

EMC TEST REPORT

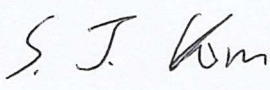
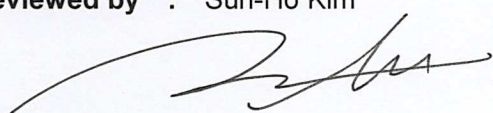
Project No.	LBE20210343	Issue No.	1
Applicant	Name of organization	Samsung Electronics Co., Ltd.	
	Address	(Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea	
	Date of receipt	May 21, 2021	
EUT	Type of device	☒ All other Receivers subject to part15 ☒ Class B Personal Computers and peripherals ☒ Other Class B digital devices and peripherals ☐ FM Broadcast Receiver	
	Equipment authorization	☒ Certification ☐ Supplier's Declaration of Conformity	
	FCC ID	A3LSMF926U	
	Kind of product	Mobile Phone	
	Model No.	SM-F926U	
	Variant Model No.	Refer to clause 4.6	
	Manufacturer	SAMSUNG ELECTRONICS CO., LTD. (GUMI) 302, 3 Gongdan 3-ro, Gumi-si, Gyengsangbuk-do, 39388, Republic of Korea	
Applied Standards		47 CFR Part 15, Subpart B, Class B / ANSI C63.4-2014	
Test Period		May 31, 2021 ~ June 2, 2021	
Issue date		June 8, 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. * Not KOLAS report			
Samsung Electronics Co., Ltd., Global CS Center (Maetan dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea			

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1. Report Information

1.1 Revision history

No.	Date of Issue	Revised detailed information
Issue 0	June 4, 2021	There are no revisions and this version is basic test report.
Issue 1	June 8, 2021	- MST and 5G n48 band was removed in clause 4.6. - The result of ISM band emissions for radiated emissions was removed in the result table in clause 5.2.3.

※ 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, 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-F926U	-	SAMSUNG	A3LSMF926U
B	Battery	EB-BF926ABY EB-BF927ABY	-	SDI	-
C	Headset	YBD-19HS	-	ALMUS	-
D	Data Cable	EP-DN980	-	RFTECH	-
E	Laptop Computer	Latitude5580	1WYRYM2	Dell	DoC
			D3HRYM2	Dell	DoC
F	Laptop AC Adapter	LA65NM130	5DEA	Dell	DoC
			5B3C	Dell	DoC
G	Mouse	AA-SM7PCPB	CN57BA5903634ADV 8JJCD4371	SAMSUNG	DoC
		SNJ-B138	Z5F8353	SAMSUNG	DoC
H	Router	DIR-806A	RF0F1D8018454	D-Link	DoC
			RF0F1D8011504	D-Link	DoC
I	Travel Adapter	EP-TA800	R37N9AQ92P8SE3	SOLU-M	-
J	DP Monitor	27DU88	711NTQD8H004	LG	DoC
K	DP Monitor Power Supply	LCAP31	EH8NN629490055062	LG	DoC
L	DP Cable	JCA141	BW2K1709000770	J5CREATE	DoC

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 (Triple) + Charging (w/ TA) + Cellular receiver (LTE FDD26 Center Frequency)
2	Camera (Single open) + Charging (w/ TA)
3	Camera (Single folded) + Charging (w/ TA)
4	Video + Audio playback from internal memory data + Charging (w/ TA)
5	USB Data Communication with PC (from internal memory data)

4.2.2 Radiated Emission

No.	Operating mode
1	Camera (Triple) + Charging (w/ TA)
2	Camera (Single open)
3	Camera (Single folded)
4	Video + Audio playback from internal memory data(w/ Headset)
5	Video + Audio playback from internal memory data + Display out
6	USB Data Communication with PC (from internal memory data)

4.3 Details of Sampling

Customer selected, single unit.

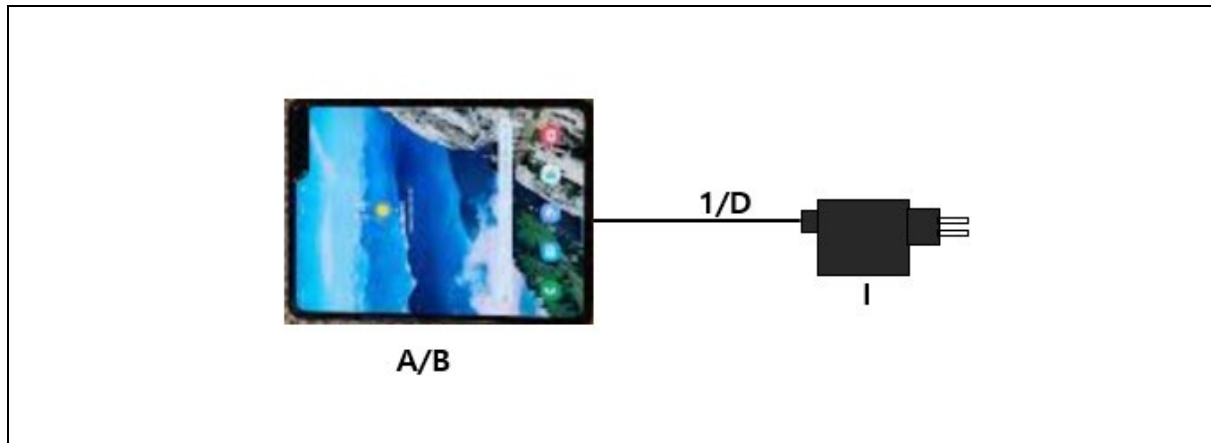
4.4 Used cable description

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:

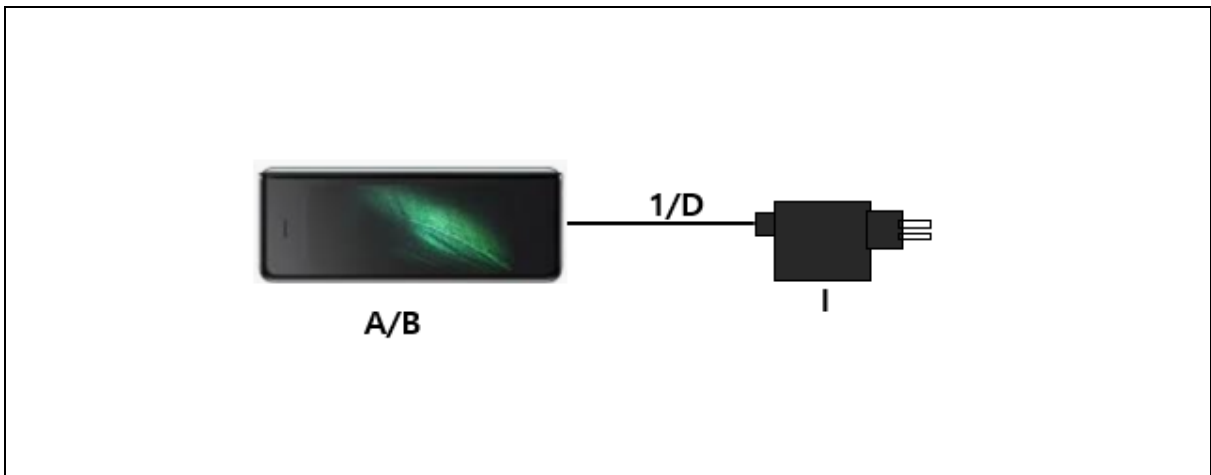
No.	Connected cable	Length [m]	Shielded [Y/N]	Note
1	Data Cable	1.0	Y	From EUT to Laptop Computer or TA
2	Headset	1.2	N	For EUT
3	Power	1.8	N	From Laptop Computer to AC Adapter
4	Power	1.5	N	For Laptop AC Adapter
5	LAN	1.5	N	From Laptop Computer to Router
6	USB	0.8	Y	From Laptop Computer to Router for DC Power
7	USB	1.8	Y	From Laptop Computer to Mouse
8	DP Cable	1.1	Y	From EUT to DP Monitor
9	Power	1.2	N	From DP Monitor to Power Supply
10	Power	2.2	N	For DP Monitor Power Supply

4.5 Test arrangement

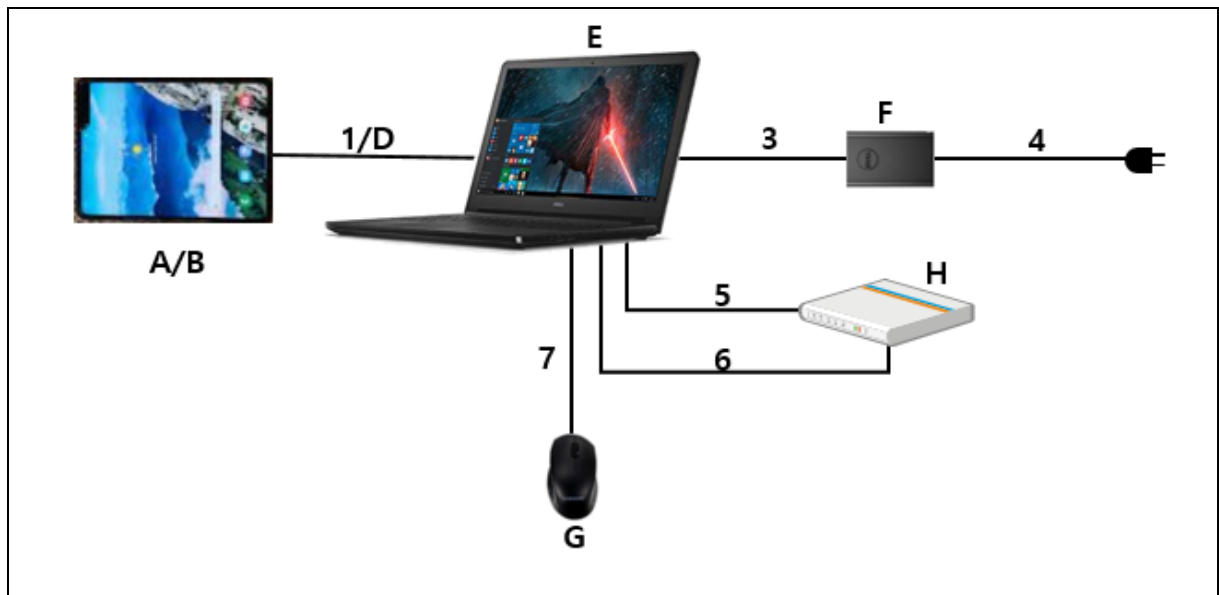
4.5.1 Conducted Emission



[Mode 1 – 2, 4]

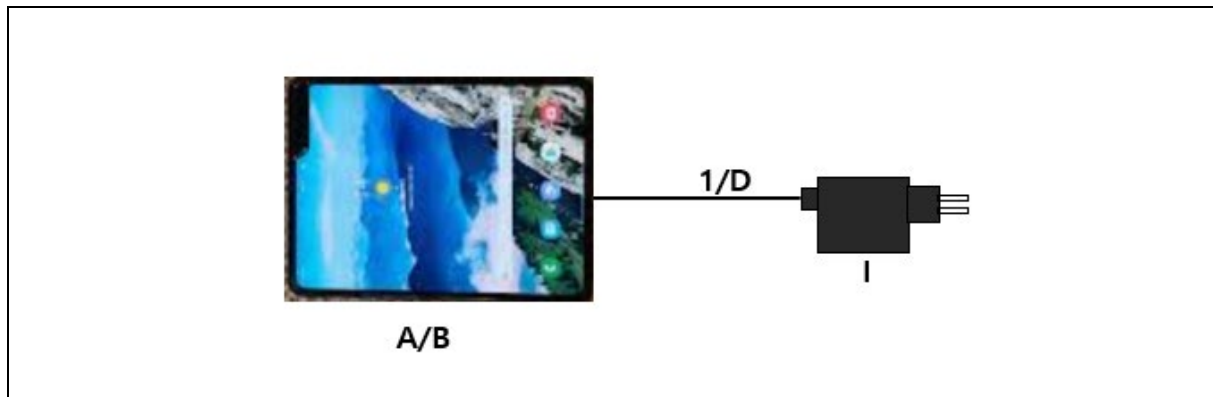


[Mode 3]

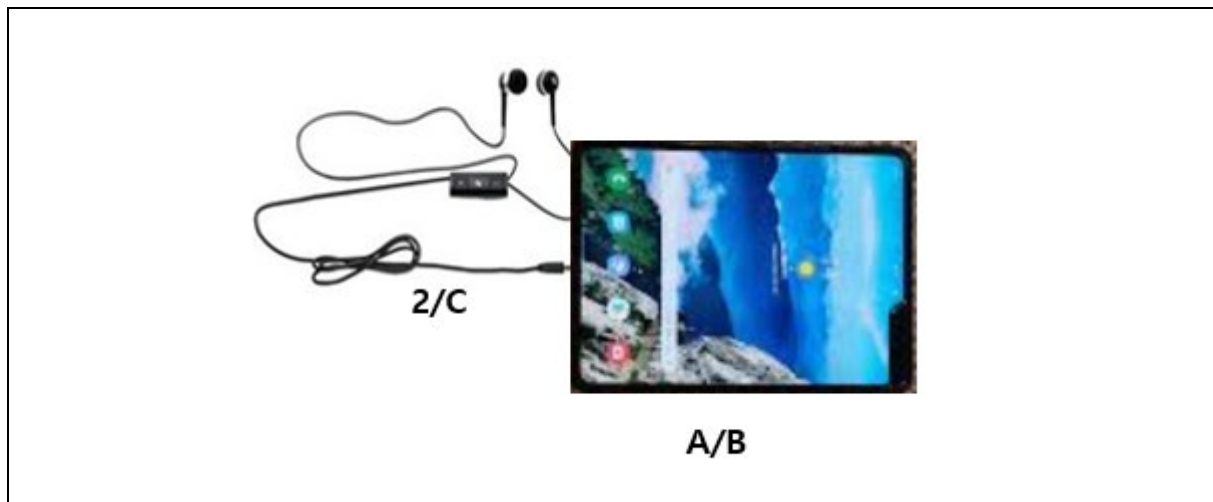


[Mode 5]

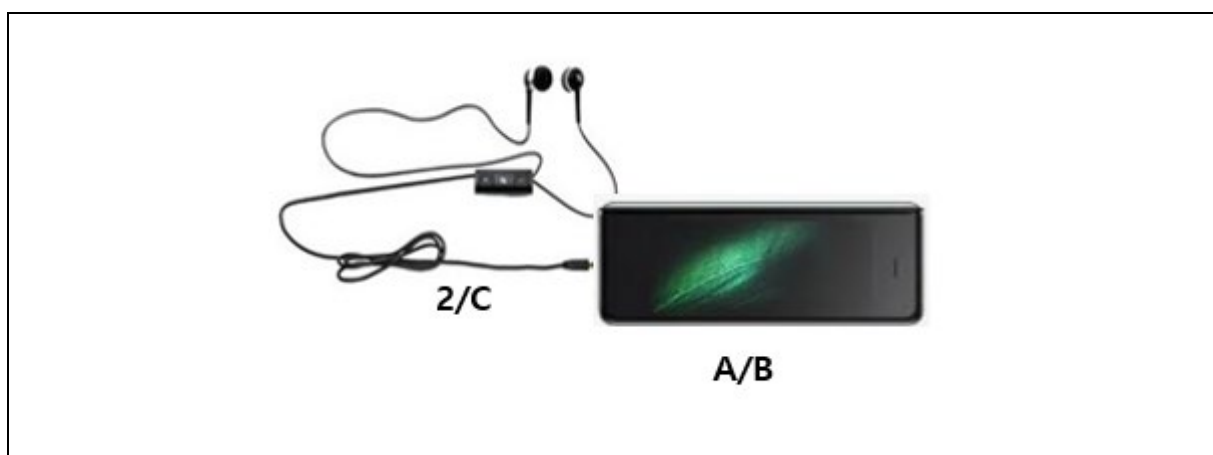
4.5.2 Radiated Emission



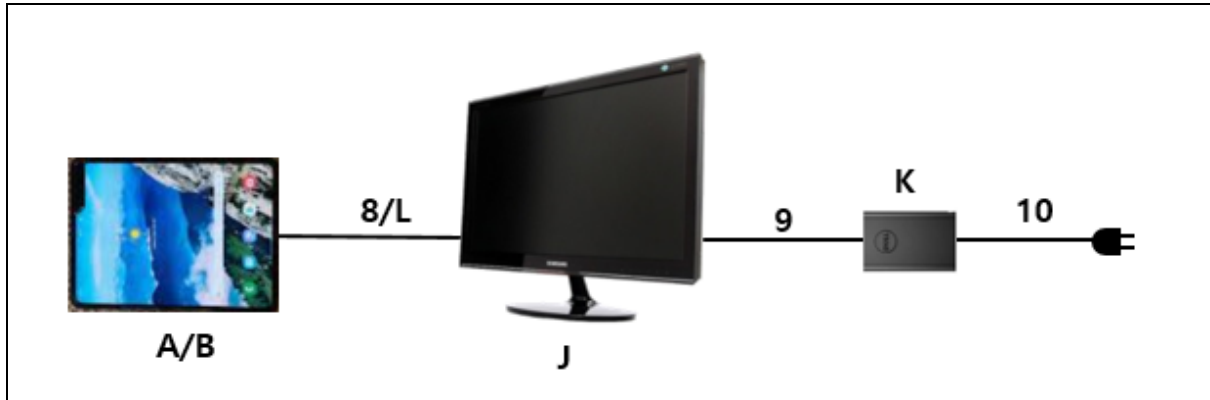
[Mode 1]



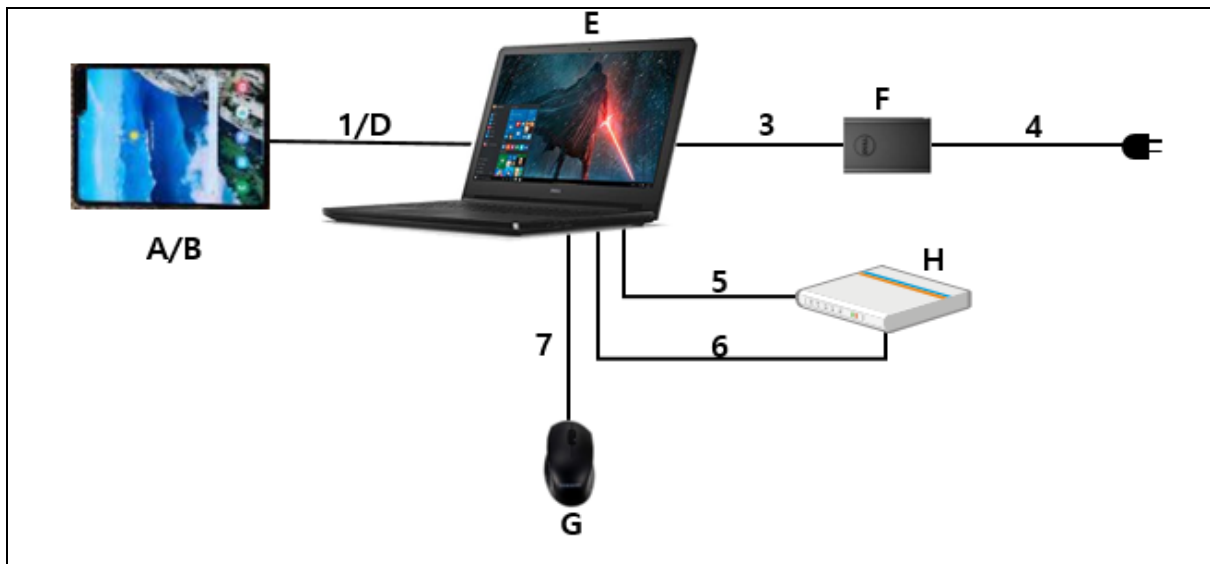
[Mode 2, 4]



[Mode 3]



[Mode 5]



[Mode 6]

4.6 EUT Description

The EUT is a foldable type mobile phone which can operate on GSM850/900/1800/1900, WCDMA FDD1/2/4/5/8, LTE FDD1/2/3/4/5/7/8/12/13/14/18/19/20/25/26/28/29/30/66/71, LTE TDD38/39/40/41/46/48, 5G NR n2/5/12/25/30/41/66/71/77/78/260/261, CDMA BC0/BC1/BC10 bands and incorporates a Bluetooth, Wi-Fi, Camera, Audio, Video, GNSS, NFC, UWB, Displayport, S-PEN and Wireless Charging.

4.6.1 The variant models

- SM-F926U1

4.7 EUT Frequencies

The highest frequencies (Generated and used)	Frequency [MHz]
UWB	8 250
NR n260	40 000

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(if available), 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 LTE FDD26 RX Test mode at center frequency. All licensed communication (850MHz) 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

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. approximately 95 %, $k = 2$)
Conducted Emission	AC Mains	2.83 dB
Radiated Emission (Below 1 GHz)	Horizontal	4.47 dB
	Vertical	5.67 dB
Radiated Emission (Above 1 GHz)	Horizontal	5.21 dB
	Vertical	5.21 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 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

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

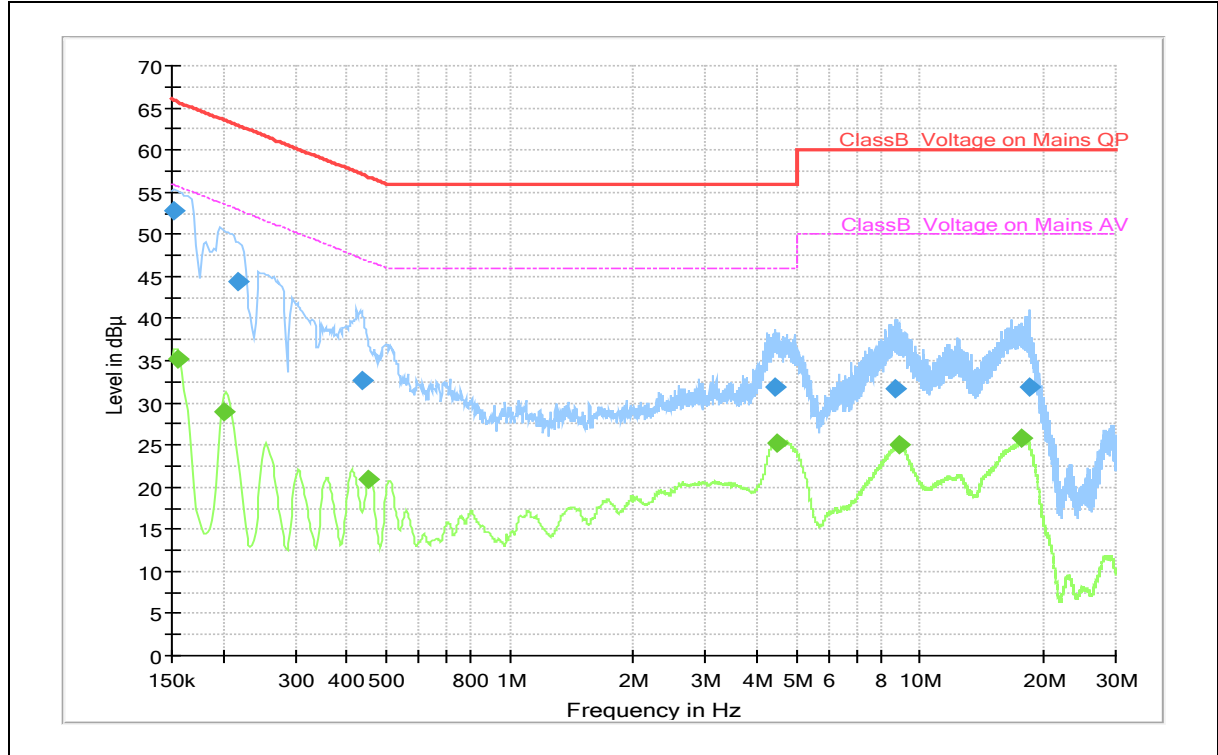
EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Next Calibration	
					Date	Interval (Month)
E5I-006	LTE Communicator	CMW500	R&S	132728	2022-04-06	12
E5I-015	EMI Test Receiver	ESU8	R&S	100481	2021-07-01	12
E5I-127	LISN	ENV216	R&S	102061	2021-07-29	12
-	Test software	EMC32	R&S	Ver 9.26.01	-	-

5.1.2 Temperature and humidity condition

Test date	2021-05-31	Test engineer	Soo-Joon Kim
Climate condition	Ambient temperature	(23.3 ± 0.5) °C	Limit (15.0 to 35.0) °C
	Relative humidity	(50.1 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(100.1 ± 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.

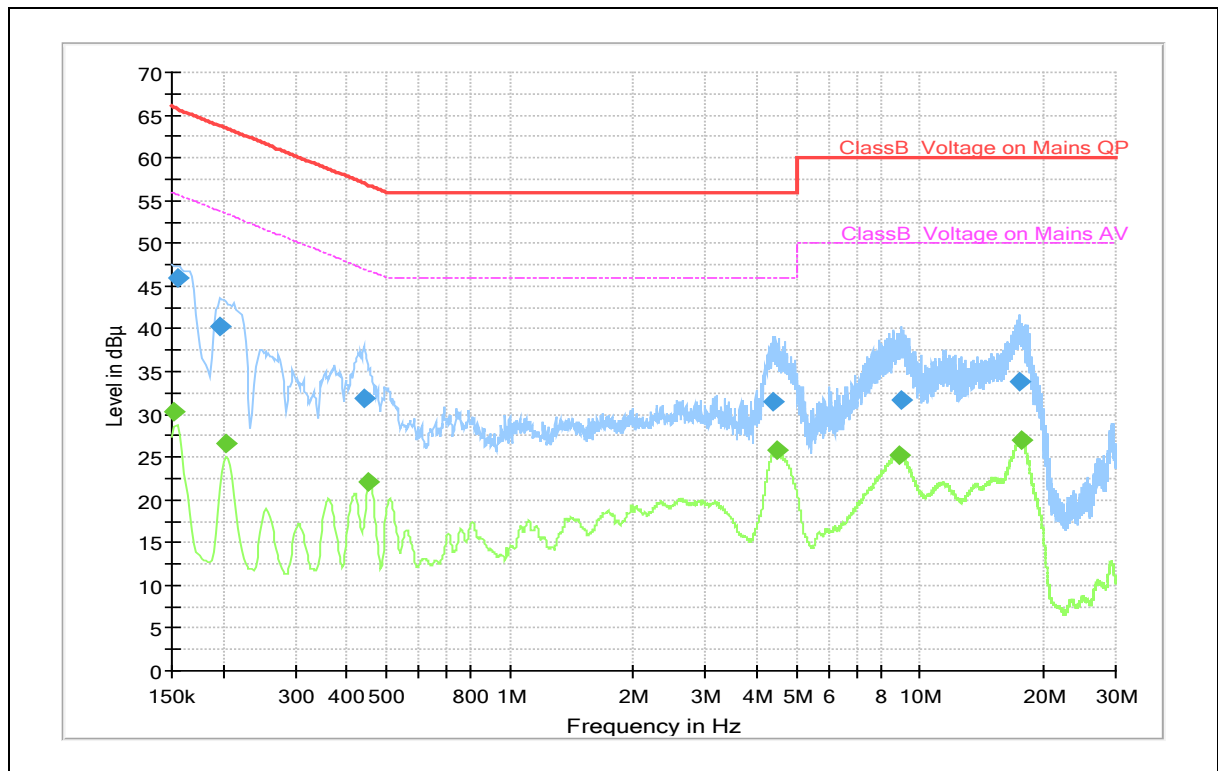
QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.152	52.72	---	65.88	13.15	L1	10.0
0.155	---	35.25	55.75	20.51	N	10.0
0.202	---	28.95	53.54	24.59	N	10.0
0.218	44.34	---	62.91	18.58	L1	10.0
0.436	32.72	---	57.14	24.42	N	10.2
0.454	---	21.02	46.81	25.79	N	10.2
4.430	31.85	---	56.00	24.15	L1	10.0
4.466	---	25.32	46.00	20.68	L1	10.0
8.709	31.66	---	60.00	28.34	L1	10.1
8.853	---	25.02	50.00	24.98	L1	10.1
17.673	---	25.86	50.00	24.14	L1	10.4
18.418	31.82	---	60.00	28.18	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

☐ Operating Mode 2: AC Mains


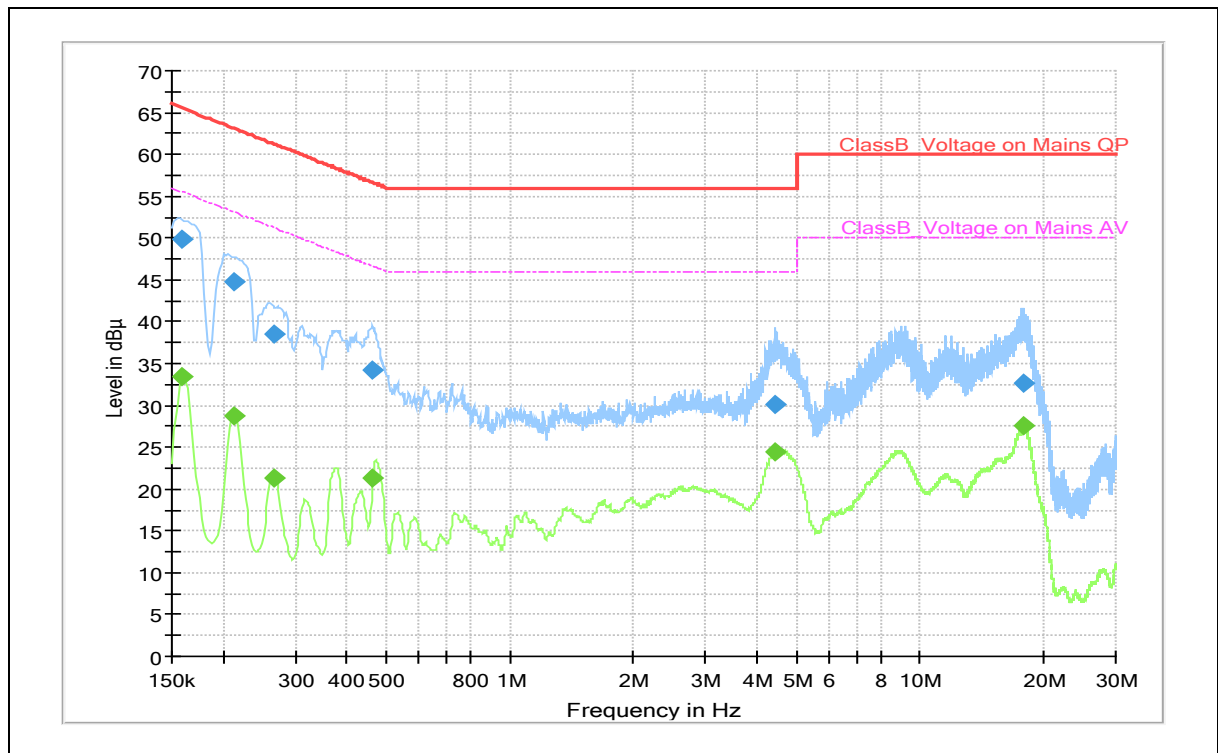
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.152	---	30.38	55.88	25.49	N	10.0
0.155	45.96	---	65.75	19.80	L1	10.0
0.197	40.30	---	63.73	23.43	L1	10.1
0.204	---	26.62	53.45	26.82	N	10.0
0.440	31.81	---	57.06	25.24	N	10.2
0.454	---	22.04	46.81	24.77	N	10.2
4.369	31.43	---	56.00	24.57	L1	10.0
4.481	---	25.90	46.00	20.10	N	10.0
8.900	---	25.29	50.00	24.71	L1	10.1
9.029	31.64	---	60.00	28.36	L1	10.1
17.500	33.78	---	60.00	26.22	L1	10.4
17.725	---	26.91	50.00	23.09	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

□ Operating Mode 3: AC Mains



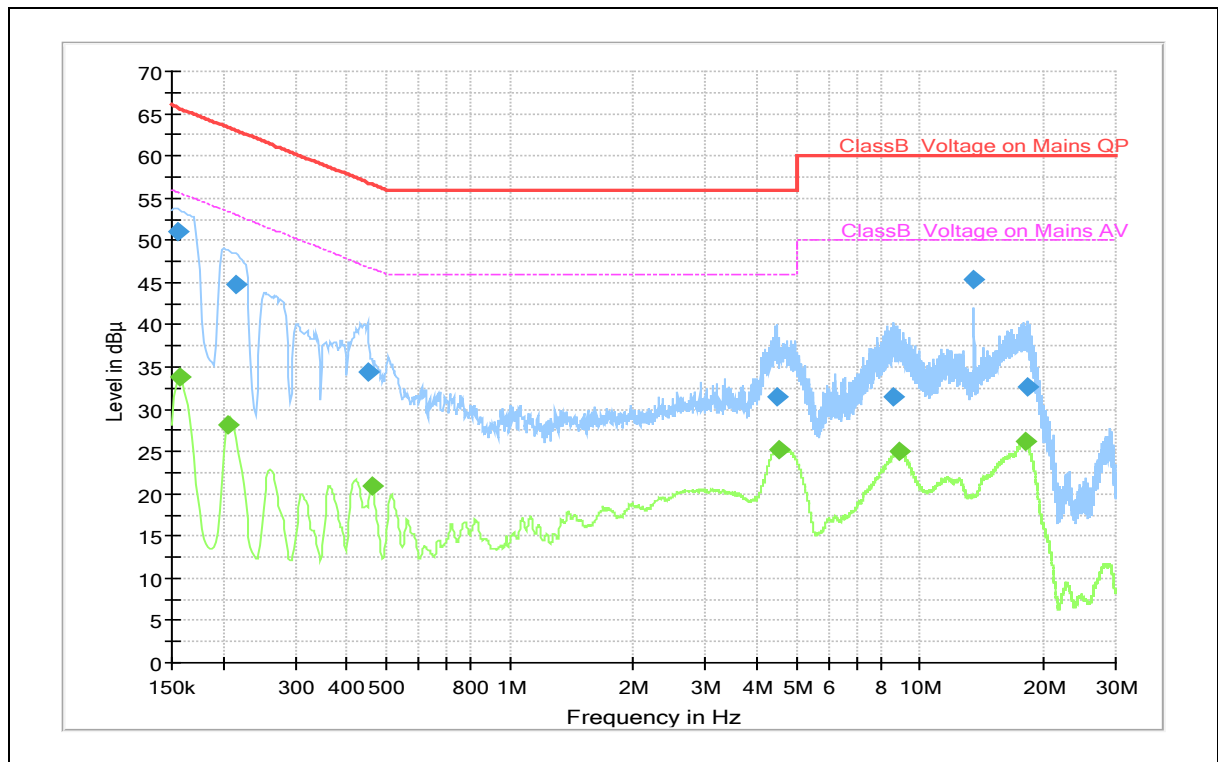
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.159	---	33.44	55.52	22.08	L1	10.1
0.159	49.78	---	65.52	15.73	L1	10.1
0.213	---	28.76	53.09	24.32	L1	10.0
0.213	44.76	---	63.09	18.33	L1	10.0
0.265	38.50	---	61.28	22.78	L1	9.9
0.265	---	21.32	51.28	29.96	L1	9.9
0.463	---	21.39	46.64	25.25	L1	10.2
0.463	34.14	---	56.64	22.50	L1	10.2
4.412	30.12	---	56.00	25.88	N	10.0
4.412	---	24.47	46.00	21.53	N	10.0
17.900	---	27.55	50.00	22.45	N	10.6
17.900	32.73	---	60.00	27.27	N	10.6

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



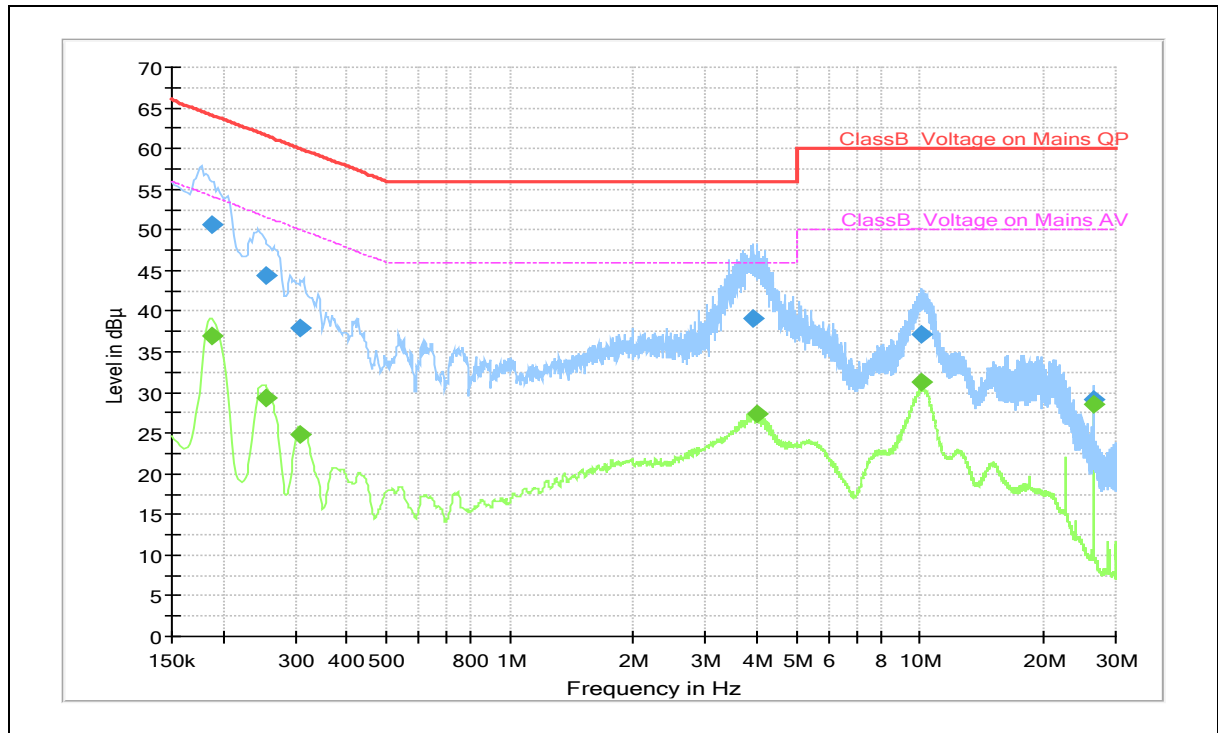
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.155	51.01	---	65.75	14.74	L1	10.0
0.157	---	33.89	55.63	21.74	N	10.1
0.206	---	28.12	53.36	25.24	N	10.0
0.215	44.84	---	63.00	18.16	N	10.0
0.449	34.40	---	56.89	22.49	N	10.2
0.461	---	20.89	46.68	25.79	N	10.2
4.486	31.49	---	56.00	24.52	L1	10.0
4.553	---	25.26	46.00	20.74	N	10.0
8.597	31.41	---	60.00	28.59	L1	10.1
8.867	---	25.04	50.00	24.96	L1	10.1
13.560	45.45	---	60.00	14.55	N	10.4
18.132	---	26.27	50.00	23.73	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

□ 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)
0.188	---	36.93	54.11	17.18	N	10.0
0.188	50.67	---	64.11	13.45	N	10.0
0.254	---	29.39	51.64	22.25	L1	9.7
0.254	44.38	---	61.64	17.26	L1	9.7
0.310	37.88	---	59.98	22.10	L1	9.9
0.310	---	24.84	49.98	25.13	L1	9.9
3.914	39.13	---	56.00	16.87	L1	9.8
4.025	---	27.29	46.00	18.71	N	9.8
10.055	---	31.24	50.00	18.76	L1	9.8
10.097	37.06	---	60.00	22.94	L1	9.8
26.624	29.06	---	60.00	30.94	N	10.0
26.624	---	28.45	50.00	21.55	N	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

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 3 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 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-021	EMI Test Receiver	ESU40	R&S	100376	2022-02-04	12
E5I-072	BiLog Antenna	CBL6112D	TESEQ	36009	2022-05-15	24
E5I-223	6 dB Fixed Attenuator	8491B-006	Agilent	58359	2022-05-15	24
E5I-093	Preamplifier	310N	SONOMA	273122	2022-01-21	12
E5I-035	Horn Antenna	HF907	R&S	100506	2021-08-30	24
E5I-040	Signal Conditioning Unit	SCU-18	R&S	10210	2022-04-06	12
E5I-037	WideBand Horn Antenna	WBH 18-40K	R&S	11201	2023-02-15	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	-	-

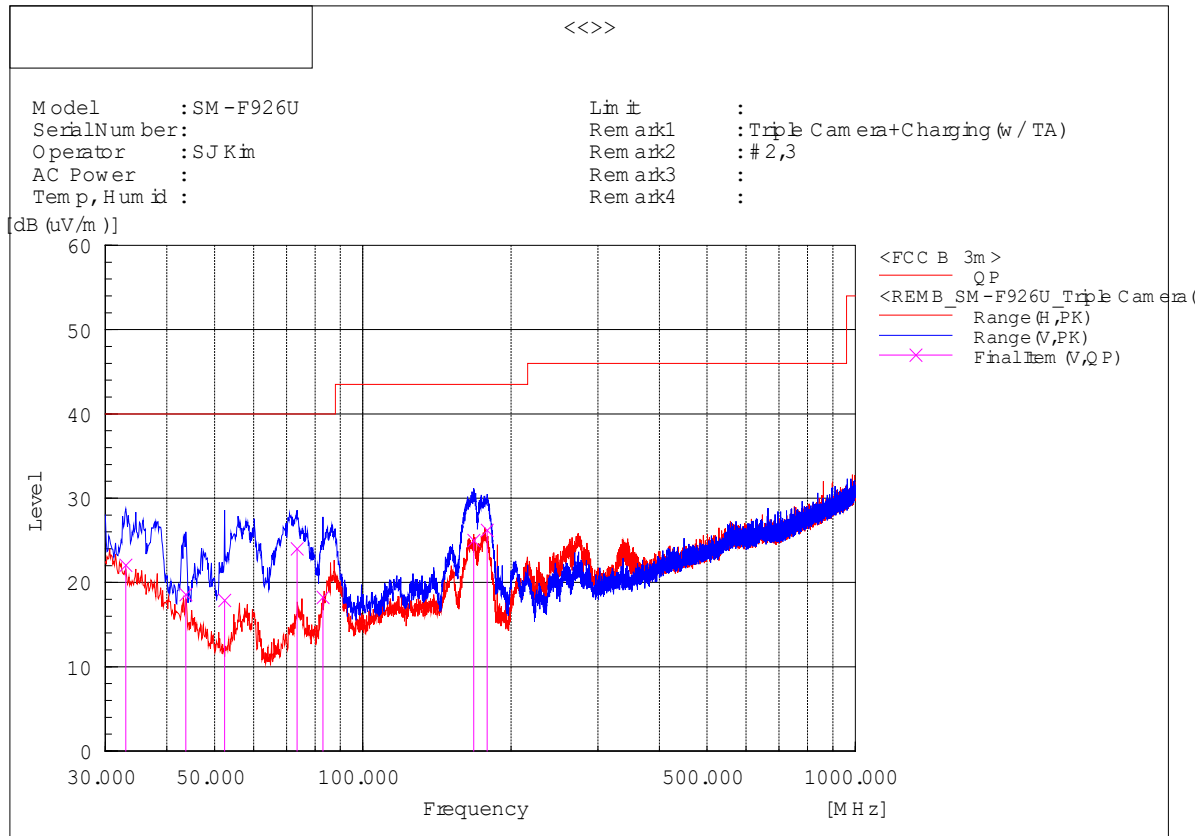
5.2.2 Temperature and humidity condition

Test date	2021-06-01 ~ 2021-06-02	Test engineer	Soo-Joon Kim
Climate condition	Ambient temperature	(23.3 ± 0.5) °C	Limit (15.0 to 35.0) °C
	Relative humidity	(46.7 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.1 ± 0.5) kPa	Limit (86.0 to 106.0) kPa
Test place	Semi-Anechoic Chamber (SAC5)		

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]
1	33.031	V	30.1	-8.0	22.1	40.0	17.9	100	13
2	43.701	V	32.5	-13.9	18.6	40.0	21.4	115	195
3	52.431	V	35.8	-17.9	17.9	40.0	22.1	100	103
4	73.529	V	42.1	-18.1	24.0	40.0	16.0	116	285
5	82.986	V	35.4	-17.2	18.2	40.0	21.8	135	94
6	167.861	V	39.2	-14.2	25.0	43.5	18.5	100	75
7	178.895	V	40.8	-14.6	26.2	43.5	17.3	100	126

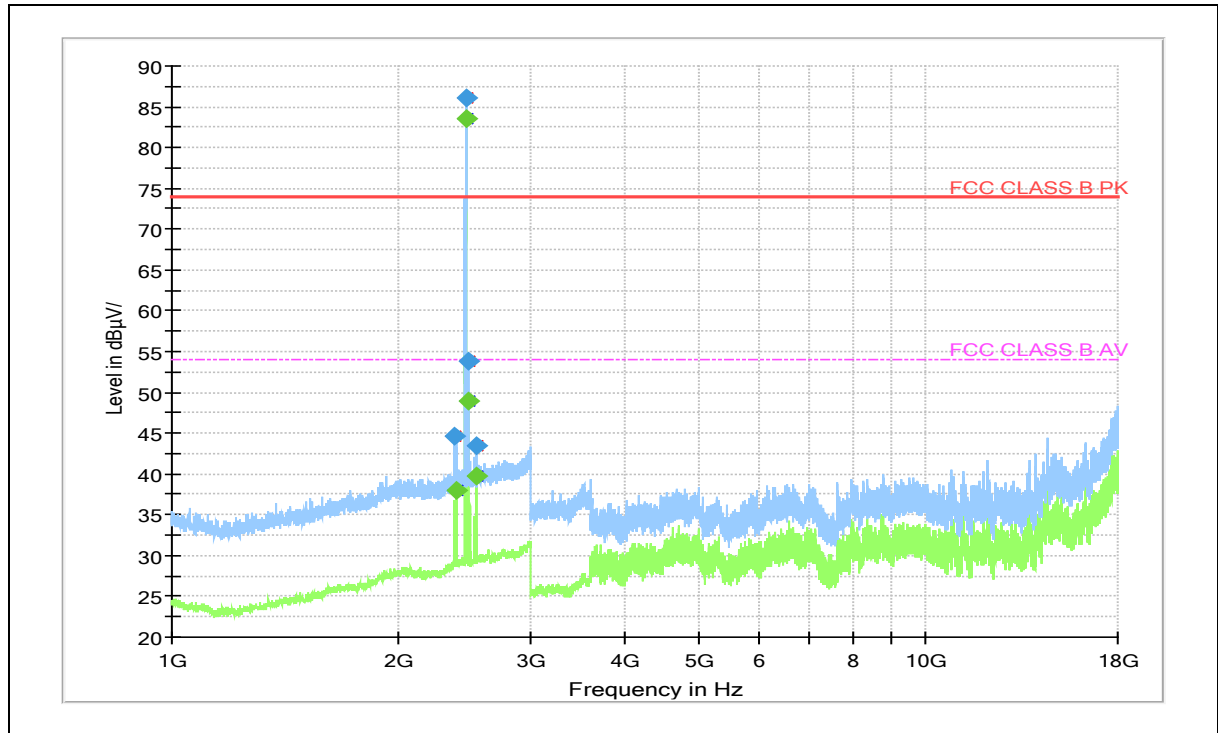
Note1) Receiving antenna polarization : Horizontal, Vertical

Test Distance : 3 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)
2 377.000	44.72	---	74.00	29.28	102.0	H	94.0	12.6
2 392.500	---	37.90	54.00	16.10	106.0	H	325.0	12.7
2 530.000	---	39.75	54.00	14.25	108.0	H	325.0	13.3
2 530.000	43.51	---	74.00	30.49	102.0	H	325.0	13.3

Note 1) We have also tested from 18 GHz to 40 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

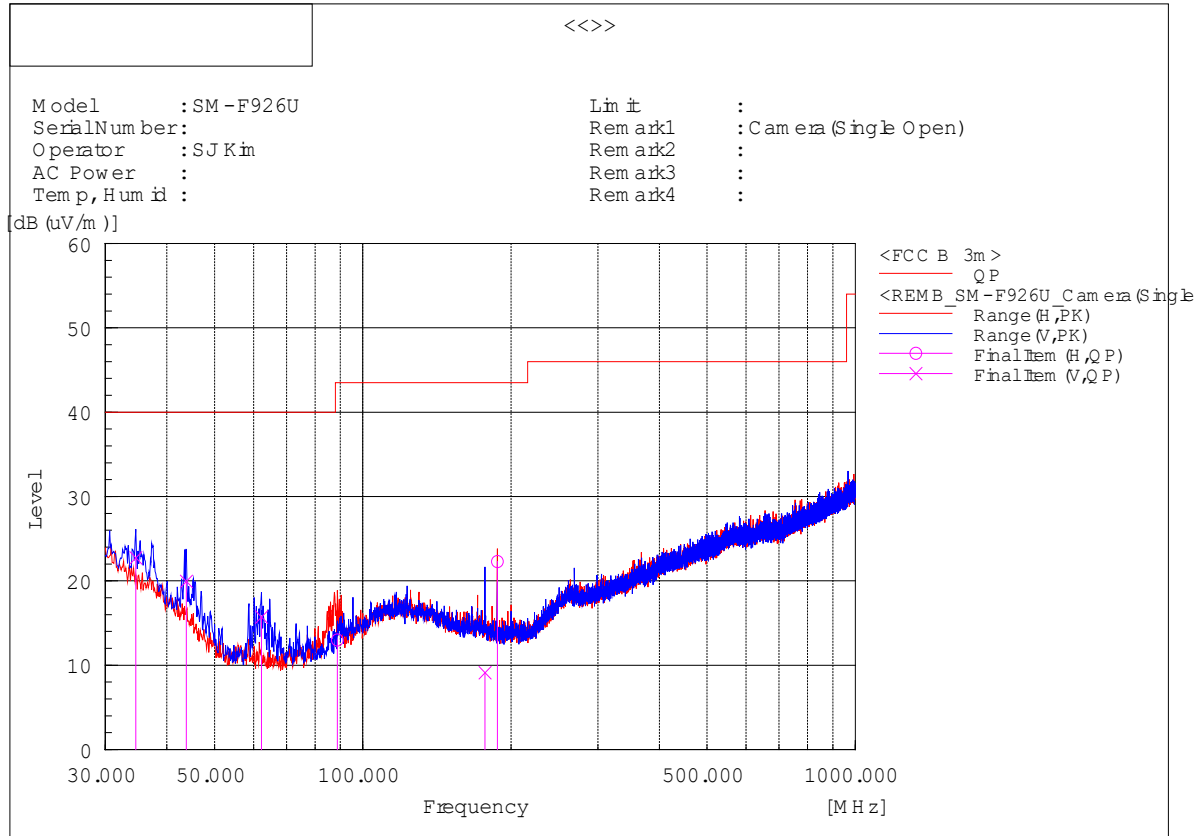
Note 3) Radiated emissions (Tx / Rx frequency) from the transceiver shall be ignored.

- Data transmission in the 2.4 GHz ISM band (Bluetooth/Wi-Fi 802.11b/g/n)

: Operating frequencies (2 400 ~ 2 483.5) MHz

☐ 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]
1	34.608	V	31.5	-8.8	22.7	40.0	17.3	100	324
2	43.823	V	34.0	-14.0	20.0	40.0	20.0	382	262
3	62.253	V	34.4	-18.7	15.7	40.0	24.3	100	64
4	88.806	H	29.3	-16.3	13.0	43.5	30.5	200	150
5	177.076	V	23.6	-14.5	9.1	43.5	34.4	101	293
6	187.504	H	37.3	-15.0	22.3	43.5	21.2	101	237

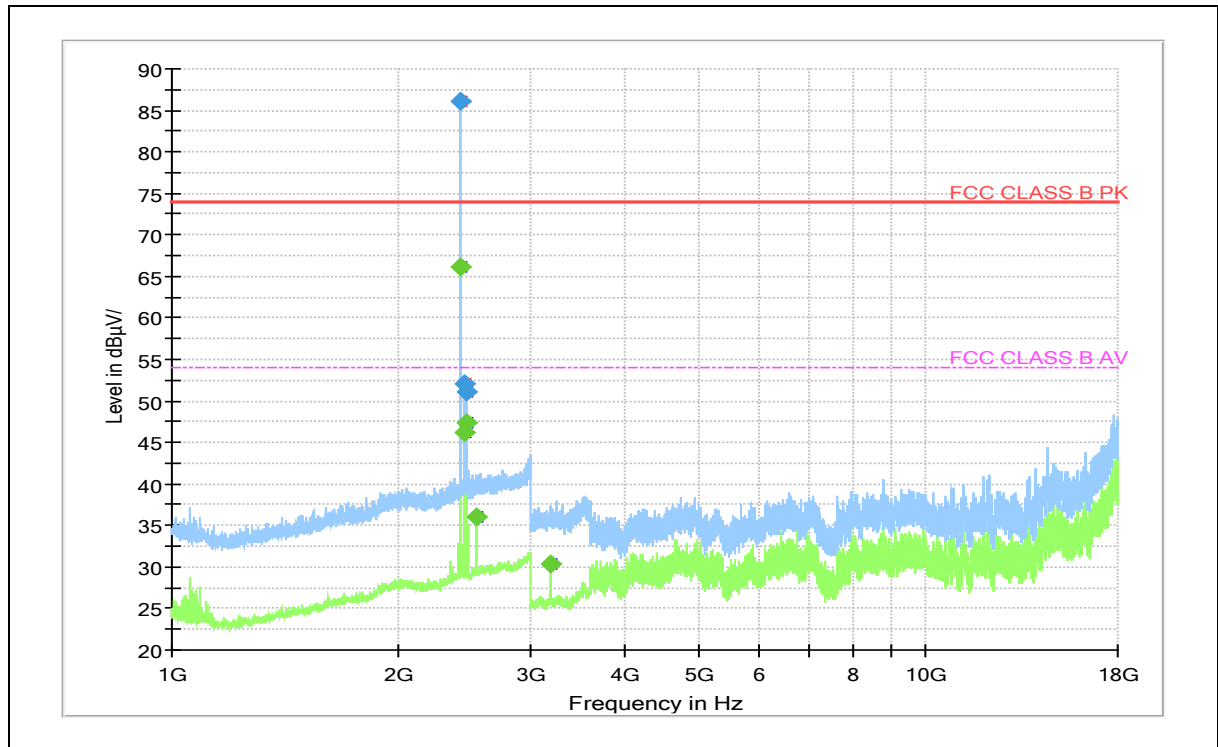
Note1) Receiving antenna polarization : Horizontal, Vertical

Test Distance : 3 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)
2 540.000	---	35.98	54.00	18.02	104.0	H	132.0	13.4
3 174.000	---	30.45	54.00	23.55	102.0	H	280.0	0.8

Note 1) We have also tested from 18 GHz to 40 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

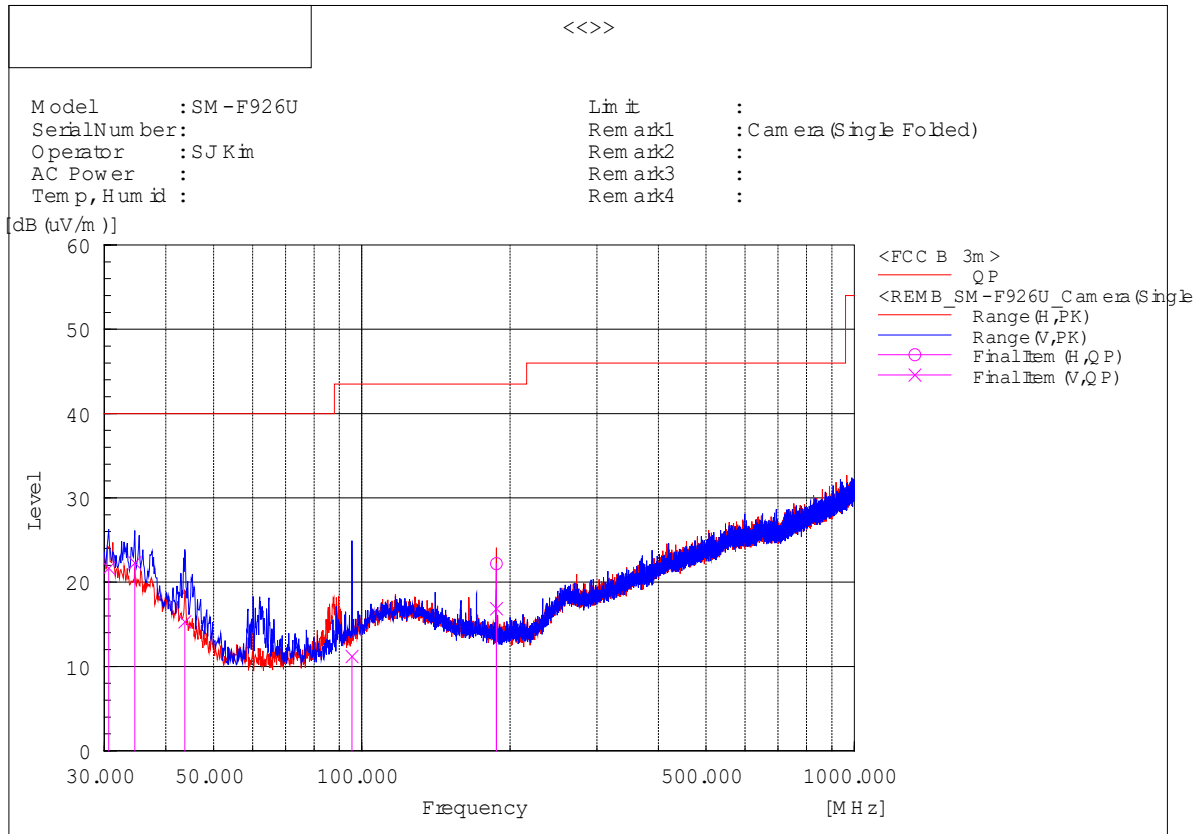
Note 3) Radiated emissions (Tx / Rx frequency) from the transceiver shall be ignored.

- Data transmission in the 2.4 GHz ISM band (Bluetooth/Wi-Fi 802.11b/g/n)

: Operating frequencies (2 400 ~ 2 483.5) MHz

☐ 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]
1	30.606	V	28.5	-6.9	21.6	40.0	18.4	119	333
2	34.608	V	31.1	-8.8	22.3	40.0	17.7	100	355
3	43.701	V	29.2	-13.9	15.3	40.0	24.7	119	2
4	95.475	V	26.1	-14.9	11.2	43.5	32.3	335	329
5	187.504	V	31.9	-15.0	16.9	43.5	26.6	100	34
6	187.504	H	37.2	-15.0	22.2	43.5	21.3	100	87

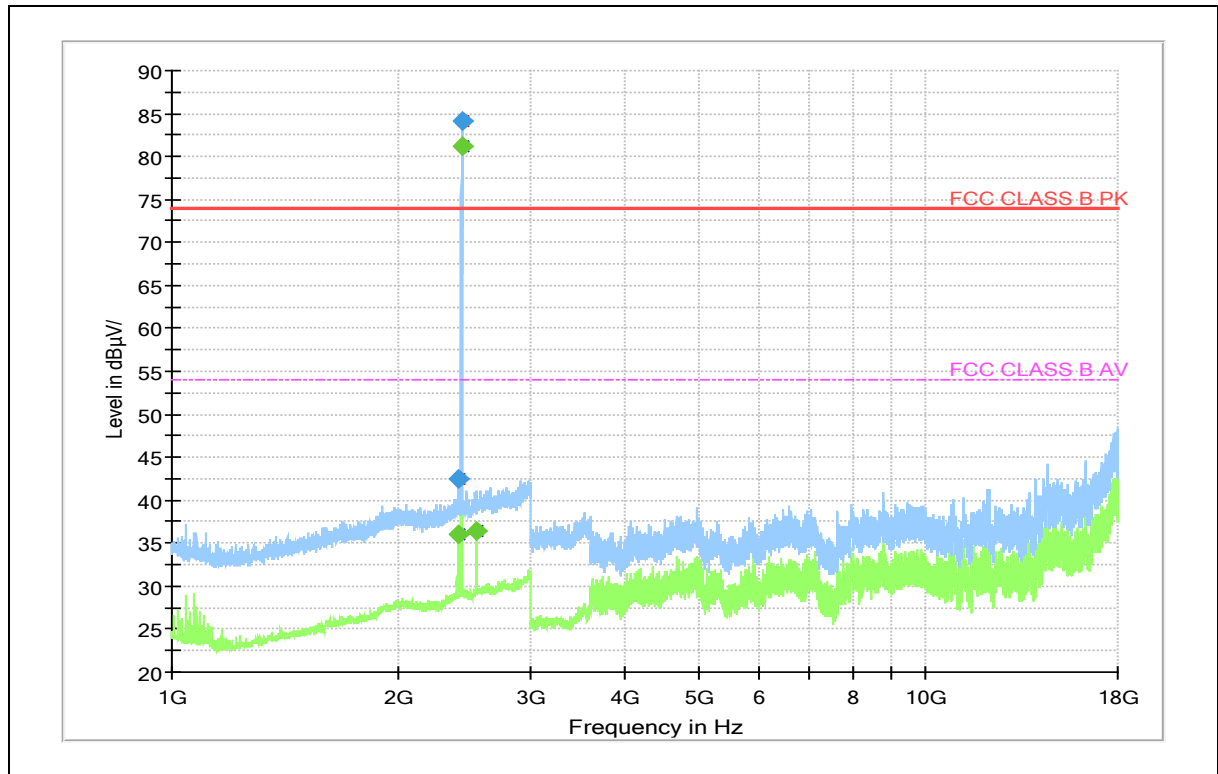
Note1) Receiving antenna polarization : Horizontal, Vertical

Test Distance : 3 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)
2 530.000	---	36.46	54.00	17.54	101.0	H	269.0	13.3

Note 1) We have also tested from 18 GHz to 40 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

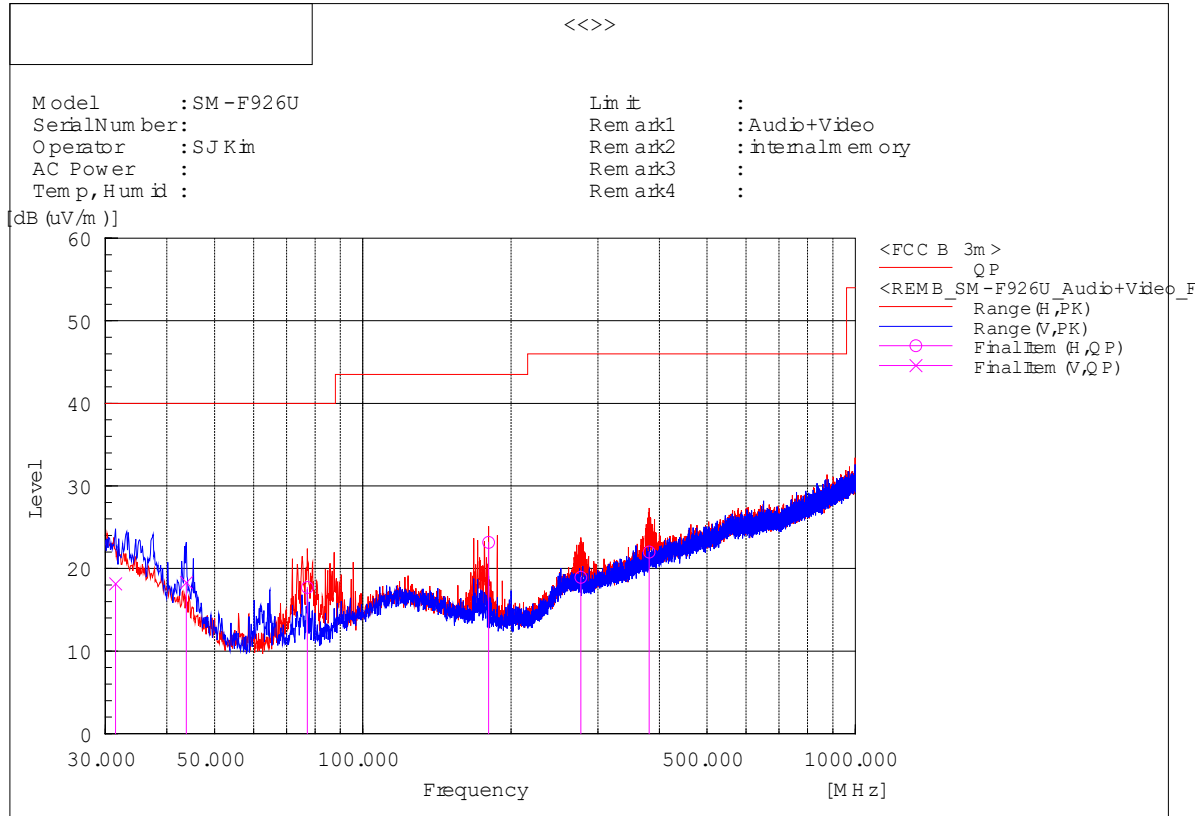
Note 3) Radiated emissions (Tx / Rx frequency) from the transceiver shall be ignored.

- Data transmission in the 2.4 GHz ISM band (Bluetooth/Wi-Fi 802.11b/g/n)

: Operating frequencies (2 400 ~ 2 483.5) MHz

□ 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]
1	31.455	V	25.5	-7.3	18.2	40.0	21.8	109	120
2	43.823	V	32.3	-14.0	18.3	40.0	21.7	352	266
3	77.166	H	35.6	-17.9	17.7	40.0	22.3	236	136
4	179.986	H	37.8	-14.6	23.2	43.5	20.3	132	13
5	277.229	H	29.6	-10.7	18.9	46.0	27.1	100	91
6	381.504	H	30.0	-8.0	22.0	46.0	24.0	100	29

Note1) Receiving antenna polarization : Horizontal, Vertical

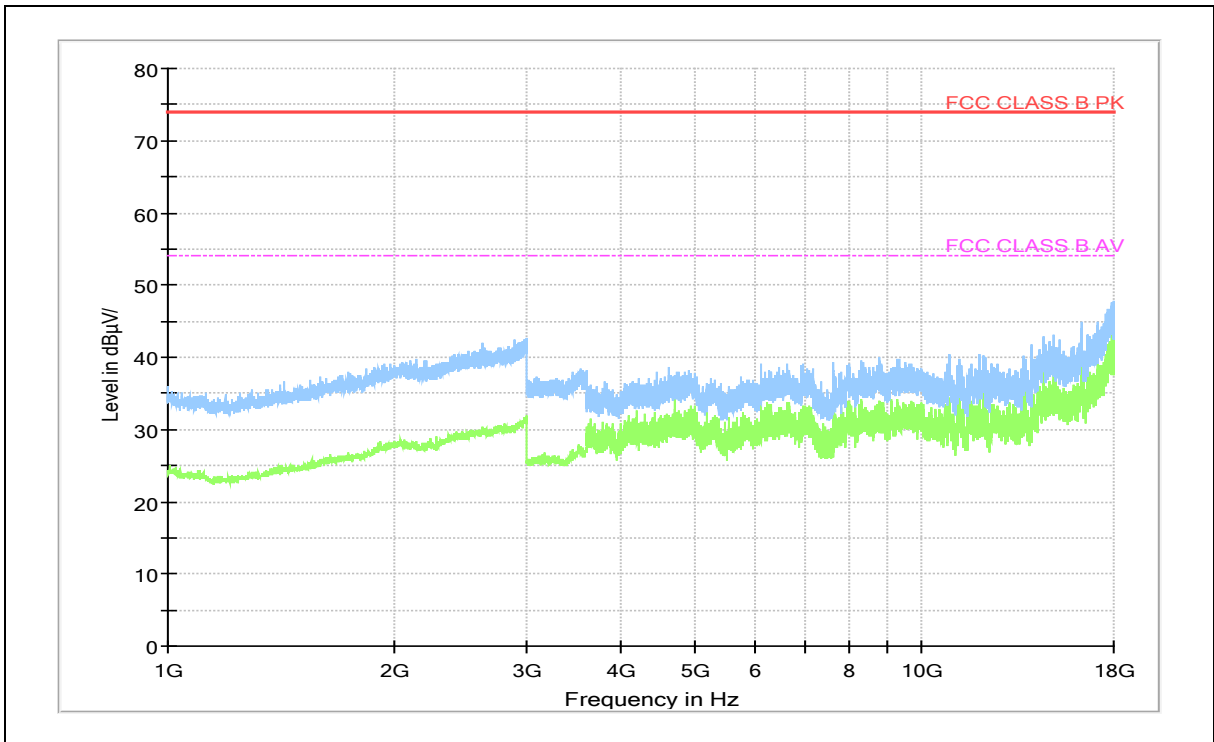
Test Distance : 3 m, Antenna Height : 1 to 4 meters

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 40 GHz and found no emissions.

Note 2) Receiving antenna polarization : Horizontal, Vertical

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

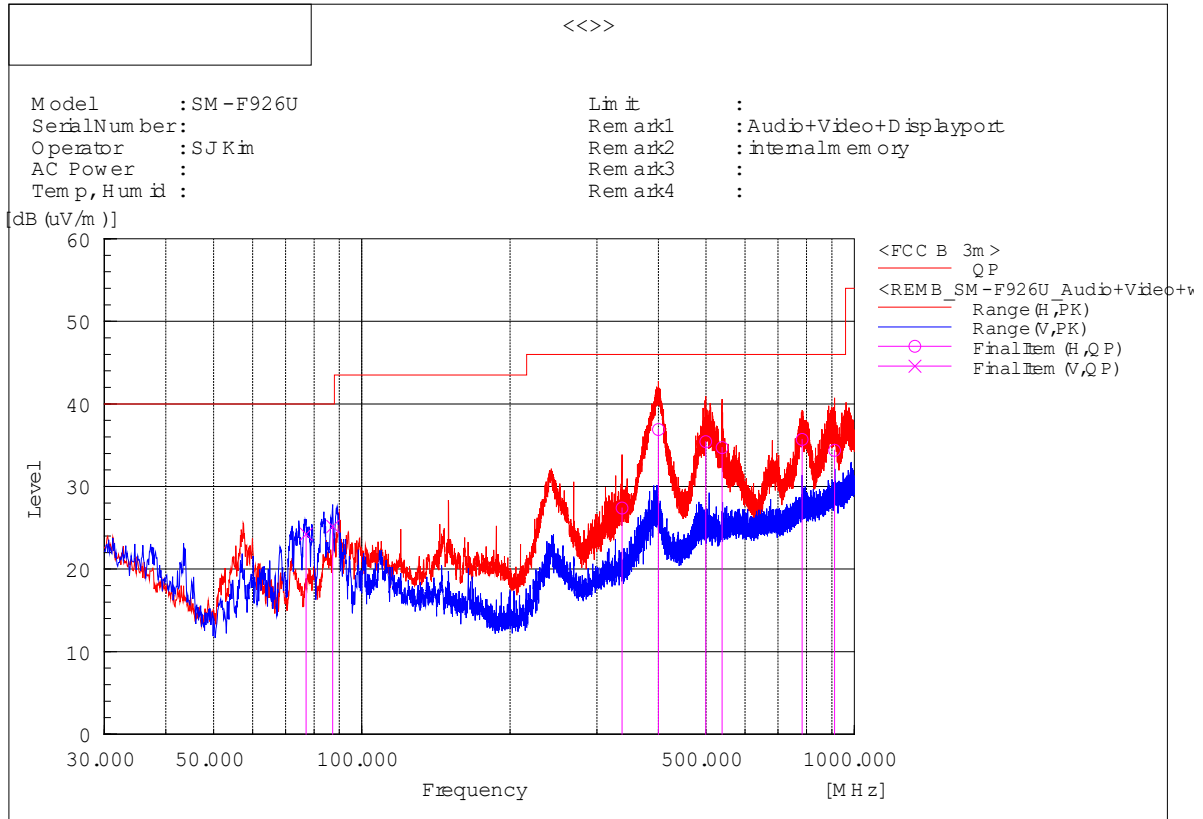
Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain)

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]
1	77.045	V	42.1	-17.9	24.2	40.0	15.8	125	0
2	87.230	V	41.7	-16.5	25.2	40.0	14.8	109	0
3	337.490	H	36.6	-9.2	27.4	46.0	18.6	100	35
4	400.176	H	43.9	-7.0	36.9	46.0	9.1	100	168
5	499.359	H	40.5	-5.1	35.4	46.0	10.6	196	46
6	538.644	H	38.9	-4.2	34.7	46.0	11.3	186	54
7	783.205	H	37.0	-1.3	35.7	46.0	10.3	126	245
8	911.487	H	34.0	0.4	34.4	46.0	11.6	105	260

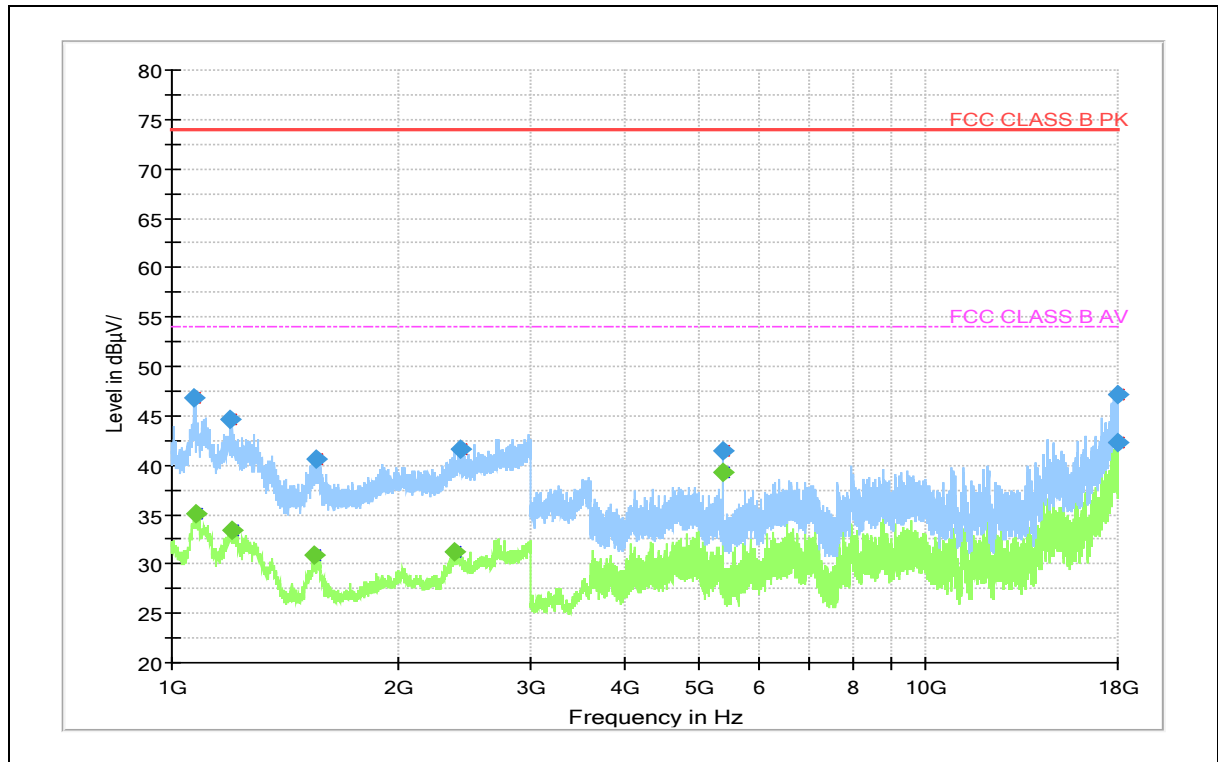
Note1) Receiving antenna polarization : Horizontal, Vertical

Test Distance : 3 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)
1 069.000	46.77	---	74.00	27.23	108.0	H	239.0	6.0
1 079.500	---	35.14	54.00	18.86	110.0	H	244.0	6.0
1 195.000	44.64	---	74.00	29.36	103.0	H	168.0	5.9
1 200.500	---	33.48	54.00	20.52	102.0	H	165.0	5.9
1 548.500	---	30.95	54.00	23.05	107.0	H	242.0	8.9
1 549.500	40.60	---	74.00	33.40	102.0	H	242.0	8.9
2 368.000	---	31.19	54.00	22.81	100.0	H	129.0	12.5
2 410.000	41.68	---	74.00	32.32	100.0	H	194.0	12.8
5 399.500	---	39.29	54.00	14.71	103.0	V	160.0	6.0
5 399.500	41.50	---	74.00	32.50	101.0	V	160.0	6.0
17 992.500	42.26	---	74.00	31.74	100.0	V	41.0	37.9
17 997.000	47.22	---	74.00	26.78	101.0	H	336.0	37.8

Note 1) We have also tested from 18 GHz to 40 GHz and found no emissions.

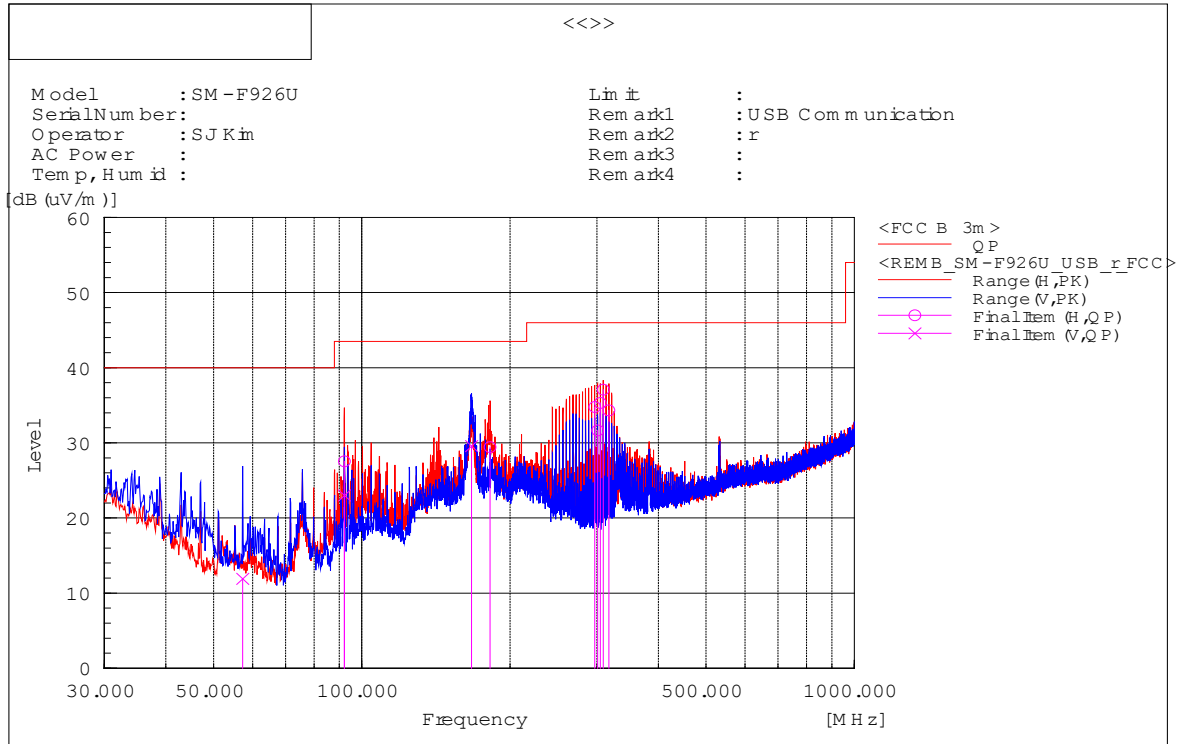
Note 2) Receiving antenna polarization : Horizontal, Vertical

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 6**- 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]
1	57.281	V	30.6	-18.7	11.9	40.0	28.1	102	92
2	92.201	H	43.2	-15.6	27.6	43.5	15.9	209	315
3	92.201	V	38.6	-15.6	23.0	43.5	20.5	108	13
4	167.013	V	43.8	-14.2	29.6	43.5	13.9	118	264
5	182.169	H	44.2	-14.8	29.4	43.5	14.1	135	326
6	296.993	H	45.0	-10.2	34.8	46.0	11.2	101	271
7	301.115	H	41.8	-10.1	31.7	46.0	14.3	101	273
8	305.116	H	45.2	-9.9	35.3	46.0	10.7	101	281
9	309.239	H	46.9	-9.8	37.1	46.0	8.9	100	280
10	317.484	H	43.9	-9.6	34.3	46.0	11.7	100	280

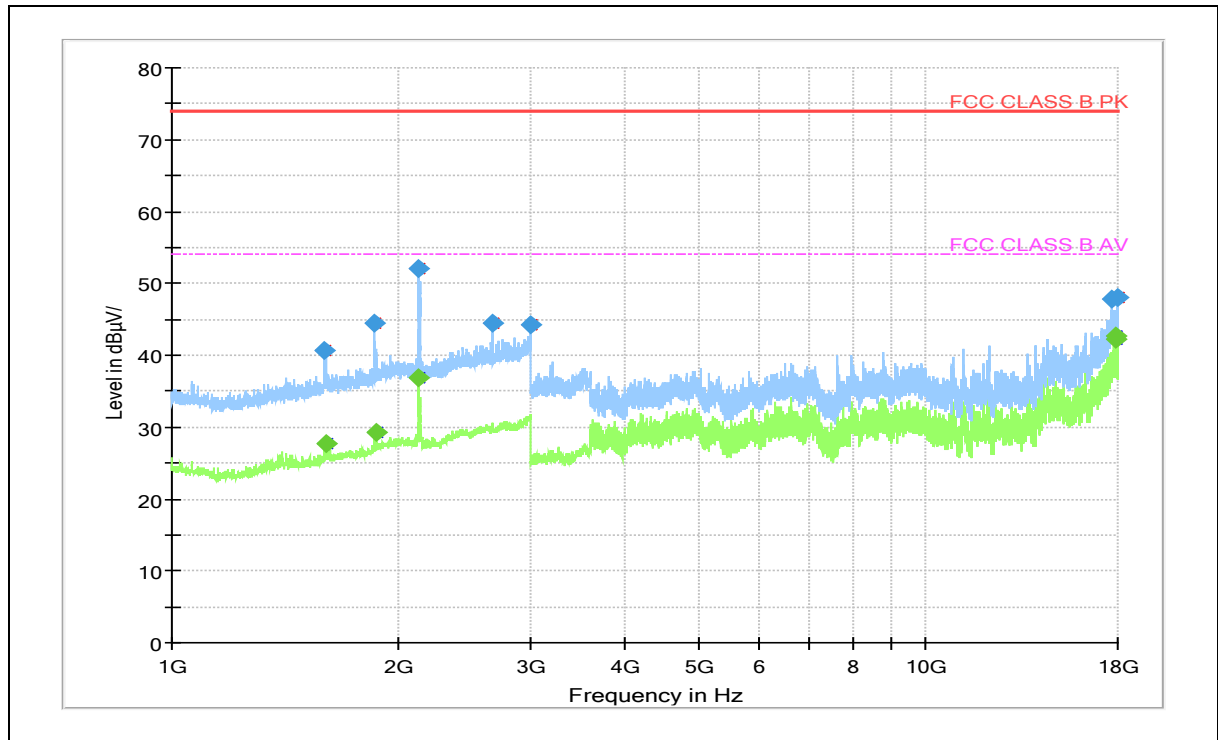
Note1) Receiving antenna polarization : Horizontal, Vertical

Test Distance : 3 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)
1 595.000	40.60	---	74.00	33.40	101.0	V	28.0	9.2
1 598.000	---	27.70	54.00	26.30	100.0	V	269.0	9.2
1 860.000	44.49	---	74.00	29.51	103.0	V	0.0	10.5
1 864.500	---	29.37	54.00	24.63	101.0	V	0.0	10.6
2 124.000	52.10	---	74.00	21.90	104.0	V	24.0	11.6
2 125.000	---	36.94	54.00	17.06	107.0	V	18.0	11.6
2 662.000	44.45	---	74.00	29.55	111.0	V	267.0	13.8
2 993.000	44.19	---	74.00	29.81	109.0	V	314.0	15.5
17 687.500	47.77	---	74.00	26.23	100.0	V	345.0	37.7
17 860.500	---	42.32	54.00	11.68	101.0	V	0.0	38.4
17 913.500	---	42.62	54.00	11.38	101.0	H	320.0	38.5
17 996.500	48.04	---	74.00	25.96	100.0	H	70.0	37.8

Note 1) We have also tested from 18 GHz to 40 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