



RF TEST REPORT

Product Name: Smartphone

Model Name: A181

FCC ID: 2A9SN-A181

Issued For : INOI Limited

Office 302, Dominion Centre 43-59, Queens Road, East
Wanchai, Hong Kong, 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: LGT22L018RF13

Sample Received Date: Dec. 13, 2022

Date of Test: Dec. 13, 2022~ Feb. 21, 2023

Date of Issue: Feb. 21, 2023

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TEST REPORT CERTIFICATION

Applicant INOI Limited
Address Office 302, Dominion Centre 43-59, Queens Road, East Wanchai, Hong Kong, China
Manufacturer INOI Limited
Address Office 302, Dominion Centre 43-59, Queens Road, East Wanchai, Hong Kong, China
Product Name Smartphone
Trademark INOI
Model Name A181
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	Feb. 21, 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	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.84\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 4.39\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 5.10\text{dB}$
6	All emissions, radiated >6G	$\pm 5.48\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.79\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.80\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Smartphone								
Trademark	INOI								
Model Name	A181								
Series Model	N/A								
Model Difference	N/A								
Product Description	The EUT is a Smartphone <table border="1"> <tr> <td>Operation Frequency:</td><td> IEEE 802.11a/n(HT20)/ac(VHT20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz-5.230GHz IEEE 802.11ac(VHT80): 5.210GHz 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 IEEE 802.11a/n(HT20)/ac(VHT20): 5.745GHz-5.825GHz IEEE 802.11a/n(HT40)/ac(VHT40): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80): 5.775GHz </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>Please refer to the Note 3.</td></tr> <tr> <td>Antenna Gain(dBi)</td><td>1.13</td></tr> </table> More details of EUT technical specification, please refer to the User Manual.	Operation Frequency:	IEEE 802.11a/n(HT20)/ac(VHT20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz-5.230GHz IEEE 802.11ac(VHT80): 5.210GHz 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 IEEE 802.11a/n(HT20)/ac(VHT20): 5.745GHz-5.825GHz IEEE 802.11a/n(HT40)/ac(VHT40): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80): 5.775GHz	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)	1.13
Operation Frequency:	IEEE 802.11a/n(HT20)/ac(VHT20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz-5.230GHz IEEE 802.11ac(VHT80): 5.210GHz 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 IEEE 802.11a/n(HT20)/ac(VHT20): 5.745GHz-5.825GHz IEEE 802.11a/n(HT40)/ac(VHT40): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80): 5.775GHz								
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)	1.13								
Test Channel	Please refer to the Note 2.								
Adapter	Model: IN-C01/19 Input: 100-240V, 50/60Hz, 0.25A Output: 5V, 1.5A								
Battery	Capacity: 4000mAh Rated Voltage: 3.85V								
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.



Operation Frequency of channel			
5.180GHz-5.240GHz		5.260GHz-5.320GHz	
Channel	Frequency	Channel	Frequency
36	5180	52	5260
38	5190	54	5270
40	5200	56	5280
42	5210	58	5290
44	5220	60	5300
46	5230	62	5310
48	5240	64	5320
5.745GHz-5.825GHz			
Channel	Frequency		
149	5745		
151	5755		
153	5765		
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(20MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
149	5745	153	5765	157	5785	161	5805
165	5825						

Channel List for 802.11n/ac(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	54	5270	62	5310
151	5755	159	5795	--	--	--	--

Channel List for 802.11ac(80MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	58	5290	155	5775		

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	Ant Type	Connector	Gain (dBi)	NOTE
1	INOI	A181	PIFA antenna	N/A	1.13	WLAN Ant

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 generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly 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 CH36&CH40&CH48	6 Mbps
Mode 2	TX IEEE 802.11a HT20 CH52&CH60&CH64	6 Mbps
Mode 3	TX IEEE 802.11a HT20 CH149&CH157&CH165	6 Mbps
Mode 4	TX IEEE 802.11n HT20 CH36&CH40&CH48	MCS 0
Mode 5	TX IEEE 802.11ac HT20 CH36&CH40&CH48	NSS1 MCS0
Mode 6	TX IEEE 802.11n HT20 CH52&CH60&CH64	MCS 0
Mode 7	TX IEEE 802.11ac HT20 CH52&CH60&CH64	NSS1 MCS0
Mode 8	TX IEEE 802.11n HT20 CH149&CH157&CH165	MCS 0
Mode 9	TX IEEE 802.11ac HT20 CH149&CH157&CH165	NSS1 MCS0
Mode 10	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 11	TX IEEE 802.11ac HT40 CH38&CH46	NSS1 MCS0
Mode 12	TX IEEE 802.11n HT40 CH54 &CH62	MCS 0
Mode 13	TX IEEE 802.11ac HT40 CH54 &CH62	NSS1 MCS0
Mode 14	TX IEEE 802.11n HT40 CH151&CH159	MCS 0
Mode 15	TX IEEE 802.11ac HT40 CH151&CH159	NSS1 MCS0
Mode 16	TX IEEE 802.11ac HT80 CH42	NSS1 MCS0
Mode 17	TX IEEE 802.11ac HT80 CH58	NSS1 MCS0
Mode 18	TX IEEE 802.11ac HT80 CH155	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 been tested for all available 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 radiated and RF conducted test.

AC Conducted Emission

Test Case	
AC Conducted Emission	Mode 19: 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.

Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
5G WIFI Band1 (5150MHz- 5250MHz)	802.11a	1.13	20	Engineering mode
	802.11n(HT20)		20	
	802.11n(HT40)		20	
	802.11ac(VHT20)		20	
	802.11ac(VHT40)		20	
	802.11ac(VHT80)		20	
Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
5G WIFI Band2 (5250MHz- 5350MHz)	802.11a	1.13	20	Engineering mode
	802.11n(HT20)		20	
	802.11n(HT40)		20	
	802.11ac(VHT20)		20	
	802.11ac(VHT40)		20	
	802.11ac(VHT80)		20	
Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
5G WIFI Band4 (5725MHz- 5850MHz)	802.11a	1.13	15	Engineering mode
	802.11n(HT20)		15	
	802.11n(HT40)		15	
	802.11ac(VHT20)		15	
	802.11ac(VHT40)		15	
	802.11ac(VHT80)		15	

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	INOI Limited	IN-C01/19	N/A	Input: 100-240V ~ 50/60Hz 0.25A Output: 5V, 1.5A
USB-A to USB-C Cable	N/A	N/A	N/A	1m, shielded, without ferrite core

Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Earphone	N/A	39630078	N/A	N/A
Laptop	HUAWEI	HKF-16	N/A	N/A
HUAWEI MateDock 3	HUAWEI	CD12	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

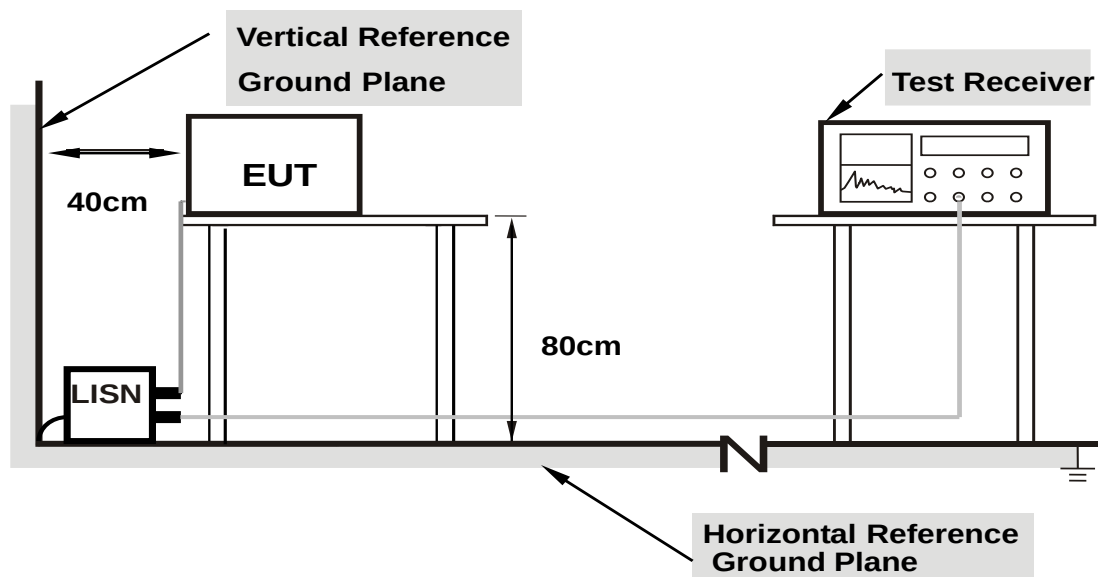
3.1.2 TEST PROCEDURE

- 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.

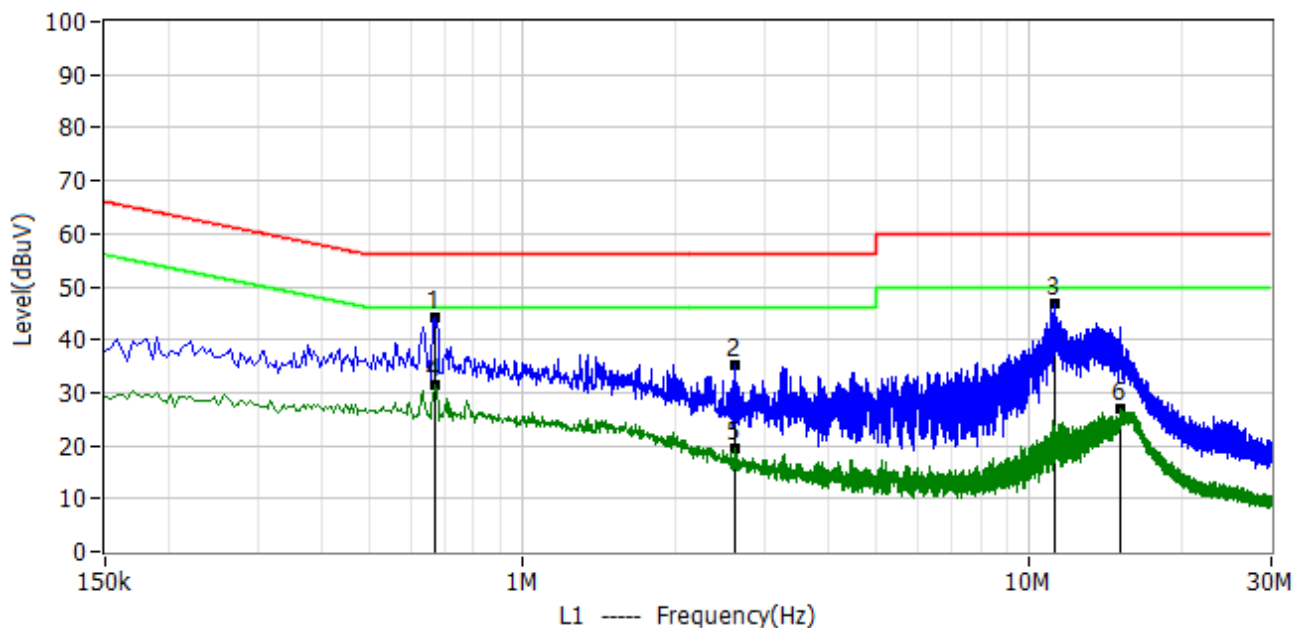
3.1.5 EUT OPERATING CONDITIONS

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

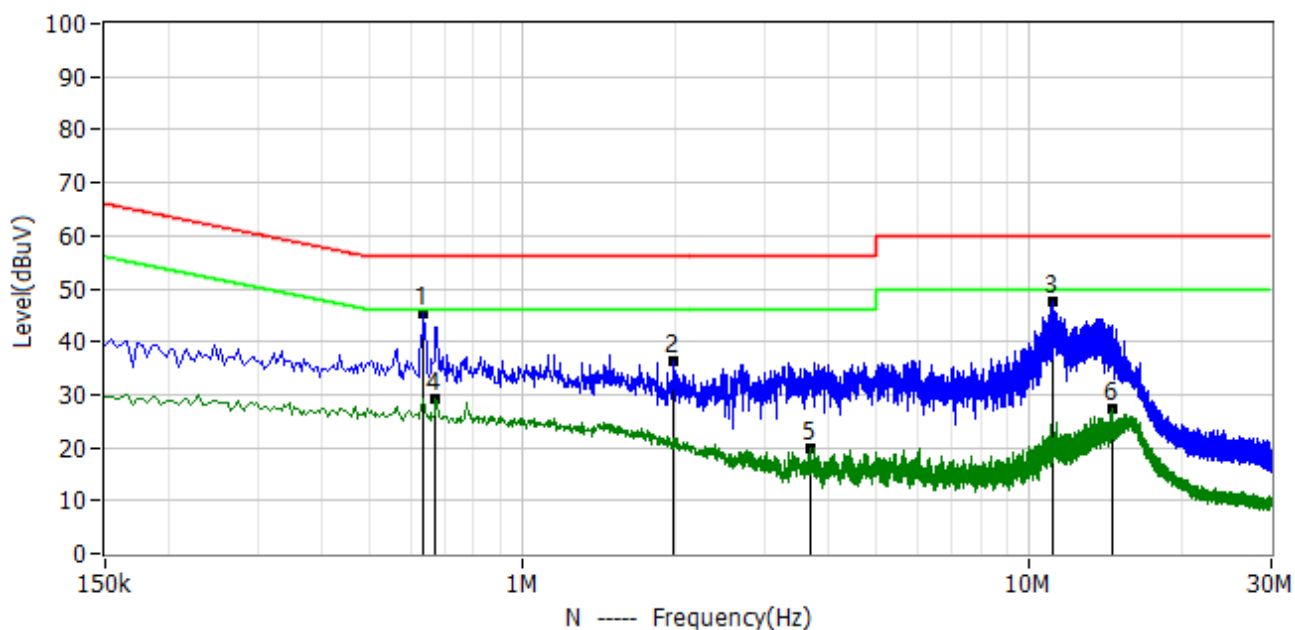
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 18.2°C
M/N: A181	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2022-12-20
Test Mode: TX 5G WIFI	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	670.000kHz	33.54	10.51	44.05	56.00	-11.95	PK	L1
2*	2.614MHz	24.62	10.76	35.38	56.00	-20.62	PK	L1
3*	11.206MHz	35.93	10.98	46.91	60.00	-13.09	PK	L1
4*	674.000kHz	21.12	10.51	31.63	46.00	-14.37	AV	L1
5*	2.614MHz	8.77	10.76	19.53	46.00	-26.47	AV	L1
6*	15.158MHz	15.79	11.05	26.84	50.00	-23.16	AV	L1



Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 18.2°C
M/N: A181	Humidity: 47%RH
Test Voltage: AC 120V/60Hz	Test Data: 2022-12-20
Test Mode: TX 5G WIFI	
Note:	



No.	Frequency	Reading dBuV	Factor dB	Level dBuV	Limit dBuV	Margin dB	Detector	Polar
1*	638.000kHz	34.70	10.51	45.21	56.00	-10.79	PK	N
2*	1.986MHz	25.76	10.74	36.50	56.00	-19.50	PK	N
3*	11.066MHz	36.57	10.98	47.55	60.00	-12.45	PK	N
4*	674.000kHz	18.64	10.51	29.15	46.00	-16.85	AV	N
5*	3.690MHz	9.17	10.79	19.96	46.00	-26.04	AV	N
6*	14.522MHz	16.26	11.05	27.31	50.00	-22.69	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: 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

- 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:

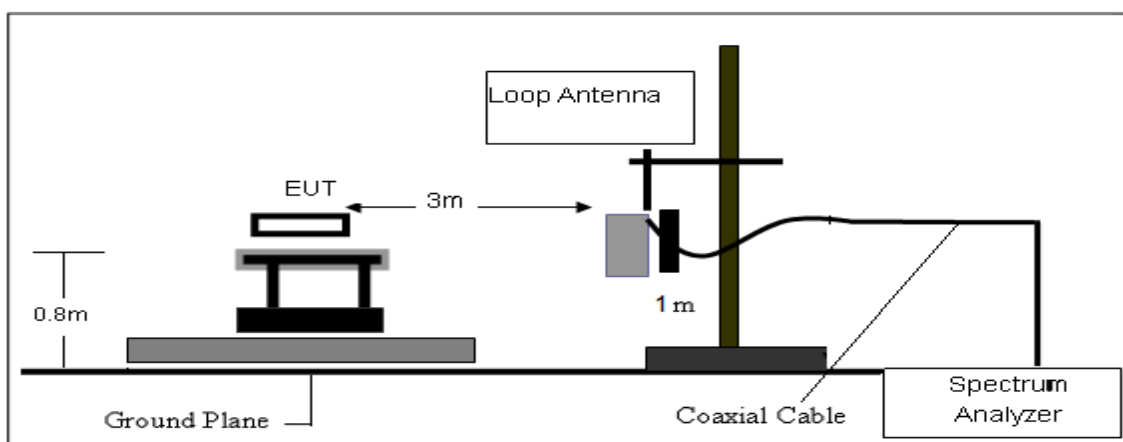
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.2 DEVIATION FROM TEST STANDARD

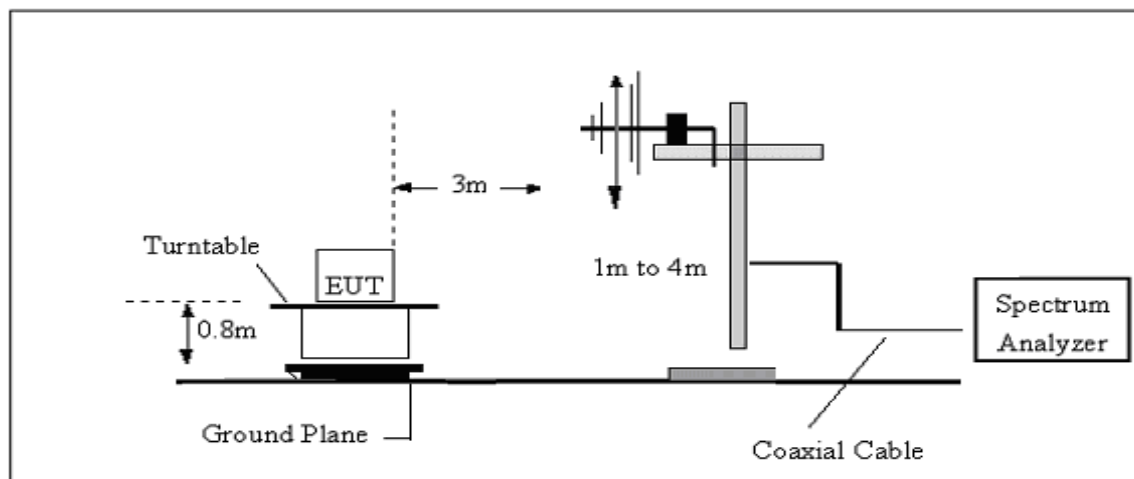
No deviation

3.2.3 TEST SETUP

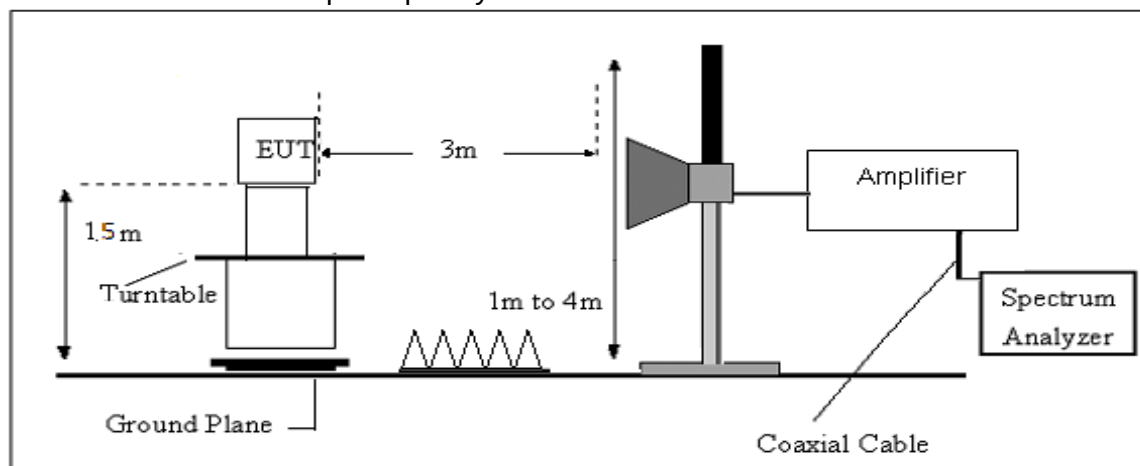
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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

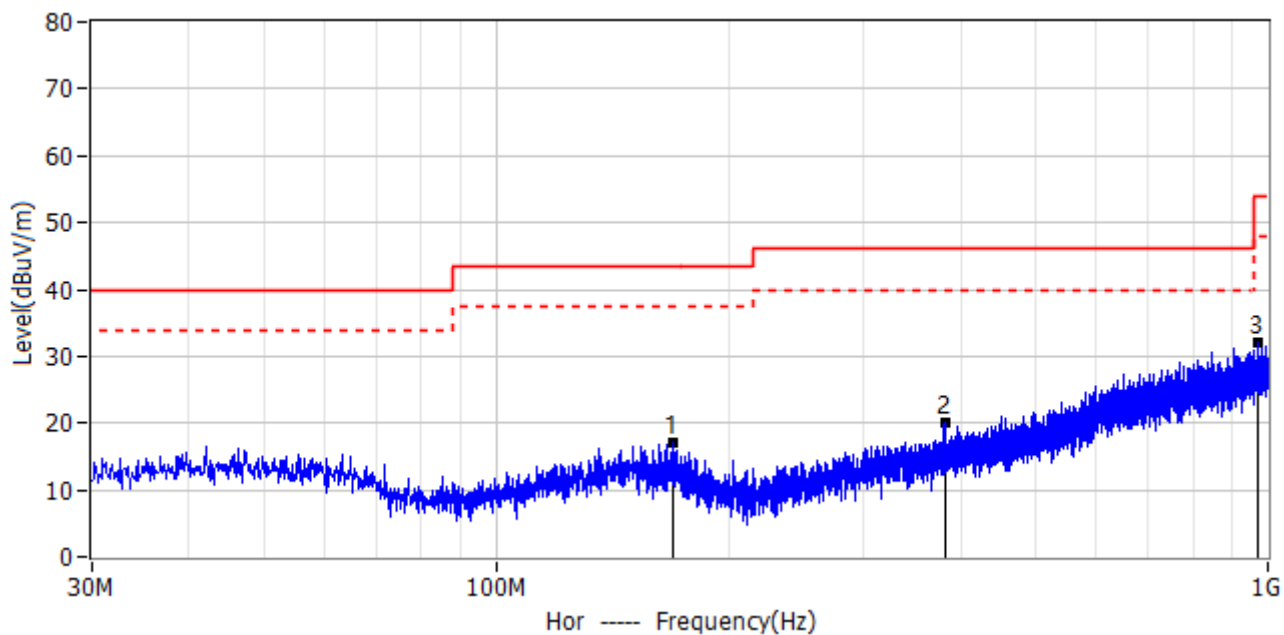
Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Factor (dB)
300	40	58.1	12.2	1.6	31.9	-18.1

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



3.2.6 TEST RESULTS

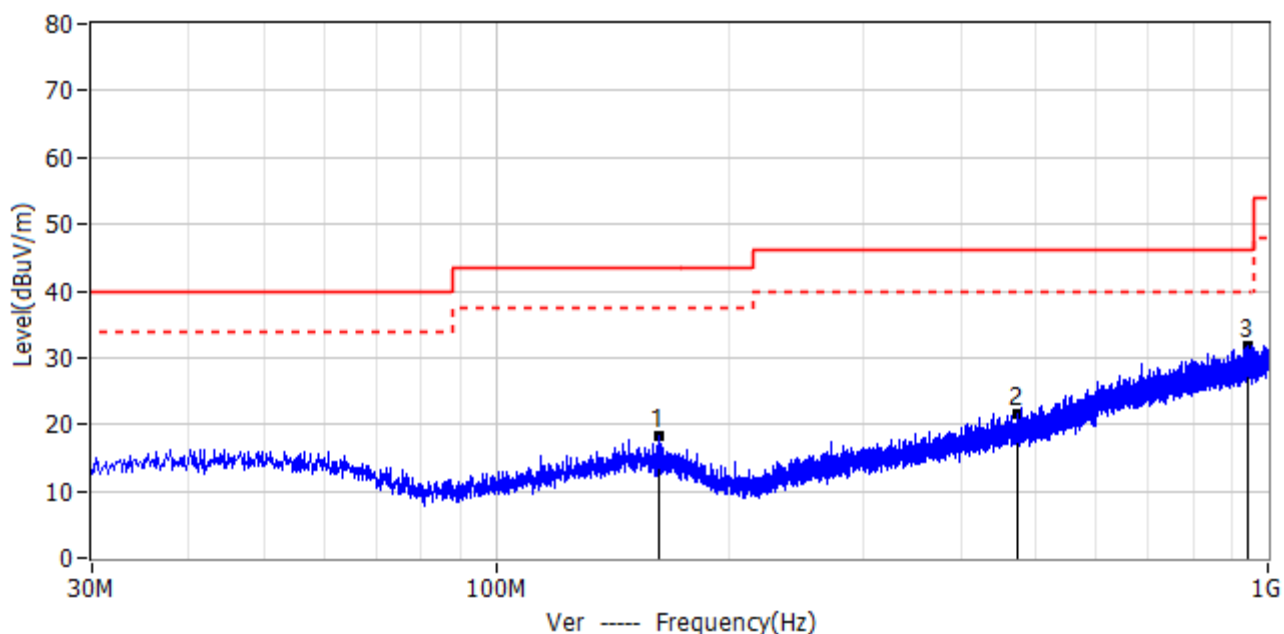
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 21.3°C
M/N: A181	Humidity: 43%RH
Test Voltage: AC 120V60Hz	Test Data: 2022-12-21
Test Mode: TX 5G WIFI	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	169.559MHz	3.01	13.95	16.96	43.50	-26.54	PK	Hor
2*	381.625MHz	3.33	16.62	19.95	46.00	-26.05	PK	Hor
3*	969.566MHz	4.23	27.81	32.04	54.00	-21.96	PK	Hor



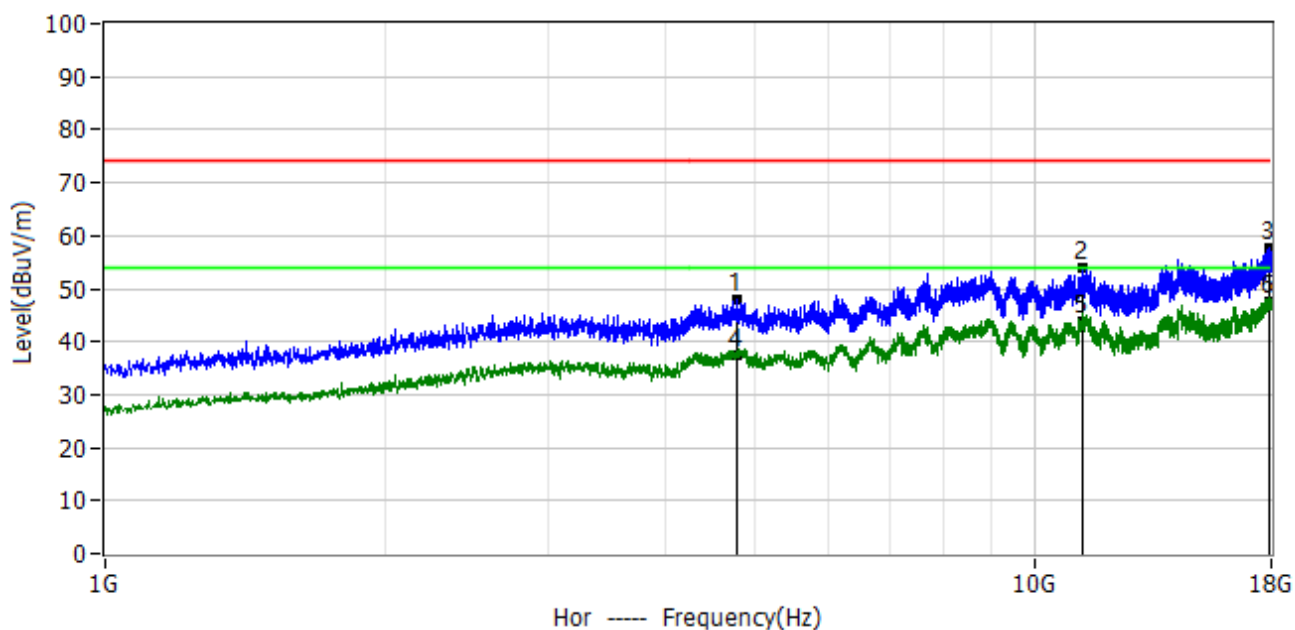
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 21.3°C
M/N: A181	Humidity: 43%RH
Test Voltage: AC 120V60Hz	Test Data: 2022-12-21
Test Mode: TX 5G WIFI	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	163.011MHz	4.22	14.12	18.34	43.50	-25.16	PK	Ver
2*	472.684MHz	2.66	18.85	21.51	46.00	-24.49	PK	Ver
3*	939.496MHz	4.41	27.49	31.90	46.00	-14.10	PK	Ver



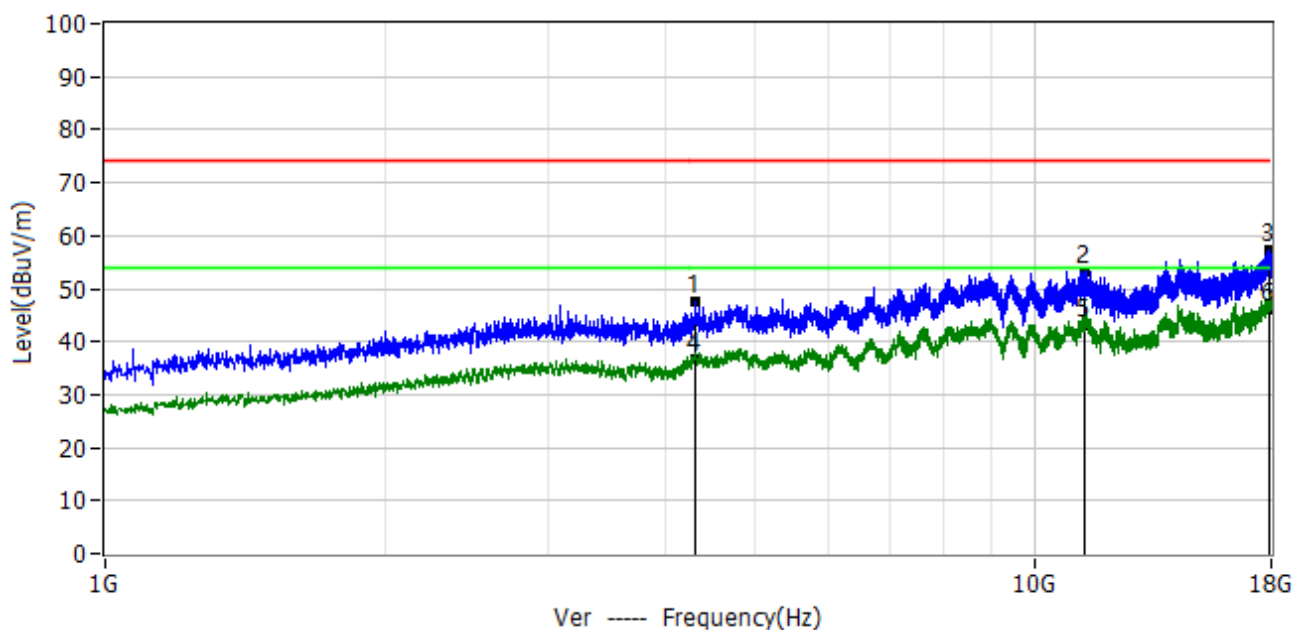
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5180	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.791GHz	53.75	-5.98	47.77	74.00	-26.23	PK	Hor
2*	11.268GHz	52.15	1.79	53.94	74.00	-20.06	PK	Hor
3*	17.915GHz	49.27	8.46	57.73	74.00	-16.27	PK	Hor
4*	4.791GHz	43.58	-5.98	37.60	54.00	-16.40	AV	Hor
5*	11.268GHz	41.91	1.79	43.70	54.00	-10.30	AV	Hor
6*	17.915GHz	39.24	8.46	47.70	54.00	-6.30	AV	Hor



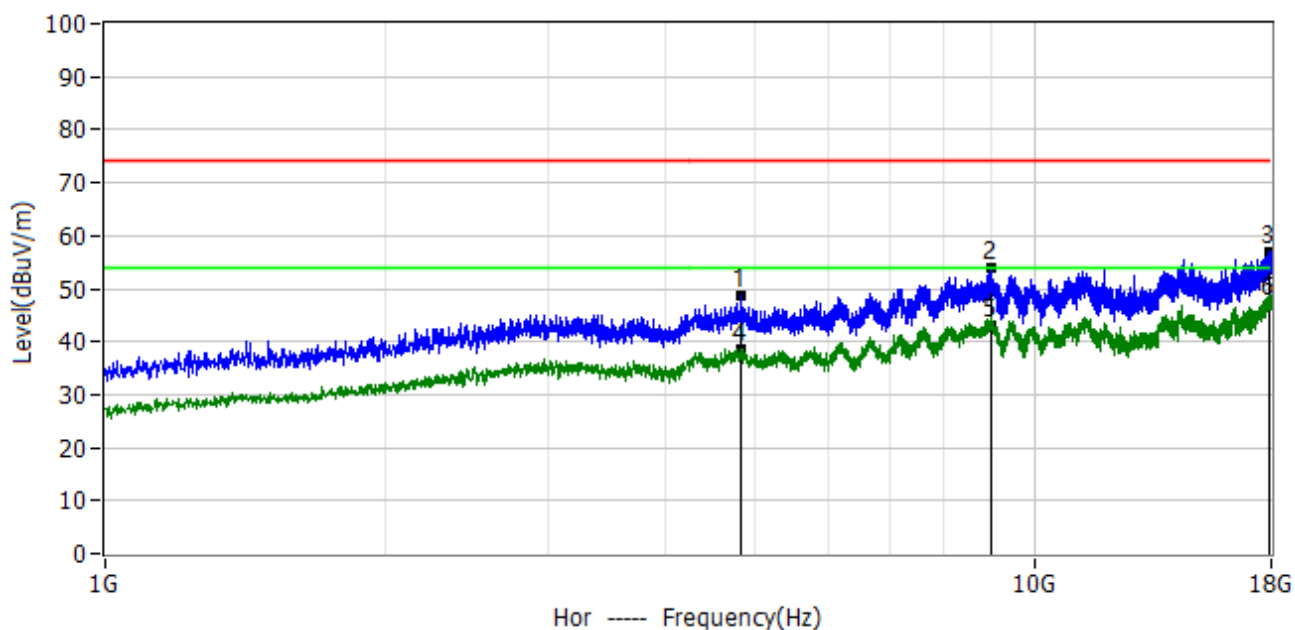
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5180	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.326GHz	54.21	-6.49	47.72	74.00	-26.28	PK	Ver
2*	11.349GHz	51.47	1.84	53.31	74.00	-20.69	PK	Ver
3*	17.881GHz	48.92	8.44	57.36	74.00	-16.64	PK	Ver
4*	4.326GHz	43.29	-6.49	36.80	54.00	-17.20	AV	Ver
5*	11.349GHz	41.16	1.84	43.00	54.00	-11.00	AV	Ver
6*	17.881GHz	37.56	8.44	46.00	54.00	-8.00	AV	Ver



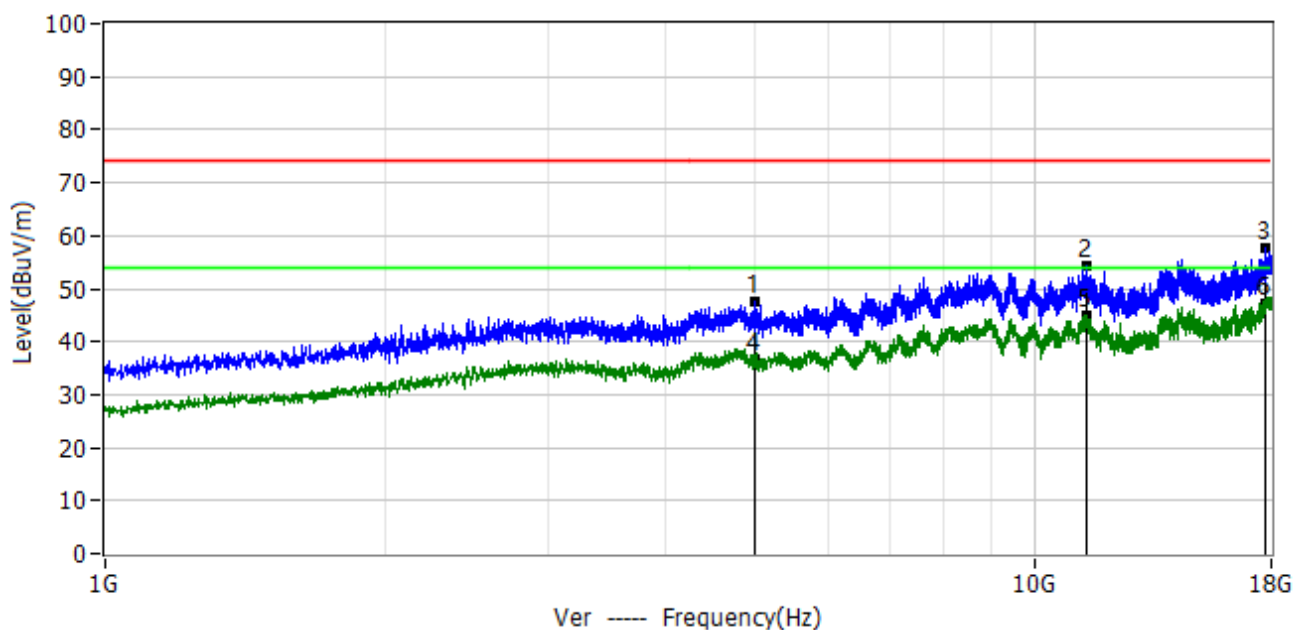
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5200	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.844GHz	54.65	-6.02	48.63	74.00	-25.37	PK	Hor
2*	8.994GHz	55.18	-1.19	53.99	74.00	-20.01	PK	Hor
3*	17.892GHz	48.59	8.44	57.03	74.00	-16.97	PK	Hor
4*	4.844GHz	44.42	-6.02	38.40	54.00	-15.60	AV	Hor
5*	8.994GHz	44.39	-1.19	43.20	54.00	-10.80	AV	Hor
6*	17.892GHz	38.86	8.44	47.30	54.00	-6.70	AV	Hor



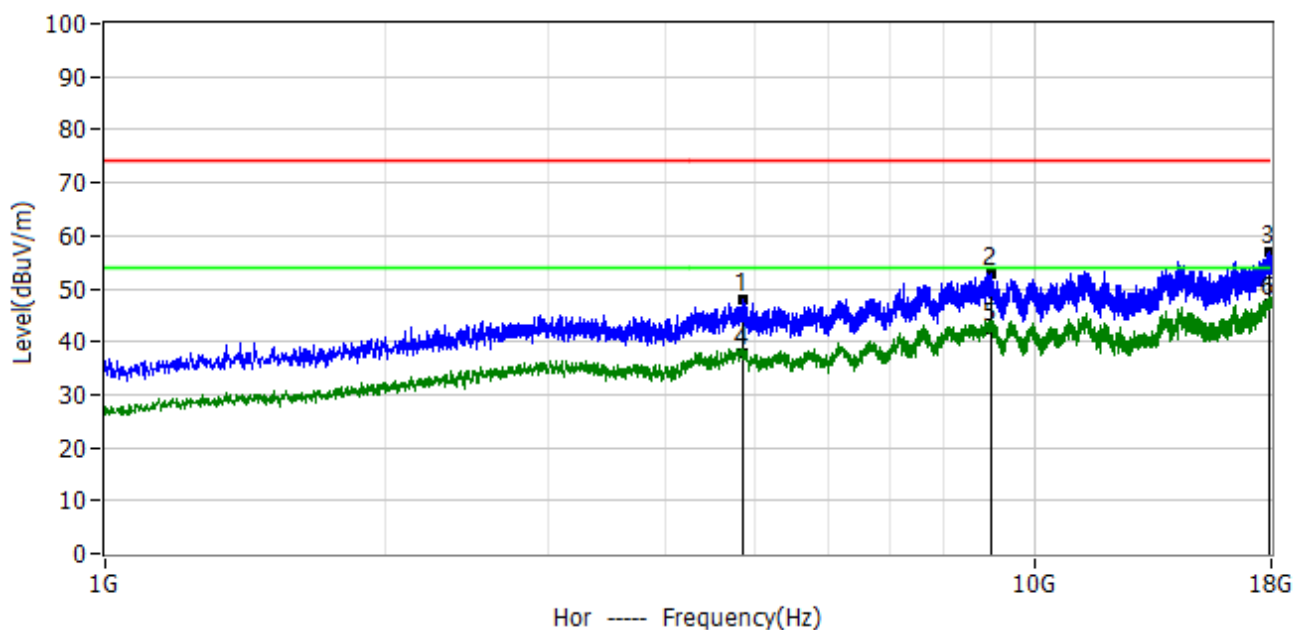
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5200	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	5.014GHz	53.83	-6.19	47.64	74.00	-26.36	PK	Ver
2*	11.393GHz	52.47	1.86	54.33	74.00	-19.67	PK	Ver
3*	17.720GHz	49.39	8.32	57.71	74.00	-16.29	PK	Ver
4*	5.014GHz	42.79	-6.19	36.60	54.00	-17.40	AV	Ver
5*	11.393GHz	43.04	1.86	44.90	54.00	-9.10	AV	Ver
6*	17.720GHz	38.78	8.32	47.10	54.00	-6.90	AV	Ver



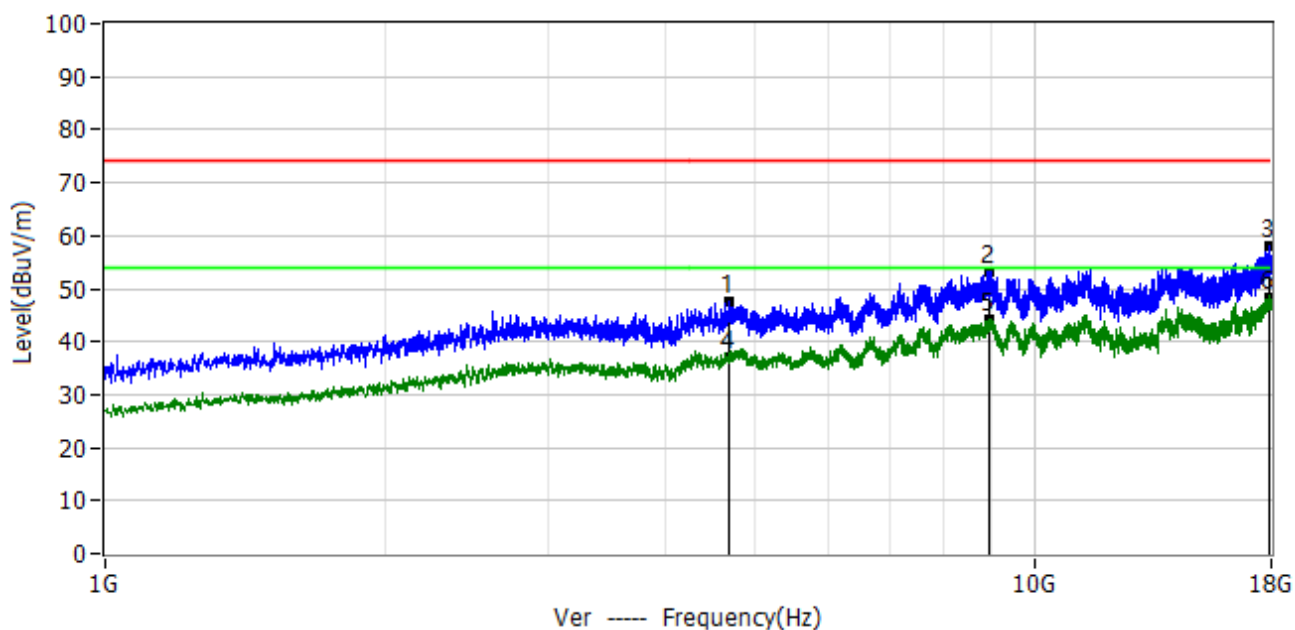
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5240	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.855GHz	53.90	-6.03	47.87	74.00	-26.13	PK	Hor
2*	8.990GHz	53.95	-1.20	52.75	74.00	-21.25	PK	Hor
3*	17.930GHz	48.39	8.47	56.86	74.00	-17.14	PK	Hor
4*	4.855GHz	43.73	-6.03	37.70	54.00	-16.30	AV	Hor
5*	8.990GHz	43.60	-1.20	42.40	54.00	-11.60	AV	Hor
6*	17.930GHz	38.63	8.47	47.10	54.00	-6.90	AV	Hor



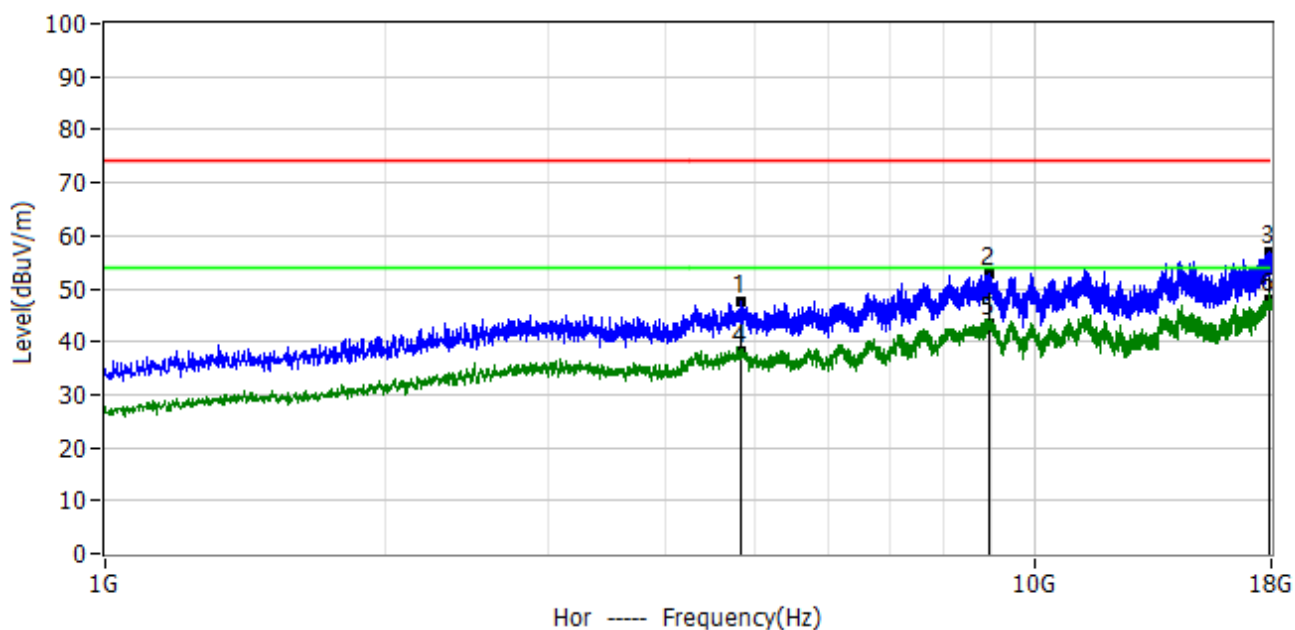
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5240	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.685GHz	53.49	-5.90	47.59	74.00	-26.41	PK	Ver
2*	8.928GHz	54.55	-1.37	53.18	74.00	-20.82	PK	Ver
3*	17.949GHz	49.46	8.48	57.94	74.00	-16.06	PK	Ver
4*	4.685GHz	43.00	-5.90	37.10	54.00	-16.90	AV	Ver
5*	8.928GHz	45.47	-1.37	44.10	54.00	-9.90	AV	Ver
6*	17.949GHz	39.72	8.48	48.20	54.00	-5.80	AV	Ver



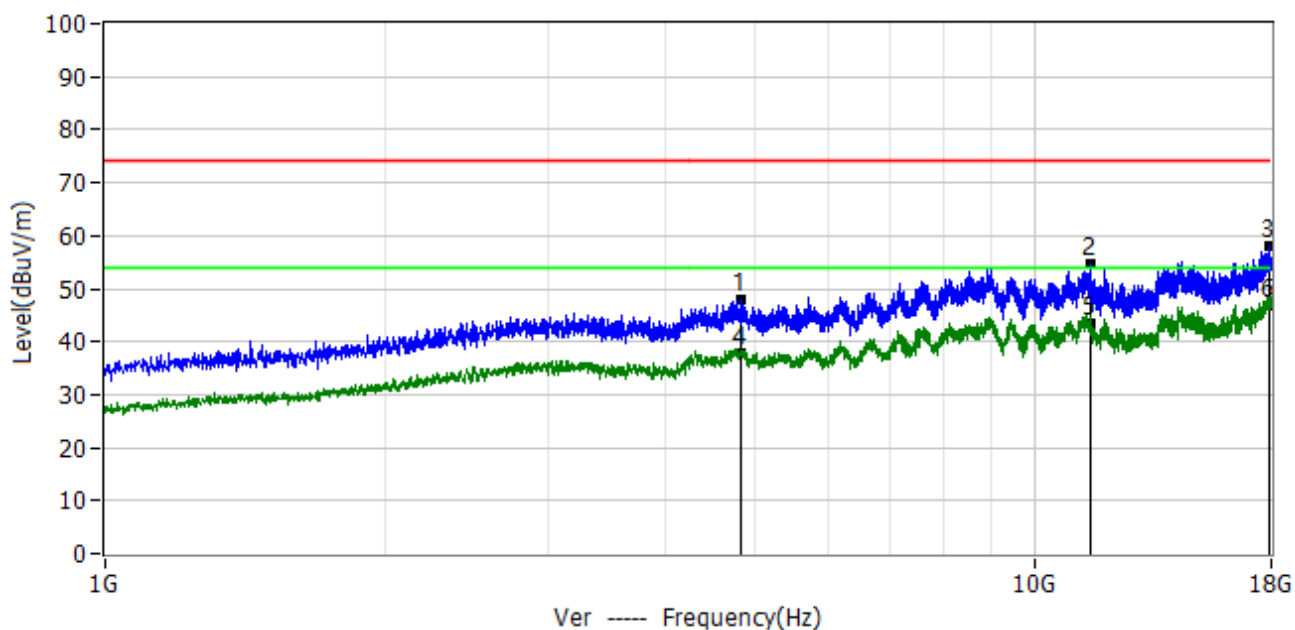
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5260	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.834GHz	53.74	-6.01	47.73	74.00	-26.27	PK	Hor
2*	8.941GHz	54.20	-1.34	52.86	74.00	-21.14	PK	Hor
3*	17.907GHz	48.63	8.45	57.08	74.00	-16.92	PK	Hor
4*	4.834GHz	44.11	-6.01	38.10	54.00	-15.90	AV	Hor
5*	8.941GHz	44.64	-1.34	43.30	54.00	-10.70	AV	Hor
6*	17.907GHz	39.65	8.45	48.10	54.00	-5.90	AV	Hor



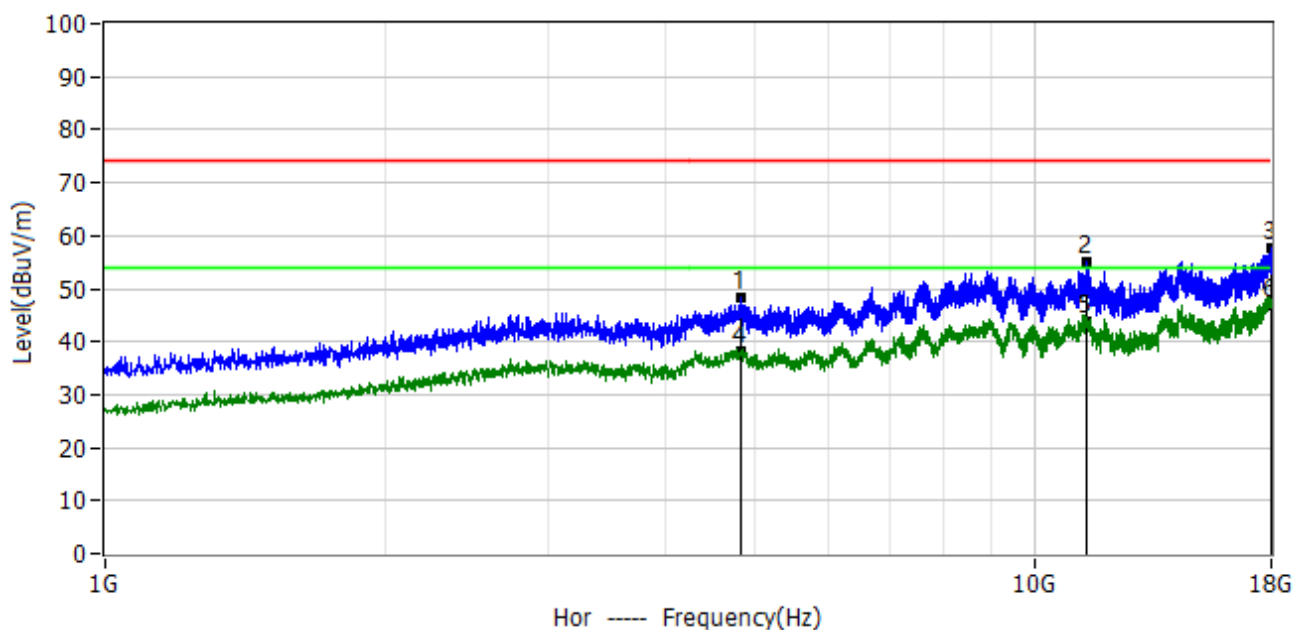
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5260	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.831GHz	53.79	-6.01	47.78	74.00	-26.22	PK	Ver
2*	11.489GHz	52.65	1.92	54.57	74.00	-19.43	PK	Ver
3*	17.881GHz	49.51	8.44	57.95	74.00	-16.05	PK	Ver
4*	4.831GHz	43.91	-6.01	37.90	54.00	-16.10	AV	Ver
5*	11.489GHz	41.48	1.92	43.40	54.00	-10.60	AV	Ver
6*	17.881GHz	38.46	8.44	46.90	54.00	-7.10	AV	Ver



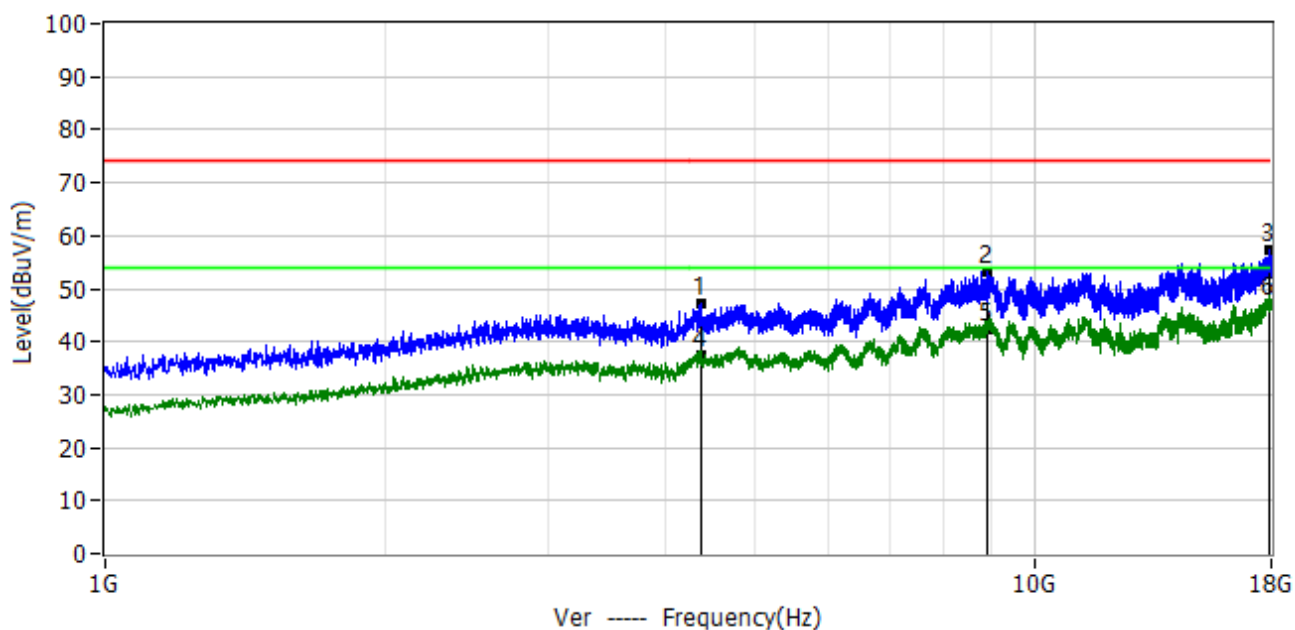
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5300	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.842GHz	54.25	-6.02	48.23	74.00	-25.77	PK	Hor
2*	11.381GHz	53.09	1.85	54.94	74.00	-19.06	PK	Hor
3*	17.966GHz	49.29	8.50	57.79	74.00	-16.21	PK	Hor
4*	4.842GHz	44.22	-6.02	38.20	54.00	-15.80	AV	Hor
5*	11.381GHz	41.85	1.85	43.70	54.00	-10.30	AV	Hor
6*	17.966GHz	38.30	8.50	46.80	54.00	-7.20	AV	Hor



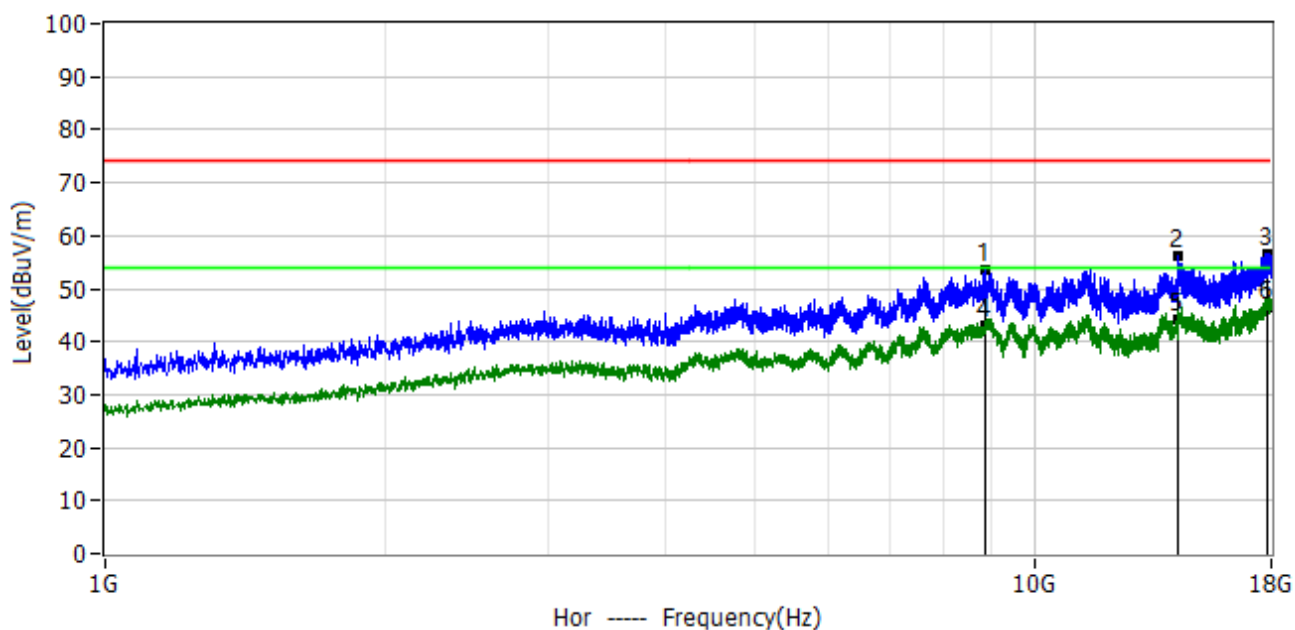
Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5300	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	4.372GHz	53.41	-6.29	47.12	74.00	-26.88	PK	Ver
2*	8.911GHz	54.77	-1.42	53.35	74.00	-20.65	PK	Ver
3*	17.904GHz	48.97	8.45	57.42	74.00	-16.58	PK	Ver
4*	4.372GHz	43.69	-6.29	37.40	54.00	-16.60	AV	Ver
5*	8.911GHz	43.92	-1.42	42.50	54.00	-11.50	AV	Ver
6*	17.904GHz	38.85	8.45	47.30	54.00	-6.70	AV	Ver



Project: LGT22L018	Test Engineer: Dylan.shi
EUT: Smartphone	Temperature: 24.2°C
M/N: A181	Humidity: 49%RH
Test Voltage: Battery	Test Data: 2023-01-08
Test Mode: 802.11n20 5320	
Note:	



No.	Frequency	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Detector	Polar
1*	8.871GHz	55.09	-1.54	53.55	74.00	-20.45	PK	Hor
2*	14.307GHz	50.20	5.90	56.10	74.00	-17.90	PK	Hor
3*	17.849GHz	48.33	8.41	56.74	74.00	-17.26	PK	Hor
4*	8.871GHz	44.74	-1.54	43.20	54.00	-10.80	AV	Hor
5*	14.307GHz	38.40	5.90	44.30	54.00	-9.70	AV	Hor
6*	17.849GHz	38.09	8.41	46.50	54.00	-7.50	AV	Hor