RF TEST REPORT

Product Name: 4G Smart Phone

Model Name: L68 Ultra

Family Model: N68 Ultra

FCC ID: O55685023

Issued For : SWAGTEK

10205 NW 19th Street STE101, Miami FL33172

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

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Report Number:	LGT23L043RF04
Sample Received Date:	Jan. 18, 2024
Date of Test:	Jan. 18, 2024 – Mar. 14, 2024
Date of Issue:	Mar. 14, 2024

TEST REPORT CERTIFICATION

Applicant:	SWAGTEK
Address:	10205 NW 19th Street STE101, Miami FL33172
Manufacturer:	SWAGTEK
Address:	10205 NW 19th Street STE101, Miami FL33172
Product Name:	4G Smart Phone
Trademark:	LOGIC, UNONU, iSWAG
Model Name:	L68 Ultra
Family Model:	N68 Ultra
Sample Status:	Normal

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

Prepared by:

Zane Shan

Zane Shan
Engineer

Approved by:

Vita Li
Technical Director

Table of Contents **Page**

Table of Contents **Page**

Revision History

Rev.	Issue Date	Revisions
00	Mar. 14, 2024	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, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, 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** ± **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 9K-30MHz	±2.84dB
4	All emissions, radiated 30M-1GHz	±4.39dB
5	All emissions, radiated 1G-6GHz	±5.10dB
6	All emissions, radiated>6G	±5.48dB
7	Conducted Emission (9KHz-150KHz)	±2.79dB
8	Conducted Emission (150KHz-30MHz)	±2.80dB
9	Emission Bandwidth	±3.2 %
10	Power Spectral Density, Conducted	±2.11 dB

Note: The measurement uncertainty is not included in the test result.

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

<table>
<tr><td>Product Name:</td><td>4G Smart Phone</td></tr>
<tr><td>Trademark:</td><td>LOGIC, UNONU, iSWAG</td></tr>
<tr><td>Model Name:</td><td>L68 Ultra</td></tr>
<tr><td>Family Model:</td><td>N68 Ultra</td></tr>
<tr><td>Model Difference:</td><td>Only different in model name and Trademark.</td></tr>
<tr><td>Product Description:</td><td>
<table>
<tr><td>Operation Frequency:</td><td>IEEE 802.11a/n(HT20)/ac(VHT20): 5.260GHz-5.320GHz
IEEE 802.11 n(HT40)/ac(VHT40): 5.270GHz-5.310GHz
IEEE 802.11ac(VHT80): 5.290GHz</td></tr>
<tr><td></td><td>IEEE 802.11a/n(HT20)/ac(VHT20): 5.500GHz-5.700GHz
IEEE 802.11 n(HT40)/ac(VHT40): 5.510GHz-5.670GHz
IEEE 802.11ac(VHT80): 5.530GHz-5.610GHz</td></tr>
<tr><td>Modulation Type:</td><td>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</td></tr>
<tr><td>Antenna Designation:</td><td>FPC</td></tr>
<tr><td>Antenna Gain(dBi)</td><td>0.38</td></tr>
</table>
More details of EUT technical specification, please refer to the User Manual.
</td></tr>
<tr><td>Test Channel:</td><td>Please refer to the Note 3.</td></tr>
<tr><td>Adapter:</td><td>Input: 100-240V, 50/60Hz, 0.2A
Output: 5V, 2000mA</td></tr>
<tr><td>Battery:</td><td>Capacity: 5000mAh
Rated Voltage: 3.8V</td></tr>
<tr><td>Hardware Version:</td><td>S81D_V3.0X</td></tr>
<tr><td>Software Version:</td><td>N/A</td></tr>
<tr><td>Connecting I/O Port(s):</td><td>Please refer to the Note 1.</td></tr>
</table>

Note

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna information refers to the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.

3. Operation Frequency of channel

5.260GHz-5.320GHz		--	
Channel	Frequency	--	--
52	5260	--	--
54	5270	--	--
56	5280	--	--
58	5290	--	--
60	5300	--	--
62	5310	--	--
64	5320	--	--
5.500GHz-5.720GHz		--	
Channel	Frequency	--	--
100	5500	--	--
102	5510	--	--
104	5520	--	--
108	5540	--	--
110	5550	--	--
112	5560	--	--
116	5580	--	--
118	5590	--	--
120	5600	--	--
124	5620	--	--
126	5630	--	--
128	5640	--	--
132	5660	--	--
134	5670	--	--
136	5680	--	--
140	5700	--	--
142	5710	--	--
144	5720	--	--

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(20MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	100	5500	--	--	--	--
60	5300	116	5580	--	--	--	--
64	5320	140	5700	--	--	--	--

Channel List for 802.11n/ac(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	102	5510	--	--	--	--
62	5310	110	5550	--	--	--	--
--	--	--	--	--	--	--	--

Channel List for 802.11ac(80MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290	106	5530	--	--	--	--
122	5610	--	--	--	--	--	--

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 HT20 CH52&CH60&CH64	6 Mbps
Mode 2	TX IEEE 802.11a HT20 CH100&CH116&CH140	6 Mbps
Mode 3	TX IEEE 802.11n HT20 CH52&CH60&CH64	MCS 0
Mode 4	TX IEEE 802.11ac HT20 CH52&CH60&CH64	NSS1 MCS0
Mode 5	TX IEEE 802.11n HT20 CH100&CH116&CH140	MCS 0
Mode 6	TX IEEE 802.11ac HT20 CH100&CH116&CH140	NSS1 MCS0
Mode 7	TX IEEE 802.11n HT40 CH54 &CH62	MCS 0
Mode 8	TX IEEE 802.11ac HT40 CH54 &CH62	NSS1 MCS0
Mode 9	TX IEEE 802.11n HT40 CH102&CH110&CH134	MCS 0
Mode 10	TX IEEE 802.11ac HT40 CH102&CH110&CH134	NSS1 MCS0
Mode 11	TX IEEE 802.11ac HT80 CH58	NSS1 MCS0
Mode 12	TX IEEE 802.11ac HT80 CH106&122	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 13: 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 B2	
Engineering Mode	Mode Or Modulation type	Power setting
	a	21
	n20	21
	n40	21
	ac20	21
	ac40	21
	ac80	21
Test software Version	Test program: 5G WIFI B3	
Engineering Mode	Mode Or Modulation type	Power setting
	a	21
	n20	21
	n40	21
	ac20	21
	ac40	21
	ac80	21

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	Logic	CMAX2U	N/A	Input: 100-240V ~ 50/60Hz 0.2A Output: 5V, 2A
USB-A to USB-C Cable	Logic	N/A	N/A	1m

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating

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	ESU8	100372	2023.04.13	2024.04.12
LISN	COM-POWER	LI-115	02032	2023.04.07	2024.04.06
LISN	SCHWARZBECK	NNLK 8122	00160	2023.04.07	2024.04.06
Transient Limiter	CYBERTEK	EM5010A	E2250100049	2023.04.07	2024.04.06
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Testing Software	EMC-I_V1.4.0.3_SKET				

Radiated Test equipment					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
EMI Test Receiver	R&S	ESU8	100372	2023.04.13	2024.04.12
Active loop Antenna	ETS	6502	00049544	2022.06.02	2025.06.01
Spectrum Analyzer	Keysight	N9010B	MY60242508	2023.04.10	2024.04.09
Bilog Antenna(30M-1G)	SCHWARZBECK	VULB 9168	2705	2022.06.05	2025.06.04
Horn Antenna(1-18G)	SCHWARZBECK	3115	10SL0060	2022.06.02	2025.06.01
Horn Antenna(18-40G)	A-INFO	LB-180400-KF	J211060273	2022.06.08	2025.06.07
Pre-amplifier(30M-1G)	EMtrace	RP01A	02019	2023.04.07	2024.04.06
Pre-amplifier(1-26.5G)	Agilent	8449B	3008A4722	2023.04.07	2024.04.06
Pre-amplifier(18-40G)	com-mw	LNPA_18-40-01	18050003	2023.04.07	2024.04.06
Wireless Communications Test Set	R&S	CMW 500	137737	2023.04.13	2024.04.12
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Band-stop filter(2.4-2.5GHz)	Micro-Tronics	BRM50702	169	2023.04.29	2024.04.27
Testing Software	EMC-I_V1.4.0.3_SKET				

RF Conducted Test equipment					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Cal. Until**
Signal Analyzer	Keysight	N9010B	MY60242508	2023.08.14	2024.08.13
Signal Analyzer	Keysight	N9020A	MY50530994	2023.10.12	2024.10.10
RF Automatic Test system	MW	MW200-RFCB	MW220322LG	2023.04.13	2024.04.12
MXG Vector Signal Generator	Keysight	N5182B	MY59100717	2023.04.07	2024.04.06
Temperature& Humidity test chamber	AISRY	LX-1000L	171200018	2023.08.14	2024.08.13
Attenuator	eastsheep	90db	N.A	2023.04.10	2024.04.09
Temperature & Humidity	KTJ	TA218B	N.A	2023.04.24	2024.04.23
Digital multimeter	MASTECH	MS8261	MBGBC83053	2023.08.14	2024.08.13
Testing Software	MTS8310_V2.0.0.0_MW				

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

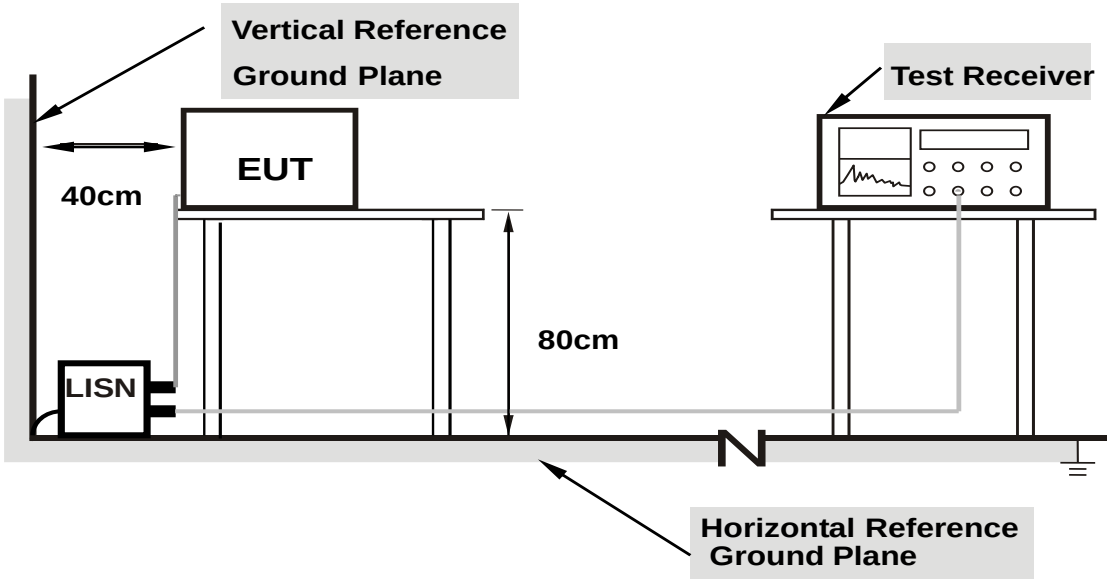
3.1.2 TEST PROCEDURE

a. 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.
b. 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.
c. 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.
d. LISN is at least 80 cm from the nearest part of EUT chassis.
e. 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.

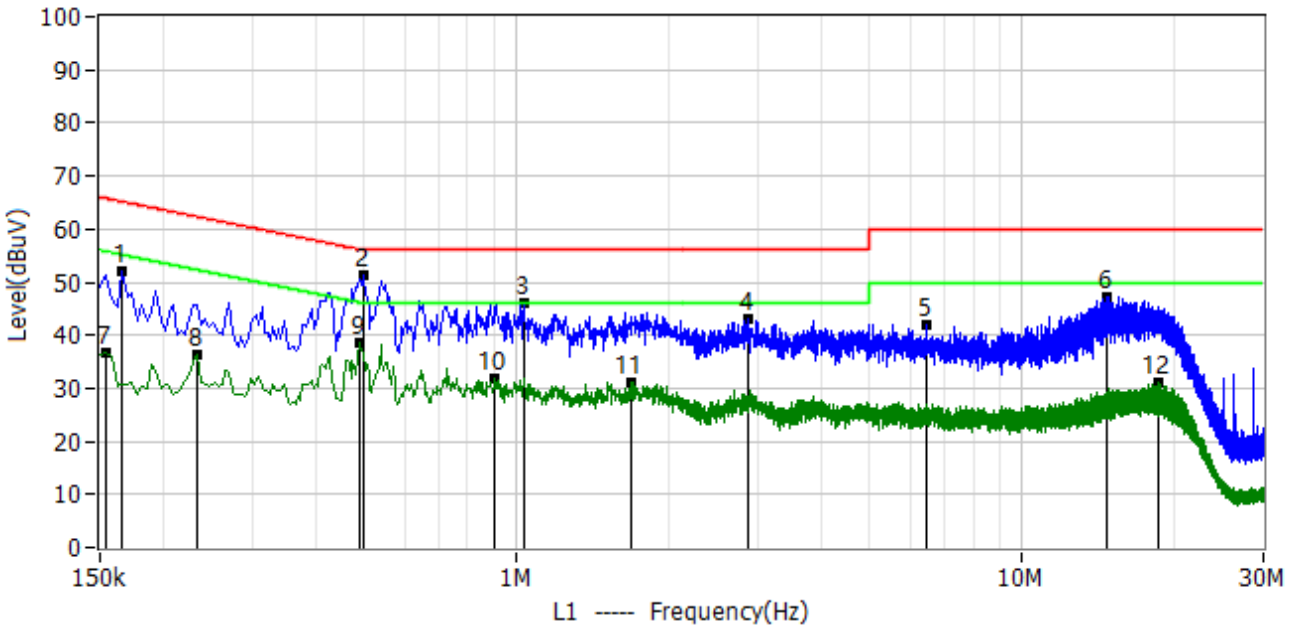
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

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.

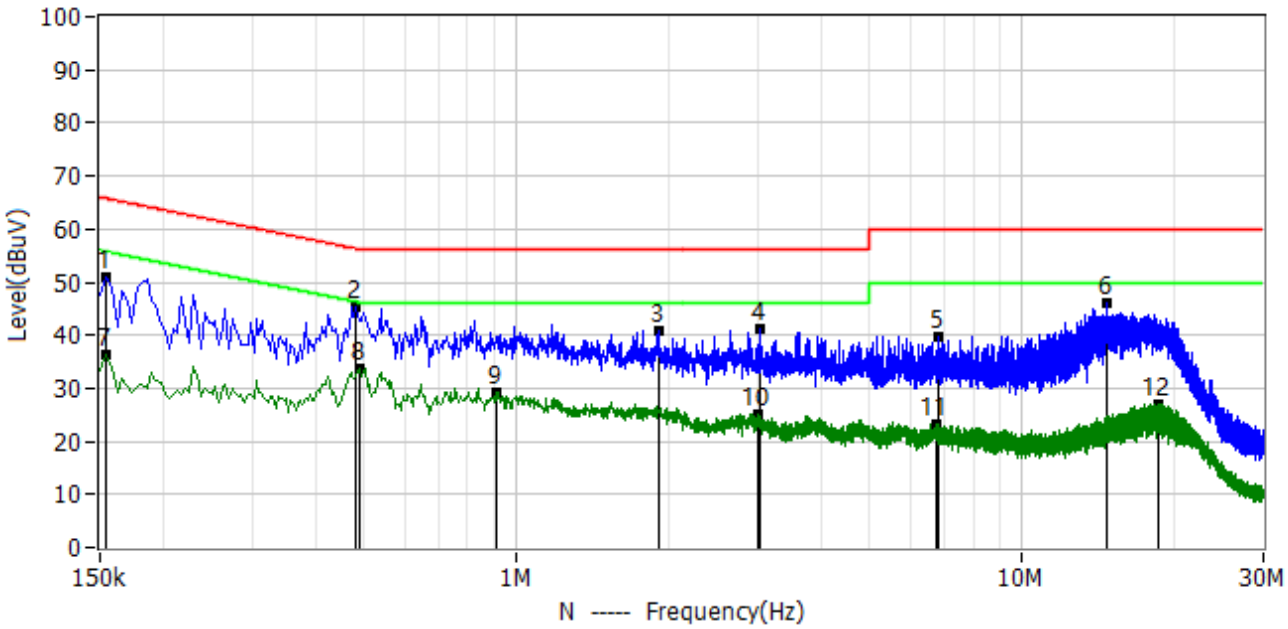
3.1.6 TEST RESULTS

Project: LGT23L043	Test Engineer: LiuH
EUT: 4G Smart Phone	Temperature: 21.7℃
M/N: L68 Ultra	Humidity: 50%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-01-21
Test Mode: TX 802.11a 5260	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.166	41.69	10.49	52.18	65.16	-12.98	QP	L1
2*	0.498	40.69	10.50	51.19	56.03	-4.84	QP	L1
3*	1.034	35.72	10.52	46.24	56.00	-9.76	QP	L1
4*	2.882	32.43	10.74	43.17	56.00	-12.83	QP	L1
5*	6.482	31.04	10.84	41.88	60.00	-18.12	QP	L1
6*	14.650	36.15	11.02	47.17	60.00	-12.83	QP	L1
7*	0.154	26.37	10.49	36.86	55.78	-18.92	AV	L1
8*	0.234	25.74	10.49	36.23	52.31	-16.07	AV	L1
9*	0.490	28.00	10.50	38.50	46.17	-7.67	AV	L1
10*	0.906	21.50	10.51	32.01	46.00	-13.99	AV	L1
11*	1.690	20.32	10.66	30.98	46.00	-15.02	AV	L1
12*	18.578	20.04	11.11	31.15	50.00	-18.85	AV	L1

Project: LGT23L043	Test Engineer: LiuH
EUT: 4G Smart Phone	Temperature: 21.7℃
M/N: L68 Ultra	Humidity: 50%RH
Test Voltage: AC 120V/60Hz	Test Data: 2024-01-21
Test Mode: TX 802.11a 5260	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	0.154	40.63	10.49	51.12	65.78	-14.67	QP	N
2*	0.482	34.84	10.50	45.34	56.30	-10.97	QP	N
3*	1.906	30.16	10.70	40.86	56.00	-15.14	QP	N
4*	3.026	30.37	10.75	41.12	56.00	-14.88	QP	N
5*	6.850	28.92	10.87	39.79	60.00	-20.21	QP	N
6*	14.758	34.93	11.07	46.00	60.00	-14.00	QP	N
7*	0.154	26.00	10.49	36.49	55.78	-19.29	AV	N
8*	0.490	23.31	10.50	33.81	46.17	-12.35	AV	N
9*	0.914	18.77	10.51	29.28	46.00	-16.72	AV	N
10*	2.998	14.25	10.75	25.00	46.00	-21.00	AV	N
11*	6.742	12.53	10.86	23.39	50.00	-26.61	AV	N
12*	18.538	15.91	11.18	27.09	50.00	-22.91	AV	N

3.2 RADIATED EMISSION AND (BANDEDGE) 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: dBuV/m(at 3M) = EIRP(dBm) + 95.3.

Peak Limit = -27dBm/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

a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
b. 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.
c. 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.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and QuasiPeak detector mode will be re-measured.
e. 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.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

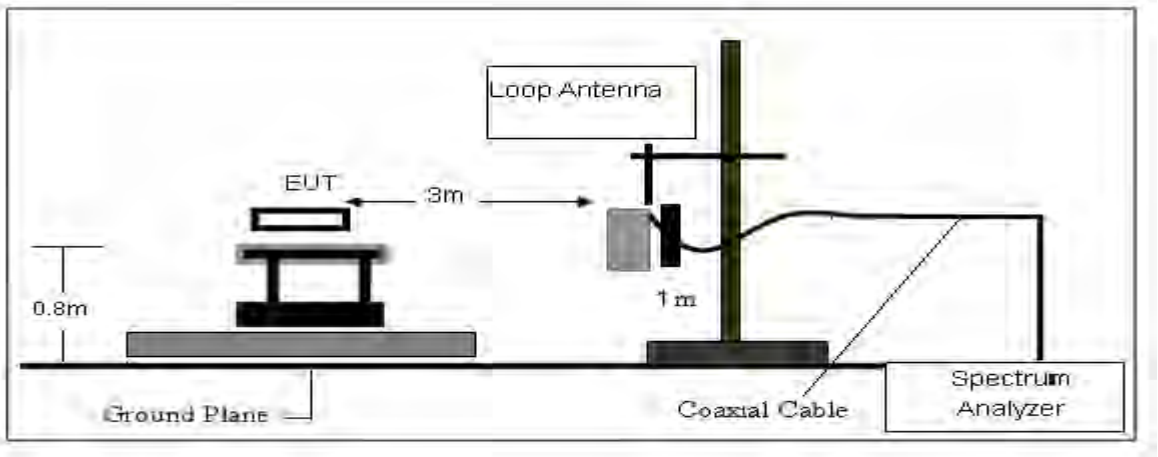
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.2 DEVIATION FROM TEST STANDARD

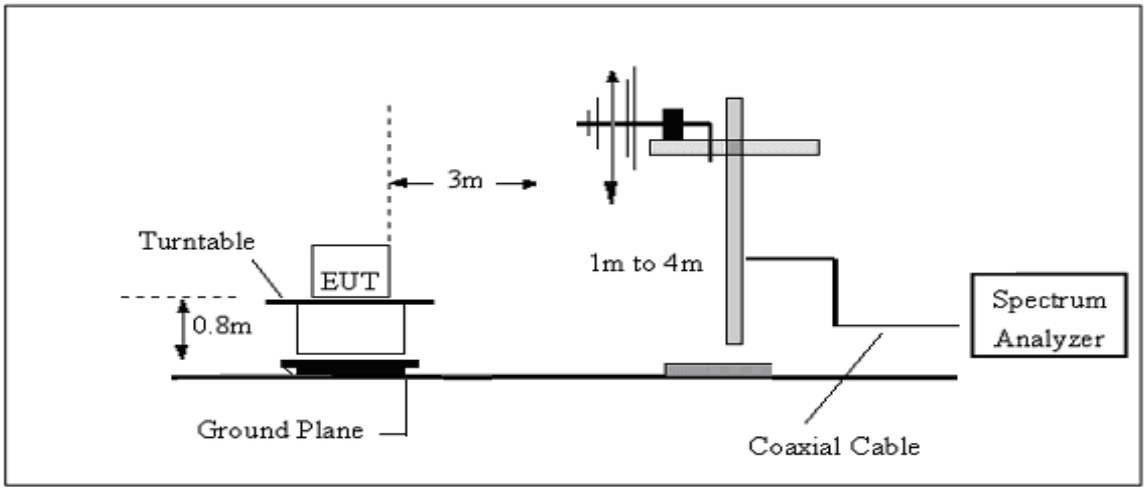
No deviation

3.2.3 TEST SETUP

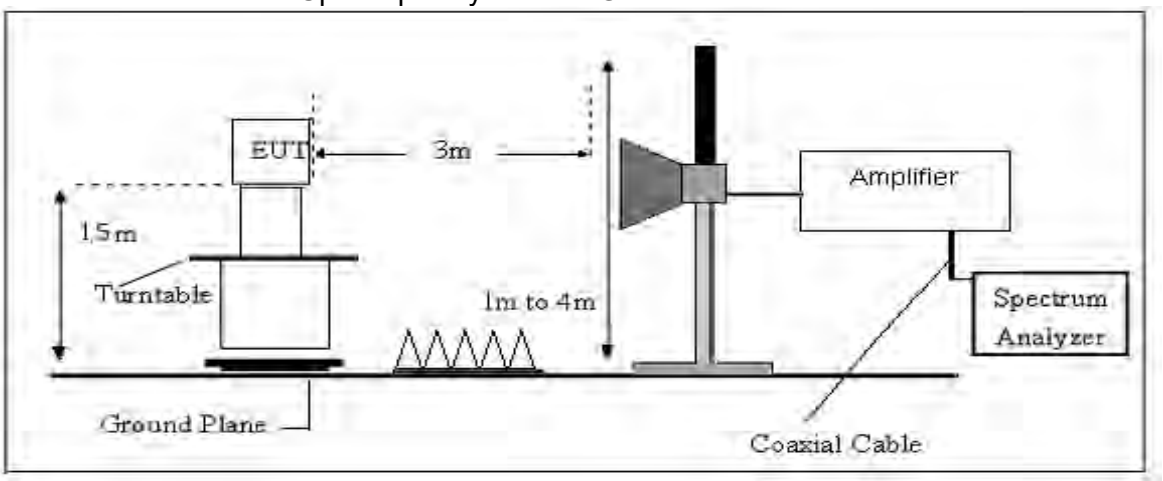
(A) Radiated Emission Test-Up Frequency Below 30MHz



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

Factor=AF+CL-AG

3.2.6 TEST RESULTS

Results of Radiated Emissions (9 KHz~30MHz)

No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Remark
1*	-	-	-	-	-	-	-	See Note

Note:

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and the permissible value has no need to be reported.

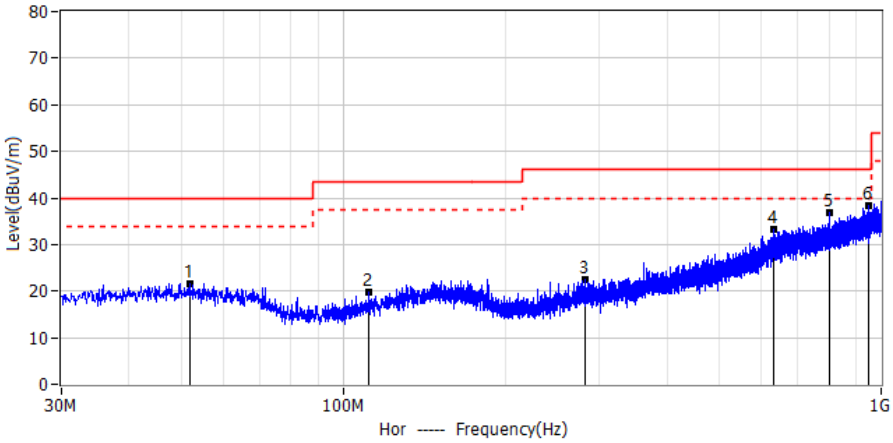
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

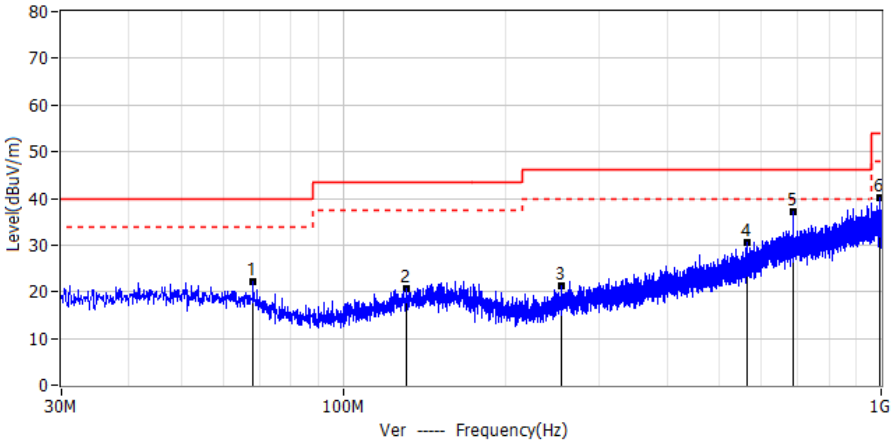
Results of Radiated Emissions (30MHz~1000MHz)

Note:1. All mode has been tested, only shown the worst case data,
2. The peak value is less than the AV limit, so no AV data is displayed.

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: TX 802.11a 5260	
Note:	



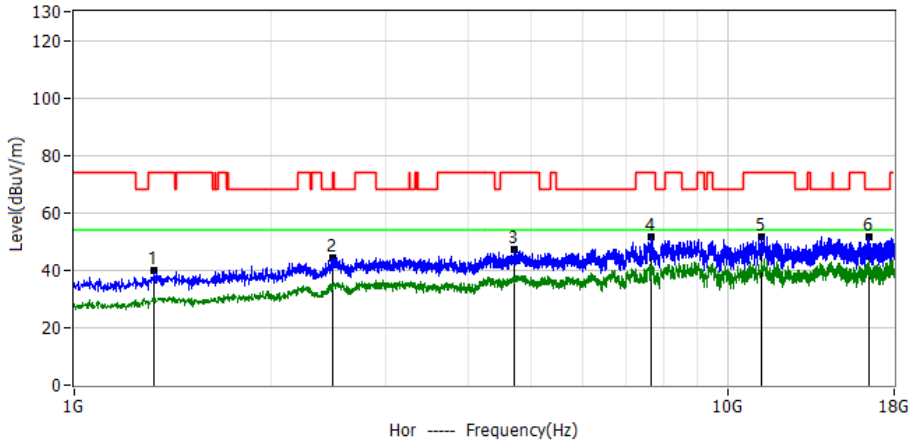
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	51.825	2.48	19.23	21.71	40.00	-18.29	QP	Hor
2*	111.723	2.71	16.93	19.64	43.50	-23.86	QP	Hor
3*	281.958	2.78	19.56	22.34	46.00	-23.66	QP	Hor
4*	631.643	4.47	28.76	33.23	46.00	-12.77	QP	Hor
5*	801.878	5.81	31.16	36.97	46.00	-9.03	QP	Hor
6*	945.438	4.63	33.85	38.48	46.00	-7.52	QP	Hor



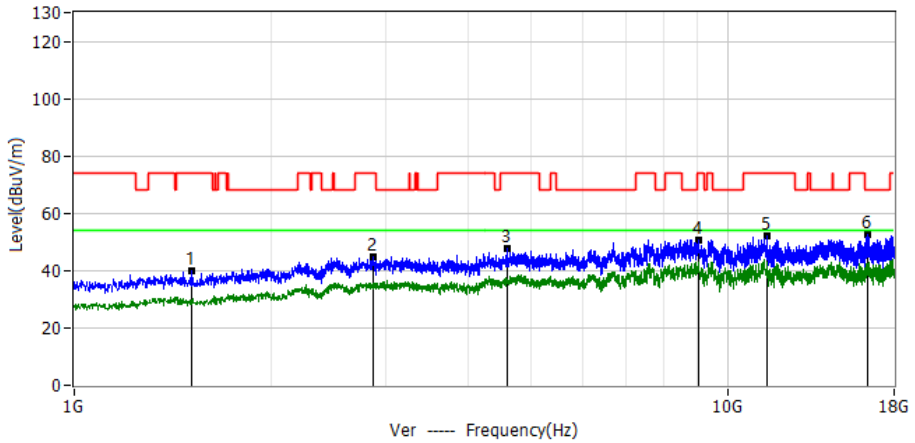
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	68.194	4.06	18.13	22.19	40.00	-17.81	QP	Ver
2*	131.365	2.01	18.57	20.58	43.50	-22.92	QP	Ver
3*	255.040	2.89	18.47	21.36	46.00	-24.64	QP	Ver
4*	564.106	4.08	26.51	30.59	46.00	-15.41	QP	Ver
5*	687.539	7.43	29.69	37.12	46.00	-8.88	QP	Ver
6*	995.029	5.50	34.55	40.05	54.00	-13.95	QP	Ver

Results of Radiated Emissions (Above 1000MHz)

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5260	
Note:	

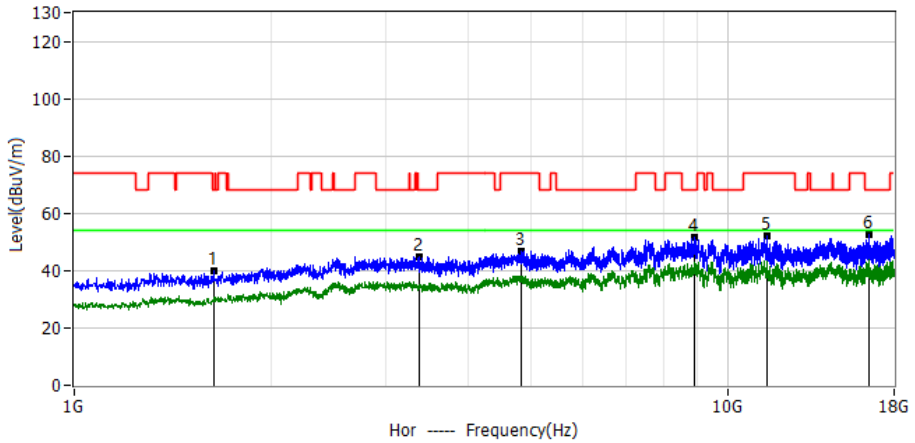


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1325.1000	62.12	-22.04	40.08	74.00	-33.92	PK	Hor
2*	2491.7000	55.89	-11.39	44.50	74.00	-29.50	PK	Hor
3*	4718.7000	53.73	-6.72	47.01	74.00	-26.99	PK	Hor
4*	7657.6000	57.04	-5.63	51.41	74.00	-22.59	PK	Hor
5*	11268.0000	53.58	-1.85	51.73	74.00	-22.27	PK	Hor
6*	16465.7000	50.54	0.87	51.41	68.20	-16.79	PK	Hor

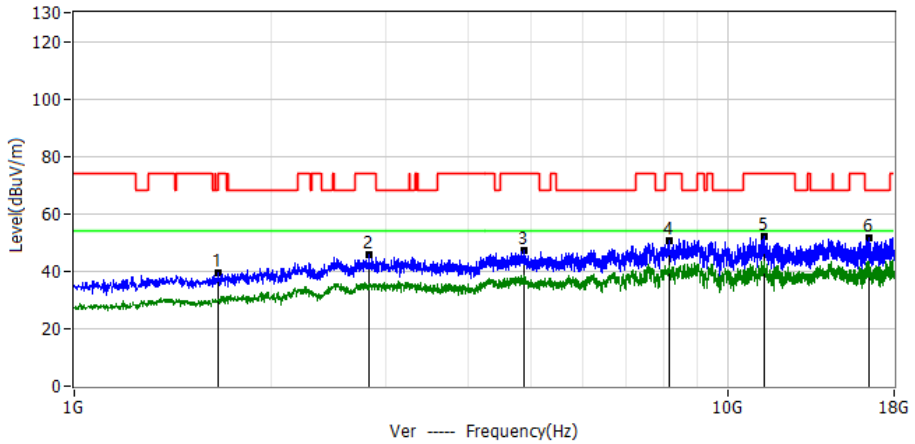


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1514.2000	60.67	-20.86	39.81	74.00	-34.19	PK	Ver
2*	2870.0000	54.42	-9.43	44.99	74.00	-29.01	PK	Ver
3*	4604.0000	54.14	-6.61	47.53	74.00	-26.47	PK	Ver
4*	9015.5000	54.56	-3.68	50.88	74.00	-23.12	PK	Ver
5*	11497.5000	54.04	-1.83	52.21	74.00	-21.79	PK	Ver
6*	16363.7000	51.62	0.74	52.36	68.20	-15.84	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5300	
Note:	

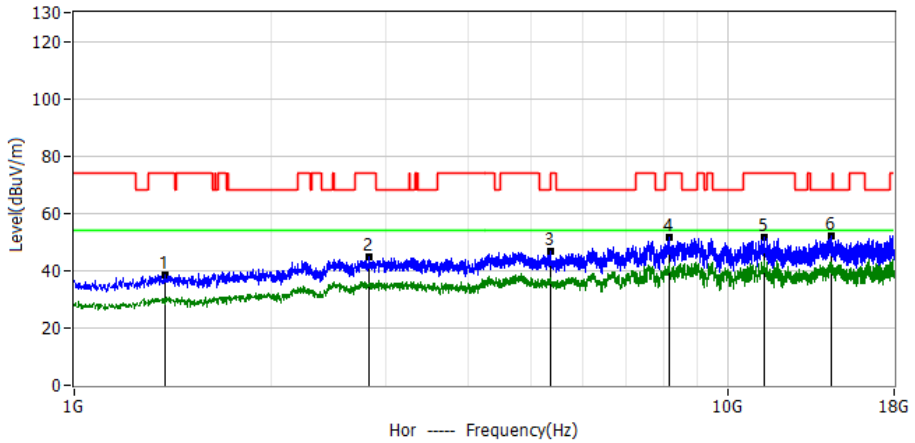


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1633.2000	59.70	-19.99	39.71	68.20	-28.49	PK	Hor
2*	3380.0000	53.65	-8.98	44.67	68.20	-23.53	PK	Hor
3*	4844.1000	53.82	-6.84	46.98	74.00	-27.02	PK	Hor
4*	8917.7000	55.24	-3.82	51.42	68.20	-16.78	PK	Hor
5*	11482.6000	53.94	-1.83	52.11	74.00	-21.89	PK	Hor
6*	16463.6000	51.93	0.87	52.80	68.20	-15.40	PK	Hor

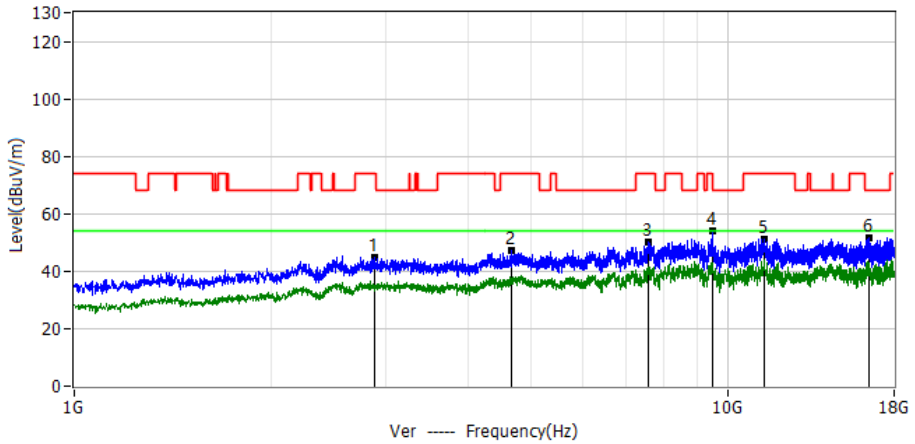


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1658.7000	59.32	-19.75	39.57	68.20	-28.63	PK	Ver
2*	2823.2000	55.24	-9.67	45.57	74.00	-28.43	PK	Ver
3*	4890.9000	53.91	-6.89	47.02	74.00	-26.98	PK	Ver
4*	8142.1000	55.84	-5.24	50.60	74.00	-23.40	PK	Ver
5*	11384.9000	53.72	-1.84	51.88	74.00	-22.12	PK	Ver
6*	16465.7000	50.77	0.87	51.64	68.20	-16.56	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5320	
Note:	

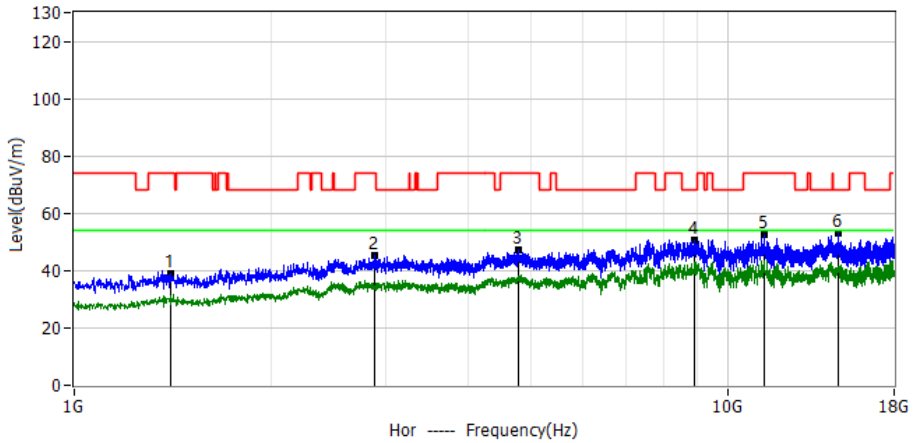


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1374.0000	60.13	-21.67	38.46	74.00	-35.54	PK	Hor
2*	2829.6000	54.33	-9.63	44.70	74.00	-29.30	PK	Hor
3*	5364.7000	54.88	-8.24	46.64	74.00	-27.36	PK	Hor
4*	8127.2000	57.02	-5.27	51.75	74.00	-22.25	PK	Hor
5*	11376.4000	53.23	-1.84	51.39	74.00	-22.61	PK	Hor
6*	14404.5000	51.31	0.70	52.01	68.20	-16.19	PK	Hor

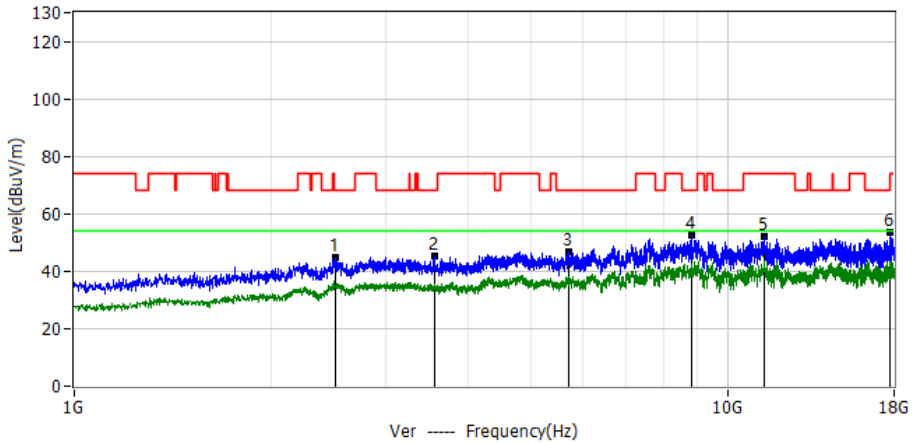


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	2882.7000	53.94	-9.36	44.58	74.00	-29.42	PK	Ver
2*	4663.5000	53.98	-6.67	47.31	74.00	-26.69	PK	Ver
3*	7576.9000	55.59	-5.66	49.93	74.00	-24.07	PK	Ver
4*	9470.2000	57.73	-3.91	53.82	74.00	-20.18	PK	Ver
5*	11382.7000	53.03	-1.84	51.19	74.00	-22.81	PK	Ver
6*	16455.1000	50.54	0.86	51.40	68.20	-16.80	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5500	
Note:	

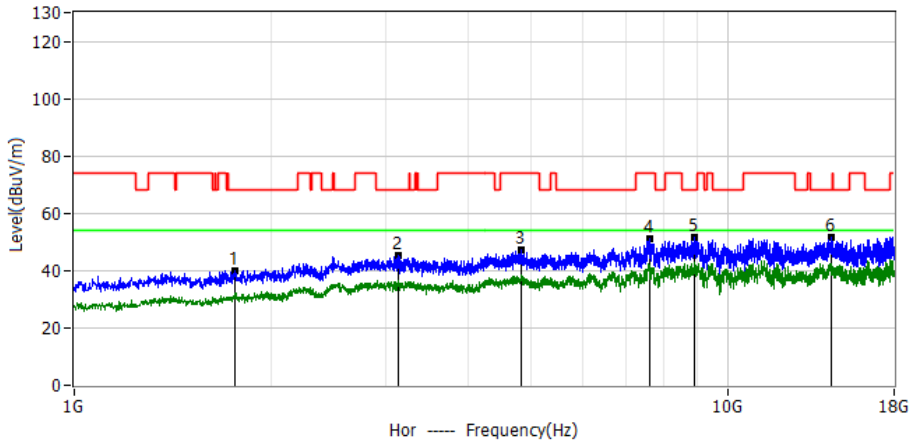


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1403.7000	60.56	-21.45	39.11	74.00	-34.89	PK	Hor
2*	2884.9000	54.69	-9.35	45.34	74.00	-28.66	PK	Hor
3*	4786.7000	54.02	-6.79	47.23	74.00	-26.77	PK	Hor
4*	8917.7000	54.67	-3.82	50.85	68.20	-17.35	PK	Hor
5*	11395.5000	54.50	-1.83	52.67	74.00	-21.33	PK	Hor
6*	14753.0000	52.35	0.56	52.91	68.20	-15.29	PK	Hor

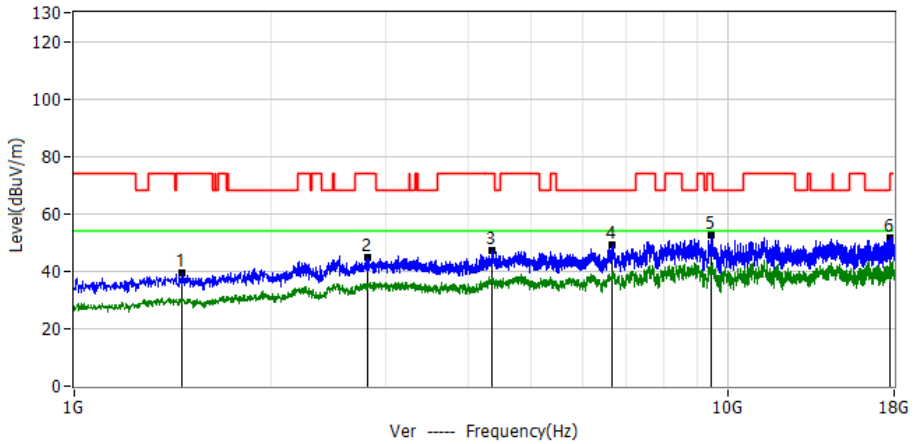


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	2515.1000	55.80	-11.23	44.57	68.20	-23.63	PK	Ver
2*	3556.4000	54.03	-8.98	45.05	68.20	-23.15	PK	Ver
3*	5704.7000	55.55	-8.67	46.88	68.20	-21.32	PK	Ver
4*	8813.6000	56.72	-4.01	52.71	68.20	-15.49	PK	Ver
5*	11391.2000	53.70	-1.83	51.87	74.00	-22.13	PK	Ver
6*	17698.2000	51.69	1.88	53.57	68.20	-14.63	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5580	
Note:	

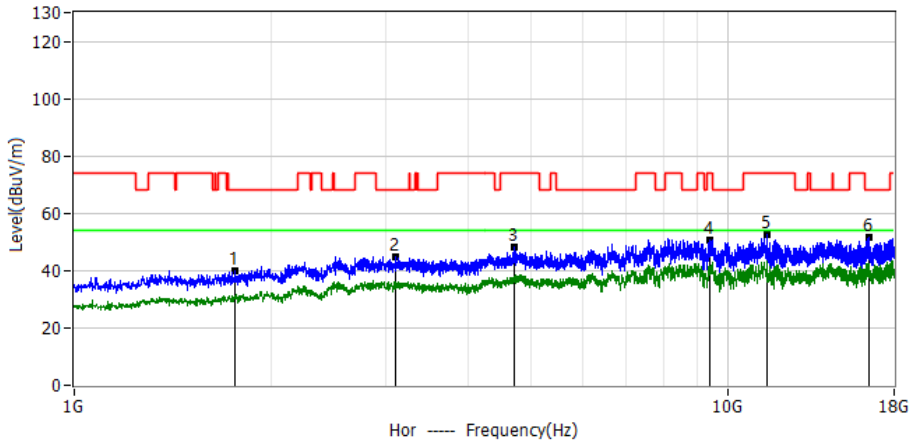


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1762.9000	58.77	-18.77	40.00	68.20	-28.20	PK	Hor
2*	3133.5000	54.07	-8.84	45.23	68.20	-22.97	PK	Hor
3*	4844.1000	54.31	-6.84	47.47	74.00	-26.53	PK	Hor
4*	7587.5000	56.76	-5.65	51.11	74.00	-22.89	PK	Hor
5*	8919.9000	55.36	-3.82	51.54	68.20	-16.66	PK	Hor
6*	14410.9000	50.96	0.70	51.66	68.20	-16.54	PK	Hor

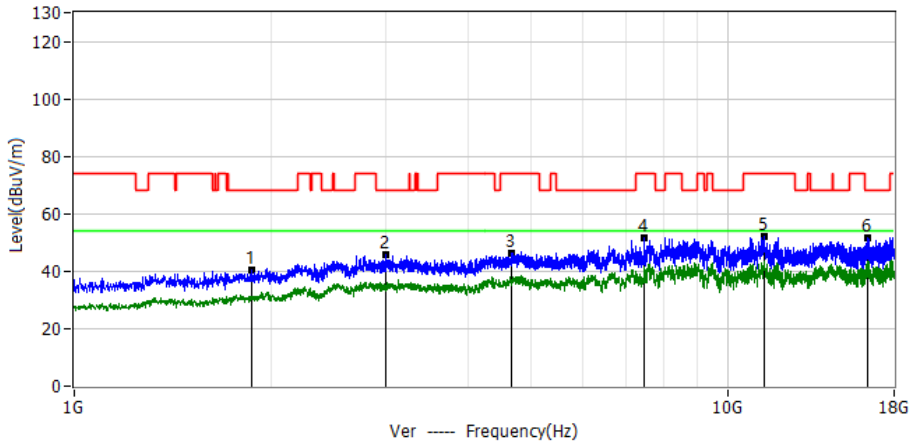


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1463.2000	60.58	-21.14	39.44	74.00	-34.56	PK	Ver
2*	2816.9000	54.35	-9.70	44.65	74.00	-29.35	PK	Ver
3*	4368.1000	54.04	-7.03	47.01	74.00	-26.99	PK	Ver
4*	6650.4000	56.52	-7.51	49.01	68.20	-19.19	PK	Ver
5*	9466.0000	56.64	-3.91	52.73	74.00	-21.27	PK	Ver
6*	17708.9000	49.70	1.89	51.59	74.00	-22.41	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5700	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1762.9000	58.93	-18.77	40.16	68.20	-28.04	PK	Hor
2*	3105.9000	53.70	-8.83	44.87	68.20	-23.33	PK	Hor
3*	4708.1000	55.02	-6.71	48.31	74.00	-25.69	PK	Hor
4*	9404.4000	54.60	-3.88	50.72	74.00	-23.28	PK	Hor
5*	11486.9000	54.45	-1.83	52.62	74.00	-21.38	PK	Hor
6*	16450.9000	50.93	0.85	51.78	68.20	-16.42	PK	Hor



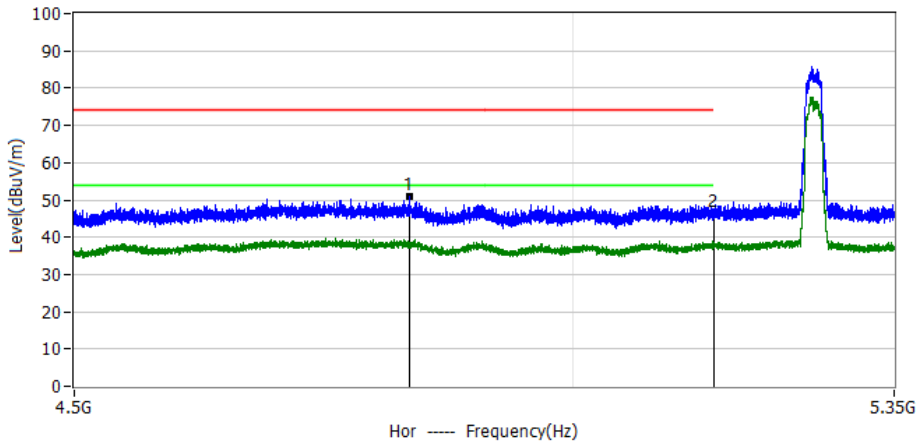
No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	1869.1000	58.20	-17.74	40.46	68.20	-27.74	PK	Ver
2*	3001.7000	54.45	-8.77	45.68	68.20	-22.52	PK	Ver
3*	4659.2000	52.92	-6.66	46.26	74.00	-27.74	PK	Ver
4*	7468.5000	57.35	-5.77	51.58	74.00	-22.42	PK	Ver
5*	11397.6000	53.89	-1.83	52.06	74.00	-21.94	PK	Ver
6*	16357.4000	50.89	0.73	51.62	68.20	-16.58	PK	Ver

Remark:
In frequency ranges 18~25GHz no any other harmonic emissions detected which are tested to compliance with the limit. No recording in the test report. No any other emissions level which are attenuated less than 20dB below the limit. No recording in the test report.

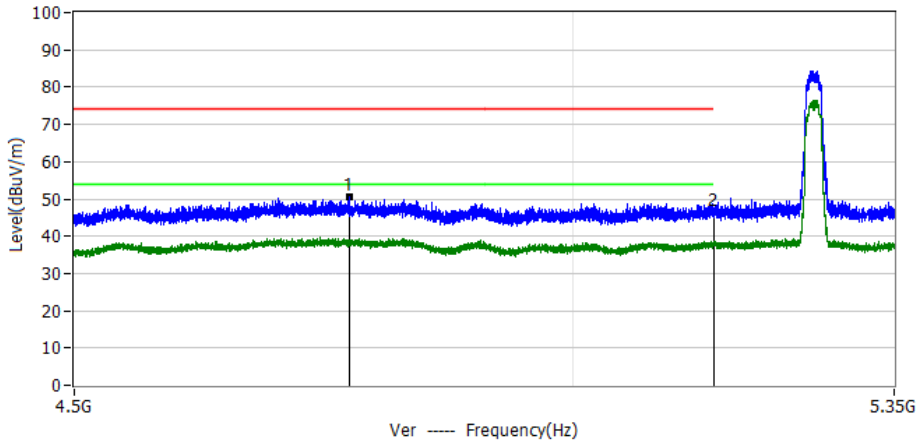
3.2.7 TEST RESULTS(Band edge Requirements)

Note:1. All mode has been tested, only shown the worst case data,
2. The peak value is less than the AV limit, so no AV data is displayed.

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5260	
Note:	

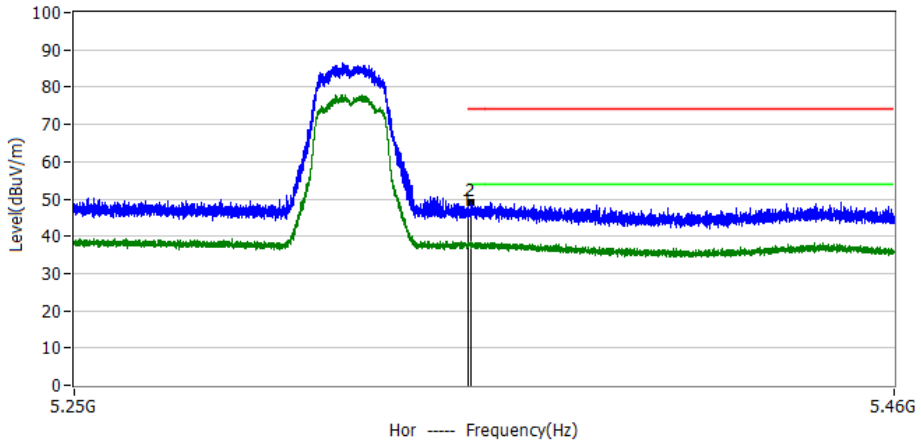


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4829.2000	57.85	-6.83	51.02	74.00	-22.98	PK	Hor
2*	5150.0000	53.81	-7.51	46.30	74.00	-27.70	PK	Hor

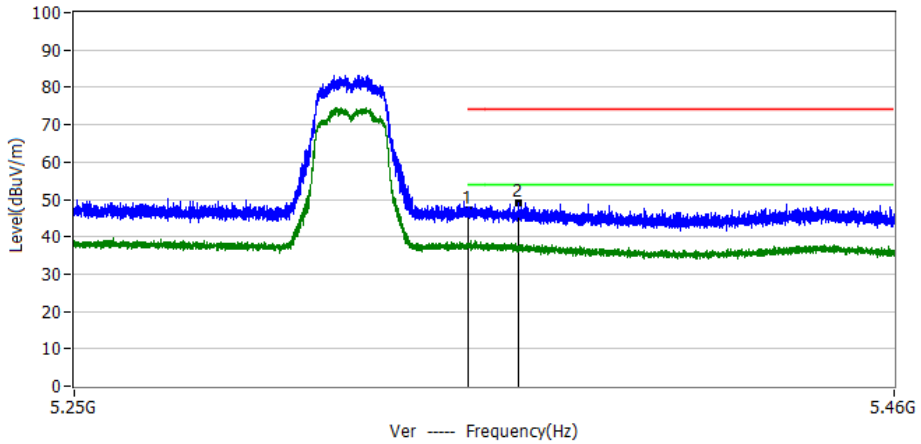


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4768.7000	57.15	-6.77	50.38	74.00	-23.62	PK	Ver
2*	5150.0000	54.11	-7.51	46.60	74.00	-27.40	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5320	
Note:	

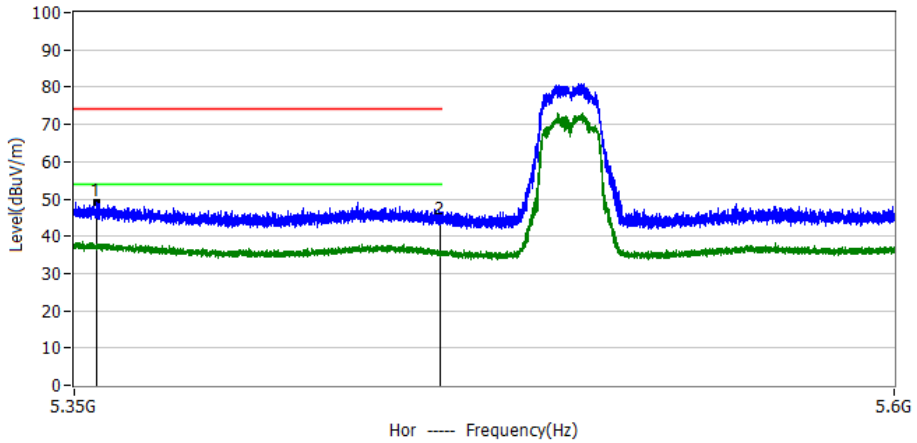


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5350.0000	54.49	-8.19	46.30	74.00	-27.70	PK	Hor
2*	5350.5000	57.39	-8.19	49.20	74.00	-24.80	PK	Hor

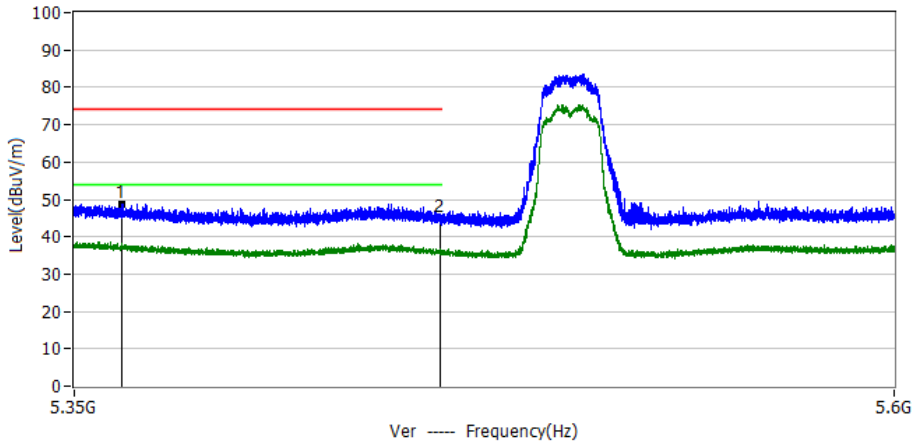


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5350.0000	55.29	-8.19	47.10	74.00	-26.90	PK	Ver
2*	5362.7000	57.40	-8.24	49.16	74.00	-24.84	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5500	
Note:	

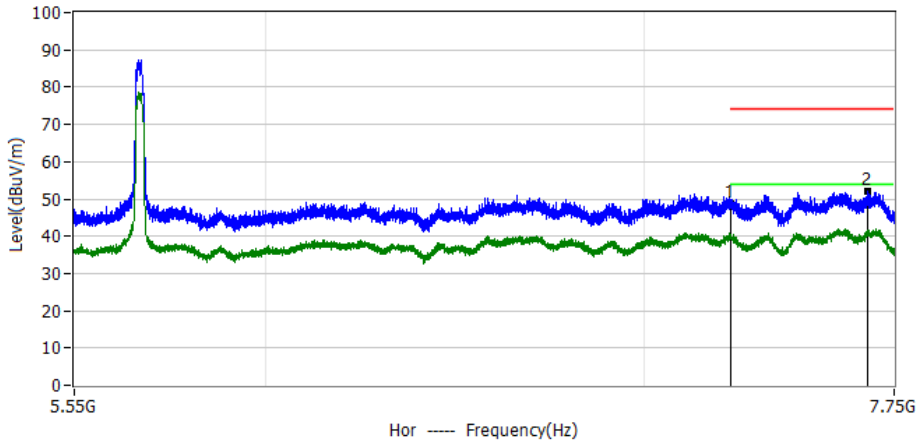


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5356.5000	57.35	-8.21	49.14	74.00	-24.86	PK	Hor
2*	5460.0000	52.87	-8.57	44.30	74.00	-29.70	PK	Hor

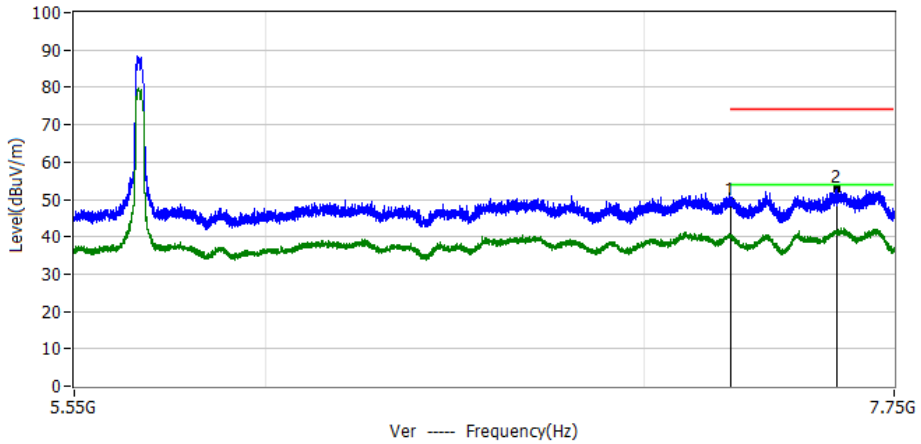


No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5364.3000	57.01	-8.24	48.77	74.00	-25.23	PK	Ver
2*	5460.0000	53.47	-8.57	44.90	74.00	-29.10	PK	Ver

Project: LGT23L043	Test Engineer: xiangdong Ma
EUT: 4G Smart Phone	Temperature: 15.5℃
M/N: L68 Ultra	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2024-01-27
Test Mode: 802.11a 5700	
Note:	



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	7250.0000	54.93	-6.33	48.60	74.00	-25.40	PK	Hor
2*	7667.8000	57.65	-5.62	52.03	74.00	-21.97	PK	Hor



No.	Frequency MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	7250.0000	55.83	-6.33	49.50	74.00	-24.50	PK	Ver
2*	7570.4000	58.30	-5.66	52.64	74.00	-21.36	PK	Ver

4. POWER SPECTRAL DENSITY TEST

4.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (*i.e.,* 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/*T*, where *T* is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

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

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

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

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

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP

4.5 EUT OPERATION CONDITIONS

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

4.6 TEST RESULTS

For the measurement records, refer to the appendix I.

5. BANDWIDTH MEASUREMENT

5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

5.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > =RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak 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%.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

5.1.4 EUT OPERATION CONDITIONS

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

5.1.5 TEST RESULTS

For the measurement records, refer to the appendix I.

5.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT

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

5.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
The following procedure shall be used for measuring (99 %) power bandwidth:
1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

5.2.2 DEVIATION FROM STANDARD

No deviation.

5.2.3 TEST SETUP

5.2.4 EUT OPERATION CONDITIONS

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

5.2.5 TEST RESULTS

For the measurement records, refer to the appendix I.

5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth.

5.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.2 DEVIATION FROM STANDARD

No deviation.

5.3.3 TEST SETUP

5.3.4 EUT OPERATION CONDITIONS

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

5.3.5 TEST RESULTS

For the measurement records, refer to the appendix I.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz,If transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

<table>
<tr><td colspan="5">FCC Part15 (15.407) , Subpart E</td></tr>
<tr><td>Section</td><td>Test Item</td><td>Limit</td><td>Frequency Range (MHz)</td><td>Result</td></tr>
<tr><td rowspan="2">15.407(a) (1) (iv)</td><td rowspan="3">Peak Output Power</td><td>0.25 watt</td><td>5150-5250</td><td rowspan="3">PASS</td></tr>
<tr><td>The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)</td><td>5250-5350
5470-5725</td></tr>
<tr><td>15.407(a) (3)</td><td>1 watt</td><td>5725-5825</td></tr>
</table>

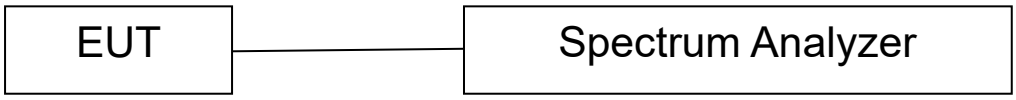
6.2 TEST PROCEDURE

The EUT was directly connected to the Spectrum Analyzer.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

For the measurement records, refer to the appendix I.

7. AUTOMATICALLY DISCONTINUE TRANSMISSION

7.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

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

7.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

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

8.2 EUT ANTENNA

The EUT antenna is FPC Antenna. It comply with the standard requirement.

APPENDIX I - TEST RESULTS

Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5260	Ant1	92	0.36	0.37
NVNT	a	5300	Ant1	92	0.36	0.37
NVNT	a	5320	Ant1	92	0.36	0.37
NVNT	a	5500	Ant1	92.07	0.36	0.37
NVNT	a	5580	Ant1	92	0.36	0.37
NVNT	a	5700	Ant1	92	0.36	0.37
NVNT	n20	5260	Ant1	91.45	0.39	0.4
NVNT	n20	5300	Ant1	91.46	0.39	0.4
NVNT	n20	5320	Ant1	91.39	0.39	0.4
NVNT	n20	5500	Ant1	91.45	0.39	0.4
NVNT	n20	5580	Ant1	91.45	0.39	0.4
NVNT	n20	5700	Ant1	91.45	0.39	0.4
NVNT	n40	5270	Ant1	84.55	0.73	0.82
NVNT	n40	5310	Ant1	84.53	0.73	0.82
NVNT	n40	5510	Ant1	84.53	0.73	0.82
NVNT	n40	5550	Ant1	84.53	0.73	0.82
NVNT	n40	5670	Ant1	84.55	0.73	0.82
NVNT	ac20	5260	Ant1	91.48	0.39	0.4
NVNT	ac20	5300	Ant1	91.48	0.39	0.4
NVNT	ac20	5320	Ant1	91.48	0.39	0.4
NVNT	ac20	5500	Ant1	91.48	0.39	0.4
NVNT	ac20	5580	Ant1	91.48	0.39	0.4
NVNT	ac20	5700	Ant1	91.48	0.39	0.4
NVNT	ac40	5270	Ant1	84.04	0.76	0.81
NVNT	ac40	5310	Ant1	84.62	0.73	0.81
NVNT	ac40	5510	Ant1	84.04	0.76	0.81
NVNT	ac40	5550	Ant1	84.17	0.75	0.81
NVNT	ac40	5670	Ant1	84.04	0.76	0.81
NVNT	ac80	5290	Ant1	72.67	1.39	1.69
NVNT	ac80	5530	Ant1	72.67	1.39	1.69
NVNT	ac80	5610	Ant1	72.67	1.39	1.69

Test Graphs
Duty Cycle NVNT a 5260MHz Ant1

Duty Cycle NVNT a 5300MHz Ant1

Duty Cycle NVNT a 5320MHz Ant1


Duty Cycle NVNT a 5500MHz Ant1

Duty Cycle NVNT a 5580MHz Ant1

Duty Cycle NVNT a 5700MHz Ant1

Duty Cycle NVNT n20 5260MHz Ant1

Duty Cycle NVNT n20 5300MHz Ant1

Duty Cycle NVNT n20 5320MHz Ant1

Duty Cycle NVNT n20 5500MHz Ant1

Duty Cycle NVNT n20 5580MHz Ant1

Duty Cycle NVNT n20 5700MHz Ant1

Duty Cycle NVNT n40 5270MHz Ant1

Duty Cycle NVNT n40 5310MHz Ant1

Duty Cycle NVNT n40 5510MHz Ant1

Duty Cycle NVNT n40 5550MHz Ant1

Duty Cycle NVNT n40 5670MHz Ant1

Duty Cycle NVNT ac20 5260MHz Ant1

Duty Cycle NVNT ac20 5300MHz Ant1

Duty Cycle NVNT ac20 5320MHz Ant1

Duty Cycle NVNT ac20 5500MHz Ant1

Duty Cycle NVNT ac20 5580MHz Ant1

Duty Cycle NVNT ac20 5700MHz Ant1

Duty Cycle NVNT ac40 5270MHz Ant1

Duty Cycle NVNT ac40 5310MHz Ant1

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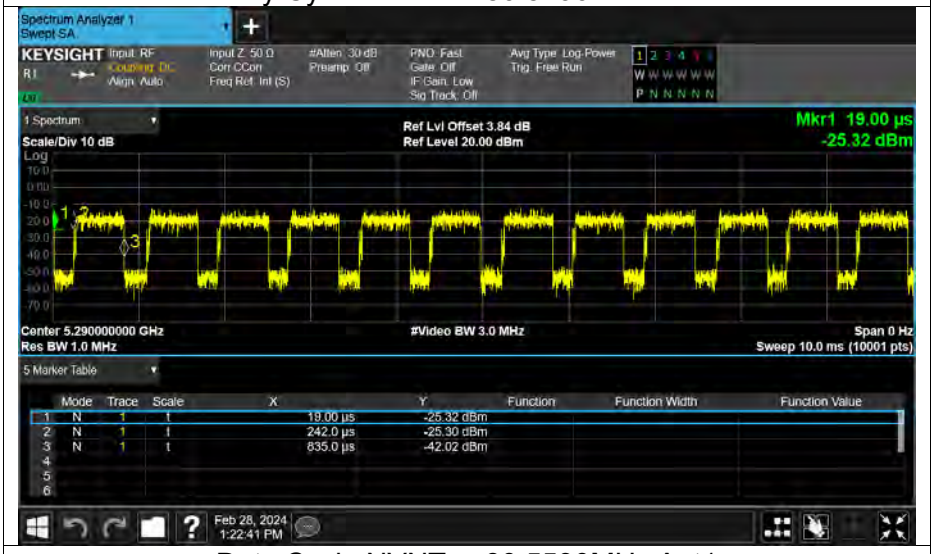
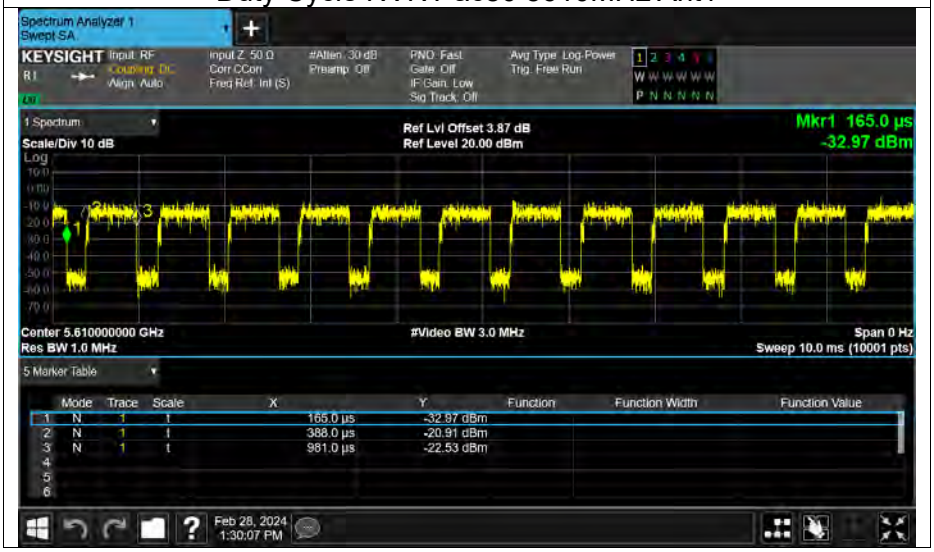
Duty Cycle NVNT ac40 5550MHz Ant1

Duty Cycle NVNT ac40 5670MHz Ant1

Duty Cycle NVNT ac80 5290MHz Ant1



Duty Cycle NVNT ac80 5530MHz Ant1

Duty Cycle NVNT ac80 5610MHz Ant1


Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5260	Ant1	0.58	0.36	0.94	24	Pass
NVNT	a	5300	Ant1	1.96	0.36	2.32	24	Pass
NVNT	a	5320	Ant1	2.18	0.36	2.54	24	Pass
NVNT	a	5500	Ant1	6.19	0.36	6.55	24	Pass
NVNT	a	5580	Ant1	6.83	0.36	7.19	24	Pass
NVNT	a	5700	Ant1	6.56	0.36	6.92	24	Pass
NVNT	n20	5260	Ant1	0.95	0.39	1.34	24	Pass
NVNT	n20	5300	Ant1	1.67	0.39	2.06	24	Pass
NVNT	n20	5320	Ant1	1.88	0.39	2.27	24	Pass
NVNT	n20	5500	Ant1	6.11	0.39	6.5	24	Pass
NVNT	n20	5580	Ant1	6.85	0.39	7.24	24	Pass
NVNT	n20	5700	Ant1	5.93	0.39	6.32	24	Pass
NVNT	n40	5270	Ant1	0.95	0.73	1.68	24	Pass
NVNT	n40	5310	Ant1	1.52	0.73	2.25	24	Pass
NVNT	n40	5510	Ant1	5.65	0.73	6.38	24	Pass
NVNT	n40	5550	Ant1	5.59	0.73	6.32	24	Pass
NVNT	n40	5670	Ant1	6.06	0.73	6.79	24	Pass
NVNT	ac20	5260	Ant1	0.71	0.39	1.1	24	Pass
NVNT	ac20	5300	Ant1	0.42	0.39	0.81	24	Pass
NVNT	ac20	5320	Ant1	1.57	0.39	1.96	24	Pass
NVNT	ac20	5500	Ant1	5.54	0.39	5.93	24	Pass
NVNT	ac20	5580	Ant1	6.07	0.39	6.46	24	Pass
NVNT	ac20	5700	Ant1	6.1	0.39	6.49	24	Pass
NVNT	ac40	5270	Ant1	-0.22	0.76	0.54	24	Pass
NVNT	ac40	5310	Ant1	1.51	0.73	2.24	24	Pass
NVNT	ac40	5510	Ant1	5.59	0.76	6.35	24	Pass
NVNT	ac40	5550	Ant1	5.63	0.75	6.38	24	Pass
NVNT	ac40	5670	Ant1	5.98	0.76	6.74	24	Pass
NVNT	ac80	5290	Ant1	0.57	1.39	1.96	24	Pass
NVNT	ac80	5530	Ant1	3.58	1.39	4.97	24	Pass
NVNT	ac80	5610	Ant1	5.17	1.39	6.56	24	Pass

-26dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5260	Ant1	29.745	Pass
NVNT	a	5300	Ant1	29.774	Pass
NVNT	a	5320	Ant1	29.362	Pass
NVNT	a	5500	Ant1	29.735	Pass
NVNT	a	5580	Ant1	29.675	Pass
NVNT	a	5700	Ant1	29.281	Pass
NVNT	n20	5260	Ant1	29.798	Pass
NVNT	n20	5300	Ant1	29.508	Pass
NVNT	n20	5320	Ant1	29.624	Pass
NVNT	n20	5500	Ant1	29.849	Pass
NVNT	n20	5580	Ant1	24.263	Pass
NVNT	n20	5700	Ant1	29.144	Pass
NVNT	n40	5270	Ant1	59.484	Pass
NVNT	n40	5310	Ant1	59.685	Pass
NVNT	n40	5510	Ant1	59.162	Pass
NVNT	n40	5550	Ant1	59.234	Pass
NVNT	n40	5670	Ant1	47.37	Pass
NVNT	ac20	5260	Ant1	29.771	Pass
NVNT	ac20	5300	Ant1	29.901	Pass
NVNT	ac20	5320	Ant1	29.769	Pass
NVNT	ac20	5500	Ant1	29.517	Pass
NVNT	ac20	5580	Ant1	28.327	Pass
NVNT	ac20	5700	Ant1	28.18	Pass
NVNT	ac40	5270	Ant1	59.177	Pass
NVNT	ac40	5310	Ant1	59.582	Pass
NVNT	ac40	5510	Ant1	57.422	Pass
NVNT	ac40	5550	Ant1	56.865	Pass
NVNT	ac40	5670	Ant1	50.347	Pass
NVNT	ac80	5290	Ant1	116.475	Pass
NVNT	ac80	5530	Ant1	114.704	Pass
NVNT	ac80	5610	Ant1	105.263	Pass

Test Graphs
-26dB Bandwidth NVNT a 5260MHz Ant1

-26dB Bandwidth NVNT a 5300MHz Ant1

-26dB Bandwidth NVNT a 5320MHz Ant1


-26dB Bandwidth NVNT a 5500MHz Ant1

-26dB Bandwidth NVNT a 5580MHz Ant1

-26dB Bandwidth NVNT a 5700MHz Ant1

-26dB Bandwidth NVNT n20 5260MHz Ant1

-26dB Bandwidth NVNT n20 5300MHz Ant1

-26dB Bandwidth NVNT n20 5320MHz Ant1

-26dB Bandwidth NVNT n20 5500MHz Ant1

-26dB Bandwidth NVNT n20 5580MHz Ant1

-26dB Bandwidth NVNT n20 5700MHz Ant1

-26dB Bandwidth NVNT n40 5270MHz Ant1

-26dB Bandwidth NVNT n40 5310MHz Ant1

-26dB Bandwidth NVNT n40 5510MHz Ant1

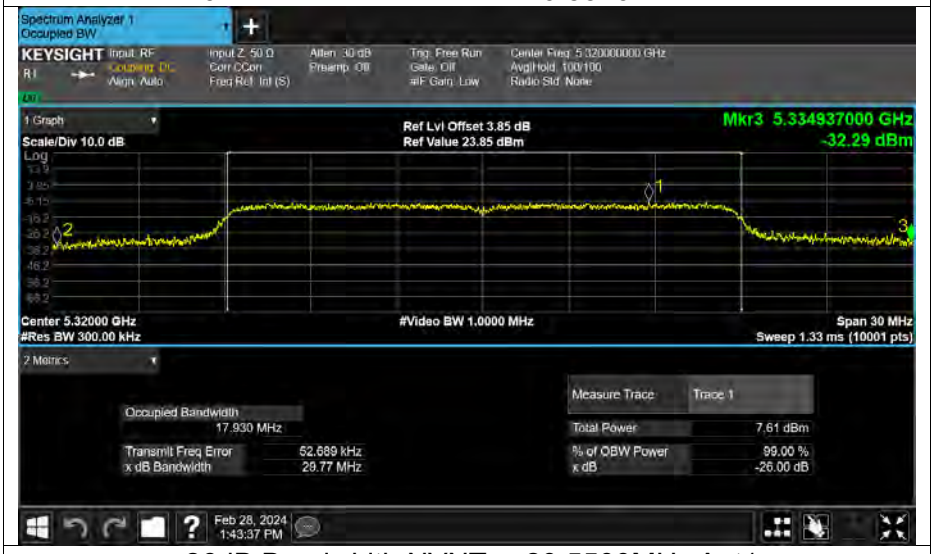
-26dB Bandwidth NVNT n40 5550MHz Ant1

-26dB Bandwidth NVNT n40 5670MHz Ant1

-26dB Bandwidth NVNT ac20 5260MHz Ant1

-26dB Bandwidth NVNT ac20 5300MHz Ant1

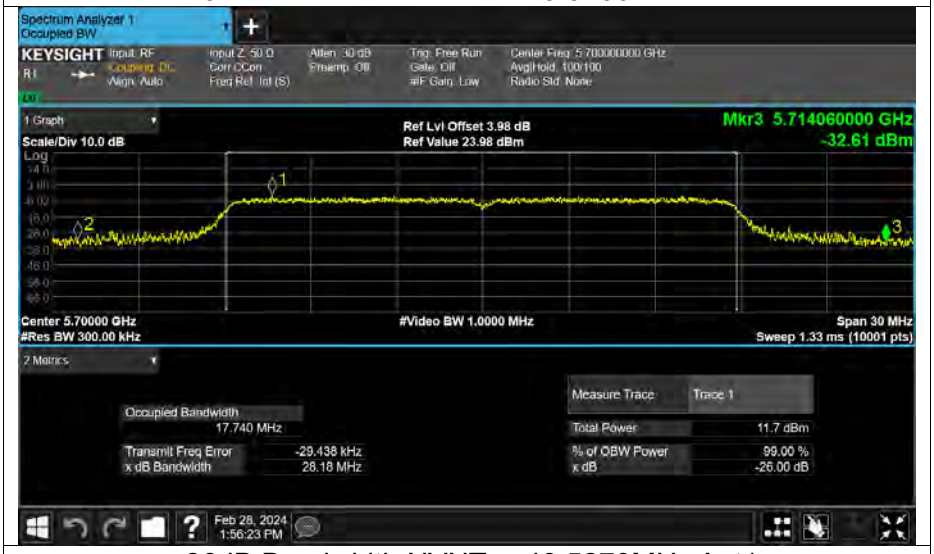
-26dB Bandwidth NVNT ac20 5320MHz Ant1



-26dB Bandwidth NVNT ac20 5500MHz Ant1

-26dB Bandwidth NVNT ac20 5580MHz Ant1

-26dB Bandwidth NVNT ac20 5700MHz Ant1



-26dB Bandwidth NVNT ac40 5270MHz Ant1

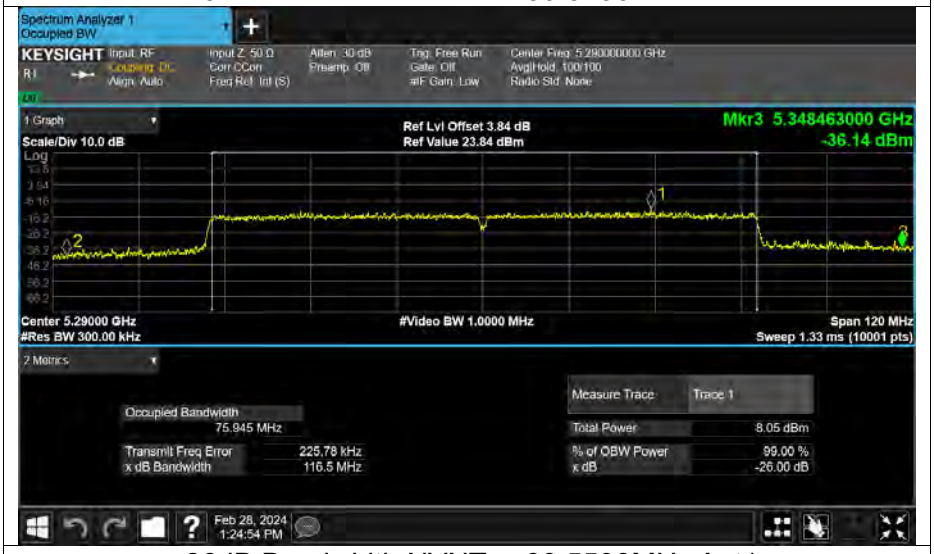
-26dB Bandwidth NVNT ac40 5310MHz Ant1

-26dB Bandwidth NVNT ac40 5510MHz Ant1

-26dB Bandwidth NVNT ac40 5550MHz Ant1

-26dB Bandwidth NVNT ac40 5670MHz Ant1

-26dB Bandwidth NVNT ac80 5290MHz Ant1



-26dB Bandwidth NVNT ac80 5530MHz Ant1

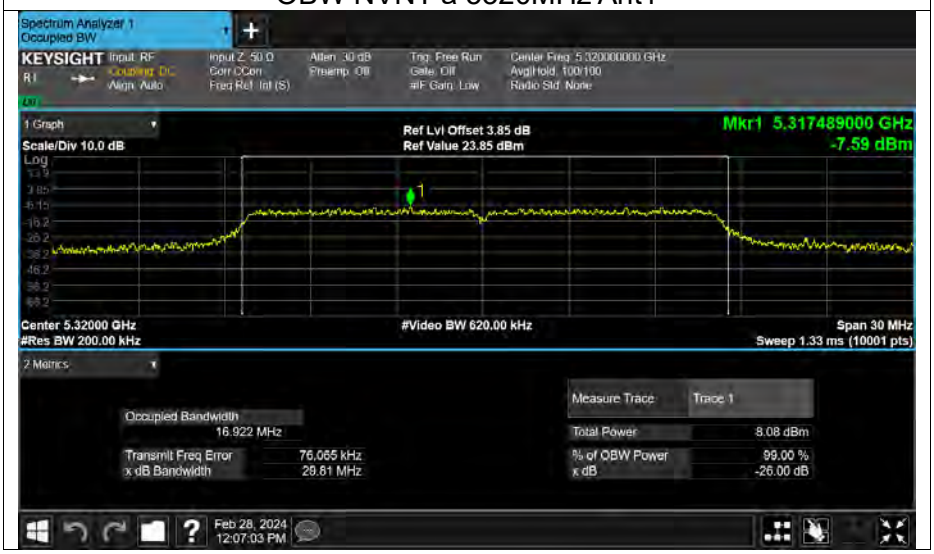
-26dB Bandwidth NVNT ac80 5610MHz Ant1


Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5260	Ant1	16.879
NVNT	a	5300	Ant1	16.844
NVNT	a	5320	Ant1	16.922
NVNT	a	5500	Ant1	17.155
NVNT	a	5580	Ant1	16.794
NVNT	a	5700	Ant1	16.632
NVNT	n20	5260	Ant1	17.739
NVNT	n20	5300	Ant1	17.796
NVNT	n20	5320	Ant1	17.828
NVNT	n20	5500	Ant1	18.062
NVNT	n20	5580	Ant1	17.831
NVNT	n20	5700	Ant1	17.659
NVNT	n40	5270	Ant1	36.439
NVNT	n40	5310	Ant1	36.48
NVNT	n40	5510	Ant1	36.687
NVNT	n40	5550	Ant1	36.58
NVNT	n40	5670	Ant1	36.222
NVNT	ac20	5260	Ant1	17.801
NVNT	ac20	5300	Ant1	17.78
NVNT	ac20	5320	Ant1	17.847
NVNT	ac20	5500	Ant1	17.922
NVNT	ac20	5580	Ant1	17.826
NVNT	ac20	5700	Ant1	17.669
NVNT	ac40	5270	Ant1	36.432
NVNT	ac40	5310	Ant1	36.444
NVNT	ac40	5510	Ant1	36.686
NVNT	ac40	5550	Ant1	36.635
NVNT	ac40	5670	Ant1	36.237
NVNT	ac80	5290	Ant1	76.104
NVNT	ac80	5530	Ant1	76.023
NVNT	ac80	5610	Ant1	76.009

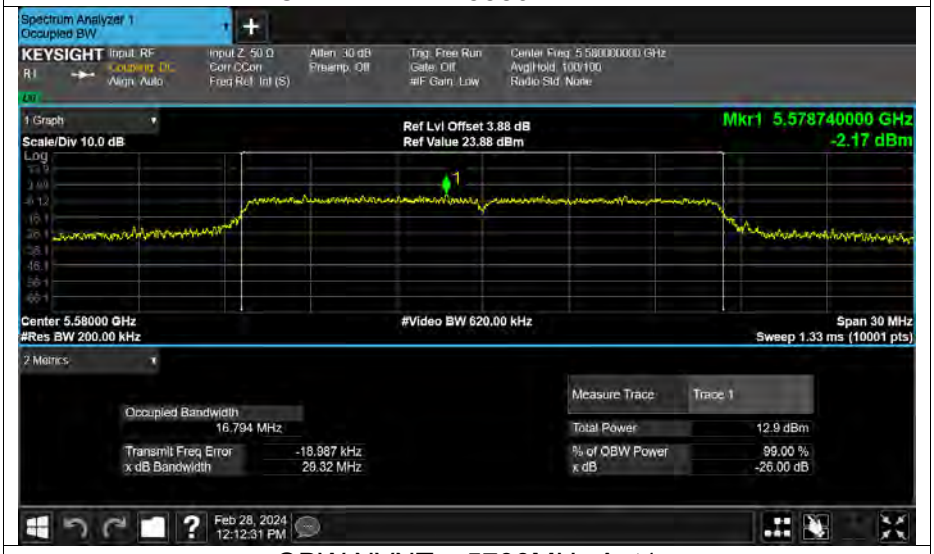
Test Graphs
OBW NVNT a 5260MHz Ant1

OBW NVNT a 5300MHz Ant1

OBW NVNT a 5320MHz Ant1


OBW NVNT a 5500MHz Ant1

OBW NVNT a 5580MHz Ant1



OBW NVNT a 5700MHz Ant1

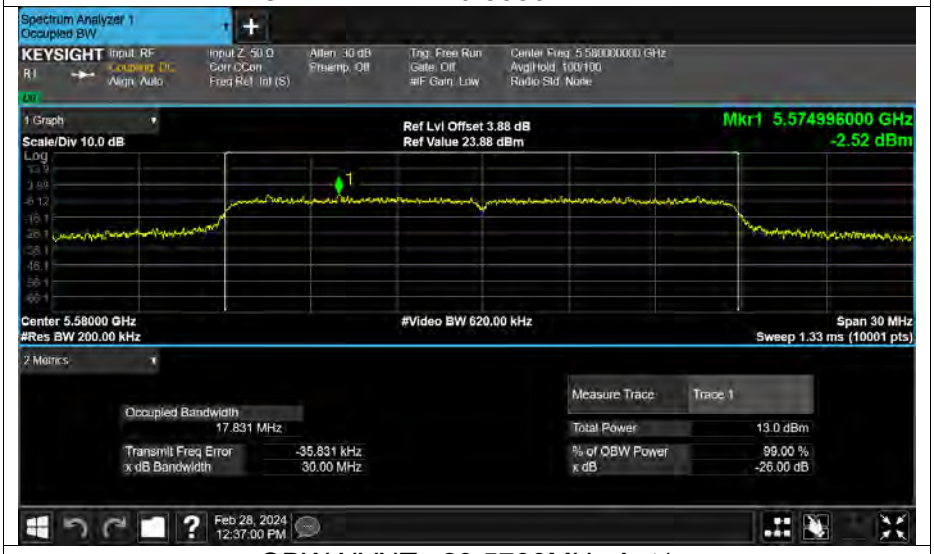
OBW NVNT n20 5260MHz Ant1

OBW NVNT n20 5300MHz Ant1

OBW NVNT n20 5320MHz Ant1

OBW NVNT n20 5500MHz Ant1

OBW NVNT n20 5580MHz Ant1

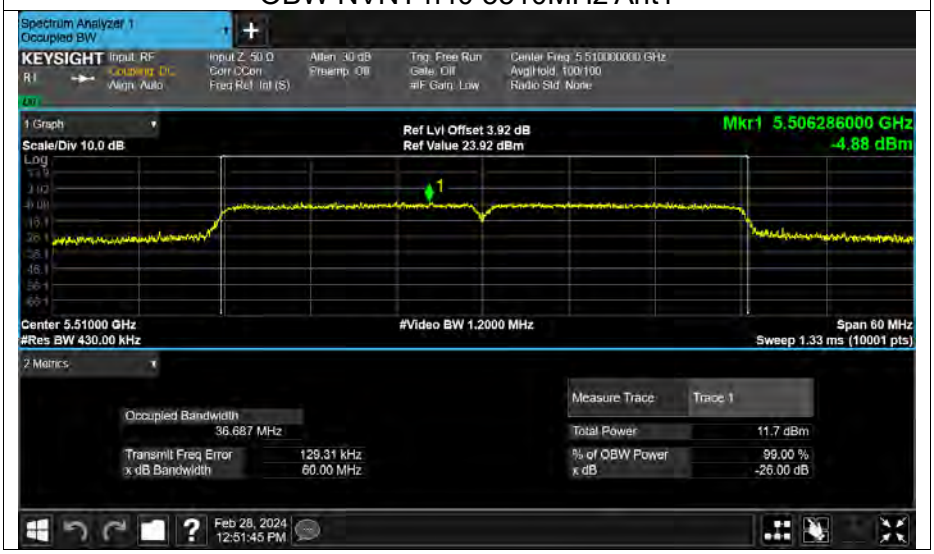


OBW NVNT n20 5700MHz Ant1

OBW NVNT n40 5270MHz Ant1

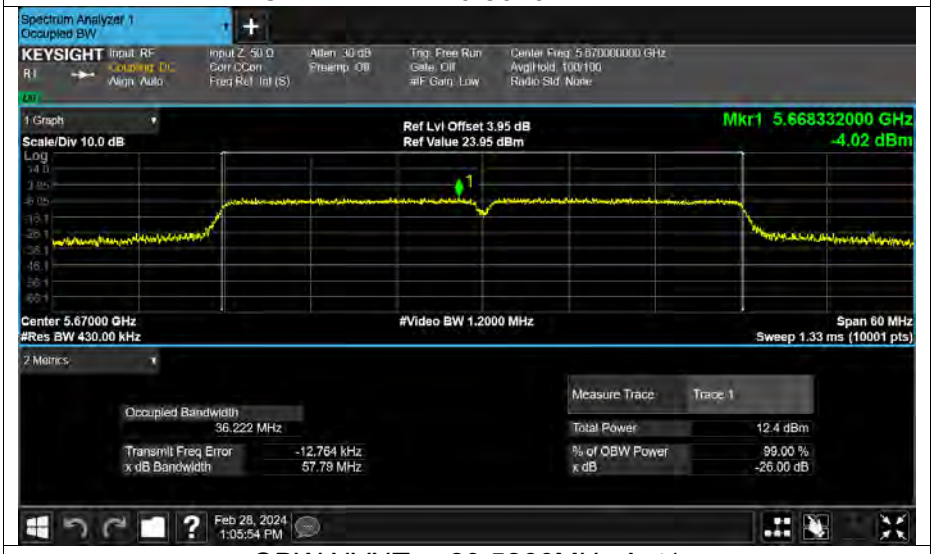
OBW NVNT n40 5310MHz Ant1

OBW NVNT n40 5510MHz Ant1



OBW NVNT n40 5550MHz Ant1

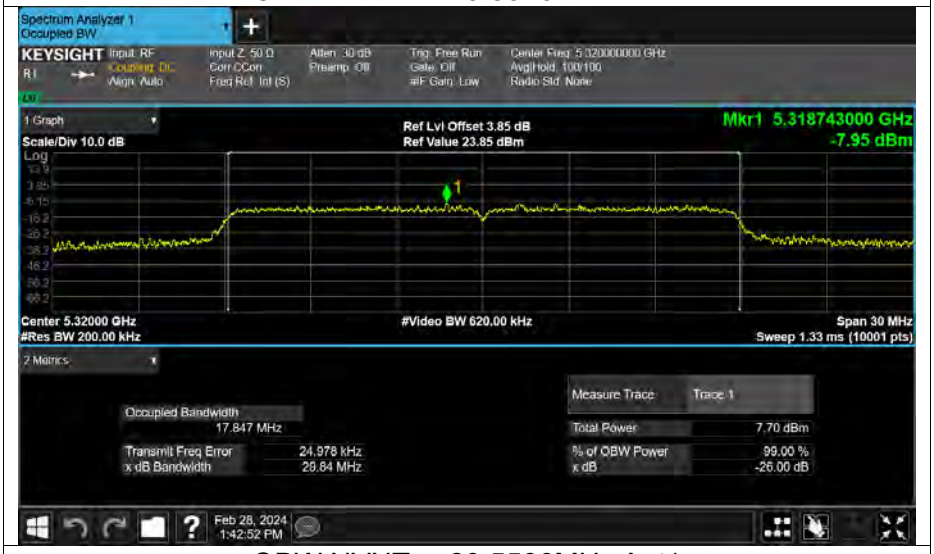
OBW NVNT n40 5670MHz Ant1



OBW NVNT ac20 5260MHz Ant1

OBW NVNT ac20 5300MHz Ant1

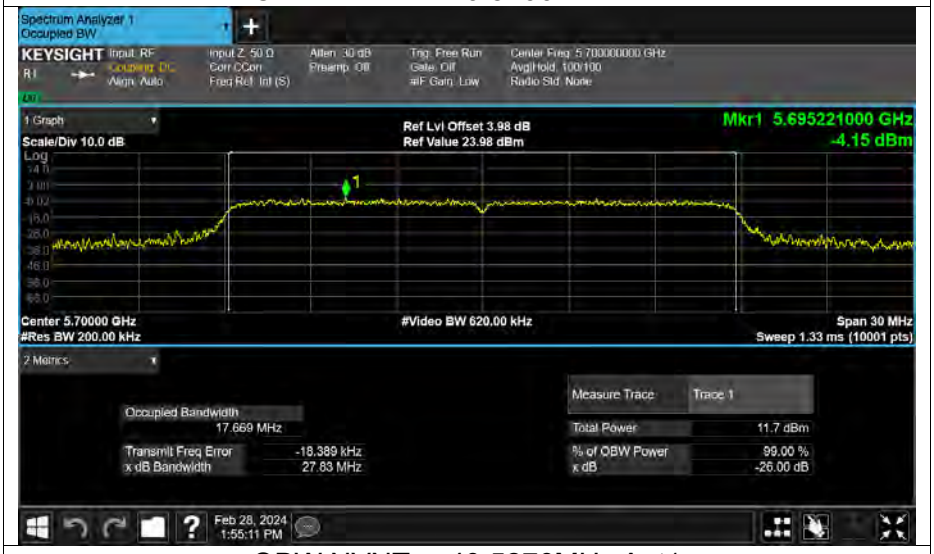
OBW NVNT ac20 5320MHz Ant1



OBW NVNT ac20 5500MHz Ant1

OBW NVNT ac20 5580MHz Ant1

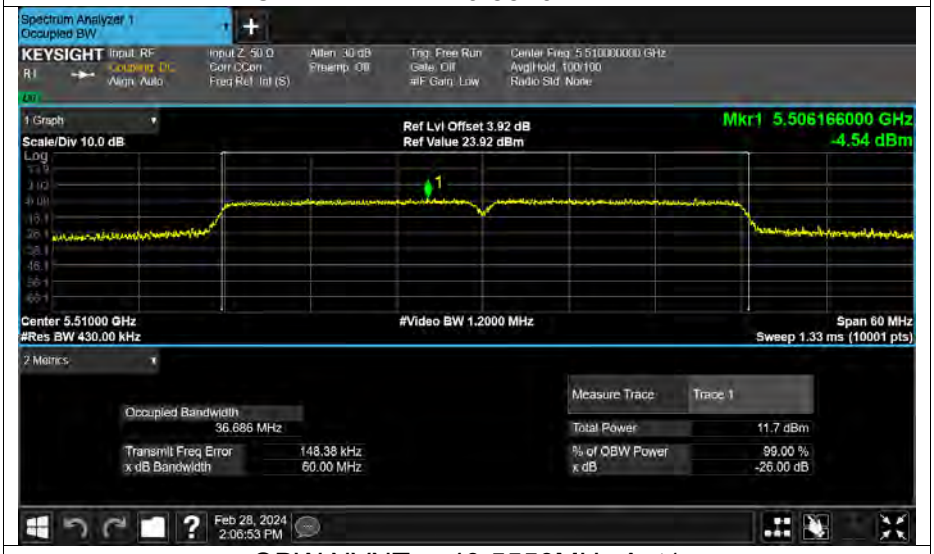
OBW NVNT ac20 5700MHz Ant1



OBW NVNT ac40 5270MHz Ant1

OBW NVNT ac40 5310MHz Ant1

OBW NVNT ac40 5510MHz Ant1

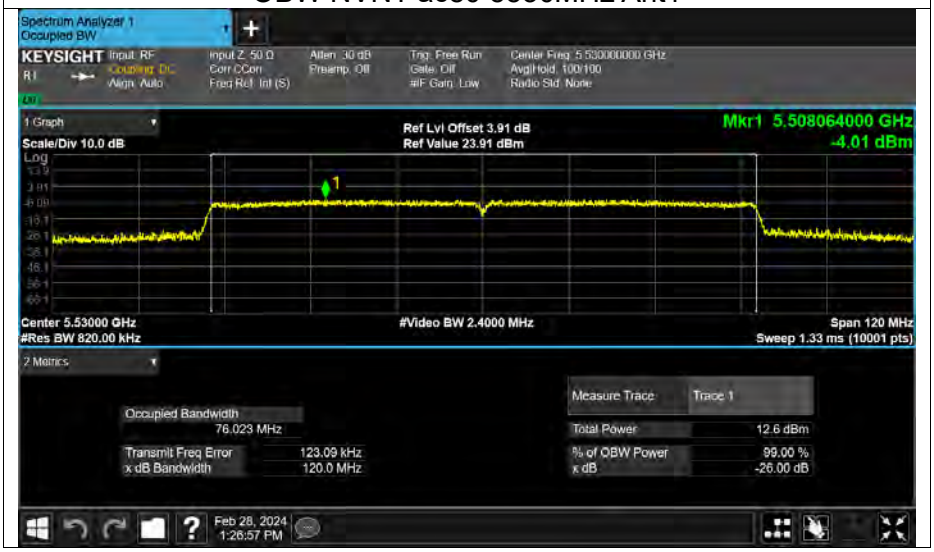


OBW NVNT ac40 5550MHz Ant1

OBW NVNT ac40 5670MHz Ant1

OBW NVNT ac80 5290MHz Ant1

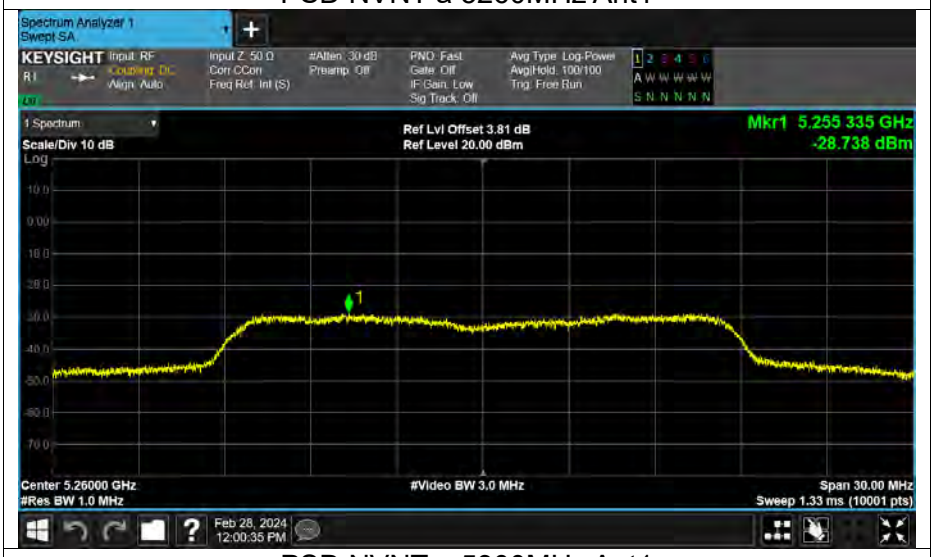
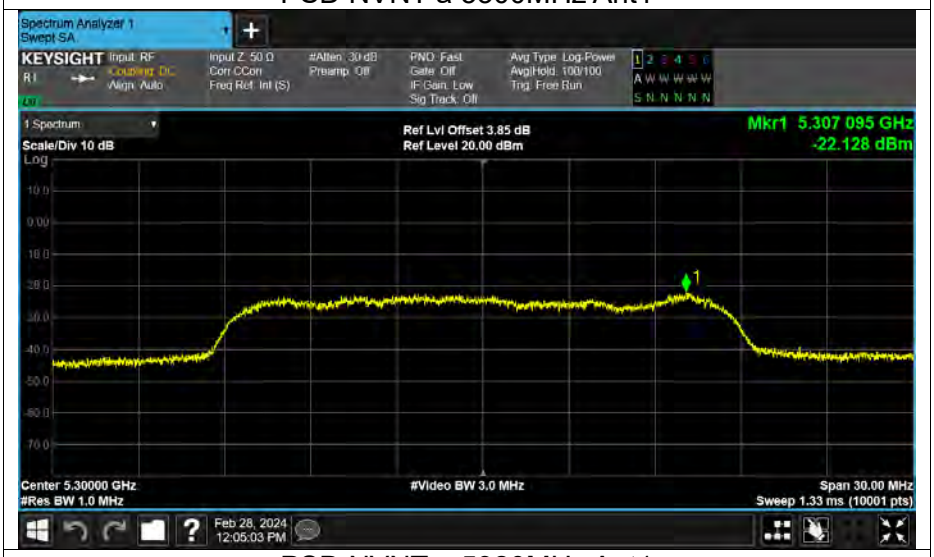
OBW NVNT ac80 5530MHz Ant1



OBW NVNT ac80 5610MHz Ant1

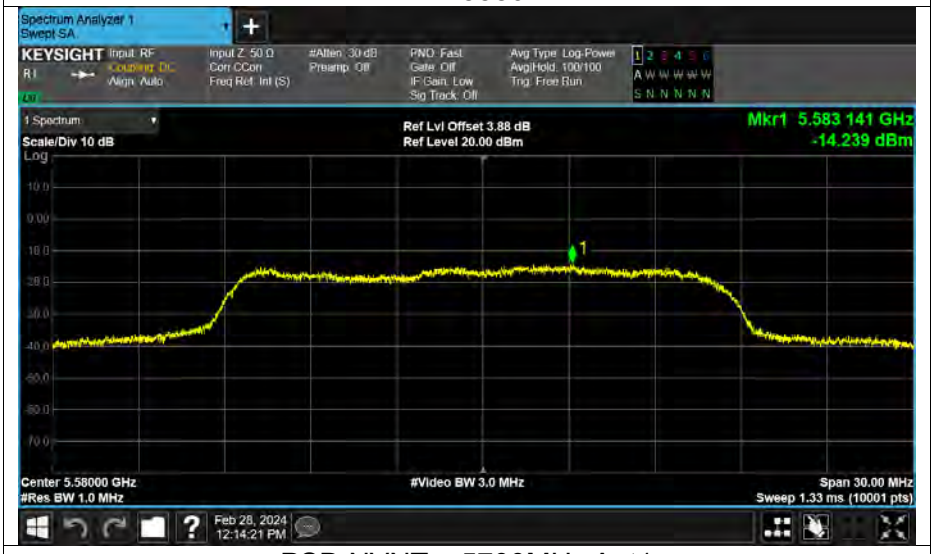
Maximum Power Spectral Density Level

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/MHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	a	5260	Ant1	-28.74	0.36	-28.38	11	Pass
NVNT	a	5300	Ant1	-22.13	0.36	-21.77	11	Pass
NVNT	a	5320	Ant1	-24.18	0.36	-23.82	11	Pass
NVNT	a	5500	Ant1	-9.22	0.36	-8.86	11	Pass
NVNT	a	5580	Ant1	-14.24	0.36	-13.88	11	Pass
NVNT	a	5700	Ant1	-7.57	0.36	-7.21	11	Pass
NVNT	n20	5260	Ant1	-13.64	0.39	-13.25	11	Pass
NVNT	n20	5300	Ant1	-13.94	0.39	-13.55	11	Pass
NVNT	n20	5320	Ant1	-13.03	0.39	-12.64	11	Pass
NVNT	n20	5500	Ant1	-7.89	0.39	-7.5	11	Pass
NVNT	n20	5580	Ant1	-6.05	0.39	-5.66	11	Pass
NVNT	n20	5700	Ant1	-9.93	0.39	-9.54	11	Pass
NVNT	n40	5270	Ant1	-19.57	0.73	-18.84	11	Pass
NVNT	n40	5310	Ant1	-18.93	0.73	-18.2	11	Pass
NVNT	n40	5510	Ant1	-14.83	0.73	-14.1	11	Pass
NVNT	n40	5550	Ant1	-13.39	0.73	-12.66	11	Pass
NVNT	n40	5670	Ant1	-16.52	0.73	-15.79	11	Pass
NVNT	ac20	5260	Ant1	-14.34	0.39	-13.95	11	Pass
NVNT	ac20	5300	Ant1	-12.7	0.39	-12.31	11	Pass
NVNT	ac20	5320	Ant1	-12.38	0.39	-11.99	11	Pass
NVNT	ac20	5500	Ant1	-8.3	0.39	-7.91	11	Pass
NVNT	ac20	5580	Ant1	-8.64	0.39	-8.25	11	Pass
NVNT	ac20	5700	Ant1	-8.52	0.39	-8.13	11	Pass
NVNT	ac40	5270	Ant1	-19.95	0.76	-19.19	11	Pass
NVNT	ac40	5310	Ant1	-18.31	0.73	-17.58	11	Pass
NVNT	ac40	5510	Ant1	-13.56	0.76	-12.8	11	Pass
NVNT	ac40	5550	Ant1	-23.64	0.75	-22.89	11	Pass
NVNT	ac40	5670	Ant1	-12.92	0.76	-12.16	11	Pass
NVNT	ac80	5290	Ant1	-26.46	1.39	-25.07	11	Pass
NVNT	ac80	5530	Ant1	-21.07	1.39	-19.68	11	Pass
NVNT	ac80	5610	Ant1	-22.79	1.39	-21.4	11	Pass

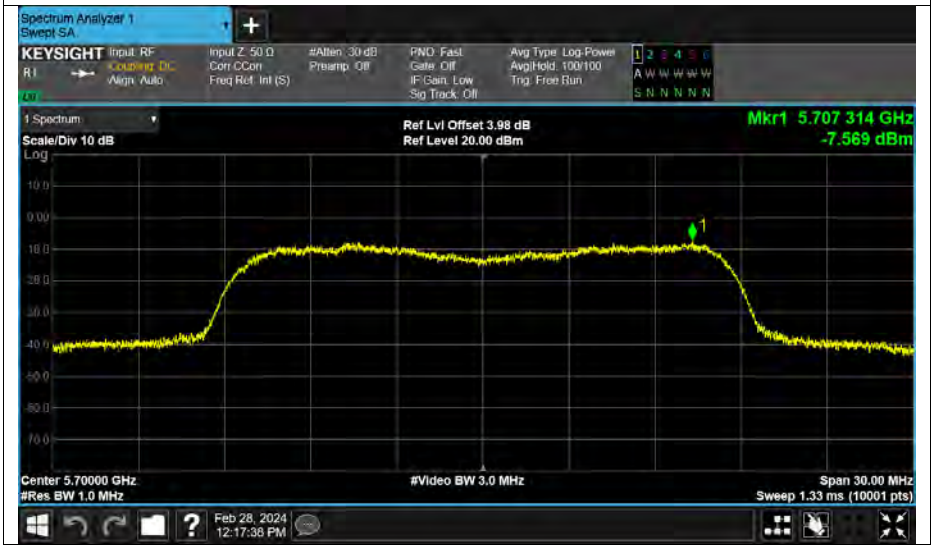
Test Graphs
PSD NVNT a 5260MHz Ant1

PSD NVNT a 5300MHz Ant1

PSD NVNT a 5320MHz Ant1


PSD NVNT a 5500MHz Ant1

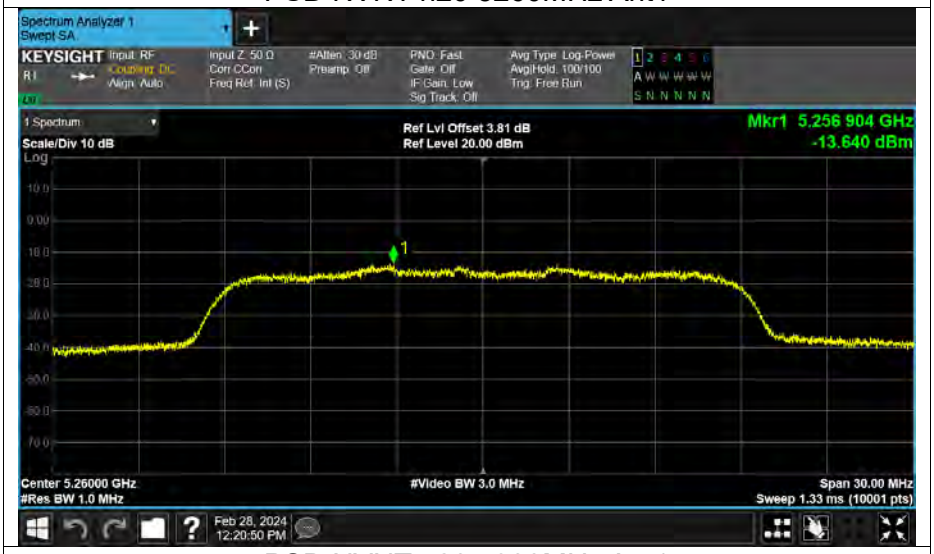
PSD NVNT a 5580MHz Ant1



PSD NVNT a 5700MHz Ant1

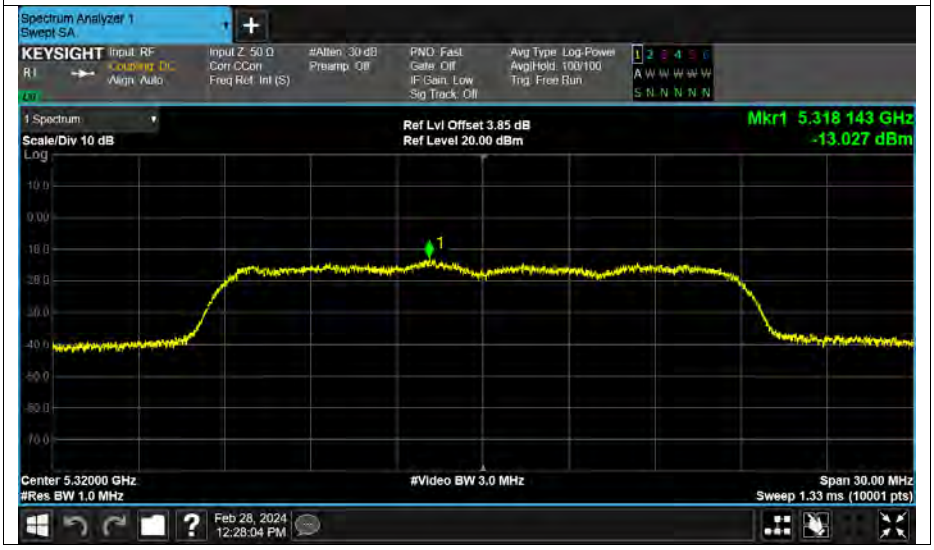


PSD NVNT n20 5260MHz Ant1

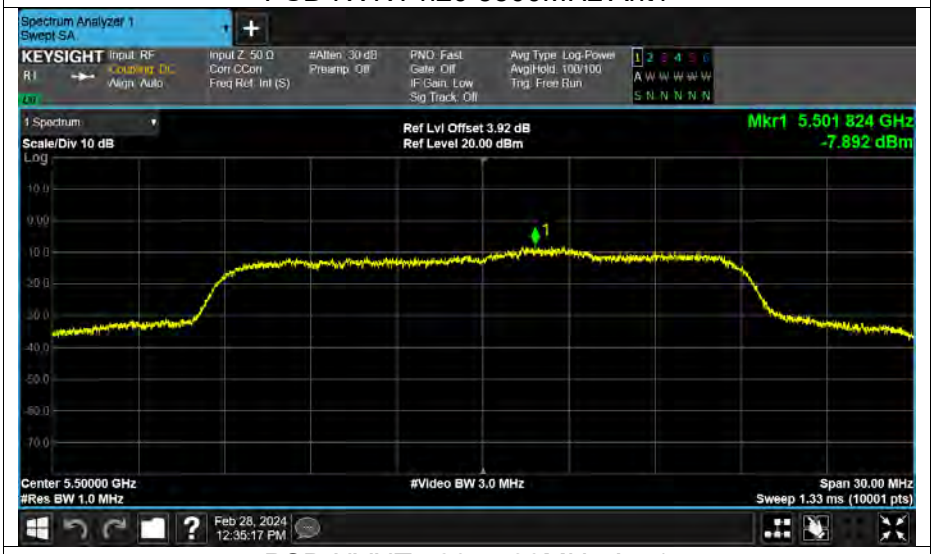


PSD NVNT n20 5300MHz Ant1

PSD NVNT n20 5320MHz Ant1

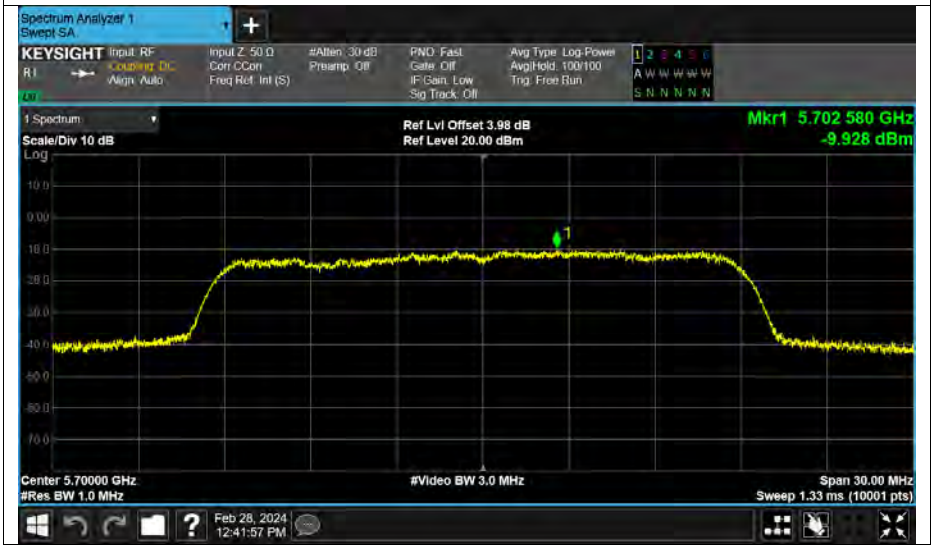


PSD NVNT n20 5500MHz Ant1



PSD NVNT n20 5580MHz Ant1

PSD NVNT n20 5700MHz Ant1



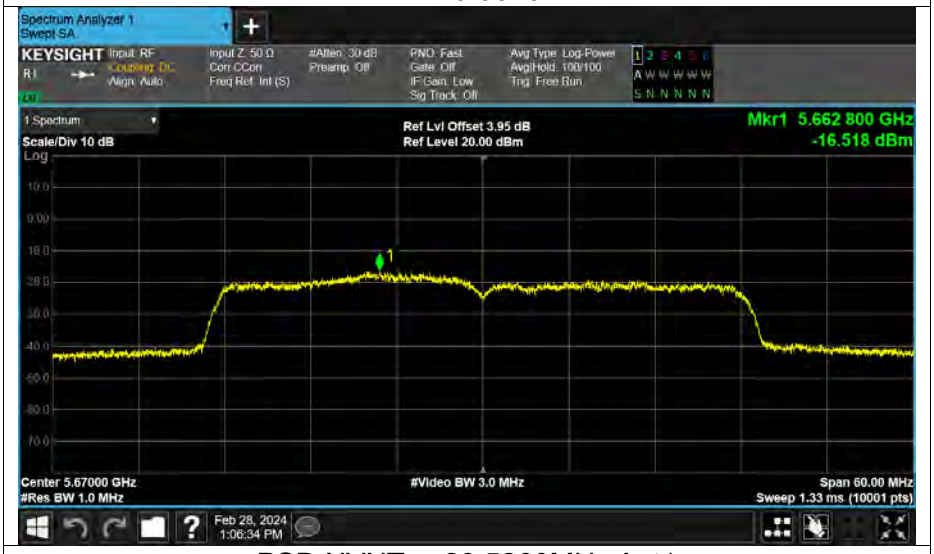
PSD NVNT n40 5270MHz Ant1

PSD NVNT n40 5310MHz Ant1

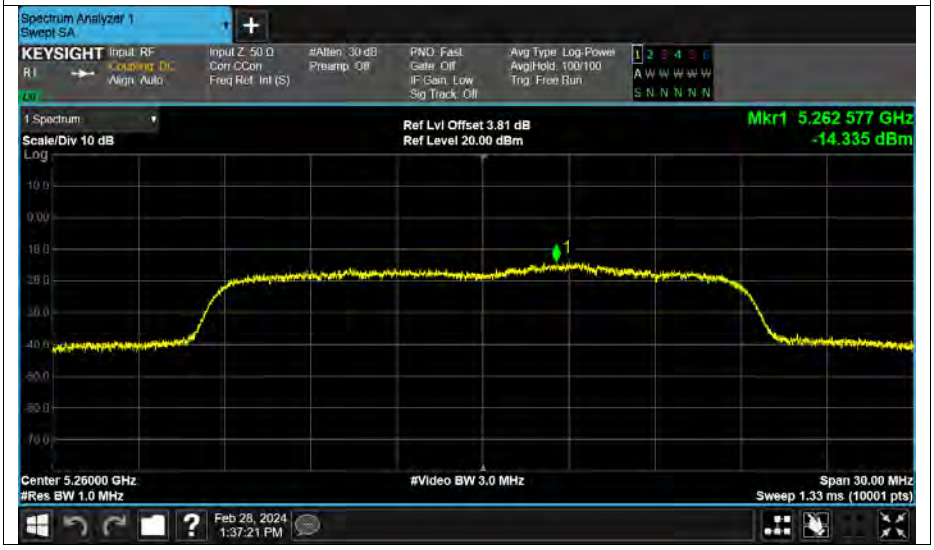
PSD NVNT n40 5510MHz Ant1

PSD NVNT n40 5550MHz Ant1

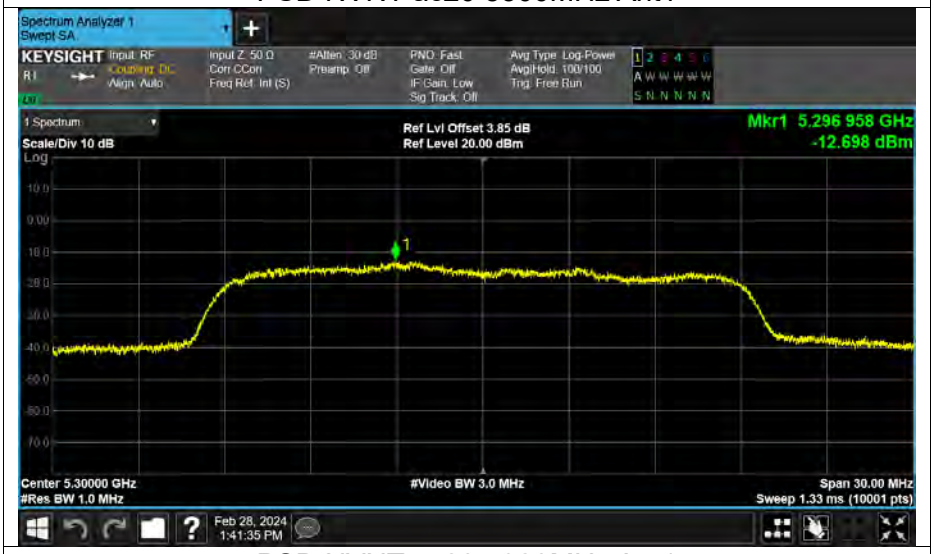
PSD NVNT n40 5670MHz Ant1



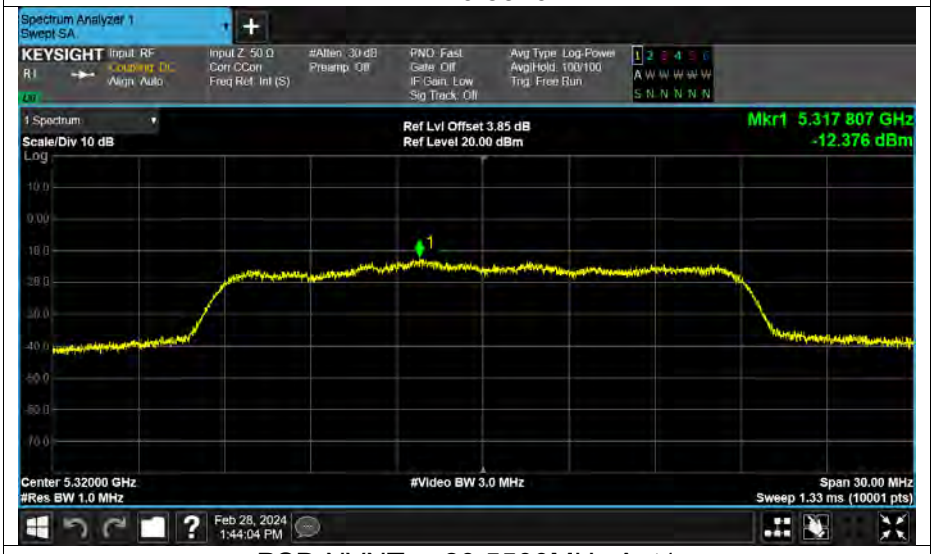
PSD NVNT ac20 5260MHz Ant1



PSD NVNT ac20 5300MHz Ant1



PSD NVNT ac20 5320MHz Ant1

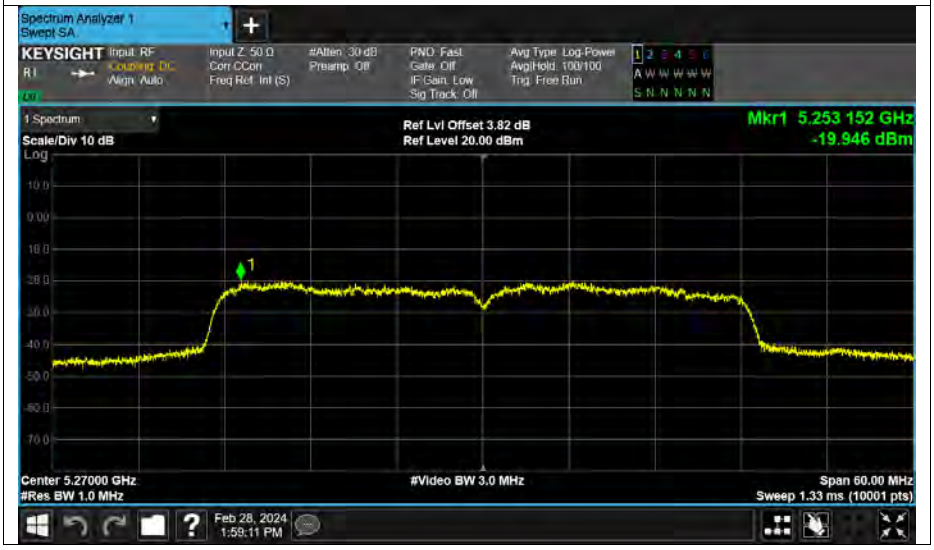


PSD NVNT ac20 5500MHz Ant1

PSD NVNT ac20 5580MHz Ant1

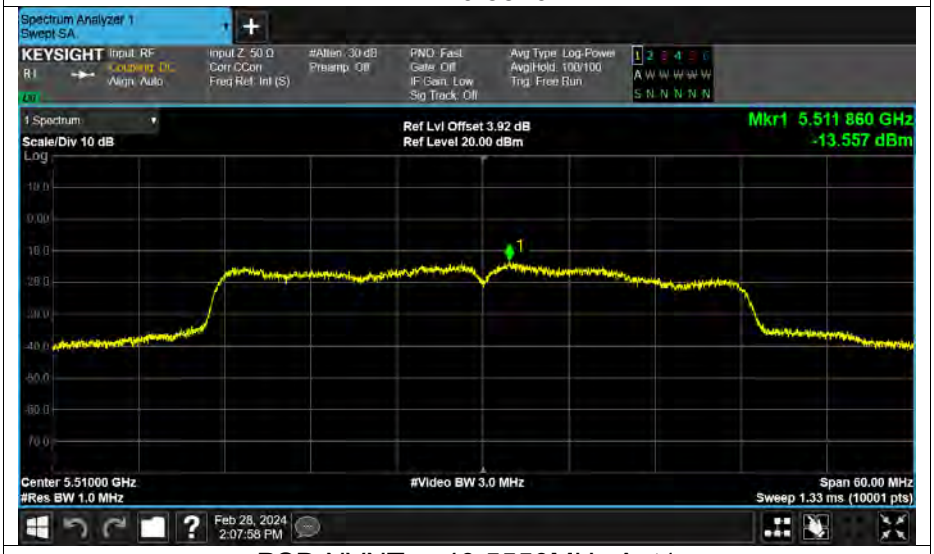
PSD NVNT ac20 5700MHz Ant1

PSD NVNT ac40 5270MHz Ant1

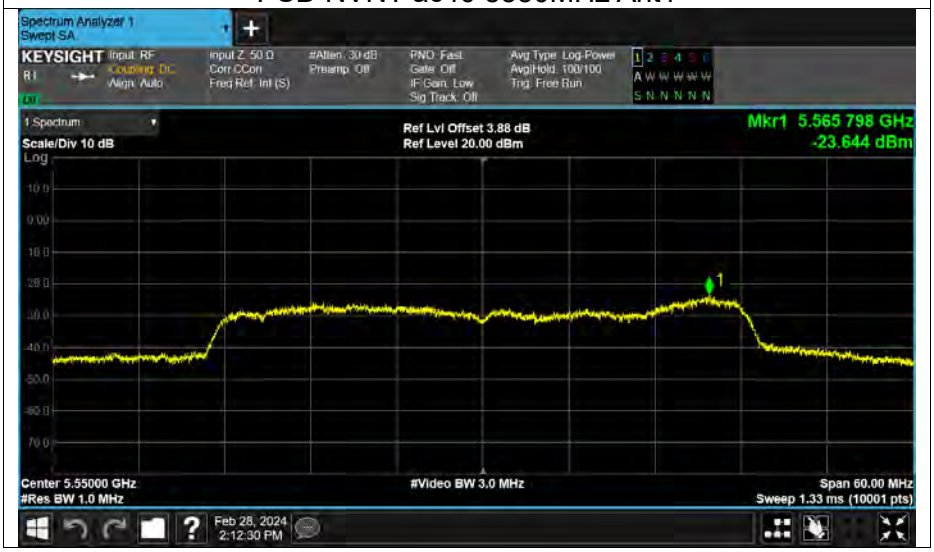


PSD NVNT ac40 5310MHz Ant1

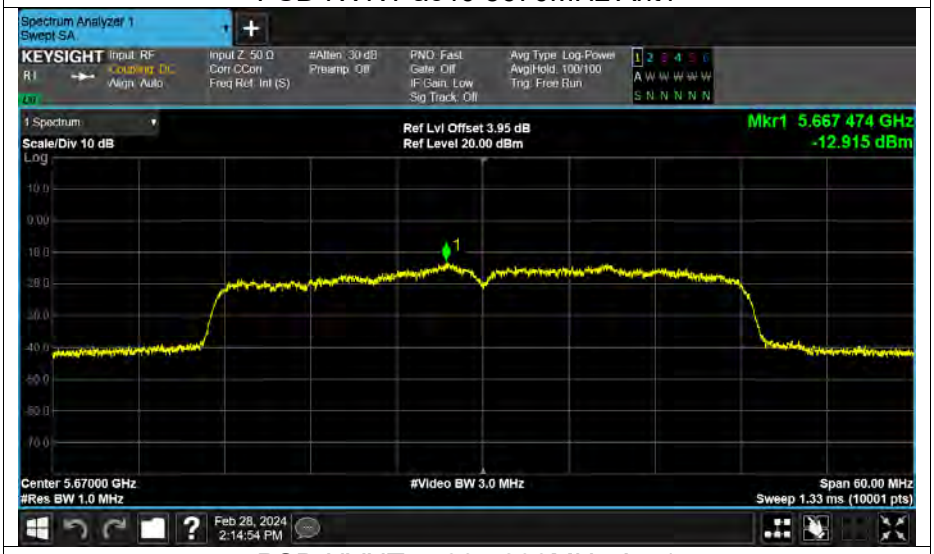
PSD NVNT ac40 5510MHz Ant1



PSD NVNT ac40 5550MHz Ant1

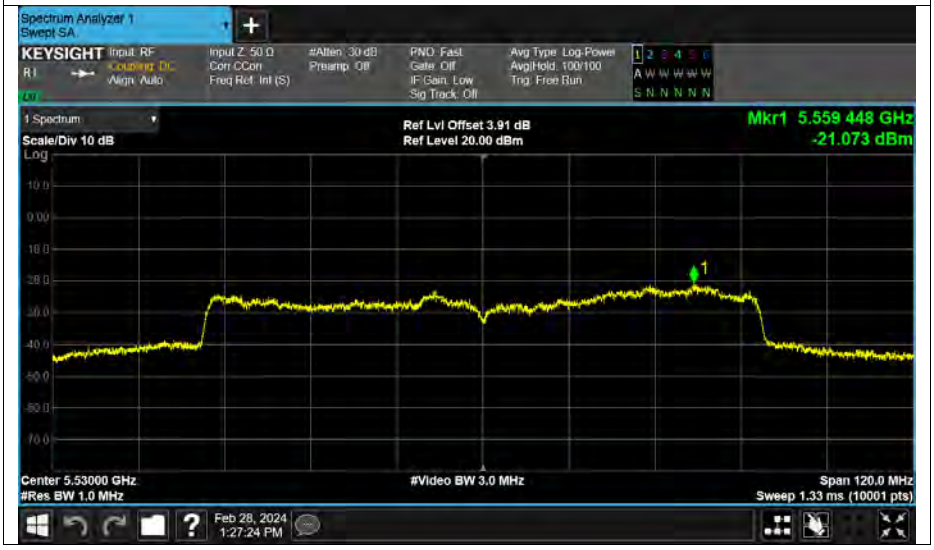


PSD NVNT ac40 5670MHz Ant1



PSD NVNT ac80 5290MHz Ant1

PSD NVNT ac80 5530MHz Ant1



PSD NVNT ac80 5610MHz Ant1


※※※※※END OF THE REPORT※※※※※