



FCC - TEST REPORT

Report Number : **68.950.20.0052.01** Date of Issue: 2020-05-08

Model : **MDZ-24-AA**

Product Type : Mi TV Stick

Applicant : Beijing Xiaomi Electronics Co., Ltd.

Address : Room 707,7F, Building 5, No 58, JinghaiWulu Road, Beijing economic and Technological Development Zone, 100176 Beijing City PEOPLE'S REPUBLIC OF CHINA

Manufacturer : Beijing Xiaomi Electronics Co., Ltd.

Address : Room 707,7F, Building 5, No 58, JinghaiWulu Road, Beijing economic and Technological Development Zone, 100176 Beijing City PEOPLE'S REPUBLIC OF CHINA

Factory : Shenzhen Twowing Technologies Co., Ltd.

Address : Floor 1-12, Nangang Industrial Building, Tangtou Industrial Park, Shiyan, Baoan, Shenzhen, Guangdong, China

Test Result : **Positive** **Negative**

Total pages including Appendices : **84**

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2, Nanshan District,
Shenzhen City, 518052,
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3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product:	Mi TV Stick
Model no.:	MDZ-24-AA
FCC ID:	2AIMRMITVMDZ24AA
Rating:	5Vdc/1000mA (Supplied By AC/DC Adapter)
Adapter:	Input:100-240V~50/60Hz 0.2A Output: 5V/1000mA
RF Transmission Frequency:	5.180GHz~5.240GHz; 5.745GHz~5.825GHz
Modulation:	802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11n: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna Type:	Integral Antenna
Antenna Gain:	5.0dBi max;
Description of the EUT:	The Equipment Under Test (EUT) is a TV Stick which support 2.4G Wi-Fi, 5G Wi-Fi, BR/EDR and BLE function. The 2.4G Wi-Fi, BR/EDR and BLE operated at 2400MHz to 2483.5MHz, The 5G Wi-Fi operation 5150MHz to 5250MHz, and 5725MHz to 5825MHz.



4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart E, 10-1-2018 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart E - Unlicensed National Information Infrastructure Devices

Test Method:

KDB 789033 D02 General UNII Test Procedures New Rules v02r01f

KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices

5 Summary of Test Results

Technical Requirements			
FCC Part 15 Subpart E, FCC Part 15 Subpart C			
Test Condition	Test Result		
	Pass	Fail	N/A
15.207 Conducted Emission AC Power Port	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.407(e) Emission bandwidth	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.407(a)(i) Maximum Conducted Output Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.407(a)(i) Maximum Power Spectral Density	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.407(b)(1), 15.407(b)(2), 15.407(b)(3), 15.407(b)(5), 15.407(b)(4), 15.407(b)(6) 15.407(b)(7) 15.209 Unwanted Emissions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.407(g) Frequencies Stability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.407(h) Dynamic Frequency Selection (DFS). ^a	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.203 Antenna Requirement ^b	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE 1^{"a"}: This result include in this report is only the DFS Slave Mode part of the product.

NOTE 2^{"b"}: The EUT uses an Integrated antenna, which gain is 5.0dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2ADQO3SB3350N5, complies with Section FCC Part 15 Subpart C Rules, FCC Part 15 Subpart E Rules.

The Equipment Under Test (EUT) is a TV Stick which support 2.4G Wi-Fi, 5G Wi-Fi, BR/EDR and BLE function. The 2.4G Wi-Fi, BR/EDR and BLE operated at 2400MHz to 2483.5MHz, The 5G Wi-Fi operation 5150MHz to 5250MHz, and 5725MHz to 5825MHz.

This report for 5GHz Wi-Fi only.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: 2020-02-20

Testing Start Date: 2020-02-21

Testing End Date: 2020-04-27

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch –

Reviewed by:

Prepared by:

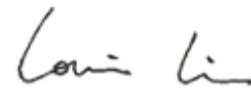
Tested by:



John Zhi
EMC Project Manager




Warlen Song
EMC Project Engineer

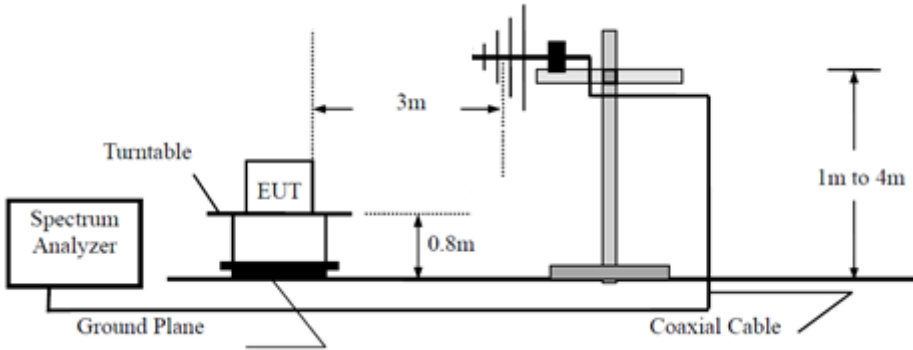


Louise Liu
EMC Test Engineer

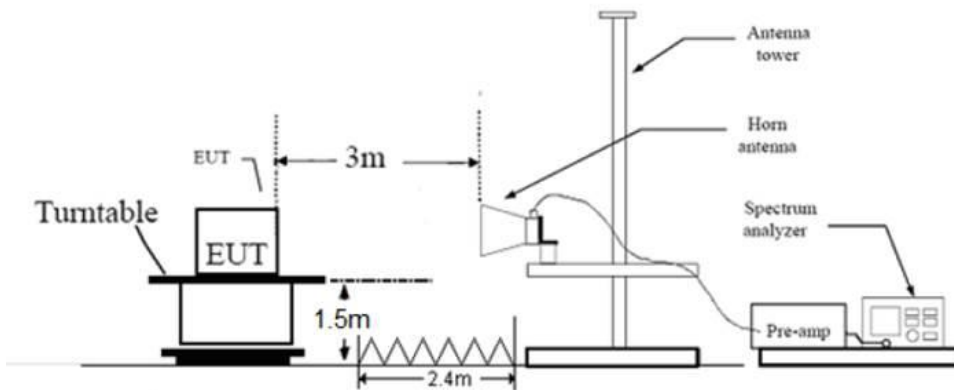
7 Test setups

7.1 Radiated test setups

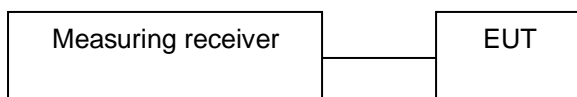
Below 1GHz



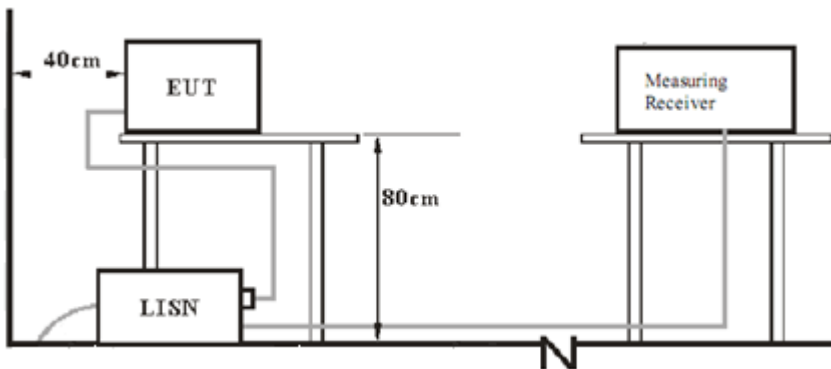
Above 1GHz



7.2 Conducted RF test setups



7.3 AC Power Line Conducted Emission test setups



8. Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.	S/N
Laptop	Lenovo	T460S	---
AC Adapter	Apple	A1401	---

Test software information:

	Channel	Setting		Channel	Setting		Channel	Setting
11a	5180	40	11n_20	5180	38	11ac_20	5180	38
11a	5200	40	11n_20	5200	38	11ac_20	5200	38
11a	5240	40	11n_20	5240	38	11ac_20	5240	38
11a	5260	40	11n_20	5260	38	11ac_20	5260	38
11a	5745	46	11n_20	5745	44	11ac_20	5745	43
11a	5785	41	11n_20	5785	42	11ac_20	5785	42
11a	5825	43	11n_20	5825	43	11ac_20	5825	43
11n_40	5190	38	11ac_40	5190	38	11ac_80	5210	32
11n_40	5230	38	11ac_40	5230	38	11ac_80	5755	32
11n_40	5755	38	11ac_40	5755	38			
11n_40	5795	38	11ac_40	5795	38			



The system was configured to channel:

Test Mode	Channel (MHz)		
802.11a, 802.11n HT20 802.11ac VHT20	5G WIFI-Band 1		
	CH36 (5180MHz)	CH40 (5200MHz)	CH48 (5240MHz)
	5G WIFI-Band 4		
	CH149 (5745MHz),	CH157(5785MHz)	CH165 (5825MHz)

Test Mode	Channel (MHz)	
802.11n HT40 802.11ac VHT40	5G WIFI-Band 1	
	CH38(5190MHz)	CH46 (5230MHz)
	5G WIFI-Band 4	
	CH151(5755MHz)	CH159(5795MHz)

Test Mode	Channel (MHz)
802.11ac VHT80	5G WIFI-Band 1
	CH42(5210MHz)
	5G WIFI-Band 4
	CH155(5775MHz)

9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

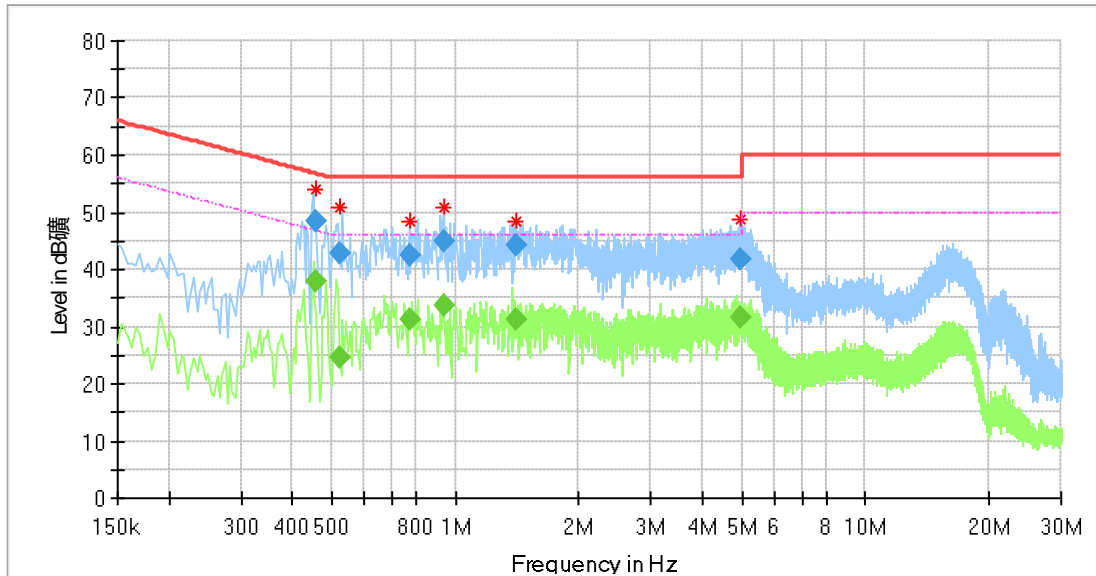
According to §15.207, conducted emissions limit as below:

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Remark: “*” Decreasing linearly with logarithm of the frequency

Conducted Emission

Product Type : Mi TV Stick
 M/N : MDZ-24-AA
 Operating Condition : Wi-Fi connection+BT control
 Test Specification : Line
 Comment : AC 120V/60Hz



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.454500	54.12	---	56.88	2.76	L1	10.3
0.525500	51.00	---	56.00	5.00	L1	10.3
0.773500	48.46	---	56.00	7.54	L1	10.3
0.933500	50.76	---	56.00	5.24	L1	10.3
1.413500	48.53	---	56.00	7.47	L1	10.3
4.937500	48.93	---	56.00	7.07	L1	10.5

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.454500	48.45	---	56.79	8.34	L1	10.3
0.454500	---	38.04	46.79	8.75	L1	10.3
0.525500	---	24.52	46.00	21.48	L1	10.3
0.525500	42.93	---	56.00	13.07	L1	10.3
0.773500	42.31	---	56.00	13.69	L1	10.3
0.773500	---	31.09	46.00	14.91	L1	10.3
0.933500	---	33.56	46.00	12.44	L1	10.3
0.933500	45.05	---	56.00	10.95	L1	10.3
1.413500	44.07	---	56.00	11.93	L1	10.3
1.413500	---	31.08	46.00	14.92	L1	10.3
4.937500	41.89	---	56.00	14.11	L1	10.5
4.937500	---	31.69	46.00	14.31	L1	10.5

Remark :

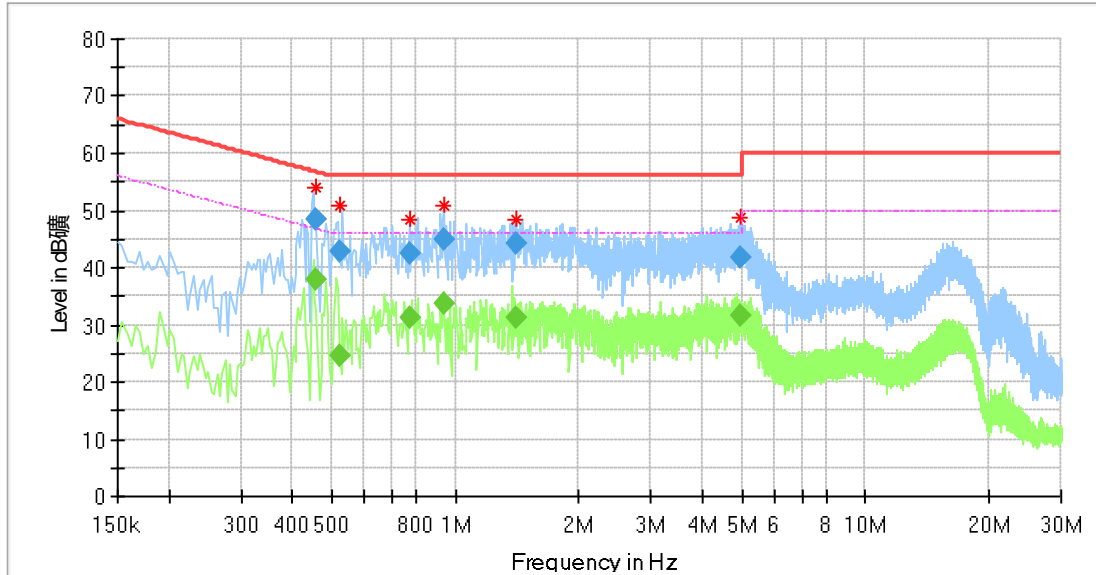
Level=Reading Level + Correction Factor

Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

Conducted Emission

Product Type : Mi TV Stick
 M/N : MDZ-24-AA
 Operating Condition : Wi-Fi connection+BT control
 Test Specification : Neutral
 Comment : AC 120V/60Hz



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.454500	54.12	---	56.88	2.76	L1	10.3
0.525500	51.00	---	56.00	5.00	L1	10.3
0.773500	48.46	---	56.00	7.54	L1	10.3
0.933500	50.76	---	56.00	5.24	L1	10.3
1.413500	48.53	---	56.00	7.47	L1	10.3
4.937500	48.93	---	56.00	7.07	L1	10.5

Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.454500	48.45	---	56.79	8.34	L1	10.3
0.454500	---	38.04	46.79	8.75	L1	10.3
0.525500	---	24.52	46.00	21.48	L1	10.3
0.525500	42.93	---	56.00	13.07	L1	10.3
0.773500	42.31	---	56.00	13.69	L1	10.3
0.773500	---	31.09	46.00	14.91	L1	10.3
0.933500	---	33.56	46.00	12.44	L1	10.3
0.933500	45.05	---	56.00	10.95	L1	10.3
1.413500	44.07	---	56.00	11.93	L1	10.3
1.413500	---	31.08	46.00	14.92	L1	10.3
4.937500	41.89	---	56.00	14.11	L1	10.5
4.937500	---	31.69	46.00	14.31	L1	10.5

Remark :

Level=Reading Level + Correction Factor

Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

9.2 Emission bandwidth

The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.

1、 Test Method of 26dB Bandwidth

According to KDB789033 D02

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Limit: No limit

2、 Test Method of 6dB Bandwidth

According to KDB789033 D02

- a) Set RBW = 100KHz
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Limit: ≥ 500 KHz

3、 Test Method of 99% Bandwidth

According to KDB789033 D02

- a) Set center frequency to the nominal EUT channel center frequency
- b) Set span = 1.5 times to 5.0 times the OBW.
- c) Set RBW = 1 % to 5 % of the OBW
- d) Set VBW $\geq 3 \cdot$ RBW
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99 % power bandwidth function of the instrument (if available).
- g) If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

Limit: No limit

IEEE 802.11a modulation Test Result

Band	Channel	Channel Frequency (MHz)	Measured 99% Bandwidth (MHz)	Measured 26dB Bandwidth (MHz)	Measured 6dB Bandwidth (MHz)
5.2G Band	Low	5180	17.183	20.080	N/A
	Mid	5200	17.183	19.880	N/A
	High	5240	17.183	19.960	N/A
5.8G Band	Low	5745	17.143	20.080	16.360
	Mid	5785	17.463	20.720	16.400
	High	5825	17.782	23.200	16.360

IEEE 802.11n-HT20 modulation Test Result

Band	Channel	Channel Frequency (MHz)	Measured 99% Bandwidth (MHz)	Measured 26dB Bandwidth (MHz)	Measured 6dB Bandwidth (MHz)
5.2G Band	Low	5180	18.102	20.840	N/A
	Mid	5200	18.142	20.840	N/A
	High	5240	18.701	26.520	N/A
5.8G Band	Low	5745	18.382	22.200	17.000
	Mid	5785	18.422	23.320	17.120
	High	5825	18.701	27.600	16.920

IEEE 802.11n-HT40 modulation Test Result

Band	Channel	Channel Frequency (MHz)	Measured 99% Bandwidth (MHz)	Measured 26dB Bandwidth (MHz)	Measured 6dB Bandwidth (MHz)
5.2G Band	Low	5190	36.444	41.360	N/A
	High	5230	36.364	41.520	N/A
5.8G Band	Low	5755	36.923	48.080	35.520
	High	5795	36.763	47.840	35.280

IEEE 802.11AC-VHT20 modulation Test Result

Band	Channel	Channel Frequency (MHz)	Measured 99% Bandwidth (MHz)	Measured 26dB Bandwidth (MHz)	Measured 6dB Bandwidth (MHz)
5.2G Band	Low	5180	17.942	20.360	N/A
	Mid	5200	18.022	20.760	N/A
	High	5240	17.942	20.400	N/A
5.8G Band	Low	5745	17.942	20.240	17.080
	Mid	5785	17.902	20.240	17.360
	High	5825	17.942	20.240	16.800

IEEE 802.11AC-VHT40 modulation Test Result

Band	Channel	Channel Frequency (MHz)	Measured 99% Bandwidth (MHz)	Measured 26dB Bandwidth (MHz)	Measured 6dB Bandwidth (MHz)
5.2G Band	Low	5190	36.444	41.760	N/A
	High	5230	36.364	41.600	N/A
5.8G Band	Low	5755	36.364	41.440	35.360
	High	5795	36.284	41.600	35.600

IEEE 802.11AC-VHT80 modulation Test Result

Band	Channel	Channel Frequency (MHz)	Measured 99% Bandwidth (MHz)	Measured 26dB Bandwidth (MHz)	Measured 6dB Bandwidth (MHz)
5.2G Band	Low	5210	76.084	82.240	N/A
5.8G Band	High	5775	75.924	82.080	75.520

Remark: "N/A" means "Not Applicable"

9.3 Maximum conducted output power

Test Method

According to KDB789033 D02(E) Method 3, the EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.

Limits:

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

Note:

Maximum Conducted Output Power=Conducted Output Power + Correction Factor

Test result as below table

IEEE 802.11a modulation Test Result

Band	Channel	Frequency (MHz)	Conducted Power (dBm)	Power Limit (dBm)
5.2G Band	Low	5180	12.10	24.00
	Middle	5200	11.80	24.00
	High	5240	11.20	24.00
5.8G Band	Low	5745	11.20	30.00
	Middle	5785	11.60	30.00
	High	5825	11.50	30.00

IEEE 802.11n HT20 modulation Test Result

Band	Channel	Frequency (MHz)	Conducted Power (dBm)	Power Limit (dBm)
5.2G Band	Low	5180	11.20	24.00
	Middle	5200	11.90	24.00
	High	5240	11.40	24.00
5.8G Band	Low	5745	10.20	30.00
	Middle	5785	11.60	30.00
	High	5825	11.40	30.00

IEEE 802.11n HT40 modulation Test Result

Band	Channel	Frequency (MHz)	Conducted Power (dBm)	Power Limit (dBm)
5.2G Band	Low	5190	11.50	24.00
	High	5230	10.70	24.00
5.8G Band	Low	5755	10.20	30.00
	High	5795	10.10	30.00

IEEE 802.11ac VHT20 modulation Test Result

Band	Channel	Frequency (MHz)	Conducted Power (dBm)	Power Limit (dBm)
5.2G Band	Low	5180	11.90	24.00
	Middle	5200	11.80	24.00
	High	5240	11.50	24.00
5.8G Band	Low	5745	11.00	30.00
	Middle	5785	11.50	30.00
	High	5825	11.40	30.00



IEEE 802.11ac VHT40 modulation Test Result

Band	Channel	Frequency (MHz)	Conducted Power (dBm)	Power Limit (dBm)
5.2G Band	Low	5190	12.40	24.00
	High	5230	11.80	24.00
5.8G Band	Low	5755	11.50	30.00
	High	5795	12.30	30.00

IEEE 802.11ac VHT80 modulation Test Result

Band	Channel	Frequency (MHz)	Conducted Power (dBm)	Power Limit (dBm)
5.2G Band	Low	5210	9.60	24.00
5.8G Band	Low	5775	8.90	30.00

9.4 Maximum power spectral density

Test Method

According to KDB789033 D02

The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

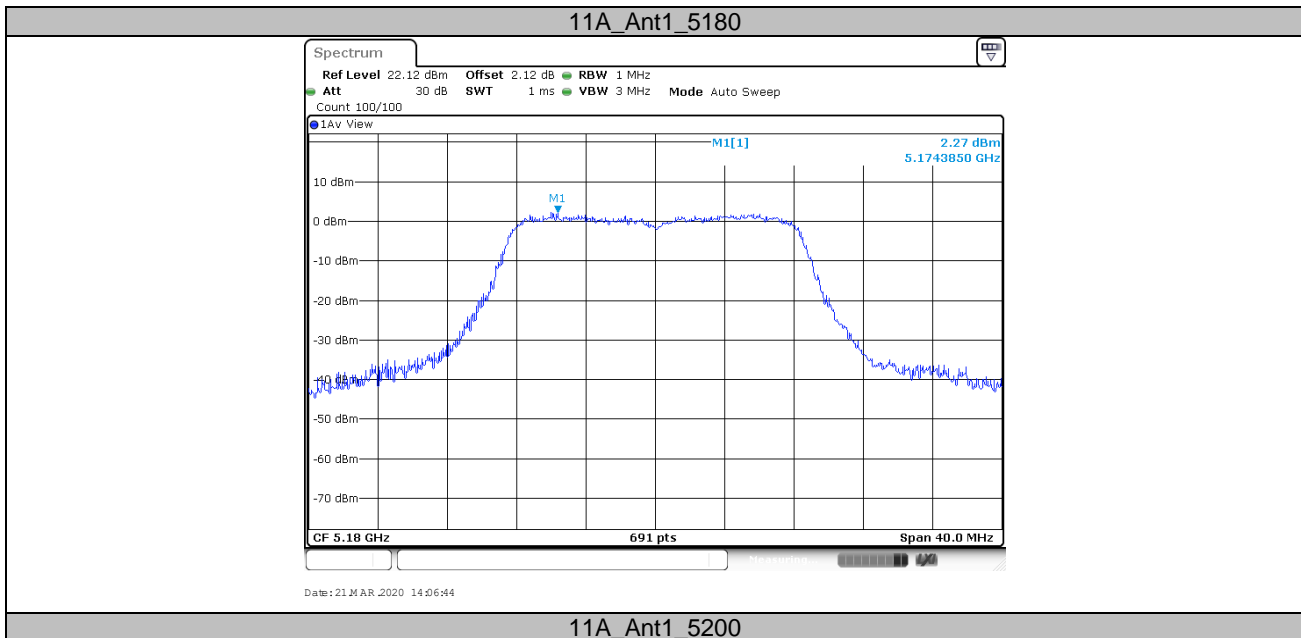
Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHz is available on nearly all spectrum analyzers.

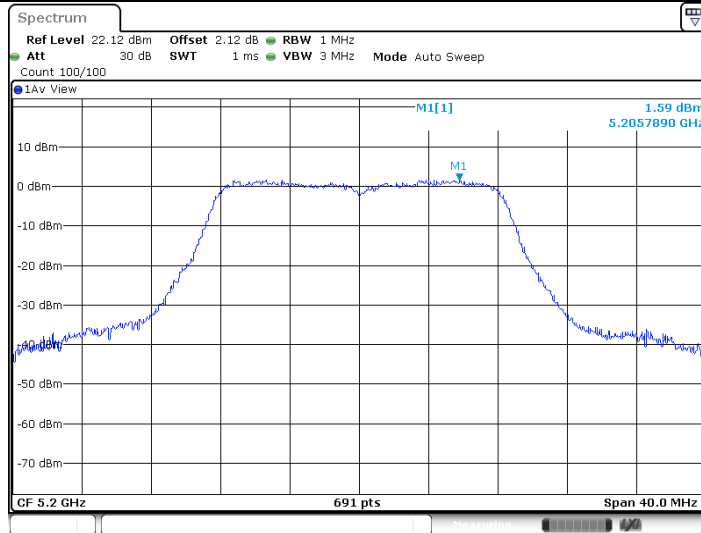
Limit:

The maximum power spectral density shall not exceed 11dBm for the 5.15-5.25GHz, 5.25-5.35GHz, 5.47-5.725 GHz Band and 30dBm for the 5.8GHz Band in any 1 megahertz band.

Test Result

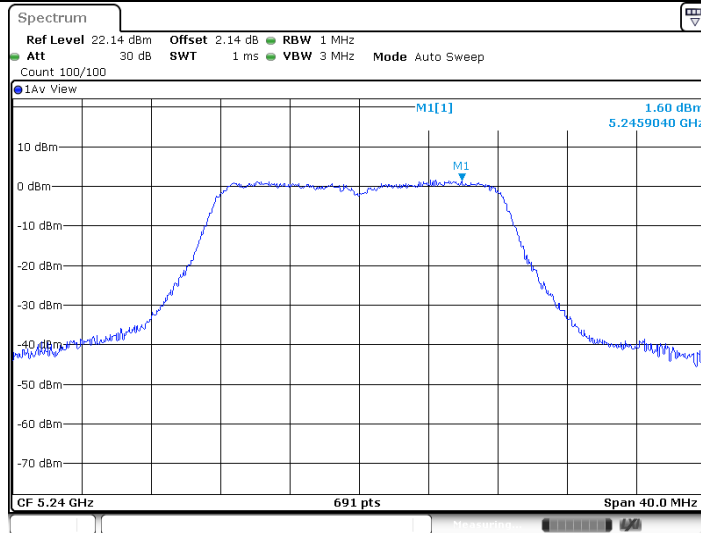
TestMode	Antenna	Channel(MHz)	Result(dBm/MHz)	Limit(dBm/MHz)	Verdict
11A	Ant1	5180	2.27	<=11	PASS
		5200	1.59	<=11	PASS
		5240	1.6	<=11	PASS
		5745	0.73	<=30	PASS
		5785	7.49	<=30	PASS
		5825	6.96	<=30	PASS
11N20SISO	Ant1	5180	1.3	<=11	PASS
		5200	0.84	<=11	PASS
		5240	7.15	<=11	PASS
		5745	6.49	<=30	PASS
		5785	6.7	<=30	PASS
		5825	6.84	<=30	PASS
11N40SISO	Ant1	5190	-1.05	<=11	PASS
		5230	-2.53	<=11	PASS
		5755	4.02	<=30	PASS
		5795	3.9	<=30	PASS
11AC20SISO	Ant1	5180	4.17	<=11	PASS
		5200	6.99	<=11	PASS
		5240	4.01	<=11	PASS
		5745	2.58	<=30	PASS
		5785	3.07	<=30	PASS
		5825	2.14	<=30	PASS
11AC40SISO	Ant1	5190	3.19	<=11	PASS
		5230	3.96	<=11	PASS
		5755	2.71	<=30	PASS
		5795	1.54	<=30	PASS
11AC80SISO	Ant1	5210	-1.87	<=11	PASS
		5775	1.96	<=30	PASS





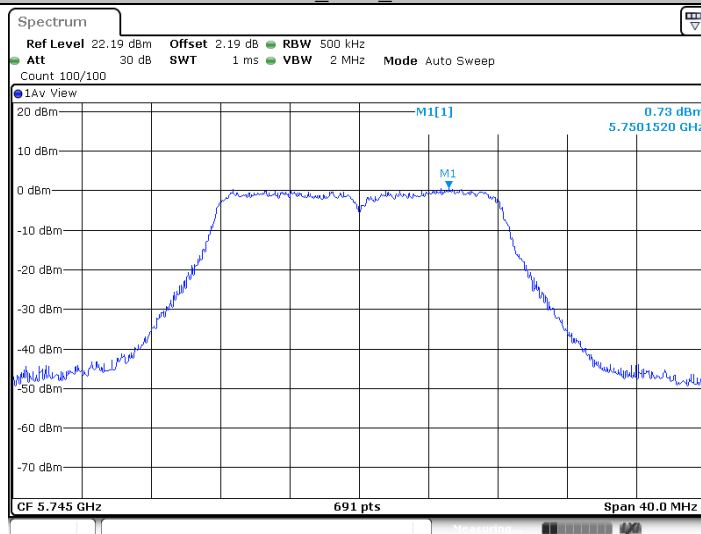
Date: 21 MAR 2020 14:13:46

11A_Ant1_5240



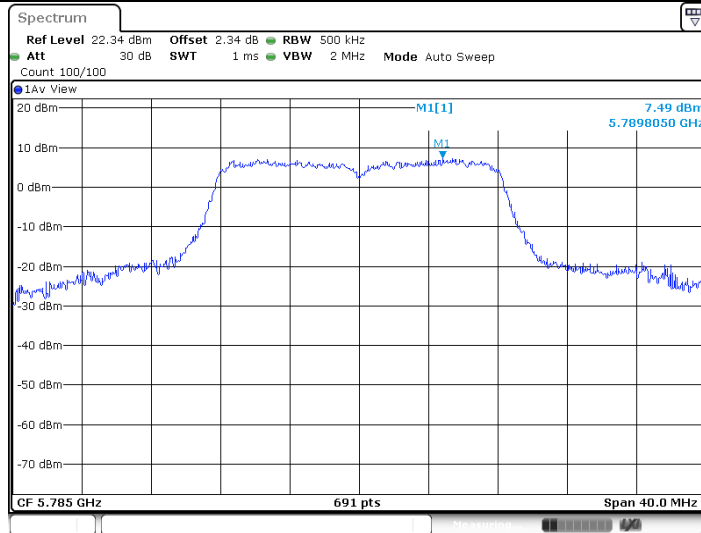
Date: 21 MAR 2020 14:17:16

11A_Ant1_5745



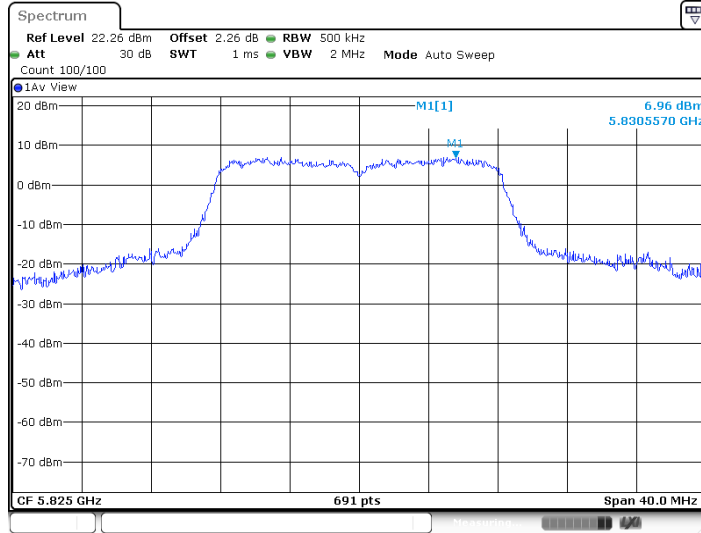
Date: 21 MAR 2020 14:22:27

11A_Ant1_5785



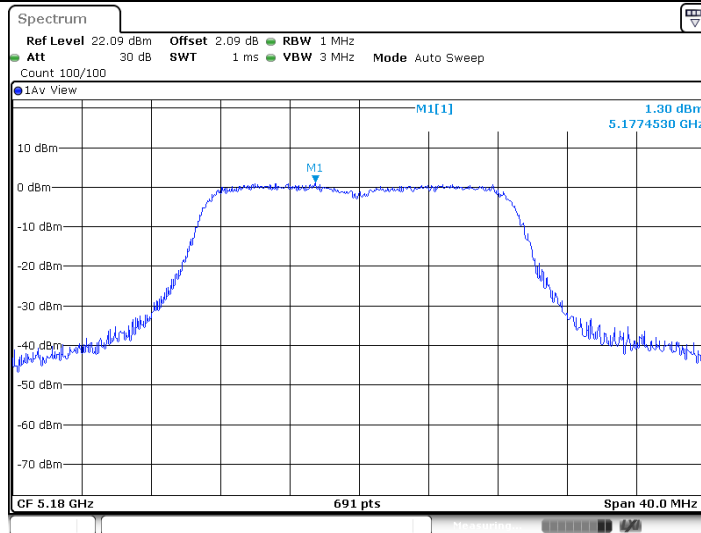
Date: 21 MAR 2020 14:29:15

11A_Ant1_5825



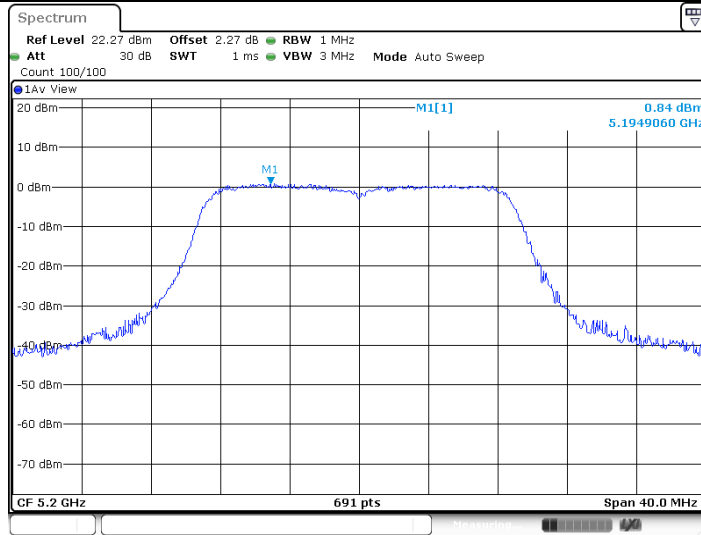
Date: 21 MAR 2020 14:31:20

11N20SISO_Ant1_5180



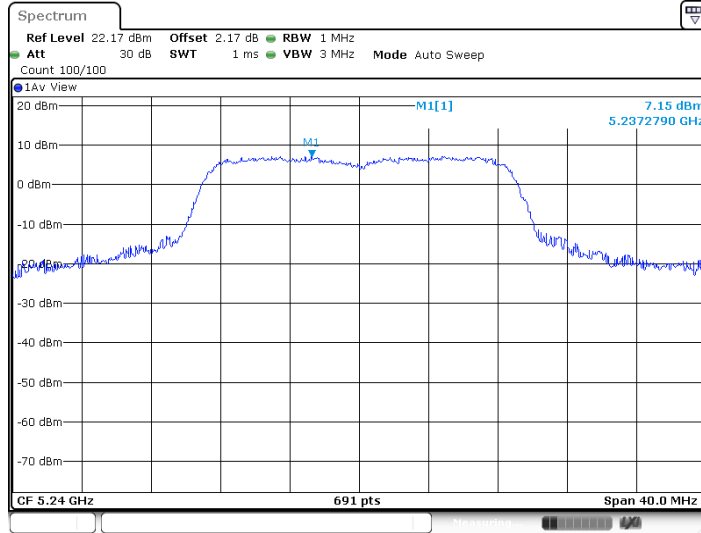
Date: 21 MAR 2020 14:35:57

11N20SISO_Ant1_5200



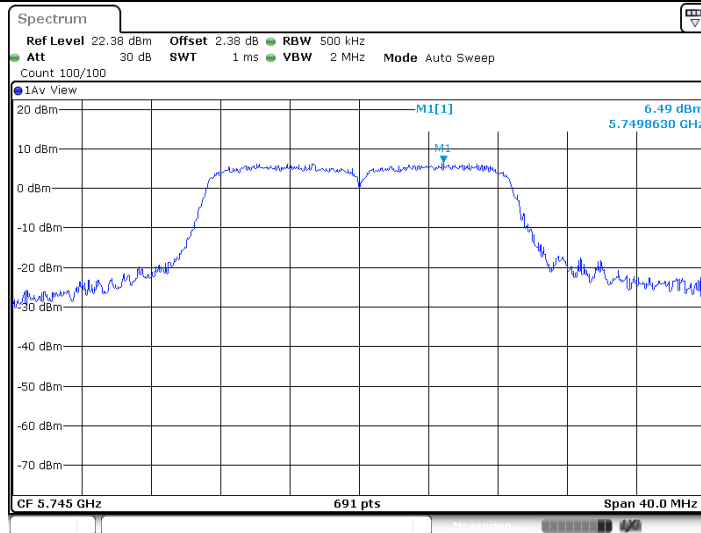
Date: 21 MAR 2020 14:39:51

11N20SISO_Ant1_5240



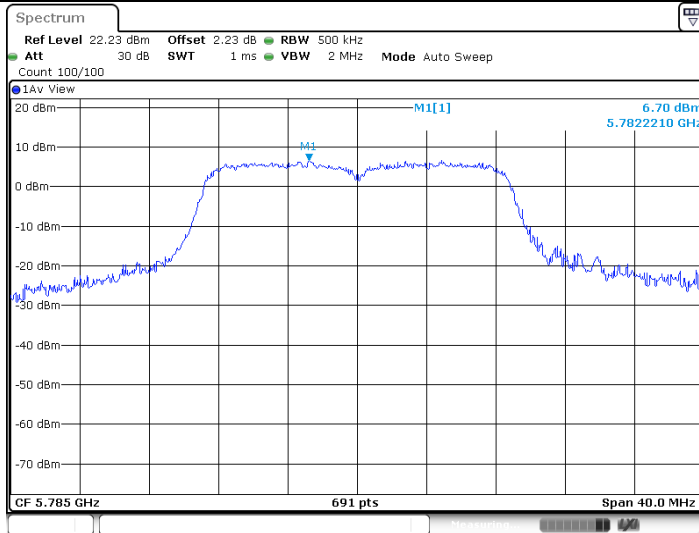
Date: 21 MAR 2020 14:42:02

11N20SISO_Ant1_5745



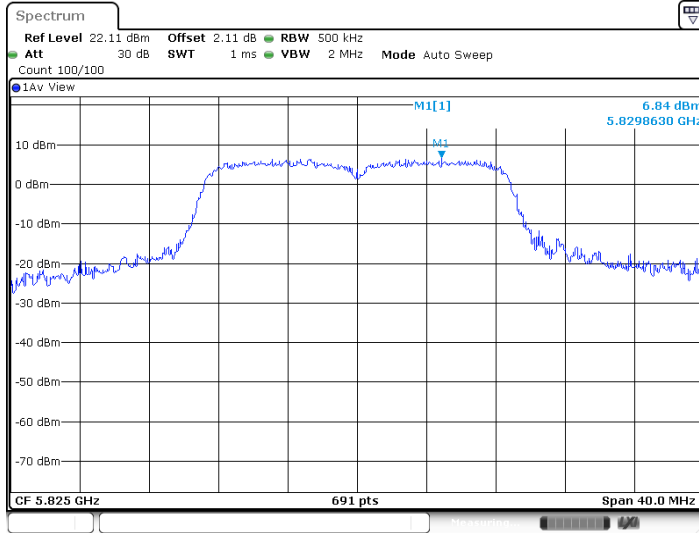
Date: 21 MAR 2020 14:45:13

11N20SISO_Ant1_5785



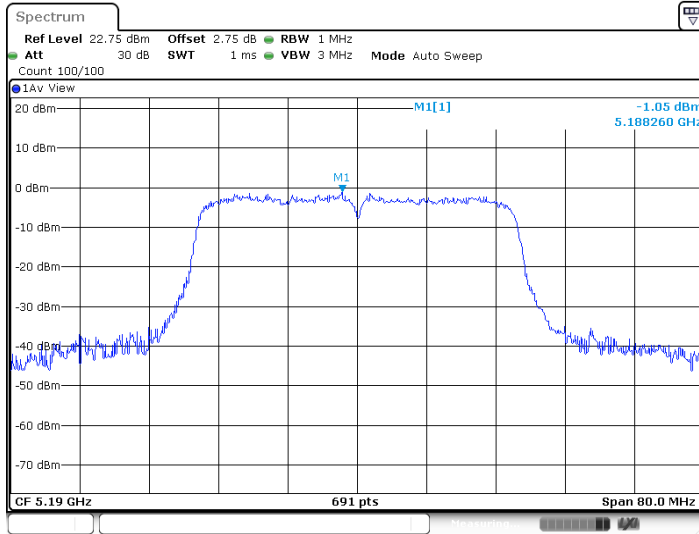
Date: 21 MAR 2020 14:48:16

11N20SISO_Ant1_5825



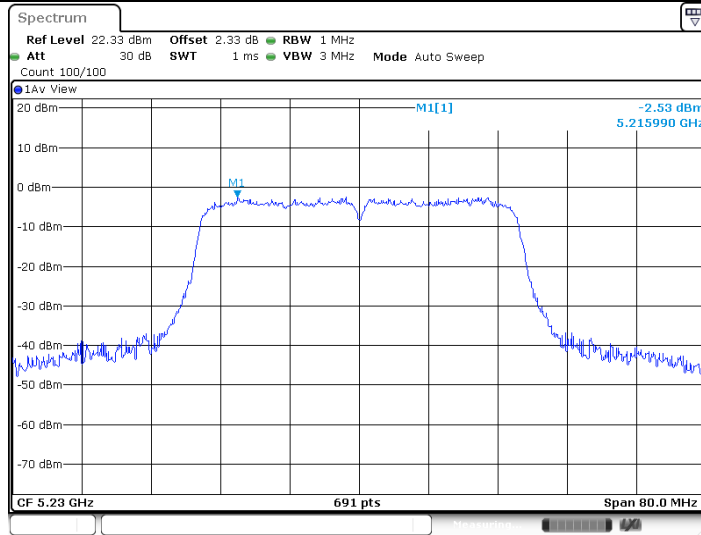
Date: 21 MAR 2020 14:50:13

11N40SISO_Ant1_5190



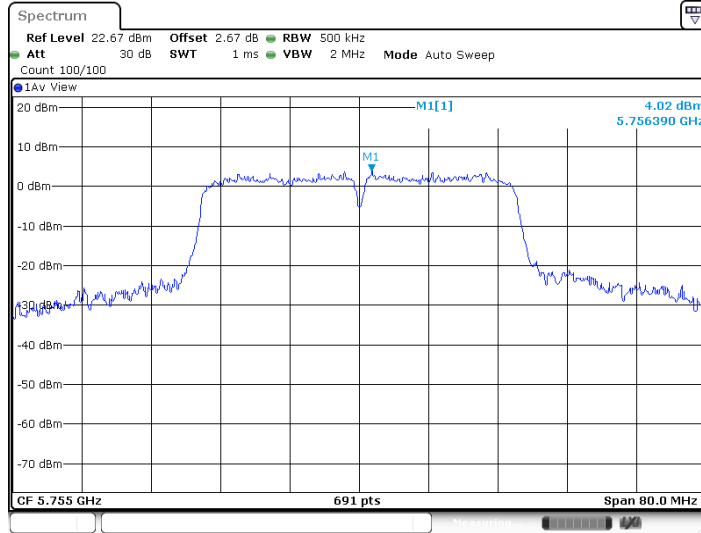
Date: 21 MAR 2020 14:57:11

11N40SISO_Ant1_5230



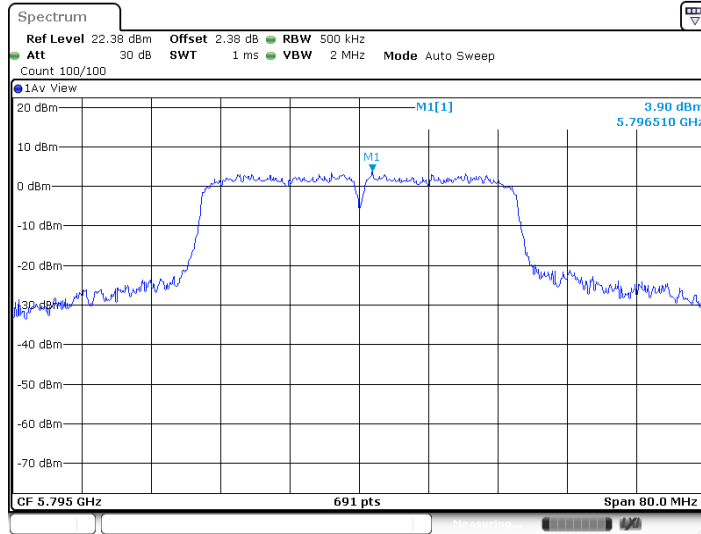
Date: 21 MAR 2020 15:00:49

11N40SISO_Ant1_5755



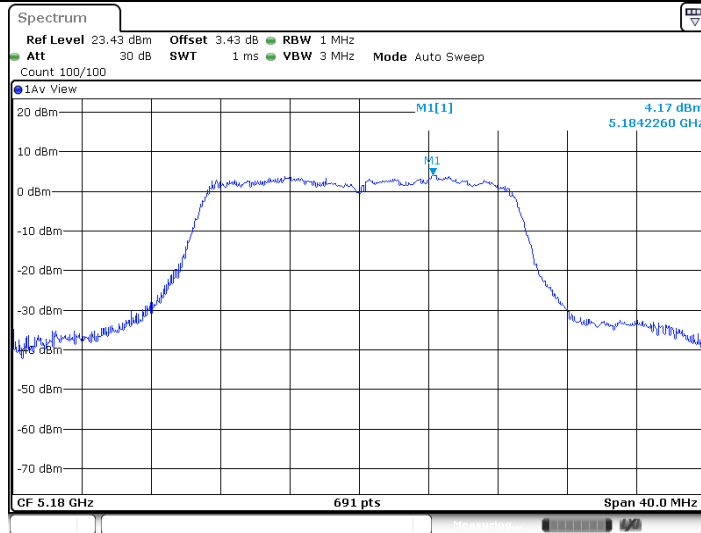
Date: 21 MAR 2020 15:04:30

11N40SISO_Ant1_5795



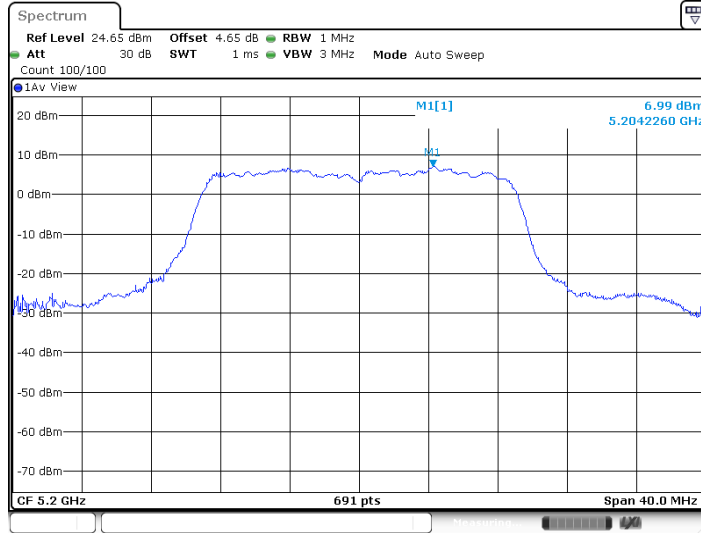
Date: 21 MAR 2020 15:07:15

11A20SISO_Ant1_5180



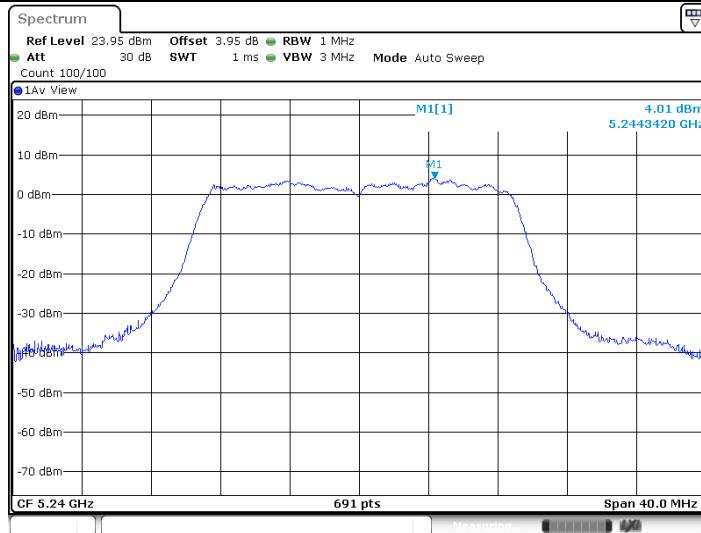
Date: 21 MAR 2020 15:16:46

11AC20SISO Ant1_5200



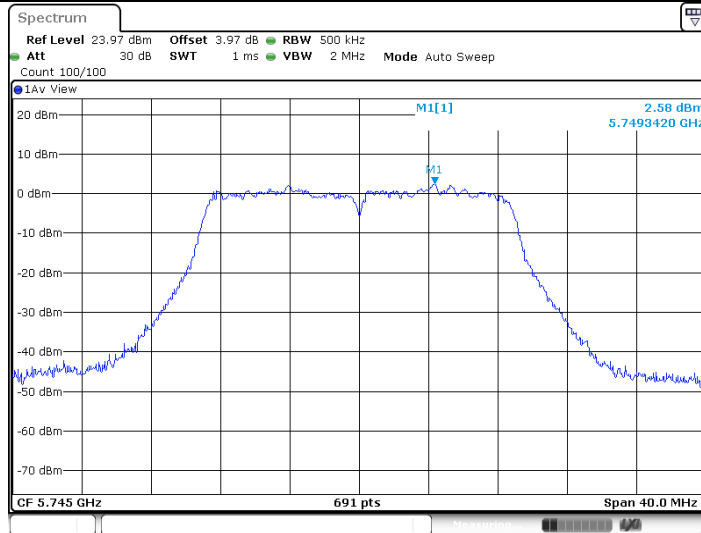
Date: 21 MAR 2020 15:19:57

11AC20SISO Ant1_5240



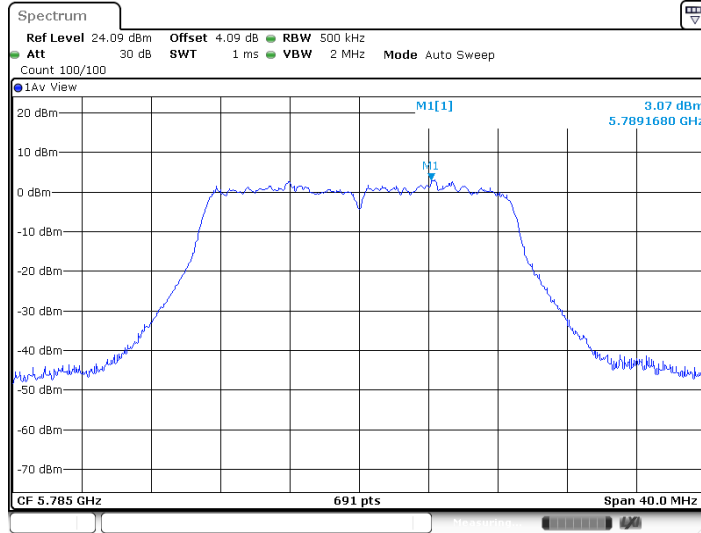
Date: 21 MAR 2020 15:22:17

11AC20SISO Ant1_5745



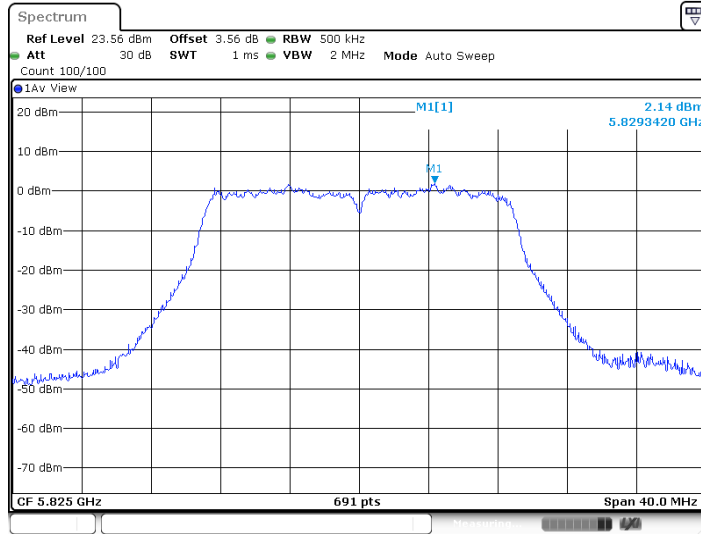
Date: 21 MAR 2020 15:25:09

11AC20SISO Ant1_5785



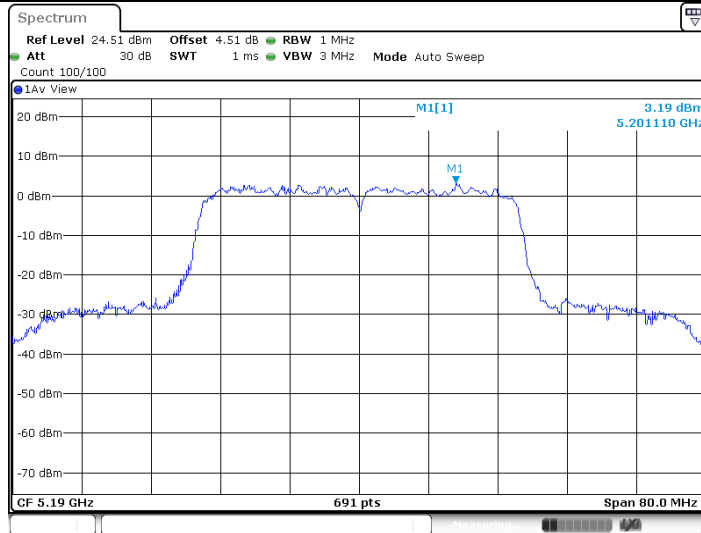
Date: 21 MAR 2020 15:27:54

11AC20SISO Ant1_5825



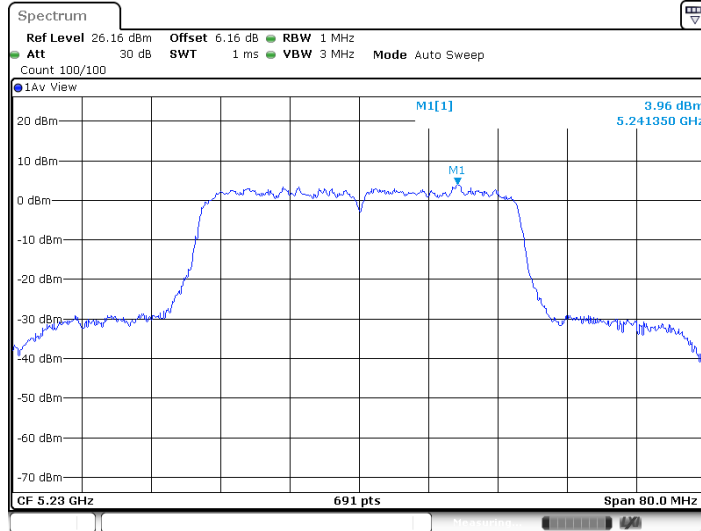
Date: 21 MAR 2020 15:29:48

11AC40SISO Ant1_5190



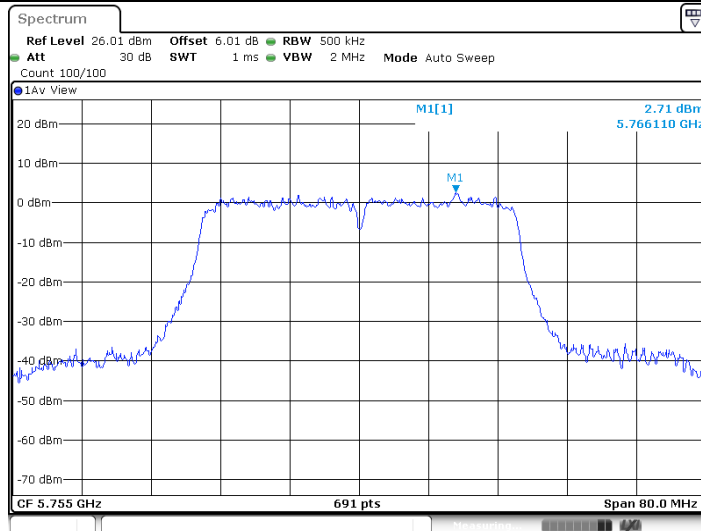
Date: 21 MAR 2020 15:34:31

11AC40SISO Ant1_5230



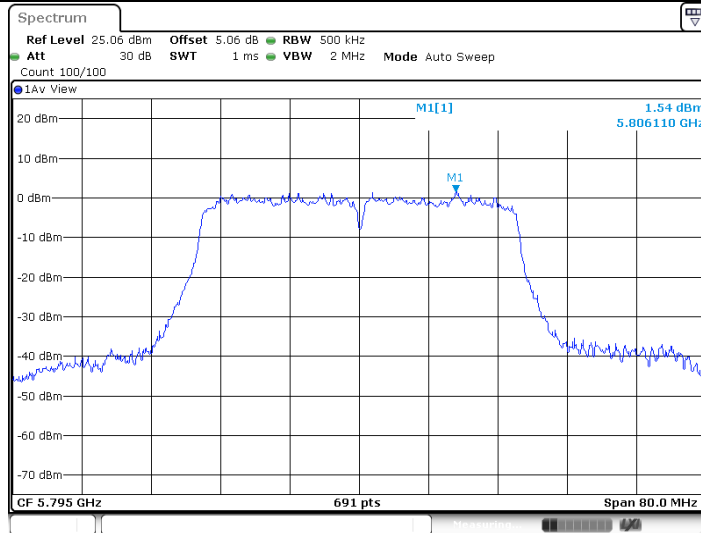
Date: 21 MAR 2020 15:37:52

11AC40SISO Ant1_5755



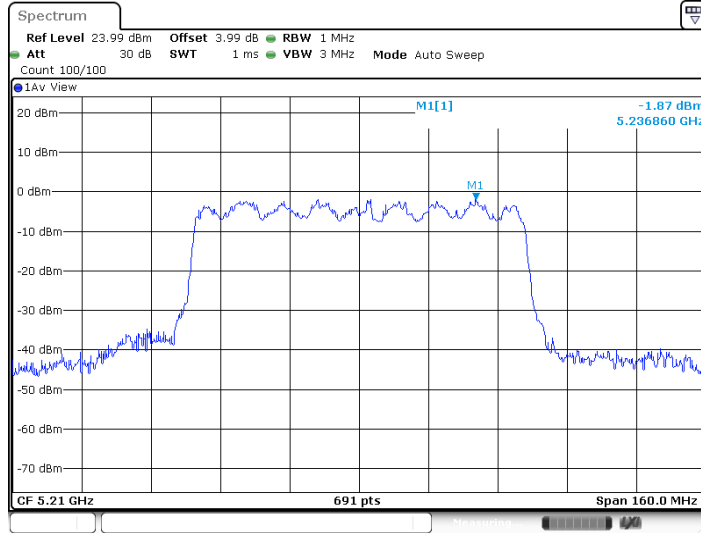
Date: 21 MAR 2020 15:40:48

11AC40SISO Ant1_5795



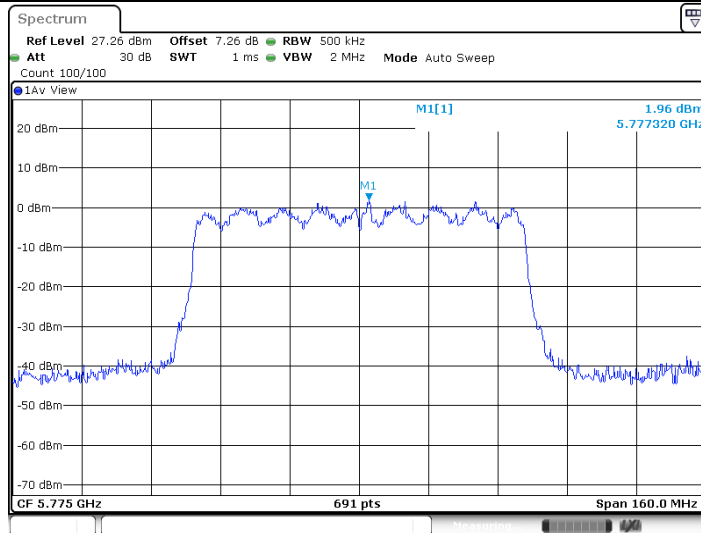
Date: 21 MAR 2020 15:44:04

11AC80SISO Ant1_5210



Date: 21 MAR 2020 15:47:47

11AC80SISO Ant1_5775



Date: 21 MAR 2020 15:52:21

9.5 Unwanted emissions and Band edge emissions

Transmitting spurious emission test result as below (Radiated Mode):

Test Method

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned
5. Use the following spectrum analyzer settings According to C63.10:
 For Above 1GHz
 Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 1MHz, VBW \geq RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.
 For Below 1GHz
 Use the following spectrum analyzer settings:
 Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 100 KHz, VBW \geq RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (20log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.

Limit

According to part 15.407(b), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. The provisions of §15.205 apply to intentional radiators operating under this section.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

According to part 15.407b (1) (2) (3) (4)

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

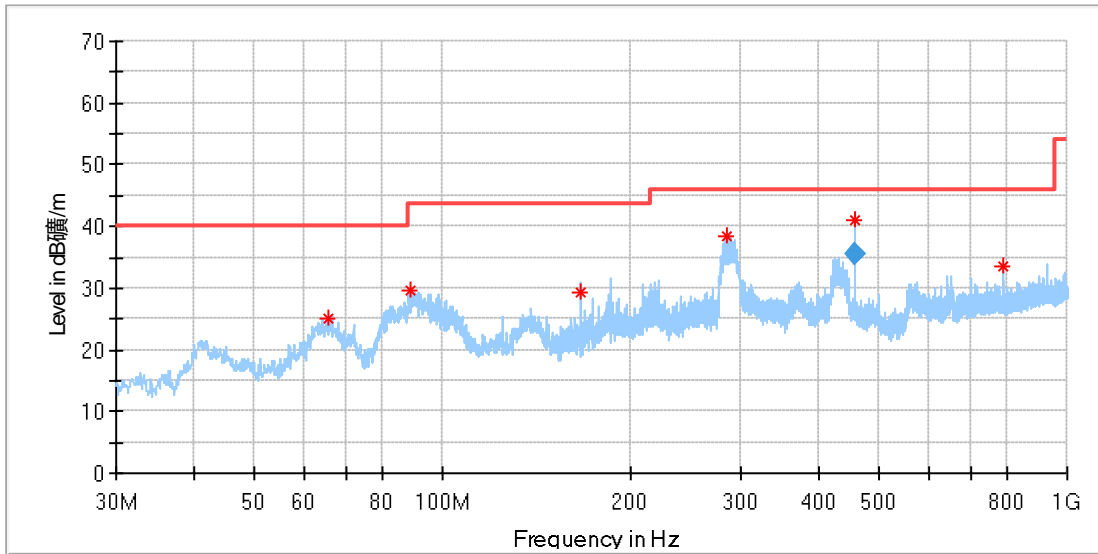
Note: According to KDB 789033 D02 (G): $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2$, for $d = 3$ meters.

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

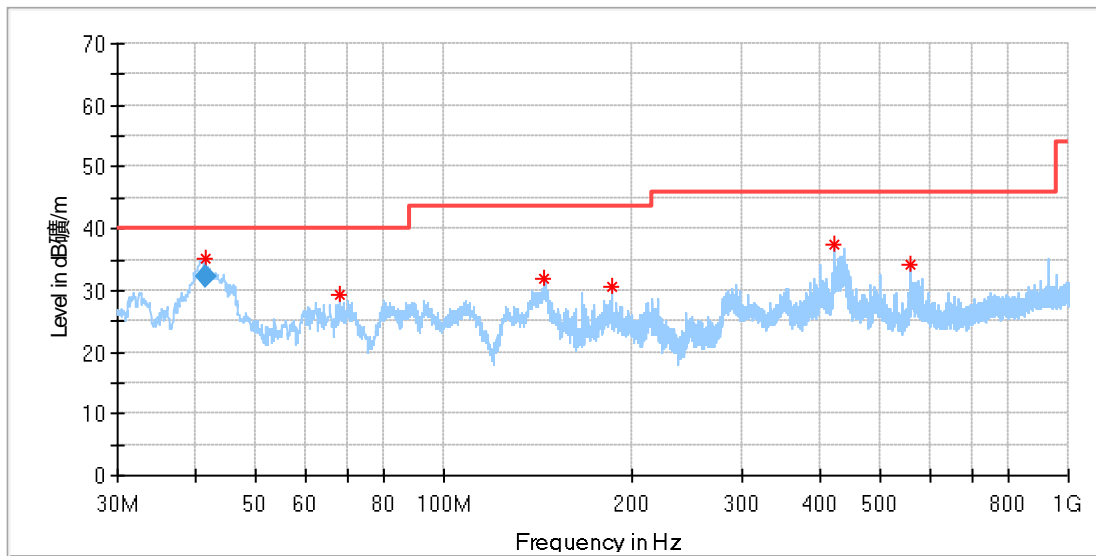
The only worse case test result is listed in the report., For 20MHz bandwidth the 11A modulation output power max, and for 40M bandwidth the 11ac40 modulation output power max. so the test result only showed 11A and 11ac40 modulation test data.

Transmitting spurious emission test result as below:

Below 1G:



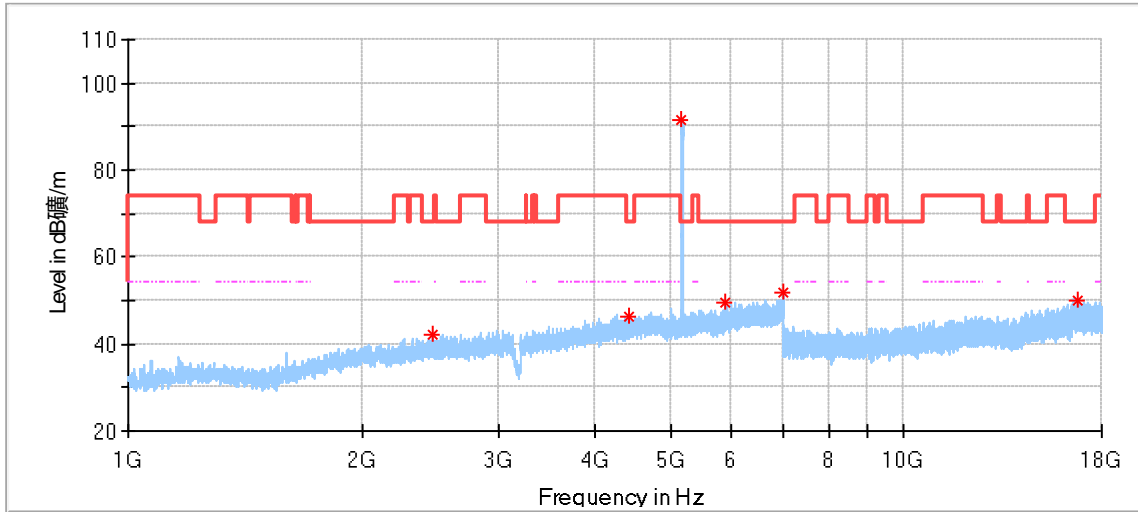
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
65.829375	25.13	40.00	14.87	200.0	H	14.0	15
89.048750	29.69	43.50	13.81	200.0	H	4.0	14
166.709375	29.40	43.50	14.10	100.0	H	30.0	13
285.231250	38.51	46.00	7.49	100.0	H	46.0	18
456.002813	40.92	46.00	5.08	179.0	H	285.0	22
791.328750	33.56	46.00	12.44	100.0	H	260.0	28
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
456.002813	35.64	46.00	10.36	179.0	H	285.0	22



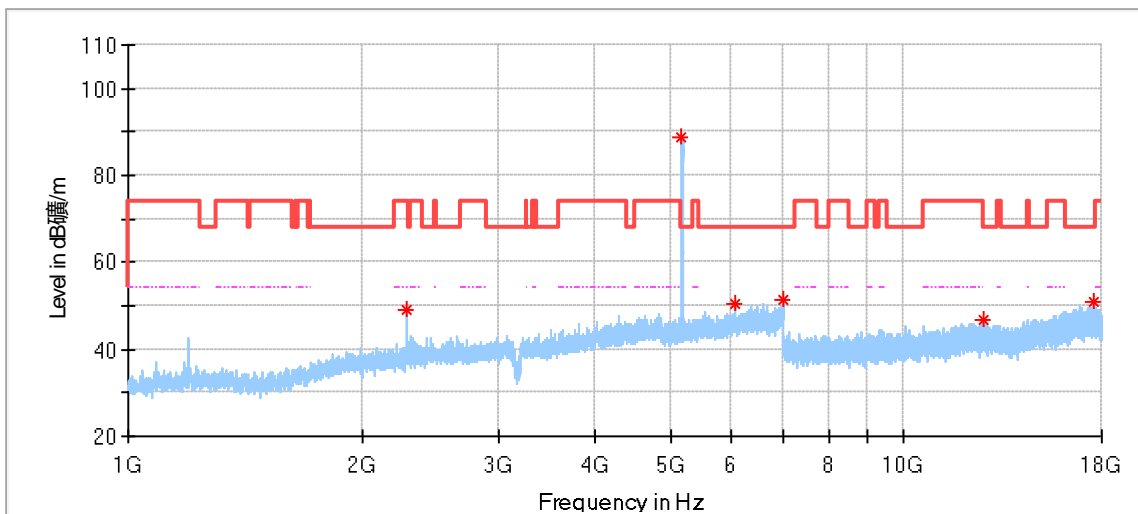
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.518750	35.28	40.00	4.72	100.0	V	217.0	17
68.072500	29.45	40.00	10.55	100.0	V	302.0	15
145.066250	31.97	43.50	11.53	100.0	V	0.0	12
185.563750	30.65	43.50	12.85	100.0	V	100.0	15
422.971250	37.35	46.00	8.65	100.0	V	225.0	22
556.891875	34.18	46.00	11.82	100.0	V	178.0	24
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
41.518750	32.28	40.00	7.72	100.0	V	217.0	17

Remark: All points above the limit are primary operation frequencies points.

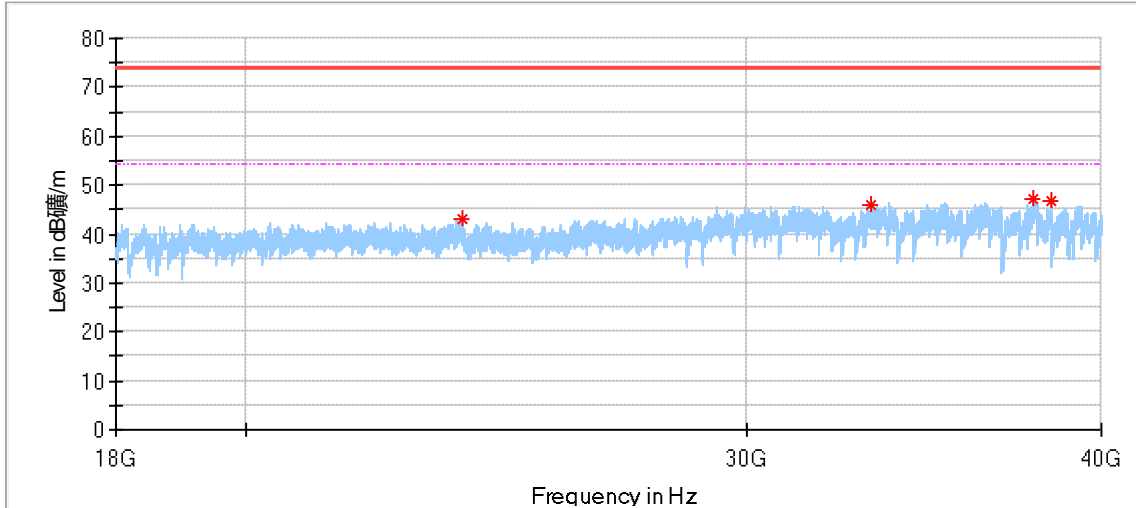
802.11A Modulation 5180MHz Test Result



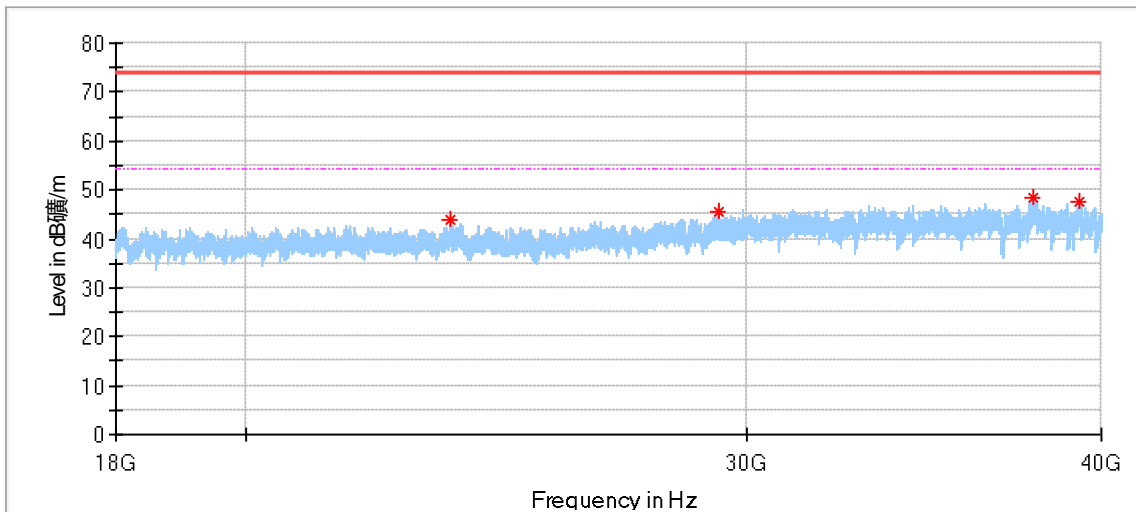
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2473.500000	41.98	68.20	26.22	150.0	H	111.0	-4.2
4424.000000	46.19	68.20	22.01	150.0	H	25.0	2.0
5884.000000	49.33	68.20	18.87	150.0	H	213.0	3.7
6993.500000	51.80	68.20	16.40	150.0	H	55.0	6.7
16749.000000	49.97	68.20	18.23	150.0	H	205.0	16.5



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2281.500000	49.03	74.00	24.97	150.0	V	209.0	-5.4
6055.000000	50.56	68.20	17.64	150.0	V	86.0	4.7
6992.500000	51.24	68.20	16.96	150.0	V	111.0	6.7
12639.500000	46.69	74.00	27.31	150.0	V	359.0	10.1
17565.000000	50.80	68.20	17.40	150.0	V	6.0	17.3

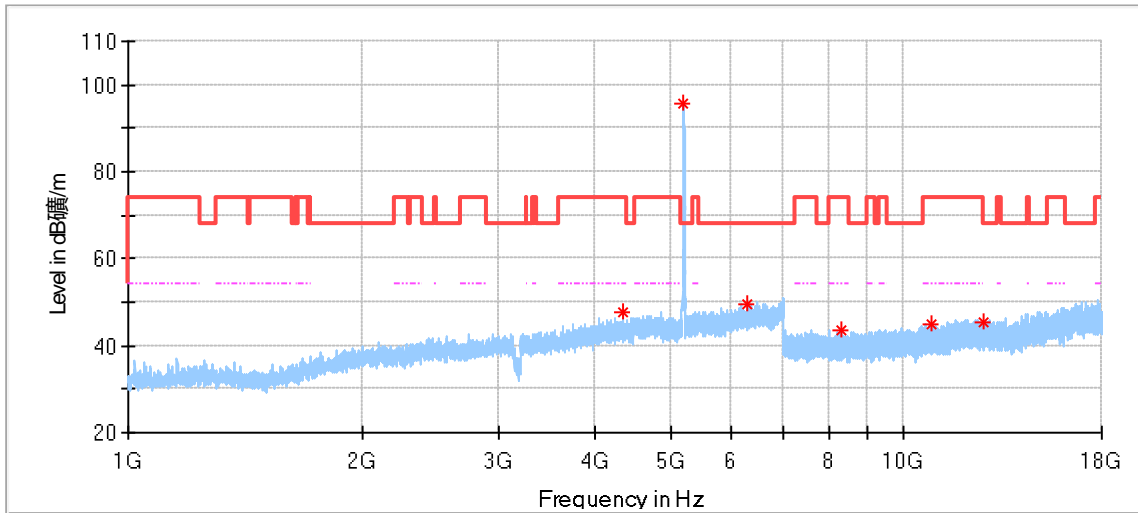


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
23823.125000	43.13	74.00	30.87	100.0	H	354.0	1.1
33209.562500	45.93	74.00	28.07	100.0	H	255.0	3.3
37862.562500	47.05	74.00	26.95	100.0	H	354.0	5.9
38383.687500	46.95	74.00	27.06	100.0	H	272.0	5.8

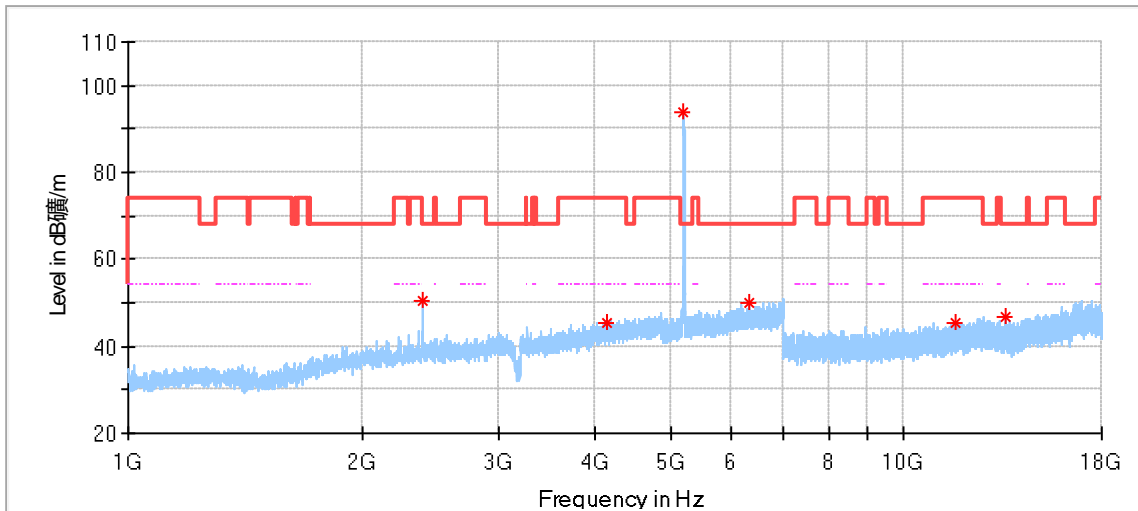


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
23610.000000	43.81	74.00	30.19	100.0	V	221.0	1.0
29334.812500	45.46	74.00	28.54	100.0	V	0.0	2.4
37849.500000	48.32	74.00	25.68	100.0	V	342.0	5.9
39311.812500	47.51	74.00	26.49	100.0	V	311.0	6.8

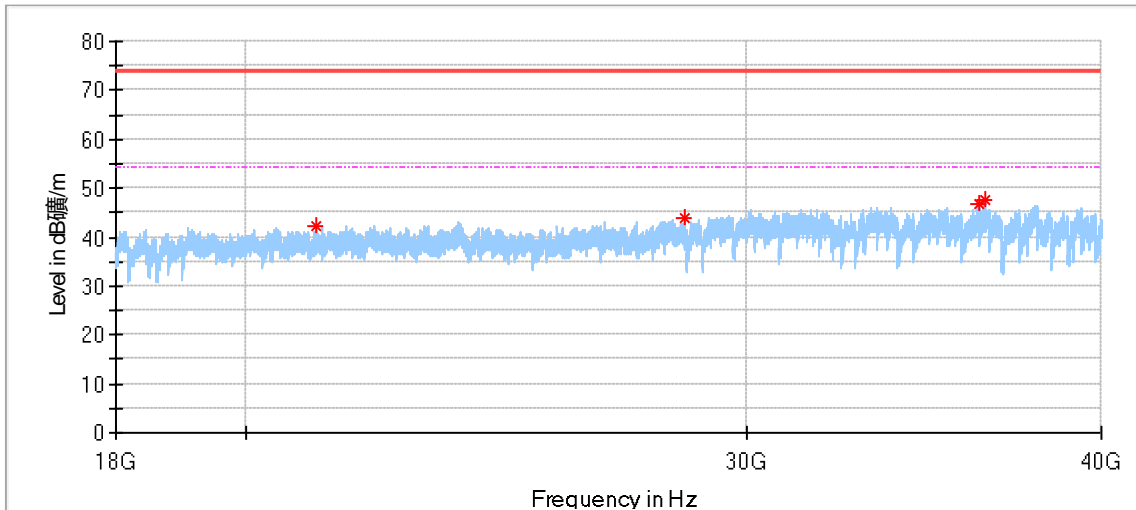
802.11A Modulation 5200MHz Test Result



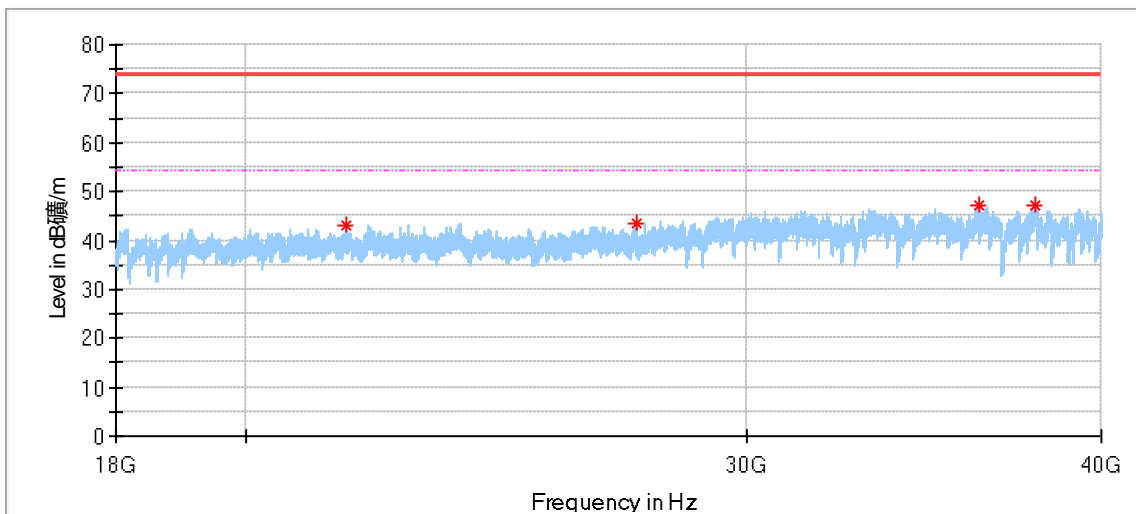
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4332.500000	47.78	74.00	26.22	150.0	H	197.0	1.3
5200.000000	95.57	125.20	29.63	150.0	H	98.0	1.3
6298.500000	49.62	68.20	18.58	150.0	H	357.0	5.6
8316.000000	43.37	74.00	30.63	150.0	H	223.0	6.7
10846.500000	45.07	74.00	28.93	150.0	H	244.0	7.9
12642.000000	45.54	74.00	28.46	150.0	H	79.0	10.1



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2392.500000	50.25	68.20	17.95	150.0	V	229.0	-4.8
4142.000000	45.57	74.00	28.43	150.0	V	102.0	0.8
6306.000000	49.96	68.20	18.24	150.0	V	294.0	5.6
11649.000000	45.56	74.00	28.44	150.0	V	303.0	8.9
13542.000000	46.99	68.20	21.21	150.0	V	70.0	9.4

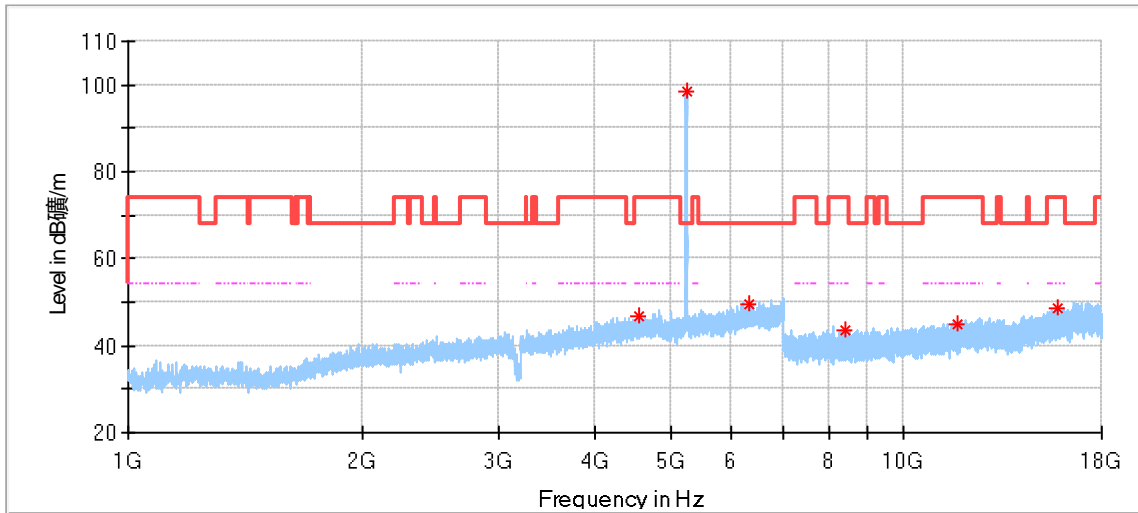


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21168.687500	42.40	74.00	31.60	100.0	H	12.0	-0.3
28520.812500	43.98	74.00	30.02	100.0	H	125.0	2.1
36209.812500	46.72	74.00	27.28	100.0	H	0.0	4.8
36425.000000	47.42	74.00	26.58	100.0	H	0.0	5.1

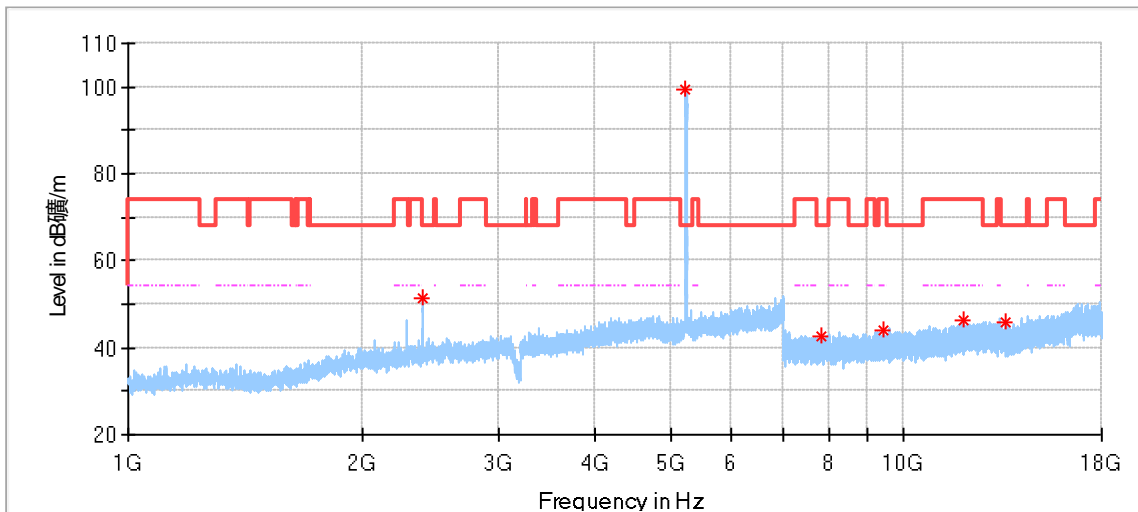


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21693.937500	43.14	74.00	30.86	100.0	V	305.0	0.1
27430.437500	43.68	74.00	30.32	100.0	V	277.0	1.8
36223.562500	47.04	74.00	26.96	100.0	V	334.0	4.8
37922.375000	47.25	74.00	26.75	100.0	V	116.0	6.0

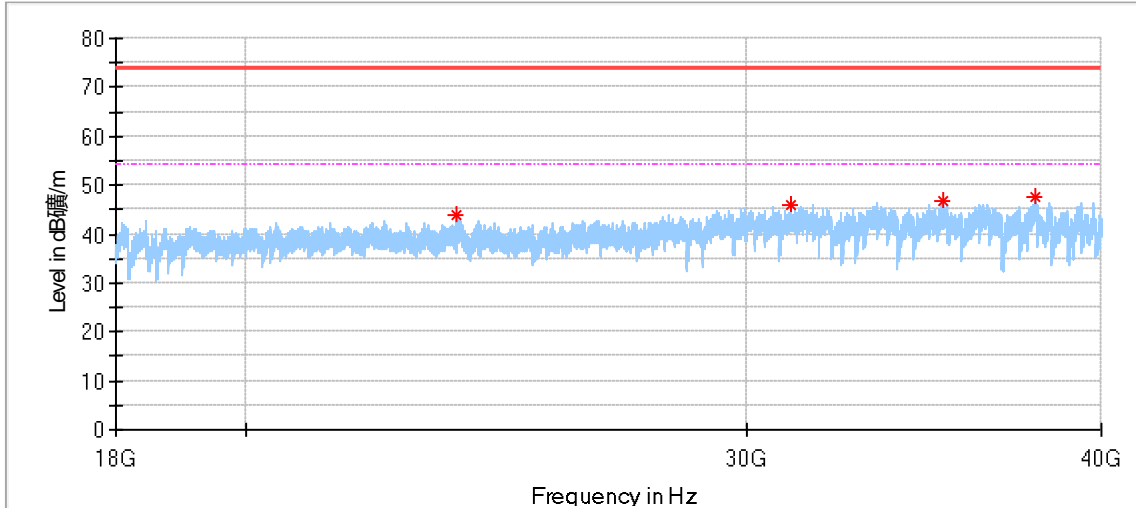
802.11A Modulation 5240MHz Test Result



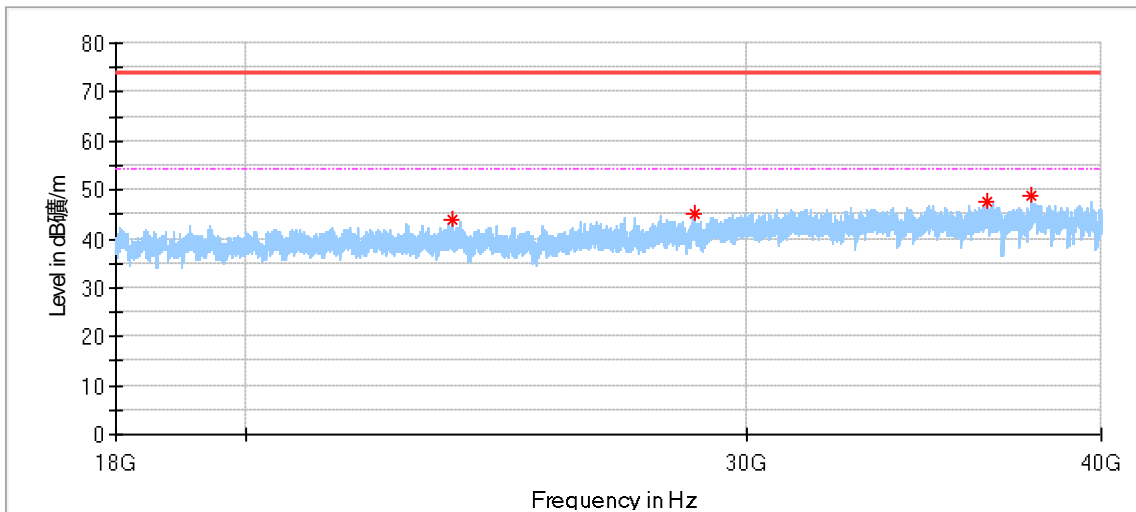
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4560.000000	46.57	74.00	27.43	150.0	H	0.0	2.3
6338.000000	49.66	68.20	18.54	150.0	H	199.0	5.5
8410.500000	43.70	74.00	30.30	150.0	H	120.0	6.4
11709.000000	44.83	74.00	29.17	150.0	H	354.0	8.9
15795.500000	48.73	74.00	25.27	150.0	H	266.0	13.8



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2399.000000	51.49	68.20	16.71	150.0	V	297.0	-4.8
7827.500000	42.73	68.20	25.47	150.0	V	243.0	6.6
9409.500000	44.08	74.00	29.92	150.0	V	156.0	7.2
11975.000000	46.31	74.00	27.69	150.0	V	51.0	9.8
13528.000000	45.85	68.20	22.35	150.0	V	113.0	9.4

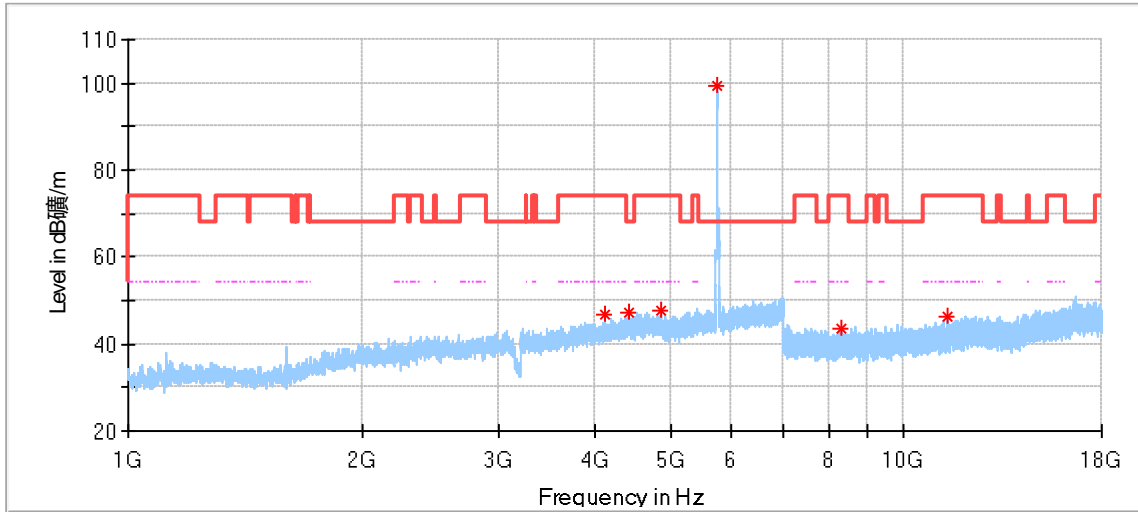


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
23712.437500	43.95	74.00	30.05	100.0	H	0.0	1.1
31081.062500	45.76	74.00	28.24	100.0	H	257.0	2.5
35179.250000	46.67	74.00	27.33	100.0	H	322.0	4.4
37888.687500	47.66	74.00	26.34	100.0	H	188.0	5.9

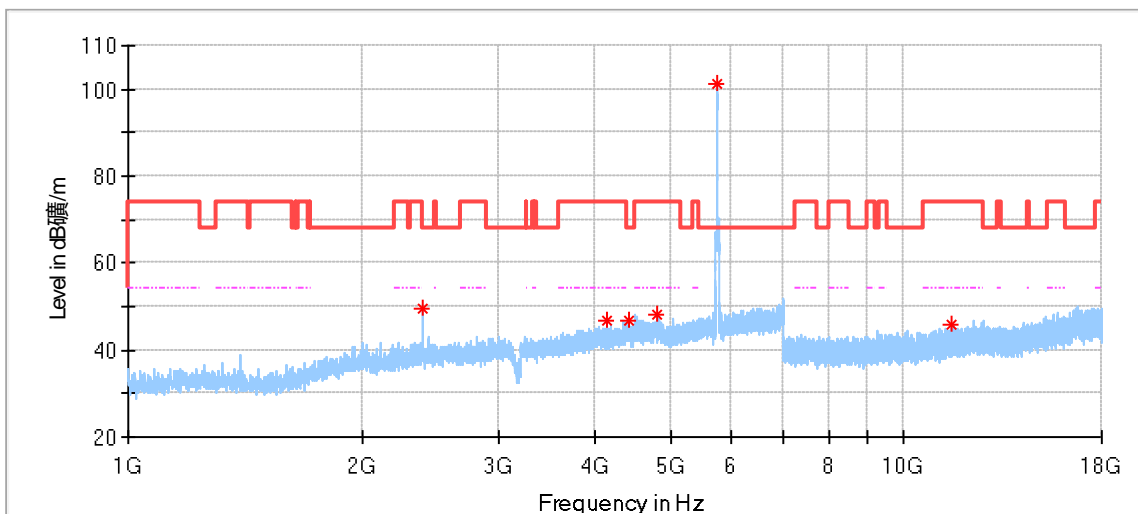


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
23648.500000	43.95	74.00	30.05	100.0	V	37.0	1.0
28786.875000	44.93	74.00	29.07	100.0	V	0.0	2.2
36456.625000	47.57	74.00	26.43	100.0	V	358.0	5.2
37816.500000	48.86	74.00	25.14	100.0	V	309.0	5.8

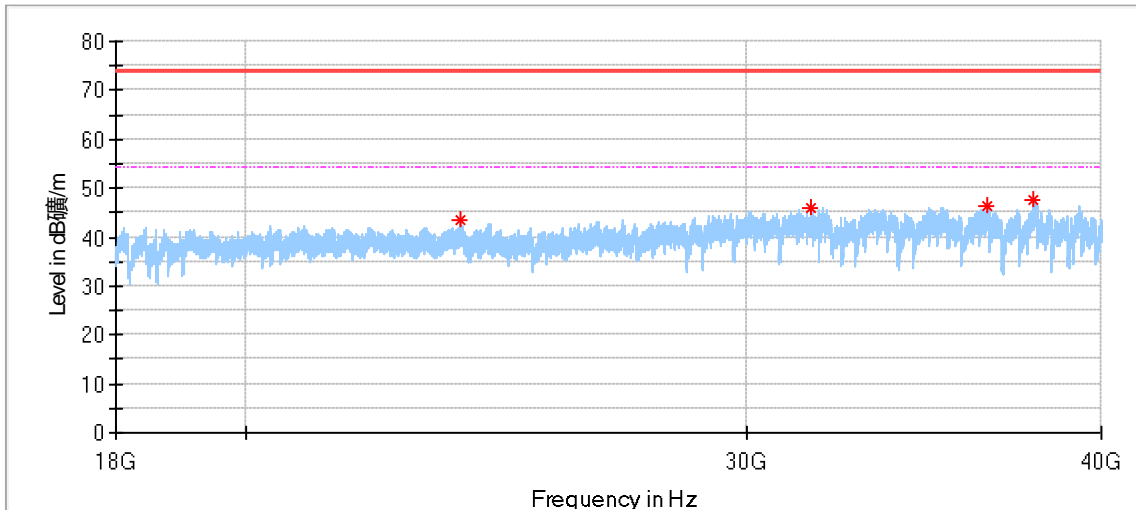
802.11A Modulation 5745MHz Test Result



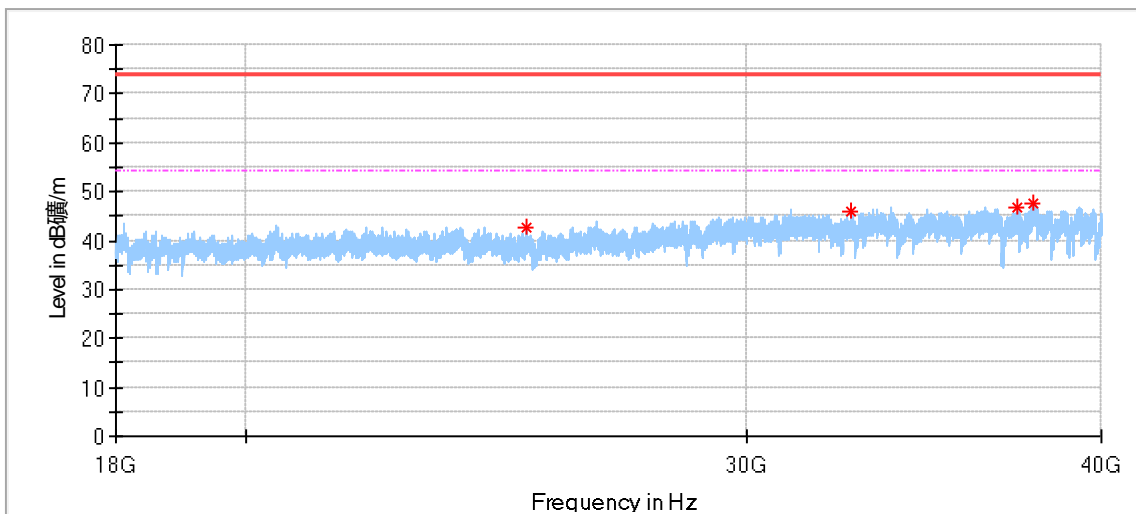
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4115.500000	46.54	74.00	27.46	150.0	H	184.0	0.8
4410.000000	47.14	68.20	21.06	150.0	H	0.0	2.1
4854.500000	47.59	74.00	26.41	150.0	H	123.0	2.2
8319.000000	43.36	74.00	30.64	150.0	H	19.0	6.7
11376.000000	46.49	74.00	27.51	150.0	H	140.0	8.5



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2396.000000	49.53	68.20	18.67	150.0	V	325.0	-4.7
4132.000000	46.55	74.00	27.45	150.0	V	316.0	0.7
4423.000000	46.89	68.20	21.31	150.0	V	333.0	2.0
4817.500000	47.95	74.00	26.05	150.0	V	325.0	2.2
11543.000000	45.83	74.00	28.17	150.0	V	153.0	8.8

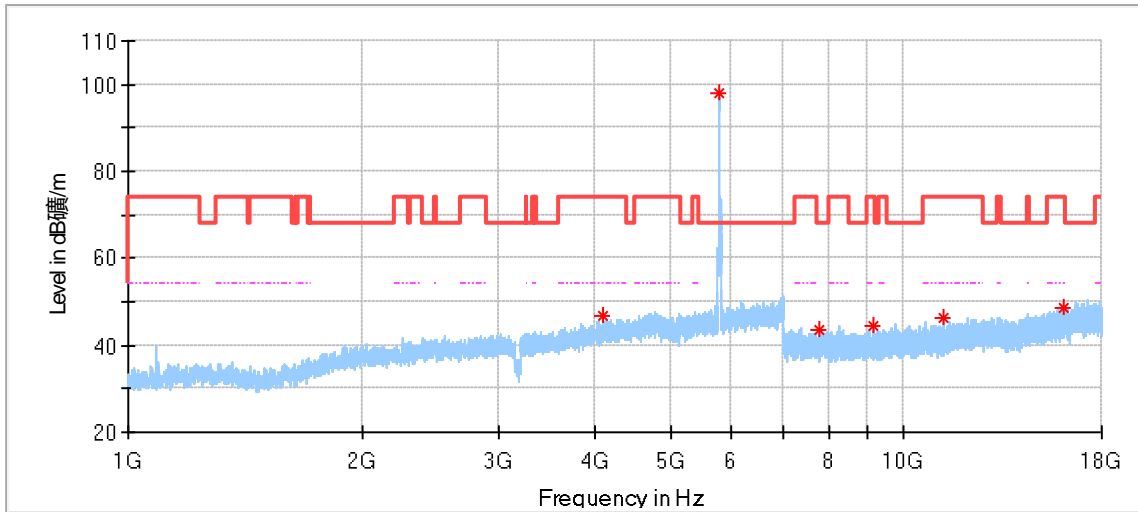


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
23790.125000	43.37	74.00	30.63	100.0	H	181.0	1.2
31624.875000	45.95	74.00	28.05	100.0	H	181.0	2.8
36460.062500	46.44	74.00	27.56	100.0	H	285.0	5.2
37865.312500	47.63	74.00	26.37	100.0	H	11.0	5.9

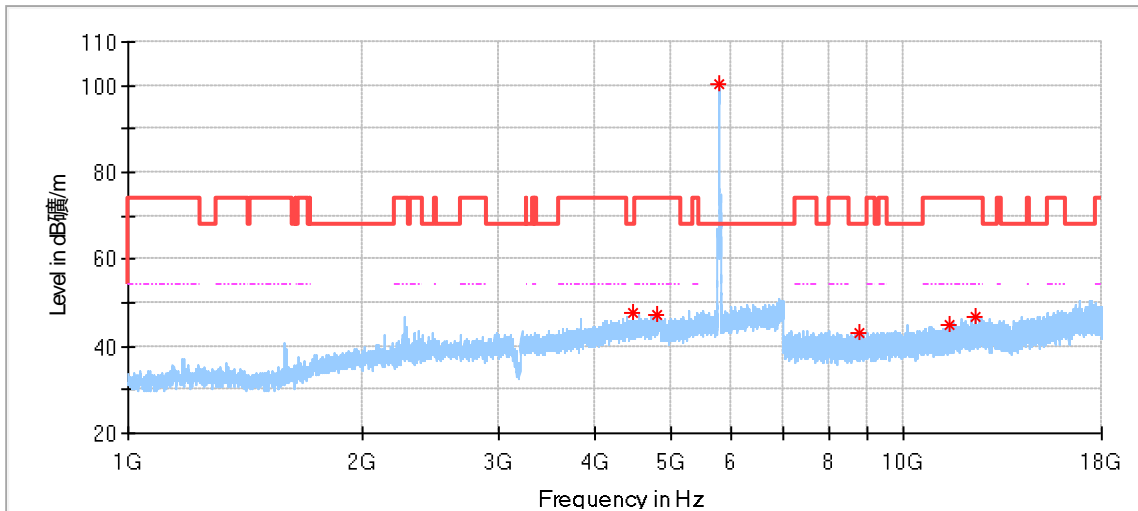


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
25112.187500	42.73	74.00	31.27	100.0	V	78.0	0.8
32678.812500	46.11	74.00	27.89	100.0	V	65.0	3.1
37354.500000	46.97	74.00	27.03	100.0	V	354.0	5.4
37845.375000	47.79	74.00	26.21	100.0	V	324.0	5.9

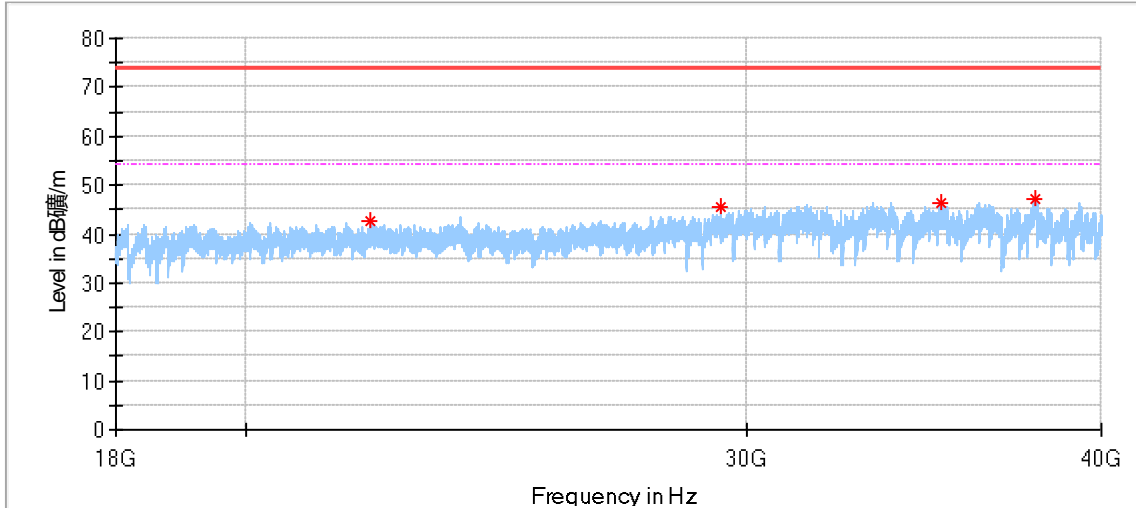
802.11A Modulation 5785MHz Test Result



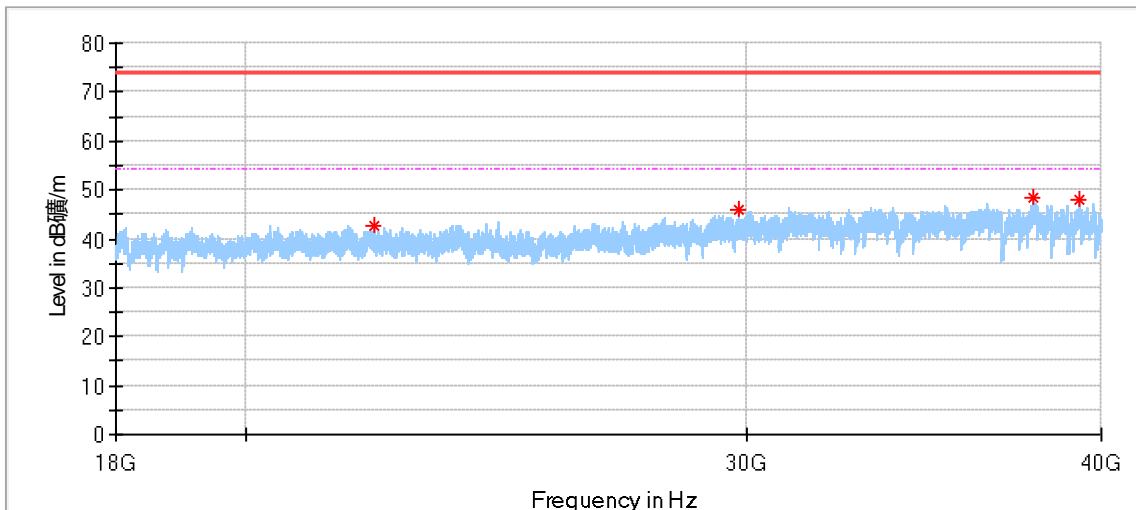
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4088.000000	46.62	74.00	27.38	150.0	H	226.0	0.9
7799.500000	43.66	68.20	24.54	150.0	H	42.0	6.6
9130.500000	44.57	74.00	29.43	150.0	H	309.0	7.0
11243.000000	46.12	74.00	27.88	150.0	H	126.0	8.1
16062.000000	48.65	74.00	25.35	150.0	H	3.0	14.2



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4465.000000	47.50	68.20	20.70	150.0	V	143.0	1.9
4815.000000	47.14	74.00	26.86	150.0	V	349.0	2.2
8756.000000	43.22	68.20	24.98	150.0	V	100.0	6.7
11461.500000	44.75	74.00	29.25	150.0	V	120.0	8.7
12379.000000	46.63	74.00	27.37	150.0	V	264.0	10.2

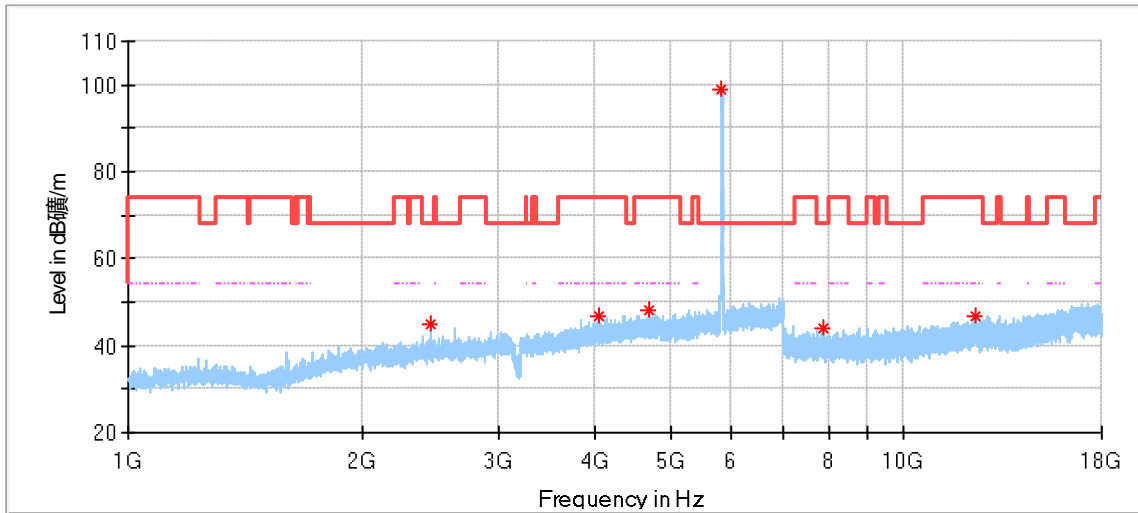


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22138.062500	42.53	74.00	31.47	100.0	H	0.0	0.3
29369.875000	45.60	74.00	28.40	100.0	H	201.0	2.4
35123.562500	46.55	74.00	27.45	100.0	H	264.0	4.4
37930.625000	47.29	74.00	26.71	100.0	H	264.0	6.0

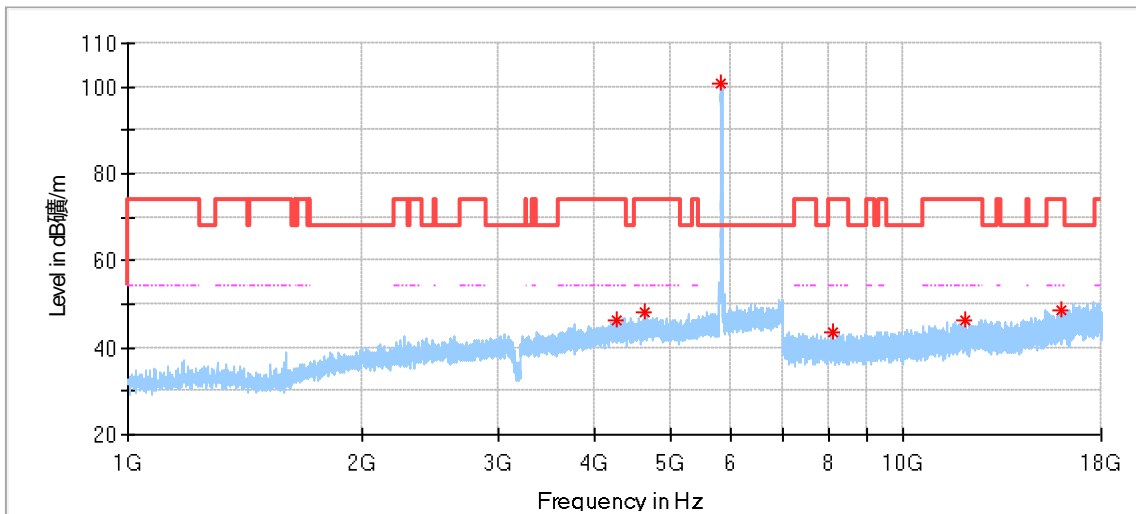


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22176.562500	42.58	74.00	31.42	100.0	V	352.0	0.4
29814.000000	45.86	74.00	28.14	100.0	V	125.0	2.5
37844.687500	48.36	74.00	25.64	100.0	V	257.0	5.9
39282.937500	47.82	74.00	26.18	100.0	V	257.0	6.8

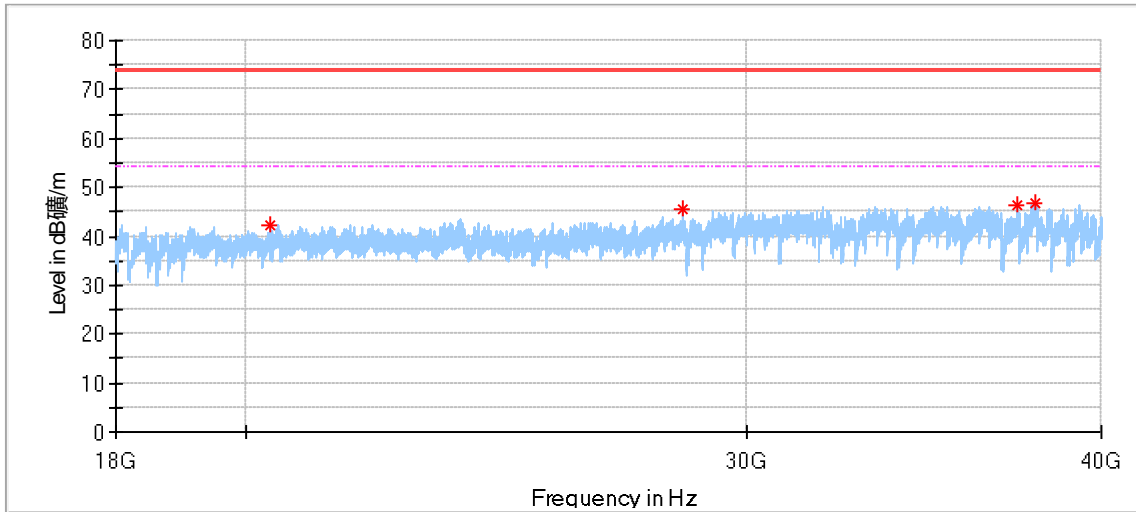
802.11A Modulation 5825MHz Test Result



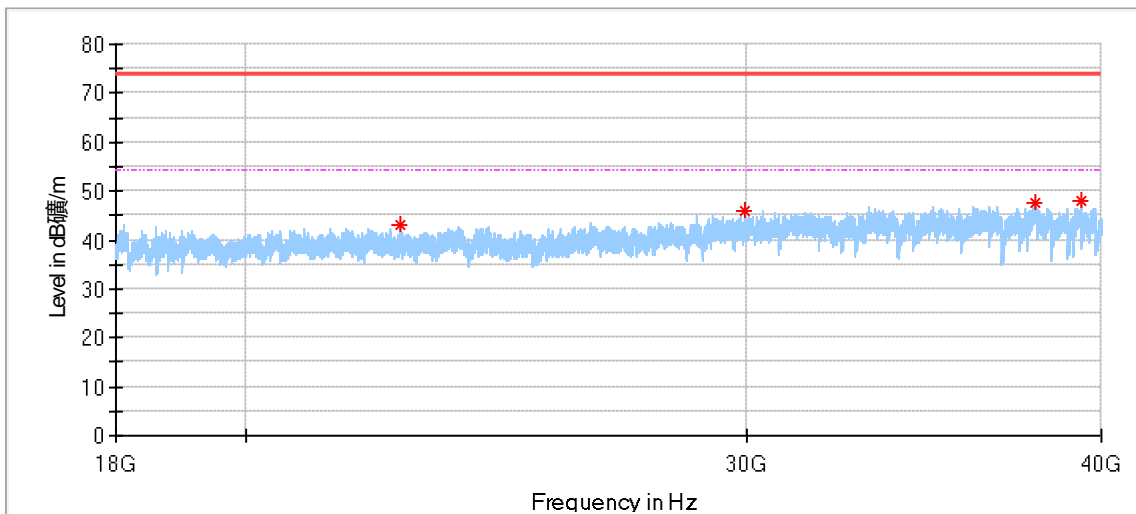
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2451.500000	44.72	68.20	23.48	150.0	H	236.0	-4.4
4033.500000	46.55	74.00	27.45	150.0	H	266.0	0.4
4700.500000	48.11	74.00	25.89	150.0	H	39.0	2.0
7863.000000	43.85	68.20	24.35	150.0	H	37.0	6.7
12395.000000	46.61	74.00	27.39	150.0	H	121.0	10.2



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4269.500000	46.30	74.00	27.70	150.0	V	349.0	1.2
4651.000000	47.98	74.00	26.02	150.0	V	76.0	2.3
8122.500000	43.63	74.00	30.37	150.0	V	308.0	6.4
12028.500000	46.53	74.00	27.47	150.0	V	286.0	9.9
15991.500000	48.62	74.00	25.38	150.0	V	242.0	13.9

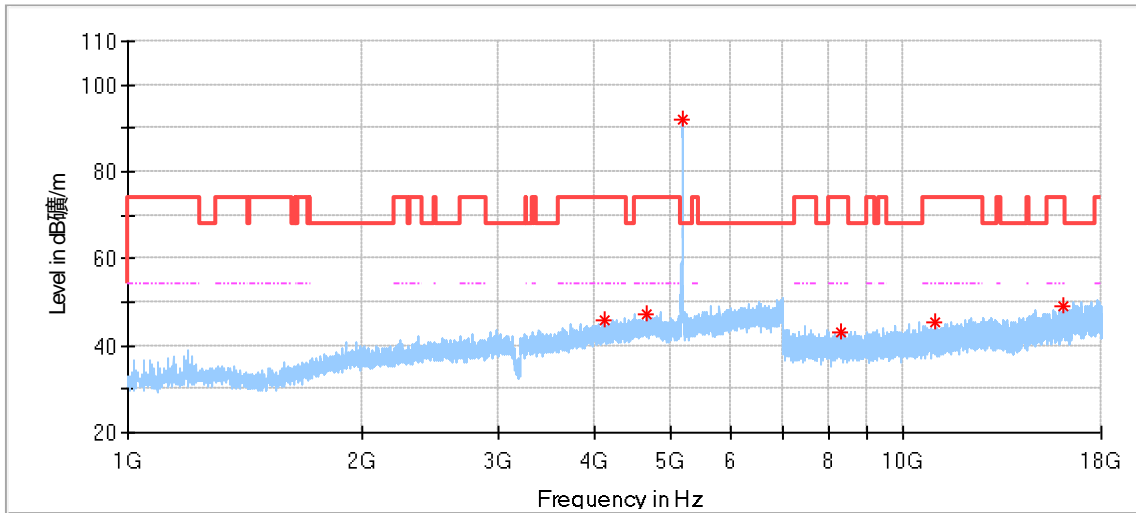


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
20393.875000	42.38	74.00	31.62	100.0	H	232.0	-1.2
28502.250000	45.71	74.00	28.29	100.0	H	107.0	2.1
37358.625000	46.45	74.00	27.55	100.0	H	296.0	5.4
37886.625000	46.66	74.00	27.34	100.0	H	359.0	5.9

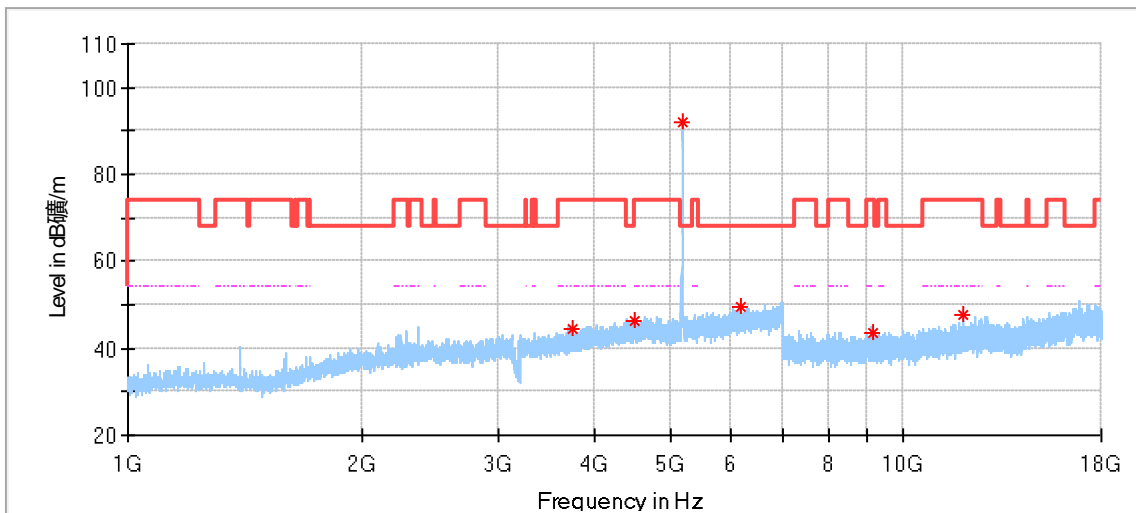


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22659.187500	43.03	74.00	30.97	100.0	V	318.0	0.3
29981.750000	45.84	74.00	28.16	100.0	V	261.0	2.5
37935.437500	47.72	74.00	26.28	100.0	V	175.0	6.0
39330.375000	48.01	74.00	25.99	100.0	V	75.0	6.8

802.11AC40 Modulation 5190MHz Test Result

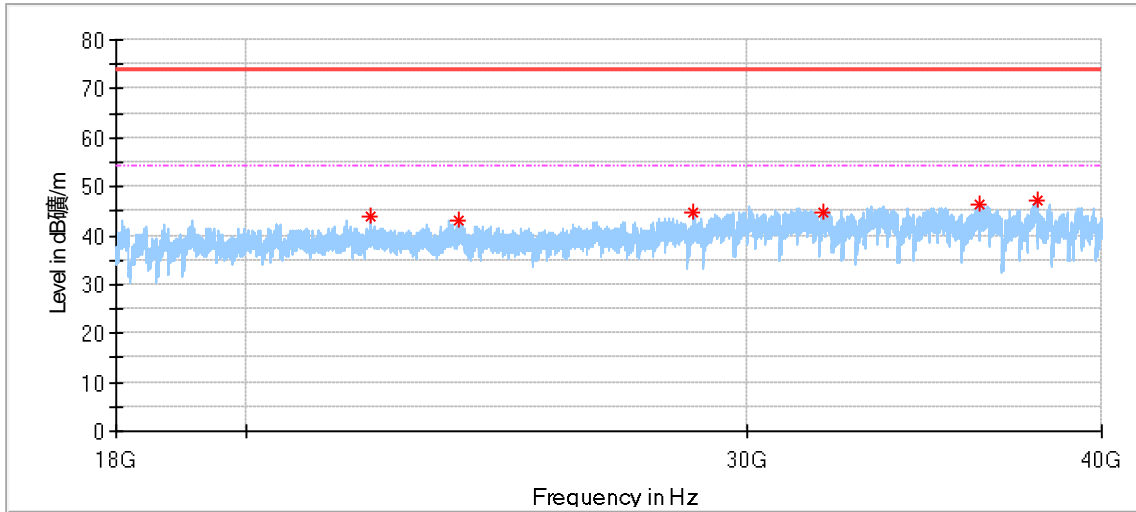


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4123.500000	45.94	74.00	28.06	150.0	H	240.0	0.8
4667.000000	47.26	74.00	26.74	150.0	H	359.0	2.1
8296.000000	43.07	74.00	30.93	150.0	H	25.0	6.7
10973.500000	45.35	74.00	28.65	150.0	H	216.0	8.2
16123.500000	49.06	74.00	24.94	150.0	H	326.0	14.3

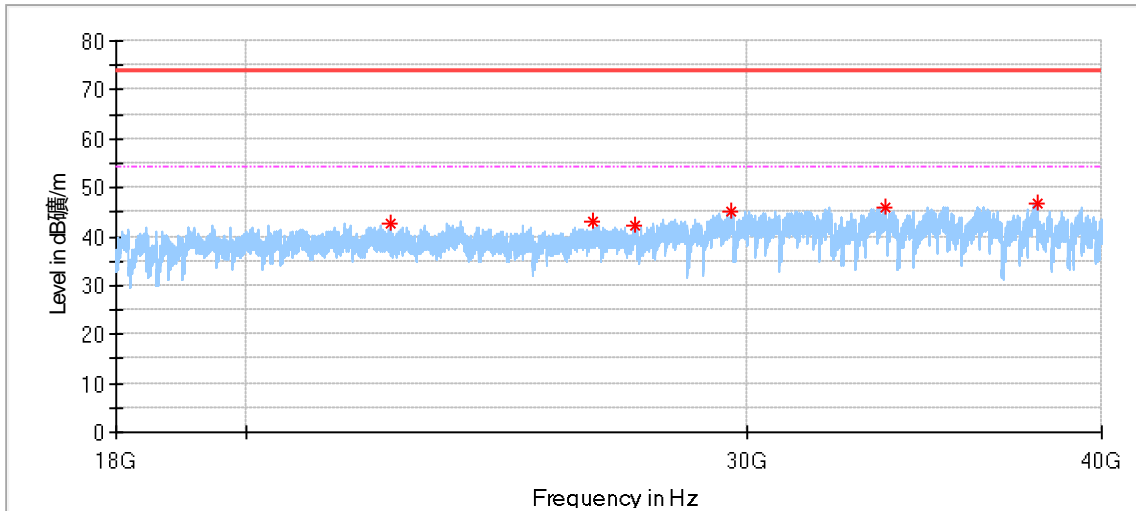


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3735.000000	44.33	74.00	29.67	150.0	V	21.0	-0.9
4509.000000	46.25	74.00	27.75	150.0	V	329.0	2.1
6174.500000	49.75	68.20	18.45	150.0	V	29.0	4.9
9150.500000	43.68	74.00	30.32	150.0	V	287.0	7.1
11973.500000	47.71	74.00	26.29	150.0	V	287.0	9.8

Above 18G test result:

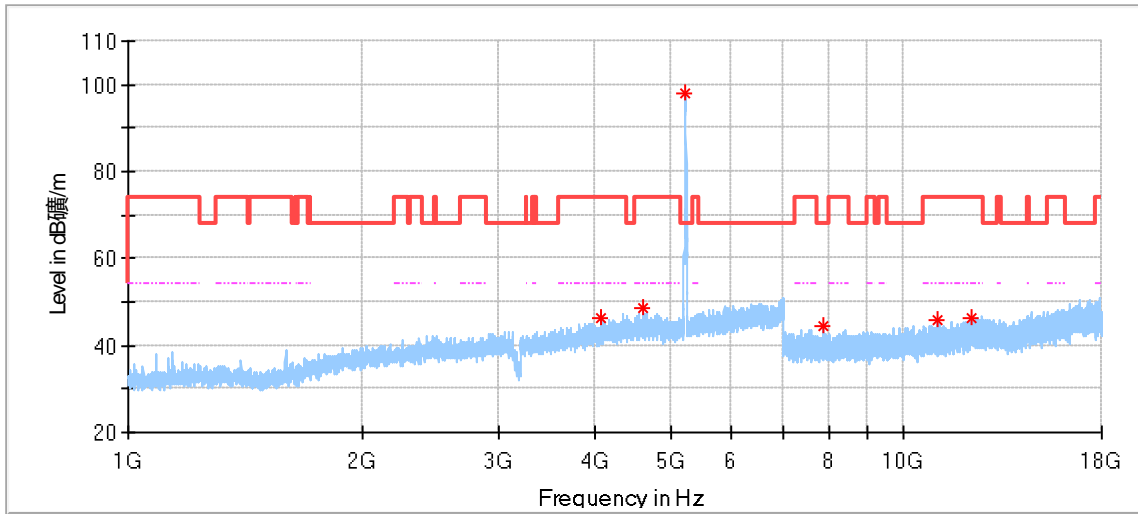


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22122.250000	43.91	74.00	30.09	100.0	H	179.0	0.3
23762.625000	43.27	74.00	30.73	100.0	H	294.0	1.1
28735.312500	44.61	74.00	29.39	100.0	H	179.0	2.2
31914.312500	44.75	74.00	29.25	100.0	H	136.0	2.9
36205.687500	46.51	74.00	27.49	100.0	H	136.0	4.8
37948.500000	47.33	74.00	26.67	100.0	H	120.0	6.0

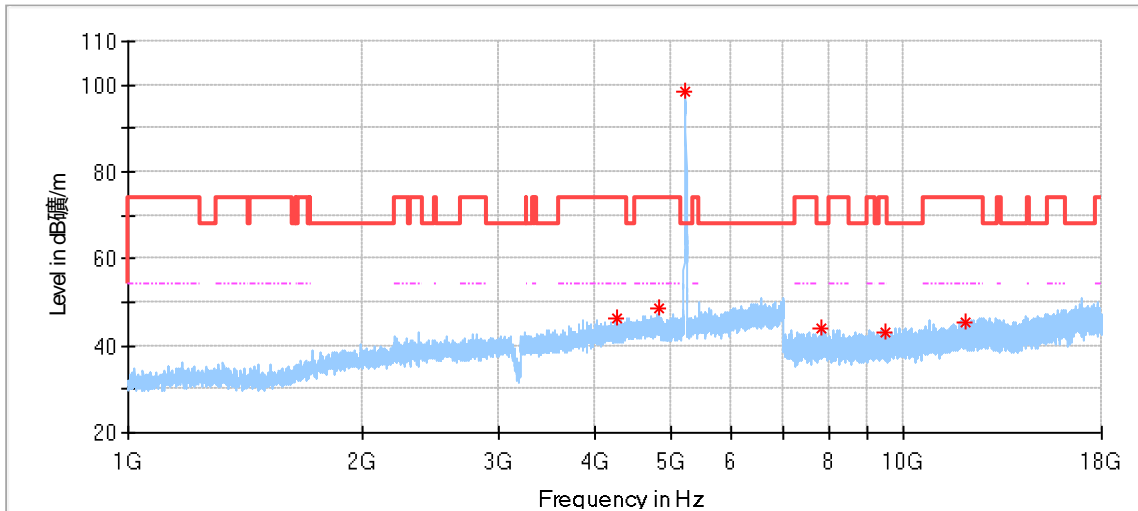


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22483.187500	42.67	74.00	31.33	100.0	V	244.0	0.3
26495.437500	42.89	74.00	31.11	100.0	V	161.0	2.6
27424.250000	42.19	74.00	31.81	100.0	V	90.0	1.8
29618.750000	45.12	74.00	28.88	100.0	V	2.0	2.4
33559.500000	46.13	74.00	27.87	100.0	V	9.0	3.3
37946.437500	46.89	74.00	27.11	100.0	V	319.0	6.0

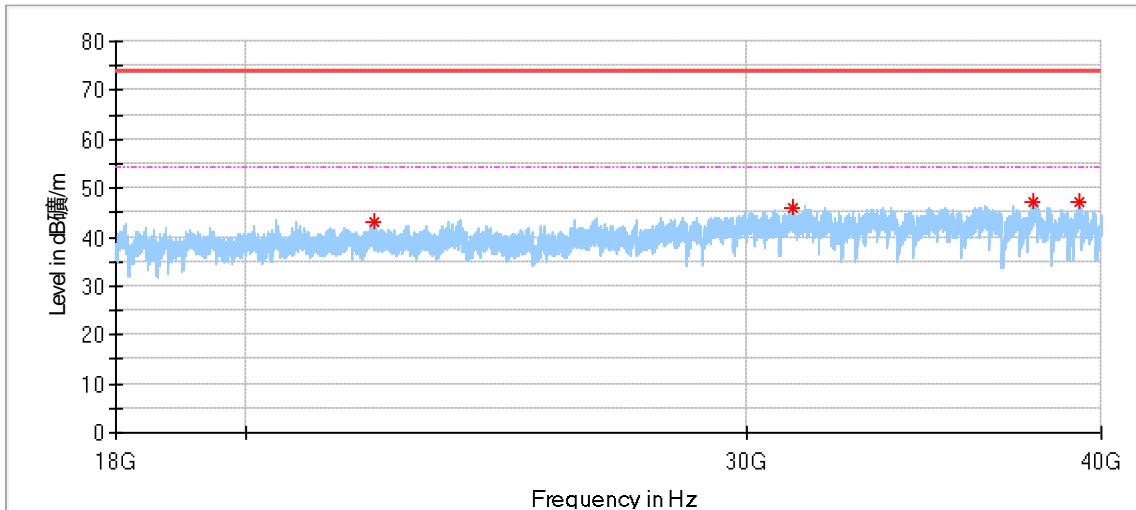
802.11AC40 Modulation 5230MHz Test Result



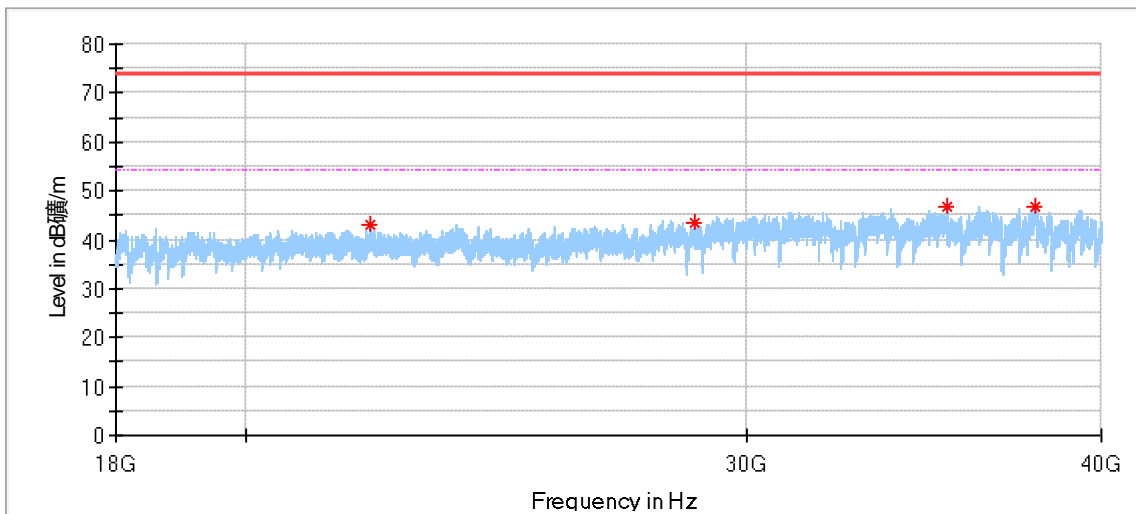
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4079.500000	46.39	74.00	27.61	150.0	H	356.0	0.8
4614.000000	48.40	74.00	25.60	150.0	H	11.0	2.3
7884.500000	44.45	68.20	23.75	150.0	H	263.0	6.7
11048.500000	45.71	74.00	28.29	150.0	H	241.0	8.2
12208.000000	46.36	74.00	27.64	150.0	H	354.0	9.6



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4261.000000	46.52	74.00	27.48	150.0	V	0.0	1.2
4835.000000	48.68	74.00	25.32	150.0	V	130.0	2.3
7842.500000	44.04	68.20	24.16	150.0	V	55.0	6.6
9464.500000	43.19	74.00	30.81	150.0	V	198.0	7.2
12023.000000	45.28	74.00	28.72	150.0	V	285.0	9.8

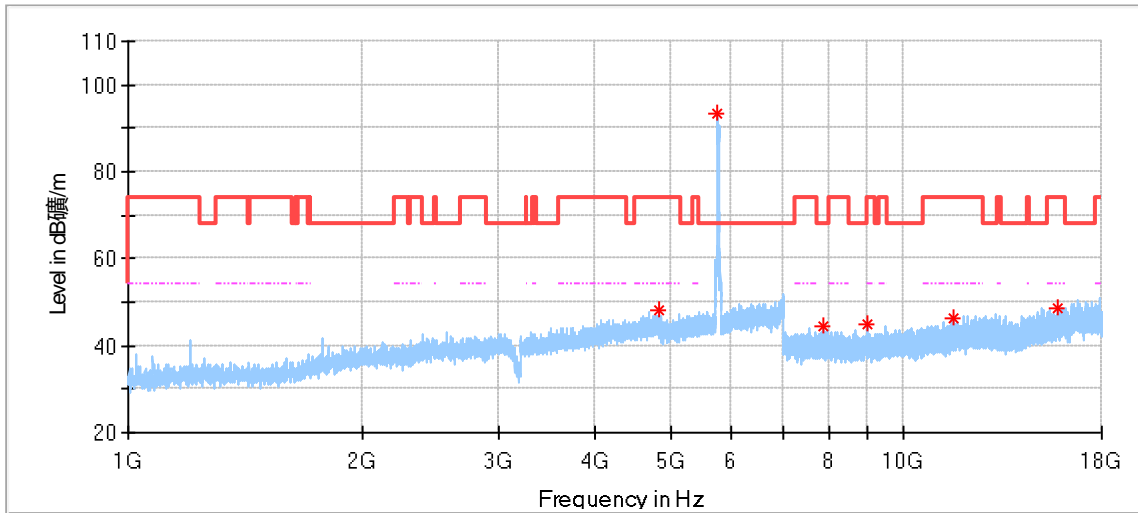


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22177.250000	43.26	74.00	30.74	100.0	V	324.0	0.4
31138.812500	46.15	74.00	27.85	100.0	V	354.0	2.5
37873.562500	47.15	74.00	26.85	100.0	V	0.0	5.9
39322.125000	47.15	74.00	26.85	100.0	V	68.0	6.8

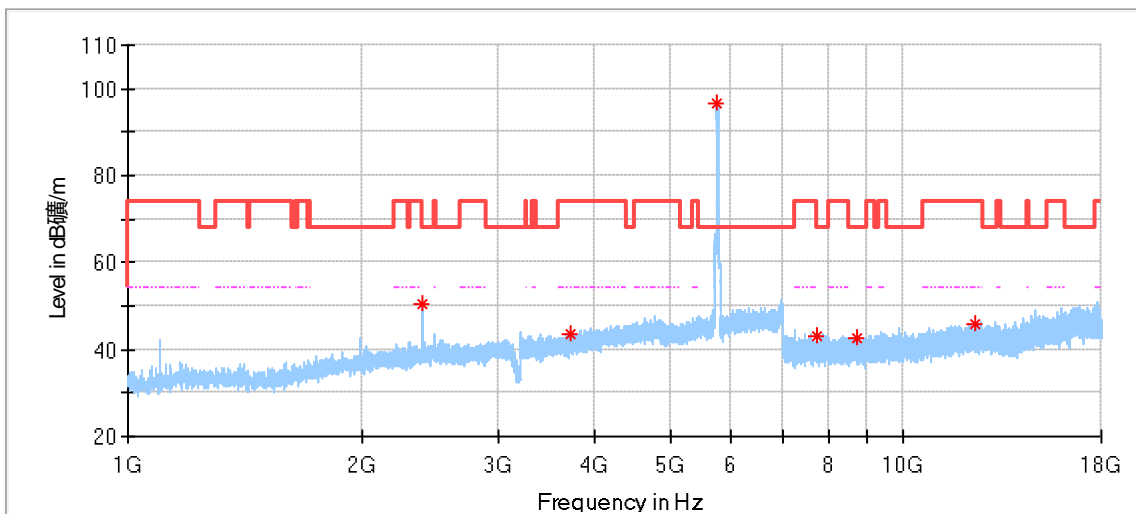


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22126.375000	43.11	74.00	30.89	100.0	H	272.0	0.3
28764.875000	43.57	74.00	30.43	100.0	H	0.0	2.2
35281.000000	46.66	74.00	27.34	100.0	H	139.0	4.4
37929.250000	46.97	74.00	27.03	100.0	H	139.0	6.0

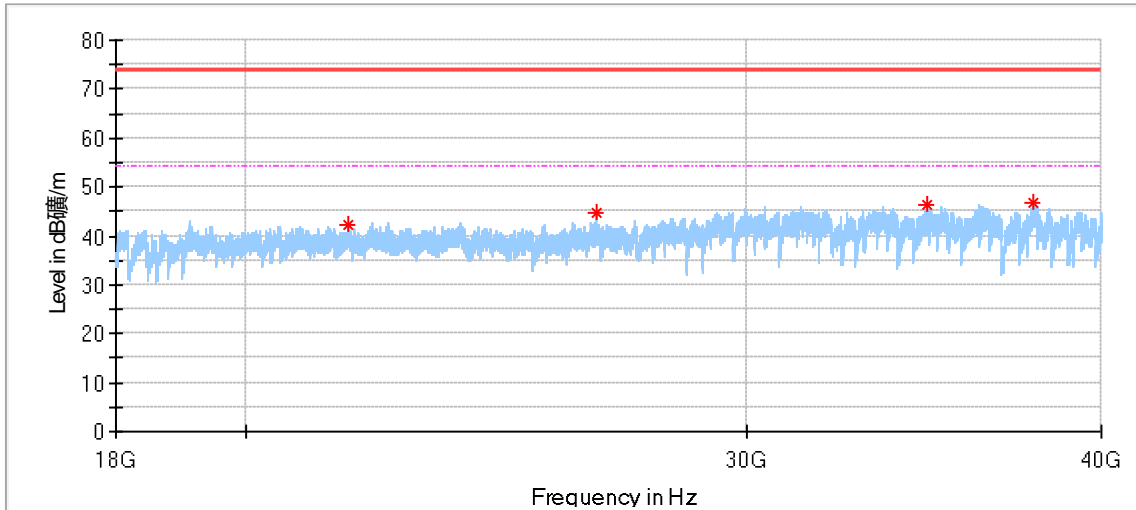
802.11AC40 Modulation 5755MHz Test Result



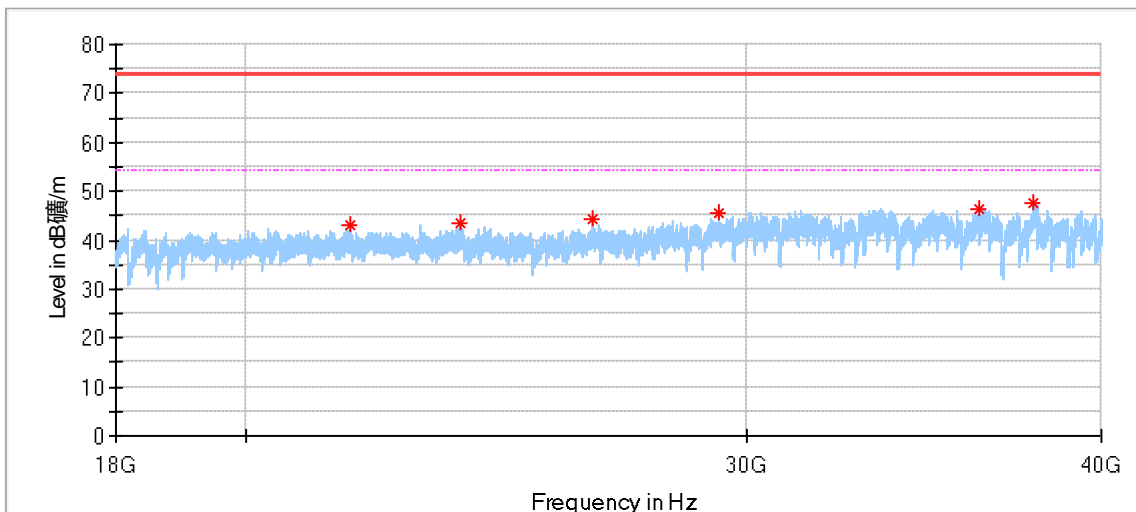
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4843.500000	48.09	74.00	25.91	150.0	H	339.0	2.3
7898.000000	44.29	68.20	23.91	150.0	H	38.0	6.6
8992.500000	44.94	68.20	23.26	150.0	H	120.0	6.9
11579.000000	46.24	74.00	27.76	150.0	H	356.0	8.8
15809.000000	48.78	74.00	25.22	150.0	H	311.0	13.9



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2399.000000	50.56	68.20	17.64	150.0	V	284.0	-4.8
3732.000000	43.69	74.00	30.31	150.0	V	203.0	-0.9
7722.500000	43.28	74.00	30.72	150.0	V	94.0	6.1
8707.500000	42.74	68.20	25.46	150.0	V	155.0	6.7
12382.000000	46.06	74.00	27.94	150.0	V	264.0	10.2

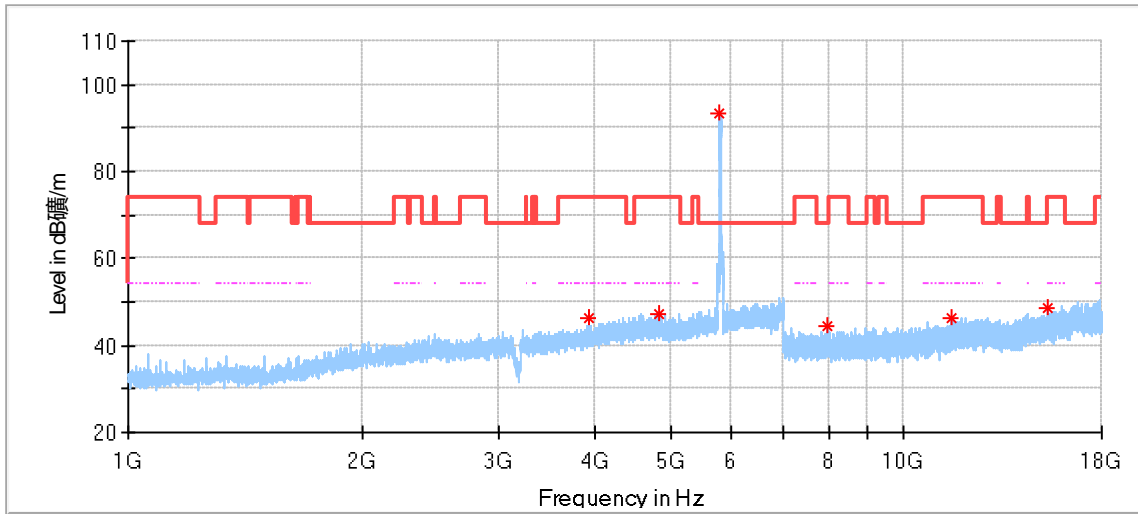


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21740.000000	42.19	74.00	31.81	100.0	H	0.0	0.1
26551.812500	44.81	74.00	29.19	100.0	H	11.0	2.6
34742.000000	46.46	74.00	27.54	100.0	H	140.0	4.0
37868.750000	46.63	74.00	27.37	100.0	H	156.0	5.9

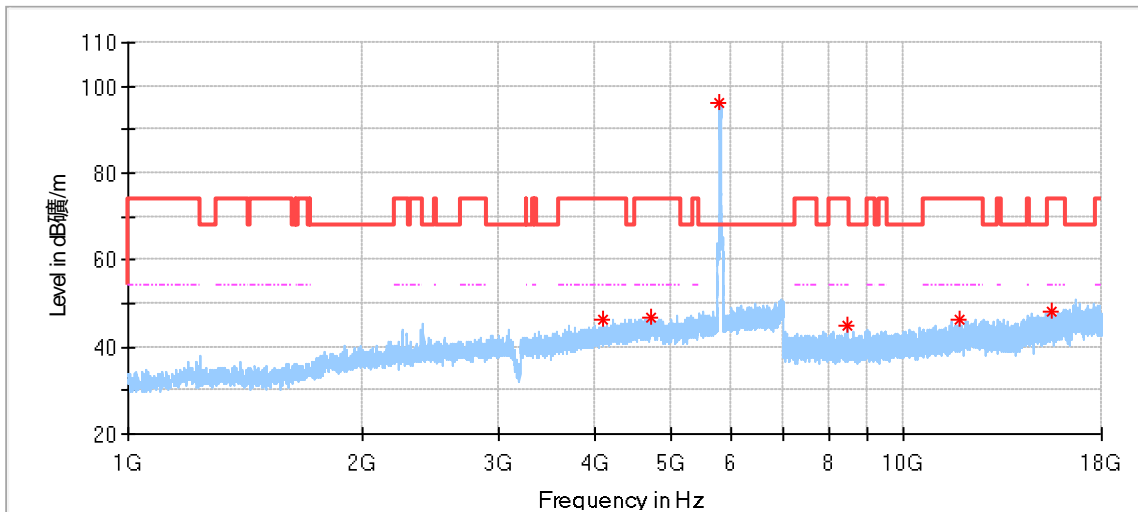


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21746.875000	42.94	74.00	31.06	100.0	V	0.0	0.1
23793.562500	43.57	74.00	30.43	100.0	V	236.0	1.1
26507.125000	44.43	74.00	29.57	100.0	V	0.0	2.6
29341.000000	45.38	74.00	28.62	100.0	V	265.0	2.4
36227.687500	46.39	74.00	27.61	100.0	V	311.0	4.9
37844.687500	47.45	74.00	26.55	100.0	V	32.0	5.9

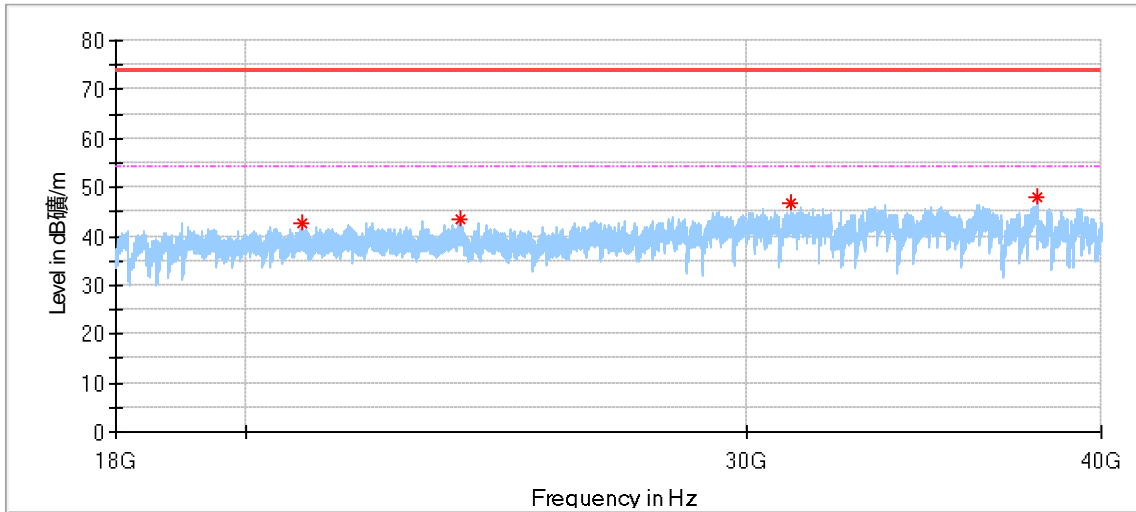
802.11AC40 Modulation 5795MHz Test Result



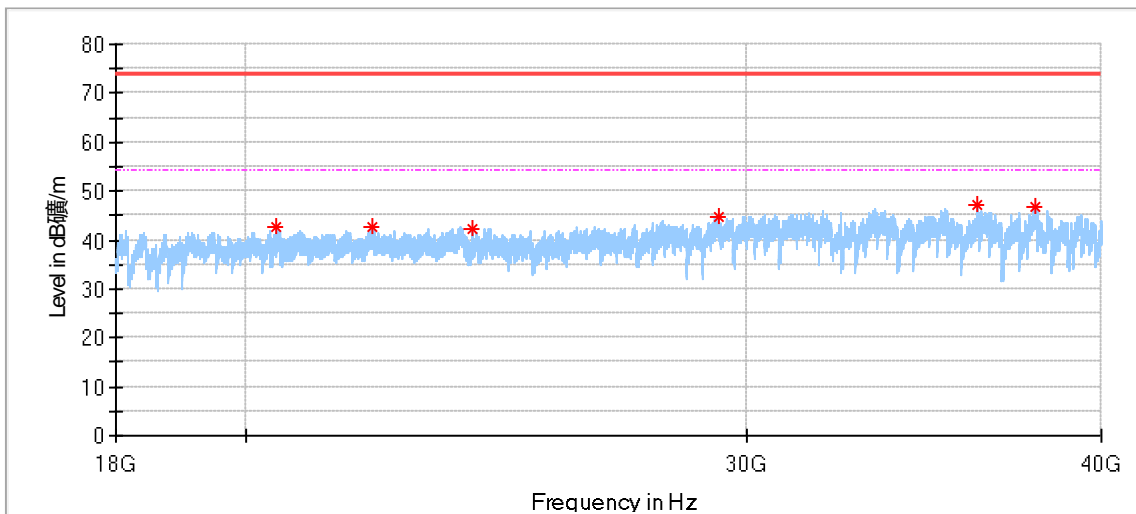
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3929.500000	46.21	74.00	27.79	150.0	H	338.0	0.2
4828.500000	47.39	74.00	26.61	150.0	H	0.0	2.4
7975.000000	44.36	68.20	23.84	150.0	H	95.0	6.5
11530.500000	46.08	74.00	27.92	150.0	H	219.0	8.9
15362.000000	48.70	74.00	25.30	150.0	H	280.0	12.9



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4083.500000	46.20	74.00	27.80	150.0	V	314.0	0.8
4719.500000	46.75	74.00	27.25	150.0	V	339.0	2.2
8442.500000	44.80	74.00	29.20	150.0	V	161.0	6.4
11784.500000	46.54	74.00	27.46	150.0	V	121.0	9.1
15527.500000	48.30	74.00	25.70	150.0	V	346.0	12.8

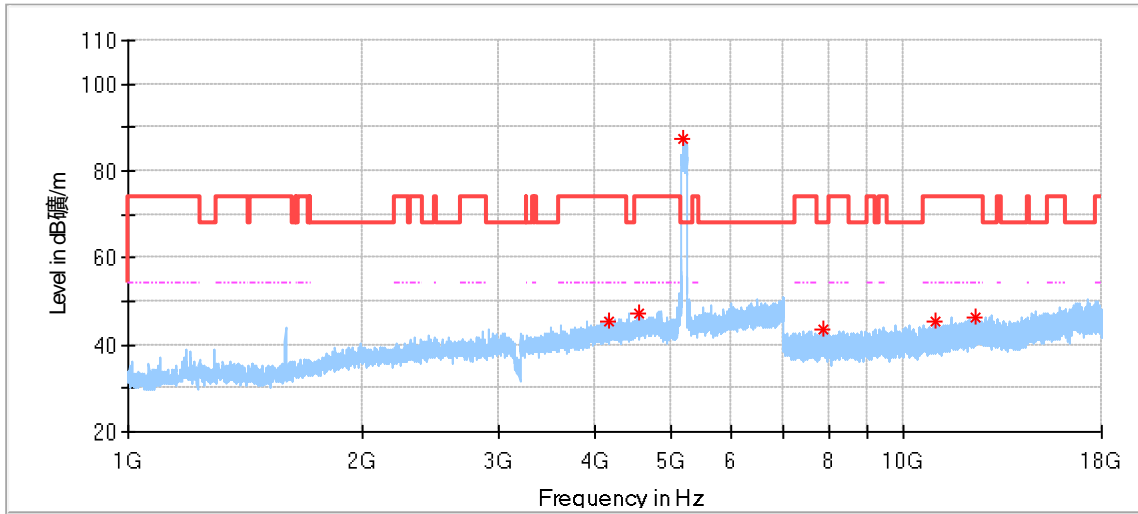


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
20944.562500	42.76	74.00	31.24	100.0	H	192.0	-0.2
23783.250000	43.46	74.00	30.54	100.0	H	93.0	1.2
31099.625000	46.94	74.00	27.06	100.0	H	162.0	2.5
37962.250000	48.18	74.00	25.82	100.0	H	310.0	6.0

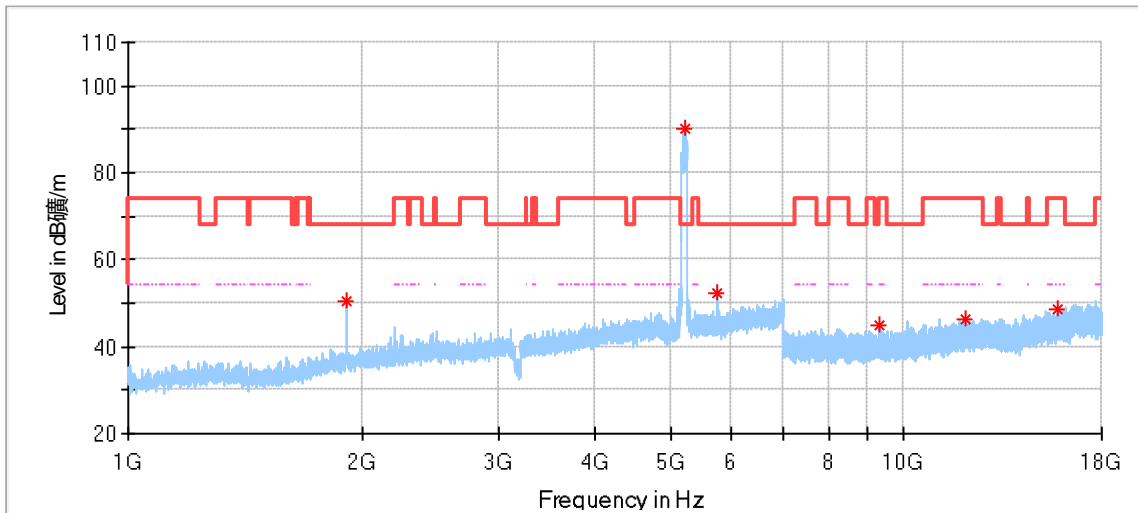


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
20495.625000	42.49	74.00	31.51	100.0	V	252.0	-0.8
22146.312500	42.49	74.00	31.51	100.0	V	295.0	0.3
24032.125000	42.06	74.00	31.94	100.0	V	238.0	0.6
29325.875000	44.63	74.00	29.37	100.0	V	224.0	2.4
36200.187500	47.34	74.00	26.66	100.0	V	295.0	4.8
37907.937500	46.68	74.00	27.32	100.0	V	37.0	6.0

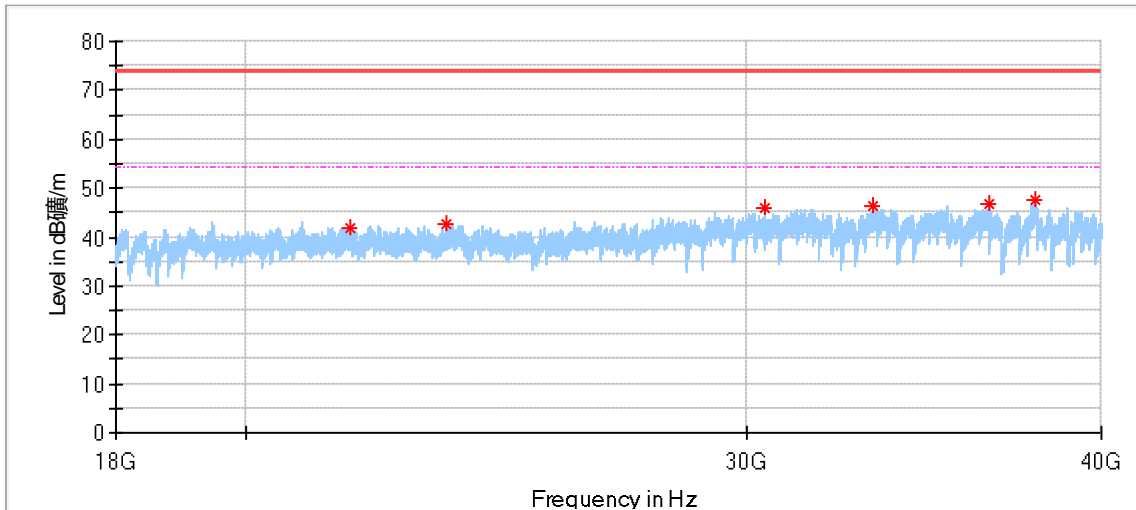
802.11AC80 Modulation 5210MHz Test Result



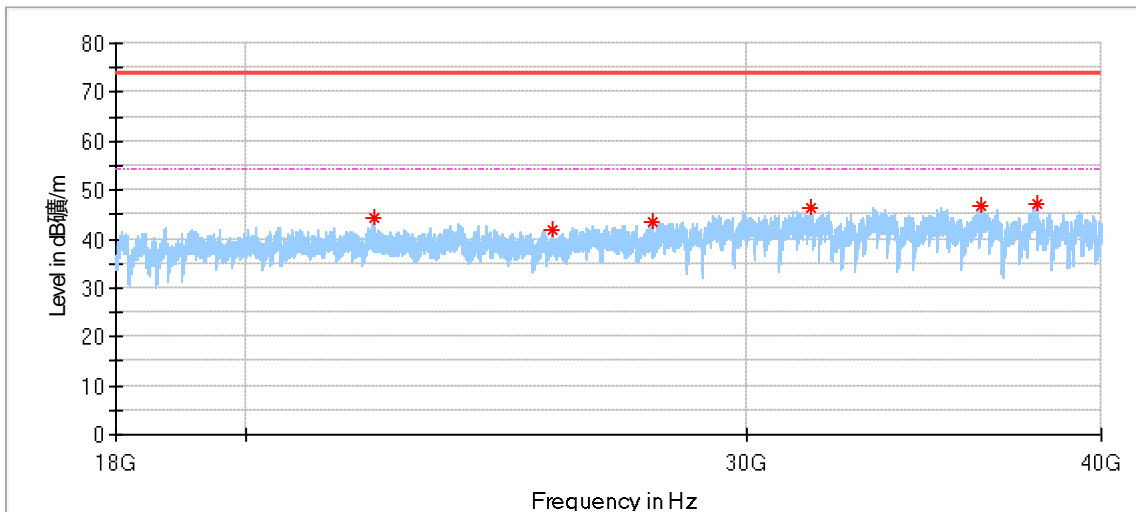
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4173.500000	45.53	74.00	28.47	150.0	H	0.0	0.9
4545.500000	47.43	74.00	26.57	150.0	H	337.0	2.3
7855.000000	43.72	68.20	24.48	150.0	H	7.0	6.7
11012.000000	45.59	74.00	28.41	150.0	H	344.0	8.2
12380.500000	46.18	74.00	27.82	150.0	H	74.0	10.2



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1912.000000	50.29	68.20	17.91	150.0	V	128.0	-6.0
5746.500000	52.14	68.20	16.06	150.0	V	306.0	2.9
9303.500000	44.72	74.00	29.28	150.0	V	6.0	7.3
11993.000000	46.21	74.00	27.79	150.0	V	159.0	9.8
15827.500000	48.63	74.00	25.37	150.0	V	239.0	13.7

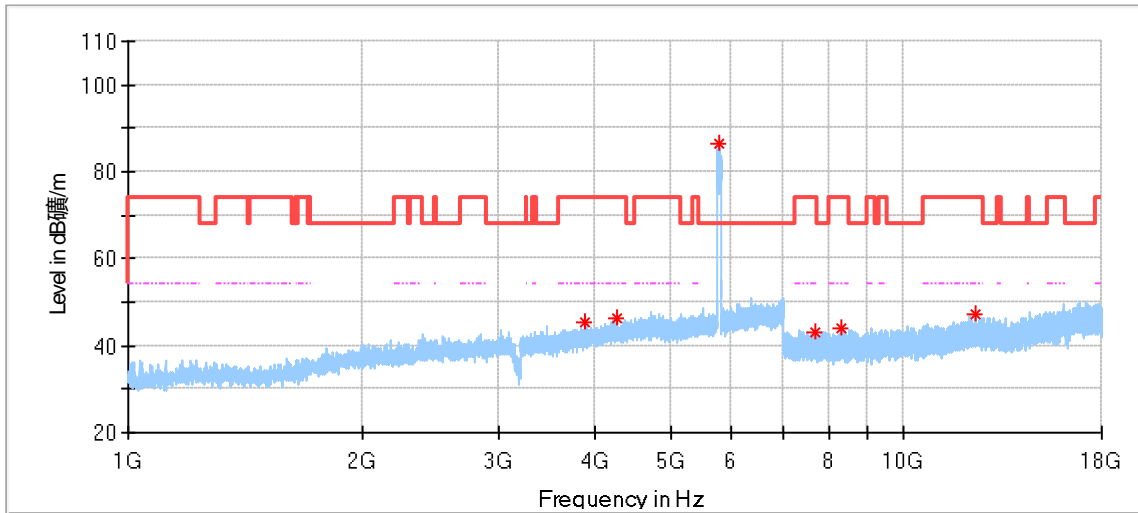


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21781.250000	41.85	74.00	32.15	100.0	H	44.0	0.1
23533.687500	42.65	74.00	31.35	100.0	H	216.0	0.9
30438.250000	45.93	74.00	28.07	100.0	H	216.0	2.4
33246.000000	46.27	74.00	27.73	100.0	H	30.0	3.3
36502.000000	46.89	74.00	27.11	100.0	H	310.0	5.2
37908.625000	47.40	74.00	26.60	100.0	H	0.0	6.0

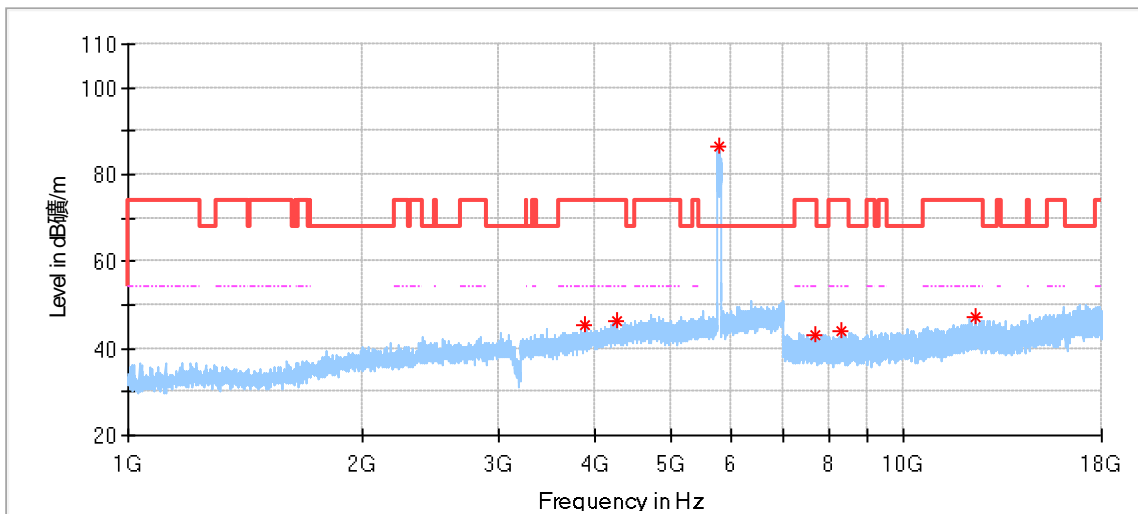


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
22181.375000	44.40	74.00	29.60	100.0	V	328.0	0.4
25631.937500	41.73	74.00	32.27	100.0	V	0.0	1.1
27798.250000	43.45	74.00	30.55	100.0	V	0.0	2.0
31619.375000	46.26	74.00	27.74	100.0	V	226.0	2.8
36300.562500	46.62	74.00	27.39	100.0	V	6.0	5.0
37969.812500	46.99	74.00	27.01	100.0	V	226.0	6.0

802.11AC80 Modulation 5775MHz Test Result

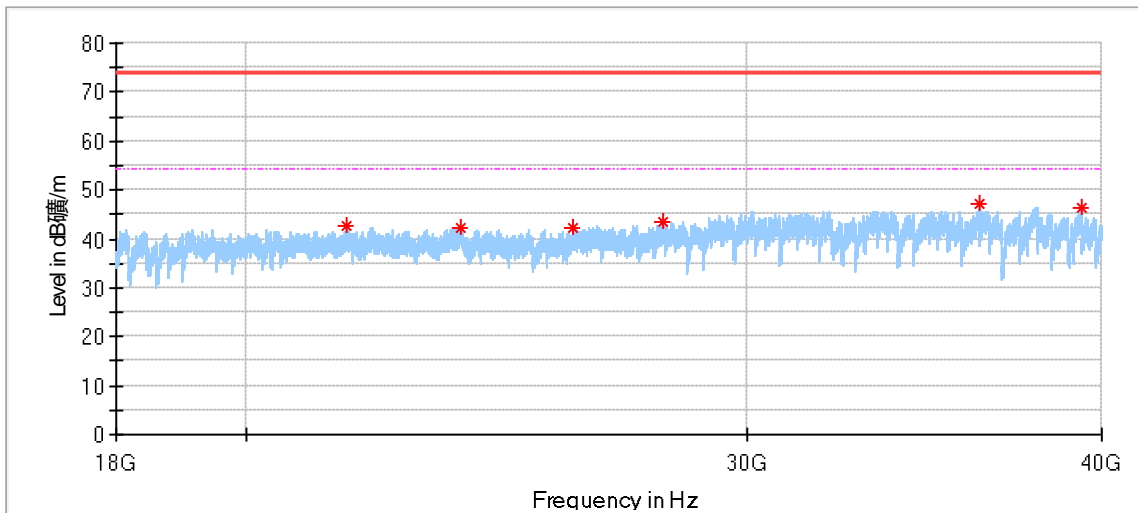


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3891.500000	45.46	74.00	28.54	150.0	H	213.0	0.2
4276.000000	46.25	74.00	27.75	150.0	H	0.0	1.2
7674.000000	43.29	74.00	30.71	150.0	H	289.0	6.2
8291.500000	44.18	74.00	29.82	150.0	H	75.0	6.8
12401.000000	47.16	74.00	26.84	150.0	H	309.0	10.2

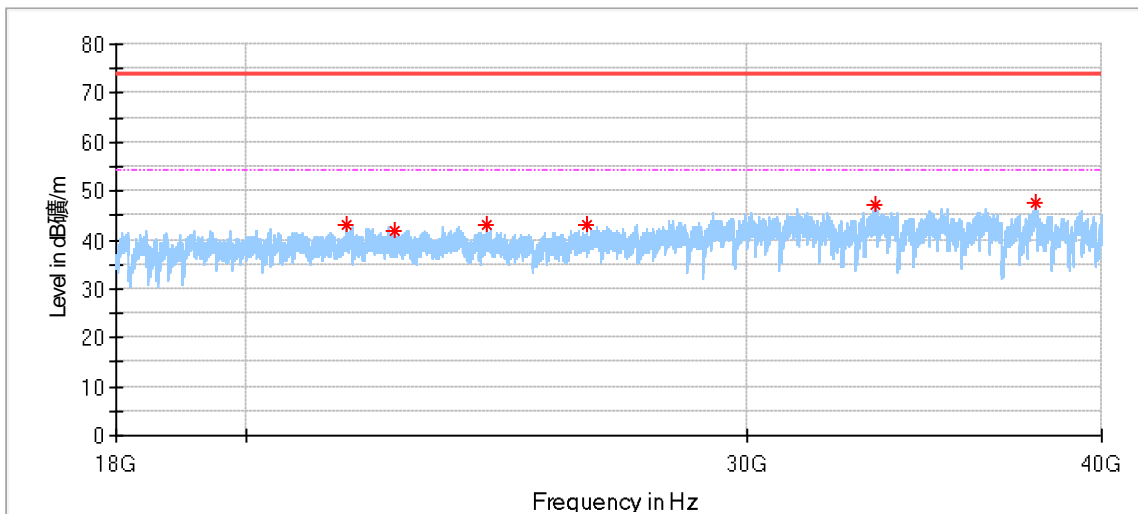


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3891.500000	45.46	74.00	28.54	150.0	H	213.0	0.2
4276.000000	46.25	74.00	27.75	150.0	H	0.0	1.2
7674.000000	43.29	74.00	30.71	150.0	H	289.0	6.2
8291.500000	44.18	74.00	29.82	150.0	H	75.0	6.8
12401.000000	47.16	74.00	26.84	150.0	H	309.0	10.2

Above 18G test result:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21680.875000	42.75	74.00	31.25	100.0	H	353.0	0.1
23813.500000	42.32	74.00	31.68	100.0	H	273.0	1.1
26061.625000	42.32	74.00	31.68	100.0	H	71.0	1.3
28014.125000	43.51	74.00	30.49	100.0	H	0.0	2.1
36201.562500	47.06	74.00	26.94	100.0	H	169.0	4.8
39332.437500	46.42	74.00	27.58	100.0	H	71.0	6.9



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21683.625000	42.97	74.00	31.03	100.0	V	99.0	0.1
22540.250000	41.76	74.00	32.24	100.0	V	245.0	0.3
24311.937500	43.11	74.00	30.89	100.0	V	0.0	1.1
26355.875000	42.97	74.00	31.03	100.0	V	0.0	2.1
33320.937500	47.03	74.00	26.97	100.0	V	184.0	3.3
37885.937500	47.62	74.00	26.38	100.0	V	6.0	5.9



Remark:

Corrected Amplitude = Read level + Corrector factor

Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain.

Below 1GHz: Corrector factor = Antenna Factor + Cable Loss.

(The Reading Level is recorded by software which is not shown in the sheet)

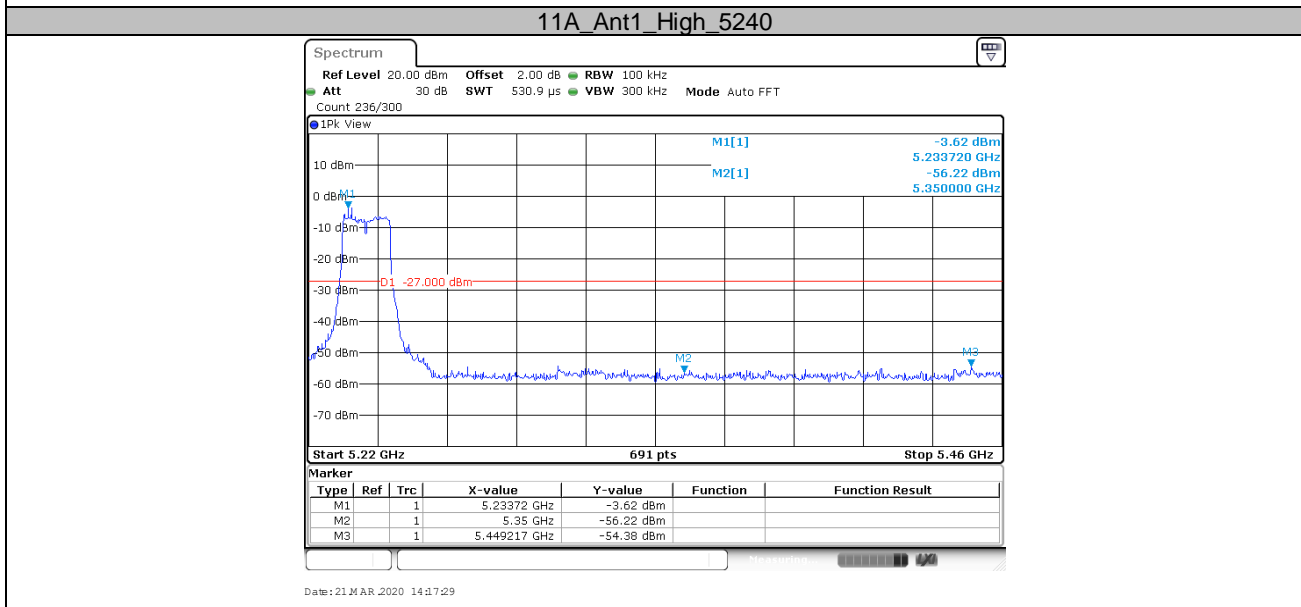
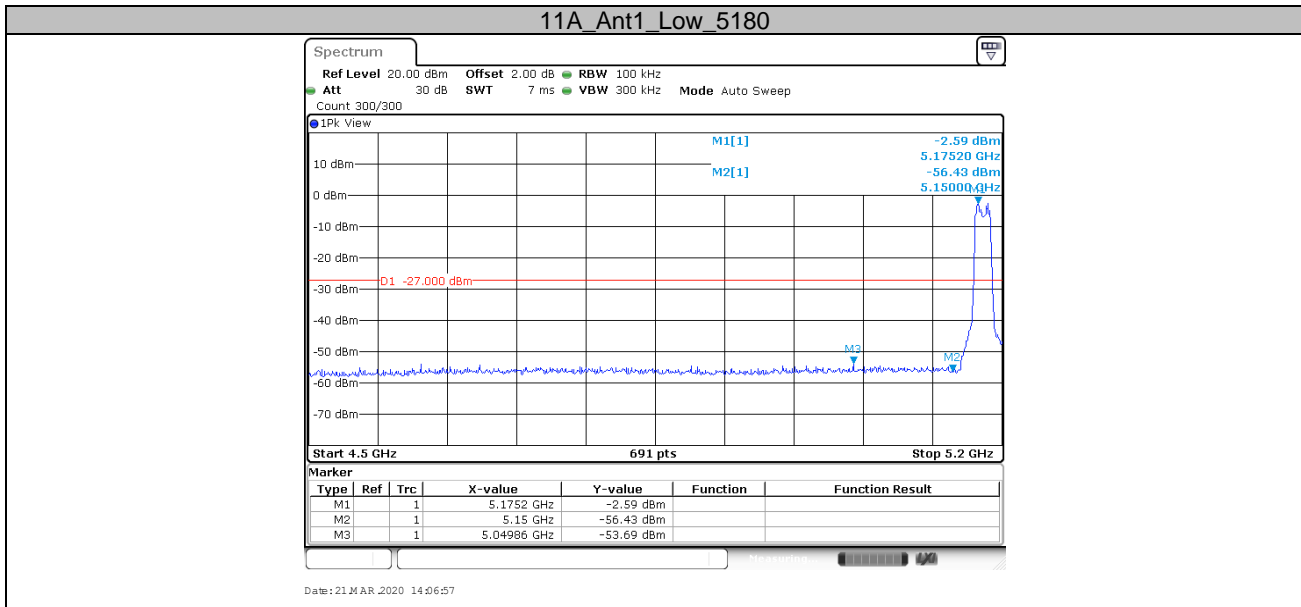
We test all modes and only the worst case recorded in the report.

Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are the noise floor or attenuated more than 10dB below the permissible limits or the field strength is too small to be measured.

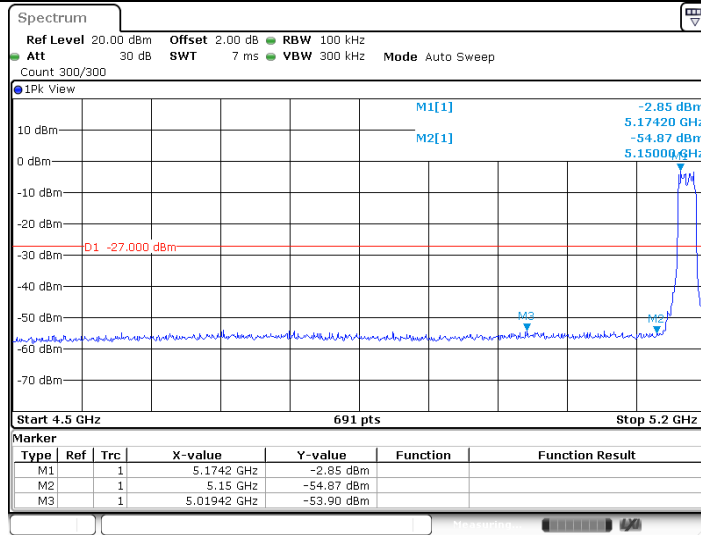
Band edge test result:

TestMode	Antenna	ChName	Channel(MHz)	Result(dBm)		Limit(dBm)	Verdict
11A	Ant1	Low	5180	-53.69		<=-27	PASS
		High	5240	-54.38		<=-27	PASS
11N20SISO	Ant1	Low	5180	-53.9		<=-27	PASS
		High	5240	-55.1		<=-27	PASS
11N40SISO	Ant1	Low	5190	-53.59		<=-27	PASS
		High	5230	-55.06		<=-27	PASS
11AC20SISO	Ant1	Low	5180	-53.51		<=-27	PASS
		High	5240	-54.94		<=-27	PASS
11AC40SISO	Ant1	Low	5190	-47.4		<=-27	PASS
		High	5230	-55.26		<=-27	PASS
11AC80SISO	Ant1	Low	5210	-49.68		<=-27	PASS
		High	5210	-55.47		<=-27	PASS
TestMode	Antenna	ChName	Channel(MHz)	FreqRange(MHz)	Result(dBm)	Limit(dBm)	Verdict
11A	Ant1	Low	5745	5650~5700	-55.46	8.89	PASS
		Low	5745	5700~5720	-53.96	10.79	PASS
		Low	5745	5720~5725	-53.11	24.72	PASS
		Low	5745	5760~5650	-56.64	-27	PASS
		High	5825	5850~5855	-44.45	16.25	PASS
		High	5825	5855~5875	-48.02	10.60	PASS
		High	5825	5875~5925	-53.58	-15.18	PASS
		High	5825	5925~5935	-54.48	-27	PASS
11N20SISO	Ant1	Low	5745	5650~5700	-53.43	9.75	PASS
		Low	5745	5700~5720	-45	15.60	PASS
		Low	5745	5720~5725	-37.26	25.10	PASS
		Low	5745	5760~5650	-54.94	-27	PASS
		High	5825	5850~5855	-41.15	18.92	PASS
		High	5825	5855~5875	-45.88	10.05	PASS
		High	5825	5875~5925	-53.94	-22.99	PASS
		High	5825	5925~5935	-55.91	-27	PASS
11N40SISO	Ant1	Low	5755	5650~5700	-48.58	8.54	PASS
		Low	5755	5700~5720	-36.31	15.25	PASS
		Low	5755	5720~5725	-34.53	23.48	PASS
		Low	5755	5780~5650	-56.17	-27	PASS
		High	5795	5850~5855	-50.28	17.48	PASS
		High	5795	5855~5875	-52.19	12.78	PASS
		High	5795	5875~5925	-54.12	-22.41	PASS
		High	5795	5925~5935	-55.75	-27	PASS
11AC20SISO	Ant1	Low	5745	5650~5700	-55.17	-13.19	PASS
		Low	5745	5700~5720	-55.41	14.20	PASS
		Low	5745	5720~5725	-53.25	25.48	PASS
		Low	5745	5760~5650	-56.52	-27	PASS
		High	5825	5850~5855	-55.5	19.37	PASS
		High	5825	5855~5875	-53.72	14.60	PASS
		High	5825	5875~5925	-54.79	0.03	PASS
		High	5825	5925~5935	-55.34	-27	PASS
11AC40SISO	Ant1	Low	5755	5650~5700	-55.82	-5.36	PASS
		Low	5755	5700~5720	-50.18	15.42	PASS

		Low	5755	5720~5725	-47.48	21.25	PASS
		Low	5755	5780~5650	-57.13	-27	PASS
		High	5795	5850~5855	-55.05	21.84	PASS
		High	5795	5855~5875	-53.84	14.12	PASS
		High	5795	5875~5925	-55.17	-6.67	PASS
11AC80SISO	Ant1	Low	5775	5650~5700	-51.63	8.03	PASS
		Low	5775	5700~5720	-50.14	12.09	PASS
		Low	5775	5720~5725	-49.68	18.74	PASS
		Low	5775	5800~5650	-57.05	-27	PASS
		High	5775	5850~5855	-51.63	23.56	PASS
		High	5775	5855~5875	-50.37	12.66	PASS
		High	5775	5875~5925	-54.76	-26.65	PASS
		High	5775	5925~5935	-56.17	-27	PASS

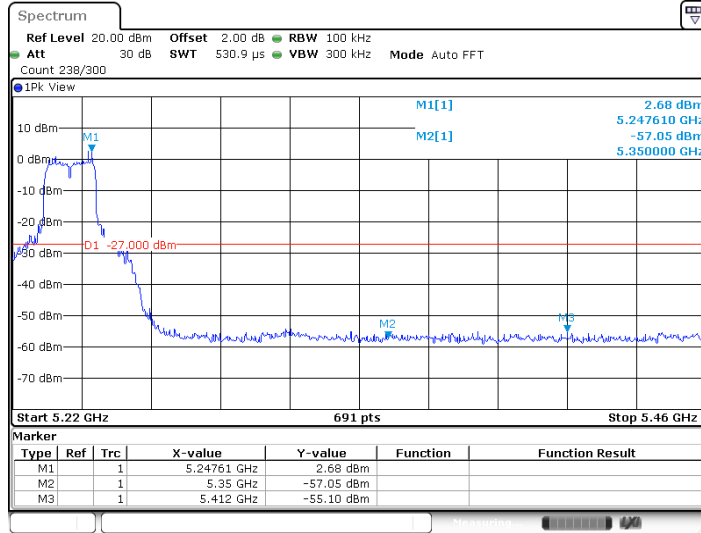


11N20SISO_Ant1_Low_5180



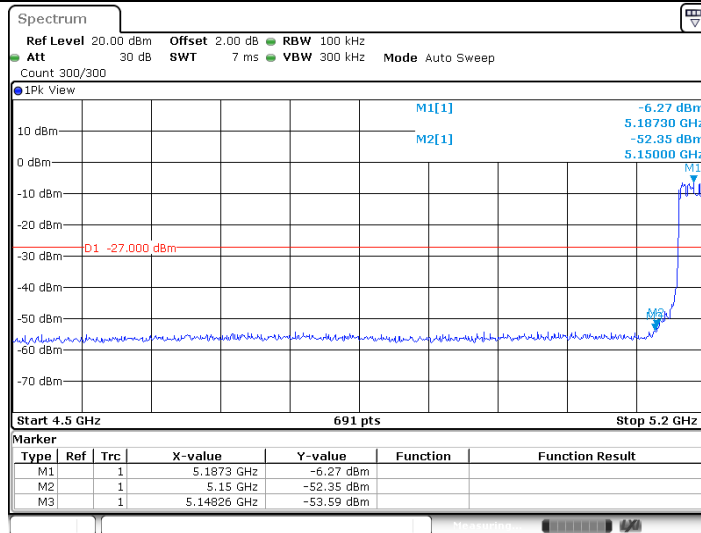
Date: 21 MAR 2020 14:36:10

11N20SISO_Ant1_High_5240



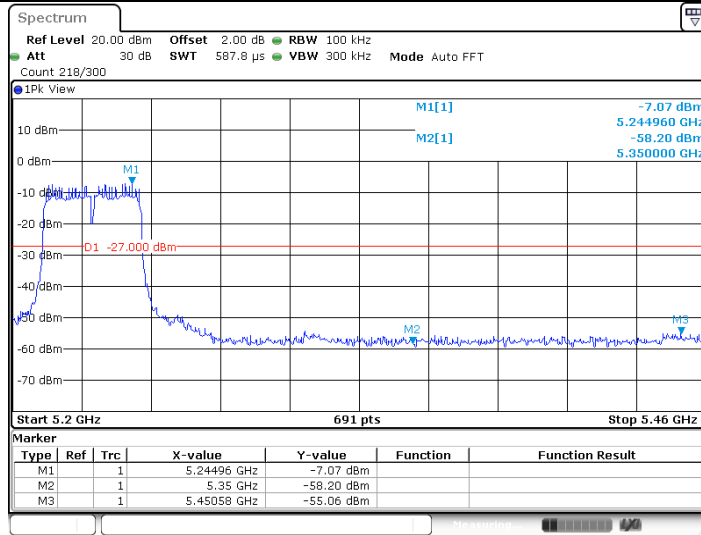
Date: 21 MAR 2020 14:42:15

11N40SISO_Ant1_Low_5190



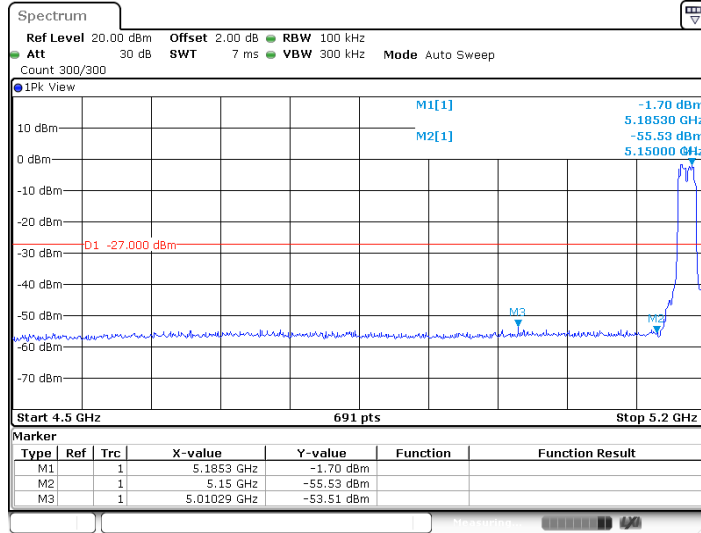
Date: 21 MAR 2020 14:57:24

11N40SISO_Ant1_High_5230



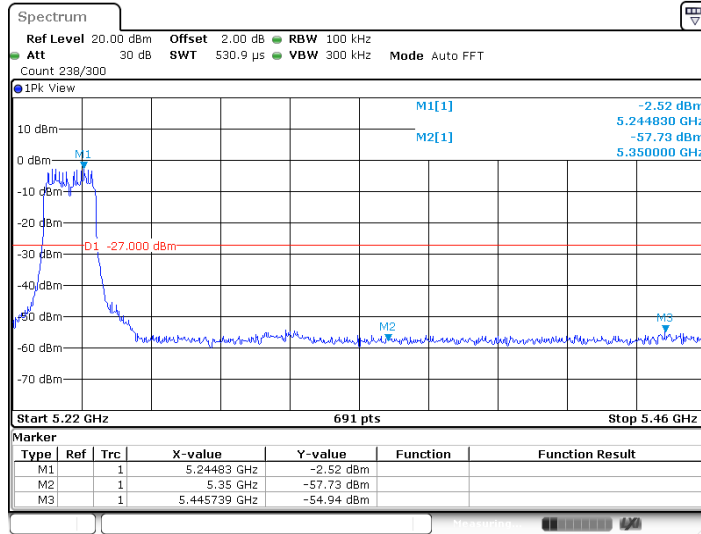
Date: 21 MAR 2020 15:01:02

11AC20SISO_Ant1_Low_5180



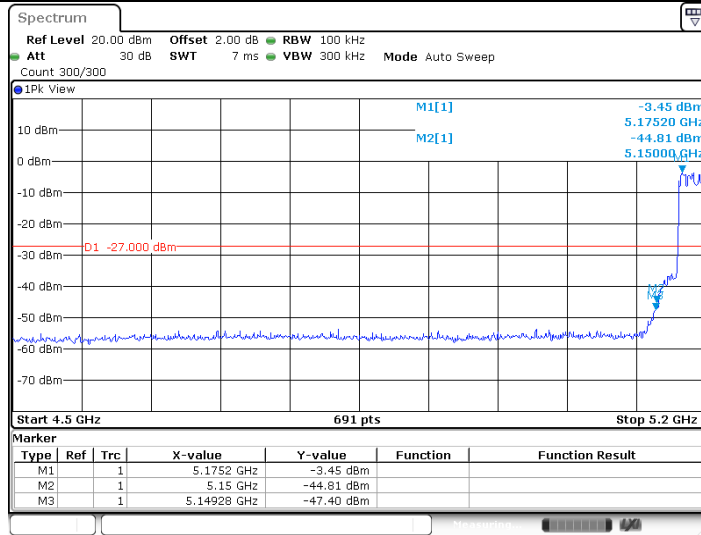
Date: 21 MAR 2020 15:16:59

11AC20SISO_Ant1_High_5240



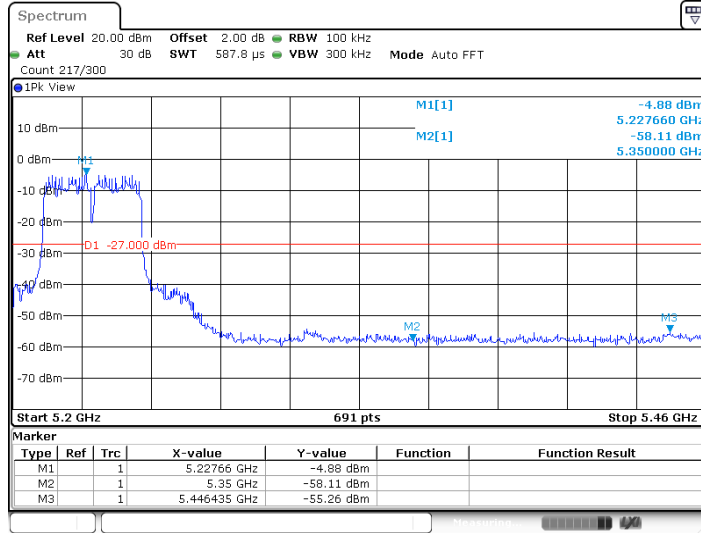
Date: 21 MAR 2020 15:22:31

11AC40SISO_Ant1_Low_5190



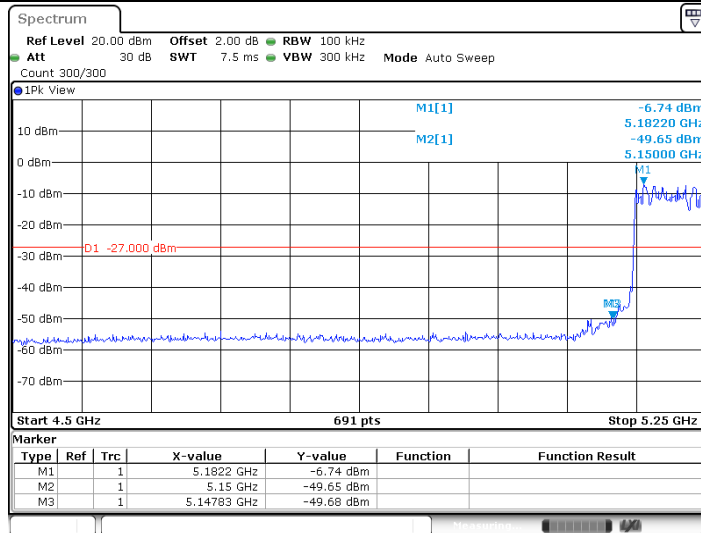
Date: 21 MAR 2020 15:34:44

11AC40SISO Ant1_High_5230



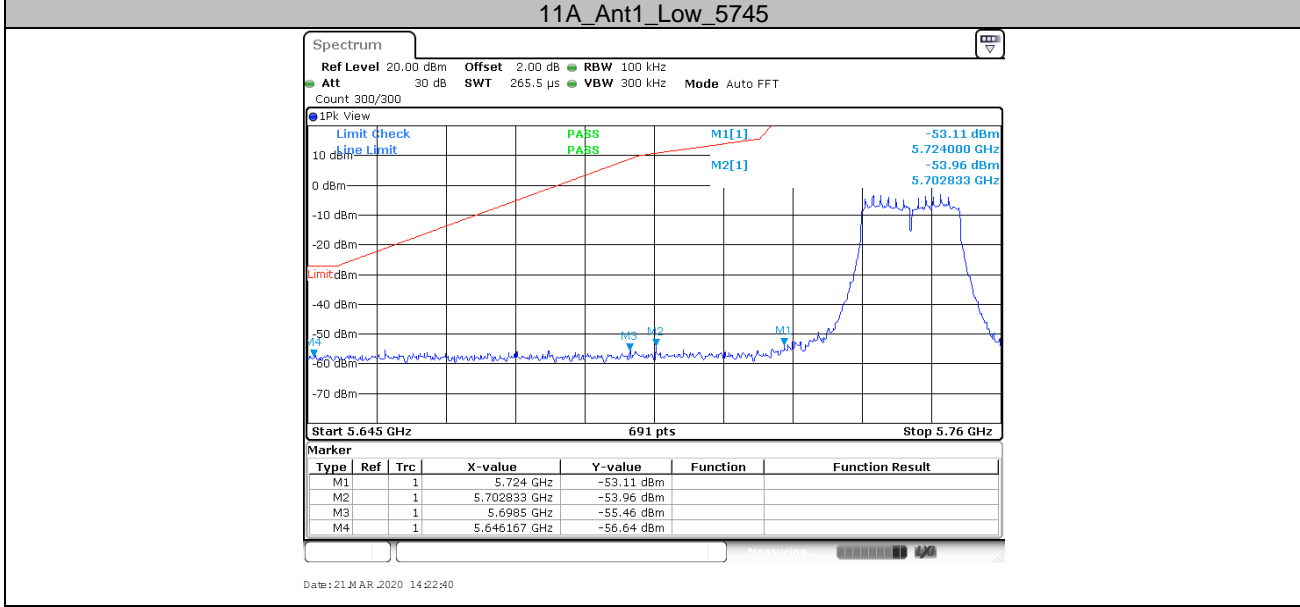
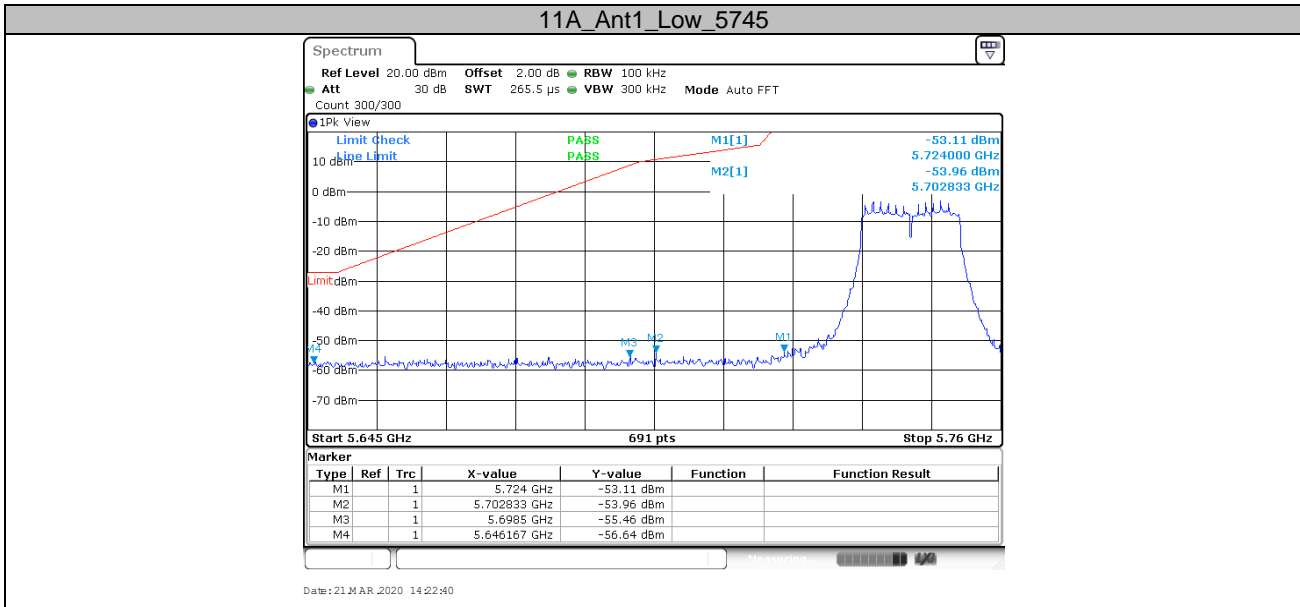
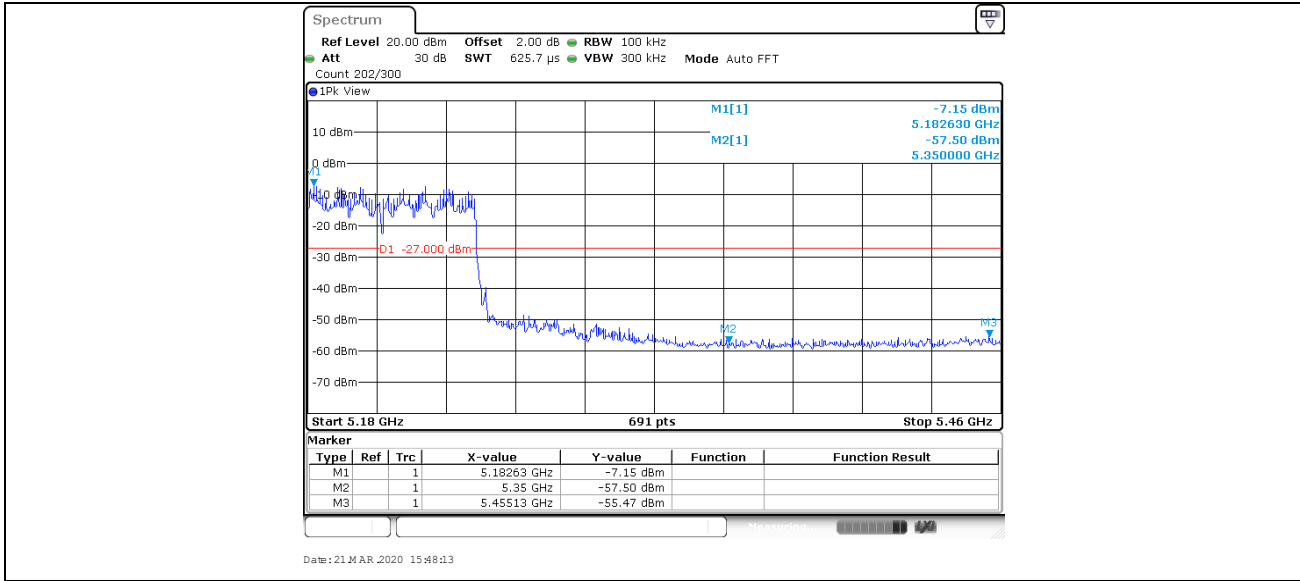
Date: 21 MAR 2020 15:38:05

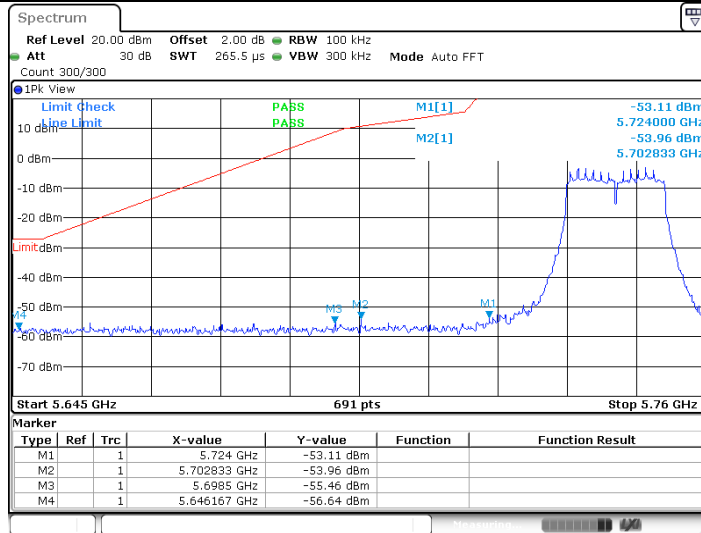
11AC80SISO Ant1_Low_5210



Date: 21 MAR 2020 15:48:00

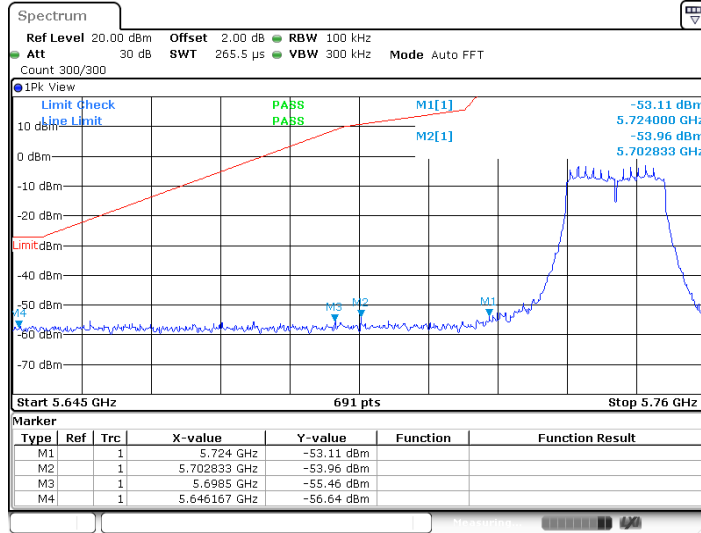
11AC80SISO Ant1_High_5210





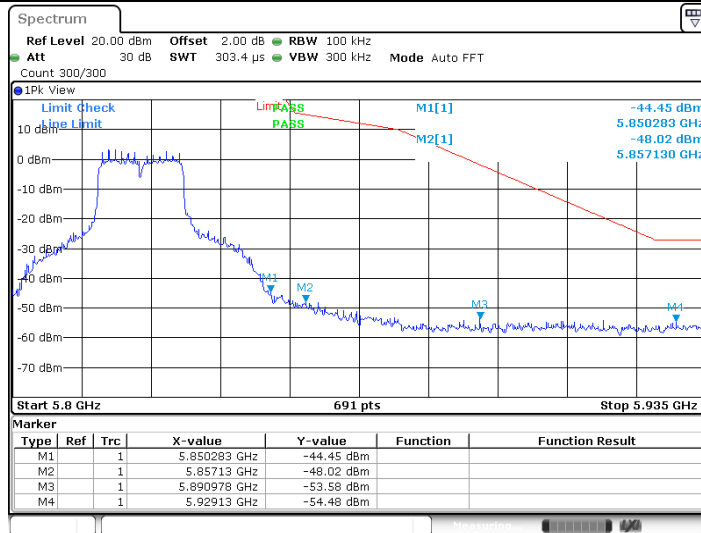
Date: 21 MAR 2020 14:22:40

11A_Ant1_Low_5745



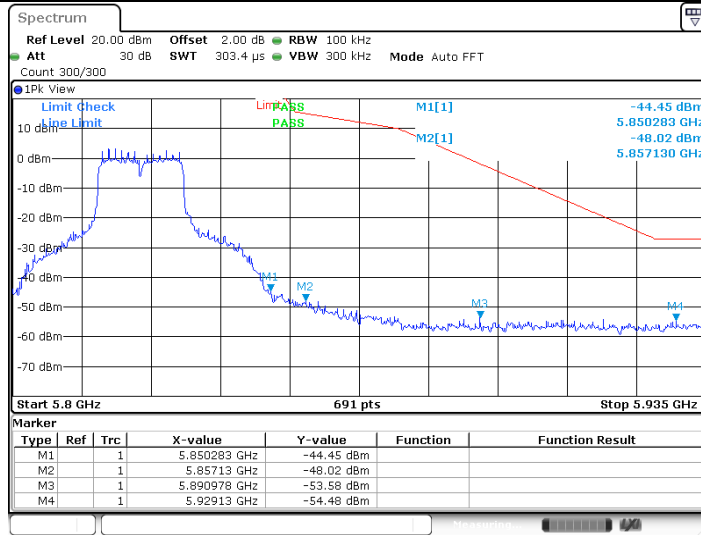
Date: 21 MAR 2020 14:22:40

11A_Ant1_High_5825



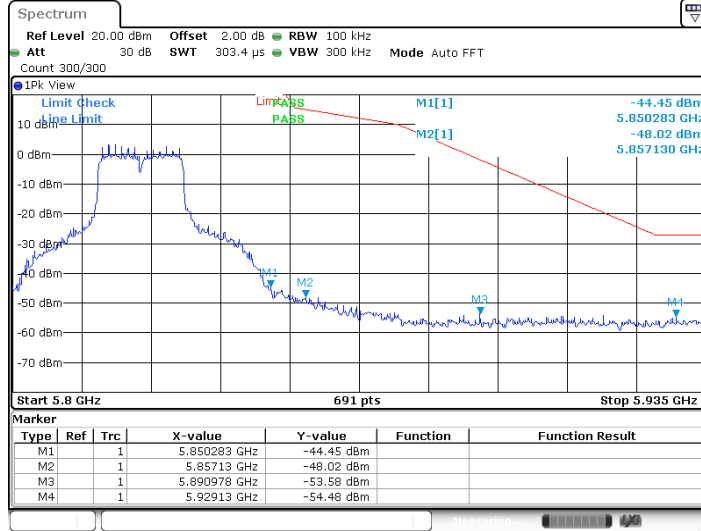
Date: 21 MAR 2020 14:31:33

11A_Ant1_High_5825



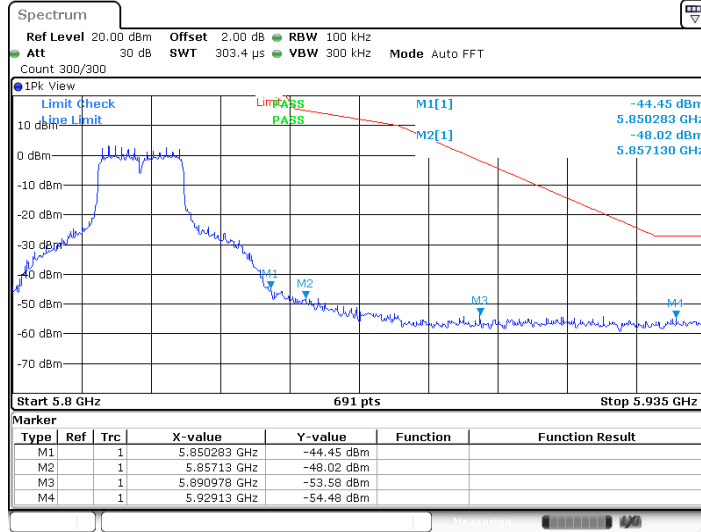
Date: 21 MAR 2020 14:31:33

11A Ant1 High 5825



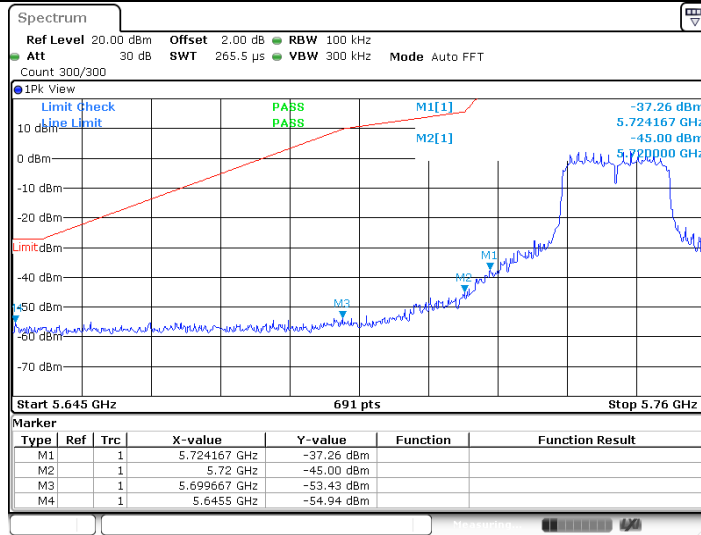
Date: 21 MAR 2020 14:31:33

11A Ant1 High 5825



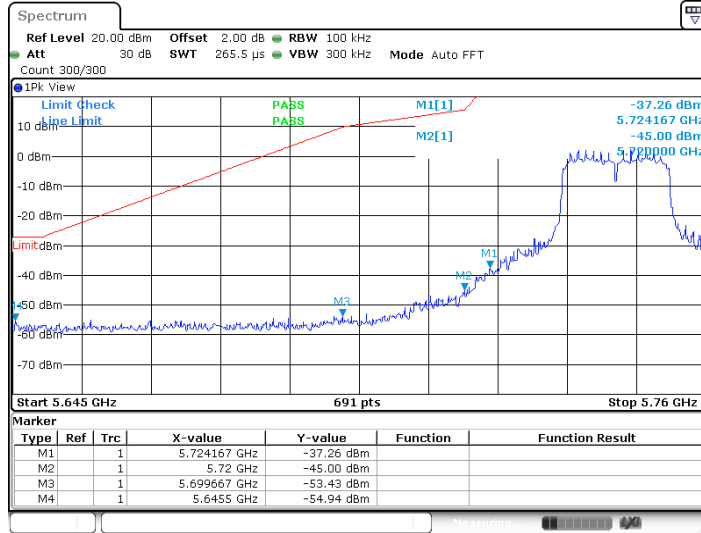
Date: 21 MAR 2020 14:31:33

11N20SISO_Ant1_Low_5745



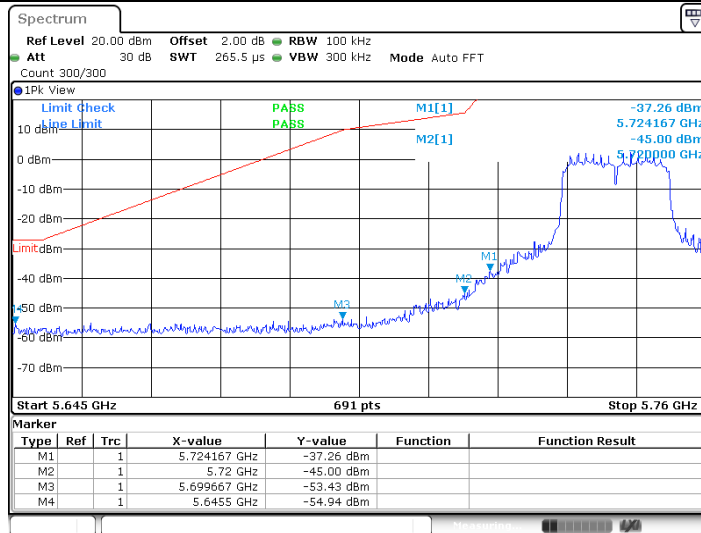
Date: 21 MAR 2020 14:45:26

11N20SISO_Ant1_Low_5745



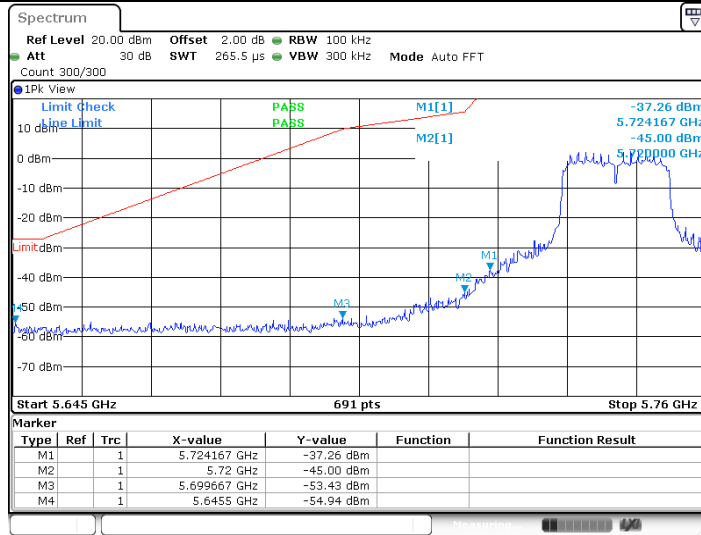
Date: 21 MAR 2020 14:45:26

11N20SISO_Ant1_Low_5745



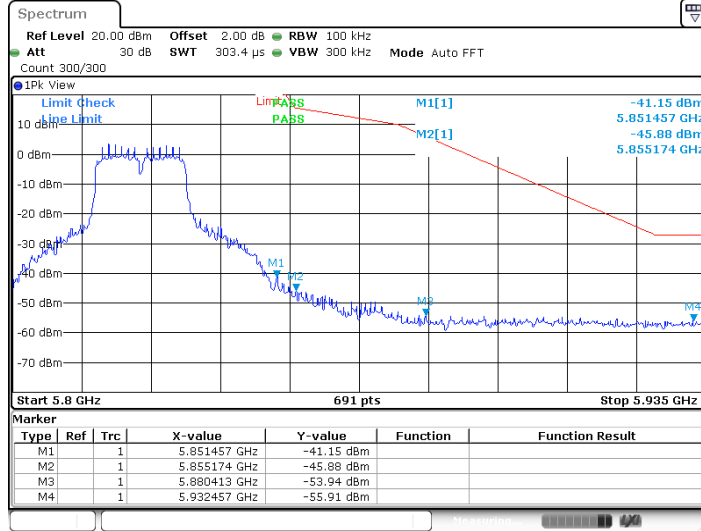
Date: 21 MAR 2020 14:45:26

11N20SISO_Ant1_Low_5745



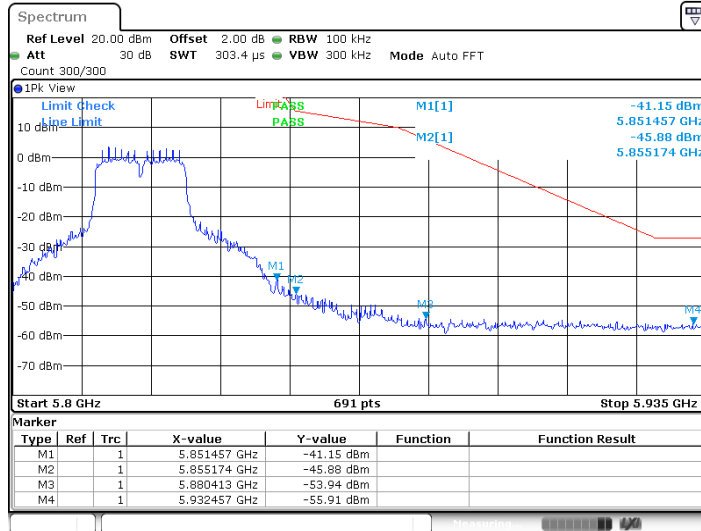
Date: 21 MAR 2020 14:45:26

11N20SISO_Ant1_High_5825



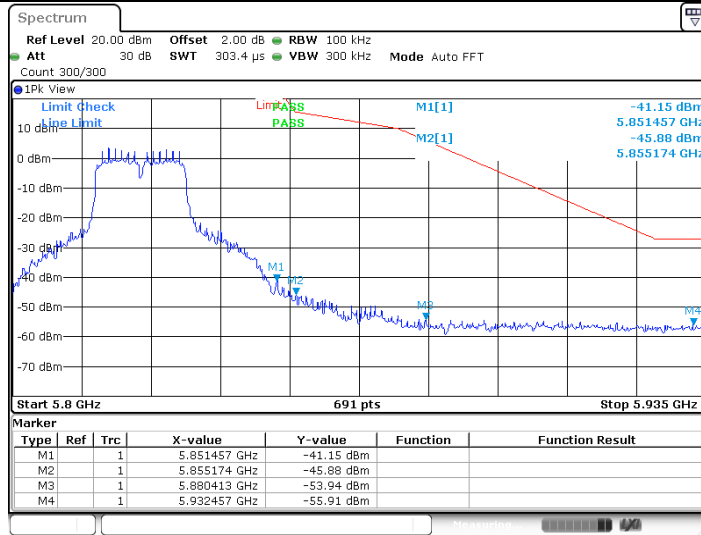
Date: 21 MAR 2020 14:50:26

11N20SISO_Ant1_High_5825



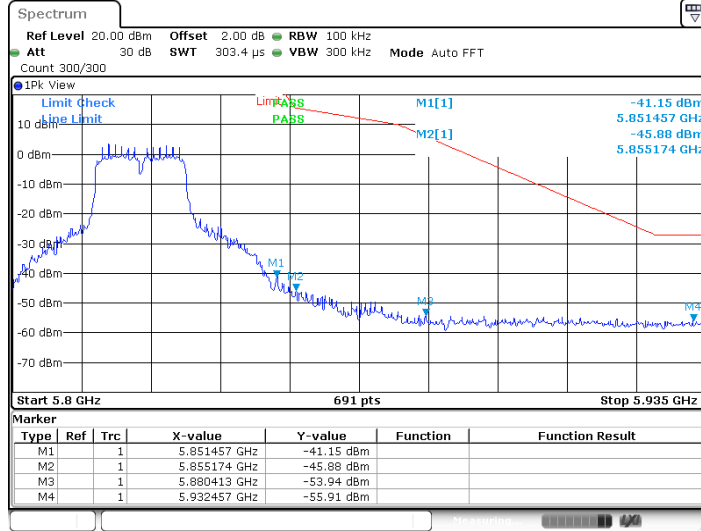
Date: 21 MAR 2020 14:50:26

11N20SISO_Ant1_High_5825



Date: 21 MAR 2020 14:50:26

11N20SISO Ant1_High_5825



Date: 21 MAR 2020 14:50:26

11N40SISO Ant1_Low_5755



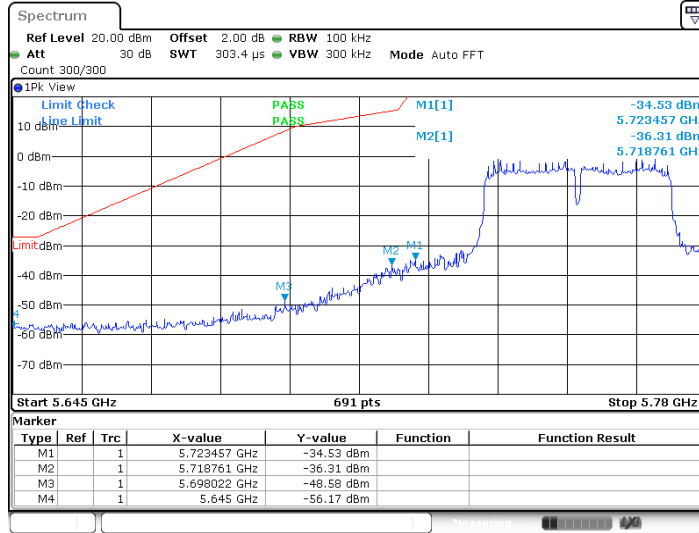
Date: 21 MAR 2020 15:04:43

11N40SISO Ant1_Low_5755



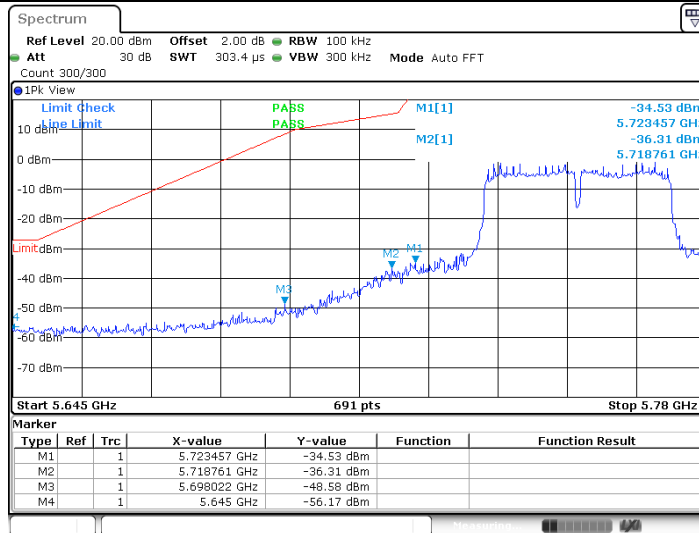
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11N40SISO_Ant1_Low_5755



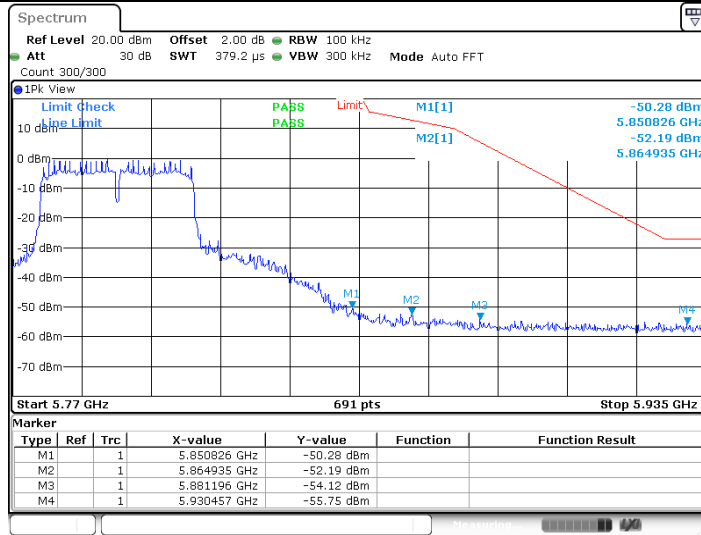
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11N40SISO_Ant1_Low_5755



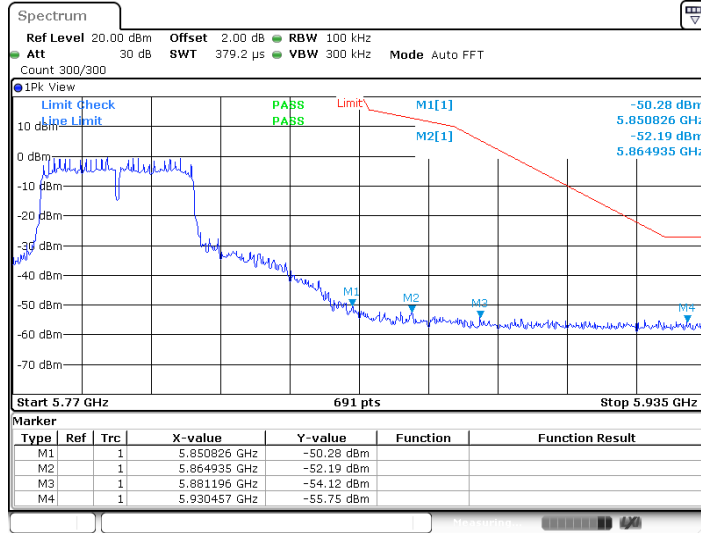
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11N40SISO_Ant1_High_5795



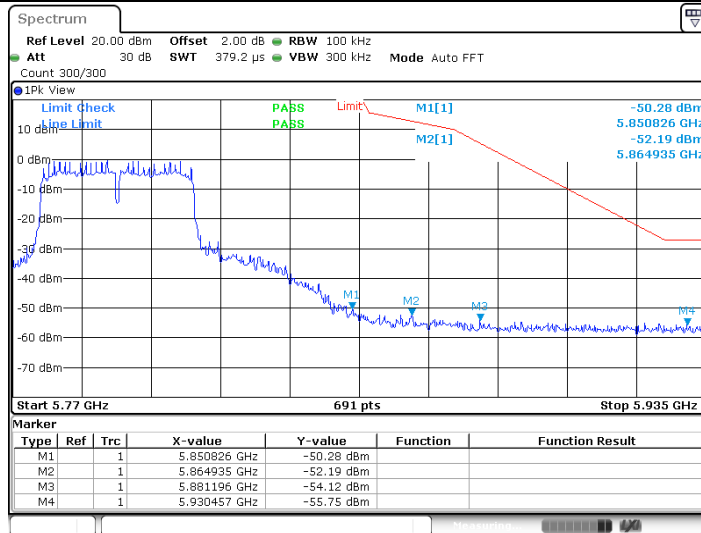
Date: 21 MAR 2020 15:07:29

11N40SISO_Ant1_High_5795



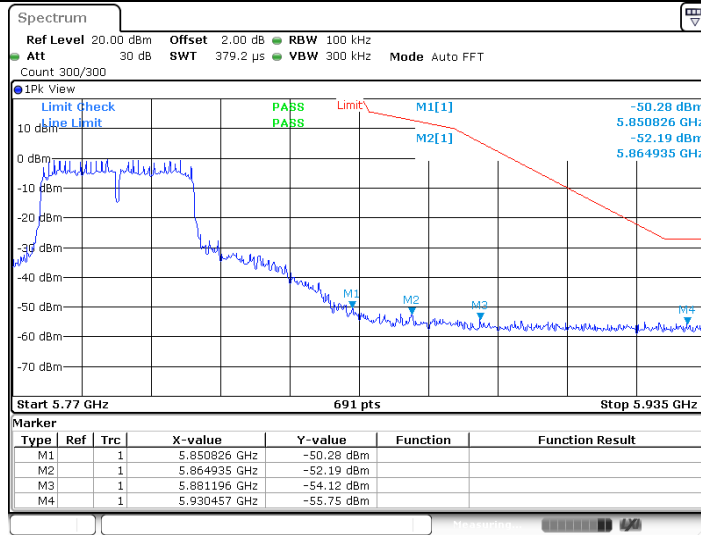
Date: 21 MAR 2020 15:07:29

11N40SISO_Ant1_High_5795



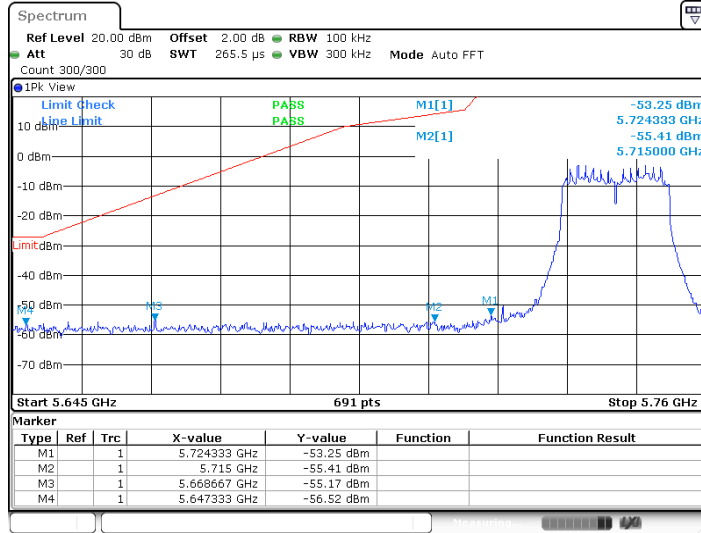
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11N40SISO_Ant1_High_5795



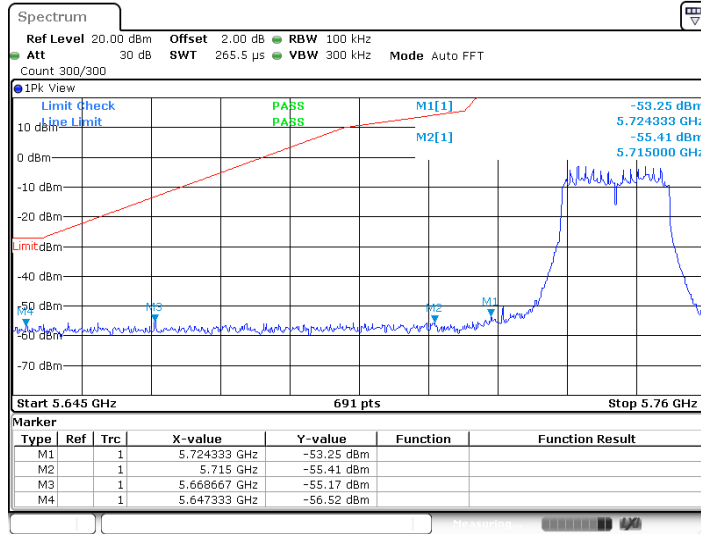
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11AC20SISO_Ant1_Low_5745



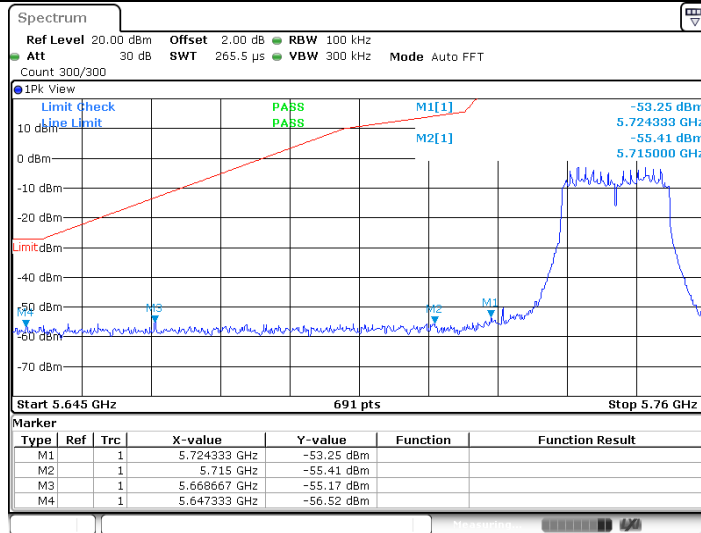
Date: 21 MAR 2020 15:25:22

11AC20SISO_Ant1_Low_5745



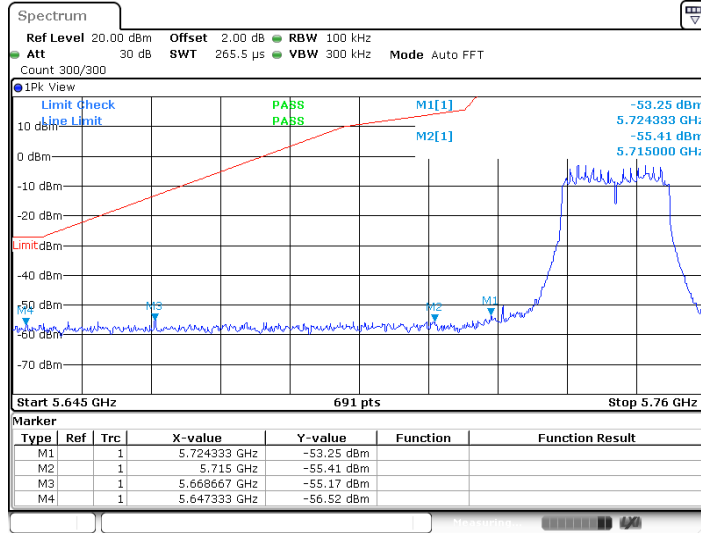
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11AC20SISO_Ant1_Low_5745



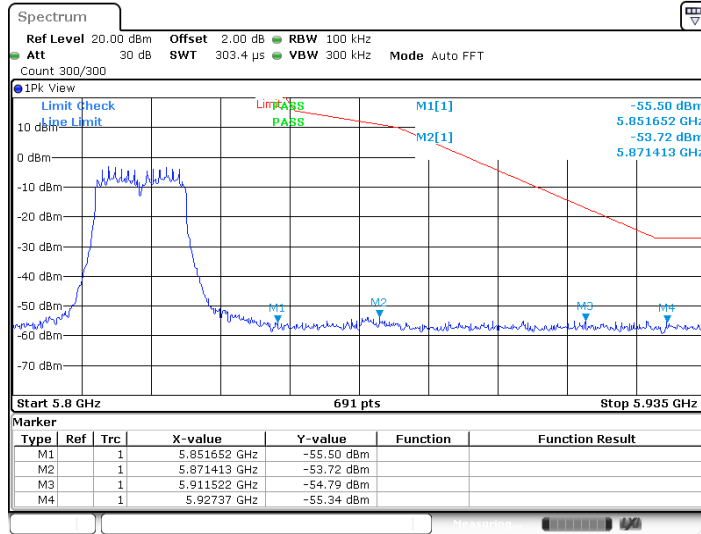
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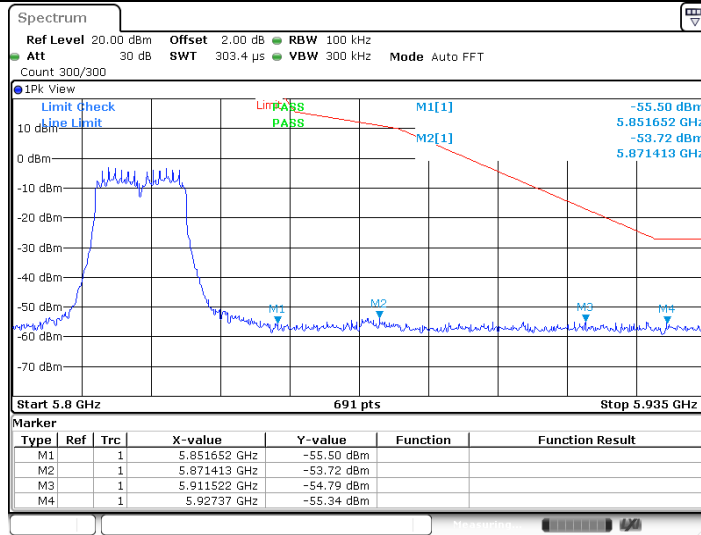
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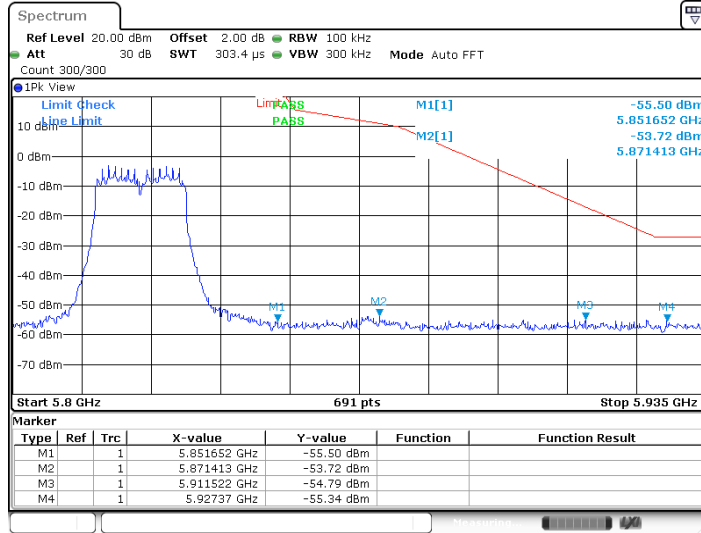
Date: 21 MAR 2020 15:30:02

11AC20SISO_Ant1_High_5825



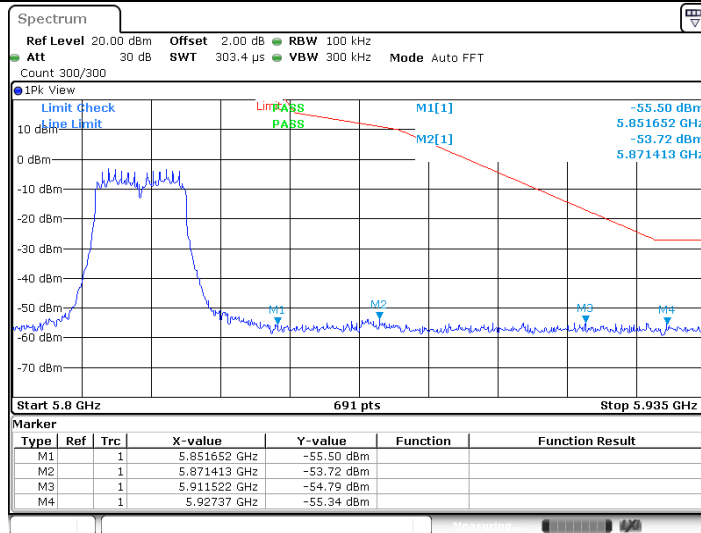
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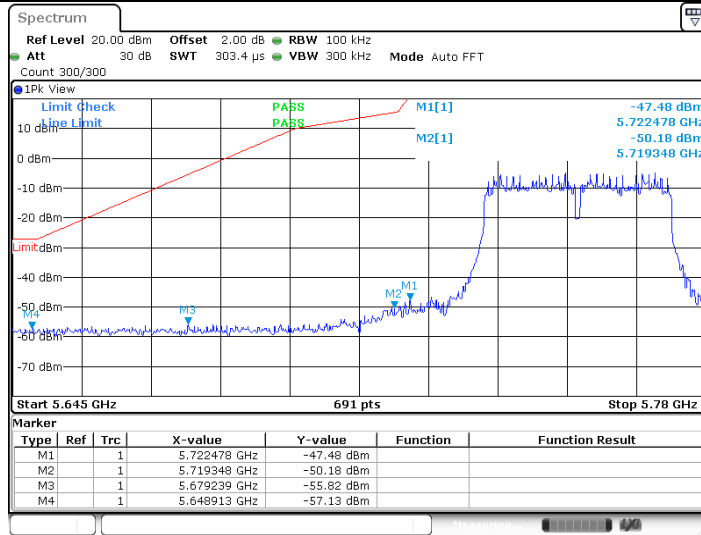
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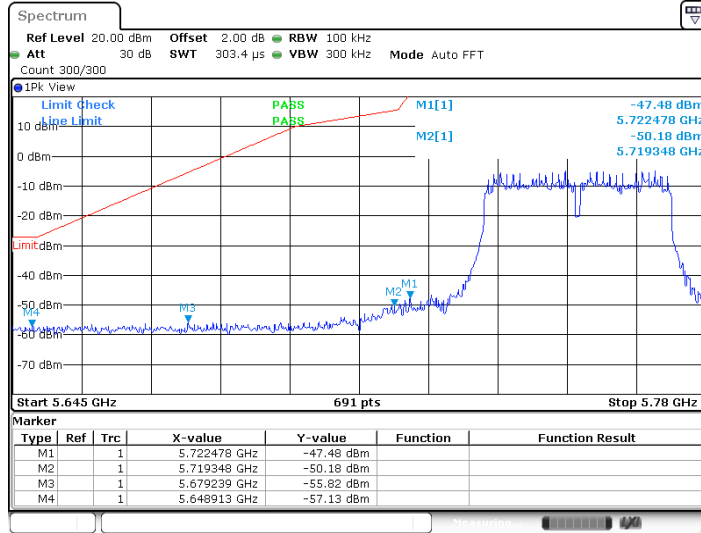
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11AC40SISO Ant1_Low_5755



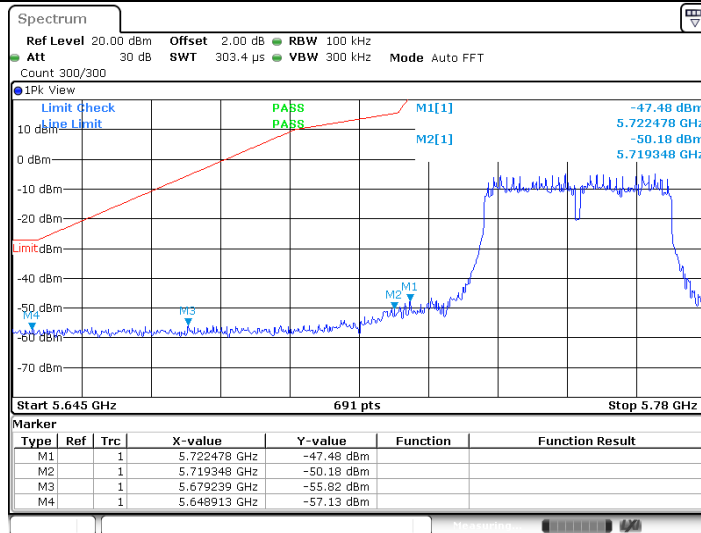
Date: 21 MAR 2020 15:41:01

11AC40SISO_Ant1_Low_5755



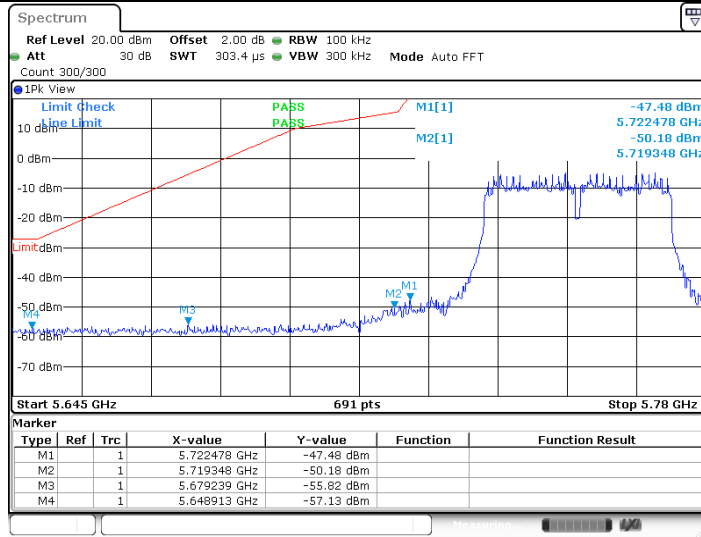
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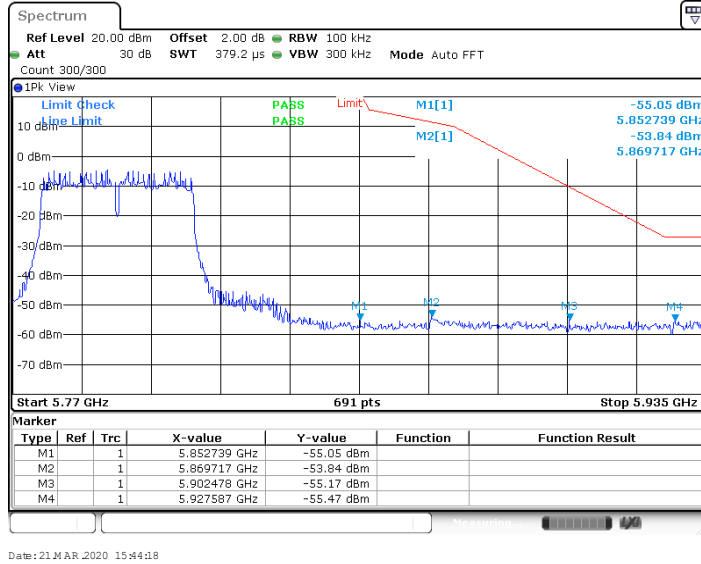


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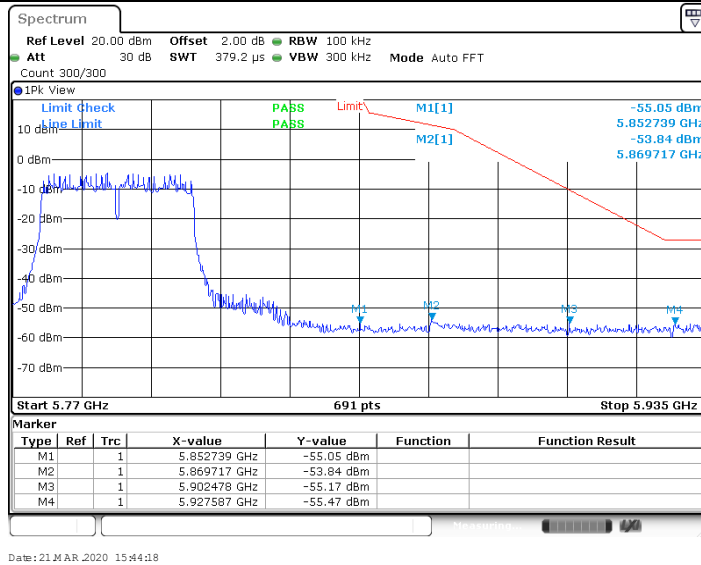
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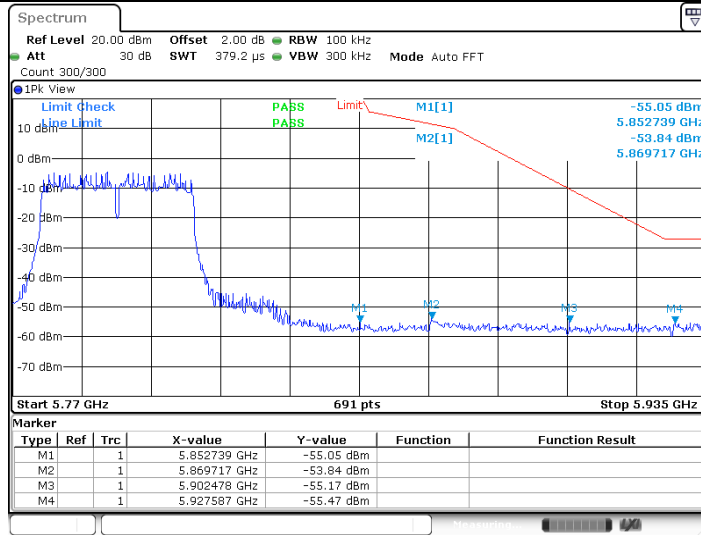
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11AC40SISO Ant1_High_5795

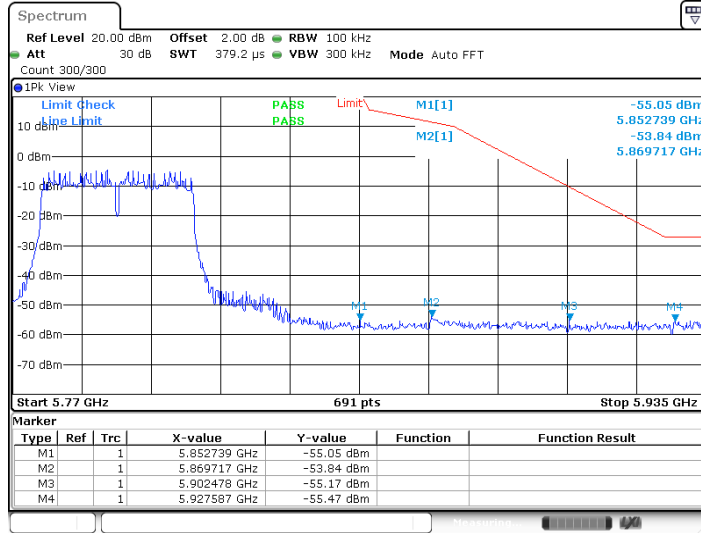


11AC40SISO Ant1_High_5795



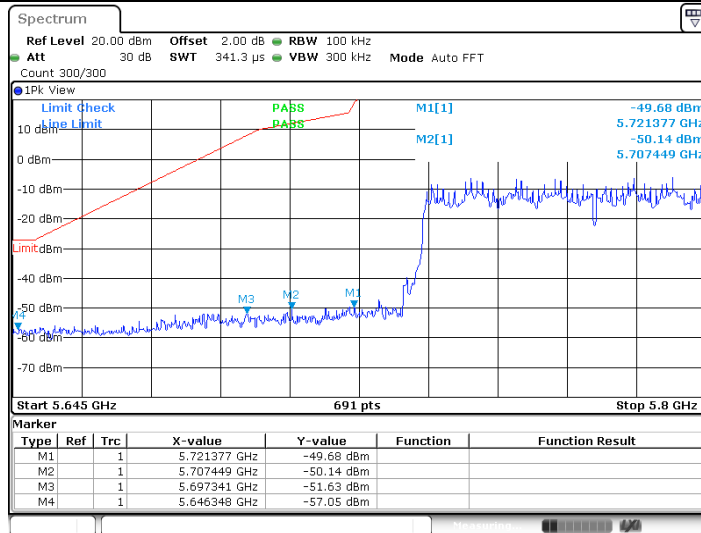
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11AC40SISO Ant1_High_5795



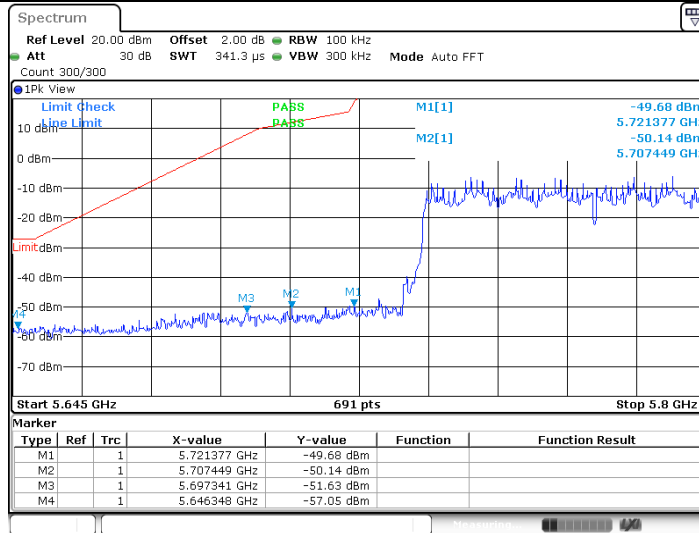
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11AC80SISO Ant1_Low_5775



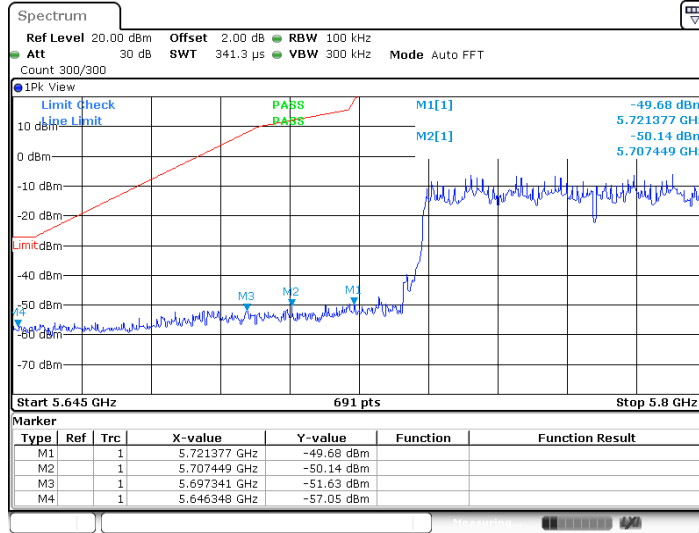
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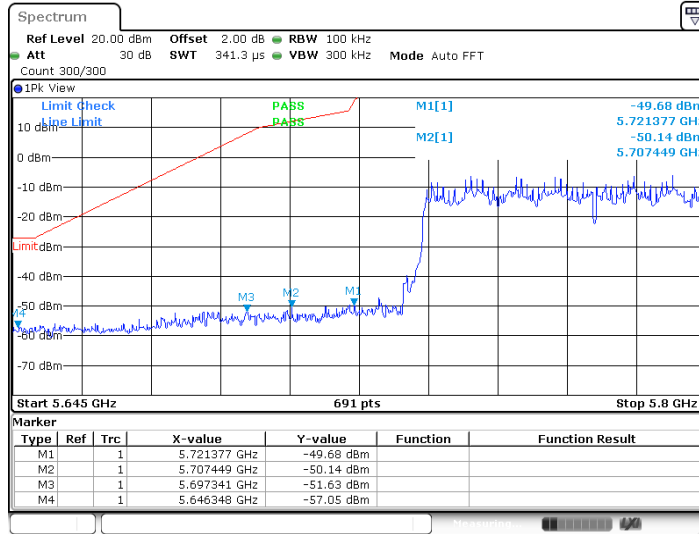
Date: 21 MAR 2020 15:52:35

11AC80SISO_Ant1_Low_5775



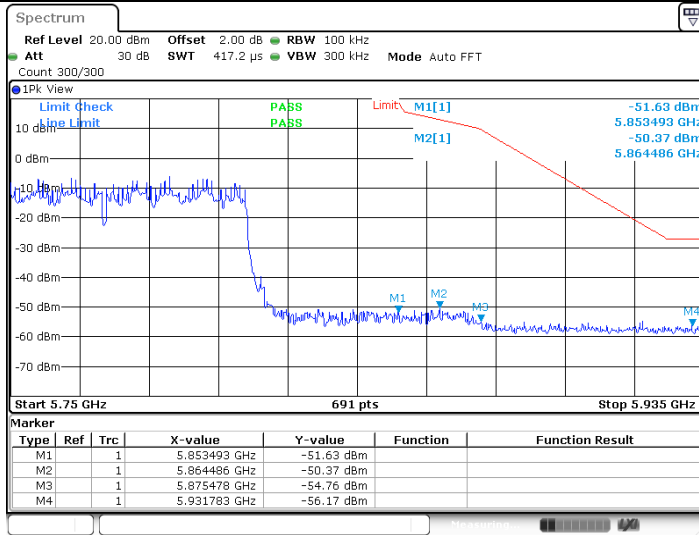
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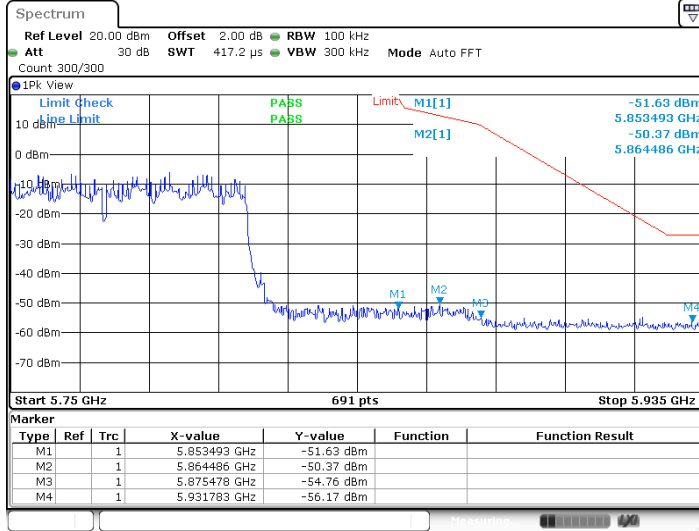
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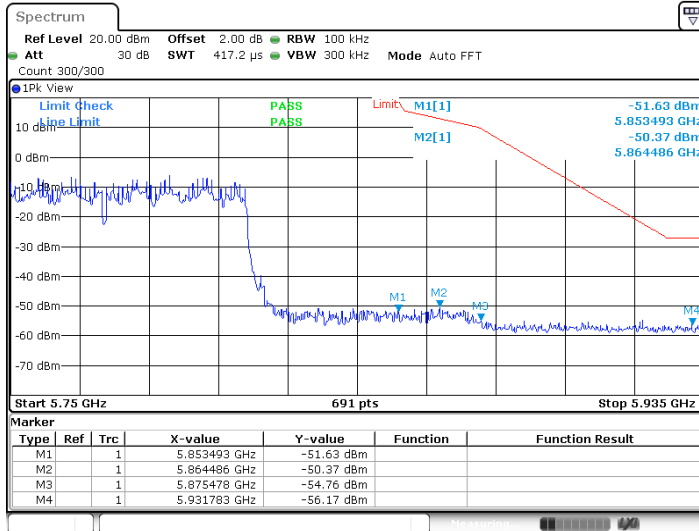
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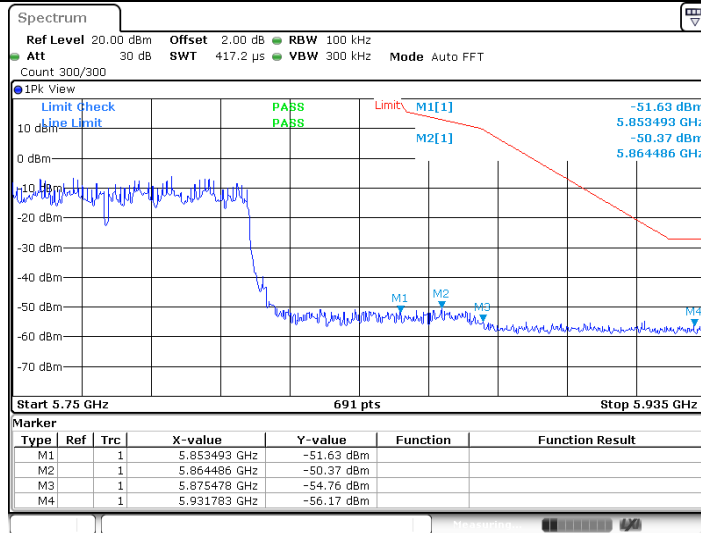
Date: 21 MAR 2020 15:52:50

11AC80SISO Ant1_High_5775



Date: 21 MAR 2020 15:52:50

11AC80SISO Ant1_High_5775



Date: 21 MAR 2020 15:52:50

9.6 Frequencies Stability

Test Method

1. The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set Centre Frequency of the channel under test.
3. Set Detector PEAK
4. Set RBW: 10KHz, VBW: 3RBW
5. Set Span: Encompass the entire emissions bandwidth (EBW) of the signal.
6. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

User manual temperature is -10°C to 45°C, normal Temperature is +20°C.

Limit: 20ppm

Test Results (All conditions and all modes were performed, only list Worst-Case in the report)

Remark: NV is normal Voltage: 5.75Vdc, HV is High Voltage: 4.393Vdc, LV is Low Voltage: 4.25Vdc, NT is normal Temperature: +20°C.

TestMode	Antenna	Channel	Voltage		Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
			Voltage [Vdc]	Temperature (°C)				
11A	Ant1	5180	NV	NT	-40000	-7.722008	20	PASS
		5180	LV	NT	-40000	-7.722008	20	PASS
		5180	HV	NT	-40000	-7.722008	20	PASS
		5745	NV	NT	-20000	-3.481288	20	PASS
		5745	LV	NT	-20000	-3.481288	20	PASS
		5745	HV	NT	-40000	-6.962576	20	PASS
		5785	NV	NT	-20000	-3.457217	20	PASS
		5785	LV	NT	-20000	-3.861004	20	PASS
		5785	HV	NT	-40000	-7.722008	20	PASS
		5825	NV	NT	-20000	-3.861004	20	PASS
		5825	LV	NT	-20000	-3.846154	20	PASS
		5825	HV	NT	-20000	-3.846154	20	PASS
11N40SIS O	Ant1	5190	NV	NT	-20000	-3.846154	20	PASS
		5190	LV	NT	-20000	-3.861004	20	PASS
		5190	HV	NT	-40000	-7.722008	20	PASS
		5755	NV	NT	-20000	-3.861004	20	PASS
		5755	LV	NT	-20000	-3.846154	20	PASS
		5755	HV	NT	-20000	-3.846154	20	PASS
		5795	NV	NT	-20000	-3.846154	20	PASS
		5795	LV	NT	-20000	-3.861004	20	PASS
11AC80SIS O	Ant1	5210	NV	NT	-20000	-3.846154	20	PASS
		5210	LV	NT	-20000	-3.846154	20	PASS
		5210	HV	NT	-20000	-3.846154	20	PASS



TestMode	Antenna	Channel	Temperature					Limit (ppm)	Verdict
			Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)			
11A	Ant1	5180	NV	-10	44000	8.494208	20	PASS	
		5180	NV	0	44000	8.494208	20	PASS	
		5180	NV	10	44000	8.494208	20	PASS	
		5180	NV	20	44000	8.494208	20	PASS	
		5180	NV	45	44000	8.494208	20	PASS	
		5745	NV	-10	49000	8.529156	20	PASS	
		5745	NV	0	49000	8.529156	20	PASS	
		5745	NV	10	49000	8.529156	20	PASS	
		5745	NV	20	49000	8.529156	20	PASS	
		5745	NV	45	49000	8.529156	20	PASS	
		5785	NV	-10	50000	8.643042	20	PASS	
		5785	NV	0	50000	8.643042	20	PASS	
		5785	NV	10	50000	8.643042	20	PASS	
		5785	NV	20	50000	8.643042	20	PASS	
		5785	NV	45	50000	8.643042	20	PASS	
		5825	NV	-10	50000	8.583691	20	PASS	
		5825	NV	0	50000	8.583691	20	PASS	
		5825	NV	10	50000	8.583691	20	PASS	
5825	NV	20	50000	8.583691	20	PASS			
5825	NV	45	50000	8.583691	20	PASS			
11N40SIS O	Ant1	5190	NV	-10	43000	8.285164	20	PASS	
		5190	NV	0	42000	8.092486	20	PASS	
		5190	NV	10	42000	8.092486	20	PASS	
		5190	NV	20	42000	8.092486	20	PASS	
		5190	NV	45	42000	8.092486	20	PASS	
		5755	NV	-10	44000	7.645526	20	PASS	
		5755	NV	0	44000	7.645526	20	PASS	
		5755	NV	10	44000	7.645526	20	PASS	
		5755	NV	20	44000	7.645526	20	PASS	
		5755	NV	45	44000	7.645526	20	PASS	
		5795	NV	-10	44000	7.592752	20	PASS	
		5795	NV	0	44000	7.592752	20	PASS	
		5795	NV	10	44000	7.592752	20	PASS	
		5795	NV	20	44000	7.592752	20	PASS	
		5795	NV	45	44000	7.592752	20	PASS	
11AC80SIS O	Ant1	5210	NV	-10	41000	7.869482	20	PASS	
		5210	NV	0	41000	7.869482	20	PASS	
		5210	NV	10	41000	7.869482	20	PASS	
		5210	NV	20	41000	7.869482	20	PASS	
		5210	NV	45	41000	7.869482	20	PASS	
		5775	NV	-10	48000	8.311688	20	PASS	
		5775	NV	0	48000	8.311688	20	PASS	
		5775	NV	10	48000	8.311688	20	PASS	
		5775	NV	20	48000	8.311688	20	PASS	
5775	NV	45	48000	8.311688	20	PASS			

10 Test Equipment List

Conducted Emission Test

Description	Manufacturer	Model no.	Serial no.	cal. due date
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2020-6-28
LISN	Rohde & Schwarz	ENV4200	100249	2020-6-28
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2020-6-28
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2020-6-28
High Pass Filter (HPF)	UCL	UCL-BPF1-7G	1504005103	2020-6-28
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2020-6-29
Horn Antenna	Rohde & Schwarz	HF907	102295	2020-6-22
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2020-7-12
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2020-6-28
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2020-7-16
Attenuator	Agilent	8491A	MY39264334	2020-6-28
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

RF conducted test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2020-6-28
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2020-6-28
Power Splitter	Weinschel	1580	SC319	2020-7-7
Vector Signal Generator	Rohde & Schwarz	SMBV100A	262825	2020-6-28
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2020-7-6
Test software	Tonscend	System for BT/WIFI	Version 2.6	N/A

11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Conducted Emission 150kHz-30MHz (for test using AMN ENV432 or ENV4200)	3.62dB
Uncertainty for Radiated Spurious Emission 25MHz-3000MHz	Horizontal: 4.81dB; Vertical: 4.89dB;
Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz	Horizontal: 4.69dB; Vertical: 4.68dB;
Uncertainty for Radiated Spurious Emission 18000MHz-40000MHz	Horizontal: 4.89dB; Vertical: 4.87dB;
Uncertainty for Conducted RF test with TS 8997	RF Power Conducted: 1.16dB Frequency test involved: 0.6×10^{-7} or 1%

THE END