Project No.	LBE20201029	lssue No.	0	
Applicant	Name of organization	Samsung Electronics Co., Ltd.		
	Address	(Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea		
	Date of receipt	November 25, 2020		
a	Type of device	 All other Receivers subject to part15 Class B Personal Computers and peripherals Other Class B digital devices and peripherals FM Broadcast Receiver 		
	Equipment authorization	Certification Supplier's Declaration of Conformity		
	FCC ID	A3LSMA326J		
EUT	Kind of product	Mobile Phone		
	Model No.	SCG08		
	Variant Model No.	Refer to clause 4.6		
	Manufacturer	SAMSUNG ELECTRONICS VIETNAM CO.,LTD. Yenphong 1 - I.P Yentrung Commune, Yenphong Dist., Bac Ninh Province, Vietnam		
Applied Sta	andards	47 CFR Part 15, Subpart B, Class B / ANSI C63.4-2014		
Test Period	k	November 25, 2020 ~ December 14, 2020		
Issue date		December 15, 2020		
The equi	: Complied oment under test has found the attached test result for		with the applied standards.	
Tested by	: Eun-Kyung Oh	Reviewed by : Sun-Ho Kim		
J	670		Alle	
	in this report only apply to the permission from Global CS cer		is report must not be reproduced, except in fu	

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1. Report Information

1.1 Revision history

No.	Date of Issue	Revised detailed information
Issue 0	December 15, 2020	There are no revisions and this version is basic test report.

* Remark

Compliance with Part 15B requirements for the receiver part of the licensed transmitter (equipment code CXX) is covered by other test report.

2. Summary of test results

2.1 Emission

The EUT has been tested according to the following specifications:

Applied	Test type	Applied standard	Result
	Conducted Disturbance (Mains port)	47 CFR Part 15 Subpart B / ANSI C63.4-2014	Complied
	Radiated Disturbance	(Class B)	Complied

3. General Information

3.1 Test facility

The Global CS Center is located on Samsung Electronics Co., Ltd. at (Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea. All testing are performed in Semi-anechoic chambers conforming to the site attenuation characteristics defined by ANSI C63.4, CISPR 32, CISPR 16-1-4 and Shielded rooms. And all antennas are properly calibrated using ANSI C63.5:2017.

The Global CS Center is an ISO/IEC 17025 accredited testing laboratory by the National Radio Research Agency with designation No. KR0004. for EMC testing.

4. Test Setup configuration

4.1 Test Peripherals

The cables used for these peripherals are either permanently attached by the peripheral manufacturer or coupled with an assigned cable as defined below.

The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

Mark	Description	Model No.	Serial No.	Manufacturer / Trademark	FCC ID	
Α	Mobile Phone	SCG08	-	SAMSUNG	A3LSMA326J	
В	Battery	EB-BA426ABY	-	SDI	-	
С	Headset	EHS64AVFWE	-	Cresyn	-	
D	Data Cable	EP-DR140	-	RFTECH	-	
E	Micro SD Card	64GB	-	SAMSUNG	DoC	
F	_ Laptop	Laptop	1CHRYM2	Dell	DoC	
	Computer	Latitude5580	D3HRYM2	Dell	DoC	
G	Laptop	Laptop	LA65NM130	5D77	Dell	DoC
G	AC Adapter	LACONVITO	5B3C	Dell	DoC	
н	Mouse	AA-SM7PCPB	CNBA5903634ADV8J 31O3050	SAMSUNG	DoC	
		SNJ-B138	Z5F8353	SAMSUNG	DoC	
	Router	DIR-806A	RF0F1D8011501	D-Link	DoC	
			RF0F1D8011504	D-Link	DoC	
J	Travel Adapter	EP-TA200	R37N6NA00B5DK3	DONGYANG	-	

4.2 EUT operating mode

To achieve compliance applied standard specification including CXX, JAB and JBP requirement, the following mode(s) were made during compliance testing:

4.2.1 Conducted Emission

No.	Operating mode
1	Camera (rear) + Charging (w/ TA) + Cellular receiver (GSM850 Center Frequency)
2	Camera (front) + Charging (w/ TA)
3	Video + Audio playback from internal memory data + Charging (w/ TA)
4	USB Data Communication with PC (from external memory data)

4.2.2 Radiated Emission

No.	Operating mode
1	Camera (rear) + Charging (w/ TA)
2	Camera (front)
3	Video + Audio playback from internal memory data (w/ Headset)
4	USB Data Communication with PC (from external memory data)

4.3 Details of Sampling

Customer selected, single unit.

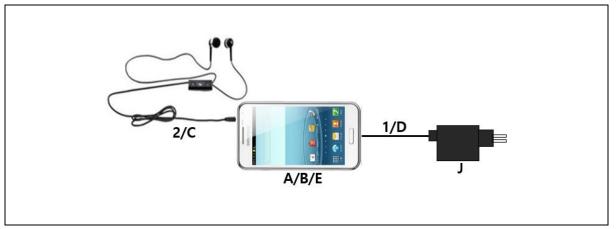
4.4 Used cable description

The EUT is configured, installed, arranged and operated in a manner consistent with typical applications. Interface cables/loads/devices are connected to at least one of each type of interface port of the EUT, and where practical, each cable shall be terminated in a device typical of actual usage. The type(s) of interconnecting cables to be used and the interface port (of the EUT) to which these were connected:

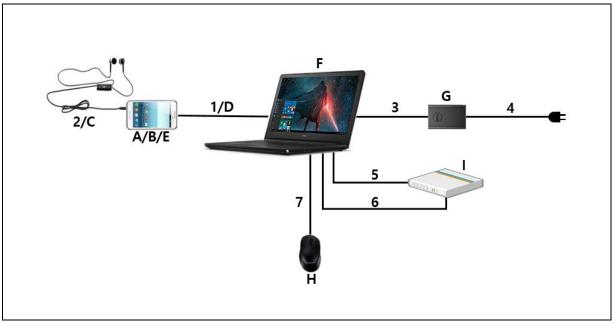
No.	Connected cable	Length [m]	Shielded [Y/N]	Note
1	Data Cable	0.8	Y	From EUT to Laptop Computer or TA
2	Headset	1.2	N	For EUT
3	Power	1.8	N	From Laptop Computer to AC Adapter
4	Power	1.5	N	For Laptop AC Adapter
5	LAN	1.5	N	From Laptop Computer to Router
6	USB	0.8	Y	From Laptop Computer to Router for DC Power
7	USB	1.8	Y	From Laptop Computer to Mouse

4.5 Test arrangement

4.5.1 Conducted Emission

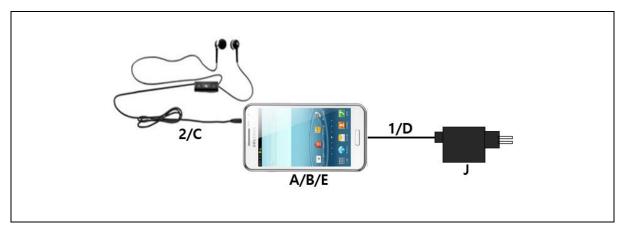


[Mode 1 - 3]

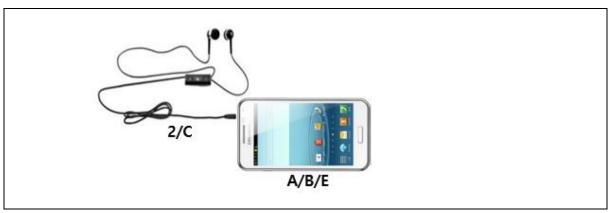


[Mode 4]

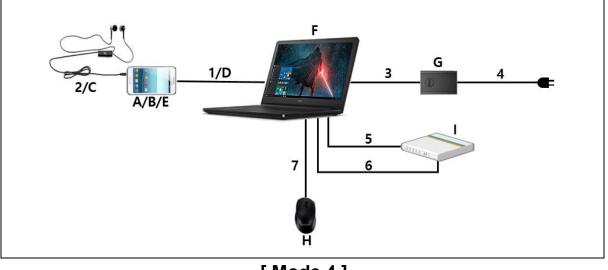
4.5.2 Radiated Emission



[Mode 1]







[Mode 4]

4.6 EUT Description

The EUT is a bar type Mobile Phone which can operate on GSM850/900/1800/1900, WCDMA FDD1/5, LTE FDD 1/3/12/18/28, LTE TDD 41/42, 5G NR n28/77/78 and incorporates a Bluetooth, Wi-Fi, Camera, Audio, Video, GNSS and NFC.

4.6.1 The variant models

- None

4.7 EUT Frequencies

The highest frequencies (Generated and used)	Frequency [MHz]	
Wi-Fi	5 825	

4.8 Test configuration and condition

The system was configured for testing in a typical fashion that a customer would normally use. Cables were attached to each of the available I/O Ports. Where applicable, peripherals were attached to the I/O cables. All the external I/O ports are exercised, as well as internal and the external SD card, by writing and reading arbitrary data or charging with TA.

The EUT was investigated in three orientations and the worst case orientation is reported.

RX mode(850MHz) testing was performed with the GSM850 RX Test mode at center frequency. All licensed communication (850MHz) RX mode, GSM/WCDMA/LTE, test results are not significantly different.

The video and audio were repetitively played with the earphone connected.

The camera of the EUT was operated continuously.

Power source for the EUT operating was supplied by CVCF made by the Pacific Corp.

- Test Voltage : AC 120 V, 60 Hz

4.9 Measurement uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus: (According to CISPR 16-4-2 and UKAS M3003)

Test type	Measurement uncertainty (C.L. 95 %, k = 2)	
Conducted disturbance	AC Mains	2.83 dB
Radiated Disturbance	Horizontal	4.08 dB
(Below 1 GHz)	Vertical	4.58 dB
Radiated Disturbance	Horizontal	5.21 dB
(Above 1 GHz)	Vertical	5.22 dB

* Remark

1) The values for uncertainty of conducted and radiated emissions are less than the Corresponding values of Ucispr given in CISPR 16-4-2. Therefore no adjustment of measurement results is necessary when comparing them with the relevant limits.

5. Results of individual test

5.1 Conducted disturbance

The EUT is connected to a LISN via travel adapter. If the EUT is connected to the Laptop Computer USB port, the Laptop AC adapter is connected to a LISN.

Both conducted lines are measured in Quasi-Peak and CISPR-Average mode, including the worst-case data points for each tested configuration. The EUT measured in accordance with the methods described in standards.

Frequency range Limits	Resolution Bandwidth	Limits [dB(µV)]		
[MHz]	[kHz]	Quasi-peak	Average	
0.15 to 0.50	9	66 to 56	56 to 46	
0.50 to 5	9	56	46	
5 to 30	9	60	50	
NOTE 1 The lower limit shall apply at the transition frequency.				
NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.				

Limits for conducted disturbance at the mains ports of Class B ITE

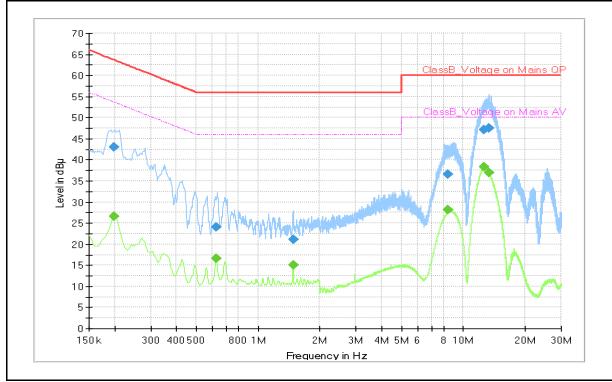
5.1.1 Test instrumentation

	MC No. Test Instrument Model name Manufacturer Serial No.				Next Calibration	
EMC No.		Date	Interval (Month)			
E5I-002	Universal Radio Communicator	CMU200	R&S	100612	2021-08-12	12
E5I-017	EMI Test Receiver	ESU8	R&S	100483	2021-01-20	12
E5I-127	LISN	ENV216	R&S	102061	2021-07-29	12
-	Test software	EMC32	R&S	Ver 9.26.01	-	-

5.1.2 Temperature and humidity condition

Test date	2020-12-14	Test engineer	Eun-Kyung Oh	
	Ambient temperature	(22.5 ± 0.5) °C	Limit (15.0 to 35.0) ℃	
Climate condition	Relative humidity	(51.6 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.	
	Atmospheric pressure	Limit (86.0 to 106.0) kPa		
Test place		Shield Room (SR8)		

5.1.3 Test results



□ Operating Mode 1: AC Mains

Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

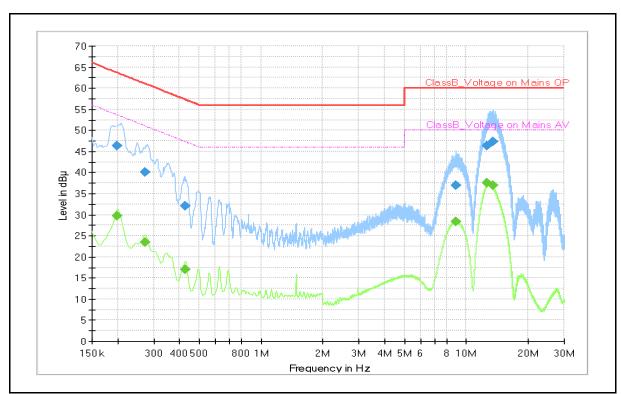
Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.200		26.63	53.63	27.00	Ν	10.0
0.200	42.95		63.63	20.68	Ν	10.0
0.625		16.63	46.00	29.37	Ν	10.2
0.625	23.98		56.00	32.02	Ν	10.2
1.482	21.08		56.00	34.92	Ν	10.0
1.482		15.14	46.00	30.86	Ν	10.0
8.457		28.06	50.00	21.94	L1	10.1
8.457	36.59		60.00	23.41	L1	10.1
12.552		38.40	50.00	11.60	L1	10.2
12.552	47.11		60.00	12.89	L1	10.2
13.367	47.50		60.00	12.50	L1	10.3
13.367		37.01	50.00	12.99	L1	10.3

OP / CAV final me	asurement results table:

Note 2) Level (QP and/or CAV) = Meter Reading (QP and/or CAV) + Corr. (LISN Insertion Loss + Cable Loss) Margin (QP and/or CAV) = Limit – Level (QP and/or CAV)

QP = Quasi-Peak, CAV = CISPR-Average, Corr. = Correction Factor

-12/25-



□ Operating Mode 2: AC Mains

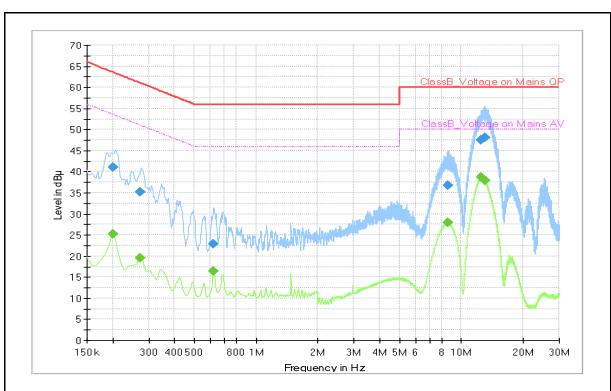
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.200		29.68	53.63	23.95	N	10.0
0.200	46.37		63.63	17.26	N	10.0
0.272		23.42	51.07	27.65	N	9.9
0.272	40.02		61.07	21.05	N	9.9
0.429	32.04		57.27	25.23	N	10.2
0.429		17.00	47.27	30.27	N	10.2
8.867		28.45	50.00	21.55	L1	10.1
8.867	36.90		60.00	23.10	L1	10.1
12.671		37.62	50.00	12.38	L1	10.2
12.671	46.33		60.00	13.67	L1	10.2
13.443	47.28		60.00	12.72	L1	10.3
13.443		36.96	50.00	13.04	L1	10.3

Note 2) Level (QP and/or CAV) = Meter Reading (QP and/or CAV) + Corr. (LISN Insertion Loss + Cable Loss) Margin (QP and/or CAV) = Limit – Level (QP and/or CAV)

QP = Quasi-Peak, CAV = CISPR-Average, Corr. = Correction Factor

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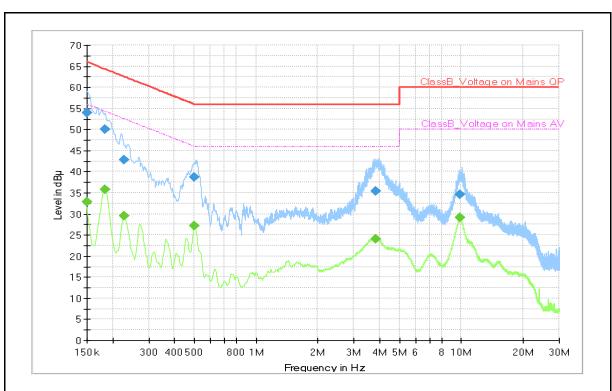
□ Operating Mode 3: AC Mains

Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.202	41.16		63.54	22.38	N	10.0
0.202		25.19	53.54	28.35	N	10.0
0.272	35.22		61.07	25.85	L1	9.9
0.272		19.46	51.07	31.61	L1	9.9
0.620	22.88		56.00	33.12	N	10.2
0.620		16.47	46.00	29.53	N	10.2
8.592	36.79		60.00	23.21	L1	10.1
8.592		28.03	50.00	21.97	L1	10.1
12.498		38.75	50.00	11.25	L1	10.2
12.498	47.54		60.00	12.46	L1	10.2
13.058		37.98	50.00	12.02	L1	10.2
13.058	48.06		60.00	11.94	L1	10.2

Note 2) Level (QP and/or CAV) = Meter Reading (QP and/or CAV) + Corr. (LISN Insertion Loss + Cable Loss) Margin (QP and/or CAV) = Limit – Level (QP and/or CAV)

QP = Quasi-Peak, CAV = CISPR-Average, Corr. = Correction Factor



□ Operating Mode 4: AC Mains

Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.150	53.93		66.00	12.07	N	9.9
0.150		32.82	56.00	23.18	N	9.9
0.184		35.82	54.31	18.49	N	10.2
0.184	50.06		64.31	14.25	N	10.2
0.227		29.60	52.58	22.98	L1	9.9
0.227	42.80		62.58	19.78	L1	9.9
0.501	38.77		56.00	17.23	L1	10.2
0.501		27.22	46.00	18.78	L1	10.2
3.831		24.04	46.00	21.96	L1	10.0
3.831	35.32		56.00	20.68	L1	10.0
9.879		29.09	50.00	20.91	L1	10.1
9.879	34.62		60.00	25.38	L1	10.1

Note 2) Level (QP and/or CAV) = Meter Reading (QP and/or CAV) + Corr. (LISN Insertion Loss + Cable Loss) Margin (QP and/or CAV) = Limit – Level (QP and/or CAV)

QP = Quasi-Peak, CAV = CISPR-Average, Corr. = Correction Factor

5.2 Radiated disturbance

The following data lists the significant emission frequencies, measured levels, correction factors (for antenna and cables), orientation of table, polarization and height of antenna, the corrected reading, the limit, and the amount of margin.

Peak measurements were made over the changeable frequency range 30 MHz to 1 GHz at a measurement distance of 10 m for the following antenna and turntable arrangements:

Antenna Height [cm]	Antenna Polarisation	Resolution Bandwidth [kHz]	Video Bandwidth [kHz]	Turntable position [degrees]
100 ~ 400	Horizontal, Vertical	120	300	Continuous

Measurements within 6 dB of the limit were then maximized by adjusting turntable position. Final measurements were made using quasi-peak detector.

Peak/CISPR-Average measurements were made over the changeable frequency range 1 GHz to 40 GHz or 5th harmonics of the highest frequency generated or used in the device or on which the device operates or tunes at a measurement distance of 3 m for the following antenna and turntable arrangements. The measurements above 1 GHz were performed with the bore-sighting antenna aimed at the EUT.

Antenna Height [cm]	Antenna Polarisation	Resolution Bandwidth [MHz]	Video Bandwidth [MHz]	Turntable position
100 ~ 400	Horizontal, Vertical	1	3	Continuous

Measurements within 6 dB of the limit were then maximized by adjusting turntable position. Final measurements were made using peak and CISPR-average detectors.

Limits for radiated disturbance of Class B ITE at a measuring distance of 3 m and 10 m

Frequency range Limits [MHz]	Field Strength				
	3 m [µV/m]	3 m [dB(µV/m)]	10 m [dB(µV/m)]		
30 to 88	100	40.0	29.5		
88 to 216	150	43.5	33.0		
216 to 960	200	46.0	35.5		
Above 960	500	54.0	43.5		

Note) Distance correction fomula from $D_1(3m)$ to $D_2(10m)$

: Limit at D_2 = Limit at D_1 + 20Log(D_1 / D_2)

Results checked manually; and points close to the limit line were re-measured.

5.2.1 Test instrumentation

EMC No.		Model name	Manufacturer		Next Calibration		
	Test Instrument			Serial No.	Date	Interval (Month)	
E5I-020	EMI Test Receiver	ESU40	R&S	100375	2021-09-14	12	
E5I-018	EMI Test Receiver	ESU8	R&S	100484	2021-05-22	12	
E5I-069	BiLog Antenna	CBL6112D	TESEQ	35382	2021-08-30	24	
E5I-071	BiLog Antenna	CBL6112D	TESEQ	35384	2021-08-30	24	
E5I-093	Preamplifier	310N	SONOMA	273122	2021-01-23	12	
E5I-094	Preamplifier	310N	SONOMA	282363	2021-01-23	12	
E5I-036	Horn Antenna	HF907	R&S	100507	2022-04-23	24	
E5I-039	Signal Conditioning Unit	SCU-18	R&S	10211	2021-01-23	12	
E5I-037	WideBand Horn Antenna	WBH 18-40K	R&S	11201	2021-01-31	24	
E5I-042	Signal Conditioning Unit	SCU-40A	R&S	10004	2021-09-09	12	
-	Test software	EP7RE	ΤΟΥΟ	Ver 5.8.2	-	-	
-	Test software	EMC32	R&S	Ver 9.25.00	-	-	

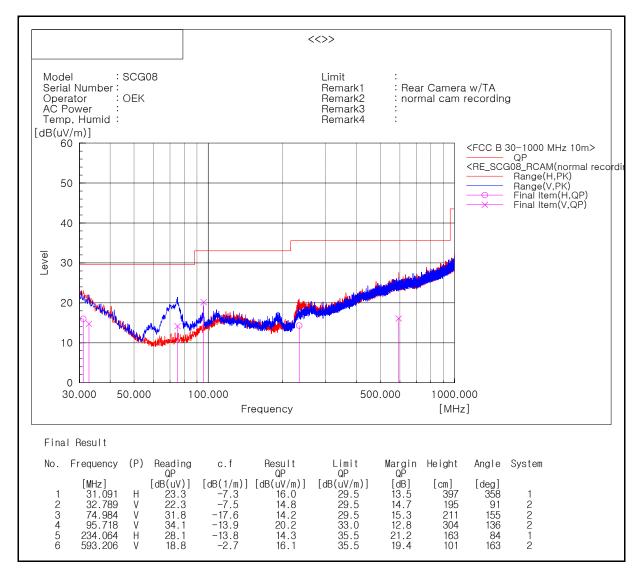
5.2.2 Temperature and humidity condition

Test date	2020-11-25, 2020-12-08	Test engineer	Eun-Kyung Oh		
Climate condition	Ambient temperature	(23.2 ± 0.5) °C	Limit (15.0 to 35.0) ℃		
	Relative humidity (42.2 ± 0.5) % R.H. L		Limit (25.0 to 75.0) % R.H.		
	Atmospheric pressure	(101.5 ± 0.5) kPa	Limit (86.0 to 106.0) kPa		
Test place	Semi-Anechoic Chamber (SAC4)				

5.2.3 Test results

□ Operating Mode 1

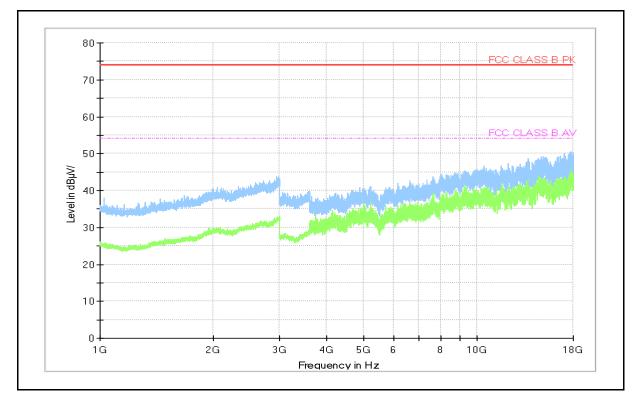
- Frequencies below 1 GHz



Note1) Receiving antenna polarization : Horizontal, Vertical Test Distance : 10 m, Antenna Height : 1 to 4 meters Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain) Margin (QP) = Limit – Level (QP) QP = Quasi-Peak, c.f = Correction Factor

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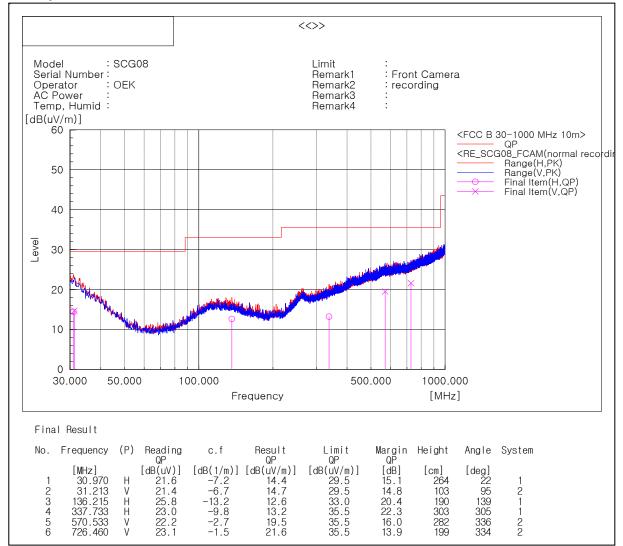
- Frequencies above 1 GHz

Note 1) We have also tested from 18 GHz to 30 GHz and found no emissions.

Note 2) Receiving antenna polarization : Horizontal, Vertical Test Distance : 3 m, Antenna Height : 1 to 4 meters Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain) Margin (PK and/or CAV) = Limit – Level (PK and/or CAV) PK = Peak, CAV = CISPR-Average, Corr. = Correction Factor

□ Operating Mode 2

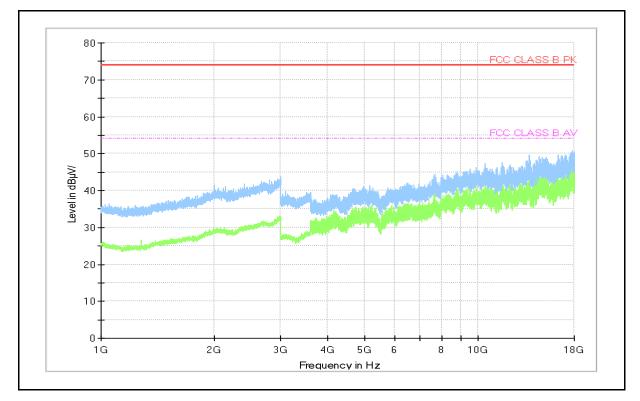
- Frequencies below 1 GHz



Note1) Receiving antenna polarization : Horizontal, Vertical Test Distance : 10 m, Antenna Height : 1 to 4 meters Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain) Margin (QP) = Limit – Level (QP) QP = Quasi-Peak, c.f = Correction Factor

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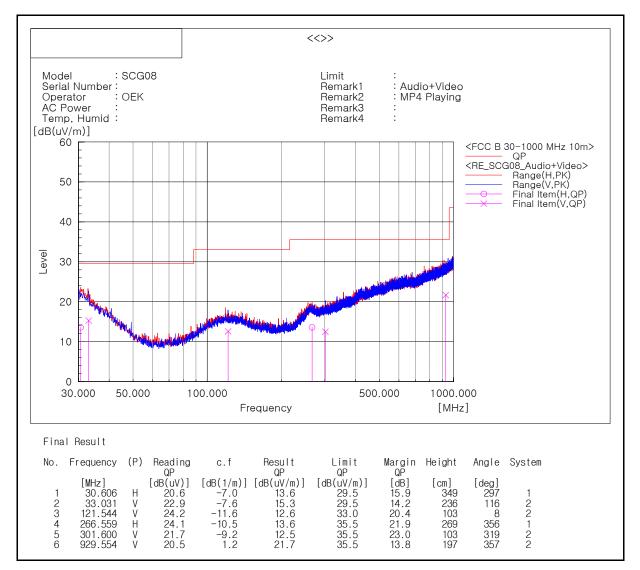
- Frequencies above 1 GHz

Note 1) We have also tested from 18 GHz to 30 GHz and found no emissions.

Note 2) Receiving antenna polarization : Horizontal, Vertical Test Distance : 3 m, Antenna Height : 1 to 4 meters Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain) Margin (PK and/or CAV) = Limit – Level (PK and/or CAV) PK = Peak, CAV = CISPR-Average, Corr. = Correction Factor

□ Operating Mode 3

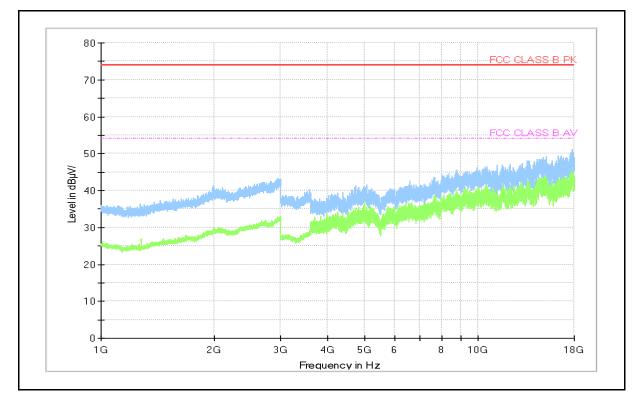
- Frequencies below 1 GHz



Note1) Receiving antenna polarization : Horizontal, Vertical Test Distance : 10 m, Antenna Height : 1 to 4 meters Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain) Margin (QP) = Limit – Level (QP) QP = Quasi-Peak, c.f = Correction Factor

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Mobile Phone : SCG08



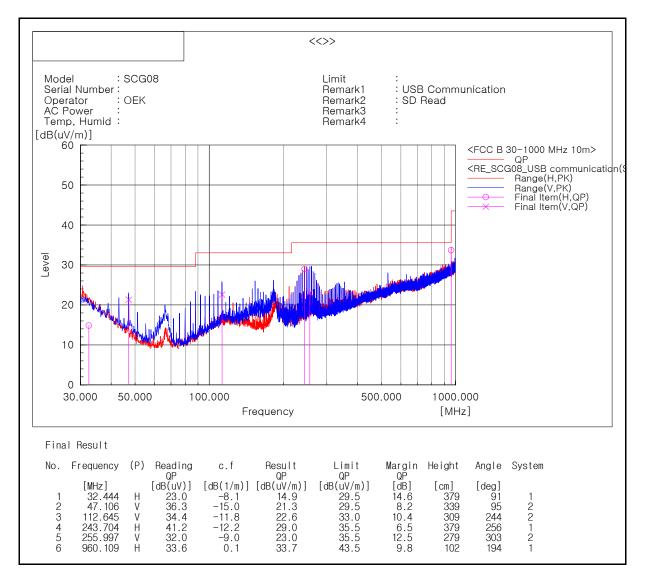
- Frequencies above 1 GHz

Note 1) We have also tested from 18 GHz to 30 GHz and found no emissions.

Note 2) Receiving antenna polarization : Horizontal, Vertical Test Distance : 3 m, Antenna Height : 1 to 4 meters Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain) Margin (PK and/or CAV) = Limit – Level (PK and/or CAV) PK = Peak, CAV = CISPR-Average, Corr. = Correction Factor

□ Operating Mode 4

- Frequencies below 1 GHz



Note1) Receiving antenna polarization : Horizontal, Vertical Test Distance : 10 m, Antenna Height : 1 to 4 meters Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain) Margin (QP) = Limit – Level (QP) QP = Quasi-Peak, c.f = Correction Factor

Project No. : LBE20201029

Mobile Phone : SCG08

80 FCC CLASS B PK 70 60 50 Level in dBµV/ 40 30 20 10 0. 1G2G 3G 4G 5G 6 8 10G 18G Frequency in Hz

-	Fred	uencies	above	1	GHz
	1109	40110100			

Frequency (MHz)	PK (dBμV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
2 124.800		36.55	54.00	17.45	101.0	V	268.0	13.0
2 128.000	51.14		74.00	22.86	105.0	V	268.0	13.0
2 999.200	43.80		74.00	30.20	121.0	Н	315.0	17.0
2 999.600		33.56	54.00	20.44	118.0	V	78.0	17.0
3 191.000	41.25		74.00	32.75	109.0	V	0.0	0.4
3 263.500		30.70	54.00	23.30	100.0	Н	261.0	0.4
3 455.500		32.84	54.00	21.16	101.0	Н	112.0	1.5
3 456.500	39.94		74.00	34.06	103.0	V	13.0	1.5
14 311.000		43.15	54.00	10.85	102.0	V	252.0	29.3
14 323.000	49.24		74.00	24.76	107.0	Н	261.0	29.2
17 746.000		46.44	54.00	7.56	104.0	V	335.0	35.1
17 775.000	50.82		74.00	23.18	112.0	V	87.0	35.7

Note 1) We have also tested from 18 GHz to 30 GHz and found no emissions.

Note 2) Receiving antenna polarization : Horizontal, Vertical

Test Distance : 3 m, Antenna Height : 1 to 4 meters

Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain) Margin (PK and/or CAV) = Limit – Level (PK and/or CAV) PK = Peak, CAV = CISPR-Average, Corr. = Correction Factor