



Regulatory Test Report

Prepared for Continental Automotive GmbH

This report presents detailed information on

Telematic Unit

HERMES 3.0 LFT2

Prepared by

Aravind Buddana

Engineer II

Approved by

Jason Kanakry

General Manager

Issue date: 10/11/2021

Report No: AH21051701-CON-126-TR1 v1.1

This test result relates only to the described test object.

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The test is traceable to national standard or related international standard

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• Test Request Information

Test Request #:	OUS2150001
Test Requested By:	Imad Hjije 7layers GmbH Borsigstrasse 11, 40880 Ratingen, Germany
Test item Description:	HERMES 3.0 LFT2
Part Number:	M598
DUT Sample Number:	AH21051701-CON-126 #002, AH21051701-CON-017#001
Hardware Version of DUT:	NAFTA LTE
Software Version of DUT:	FW1.7
Component Category of DUT:	N/A
FCC ID:	KR5HERMES3
IC:	7812D-HERMES3
Type of Test:	FCC/ISED Certification
Test Method:	CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05 and ANSI C63.10-2013
Deviations from standard:	None
Approved Test Plan Number:	N/A
Test Plan Revision:	N/A
Date test sample received:	04-19-2021
Date test started:	05-20-2021
Date test finished:	09-02-2021

• Test Laboratory Information

Location of Test Lab:	The radiated and conducted emissions test sites are located at Bureau Veritas 815 N. Opdyke Rd #100, Auburn Hills, MI 48326, Phone: +1-248-836-4700
Key Contact:	Jason Kanakry (General Manager) Jason.Kanakry@BureauVeritas.com Phone: +1-248-836-4747
Laboratory Accreditations:	BUREAU VERITAS CONSUMER PRODUCTS SERVICES, INC is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.
ISO/IEC 17025:2017:	5678.01
FCC Test Site Number:	US1278 (242530)
IC Test Site Number:	US0229 (26240)

• Statement of Conformity

RSS-GEN	RSS 247	Part 15	Comments
6.4		15.15(b)	There are no controls accessible to the user that varies the output power to operate in violation of the regulatory requirements.
		15.19	The label is shown in the label exhibit.
		15.21	Information to the user is shown in the instruction manual exhibit.
		15.27	No special accessories are required for compliance.
3.2		15.31	The EUT was tested in accordance with the measurement standards in this section.
6.13.2		15.33	Frequency range was investigated according to this section, unless noted in specific rule section under which the equipment operates.
6.13.1		15.35	The EUT emissions were measured using the measurement detector and bandwidth specified in this section, unless noted in specific rule section under which the equipment operates.
6.8		15.203	EUT employs detachable external antenna with 5.63dBi gain.
8.10		15.205 15.209	The fundamental is not in a Restricted band and the spurious and harmonic emissions in the Restricted bands comply with the general emission limits of 15.209 or RSS-Gen as applicable
8.8		15.207	N/A. EUT is vehicle battery powered only.

CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2

- **Conducted Testing**

Test Summary

This test report supports an application for certification of a transmitter operating pursuant to:

CFR Title 47 FCC Part 15.247, ISED Canada RSS-247 Issue 2, ISED Canada RSS-Gen Issue 5, FCC KDB 558074 D01 15.247 Measurement Guidance v05 and ANSI C63.10-2013

The product is the **HERMES 3.0 LFT2** and it is a direct sequence spread spectrum transmitter that operates in the 2412-2462MHz frequency range.

Details	Description
Frequency Range (MHz)	2412 – 2462
Tested Modes	802.11b 802.11g 802.11n (HT20).
Number of Channels	11
Tested Channels	1, 6 ,11
DUT Antenna Type	External detachable
DUT Antenna Gain	5.63dBi

We found that the product met the requirements.

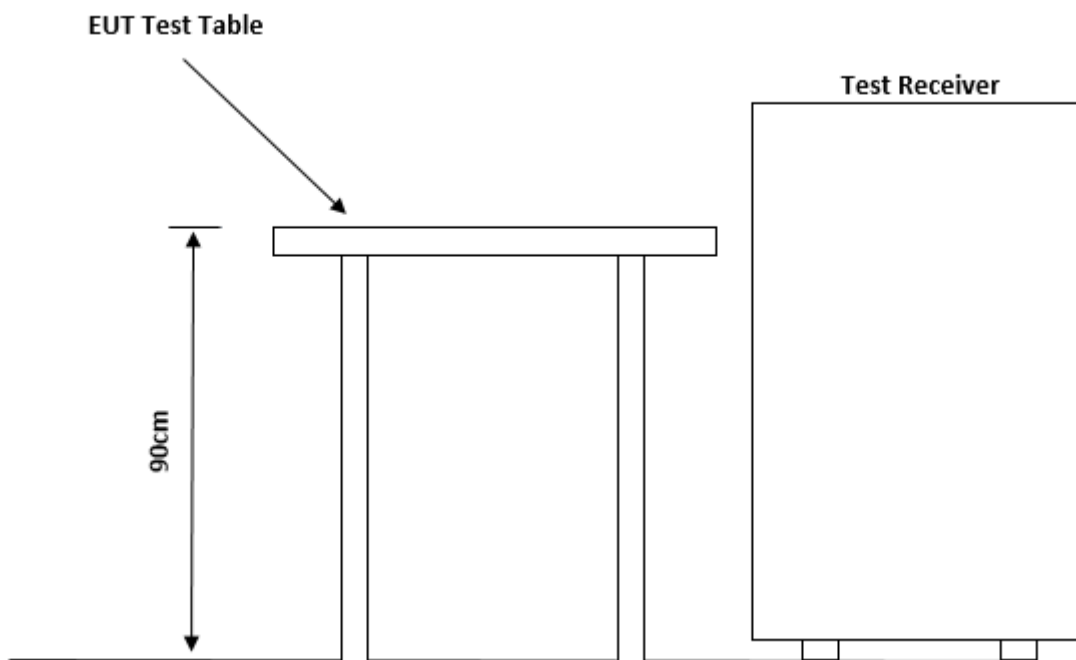
Test samples were received in good condition and remains good and functional post testing.

Test Item	Sample #	Result	Tested By
FCC 15.247 2.4G WLAN	AH21051701-CON-126 #002	Meets Requirements	Aravind Buddana

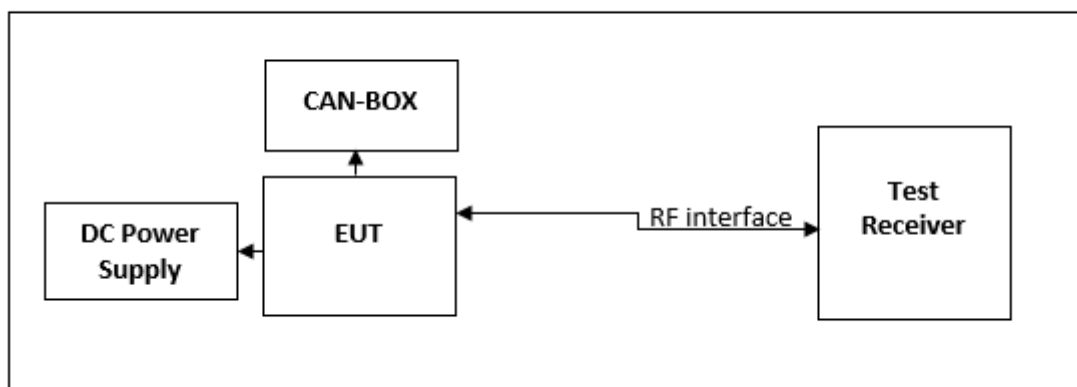
Test Setup

Conducted Test Site Description

The site is accommodated to test tabletop and floor standing test equipment.



TEST SETUP DIAGRAM



Test Equipment Used

ID #	Equipment	Manufacturer	Model #	Serial #	Cal Due
BVD0226	Spectrum Analyzer 10Hz-44GHz	Rohde & Schwarz	FSV3044	101018	1/14/2022
BVD0227	8 port switch unit for Wireless Test system	Rohde & Schwarz	OSP150	101100	N/A
BVD0228	8 port switch unit for Wireless Test system	Rohde & Schwarz	OSP220	101632	N/A
BVD0224	Signal Generator 100kHz-40GHz	Rohde & Schwarz	SMB100A	181741	11/19/2021
BVD0225	Signal Generator 100k-6GHz with GPS simulator	Rohde & Schwarz	SMW200A	107664	11/18/2021
BVD0250	Wireless Connectivity Tester 70M-6GHz	Rohde & Schwarz	CMW270	102113	11/18/2021
BVD0343	DC Regulated Power Supply	Circuit Specialists, INC	CSI3020X	595215	N/A
BVD0321	Fixed Attenuator 2W 20dB - 40GHz	Mini-Circuits	BW-K20-2W44+	2103	N/A
BVD0477	10db Attenuator -18GHz	Mouser	BW-S10W2+	2043	N/A
BVD0229	Temp and Humidity Meter	Fluke	971	12001009	3/26/2022

Customer Supplied Equipment

ID #	Equipment	Manufacturer	Model	Serial #	Version No.
N/A	Cable Harness	Harman	N/A	N/A	N/A
N/A	CAN-BOX	Harman	N/A	J0035176	N/A
N/A	USB to DUT Harness	Harman	N/A	N/As	N/A

Equipment List (Software)

ID #	Equipment	Manufacturer	Model	Version No.	
N/A	EMC Test Software	Rodhe & Schwarz	EMC32	11.20.00	N/A

FCC 15.247 2.4G WLAN

Channels and modes available

802.11b, 802.11g and 802.11n (HT20)

Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

Notes:

- Channels which were marked bold were tested.
- Output power measurements were performed at the lowest and highest data rate of each supported 802.11 mode.

Antenna Gain	5.63dBi
Number of transmit Chains	1
Equipment Type	Equipment with wideband modulation other than frequency hopping

Power Settings

802.11b		802.11g	
Channel	Power Setting	Channel	Power Setting
1	15	1	15
6	15	6	15
11	15	11	15
802.11n (HT20)			
Channel	Power Setting		
1	15		
6	15		
11	15		

Test Results Summary

Test	Frequency (MHz)	802.11b	802.11g	802.11n (HT20)
RF Output Power	2412/2437/2462	PASS	PASS	PASS
Power Spectral Density	2412/2437/2462	PASS	PASS	PASS
DTS Bandwidth (6dB)	2412/2437/2462	PASS	PASS	PASS
Occupied Channel Bandwidth 99%	2412/2437/2462	PASS	PASS	PASS
Band Edges Low	2412	PASS	PASS	PASS
Band Edges High	2462	PASS	PASS	PASS
Conducted Spurious Emissions	2412/2437/2462	PASS	PASS	PASS

RF Output Power

Test according to FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.9.2.3.2

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Combined Uncertainty of absolute Level Measurement (K=2) < 1 dB

802.11b

Data Rate	Gated RMS (dBm) 2412 MHz	Gated RMS (dBm) 2437 MHz	Gated RMS (dBm) 2462 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting
1 Mbps	12.516	12.654	12.679	30.0	99.803	15 €
11 Mbps	12.737	12.759	12.704	30.0	98.067	15 €

802.11g

Data Rate	Gated RMS (dBm) 2412 MHz	Gated RMS (dBm) 2437 MHz	Gated RMS (dBm) 2462 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting
6 Mbps	12.835	12.788	12.669	30.0	98.505	15 €
54 Mbps	13.077	12.988	12.808	30.0	88.939	15 €

802.11n (HT20)

Data Rate	Gated RMS (dBm) 2412 MHz	Gated RMS (dBm) 2437 MHz	Gated RMS (dBm) 2462 MHz	Limit (dBm)	Duty Cycle (%)	Power Setting
MCS0	12.761	12.724	12.475	30.0	98.385	15 €
MCS7	13.201	13.098	12.950	30.0	88.005	15 €

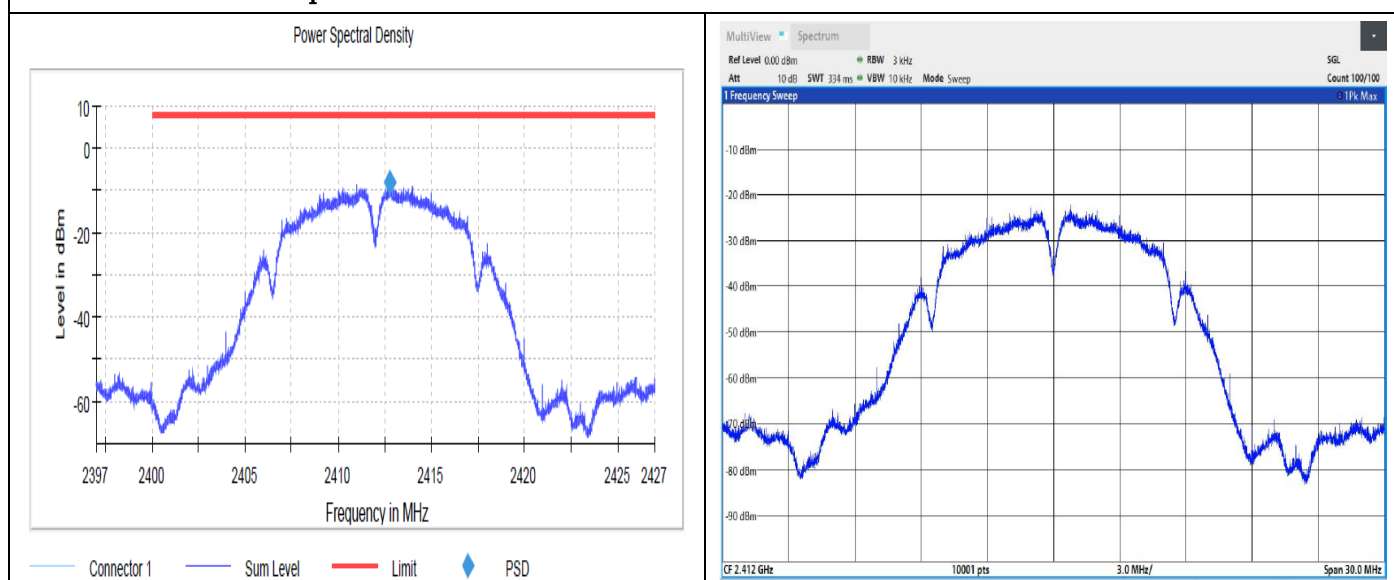
Power Spectral Density

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 F and ANSI C63.10-2013

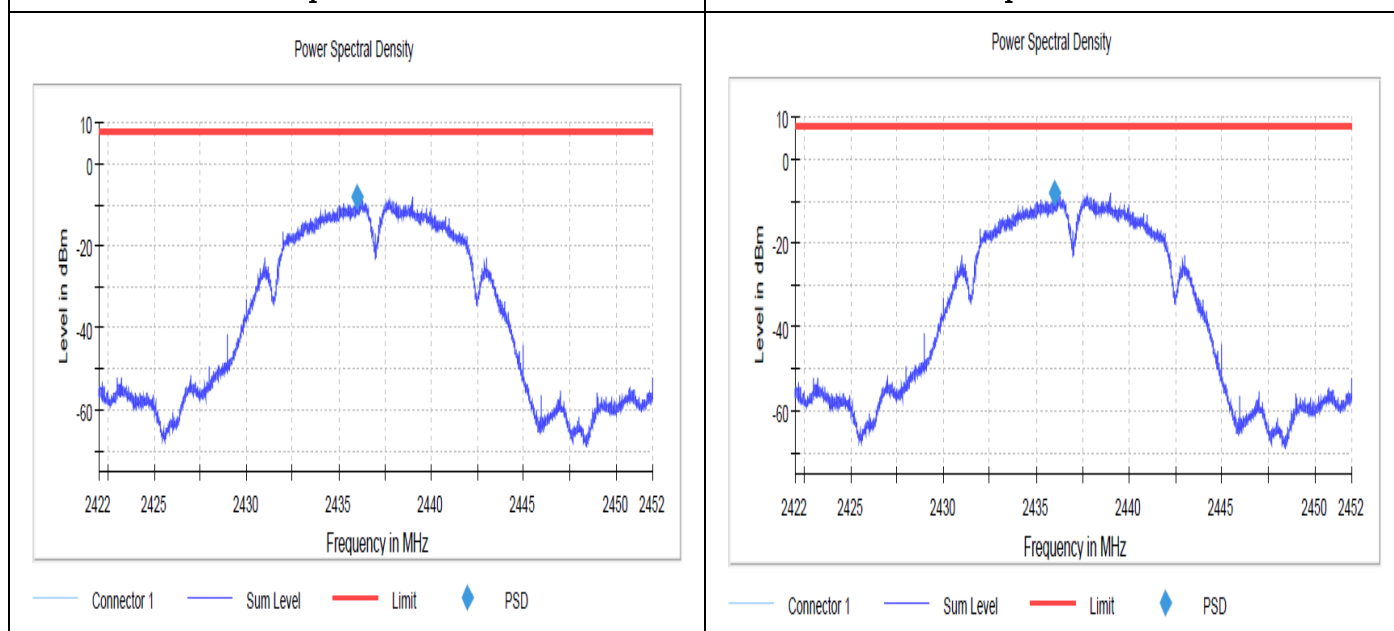
Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 1.3 dB

Mode	Data Rate	PSD (dBm) 2412 MHz	PSD (dBm) 2437 MHz	PSD (dBm) 2462 MHz	Limit (dBm)
802.11b	1Mbps	-7.907	-7.851	-7.496	8.0
	11Mbps	-9.037	-9.008	-8.674	8.0

802.11b 2412MHz 1Mbps

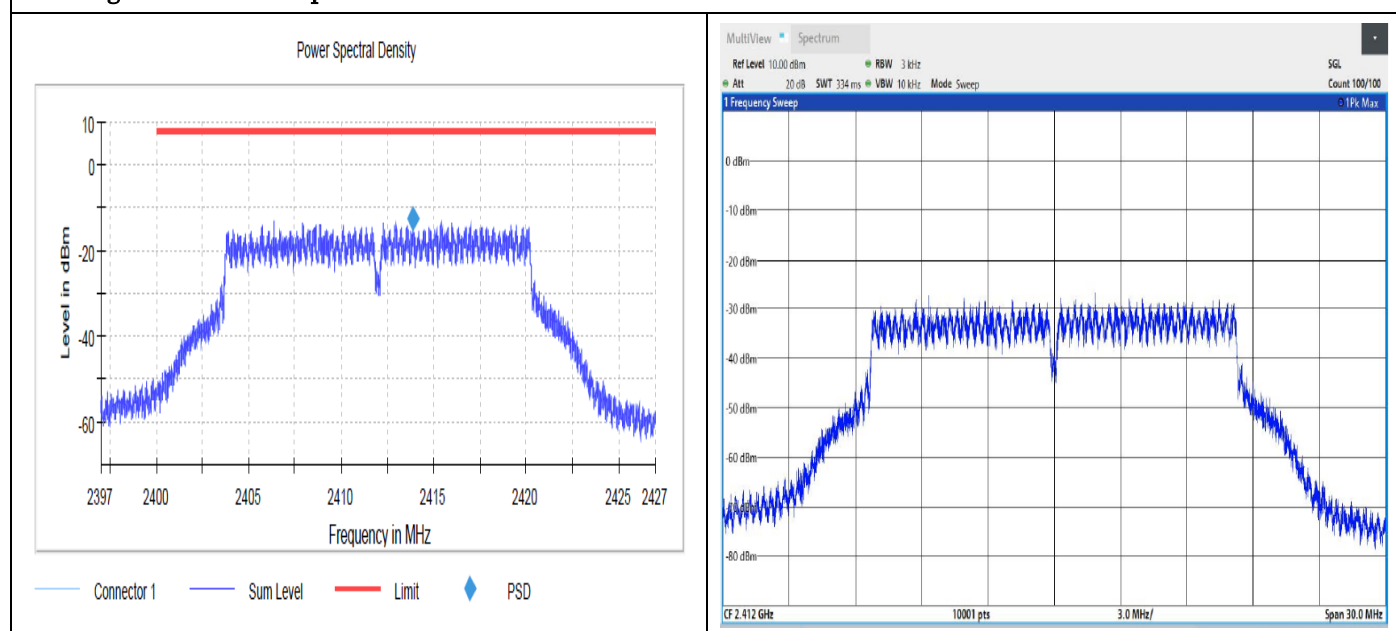


802.11b 2437MHz 1Mbps

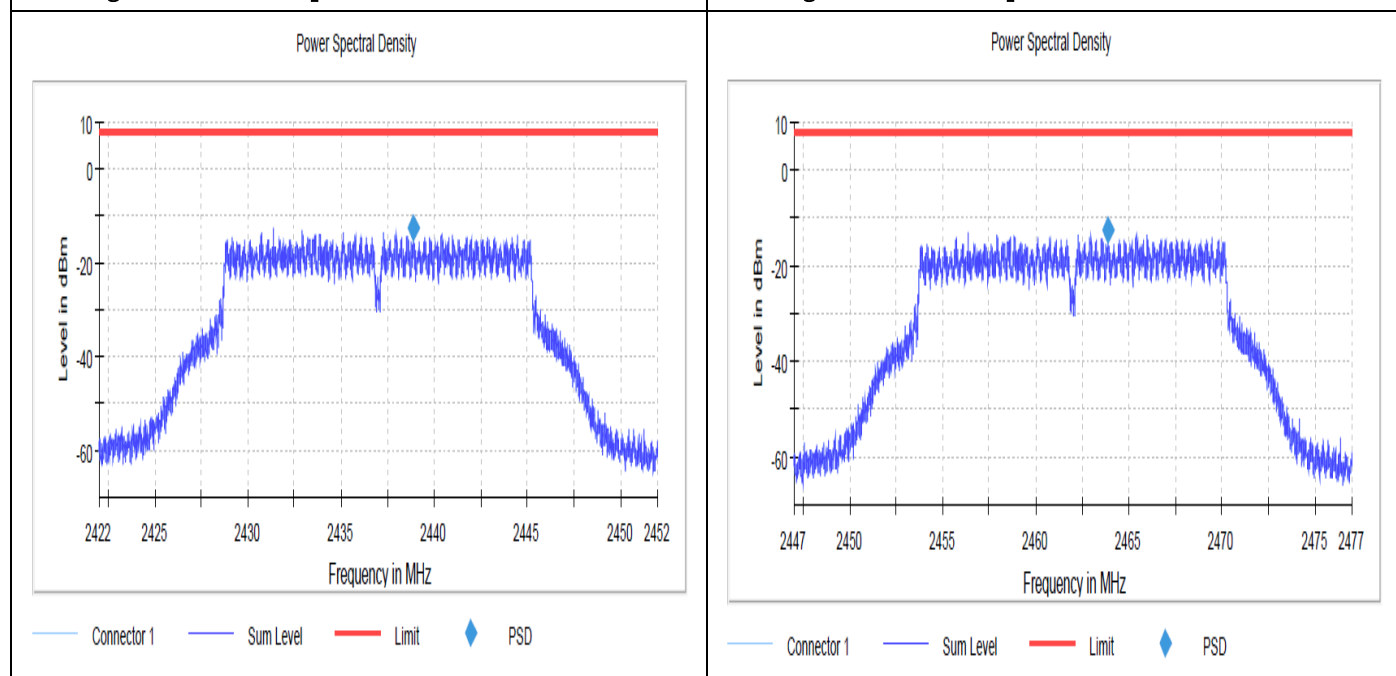


Mode	Data Rate	PSD (dBm) 2412 MHz	PSD (dBm) 2437 MHz	PSD (dBm) 2462 MHz	Limit (dBm)
802.11g	6 Mbps	-12.454	-12.523	-12.424	8.0
	54 Mbps	-13.361	-13.658	-13.544	8.0

802.11g 2412MHz 6Mbps

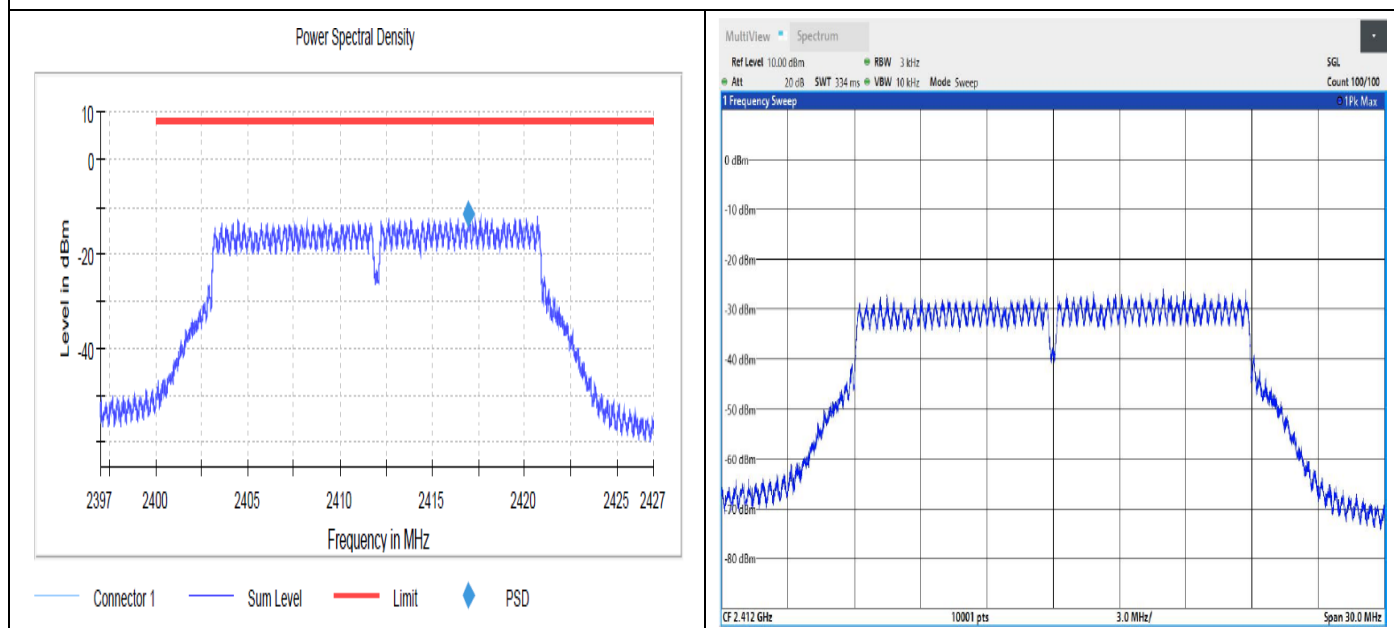


802.11g 2437MHz 6Mbps

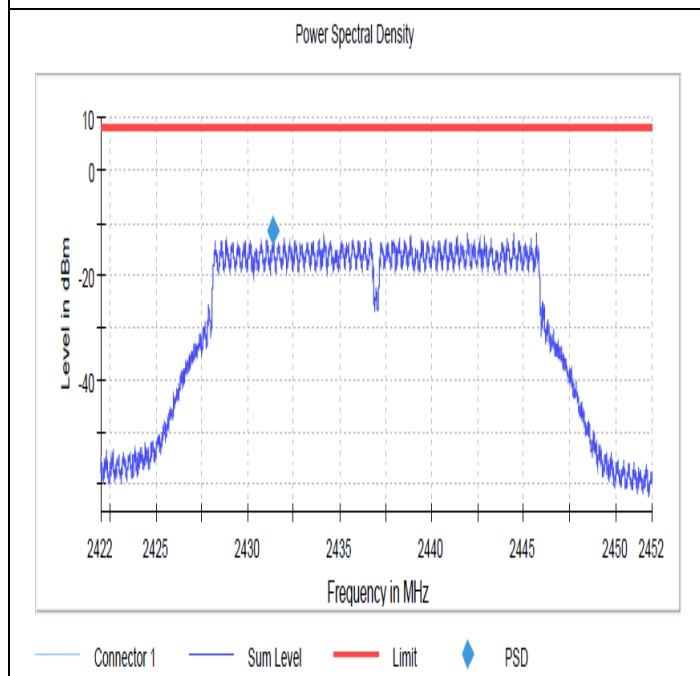


Mode	Data Rate	PSD (dBm) 2412 MHz	PSD (dBm) 2437 MHz	PSD (dBm) 2462 MHz	Limit (dBm)
802.11n (HT20)	MCS0	-11.591	-11.443	-11.315	8.0
	MCS7	-11.242	-10.940	-11.517	8.0

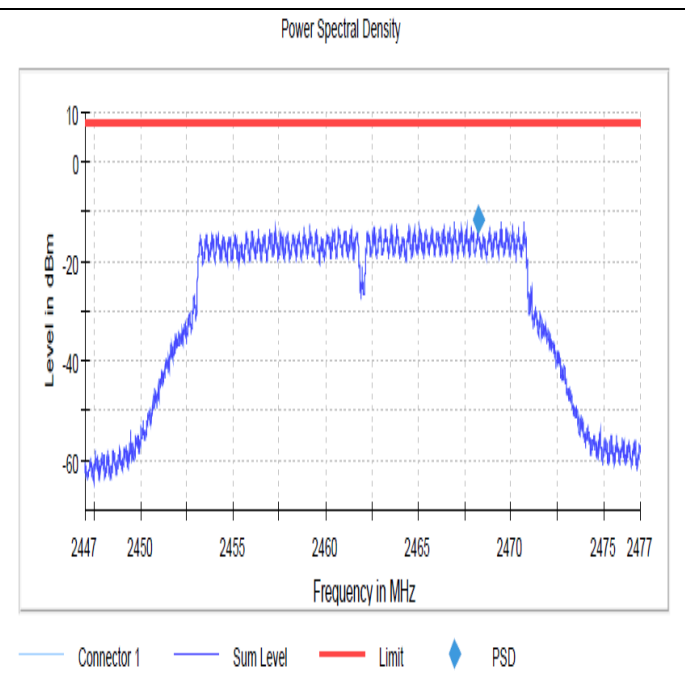
802.11n (HT20) 2412MHz MCS0



802.11n (HT20) 2437MHz MCS0



802.11n (HT20) 2462MHz MCS0



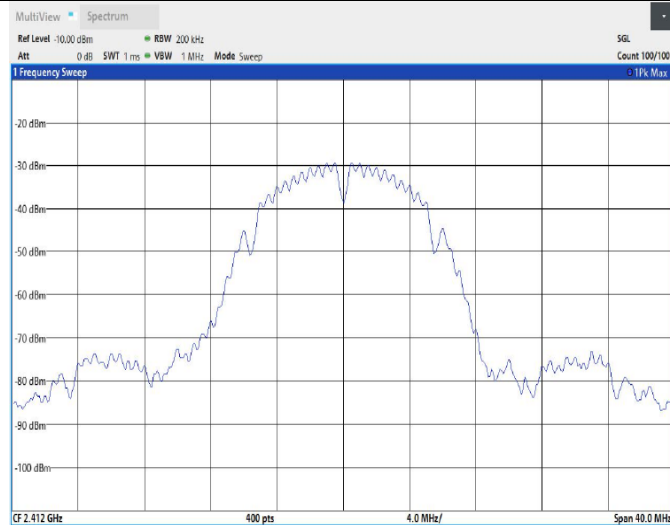
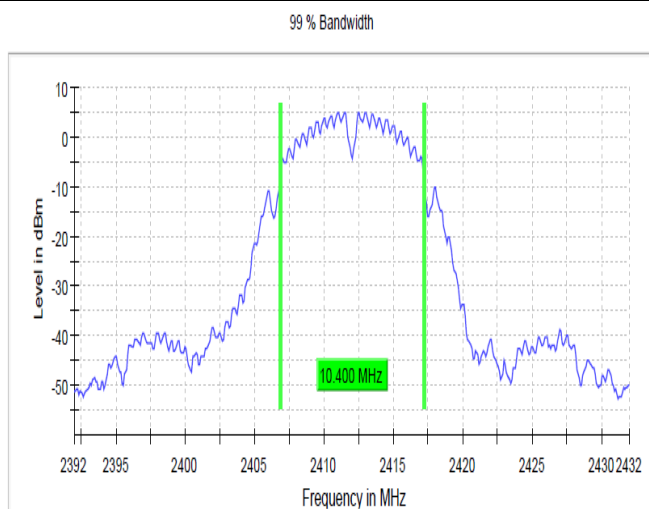
Occupied Channel Bandwidth

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.8.1

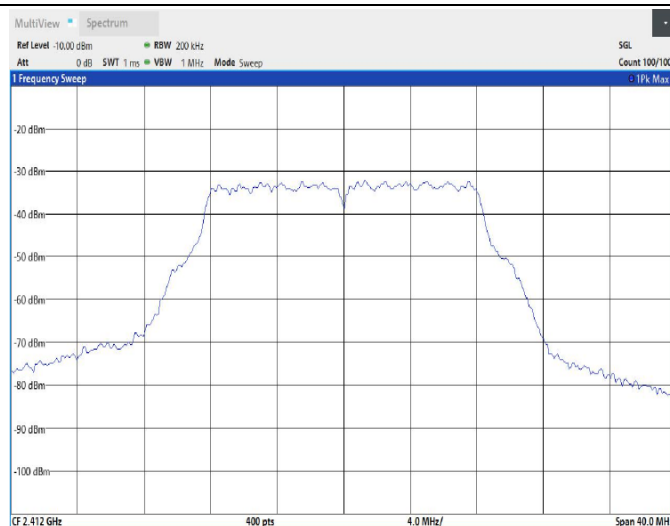
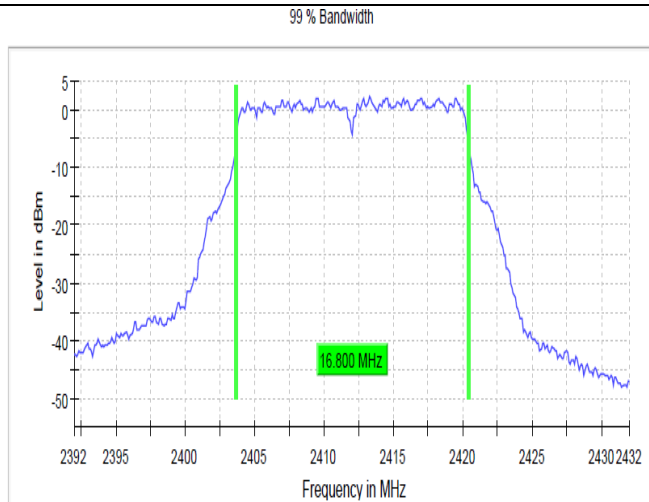
Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
802.11b 1Mbps	2412.000000	10.400000	2406.850000	2417.250000
802.11g 6Mbps	2412.000000	16.800000	2403.650000	2420.450000
802.11n (HT20) MCS0	2412.000000	17.900000	2403.050000	2420.950000
802.11b 1Mbps	2437.000000	10.400000	2431.850000	2442.250000
802.11g 6Mbps	2437.000000	16.800000	2428.650000	2445.450000
802.11n (HT20) MCS0	2437.000000	17.900000	2428.050000	2445.950000
802.11b 1Mbps	2462.000000	10.400000	2456.850000	2467.250000
802.11g 6Mbps	2462.000000	16.800000	2453.650000	2470.450000
802.11n (HT20) MCS0	2462.000000	18.000000	2453.050000	2471.050000

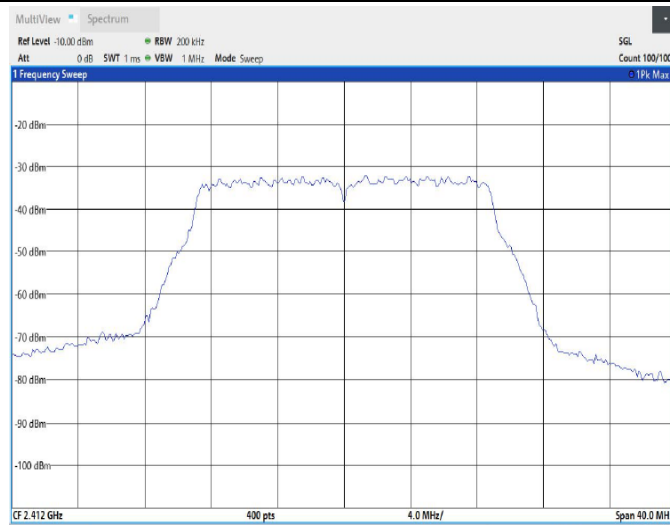
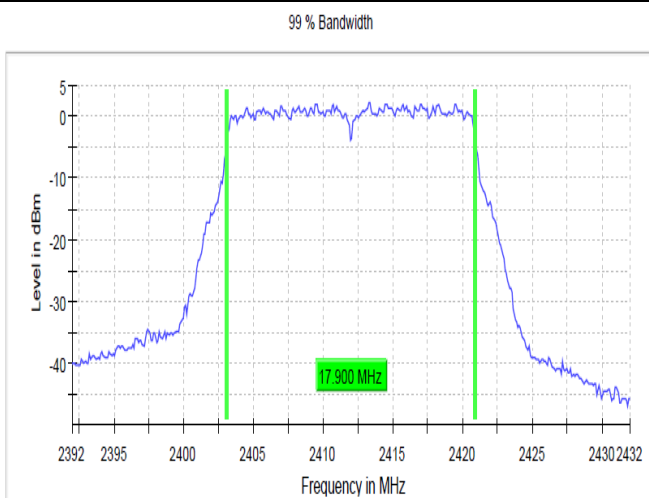
802.11b 2412MHz 1Mbps



802.11g 2412MHz 6Mbps



802.11n (HT20) 2412MHz MCS0



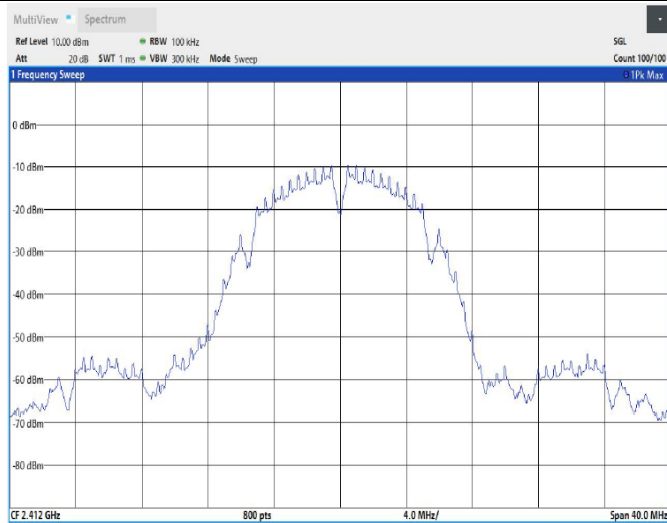
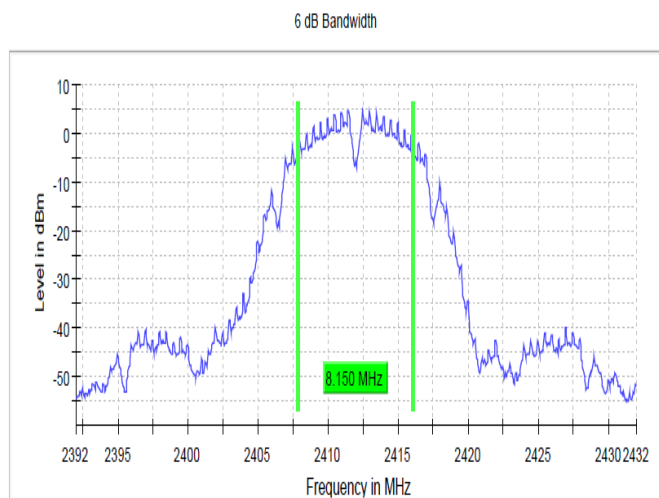
DTS Bandwidth (6dB)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.8.1

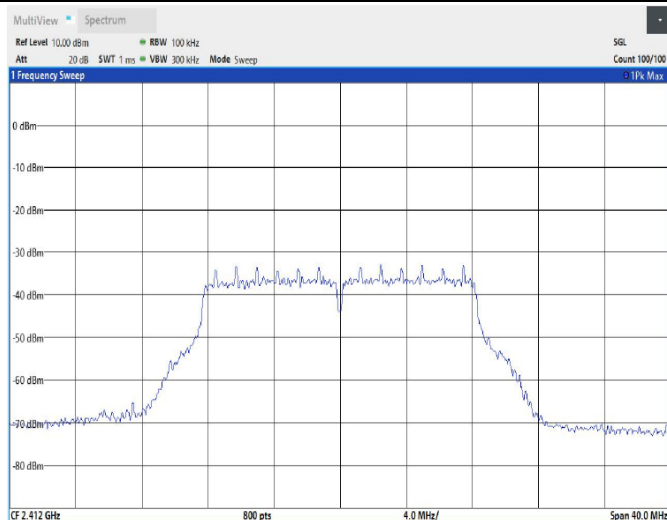
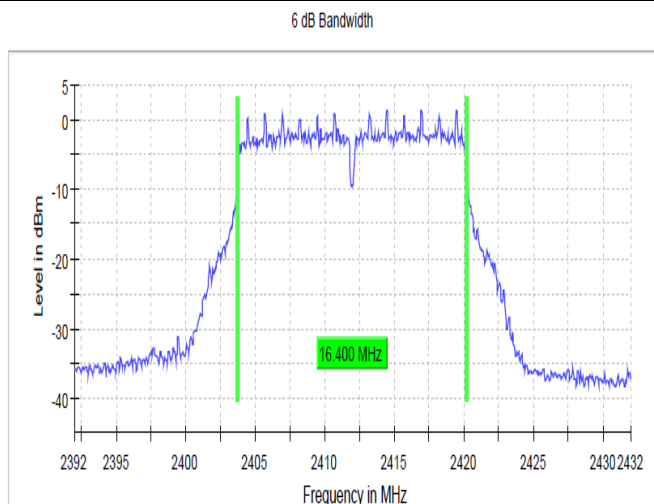
Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 2%

Data Rate	DUT Frequency (MHz)	Bandwidth (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Minimum Limit (MHz)
802.11b 1Mbps	2412.000000	8.150000	2407.875000	2416.025000	0.500000
802.11g 6Mbps	2412.000000	16.400000	2403.775000	2420.175000	0.500000
802.11n (HT20) MCS0	2412.000000	17.700000	2403.125000	2420.825000	0.500000
802.11b 1Mbps	2437.000000	8.150000	2432.875000	2441.025000	0.500000
802.11g 6Mbps	2437.000000	16.450000	2428.725000	2445.175000	0.500000
802.11n (HT20) MCS0	2437.000000	17.700000	2428.125000	2445.825000	0.500000
802.11b 1Mbps	2462.000000	7.650000	2458.375000	2466.025000	0.500000
802.11g 6Mbps	2462.000000	16.400000	2453.775000	2470.175000	0.500000
802.11n (HT20) MCS0	2462.000000	17.700000	2453.125000	2470.825000	0.500000

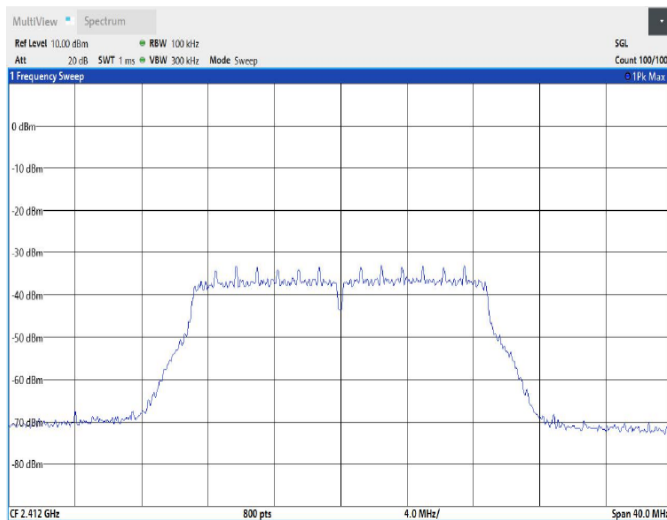
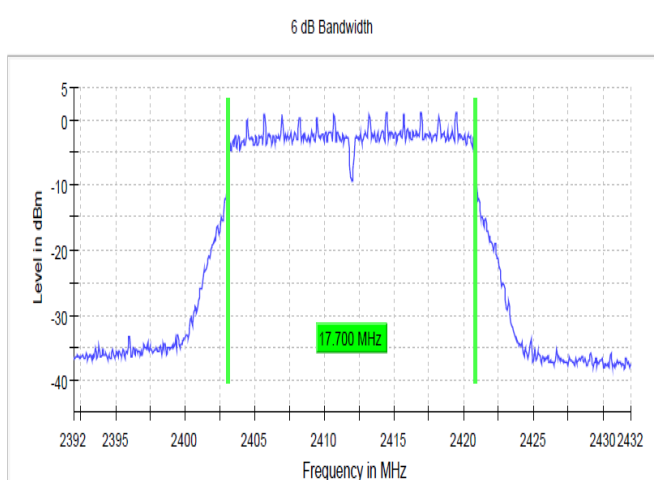
802.11b 2412MHz 1Mbps



802.11g 2412MHz 6Mbps



802.11n (HT20) 2412MHz MCS0



Conducted Band Edge

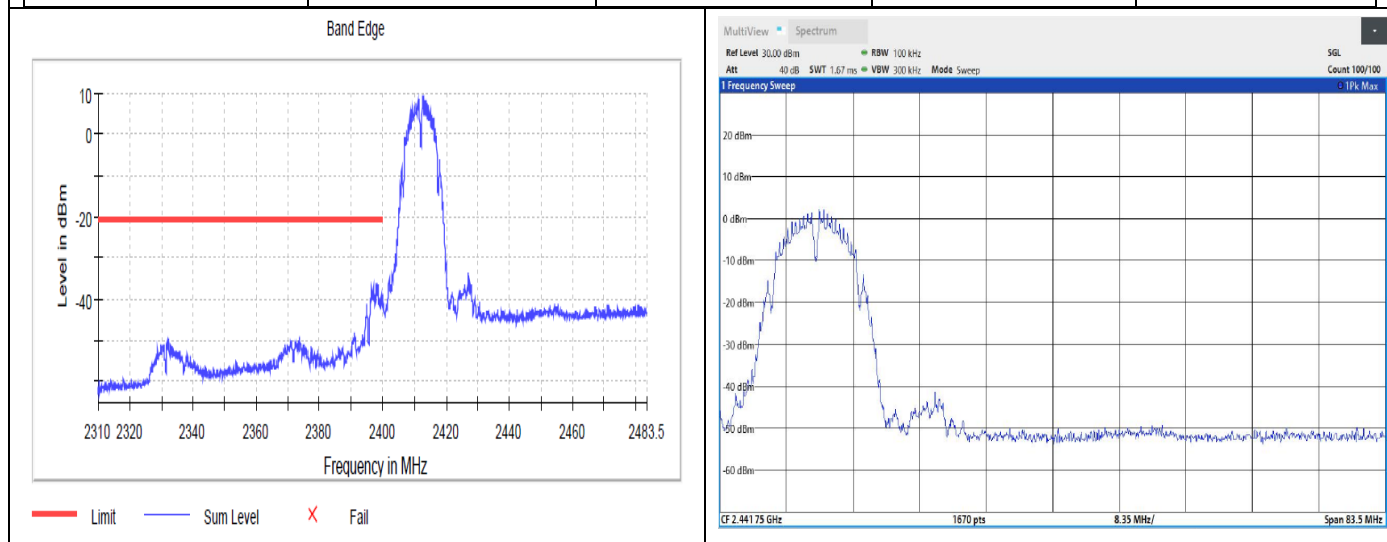
Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05 8.7 and ANSI C63.10-2013

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 0.8 dB

Band Edge Low 802.11b 2412MHz 1Mbps

Frequency (MHz)	Level (dBm)
2412.475000	9.4

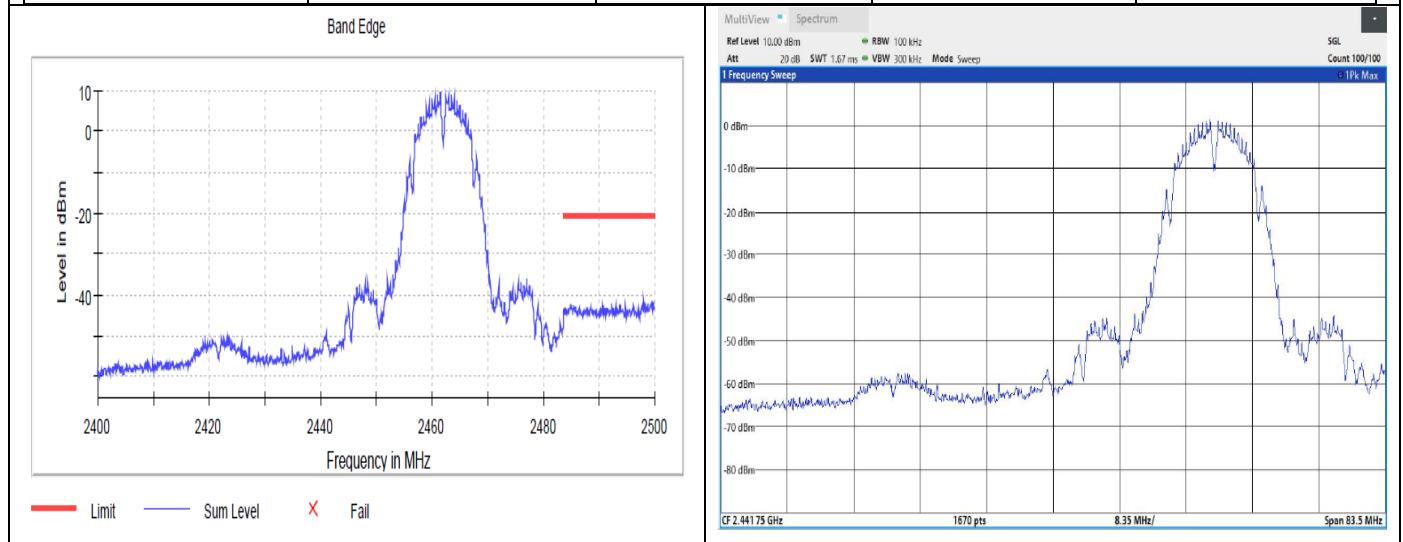
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2397.975000	-36.3	15.7	-20.6	PASS
2398.025000	-36.3	15.7	-20.6	PASS
2398.525000	-36.5	16.0	-20.6	PASS
2398.475000	-36.6	16.0	-20.6	PASS
2397.025000	-36.8	16.2	-20.6	PASS
2396.975000	-36.8	16.2	-20.6	PASS
2396.475000	-37.5	17.0	-20.6	PASS
2396.525000	-37.6	17.0	-20.6	PASS
2398.225000	-38.0	17.4	-20.6	PASS
2398.275000	-38.0	17.4	-20.6	PASS
2398.075000	-38.4	17.8	-20.6	PASS
2398.425000	-38.4	17.8	-20.6	PASS
2397.925000	-38.5	17.9	-20.6	PASS
2399.525000	-38.5	17.9	-20.6	PASS
2399.475000	-38.5	18.0	-20.6	PASS



Band Edge High 802.11b 2462MHz 1Mbps

Frequency (MHz)	Level (dBm)
2461.475000	9.6

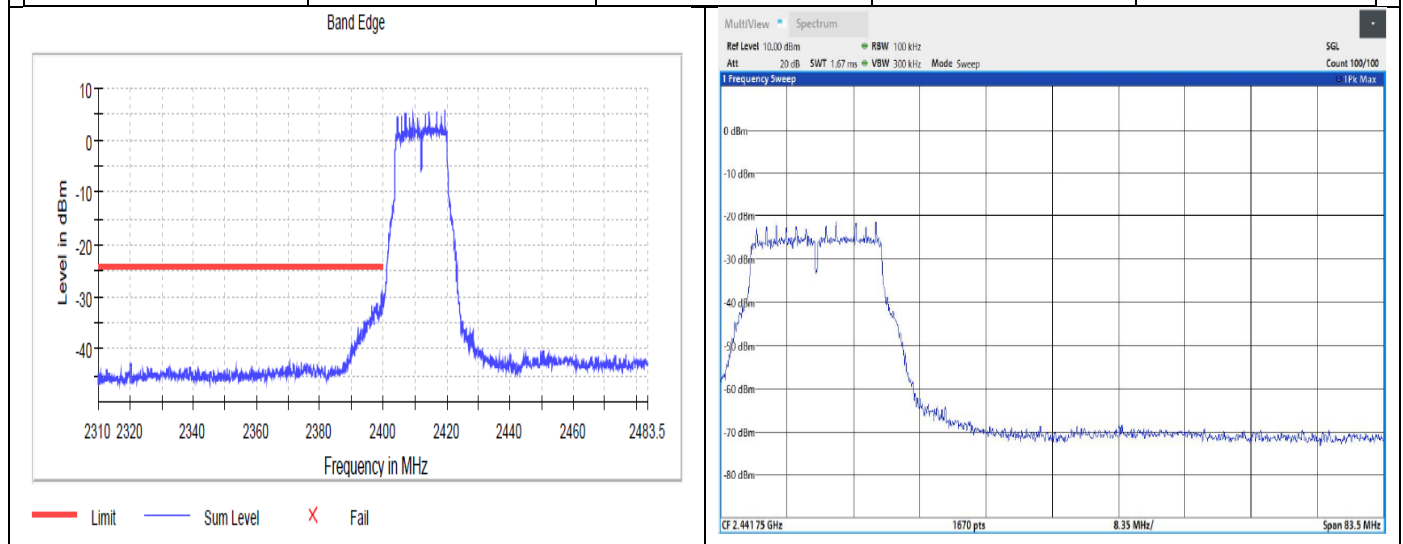
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2497.975000	-41.1	20.7	-20.4	PASS
2498.025000	-41.2	20.8	-20.4	PASS
2499.625000	-41.4	21.0	-20.4	PASS
2499.725000	-41.9	21.5	-20.4	PASS
2499.775000	-41.9	21.5	-20.4	PASS
2492.175000	-42.2	21.8	-20.4	PASS
2492.225000	-42.2	21.8	-20.4	PASS
2499.325000	-42.2	21.8	-20.4	PASS
2498.225000	-42.2	21.8	-20.4	PASS
2498.725000	-42.3	21.9	-20.4	PASS
2498.775000	-42.3	21.9	-20.4	PASS
2490.725000	-42.3	21.9	-20.4	PASS
2498.275000	-42.4	22.0	-20.4	PASS
2499.675000	-42.4	22.0	-20.4	PASS
2499.125000	-42.4	22.0	-20.4	PASS



Band Edge Low 802.11g 2412MHz 6Mbps

Frequency (MHz)	Level (dBm)
2419.475000	5.7

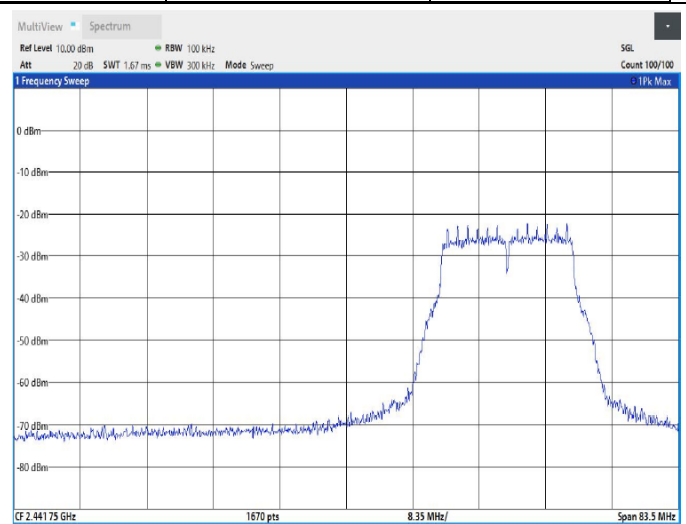
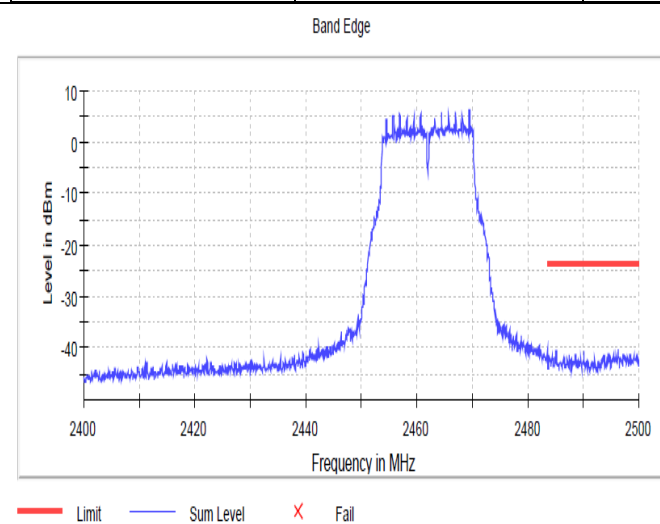
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.475000	-29.0	4.7	-24.3	PASS
2399.525000	-29.0	4.8	-24.3	PASS
2399.425000	-29.7	5.4	-24.3	PASS
2399.825000	-30.1	5.8	-24.3	PASS
2399.875000	-30.1	5.9	-24.3	PASS
2399.575000	-30.6	6.3	-24.3	PASS
2399.775000	-30.6	6.4	-24.3	PASS
2399.225000	-30.9	6.6	-24.3	PASS
2399.275000	-31.3	7.0	-24.3	PASS
2398.225000	-31.3	7.0	-24.3	PASS
2399.175000	-31.3	7.0	-24.3	PASS
2397.925000	-31.4	7.1	-24.3	PASS
2396.375000	-31.5	7.2	-24.3	PASS
2398.275000	-31.5	7.2	-24.3	PASS
2396.325000	-31.5	7.2	-24.3	PASS



Band Edge High 802.11g 2462MHz 6Mbps

Frequency (MHz)	Level (dBm)
2469.475000	6.2

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2496.275000	-40.2	16.3	-23.8	PASS
2496.225000	-40.4	16.6	-23.8	PASS
2485.125000	-40.6	16.7	-23.8	PASS
2485.075000	-40.6	16.8	-23.8	PASS
2490.175000	-40.7	16.9	-23.8	PASS
2496.325000	-41.1	17.3	-23.8	PASS
2493.875000	-41.2	17.4	-23.8	PASS
2493.825000	-41.2	17.4	-23.8	PASS
2490.125000	-41.2	17.4	-23.8	PASS
2498.425000	-41.3	17.5	-23.8	PASS
2495.975000	-41.3	17.5	-23.8	PASS
2497.275000	-41.3	17.5	-23.8	PASS
2497.225000	-41.3	17.5	-23.8	PASS
2493.725000	-41.3	17.5	-23.8	PASS
2498.475000	-41.3	17.5	-23.8	PASS

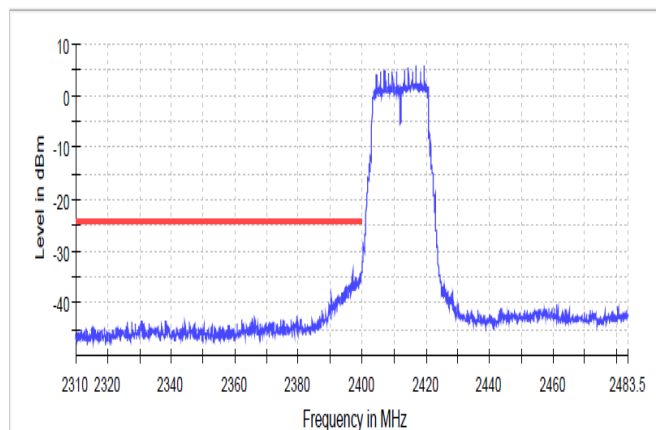


Band Edge Low 802.11n (HT20) 2412MHz MCS0

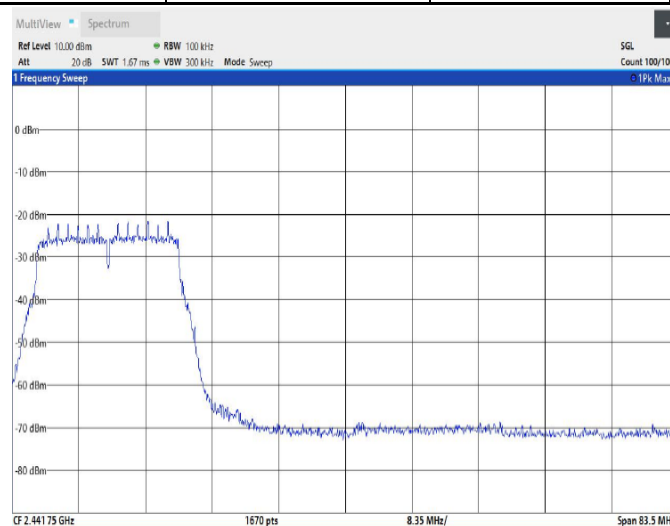
Frequency (MHz)	Level (dBm)
2419.475000	5.7

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2397.025000	-33.8	9.6	-24.3	PASS
2396.975000	-33.9	9.6	-24.3	PASS
2399.975000	-33.9	9.7	-24.3	PASS
2399.825000	-34.0	9.7	-24.3	PASS
2399.875000	-34.1	9.8	-24.3	PASS
2399.925000	-34.1	9.9	-24.3	PASS
2399.775000	-34.1	9.9	-24.3	PASS
2399.225000	-34.2	10.0	-24.3	PASS
2399.275000	-34.3	10.1	-24.3	PASS
2399.525000	-34.5	10.2	-24.3	PASS
2399.725000	-34.5	10.2	-24.3	PASS
2397.075000	-34.7	10.4	-24.3	PASS
2399.575000	-34.7	10.4	-24.3	PASS
2399.675000	-34.9	10.7	-24.3	PASS
2397.875000	-35.0	10.8	-24.3	PASS

Band Edge



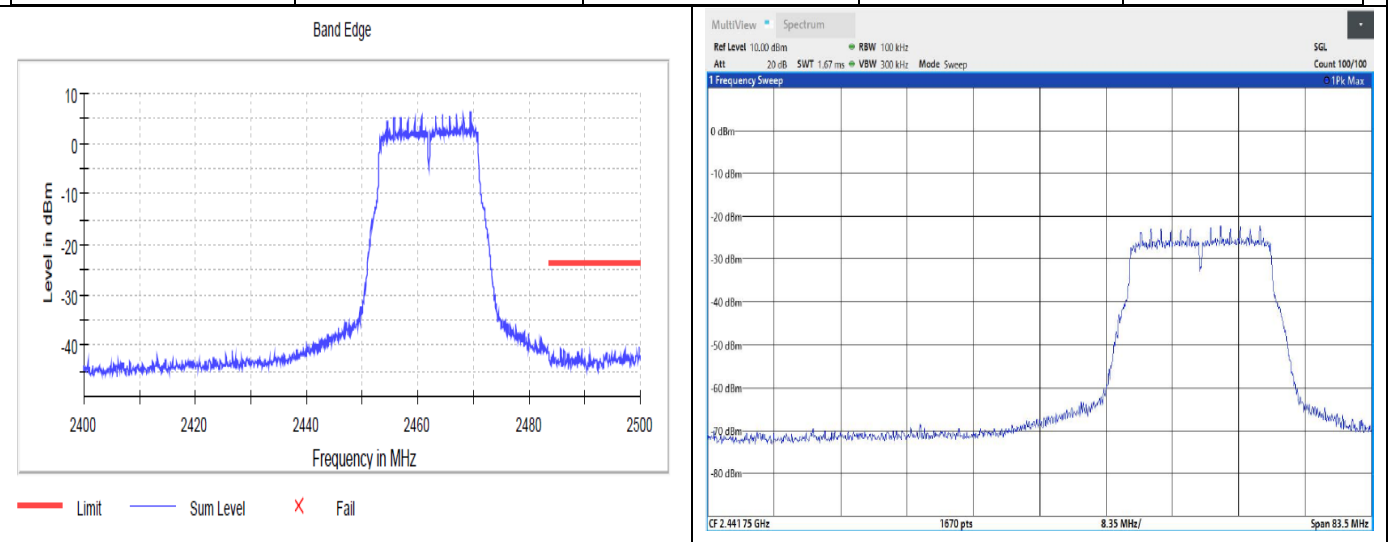
— Limit — Sum Level X Fail



Band Edge High 802.11n (HT20) 2462MHz MCS0

Frequency (MHz)	Level (dBm)
2469.475000	6.2

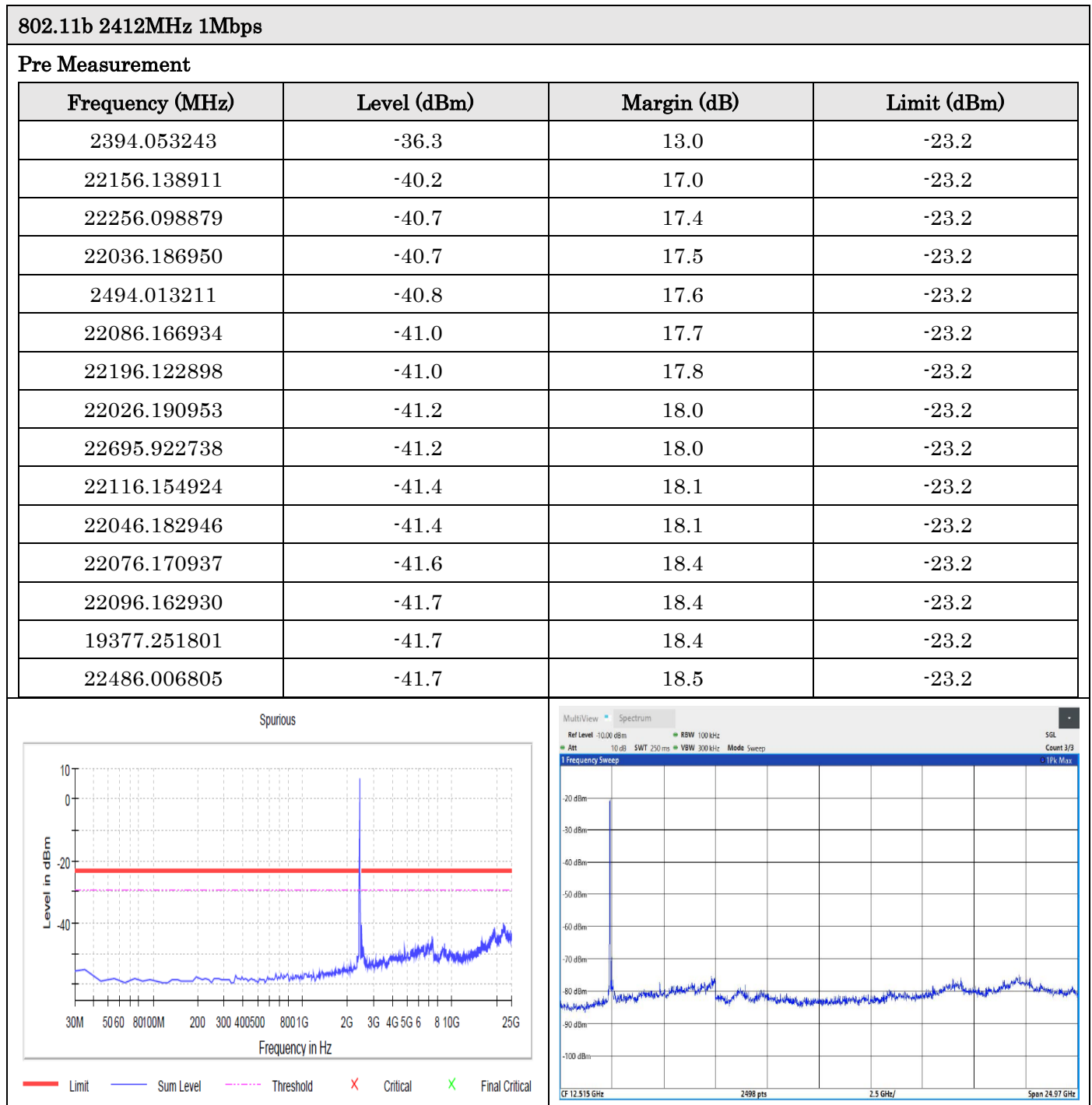
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2499.775000	-40.2	16.3	-23.8	PASS
2485.725000	-40.6	16.8	-23.8	PASS
2499.825000	-40.6	16.8	-23.8	PASS
2489.525000	-40.7	16.8	-23.8	PASS
2489.475000	-40.7	16.8	-23.8	PASS
2495.425000	-40.9	17.1	-23.8	PASS
2497.325000	-40.9	17.1	-23.8	PASS
2497.275000	-40.9	17.1	-23.8	PASS
2495.475000	-41.0	17.2	-23.8	PASS
2486.325000	-41.0	17.2	-23.8	PASS
2485.775000	-41.2	17.3	-23.8	PASS
2493.825000	-41.3	17.4	-23.8	PASS
2497.025000	-41.3	17.4	-23.8	PASS
2486.375000	-41.3	17.5	-23.8	PASS
2494.025000	-41.3	17.5	-23.8	PASS



Tx Spurious Emissions

Test according to FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05 8.5 and
ANSI C63.10-2013 11.11.2 & 11.11.3

Measurement uncertainty calculated in accordance with ETSI TR 100 028-1. Expanded Uncertainty (K=2) < 1.8 dB

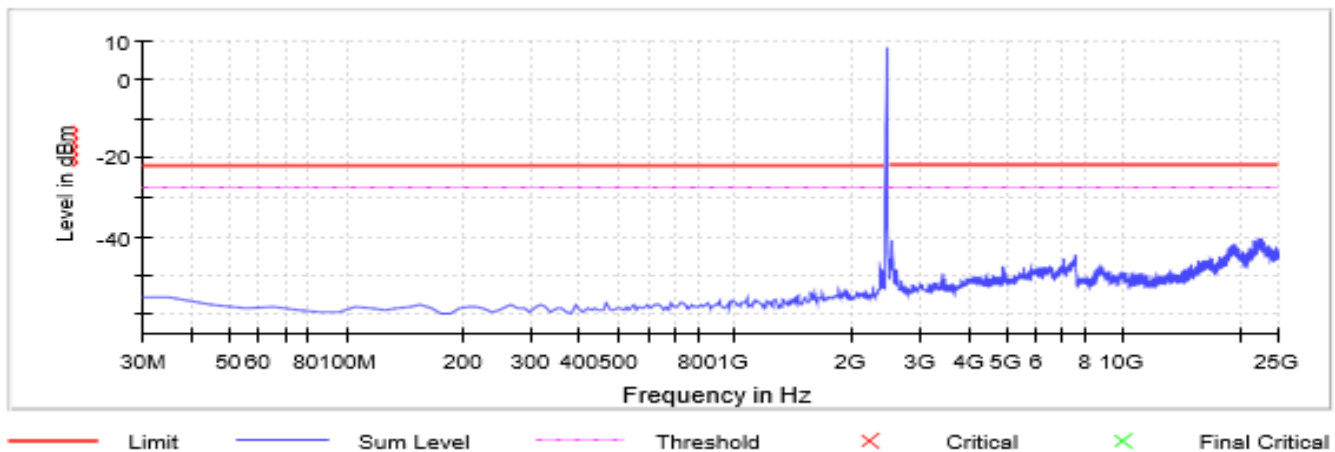


802.11b 2437MHz 1Mbps

Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
22466.014812	-40.6	18.9	-21.7
22026.190953	-40.8	19.1	-21.7
22336.066853	-40.8	19.1	-21.7
22426.030825	-40.9	19.2	-21.7
22046.182946	-40.9	19.3	-21.7
22146.142914	-41.1	19.4	-21.7
22156.138911	-41.1	19.4	-21.7
2514.005204	-41.1	19.4	-21.7
21546.383106	-41.2	19.5	-21.7
22096.162930	-41.2	19.5	-21.7
22106.158927	-41.3	19.6	-21.7
22206.118895	-41.3	19.6	-21.7
22715.914732	-41.3	19.7	-21.7
2524.001201	-41.4	19.7	-21.7
22136.146918	-41.4	19.7	-21.7

Spurious

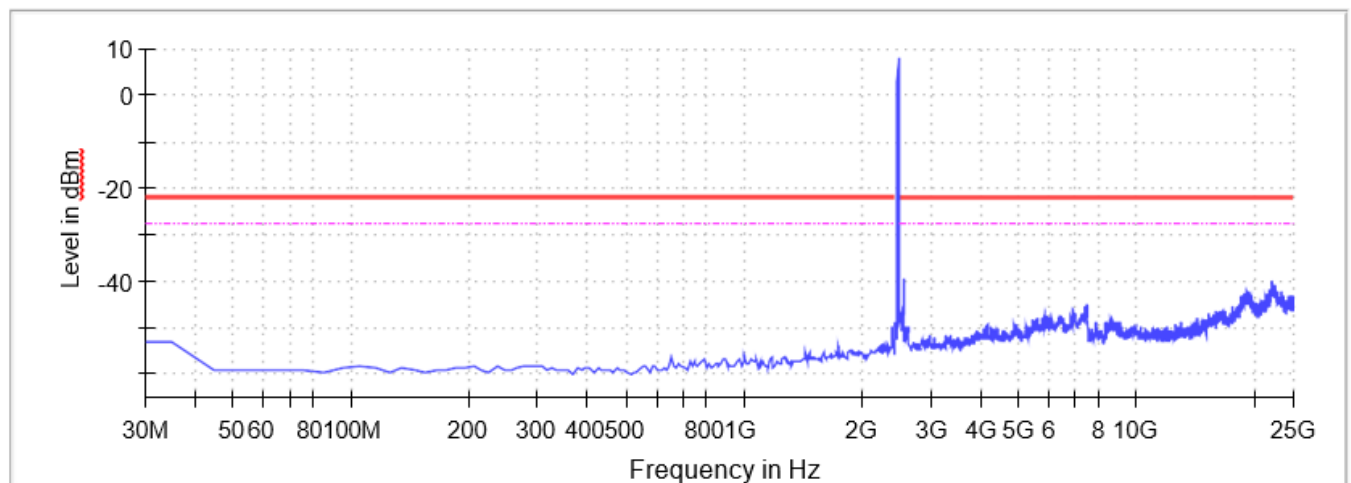


802.11b 2462MHz 1Mbps

Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2543.993195	-39.2	17.5	-21.7
22056.178943	-39.5	17.8	-21.7
22026.190953	-40.5	18.8	-21.7
22016.194956	-40.5	18.8	-21.7
22096.162930	-40.5	18.8	-21.7
22286.086869	-40.5	18.8	-21.7
22046.182946	-40.6	18.9	-21.7
22106.158927	-41.0	19.3	-21.7
22226.110889	-41.1	19.4	-21.7
22006.198959	-41.2	19.5	-21.7
22176.130905	-41.3	19.7	-21.7
21996.202962	-41.3	19.7	-21.7
22116.154924	-41.5	19.8	-21.7
22476.010809	-41.5	19.8	-21.7
21916.234988	-41.5	19.8	-21.7

Spurious



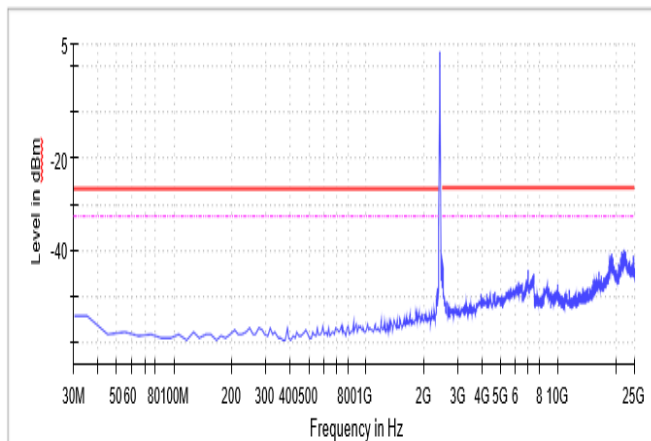
— Limit — Sum Level - - - Threshold × Critical × Final Critical

802.11g 2412MHz 6Mbps

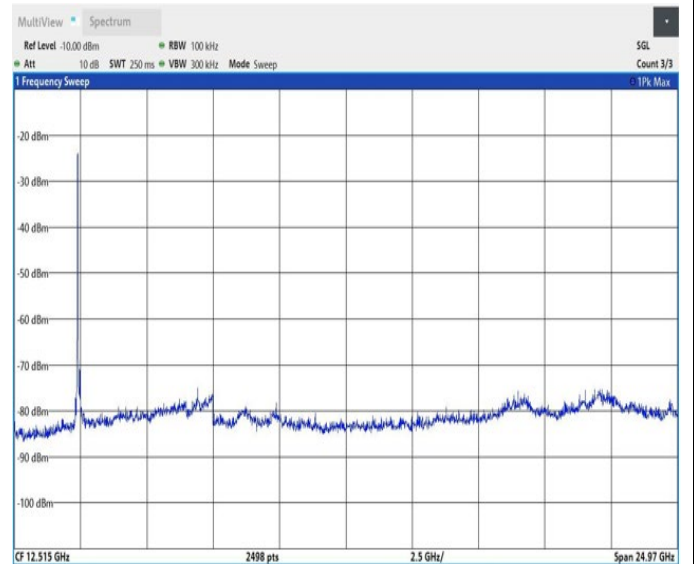
Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2394.053243	-35.6	9.1	-26.5
22076.170937	-40.3	13.7	-26.5
22346.062850	-40.5	13.9	-26.5
22156.138911	-40.5	14.0	-26.5
21526.391113	-40.6	14.1	-26.5
22026.190953	-40.7	14.1	-26.5
21876.251001	-40.8	14.2	-26.5
22386.046837	-41.0	14.4	-26.5
22036.186950	-41.0	14.4	-26.5
22436.026821	-41.0	14.4	-26.5
22046.182946	-41.0	14.5	-26.5
22086.166934	-41.1	14.5	-26.5
18997.403923	-41.1	14.5	-26.5
22056.178943	-41.2	14.7	-26.5
22106.158927	-41.3	14.7	-26.5

Spurious



Limit Sum Level Threshold Critical Final Critical

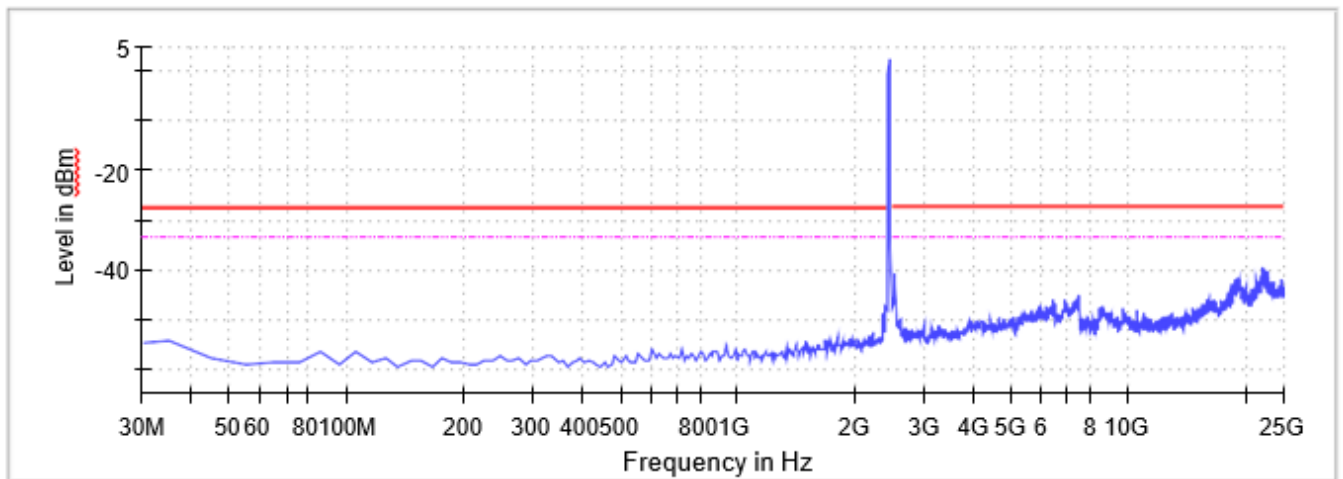


802.11g 2437MHz 6Mbps

Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
22066.174940	-39.6	12.1	-27.6
22096.162930	-39.9	12.3	-27.6
22116.154924	-40.2	12.6	-27.6
22645.942754	-40.3	12.8	-27.6
22046.182946	-40.6	13.0	-27.6
22026.190953	-40.7	13.1	-27.6
2514.005204	-40.8	13.2	-27.6
22246.102882	-40.9	13.3	-27.6
22276.090873	-40.9	13.4	-27.6
22136.146918	-41.2	13.6	-27.6
22226.110889	-41.2	13.6	-27.6
21996.202962	-41.2	13.6	-27.6
22146.142914	-41.3	13.7	-27.6
22176.130905	-41.3	13.7	-27.6
2524.001201	-41.4	13.9	-27.6

Spurious

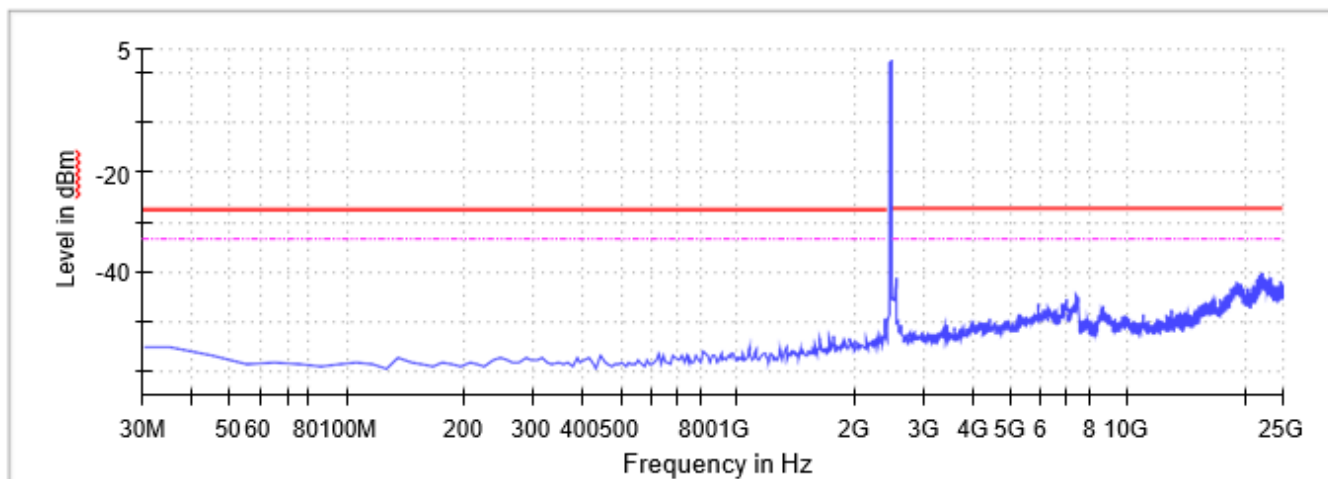


802.11g 2462MHz 6Mbps

Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
22186.126902	-40.5	13.0	-27.6
22056.178943	-40.6	13.0	-27.6
22116.154924	-40.6	13.0	-27.6
22156.138911	-40.7	13.2	-27.6
22036.186950	-40.8	13.3	-27.6
21866.255004	-41.1	13.5	-27.6
22096.162930	-41.2	13.6	-27.6
22106.158927	-41.3	13.8	-27.6
22066.174940	-41.4	13.8	-27.6
23385.646517	-41.4	13.8	-27.6
2543.993195	-41.4	13.8	-27.6
21996.202962	-41.5	13.9	-27.6
22026.190953	-41.5	13.9	-27.6
22216.114892	-41.6	14.0	-27.6
22006.198959	-41.6	14.0	-27.6

Spurious



— Limit — Sum Level — Threshold × Critical × Final Critical

802.11n (HT20) 2412MHz MCS0

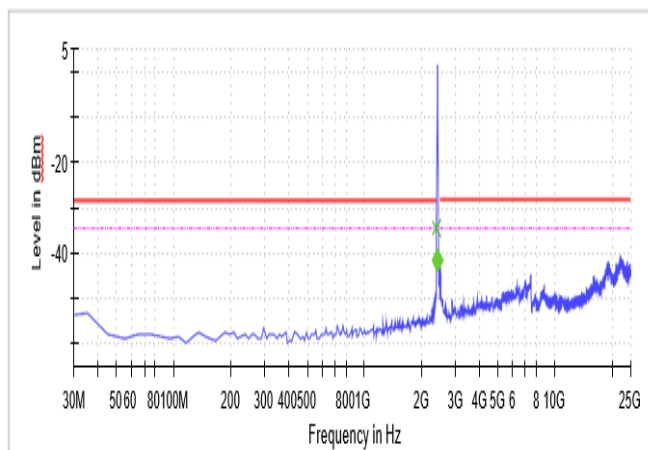
Final Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2399.140525	-16.2	13.1	-28.6

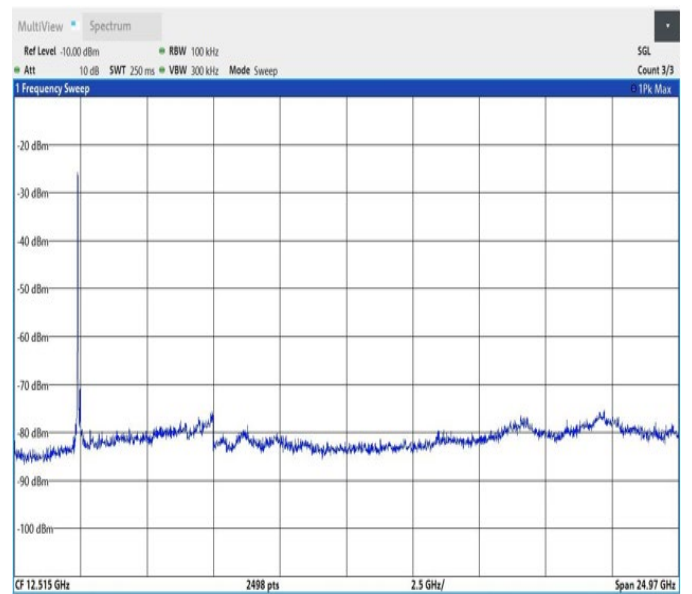
Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
2394.053243	-34.2	5.7	-28.6
22206.118895	-40.5	11.9	-28.6
22056.178943	-40.8	12.2	-28.6
22046.182946	-40.8	12.3	-28.6
22016.194956	-40.9	12.3	-28.6
22176.130905	-41.0	12.4	-28.6
22066.174940	-41.5	12.9	-28.6
22216.114892	-41.6	13.0	-28.6
22026.190953	-41.6	13.0	-28.6
22505.998799	-41.7	13.1	-28.6
22735.906725	-41.7	13.1	-28.6
22106.158927	-41.7	13.2	-28.6
21936.226982	-41.8	13.2	-28.6
22296.082866	-41.8	13.2	-28.6
22036.186950	-41.8	13.3	-28.6

Spurious



— Limit — Sum Level — Threshold X Critical
X Final Critical ◆ Fail ◆ Pass

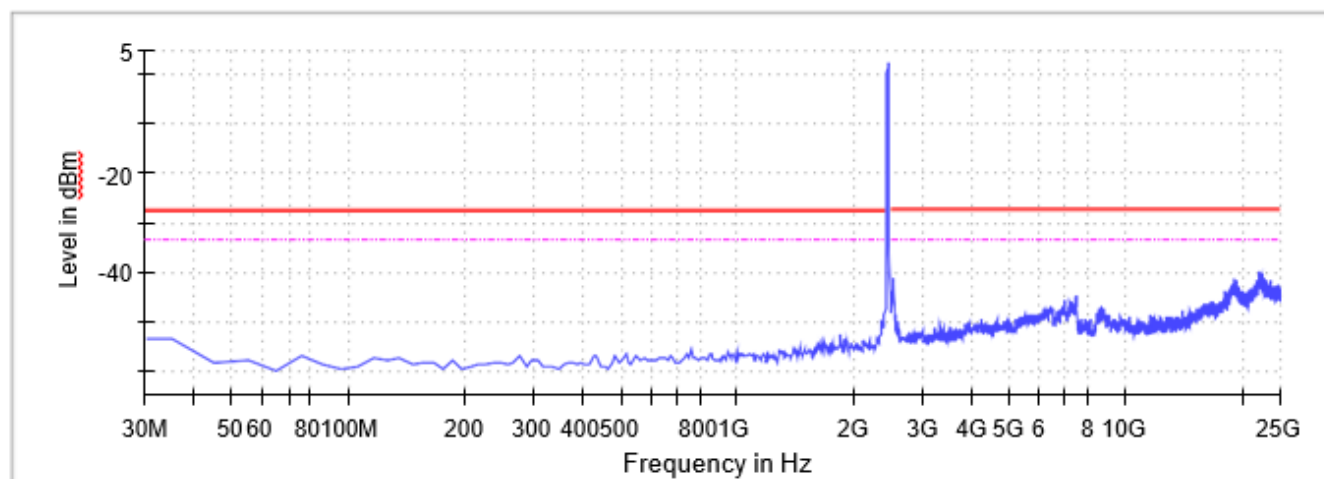


802.11n (HT20) 2437MHz MCS0

Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
22086.166934	-40.2	12.7	-27.5
22106.158927	-40.5	12.9	-27.5
22286.086869	-40.5	13.0	-27.5
22136.146918	-40.7	13.2	-27.5
22366.054844	-40.9	13.3	-27.5
22246.102882	-41.1	13.6	-27.5
21946.222978	-41.2	13.7	-27.5
22076.170937	-41.3	13.8	-27.5
22016.194956	-41.4	13.8	-27.5
2524.001201	-41.4	13.9	-27.5
22036.186950	-41.5	13.9	-27.5
22615.954764	-41.6	14.1	-27.5
23605.558447	-41.6	14.1	-27.5
22446.022818	-41.7	14.1	-27.5
21696.323058	-41.7	14.2	-27.5

Spurious

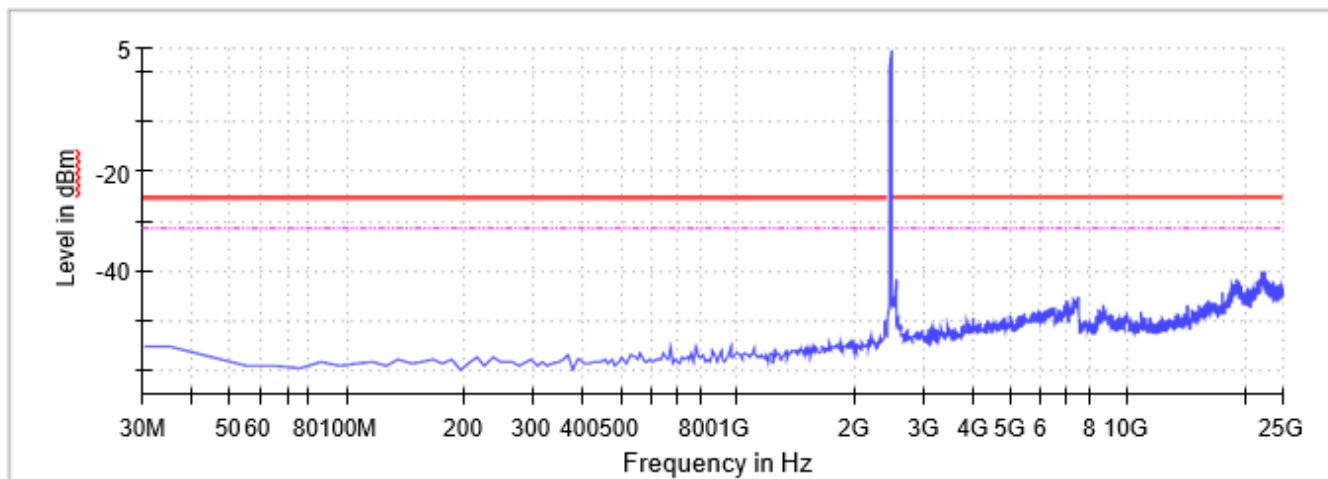


802.11n (HT20) 2462MHz MCS0

Pre Measurement

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)
22246.102882	-40.0	14.6	-25.4
22046.182946	-40.3	15.0	-25.4
22086.166934	-40.5	15.1	-25.4
22266.094876	-40.6	15.3	-25.4
22006.198959	-40.8	15.4	-25.4
22036.186950	-40.9	15.6	-25.4
22476.010809	-41.0	15.6	-25.4
22206.118895	-41.0	15.7	-25.4
22076.170937	-41.1	15.8	-25.4
22146.142914	-41.3	16.0	-25.4
22116.154924	-41.4	16.1	-25.4
22106.158927	-41.6	16.2	-25.4
22356.058847	-41.7	16.3	-25.4
22226.110889	-41.7	16.3	-25.4
22296.082866	-41.7	16.3	-25.4

Spurious



— Limit
 — Sum Level
 - - - - - Threshold
 × Critical
 × Final Critical

• Radiated Testing

Test Summary

Start: 6/16/2021	End: 9/2/2021	Temperature: 24°C Humidity: 48%	Initials: RP
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DUT S/N	AH21051701-CON-017#01		DUT Operating Mode		WLAN 2.4GHz
Comment					
Antenna	Frequency Range	Polarization	Result Over/Under Limit		Notes
Loop	9kHz-30MHz	Parallel	☐ Over	☒ Under	√
		Perpendicular	☐ Over	☒ Under	√
		Ground-Parallel	☐ Over	☒ Under	√
Log Periodic	30MHz-1GHz	Horizontal	☐ Over	☒ Under	√
		Vertical	☐ Over	☒ Under	√
Horn	1GHz-18GHz	Horizontal	☐ Over	☒ Under	√
		Vertical	☐ Over	☒ Under	√
Horn	18GHz-27.5GHz	Horizontal	☐ Over	☒ Under	√
		Vertical	☐ Over	☒ Under	√

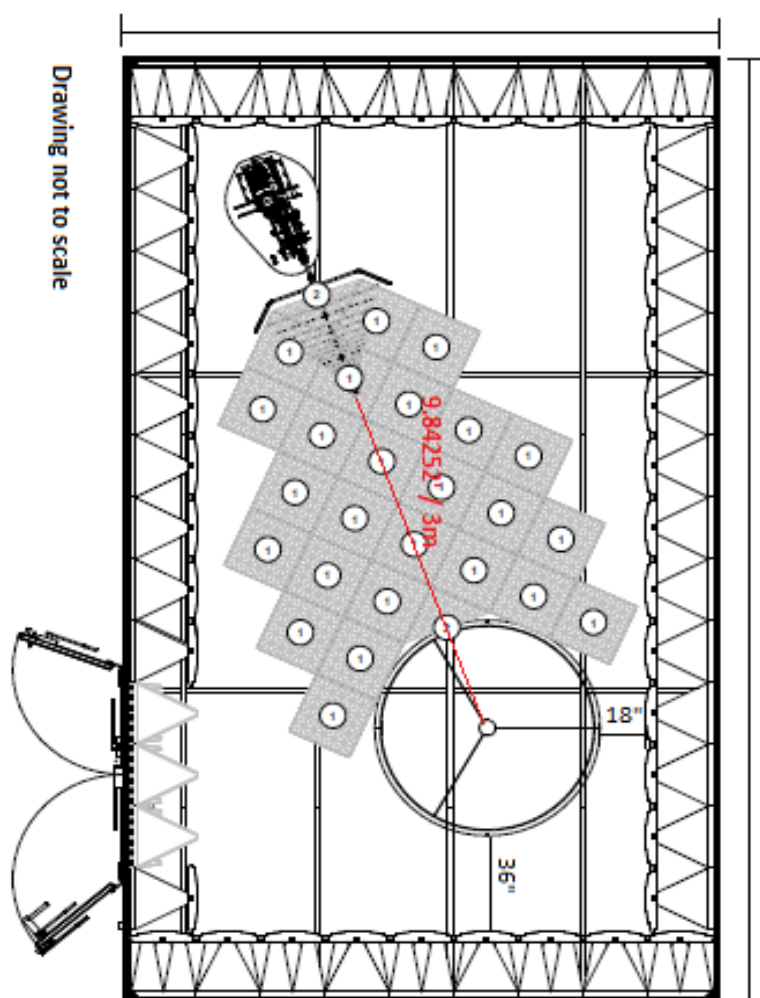
Notes: √ meets the requirements of the acceptance criteria.

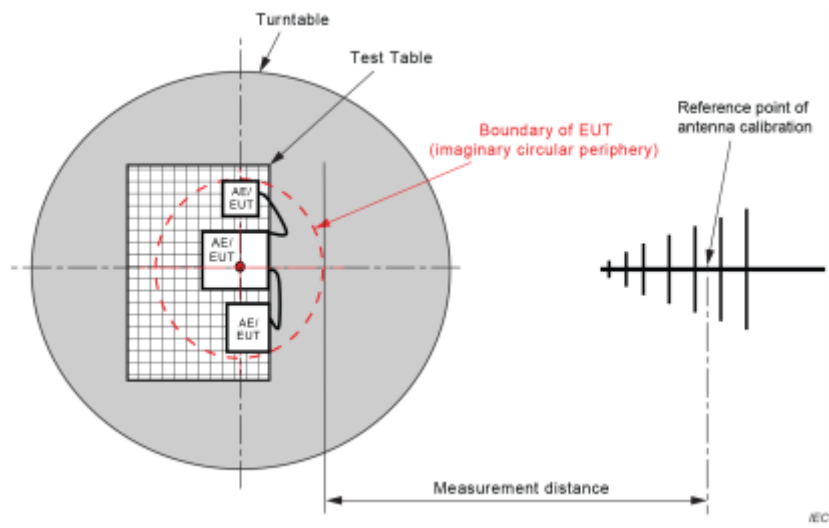
Test Setup

Semi-Anechoic Chamber Test Site-3 meter

Chamber Location	815 N Opdyke Rd Auburn Hills, Michigan 48326
Chamber Manufacturer:	ETS-Lindgren
Chamber Type	Semi-Anechoic
Model	FACT™ 3-2.0 Plus
Chamber Dimensions (L x W x H)	18'x18'x30'
Quiet Zone Diameter	2.0 meters
Quiet Zone Test Heights	1 & 2 meters (front only)
Test Distance	3.0 meters
Test Frequency Range	1-40 GHz
Measured Performance	4.87 dB Site sVSWR
Test Completion	December 18 th , 2019

Chamber Dimensions





Test Equipment Used

ID #	Equipment	Manufacturer	Model	Serial #	Cal Due
BVD0011	Loop Antenna 9kHz-30MHz	Rohde & Schwarz	FMZB1519B	145	3/23/2022
BVD0021	UltraLog Antenna 30-6000 MHz	Rohde & Schwarz	HL562E	101113	7/23/2022
BVD0069	Bore Sight Tower	ETS	2171B	226732	N/A
BVD0111	3 Meter Anechoic Chamber	ETS	N/A	N/A	10/16/2022
BVD0118	Antenna Mast Position Controller	ETS	7006-001	00214778/0021 4648	N/A
BVD0165	Multimeter	Fluke	287	46320228	2/26/2022
BVD0184	Preamplifier 29dB 1-18GHz	Rohde & Schwarz	TS-PR18	101646	4/26/2022
BVD0185	Preamplifier 45dB 18-40GHz	Rohde & Schwarz	TS-PR1840	100064	3/2/2022
BVD0190	Preamplifier 25dB 30MHz-8GHz	Rohde & Schwarz	TS-PR8	102351	3/5/2022
BVD0218	Receiver 2Hz-44GHz	Rohde & Schwarz	ESW44	101870	9/25/2021
BVD0247	Turn Table	ETS	920250	N/A	N/A
BVD0258	Optima 12V Blue top Marine battery	Optima	D34M	N/A	N/A
BVD0267	Double Ridge Waveguide 800MHz-18GHz	Rohde & Schwarz	HF907	102832	9/9/2022
BVD0307	Optima 12V Blue top Marine battery	Optima	D34M	N/A	N/A
BVD0320	18-40GHz Horn Antenna	L3 Narda ATM	PNR 180-442-KF	136164-01	3/8/2022
BVD0323	Foam Test Table For 3 Meter Chamber	ETS-Lindgren	LDT-1.5	N/A	N/A
BVD0394	Double Shielded N-Type Cable 6.9 Meter	Rohde & Schwarz	N-Type	N/A	12/29/2022
BVD0398	Double Shielded N-Type Cable 2 Meter	Rohde & Schwarz	N-Type	N/A	12/29/2022
BVD0407	Double Shielded N-Type Cable 410mm (For PreAmp)	Rohde & Schwarz	N-Type	N/A	8/5/2022
BVD0480	Band Reject Filter 50dB from 2400 to 2500MHz	Micro-Tronics	BRM50702	G482	N/A
N/A	Support Laptop	Lenovo	E560	LW10USAUH 01ABUD	N/A

Equipment List (Software)

Equipment	Manufacturer	Model	Version No.
EMC Test Software	Nexio	BAT-EMC	3.21.0.12

Customer Supplied Equipment

ID #	Equipment	Manufacturer	Model	Serial #	Version No.
N/A	Harness	Harman	1.7m	N/A	N/A

Radiated Emissions

Radiated emissions were maximized by rotating the EUT and its external antenna around Horizontal and vertical Polarizations.

Test Plots

Uncertainty

Radiated Emissions (30MHz to 18GHz)

Test Engineer: Ryan Phillips

The test is to measure the radiated emissions of the EUT. Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- NSA Calibration
- Etc., details see the below table

30MHz to 1GHZ

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Filter Insertion Loss	0.25	Normal	2	1	0.125
Antenna Factor	0.65	Normal	2	1	0.325
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.86605081
PRF Response	1.5	Rectangular	1.732	1	0.86605081
Mismatch Filter – Receiver	0.25	U-Shape	2.449	1	0.1768033
NSA Calibration	4.0	Triangular	1.414	1	1.633332
ETS Foam Table (LDT-1.5)	1.8	Rectangular	1.732	1	1.039261
Combined Standard Uncertainty (square root of the sum of the squares)					2.113781
Expanded Uncertainty (K=2)					4.227562

The total derived measurement uncertainty is +/- 4.228 dB

1GHz to 40GHz

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105000
Filter Insertion Loss	0.25	Normal	2	1	0.125000
Antenna Factor	0.65	Normal	2	1	0.325000
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.866051
PRF Response	1.5	Rectangular	1.732	1	0.866051
Mismatch Filter – Receiver	0.25	U-Shape	1.414	1	0.176803
VSWR Calibration	2.0	Triangular	2.449	1	0.816659
ETS Foam Table (LDT-1.5)	1.8	Rectangular	1.732	1	1.039261
Combined Standard Uncertainty (square root of the sum of the squares)					1.869213
Expanded Uncertainty (K=2)					3.738426

The total derived measurement uncertainty is +/- 3.738 dB.

Remarks:

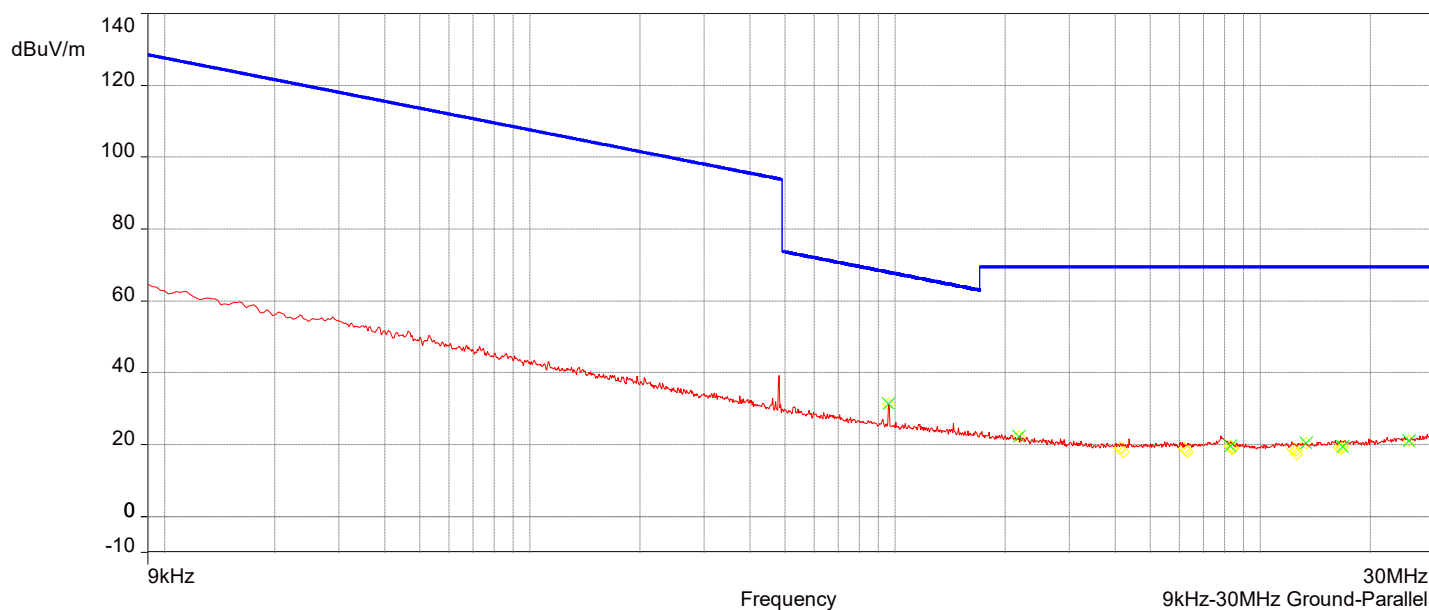
1. Raw Peak Level (dBuV/m) = Level Peak Reading – Correction Factor
2. Correction Factor (dB) = Antenna Factor + Cable Loss – Preamplifier Gain
3. Margin = Level – Limit

AH21051701-CON-126#001_802.11b DH1 CH6_9kHz-30MHz_Ground-Parallel

6/16/2021 8:07:52 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Judgement
1.	961.75kHz	31.43	19.12	67.94	-36.52	1.00	59.90	Passed
2.	2.1845MHz	22.21	19.10	69.54	-47.33	1.00	179.90	Passed
3.	8.29175MHz	19.57	19.14	69.54	-49.97	1.00	119.90	Passed
4.	13.361MHz	20.40	19.61	69.54	-49.15	1.00	29.90	Passed
5.	16.80425MHz	19.32	19.70	69.54	-50.22	1.00	29.90	Passed
6.	25.54475MHz	21.03	20.69	69.54	-48.52	1.00	0.20	Passed

Overall Graphs:

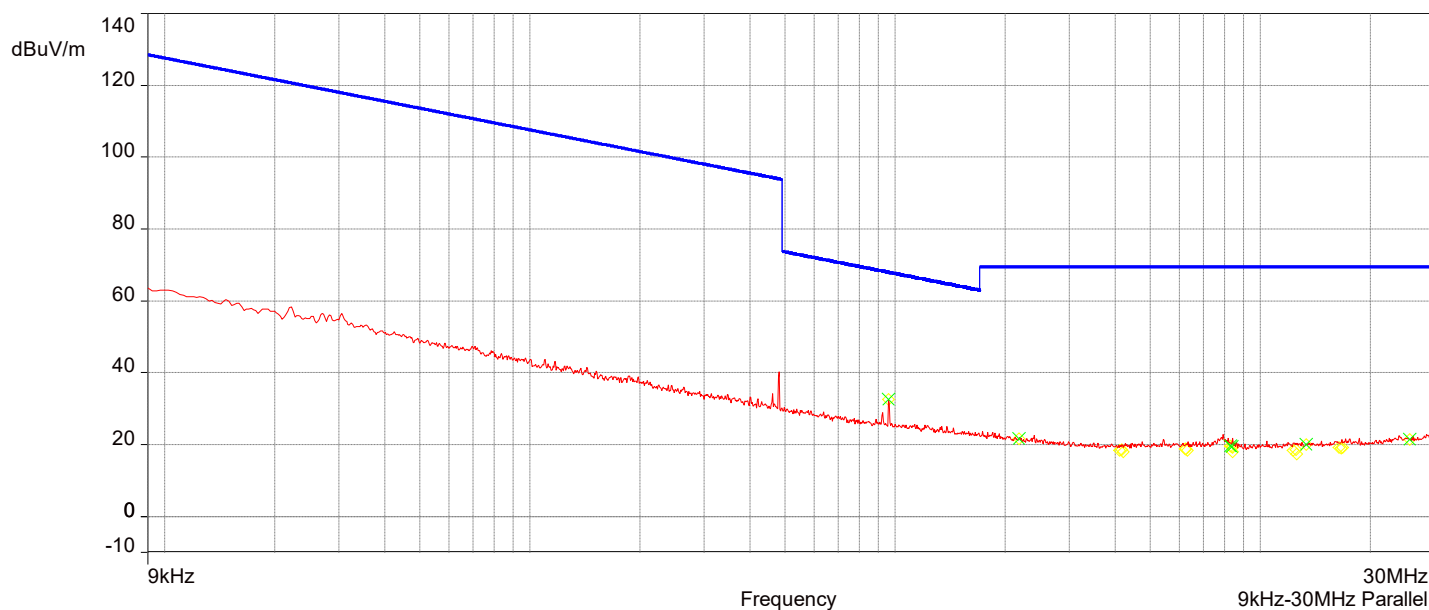


AH21051701-CON-126#001_802.11b DH1 CH6_9kHz-30MHz_Parallel

6/16/2021 8:19:34 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Judgement
1.	961.75kHz	32.64	19.12	67.94	-35.30	1.00	60.10	Passed
2.	2.1805MHz	21.66	19.10	69.54	-47.88	1.00	180.10	Passed
3.	8.291MHz	19.64	19.14	69.54	-49.90	1.00	300.10	Passed
4.	8.36275MHz	19.34	19.14	69.54	-50.21	1.00	60.10	Passed
5.	13.389MHz	20.01	19.62	69.54	-49.53	1.00	180.10	Passed
6.	25.64025MHz	21.53	20.70	69.54	-48.01	1.00	60.10	Passed

Overall Graphs:

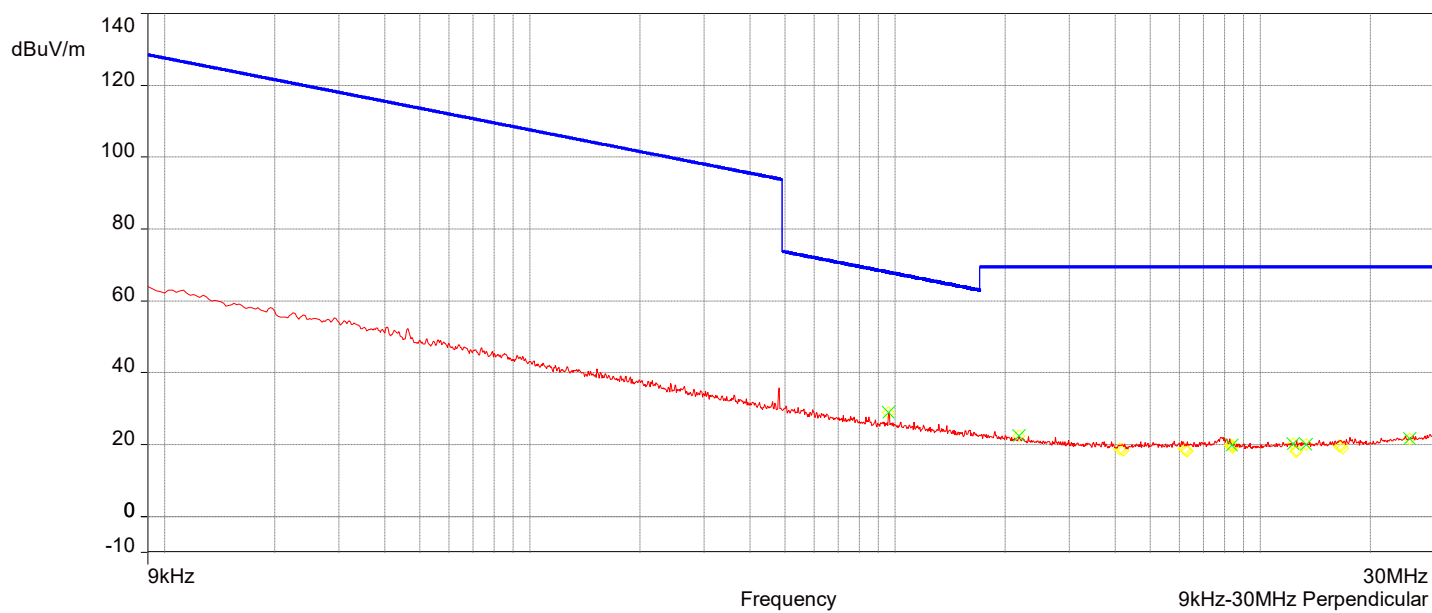


AH21051701-CON-126#001_802.11b DH1 CH6_9kHz-30MHz_Perpendicular

6/16/2021 7:59:45 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Judgement
1.	961.75kHz	28.91	19.12	67.94	-39.03	1.00	180.10	Passed
2.	2.1865MHz	22.38	19.10	69.54	-47.16	1.00	90.10	Passed
3.	8.36475MHz	19.86	19.14	69.54	-49.68	1.00	240.10	Passed
4.	12.2915MHz	20.12	19.57	69.54	-49.42	1.00	210.10	Passed
5.	13.38525MHz	19.96	19.62	69.54	-49.59	1.00	120.00	Passed
6.	25.64725MHz	21.54	20.70	69.54	-48.00	1.00	329.90	Passed

Overall Graphs:

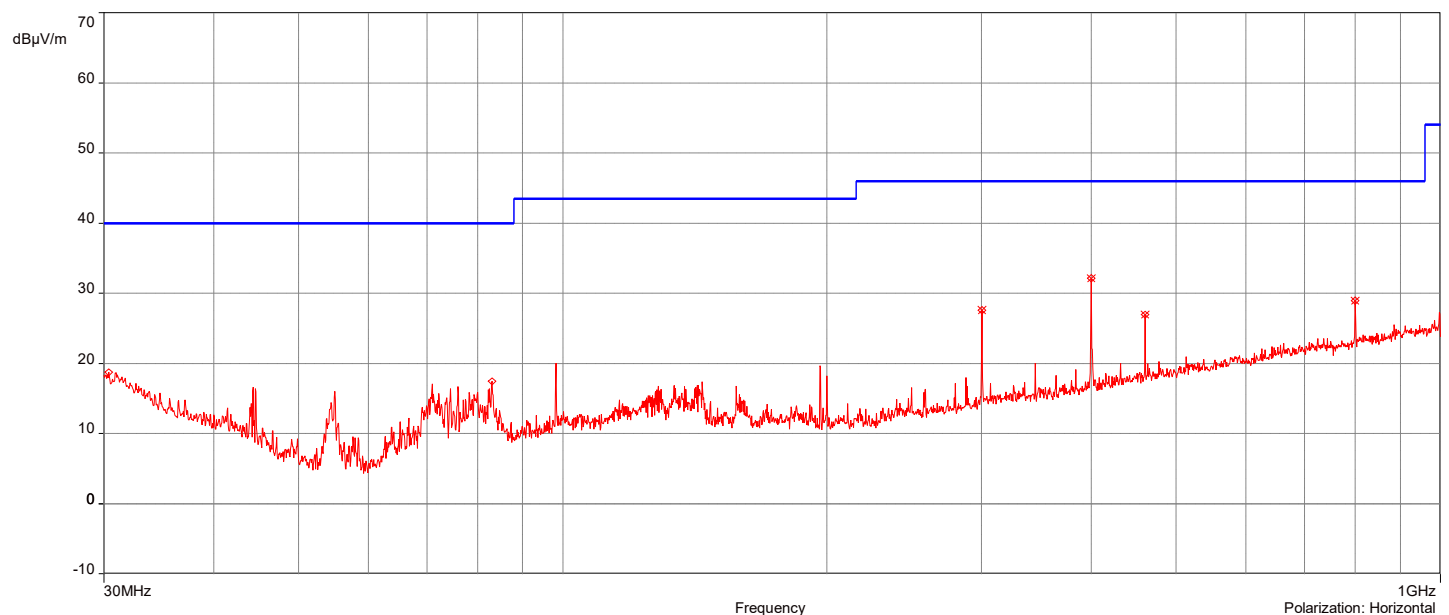


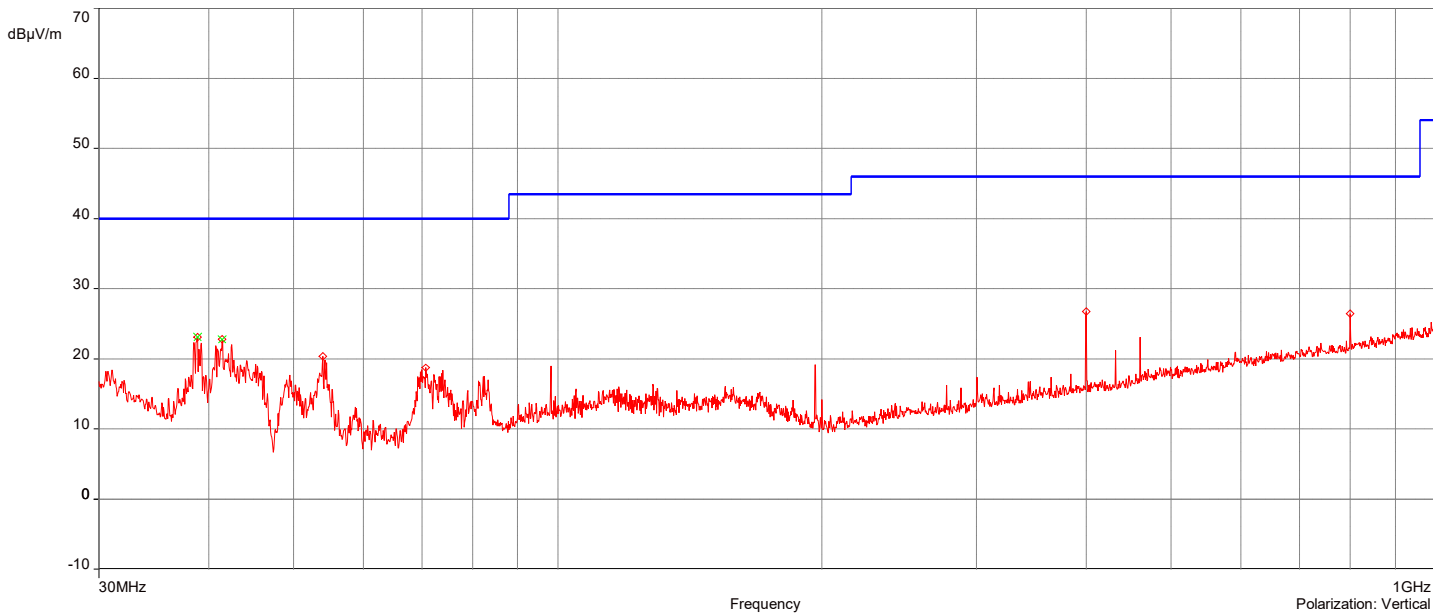
AH21051701-CON-126#001_802.11b CH1_30MHz-1GHz

8/25/2021 8:56:06 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	399.99118MHz	32.15	-8.42	46.00	-13.85	1.50	358.00	Horizontal	Passed
2.	38.844638MHz	23.10	-11.87	40.00	-16.90	1.00	355.60	Vertical	Passed
3.	799.94MHz	28.93	-0.99	46.00	-17.07	2.50	131.70	Horizontal	Passed
4.	41.469498MHz	22.80	-13.38	40.00	-17.20	1.50	342.20	Vertical	Passed
5.	300.24649MHz	27.58	-10.94	46.00	-18.42	1.00	358.90	Horizontal	Passed
6.	460.81946MHz	26.99	-6.85	46.00	-19.01	1.00	4.10	Horizontal	Passed

Overall Graphs:



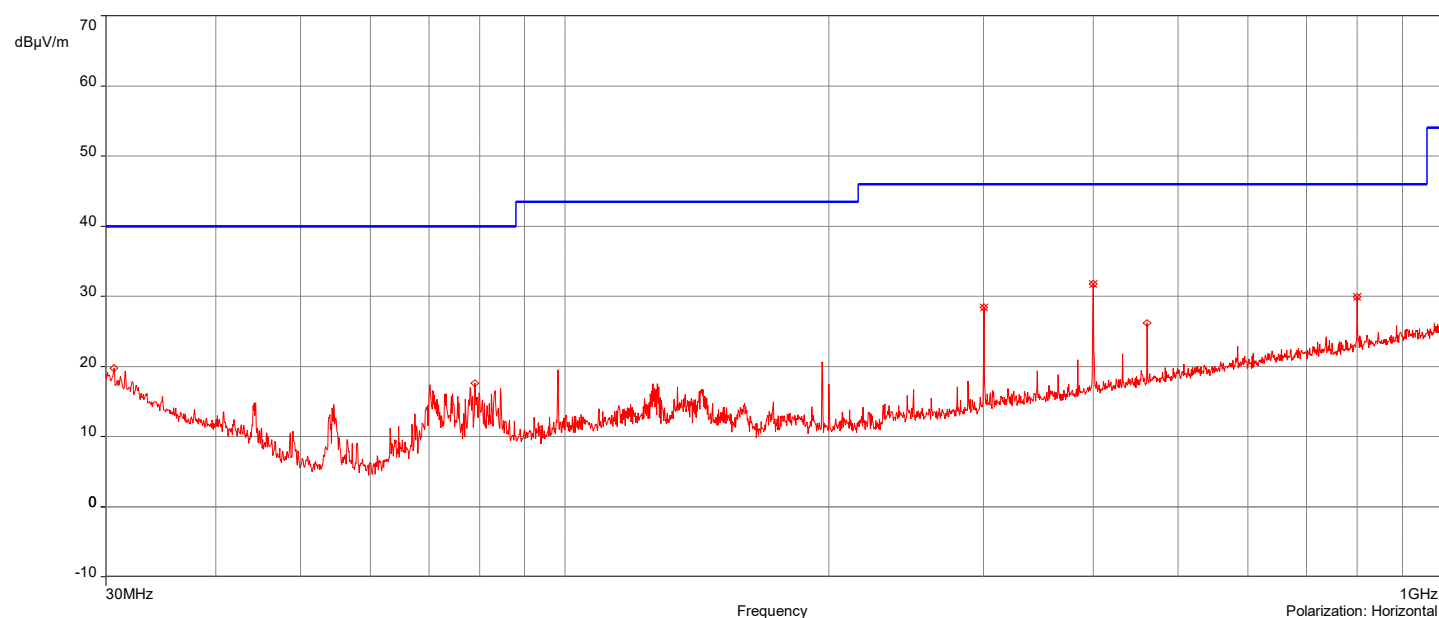


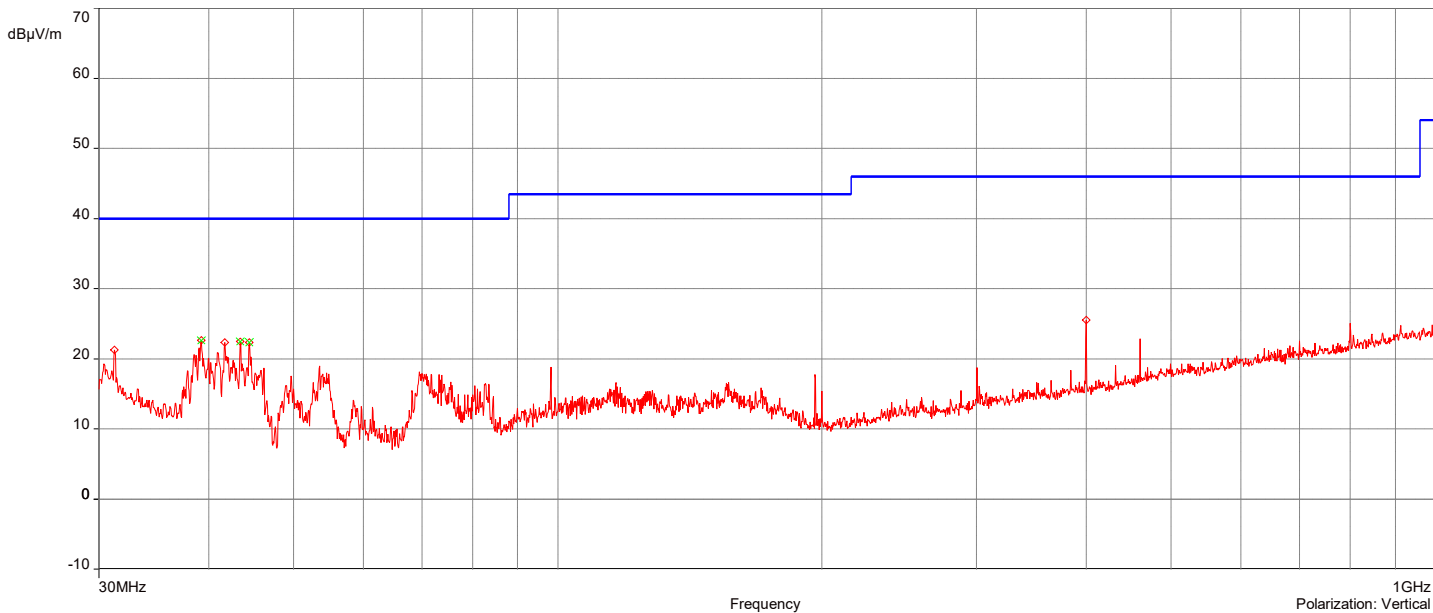
AH21051701-CON-126#001_802.11b CH6_30MHz-1GHz

8/25/2021 9:13:20 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	399.99118MHz	31.73	-8.42	46.00	-14.27	1.00	358.90	Horizontal	Passed
2.	799.88293MHz	29.94	-0.99	46.00	-16.06	1.00	127.40	Horizontal	Passed
3.	39.244073MHz	22.67	-12.10	40.00	-17.33	1.00	182.10	Vertical	Passed
4.	43.466675MHz	22.48	-14.51	40.00	-17.52	1.00	107.00	Vertical	Passed
5.	300.30355MHz	28.40	-10.94	46.00	-17.60	2.50	256.30	Horizontal	Passed
6.	44.493794MHz	22.35	-15.17	40.00	-17.65	1.00	68.60	Vertical	Passed

Overall Graphs:



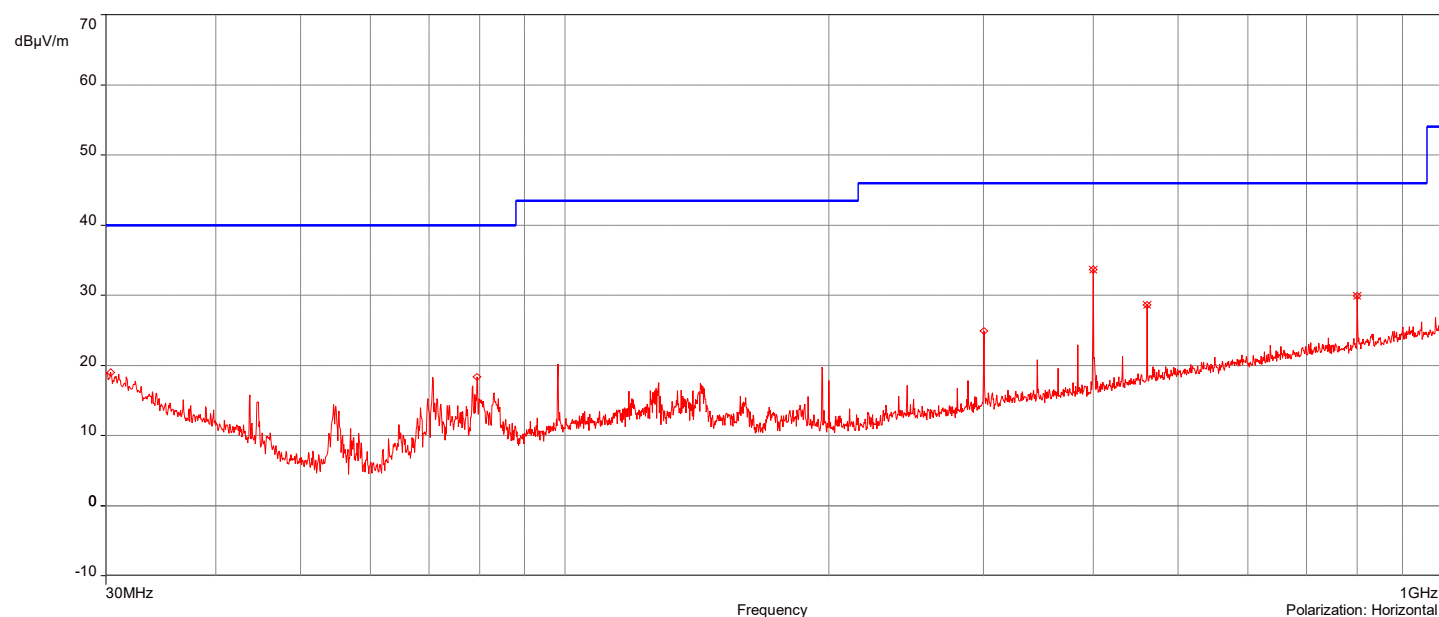


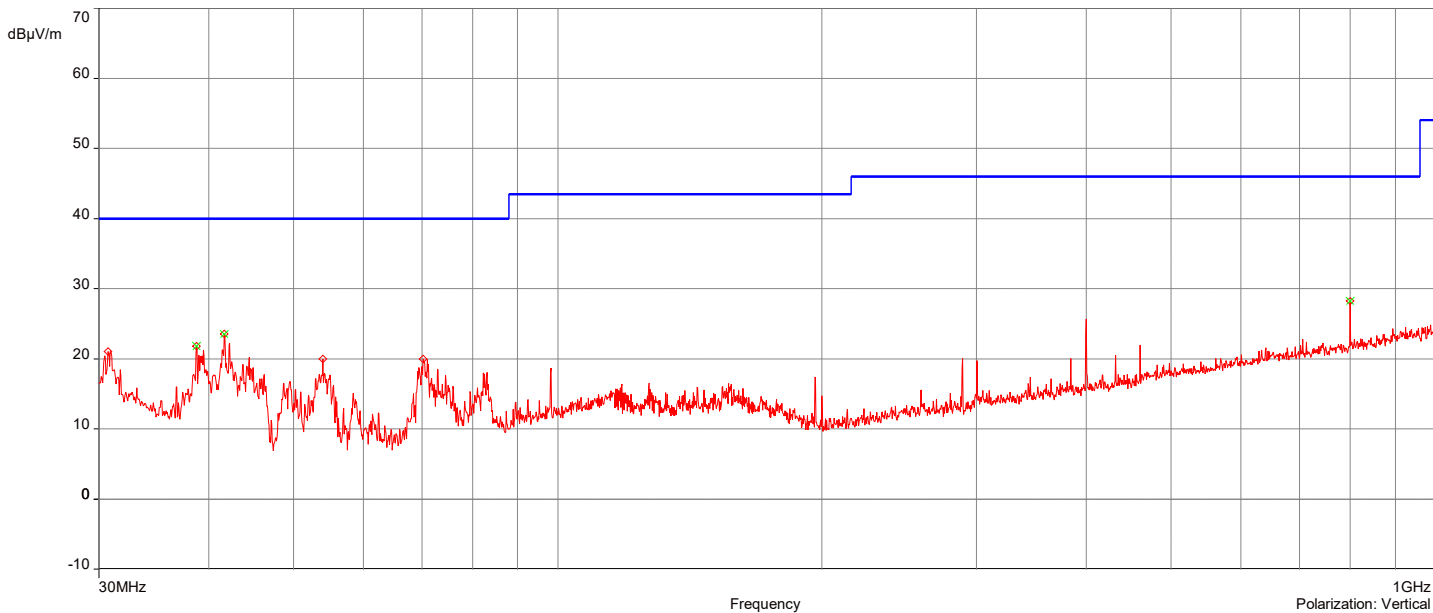
AH21051701-CON-126#001_802.11b CH11_30MHz-1GHz

8/25/2021 9:30:40 AM

No	Frequency (MHz)	Level Q-Peak Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgement
1.	399.99118MHz	33.64	-8.42	46.00	-12.36	1.00	230.70	Horizontal	Passed
2.	800.05412MHz	29.90	-0.99	46.00	-16.10	2.50	86.20	Horizontal	Passed
3.	41.697747MHz	23.56	-13.49	40.00	-16.44	1.00	6.10	Vertical	Passed
4.	460.81946MHz	28.62	-6.85	46.00	-17.38	1.00	61.90	Horizontal	Passed
5.	799.94MHz	28.25	-2.19	46.00	-17.75	2.00	199.60	Vertical	Passed
6.	38.730514MHz	21.80	-11.80	40.00	-18.20	1.50	80.80	Vertical	Passed

Overall Graphs:





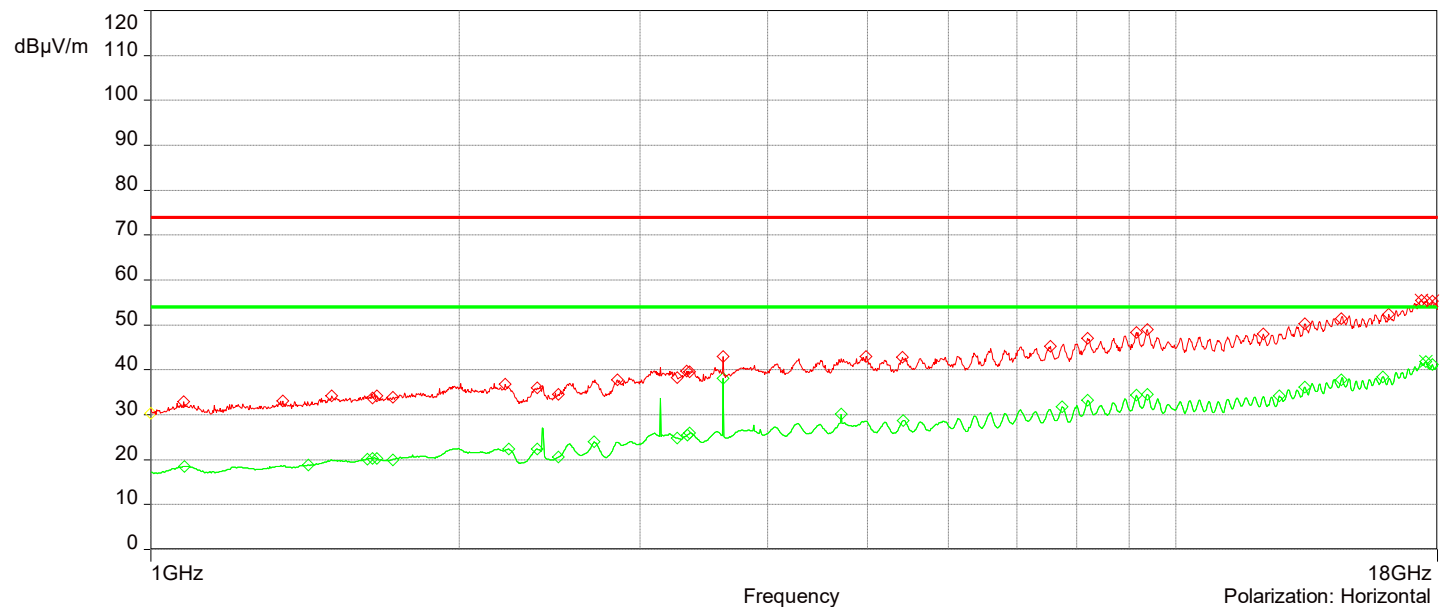
AH21051701-CON-126#001_802.11b DH1 CH1_1-18GHz

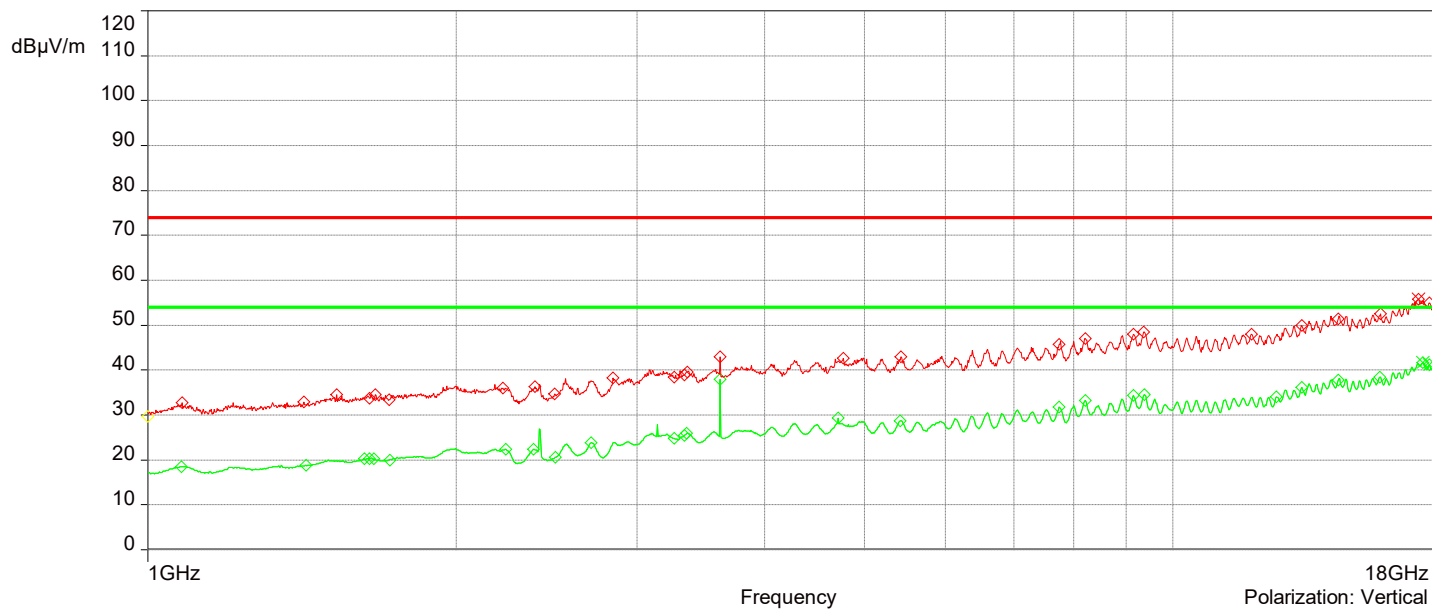
6/23/2021 1:13:17 PM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.35675GHz	55.74	18.50	74.00	-18.26	4.00	29.90	Vertical	Passed
2.	17.35675GHz	55.47	18.50	74.00	-18.53	4.00	299.90	Horizontal	Passed
3.	17.80625GHz	55.34	18.89	74.00	-18.66	2.50	60.00	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.79775GHz	41.24	18.88	54.00	-12.76	4.00	59.90	Vertical	Passed
2.	17.53825GHz	41.76	18.87	54.00	-12.24	4.00	0.10	Vertical	Passed
3.	17.5375GHz	41.78	18.87	54.00	-12.22	4.00	149.90	Horizontal	Passed

Overall Graphs:





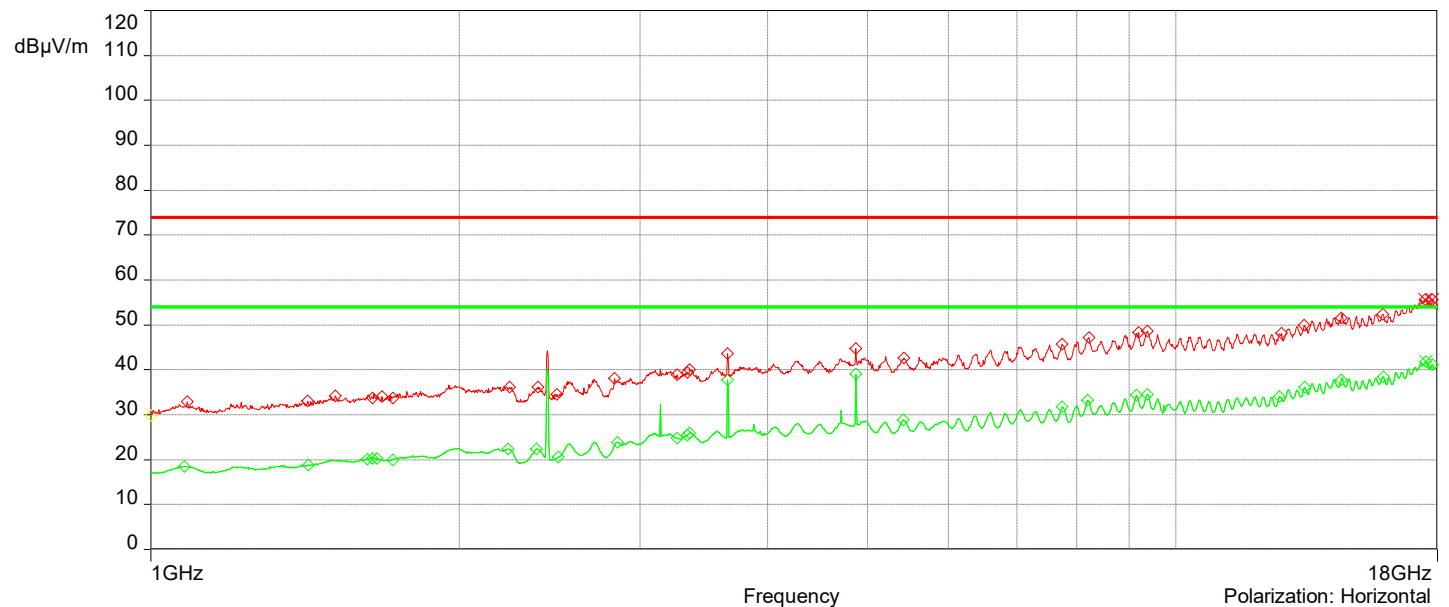
AH21051701-CON-126#001_802.11b DH1 CH6_1-18GHz

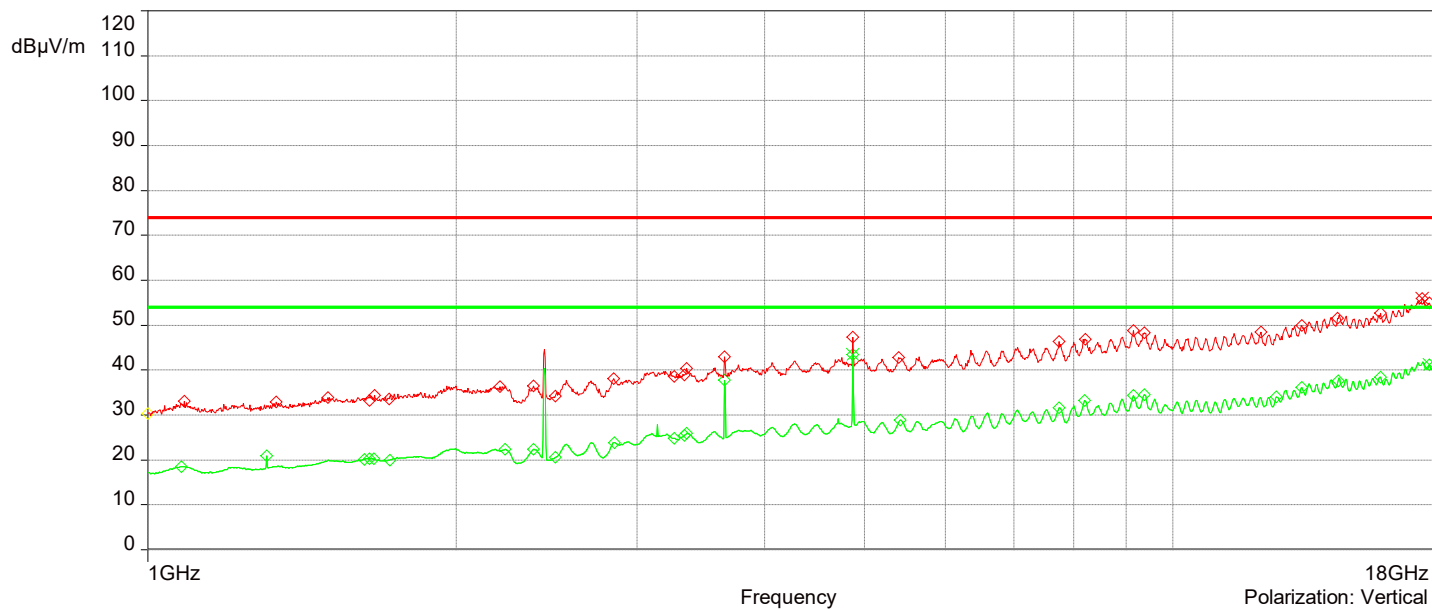
6/22/2021 9:46:08 AM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.79775GHz	55.65	18.88	74.00	-18.35	2.00	210.20	Horizontal	Passed
2.	17.518GHz	55.69	18.83	74.00	-18.31	2.50	179.90	Horizontal	Passed
3.	17.51975GHz	55.97	18.83	74.00	-18.03	2.00	150.10	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	4.874GHz	43.41	4.17	54.00	-10.59	1.50	179.90	Vertical	Passed
2.	17.5385GHz	41.80	18.87	54.00	-12.20	3.50	269.90	Horizontal	Passed
3.	17.79725GHz	41.24	18.88	54.00	-12.76	4.00	329.90	Vertical	Passed

Overall Graphs:





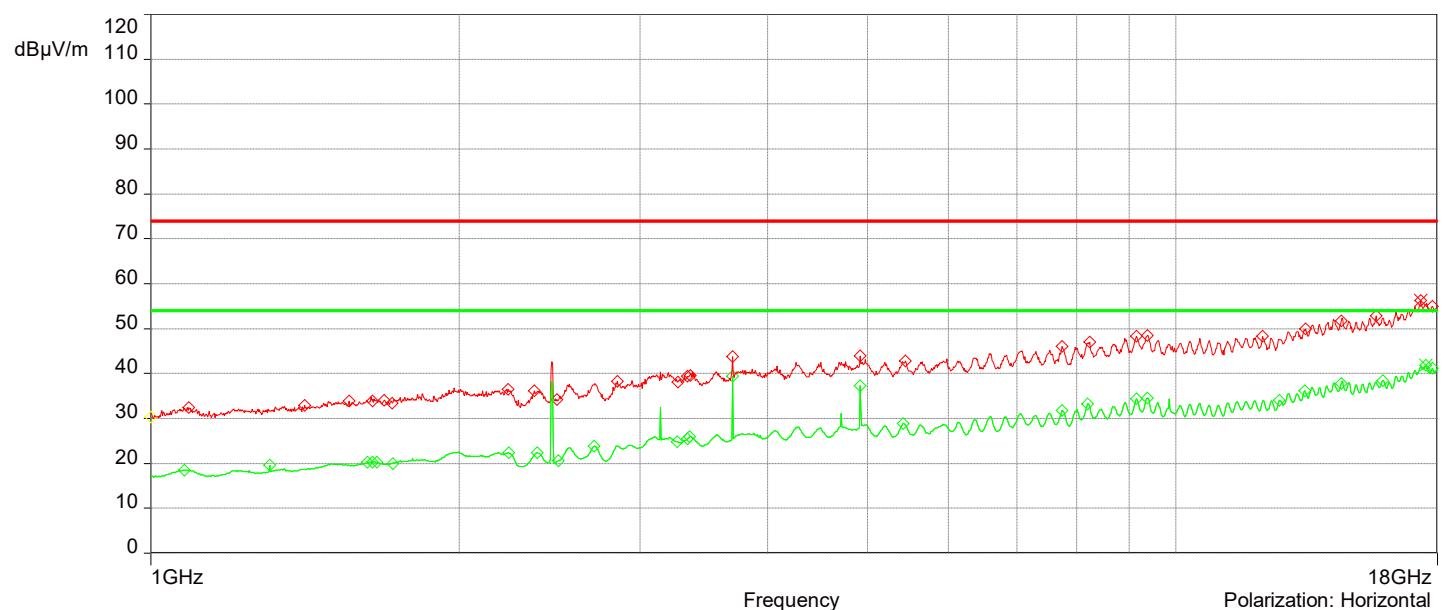
AH21051701-CON-126#001_802.11b DH1 CH11_1-18GHz

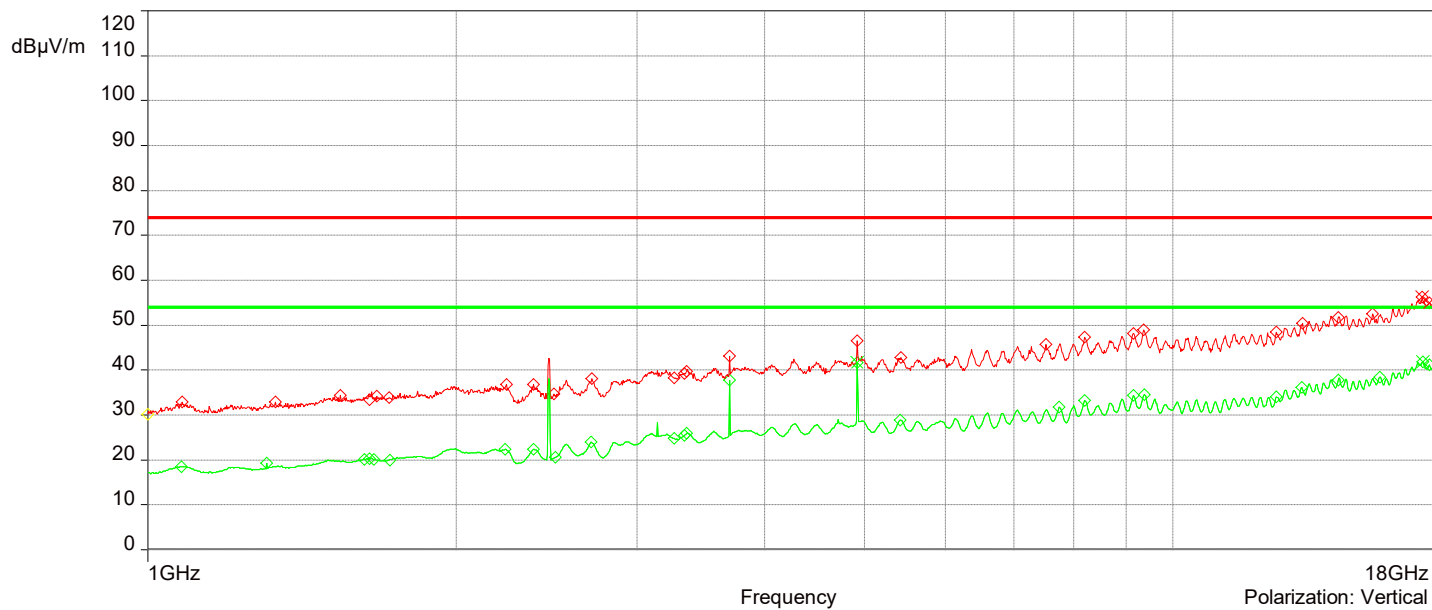
6/22/2021 8:17:20 AM

No	Frequency (MHz)	Level Peak Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.7925GHz	55.05	18.88	74.00	-18.95	2.00	209.90	Vertical	Passed
2.	17.5175GHz	56.31	18.83	74.00	-17.69	3.50	240.10	Vertical	Passed
3.	17.34675GHz	56.32	18.46	74.00	-17.68	2.50	150.10	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.53875GHz	41.82	18.87	54.00	-12.18	4.00	89.90	Horizontal	Passed
2.	17.53775GHz	41.78	18.87	54.00	-12.22	2.00	239.90	Vertical	Passed
3.	4.924GHz	41.71	4.34	54.00	-12.29	1.50	180.10	Vertical	Passed

Overall Graphs:





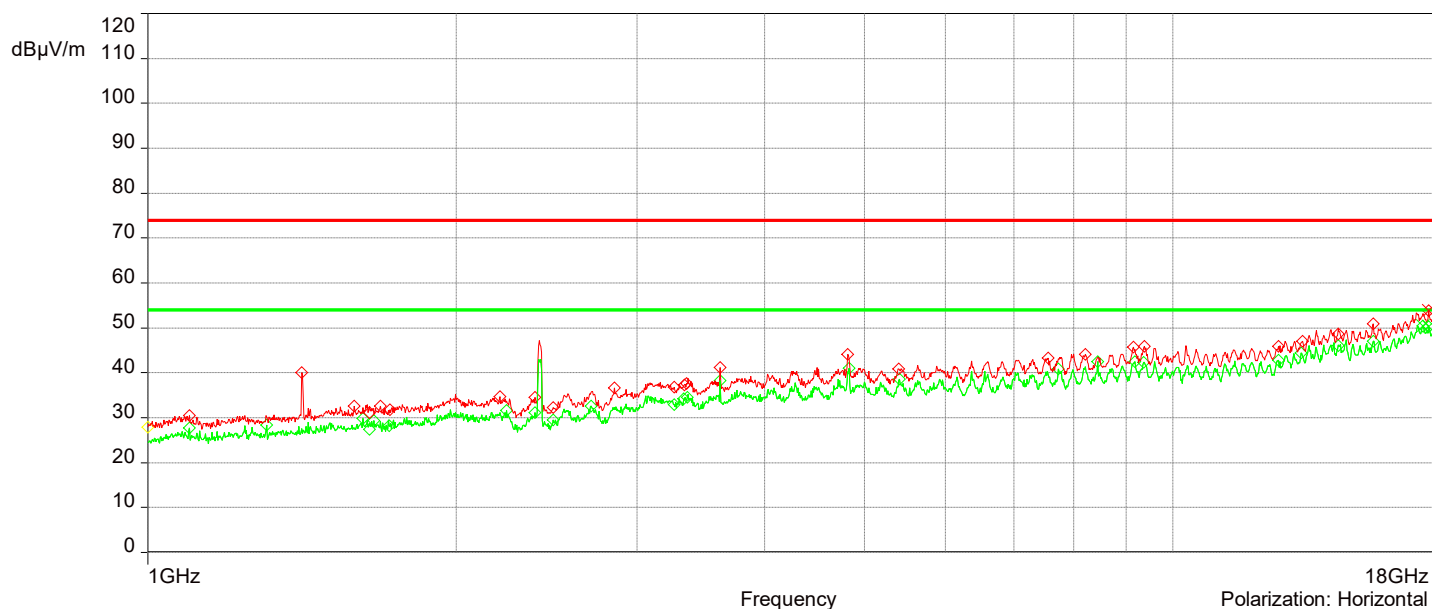
AH21051701-CON-126#001_802.11g CH1_1-18GHz

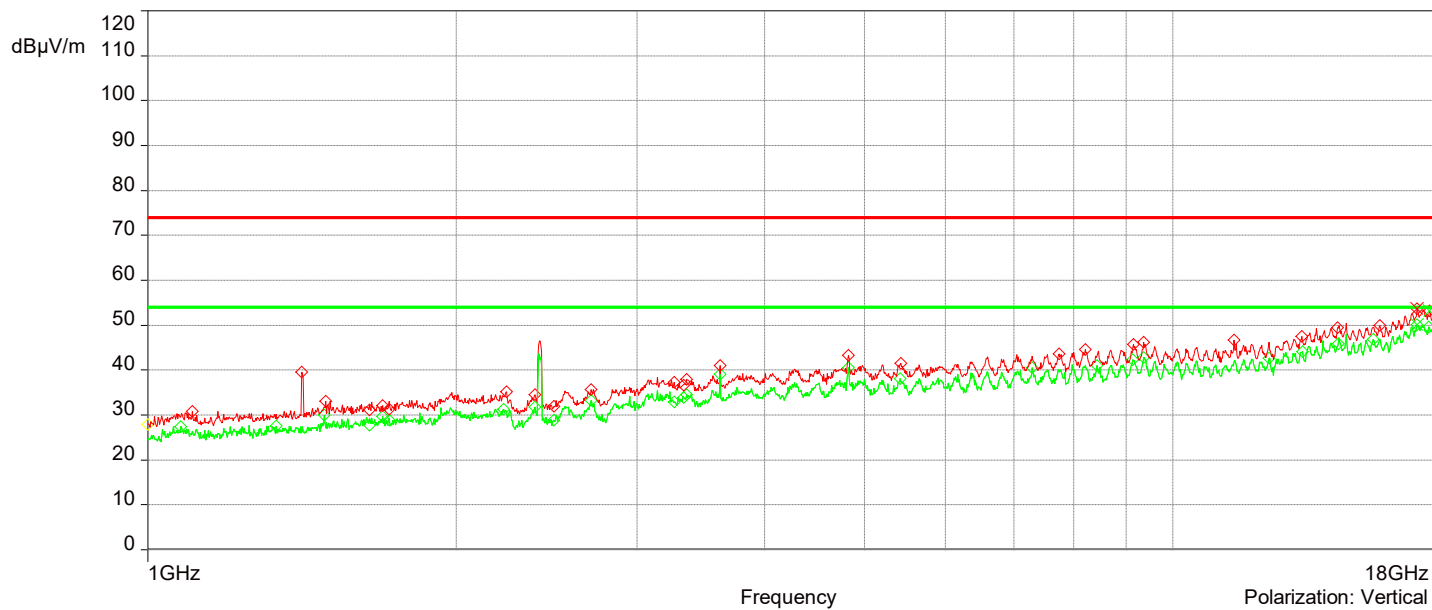
7/1/2021 2:07:00 PM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.31448GHz	53.69	18.32	74.00	-20.31	3.12	119.90	Vertical	Passed
2.	17.784494GHz	53.26	18.88	74.00	-20.74	3.91	0	Vertical	Passed
3.	17.762993GHz	53.83	18.86	74.00	-20.17	3.25	209.90	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.31448GHz	50.05	18.32	54.00	-3.95	3.12	119.90	Vertical	Passed
2.	17.541987GHz	50.51	18.88	54.00	-3.49	1.81	29.90	Horizontal	Passed
3.	17.762993GHz	50.27	18.86	54.00	-3.73	3.25	209.90	Horizontal	Passed

Overall Graphs:





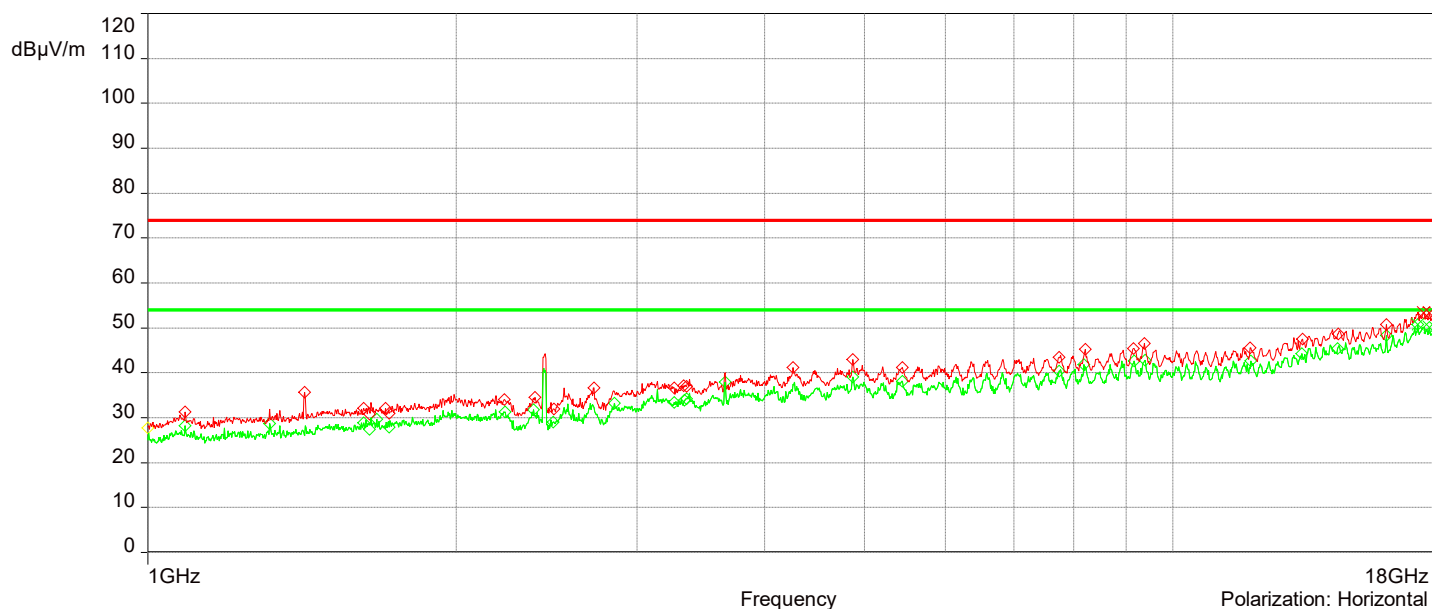
AH21051701-CON-126#001_802.11g CH6_1-18GHz

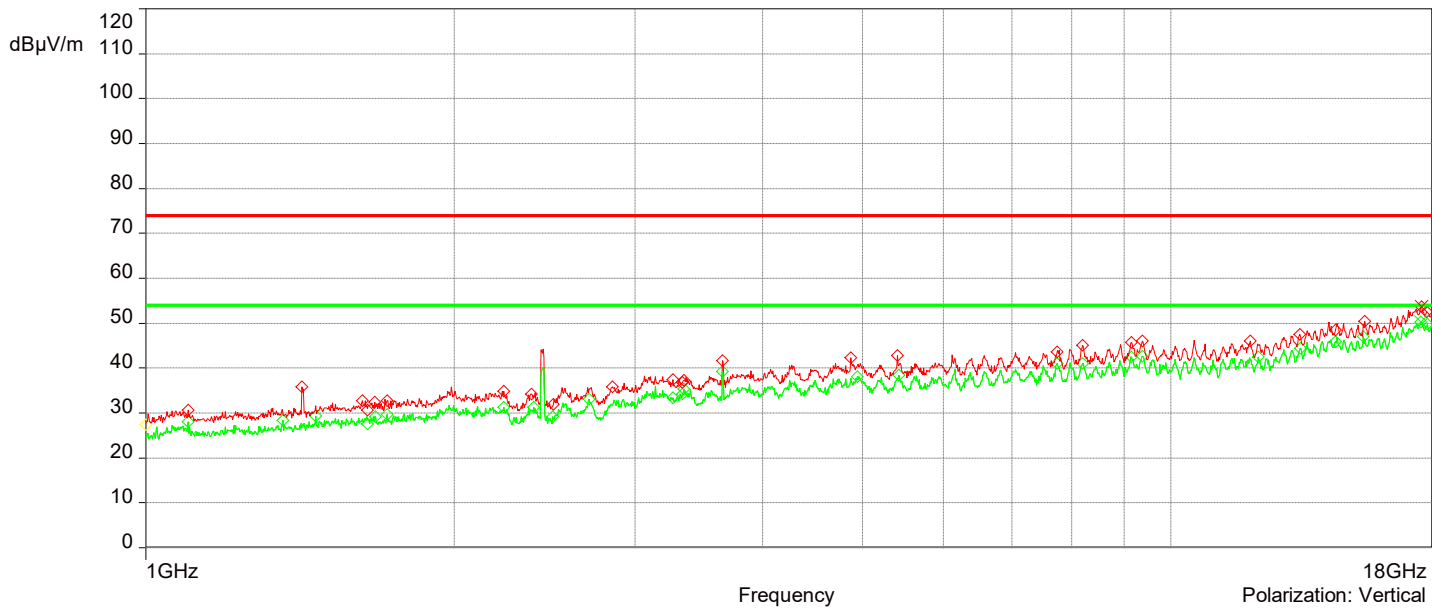
7/1/2021 2:30:38 PM

No	Frequency (MHz)	Level Peak Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.553987GHz	53.64	18.89	74.00	-20.36	2.14	90.10	Vertical	Passed
2.	17.574487GHz	53.41	18.87	74.00	-20.59	2.35	150.00	Horizontal	Passed
3.	17.782494GHz	53.37	18.87	74.00	-20.63	3.84	120.20	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dBμV/m)	Correction Factor (dB)	Limit dBμV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.540486GHz	50.27	18.88	54.00	-3.73	4.00	210.10	Vertical	Passed
2.	17.32148GHz	50.73	18.35	54.00	-3.27	1.85	30.10	Horizontal	Passed
3.	17.784494GHz	50.18	18.88	54.00	-3.82	3.21	0.20	Horizontal	Passed

Overall Graphs:





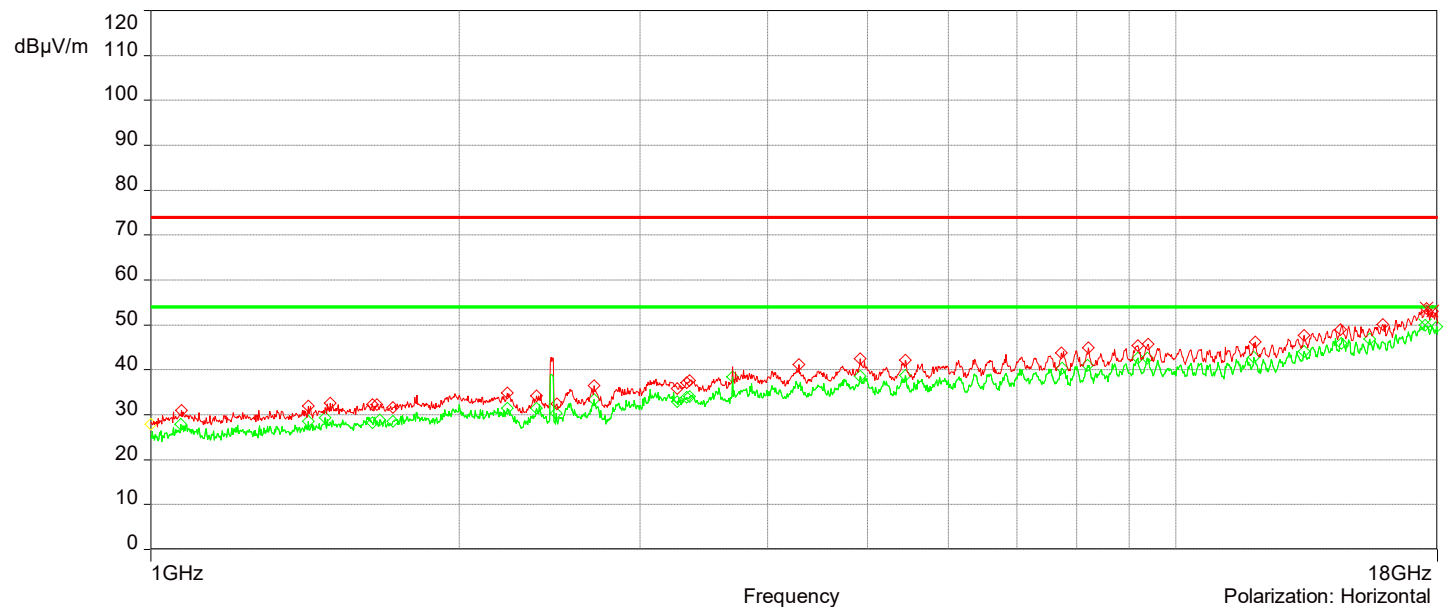
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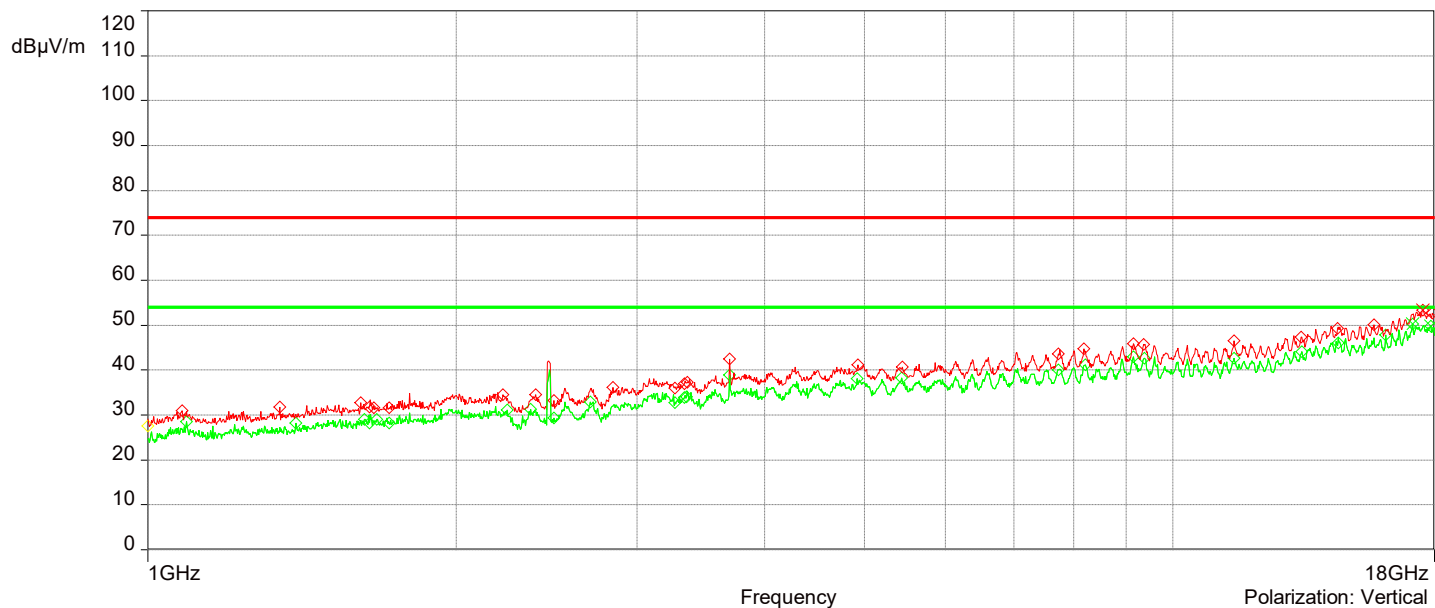
7/1/2021 2:46:56 PM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.532986GHz	53.33	18.86	74.00	-20.67	2.18	29.90	Vertical	Passed
2.	17.578988GHz	53.66	18.86	74.00	-20.34	3.55	89.90	Horizontal	Passed
3.	17.781994GHz	53.07	18.87	74.00	-20.93	2.50	119.90	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.124974GHz	50.29	17.62	54.00	-3.71	3.57	89.90	Vertical	Passed
2.	17.856996GHz	49.77	18.92	54.00	-4.23	1.30	149.90	Vertical	Passed
3.	17.497985GHz	49.91	18.79	54.00	-4.09	1.11	89.90	Horizontal	Passed

Overall Graphs:





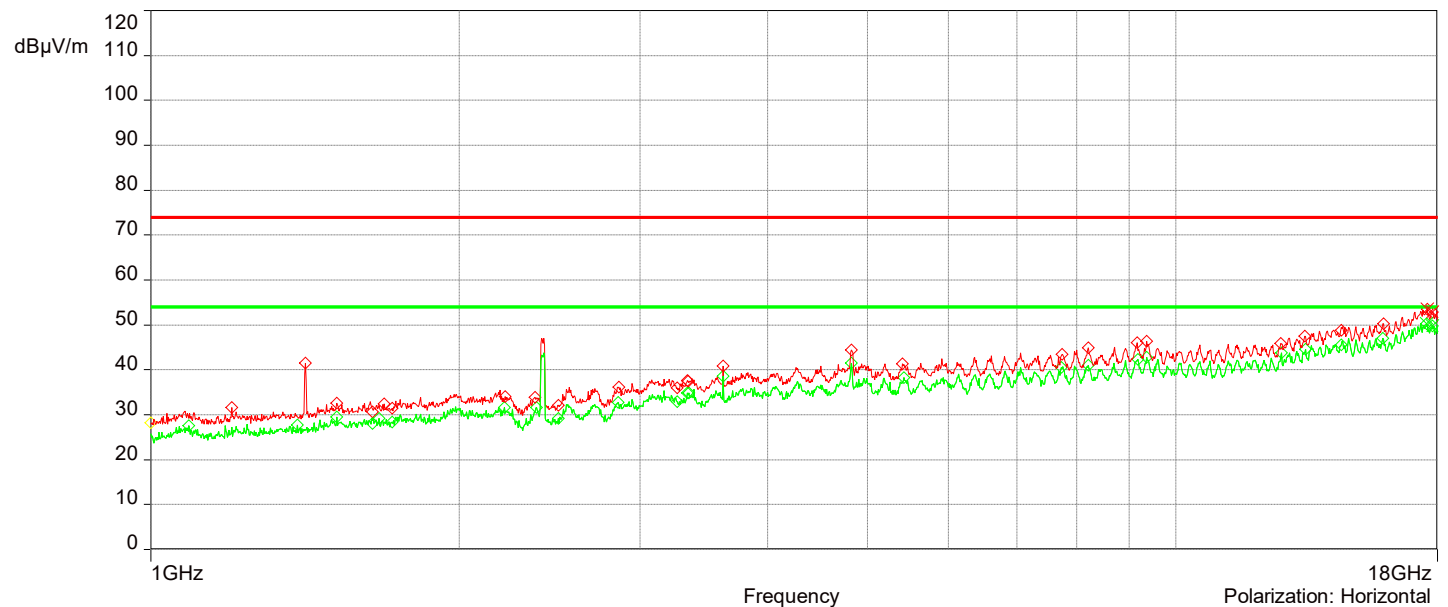
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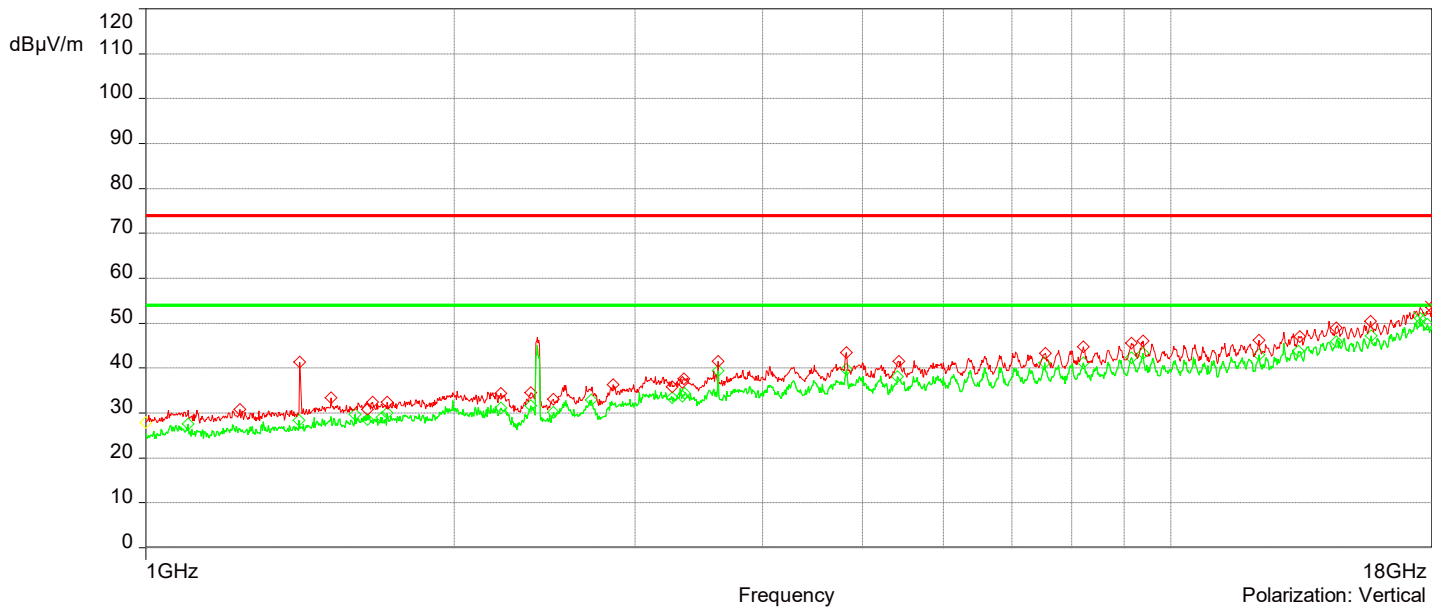
7/1/2021 3:03:20 PM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.980999GHz	53.53	19.13	74.00	-20.47	1.77	240.10	Vertical	Passed
2.	17.588488GHz	53.54	18.85	74.00	-20.46	3.94	210.10	Horizontal	Passed
3.	17.794494GHz	52.81	18.88	74.00	-21.19	4.00	120.10	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.519986GHz	51.07	18.83	54.00	-2.93	1.19	90.20	Vertical	Passed
2.	17.567987GHz	50.27	18.88	54.00	-3.73	1.13	270.10	Horizontal	Passed
3.	17.786994GHz	49.87	18.88	54.00	-4.13	2.64	180.10	Horizontal	Passed

Overall Graphs:





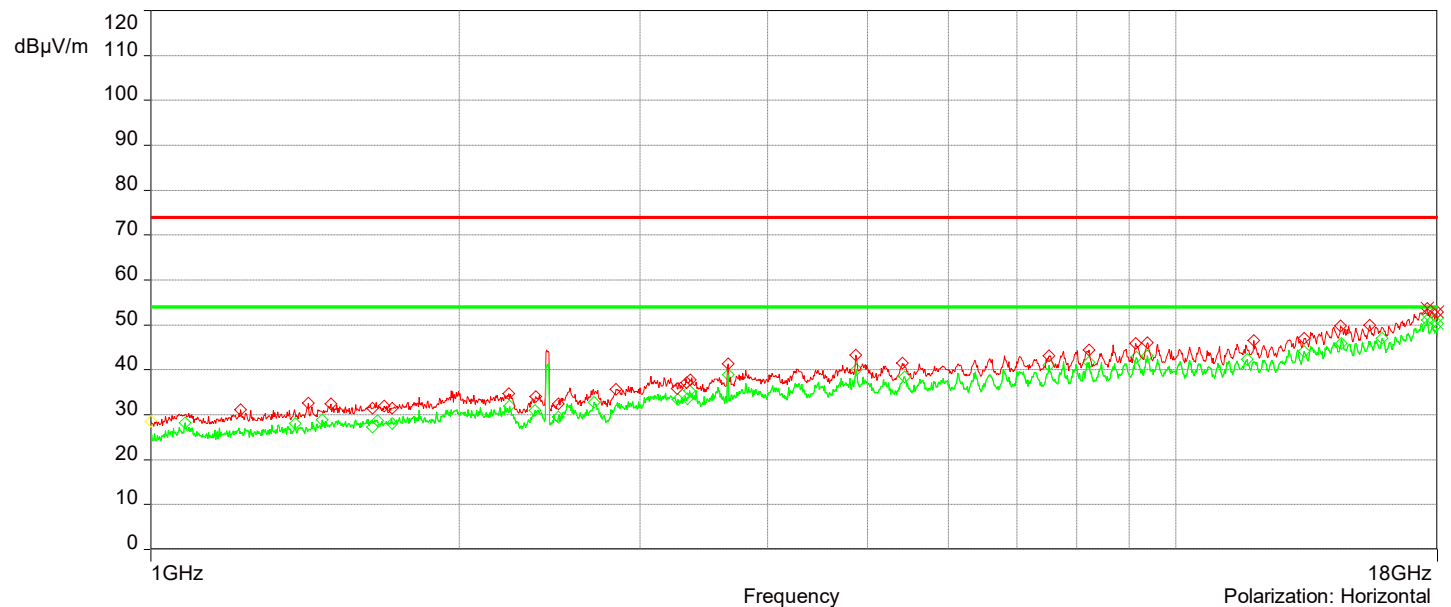
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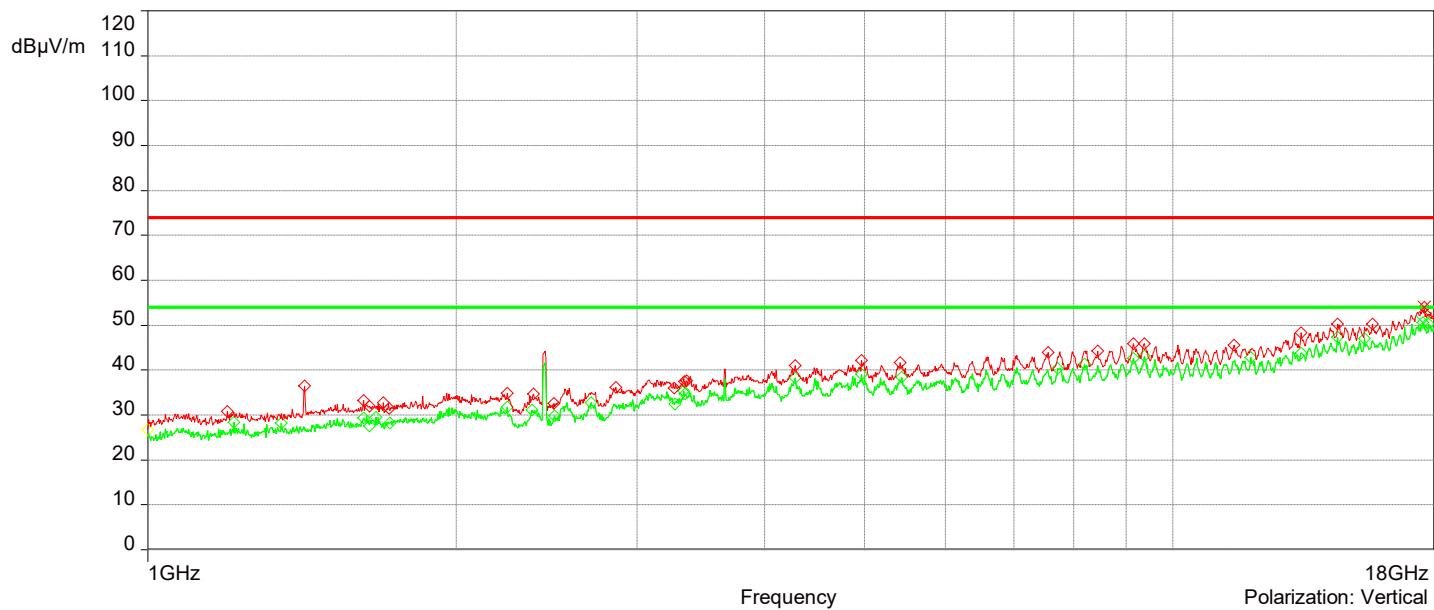
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No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.582988GHz	54.00	18.86	74.00	-20.00	1.65	119.90	Vertical	Passed
2.	17.587988GHz	53.74	18.85	74.00	-20.26	1.34	239.90	Horizontal	Passed
3.	17.9885GHz	52.96	19.16	74.00	-21.04	2.05	269.90	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.540986GHz	50.62	18.88	54.00	-3.38	1.00	209.90	Vertical	Passed
2.	17.587988GHz	51.16	18.85	54.00	-2.84	1.34	239.90	Horizontal	Passed
3.	17.9885GHz	50.34	19.16	54.00	-3.66	2.05	269.90	Horizontal	Passed

Overall Graphs:





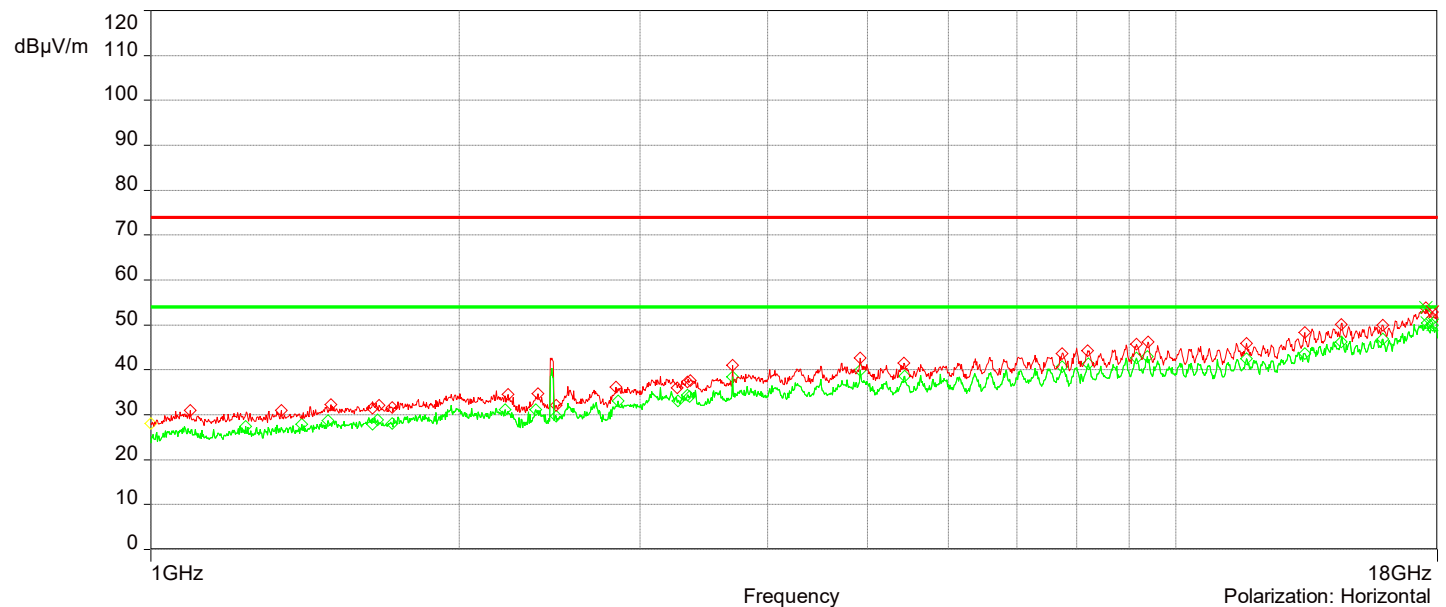
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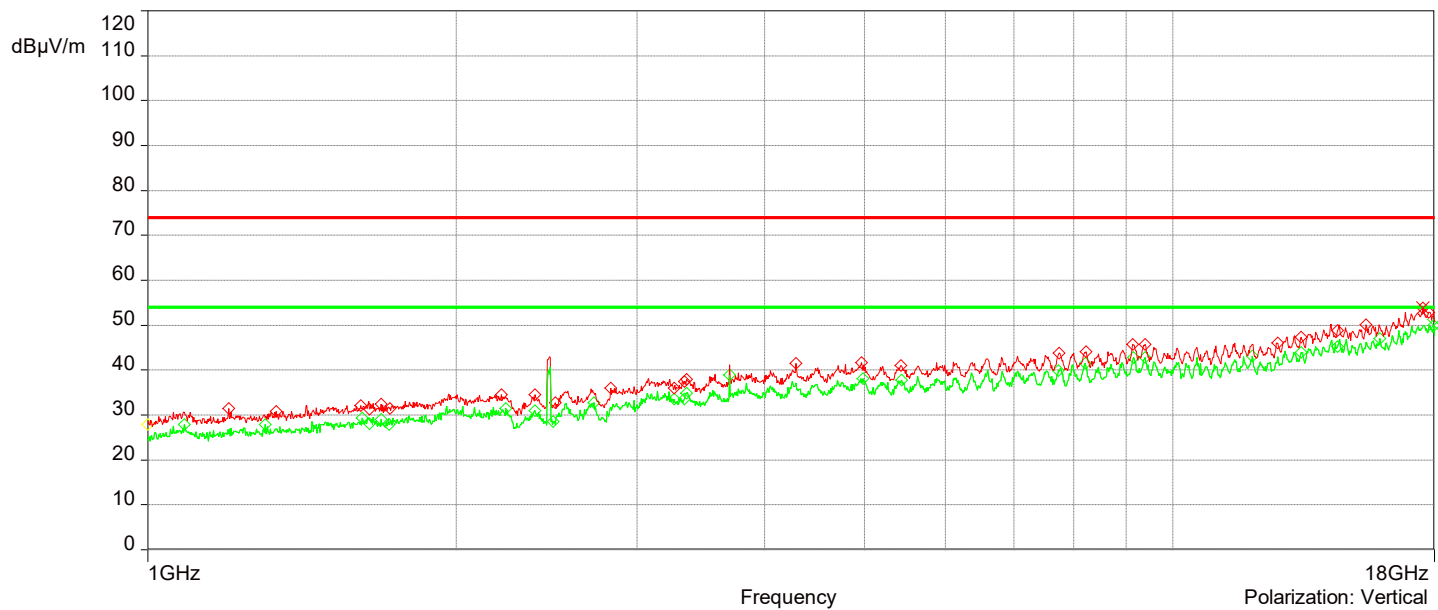
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No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.538986GHz	53.88	18.87	74.00	-20.12	3.12	180.10	Vertical	Passed
2.	17.545487GHz	53.77	18.89	74.00	-20.23	1.04		Horizontal	Passed
3.	17.798994GHz	52.87	18.88	74.00	-21.13	2.79	180.10	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	17.981999GHz	49.97	19.14	54.00	-4.03	1.44	240.10	Vertical	Passed
2.	17.581988GHz	50.42	18.86	54.00	-3.58	4.00	300.10	Horizontal	Passed
3.	17.789994GHz	49.99	18.88	54.00	-4.01	1.62	90.00	Horizontal	Passed

Overall Graphs:





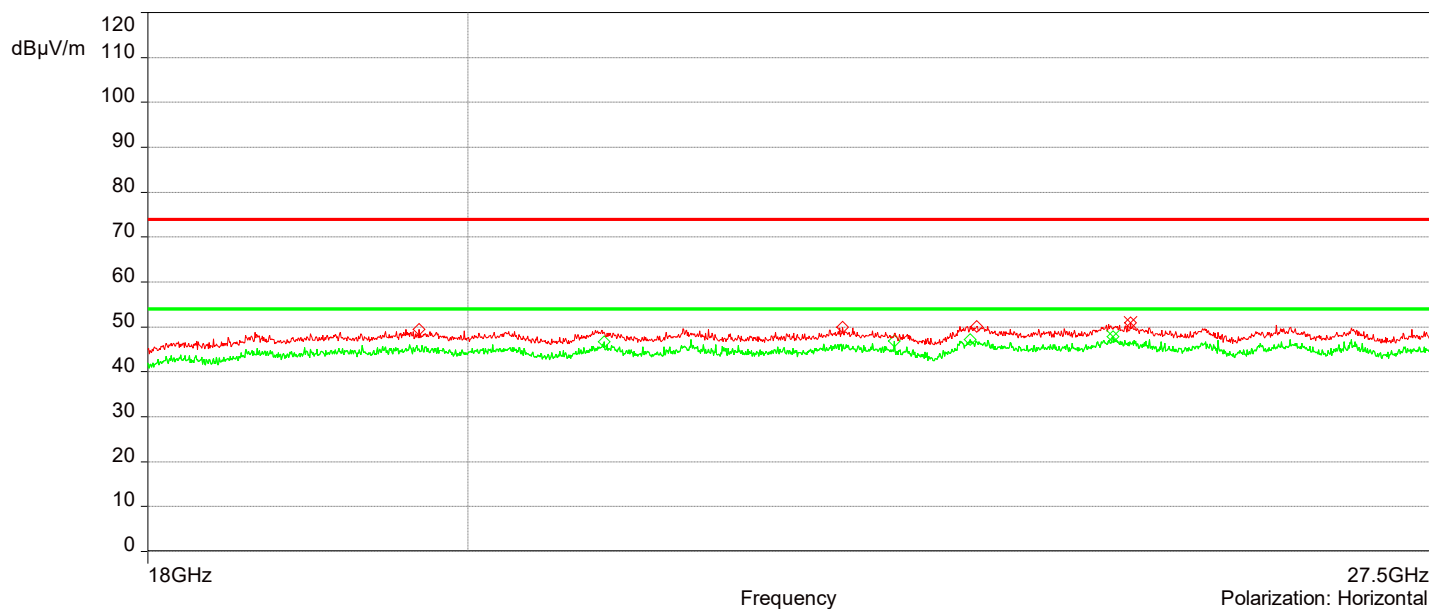
AH21051701-CON-126#001_802.11b DH1 CH1_18-27.5GHz

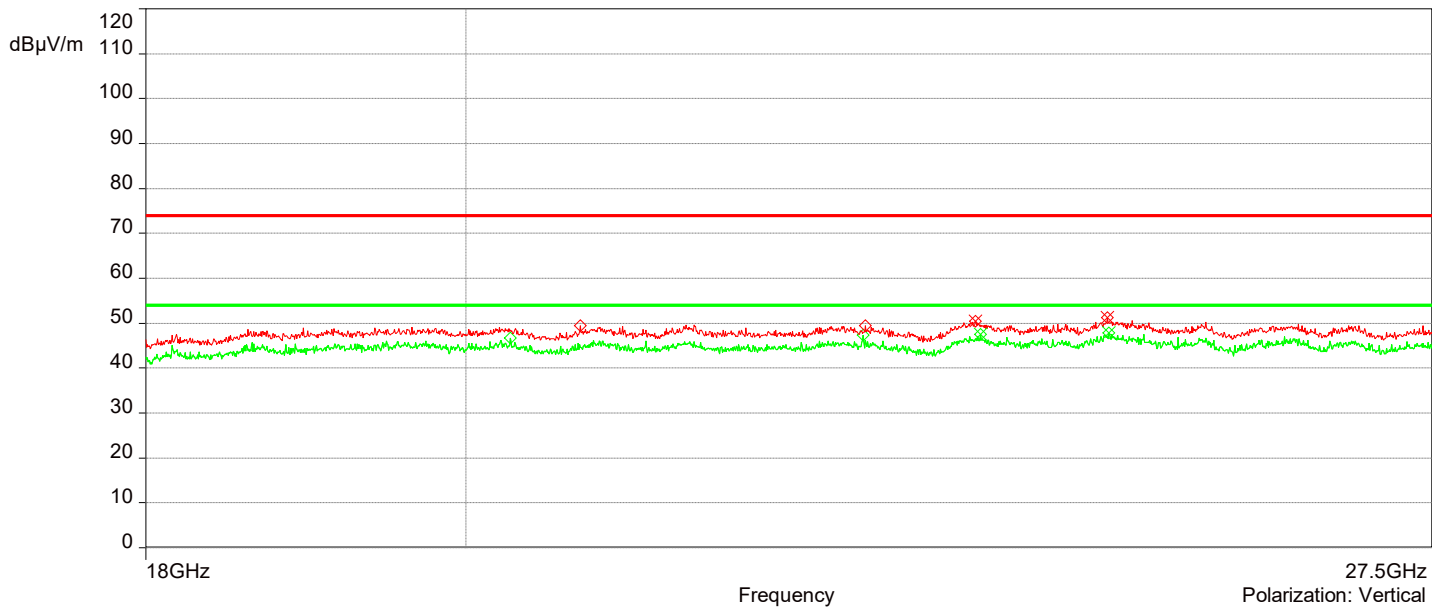
6/28/2021 9:10:46 AM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	23.653798GHz	50.40	3.47	74.00	-23.60	3.34	119.90	Vertical	Passed
2.	24.707353GHz	51.19	4.36	74.00	-22.81	1.65	0.10	Vertical	Passed
3.	24.882362GHz	50.87	4.30	74.00	-23.13	2.42	209.90	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	23.6963GHz	47.55	3.37	54.00	-6.45	2.07	299.90	Vertical	Passed
2.	24.716854GHz	47.86	4.39	54.00	-6.14	1.51	239.90	Vertical	Passed
3.	24.735855GHz	47.85	4.47	54.00	-6.15	4.00	329.90	Horizontal	Passed

Overall Graphs:





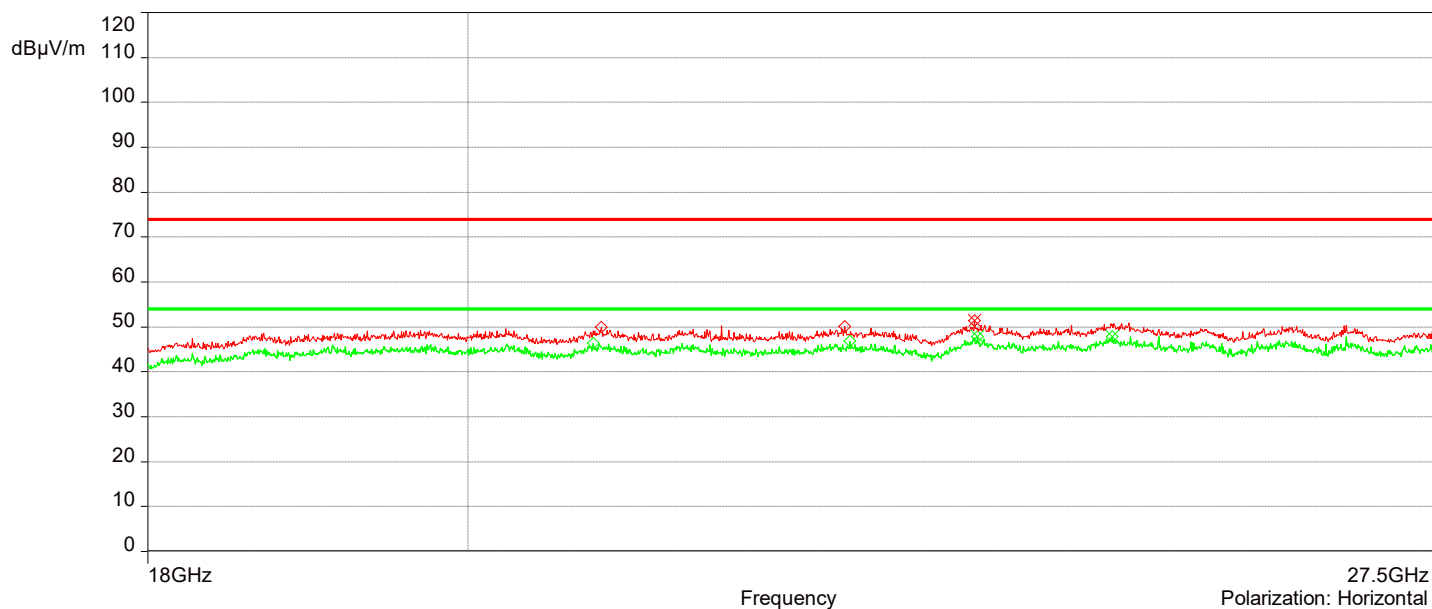
AH21051701-CON-126#001_802.11b DH1 CH11_18-27.5GHz

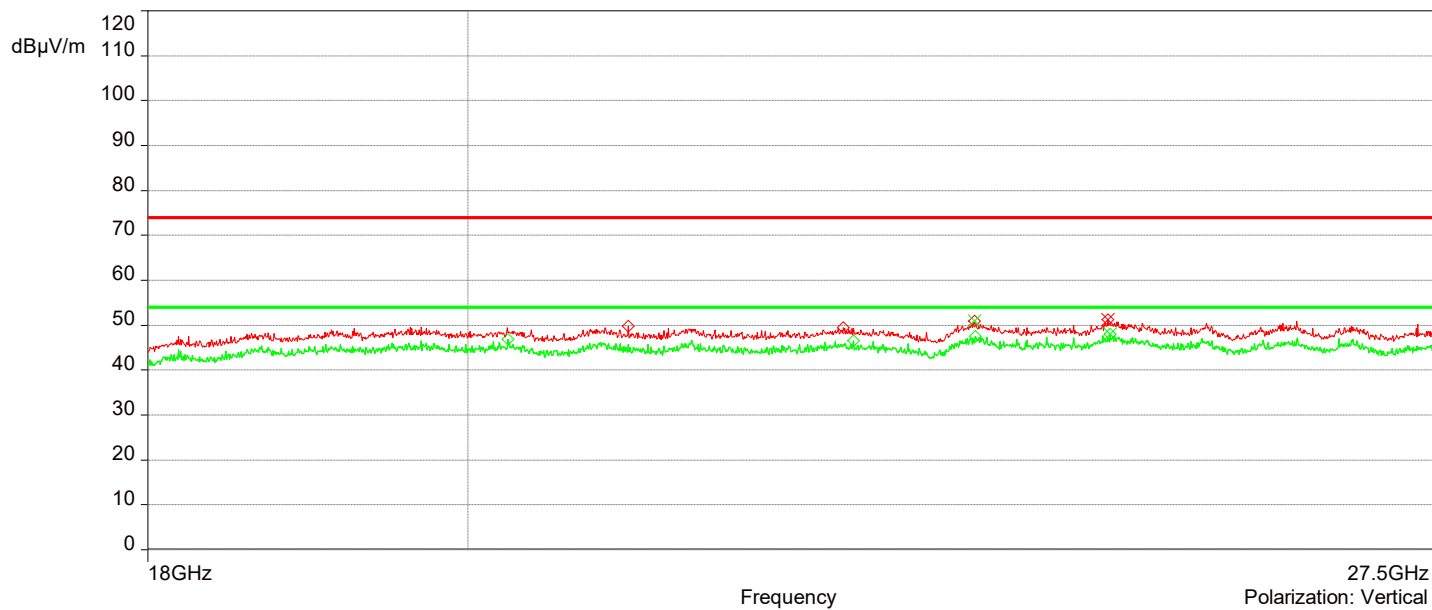
6/28/2021 9:44:55 AM

No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	23.633797GHz	50.93	3.51	74.00	-23.07	3.87		Vertical	Passed
2.	24.697853GHz	51.25	4.32	74.00	-22.75	1.00	149.90	Vertical	Passed
3.	23.635297GHz	51.47	3.50	74.00	-22.53	1.52	269.90	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	24.710353GHz	48.02	4.37	54.00	-5.98	3.07	179.90	Vertical	Passed
2.	23.655298GHz	47.91	3.46	54.00	-6.09	3.90	209.90	Horizontal	Passed
3.	24.730354GHz	47.93	4.45	54.00	-6.07	2.39	0	Horizontal	Passed

Overall Graphs:





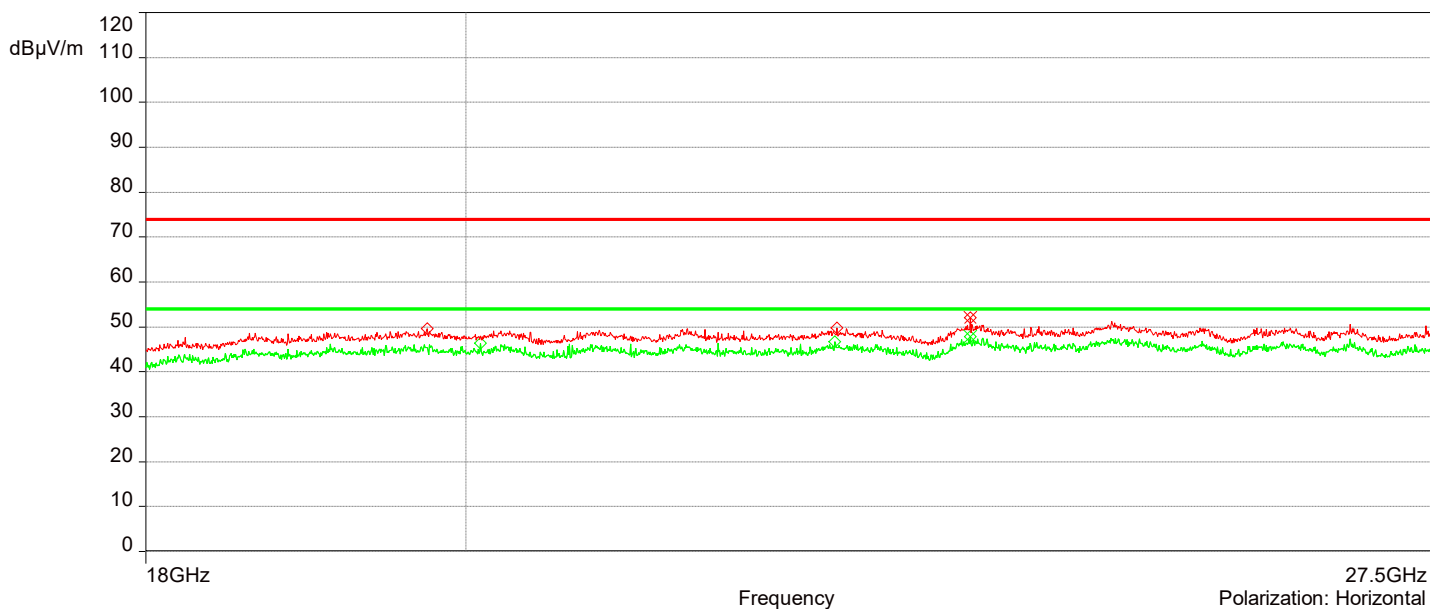
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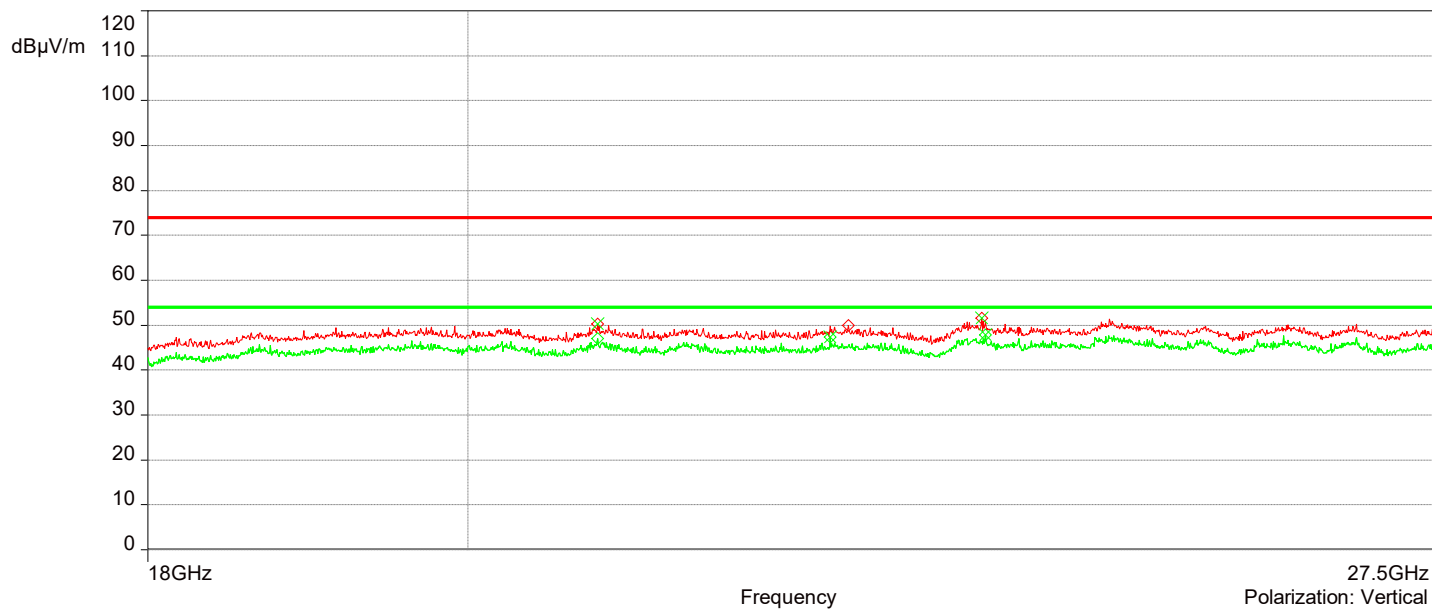
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No	Frequency (MHz)	Level Peak Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	20.876651GHz	50.27	1.52	74.00	-23.73	1.11	0	Vertical	Passed
2.	23.688799GHz	51.54	3.38	74.00	-22.46	1.00	0	Vertical	Passed
3.	23.614295GHz	52.09	3.54	74.00	-21.91	2.31	30.10	Horizontal	Passed

No	Frequency (MHz)	Level Average Reading (dB μ V/m)	Correction Factor (dB)	Limit dB μ V/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	22.539239GHz	47.31	1.86	54.00	-6.69	2.06	180.10	Vertical	Passed
2.	23.719301GHz	47.83	3.31	54.00	-6.17	3.42	270.10	Vertical	Passed
3.	23.614295GHz	47.80	3.54	54.00	-6.20	2.31	30.10	Horizontal	Passed

Overall Graphs:





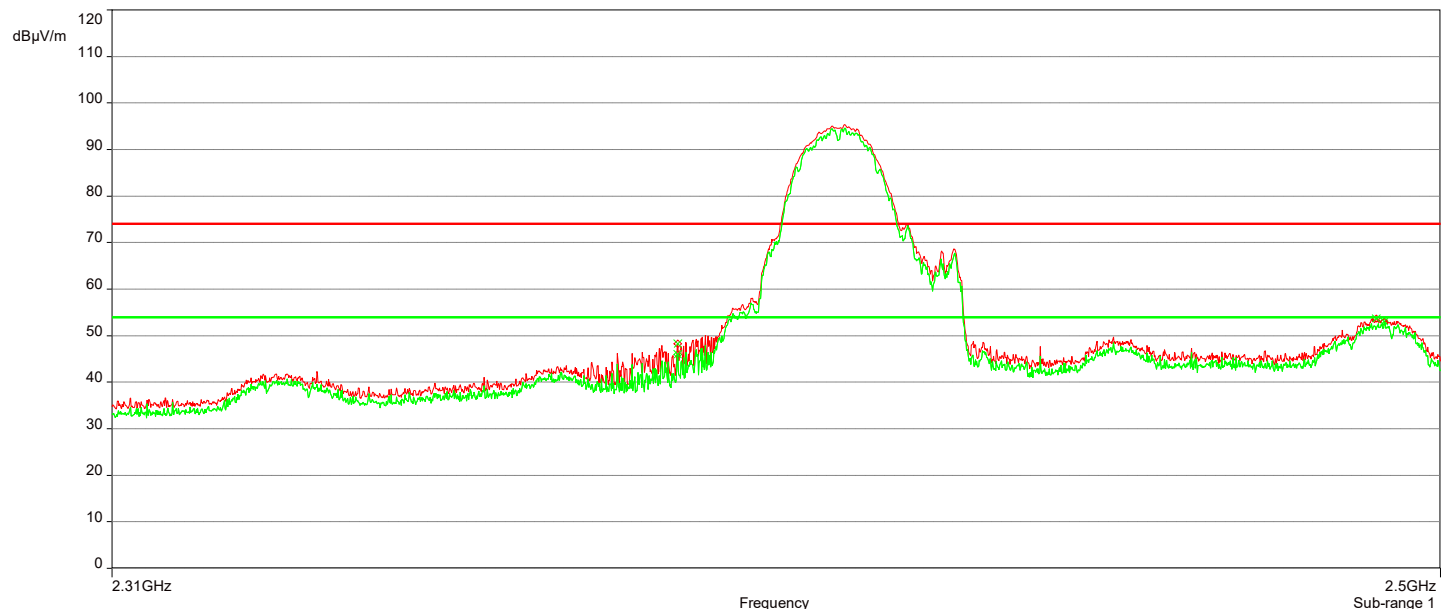
AH21051701-CON-126#001_Restricted Bandedge_2.4G 802.11b_Ch-1

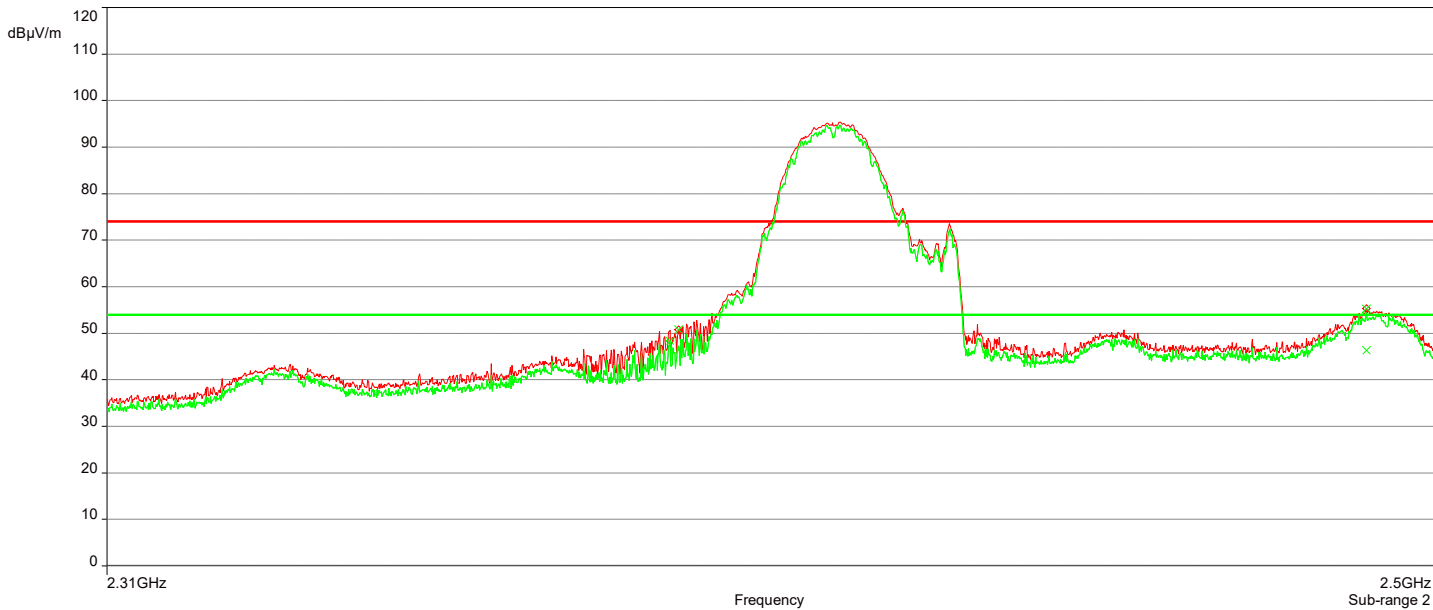
9/2/2021 3:43:35 PM

No	Frequency (MHz)	Level Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4897349GHz	55.35	-2.45	74.00	-18.65	1.51	0.10	Horizontal	Passed
2.	2.4904952GHz	53.76	-2.45	74.00	-20.24	3.70	22.40	Vertical	Passed
3.	2.389935GHz	50.77	-3.13	74.00	-23.23	1.72	22.40	Horizontal	Passed
4.	2.3890795GHz	48.27	-3.14	74.00	-25.73	3.97	337.40	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4916358GHz	53.02	-2.44	54.00	-0.98	3.70	22.40	Vertical	Passed
2.	2.3886993GHz	48.41	-3.14	54.00	-5.59	1.39	0.10	Horizontal	Passed
3.	2.4897349GHz	46.27	-2.45	54.00	-7.73	1.51	0.10	Horizontal	Passed
4.	2.3890795GHz	45.94	-3.14	54.00	-8.06	3.97	337.40	Vertical	Passed

Overall Graphs:





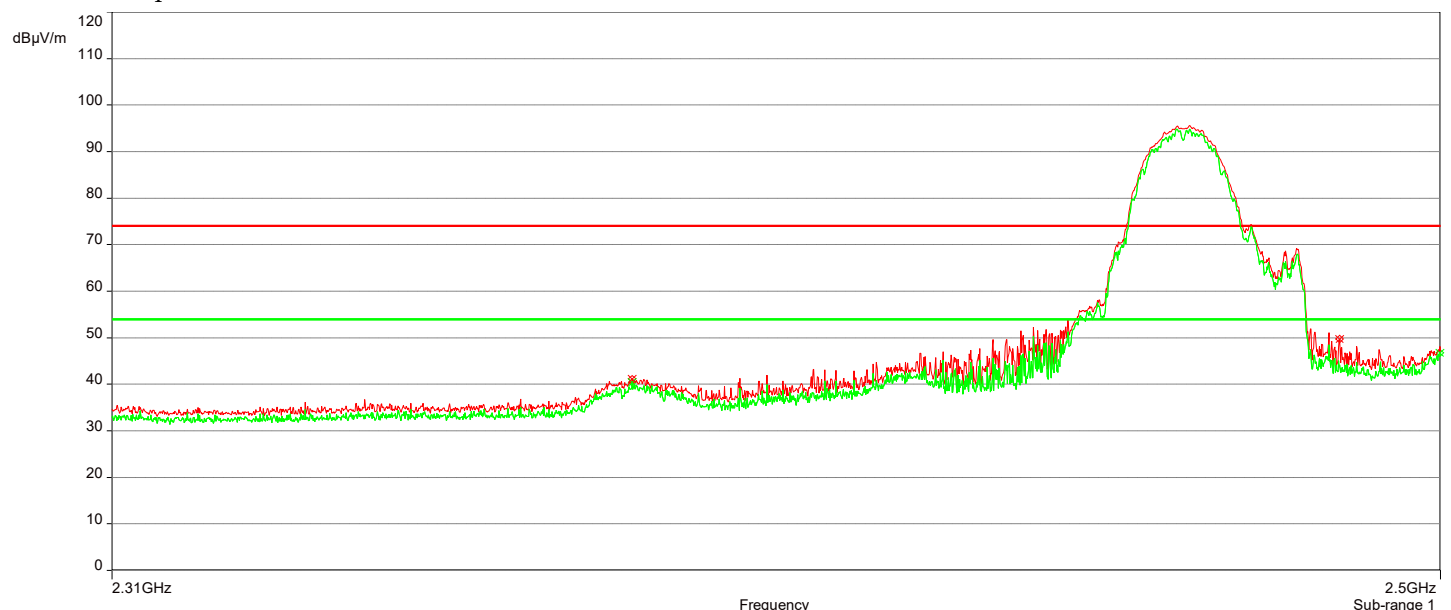
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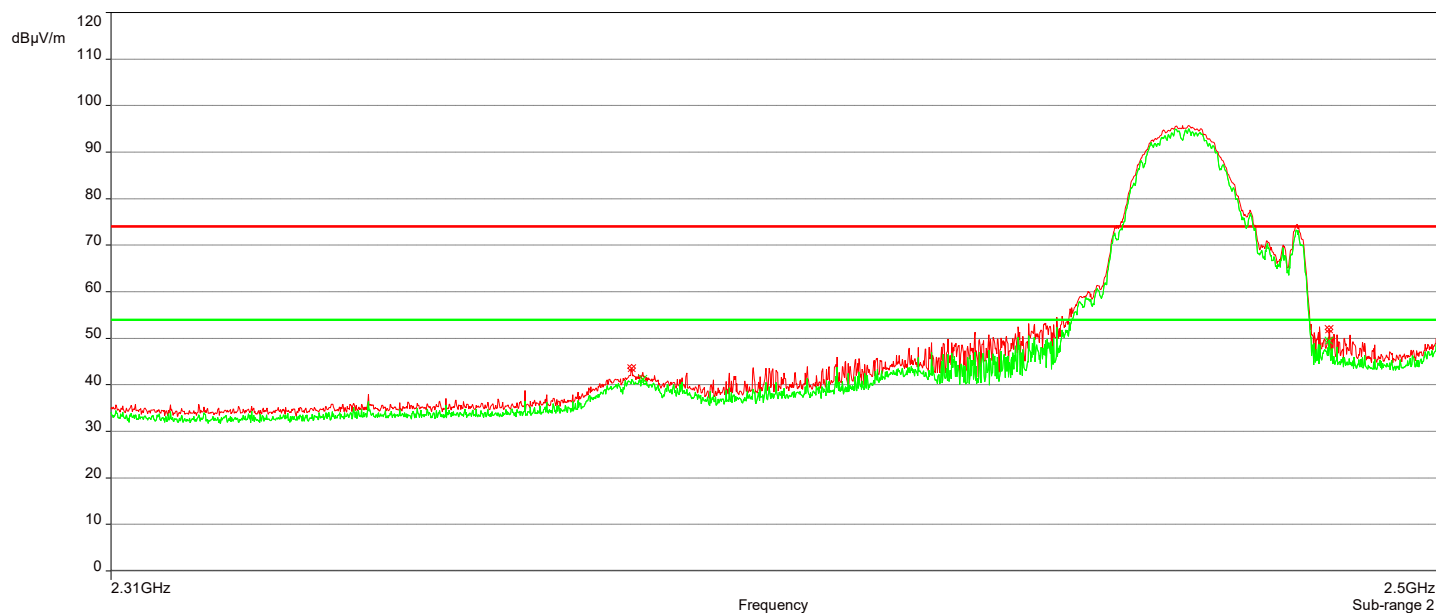
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No	Frequency (MHz)	Level Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4836518GHz	51.87	-2.47	74.00	-22.13	1.00	0.10	Horizontal	Passed
2.	2.4850775GHz	49.79	-2.47	74.00	-24.21	3.31	22.40	Vertical	Passed
3.	2.3827114GHz	43.59	-3.18	74.00	-30.41	2.54	337.40	Horizontal	Passed
4.	2.3826163GHz	41.23	-3.18	74.00	-32.77	3.43	337.40	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4836518GHz	49.48	-2.47	54.00	-4.52	1.00	0.10	Horizontal	Passed
2.	2.499905GHz	46.76	-2.41	54.00	-7.24	3.97	22.40	Vertical	Passed
3.	2.3842321GHz	41.33	-3.17	54.00	-12.67	2.42	337.40	Horizontal	Passed
4.	2.3826163GHz	40.39	-3.18	54.00	-13.61	3.43	337.40	Vertical	Passed

Overall Graphs:





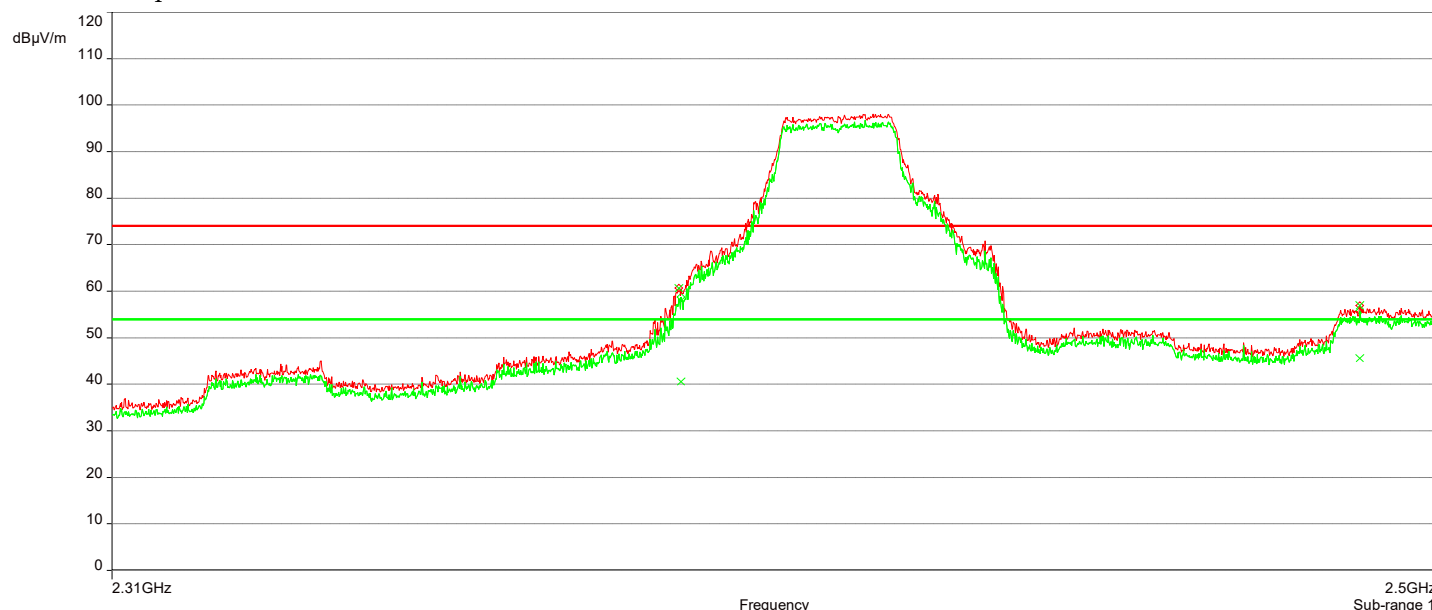
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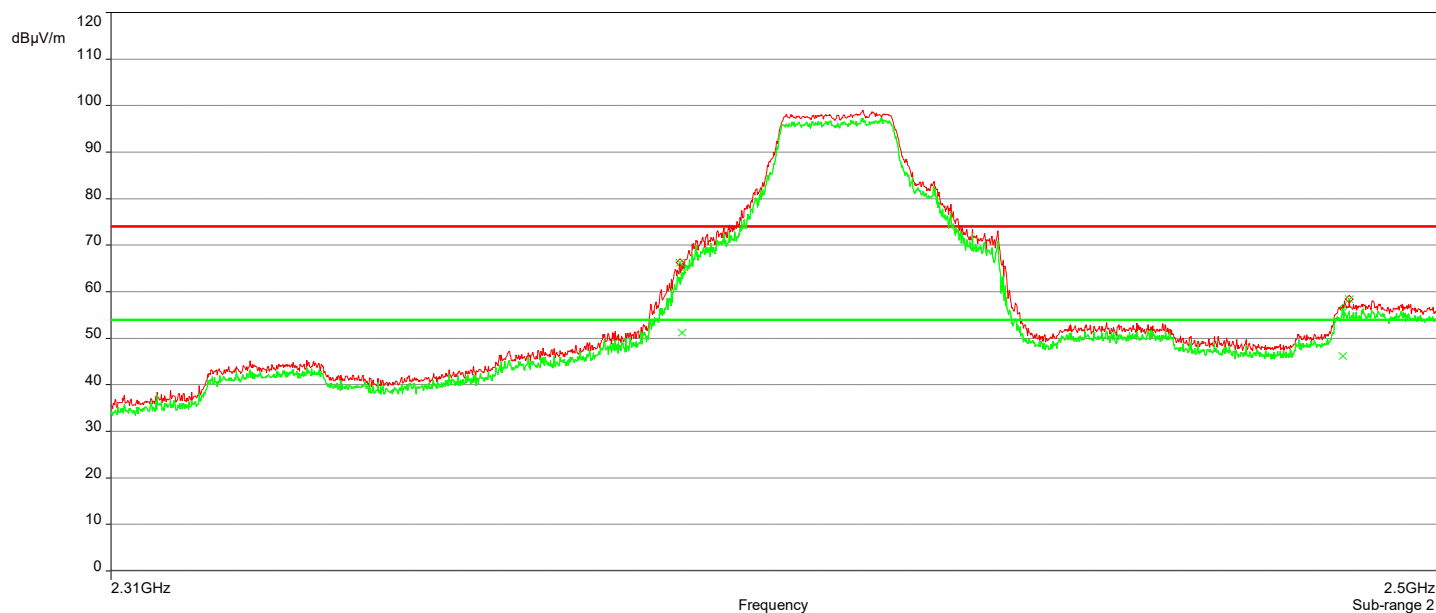
9/2/2021 5:05:00 PM

No	Frequency (MHz)	Level Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.3895548GHz	66.34	-3.14	74.00	-7.66	2.33	337.40	Horizontal	Passed
2.	2.3892696GHz	60.66	-3.14	74.00	-13.34	4.00	337.40	Vertical	Passed
3.	2.4865983GHz	58.43	-2.46	74.00	-15.57	1.02	0.10	Horizontal	Passed
4.	2.488024GHz	56.93	-2.46	74.00	-17.07	3.16	22.50	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.488024GHz	45.62	-2.46	54.00	-8.38	3.16	22.50	Vertical	Passed
2.	2.4856478GHz	46.21	-2.46	54.00	-7.79	1.73	22.10	Horizontal	Passed
3.	2.3898399GHz	51.21	-3.13	54.00	-2.79	2.46	336.90	Horizontal	Passed
4.	2.3895548GHz	40.56	-3.14	54.00	-13.44	4.00	336.90	Vertical	Passed

Overall Graphs:





AH21051701-CON-126#001_Restricted Bandedge_2.4G 802.11g_Ch-11

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No	Frequency (MHz)	Level Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4837469GHz	72.77	-2.47	74.00	-1.23	1.62	0.10	Horizontal	Passed
2.	2.4837469GHz	70.14	-2.47	74.00	-3.86	3.33	22.40	Vertical	Passed
3.	2.3862281GHz	45.08	-3.16	74.00	-28.92	1.13	337.40	Horizontal	Passed
4.	2.3849925GHz	43.30	-3.16	74.00	-30.70	4.00	269.90	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4837469GHz	47.45	-2.47	54.00	-6.55	3.33	22.40	Vertical	Passed
2.	2.3878439GHz	41.63	-3.15	54.00	-12.37	3.15	269.90	Vertical	Passed
3.	2.3862281GHz	43.76	-3.16	54.00	-10.24	1.13	337.40	Horizontal	Passed
4.	2.4835568GHz	53.05	-2.47	54.00	-0.95	1.74	0.10	Horizontal	Passed

Overall Graphs:





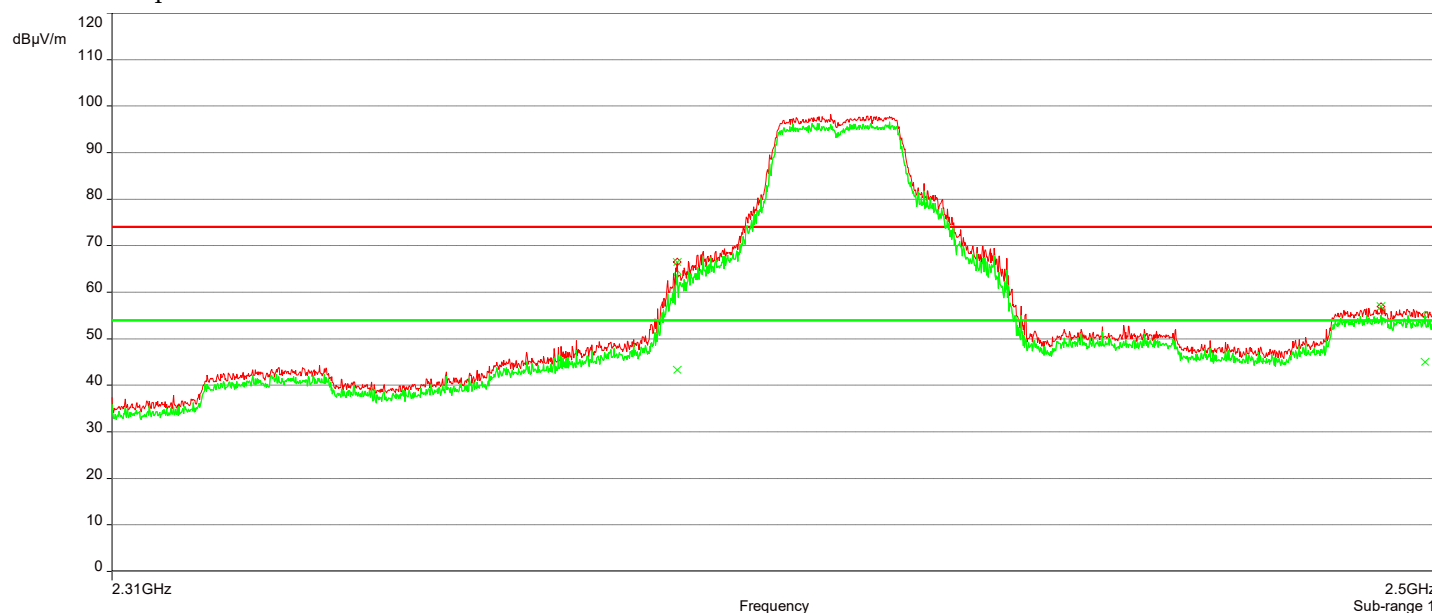
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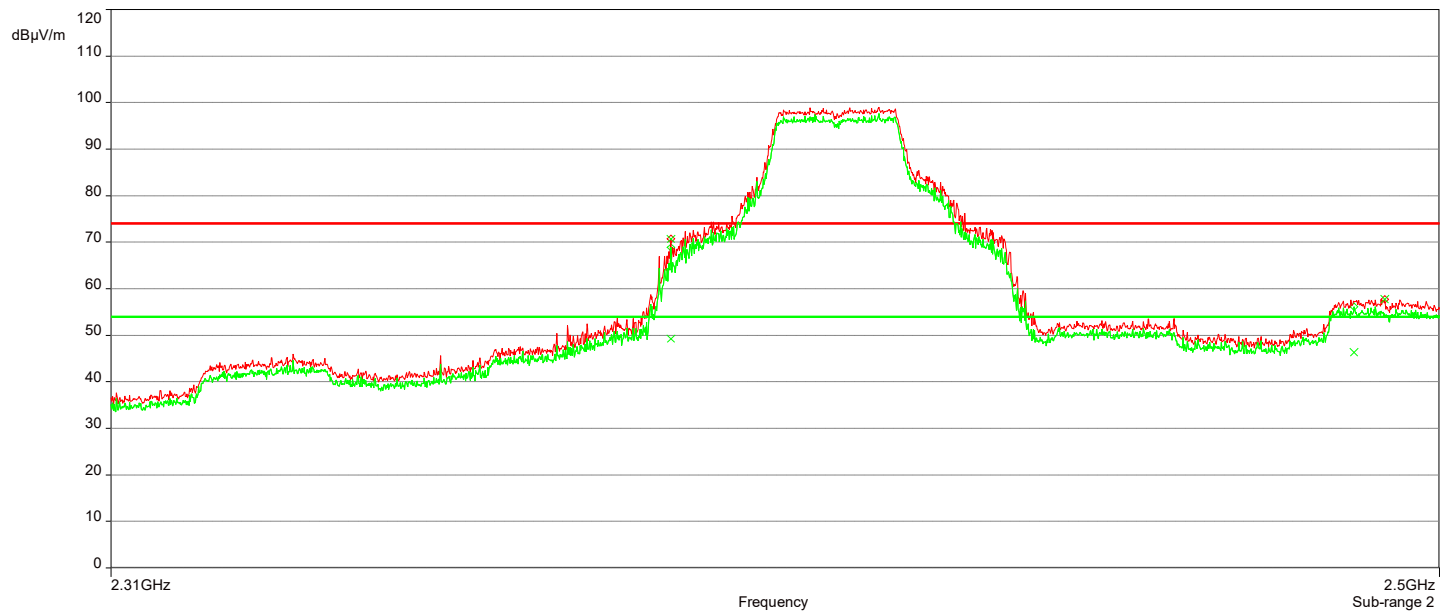
9/2/2021 6:32:46 PM

No	Frequency (MHz)	Level Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.3882241GHz	70.76	-3.14	74.00	-3.24	2.19	337.40	Horizontal	Passed
2.	2.3889845GHz	66.51	-3.14	74.00	-7.49	3.97	337.40	Vertical	Passed
3.	2.491921GHz	57.71	-2.44	74.00	-16.29	1.59	22.40	Horizontal	Passed
4.	2.4911606GHz	56.87	-2.44	74.00	-17.13	2.94	22.40	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.3882241GHz	49.31	-3.14	54.00	-4.69	2.19	337.40	Horizontal	Passed
2.	2.4873587GHz	46.37	-2.46	54.00	-7.63	1.00	0.10	Horizontal	Passed
3.	2.4977189GHz	45.01	-2.42	54.00	-8.99	3.69	21.90	Vertical	Passed
4.	2.3889845GHz	43.36	-3.14	54.00	-10.64	3.97	337.40	Vertical	Passed

Overall Graphs:





AH21051701-CON-126#001_Restricted Bandedge_2.4G 802.11n_Ch-11

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No	Frequency (MHz)	Level Peak Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4841271GHz	73.04	-2.47	74.00	-0.96	2.44	22.40	Horizontal	Passed
2.	2.484032GHz	69.09	-2.47	74.00	-4.91	2.96	337.40	Vertical	Passed
3.	2.3863232GHz	44.78	-3.16	74.00	-29.22	1.95	337.40	Horizontal	Passed
4.	2.3831866GHz	43.52	-3.17	74.00	-30.48	3.83	292.40	Vertical	Passed

No	Frequency (MHz)	Level Average Reading (dBuV/m)	Correction Factor (dB)	Limit dBuV/m	Margin (dB)	Height (m)	Angle (°)	Polarization	Judgment
1.	2.4841271GHz	50.27	-2.47	54.00	-3.73	2.44	22.40	Horizontal	Passed
2.	2.484032GHz	49.98	-2.47	54.00	-4.02	2.96	337.40	Vertical	Passed
3.	2.3881291GHz	43.16	-3.15	54.00	-10.84	2.66	337.40	Horizontal	Passed
4.	2.3831866GHz	42.35	-3.17	54.00	-11.65	3.83	292.40	Vertical	Passed

Overall Graphs:





Document Revisions

Version	Date	Modifier	Changes
1.0	09-19-2021	Aravind Buddana Ryan Philips	Initial Draft
1.1	10-11-2021	Aravind Buddana	Updated correct FCC/IC ID

-End of Report-