

EMI TEST REPORT FCC CERTIFICATION

Applicant:

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

Date of Issue: December 21, 2018

Test Report No. HCT-EM-1812-FC012

Test Site: HCT CO., LTD.

FCC ID :

A3LSMG887N

Applicable Standards : FCC CFR 47 PART 15 Subpart B Class B
ANSI C63.4-2014

EUT Type : Mobile Phone

Model Name : SM-G887N

Date of Test : December 11, 2018 to December 18, 2018

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

Tested By



Na-Eun Song
Test Engineer
EMC Team
Certification Division

Reviewed By



Jin-Pyo Hong
Technical Manager
EMC Team
Certification Division

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



REVISION HISTORY

The revision history for this document is shown in table.

Report No.	Issue Date	Information About Changes
HCT-EM-1812-FC012	December 21, 2018	Initial Release



TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	4
1.1 Description of EUT	4
1.2 Equipment Units Tested.....	4
1.3 Cable Description	5
1.4 Noise Suppression Parts on Cable (I/O Cable).....	5
1.5. Test Facility	6
1.6 Calibration of Measuring Instrument.....	6
1.7 Measurement Uncertainty.....	6
2. LIST OF TEST EQUIPMENT	7
3. DESCRIPTION OF MEASUREMENTS	8
3.1 Measurement of Conducted Emission	8
3.2 Measurement of Radiated Emission	9
4. PRELIMINARY TEST	11
4.1 Conducted Emission	11
4.2 Radiated Emission	11
5. CONDUCTED AND RADIATED EMISSION TEST SUMMARY	12
5.1 Conducted Emission	12
5.2 Radiated Emission	37
6. CONCLUSION	46
7. APPENDIX A. TEST SETUP PHOTOGRAPHS	47



1. GENERAL INFORMATION

1.1 Description of EUT

Its basic purpose is used for communications.

FCC ID	A3LSMG887N
Model	SM-G887N
EUT Type	Mobile Phone
Frequency Band	GSM 1900, WCDMA 850/1700/1900, LTE B4/5/17/26/41, BT 5.0, WLAN a/b/g/n/ac(MIMO, RSDB), NFC, ANT+

1.2 Equipment Units Tested

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

Device Type	Model Name	Serial Number	Manufacturer	FCC ID / DoC
EUT	SM-G887N	-	SAMSUNG	A3LSMG887N
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-TA20KWK	-	DONGYANG	-
Data Cable	EP-DR140AWE	-	KSDCO	-
Earphone	GHSM028-W3	-	GLONIC	-



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 _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

* 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 _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	Registration Number
Radiated Field strength measurement facility 3 m Semi Anechoic chamber	90661
Radiated Field strength measurement facility 10 m Semi Anechoic chamber	

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 (dB)
Conducted Emission (0.15 MHz to 30 MHz)	1.82 dB
Radiated Emissions (30 MHz to 1 GHz)	5.20 dB
Radiated Emissions (1 GHz to 18 GHz)	5.24 dB
Radiated Emissions (18 GHz to 40 GHz)	5.40 dB



2. LIST OF TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Name</u>	<u>Serial Number</u>	<u>Calibration Cycle</u>	<u>CAL Date</u>
<u>Conducted Emission</u>					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	06.25.2018
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ENV216	102245	1 year	12.12.2018
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ENV216	100073	1 year	05.03.2018
<input checked="" type="checkbox"/> Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.21.2018
<input checked="" type="checkbox"/> Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
<input checked="" type="checkbox"/> Software	Rohde & Schwarz	EMC32 VER8.54.0	-	-	-
<u>Radiated Emission</u>					
-For measurement below 1 GHz					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	07.27.2018
<input checked="" type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB 9168	760	2 year	04.06.2017
<input checked="" type="checkbox"/> Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
<input checked="" type="checkbox"/> Antenna master controller	INNCO Systems	CO 3000	CO3000/870/ 35990515/L	N/A	-
<input checked="" type="checkbox"/> Turn Table	INNCO Systems	1060-2M	-	N/A	-
<input checked="" type="checkbox"/> Turn Table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
<input checked="" type="checkbox"/> Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.21.2018
<input checked="" type="checkbox"/> Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
<input checked="" type="checkbox"/> Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-
-For measurement above 1 GHz					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU40	100524	1 year	07.27.2018
<input checked="" type="checkbox"/> Antenna master	INNCO Systems	MA4640-XP-ET	-	N/A	-
<input checked="" type="checkbox"/> Antenna master controller	INNCO Systems	CO3000	CO3000/870/ 35990515/L	N/A	-
<input checked="" type="checkbox"/> Turn Table	INNCO Systems	1060-2M	-	N/A	-
<input checked="" type="checkbox"/> Turn Table controller	INNCO Systems	CO2000	CO2000/095/ 7590304/L	N/A	-
<input checked="" type="checkbox"/> Horn Antenna	Schwarzbeck	BBHA 9120D	01836	2 year	05.14.2018
<input checked="" type="checkbox"/> Low Noise Amplifier	TESTEK	TK-PA18H	170034-L	1 year	03.06.2018
<input checked="" type="checkbox"/> Power Amplifier	TESTEK	TK-PA1840H	170030-L	1 year	12.17.2018
<input checked="" type="checkbox"/> Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170#786	2 year	12.05.2017
<input checked="" type="checkbox"/> Radio communication analyzer	ANRITSU	MT8820C	6201138643	1 year	08.21.2018
<input checked="" type="checkbox"/> Antenna (for Communication)	Schwarzbeck	USLP9142	VSLP 9142-200	-	-
<input checked="" type="checkbox"/> Highpass Filter	Wainwright Instruments	WHKX1.0/15G-12SS	42	1 year	08.02.2018
<input checked="" type="checkbox"/> Software	Rohde & Schwarz	EMC32 VER8.40.0	-	-	-



3. DESCRIPTION OF MEASUREMENTS

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 range from 150 kHz to 30 MHz was searched.

[Conducted Emission Limits]

Frequency (MHz)	Resolution Bandwidth (kHz)	Quasi-Peak (dB(μV))	Average (dB(μV))
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 (μV/m)	Quasi-Peak (dB(μV)/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(μV)/m)	Average (dB(μV)/m)
Above 1 000	3	74	54

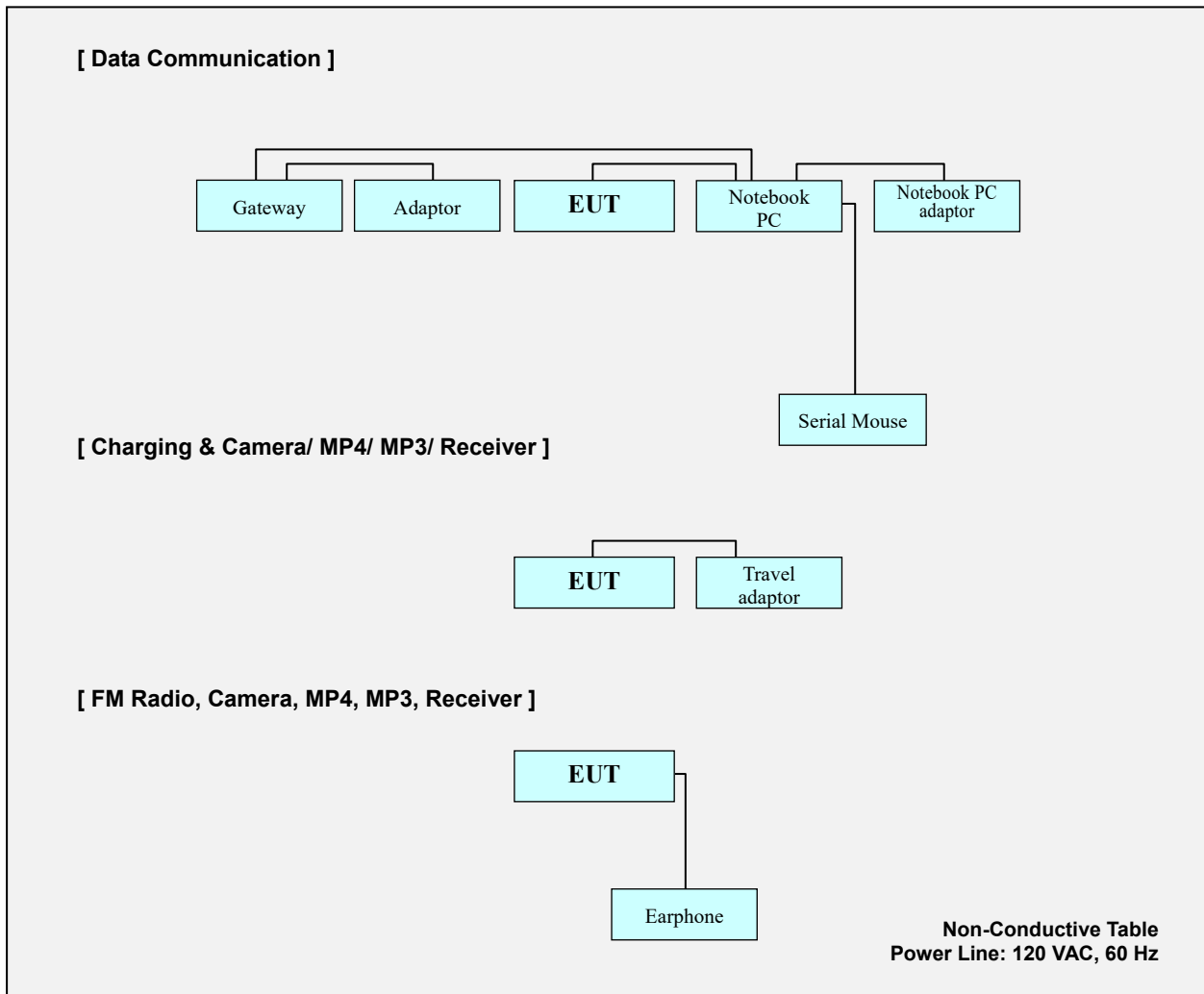


3.2.1 Frequency Range of Radiated Measurements

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

3.3 Configuration of Tested System





4. PRELIMINARY TEST

During preliminary tests, the following operating mode was investigated.

Data Communication (Read/Write)
Rear Camera (Preview/Recording), Front Camera (Preview/Recording)
MP3/MP4 Play
FM Radio (Low/Middle/High CH)
LTE B17 Idle (734 MHz to 746 MHz) (Low/Middle/High CH)
LTE B5, B26 Idle & WCDMA 850 (859 MHz to 894 MHz) (Low/Middle/High CH)

4.1 Conducted Emission

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

Operating Modes:

[EUT & PC]

Data Communication (Read / Write)

[EUT & TA]

Charging & Rear Camera Preview & MP3, Charging & Front Camera Preview
Charging & Front/Rear Camera Recording
Charging & MP4 Play
Charging & Receiver at LTE B17 Idle (Low/Middle/High CH)
Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Low/Middle/High CH)

NOTE. The worst case of operating mode is reported.

4.2 Radiated Emission

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

Operating Modes:

[EUT & PC]

Data Communication (Read / Write)

[EUT & TA]

Charging & Rear Camera Preview & MP3, Charging & Front Camera Preview
Charging & Front/Rear Camera Recording
Charging & MP4 Play
Charging & Receiver at LTE B17 Idle (Low/Middle/High CH)
Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Low/Middle/High CH)

[EUT & Earphone]

Rear Camera Preview & MP3, Front Camera Preview
Front/Rear Camera Recording
MP4 Play
Receiver at LTE B17 Idle (Low/Middle/High CH) & FM Radio (Low/Middle/High CH)
Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Low/Middle/High CH)

NOTE.

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



5. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

5.1 Conducted Emission

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

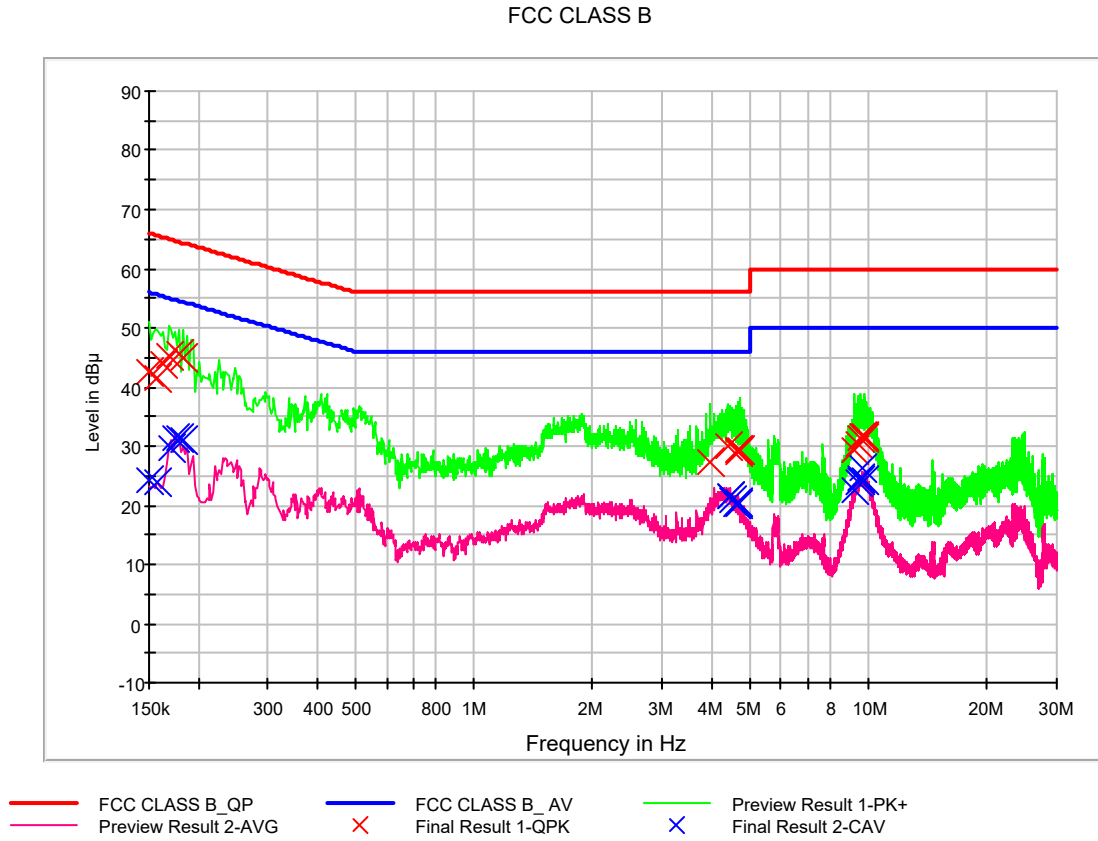
Applicable Standards	FCC PART 15 Subpart B Class B ANSI C63.4-2014
Detector	Quasi-Peak, CISPR-Average
Bandwidth	9 kHz (6 dB)
Worst Case of Operating Mode	Data communication (Write) Charging & Rear Camera Preview & MP3 Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH) Charging & Receiver at LTE B17 Idle (Middle CH)
Kind of Test Site	Shielded Room
Temperature	20.3 / 20.7 °C
Relative Humidity	40.9 / 41.2 %
Test Date	December 14 / December 15, 2018

- 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



Figure 1: Conducted Emission, Data communication (Write) mode, Line (L1)





QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	42.4	9.000	L1	9.6	23.6	66.0
0.158000	41.6	9.000	L1	9.6	24.0	65.6
0.162000	43.8	9.000	L1	9.6	21.6	65.4
0.168000	45.4	9.000	L1	9.6	19.6	65.1
0.178000	45.7	9.000	L1	9.6	18.8	64.6
0.184000	44.8	9.000	L1	9.6	19.5	64.3
3.972000	27.3	9.000	L1	9.8	28.7	56.0
4.382000	30.1	9.000	L1	9.8	25.9	56.0
4.664000	29.4	9.000	L1	9.8	26.6	56.0
4.670000	29.0	9.000	L1	9.8	27.0	56.0
4.678000	29.2	9.000	L1	9.8	26.8	56.0
4.706000	29.3	9.000	L1	9.8	26.7	56.0
9.234000	29.5	9.000	L1	9.9	30.6	60.0
9.390000	30.4	9.000	L1	10.0	29.6	60.0
9.576000	31.5	9.000	L1	10.0	28.5	60.0
9.630000	31.7	9.000	L1	10.0	28.3	60.0
9.794000	31.6	9.000	L1	10.0	28.4	60.0
9.804000	31.4	9.000	L1	10.0	28.6	60.0

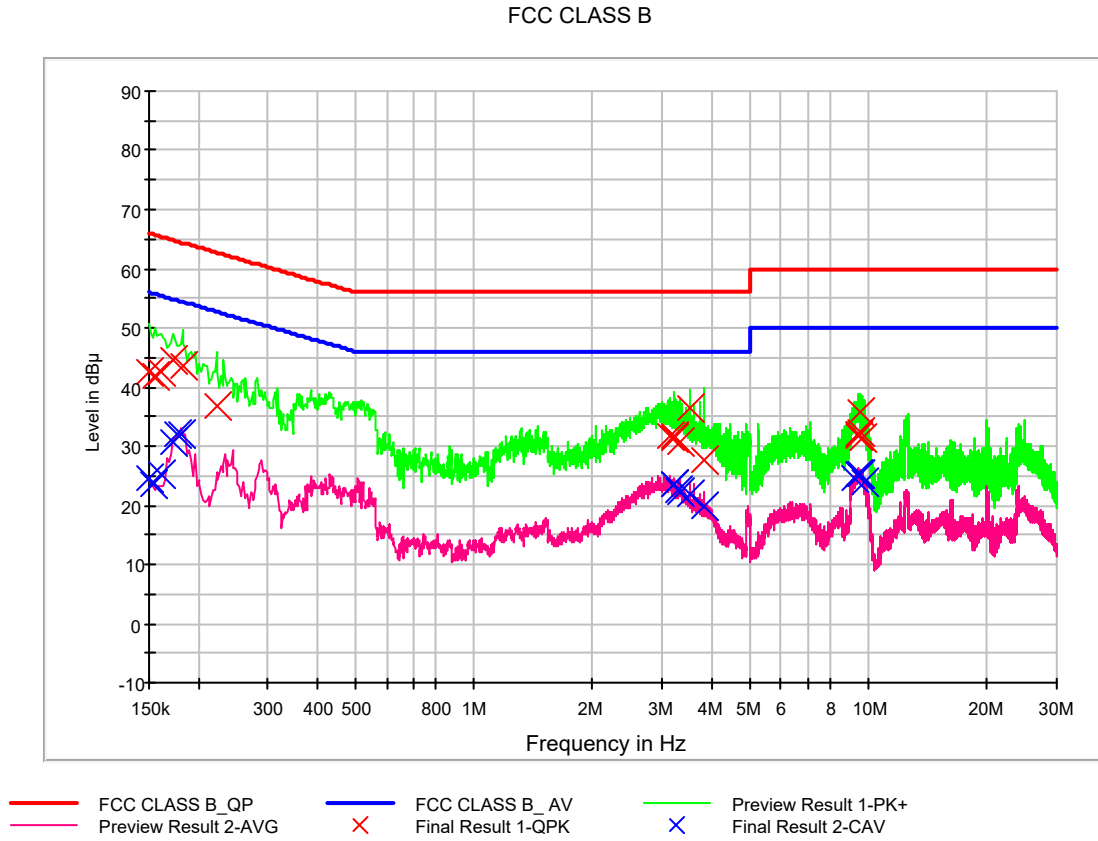


CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	24.1	9.000	L1	9.6	31.9	56.0
0.158000	23.8	9.000	L1	9.6	31.7	55.6
0.170000	29.7	9.000	L1	9.6	25.3	55.0
0.174000	31.4	9.000	L1	9.6	23.4	54.8
0.178000	31.5	9.000	L1	9.6	23.1	54.6
0.184000	31.0	9.000	L1	9.6	23.3	54.3
4.438000	21.6	9.000	L1	9.8	24.4	46.0
4.446000	21.7	9.000	L1	9.8	24.3	46.0
4.512000	20.9	9.000	L1	9.8	25.1	46.0
4.636000	20.2	9.000	L1	9.8	25.8	46.0
4.664000	20.1	9.000	L1	9.8	25.9	46.0
4.670000	20.4	9.000	L1	9.8	25.6	46.0
9.234000	22.5	9.000	L1	9.9	27.5	50.0
9.390000	23.9	9.000	L1	10.0	26.1	50.0
9.510000	24.3	9.000	L1	10.0	25.7	50.0
9.576000	24.5	9.000	L1	10.0	25.5	50.0
9.630000	26.1	9.000	L1	10.0	23.9	50.0
9.796000	24.3	9.000	L1	10.0	25.7	50.0



Figure 2: Conducted Emission, Data communication (Write) mode, Line (N)





QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	42.7	9.000	N	9.6	23.3	66.0
0.156000	41.7	9.000	N	9.6	23.9	65.7
0.160000	42.6	9.000	N	9.6	22.9	65.5
0.172000	44.7	9.000	N	9.6	20.2	64.9
0.182000	43.5	9.000	N	9.6	20.9	64.4
0.222000	36.8	9.000	N	9.6	25.9	62.7
3.148000	31.8	9.000	N	9.8	24.2	56.0
3.226000	31.8	9.000	N	9.8	24.2	56.0
3.230000	31.4	9.000	N	9.8	24.6	56.0
3.334000	30.7	9.000	N	9.8	25.3	56.0
3.530000	36.6	9.000	N	9.8	19.4	56.0
3.826000	27.8	9.000	N	9.8	28.2	56.0
9.418000	31.7	9.000	N	9.9	28.3	60.0
9.432000	32.0	9.000	N	9.9	28.0	60.0
9.456000	32.0	9.000	N	9.9	28.0	60.0
9.506000	32.3	9.000	N	9.9	27.7	60.0
9.512000	35.7	9.000	N	9.9	24.3	60.0
9.638000	31.4	9.000	N	9.9	28.6	60.0

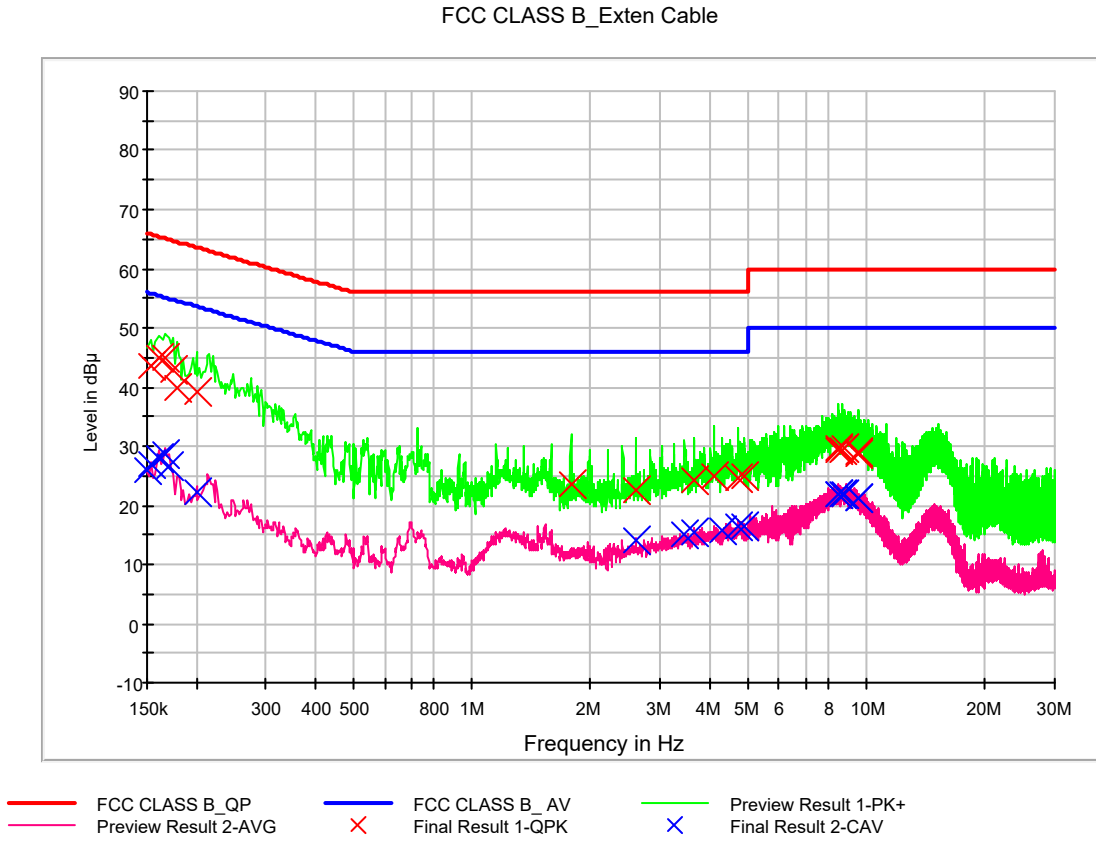


CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	24.6	9.000	N	9.6	31.4	56.0
0.154000	23.7	9.000	N	9.6	32.1	55.8
0.160000	25.4	9.000	N	9.6	30.1	55.5
0.172000	30.7	9.000	N	9.6	24.1	54.9
0.176000	32.0	9.000	N	9.6	22.6	54.7
0.180000	32.0	9.000	N	9.6	22.5	54.5
3.226000	23.4	9.000	N	9.8	22.6	46.0
3.230000	23.4	9.000	N	9.8	22.6	46.0
3.298000	22.7	9.000	N	9.8	23.3	46.0
3.334000	22.2	9.000	N	9.8	23.8	46.0
3.526000	21.8	9.000	N	9.8	24.2	46.0
3.826000	19.9	9.000	N	9.8	26.1	46.0
9.246000	24.5	9.000	N	9.9	25.5	50.0
9.414000	25.3	9.000	N	9.9	24.7	50.0
9.418000	25.2	9.000	N	9.9	24.8	50.0
9.512000	25.2	9.000	N	9.9	24.8	50.0
9.544000	25.2	9.000	N	9.9	24.8	50.0
9.744000	24.0	9.000	N	9.9	26.0	50.0



Figure 3: Conducted Emission, Charging & Rear Camera Preview & MP3 mode, Line (L1)





QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	43.7	9.000	L1	9.7	22.1	65.8
0.160000	45.0	9.000	L1	9.7	20.5	65.5
0.166000	44.9	9.000	L1	9.7	20.2	65.2
0.174000	42.8	9.000	L1	9.7	22.0	64.8
0.178000	39.9	9.000	L1	9.7	24.7	64.6
0.200000	39.1	9.000	L1	9.8	24.5	63.6
1.780000	23.4	9.000	L1	9.9	32.6	56.0
2.606000	22.5	9.000	L1	9.9	33.5	56.0
3.660000	24.1	9.000	L1	9.9	31.9	56.0
4.092000	25.1	9.000	L1	10.0	30.9	56.0
4.724000	24.5	9.000	L1	10.0	31.5	56.0
4.918000	25.0	9.000	L1	10.0	31.0	56.0
8.480000	29.3	9.000	L1	10.2	30.7	60.0
8.502000	29.7	9.000	L1	10.2	30.3	60.0
8.720000	29.3	9.000	L1	10.2	30.7	60.0
8.774000	29.8	9.000	L1	10.2	30.2	60.0
9.538000	29.1	9.000	L1	10.2	30.9	60.0
9.542000	28.6	9.000	L1	10.2	31.4	60.0

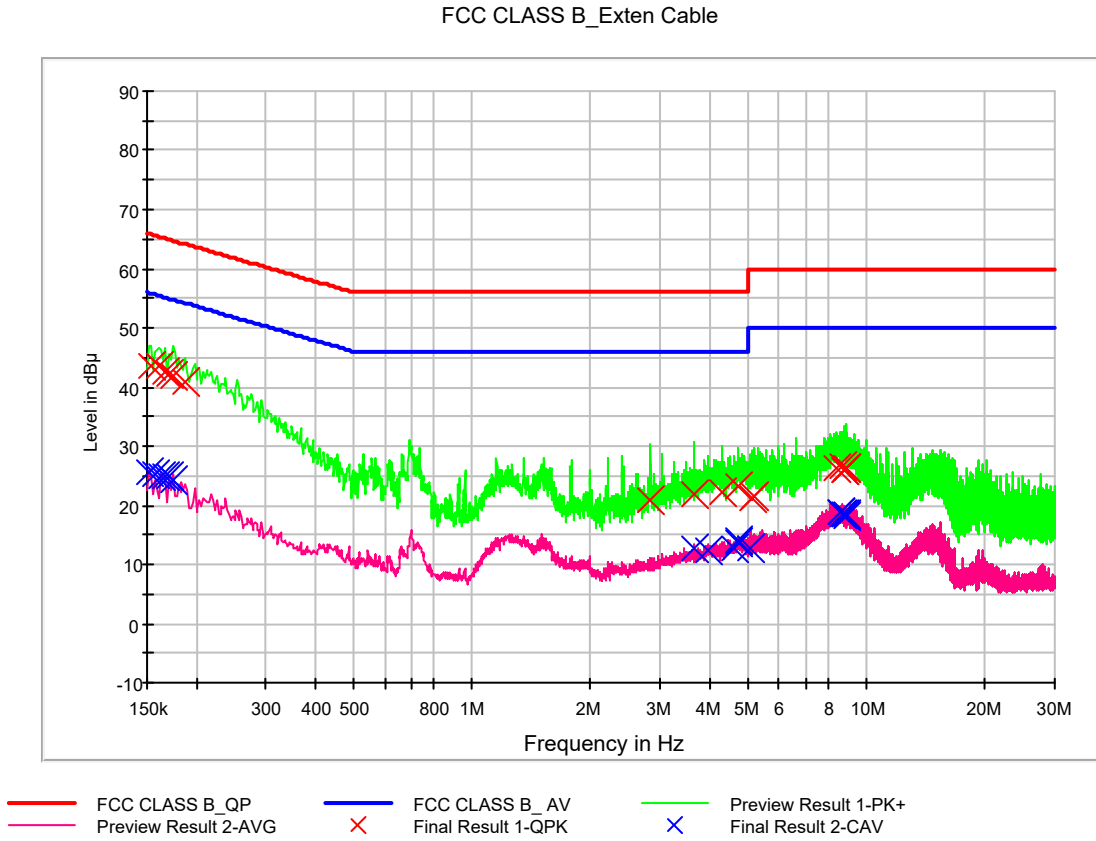


CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	25.8	9.000	L1	9.7	30.2	56.0
0.154000	27.0	9.000	L1	9.7	28.8	55.8
0.160000	27.9	9.000	L1	9.7	27.5	55.5
0.166000	28.7	9.000	L1	9.7	26.5	55.2
0.170000	26.7	9.000	L1	9.7	28.3	55.0
0.200000	22.3	9.000	L1	9.8	31.3	53.6
2.606000	13.9	9.000	L1	9.9	32.1	46.0
3.466000	15.0	9.000	L1	9.9	31.0	46.0
3.660000	15.4	9.000	L1	9.9	30.6	46.0
4.294000	15.7	9.000	L1	10.0	30.3	46.0
4.722000	16.4	9.000	L1	10.0	29.6	46.0
4.918000	16.3	9.000	L1	10.0	29.7	46.0
8.480000	21.8	9.000	L1	10.2	28.2	50.0
8.502000	21.8	9.000	L1	10.2	28.2	50.0
8.720000	21.7	9.000	L1	10.2	28.3	50.0
8.774000	21.9	9.000	L1	10.2	28.1	50.0
9.538000	21.3	9.000	L1	10.2	28.7	50.0
9.542000	21.1	9.000	L1	10.2	28.9	50.0



Figure 4: Conducted Emission, Charging & Rear Camera Preview & MP3 mode, Line (N)





QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	43.6	9.000	N	9.8	22.2	65.8
0.160000	43.4	9.000	N	9.8	22.1	65.5
0.166000	42.6	9.000	N	9.8	22.6	65.2
0.170000	42.3	9.000	N	9.8	22.7	65.0
0.174000	41.9	9.000	N	9.8	22.9	64.8
0.188000	40.9	9.000	N	9.8	23.2	64.1
2.840000	20.8	9.000	N	10.1	35.2	56.0
3.664000	22.0	9.000	N	10.1	34.0	56.0
4.292000	22.3	9.000	N	10.2	33.7	56.0
4.720000	23.2	9.000	N	10.2	32.8	56.0
5.102000	21.1	9.000	N	10.2	38.9	60.0
5.168000	21.4	9.000	N	10.2	38.6	60.0
8.432000	26.2	9.000	N	10.4	33.8	60.0
8.680000	26.7	9.000	N	10.4	33.3	60.0
8.750000	25.8	9.000	N	10.4	34.2	60.0
8.828000	26.0	9.000	N	10.4	34.0	60.0
8.890000	26.3	9.000	N	10.4	33.7	60.0
8.916000	26.3	9.000	N	10.4	33.7	60.0

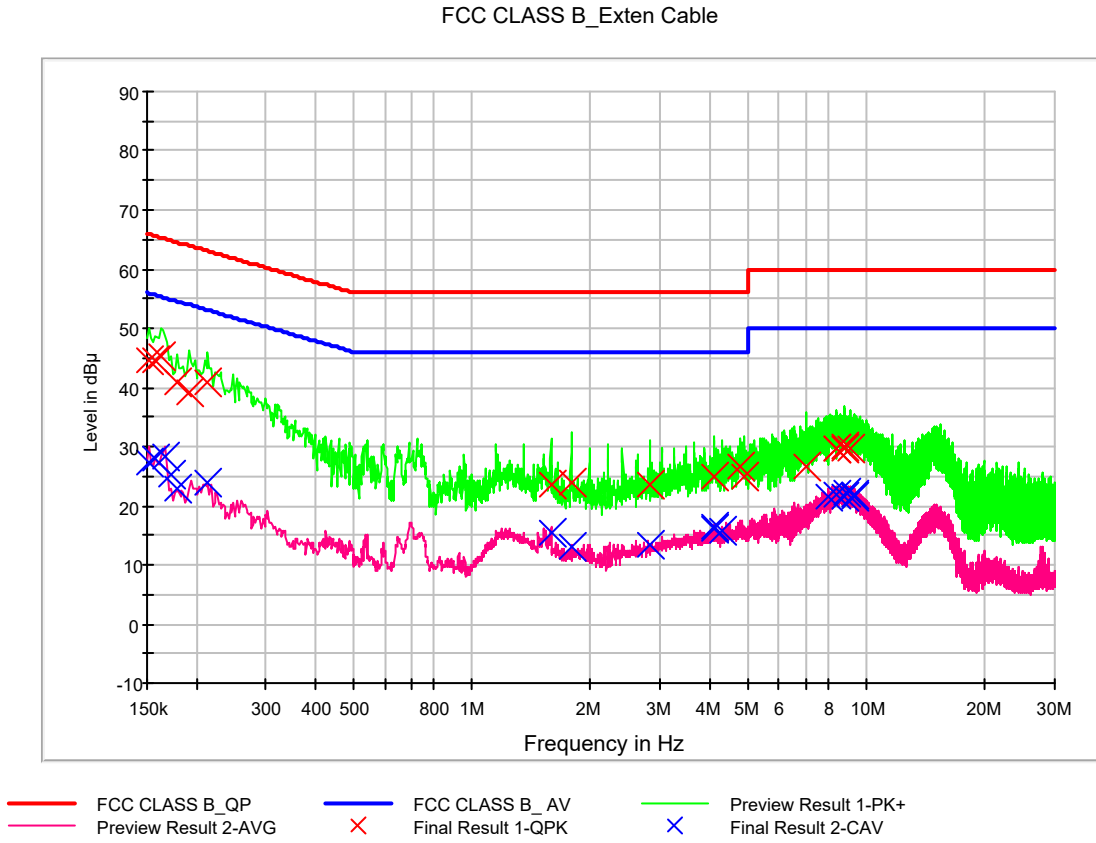


CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	25.7	9.000	N	9.8	30.2	55.9
0.158000	25.2	9.000	N	9.8	30.4	55.6
0.162000	24.8	9.000	N	9.8	30.5	55.4
0.166000	24.8	9.000	N	9.8	30.3	55.2
0.170000	24.9	9.000	N	9.8	30.1	55.0
0.174000	24.2	9.000	N	9.8	30.6	54.8
3.664000	12.6	9.000	N	10.1	33.4	46.0
3.950000	12.3	9.000	N	10.2	33.7	46.0
4.616000	12.8	9.000	N	10.2	33.2	46.0
4.716000	13.6	9.000	N	10.2	32.4	46.0
4.722000	14.0	9.000	N	10.2	32.0	46.0
5.042000	12.8	9.000	N	10.2	37.2	50.0
8.540000	18.7	9.000	N	10.4	31.3	50.0
8.578000	18.8	9.000	N	10.4	31.2	50.0
8.680000	18.5	9.000	N	10.4	31.5	50.0
8.828000	18.4	9.000	N	10.4	31.6	50.0
8.890000	18.2	9.000	N	10.4	31.8	50.0
8.916000	18.4	9.000	N	10.4	31.6	50.0



Figure 5: Conducted Emission, Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH), Line (L1)





QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	44.4	9.000	L1	9.7	21.4	65.9
0.158000	44.7	9.000	L1	9.7	20.9	65.6
0.162000	45.4	9.000	L1	9.7	19.9	65.4
0.178000	40.8	9.000	L1	9.7	23.8	64.6
0.192000	39.3	9.000	L1	9.7	24.7	63.9
0.214000	40.7	9.000	L1	9.7	22.3	63.0
1.584000	23.6	9.000	L1	9.9	32.4	56.0
1.784000	23.9	9.000	L1	9.9	32.1	56.0
2.838000	23.5	9.000	L1	9.9	32.5	56.0
4.094000	25.0	9.000	L1	10.0	31.0	56.0
4.792000	26.5	9.000	L1	10.0	29.5	56.0
4.916000	25.0	9.000	L1	10.0	31.0	56.0
7.034000	26.5	9.000	L1	10.1	33.5	60.0
8.378000	29.5	9.000	L1	10.2	30.5	60.0
8.382000	29.6	9.000	L1	10.2	30.4	60.0
8.800000	29.5	9.000	L1	10.2	30.5	60.0
8.824000	29.9	9.000	L1	10.2	30.1	60.0
9.116000	29.6	9.000	L1	10.2	30.4	60.0

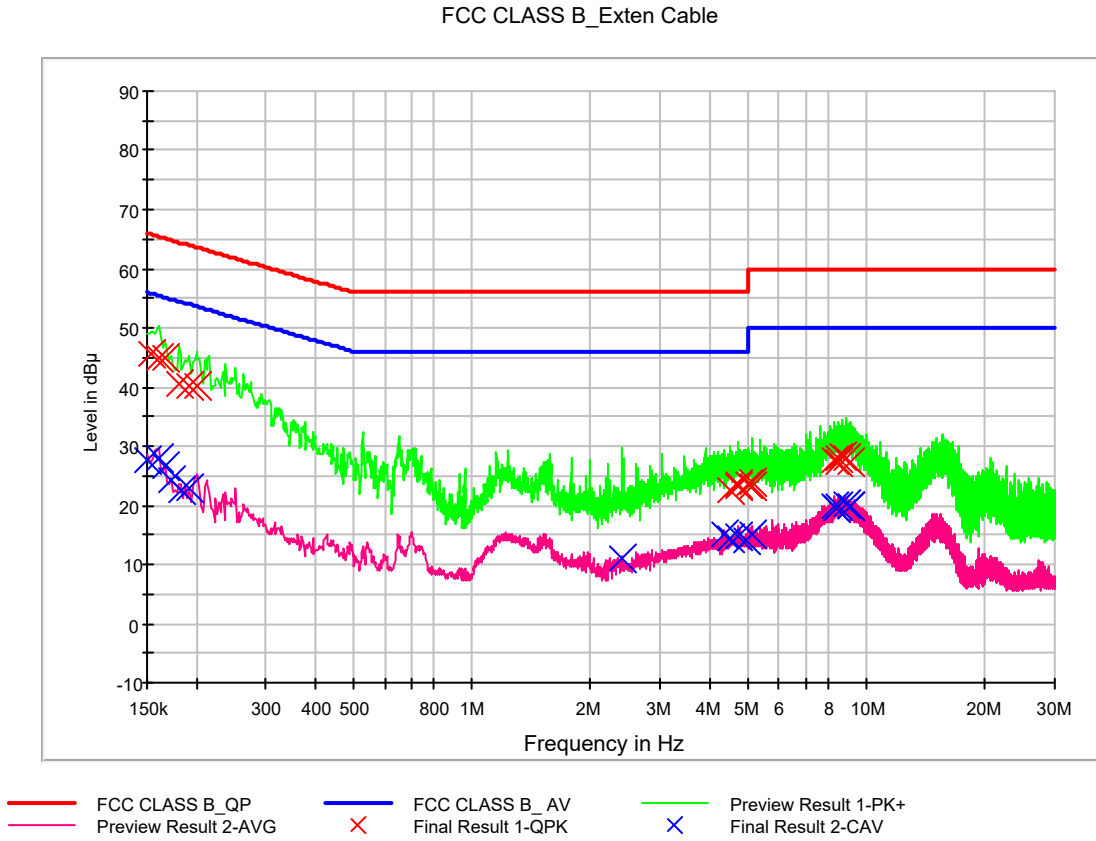


CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	27.2	9.000	L1	9.7	28.7	55.9
0.158000	27.9	9.000	L1	9.7	27.6	55.6
0.166000	28.2	9.000	L1	9.7	27.0	55.2
0.172000	25.2	9.000	L1	9.7	29.7	54.9
0.178000	22.8	9.000	L1	9.7	31.8	54.6
0.214000	23.8	9.000	L1	9.7	29.3	53.0
1.584000	15.4	9.000	L1	9.9	30.6	46.0
1.784000	12.9	9.000	L1	9.9	33.1	46.0
2.838000	13.5	9.000	L1	9.9	32.5	46.0
4.094000	16.4	9.000	L1	10.0	29.6	46.0
4.098000	16.0	9.000	L1	10.0	30.0	46.0
4.292000	15.8	9.000	L1	10.0	30.2	46.0
7.960000	21.4	9.000	L1	10.2	28.6	50.0
8.430000	21.9	9.000	L1	10.2	28.1	50.0
8.824000	21.7	9.000	L1	10.2	28.3	50.0
8.912000	22.2	9.000	L1	10.2	27.8	50.0
9.272000	21.8	9.000	L1	10.2	28.2	50.0
9.338000	21.6	9.000	L1	10.2	28.4	50.0



Figure 6: Conducted Emission, Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH), Line (N)





QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	45.7	9.000	N	9.8	20.1	65.8
0.160000	44.7	9.000	N	9.8	20.7	65.5
0.166000	45.0	9.000	N	9.8	20.2	65.2
0.180000	40.5	9.000	N	9.8	24.0	64.5
0.192000	40.0	9.000	N	9.8	23.9	63.9
0.200000	40.1	9.000	N	9.9	23.5	63.6
4.528000	22.5	9.000	N	10.2	33.5	56.0
4.720000	23.4	9.000	N	10.2	32.6	56.0
4.724000	23.5	9.000	N	10.2	32.5	56.0
5.006000	23.6	9.000	N	10.2	36.4	60.0
5.122000	23.9	9.000	N	10.2	36.1	60.0
5.128000	23.3	9.000	N	10.2	36.7	60.0
8.288000	27.6	9.000	N	10.4	32.4	60.0
8.488000	27.8	9.000	N	10.4	32.2	60.0
8.508000	27.4	9.000	N	10.4	32.6	60.0
8.680000	28.3	9.000	N	10.4	31.7	60.0
8.878000	27.9	9.000	N	10.4	32.1	60.0
9.076000	27.3	9.000	N	10.4	32.7	60.0

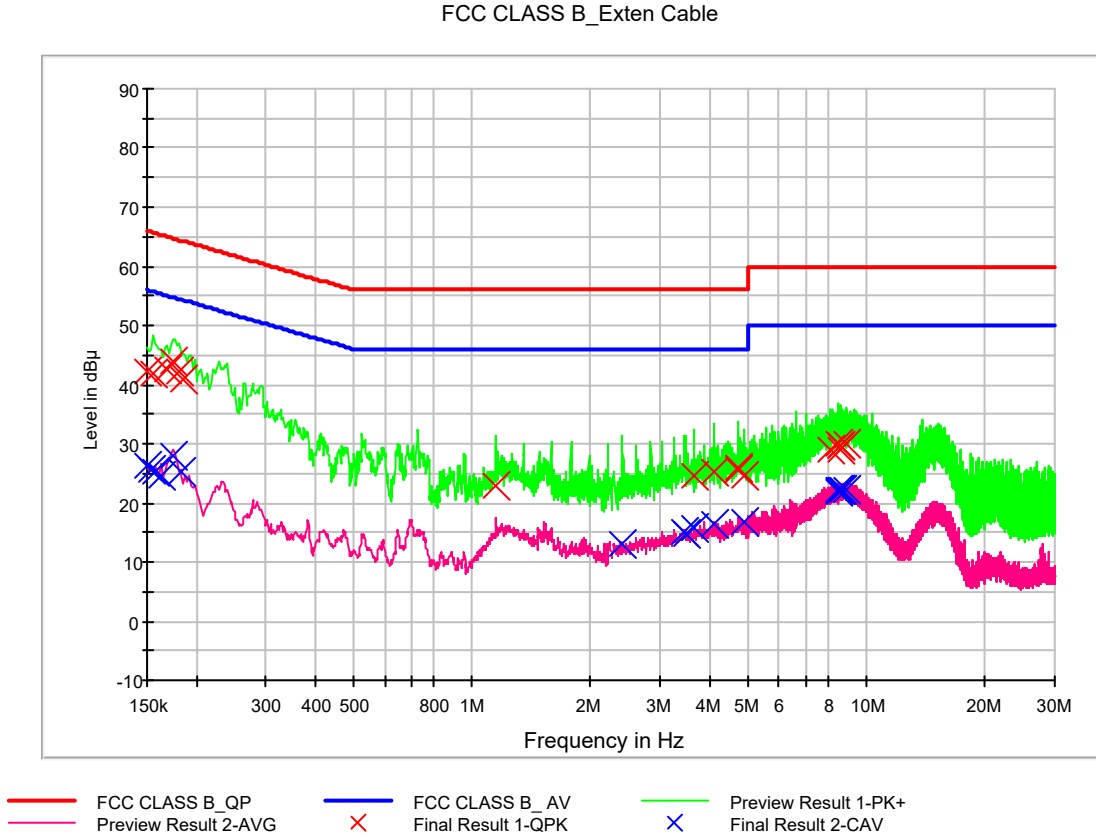


CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	27.5	9.000	N	9.8	28.5	56.0
0.160000	27.8	9.000	N	9.8	27.7	55.5
0.166000	26.5	9.000	N	9.8	28.7	55.2
0.172000	24.4	9.000	N	9.8	30.5	54.9
0.182000	22.5	9.000	N	9.8	31.9	54.4
0.192000	22.8	9.000	N	9.8	31.2	53.9
2.410000	11.0	9.000	N	10.1	35.0	46.0
4.352000	15.0	9.000	N	10.2	31.0	46.0
4.528000	14.3	9.000	N	10.2	31.7	46.0
4.724000	14.9	9.000	N	10.2	31.1	46.0
4.942000	13.9	9.000	N	10.2	32.1	46.0
5.122000	15.2	9.000	N	10.2	34.8	50.0
8.288000	19.9	9.000	N	10.4	30.1	50.0
8.354000	19.6	9.000	N	10.4	30.4	50.0
8.508000	19.8	9.000	N	10.4	30.2	50.0
8.886000	20.0	9.000	N	10.4	30.0	50.0
9.114000	19.8	9.000	N	10.4	30.2	50.0
9.118000	19.8	9.000	N	10.4	30.2	50.0



Figure 7: Conducted Emission, Charging & Receiver at LTE B17 Idle (Middle CH), Line (L1)





QuasiPeak Final Result, Line (L1)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	42.3	9.000	L1	9.7	23.7	66.0
0.156000	41.9	9.000	L1	9.7	23.7	65.7
0.168000	42.4	9.000	L1	9.7	22.7	65.1
0.174000	43.8	9.000	L1	9.7	20.9	64.8
0.180000	42.1	9.000	L1	9.7	22.4	64.5
0.186000	41.0	9.000	L1	9.7	23.2	64.2
1.150000	22.8	9.000	L1	9.8	33.2	56.0
3.662000	24.5	9.000	L1	9.9	31.5	56.0
4.094000	25.1	9.000	L1	10.0	30.9	56.0
4.720000	25.9	9.000	L1	10.0	30.1	56.0
4.724000	25.5	9.000	L1	10.0	30.5	56.0
4.918000	24.6	9.000	L1	10.0	31.4	56.0
8.064000	29.1	9.000	L1	10.2	30.9	60.0
8.500000	30.1	9.000	L1	10.2	29.9	60.0
8.544000	29.8	9.000	L1	10.2	30.2	60.0
8.556000	29.7	9.000	L1	10.2	30.3	60.0
8.628000	29.1	9.000	L1	10.2	30.9	60.0
8.940000	29.9	9.000	L1	10.2	30.1	60.0

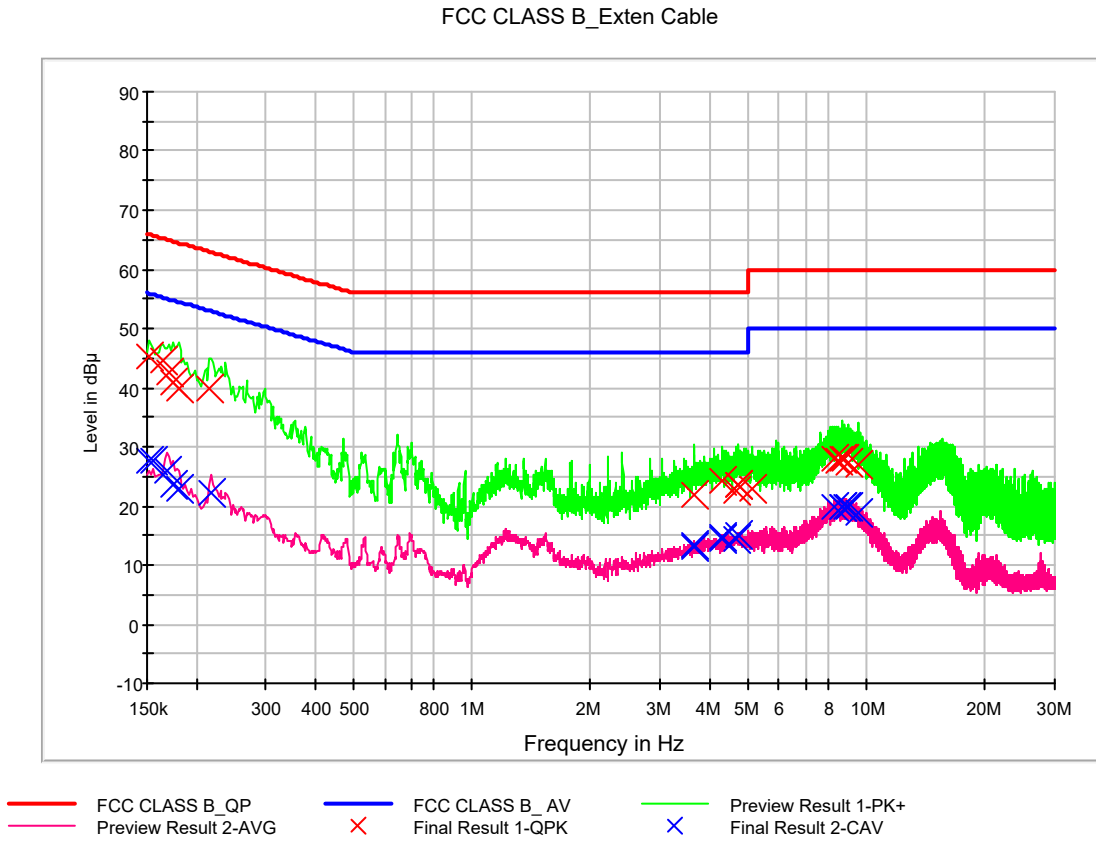


CAverage Final Result, Line (L1)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	26.4	9.000	L1	9.7	29.6	56.0
0.154000	25.5	9.000	L1	9.7	30.2	55.8
0.158000	25.3	9.000	L1	9.7	30.2	55.6
0.162000	24.5	9.000	L1	9.7	30.8	55.4
0.174000	28.0	9.000	L1	9.7	26.8	54.8
0.182000	25.2	9.000	L1	9.7	29.2	54.4
2.408000	13.1	9.000	L1	9.9	32.9	46.0
3.462000	15.0	9.000	L1	9.9	31.0	46.0
3.468000	14.8	9.000	L1	9.9	31.2	46.0
3.660000	15.6	9.000	L1	9.9	30.4	46.0
4.094000	16.3	9.000	L1	10.0	29.7	46.0
4.918000	16.7	9.000	L1	10.0	29.3	46.0
8.482000	21.9	9.000	L1	10.2	28.1	50.0
8.500000	22.3	9.000	L1	10.2	27.7	50.0
8.544000	22.1	9.000	L1	10.2	27.9	50.0
8.628000	22.1	9.000	L1	10.2	27.9	50.0
8.668000	22.3	9.000	L1	10.2	27.7	50.0
8.940000	22.1	9.000	L1	10.2	27.9	50.0



Figure 8: Conducted Emission, Charging & Receiver at LTE B17 Idle (Middle CH), Line (N)





QuasiPeak Final Result, Line (N)

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	45.2	9.000	N	9.8	20.7	65.9
0.164000	44.6	9.000	N	9.8	20.7	65.3
0.170000	42.5	9.000	N	9.8	22.5	65.0
0.174000	40.9	9.000	N	9.8	23.8	64.8
0.180000	39.9	9.000	N	9.8	24.6	64.5
0.216000	39.7	9.000	N	9.9	23.3	63.0
3.662000	21.9	9.000	N	10.1	34.1	56.0
4.296000	24.3	9.000	N	10.2	31.7	56.0
4.686000	22.5	9.000	N	10.2	33.5	56.0
4.726000	23.7	9.000	N	10.2	32.3	56.0
4.740000	23.4	9.000	N	10.2	32.6	56.0
5.148000	23.0	9.000	N	10.2	37.0	60.0
8.286000	27.9	9.000	N	10.4	32.1	60.0
8.468000	27.7	9.000	N	10.4	32.3	60.0
8.678000	28.0	9.000	N	10.4	32.0	60.0
8.788000	27.9	9.000	N	10.4	32.1	60.0
9.002000	27.3	9.000	N	10.4	32.7	60.0
9.544000	27.1	9.000	N	10.4	32.9	60.0



CAverage Final Result, Line (N)

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	27.7	9.000	N	9.8	28.2	55.9
0.156000	27.7	9.000	N	9.8	27.9	55.7
0.168000	26.0	9.000	N	9.8	29.1	55.1
0.174000	23.6	9.000	N	9.8	31.2	54.8
0.180000	23.0	9.000	N	9.8	31.5	54.5
0.218000	22.1	9.000	N	9.9	30.8	52.9
3.662000	13.2	9.000	N	10.1	32.8	46.0
3.666000	13.4	9.000	N	10.1	32.6	46.0
4.286000	14.5	9.000	N	10.2	31.5	46.0
4.296000	14.8	9.000	N	10.2	31.2	46.0
4.686000	14.4	9.000	N	10.2	31.6	46.0
4.726000	15.1	9.000	N	10.2	30.9	46.0
8.286000	20.0	9.000	N	10.4	30.0	50.0
8.642000	19.9	9.000	N	10.4	30.1	50.0
8.646000	19.9	9.000	N	10.4	30.1	50.0
8.910000	19.8	9.000	N	10.4	30.2	50.0
9.002000	19.8	9.000	N	10.4	30.2	50.0
9.544000	18.7	9.000	N	10.4	31.3	50.0



5.2 Radiated Emission

The test results of radiated emission provide the following information:

-For Measurement Below 1 GHz

Applicable Standards	FCC PART 15 Subpart B Class B ANSI C63.4-2014
Detector	Quasi-Peak
Bandwidth	120 kHz (6 dB)
Worst Case of Operating Mode	Data communication (Write) Charging & Rear Camera Preview & MP3 Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH) Charging & Receiver at LTE B17 Idle (Middle CH) Rear Camera Preview & MP3 Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH) Receiver at Receiver at LTE B17 Idle (Middle CH) & FM Radio (Middle CH)
Kind of Test Site	3 m semi anechoic chamber
Temperature	20.6-22.6 °C
Relative Humidity	39.4-41.7 %
Test Date	December 11, 2018 to December 18, 2018

- 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



Data communication (Write)

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
33.316800	22.1	192.9	V	132.0	19.0	17.9	40.0
180.121600	31.4	125.1	H	150.0	18.7	12.1	43.5
276.231200	29.1	100.0	H	321.0	19.7	16.9	46.0
480.088000	37.1	174.8	H	244.0	24.8	8.9	46.0
599.989600	35.1	100.0	V	0.0	27.4	10.9	46.0
800.012800	36.5	174.8	H	33.0	30.2	9.5	46.0

Charging & Rear Camera Preview & MP3

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
55.868000	26.0	100.0	V	241.0	20.0	14.0	40.0
97.696800	24.3	100.0	V	86.0	15.3	19.2	43.5
132.104800	26.7	125.3	V	211.0	18.9	16.8	43.5
204.659200	21.2	100.0	V	275.0	17.0	22.3	43.5
310.359200	26.4	100.0	H	111.0	20.8	19.6	46.0
796.937600	30.1	117.7	H	38.0	30.2	15.9	46.0

Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH)

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
31.832800	19.6	206.7	V	95.0	18.9	20.4	40.0
55.667200	31.4	100.0	V	170.0	20.0	8.6	40.0
90.635200	25.8	125.1	V	96.0	14.4	17.7	43.5
110.001600	24.7	100.0	V	1.0	16.7	18.8	43.5
176.224000	23.2	100.0	V	258.0	19.0	20.3	43.5
366.704000	24.3	100.0	H	111.0	22.2	21.7	46.0



Charging & Receiver at LTE B17 Idle (Middle CH)

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
31.903200	19.5	174.8	V	174.0	18.9	20.5	40.0
55.288800	31.4	100.0	V	168.0	20.0	8.6	40.0
88.132800	26.0	125.0	V	137.0	14.6	17.5	43.5
110.493600	24.1	100.0	V	8.0	16.7	19.4	43.5
174.812800	22.9	100.0	V	282.0	19.1	20.6	43.5
381.321600	26.0	100.0	H	101.0	22.6	20.0	46.0

Rear Camera Preview & MP3

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
32.204800	20.2	191.9	V	0.0	18.9	19.8	40.0
78.723200	22.0	225.2	H	0.0	15.9	18.0	40.0
114.569600	21.8	208.9	V	118.0	17.2	21.7	43.5
480.773600	23.7	100.0	V	344.0	24.8	22.3	46.0
623.700000	27.7	225.0	V	284.0	27.7	18.3	46.0
932.832800	31.5	100.0	V	32.0	31.5	14.5	46.0

Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH)

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
31.700800	17.6	100.0	V	54.0	18.8	22.4	40.0
59.316000	17.5	125.1	H	36.0	19.8	22.5	40.0
150.507200	18.8	125.2	V	64.0	19.9	24.7	43.5
505.065600	24.4	125.0	V	355.0	25.3	21.6	46.0
612.452000	27.7	100.0	H	46.0	27.6	18.3	46.0
753.228000	29.5	100.0	V	356.0	29.5	16.5	46.0



Receiver at Receiver at LTE B17 Idle (Middle CH) & FM Radio (Middle CH)

Frequency (MHz)	Quasi Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
31.509600	17.6	125.3	V	16.0	18.8	22.4	40.0
47.121600	17.6	125.2	H	33.0	20.1	22.4	40.0
156.980000	18.6	100.0	H	40.0	20.1	24.9	43.5
334.496000	19.9	119.7	V	345.0	21.4	26.1	46.0
573.756800	26.2	100.0	V	60.0	26.9	19.8	46.0
910.792800	31.2	100.0	V	211.0	31.3	14.8	46.0



-For Measurement Above 1 GHz

Applicable Standards	FCC 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 of Operating Mode	Data communication (Write) Charging & Rear Camera Preview & MP3 Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH) Charging & Receiver at LTE B17 Idle (Middle CH) Rear Camera Preview & MP3 Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH) Receiver at Receiver at LTE B17 Idle (Middle CH) & FM Radio (Middle CH)
Kind of Test Site	3 m semi anechoic chamber
Temperature	21.4 / 21.0 °C
Relative Humidity	41.3 / 39.4 %
Test Date	December 13 / December 14, 2018

- 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



Data communication (Write)

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1400.065000	48.0	199.4	V	237.0	-28.2	26.0	74.0
2000.125000	49.7	100.0	V	55.0	-26.7	24.3	74.0
2390.225000	49.4	350.0	V	20.0	-25.3	24.6	74.0
2658.700000	48.9	202.5	V	20.0	-24.3	25.1	74.0
4481.450000	43.4	100.0	V	0.0	-19.6	30.6	74.0
5993.850000	42.1	100.0	V	118.0	-17.1	31.9	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1400.065000	46.6	199.4	V	237.0	-28.2	7.4	54.0
2000.125000	28.4	100.0	V	55.0	-26.7	25.6	54.0
2390.225000	22.8	350.0	V	20.0	-25.3	31.2	54.0
2658.700000	23.0	202.5	V	20.0	-24.3	31.0	54.0
4481.450000	27.1	100.0	V	0.0	-19.6	26.9	54.0
5993.850000	26.3	100.0	V	118.0	-17.1	27.7	54.0

Charging & Rear Camera Preview & MP3

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1314.010000	32.9	100.0	H	233.0	-28.5	41.1	74.0
2449.990000	32.6	100.0	V	61.0	-25.1	41.4	74.0
5612.795000	37.1	100.0	H	162.0	-17.7	36.9	74.0
6429.855000	39.4	150.0	H	119.0	-15.3	34.6	74.0
7383.590000	41.4	217.5	V	153.0	-13.1	32.6	74.0
9488.450000	43.9	149.9	H	70.0	-10.1	30.1	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1314.010000	17.6	100.0	H	233.0	-28.5	36.4	54.0
2449.990000	19.5	100.0	V	61.0	-25.1	34.5	54.0
5612.795000	24.1	100.0	H	162.0	-17.7	29.9	54.0
6429.855000	26.2	150.0	H	119.0	-15.3	27.8	54.0
7383.590000	28.4	217.5	V	153.0	-13.1	25.6	54.0
9488.450000	31.4	149.9	H	70.0	-10.1	22.6	54.0



Charging & Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH)

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1171.310000	31.6	188.4	V	319.0	-29.2	42.4	74.0
3059.410000	34.0	199.6	H	295.0	-22.7	40.0	74.0
5217.680000	36.8	113.3	H	283.0	-18.2	37.2	74.0
7257.465000	39.8	150.0	V	0.0	-13.7	34.2	74.0
8096.285000	42.4	127.6	H	21.0	-12.4	31.6	74.0
9491.160000	44.0	100.0	V	310.0	-10.1	30.0	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
1171.310000	17.4	188.4	V	319.0	-29.2	36.6	54.0
3059.410000	21.0	199.6	H	295.0	-22.7	33.0	54.0
5217.680000	24.1	113.3	H	283.0	-18.2	29.9	54.0
7257.465000	27.2	150.0	V	0.0	-13.7	26.8	54.0
8096.285000	29.3	127.6	H	21.0	-12.4	24.7	54.0
9491.160000	31.4	100.0	V	310.0	-10.1	22.6	54.0

Charging & Receiver at LTE B17 Idle (Middle CH)

Frequency (MHz)	Peak (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
2013.990000	31.5	214.6	V	46.0	-26.7	42.5	74.0
3652.215000	34.3	150.1	V	184.0	-21.8	39.7	74.0
5613.735000	36.9	149.9	V	117.0	-17.7	37.1	74.0
7530.020000	41.5	149.7	H	242.0	-12.6	32.5	74.0
8807.960000	42.1	203.4	V	220.0	-11.9	31.9	74.0
9895.180000	43.9	100.0	H	52.0	-9.5	30.1	74.0

Frequency (MHz)	CAverage (dBμV/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
2013.990000	18.5	214.6	V	46.0	-26.7	35.5	54.0
3652.215000	21.5	150.1	V	184.0	-21.8	32.5	54.0
5613.735000	24.3	149.9	V	117.0	-17.7	29.7	54.0
7530.020000	28.5	149.7	H	242.0	-12.6	25.5	54.0
8807.960000	29.7	203.4	V	220.0	-11.9	24.3	54.0
9895.180000	31.0	100.0	H	52.0	-9.5	23.0	54.0



Rear Camera Preview & MP3

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1737.960000	31.0	176.5	V	0.0	-27.3	43.0	74.0
3084.090000	33.9	150.0	H	37.0	-22.7	40.1	74.0
4559.670000	36.9	277.4	V	293.0	-19.4	37.1	74.0
6042.180000	37.9	150.0	V	60.0	-16.9	36.1	74.0
7550.830000	41.6	191.5	H	107.0	-12.6	32.4	74.0
9663.690000	43.7	320.5	H	295.0	-9.8	30.3	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)
1737.960000	18.5	176.5	V	0.0	-27.3	35.5	54.0
3084.090000	21.4	150.0	H	37.0	-22.7	32.6	54.0
4559.670000	23.4	277.4	V	293.0	-19.4	30.6	54.0
6042.180000	24.7	150.0	V	60.0	-16.9	29.3	54.0
7550.830000	28.8	191.5	H	107.0	-12.6	25.2	54.0
9663.690000	31.0	320.5	H	295.0	-9.8	23.0	54.0

Receiver at LTE B5/LTE B26/WCDMA 850 Idle (Middle CH)

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1736.850000	30.7	150.0	V	331.0	-27.3	43.3	74.0
4568.470000	36.3	150.0	H	20.0	-19.4	37.8	74.0
5617.070000	37.4	249.9	V	94.0	-17.7	36.6	74.0
7402.820000	41.0	249.8	V	0.0	-13.1	33.0	74.0
8805.215000	43.2	149.5	V	228.0	-11.9	30.8	74.0
9883.800000	43.7	218.4	V	230.0	-9.5	30.3	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)
1736.850000	18.3	150.0	V	331.0	-27.3	35.7	54.0
4568.470000	23.1	150.0	H	20.0	-19.4	30.9	54.0
5617.070000	24.2	249.9	V	94.0	-17.7	29.8	54.0
7402.820000	28.3	249.8	V	0.0	-13.1	25.7	54.0
8805.215000	29.6	149.5	V	228.0	-11.9	24.4	54.0
9883.800000	31.1	218.4	V	230.0	-9.5	22.9	54.0


Receiver at Receiver at LTE B17 Idle (Middle CH) & FM Radio (Middle CH)

Frequency (MHz)	Peak (dB μ V/m)	Antenna Height (cm)	POL. (H/V)	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1414.395000	30.3	202.5	H	62.0	-28.1	43.7	74.0
3576.640000	34.3	123.8	V	142.0	-22.0	39.7	74.0
5588.085000	36.5	150.0	V	309.0	-17.7	37.5	74.0
7502.180000	41.0	124.6	V	84.0	-12.6	33.0	74.0
8821.230000	42.2	125.7	V	0.0	-11.8	31.8	74.0
9901.565000	44.0	199.6	V	0.0	-9.5	30.0	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)
1414.395000	17.7	202.5	H	62.0	-28.1	36.3	54.0
3576.640000	21.1	123.8	V	142.0	-22.0	32.9	54.0
5588.085000	23.9	150.0	V	309.0	-17.7	30.1	54.0
7502.180000	28.3	124.6	V	84.0	-12.6	25.7	54.0
8821.230000	29.5	125.7	V	0.0	-11.8	24.5	54.0
9901.565000	31.0	199.6	V	0.0	-9.5	23.0	54.0



6. CONCLUSION

The data collected shows that the **EUT Type: Mobile Phone, FCC ID: A3LSMG887N, Model: SM-G887N** complies with §15.107 and §15.109 of the FCC rules.



7. APPENDIX A. TEST SETUP PHOTOGRAPHS

Please refer to Appendix A