EMC TEST REPORT

Project No.	LBE20190204	**Issue 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 application	January 22, 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	A3LSMA305GN	
	Kind of product	Mobile Phone	
	Model No.	SM-A305GN/DS	
	Variant Model No.	Refer to clause 4.6	
	Manufacturer	SAMSUNG ELECTRONICS VIETNAM CO.,LTD. Kcn Yen Binh1, huyen pho Yen Tinh Thai Nguyen VIETNAM	
Applied Standards		47 CFR Part 15, Subpart B, Class B / ANSI C63.4-2014	
Test Period		January 25, 2019 ~ January 28, 2019	
Issue date		January 29, 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** : Young-Hun Kim

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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.	Revised detailed information
Issue 0	There are no revisions and this version is basic test report.

1.2 RSE test report no.

No.	Remark
12678284-E1	The cellular receiver mode refers to the radiated spurious emissions 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 operated as testing laboratory in accordance with the requirements of ISO/IEC 17025:2005.

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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-A305GN/DS	-	SAMSUNG	A3LSMA305GN
B	Battery	EB-BA505ABU	-	SAMSUNG	-
C	Headset	EHS61ASFWE	-	SAMSUNG	-
D	Data Cable	EP-DR140AWE	-	SAMSUNG	-
E	Micro SD Card	64GB	-	SAMSUNG	-
F	Travel Adapter	EP-TA200	R37M14V0Y91HM3	SAMSUNG	-
G	Lap-Top Computer	Latitude5580	1CHRYM2	Dell	-
			D3HRYM2	Dell	-
H	AC Adapter	LA65NM130	5D77	Dell	-
			5DEA	Dell	-
I	Router	DIR-806A	RF0F1D5000688	D-Link	-
			RF0F1D8011504	D-Link	-
J	OTG Gender	EE-UG970	-	SAMSUNG	-
K	Mouse	AA-SM7PCP	BDV8J48P4393	SAMSUNG	-
		SC-1000	1034000281	SAMSUNG	-

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4.2 EUT operating mode

To achieve compliance applied standard specification, 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) + FM (Low Ch.)
2	Camera (front) + Charging (w/ TA) + FM (Mid Ch.)
3	Charging (w/ TA) + FM (High Ch.)
4	Video + Audio playback from internal memory data + Charging (w/ TA)
5	USB Data Communication with PC (from external memory data)

4.2.2 Radiated Emission

No.	Operating mode
1	Camera (rear) + Charging (w/ TA) + FM (Low Ch.)
2	Camera (front) + FM (Mid Ch.)
3	FM (High Ch.)
4	Video + Audio playback from internal memory data
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	0.8	Yes	From EUT to Lap-Top Computer
2	Headset	1.6	No	For EUT
3	Power	1.8	No	For Lap-Top Computer to AC Adapter
4	Power	1.5	No	For AC Adapter
5	LAN	1.5	Yes	From Lap-Top Computer to Router
6	USB	0.8	No	From Lap-Top Computer to Router for DC Power
7	USB	1.2	No	From OTG Gender to Mouse (AA-SM7PCP)
8	USB	1.8	No	From OTG Gender to Mouse (SC-1000)

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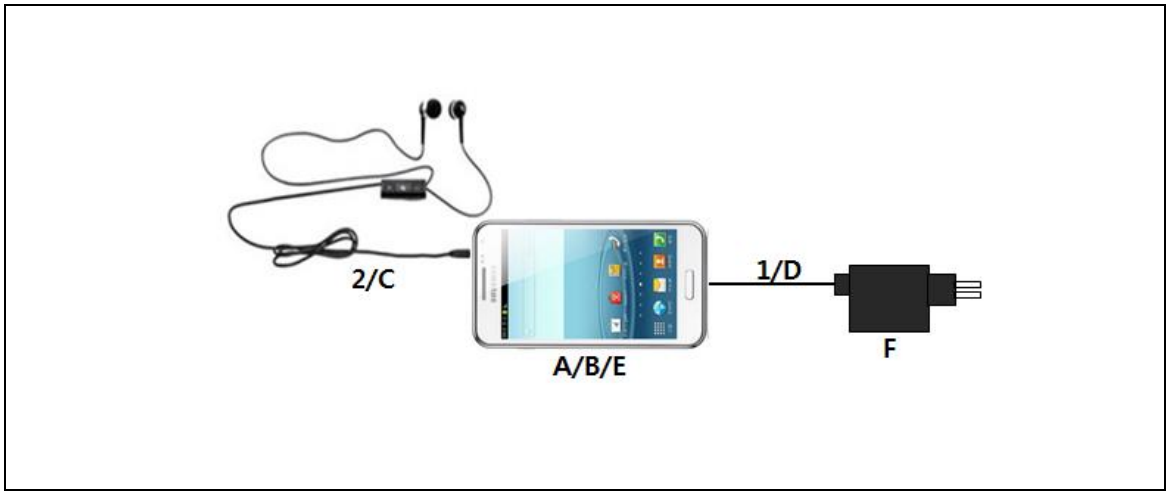
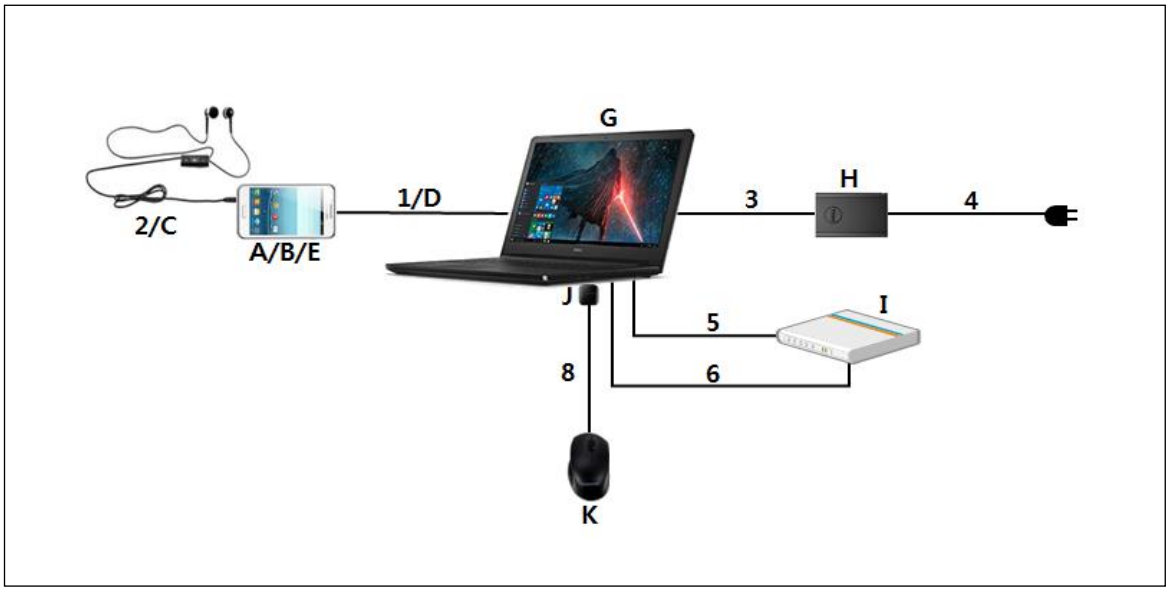
4.5 Test arrangement

4.5.1 Conducted Emission



[Mode 1 - 4]



[Mode 5]

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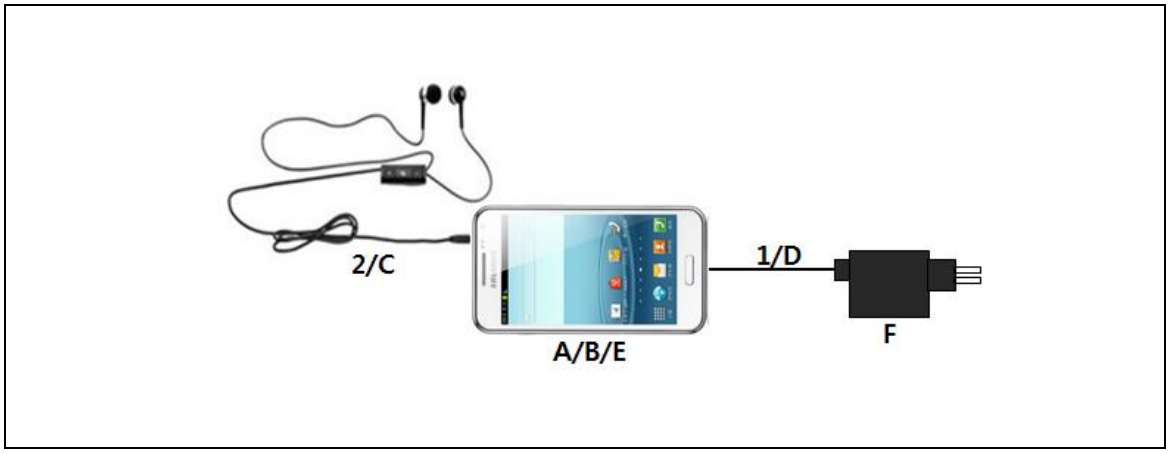
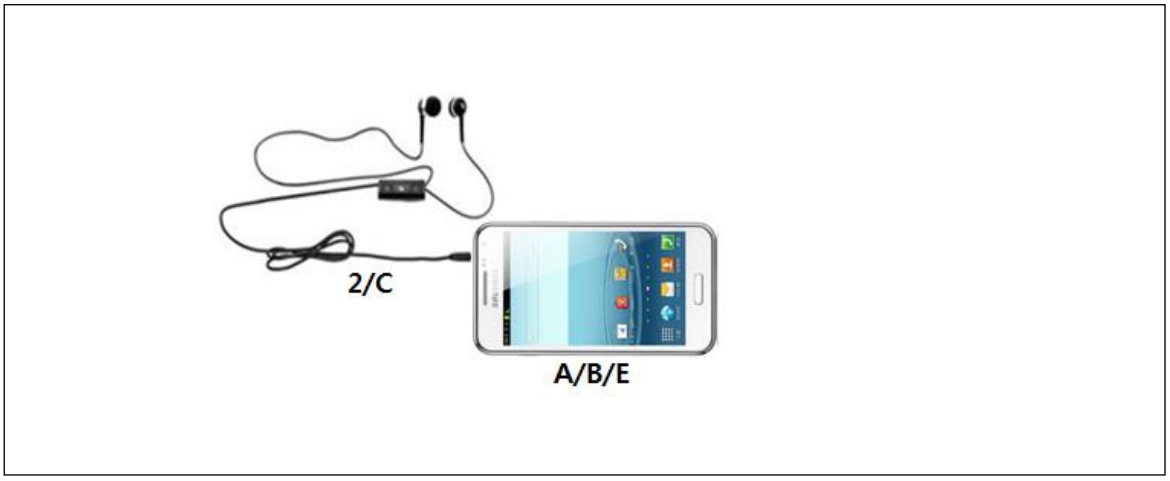
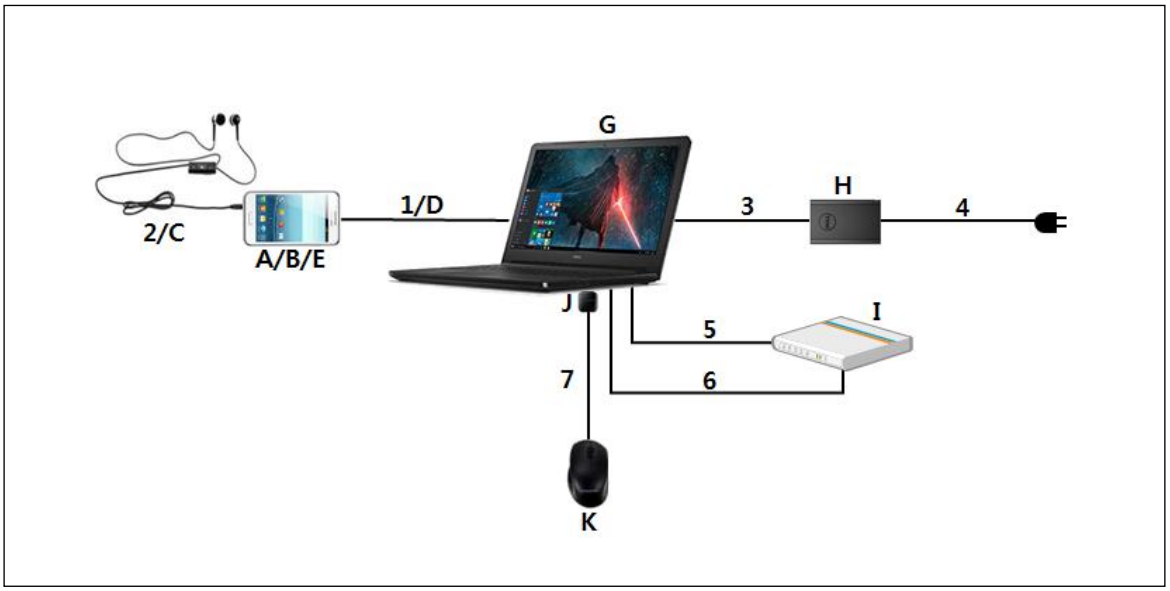
4.5.2 Radiated Emission



[Mode 1]



[Mode 2 - 4]



[Mode 5]

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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 FDD1/2/3/4/5/7/8/12/13/17/20/28/66, LTE TDD38/40/41 and Incorporates a camera, Bluetooth, ANT+, Wi-Fi, FM Radio, GNSS, NFC and MP3/MP4 player.

4.6.1 The variant models

- SM-A305GN

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.

RX mode(850MHz) radiated 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 FM radio mode radiated testing was performed with the Low/Mid/High channel.

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

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)

4.9.1 Emission

Test type		**Measurement uncertainty (C.L. 95 %, k = 2)**
Conducted disturbance	AC Mains	3.52 dB
Radiated Disturbance (Below 1 GHz)	Horizontal	4.99 dB
	Vertical	4.90 dB
Radiated Disturbance (Above 1 GHz)	Horizontal	5.33 dB
	Vertical	5.32 dB

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5. Results of individual test

5.1 Conducted disturbance

The EUT was connected to the Desk-Top Computer which was powered from one LISN for the measurements. The support equipment power cables were connected to a second 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-002	Universal Radio Communicator	CMU200	R&S	100612	2018-08-31	12
E5I-043	LISN	ENV216	R&S	101630	2018-08-17	12
E5I-123	EMI Test Receiver	ESU8	R&S	100475	2018-05-13	12
E5I-127	LISN	ENV216	R&S	102061	2018-07-23	12
-	Test software	EMC32	R&S	Ver 9.26.01	-	-

5.1.2 Temperature and humidity condition

Test date	2019-01-28	**Test engineer**	Eun-Kyung Oh
Climate condition	Ambient temperature	(22.8 ~ 23.0) ℃	Limit (15.0 to 35.0) ℃
	Relative humidity	(36.6 ~ 36.8) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.6 ~ 101.8) kPa	Limit (86.0 to 106.0) kPa
Test place	Shield Room (SR8)		

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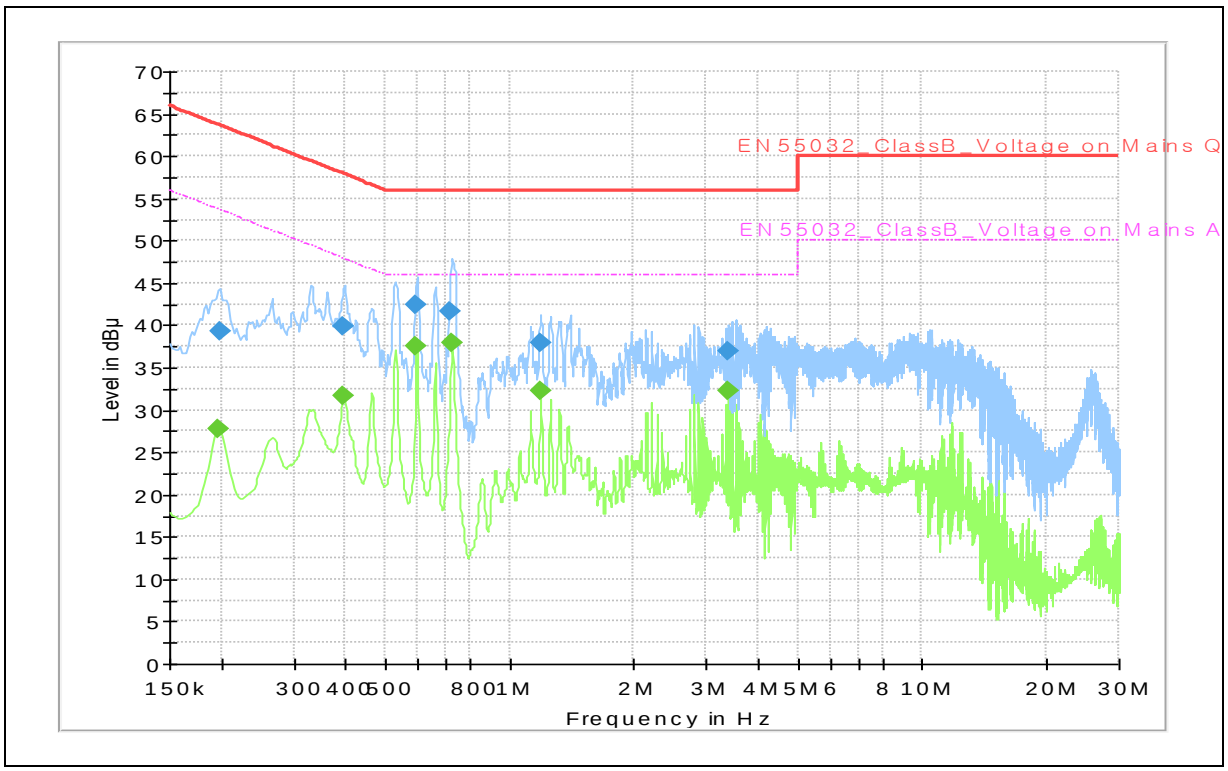
5.1.3 Test results

☐ 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)
0.196	---	27.7	53.8	26.1	N	10.0
0.199	39.4	---	63.7	24.3	L1	10.0
0.394	---	31.7	48.0	16.3	L1	10.2
0.397	39.9	---	57.9	18.0	L1	10.2
0.595	42.3	---	56.0	13.7	L1	10.2
0.595	---	37.5	46.0	8.5	L1	10.2
0.719	41.7	---	56.0	14.3	L1	10.1
0.725	---	37.8	46.0	8.2	L1	10.1
1.189	---	32.3	46.0	13.7	L1	10.0
1.189	38.0	---	56.0	18.0	L1	10.0
3.398	---	32.3	46.0	13.7	L1	10.0
3.402	37.0	---	56.0	19.0	L1	10.0

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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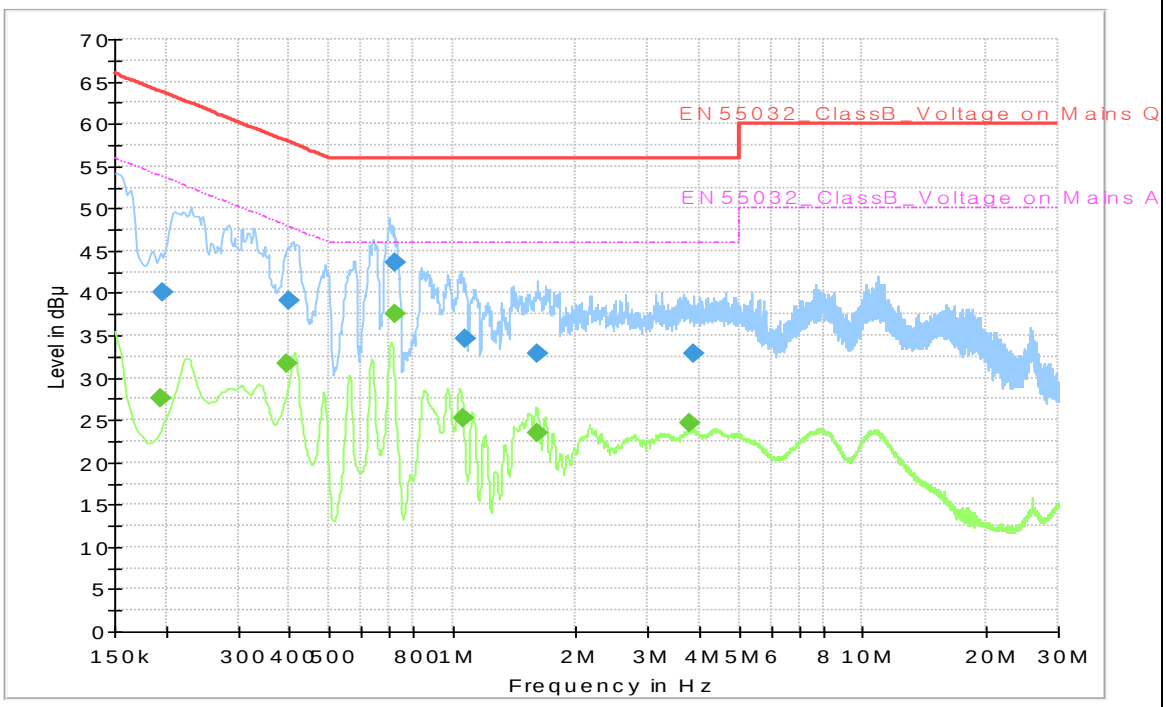
☐ Operating Mode 2: AC Mains



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)
0.195	---	27.5	53.8	26.3	N	10.0
0.197	40.1	---	63.7	23.6	N	10.0
0.394	---	31.6	48.0	16.4	L1	10.2
0.400	39.1	---	57.9	18.8	L1	10.2
0.724	43.7	---	56.0	12.3	L1	10.1
0.727	---	37.6	46.0	8.4	L1	10.1
1.058	---	25.2	46.0	20.8	L1	10.0
1.073	34.6	---	56.0	21.4	L1	10.0
1.609	32.9	---	56.0	23.1	L1	10.0
1.615	---	23.5	46.0	22.5	L1	10.0
3.796	---	24.6	46.0	21.4	L1	10.0
3.863	32.8	---	56.0	23.2	L1	10.0

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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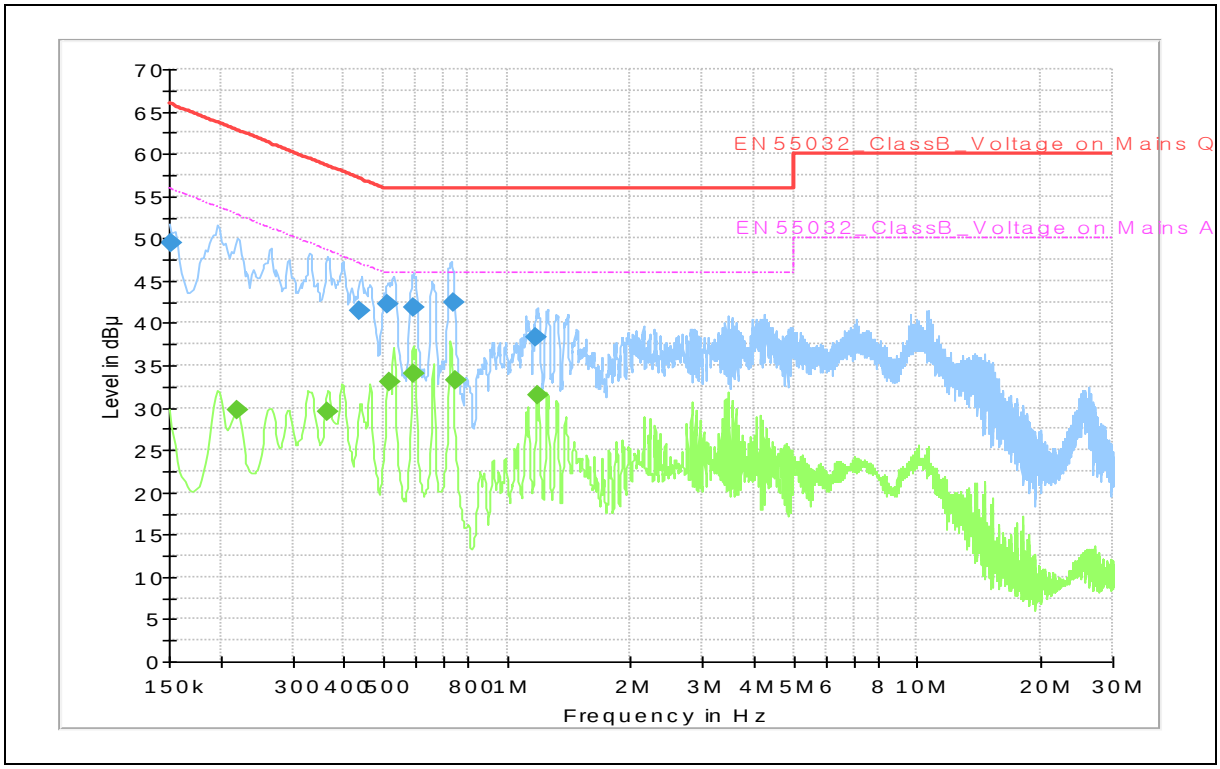
☐ Operating Mode 3: AC Mains



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)
0.152	49.4	---	65.9	16.5	N	9.9
0.220	---	29.7	52.8	23.1	N	9.9
0.366	---	29.6	48.6	19.0	N	10.1
0.437	41.5	---	57.1	15.6	N	10.2
0.511	42.1	---	56.0	13.9	N	10.2
0.515	---	33.0	46.0	13.0	N	10.2
0.592	---	34.0	46.0	12.0	L1	10.2
0.594	41.9	---	56.0	14.1	L1	10.2
0.738	42.4	---	56.0	13.6	N	10.0
0.751	---	33.3	46.0	12.7	N	10.0
1.178	38.3	---	56.0	17.7	L1	10.0
1.185	---	31.5	46.0	14.5	L1	10.0

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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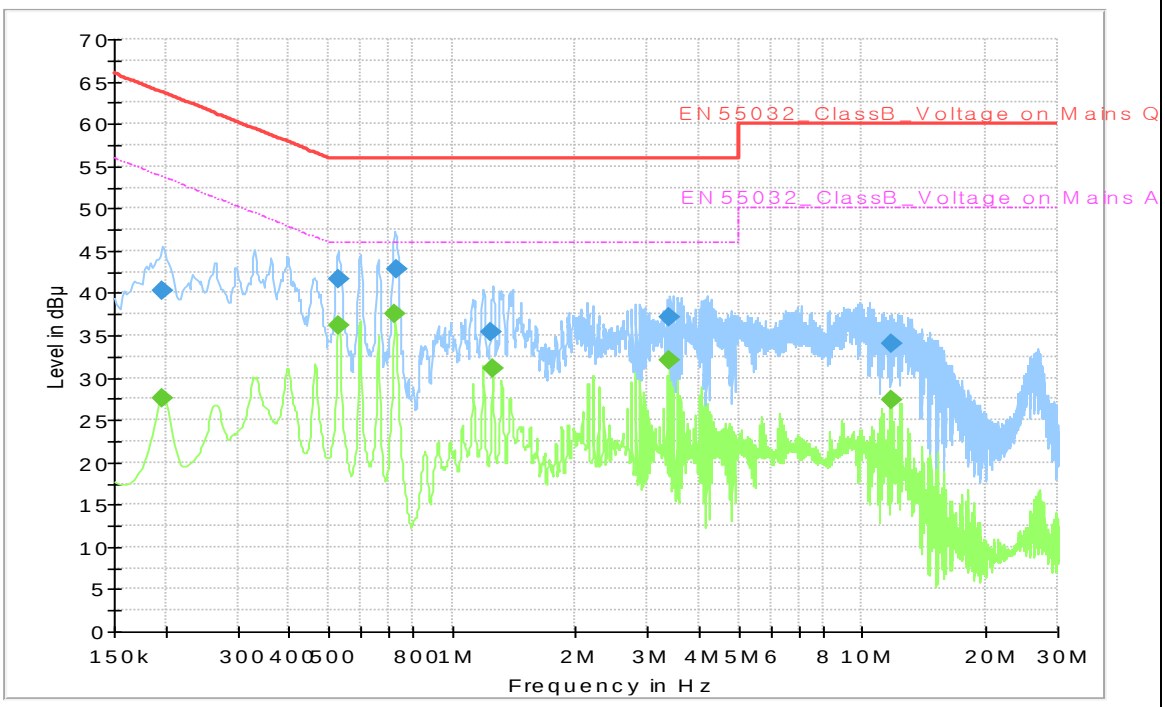
☐ Operating Mode 4: AC Mains



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)
0.196	---	27.7	53.8	26.1	L1	10.0
0.196	40.4	---	63.8	23.4	L1	10.0
0.527	---	36.3	46.0	9.7	L1	10.2
0.527	41.6	---	56.0	14.4	L1	10.2
0.725	---	37.5	46.0	8.5	L1	10.1
0.729	42.9	---	56.0	13.1	L1	10.1
1.250	35.4	---	56.0	20.6	L1	10.0
1.254	---	31.1	46.0	14.9	L1	10.0
3.398	---	32.1	46.0	13.9	L1	10.0
3.400	37.2	---	56.0	18.8	L1	10.0
11.746	---	27.4	50.0	22.6	L1	10.2
11.746	34.1	---	60.0	25.9	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

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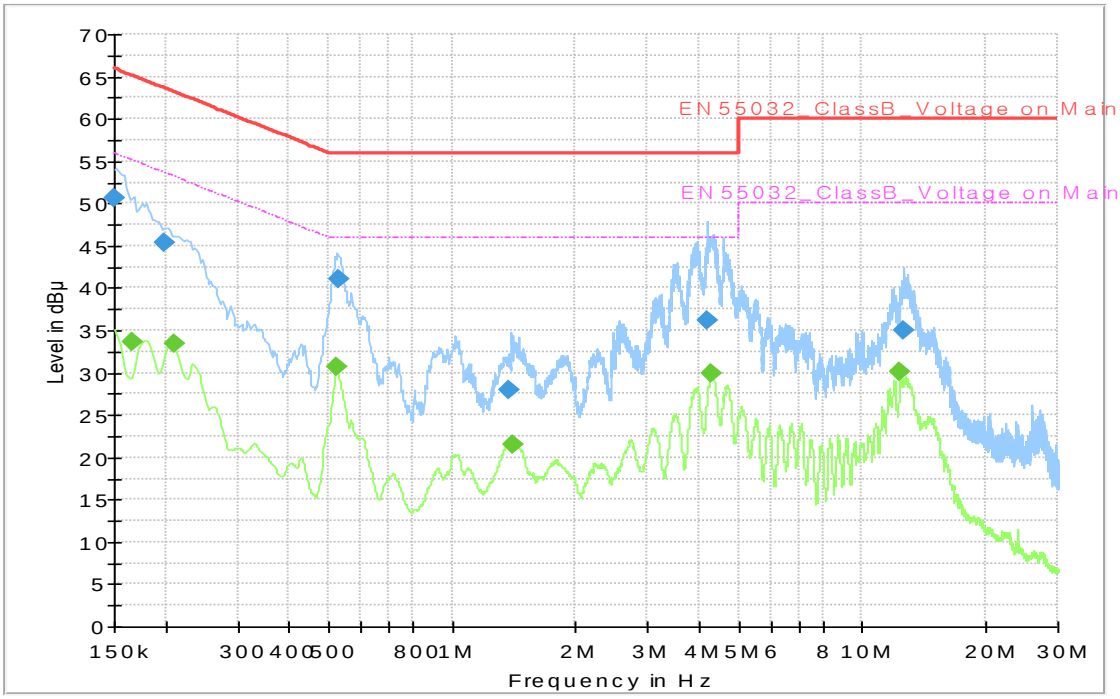
☐ Operating Mode 5: AC Mains



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	50.7	---	66.0	15.3	N	9.7
0.166	---	33.7	55.2	21.5	N	9.8
0.198	45.3	---	63.7	18.4	L1	9.9
0.209	---	33.5	53.2	19.7	L1	9.9
0.524	---	30.8	46.0	15.2	L1	10.0
0.529	41.1	---	56.0	14.9	L1	10.0
1.369	27.9	---	56.0	28.1	N	9.7
1.411	---	21.5	46.0	24.5	N	9.8
4.172	36.2	---	56.0	19.8	L1	9.8
4.284	---	29.8	46.0	16.2	L1	9.8
12.404	---	30.1	50.0	19.9	L1	9.9
12.553	35.1	---	60.0	24.9	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

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-002	Universal Radio Communicator	CMU200	R&S	100612	2018-08-31	12
E5I-016	EMI Test Receiver	ESU8	R&S	100482	2018-06-08	12
E5I-021	EMI Test Receiver	ESU40	R&S	100376	2018-01-31	12
E5I-149	Horn Antenna	HF907	R&S	102525	2018-06-15	24
E5I-039	Signal Conditioning Unit	SCU-18	R&S	10211	2018-01-22	12
E5I-037	Wide Band Horn Antenna	WBH 18-40K	R&S	11201	2017-10-13	24
E5I-042	Signal Conditioning Unit	SCU-40A	R&S	10004	2018-09-05	12
E5I-120	BiLog Antenna	CBL6112D	TESEQ	36997	2018-04-23	24
E5I-072	BiLog Antenna	CBL6112D	TESEQ	36009	2018-04-23	24
E5I-075	Preamplifier	310N	SONOMA	332018	2018-05-25	12
E5I-076	Preamplifier	310N	SONOMA	332019	2018-05-25	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	2019-01-25	**Test engineer**	Eun-Kyung Oh
Climate condition	Ambient temperature	(22.9 ~ 23.1) ℃	Limit (15.0 to 35.0) ℃
	Relative humidity	(44.9 ~ 45.1) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.7 ~ 101.9) kPa	Limit (86.0 to 106.0) kPa
Test place	Semi-Anechoic Chamber (SAC4)		

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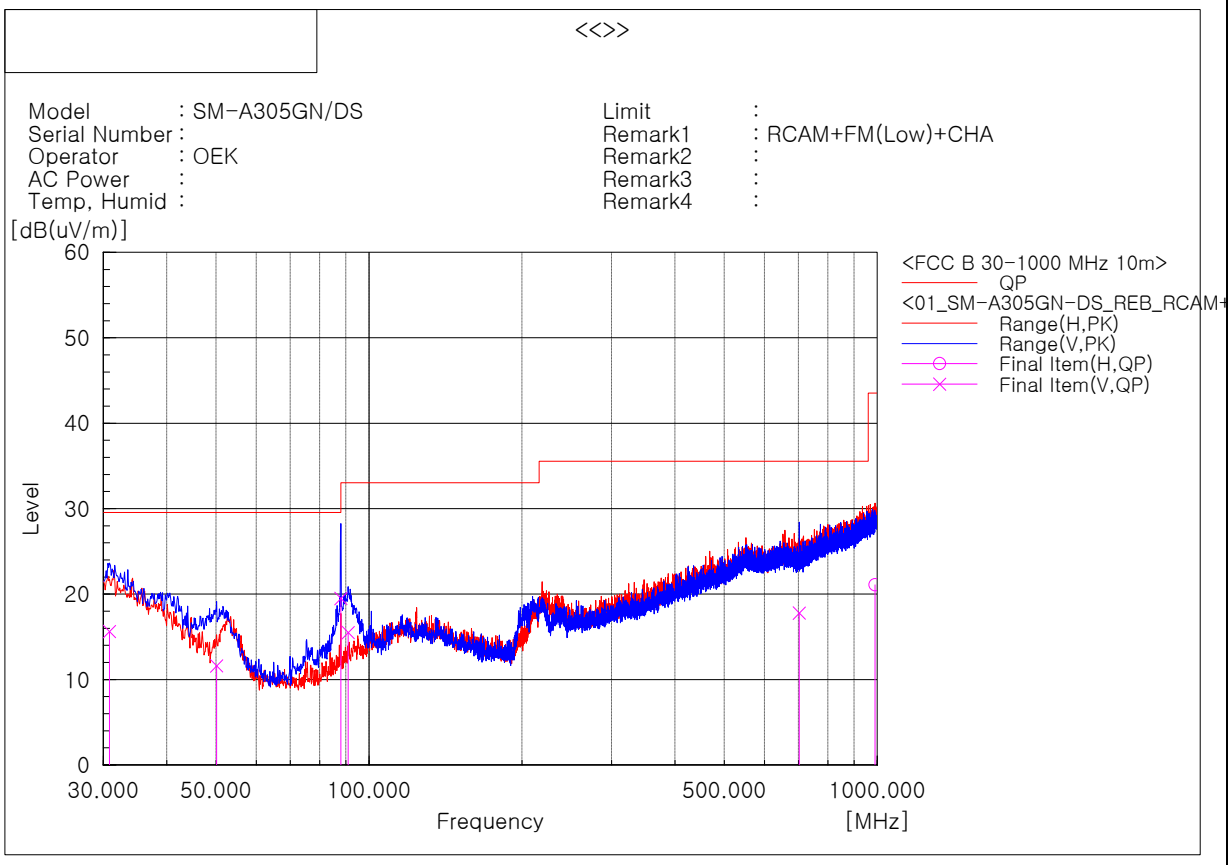
5.2.3 Test results

☐ 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	30.849	V	23.4	-7.8	15.6	29.5	13.9	100	110	2
2	50.128	V	28.4	-16.8	11.6	29.5	17.9	100	315	2
3	87.958	V	35.9	-16.4	19.5	29.5	10.0	100	118	2
4	90.989	V	31.2	-15.7	15.5	33.0	17.5	200	244	2
5	702.574	V	20.9	-3.1	17.8	35.5	17.7	200	24	2
6	989.451	H	20.3	0.8	21.1	43.5	22.4	300	132	1

* Radiated emissions (Rx frequency 87.958 MHz) from the transceiver shall be ignored

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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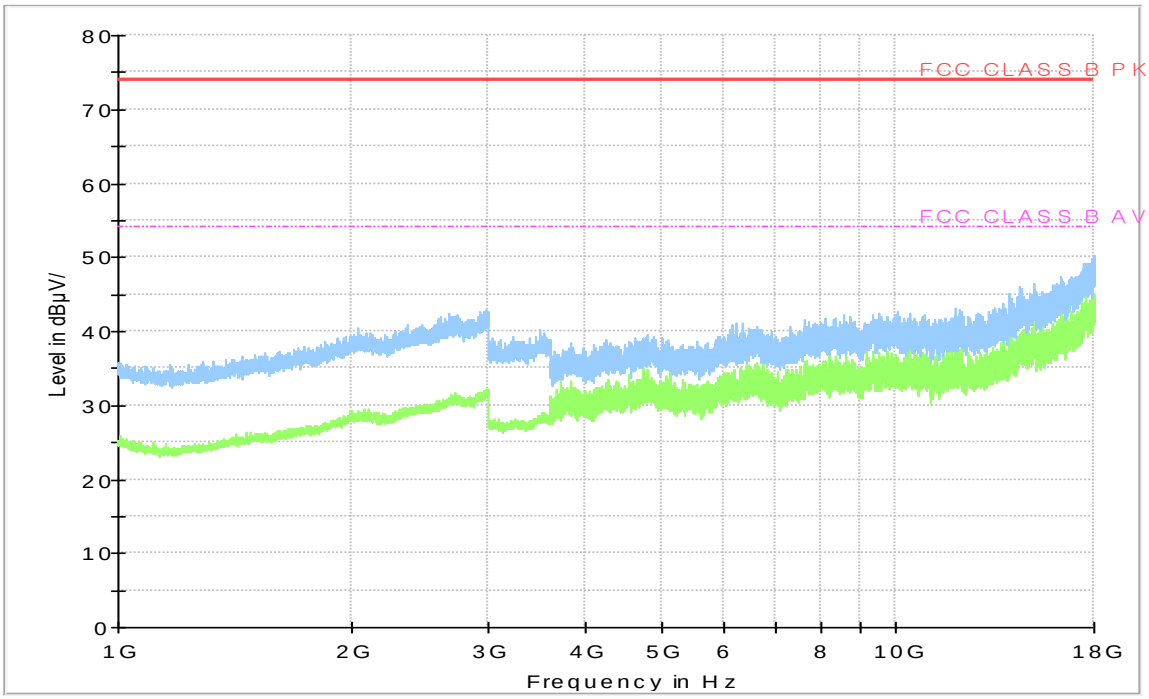
- Frequencies above 1 GHz



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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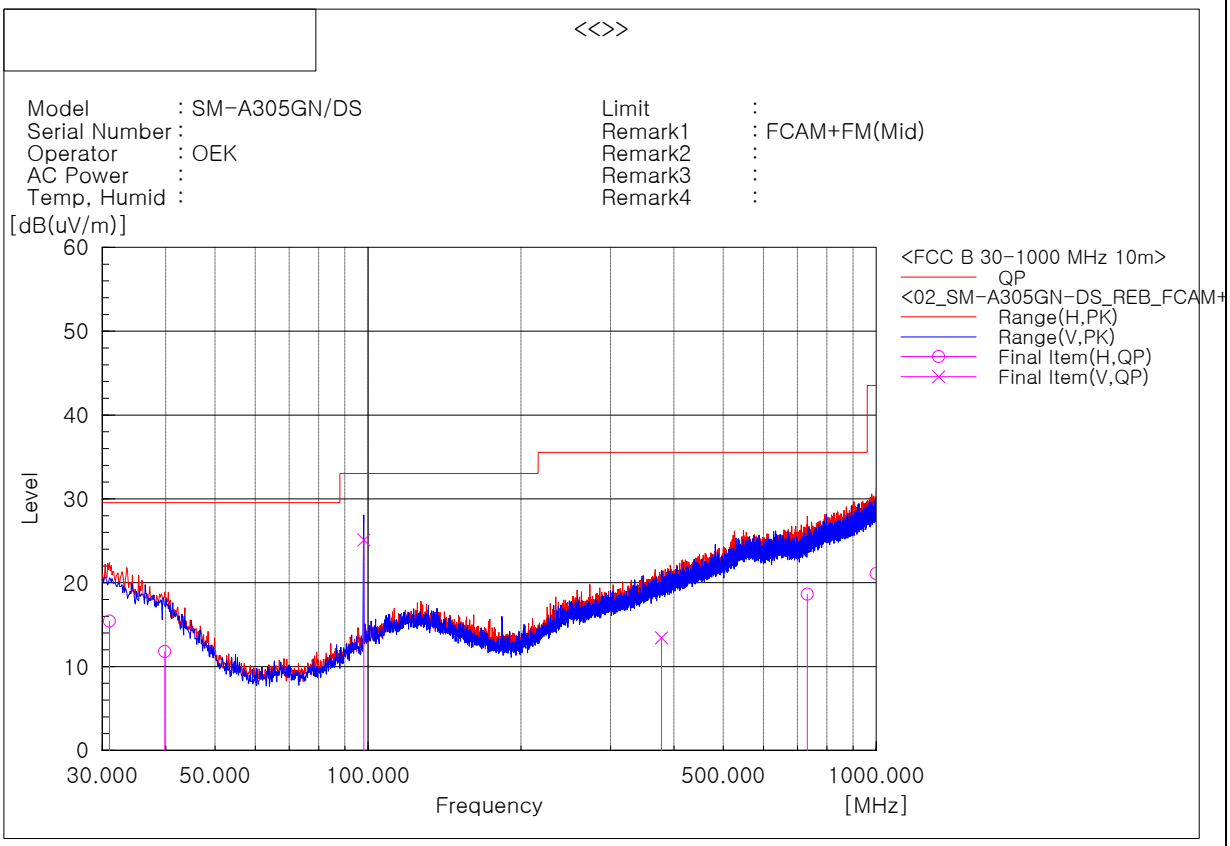
☐ Operating Mode 2

- 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	30.970	H	23.1	-7.7	15.4	29.5	14.1	200	119	1
2	39.821	H	23.0	-11.2	11.8	29.5	17.7	200	295	1
3	98.021	V	39.4	-14.3	25.1	33.0	7.9	100	306	2
4	377.624	V	21.1	-7.7	13.4	35.5	22.1	200	8	2
5	731.916	H	21.7	-3.1	18.6	35.5	16.9	400	281	1
6	999.636	H	20.0	1.1	21.1	43.5	22.4	300	143	1

* Radiated emissions (Rx frequency 98.021 MHz) from the transceiver shall be ignored

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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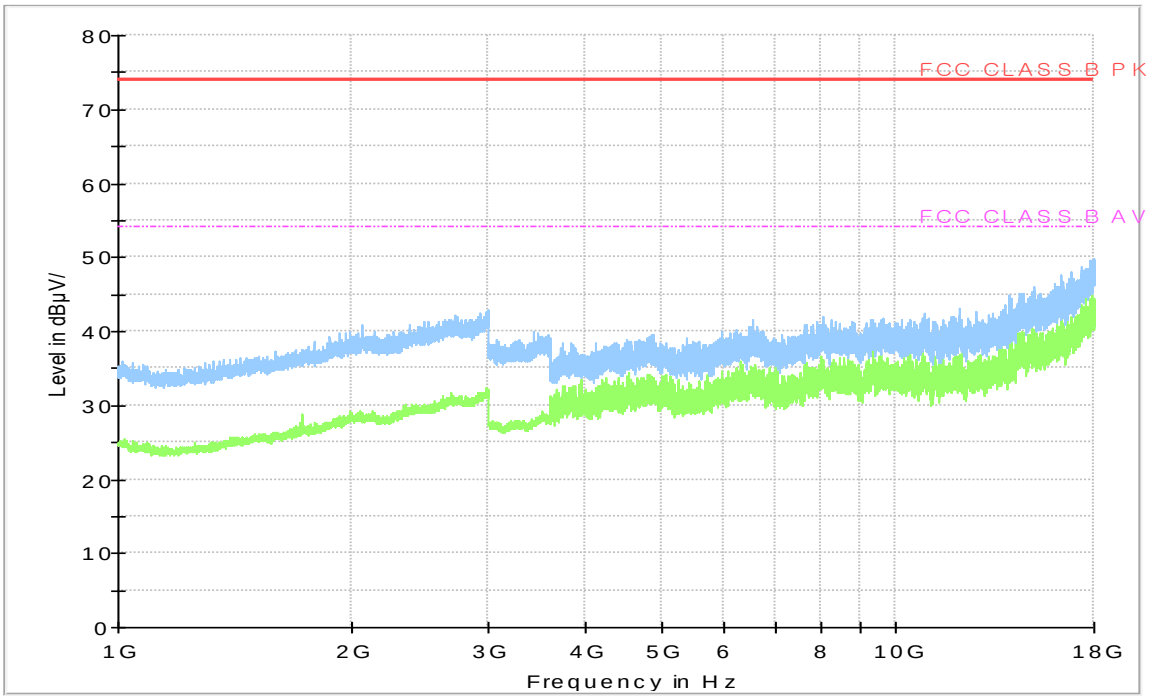
- Frequencies above 1 GHz



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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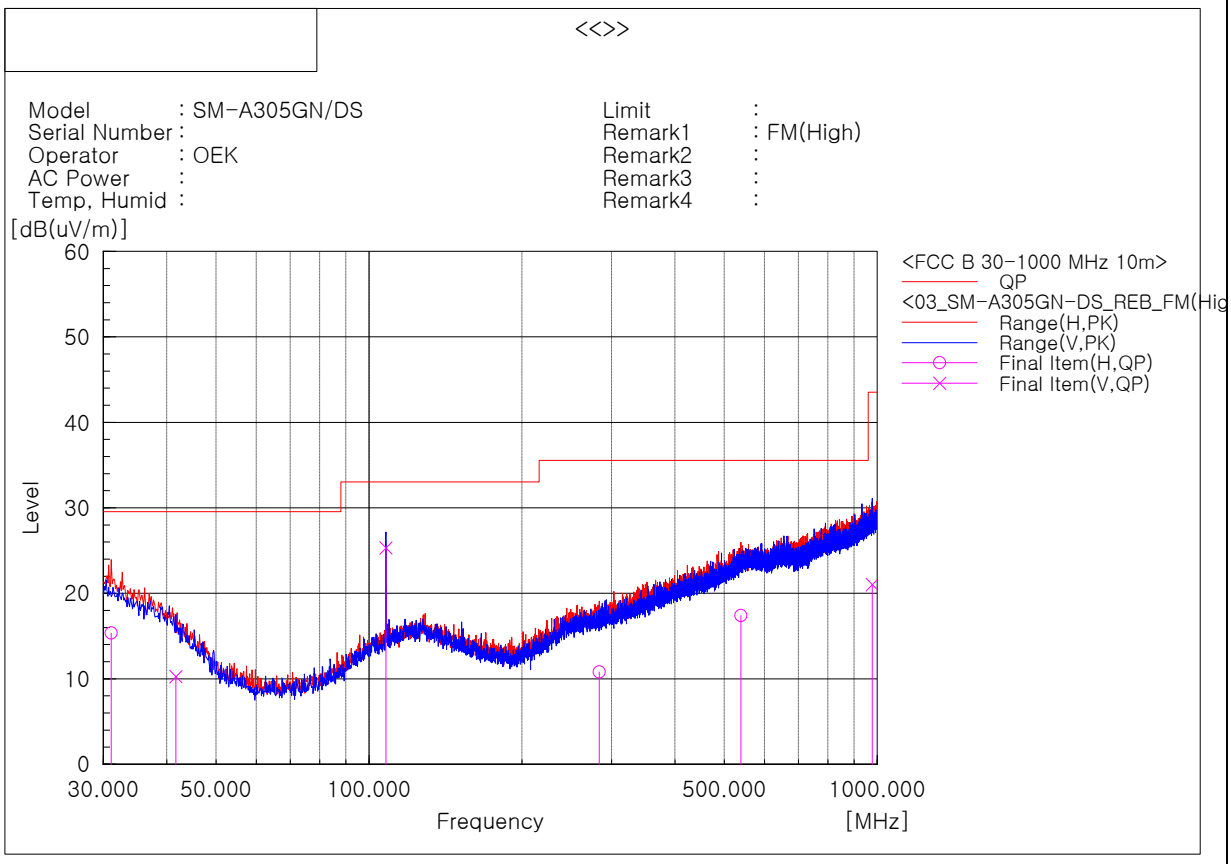
☐ Operating Mode 3

- 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	31.091	H	23.1	-7.7	15.4	29.5	14.1	200	4	1
2	41.640	V	22.2	-12.0	10.2	29.5	19.3	400	265	2
3	107.964	V	38.3	-13.0	25.3	33.0	7.7	100	86	2
4	283.898	H	21.6	-10.8	10.8	35.5	24.7	400	124	1
5	539.008	H	21.9	-4.5	17.4	35.5	18.1	200	201	1
6	977.811	V	19.6	1.4	21.0	43.5	22.5	400	304	2

* Radiated emissions (Rx frequency 107.964 MHz) from the transceiver shall be ignored

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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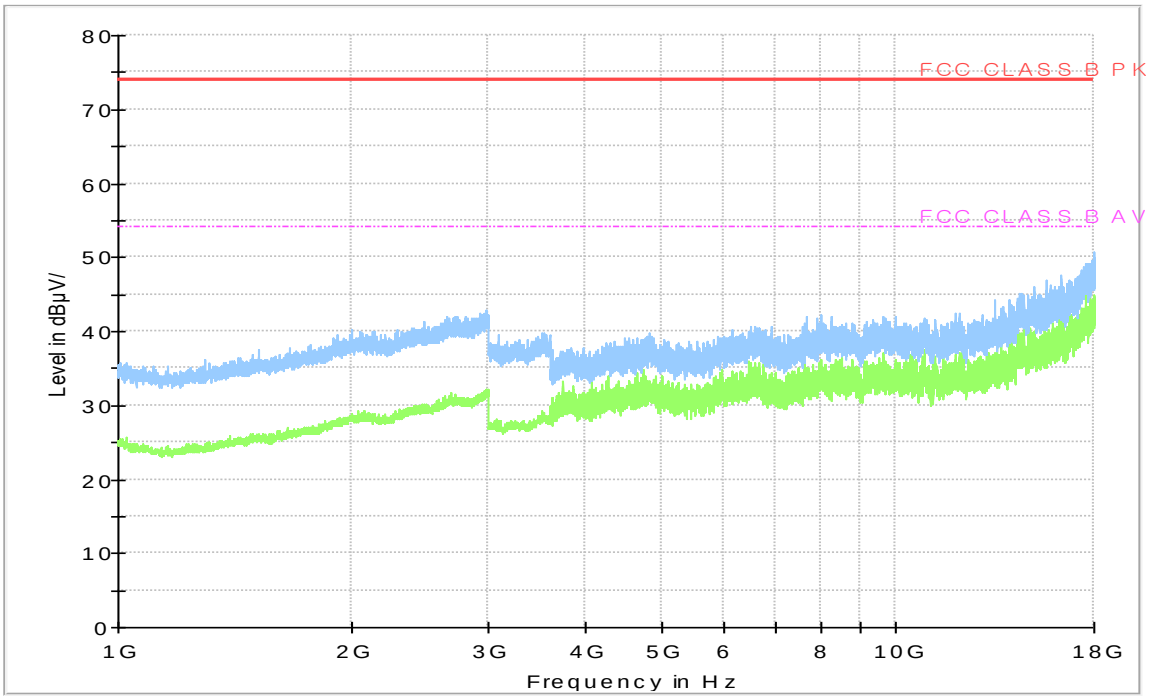
- Frequencies above 1 GHz



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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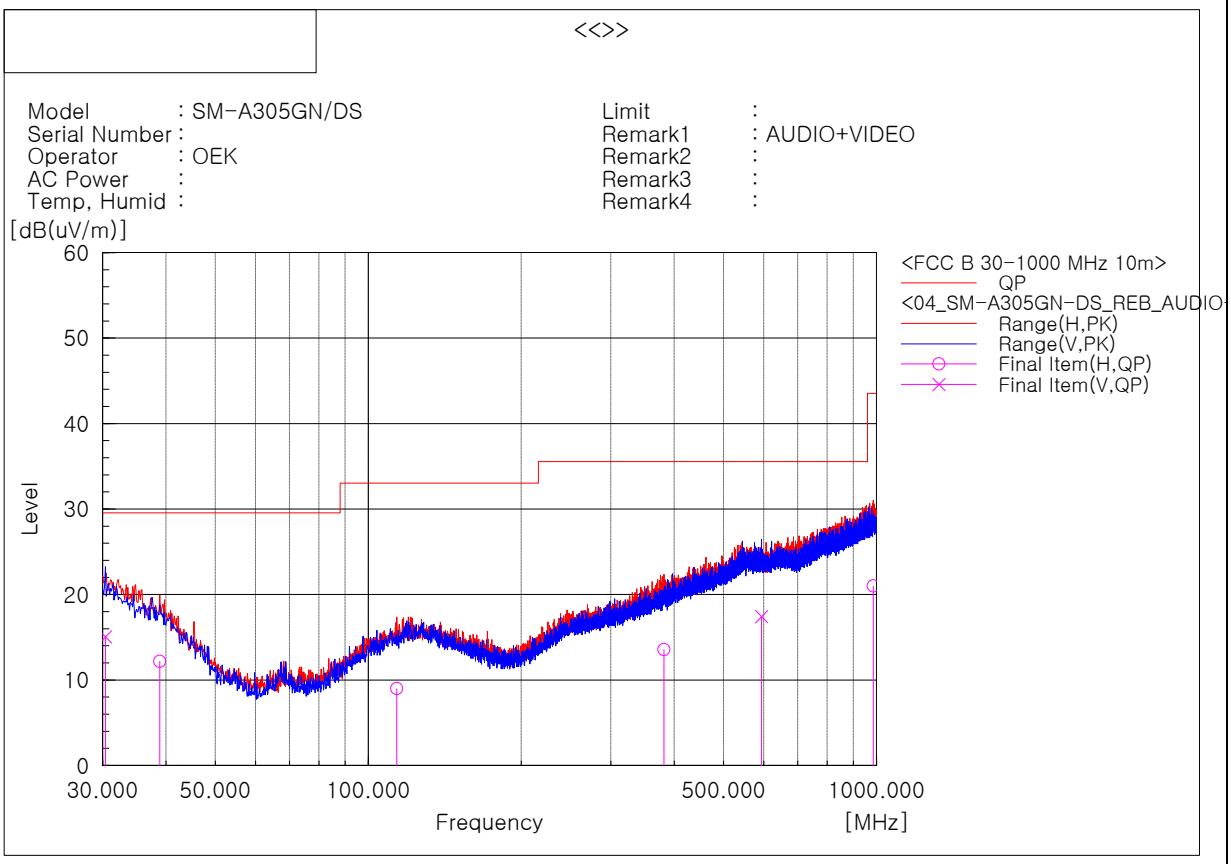
☐ Operating Mode 4

- 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	30.364	V	22.7	-7.6	15.1	29.5	14.4	300	109	2
2	38.851	H	22.9	-10.7	12.2	29.5	17.3	200	85	1
3	113.784	H	21.9	-12.9	9.0	33.0	24.0	300	0	1
4	381.625	H	21.8	-8.2	13.6	35.5	21.9	300	349	1
5	593.691	V	20.8	-3.4	17.4	35.5	18.1	400	210	2
6	984.844	H	20.3	0.7	21.0	43.5	22.5	200	152	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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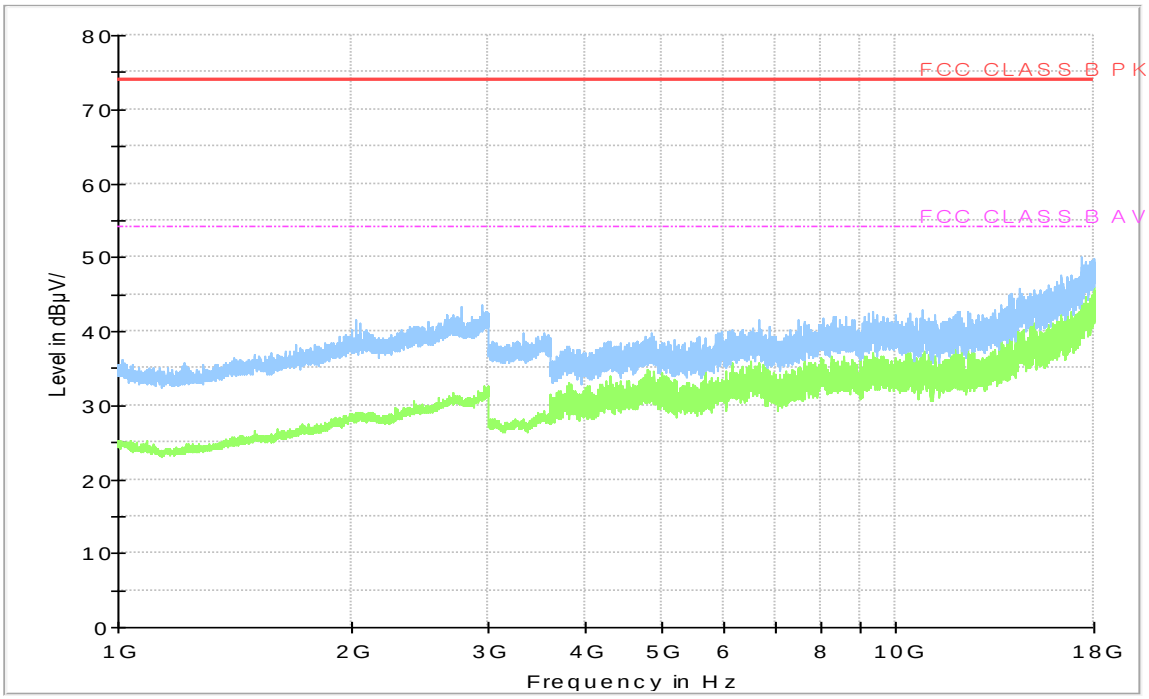
- Frequencies above 1 GHz



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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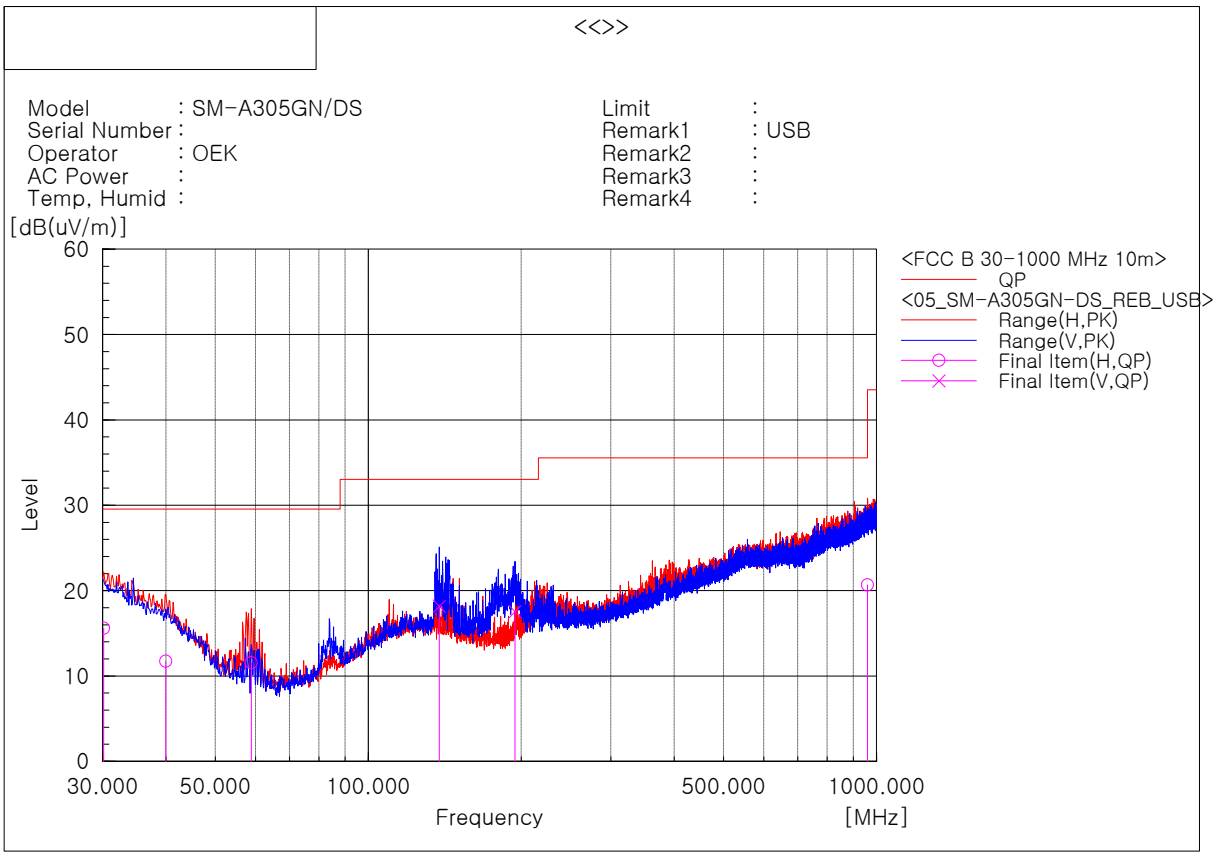
☐ Operating Mode 5

- 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	30.121	H	23.0	-7.4	15.6	29.5	13.9	400	185	1
2	39.943	H	23.0	-11.3	11.7	29.5	17.8	400	51	1
3	58.858	H	30.8	-19.2	11.6	29.5	17.9	300	277	1
4	137.913	V	30.6	-12.4	18.2	33.0	14.8	200	240	2
5	194.415	V	32.3	-14.8	17.5	33.0	15.5	100	161	2
6	960.230	H	20.6	0.1	20.7	43.5	22.8	400	176	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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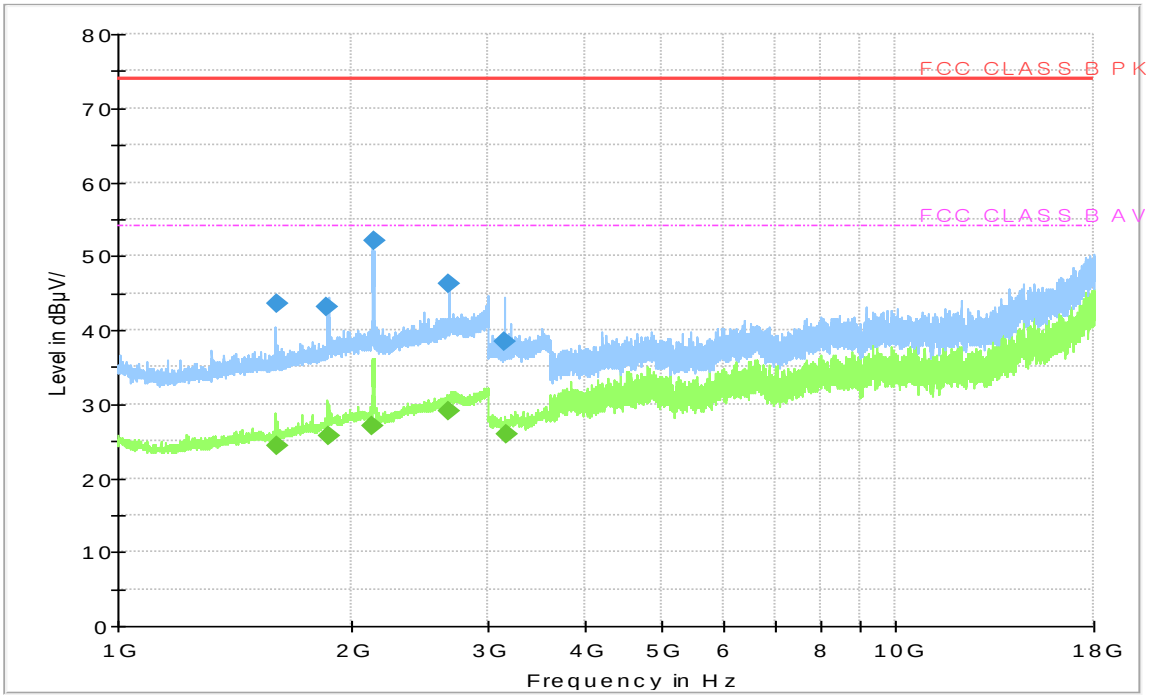
- Frequencies above 1 GHz



Frequency (MHz)	PK (dBµV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 598.200	---	24.3	54.0	29.7	100.0	V	69.0	9.8
1 598.900	43.5	---	74.0	30.5	100.0	V	91.0	9.8
1 860.900	43.1	---	74.0	30.9	100.0	V	181.0	11.7
1 862.100	---	25.6	54.0	28.4	100.0	V	7.0	11.7
2 126.000	---	26.9	54.0	27.1	100.0	V	337.0	12.9
2 131.800	52.0	---	74.0	22.0	100.0	V	146.0	12.9
2 661.500	46.2	---	74.0	27.8	100.0	V	294.0	15.4
2 670.000	---	29.1	54.0	24.9	100.0	V	291.0	15.5
3 143.500	38.5	---	74.0	35.5	100.0	V	158.0	0.9
3 154.000	---	25.8	54.0	28.2	100.0	V	182.0	0.9

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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