FCC RADIO TEST REPORT
FCC ID: 2ARKN-PORTAL

Product : Hybrid Vr Portable Computer

Trade Mark : Pimax

Model Name : Portal QLED

Family Model : Portal

Report No. : S22102101925005

Prepared for

Pimax Technology (Shanghai) Co., Ltd.

Building A, Building 1, 3000 Longdong Avenue, China (Shanghai) Pilot Free Trade Zone 406-C Shanghai P.R. China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community,Xixiang Street
Bao'an District, Shenzhen 518126 P.R. China

Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website: http://www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name ..... Pimax Technology (Shanghai) Co., Ltd.

Address ..... Building A, Building 1, 3000 Longdong Avenue, China (Shanghai) Pilot Free Trade Zone 406-C Shanghai P.R. China

Manufacturer's Name ..... Pimax Technology (Shanghai) Co., Ltd.

Address ..... Building A, Building 1, 3000 Longdong Avenue, China (Shanghai) Pilot Free Trade Zone 406-C Shanghai P.R. China

Factory's Name ..... Pimax Technology (Rizhao) Co., Ltd.

Address ..... 3/F, South Zone, A6 workshop, Electronic Industrial Park , Gaoxin 7th Road, Rizhao High-tech Zone, Shandong Province, China

Product description

Product name ..... Hybrid Vr Portable Computer

Trade mark ..... Pimax

Model and/or type reference ..... Portal QLED

Family Model..... Portal

Test Sample Number S221021019030

Standards ..... FCC Part15.407

Test procedure ..... ANSI C63.10-2013;
KDB 789033 D02 General UNII Test Procedures New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01
KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
KDB 905462 D04 Operational Modes for DFS Testing New Rules v01

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements/ the Industry Canada requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of NTEK, this document may be altered or revised by NTEK, personnel only, and shall be noted in the revision of the document.

Date of Test .....

Date (s) of performance of tests ..... Feb. 08, 2023 ~ May 18, 2023

Date of Issue..... May 19, 2023

Test Result..... **Pass**

Testing Engineer : Mukzi Lee
(Mukzi Lee)

Authorized Signatory : Alex
(Alex Li)

Table of Contents

Page

1 . SUMMARY OF TEST RESULTS 8
1.1 FACILITIES AND ACCREDITATIONS 9
1.2 MEASUREMENT UNCERTAINTY 9
2 . GENERAL INFORMATION 10
2.1 GENERAL DESCRIPTION OF EUT 10
2.2 DESCRIPTION OF TEST MODES 13
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 15
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE) 16
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS 17
3 . TEST REQUIREMENTS 19
3.1 CONDUCTED EMISSION MEASUREMENT 19
3.1.1 APPLICABLE STANDARD 19
3.1.2 CONFORMANCE LIMIT 19
3.1.3 TEST CONFIGURATION 19
3.1.4 TEST PROCEDURE 19
3.1.5 TEST RESULTS 20
3.2 RADIATED EMISSION MEASUREMENT 28
3.2.1 APPLICABLE STANDARD 28
3.2.2 CONFORMANCE LIMIT 28
3.2.3 MEASURING INSTRUMENTS 28
3.2.4 TEST CONFIGURATION 29
3.2.5 TEST PROCEDURE 30
3.2.6 TEST RESULTS (9KHZ – 30 MHZ) 31
3.2.7 TEST RESULTS (30MHZ – 1GHZ) 32
3.2.8 TEST RESULTS (1GHZ-18GHZ) 40
3.2.9 TEST RESULTS (18GHZ-40GHZ) 48
3.2.10 SPURIOUS EMISSION IN RESTRICTED BAND 4.5GHZ~5.150 GHZ& 5.350GHZ~5460GHZ AND BANDEDGE 56
3.3 POWER SPECTRAL DENSITY TEST 68
3.3.1 APPLIED PROCEDURES / LIMIT 68
3.3.2 TEST PROCEDURE 69
3.3.3 DEVIATION FROM STANDARD 69
3.3.4 TEST SETUP 69
3.3.5 EUT OPERATION CONDITIONS 69
3.3.6 TEST RESULTS 70
3.4 26DB & 99% EMISSION BANDWIDTH 71
3.4.1 APPLIED PROCEDURES / LIMIT 71

Table of Contents

Page

3.4.2 TEST PROCEDURE 71
3.4.3 EUT OPERATION CONDITIONS 72
3.4.4 TEST RESULTS 72
3.5 MINIMUM 6 DB BANDWIDTH 73
3.5.1 APPLIED PROCEDURES / LIMIT 73
3.5.2 TEST PROCEDURE 73
3.5.3 DEVIATION FROM STANDARD 73
3.5.4 TEST SETUP 73
3.5.5 EUT OPERATION CONDITIONS 73
3.5.6 TEST RESULTS 74
3.6 MAXIMUM CONDUCTED OUTPUT POWER 75
3.6.1 PPLIED PROCEDURES / LIMIT 75
3.6.2 TEST PROCEDURE 76
3.6.3 DEVIATION FROM STANDARD 76
3.6.4 TEST SETUP 76
3.6.5 EUT OPERATION CONDITIONS 76
3.6.6 TEST RESULTS 77
3.7 OUT OF BAND EMISSIONS 78
3.7.1 APPLICABLE STANDARD 78
3.7.2 TEST PROCEDURE 78
3.7.3 DEVIATION FROM STANDARD 79
3.7.4 TEST SETUP 79
3.7.5 EUT OPERATION CONDITIONS 79
3.7.6 TEST RESULTS 79
3.8 SPURIOUS RF CONDUCTED EMISSIONS 80
3.8.1CONFORMANCE LIMIT 80
3.8.2MEASURING INSTRUMENTS 80
3.8.3TEST SETUP 80
3.8.4TEST PROCEDURE 80
3.8.5TEST RESULTS 80
3.9 FREQUENCY STABILITY 80
4. ANTENNA REQUIREMENT 81
4.1 STANDARD REQUIREMENT 81
4.2 EUT ANTENNA 81
5. DYNAMIC FREQUENCY SELECTION (DFS) 81
5.1 APPLICABILITY OF DFS REQUIREMENTS 81
5.2 INTERFERENCE THRESHOLD VALUES, MASTER OR CLIENT INCORPORATING IN-SERVICE MONITORING 81
5.3 DFS RESPONSE REQUIREMENT VALUES 82

Table of Contents

Page

5.4 SHORT PULSE RADAR TEST WAVEFORMS 82
5.5 LONG PULSE RADAR TEST WAVEFORM 83
5.6 FREQUENCY HOPPING RADAR TEST WAVEFORM 84
5.7 CALIBRATION SETUP AND DFS TEST RESULTS 85
5.8 CONDUCTED CALIBRATION SETUP 85
5.9 RADAR WAVEFORM CALIBRATION RESULT 85
5.10 IN-SERVICE MONITORING: CHANNEL MOVE TIME, CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD 86
5.11 RESULT OF CHANNEL MOVE TIME, CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD FOR CLIENT BEACON TEST 87
6. AUTOMATICALLY DISCONTINUE TRANSMISSION 87
7. ATTACHMENT FOR TEST RESULTS 88
7.1 5.2G 88
7.1.1 DUTY CYCLE 88
7.1.2 MAXIMUM CONDUCTED OUTPUT POWER 111
7.1.3 -26DB BANDWIDTH 112
7.1.4 OCCUPIED CHANNEL BANDWIDTH 135
7.1.5 MAXIMUM POWER SPECTRAL DENSITY LEVEL 158
7.1.6 BAND EDGE 181
7.1.7 CONDUCTED RF SPURIOUS EMISSION 204
7.2 5.3G 227
7.2.1 DUTY CYCLE 227
7.2.2 MAXIMUM CONDUCTED OUTPUT POWER 248
7.2.3 -26DB BANDWIDTH 249
7.2.4 OCCUPIED CHANNEL BANDWIDTH 270
7.2.5 MAXIMUM POWER SPECTRAL DENSITY LEVEL 291
7.2.6 BAND EDGE 312
7.2.7 CONDUCTED RF SPURIOUS EMISSION 329
7.3 5.6G 350
7.3.1 DUTY CYCLE 350
7.3.2 MAXIMUM CONDUCTED OUTPUT POWER 379
7.3.3 -26DB BANDWIDTH 381
7.3.4 OCCUPIED CHANNEL BANDWIDTH 410
7.3.5 MAXIMUM POWER SPECTRAL DENSITY LEVEL 439
7.3.6 BAND EDGE 468
7.3.7 CONDUCTED RF SPURIOUS EMISSION 491
7.4 5.8G 520
7.4.1 DUTY CYCLE 520

Table of Contents

	Page
7.4.2 MAXIMUM CONDUCTED OUTPUT POWER	541
7.4.3 -6DB BANDWIDTH	542
7.4.4 OCCUPIED CHANNEL BANDWIDTH	563
7.4.5 MAXIMUM POWER SPECTRAL DENSITY LEVEL	584
7.4.6 BAND EDGE	605
7.4.7 CONDUCTED RF SPURIOUS EMISSION	624
7.5 DFS	645
7.5.1 CALIBRATION	645
7.5.2 NON-OCCUPANCY	645
7.5.3 SHUTDOWN TIME	646

Revision History

Report No.	Version	Description	Issued Date
S22102101925005	Rev.01	Initial issue of report	May 19, 2023

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a) 15.407(b)	Spurious Radiated Emissions	PASS	
15.407(a)	26 dB and 99% Emission Bandwidth	PASS	
15.407(e)	Minimum 6 dB bandwidth	PASS	
15.407(a)	Maximum Conducted Output Power	PASS	
15.407(b)	Band Edge	PASS	
15.407(a)	Power Spectral Density	PASS	
15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
15.407(h)	Dynamic Frequency Selection(DFS)	PASS	
15.203	Antenna Requirement	PASS	
15.407(c)	Automatically Discontinue Transmission	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

CNAS-Lab.	:	The Certificate Registration Number is L5516.
IC-Registration		The Certificate Registration Number is 9270A. CAB identifier:CN0074
FCC- Accredited		Test Firm Registration Number: 463705. Designation Number: CN1184
A2LA-Lab.		The Certificate Registration Number is 4298.01
Name of Firm	:	Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	:	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.China.

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±2.80dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(30MHz~1GHz)	±2.64dB
5	All emissions, radiated(1GHz~6GHz)	±2.40dB
6	All emissions, radiated(> 6GHz)	±2.52dB
7	Temperature	±0.5°C
8	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Hybrid Vr Portable Computer	
Trade Mark	Pimax	
Model Name	Portal QLED	
Family Model	Portal	
Model Difference	All models are the same circuit and RF module, only the screen material and memory size are different.	
FCC ID	2ARKN-PORTAL	
Product Description	IEEE 802.11 WLAN Mode Supported	☒802.11a/n/ac/ax (20MHz channel bandwidth) ☒802.11n/ac/ax (40MHz channel bandwidth) ☒802.11ac/ax (80MHz channel bandwidth) ☒802.11ac/ax (160MHz channel bandwidth)
	Modulation	802.11a:OFDM (BPSK / QPSK / 16QAM/64QAM) 802.11n:OFDM (QPSK/BPSK/16QAM/64QAM) 802.11ac:OFDM (QPSK/BPSK/16QAM/64QAM/256QAM) 802.11ax: OFDMA (QPSK/BPSK/16QAM/64QAM/256QAM)
	Operating Frequency Range	☒U-NII-1: 5180-5240MHz for 802.11a/n/ac/ax(20MHz); 5190-5230MHz for 802.11n/ac/ax(40MHz); 5210MHz for 802.11ac/ax(80MHz) 5250MHz for 802.11ac/ax(160MHz) ☒U-NII-2A: 5260-5320MHz for 802.11a/n/ac/ax(20MHz); 5270-5310MHz for 802.11n/ac/ax(40MHz); 5290MHz for 802.11ac/ax(80MHz) 5250MHz for 802.11ac/ax(160MHz) ☒U-NII-2C: 5500-5700MHz for 802.11a/n/ac/ax(20MHz); 5510-5670MHz for 802.11n/ac/ax(40MHz); 5530-5610MHz for 802.11ac/ax(80MHz) 5570MHz for 802.11ac/ax(160MHz) ☒U-NII-3: 5745-5825 MHz for 802.11a/n/ac/ax(20MHz); 5755-5795 MHz for 802.11n/ac/ax(40MHz); 5775MHz for 802.11ac/ax(80MHz)
	Number of Channels	☒4 channels for U-NII-1(a/n/ac/ax 20); 2 channels for U-NII-1(n/ac/ax 40); 1 channels for U-NII-1(ac/ax 80); 1 channels for U-NII-1(ac/ax 160); ☒4 channels for U-NII-2A(a/n/ac/ax 20); 2 channels for U-NII-2A(n/ac/ax 40); 1 channels for U-NII-2A(ac/ax 80); 1 channels for U-NII-2A(ac/ax 160); ☒11 channels for U-NII-2C(a/n/ac/ax 20); 5 channels for U-NII-2C(n/ac/ax 40); 2 channels for U-NII-2C(ac/ax 80); 1 channels for U-NII-2C(ac/ax 160); ☒5 channels for U-NII-3(a/n/ac/ax 20); 2 channels for U-NII-3(n/ac/ax 40); 1 channels for U-NII-3(ac/ax 80);

<table>
<tr><td>Product Description</td><td>
<table>
<tr><td>Function:</td><td>☐Outdoor AP ☐Indoor AP ☐Fixed PTP ☒Client</td></tr>
<tr><td>DFS operational mode</td><td>Client Without Radar Detection</td></tr>
<tr><td>Smart system</td><td>☒SISO for 802.11a
☒MIMO for 802.11n/ac/ax</td></tr>
<tr><td>Antenna Type</td><td>FPC</td></tr>
<tr><td>Antenna Gain</td><td>Ant1: 1.5dBi; Ant1: 1.1dBi;</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.
</td></tr>
<tr><td>Ratings</td><td>DC 3.85V powered by battery or DC 5V or DC 9V powered by Type-C port.</td></tr>
<tr><td>Adapter</td><td>N/A</td></tr>
<tr><td>Battery</td><td>DC 3.85V, 3886mAh</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
<tr><td>HW Version</td><td>V2.0</td></tr>
<tr><td>SW Version</td><td>0929</td></tr>
</table>

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.

Band	20MHz		40MHz		80MHz	
	Channel	Frequency	Channel	Frequency	Channel	Frequency
U-NII-1	36	5180 MHz	38	5190 MHz	42	5210 MHz
	40	5200 MHz	46	5230 MHz	-	-
	44	5220 MHz				
	48	5240 MHz				
U-NII-2A	52	5260 MHz	54	5270 MHz	58	5290 MHz
	56	5280 MHz	62	5310 MHz		
	60	5300 MHz				
	64	5320 MHz				
U-NII-2C	100	5500 MHz	102	5510 MHz	106	5530 MHz
	104	5520 MHz	110	5550 MHz	122	5610 MHz
	108	5540 MHz	118	5590 MHz		
	112	5560 MHz	126	5630 MHz		
	116	5580 MHz	134	5670 MHz		
	120	5600 MHz				
	124	5620 MHz				
	128	5640 MHz				
	132	5660 MHz				
	136	5680 MHz				
	140	5700 MHz				
U-NII-3	149	5745 MHz	151	5755 MHz	155	5775 MHz
	153	5765 MHz	159	5795 MHz		
	157	5785 MHz				
	161	5805 MHz				
	165	5825 MHz				

3.

Band	160MHz	
	Channel	Frequency
U-NII-1	50	5250 MHz
U-NII-2A	50	5250 MHz
U-NII-2C	114	5570 MHz

Due to the channel 50 aggregation is whole bandwidth (160MHz). Whole band comply with the conversation limit(as PSD, Maximum Conducted Output Power and Band Edge...) for the straddle channels 5150MHz. Please see the attached test data

4. In ax mode, RU allocation is not supported and it is a full carrier. Only the HE SU PPDU format operational mode.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a/n/ac/ax 20 CH36/ CH40/ CH 48 802.11a/n/ac/ax 20 CH52/ CH56/ CH 64 802.11a/n/ac/ax 20 CH100/ CH120/ CH 140 802.11a/n/ac/ax 20 CH149/ CH157/ CH 165
Mode 3	802.11n/ac/ax 40 CH38/ CH 46 802.11n/ac/ax 40 CH54/ CH 62 802.11n/ac/ax 40 CH102/ CH 118/ CH 134 802.11n/ac/ax 40 CH 151 / CH 159
Mode 4	802.11ac/ax 80 CH 42 802.11ac/ax 80 CH 58 802.11ac/ax 80 CH 106/ CH 122 802.11ac/ax 80 CH 155
Mode 5	802.11ac/ax 160 CH 50 802.11ac/ax 160 CH 140

For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a/n/ac/ax 20 CH36/ CH40/ CH 48 802.11a/n/ac/ax 20 CH52/ CH56/ CH 64 802.11a/n/ac/ax 20 CH100/ CH120/ CH 140 802.11a/n/ac/ax 20 CH149/ CH157/ CH 165
Mode 3	802.11n/ac/ax 40 CH38/ CH 46 802.11n/ac/ax 40 CH54/ CH 62 802.11n/ac/ax 40 CH102/ CH 118/ CH 134 802.11n/ac/ax 40 CH 151 / CH 159
Mode 4	802.11ac/ax 80 CH 42 802.11ac/ax 80 CH 58 802.11ac/ax 80 CH 106/ CH 122 802.11ac/ax 80 CH 155
Mode 5	802.11ac/ax 160 CH 50 802.11ac/ax 160 CH 140

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

The EUT support MIMO modes, transmit mode what describe as following:

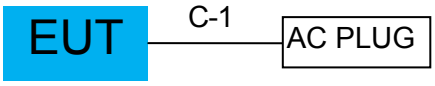
Mode	Tx / Rx
802.11a(20MHz)	1TX, 1RX
802.11n/ac/ax (20MHz,40MHz,80MHz,160MHz)	2TX, 2RX

For 5GHz band, 802.11n/ac/ax(20/40/80/160) has MIMO mode, Antenna 1,2 are simultaneous transmissions.

Directional gain=$G_{ANT\ MAX}$ + 10log(N_{ANT}/N_{ss})dBi=1.5 + 3.01 dBi = 4.51dBi
where NSS = the number of independent spatial streams of data and GANT MAX is the gain of the antenna having the highest gain (in dBi).
Note: Most devices can operate with one spatial stream (NSS = 1, where NSS is the number of spatial streams) even if they also are capable of more spatial streams. The worst case directional gain will occur when NSS = 1; therefore, it is especially important to ensure that the device complies with all emission limits for the case of NSS = 1 (or with the lowest possible value of NSS, if the device always uses spatial multiplexing).

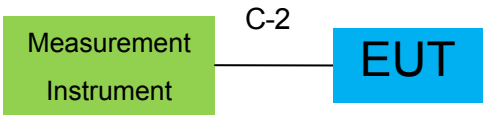
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

For AC Conducted Emission Mode



For Radiated Test Cases

For Conducted Test Cases



Note:1.The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	Type-C Cable	NO	NO	1m
C-2	RF Cable	YES	NO	0.1m

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation& Conducted Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4440A	MY41000130	2022.04.07 2023.03.27	2023.04.06 2024.03.26	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2022.06.16	2023.06.15	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2022.06.16	2023.06.15	1 year
4	Test Receiver	R&S	ESPI7	101318	2022.04.06 2023.03.27	2023.04.05 2024.03.26	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30 2023.03.16	2023.03.29 2024.03.15	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
7	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2023.01.12	2024.01.11	1 year
8	Amplifier	EMC	EMC051835SE	980246	2022.06.17	2023.06.16	1 year
9	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2022.11.04	2023.11.03	1 year
10	USB RF Power Sensor	DARE	RPR3006W	15I00041SNO84	2022.06.16	2023.06.15	1 year
11	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2022.06.17	2025.06.16	3 year
15	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A
16	Low Noise Amplifier	B&Z	BZ-P540-550850-452727	16476-11729	2022.02.21 2023.02.19	2023.02.20 2024.02.18	1 year
17	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2022.11.07	2023.11.06	1 year
18	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2020.08.07	2023.08.06	3 year
19	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2022.06.16	2023.06.15	1 year

Note:
We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2022.04.06 2023.03.27	2023.04.05 2024.03.26	1 year
2	LISN	R&S	ENV216	101313	2022.04.06 2023.03.27	2023.04.05 2024.03.26	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2022.04.06 2023.03.27	2023.04.05 2024.03.26	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2020.05.11 2023.05.09	2023.05.10 2026.05.08	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2020.05.11 2023.05.09	2023.05.10 2026.05.08	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2020.05.11 2023.05.09	2023.05.10 2026.05.08	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& Aux Equipment which is scheduled for calibration every 3 years.

3. TEST REQUIREMENTS

3.1CONDUCTED EMISSION MEASUREMENT

3.1.1 APPLICABLE STANDARD

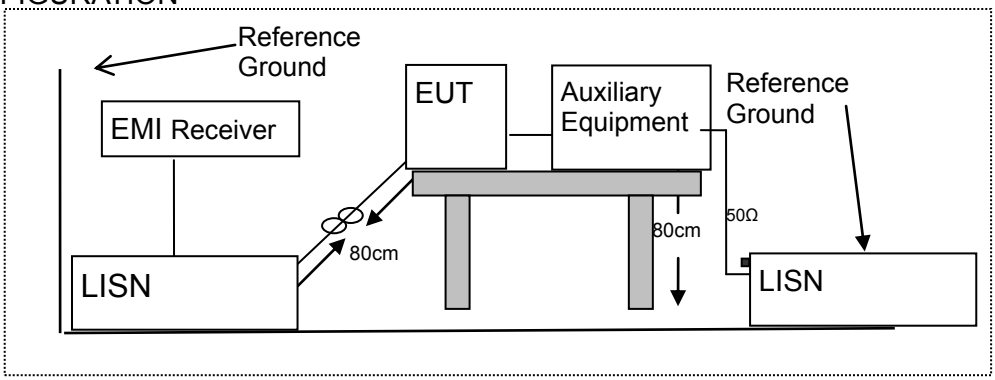
According to FCC Part 15.207(a)

3.1.2 CONFORMANCE LIMIT

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. *Decreases with the logarithm of the frequency
2. The lower limit shall apply at the transition frequencies
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.1.3 TEST CONFIGURATION



3.1.4 TEST PROCEDURE

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

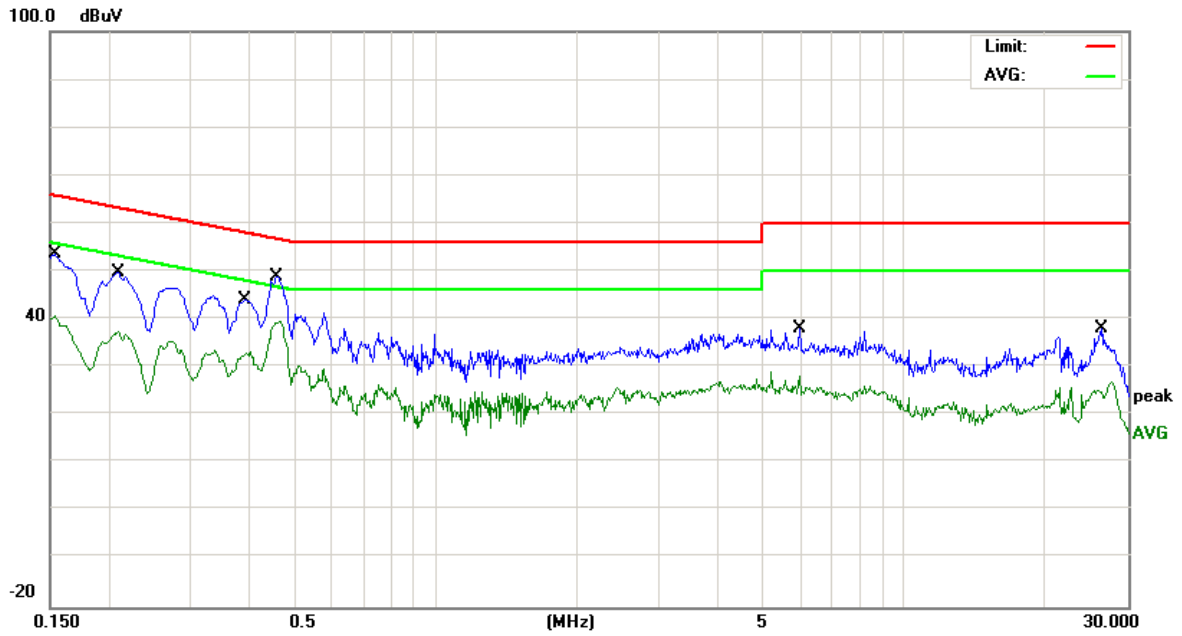
3.1.5 TEST RESULTS

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.2G 802.11ac160

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	43.98	9.60	53.58	65.78	-12.20	QP
0.1539	31.01	9.60	40.61	55.78	-15.17	AVG
0.2100	40.16	9.62	49.78	63.20	-13.42	QP
0.2100	27.84	9.62	37.46	53.20	-15.74	AVG
0.3899	34.48	9.65	44.13	58.06	-13.93	QP
0.3899	23.41	9.65	33.06	48.06	-15.00	AVG
0.4580	39.13	9.66	48.79	56.73	-7.94	QP
0.4580	30.00	9.66	39.66	46.73	-7.07	AVG
5.9699	28.13	9.81	37.94	60.00	-22.06	QP
5.9699	19.09	9.81	28.90	50.00	-21.10	AVG
26.3180	27.69	10.32	38.01	60.00	-21.99	QP
26.3180	16.59	10.32	26.91	50.00	-23.09	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



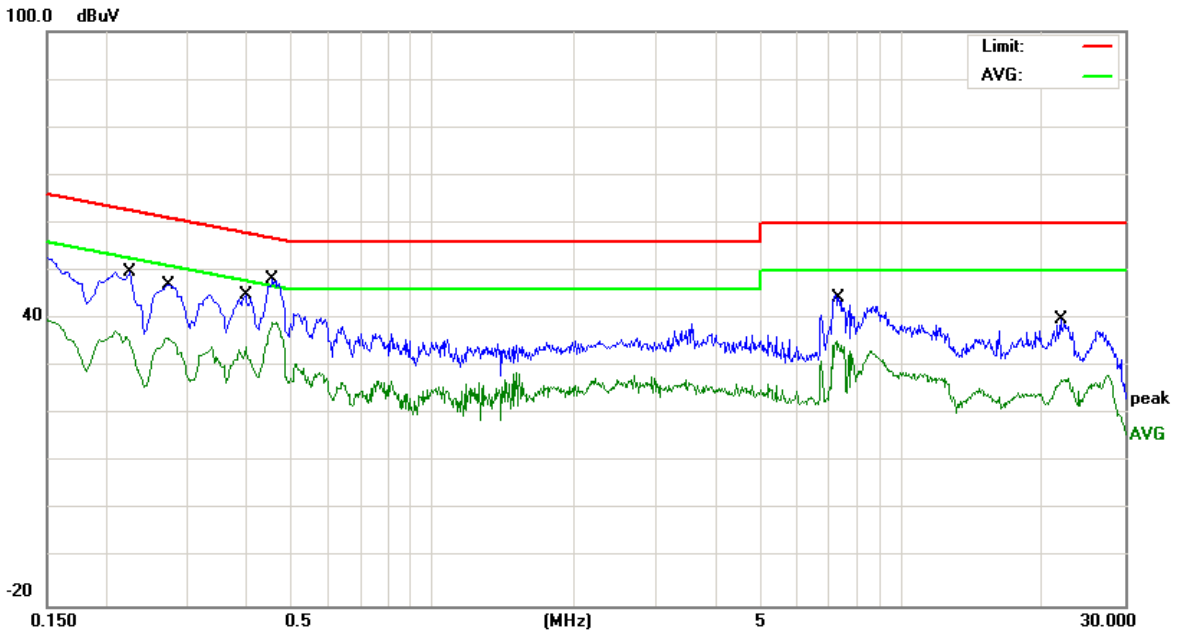
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.2G 802.11ac160

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2260	40.18	9.62	49.80	62.59	-12.79	QP
0.2260	26.51	9.62	36.13	52.59	-16.46	AVG
0.2740	37.50	9.63	47.13	60.99	-13.86	QP
0.2740	26.33	9.63	35.96	50.99	-15.03	AVG
0.3980	35.18	9.66	44.84	57.89	-13.05	QP
0.3980	24.47	9.66	34.13	47.89	-13.76	AVG
0.4540	38.47	9.66	48.13	56.80	-8.67	QP
0.4540	29.67	9.66	39.33	46.80	-7.47	AVG
7.3500	34.51	9.83	44.34	60.00	-15.66	QP
7.3500	25.51	9.83	35.34	50.00	-14.66	AVG
21.8900	29.66	10.17	39.83	60.00	-20.17	QP
21.8900	17.86	10.17	28.03	50.00	-21.97	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



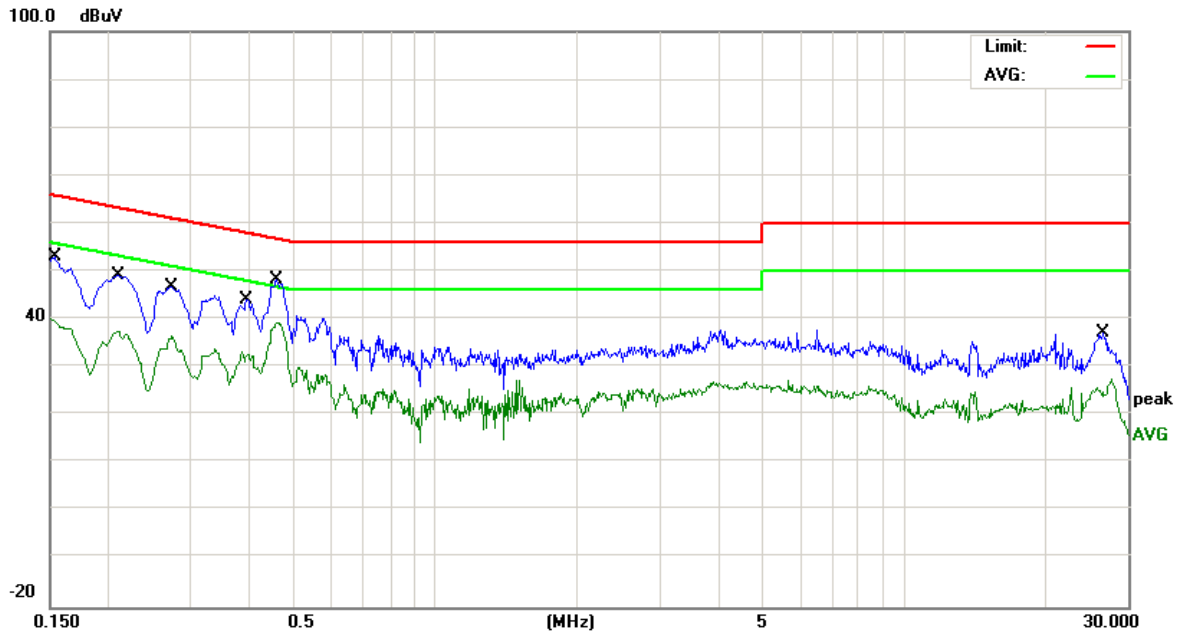
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.3G 802.11ac40 High CH

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	43.51	9.60	53.11	65.78	-12.67	QP
0.1539	30.59	9.60	40.19	55.78	-15.59	AVG
0.2100	39.39	9.62	49.01	63.20	-14.19	QP
0.2100	27.93	9.62	37.55	53.20	-15.65	AVG
0.2740	37.20	9.63	46.83	60.99	-14.16	QP
0.2740	26.81	9.63	36.44	50.99	-14.55	AVG
0.3940	34.51	9.65	44.16	57.98	-13.82	QP
0.3940	23.68	9.65	33.33	47.98	-14.65	AVG
0.4580	38.60	9.66	48.26	56.73	-8.47	QP
0.4580	29.63	9.66	39.29	46.73	-7.44	AVG
26.5860	26.81	10.32	37.13	60.00	-22.87	QP
26.5860	17.14	10.32	27.46	50.00	-22.54	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



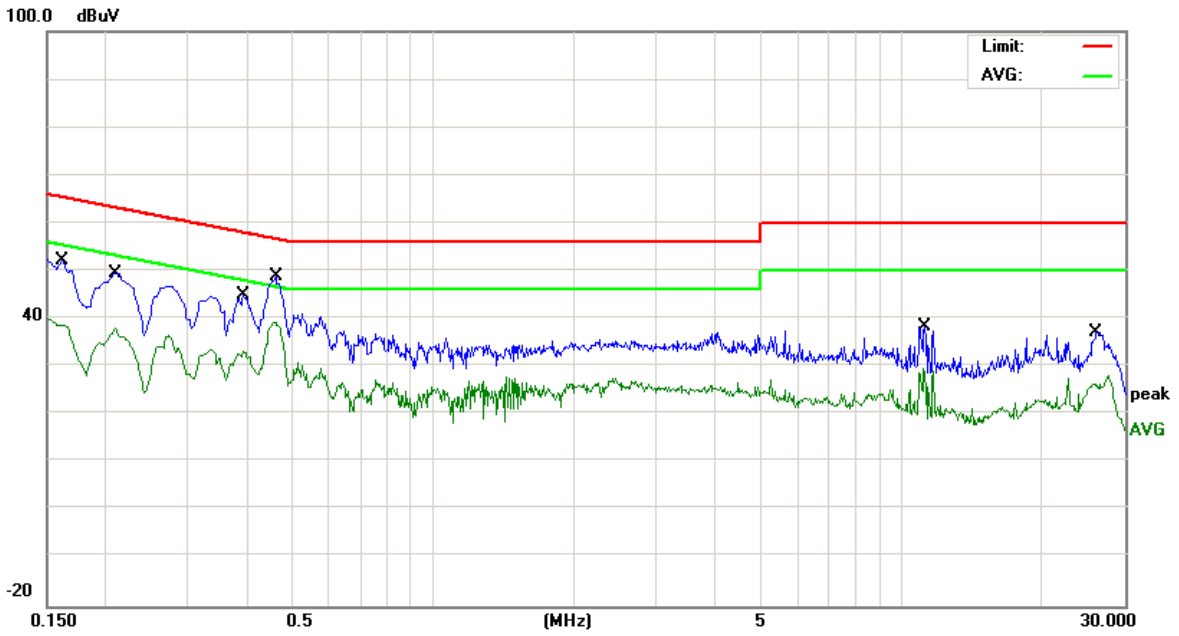
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.3G 802.11ac40 High CH

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1620	42.57	9.65	52.22	65.36	-13.14	QP
0.1620	29.09	9.65	38.74	55.36	-16.62	AVG
0.2100	39.96	9.63	49.59	63.20	-13.61	QP
0.2100	28.46	9.63	38.09	53.20	-15.11	AVG
0.3940	35.24	9.66	44.90	57.98	-13.08	QP
0.3940	23.46	9.66	33.12	47.98	-14.86	AVG
0.4620	39.10	9.66	48.76	56.66	-7.90	QP
0.4620	29.64	9.66	39.30	46.66	-7.36	AVG
11.2220	28.37	9.93	38.30	60.00	-21.70	QP
11.2220	19.66	9.93	29.59	50.00	-20.41	AVG
26.0180	26.92	10.22	37.14	60.00	-22.86	QP
26.0180	17.80	10.22	28.02	50.00	-21.98	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



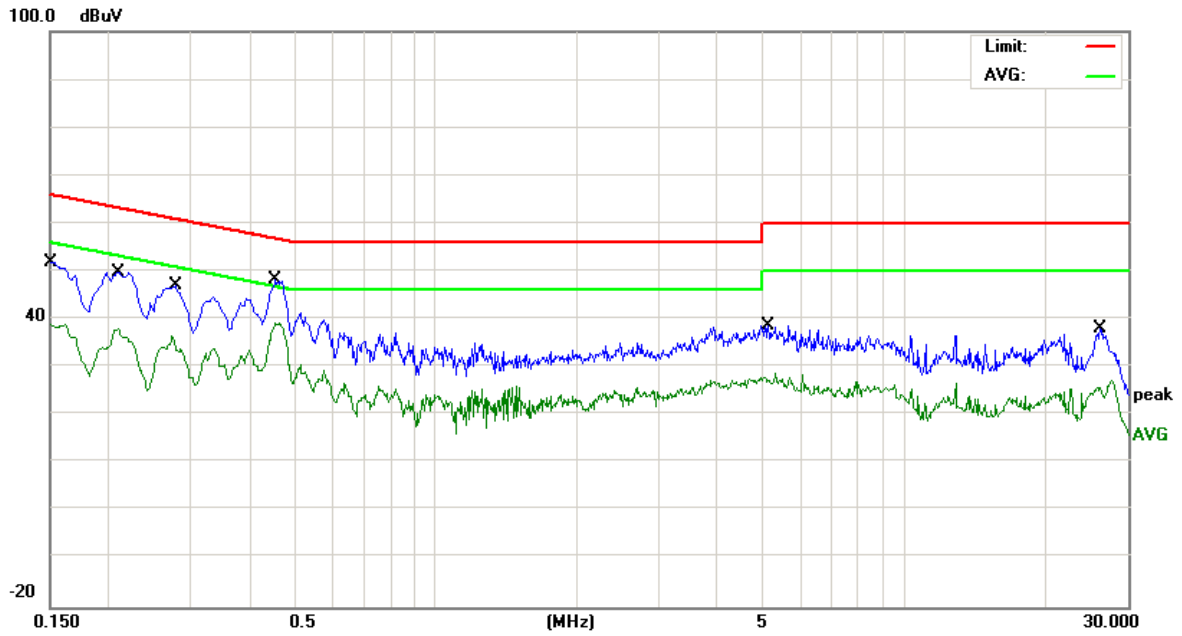
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.6G 802.11ax160

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1503	42.20	9.60	51.80	65.98	-14.18	QP
0.1503	29.32	9.60	38.92	55.98	-17.06	AVG
0.2100	40.26	9.62	49.88	63.20	-13.32	QP
0.2100	28.31	9.62	37.93	53.20	-15.27	AVG
0.2779	37.32	9.64	46.96	60.88	-13.92	QP
0.2779	26.85	9.64	36.49	50.88	-14.39	AVG
0.4540	38.63	9.66	48.29	56.80	-8.51	QP
0.4540	29.67	9.66	39.33	46.80	-7.47	AVG
5.1220	28.92	9.77	38.69	60.00	-21.31	QP
5.1220	18.13	9.77	27.90	50.00	-22.10	AVG
26.2139	27.66	10.31	37.97	60.00	-22.03	QP
26.2139	14.83	10.31	25.14	50.00	-24.86	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



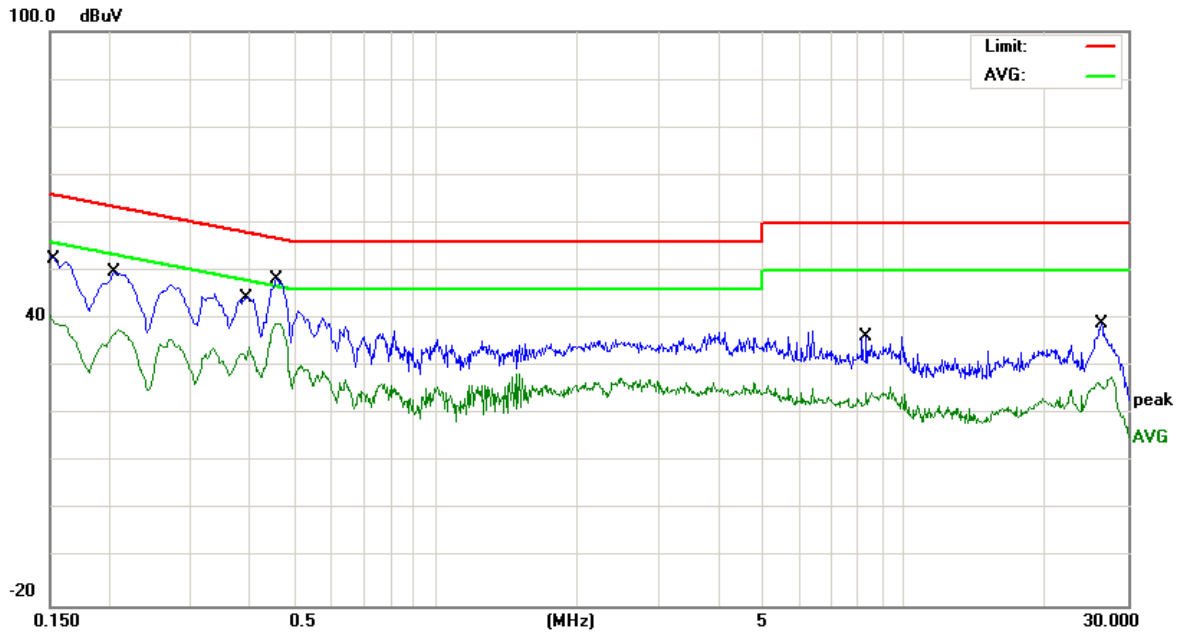
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.6G 802.11ax160

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1548	43.49	9.65	53.14	65.73	-12.59	QP
0.1548	29.21	9.65	38.86	55.73	-16.87	AVG
0.2060	39.97	9.63	49.60	63.36	-13.76	QP
0.2060	28.01	9.63	37.64	53.36	-15.72	AVG
0.3940	34.68	9.66	44.34	57.98	-13.64	QP
0.3940	24.56	9.66	34.22	47.98	-13.76	AVG
0.4580	38.51	9.66	48.17	56.73	-8.56	QP
0.4580	29.42	9.66	39.08	46.73	-7.65	AVG
8.2900	26.55	9.85	36.40	60.00	-23.60	QP
8.2900	14.67	9.85	24.52	50.00	-25.48	AVG
26.3380	28.64	10.22	38.86	60.00	-21.14	QP
26.3380	17.63	10.22	27.85	50.00	-22.15	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



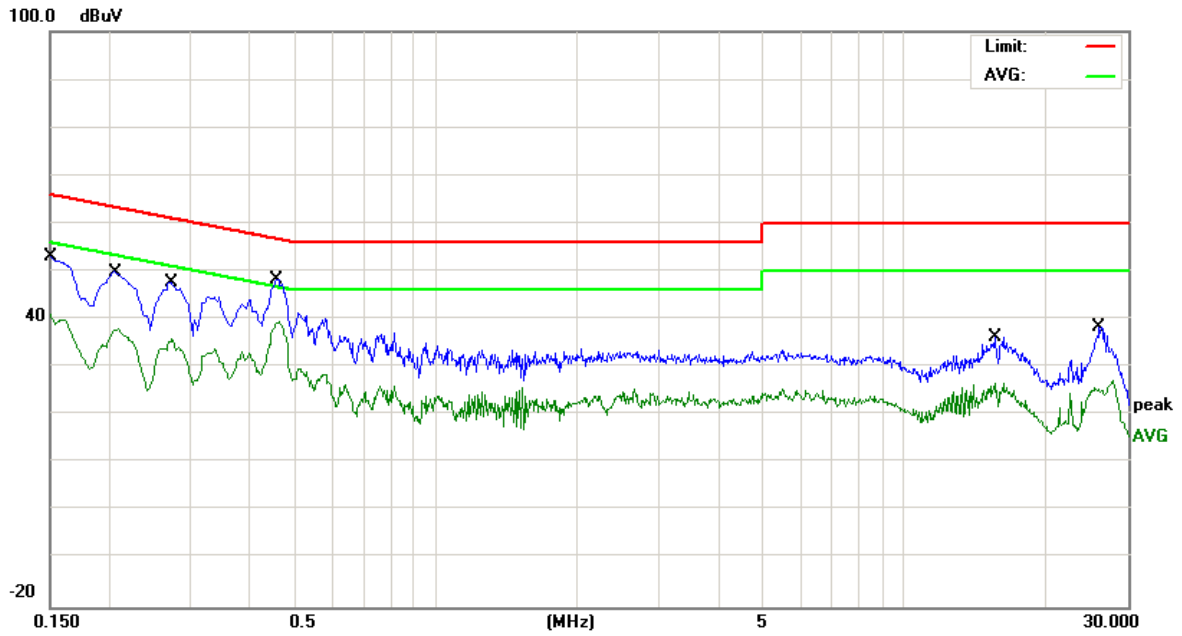
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.8G 802.11ax20 Mid CH

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1516	43.52	9.60	53.12	65.91	-12.79	QP
0.1516	30.63	9.60	40.23	55.91	-15.68	AVG
0.2083	39.93	9.62	49.55	63.27	-13.72	QP
0.2083	28.30	9.62	37.92	53.27	-15.35	AVG
0.2740	37.95	9.63	47.58	60.99	-13.41	QP
0.2740	26.21	9.63	35.84	50.99	-15.15	AVG
0.4580	38.73	9.66	48.39	56.73	-8.34	QP
0.4580	29.89	9.66	39.55	46.73	-7.18	AVG
15.6219	26.18	10.10	36.28	60.00	-23.72	QP
15.6219	16.52	10.10	26.62	50.00	-23.38	AVG
26.0660	27.95	10.31	38.26	60.00	-21.74	QP
26.0660	16.92	10.31	27.23	50.00	-22.77	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



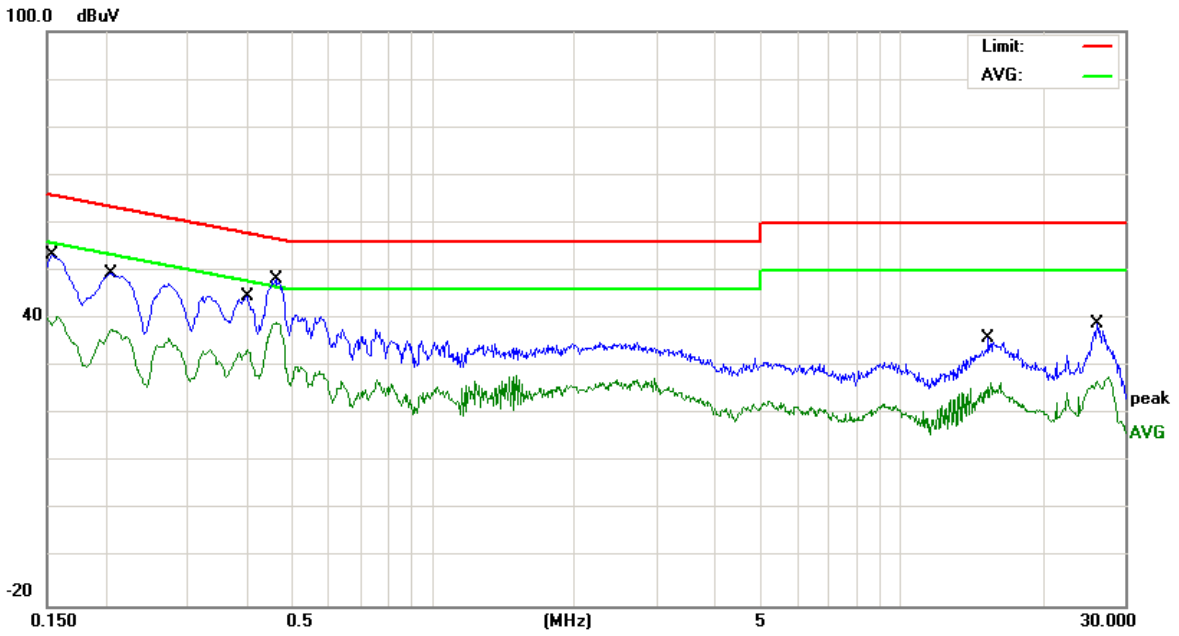
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name :	Portal QLED
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V powered by Adapter AC 230V/50Hz	Test Mode :	Mode 2

5.8G 802.11ax20 Mid CH

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	43.71	9.65	53.36	65.78	-12.42	QP
0.1539	30.78	9.65	40.43	55.78	-15.35	AVG
0.2060	39.92	9.63	49.55	63.36	-13.81	QP
0.2060	28.00	9.63	37.63	53.36	-15.73	AVG
0.4020	35.12	9.67	44.79	57.81	-13.02	QP
0.4020	23.85	9.67	33.52	47.81	-14.29	AVG
0.4620	38.61	9.66	48.27	56.66	-8.39	QP
0.4620	29.56	9.66	39.22	46.66	-7.44	AVG
15.3499	25.96	10.06	36.02	60.00	-23.98	QP
15.3499	16.55	10.06	26.61	50.00	-23.39	AVG
26.2220	28.76	10.22	38.98	60.00	-21.02	QP
26.2220	17.64	10.22	27.86	50.00	-22.14	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



Note: The test report records only the worst-case test values.

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(b) and 15.209

3.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(7): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

According to FCC Part15.205, Restricted bands

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

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

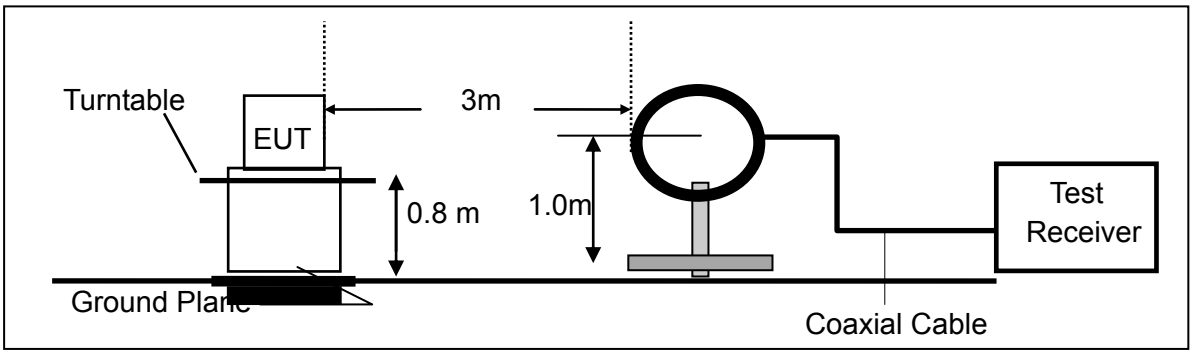
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. For Frequency 9kHz~30MHz:
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.
For Frequency above 30MHz:
Distance extrapolation factor =20log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

3.2.3 MEASURING INSTRUMENTS

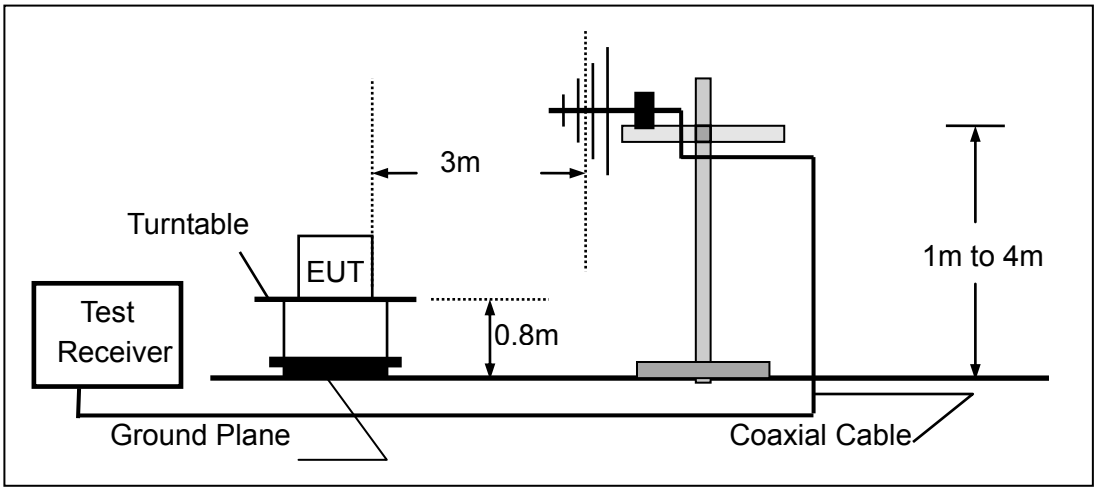
The Measuring equipment is listed in the section 6.3 of this test report.

3.2.4 TEST CONFIGURATION

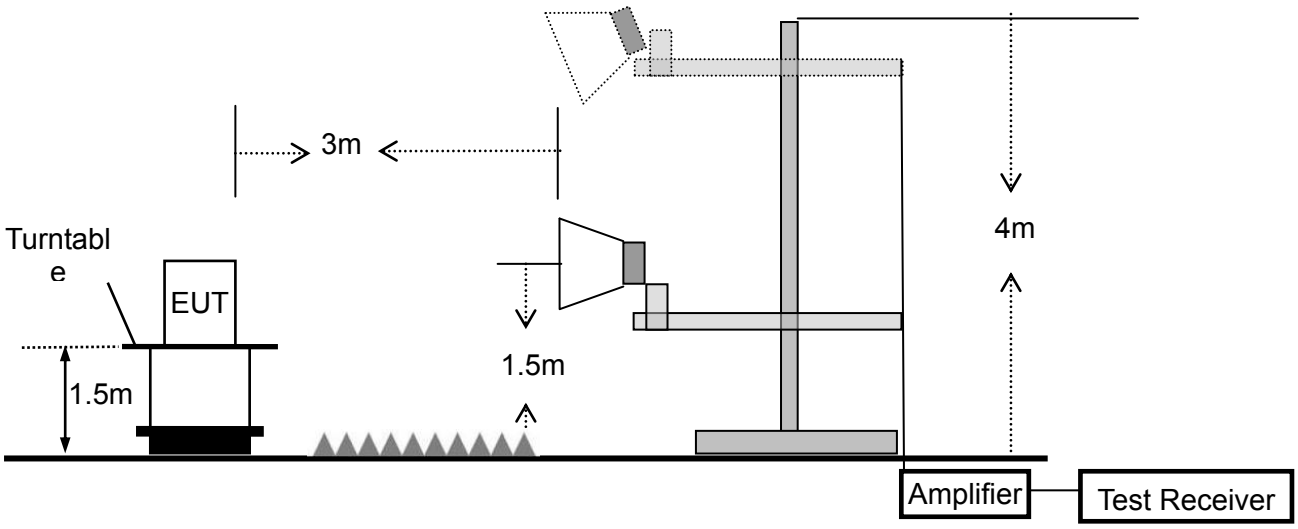
(a)For radiated emissions below 30MHz



(b)For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



3.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 3 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

3.2.6 TEST RESULTS (9KHZ – 30 MHZ)

EUT：	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.85V
Test Mode ：	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

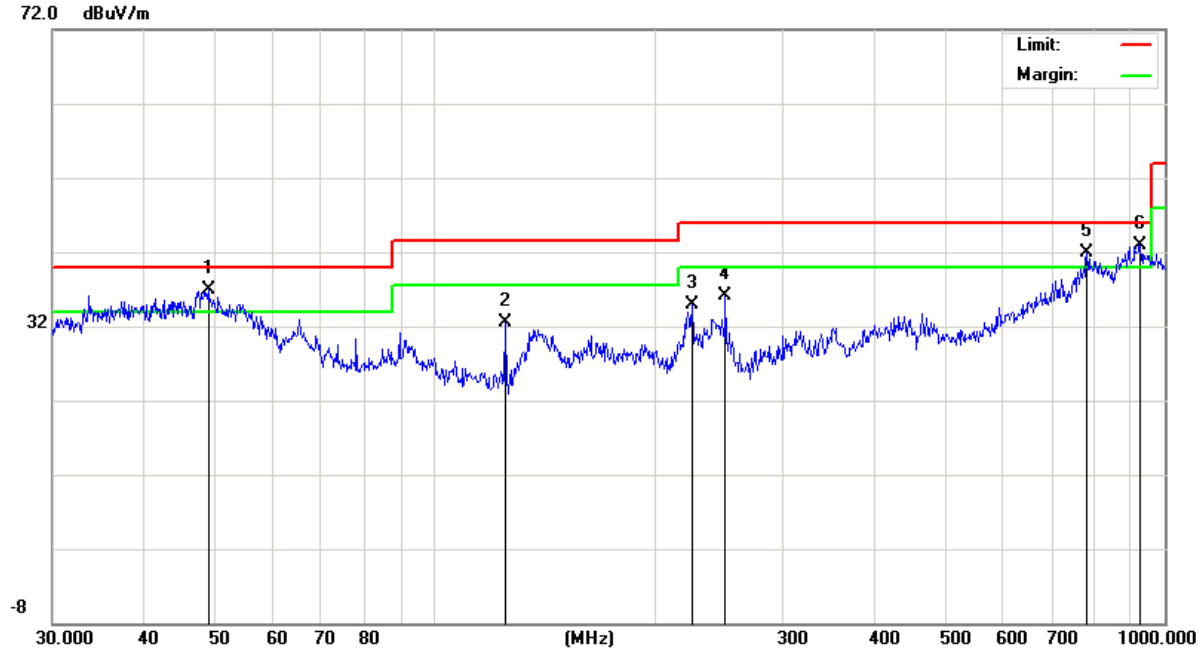
3.2.7 TEST RESULTS (30MHZ – 1GHZ)

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2 (5.2G 802.11ac160)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	49.0145	21.73	15.27	37.00	40.00	-3.00	QP
V	125.0066	13.68	18.74	32.42	43.50	-11.08	QP
V	225.3079	17.67	17.26	34.93	46.00	-11.07	QP
V	250.3011	17.09	18.94	36.03	46.00	-9.97	QP
V	782.3453	12.57	29.28	41.85	46.00	-4.15	QP
V	925.7563	12.41	30.51	42.92	46.00	-3.08	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

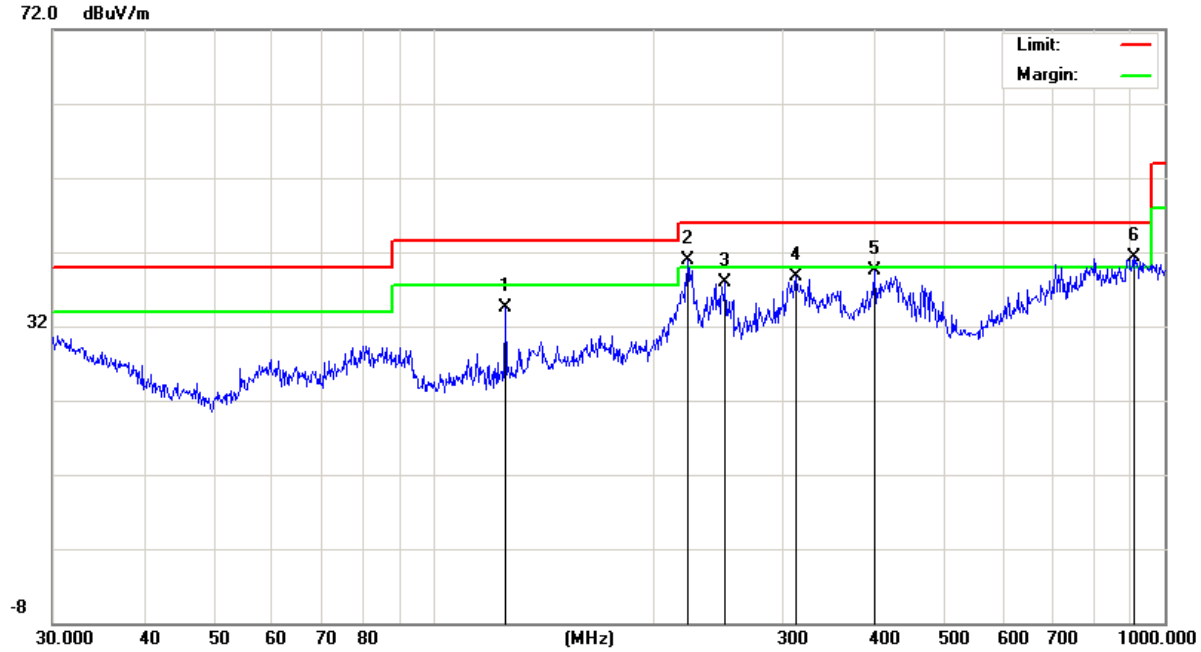


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	125.0066	15.75	18.74	34.49	43.50	-9.01	QP
H	222.1698	23.76	17.20	40.96	46.00	-5.04	QP
H	250.3011	18.89	18.94	37.83	46.00	-8.17	QP
H	312.1792	18.36	20.29	38.65	46.00	-7.35	QP
H	400.4319	16.11	23.30	39.41	46.00	-6.59	QP
H	906.4823	11.04	30.36	41.40	46.00	-4.60	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



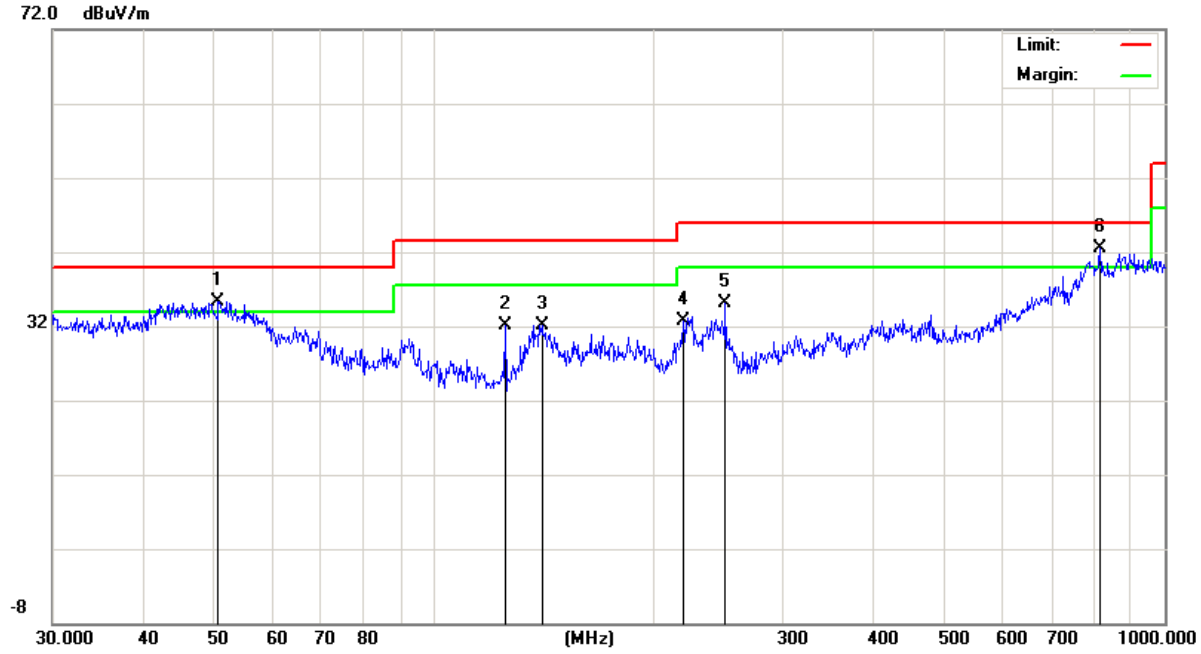
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2 (5.3G 802.11ac40 High CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	50.5859	20.47	14.93	35.40	40.00	-4.60	QP
V	125.0066	13.42	18.74	32.16	43.50	-11.34	QP
V	140.3421	13.35	18.81	32.16	43.50	-11.34	QP
V	219.0753	15.63	17.11	32.74	46.00	-13.26	QP
V	250.3012	16.24	18.94	35.18	46.00	-10.82	QP
V	815.9678	12.86	29.61	42.47	46.00	-3.53	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

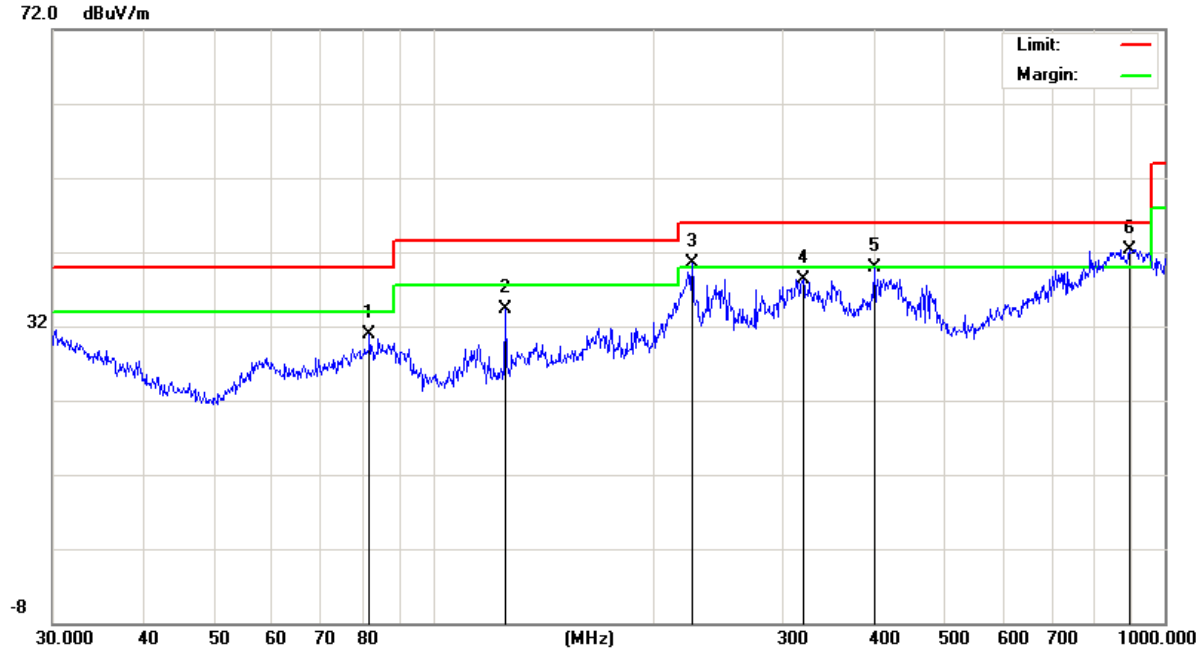


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	81.4970	15.21	15.61	30.82	40.00	-9.18	QP
H	125.0066	15.56	18.74	34.30	43.50	-9.20	QP
H	225.3080	23.18	17.26	40.44	46.00	-5.56	QP
H	319.9370	17.98	20.35	38.33	46.00	-7.67	QP
H	400.4319	16.56	23.30	39.86	46.00	-6.14	QP
H	893.8567	11.99	30.41	42.40	46.00	-3.60	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



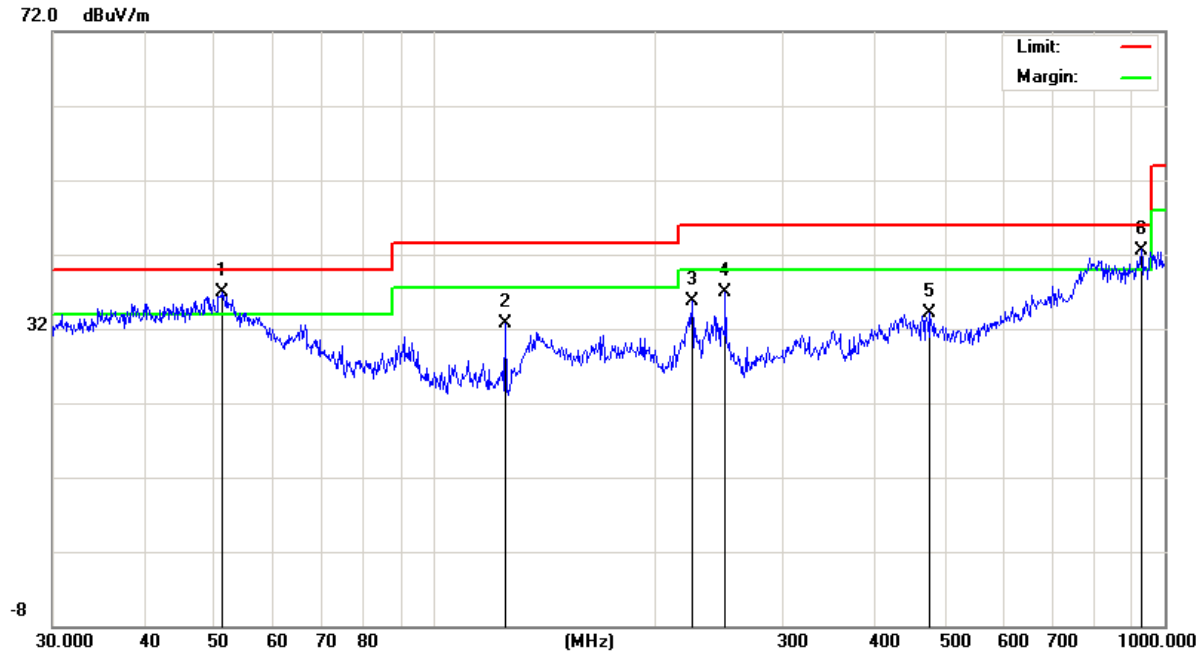
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2 (5.6G 802.11ax160)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	51.1209	22.43	14.56	36.99	40.00	-3.01	QP
V	125.0066	14.02	18.74	32.76	43.50	-10.74	QP
V	225.3080	18.40	17.26	35.66	46.00	-10.34	QP
V	250.3012	17.95	18.94	36.89	46.00	-9.11	QP
V	477.1693	9.70	24.44	34.14	46.00	-11.86	QP
V	929.0081	11.83	30.77	42.60	46.00	-3.40	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

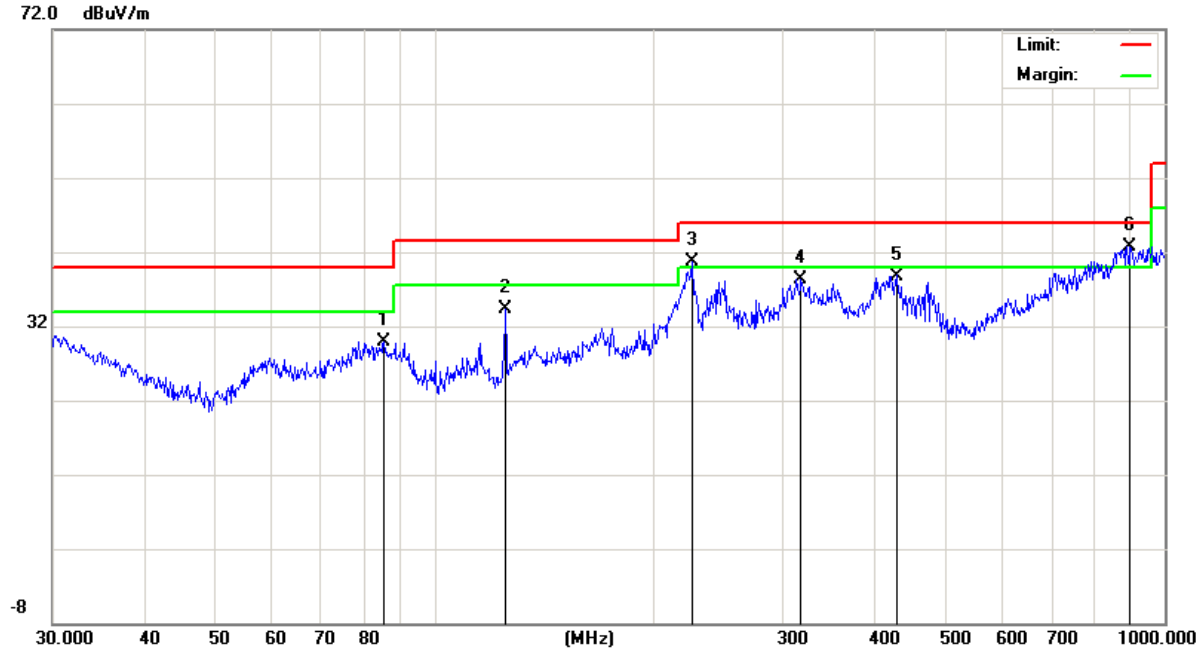


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	85.2980	13.64	16.28	29.92	40.00	-10.08	QP
H	125.0066	15.59	18.74	34.33	43.50	-9.17	QP
H	225.3080	23.46	17.26	40.72	46.00	-5.28	QP
H	317.7010	17.89	20.48	38.37	46.00	-7.63	QP
H	429.5228	14.77	24.03	38.80	46.00	-7.20	QP
H	896.9964	12.46	30.34	42.80	46.00	-3.20	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



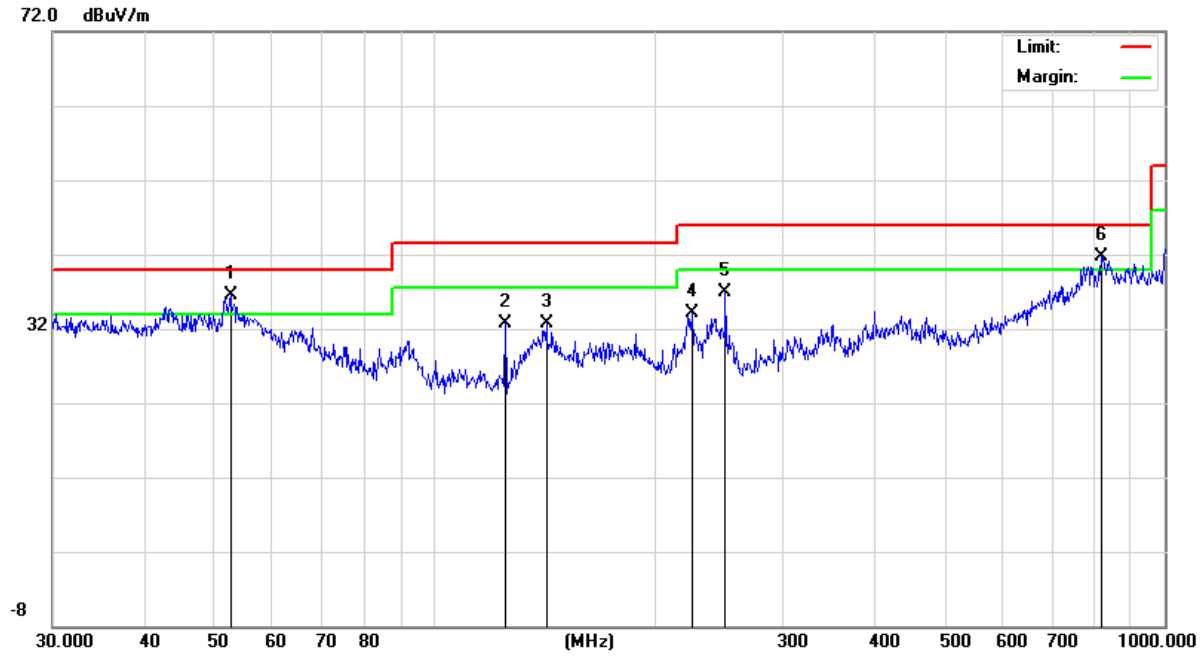
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2 (5.8G 802.11ax20 Mid CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	52.5753	23.02	13.40	36.42	40.00	-3.58	QP
V	125.0066	13.90	18.74	32.64	43.50	-10.86	QP
V	142.3243	14.39	18.28	32.67	43.50	-10.83	QP
V	225.3079	16.82	17.26	34.08	46.00	-11.92	QP
V	250.3012	17.98	18.94	36.92	46.00	-9.08	QP
V	818.8341	12.15	29.55	41.70	46.00	-4.30	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

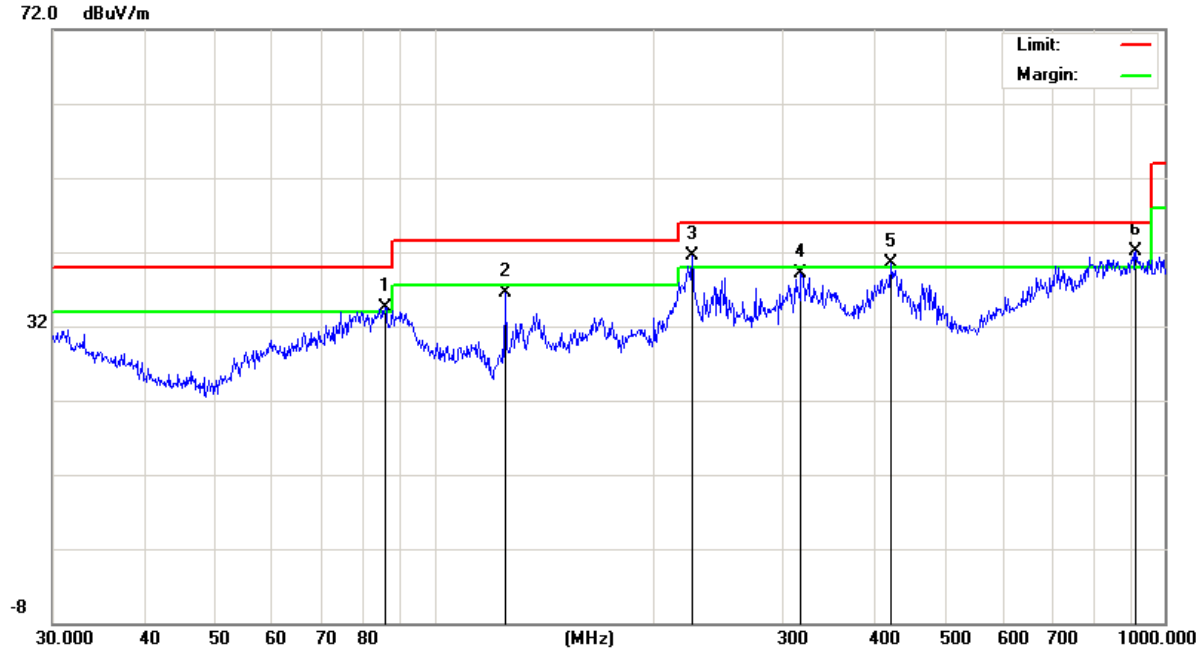


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	85.5977	18.44	16.13	34.57	40.00	-5.43	QP
H	125.0066	17.75	18.74	36.49	43.50	-7.01	QP
H	225.3080	24.33	17.26	41.59	46.00	-4.41	QP
H	317.7010	18.63	20.48	39.11	46.00	-6.89	QP
H	422.0577	16.62	23.84	40.46	46.00	-5.54	QP
H	912.8619	11.50	30.60	42.10	46.00	-3.90	QP

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



Note: The test report records only the worst-case test values.

3.2.8 TEST RESULTS (1GHZ-18GHZ)

EUT：	Hybrid Vr Portable Computer	Model Name. ：	Portal QLED
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.85V
Test Mode ：	Mode 2/3/4/5		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5180 MHz)-Above 1G									
Vertical	3015	53.98	5.94	35.4	44	51.32	68.2	-16.88	Pk
Vertical	10360	52.36	8.46	39.75	44.5	56.07	68.2	-12.13	Pk
Vertical	15540	55.71	10.12	38.8	44.1	60.53	74	-13.47	Pk
Vertical	15540	36.04	10.12	38.8	42.7	42.26	54	-11.74	AV
Horizontal	2981	56.41	5.94	35.18	44	53.53	68.2	-14.67	Pk
Horizontal	10360	50.57	8.46	38.71	44.5	53.24	68.2	-14.96	Pk
Horizontal	15540	56.60	10.12	38.38	44.1	61.00	74	-13.00	Pk
Horizontal	15540	37.40	10.12	38.38	44.1	41.80	54	-12.20	AV
middle Channel (5200 MHz)-Above 1G									
Vertical	3561	54.02	6.48	36.35	44.05	52.80	68.2	-15.40	Pk
Vertical	10400	57.08	8.47	37.88	44.51	58.92	68.2	-9.28	Pk
Vertical	15600	55.79	10.12	38.8	44.1	60.61	74	-13.39	Pk
Vertical	15600	37.43	10.12	38.8	42.7	43.65	54	-10.35	AV
Horizontal	3363	56.82	6.48	36.37	44.05	55.62	68.2	-12.58	Pk
Horizontal	10400	50.97	8.47	38.64	44.5	53.58	68.2	-14.62	Pk
Horizontal	15600	56.81	10.12	38.38	44.1	61.21	74	-12.79	Pk
Horizontal	15600	39.03	10.12	38.38	44.1	43.43	54	-10.57	AV

High Channel (5240 MHz)-Above 1G									
Vertical	3926	58.97	7.1	37.24	43.5	59.81	74	-14.19	Pk
Vertical	3926	40.25	7.1	37.24	43.5	41.09	54	-12.91	AV
Vertical	10480	54.87	8.46	37.68	44.5	56.51	68.2	-11.69	Pk
Vertical	15720	57.09	10.12	38.8	44.1	61.91	74	-12.09	Pk
Vertical	15720	35.08	10.12	38.8	42.7	41.30	54	-12.70	AV
Horizontal	3885	63.60	7.1	37.24	43.5	64.44	74	-9.56	Pk
Horizontal	3885	39.06	7.1	37.24	43.5	39.90	54	-14.10	AV
Horizontal	10480	51.96	8.46	38.57	44.5	54.49	68.2	-13.71	Pk
Horizontal	15720	57.91	10.12	38.38	44.1	62.31	74	-11.69	Pk
Horizontal	15720	37.35	10.12	38.38	44.1	41.75	54	-12.25	AV

Note:"802.11ax20 MIMO" mode is the worst mode.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

All modes have been tested, just the 802.11ax20 MIMO worst mode has been recorded in the report.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5260 MHz)-Above 1G									
Vertical	3015	55.37	5.94	35.4	44	52.71	68.2	-15.49	Pk
Vertical	10520	56.90	8.46	39.75	44.5	60.61	68.2	-7.59	Pk
Vertical	15780	56.92	10.12	38.8	44.1	61.74	74	-12.26	Pk
Vertical	15780	35.59	10.12	38.8	42.7	41.81	54	-12.19	AV
Horizontal	2981	55.46	5.94	35.18	44	52.58	68.2	-15.62	Pk
Horizontal	10520	51.30	8.46	38.71	44.5	53.97	68.2	-14.23	Pk
Horizontal	15780	54.65	10.12	38.38	44.1	59.05	74	-14.95	Pk
Horizontal	15780	39.84	10.12	38.38	44.1	44.24	54	-9.76	AV
middle Channel (5280 MHz)-Above 1G									
Vertical	3561	56.33	6.48	36.35	44.05	55.11	68.2	-13.09	Pk
Vertical	10560	56.89	8.47	37.88	44.51	58.73	68.2	-9.47	Pk
Vertical	15840	54.12	10.12	38.8	44.1	58.94	74	-15.06	Pk
Vertical	15840	38.62	10.12	38.8	42.7	44.84	54	-9.16	AV
Horizontal	3363	55.36	6.48	36.37	44.05	54.16	68.2	-14.04	Pk
Horizontal	10560	48.77	8.47	38.64	44.5	51.38	68.2	-16.82	Pk
Horizontal	15840	59.21	10.12	38.38	44.1	63.61	74	-10.39	Pk
Horizontal	15840	41.71	10.12	38.38	44.1	46.11	54	-7.89	AV

High Channel (5320 MHz)-Above 1G									
Vertical	3926	59.61	7.1	37.24	43.5	60.45	74	-13.55	Pk
Vertical	3926	43.34	7.1	37.24	43.5	44.18	54	-9.82	AV
Vertical	10640	61.48	8.46	37.68	44.5	63.12	74	-10.88	Pk
Vertical	15960	57.87	10.12	38.8	44.1	62.69	74	-11.31	Pk
Vertical	15960	36.81	10.12	38.8	42.7	43.03	54	-10.97	AV
Horizontal	3885	60.08	7.1	37.24	43.5	60.92	74	-13.08	Pk
Horizontal	3885	42.43	7.1	37.24	43.5	43.27	54	-10.73	AV
Horizontal	10640	53.09	8.46	38.57	44.5	55.62	74	-18.38	Pk
Horizontal	15960	59.76	10.12	38.38	44.1	64.16	74	-9.84	Pk
Horizontal	15960	38.49	10.12	38.38	44.1	42.89	54	-11.11	AV

Note:"802.11ax20 MIMO" mode is the worst mode.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

All modes have been tested, just the 802.11ax20 MIMO worst mode has been recorded in the report.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5500 MHz)-Above 1G									
Vertical	3015	54.71	5.94	35.4	44	52.05	68.2	-16.15	Pk
Vertical	11000	58.09	8.46	39.75	44.5	61.80	74	-12.20	Pk
Vertical	11000	40.35	8.46	39.75	44.5	44.06	54	-9.94	AV
Vertical	16500	51.39	10.12	38.8	44.1	56.21	68.2	-11.99	Pk
Horizontal	2981	52.95	5.94	35.18	44	50.07	68.2	-18.13	Pk
Horizontal	11000	50.27	8.46	38.71	44.5	52.94	74	-21.06	Pk
Horizontal	11000	36.58	8.46	38.71	44.5	39.25	54	-14.75	AV
Horizontal	16500	46.37	10.12	38.38	44.1	50.77	68.2	-17.43	Pk
middle Channel (5600 MHz)-Above 1G									
Vertical	3561	54.43	6.48	36.35	44.05	53.21	68.2	-14.99	Pk
Vertical	11200	58.72	8.47	37.88	44.51	60.56	74	-13.44	Pk
Vertical	11200	38.66	8.47	37.88	44.51	40.50	54	-13.50	AV
Vertical	16800	47.61	10.12	38.8	44.1	52.43	68.2	-15.77	Pk
Horizontal	3363	55.84	6.48	36.37	44.05	54.64	68.2	-13.56	Pk
Horizontal	11200	58.69	8.47	38.64	44.5	61.30	74	-12.70	Pk
Horizontal	11200	42.60	8.47	38.64	44.5	45.21	54	-8.79	AV
Horizontal	16800	52.44	10.12	38.38	44.1	56.84	68.2	-11.36	Pk

High Channel (5700 MHz)-Above 1G									
Vertical	3926	60.70	7.1	37.24	43.5	61.54	74	-12.46	Pk
Vertical	3926	43.88	7.1	37.24	43.5	44.72	54	-9.28	AV
Vertical	11400	61.54	8.46	37.68	44.5	63.18	74	-10.82	Pk
Vertical	11400	36.00	8.46	37.68	44.5	37.64	54	-16.36	AV
Vertical	17100	53.23	10.12	38.8	44.1	58.05	68.2	-10.15	Pk
Horizontal	3885	60.25	7.1	37.24	43.5	61.09	74	-12.91	Pk
Horizontal	3885	38.43	7.1	37.24	43.5	39.27	54	-14.73	AV
Horizontal	11400	50.75	8.46	38.57	44.5	53.28	74	-20.72	Pk
Horizontal	11400	37.61	8.46	38.57	44.5	40.14	54	-13.86	AV
Horizontal	17100	52.67	10.12	38.38	44.1	57.07	68.2	-11.13	Pk

Note:"802.11n20 MIMO" mode is the worst mode.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

All modes have been tested, just the 802.11n20 MIMO worst mode has been recorded in the report.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G									
Vertical	2806	64.17	5.94	35.40	44.00	61.51	74.00	-12.49	Pk
Vertical	2806	41.06	5.94	35.40	44.00	38.40	54.00	-15.60	AV
Vertical	11490	58.67	8.46	39.75	44.50	62.38	74.00	-11.62	Pk
Vertical	11490	42.60	8.46	39.75	44.50	46.31	54.00	-7.69	AV
Vertical	17235	51.76	10.12	38.80	44.10	56.58	68.20	-11.62	Pk
Horizontal	2911	55.15	5.94	35.18	44.00	52.27	68.20	-15.93	Pk
Horizontal	11490	60.37	8.46	38.71	44.50	63.04	74.00	-10.96	Pk
Horizontal	11490	35.67	8.46	38.71	44.50	38.34	54.00	-15.66	AV
Horizontal	17235	53.15	10.12	38.38	44.10	57.55	68.20	-10.65	Pk
middle Channel (5785 MHz)-Above 1G									
Vertical	3763	60.22	6.48	36.35	44.05	59.00	74.00	-15.00	Pk
Vertical	3763	39.40	6.48	36.35	44.05	38.18	54.00	-15.82	AV
Vertical	11570	60.34	8.47	37.88	44.51	62.18	74.00	-11.82	Pk
Vertical	11570	41.52	8.47	37.88	44.51	43.36	54.00	-10.64	AV
Vertical	17355	54.79	10.12	38.8	44.10	59.61	68.20	-8.59	Pk
Horizontal	3561	54.59	6.48	36.37	44.05	53.39	68.20	-14.81	Pk
Horizontal	11570	57.29	8.47	38.64	44.50	59.90	74.00	-14.10	Pk
Horizontal	11570	41.87	8.47	38.64	44.50	44.48	54.00	-9.52	AV
Horizontal	17355	54.33	10.12	38.38	44.10	58.73	68.20	-9.47	Pk

High Channel (5825 MHz)-Above 1G									
Vertical	3907	56.83	7.10	37.24	43.50	57.67	74.00	-16.33	Pk
Vertical	3907	39.12	7.10	37.24	43.50	39.96	54.00	-14.04	AV
Vertical	11650	57.43	8.46	37.68	44.50	59.07	74.00	-14.93	Pk
Vertical	11650	39.44	8.46	37.68	44.50	41.08	54.00	-12.92	AV
Vertical	17475	49.88	10.12	38.8	44.10	54.70	68.20	-13.50	Pk
Horizontal	3912	60.09	7.10	37.24	43.50	60.93	74.00	-13.07	Pk
Horizontal	3912	39.89	7.10	37.24	43.50	40.73	54.00	-13.27	AV
Horizontal	11650	60.69	8.46	38.57	44.50	63.22	74.00	-10.78	Pk
Horizontal	11650	38.63	8.46	38.57	44.50	41.16	54.00	-12.84	AV
Horizontal	17475	51.39	10.12	38.38	44.10	55.79	68.20	-12.41	Pk

Note:"802.11ax20 MIMO" mode is the worst mode.

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

All modes have been tested, just the 802.11ax20 MIMO worst mode has been recorded in the report.

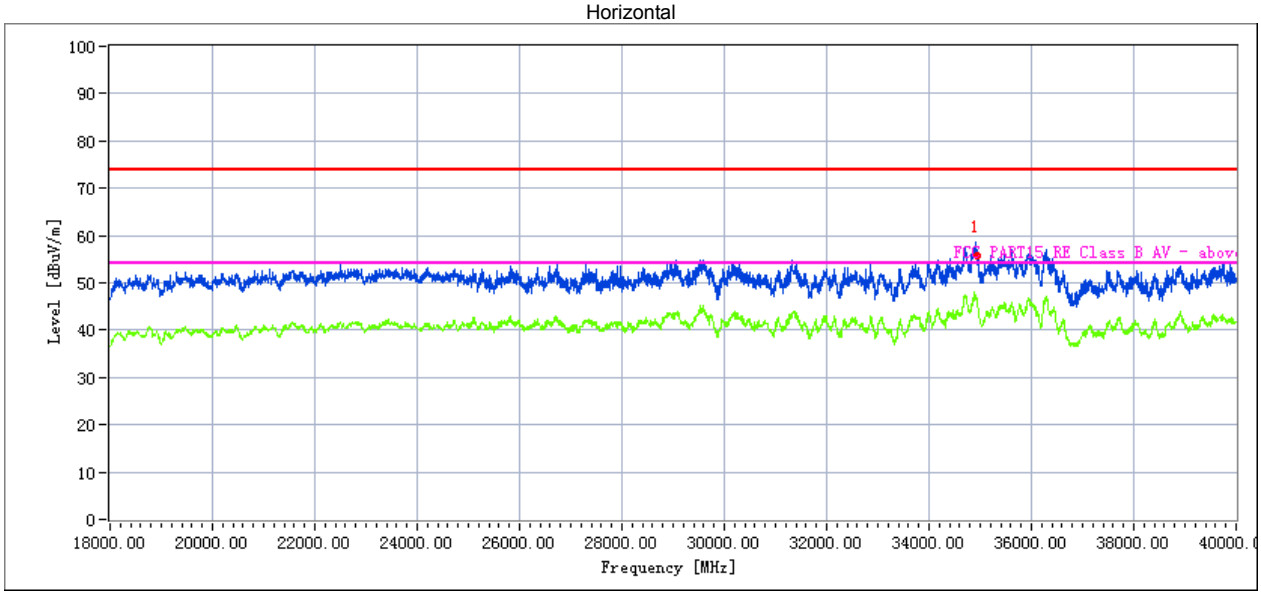
3.2.9 TEST RESULTS (18GHZ-40GHZ)

EUT：	Hybrid Vr Portable Computer	Model Name. ：	Portal QLED
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.85V
Test Mode ：	Mode 2/3/4/5		

All modes have been tested, just the 802.11ax20 MIMO worst mode has been recorded in the report.

Low Channel (5180 MHz)-Above 1G

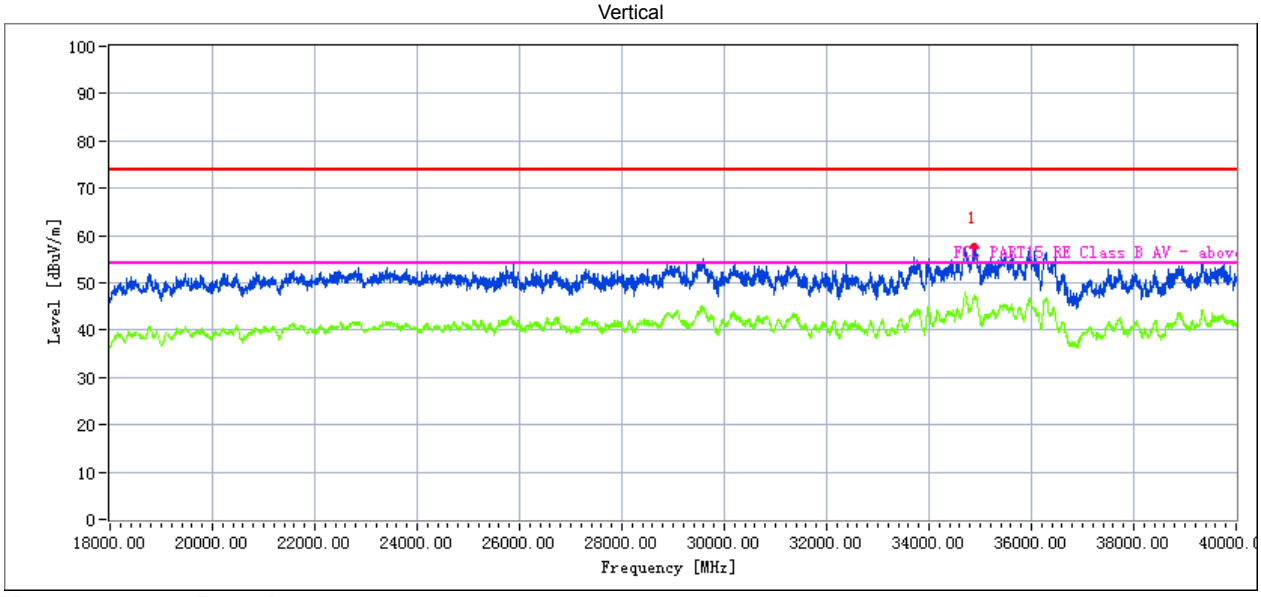
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34933.428	37.56	20.09	44.07	43.48	58.24	68.20	9.96	Peak

Vertical

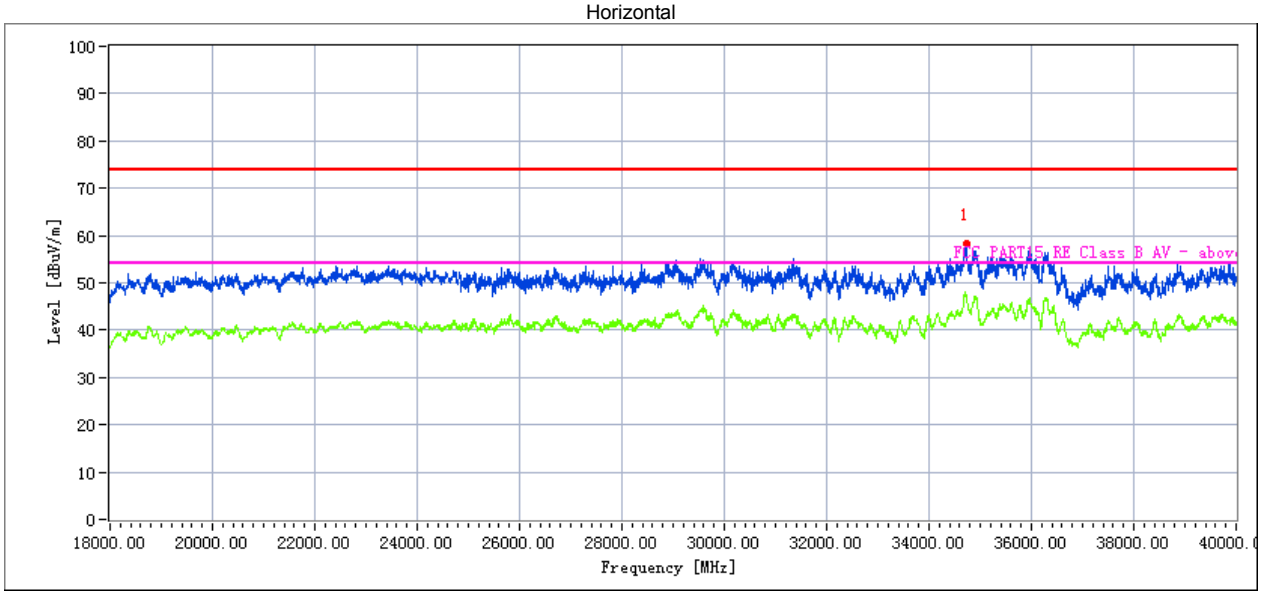


Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34898.006	41.25	19.11	42.73	44.61	58.48	68.20	9.72	Peak

High Channel (5240 MHz)-Above 1G

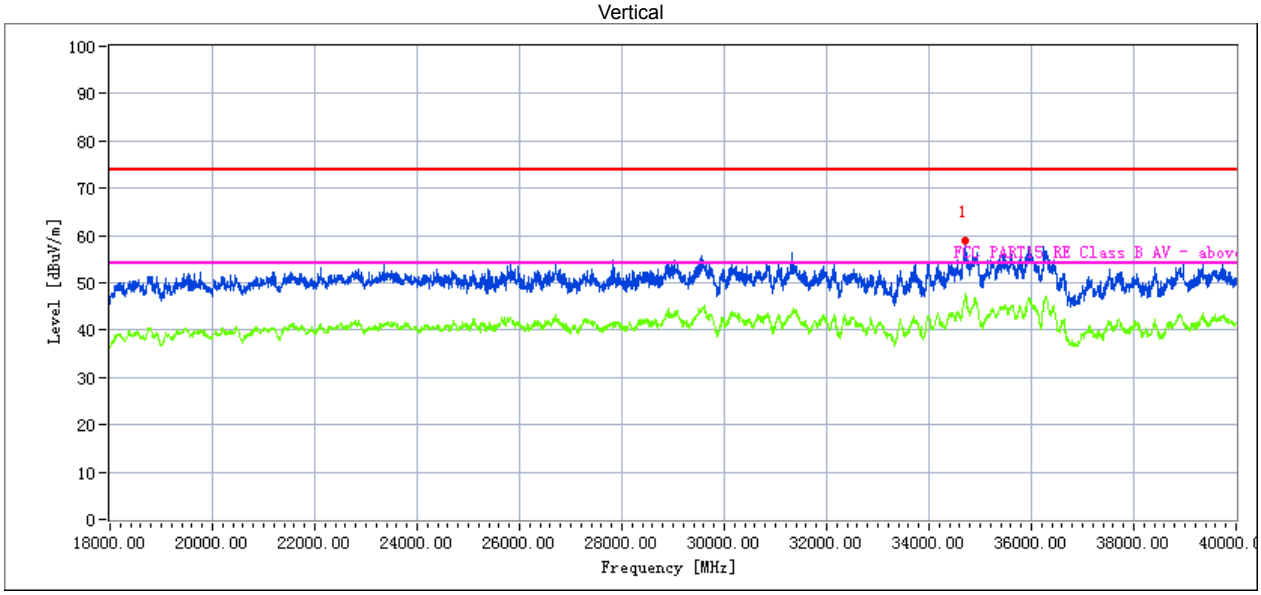
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34723.429	38.47	20.09	44.07	43.48	59.15	68.20	9.05	Peak

Vertical



Measurement Result:

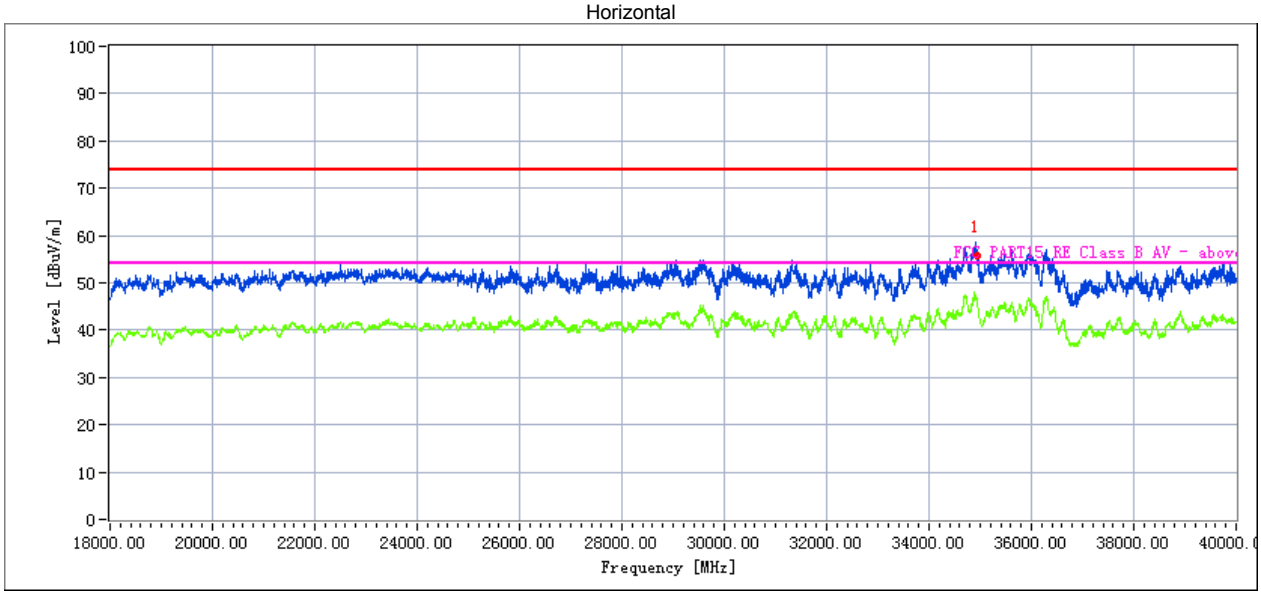
Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34707.021	39.08	20.09	44.07	43.48	59.76	68.20	8.44	Peak

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

All modes have been tested, just the 802.11ax20 MIMO worst mode has been recorded in the report.

Low Channel (5260 MHz)-Above 1G

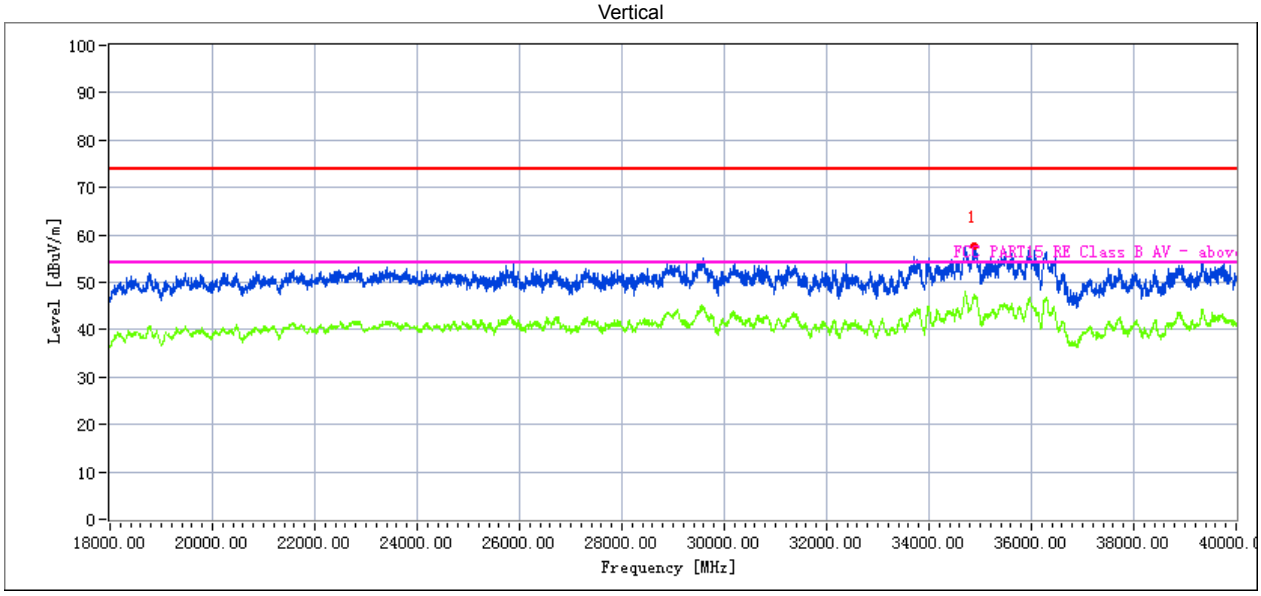
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34933.428	38.29	20.09	44.07	43.48	58.97	68.20	9.23	Peak

Vertical

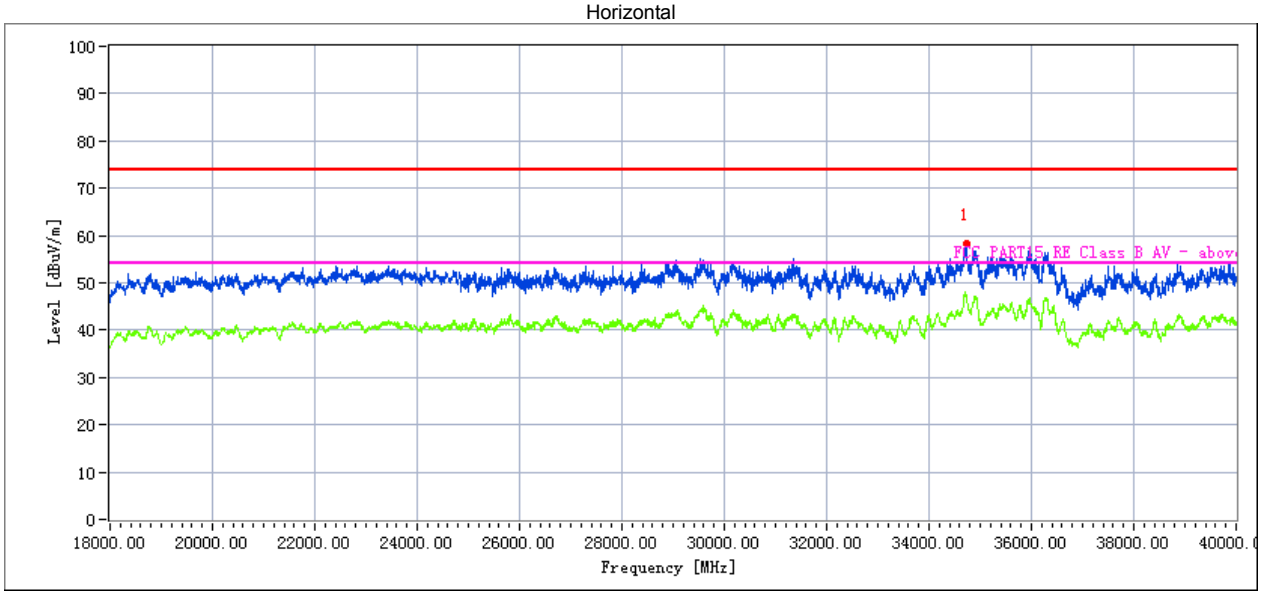


Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34898.052	41.39	19.11	42.73	44.61	58.62	68.20	9.58	Peak

High Channel (5320 MHz)-Above 1G

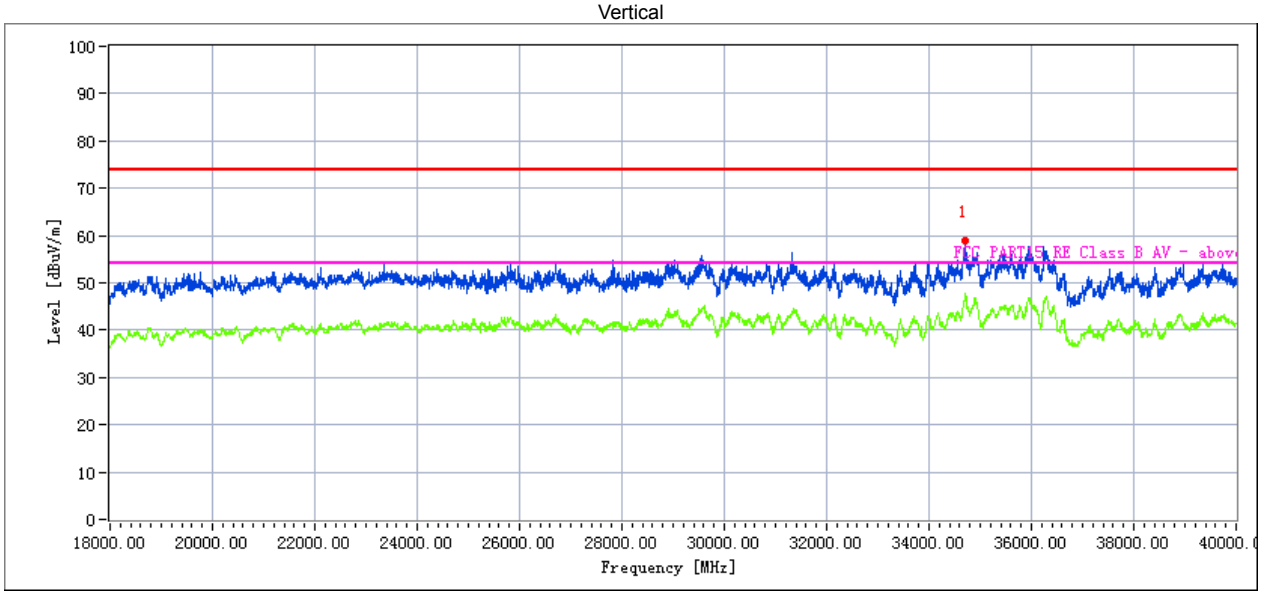
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34723.201	38.47	20.09	44.07	43.48	59.15	68.20	9.05	Peak

Vertical



Measurement Result:

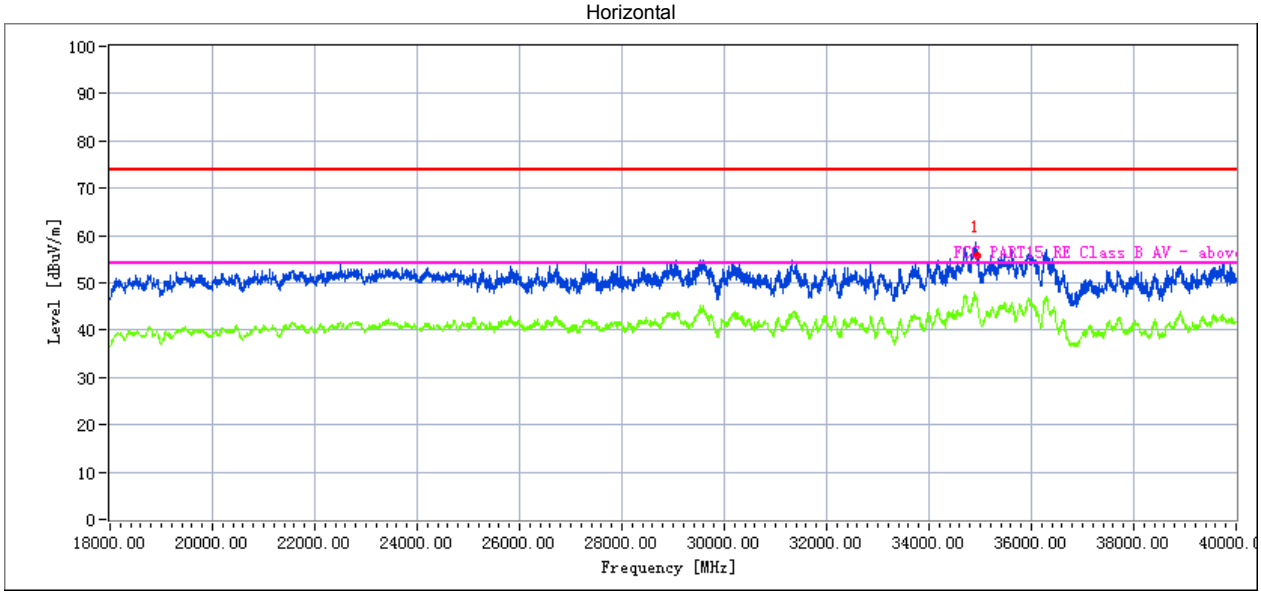
Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34707.104	38.45	20.09	44.07	43.48	59.13	68.20	9.07	Peak

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

All modes have been tested, just the 802.11n20 MIMO worst mode has been recorded in the report.

Low Channel (5500 MHz)-Above 1G

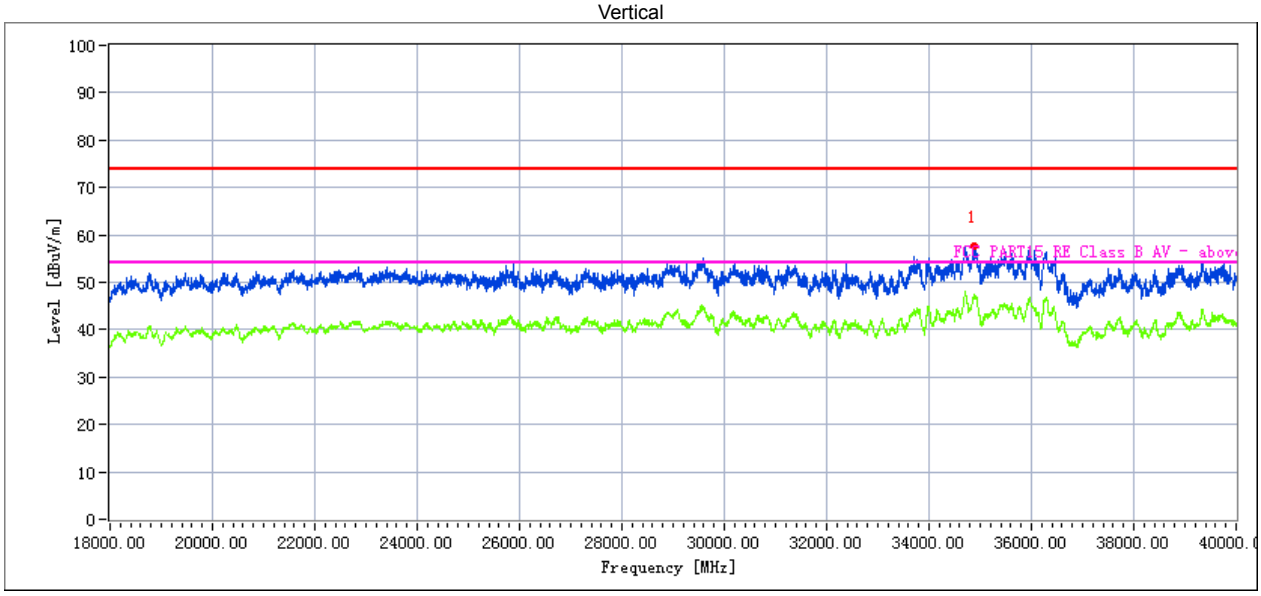
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34933.282	37.99	20.09	44.07	43.48	58.67	68.20	9.53	Peak

Vertical

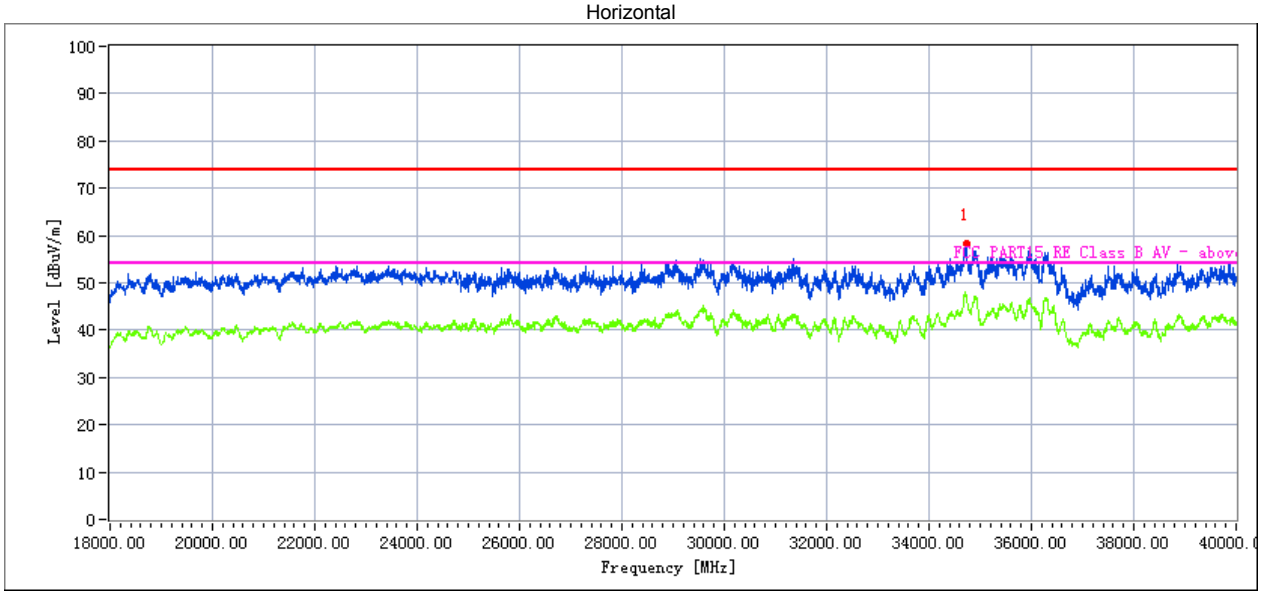


Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34898.003	40.80	19.11	42.73	44.61	58.03	68.20	10.17	Peak

High Channel (5700 MHz)-Above 1G

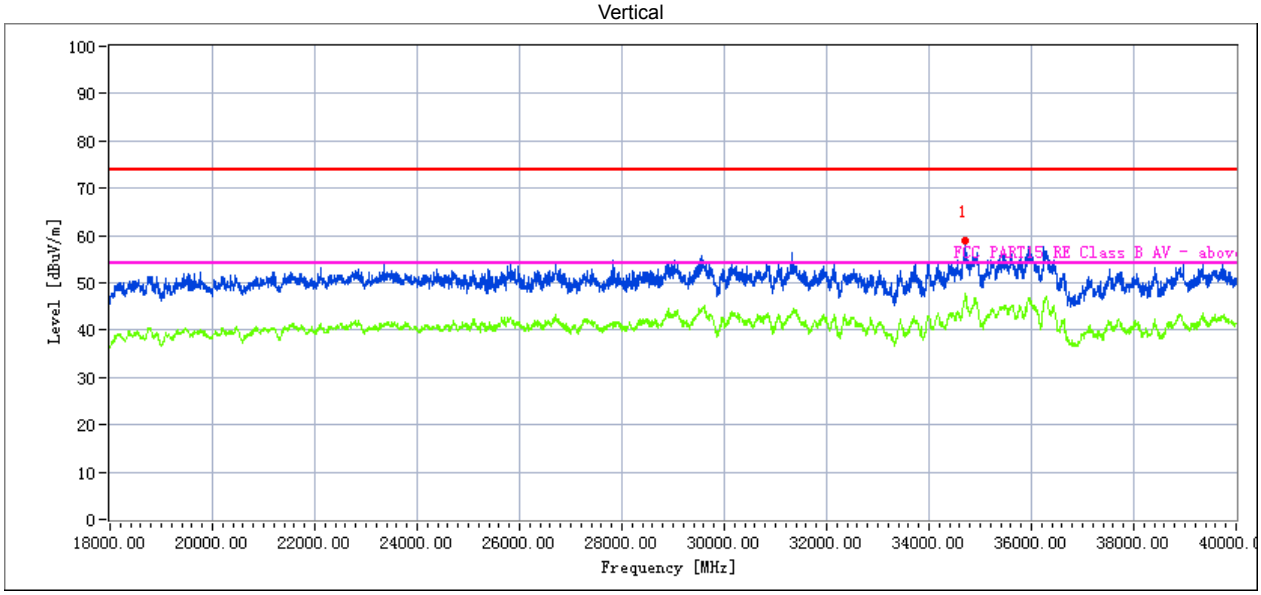
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34723.136	38.46	20.09	44.07	43.48	59.14	68.20	9.06	Peak

Vertical



Measurement Result:

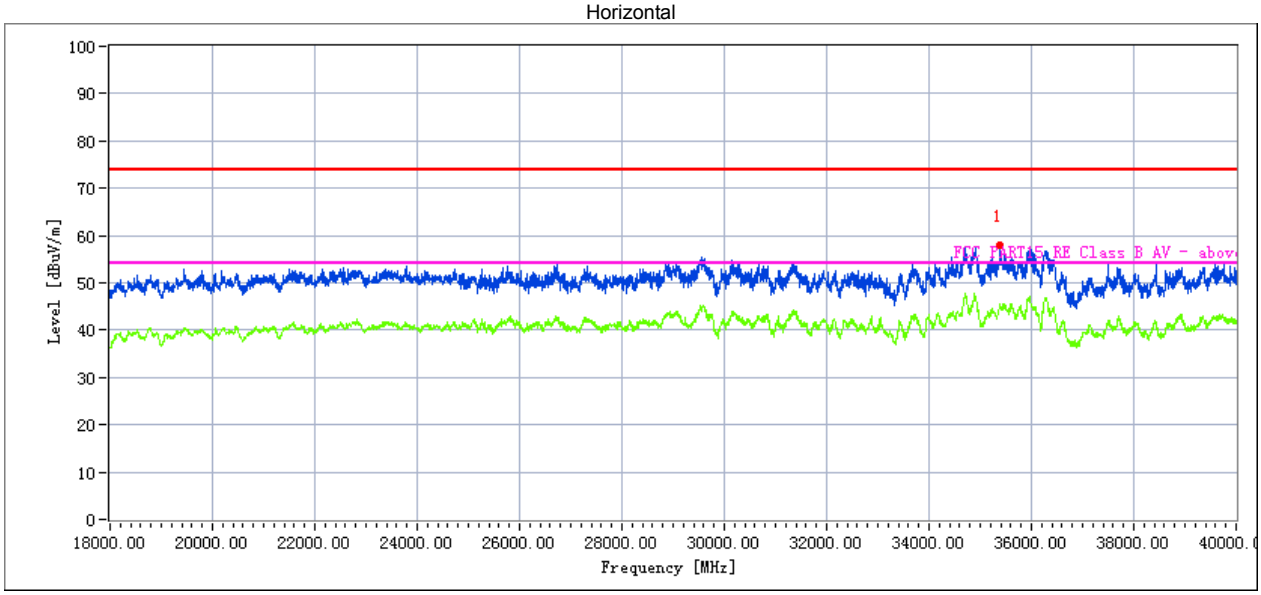
Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34707.106	38.68	20.09	44.07	43.48	59.36	68.20	8.84	Peak

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

All modes have been tested, just the 802.11ax20 MIMO worst mode has been recorded in the report.

Low Channel (5745 MHz)-Above 1G

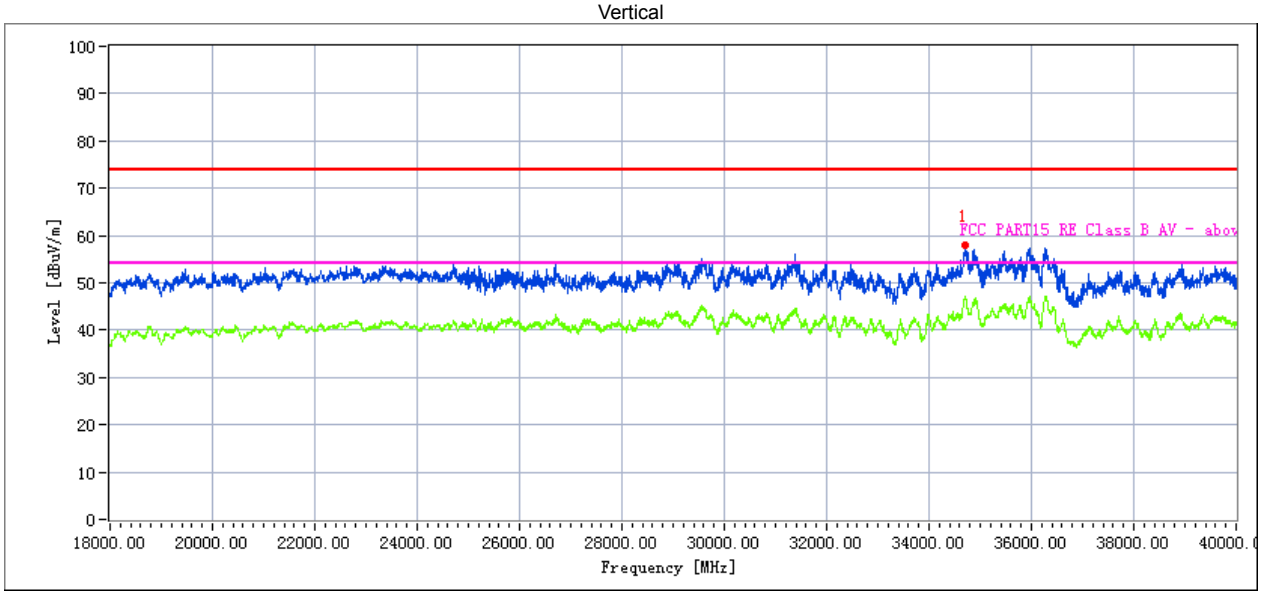
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
35382.289	39.03	20.09	44.16	43.48	59.80	68.20	8.40	Peak

Vertical

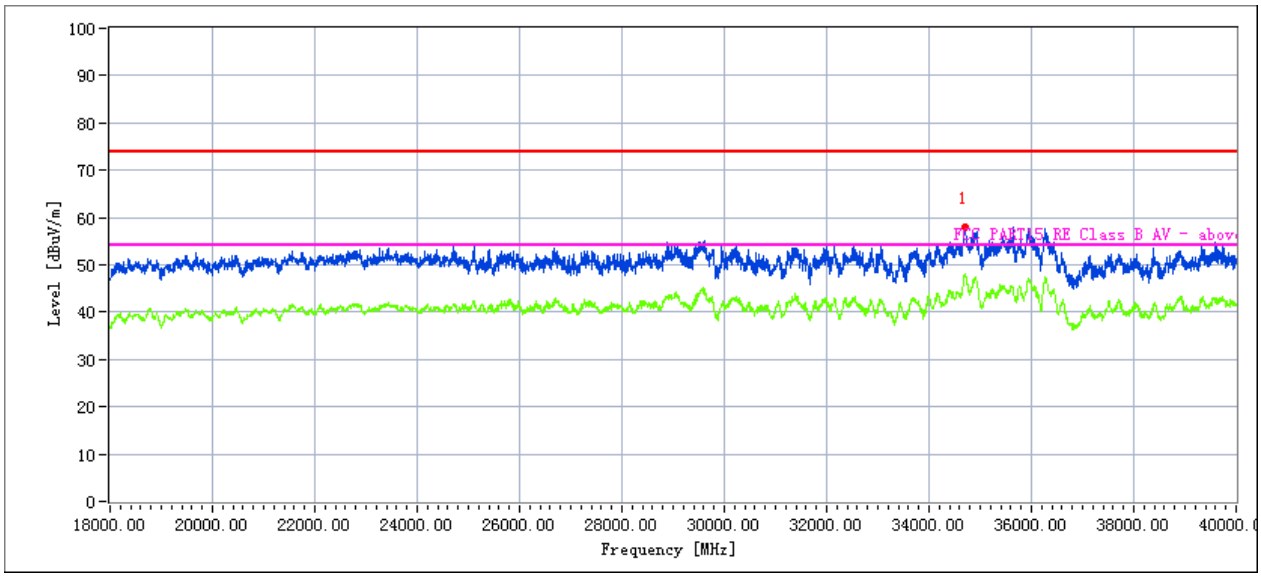


Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34716.662	41.38	19.11	42.63	43.48	59.64	68.20	8.56	Peak

High Channel (5825 MHz)-Above 1G

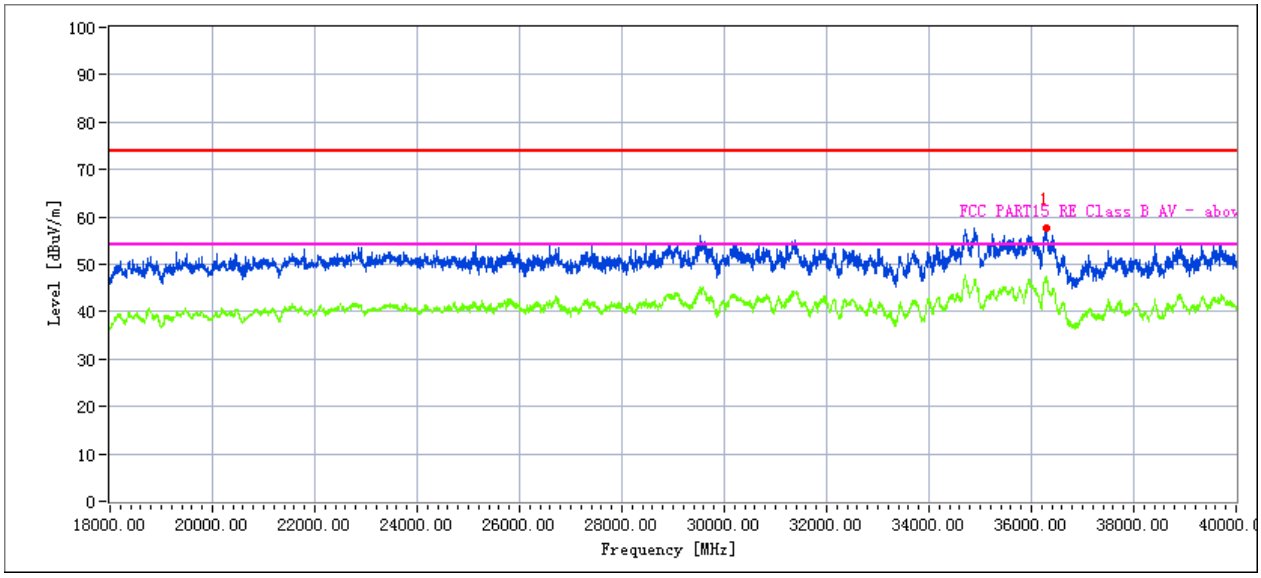
Horizontal



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
34702.231	38.38	20.06	44.07	43.21	59.30	68.20	8.90	Peak

Vertical



Measurement Result:

Frequency MHz	Meter Reading dBuV	Cable loss dB	Antenna Factor dB/m	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Detector Type
36277.387	38.81	20.10	44.10	43.22	59.79	68.20	8.41	Peak

3.2.10 SPURIOUS EMISSION IN RESTRICTED BAND 4.5GHZ~5.150 GHZ& 5.350GHZ~5460GHZ AND BANDEDGE

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5 (5.2G/5.3G/5.6G MIMO Mode)		

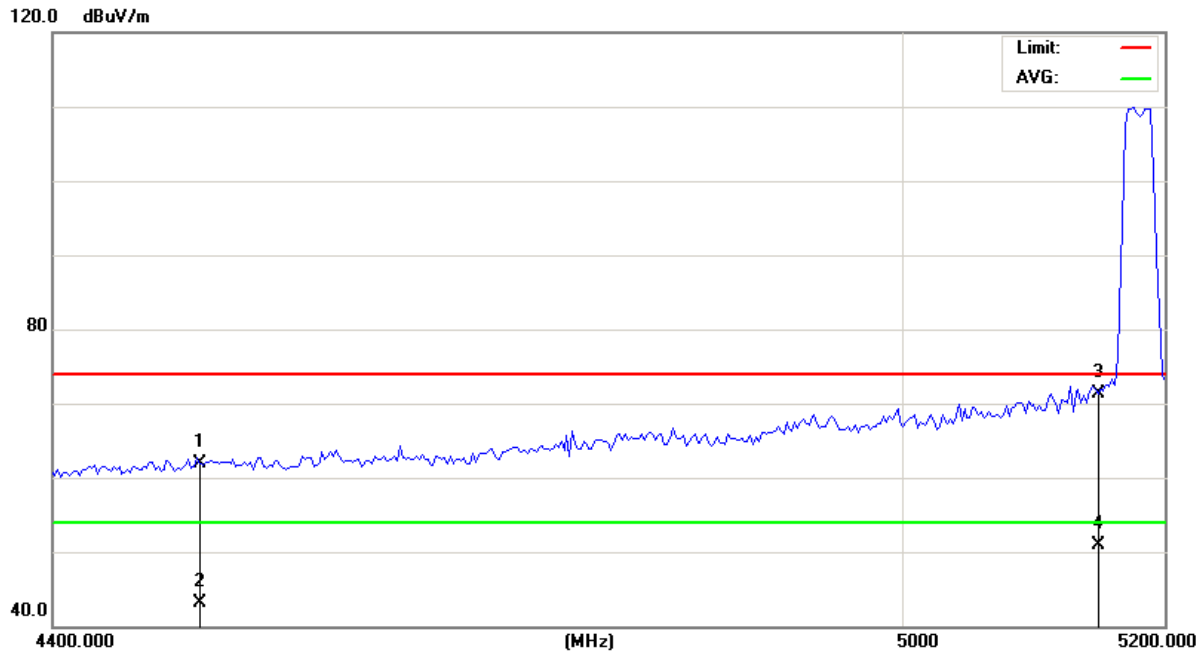
Note: The test report records only the worst-case test values.

802.11ax20 5180MHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	4500.000	43.87	18.11	61.98	74.00	-12.02	peak
V	4500.000	24.98	18.11	43.09	54.00	-10.91	AVG
V	5150.000	53.48	17.74	71.22	74.00	-2.78	peak
V	5150.000	33.13	17.74	50.87	54.00	-3.13	AVG

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

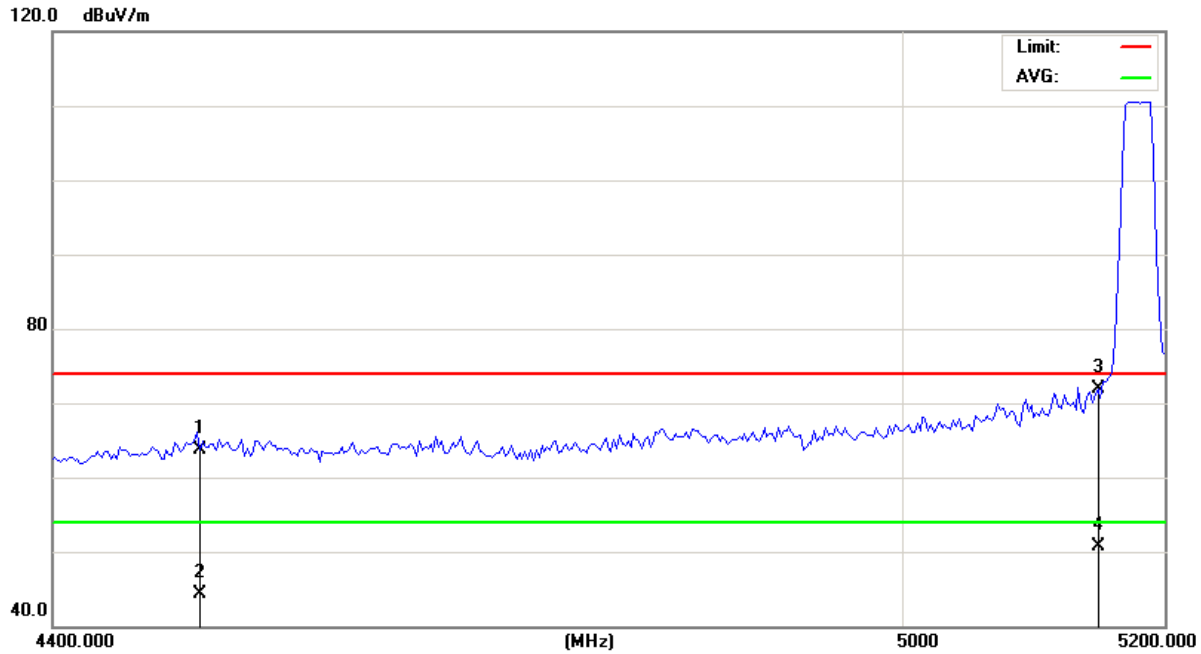


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	4500.000	45.57	18.11	63.68	74.00	-10.32	peak
H	4500.000	26.13	18.11	44.24	54.00	-9.76	AVG
H	5150.000	54.09	17.74	71.83	74.00	-2.17	peak
H	5150.000	32.88	17.74	50.62	54.00	-3.38	AVG

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



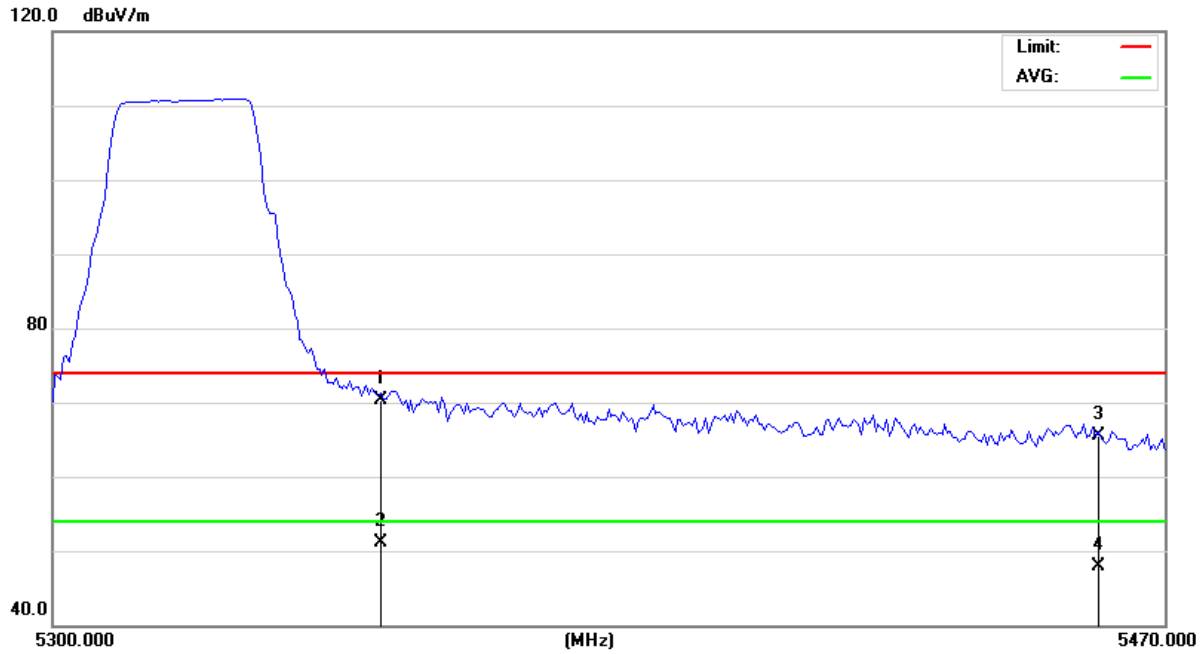
Note: The test report records only the worst-case test values.

802.11ax20 5320MHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	5350.000	51.20	19.11	70.31	74.00	-3.69	peak
V	5350.000	32.01	19.11	51.12	54.00	-2.88	AVG
V	5460.000	46.43	19.02	65.45	74.00	-8.55	peak
V	5460.000	28.81	19.02	47.83	54.00	-6.17	AVG

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

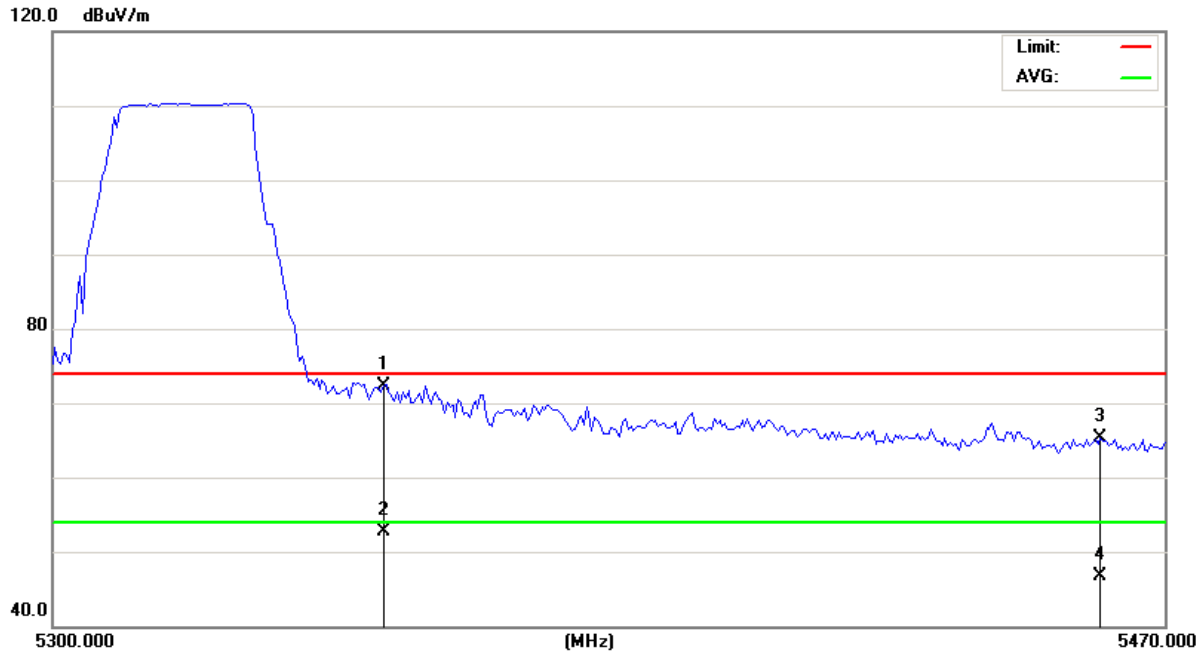


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	5350.000	53.12	19.11	72.23	74.00	-1.77	peak
H	5350.000	33.53	19.11	52.64	54.00	-1.36	AVG
H	5460.000	46.24	19.02	65.26	74.00	-8.74	peak
H	5460.000	27.73	19.02	46.75	54.00	-7.25	AVG

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



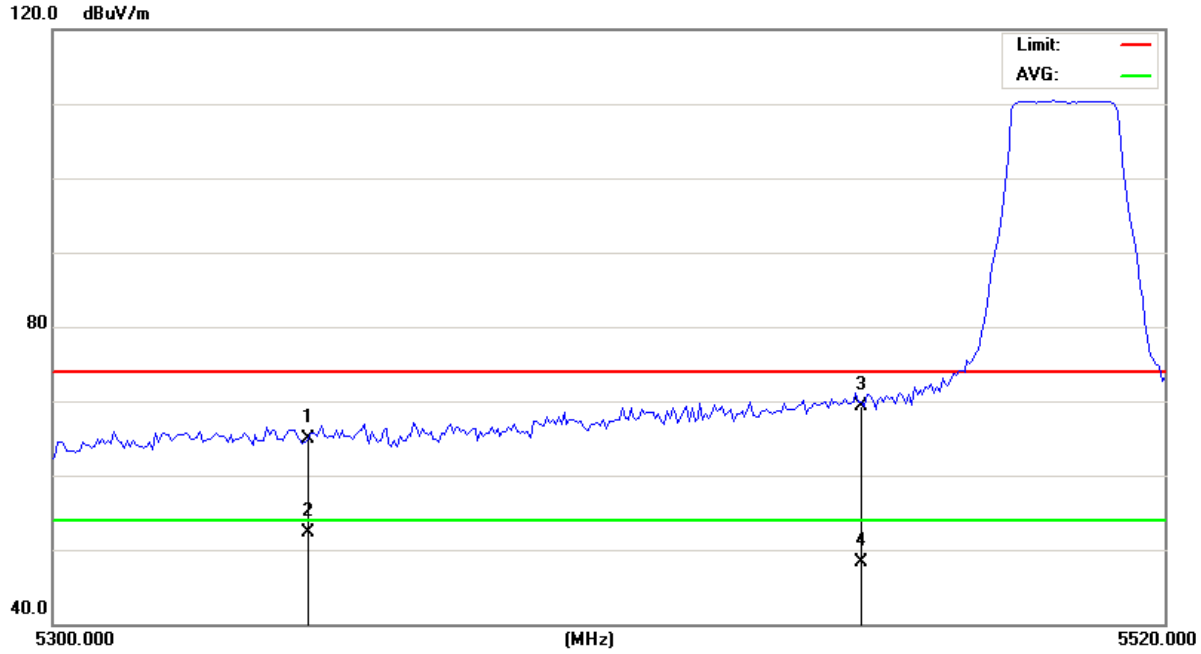
Note: The test report records only the worst-case test values.

802.11n20 5500MHz

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	5350.000	45.76	19.11	64.87	74.00	-9.13	peak
V	5350.000	33.18	19.11	52.29	54.00	-1.71	AVG
V	5460.000	50.26	19.02	69.28	74.00	-4.72	peak
V	5460.000	29.37	19.02	48.39	54.00	-5.61	AVG

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

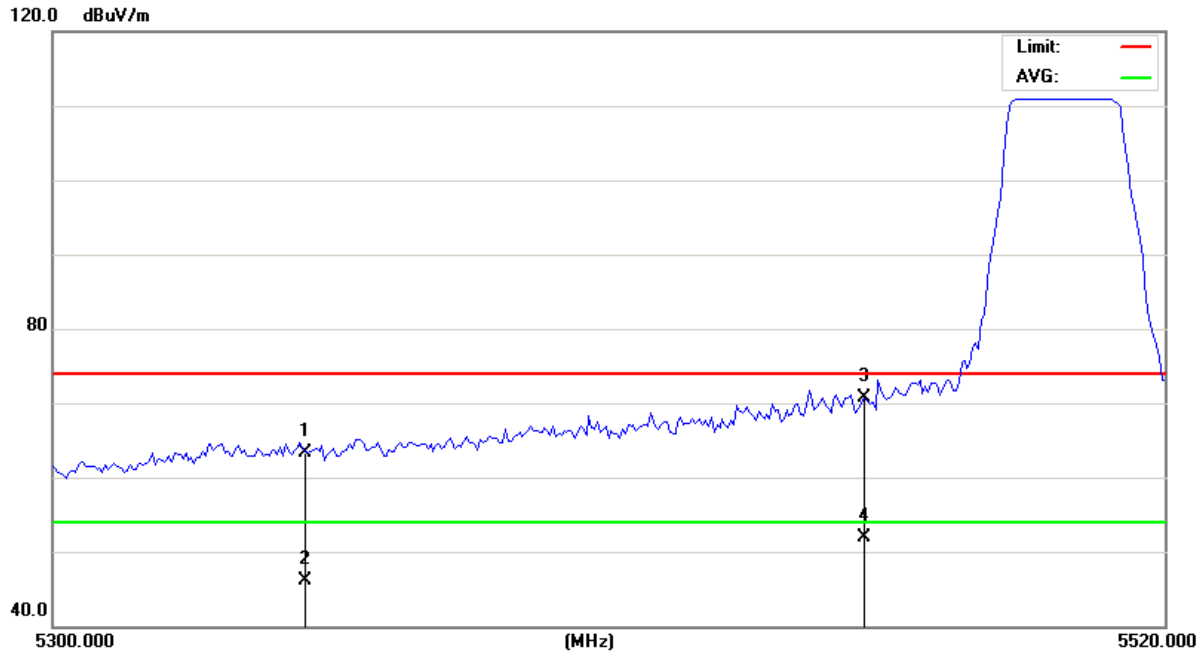


Note: The test report records only the worst-case test values.

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	5350.000	44.23	19.11	63.34	74.00	-10.66	peak
H	5350.000	26.93	19.11	46.04	54.00	-7.96	AVG
H	5460.000	51.62	19.02	70.64	74.00	-3.36	peak
H	5460.000	32.86	19.02	51.88	54.00	-2.12	AVG

Remark:

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit



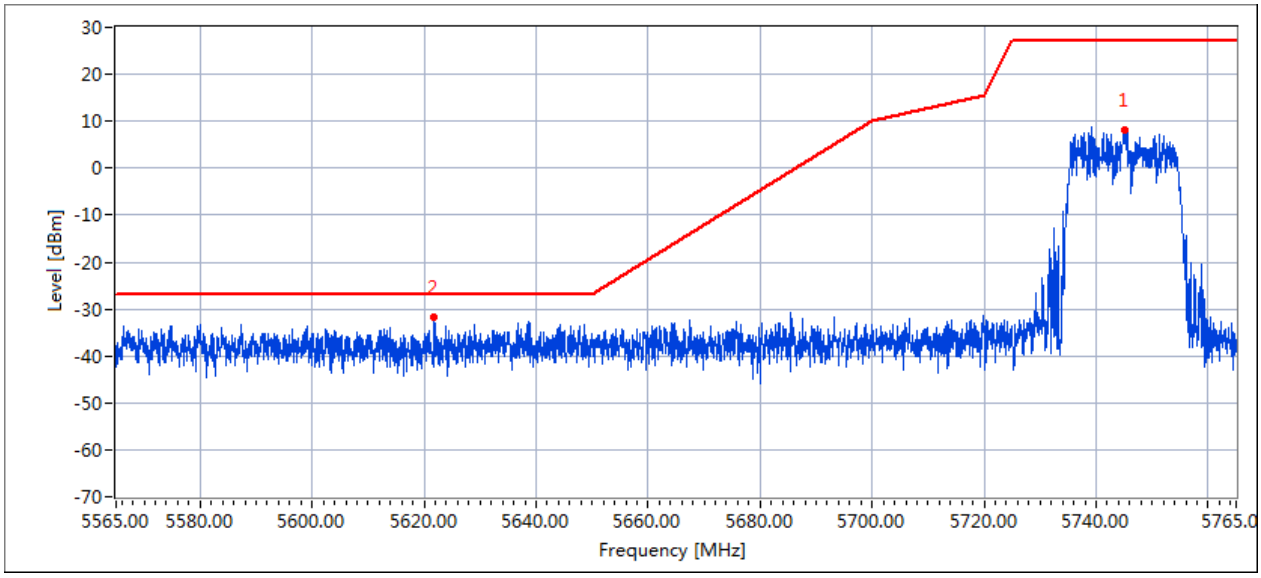
Note: The test report records only the worst-case test values.

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	20 ℃	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4 (5.8G MIMO Mode)		

Note: The test report records only the worst-case test values.

802.11ax20 5745MHz Horizontal

Measurement Plot:

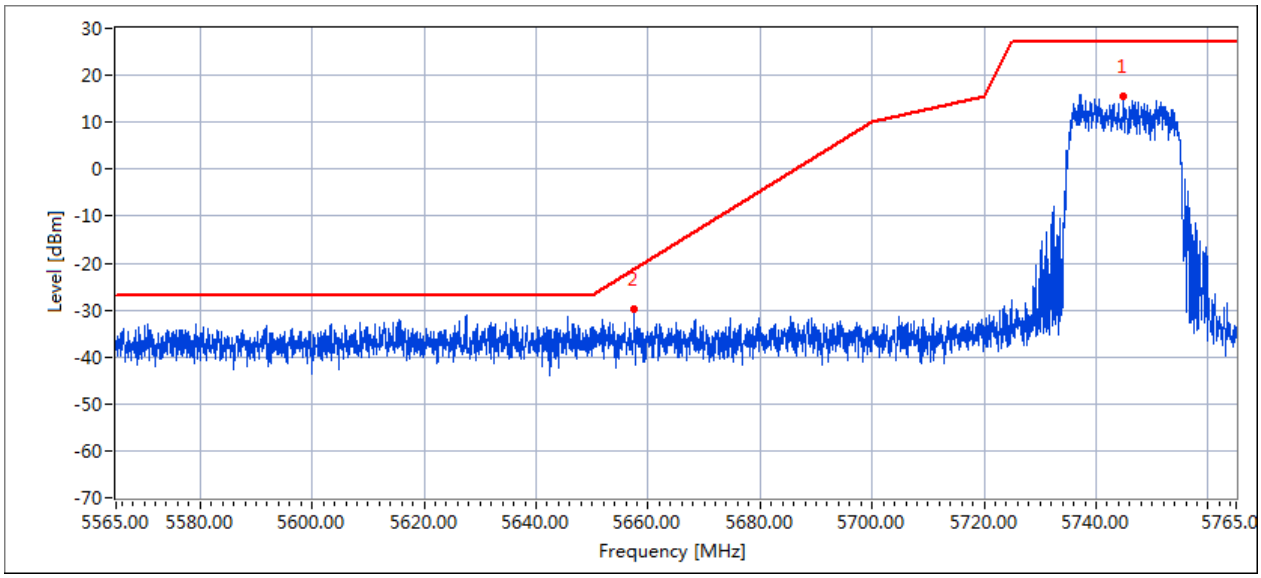


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5622.200	-31.7	-27.0	4.7

802.11ax20 5745MHz Vertical

Measurement Plot:

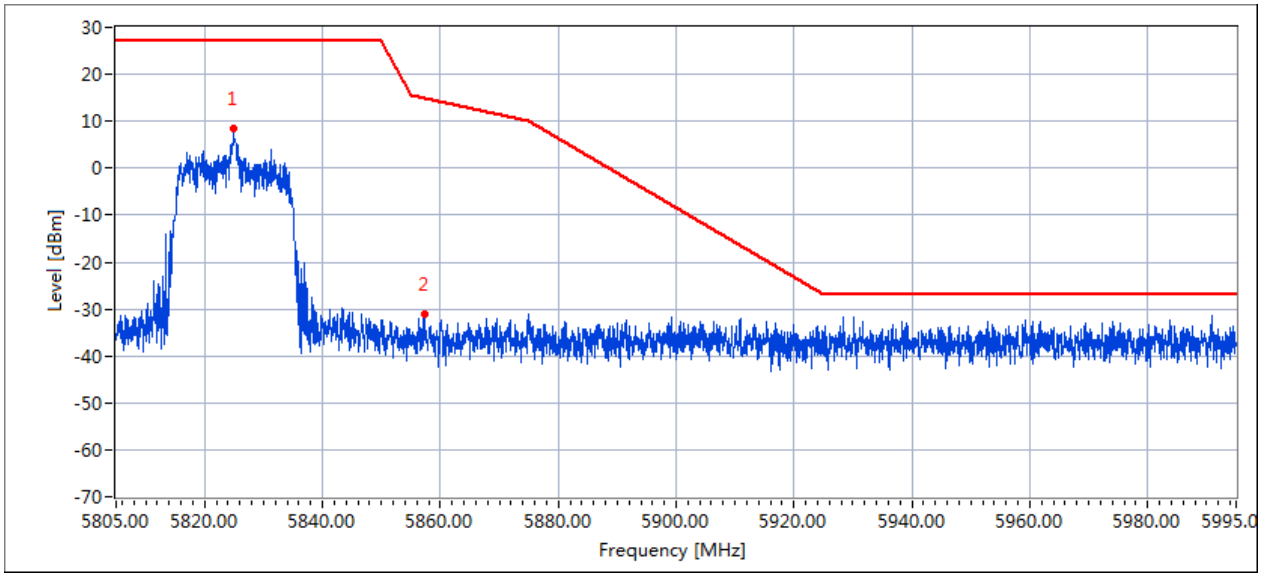


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5658.450	-29.7	-20.7	9.0

802.11ax20 5825MHz Horizontal

Measurement Plot:

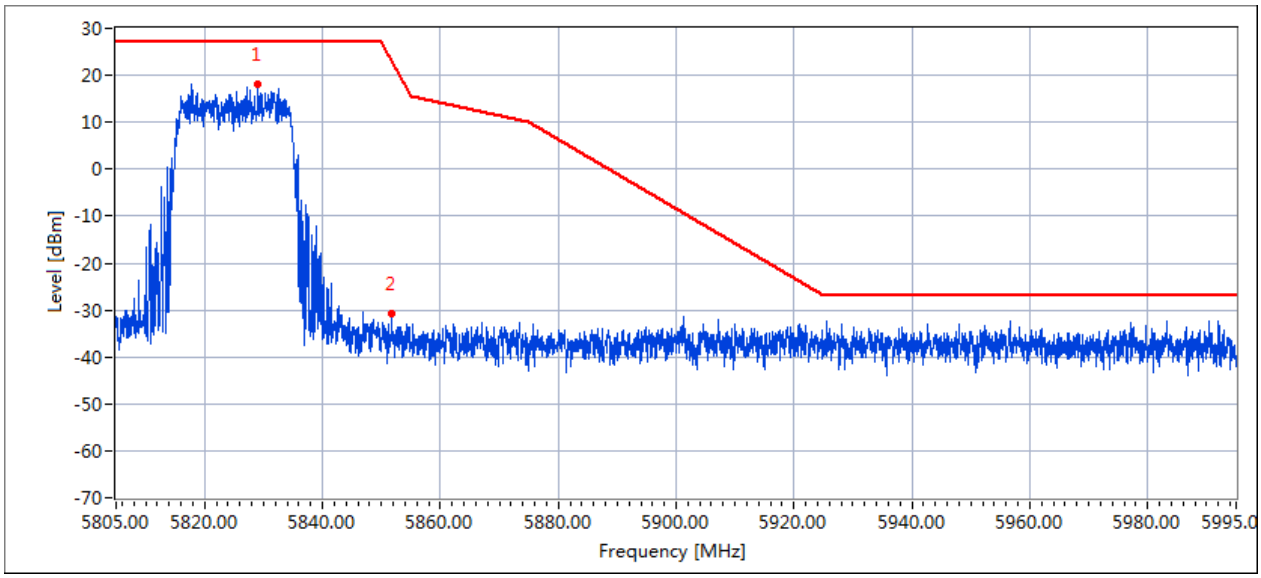


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5858.750	-31.0	14.6	45.6

802.11ax20 5825MHz Vertical

Measurement Plot:

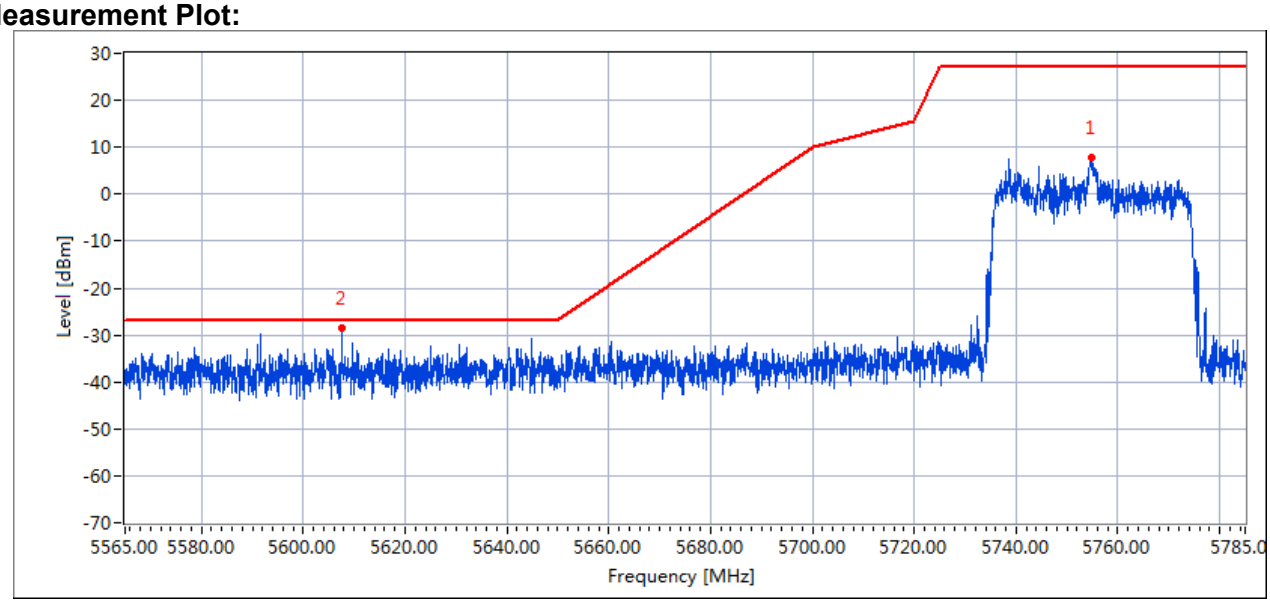


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5851.470	-30.8	23.6	54.4

802.11ax40 5755MHz Horizontal

Measurement Plot:

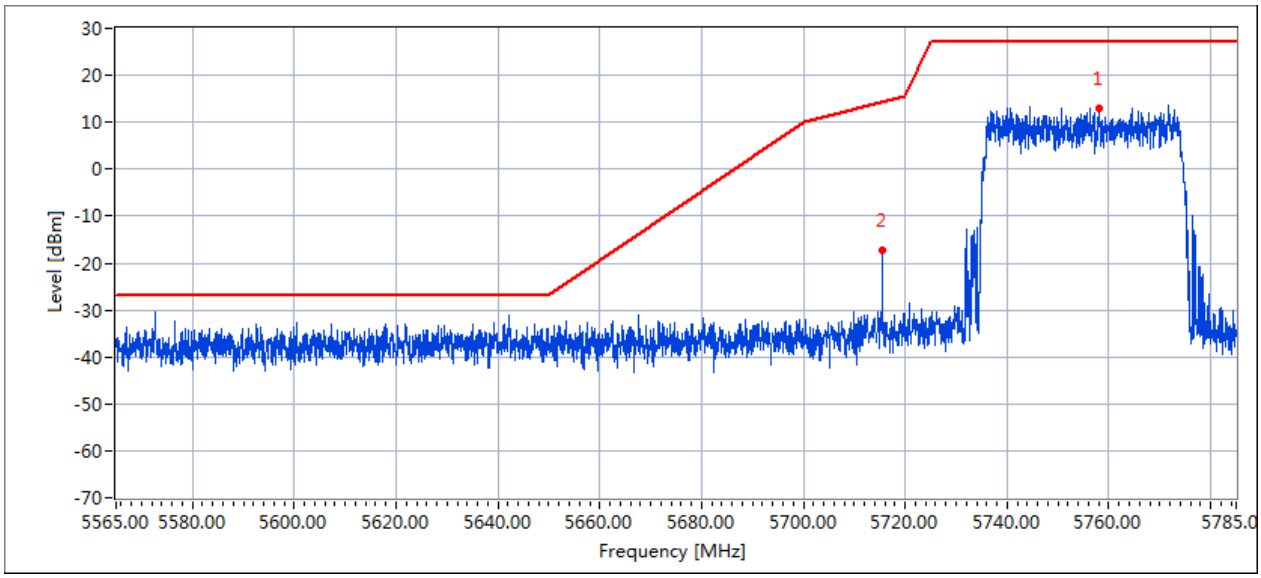


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5607.430	-28.6	-27.0	1.6

802.11ax40 5755MHz Vertical

Measurement Plot:

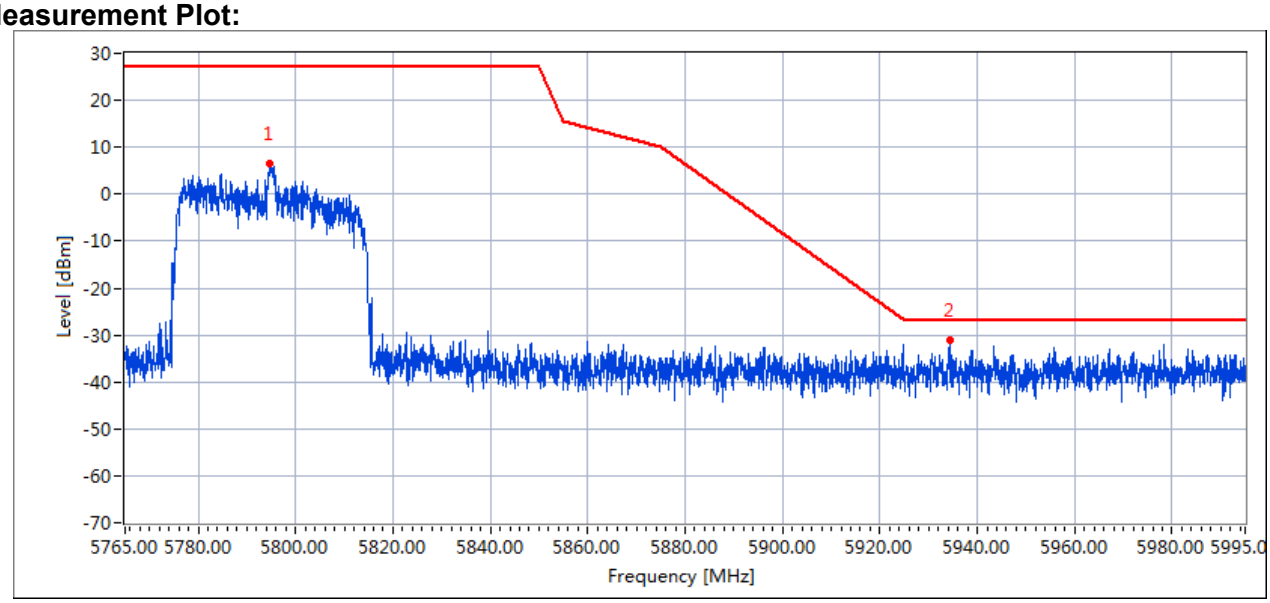


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5715.347	-17.3	14.3	31.6

802.11ax40 5795MHz Horizontal

Measurement Plot:

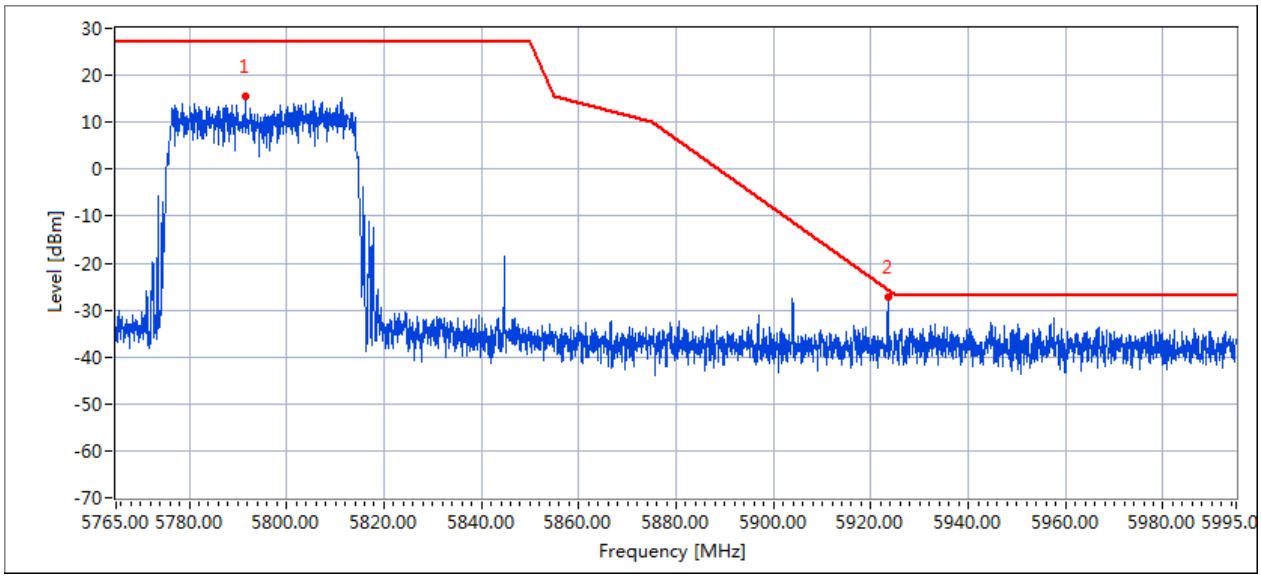


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5934.102	-31.1	-27.0	4.1

802.11ax40 5795MHz Vertical

Measurement Plot:

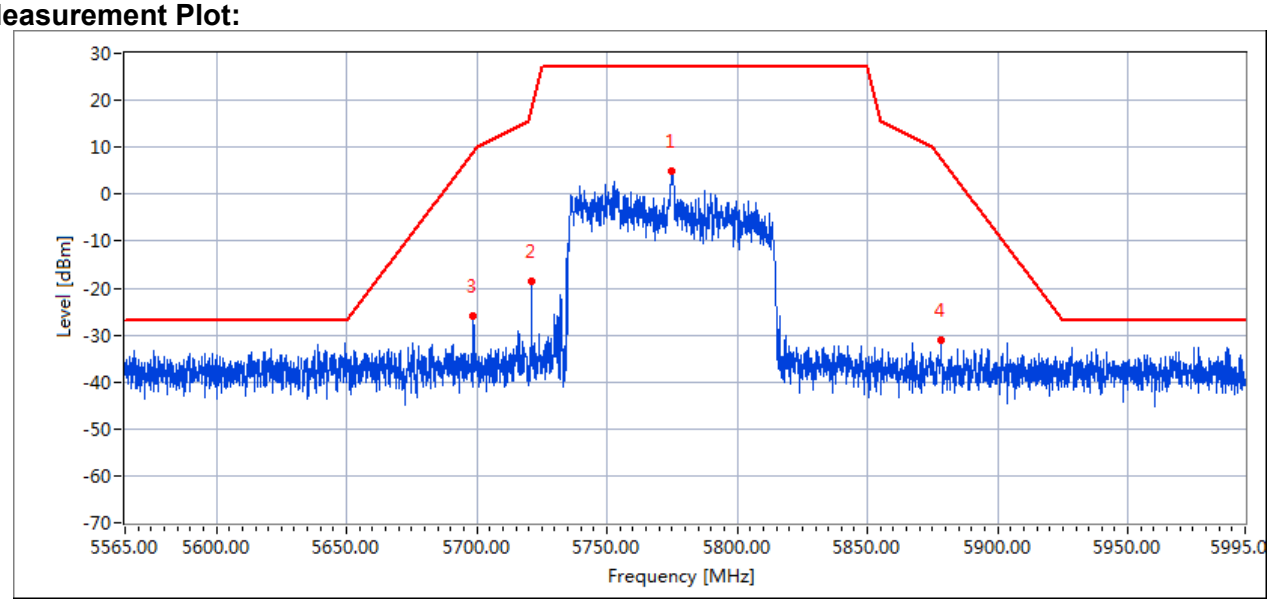


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5923.615	-27.4	-26.0	1.4

802.11ax80 5775MHz Horizontal

Measurement Plot:

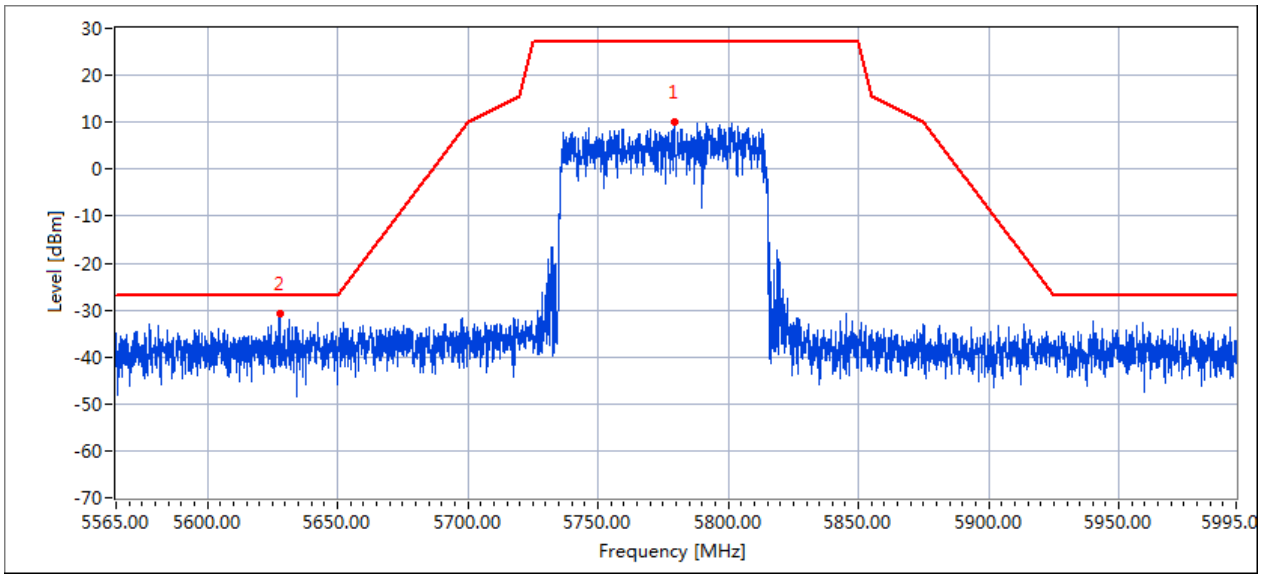


Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5721.342	-18.7	18.7	37.4
5698.294	-25.8	8.7	34.5
5877.801	-31.2	7.9	39.1

802.11ax80 5775MHz Vertical

Measurement Plot:



Measurement Result:

Frequency MHz	Level (dBm)	Limit (dBm)	Margin (dB)
5627.452	-30.9	-27.0	3.9

3.3 POWER SPECTRAL DENSITY TEST

3.3.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 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 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3)For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 TEST PROCEDURE

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 500 kHz, "provided that the measured power is integrated over the full reference 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 ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/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 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

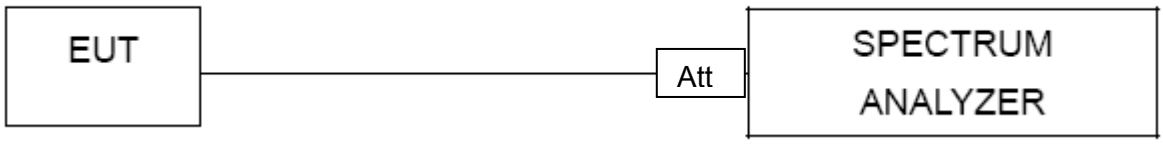
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

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.

3.3.3 DEVIATION FROM STANDARD

No deviation.

3.3.4 TEST SETUP



3.3.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.6 TEST RESULTS

EUT：	Hybrid Vr Portable Computer	Model Name. ：	Portal QLED
Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1015 hPa	Test Voltage ：	DC 3.85V
Test Mode ：	Mode 2/3/4/5		

Refer to section 2.2 of this report:

For 5.2G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power spectral density limit=11dBm / 1MHz;
For 5.3G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power spectral density limit=11dBm / 1MHz;
For 5.6G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power spectral density limit=11dBm / 1MHz;
For 5.8G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power spectral density limit=30dBm / 500kHz;

Test data reference attachment.

3.4 26DB & 99% EMISSION BANDWIDTH

3.4.1 APPLIED PROCEDURES / LIMIT

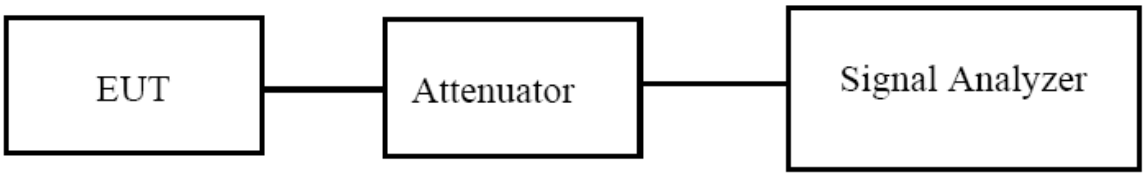
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

3.4.2 TEST PROCEDURE

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%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. 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.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. 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.



3.4.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.4 TEST RESULTS

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	25 ℃	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.85V
Test Mode :	Mode 2/3/4/5		

Test data reference attachment.

3.5 MINIMUM 6 DB BANDWIDTH

3.5.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(e)
(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.5.2 TEST PROCEDURE

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

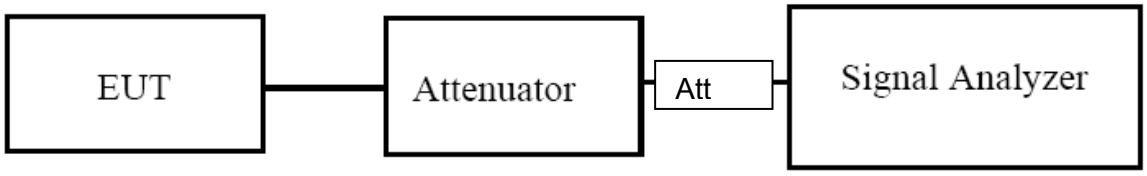
f) Allow the trace to stabilize.

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.

3.5.3 DEVIATION FROM STANDARD

No deviation.

3.5.4 TEST SETUP



3.5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.5.6 **TEST RESULTS**

EUT：	Hybrid Vr Portable Computer	Model Name. ：	Portal QLED
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.85V
Test Mode ：	Mode 2/3/4/5		

Test data reference attachment.

3.6 MAXIMUM CONDUCTED OUTPUT POWER

3.6.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407a)

The maximum conduced output power should not exceed:

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 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 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz

(3)For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 TEST PROCEDURE

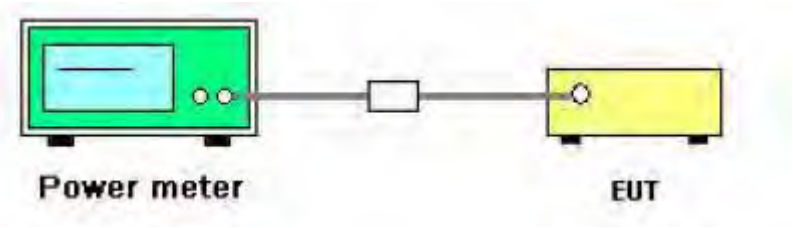
· Measurement using a Power Meter (PM):

1. The EUT is configured to transmit with a constant duty cycle.
2. At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
3. Measure the duty cycle, x.(a. The zero-span mode on a spectrum analyzer, b. If the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. c. Set RBW to the largest available value. d. Set VBW ≥ RBW. Set detector = peak or average.)
4. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
5. Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle.

3.6.3 DEVIATION FROM STANDARD

No deviation.

3.6.4 TEST SETUP



3.6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.6.6 TEST RESULTS

EUT：	Hybrid Vr Portable Computer	Model Name. ：	Portal QLED
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 3.85V
Test Mode ：	Mode 2/3/4/5		

Refer to section 2.2 of this report:

For 5.2G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power limit=24dBm;
For 5.3G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power limit=(the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.);
For 5.6G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power limit=(the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.);
For 5.8G band, 802.11n/ac/ax has MIMO mode. Directional gain=4.51dBi
6dBi > 4.51dBi, so power limit=30dBm;

Test data reference attachment.

3.7 OUT OF BAND EMISSIONS

3.7.1 APPLICABLE STANDARD

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) 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.

(2) 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.

(3) 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.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

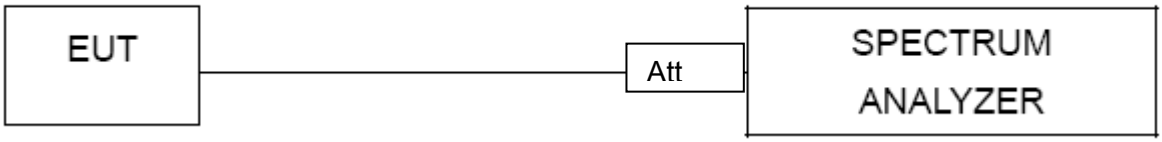
3.7.2 TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Refer to section II.G.3.d) and II.G.5. of KDB789033 D02, setting the analyzer as follows. RBW = 1 MHz, VBW ≥ 3 MHz, Detector = Peak, Sweep time = auto, Trace mode = max hold, setting the EUT as continuous transmission and Maximum power levels.
4. Plot the graph with marking the highest edge frequency point.
5. Repeat above procedures until all measured frequencies were complete.

3.7.3 DEVIATION FROM STANDARD

No deviation.

3.7.4 TEST SETUP



3.7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.7.6 **TEST RESULTS**

EUT :	Hybrid Vr Portable Computer	Model Name. :	Portal QLED
Temperature :	25 ℃	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.85V

Conducted Measurements data reference attachment.
Radiated emission Measurements data reference section 3.2 of this reports.

3.8 SPURIOUS RF CONDUCTED EMISSIONS

3.8.1CONFORMANCE LIMIT

According to FCC §15.407b

3.8.2MEASURING INSTRUMENTS

The Measuring equipment is listed in the section 2.5 of this test report.

3.8.3TEST SETUP

Please refer to Section 3.7.4 of this test report.

3.8.4TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Refer to section II.G.1., G.2., G3., G4. and II.G.5. of KDB789033 D02, setting the analyzer as follows.

RBW = 1 MHz, VBW ≥ 3 MHz, Detector = Peak, Sweep time = auto, Trace mode = max hold, setting the EUT as continuous transmission and Maximum power levels.

4. Plot the graph with marking the highest edge frequency point.
5. Repeat above procedures until all measured frequencies were complete.

3.8.5TEST RESULTS

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

Conducted Measurements data reference attachment.
Radiated emission Measurements data reference section 3.2 of this reports.

3.9 FREQUENCY STABILITY

Section 15.407(g) specifies that U-NII devices are required to ensure frequency stability. It is required that that the emissions are maintained within the band of operation under all conditions of normal operation as specified in the user's manual. The grantee is responsible for ensuring that the EUT meets Section 15.407(g) requirements; however, the applications for equipment certification are not required to include test reports with explicit demonstration of compliance.

4. ANTENNA REQUIREMENT

4.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

4.2 EUT ANTENNA

The EUT have a permanent attached Internal FPC antenna. It comply with the standard requirement.

5. DYNAMIC FREQUENCY SELECTION (DFS)

5.1 APPLICABILITY OF DFS REQUIREMENTS

EUT is client and operates as client without radar detection function.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

Additional requirements for devices with multiple bandwidth modes	Operational Mode	
	Master or Client With Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

5.2 INTERFERENCE THRESHOLD VALUES, MASTER OR CLIENT INCORPORATING

IN-SERVICE MONITORING

Maximum Transmit Power	Value (see notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
Note 3: EIRP is based on the highest antenna gain.

5.3 DFS RESPONSE REQUIREMENT VALUES

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the 99% power bandwidth See Note 3.

Note 1: The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows:
• For the Short pulse radar Test Signals this instant is the end of the Burst.
• For the Frequency Hopping radar Test Signal, this instant is the end of the last radar Burst generated.
• For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate Channel changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

5.4 SHORT PULSE RADAR TEST WAVEFORMS

As the EUT is a Client Device with no Radar Detection, only one type radar pulse is required for the testing. Radar Pulse type 0 was used in the evaluation of the Client device for the purpose of measuring the Channel Move Time and the Channel Closing Transmission Time.

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	60%	30
1	1	Test A Test B	$\mathrm{Roundup}\left(\frac{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\mathrm{PRI}_{\mu sec}}\right)}{}\right)$	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a

Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A

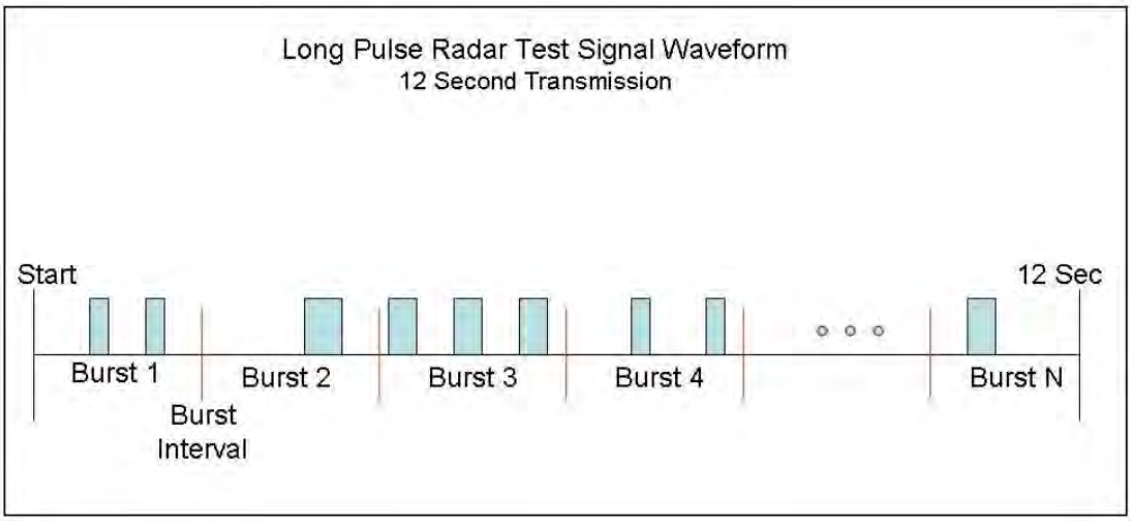
A minimum of 30 unique waveforms are required for each of the short pulse radar types 2 through 4. For short pulse radar type 1, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for short pulse radar types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.
If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

5.5 LONG PULSE RADAR TEST WAVEFORM

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.
Each waveform is defined as follows:
1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst Count.
3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
5) Each pulse has a linear frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a transmission period will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the random time interval between the first and second pulses is chosen independently of the random time interval between the second and third pulses.
7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst Count. Each interval is of length (12,000,000 / Burst Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen randomly.
A representative example of a Long Pulse Radar Type waveform:
1) The total test waveform length is 12 seconds.
2) Eight (8) Bursts are randomly generated for the Burst Count.
3) Burst 1 has 2 randomly generated pulses.
4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
5) The PRI is randomly selected to be at 1213 microseconds.
6) Bursts 2 through 8 are generated using steps 3 – 5.

7) Each Burst is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, Burst 1 is randomly generated (1 to 1,500,000 minus the total Burst 1 length + 1 random PRI interval) at the 325,001 microsecond step. Bursts 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. Burst 2 falls in the 1,500,001 – 3,000,000 microsecond range).
provides a graphical representation of the Long Pulse Radar Test Waveform.



5.6 FREQUENCY HOPPING RADAR TEST WAVEFORM

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a
frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

5.7 CALIBRATION SETUP AND DFS TEST RESULTS

Radar Waveform Calibration Procedure

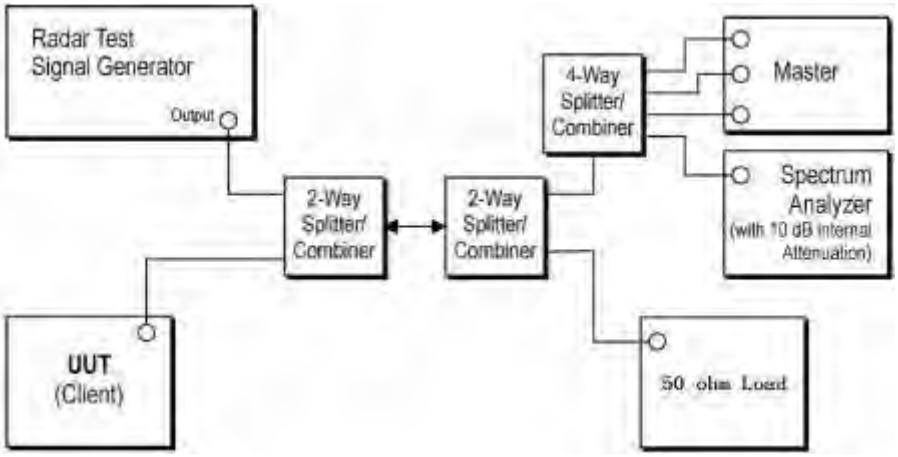
1) A 50 ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to place of the master

2) The interference Radar Detection Threshold Level is -62dBm - 2dBi +1dB = -63dBm that had been taken into account the output power range and antenna gain.

3) The following equipment setup was used to calibrate the conducted radar waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (time domain) at the frequency of the radar waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz. The spectrum analyzer had offset -1.0dB to compensate RF cable loss 1.0dB.

4) The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was -62dBm - 2dBi +1dB = -63dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

5.8 CONDUCTED CALIBRATION SETUP



Wireless AP	Manufacturer	ASUSTek Computer Inc
	Model NO.	AX5400
	FCC ID	MSQ-RTAXJ300

Note:1. The Slave device associated with the EUT during these tests does not have radar detection capability.

2. WLAN traffic is generated by using the iperf software to send packets from the Master IP address to the Slave IP address.

3. The time required for the master and slave devices to fully start up is 120s.

4. EUT does not support TPC.

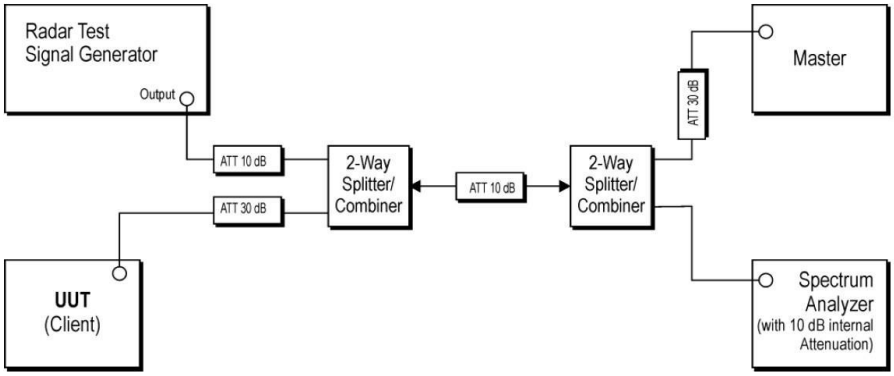
5.9 RADAR WAVEFORM CALIBRATION RESULT

Test data reference attachment.

5.10 IN-SERVICE MONITORING: CHANNEL MOVE TIME, CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD

TEST CONFIGURATION:

Setup for Client with injection at the Master



TEST PROCEDURE:

1. The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
2. The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device
3. A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
4. EUT will associate with the master at channel. The file “iperf.exe” specified by the FCC is Streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
5. When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
6. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom In 600ms plot of the Short Pulse Radar Type
7. Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
8. Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

TEST MODE:

Mode	Frequency (MHz)
ax160	5570

5.11 RESULT OF CHANNEL MOVE TIME, CHANNEL CLOSING TRANSMISSION TIME AND NON-OCCUPANCY PERIOD FOR CLIENT BEACON TEST

Test results reference to attachment.

6. AUTOMATICALLY DISCONTINUE TRANSMISSION

Requirements: The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

Results: Hybrid Vr Portable Computer is a TDD (time division duplex) device. During normal mode of operation, when there is no data or control signaling to transmit, the device sits in "receive" state. The device only transitions to "transmit" state when there is data to transmit.

If there is an operational failure on the device, a hardware watchdog circuit reboots the device, during which time the "power amplifiers" on the device that are used during "transmit mode" are disabled (i.e. switched OFF). The "power amplifiers" remain disabled until the device return to its normal mode of operation.

7. ATTACHMENT FOR TEST RESULTS

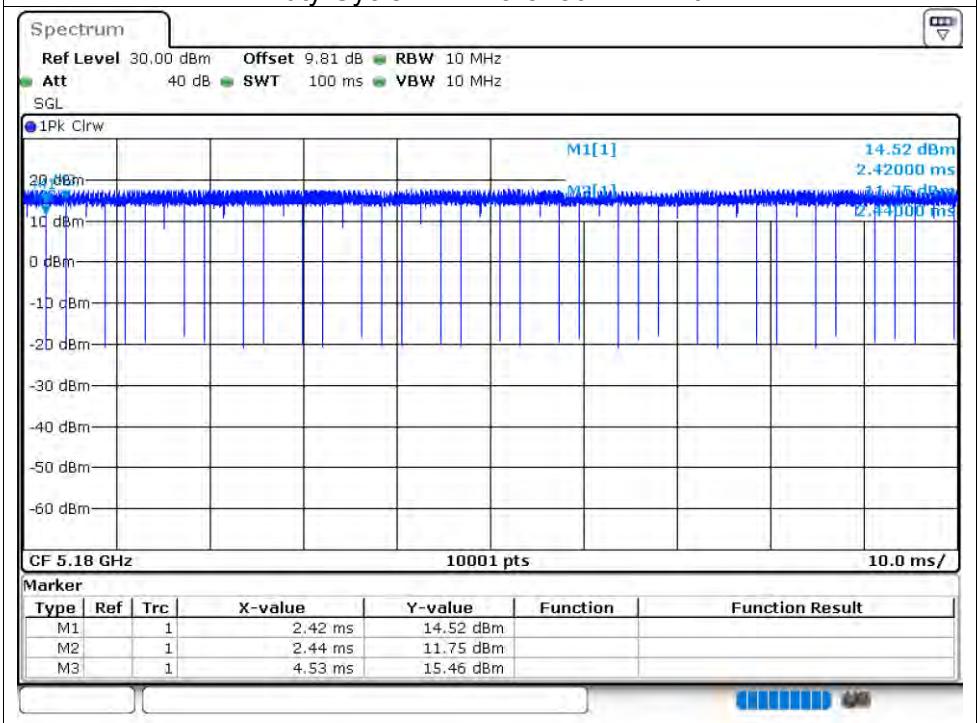
7.1 5.2G

7.1.1 DUTY CYCLE

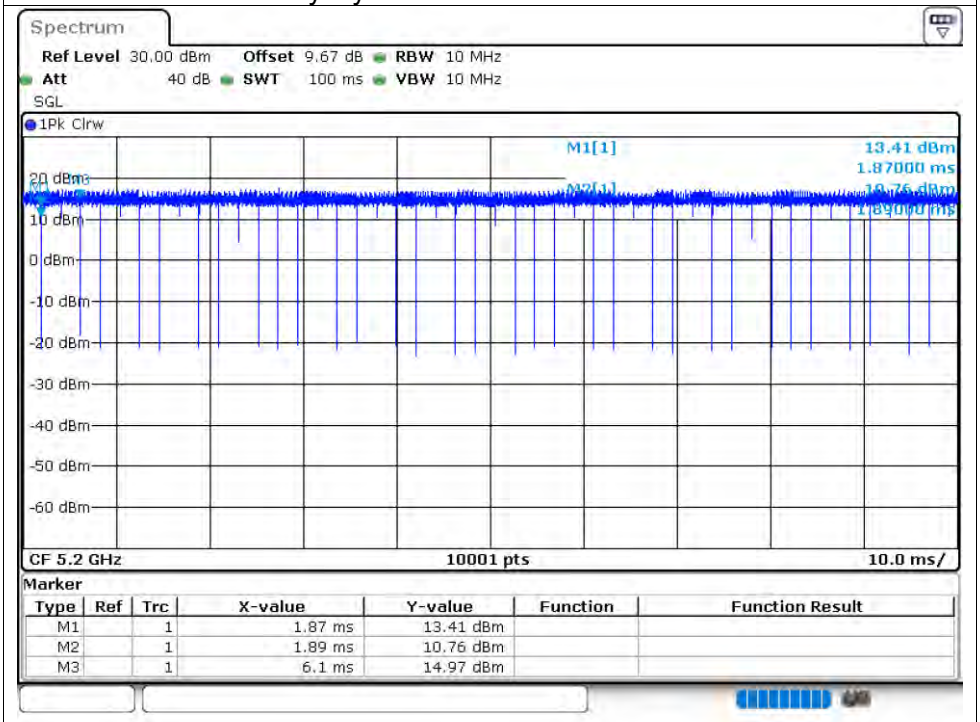
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	99.67	0.01	0.48
NVNT	a	5200	Ant1	99.68	0.01	0.24
NVNT	a	5240	Ant1	99.64	0.02	0.24
NVNT	a	5180	Ant2	99.67	0.01	0.48
NVNT	a	5200	Ant2	99.66	0.01	0.24
NVNT	a	5240	Ant2	99.67	0.01	0.48
NVNT	n20	5180	Ant1	99.91	0	0.09
NVNT	n20	5200	Ant1	99.88	0.01	0.18
NVNT	n20	5240	Ant1	99.85	0.01	0.18
NVNT	n20	5180	Ant2	99.84	0.01	0.09
NVNT	n20	5200	Ant2	99.86	0.01	0.18
NVNT	n20	5240	Ant2	99.91	0	0.09
NVNT	n40	5190	Ant1	99.88	0.01	0.09
NVNT	n40	5230	Ant1	99.88	0.01	0.18
NVNT	n40	5190	Ant2	99.86	0.01	0.18
NVNT	n40	5230	Ant2	99.88	0.01	0.18
NVNT	ac20	5180	Ant1	99.82	0.01	0.18
NVNT	ac20	5200	Ant1	99.91	0	0.09
NVNT	ac20	5240	Ant1	99.91	0	0.09
NVNT	ac20	5180	Ant2	99.9	0	0.09
NVNT	ac20	5200	Ant2	99.82	0.01	0.18
NVNT	ac20	5240	Ant2	99.85	0.01	0.09
NVNT	ac40	5190	Ant1	99.88	0.01	0.09
NVNT	ac40	5230	Ant1	99.89	0	0.09
NVNT	ac40	5190	Ant2	99.89	0	0.09
NVNT	ac40	5230	Ant2	99.88	0.01	0.09
NVNT	ac80	5210	Ant1	99.89	0	0.18
NVNT	ac80	5210	Ant2	99.89	0	0.09
NVNT	ac160	5250	Ant1	97.51	0.11	∞
NVNT	ac160	5250	Ant2	97.07	0.13	0.69
NVNT	ax160	5250	Ant1	99.77	0.01	0.18
NVNT	ax160	5250	Ant2	99.76	0.01	0.18
NVNT	ax20	5180	Ant1	99.86	0.01	0.18
NVNT	ax20	5200	Ant1	99.87	0.01	0.06
NVNT	ax20	5240	Ant1	99.86	0.01	0.18
NVNT	ax20	5180	Ant2	99.86	0.01	0.18
NVNT	ax20	5200	Ant2	99.86	0.01	0.18
NVNT	ax20	5240	Ant2	99.89	0	0.18
NVNT	ax40	5190	Ant1	99.9	0	0.18
NVNT	ax40	5230	Ant1	99.88	0.01	0.18
NVNT	ax40	5190	Ant2	99.88	0.01	0.05
NVNT	ax40	5230	Ant2	99.89	0	0.18
NVNT	ax80	5210	Ant1	99.91	0	0.18
NVNT	ax80	5210	Ant2	99.92	0	0.18

Test Graphs

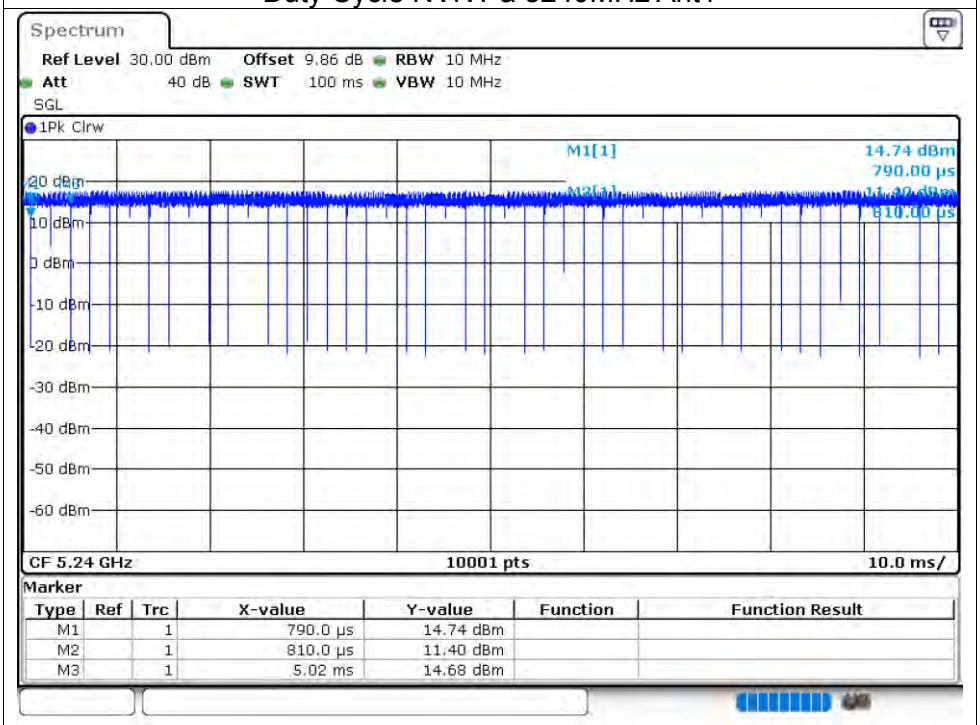
Duty Cycle NVNT a 5180MHz Ant1



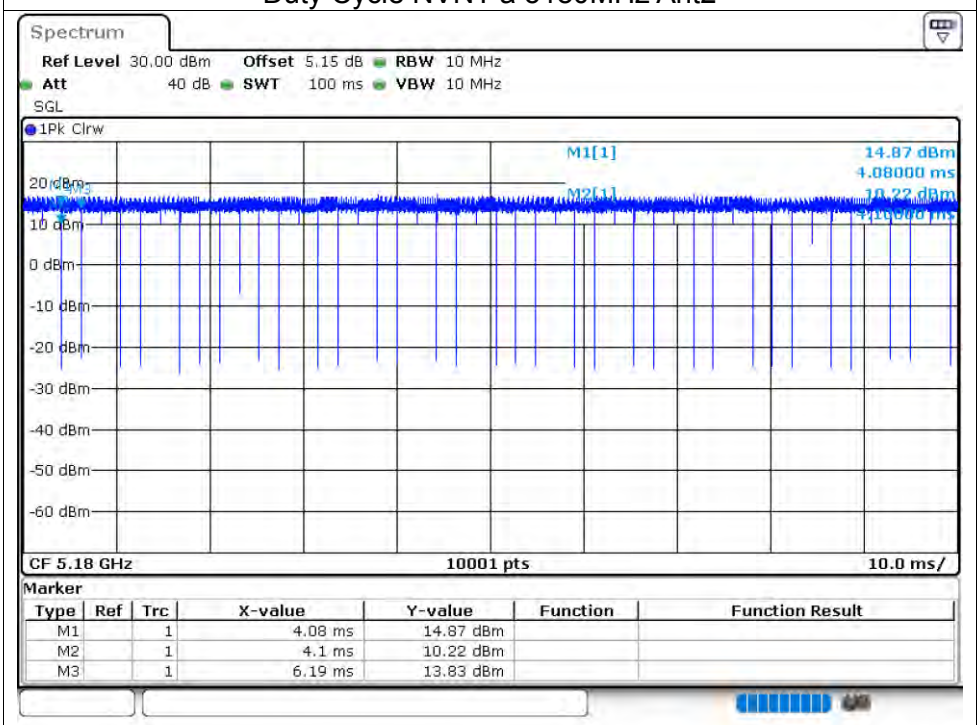
Duty Cycle NVNT a 5200MHz Ant1



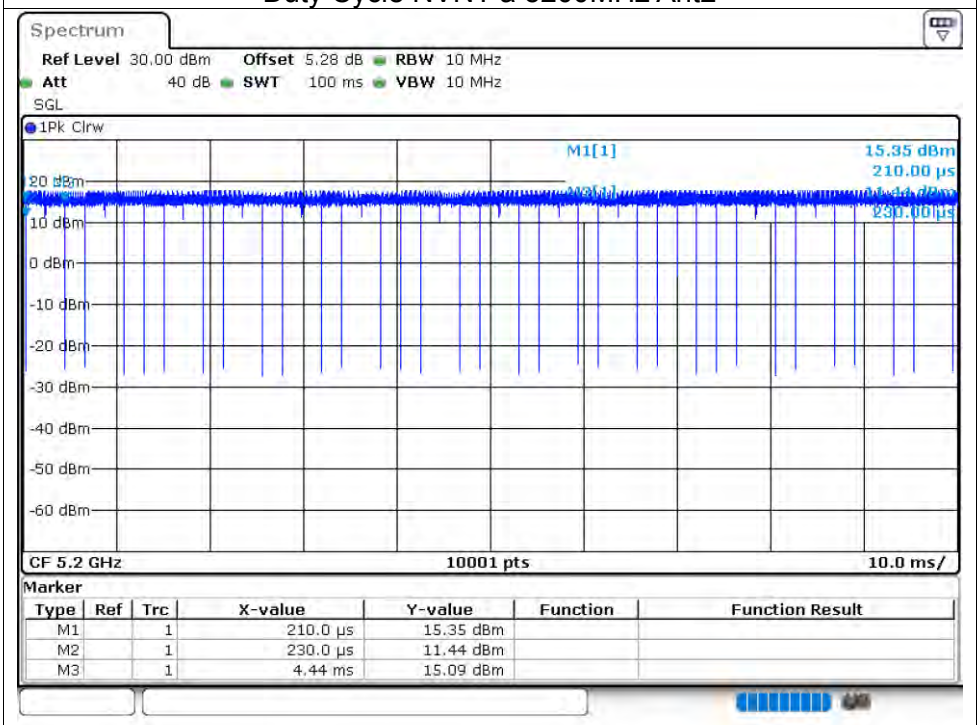
Duty Cycle NVNT a 5240MHz Ant1



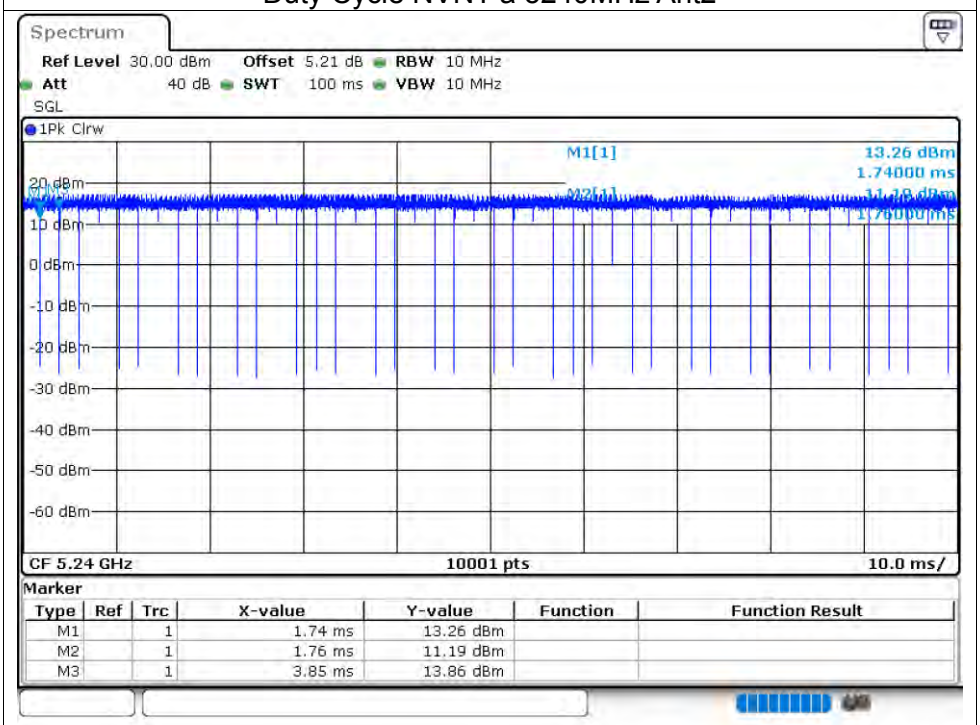
Duty Cycle NVNT a 5180MHz Ant2



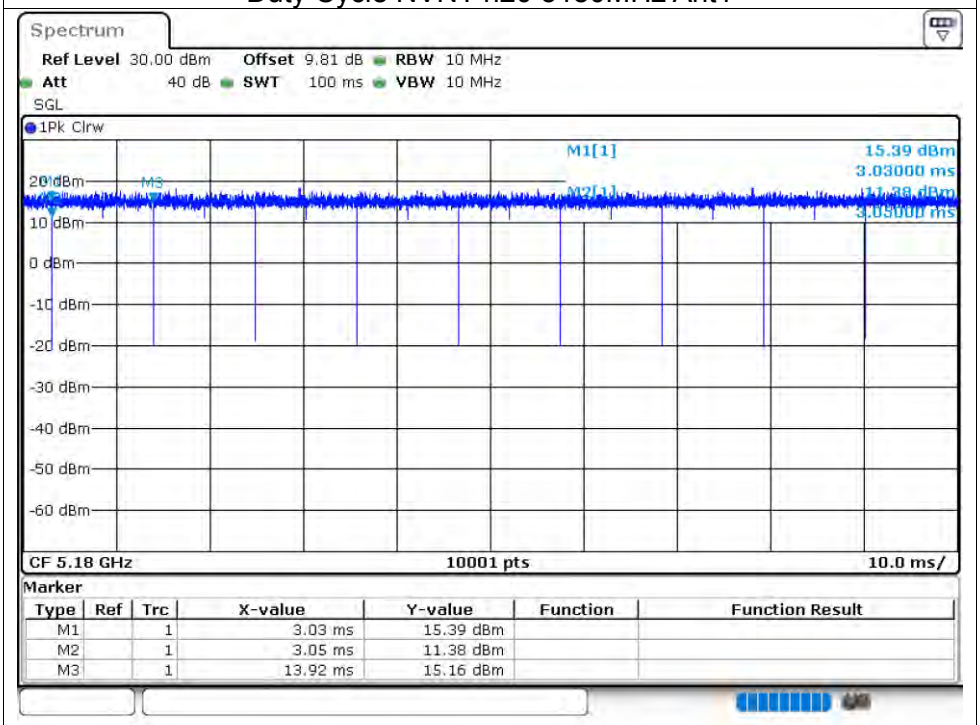
Duty Cycle NVNT a 5200MHz Ant2



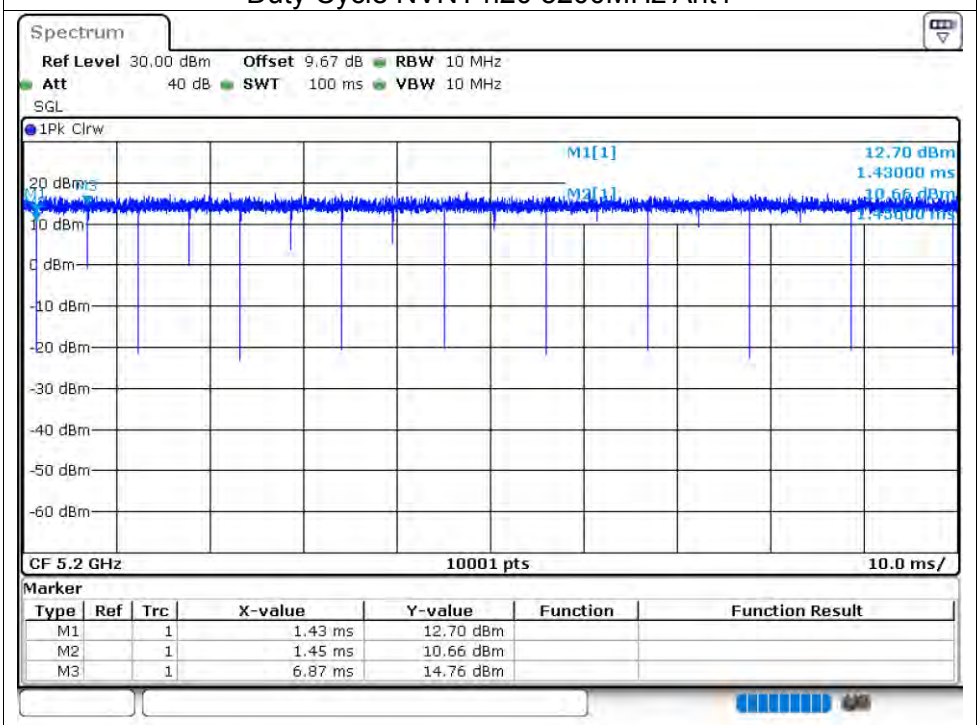
Duty Cycle NVNT a 5240MHz Ant2



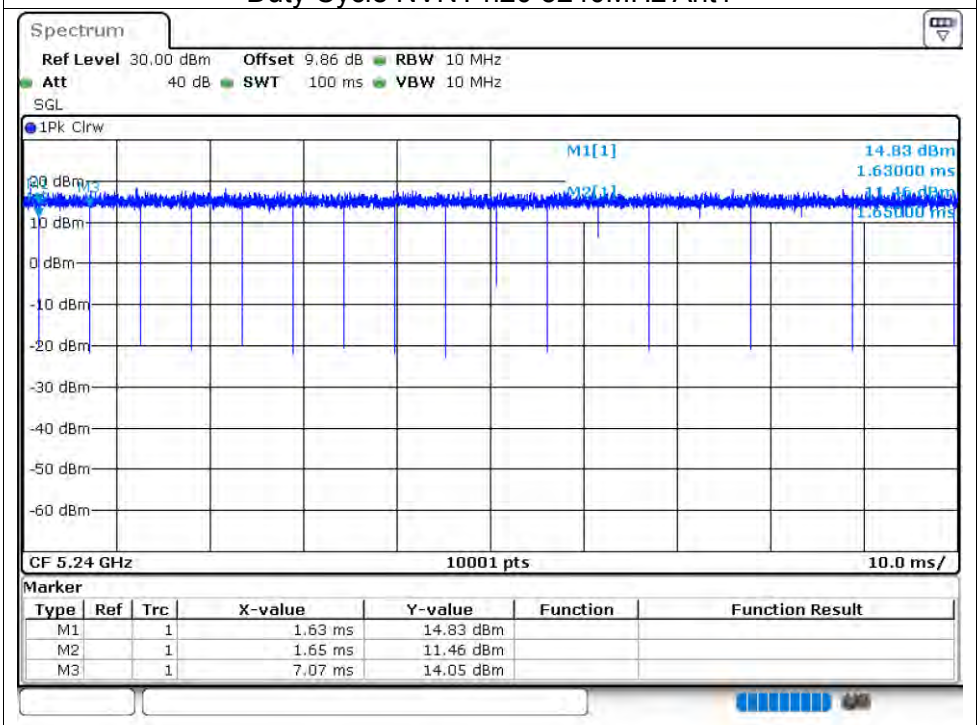
Duty Cycle NVNT n20 5180MHz Ant1



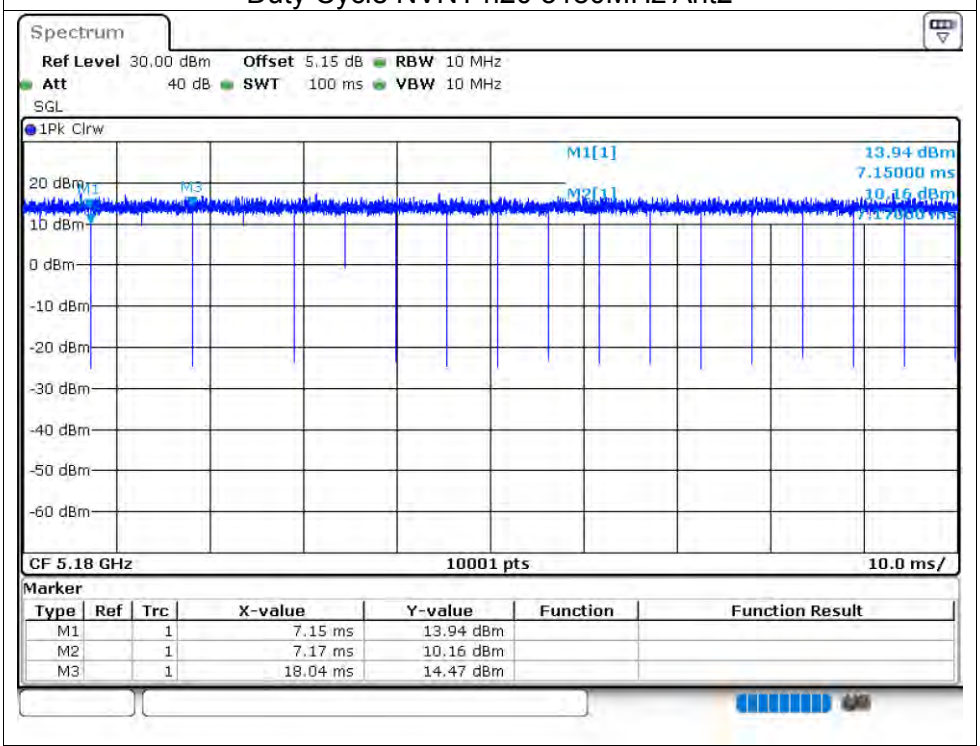
Duty Cycle NVNT n20 5200MHz Ant1



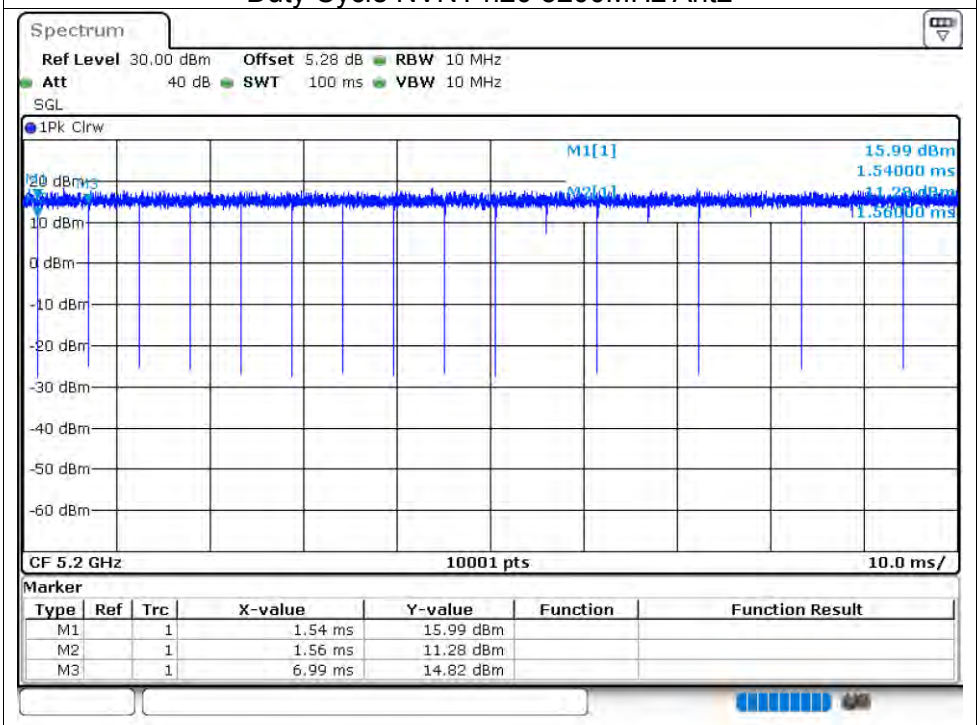
Duty Cycle NVNT n20 5240MHz Ant1



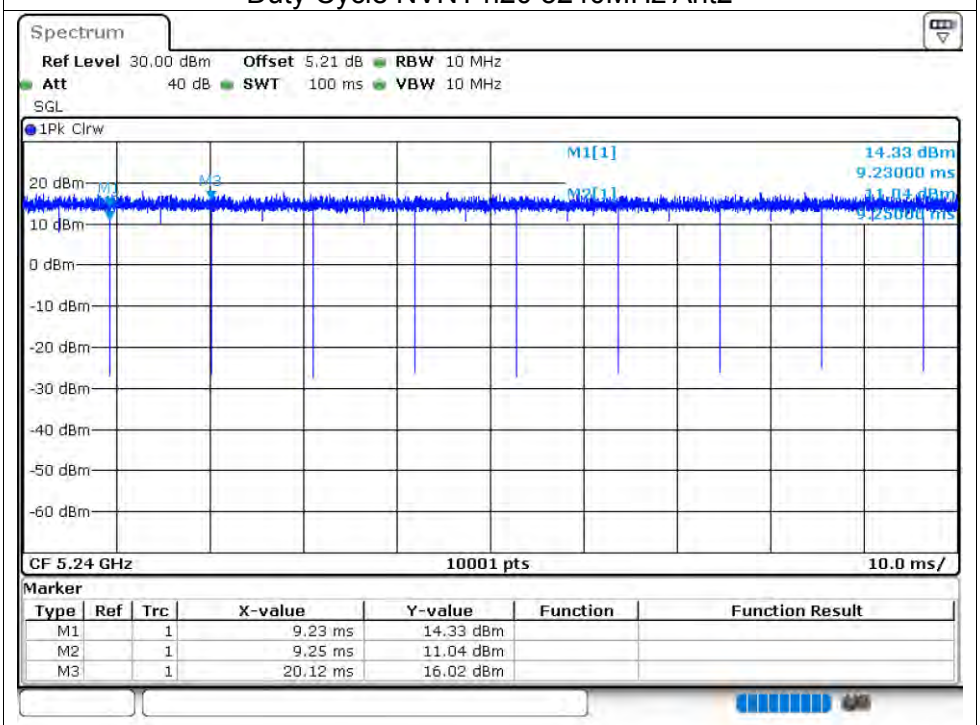
Duty Cycle NVNT n20 5180MHz Ant2



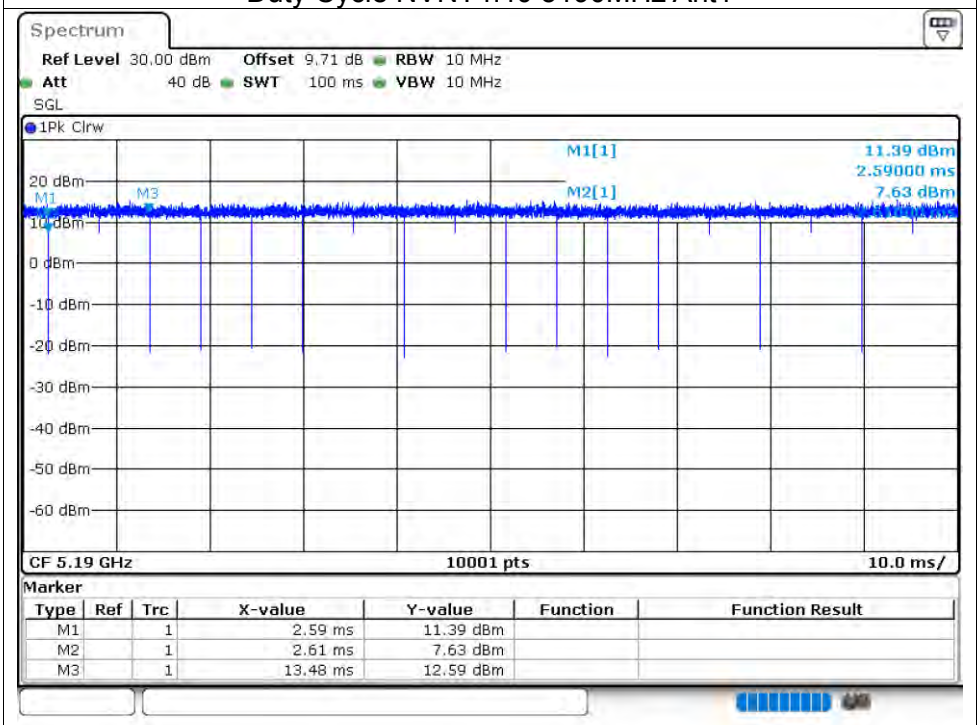
Duty Cycle NVNT n20 5200MHz Ant2



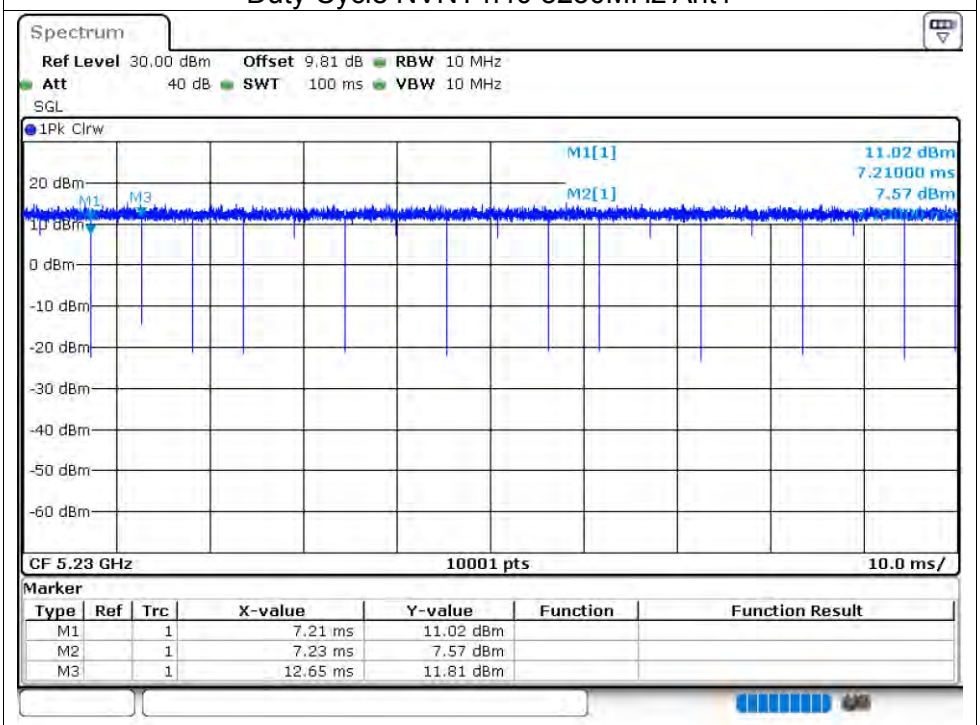
Duty Cycle NVNT n20 5240MHz Ant2



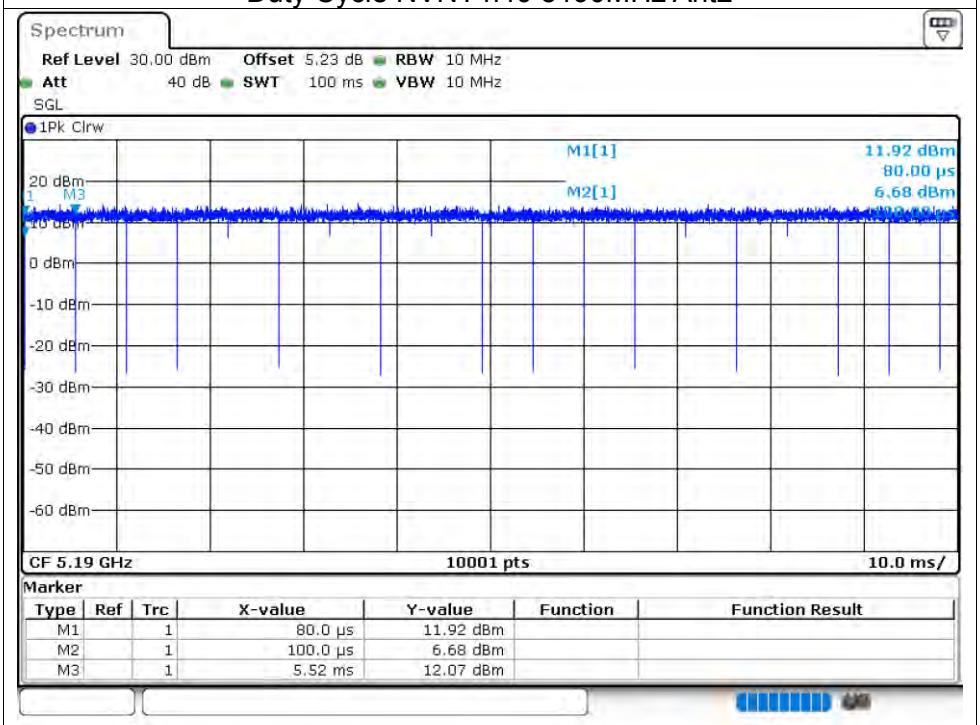
Duty Cycle NVNT n40 5190MHz Ant1



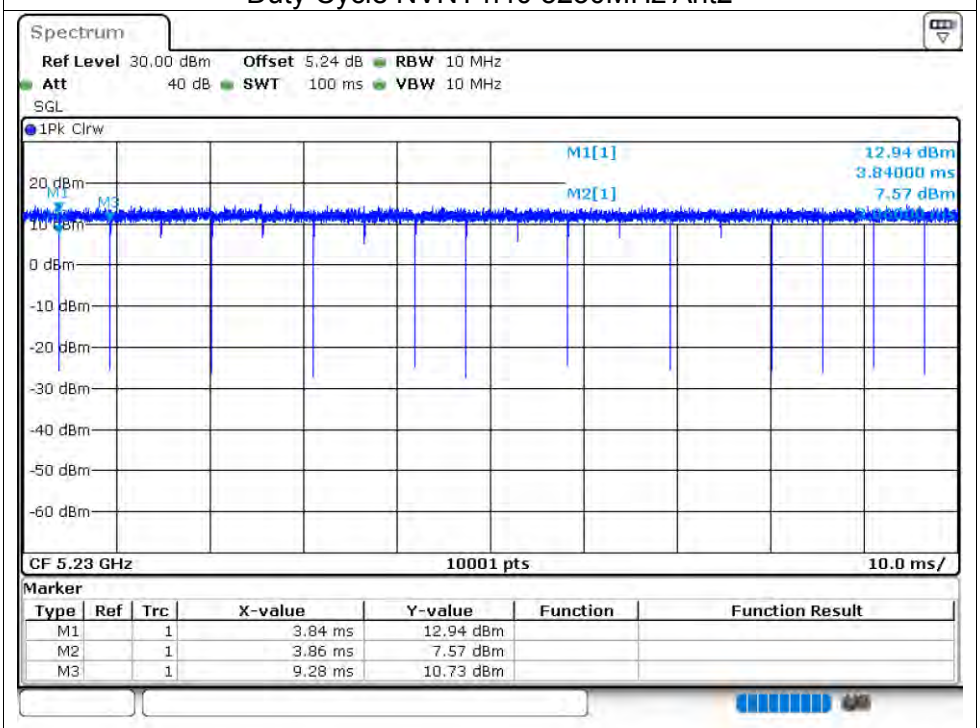
Duty Cycle NVNT n40 5230MHz Ant1



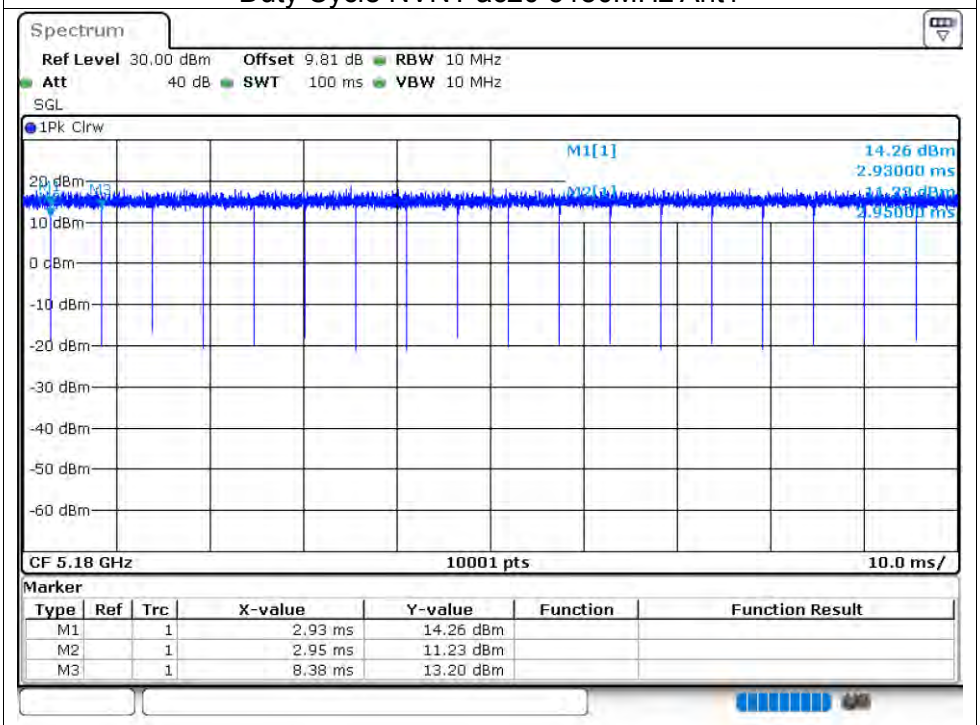
Duty Cycle NVNT n40 5190MHz Ant2



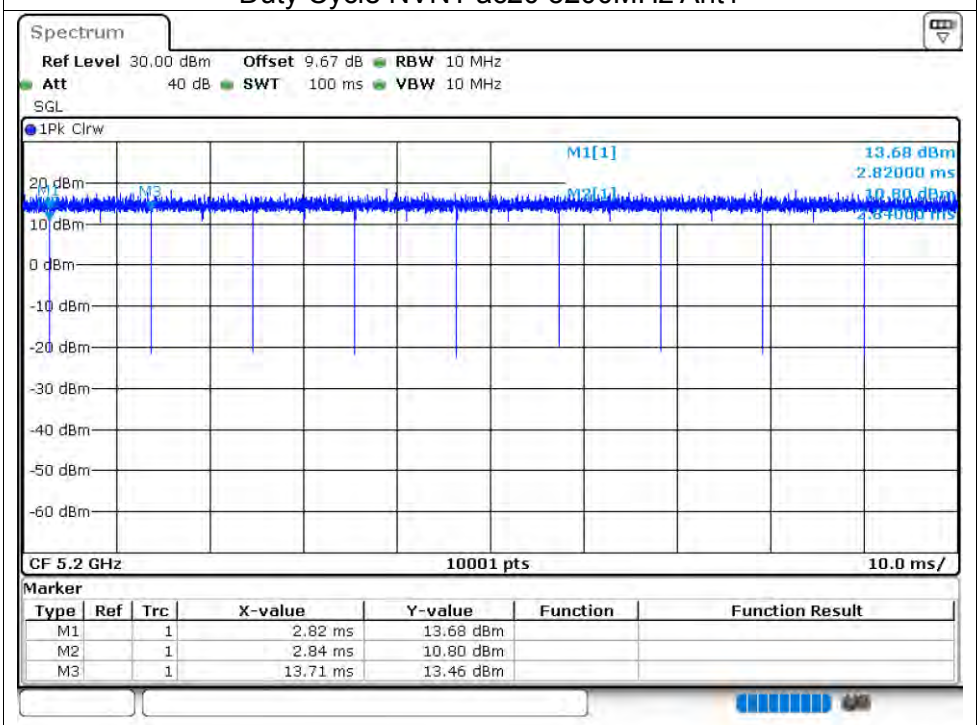
Duty Cycle NVNT n40 5230MHz Ant2



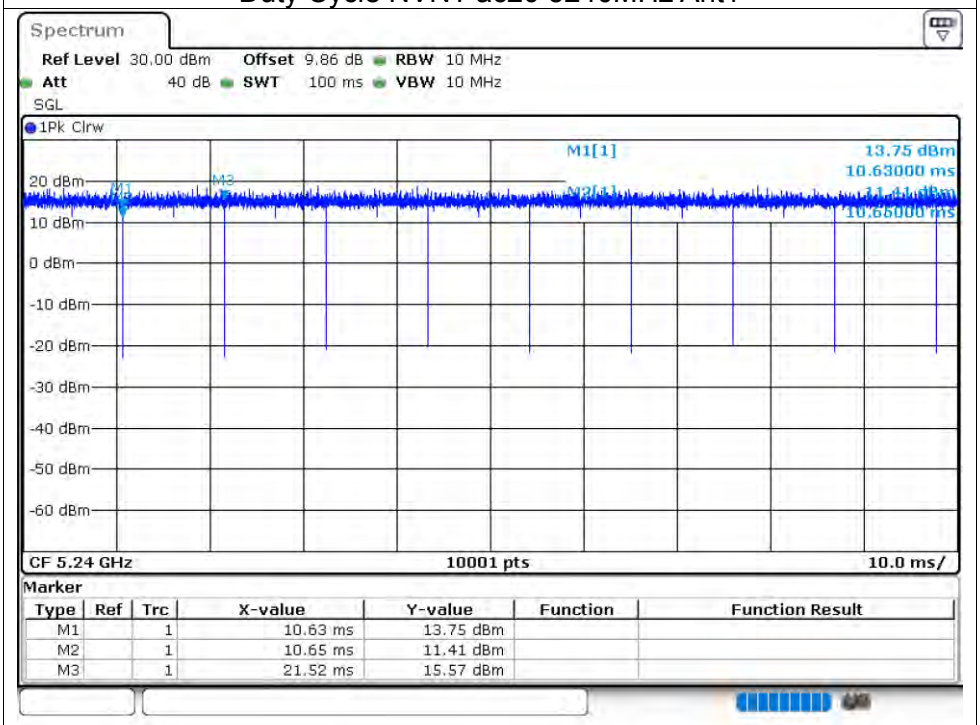
Duty Cycle NVNT ac20 5180MHz Ant1



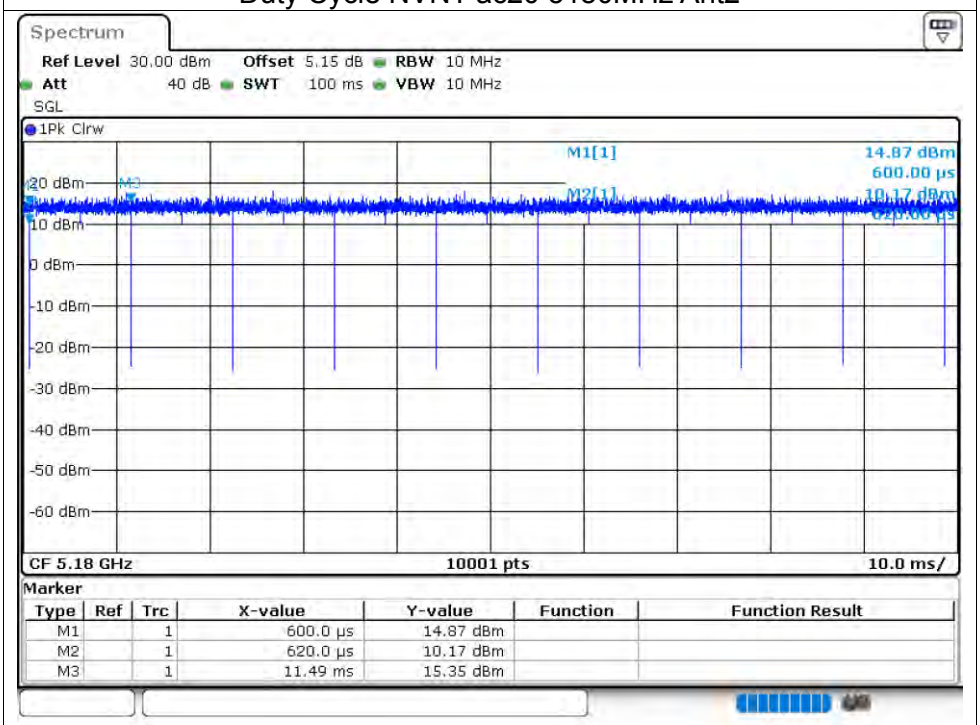
Duty Cycle NVNT ac20 5200MHz Ant1



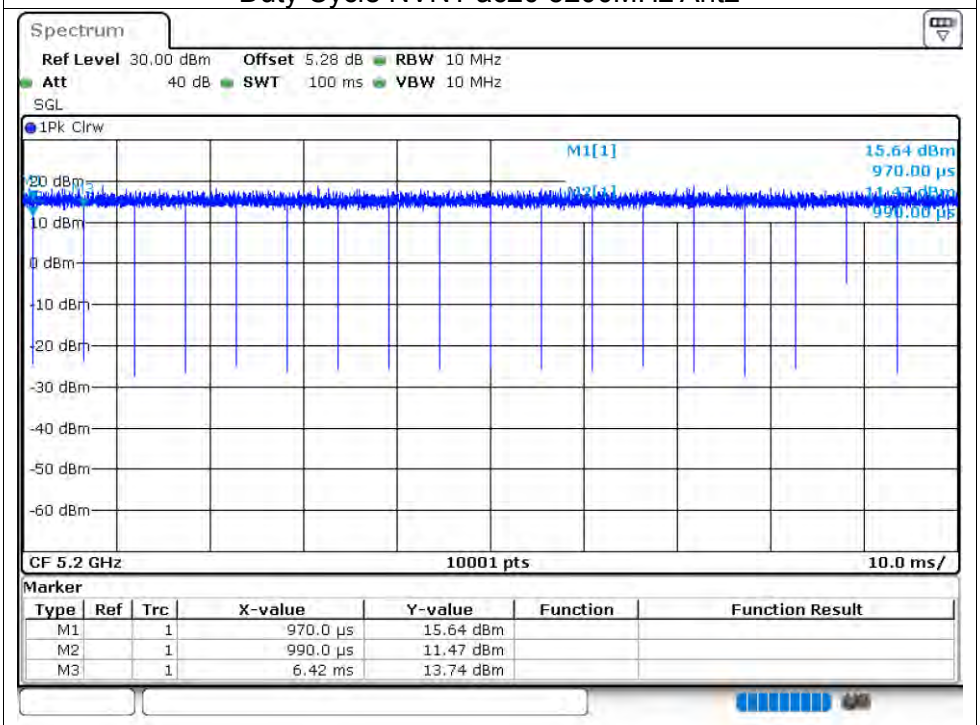
Duty Cycle NVNT ac20 5240MHz Ant1



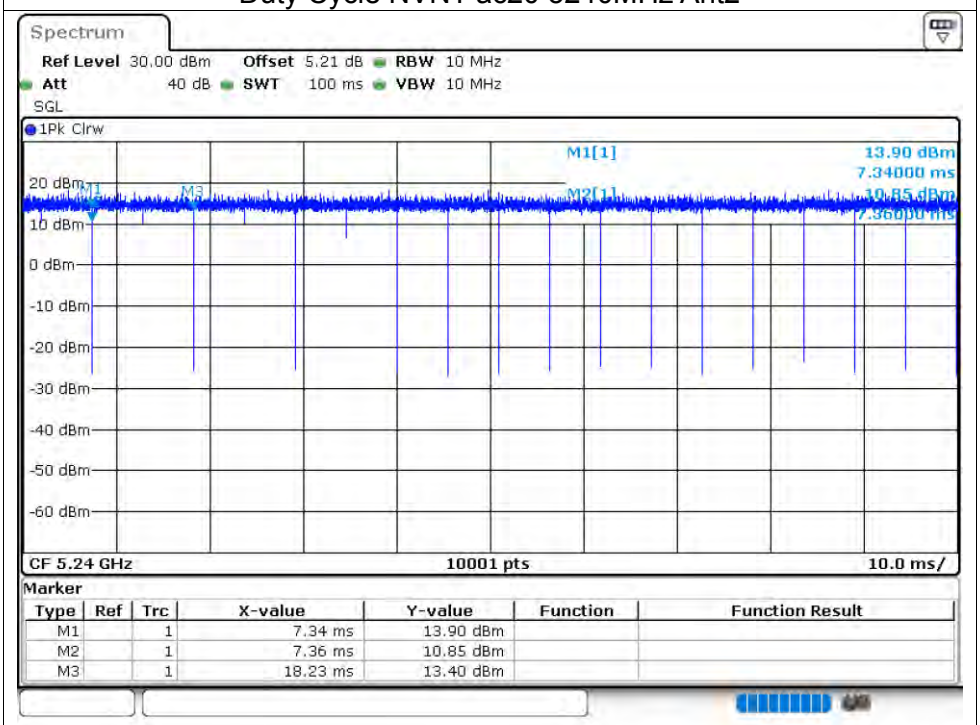
Duty Cycle NVNT ac20 5180MHz Ant2



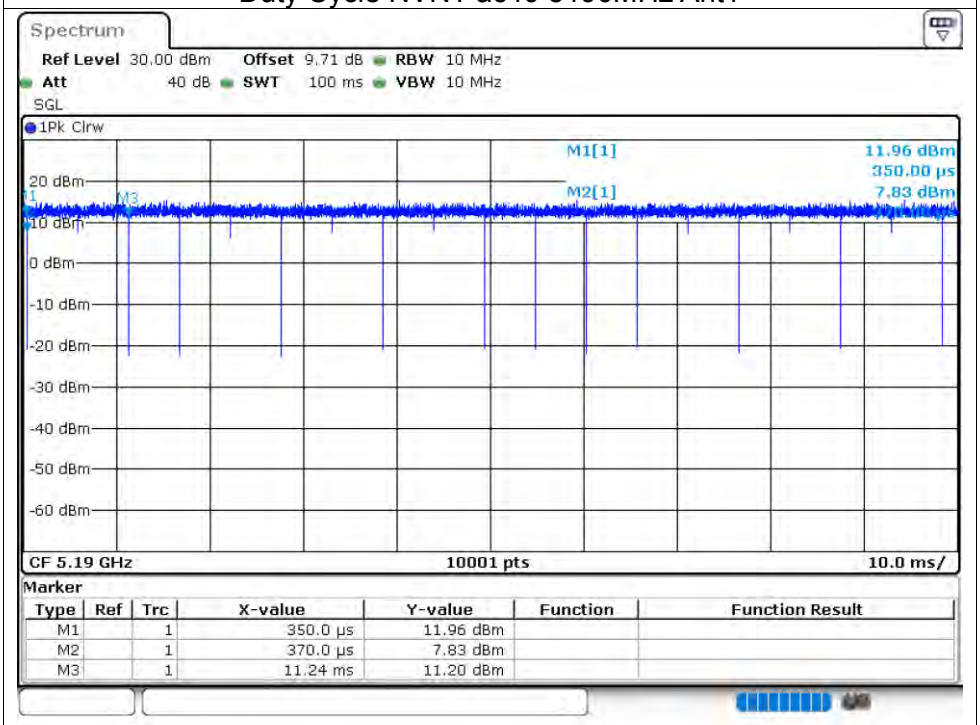
Duty Cycle NVNT ac20 5200MHz Ant2



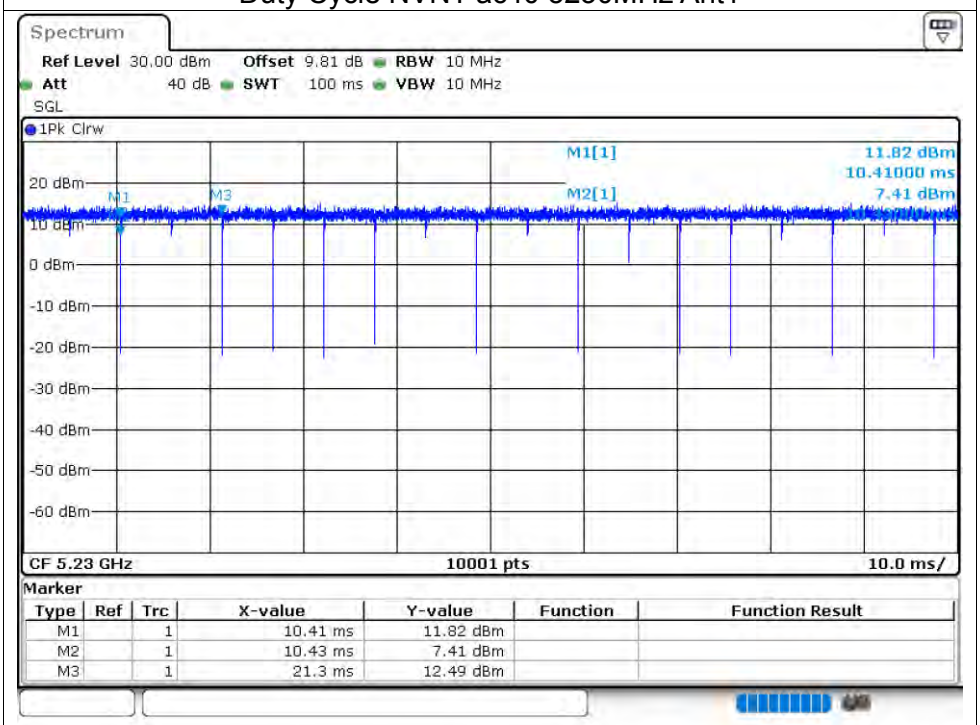
Duty Cycle NVNT ac20 5240MHz Ant2



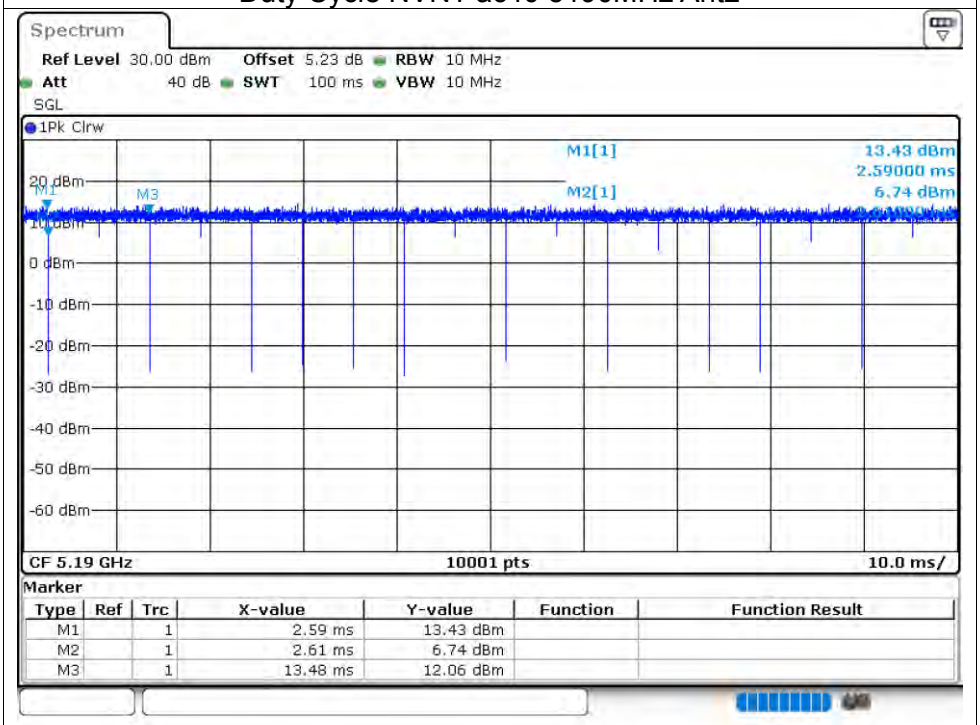
Duty Cycle NVNT ac40 5190MHz Ant1



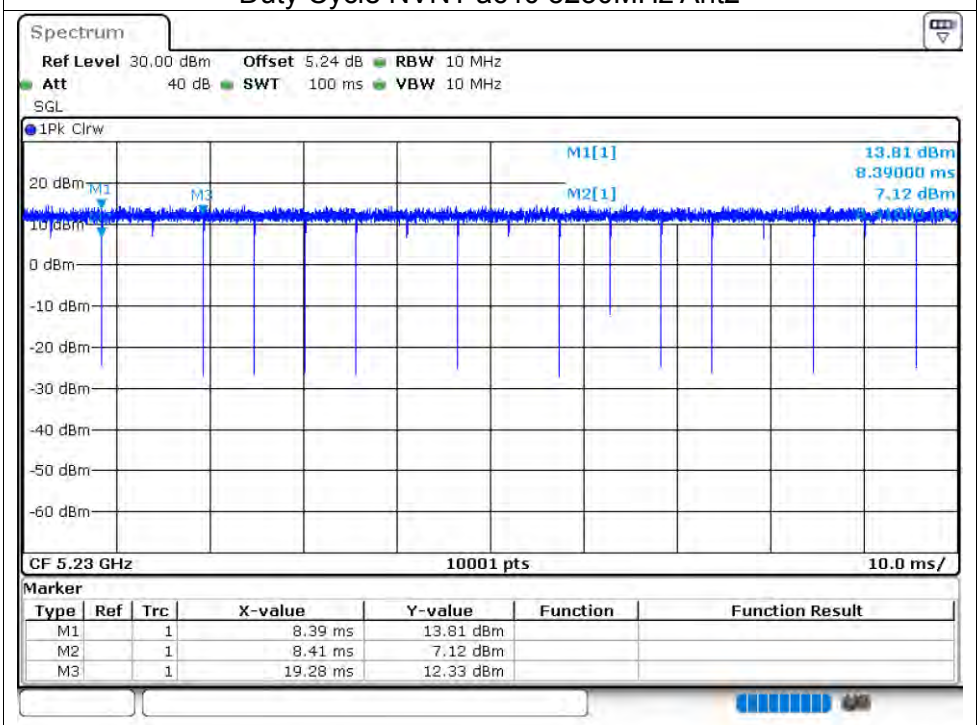
Duty Cycle NVNT ac40 5230MHz Ant1



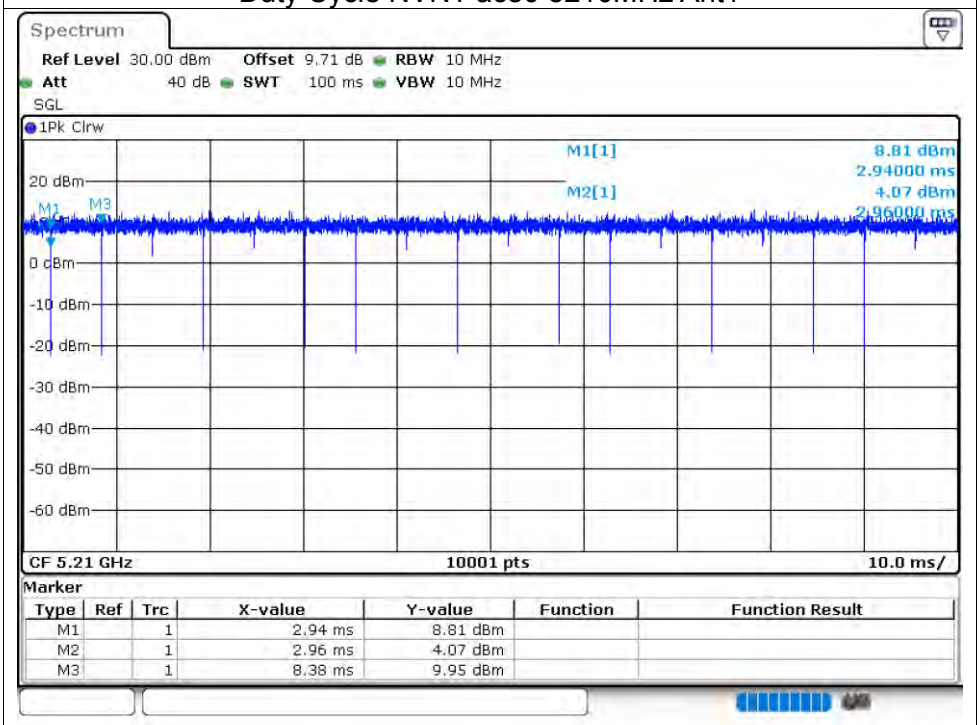
Duty Cycle NVNT ac40 5190MHz Ant2



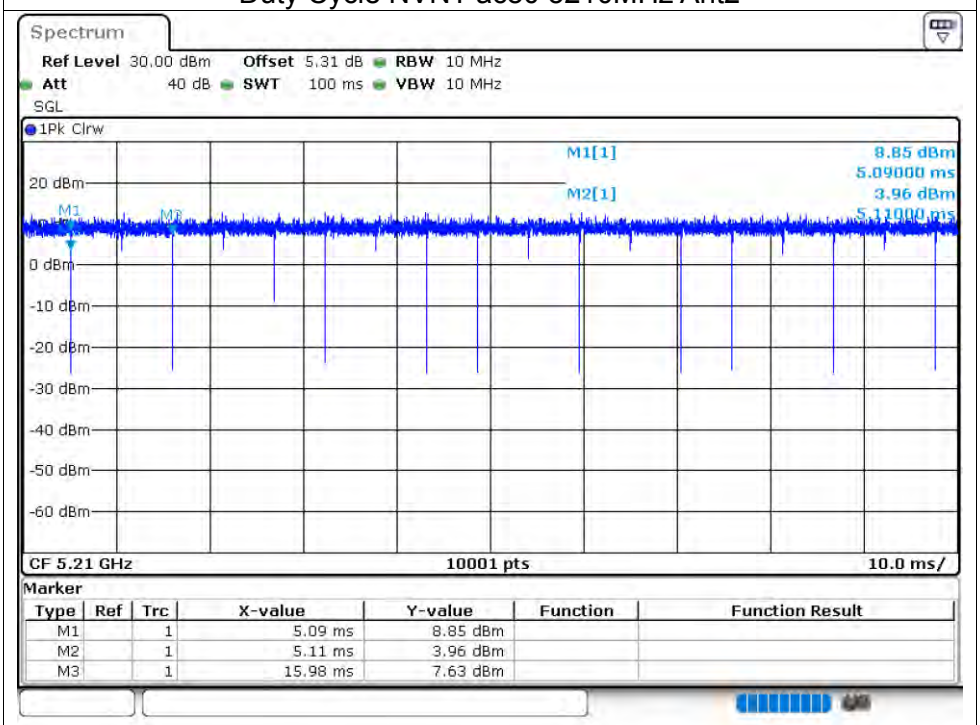
Duty Cycle NVNT ac40 5230MHz Ant2



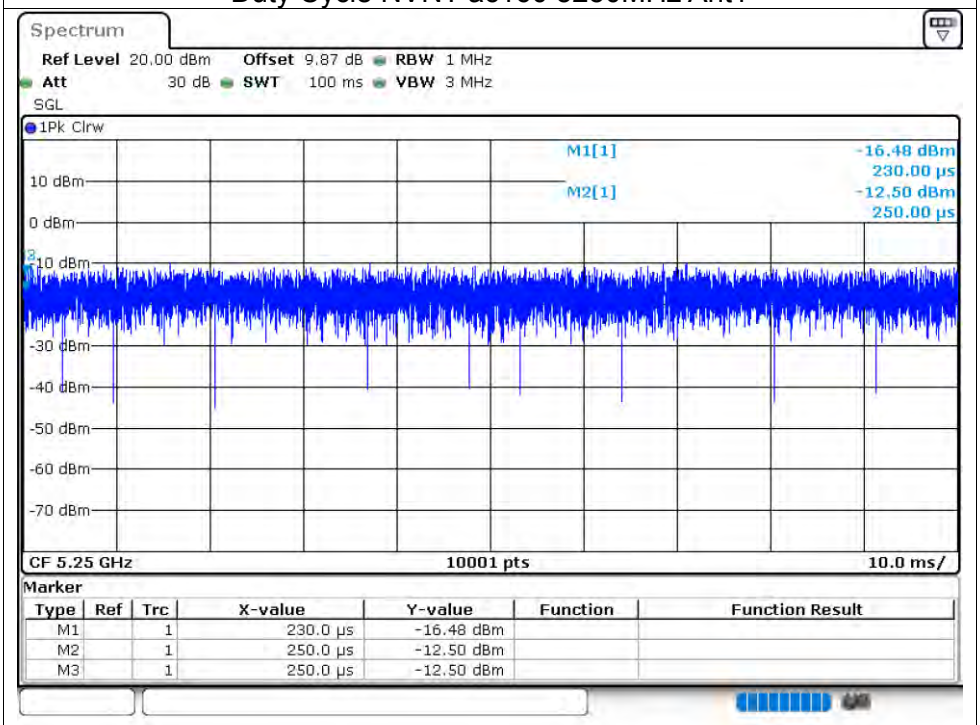
Duty Cycle NVNT ac80 5210MHz Ant1



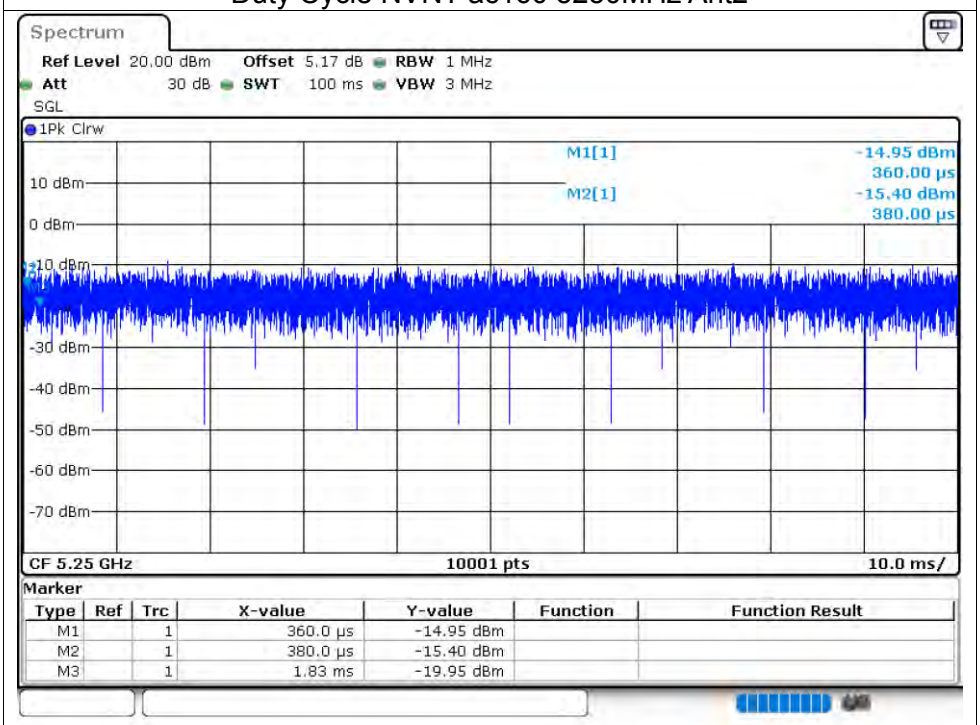
Duty Cycle NVNT ac80 5210MHz Ant2



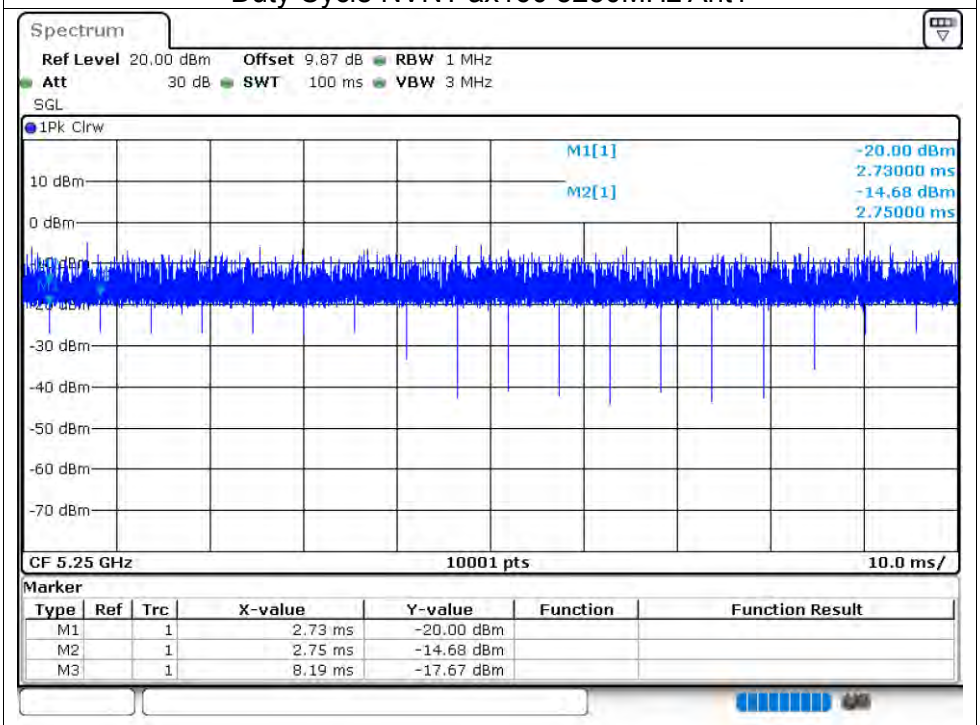
Duty Cycle NVNT ac160 5250MHz Ant1



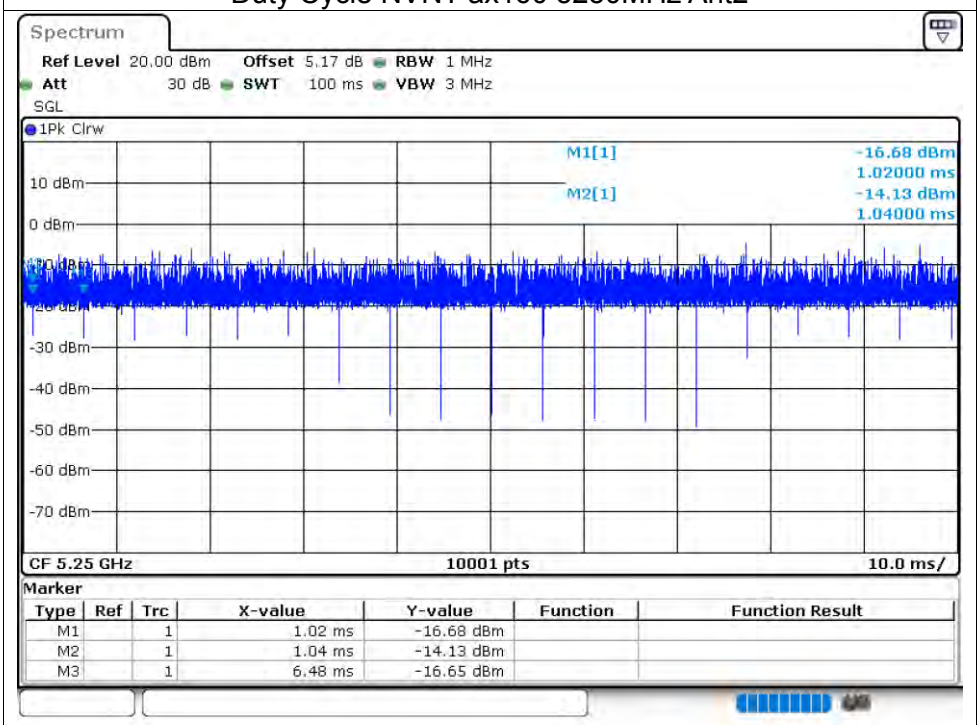
Duty Cycle NVNT ac160 5250MHz Ant2



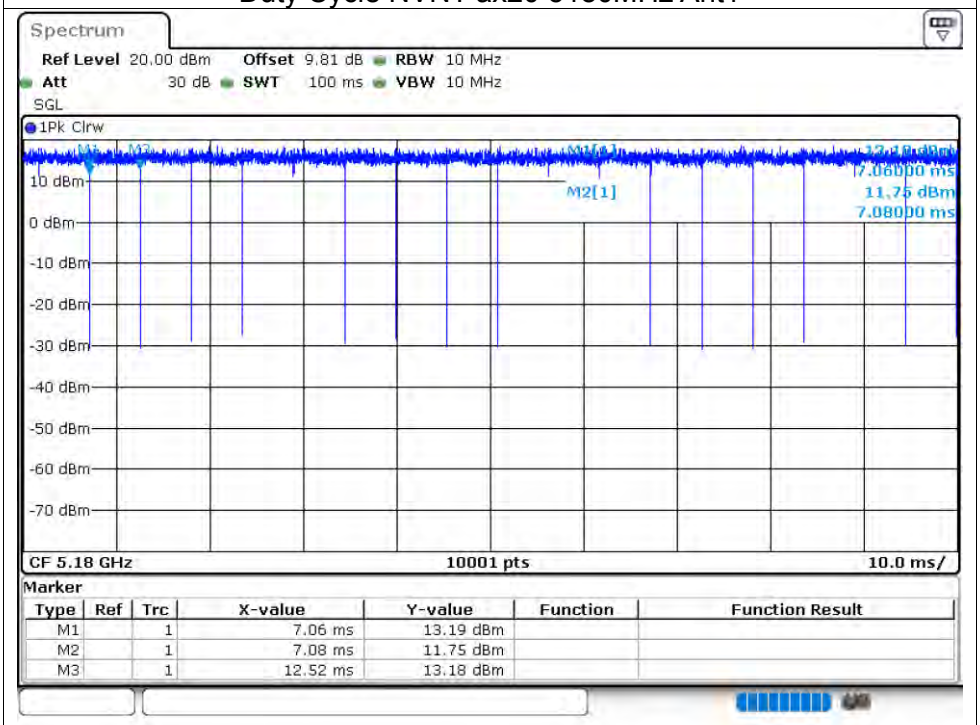
Duty Cycle NVNT ax160 5250MHz Ant1



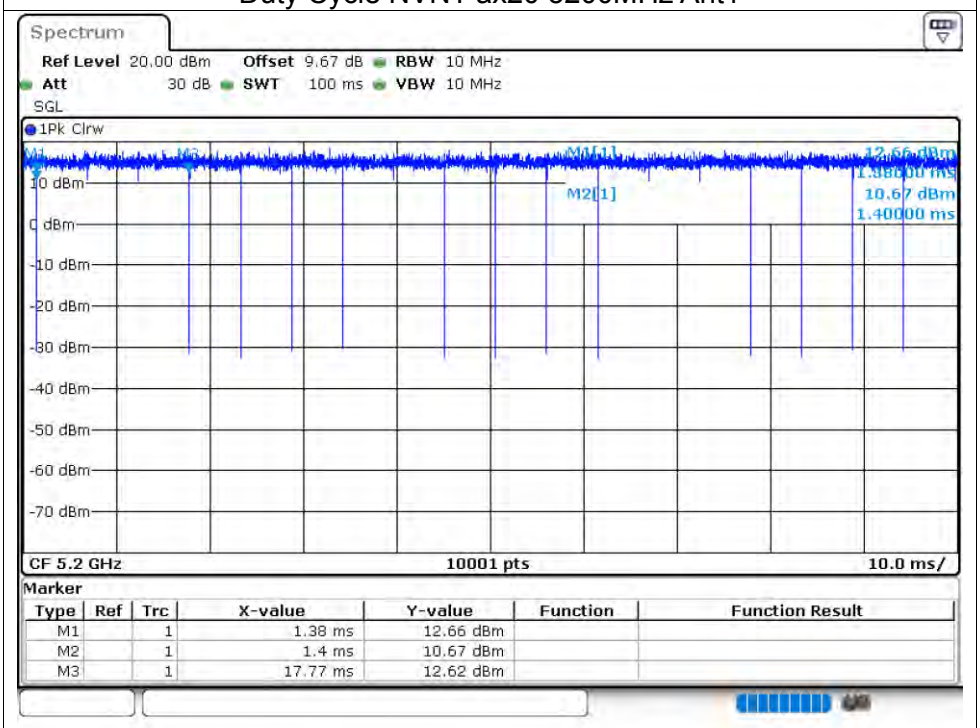
Duty Cycle NVNT ax160 5250MHz Ant2



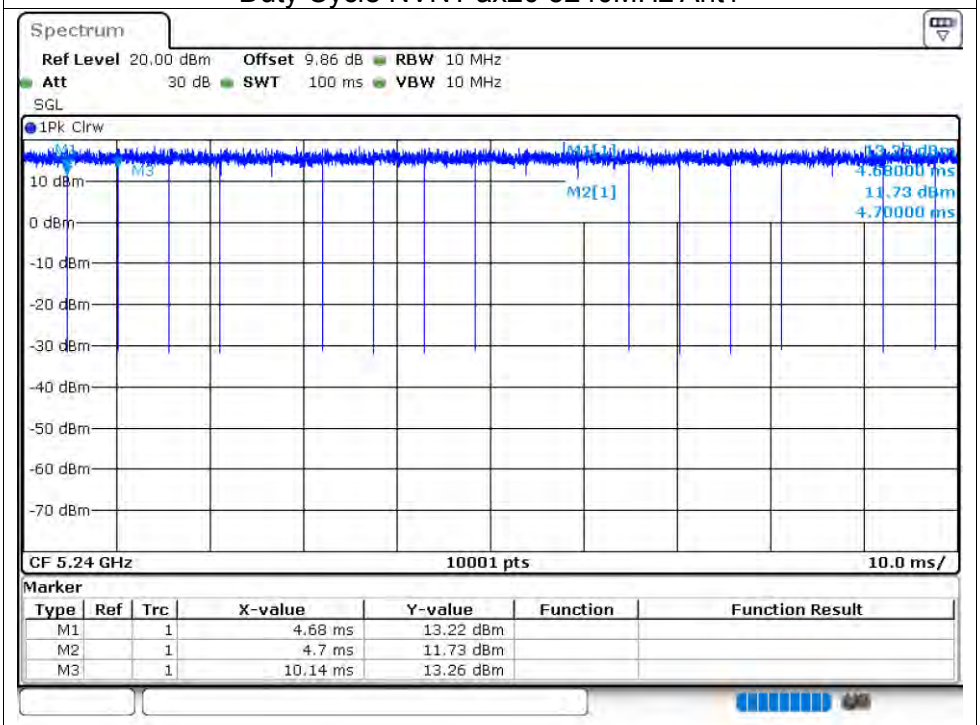
Duty Cycle NVNT ax20 5180MHz Ant1



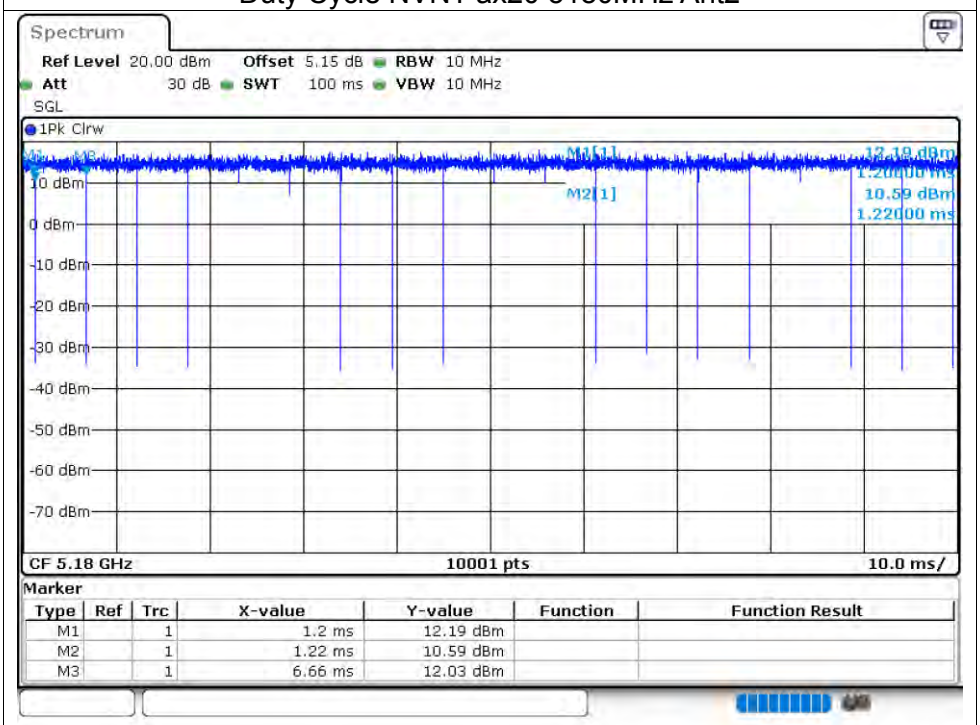
Duty Cycle NVNT ax20 5200MHz Ant1



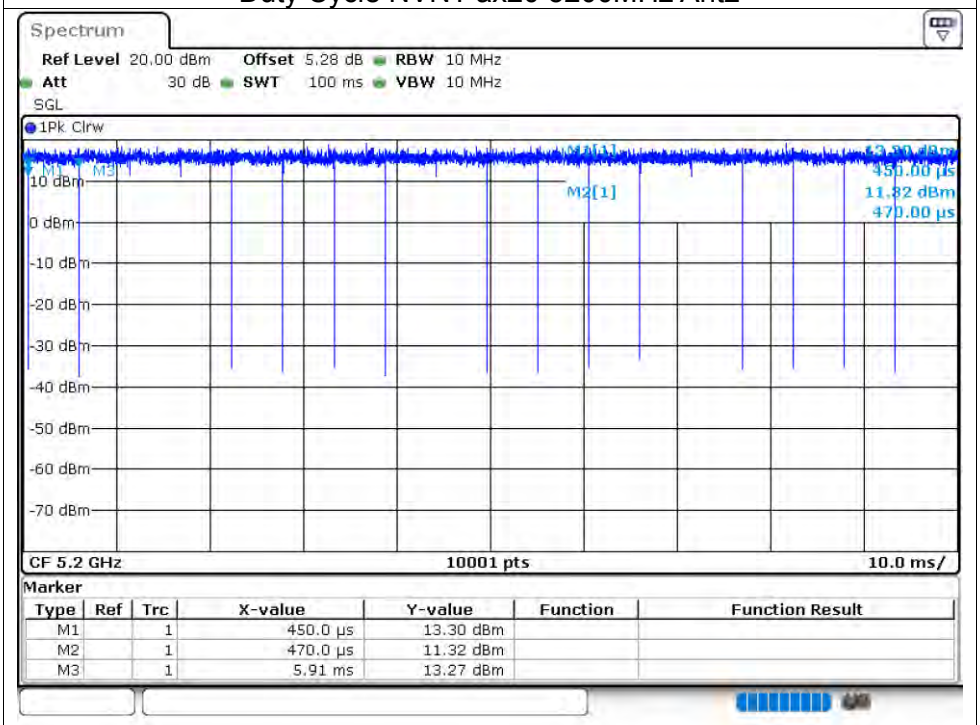
Duty Cycle NVNT ax20 5240MHz Ant1



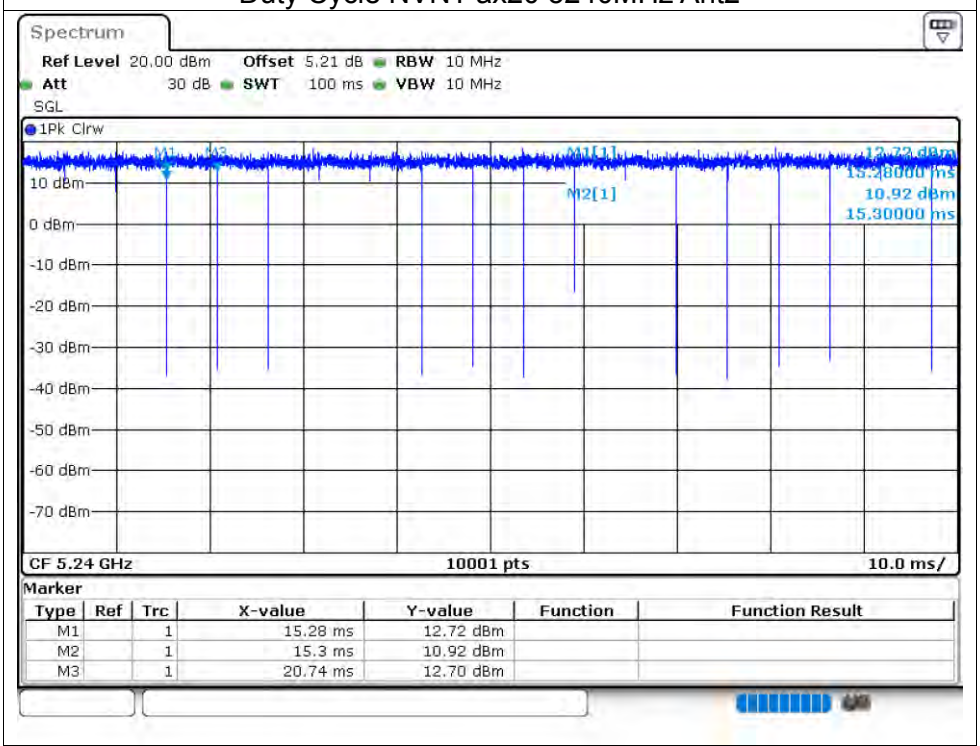
Duty Cycle NVNT ax20 5180MHz Ant2



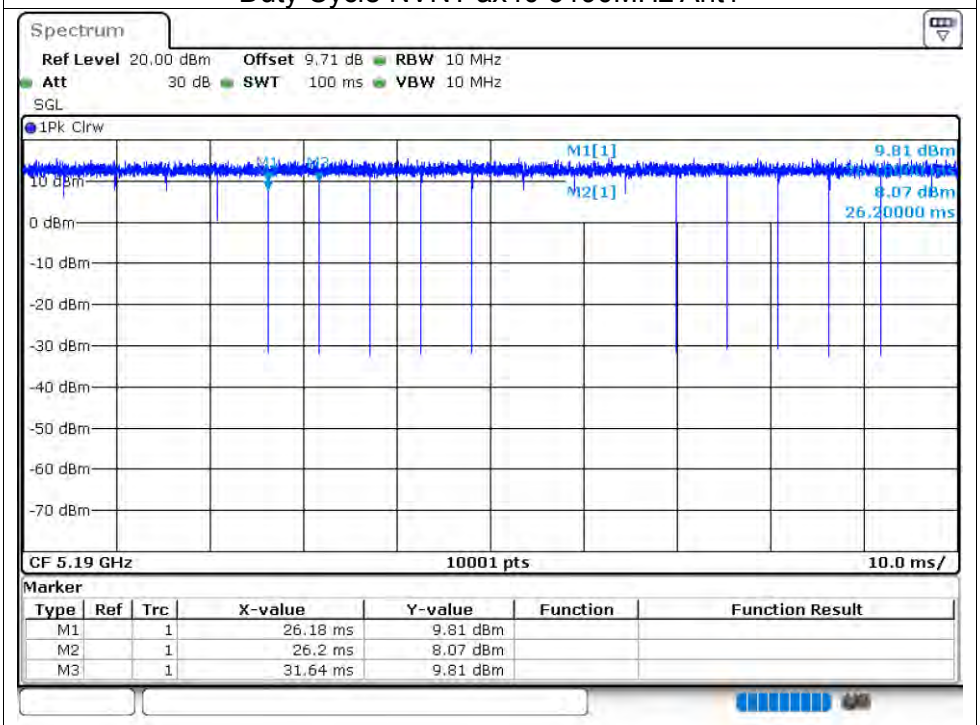
Duty Cycle NVNT ax20 5200MHz Ant2



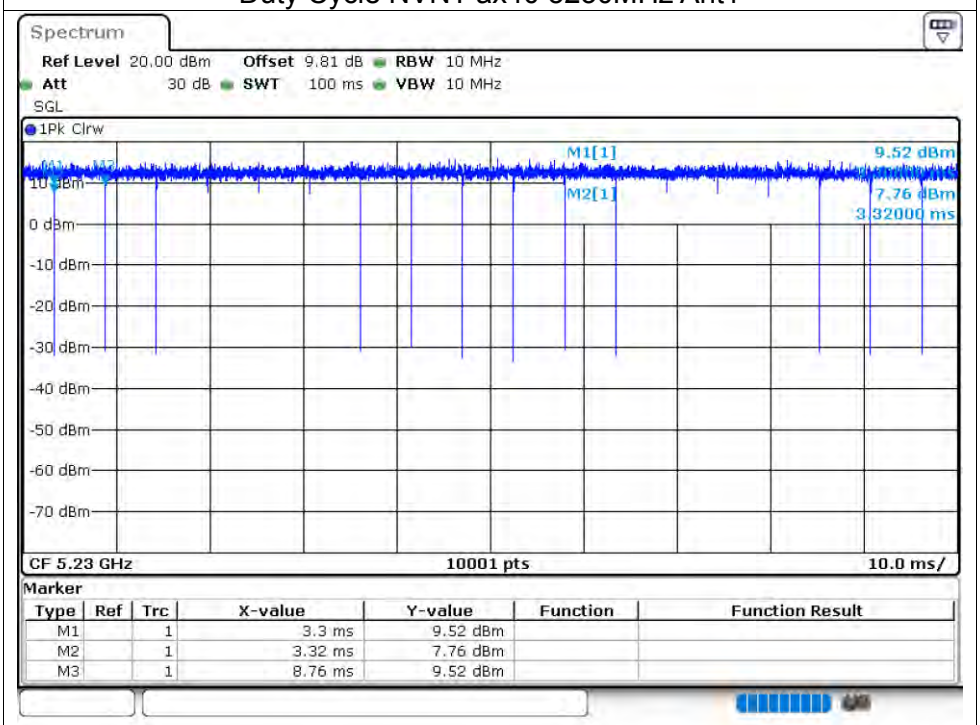
Duty Cycle NVNT ax20 5240MHz Ant2



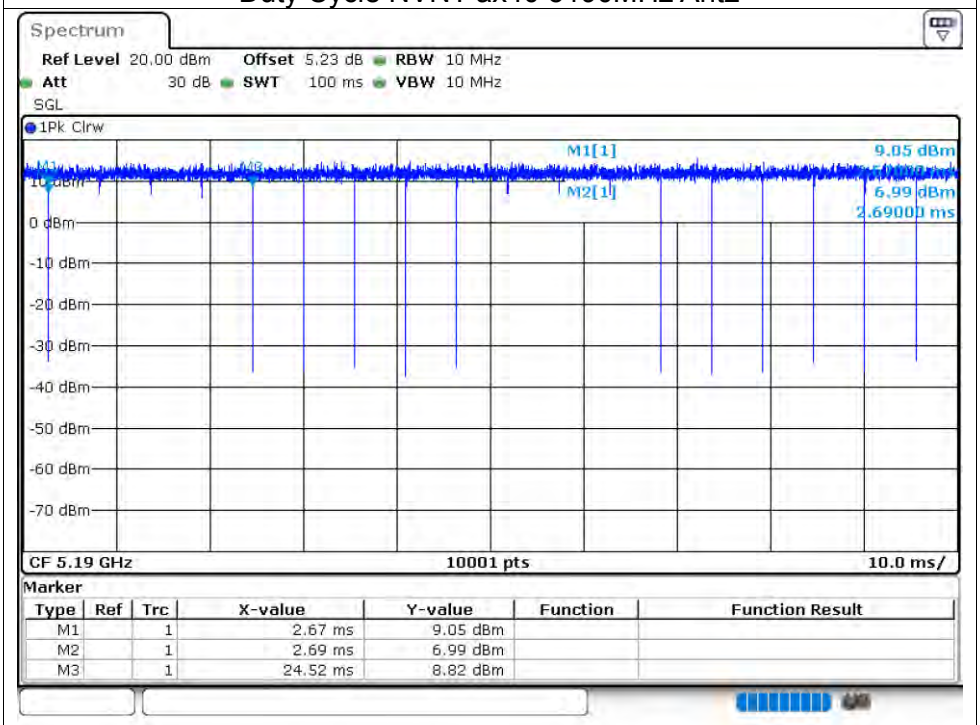
Duty Cycle NVNT ax40 5190MHz Ant1



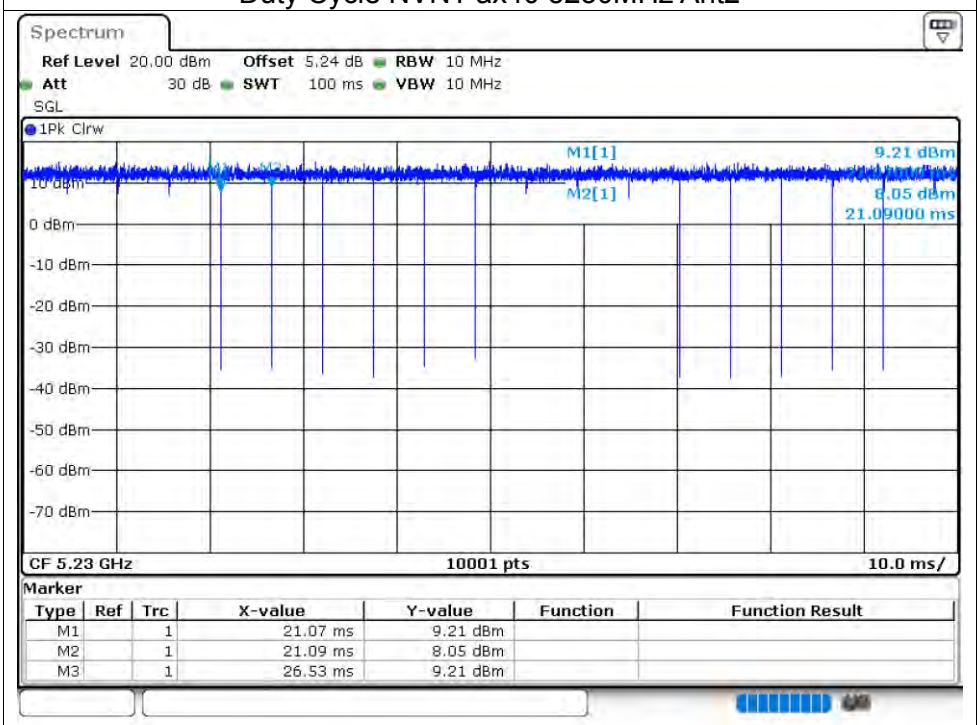
Duty Cycle NVNT ax40 5230MHz Ant1



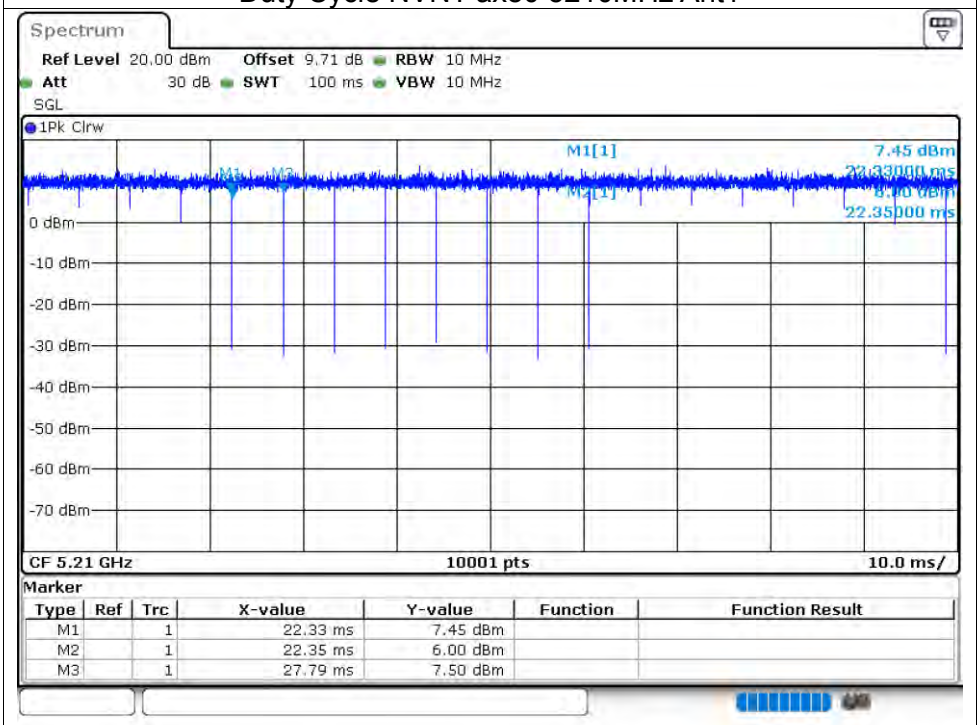
Duty Cycle NVNT ax40 5190MHz Ant2



Duty Cycle NVNT ax40 5230MHz Ant2



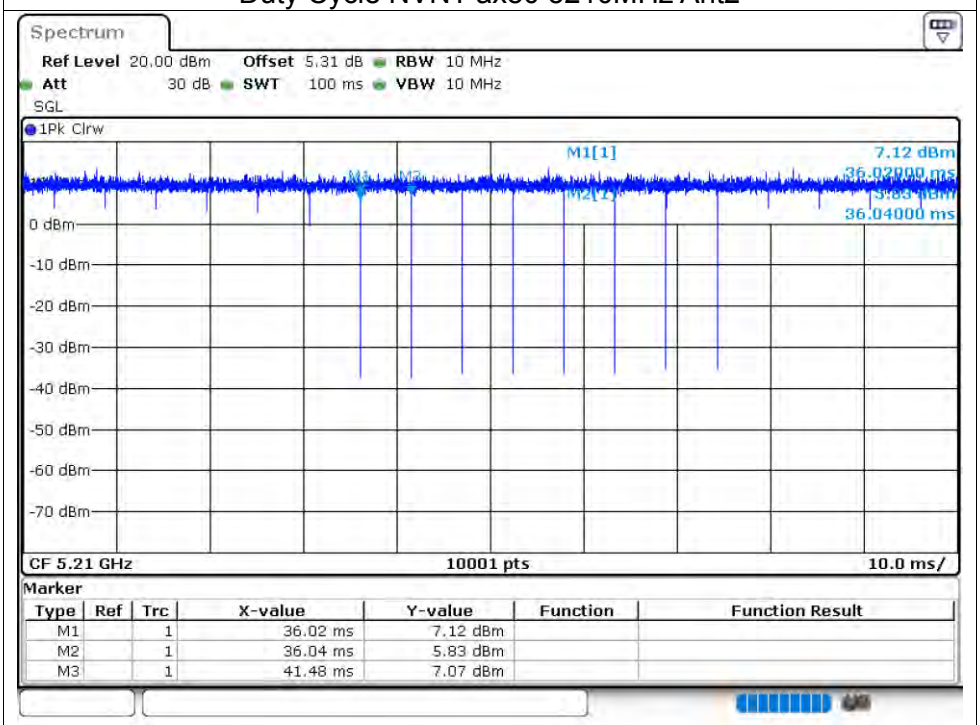
Duty Cycle NVNT ax80 5210MHz Ant1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	22.33 ms	7.45 dBm		
M2		1	22.35 ms	6.00 dBm		
M3		1	27.79 ms	7.50 dBm		

Duty Cycle NVNT ax80 5210MHz Ant2



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	36.02 ms	7.12 dBm		
M2		1	36.04 ms	5.83 dBm		
M3		1	41.48 ms	7.07 dBm		

7.1.2 MAXIMUM CONDUCTED OUTPUT POWER

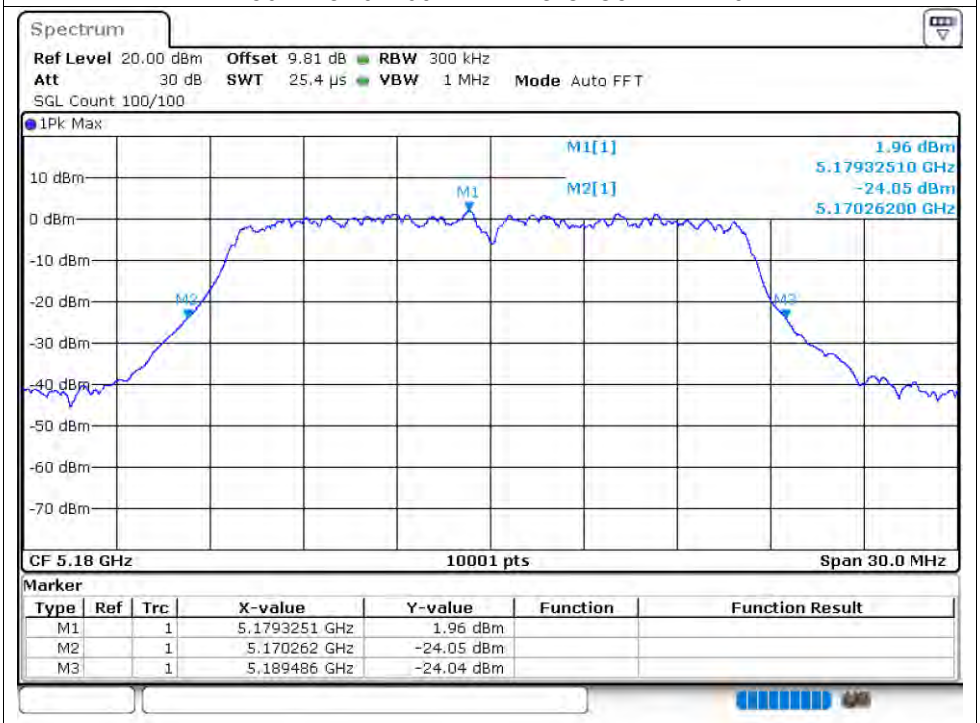
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	11.22	-	24	Pass
NVNT	a	5200	Ant1	11.2	-	24	Pass
NVNT	a	5240	Ant1	10.97	-	24	Pass
NVNT	a	5180	Ant2	12.11	-	24	Pass
NVNT	a	5200	Ant2	11.26	-	24	Pass
NVNT	a	5240	Ant2	10.36	-	24	Pass
NVNT	n20	5180	Ant1	11.15	14.62	24	Pass
NVNT	n20	5180	Ant2	12.03			
NVNT	n20	5200	Ant1	11.03	14.14	24	Pass
NVNT	n20	5200	Ant2	11.22			
NVNT	n20	5240	Ant1	10.8	13.52	24	Pass
NVNT	n20	5240	Ant2	10.19			
NVNT	n40	5190	Ant1	11.72	14.47	24	Pass
NVNT	n40	5190	Ant2	11.18			
NVNT	n40	5230	Ant1	10.91	13.75	24	Pass
NVNT	n40	5230	Ant2	10.56			
NVNT	ac20	5180	Ant1	11.08	14.17	24	Pass
NVNT	ac20	5180	Ant2	11.24			
NVNT	ac20	5200	Ant1	11.06	14.11	24	Pass
NVNT	ac20	5200	Ant2	11.15			
NVNT	ac20	5240	Ant1	10.79	13.51	24	Pass
NVNT	ac20	5240	Ant2	10.2			
NVNT	ac40	5190	Ant1	11.79	14.48	24	Pass
NVNT	ac40	5190	Ant2	11.12			
NVNT	ac40	5230	Ant1	10.86	13.71	24	Pass
NVNT	ac40	5230	Ant2	10.54			
NVNT	ac80	5210	Ant1	10.95	13.91	24	Pass
NVNT	ac80	5210	Ant2	10.85			
NVNT	ac160	5250	Ant1	11.49	13.98	24	Pass
NVNT	ac160	5250	Ant2	10.39			
NVNT	ax160	5250	Ant1	11.53	14.01	24	Pass
NVNT	ax160	5250	Ant2	10.39			
NVNT	ax20	5180	Ant1	11.1	14.19	24	Pass
NVNT	ax20	5180	Ant2	11.25			
NVNT	ax20	5200	Ant1	11.15	14.19	24	Pass
NVNT	ax20	5200	Ant2	11.22			
NVNT	ax20	5240	Ant1	10.83	13.55	24	Pass
NVNT	ax20	5240	Ant2	10.22			
NVNT	ax40	5190	Ant1	11.58	14.36	24	Pass
NVNT	ax40	5190	Ant2	11.11			
NVNT	ax40	5230	Ant1	10.82	13.64	24	Pass
NVNT	ax40	5230	Ant2	10.43			
NVNT	ax80	5210	Ant1	11.02	13.99	24	Pass
NVNT	ax80	5210	Ant2	10.94			

7.1.3 -26DB BANDWIDTH

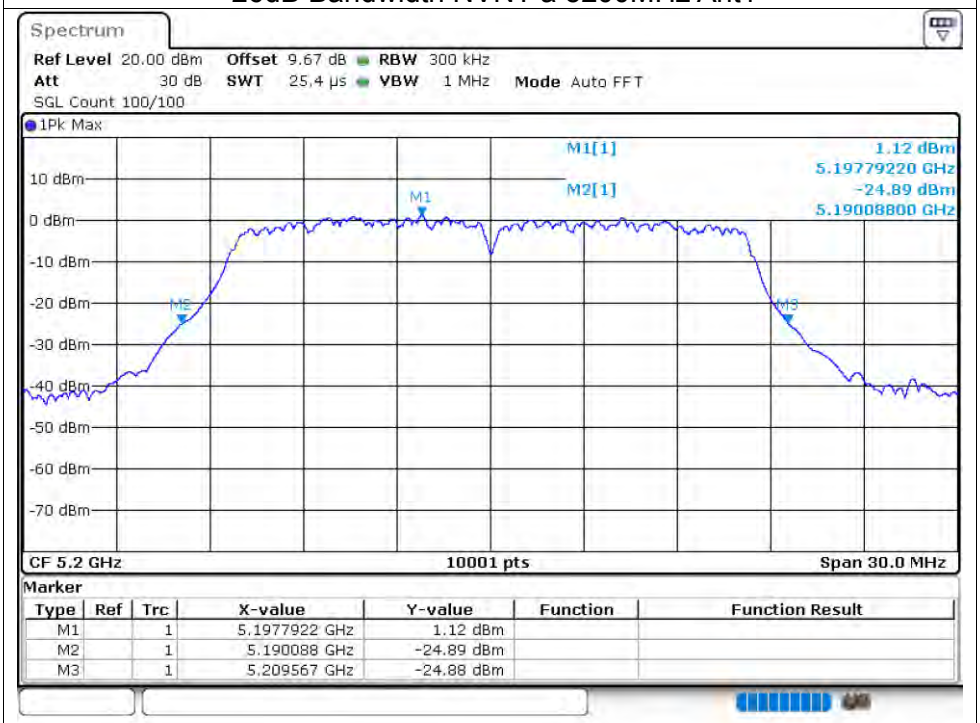
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	19.224	Pass
NVNT	a	5200	Ant1	19.479	Pass
NVNT	a	5240	Ant1	18.951	Pass
NVNT	a	5180	Ant2	18.87	Pass
NVNT	a	5200	Ant2	18.753	Pass
NVNT	a	5240	Ant2	18.795	Pass
NVNT	n20	5180	Ant1	19.947	Pass
NVNT	n20	5200	Ant1	19.974	Pass
NVNT	n20	5240	Ant1	20.013	Pass
NVNT	n20	5180	Ant2	20.499	Pass
NVNT	n20	5200	Ant2	20.343	Pass
NVNT	n20	5240	Ant2	19.959	Pass
NVNT	n40	5190	Ant1	39.9	Pass
NVNT	n40	5230	Ant1	39.984	Pass
NVNT	n40	5190	Ant2	40.2	Pass
NVNT	n40	5230	Ant2	40.104	Pass
NVNT	ac20	5180	Ant1	19.998	Pass
NVNT	ac20	5200	Ant1	20.463	Pass
NVNT	ac20	5240	Ant1	20.187	Pass
NVNT	ac20	5180	Ant2	20.13	Pass
NVNT	ac20	5200	Ant2	20.265	Pass
NVNT	ac20	5240	Ant2	19.968	Pass
NVNT	ac40	5190	Ant1	40.008	Pass
NVNT	ac40	5230	Ant1	40.14	Pass
NVNT	ac40	5190	Ant2	40.272	Pass
NVNT	ac40	5230	Ant2	40.14	Pass
NVNT	ac80	5210	Ant1	81.768	Pass
NVNT	ac80	5210	Ant2	82.968	Pass
NVNT	ac160	5250	Ant1	159.648	Pass
NVNT	ac160	5250	Ant2	160.464	Pass
NVNT	ax160	5250	Ant1	160.776	Pass
NVNT	ax160	5250	Ant2	160.632	Pass
NVNT	ax20	5180	Ant1	21.18	Pass
NVNT	ax20	5200	Ant1	20.688	Pass
NVNT	ax20	5240	Ant1	20.646	Pass
NVNT	ax20	5180	Ant2	20.931	Pass
NVNT	ax20	5200	Ant2	21.126	Pass
NVNT	ax20	5240	Ant2	20.934	Pass
NVNT	ax40	5190	Ant1	40.512	Pass
NVNT	ax40	5230	Ant1	40.62	Pass
NVNT	ax40	5190	Ant2	40.806	Pass
NVNT	ax40	5230	Ant2	40.74	Pass
NVNT	ax80	5210	Ant1	82.596	Pass
NVNT	ax80	5210	Ant2	82.308	Pass

Test Graphs

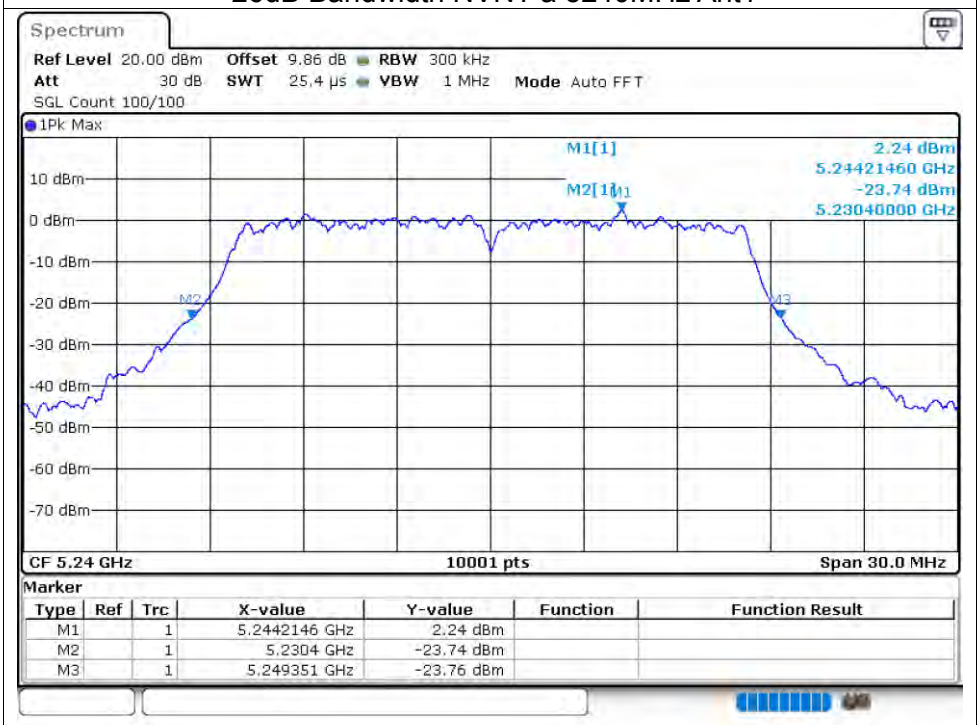
-26dB Bandwidth NVNT a 5180MHz Ant1



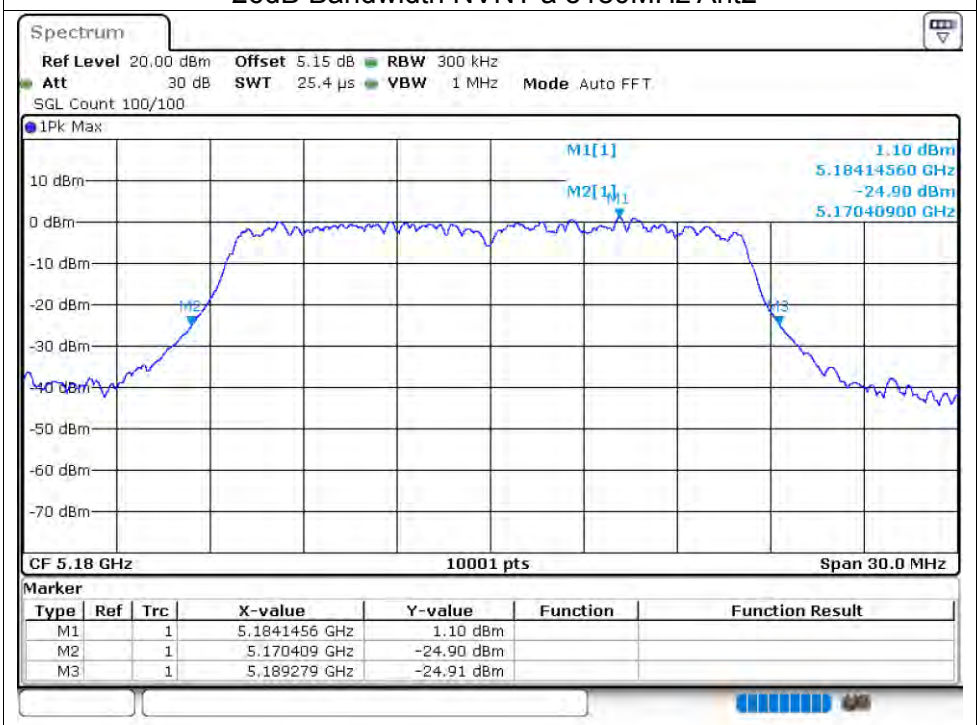
-26dB Bandwidth NVNT a 5200MHz Ant1



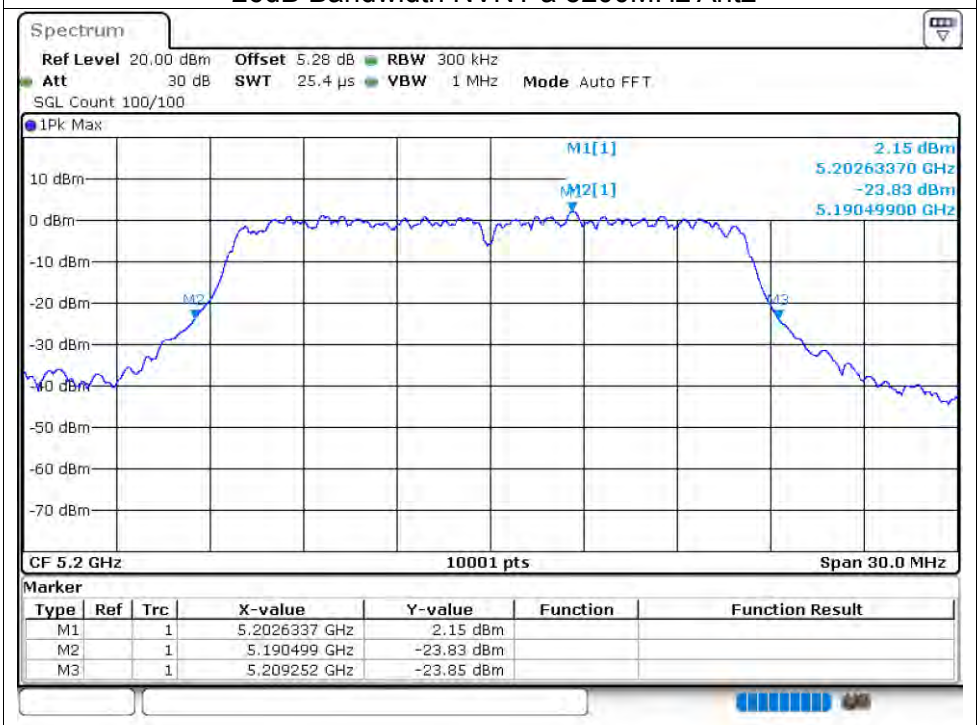
-26dB Bandwidth NVNT a 5240MHz Ant1



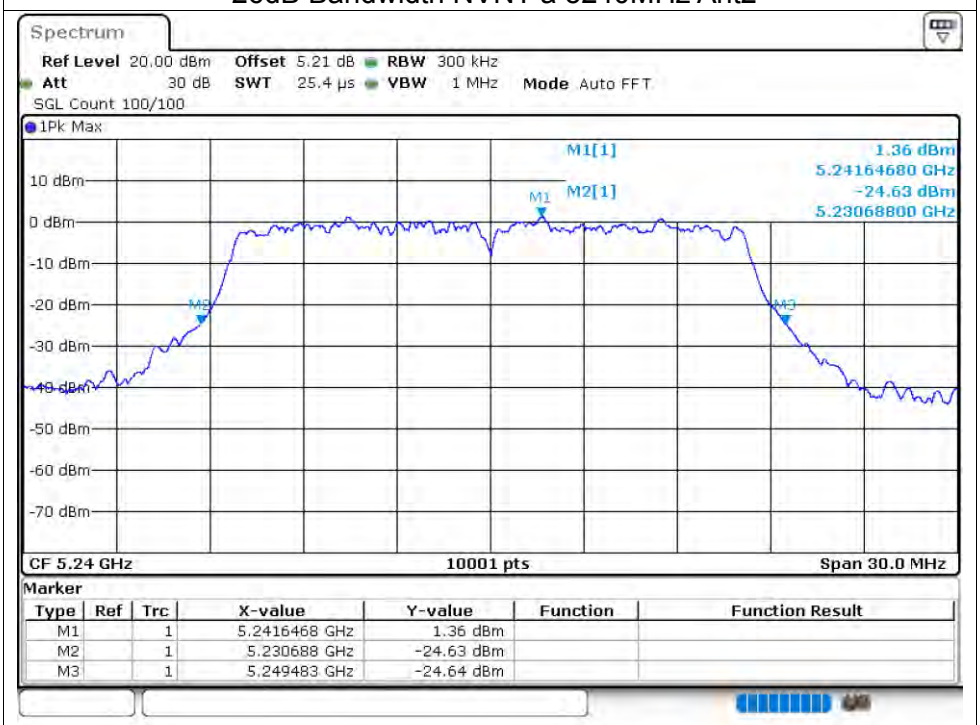
-26dB Bandwidth NVNT a 5180MHz Ant2



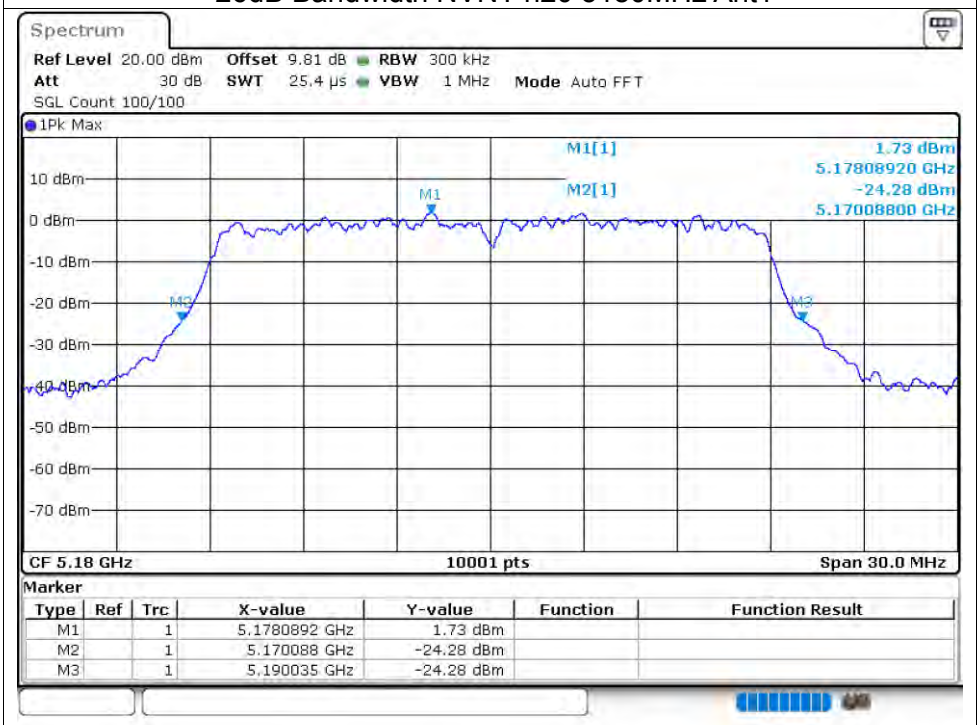
-26dB Bandwidth NVNT a 5200MHz Ant2



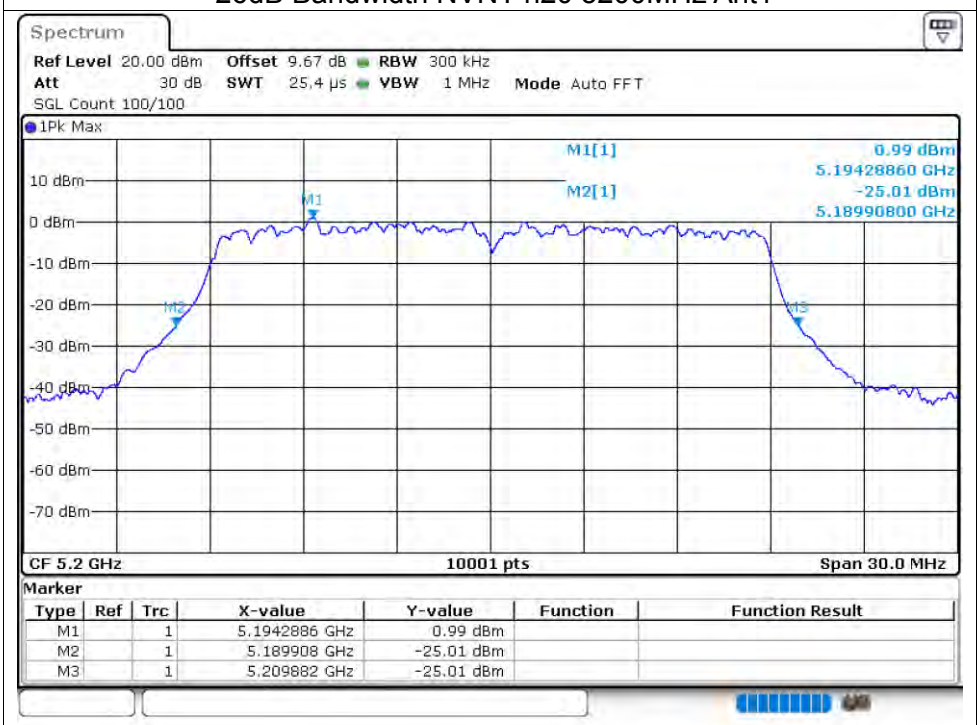
-26dB Bandwidth NVNT a 5240MHz Ant2



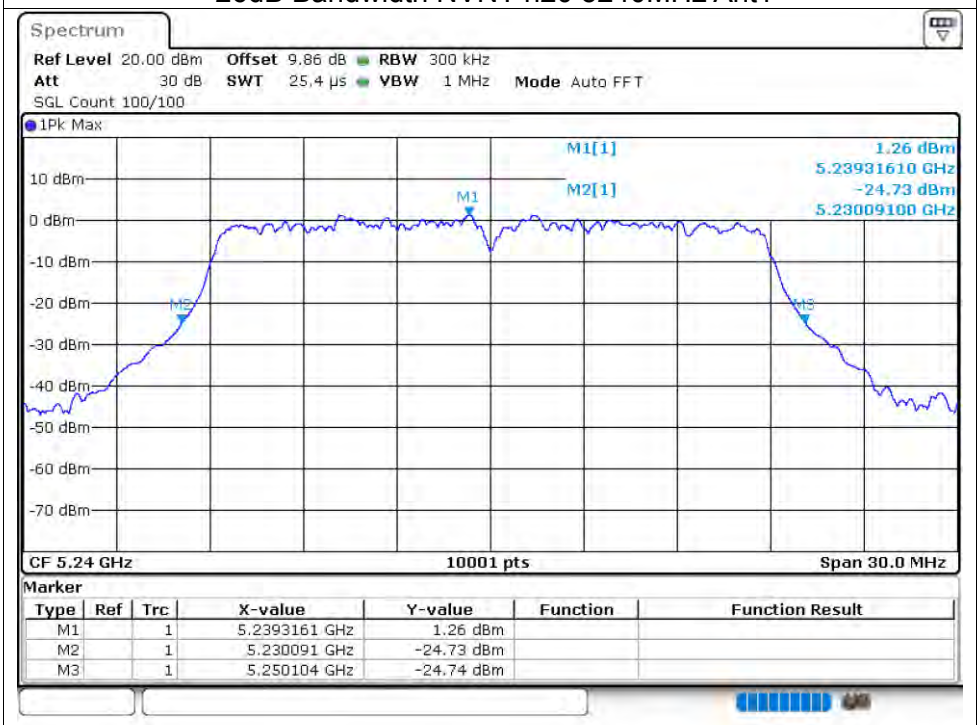
-26dB Bandwidth NVNT n20 5180MHz Ant1



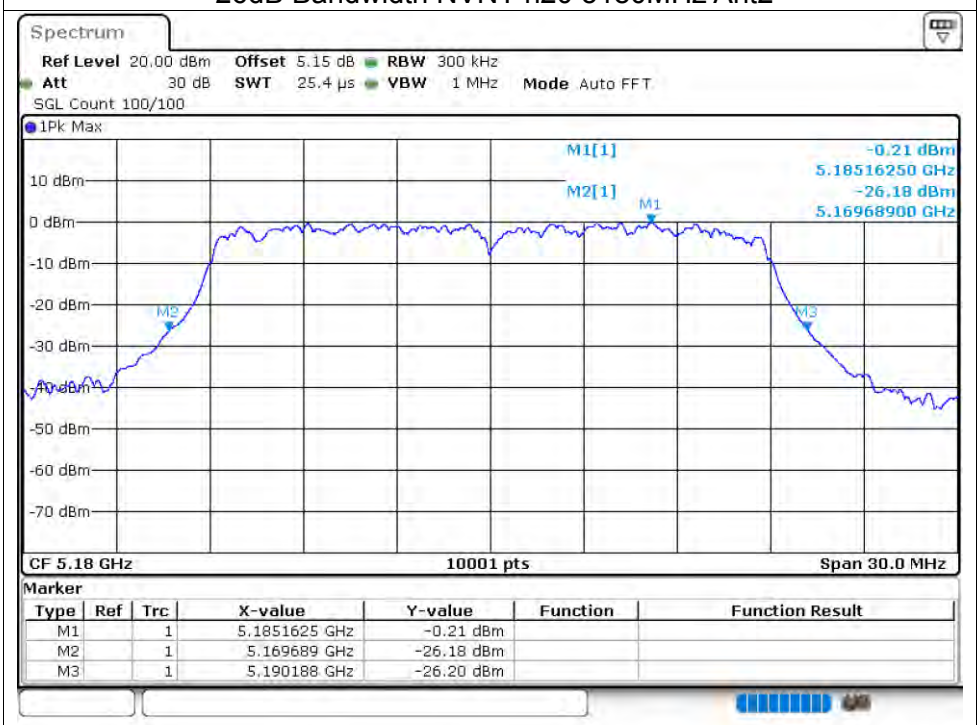
-26dB Bandwidth NVNT n20 5200MHz Ant1



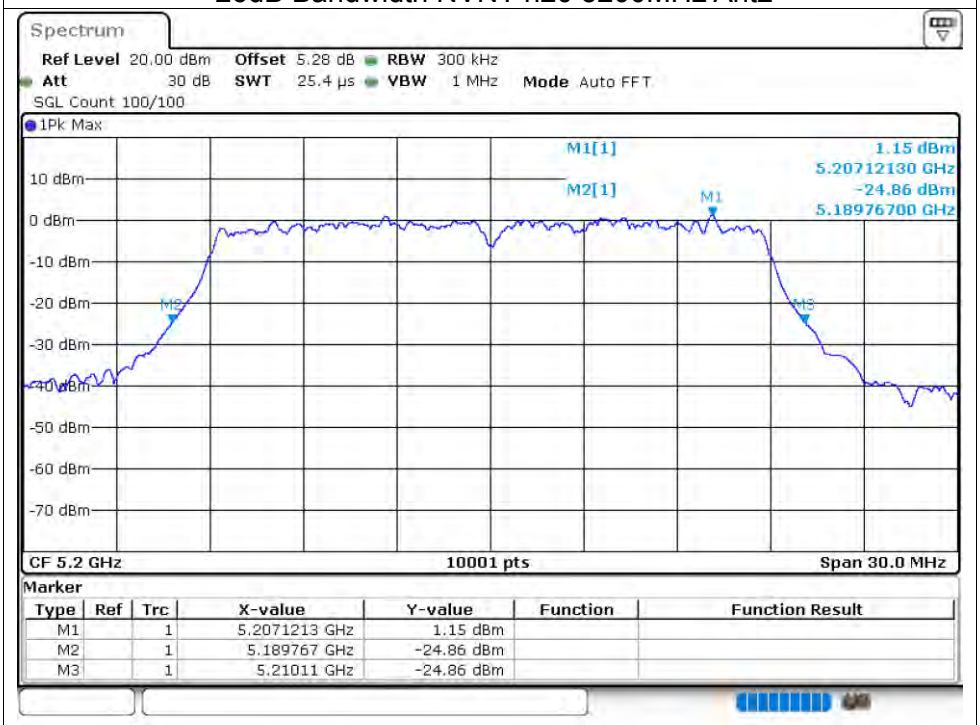
-26dB Bandwidth NVNT n20 5240MHz Ant1



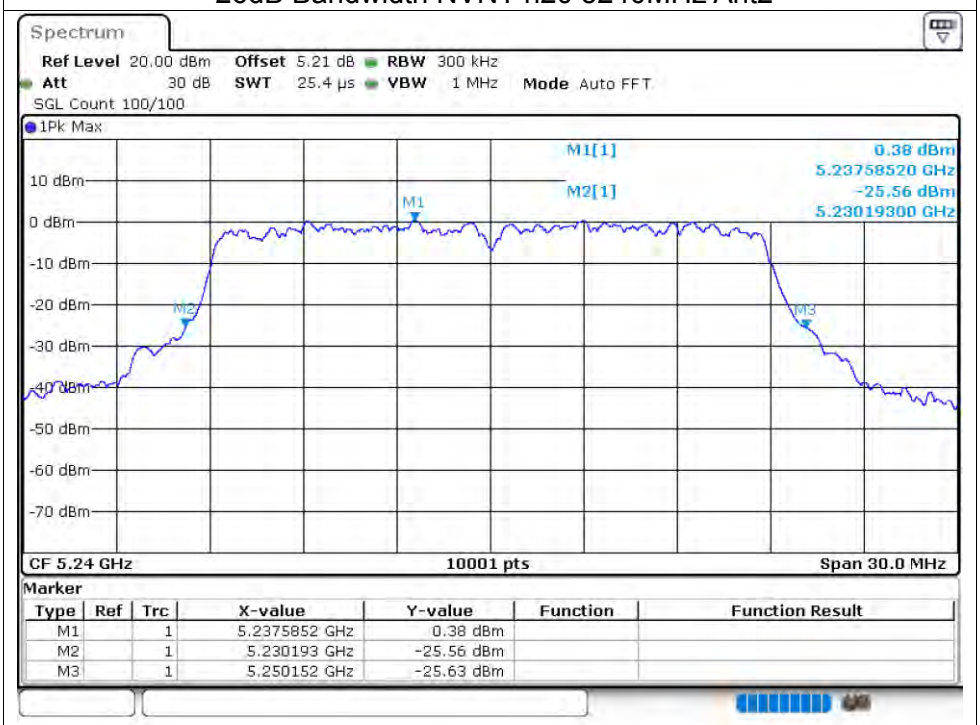
-26dB Bandwidth NVNT n20 5180MHz Ant2



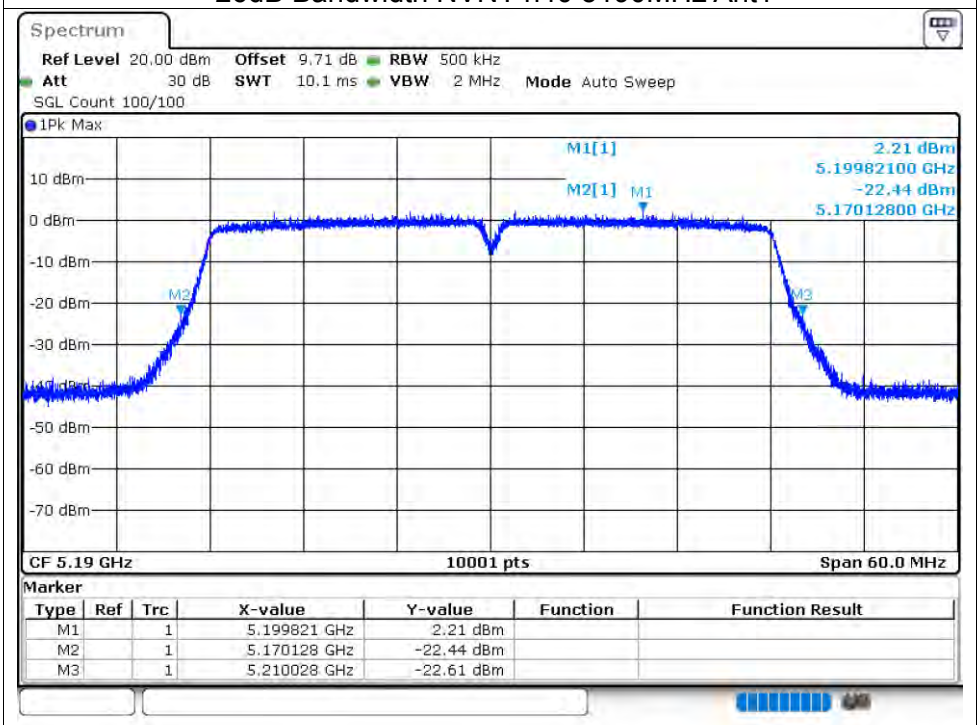
-26dB Bandwidth NVNT n20 5200MHz Ant2



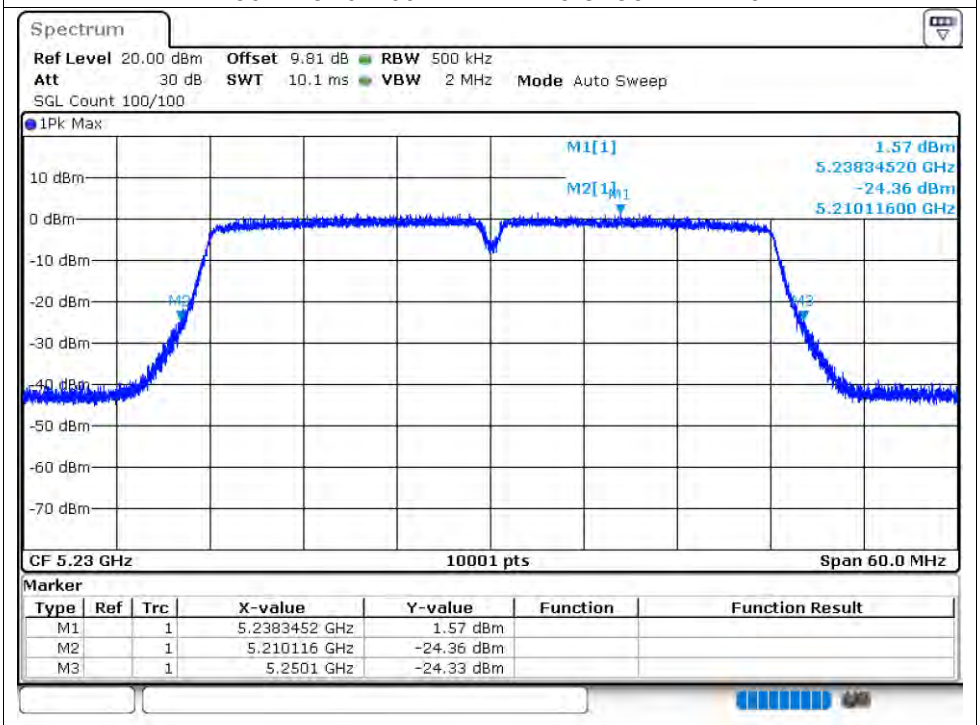
-26dB Bandwidth NVNT n20 5240MHz Ant2



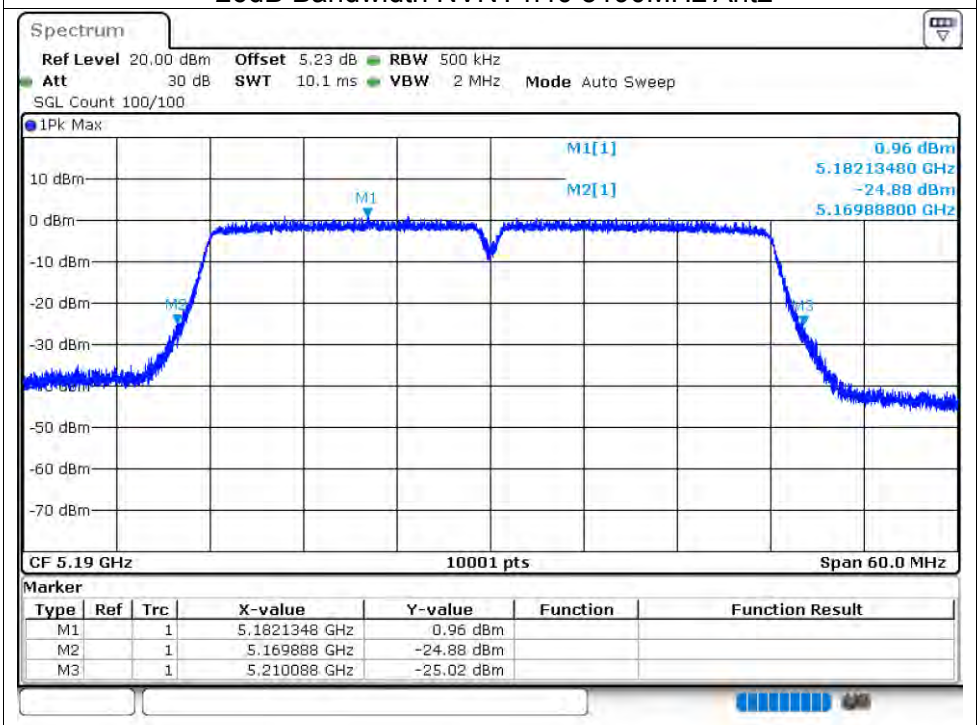
-26dB Bandwidth NVNT n40 5190MHz Ant1



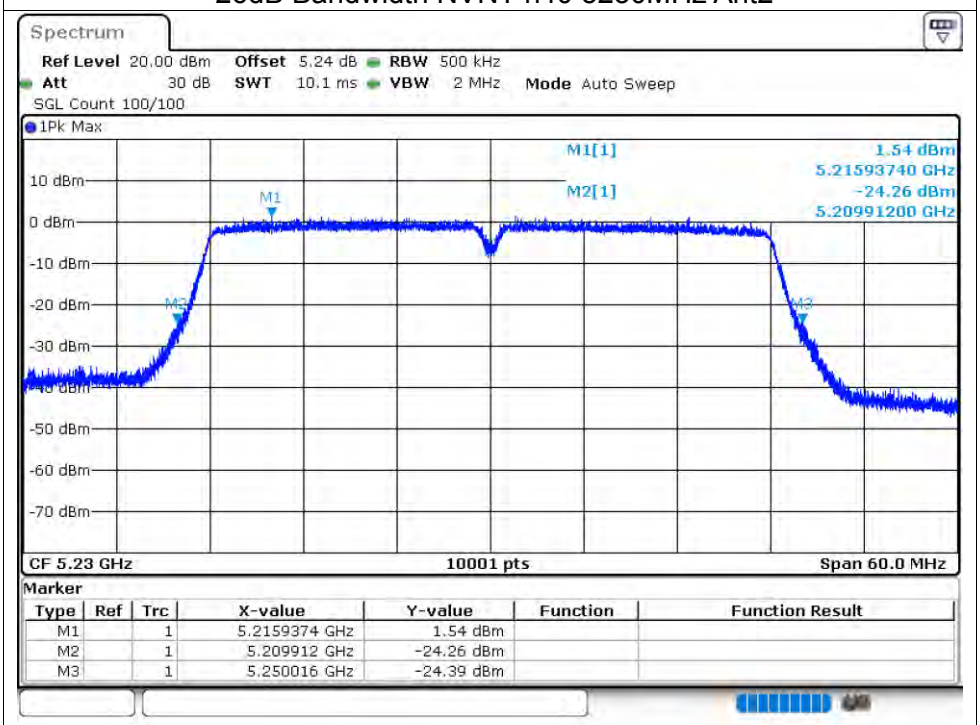
-26dB Bandwidth NVNT n40 5230MHz Ant1



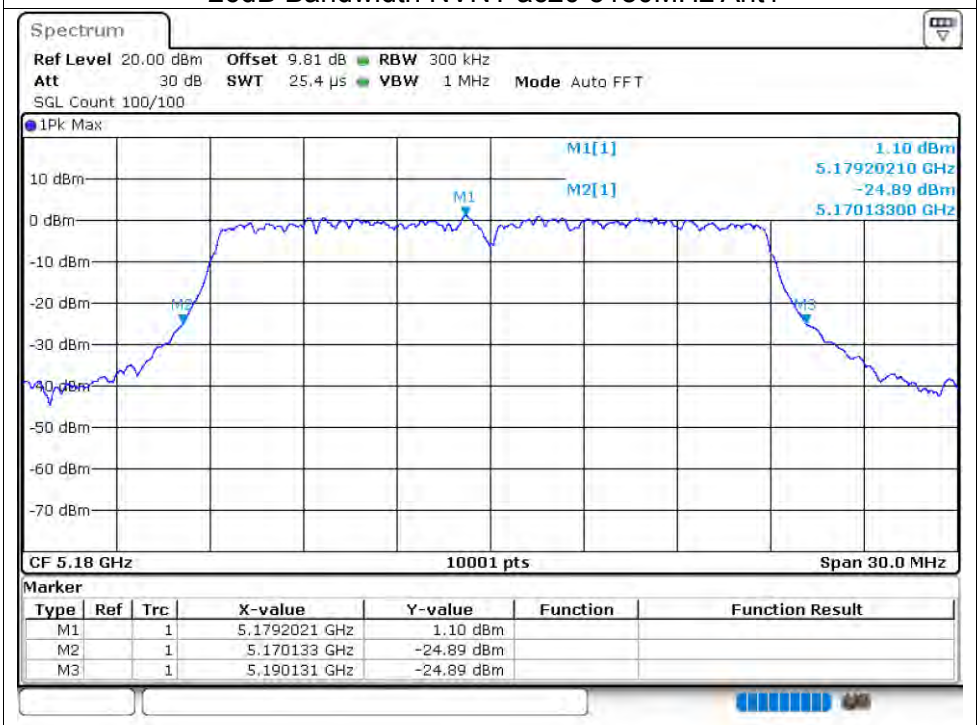
-26dB Bandwidth NVNT n40 5190MHz Ant2



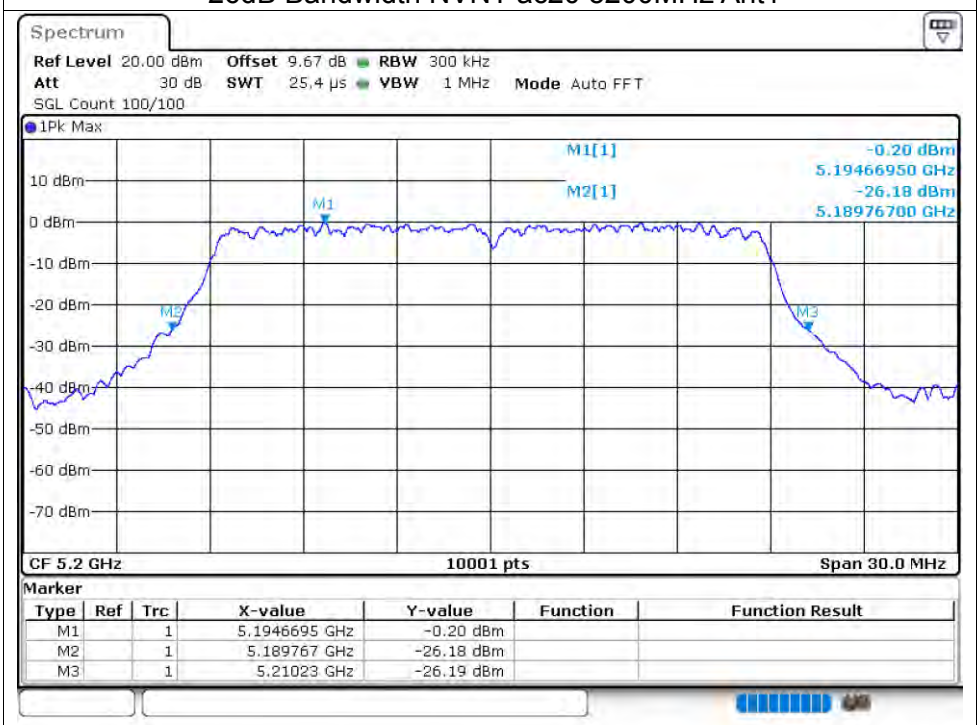
-26dB Bandwidth NVNT n40 5230MHz Ant2



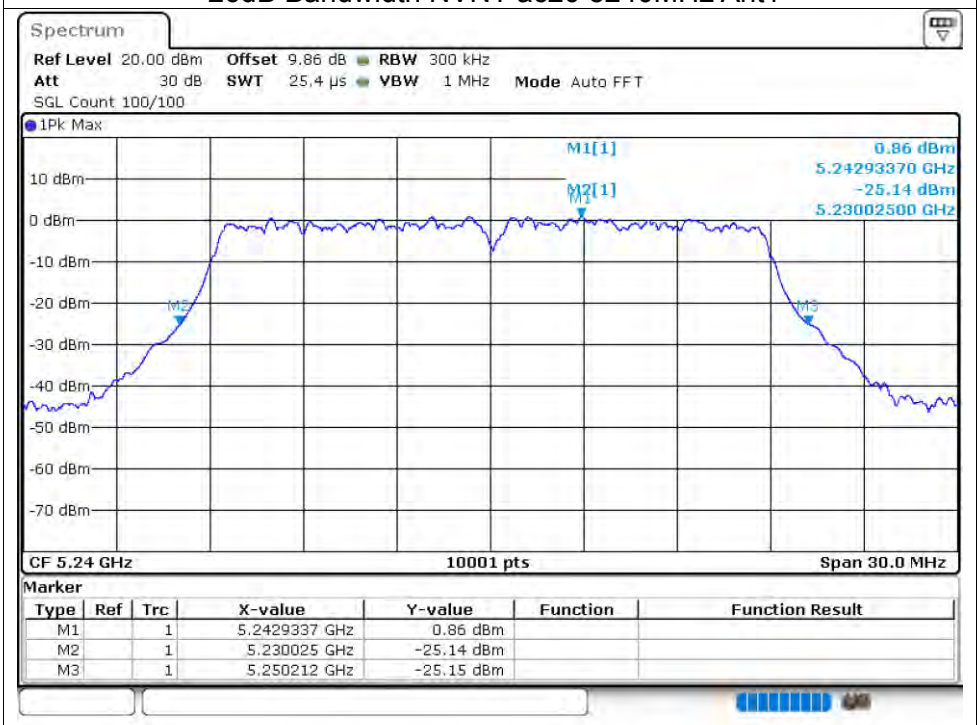
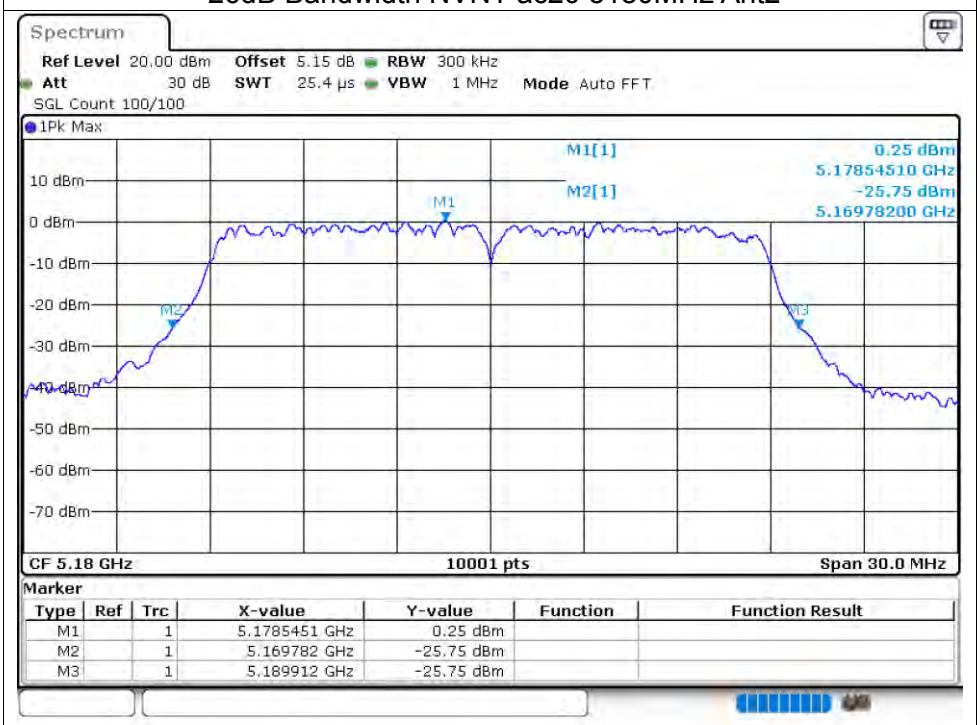
-26dB Bandwidth NVNT ac20 5180MHz Ant1



-26dB Bandwidth NVNT ac20 5200MHz Ant1



-26dB Bandwidth NVNT ac20 5240MHz Ant1



-26dB Bandwidth NVNT ac20 5180MHz Ant2