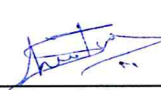


Produkte
Products

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<i>Test Report No.:</i>				<i>Page 1 of 199</i>	
Auftraggeber: <i>Client:</i>		Jason SchMidt Director Government Relations Whirlpool Corporation 2000 M-63 Benton Harbor, MI 49022			
Gegenstand der Prüfung: <i>Test item:</i>		REBEL UI Module			
Bezeichnung: <i>Identification:</i>		EICHRB01	Serien-Nr.: <i>Serial No.</i>	Engineering Sample	
Wareneingangs-Nr.: <i>Receipt No.:</i>		166117823	Eingangsdatum: <i>Date of receipt:</i>	17.03.2019	
Prüfört: <i>Testing location:</i>		Refer Page 5 of 199 for test facilities			
Prüfgrundlage: <i>Test specification:</i>		FCC Part 15 Subpart C 15.247 ANSI C63.10-2013			
Prüfergebnis: <i>Test Result:</i>		Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The test items passed the test specification(s).</i>			
Prüflaboratorium: <i>Testing Laboratory:</i>		TÜV Rheinland (India) Pvt. Ltd. 27/B, 2nd corss, Electronic City Phase 1 Bangalore – 560 100. India FCC Test Site Registration no.: 496599			
geprüft / tested by:		kontrolliert / reviewed by:			
27.04.2019	Raghavendra Katti Senior Engineer		16.05.2019	Shrikanth S Naik Assistant Manager	
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other Aspects:		FCC ID :A5UEICHRB01, On receipt the equipment was in good condition			
Abkürzungen:		Abbreviations:			
P(ass) = entspricht Prüfgrundlage		P(ass) = passed			
F(ail) = entspricht nicht Prüfgrundlage		F(ail) = failed			
N/A = nicht anwendbar		N/A = not applicable			
N/T = nicht getestet		N/T = not tested			
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>					

TÜV Rheinland India Pvt. Ltd. 27/B, 2nd cross Electronic City Phase 1, Bangalore-560100,
 IndiaTel.: +9180 6723 3500 · Fax: +9180 6723 3542 · Web: <https://www.tuv.com>

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TEST SUMMARY

Section	Test item	Result
15.247 (b) (3)	Maximum Conducted Output Power	Pass
15.247 (a) (2)	6 dB / DTS Bandwidth	Pass
15.247 (e)	Maximum Power Spectral Density	Pass
15.247 (d)	Emissions in non – restricted band	Pass
15.247 (a)(1)	Conducted Spurious Emissions	Pass
15.247 (d) / (15.209 & 15.205)	Radiated spurious emissions and emissions in Restricted bands of operation	Pass
15.207	Conducted emission on A.C power lines	Pass

Discipline: Electronics Testing
Group: EMC Test Facility

Note: Measurements were made as per KDB 558074 D01 DTS Measurement Guidance v05r02.

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1 GENERAL REMARKS

1.1 Complimentary Materials

All attachments are integral part of this test report.

1: TEST SETUP PHOTOS

2: EUT EXTERNAL PHOTOS

3: EUT INTERNAL PHOTOS

4: FCC LABEL AND LABEL LOCATION

5: BLOCK DIAGRAM

6: SPECIFICATION OF EUT

7: SCHEMATIC DIAGRAM

8: BILL OF MATERIAL

9: USER MANUAL

10: MAXIMUM PERMISSIBLE EXPOSURE INFORMATION

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2 TEST SITES

2.1 Testing Facilities

TUV Rheinland (India) Private Limited
108 , Beside ISBR Business School,
Electronic city Phase I
Bangalore - 560 100.

2.2 List of Test and Measurement Instruments

Table 1: Test and measurements instrument used

Equipment	Manufacturer	Model Name	Serial Number	Calibration Due Date	Periodicity	Used for Test Items
Spectrum Analyser	Agilent Technologies	E4407B	US41192772	15-11-2019	Yearly	Antenna - Port Measurements
USB Peak power sensor	AIMIL Ltd	55006	10231	22-12-2019	Yearly	
EMI Test Receiver	Rohde & Schwarz	ESW 44	101732	26-05-2019	Yearly	Radiated Spurious Emission
Active loop antenna	Frankonia	LAX-10	LAX-10-800	15-01-2020	Yearly	
Biconical Antenna	Schwarzbeck mess-elektronik	VHBB-9124 / BBA-9106	9124-656	16-01-2020	Yearly	
Log-Periodic Antenna	Schwarzbeck mess-elektronik	VUSLP-9111B	9111B-111	17-01-2020	Yearly	
Broadband Horn Antenna	Frankonia	HAX-18	HAX18-802	17-05-2019	Yearly	
Semi Anechoic Chamber	Frankonia	-	-	-	-	AC Power line conducted emission
EMI Receiver	Rohde & Schwarz	ESR7	101133	16-01-2020	Yearly	
LISN	Rohde & Schwarz	ENV 216	100022	18-10-2019	Yearly	
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100811	09-08-2019	Yearly	

3 GENERAL PRODUCT INFORMATION

3.1 Product Function and Intended Use

REBEL UI Module is the platform which will be used across different appliances categories (Refrigeration, Cooking, Laundry, Dishwashers, etc.) based on Qualcomm Snapdragon 660 (SDA 660) processor. The Rebel Module is 2.4G/5G Wi-Fi-connected graphical user interface. It supports LCD with touch-screen and audio video interfaces. It supports mics, cameras, speaker and other sensor interfaces for smart appliance application. The module contains the High bandwidth Wi-Fi module (WCN3990) for data and video transfer over Wi-Fi interface. Which also supports the communication over Bluetooth. It supports Wi-Fi (802.11 a/b/g/n/ac - 2x2 MIMO, ISM 2.4GHz at 20MHz/40MHz and 5GHz at 20/40/80 MHz), Bluetooth (BT5.0) and BLE. It supports FPC antennas, mentioned in user manual.

3.2 Ratings and System Details

Table 2: Ratings and System Details

Operating frequency range	2400 MHz to 2483.5 MHz	
Radio Protocol	Wi-Fi	BLE
Channel Spacing	5 MHz	2 MHz
Modulation	802.11b: DSSS 802.11g: OFDM 802.11n: OFDM	GFSK
Number of antennas	2	
Antenna type	External FPC(Flexible Printed Circuit) Antenna	
Antenna gain	Antennova	2.8dBi
	Molex	3.2dBi
Supply Voltage to Product	11V-13.5V(Typically 12.7V) DC	
Dimensions	Width: 45mm Length: 190 mm	
Environmental conditions	Operating Temperature Range: -10°C to +70°C (No air flow) Storage Temperature Range: -40°C to +80°C Humidity requirement: is 5% to 95%, non-condensing.	

3.1 Maximum Measurement Uncertainty:

Table 3: Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±3 °C
Supply Voltages	±3 %
Time	±5 %

Note: The listed uncertainties are the worst case uncertainty for the entire range of measurements and are for the reporting purpose only and are not used in determining the PASS/FAIL of the results.

4 TEST SET-UP AND OPERATION MODE

4.1 Principle of Configuration Selection

Transmission was enabled with highest possible duty cycle transmission on Low, Mid and High channels to obtain maximum emissions.

4.2 Test Operation and Test Software

Test Software - QRCT (Qualcomm Radio Control Tool) Version 4.0.00113
Hardware version - PCBA Rev - W11324868

4.3 Special Accessories and Auxiliary Equipment

- Test Laptop was used to configure the device in transmission mode and module was tested with following accessories 1. Display 2, Speaker and 3 Camera.

4.4 Countermeasures to achieve EMC Compliance

- None

4.5 Test modes – data rates and modulations

For Radiated spurious emissions only the worst case results and are reported in this report.

4.6 List of Frequencies and Frequency bands

Frequency Band (MHz)	Channel No.	Channel Frequency (MHz)
2400 – 2483.5	1	2412
	2	2417
	3	2422
	4	2427
	5	2432
	6	2437
	7	2437
	8	2447
	9	2452
	10	2457
	11	2462

Table 4: List of Wi-Fi center Frequencies

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Frequency Band (MHz)	Channel No.	Channel Frequency (MHz)
2400 – 2483.5	0	2402
	1	2404
	2	2406
	3	2408
	:	:
	:	:
	18	2438
	19	2440
	20	2437
	:	:
	:	:
	36	2474
	37	2476
	38	2478
	39	2480

Table 5: List of BLE Center frequencies

Wi-Fi:

Channel Bandwidth 20MHz

Channel low : 2412MHz

Channel mid : 2437MHz

Channel high : 2462MHz

Channel Bandwidth 40MHz

Channel low : 2422MHz

Channel mid : 2437MHz

Channel high : 2457MHz

BLE:

Channel low : 2402MHz

Channel mid : 2440MHz

Channel high : 2480MHz

Note: TUV Sample Identification number :
A000893143-001 (Conducted Sample)
A000893143-002 (Radiated Sample)
A000893143-003 (Radiated Sample)

5 RADIATED TEST METHODOLOGY

5.1 Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.10-2013. The equipment under test (EUT) was placed at the Middle of the 80 cm High turntable for beLow 1 GHz & 1.5 m height for above 1 GHz measurement, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000 MHz was performed by horn antenna, The measurement beLow 30 MHz was performed by loop antenna, Measurement from 30 MHz to 200 MHz was performed by Baloon and Biconical Antenna, and mesurement from 200 MHz to 1 GHz was performed by Log-Periodic Antenna.

The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded.

5.1.1 Test Setup Configuration

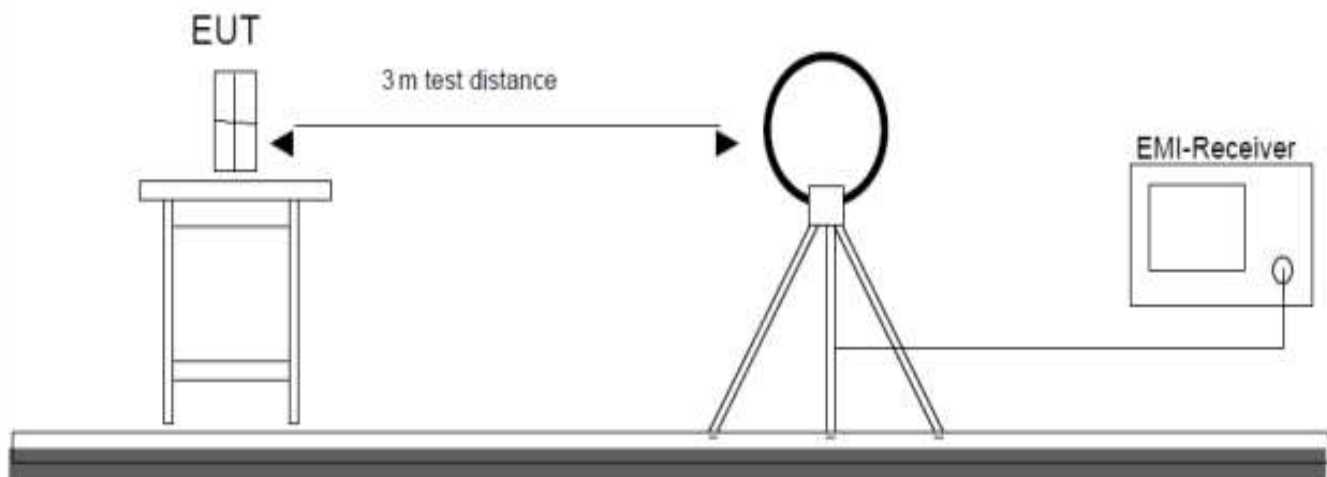


Figure 1: Frequency Range 9 kHz- 30 MHz

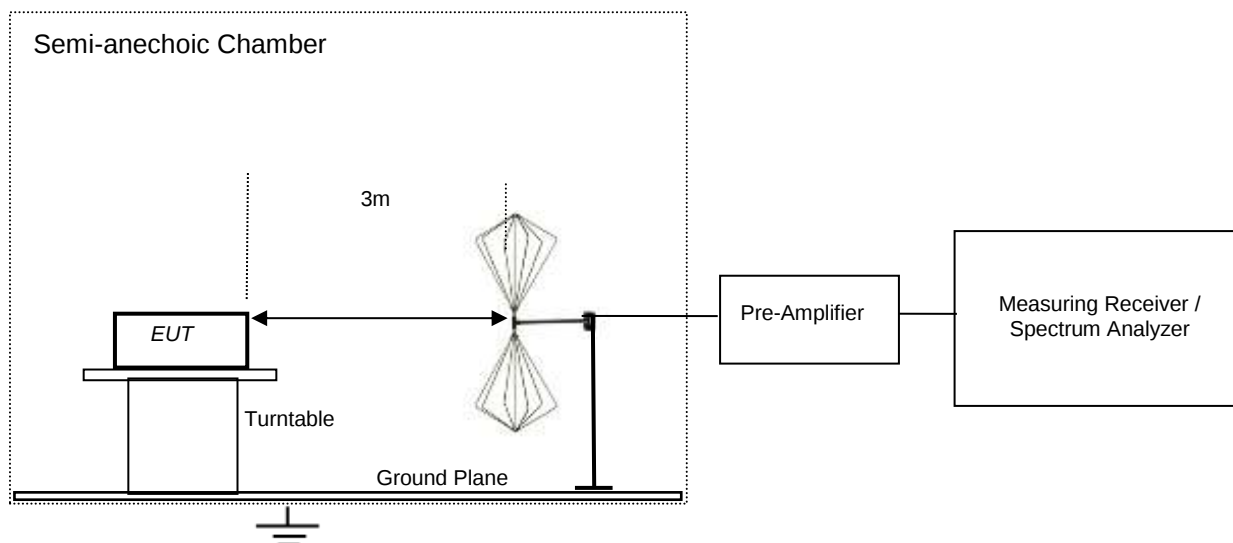


Figure 2: Frequency Range 30 MHz – 200 MHz

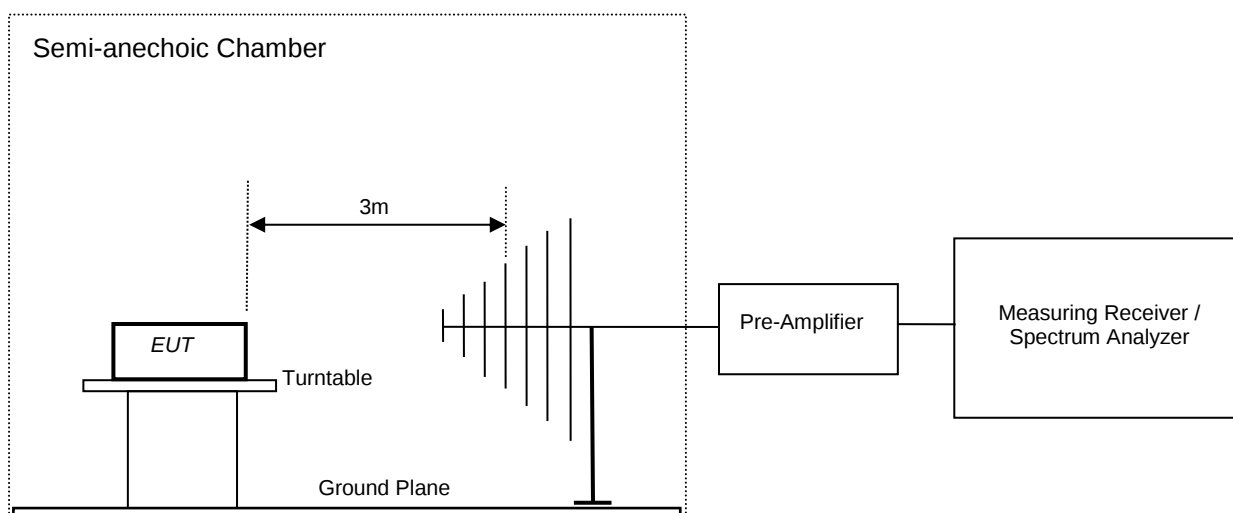


Figure 3: Frequency Range 200 MHz - 1GHz

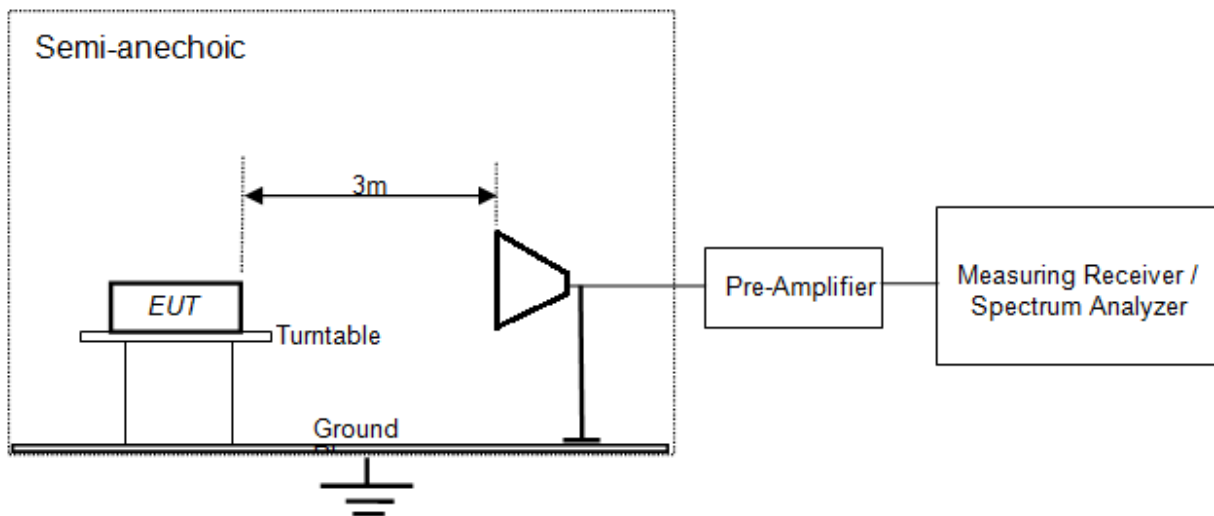


Figure 4: Frequency Range above 1 GHz

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6 Test Results-Wi-Fi

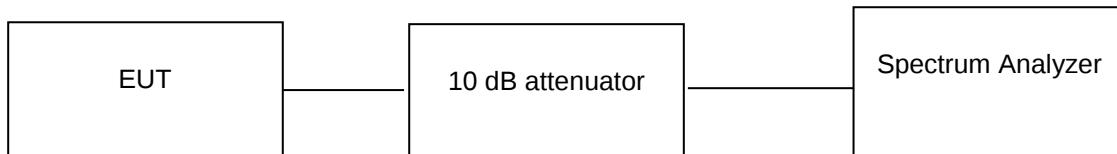
6.1 Maximum conducted output power

Result

Pass

Test Specification	FCC part 15 Subpart C 15.247 (b)(3)
Measurement Bandwidth	1 MHz
Detector	Peak
Requirement	≤ 1 W (30 dBm)

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results:

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

Wi-Fi

Protocol: 802.11b & 802.11g

Data Rate(Mbps)	Channel No.	Frequency (MHz)	Measured power (dBm)	Limit (dBm)
1	1	2412	20.14	30
	6	2437	20.40	30
	11	2462	20.09	30
11	1	2412	20.24	30
	6	2437	20.45	30
	11	2462	20.12	30
6	1	2412	22.10	30
	6	2437	22.65	30
	11	2462	22.48	30
24	1	2412	22.21	30
	6	2437	22.74	30
	11	2462	22.62	30
54	1	2412	22.18	30
	6	2437	22.70	30
	11	2462	22.47	30

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**802.11n
HT20_SISO**

Mode	Data Rate (Mbps)	Frequency (MHz)	Measured power (dBm)	Limit (dBm)
HT20	MCS0	2412	21.82	30
		2437	22.50	30
		2462	22.02	30
	MCS4	2412	22.20	30
		2437	22.89	30
		2462	22.90	30
	MCS7	2412	22.42	30
		2437	22.69	30
		2462	22.57	30
HT40	MCS0	2412	20.83	30
		2437	20.90	30
		2462	21.03	30
	MCS4	2412	21.14	30
		2437	21.04	30
		2462	21.28	30
	MCS7	2412	20.85	30
		2437	20.71	30
		2462	21.27	30

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HT20_MIMO

Data Rate (Mbps)	Frequency (MHz)	Chain 1 Output power (dBm)	Chain 2 Output power (dBm)	Measured Power (dBm)	Limit (dBm)
MCS8	2412	21.64	21.16	24.42	30
	2437	21.79	20.50	24.20	30
	2462	20.73	20.98	23.87	30
MCS11	2412	21.54	21.32	24.44	30
	2437	21.92	20.46	24.26	30
	2462	20.60	21.15	23.89	30
MCS15	2412	21.52	21.46	24.50	30
	2437	21.71	20.46	24.14	30
	2462	20.60	21.09	23.86	30

HT40_MIMO

Data Rate (Mbps)	Frequency (MHz)	Chain 1 Output power (dBm)	Chain 2 Output power (dBm)	Measured Power (dBm)	Limit (dBm)
MCS8	2422	16.60	17.33	19.99	30
	2437	18.24	19.03	21.66	30
	2457	17.18	17.49	20.35	30
MCS11	2422	18.30	19.47	21.93	30
	2437	19.53	20.16	22.87	30
	2457	18.58	18.77	21.69	30
MCS15	2422	18.07	19.91	22.10	30
	2437	20.40	20.51	23.47	30
	2457	18.78	19.11	21.96	30

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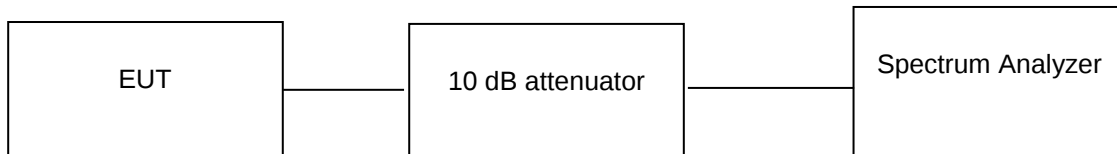
6.2 Maximum Power Spectral Density

Result

Pass

Test Specification	FCC Part 15 Subpart C Section 15.247 (e)
Detector Function	Peak
Port of testing	Antenna port
Requirement	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm.

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results for 802.11 b

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	PSD (dBm)	Limit (dBm)
b	1	2412	-3.03	8
		2437	-4.63	8
		2462	-3.67	8
	11	2412	0.29	8
		2437	-1.10	8
		2462	-3.02	8

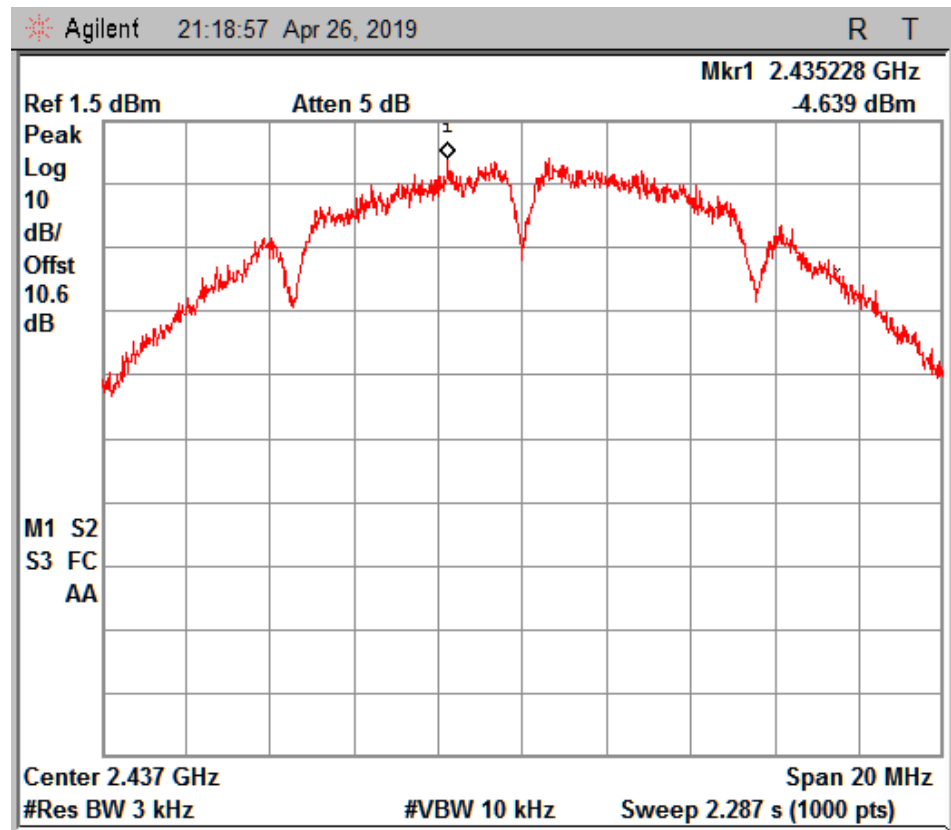
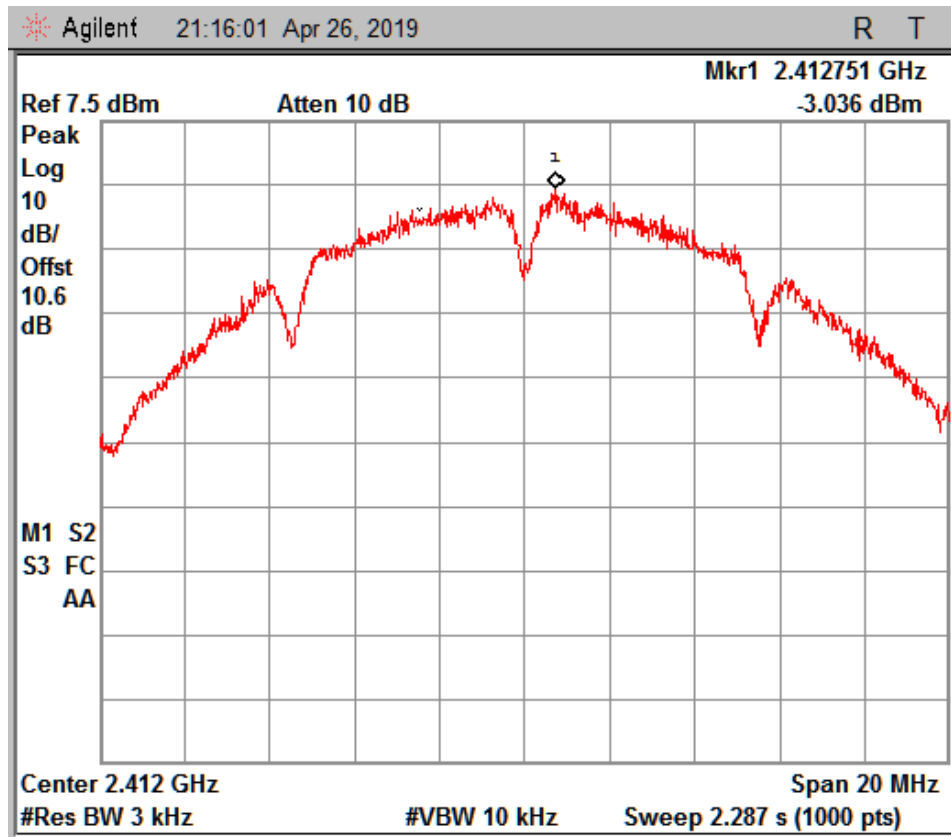
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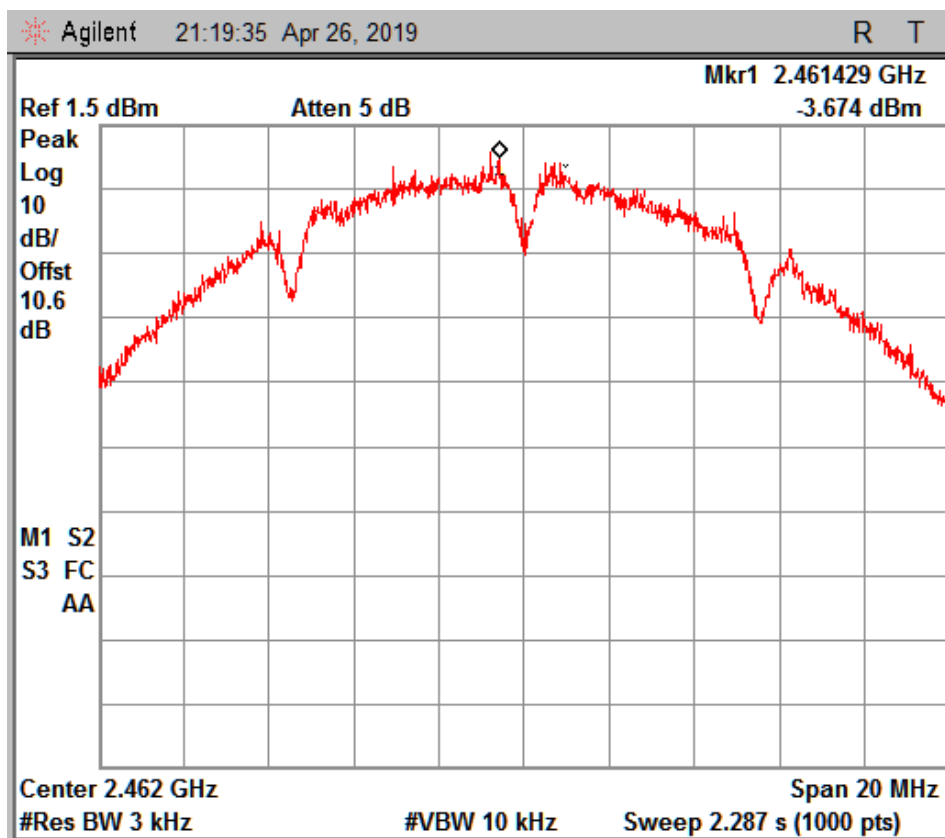
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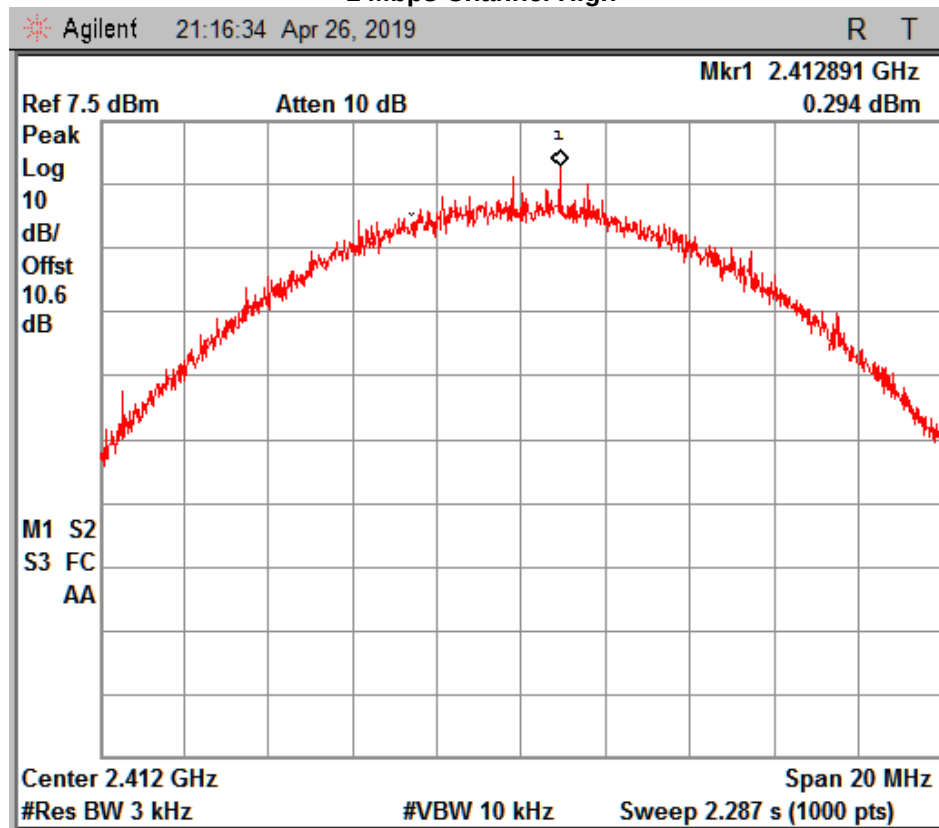
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1 Mbps Channel High



11 Mbps Channel Low

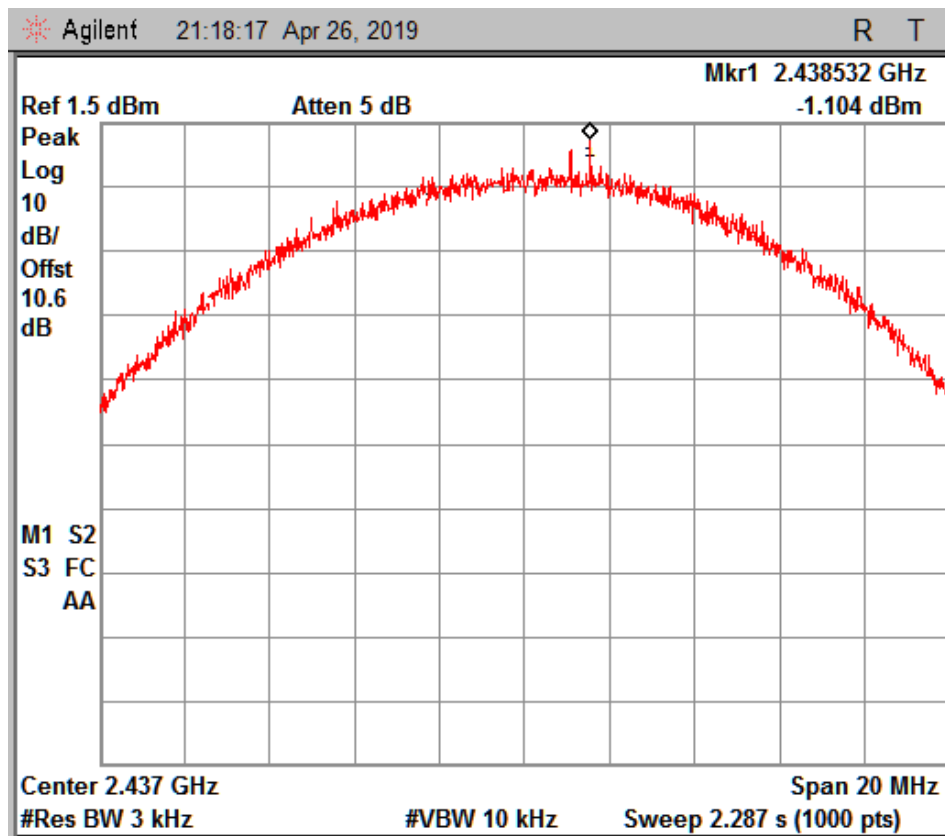
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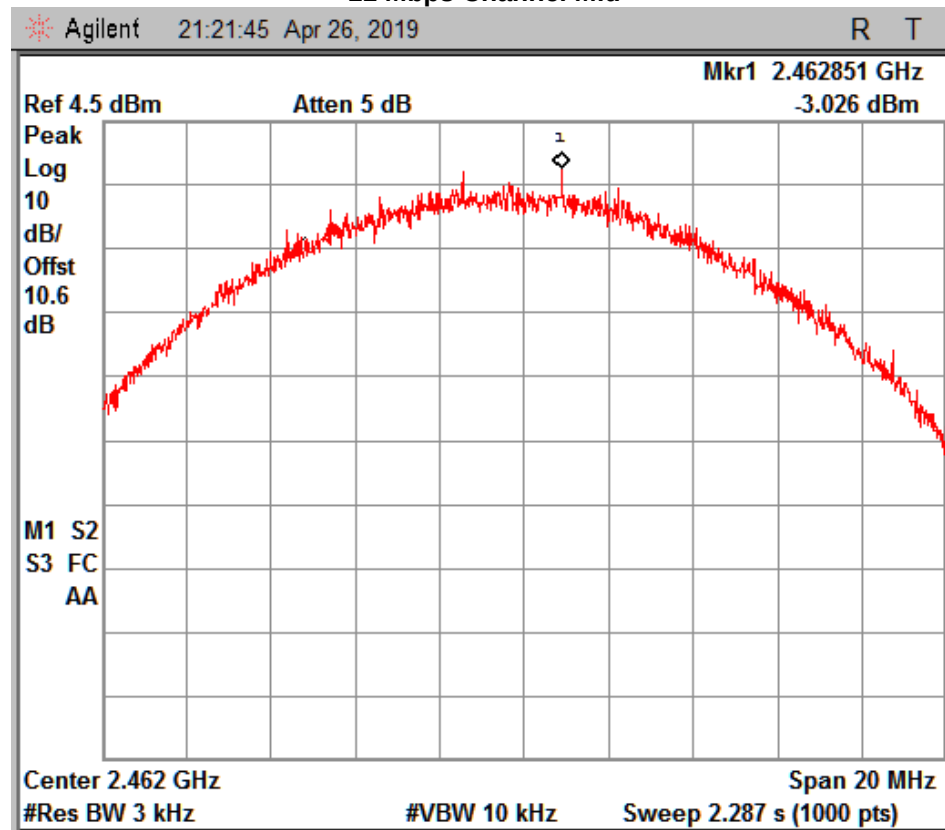
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11 Mbps Channel Mid



11 Mbps Channel High

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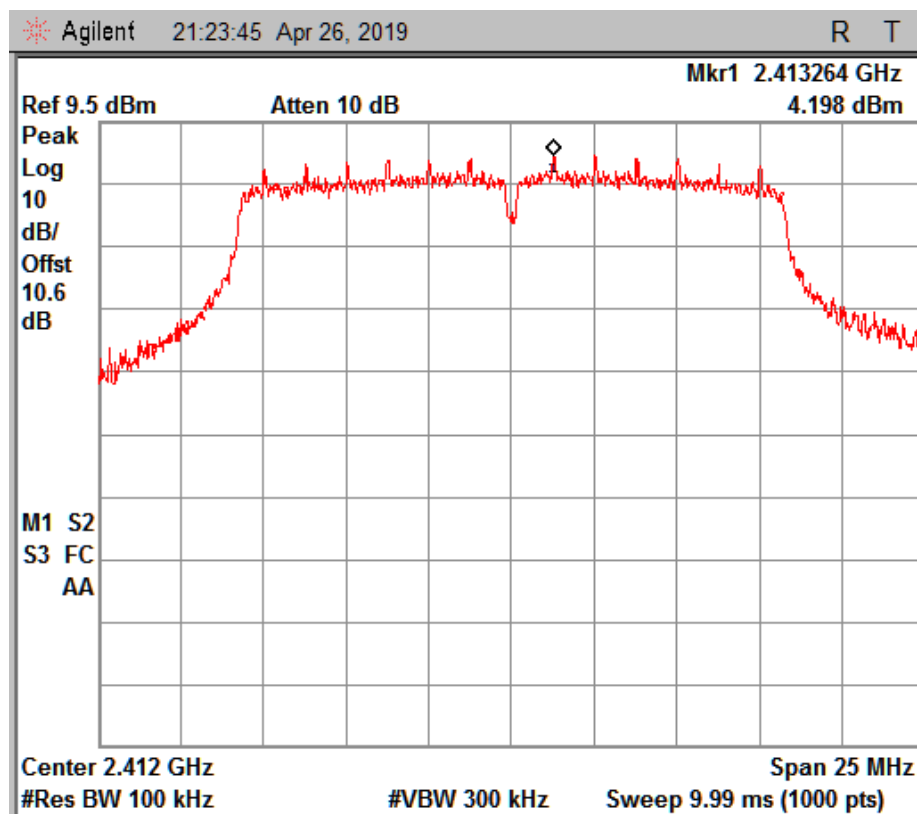
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Test results for 802.11g

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	PSD (dBm)	Limit (dBm)
g	6	2412	4.19	8
		2437	3.83	8
		2462	4.70	8
	24	2412	4.16	8
		2437	4.17	8
		2462	4.90	8
	54	2412	4.16	8
		2437	4.20	8
		2462	4.84	8



6 Mbps Channel Low

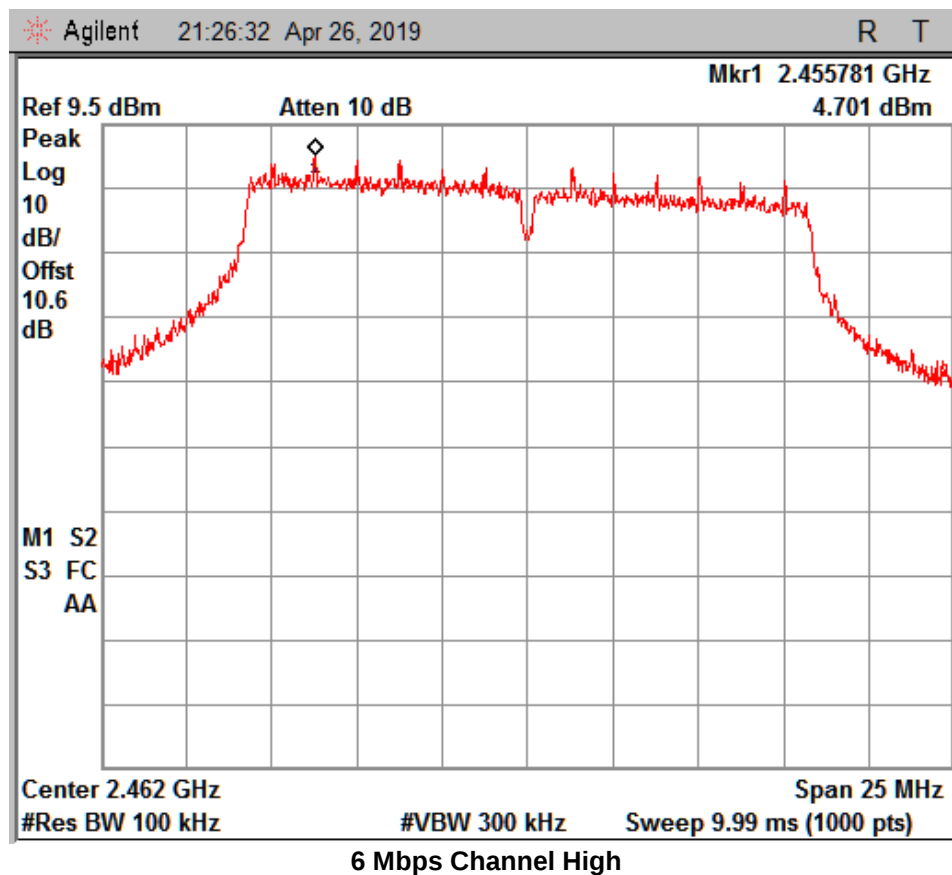
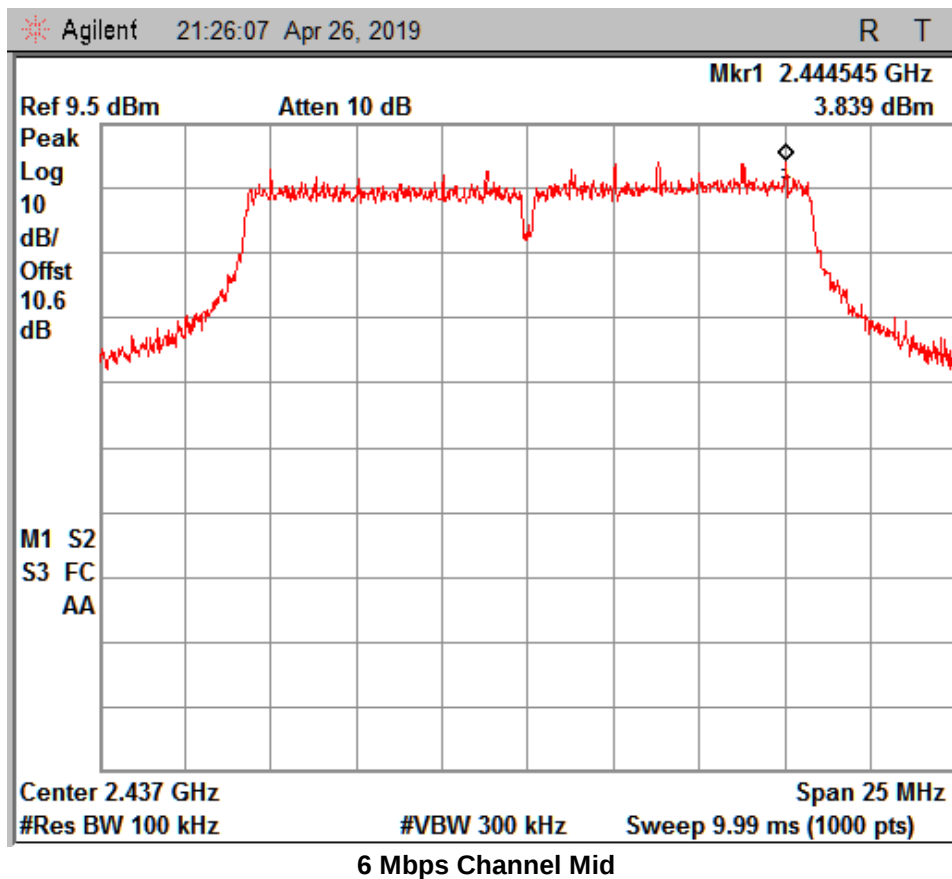
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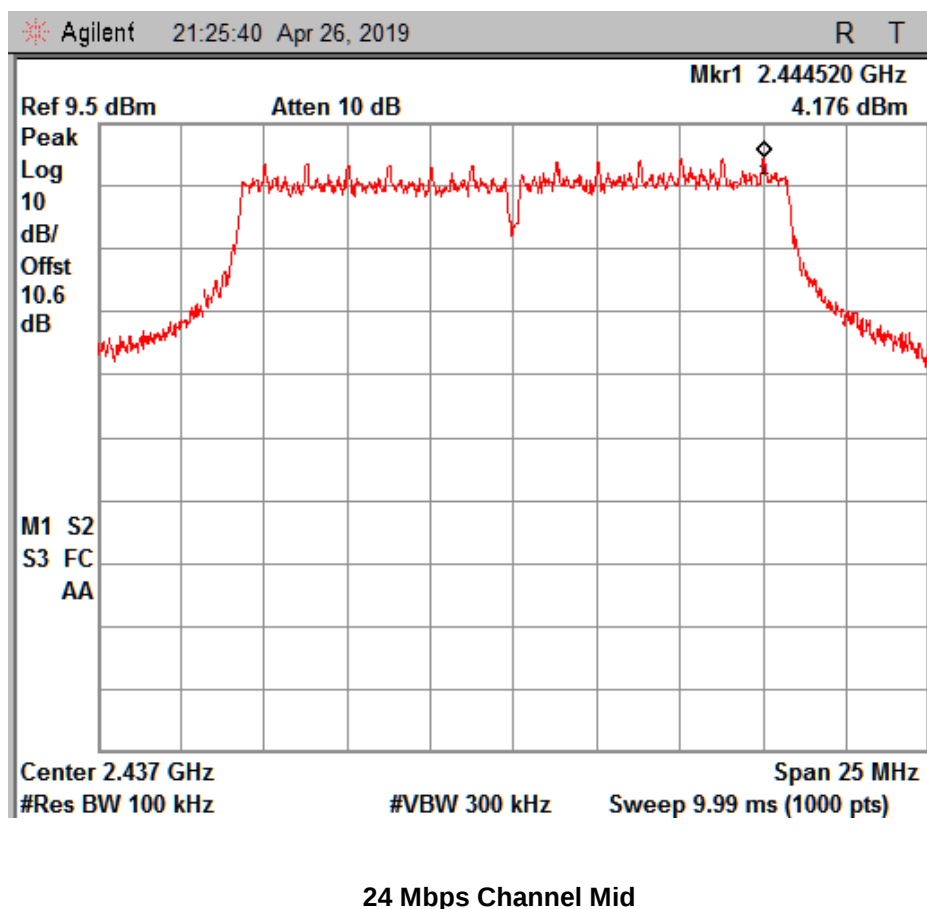
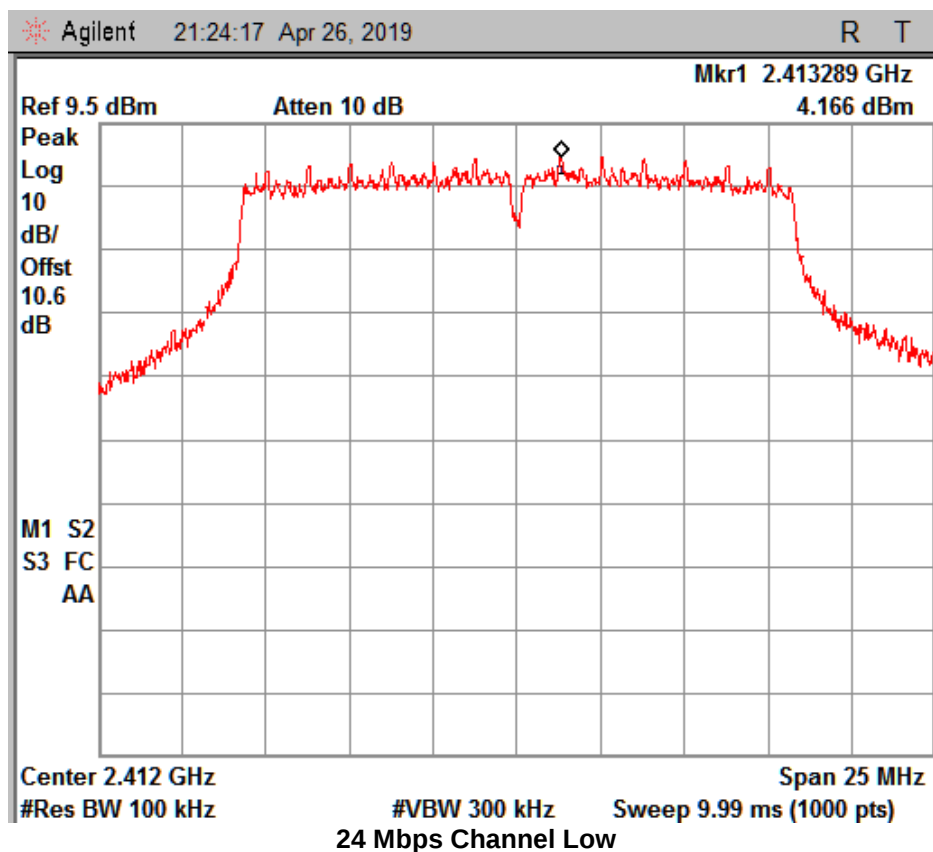
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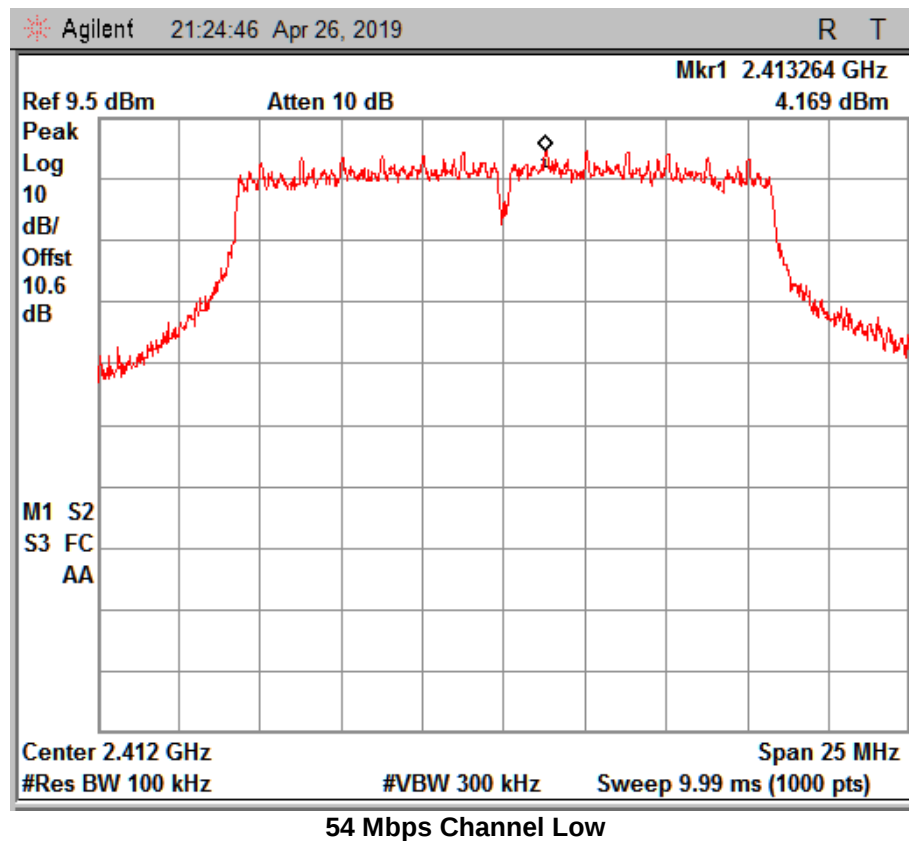
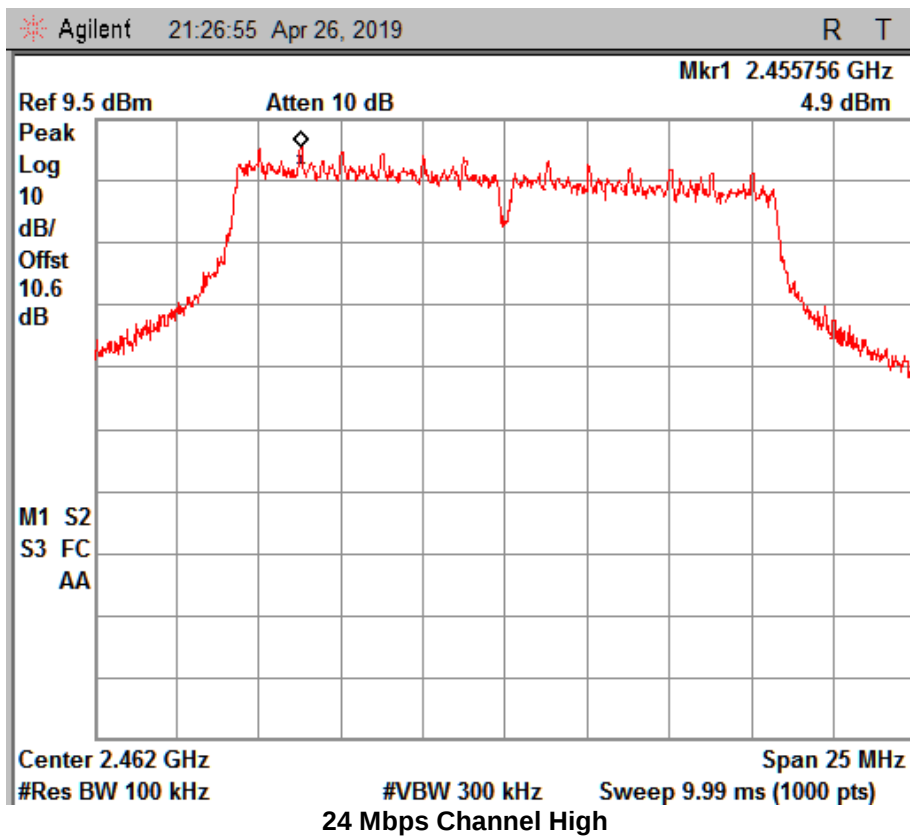
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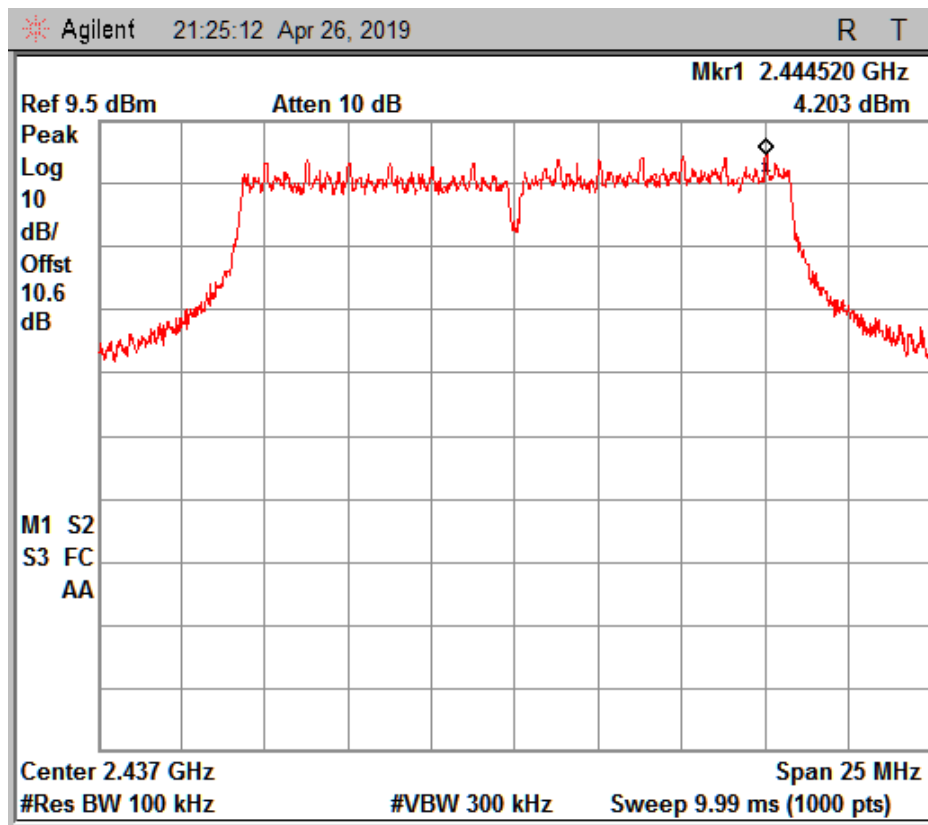
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Test Report No.:

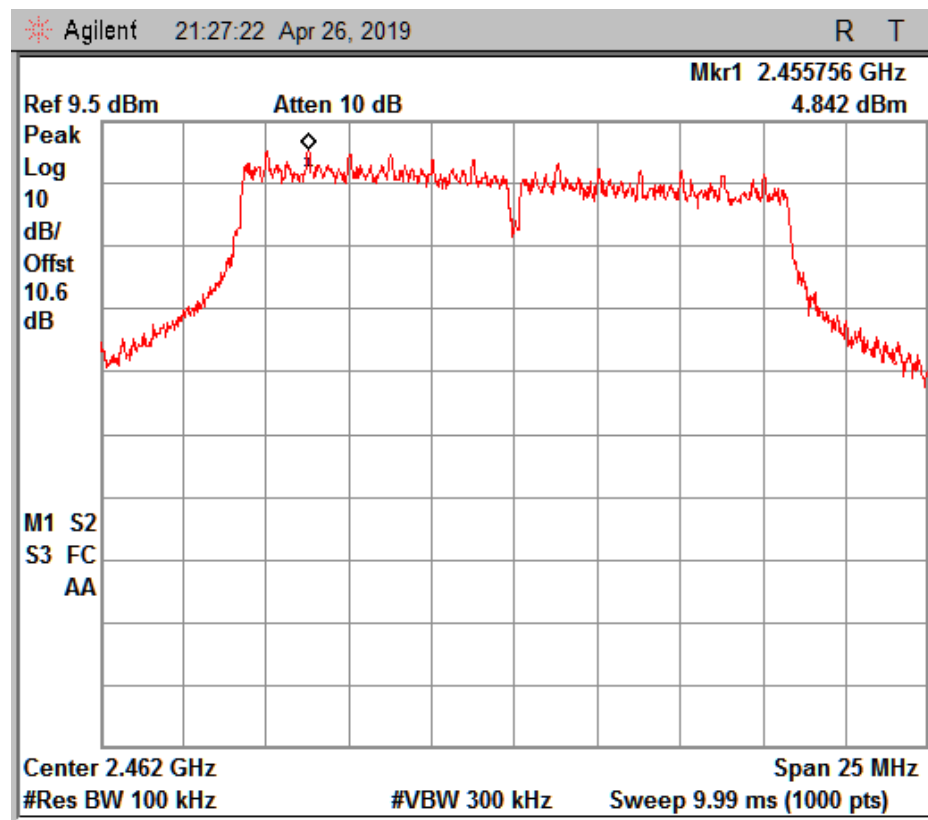
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54 Mbps Channel Mid



54 Mbps Channel High

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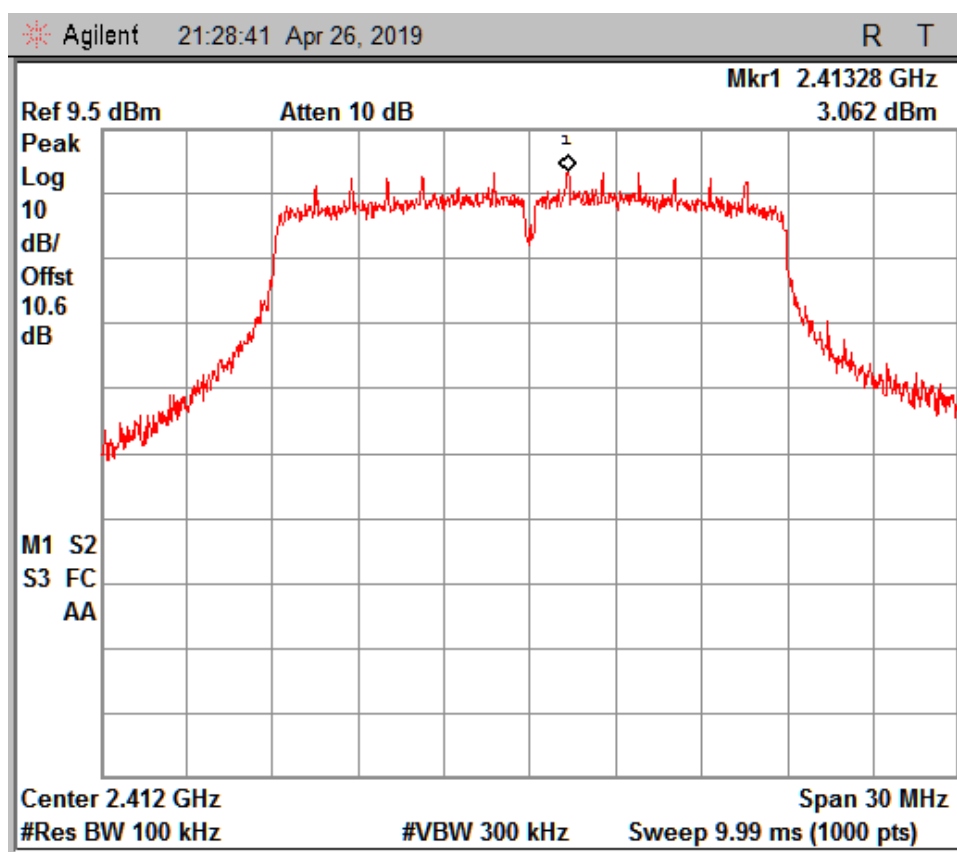
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802.11n_HT20_SISO

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	PSD (dBm)	Limit (dBm)
n	MCS0	2412	3.06	8
		2437	2.77	8
		2462	3.47	8
	MCS4	2412	3.10	8
		2437	4.10	8
		2462	4.96	8
	MCS7	2412	4.22	8
		2437	4.07	8
		2462	4.92	8



MCS0 Channel Low

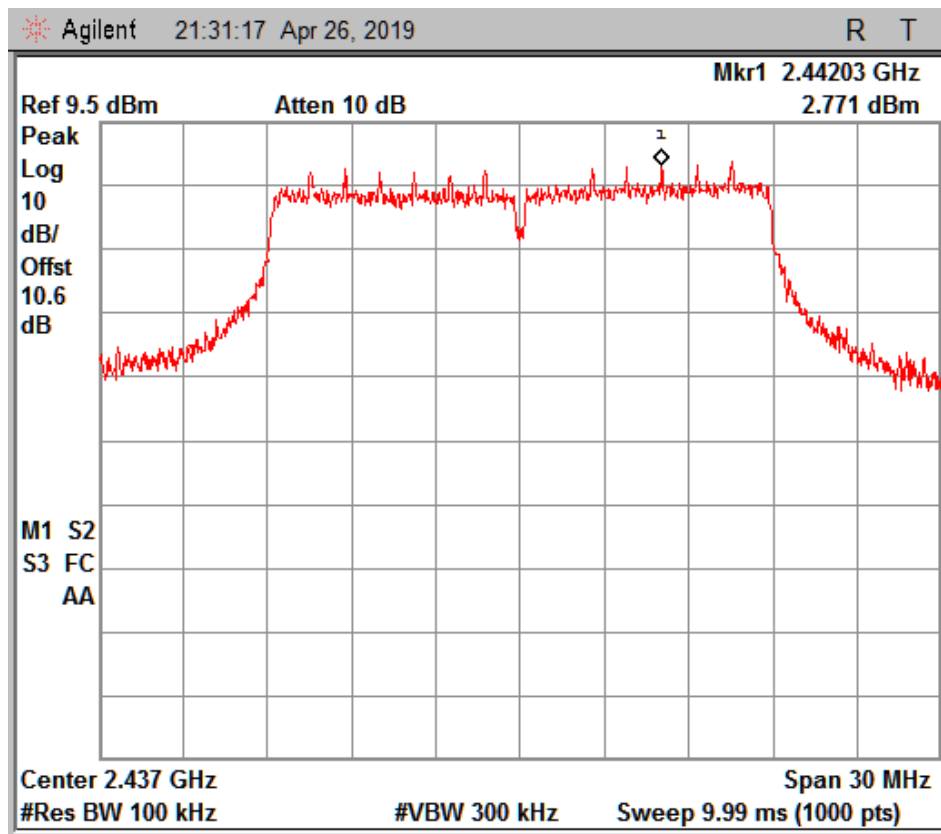
Prüfbericht - Nr.:

Test Report No.:

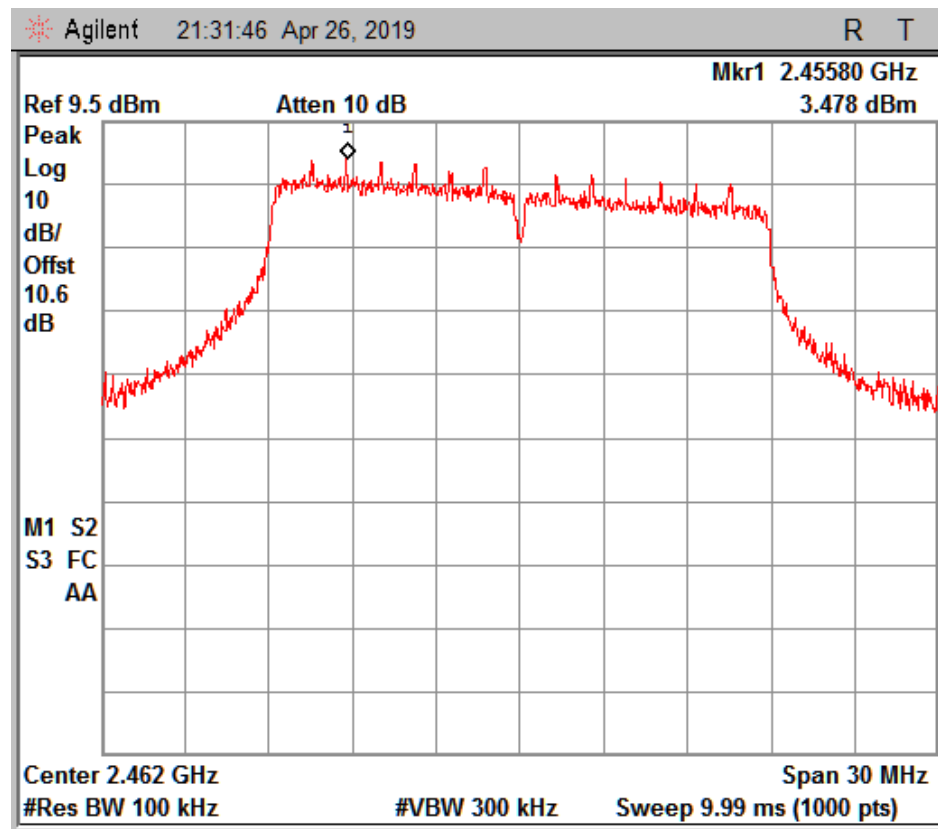
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MCS0 Channel Mid



MCS0 Channel High

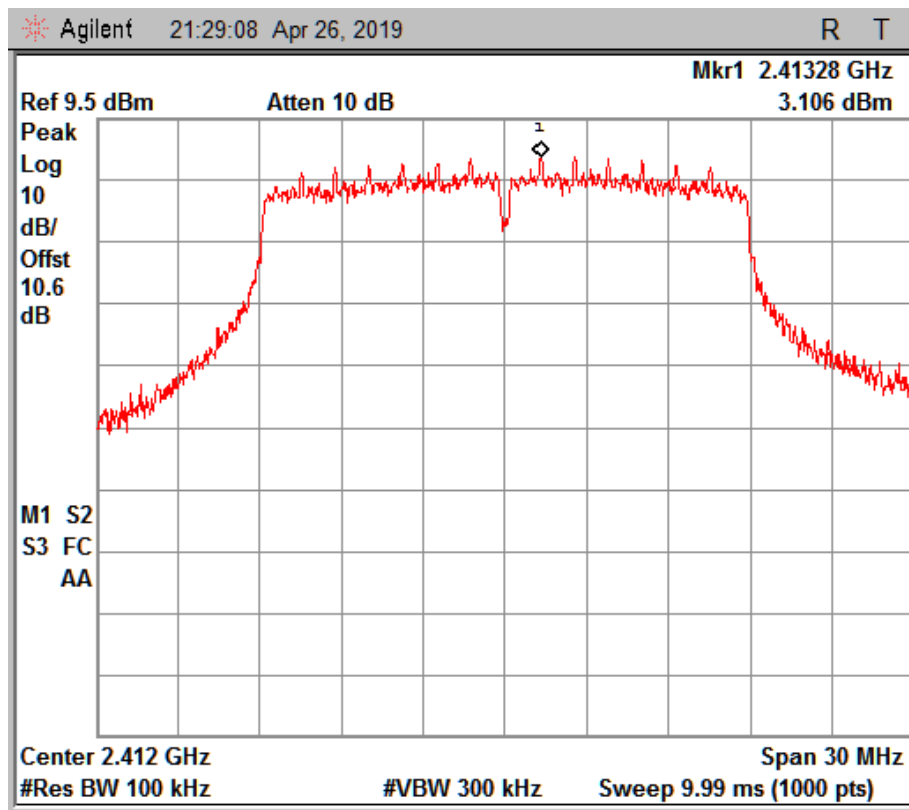
Prüfbericht - Nr.:

Test Report No.:

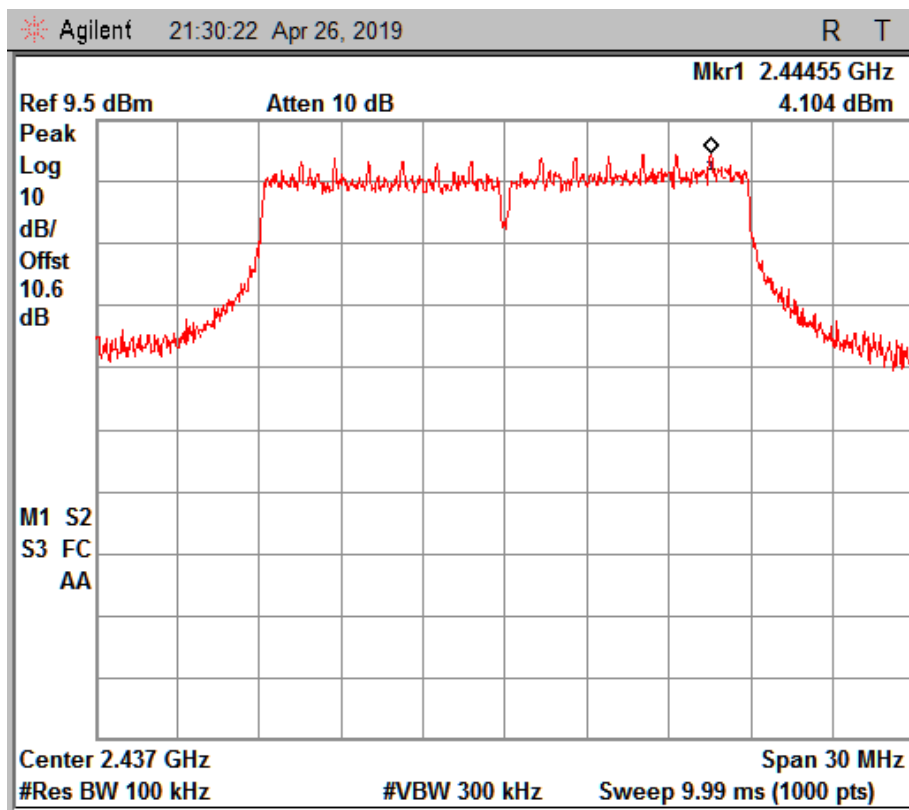
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MCS4 Channel Low



MCS4 Channel Mid

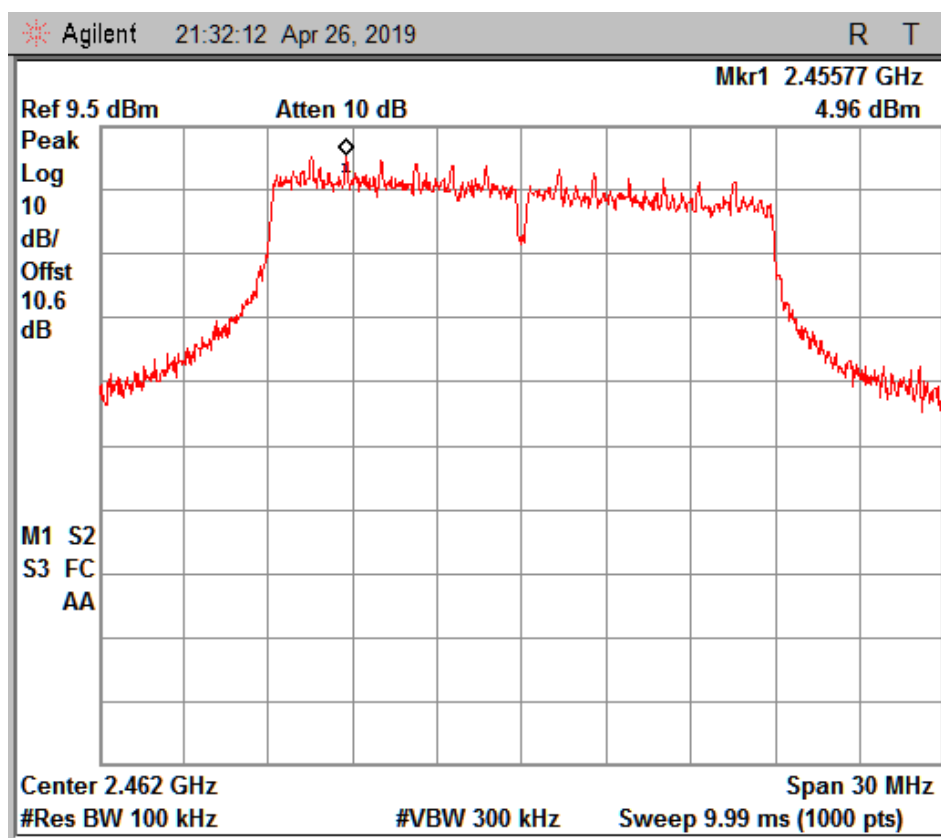
Prüfbericht - Nr.:

Test Report No.:

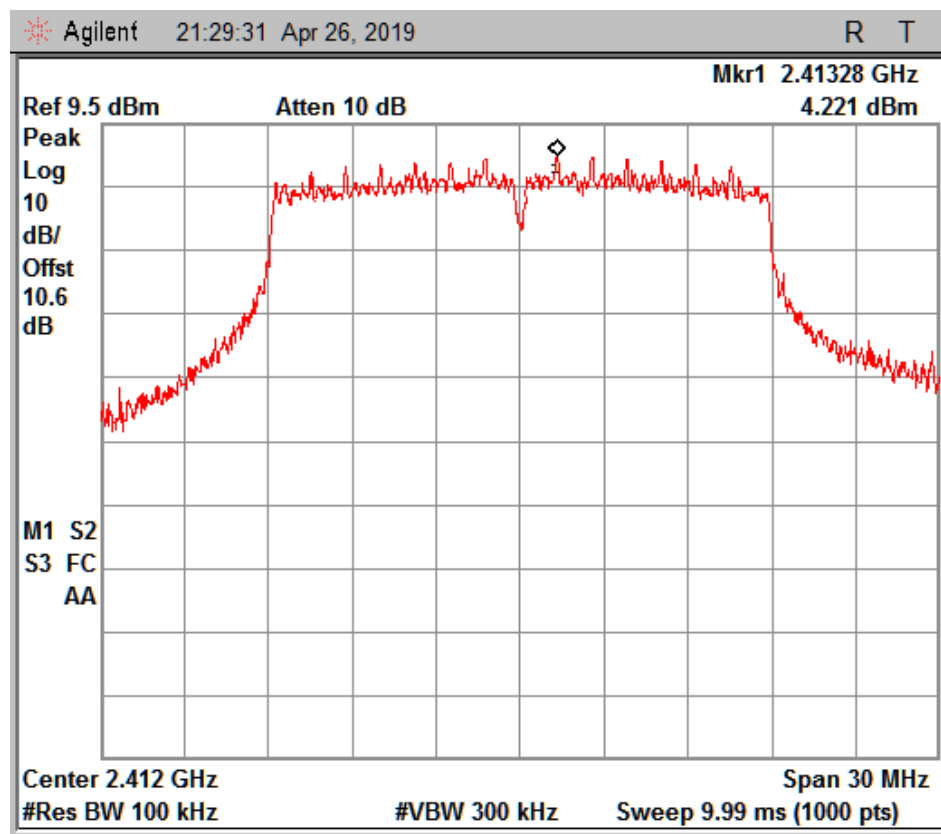
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MCS4 Channel High



MCS7 Channel Low

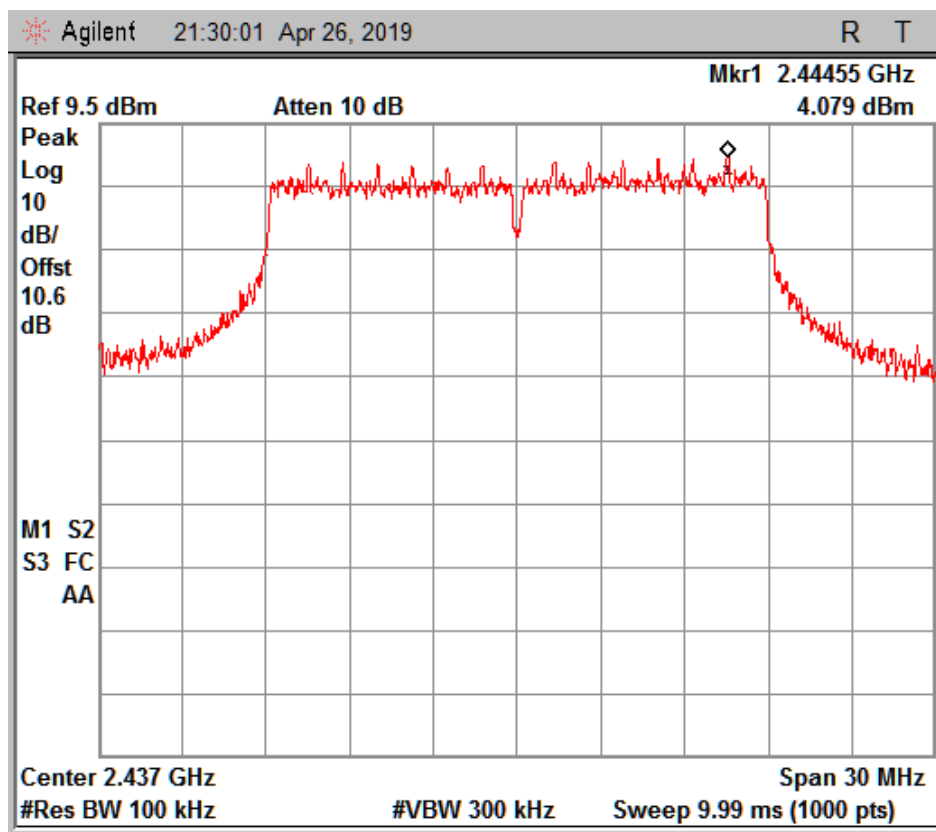
Prüfbericht - Nr.:

Test Report No.:

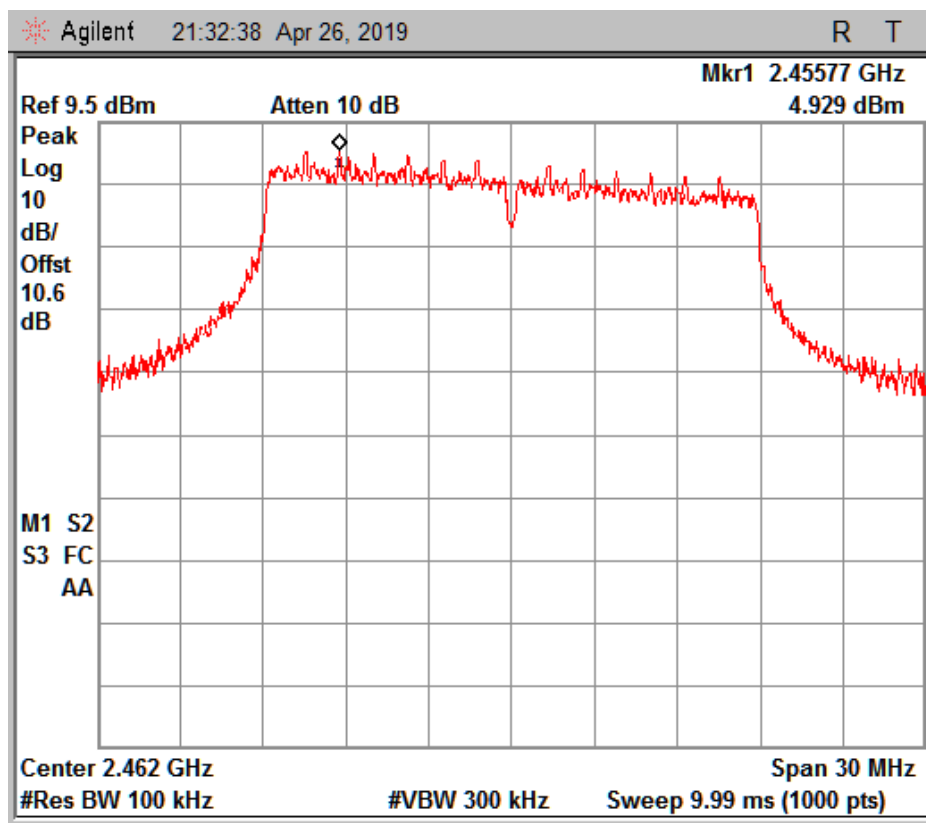
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MCS7 Channel Mid



MCS7 Channel High

Prüfbericht - Nr.:

Test Report No.:

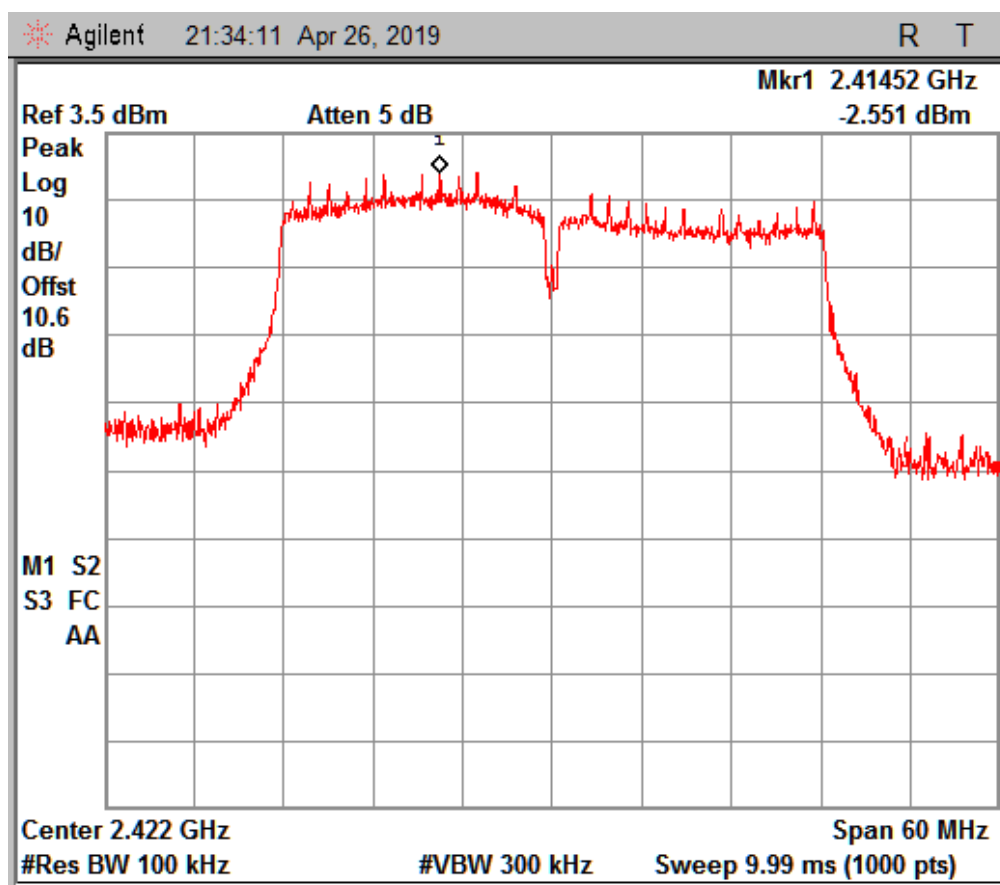
ULR-TC568819300000021F 001

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802.11n_HT40_SISO

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	PSD (dBm)	Limit (dBm)
n	MCS0	2422	-2.55	8
		2437	-2.25	8
		2457	-2.18	8
	MCS4	2422	-2.37	8
		2437	-1.44	8
		2457	-1.11	8
	MCS7	2422	-1.18	8
		2437	-1.57	8
		2457	-1.32	8



MCS0 Channel Low

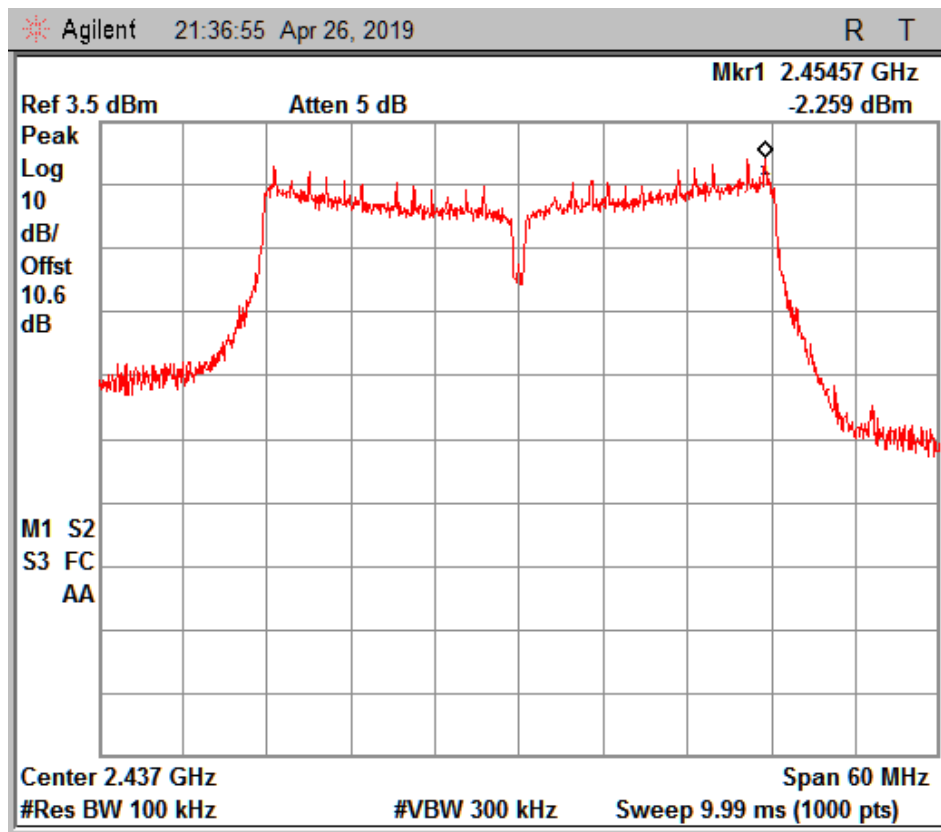
Prüfbericht - Nr.:

Test Report No.:

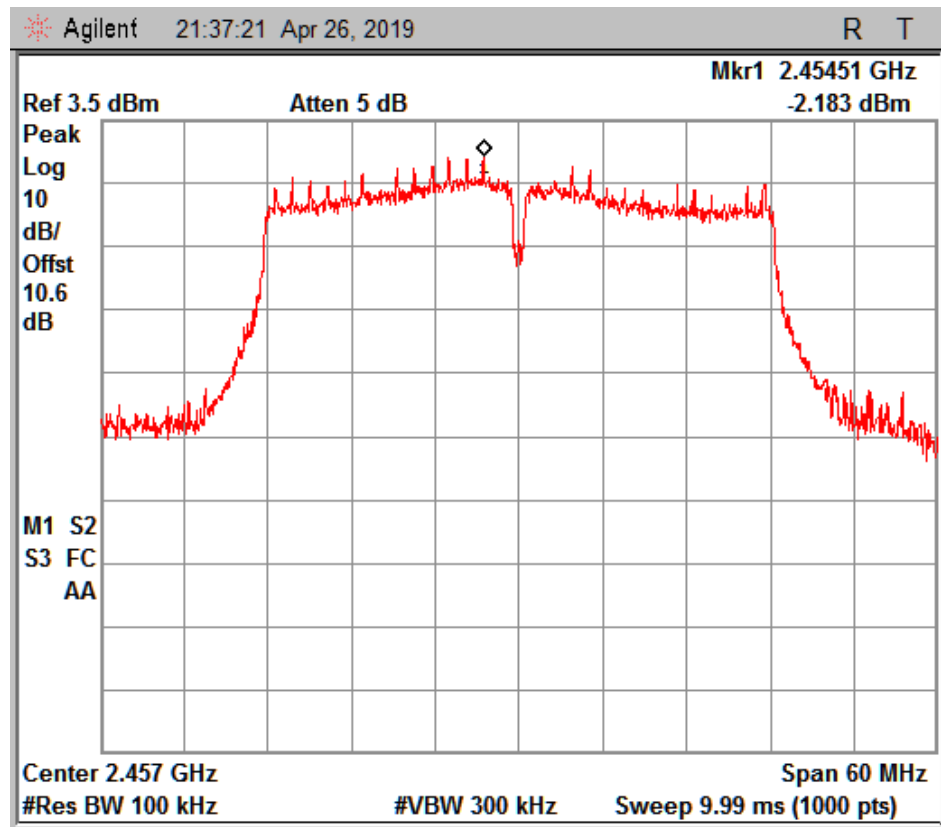
ULR-TC568819300000021F 001

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MCS0 Channel Mid



MCS0 Channel High

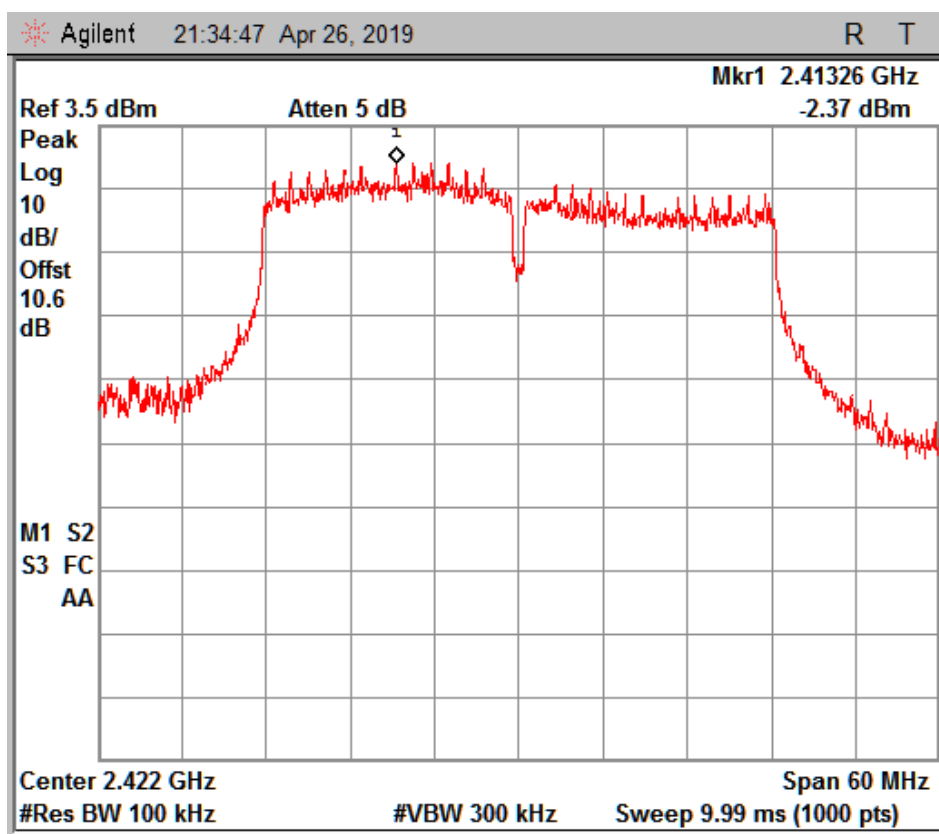
Prüfbericht - Nr.:

Test Report No.:

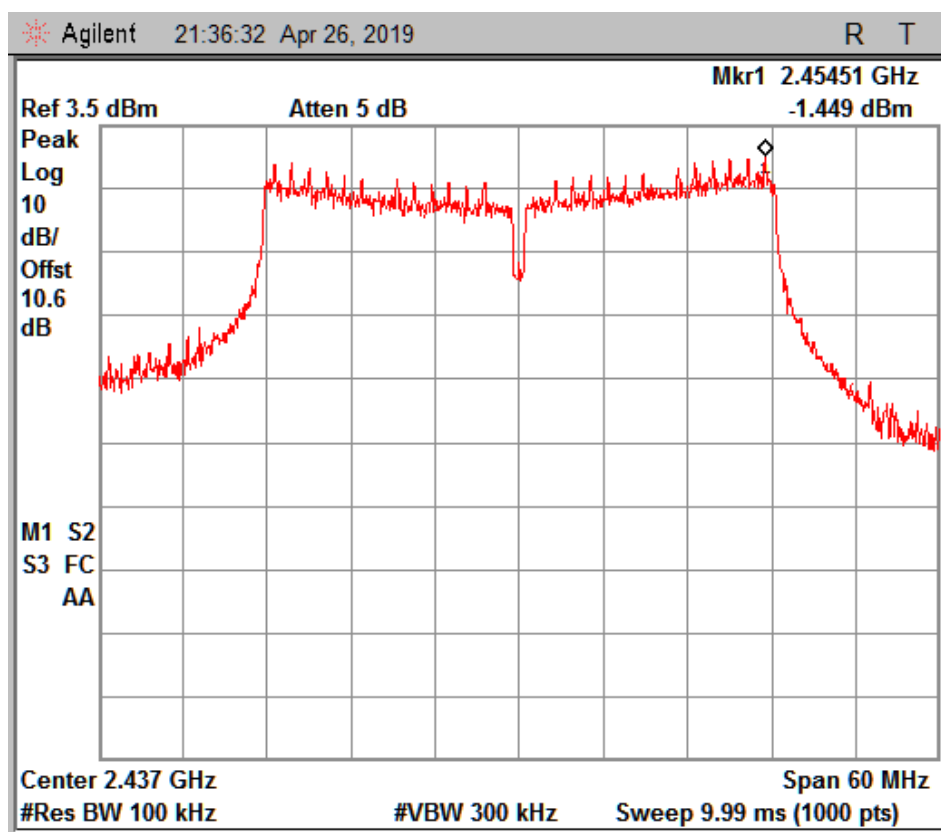
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MCS4 Channel Low



MCS4 Channel Mid

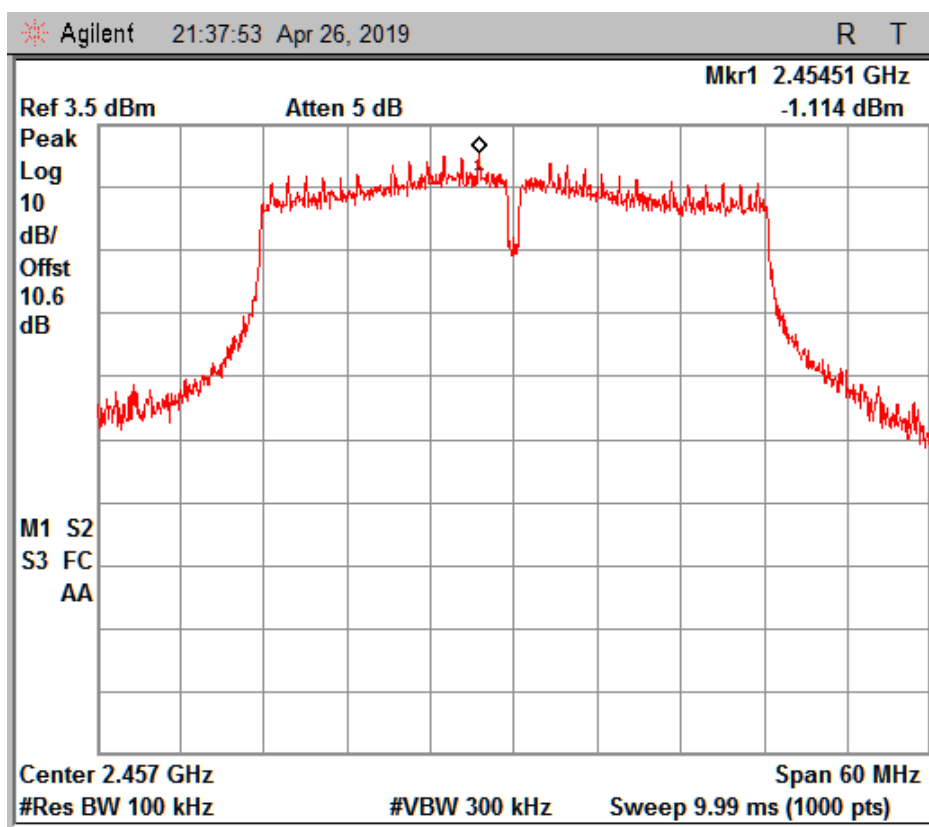
Prüfbericht - Nr.:

Test Report No.:

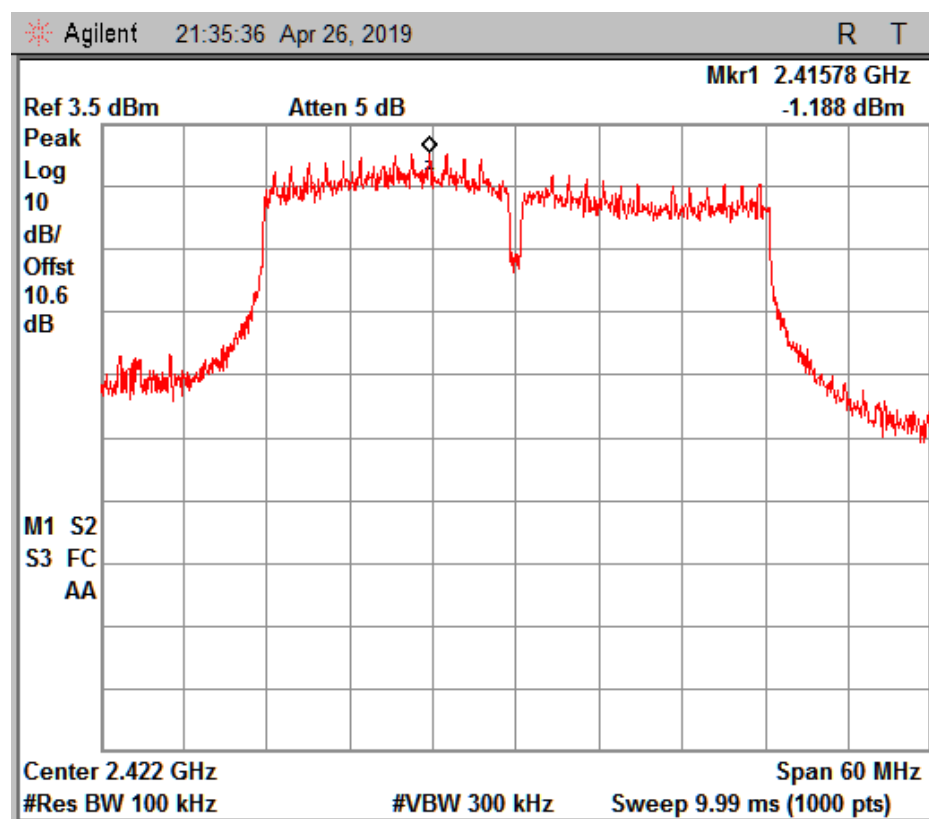
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MCS4 Channel High



MCS7 Channel Low

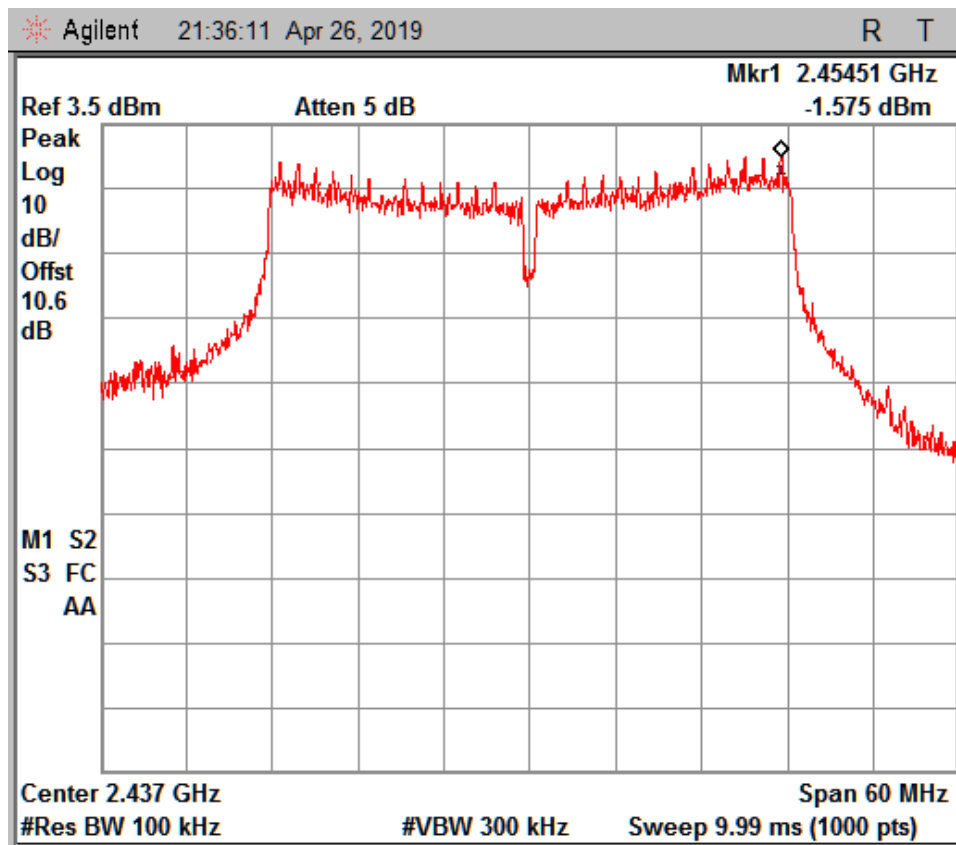
Prüfbericht - Nr.:

Test Report No.:

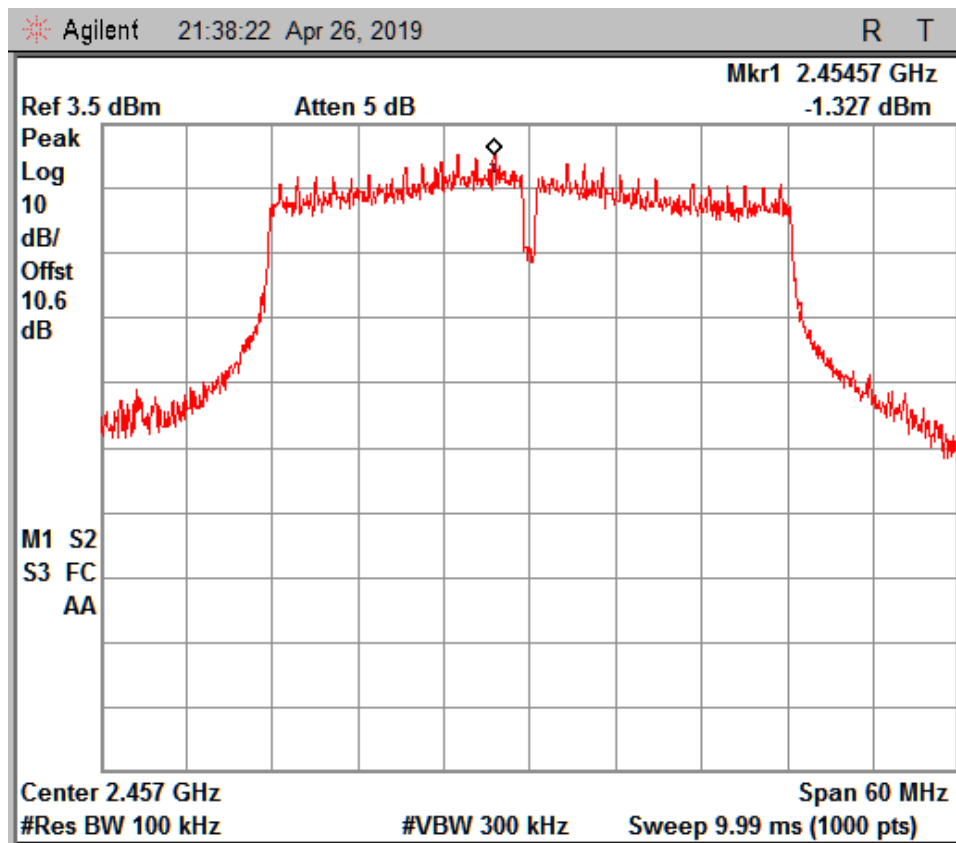
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MCS7 Channel Mid



MCS7 Channel High

Prüfbericht - Nr.:

Test Report No.:

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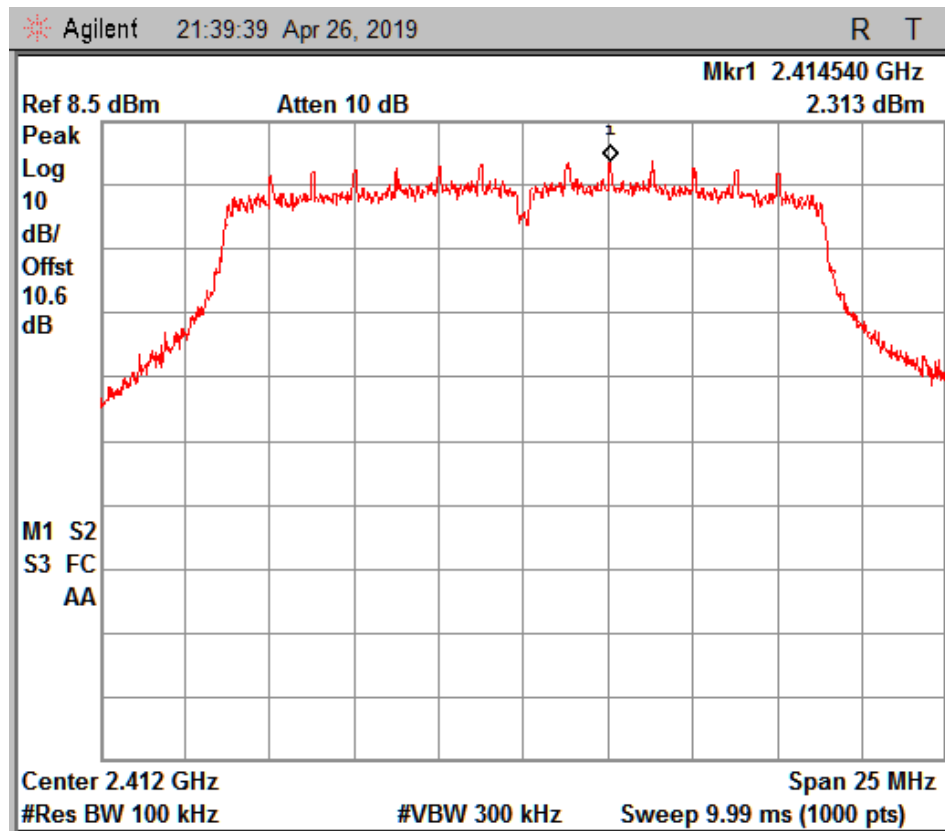
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802.11n_HT20_MIMO

802.11 Protocol	Data rate (Mbps)	Channel Frequency (MHz)	Total PSD for Chain 1 (dBm)	Total PSD for Chain 2 (dBm)	Limit (dBm)
n	MCS8	2412	5.32	6.03	8
		2437	5.27	6.11	8
		2462	4.37	3.63	8
	MCS11	2412	4.97	5.54	8
		2437	5.23	6.02	8
		2462	3.28	3.74	8
	MCS15	2412	5.41	5.84	8
		2437	5.04	6.07	8
		2462	4.14	3.80	8

Note: Total PSD for each port is arrived by adding factor of $10\log(N_{Ant})$, where N_{Ant} is number of output.

Chain 1



MCS8 Channel Low

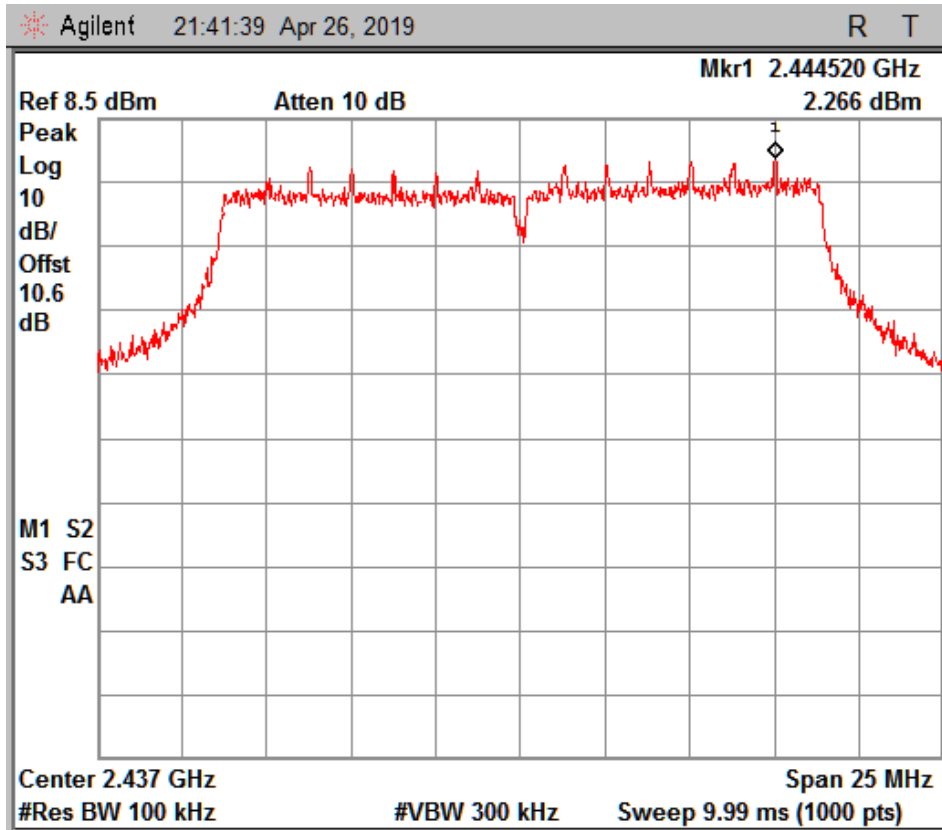
Prüfbericht - Nr.:

Test Report No.:

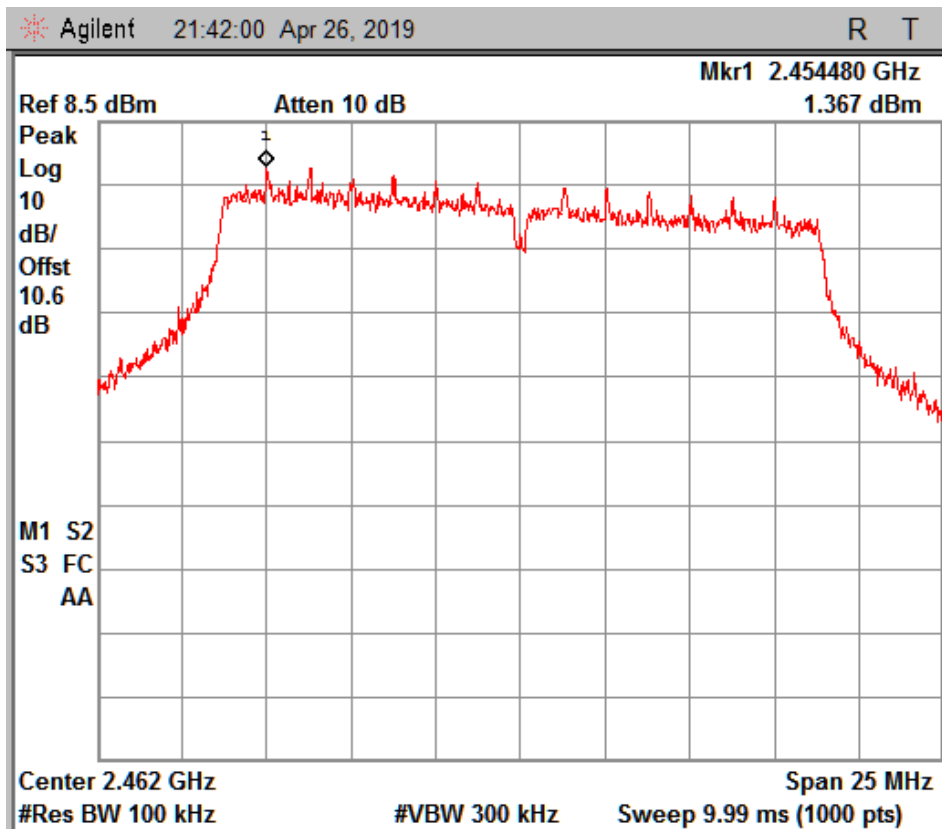
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MCS8 Channel mid



MCS8 Channel High

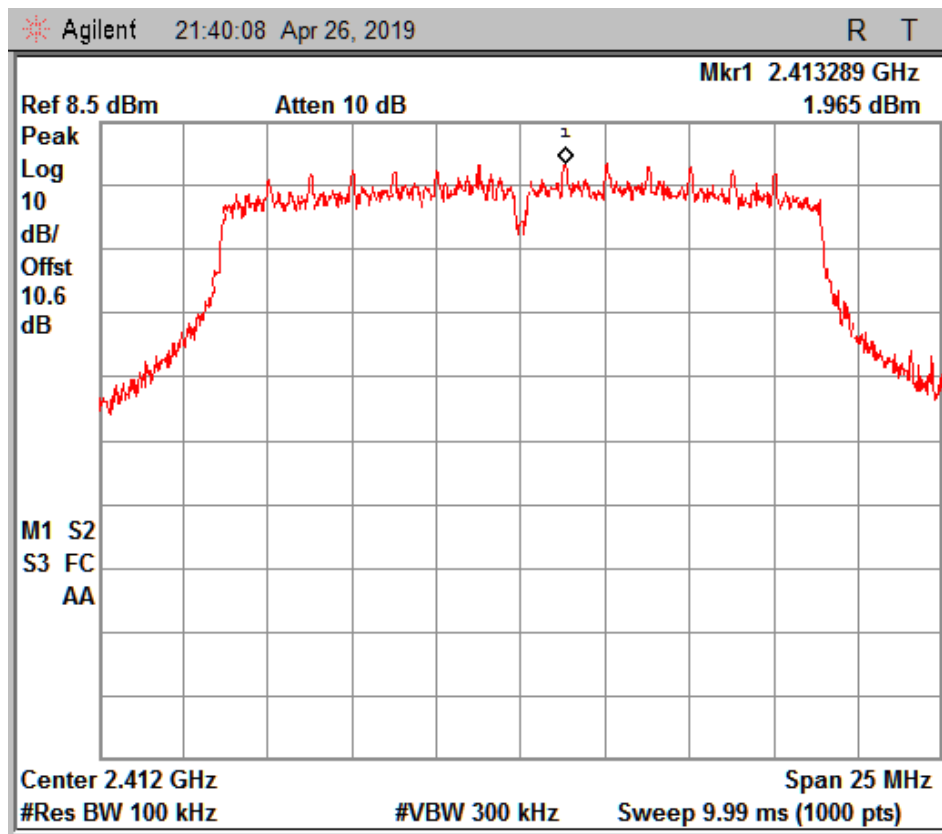
Prüfbericht - Nr.:

Test Report No.:

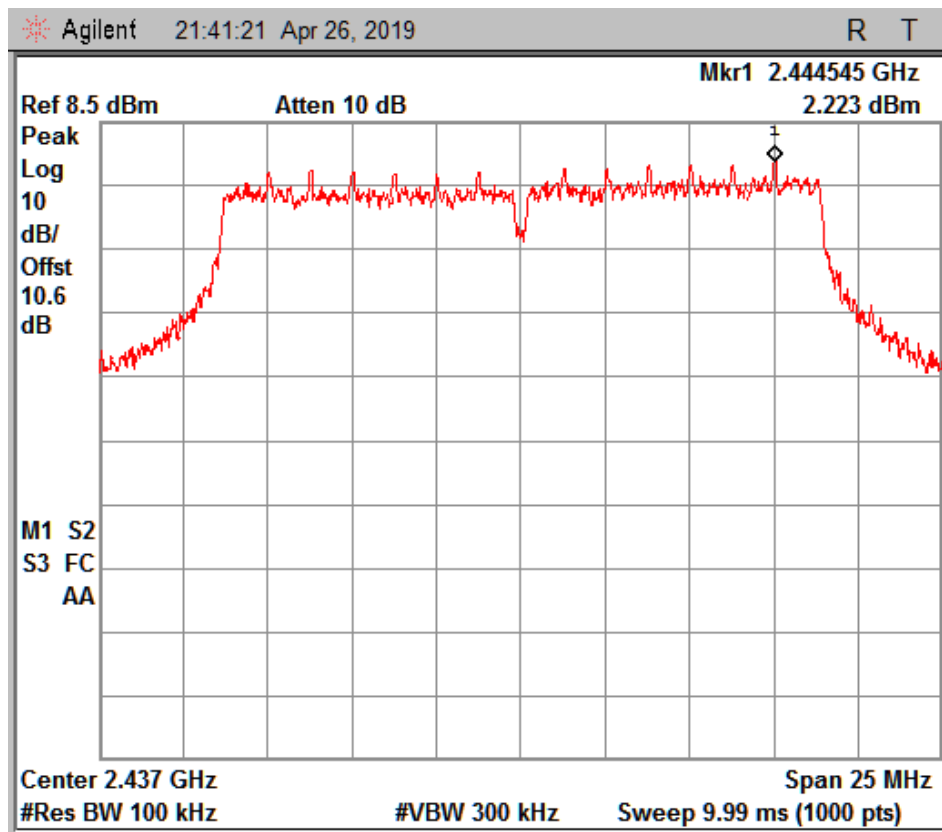
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MCS11 Channel Low



MCS11 Channel mid

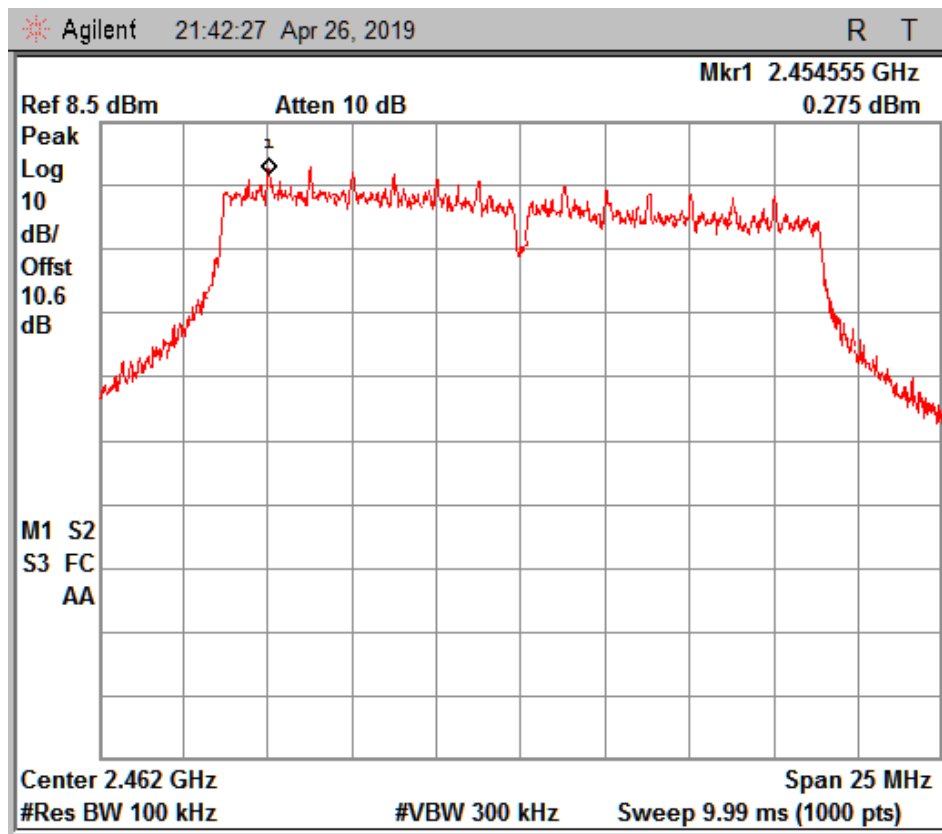
Prüfbericht - Nr.:

Test Report No.:

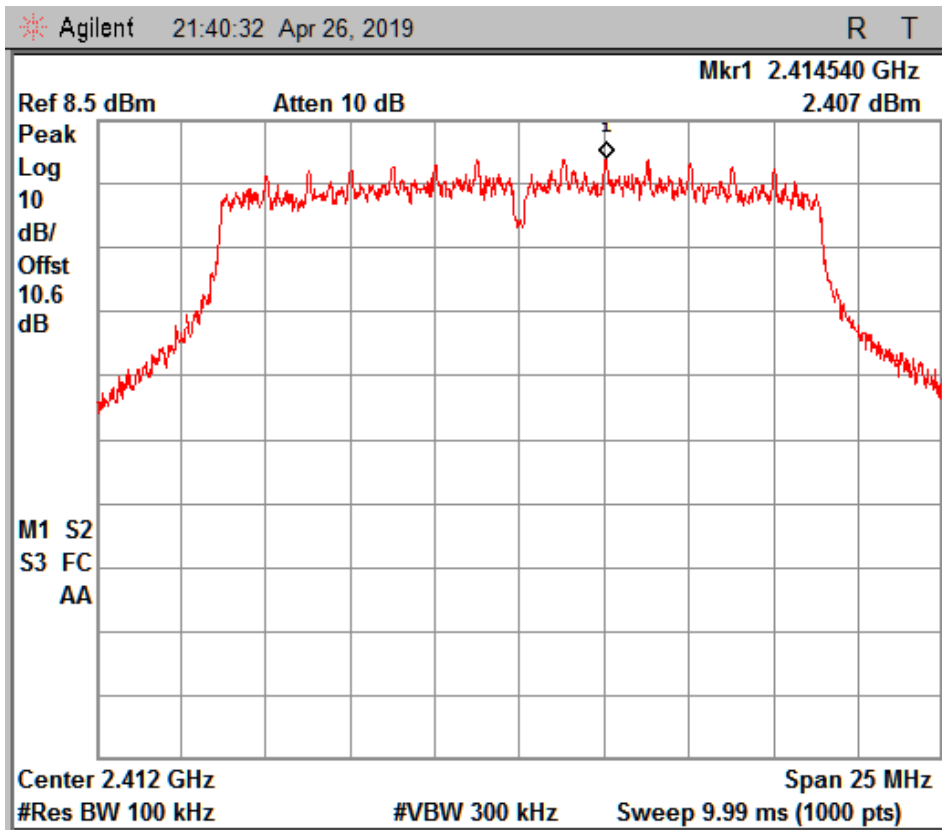
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MCS11 Channel High



MCS15 Channel Low

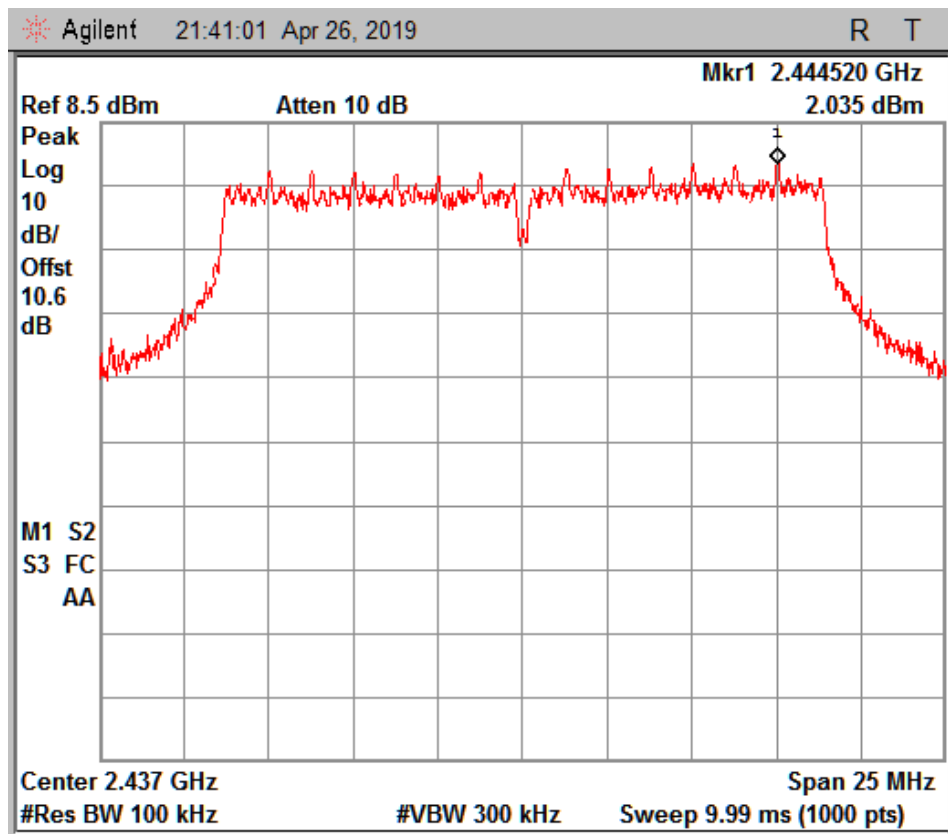
Prüfbericht - Nr.:

Test Report No.:

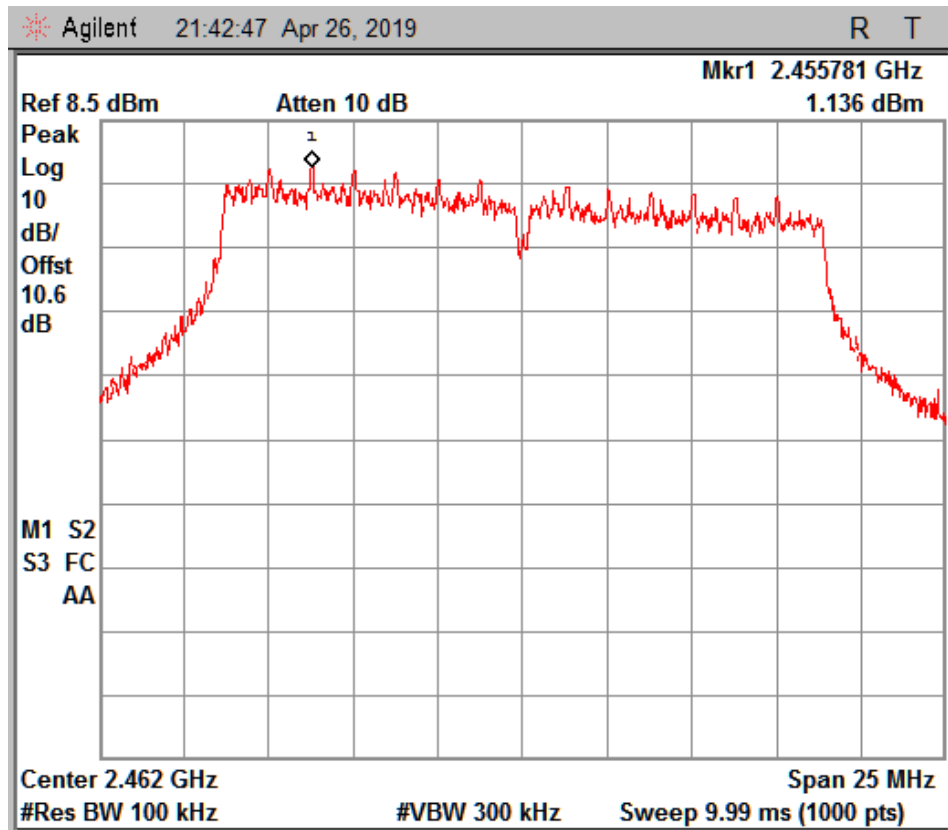
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MCS15 Channel mid



MCS15 Channel High

Prüfbericht - Nr.:

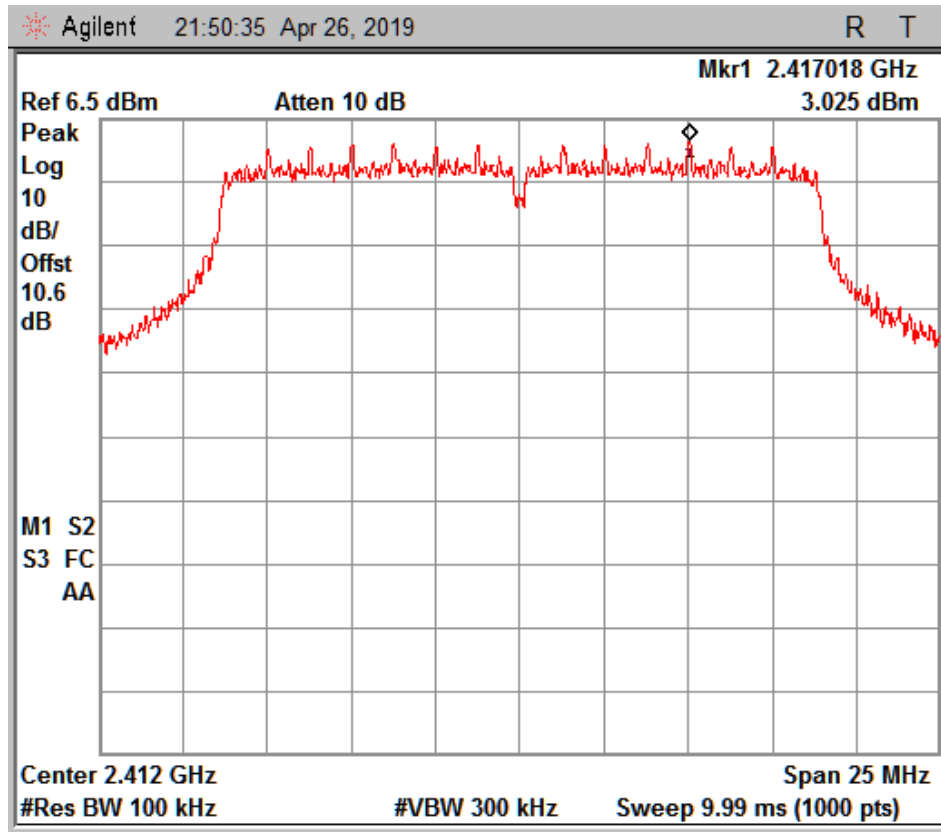
Test Report No.:

ULR-TC568819300000021F 001

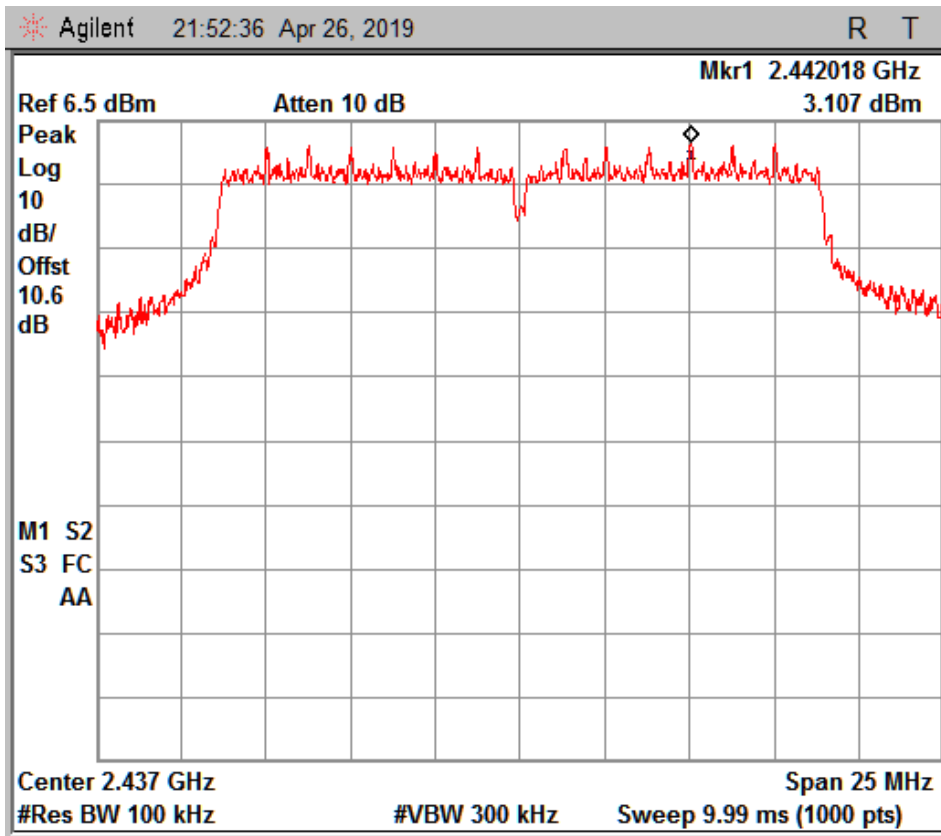
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Chain2



MCS8 Channel Low



MCS8 Channel Mid

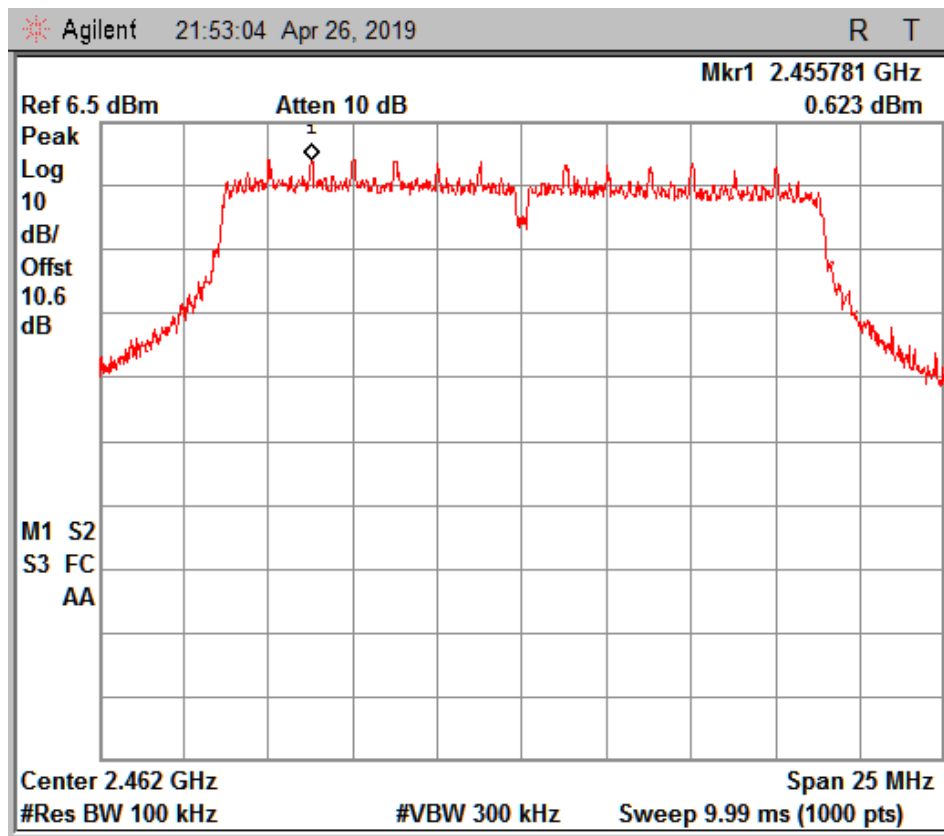
Prüfbericht - Nr.:

Test Report No.:

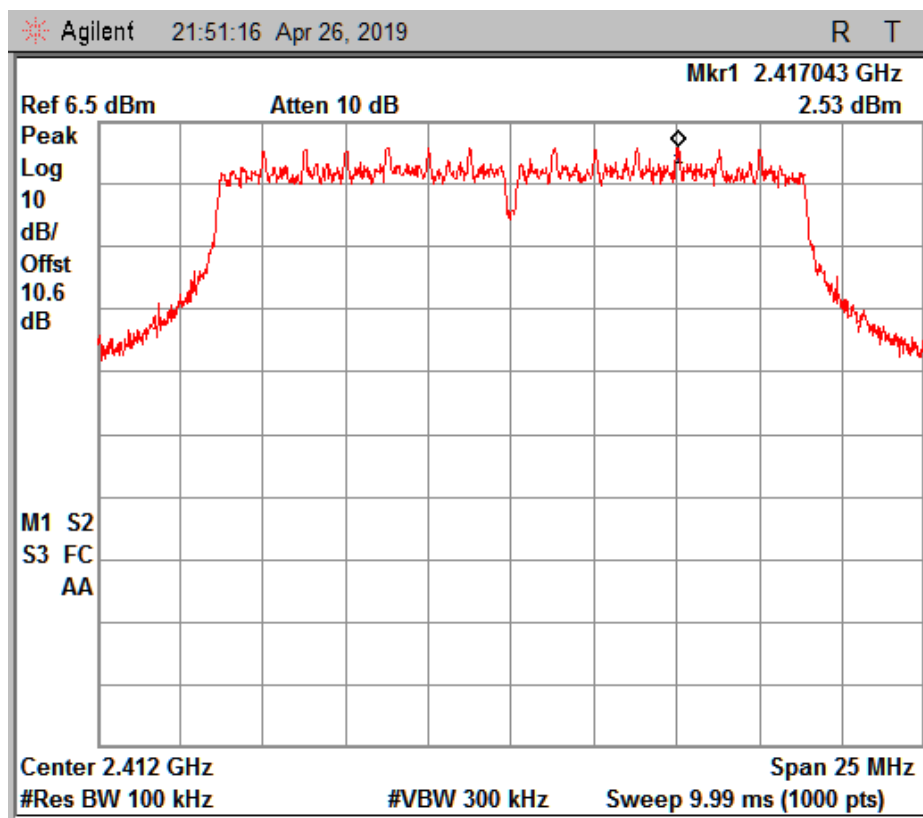
ULR-TC568819300000021F 001

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MCS8 Channel High



MCS11 Channel Low

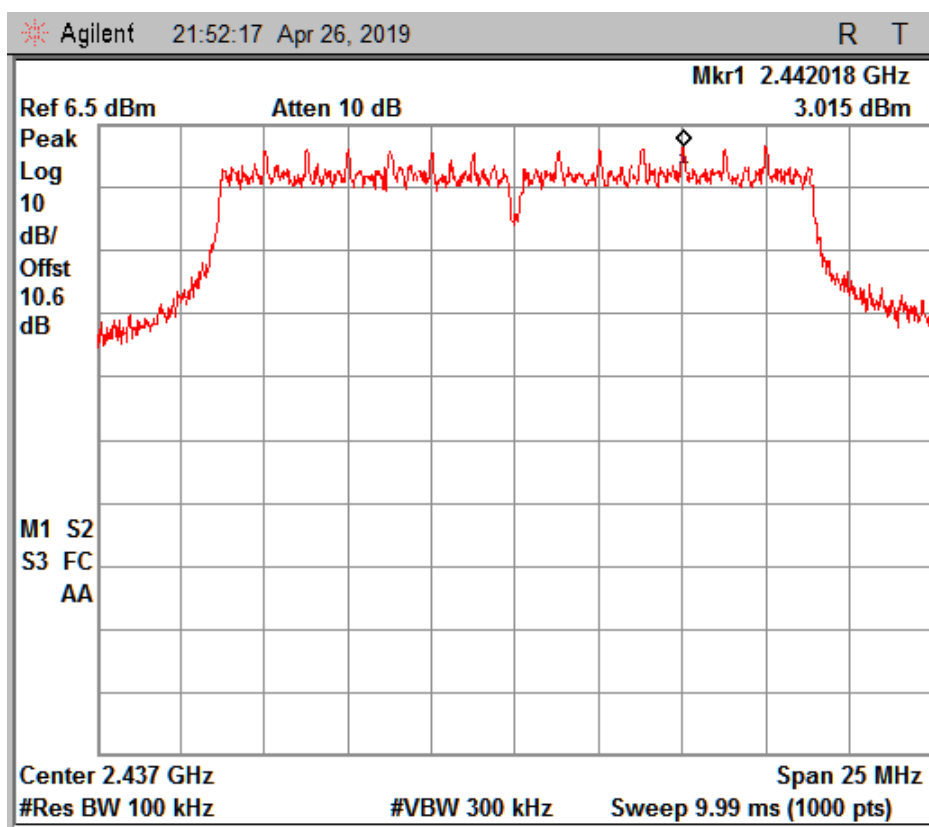
Prüfbericht - Nr.:

Test Report No.:

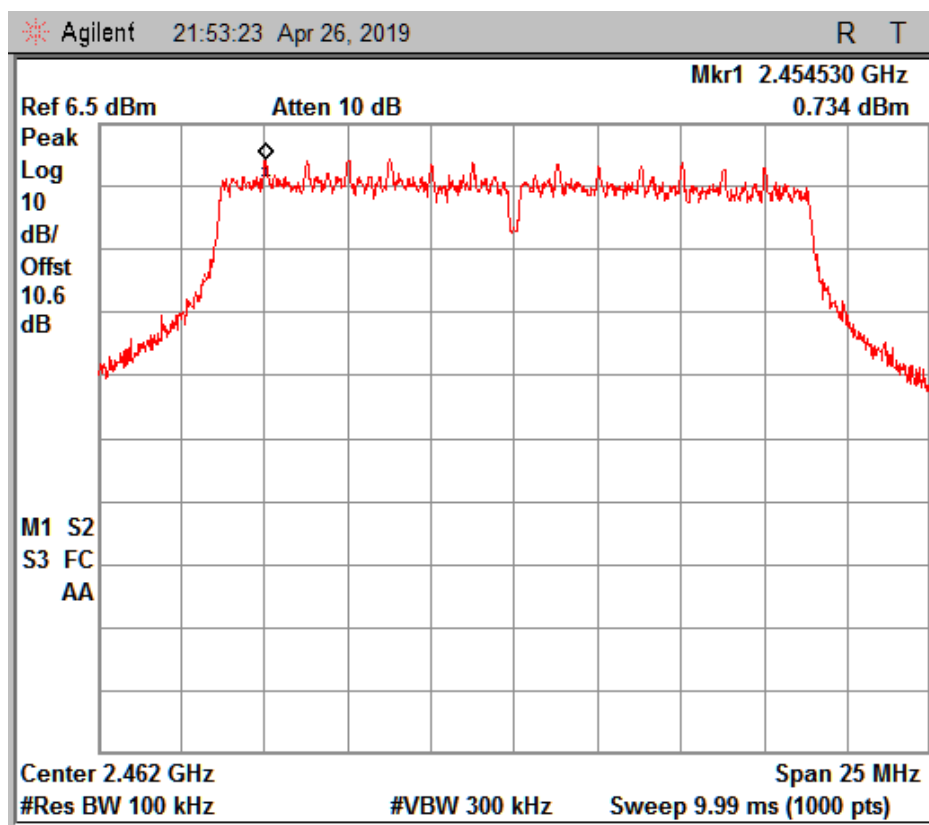
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MCS11 Channel Mid



MCS11 Channel High

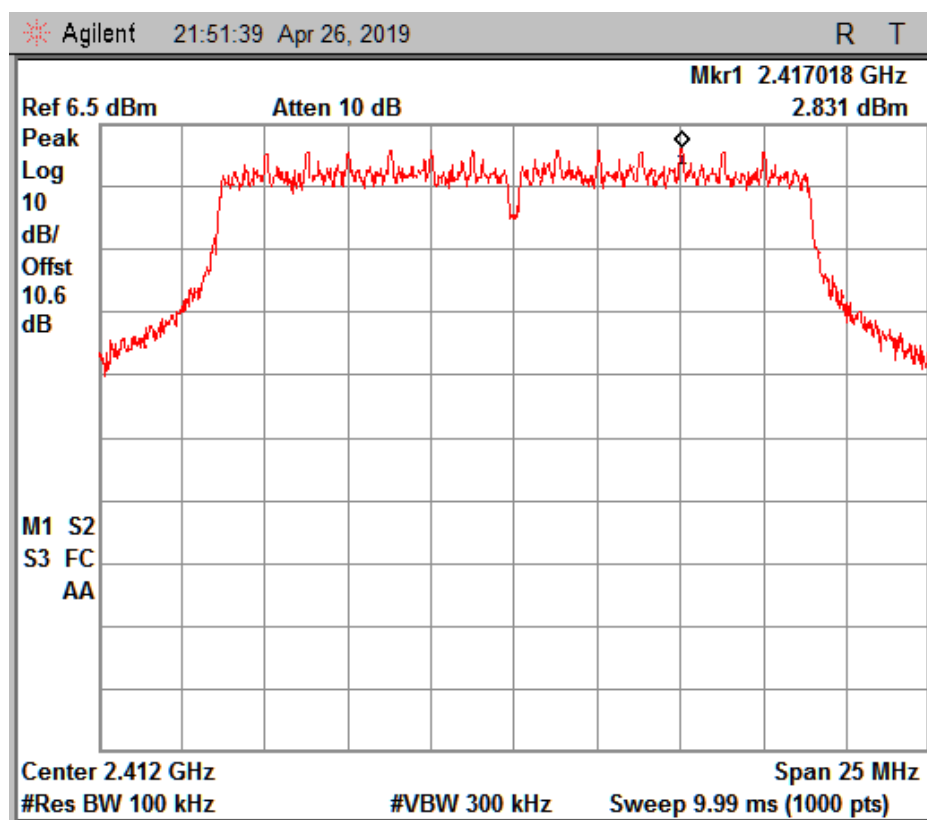
Prüfbericht - Nr.:

Test Report No.:

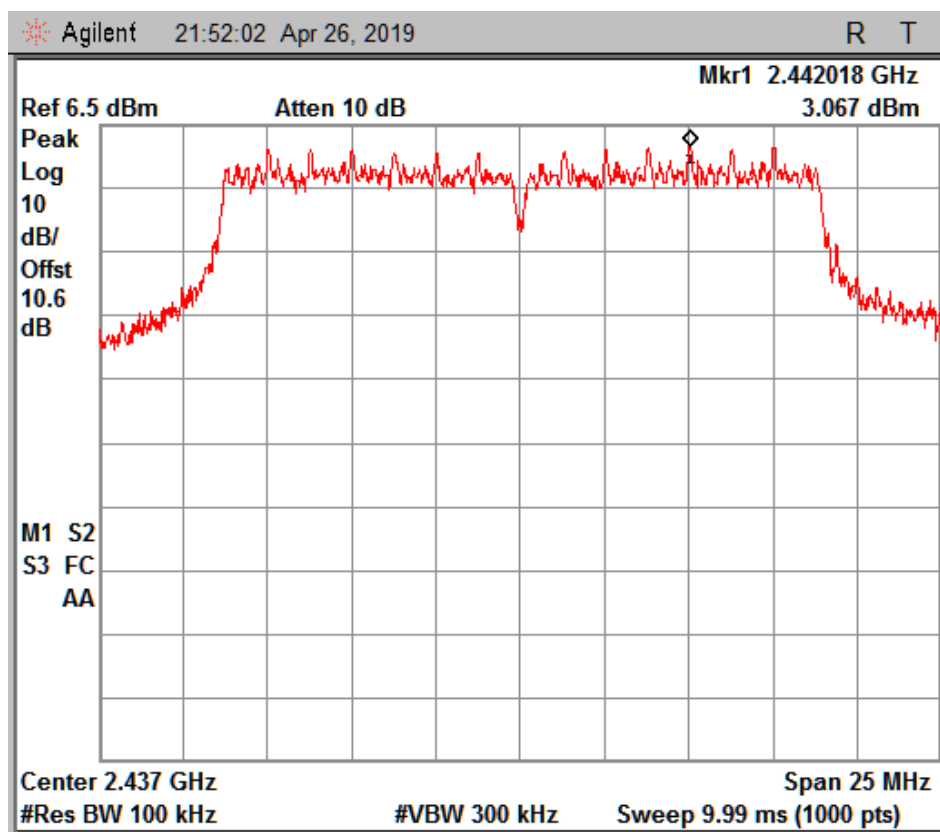
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MCS15 Channel Low



MCS15 Channel Mid

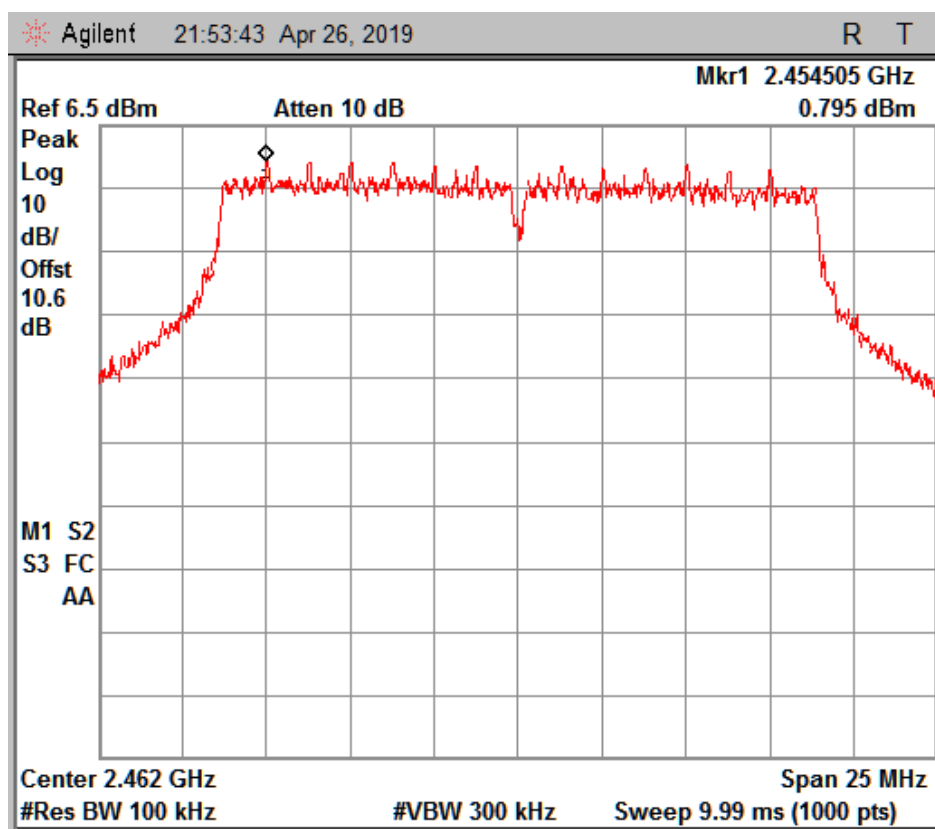
Prüfbericht - Nr.:

Test Report No.:

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MCS15 Channel High

802.11n_HT40_MIMO

802.11 Protocol	Data rate (Mbps)	Channel Frequency (MHz)	Total PSD for Chain 1 (dBm)	Total PSD for Chain 2 (dBm)	Limit (dBm)
n	MCS8	2422	-1.67	-1.04	8
		2437	-0.82	-2.27	8
		2457	-1.03	-1.84	8
	MCS11	2422	-1.20	-0.70	8
		2437	0.74	0.12	8
		2457	-0.77	-2.16	8
	MCS15	2422	-1.13	-0.70	8
		2437	0.76	0.19	8
		2457	-0.82	-1.40	8

Note: Total PSD for each port is arrived by adding factor of $10\log(N_{Ant})$, where N_{Ant} is number of output.

Prüfbericht - Nr.:

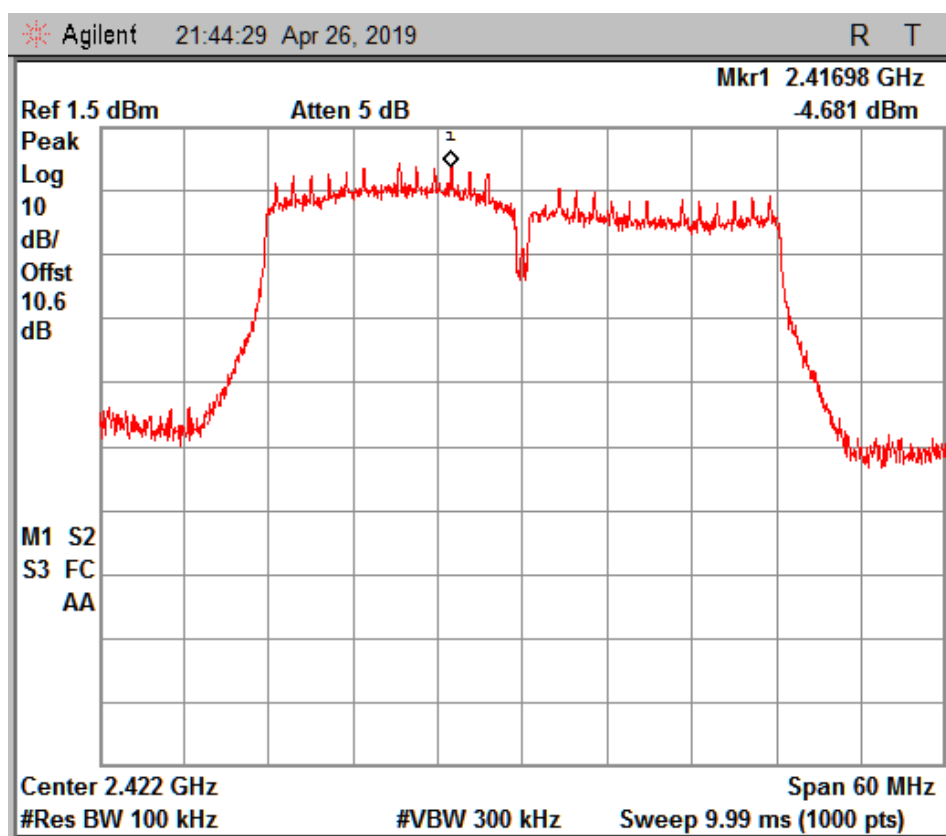
Test Report No.:

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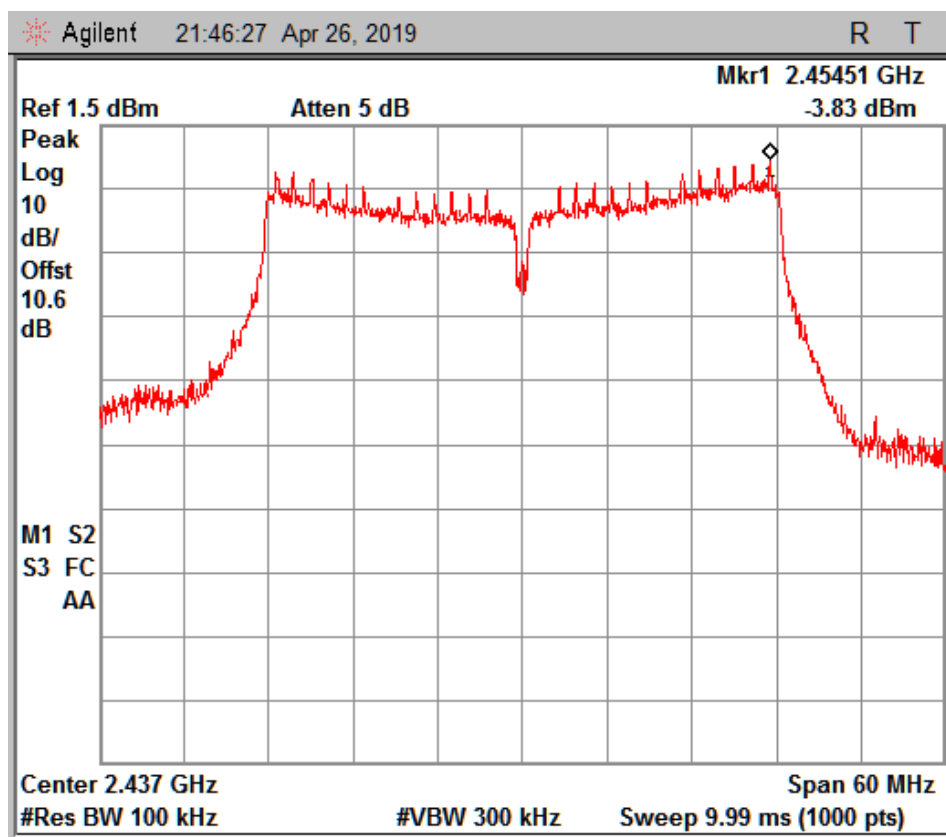
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Chain 1



MCS8 Channel Low



MCS8 Channel mid

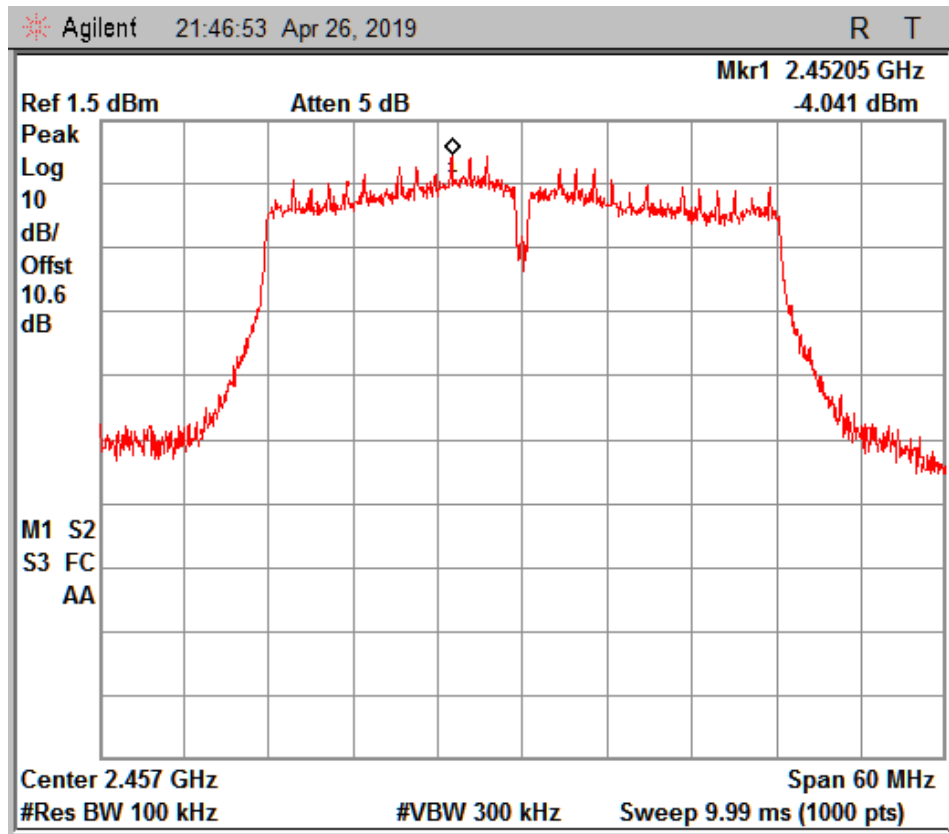
Prüfbericht - Nr.:

Test Report No.:

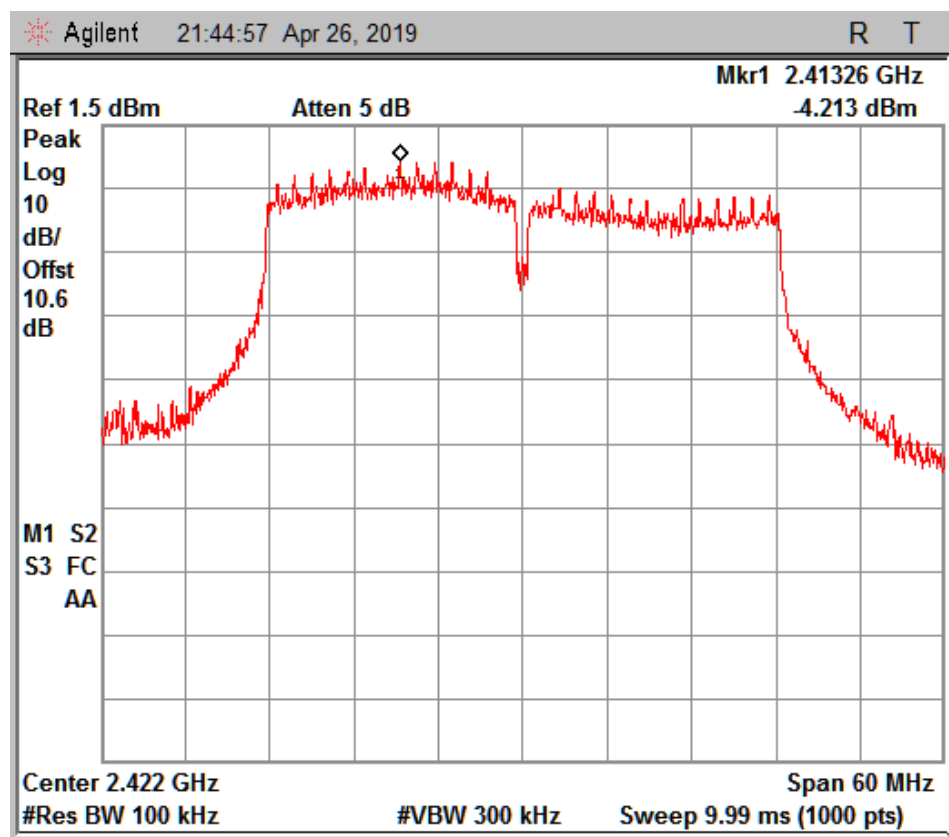
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MCS8 Channel High



MCS11 Channel Low

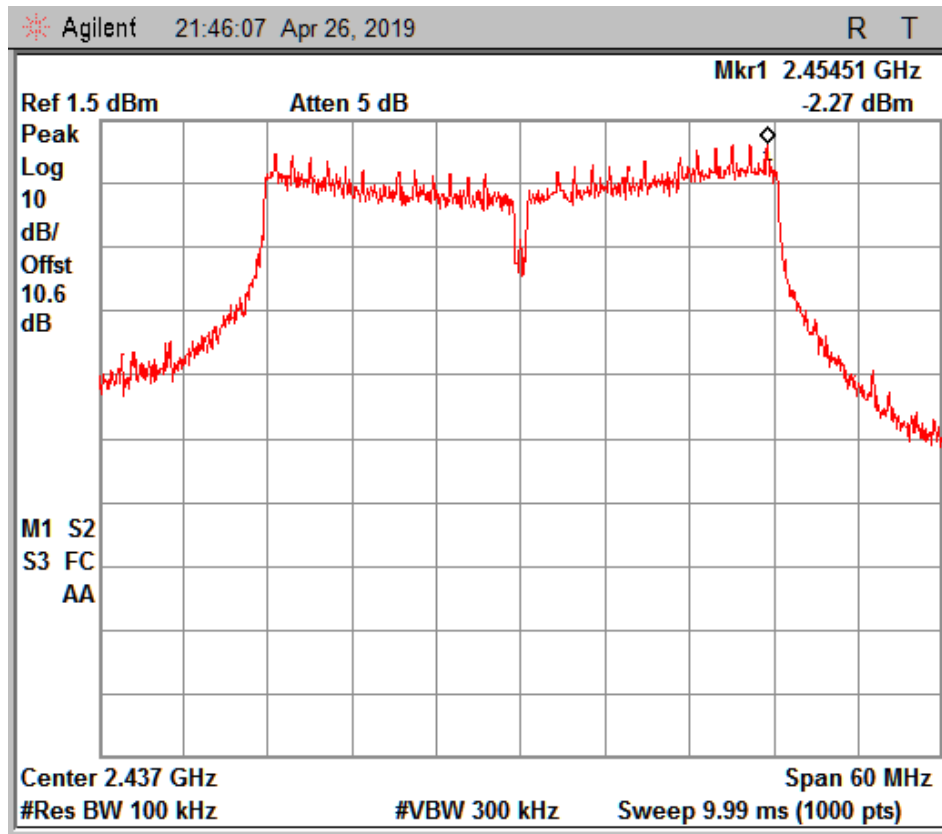
Prüfbericht - Nr.:

Test Report No.:

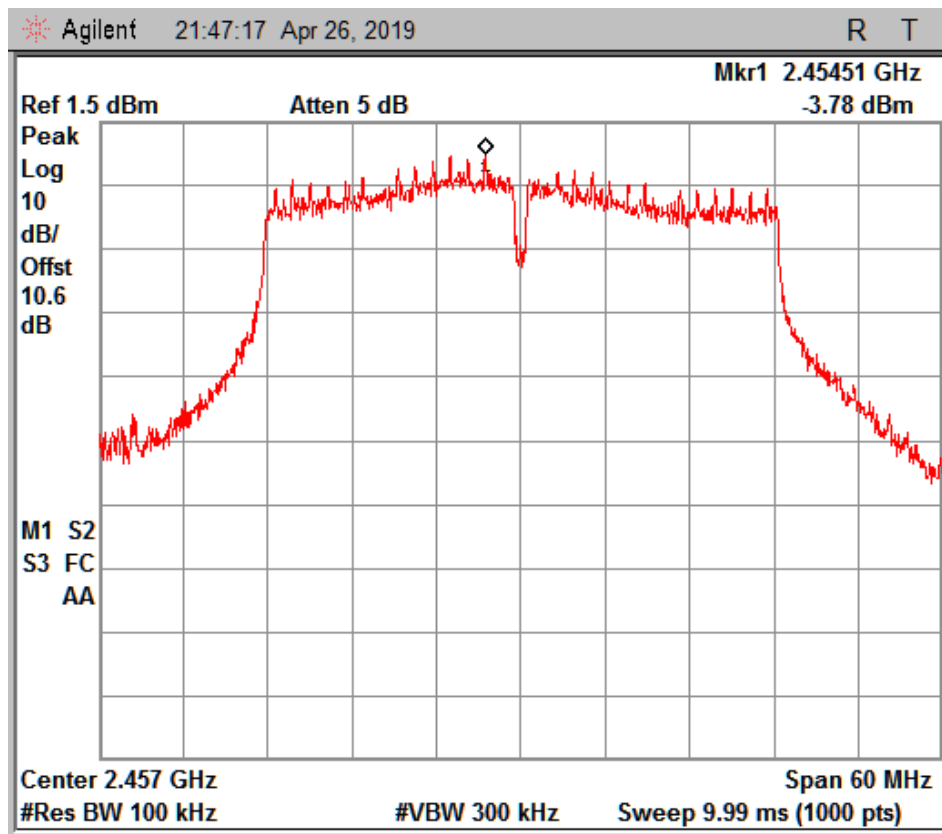
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MCS11 Channel mid



MCS11 Channel High

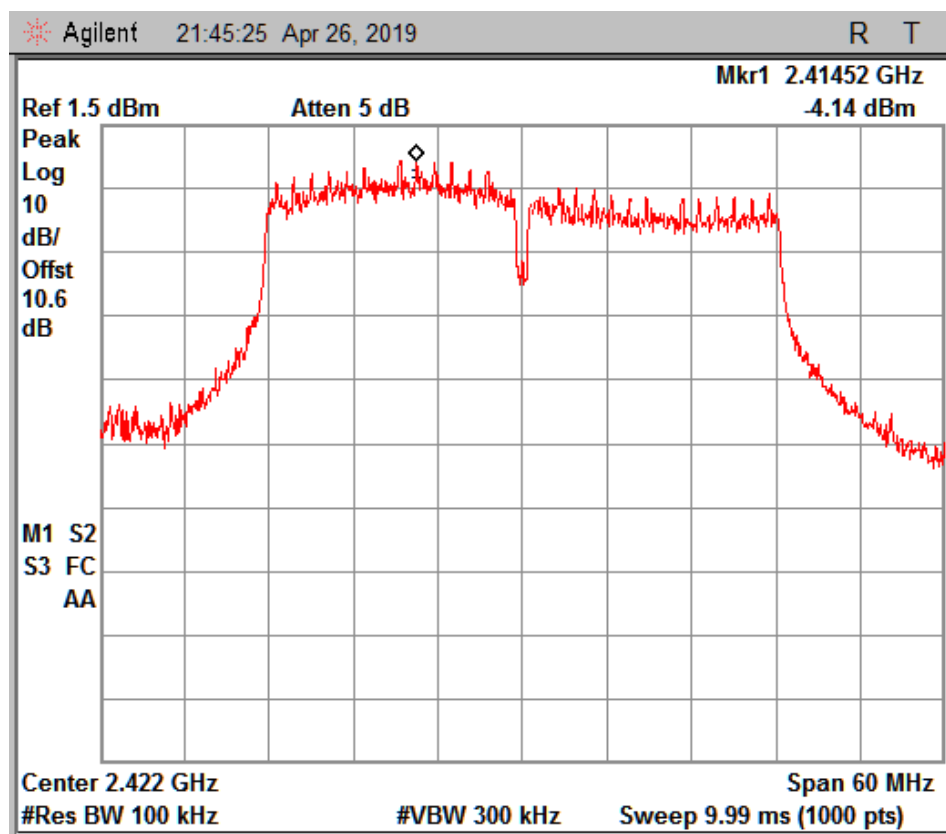
Prüfbericht - Nr.:

Test Report No.:

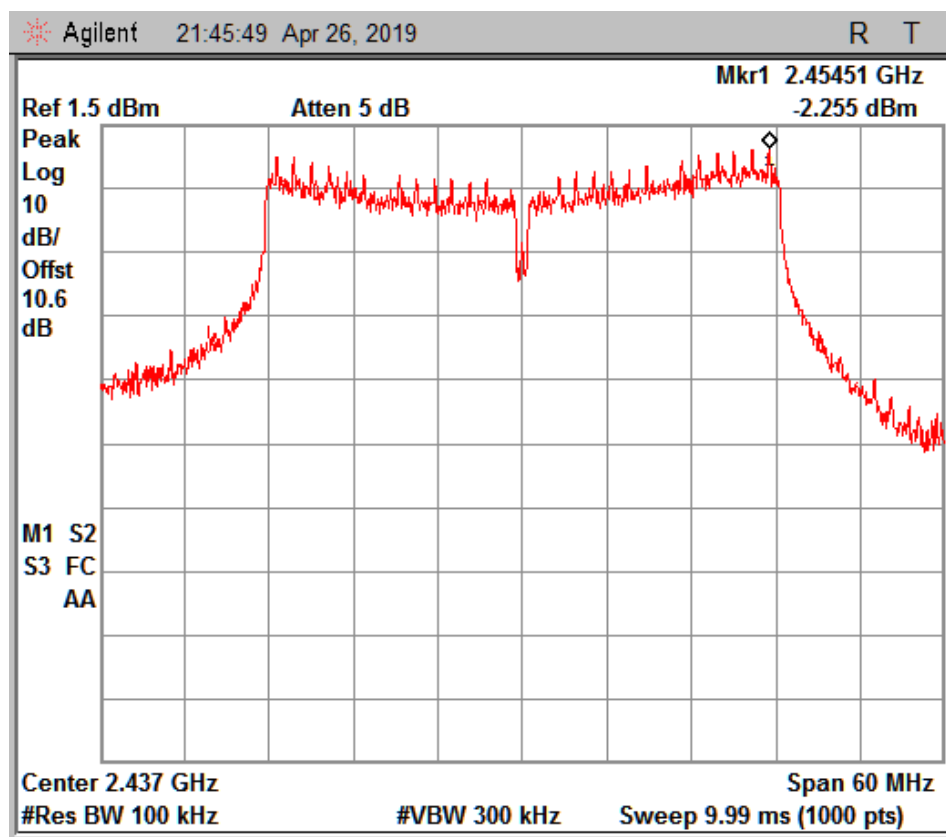
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MCS15 Channel Low



MCS15 Channel Mid

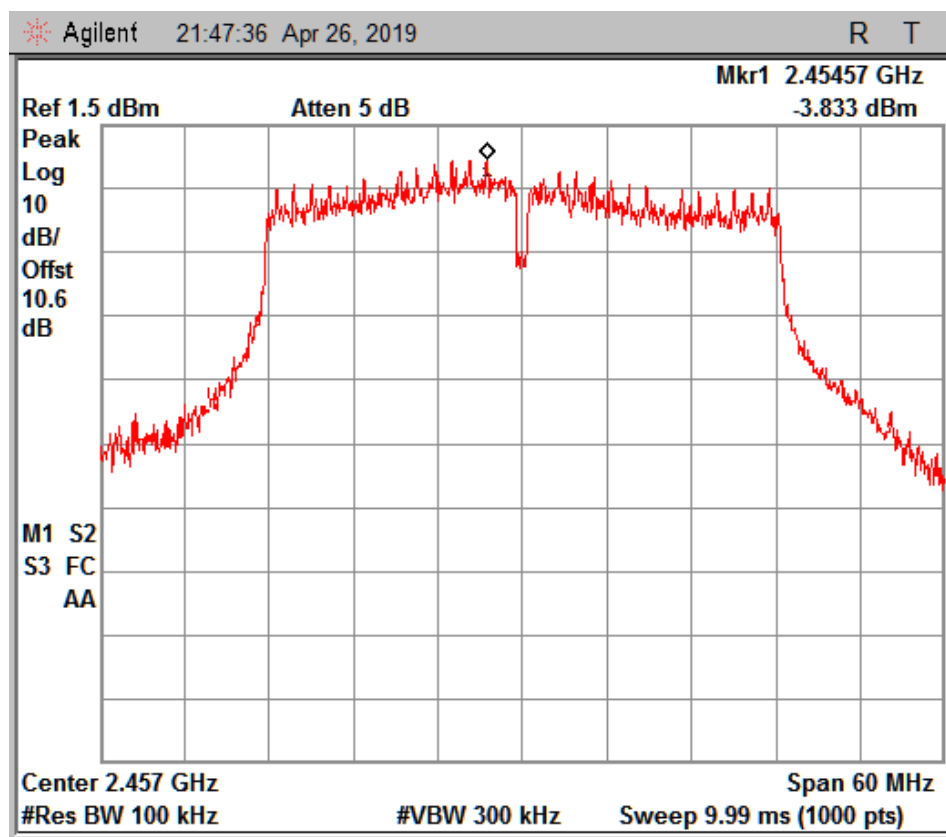
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Test Report No.:

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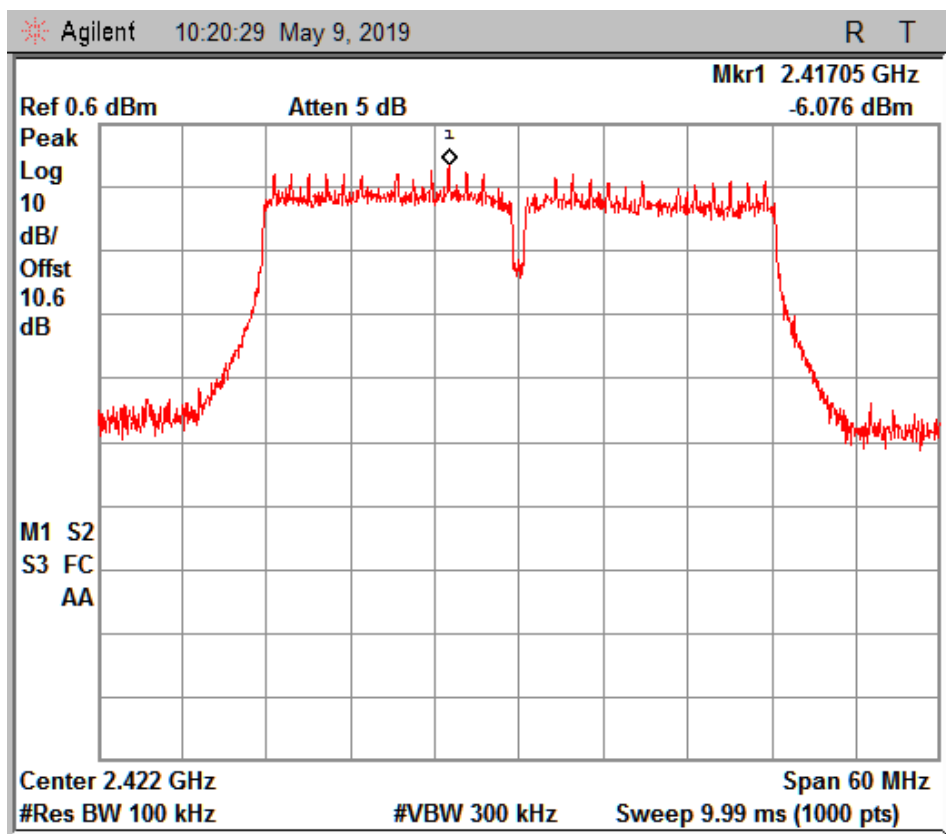
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MCS15 Channel High

Chain 2



MCS8 Channel Low

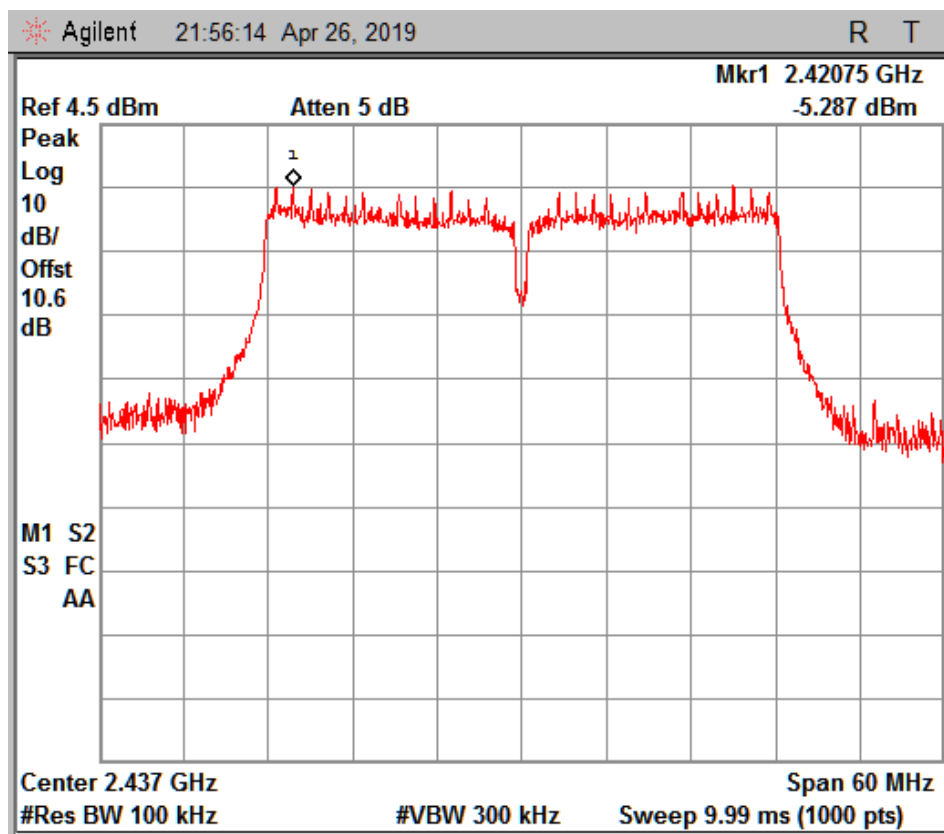
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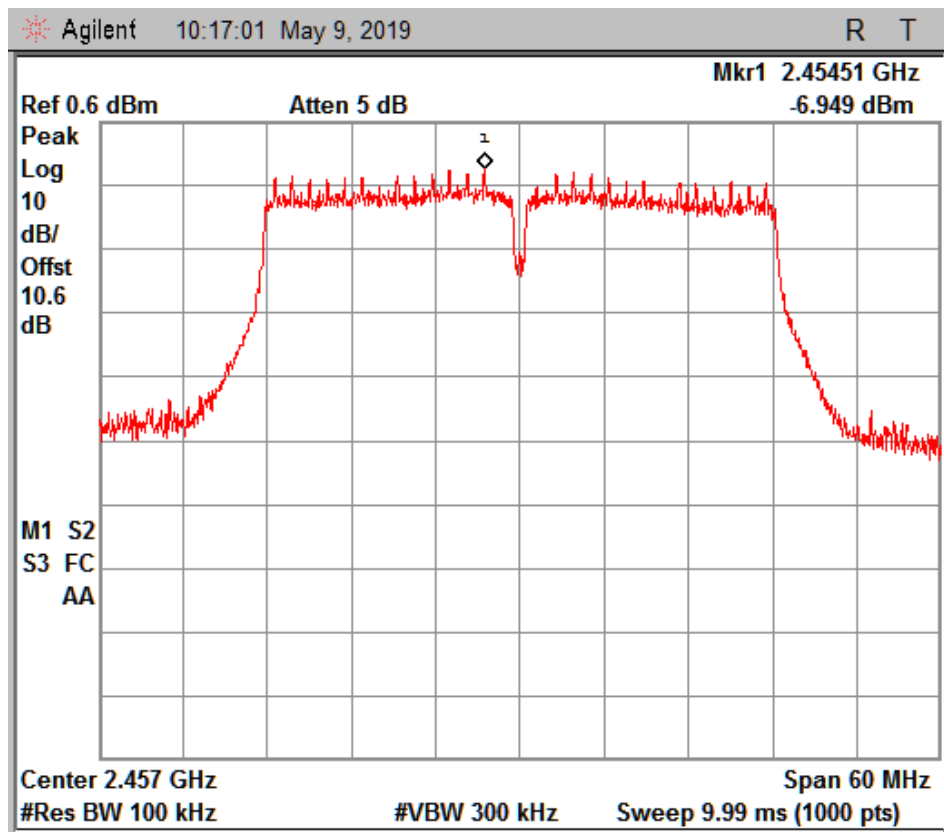
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MCS8 Channel Mid



MCS8 Channel High

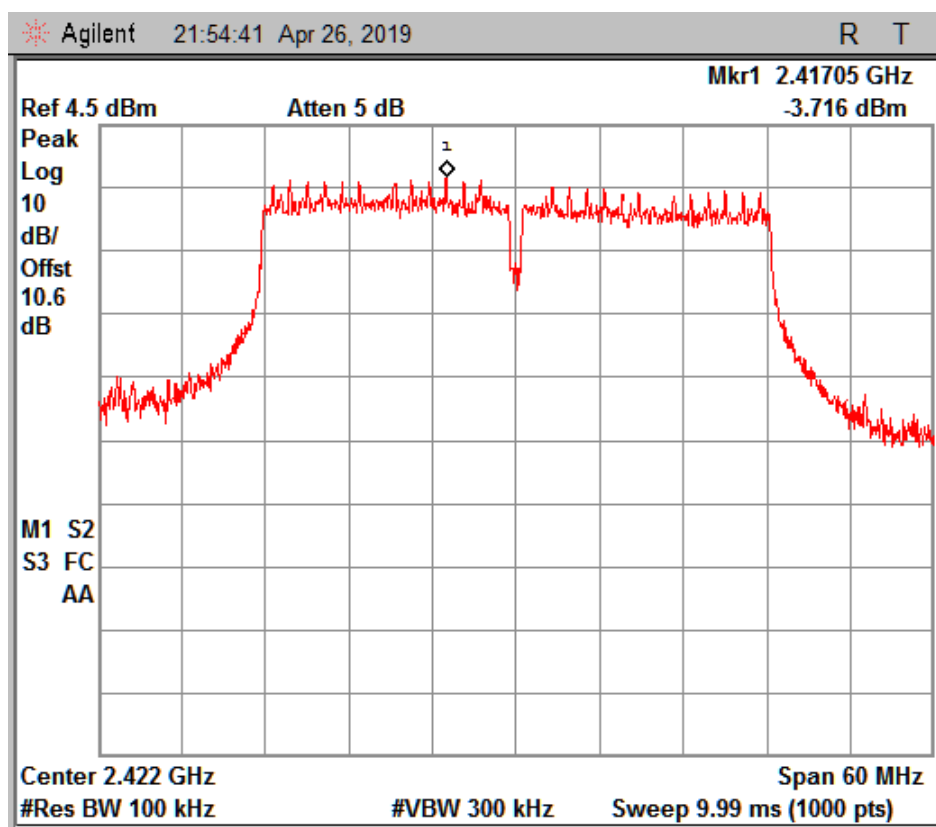
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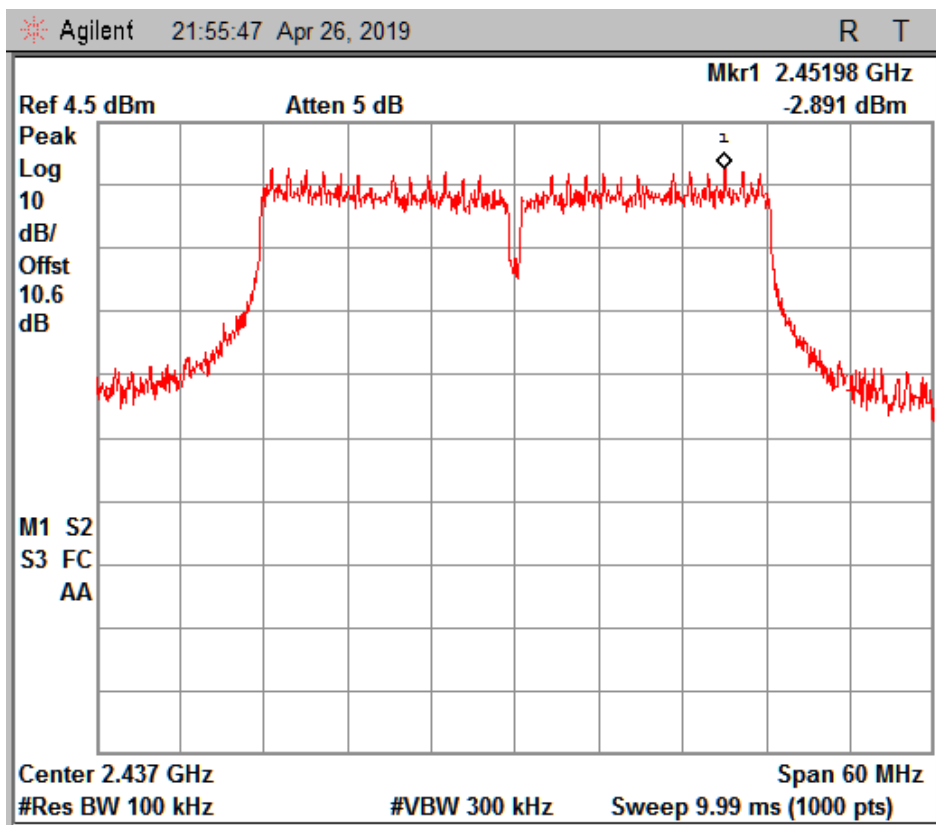
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MCS11 Channel Low



MCS11 Channel Mid

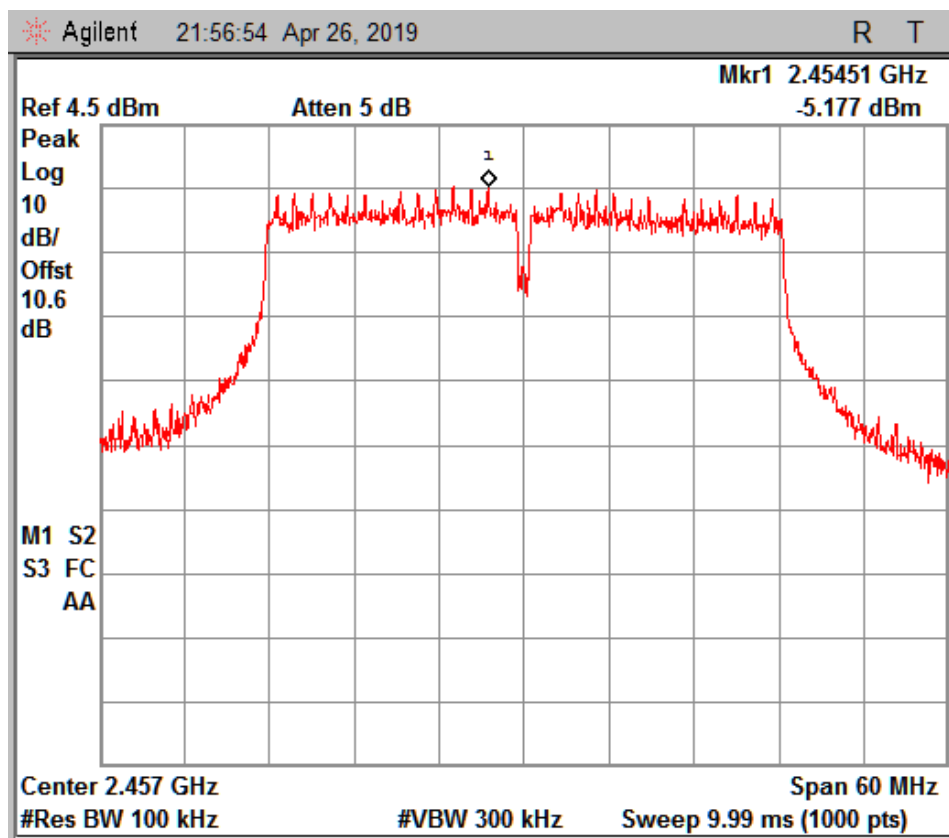
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Test Report No.:

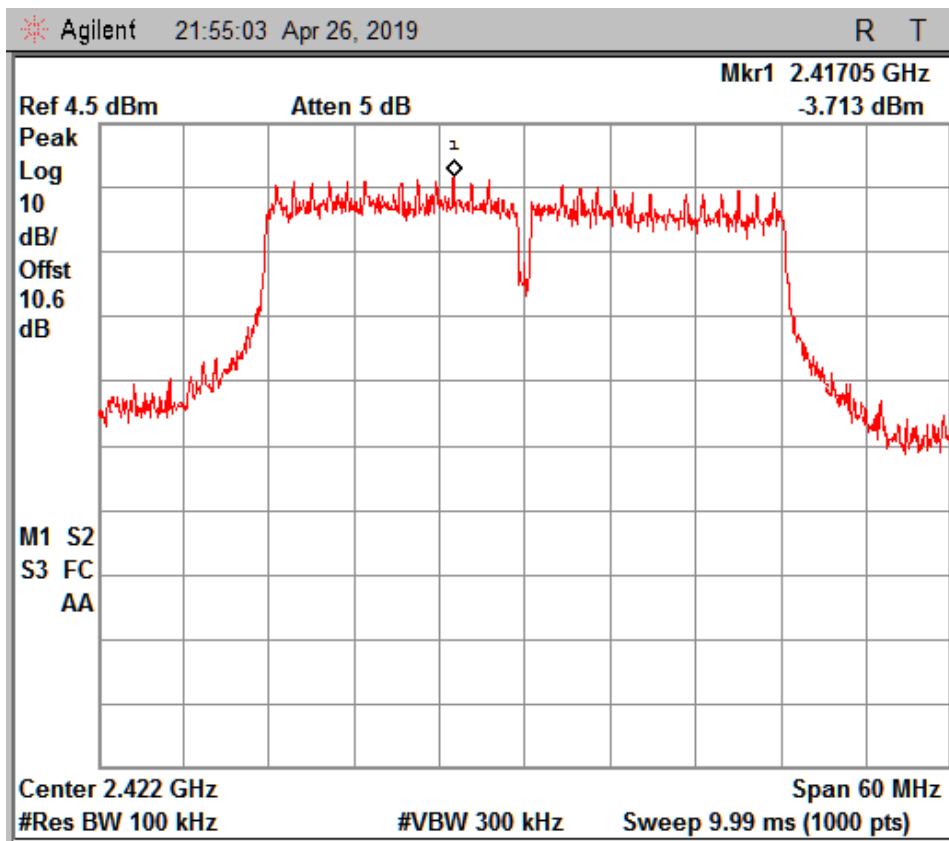
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MCS11 Channel High



MCS15 Channel Low

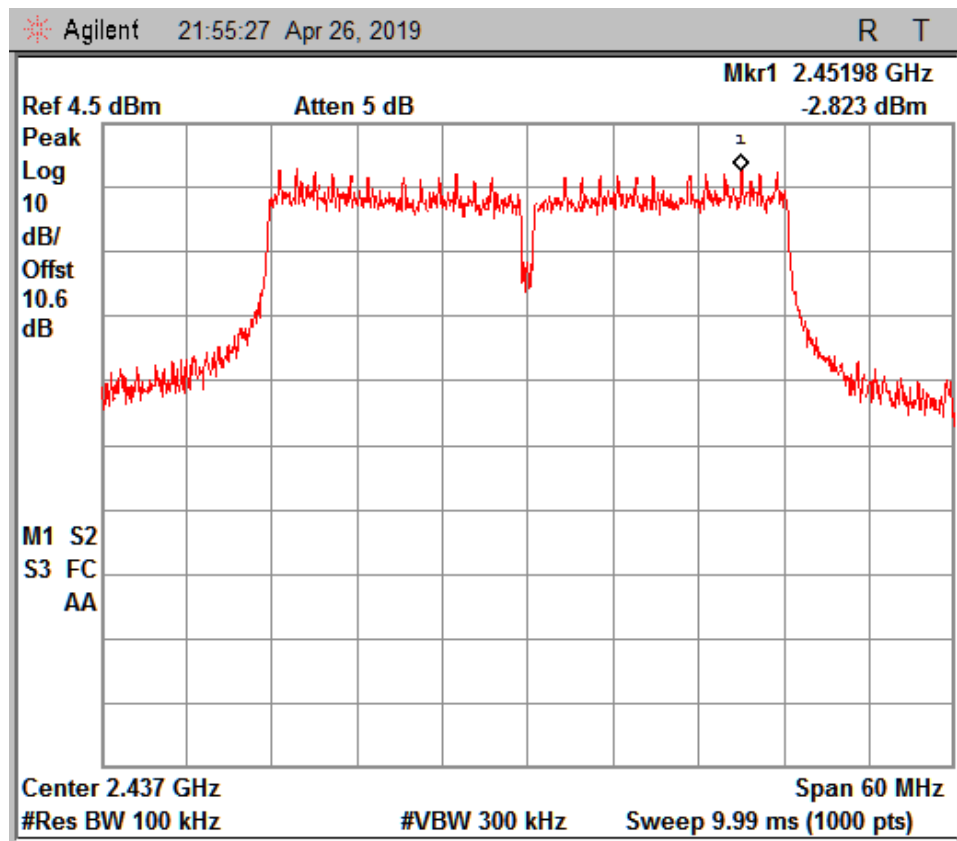
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Test Report No.:

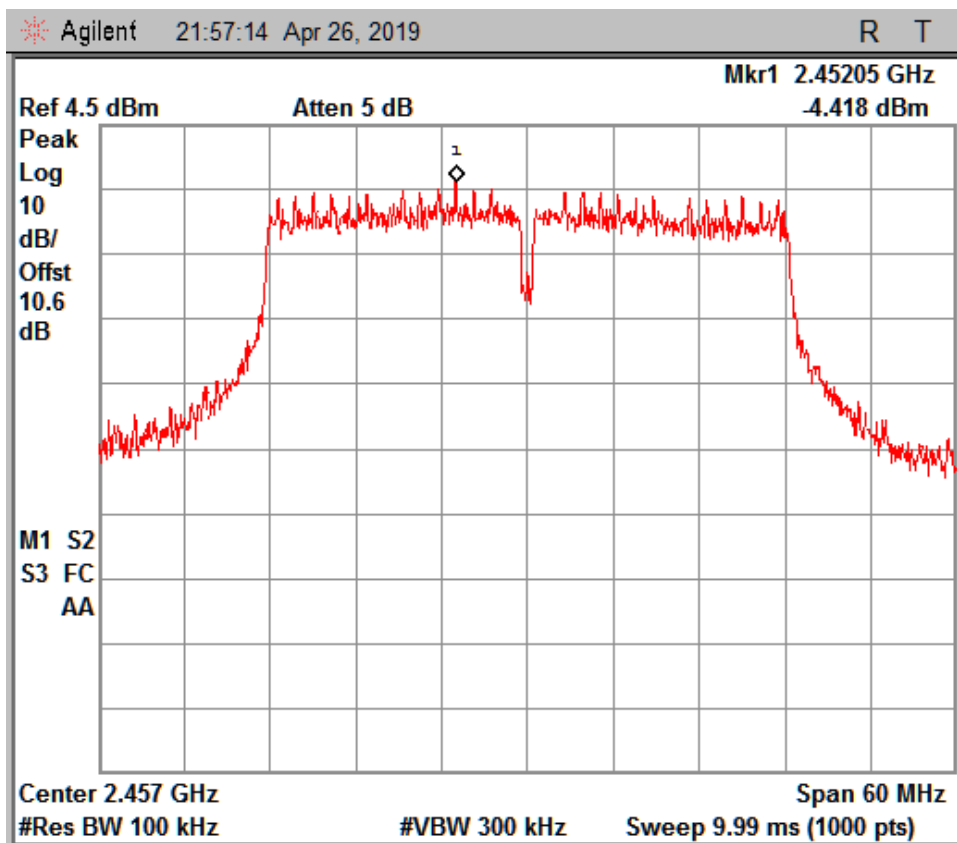
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MCS15 Channel Mid



MCS15 Channel High

Prüfbericht - Nr.:

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6.3 DTS Bandwidth

Result

Pass

Test Specification

FCC part 15 Subpart C Section 15.247 (a)(2)

Detector

Peak

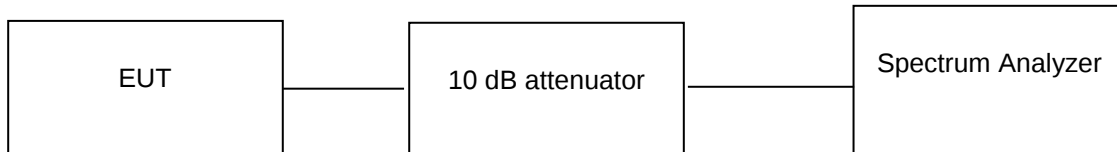
Port of testing

Antenna Port

Requirement

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

Test Method:



Test results for 802.11b

Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results for 802.11b

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
b	1	2412	7.55	12.94
		2437	8.52	13.31
		2462	8.02	13.15
	11	2412	7.45	12.40
		2437	7.75	12.96
		2462	7.54	12.86

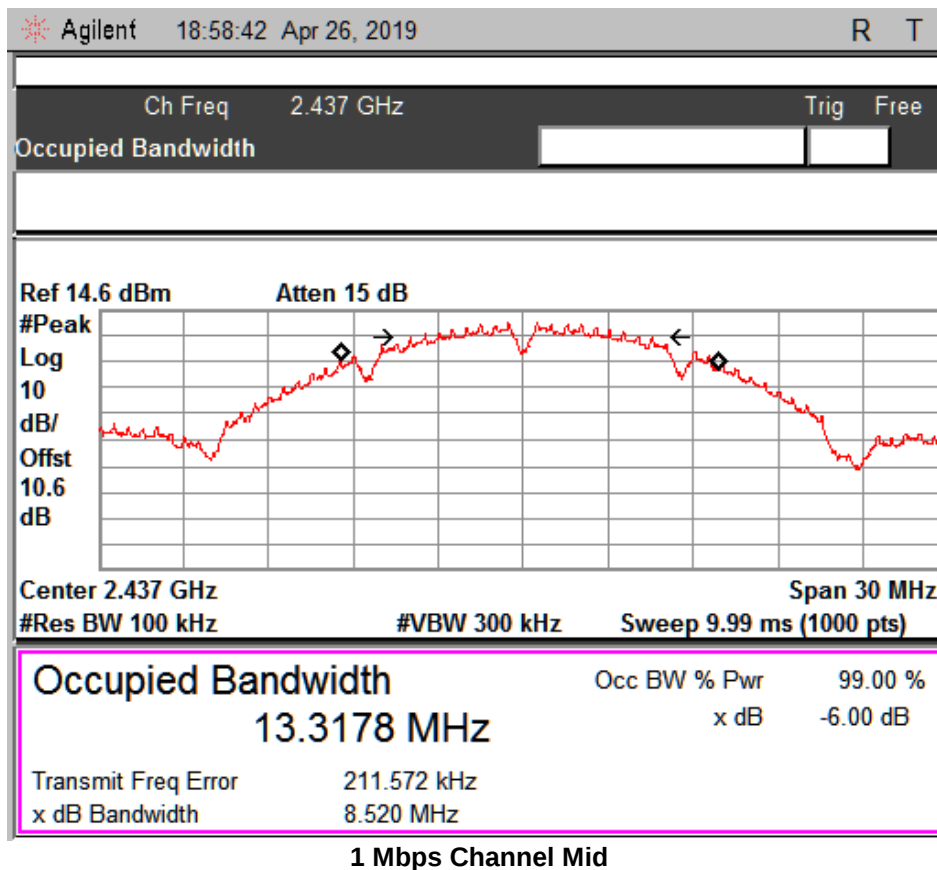
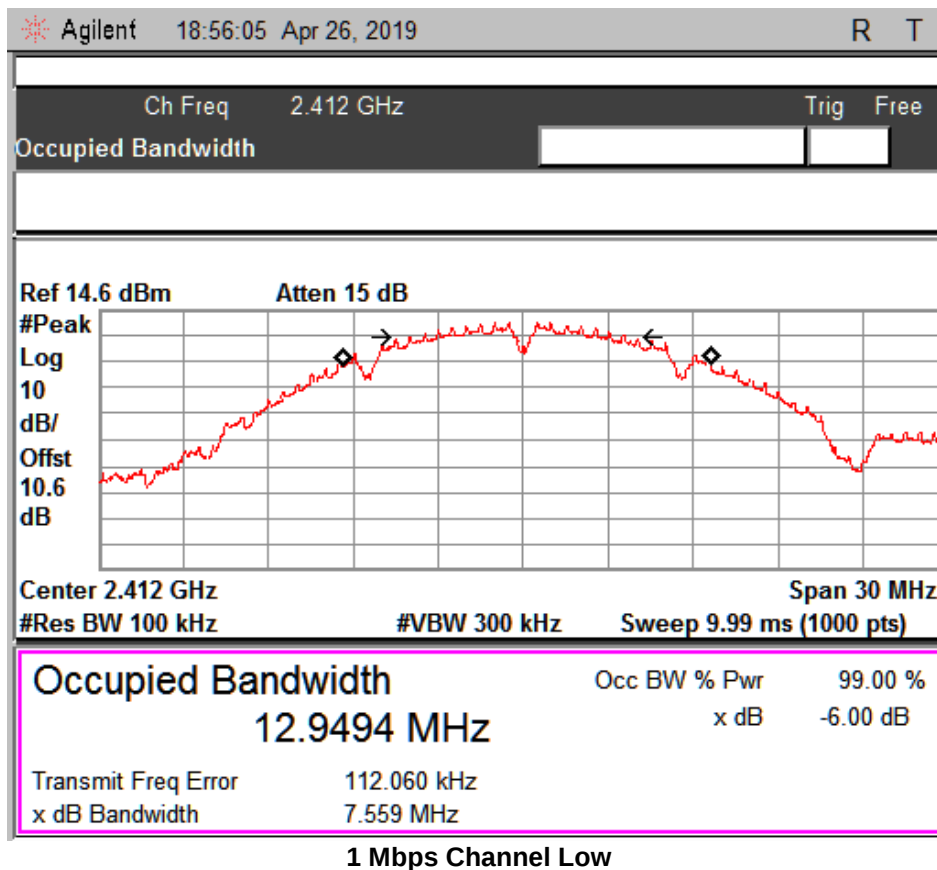
Prüfbericht - Nr.:

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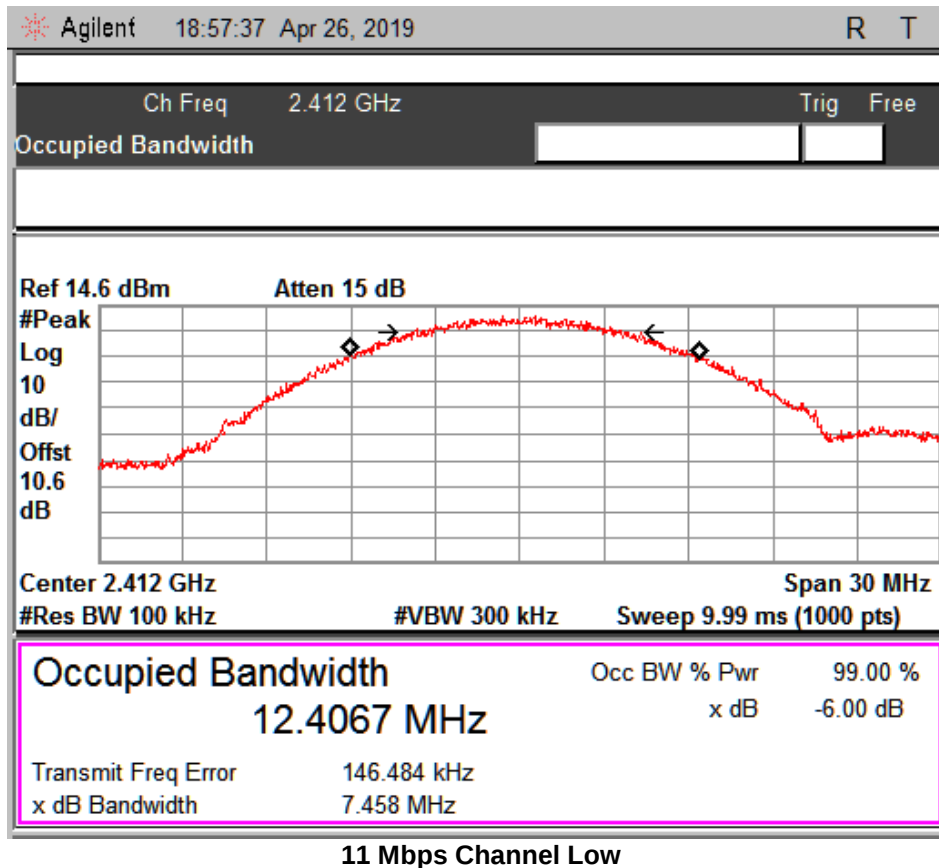
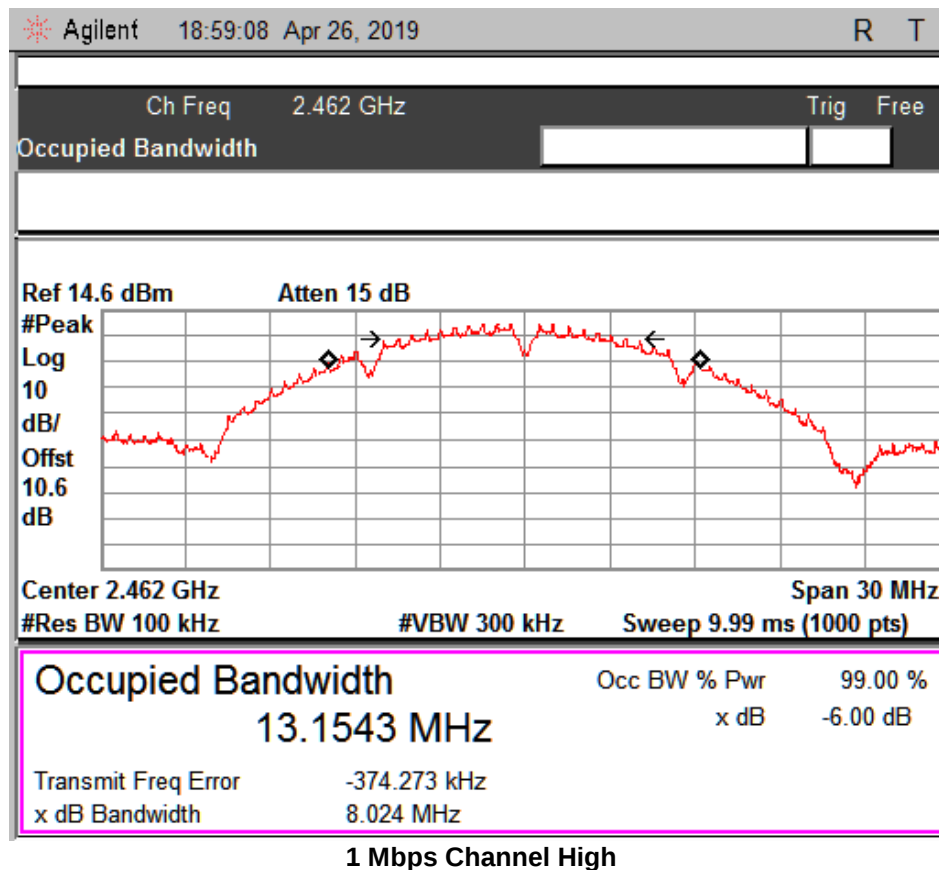
Prüfbericht - Nr.:

Test Report No.:

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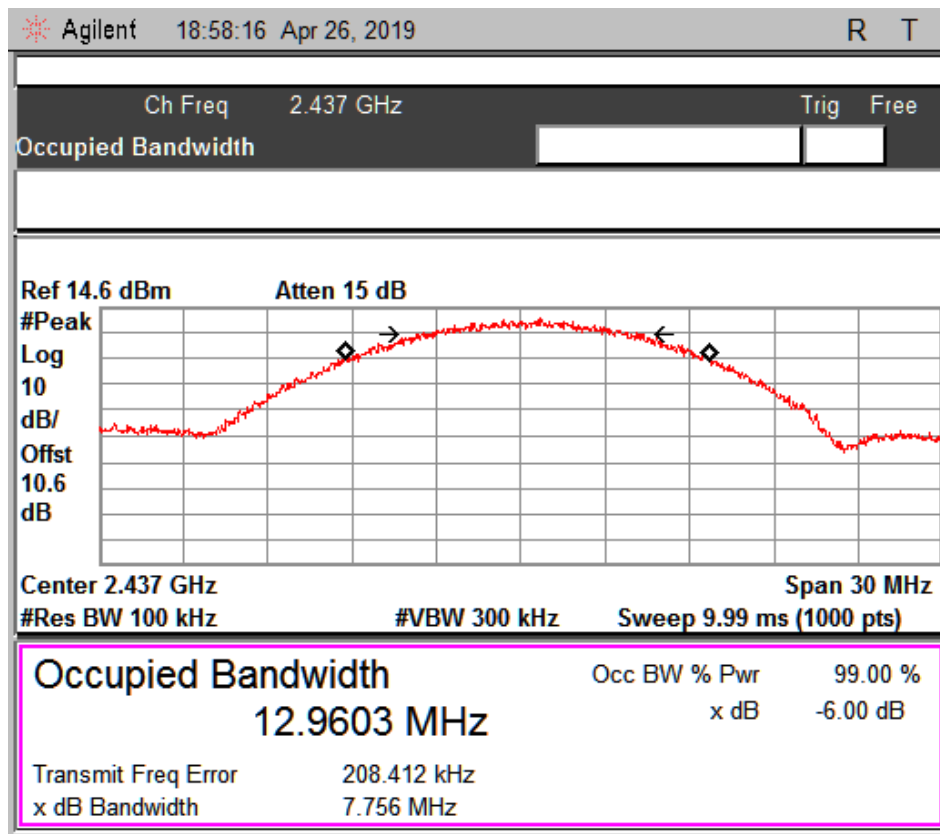
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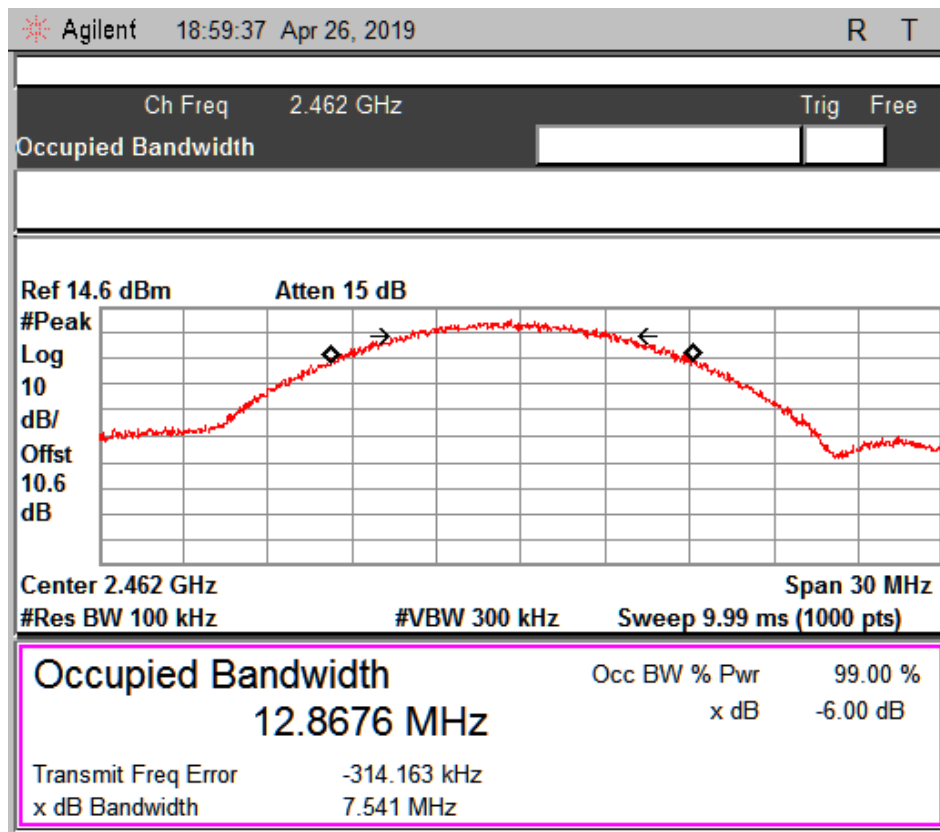
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11 Mbps Channel Mid



11 Mbps Channel High

Prüfbericht - Nr.:

Test Report No.:

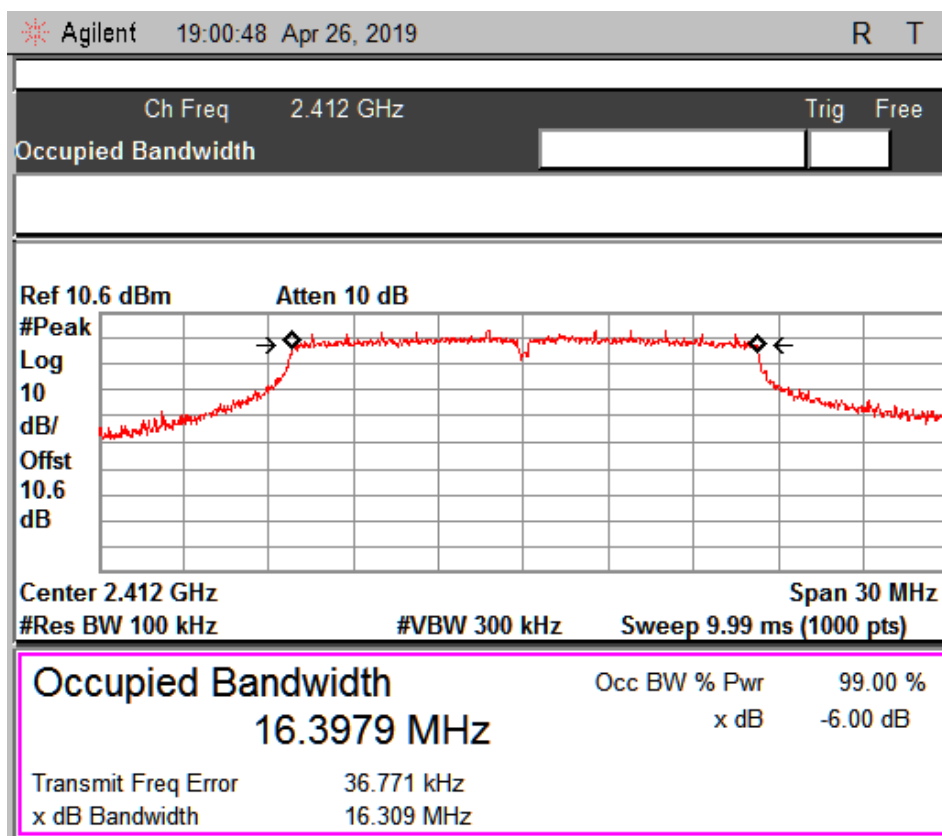
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Test results for 802.11 g

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
g	6	2412	16.30	16.39
		2437	16.35	16.57
		2462	15.76	16.50
	24	2412	16.37	16.36
		2437	16.44	16.50
		2462	16.08	16.43
	54	2412	16.35	16.38
		2437	16.47	16.49
		2462	16.10	16.44



6 Mbps Channel Low

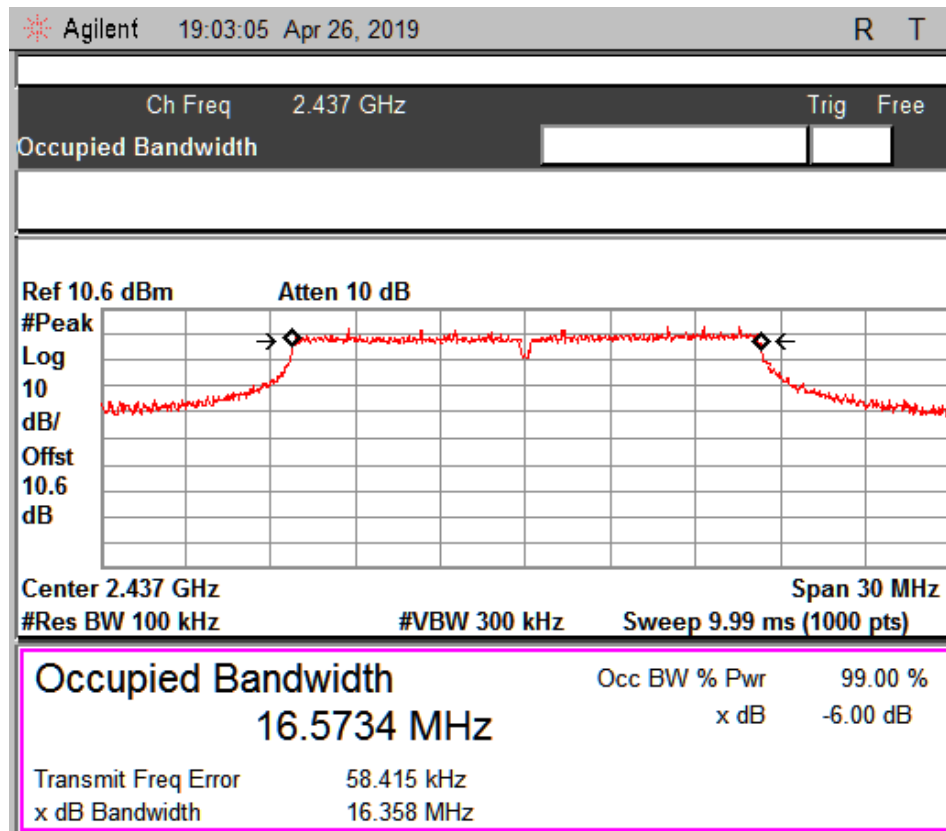
Prüfbericht - Nr.:

Test Report No.:

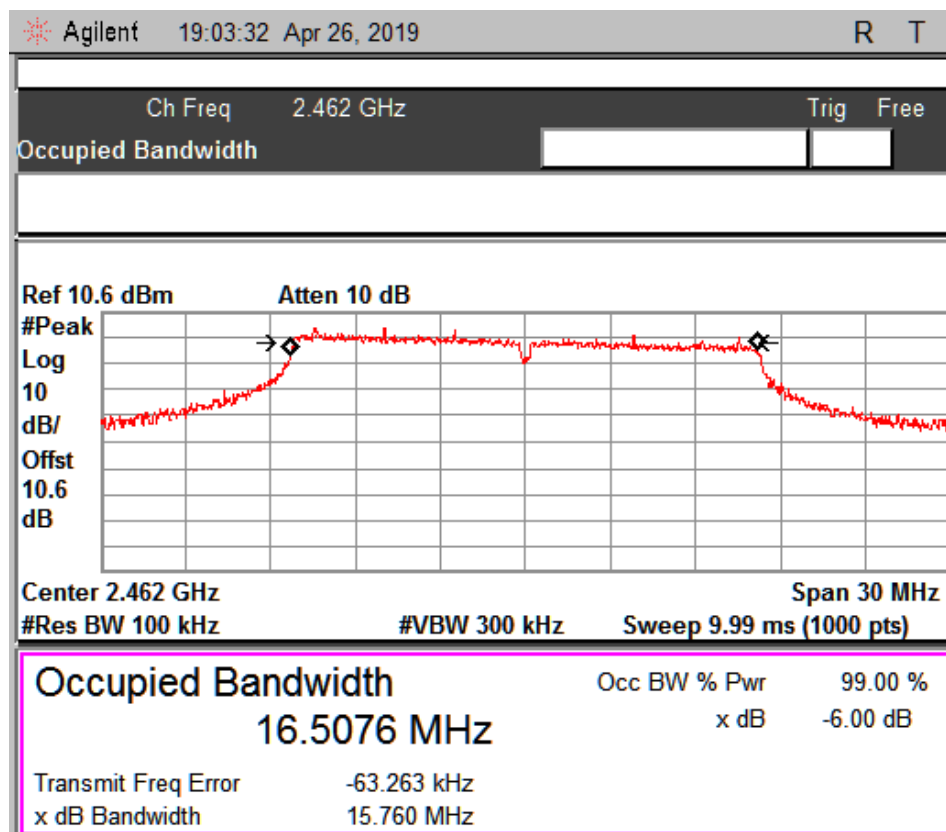
ULR-TC568819300000021F 001

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6 Mbps Channel Mid



6 Mbps Channel High

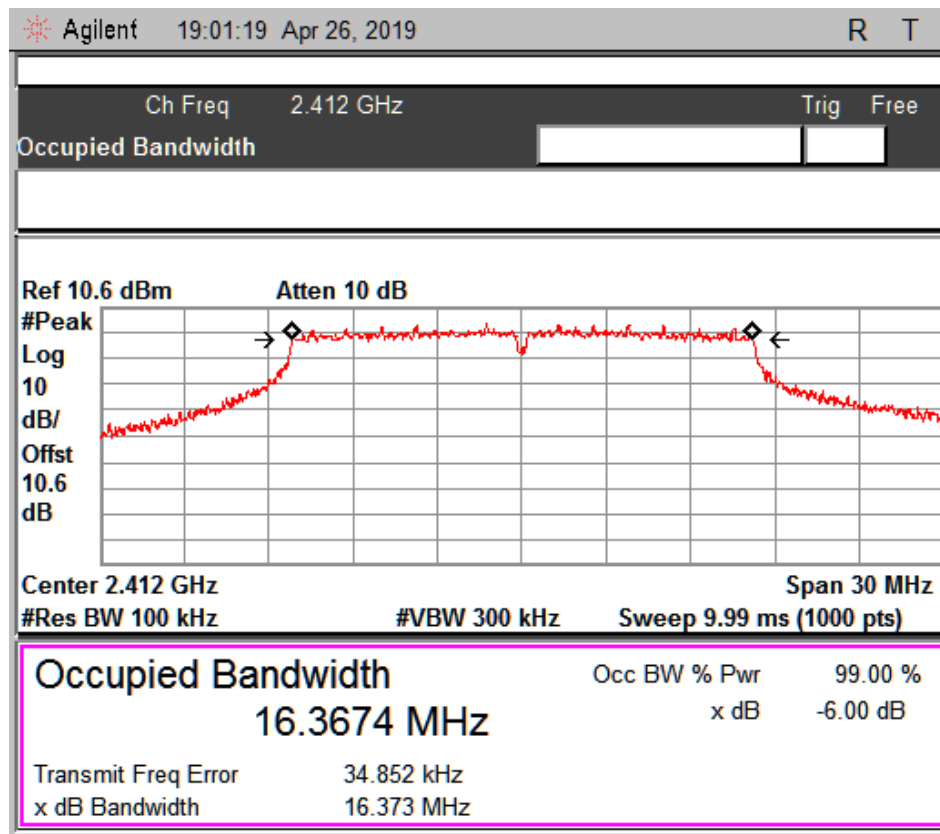
Prüfbericht - Nr.:

Test Report No.:

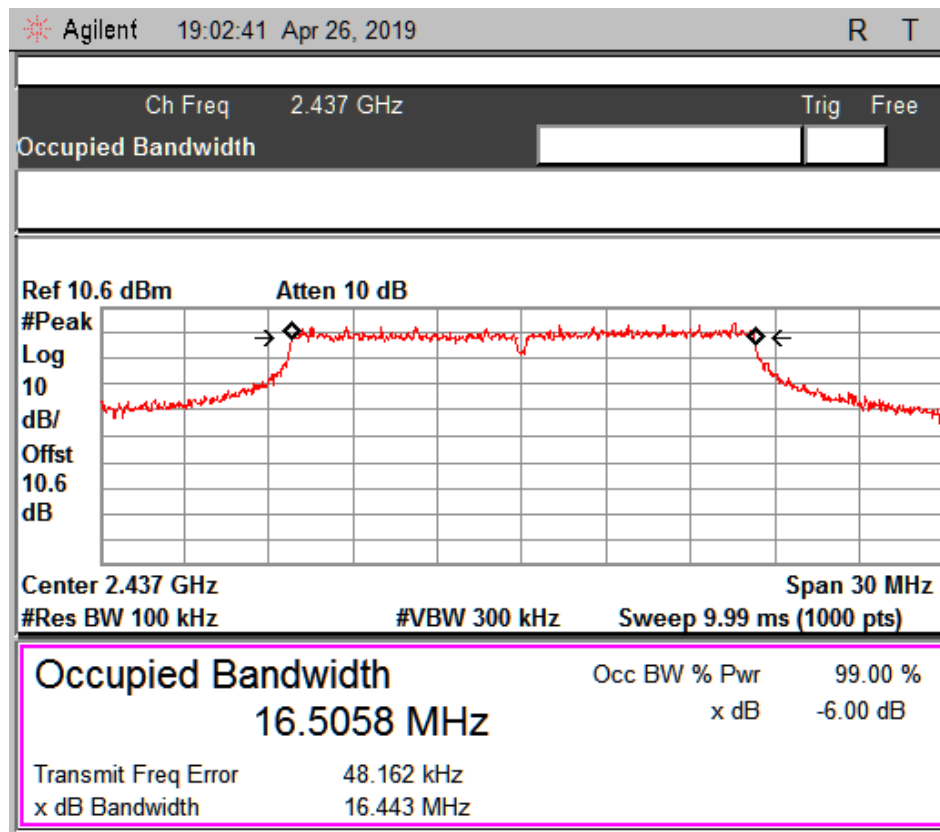
ULR-TC568819300000021F 001

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24 Mbps Channel Low



24 Mbps Channel Mid

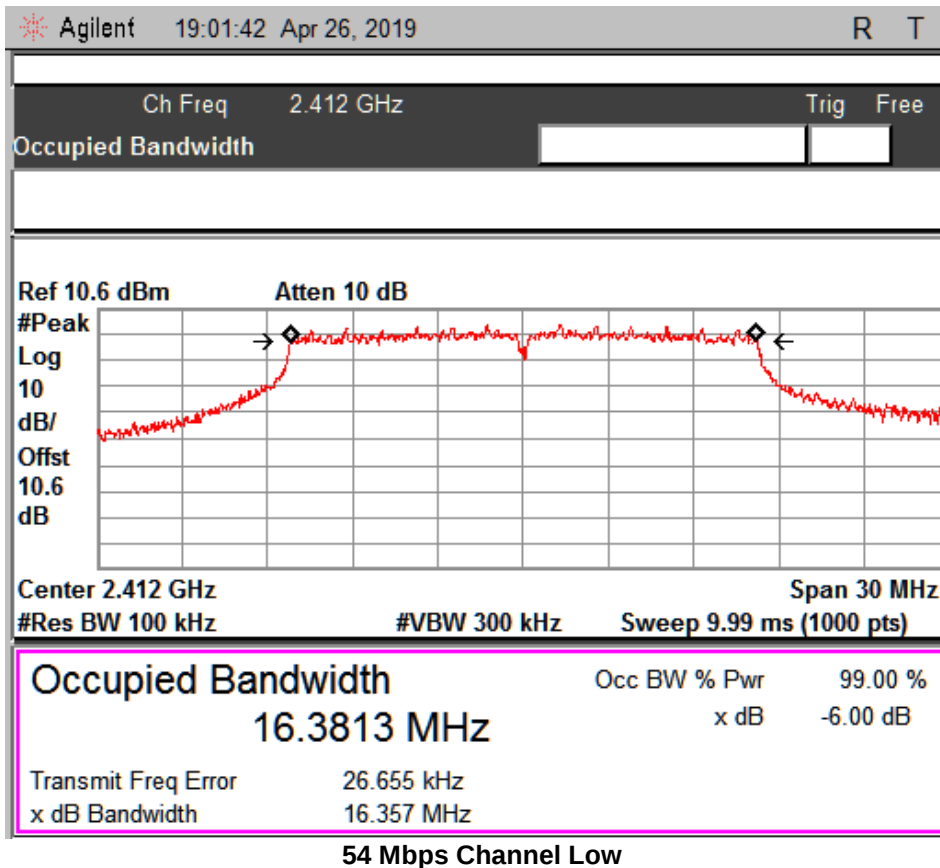
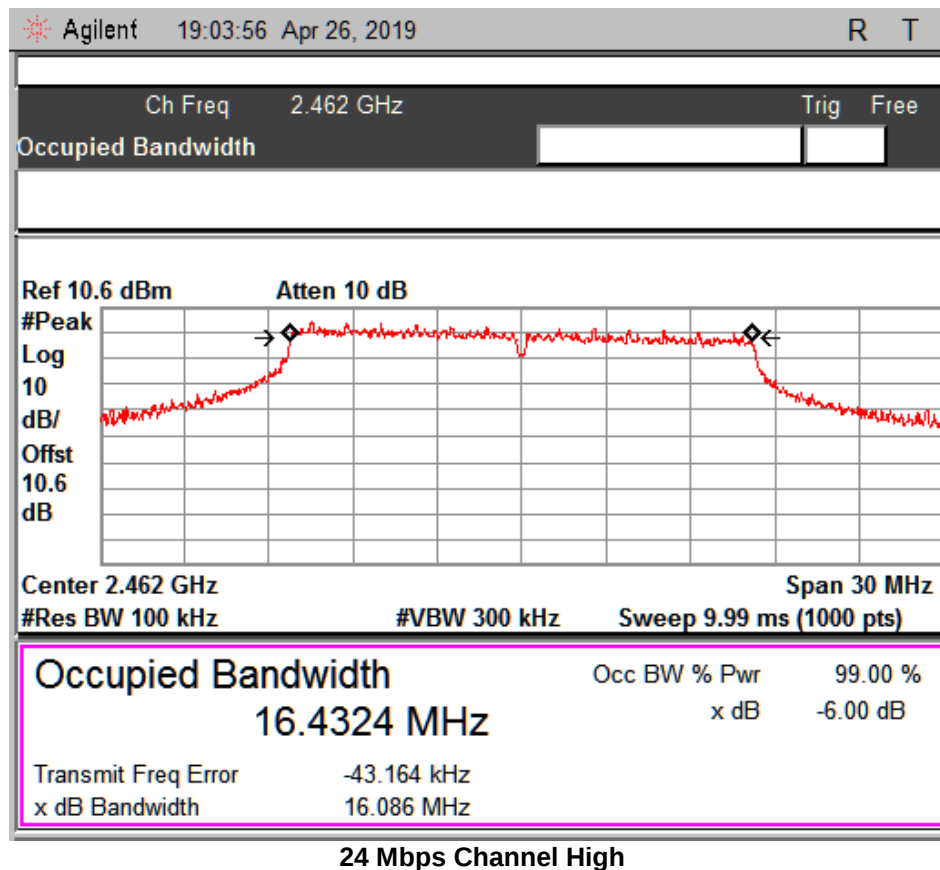
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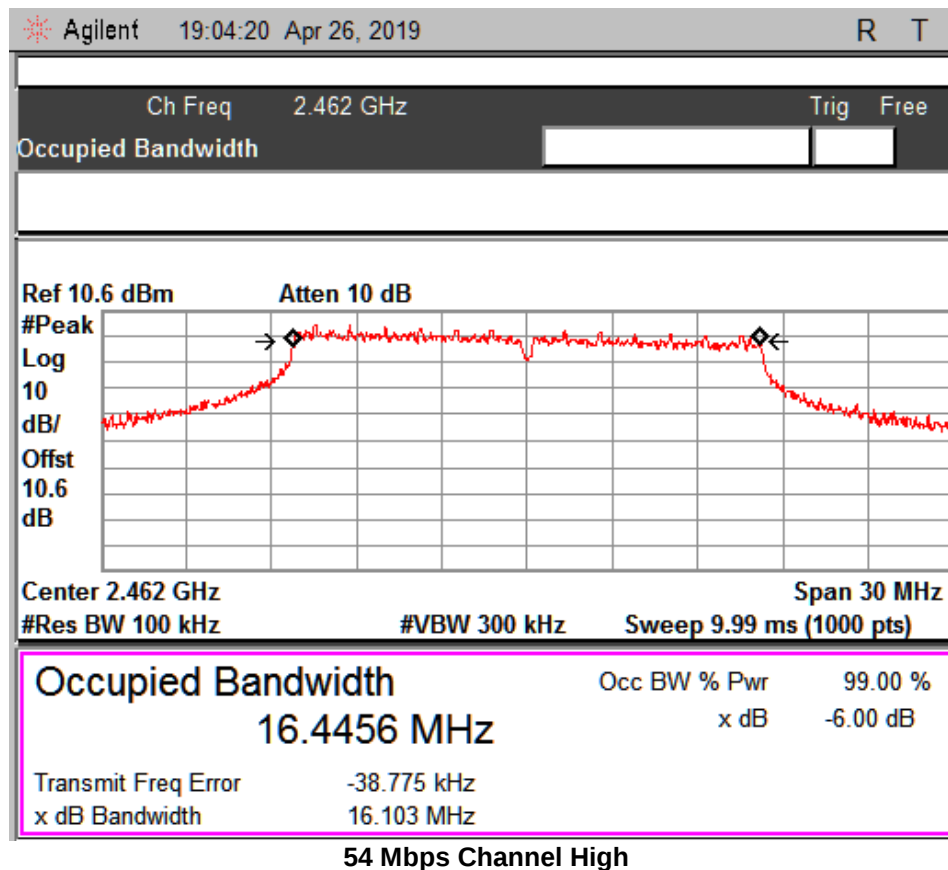
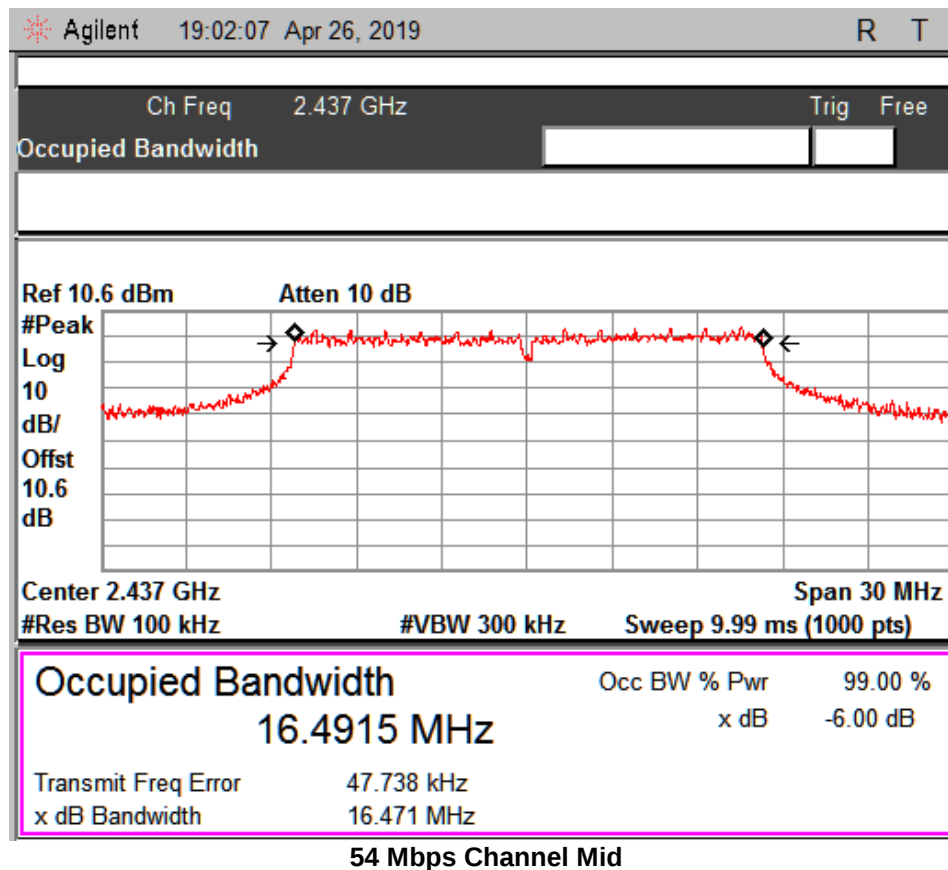
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Test Report No.:

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Prüfbericht - Nr.:

Test Report No.:

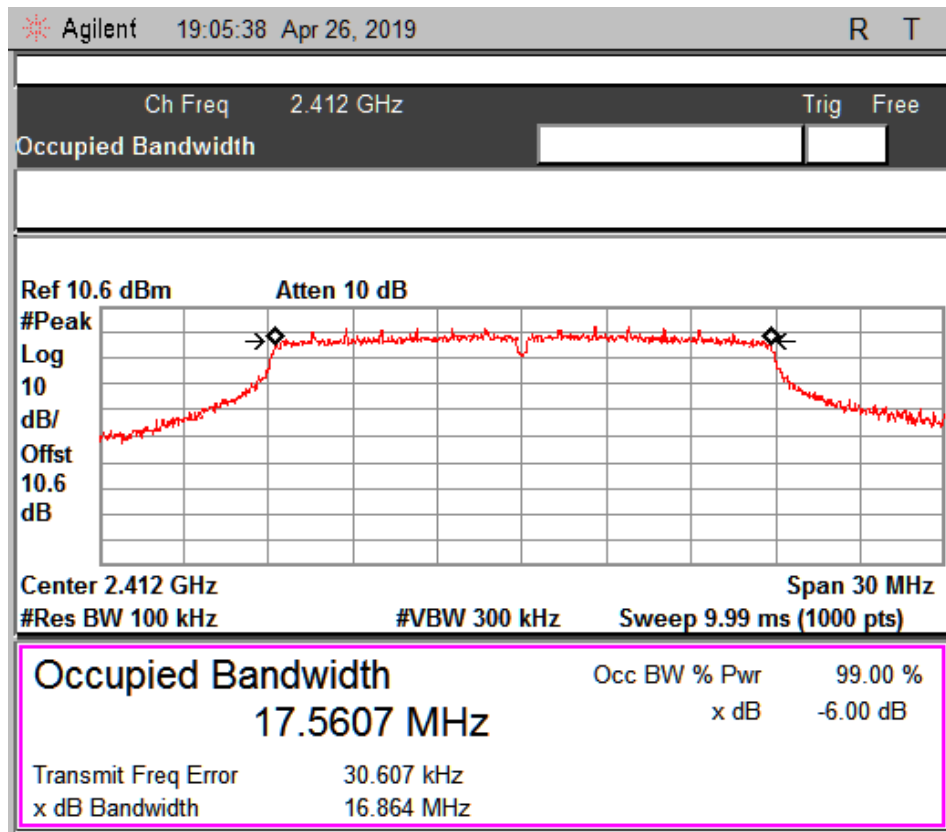
ULR-TC568819300000021F 001

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802.11n_HT20_SISO

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
n	MCS0	2412	16.86	17.56
		2437	17.60	17.75
		2462	16.26	17.67
	MCS4	2412	17.57	17.57
		2437	17.70	17.71
		2462	17.40	17.66
	MCS7	2412	17.58	17.58
		2437	17.72	17.71
		2462	16.69	17.63



MCS0 Channel Low

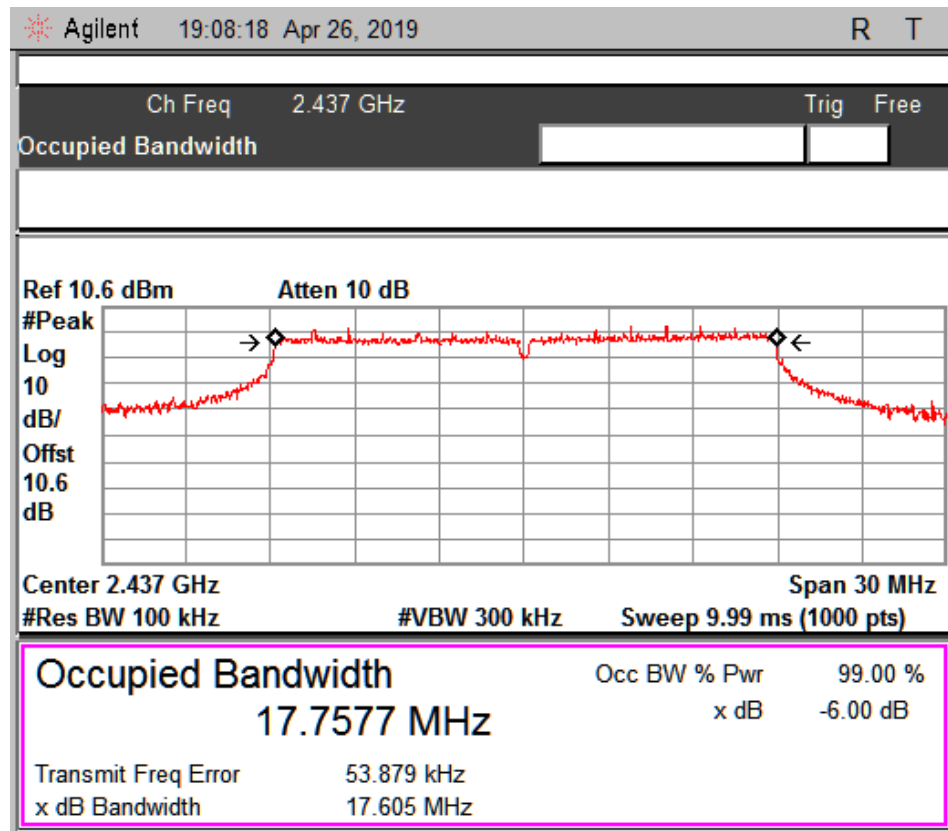
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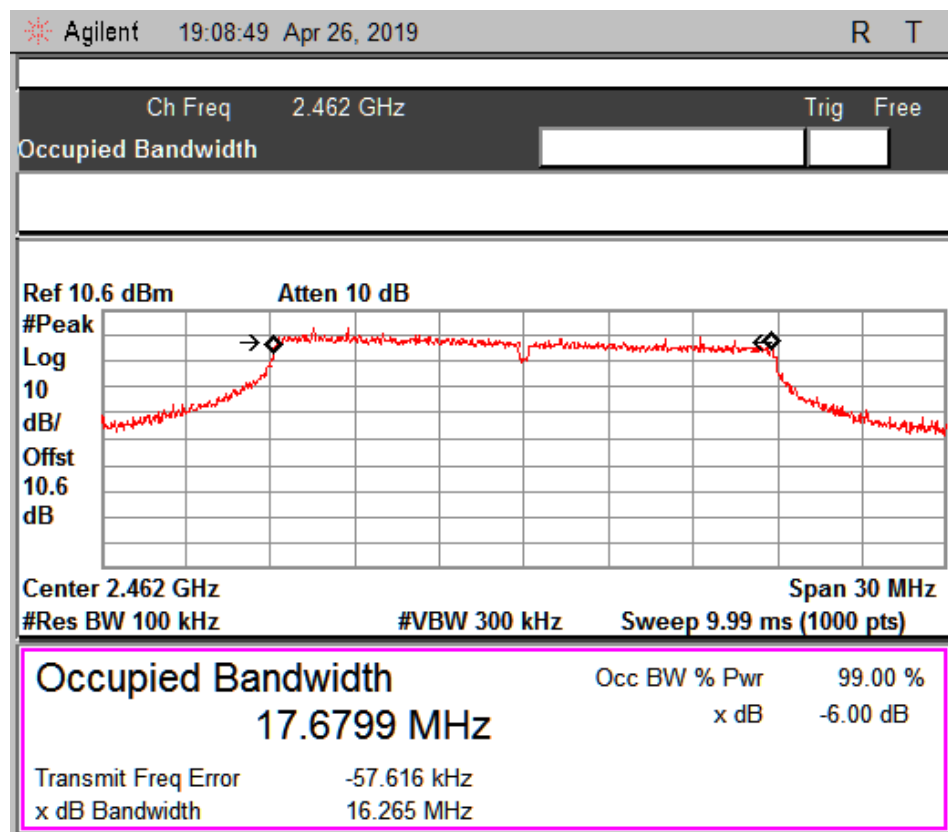
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MCS0 Channel Mid



MCS0 Channel High

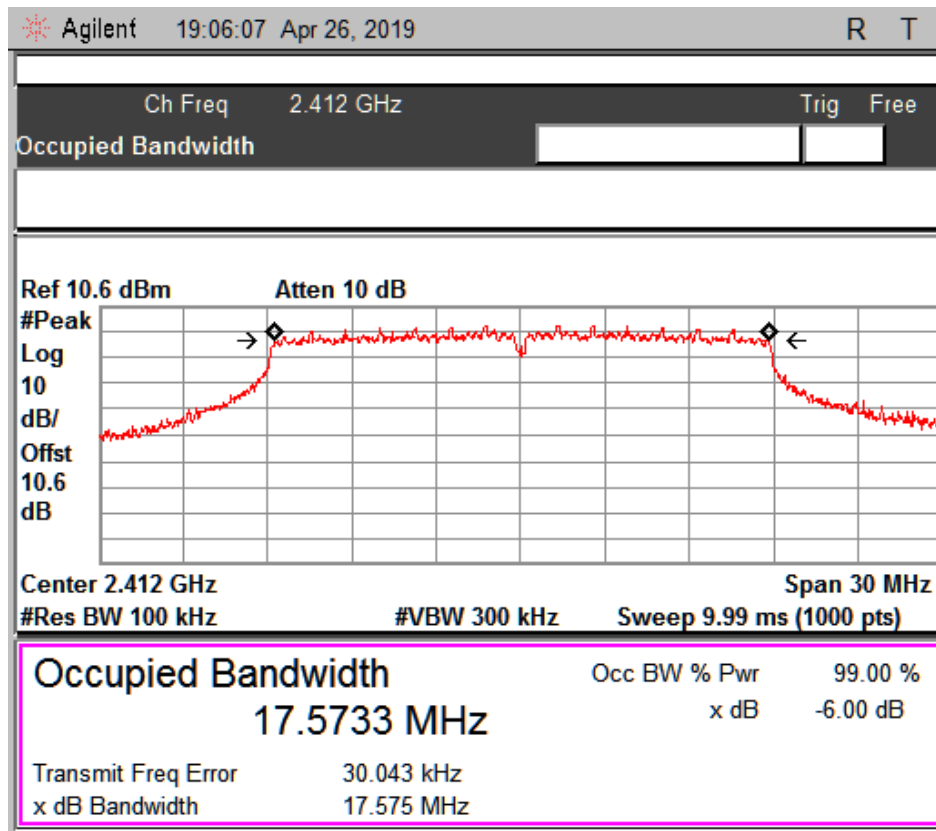
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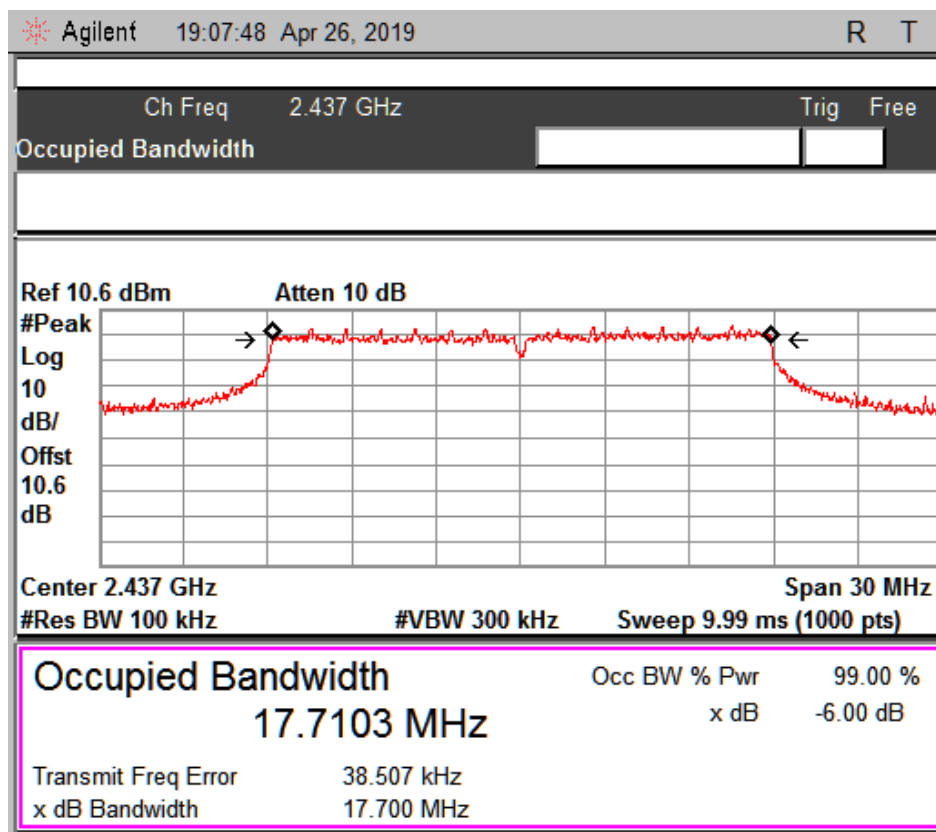
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MCS4 Channel Low



MCS4 Channel Mid

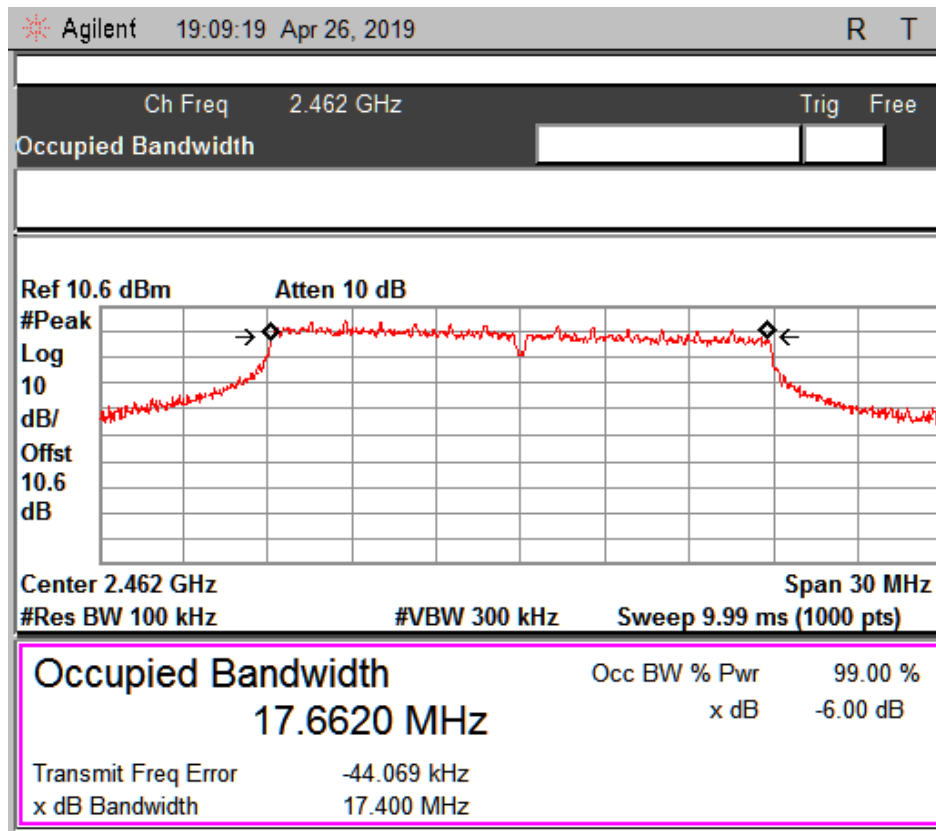
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Test Report No.:

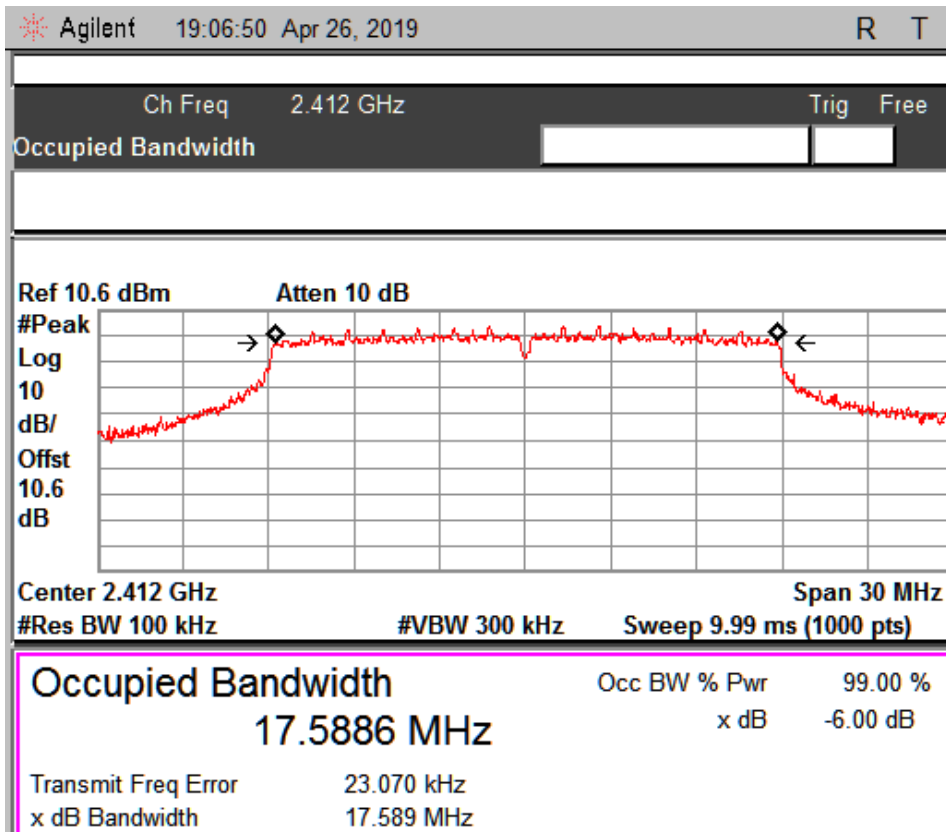
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MCS4 Channel High



MCS7 Channel Low

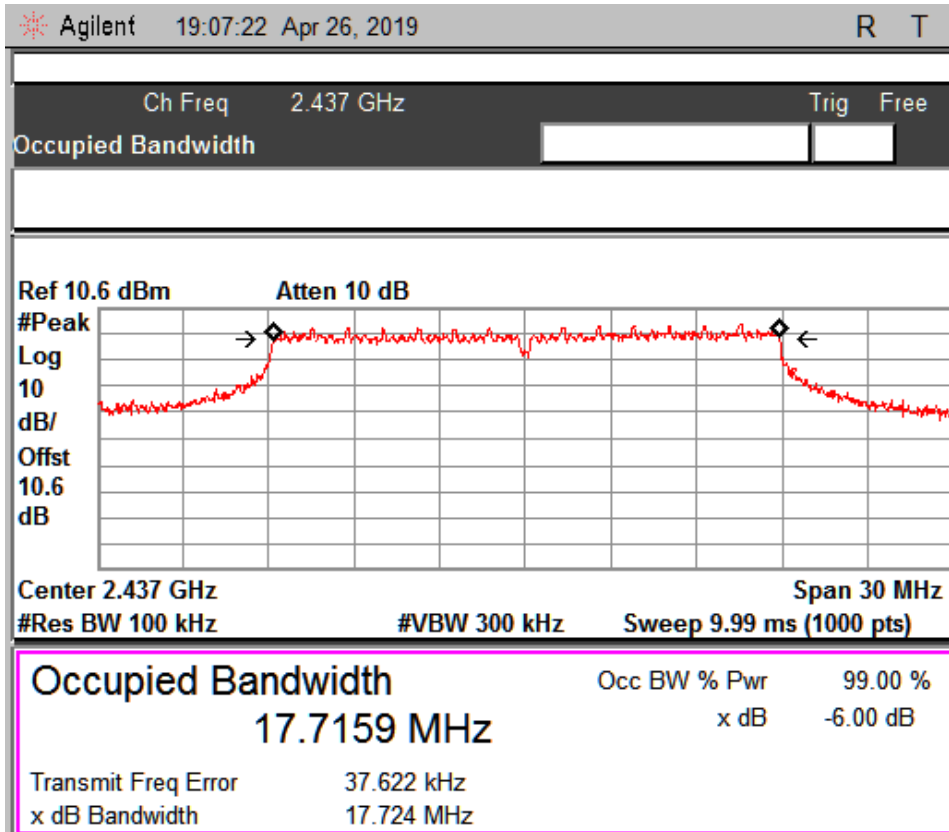
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Test Report No.:

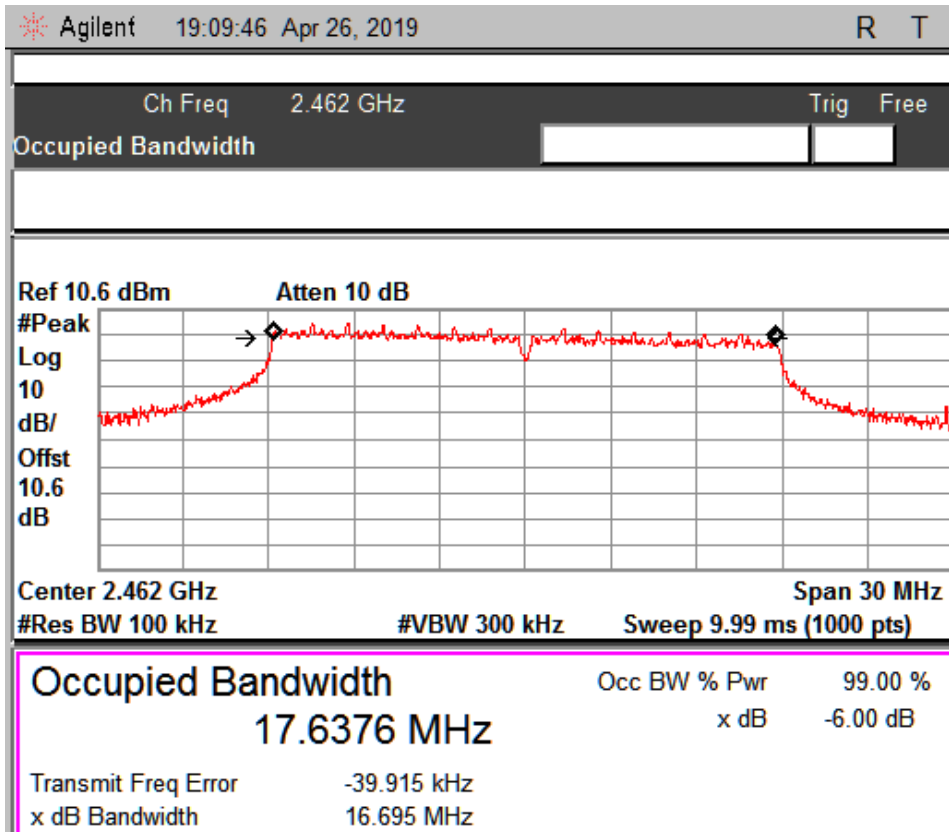
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MCS7 Channel Mid



MCS7 Channel High

Prüfbericht - Nr.:

Test Report No.:

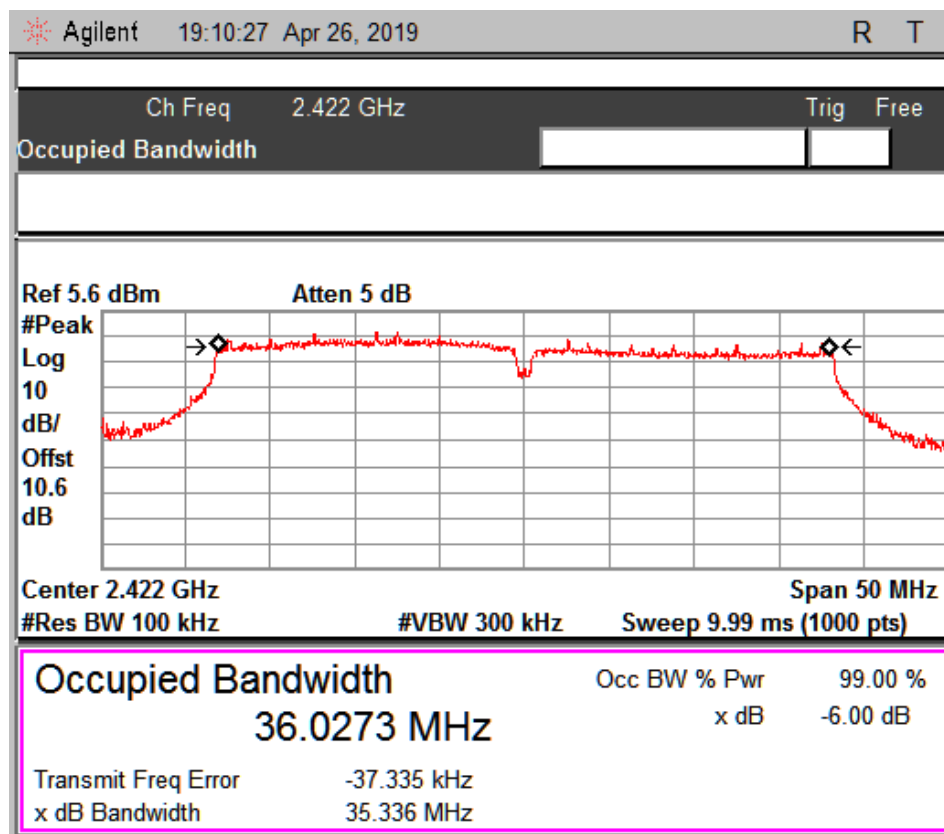
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802.11n_HT40_SISO

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
n	MCS0	2422	35.33	36.02
		2437	36.36	36.34
		2452	35.03	35.92
	MCS4	2422	35.16	36.01
		2437	36.48	36.34
		2452	35.10	35.95
	MCS7	2422	35.67	36.03
		2437	36.47	36.34
		2452	35.10	35.96



MCS0 Channel Low

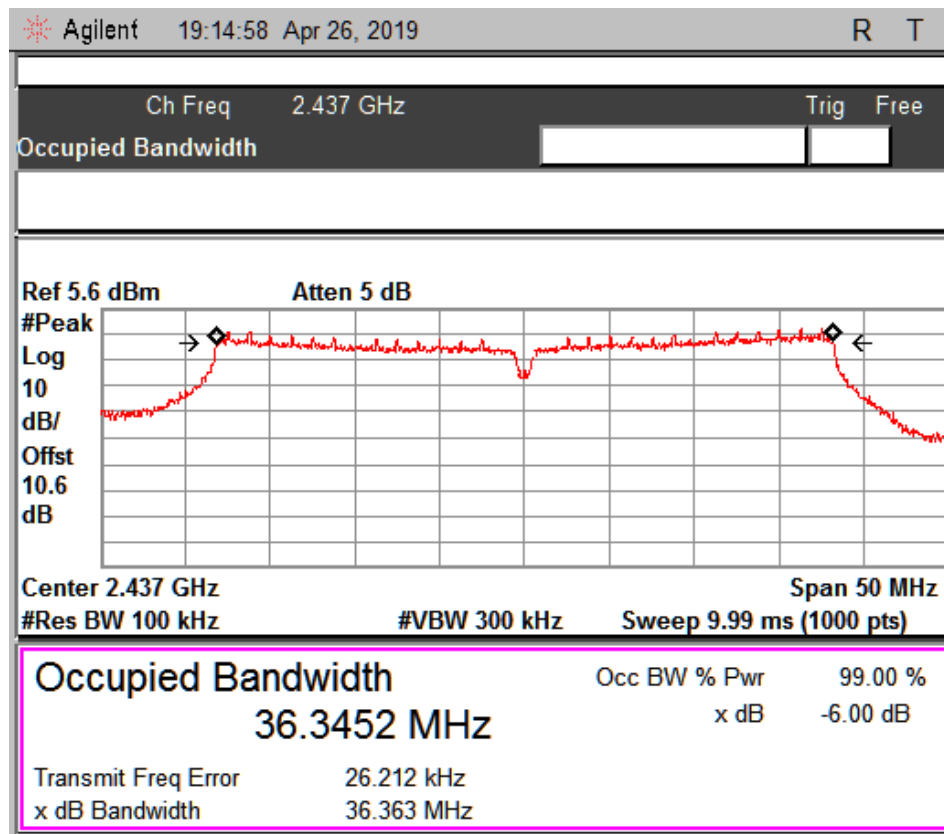
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Test Report No.:

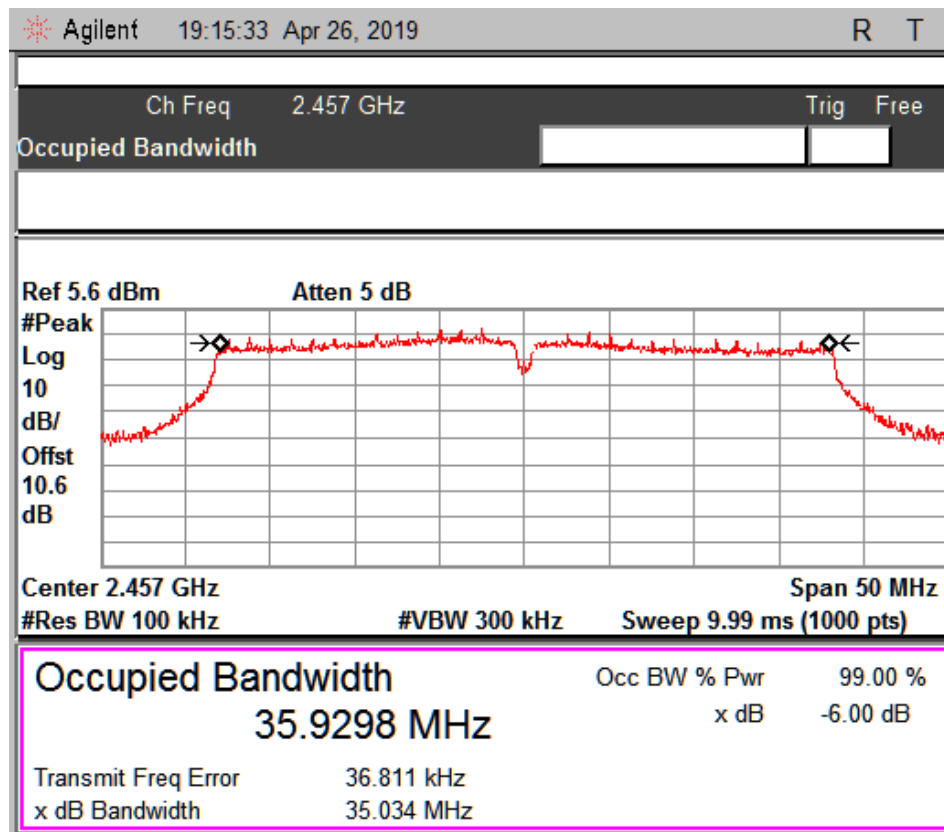
ULR-TC568819300000021F 001

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MCS0 Channel Mid



MCS0 Channel High

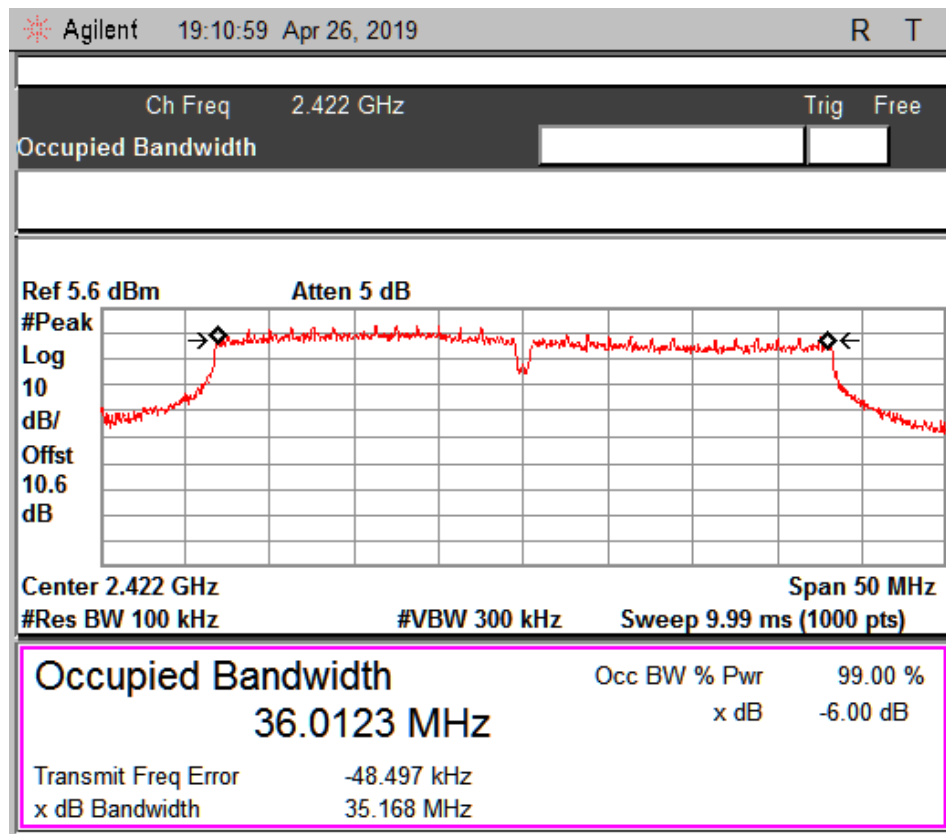
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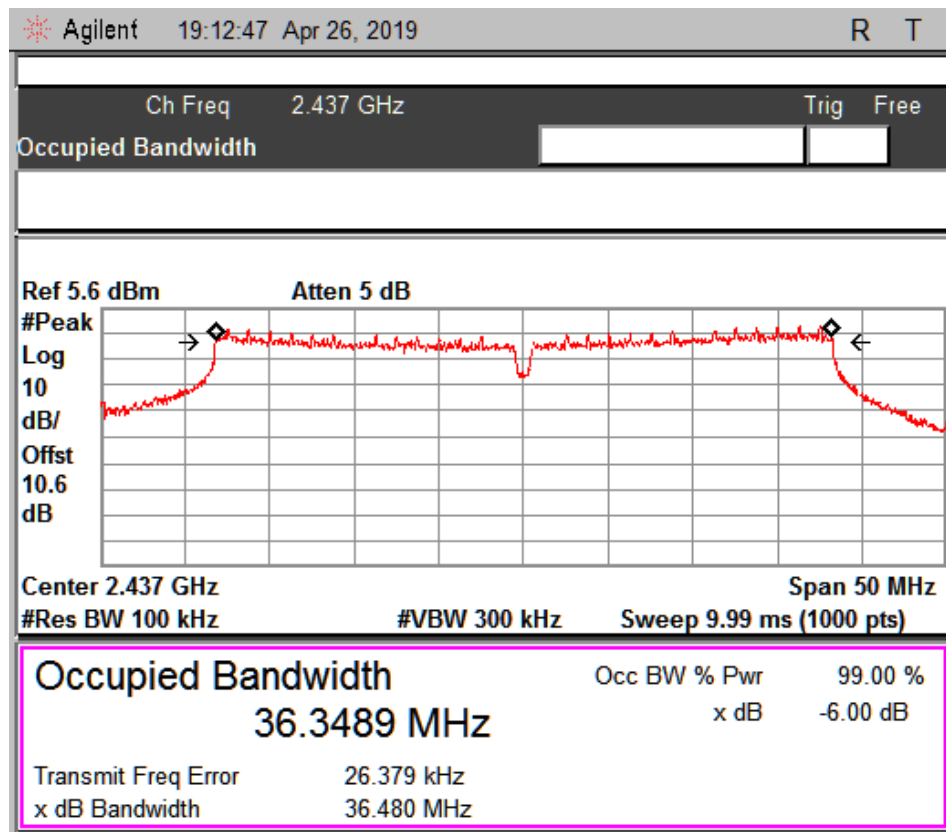
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MCS4 Channel Low



MCS4 Channel Mid

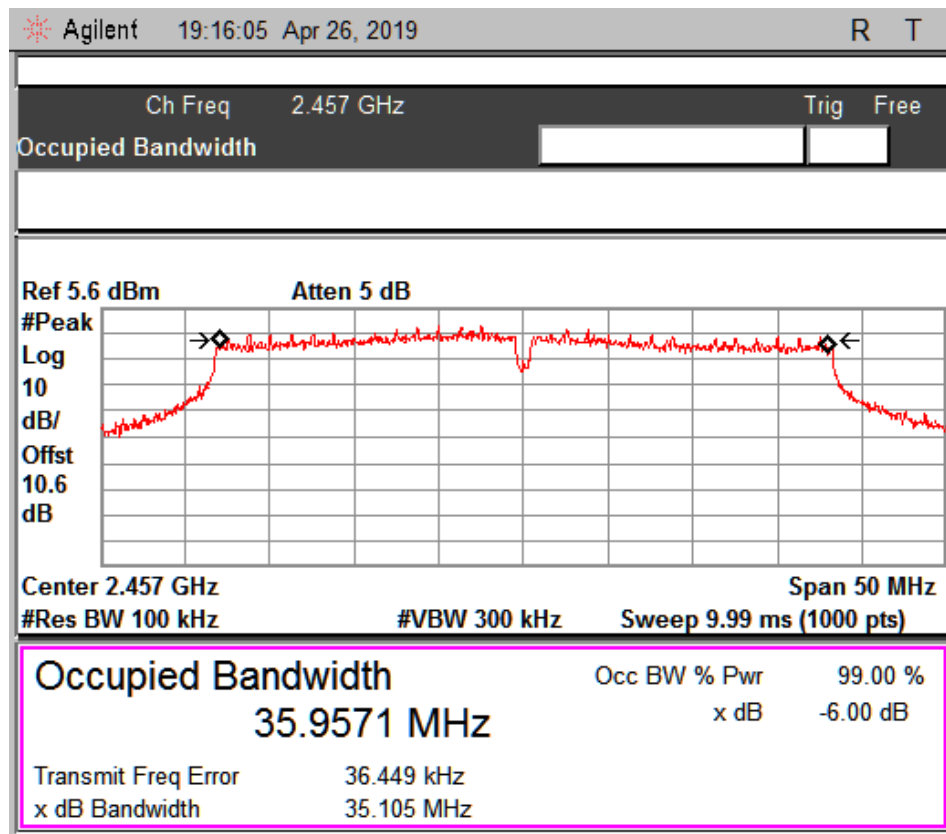
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Test Report No.:

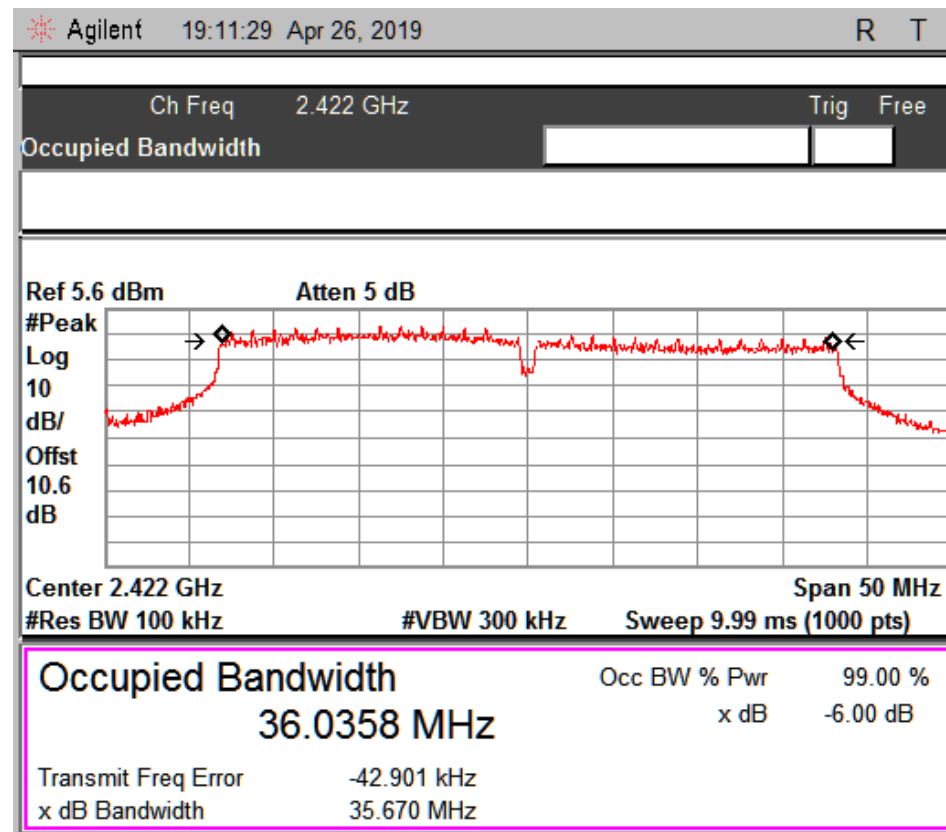
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MCS4Channel High



MCS7 Channel Low

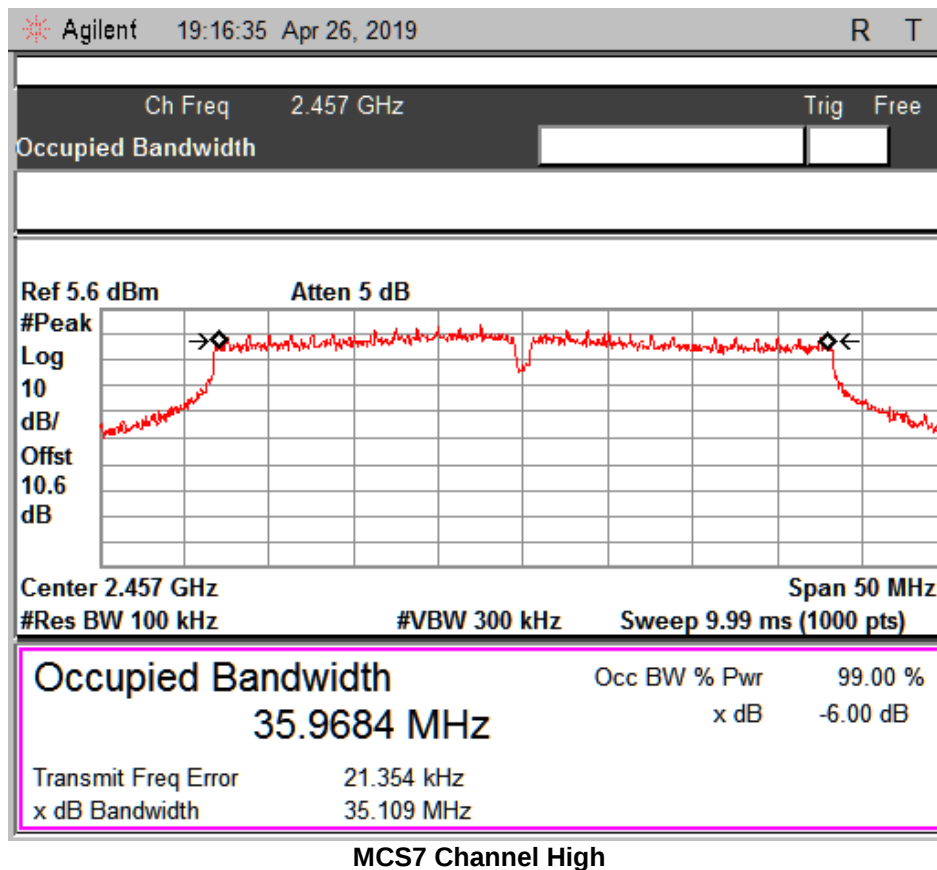
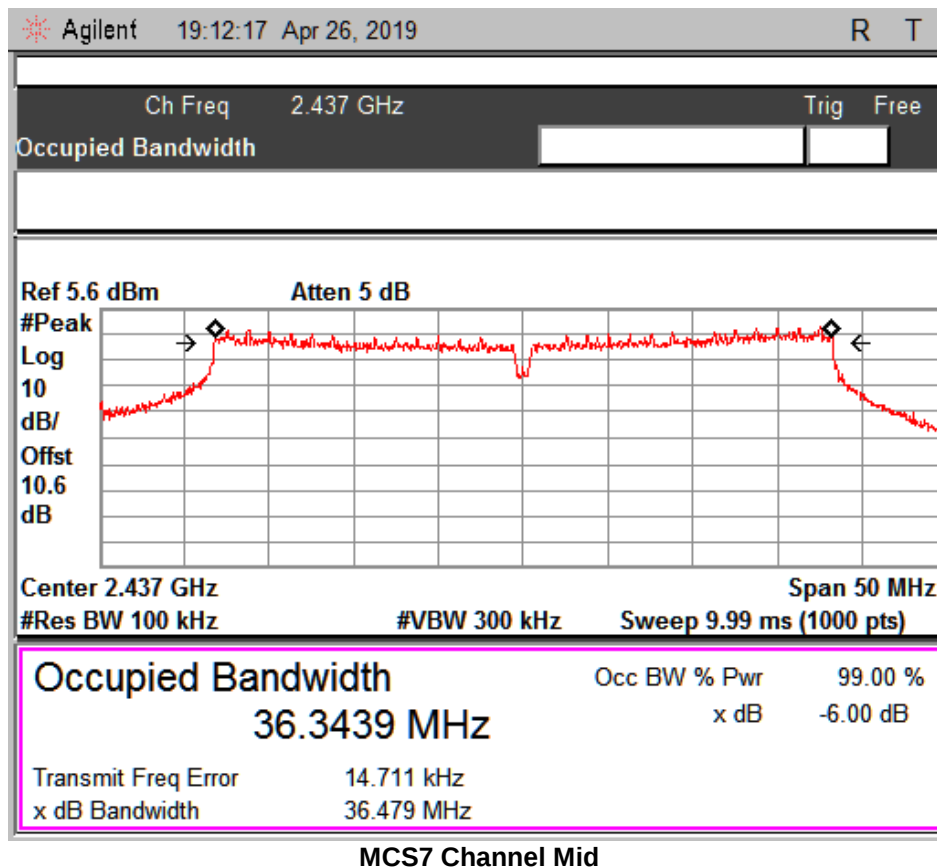
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Test Report No.:

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Prüfbericht - Nr.:

Test Report No.:

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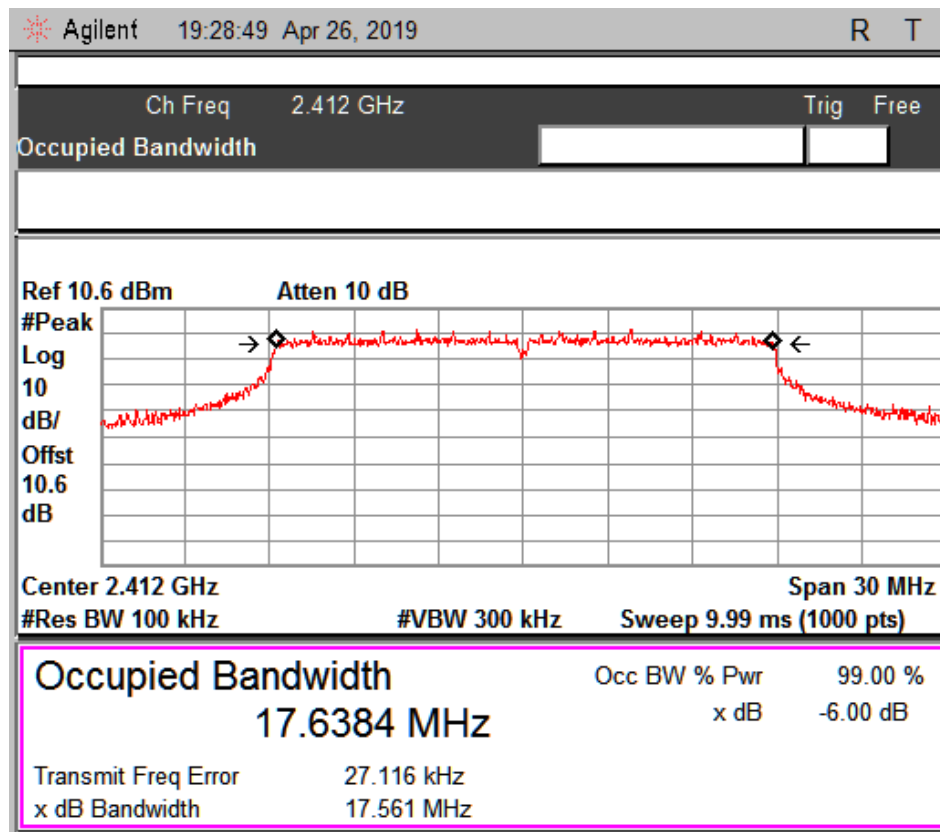
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802.11n_HT20_MIMO

Note: Test was performed on both the transmit chains and worst case results were from chain 2 and the respective results has been reported.

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
n	MCS8	2412	17.56	17.63
		2437	17.61	17.85
		2462	17.58	17.65
	MCS11	2412	17.64	17.62
		2437	17.70	17.71
		2462	17.67	17.64
	MCS15	2412	17.63	17.61
		2437	17.66	17.72
		2462	17.61	17.62



MCS8 Channel Low

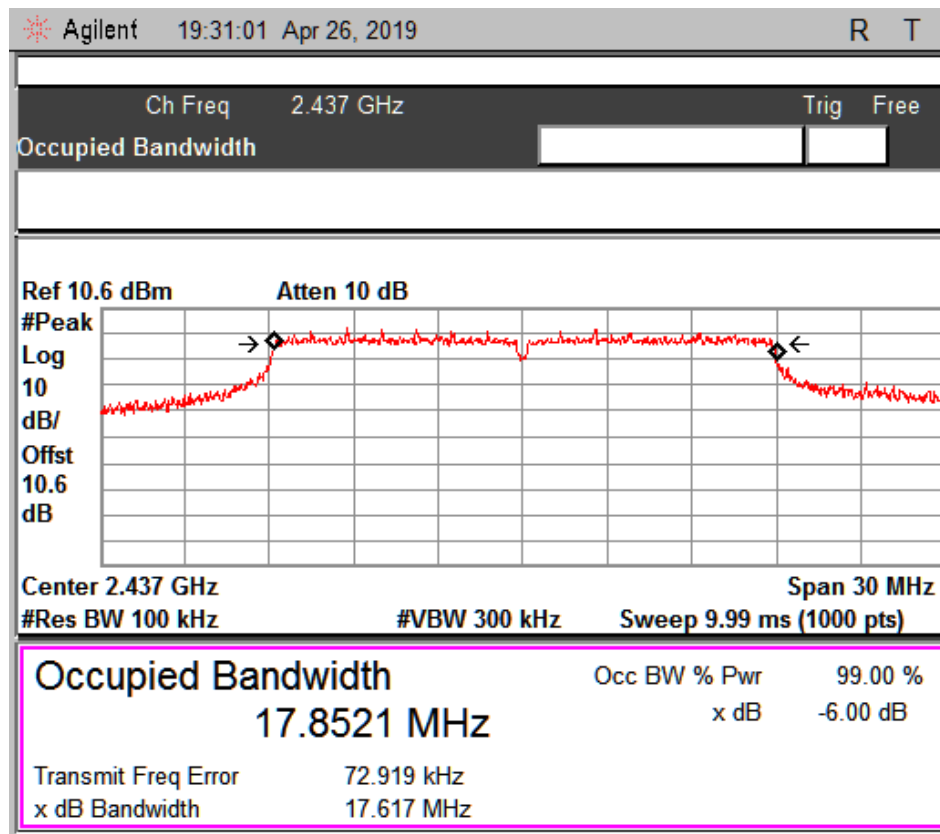
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Test Report No.:

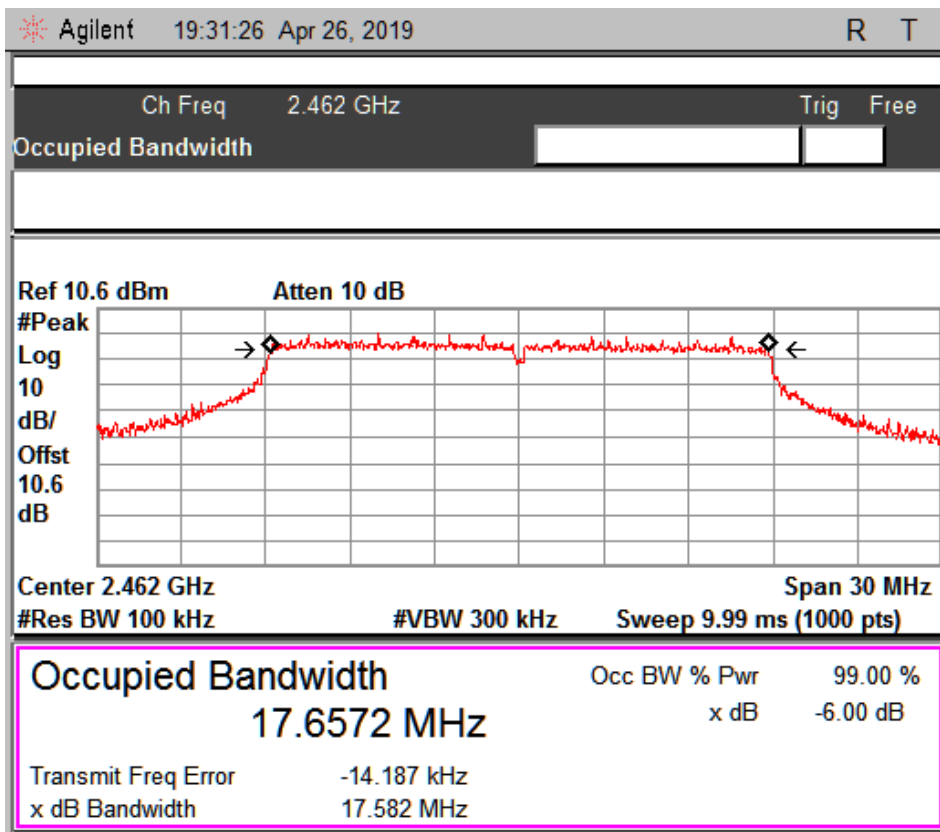
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MCS8 Channel Mid



MCS8 Channel High

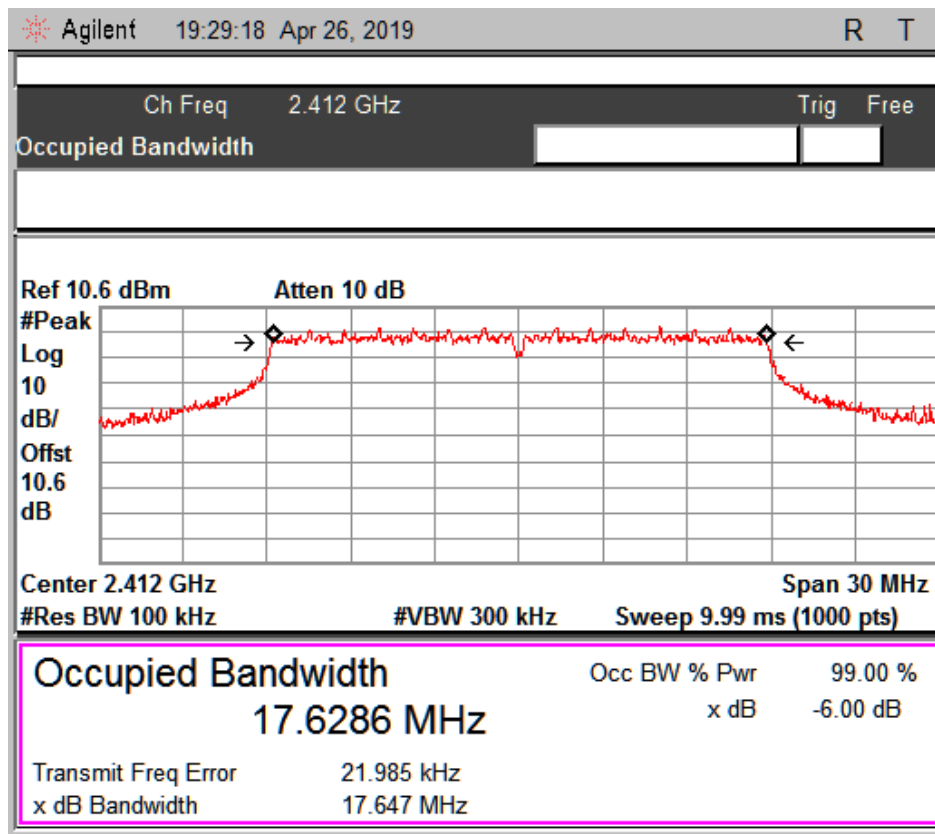
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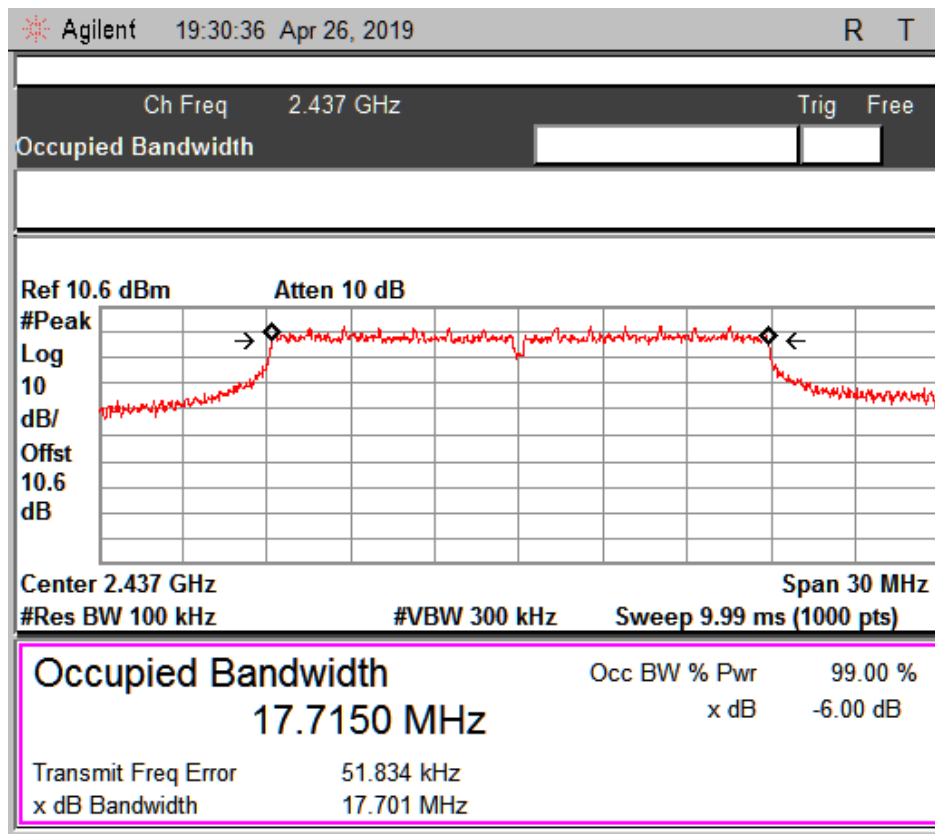
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MCS11 Channel Low



MCS11 Channel Mid

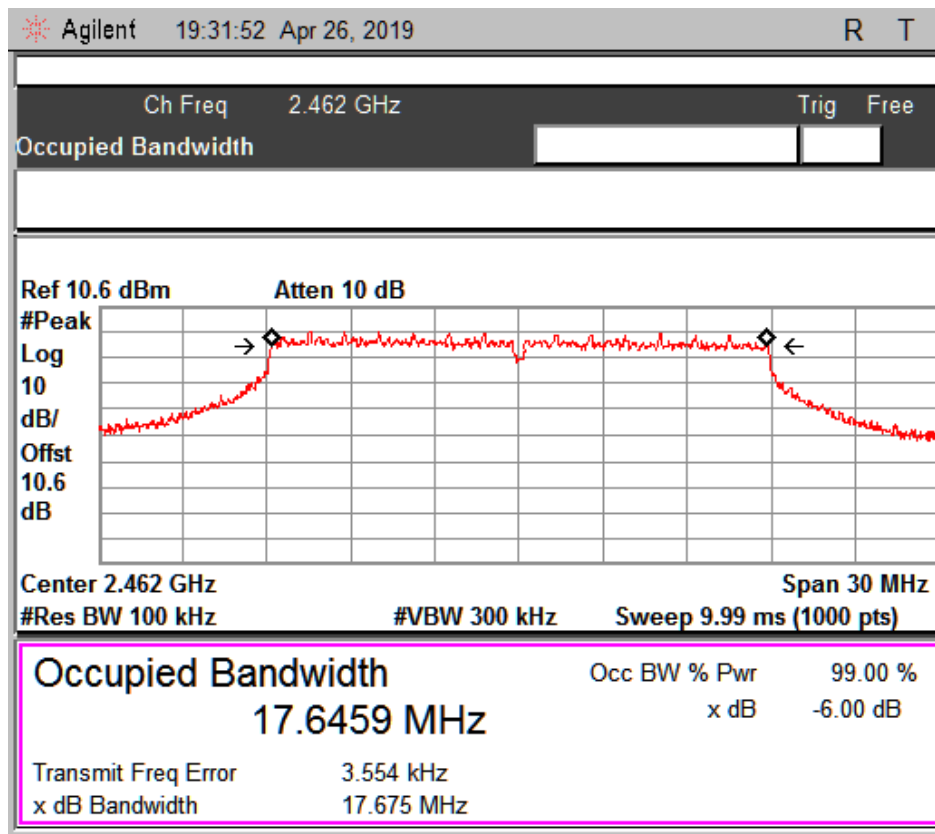
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Test Report No.:

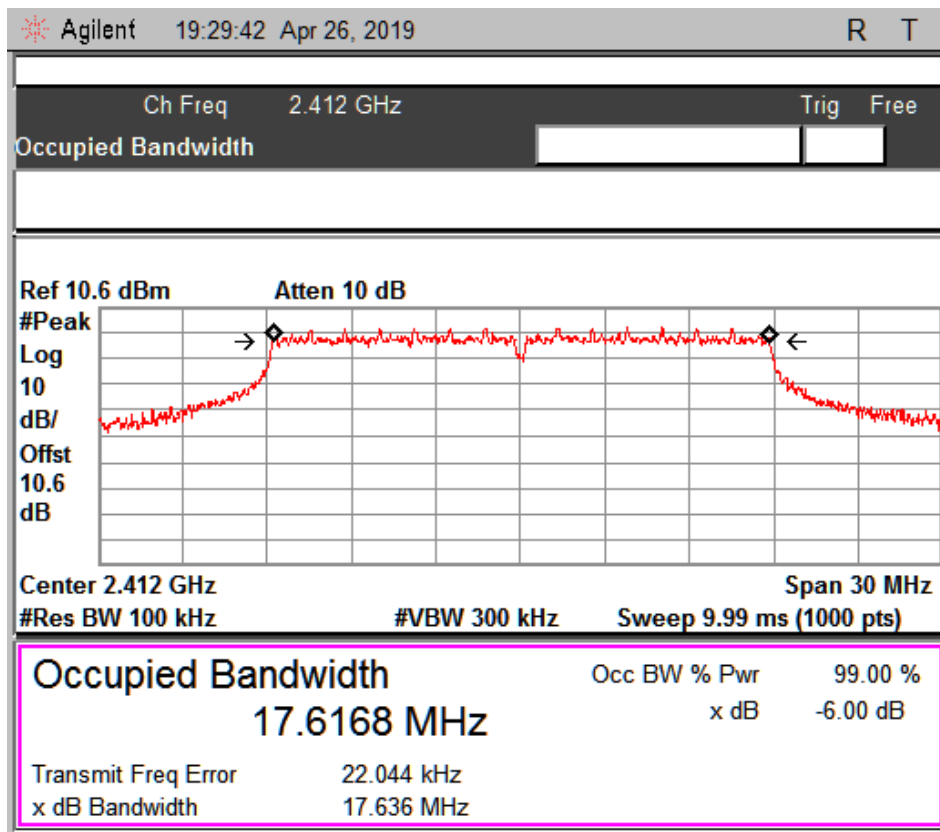
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MCS11 Channel High



MCS15 Channel Low

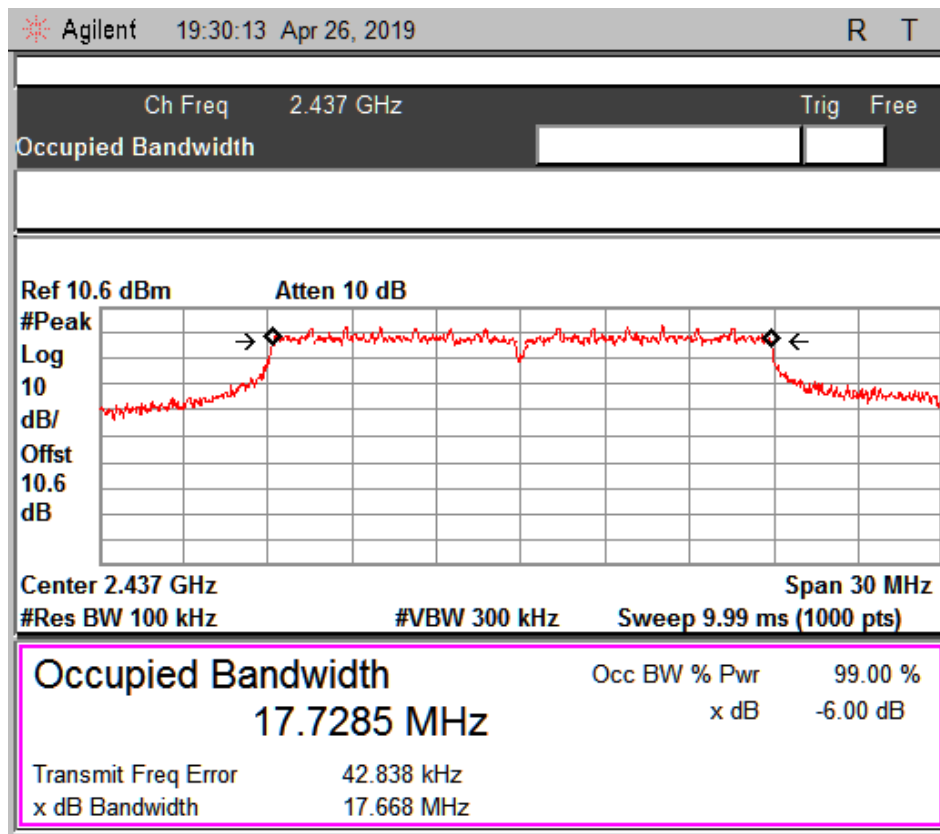
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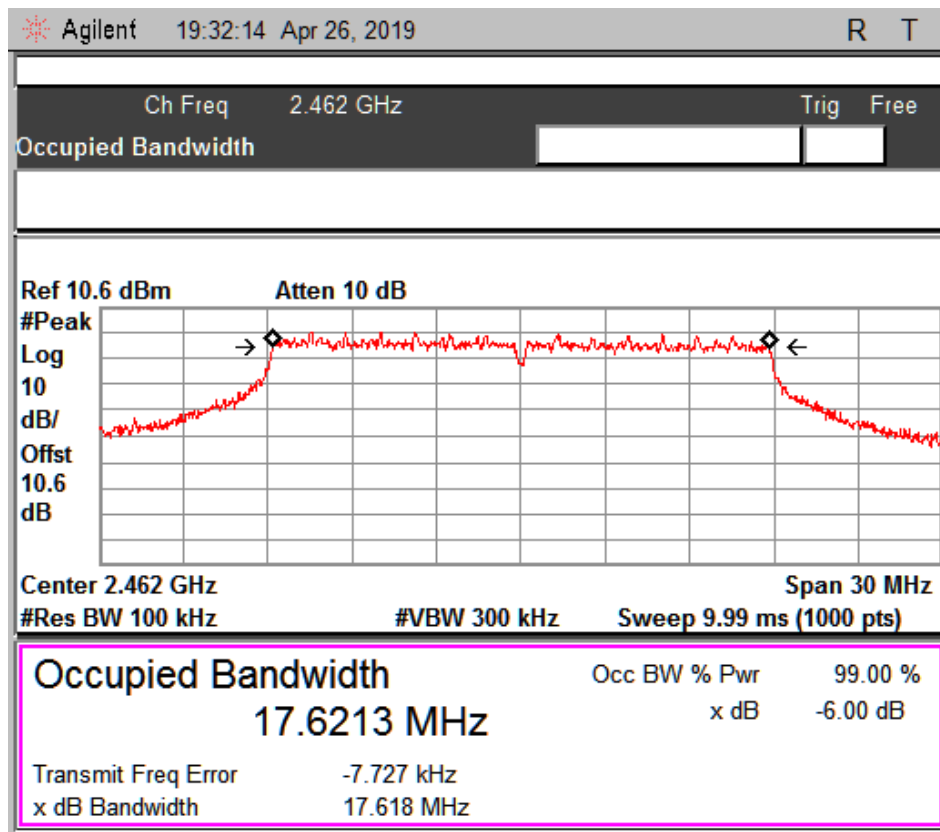
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MCS15 Channel Mid



MCS0 Channel High

Prüfbericht - Nr.:

Test Report No.:

ULR-TC568819300000021F 001

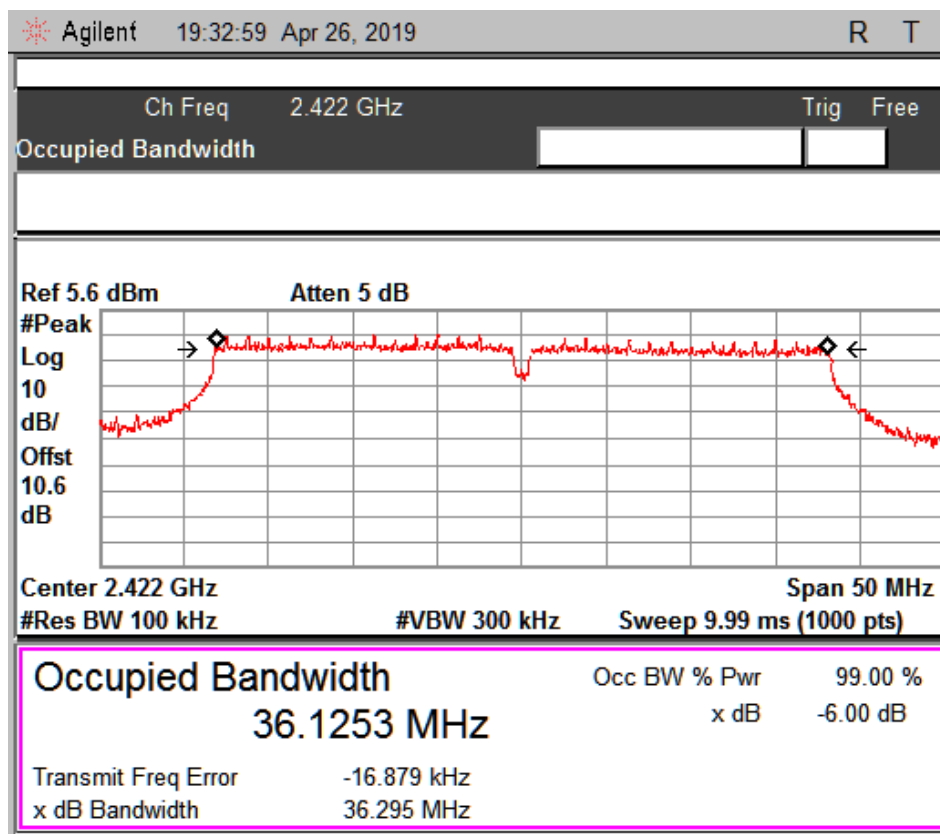
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802.11n_HT40_MIMO

Note: Test was performed on both the transmit chains and worst case results were from chain 2 and the respective results has been reported.

802.11 Protocol	Data rate(Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
n	MCS8	2422	36.29	36.12
		2437	36.40	36.23
		2452	35.69	36.12
	MCS11	2422	36.36	36.15
		2437	36.46	36.26
		2452	36.08	36.06
	MCS15	2422	35.73	36.09
		2437	36.39	36.24
		2452	36.35	36.12



MCS8 Channel Low

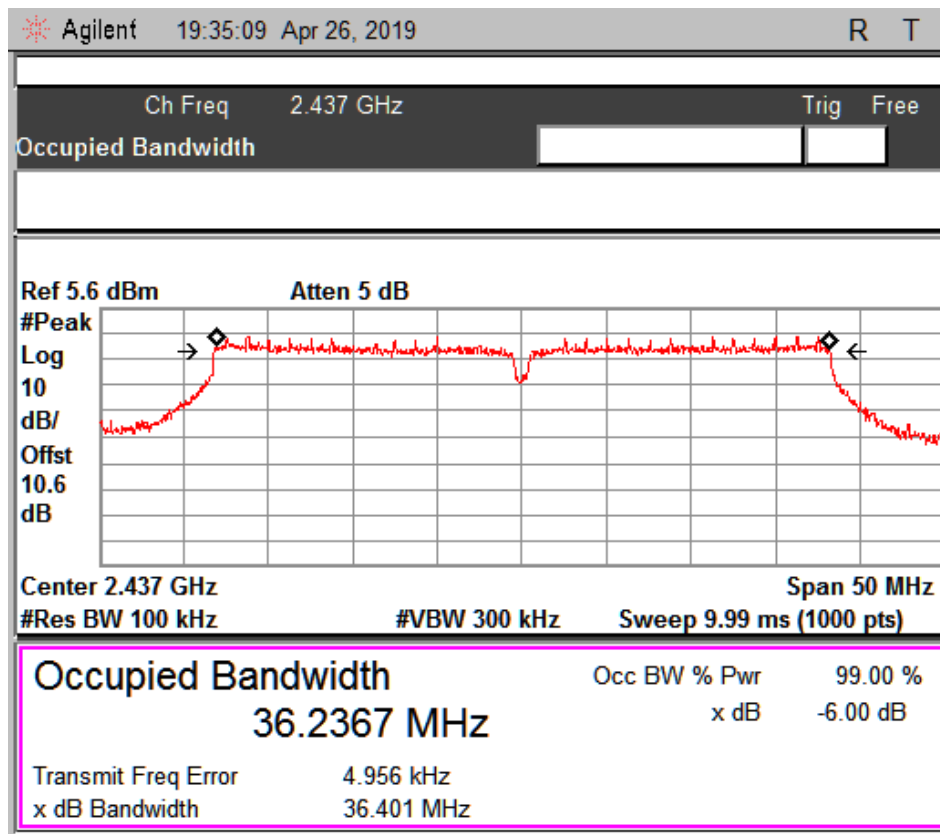
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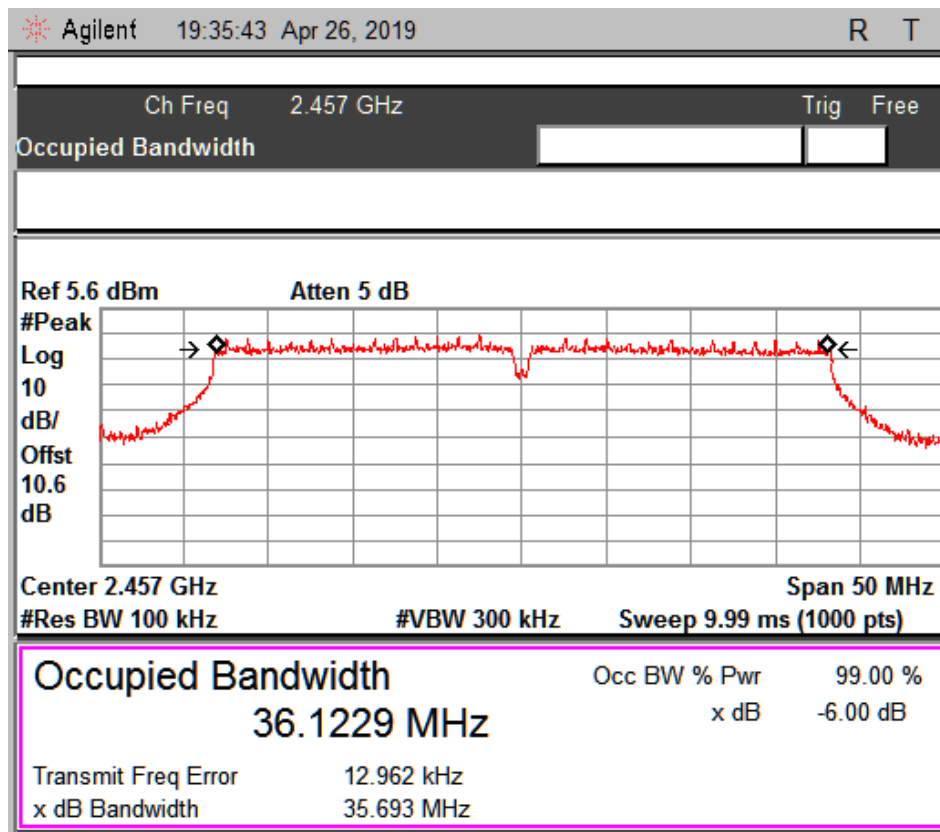
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MCS8 Channel Mid



MCS8 Channel High

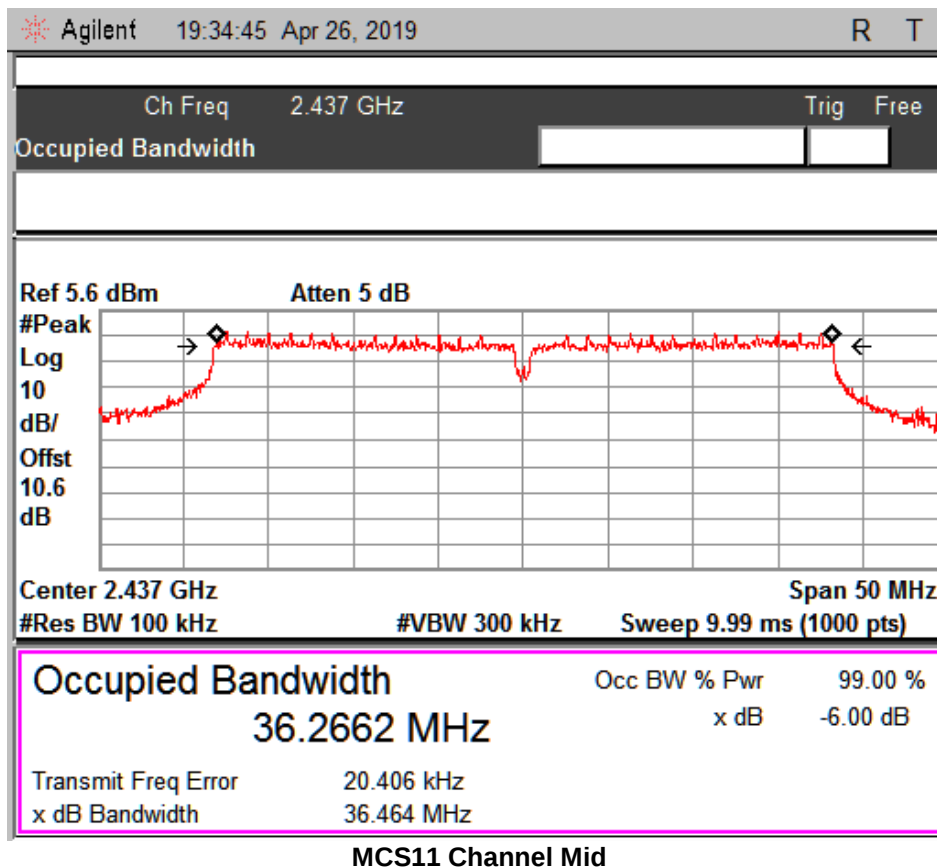
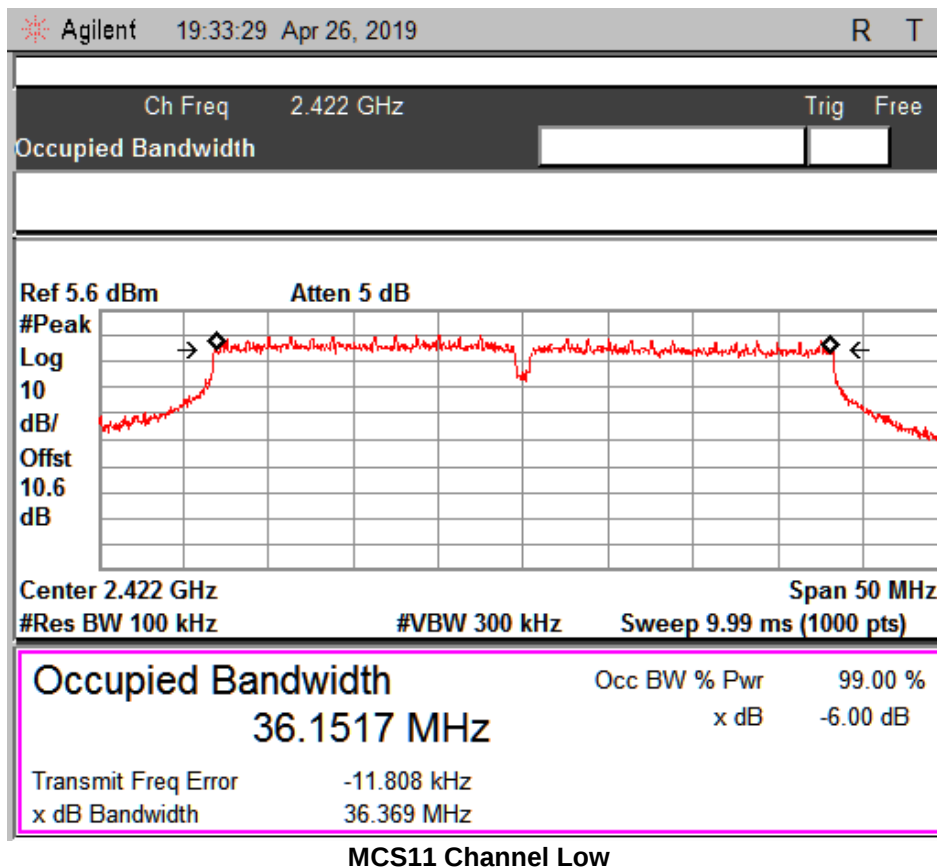
Prüfbericht - Nr.:

Test Report No.:

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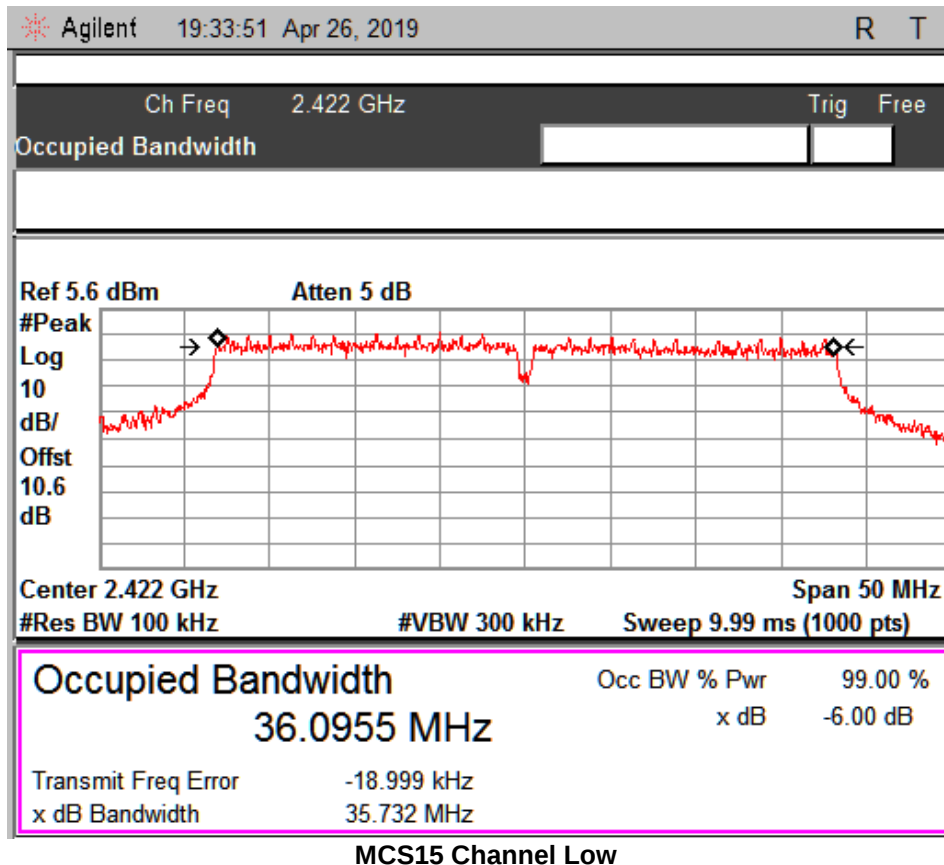
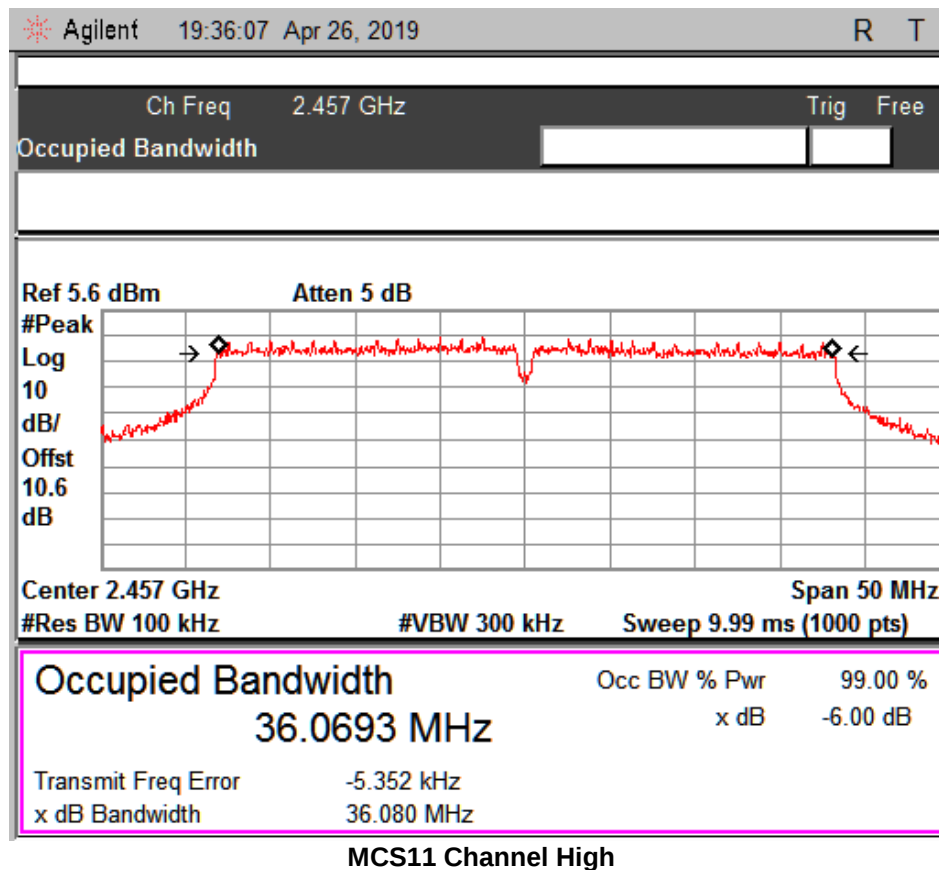
Prüfbericht - Nr.:

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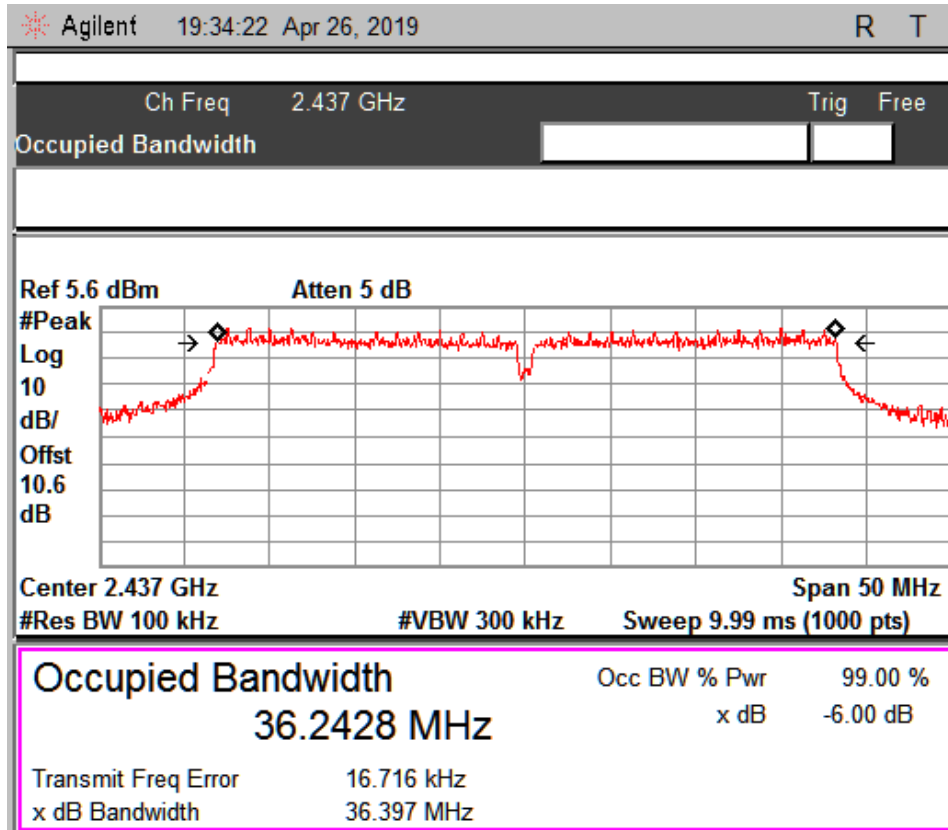
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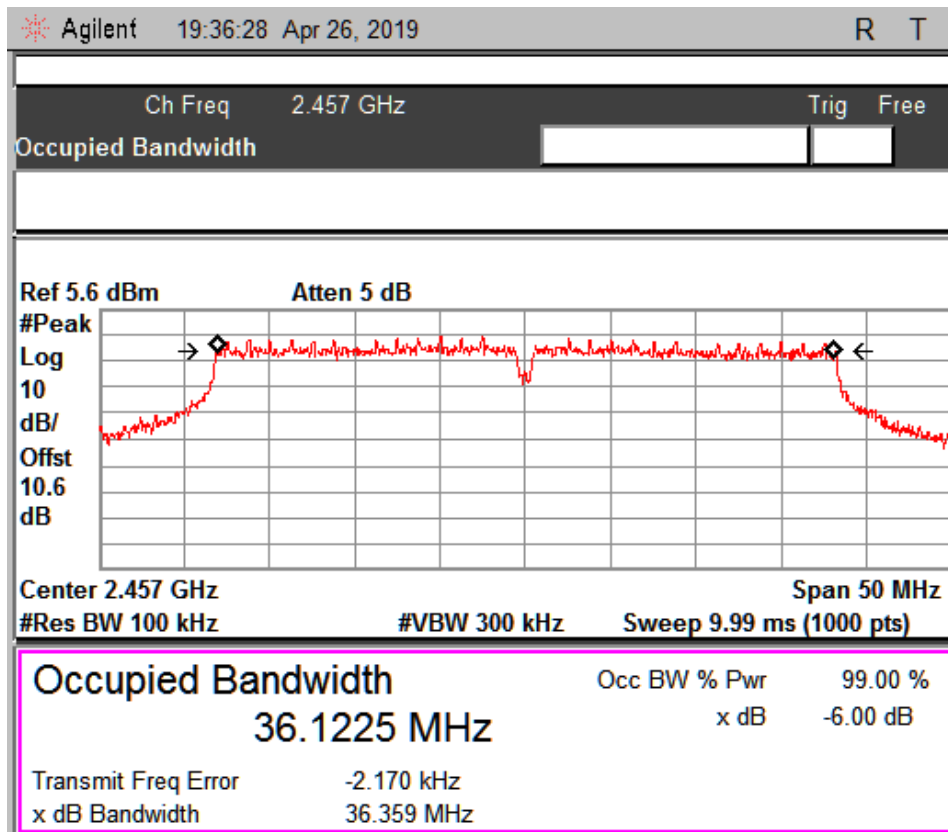
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MCS15 Channel Mid



MCS15 Channel High

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6.4 Emissions in non-restricted frequency bands

Result

Pass

Test Specification

FCC Part 15 Subpart C Section 15.247 (d)

Detector Function

Peak

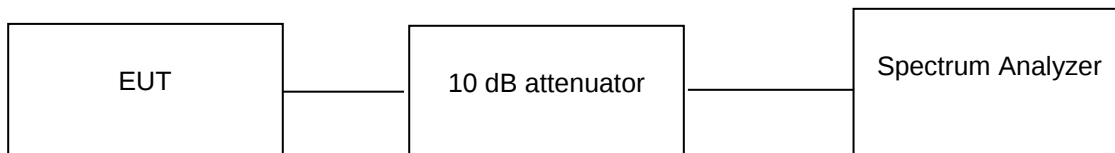
Port of testing

Antenna port

Requirement

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the Highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results:

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

Test Results:

802.11b

Data rate(Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dB)	Limit (dB)
		Frequency (MHz)	Value A (dBm)			
1	2412	2400	-39.63	10.04	-49.67	-20
	2462	2483.5	-49.86	9.64	-59.50	-20

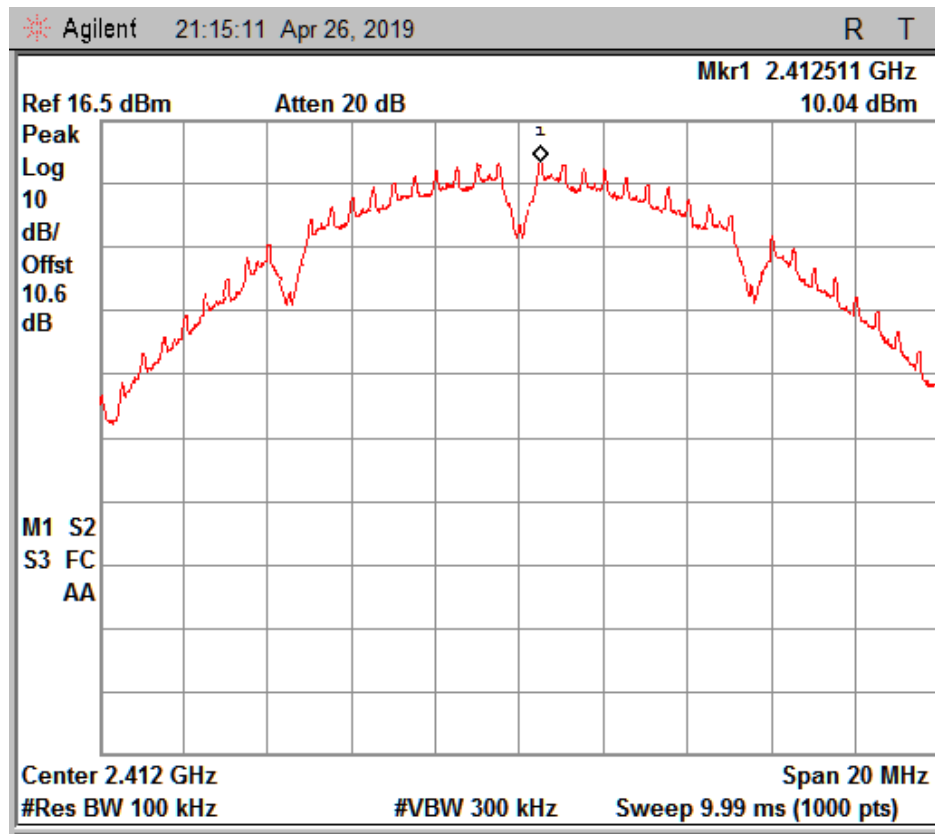
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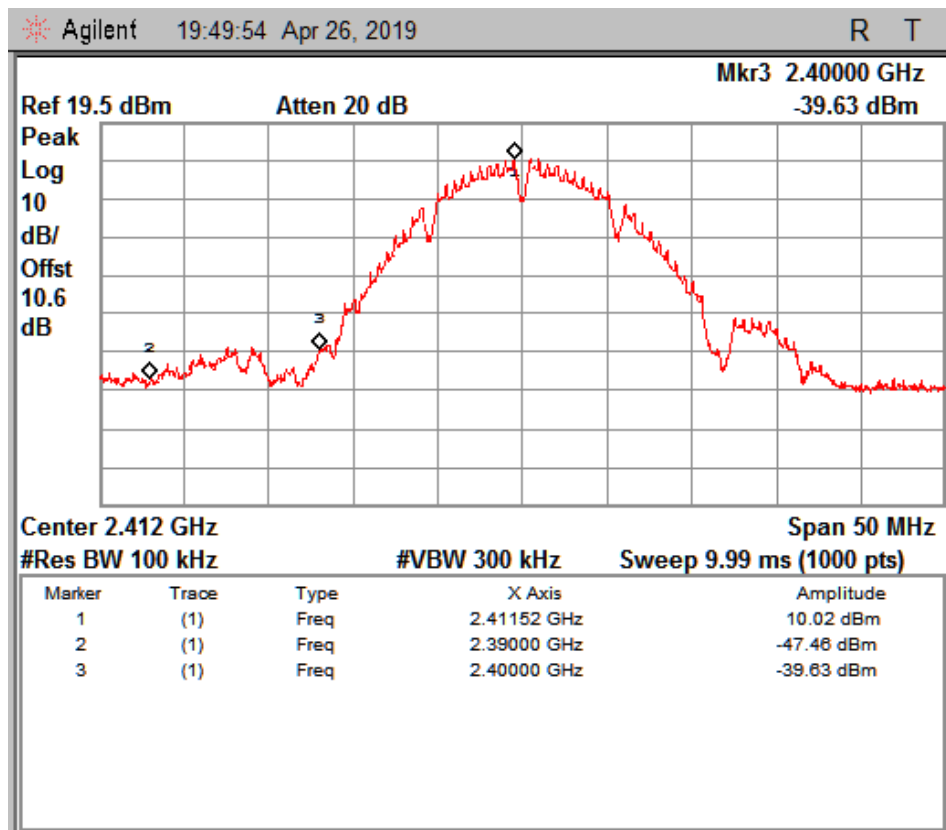
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Reference Level Plot – 1 Mbps



1 Mbps Channel Low – 2412 MHz

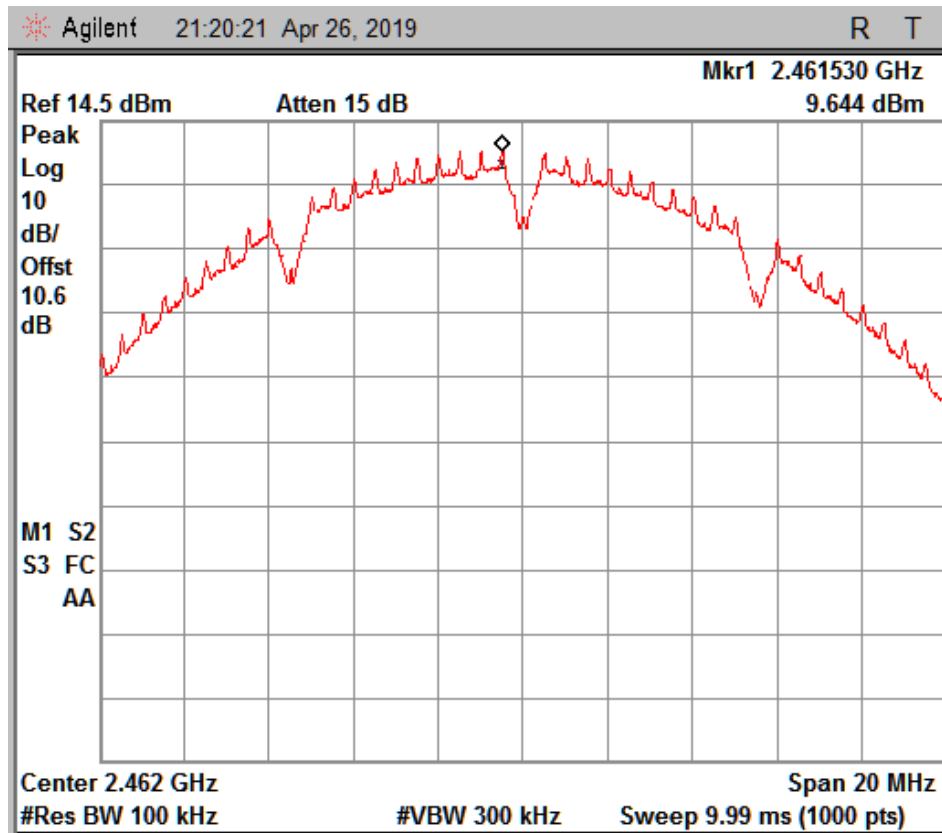
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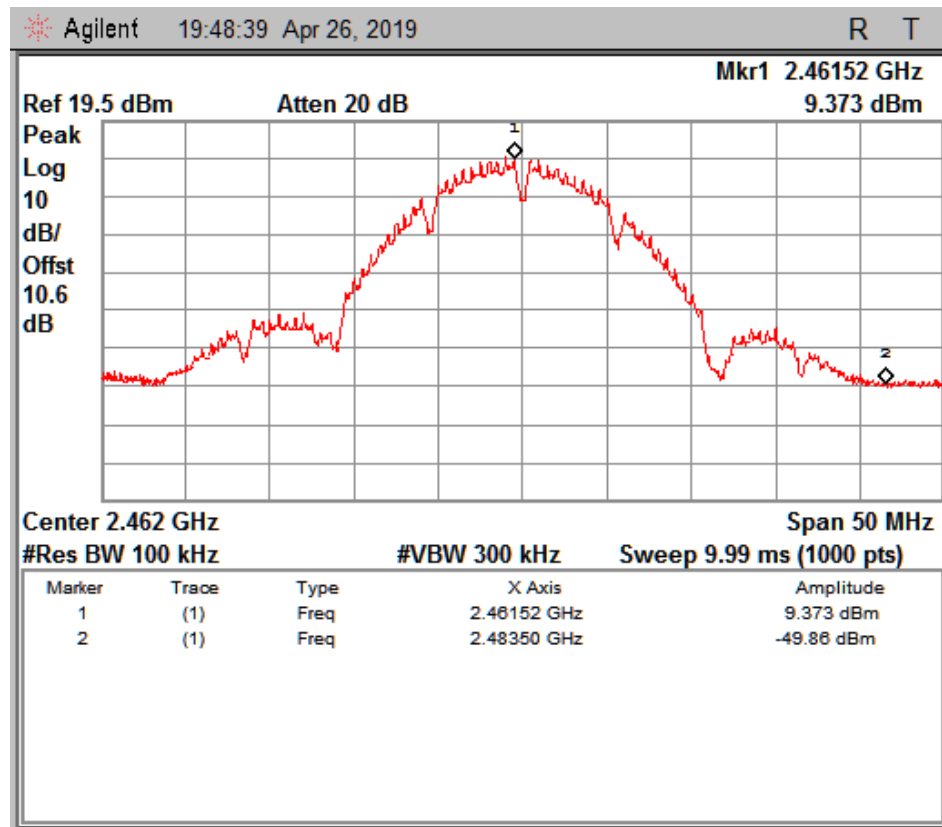
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Reference Level Plot – 1 Mbps



1 Mbps Channel High – 2462 MHz

Prüfbericht - Nr.:

Test Report No.:

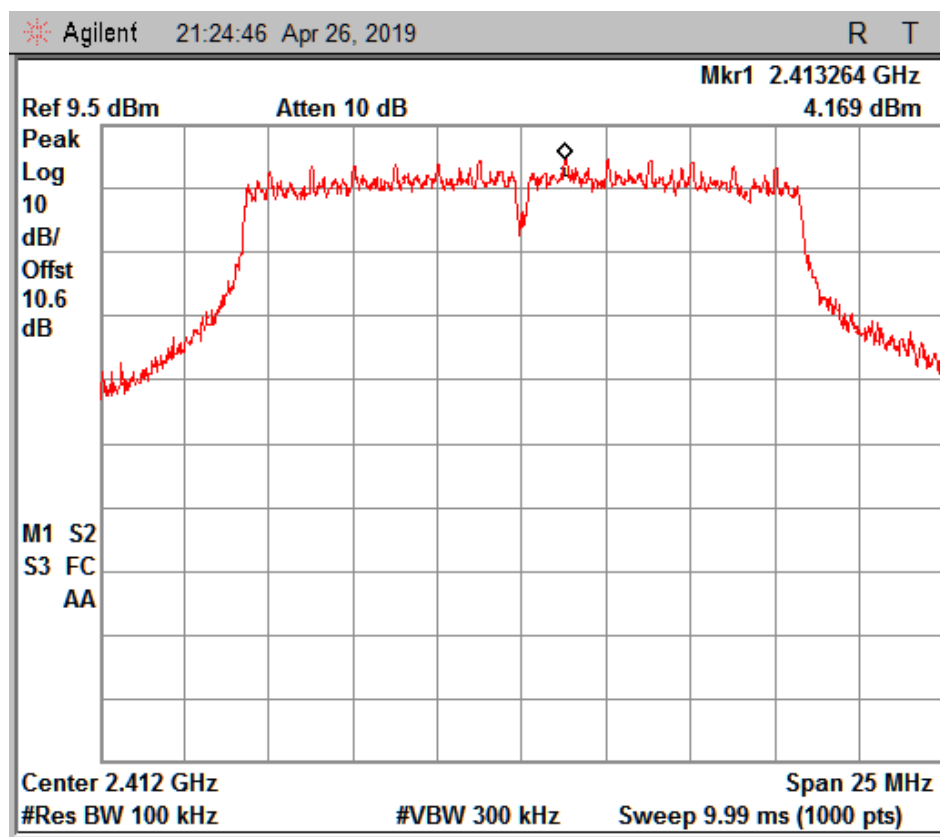
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Test Results:
802.11

Data rate(Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dB)	Limit (dB)
		Frequency (MHz)	Value A (dBm)			
54	2412	2400	-31.73	4.16	-35.89	-20
	2462	2483.5	-39.18	4.84	-44.02	-20



Reference Level Plot – 54 Mbps

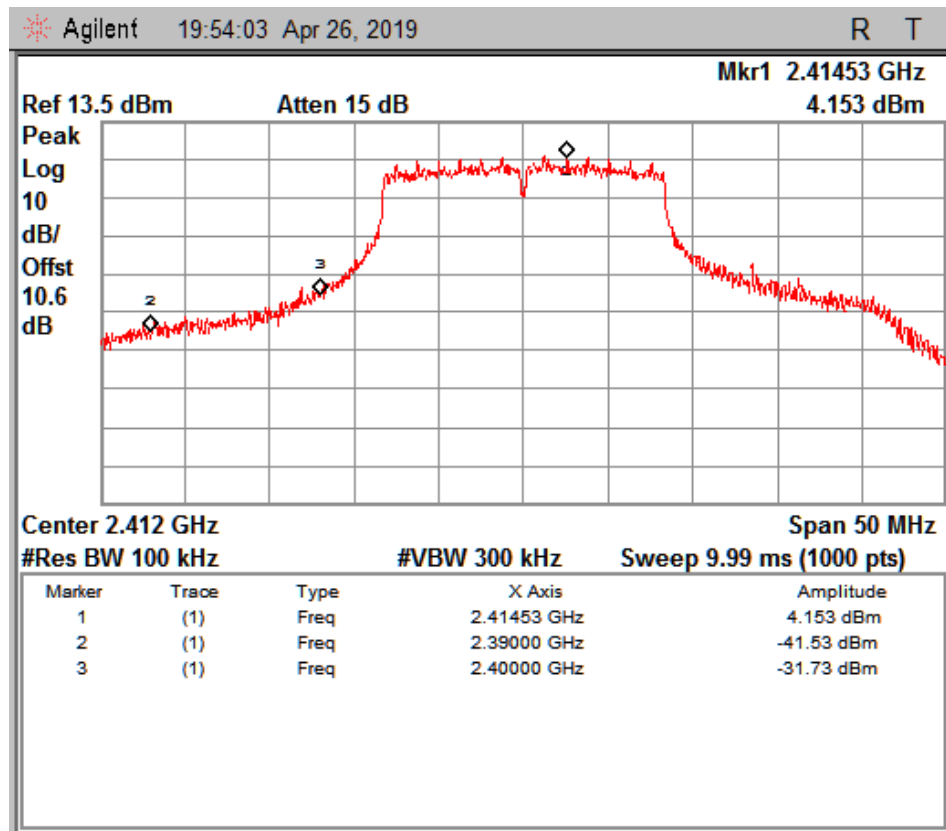
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Test Report No.:

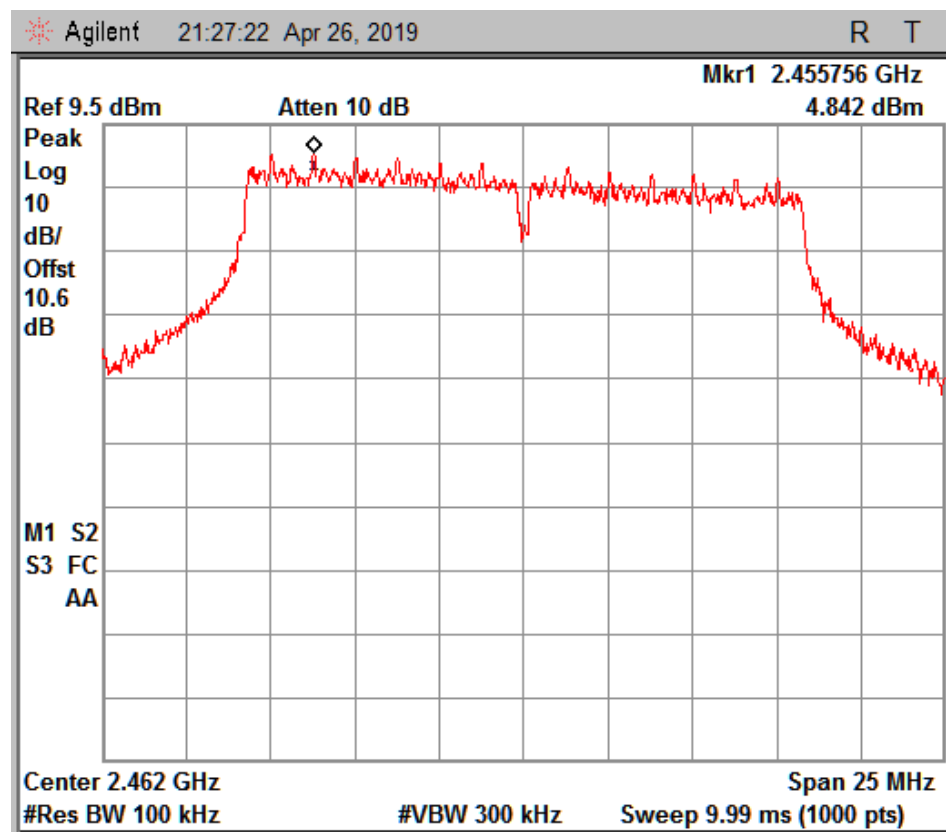
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54 Mbps Channel Low – 2412 MHz



Reference Level Plot – 54 Mbps

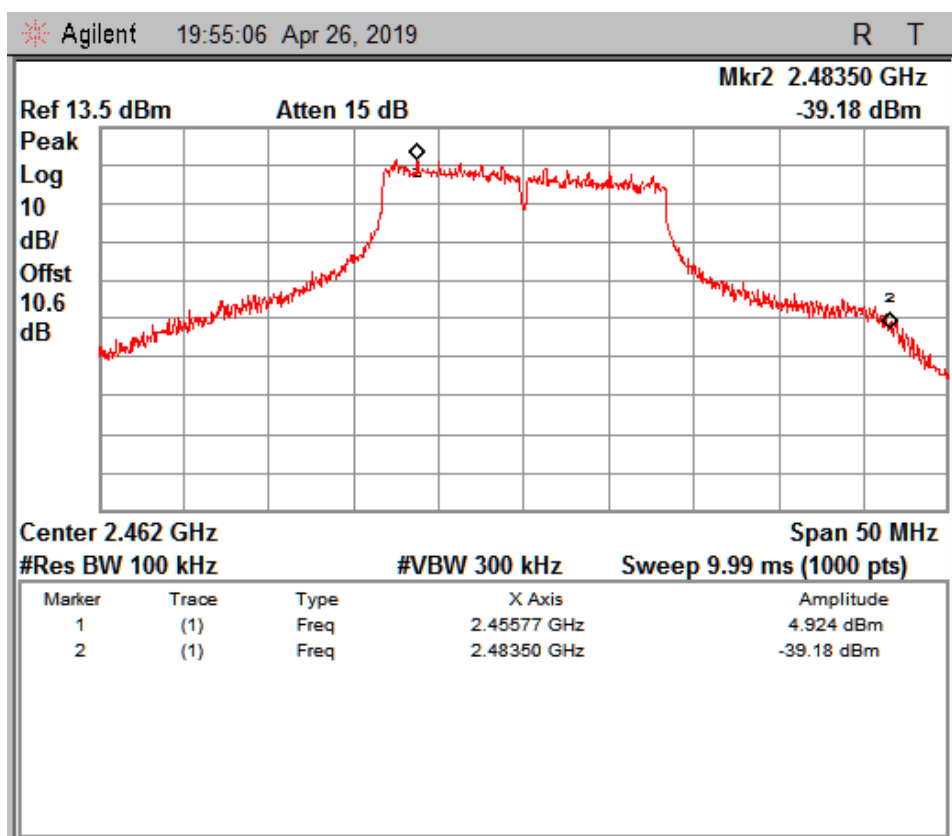
Prüfbericht - Nr.:

Test Report No.:

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54 Mbps Channel High – 2462 MHz

Prüfbericht - Nr.:

Test Report No.:

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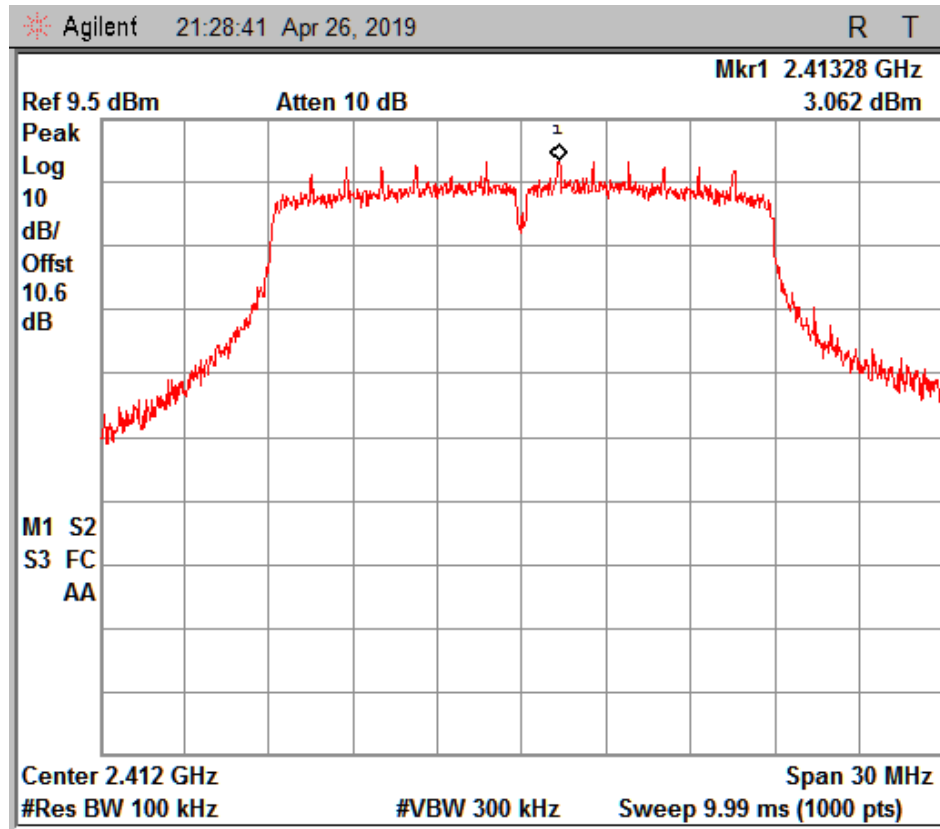
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Test Results:

802.11n_SISO_HT20

Data rate(Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dB)	Limit (dB)
		Frequency (MHz)	Value A (dBm)			
MCS0	2412	2400	-30.87	3.06	-33.93	-20
	2462	2483.5	-41.92	3.47	-45.39	-20



MCS0 Reference Level Plot – 2412 MHz

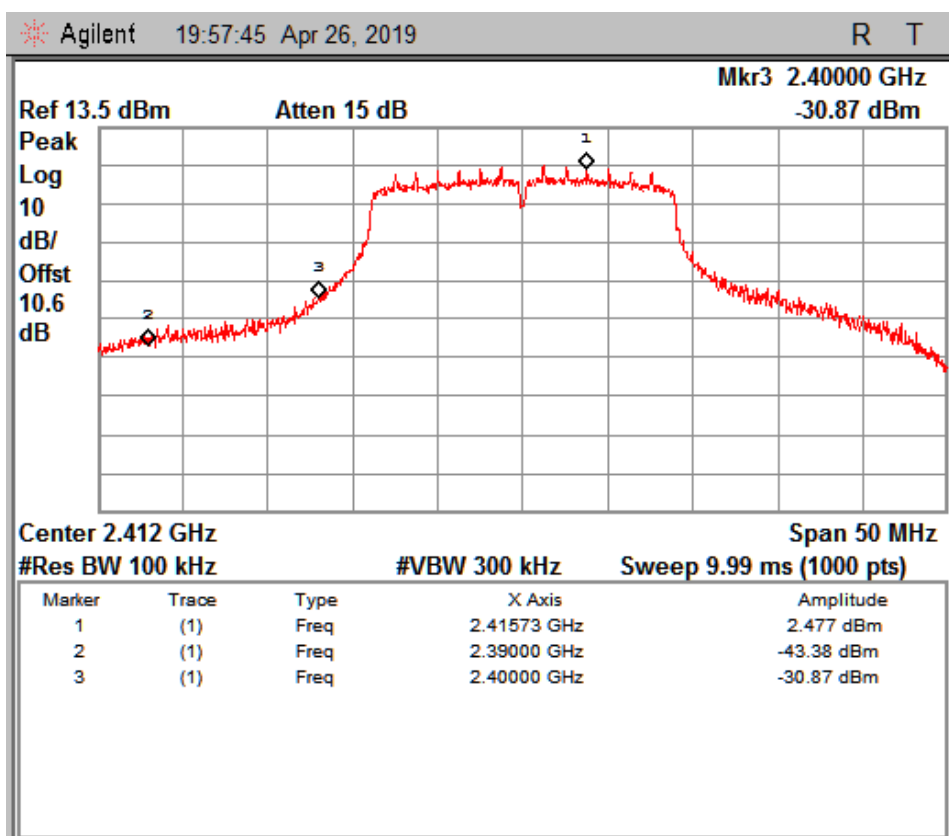
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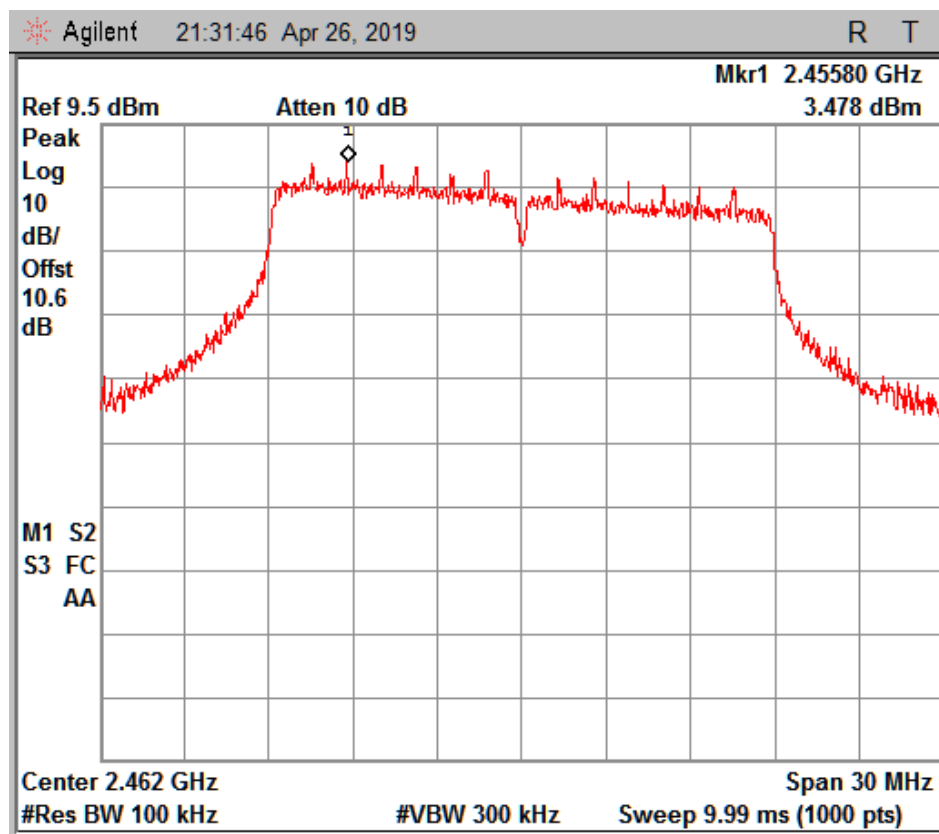
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MCS0 Channel Low – 2412 MHz



MCS0 Reference Level Plot – 2462 MHz

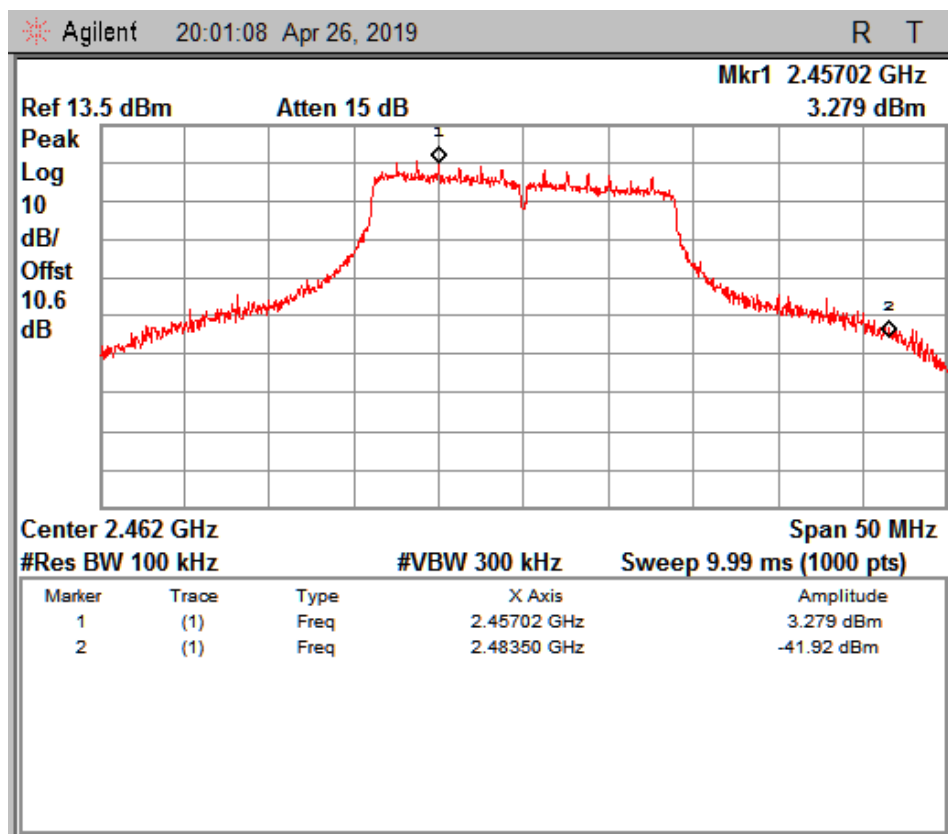
Prüfbericht - Nr.:

Test Report No.:

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MCS0 Channel High – 2462 MHz

Test Results:

802.11n_SISO_HT40

Data rate(Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dB)	Limit (dB)
		Frequency (MHz)	Value A (dBm)			
MCS7	2422	2396.9	-34.66	-1.18	-33.48	-20
	2457	2483.5	-43.61	-1.32	-42.29	-20

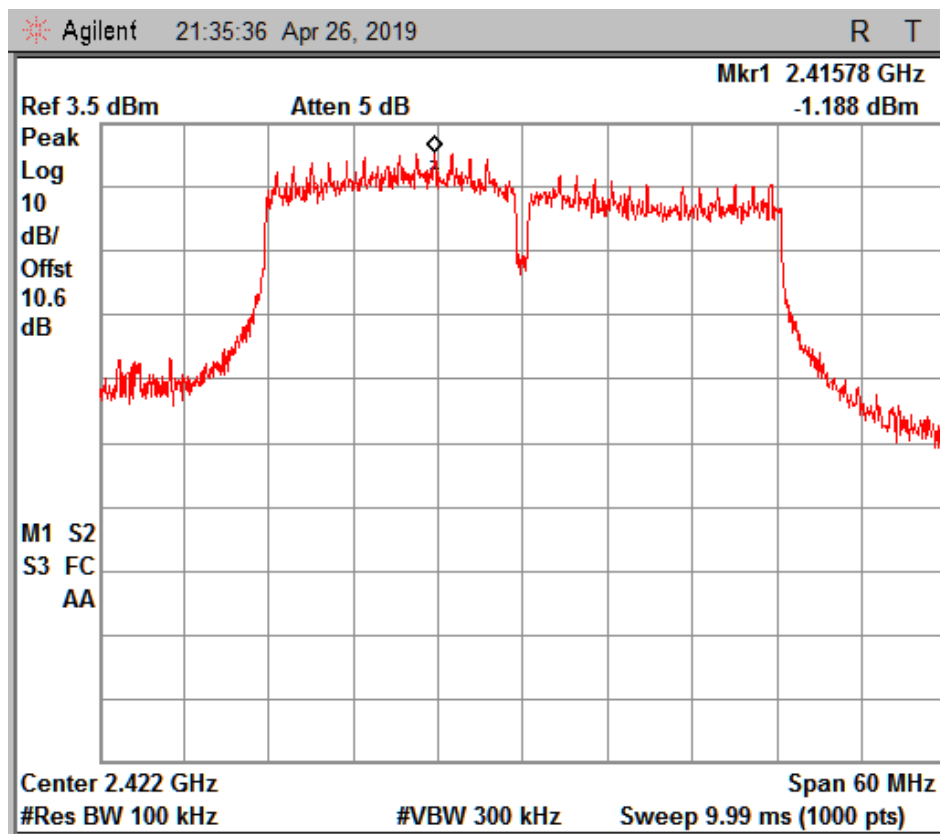
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Test Report No.:

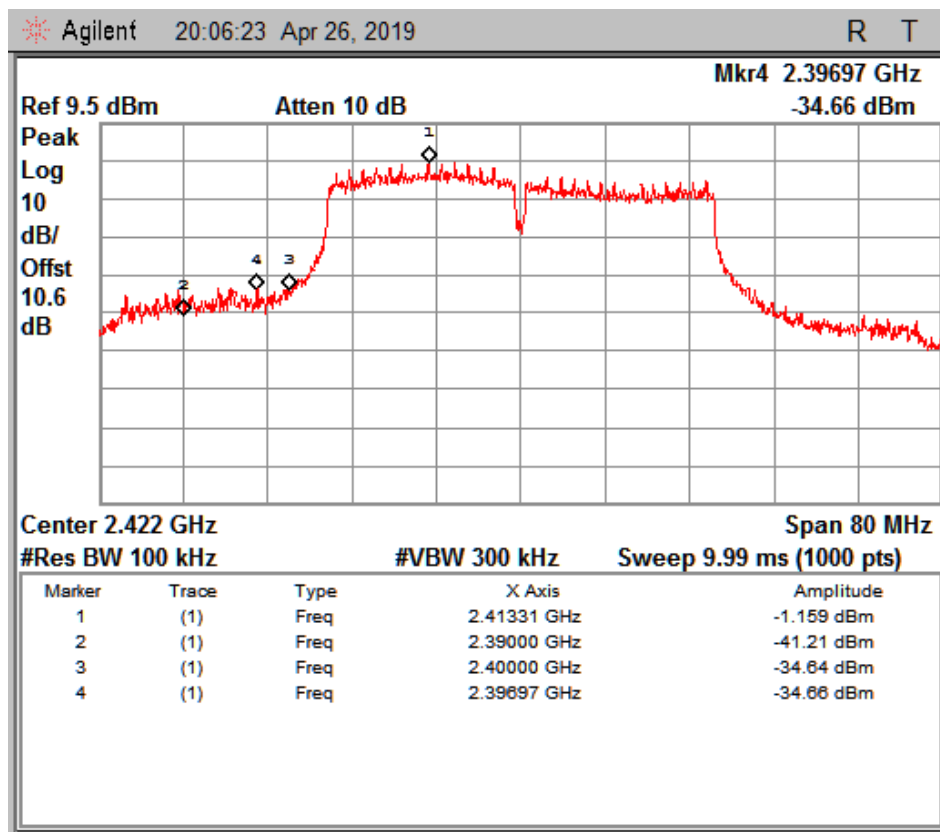
ULR-TC568819300000021F 001

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MCS7 Reference Level Plot – 2422 MHz



MCS7 Channel Low – 2422 MHz

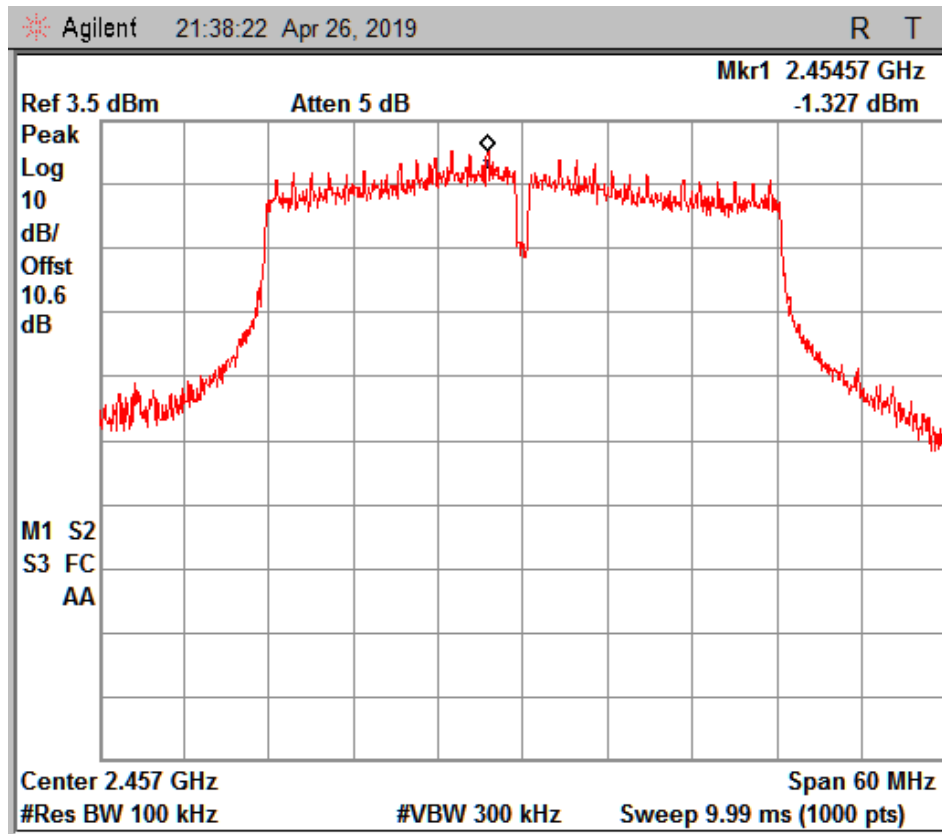
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Test Report No.:

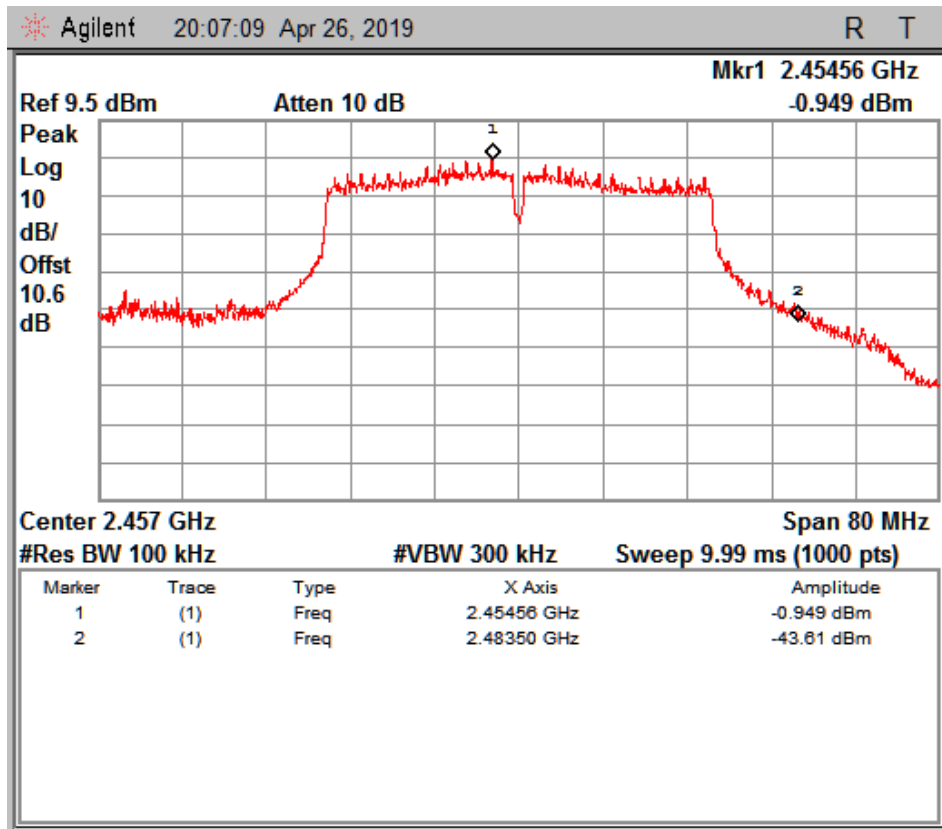
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MCS7 Reference Level Plot – 2457 MHz



MCS7 Channel High – 2457 MHz

Prüfbericht - Nr.:

Test Report No.:

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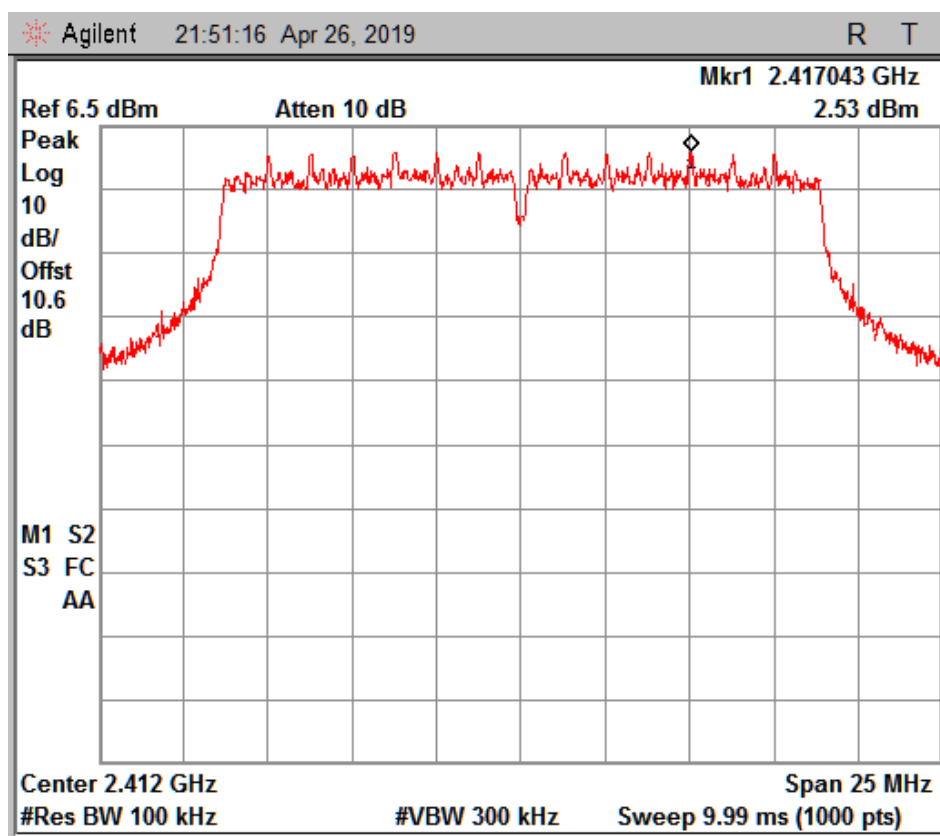
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Test Results:

802.11n_MIMO_HT20

Data rate(Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dB)	Limit (dB)
		Frequency (MHz)	Value A (dBm)			
MCS11	2412	2400	-27.53	2.53	-30.06	-20
	2462	2483.5	-46.29	0.86	-47.15	-20



MCS11 Reference Level Plot –2412 MHz

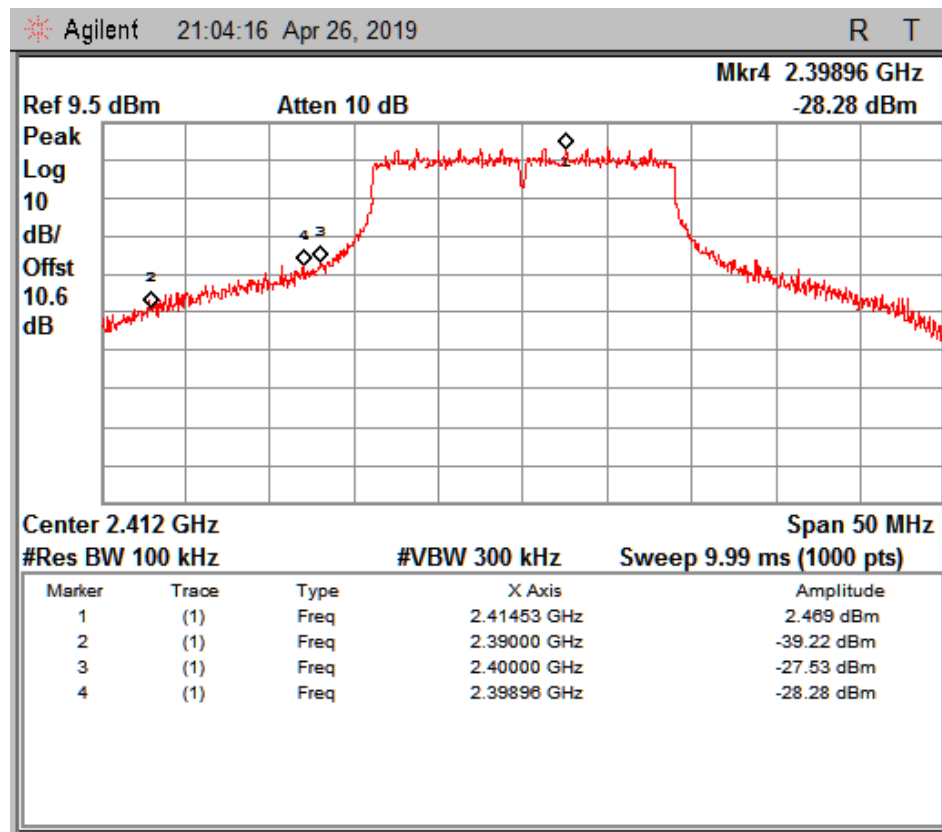
Prüfbericht - Nr.:

Test Report No.:

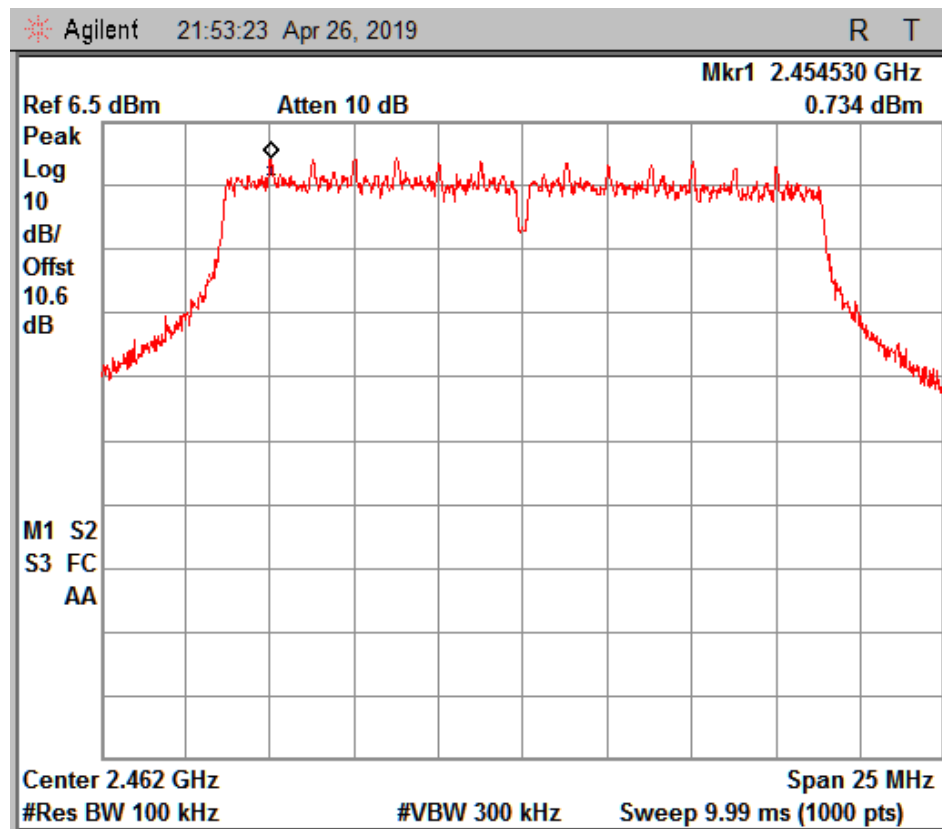
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MCS11 Channel Low – 2412 MHz



MCS11 Reference Level Plot – 2462 MHz

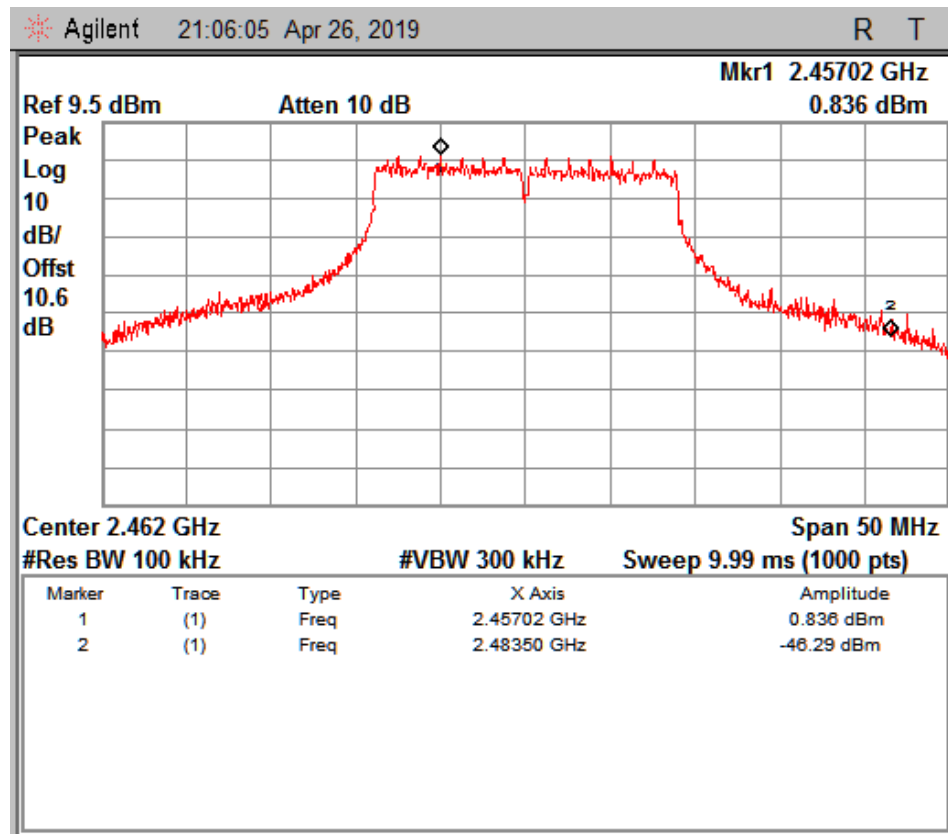
Prüfbericht - Nr.:

Test Report No.:

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MCS11 Channel High – 2462 MHz

Test Results:

802.11n_MIMO_HT40

Data rate(Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dB)	Limit (dB)
		Frequency (MHz)	Value A (dBm)			
MCS11	2422	2400	-36.21	-3.71	-32.50	-20
	2457	2483.5	-47.58	-5.17	-42.41	-20

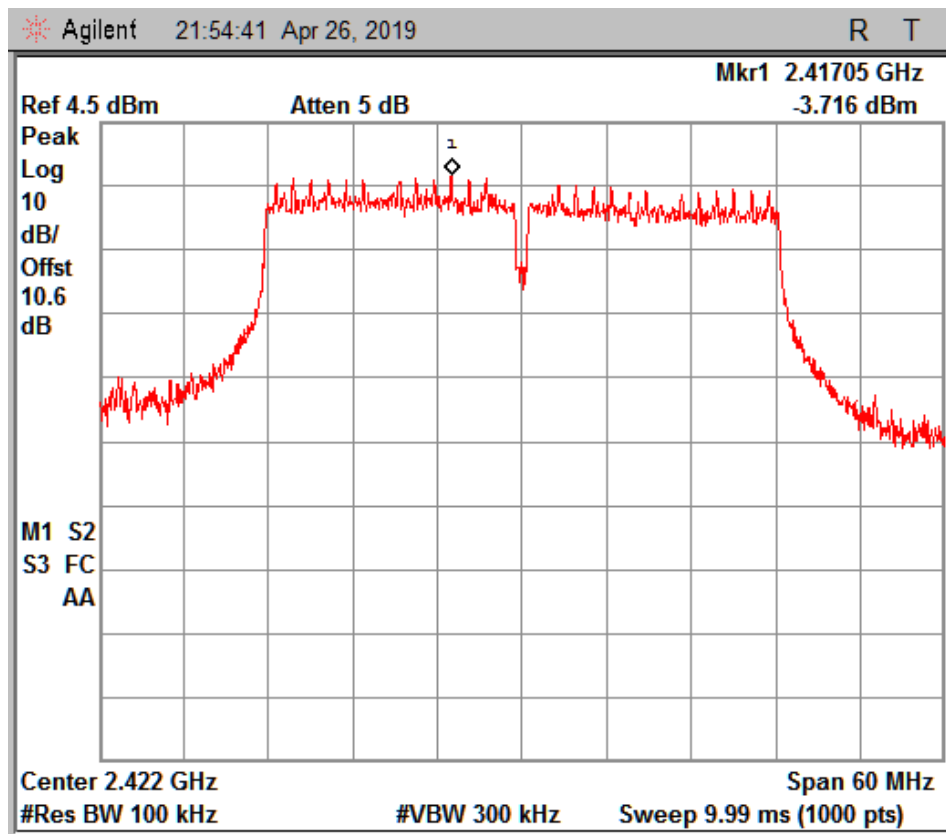
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Test Report No.:

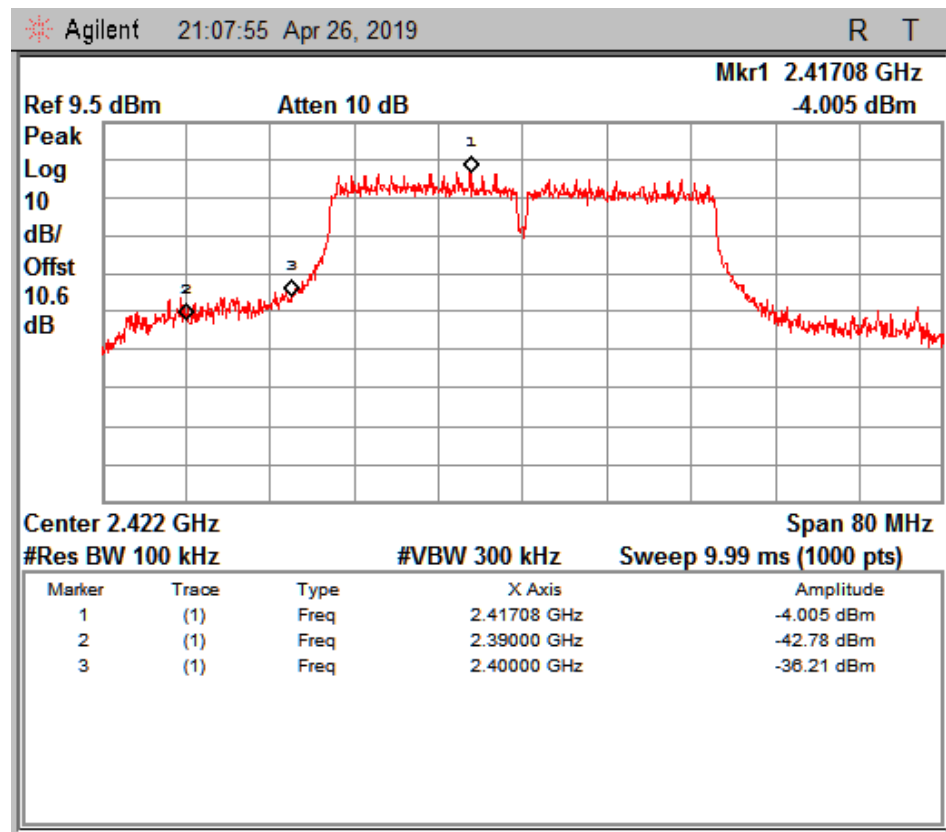
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Reference Level Plot – MCS11



MCS11 Channel Low – 2422 MHz

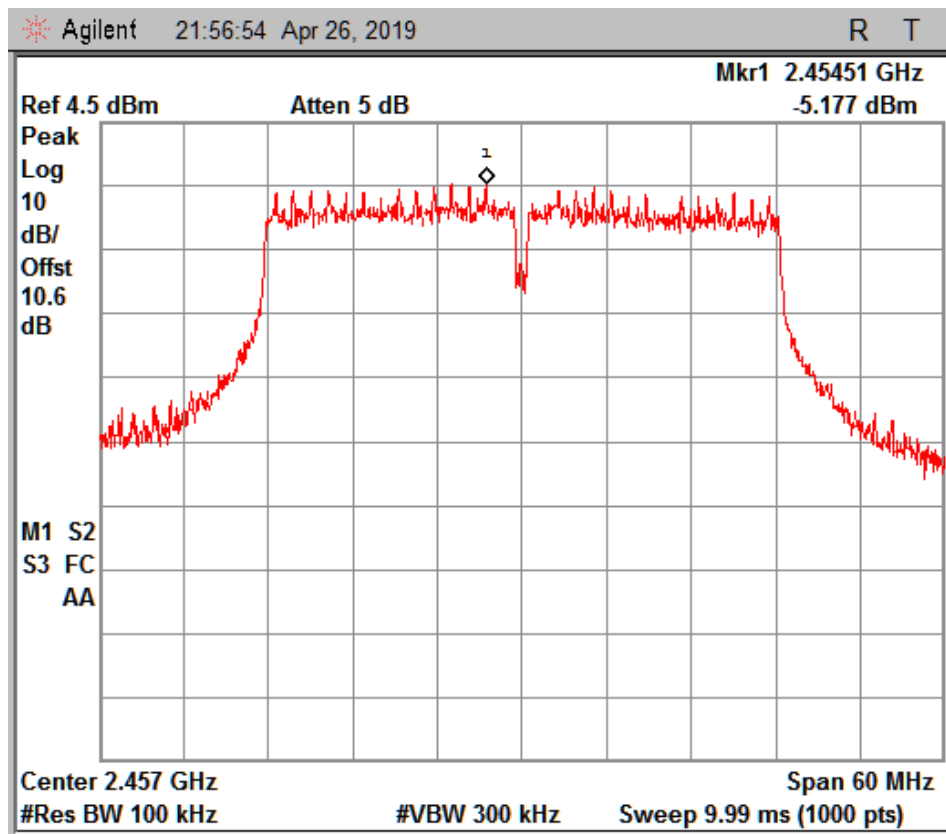
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Test Report No.:

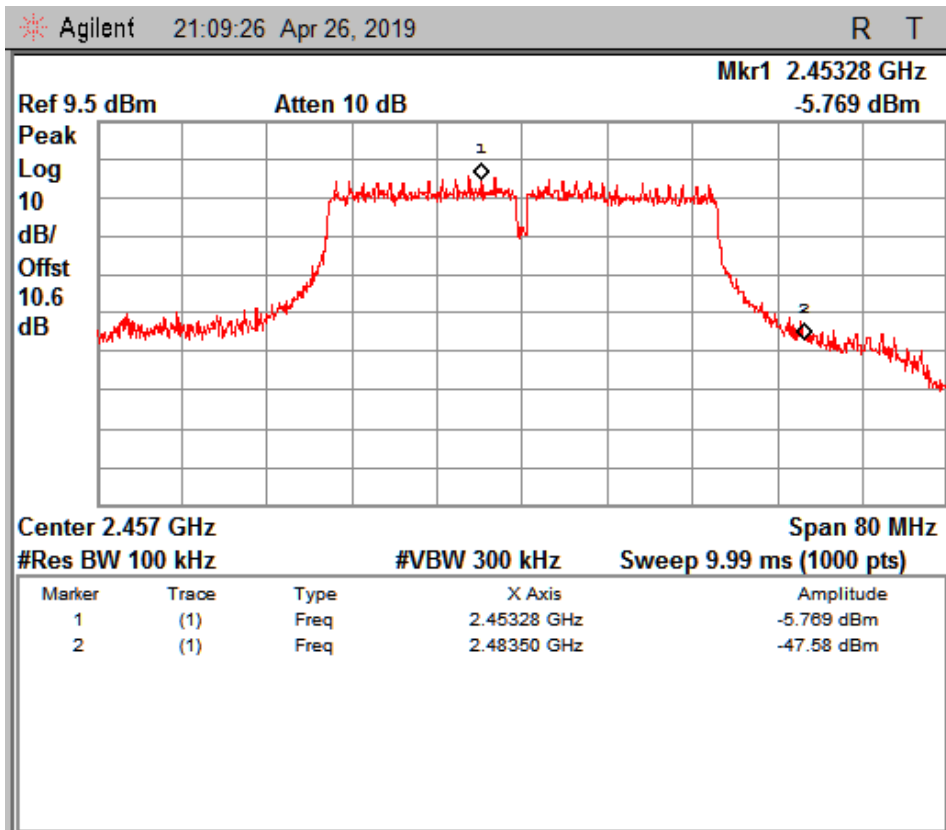
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MCS11 Reference Level Plot -2457 MHz



MCS11 Channel High - 2457 MHz

Prüfbericht - Nr.:

Test Report No.:

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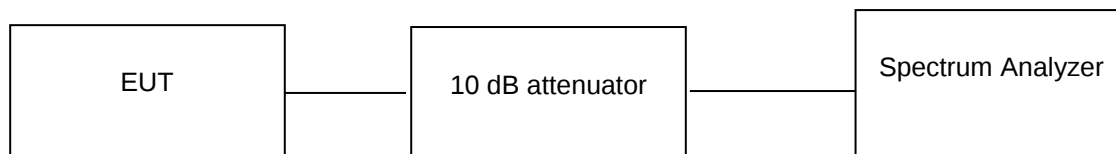
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6.5 Conducted Spurious Emission

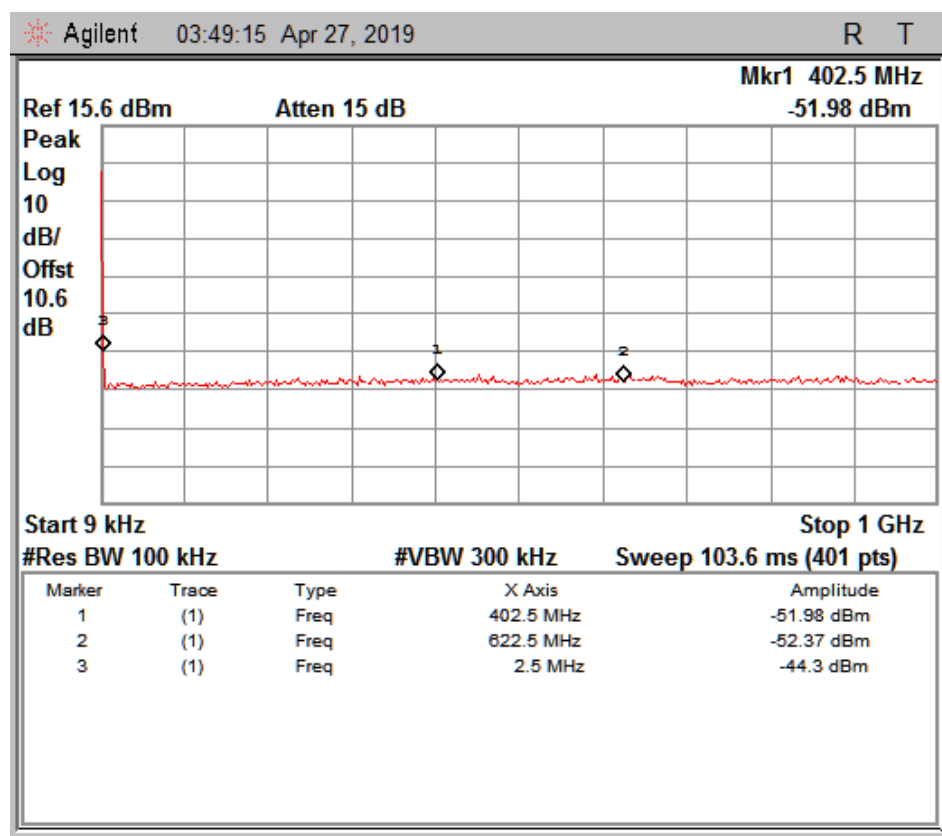
Result

Pass

Test Method:



Test results:



1 Mbps Channel Low_9kHz-1GHz

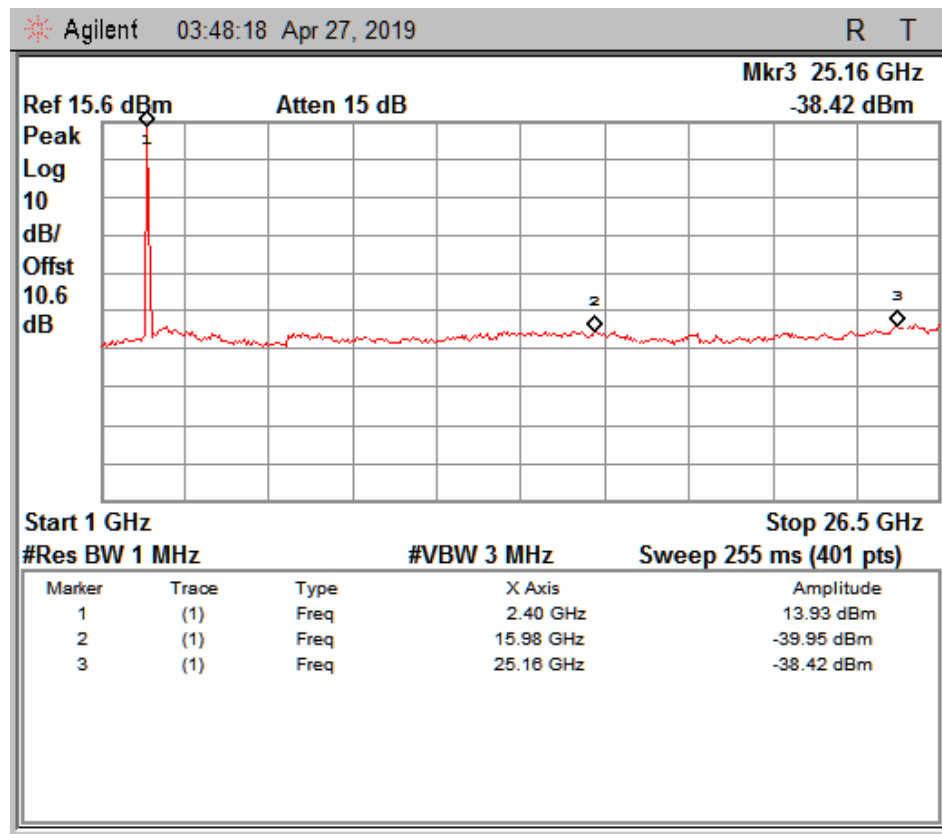
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Test Report No.:

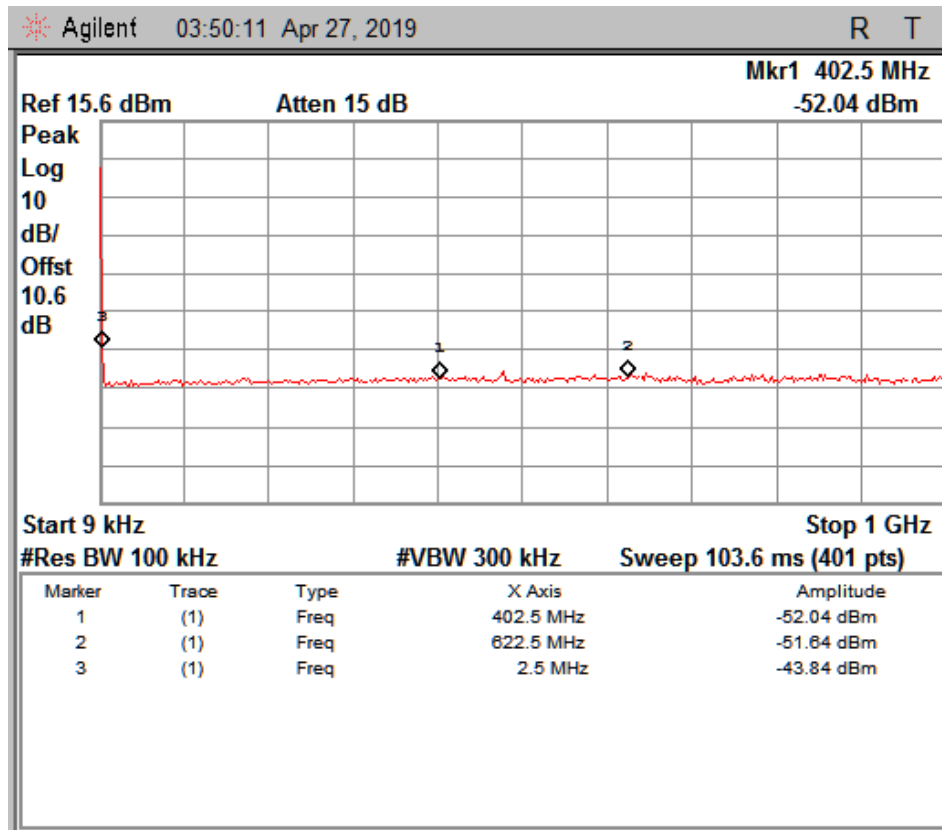
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1 Mbps Channel Low_1GHz-26.5GHz



1 Mbps Channel Mid_9kHz-1GHz

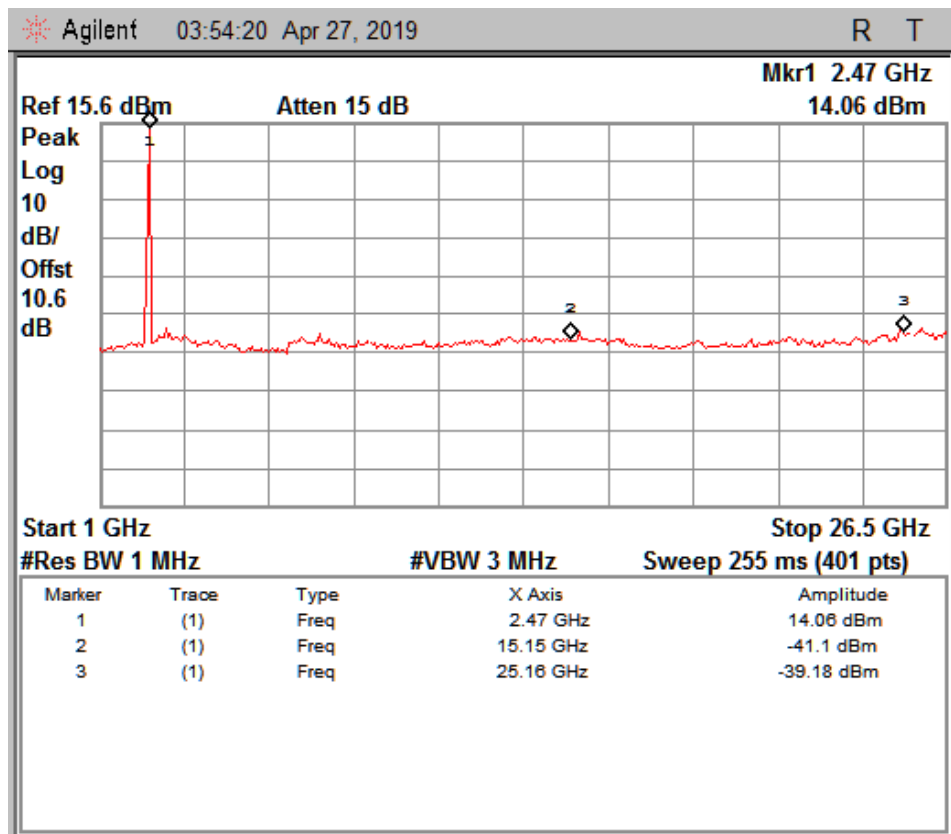
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Test Report No.:

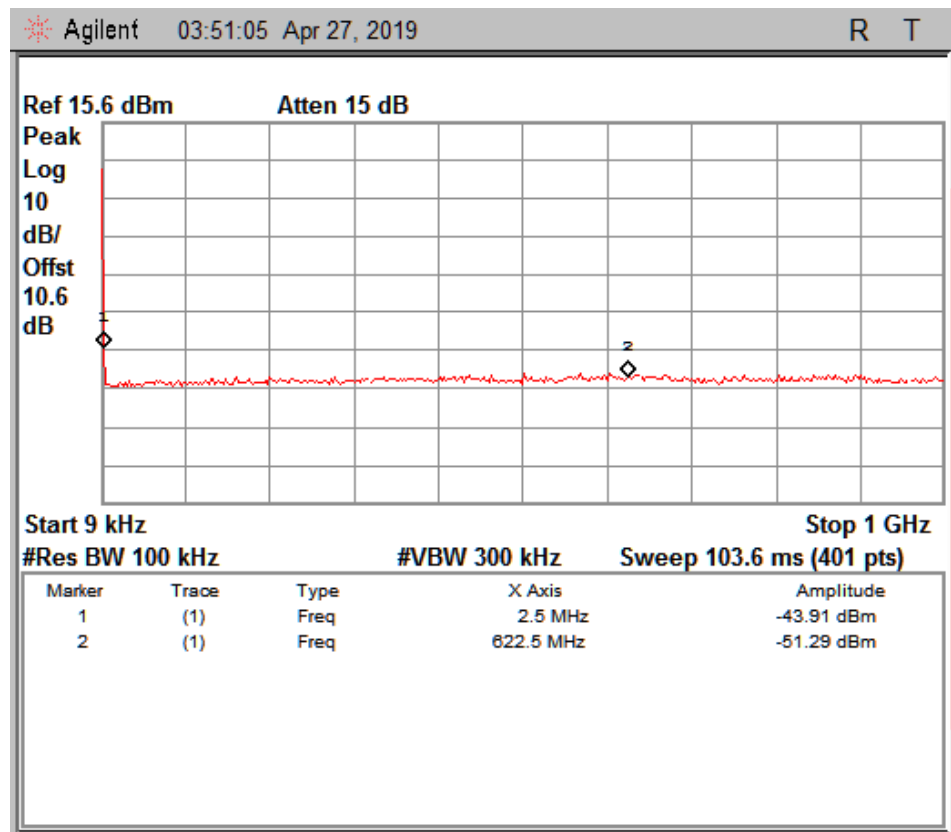
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1 Mbps Channel Mid_1GHz-26.5GHz



1 Mbps Channel High_9kHz-1GHz

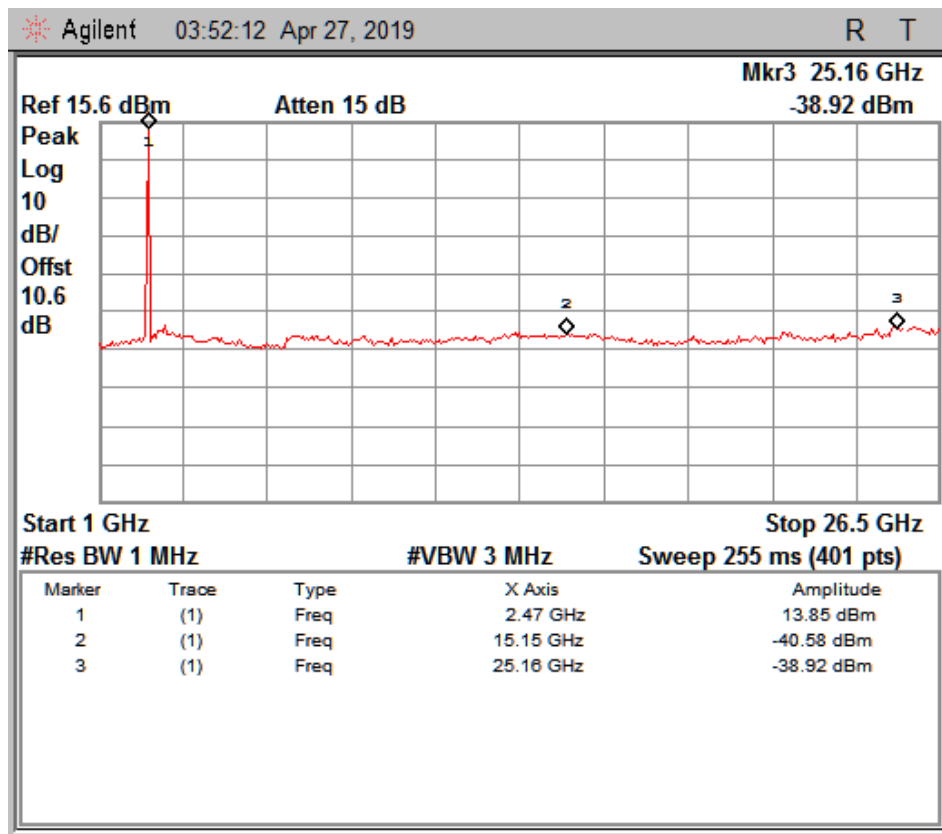
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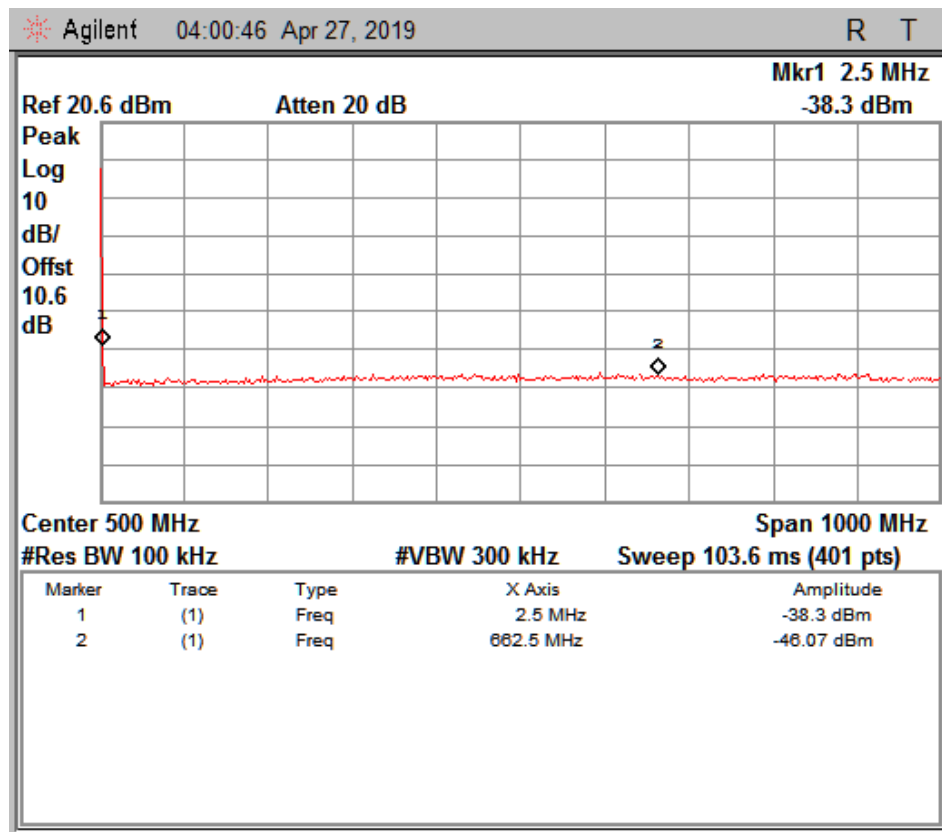
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1 Mbps Channel High_1GHz-26.5GHz



11 Mbps Channel Low_9kHz-1GHz

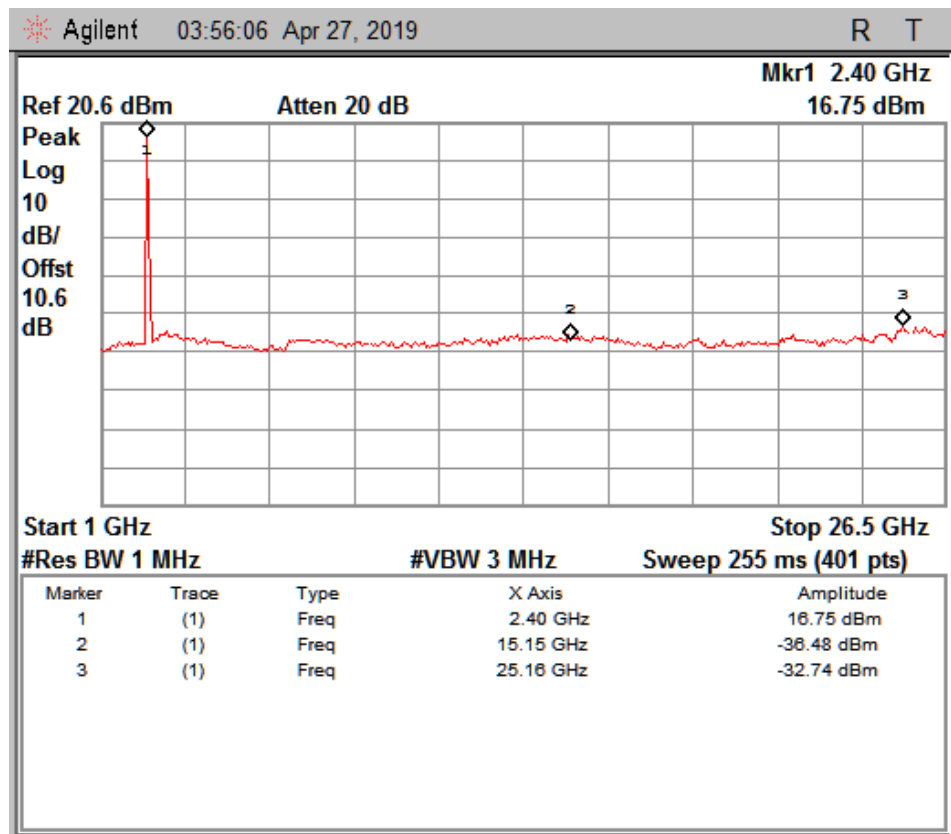
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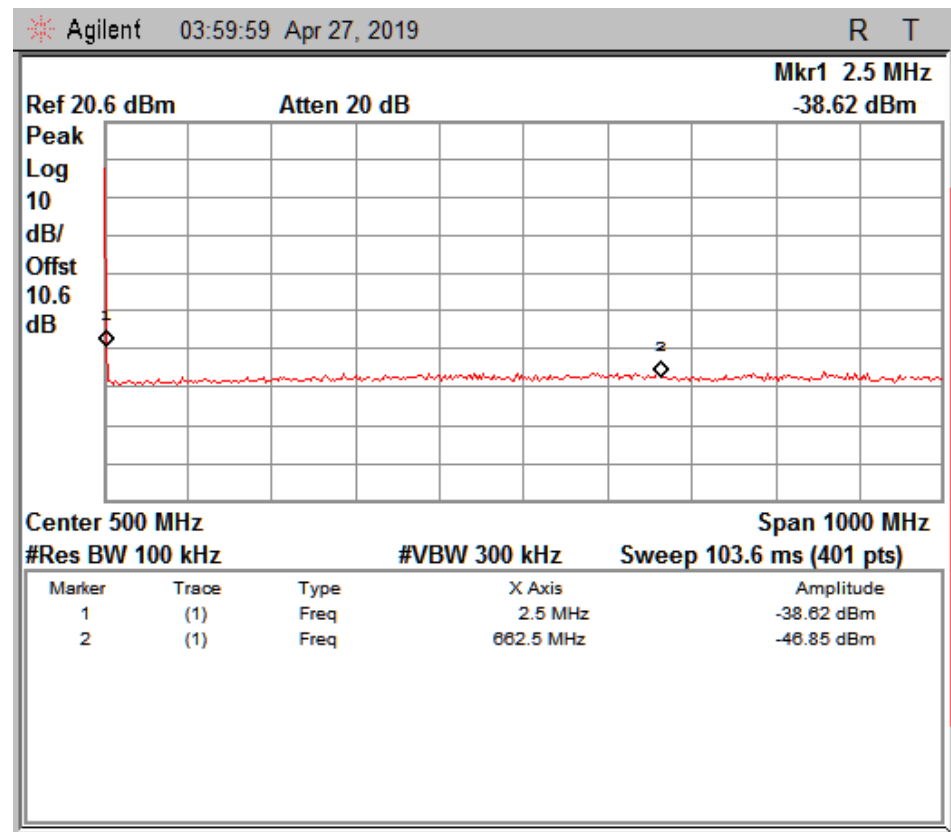
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11 Mbps Channel Low_1GHz-26.5GHz



11 Mbps Channel Mid_9kHz-1GHz

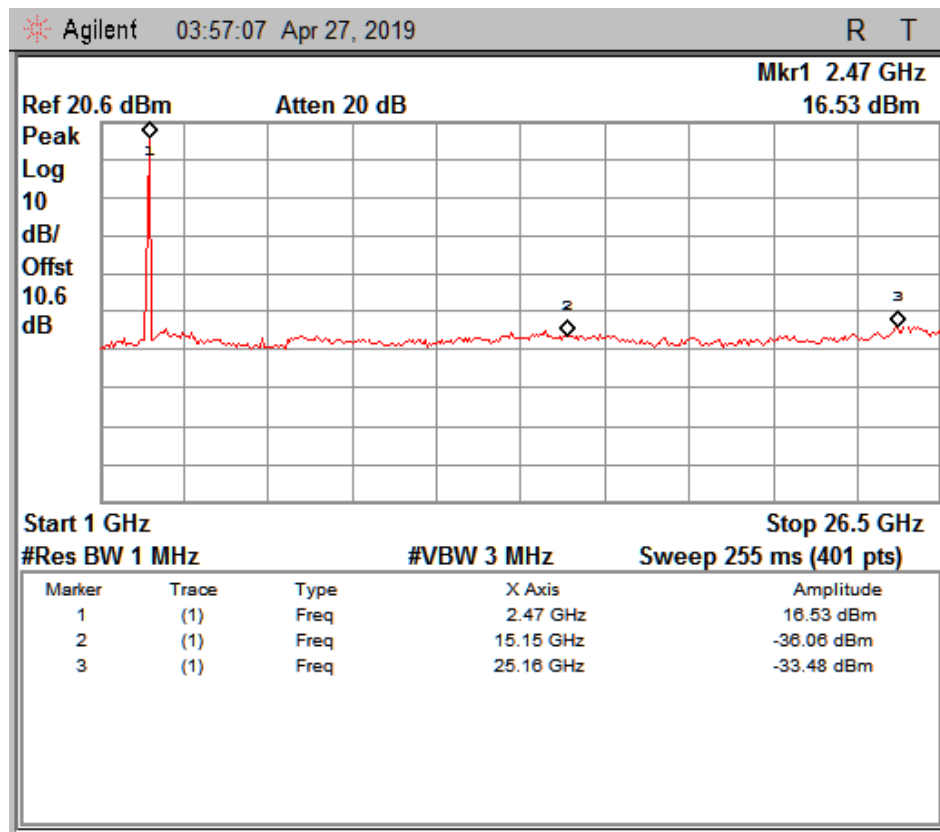
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Test Report No.:

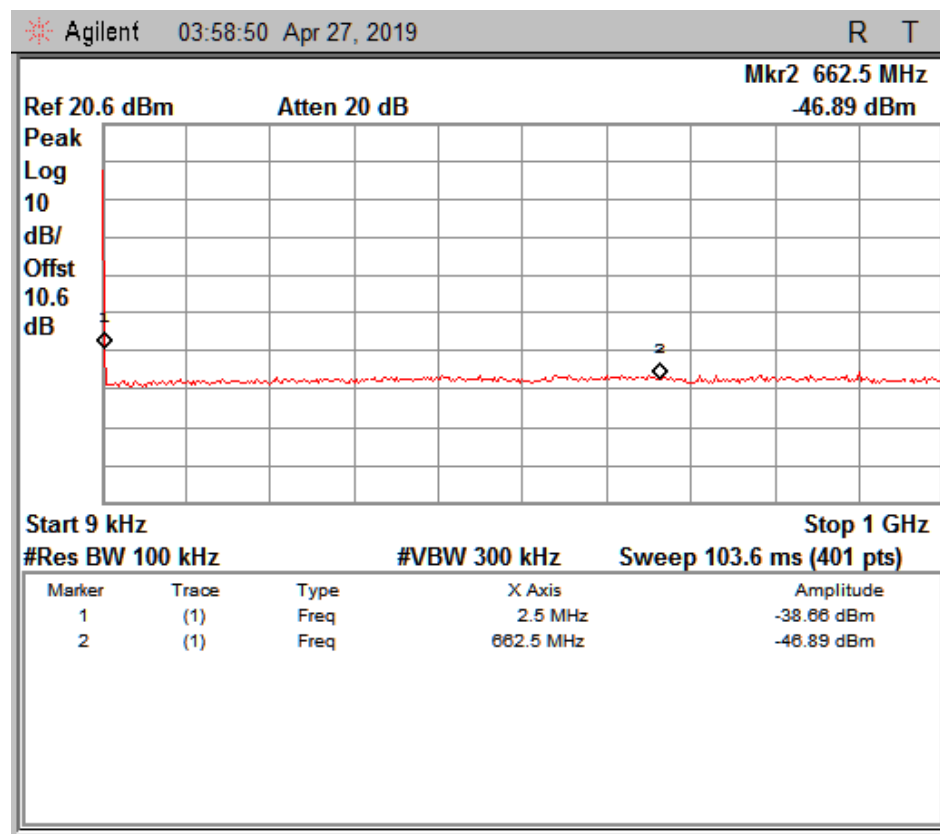
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11 Mbps Channel Mid_1GHz-26.5GHz



11 Mbps Channel High_9kHz-1GHz

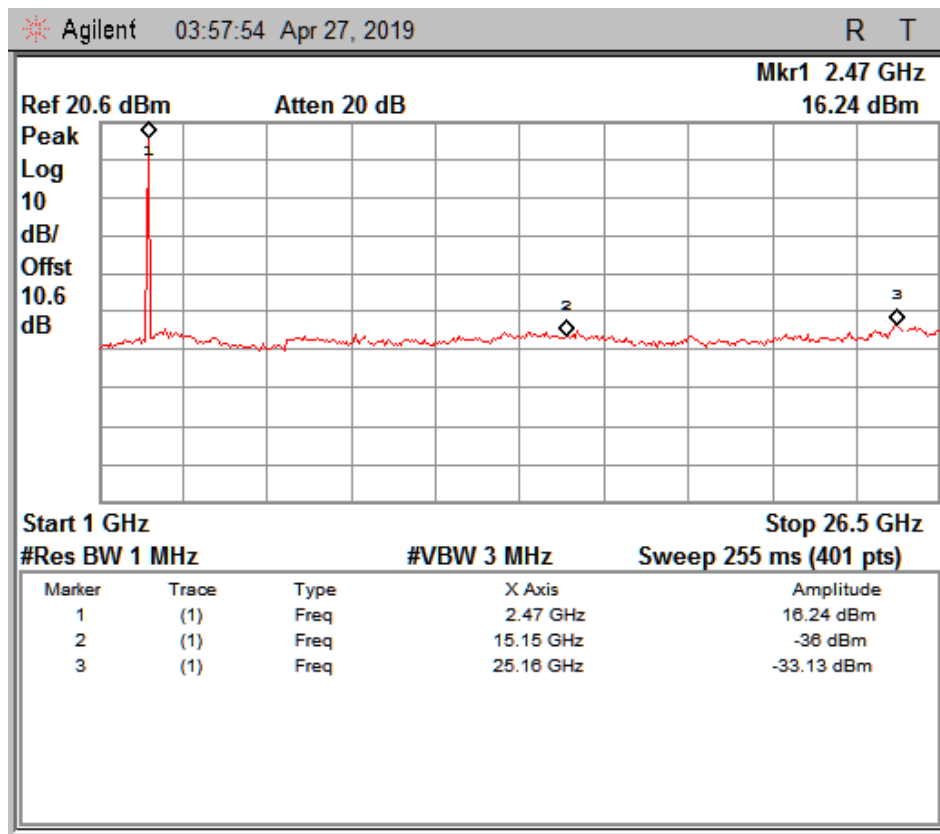
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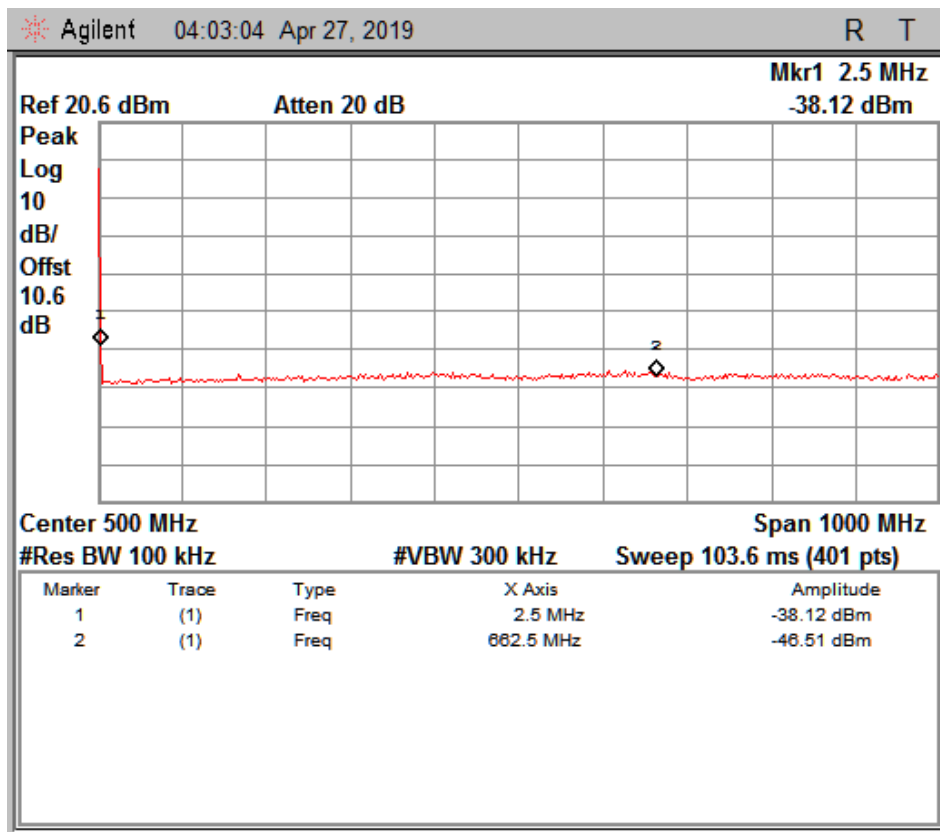
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11 Mbps Channel High_1GHz-26.5GHz



6 Mbps Channel Low_9kHz-1GHz

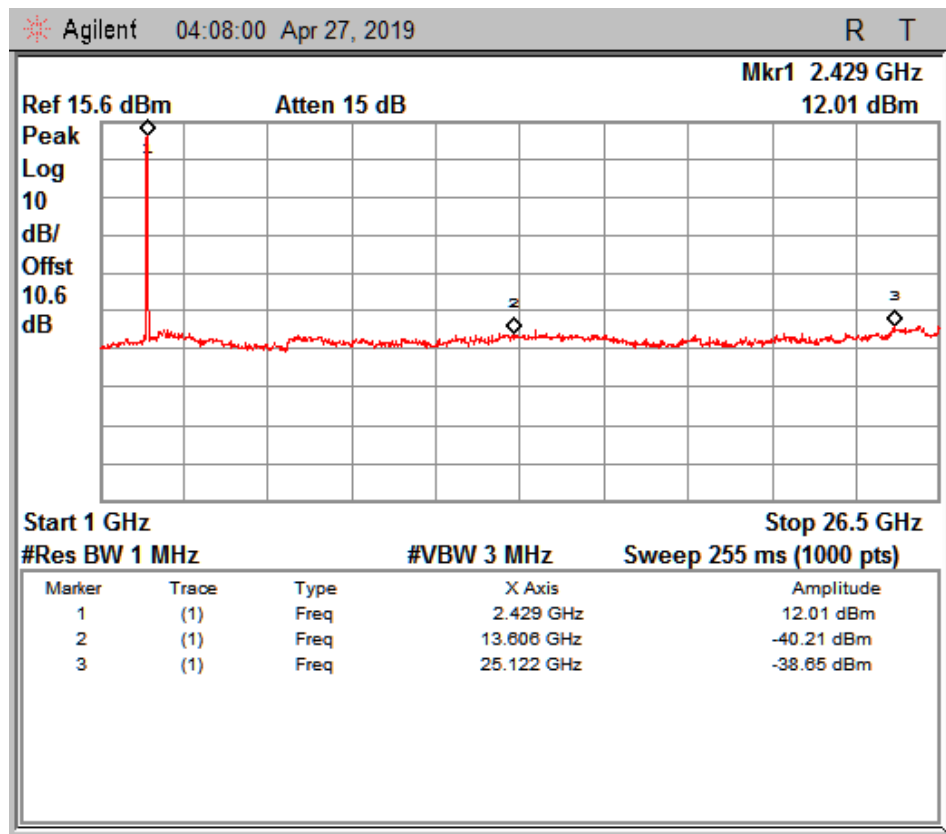
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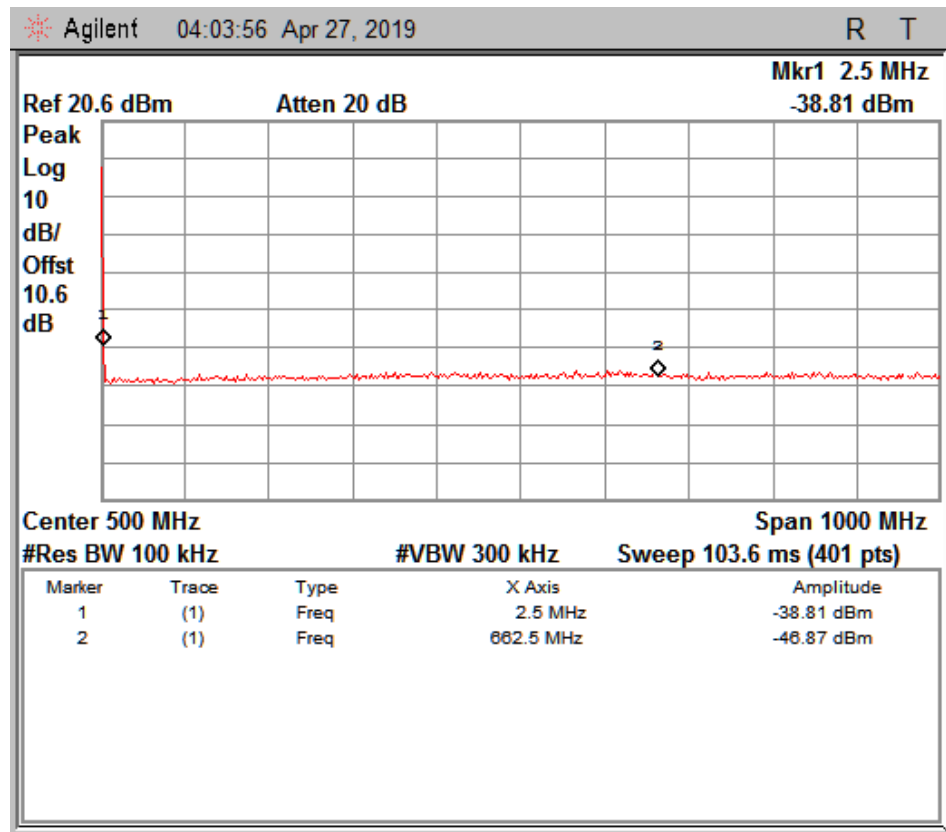
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6 Mbps Channel Low_1GHz-26.5GHz



6 Mbps Channel Mid_9kHz-1GHz

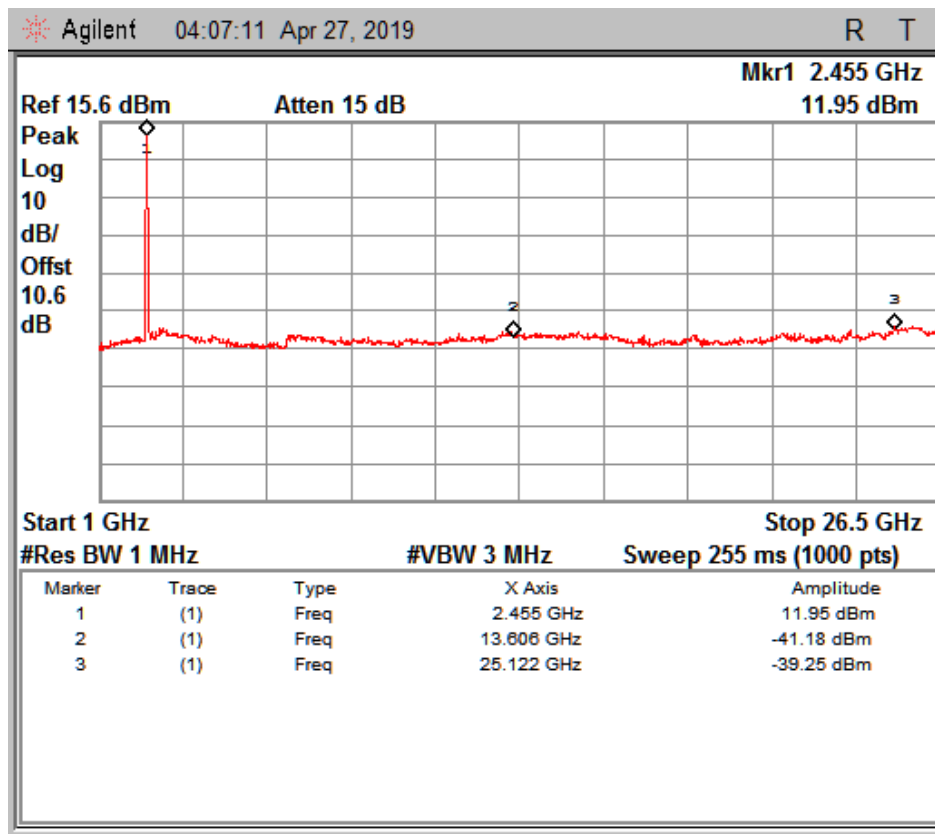
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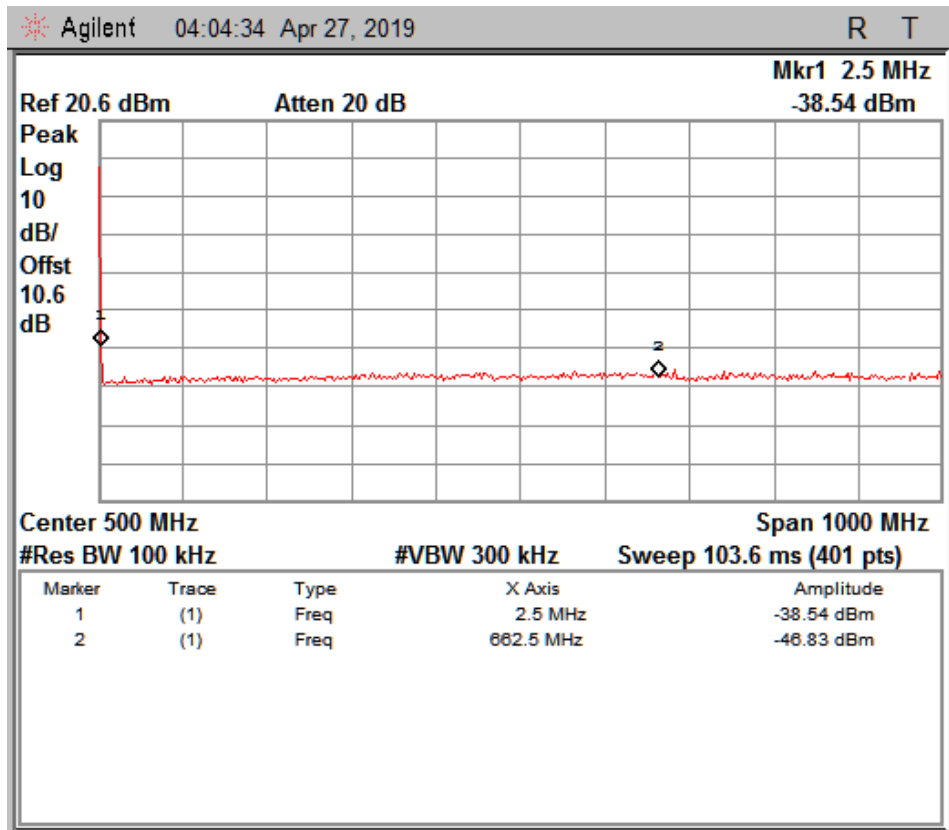
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6 Mbps Channel Mid_1GHz-26.5GHz



6 Mbps Channel High_9kHz-1GHz

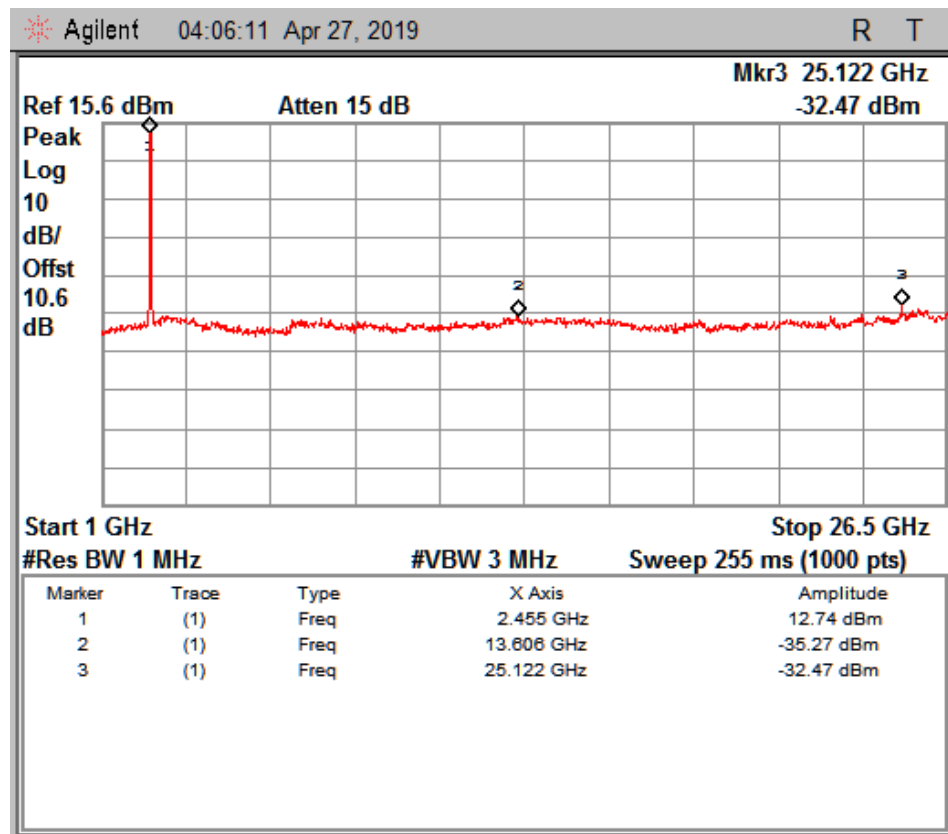
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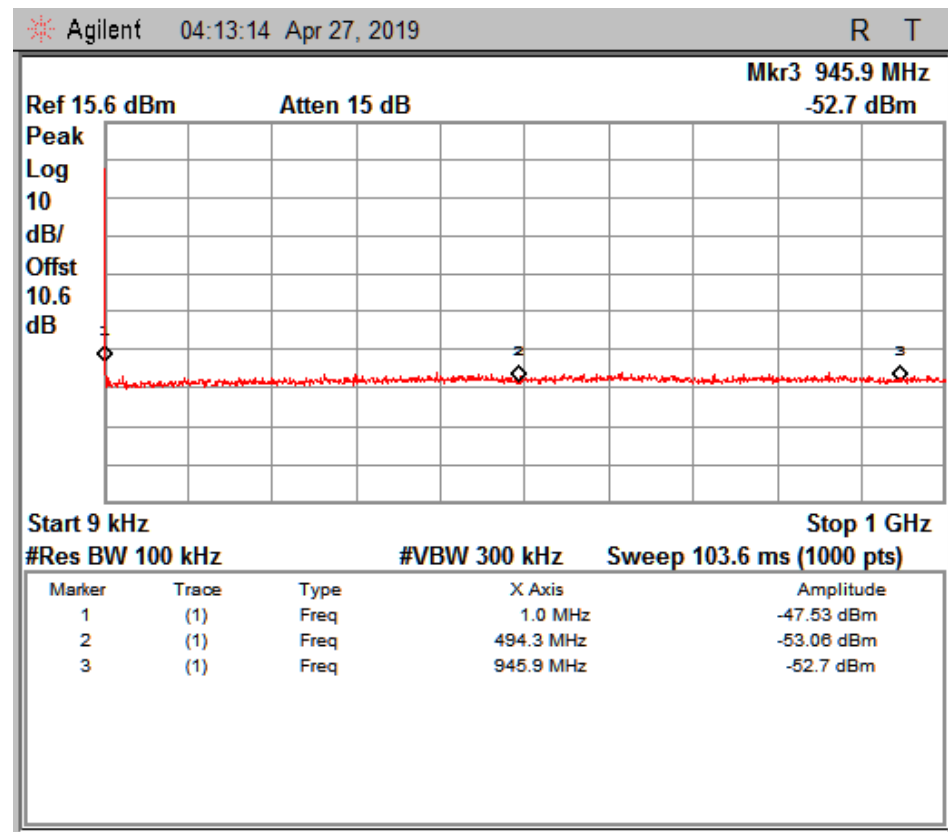
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6 Mbps Channel High_1GHz-26.5GHz



24 Mbps Channel Low_9kHz-1GHz

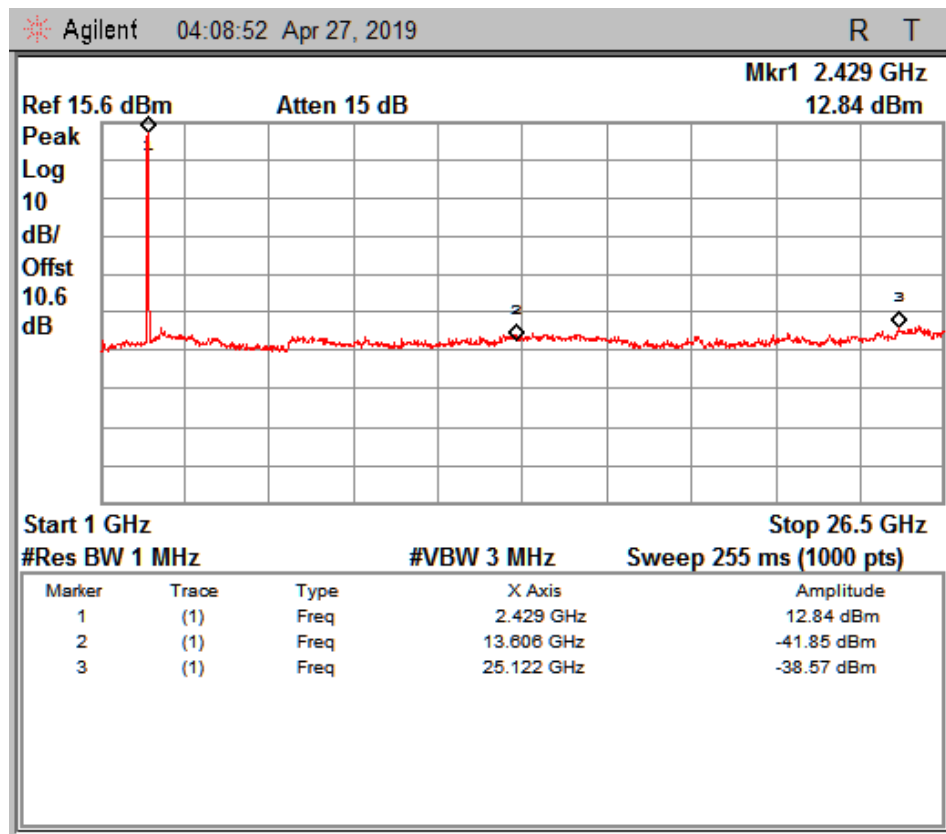
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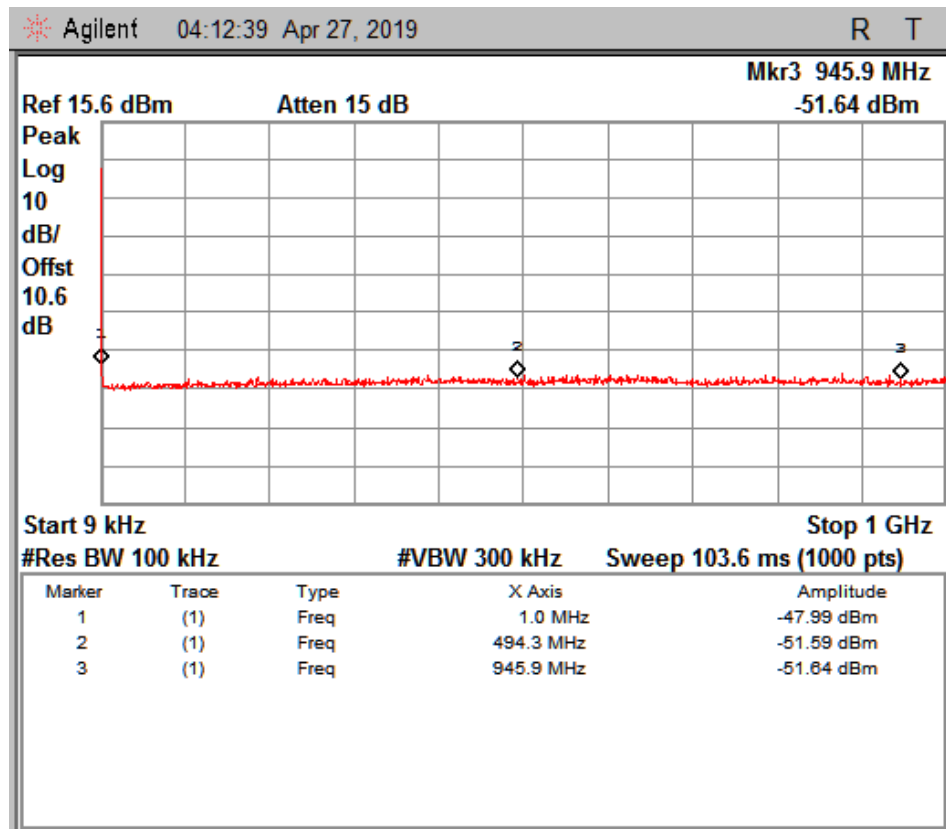
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24 Mbps Channel Low_1GHz-26.5GHz



24 Mbps Channel Mid_9kHz-1GHz

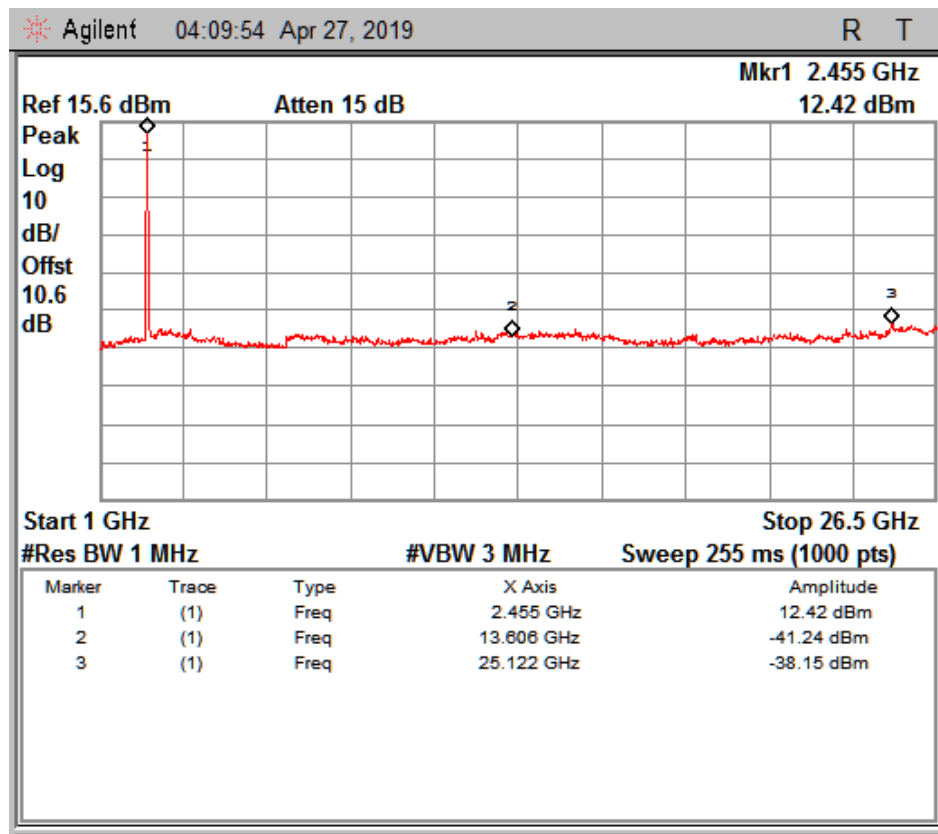
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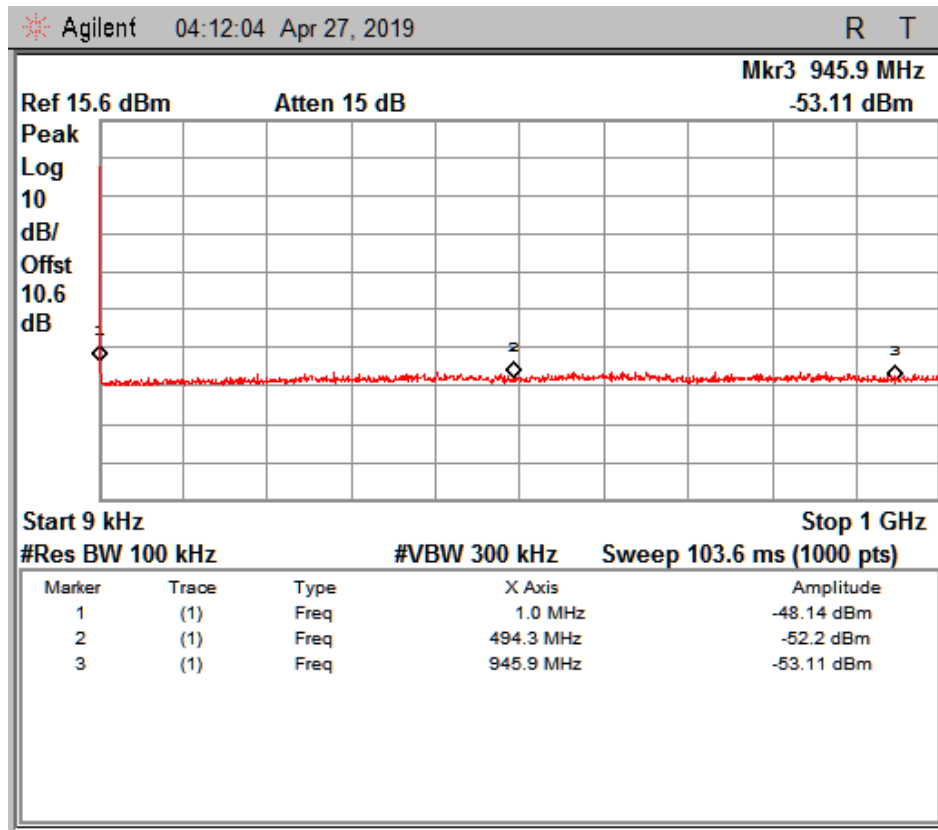
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24 Mbps Channel Mid_1GHz-26.5GHz



24 Mbps Channel High_9kHz-1GHz

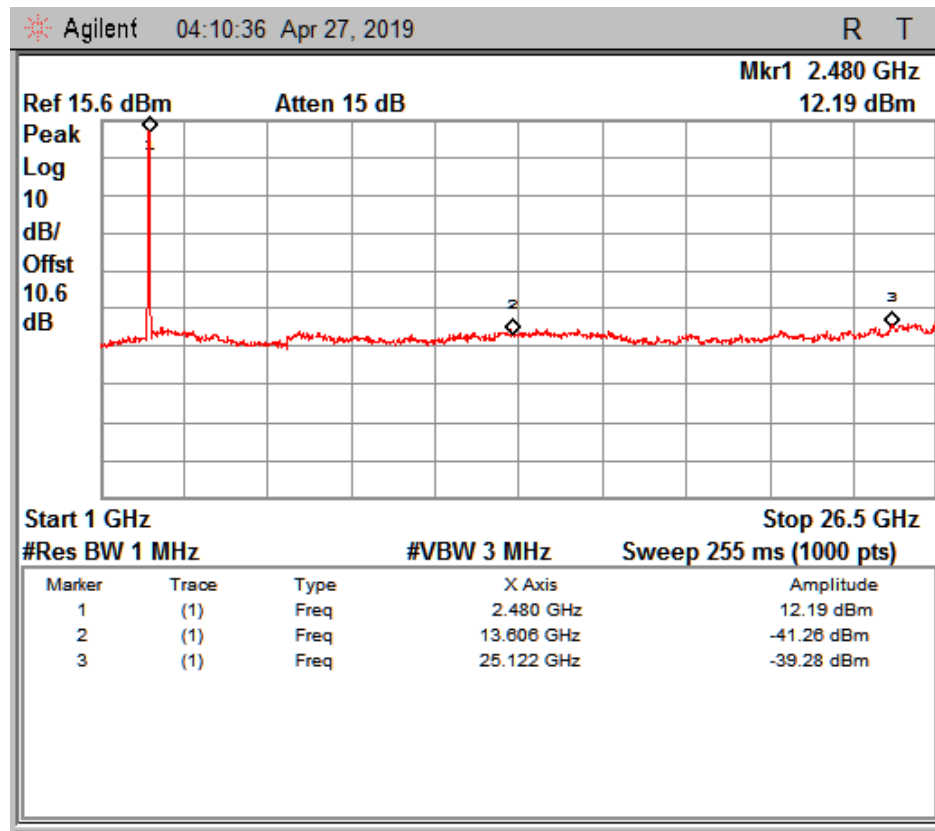
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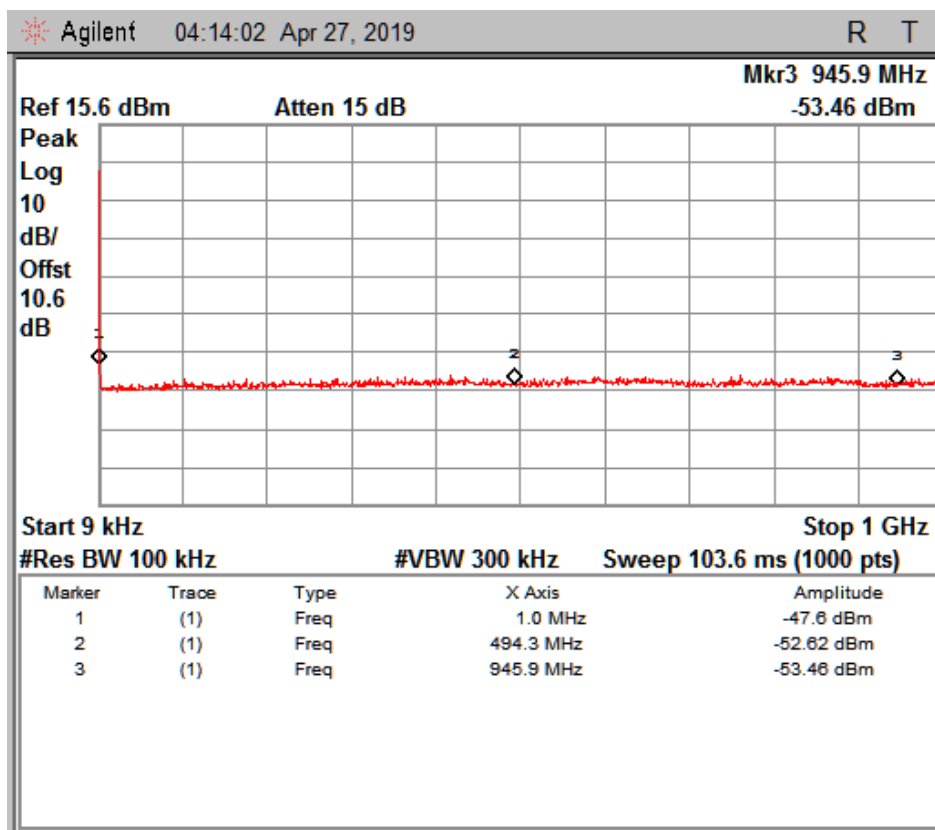
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24 Mbps Channel High_1GHz-26.5GHz



54 Mbps Channel Low_9kHz-1GHz

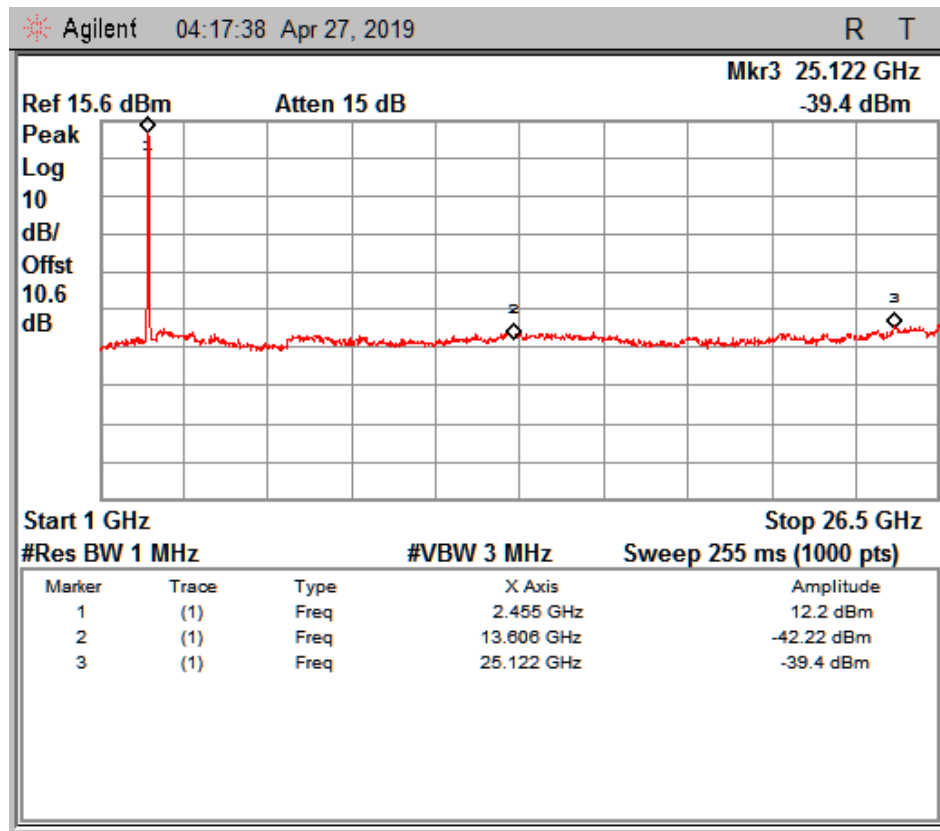
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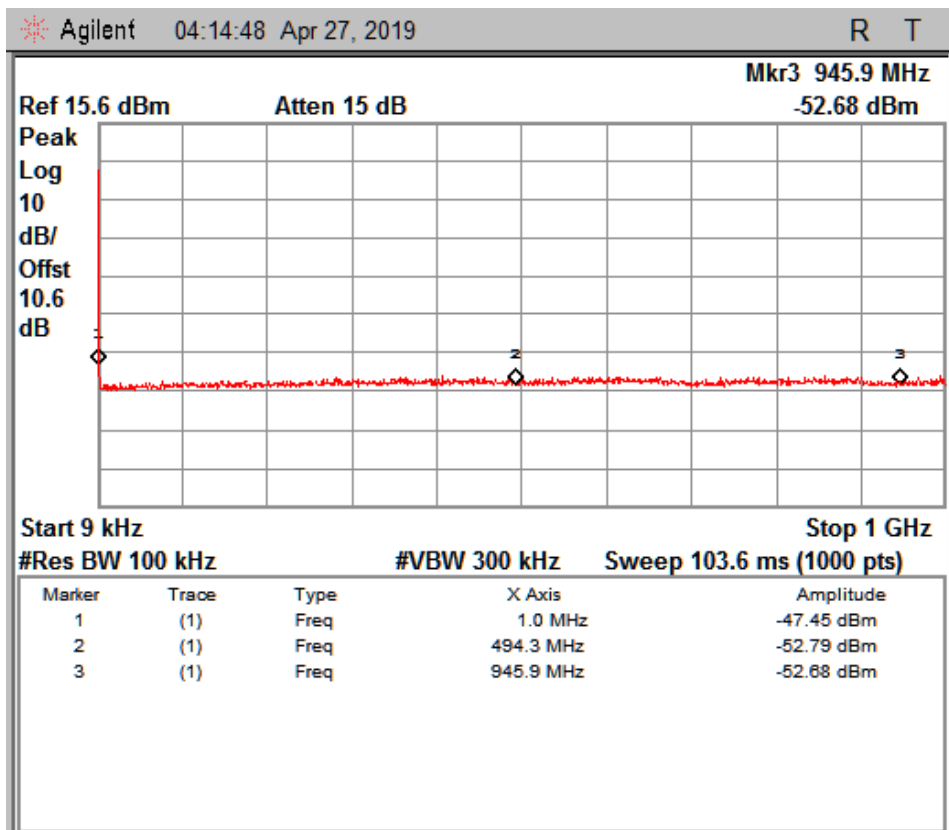
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54 Mbps Channel Low_1GHz-26.5GHz



54 Mbps Channel Mid_9kHz-1GHz

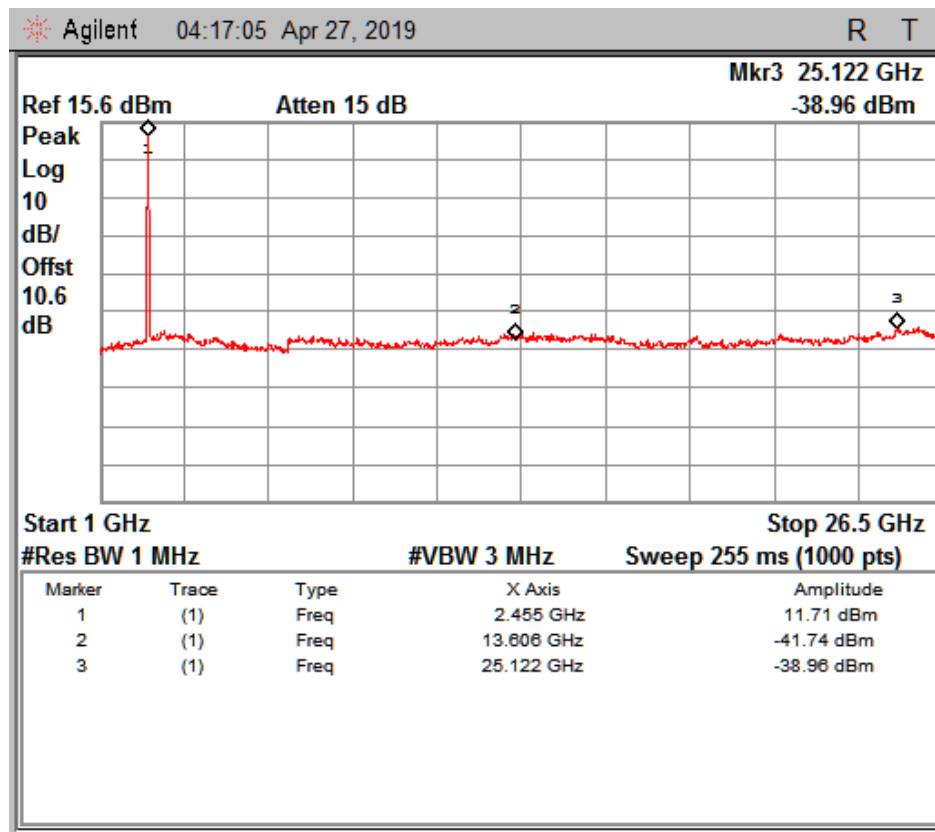
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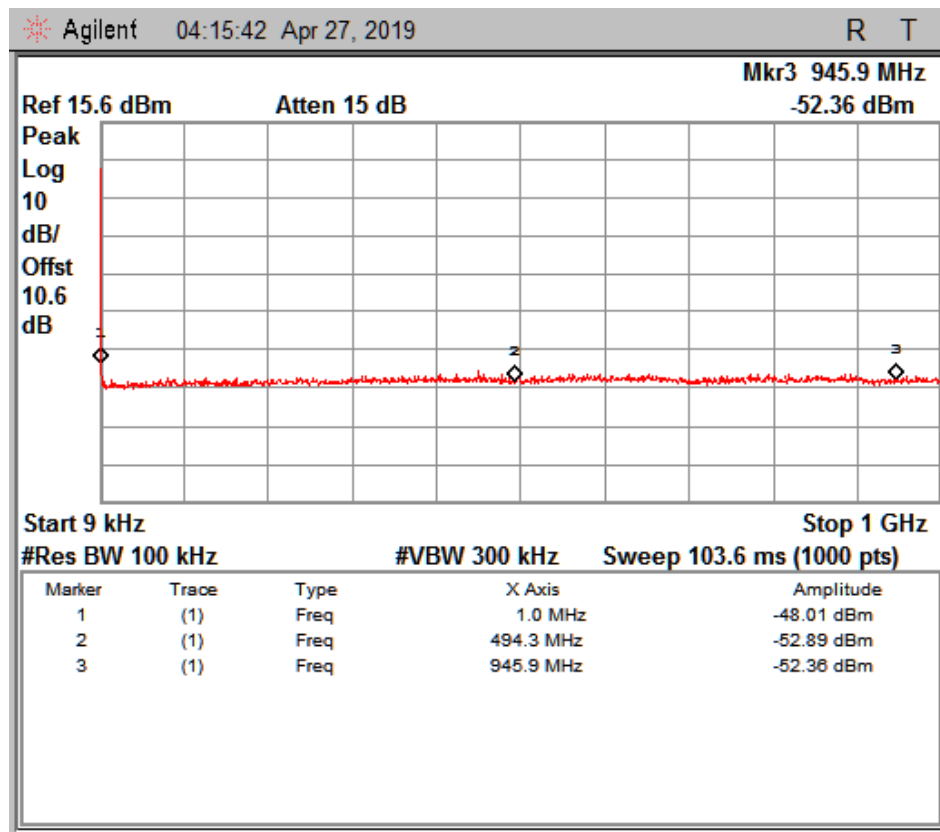
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54 Mbps Channel Mid_1GHz-26.5GHz



54 Mbps Channel High_9kHz-1GHz

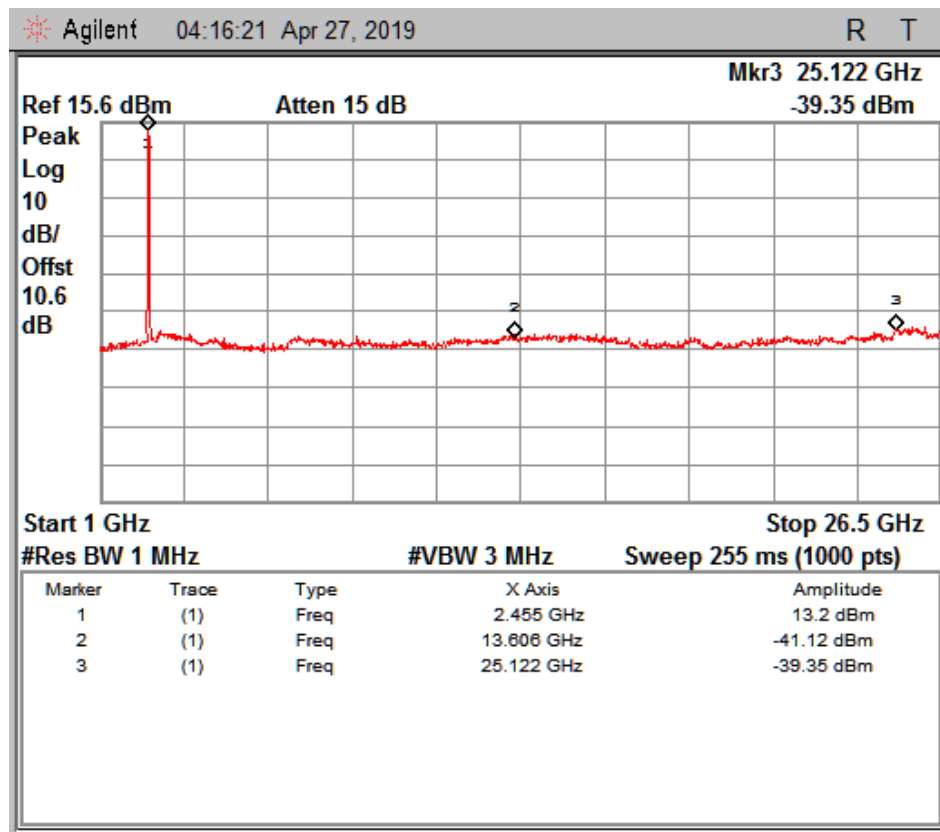
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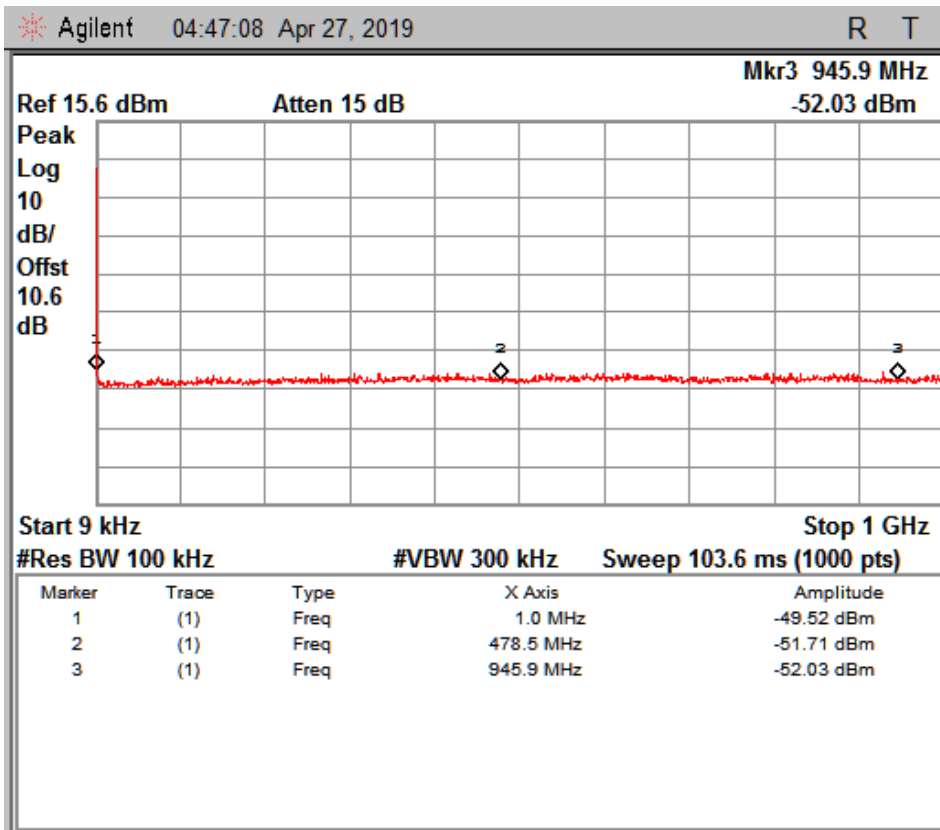
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54 Mbps Channel High_1GHz-26.5GHz



MCS8 Channel Low_9kHz-1GHz

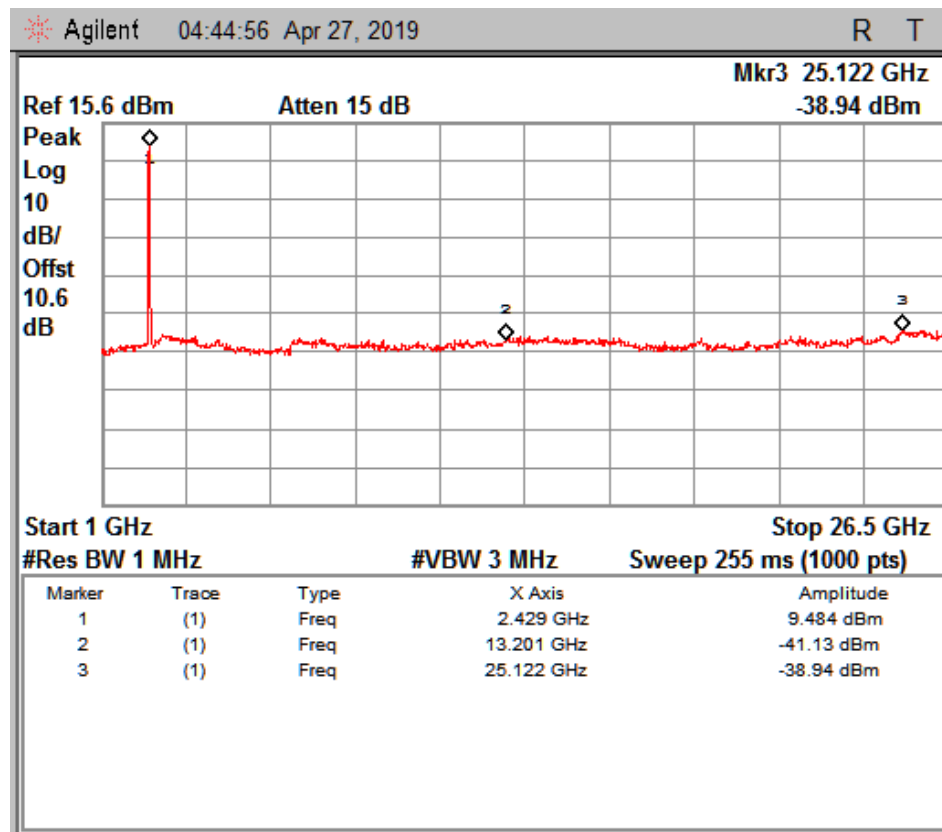
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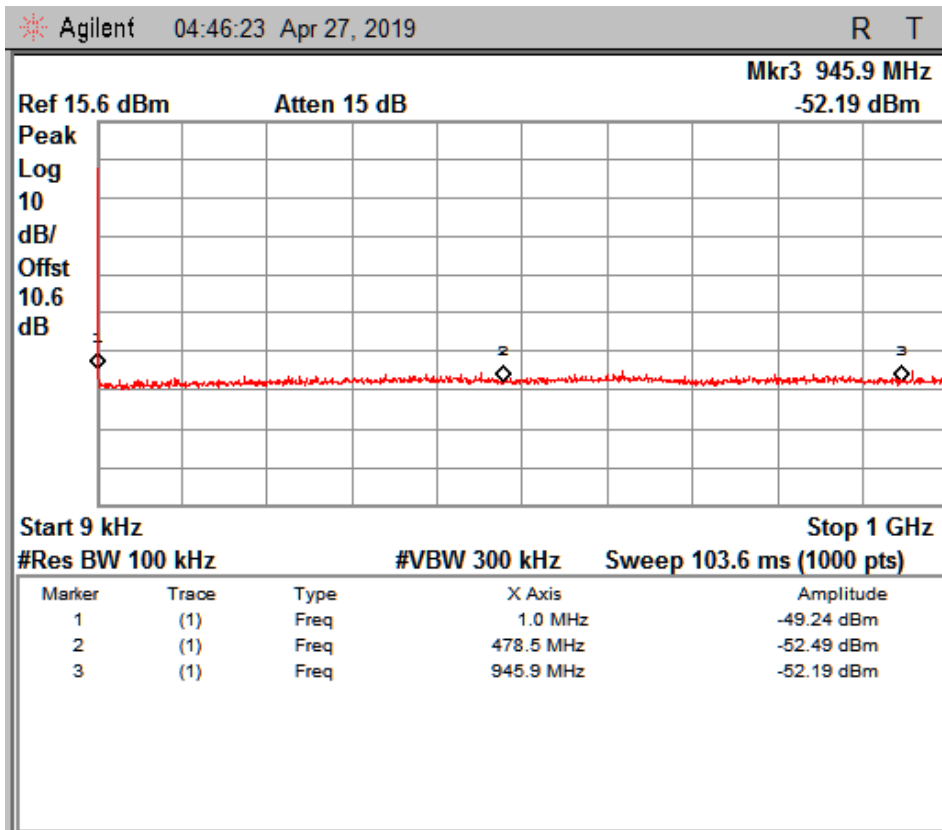
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MCS8 Channel Low_1GHz-26.5GHz



MCS8 Channel High_9kHz-1GHz

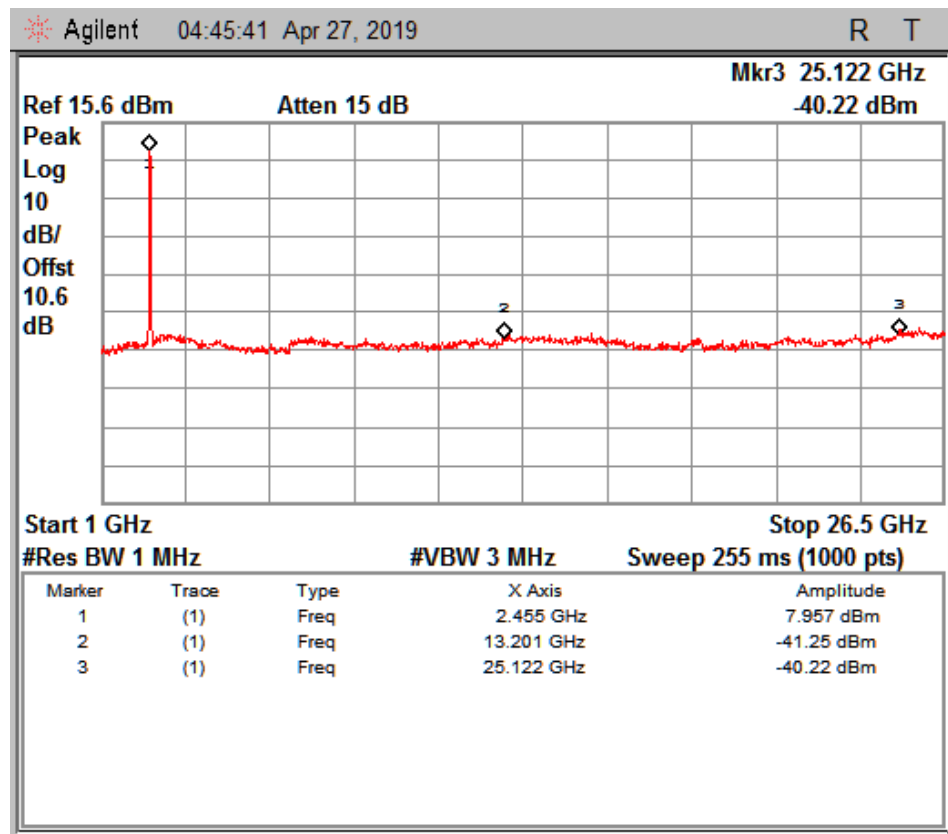
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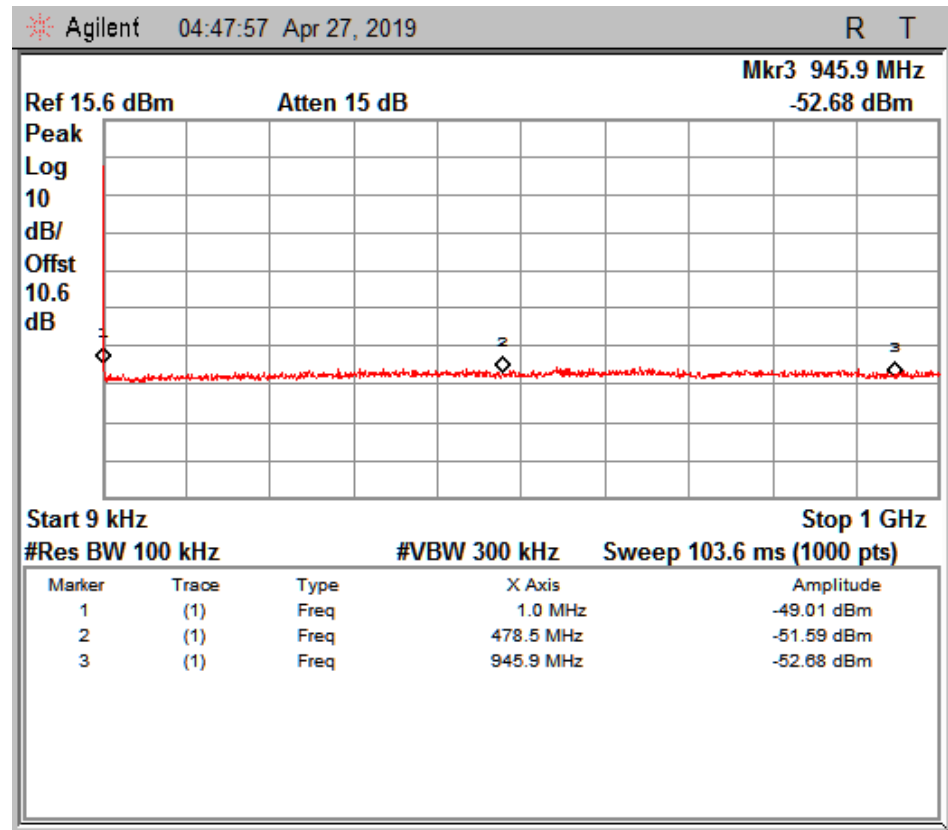
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MCS8 Channel High_1GHz-26.5GHz



MCS11 Channel Low_9kHz-1GHz

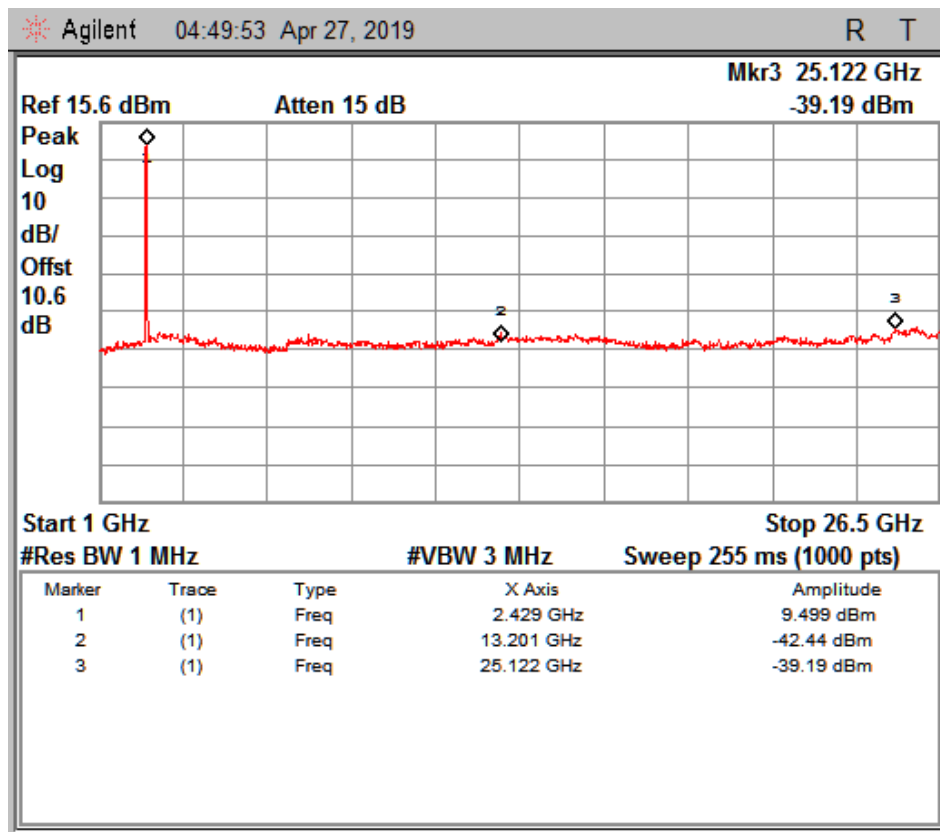
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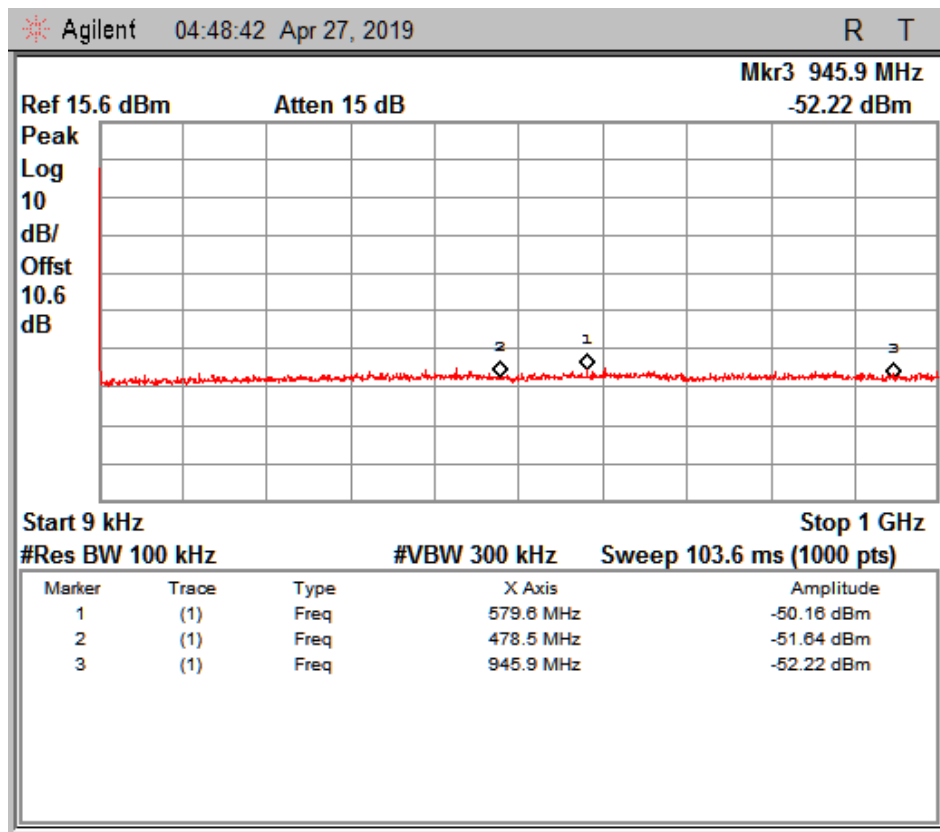
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MCS11 Channel Low_1GHz-26.5GHz



MCS11 Channel High_9kHz-1GHz

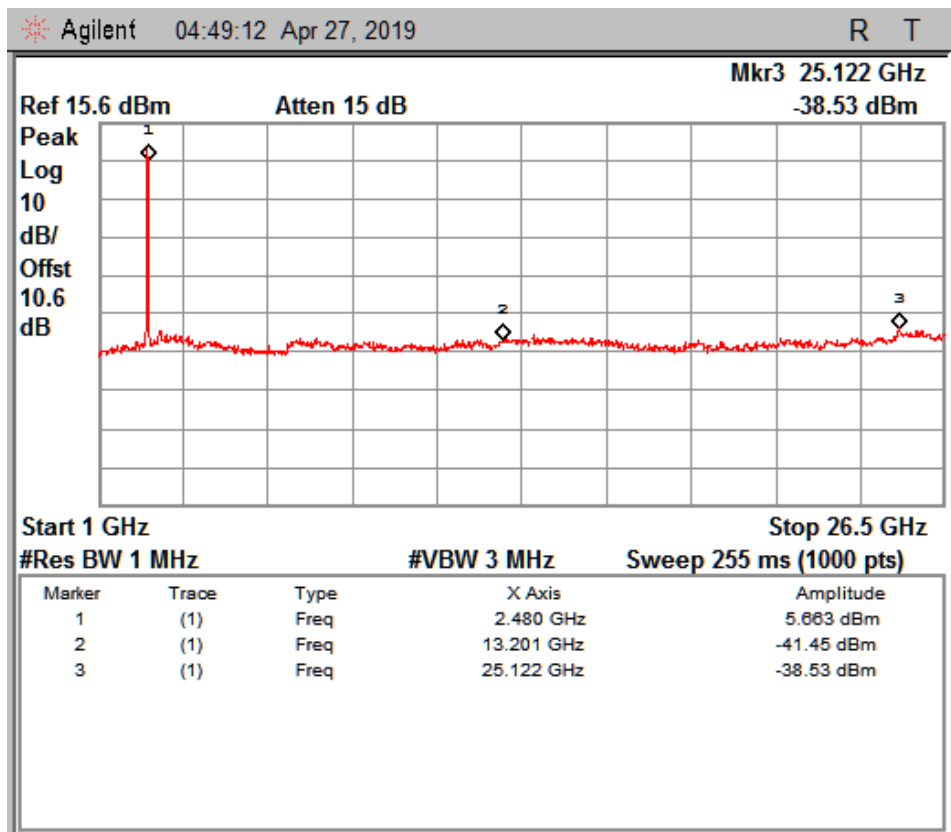
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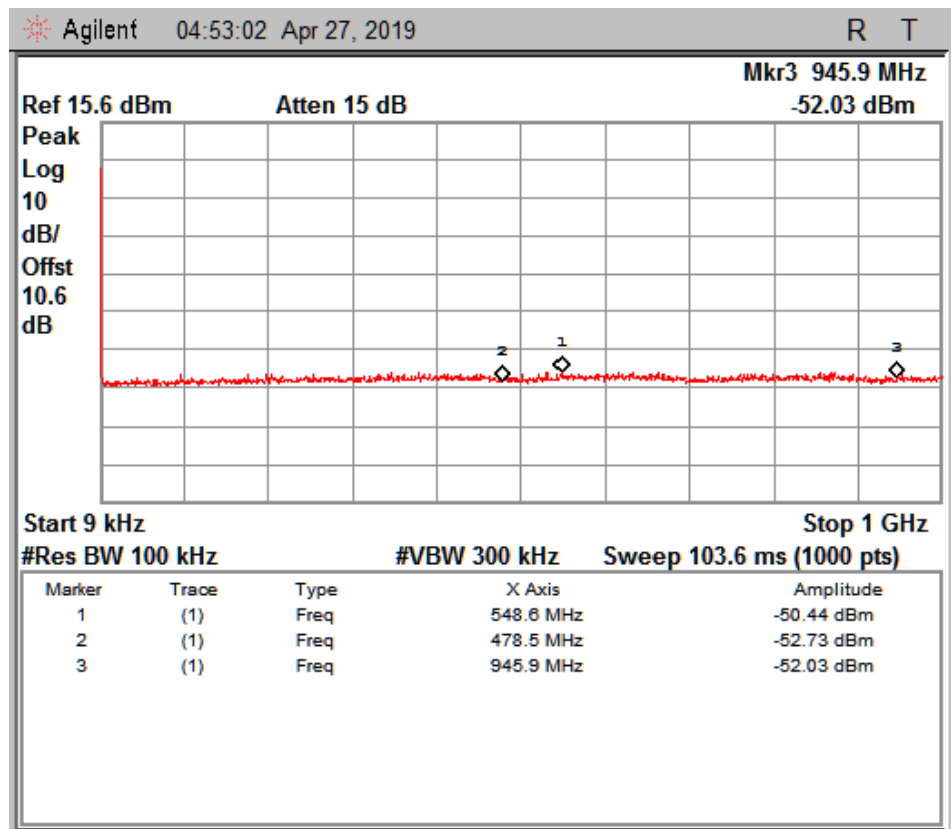
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MCS11 Channel High_1GHz-26.5GHz



MCS15 Channel Low_9kHz-1GHz

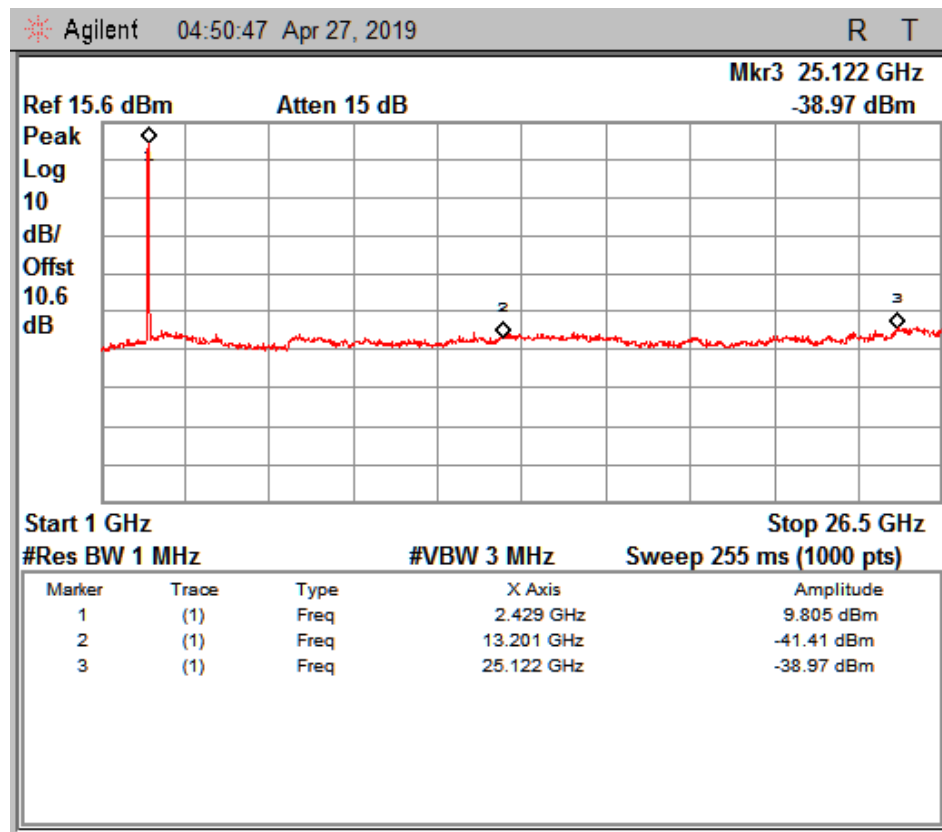
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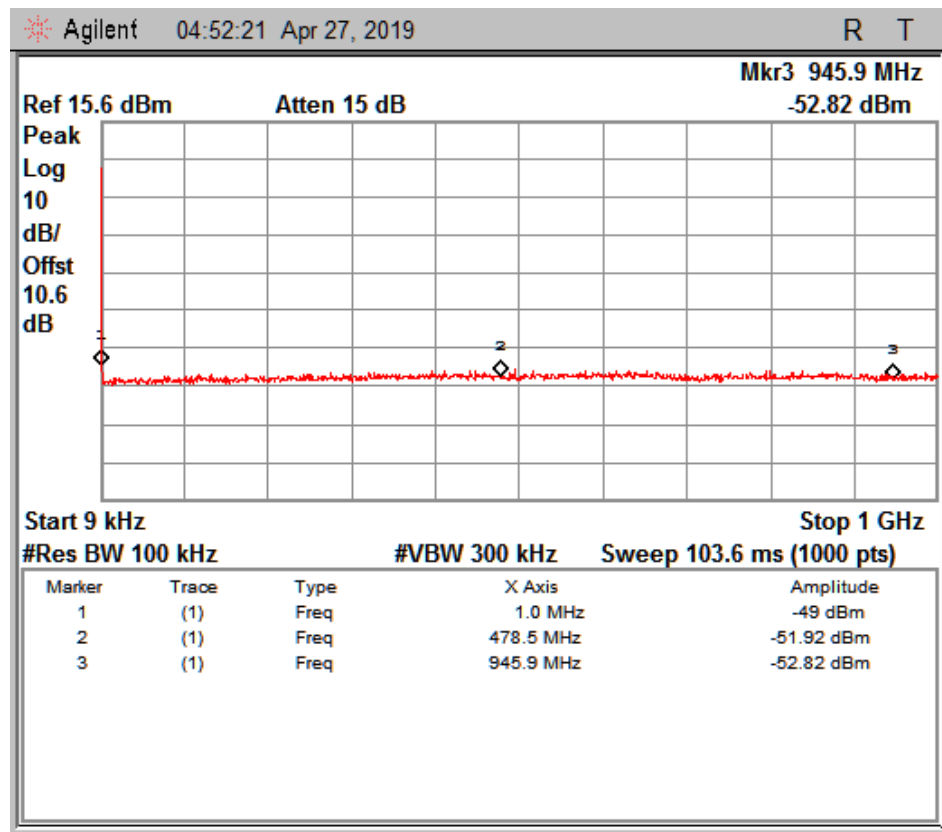
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MCS15 Channel Low_1GHz-26.5GHz



MCS15 Channel High_9kHz-1GHz

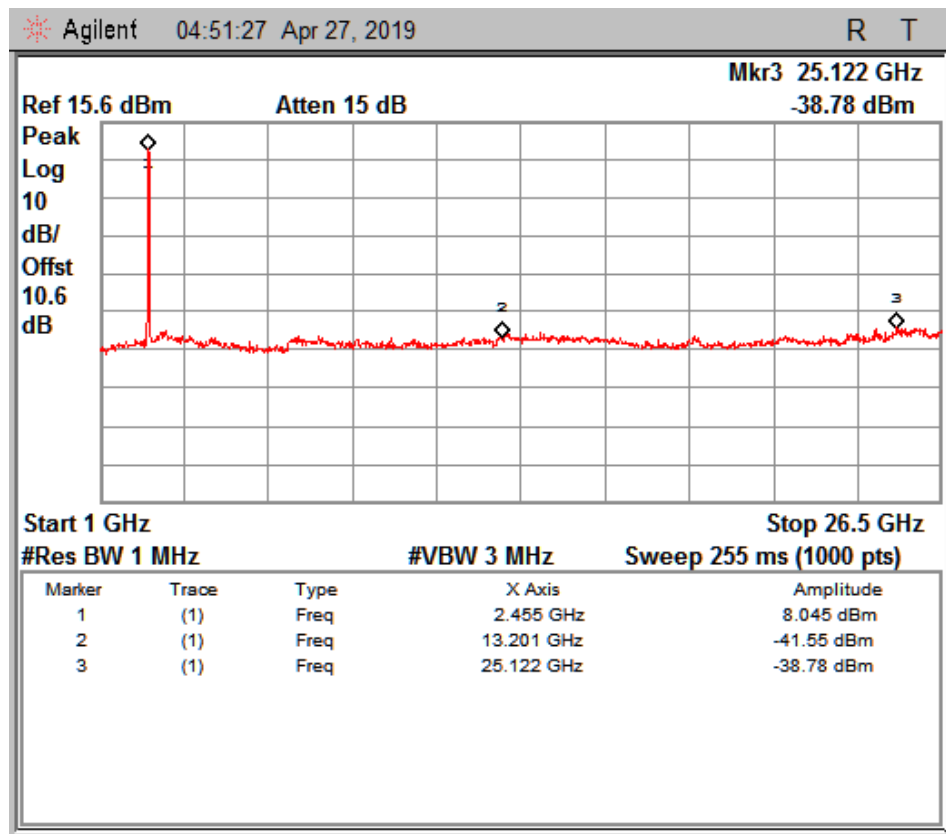
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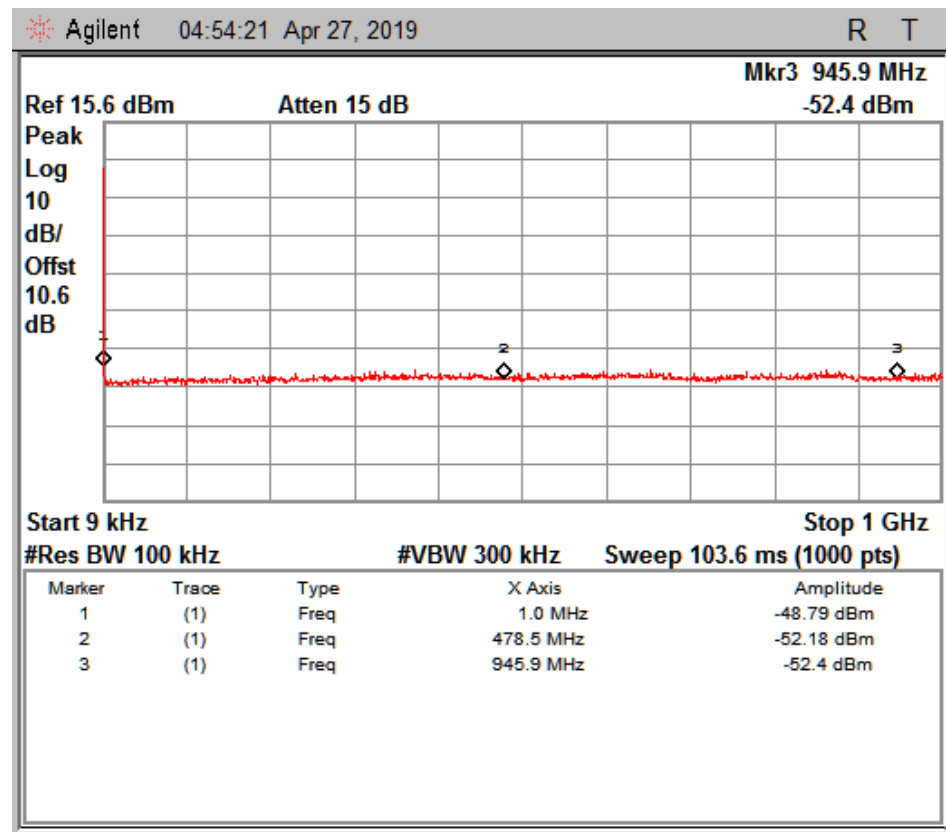
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MCS15 Channel High_1GHz-26.5GHz



MCS8 Channel Low_9kHz-1GHz

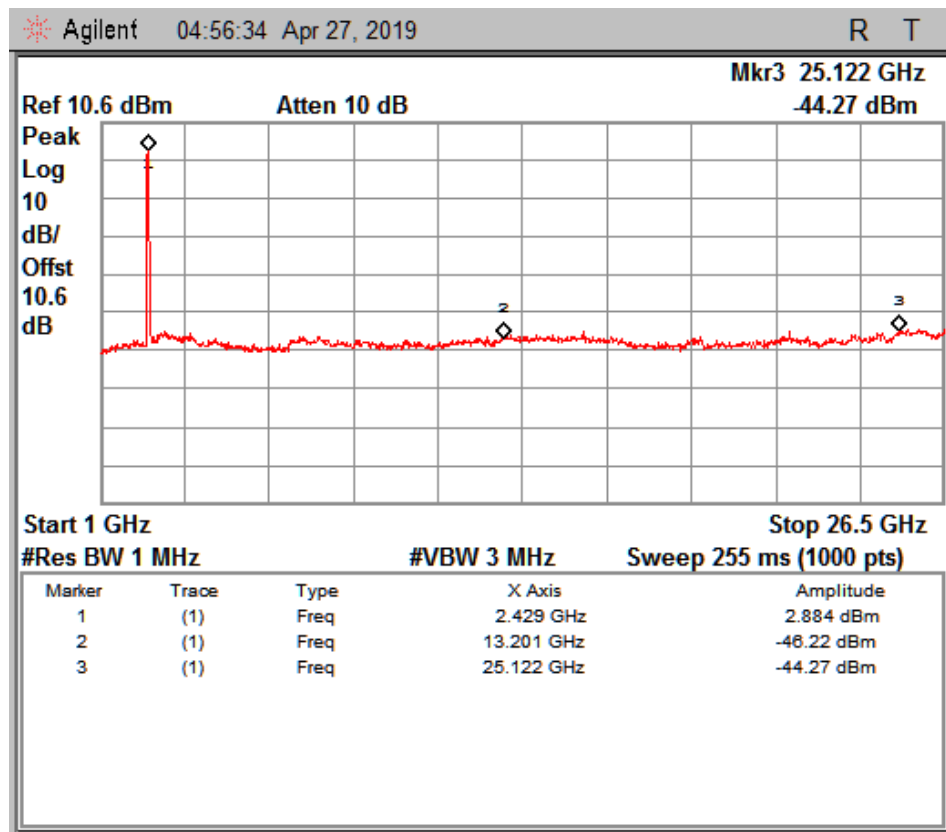
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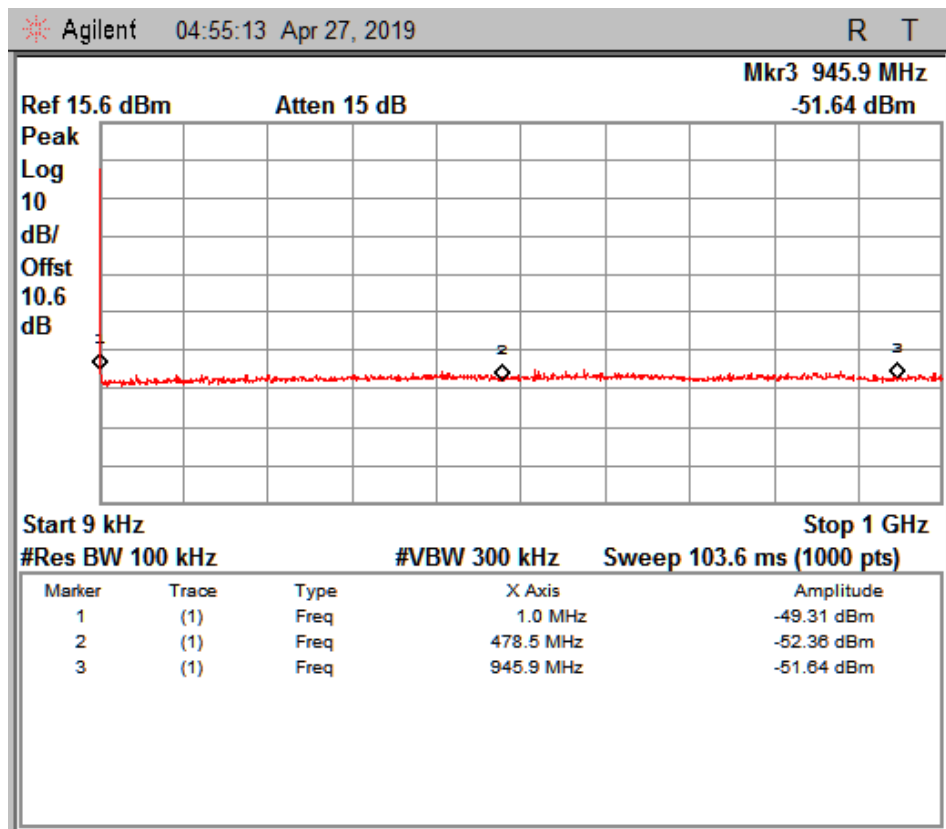
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MCS8 Channel Low_1GHz-26.5GHz



MCS8 Channel High_9kHz-1GHz

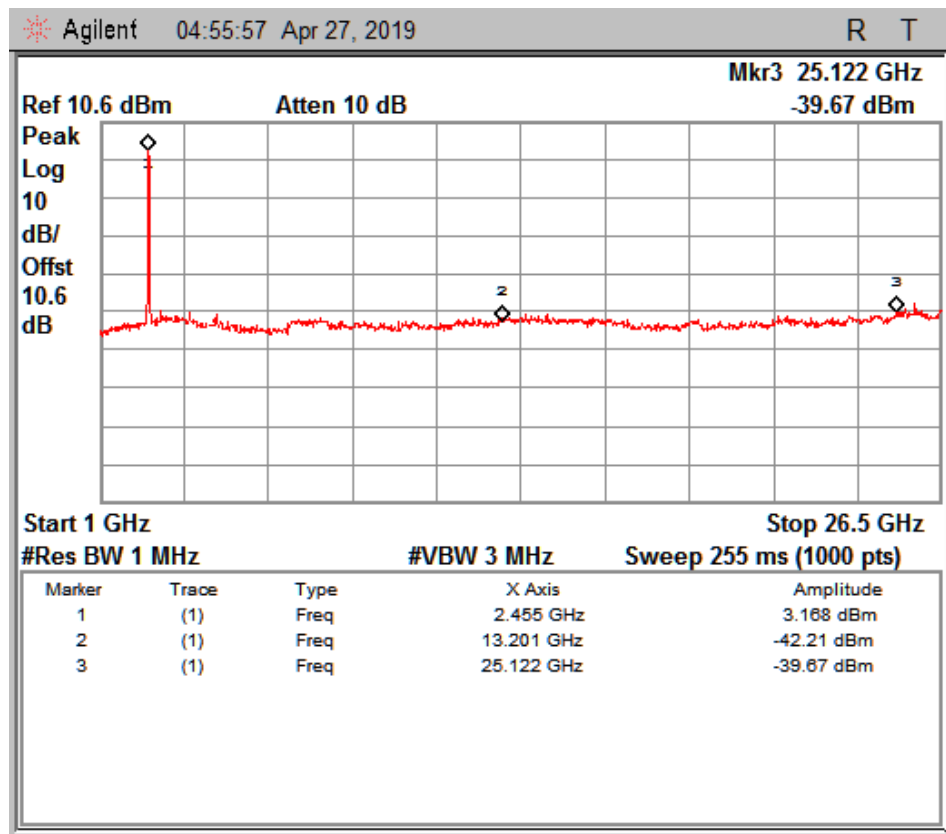
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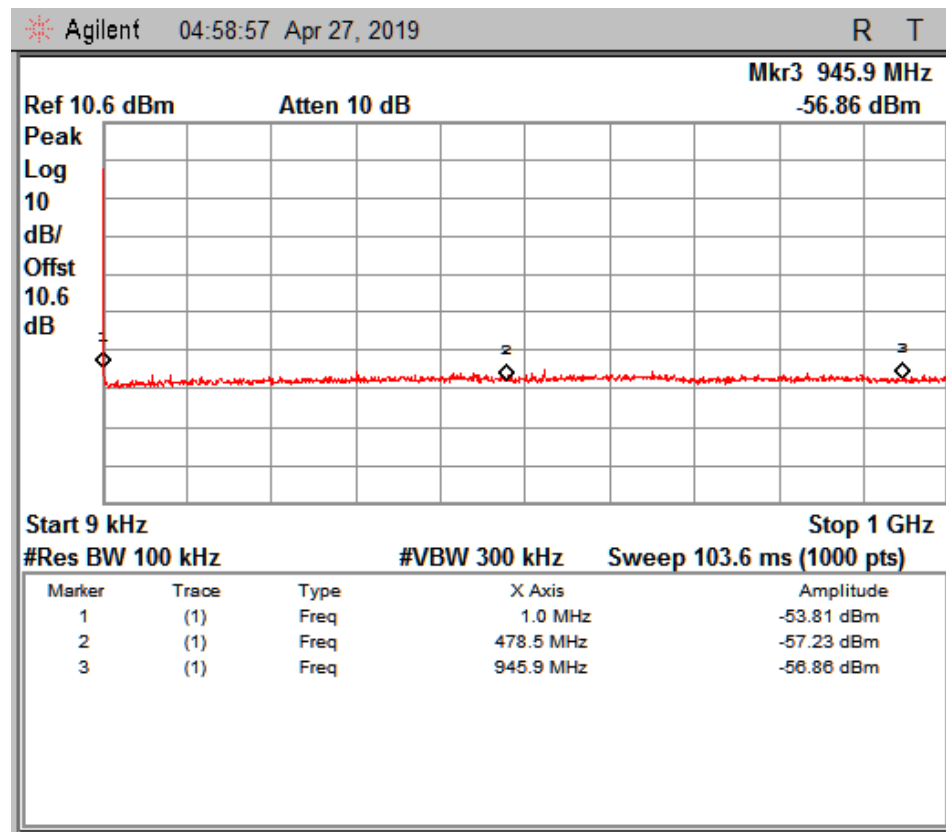
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MCS8 Channel High_1GHz-26.5GHz



MCS11 Channel Low_9kHz-1GHz

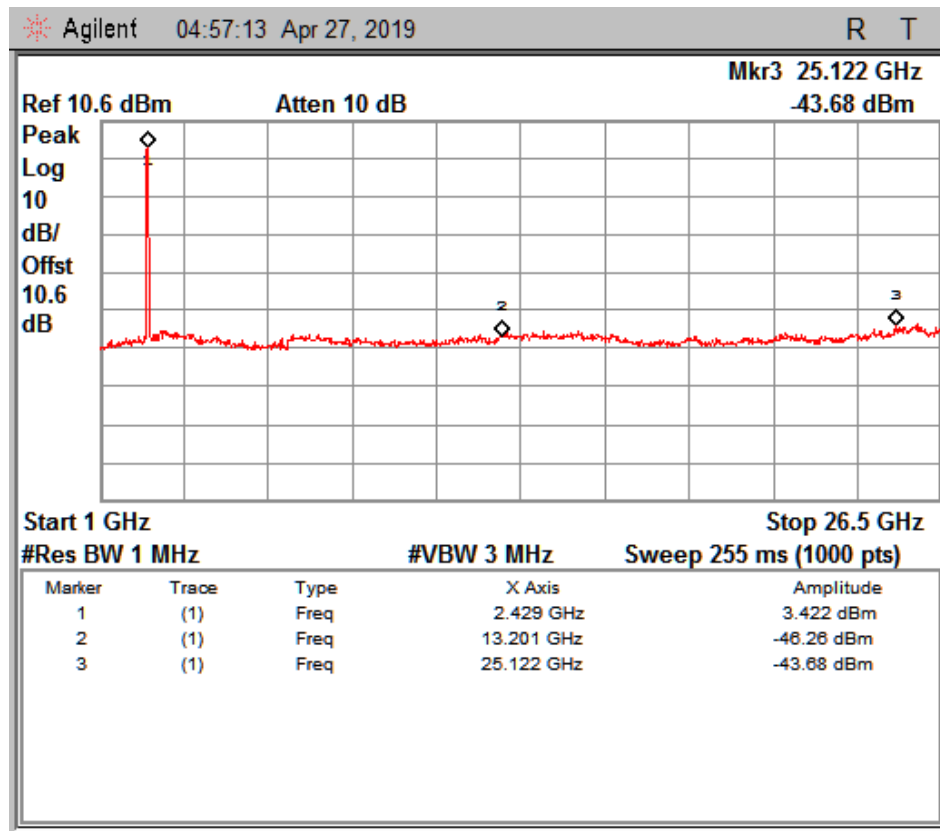
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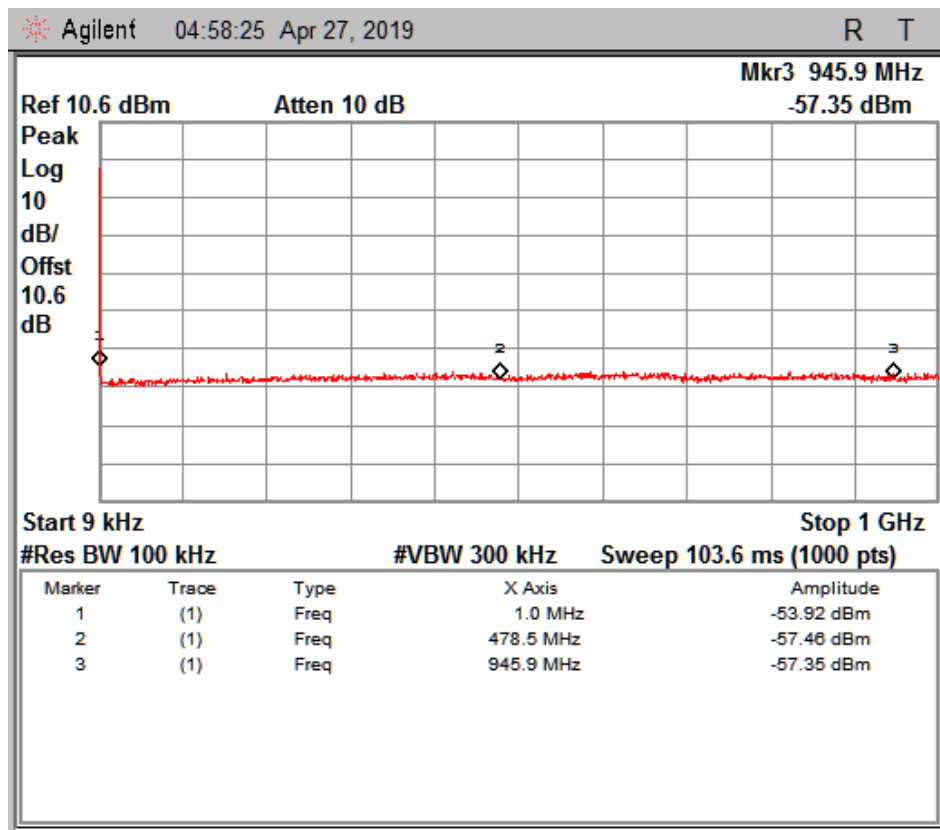
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MCS11 Channel Low_1GHz-26.5GHz



MCS11 Channel High_9kHz-1GHz

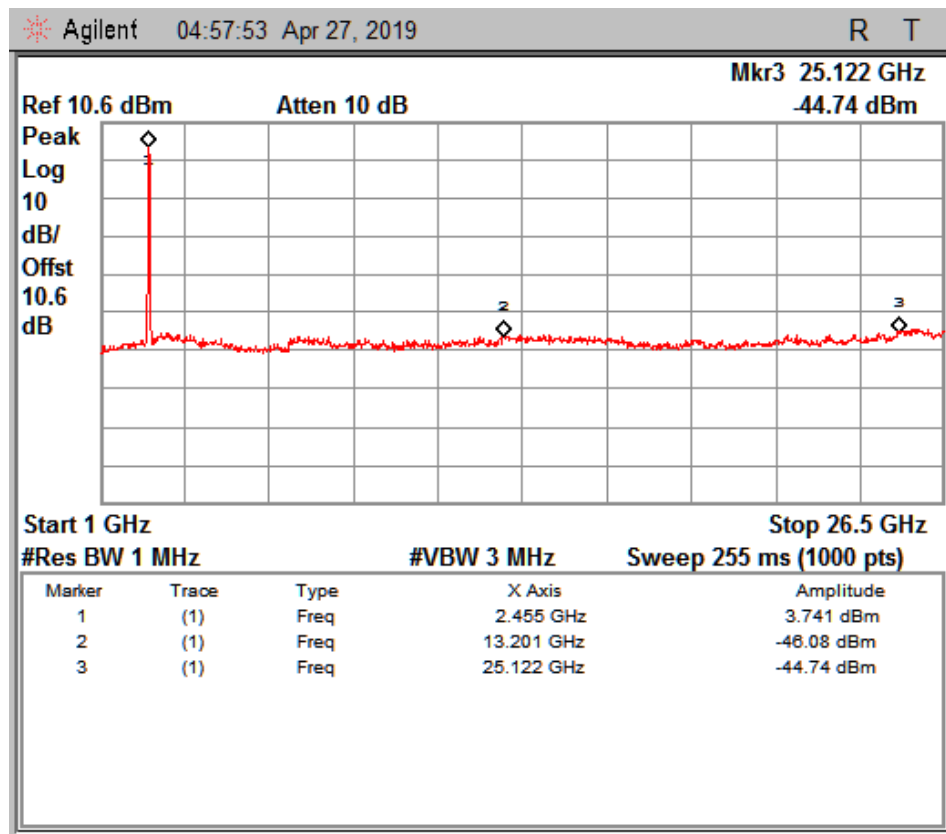
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Test Report No.:

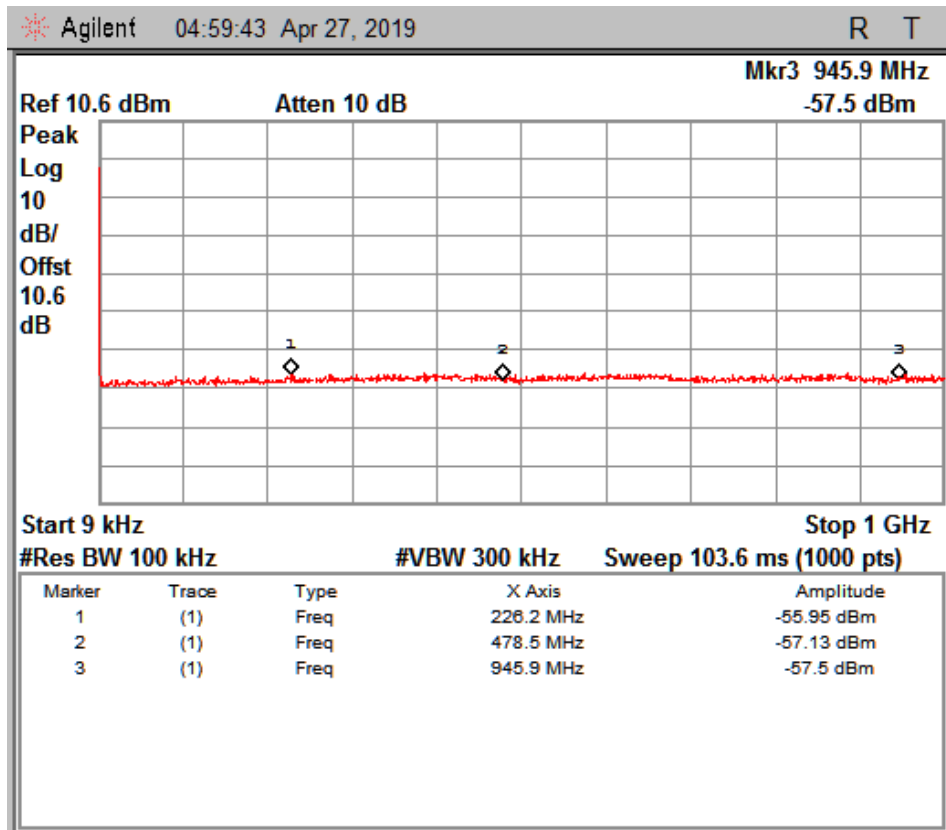
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MCS11 Channel High_1GHz-26.5GHz



MCS15 Channel Low_9kHz-1GHz

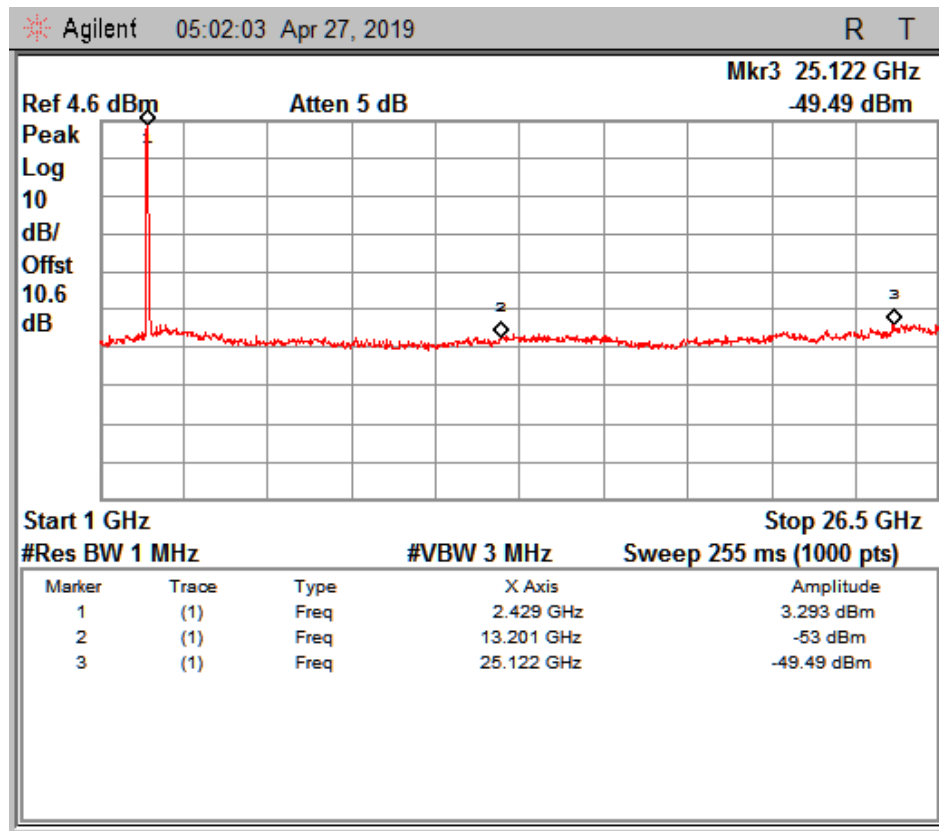
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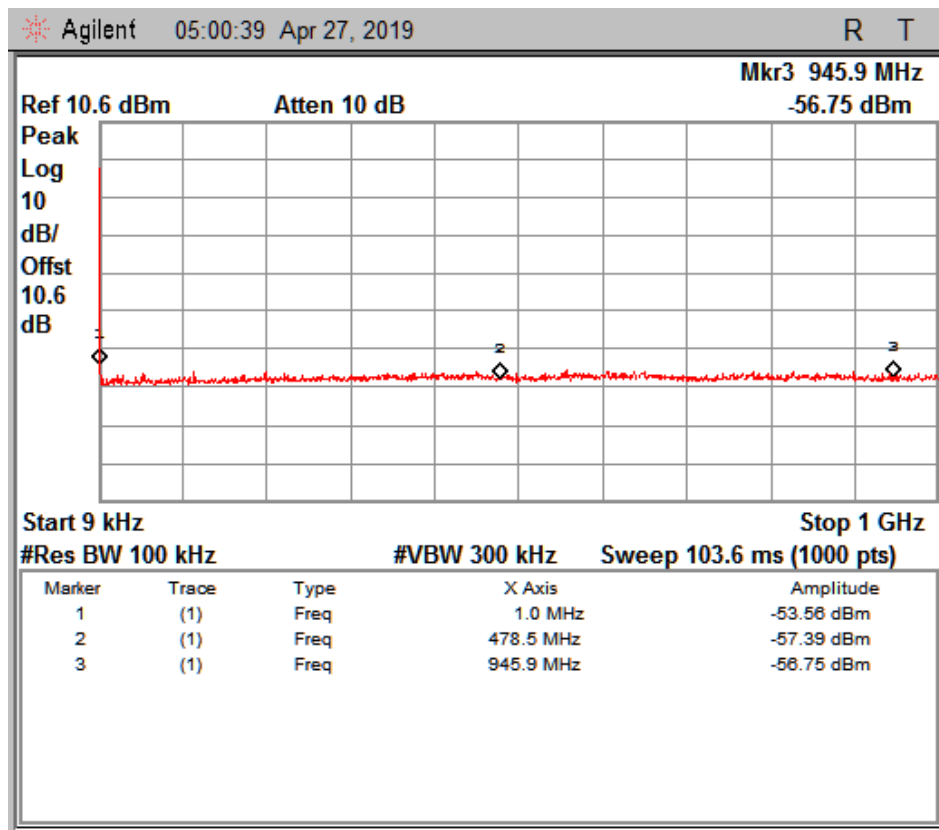
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MCS15 Channel Low_1GHz-26.5GHz



MCS15 Channel High_9kHz-1GHz

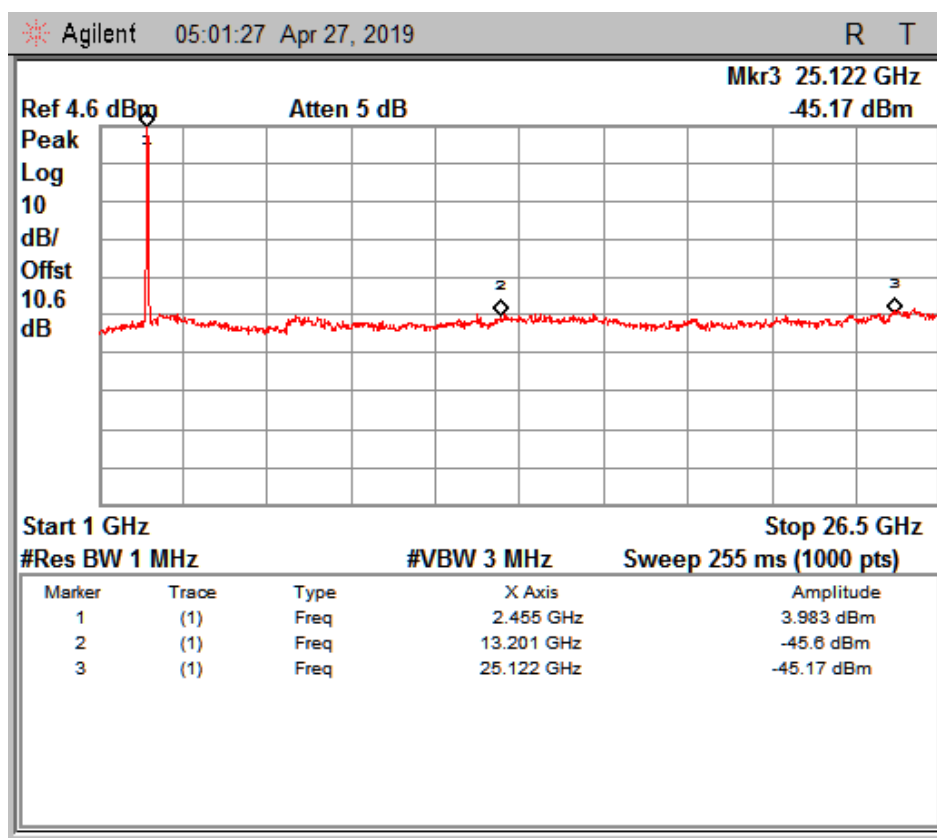
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MCS15 Channel High_1GHz-26.5GHz

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6.6 Restricted bands of Emissions & Restricted Bands of Operation

Result

Pass

Test Specification	FCC part 15 Subpart C Section 15.247 (d) / (15.209 & 15.205)
Test Method	ANSI C 63.10 – 2013
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3 m
Detector	QP for frequency beLow 1 GHz, Average for frequency above 1 GHz
Requirement	As per the limits mentioned in the beLow table

Limits for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * the limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 128-93.8, 73.80-62.95, 69.54 dBμV/m at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

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Test results:

No emissions found in frequency 9 kHz to 30 MHz

Standalone module with accessories

Test results for frequencies in the range 30 MHz – 1 GHz

Polarization	Frequency (MHz)	Measured value (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Vertical	216	25.74	43.5	-17.76
Horizontal	61.11	16.61	40	-23.39
	216	34.76	43.5	-8.74
	434.53	37.57	46	-8.43
	869.04	40.51	46	-5.49

Standalone module without accessories

Test results for frequencies in the range 30 MHz – 1 GHz

Polarization	Frequency (MHz)	Measured value (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Vertical	167.99	38.04	43.5	-5.46
	215.97	28.77	43.5	-14.73
	360.02	25.85	46	-20.15
Horizontal	60.583	16.42	40	-23.58
	168.01	32.85	43.5	-10.65
	215.97	38.09	43.5	-5.41
	360	35.74	46	-10.26

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For frequency range: 1 GHz-26.5 GHz

Antenna: Antennova

802.11 b – 1 Mbps

Channel	Polarization	Frequency (MHz)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	48.10	74	-25.90
		2390(Av)	33.79	54	-20.21
		2412(Pk)	99.28	*	-
		2412(Av)	97.07	*	-
		4824(Pk)	40.10	74	-33.90
		4824(Av)	33.90	54	-20.10
	Horizontal	2390(Pk)	44.83	74	-29.17
		2390(Av)	30.84	54	-23.16
		2412(Pk)	96.55	*	-
		2412(Av)	94.01	*	-
		4824(Pk)	39.21	74	-34.79
		4824(Av)	29.92	54	-24.08
Mid	Vertical	2437(Pk)	99.31	*	-
		2437(Av)	96.90	*	-
		4874(Pk)	44.63	74	-29.37
		4874(Av)	40.35	54	-13.65
	Horizontal	2437(Pk)	96.56	*	-
		2437(Av)	93.98	*	-
		4874(Pk)	43.39	74	-30.61
		4874(Av)	38.51	54	-15.49
High	Vertical	2462(Pk)	98.61	*	-
		2462(Av)	96.28	*	-
		2483.5(Pk)	47.47	74	-26.53
		2483.5(Av)	30.60	54	-23.40
		4924(Pk)	42.13	74	-31.87
		4924(Av)	35.68	54	-18.32
	Horizontal	2462(Pk)	95.79	*	-
		2462(Av)	93.03	*	-
		2483.5(Pk)	44.59	74	-29.41
		2483.5(Av)	28.30	54	-25.70
		4924(Pk)	41.59	74	-32.41
		4924(Av)	33.20	54	-20.80

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 b – 11 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	55.11	74	-18.89
		2390(Av)	39.78	54	-14.22
		2412(Pk)	106.29	*	-
		2412(Av)	97.80	*	-
		4824(Pk)	46.17	74	-27.83
		4824(Av)	35.35	54	-18.65
	Horizontal	2390(Pk)	52.43	74	-21.57
		2390(Av)	37.95	54	-16.05
		2412(Pk)	103.19	*	-
		2412(Av)	95.01	*	-
		4824(Pk)	43.47	74	-30.53
		4824(Av)	31.74	54	-22.26
Mid	Vertical	2437(Pk)	106.70	*	-
		2437(Av)	98.59	*	-
		4874(Pk)	46.49	74	-27.51
		4874(Av)	35.34	54	-18.66
	Horizontal	2437(Pk)	104.09	*	-
		2437(Av)	95.79	*	-
		4874(Pk)	45.61	74	-28.39
		4874(Av)	34.49	54	-19.51
High	Vertical	2462(Pk)	105.67	*	-
		2462(Av)	97.62	*	-
		2483.5(Pk)	51.14	74	-22.86
		2483.5(Av)	33.53	54	-20.47
		4924(Pk)	45.37	74	-28.63
		4924(Av)	33.34	54	-20.66
	Horizontal	2462(Pk)	102.64	*	-
		2462(Av)	94.63	*	-
		2483.5(Pk)	47.39	74	-26.61
		2483.5(Av)	29.77	54	-24.23
		4924(Pk)	43.08	74	-30.92
		4924(Av)	31.13	54	-22.87

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 g – 6 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	62.15	74	-11.85
		2390(Av)	46.24	54	-7.76
		2412(Pk)	101.12	*	-
		2412(Av)	91.72	*	-
		4824(Pk)	51.33	74	-22.67
		4824(Av)	32.02	54	-21.98
	Horizontal	2390(Pk)	60.36	74	-13.64
		2390(Av)	43.96	54	-10.04
		2412(Pk)	98.85	*	-
		2412(Av)	89.28	*	-
		4824(Pk)	54.61	74	-19.39
		4824(Av)	31.73	54	-22.27
Mid	Vertical	2437(Pk)	101.03	*	-
		2437(Av)	92.20	*	-
		4874(Pk)	48.76	74	-25.24
		4874(Av)	33.90	54	-20.10
	Horizontal	2437(Pk)	99.04	*	-
		2437(Av)	89.92	*	-
		4874(Pk)	49.67	74	-24.33
		4874(Av)	35.32	54	-18.68
High	Vertical	2462(Pk)	101.81	*	-
		2462(Av)	92.18	*	-
		2483.5(Pk)	64.56	74	-9.44
		2483.5(Av)	44.62	54	-9.38
		4924(Pk)	47.86	74	-26.14
		4924(Av)	32.10	54	-21.90
	Horizontal	2462(Pk)	99.25	*	-
		2462(Av)	90.03	*	-
		2483.5(Pk)	62.22	74	-11.78
		2483.5(Av)	41.89	54	-12.11
		4924(Pk)	48.40	74	-25.60
		4924(Av)	31.48	54	-22.52

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 g – 24 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	63.05	74	-10.95
		2390(Av)	47.20	54	-6.80
		2412(Pk)	103.36	*	-
		2412(Av)	91.72	*	-
		4824(Pk)	49.98	74	-24.02
		4824(Av)	32.64	54	-21.36
	Horizontal	2390(Pk)	61.58	74	-12.42
		2390(Av)	45.69	54	-8.31
		2412(Pk)	101.14	*	-
		2412(Av)	89.23	*	-
		4824(Pk)	50.55	74	-23.45
		4824(Av)	32.00	54	-22.00
Mid	Vertical	2437(Pk)	102.26	*	-
		2437(Av)	91.39	*	-
		4874(Pk)	47.10	74	-26.90
		4874(Av)	33.43	54	-20.57
	Horizontal	2437(Pk)	99.79	*	-
		2437(Av)	88.92	*	-
		4874(Pk)	48.28	74	-25.72
		4874(Av)	34.93	54	-19.07
High	Vertical	2462(Pk)	104.57	*	-
		2462(Av)	92.64	*	-
		2483.5(Pk)	63.74	74	-10.26
		2483.5(Av)	46.41	54	-7.59
		4924(Pk)	49.06	74	-24.94
		4924(Av)	32.41	54	-21.59
	Horizontal	2462(Pk)	100.55	*	-
		2462(Av)	89.72	*	-
		2483.5(Pk)	61.92	74	-12.08
		2483.5(Av)	43.71	54	-10.29
		4924(Pk)	49.41	74	-24.59
		4924(Av)	31.70	54	-22.30

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 g – 54 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	63.25	74	-10.75
		2390(Av)	47.80	54	-6.20
		2412(Pk)	103.88	*	-
		2412(Av)	91.70	*	-
		4824(Pk)	49.41	74	-24.59
		4824(Av)	32.38	54	-21.62
	Horizontal	2390(Pk)	60.54	74	-13.46
		2390(Av)	45.18	54	-8.82
		2412(Pk)	101.35	*	-
		2412(Av)	89.05	*	-
		4824(Pk)	52.04	74	-21.96
		4824(Av)	31.50	54	-22.50
Mid	Vertical	2437(Pk)	102.09	*	-
		2437(Av)	90.74	*	-
		4874(Pk)	48.56	74	-25.44
		4874(Av)	33.23	54	-20.77
	Horizontal	2437(Pk)	98.94	*	-
		2437(Av)	87.70	*	-
		4874(Pk)	50.09	74	-23.91
		4874(Av)	31.44	54	-22.56
High	Vertical	2462(Pk)	103.71	*	-
		2462(Av)	92.02	*	-
		2483.5(Pk)	65.30	74	-8.70
		2483.5(Av)	44.77	54	-9.23
		4924(Pk)	51.90	74	-22.10
		4924(Av)	32.58	54	-21.42
	Horizontal	2462(Pk)	100.68	*	-
		2462(Av)	88.73	*	-
		2483.5(Pk)	60.25	74	-13.75
		2483.5(Av)	40.96	54	-13.04
		4924(Pk)	50.09	74	-23.91
		4924(Av)	31.40	54	-22.60

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	61.54	74	-12.46
		2390(Av)	43.46	54	-10.54
		2412(Pk)	100.09	*	-
		2412(Av)	90.39	*	-
		4824(Pk)	50.07	74	-23.93
		4824(Av)	31.11	54	-22.89
	Horizontal	2390(Pk)	60.80	74	-13.20
		2390(Av)	41.53	54	-12.47
		2412(Pk)	97.35	*	-
		2412(Av)	88.08	*	-
		4824(Pk)	52.03	74	-21.97
		4824(Av)	30.96	54	-23.04
Mid	Vertical	2437(Pk)	99.58	*	-
		2437(Av)	89.96	*	-
		4874(Pk)	45.75	74	-28.25
		4874(Av)	32.00	54	-22.00
	Horizontal	2437(Pk)	96.40	*	-
		2437(Av)	87.05	*	-
		4874(Pk)	48.83	74	-25.17
		4874(Av)	32.92	54	-21.08
High	Vertical	2462(Pk)	100.36	*	-
		2462(Av)	91.11	*	-
		2483.5(Pk)	65.81	74	-8.19
		2483.5(Av)	43.29	54	-10.71
		4924(Pk)	50.79	74	-23.21
		4924(Av)	30.72	54	-23.28
	Horizontal	2462(Pk)	97.42	*	-
		2462(Av)	88.25	*	-
		2483.5(Pk)	60.63	74	-13.37
		2483.5(Av)	39.94	54	-14.06
		4924(Pk)	49.50	74	-24.50
		4924(Av)	30.52	54	-23.48

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Low	Vertical	2390(Pk)	59.70	74	-14.30
		2390(Av)	41.39	54	-12.61
		2412(Pk)	101.87	*	-
		2412(Av)	88.31	*	-
		4824(Pk)	50.71	74	-23.29
		4824(Av)	30.83	54	-23.17
	Horizontal	2390(Pk)	57.95	74	-16.05
		2390(Av)	39.16	54	-14.84
		2412(Pk)	99.10	*	-
		2412(Av)	85.82	*	-
		4824(Pk)	55.02	74	-18.98
		4824(Av)	30.31	54	-23.69
Mid	Vertical	2437(Pk)	100.28	*	-
		2437(Av)	87.70	*	-
		4874(Pk)	44.60	74	-29.40
		4874(Av)	31.53	54	-22.47
	Horizontal	2437(Pk)	97.80	*	-
		2437(Av)	84.62	*	-
		4874(Pk)	49.05	74	-24.95
		4874(Av)	32.59	54	-21.41
High	Vertical	2462(Pk)	101.05	*	-
		2462(Av)	88.71	*	-
		2483.5(Pk)	60.08	74	-13.92
		2483.5(Av)	40.78	54	-13.22
		4924(Pk)	47.84	74	-26.16
		4924(Av)	30.01	54	-23.99
	Horizontal	2462(Pk)	97.67	*	-
		2462(Av)	85.77	*	-
		2483.5(Pk)	55.96	74	-18.04
		2483.5(Av)	37.44	54	-16.56
		4924(Pk)	50.33	74	-23.67
		4924(Av)	30.18	54	-23.82

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Channel	Polarization	Frequency (MHz)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	67.53	74	-6.47
		2390(Av)	49.43	54	-4.57
		2422(Pk)	97.26	*	-
		2422(Av)	87.04	*	-
		4844(Pk)	50.51	74	-23.49
		4844(Av)	30.18	54	-23.82
	Horizontal	2390(Pk)	64.28	74	-9.72
		2390(Av)	47.69	54	-6.31
		2422(Pk)	94.64	*	-
		2422(Av)	84.72	*	-
		4844(Pk)	52.12	74	-21.88
		4844(Av)	31.18	54	-22.82
Mid	Vertical	2437(Pk)	97.38	*	-
		2437(Av)	87.05	*	-
		4874(Pk)	49.100	74	-24.90
		4874(Av)	30.83	54	-23.17
	Horizontal	2437(Pk)	94.30	*	-
		2437(Av)	84.39	*	-
		4874(Pk)	44.92	74	-29.08
		4874(Av)	30.83	54	-23.17
High	Vertical	2457(Pk)	96.57	*	-
		2457(Av)	86.39	*	-
		2483.5(Pk)	69.84	74	-4.16
		2483.5(Av)	50.97	54	-3.03
		4914(Pk)	43.63	74	-30.37
		4914(Av)	29.49	54	-24.51
	Horizontal	2457(Pk)	93.44	*	-
		2457(Av)	83.44	*	-
		2483.5(Pk)	66.75	74	-7.25
		2483.5(Av)	47.44	54	-6.56
		4914(Pk)	51.59	74	-22.41
		4914(Av)	29.53	54	-24.47

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	64.27	74	-9.73
		2390(Av)	47.47	54	-6.53
		2422(Pk)	98.10	*	-
		2422(Av)	85.32	*	-
		4844(Pk)	51.9	74	-22.10
		4844(Av)	32.97	54	-21.03
	Horizontal	2390(Pk)	62.19	74	-11.81
		2390(Av)	45.55	54	-8.45
		2422(Pk)	96.53	*	-
		2422(Av)	83.12	*	-
		4844(Pk)	55.32	74	-18.68
		4844(Av)	30.73	54	-23.27
Mid	Vertical	2437(Pk)	98.34	*	-
		2437(Av)	84.76	*	-
		4874(Pk)	49.06	74	-24.94
		4874(Av)	30.82	54	-23.18
	Horizontal	2437(Pk)	94.94	*	-
		2437(Av)	82.02	*	-
		4874(Pk)	49.36	74	-24.64
		4874(Av)	30.24	54	-23.76
High	Vertical	2457(Pk)	97.71	*	-
		2457(Av)	85.08	*	-
		2483.5(Pk)	62.02	74	-11.98
		2483.5(Av)	45.06	54	-8.94
		4914(Pk)	51.03	74	-22.97
		4914(Av)	31.96	54	-22.04
	Horizontal	2457(Pk)	95.14	*	-
		2457(Av)	82.06	*	-
		2483.5(Pk)	58.12	74	-15.88
		2483.5(Av)	41.68	54	-12.32
		4914(Pk)	50.89	74	-23.11
		4914(Av)	50.89	54	-3.11

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS7

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	63.93	74	-10.07
		2390(Av)	46.40	54	-7.60
		2422(Pk)	98.63	*	-
		2422(Av)	84.48	*	-
		4844(Pk)	52.19	74	-21.81
		4844(Av)	30.29	54	-23.71
	Horizontal	2390(Pk)	61.66	74	-12.34
		2390(Av)	44.68	54	-9.32
		2412(Pk)	95.91	*	-
		2412(Av)	82.07	*	-
		4824(Pk)	52.63	74	-21.37
		4824(Av)	29.87	54	-24.13
Mid	Vertical	2437(Pk)	98.2	*	-
		2437(Av)	83.93	*	-
		4874(Pk)	49.83	74	-24.17
		4874(Av)	30.70	54	-23.30
	Horizontal	2437(Pk)	94.95	*	-
		2437(Av)	81.37	*	-
		4874(Pk)	46.19	74	-27.81
		4874(Av)	31.04	54	-22.96
High	Vertical	2457(Pk)	98.1	*	-
		2457(Av)	84.01	*	-
		2483.5(Pk)	62.09	74	-11.91
		2483.5(Av)	44.37	54	-9.63
		4914(Pk)	45.91	74	-28.09
		4914(Av)	31.30	54	-22.70
	Horizontal	2457(Pk)	95.14	*	-
		2457(Av)	81.38	*	-
		2483.5(Pk)	58.43	74	-15.57
		2483.5(Av)	40.87	54	-13.13
		4914(Pk)	44.30	74	-29.70
		4914(Av)	30.18	54	-23.82

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 n_MIMO_HT20

MCS8

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	72.97	74	-1.03
		2390(Av)	53.66	54	-0.34
		2412(Pk)	104.32	*	-
		2412(Av)	92.70	*	-
		4824(Pk)	49.28	74	-24.72
		4824(Av)	32.83	54	-21.17
	Horizontal	2390(Pk)	64.43	74	-9.57
		2390(Av)	46.94	54	-7.06
		2412(Pk)	101.10	*	-
		2412(Av)	89.72	*	-
		4824(Pk)	49.87	74	-24.13
		4824(Av)	34.93	54	-19.07
Mid	Vertical	2437(Pk)	105.74	*	-
		2437(Av)	93.86	*	-
		4874(Pk)	47.88	74	-26.12
		4874(Av)	32.89	54	-21.11
	Horizontal	2437(Pk)	100.68	*	-
		2437(Av)	89.200	*	-
		4874(Pk)	48.11	74	-25.89
		4874(Av)	34.61	54	-19.39
High	Vertical	2462(Pk)	103.2	*	-
		2462(Av)	92.25	*	-
		2483.5(Pk)	73.04	74	-0.96
		2483.5(Av)	49.65	54	-4.35
		4924(Pk)	47.27	74	-26.73
		4924(Av)	31.75	54	-22.25
	Horizontal	2462(Pk)	97.98	*	-
		2462(Av)	87.36	*	-
		2483.5(Pk)	63.28	74	-10.72
		2483.5(Av)	42.23	54	-11.77
		4924(Pk)	48.78	74	-25.22
		4924(Av)	32.84	54	-21.16

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS11

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	70.72	74	-3.28
		2390(Av)	52.26	54	-1.74
		2412(Pk)	104.7	*	-
		2412(Av)	91.75	*	-
		4824(Pk)	50.49	74	-23.51
		4824(Av)	32.47	54	-21.53
	Horizontal	2390(Pk)	61.34	74	-12.66
		2390(Av)	44.00	54	-10.00
		2412(Pk)	100.36	*	-
		2412(Av)	88.18	*	-
		4824(Pk)	49.07	74	-24.93
		4824(Av)	34.41	54	-19.59
Mid	Vertical	2437(Pk)	105.91	*	-
		2437(Av)	92.76	*	-
		4874(Pk)	46.40	74	-27.60
		4874(Av)	31.65	54	-22.35
	Horizontal	2437(Pk)	100.52	*	-
		2437(Av)	87.15	*	-
		4874(Pk)	49.21	74	-24.79
		4874(Av)	34.03	54	-19.97
High	Vertical	2462(Pk)	103.31	*	-
		2462(Av)	90.89	*	-
		2483.5(Pk)	70.46	74	-3.54
		2483.5(Av)	48.23	54	-5.77
		4924(Pk)	48.86	74	-25.14
		4924(Av)	31.44	54	-22.56
	Horizontal	2462(Pk)	99.88	*	-
		2462(Av)	86.43	*	-
		2483.5(Pk)	64.43	74	-9.57
		2483.5(Av)	41.53	54	-12.47
		4924(Pk)	51.76	74	-22.24
		4924(Av)	32.71	54	-21.29

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS15

Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Low	Vertical	2390(Pk)	71.62	74	-2.38
		2390(Av)	50.93	54	-3.07
		2412(Pk)	104.37	*	-
		2412(Av)	90.58	*	-
		4824(Pk)	51.51	74	-22.49
		4824(Av)	32.07	54	-21.93
	Horizontal	2390(Pk)	61.95	74	-12.05
		2390(Av)	42.49	54	-11.51
		2412(Pk)	100.42	*	-
		2412(Av)	86.43	*	-
		4824(Pk)	54.64	74	-19.36
		4824(Av)	33.90	54	-20.10
Mid	Vertical	2437(Pk)	105.27	*	-
		2437(Av)	91.6	*	-
		4874(Pk)	46.63	74	-27.37
		4874(Av)	31.98	54	-22.02
	Horizontal	2437(Pk)	100.01	*	-
		2437(Av)	85.86	*	-
		4874(Pk)	49.97	74	-24.03
		4874(Av)	33.42	54	-20.58
High	Vertical	2462(Pk)	103.56	*	-
		2462(Av)	89.21	*	-
		2483.5(Pk)	70.9	74	-3.10
		2483.5(Av)	47.18	54	-6.82
		4924(Pk)	53.33	74	-20.67
		4924(Av)	31.18	54	-22.82
	Horizontal	2462(Pk)	99.68	*	-
		2462(Av)	83.91	*	-
		2483.5(Pk)	62.04	74	-11.96
		2483.5(Av)	38.78	54	-15.22
		4924(Pk)	50.24	74	-23.76
		4924(Av)	32.15	54	-21.85

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 n_MIMO_HT40

MCS8

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	69.4	74	-4.6
		2390(Av)	52.7	54	-1.3
		2422(Pk)	100.40	*	-
		2422(Av)	87.98	*	-
		4844(Pk)	49.51	74	-24.49
		4844(Av)	30.61	54	-23.39
	Horizontal	2390(Pk)	65.80	74	-8.20
		2390(Av)	49.38	54	-4.62
		2422(Pk)	97.68	*	-
		2422(Av)	85.63	*	-
		4844(Pk)	54.61	74	-19.39
		4844(Av)	31.47	54	-22.53
Mid	Vertical	2437(Pk)	99.57	*	-
		2437(Av)	87.04	*	-
		4874(Pk)	47.66	74	-26.34
		4874(Av)	30.13	54	-23.87
	Horizontal	2437(Pk)	95.42	*	-
		2437(Av)	83.34	*	-
		4874(Pk)	51.49	74	-22.51
		4874(Av)	30.76	54	-23.24
High	Vertical	2457(Pk)	99.7	*	-
		2457(Av)	87.05	*	-
		2483.5(Pk)	68.29	74	-5.71
		2483.5(Av)	50.65	54	-3.35
		4914(Pk)	51.07	74	-22.93
		4914(Av)	30.30	54	-23.70
	Horizontal	2457(Pk)	95.49	*	-
		2457(Av)	83.77	*	-
		2483.5(Pk)	59.99	74	-14.01
		2483.5(Av)	44.33	54	-9.67
		4914(Pk)	50.14	74	-23.86
		4914(Av)	30.48	54	-23.52

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS11

Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Low	Vertical	2390(Pk)	67.53	74	-6.47
		2390(Av)	51.11	54	-2.89
		2422(Pk)	100.34	*	-
		2422(Av)	86.39	*	-
		4844(Pk)	50.12	74	-23.88
		4844(Av)	30.48	54	-23.52
	Horizontal	2390(Pk)	63.66	74	-10.34
		2390(Av)	47.61	54	-6.39
		2422(Pk)	98.70	*	-
		2422(Av)	84.23	*	-
		4844(Pk)	51.01	74	-22.99
		4844(Av)	31.01	54	-22.99
Mid	Vertical	2437(Pk)	99.89	*	-
		2437(Av)	86.17	*	-
		4874(Pk)	46.51	74	-27.49
		4874(Av)	30.24	54	-23.76
	Horizontal	2437(Pk)	96.53	*	-
		2437(Av)	82.96	*	-
		4874(Pk)	51.24	74	-22.76
		4874(Av)	31.12	54	-22.88
High	Vertical	2457(Pk)	99.82	*	-
		2457(Av)	86.16	*	-
		2483.5(Pk)	70.16	74	-3.84
		2483.5(Av)	51.91	54	-2.09
		4914(Pk)	47.18	74	-26.82
		4914(Av)	30.35	54	-23.65
	Horizontal	2457(Pk)	96.94	*	-
		2457(Av)	83.45	*	-
		2483.5(Pk)	62.63	74	-11.37
		2483.5(Av)	46.03	54	-7.97
		4914(Pk)	51.86	74	-22.14
		4914(Av)	30.54	54	-23.46

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS15

Channel	Polarization	Frequency (MHz)	Field Strength (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Low	Vertical	2390(Pk)	67.98	74	-6.02
		2390(Av)	50.12	54	-3.88
		2422(Pk)	100.19	*	-
		2422(Av)	84.84	*	-
		4844(Pk)	51.17	74	-22.83
		4844(Av)	30.61	54	-23.39
	Horizontal	2390(Pk)	62.61	74	-11.39
		2390(Av)	45.14	54	-8.86
		2412(Pk)	98.31	*	-
		2412(Av)	82.74	*	-
		4824(Pk)	53.38	74	-20.62
		4824(Av)	31.03	54	-22.97
Mid	Vertical	2437(Pk)	100.11	*	-
		2437(Av)	84.97	*	-
		4874(Pk)	49.51	74	-24.49
		4874(Av)	29.98	54	-24.02
	Horizontal	2437(Pk)	97.05	*	-
		2437(Av)	81.6	*	-
		4874(Pk)	48.85	74	-25.15
		4874(Av)	29.11	54	-24.89
High	Vertical	2457(Pk)	100.77	*	-
		2457(Av)	84.8	*	-
		2483.5(Pk)	69.90	74	-4.10
		2483.5(Av)	50.35	54	-3.65
		4914(Pk)	50.34	74	-23.66
		4914(Av)	30.11	54	-23.89
	Horizontal	2457(Pk)	97.08	*	-
		2457(Av)	81.96	*	-
		2483.5(Pk)	64.08	74	-9.92
		2483.5(Av)	43.84	54	-10.16
		4914(Pk)	51.99	74	-22.01
		4914(Av)	30.24	54	-23.76

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Antenna: Molex

802.11 b – 1 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	44.08	74	-29.92
		2390(Av)	30.47	54	-23.53
		2412(Pk)	101.33	*	-
		2412(Av)	99.04	*	-
		4824(Pk)	51.19	74	-22.81
		4824(Av)	47.85	54	-6.15
	Horizontal	2390(Pk)	39.08	74	-34.92
		2390(Av)	27.23	54	-26.77
		2412(Pk)	96.21	*	-
		2412(Av)	93.9	*	-
		4824(Pk)	49.77	74	-24.23
		4824(Av)	46.09	54	-7.91
Mid	Vertical	2437(Pk)	103.37	*	-
		2437(Av)	100.47	*	-
		4874(Pk)	49.77	74	-24.23
		4874(Av)	46.26	54	-7.74
	Horizontal	2437(Pk)	99.47	*	-
		2437(Av)	96.78	*	-
		4874(Pk)	48.56	74	-25.44
		4874(Av)	45.22	54	-8.78
High	Vertical	2462(Pk)	103.54	*	-
		2462(Av)	100.88	*	-
		2483.5(Pk)	54.56	74	-19.44
		2483.5(Av)	34.99	54	-19.01
		4924(Pk)	49.77	74	-24.23
		4924(Av)	46.12	54	-7.88
	Horizontal	2462(Pk)	100.09	*	-
		2462(Av)	97.38	*	-
		2483.5(Pk)	51.29	74	-22.71
		2483.5(Av)	31.82	54	-22.18
		4924(Pk)	49.14	74	-24.86
		4924(Av)	45.53	54	-8.47

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 b – 11 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	52.43	74	-21.57
		2390(Av)	37.88	54	-16.12
		2412(Pk)	107.52	*	-
		2412(Av)	99.47	*	-
		4824(Pk)	50.79	74	-23.21
		4824(Av)	39.57	54	-14.43
	Horizontal	2390(Pk)	50.73	74	-23.27
		2390(Av)	36.03	54	-17.97
		2412(Pk)	104.69	*	-
		2412(Av)	96.33	*	-
		4824(Pk)	49.12	74	-24.88
		4824(Av)	38.12	54	-15.88
Mid	Vertical	2437(Pk)	107.41	*	-
		2437(Av)	98.66	*	-
		4874(Pk)	53.8	74	-20.2
		4874(Av)	42.6	54	-11.4
	Horizontal	2437(Pk)	105.43	*	-
		2437(Av)	97.44	*	-
		4874(Pk)	49.77	74	-24.23
		4874(Av)	46.26	54	-7.74
High	Vertical	2462(Pk)	107.72	*	-
		2462(Av)	99.53	*	-
		2483.5(Pk)	51.63	74	-22.37
		2483.5(Av)	32.72	54	-21.28
		4924(Pk)	52.02	74	-21.98
		4924(Av)	41.16	54	-12.84
	Horizontal	2462(Pk)	105.22	*	-
		2462(Av)	97.08	*	-
		2483.5(Pk)	49.29	74	-24.71
		2483.5(Av)	31.21	54	-22.79
		4924(Pk)	49.28	74	-24.72
		4924(Av)	38.11	54	-15.89

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 b – 6 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	61.39	74	-12.61
		2390(Av)	45.25	54	-8.75
		2412(Pk)	103.09	*	-
		2412(Av)	93.03	*	-
		4824(Pk)	45.24	74	-28.76
		4824(Av)	31.94	54	-22.06
	Horizontal	2390(Pk)	59.54	74	-14.46
		2390(Av)	44.07	54	-9.93
		2412(Pk)	101.18	*	-
		2412(Av)	91.19	*	-
		4824(Pk)	45.96	74	-28.04
		4824(Av)	32.01	54	-21.99
Mid	Vertical	2437(Pk)	101.91	*	-
		2437(Av)	92.98	*	-
		4874(Pk)	49.17	74	-24.83
		4874(Av)	35.62	54	-18.38
	Horizontal	2437(Pk)	101.23	*	-
		2437(Av)	92.51	*	-
		4874(Pk)	45.80	74	-28.20
		4874(Av)	32.33	54	-21.67
High	Vertical	2462(Pk)	103.32	*	-
		2462(Av)	94.17	*	-
		2483.5(Pk)	66.87	74	-7.13
		2483.5(Av)	45.9	54	-8.1
		4924(Pk)	46.49	74	-27.51
		4924(Av)	32.88	54	-21.12
	Horizontal	2462(Pk)	101.31	*	-
		2462(Av)	92.83	*	-
		2483.5(Pk)	65.88	74	-8.12
		2483.5(Av)	44.53	54	-9.47
		4924(Pk)	44.77	74	-29.23
		4924(Av)	31.35	54	-22.65

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 b – 24 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Low	Vertical	2390(Pk)	60.64	74	-13.36
		2390(Av)	45.58	54	-8.42
		2412(Pk)	103.44	*	-
		2412(Av)	91.95	*	-
		4824(Pk)	45.32	74	-28.68
		4824(Av)	31.24	54	-22.76
	Horizontal	2390(Pk)	56.99	74	-17.01
		2390(Av)	42.92	54	-11.08
		2412(Pk)	101.08	*	-
		2412(Av)	89.61	*	-
		4824(Pk)	45.07	74	-28.93
		4824(Av)	31.49	54	-22.51
Mid	Vertical	2437(Pk)	102.22	*	-
		2437(Av)	91.42	*	-
		4874(Pk)	47.46	74	-26.54
		4874(Av)	34.18	54	-19.82
	Horizontal	2437(Pk)	101.33	*	-
		2437(Av)	91.04	*	-
		4874(Pk)	45.49	74	-28.51
		4874(Av)	31.91	54	-22.09
High	Vertical	2462(Pk)	104.02	*	-
		2462(Av)	92.95	*	-
		2483.5(Pk)	63.10	74	-10.90
		2483.5(Av)	44.51	54	-9.49
		4924(Pk)	46.30	74	-27.70
		4924(Av)	32.86	54	-21.14
	Horizontal	2462(Pk)	102.98	*	-
		2462(Av)	92.06	*	-
		2483.5(Pk)	62.55	74	-11.45
		2483.5(Av)	43.95	54	-10.05
		4924(Pk)	44.61	74	-29.39
		4924(Av)	31.45	54	-22.55

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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802.11 b – 54 Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	62.02	74	-11.98
		2390(Av)	44.74	54	-9.26
		2412(Pk)	103.78	*	-
		2412(Av)	91.13	*	-
		4824(Pk)	44.77	74	-29.23
		4824(Av)	31.59	54	-22.41
	Horizontal	2390(Pk)	59.43	74	-14.57
		2390(Av)	42.13	54	-11.87
		2412(Pk)	100.71	*	-
		2412(Av)	88.46	*	-
		4824(Pk)	44.39	74	-29.61
		4824(Av)	31.11	54	-22.89
Mid	Vertical	2437(Pk)	102.91	*	-
		2437(Av)	90.07	*	-
		4874(Pk)	48.05	74	-25.95
		4874(Av)	34.34	54	-19.66
	Horizontal	2437(Pk)	102.42	*	-
		2437(Av)	89.69	*	-
		4874(Pk)	44.64	74	-29.36
		4874(Av)	31.86	54	-22.14
High	Vertical	2462(Pk)	104.01	*	-
		2462(Av)	91.76	*	-
		2483.5(Pk)	65.80	74	-8.20
		2483.5(Av)	43.69	54	-10.31
		4924(Pk)	45.91	74	-28.09
		4924(Av)	32.47	54	-21.53
	Horizontal	2462(Pk)	102.9	*	-
		2462(Av)	90.60	*	-
		2483.5(Pk)	65.39	74	-8.61
		2483.5(Av)	43.03	54	-10.97
		4924(Pk)	44.01	74	-29.99
		4924(Av)	30.83	54	-23.17

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS0

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	62.00	74	-12.00
		2390(Av)	44.86	54	-9.14
		2412(Pk)	101.24	*	-
		2412(Av)	91.66	*	-
		4824(Pk)	44.62	74	-29.38
		4824(Av)	30.50	54	-23.50
	Horizontal	2390(Pk)	59.3	74	-14.70
		2390(Av)	42.14	54	-11.86
		2412(Pk)	99.00	*	-
		2412(Av)	89.49	*	-
		4824(Pk)	44.26	74	-29.74
		4824(Av)	30.56	54	-23.44
Mid	Vertical	2437(Pk)	100.27	*	-
		2437(Av)	91.58	*	-
		4874(Pk)	47.87	74	-26.13
		4874(Av)	33.66	54	-20.34
	Horizontal	2437(Pk)	100.06	*	-
		2437(Av)	90.93	*	-
		4874(Pk)	44.58	74	-29.42
		4874(Av)	31.7	54	-22.30
High	Vertical	2462(Pk)	102.1	*	-
		2462(Av)	93.05	*	-
		2483.5(Pk)	69.15	74	-4.85
		2483.5(Av)	45.51	54	-8.49
		4924(Pk)	45.46	74	-28.54
		4924(Av)	35.26	54	-18.74
	Horizontal	2462(Pk)	101.38	*	-
		2462(Av)	92.11	*	-
		2483.5(Pk)	68.8	74	-5.2
		2483.5(Av)	45.33	54	-8.67
		4924(Pk)	43.77	74	-30.23
		4924(Av)	30.66	54	-23.34

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS4

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	61.45	74	-12.55
		2390(Av)	44.00	54	-10.00
		2412(Pk)	102.58	*	-
		2412(Av)	90.88	*	-
		4824(Pk)	45.31	74	-28.69
		4824(Av)	30.12	54	-23.88
	Horizontal	2390(Pk)	58.56	74	-15.44
		2390(Av)	41.14	54	-12.86
		2412(Pk)	100.17	*	-
		2412(Av)	88.25	*	-
		4824(Pk)	43.22	74	-30.78
		4824(Av)	32.26	54	-21.74
Mid	Vertical	2437(Pk)	102.8	*	-
		2437(Av)	90.7	*	-
		4874(Pk)	47.12	74	-26.88
		4874(Av)	32.21	54	-21.79
	Horizontal	2437(Pk)	102.14	*	-
		2437(Av)	90.51	*	-
		4874(Pk)	44.12	74	-29.88
		4874(Av)	30.90	54	-23.10
High	Vertical	2462(Pk)	103.3	*	-
		2462(Av)	92.29	*	-
		2483.5(Pk)	67.30	74	-6.70
		2483.5(Av)	48.76	54	-5.24
		4924(Pk)	44.31	74	-29.69
		4924(Av)	30.12	54	-23.88
	Horizontal	2462(Pk)	103.14	*	-
		2462(Av)	91.83	*	-
		2483.5(Pk)	66.42	74	-7.58
		2483.5(Av)	46.84	54	-7.16
		4924(Pk)	43.12	74	-30.88
		4924(Av)	30.11	54	-23.89

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS7

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	62.65	74	-11.35
		2390(Av)	45.59	54	-8.41
		2412(Pk)	103.41	*	-
		2412(Av)	90.87	*	-
		4824(Pk)	48.65	74	-25.35
		4824(Av)	30.76	54	-23.24
	Horizontal	2390(Pk)	59.91	74	-14.09
		2390(Av)	42.91	54	-11.09
		2412(Pk)	101.13	*	-
		2412(Av)	88.72	*	-
		4824(Pk)	44.22	74	-29.78
		4824(Av)	31.17	54	-22.83
Mid	Vertical	2437(Pk)	102.21	*	-
		2437(Av)	89.96	*	-
		4874(Pk)	47.55	74	-26.45
		4874(Av)	33.65	54	-20.35
	Horizontal	2437(Pk)	102.05	*	-
		2437(Av)	89.47	*	-
		4874(Pk)	45.24	74	-28.76
		4874(Av)	31.79	54	-22.21
High	Vertical	2462(Pk)	103.31	*	-
		2462(Av)	90.78	*	-
		2483.5(Pk)	65.76	74	-8.24
		2483.5(Av)	45.51	54	-8.49
		4924(Pk)	45.59	74	-28.41
		4924(Av)	32.17	54	-21.83
	Horizontal	2462(Pk)	102.04	*	-
		2462(Av)	90.28	*	-
		2483.5(Pk)	65.82	74	-8.18
		2483.5(Av)	45.71	54	-8.29
		4924(Pk)	44.45	74	-29.55
		4924(Av)	30.96	54	-23.04

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS0

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin(dB)
Low	Vertical	2390(Pk)	66.62	74	-7.38
		2390(Av)	51.40	54	-2.60
		2422(Pk)	100.41	*	-
		2422(Av)	90.26	*	-
		4844(Pk)	42.97	74	-31.03
		4844(Av)	21.11	54	-32.89
	Horizontal	2390(Pk)	63.06	74	-10.94
		2390(Av)	46.99	54	-7.01
		2422(Pk)	95.44	*	-
		2422(Av)	85.25	*	-
		4844(Pk)	42.83	74	-31.17
		4844(Av)	21.23	54	-32.77
Mid	Vertical	2437(Pk)	99.45	*	-
		2437(Av)	89.65	*	-
		4874(Pk)	42.04	74	-31.96
		4874(Av)	29.01	54	-24.99
	Horizontal	2437(Pk)	95.01	*	-
		2437(Av)	84.9	*	-
		4874(Pk)	42.04	74	-31.96
		4874(Av)	29.01	54	-24.99
High	Vertical	2457(Pk)	99.54	*	-
		2457(Av)	89.75	*	-
		2483.5(Pk)	64.92	74	-9.08
		2483.5(Av)	47.17	54	-6.83
		4914(Pk)	43.34	74	-30.66
		4914(Av)	29.99	54	-24.01
	Horizontal	2457(Pk)	96.21	*	-
		2457(Av)	86.39	*	-
		2483.5(Pk)	61.56	74	-12.44
		2483.5(Av)	43.87	54	-10.13
		4914(Pk)	43.23	74	-30.77
		4914(Av)	29.12	54	-24.88

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS4

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	66.33	74	-7.67
		2390(Av)	50.19	54	-3.81
		2422(Pk)	99.97	*	-
		2422(Av)	87.03	*	-
		4844(Pk)	42.30	74	-31.70
		4844(Av)	28.20	54	-25.80
	Horizontal	2390(Pk)	66.74	74	-7.26
		2390(Av)	48.12	54	-5.88
		2422(Pk)	98.76	*	-
		2422(Av)	85.83	*	-
		4844(Pk)	42.10	74	-31.90
		4844(Av)	28.34	54	-25.66
Mid	Vertical	2437(Pk)	101.45	*	-
		2437(Av)	87.94	*	-
		4874(Pk)	41.76	74	-32.24
		4874(Av)	27.32	54	-26.68
	Horizontal	2437(Pk)	98.36	*	-
		2437(Av)	85.41	*	-
		4874(Pk)	42.32	74	-31.68
		4874(Av)	28.54	54	-25.46
High	Vertical	2457(Pk)	100.84	*	-
		2457(Av)	88.01	*	-
		2483.5(Pk)	66.61	74	-7.39
		2483.5(Av)	49.66	54	-4.34
		4914(Pk)	42.12	74	-31.88
		4914(Av)	29.76	54	-24.24
	Horizontal	2457(Pk)	98.73	*	-
		2457(Av)	85.38	*	-
		2483.5(Pk)	65.17	74	-8.83
		2483.5(Av)	47.32	54	-6.68
		4914(Pk)	42.56	74	-31.44
		4914(Av)	29.36	54	-24.64

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS7

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	66.29	74	-7.71
		2390(Av)	49.29	54	-4.71
		2422(Pk)	100.56	*	-
		2422(Av)	85.89	*	-
		4844(Pk)	43.03	74	-30.97
		4844(Av)	29.85	54	-24.15
	Horizontal	2390(Pk)	63.58	74	-10.42
		2390(Av)	47.32	54	-6.68
		2412(Pk)	98.6	*	-
		2412(Av)	84.53	*	-
		4824(Pk)	42.33	74	-31.67
		4824(Av)	29.33	54	-24.67
Mid	Vertical	2437(Pk)	99.64	*	-
		2437(Av)	85.74	*	-
		4874(Pk)	42.78	74	-31.22
		4874(Av)	28.95	54	-25.05
	Horizontal	2437(Pk)	85.99	*	-
		2437(Av)	71.61	*	-
		4874(Pk)	42.65	74	-31.35
		4874(Av)	28.54	54	-25.46
High	Vertical	2457(Pk)	99.92	*	-
		2457(Av)	86.66	*	-
		2483.5(Pk)	65.77	74	-8.23
		2483.5(Av)	48.34	54	-5.66
		4914(Pk)	43.24	74	-30.76
		4914(Av)	30.05	54	-23.95
	Horizontal	2457(Pk)	98.14	*	-
		2457(Av)	84.62	*	-
		2483.5(Pk)	63.88	74	-10.12
		2483.5(Av)	46.31	54	-7.69
		4914(Pk)	42.76	74	-31.24
		4914(Av)	29.03	54	-24.97

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS8

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	69.46	74	-4.54
		2390(Av)	52.52	54	-1.48
		2412(Pk)	106.64	*	-
		2412(Av)	95.31	*	-
		4824(Pk)	48.99	74	-25.01
		4824(Av)	34.34	54	-19.66
	Horizontal	2390(Pk)	66.88	74	-7.12
		2390(Av)	50.93	54	-3.07
		2412(Pk)	105.21	*	-
		2412(Av)	93.96	*	-
		4824(Pk)	45.54	74	-28.46
		4824(Av)	32.31	54	-21.69
Mid	Vertical	2437(Pk)	107.57	*	-
		2437(Av)	95.71	*	-
		4874(Pk)	48.83	74	-25.17
		4874(Av)	35.49	54	-18.51
	Horizontal	2437(Pk)	105.25	*	-
		2437(Av)	98.75	*	-
		4874(Pk)	46.62	74	-27.38
		4874(Av)	32.79	54	-21.21
High	Vertical	2462(Pk)	105.04	*	-
		2462(Av)	93.94	*	-
		2483.5(Pk)	71.81	74	-2.19
		2483.5(Av)	51.16	54	-2.84
		4924(Pk)	48.40	74	-25.60
		4924(Av)	34.06	54	-19.94
	Horizontal	2462(Pk)	102.63	*	-
		2462(Av)	91.79	*	-
		2483.5(Pk)	65.60	74	-8.40
		2483.5(Av)	48.20	54	-5.80
		4924(Pk)	45.86	74	-28.14
		4924(Av)	31.90	54	-22.10

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS11

	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	67.56	74	-6.44
		2390(Av)	51.11	54	-2.89
		2412(Pk)	106.24	*	-
		2412(Av)	94.06	*	-
		4824(Pk)	47.88	74	-26.12
		4824(Av)	33.85	54	-20.15
	Horizontal	2390(Pk)	66.64	74	-7.36
		2390(Av)	48.76	54	-5.24
		2412(Pk)	104.41	*	-
		2412(Av)	92.51	*	-
		4824(Pk)	45.68	74	-28.32
		4824(Av)	32.39	54	-21.61
Mid	Vertical	2437(Pk)	106.38	*	-
		2437(Av)	94.37	*	-
		4874(Pk)	49.72	74	-24.28
		4874(Av)	34.69	54	-19.31
	Horizontal	2437(Pk)	104.72	*	-
		2437(Av)	92.67	*	-
		4874(Pk)	45.68	74	-28.32
		4874(Av)	32.39	54	-21.61
High	Vertical	2462(Pk)	105.23	*	-
		2462(Av)	93.03	*	-
		2483.5(Pk)	68.83	74	-5.17
		2483.5(Av)	50.73	54	-3.27
		4924(Pk)	47.55	74	-26.45
		4924(Av)	34.18	54	-19.82
	Horizontal	2462(Pk)	102.69	*	-
		2462(Av)	89.84	*	-
		2483.5(Pk)	65.21	74	-8.79
		2483.5(Av)	45.92	54	-8.08
		4924(Pk)	45.02	74	-28.98
		4924(Av)	31.49	54	-22.51

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS15

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	70.24	74	-3.76
		2390(Av)	49.64	54	-4.36
		2412(Pk)	106.47	*	-
		2412(Av)	92.81	*	-
		4824(Pk)	47.50	74	-26.50
		4824(Av)	32.85	54	-21.15
	Horizontal	2390(Pk)	65.07	74	-8.93
		2390(Av)	47.07	54	-6.93
		2412(Pk)	104.52	*	-
		2412(Av)	90.88	*	-
		4824(Pk)	46.08	74	-27.92
		4824(Av)	31.52	54	-22.48
Mid	Vertical	2437(Pk)	105.26	*	-
		2437(Av)	91.78	*	-
		4874(Pk)	48.19	74	-25.81
		4874(Av)	33.54	54	-20.46
	Horizontal	2437(Pk)	104.75	*	-
		2437(Av)	90.94	*	-
		4874(Pk)	46.54	74	-27.46
		4874(Av)	31.84	54	-22.16
High	Vertical	2462(Pk)	105.74	*	-
		2462(Av)	91.77	*	-
		2483.5(Pk)	72.66	74	-1.34
		2483.5(Av)	47.39	54	-6.61
		4924(Pk)	47.45	74	-26.55
		4924(Av)	32.96	54	-21.04
	Horizontal	2462(Pk)	105.21	*	-
		2462(Av)	90.72	*	-
		2483.5(Pk)	67.97	74	-6.03
		2483.5(Av)	45.68	54	-8.32
		4924(Pk)	44.54	74	-29.46
		4924(Av)	31.12	54	-22.88

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS8

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	67.40	74	-6.60
		2390(Av)	51.83	54	-2.17
		2422(Pk)	101.09	*	-
		2422(Av)	88.90	*	-
		4844(Pk)	42.69	74	-31.31
		4844(Av)	30.11	54	-23.89
	Horizontal	2390(Pk)	63.80	74	-10.20
		2390(Av)	47.87	54	-6.13
		2422(Pk)	97.91	*	-
		2422(Av)	85.94	*	-
		4844(Pk)	43.79	74	-30.21
		4844(Av)	31.15	54	-22.85
Mid	Vertical	2437(Pk)	99.95	*	-
		2437(Av)	88.08	*	-
		4874(Pk)	43.62	74	-30.38
		4874(Av)	30.25	54	-23.75
	Horizontal	2437(Pk)	98.39	*	-
		2437(Av)	86.17	*	-
		4874(Pk)	43.08	74	-30.92
		4874(Av)	29.64	54	-24.36
High	Vertical	2457(Pk)	100.02	*	-
		2457(Av)	88.26	*	-
		2483.5(Pk)	66.31	74	-7.69
		2483.5(Av)	48.29	54	-5.71
		4914(Pk)	43.27	74	-30.73
		4914(Av)	31.80	54	-22.20
	Horizontal	2457(Pk)	98.62	*	-
		2457(Av)	86.48	*	-
		2483.5(Pk)	63.44	74	-10.56
		2483.5(Av)	46.18	54	-7.82
		4914(Pk)	42.74	74	-31.26
		4914(Av)	29.83	54	-24.17

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS11

	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	68.02	74	-5.98
		2390(Av)	50.31	54	-3.69
		2422(Pk)	100.36	*	-
		2422(Av)	86.64	*	-
		4844(Pk)	45.32	74	-28.68
		4844(Av)	30.62	54	-23.38
	Horizontal	2390(Pk)	63.32	74	-10.68
		2390(Av)	46.25	54	-7.75
		2422(Pk)	98.12	*	-
		2422(Av)	84.17	*	-
		4844(Pk)	44.32	74	-29.68
		4844(Av)	30.11	54	-23.89
Mid	Vertical	2437(Pk)	103.24	*	-
		2437(Av)	88.44	*	-
		4874(Pk)	43.53	74	-30.47
		4874(Av)	30.24	54	-23.76
	Horizontal	2437(Pk)	100.14	*	-
		2437(Av)	86.31	*	-
		4874(Pk)	42.28	74	-31.72
		4874(Av)	29.65	54	-24.35
High	Vertical	2457(Pk)	99.9	*	-
		2457(Av)	86.38	*	-
		2483.5(Pk)	66.56	74	-7.44
		2483.5(Av)	47.88	54	-6.12
		4914(Pk)	44.65	74	-29.35
		4914(Av)	31.76	54	-22.24
	Horizontal	2457(Pk)	98.38	*	-
		2457(Av)	84.23	*	-
		2483.5(Pk)	62.53	74	-11.47
		2483.5(Av)	46.09	54	-7.91
		4914(Pk)	43.12	74	-30.88
		4914(Av)	29.43	54	-24.57

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MCS15

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	63.07	74	-10.93
		2390(Av)	45.77	54	-8.23
		2422(Pk)	96.57	*	-
		2422(Av)	81.54	*	-
		4844(Pk)	50.24	74	-23.76
		4844(Av)	30.78	54	-23.22
	Horizontal	2390(Pk)	64.14	74	-9.86
		2390(Av)	45.76	54	-8.24
		2412(Pk)	98.32	*	-
		2412(Av)	82.99	*	-
		4824(Pk)	47.24	74	-26.76
		4824(Av)	29.95	54	-24.05
Mid	Vertical	2437(Pk)	99.51	*	-
		2437(Av)	84.03	*	-
		4874(Pk)	44.34	74	-29.66
		4874(Av)	30.77	54	-23.23
	Horizontal	2437(Pk)	100.23	*	-
		2437(Av)	85.16	*	-
		4874(Pk)	43.40	74	-30.60
		4874(Av)	29.76	54	-24.24
High	Vertical	2457(Pk)	98.04	*	-
		2457(Av)	82.67	*	-
		2483.5(Pk)	63.21	74	-10.79
		2483.5(Av)	42.42	54	-11.58
		4914(Pk)	46.79	74	-27.21
		4914(Av)	31.67	54	-22.33
	Horizontal	2457(Pk)	97.96	*	-
		2457(Av)	82.9	*	-
		2483.5(Pk)	63.16	74	-10.84
		2483.5(Av)	45.08	54	-8.92
		4914(Pk)	46.19	74	-27.81
		4914(Av)	31.23	54	-22.77

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Standalone module without accessories

802.11b

Data rate: 11Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	56.45	74	-17.55
		2390(Av)	41.05	54	-12.95
		2412(Pk)	109.95	*	-
		2412(Av)	101.72	*	-
		4824(Pk)	50.31	74	-23.69
		4824(Av)	39.00	54	-15.00
	Horizontal	2390(Pk)	49.93	74	-24.07
		2390(Av)	35.32	54	-18.68
		2412(Pk)	105.43	*	-
		2412(Av)	97.21	*	-
		4824(Pk)	53.29	74	-20.71
		4824(Av)	42.47	54	-11.53
Mid	Vertical	2437(Pk)	110.84	*	-
		2437(Av)	102.53	*	-
		4874(Pk)	55.47	74	-18.53
		4874(Av)	44.63	54	-9.37
	Horizontal	2437(Pk)	104.93	*	-
		2437(Av)	96.62	*	-
		4874(Pk)	55.23	74	-18.77
		4874(Av)	43.72	54	-10.28
High	Vertical	2462(Pk)	110.24	*	-
		2462(Av)	101.97	*	-
		2483.5(Pk)	54.23	74	-19.77
		2483.5(Av)	37.24	54	-16.76
		4924(Pk)	58.26	74	-15.74
		4924(Av)	47.63	54	-6.37
	Horizontal	2462(Pk)	104.60	*	-
		2462(Av)	96.35	*	-
		2483.5(Pk)	46.76	74	-27.24
		2483.5(Av)	29.93	54	-24.07
		4924(Pk)	52.78	74	-21.22
		4924(Av)	41.36	54	-12.64

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Data rate: 54Mbps

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	65.82	74	-8.18
		2390(Av)	49.16	54	-4.84
		2412(Pk)	107.23	*	-
		2412(Av)	94.70	*	-
		4824(Pk)	47.59	74	-26.41
		4824(Av)	34.10	54	-19.90
	Horizontal	2390(Pk)	59.98	74	-14.02
		2390(Av)	41.24	54	-12.76
		2412(Pk)	101.24	*	-
		2412(Av)	87.99	*	-
		4824(Pk)	43.56	74	-30.44
		4824(Av)	33.13	54	-20.87
Mid	Vertical	2437(Pk)	108.00	*	-
		2437(Av)	94.40	*	-
		4874(Pk)	50.03	74	-23.97
		4874(Av)	35.36	54	-18.64
	Horizontal	2437(Pk)	101.55	*	-
		2437(Av)	88.50	*	-
		4874(Pk)	49.86	74	-24.14
		4874(Av)	35.88	54	-18.12
High	Vertical	2462(Pk)	107.26	*	-
		2462(Av)	94.71	*	-
		2483.5(Pk)	72.71	74	-1.29
		2483.5(Av)	48.84	54	-5.16
		4924(Pk)	51.43	74	-22.57
		4924(Av)	36.87	54	-17.13
	Horizontal	2462(Pk)	100.39	*	-
		2462(Av)	87.38	*	-
		2483.5(Pk)	58.11	74	-15.89
		2483.5(Av)	36.23	54	-17.77
		4924(Pk)	47.47	74	-26.53
		4924(Av)	33.74	54	-20.26

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MIMO_MCS8_20MHz

Channel	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	70.97	74	-3.03
		2390(Av)	51.84	54	-2.16
		2412(Pk)	106.47	*	-
		2412(Av)	94.12	*	-
		4824(Pk)	48.69	74	-25.31
		4824(Av)	34.20	54	-19.80
	Horizontal	2390(Pk)	57.56	74	-16.44
		2390(Av)	39.69	54	-14.31
		2412(Pk)	97.95	*	-
		2412(Av)	86.92	*	-
		4824(Pk)	47.69	74	-16.44
		4824(Av)	33.72	54	-14.31
Mid	Vertical	2437(Pk)	109.85	*	-
		2437(Av)	97.73	*	-
		4874(Pk)	53.34	74	-20.66
		4874(Av)	39.58	54	-14.42
	Horizontal	2437(Pk)	98.76	*	-
		2437(Av)	88.45	*	-
		4874(Pk)	52.22	74	-21.78
		4874(Av)	37.52	54	-16.48
High	Vertical	2462(Pk)	105.85	*	-
		2462(Av)	94.54	*	-
		2483.5(Pk)	67.15	74	-6.85
		2483.5(Av)	47.64	54	-6.36
		4924(Pk)	46.62	74	-27.38
		4924(Av)	32.39	54	-21.61
	Horizontal	2462(Pk)	95.16	*	-
		2462(Av)	84.65	*	-
		2483.5(Pk)	51.11	74	-22.89
		2483.5(Av)	33.09	54	-20.91
		4924(Pk)	51.17	74	-22.83
		4924(Av)	35.66	54	-18.34

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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MIMO_MCS8_40MHz

	Polarization	Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low	Vertical	2390(Pk)	64.01	74	-9.99
		2390(Av)	45.44	54	-8.56
		2422(Pk)	99.59	*	-
		2422(Av)	87.06	*	-
		4844(Pk)	51.63	74	-22.37
		4844(Av)	32.23	54	-21.77
	Horizontal	2390(Pk)	54.40	74	-19.60
		2390(Av)	36.32	54	-17.68
		2422(Pk)	90.02	*	-
		2422(Av)	78.10	*	-
		4844(Pk)	50.12	74	-23.88
		4844(Av)	32.00	54	-22.00
Mid	Vertical	2437(Pk)	102.02	*	-
		2437(Av)	89.51	*	-
		4874(Pk)	45.07	74	-28.93
		4874(Av)	32.19	54	-21.81
	Horizontal	2437(Pk)	91.18	*	-
		2437(Av)	80.13	*	-
		4874(Pk)	44.04	74	-29.96
		4874(Av)	32.39	54	-21.61
High	Vertical	2457(Pk)	100.23	*	-
		2457(Av)	87.95	*	-
		2483.5(Pk)	60.56	74	-13.44
		2483.5(Av)	45.04	54	-8.96
		4914(Pk)	44.17	74	-29.83
		4914(Av)	32.97	54	-21.03
	Horizontal	2457(Pk)	90.27	*	-
		2457(Av)	78.91	*	-
		2483.5(Pk)	49.90	74	-24.10
		2483.5(Av)	32.08	54	-21.92
		4914(Pk)	43.35	74	-30.65
		4914(Av)	30.33	54	-23.67

*-> Fundamental frequency

Pk-> Peak

Av-> Average

7 Test Results-Bluetooth Low energy

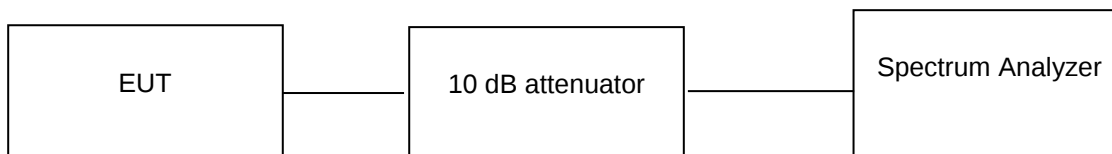
7.1 Maximum conducted output power

Result

Pass

Test Specification	FCC part 15 Subpart C 15.247 (b)(3)
Measurement Bandwidth	1 MHz
Detector	Peak
Requirement	≤ 1 W (30 dBm)

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results:

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

Data rate (Mbps)	Channel Frequency (MHz)	Output power (dBm)	Limit (dBm)
1	2402	0.298	30
	2440	-1.961	30
	2480	0.354	30
2	2402	0.279	30
	2440	-1.999	30
	2480	0.356	30

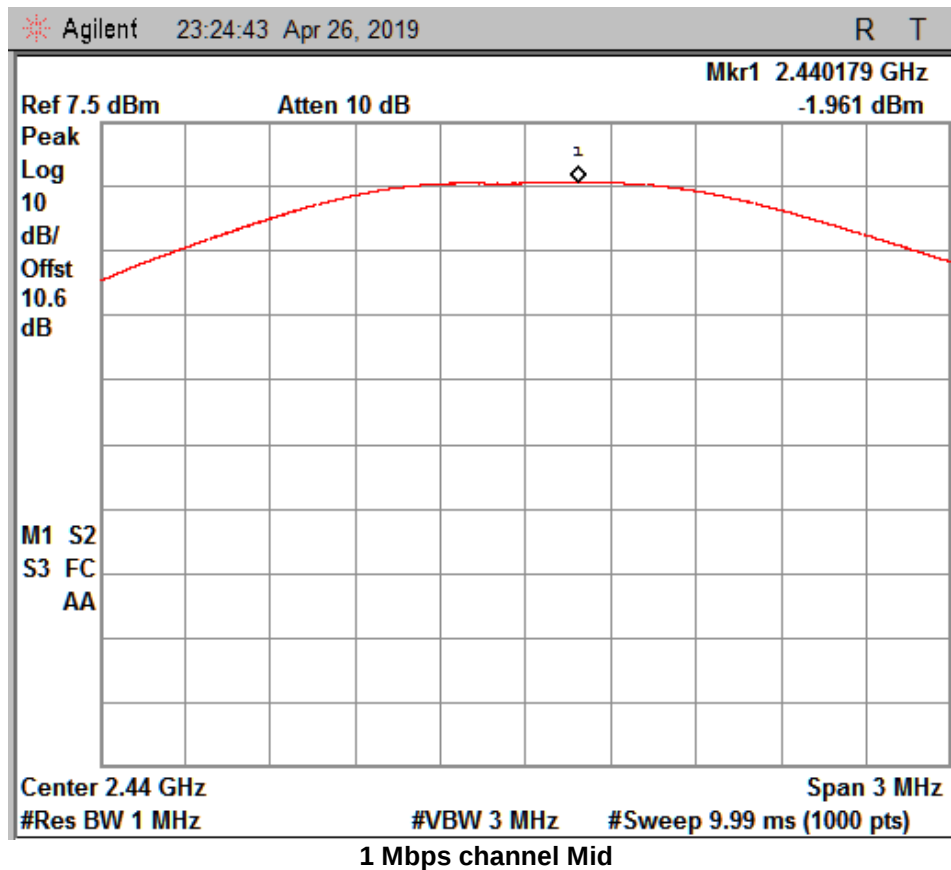
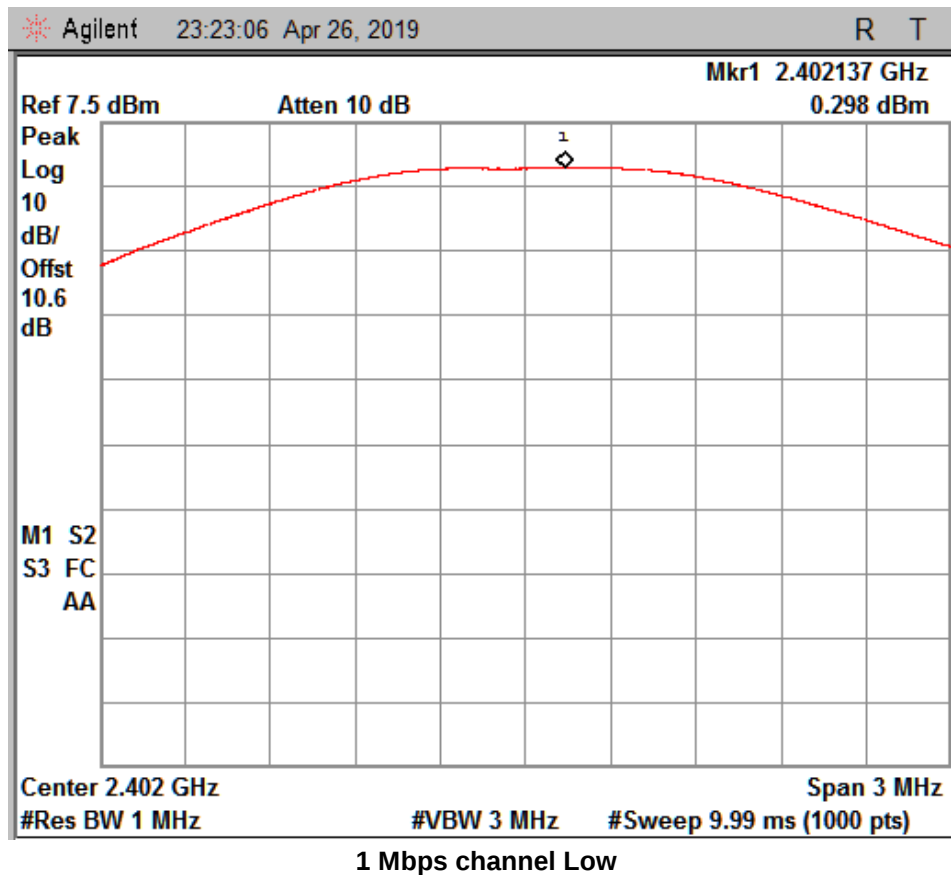
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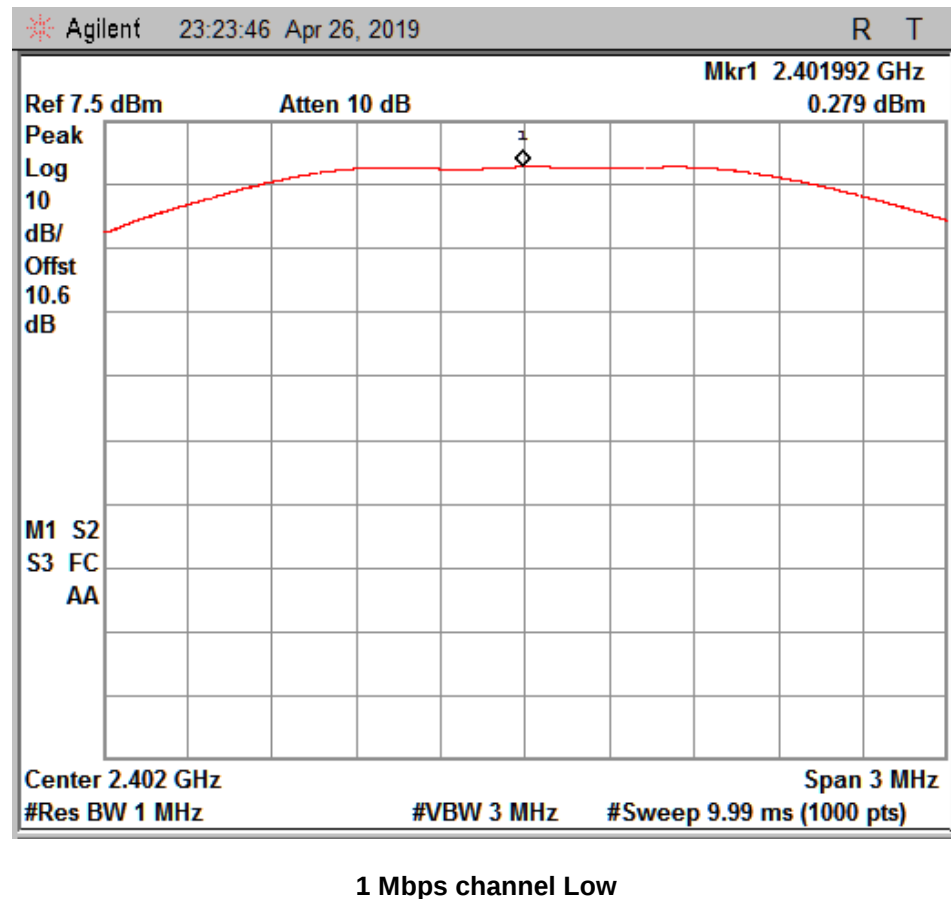
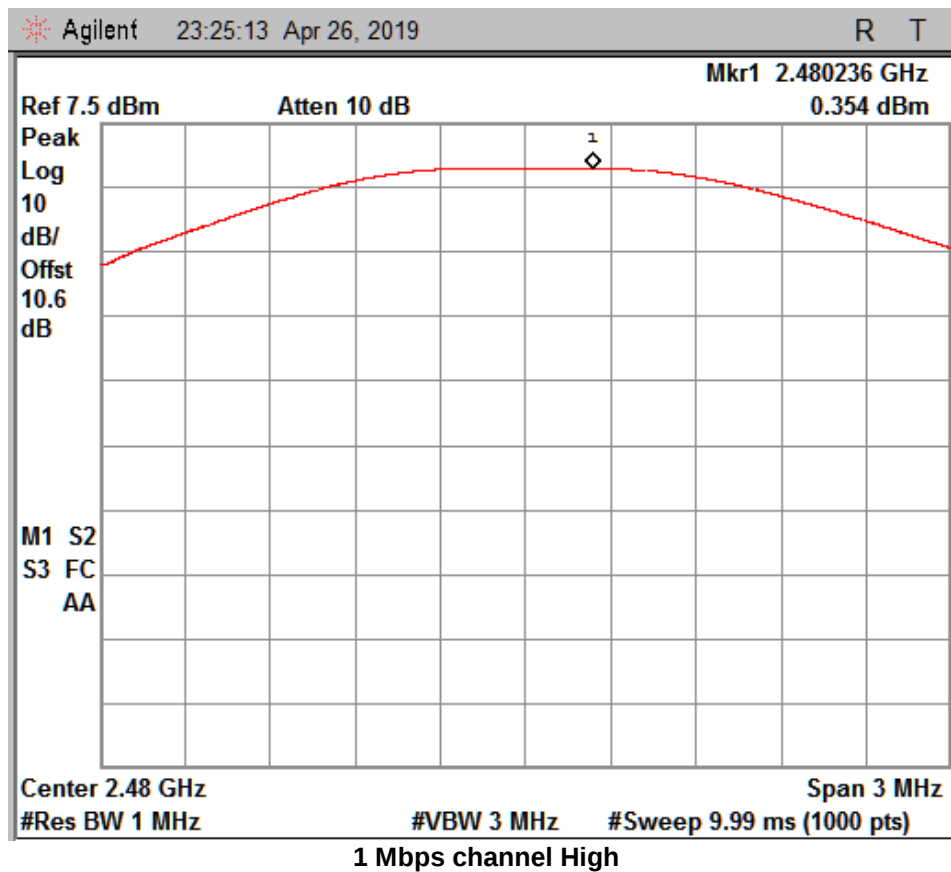
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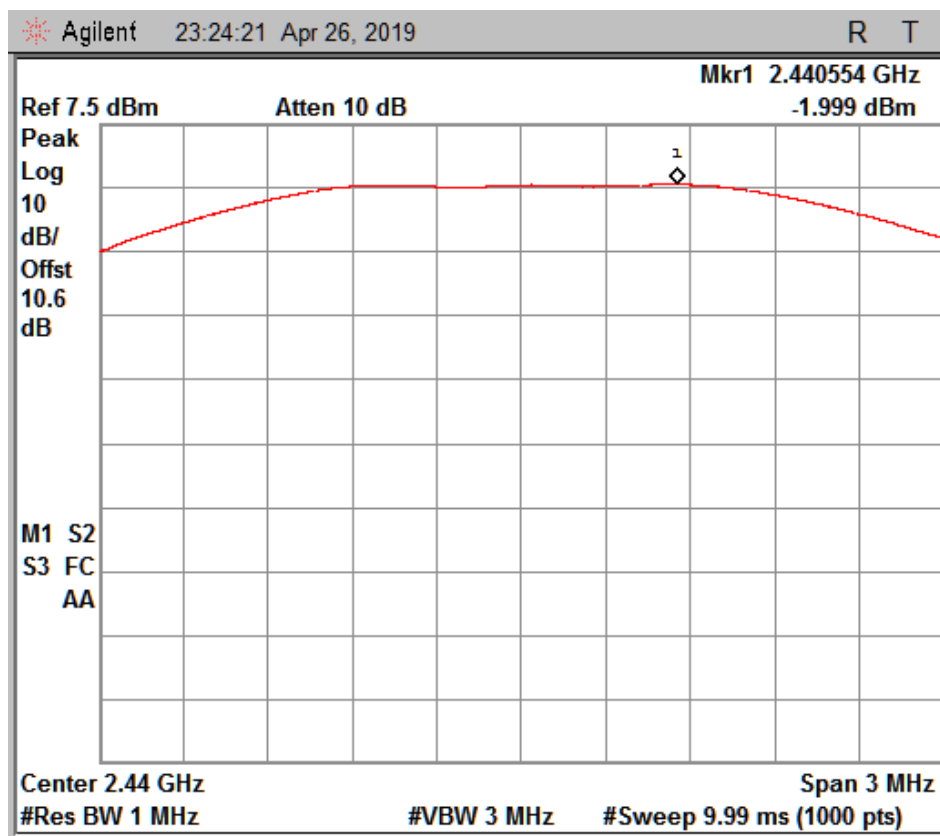
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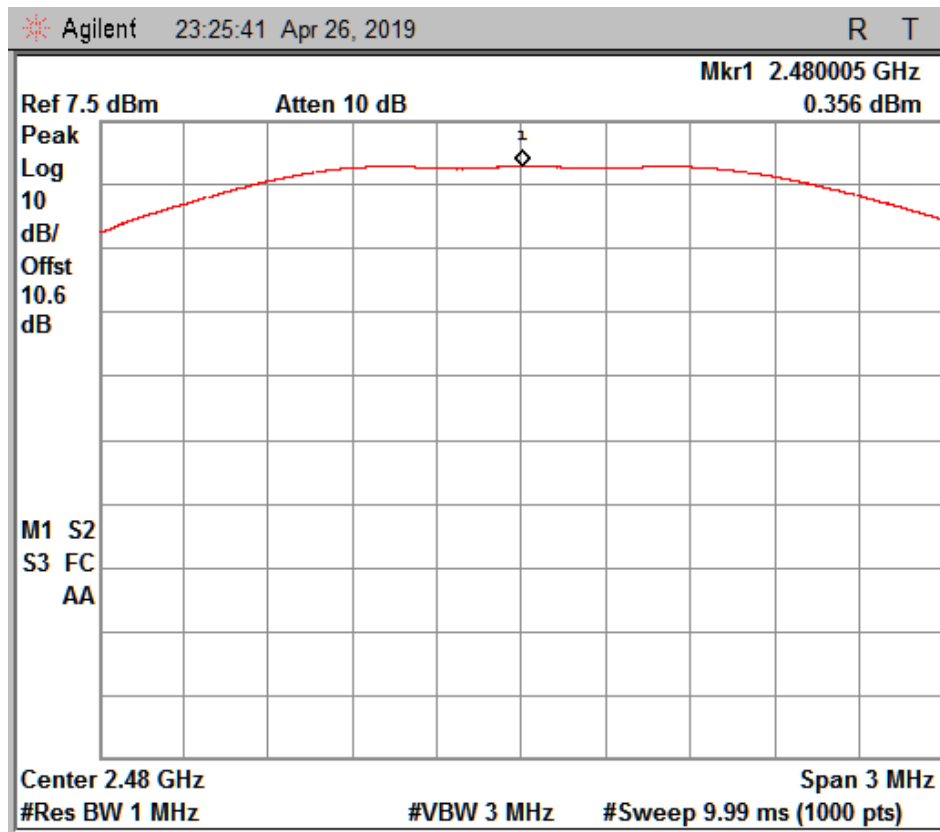
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1 Mbps channel Mid



1 Mbps channel High

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7.2 Maximum Power Spectral Density

Result

Pass

Test Specification

FCC Part 15 Subpart C Section 15.247 (e)

Detector Function

Peak

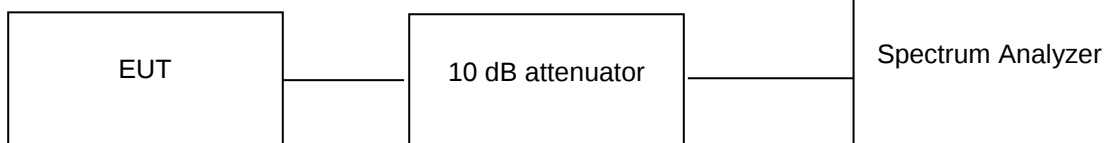
Port of testing

Antenna port

Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm.

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

Data rate (Mbps)	Channel Frequency (MHz)	PSD (dBm)	Limit (dBm)
1	2402	-0.072	8
	2440	-2.450	8
	2480	0.045	8
2	2402	-0.164	8
	2440	-2.542	8
	2480	-0.035	8

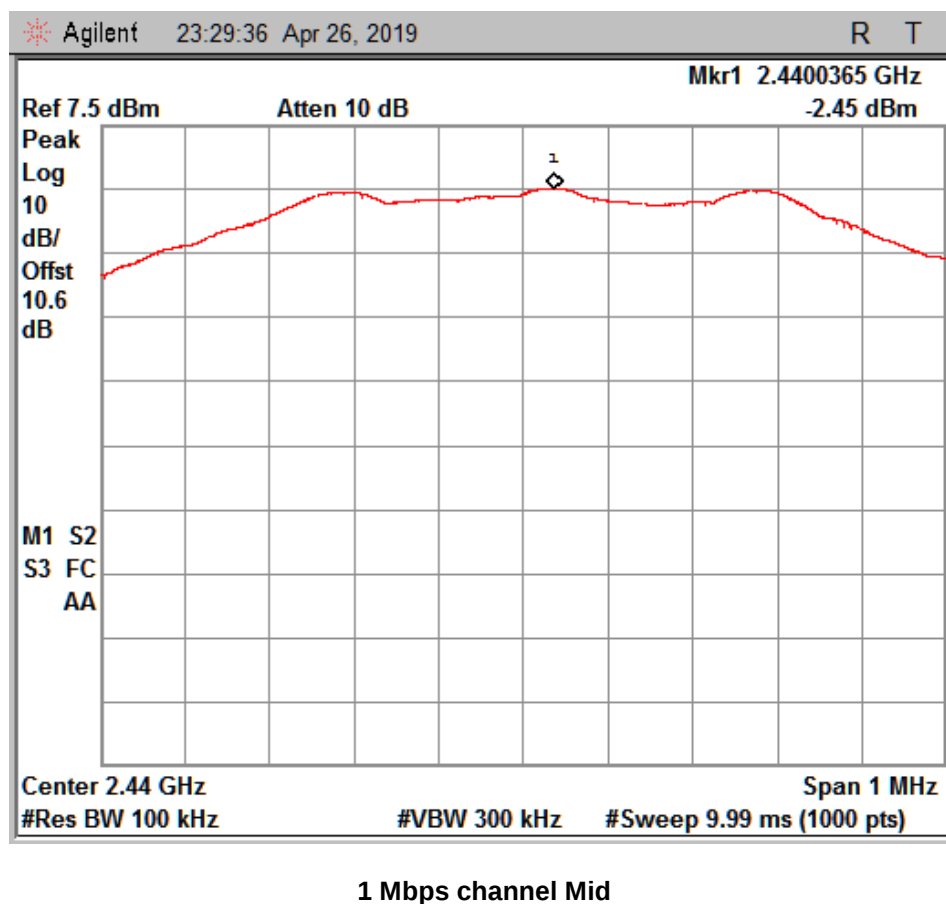
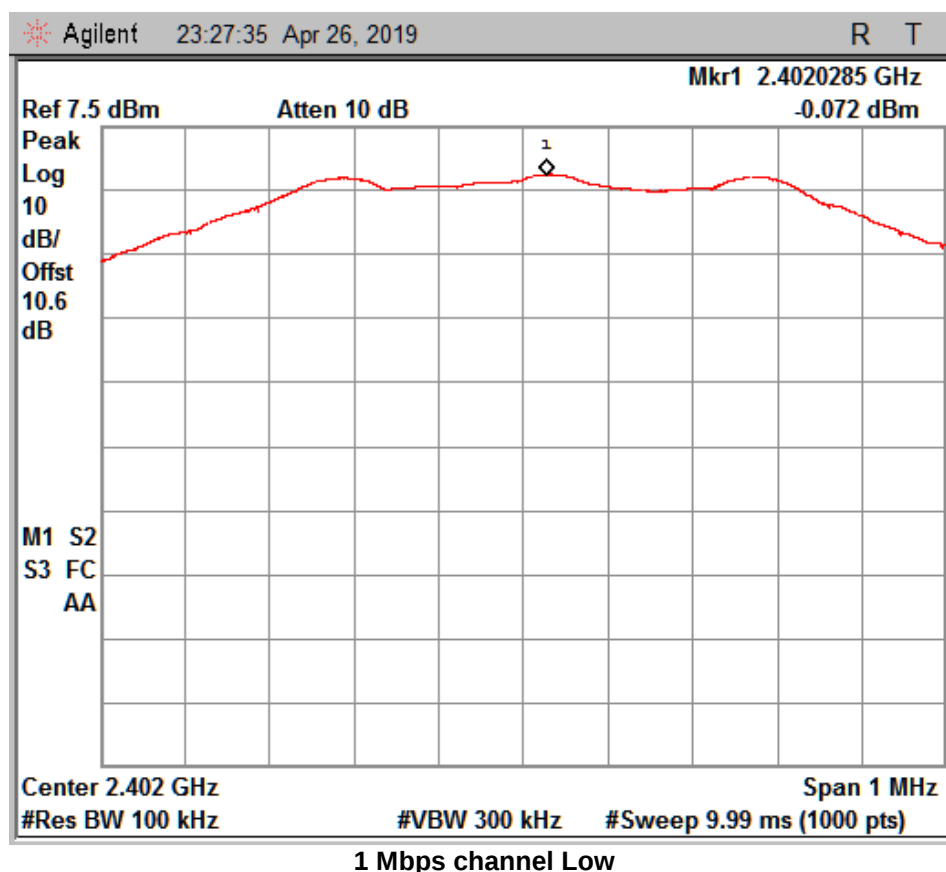
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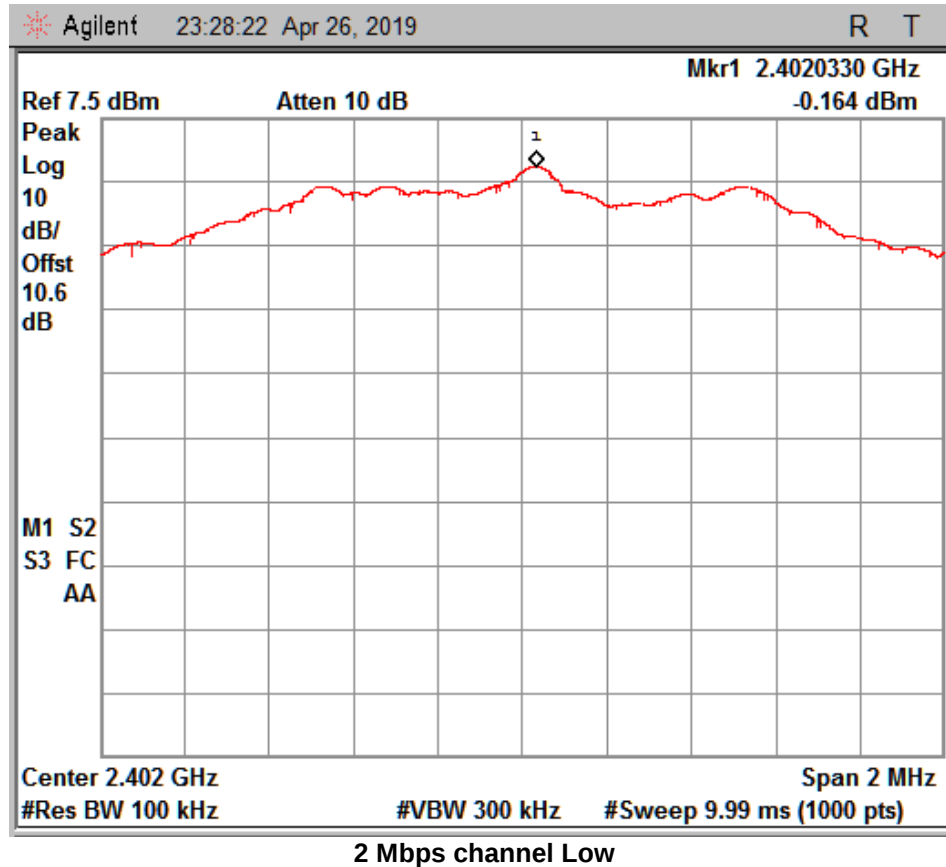
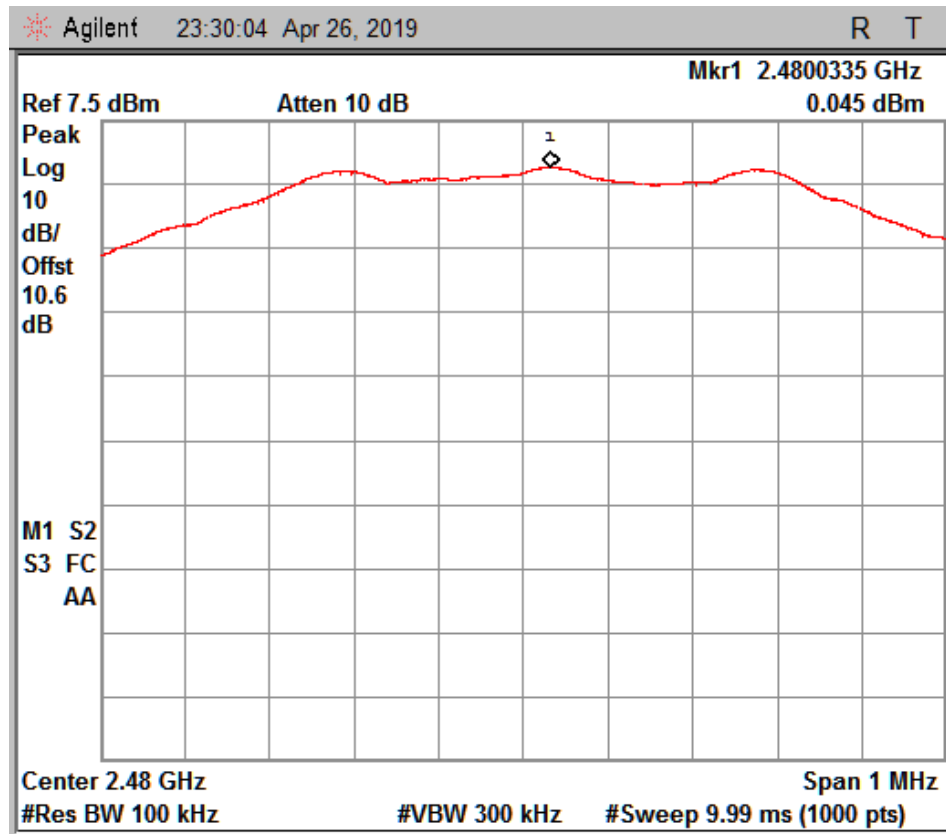
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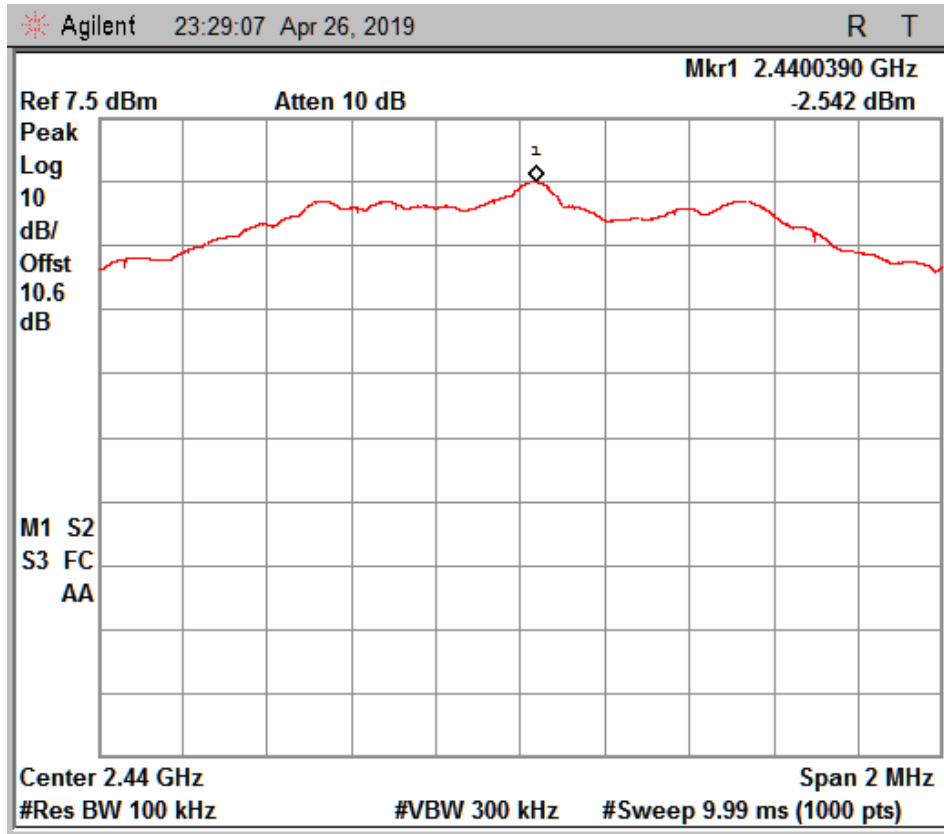
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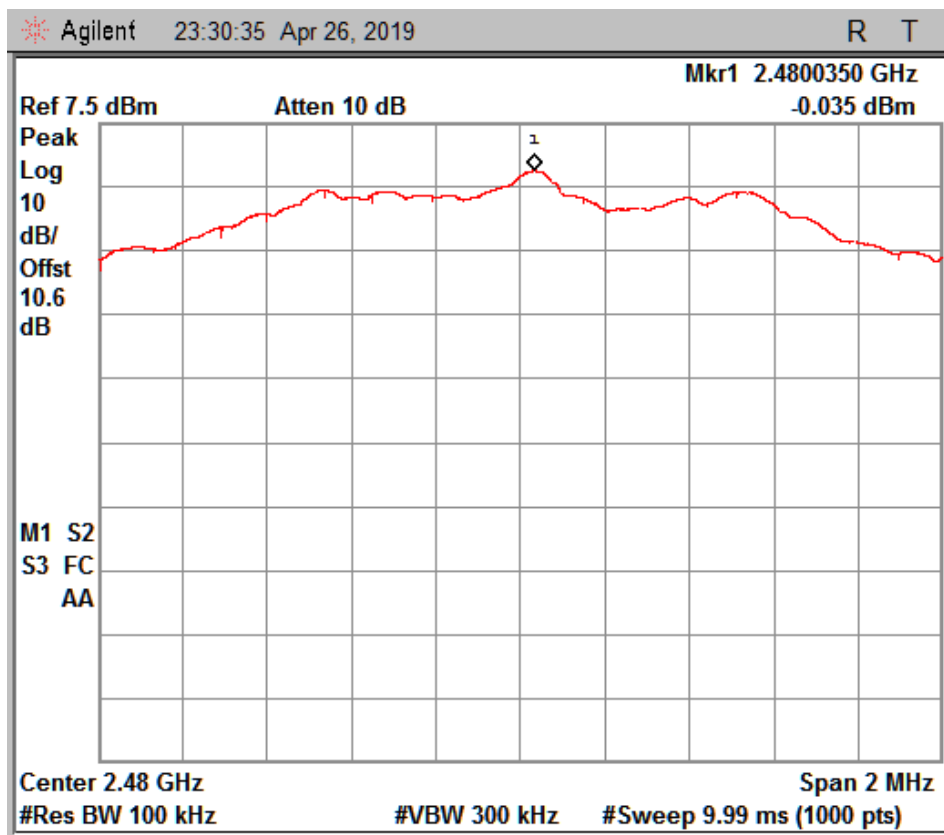
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2 Mbps channel Mid



2 Mbps channel High

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7.3 DTS Bandwidth

Result

Pass

Test Specification

FCC part 15 Subpart C Section 15.247 (a)(2)

Detector

Peak

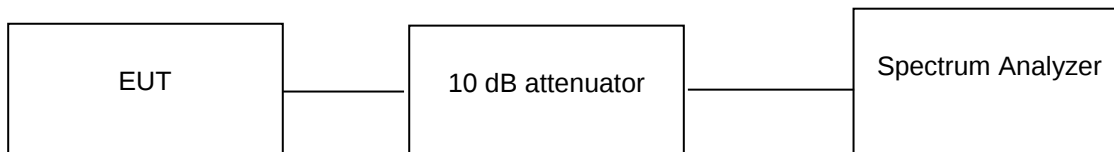
Port of testing

Antenna Port

Requirement

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

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

Data rate (Mbps)	Channel Frequency (MHz)	6 dB Bandwidth (MHz)	99% OBW (MHz)
1	2402	0.726	1.057
	2440	0.726	1.058
	2480	0.723	1.057
2	2402	1.169	2.063
	2440	1.170	2.063
	2480	1.172	2.062

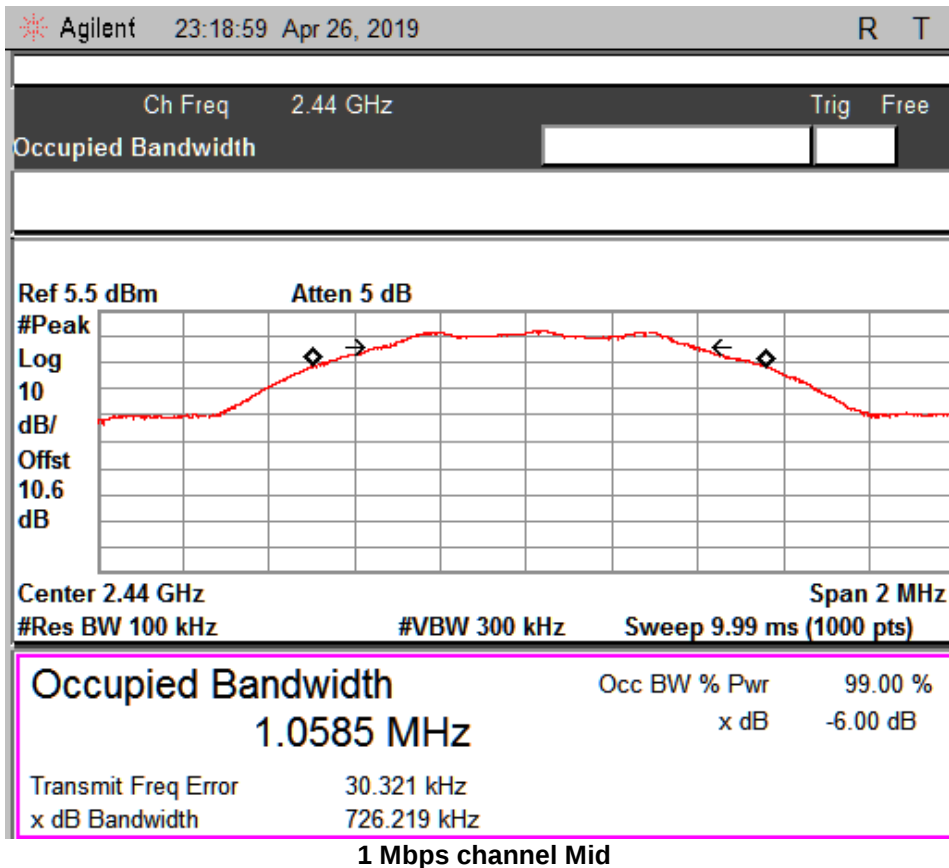
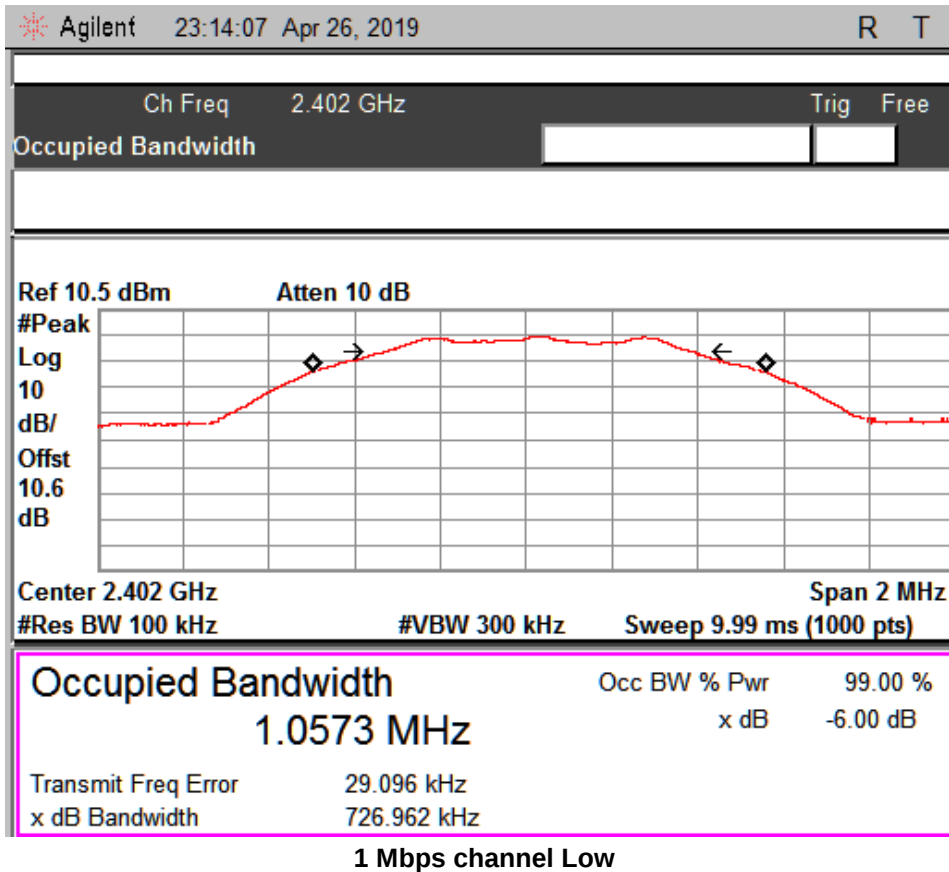
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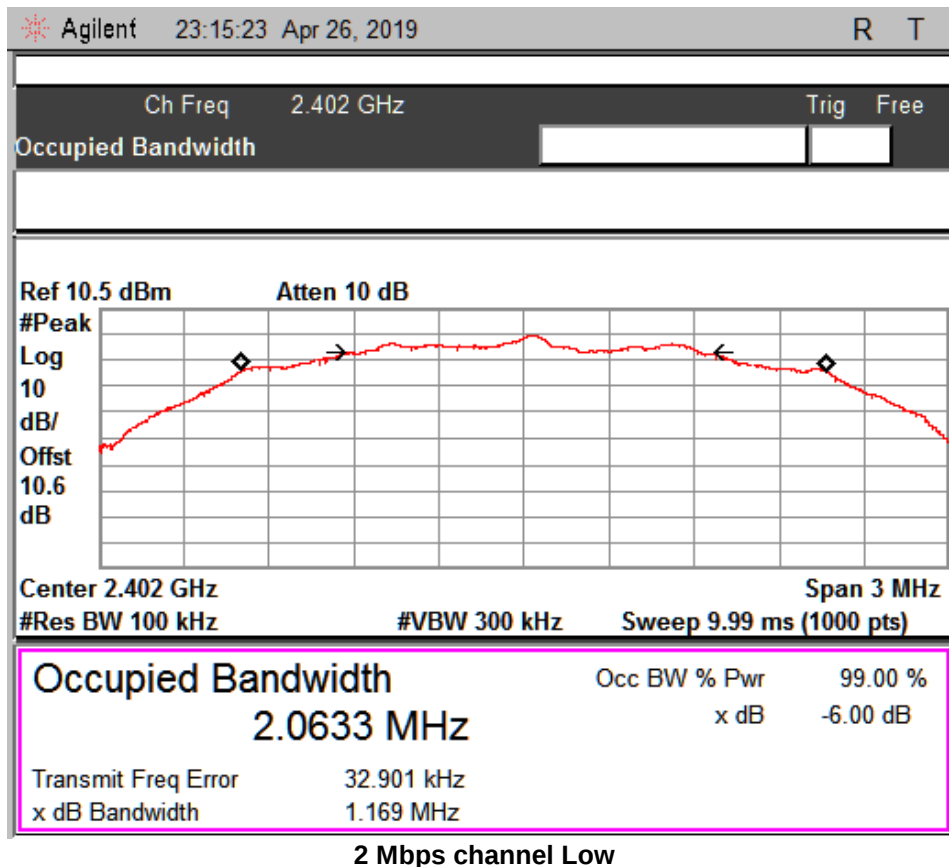
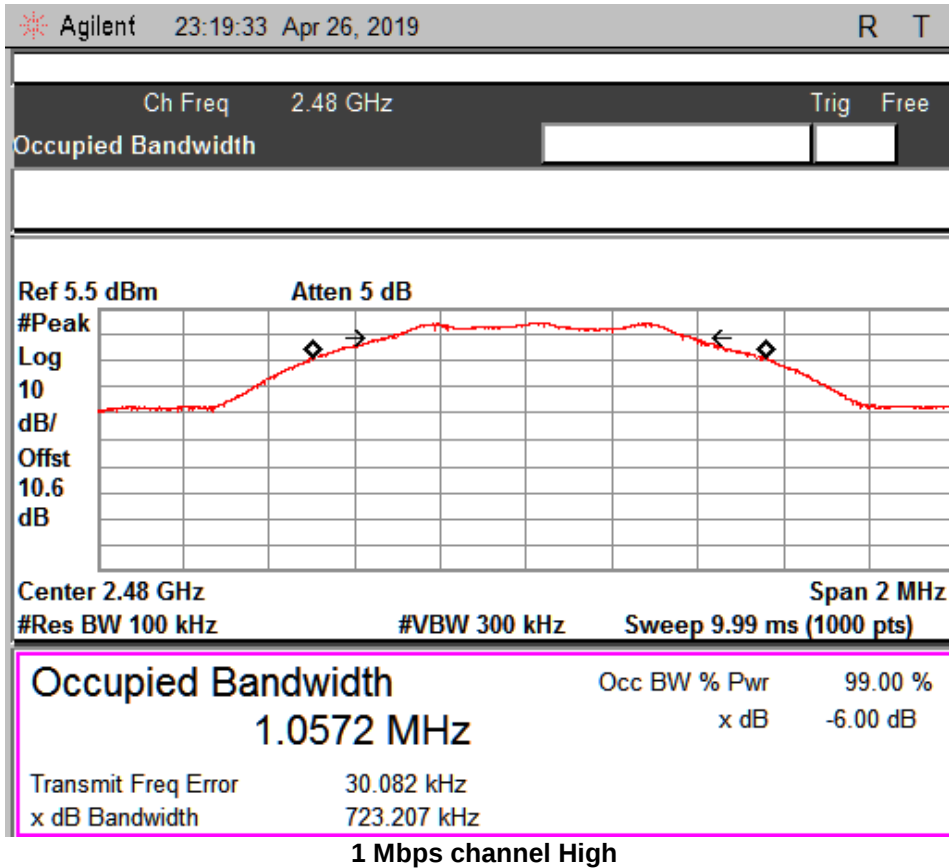
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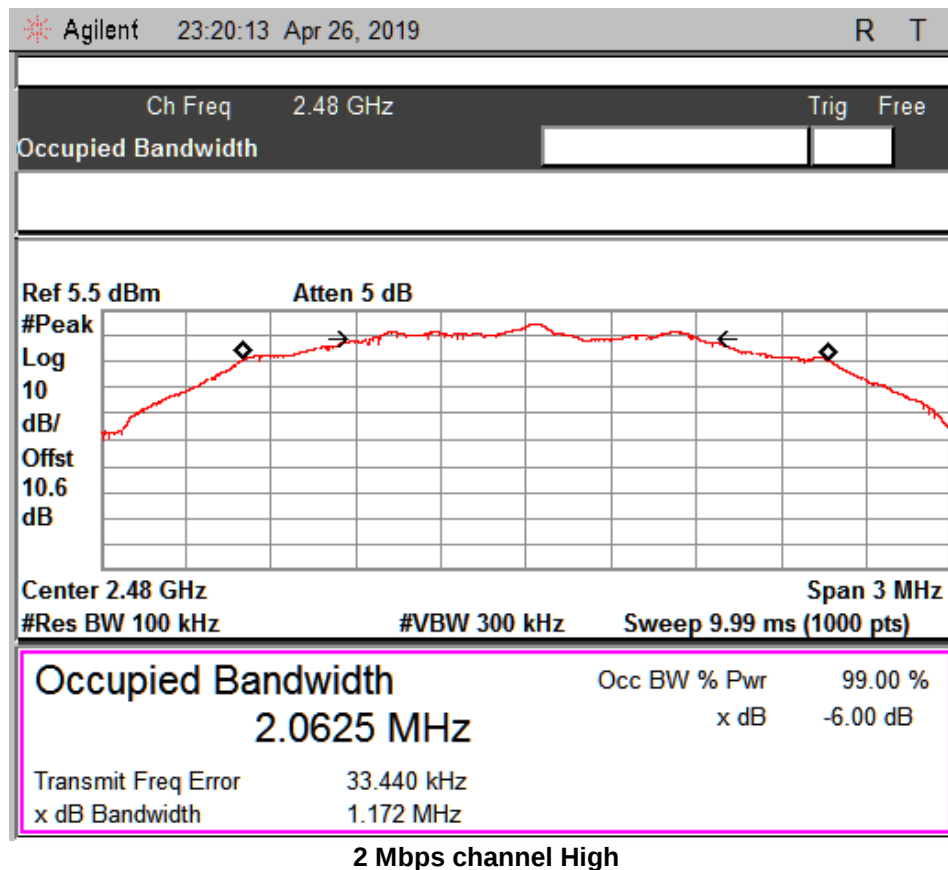
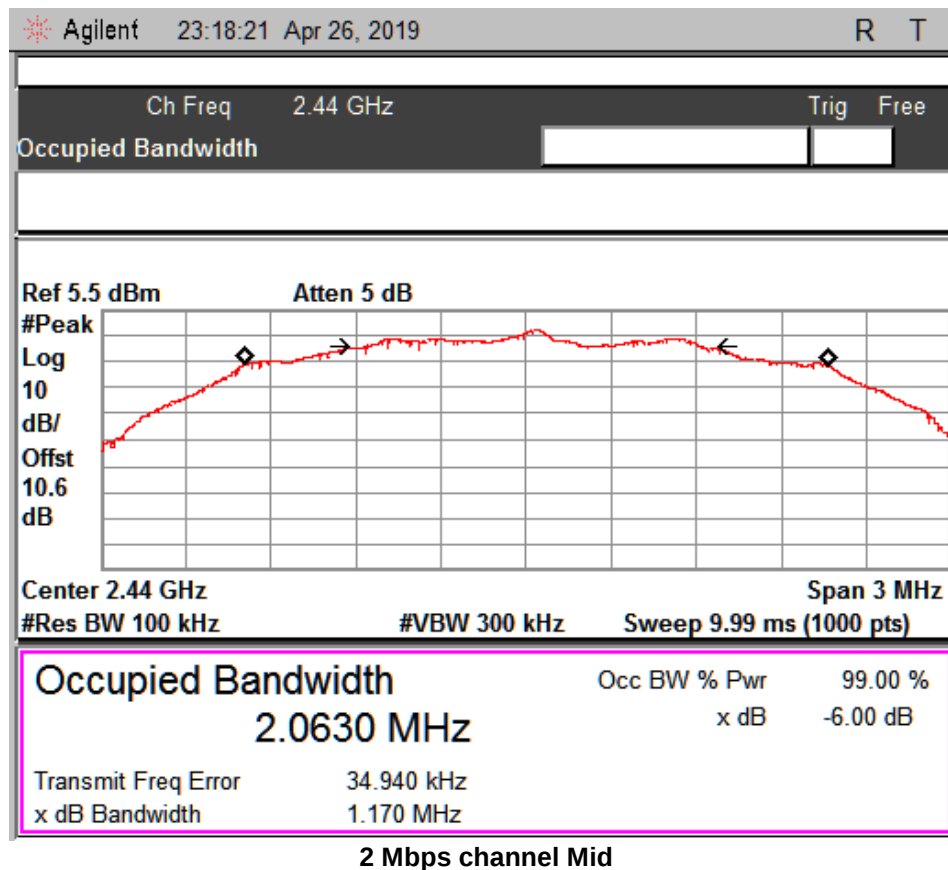
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7.4 Emissions in non-restricted frequency bands

Result

Pass

Test Specification

FCC Part 15 Subpart C Section 15.247 (d)

Detector Function

Peak

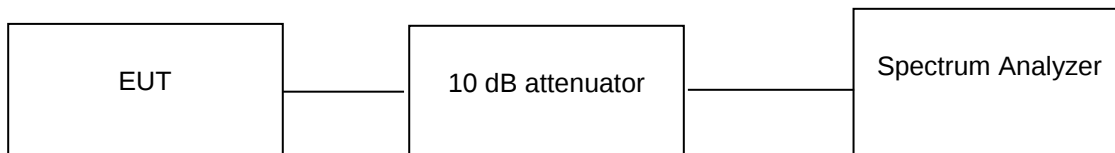
Port of testing

Antenna port

Requirement

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the Highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test Method:



Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

Test results:

10 dB attenuator + 0.6 Cable loss = 10.6 dB offset is considered in below result

Data rate (Mbps)	Channel Frequency (MHz)	Value at Band Edge		Reference PSD Value B (dBm)	Band Edge Value A~B (dBc)	Limit (dBc)
		Frequency (MHz)	Value A (dBm)			
2	2402	2400	-41.86	-0.164	-41.696	-20
	2480	2483.5	-60.97	-0.035	-60.935	-20

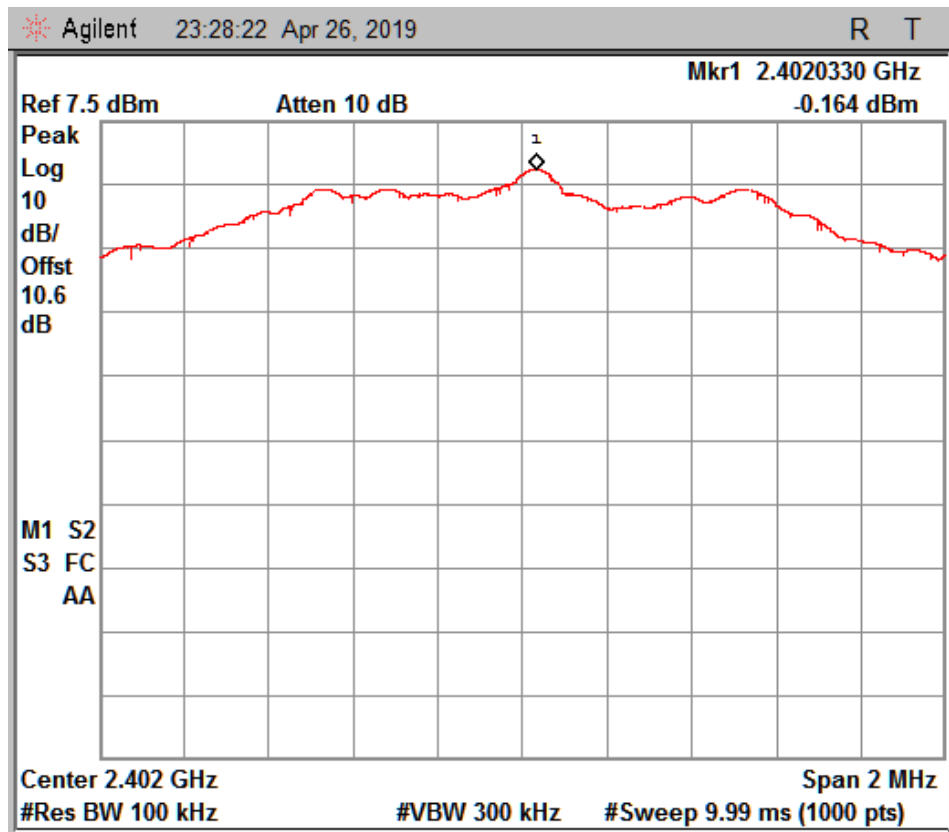
Prüfbericht - Nr.:

Test Report No.:

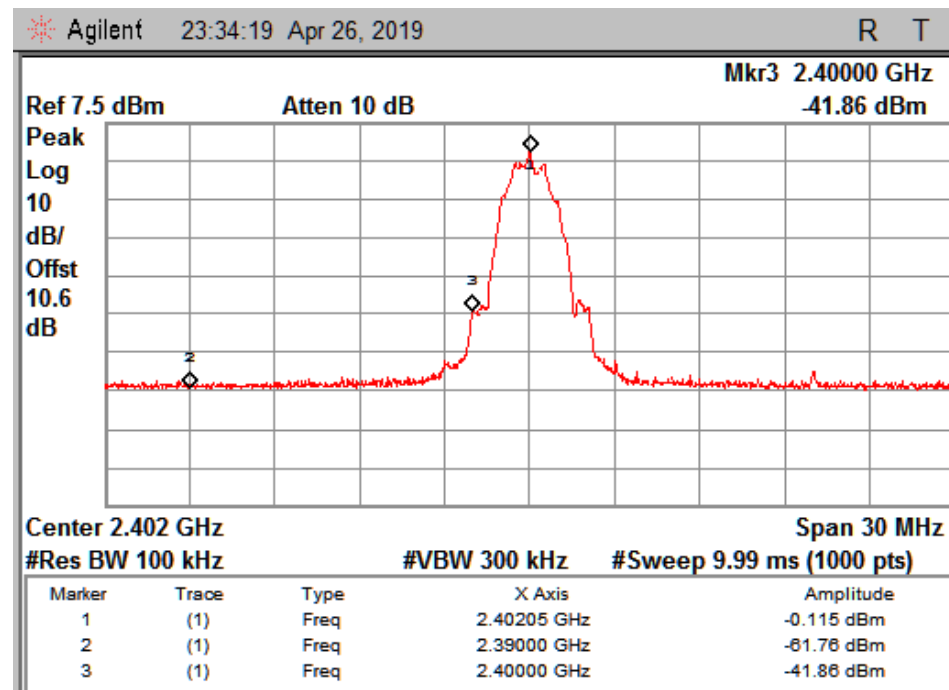
ULR-TC568819300000021F 001

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Reference Plot 2 Mbps channel Low



2 Mbps channel Low

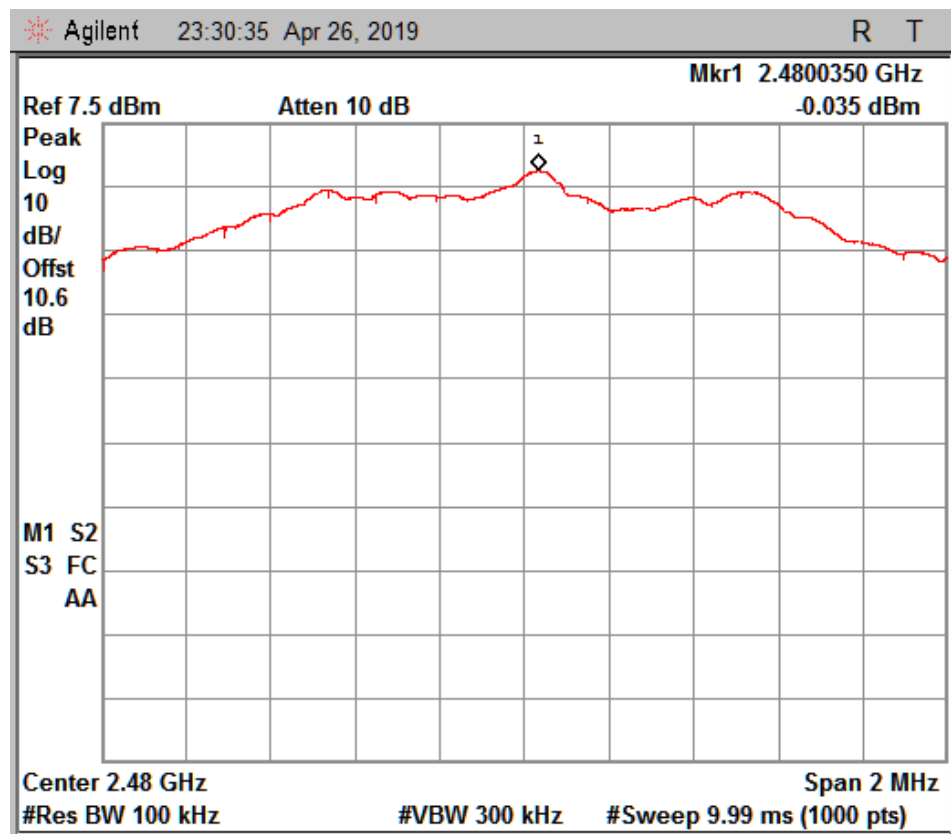
Prüfbericht - Nr.:

Test Report No.:

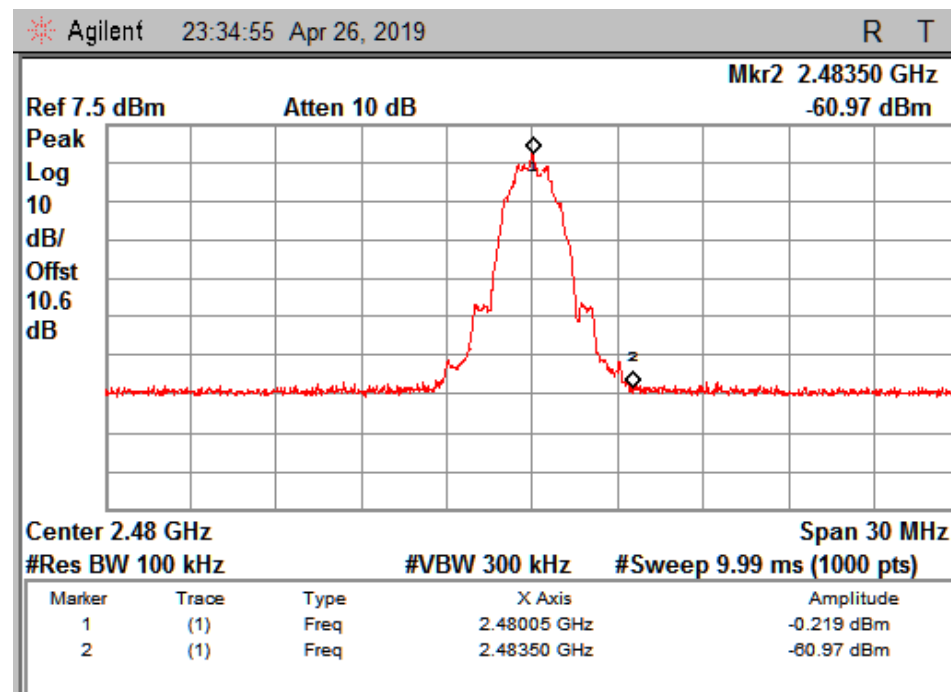
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Reference Plot 2 Mbps channel High



2 Mbps channel High

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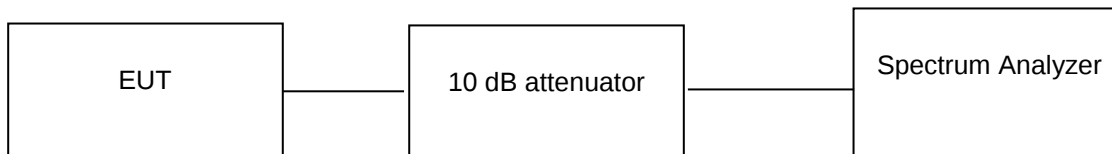
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7.5 Conducted Spurious Emission

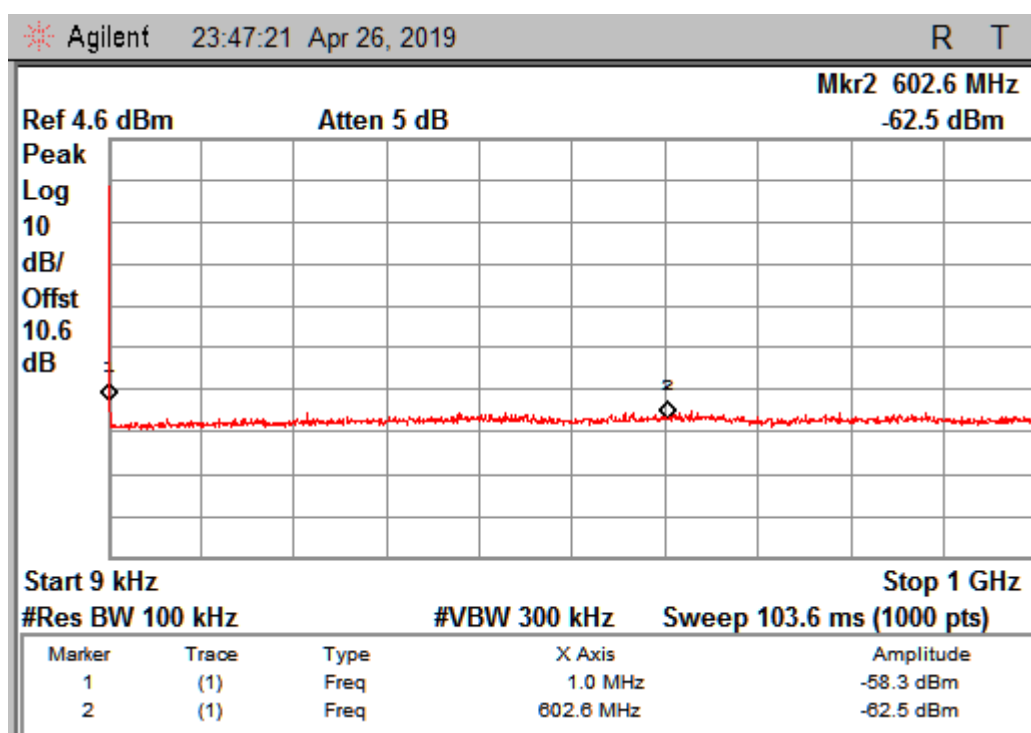
Result

Pass

Test Method:



Test results:



1 Mbps Channel Low 9kHz -1GHz

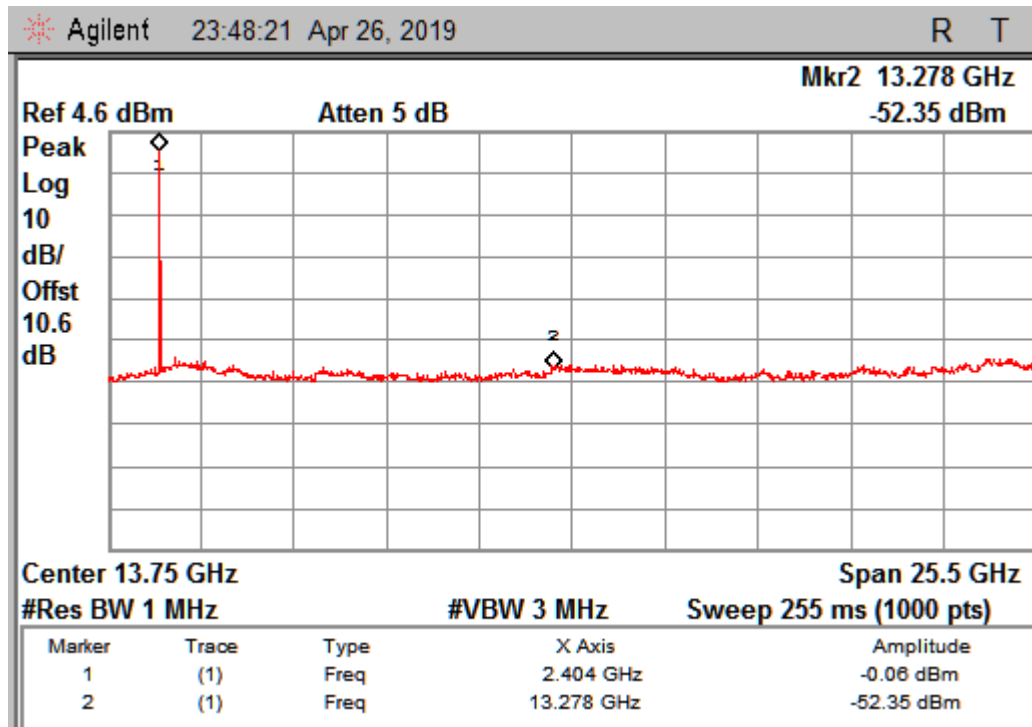
Prüfbericht - Nr.:

Test Report No.:

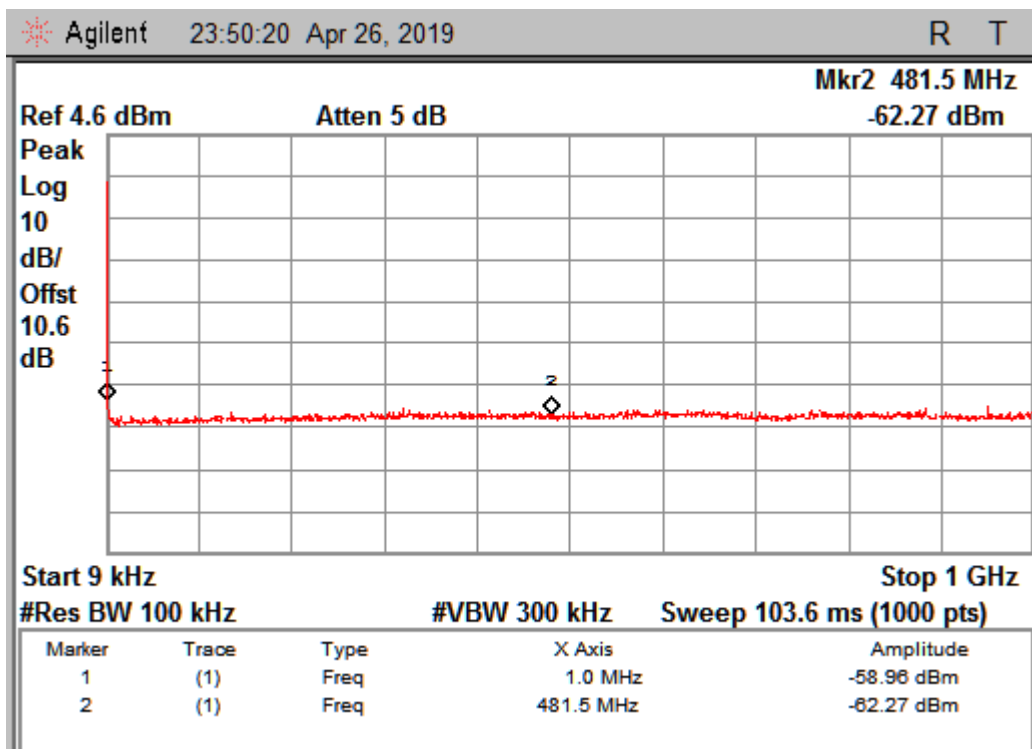
ULR-TC568819300000021F 001

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1 Mbps Channel Low 1GHz-26.5GHz



1 Mbps Channel mid 9kHz -1GHz

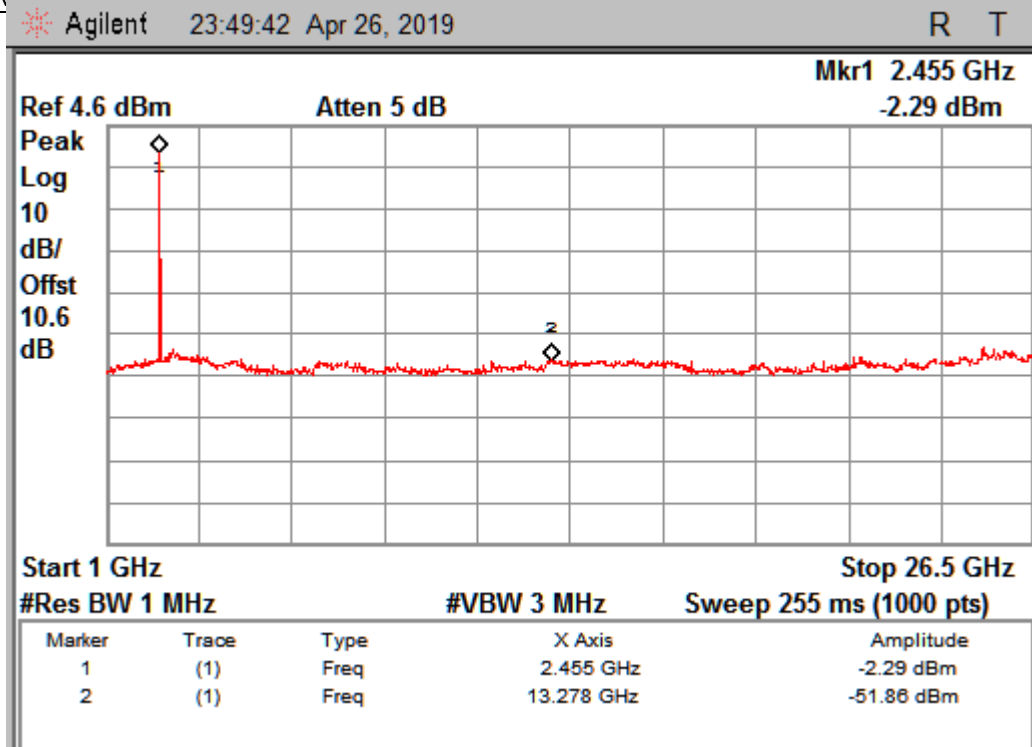
Prüfbericht - Nr.:

Test Report No.:

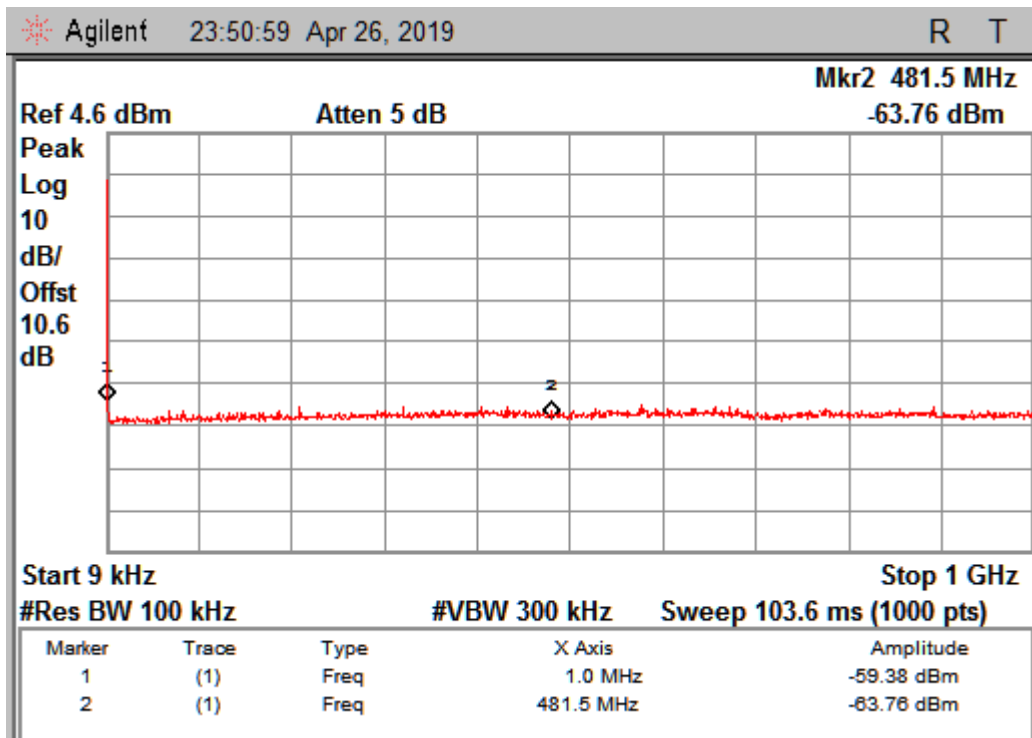
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1 Mbps Channel Mid 1GHz-26.5GHz



1 Mbps Channel High 9kHz -1GHz

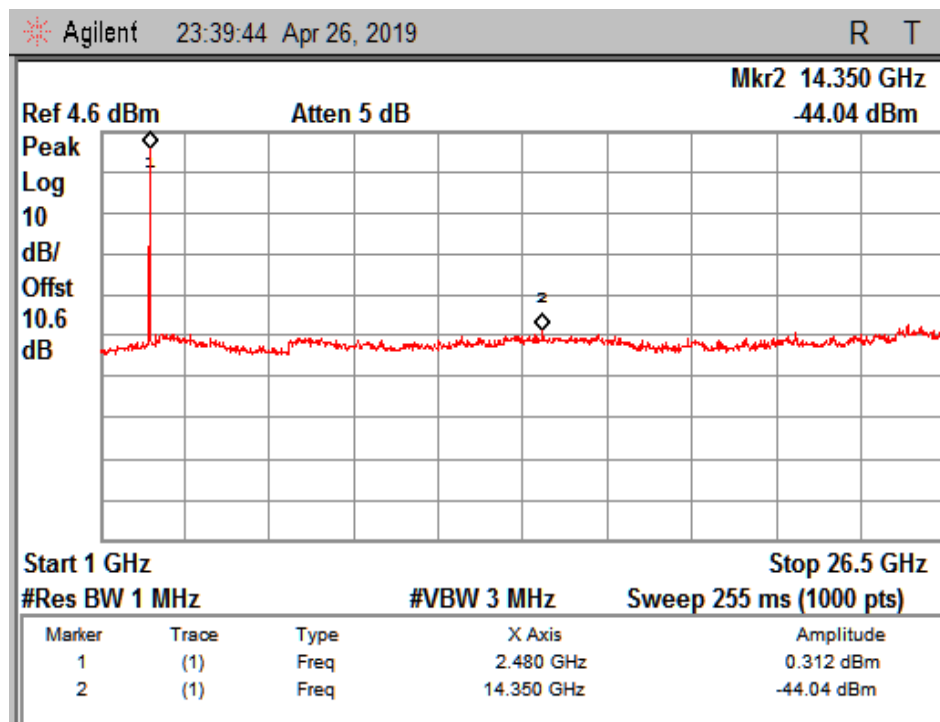
Prüfbericht - Nr.:

Test Report No.:

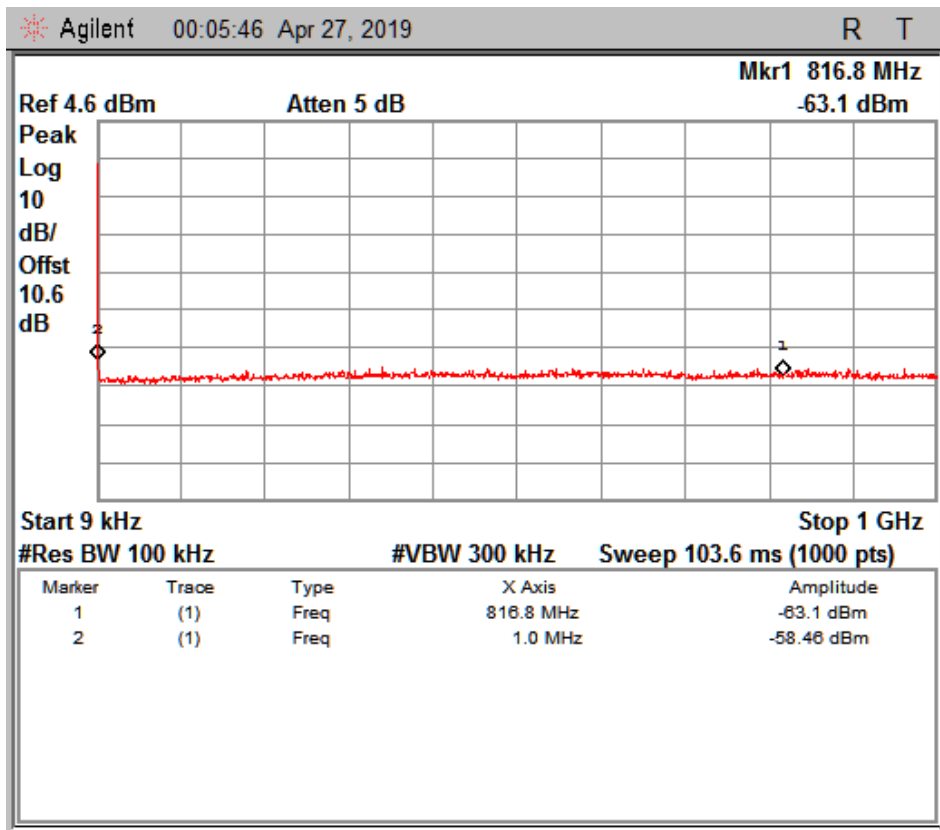
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1 Mbps Channel High 1GHz-26.5GHz



2 Mbps Channel Low 9kHz -1GHz

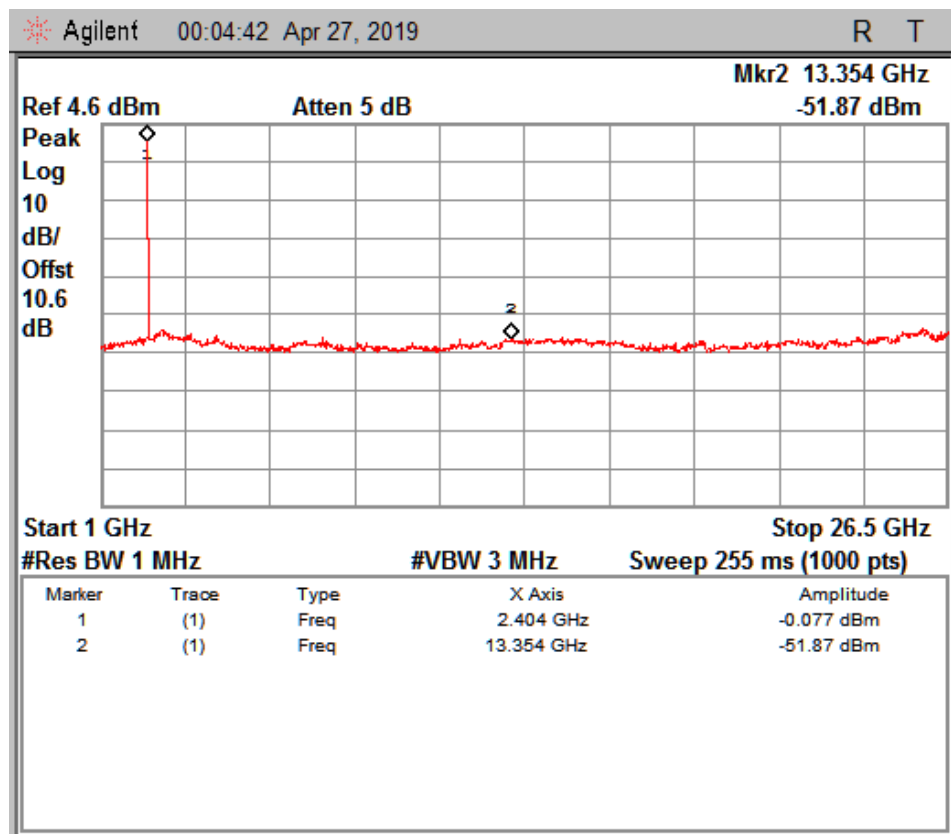
Prüfbericht - Nr.:

Test Report No.:

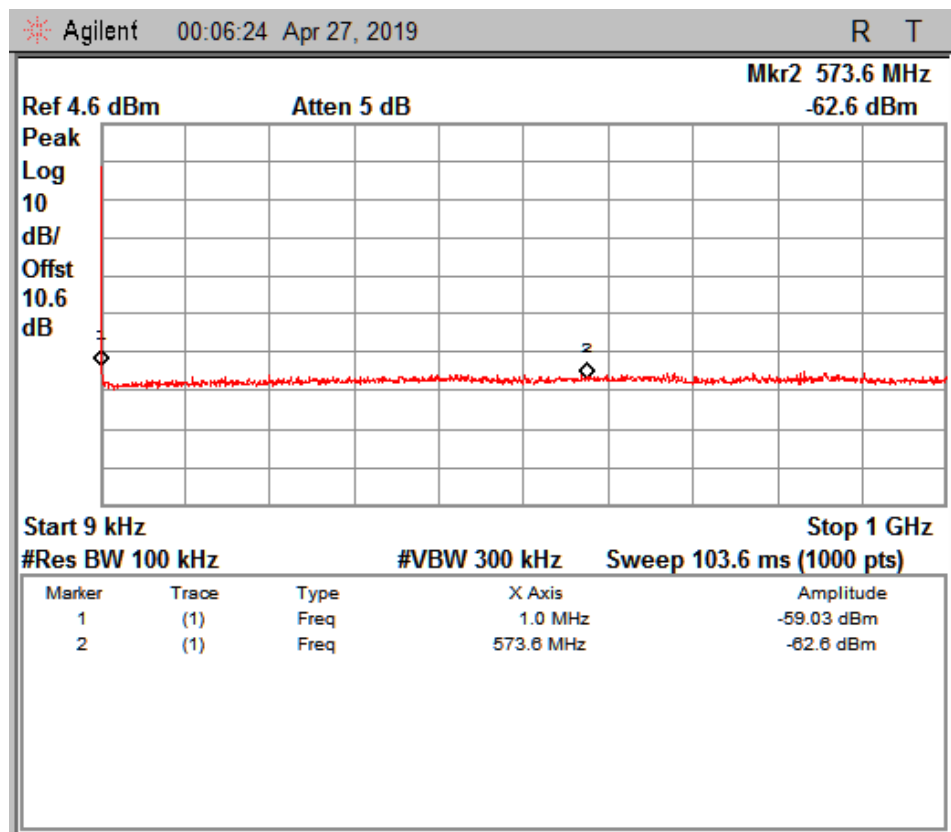
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2 Mbps Channel Low 1GHz-26.5GHz



2 Mbps Channel Mid 9kHz -1GHz

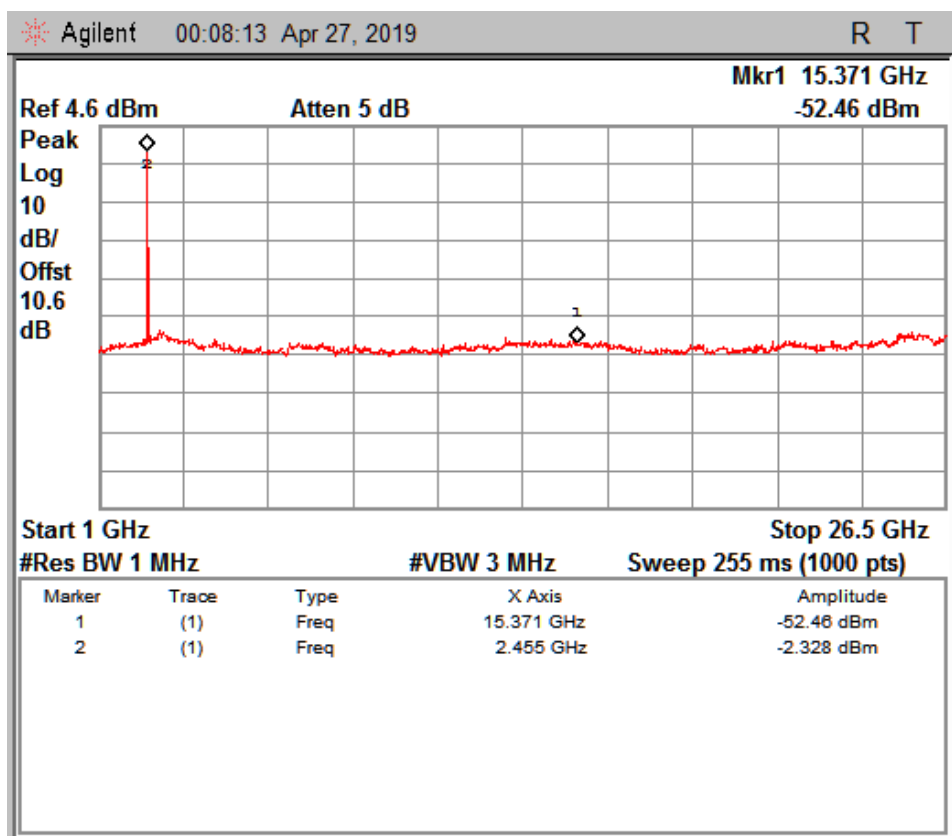
Prüfbericht - Nr.:

Test Report No.:

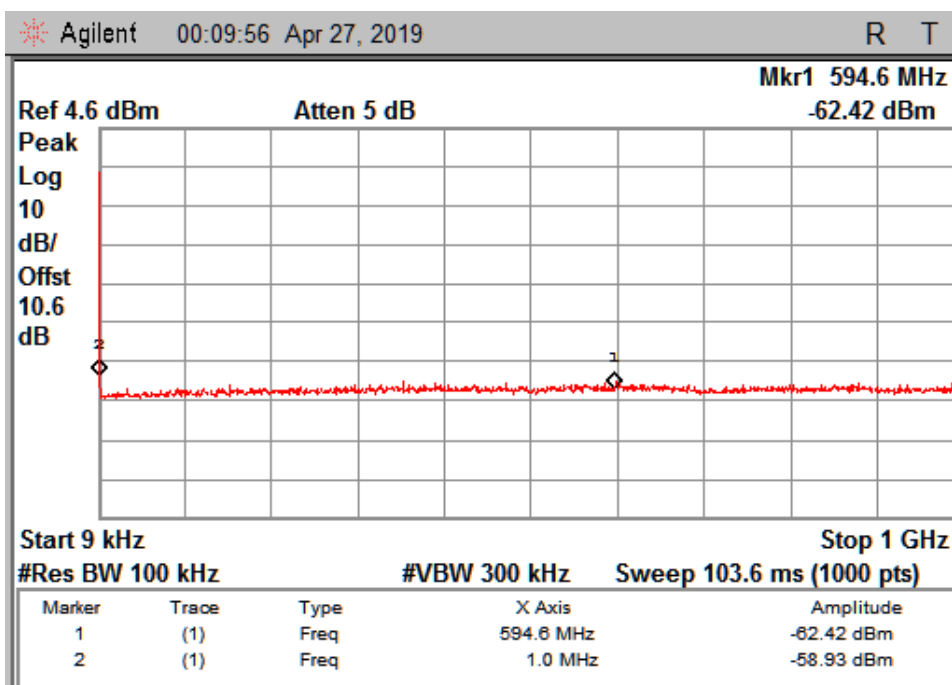
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2 Mbps Channel Mid 1GHz-26.5GHz



2 Mbps Channel High 9kHz -1GHz

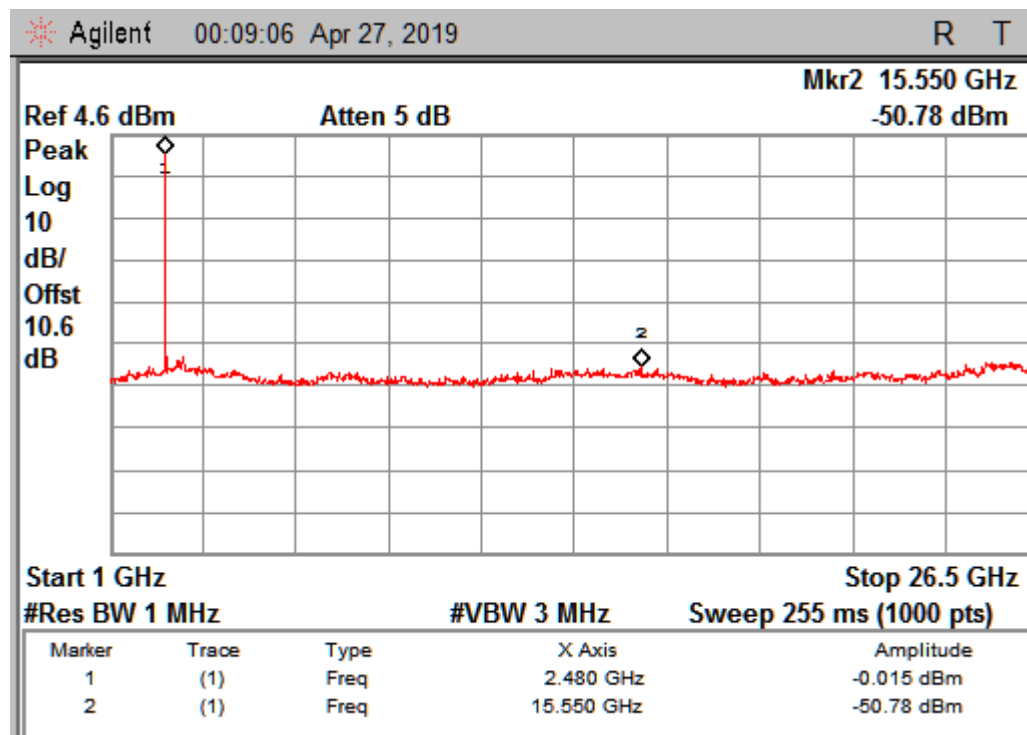
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2 Mbps Channel High 1GHz-26.5GHz

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7.6 Restricted bands of Emissions & Restricted Bands of Operation

Result

Pass

Test Specification	FCC part 15 Subpart C Section 15.247 (d) / (15.209 & 15.205)
Test Method	ANSI C 63.10 – 2013
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3 m
Detector	QP for frequency below 1 GHz, Average for frequency above 1 GHz
Requirement	As per the limits mentioned in the below table

Limits for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * the limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 128-93.8, 73.80-62.95, 69.54 dBμV/m at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

Environmental and Test conditions:

Normal Temperature = +25 °C

Voltage (V norm) = 12 V DC

RH = 63.2 %

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Test results:

No emissions found in frequency 9 kHz to 30 MHz

Standalone module with accessories

Test results for frequencies in the range 30 MHz – 1 GHz

Polarization	Frequency (MHz)	Measured value (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Vertical	216	25.74	43.5	-17.76
Horizontal	61.11	16.61	40	-23.39
	216	34.76	43.5	-8.74
	434.53	37.57	46	-8.43
	869.04	40.51	46	-5.49

Standalone module without accessories

Test results for frequencies in the range 30 MHz – 1 GHz

Polarization	Frequency (MHz)	Measured value (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Vertical	167.99	38.04	43.5	-5.46
	215.97	28.77	43.5	-14.73
	360.02	25.85	46	-20.15
Horizontal	60.583	16.42	40	-23.58
	168.01	32.85	43.5	-10.65
	215.97	38.09	43.5	-5.41
	360	35.74	46	-10.26

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Frequency range :1GHz-26.5GHz

Antenna: Molex

Data rate: 1Mbps

Channel Frequency (MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2402	Vertical	2390(Pk)	48.47	74.00	-25.53
		2390(Av)	26.68	54.00	-27.32
		2402(Pk)	94.18	*	-
		2402(Av)	89.21	*	-
		4804(Pk)	43.12	74.00	-30.88
		4804(Av)	29.55	54.00	-24.45
	Horizontal	2390(Pk)	47.53	74.00	-26.47
		2390(Av)	27.31	54.00	-26.69
		2402(Pk)	90.07	*	-
		2402(Av)	85.30	*	-
		4804(Pk)	42.82	74.00	-31.18
		4804(Av)	29.29	54.00	-24.71
2440	Vertical	2440(Pk)	89.45	*	-
		2440(Av)	84.86	*	-
		4880(Pk)	No Emissions Found		
		4880(Av)			
	Horizontal	2440(Pk)	82.80	-	*
		2440(Av)	77.81	-	*
		4880(Pk)	44.66	74.00	-29.34
		4880(Av)	28.92	54.00	-25.08
2480	Vertical	2480(Pk)	87.89	*	-
		2480(Av)	82.94	*	-
		4960(Pk)	No Emissions Found		
		4960(Av)			
		2483.5(Pk)	44.65	74.00	-29.35
		2483.5(Av)	26.09	54.00	-27.91
	Horizontal	2480(Pk)	82.59	*	-
		2480(Av)	77.63	*	-
		4960(Pk)	No Emissions Found		
		4960(Av)			
		2483.5(Pk)	38.89	74.00	-35.11
		2483.5(Av)	24.16	54.00	-29.84

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Data rate: 2Mbps

Channel Frequency (MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2402	Vertical	2390(Pk)	46.18	74.00	-27.82
		2390(Av)	25.60	54.00	-28.40
		2402(Pk)	87.20	*	-
		2402(Av)	75.10	*	-
		4804(Pk)	43.37	74.00	-30.63
		4804(Av)	29.47	54.00	-24.53
	Horizontal	2390(Pk)	47.53	74.00	-26.47
		2390(Av)	26.01	54.00	-27.99
		2402(Pk)	85.91	*	-
		2402(Av)	73.78	*	-
		4804(Pk)	41.09	74.00	-32.91
		4804(Av)	27.73	54.00	-26.27
2440	Vertical	2440(Pk)	89.84	*	-
		2440(Av)	77.70	*	-
		4880(Pk)	43.36	74.00	-30.64
		4880(Av)	28.96	54.00	-25.04
	Horizontal	2440(Pk)	82.61	*	-
		2440(Av)	74.30	*	-
		4880(Pk)	42.31	74.00	-31.69
		4880(Av)	28.81	54.00	-25.19
2480	Vertical	2480(Pk)	88.13	*	-
		2480(Av)	76.00	*	-
		4960(Pk)	43.22	74.00	-30.78
		4960(Av)	29.38	54.00	-24.62
		2483.5(Pk)	43.92	74.00	-30.08
		2483.5(Av)	25.51	54.00	-28.49
	Horizontal	2480(Pk)	82.83	*	-
		2480(Av)	70.69	*	-
		4960(Pk)	42.98	74.00	-31.02
		4960(Av)	29.12	54.00	-24.88
		2483.5(Pk)	87.98	74.00	-13.98
		2483.5(Av)	75.84	54.00	-21.84

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Antenna: Antennova

Data rate: 1Mbps

Channel Frequency (MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2402	Vertical	2390(Pk)	45.58	74.00	-28.42
		2390(Av)	25.17	54.00	-28.83
		2402(Pk)	90.75	*	-
		2402(Av)	85.83	*	-
		4804(Pk)	43.57	74.00	-30.43
		4804(Av)	29.96	54.00	-24.04
	Horizontal	2390(Pk)	44.93	74.00	-29.07
		2390(Av)	24.63	54.00	-29.37
		2402(Pk)	88.37	*	-
		2402(Av)	83.40	*	-
		4804(Pk)	43.50	74.00	-30.50
		4804(Av)	29.73	54.00	-24.27
2440	Vertical	2440(Pk)	88.25	*	-
		2440(Av)	83.40	*	-
		4880(Pk)	42.91	74.00	-31.09
		4880(Av)	29.46	54.00	-24.54
	Horizontal	2440(Pk)	85.69	*	-
		2440(Av)	80.73	*	-
		4880(Pk)	47.71	74.00	-26.29
		4880(Av)	31.60	54.00	-22.40
2480	Vertical	2480(Pk)	91.24	*	-
		2480(Av)	86.31	*	-
		4960(Pk)	43.08	74.00	-30.92
		4960(Av)	29.42	54.00	-24.58
		2483.5(Pk)	39.03	74.00	-34.97
		2483.5(Av)	24.34	54.00	-29.66
	Horizontal	2480(Pk)	87.70	*	-
		2480(Av)	82.67	*	-
		4960(Pk)	43.08	74.00	-30.92
		4960(Av)	29.12	54.00	-24.88
		2483.5(Pk)	40.59	74.00	-33.41
		2483.5(Av)	23.42	54.00	-30.58

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Data rate: 2Mbps

Channel Frequency (MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2402	Vertical	2390(Pk)	49.24	74.00	-24.76
		2390(Av)	28.31	54.00	-25.69
		2402(Pk)	89.29	*	-
		2402(Av)	77.16	*	-
		4804(Pk)	43.34	74.00	-30.66
		4804(Av)	29.26	54.00	-24.74
	Horizontal	2390(Pk)	44.36	74.00	-24.76
		2390(Av)	26.23	54.00	-25.69
		2402(Pk)	85.54	*	-
		2402(Av)	73.41	*	-
		4804(Pk)	43.41	74.00	-30.59
		4804(Av)	29.62	54.00	-24.38
2440	Vertical	2440(Pk)	87.22	*	-
		2440(Av)	75.11	*	-
		4880(Pk)	42.54	74.00	-31.46
		4880(Av)	29.10	54.00	-24.90
	Horizontal	2440(Pk)	83.53	*	-
		2440(Av)	71.41	*	-
		4880(Pk)	42.81	74.00	-31.19
		4880(Av)	29.16	54.00	-24.84
2480	Vertical	2480(Pk)	89.48	*	-
		2480(Av)	77.36	*	-
		4960(Pk)	53.30	74.00	-20.70
		4960(Av)	29.82	54.00	-24.18
		2483.5(Pk)	47.78	74.00	-26.22
		2483.5(Av)	26.49	54.00	-27.51
	Horizontal	2480(Pk)	86.14	*	-
		2480(Av)	74.04	*	-
		4960(Pk)	52.57	74.00	-21.43
		4960(Av)	29.47	54.00	-24.53
		2483.5(Pk)	41.73	74.00	-32.27
		2483.5(Av)	25.04	54.00	-28.96

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Standalone module without accessories

Data rate: 1Mbps

Channel Frequency (MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2402	Vertical	2390(Pk)	49.75	74.00	-24.25
		2390(Av)	26.70	54.00	-27.30
		2402(Pk)	96.18	*	-
		2402(Av)	91.20	*	-
		4804(Pk)	44.72	74.00	-29.28
		4804(Av)	28.90	54.00	-25.10
	Horizontal	2390(Pk)	42.70	74.00	-31.30
		2390(Av)	25.62	54.00	-28.38
		2402(Pk)	90.57	*	-
		2402(Av)	85.56	*	-
		4804(Pk)	43.73	74.00	-30.27
		4804(Av)	29.72	54.00	-24.28
2440	Vertical	2440(Pk)	93.23	*	-
		2440(Av)	88.23	*	-
		4880(Pk)	44.13	74.00	-29.87
		4880(Av)	29.26	54.00	-24.74
	Horizontal	2440(Pk)	92.27	*	-
		2440(Av)	85.26	*	-
		4880(Pk)	43.56	74.00	-30.44
		4880(Av)	29.44	54.00	-24.56
2480	Vertical	2480(Pk)	95.03	*	-
		2480(Av)	90.04	*	-
		4960(Pk)	49.92	74.00	-24.08
		4960(Av)	30.11	54.00	-23.89
		2483.5(Pk)	48.16	74.00	-25.84
		2483.5(Av)	28.20	54.00	-25.80
	Horizontal	2480(Pk)	96.30	*	-
		2480(Av)	85.64	*	-
		4960(Pk)	49.94	74.00	-24.06
		4960(Av)	30.13	54.00	-23.87
		2483.5(Pk)	46.05	74.00	-27.95
		2483.5(Av)	26.20	54.00	-27.80

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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Data rate: 2Mbps

Channel Frequency (MHz)	Polarization	Measured Frequency (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2402	Vertical	2390(Pk)	46.91	74.00	-27.09
		2390(Av)	27.18	54.00	-26.82
		2402(Pk)	96.13	*	-
		2402(Av)	83.94	*	-
		4804(Pk)	45.03	74.00	-28.97
		4804(Av)	29.08	54.00	-24.92
	Horizontal	2390(Pk)	42.71	74.00	-31.29
		2390(Av)	25.61	54.00	-28.39
		2402(Pk)	89.20	*	-
		2402(Av)	77.00	*	-
		4804(Pk)	44.11	74.00	-29.89
		4804(Av)	29.82	54.00	-24.18
2440	Vertical	2440(Pk)	93.60	*	-
		2440(Av)	81.42	*	-
		4880(Pk)	44.34	74.00	-29.66
		4880(Av)	29.96	54.00	-24.04
	Horizontal	2440(Pk)	89.82	*	-
		2440(Av)	77.64	*	-
		4880(Pk)	43.22	74.00	-30.78
		4880(Av)	29.92	54.00	-24.08
2480	Vertical	2480(Pk)	90.03	*	-
		2480(Av)	77.90	*	-
		4960(Pk)	55.72	74.00	-18.28
		4960(Av)	29.65	54.00	-24.35
		2483.5(Pk)	42.05	74.00	-31.95
		2483.5(Av)	25.09	54.00	-28.91
	Horizontal	2480(Pk)	94.89	*	-
		2480(Av)	82.72	*	-
		4960(Pk)	44.32	74.00	-29.68
		4960(Av)	28.90	54.00	-25.10
		2483.5(Pk)	46.18	74.00	-27.82
		2483.5(Av)	26.44	54.00	-27.56

*-> Fundamental frequency

Pk-> Peak

Av-> Average

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8 Conducted Emission Test on A.C. Power Line

Result

Pass

Test Specification : FCC Part 15 Section 15.207
Test Method : ANSI C63.10-2013
Testing Location : Screened room
Measurement Bandwidth : 9kHz
Frequency Range : 150kHz – 30MHz
Supply Voltage : 110VAC,60Hz

Limit of section 15.207

Frequency of emission	QP Limit	AV Limit
(MHz)	(dBµV)	(dBµV/m)
0.15 – 0.5	66 – 56*	56 – 46*
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency

Prüfbericht - Nr.:

Test Report No.:

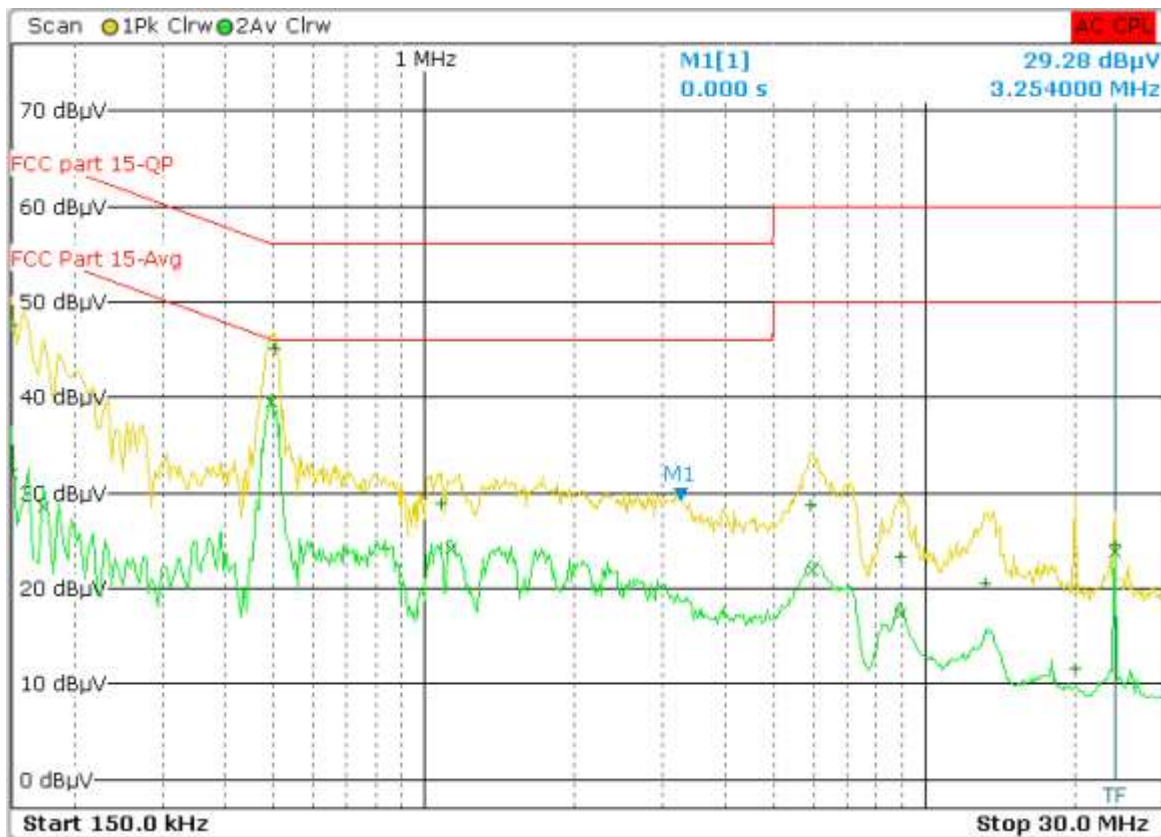
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Test Result: LINE Graphs and Tables

110v AC , 60Hz



Line Graph

Trace	Frequency	Level (dBμV)	Phase Detector	Delta Limit/dB
2	494.000000000 kHz	39.59	Average	-6.51
1	502.000000000 kHz	45.03	Quasi Peak	-10.97
1	150.000000000 kHz	47.51	Quasi Peak	-18.49
2	1.134000000 MHz	24.19	Average	-21.81
2	150.000000000 kHz	31.97	Average	-24.03
2	24.026000000 MHz	23.82	Average	-26.18
2	174.000000000 kHz	28.57	Average	-26.20
1	1.082000000 MHz	28.93	Quasi Peak	-27.07
2	5.982000000 MHz	22.00	Average	-28.00
1	5.930000000 MHz	28.67	Quasi Peak	-31.33
2	8.922000000 MHz	17.32	Average	-32.68
1	24.026000000 MHz	24.57	Quasi Peak	-35.43
1	8.958000000 MHz	23.30	Quasi Peak	-36.70
1	13.226000000 MHz	20.53	Quasi Peak	-39.47
1	20.038000000 MHz	11.62	Quasi Peak	-48.38

Line Table

Prüfbericht - Nr.:

Test Report No.:

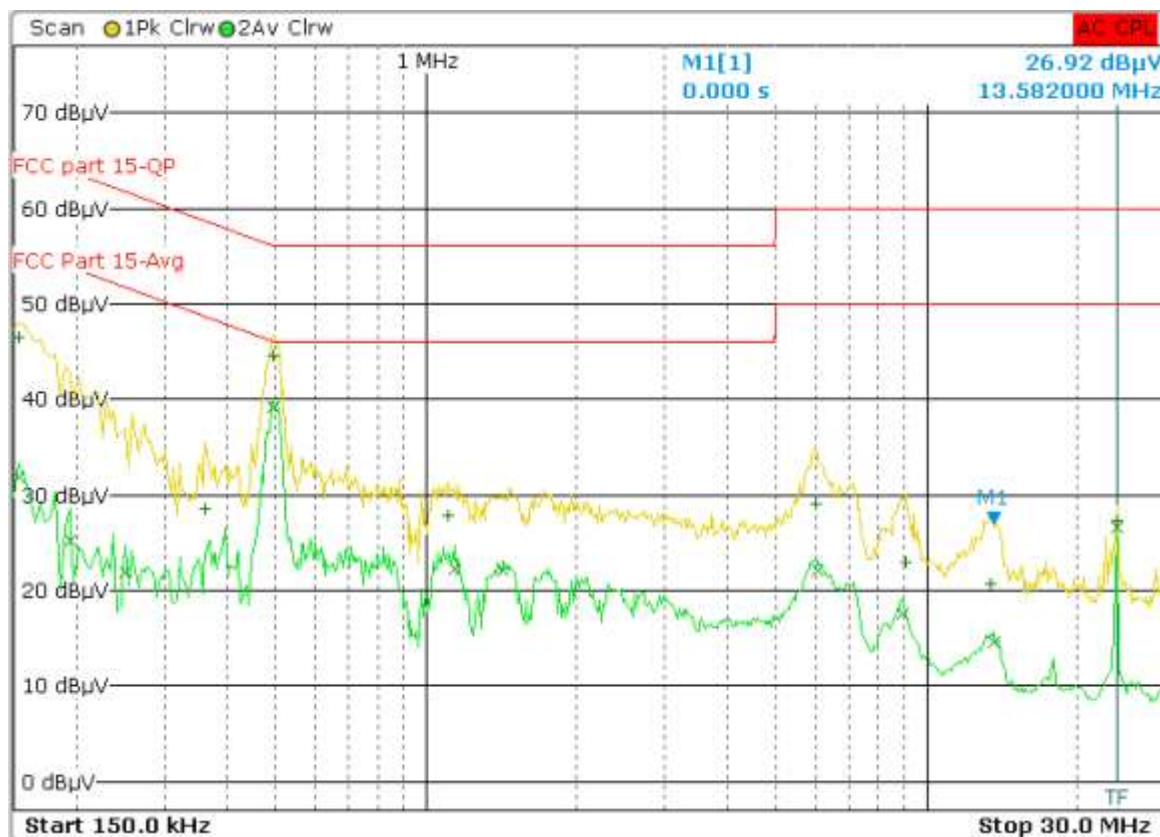
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Test Result: Neutral Graphs and Tables

110v AC , 60Hz



Neutral Graph

Trace	Frequency	Level (dBμV)	Phase Detector	Delta Limit/dB
2	494.000000000 kHz	39.1	Average	-7
1	494.000000000 kHz	44.65	Quasi Peak	-11.45
1	154.000000000 kHz	46.55	Quasi Peak	-19.23
2	24.026000000 MHz	26.59	Average	-23.41
2	1.138000000 MHz	22.28	Average	-23.72
2	1.430000000 MHz	22.17	Average	-23.83
2	154.000000000 kHz	31.84	Average	-23.94
2	6.046000000 MHz	22.17	Average	-27.83
1	1.110000000 MHz	27.78	Quasi Peak	-28.22
2	194.000000000 kHz	25.25	Average	-28.61
2	250.000000000 kHz	21.91	Average	-29.85
1	362.000000000 kHz	28.54	Quasi Peak	-30.14
1	5.990000000 MHz	29.07	Quasi Peak	-30.93
2	8.950000000 MHz	17.57	Average	-32.43
1	24.026000000 MHz	27.26	Quasi Peak	-32.74
2	13.582000000 MHz	14.54	Average	-35.46
1	9.062000000 MHz	23.05	Quasi Peak	-36.95
1	13.398000000 MHz	20.73	Quasi Peak	-39.27

Neutral Table

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END OF TEST REPORT

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Power Level settings used during the test in QRCT tool:

Mode	Data Rate (Mbps)	Channels		
		Low	Middle	High
802.11b	1	17 dBm	17 dBm	17 dBm
	11	19 dBm	20 dBm	20 dBm
802.11g	6	16 dBm	17dBm	16 dBm
	24	16 dBm	17dBm	17 dBm
	54	17 dBm	17dBm	17 dBm
802.11n_HT20_SISO	MSC 0	15 dBm	15 dBm	15 dBm
	MSC 4	15 dBm	15 dBm	15 dBm
	MCS 7	15 dBm	15 dBm	15 dBm
802.11n_HT20_MIMO	MSC 8	15 dBm	15 dBm	13 dBm
	MSC 11	15 dBm	15 dBm	13 dBm
	MCS 15	15 dBm	15 dBm	13 dBm
802.11n_HT40_SISO	MSC 0	12 dBm	12 dBm	12 dBm
	MSC 4	13 dBm	13 dBm	13 dBm
	MCS 7	13 dBm	13 dBm	13 dBm
802.11n_HT40_MIMO	MSC 8	8 dBm	10 dBm	8 dBm
	MSC 11	8 dBm	10 dBm	8 dBm
	MCS 15	8 dBm	10 dBm	8 dBm

BLE:

Data Rate (Mbps)	Power level		
	Low	Middle	High
1	7	7	7
2	7	7	7