RF
TEST REPORT

Report No.	**: 191104028SZN-004**
Model No.	**: 100002634**
FCC ID:	**: 2AA3H-S6064**
Issued Date	**: December 5, 2019**

Applicant: **SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD**

Test Method/ Standard: **FCC Part 15 Subpart E;**
KDB 789033 D02 v02r01;
KDB 662911 D01 v02r01;
ANSI C63.10-2013

Test By: **Intertek Testing Services Shenzhen Ltd. Longhua Branch**
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Table of Contents

Summary of Tests

FCC Parts	Test	Section	Results
15.203	Antenna Requirement	1.3	Pass
15.407 a (1)/(3)	Maximum output power test	3	Pass
15.407 a (1)/(3)	Power Spectrum Density test	4	Pass
15.407 e	6dB Bandwidth	5	Pass
15.407 b, 15.205, 15.209	Radiated spurious emission test	6	Pass
15.207	AC line conducted emission test	7	Pass
15.407 g	Frequency Stability	8	Pass

1. General information

1.1 Identification of the EUT

Product:	Onn. 5.1.2 Atmos Soundbar, onn. 5.1.2 Atmos Soundbar
Model No.:	100002634
Type of Device:	Slave device
Nominal Channel Bandwidth:	802.11a/n-HT20 (20 MHz), 802.11n-HT40 (40MHz), 802.11ac (20/40/80MHz)
Operating Frequency:	5150 MHz ~ 5250 MHz, 5725~5850MHz
Channel Number:	4 channels for 5180 MHz ~ 5240 MHz (802.11a/n/ac-HT20); 2 channels for 5190 MHz ~ 5230 MHz (802.11n/ac-HT40); 1 channel for 5210 MHz (802.11ac-HT80); 5 channels for 5745 MHz ~ 5825 MHz (802.11a/n/ac-HT20); 2 channels for 5755 MHz ~ 5795 MHz (802.11n/ac-HT40); 1 channel for 5775 MHz (802.11ac-HT80);
Rated Power:	AC 100-240V, 50/60Hz
Test Date(s):	November 4, 2019 – December 4, 2019
Note 1:	This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
Note 2:	When determining the test conclusion, the Measurement Uncertainty of test has been considered.

1.2 Additional information about the EUT

The equipment under test (EUT) is a Soundbar with Bluetooth, 2.4G SRD, and WiFi functions. The 2.4G SRD module carry with double antennas, but they can`t transmit at the same time. Bluetooth and Wi-Fi transmitters are share one antenna while they cannot transmit simultaneously. The EUT is powered by AC 120V/60Hz. For more detailed features description, please refer to the user's manual.

For more detail features, please refer to User's description as file name "descri.pdf".

Related Submittal(s) Grants

This is an application for certification of U–NII device (5GHz Wi-Fi transmitter portion).
For the BT 5.0 EDR mode was tested and demonstrated in report 191104028SZN-001.
For the BT 5.0 BLE mode was tested and demonstrated in report 191104028SZN-002.
For the 2.4GHz WIFI function was tested and demonstrated in report 191104028SZN-003.
For the 2.4GHz SRD function was tested and demonstrated in report 191104028SZN-005.
For other functions were reported in the SDOC report: 191104030SZN-001.

1.3 Antenna description (15.203)

The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.
Antenna Gain: 3.3dBi Max for 5G WIFI

1.4 Special Accessories

HDMI cable (Shielded, Length 6ft)

1.5 Equipment Modification

Any modifications installed previous to testing by SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

1.6 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

1.7 Peripherals equipment

Description	Manufacturer	Remark
LED TV (Provided by Intertek)	Sony	KDL-24EX520
iPod (Provided by Intertek)	Apple	A1367
USB flash disk (Provided by Intertek)	Kingston	DTSE9G2
Detachable AC Cord for Soundbar (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	without core, Length 4.92ft
Optical cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	Length 6ft
LAN cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	unshielded, Length 6ft
3.5mm to 3.5mm stereo audio cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	unshielded, Length 6ft
HDMI cable (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	Shielded, without core, Length 6ft
HDMI cable*3 (Provided by Intertek)	UGREEN	Shielded, without core, Length 6ft
Remote control (Provided by applicant)	SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD	100002634
Dummy load 1 (Provided by Intertek)	N/A	100Ω
Dummy load 2 (Provided by Intertek)	N/A	100Ω

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 E, Section15.203, 15.207, 15.209, 15.407 and ANSI C63.10/2013, method of measurement: KDB 789033 D02.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band was all meet limit requirement, thus we evaluate the EUT pass the specified test.

The AC power conducted emissions was invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz (15.207 paragraph).

Radiated emissions were invested cover the frequency range from 9KHz to 30MHz using a receiver RBW of 9kHz, from 30 MHz to 1000 MHz using a receiver RBW of 120 kHz record QP reading, and the frequency over 1 GHz using a spectrum analyzer RBW of 1 MHz, VBW of 3MHz, Detector=Peak record for Peak reading, RBW of 1 MHz, VBW of 3MHz, Detector=RMS record for Average reading recorded on the report.

The EUT setup configurations please refer to the photo of radiated setup photos.pdf & conducted setup photos.pdf.

2.2 Operation mode

The EUT was Tested by AC 120V/60Hz and it was run in TX mode that was controlled by client provided RF testing program.

The EUT was transmitted continuously during the test. Both designing schemes have been considered, the worst-case test result was showed in the report.

With individual verifying, the maximum output power was found at 6 Mbps data rate for 802.11a mode, 6.5 Mbps data rate for 802.11n-HT20 mode, 13.5 Mbps data rate for 802.11n-HT40 mode, 29.3Mbps data rate for 802.11ac. The final tests were executed under these conditions and recorded in this report individually.

Table for Parameters of Test Software Setting
During testing, Channel & Power Controlling Software is SecureCRT which provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3. Maximum Output Power test (FCC 15.407)

3.1 Operating environment

Temperature:	23	℃
Relative Humidity:	54	%
Atmospheric Pressure:	1001	hPa

3.2 Test setup & procedure

The power output per FCC §15.407(a) was measured on the EUT using a 50ohm SMA cable connected to spectrum analyzer and the measurement method refer to 789033 D02. Power was read directly and cable loss correction (1.5dB) was added to the reading to obtain power at the EUT antenna terminals.

3.3 Limit

Operating Frequency (MHz)	Max Conducted TX Power	Max EIRP
5150~5250	*1 30dBm (1W) for master device	*2 4W (36dBm) with 6dBi antenna
	24dBm (250mW) for client device	
5725~5850	30dBm (1W)	*2 4W (36dBm) with 6dBi antenna

Remark: *1 The device declared as Slave device.

*2 Tx Power Reduction (dBm-by-dBi) required when antenna exceeds 6dBi.

For MIMO system of 802.11n/ac, total power is calculated by combining the output power of each antenna according to KDB662911.

1). 5.2G band Ant: 3.3dBi, so the Power limit of SISO will reduce to 30dBm for conducted TX power and 36dBm for EIRP. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 3.3 + 10 log(2) = 6.3 dBi> 6 dBi. So the Power limit will reduce to 23.7dBm (234.4mW) for conducted TX power and 35.7dBm (3715.4mW) for EIRP.

2). 5.8G band Ant: 3.3dBi, so the Power limit of SISO will reduce to 30dBm for conducted TX power and 36dBm for EIRP. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 3.3 + 10 log(2) = 6.3 dBi> 6 dBi. So the Power limit will reduce to 29.7dBm (933.3mW) for conducted TX power and 35.7dBm (3715.4mW) for EIRP.

3.4 Measured data of Maximum Output Power test results

5150 MHz ~ 5250 MHz, 5725 MHz ~ 5850 MHz

SISO Mode, Ant1:

Max Conducted TX Power

Mode	Channel	Data Rate (Mbps)	Output Power (dBm)	Limit (dBm)
802.11a	36	6	15.68	24
	40		15.76	24
	48		15.65	24
	149		14.40	30
	157		14.33	30
	165		14.63	30
802.11n-HT20	36	6.5	14.75	24
	40		14.84	24
	48		14.58	24
	149		13.42	30
	157		13.41	30
	165		13.56	30
802.11n-HT40	38	13.5	13.37	24
	46		12.94	24
	151		12.40	30
	159		12.59	30
802.11ac-HT20	36	6.5	15.03	24
	40		14.95	24
	48		14.78	24
	149		13.53	30
	157		13.34	30
	165		13.56	30
802.11ac-HT40	38	13.5	14.00	24
	46		13.65	24
	151		12.74	30
	159		10.42	30
802.11ac-HT80	42	29.3	10.49	24
	155		10.25	30

Max EIRP

Mode	Channel	Data Rate (Mbps)	Duty cycle	Output Power (dBm)	Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
802.11a	36	6	99%	15.68	3.3	18.98	36
	40			15.76	3.3	19.06	36
	48			15.65	3.3	18.95	36
	149			14.40	3.3	17.70	36
	157			14.33	3.3	17.63	36
	165			14.63	3.3	17.93	36
802.11n-HT20	36	6.5	99%	14.75	3.3	18.05	36
	40			14.84	3.3	18.14	36
	48			14.58	3.3	17.88	36
	149			13.42	3.3	16.72	36
	157			13.41	3.3	16.71	36
	165			13.56	3.3	16.86	36
802.11n-HT40	38	13.5	99%	13.37	3.3	16.67	36
	46			12.94	3.3	16.24	36
	151			12.40	3.3	15.70	36
	159			12.59	3.3	15.89	36
802.11ac-HT20	36	6.5	99%	15.03	3.3	18.33	36
	40			14.95	3.3	18.25	36
	48			14.78	3.3	18.08	36
	149			13.53	3.3	16.83	36
	157			13.34	3.3	16.64	36
	165			13.56	3.3	16.86	36
802.11ac-HT40	38	13.5	99%	14.00	3.3	17.30	36
	46			13.65	3.3	16.95	36
	151			12.74	3.3	16.04	36
	159			10.42	3.3	13.72	36
802.11ac-HT80	42	29.3	99%	10.49	3.3	13.79	36
	155			10.25	3.3	13.55	36

SISO Mode, Ant2:

Max Conducted TX Power

Mode	Channel	Data Rate (Mbps)	Output Power (dBm)	Limit (dBm)
802.11a	36	6	16.07	24
	40		15.88	24
	48		15.71	24
	149		15.10	30
	157		16.13	30
	165		16.55	30
802.11n-HT20	36	6.5	14.81	24
	40		14.72	24
	48		14.67	24
	149		14.34	30
	157		15.31	30
	165		15.73	30
802.11n-HT40	38	13.5	13.59	24
	46		13.49	24
	151		13.55	30
	159		14.75	30
802.11ac-HT20	36	6.5	15.06	24
	40		15.13	24
	48		15.08	24
	149		14.48	30
	157		15.35	30
	165		15.88	30
802.11ac-HT40	38	13.5	13.97	24
	46		13.94	24
	151		13.95	30
	159		8.27	30
802.11ac-HT80	42	29.3	10.48	24
	155		8.54	30

Max EIRP

Mode	Channel	Data Rate (Mbps)	Duty cycle	Output Power (dBm)	Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
802.11a	36	6	99%	16.07	3.3	19.37	36
	40			15.88	3.3	19.18	36
	48			15.71	3.3	19.01	36
	149			15.10	3.3	18.40	36
	157			16.13	3.3	19.43	36
	165			16.55	3.3	19.85	36
802.11n-HT20	36	6.5	99%	14.81	3.3	18.11	36
	40			14.72	3.3	18.02	36
	48			14.67	3.3	17.97	36
	149			14.34	3.3	17.64	36
	157			15.31	3.3	18.61	36
	165			15.73	3.3	19.03	36
802.11n-HT40	38	13.5	99%	13.59	3.3	16.89	36
	46			13.49	3.3	16.79	36
	151			13.55	3.3	16.85	36
	159			14.75	3.3	18.05	36
802.11ac-HT20	36	6.5	99%	15.06	3.3	18.36	36
	40			15.13	3.3	18.43	36
	48			15.08	3.3	18.38	36
	149			14.48	3.3	17.78	36
	157			15.35	3.3	18.65	36
	165			15.88	3.3	19.18	36
802.11ac-HT40	38	13.5	99%	13.97	3.3	17.27	36
	46			13.94	3.3	17.24	36
	151			13.95	3.3	17.25	36
	159			8.27	3.3	11.57	36
802.11ac-HT80	42	29.3	99%	10.48	3.3	13.78	36
	155			8.54	3.3	11.84	36

MIMO Mode, Ant1+Ant2:

Max Conducted TX Power

Mode	Channel	Data Rate (Mbps)	Output Power (dBm)			Limit (dBm)
			Ant 1	Ant 2	Total	
802.11n-HT20	36	26	14.63	12.04	16.5	23.7
	40		14.92	12.42	16.9	23.7
	48		14.43	12.32	16.5	23.7
	149		13.63	11.52	15.7	29.7
	157		13.35	11.47	15.5	29.7
	165		13.20	11.67	15.5	29.7
802.11n-HT40	38	54	14.12	12.22	16.3	23.7
	46		14.43	12.15	16.4	23.7
	151		13.87	11.92	16.0	29.7
	159		13.7	11.78	15.9	29.7
802.11ac-HT20	36	26	14.48	11.81	16.4	23.7
	40		14.37	11.87	16.3	23.7
	48		14.41	11.76	16.3	23.7
	149		13.45	11.21	15.5	29.7
	157		13.57	11.43	15.6	29.7
	165		13.63	11.34	15.6	29.7
802.11ac-HT40	38	54	14.23	12.42	16.4	23.7
	46		14.19	12.55	16.5	23.7
	151		13.27	11.59	15.5	29.7
	159		13.22	11.64	15.5	29.7
802.11ac-HT80	42	117.2	13.86	11.87	16.0	23.7
	155		12.59	10.32	14.6	29.7

Max EIRP

Mode	Channel	Data Rate (Mbps)	Duty cycle	Output Power (dBm)	Gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
802.11n-HT20	36	26	99%	16.5	6.3	22.80	35.7
	40			16.9	6.3	23.20	35.7
	48			16.5	6.3	22.80	35.7
	149			15.7	6.3	22.00	35.7
	157			15.5	6.3	21.80	35.7
	165			15.5	6.3	21.80	35.7
802.11n-HT40	38	54	99%	16.3	6.3	22.60	35.7
	46			16.4	6.3	22.70	35.7
	151			16.0	6.3	22.30	35.7
	159			15.9	6.3	22.20	35.7
802.11ac-HT20	36	26	99%	16.4	6.3	22.70	35.7
	40			16.3	6.3	22.60	35.7
	48			16.3	6.3	22.60	35.7
	149			15.5	6.3	21.80	35.7
	157			15.6	6.3	21.90	35.7
	165			15.6	6.3	21.90	35.7
802.11ac-HT40	38	54	99%	16.4	6.3	22.70	35.7
	46			16.5	6.3	22.80	35.7
	151			15.5	6.3	21.80	35.7
	159			15.5	6.3	21.80	35.7
802.11ac-HT80	42	117.2	99%	16.0	6.3	22.30	35.7
	155			14.6	6.3	20.90	35.7

4. Power Spectrum Density test (FCC 15.407)

4.1 Operating environment

Temperature:	23	℃
Relative Humidity:	54	%
Atmospheric Pressure:	1003	hPa

4.2 Test setup & procedure

Method of Measurement:

The power spectrum density per FCC §15.407(a) was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 1MHz/500KHz, the video bandwidth set at 3 MHz/2MHz (measurement method refers to KDB 789033 D02). Power spectrum density was read directly and cable loss (1.5 dB) reading to obtain power at the EUT antenna terminals.

4.3 Limit

Operating Frequency (MHz)	Max Conducted Power Spectral Density
5150~5250	*1 17dBm/MHz for master device
	11dBm/MHz for mobile/portable client device
5725~5850	30dBm/500KHz

Remark: *1 The device declared as Slave device.

*2 Tx Power Reduction (dBm-by-dBi) required when antenna exceeds 6dBi.

For MIMO system of 802.11n/ac, total power is calculated by combining the output power of each antenna according to KDB662911.

1). 5.2G band Ant: 3.3dBi, so the Power limit of SISO will reduce to 11dBm/MHz for Conducted Power Spectral Density. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 3.3 + 10 log(2) = 6.3 dBi> 6 dBi. So the Power limit will reduce to 10.7dBm/MHz for Conducted Power Spectral Density.

2). 5.8G band Ant: 3.3dBi, so the Power limit of SISO will reduce to 30dBm/500KHz for Conducted Power Spectral Density. In MIMO (2Tx), Ant1+Ant2 Directional gain = GANT + 10 log(N) dBi = 3.3 + 10 log(2) = 6.3 dBi> 6 dBi. So the Power limit will reduce to 29.7dBm/500KHz for Conducted Power Spectral Density

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4.4 Measured data of Power Spectrum Density test results

5150 MHz ~ 5250 MHz, 5725 MHz ~ 5850 MHz

SISO Mode, Ant1:

Mode	Channel	Data Rate (Mbps)	PSD (dBm/MHz or 500KHz) (See remark)	Limit (dBm/MHz or 500KHz) (See remark)
802.11a	36	6	4.70	11
	40		4.72	11
	48		4.75	11
	149		2.44	30
	157		2.30	30
	165		2.55	30
802.11n-HT20	36	6.5	4.03	11
	40		3.58	11
	48		3.24	11
	149		0.86	30
	157		0.82	30
	165		1.20	30
802.11n-HT40	38	13.5	-0.94	11
	46		-1.23	11
	151		-3.28	30
	159		-1.96	30
802.11ac-HT20	36	6.5	3.82	11
	40		4.07	11
	48		3.44	11
	149		1.83	30
	157		2.16	30
	165		1.48	30
802.11ac-HT40	38	13.5	-0.03	11
	46		-0.70	11
	151		-2.61	30
	159		-4.87	30
802.11ac-HT80	42	29.3	-6.41	11
	155		-7.68	30

Remark: dBm/MHz is for the band of 5150 MHz ~ 5250 MHz, and dBm/500kHz is for the band of 5725 MHz ~ 5850 MHz.

SISO Mode, Ant2:

Mode	Channel	Data Rate (Mbps)	PSD (dBm/MHz or 500KHz) (See remark)	Limit (dBm/MHz or 500KHz) (See remark)
802.11a	36	6	5.20	11
	40		4.67	11
	48		4.80	11
	149		3.18	30
	157		4.11	30
	165		4.38	30
802.11n-HT20	36	6.5	3.59	11
	40		3.82	11
	48		3.72	11
	149		2.28	30
	157		3.29	30
	165		3.48	30
802.11n-HT40	38	13.5	-0.10	11
	46		-0.11	11
	151		-1.63	30
	159		-0.12	30
802.11ac-HT20	36	6.5	4.07	11
	40		4.09	11
	48		3.87	11
	149		2.20	30
	157		3.05	30
	165		3.58	30
802.11ac-HT40	38	13.5	-0.07	11
	46		0.03	11
	151		-0.68	30
	159		-6.81	30
802.11ac-HT80	42	29.3	-6.25	11
	155		-9.57	30

Remark: dBm/MHz is for the band of 5150 MHz ~ 5250 MHz, and dBm/500kHz is for the band of 5725 MHz ~ 5850 MHz.

MIMO Mode, Ant1+Ant2

Mode	Channe	Data Rate (Mbps)	PSD (dBm/MHz)			Limit (dBm/MHz)
			Ant 1	Ant 2	Total	
802.11n-HT20	36	26	-0.10	5.10	6.25	10.7
	40		-1.87	5.89	6.56	10.7
	48		-2.20	5.50	6.18	10.7
	149		-6.11	2.96	3.47	29.7
	157		-7.94	2.03	2.45	29.7
	165		-8.50	2.39	2.73	29.7
802.11n-HT40	38	54	-6.04	1.98	2.62	10.7
	46		-5.50	1.75	2.50	10.7
	151		-7.89	7.71	7.83	29.7
	159		-8.12	7.09	7.22	29.7
802.11ac-HT20	36	26	-1.21	4.18	5.28	10.7
	40		-2.88	4.79	5.48	10.7
	48		-3.68	4.60	5.20	10.7
	149		-8.08	-1.04	-0.26	29.7
	157		-7.90	-1.05	-0.23	29.7
	165		-8.96	-0.20	0.34	29.7
802.11ac-HT40	38	54	-1.40	4.42	5.43	10.7
	46		-7.61	4.26	4.53	10.7
	151		-8.27	8.92	9.00	29.7
	159		-7.10	8.26	8.38	29.7
802.11ac-HT80	42	117.2	-7.95	4.98	5.20	10.7
	155		-11.28	0.42	0.70	29.7

5. Minimum 6 dB RF Bandwidth (FCC 15.407)

5.1 Operating environment

Temperature:	23	℃
Relative Humidity:	54	%
Atmospheric Pressure:	1002	hPa

5.2 Test setup & procedure

The Minimum 6 dB RF Bandwidth per 789033 D02 was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 100KHz, and set the video bandwidth (VBW) ≥ 3 x RBW. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

For 26dB down Emission Bandwidth

The 26dB down Emission Bandwidth per 789033 D02 was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set RBW = approximately 1% of the emission bandwidth. Set the VBW > RBW, Detector = Peak, Trace mode = max hold (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%).

For 99% Occupied Bandwidth

The 99% Occupied Bandwidth per 789033 D02 was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set center frequency to the nominal EUT channel center frequency, set span = 1.5 times to 5.0 times the OBW, set RBW = 1 % to 5 % of the OBW, set VBW ≥ 3x RBW, The 99% occupied bandwidth was determined from where the channel output spectrum intersected the display line.

5.3 Limit

Operating Frequency (MHz)	Minimum 6 dB RF Bandwidth Limit
5150~5250	N/A
5725~ 5850	≥500KHz

5.4 Measured data of 6dB down Emission Bandwidth test results

SISO mode, Ant1:

Test Mode	Test Channel	EBW[MHz]	Limit[MHz]	Verdict
11a	5745	16.40	0.5	PASS
11a	5785	16.40	0.5	PASS
11a	5825	16.40	0.5	PASS
11n-HT20	5745	17.68	0.5	PASS
11n-HT20	5785	17.68	0.5	PASS
11n-HT20	5825	17.68	0.5	PASS
11n-HT40	5755	36.48	0.5	PASS
11n-HT40	5795	36.48	0.5	PASS
11ac-HT20	5745	17.68	0.5	PASS
11ac-HT20	5785	17.68	0.5	PASS
11ac-HT20	5825	17.68	0.5	PASS
11ac-HT40	5755	36.48	0.5	PASS
11ac-HT40	5795	36.48	0.5	PASS
11ac-HT80	5775	75.52	0.5	PASS

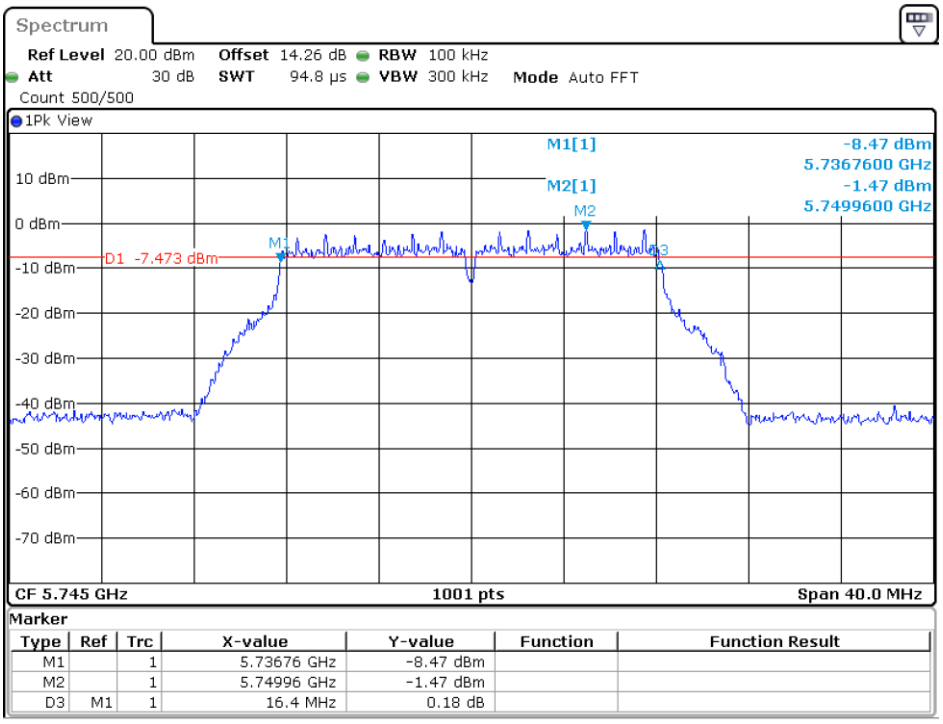
SISO mode, Ant2:

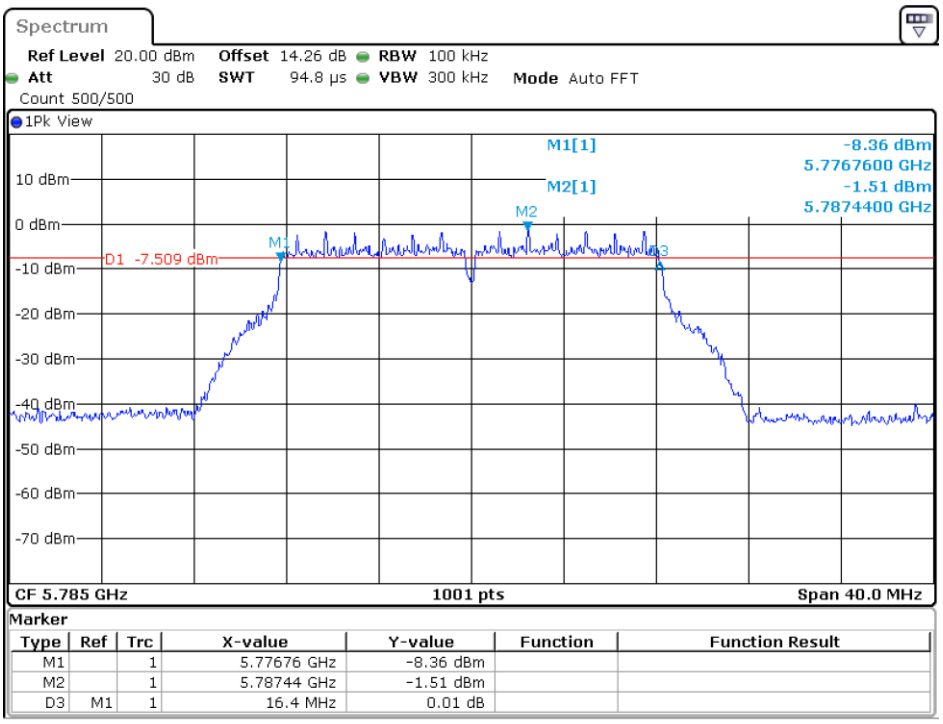
Test Mode	Test Channel	EBW[MHz]	Limit[MHz]	Verdict
11a	5745	16.40	0.5	PASS
11a	5785	16.40	0.5	PASS
11a	5825	16.40	0.5	PASS
11n-HT20	5745	17.68	0.5	PASS
11n-HT20	5785	17.68	0.5	PASS
11n-HT20	5825	17.68	0.5	PASS
11n-HT40	5755	36.24	0.5	PASS
11n-HT40	5795	36.48	0.5	PASS
11ac-HT20	5745	17.68	0.5	PASS
11ac-HT20	5785	17.68	0.5	PASS
11ac-HT20	5825	17.68	0.5	PASS
11ac-HT40	5755	36.24	0.5	PASS
11ac-HT40	5795	36.48	0.5	PASS
11ac-HT80	5775	75.52	0.5	PASS

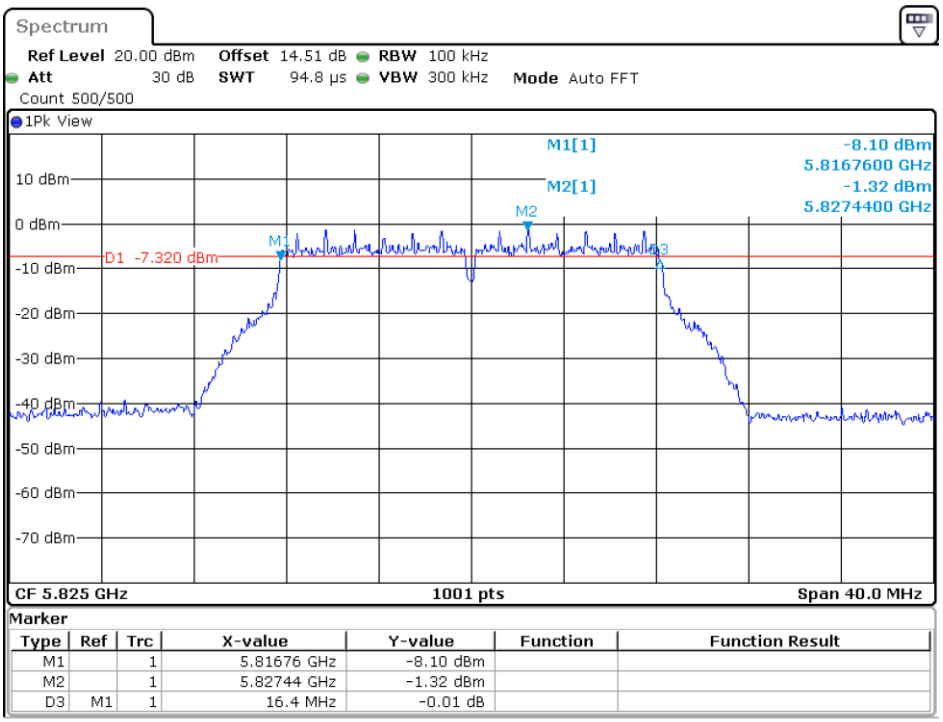
The test plots are attached as below.

SISO mode, Ant1:

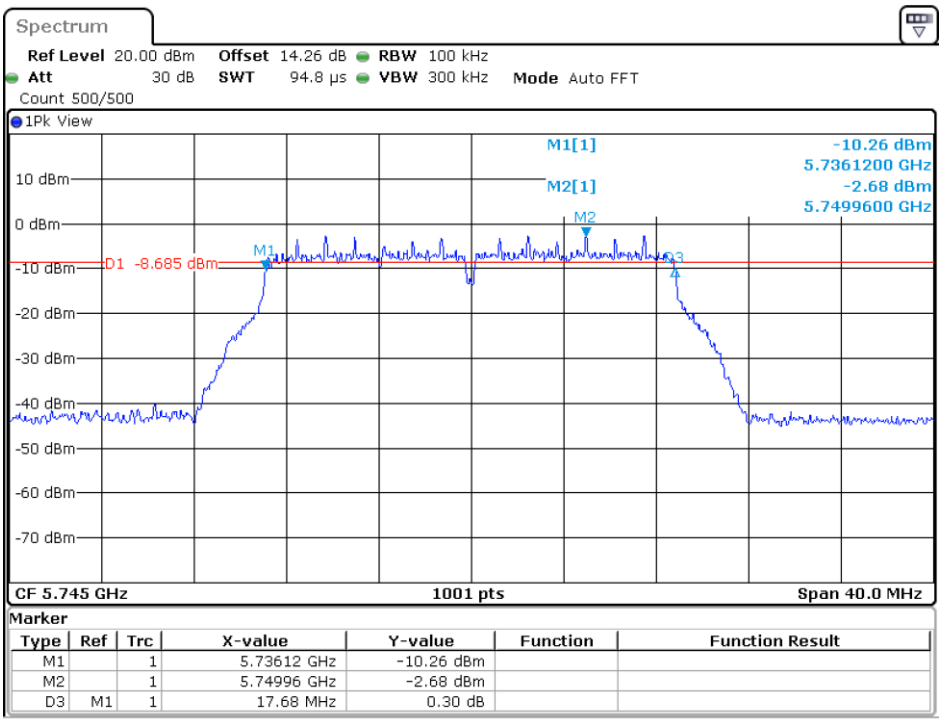
11a：

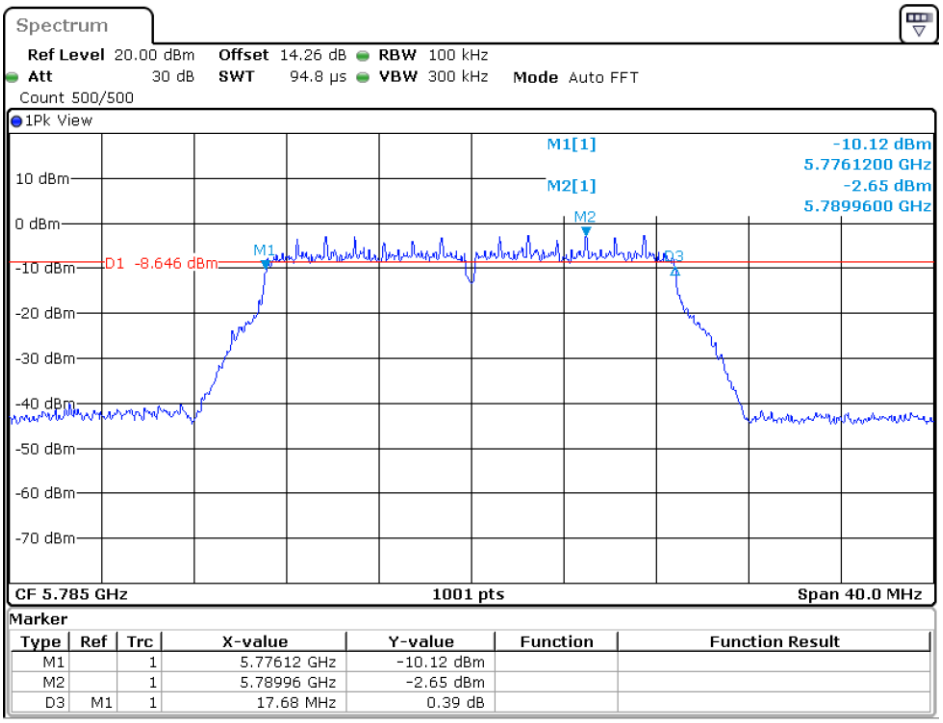


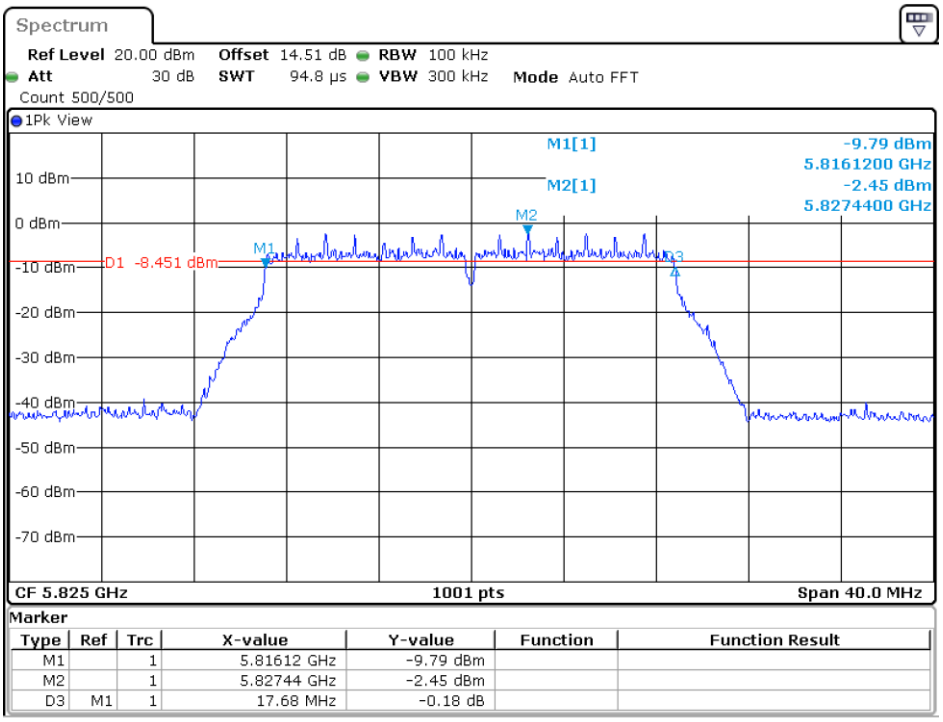



Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -8.10 dBm
5.8167600 GHz
M2[1] -1.32 dBm
5.8274400 GHz
D1 -7.320 dBm
CF 5.825 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81676 GHz -8.10 dBm
M2 1 5.82744 GHz -1.32 dBm
D3 M1 1 16.4 MHz -0.01 dB

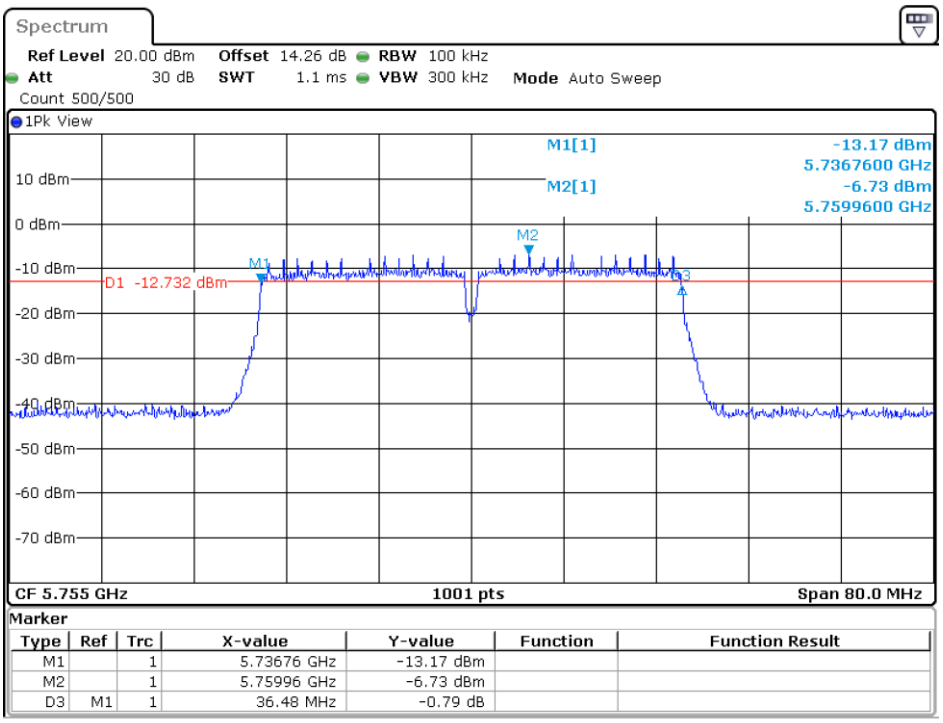
11n-HT20：

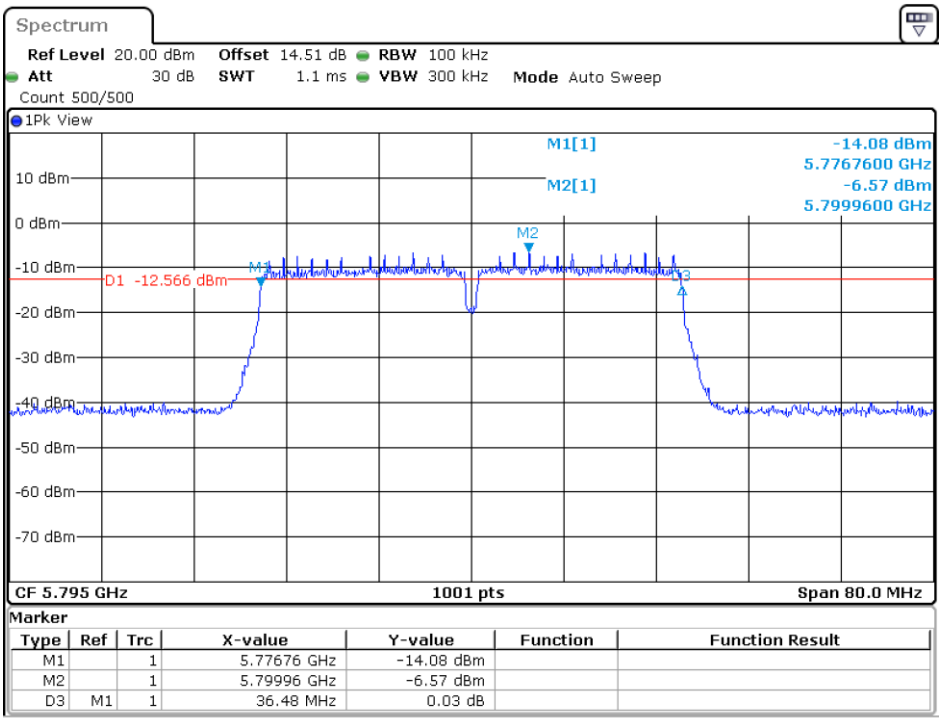

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -10.26 dBm
5.7361200 GHz
M2[1] -2.68 dBm
5.7499600 GHz
D1 -8.685 dBm
CF 5.745 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73612 GHz -10.26 dBm
M2 1 5.74996 GHz -2.68 dBm
D3 M1 1 17.68 MHz 0.30 dB


Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -10.12 dBm
5.7761200 GHz
M2[1] -2.65 dBm
5.7899600 GHz
D1 -8.646 dBm
CF 5.785 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77612 GHz -10.12 dBm
M2 1 5.78996 GHz -2.65 dBm
D3 M1 1 17.68 MHz 0.39 dB

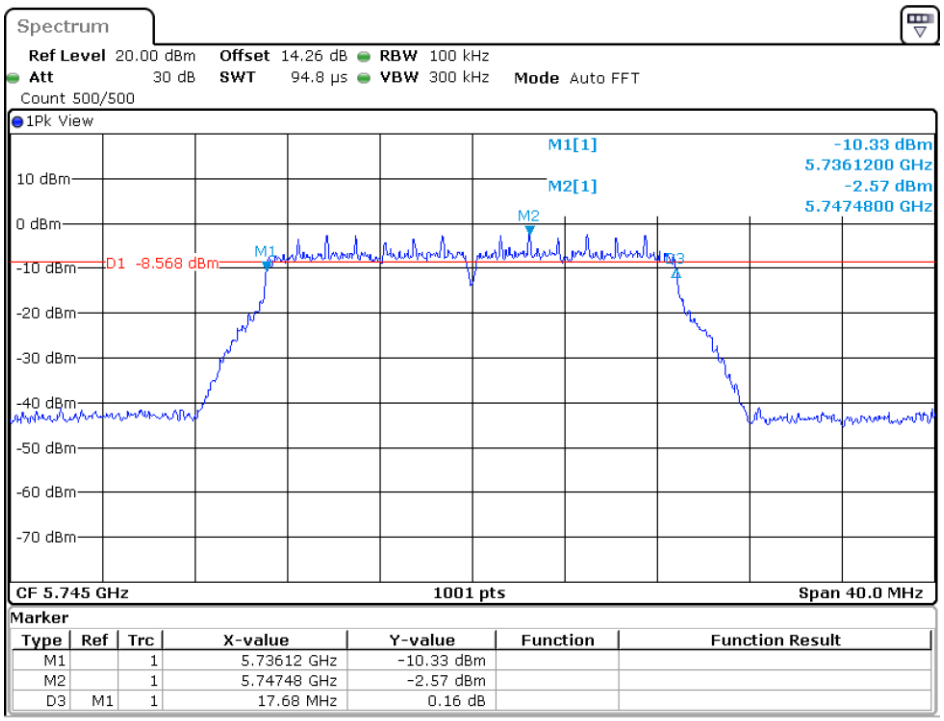

Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -9.79 dBm
5.8161200 GHz
M2[1] -2.45 dBm
5.8274400 GHz
D1 -8.451 dBm
CF 5.825 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81612 GHz -9.79 dBm
M2 1 5.82744 GHz -2.45 dBm
D3 M1 1 17.68 MHz -0.18 dB

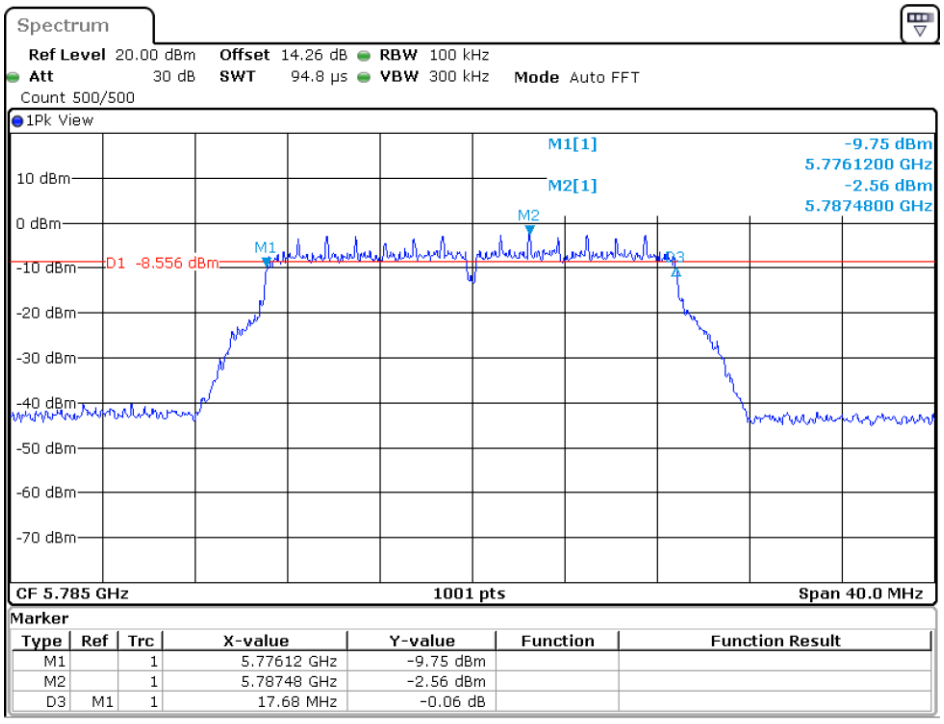
11n-HT40：

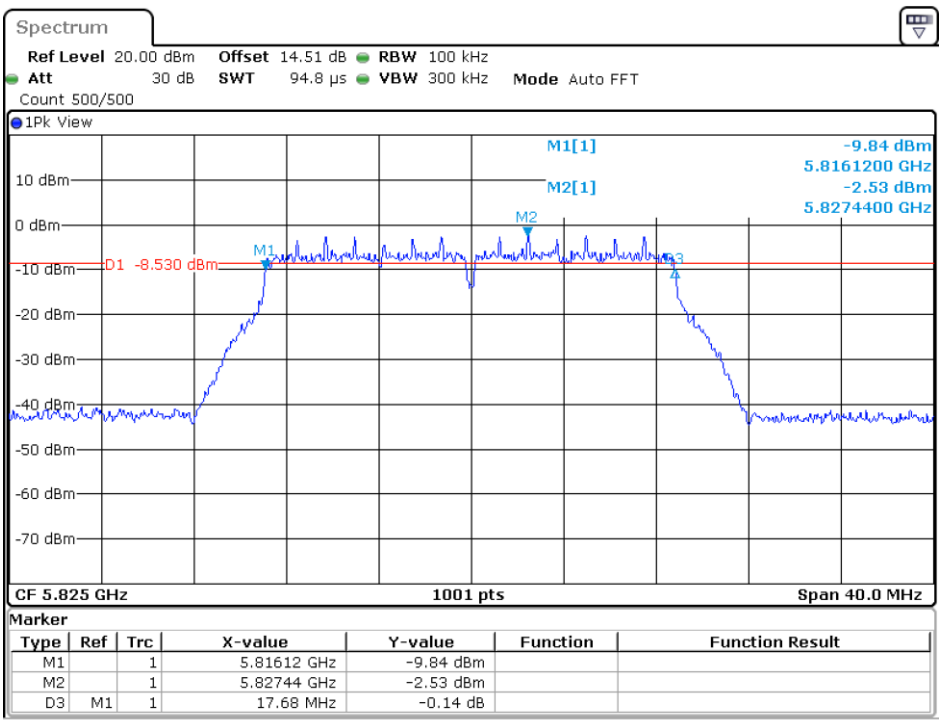

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -13.17 dBm
5.7367600 GHz
M2[1] -6.73 dBm
5.7599600 GHz
D1 -12.732 dBm
CF 5.755 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73676 GHz -13.17 dBm
M2 1 5.75996 GHz -6.73 dBm
D3 M1 1 36.48 MHz -0.79 dB


Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -14.08 dBm
5.7767600 GHz
M2[1] -6.57 dBm
5.7999600 GHz
D1 -12.566 dBm
CF 5.795 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77676 GHz -14.08 dBm
M2 1 5.79996 GHz -6.57 dBm
D3 M1 1 36.48 MHz 0.03 dB

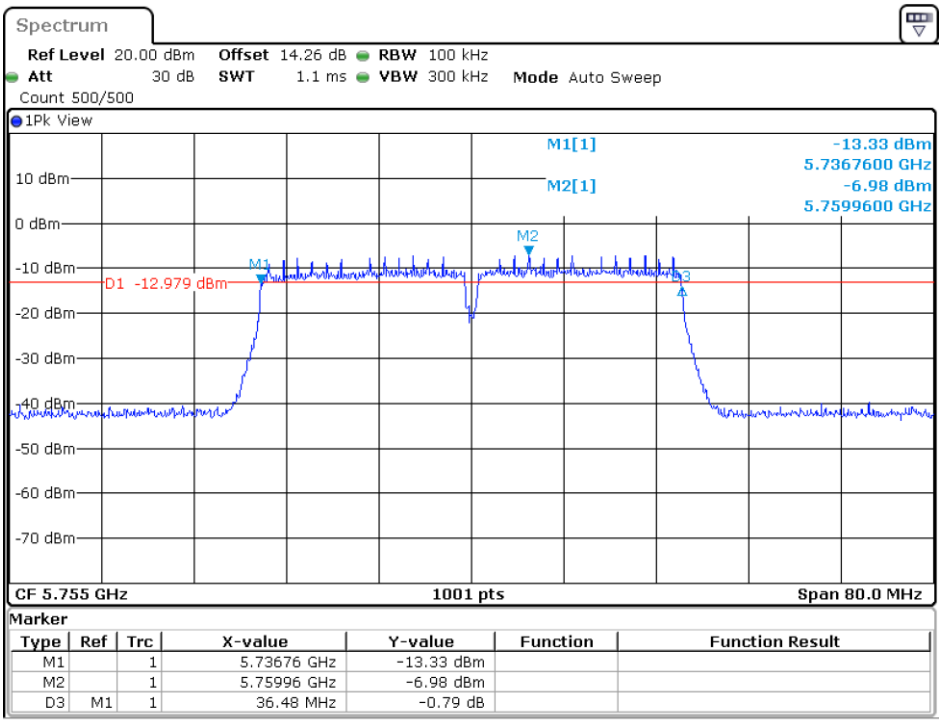
11ac-HT20：

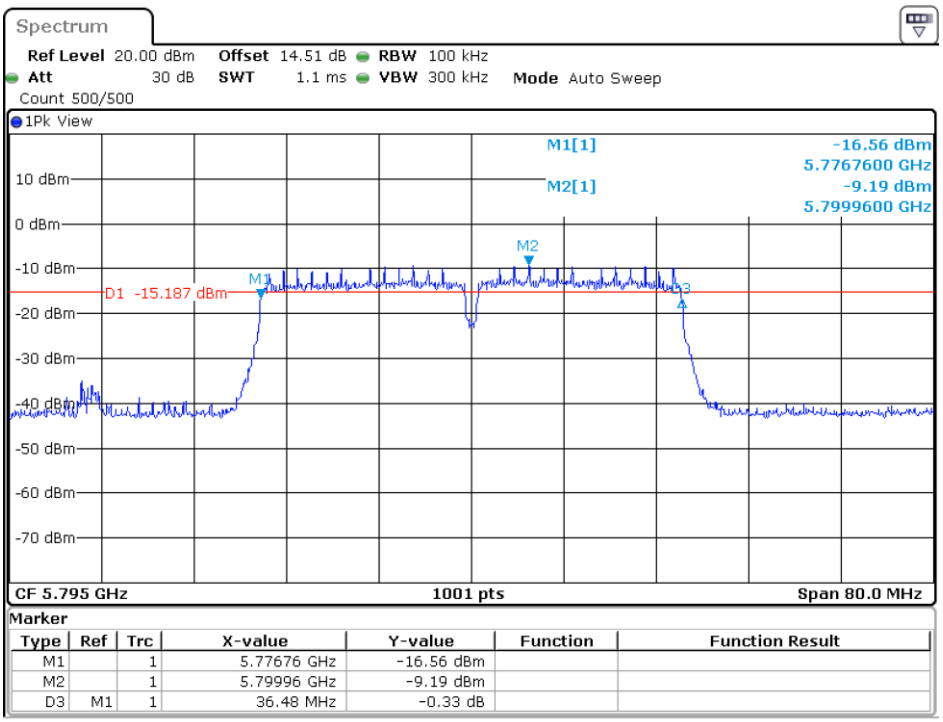

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -10.33 dBm
5.7361200 GHz
M2[1] -2.57 dBm
5.7474800 GHz
D1 -8.568 dBm
CF 5.745 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73612 GHz -10.33 dBm
M2 1 5.74748 GHz -2.57 dBm
D3 M1 1 17.68 MHz 0.16 dB


Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -9.75 dBm
5.7761200 GHz
M2[1] -2.56 dBm
5.7874800 GHz
D1 -8.556 dBm
CF 5.785 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77612 GHz -9.75 dBm
M2 1 5.78748 GHz -2.56 dBm
D3 M1 1 17.68 MHz -0.06 dB

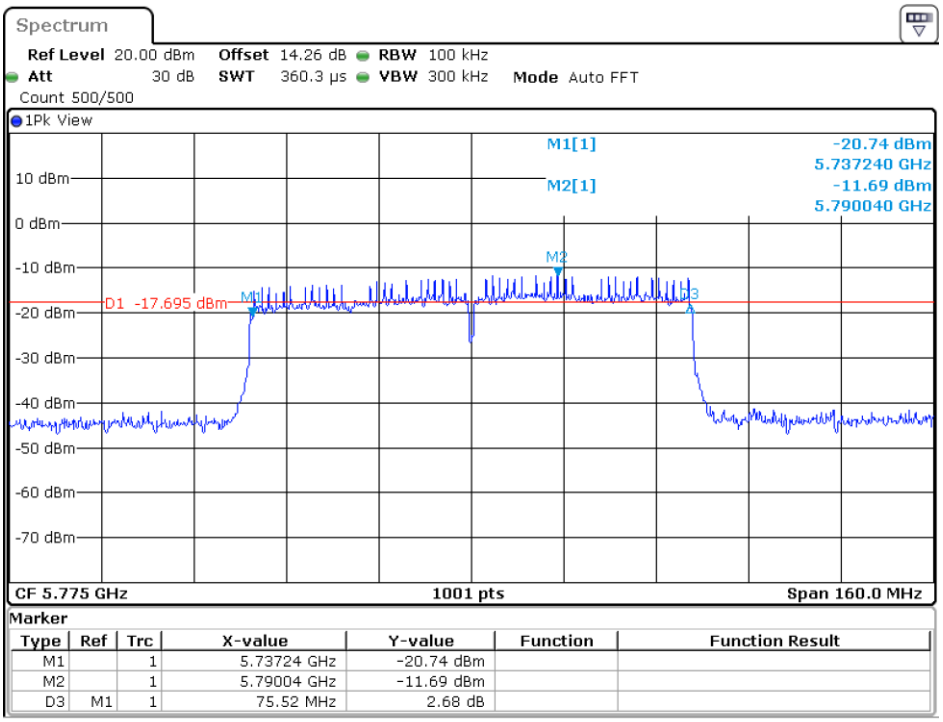

Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -9.84 dBm
5.8161200 GHz
M2[1] -2.53 dBm
5.8274400 GHz
D1 -8.530 dBm
CF 5.825 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81612 GHz -9.84 dBm
M2 1 5.82744 GHz -2.53 dBm
D3 M1 1 17.68 MHz -0.14 dB

11ac-HT40：


Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -13.33 dBm
5.7367600 GHz
M2[1] -6.98 dBm
5.7599600 GHz
D1 -12.979 dBm
CF 5.755 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73676 GHz -13.33 dBm
M2 1 5.75996 GHz -6.98 dBm
D3 M1 1 36.48 MHz -0.79 dB

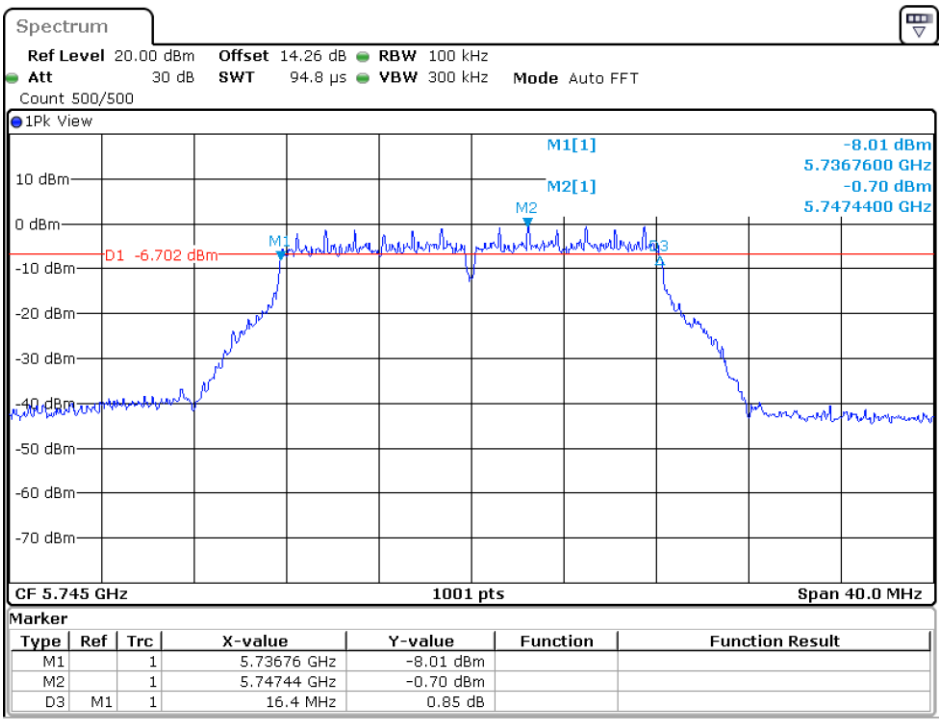

Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -16.56 dBm
5.7767600 GHz
M2[1] -9.19 dBm
5.7999600 GHz
D1 -15.187 dBm
CF 5.795 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77676 GHz -16.56 dBm
M2 1 5.79996 GHz -9.19 dBm
D3 M1 1 36.48 MHz -0.33 dB

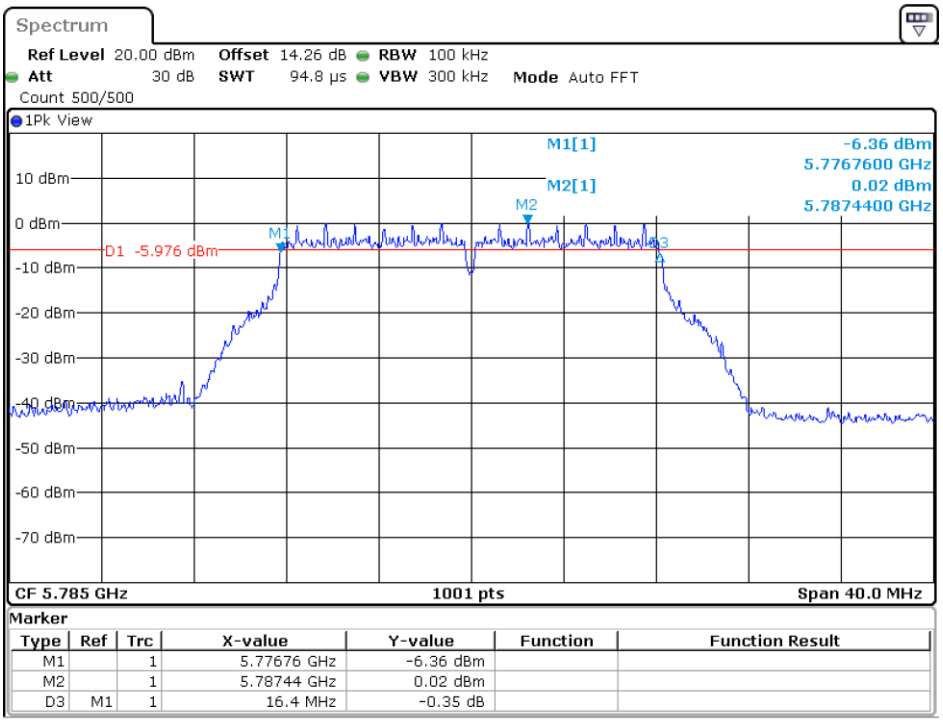
11ac-HT80：

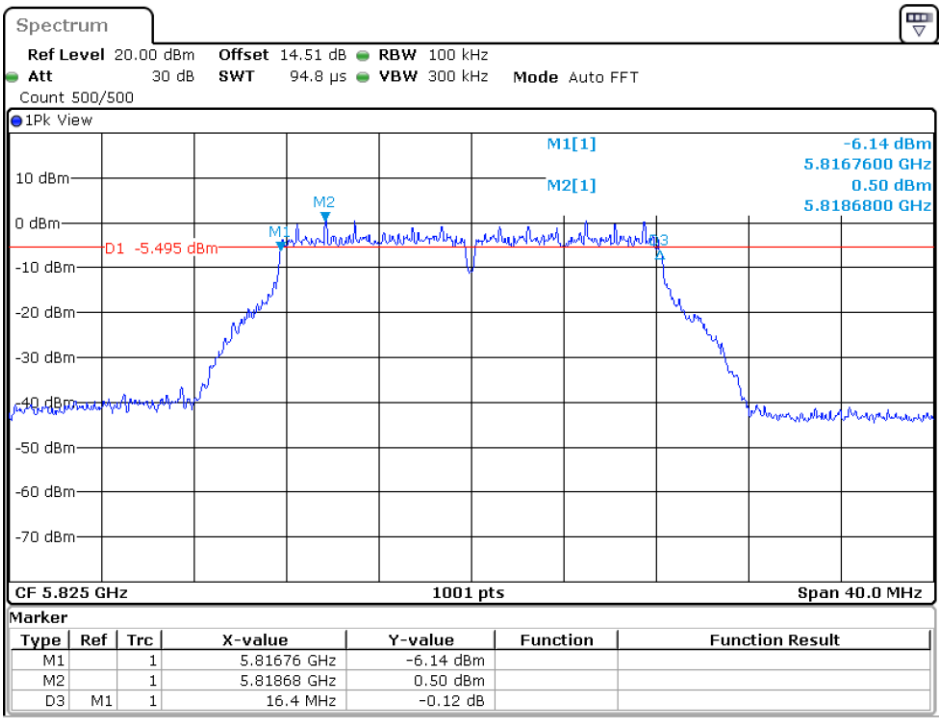

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 360.3 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -20.74 dBm
5.737240 GHz
M2[1] -11.69 dBm
5.790040 GHz
D1 -17.695 dBm
CF 5.775 GHz
1001 pts
Span 160.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73724 GHz -20.74 dBm
M2 1 5.79004 GHz -11.69 dBm
D3 M1 1 75.52 MHz 2.68 dB

SISO mode, Ant2:

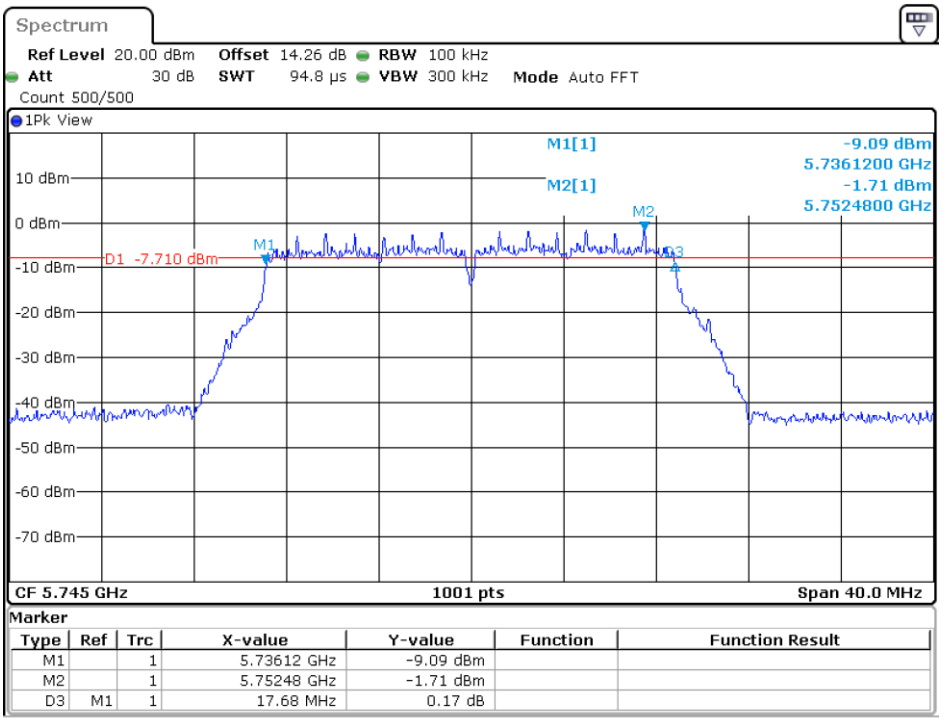
11a：

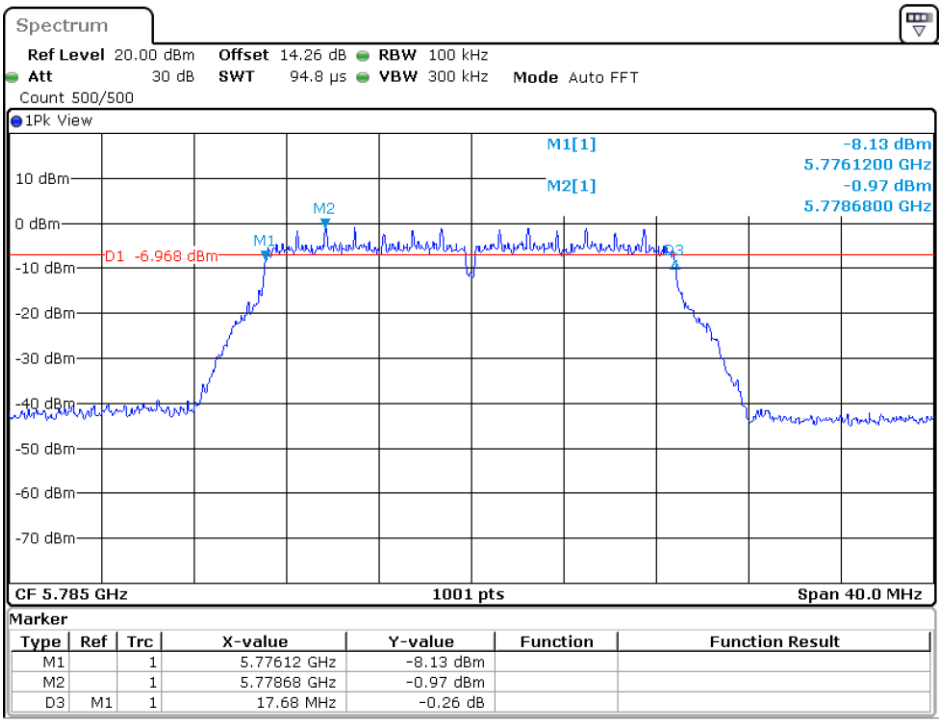


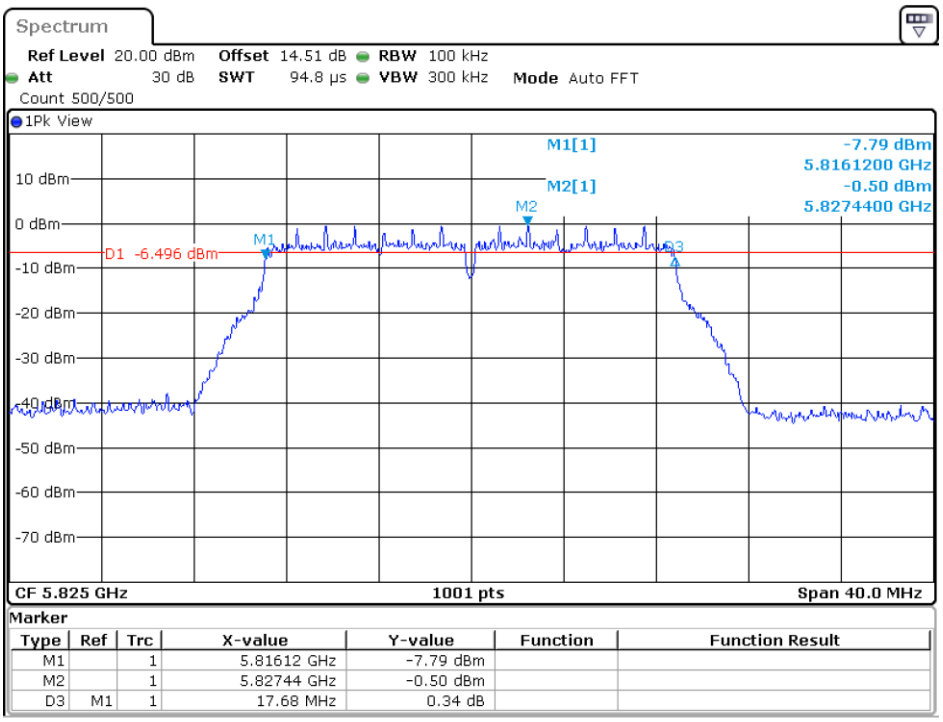



Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -6.14 dBm
5.8167600 GHz
M2[1] 0.50 dBm
5.8186800 GHz
D1 -5.495 dBm
CF 5.825 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81676 GHz -6.14 dBm
M2 1 5.81868 GHz 0.50 dBm
D3 M1 1 16.4 MHz -0.12 dB

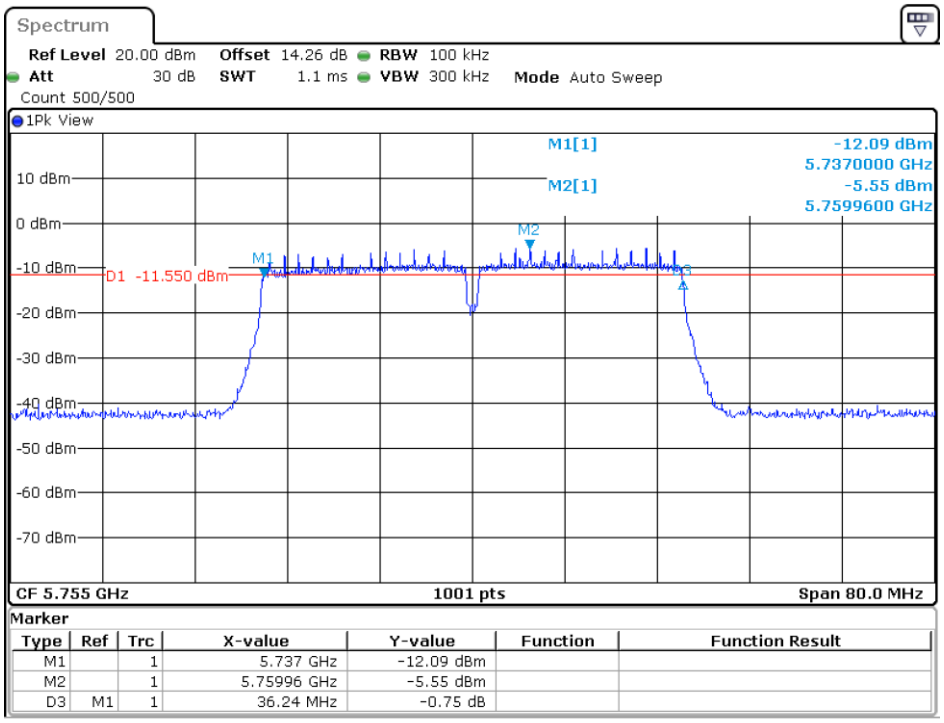
11n-HT20：

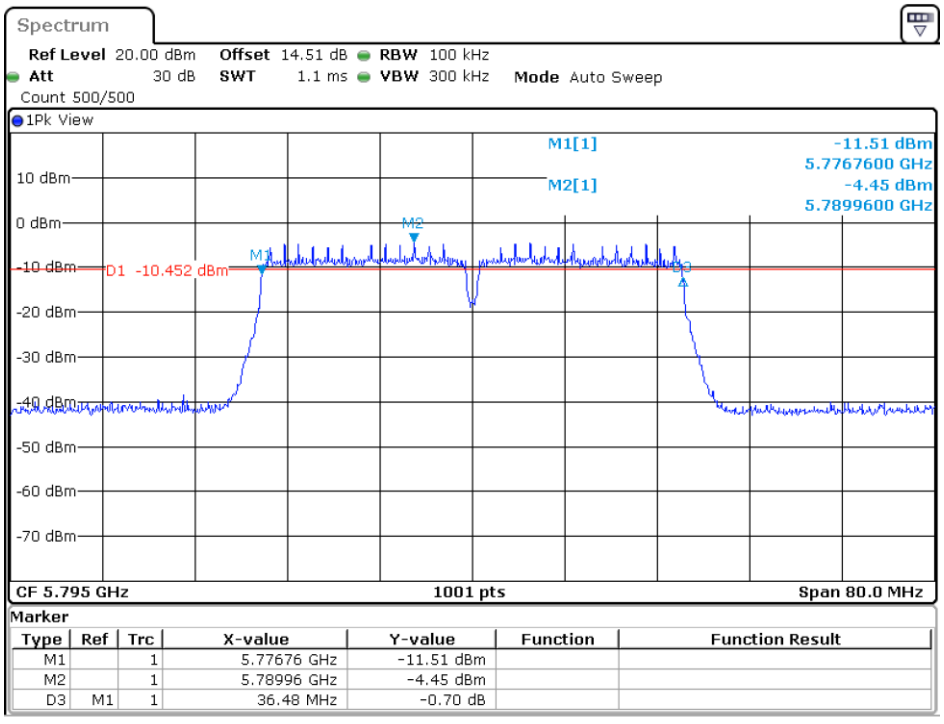

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -9.09 dBm
5.7361200 GHz
M2[1] -1.71 dBm
5.7524800 GHz
D1 -7.710 dBm
CF 5.745 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73612 GHz -9.09 dBm
M2 1 5.75248 GHz -1.71 dBm
D3 M1 1 17.68 MHz 0.17 dB


Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -8.13 dBm
5.7761200 GHz
M2[1] -0.97 dBm
5.7786800 GHz
D1 -6.968 dBm
CF 5.785 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77612 GHz -8.13 dBm
M2 1 5.77868 GHz -0.97 dBm
D3 M1 1 17.68 MHz -0.26 dB

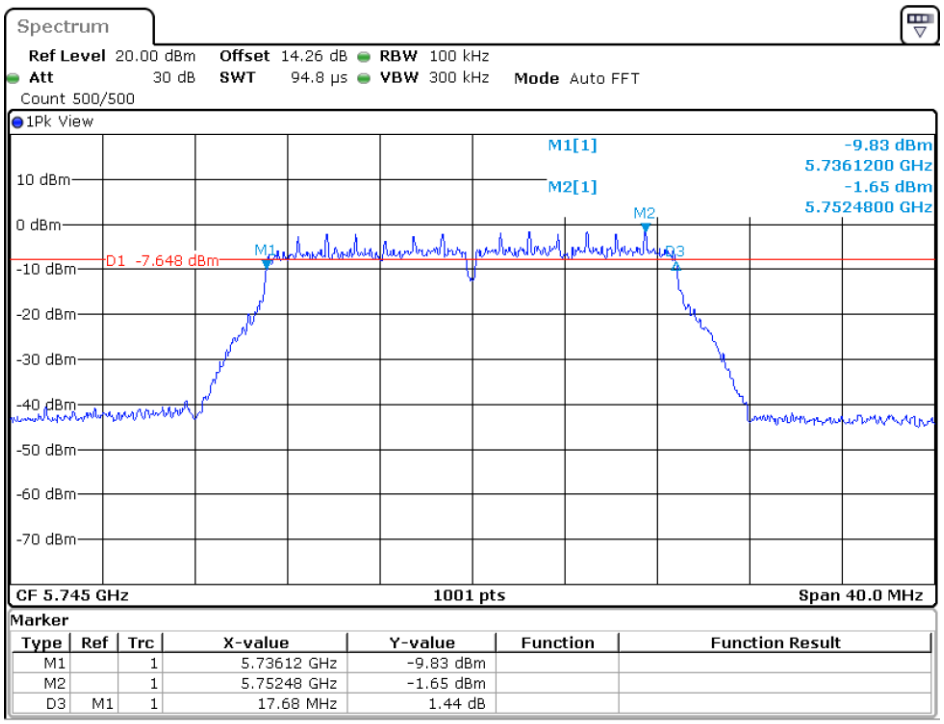

Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -7.79 dBm
5.8161200 GHz
M2[1] -0.50 dBm
5.8274400 GHz
D1 -6.496 dBm
CF 5.825 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81612 GHz -7.79 dBm
M2 1 5.82744 GHz -0.50 dBm
D3 M1 1 17.68 MHz 0.34 dB

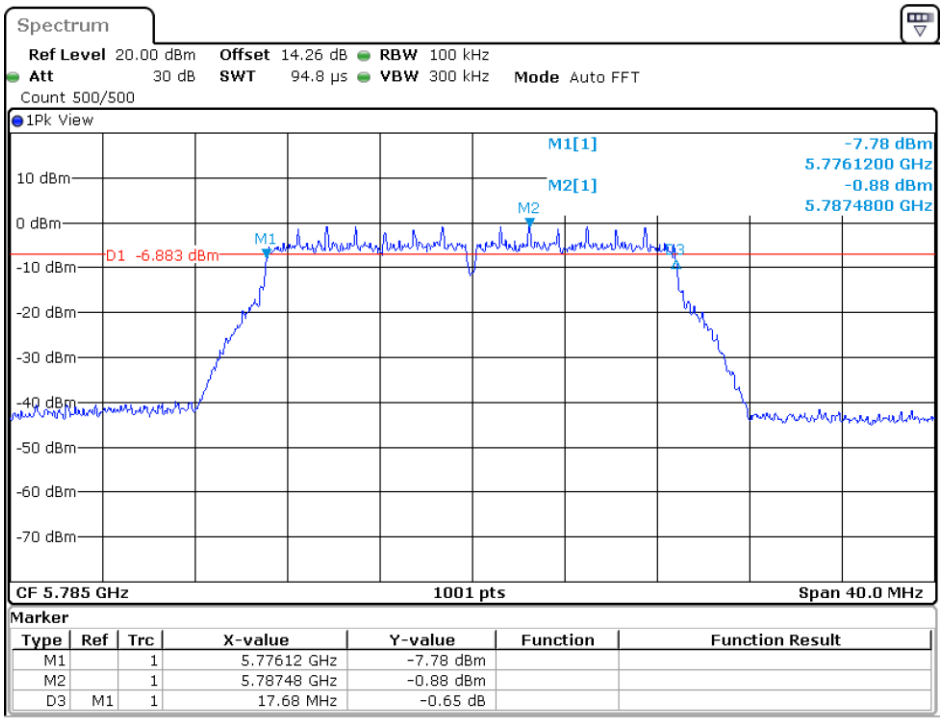
11n-HT40：

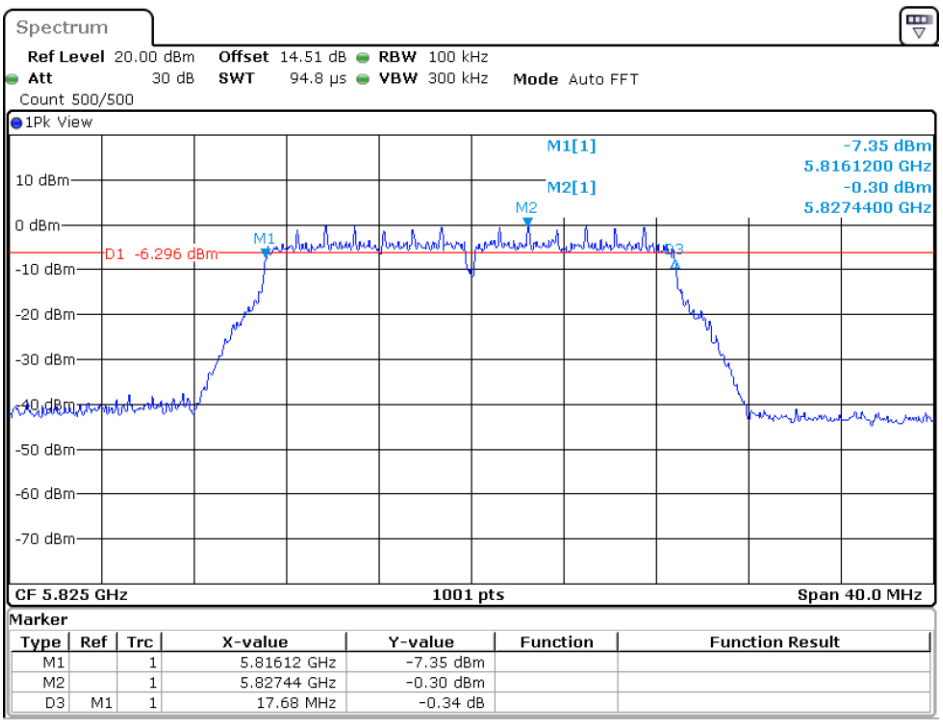

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -12.09 dBm
5.7370000 GHz
M2[1] -5.55 dBm
5.7599600 GHz
D1 -11.550 dBm
CF 5.755 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.737 GHz -12.09 dBm
M2 1 5.75996 GHz -5.55 dBm
D3 M1 1 36.24 MHz -0.75 dB


Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -11.51 dBm
5.7767600 GHz
M2[1] -4.45 dBm
5.7899600 GHz
D1 -10.452 dBm
CF 5.795 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77676 GHz -11.51 dBm
M2 1 5.78996 GHz -4.45 dBm
D3 M1 1 36.48 MHz -0.70 dB

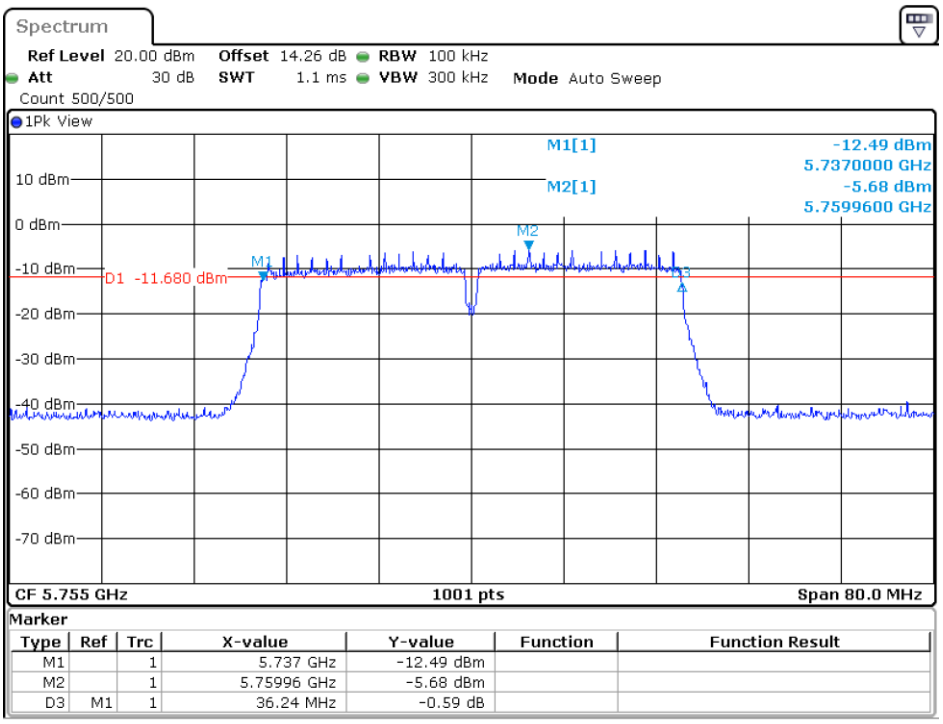
11ac-HT20：

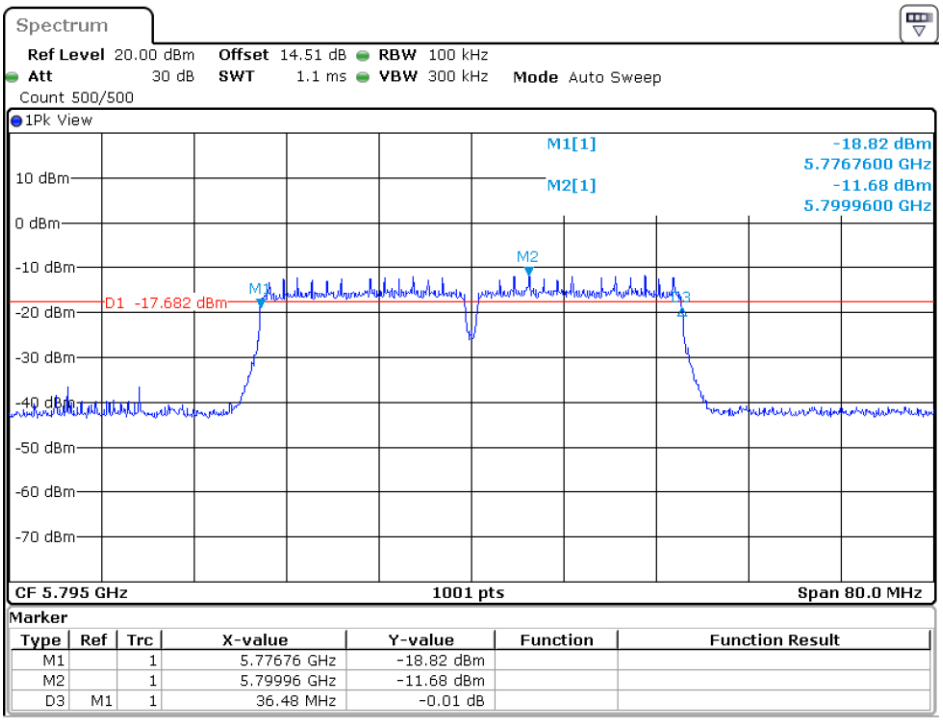

Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -9.83 dBm
5.7361200 GHz
M2[1] -1.65 dBm
5.7524800 GHz
D1 -7.648 dBm
CF 5.745 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.73612 GHz -9.83 dBm
M2 1 5.75248 GHz -1.65 dBm
D3 M1 1 17.68 MHz 1.44 dB


Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -7.78 dBm
5.7761200 GHz
M2[1] -0.88 dBm
5.7874800 GHz
D1 -6.883 dBm
CF 5.785 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77612 GHz -7.78 dBm
M2 1 5.78748 GHz -0.88 dBm
D3 M1 1 17.68 MHz -0.65 dB

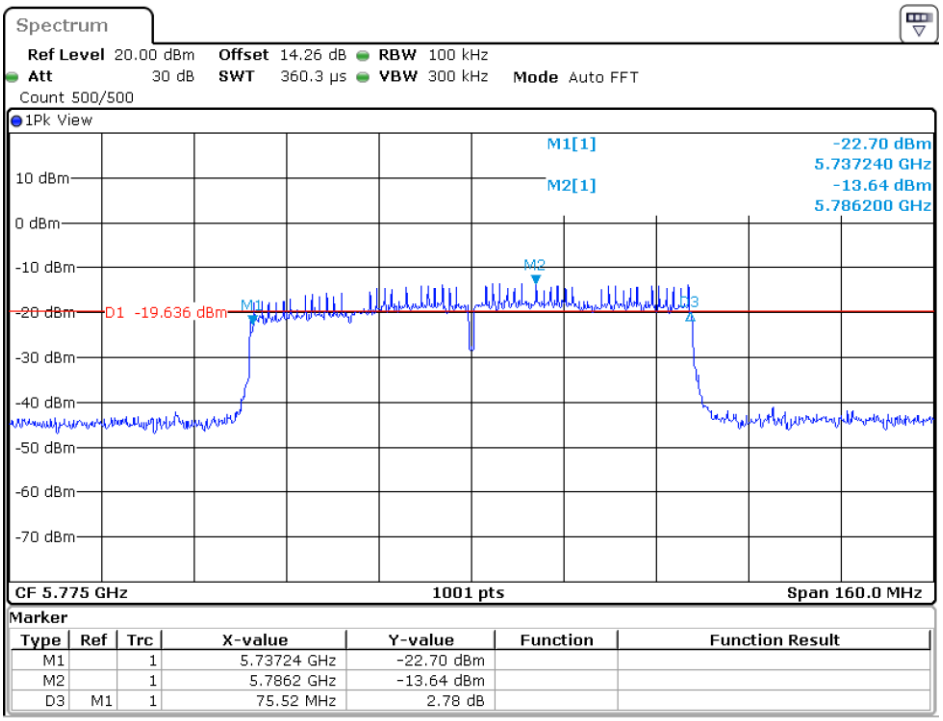

Spectrum
Ref Level 20.00 dBm Offset 14.51 dB RBW 100 kHz
Att 30 dB SWT 94.8 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -7.35 dBm
5.8161200 GHz
M2[1] -0.30 dBm
5.8274400 GHz
D1 -6.296 dBm
CF 5.825 GHz
1001 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81612 GHz -7.35 dBm
M2 1 5.82744 GHz -0.30 dBm
D3 M1 1 17.68 MHz -0.34 dB

11ac-HT40：


Spectrum
Ref Level 20.00 dBm Offset 14.26 dB RBW 100 kHz
Att 30 dB SWT 1.1 ms VBW 300 kHz Mode Auto Sweep
Count 500/500
1Pk View
M1[1] -12.49 dBm
5.7370000 GHz
M2[1] -5.68 dBm
5.7599600 GHz
D1 -11.680 dBm
CF 5.755 GHz
1001 pts
Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.737 GHz -12.49 dBm
M2 1 5.75996 GHz -5.68 dBm
D3 M1 1 36.24 MHz -0.59 dB



11ac-HT80：



Note: 99% Occupied Bandwidth within the U-NII-1 band and 26dB Emission Bandwidth for reference. The plots are saved with filename: “26dB OBW” and “99% OBW”

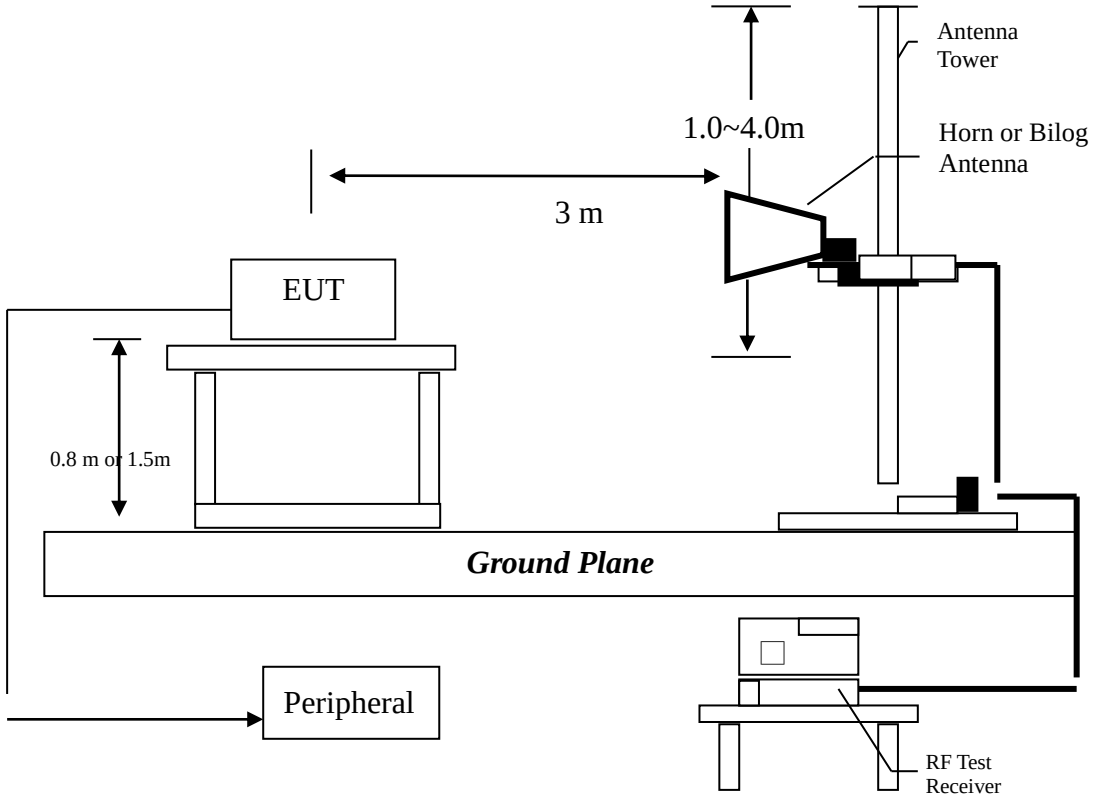
6. Radiated Emission test (FCC 15.205 & 15.209 & 15.407)

6.1 Operating environment

Temperature:	25	℃
Relative Humidity:	57	%
Atmospheric Pressure	1004	hPa

6.2 Test setup & procedure

The Diagram below shows the test setup, which is utilized to make these measurements.



Radiated emission measurements were performed from 9KHz to tenth harmonic or 40GHz. The EUT for testing is arranged on a styrene turntable with the height of 0.8m up to 1GHz and 1.5m above 1GHz. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meters reading using inverse scaling with distance.

Testing settings (refer to KDB 789033 D02)
Peak Measurements below 1GHz
1, Analyzer center frequency was set to the frequency of the radiated spurious emission.
2, Span=encompass the entire emission
3, RBW=120KHz
4, Detector=Quasi-Peak
5, Trace was allowed to stabilize

Peak Measurements above 1GHz
1, Analyzer center frequency was set to the frequency of the radiated spurious emission.
2, Span=encompass the entire emission
3, RBW=1MHz
4, VBW=3MHz
4, Detector= Peak (Max-hold)
5, Trace was allowed to stabilize

Average Measurements above 1GHz
1, Analyzer center frequency was set to the frequency of the radiated spurious emission.
2, Span=encompass the entire emission
3, RBW=1MHz
4, VBW=3MHz
4, Detector= RMS (Max-hold)
5, Trace was allowed to stabilize

6.3 Limit

The spurious Emission shall test through the 10th harmonic or 40GHz (whichever is lower). In addition, 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).

Notes:
1, All emission out-side of the 5.15-5.35GHz & 5.47-5.725GHz band shall not exceed an EIRP of -27dBm/MHz (68.2dBuV/m, test distance: 3 meter); for band 5.725-5.85GHz, 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.

2, The spectrum is measured from 9KHz to the 10^{th} harmonic of the fundamental frequency of the transmitter using QP detector below 1GHz, above 1GHz, average & peak measurements were taken using for test. The worst-case emission is reported however emission whose levels were not within 20dB of the respective limited were not reported.
3, The test was performed on EUT under 802.11a/n-HT20/40/ac-HT20/40/80 continuously transmitting mode. Simultaneous transmitting was considered during the testing. All mode had been tested, but only the worst-case is recorded in the following graph and table.

Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

Example
Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBμV/m

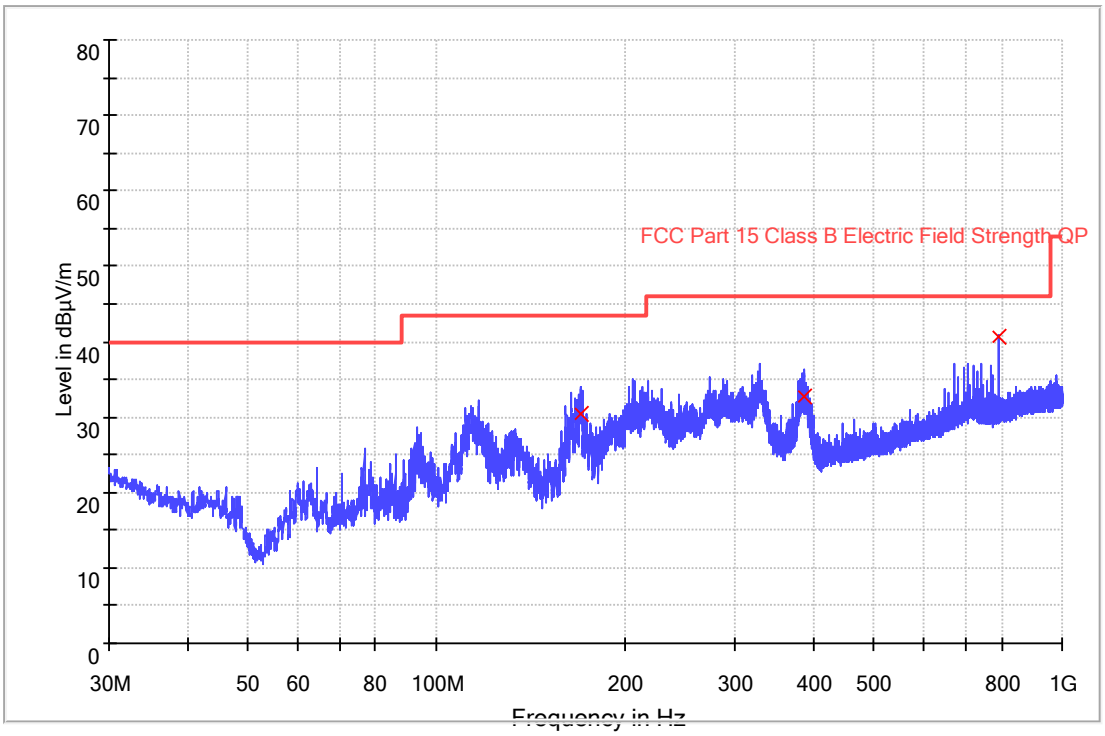
Level in mV/m = Common Antilogarithm [(42 dBμV/m)/20] = 125.9 μV/m

6.4 Radiated spurious emission test data

6.4.1 Measurement results: frequencies equal to or less than 1 GHz

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD
Date of Test: November 30, 2019 Model: 100002634
Worst Case Operating Mode: Simultaneous transmission (2.4G SRD & Wi-Fi)

ANT Polarity: Horizontal

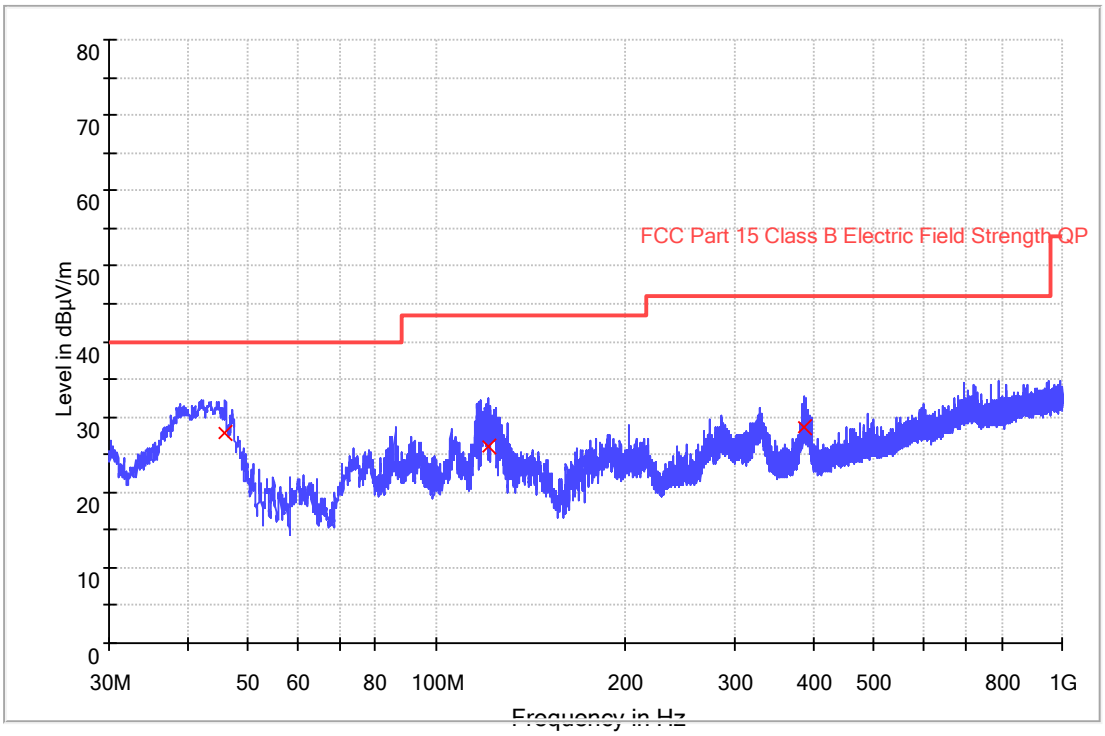


Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
169.906333	30.4	1000.0	120.000	H	12.1	13.1	43.5
387.348000	32.6	1000.0	120.000	H	19.0	13.4	46.0
791.999667	40.5	1000.0	120.000	H	26.3	5.5	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit Line(dBµV/m) – Level (dBµV/m)

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD
Date of Test: November 30, 2019 Model: 100002634
Worst Case Operating Mode: Simultaneous transmission (2.4G SRD & Wi-Fi)

ANT Polarity: Vertical



Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
46.037333	27.9	1000.0	120.000	V	10.3	12.1	40.0
121.309333	26.0	1000.0	120.000	V	9.9	17.5	43.5
386.733667	28.6	1000.0	120.000	V	19.0	17.4	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit Line(dBµV/m) – Level (dBµV/m)

6.4.2 Measurement results: frequency above 1GHz

The worst case occurred at 802.11n-HT20, MIMO, 2Tx

Channel 36/6.5Mbps

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	10360.000	54.9	36.3	38.9	57.5	68.2	-10.7
Horizontal	15540.000	45.2	34.7	41.0	51.5	68.2	-16.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	10360.000	45.1	36.3	38.9	47.7	54.0	-6.3
Horizontal	15540.000	35.2	34.7	41.0	41.5	54.0	-12.5

Channel 48/6.5Mbps

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	10480.000	54.5	36.3	38.9	57.1	68.2	-11.1
Horizontal	15720.000	45.9	34.7	41.0	52.2	68.2	-16.0

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	10480.000	44.2	36.3	38.9	46.8	54.0	-7.2
Horizontal	15720.000	35.8	34.7	41.0	42.1	54.0	-11.9

Channel 149/6.5Mbps

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	11490.000	54.2	36.3	38.9	56.8	68.2	-11.4
Horizontal	17235.000	44.8	34.7	41.0	51.1	68.2	-17.1

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	11490.000	44.8	36.3	38.9	47.4	54.0	-6.6
Horizontal	17235.000	35.7	34.7	41.0	42.0	54.0	-12.0

Channel 165/6.5Mbps

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	11650.000	54.3	36.3	38.9	56.9	68.2	-11.3
Horizontal	17475.000	44.9	34.7	41.0	51.2	68.2	-17.0

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	11650.000	44.1	36.3	38.9	46.7	54.0	-7.3
Horizontal	17475.000	35.6	34.7	41.0	41.9	54.0	-12.1

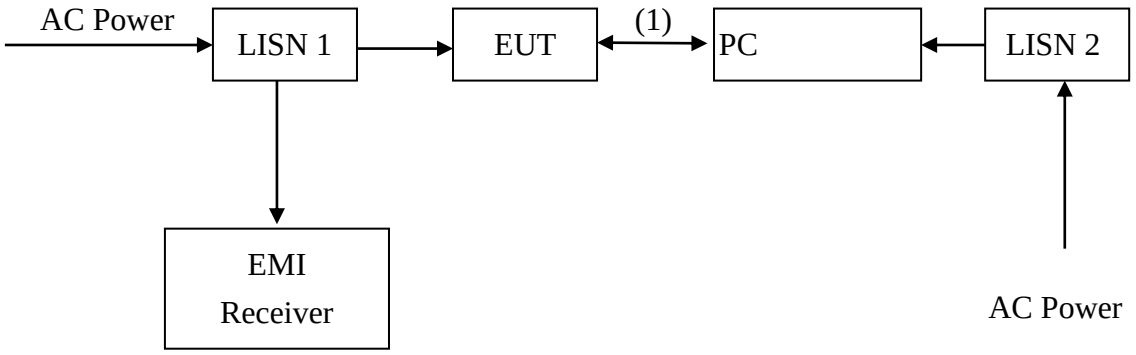
* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

7. Power Line Conducted Emission test

7.1 Operating environment

Temperature:	23	℃
Relative Humidity:	56	%
Atmospheric Pressure	1006	hPa

7.2 Test setup & procedure



The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50 ohm/50 uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm/50 uH coupling impedance with 50ohm termination.
Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10/2013 on conducted measurement.
The bandwidth of the field strength meter (R & S Test Receiver ESCI 30) is set at 9 kHz.

7.3 Limit

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

*Decreases with the logarithm of the frequency.

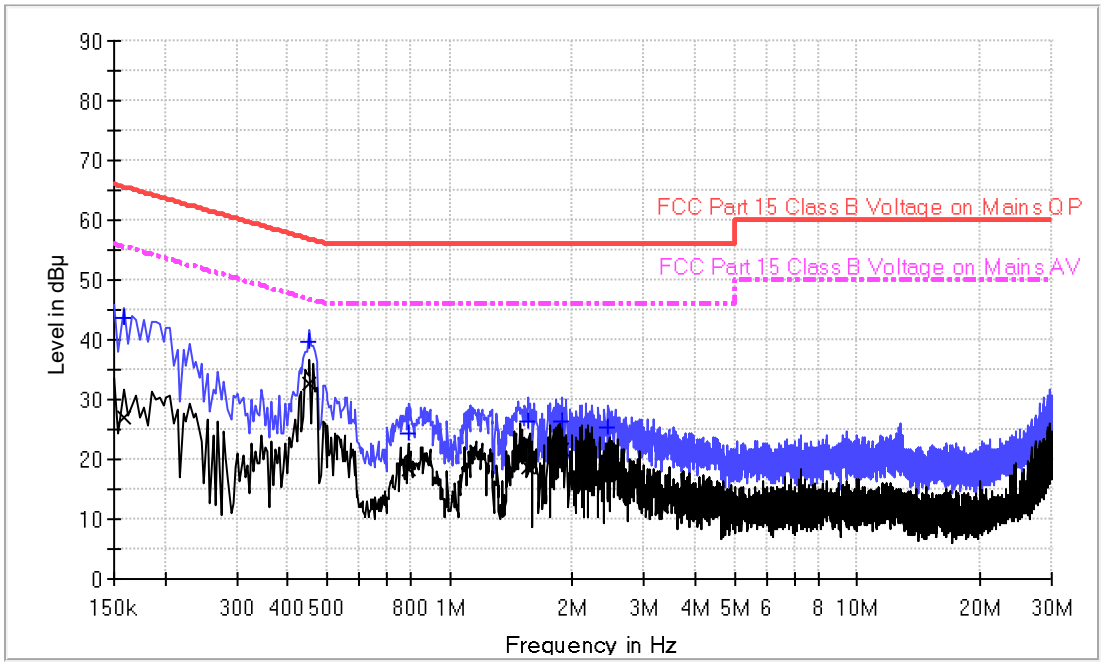
7.4 Power Line Conducted Emission test data

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD
Date of Test: November 30, 2019 Model: 100002634
Worst Case Operating Mode: Simultaneous transmission (2.4G SRD & Wi-Fi)
Phase: Live

Graphic / Data Table

Conducted Emissions

Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	43.6	9.000	L1	9.7	22.0	65.6
0.454000	39.6	9.000	L1	9.7	17.2	56.8
0.790000	24.3	9.000	L1	9.7	31.7	56.0
1.558000	26.3	9.000	L1	9.7	29.7	56.0
1.886000	26.5	9.000	L1	9.7	29.5	56.0
2.454000	25.3	9.000	L1	9.7	30.7	56.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.158000	27.0	9.000	L1	9.7	28.6	55.6
0.454000	32.8	9.000	L1	9.7	14.0	46.8
0.790000	18.3	9.000	L1	9.7	27.7	46.0
1.558000	18.6	9.000	L1	9.7	27.4	46.0
1.886000	21.7	9.000	L1	9.7	24.3	46.0
2.454000	18.1	9.000	L1	9.7	27.9	46.0

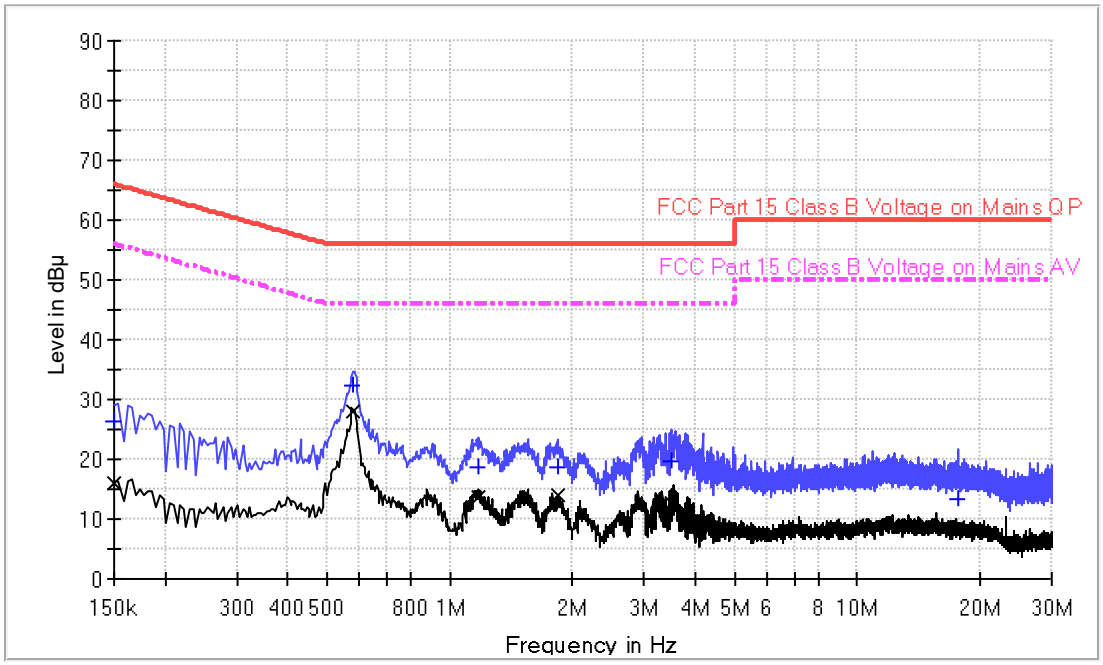
Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBuV) – Level (dBuV)

Applicant: SHENZHEN 3NOD DIGITAL TECHNOLOGY CO., LTD
Date of Test: November 30, 2019 Model: 100002634
Worst Case Operating Mode: Simultaneous transmission (2.4G SRD & Wi-Fi)
Phase: Neutral

Graphic / Data Table

Conducted Emissions

Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	26.2	9.000	N	9.6	39.8	66.0
0.578000	32.4	9.000	N	9.7	23.6	56.0
1.178000	18.6	9.000	N	9.7	37.4	56.0
1.834000	18.6	9.000	N	9.7	37.4	56.0
3.482000	19.5	9.000	N	9.7	36.5	56.0
17.614000	13.2	9.000	N	10.1	46.8	60.0

Limit and Margin AV

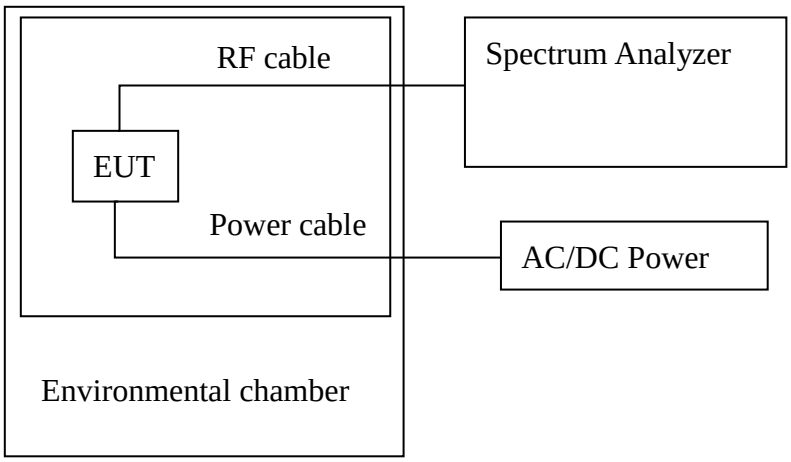
Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	16.0	9.000	N	9.6	40.0	56.0
0.578000	28.0	9.000	N	9.7	18.0	46.0
1.178000	13.8	9.000	N	9.7	32.2	46.0
1.834000	13.8	9.000	N	9.7	32.2	46.0
3.482000	12.6	9.000	N	9.7	33.4	46.0
17.614000	8.5	9.000	N	10.1	41.5	50.0

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)

2. Margin (dB) = Limit (dBuV) – Level (dBuV)

8. Frequency Stability Test

8.1 Test setup & procedure



Note1: The frequency stability is measured with the temperature variation range of 0˚C to +35˚C (5˚C increment), and voltage supply variation range of 85% to 115% of nominal DC supply voltage.

2: To ensure emission at the band-edge is maintained within the authorized band, the frequency 802.11a/n-HT20/40/ac-HT20/40/80 channel 36, 48, 38, 46, 42, 149, 165, 151, 159, 155 are selected to test and the worst case was reported.

8.2 Frequency Stability Test Data

20˚C is taken as temperature in normal condition.

Model: 802.11a, Operation frequency: 5180MHz, Channel: 36, Rate: 6Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5180.08	80	Pass
	+5	5180.05	50	Pass
	+10	5180.09	90	Pass
	+15	5180.03	30	Pass
	+20	5180.07	70	Pass
	+25	5180.01	10	Pass
	+30	5180.08	80	Pass
	+35	5180.05	50	Pass
102	+20	5180.09	90	Pass
138	+20	5180.03	30	Pass

Model: 802.11a, Operation frequency: 5240MHz, Channel: 48, Rate: 6Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5240.04	40	Pass
	+5	5240.05	50	Pass
	+10	5240.07	70	Pass
	+15	5240.05	50	Pass
	+20	5240.08	80	Pass
	+25	5240.03	30	Pass
	+30	5240.05	50	Pass
	+35	5240.02	20	Pass
102	+20	5240.08	80	Pass
138	+20	5240.07	70	Pass

Model: 802.11a, Operation frequency: 5745MHz, Channel: 149, Rate: 6Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5745.04	40	Pass
	+5	5745.08	80	Pass
	+10	5745.02	20	Pass
	+15	5745.05	50	Pass
	+20	5745.03	30	Pass
	+25	5745.03	30	Pass
	+30	5745.07	70	Pass
	+35	5745.06	60	Pass
102	+20	5745.05	50	Pass
138	+20	5745.02	20	Pass

Model: 802.11a, Operation frequency: 5825MHz, Channel: 165, Rate: 6Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5825.07	70	Pass
	+5	5825.04	40	Pass
	+10	5825.05	50	Pass
	+15	5825.02	20	Pass
	+20	5825.06	60	Pass
	+25	5825.04	40	Pass
	+30	5825.05	50	Pass
	+35	5825.08	80	Pass
102	+20	5825.04	40	Pass
138	+20	5825.06	60	Pass

Model: 802.11n-HT20, Operation frequency: 5180MHz, Channel: 36, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5180.04	40	Pass
	+5	5180.03	30	Pass
	+10	5180.07	70	Pass
	+15	5180.05	50	Pass
	+20	5180.02	20	Pass
	+25	5180.07	70	Pass
	+30	5180.06	60	Pass
	+35	5180.05	50	Pass
102	+20	5180.07	70	Pass
138	+20	5180.03	30	Pass

Model: 802.11n-HT20, Operation frequency: 5240MHz, Channel: 48, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5240.07	70	Pass
	+5	5240.04	40	Pass
	+10	5240.06	60	Pass
	+15	5240.05	50	Pass
	+20	5240.02	20	Pass
	+25	5240.08	80	Pass
	+30	5240.03	30	Pass
	+35	5240.06	60	Pass
102	+20	5240.05	50	Pass
138	+20	5240.07	70	Pass

Model: 802.11n-HT20, Operation frequency: 5745MHz, Channel: 149, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5745.03	30	Pass
	+5	5745.05	50	Pass
	+10	5745.07	70	Pass
	+15	5745.05	50	Pass
	+20	5745.02	20	Pass
	+25	5745.04	40	Pass
	+30	5745.09	90	Pass
	+35	5745.05	50	Pass
102	+20	5745.03	30	Pass
138	+20	5745.03	30	Pass

Model: 802.11n-HT20, Operation frequency: 5825MHz, Channel: 165, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5825.08	80	Pass
	+5	5825.04	40	Pass
	+10	5825.05	50	Pass
	+15	5825.05	50	Pass
	+20	5825.02	20	Pass
	+25	5825.07	70	Pass
	+30	5825.09	90	Pass
	+35	5825.05	50	Pass
102	+20	5825.03	30	Pass
138	+20	5825.05	50	Pass

Model: 802.11n-HT40, Operation frequency: 5190MHz, Channel: 38, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5190.05	50	Pass
	+5	5190.03	30	Pass
	+10	5190.08	80	Pass
	+15	5190.05	50	Pass
	+20	5190.06	60	Pass
	+25	5190.03	30	Pass
	+30	5190.08	80	Pass
	+35	5190.05	50	Pass
102	+20	5190.07	70	Pass
138	+20	5190.06	60	Pass

Model: 802.11n-HT40, Operation frequency: 5230MHz, Channel: 46, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5230.08	80	Pass
	+5	5230.03	30	Pass
	+10	5230.03	30	Pass
	+15	5230.07	70	Pass
	+20	5230.05	50	Pass
	+25	5230.09	90	Pass
	+30	5230.03	30	Pass
	+35	5230.05	50	Pass
102	+20	5230.02	20	Pass
138	+20	5230.07	70	Pass

Model: 802.11n-HT40, Operation frequency: 5755MHz, Channel: 151, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5755.04	40	Pass
	+5	5755.08	80	Pass
	+10	5755.05	50	Pass
	+15	5755.07	70	Pass
	+20	5755.03	30	Pass
	+25	5755.03	30	Pass
	+30	5755.06	60	Pass
	+35	5755.04	40	Pass
102	+20	5755.02	20	Pass
138	+20	5755.09	90	Pass

Model: 802.11n-HT40, Operation frequency: 5795MHz, Channel: 159, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5795.05	50	Pass
	+5	5795.03	30	Pass
	+10	5795.08	80	Pass
	+15	5795.04	40	Pass
	+20	5795.07	70	Pass
	+25	5795.03	30	Pass
	+30	5795.08	80	Pass
	+35	5795.05	50	Pass
102	+20	5795.07	70	Pass
138	+20	5795.04	40	Pass

Model: 802.11ac-HT20, Operation frequency: 5180MHz, Channel: 36, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5180.03	30	Pass
	+5	5180.06	60	Pass
	+10	5180.03	30	Pass
	+15	5180.08	80	Pass
	+20	5180.05	50	Pass
	+25	5180.07	70	Pass
	+30	5180.05	50	Pass
	+35	5180.09	90	Pass
102	+20	5180.04	40	Pass
138	+20	5180.07	70	Pass

Model: 802.11ac-HT20, Operation frequency: 5240MHz, Channel: 48, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5240.06	60	Pass
	+5	5240.07	70	Pass
	+10	5240.02	20	Pass
	+15	5240.05	50	Pass
	+20	5240.01	10	Pass
	+25	5240.06	60	Pass
	+30	5240.08	80	Pass
	+35	5240.03	30	Pass
102	+20	5240.08	80	Pass
138	+20	5240.03	30	Pass

Model: 802.11ac-HT20, Operation frequency: 5745MHz, Channel: 149, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5745.07	70	Pass
	+5	5745.05	50	Pass
	+10	5745.03	30	Pass
	+15	5745.05	50	Pass
	+20	5745.05	50	Pass
	+25	5745.07	70	Pass
	+30	5745.02	20	Pass
	+35	5745.09	90	Pass
102	+20	5745.08	80	Pass
138	+20	5745.05	50	Pass

Model: 802.11ac-HT20, Operation frequency: 5825MHz, Channel: 165, Rate: 6.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5825.05	50	Pass
	+5	5825.02	20	Pass
	+10	5825.07	70	Pass
	+15	5825.07	70	Pass
	+20	5825.03	30	Pass
	+25	5825.05	50	Pass
	+30	5825.09	90	Pass
	+35	5825.06	60	Pass
102	+20	5825.03	30	Pass
138	+20	5825.07	70	Pass

Model: 802.11ac-HT40, Operation frequency: 5190MHz, Channel: 38, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5190.03	30	Pass
	+5	5190.08	80	Pass
	+10	5190.09	90	Pass
	+15	5190.03	30	Pass
	+20	5190.05	50	Pass
	+25	5190.07	70	Pass
	+30	5190.03	30	Pass
	+35	5190.06	60	Pass
102	+20	5190.08	80	Pass
138	+20	5190.03	30	Pass

Model: 802.11ac-HT40, Operation frequency: 5230MHz, Channel: 46, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5230.07	70	Pass
	+5	5230.05	50	Pass
	+10	5230.02	20	Pass
	+15	5230.09	90	Pass
	+20	5230.03	30	Pass
	+25	5230.07	70	Pass
	+30	5230.05	50	Pass
	+35	5230.03	30	Pass
102	+20	5230.08	80	Pass
138	+20	5230.06	60	Pass

Model: 802.11ac-HT40, Operation frequency: 5755MHz, Channel: 151, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5755.03	30	Pass
	+5	5755.08	80	Pass
	+10	5755.05	50	Pass
	+15	5755.07	70	Pass
	+20	5755.03	30	Pass
	+25	5755.07	70	Pass
	+30	5755.02	20	Pass
	+35	5755.05	50	Pass
102	+20	5755.04	40	Pass
138	+20	5755.07	70	Pass

Model: 802.11ac-HT40, Operation frequency: 5795MHz, Channel: 159, Rate: 13.5Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5795.08	80	Pass
	+5	5795.04	40	Pass
	+10	5795.09	90	Pass
	+15	5795.05	50	Pass
	+20	5795.07	70	Pass
	+25	5795.05	50	Pass
	+30	5795.03	30	Pass
	+35	5795.08	80	Pass
102	+20	5795.05	50	Pass
138	+20	5795.06	60	Pass

Model: 802.11ac-HT80, Operation frequency: 5210MHz, Channel: 42, Rate: 29.3Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5210.07	70	Pass
	+5	5210.00	0	Pass
	+10	5210.05	50	Pass
	+15	5210.02	20	Pass
	+20	5210.01	10	Pass
	+25	5210.05	50	Pass
	+30	5210.03	30	Pass
	+35	5210.07	70	Pass
102	+20	5210.08	80	Pass
138	+20	5210.00	0	Pass

Model: 802.11ac-HT80, Operation frequency: 5775MHz, Channel: 155, Rate: 29.3Mbps

Input voltage (VAC)	Temperature (˚C)	Measured Frequency (MHz)	Frequency deviation (KHz)	Result
120	0	5775.02	20	Pass
	+5	5775.07	70	Pass
	+10	5775.03	30	Pass
	+15	5775.08	80	Pass
	+20	5775.05	50	Pass
	+25	5775.03	30	Pass
	+30	5775.07	70	Pass
	+35	5775.02	20	Pass
102	+20	5775.07	70	Pass
138	+20	5775.05	50	Pass

Note: All emissions are maintained within the band of operation under all conditions of normal operation as specified in the user manual. It fulfills the requirement of 15.407(g).

Appendix A: Test equipment list

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	28-May-2019	28-May-2020
SZ182-02-01	Pulse Power Sensor	Anritsu	MA2411B	1207429	28-May-2019	28-May-2020
SZ070-24	Open Switch and Control Unit with TS8997 option for power measurement test	R&S	OSP120+B157	--	30-Oct-2019	30-Oct-2020
SZ061-04	Biconilog Antenna	ETS	3142C	00078828	14-Sep-2018	14-Sep-2020
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	24-May-2019	24-May-2020
SZ061-08	Horn Antenna	ETS	3115	00092346	7-Sep-2019	7-Sep-2021
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	13-Aug-2019	13-Aug-2021
SZ185-01	EMI Receiver	R&S	ESCI	100547	4-Jan-2019	4-Jan-2020
SZ056-06	Signal Analyzer	R&S	FSV40	101101	28-May-2019	28-May-2020
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	15-Jan-2019	15-Jan-2020
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	15-Dec-2018	15-Dec-2020
SZ062-02	RF Cable	RADIALL	RG 213U	--	19-Jun-2019	19-Dec-2019
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	14-Aug-2019	14-Aug-2020
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	14-Aug-2019	14-Aug-2020
SZ067-17	Highpass Filter	Wainwright	WHK1.6/15G-10SS	--	28-Dec-2018	28-Dec-2019
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	28-May-2019	28-May-2020
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	29-Oct-2019	29-Oct-2020
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	29-Oct-2019	29-Oct-2020
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	28-May-2019	28-May-2020
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Jan-2017	16-Jan-2020
SZ062-16	RF Cable	HUBER+SUHNER	CBL2-BN-1m	110127-2231000	30-Oct-2019	30-Oct-2020
SZ016-12	Programmable Temperature & Humidity Chamber	Taili	MHK-120NK	AB0105	17-Jan-2019	17-Jan-2020
SZ006-30	DC Power Supply	Guwei	SPS-3610	GEQ920551	15-Jan-2019	15-Jan-2020

Expanded uncertainty of radiated emission measurement is ±4.9 dB.
Expanded uncertainty of conducted emission measurement is ±3.6 dB.

********** End of Report**********