EMC TEST REPORT

Project No.	LBE20191420	**Issue No.**	1
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 application	December 06, 2019	
EUT	**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	A3LSMG980F	
	Kind of product	Mobile Phone	
	Model No.	SM-G980F/DS	
	Variant Model No.	Refer to clause 4.6	
	Manufacturer	KCN Yen Phong Industrial Zone 1, Yen Trung, Yen Phong, Bac Ninh, 2300325764, VNM	
Applied Standards		47 CFR Part 15, Subpart B, Class B / ANSI C63.4-2014	
Test Period		December 06, 2019 ~ December 16, 2019	
Issue date		December 27, 2019	

Test result : Complied

The equipment under test has found to be compliant with the applied standards.
(Refer to the attached test result for more detail.)

Tested by : Eun-Kyung Oh	**Reviewed by** : Sung-Wook Choi

The test results in this report only apply to the tested sample. This report must not be reproduced, except in full, without written permission from Global CS Center.

Global CS Center of Samsung Electronics Co., Ltd.
(Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea

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1. Report Information

1.1 Revision history

No.	Date of Issue	Revised detailed information
Issue 0	December 17, 2019	There are no revisions and this version is basic test report.
Issue 1	December 27, 2019	Changed Data Cable model name as per customer's request. (EP-DN970BBE → EP-DG980)

※ 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 (Class B)	Complied
☒	Radiated Disturbance		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 17025:2005 accredited testing laboratory by the National Radio Research Agency with designation No. KR0004. for EMC testing.

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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
A	Mobile Phone	SM-G980F/DS	-	SAMSUNG	A3LSMG980F
B	Battery	EB-BG980ABY	-	SAMSUNG	-
C	Headset	YBD-19HS	-	SAMSUNG	-
D	Data Cable	EP-DG980	-	SAMSUNG	-
E	Micro SD Card	64GB	-	SAMSUNG	DoC
F	Laptop Computer	Latitude5580	1CHRYM2	Dell	DoC
			D3HRYM2	Dell	DoC
G	Laptop AC Adapter	LA65NM130	5D77	Dell	DoC
			5B3C	Dell	DoC
H	Mouse	AA-SM7PCPB	CN57BA5903634ADV8J JCD4371	SAMSUNG	DoC
		SNJ-B138	Z5F8353	SAMSUNG	DoC
I	Router	DIR-806A	RF0F1D5000688	D-Link	DoC
			RF0F1D8011504	D-Link	DoC
J	Travel Adapter	EP-TA800	R37M5WS3DY1SE3	SAMSUNG	-
K	DP Monitor	27UD88	711NTQD8H004	LG	DoC
L	DP Monitor AC Adapter	LCAP31	EH8NN629490055062	LG	DoC
M	DP Cable	JCA141	BW2K1709000770	J5CREATE	DoC
N	OTG Gender	EE-UG970	-	SAMSUNG	-
O	USB Memory Stick	64GB	-	Sandisk	DoC

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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 (LTE FDD26 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) + USB OTG (w/ USB gender: memory stick)
3	Video + Audio playback from internal memory data (w/ Headset)
4	Video + Audio playback from internal memory data + Display out (w/ USB to Direct DP cable)
5	USB Data Communication with PC (from external memory data)

4.3 Details of Sampling

Customer selected, single unit.

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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	1.0	Y	From EUT to Laptop Computer
2	Headset	1.2	N	For EUT
3	Power	1.8	N	For Laptop Computer to Laptop AC Adapter
4	Power	1.5	N	For Laptop AC Adapter
5	LAN	1.5	Y	From Laptop Computer to Router
6	USB	0.8	N	From Laptop Computer to Router for DC Power
7	USB	1.8	N	From Laptop Computer to Mouse
8	DP Cable	1.1	Y	From DP Monitor to EUT
9	Power	1.2	N	From DP Monitor to DP Monitor AC Adapter
10	Power	1.8	N	For DP Monitor AC Adapter

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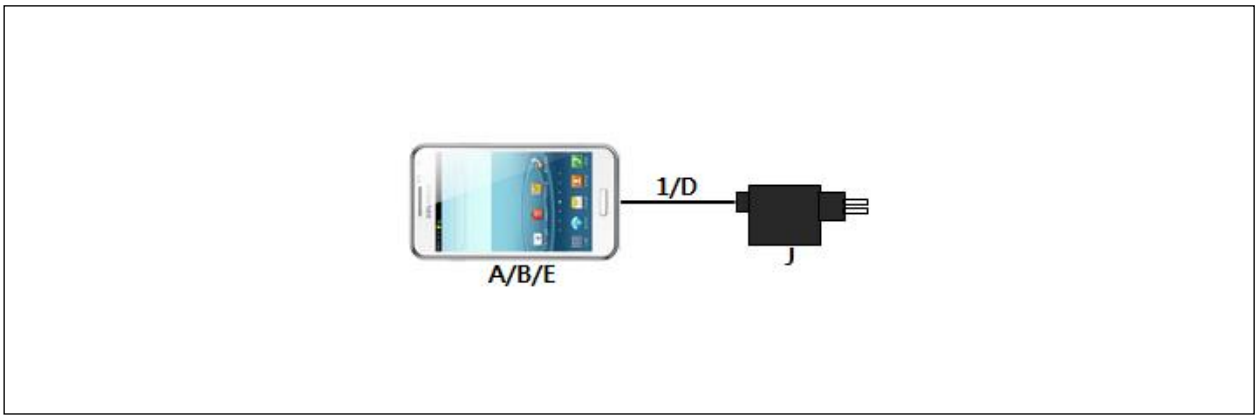
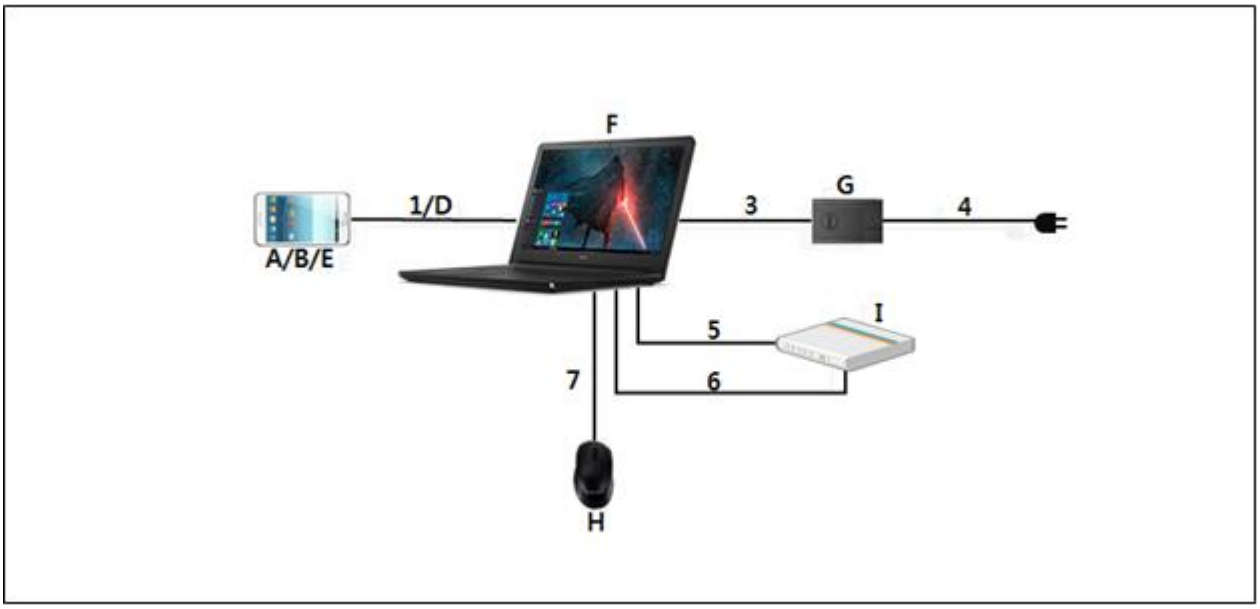
4.5 Test arrangement

4.5.1 Conducted Emission



[Mode 1 - 3]



[Mode 4]

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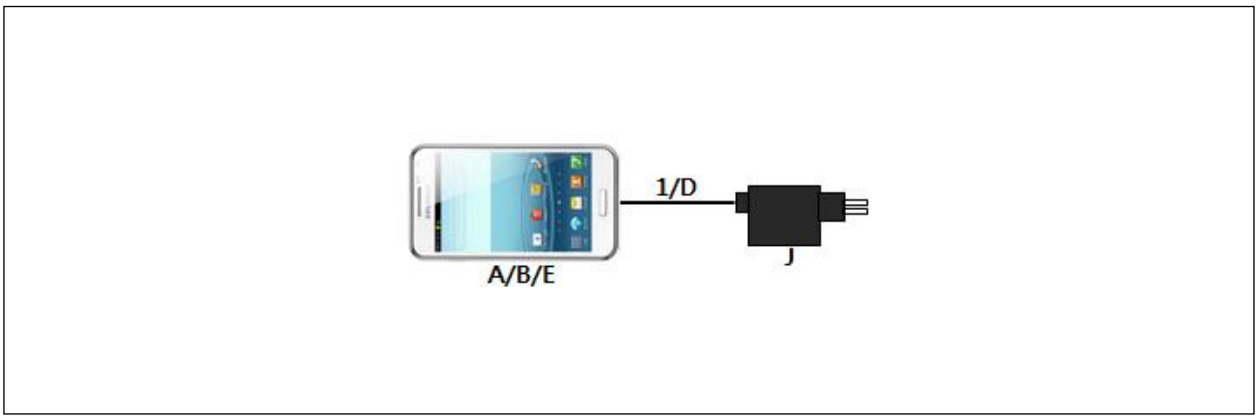
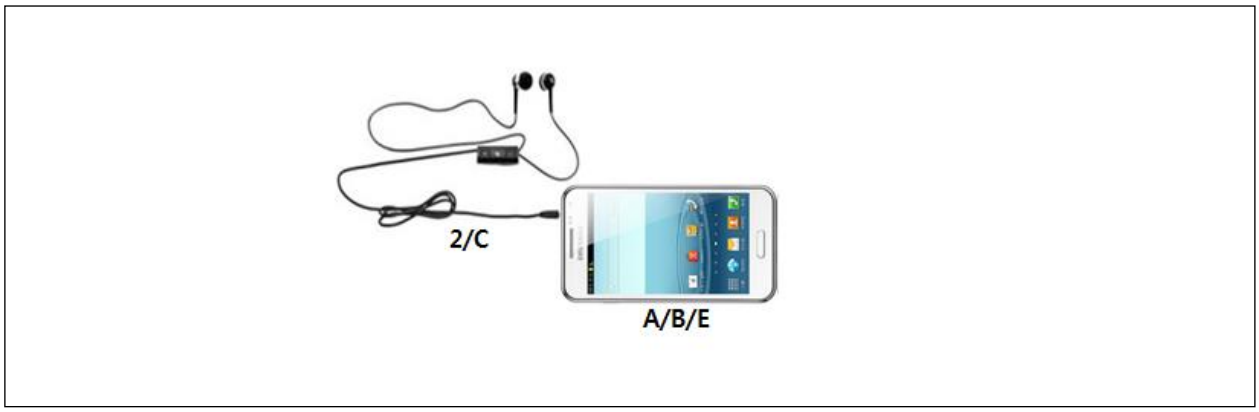
4.5.2 Radiated Emission



[Mode 1]

[Mode 2]



[Mode 3]

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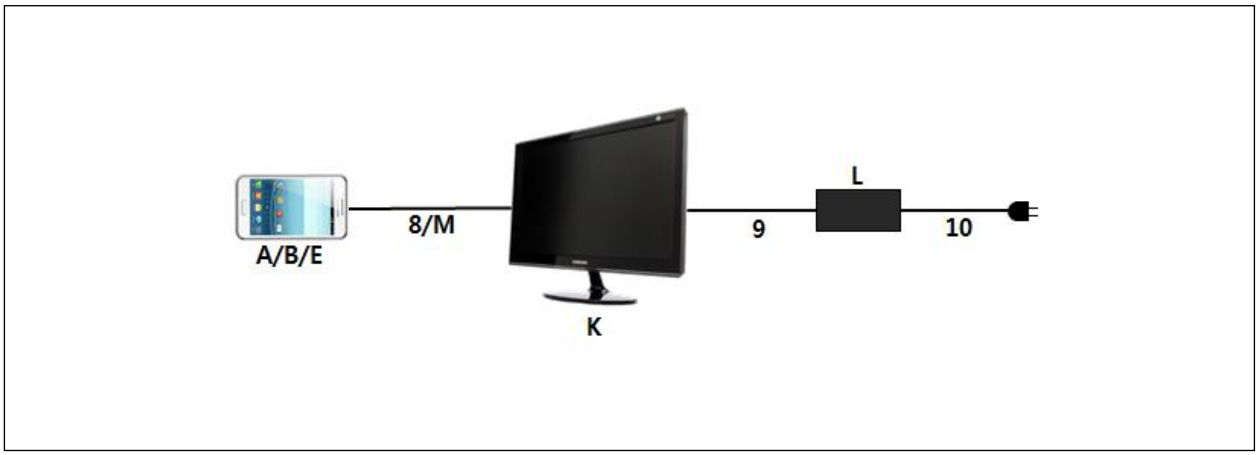

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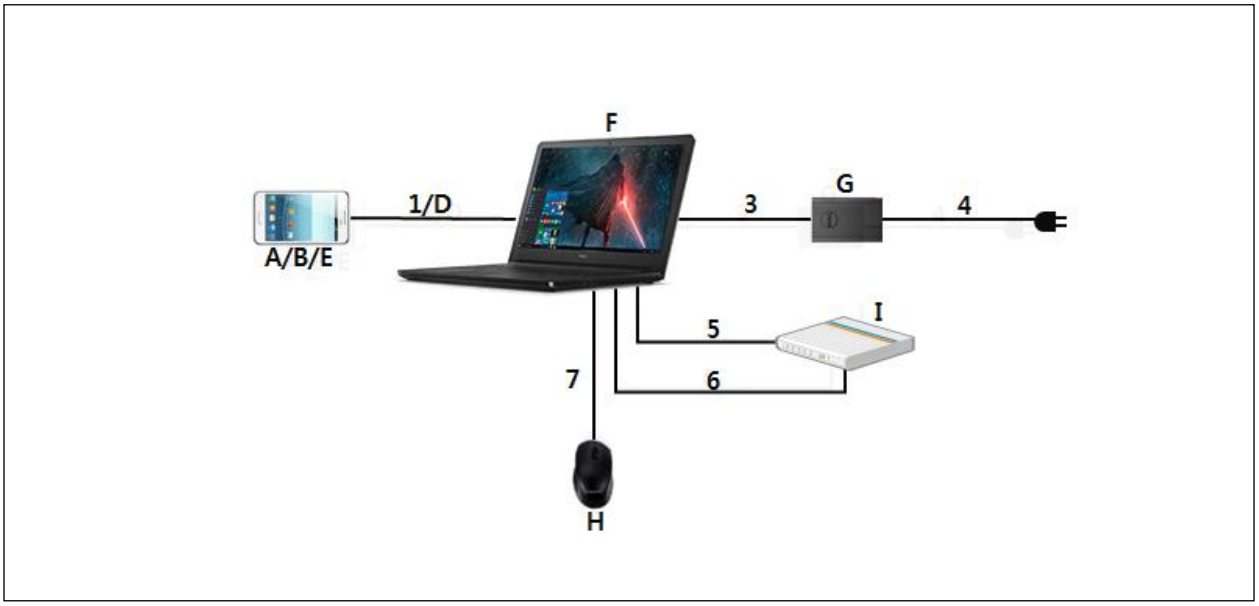

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4.6 EUT Description

The EUT is a bar type Mobile Phone which can operate on GSM850/900/1800/1900, WCDMA FDD1/2/4/5/8, LTE FDD1/2/3/4/5/7/8/12/13/17/18/19/20/25/26/28/32/66, LTE TDD38/39 /40/41, NR n1/3/5/7/8/28/40/77/78 and Incorporates a Bluetooth, ANT+, Wi-Fi, Camera, GNSS, NFC, Wireless Charging, MST, OTG, DP, Audio and Video.

4.6.1 The variant models

- SM-G980F

4.7 EUT Frequencies

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

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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.

Cellular RX mode testing was performed with the LTE FDD26 RX Test mode at center frequency. All licensed communication Cellular RX mode, GSM/WCDMA/LTE, test results are not significantly different.

The video and music were repetitively played connected to the earphone.

The video and music were played on monitor through Display Out function using direct DP Cable or DP converter.

The camera of the EUT was operated continuously.

The EUT was connected to USB Memory stick using USB OTG gender.

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)

4.9.1 Emission

Test type		Measurement uncertainty (C.L. 95 %, k = 2)
Conducted disturbance	AC Mains	2.83 dB
Radiated Disturbance (30 MHz ~ 1 GHz)	Horizontal	4.99 dB
	Vertical	4.90 dB
Radiated Disturbance (1 GHz ~ 6 GHz)	Horizontal	4.96 dB
	Vertical	4.95 dB
Radiated Disturbance (6 GHz ~ 18 GHz)	Horizontal	5.13 dB
	Vertical	5.12 dB

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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.

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

Frequency range Limits [MHz]	Resolution Bandwidth [kHz]	Limits [dB(μV)]	
		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.			

5.1.1 Test instrumentation

EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Calibration	
					Date	Interval (Month)
E5I-171	LTE Communicator	CMW500	R&S	154667	2019-08-06	12
E5I-017	EMI Test Receiver	ESU8	R&S	100483	2019-01-16	12
E5I-127	Two-Line V-Network	ENV216	R&S	102061	2019-08-01	12
-	Test software	EMC32	R&S	Ver 9.26.01	-	-

5.1.2 Temperature and humidity condition

Test date	2019-12-06	**Test engineer**	Eun-Kyung Oh
Climate condition	Ambient temperature	(22.1 ~ 22.3) ℃	Limit (15.0 to 35.0) ℃
	Relative humidity	(42.9 ~ 43.1) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(102.3 ~ 102.5) kPa	Limit (86.0 to 106.0) kPa
Test place	Shield Room (SR8)		

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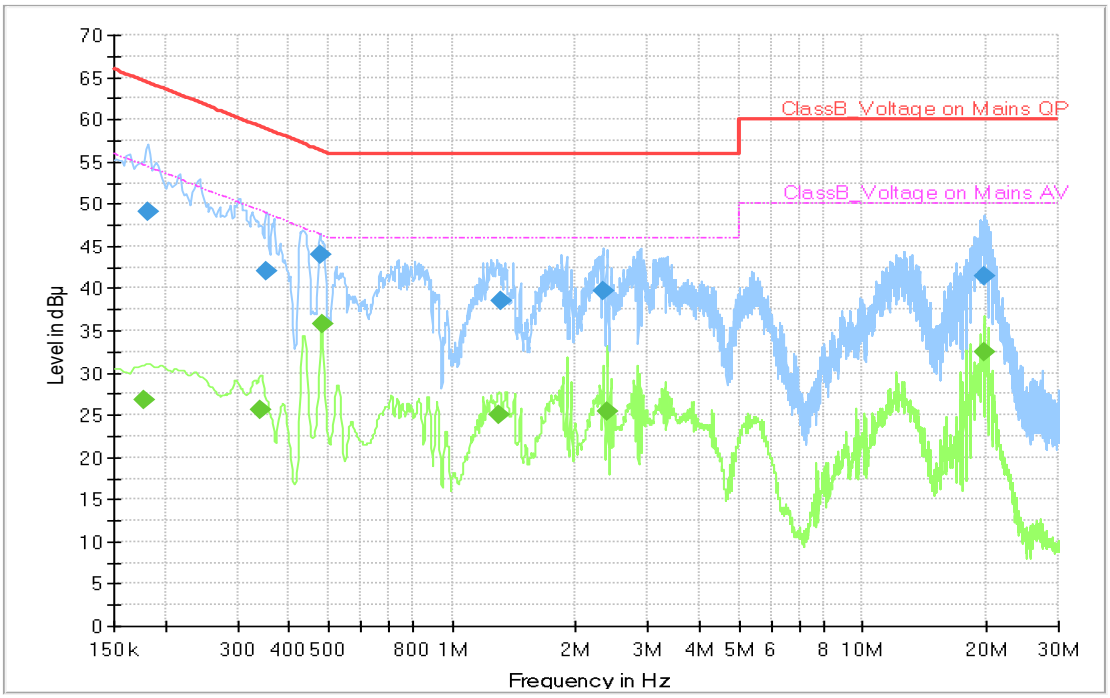
5.1.3 Test results

☐ 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.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.177	---	26.8	54.6	27.8	N	10.3
0.182	49.0	---	64.4	15.4	N	10.2
0.341	---	25.7	49.2	23.5	L1	10.0
0.353	42.1	---	58.9	16.8	L1	10.0
0.476	44.0	---	56.4	12.4	L1	10.1
0.481	---	35.8	46.3	10.5	L1	10.1
1.307	---	25.1	46.0	20.9	L1	9.9
1.311	38.4	---	56.0	17.6	L1	9.9
2.328	39.7	---	56.0	16.3	L1	9.9
2.384	---	25.4	46.0	20.6	L1	9.9
19.763	---	32.5	50.0	17.5	L1	10.4
19.808	41.4	---	60.0	18.6	L1	10.4

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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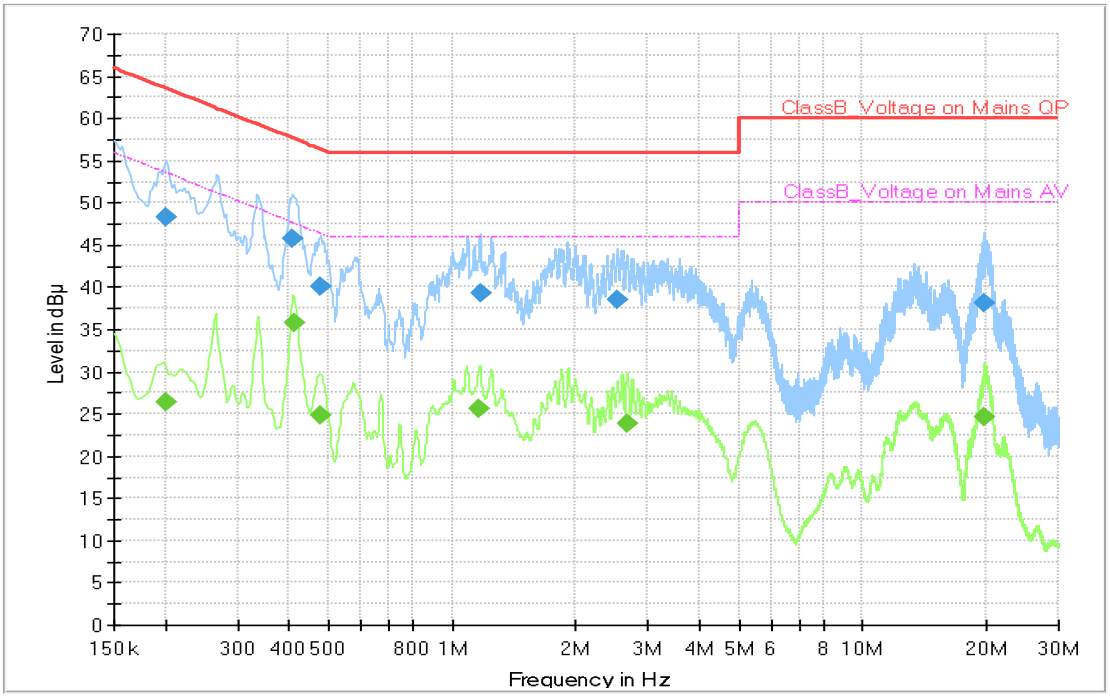
☐ Operating Mode 2: AC Mains



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

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.202	---	26.4	53.5	27.1	L1	9.9
0.202	48.2	---	63.5	15.3	L1	9.9
0.409	45.7	---	57.7	12.0	L1	10.1
0.411	---	35.9	47.6	11.7	L1	10.1
0.479	---	24.9	46.4	21.5	L1	10.1
0.479	40.0	---	56.4	16.4	N	10.2
1.165	---	25.7	46.0	20.3	L1	9.9
1.169	39.3	---	56.0	16.7	L1	9.9
2.535	38.6	---	56.0	17.4	L1	9.9
2.668	---	23.9	46.0	22.1	L1	9.9
19.838	---	24.7	50.0	25.3	L1	10.4
19.885	38.2	---	60.0	21.8	L1	10.4

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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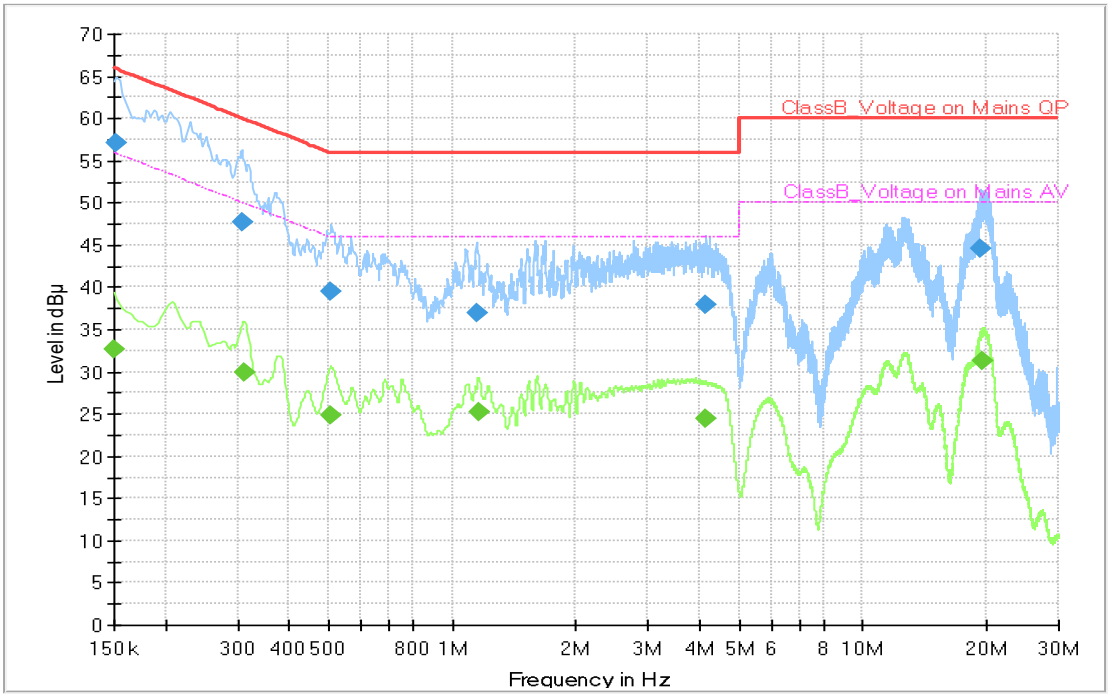
☐ Operating Mode 3: AC Mains



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

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.150	---	32.7	56.0	23.3	N	9.9
0.152	57.1	---	65.9	8.8	N	10.0
0.308	47.6	---	60.0	12.4	N	10.0
0.312	---	29.9	49.9	20.0	N	10.1
0.506	---	24.9	46.0	21.1	N	10.2
0.508	39.6	---	56.0	16.4	N	10.2
1.145	36.9	---	56.0	19.1	N	10.0
1.156	---	25.3	46.0	20.7	N	10.0
4.157	---	24.5	46.0	21.5	N	10.0
4.162	37.0	---	56.0	19.0	N	10.0
19.417	44.6	---	60.0	15.4	N	10.7
19.572	---	31.4	50.0	18.6	N	10.7

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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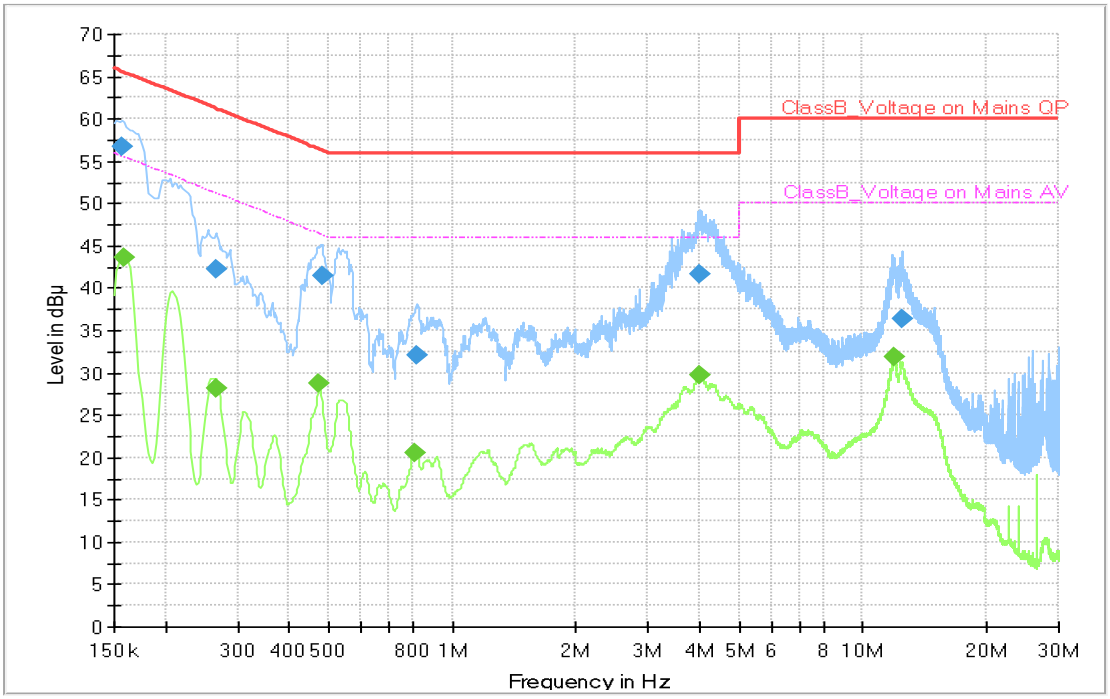
☐ Operating Mode 4: AC Mains



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

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBµV)	CAV (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.157	56.7	---	65.6	8.9	N	10.0
0.159	---	43.6	55.5	11.9	N	10.0
0.265	42.2	---	61.3	19.1	N	9.8
0.265	---	28.1	51.3	23.2	N	9.8
0.474	---	28.6	46.4	17.8	L1	10.1
0.481	41.4	---	56.3	14.9	L1	10.1
0.809	---	20.5	46.0	25.5	L1	9.9
0.821	32.1	---	56.0	23.9	L1	9.9
4.022	---	29.6	46.0	16.4	N	9.8
4.027	41.6	---	56.0	14.4	N	9.8
11.913	---	31.9	50.0	18.1	L1	9.9
12.523	36.5	---	60.0	23.5	L1	9.9

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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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 operate 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.

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5.2.1 Test instrumentation

EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Calibration	
					Date	Interval (Month)
E5I-016	EMI Test Receiver	ESU8	R&S	100482	2019-05-29	12
E5I-021	EMI Test Receiver	ESU40	R&S	100376	2019-01-30	12
E5I-149	Horn Antenna	HF907	R&S	102525	2018-06-15	24
E5I-039	Signal Conditioning Unit	SCU-18	R&S	10211	2019-01-23	12
E5I-037	WideBand Horn Antenna	WBH 18-40K	R&S	11201	2019-01-31	24
E5I-042	Signal Conditioning Unit	SCU-40A	R&S	10004	2019-09-11	12
E5I-120	BiLog Antenna	CBL6112D	TESEQ	36997	2018-04-23	24
E5I-072	BiLog Antenna	CBL6112D	TESEQ	36009	2018-04-23	24
E5I-073	Preamplifier	310N	SONOMA	332016	2019-05-09	12
E5I-074	Preamplifier	310N	SONOMA	332017	2019-05-09	12
-	Test software	EP7RE	TOYO	Ver 5.8.2	-	-
-	Test software	EMC32	R&S	Ver 9.25.00	-	-

5.2.2 Temperature and humidity condition

Test date	2019-12-12, 2019-12-16	**Test engineer**	Eun-Kyung Oh
Climate condition	Ambient temperature	(21.9 ~ 22.2) ℃	Limit (15.0 to 35.0) ℃
	Relative humidity	(41.7 ~ 42.0) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(102.1 ~ 102.4) kPa	Limit (86.0 to 106.0) kPa
Test place	Semi-Anechoic Chamber (SAC4)		

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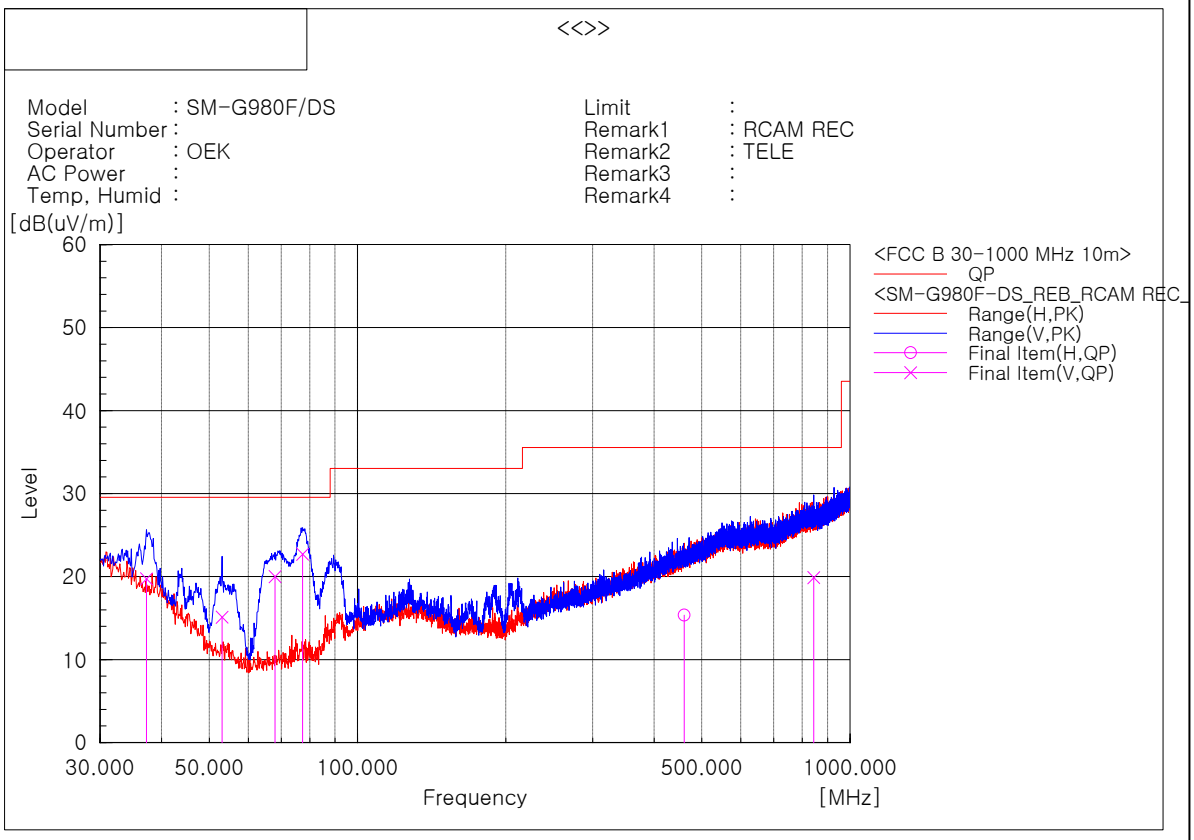
5.2.3 Test results

☐ Operating Mode 1

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	37.275	V	28.2	-8.5	19.7	29.5	9.8	100	287	2
2	53.038	V	32.3	-17.2	15.1	29.5	14.4	100	78	2
3	67.951	V	37.8	-17.8	20.0	29.5	9.5	200	133	2
4	77.288	V	39.8	-17.1	22.7	29.5	6.8	200	143	2
5	460.195	H	21.9	-6.5	15.4	35.5	20.1	400	350	1
6	843.466	V	19.8	0.1	19.9	35.5	15.6	200	94	2

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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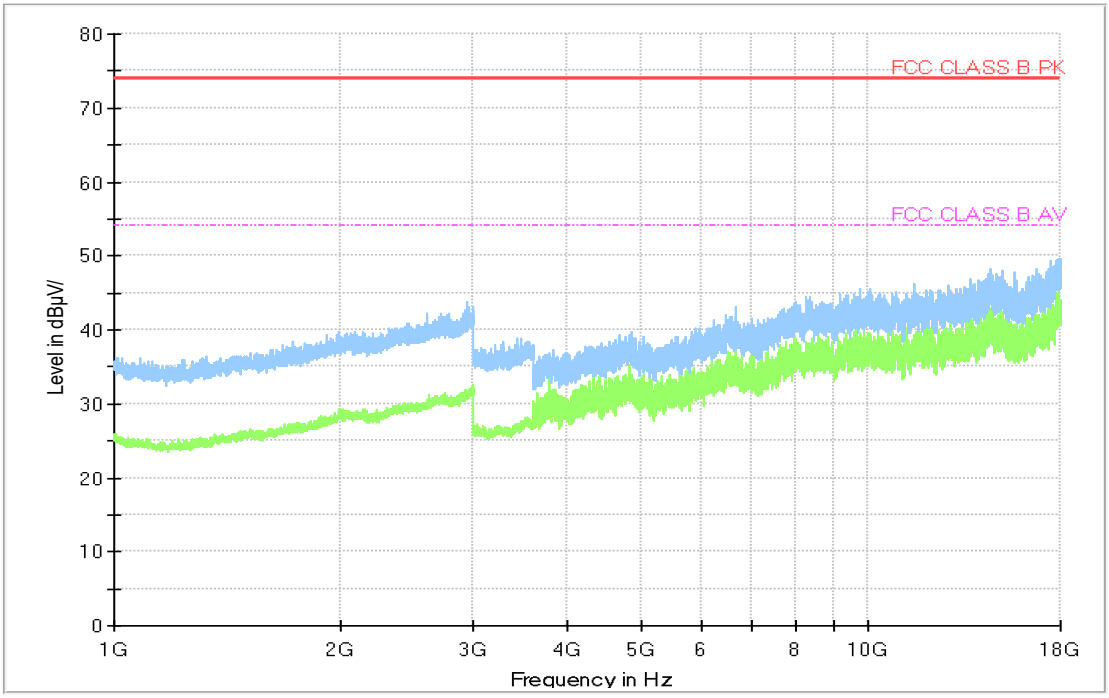
- Frequencies above 1 GHz



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

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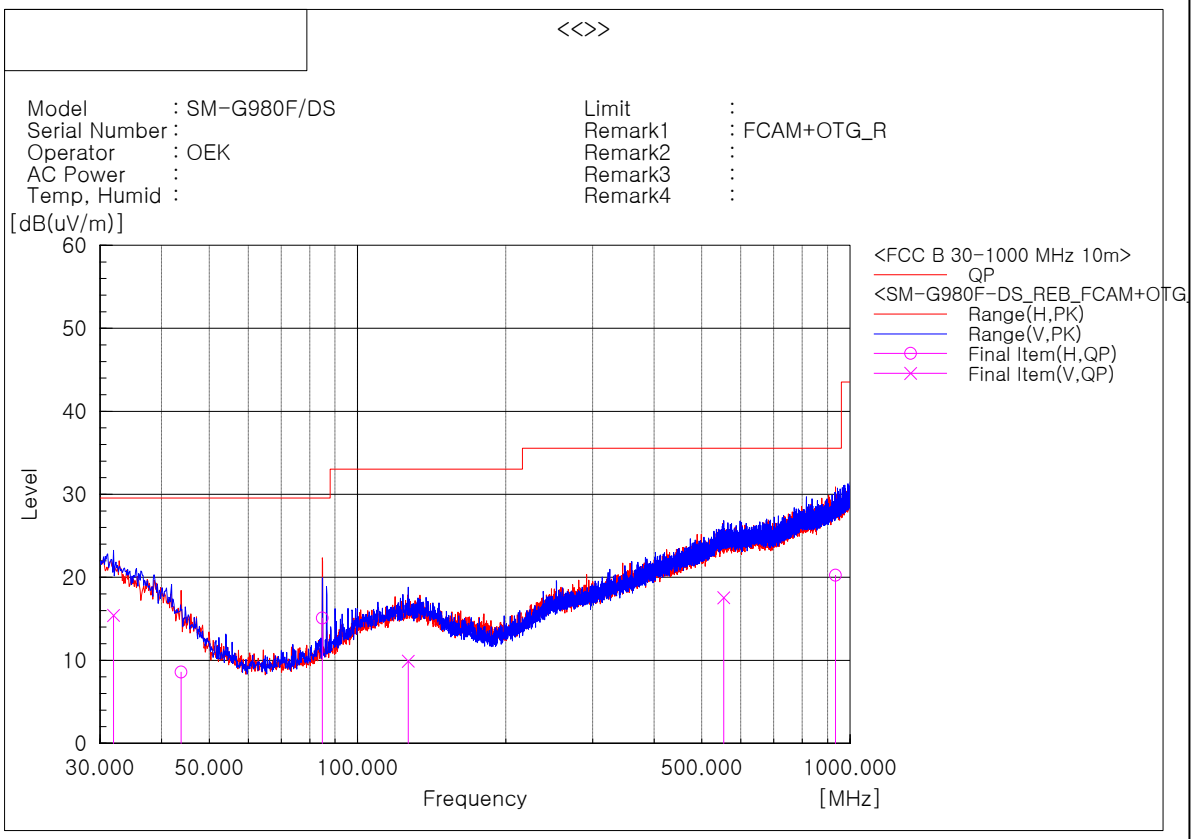
☐ Operating Mode 2

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	31.940	V	21.9	-6.5	15.4	29.5	14.1	200	35	2
2	43.823	H	22.3	-13.7	8.6	29.5	20.9	100	88	1
3	84.805	H	32.6	-17.5	15.1	29.5	14.4	100	107	1
4	126.758	V	21.1	-11.2	9.9	33.0	23.1	200	88	2
5	553.921	V	20.0	-2.5	17.5	35.5	18.0	200	327	2
6	933.555	H	20.7	-0.5	20.2	35.5	15.3	300	159	1

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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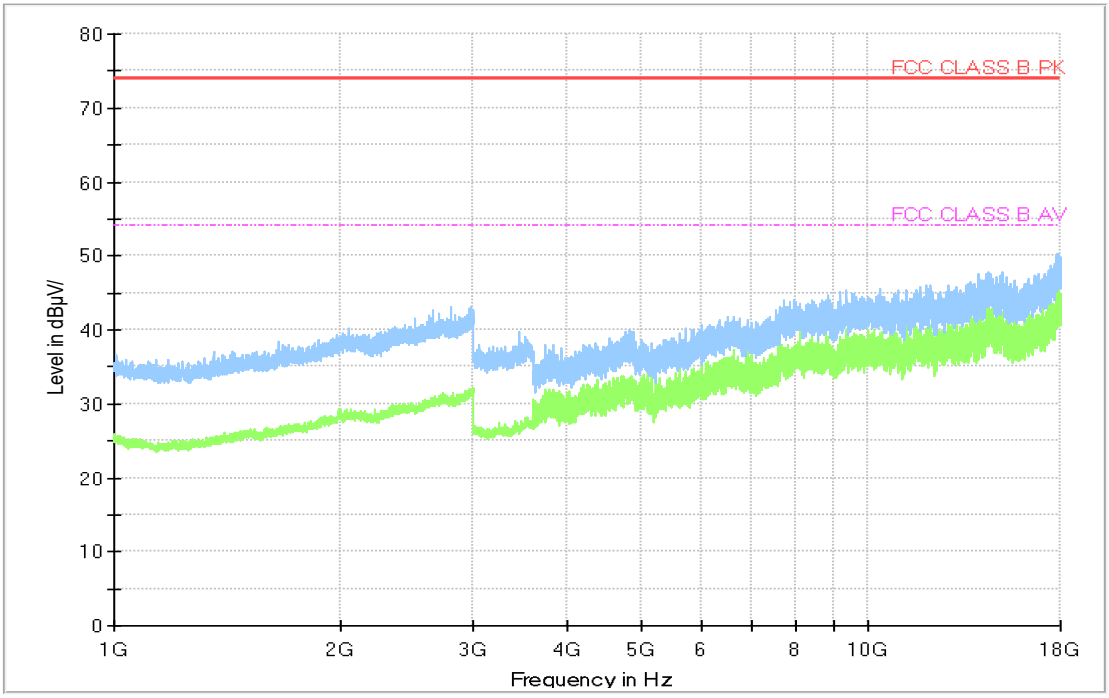
- Frequencies above 1 GHz



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

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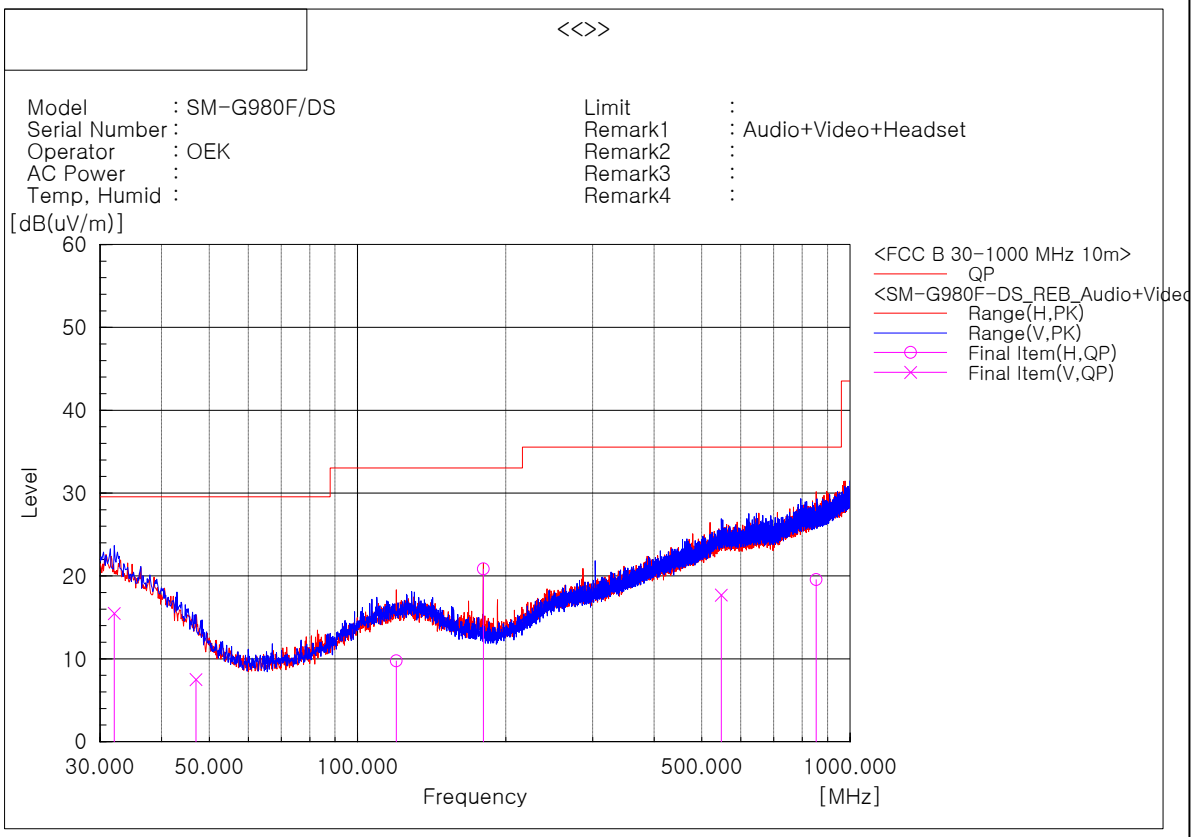
☐ Operating Mode 3

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	32.061	V	22.0	-6.5	15.5	29.5	14.0	200	91	2
2	46.975	V	21.8	-14.3	7.5	29.5	22.0	100	13	2
3	119.846	H	22.5	-12.8	9.7	33.0	23.3	300	243	1
4	179.986	H	35.7	-14.9	20.8	33.0	12.2	400	9	1
5	547.859	V	20.3	-2.6	17.7	35.5	17.8	100	3	2
6	853.045	H	21.2	-1.6	19.6	35.5	15.9	200	66	1

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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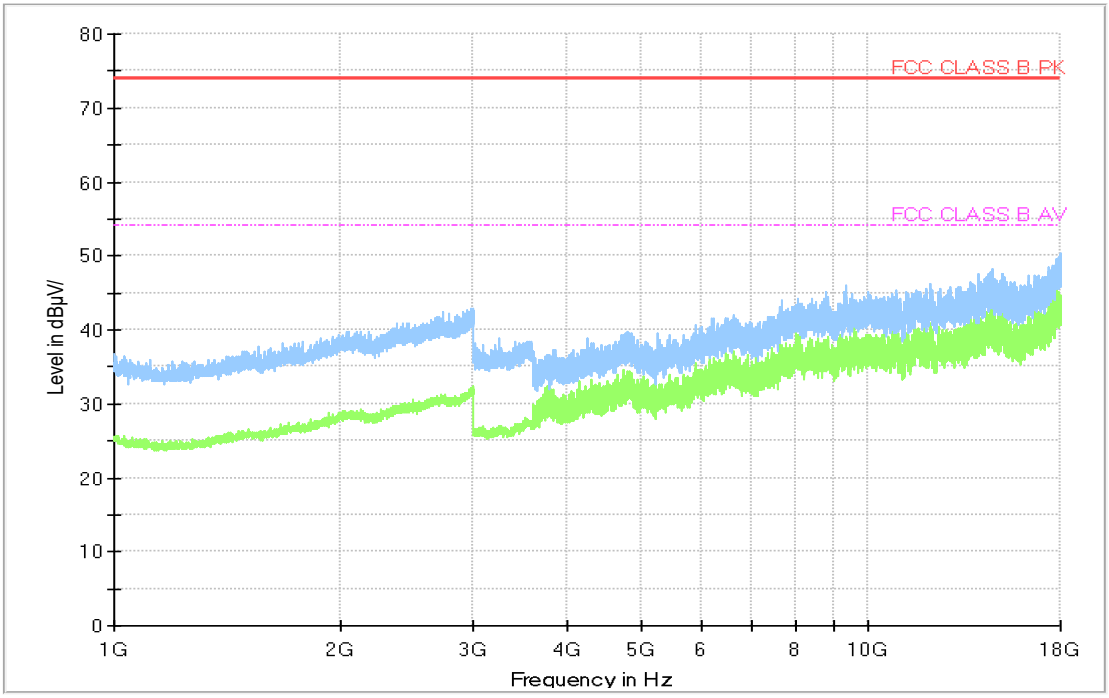
- Frequencies above 1 GHz



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

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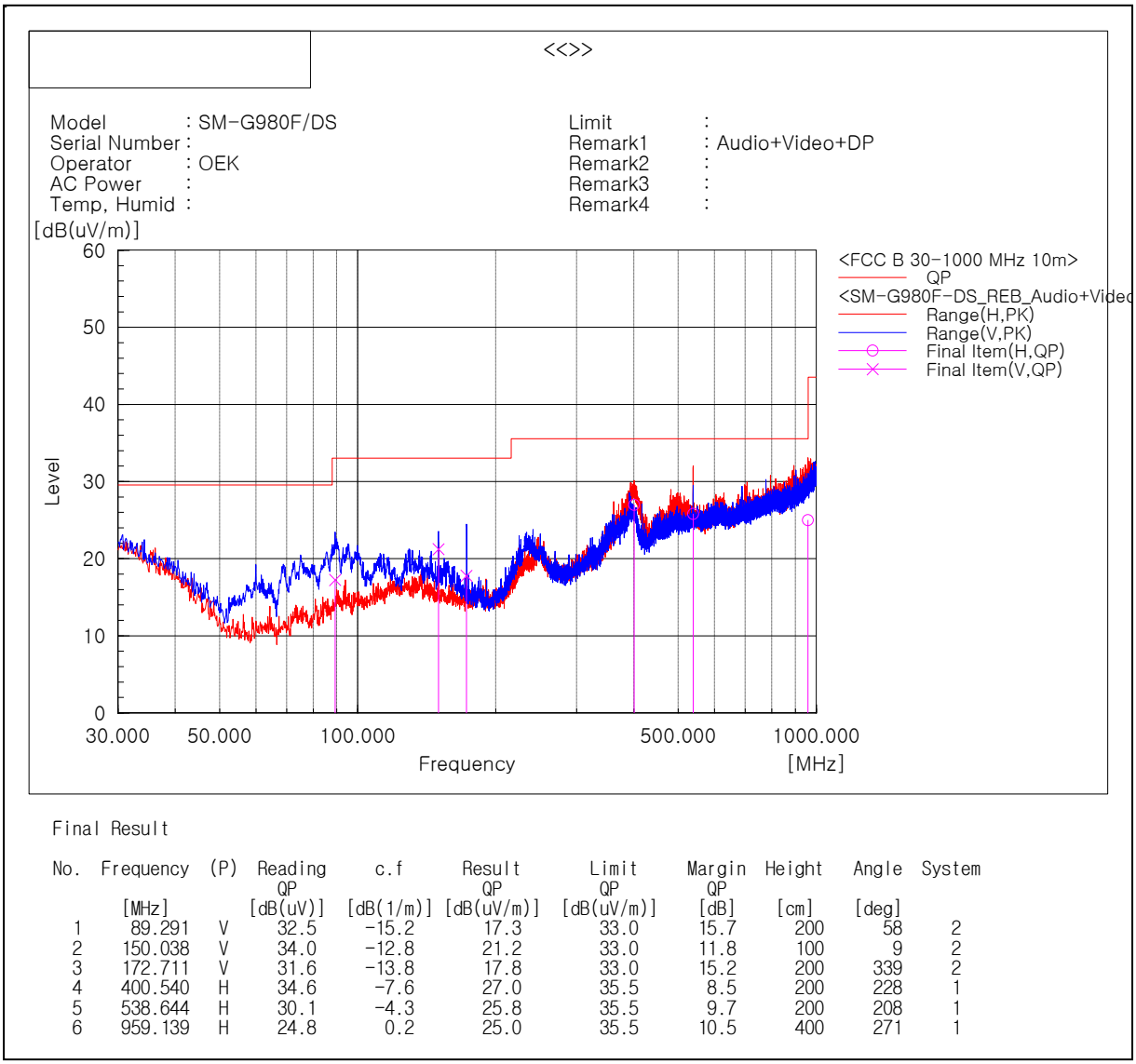
☐ Operating Mode 4

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	89.291	V	32.5	-15.2	17.3	33.0	15.7	200	58	2
2	150.038	V	34.0	-12.8	21.2	33.0	11.8	100	9	2
3	172.711	V	31.6	-13.8	17.8	33.0	15.2	200	339	2
4	400.540	H	34.6	-7.6	27.0	35.5	8.5	200	228	1
5	538.644	H	30.1	-4.3	25.8	35.5	9.7	200	208	1
6	959.139	H	24.8	0.2	25.0	35.5	10.5	400	271	1

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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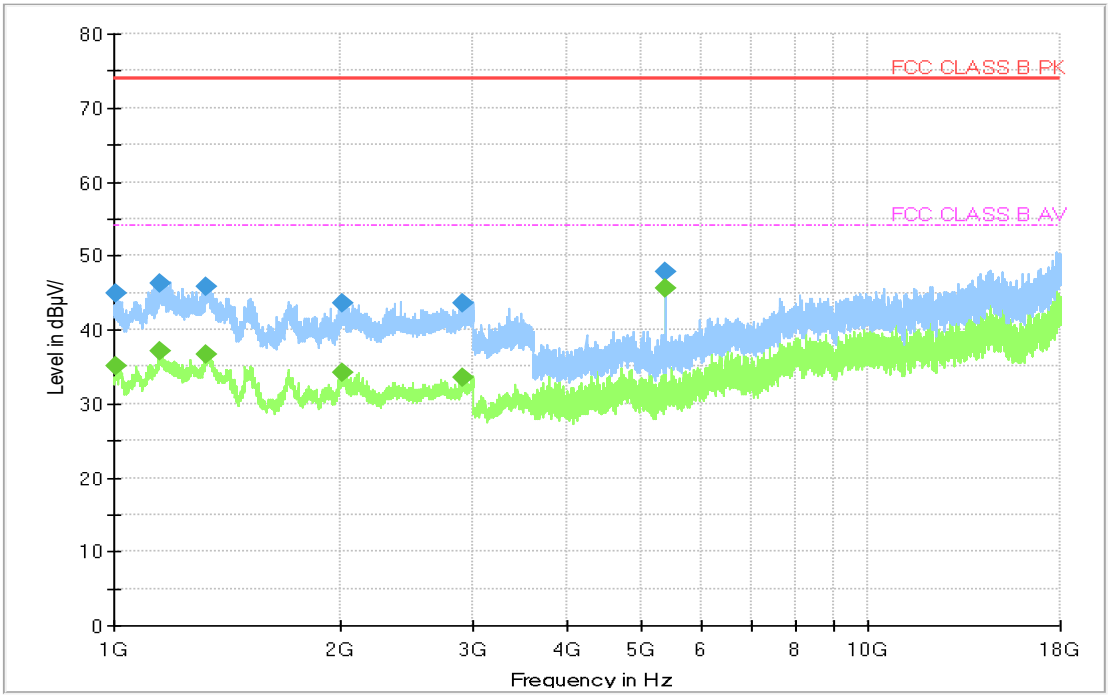
- Frequencies above 1 GHz



Frequency (MHz)	PK (dBµV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 006.800	---	35.1	54.0	18.9	164.0	H	190.0	7.4
1 007.200	44.9	---	74.0	29.1	121.0	H	185.0	7.4
1 150.800	---	37.0	54.0	17.0	184.0	V	224.0	7.0
1 152.800	46.3	---	74.0	27.7	256.0	V	147.0	7.0
1 328.000	---	36.6	54.0	17.4	248.0	V	93.0	8.3
1 328.400	45.8	---	74.0	28.2	137.0	V	104.0	8.3
2 004.400	43.7	---	74.0	30.3	285.0	H	132.0	13.0
2 004.800	---	34.3	54.0	19.7	322.0	H	107.0	12.9
2 898.400	43.7	---	74.0	30.3	246.0	H	91.0	15.9
2 898.400	---	33.5	54.0	20.5	195.0	H	105.0	15.9
5 400.000	47.8	---	74.0	26.2	176.0	H	122.0	7.3
5 400.000	---	45.6	54.0	8.4	145.0	H	128.0	7.3

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

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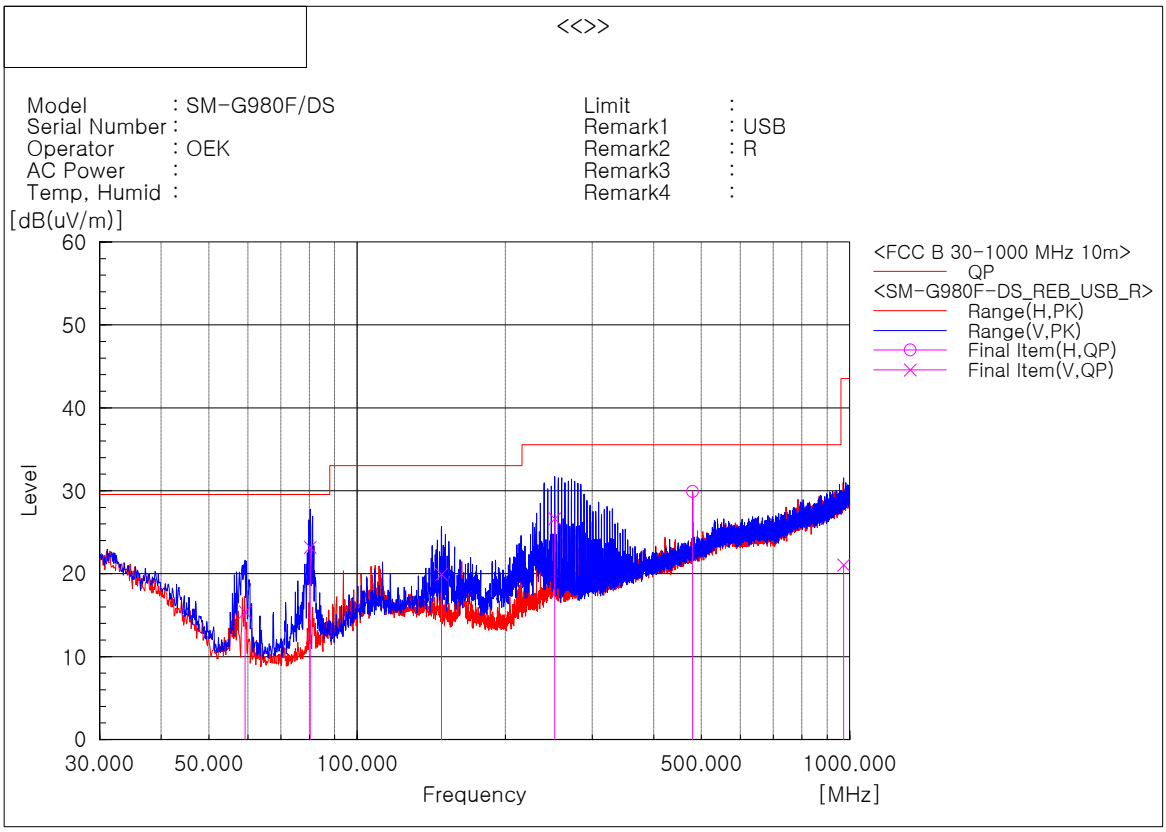
☐ Operating Mode 5

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	59.221	V	33.5	-18.1	15.4	29.5	14.1	300	120	2
2	80.319	V	39.9	-16.7	23.2	29.5	6.3	200	110	2
3	148.340	V	32.5	-12.6	19.9	33.0	13.1	100	285	2
4	251.888	V	36.8	-10.2	26.6	35.5	8.9	100	208	2
5	479.959	H	36.1	-6.2	29.9	35.5	5.6	200	135	1
6	972.234	V	19.2	1.9	21.1	43.5	22.4	300	186	2

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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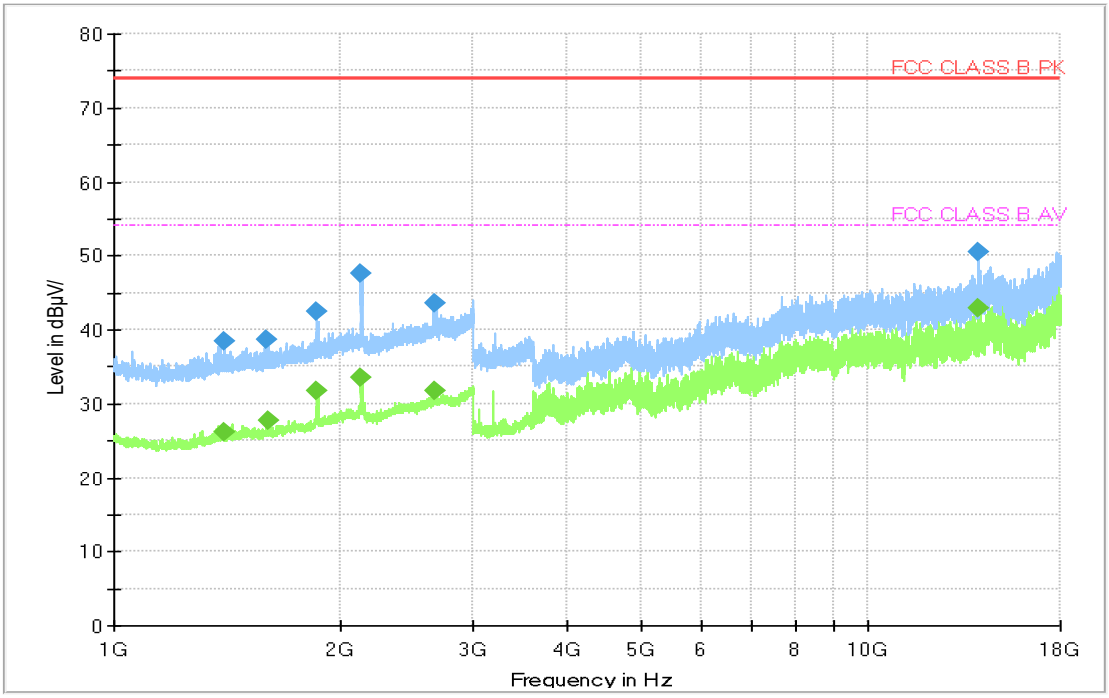
- Frequencies above 1 GHz



Frequency (MHz)	PK (dBµV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 399.200	---	26.2	54.0	27.8	156.0	V	162.0	8.9
1 400.000	38.3	---	74.0	35.7	248.0	H	357.0	8.9
1 596.800	38.6	---	74.0	35.4	125.0	V	82.0	10.1
1 598.400	---	27.7	54.0	26.3	184.0	V	123.0	10.1
1 858.400	42.5	---	74.0	31.5	235.0	V	113.0	11.7
1 858.800	---	31.7	54.0	22.3	219.0	V	0.0	11.7
2 126.800	---	33.6	54.0	20.4	185.0	V	22.0	12.9
2 129.200	47.7	---	74.0	26.3	192.0	V	15.0	12.9
2 657.200	43.7	---	74.0	30.3	276.0	V	335.0	15.1
2 662.000	---	31.6	54.0	22.4	185.0	V	340.0	15.1
14 025.000	50.5	---	74.0	23.5	210.0	H	306.0	27.4
14 025.000	---	42.9	54.0	11.1	239.0	H	306.0	27.4

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

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