

# EMI TEST REPORT

## FCC CERTIFICATION

**Applicant:**

**SAMSUNG Electronics Co., Ltd.**  
129, Samsung-ro, Yeongtong-gu, Suwon-si,  
Gyeonggi-do, 16677, Korea

**Date of Issue: January 13, 2022**

**Test Report No. HCT-EM-2201-FC011**

**Test Site: HCT CO., LTD.**

**FCC ID :**

**A3LSMA336M**

Rule Part(s) / Standard(s) : 47 CFR PART 15 Subpart B Class B  
ANSI C63.4-2014

Product Name : Mobile Phone

Model Name : SM-A336M/DSN

Series Model Name : SM-A336M

Date of Test : January 08, 2022 to January 11, 2022

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. (See Test Report if any modifications were made for compliance)

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

**Tested By**



**Geon-Hee Jeon**  
Test Engineer  
EMC Team  
Certification Division

**Reviewed**



**Jeong-Hyun Choi**  
Technical Manager  
EMC Team  
Certification Division

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## REVISION HISTORY

*The revision history for this document is shown in table.*

Rev No.	Issue Date	Information About Changes
0	January 13, 2022	Initial Release

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS (Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

If this report is required to confirmation of authenticity, please contact to [www.hct.co.kr](http://www.hct.co.kr)



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## 1. GENERAL INFORMATION

### 1.1 Description of EUT

FCC ID	A3LSMA336M
Model Name	SM-A336M/DSN
Series Model Name	SM-A336M
Product Name	Mobile Phone
Frequency Band	GSM850/1900, WCDMA B2/4/5, LTE B2/4/5/12/13/17/26/41/66, BT 5.1, 5G NR FR1 n5/n66, WLAN a/b/g/n/ac, NFC
Power Supply	Input: AC 100 to 240 V, 50 to 60 Hz, 0.7 A Travel adaptor: Output: (PDO) 5.0 V, 3.0 A or 9.0 V, 2.77 A (PPS) 3.3 to 5.9 V, 3.0 A or 3.3 to 11.0 V, 2.25 A



## 1.2 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Model Name	Serial Number	Manufacturer
Mobile Phone	SM-A336M/DSN	-	SAMSUNG
Notebook PC	ProBook650G2	5CG6331M0P	HP
Notebook PC Adaptor	Series PPP009L-E	-	LITE-ON TECHNOLOGY (CHANGZHOU) CO., LTD.
Gateway	DIR-806M	-	D-Link
Gateway Adaptor	AMS1-0501200FK	-	D-Link
Serial Mouse	Serial 2 Button mouse	02031069	Radio Shack
RJ45 cable	-	-	-
TA	EP-TA800	-	SOLUM
Data Cable	EP-DN980	-	RFTECH
Micro SD Card	-	-	SAMSUNG

NOTE. EP-TA200 Data is included in the JBP Report (Report No. LBE20210797).



### 1.3 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	USB Type C (Data Cable)	Y	Y	(P, D) 1.0
Notebook PC	RJ 45	N/A	N	(D) 1.6
	Serial (Mouse)	N/A	Y	(D) 1.8
	DC IN	N	N/A	(P) 1.8
Gateway	DC IN	N	N/A	(P) 1.8

“(D)” Data Cable and “(P)” Power Cable.

### 1.4 Noise Suppression Parts on Cable. (I/O Cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	USB Type C (Data Cable)	N	N/A	Y	Both End
Notebook PC	RJ 45	N	N/A	N	N/A
	Serial (Mouse)	N	N/A	Y	Notebook End



## 1.5 Test Facility

Test site is located at 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea. Those measurement facilities are constructed in conformance with the requirements of ANSI C63.4-2014. The Normalized site attenuations (30 MHz to 1 GHz) and Site validation (1 GHz to 18 GHz) were performed in accordance with the standard in ANSI C63.4-2014 and ANSI C63.4a-2017. Our laboratories are accredited and designated in accordance with the provisions of Radio Waves ACT and International Standard ISO/IEC 17025:2017. (National Radio Research Agency, Designation No. KR0032)

## 1.6 Calibration of Measuring Instrument

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturers recommendations for utilizing calibration equipment, which is traceable to recognized national standards. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5:2017.

## 1.7 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Test Item	Test Site (Chamber)	Expanded Uncertainty
Conducted Emission (0.15 MHz to 30 MHz)	EMI Shield Room	2.0 dB
Radiated Emission (30 MHz to 1 GHz)	3 m Semi Anechoic Chamber #1	5.8 dB
Radiated Emission (1 GHz to 18 GHz)	3 m Semi Anechoic Chamber #1	4.8 dB
Radiated Emission (18 GHz to 40 GHz)	3 m Semi Anechoic Chamber #1	5.8 dB



## 2. LIST OF TEST EQUIPMENT

<u>Type</u>	<u>Model Name</u>	<u>Manufacturer</u>	<u>Serial Number</u>	<u>Calibration Cycle</u>	<u>Calibration Date</u>
<u>Conducted Emission</u>					
<input checked="" type="checkbox"/> EMI Test Receiver	ESR7	Rohde & Schwarz	101910	1 year	06.17.2021
<input checked="" type="checkbox"/> LISN	ENV216	Rohde & Schwarz	102245	1 year	08.23.2021
<input checked="" type="checkbox"/> LISN	ENV216	Rohde & Schwarz	100073	1 year	04.07.2021
<input checked="" type="checkbox"/> Radio communication analyzer	MT8821C	ANRITSU	6262192376	1 year	10.19.2021
<input checked="" type="checkbox"/> Antenna (for Communication)	HyperLOG7060	Aaronia	66450	-	-
<input type="checkbox"/> Antenna (for Communication)	HyperLOG7060	Aaronia	66451	-	-
<input checked="" type="checkbox"/> Software	EMC32	Rohde & Schwarz	-	-	-
<u>Radiated Emission</u>					
-For measurement below 1 GHz					
<input checked="" type="checkbox"/> EMI Test Receiver	ESU40	Rohde & Schwarz	100524	1 year	05.10.2021
<input checked="" type="checkbox"/> Bi-Log Antenna	VULB9168	Schwarzbeck	255	2 year	03.15.2021
<input checked="" type="checkbox"/> Antenna master	MA4640-XP-ET	INNCO SYSTEM	-	N/A	-
<input checked="" type="checkbox"/> Antenna master controller	CO3000	INNCO SYSTEM	CO3000/870/ 35990515/L	N/A	-
<input checked="" type="checkbox"/> Turn Table	1060	INNCO SYSTEM	-	N/A	-
<input checked="" type="checkbox"/> Turn Table controller	CO2000	INNCO SYSTEM	CO2000/095/ 7590304/L	N/A	-
<input type="checkbox"/> UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	Rohde & Schwarz	106479	1 year	08.12.2021
<input type="checkbox"/> Radio communication analyzer	MT8821C	ANRITSU	6262192376	1 year	10.19.2021
<input type="checkbox"/> Antenna (for Communication)	HyperLOG7060	Aaronia	66450	-	-
<input type="checkbox"/> Radio communication analyzer	MT8000A	ANRITSU	6262208294	1 year	12.22.2021
<input type="checkbox"/> Antenna (for Communication)	HyperLOG7060	Aaronia	66451	-	-
<input checked="" type="checkbox"/> Software	EMC32	Rohde & Schwarz	-	-	-
-For measurement above 1 GHz					
<input checked="" type="checkbox"/> EMI Test Receiver	ESU40	Rohde & Schwarz	100524	1 year	05.10.2021
<input checked="" type="checkbox"/> Antenna master	MA4640-XP-ET	INNCO SYSTEM	-	N/A	-
<input checked="" type="checkbox"/> Antenna master controller	CO3000	INNCO SYSTEM	CO3000/870/ 35990515/L	N/A	-
<input checked="" type="checkbox"/> Turn Table	1060	INNCO SYSTEM	-	N/A	-
<input checked="" type="checkbox"/> Turn Table controller	CO2000	INNCO SYSTEM	CO2000/095/ 7590304/L	N/A	-
<input checked="" type="checkbox"/> Low Noise Amplifier	TK-PA18H	TESTEK	170034-L	1 year	03.02.2021
<input checked="" type="checkbox"/> Low Noise Amplifier	TK-PA1840H	TESTEK	170030-L	1 year	03.09.2021
<input checked="" type="checkbox"/> Horn Antenna	BBHA 9120D	Schwarzbeck	01836	1 year	07.20.2021
<input checked="" type="checkbox"/> Horn Antenna	BBHA 9170	Schwarzbeck	BBHA 9170 #786	1 year	11.16.2021
<input type="checkbox"/> Radio communication analyzer	MT8821C	ANRITSU	6262192376	1 year	10.19.2021
<input type="checkbox"/> Antenna (for Communication)	HyperLOG7060	Aaronia	66450	-	-
<input type="checkbox"/> Radio communication analyzer	MT8000A	ANRITSU	6262208294	1 year	12.22.2021
<input type="checkbox"/> Antenna (for Communication)	HyperLOG7060	Aaronia	66451	-	-
<input checked="" type="checkbox"/> Software	EMC32	Rohde & Schwarz	-	-	-





### 3. DESCRIPTION OF TEST

#### 3.1 Measurement of Conducted Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 7.3

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN).  
If the EUT is connected to the PC through USB, the AC power-line adapter of the PC is directly connected to a line impedance stabilization network (LISN).  
Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/50uH of coupling impedance for the measuring instrument.
- b. Both conducted lines are measured in Quasi-Peak and Average mode, including the worst-case data points for each tested configuration.
- c. The frequency ranges from 150 kHz to 30 MHz was searched.

#### [ Conducted Emission Limits ]

Frequency (MHz)	Resolution Bandwidth (kHz)	Quasi-Peak (dB( $\mu$ V))	Average (dB( $\mu$ V))
0.15 to 0.5	9	66 to 56*	56 to 46*
0.5 to 5	9	56	46
5 to 30	9	60	50

*\*Decreases with the logarithm of the frequency.*



### 3.2 Measurement of Radiated Emission

The test procedure was in accordance with ANSI C63.4-2014, Clause 8.3

- a. The EUT was placed on the top of a turn table 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 m to 4 m and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to Peak and Average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- g. 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. (1 GHz to 40 GHz)

#### [ Radiated Emission Limits ]

Frequency (MHz)	Antenna Distance (m)	Field Strength ( $\mu\text{V}/\text{m}$ )	Quasi-Peak (dB $\mu\text{V}/\text{m}$ )
30 to 88	3	100	40.0
88 to 216	3	150	43.5
216 to 960	3	200	46.0
Above 960	3	500	54.0

Frequency (MHz)	Antenna Distance (m)	Peak (dB $\mu\text{V}/\text{m}$ )	Average (dB $\mu\text{V}/\text{m}$ )
Above 1 000	3	74	54

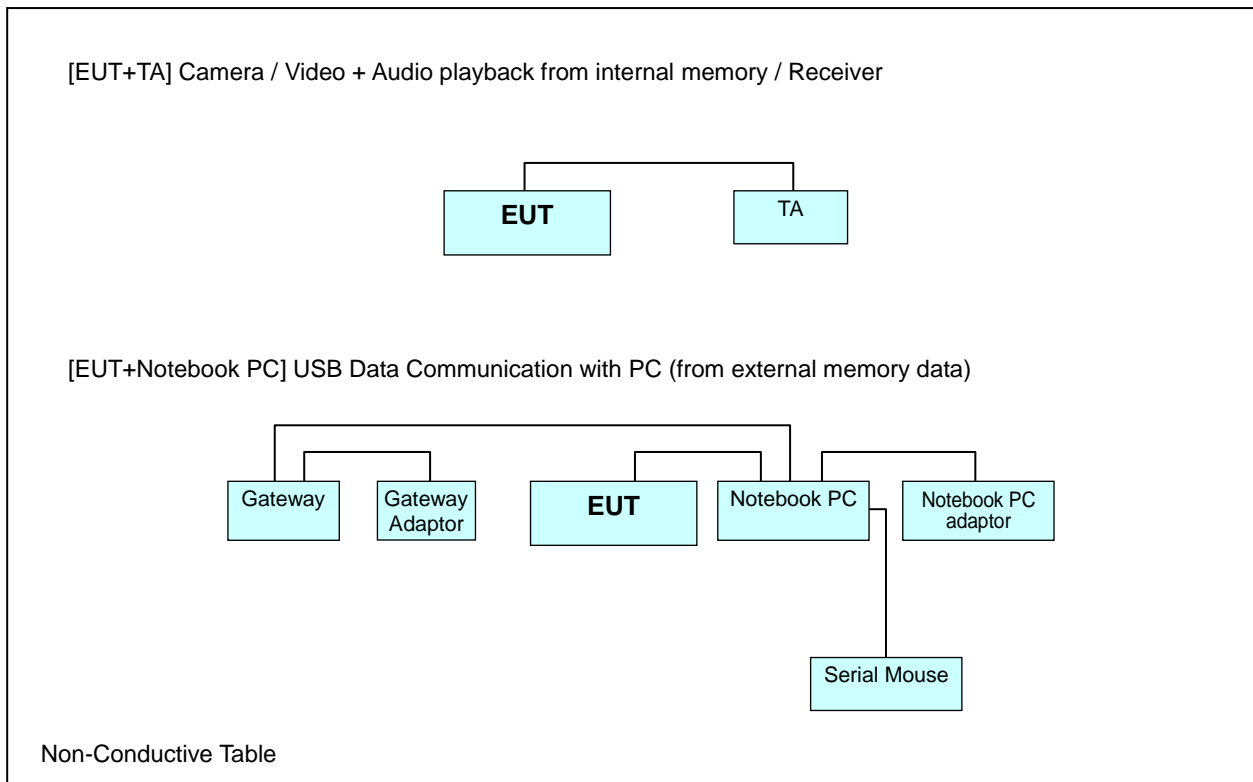


### 3.2.1 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower

### 3.3 Configuration of Tested System





## 4. OPERATION OF THE EUT

During preliminary tests, the following operating mode was investigated.

Front/Rear Camera (Preview / Recording) (TA)  
 Video + Audio playback from internal memory (TA)  
 USB Data Communication with PC (from External memory data)  
 Receiver mode

NOTE. The worst band is tested.

### 4.1 Conducted Emission

It was final tested the following operating mode, after connecting all peripheral devices.

#### Operating Mode:

[EUT+TA]	Rear Camera + Cellular receiver (LTE B26 Middle Ch) Front Camera Video + Audio playback from internal memory
[EUT+NOTEBOOK PC]	USB Data Communication with PC (from external memory data)

### 4.2 Radiated Emission

It was final tested the following operating mode, after connecting all peripheral devices.

#### Operating Mode:

##### Radiated Emission below 1 GHz

[EUT+TA]	Rear Camera
[EUT+NOTEBOOK PC]	USB Data Communication with PC (from external memory data)

##### Radiated Emission above 1 GHz

[EUT+TA]	Rear Camera
[EUT+NOTEBOOK PC]	USB Data Communication with PC (from external memory data)

NOTE.

Three orientations have been investigated and the worst case orientation (x-axis: The display of EUT placed on the table is facing upwards) is reported.



## 5. EMI TEST SUMMARY

### 5.1 Conducted Emission

#### 5.1.1 Test Condition

The test results of conducted emission at mains ports provide the following information:

Used Test Standard	47 CFR PART 15 Subpart B Class B ANSI C63.4-2014
Frequency Range	150 kHz to 30 MHz
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Test Site	EMI Shield Room
Temperature	min. 21.1 °C, max. 22.9 °C
Humidity	min. 27.4 % R.H., max. 30.9 % R.H.
Test Date	January 11, 2022

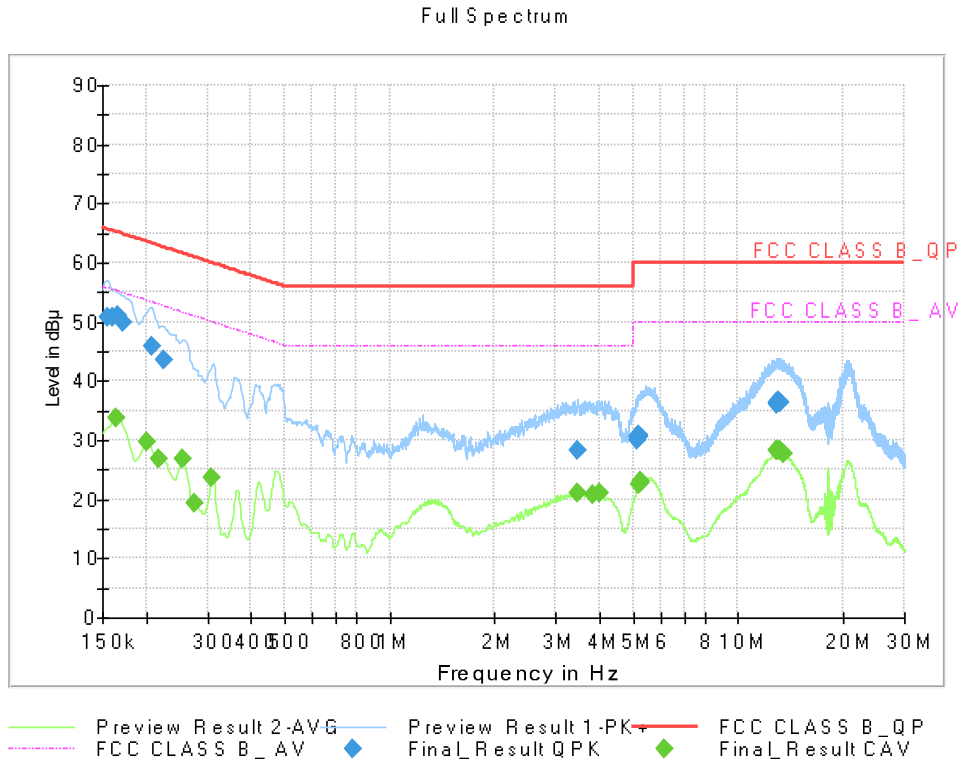
**Calculation Formula:**

1. Conductor L1 = Hot, Conductor N = Neutral
2. Corr. = LISN Factor+Cable Loss
3. QuasiPeak or CAverage= Receiver Reading+Corr.
4. Margin = Limit – QuasiPeak or CAverage



### 5.1.2 Measuring Data

Figure 1: Conducted Emission [EUT+TA] Rear Camera + Cellular receiver (LTE B26 Middle Ch), Line(L1)



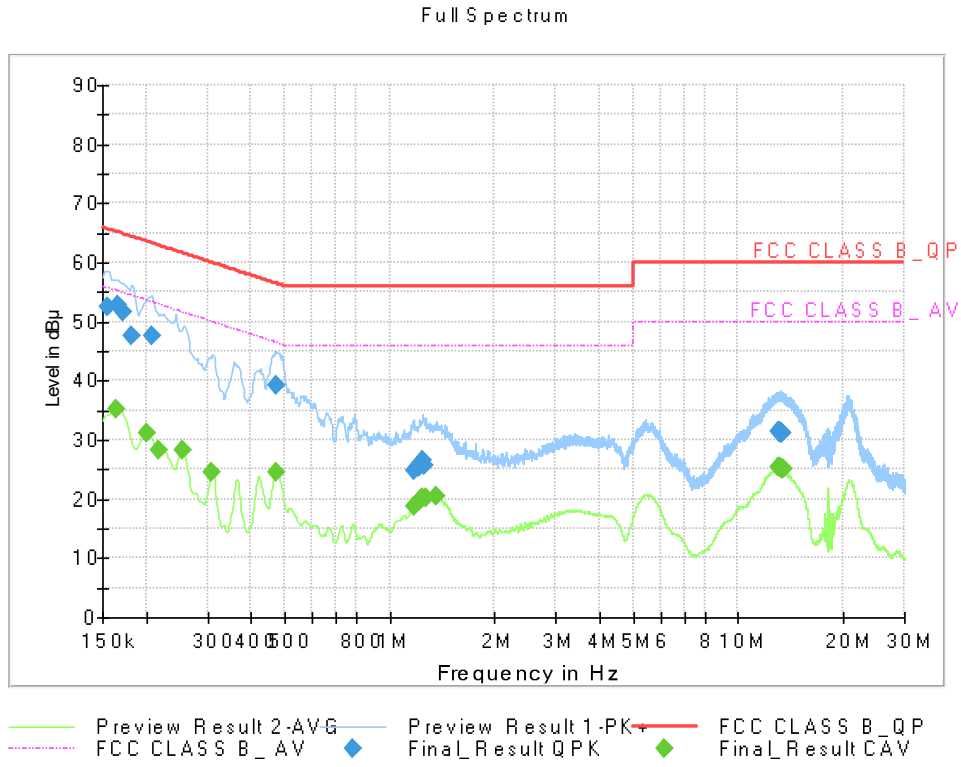


Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	50.71	65.75	15.04	9.000	L1	9.6
0.1613	50.80	65.40	14.60	9.000	L1	9.6
0.1658	51.10	65.17	14.07	9.000	L1	9.6
0.1725	49.98	64.84	14.86	9.000	L1	9.6
0.2085	45.93	63.27	17.34	9.000	L1	9.6
0.2243	43.67	62.66	18.99	9.000	L1	9.6
3.4768	28.39	56.00	27.61	9.000	L1	9.8
5.1260	30.03	60.00	29.97	9.000	L1	9.9
5.1553	30.49	60.00	29.51	9.000	L1	9.9
5.1643	30.75	60.00	29.25	9.000	L1	9.9
5.1688	30.67	60.00	29.33	9.000	L1	9.9
5.1800	30.72	60.00	29.28	9.000	L1	9.9
12.8885	36.48	60.00	23.52	9.000	L1	10.1
12.8998	36.09	60.00	23.91	9.000	L1	10.1
12.9110	36.39	60.00	23.61	9.000	L1	10.1
13.0730	36.42	60.00	23.58	9.000	L1	10.1
13.1023	36.50	60.00	23.50	9.000	L1	10.1
13.1495	36.38	60.00	23.62	9.000	L1	10.2

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1635	33.85	55.28	21.43	9.000	L1	9.6
0.2018	29.83	53.54	23.71	9.000	L1	9.6
0.2175	26.87	52.91	26.04	9.000	L1	9.6
0.2558	26.79	51.57	24.78	9.000	L1	9.6
0.2760	19.34	50.94	31.60	9.000	L1	9.6
0.3098	23.52	49.98	26.46	9.000	L1	9.6
3.4633	21.18	46.00	24.82	9.000	L1	9.8
3.8188	20.89	46.00	25.11	9.000	L1	9.8
4.0033	21.05	46.00	24.95	9.000	L1	9.8
5.1710	22.48	50.00	27.52	9.000	L1	9.9
5.2273	22.92	50.00	27.08	9.000	L1	9.9
5.2408	22.94	50.00	27.06	9.000	L1	9.9
12.8503	28.16	50.00	21.84	9.000	L1	10.1
12.8615	28.29	50.00	21.71	9.000	L1	10.1
12.9043	28.31	50.00	21.69	9.000	L1	10.1
13.1023	28.31	50.00	21.69	9.000	L1	10.1
13.1698	28.13	50.00	21.87	9.000	L1	10.2
13.4533	27.70	50.00	22.30	9.000	L1	10.2



Figure 2: Conducted Emission [EUT+TA] Rear Camera + Cellular receiver (LTE B26 Middle Ch), Line(N)





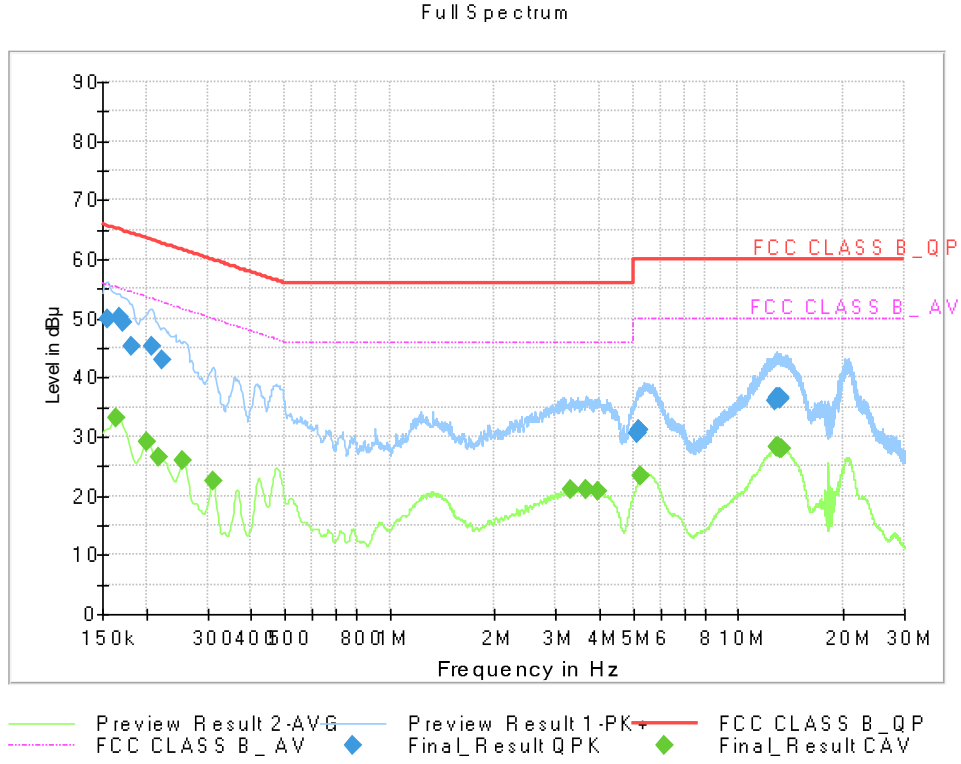


Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	52.54	65.75	13.21	9.000	N	9.6
0.1658	52.85	65.17	12.32	9.000	N	9.6
0.1725	51.72	64.84	13.12	9.000	N	9.6
0.1815	47.71	64.42	16.71	9.000	N	9.6
0.2085	47.56	63.27	15.71	9.000	N	9.6
0.4740	39.09	56.44	17.35	9.000	N	9.7
1.1705	24.93	56.00	31.07	9.000	N	9.7
1.2110	25.35	56.00	30.65	9.000	N	9.7
1.2155	25.59	56.00	30.41	9.000	N	9.7
1.2268	25.90	56.00	30.10	9.000	N	9.7
1.2425	26.47	56.00	29.53	9.000	N	9.7
1.2628	25.71	56.00	30.29	9.000	N	9.7
13.0370	31.52	60.00	28.48	9.000	N	10.2
13.2193	31.47	60.00	28.53	9.000	N	10.2
13.2643	31.24	60.00	28.76	9.000	N	10.2
13.3138	31.17	60.00	28.83	9.000	N	10.2
13.3565	31.19	60.00	28.81	9.000	N	10.2
13.3993	31.06	60.00	28.94	9.000	N	10.2

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1635	35.27	55.28	20.01	9.000	N	9.6
0.2018	31.17	53.54	22.37	9.000	N	9.6
0.2175	28.21	52.91	24.70	9.000	N	9.6
0.2558	28.13	51.57	23.44	9.000	N	9.6
0.3098	24.57	49.98	25.41	9.000	N	9.6
0.4740	24.48	46.44	21.96	9.000	N	9.7
1.1705	18.65	46.00	27.35	9.000	N	9.7
1.2178	19.74	46.00	26.26	9.000	N	9.7
1.2290	19.89	46.00	26.11	9.000	N	9.7
1.2403	20.14	46.00	25.86	9.000	N	9.7
1.2650	20.19	46.00	25.81	9.000	N	9.7
1.3618	20.54	46.00	25.46	9.000	N	9.7
13.1225	25.35	50.00	24.65	9.000	N	10.2
13.1473	25.42	50.00	24.58	9.000	N	10.2
13.2373	25.43	50.00	24.57	9.000	N	10.2
13.3138	25.16	50.00	24.84	9.000	N	10.2
13.3970	25.10	50.00	24.90	9.000	N	10.2
13.4533	25.01	50.00	24.99	9.000	N	10.2



Figure 3: Conducted Emission [EUT+TA] Front Camera, Line(L1)



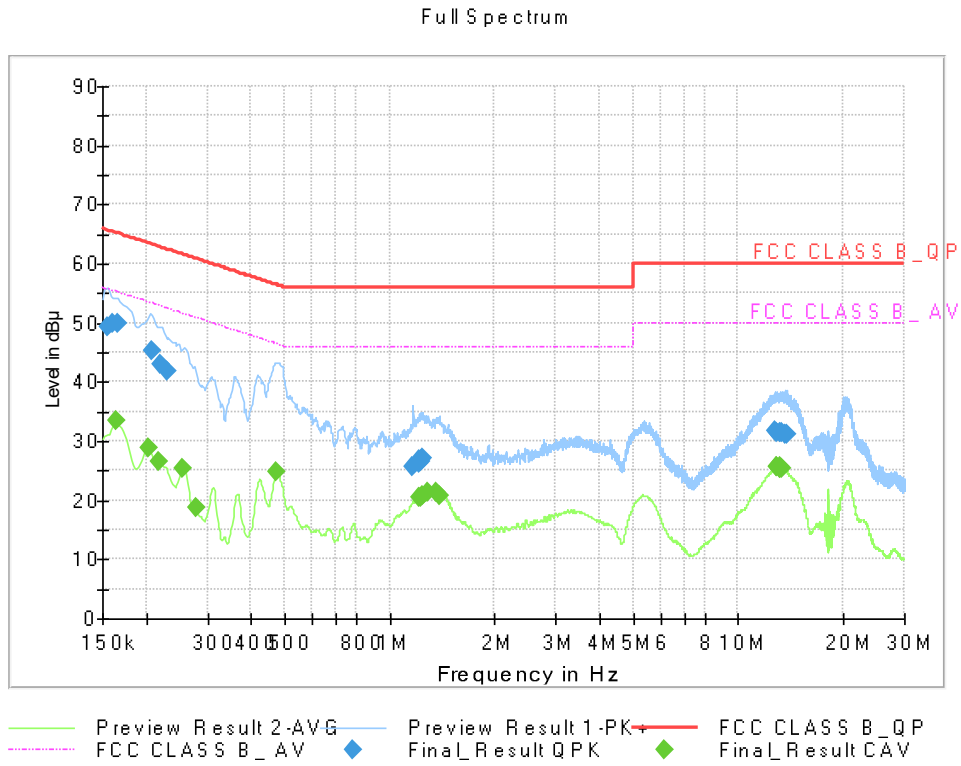


Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	49.79	65.75	15.96	9.000	L1	9.6
0.1680	50.08	65.06	14.98	9.000	L1	9.6
0.1725	49.24	64.84	15.60	9.000	L1	9.6
0.1815	45.18	64.42	19.24	9.000	L1	9.6
0.2085	45.37	63.27	17.90	9.000	L1	9.6
0.2220	43.12	62.74	19.62	9.000	L1	9.6
5.1170	30.45	60.00	29.55	9.000	L1	9.9
5.1305	30.46	60.00	29.54	9.000	L1	9.9
5.1553	30.67	60.00	29.33	9.000	L1	9.9
5.1688	31.11	60.00	28.89	9.000	L1	9.9
5.1733	31.19	60.00	28.81	9.000	L1	9.9
5.1800	31.03	60.00	28.97	9.000	L1	9.9
12.6928	36.08	60.00	23.92	9.000	L1	10.1
12.9448	36.54	60.00	23.46	9.000	L1	10.1
12.9628	36.49	60.00	23.51	9.000	L1	10.1
13.0775	36.63	60.00	23.37	9.000	L1	10.1
13.1765	36.45	60.00	23.55	9.000	L1	10.2
13.2215	36.64	60.00	23.36	9.000	L1	10.2

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1635	33.27	55.28	22.01	9.000	L1	9.6
0.2018	29.20	53.54	24.34	9.000	L1	9.6
0.2175	26.44	52.91	26.47	9.000	L1	9.6
0.2558	25.90	51.57	25.67	9.000	L1	9.6
0.3120	22.62	49.92	27.30	9.000	L1	9.6
3.2990	21.19	46.00	24.81	9.000	L1	9.8
3.6545	20.98	46.00	25.02	9.000	L1	9.8
3.6703	20.97	46.00	25.03	9.000	L1	9.8
3.9808	20.76	46.00	25.24	9.000	L1	9.8
5.2498	23.22	50.00	26.78	9.000	L1	9.9
5.2700	23.42	50.00	26.58	9.000	L1	9.9
12.9245	28.29	50.00	21.71	9.000	L1	10.1
12.9470	28.36	50.00	21.64	9.000	L1	10.1
13.0168	28.33	50.00	21.67	9.000	L1	10.1
13.0258	28.17	50.00	21.83	9.000	L1	10.1
13.0820	28.13	50.00	21.87	9.000	L1	10.1
13.1788	28.12	50.00	21.88	9.000	L1	10.2
13.3340	28.04	50.00	21.96	9.000	L1	10.2



Figure 4: Conducted Emission [EUT+TA] Front Camera, Line(N)



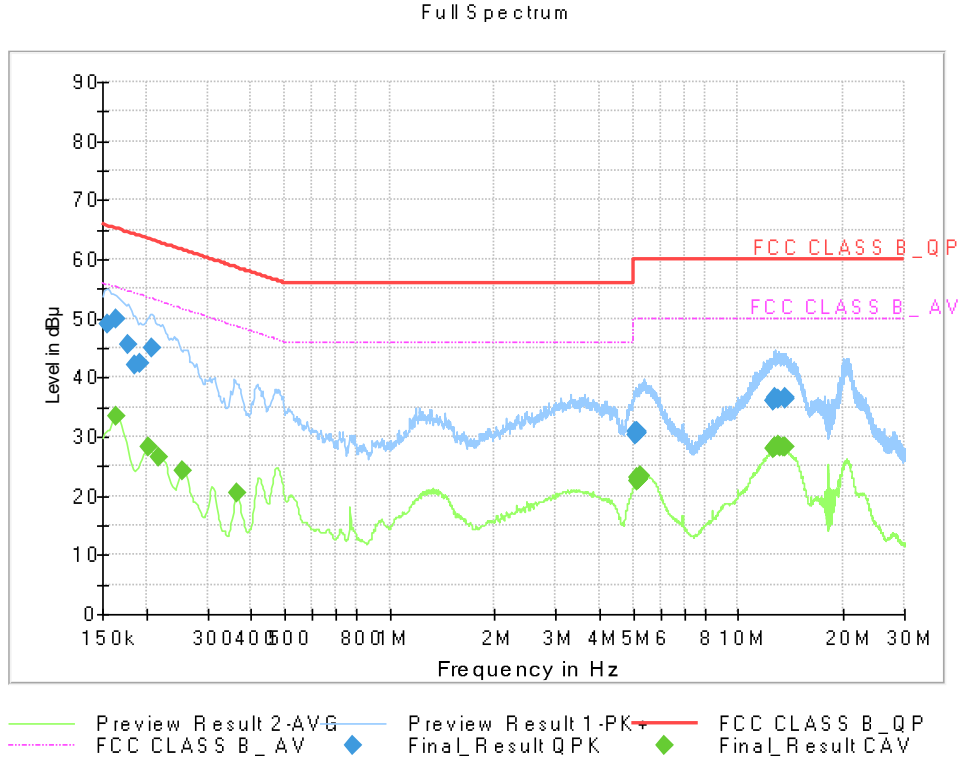


Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	49.34	65.75	16.41	9.000	N	9.6
0.1613	49.99	65.40	15.41	9.000	N	9.6
0.1658	50.04	65.17	15.13	9.000	N	9.6
0.2085	45.16	63.27	18.11	9.000	N	9.6
0.2198	43.04	62.83	19.79	9.000	N	9.6
0.2310	41.89	62.41	20.52	9.000	N	9.6
1.1660	25.58	56.00	30.42	9.000	N	9.7
1.2155	26.74	56.00	29.26	9.000	N	9.7
1.2223	26.16	56.00	29.84	9.000	N	9.7
1.2268	26.43	56.00	29.57	9.000	N	9.7
1.2313	26.78	56.00	29.22	9.000	N	9.7
1.2380	26.98	56.00	29.02	9.000	N	9.7
12.7760	31.60	60.00	28.40	9.000	N	10.2
12.8975	31.55	60.00	28.45	9.000	N	10.2
13.1720	31.49	60.00	28.51	9.000	N	10.2
13.4195	31.46	60.00	28.54	9.000	N	10.2
13.7053	31.11	60.00	28.89	9.000	N	10.2
13.7278	31.21	60.00	28.79	9.000	N	10.2

Frequency (MHz)	CAverage (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1635	33.38	55.28	21.90	9.000	N	9.6
0.2040	28.80	53.45	24.65	9.000	N	9.6
0.2175	26.42	52.91	26.49	9.000	N	9.6
0.2558	25.53	51.57	26.04	9.000	N	9.6
0.2783	18.74	50.87	32.13	9.000	N	9.6
0.4740	24.80	46.44	21.64	9.000	N	9.7
1.2178	20.53	46.00	25.47	9.000	N	9.7
1.2313	20.57	46.00	25.43	9.000	N	9.7
1.2403	20.91	46.00	25.09	9.000	N	9.7
1.2898	21.25	46.00	24.75	9.000	N	9.7
1.3618	21.29	46.00	24.71	9.000	N	9.7
1.3865	20.87	46.00	25.13	9.000	N	9.7
12.8525	25.68	50.00	24.32	9.000	N	10.2
12.9223	25.58	50.00	24.42	9.000	N	10.2
13.1653	25.44	50.00	24.56	9.000	N	10.2
13.1720	25.55	50.00	24.45	9.000	N	10.2
13.2283	25.45	50.00	24.55	9.000	N	10.2
13.4195	25.39	50.00	24.61	9.000	N	10.2



Figure 5: Conducted Emission [EUT+TA] Video + Audio playback from internal memory, Line(L1)



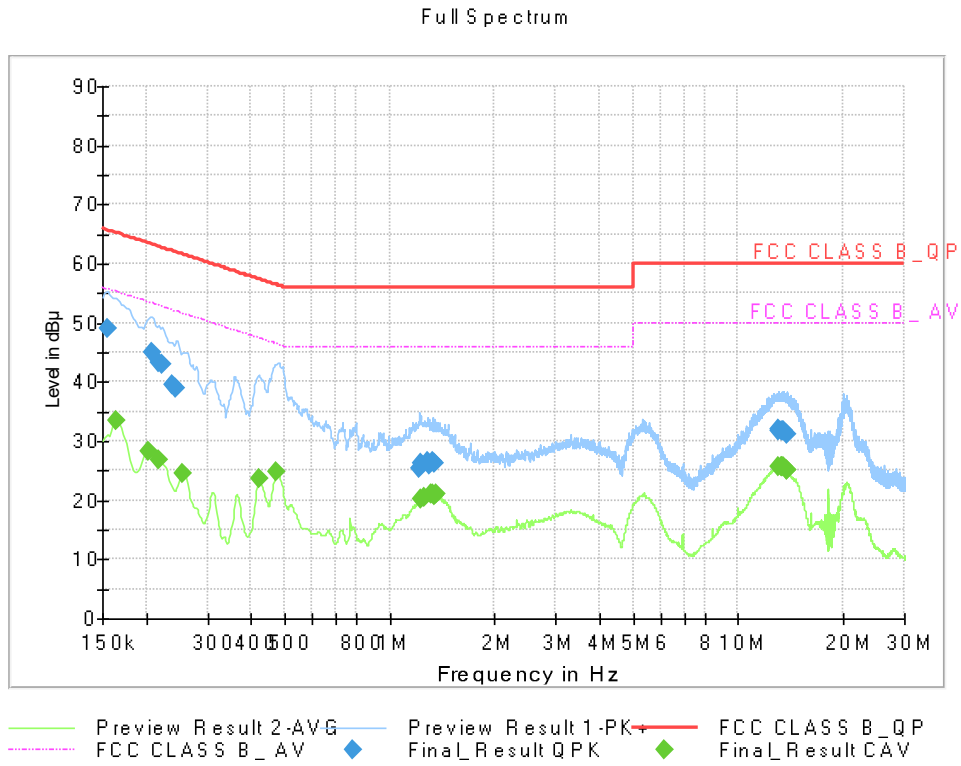


Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	48.94	65.75	16.81	9.000	L1	9.6
0.1635	49.98	65.28	15.30	9.000	L1	9.6
0.1770	45.62	64.63	19.01	9.000	L1	9.6
0.1860	42.17	64.21	22.04	9.000	L1	9.6
0.1928	42.44	63.92	21.48	9.000	L1	9.6
0.2085	44.88	63.27	18.39	9.000	L1	9.6
5.0518	30.35	60.00	29.65	9.000	L1	9.9
5.0833	30.87	60.00	29.13	9.000	L1	9.9
5.1013	30.57	60.00	29.43	9.000	L1	9.9
5.1058	30.60	60.00	29.40	9.000	L1	9.9
5.1373	30.81	60.00	29.19	9.000	L1	9.9
5.1575	30.73	60.00	29.27	9.000	L1	9.9
12.5668	36.03	60.00	23.97	9.000	L1	10.1
12.6230	36.20	60.00	23.80	9.000	L1	10.1
12.7715	36.54	60.00	23.46	9.000	L1	10.1
13.0820	36.28	60.00	23.72	9.000	L1	10.1
13.5770	36.51	60.00	23.49	9.000	L1	10.2
13.6063	36.26	60.00	23.74	9.000	L1	10.2

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1635	33.52	55.28	21.76	9.000	L1	9.6
0.2040	28.18	53.45	25.27	9.000	L1	9.6
0.2175	26.68	52.91	26.23	9.000	L1	9.6
0.2558	24.21	51.57	27.36	9.000	L1	9.6
0.3638	20.52	48.64	28.12	9.000	L1	9.6
5.1058	22.44	50.00	27.56	9.000	L1	9.9
5.1575	22.99	50.00	27.01	9.000	L1	9.9
5.1778	22.86	50.00	27.14	9.000	L1	9.9
5.1823	22.87	50.00	27.13	9.000	L1	9.9
5.2318	23.48	50.00	26.52	9.000	L1	9.9
5.2408	23.36	50.00	26.64	9.000	L1	9.9
12.5600	27.96	50.00	22.04	9.000	L1	10.1
12.7760	28.40	50.00	21.60	9.000	L1	10.1
12.7963	28.34	50.00	21.66	9.000	L1	10.1
13.0663	28.44	50.00	21.56	9.000	L1	10.1
13.2530	28.28	50.00	21.72	9.000	L1	10.2
13.5208	28.27	50.00	21.73	9.000	L1	10.2
13.5748	28.20	50.00	21.80	9.000	L1	10.2



Figure 6: Conducted Emission [EUT+TA] Video + Audio playback from internal memory, Line(N)





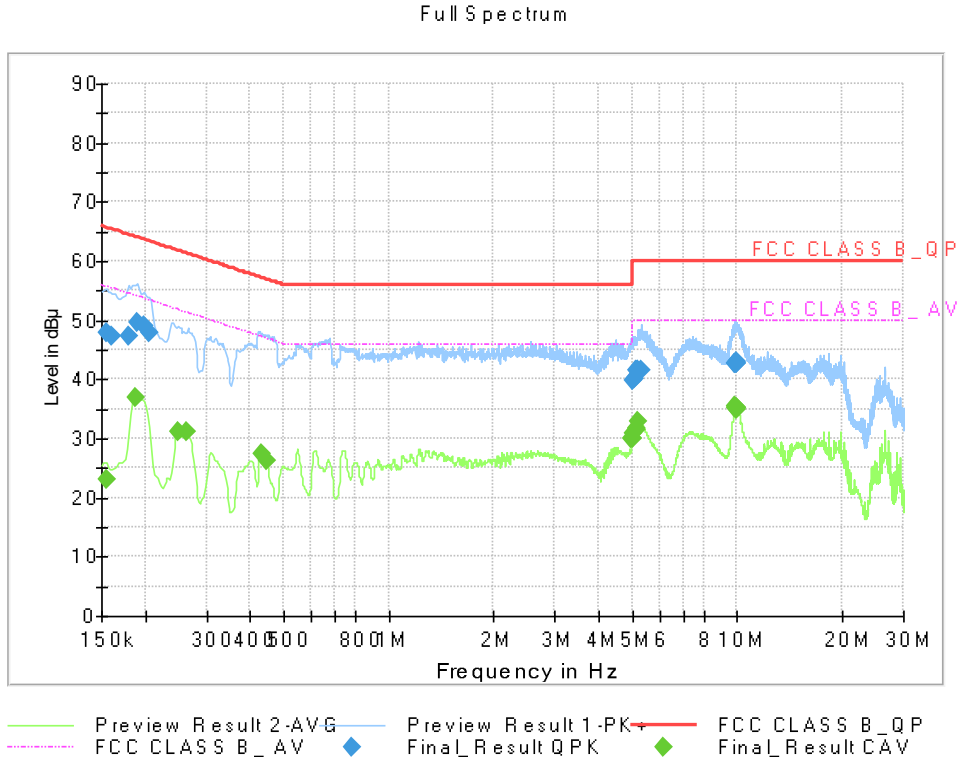


Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	49.05	65.75	16.70	9.000	N	9.6
0.2085	44.98	63.27	18.29	9.000	N	9.6
0.2175	43.34	62.91	19.57	9.000	N	9.6
0.2220	42.90	62.74	19.84	9.000	N	9.6
0.2378	39.43	62.17	22.74	9.000	N	9.6
0.2445	38.88	61.94	23.06	9.000	N	9.6
1.2223	25.51	56.00	30.49	9.000	N	9.7
1.2290	26.38	56.00	29.62	9.000	N	9.7
1.2830	26.47	56.00	29.53	9.000	N	9.7
1.2943	25.94	56.00	30.06	9.000	N	9.7
1.3258	26.49	56.00	29.51	9.000	N	9.7
1.3505	26.31	56.00	29.69	9.000	N	9.7
13.0393	31.65	60.00	28.35	9.000	N	10.2
13.0528	31.92	60.00	28.08	9.000	N	10.2
13.3723	31.69	60.00	28.31	9.000	N	10.2
13.4398	31.73	60.00	28.27	9.000	N	10.2
13.4713	31.61	60.00	28.39	9.000	N	10.2
13.7480	31.27	60.00	28.73	9.000	N	10.2

Frequency (MHz)	CAverage (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1635	33.59	55.28	21.69	9.000	N	9.6
0.2040	28.32	53.45	25.13	9.000	N	9.6
0.2175	26.81	52.91	26.10	9.000	N	9.6
0.2558	24.63	51.57	26.94	9.000	N	9.6
0.4223	23.56	47.40	23.84	9.000	N	9.7
0.4740	24.69	46.44	21.75	9.000	N	9.7
1.2313	20.06	46.00	25.94	9.000	N	9.7
1.2538	20.61	46.00	25.39	9.000	N	9.7
1.3145	20.94	46.00	25.06	9.000	N	9.7
1.3258	21.02	46.00	24.98	9.000	N	9.7
1.3505	20.82	46.00	25.18	9.000	N	9.7
1.3618	20.97	46.00	25.03	9.000	N	9.7
13.0505	25.75	50.00	24.25	9.000	N	10.2
13.3723	25.60	50.00	24.40	9.000	N	10.2
13.3880	25.70	50.00	24.30	9.000	N	10.2
13.4735	25.57	50.00	24.43	9.000	N	10.2
13.7390	25.19	50.00	24.81	9.000	N	10.2
13.8403	25.01	50.00	24.99	9.000	N	10.2



Figure 7: Conducted Emission [EUT+Notebook PC] USB Data Communication with PC (from external memory data) , Line(L1)



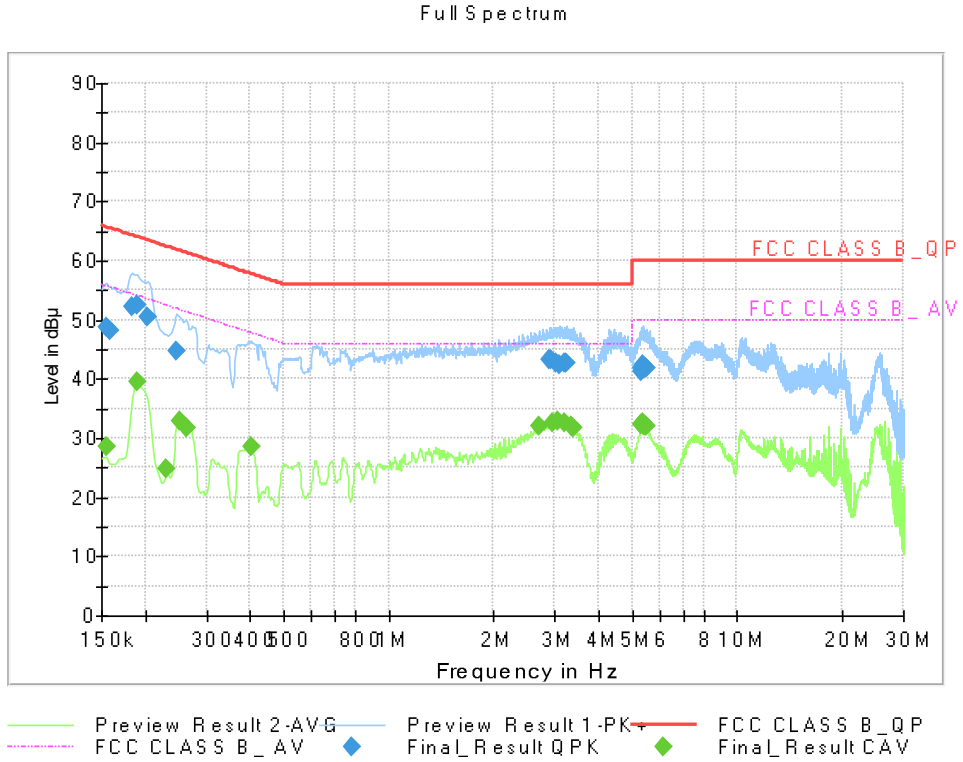


Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	47.85	65.75	17.90	9.000	L1	9.6
0.1613	47.19	65.40	18.21	9.000	L1	9.6
0.1793	47.20	64.52	17.32	9.000	L1	9.6
0.1905	49.58	64.02	14.44	9.000	L1	9.6
0.1995	49.17	63.63	14.46	9.000	L1	9.6
0.2063	47.94	63.36	15.42	9.000	L1	9.6
5.0270	39.69	60.00	20.31	9.000	L1	9.7
5.0788	40.14	60.00	19.86	9.000	L1	9.7
5.1463	41.48	60.00	18.52	9.000	L1	9.7
5.1620	41.37	60.00	18.63	9.000	L1	9.7
5.1710	41.49	60.00	18.51	9.000	L1	9.7
5.1800	41.58	60.00	18.42	9.000	L1	9.7
5.3263	41.48	60.00	18.52	9.000	L1	9.7
9.8465	42.79	60.00	17.21	9.000	L1	9.8
9.8690	42.67	60.00	17.33	9.000	L1	9.8
9.9365	42.81	60.00	17.19	9.000	L1	9.8
9.9500	43.07	60.00	16.93	9.000	L1	9.8
10.0063	42.74	60.00	17.26	9.000	L1	9.8

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	23.21	55.75	32.54	9.000	L1	9.6
0.1883	36.94	54.11	17.17	9.000	L1	9.6
0.2490	31.25	51.79	20.54	9.000	L1	9.6
0.2625	31.22	51.35	20.13	9.000	L1	9.6
0.4313	27.49	47.23	19.74	9.000	L1	9.6
0.4448	26.28	46.97	20.69	9.000	L1	9.6
4.9640	30.13	46.00	15.87	9.000	L1	9.7
5.0000	29.96	46.00	16.04	9.000	L1	9.7
5.0360	30.84	50.00	19.16	9.000	L1	9.7
5.1058	31.37	50.00	18.63	9.000	L1	9.7
5.1238	31.60	50.00	18.40	9.000	L1	9.7
5.1733	32.75	50.00	17.25	9.000	L1	9.7
9.8690	35.43	50.00	14.57	9.000	L1	9.8
9.8780	35.30	50.00	14.70	9.000	L1	9.8
9.9253	35.13	50.00	14.87	9.000	L1	9.8
9.9388	35.14	50.00	14.86	9.000	L1	9.8
9.9500	35.22	50.00	14.78	9.000	L1	9.8
10.0108	34.80	50.00	15.20	9.000	L1	9.8



Figure 8: Conducted Emission [EUT+Notebook PC] USB Data Communication with PC (from external memory data), Line(N)





Frequency (MHz)	Quasi Peak (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	48.79	65.75	16.96	9.000	N	9.6
0.1590	48.12	65.52	17.40	9.000	N	9.6
0.1838	52.24	64.31	12.07	9.000	N	9.6
0.1905	52.42	64.02	11.60	9.000	N	9.6
0.2040	50.42	63.45	13.03	9.000	N	9.6
0.2468	44.83	61.87	17.04	9.000	N	9.6
2.9008	43.38	56.00	12.62	9.000	N	9.7
2.9075	43.18	56.00	12.82	9.000	N	9.7
3.0403	42.70	56.00	13.30	9.000	N	9.7
3.1078	42.37	56.00	13.63	9.000	N	9.7
3.1933	42.71	56.00	13.29	9.000	N	9.7
3.2518	42.55	56.00	13.45	9.000	N	9.7
5.2790	41.35	60.00	18.65	9.000	N	9.7
5.3330	41.71	60.00	18.29	9.000	N	9.7
5.3465	41.82	60.00	18.18	9.000	N	9.7
5.3915	42.33	60.00	17.67	9.000	N	9.7
5.4163	41.81	60.00	18.19	9.000	N	9.7
5.4860	41.86	60.00	18.14	9.000	N	9.7

Frequency (MHz)	CAverage (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Bandwidth	Line	Corr. (dB)
0.1545	28.45	55.75	27.30	9.000	N	9.6
0.1905	39.59	54.02	14.43	9.000	N	9.6
0.2310	24.72	52.41	27.69	9.000	N	9.6
0.2513	32.77	51.72	18.95	9.000	N	9.6
0.2625	31.72	51.35	19.63	9.000	N	9.6
0.4020	28.46	47.81	19.35	9.000	N	9.6
2.6983	32.06	46.00	13.94	9.000	N	9.7
2.9728	32.66	46.00	13.34	9.000	N	9.7
3.0560	32.91	46.00	13.09	9.000	N	9.7
3.1820	32.68	46.00	13.32	9.000	N	9.7
3.3328	31.88	46.00	14.12	9.000	N	9.7
3.3913	31.61	46.00	14.39	9.000	N	9.7
5.2790	32.42	50.00	17.58	9.000	N	9.7
5.3263	32.22	50.00	17.78	9.000	N	9.7
5.3398	32.42	50.00	17.58	9.000	N	9.7
5.3645	32.46	50.00	17.54	9.000	N	9.7
5.4275	32.15	50.00	17.85	9.000	N	9.7
5.4613	32.10	50.00	17.90	9.000	N	9.7



## 5.2 Radiated Emission Below 1 GHz

### 5.2.1 Test Condition

The test results of radiated emission provide the following information:

Used Test Standard	47 CFR PART 15 Subpart B Class B ANSI C63.4-2014
Frequency Range	30 MHz to 1 000 MHz
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Measurement Distance	3 m
Test Site	3 m Semi Anechoic Chamber #1
Temperature	min. 20.1 °C, max. 21.9 °C
Humidity	min. 23.1 % R.H., max. 25.8 % R.H.
Test Date	January 08 / January 10, 2022

**Calculation Formula:**

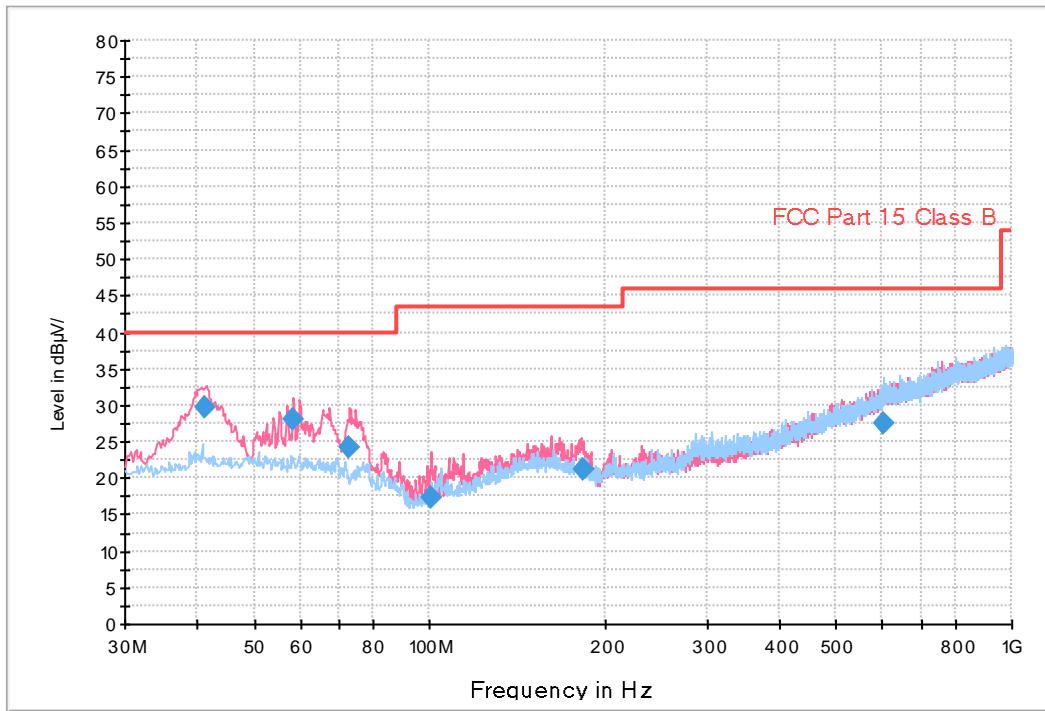
1. POL. H = Horizontal, POL. V = Vertical
2. QuasiPeak = Reading (Receiver Reading)+Corr.
3. Corr. (Correction Factor) = Antenna Factor+Cable Loss
4. Margin = Limit - QuasiPeak



5.2.2 Measuring Data

Figure 9: Radiated Emission [EUT+TA] Rear Camera

FCC PART 15 CLASS B

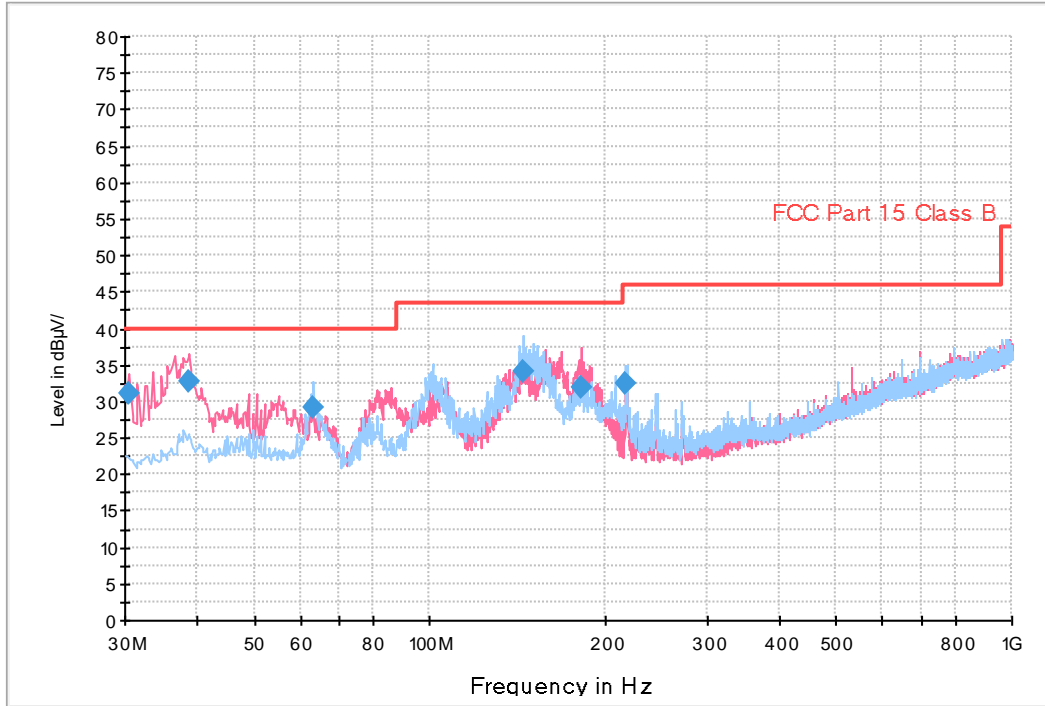


Frequency (MHz)	Quasi Peak (dBµV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
41.3266	29.8	100.0	V	99.0	19.4	10.2	40.0
58.4922	28.0	100.0	V	250.0	19.6	12.0	40.0
73.0482	24.3	100.0	V	332.0	17.4	15.7	40.0
100.6206	17.2	125.2	V	232.0	15.1	26.3	43.5
183.5018	21.2	100.0	V	138.0	18.0	22.3	43.5
602.9301	27.4	220.9	H	322.0	27.5	18.6	46.0



Figure 10: Radiated Emission [EUT+Notebook PC] USB Data Communication with PC (from external memory data)

FCC PART 15 CLASS B



Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
30.5366	31.0	100.0	V	6.0	18.5	9.0	40.0
38.6612	32.8	100.0	V	253.0	19.2	7.2	40.0
63.1935	29.1	307.8	H	194.0	19.1	10.9	40.0
145.0594	34.0	199.8	H	353.0	19.3	9.5	43.5
182.0885	32.0	100.0	V	219.0	18.1	11.5	43.5
216.8616	32.5	125.1	H	322.0	17.4	13.5	46.0





### 5.3 Radiated Emission Above 1 GHz

#### 5.3.1 Test Condition

The test results of radiated emission provide the following information:

Used Test Standard	47 CFR PART 15 Subpart B Class B ANSI C63.4-2014
Detector	Peak (Bandwidth: 1 MHz) CISPR-Average (Bandwidth: 1 MHz)
Highest Frequency	5 825 MHz
Tested Frequency Range	1 GHz to 30 GHz
Measurement Distance	3 m
Test Site	3 m Semi Anechoic Chamber #1
Temperature	min. 19.9 °C, max. 21.8 °C
Humidity	min. 23.1 % R.H., max. 26.5 % R.H.
Test Date	January 11, 2022

**Calculation Formula:**

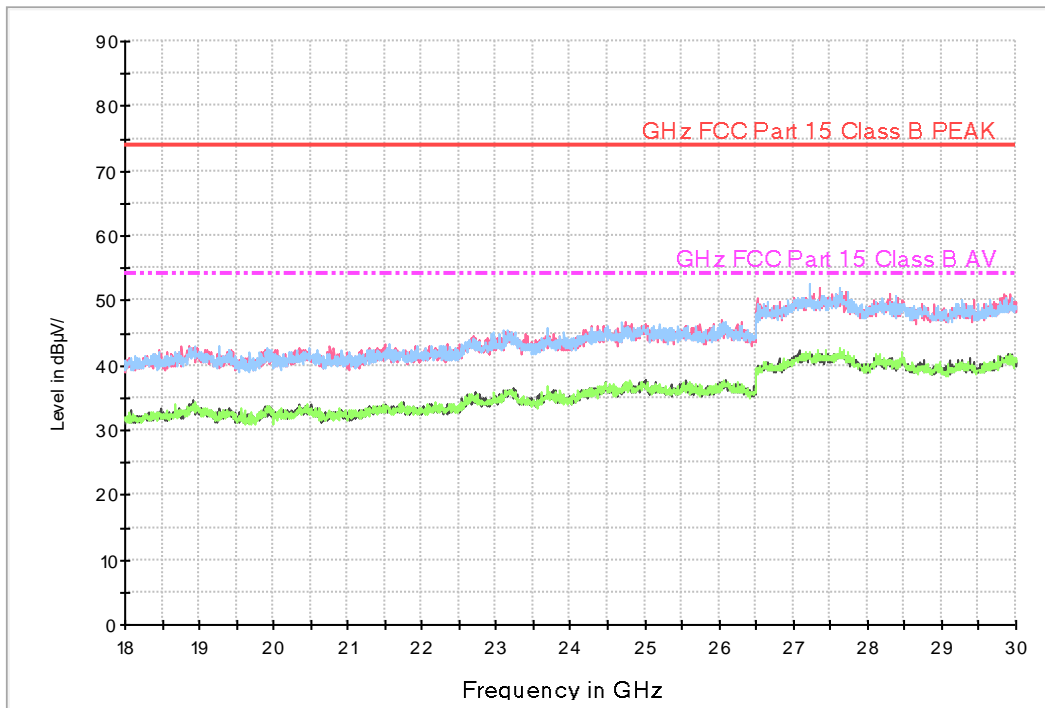
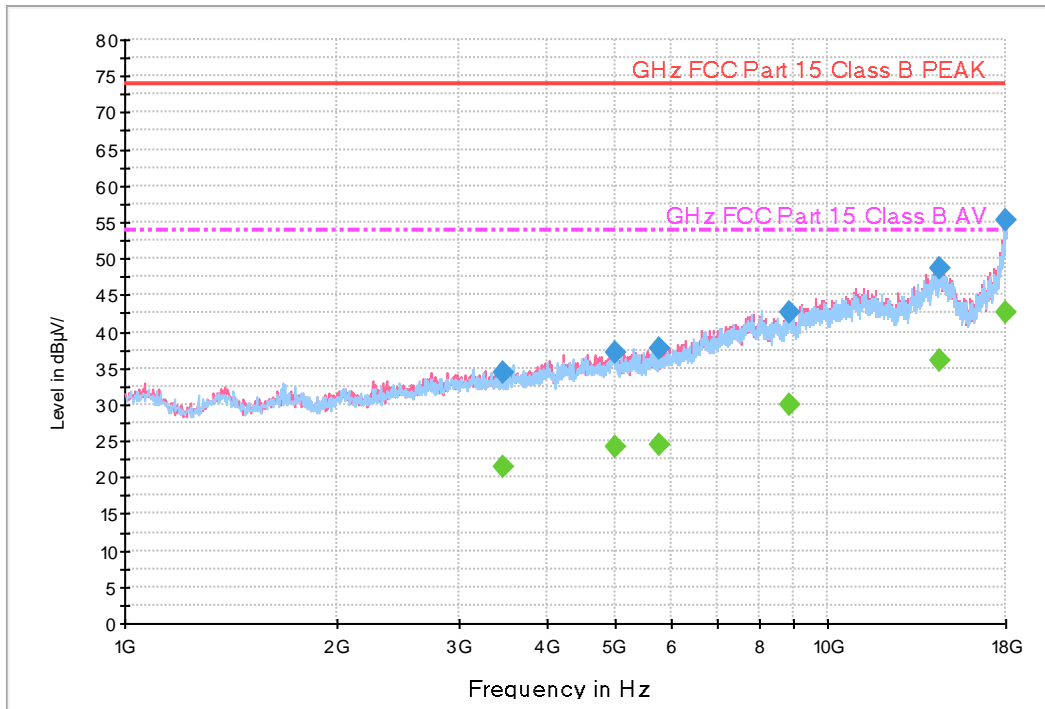
1. POL. H = Horizontal, POL. V = Vertical
2. Peak or CAverage = Reading (Receiver Reading)+Corr.
3. Corr. (Correction Factor) = Antenna Factor+ Cable Loss –Amplifier Gain
4. Margin = Limit - Peak or CAverage



### 5.3.2 Measuring Data

Figure 11: Radiated Emission [EUT+TA] Rear Camera

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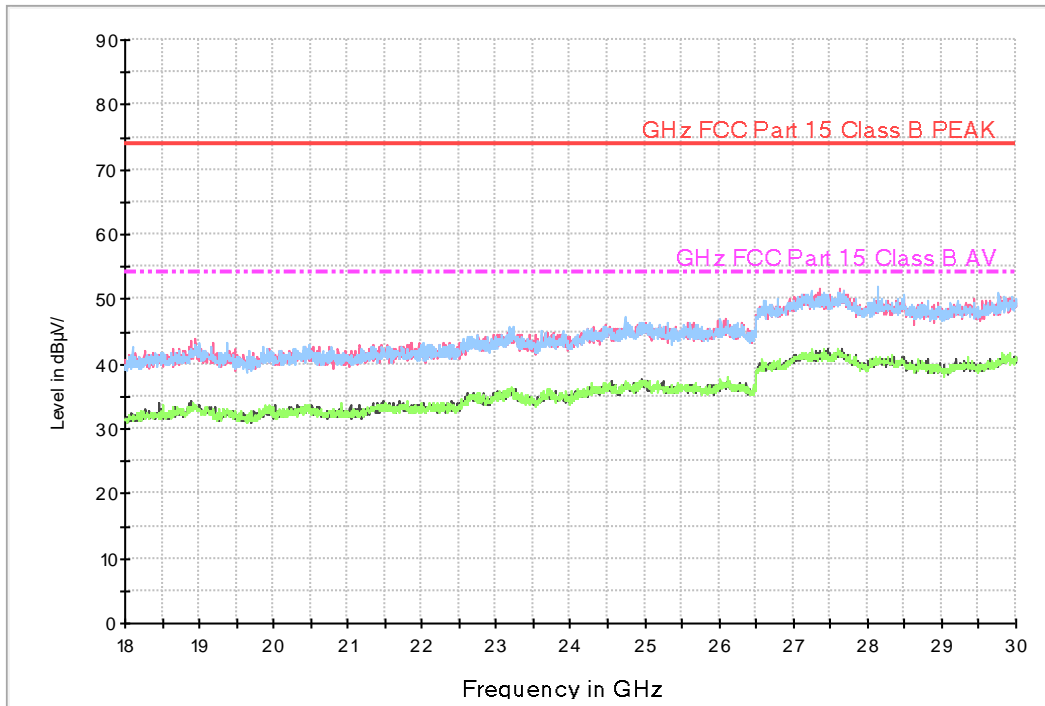
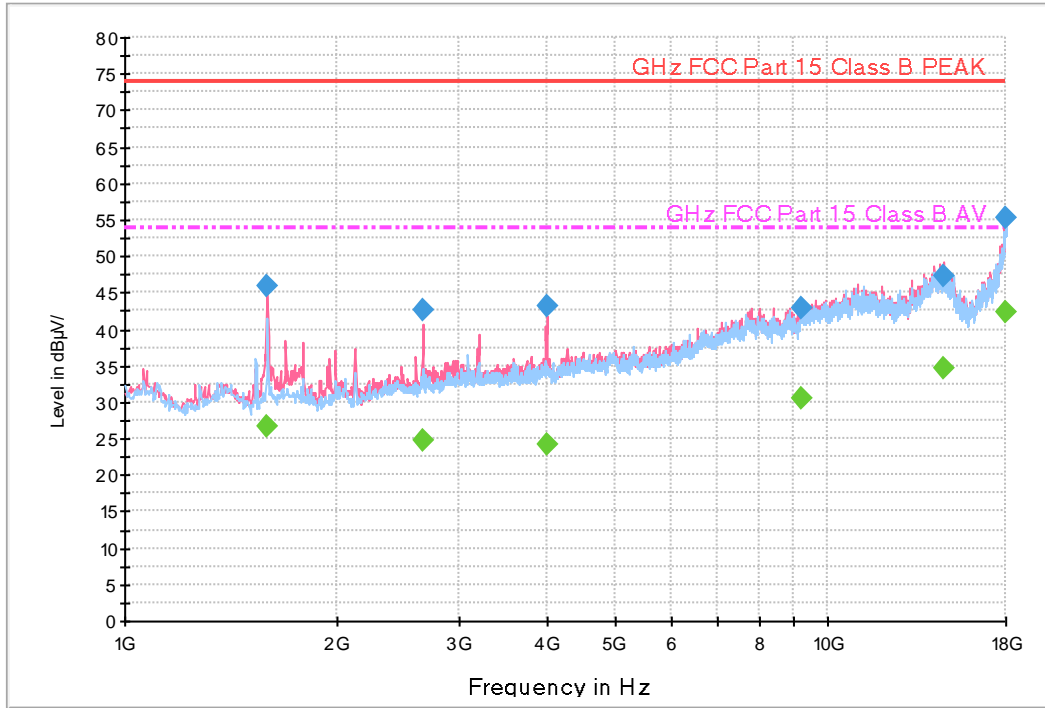
Frequency (MHz)	Peak (dB $\mu$ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
3457.8550	34.3	139.6	V	92.0	-20.6	39.7	74.0
5003.8950	37.1	198.6	H	86.0	-16.5	36.9	74.0
5764.1500	37.6	100.0	V	320.0	-15.5	36.4	74.0
8838.9300	42.5	150.0	V	50.0	-9.9	31.5	74.0
1 4459.6200	48.5	249.4	V	98.0	0.4	25.5	74.0
1 7974.9219	55.3	350.0	H	157.0	9.2	18.7	74.0

Frequency (MHz)	CAverage (dB $\mu$ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
3457.8550	21.3	139.6	V	92.0	-20.6	32.7	54.0
5003.8950	24.1	198.6	H	86.0	-16.5	29.9	54.0
5764.1500	24.5	100.0	V	320.0	-15.5	29.5	54.0
8838.9300	30.0	150.0	V	50.0	-9.9	24.0	54.0
1 4459.6200	36.0	249.4	V	98.0	0.4	18.0	54.0
1 7974.9219	42.6	350.0	H	157.0	9.2	11.4	54.0



Figure 12: Radiated Emission [EUT+Notebook PC] USB Data Communication with PC (from external memory data)

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Frequency (MHz)	Peak (dB $\mu$ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
1593.8900	45.8	291.5	V	229.0	-26.5	28.2	74.0
2662.0750	42.5	125.8	V	4.0	-22.7	31.5	74.0
3997.7300	43.1	249.7	V	0.0	-19.1	30.9	74.0
9215.7850	42.9	150.0	V	317.0	-9.1	31.1	74.0
1 4637.8850	47.3	149.7	V	36.0	0.2	26.7	74.0
1 7975.7635	55.3	149.6	V	342.0	9.2	18.7	74.0

Frequency (MHz)	CAverage (dB $\mu$ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)
1593.8900	26.7	291.5	V	229.0	-26.5	27.3	54.0
2662.0750	24.7	125.8	V	4.0	-22.7	29.3	54.0
3997.7300	24.2	249.7	V	0.0	-19.1	29.8	54.0
9215.7850	30.6	150.0	V	317.0	-9.1	23.4	54.0
1 4637.8850	34.7	149.7	V	36.0	0.2	19.3	54.0
1 7975.7635	42.4	149.6	V	342.0	9.2	11.6	54.0



## 6. CONCLUSION

The data collected shows that the **Product Name: Mobile Phone and Model Name: SM-A336M/DSN** complies with §15.107 and §15.109 of the FCC rules.



## 7. APPENDIX A. TEST SETUP PHOTO

Please refer to EMI Test Setup Photo and test setup photo file no. as follows;

Rev. No.	Issue Date	File No.
0	January 13, 2022	HCT-EM-2201-FC011-P

End of report