



RF TEST REPORT

Product Name: AX3000 Wireless Dual-Band WiFi6 Router

Model Name: NX30, DIR-X3060Z, DIR-X3000, DIR-X3000Z

FCC ID: T58NX30R

Issued For : NETIS SYSTEMS CO., LTD

Floor 8, Building B, TongFang Information Harbor, No.11
Langshan Road, Nanshan District, Shenzhen, China

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Chen Hsong Industrial Park,
No.177 Renmin West Road, Jinsha Community, Kengzi
Street, Pingshan New District, Shenzhen, China

Report Number: LGT23C033RF02

Sample Received Date: Mar. 16, 2023

Date of Test: Mar. 16, 2023 – Mar. 28, 2023

Date of Issue: Mar. 28, 2023

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TEST REPORT CERTIFICATION

Applicant NETIS SYSTEMS CO., LTD
Address Floor 8, Building B, TongFang Information Harbor, No.11
Langshan Road, Nanshan District, Shenzhen, China

Manufacturer NETIS SYSTEMS CO., LTD
Address Floor 8, Building B, TongFang Information Harbor, No.11
Langshan Road, Nanshan District, Shenzhen, China

Factory Jiangxi Netis Technology Co., Ltd.
Address No.6 tongjiu road, Economic and Technological
Development District, Pingxiang, Jiangxi, China.

Product Name AX3000 Wireless Dual-Band WiFi6 Router

Trademark N/A

Model Name NX30, DIR-X3060Z, DIR-X3000, DIR-X3000Z

Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC Part 15.407, Subpart E ANSI C63.10-2013	PASS

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Revision History

Rev.	Issue Date	Contents
00	Mar. 28, 2023	Initial Issue



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Part 15.407, KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

FCC Part 15.407		
FCC standard	Test Item	Results
15.207	AC Conducted Emission	PASS
15.407 (a) /15.407 (e)	26dB/6dB &99% Bandwidth	PASS
15.407(a)	Maximum Conducted Output Power	PASS
15.407(b)/15.205/15.209	Radiated Emission And (bandedge Emissions) Measurement	PASS
15.407(a)	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203/15.204	Antenna Requirement	PASS

NOTE:

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

(2) All tests are according to ANSI C63.10-2013.



1.1 TEST FACTORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Chen Hsong Industrial Park, No.177 Renmin West Road, Jinsha Community, Kengzi Street, Pingshan New District, Shenzhen, China
Accreditation Certificate:	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded 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	RF output power, conducted	± 0.68 dB
2	Unwanted Emissions, conducted	± 2.988 dB
3	All emissions, radiated 9K-30MHz	± 2.84 dB
4	All emissions, radiated 30M-1GHz	± 4.39 dB
5	All emissions, radiated 1G-6GHz	± 5.10 dB
6	All emissions, radiated >6G	± 5.48 dB
7	Conducted Emission (9KHz-150KHz)	± 2.79 dB
8	Conducted Emission (150KHz-30MHz)	± 2.80 dB



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	AX3000 Wireless Dual-Band WiFi6 Router															
Trademark	N/A															
Model Name	NX30															
Series Model	DIR-X3060Z, DIR-X3000, DIR-X3000Z															
Model Difference	No difference, Just sold to D-link															
Product Description	The EUT is a AX3000 Wireless Dual-Band WiFi6 Router															
	<table border="1"> <tr> <td rowspan="2">Operation Frequency:</td> <td>IEEE 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5.180GHz-5.240GHz</td> </tr> <tr> <td>IEEE 802.11n(HT40)/ac(VHT40)/ ax(HE40): 5.190GHz-5.230GHz</td> </tr> <tr> <td rowspan="3">I</td> <td>IEEE 802.11ac/ax(VHT80): 5.210GHz</td> </tr> <tr> <td>IEEE 802.11ac/ax(VHT160): 5250GHz</td> </tr> <tr> <td>IEEE 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5.755GHz-5.825GHz</td> </tr> <tr> <td rowspan="3">Modulation Type:</td> <td>802.11a(OFDM): BPSK, QPSK, 16-QAM, 64-QAM</td> </tr> <tr> <td>802.11n(OFDM): BPSK, QPSK, 16-QAM, 64-QAM</td> </tr> <tr> <td>802.11ac(OFDM): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM</td> </tr> <tr> <td>Antenna Designation:</td> <td>Please refer to the Note 3.</td> </tr> <tr> <td>Antenna Gain(dBi)</td> <td>ANT1: 5.15dBi ANT2: 5.5dBi ANT3: 5.85dBi MIMO: 10.28dBi</td> </tr> </table>	Operation Frequency:	IEEE 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5.180GHz-5.240GHz	IEEE 802.11n(HT40)/ac(VHT40)/ ax(HE40): 5.190GHz-5.230GHz	I	IEEE 802.11ac/ax(VHT80): 5.210GHz	IEEE 802.11ac/ax(VHT160): 5250GHz	IEEE 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5.755GHz-5.825GHz	Modulation Type:	802.11a(OFDM): BPSK, QPSK, 16-QAM, 64-QAM	802.11n(OFDM): BPSK, QPSK, 16-QAM, 64-QAM	802.11ac(OFDM): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM	Antenna Designation:	Please refer to the Note 3.	Antenna Gain(dBi)	ANT1: 5.15dBi ANT2: 5.5dBi ANT3: 5.85dBi MIMO: 10.28dBi
	Operation Frequency:		IEEE 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5.180GHz-5.240GHz													
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	I	IEEE 802.11ac/ax(VHT80): 5.210GHz														
IEEE 802.11ac/ax(VHT160): 5250GHz																
IEEE 802.11a/n(HT20)/ac(VHT20)/ax(HE20): 5.755GHz-5.825GHz																
Modulation Type:	802.11a(OFDM): BPSK, QPSK, 16-QAM, 64-QAM															
	802.11n(OFDM): BPSK, QPSK, 16-QAM, 64-QAM															
	802.11ac(OFDM): BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM															
Antenna Designation:	Please refer to the Note 3.															
Antenna Gain(dBi)	ANT1: 5.15dBi ANT2: 5.5dBi ANT3: 5.85dBi MIMO: 10.28dBi															
More details of EUT technical specification, please refer to the User Manual.																
Test Channel	Please refer to the Note 2.															
Adapter	Model: ES098C-US-1200150 Input: 100-240V ~ 50/60Hz 0.5A Output: 12.0V1.5A Model: KL-WA120150-D Input:100-240V~50/60Hz 0.7A Ouptut: 12.0V1.5A															
Hardware Version	N/A															
Software Version	N/A															
Connecting I/O Port(s)	Please refer to the Note 1.															

Note

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



2. Operation Frequency of channel

5.180GHz-5.250GHz	
Channel	Frequency
36	5180
38	5190
40	5200
42	5210
44	5220
46	5230
48	5240
50	5250
5.745GHz-5.825GHz	
Channel	Frequency
149	5745
151	5755
153	5765
155	5775
157	5785
159	5795
161	5805
165	5825

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Carrier Frequency Channel

Channel List for 802.11a/n/ac/ax(20MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	44	5220	48	5240
149	5745	153	5765	157	5785	161	5805
165	5825						

Channel List for 802.11n/ac/ax(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	151	5755	159	5795

Channel List for 802.11ac(80MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	155	5775				

Channel List for 802.11ax(160MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
50	5250			--	--	--	--



3KDB 662911 D01 Multiple Transmitter Output v02r01

2) Directional Gain Calculations for In-Band Measurements

a) Basic methodology with NANT transmit antennas, each with the same directional gain GANT d Bi, being driven by NANT transmitter outputs of equal power. Directional gain is to be computed

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
1	RF link	U00T01S104N00834	PCB	ANT 1:5.15	5G WLAN ANT
2		U00T01S104N00836		ANT 2:5.5	
3		U00T01S104N00835		ANT 3:5.85 MIMO:10.28	

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

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.

Worst Mode	Description	Data Rate
Mode 1	TX IEEE 802.11a/ax HT20 CH36&CH40&CH48	6 Mbps
Mode 2	TX IEEE 802.11a/ax HT20 CH149&CH157&CH165	6 Mbps
Mode 3	TX IEEE 802.11n/ax HT20 CH149&CH157&CH165	MCS 0
Mode 4	TX IEEE 802.11ac/ax HT20 CH149&CH157&CH165	NSS1 MCS0
Mode 5	TX IEEE 802.11n/ax HT40 CH38&CH46	MCS 0
Mode 6	TX IEEE 802.11ac/ax HT40 CH38&CH46	NSS1 MCS0
Mode 7	TX IEEE 802.11n/ax HT40 CH151&CH159	MCS 0
Mode 8	TX IEEE 802.11ac/ax HT40 CH151&CH159	NSS1 MCS0
Mode 9	TX IEEE 802.11ac/ax HT80 CH42	NSS1 MCS0
Mode 10	TX IEEE 802.11ac/ax HT80 CH155	NSS1 MCS0
Mode 11	TX IEEE 802.11ac/ax HT160 CH50	NSS1 MCS0

- 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.
 (3) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.
 (4) The battery is fully-charged during the radited and RF conducted test.

AC Conducted Emission

Test Case	
AC Conducted Emission	Mode 12: TX Mode



2.3 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

Test software Version	Test program: 5G WIFI B1	
QATool_Dbg 0.0.2.73	a	16
	n20	16
	n40	16
	ac80	16
	ac160	20
	ax80	16
	ax160	20
Test software Version	Test program: 5G WIFI B4	
QATool_Dbg 0.0.2.73	a	16
	n20	16
	n40	16
	ac80	16
	ax80	16

2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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.

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
Adapter	Xiamen Keli Electronics Co., Ltd	KL-WA120150-D	N/A	Input:100-240V ~ 50/60Hz 0.7A Output:12.0V, 1.5A
Adapter	Shenzhen East Sun Electronic Co.,Ltd	ES098C-US-1200150	N/A	Input:100-240V ~ 50/60Hz 0.5A Output:12.0V, 1.5A
RJ45 Cable	N/A	N/A	N/A	N/A

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Laptop	HUAWEI	HKF-16	N/A	N/A
Docking Station	HUAWEI	CD12	N/A	N/A
RJ45 Cable	N/A	N/A	N/A	N/A

Note:

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



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Conducted Emission

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
EMI Test Receiver	R&S	ESU	100372	2022.04.12	2023.04.11
LISN	COM-POWER	LI-115	02032	2022.04.13	2023.04.12
LISN	SCHWARZBECK	NNLK 8121	00847	2022.08.19	2023.08.18
CE Cable	N.A	C01	N.A	2022.05.05	2023.05.04
Transient Limiter	CYBERTEK	EM5010A	E2250100049	2022.08.19	2023.08.18
Temperature & Humidity	KTJ	TA218B	N.A	2022.05.05	2023.05.04
Testing Software	EMC-I_V1.4.0.3_SKET				

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESU	100372	2022.04.12	2023.04.11
Spectrum Analyzer	Keysight	N9010B	MY60242508	2022.04.29	2023.04.28
Bilog Antenna	SCHWARZBECK	VULB 9168	01447	2022.12.12	2025.12.11
Horn Antenna(18GHz)	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Horn Antenna(40 GHz)	A-INFO	LB-180400-KF	J211060273	2022.03.28	2025.03.27
Pre-amplifier(3GHz)	HP	8447D	2727A05655	2022.04.11	2023.04.10
Pre-amplifier(26.5G)	Agilent	8449B	3008A4722	2022.04.12	2023.04.11
Pre-amplifier(40 GHz)	com-mw	LNPA_18-40-01	18050001	2022.06.08	2023.06.07
RE Cable (9K-1G)	N.A	R01	N.A	2022.05.05	2023.05.04
RE Cable (1-26G)	N.A	R02	N.A	2022.05.05	2023.05.04
Temperature & Humidity	KTJ	TA218B	N.A	2022.05.05	2023.05.04
Testing Software	EMC-I_V1.4.0.3_SKET				

RF Connected Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Signal Generator	Keysight	N5182B	MY59100717	2022.04.30	2023.04.29
Signal Analyzer	Keysight	N9010B	MY60242508	2022.04.29	2023.04.28
Temperature & Humidity	KTJ	TA218B	N/A	2022.05.05	2023.05.04
Temperature & Humidity test chamber	AISRY	LX-1000L	171200018	2022.05.10	2023.05.09
Attenuator	eastsheep	90db	N/A	2022.04.29	2023.04.28
Testing Software	MTS 8310_2.0.0.0_MWRF-TEST				



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ * ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



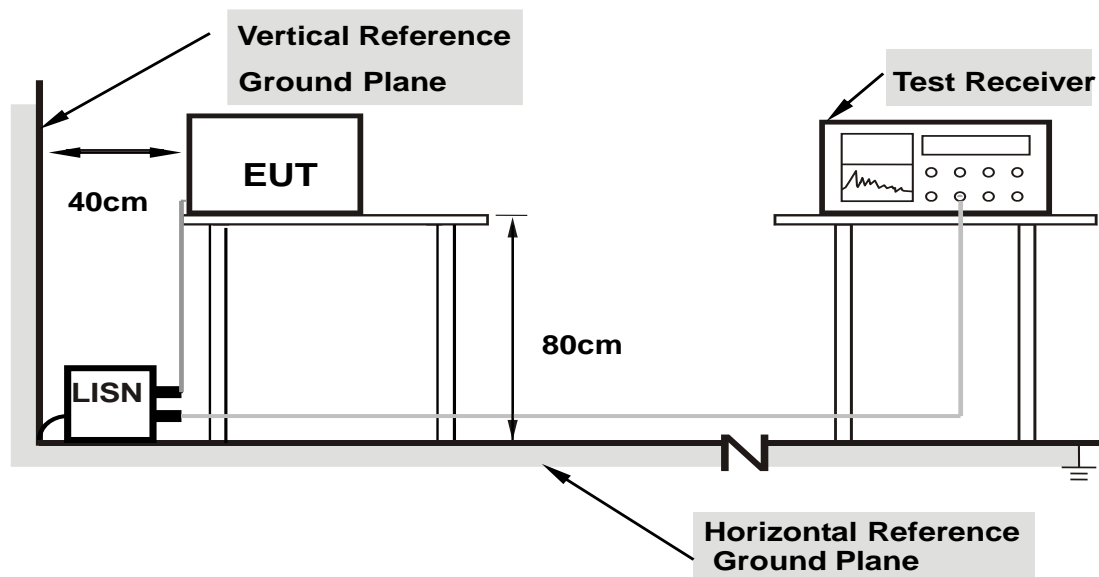
3.1.2 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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 40 cm long.
- 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.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

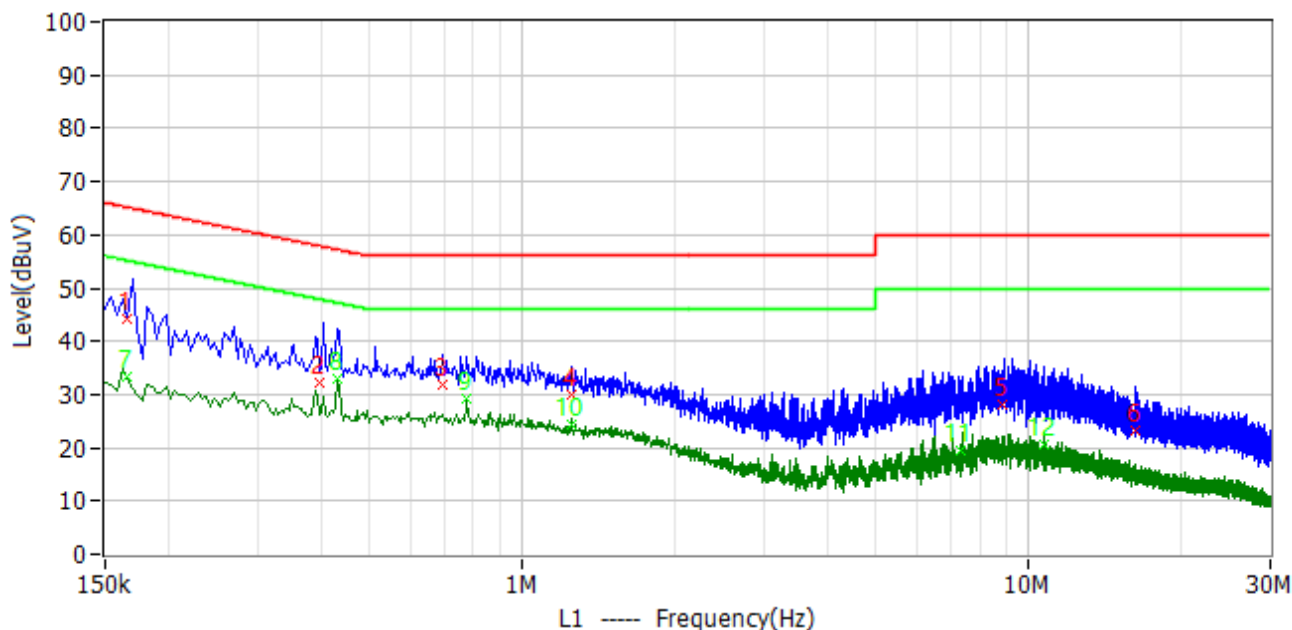
3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



3.1.6 TEST RESULTS

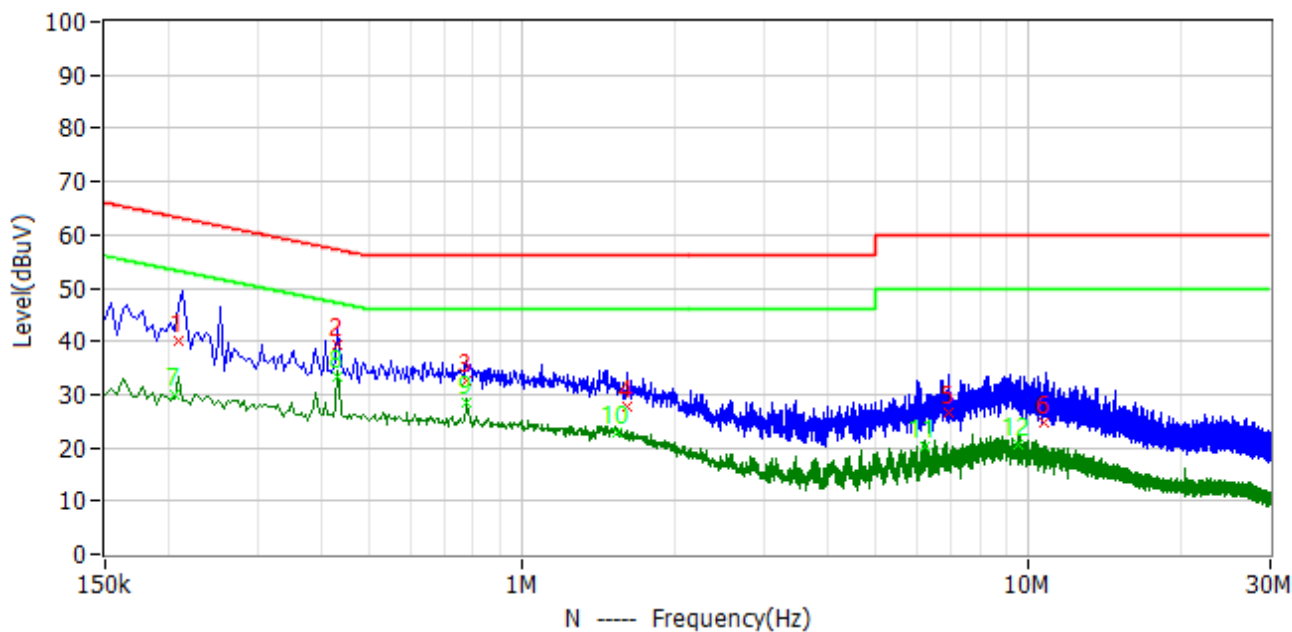
Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.8°C
M/N: NX30	Humidity: 64%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-22
Test Mode: 5GHz Wi-Fi TX	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1	166.000kHz	33.78	10.60	44.38	65.16	-20.77	QP	L1
2	398.000kHz	21.50	10.60	32.10	57.90	-25.80	QP	L1
3	698.000kHz	21.38	10.60	31.98	56.00	-24.02	QP	L1
4	1.254MHz	19.24	10.60	29.84	56.00	-26.16	QP	L1
5	8.902MHz	17.15	10.80	27.95	60.00	-32.05	QP	L1
6	16.166MHz	12.30	11.10	23.40	60.00	-36.60	QP	L1
7	166.000kHz	22.74	10.60	33.34	55.16	-21.82	AV	L1
8	430.000kHz	22.35	10.60	32.95	47.25	-14.30	AV	L1
9	778.000kHz	18.73	10.60	29.33	46.00	-16.67	AV	L1
10	1.250MHz	13.90	10.60	24.50	46.00	-21.50	AV	L1
11	7.330MHz	8.59	10.80	19.39	50.00	-30.61	AV	L1
12	10.714MHz	9.75	10.90	20.65	50.00	-29.35	AV	L1



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.8°C
M/N: NX30	Humidity: 64%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-22
Test Mode: 5GHz Wi-Fi TX	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1	210.000kHz	29.48	10.60	40.08	63.21	-23.13	QP	N
2	430.000kHz	28.76	10.60	39.36	57.25	-17.89	QP	N
3	774.000kHz	21.98	10.60	32.58	56.00	-23.42	QP	N
4	1.606MHz	17.00	10.70	27.70	56.00	-28.30	QP	N
5	6.926MHz	15.88	10.80	26.68	60.00	-33.32	QP	N
6	10.694MHz	13.95	10.90	24.85	60.00	-35.15	QP	N
7	206.000kHz	19.30	10.60	29.90	53.37	-23.47	AV	N
8	430.000kHz	22.88	10.60	33.48	47.25	-13.77	AV	N
9	778.000kHz	18.02	10.60	28.62	46.00	-17.38	AV	N
10	1.546MHz	12.20	10.70	22.90	46.00	-23.10	AV	N
11	6.242MHz	9.67	10.70	20.37	50.00	-29.63	AV	N
12	9.550MHz	9.84	10.90	20.74	50.00	-29.26	AV	N



3.2 RADIATED EMISSION AND (BANDEGE) MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.407(b)7&15.205/209(a), then the limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	68.2	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15E.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (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	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	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	Above 38.6
13.36-13.41			

Note: In case the emission radiated emission above 1000MHz fall within the restricted band the restricted frequency bands, the peak limit is 74 dBuV/m.



LIMITS OF EMISSIONS OUTSIDE OF THE FREQUENCY BANDS

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:
 - (i) 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.

Note: $\text{dBuV/m(at 3M)} = \text{EIRP(dBm)} + 95.3$.

Peak Limit = $-27\text{dBm/MHz} + 95.3 = 68.3$ dBuV/m.

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

For Band edge

Spectrum Parameter	Setting
Detector	Peak
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



3.2.2 TEST PROCEDURE

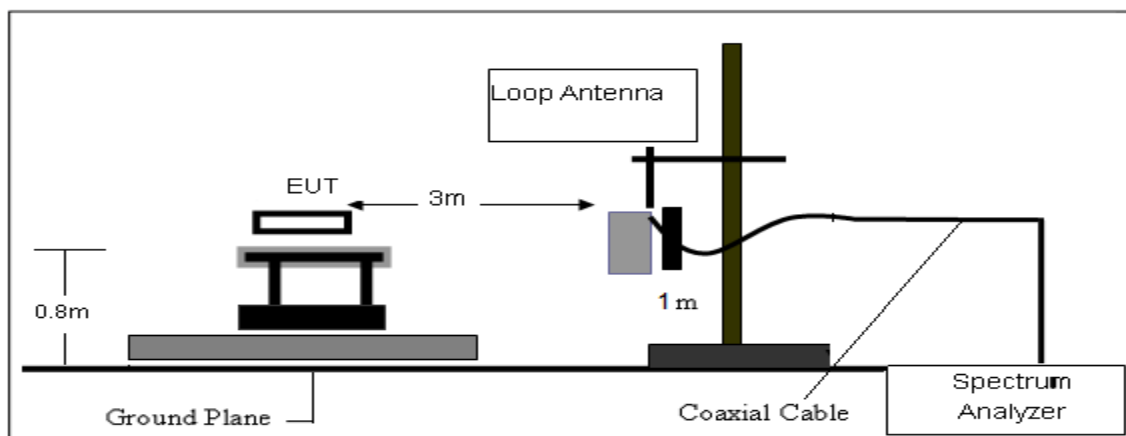
- The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- 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 QuasiPeak detector mode will be re-measured.
- If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

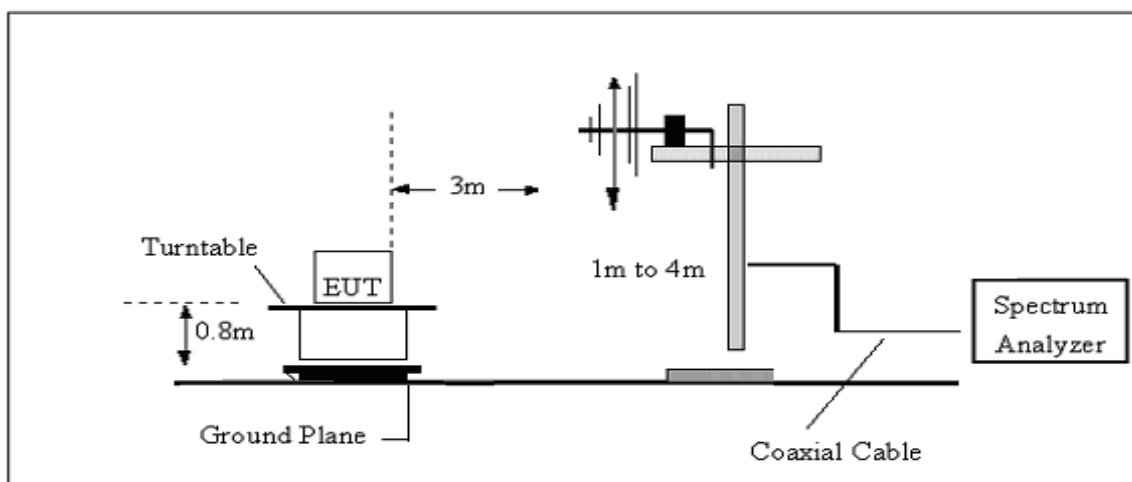
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.3 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz

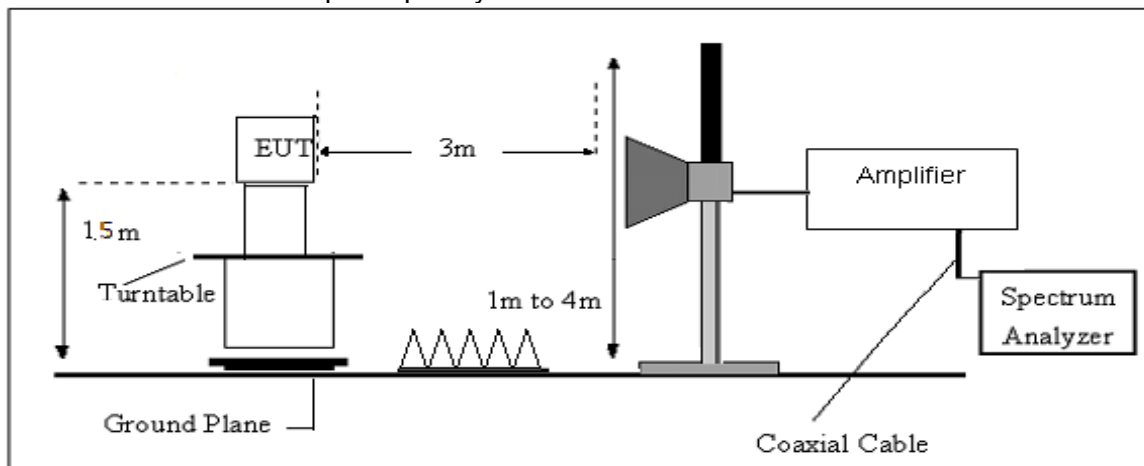


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(C) Radiated Emission Test-Up Frequency Above 1GHz





3.2.4 EUT OPERATING 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.

3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

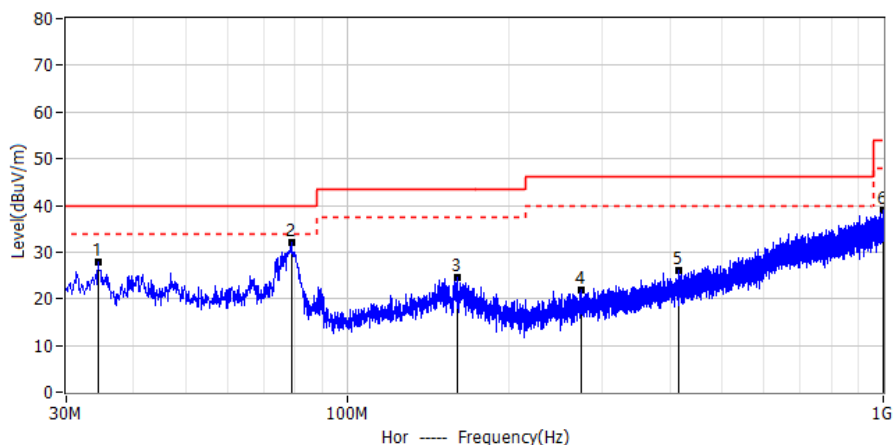
Frequency (MHz)	FS (dB μ V/m)	RA (dB μ V/m)	AF (dB)	CL (dB)	AG (dB)	Factor (dB)
300	40	58.1	12.2	1.6	31.9	-18.1

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$

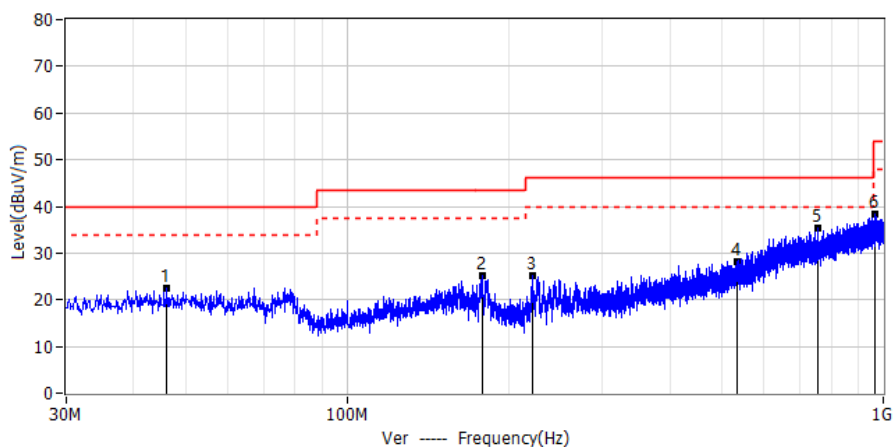


3.2.6 TEST RESULTS

Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 23.5°C
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-22
Test Mode: 5G WIFI	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	34.365MHz	9.28	18.50	27.78	40.00	-12.22	QP	Hor
2*	78.985MHz	16.67	15.49	32.16	40.00	-7.84	QP	Hor
3*	160.708MHz	4.77	19.83	24.60	43.50	-18.90	QP	Hor
4*	273.955MHz	2.46	19.37	21.83	46.00	-24.17	QP	Hor
5*	415.090MHz	3.14	23.07	26.21	46.00	-19.79	QP	Hor
6*	998.909MHz	4.41	34.57	38.98	54.00	-15.02	QP	Hor



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	46.248MHz	3.18	19.25	22.43	40.00	-17.57	QP	Ver
2*	179.016MHz	6.20	18.92	25.12	43.50	-18.38	QP	Ver
3*	222.060MHz	8.31	16.87	25.18	46.00	-20.82	QP	Ver
4*	535.006MHz	2.37	25.78	28.15	46.00	-17.85	QP	Ver
5*	755.803MHz	4.74	30.59	35.33	46.00	-10.67	QP	Ver
6*	963.625MHz	4.12	34.22	38.34	54.00	-15.66	QP	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 26.1°C
M/N: NX30	Humidity: 58%RH
Test Voltage: AC 120V/50Hz	Test Data: 2023-03-30
Test Mode: 802.11a 5180	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.446GHz	60.84	-21.13	39.71	74.00	-34.29	PK	Hor
2*	1.850GHz	58.92	-17.75	41.17	74.00	-32.83	PK	Hor
3*	2.490GHz	57.22	-11.09	46.13	74.00	-27.87	PK	Hor
4*	4.825GHz	54.10	-6.01	48.09	74.00	-25.91	PK	Hor
5*	9.001GHz	55.02	-1.17	53.85	74.00	-20.15	PK	Hor
6*	17.907GHz	50.02	8.45	58.47	74.00	-15.53	PK	Hor
7*	17.907GHz	39.75	8.45	48.20	54.00	-5.80	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.374GHz	61.02	-21.59	39.43	74.00	-34.57	PK	Ver
2*	1.933GHz	59.07	-16.91	42.16	74.00	-31.84	PK	Ver
3*	2.513GHz	56.28	-10.92	45.36	74.00	-28.64	PK	Ver
4*	4.897GHz	54.48	-6.06	48.42	74.00	-25.58	PK	Ver
5*	9.441GHz	54.38	-1.17	53.21	74.00	-20.79	PK	Ver
6*	17.951GHz	49.97	8.49	58.46	74.00	-15.54	PK	Ver
7*	17.951GHz	39.51	8.49	48.00	54.00	-6.00	AV	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 26.1°C
M/N: NX30	Humidity: 58%RH
Test Voltage: AC 120V/50Hz	Test Data: 2023-03-30
Test Mode: 802.11a 5200	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.674GHz	60.53	-19.47	41.06	74.00	-32.94	PK	Hor
2*	2.182GHz	57.38	-14.33	43.05	74.00	-30.95	PK	Hor
3*	3.053GHz	53.61	-8.36	45.25	74.00	-28.75	PK	Hor
4*	4.706GHz	53.73	-5.91	47.82	74.00	-26.18	PK	Hor
5*	8.977GHz	54.54	-1.23	53.31	74.00	-20.69	PK	Hor
6*	17.813GHz	49.70	8.39	58.09	74.00	-15.91	PK	Hor
7*	17.813GHz	38.51	8.39	46.90	54.00	-7.10	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.281GHz	62.15	-22.33	39.82	74.00	-34.18	PK	Ver
2*	1.712GHz	59.20	-19.10	40.10	74.00	-33.90	PK	Ver
3*	2.532GHz	56.40	-10.82	45.58	74.00	-28.42	PK	Ver
4*	4.241GHz	55.03	-6.85	48.18	74.00	-25.82	PK	Ver
5*	8.922GHz	55.06	-1.39	53.67	74.00	-20.33	PK	Ver
6*	17.955GHz	49.45	8.49	57.94	74.00	-16.06	PK	Ver
7*	17.955GHz	39.51	8.49	48.00	54.00	-6.00	AV	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 26.1°C
M/N: NX30	Humidity: 58%RH
Test Voltage: AC 120V/50Hz	Test Data: 2023-03-30
Test Mode: 802.11a 5240	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.839GHz	59.24	-17.86	41.38	74.00	-32.62	PK	Hor
2*	2.203GHz	57.78	-14.10	43.68	74.00	-30.32	PK	Hor
3*	2.494GHz	56.78	-11.05	45.73	74.00	-28.27	PK	Hor
4*	4.838GHz	53.85	-6.02	47.83	74.00	-26.17	PK	Hor
5*	9.415GHz	54.95	-1.17	53.78	74.00	-20.22	PK	Hor
6*	17.958GHz	50.05	8.49	58.54	74.00	-15.46	PK	Hor
7*	17.958GHz	40.11	8.49	48.60	54.00	-5.40	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.321GHz	62.26	-22.01	40.25	74.00	-33.75	PK	Ver
2*	2.515GHz	55.60	-10.90	44.70	74.00	-29.30	PK	Ver
3*	3.246GHz	54.37	-8.42	45.95	74.00	-28.05	PK	Ver
4*	4.785GHz	54.77	-5.97	48.80	74.00	-25.20	PK	Ver
5*	8.950GHz	54.27	-1.31	52.96	74.00	-21.04	PK	Ver
6*	17.809GHz	49.26	8.39	57.65	74.00	-16.35	PK	Ver
7*	17.809GHz	38.91	8.39	47.30	54.00	-6.70	AV	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 26.1°C
M/N: NX30	Humidity: 58%RH
Test Voltage: AC 120V/50Hz	Test Data: 2023-03-30
Test Mode: 802.11a 5745	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.404GHz	61.18	-21.36	39.82	74.00	-34.18	PK	Hor
2*	2.252GHz	57.16	-13.59	43.57	74.00	-30.43	PK	Hor
3*	2.577GHz	56.47	-10.58	45.89	74.00	-28.11	PK	Hor
4*	4.855GHz	54.25	-6.03	48.22	74.00	-25.78	PK	Hor
5*	8.996GHz	54.41	-1.18	53.23	74.00	-20.77	PK	Hor
6*	17.656GHz	49.51	8.28	57.79	74.00	-16.21	PK	Hor
7*	17.656GHz	39.02	8.28	47.30	54.00	-6.70	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.890GHz	59.72	-17.34	42.38	74.00	-31.62	PK	Ver
2*	2.494GHz	56.19	-11.05	45.14	74.00	-28.86	PK	Ver
3*	3.168GHz	54.67	-8.40	46.27	74.00	-27.73	PK	Ver
4*	4.776GHz	54.97	-5.97	49.00	74.00	-25.00	PK	Ver
5*	9.468GHz	54.76	-1.17	53.59	74.00	-20.41	PK	Ver
6*	17.898GHz	49.11	8.45	57.56	74.00	-16.44	PK	Ver
7*	17.898GHz	39.85	8.45	48.30	54.00	-5.70	AV	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 26.1°C
M/N: NX30	Humidity: 58%RH
Test Voltage: AC 120V/50Hz	Test Data: 2023-03-30
Test Mode: 802.11a 5785	
Note:	

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.793GHz	59.37	-18.32	41.05	74.00	-32.95	PK	Hor
2*	2.488GHz	56.89	-11.12	45.77	74.00	-28.23	PK	Hor
3*	3.010GHz	54.48	-8.34	46.14	74.00	-27.86	PK	Hor
4*	4.844GHz	55.55	-6.02	49.53	74.00	-24.47	PK	Hor
5*	8.937GHz	54.48	-1.35	53.13	74.00	-20.87	PK	Hor
6*	17.941GHz	49.32	8.48	57.80	74.00	-16.20	PK	Hor
7*	17.941GHz	39.12	8.48	47.60	54.00	-6.40	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	2.528GHz	55.91	-10.84	45.07	74.00	-28.93	PK	Ver
2*	3.044GHz	54.23	-8.35	45.88	74.00	-28.12	PK	Ver
3*	4.851GHz	53.82	-6.02	47.80	74.00	-26.20	PK	Ver
4*	6.213GHz	56.81	-7.13	49.68	74.00	-24.32	PK	Ver
5*	9.438GHz	54.66	-1.17	53.49	74.00	-20.51	PK	Ver
6*	16.464GHz	50.91	6.98	57.89	74.00	-16.11	PK	Ver
7*	16.464GHz	41.12	6.98	48.10	54.00	-5.90	AV	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 26.1°C
M/N: NX30	Humidity: 58%RH
Test Voltage: AC 120V/50Hz	Test Data: 2023-03-30
Test Mode: 802.11a 5825	
Note:	

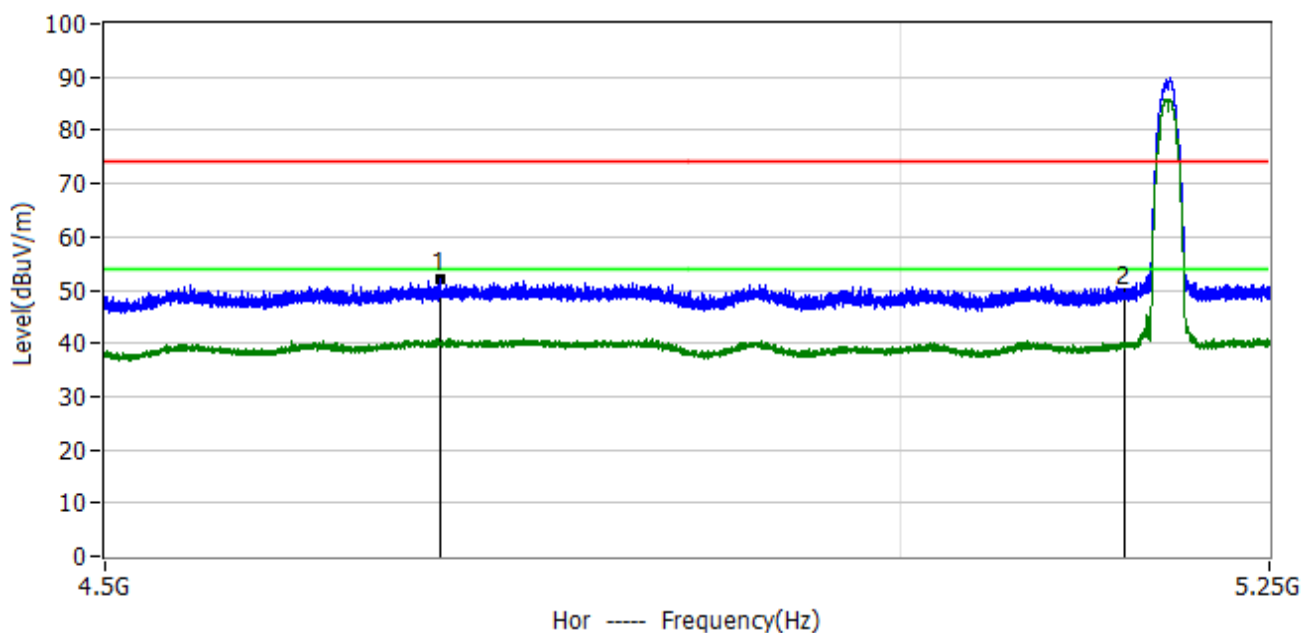
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.689GHz	60.18	-19.33	40.85	74.00	-33.15	PK	Hor
2*	2.483GHz	55.76	-11.16	44.60	74.00	-29.40	PK	Hor
3*	3.242GHz	54.48	-8.42	46.06	74.00	-27.94	PK	Hor
4*	4.800GHz	54.57	-5.99	48.58	74.00	-25.42	PK	Hor
5*	9.462GHz	54.99	-1.17	53.82	74.00	-20.18	PK	Hor
6*	17.794GHz	49.32	8.38	57.70	74.00	-16.30	PK	Hor
7*	17.794GHz	39.12	8.38	47.50	54.00	-6.50	AV	Hor
No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1.848GHz	59.58	-17.77	41.81	74.00	-32.19	PK	Ver
2*	2.492GHz	55.63	-11.07	44.56	74.00	-29.44	PK	Ver
3*	3.136GHz	54.58	-8.38	46.20	74.00	-27.80	PK	Ver
4*	6.187GHz	56.11	-7.18	48.93	74.00	-25.07	PK	Ver
5*	8.996GHz	55.33	-1.18	54.15	74.00	-19.85	PK	Ver
6*	17.826GHz	48.80	8.40	57.20	74.00	-16.80	PK	Ver
7*	17.826GHz	39.40	8.40	47.80	54.00	-6.20	AV	Ver

Note: The 18-40GHz emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise



3.2.7 TEST RESULTS(Band edge Requirements)

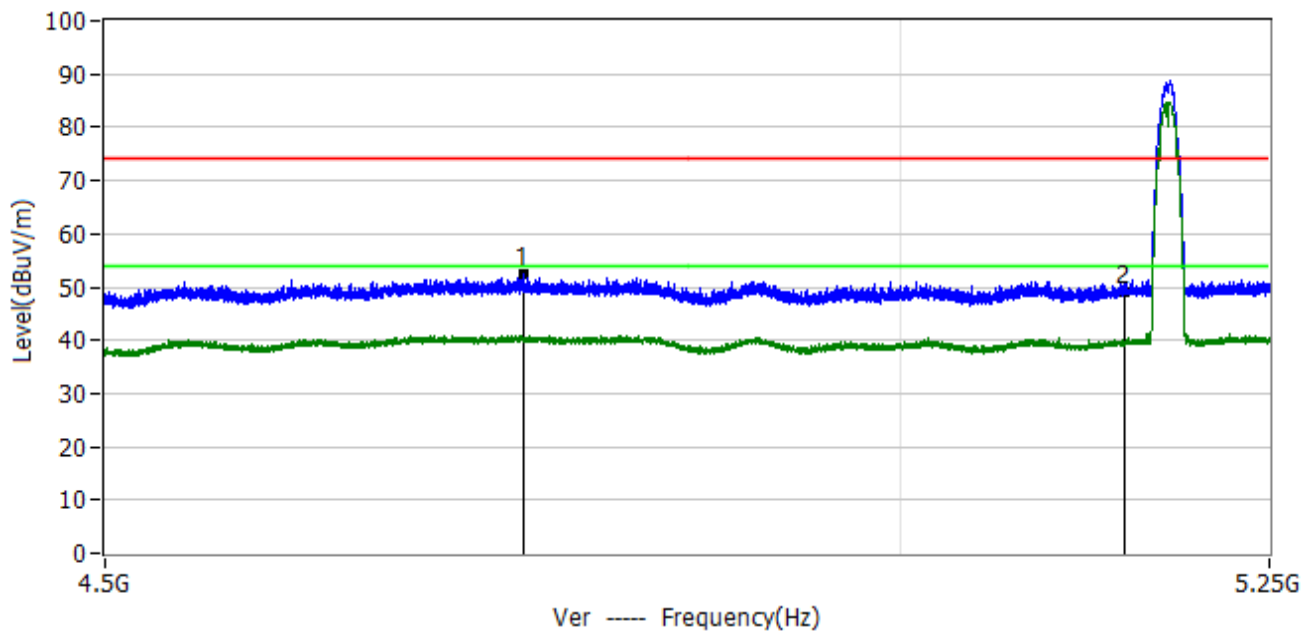
Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5°C
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5180	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.7036GHz	57.80	-5.91	51.89	74.00	-22.11	PK	Hor
2*	5.1500GHz	56.02	-6.62	49.40	74.00	-24.60	PK	Hor



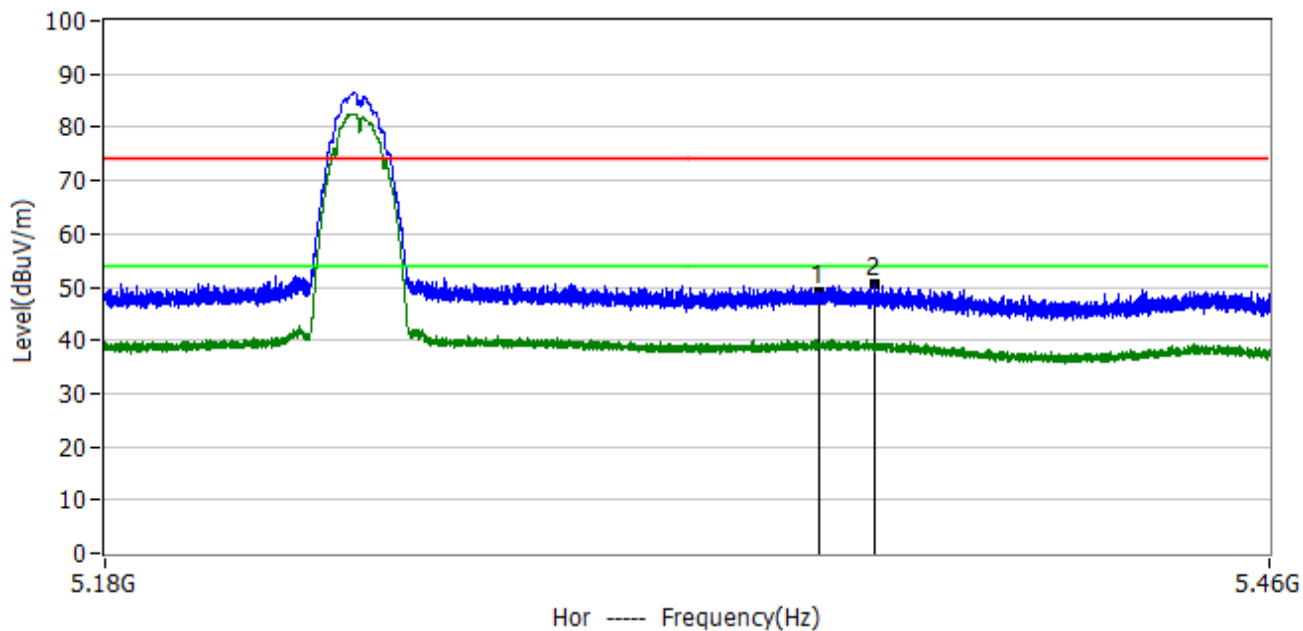
Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5°C
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5180	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.7561GHz	58.40	-5.95	52.45	74.00	-21.55	PK	Ver
2*	5.1500GHz	55.62	-6.62	49.00	74.00	-25.00	PK	Ver



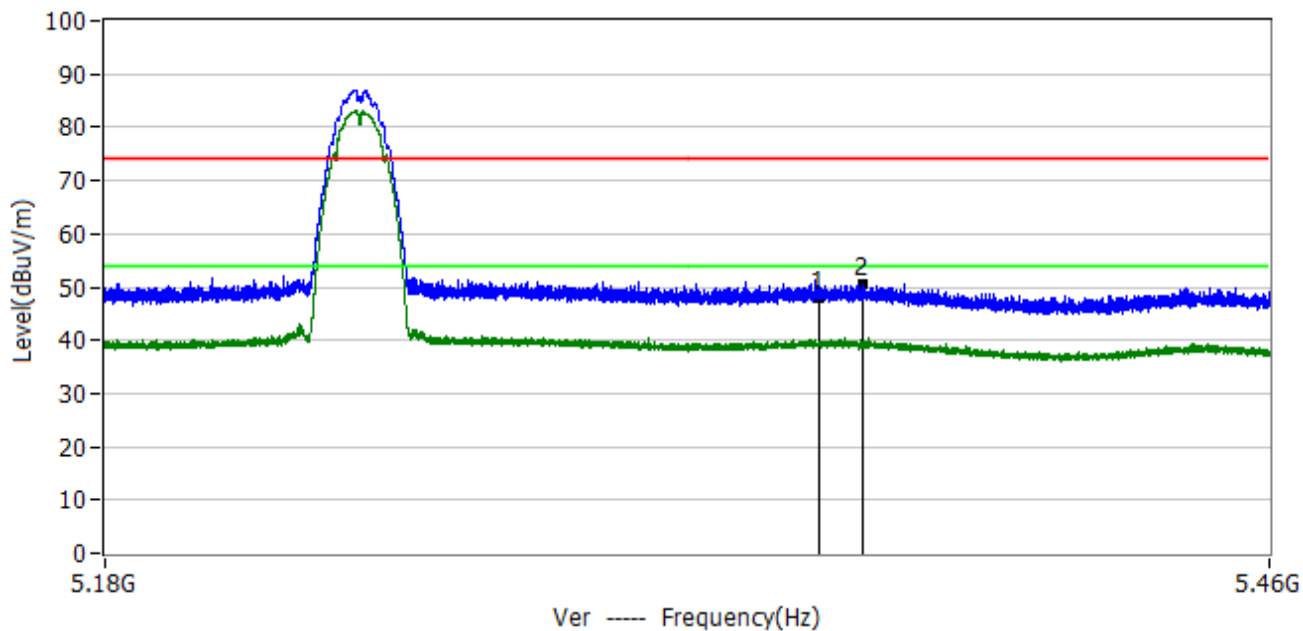
Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5°C
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5240	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.3500GHz	56.16	-7.26	48.90	74.00	-25.10	PK	Hor
2*	5.3636GHz	57.69	-7.30	50.39	74.00	-23.61	PK	Hor



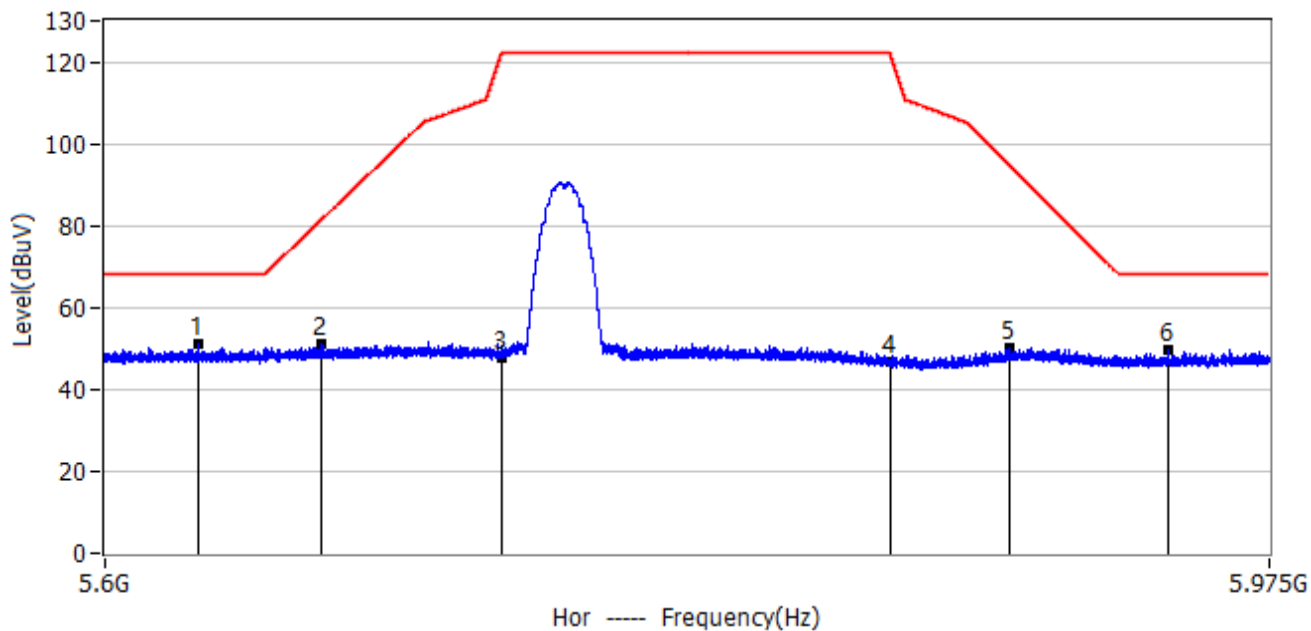
Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5°C
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5240	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.3500GHz	55.26	-7.26	48.00	74.00	-26.00	PK	Ver
2*	5.3607GHz	57.86	-7.29	50.57	74.00	-23.43	PK	Ver



Project: LGT23C033	Test Engineer: Dylan.shi
EUT: AX3000 Wireless Dual-Band WiFi6 Router	Temperature: 24.5°C
M/N: NX30	Humidity: 61%RH
Test Voltage: AC 120V/60Hz	Test Data: 2023-03-29
Test Mode: 802.11a 5745	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	5.6292GHz	58.77	-7.69	51.08	68.20	-17.12	PK	Hor
2*	5.6679GHz	58.65	-7.67	50.98	81.50	-30.52	PK	Hor
3*	5.7250GHz	55.55	-7.65	47.90	122.20	-74.30	PK	Hor
4*	5.8500GHz	54.20	-7.60	46.60	122.20	-75.60	PK	Hor
5*	5.8892GHz	57.92	-7.58	50.34	94.65	-44.31	PK	Hor
6*	5.9414GHz	57.23	-7.56	49.67	68.20	-18.53	PK	Hor