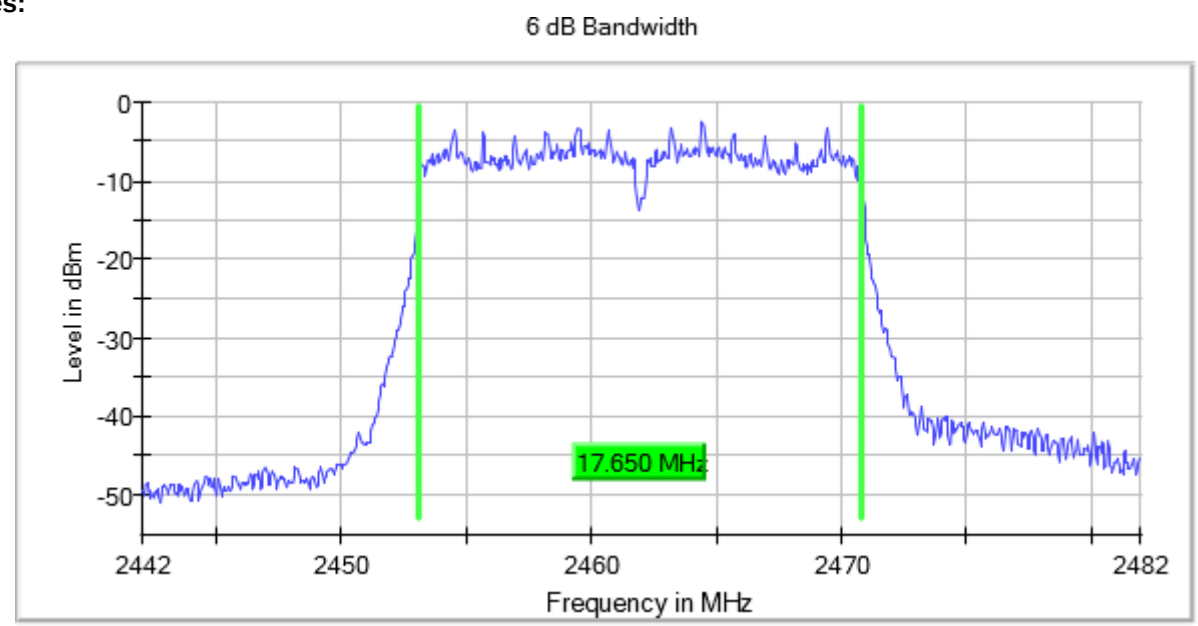


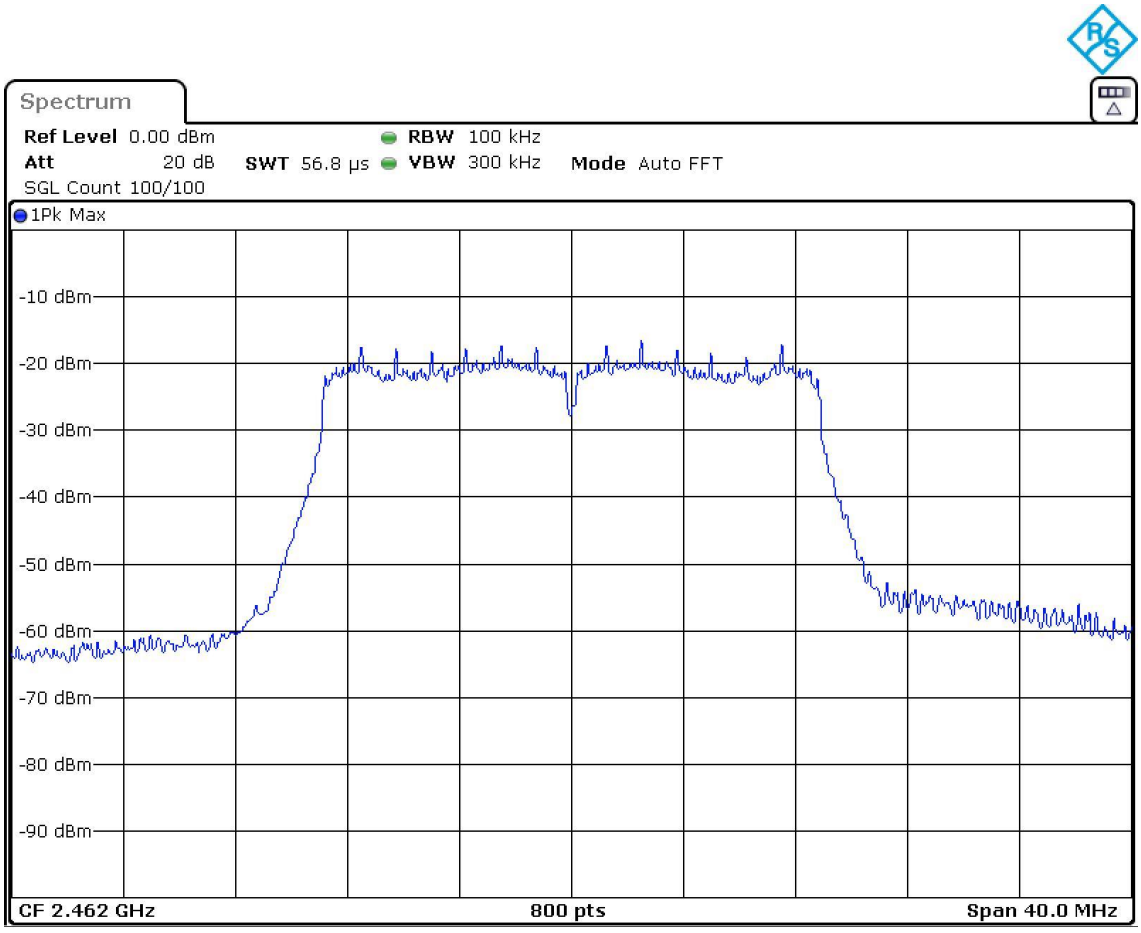
Bandwidth MHz = 20 Modulation = 802.11n HT20 (OFDM MCS0)

Frequency MHz = 2462.00000 MIMO Mode = SISO

Active Port = 1

Images:





Modulation: 802.11n HT40 (OFDM MCS0)

MIMO Mode: SISO

Results

BW (MHz)	Freq (MHz)	Port	Ebw (MHz)
40	2422.00000	1	35.450
	2437.00000		35.850
	2452.00000		35.450

Verdict

Pass

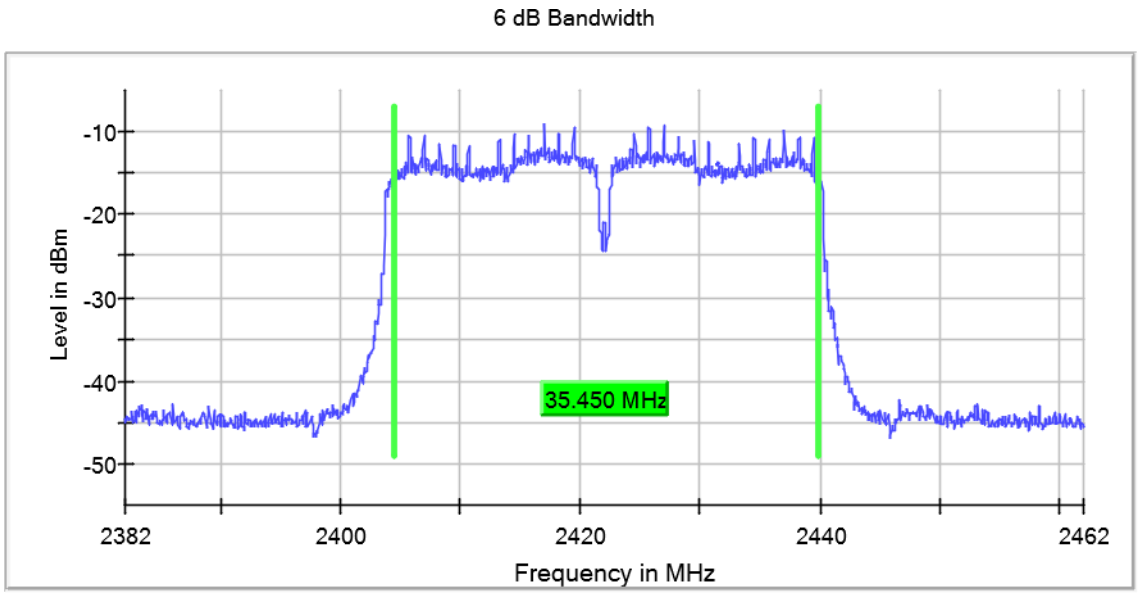
Attachments

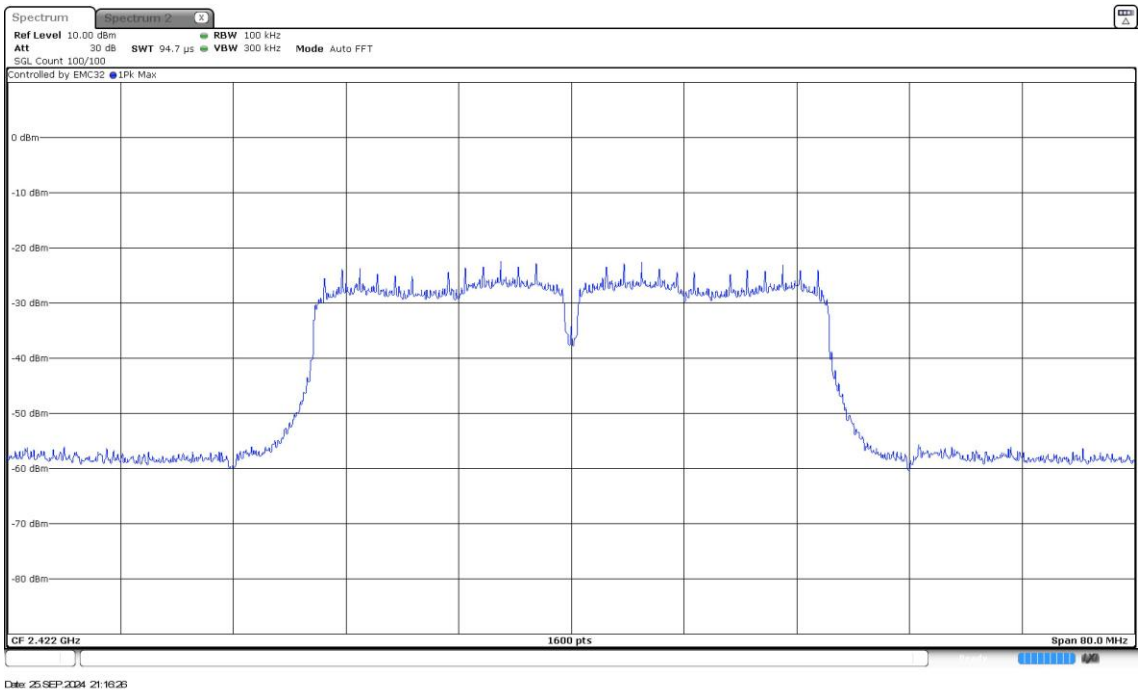
Bandwidth MHz = 40 Modulation = 802.11n HT40 (OFDM MCS0)

Frequency MHz = 2422.00000 MIMO Mode = SISO

Active Port = 1

Images:





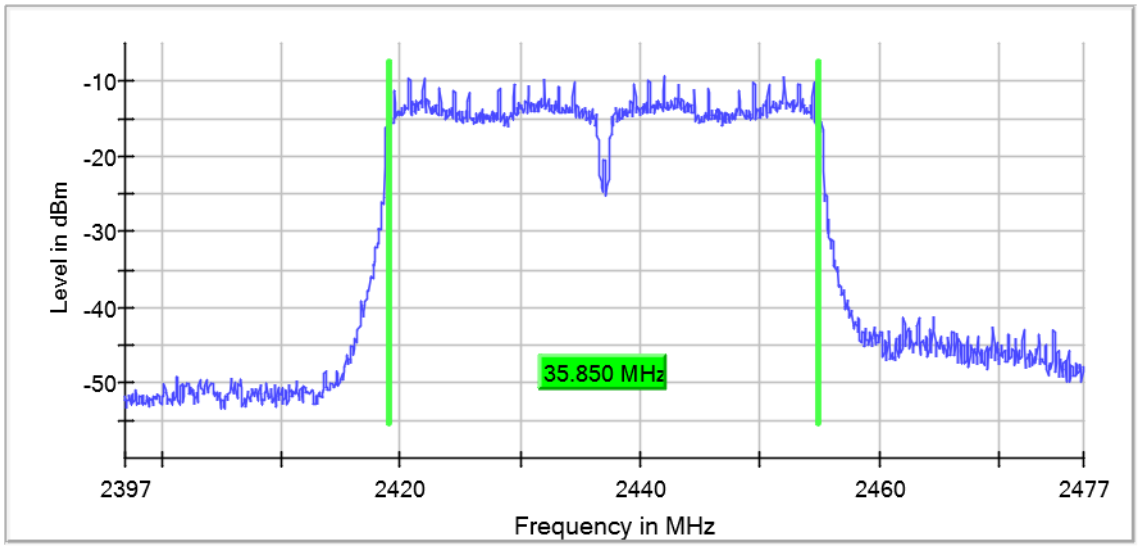
Bandwidth MHz = 40 Modulation = 802.11n HT40 (OFDM MCS0)

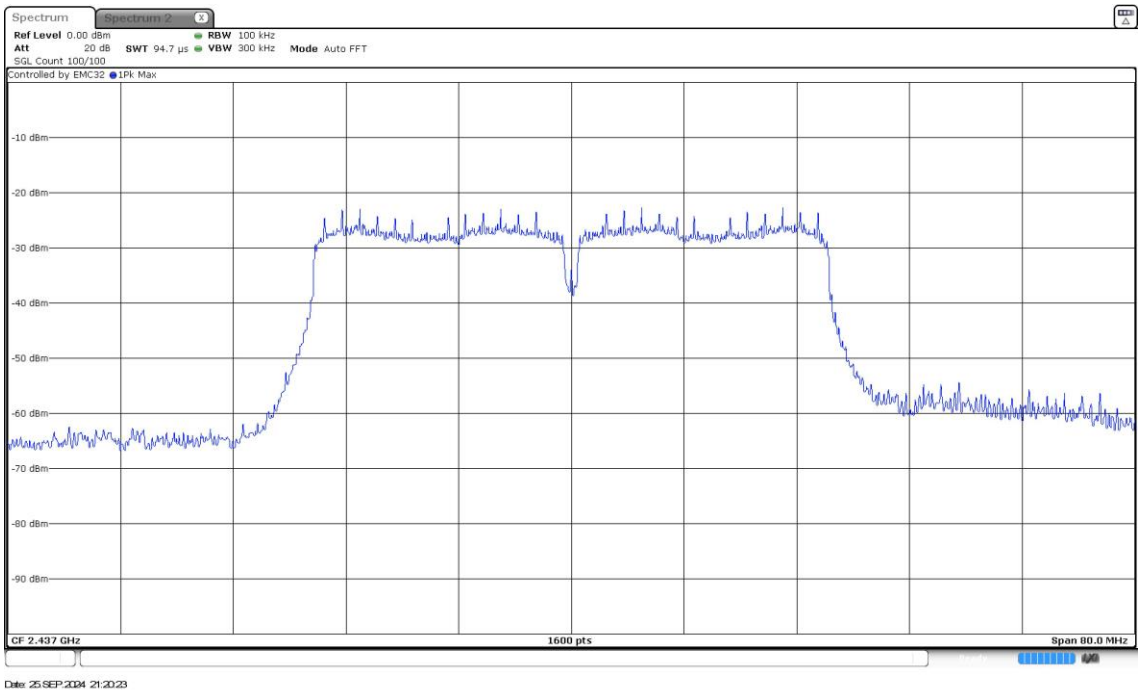
Frequency MHz = 2437.00000 MIMO Mode = SISO

Active Port = 1

Images:

6 dB Bandwidth



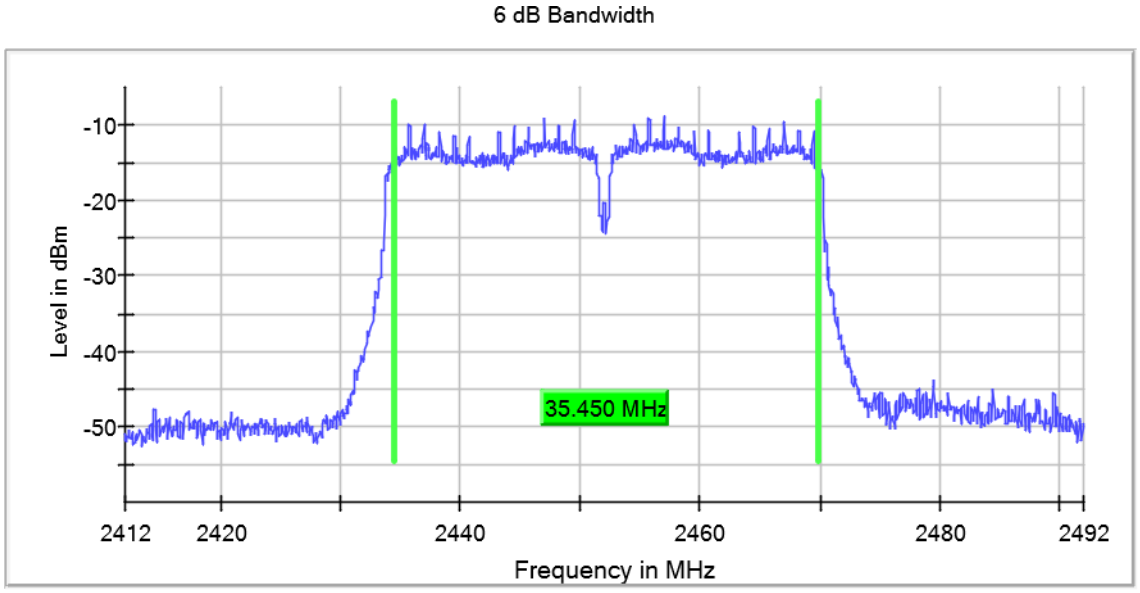


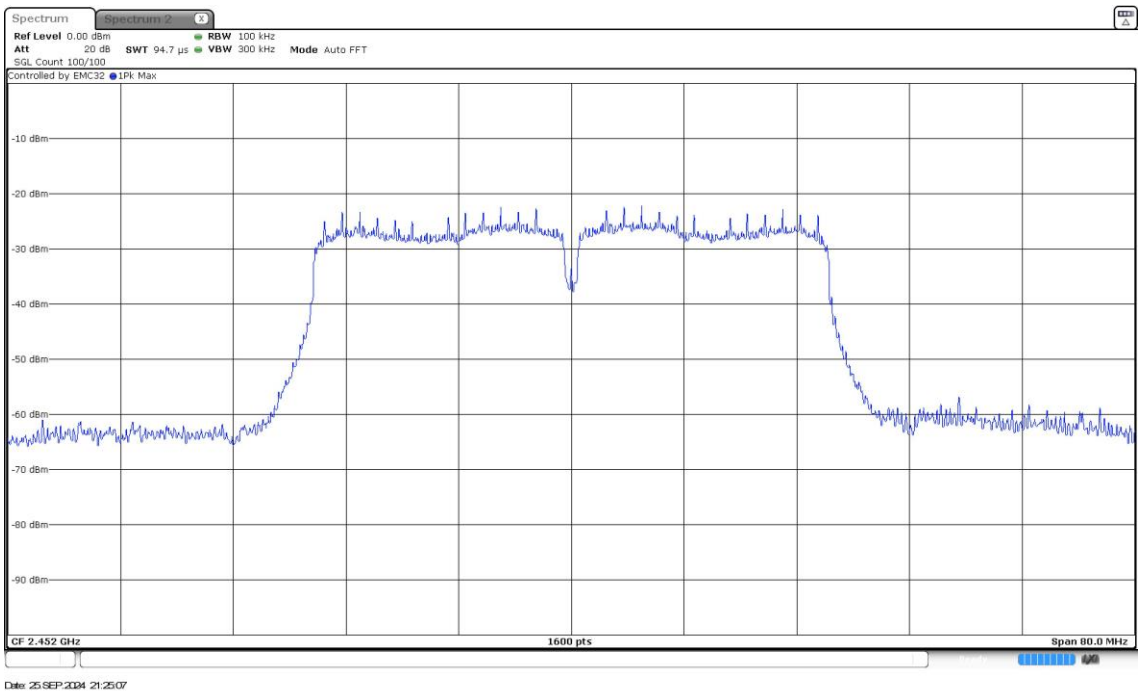
Bandwidth MHz = 40 Modulation = 802.11n HT40 (OFDM MCS0)

Frequency MHz = 2452.00000 MIMO Mode = SISO

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: 802.11b (DSSS 1 Mbit/s)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	PSD (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	-7.10
		2437.00000		-7.14
		2462.00000		-7.33

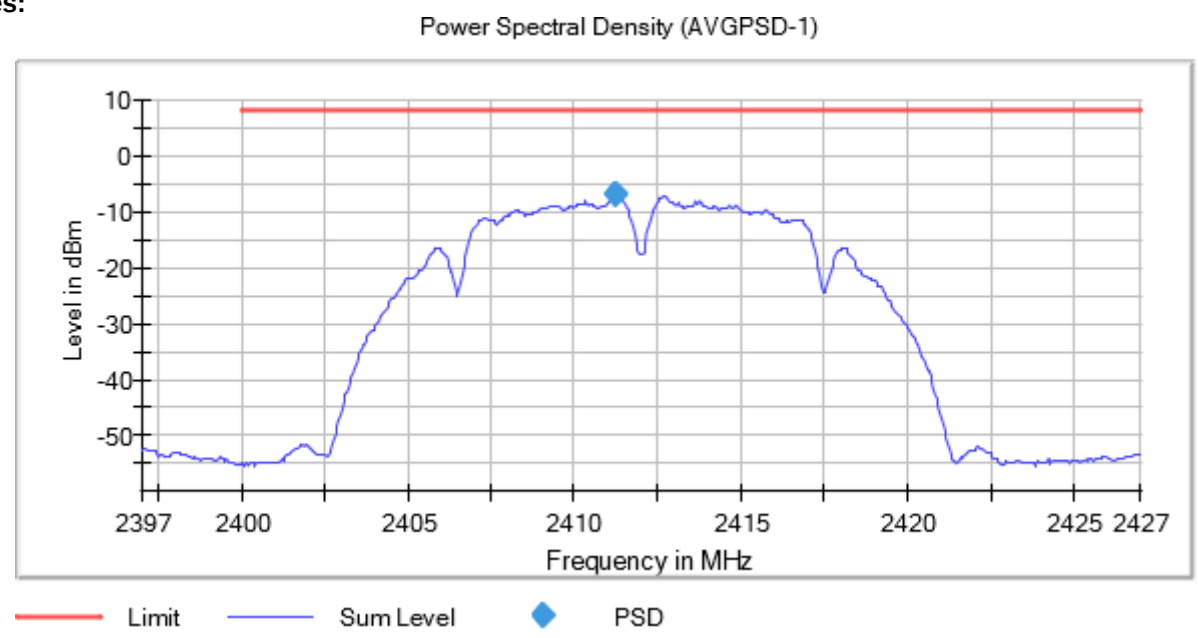
Verdict

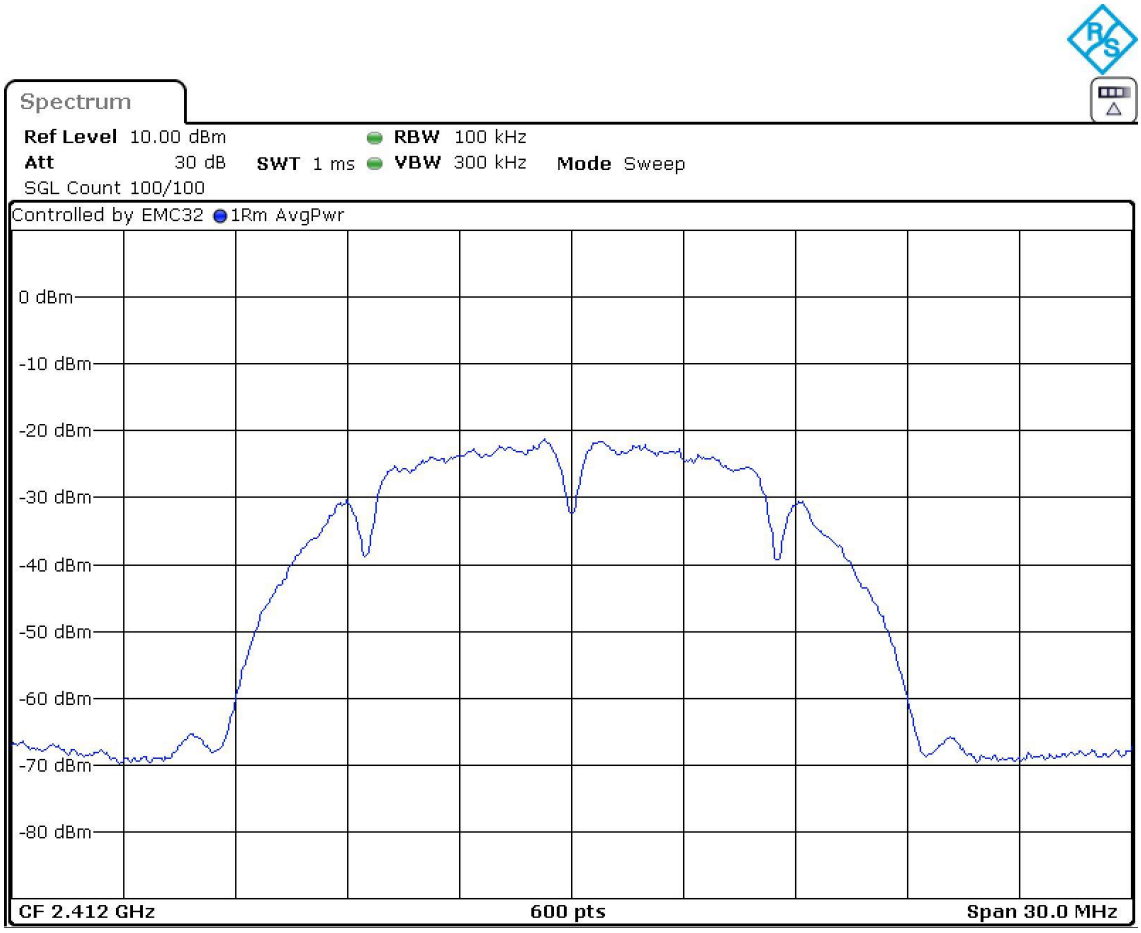
Pass

Attachments

Equipment Type = Digital Transmission System (DTS)	Bandwidth MHz = 20
Modulation = 802.11b (DSSS 1 Mbit/s)	Frequency MHz = 2412.00000
MIMO Mode = SISO	Active Port = 1

Images:



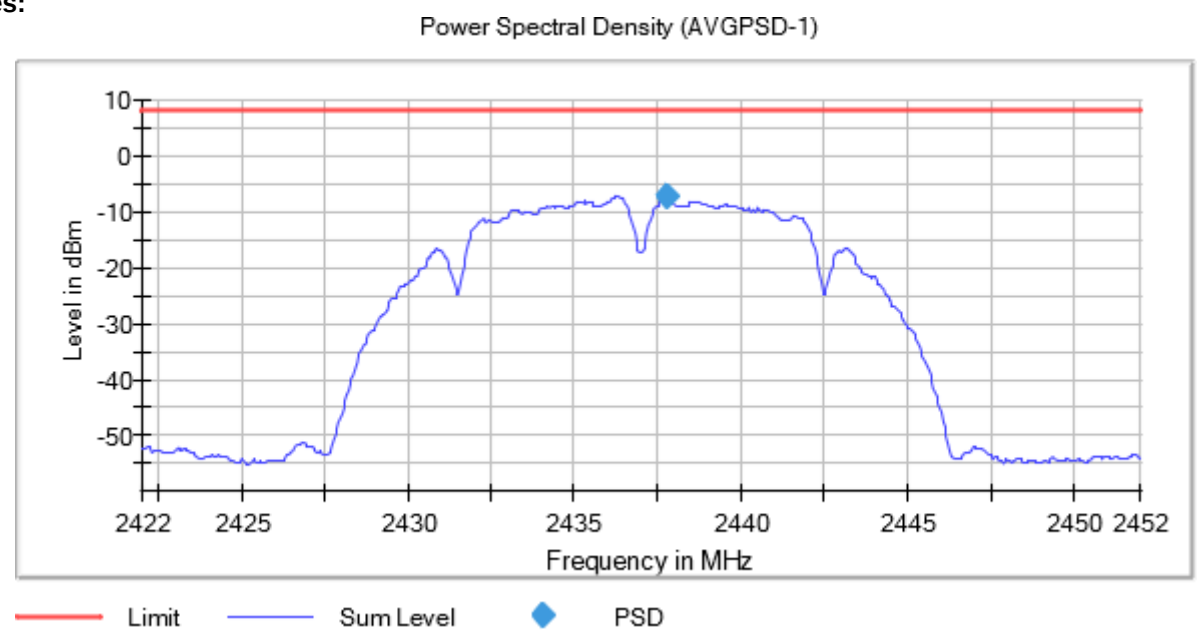


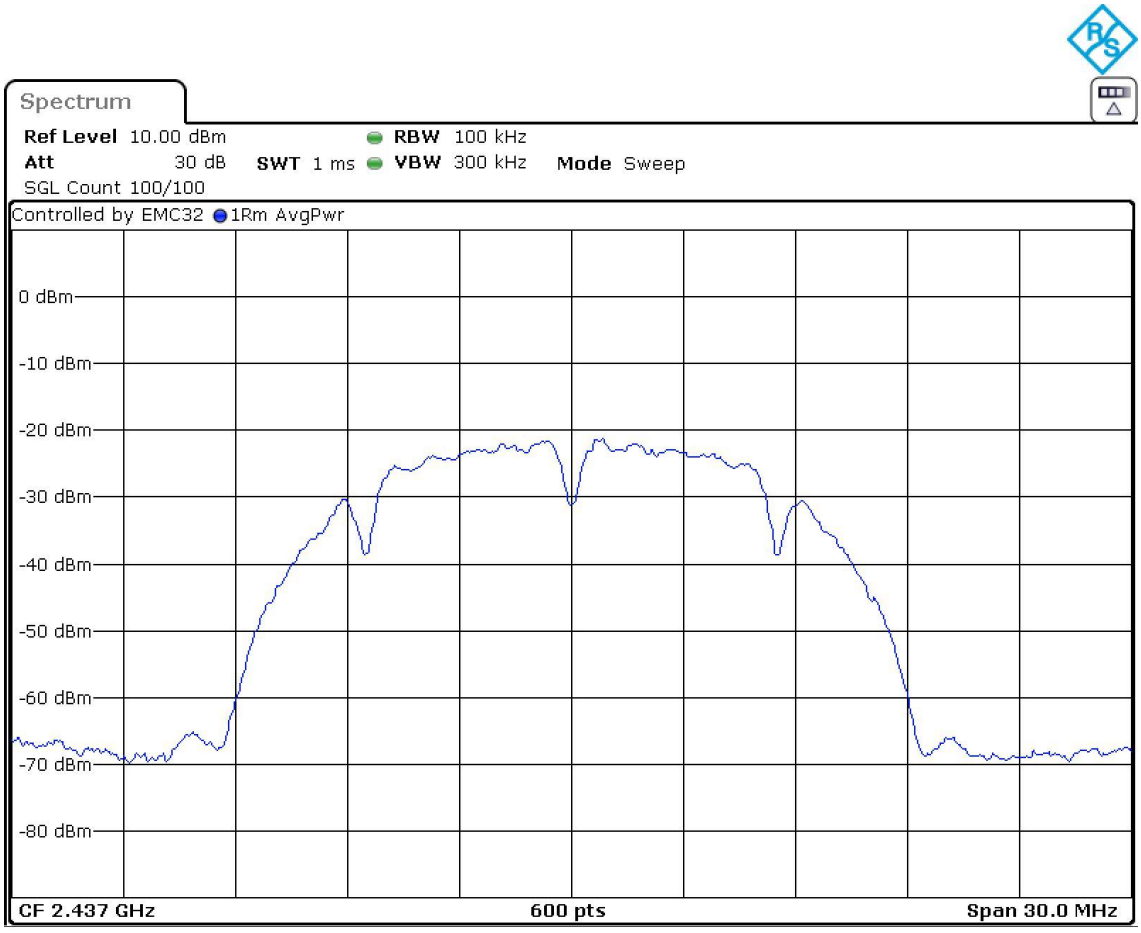
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2437.00000

MIMO Mode = SISO Active Port = 1

Images:



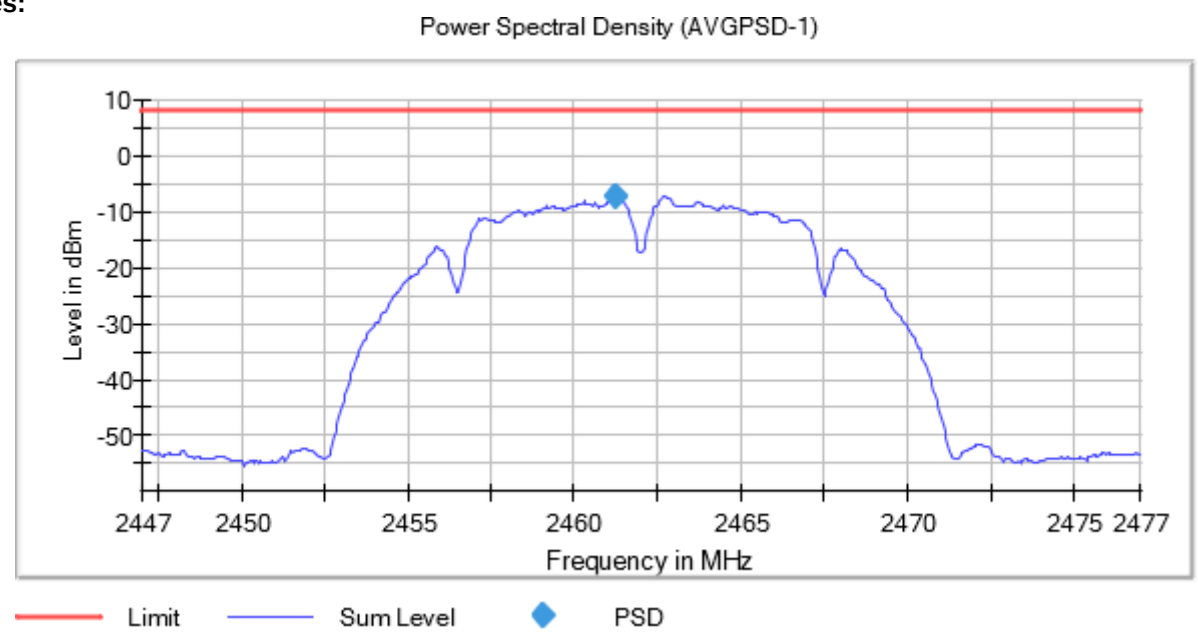


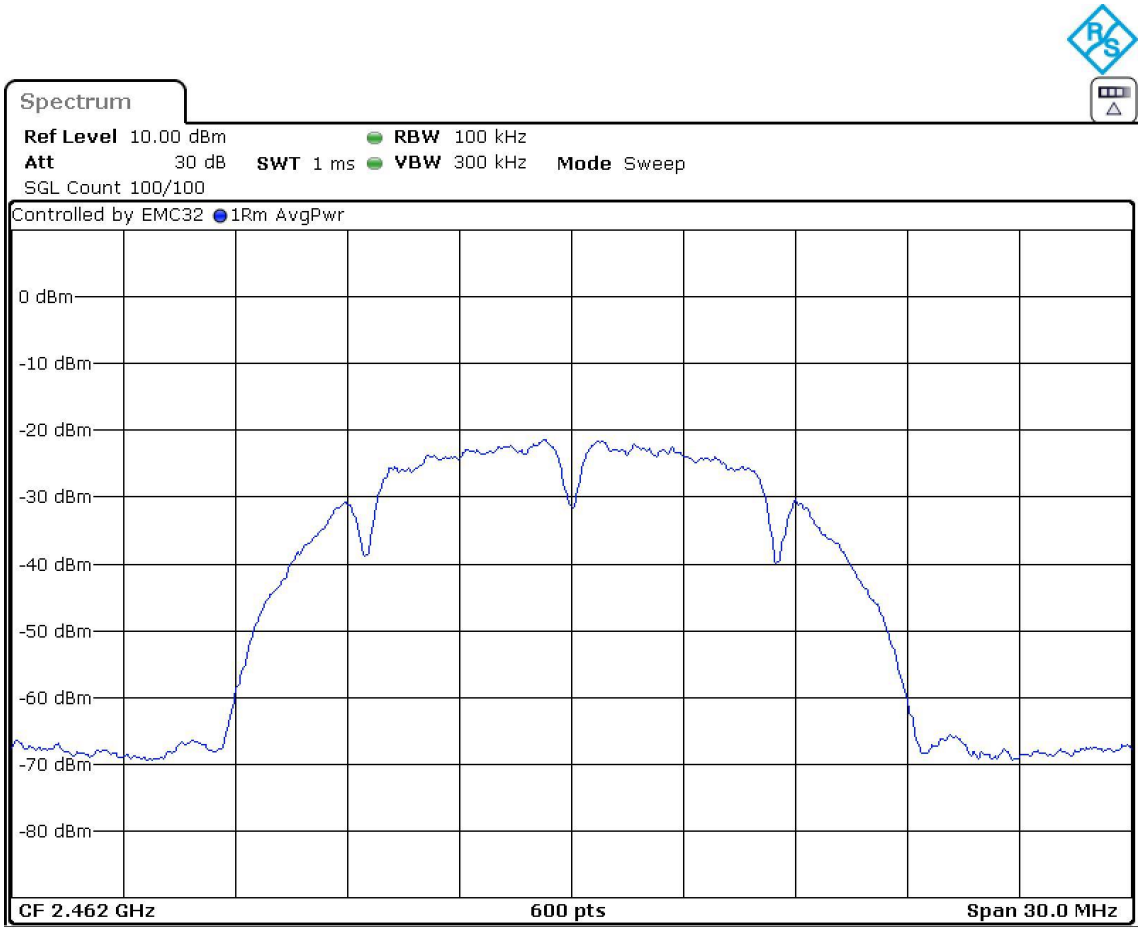
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11b (DSSS 1 Mbit/s) Frequency MHz = 2462.00000

MIMO Mode = SISO Active Port = 1

Images:





Modulation: 802.11g (OFDM 6 Mbit/s)

MIMO Mode: SISO

Results

Equipment	BW (MHz)	Freq (MHz)	Port	PSD (dBm)
Digital Transmission System (DTS)	20	2412.00000	1	-11.94
		2437.00000		-11.44
		2462.00000		-11.71

Verdict

Pass

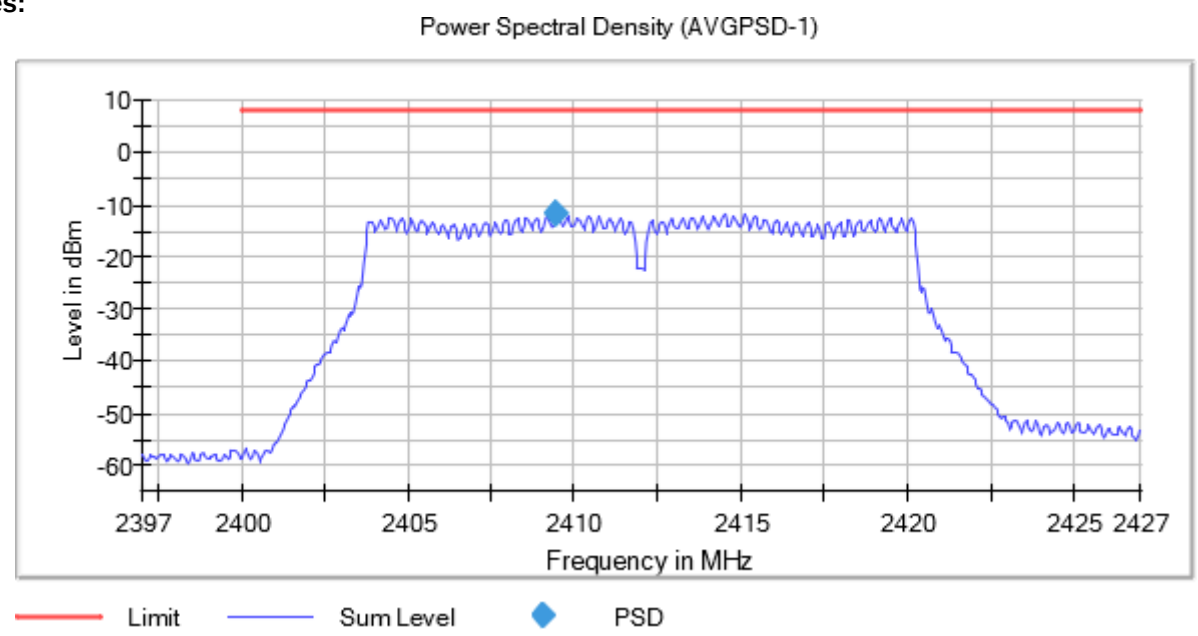
Attachments

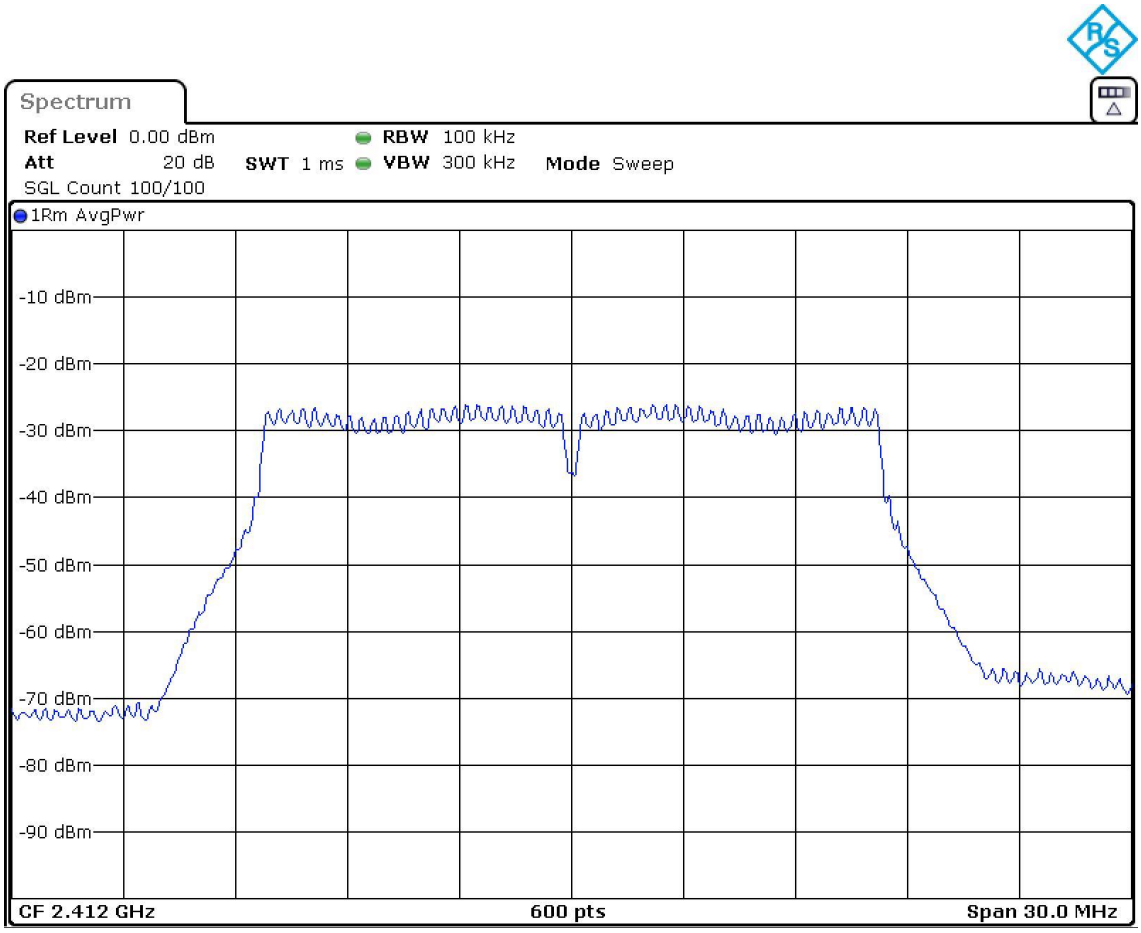
Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2412.00000

MIMO Mode = SISO Active Port = 1

Images:





Equipment Type = Digital Transmission System (DTS) Bandwidth MHz = 20

Modulation = 802.11g (OFDM 6 Mbit/s) Frequency MHz = 2437.00000

MIMO Mode = SISO Active Port = 1

Images: