FCC Test Report

Report No.: AGC00408210801FE08C

FCC ID	:	ZL5BM1S4LE
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	5G Smart phone
BRAND NAME	:	CAT
MODEL NAME	:	BM1S4L
APPLICANT	:	Bullitt Group
DATE OF ISSUE	:	May 24, 2022
STANDARD(S)	:	FCC Part 15.247
REPORT VERSION	:	V1.0

*A*ttestation of *G*lobal *C*ompliance (Shenzhen) Co., Ltd

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 24, 2022	Valid	Class II Permissive Change

Note: The original test report Ref. No. (AGC00408210801FE08A) (dated 2022-01-18), was modified on 2022-05-24 to include the following changes and additions for:

-Updated brand name, model name.

- Updated applicant name and applicant address.

-Updated manufacturer name and manufacturer address.

-Updated software version.

-Remove the adapter.

- Screen resolution changed from FHD to HD+

The prototype shell is somewhat different, and there is a Strong flashlight on the top

FCC LTE increases frequency band 12&13&17&25&26&66.

CDMA increases frequency band BC0/BC1/BC10

For the above described change(s), no further testing necessary.

TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE

Applicant	Bullitt Group
Address	One Valpy, Valpy Street, Reading, RG1 1AR United Kingdom
Manufacturer	Bullitt Group
Address	One Valpy, Valpy Street, Reading, RG1 1AR United Kingdom
Factory	Shenzhen AIJIEMO Technology Company Limited
Address	1st Floor 101 and 2nd Floor 201, Building A2, Huafeng Century Technology Park, Nanchang Community, Xixiang, Baoan District, Shenzhen, China
Product Designation	5G Smart phone
Brand Name	CAT
Test Model	BM1S4L
Date of test	Dec. 24, 2021~Jan. 18, 2022
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BLE/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.247.

Prepared By	Bibo Zhang (Project Engineer)	Jan. 18, 2022
Reviewed By	Calvin Liu (Reviewer)	May 24, 2022
Approved By	Max Zhang Authorized Officer	May 24, 2022

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as a “5G Smart phone”. It is designed by way of utilizing the GFSK technology to achieve the system operation.
A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz
Bluetooth Version	V5.1
Modulation	BR ☐GFSK, EDR ☐π /4-DQPSK, ☐8DPSK BLE ☒GFSK 1Mbps ☒GFSK 2Mbps
Number of channels	40 Channel
Antenna Designation	PIFA Antenna (Comply with requirements of the FCC part 15.203)
Hardware Version	V1.00
Software Version	BM1S4L.DEG
Power Supply	DC 3.85V by battery or DC 5V /9V by adapter

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
2400~2483.5MHz	0	2402 MHz
	1	2404 MHz
	:	:
	38	2478 MHz
	39	2480 MHz

2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID: ZL5BM1S4LE** filing to comply with the FCC Part 15.247 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

3. 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%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	U_c = ±3.1 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±4.0 dB
Uncertainty of Radiated Emission above 1GHz	U_c = ±4.8 dB
Uncertainty of total RF power, conducted	U_c = ±0.8 dB
Uncertainty of RF power density, conducted	U_c = ±2.6 dB
Uncertainty of spurious emissions, conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX

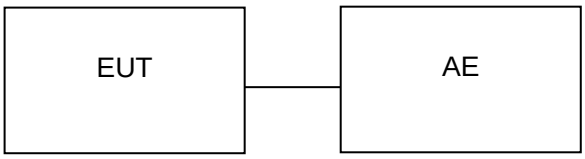
Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

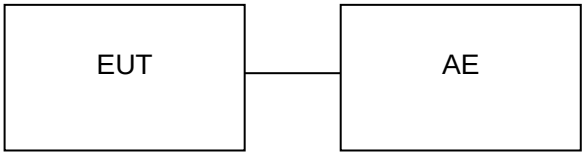
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	5G Smart phone	BM1S4L	FCC ID: ZL5BM1S4LE	EUT
2	Battery	PX1	DC 3.85V 5500mAh	AE
3	USB Cable	N/A	N/A	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Compliant

6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	May 11, 2021	May 10, 2022
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Apr. 14, 2021	Apr. 13, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 19, 2021	Sep. 18, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A
Test software	FARA	EZ-EMC(Ver.RA-03A)	N/A	N/A	N/A

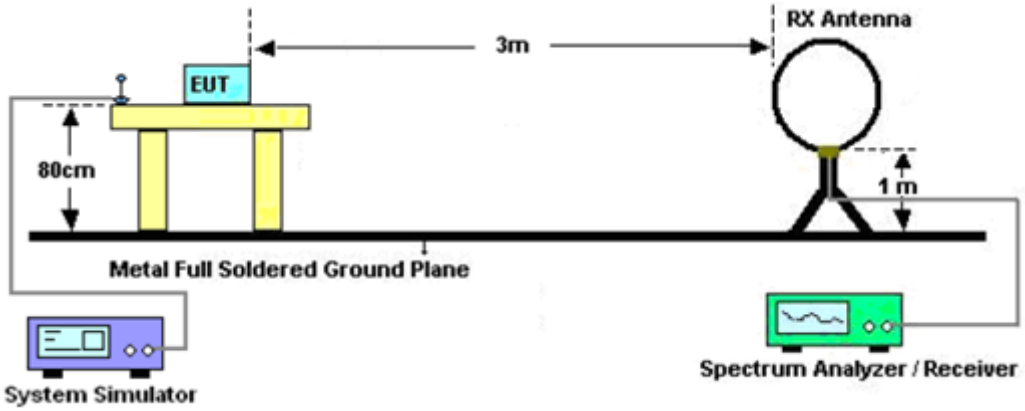
7. RADIATED EMISSION

7.1. MEASUREMENT PROCEDURE

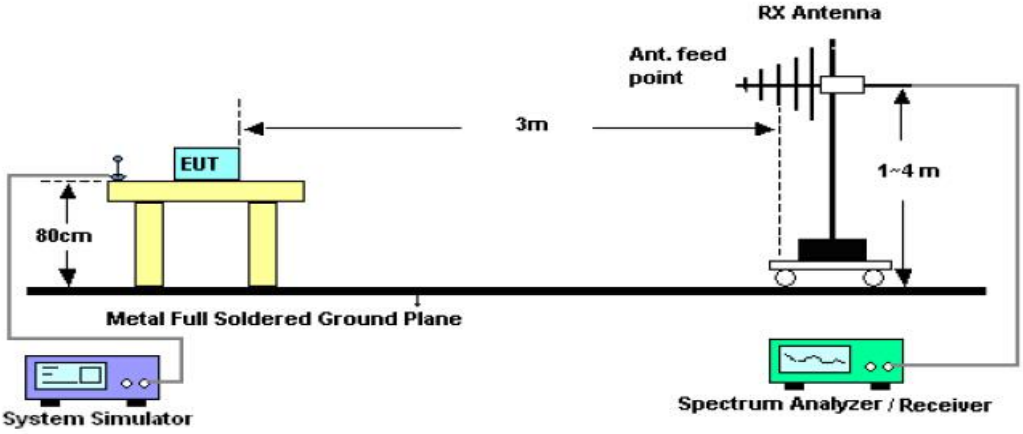
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

11.2. TEST SETUP

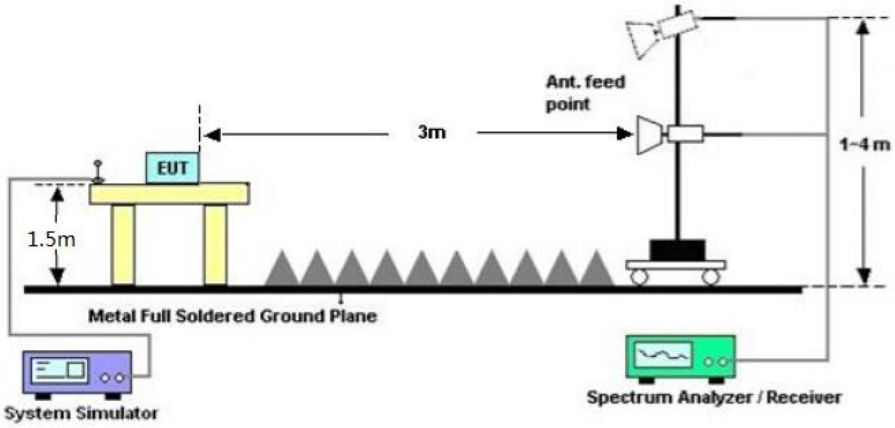
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



7.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/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

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

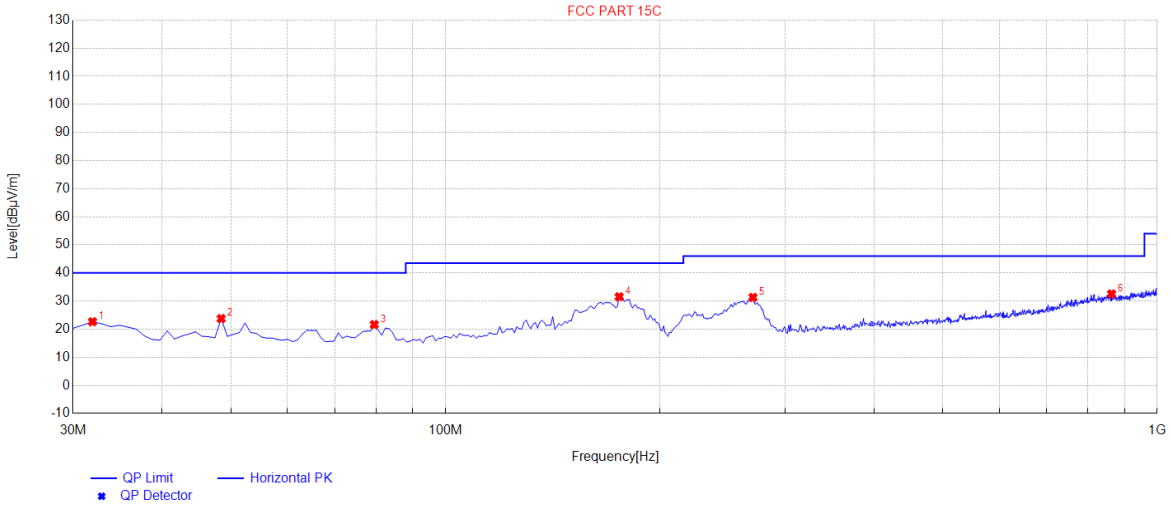
7.4. TEST RESULT

Radiated emission below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

Radiated emission from 30MHz to 1000MHz-1M

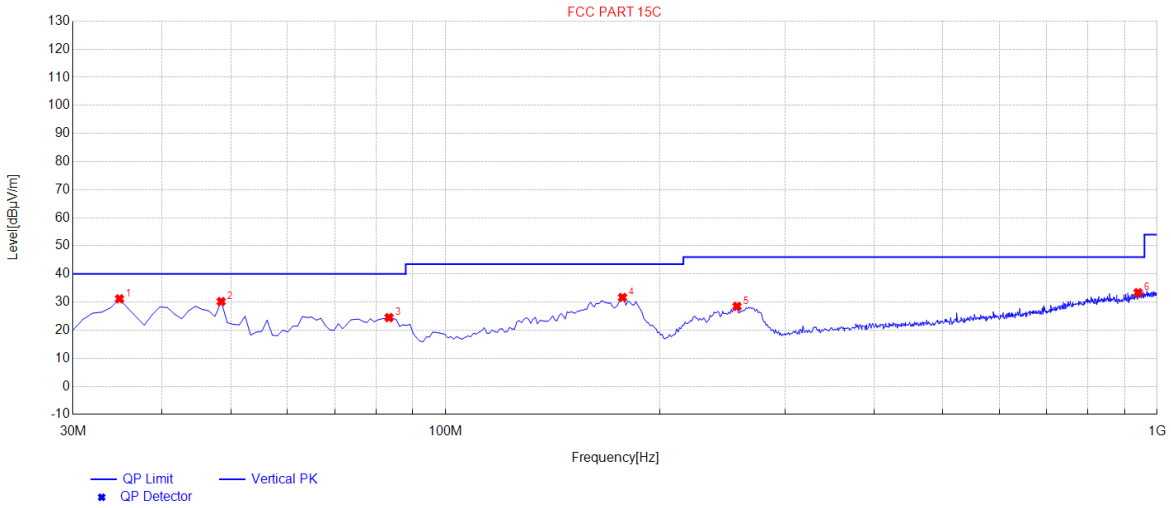
EUT	5G Smart phone	**Model Name**	BM1S4L
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 3	**Antenna**	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.94	22.64	10.19	40.00	17.36	100	168	Horizontal
2	48.43	23.77	11.53	40.00	16.23	100	338	Horizontal
3	79.47	21.64	7.26	40.00	18.36	100	226	Horizontal
4	175.5	31.53	13.43	43.50	11.97	100	98	Horizontal
5	270.56	31.30	15.47	46.00	14.70	100	269	Horizontal
6	863.23	32.55	27.22	46.00	13.45	100	175	Horizontal

RESULT: PASS

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

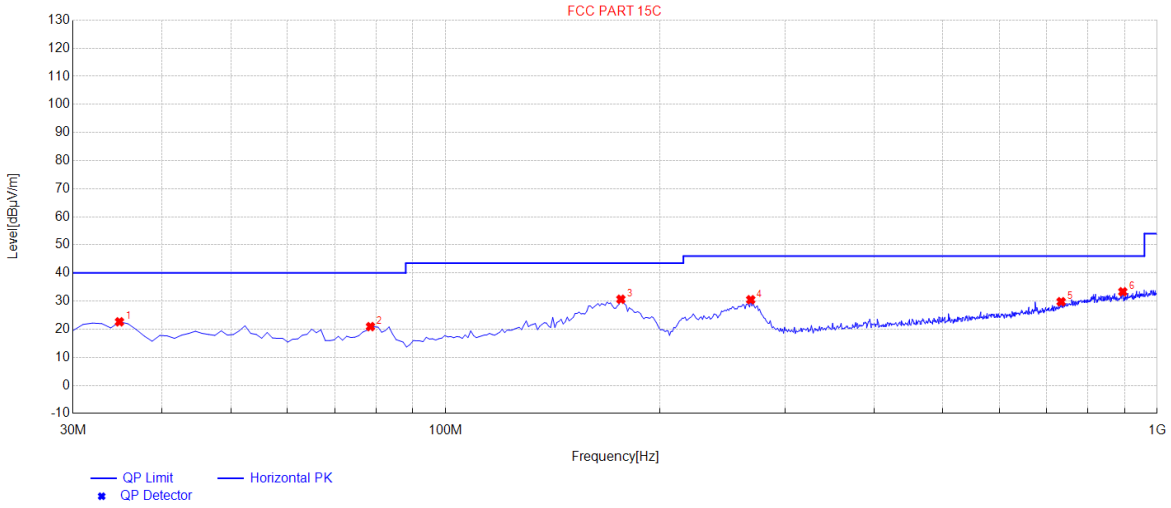


NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.85	31.15	10.70	40.00	8.85	100	1	Vertical
2	48.43	30.19	11.53	40.00	9.81	100	83	Vertical
3	83.35	24.48	7.18	40.00	15.52	100	315	Vertical
4	177.44	31.65	13.24	43.50	11.85	100	360	Vertical
5	256.98	28.46	14.42	46.00	17.54	100	5	Vertical
6	940.83	33.34	28.29	46.00	12.66	100	284	Vertical

RESULT: PASS
Note:
1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.
2. All test modes had been tested. The mode 3 is the worst case and recorded in the report.

Radiated emission from 30MHz to 1000MHz-2M

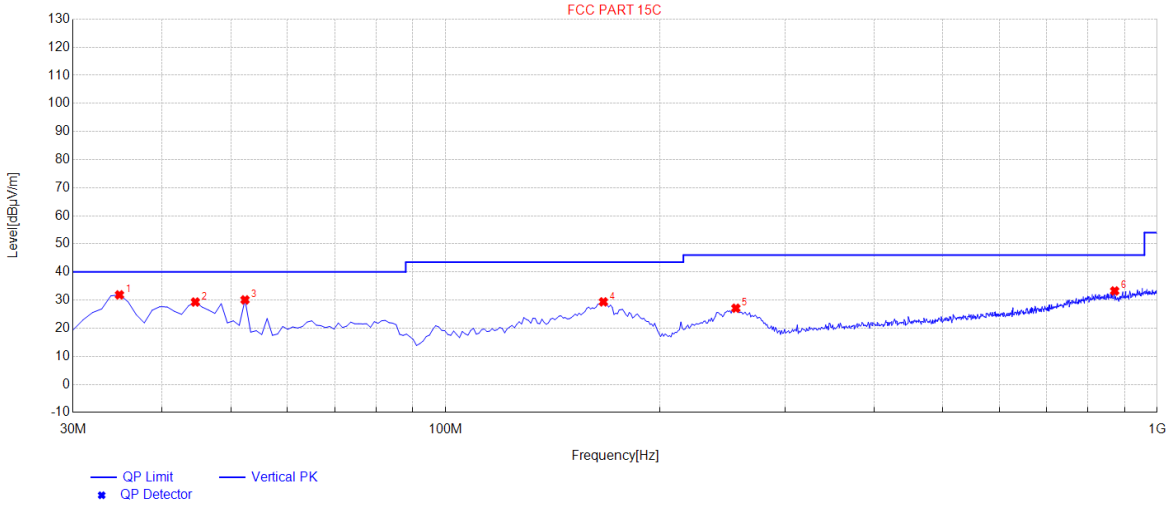
EUT	5G Smart phone	**Model Name**	BM1S4L
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 3	**Antenna**	Horizontal



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.85	22.62	10.70	40.00	17.38	100	354	Horizontal
2	78.5	20.91	7.46	40.00	19.09	100	52	Horizontal
3	176.47	30.64	13.34	43.50	12.86	100	104	Horizontal
4	268.62	30.48	15.30	46.00	15.52	100	278	Horizontal
5	733.25	29.77	24.20	46.00	16.23	100	141	Horizontal
6	895.24	33.31	27.63	46.00	12.69	100	21	Horizontal

RESULT: PASS

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.85	31.86	10.70	40.00	8.14	100	312	Vertical
2	44.55	29.30	11.17	40.00	10.70	100	333	Vertical
3	52.31	30.07	11.49	40.00	9.93	100	32	Vertical
4	166.77	29.36	14.26	43.50	14.14	100	359	Vertical
5	256.01	27.10	14.37	46.00	18.90	100	1	Vertical
6	871.96	33.25	27.27	46.00	12.75	100	184	Vertical

RESULT: PASS
Note:
1. Factor=Antenna Factor + Cable loss, Margin= Measurement-Limit.
2. All test modes had been tested. The mode 3 is the worst case and recorded in the report.

Radiated emission above 1GHz-1M

EUT	5G Smart phone	**Model Name**	BM1S4L
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.011	48.88	0.08	48.96	74.00	-25.04	peak
4804.011	42.12	0.08	42.20	54.00	-11.80	AVG
7206.022	46.89	2.21	49.10	74.00	-24.90	peak
7206.022	40.13	2.21	42.34	54.00	-11.66	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	**Model Name**	BM1S4L
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 3	**Antenna**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.011	49.33	0.08	49.41	74.00	-24.59	peak
4804.011	38.28	0.08	38.36	54.00	-15.64	AVG
7206.022	48.11	2.21	50.32	74.00	-23.68	peak
7206.022	37.25	2.21	39.46	54.00	-14.54	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.005	48.11	0.14	48.25	74.00	-25.75	peak
4880.005	37.25	0.14	37.39	54.00	-16.61	AVG
7320.140	47.89	2.36	50.25	74.00	-23.75	peak
7320.140	35.22	2.36	37.58	54.00	-16.42	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.050	50.23	0.14	50.37	74.00	-23.63	peak
4880.050	41.11	0.14	41.25	54.00	-12.75	AVG
7320.080	48.35	2.36	50.71	74.00	-23.29	peak
7320.080	39.56	2.36	41.92	54.00	-12.08	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4960.012	50.36	0.22	50.58	74.00	-23.42	peak
4960.012	42.22	0.22	42.44	54.00	-11.56	AVG
7440.027	46.74	2.64	49.38	74.00	-24.62	peak
7440.027	39.91	2.64	42.55	54.00	-11.45	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4960.013	47.58	0.22	47.80	74	-26.20	peak
4960.013	41.23	0.22	41.45	54	-12.55	AVG
7440.027	46.58	2.64	49.22	74	-24.78	peak
7440.027	39.11	2.64	41.75	54	-12.25	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RESULT: PASS

Note: The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The “Factor” value can be calculated automatically by software of measurement system.

Radiated emission above 1GHz-2M

EUT	5G Smart phone	**Model Name**	BM1S4L
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 1	**Antenna**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.011	49.58	0.08	49.66	74.00	-24.34	peak
4804.011	43.38	0.08	43.46	54.00	-10.54	AVG
7206.022	47.00	2.21	49.21	74.00	-24.79	peak
7206.022	39.86	2.21	42.07	54.00	-11.93	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	**Model Name**	BM1S4L
Temperature	25° C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	Mode 3	**Antenna**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.011	50.03	0.08	50.11	74.00	-23.89	peak
4804.011	39.58	0.08	39.66	54.00	-14.34	AVG
7206.022	49.35	2.21	51.56	74.00	-22.44	peak
7206.022	38.28	2.21	40.49	54.00	-13.51	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.005	49.69	0.14	49.83	74.00	-24.17	peak
4880.005	38.55	0.14	38.69	54.00	-15.31	AVG
7320.140	48.11	2.36	50.47	74.00	-23.53	peak
7320.140	36.37	2.36	38.73	54.00	-15.27	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.050	50.23	0.14	50.37	74.00	-23.63	peak
4880.050	42.35	0.14	42.49	54.00	-11.51	AVG
7320.080	49.11	2.36	51.47	74.00	-22.53	peak
7320.080	40.16	2.36	42.52	54.00	-11.48	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4960.012	49.23	0.22	49.45	74.00	-24.55	peak
4960.012	41.89	0.22	42.11	54.00	-11.89	AVG
7440.027	45.33	2.64	47.97	74.00	-26.03	peak
7440.027	40.25	2.64	42.89	54.00	-11.11	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	5G Smart phone	Model Name	BM1S4L
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4960.013	48.36	0.22	48.58	74	-25.42	peak
4960.013	40.28	0.22	40.50	54	-13.50	AVG
7440.027	47.39	2.64	50.03	74	-23.97	peak
7440.027	40.26	2.64	42.90	54	-11.10	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RESULT: PASS

Note: The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The “Factor” value can be calculated automatically by software of measurement system.

8. LINE CONDUCTED EMISSION TEST

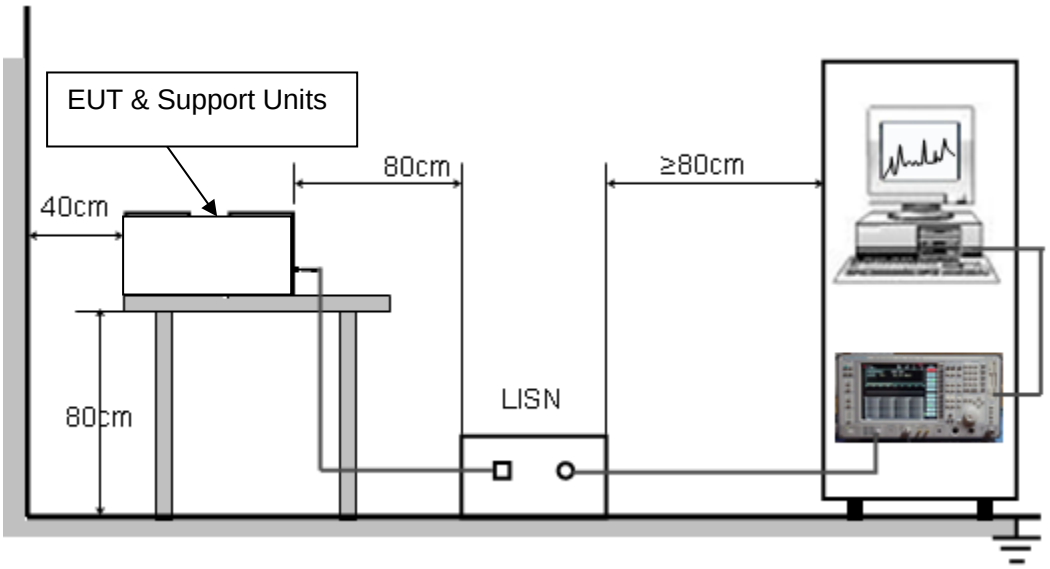
8.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

8.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



8.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

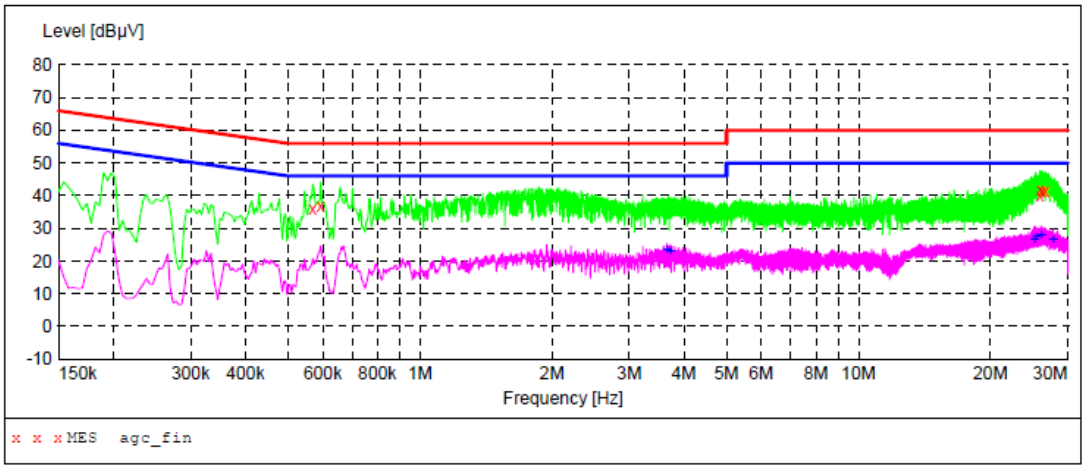
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

8.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

8.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

Line Conducted Emission Test Line 1-L 1M



MEASUREMENT RESULT: "agc_fin"

2021/12/28 23:36

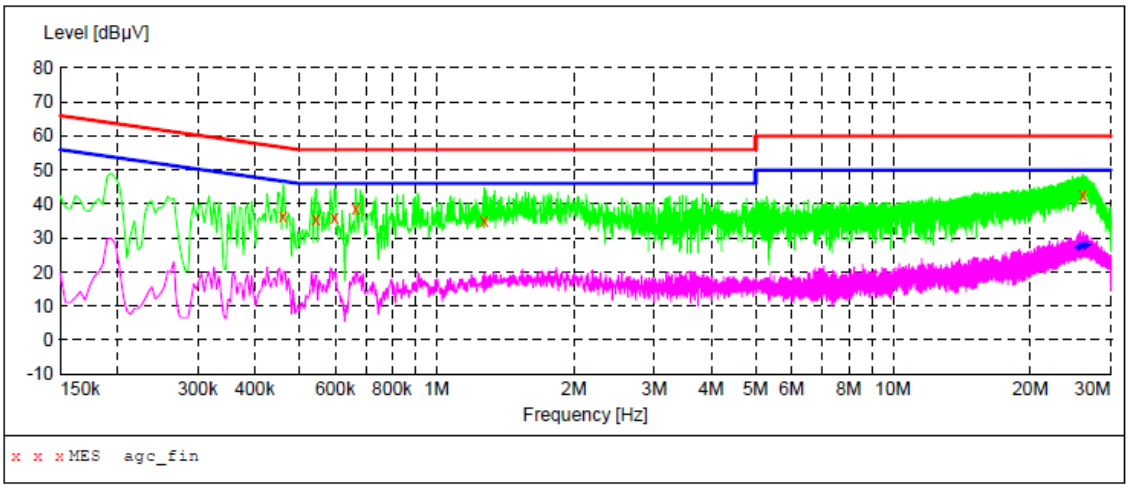
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.570000	35.90	5.4	56	20.1	QP	L1
0.594000	36.70	5.4	56	19.3	QP	L1
25.910000	40.00	9.2	60	20.0	QP	L1
25.990000	41.60	9.2	60	18.4	QP	L1
26.262000	41.20	9.3	60	18.8	QP	L1
26.690000	41.30	9.3	60	18.7	QP	L1

MEASUREMENT RESULT: "agc_fin2"

2021/12/28 23:36

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
3.658000	23.30	6.5	46	22.7	AV	L1
3.722000	23.10	6.5	46	22.9	AV	L1
25.154000	26.60	9.2	50	23.4	AV	L1
25.378000	27.40	9.2	50	22.6	AV	L1
26.066000	28.00	9.3	50	22.0	AV	L1
27.762000	26.60	9.4	50	23.4	AV	L1

Line Conducted Emission Test Line 2-N 1M



MEASUREMENT RESULT: "agc_fin"

2021/12/28 23:33

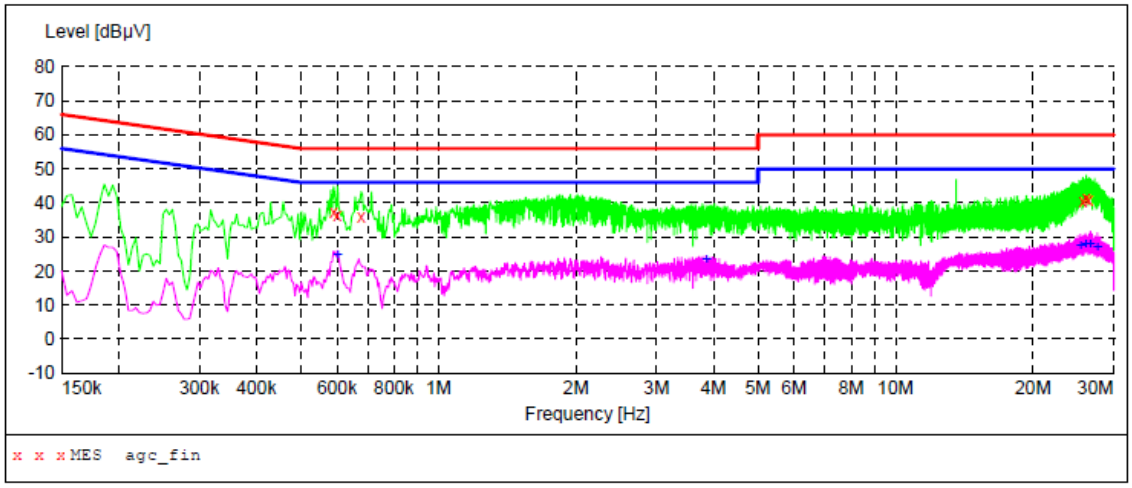
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.462000	36.40	5.5	57	20.3	QP	N
0.546000	35.70	5.4	56	20.3	QP	N
0.598000	35.80	5.4	56	20.2	QP	N
0.666000	38.80	5.4	56	17.2	QP	N
1.274000	35.00	5.8	56	21.0	QP	N
26.058000	42.50	9.3	60	17.5	QP	N

MEASUREMENT RESULT: "agc_fin2"

2021/12/28 23:33

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
25.394000	27.00	9.2	50	23.0	AV	N
25.554000	27.40	9.2	50	22.6	AV	N
25.686000	27.60	9.2	50	22.4	AV	N
26.070000	27.80	9.3	50	22.2	AV	N
26.202000	27.50	9.3	50	22.5	AV	N
26.558000	27.70	9.3	50	22.3	AV	N

Line Conducted Emission Test Line 1-L 2M



MEASUREMENT RESULT: "agc_fin"

2021/12/28 23:39

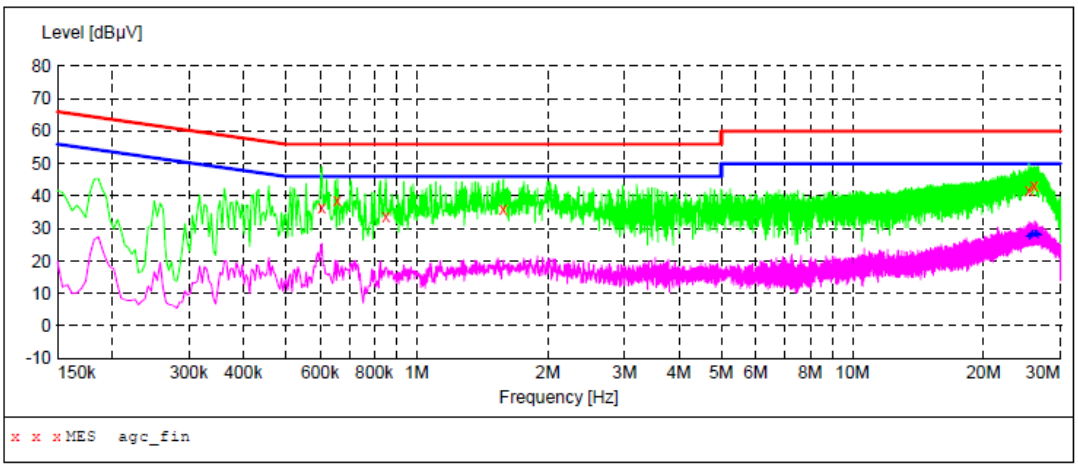
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.590000	37.30	5.4	56	18.7	QP	L1
0.602000	36.60	5.4	56	19.4	QP	L1
0.678000	35.90	5.4	56	20.1	QP	L1
25.666000	40.30	9.2	60	19.7	QP	L1
26.114000	41.30	9.3	60	18.7	QP	L1
26.482000	41.00	9.3	60	19.0	QP	L1

MEASUREMENT RESULT: "agc_fin2"

2021/12/28 23:39

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.602000	24.70	5.4	46	21.3	AV	L1
3.854000	23.20	6.5	46	22.8	AV	L1
25.370000	27.20	9.2	50	22.8	AV	L1
26.046000	27.90	9.3	50	22.1	AV	L1
26.674000	27.80	9.3	50	22.2	AV	L1
27.634000	27.10	9.4	50	22.9	AV	L1

Line Conducted Emission Test Line 2-N 2M



MEASUREMENT RESULT: "agc_fin"

2021/12/28 23:42

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.606000	36.40	5.4	56	19.6	QP	N
0.658000	38.80	5.4	56	17.2	QP	N
0.850000	33.60	5.4	56	22.4	QP	N
1.582000	35.80	6.1	56	20.2	QP	N
25.406000	41.90	9.2	60	18.1	QP	N
26.106000	42.90	9.3	60	17.1	QP	N

MEASUREMENT RESULT: "agc_fin2"

2021/12/28 23:42

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
25.426000	27.40	9.2	50	22.6	AV	N
25.678000	28.00	9.2	50	22.0	AV	N
25.810000	28.20	9.2	50	21.8	AV	N
26.194000	28.20	9.3	50	21.8	AV	N
26.366000	28.30	9.3	50	21.7	AV	N
26.578000	28.00	9.3	50	22.0	AV	N

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC00408210801AP01C

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC00408210801AP03C

----END OF REPORT----

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