



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test report No:
4852ERM.014

Partial Test report

USA FCC Part 15.31(h)

Measurement standards

USA FCC Part 15.247, 15.205, 15.209

Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

USA FCC Part 15.407, 15.205, 15.209

Unlicensed National Information Infrastructure Devices - General technical requirements

(*) Identification of item tested	Automotive Infotainment System	
(*) Trademark	Garmin	
(*) Model and /or type reference tested	PCI3L3N1	
(*) Derived model not tested	--	
Other identification of the product	FCC ID: IPH-06780 IC: 1792A-06780 HVIN: A06780	
(*) Features	AM/FM/DAB(SXM US version), W-LAN 2.4GHz /5GHz MIMO / SISO - no DFS Bands, AP / Client, Bluetooth 5.2 LE & EDR, GNSS multiple	
Manufacturer	Garmin International, Inc. 1200 E. 151st Street Olathe, KS 66062 USA	
Test method requested, standard	USA FCC Part 15.31(h) (11-18-2024 Edition): Measurement standards USA FCC Part 15.247 (11-18-2024 Edition): Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz USA FCC Part 15.205 (11-18-2024 Edition): Restricted bands of operation. USA FCC Part 15.209 (11-18-2024 Edition): Radiated emission limits; general requirements. USA FCC Part 15.407 (05-05-2025) Edition : Unlicensed National Information Infrastructure (U-NII) Devices. General technical requirements. ANSI C63.10-2020/Cor1-2023: American National Standard for Testing Unlicensed Wireless Devices .	
Summary	See Appendix A	
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager	 Digitally signed by Domingo Galvez DN: cn=Domingo Galvez, o=Dekra Certification Inc., ou=Regulatory Lab Manager, email=domingo.galvez@dekra.com, c=US
Date of issue	2026-01-30	
Report template No	FDT08_25	(*) "Data provided by the client"

Index

Acronyms.....3

Competences and guarantees3

General conditions4

Uncertainty4

Data provided by the client.....4

Usage of samples5

Test sample description6

Identification of the client7

Testing period and place.....7

Document history7

Environmental conditions8

Remarks and comments8

Testing verdicts.....9

Summary9

List of equipment used during the test11

Appendix A: Test results (Multi-transmitter)12

Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
BEL	Band Edge Left
BER	Band Edge Right
DC	Duty Cycle
Freq	Frequency
Freq Rng	Frequency Range
Lvl Meas Pk	Level Pre Measurement Peak
MP	Measurement Point
MU	Medium Utilization Factor
Max EIRP	Maximum Burst EIRP
Max RMS	Maximum Burst RMS
Max Tx Seq	Maximum Transmission Sequence Time
Min Tx Gap	Minimum Transmission Gap Time
Mod	Modulation
Occ Ch BW	Occupied Channel Bandwidth
PSD	Power Spectrum Density
Port	Active Port
T	Temperature
Unwanted Freq	Unwanted Emissions Frequency
Unwanted Lvl	Unwanted Emissions Level

Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate **2764.01** and **CAB ID US0215**.

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

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

DEKRA Certification Inc. 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 Certification Inc. at the time of performance of the test.

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

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

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U (k=2)	Units
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	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 is including: GNSS (GPS, Galileo, Beidou, Glonass), AM/FM/DAB (ROW/ECE), AM/FM/SXM (NA), AM/FM, WLAN 2.4 & 5GHz, Bluetooth.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for the test have been selected by: The client.

The sample(s) is composed of the following elements, accessories and auxiliary equipment:

Id	Control Number	Description	Model	Serial N°	Date of Reception	Application
S/01	4852/03	Head Unit	PCI3L3N1	-	2025-08-20	Element Under Test
S/01	4852/07	Main harness (Coding A - Black)	207599	-	2025-08-20	Accessory
S/01	4852/08	USB 2.0 Type A to TGS Fakra cable (Coding D -Violet)	203292	-	2025-08-20	Accessory
S/01	4852/09	Quad Mate AX Z to SMA 300mm (Coding C - Blue)	204019	-	2025-08-20	Accessory
S/01	4852/10	Laptop	Latitude 5550	6L0Z594	2025-08-20	Accessory
S/01	4852/50	BTWL Antenna	A1779052902/002	-	2025-08-20	Accessory
S/01	4852/52	BTWL Antenna	A1779052902/002	-	2025-08-20	Accessory
S/01	4852/56	BTWL Antenna	A1779052902/002	-	2025-08-20	Accessory
S/01	4852/57	BTWL Antenna	A1779052902/002	-	2025-08-20	Accessory

Notes referenced to samples during the project:

Id	Note
S/01	Sample S/01, was used for the following test(s): All Radiated tests indicated in appendix A

Test sample description

Test Sample description (compulsory information for EMC and RF testing services)

Ports..... :	Port name and description		Cable				
			Specified max length [m]	Attached during test	Shielded	Coupled to patient ⁽³⁾	
	Main Connector A & B		2	[X]	[]	[]	
	AVB Amplifier connector,		.....	[X]	[]	[]	
	Vout Display connector		.....	[X]	[]	[]	
	HDBaseT connector, Ethernet / Logging connector		.....	[X]	[]	[]	
	USB2.0 TGS connector, USB 2.0 MMB		.....	[X]	[]	[]	
	BT / WLAN connector, CSB Quad antenna connector, GNSS antenna connector		.....	[X]	[]	[]	
Supplementary information to the ports..... :	CSB TV antenna connector (loaded), Vin cameras connector (loaded), Camera control connector (loaded)						
Rated power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	[]	AC:	[]	[]	[]	[]	[]
	[]	AC:	[]	[]	[]	[]	[]
	[X]	DC: 9-16V nominal 12 VDC by vehicle battery					
[]	DC:						
Rated Power	No Data Provided						
Clock frequencies	No Data Provided						
Other parameters.....	-40C to +65C						
Software version	E230.1						
Hardware version.....	D1.2						
Dimensions in cm (W x H x D)	220 x 161 x 78mm (mm)						
Mounting position..... :	[]	Table top equipment					
	[]	Wall/Ceiling mounted equipment					
	[]	Floor standing equipment					
	[]	Hand-held equipment					
	[X]	Other: Cluster in the car with separate antennas built into the cockpit of vehicle					
Modules/parts	Module/parts of test item		Type		Manufacturer		
	No Data Provided		.....		.....		
							
							
							
Accessories (not part of the test item)..... :	Description		Type		Manufacturer		
	Antennas		.....		.....		
	Display		.....		.....		
	Laptop		.....		.....		
	any other equipment to make device functional		.....		.....		
							
							

Documents as provided by the applicant	Description	File name	Issue date
	Declaration Equipment Data	FDT30	2026-01-22
	Guide for RF testing scope v12	.....	2025-08-21
	RF sample operating instruction v15	.....	2025-08-21
	GNSS instruction v12	.....	2025-10-08

⁽³⁾ Only for Medical Equipment

Identification of the client

Garmin International, Inc.
1200 E. 151st Street
Olathe, KS 66062
USA

Testing period and place

Test Location	DEKRA Certification Inc. 405 Glenn Dr. Suite 12, Sterling, VA 20164 United States of America.
Date (start)	2025-08-26
Date (finish)	2025-09-26

Document history

Report number	Date	Description
4852ERM.014	2026-01-30	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. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

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

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

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. = 30 % Max. = 60 %
Air pressure	Min. = 860mbar Max. = 1060mbar

Remarks and comments

The tests have been performed by the technical personnel: Fahim Tahiree, Victor Albrecht, and Koji Nishimoto.

Testing verdicts

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

Summary

FCC PART 15C PARAGRAPH (BTLE & Wi-Fi 2.4GHz)		
Requirement – Test case	Verdict	Remark
FCC 15.207 - Continuous conducted emission on Power leads	N/M	Refer 1
FCC 2.1049 - 99dBw Occupied Channel Bandwidth 99%	N/M	Refer 1
FCC 15.247 (a)(1)(iii) - 20dB Emission Bandwidth, Occupied Bandwidth & Carrier Frequency Separation	N/M	Refer 1
FCC 15.247 (a)(1) - Number of hopping channels	N/M	Refer 1
FCC 15.247 (a)(1) - Time of Occupancy (Dwell Time)	N/M	Refer 1
FCC 15.247 (a)(2) - 6dB Bandwidth	N/M	Refer 1
FCC 15.247 (b)(3) - Maximum Peak Conducted output power & Antenna gain	N/M	Refer 1
FCC 15.247 (d) - Band-edge emissions compliance (Transmitter) - Conducted	N/M	Refer 1
FCC 15.247 (e) - Power Spectral Density	N/M	Refer 1
FCC 15.247 (d) - Emissions compliance (Transmitter) - Conducted	N/M	Refer 1
FCC 15.247 (d) - Emissions compliance (Transmitter) - Radiated	P	N/A
Supplementary information and remarks:		
1. Only multi-transmitter radiated spurious emission test was requested.		

FCC PART 15E PARAGRAPH (Wi-Fi 5GHz) UNII-1		
Requirement – Test case	Verdict	Remark
FCC 15.207 - Continuous conducted emission on Power leads	N/M	Refer 1
FCC 2.1049 - 99dBw Occupied Channel Bandwidth 99%	N/M	Refer 1
FCC 15.407 (a)(1)(i) / (a)(3)(i) - Maximum Peak Conducted output power & Antenna gain	N/M	Refer 1
FCC 15.407 (a)(1)(iv) / (a)(3)(i) - Power Spectral Density	N/M	Refer 1
FCC 15.407 (e) - 6dB Bandwidth	N/M	Refer 1
FCC 15.407 (b)(9) - Emissions compliance (Transmitter) - Conducted	N/M	Refer 1
FCC 15.407 (b)(9) - Emissions compliance (Transmitter) - Radiated	P	N/A
FCC 15.407 (b)(1) / (b)(4)(i) - Band-edge emissions compliance (Transmitter)	N/M	Refer 1
<u>Supplementary information and remarks:</u> 1. Only multi-transmitter radiated spurious emission test was requested.		

List of equipment used during the test

Test Equipment for Radiated emission testing:

Radiated Measurements

Control No.	Equipment	Model	Manufacturer	Next Calibration
01057	3115 DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA (750 MHz-18 GHz)	3115	ETS LINDGREN	2026-07-18
01056	3116C DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA (18-40GHz)	3116C	ETS LINDGREN	2026-02-23
01066	3142E BICONILOG ANTENNA	3142E	ETS LINDGREN	2028-02-03
01213	CONTROL ROOM	CR	FRANKONIA	--
01010	ESR7 EMI TEST RECEIVER	ESR7	RHODE & SCHWARZ	2027-04-11
01111	ETHERNET SNMP THERMOMETER	HWg-STE Plain	HW GROUP	2025-10-24
01108	ETHERNET SNMP THERMOMETER	HWg-STE Plain	HW GROUP	2025-10-18
01566	FRANKONIA TRANSPARENT RF SQUARE TEST TABLE	RF Sq table	FRANKONIA	--
01014	FSV40 SIGNAL ANALYZER 40GHZ	FSV40	RHODE & SCHWARZ	2026-10-04
00981	LOW NOISE PREAMPLIFIER (1-18GHz)	BLMA0118-2A	BONN ELEKTRONIK	2026-02-21
00982	LOW NOISE PREAMPLIFIER (18-40GHz)	BLMA1840-1M	BONN ELEKTRONIK	2027-04-11
01179	SEMI-ANECHOIC CHAMBER	SAC 3plus 'L'	FRANKONIA	--
01314	WIRELESS MEASUREMENT SOFTWARE R&S EMC32	--	RHODE & SCHWARZ	--

Appendix A: Test results (Multi-transmitter)

Appendix A Content

Product information 14

Description of test conditions..... 15

 RSS-247 / FCC 15.407 [RSE] Transmitter Out of Band Radiated Emissions For transmitters 18

Product information

The following information is provided by the client

Information	Description
Modulation	BTEDR: GFSK , DPQSK, 8DPSK Wi-Fi 2.4 GHz: CCK, DSSS, OFDM (BPSK QPSK, 16/64QAM) Wi-Fi 5 GHz: 16-QAM, 64-QAM, 256-QAM
Operating Frequency Range	BTEDR: 2400 - 2483.5 MHz Wi-Fi 2.4 GHz: 2400 - 2483.5 MHz Wi-Fi 5 GHz: UNII-1: 5150 - 5250 MHz, UNII-3: 5725 – 5850 MHz
Nominal Channel Bandwidth	BTEDR: 1MHz Wi-Fi 2.4 GHz: 20MHz Wi-Fi 5 GHz: 20MHz, 40MHz, 80MHz
RF Output Power	BTEDR: <10mW eirp Wi-Fi 2.4 GHz: target Power 9dBm conducted Wi-Fi 5 GHz: 9dBm target power
Antenna type	External antenna
Antenna gain	BTEDR: 0.1 dBi Wi-Fi 2.4 GHz: 0.1 dBi Wi-Fi 5 GHz: 5.1 dBi
Nominal Voltage	
- Supply Voltage	12 Vdc
- Type of power source	DC voltage
Equipment type	Bluetooth Classic (BR & EDR) WLAN according to IEEE 802.11 a/b/g/n/ac/ax

Description of test conditions

(*): Data provided by the client.

TEST CONDITIONS	DESCRIPTION															
TC/01 ⁽¹⁾	<u>Power supply (V):</u> DC 12 V															
	<u>Test Frequencies for Radiated tests:</u>															
	<table><tr><th>Technology</th><th>Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>Wi-Fi 2.4 GHz SISO (HC)</td><td>2462</td><td>20</td><td>OFDM (MCS0)</td><td>n mode</td></tr><tr><td>Wi-Fi 5 GHz MIMO (LC)</td><td>5190</td><td>40</td><td>OFDM (MCS0)</td><td>ac mode</td></tr></table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	Wi-Fi 2.4 GHz SISO (HC)	2462	20	OFDM (MCS0)	n mode	Wi-Fi 5 GHz MIMO (LC)	5190	40	OFDM (MCS0)	ac mode
	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode											
	Wi-Fi 2.4 GHz SISO (HC)	2462	20	OFDM (MCS0)	n mode											
Wi-Fi 5 GHz MIMO (LC)	5190	40	OFDM (MCS0)	ac mode												
The test was performed with the equipment transmitting with Wi-Fi 2.4GHz and Wi-Fi 5GHz radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.																
TC/02 ⁽¹⁾	<u>Power supply (V):</u> DC 12 V															
	<u>Test Frequencies for Radiated tests:</u>															
	<table><tr><th>Technology</th><th>Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>BTEDR (MC)</td><td>2441</td><td>1</td><td>8DPSK (3DH5)</td><td>--</td></tr><tr><td>Wi-Fi 2.4 GHz SISO (HC)</td><td>2462</td><td>20</td><td>OFDM (MCS0)</td><td>n mode</td></tr></table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	BTEDR (MC)	2441	1	8DPSK (3DH5)	--	Wi-Fi 2.4 GHz SISO (HC)	2462	20	OFDM (MCS0)	n mode
	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode											
	BTEDR (MC)	2441	1	8DPSK (3DH5)	--											
Wi-Fi 2.4 GHz SISO (HC)	2462	20	OFDM (MCS0)	n mode												
The test was performed with the equipment transmitting with BTEDR and Wi-Fi 2.4GHz radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.																
TC/03 ⁽¹⁾	<u>Power supply (V):</u> DC 12 V															
	<u>Test Frequencies for Radiated tests:</u>															
	<table><tr><th>Technology</th><th>Tested Frequency (MHz)</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>BTEDR (MC)</td><td>2441</td><td>1</td><td>8DPSK (3DH5)</td><td>--</td></tr><tr><td>Wi-Fi 5 GHz MIMO (LC)</td><td>5190</td><td>40</td><td>OFDM (MCS0)</td><td>ac mode</td></tr></table>	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode	BTEDR (MC)	2441	1	8DPSK (3DH5)	--	Wi-Fi 5 GHz MIMO (LC)	5190	40	OFDM (MCS0)	ac mode
	Technology	Tested Frequency (MHz)	BW (MHz)	Modulation	Mode											
	BTEDR (MC)	2441	1	8DPSK (3DH5)	--											
Wi-Fi 5 GHz MIMO (LC)	5190	40	OFDM (MCS0)	ac mode												
The test was performed with the equipment transmitting with BTEDR and Wi-Fi 5GHz radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.																

Note (1): Preliminary scan was performed to determine the worst case. The following tables and plots show the results for the worst case in SISO 2.4GHz, MIMO 5 GHz, and BTEDR.

LC= Low Channel
MC = Mid Channel
HC = High Channel

RADIATED MEASUREMENTS:

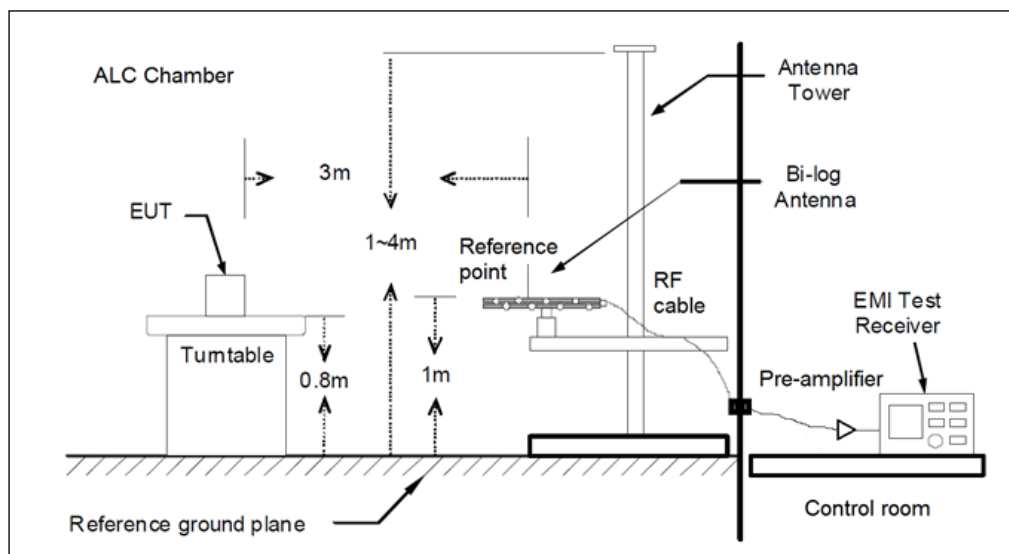
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency ranges 30-1000 MHz (Bi-log antenna) and 1-18 GHz (Double ridge horn antennas) and at 1m for the frequency range 18-40 GHz (Double ridge horn antennas).

For radiated emissions in the range 18-40 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.

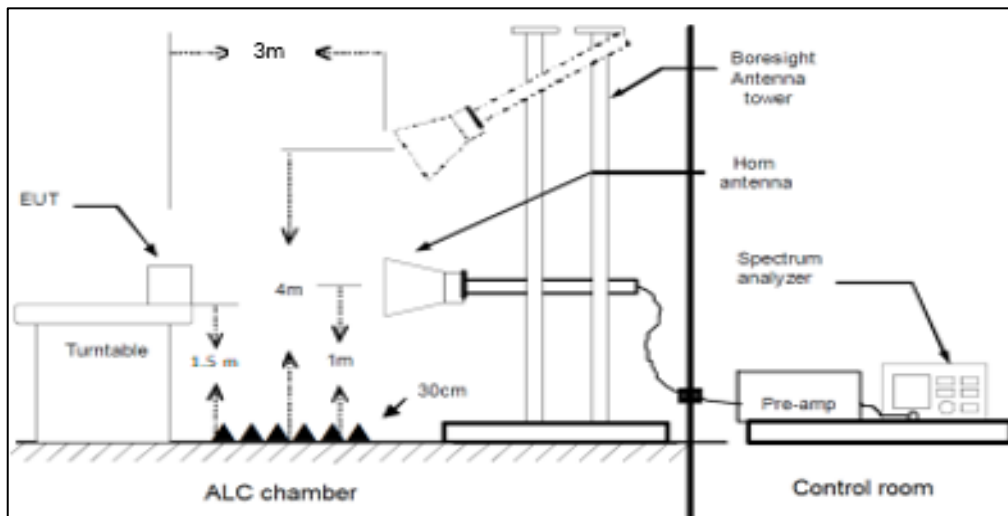
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

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

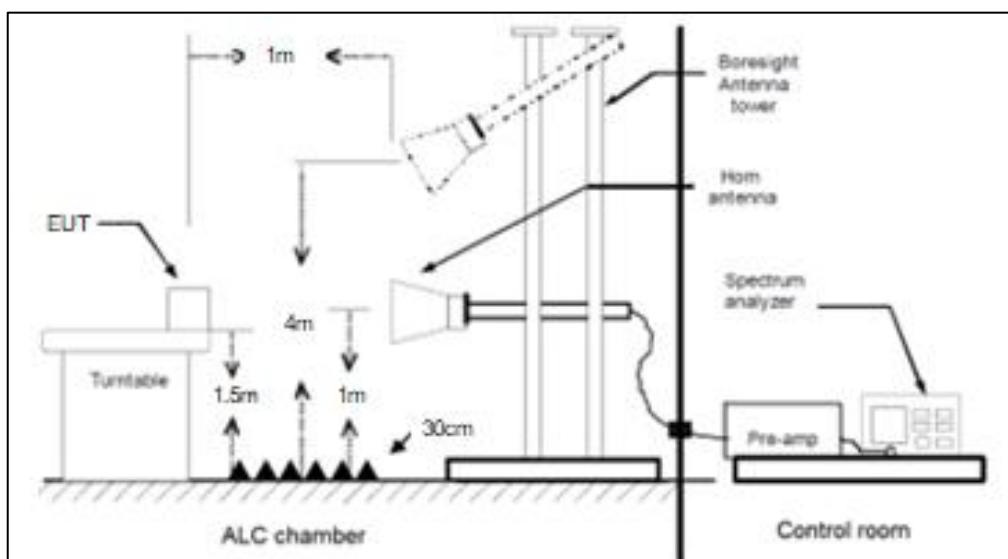
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.



Radiated measurements Setup $f < 1$ GHz



Radiated measurements setup $1 < f < 18$ GHz



Radiated measurements setup $f > 18$ GHz

Frequency range 9KHz – 30 MHz

No radiofrequency signal generated in the device found below 10° sub-harmonic, no further investigation required.

Frequency range 30 MHz – 1000 MHz

The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.

RSS-247 / FCC 15.407 [RSE] Transmitter Out of Band Radiated Emissions For transmitters

Limits

USA FCC Part 15.207:

- FCC Rules and Regulations 47 CFR Part 15, Subpart C, Secs. 15.247:**

(d) radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

USA FCC Part 15.407:

FCC Rules and Regulations 47 CFR Part 15, Subpart E, Secs. 15.407:

(b)(9) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

(b)(10) The provisions of § 15.205 apply to intentional radiators operating under this section.

USA FCC Part 15.209:

(a) the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

Frequency Range (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100 ⁽¹⁾	40	3
88 - 216	150 ⁽¹⁾	43.5	3
216 - 960	200 ⁽¹⁾	46	3
Above 960	500	54	3

- Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., Secs. Secs. 15.231 and 15.241

(d) The emission limits shown in the above table are based on measurements employing a 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.

(f) In accordance with Secs. 15.33(a), in some cases the emissions from an intentional radiator must be measured to beyond the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator because of the incorporation of a digital device. If measurements above the tenth harmonic are so required, the radiated emissions above the tenth harmonic shall comply with the general radiated emission limits applicable to the incorporated digital device, as shown in Secs. 15.109 and as based on the frequency of the emission being measured, or, except for emissions contained in the restricted frequency bands shown in Secs. 15.205, the limit on spurious emissions specified for the intentional radiator, whichever is the higher limit. Emissions which must be measured above the tenth harmonic of the highest fundamental frequency designed to be emitted by the intentional radiator and which fall within the restricted bands shall comply with the general radiated emission limits in Secs. 15.109 that are applicable to the incorporated digital device.

• **FCC Rules and Regulations 47 CFR Part 15, Subpart C, Secs. 15.109:**

(g) As an alternative to the radiated emission limits shown in paragraphs (a) and (b) of this section, digital devices may be shown to comply with the standards contained in the Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement" (incorporated by reference, see § 15.38). In addition:

(2) If, in accordance with § 15.33 of this part, measurements must be performed above 1000 MHz, compliance above 1000 MHz shall be demonstrated with the emission limit in paragraph (a) or (b) of this section, as appropriate. Measurements above 1000 MHz may be performed at the distance specified in the CISPR 22 publications for measurements below 1000 MHz provided the limits in paragraphs (a) and (b) of this section are extrapolated to the new measurement distance using an inverse linear distance extrapolation factor (20 dB/decade), e.g., the radiated limit above 1000 MHz for a Class B digital device is 150 µV/m, as measured at a distance of 10 meters.

Frequency range (MHz)	Class A limits		Class B limits	
	AVG Limit for 3 m ⁽¹⁾ (dBµV/m)	PK Limit for 3 m ^(1,2) (dBµV/m)	AVG Limit for 3 m ⁽¹⁾ (dBµV/m)	PK Limit for 3 m ^(1,2) (dBµV/m)
1000 - 3000	60	80	54	74
3000 - 6000	60	80	54	74
6000 - 40000 ⁽³⁾	60	80	54	74

- Limits are specified by FCC at a distance of 10m and extrapolated here for 3m by adding inverse linear distance (1/d) proportionality factor of 20dB/decade, used per §15.31(f)(1)
- Frequencies above 1 GHz, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test, as per §15.35(b)
- According with the CISPR 22 (third Edition) There are no limits in the frequency range of 6 - 40 GHz, so expand the frequency range beyond 6GHz using the same limits.

• **FCC Rules and Regulations 47 CFR Part 15, Subpart C, Secs. 15.205:**

(1) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

(MHz)	(MHz)	(MHz)	(GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
1 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

Test condition: TC/01

Sample: S/01

Results

Attachments

Operation Band MHz = [2462, 5190]

Frequency Range GHz = [0.03, 1]

Active Port = 1

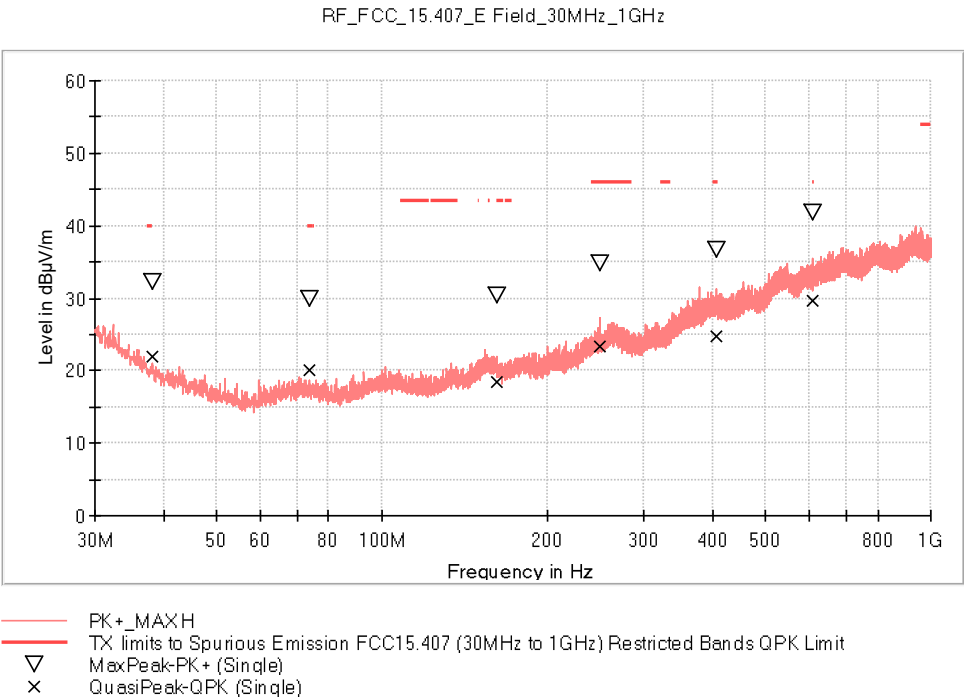
Active Port = 1+2

Modulation = 802.11n HT20 (OFDM MCS0)

Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

MIMO Mode = MIMO CDD Mode 2x2



Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBμV/m)
38.245000	32.1	22.0	V	18.1	40.0
73.601500	29.8	20.0	V	20.0	40.0
162.308000	30.3	18.4	H	25.2	43.5
249.996000	34.9	23.3	V	22.7	46.0
405.826500	36.6	24.7	V	21.4	46.0
610.739000	41.8	29.6	V	16.4	46.0

Operation Band MHz = [2462, 5190]

Frequency Range GHz = [1, 18]

Active Port = 1

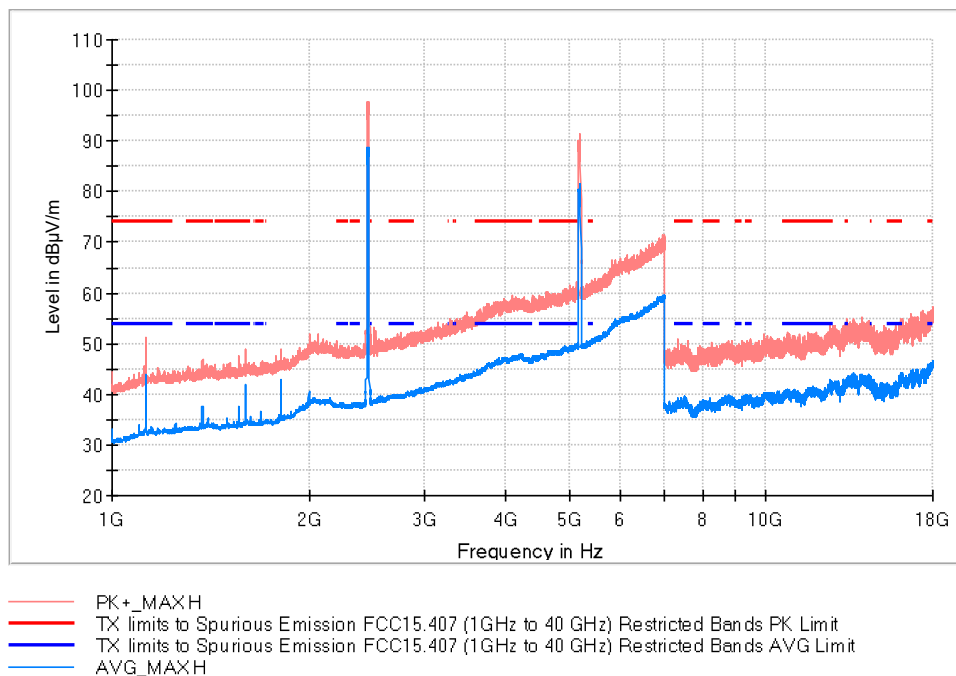
Active Port = 1+2

Modulation = 802.11n HT20 (OFDM MCS0)

Modulation = 802.11ac VHT40 (OFDM MCS0)

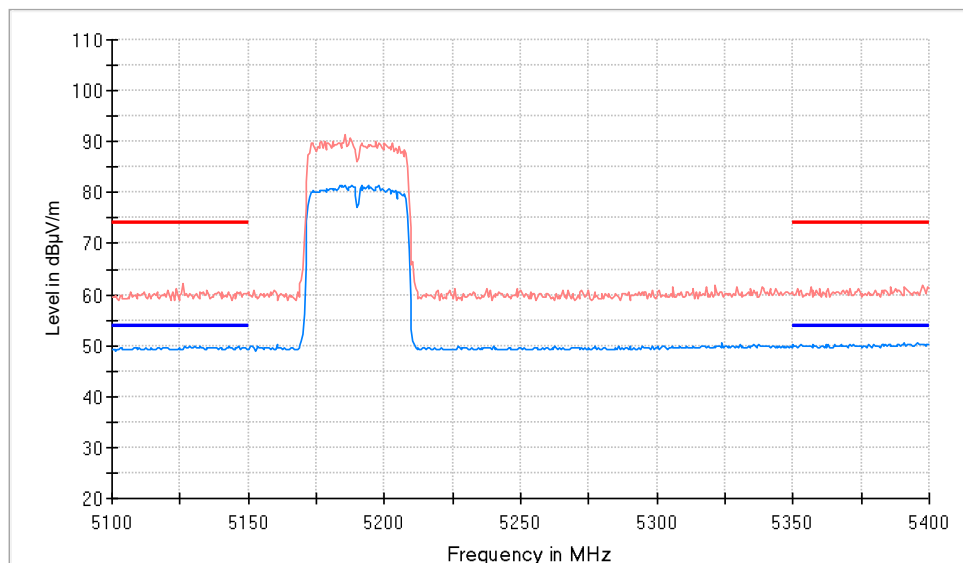
MIMO Mode = SISO

MIMO Mode = MIMO CDD Mode 2x2

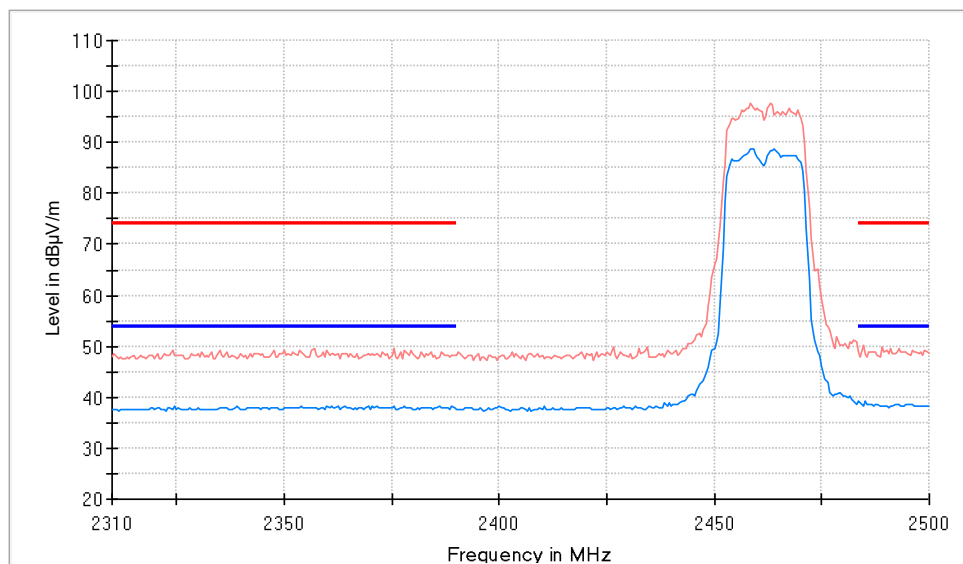


Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)	Comment
1124.500000	51.1	43.9	H	10.1	54.0	
2458.500000	97.7	88.6	H	---	---	Wi-Fi 2.4GHz Fundamental
5185.500000	91.3	81.4	H	---	---	Wi-Fi 5GHz Fundamental
11080.000000	49.3	41.0	H	13.0	54.0	

Restricted Bands



— AVG_MAXH
— PK+_MAXH
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit



— PK+_MAXH
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit
— AVG_MAXH

Operation Band MHz = [2462, 5190]

Frequency Range GHz = [18, 40]

Active Port = 1

Active Port = 1+2

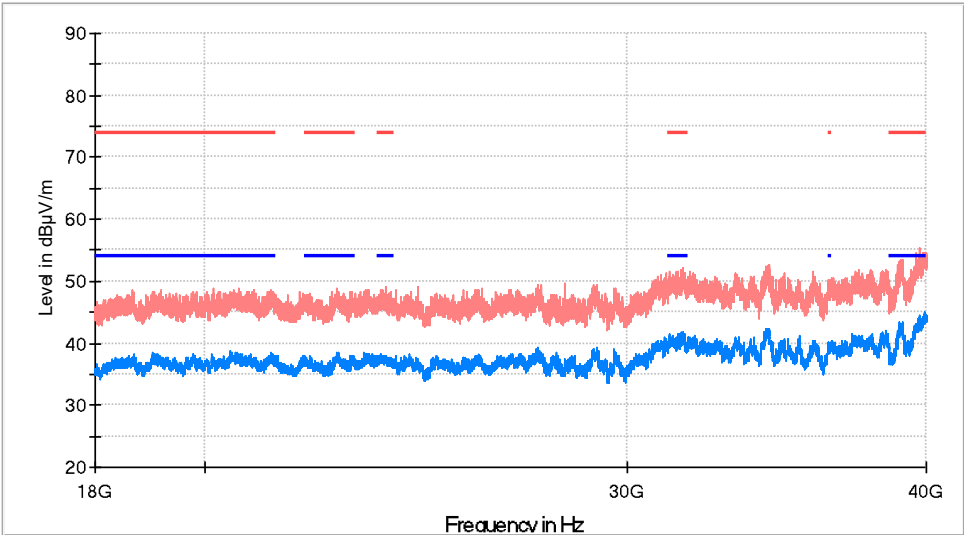
Modulation = 802.11n HT20 (OFDM MCS0)

Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

MIMO Mode = MIMO CDD Mode 2x2

RF_FCC_15.407_E Field_18GHz_40GHz(SAC2)



- AVG_MAXH
- PK+_MAXH
- TXlimits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TXlimits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
20485.312500	46.4	38.7	H	15.3	54.0
31615.937500	51.5	41.9	H	12.1	54.0

Test condition: TC/02

Sample: S/01

Results

Attachments

Operation Band MHz = [2441, 2462]

Frequency Range GHz = [0.03, 1]

Active Port = 1

Active Port = 1

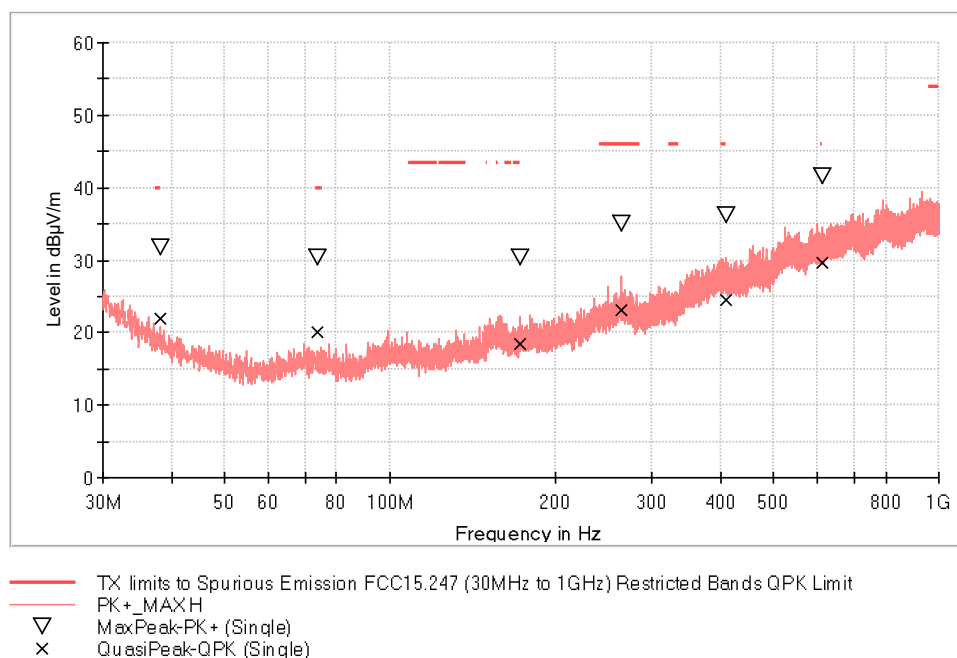
Modulation = BT (8DPSK 3-DH5)

Modulation = 802.11n HT20 (OFDM MCS0)

MIMO Mode = SISO

MIMO Mode = SISO

RF_FCC_15.407_E Field_30MHz_1GHz



Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBμV/m)
38.196500	31.7	22.1	V	18.0	40.0
73.698500	30.3	20.1	V	19.9	40.0
172.202000	30.4	18.4	V	25.1	43.5
264.400500	35.0	23.1	V	22.9	46.0
409.658000	36.2	24.6	H	21.4	46.0
611.563500	41.7	29.7	V	16.3	46.0

Operation Band MHz = [2441, 2462]

Frequency Range GHz = [1, 18]

Active Port = 1

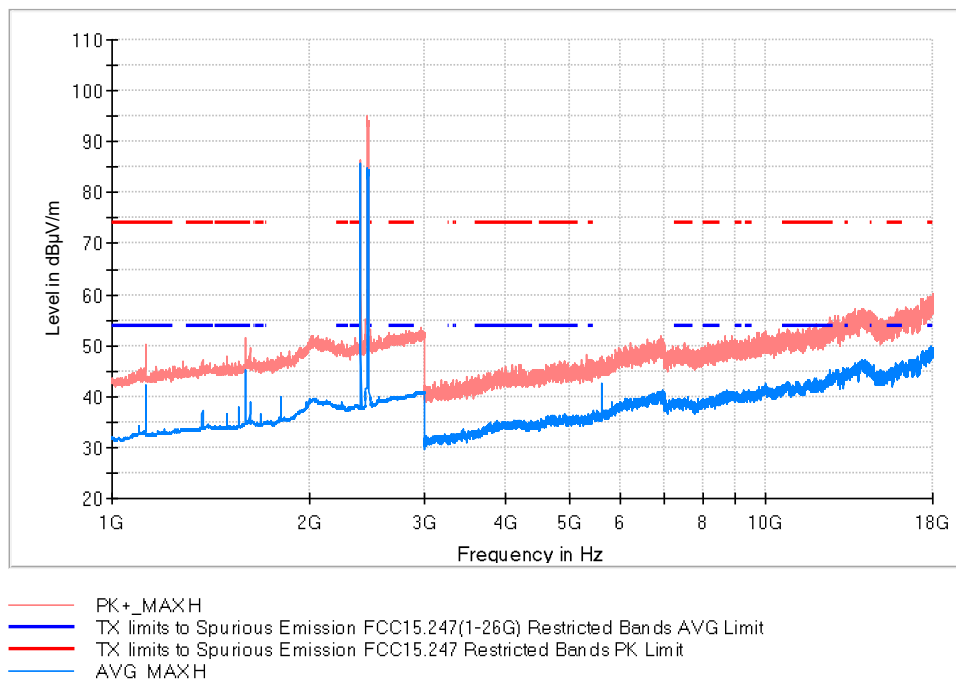
Modulation = BT (8DPSK 3-DH5)

MIMO Mode = SISO

Active Port = 1

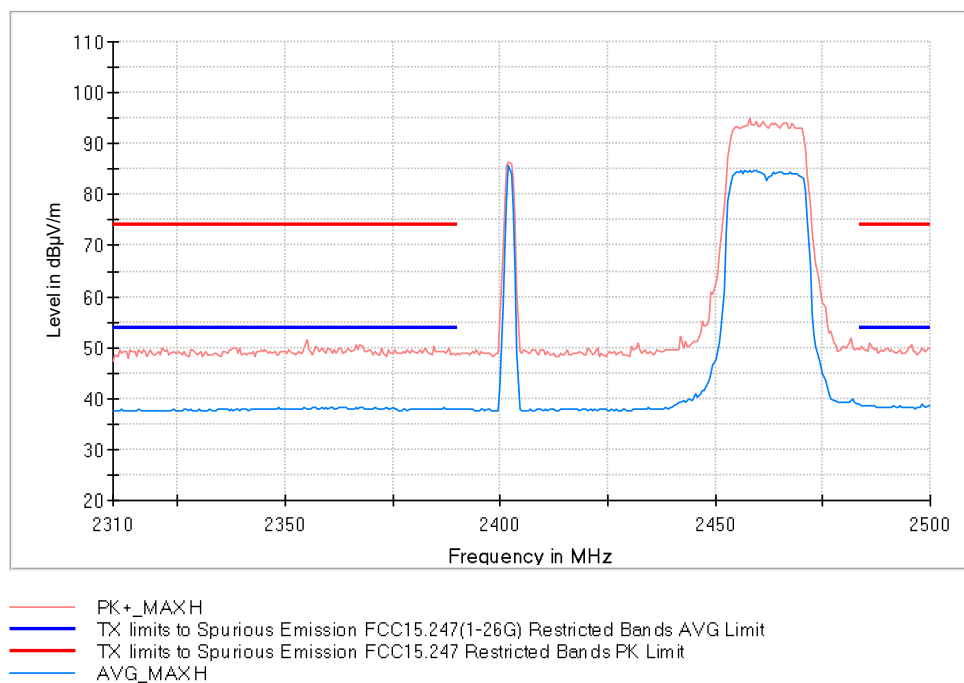
Modulation = 802.11n HT20 (OFDM MCS0)

MIMO Mode = SISO



Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)	Comment
1125.000000	50.3	42.2	V	11.8	54.0	
2402.000000	86.3	85.6	H	---	---	BT Fundamental
2457.000000	94.9	84.7	V	---	---	Wi-Fi Fundamental
12518.000000	52.9	45.2	V	8.8	54.0	

Restricted Bands



Operation Band MHz = [2441, 2462]

Frequency Range GHz = [18, 26]

Active Port = 1

Modulation = BT (8DPSK 3-DH5)

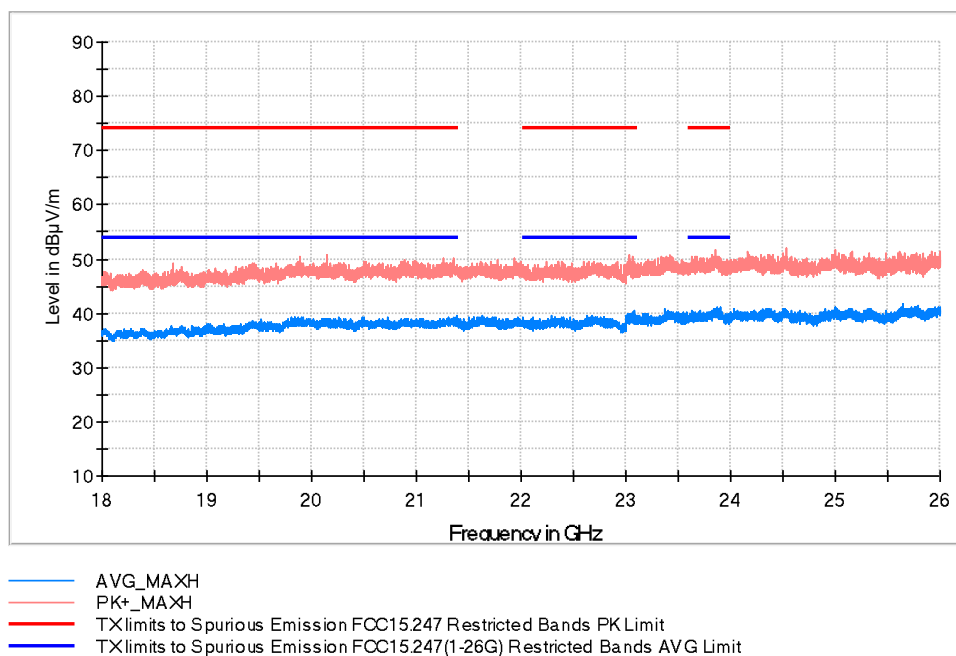
MIMO Mode = SISO

Active Port = 1

Modulation = 802.11n HT20 (OFDM MCS0)

MIMO Mode = SISO

RF_FCC_15.247_E Field_18GHz_26GHz(SAC2)



Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	PoI	Margin - AVG (dB)	Limit - AVG (dBµV/m)
20481.500000	47.7	39.4	V	14.6	54.0
23896.000000	49.8	41.2	H	12.8	54.0

Test condition: TC/03

Sample: S/01

Results

Attachments

Operation Band MHz = [2441, 5190]

Frequency Range GHz = [0.03, 1]

Active Port = 1

Active Port = 1+2

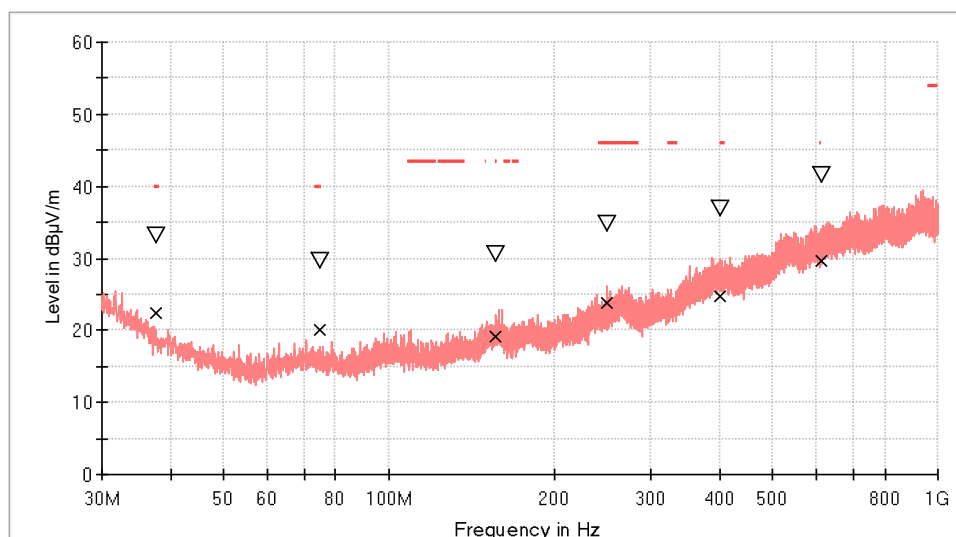
Modulation = BT (8DPSK 3-DH5)

Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

MIMO Mode = MIMO CDD Mode 2x2

RF_FCC_15.407_E Field_30MHz_1GHz



— PK+_MAXH
— TX limits to Spurious Emission FCC15.407 (30MHz to 1GHz) Restricted Bands QPK Limit
▽ MaxPeak-PK+ (Single)
x QuasiPeak-QPK (Single)

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBμV/m)
37.614500	33.3	22.4	H	17.6	40.0
74.814000	29.6	20.0	H	20.0	40.0
156.827500	30.6	19.0	H	24.5	43.5
249.947500	34.7	23.8	V	22.2	46.0
400.540000	36.8	24.6	V	21.4	46.0
613.309500	41.6	29.7	V	16.3	46.0

Operation Band MHz = [2441, 5190]

Frequency Range GHz = [1, 18]

Active Port = 1

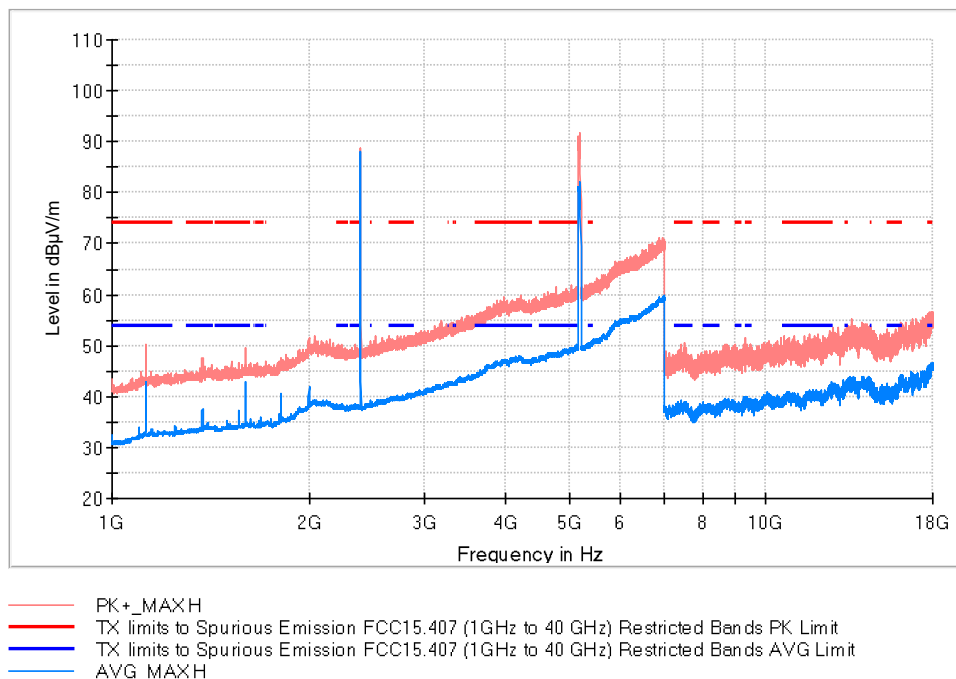
Modulation = BT (8DPSK 3-DH5)

MIMO Mode = SISO

Active Port = 1+2

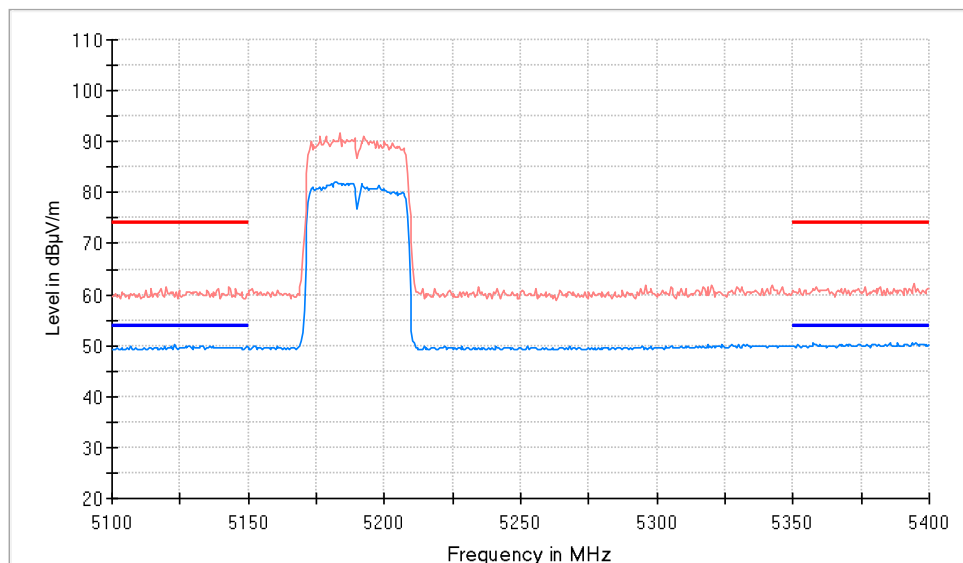
Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = MIMO CDD Mode 2x2

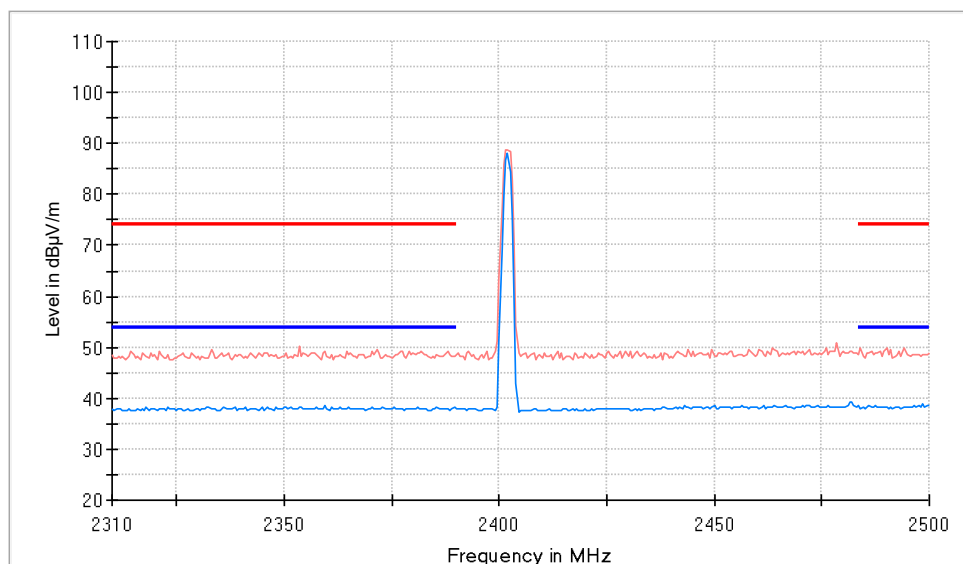


Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)	Comment
1125.000000	49.9	43.0	H	11.0	54.0	
2402.000000	88.9	88.2	H	---	---	BT Fundamental
5182.500000	91.6	82.2	H	---	---	Wi-Fi Fundamental
11926.500000	51.2	41.4	V	12.6	54.0	

Restricted Bands



— AVG_MAXH
— PK+_MAXH
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit



— PK+_MAXH
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
— TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit
— AVG_MAXH

Operation Band MHz = [2441, 5190]

Frequency Range GHz = [18, 40]

Active Port = 1

Active Port = 1+2

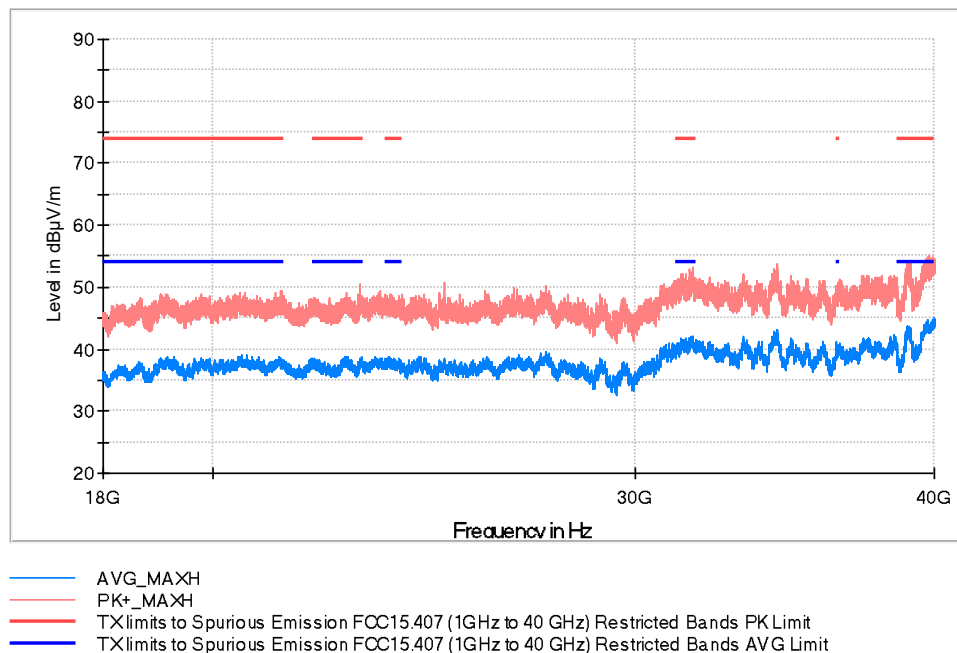
Modulation = BT (8DPSK 3-DH5)

Modulation = 802.11ac VHT40 (OFDM MCS0)

MIMO Mode = SISO

MIMO Mode = MIMO CDD Mode 2x2

RF_FCC15.407_E Field_18GHz_40GHz(SAC2)



Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)
22715.562500	47.4	38.9	V	15.1	54.0
31717.000000	49.7	42.1	H	11.9	54.0

Radiated emission electromagnetic field

(30MHz – 1GHz)

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
30 MHz - 1 GHz	20 dB	PK+	100 kHz

Final Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
30 MHz - 1 GHz	20 dB	QPK, PK+	120 kHz

(1GHz – 18GHz)

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
1 GHz - 18 GHz	20 dB	PK+ ; AVG	1 MHz

(18GHz – 40GHz)

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
18 GHz - 26 GHz	20 dB	PK+ ; AVG	1 MHz

Pre-Scan Spectrum Analyzer Parameters

Subrange	Preamp	Detectors	Bandwidth
18 GHz - 40 GHz	20 dB	PK+ ; AVG	1 MHz