

TEST REPORT

EMI Test for FCC Certification of SM-T725 Model

APPLICANT

SAMSUNG Electronics Co., Ltd.

REPORT NO.

HCT-EM-1906-FC010

DATE OF ISSUE

June 14, 2019

HCT Co., Ltd.

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**TEST
REPORT**

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FCC ID.

A3LSMT725U

Applicant SAMSUNG Electronics Co., Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea

Product Name Tablet

Model Name SM-T725

Series Model Name SM-T725N, SM-T727

Date of Test June 03, 2019 to June 13, 2019

Test Standard Used FCC CFR 47 PART 15 Subpart B Class B
ANSI C63.4-2014

Test Results Refer to the present document

Manufacturer SAMSUNG Electronics Co., Ltd.

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Tested by
Na-Eun Song

(signature)

Technical Manager
Jeong-Hyun Choi

(signature)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	June 14, 2019	Initial Release

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.

HCT certifies that no party to application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862

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1. GENERAL INFORMATION

1.1 Description of EUT

Its basic purpose is used for communications.

FCC ID	A3LSMT725U
Model	SM-T725
Series Model Name	SM-T725N, SM-T727
EUT Type	Tablet
Frequency Band	GSM850/1900, WCDMA850/1700/1900, LTE B2/4/5/12/13/17/41/66, BT BDR/EDR/LE 5.0, WLAN a/b/g/n/ac, ANT+
Power Supply	Travel adaptor: Input: AC 100 to 240 V, 50/60 Hz, 0.5 A Travel adaptor: Output: DC 9.0 V 1.67 A or DC 5.0 V 2.0 A Battery: Low 3.4 V / Normal 3.85 V / High 4.35 V, Li-ion Battery

1.2 Tested System Details

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

Device Type	Model Name	Serial Number	Manufacturer
EUT	SM-T725	-	SMASUNG
Notebook PC	ProBook6560b	5CB2053MXF	HP
Notebook PC adaptor	Series PPP009L-E	-	LITE-ON TECHNOLOGY (CHANGZHOU)
Gateway	TL-WR747N	-	TP Link
Gateway adaptor	T090060-2H1	-	TP Link
Serial mouse	Serial 2 Button mouse	02031069	Radio Shack
RJ45 cable	-	-	-
TA	EP-TA200	-	SOLUM
Data cable	EP-DT725BBE	-	KSD
Earphone	EHS64AVFWE	-	ALMUS
Ear-jack gender	KCA-ET-2-0305	-	KSD
Micro SD card	-	-	SAMSUNG
Keyboard	EJ-FT720	-	SAMSUNG
Charging dock	EE-D3200	-	SAMSUNG

1.3 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	USB Type C	Y	Y	(P,D) 1.0
	USB Type C (Ear-jack gender)	N/A	N	(D) 0.09
Ear-jack gender	Earphone	N/A	N	(D) 1.2
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

NOTE. The marked "(D)" means the data cable and "(P)" means the 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	N	N/A	Y	Both End
	USB Type C (Ear-jack gender)	N	N/A	Y	Both End
Ear-jack gender	Earphone	N	N/A	Y	EUT 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, South 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

Measurement Facilities	Designation No.
Radiated Field strength measurement facility 3 m Semi Anechoic chamber	KR0032
Radiated Field strength measurement facility 10 m Semi Anechoic chamber #1	
Radiated Field strength measurement facility 10 m Semi Anechoic chamber #2	

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 (Version : 2006).

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_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty
Conducted Emission (0.15 MHz to 30 MHz)	1.78 dB
Radiated Emissions (30 MHz to 1 GHz)	6.00 dB
Radiated Emissions (1 GHz to 18 GHz)	4.78 dB
Radiated Emissions (18 GHz to 40 GHz)	4.94 dB

2. DESCRIPTION OF TEST

2.1 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 range from 150 kHz to 30 MHz was searched.

Conducted Emission Limits

Frequency (MHz)	Resolution Bandwidth (kHz)	Class A		Class B	
		Quasi-Peak (dBμV)	Average (dBμV)	Quasi-Peak (dBμV)	Average (dBμV)
0.15 to 0.5	9	79	66	66 to 56*	56 to 46*
0.5 to 5	9	73	60	56	46
5 to 30	9	73	60	60	50

NOTE. Decreases with the logarithm of the frequency.

2.2 Measurement of Radiated Emission

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

- 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.
- The EUT was set 3 m away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- 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.
- 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.
- 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

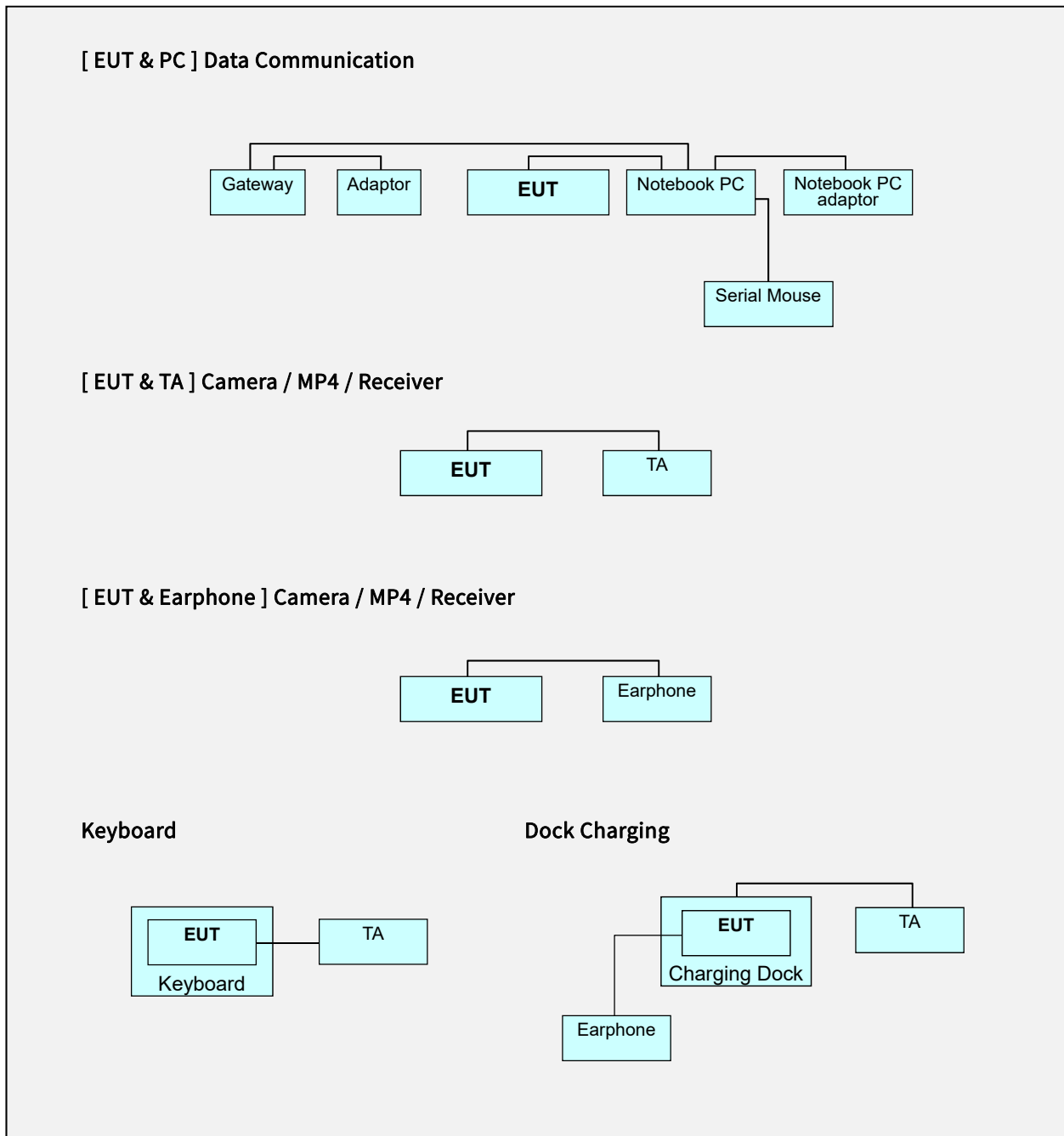
Frequency (MHz)	Class A			Class B		
	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dBμV/m)	Antenna Distance (m)	Field Strength (μV/m)	Quasi-Peak (dBμV/m)
30 to 88	10	90	39.0	3	100	40.0
88 to 216	10	150	43.5	3	150	43.5
216 to 960	10	210	46.4	3	200	46.0
Above 960	10	300	49.5	3	500	54.0
Frequency (MHz)	Antenna Distance (m)	Class A		Class B		
		Peak (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)	
Above 1 000	3	80	60	74	54	

2.2.1 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	5th harmonic of the highest frequency or 40 GHz, whichever is lower

2.3 Configuration of Tested System



Non-Conductive Table
Power Line: 120 VAC, 60 Hz

3. PRELIMINARY TEST

During preliminary tests, the following operating mode was investigated.

- Data Communication
- Rear / Front Camera (Preview / Recording)
- MP4 Play
- LTE B5 Idle (Low/Middle/High CH)
- WCDMA 850 Idle (Low/Middle/High CH)
- GSM 850 Idle (Low/Middle/High CH)
- LTE B12+ B13+B17 Idle (Low/Middle/High CH)
- Keyboard
- Dock Charging

3.1 Conducted Emission

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

Operating Modes:

[EUT+PC]

DATA Communication

[EUT+TA]

- Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview
- Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview
- Receiver mode (LTE B5 High CH Idle) + Rear Camera Recording
- Receiver mode (LTE B12+B13+B17 Low CH Idle) + Front Camera Recording
- Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play
- Receiver mode (LTE B12+B13+B17 High CH Idle)

- Keyboard mode
- Dock Charging mode

NOTE. The worst case of operating mode is reported.

3.2 Radiated Emission

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

[EUT+PC]

DATA Communication

[EUT+TA]

Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview

Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview

Receiver mode (LTE B5 High CH Idle) + Rear Camera Recording

Receiver mode (LTE B12+B13+B17 Low CH Idle) + Front Camera Recording

Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play

Receiver mode (LTE B12+B13+B17 High CH Idle)

[EUT+Earphone]

Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview

Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview

Receiver mode (LTE B5 High CH Idle) + Rear Camera Recording

Receiver mode (LTE B12+B13+B17 Low CH Idle) + Front Camera Recording

Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play

Receiver mode (LTE B12+B13+B17 High CH Idle)

Keyboard mode

Dock Charging mode

NOTE.

1. Three orientations have been investigated and the worst case orientation is reported.
2. The worst case of operating mode is reported.

4. CONDUCTED EMISSION AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission

4.1.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.25.2018
☒	LISN	Rohde & Schwarz	ENV216	102245	1 year	12.12.2018
☒	LISN	Rohde & Schwarz	ENV216	100073	1 year	04.30.2019
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.21.2018
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	Software	Rohde & Schwarz	EMC32 VER8.54.0	-	-	-

4.1.2 Operating Condition

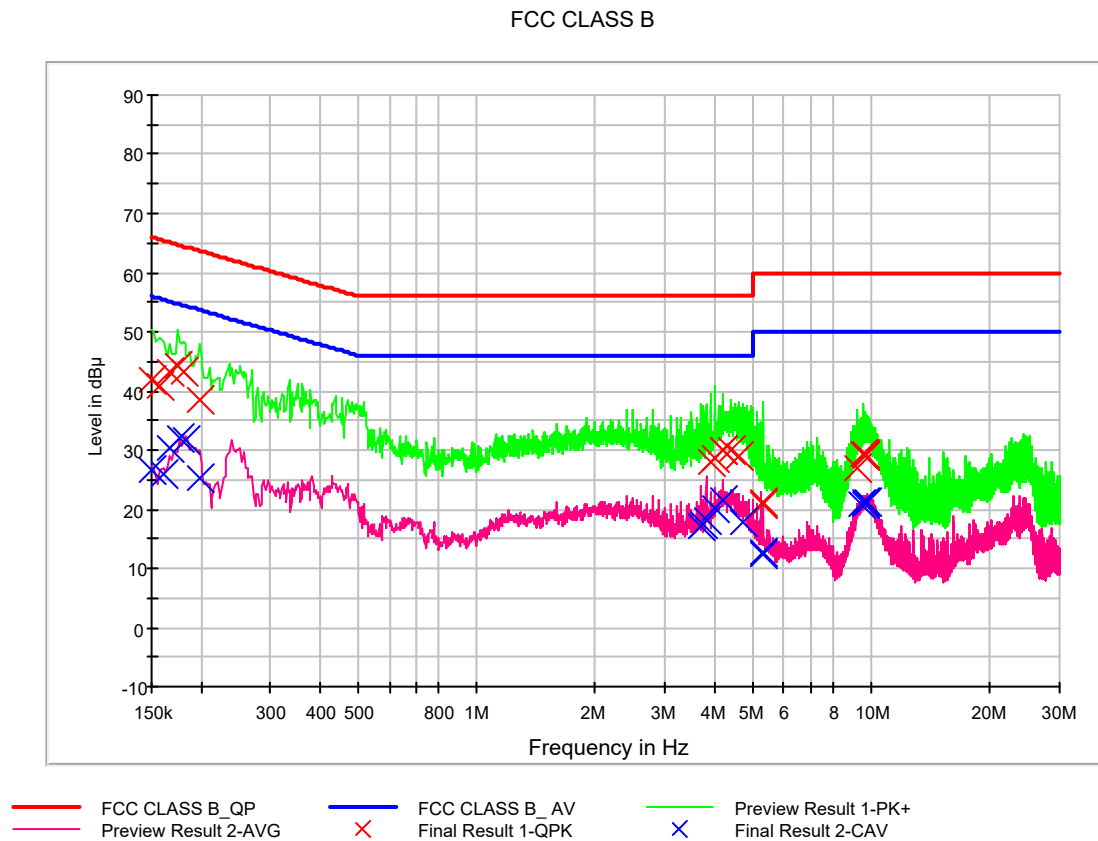
The test results of conducted emission at mains ports provide the following information:

Test Standard Used	FCC CFR 47 PART 15 Subpart B Class B ANSI C63.4-2014
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Operating Mode	Data Communication mode Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play Keyboard mode Dock Charging mode
Kind of Test Site	Shielded Room
Temperature	23.5 / 23.9 °C
Relative Humidity	42.2 / 42.2 %
Test Date	June 03 / June 13, 2019

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the HCT Co., Ltd.

4.1.3 Measuring Data

Figure 1: Conducted Emission, DATA Communication, Line (L1)



QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	41.9	9.000	L1	9.6	24.1	66.0
0.158000	40.7	9.000	L1	9.6	24.8	65.6
0.166000	43.1	9.000	L1	9.6	22.0	65.2
0.174000	44.1	9.000	L1	9.6	20.6	64.8
0.180000	43.4	9.000	L1	9.6	21.1	64.5
0.198000	38.4	9.000	L1	9.7	25.3	63.7
3.932000	27.9	9.000	L1	9.8	28.1	56.0
4.014000	28.6	9.000	L1	9.8	27.4	56.0
4.212000	30.0	9.000	L1	9.8	26.0	56.0
4.216000	30.1	9.000	L1	9.8	25.9	56.0
4.422000	29.9	9.000	L1	9.8	26.1	56.0
4.592000	29.1	9.000	L1	9.8	26.9	56.0
5.314000	21.0	9.000	L1	9.9	39.0	60.0
5.328000	21.1	9.000	L1	9.9	38.9	60.0
9.184000	27.0	9.000	L1	9.9	33.0	60.0
9.572000	29.2	9.000	L1	10.0	30.8	60.0
9.592000	29.1	9.000	L1	10.0	30.9	60.0
9.610000	29.4	9.000	L1	10.0	30.6	60.0

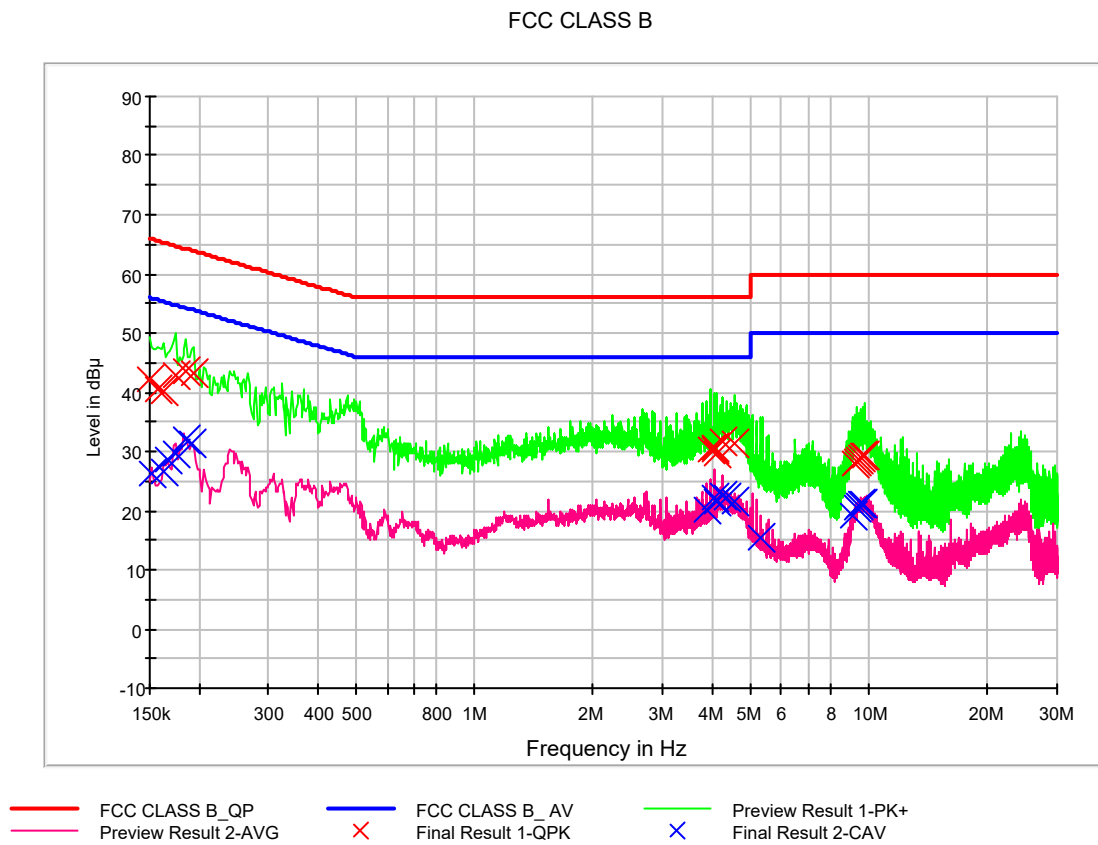
Calculation Formula:

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

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	26.6	9.000	L1	9.6	29.4	56.0
0.160000	26.0	9.000	L1	9.6	29.5	55.5
0.166000	30.3	9.000	L1	9.6	24.8	55.2
0.176000	32.0	9.000	L1	9.6	22.6	54.7
0.182000	31.7	9.000	L1	9.6	22.7	54.4
0.198000	25.3	9.000	L1	9.7	28.4	53.7
3.706000	17.0	9.000	L1	9.8	29.0	46.0
3.736000	17.3	9.000	L1	9.8	28.7	46.0
3.808000	18.0	9.000	L1	9.8	28.0	46.0
4.014000	20.3	9.000	L1	9.8	25.7	46.0
4.212000	21.4	9.000	L1	9.8	24.6	46.0
4.750000	17.9	9.000	L1	9.8	28.1	46.0
5.314000	12.7	9.000	L1	9.9	37.3	50.0
5.328000	12.5	9.000	L1	9.9	37.5	50.0
9.462000	20.9	9.000	L1	10.0	29.1	50.0
9.672000	21.0	9.000	L1	10.0	29.0	50.0
9.676000	21.0	9.000	L1	10.0	29.0	50.0
9.772000	21.2	9.000	L1	10.0	28.8	50.0

Figure 2: Conducted Emission, DATA Communication, Line (N)



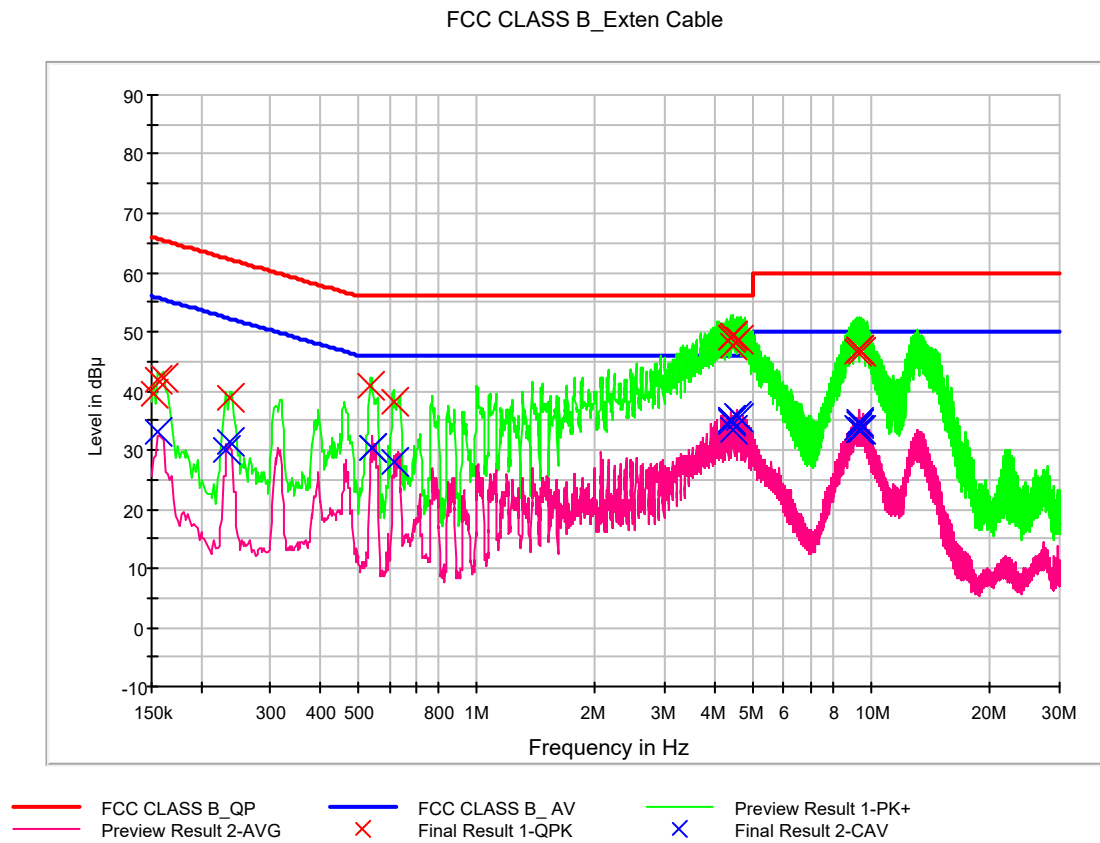
QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	42.2	9.000	N	9.6	23.8	66.0
0.158000	40.6	9.000	N	9.6	24.9	65.6
0.162000	40.0	9.000	N	9.6	25.4	65.4
0.174000	43.0	9.000	N	9.6	21.8	64.8
0.186000	43.6	9.000	N	9.6	20.6	64.2
0.194000	43.3	9.000	N	9.6	20.6	63.9
3.966000	30.4	9.000	N	9.8	25.6	56.0
4.070000	30.7	9.000	N	9.8	25.3	56.0
4.076000	30.4	9.000	N	9.8	25.6	56.0
4.100000	29.6	9.000	N	9.8	26.4	56.0
4.274000	31.6	9.000	N	9.8	24.4	56.0
4.548000	31.2	9.000	N	9.8	24.8	56.0
9.214000	28.0	9.000	N	9.9	32.0	60.0
9.324000	28.2	9.000	N	9.9	31.8	60.0
9.410000	28.7	9.000	N	9.9	31.3	60.0
9.530000	29.0	9.000	N	9.9	31.0	60.0
9.638000	29.3	9.000	N	9.9	30.7	60.0
9.746000	29.3	9.000	N	9.9	30.7	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152000	26.2	9.000	N	9.6	29.7	55.9
0.162000	26.5	9.000	N	9.6	28.8	55.4
0.166000	28.6	9.000	N	9.6	26.5	55.2
0.174000	29.6	9.000	N	9.6	25.2	54.8
0.186000	32.1	9.000	N	9.6	22.1	54.2
0.192000	31.4	9.000	N	9.6	22.6	53.9
3.872000	20.2	9.000	N	9.8	25.8	46.0
4.070000	22.1	9.000	N	9.8	23.9	46.0
4.100000	21.4	9.000	N	9.8	24.6	46.0
4.272000	22.5	9.000	N	9.8	23.5	46.0
4.374000	22.0	9.000	N	9.8	24.0	46.0
4.560000	21.4	9.000	N	9.8	24.6	46.0
5.288000	15.6	9.000	N	9.8	34.4	50.0
9.140000	19.2	9.000	N	9.9	30.8	50.0
9.324000	20.5	9.000	N	9.9	29.5	50.0
9.404000	21.0	9.000	N	9.9	29.0	50.0
9.530000	21.1	9.000	N	9.9	28.9	50.0
9.638000	21.3	9.000	N	9.9	28.7	50.0

Figure 3: Conducted Emission, Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview, Line (L1)



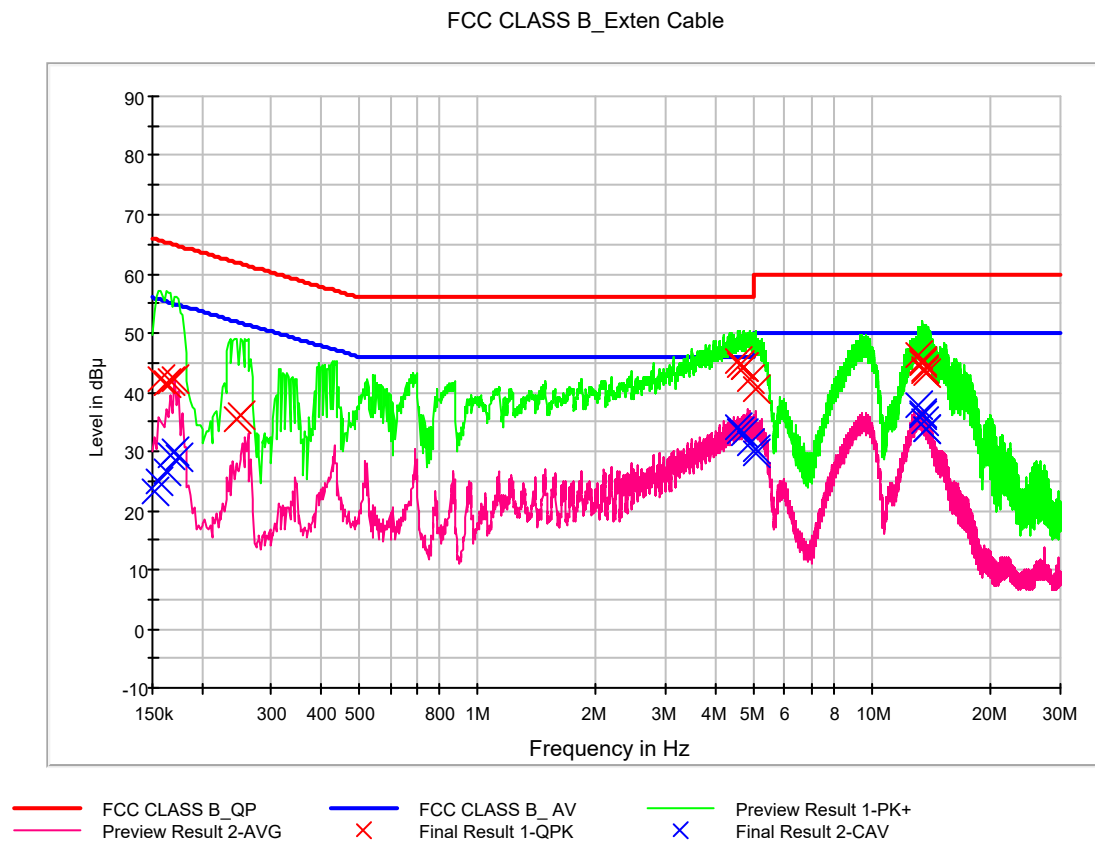
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152000	39.5	9.000	L1	9.7	26.4	65.9
0.156000	42.0	9.000	L1	9.7	23.7	65.7
0.160000	42.3	9.000	L1	9.7	23.2	65.5
0.238000	38.8	9.000	L1	9.7	23.4	62.2
0.538000	40.9	9.000	L1	9.8	15.1	56.0
0.616000	38.2	9.000	L1	9.8	17.8	56.0
4.390000	49.0	9.000	L1	10.0	7.0	56.0
4.394000	49.0	9.000	L1	10.0	7.0	56.0
4.448000	47.6	9.000	L1	10.0	8.4	56.0
4.468000	49.4	9.000	L1	10.0	6.6	56.0
4.474000	49.3	9.000	L1	10.0	6.7	56.0
4.620000	48.7	9.000	L1	10.0	7.3	56.0
9.172000	46.8	9.000	L1	10.2	13.2	60.0
9.300000	47.1	9.000	L1	10.2	12.9	60.0
9.316000	47.0	9.000	L1	10.2	13.0	60.0
9.338000	47.0	9.000	L1	10.2	13.0	60.0
9.346000	47.1	9.000	L1	10.2	12.9	60.0
9.478000	46.6	9.000	L1	10.2	13.4	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	32.9	9.000	L1	9.7	22.7	55.7
0.232000	30.1	9.000	L1	9.7	22.3	52.4
0.236000	31.5	9.000	L1	9.7	20.7	52.2
0.540000	30.2	9.000	L1	9.8	15.8	46.0
0.544000	30.5	9.000	L1	9.8	15.5	46.0
0.618000	27.9	9.000	L1	9.8	18.1	46.0
4.386000	35.1	9.000	L1	10.0	10.9	46.0
4.390000	35.0	9.000	L1	10.0	11.0	46.0
4.394000	34.9	9.000	L1	10.0	11.1	46.0
4.448000	33.4	9.000	L1	10.0	12.6	46.0
4.544000	35.7	9.000	L1	10.0	10.3	46.0
4.620000	35.4	9.000	L1	10.0	10.6	46.0
9.172000	33.6	9.000	L1	10.2	16.4	50.0
9.316000	33.4	9.000	L1	10.2	16.6	50.0
9.320000	33.4	9.000	L1	10.2	16.6	50.0
9.338000	34.3	9.000	L1	10.2	15.7	50.0
9.346000	34.8	9.000	L1	10.2	15.2	50.0
9.478000	33.4	9.000	L1	10.2	16.6	50.0

Figure 4: Conducted Emission, Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview, Line (N)



QuasiPeak Final Result, Line (N)

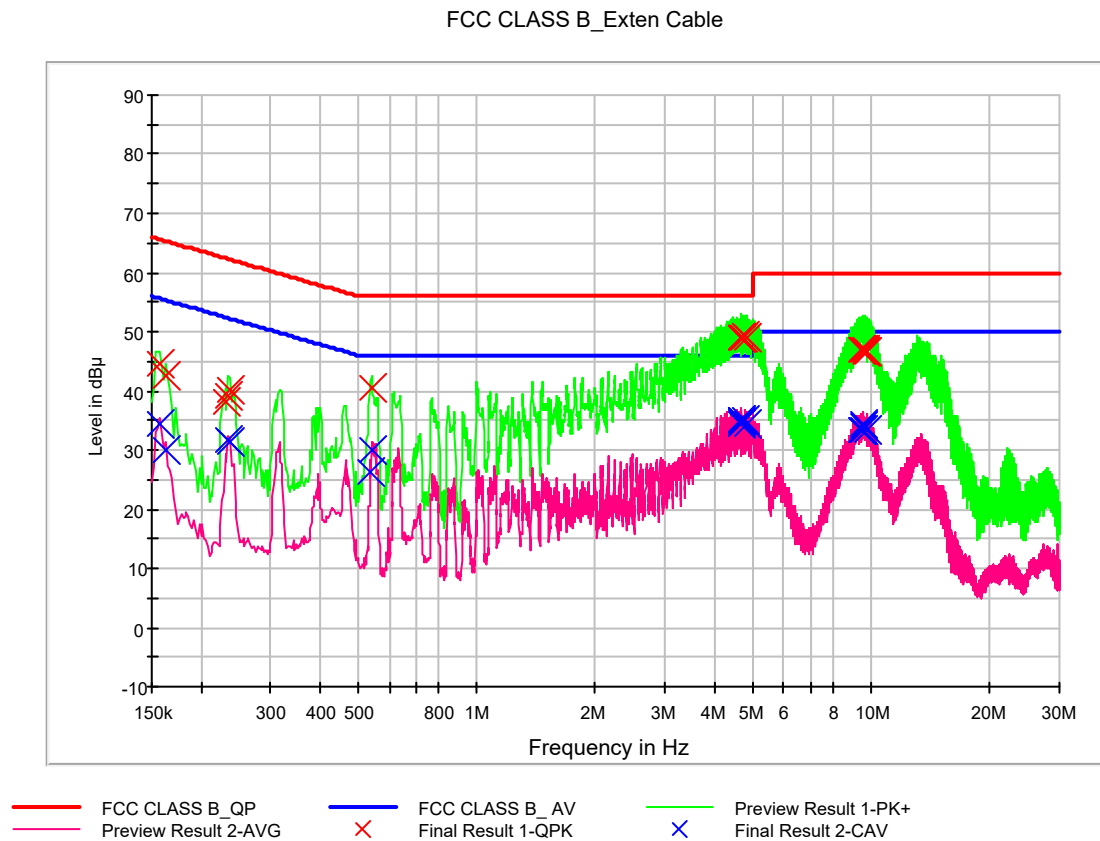
Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	42.3	9.000	N	9.8	23.3	65.6
0.162000	41.6	9.000	N	9.8	23.8	65.4
0.166000	41.8	9.000	N	9.8	23.4	65.2
0.170000	42.3	9.000	N	9.8	22.6	65.0
0.246000	35.4	9.000	N	9.9	26.4	61.9
0.250000	36.1	9.000	N	9.9	25.6	61.8
4.554000	45.4	9.000	N	10.2	10.6	56.0
4.640000	44.7	9.000	N	10.2	11.3	56.0
4.724000	44.3	9.000	N	10.2	11.7	56.0
4.732000	44.2	9.000	N	10.2	11.8	56.0
4.890000	42.4	9.000	N	10.2	13.6	56.0
5.086000	40.5	9.000	N	10.2	19.5	60.0
13.070000	46.2	9.000	N	10.6	13.8	60.0
13.398000	45.1	9.000	N	10.6	14.9	60.0
13.412000	45.0	9.000	N	10.6	15.0	60.0
13.572000	43.8	9.000	N	10.6	16.2	60.0
13.586000	43.4	9.000	N	10.6	16.6	60.0
13.770000	43.2	9.000	N	10.6	16.8	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152000	23.3	9.000	N	9.8	32.5	55.9
0.156000	25.1	9.000	N	9.8	30.6	55.7
0.162000	26.8	9.000	N	9.8	28.6	55.4
0.166000	29.5	9.000	N	9.8	25.7	55.2
0.170000	30.0	9.000	N	9.8	25.0	55.0
0.174000	28.9	9.000	N	9.8	25.8	54.8
4.554000	34.1	9.000	N	10.2	11.9	46.0
4.640000	33.4	9.000	N	10.2	12.6	46.0
4.724000	32.9	9.000	N	10.2	13.1	46.0
4.890000	31.4	9.000	N	10.2	14.6	46.0
5.068000	30.4	9.000	N	10.2	19.6	50.0
5.086000	29.7	9.000	N	10.2	20.3	50.0
13.070000	37.7	9.000	N	10.6	12.3	50.0
13.398000	36.6	9.000	N	10.6	13.4	50.0
13.412000	36.3	9.000	N	10.6	13.7	50.0
13.586000	34.9	9.000	N	10.6	15.1	50.0
13.764000	33.8	9.000	N	10.6	16.2	50.0
13.770000	33.7	9.000	N	10.6	16.3	50.0

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Figure 5: Conducted Emission, Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play, Line (L1)



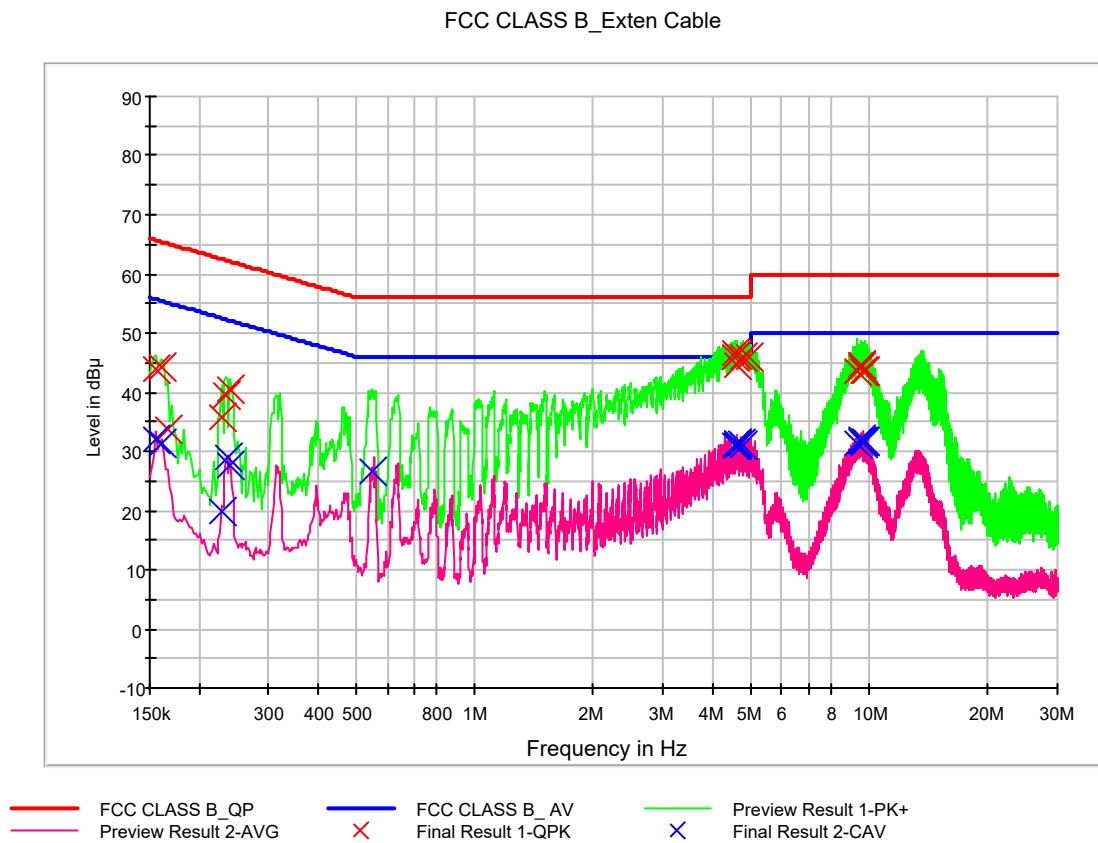
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	44.5	9.000	L1	9.7	21.1	65.6
0.162000	42.5	9.000	L1	9.7	22.9	65.4
0.230000	38.2	9.000	L1	9.7	24.2	62.4
0.234000	39.3	9.000	L1	9.7	23.0	62.3
0.238000	40.2	9.000	L1	9.7	22.0	62.2
0.540000	40.6	9.000	L1	9.8	15.4	56.0
4.684000	48.9	9.000	L1	10.0	7.1	56.0
4.690000	49.0	9.000	L1	10.0	7.0	56.0
4.698000	49.2	9.000	L1	10.0	6.8	56.0
4.706000	49.0	9.000	L1	10.0	7.0	56.0
4.778000	49.2	9.000	L1	10.0	6.8	56.0
4.848000	49.1	9.000	L1	10.0	6.9	56.0
9.392000	46.9	9.000	L1	10.2	13.1	60.0
9.474000	46.9	9.000	L1	10.2	13.1	60.0
9.538000	47.1	9.000	L1	10.2	12.9	60.0
9.598000	46.8	9.000	L1	10.2	13.2	60.0
9.696000	46.7	9.000	L1	10.2	13.3	60.0
9.716000	46.7	9.000	L1	10.2	13.3	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.158000	34.3	9.000	L1	9.7	21.3	55.6
0.162000	30.1	9.000	L1	9.7	25.3	55.4
0.234000	31.6	9.000	L1	9.7	20.7	52.3
0.238000	31.4	9.000	L1	9.7	20.7	52.2
0.536000	26.2	9.000	L1	9.8	19.8	46.0
0.540000	30.1	9.000	L1	9.8	15.9	46.0
4.684000	34.5	9.000	L1	10.0	11.5	46.0
4.690000	34.9	9.000	L1	10.0	11.1	46.0
4.694000	35.0	9.000	L1	10.0	11.0	46.0
4.698000	35.2	9.000	L1	10.0	10.8	46.0
4.780000	35.1	9.000	L1	10.0	10.9	46.0
4.850000	34.5	9.000	L1	10.0	11.5	46.0
9.392000	33.5	9.000	L1	10.2	16.5	50.0
9.474000	33.5	9.000	L1	10.2	16.5	50.0
9.496000	34.6	9.000	L1	10.2	15.4	50.0
9.538000	33.5	9.000	L1	10.2	16.5	50.0
9.566000	34.0	9.000	L1	10.2	16.0	50.0
9.716000	33.3	9.000	L1	10.2	16.8	50.0

Figure 6: Conducted Emission, Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play, Line (N)



QuasiPeak Final Result, Line (N)

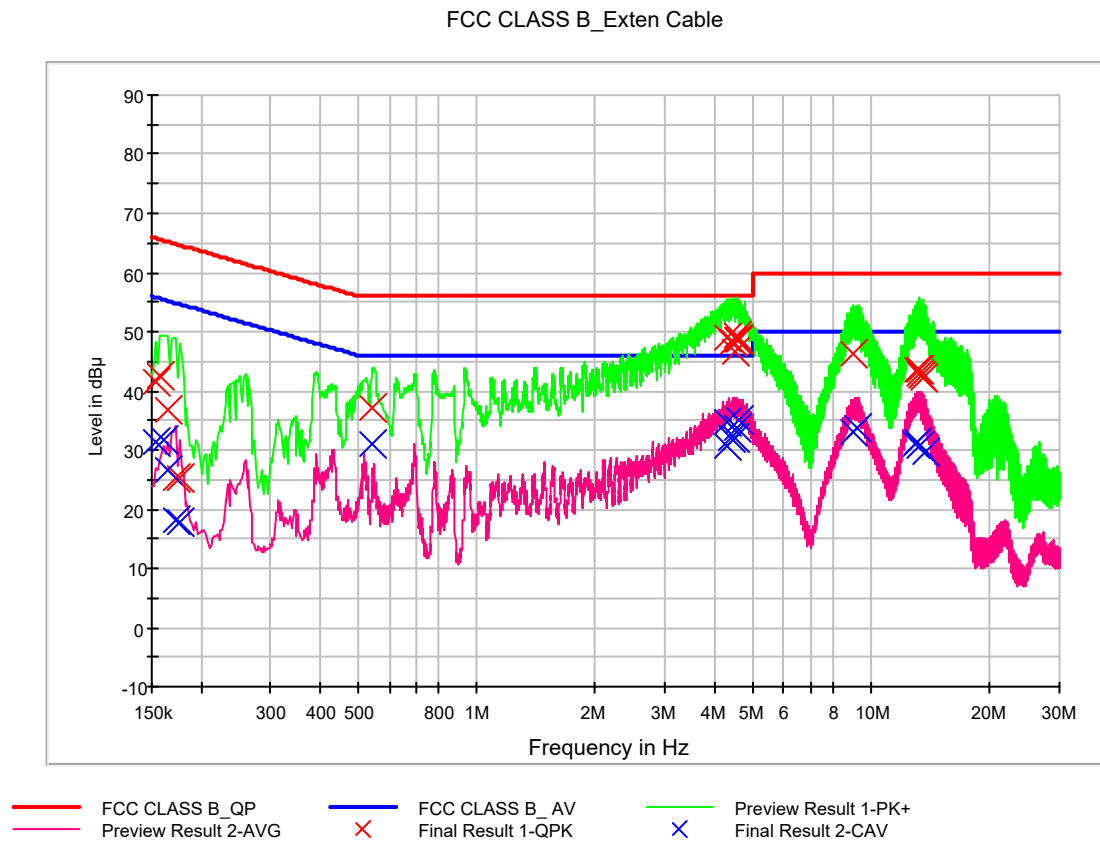
Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	43.9	9.000	N	9.8	21.8	65.7
0.160000	44.1	9.000	N	9.8	21.4	65.5
0.166000	33.7	9.000	N	9.8	31.5	65.2
0.228000	35.7	9.000	N	9.9	26.8	62.5
0.234000	39.4	9.000	N	9.9	22.9	62.3
0.240000	40.4	9.000	N	9.9	21.7	62.1
4.552000	46.0	9.000	N	10.2	10.0	56.0
4.556000	46.7	9.000	N	10.2	9.3	56.0
4.624000	44.7	9.000	N	10.2	11.3	56.0
4.634000	46.4	9.000	N	10.2	9.6	56.0
4.794000	46.0	9.000	N	10.2	10.0	56.0
4.952000	46.0	9.000	N	10.2	10.0	56.0
9.340000	43.6	9.000	N	10.4	16.4	60.0
9.504000	44.3	9.000	N	10.4	15.7	60.0
9.508000	44.7	9.000	N	10.4	15.3	60.0
9.586000	44.4	9.000	N	10.4	15.6	60.0
9.656000	43.5	9.000	N	10.4	16.5	60.0
9.738000	43.6	9.000	N	10.4	16.4	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	32.1	9.000	N	9.8	23.6	55.7
0.160000	31.5	9.000	N	9.8	24.0	55.5
0.228000	19.7	9.000	N	9.9	32.8	52.5
0.236000	29.1	9.000	N	9.9	23.1	52.2
0.240000	27.5	9.000	N	9.9	24.6	52.1
0.550000	26.7	9.000	N	9.9	19.3	46.0
4.556000	30.9	9.000	N	10.2	15.1	46.0
4.628000	31.5	9.000	N	10.2	14.5	46.0
4.632000	31.5	9.000	N	10.2	14.5	46.0
4.636000	31.1	9.000	N	10.2	14.9	46.0
4.712000	31.4	9.000	N	10.2	14.6	46.0
4.794000	31.0	9.000	N	10.2	15.0	46.0
9.340000	31.3	9.000	N	10.4	18.7	50.0
9.504000	31.8	9.000	N	10.4	18.2	50.0
9.588000	31.9	9.000	N	10.4	18.1	50.0
9.592000	31.7	9.000	N	10.4	18.3	50.0
9.656000	31.5	9.000	N	10.4	18.5	50.0
9.742000	31.6	9.000	N	10.4	18.4	50.0

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Figure 7: Conducted Emission, Keyboard, Line (L1)



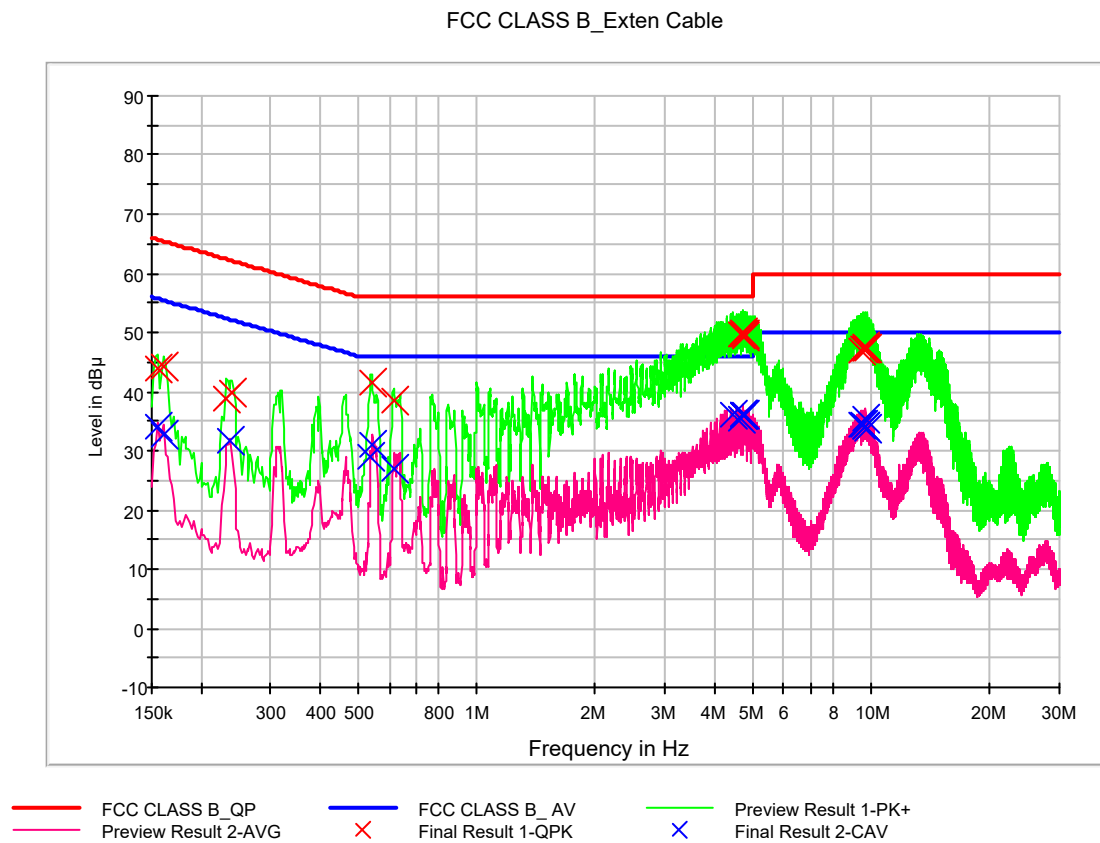
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154000	41.5	9.000	L1	9.7	24.3	65.8
0.158000	42.4	9.000	L1	9.7	23.1	65.6
0.164000	36.8	9.000	L1	9.7	28.5	65.3
0.172000	25.3	9.000	L1	9.7	39.5	64.9
0.176000	25.2	9.000	L1	9.7	39.5	64.7
0.546000	37.0	9.000	L1	9.8	19.0	56.0
4.318000	48.9	9.000	L1	10.0	7.1	56.0
4.454000	48.4	9.000	L1	10.0	7.6	56.0
4.488000	46.5	9.000	L1	10.0	9.5	56.0
4.544000	49.3	9.000	L1	10.0	6.7	56.0
4.560000	48.5	9.000	L1	10.0	7.5	56.0
4.636000	48.6	9.000	L1	10.0	7.4	56.0
8.952000	46.3	9.000	L1	10.2	13.7	60.0
13.022000	43.6	9.000	L1	10.3	16.4	60.0
13.158000	42.7	9.000	L1	10.3	17.3	60.0
13.208000	43.4	9.000	L1	10.3	16.6	60.0
13.334000	42.7	9.000	L1	10.4	17.3	60.0
13.572000	42.2	9.000	L1	10.4	17.8	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154000	31.4	9.000	L1	9.7	24.4	55.8
0.160000	31.8	9.000	L1	9.7	23.7	55.5
0.164000	26.8	9.000	L1	9.7	28.5	55.3
0.172000	18.1	9.000	L1	9.7	36.7	54.9
0.176000	17.9	9.000	L1	9.7	36.8	54.7
0.546000	31.0	9.000	L1	9.8	15.0	46.0
4.282000	30.8	9.000	L1	10.0	15.2	46.0
4.318000	34.8	9.000	L1	10.0	11.2	46.0
4.408000	32.0	9.000	L1	10.0	14.0	46.0
4.488000	31.9	9.000	L1	10.0	14.1	46.0
4.560000	33.7	9.000	L1	10.0	12.3	46.0
4.636000	35.2	9.000	L1	10.0	10.8	46.0
8.952000	33.0	9.000	L1	10.2	17.0	50.0
9.160000	33.7	9.000	L1	10.2	16.3	50.0
12.896000	30.9	9.000	L1	10.3	19.1	50.0
13.022000	31.3	9.000	L1	10.3	18.7	50.0
13.158000	30.8	9.000	L1	10.3	19.2	50.0
13.748000	29.6	9.000	L1	10.4	20.4	50.0

Figure 8: Conducted Emission, Keyboard, Line (N)



QuasiPeak Final Result, Line (N)

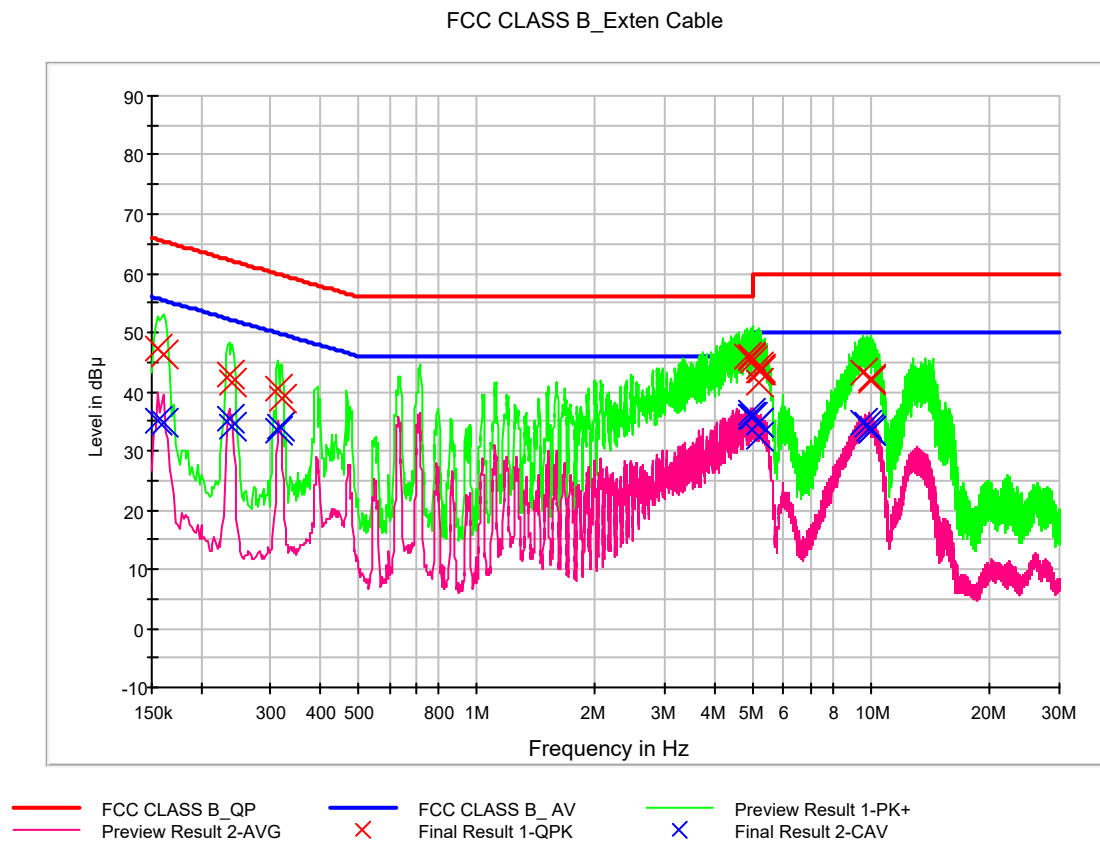
Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	43.9	9.000	N	9.8	21.8	65.7
0.160000	44.1	9.000	N	9.8	21.4	65.5
0.232000	38.9	9.000	N	9.9	23.5	62.4
0.240000	40.0	9.000	N	9.9	22.1	62.1
0.540000	41.4	9.000	N	9.9	14.6	56.0
0.618000	38.5	9.000	N	9.9	17.5	56.0
4.690000	49.7	9.000	N	10.2	6.3	56.0
4.700000	49.9	9.000	N	10.2	6.1	56.0
4.704000	49.8	9.000	N	10.2	6.2	56.0
4.710000	49.7	9.000	N	10.2	6.3	56.0
4.780000	49.7	9.000	N	10.2	6.3	56.0
4.786000	49.5	9.000	N	10.2	6.5	56.0
9.452000	46.9	9.000	N	10.4	13.1	60.0
9.534000	47.3	9.000	N	10.4	12.7	60.0
9.616000	47.2	9.000	N	10.4	12.8	60.0
9.650000	47.4	9.000	N	10.4	12.6	60.0
9.672000	47.6	9.000	N	10.4	12.4	60.0
9.722000	47.2	9.000	N	10.4	12.8	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	34.0	9.000	N	9.8	21.6	55.7
0.160000	32.8	9.000	N	9.8	22.6	55.5
0.238000	31.7	9.000	N	9.9	20.5	52.2
0.538000	29.0	9.000	N	9.9	17.0	46.0
0.542000	31.2	9.000	N	9.9	14.8	46.0
0.616000	27.1	9.000	N	9.9	18.9	46.0
4.472000	36.1	9.000	N	10.2	9.9	46.0
4.690000	35.4	9.000	N	10.2	10.6	46.0
4.700000	36.2	9.000	N	10.2	9.8	46.0
4.704000	36.3	9.000	N	10.2	9.7	46.0
4.710000	36.2	9.000	N	10.2	9.8	46.0
4.780000	36.2	9.000	N	10.2	9.8	46.0
9.452000	34.3	9.000	N	10.4	15.7	50.0
9.534000	34.3	9.000	N	10.4	15.7	50.0
9.616000	34.2	9.000	N	10.4	15.8	50.0
9.650000	34.0	9.000	N	10.4	16.0	50.0
9.672000	35.4	9.000	N	10.4	14.6	50.0
9.722000	33.8	9.000	N	10.4	16.2	50.0

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Figure 9: Conducted Emission, Dock Charging, Line (L1)



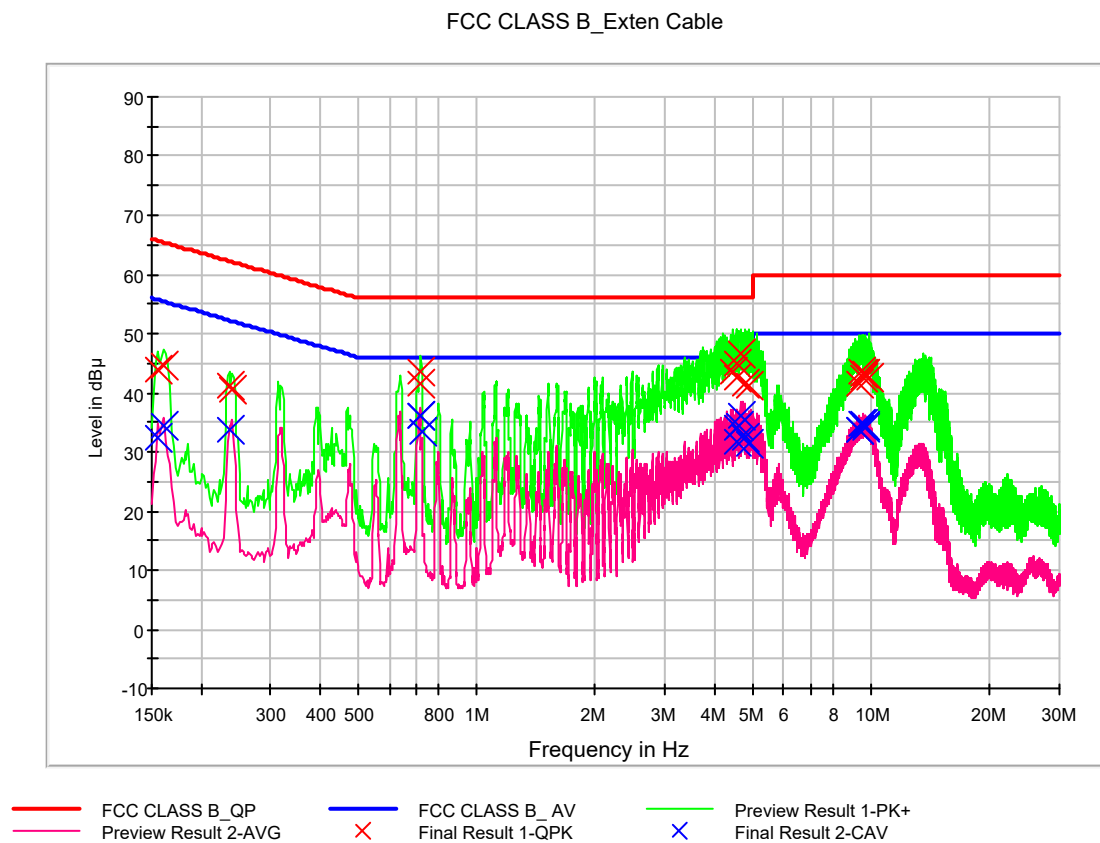
QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	47.2	9.000	L1	9.7	18.5	65.7
0.160000	46.3	9.000	L1	9.7	19.1	65.5
0.236000	42.9	9.000	L1	9.7	19.3	62.2
0.240000	41.5	9.000	L1	9.7	20.6	62.1
0.314000	40.6	9.000	L1	9.7	19.2	59.9
0.320000	38.8	9.000	L1	9.7	20.9	59.7
4.866000	45.8	9.000	L1	10.0	10.2	56.0
4.938000	45.7	9.000	L1	10.0	10.3	56.0
4.956000	45.9	9.000	L1	10.0	10.1	56.0
5.020000	45.3	9.000	L1	10.0	14.7	60.0
5.170000	43.5	9.000	L1	10.0	16.5	60.0
5.186000	44.2	9.000	L1	10.0	15.8	60.0
5.208000	41.5	9.000	L1	10.0	18.5	60.0
5.260000	43.6	9.000	L1	10.0	16.4	60.0
5.268000	43.8	9.000	L1	10.0	16.2	60.0
9.492000	43.3	9.000	L1	10.2	16.7	60.0
9.952000	41.8	9.000	L1	10.2	18.2	60.0
9.986000	42.3	9.000	L1	10.2	17.7	60.0

CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	35.0	9.000	L1	9.7	20.7	55.7
0.160000	34.8	9.000	L1	9.7	20.7	55.5
0.236000	35.4	9.000	L1	9.7	16.8	52.2
0.240000	34.0	9.000	L1	9.7	18.1	52.1
0.314000	33.2	9.000	L1	9.7	16.6	49.9
0.318000	34.0	9.000	L1	9.7	15.7	49.8
4.936000	35.7	9.000	L1	10.0	10.3	46.0
4.946000	36.5	9.000	L1	10.0	9.5	46.0
4.958000	35.7	9.000	L1	10.0	10.3	46.0
5.020000	35.9	9.000	L1	10.0	14.1	50.0
5.176000	34.7	9.000	L1	10.0	15.3	50.0
5.186000	34.7	9.000	L1	10.0	15.3	50.0
5.208000	32.2	9.000	L1	10.0	17.8	50.0
9.498000	34.8	9.000	L1	10.2	15.2	50.0
9.712000	34.3	9.000	L1	10.2	15.7	50.0
9.920000	33.6	9.000	L1	10.2	16.4	50.0
9.952000	33.5	9.000	L1	10.2	16.5	50.0
9.986000	33.4	9.000	L1	10.2	16.6	50.0

Figure 10: Conducted Emission, Dock Charging, Line (N)



QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	44.0	9.000	N	9.8	21.7	65.7
0.160000	44.7	9.000	N	9.8	20.7	65.5
0.236000	41.0	9.000	N	9.9	21.2	62.2
0.240000	40.5	9.000	N	9.9	21.6	62.1
0.718000	41.4	9.000	N	9.9	14.6	56.0
0.722000	43.5	9.000	N	9.9	12.5	56.0
4.478000	43.6	9.000	N	10.2	12.4	56.0
4.552000	42.5	9.000	N	10.2	13.5	56.0
4.562000	44.9	9.000	N	10.2	11.1	56.0
4.650000	46.7	9.000	N	10.2	9.3	56.0
4.784000	41.6	9.000	N	10.2	14.4	56.0
4.870000	41.2	9.000	N	10.2	14.8	56.0
9.358000	41.6	9.000	N	10.4	18.4	60.0
9.382000	43.6	9.000	N	10.4	16.4	60.0
9.502000	42.5	9.000	N	10.4	17.5	60.0
9.534000	43.4	9.000	N	10.4	16.6	60.0
9.688000	43.2	9.000	N	10.4	16.8	60.0
9.864000	42.4	9.000	N	10.4	17.6	60.0

CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.156000	32.3	9.000	N	9.8	23.4	55.7
0.160000	34.3	9.000	N	9.8	21.2	55.5
0.236000	33.7	9.000	N	9.9	18.5	52.2
0.716000	36.1	9.000	N	9.9	9.9	46.0
0.720000	36.3	9.000	N	9.9	9.7	46.0
0.724000	33.4	9.000	N	9.9	12.6	46.0
4.552000	31.7	9.000	N	10.2	14.3	46.0
4.562000	34.2	9.000	N	10.2	11.8	46.0
4.642000	34.5	9.000	N	10.2	11.5	46.0
4.650000	36.2	9.000	N	10.2	9.8	46.0
4.794000	32.4	9.000	N	10.2	13.6	46.0
4.870000	31.4	9.000	N	10.2	14.6	46.0
9.278000	33.7	9.000	N	10.4	16.3	50.0
9.360000	33.9	9.000	N	10.4	16.1	50.0
9.382000	34.8	9.000	N	10.4	15.2	50.0
9.534000	34.7	9.000	N	10.4	15.3	50.0
9.688000	34.0	9.000	N	10.4	16.0	50.0
9.692000	34.4	9.000	N	10.4	15.6	50.0

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4.2 Radiated Emission Below 1 GHz

4.2.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	EMI test receiver	Rohde & Schwarz	ESU40	100524	1 year	05.17.2019
☒	Trilog antenna	Schwarzbeck	VULB 9168	255	2 year	03.26.2019
☒	Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
☒	Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
☒	Turn Table	INNCO Systems	1060	-	N/A	-
☒	Turn table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.21.2018
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-

4.2.2 Operating Condition

The test results of radiated emission provide the following information:

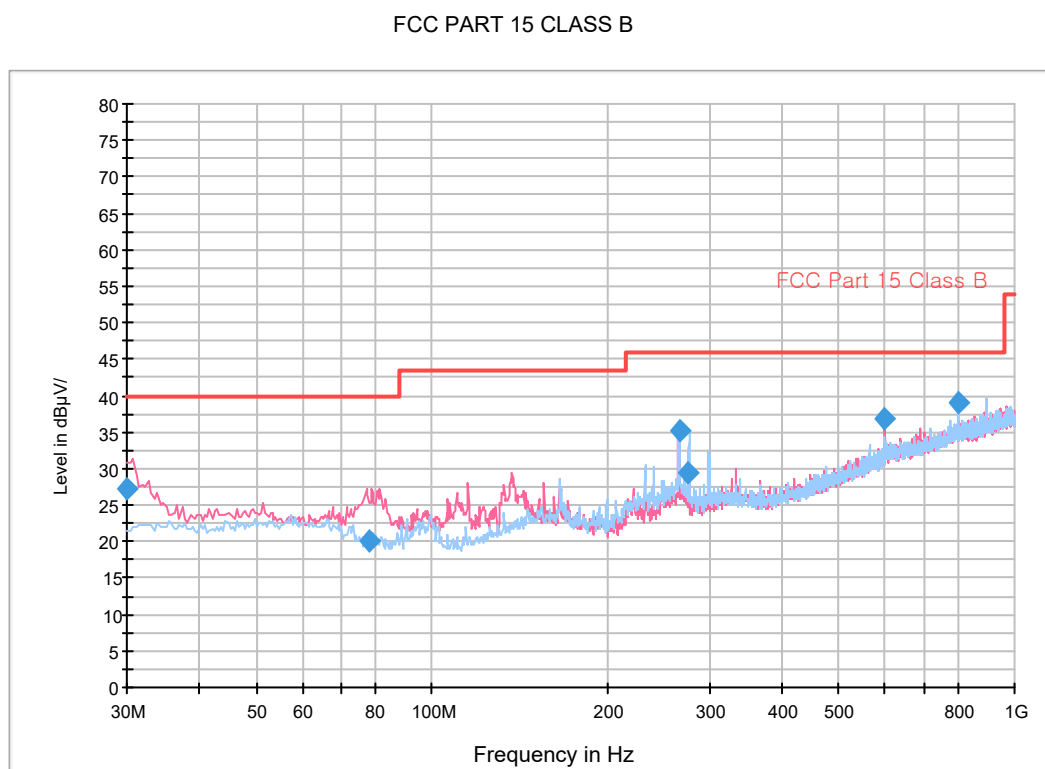
Used Test Standard	FCC CFR 47 PART 15 Subpart B Class B ANSI C63.4-2014
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Worst Case Operating Mode	Data Communication mode [EUT+TA] Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play [EUT+Earphone] Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play Keyboard mode Dock Charging mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	22.3 / 24.7 °C
Relative Humidity	44.6 / 41.5 %
Test Date	June 04, 2019 / June 05, 2019

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

4.2.3 Measuring Data

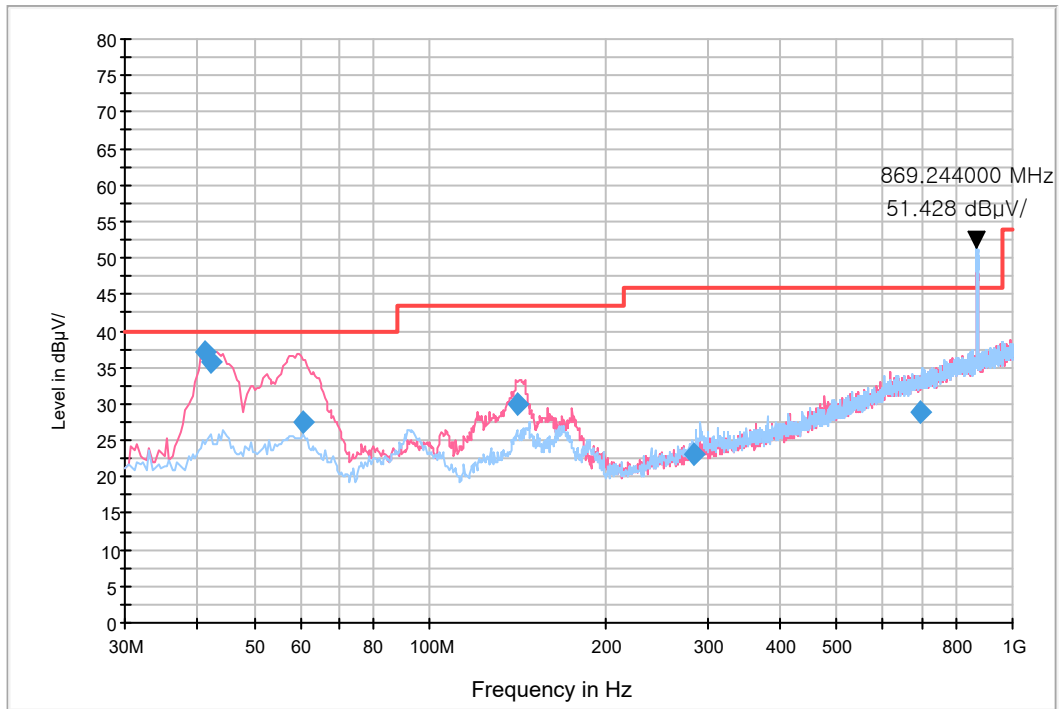
Figure 11: Data Communication mode



Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
30.017760	27.2	125.1	V	140.0	18.3	12.8	40.0
78.102400	20.0	174.7	V	191.0	16.2	20.0	40.0
265.601600	35.3	125.0	H	319.0	19.3	10.7	46.0
276.220000	29.4	118.8	H	288.0	19.7	16.6	46.0
600.003200	36.8	275.0	V	136.0	27.4	9.2	46.0
800.016000	39.1	225.1	H	346.0	31.5	6.9	46.0

Figure 12: [EUT+TA] Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview

FCC PART 15 CLASS B

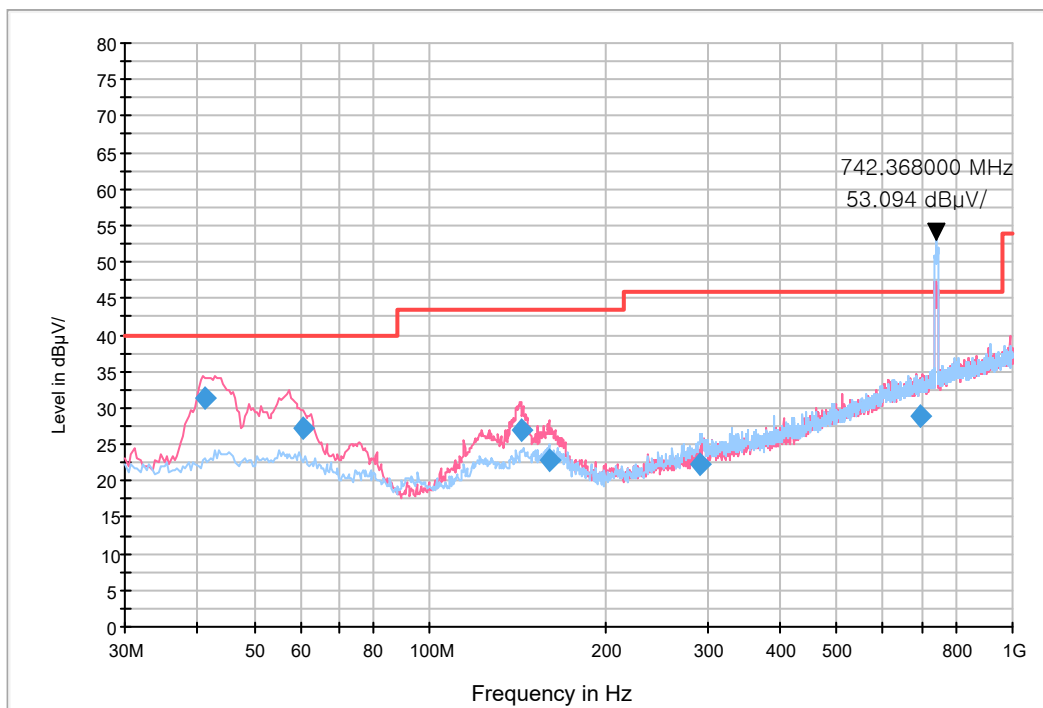


NOTE. 1. LTE B5 Low CH RX Frequency: 869.244 MHz
2. These are signals for fundamental frequency from the base station

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
41.208800	37.0	100.0	V	124.0	19.1	3.0	40.0
42.319200	35.6	100.0	V	144.0	19.2	4.4	40.0
60.514400	27.4	100.0	V	290.0	19.3	12.6	40.0
142.046400	29.8	100.0	V	17.0	19.1	13.7	43.5
283.866400	23.2	100.0	H	131.0	20.0	22.8	46.0
697.052000	28.8	117.8	H	30.0	28.8	17.2	46.0

Figure 13: [EUT+TA] Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play

FCC PART 15 CLASS B

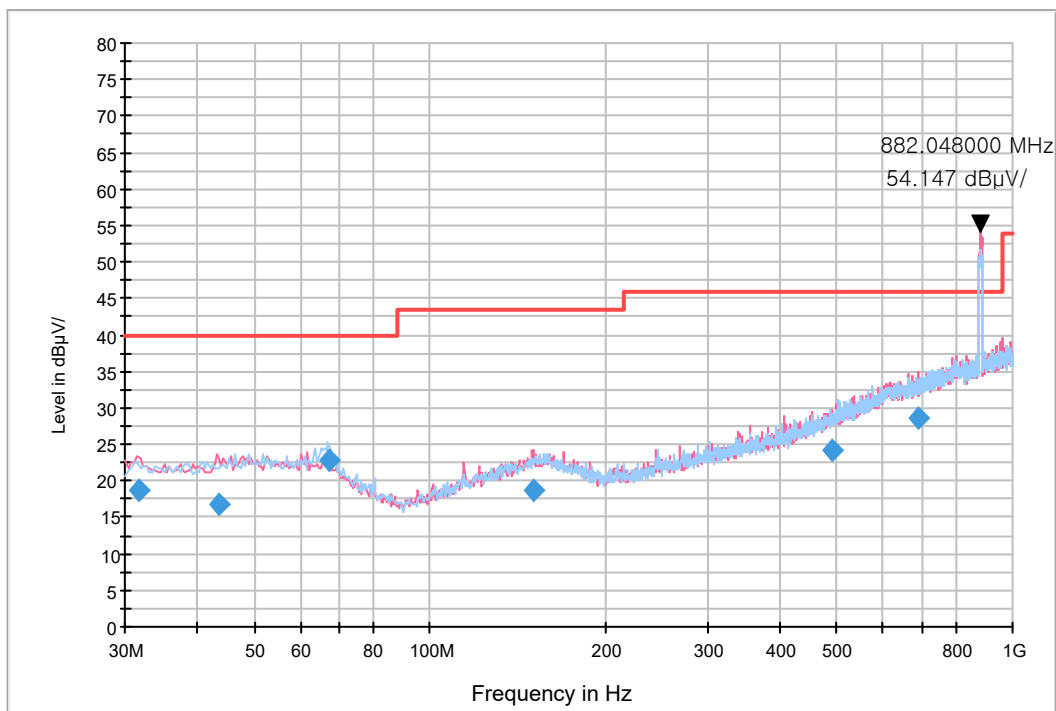


NOTE. 1. LTE B12+B13+B17 Middle CH RX Frequency: 742.368 MHz
2. These are signals for fundamental frequency from the base station

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
41.333600	31.4	100.0	V	77.0	19.1	8.6	40.0
60.844800	27.3	100.0	V	99.0	19.3	12.7	40.0
143.281600	26.9	100.0	V	32.0	19.2	16.6	43.5
160.546400	22.8	100.0	V	302.0	19.9	20.7	43.5
291.460800	22.3	100.0	H	129.0	20.3	23.7	46.0
697.396800	28.8	125.3	V	25.0	28.8	17.2	46.0

Figure 14: [EUT+Earphone] Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview

FCC PART 15 CLASS B

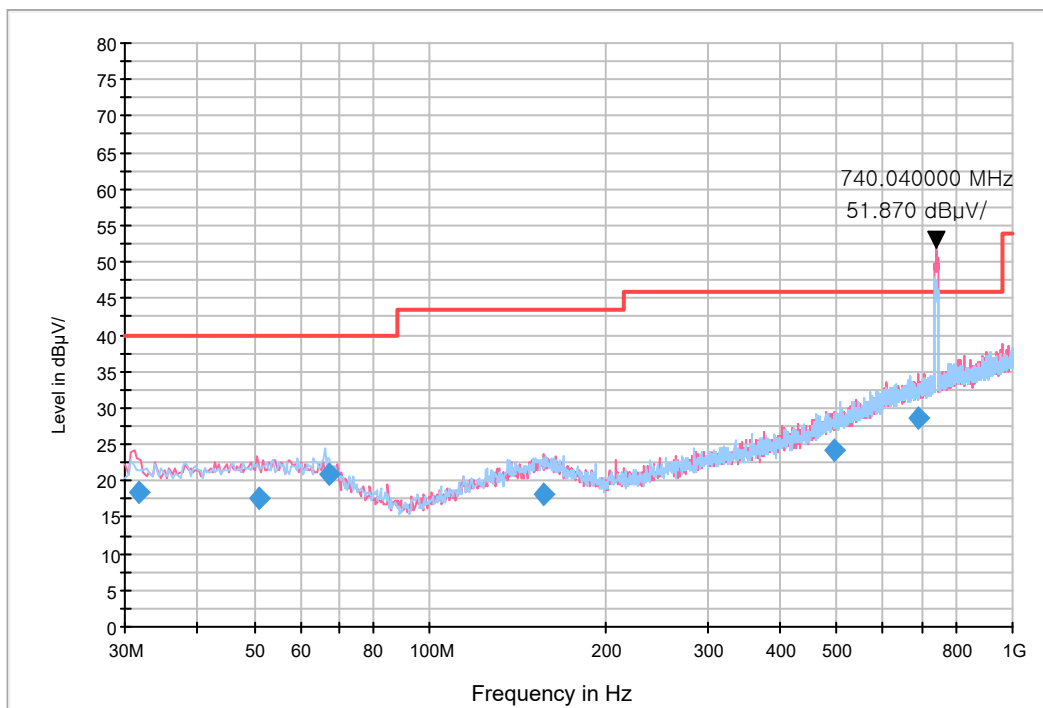


NOTE. 1. LTE B5 Middle CH RX Frequency: 882.048 MHz
2. These are signals for fundamental frequency from the base station

Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
31.659200	18.6	100.0	V	313.0	18.4	21.4	40.0
43.373600	16.8	292.8	V	80.0	19.3	23.2	40.0
67.266400	22.8	275.0	H	320.0	18.4	17.2	40.0
150.284800	18.7	274.8	V	310.0	19.5	24.8	43.5
489.486400	24.2	100.0	V	24.0	25.0	21.8	46.0
691.117600	28.7	174.8	V	317.0	28.7	17.3	46.0

Figure 15: [EUT+Earphone] Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play

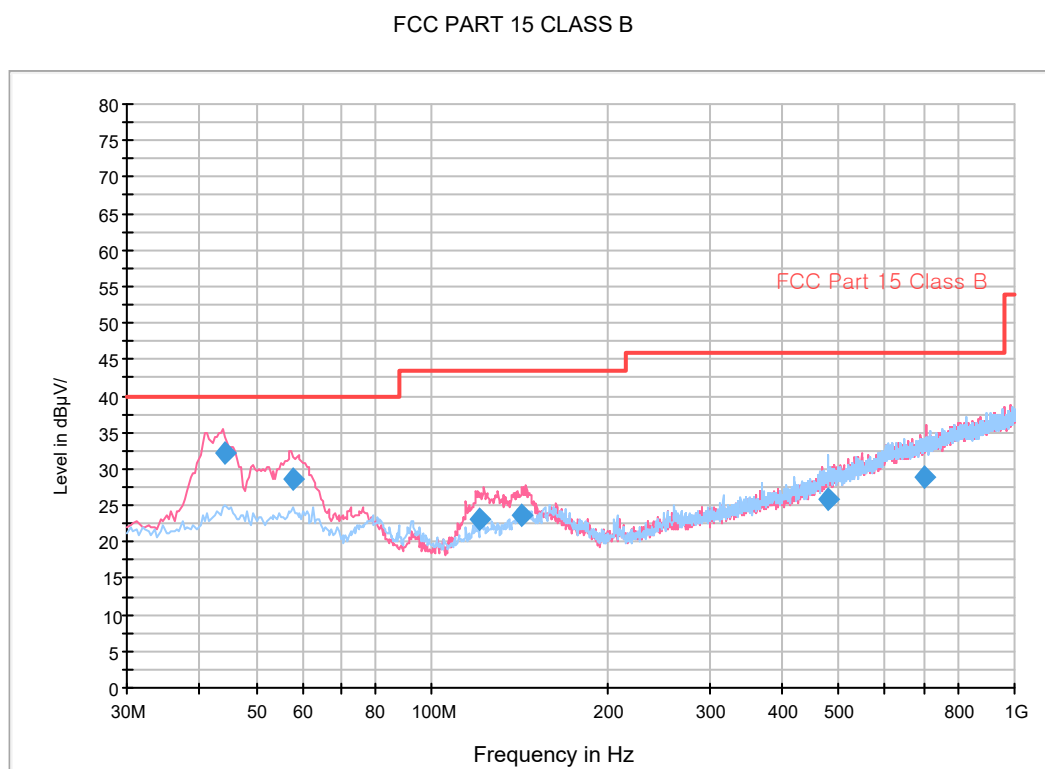
FCC PART 15 CLASS B



NOTE. 1. LTE B12+B13+B17 Middle CH RX Frequency: 740.040 MHz
2. These are signals for fundamental frequency from the base station

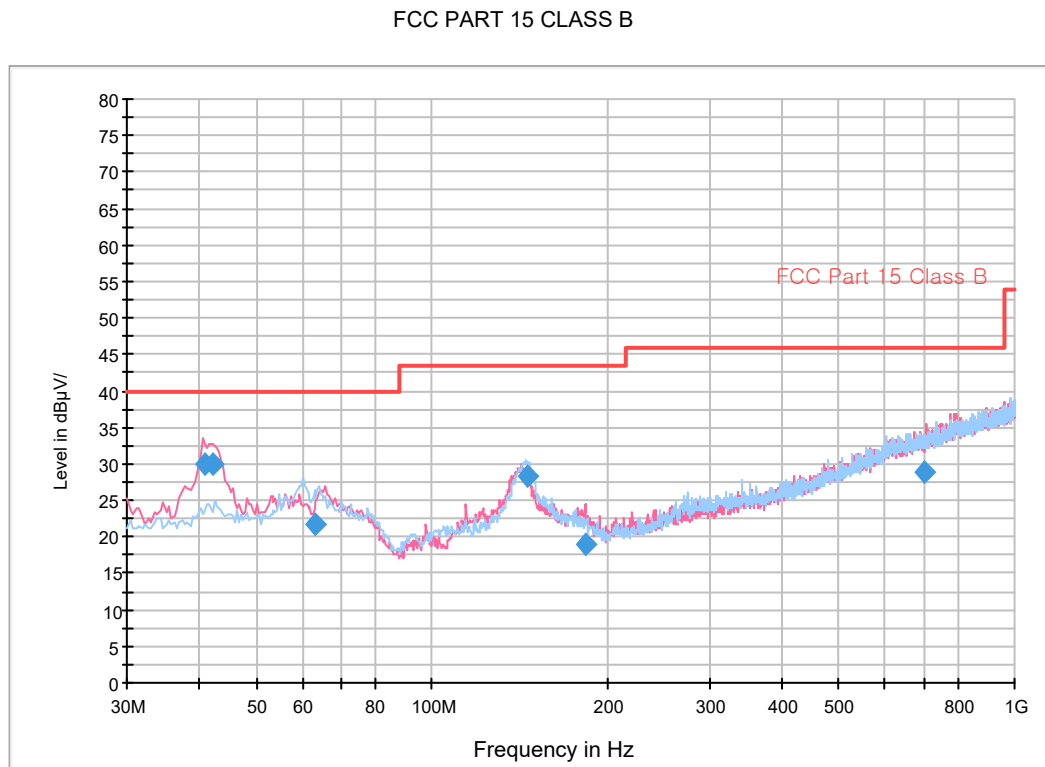
Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
31.604000	18.4	100.0	V	30.0	18.4	21.6	40.0
50.912000	17.7	100.0	V	0.0	19.8	22.3	40.0
67.050400	20.9	125.3	H	320.0	18.5	19.1	40.0
156.637600	18.1	100.0	V	30.0	19.8	25.4	43.5
493.894400	24.3	115.7	V	182.0	25.1	21.7	46.0
690.708800	28.7	100.0	V	30.0	28.7	17.3	46.0

Figure 16: Keyboard mode



Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
44.100800	32.1	100.0	V	61.0	19.3	7.9	40.0
57.820000	28.7	116.8	V	138.0	19.5	11.3	40.0
120.773600	23.1	100.0	V	0.0	17.5	20.4	43.5
142.996800	23.7	100.0	V	58.0	19.2	19.8	43.5
477.812000	25.9	100.0	H	193.0	24.7	20.1	46.0
702.988800	28.9	100.0	V	0.0	28.9	17.1	46.0

Figure 17: Dock Charging mode



Frequency (MHz)	Quasi Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
40.820800	30.1	100.0	V	232.0	19.0	9.9	40.0
42.196800	30.1	100.0	V	250.0	19.2	9.9	40.0
63.171200	21.8	325.2	H	131.0	19.0	18.2	40.0
145.862400	28.2	206.9	H	1.0	19.3	15.3	43.5
184.036000	18.9	125.2	V	152.0	18.0	24.6	43.5
702.691200	28.9	325.0	V	80.0	28.9	17.1	46.0

4.3 Radiated Emission Above 1 GHz

4.3.1 Measuring instruments

	Type	Manufacturer	Model Name	Serial Number	Calibration Cycle	Calibration Date
☒	EMI test receiver	Rohde & Schwarz	ESU40	100524	1 year	05.17.2019
☒	Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
☒	Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
☒	Turn table	INNCO Systems	1060	-	N/A	-
☒	Turn table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
☒	Horn antenna	Schwarzbeck	BBHA 9120D	01836	2 year	07.20.2018
☒	Low Noise amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.04.2019
☒	Power Amplifier	TK-PA1840H	TESTEK	170030-L	1 year	12.17.2018
☒	Horn Antenna	BBHA 9170	Schwarzbeck	BBHA 9170 #786	2 year	12.05.2017
☒	Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.21.2018
☒	Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
☒	Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-

4.3.2 Operating Condition

The test results of radiated emission provide the following information:

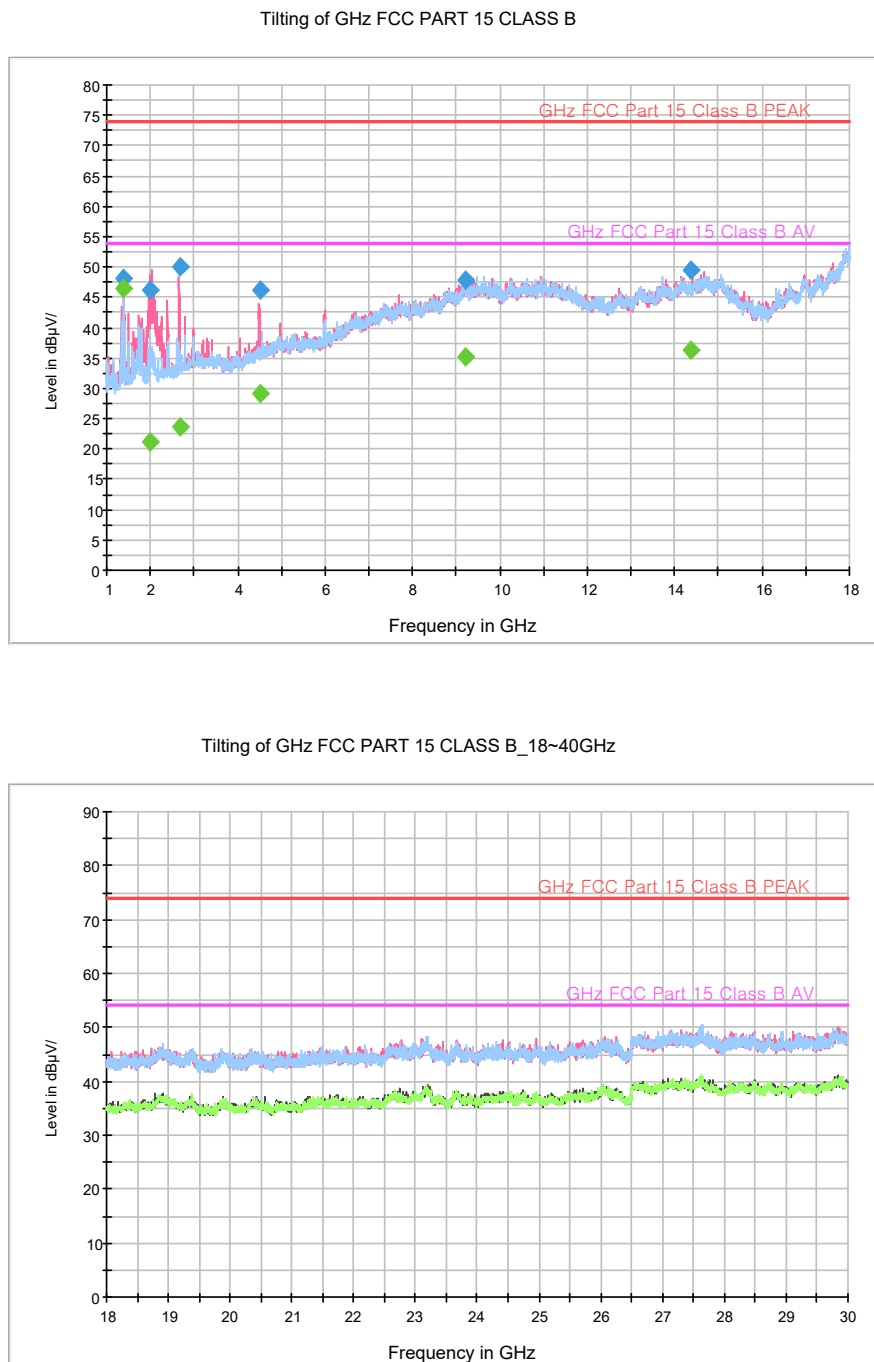
Used Test Standard	FCC CFR 47 PART 15 Subpart B Class B ANSI C63.4-2014
Detector	Peak mode: Peak (RBW: 1 MHz, VBW: 3 MHz) CISPR-Average mode: Peak (RBW: 1 MHz, VBW: 10 Hz)
Highest Frequency	5 825 MHz
Tested Frequency Range	1 GHz to 30 GHz
Worst Case Operating Mode	Data Communication mode [EUT+TA] Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play [EUT+Earphone] Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play Keyboard mode Dock Charging mode
Kind of Test Site	3 m semi anechoic chamber
Temperature	23.9 / 21.3 °C
Relative Humidity	41.3 / 42.4 %
Test Date	June 12, 2019 / June 13, 2019

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

4.3.3 Measuring Data

Figure 18: Data Communication

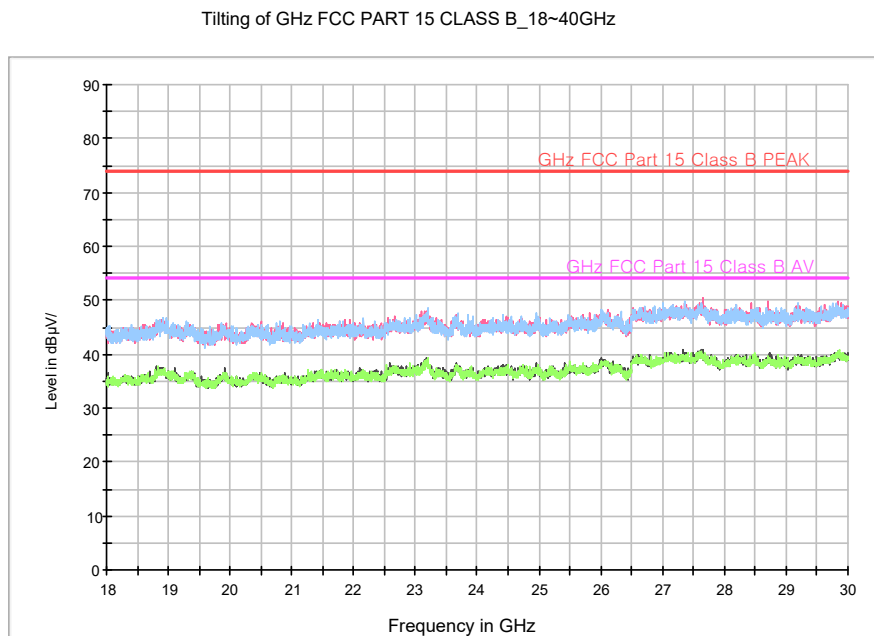
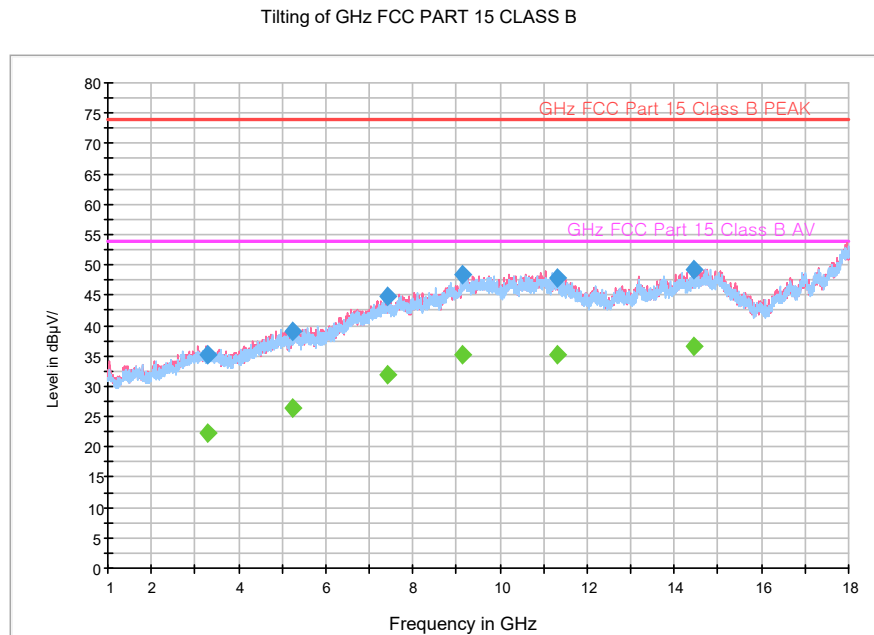


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Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1400.070000	48.0	188.4	H	176.0	-26.0	26.0	74.0
1996.930000	46.2	111.4	V	51.0	-25.2	27.8	74.0
2664.050000	50.0	249.8	V	26.0	-22.6	24.0	74.0
4498.480000	46.2	176.4	V	0.0	-17.5	27.8	74.0
9226.260000	47.9	149.5	V	21.0	-5.9	26.1	74.0
14376.780000	49.4	149.6	V	0.0	0.4	24.6	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1400.070000	46.4	188.4	H	176.0	-26.0	7.6	54.0
1996.930000	21.3	111.4	V	51.0	-25.2	32.7	54.0
2664.050000	23.8	249.8	V	26.0	-22.6	30.2	54.0
4498.480000	29.1	176.4	V	0.0	-17.5	24.9	54.0
9226.260000	35.2	149.5	V	21.0	-5.9	18.8	54.0
14376.780000	36.3	149.6	V	0.0	0.4	17.7	54.0

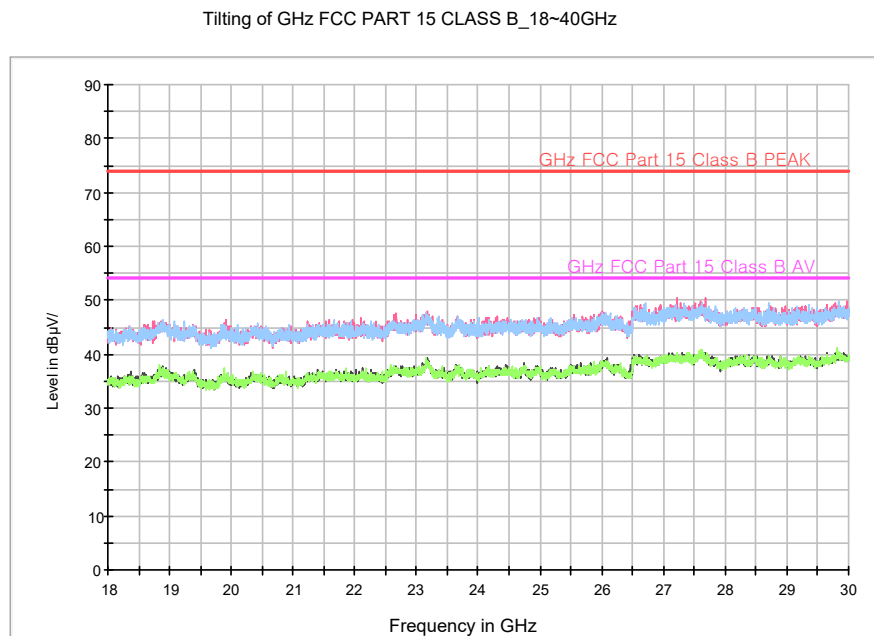
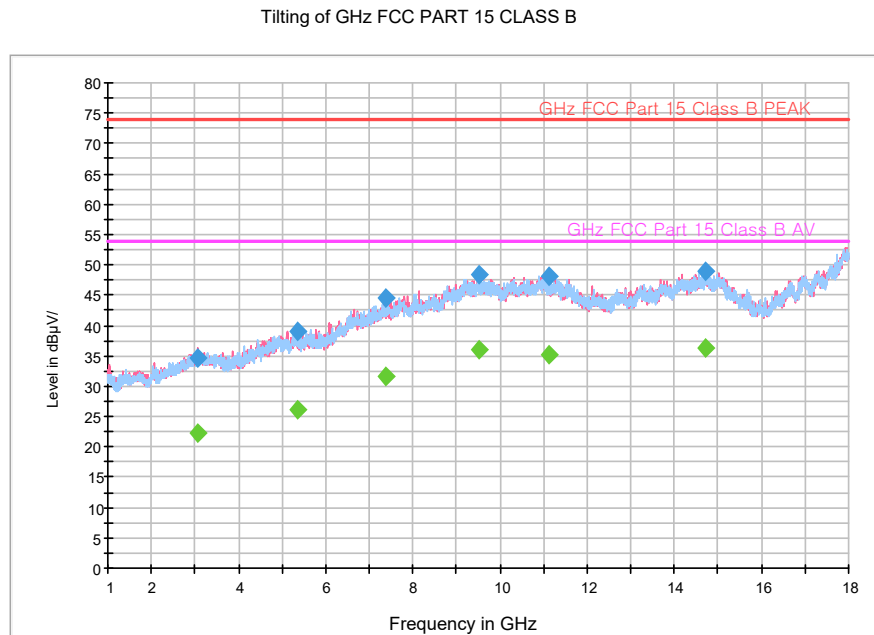
Figure 19: [EUT+TA] Receiver mode (LTE B5 Low CH Idle) + Rear Camera Preview



Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
3275.590000	35.1	150.0	V	97.0	-20.8	38.9	74.0
5256.600000	39.0	100.0	V	154.0	-15.5	35.0	74.0
7433.640000	44.8	113.5	H	87.0	-9.4	29.2	74.0
9136.865000	48.5	245.4	H	241.0	-6.1	25.5	74.0
11329.690000	47.7	160.5	H	37.0	-2.4	26.3	74.0
14461.745000	49.2	150.0	V	200.0	0.6	24.8	74.0

Frequency (MHz)	CAverage (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
3275.590000	22.4	150.0	V	97.0	-20.8	31.6	54.0
5256.600000	26.4	100.0	V	154.0	-15.5	27.6	54.0
7433.640000	32.0	113.5	H	87.0	-9.4	22.0	54.0
9136.865000	35.1	245.4	H	241.0	-6.1	18.9	54.0
11329.690000	35.3	160.5	H	37.0	-2.4	18.7	54.0
14461.745000	36.5	150.0	V	200.0	0.6	17.5	54.0

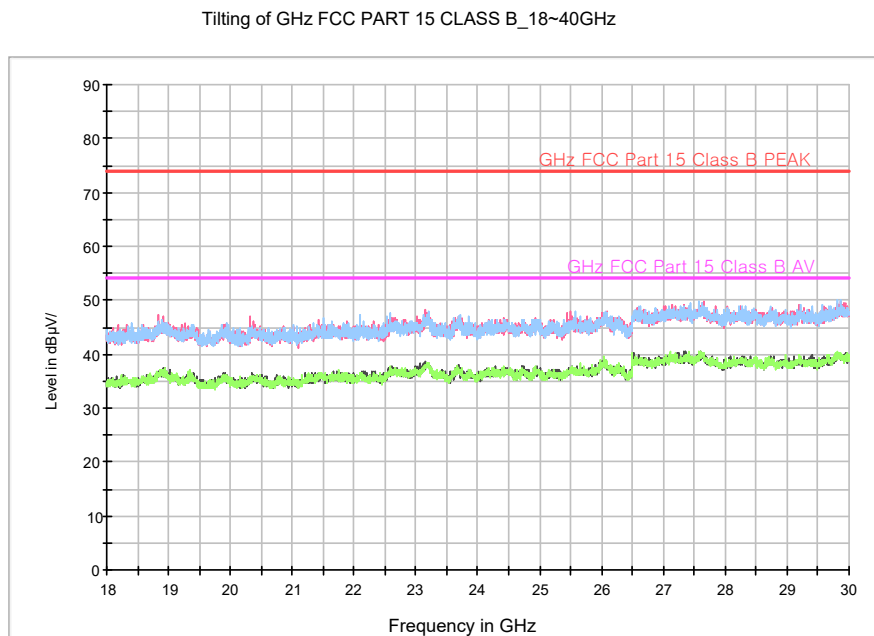
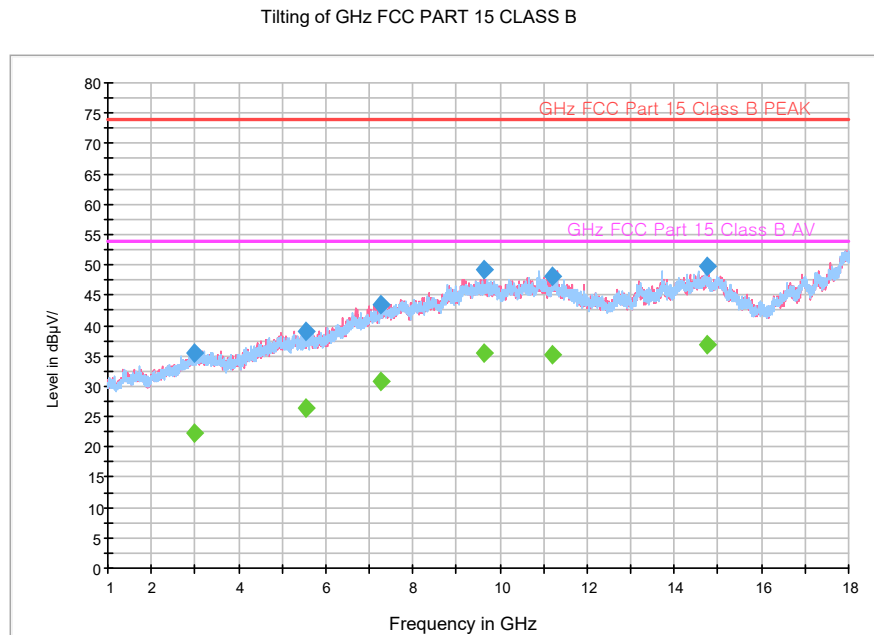
Figure 20: [EUT+TA] Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play



Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3049.310000	34.7	249.9	V	105.0	-21.0	39.3	74.0
5358.285000	38.9	100.0	V	275.0	-15.3	35.1	74.0
7380.125000	44.4	149.6	H	299.0	-9.6	29.6	74.0
9512.320000	48.4	100.0	V	226.0	-5.1	25.6	74.0
11136.395000	48.1	100.0	V	63.0	-2.4	25.9	74.0
14720.170000	49.1	150.0	H	94.0	1.0	24.9	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3049.310000	22.3	249.9	V	105.0	-21.0	31.7	54.0
5358.285000	26.1	100.0	V	275.0	-15.3	27.9	54.0
7380.125000	31.6	149.6	H	299.0	-9.6	22.4	54.0
9512.320000	36.0	100.0	V	226.0	-5.1	18.0	54.0
11136.395000	35.2	100.0	V	63.0	-2.4	18.8	54.0
14720.170000	36.4	150.0	H	94.0	1.0	17.6	54.0

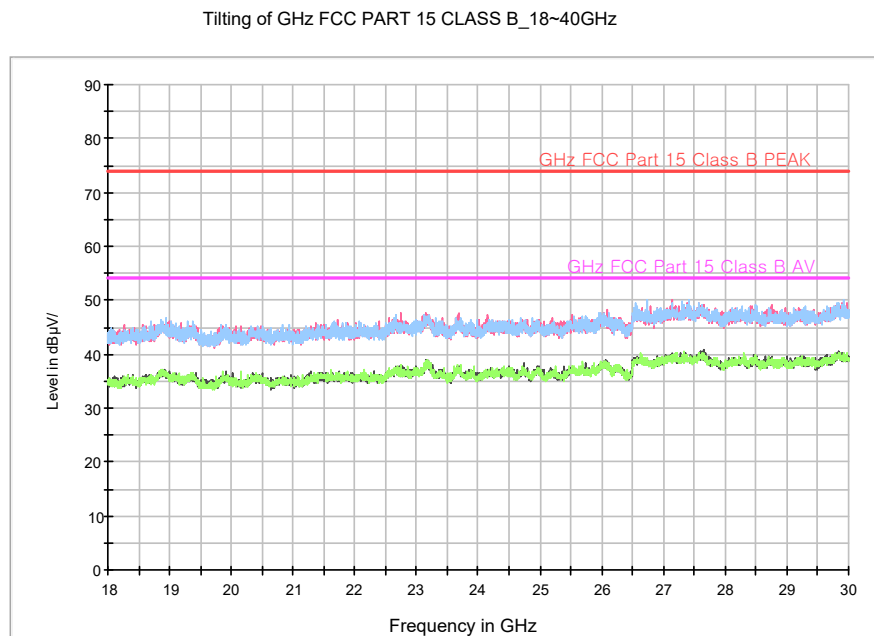
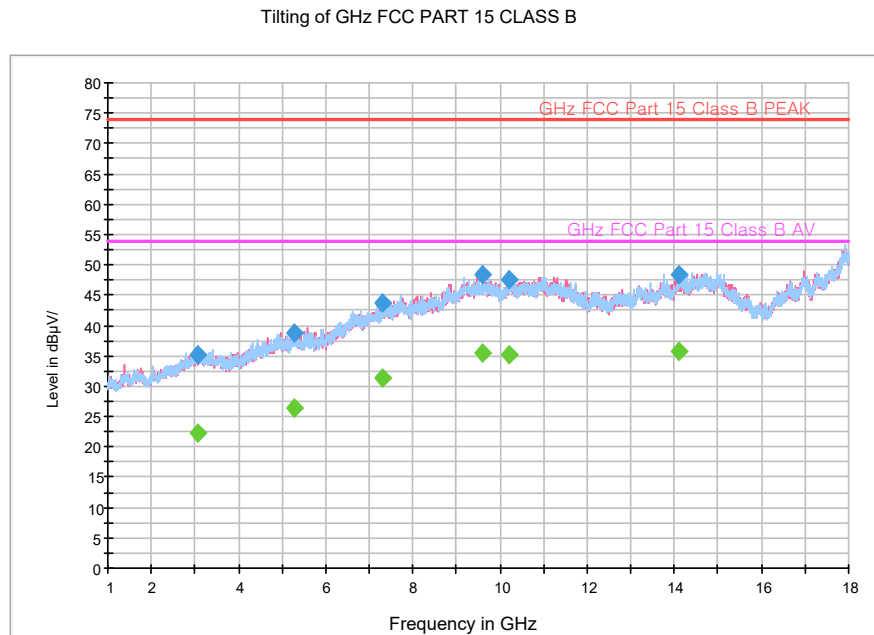
Figure 21: [EUT+Earphone] Receiver mode (LTE B5 Middle CH Idle) + Front Camera Preview



Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
2997.675000	35.4	150.1	V	202.0	-21.0	38.6	74.0
5564.720000	39.2	243.5	H	350.0	-15.1	34.8	74.0
7274.435000	43.4	100.0	V	264.0	-9.9	30.6	74.0
9618.135000	49.3	139.6	V	90.0	-5.1	24.7	74.0
11198.855000	48.2	249.9	V	0.0	-2.4	25.8	74.0
14754.390000	49.8	249.8	H	177.0	1.1	24.2	74.0

Frequency (MHz)	CAverage (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
2997.675000	22.2	150.1	V	202.0	-21.0	31.8	54.0
5564.720000	26.3	243.5	H	350.0	-15.1	27.7	54.0
7274.435000	30.7	100.0	V	264.0	-9.9	23.3	54.0
9618.135000	35.6	139.6	V	90.0	-5.1	18.4	54.0
11198.855000	35.2	249.9	V	0.0	-2.4	18.8	54.0
14754.390000	36.8	249.8	H	177.0	1.1	17.2	54.0

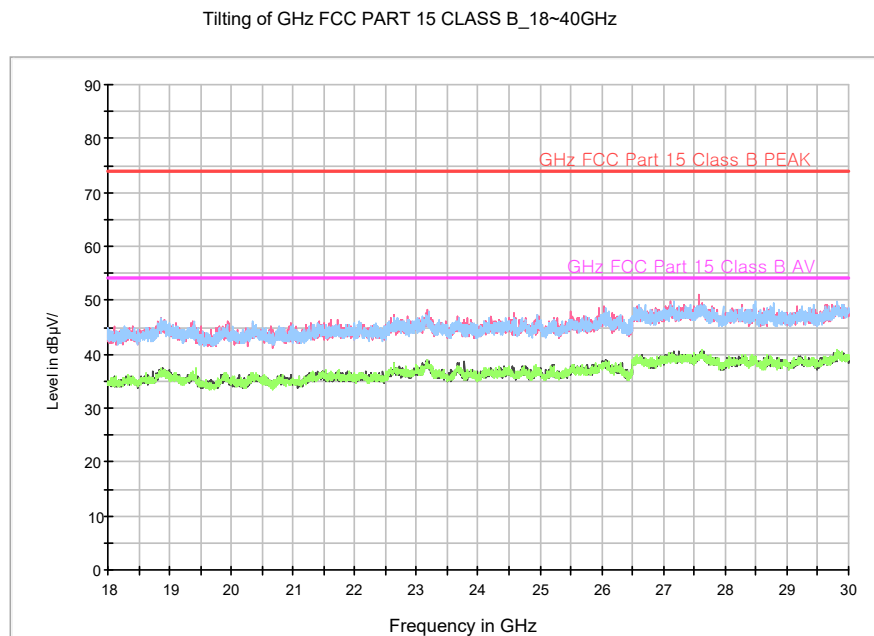
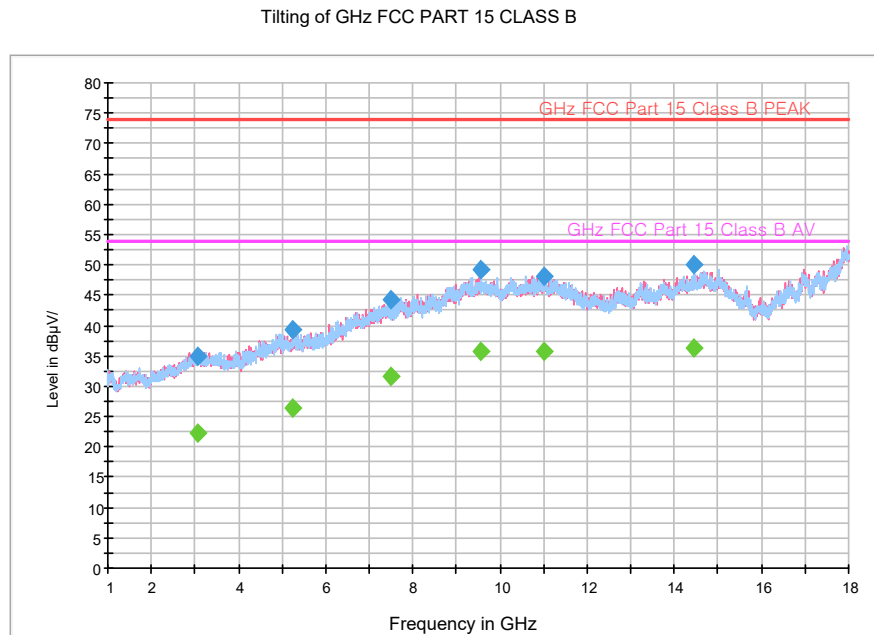
Figure 22: [EUT+Earphone] Receiver mode (LTE B12+B13+B17 Middle CH Idle) + MP4 Play



Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3046.685000	35.3	99.9	H	244.0	-21.0	38.7	74.0
5282.935000	38.7	249.7	H	3.0	-15.4	35.3	74.0
7302.240000	43.8	149.7	H	69.0	-9.8	30.2	74.0
9612.715000	48.5	150.0	H	3.0	-5.1	25.5	74.0
10218.725000	47.6	149.5	H	348.0	-4.4	26.4	74.0
14121.090000	48.3	176.4	H	0.0	-0.2	25.7	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3046.685000	22.3	99.9	H	244.0	-21.0	31.7	54.0
5282.935000	26.3	249.7	H	3.0	-15.4	27.7	54.0
7302.240000	31.3	149.7	H	69.0	-9.8	22.7	54.0
9612.715000	35.4	150.0	H	3.0	-5.1	18.6	54.0
10218.725000	35.2	149.5	H	348.0	-4.4	18.8	54.0
14121.090000	35.8	176.4	H	0.0	-0.2	18.2	54.0

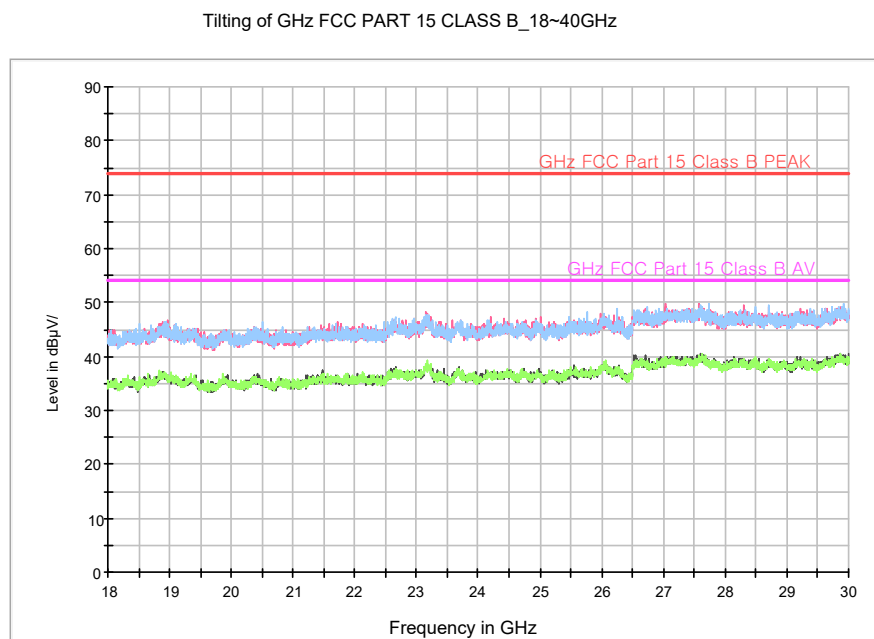
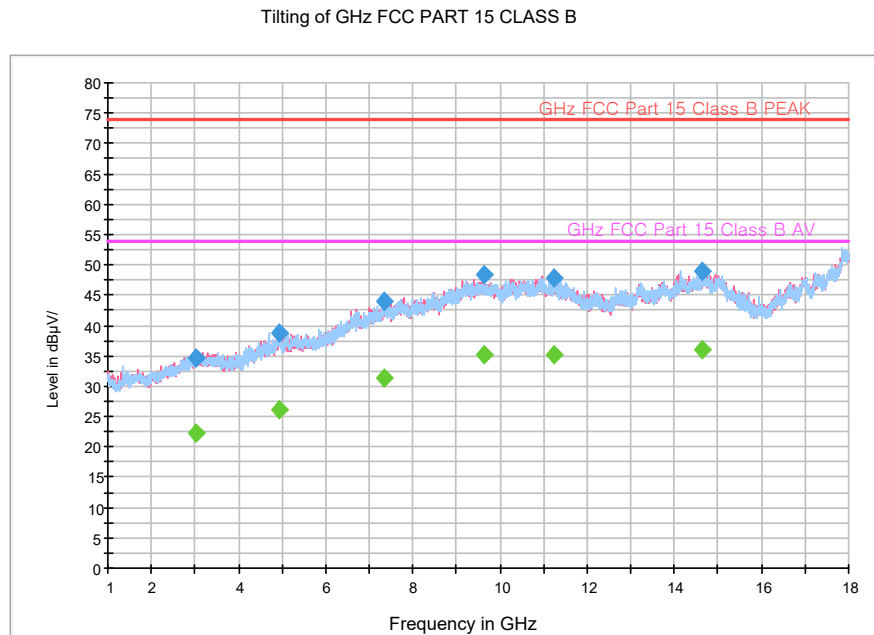
Figure 23: Keyboard mode



Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3048.295000	34.9	100.0	V	199.0	-21.0	39.1	74.0
5244.020000	39.3	217.5	H	213.0	-15.5	34.7	74.0
7477.760000	44.4	149.9	H	111.0	-9.3	29.6	74.0
9570.210000	49.3	149.6	H	72.0	-5.1	24.7	74.0
10996.675000	48.2	149.7	V	305.0	-2.4	25.8	74.0
14459.815000	50.0	100.0	H	325.0	0.6	24.0	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3048.295000	22.3	100.0	V	199.0	-21.0	31.7	54.0
5244.020000	26.3	217.5	H	213.0	-15.5	27.7	54.0
7477.760000	31.7	149.9	H	111.0	-9.3	22.3	54.0
9570.210000	35.7	149.6	H	72.0	-5.1	18.3	54.0
10996.675000	35.8	149.7	V	305.0	-2.4	18.2	54.0
14459.815000	36.4	100.0	H	325.0	0.6	17.6	54.0

Figure 24: Dock Charging mode



Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3036.885000	34.7	126.6	H	304.0	-21.0	39.3	74.0
4937.415000	38.8	150.0	H	304.0	-16.0	35.2	74.0
7343.860000	44.1	113.3	V	233.0	-9.7	29.9	74.0
9646.695000	48.3	113.4	V	315.0	-5.1	25.7	74.0
11225.645000	47.9	249.9	V	112.0	-2.4	26.1	74.0
14646.370000	49.0	150.0	H	241.0	0.9	25.0	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
3036.885000	22.3	126.6	H	304.0	-21.0	31.7	54.0
4937.415000	26.0	150.0	H	304.0	-16.0	28.0	54.0
7343.860000	31.4	113.3	V	233.0	-9.7	22.6	54.0
9646.695000	35.3	113.4	V	315.0	-5.1	18.7	54.0
11225.645000	35.2	249.9	V	112.0	-2.4	18.8	54.0
14646.370000	36.1	150.0	H	241.0	0.9	17.9	54.0

5. CONCLUSION

The data collected shows that the **EUT Type: Tablet, Model: SM-T725** complies with §15.107 and §15.109 of the FCC rules.

6. APPENDIX A. TEST SETUP PHOTO

Please refer to Appendix. A and test setup photo file no. as follows;

File No.	Date of Issue	Description
HCT-EM-1906-FC010-P	June 14, 2019	Initial Release

End of report