



FCC LISTED, REGISTRATION
NUMBER: 2764.01

ISED LISTED REGISTRATION
NUMBER: 23595-1

Test Report No:

3853ERM.013

Partial Test report

USA FCC Part 15.407 (U-NII), 15.209; & CANADA RSS-210, RSS-Gen
Unlicensed National Information Infrastructure Devices. General technical requirements.
Licence-Exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
General Requirements and Information for the Certification of Radio Apparatus.

(*) Identification of item tested	CIVIC (Central In-Vehicle Infotainment Computer)
(*) Trademark	Bosch
(*) Model and /or type reference	MBCI2LS3PR1
Other identification of the product	FCC ID: 2AUXS-MBCI2LS3PR1 (ECE/RoW) IC: 25847-MBCI2LS3PR1 (ECE/RoW) HVIN: MBCI2LS3PR1
(*) Features	AM/FM/DAB/SIRIUS, GNSS, 2.4/5GHz WLAN, Bluetooth 5.1, Video/Audio etc
Manufacturer	ROBERT BOSCH GMBH Robert-Bosch-Strasse 200, 31139 Hildesheim Germany
Test method requested, standard	USA FCC Part 15.407 10-1-20 Edition : Unlicensed National Information Infrastructure Devices. General technical requirements. USA FCC Part 15.209 10-1-20 Edition: Radiated emission limits; general requirements. CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 (April 2018). 789033 D02 General UNII Test Procedures New Rules v02r01 Guidance for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.
Summary	See Appendix A & B
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager 
Date of issue	2022-11-07
Report template No	FDT08_23 (*) "Data provided by the client"

Digitally signed by Domingo
Galvez
DN: cn=Domingo Galvez,
ou=DEKRA Certification Inc.,
ou=Regulatory Lab,
email=dgalvez@dekra.com, c=US

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Acronyms

Acronym ID	Acronym Description
# of Tx Chains	Number of Transmission Chains
26Ebw	Emission Bandwidth
Avg Power	Maximum Average Conducted Output Power
DC	Duty Cycle
Detector	Detector used
Freq	Frequency
Freq Rng	Frequency Range
Inband Peak Lvl	Inband Peak Level
Lvl	Level
MP	Measurement Point
Max EIRP	Maximum Burst EIRP
Mod	Modulation
Mode	MIMO Mode
Occ Ch BW	Occupied Channel Bandwidth
Operation Band	Operation Band
PSD	Power Spectrum Density
Pol	Polarization
Port	Active Port
TPC	TPC
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

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 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.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA 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
RF Power and PSD	5150-5850	0.88	dB
Occupied Bandwidth		1.87	%
Band Edge		0.64	dB
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 consists of a CIVIC Central In-Vehicle Infotainment Computer, including WLAN/ Bluetooth, GPS, AM/FM/DAB receiver.

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 testing have been selected by: The client.

Sample S/01 is composed of the following elements, accessories and auxiliary equipment:

Id	Control Number	Description	Manufacturer / Model	Serial N°	Date of Reception	Application
S/01	3853/02	Central In-Vehicle Infotainment Computer	Bosch / MBCI2LS3PR1	CM0427N0006006	09/09/2022	Element Under Test
S/01	3853/16	Harness – Main connector A	-	-	09/09/2022	Accessory
S/01	3853/19	BTWLANLV21	Bosch / A1779052902/002	057577	09/09/2022	Accessory
S/01	3853/20	BTWLANLV21	Bosch / A1779052902/002	008686	09/09/2022	Accessory
S/01	3853/21	BTWLANLV21	Bosch / A1779052902/002	057584	09/09/2022	Accessory
S/01	3853/22	BTWLANLV21	Bosch / A1779052902/002	008733	09/09/2022	Accessory
S/01	3853/51	Cable – GNSS Connector	-	-	09/09/2022	Accessory
S/01	3853/55	Cable 4 in 1 – BT/Wi-Fi connector	-	-	09/09/2022	Accessory
S/01	3853/73	Cable – USB MMB Connector	-	-	09/09/2022	Accessory
S/01	3853/73.1	USB Load (dongle)	-	-	09/09/2022	Accessory
S/01	3853/75	Harness – Main connector B	-	-	09/09/2022	Accessory

1. Sample s/01 was used for the test(s): All Radiated tests.

Test sample description

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

Ports..... :	Port name and description	Cable											
		Specified length [m]	Attached during test	Shielded	Coupled to patient								
	Main Connector A	2	☒	☐	☐								
	Main Connector B	2	☒	☐	☐								
	Fakra Quad Connector AM/FM/DAB		☒	☒	☐								
	Fakra Single Connector GPS		☒	☒	☐								
	Fakra Quad Connector WLAN/BT		☒	☐	☐								
Supplementary information to the ports..... :	No Data Provided												
Rated power supply	Voltage and Frequency		Reference poles										
			L1	L2	L3	N	PE						
	☐	AC:	☐	☐	☐	☐	☐						
	☐	AC:	☐	☐	☐	☐	☐						
	☒	DC: 9-16V nominal 12 VDC by vehicle battery											
	☐	DC:											
Rated Power	3.8 A												
Clock frequencies.....	No Data Provided												
Other parameters	No Data Provided												
Software version	E030.6												
Hardware version	D1.1												
Dimensions in cm (W x H x D)	No Data Provided												
Mounting position	☐	Table top equipment											
	☐	Wall/Ceiling mounted equipment											
	☐	Floor standing equipment											
	☐	Hand-held equipment											
	☒	Other: Cluster in the car											

Modules/parts	Module/parts of test item	Type	Manufacturer
	Antennas		
	HUD		
	SA2 Panel		
	Cameras		
Accessories (not part of the test item)	Description	Type	Manufacturer
	No Data Provided		
Documents as provided by the applicant.....	Description	File name	Issue date
	Declaration Equipment Data	LS3_Plus_FDT30_18 Declaration Equipment Data_V1_signed	11/09/2022

Copy of marking plate:



Identification of the client

ROBERT BOSCH GMBH
Robert-Bosch-Strasse 200,
31139 Hildesheim
Germany

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	2022-10-10
Date (finish)	2022-10-12

Document history

Report number	Date	Description
3853ERM.013	2022-11-07	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: Koji Nishimoto.

List of equipment used during the test

Conducted Measurements

CONTROL NUMBER	DESCRIPTION	Serial No	LAST CALIBRATION	NEXT CALIBRATION
1014	FSV40 Signal Analyser 40GHz	101626	2021-05-19	2023-05-19
1107	Ethernet SNMP Thermometer-RF1 Room	60038026952	2022-10-18	2024-10-18
1313	Wireless Measurement Software R&S EMC32	-	N/A	N/A

Radiated Measurements

CONTROL NUMBER	DESCRIPTION	Serial No	LAST CALIBRATION	NEXT CALIBRATION
981	Low Noise Preamplifier	1711156B	2020-11-10	2022-11-10
1012	ESR26 EMI Test Receiver	101478	2022-04-12	2024-04-12
1014	FSV40 Signal Analyzer 40GHz	101626	2021-05-19	2023-05-19
1056	3116C Double-Ridged Waveguide Horn Antenna 19-40 GHz	213179	2020-01-10	2023-01-10
1057	3115 Double-Ridged Waveguide Horn Antenna 1-18 GHz	211373	2020-06-03	2023-06-03
1065	Ethernet SNMP Thermometer-CR Room	208587	2020-08-13	2023-08-13
1108	Ethernet SNMP Thermometer-SAC	60038026954	2022-10-18	2024-10-18
1111	Semi anechoic Absorber Lined Chamber	60038026577	2022-10-18	2024-10-18
1179	Wireless Measurement Software R&S EMC32	F169021	N/A	N/A
1314	Low Noise Preamplifier	1040-OT102236	N/A	N/A

Testing verdicts

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

Summary

FCC PART 15 PARAGRAPH / RSS-247			
Requirement	Test case	Verdict	Remark
FCC 15.407 (a) / RSS-247 6.2	Power Limits. Maximum Output Power	N/M	Refer 1
FCC 15.407 (a) / RSS-247 6.2	Maximum Power Spectral Density	N/M	Refer 1
FCC 2.1049 / RSS-Gen 6.7	99% Occupied Bandwidth	N/M	Refer 1
FCC 15.403 / RSS-Gen 6.7	26 dB Emission Bandwidth	N/M	Refer 1
FCC 15.407 (b) / RSS-247 6.2	Band-edge Conducted Emissions	N/M	Refer 1
FCC 15.407 (e) / RSS 247 6.2.4.1	6 dB Emission Bandwidth	N/M	Refer 1
FCC 15.407 (b), 15.205 & 15.209 / RSS-Gen 8.9 & 8.10	Undesirable radiated emissions	P	
FCC 15.407 (g) / RSS-Gen 6.11 & 8.11	Frequency Stability	N/M	Refer 1
<u>Supplementary information and remarks:</u> 1. Test is not requested by the customer			

Appendix A: DUT Description

PRODUCT INFORMATION

Information	Description
Equipment type	Wi-Fi 5GHz
DFS Operating Mode	--
TPC Function	Yes
Antenna Specification	External
Operating Frequency Range	U-NII-1: 5150 - 5250 MHz U-NII-3: 5725 - 5825 MHz
Nominal Channel Bandwidth	20/ 40/ 80 MHz
Antenna type	SISO: Radio A SISO Radio B MIMO Radio A+ Radio B
RF Output Power	9 dBm
Antenna gain	5.0 dBi
Supply Voltage	12 Vdc
Modulation:	CCK, DSSS, OFDM (QPSK, BPSK, 16QAM, 64QAM)
Communication Mode:	
Transmit Data Rate:	802 .11 a/n/ac/ax Rates: IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, & 54 Mbps (CDD) IEEE 802.11n: HT20 (OFDM MCS8) VHT40 SS1 (OFDM MCS11) IEEE 802.11ac: VHT20 SS1 (OFDM MCS11) VHT40 SS1 (OFDM MCS11) VHT80 SS1 (OFDM MCS4) IEEE 802.11ax: HE20 (OFDMA MCS0) HE40 SS1 (OFDMA MCS0) VHT80 SS1 (OFDM MCS4)

Appendix B: Tests results. Wi-Fi 5GHz

Appendix B

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TEST CASES DETAILS18

FCC 15.407 (b), 15.205 & 15.209 / RSS-Gen 8.9 & 8.10 Undesirable radiated emissions18

TEST CONDITIONS

(*): Data provided by the client.

TEST CONDITIONS	DESCRIPTION										
TC#01 ⁽¹⁾ (a mode)	<u>Power supply (V):</u> $V_{\text{nominal}} = 12 \text{ Vdc}$ <u>Channel Bandwidth:</u> 20 MHz <u>Test Frequencies for Radiated tests: (Radio A+B)</u> <table> <tr> <td><u>U-NII-1</u></td><td><u>U-NII-3</u></td></tr> <tr> <td>Lowest range: 5180 MHz</td><td>Lowest range: 5745 MHz</td></tr> <tr> <td>Middle channel: 5200 MHz</td><td>Middle channel: 5785 MHz</td></tr> <tr> <td>Highest range: 5240 MHz</td><td>Highest range: 5825 MHz</td></tr> </table>	<u>U-NII-1</u>	<u>U-NII-3</u>	Lowest range: 5180 MHz	Lowest range: 5745 MHz	Middle channel: 5200 MHz	Middle channel: 5785 MHz	Highest range: 5240 MHz	Highest range: 5825 MHz		
<u>U-NII-1</u>	<u>U-NII-3</u>										
Lowest range: 5180 MHz	Lowest range: 5745 MHz										
Middle channel: 5200 MHz	Middle channel: 5785 MHz										
Highest range: 5240 MHz	Highest range: 5825 MHz										
TC#03 ⁽¹⁾ (ac mode)	<u>Power supply (V):</u> $V_{\text{nominal}} = 12 \text{ Vdc}$ <u>Channel Bandwidth:</u> 40 MHz <u>Test Frequencies for Radiated tests: (Radio A+B)</u> <table> <tr> <td><u>U-NII-1</u></td><td><u>U-NII-3</u></td></tr> <tr> <td>Lowest range: 5190 MHz</td><td>Lowest range: 5755 MHz</td></tr> <tr> <td>Highest range: 5230 MHz</td><td>Highest range: 5795 MHz</td></tr> </table> <u>Channel Bandwidth:</u> 80 MHz <u>Test Frequencies for Radiated tests: (Radio A+B)</u> <table> <tr> <td><u>U-NII-1</u></td><td><u>U-NII-3</u></td></tr> <tr> <td>Single range: 5210 MHz</td><td>Single range: 5755 MHz</td></tr> </table>	<u>U-NII-1</u>	<u>U-NII-3</u>	Lowest range: 5190 MHz	Lowest range: 5755 MHz	Highest range: 5230 MHz	Highest range: 5795 MHz	<u>U-NII-1</u>	<u>U-NII-3</u>	Single range: 5210 MHz	Single range: 5755 MHz
<u>U-NII-1</u>	<u>U-NII-3</u>										
Lowest range: 5190 MHz	Lowest range: 5755 MHz										
Highest range: 5230 MHz	Highest range: 5795 MHz										
<u>U-NII-1</u>	<u>U-NII-3</u>										
Single range: 5210 MHz	Single range: 5755 MHz										

POWER SETTING (*):

UNII-1 FCC:

Channel	Frequency	11a	11n	11ac
36	5180 MHz	16	16	16
40	5200 MHz	16	16	16
44	5220 MHz	16	16	16
48	5240 MHz	16	16	16
38	5190 MHz		16	16
46	5230 MHz		16	16
42	5210 MHz			16

UNII-1 Canada:

Channel	Frequency	11a	11n	11ac
36	5180 MHz	12	12	12
40	5200 MHz	12	12	12
44	5220 MHz	12	12	12
48	5240 MHz	12	12	12
38	5190 MHz		12	12
46	5230 MHz		12	12
42	5210 MHz			12

The test set-up was made in accordance to the general provisions of FCC Unlicensed National Information Infrastructure (U-NII) Devices 789033 D02 General U-NII Test Procedures New Rules v02r01 dated Dec 14, 2017.

The EUT was tested in the following operating mode:

- Continuously transmitting with a modulated carrier at maximum power in all required channels using the supported data rates/modulation types.

The field strength at the band edges was evaluated for each mode on the lowest and highest channels at the rated power for the channel under test.

For all modes, the EUT was configured in test mode using a software application. The application was used to enable a continuous transmission and to select the test channels as required. The client supplied instructions to configure the EUT. The customer supplied a document containing the setup instructions.

The worst cases for testing were identified for output power and spurious levels at the band edges which were selected based on preliminary testing that correspond to next data rates:

- 802.11 a20: 6 Mbps
- 802.11 ac VHT20: MCS11
- 802.11 ac VHT40: MCS11
- 802.11 ac VHT80: MCS4

RADIATED MEASUREMENTS:

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and 1-18 GHz Double ridge horn antennas, and 1m for the frequency range 18 GHz- 26 GHz Double ridge horn antenna.

For radiated emissions in the range 18 - 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 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.

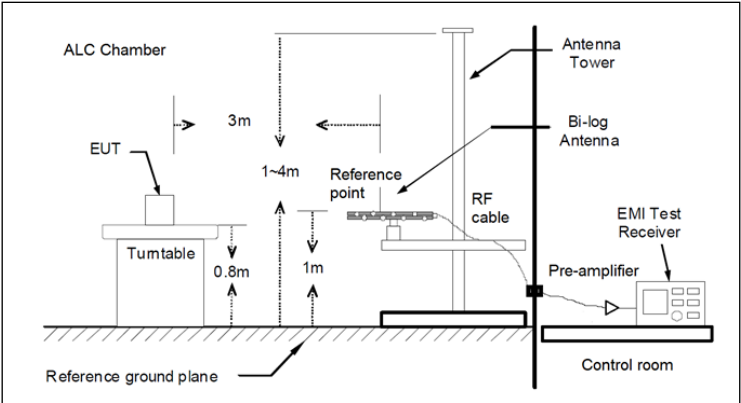


Fig A1: Radiated measurements Setup $f < 1$ GHz

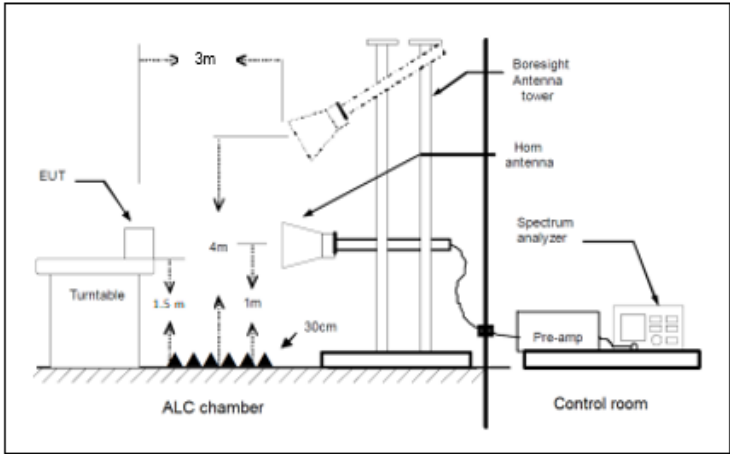


Fig A2: Radiated measurements setup $f > 1-18$ GHz

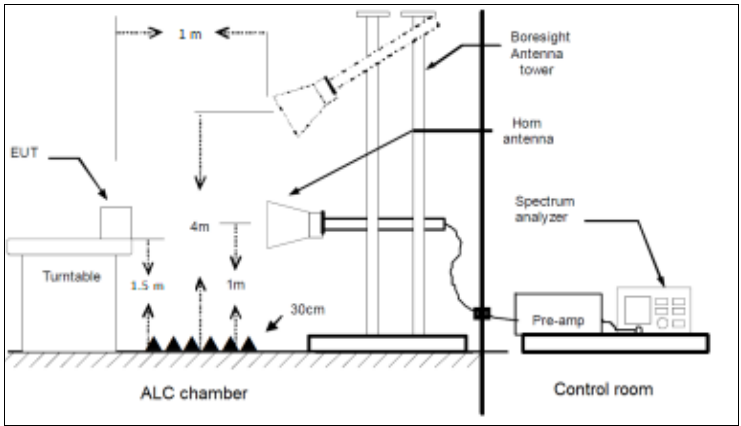


Fig A3: Radiated measurements setup $f > 18$ GHz

TEST CASES DETAILS

FCC 15.407 (b), 15.205 & 15.209 / RSS-Gen 8.9 & 8.10 Undesirable radiated emissions

Limits

For transmitters operating in the 5.725–5.85 GHz band:

All emissions shall be limited to a level of –27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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)):

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	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	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.

U-NII-1: 5.15 GHz – 5.25 GHz Band

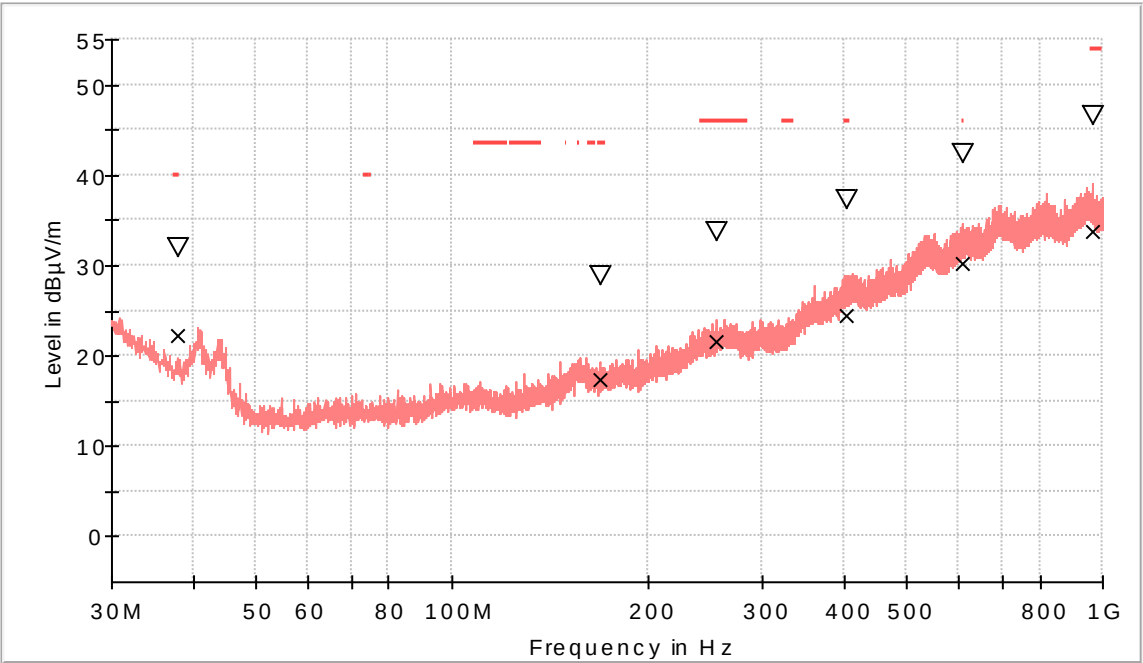
Modulation: 802.11a (DSSS 1 Mbit/s)
Results

Frequency range 0.03 - 1 GHz
The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.

Middle Channel

Active Port = 1+2, Frequency Range GHz = [0.03, 1], Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 6

Images:



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

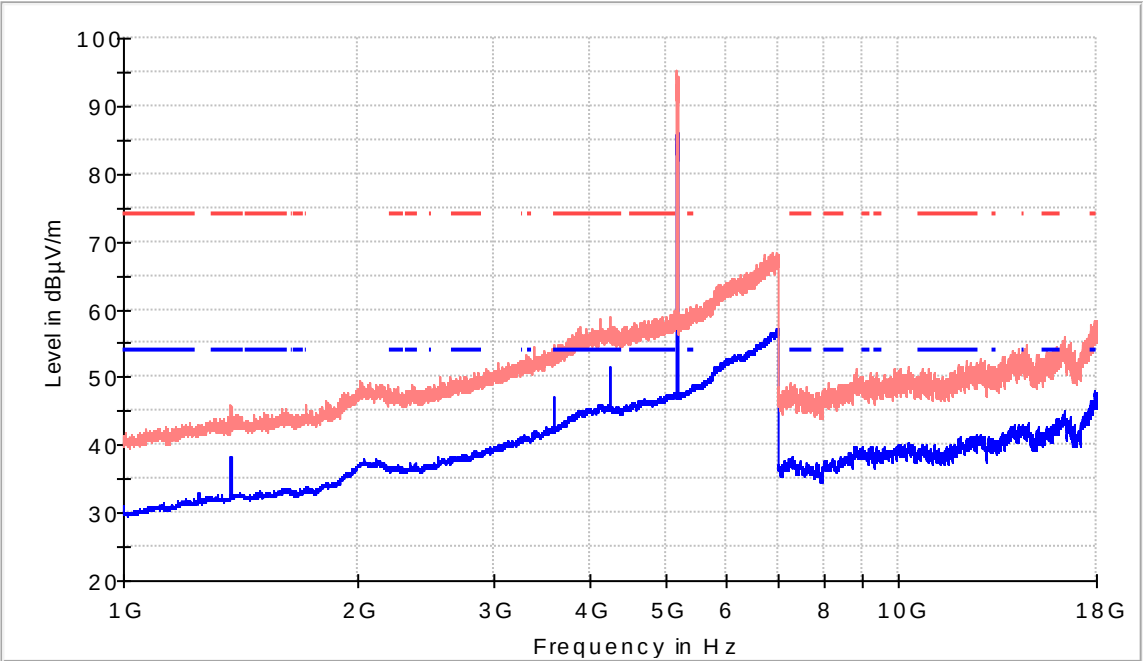
Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBµV/m)
37.808500	32.0	22.2	H	164.0	17.8
168.370500	29.0	17.4	V	26.0	26.1
255.379500	33.8	21.5	H	108.0	24.5
404.226000	37.3	24.4	V	144.0	21.6
610.254000	42.5	30.1	V	144.0	15.9
964.061500	46.7	33.8	V	144.0	20.3

Frequency range 1 - 18 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

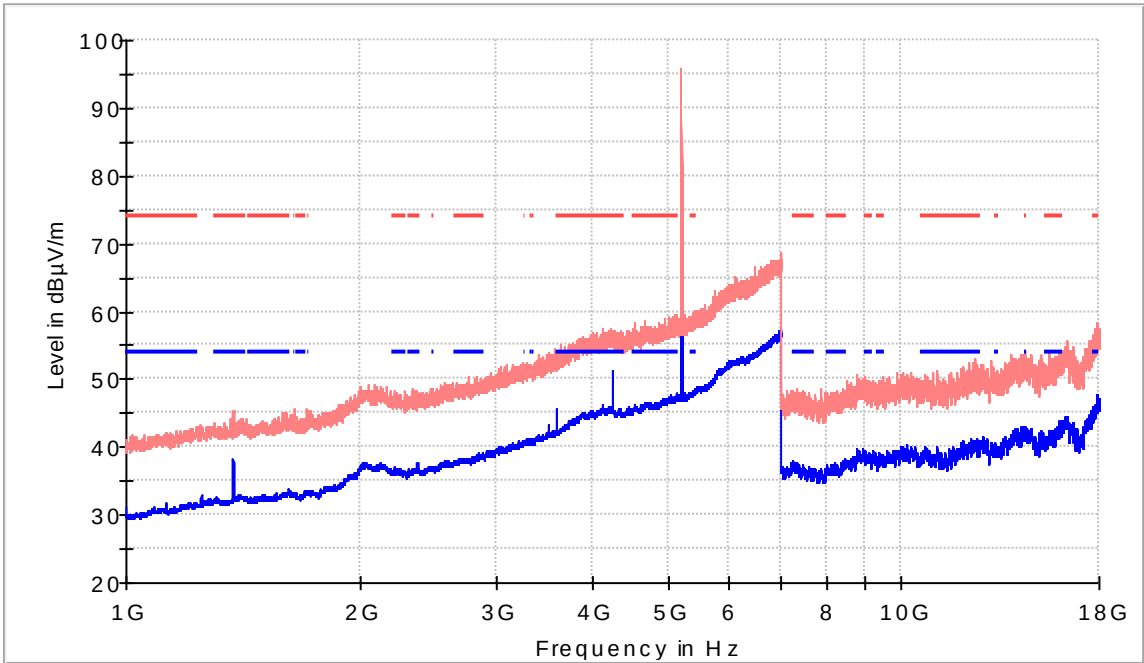
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4233.000000	59.1	51.1	V	2.9	54.0	
5177.000000	95.2	85.8	H	---	---	Fundamental
17904.000000	58.5	47.3	V	6.7	54.0	

Frequency range 1 - 18 GHz

Middle Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

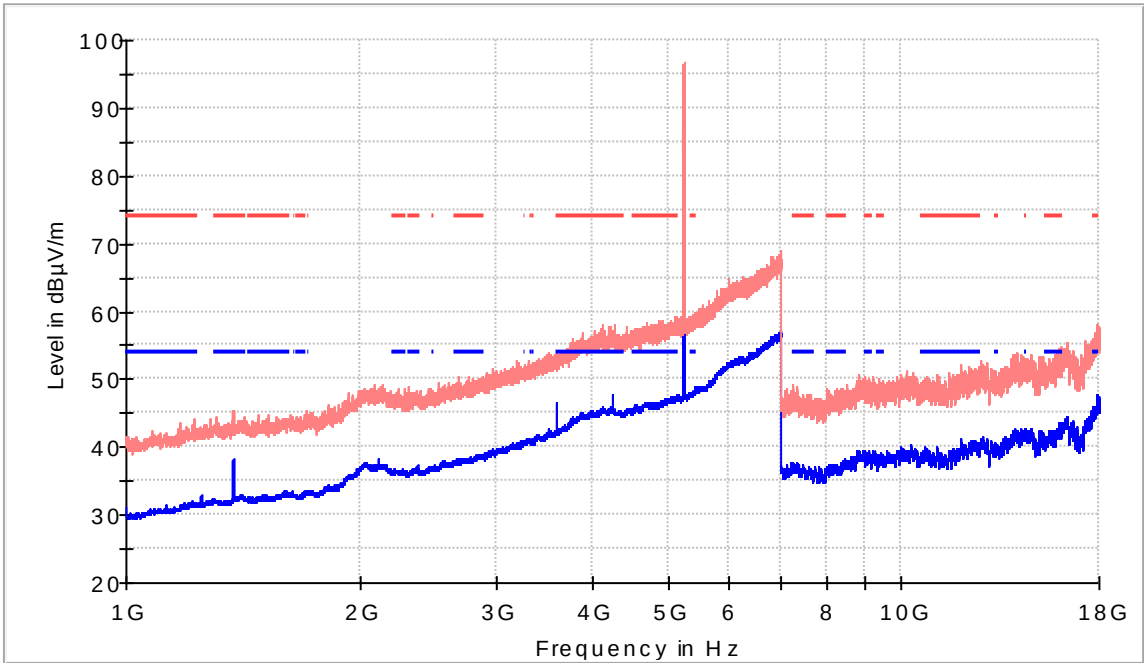
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4233.500000	56.8	51.2	V	2.8	54.0	
5196.000000	95.8	86.8	H	---	---	Fundamental
16072.500000	54.3	42.7	H	11.3	54.0	

Frequency range 1 - 18 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

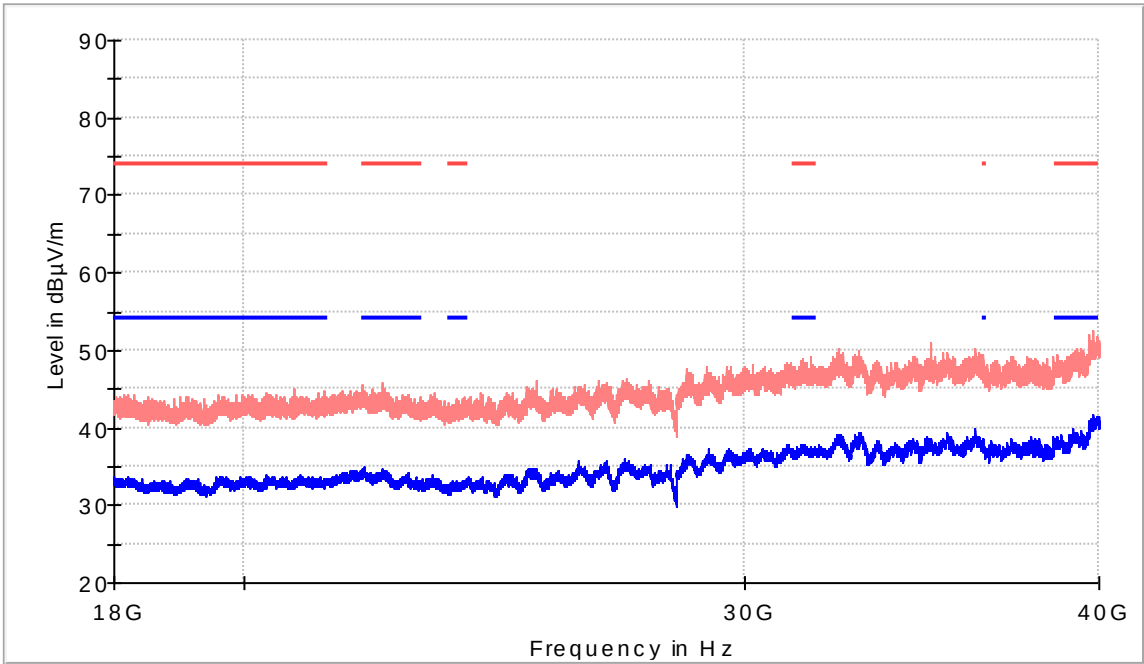
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4233.000000	57.2	47.7	V	6.3	54.0	
5241.000000	96.7	87.3	H	---	---	Fundamental
16123.000000	54.8	43.2	H	10.8	54.0	

Frequency range 18 - 40 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5180.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

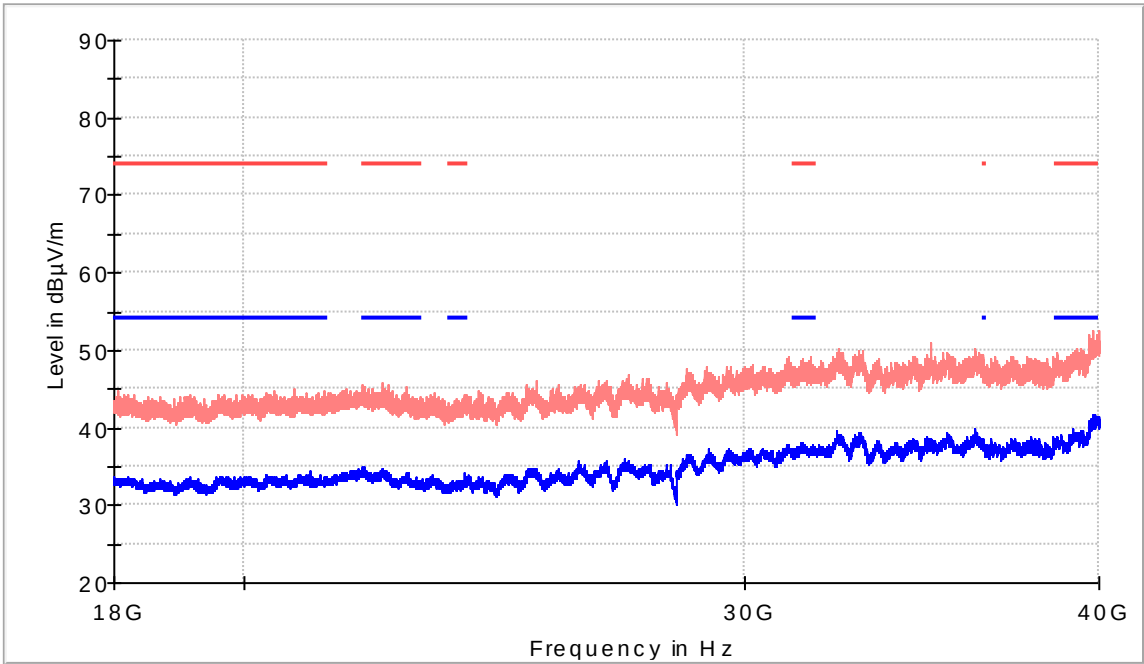
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39806.125000	50.7	41.6	V	12.4	54.0

Frequency range 18 - 40 GHz

Middle Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5200.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

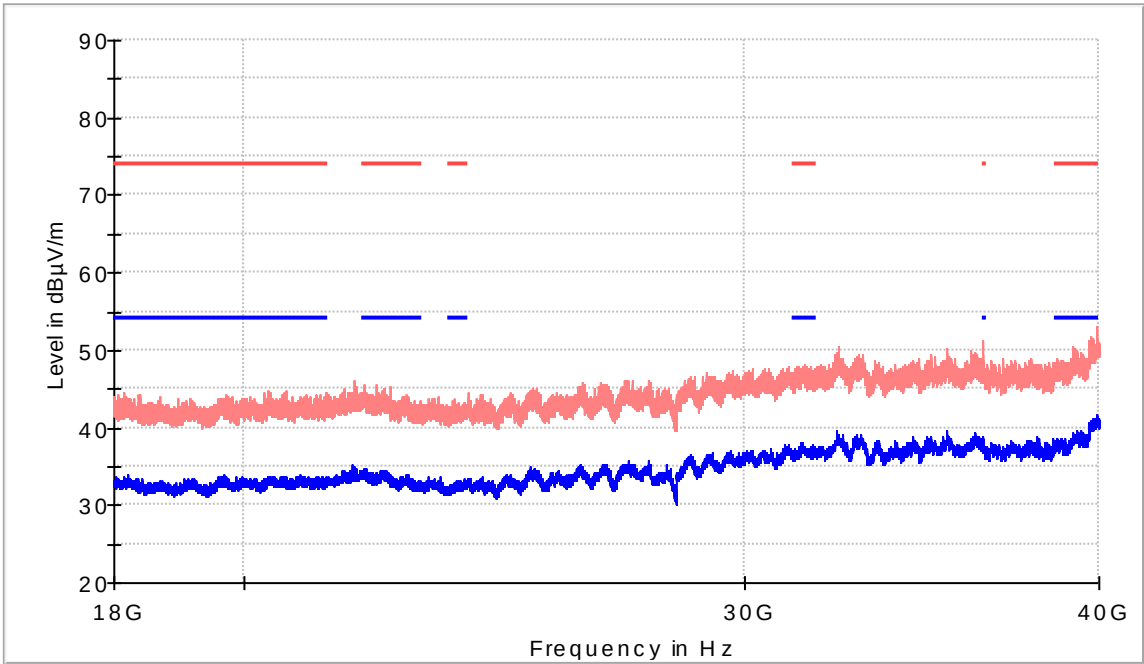
Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39848.062500	50.8	41.7	V	12.3	54.0

Frequency range 18 - 40 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5240.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



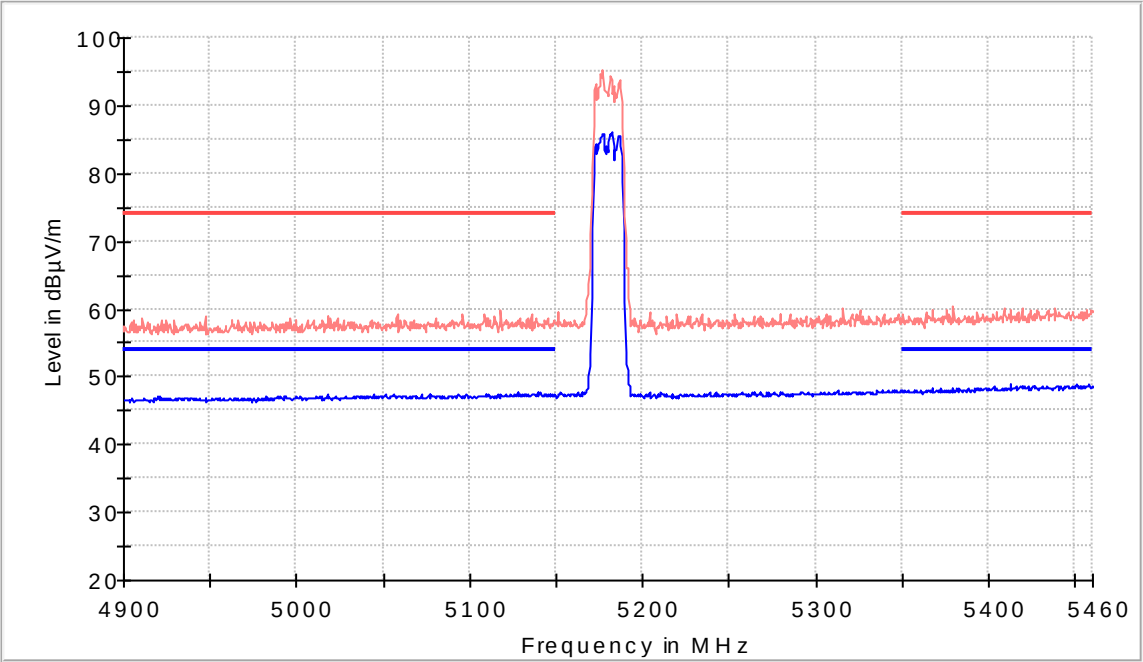
- AVG_MAXH
- PK+ MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Lim

Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39934.000000	49.7	41.6	H	12.4	54.0

Restricted Bands (4.9 GHz - 5.46 GHz)

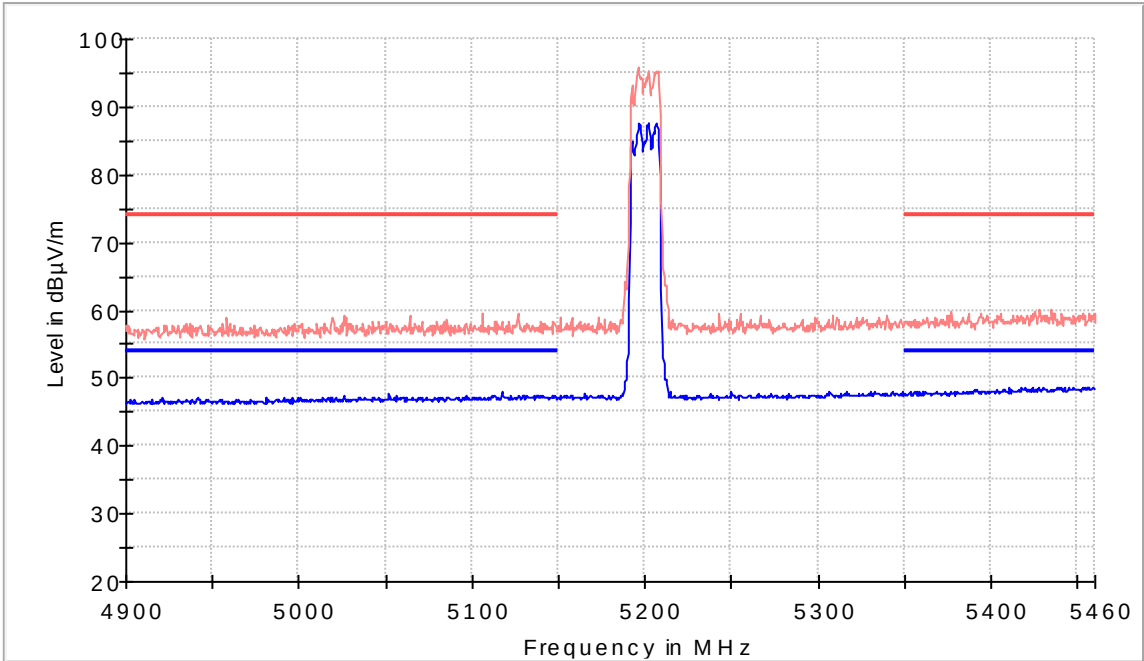
Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5180.00000, Modulation = 802.11a
(OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3



- 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 Lim

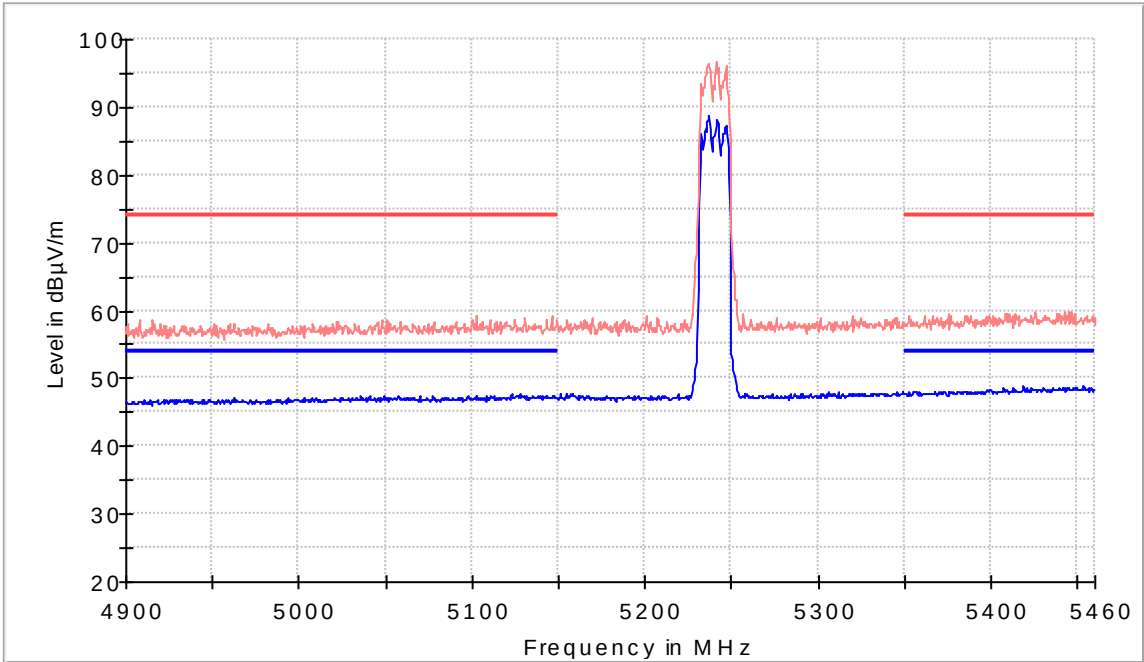
Middle Channel
Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5200.00000, Modulation = 802.11a
(OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3



- 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 Lim

Highest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5240.00000, Modulation = 802.11a
(OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3



- 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 Lim

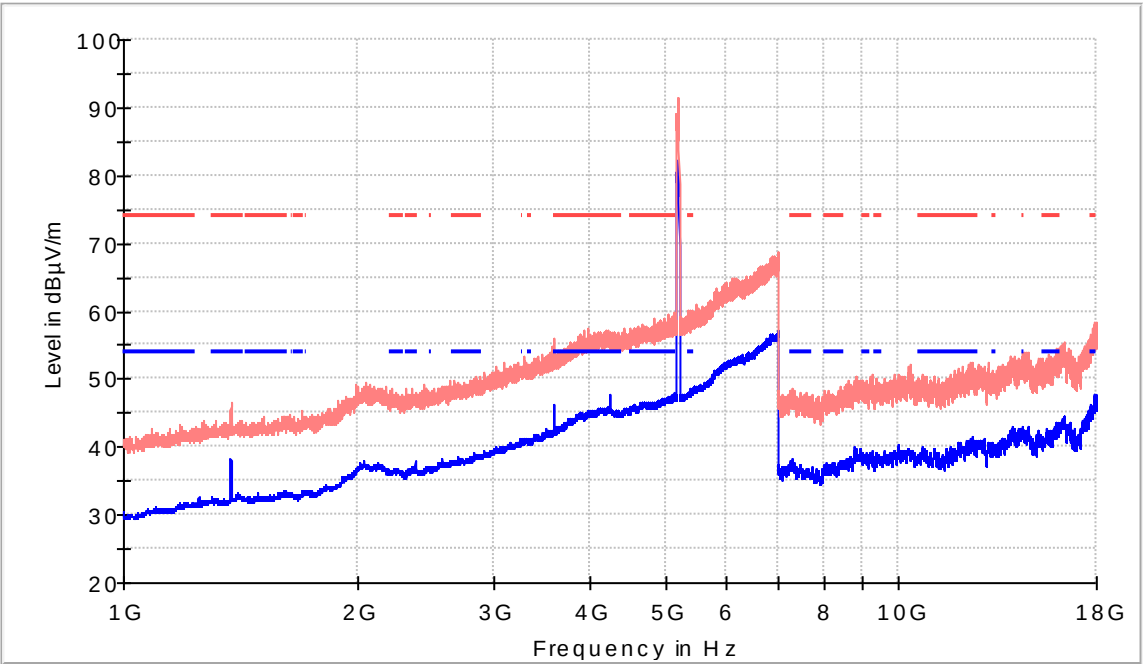
Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Frequency range 1 - 18 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

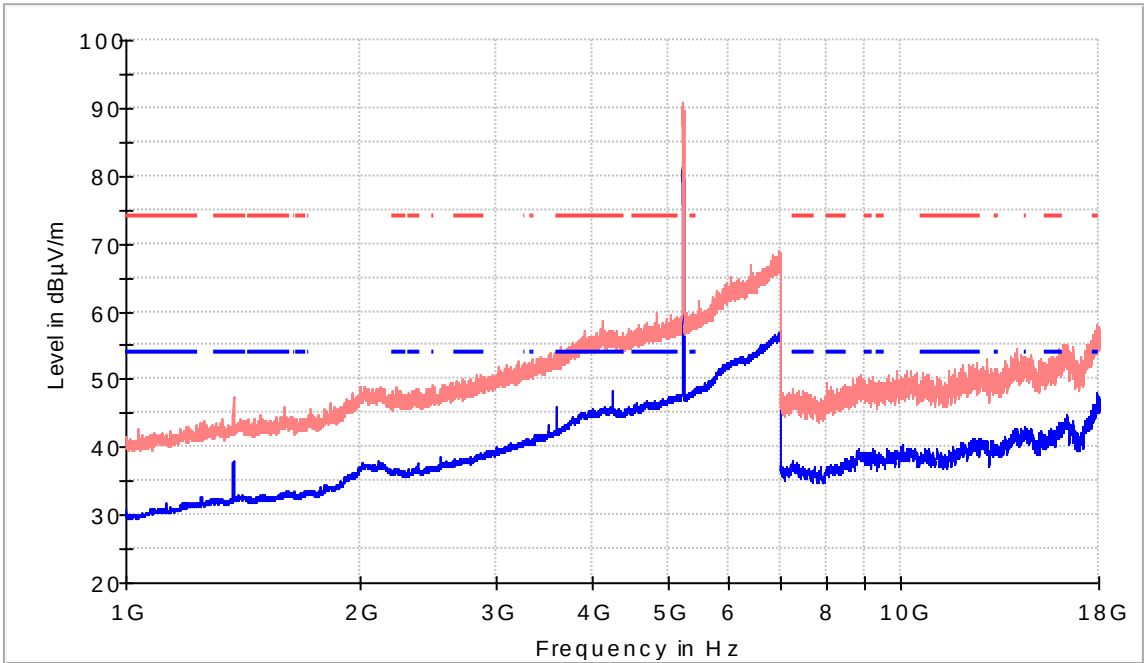
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4233.000000	56.1	47.7	V	6.3	54.0	
5184.500000	91.5	80.8	H	---	---	Fundamental
17979.000000	58.2	45.9	H	8.1	54.0	

Frequency range 1 - 18 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5230.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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

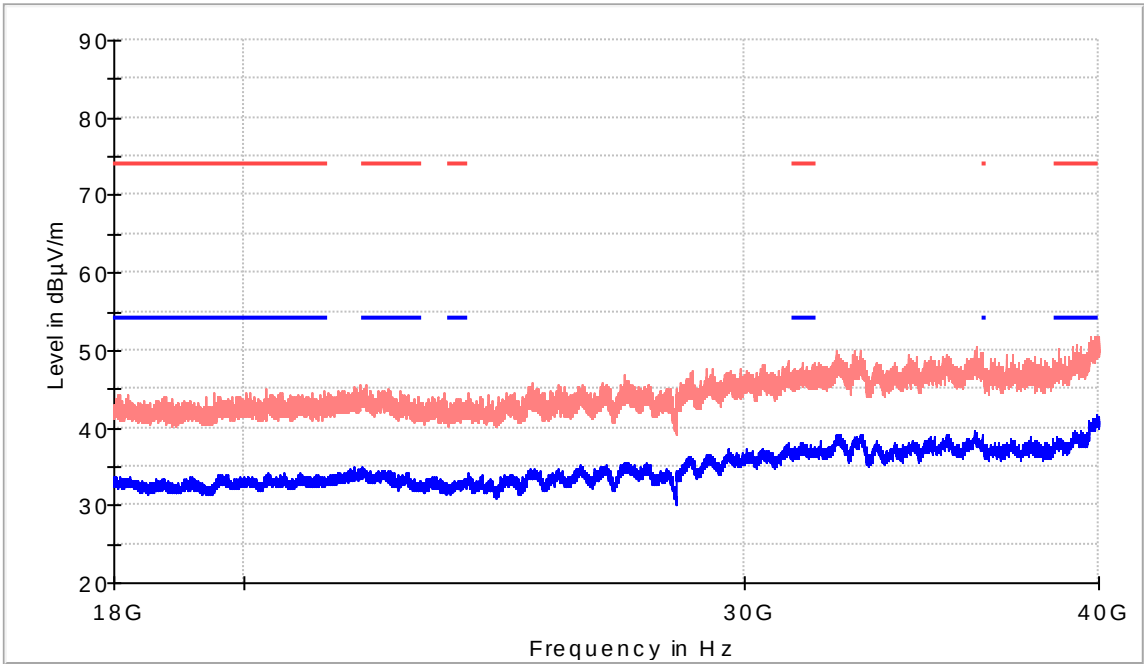
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
1375.000000	47.4	38.1	V	15.9	54.0	
5233.000000	90.9	81.3	H	---	---	Fundamental
17985.500000	57.9	45.6	H	8.4	54.0	

Frequency range 18 - 40 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5190.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

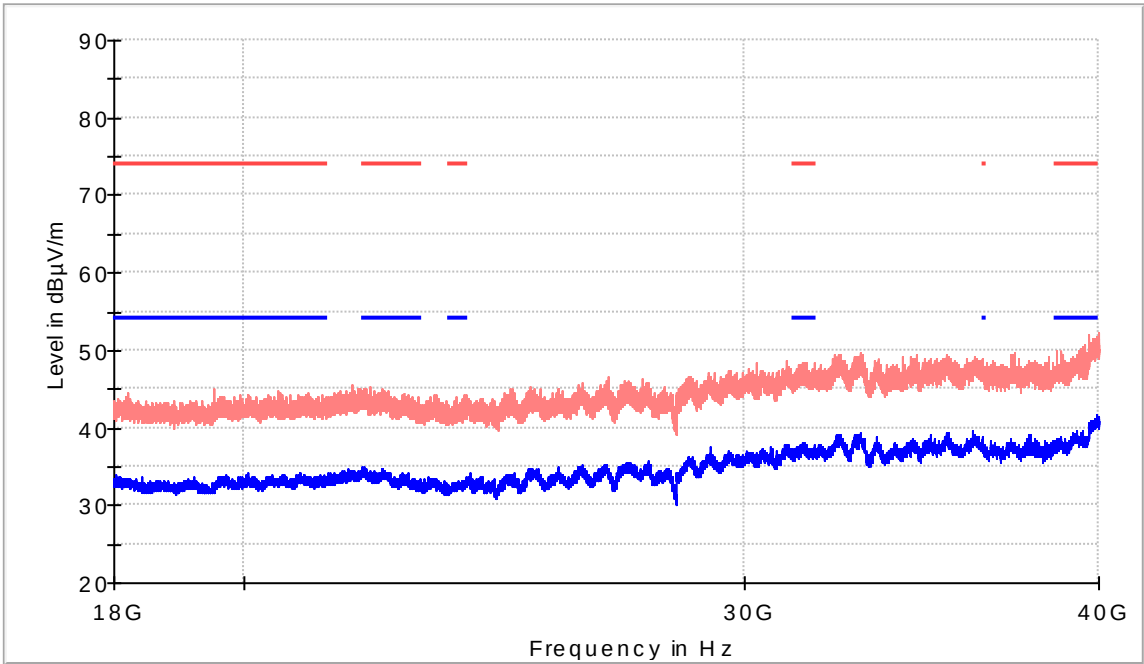
Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39939.500000	50.4	41.7	H	12.3	54.0

Frequency range 18 - 40 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5230.00000, Modulation = 802.11ac
VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



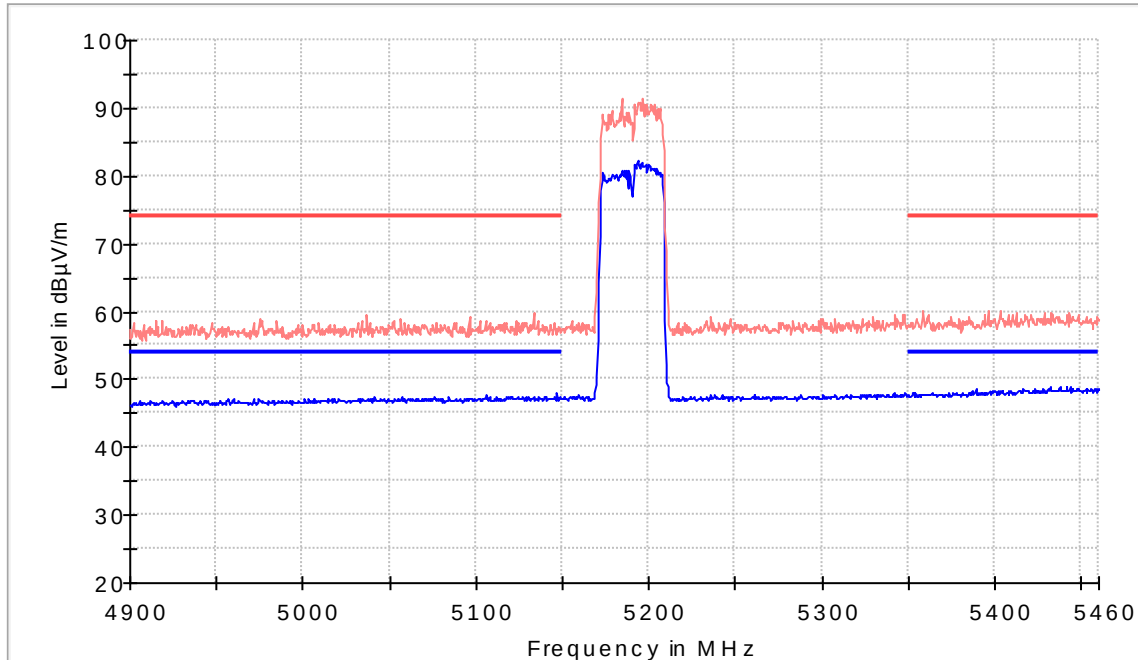
- AVG_MAXH
- PK+ MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Lim

Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39949.125000	51.2	41.7	H	12.3	54.0

Restricted Bands (4.9 GHz - 5.46 GHz)

Lowest Channel

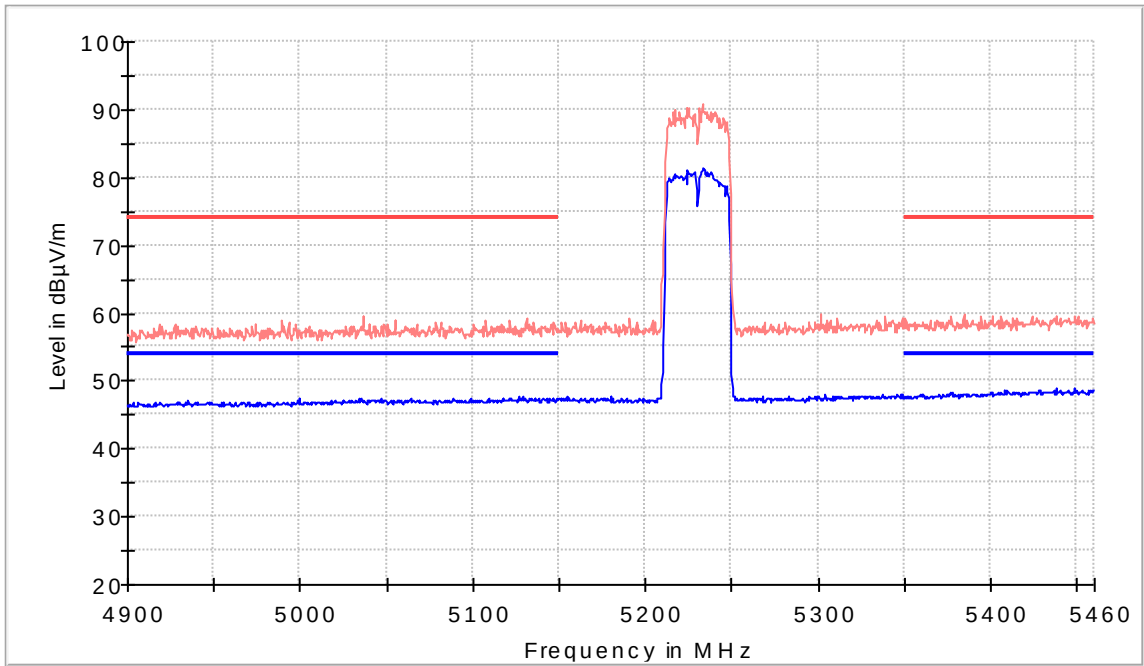
Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5190.00000, Modulation = 802.11ac
VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3



- 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 Lim

Highest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5230.00000, Modulation = 802.11ac
VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3



- 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

Modulation: 802.11ac VHT80 (OFDM MCS0x1)

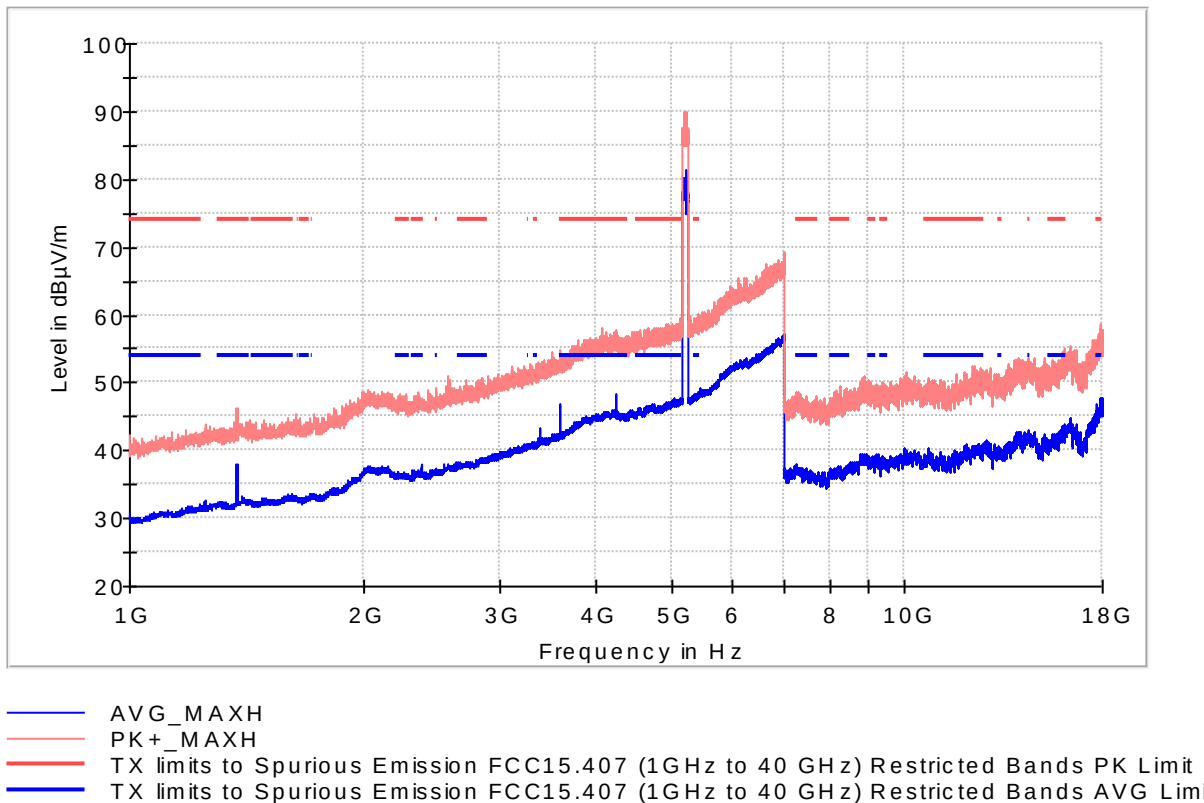
Results

Frequency range 1 - 18 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 (OFDM MCS0x1), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



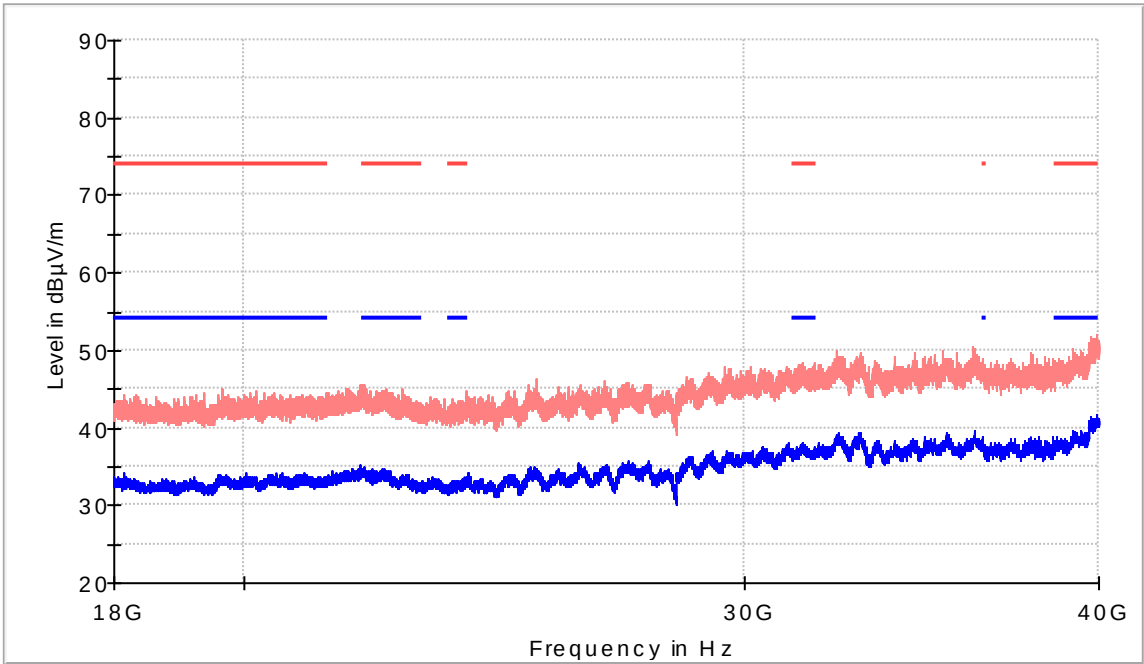
Frequency (MHz)	PK+_MAXH (dBμV/m)	AVG_MAXH (dBμV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBμV/m)	Comment
4081.000000	58.0	45.0	V	9.0	54.0	
5216.500000	90.1	80.1	H	---	---	Fundamental
16124.500000	55.2	43.0	V	11.0	54.0	

Frequency range 18 - 40 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5210.00000, Modulation = 802.11ac VHT80 (OFDM MCS0x1), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



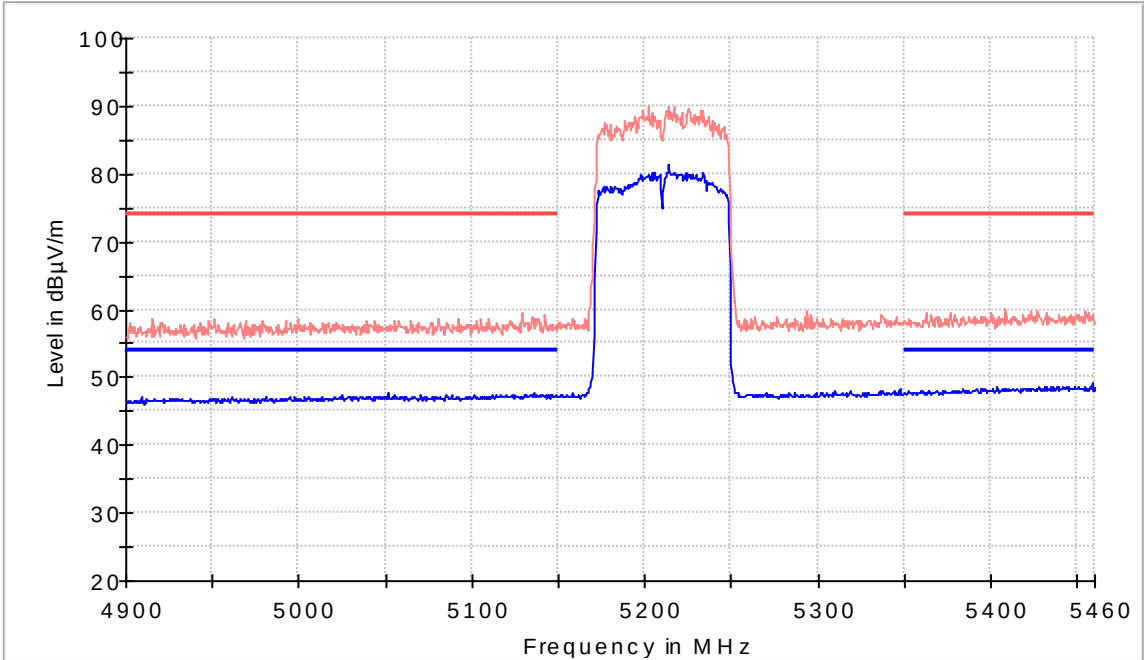
- AVG_MAXH
- PK+ MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Lim

Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39958.750000	49.8	41.6	V	12.4	54.0

Restricted Bands (4.9 GHz - 5.46 GHz)

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5210.00000, Modulation = 802.11ac
VHT80 (OFDM MCS0x1), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3



- 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 Lim

U-NII-3: 5.725 GHz – 5.85GHz Band

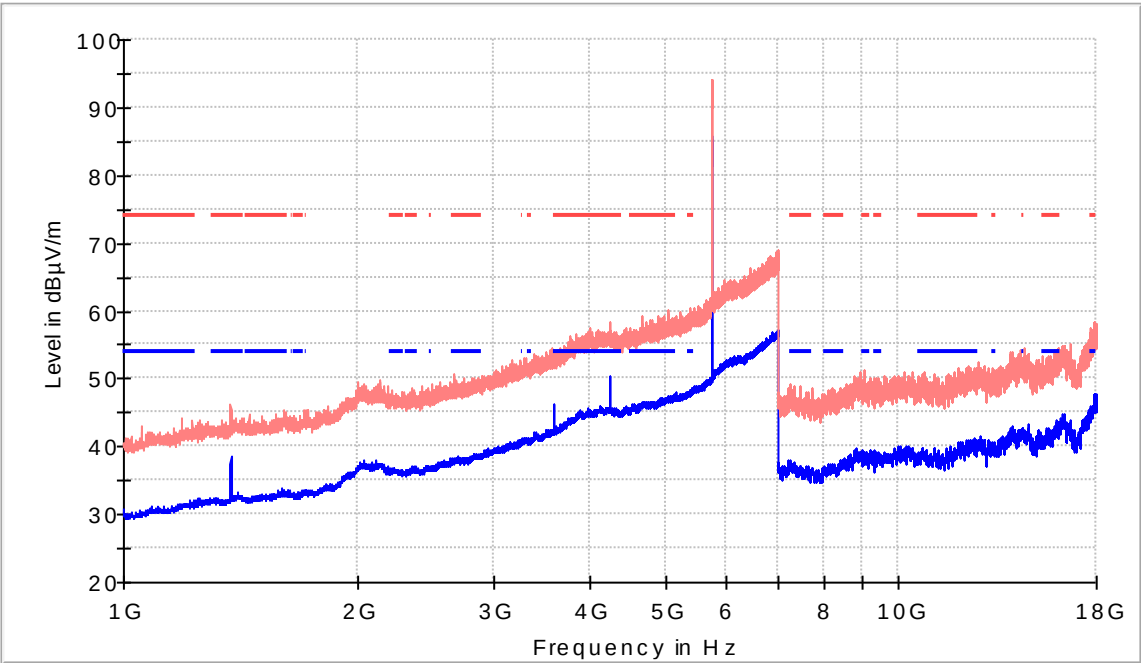
Modulation: 802.11a (DSSS 1 Mbit/s)
Results

Frequency range 1 - 18 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

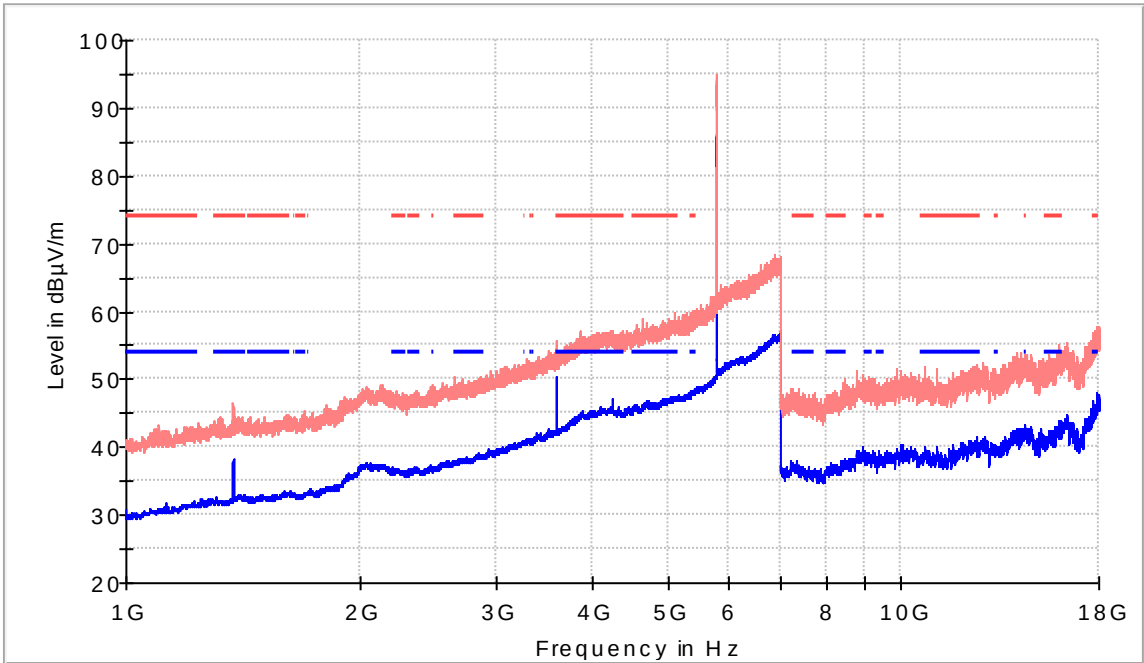
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
1374.500000	46.2	37.5	V	16.5	54.0	
5751.500000	94.1	85.9	H	---	---	Fundamental
17928.000000	58.4	47.1	H	6.9	54.0	

Frequency range 1 - 18 GHz

Middle Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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

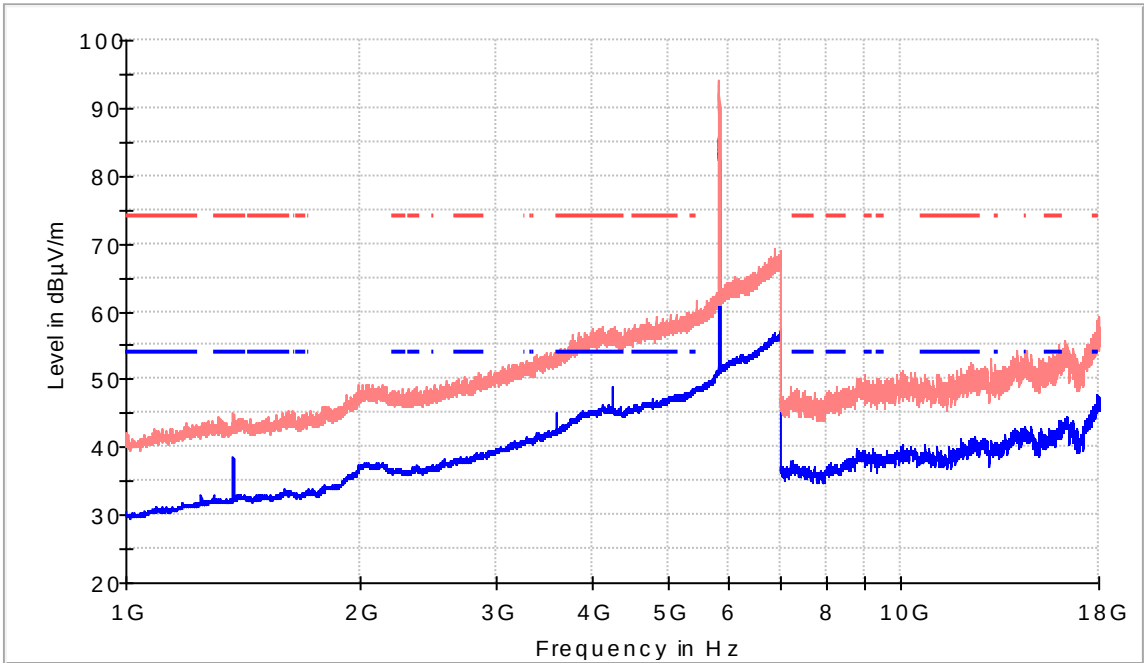
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4649.500000	59.0	46.3	H	7.7	54.0	
5787.000000	94.9	85.2	H	---	---	Fundamental
15997.500000	55.0	42.6	H	11.4	54.0	

Frequency range 1 - 18 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

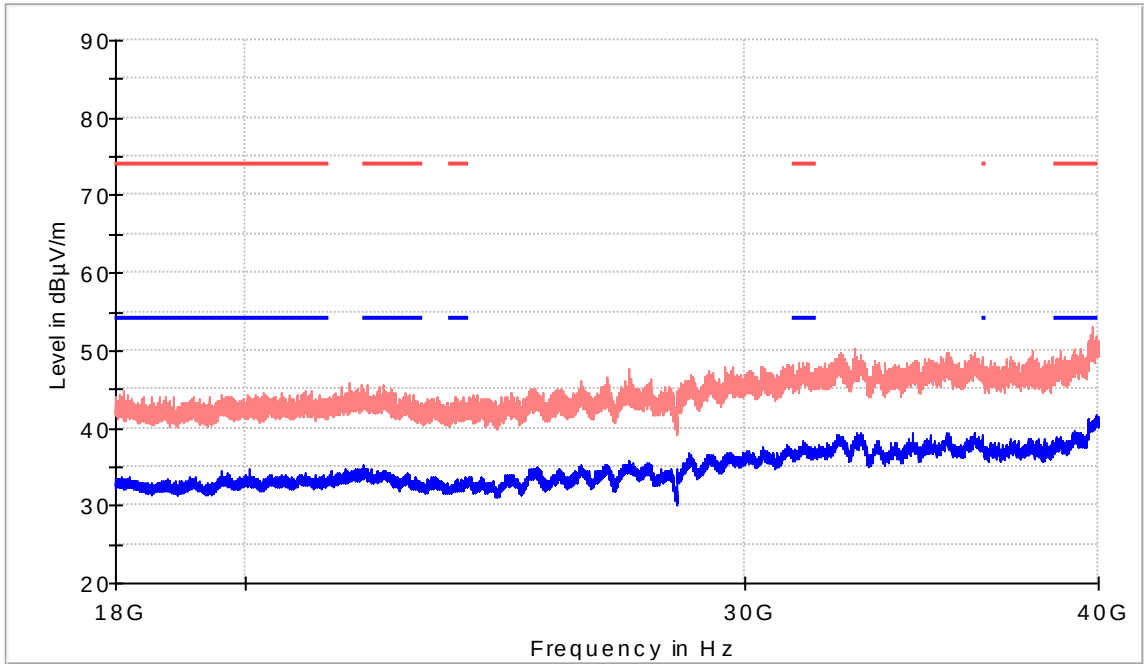
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
5453.500000	61.6	48.4	V	5.6	54.0	
5820.500000	94.1	85.8	H	---	---	Fundamental
15960.500000	55.2	43.2	V	10.8	54.0	

Frequency range 18 - 40 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5745.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

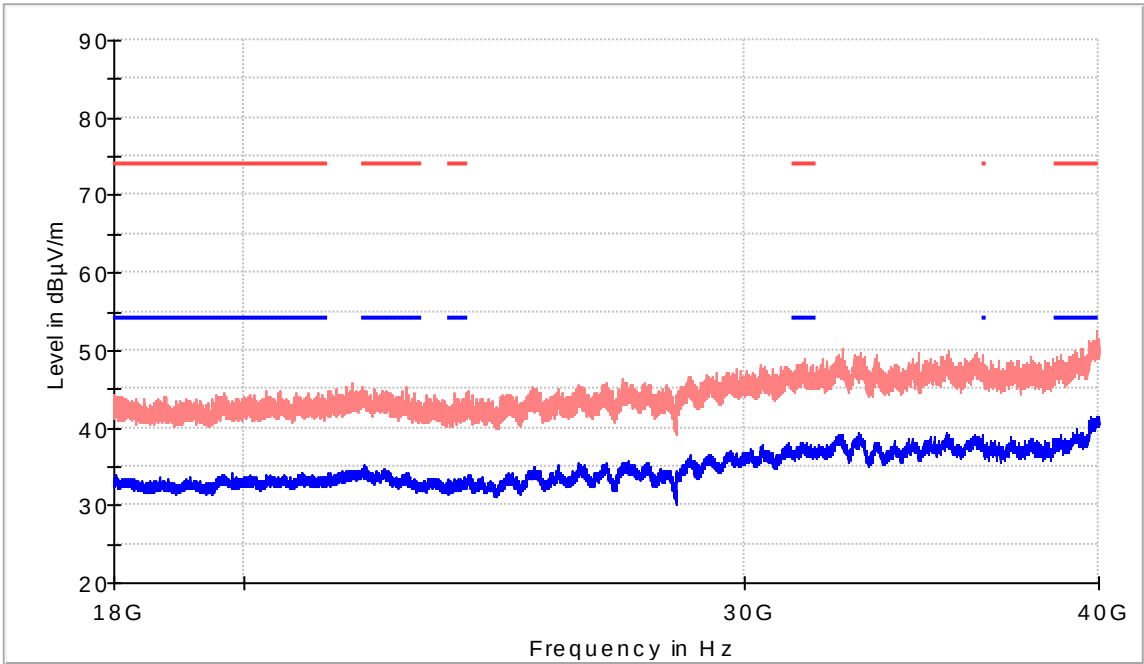
Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39956.000000	50.5	41.6	H	12.4	54.0

Frequency range 18 - 40 GHz

Middle Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5785.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

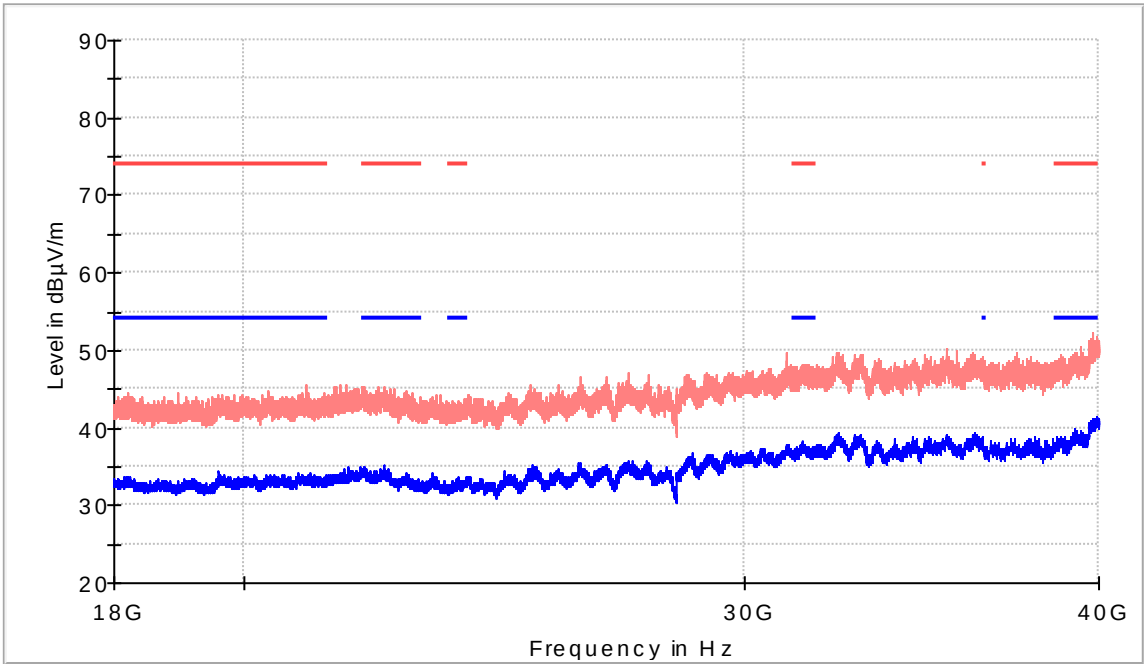
Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39946.375000	50.7	41.5	V	12.5	54.0

Frequency range 18 - 40 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5825.00000, Modulation = 802.11a (OFDM 6 Mbit/s), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39945.000000	50.5	41.5	H	12.5	54.0

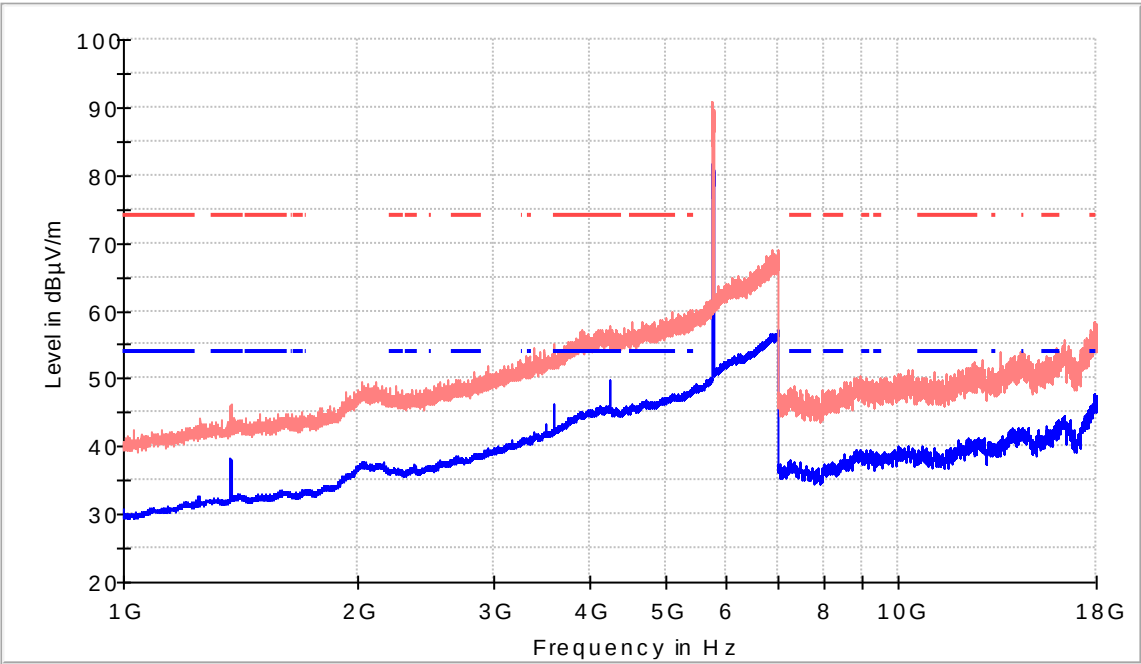
Modulation: 802.11ac VHT40 SS1 (OFDM MCS0)
Results

Frequency range 1 - 18 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

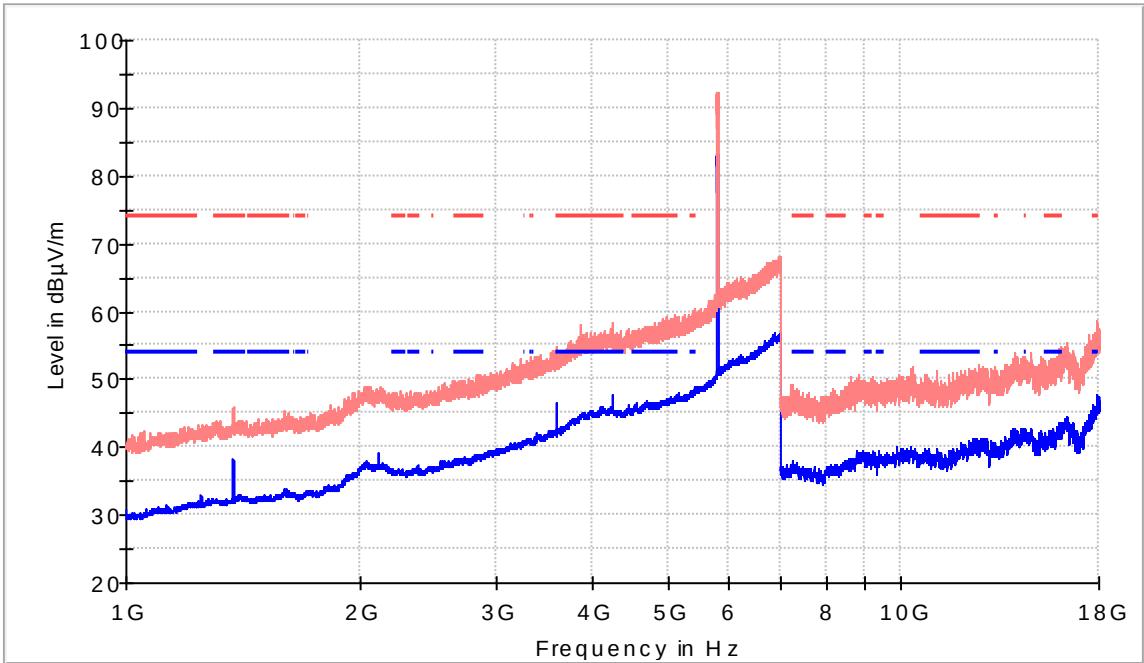
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4233.500000	57.8	49.7	V	4.3	54.0	
5763.000000	91.0	80.9	H	---	---	Fundamental
17913.500000	58.3	47.5	H	6.5	54.0	

Frequency range 1 - 18 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Limi

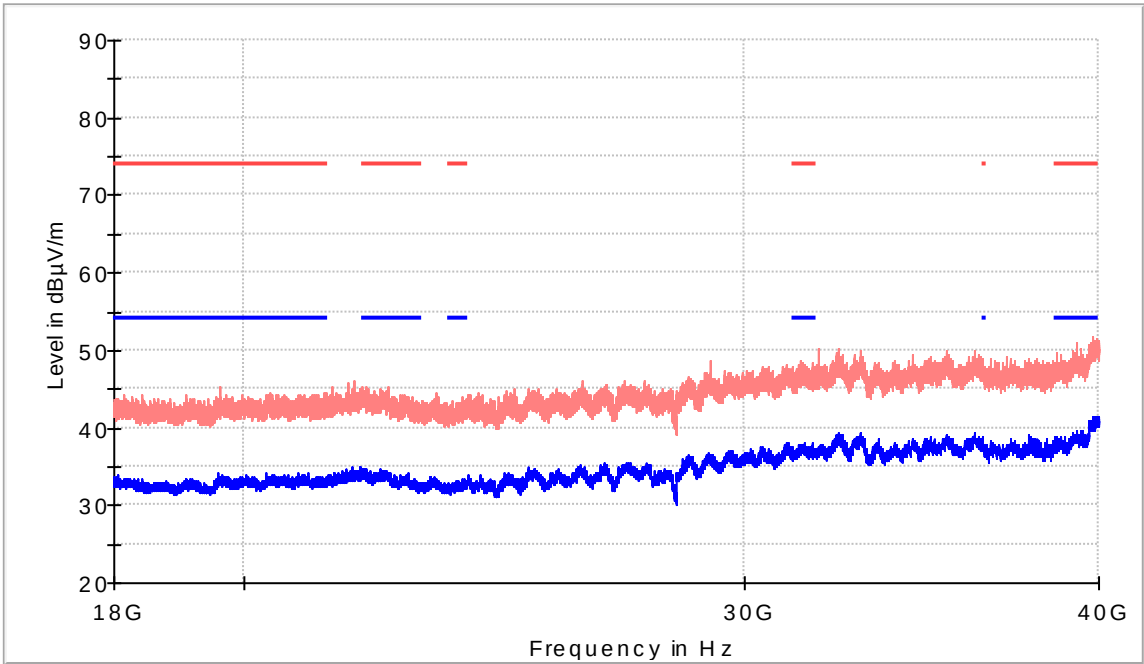
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
4233.000000	57.1	47.7	V	6.3	54.0	
5785.500000	92.4	82.8	H	---	---	Fundamental
17927.000000	58.8	47.4	H	6.6	54.0	

Frequency range 18 - 40 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5755.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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

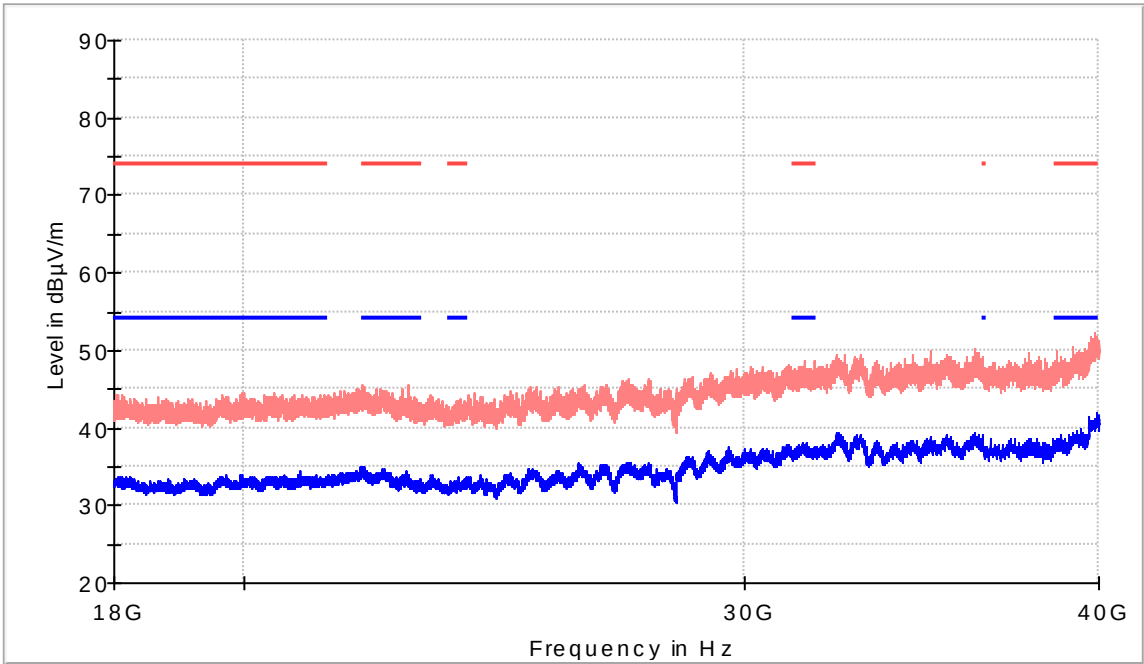
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39986.250000	50.2	41.5	H	12.5	54.0

Frequency range 18 - 40 GHz

Highest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5795.00000, Modulation = 802.11ac VHT40 SS1 (OFDM MCS0), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39960.125000	50.1	41.9	H	12.1	54.0

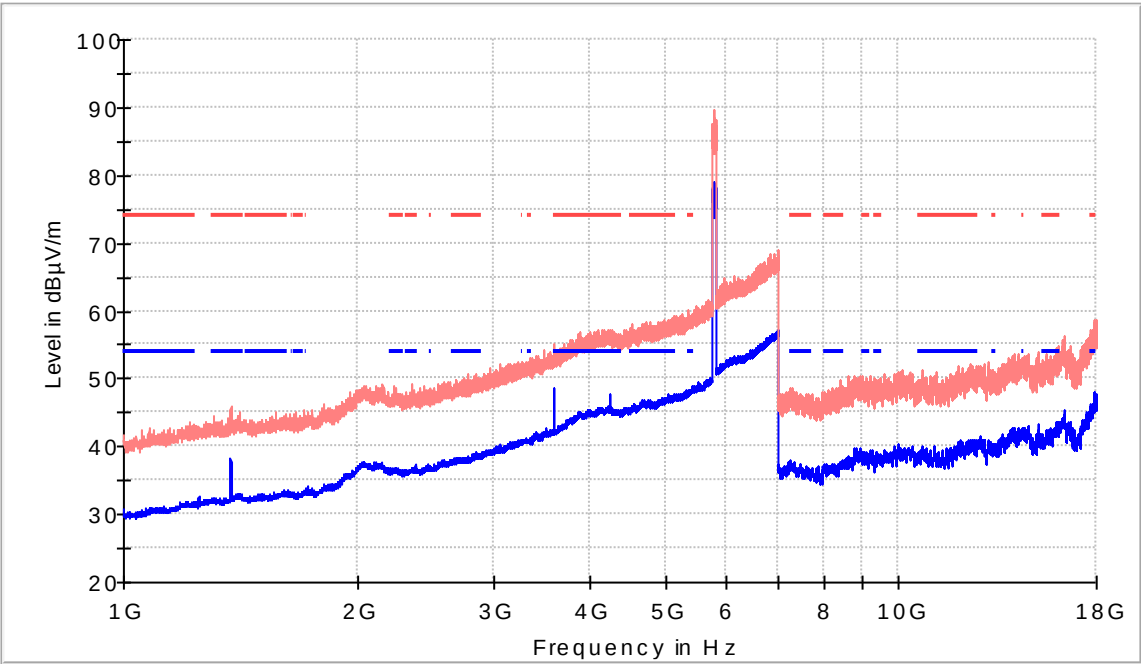
Modulation: 802.11ac VHT80 (OFDM MCS0x1)
Results

Frequency range 1 - 18 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [1, 18], Frequency MHz = 5775.00000, Modulation = 802.11ac VHT80 (OFDM MCS0x1), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

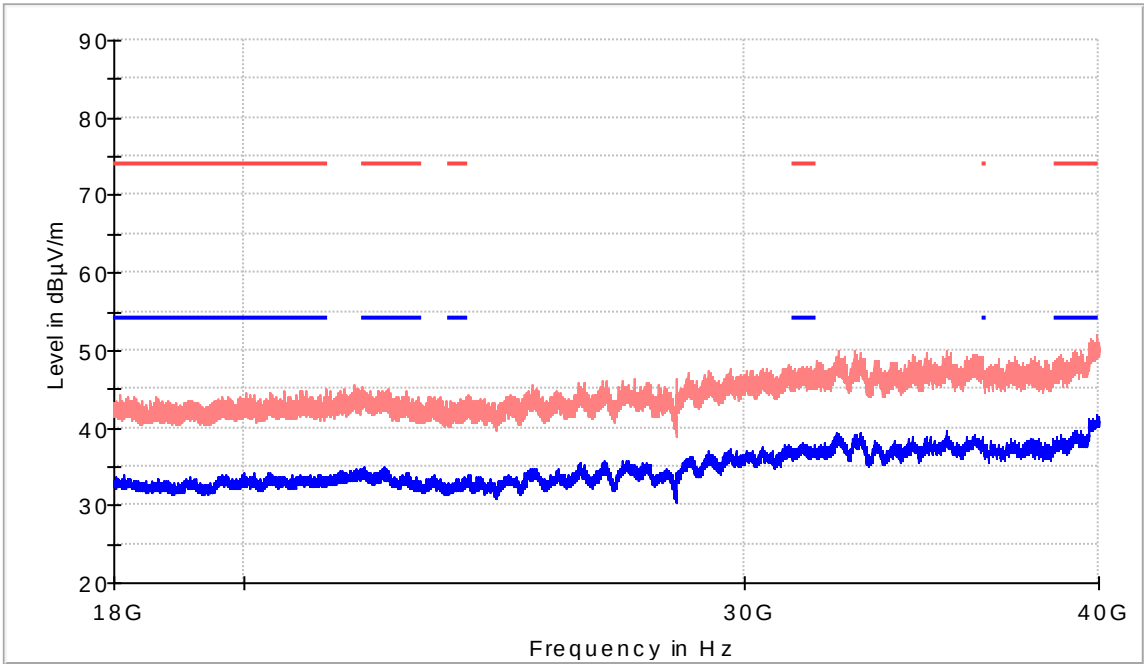
Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)	Comment
1375.000000	45.9	37.8	V	16.2	54.0	
5781.500000	89.7	78.6	H	---	---	Fundamental
17911.500000	58.8	47.2	H	6.8	54.0	

Frequency range 18 - 40 GHz

Lowest Channel

Active Port = 1+2, Frequency Range GHz = [18, 40], Frequency MHz = 5775.00000, Modulation = 802.11ac
VHT80 (OFDM MCS0x1), MIMO Mode = MIMO CCD Mode 2x2, Measurement Point = 3

Images:



- 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 Lim

Frequency (MHz)	PK+ MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Margin - AVG (dB)	Limit - AVG (dBµV/m)
39964.937500	51.5	41.7	H	12.3	54.0