

EMC TEST REPORT

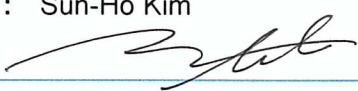
Project No.	LBE20201180	Issue No.	0
Applicant	Name of organization	Samsung Electronics Co., Ltd.	
	Address	(Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea	
	Date of receipt	December 16, 2020	
EUT	Type of device	☒ All other Receivers subject to part15 ☒ Class 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	A3LSMA325F	
	Kind of product	Mobile Phone	
	Model No.	SM-A325F/DS	
	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 Samsung India Electronics Private Ltd.(SIEL) B-1,Sector-81 NOIDA Uttar Pradesh, India 201-305 PT Samsung Electronics Indonesia(SEIN) CikarangIndustrial Estate, Jl. Jababeka RayaBlok F 29~33, Bekasi, West Java, Indonesia, Cikarang, IDN	
Applied Standards		47 CFR Part 15, Subpart B, Class B / ANSI C63.4-2014	
Test Period		December 16, 2020 ~ December 24, 2020	
Issue date		January 6, 2021	
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 : Soo-Joon Kim 		Reviewed by : Sun-Ho Kim 	
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.			
Samsung Electronics Co., Ltd., Global CS Center (Maetan dong) 129, Samsung-ro, Yeongtong-Gu, Suwon-Si,Gyeonggi-Do 16677, Korea			

Table of contents

1. Report Information

1.1 Revision history	3
----------------------------	---

2. Summary of test results

2.1 Emission	3
--------------------	---

3. General Information

3.1 Test facility	3
-------------------------	---

4. Test Configuration

4.1 Test Peripherals	4
4.2 EUT operating mode	5
4.3 Details of Sampling	5
4.4 Used cable description	6
4.5 Test arrangement	7
4.6 EUT Description	9
4.7 EUT Frequencies	9
4.8 Test configuration and condition	10
4.9 Measurement uncertainty	10

5. Result of individual tests

5.1 Conducted emission	11
5.2 Radiated emission	17

1. Report Information

1.1 Revision history

No.	Date of Issue	Revised detailed information
Issue 0	January 6, 2021	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 Emission (Mains port)	47 CFR Part 15 Subpart B / ANSI C63.4-2014 (Class B)	Complied
☒	Radiated Emission		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
A	Mobile Phone	SM-A325F/DS	-	SAMSUNG	A3LSMA325F
B	Battery	EB-BA315ABY	-	SDI	-
C	Headset	EHS61ASFWE	-	BUJEON	-
D	Data Cable	EP-DR140	-	RFTECH	-
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	CNBA5903634ADV8J 31O3050	SAMSUNG	DoC
		SNJ-B138	Z5F8353	SAMSUNG	DoC
I	Router	DIR-806A	RF0F1D8011501	D-Link	DoC
			RF0F1D8011504	D-Link	DoC
J	Travel Adapter	EP-TA200	R37NC2C0AM4SE3	SOLUM	-

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) + 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(w/ Headset)
5	USB Data Communication with PC (from external memory data)

4.3 Details of Sampling

Customer selected, single unit.

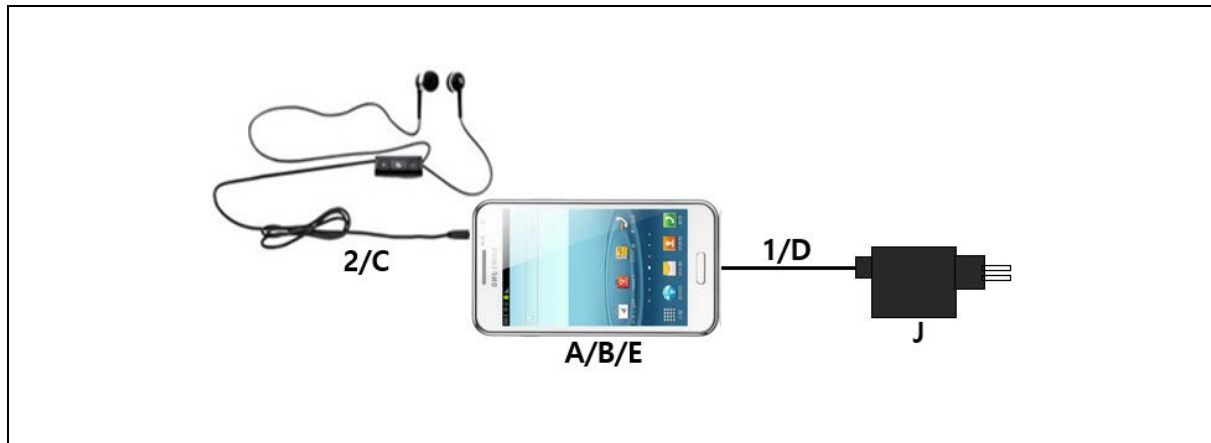
4.4 Used cable description

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:

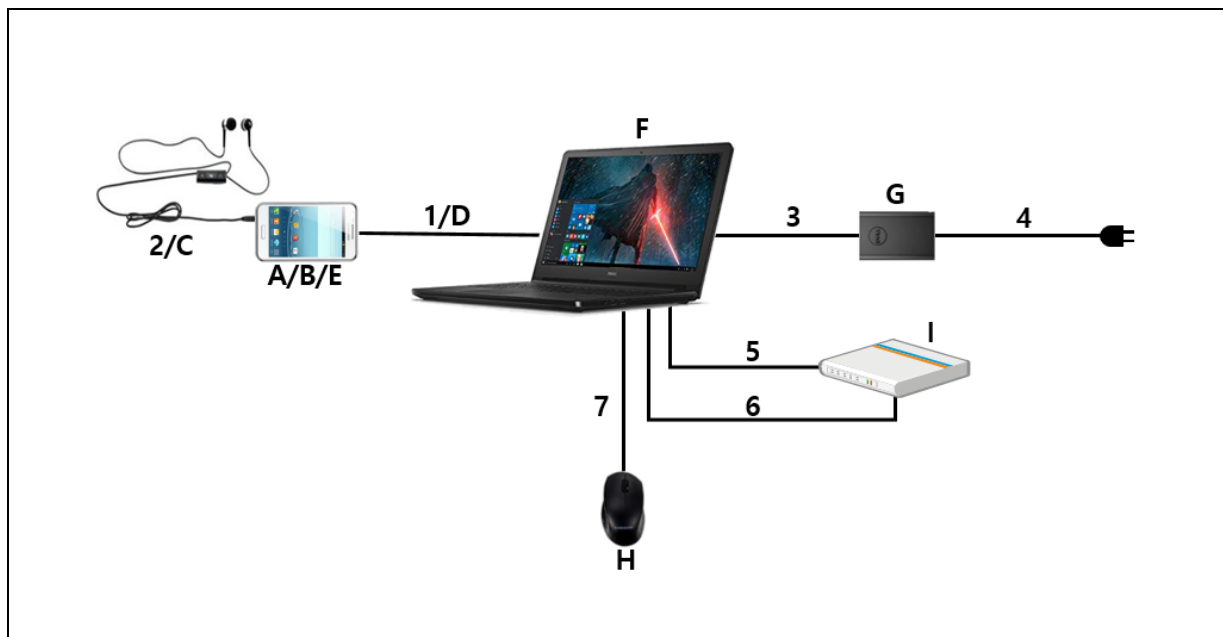
No.	Connected cable	Length [m]	Shielded [Y/N]	Note
1	Data Cable	0.8	Y	From EUT to Laptop Computer or TA
2	Headset	1.5	N	For EUT
3	Power	1.8	N	From Laptop Computer to AC Adapter
4	Power	1.5	N	For Laptop AC Adapter
5	LAN	1.5	N	From Laptop Computer to Router
6	USB	0.8	Y	From Laptop Computer to Router for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

4.5 Test arrangement

4.5.1 Conducted Emission



[Mode 1 - 4]



[Mode 5]

A diagram showing a mobile phone connected to a network interface. The phone is labeled **A/B/E**. It is connected to a network interface labeled **J** via a cable labeled **1/D**. The phone is also connected to a headset labeled **2/C**.



A diagram showing a smartphone connected to a USB audio interface. The smartphone is labeled "A/B/E" and has a USB cable connected to its bottom port. The cable is labeled "2/C". The other end of the cable is connected to a small black USB audio interface. Two black headphones are plugged into the interface.

The diagram illustrates a computer system with the following components and connections:

- Component A/B/E:** A smartphone.
- Component C:** A charging cable connected to the smartphone.
- Component D:** A cable connecting the smartphone to the laptop.
- Component F:** A laptop.
- Component G:** A power supply unit (PSU) connected to the laptop.
- Component H:** A mouse connected to the laptop.
- Component I:** A network switch or router connected to the laptop.
- Connections:**
 - 1/D: Cable connecting the smartphone to the laptop.
 - 2/C: Cable connecting the smartphone to the charging cable.
 - 3: Cable connecting the PSU to the laptop.
 - 4: Cable connecting the PSU to the power outlet.
 - 5: Cable connecting the network switch to the laptop.
 - 6: Cable connecting the network switch to the laptop.
 - 7: Cable connecting the mouse to the laptop.

-8/28-

4.6 EUT Description

The EUT is a bar type Mobile Phone which can operate on GSM850/900/1800/1900, WCDMA FDD1/2/5/8, LTE FDD 1/2/3/5/7/8/20/28, LTE TDD 38/40/41 and incorporates a Bluetooth, Wi-Fi, Camera, Audio, Video, FM Radio, GNSS and NFC.

4.6.1 The variant models

- SM-A325F

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(850 MHz) testing was performed with the GSM850 RX Test mode at center frequency. All licensed communication (850 MHz) 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 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)

4.9.1 Emission

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

* Remark

- 1) The values for uncertainty of conducted and radiated emissions are less than the Corresponding values of U_{CISPR} 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 emission

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 emission 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

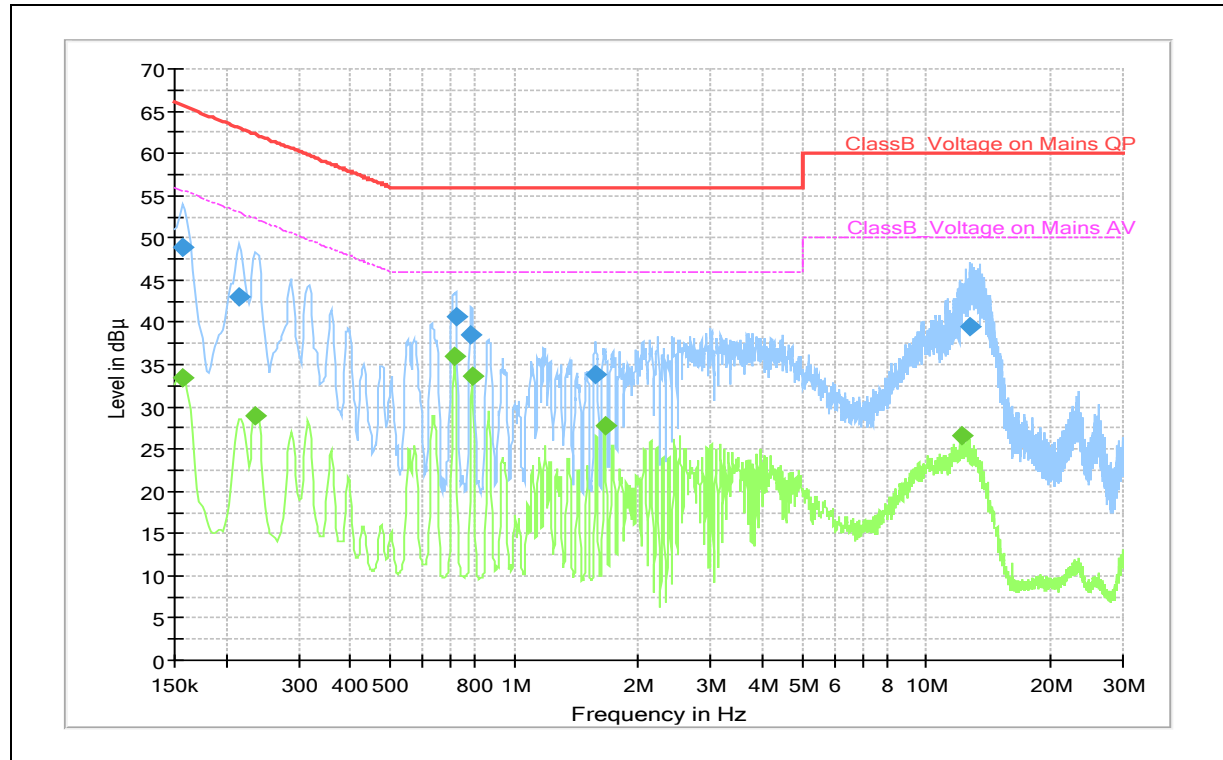
EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Next Calibration	
					Date	Interval (Month)
E5I-002	Universal Radio Communicator	CMU200	R&S	100612	2021-08-12	12
E5I-022	Signal Generator	SMB100A	R&S	175856	2021-05-21	12
E5I-017	EMI Test Receiver	ESU8	R&S	100483	2021-01-20	12
E5I-127	LISN	ENV216	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	2020-12-24	Test engineer	Soo-Joon Kim
Climate condition	Ambient temperature	(23.6 ± 0.5) °C	Limit (15.0 to 35.0) °C
	Relative humidity	(40.4 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.4 ± 0.5) kPa	Limit (86.0 to 106.0) kPa
Test place	Shield Room (SR8)		

5.1.3 Test results

☐ Operating Mode 1: AC Mains



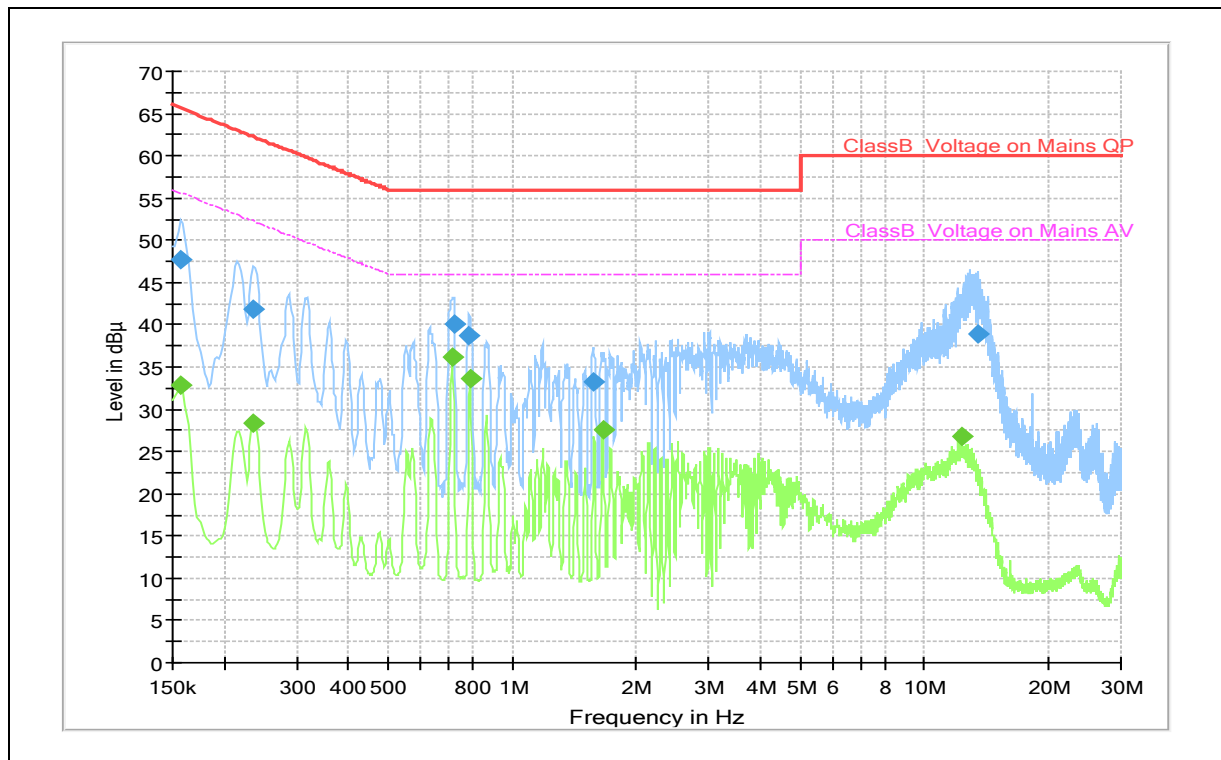
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.157	48.89	---	65.63	16.74	N	10.1
0.157	---	33.45	55.63	22.18	N	10.1
0.215	43.08	---	63.00	19.92	N	10.0
0.236	---	29.01	52.25	23.24	N	9.9
0.717	---	35.92	46.00	10.08	L1	10.1
0.722	40.60	---	56.00	15.40	L1	10.1
0.787	38.49	---	56.00	17.51	L1	10.1
0.791	---	33.69	46.00	12.31	N	10.0
1.574	33.92	---	56.00	22.08	L1	9.9
1.658	---	27.74	46.00	18.26	N	9.9
12.206	---	26.54	50.00	23.46	N	10.3
12.782	39.51	---	60.00	20.49	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 2: AC Mains



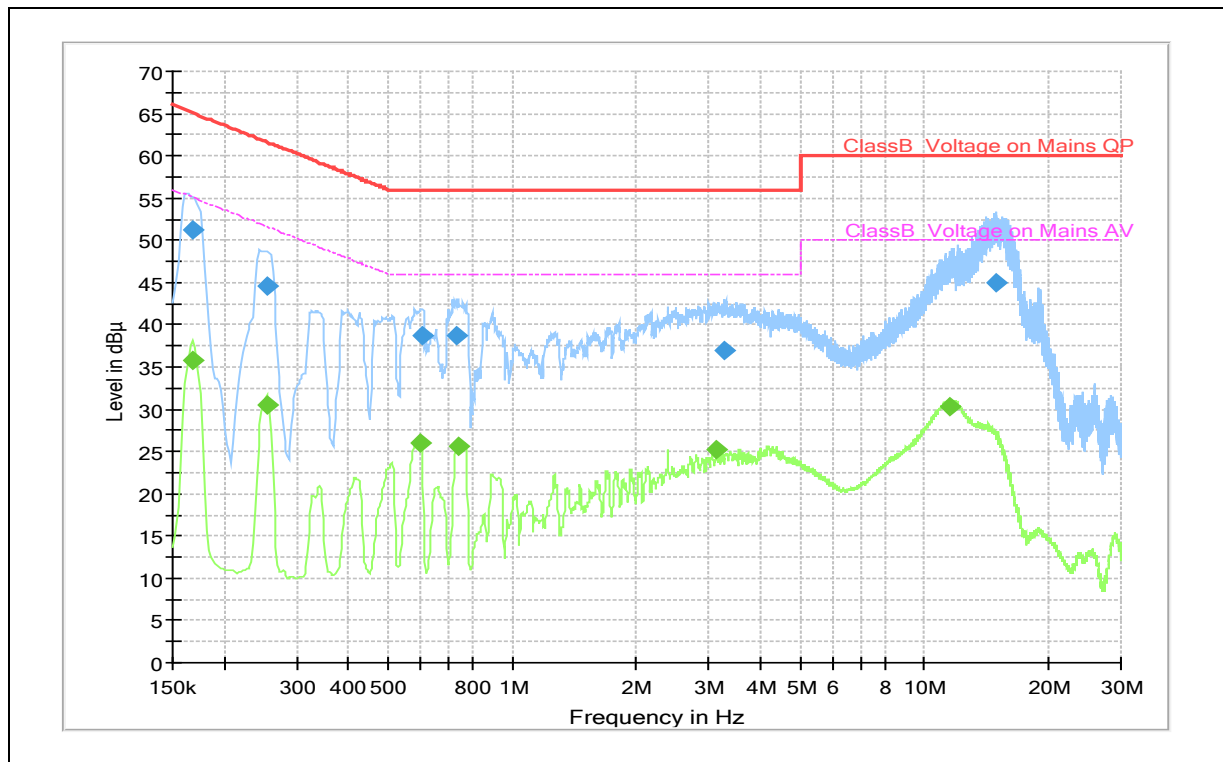
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.157	47.76	---	65.63	17.88	N	10.1
0.157	---	32.81	55.63	22.82	L1	10.1
0.236	---	28.30	52.25	23.96	L1	9.9
0.236	41.81	---	62.25	20.44	N	9.9
0.715	---	36.19	46.00	9.81	L1	10.1
0.722	40.11	---	56.00	15.89	L1	10.1
0.787	38.66	---	56.00	17.34	L1	10.1
0.791	---	33.60	46.00	12.40	N	10.0
1.570	33.16	---	56.00	22.84	L1	9.9
1.658	---	27.65	46.00	18.35	N	9.9
12.273	---	26.84	50.00	23.16	N	10.3
13.535	38.84	---	60.00	21.16	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

□ Operating Mode 3: AC Mains



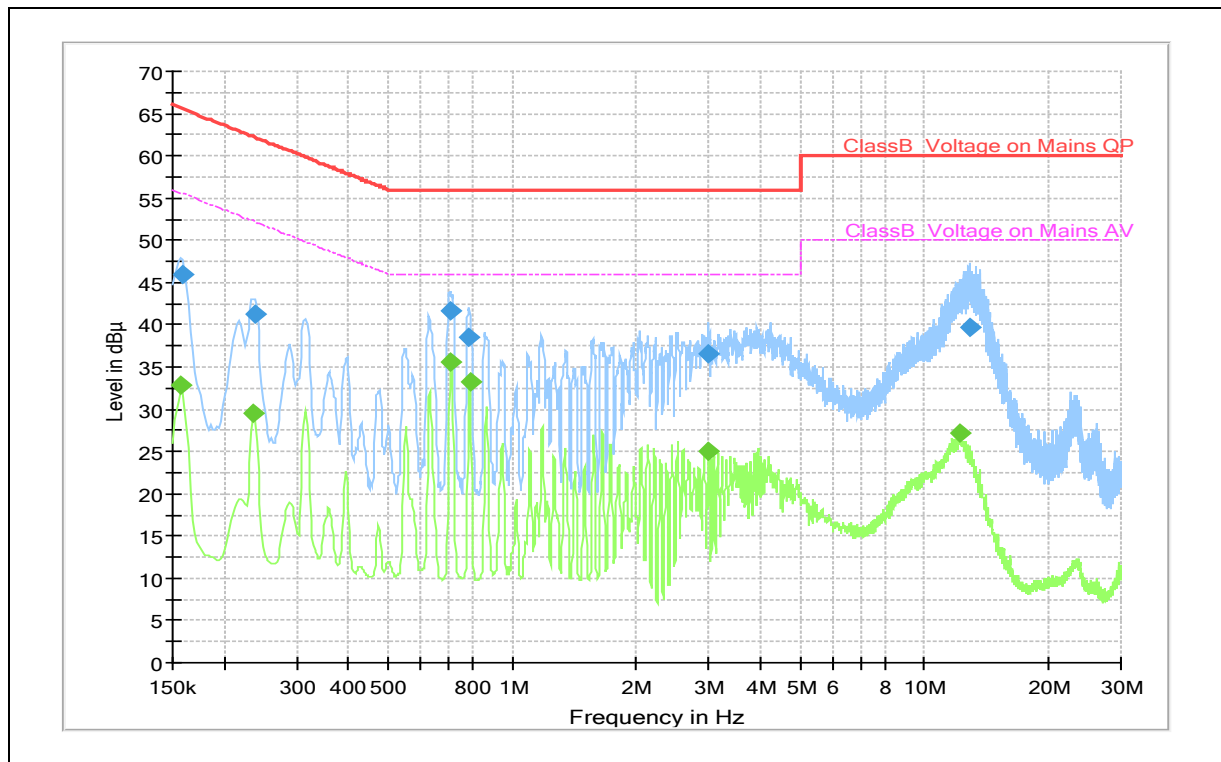
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.168	51.14	---	65.06	13.92	N	10.3
0.168	---	35.85	55.06	19.21	N	10.3
0.254	---	30.54	51.64	21.11	N	9.8
0.256	44.60	---	61.57	16.97	N	9.9
0.598	---	25.97	46.00	20.03	L1	10.2
0.605	38.71	---	56.00	17.29	L1	10.2
0.735	38.74	---	56.00	17.26	L1	10.1
0.744	---	25.66	46.00	20.34	N	10.1
3.131	---	25.28	46.00	20.72	N	9.9
3.262	36.99	---	56.00	19.01	L1	9.9
11.591	---	30.34	50.00	19.66	N	10.3
14.908	45.07	---	60.00	14.93	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

□ Operating Mode 4: AC Mains



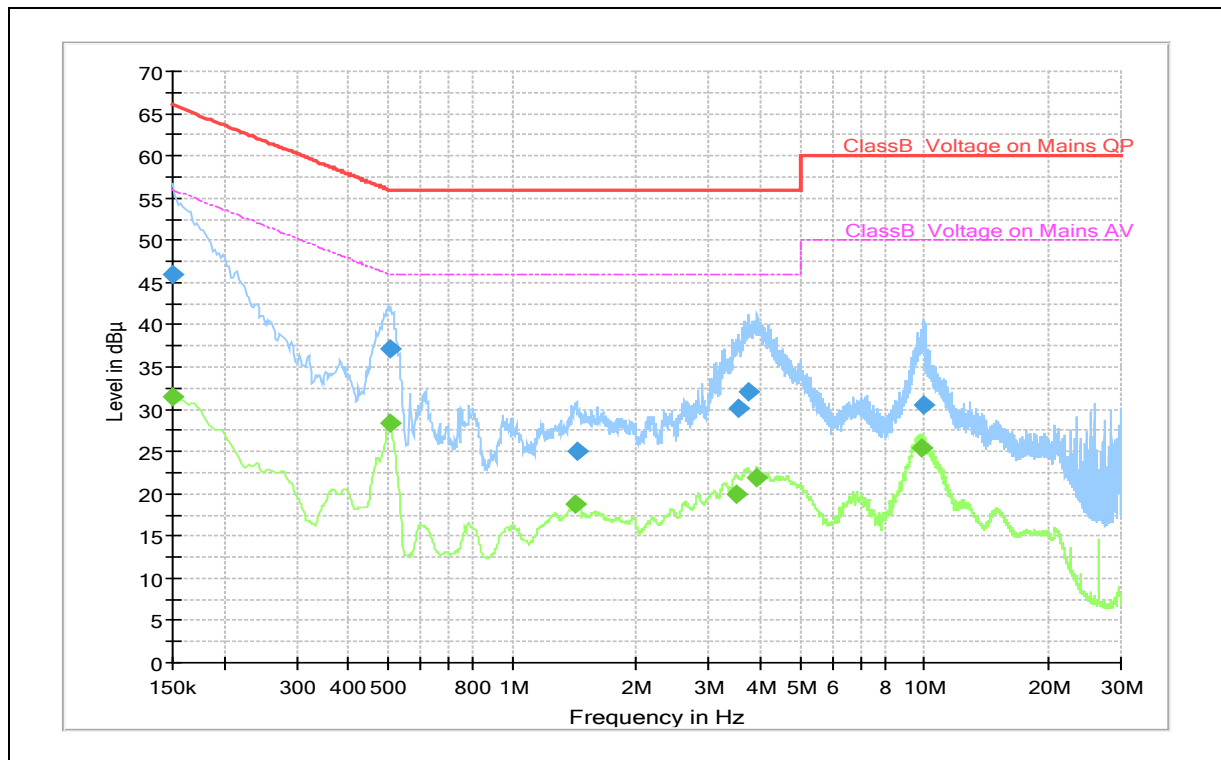
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.157	---	32.76	55.63	22.87	L1	10.1
0.159	46.00	---	65.52	19.52	N	10.1
0.236	---	29.59	52.25	22.66	L1	9.9
0.238	41.20	---	62.17	20.98	N	9.9
0.708	41.64	---	56.00	14.36	L1	10.1
0.710	---	35.59	46.00	10.41	N	10.1
0.787	38.50	---	56.00	17.50	L1	10.1
0.789	---	33.19	46.00	12.81	N	10.1
2.992	36.62	---	56.00	19.38	L1	9.9
2.994	---	25.08	46.00	20.92	N	9.9
12.156	---	27.19	50.00	22.81	N	10.3
12.836	39.73	---	60.00	20.27	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 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	45.99	---	66.00	20.01	N	9.9
0.150	---	31.42	56.00	24.58	L1	9.9
0.503	---	28.26	46.00	17.74	L1	10.2
0.508	37.06	---	56.00	18.94	L1	10.2
1.419	---	18.79	46.00	27.21	N	10.0
1.433	25.11	---	56.00	30.89	N	10.0
3.485	---	19.90	46.00	26.10	N	10.0
3.543	30.19	---	56.00	25.81	N	10.0
3.759	32.03	---	56.00	23.97	N	10.0
3.935	---	21.81	46.00	24.19	L1	10.0
9.859	---	25.43	50.00	24.57	L1	10.1
9.935	30.59	---	60.00	29.41	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 emission

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 emission of Class B ITE at a measuring distance of 3 m and 10 m

Frequency range Limits [MHz]	Field Strength		
	3 m [$\mu\text{V/m}$]	3 m [dB($\mu\text{V/m}$)]	10 m [dB($\mu\text{V/m}$)]
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 formula from $D_1(3\text{m})$ to $D_2(10\text{m})$
: Limit at D_2 = Limit at D_1 + $20\text{Log}(D_1/D_2)$

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

5.2.1 Test instrumentation

EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Next Calibration	
					Date	Interval (Month)
E5I-022	Signal Generator	SMB100A	R&S	175856	2021-05-21	12
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	TOYO	Ver 5.8.2	-	-
-	Test software	EMC32	R&S	Ver 9.25.00	-	-

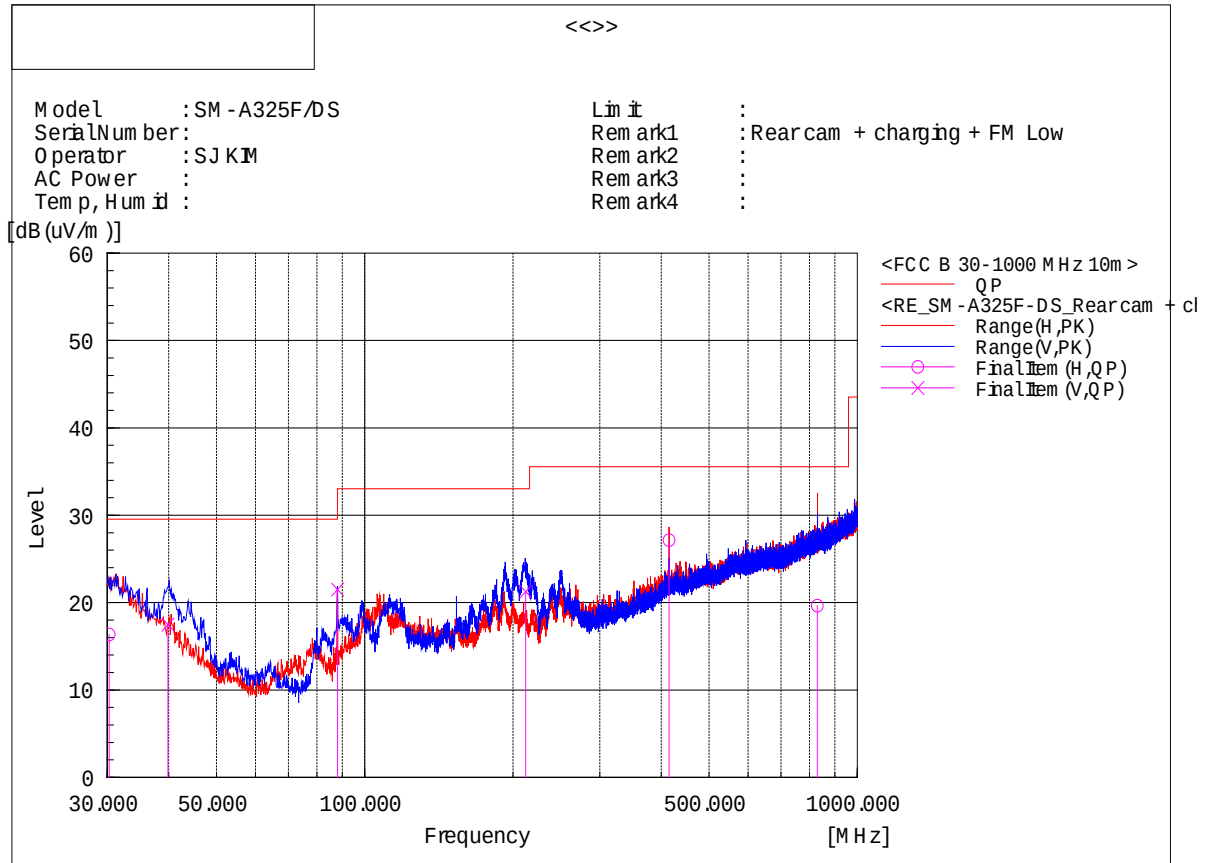
5.2.2 Temperature and humidity condition

Test date	2020-12-16 ~ 2020-12-23	Test engineer	Soo-Joon Kim
Climate condition	Ambient temperature	(23.2 ± 0.5) °C	Limit (15.0 to 35.0) °C
	Relative humidity	(47.1 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.8 ± 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



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	30.270	H	23.2	-6.8	16.4	29.5	13.1	180	291	1
2	39.837	V	28.6	-11.1	17.5	29.5	12.0	364	180	2
3	88.001	V	37.0	-15.5	21.5	33.0	11.5	105	38	2
4	212.240	V	35.0	-13.7	21.3	33.0	11.7	100	45	2
5	414.975	H	34.2	-7.1	27.1	35.5	8.4	280	359	1
6	829.098	H	21.7	-2.0	19.7	35.5	15.8	127	348	1

* Radiated emissions (Rx frequency 88.001 MHz) from the transceiver shall be ignored

Note1) Receiving antenna polarization : Horizontal, Vertical

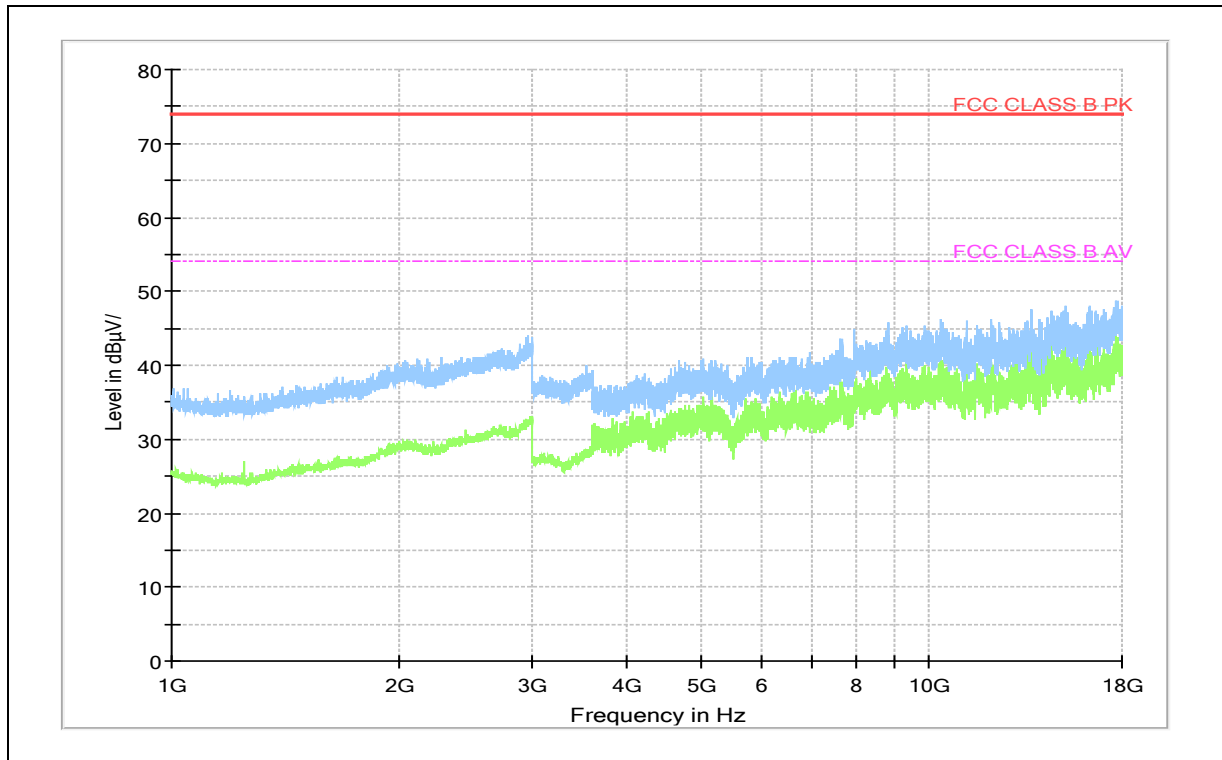
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain)

Margin (QP) = Limit - Level (QP)

QP = Quasi-Peak, c.f = Correction Factor

- Frequencies above 1 GHz



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

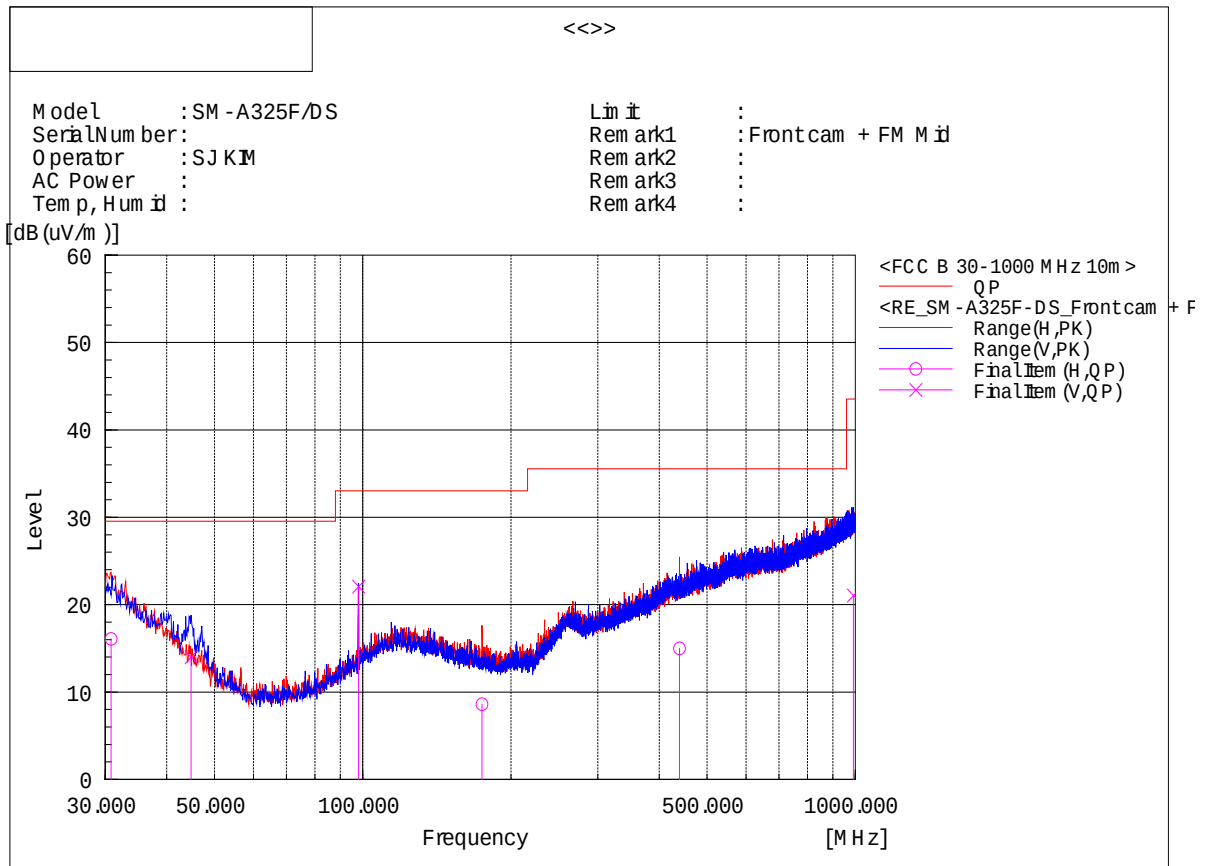
Note 2) Receiving antenna polarization : Horizontal, Vertical

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**

Final Result

No.	Frequency (P)	Reading	c.f	Result	Limit	Margin	Height	Angle	System
	[MHz]	QP [dB(uV)]	[dB(1/m)]	QP [dB(uV/m)]	QP [dB(uV/m)]	QP [dB]	[cm]	[deg]	
1	30.849	H 23.2	-7.1	16.1	29.5	13.4	243	69	1
2	44.793	V 27.8	-13.8	14.0	29.5	15.5	205	358	2
3	98.021	V 35.6	-13.5	22.1	33.0	10.9	100	157	2
4	174.651	H 23.7	-15.1	8.6	33.0	24.4	378	16	1
5	439.825	H 21.8	-6.8	15.0	35.5	20.5	198	158	1
6	990.785	V 18.6	2.5	21.1	43.5	22.4	100	356	2

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

Note1) Receiving antenna polarization : Horizontal, Vertical

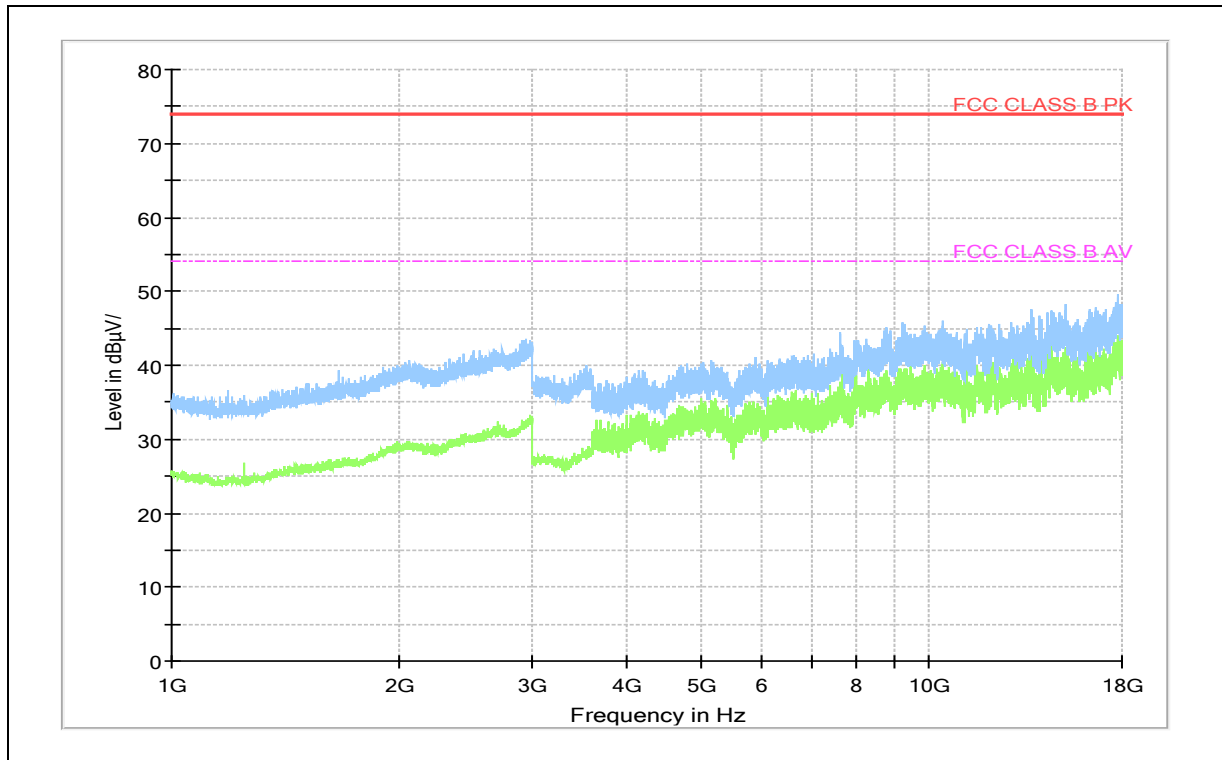
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain)

Margin (QP) = Limit - Level (QP)

QP = Quasi-Peak, c.f = Correction Factor

- Frequencies above 1 GHz



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

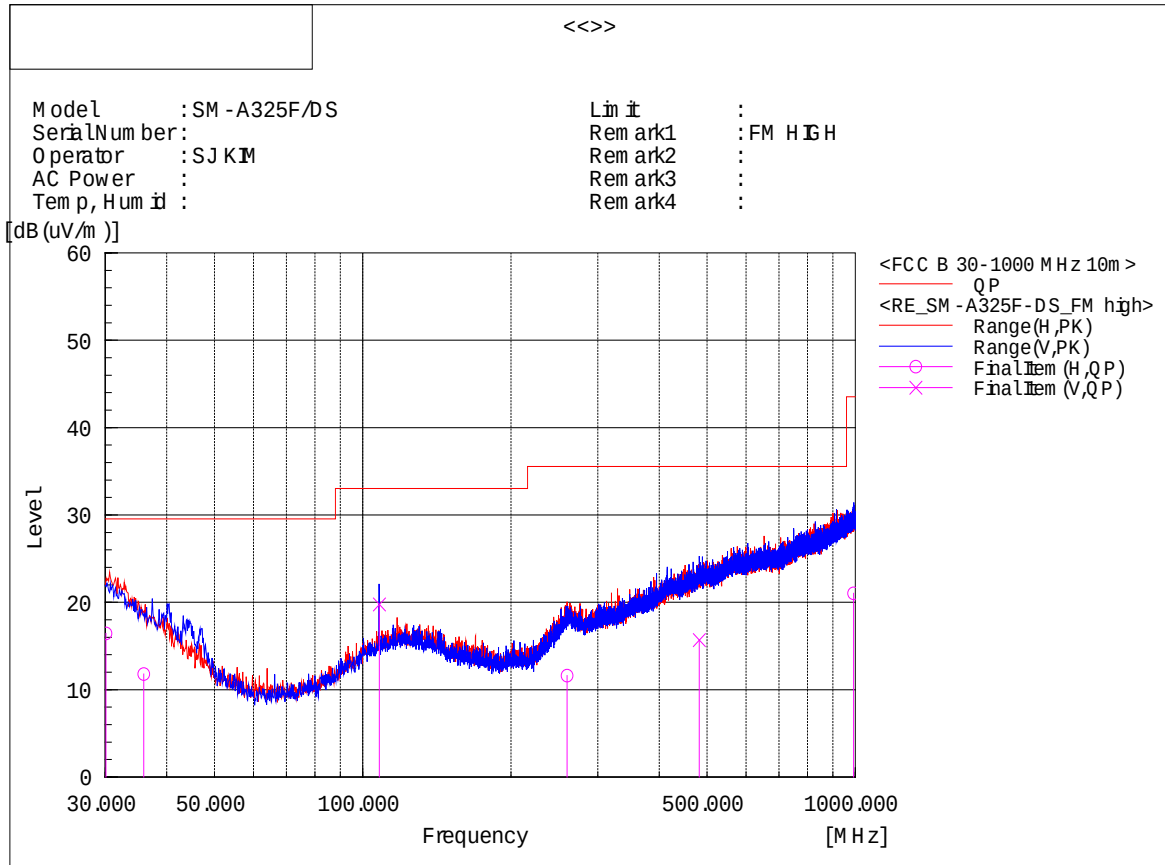
Note 2) Receiving antenna polarization : Horizontal, Vertical

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**

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	30.098	H	23.0	-6.6	16.4	29.5	13.1	101	153	1
2	35.903	H	22.0	-10.2	11.8	29.5	17.7	273	246	1
3	107.993	V	31.9	-12.1	19.8	33.0	13.2	104	44	2
4	259.769	H	21.9	-10.3	11.6	35.5	23.9	157	169	1
5	482.384	V	20.0	-4.3	15.7	35.5	19.8	382	82	2
6	992.482	H	20.1	0.9	21.0	43.5	22.5	200	85	1

* Radiated emissions (Rx frequency 107.993 MHz) from the transceiver shall be ignored

Note1) Receiving antenna polarization : Horizontal, Vertical

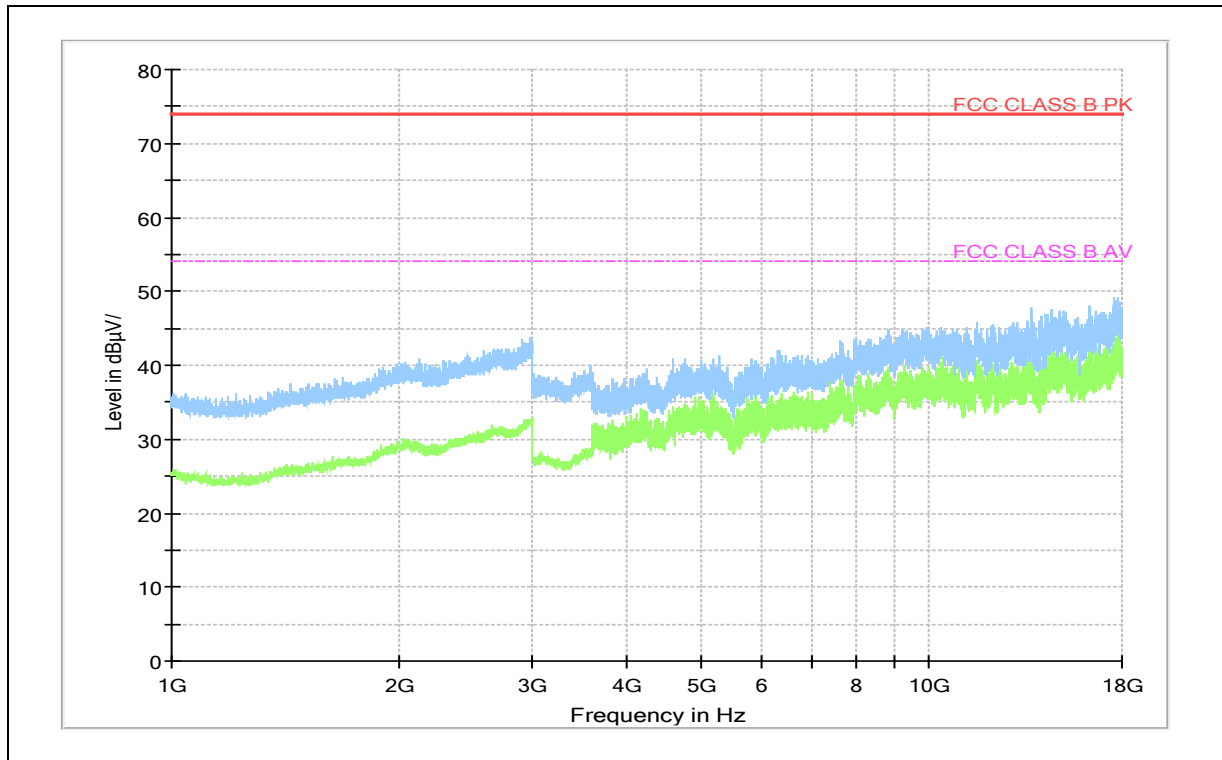
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain)

Margin (QP) = Limit - Level (QP)

QP = Quasi-Peak, c.f = Correction Factor

- 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

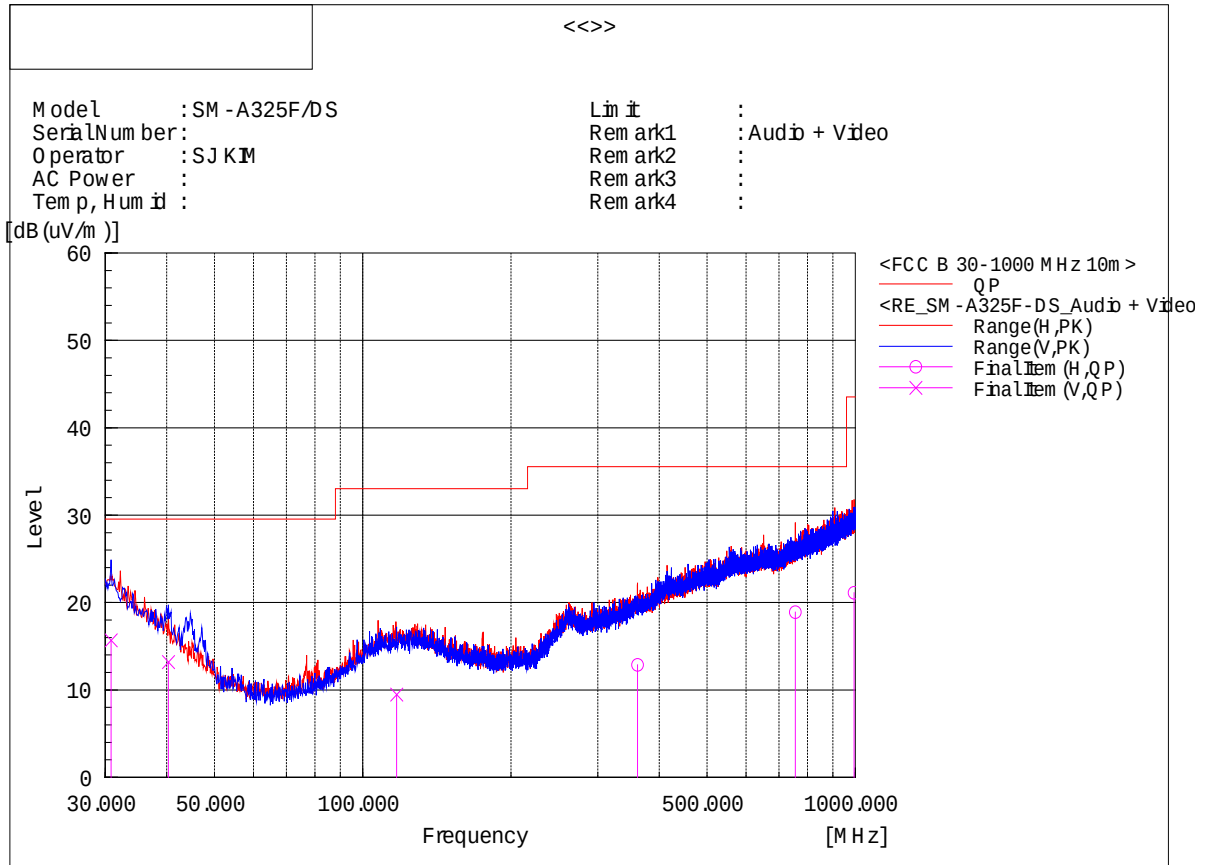
Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain)

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



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	30.849	V	22.2	-6.5	15.7	29.5	13.8	103	6	2
2	40.306	V	24.5	-11.3	13.2	29.5	16.3	349	234	2
3	117.179	V	21.1	-11.6	9.5	33.0	23.5	202	27	2
4	361.134	H	21.8	-8.9	12.9	35.5	22.6	294	346	1
5	755.196	H	21.7	-2.8	18.9	35.5	16.6	397	168	1
6	994.422	H	20.1	1.0	21.1	43.5	22.4	326	195	1

Note1) Receiving antenna polarization : Horizontal, Vertical

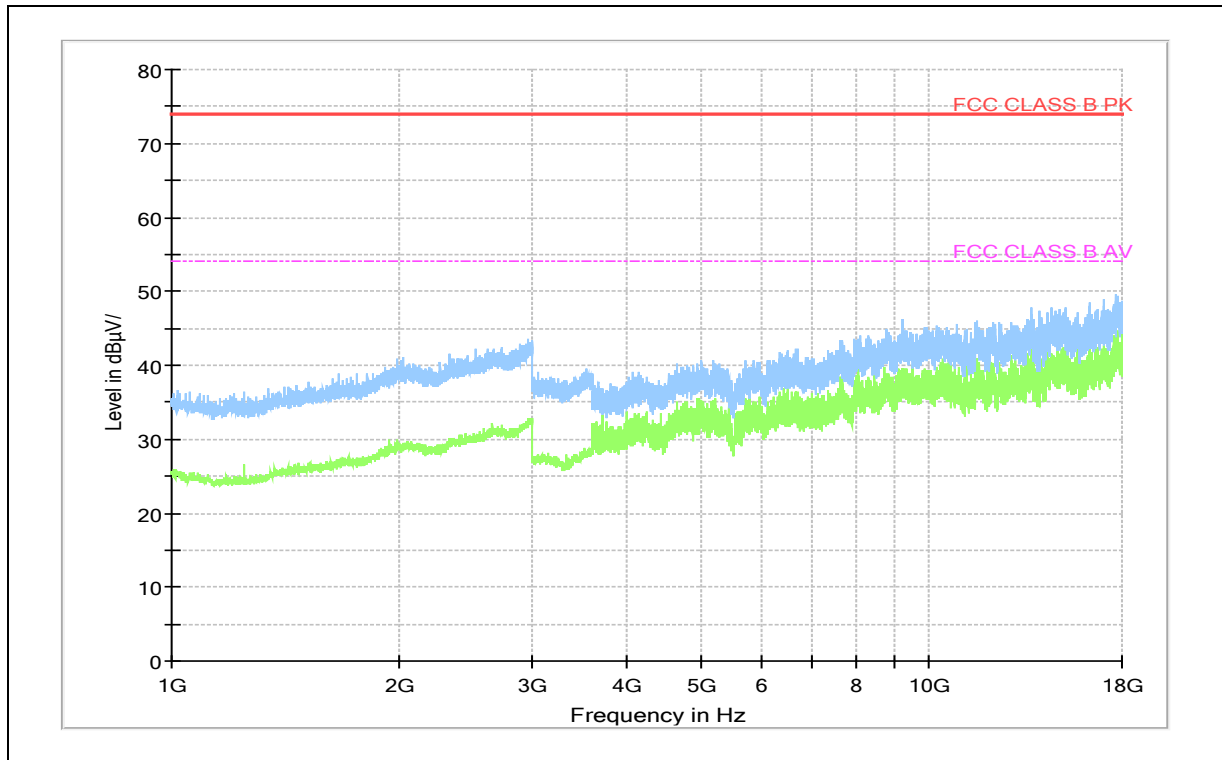
Test Distance : 10 m, Antenna Height : 1 to 4 meters

Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain)

Margin (QP) = Limit - Level (QP)

QP = Quasi-Peak, c.f = Correction Factor

- 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

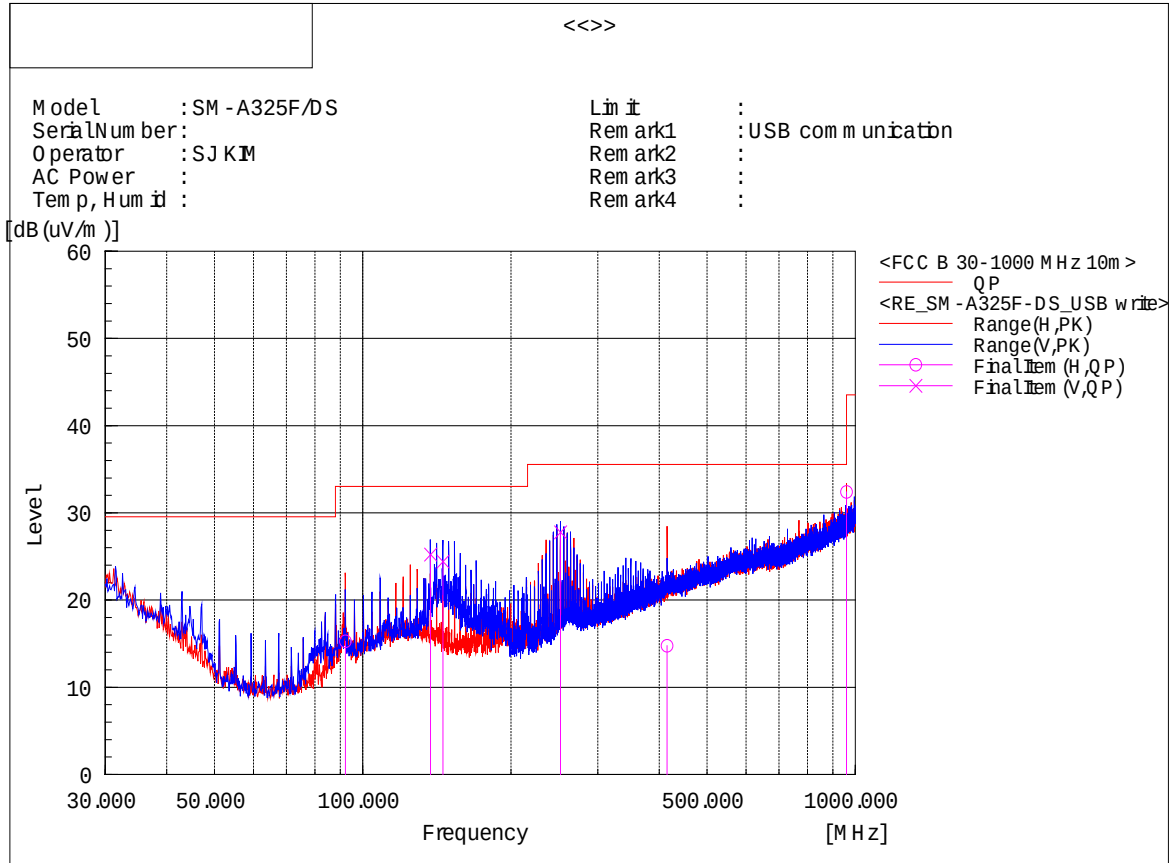
Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain)

Margin (PK and/or CAV) = Limit – Level (PK and/or CAV)

PK = Peak, CAV = CISPR-Average, Corr. = Correction Factor

☐ Operating Mode 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	92.227	H	31.2	-15.9	15.3	33.0	17.7	307	298	1
2	137.221	V	37.2	-12.0	25.2	33.0	7.8	100	226	2
3	145.442	V	36.9	-12.5	24.4	33.0	8.6	191	291	2
4	251.909	V	37.2	-9.4	27.8	35.5	7.7	104	165	2
5	414.549	H	21.8	-7.1	14.7	35.5	20.8	392	90	1
6	959.994	H	32.3	0.1	32.4	35.5	3.1	100	57	1

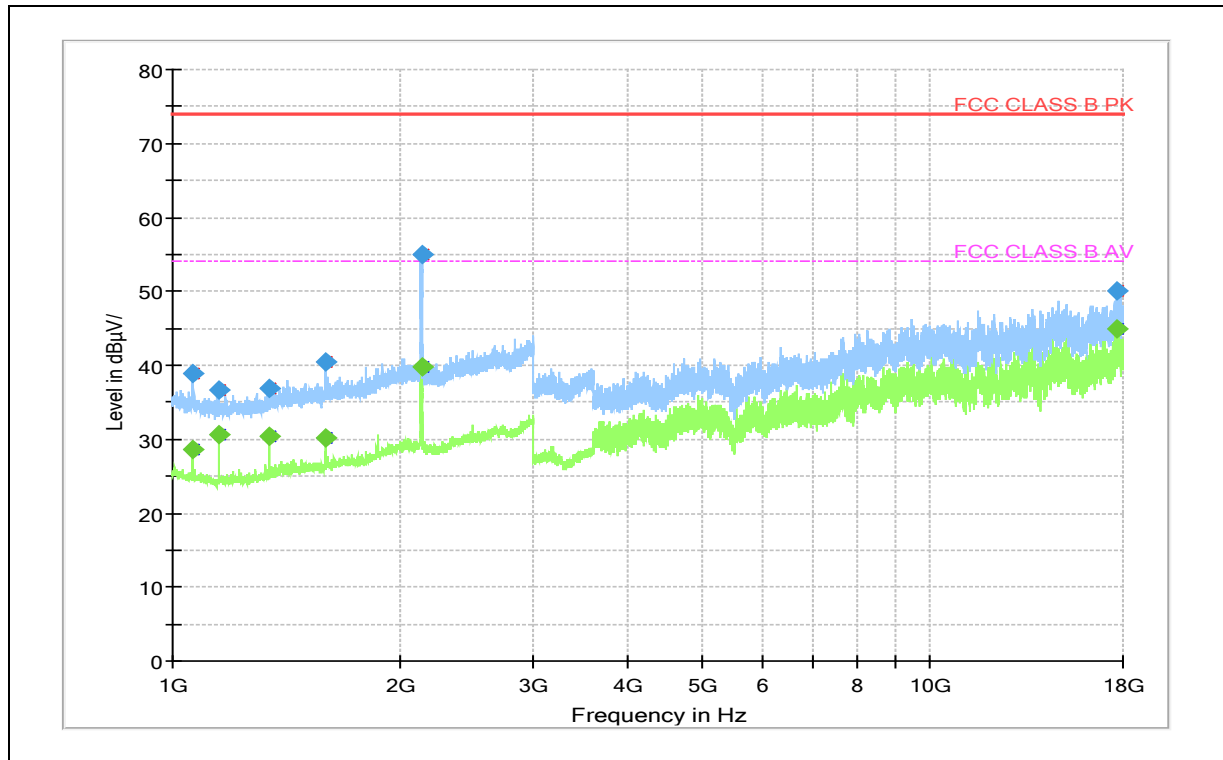
Note1) Receiving antenna polarization : Horizontal, Vertical

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

- Frequencies above 1 GHz

Frequency (MHz)	PK (dBμV/m)	CAV (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 064.400	---	28.58	54.00	25.42	101.1	H	331.0	7.1
1 064.400	38.83	---	74.00	35.17	102.3	H	331.0	7.1
1 152.000	36.57	---	74.00	37.44	100.0	H	65.0	6.9
1 152.000	---	30.63	54.00	23.37	101.0	H	65.0	6.9
1 344.000	36.90	---	74.00	37.10	103.2	H	75.0	8.4
1 344.000	---	30.45	54.00	23.55	105.4	H	75.0	8.4
1 596.400	---	30.12	54.00	23.88	102.3	V	125.0	10.2
1 596.400	40.47	---	74.00	33.53	100.7	V	125.0	10.2
2 131.600	---	39.70	54.00	14.30	104.1	V	136.0	13.0
2 132.800	55.03	---	74.00	18.97	105.4	V	136.0	13.0
17 706.000	---	45.00	54.00	9.00	100.5	H	17.0	34.1
17 726.500	50.05	---	74.00	23.95	101.0	V	185.0	34.6

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