

EMC TEST REPORT


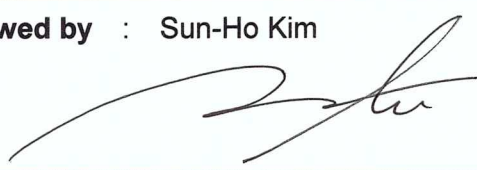
Project No.	LBE20210705	Issue No.	2
Applicant	Name of organization	Samsung Electronics Co., Ltd.	
	Address	(Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea	
	Date of receipt	November 4, 2021	
EUT	Type of device	<input checked="" type="checkbox"/> All other receivers subject to Part 15 <input checked="" type="checkbox"/> Class B personal computers and peripherals <input checked="" type="checkbox"/> Other Class B digital devices and peripherals <input type="checkbox"/> FM Broadcast Receiver	
	Equipment authorization	<input checked="" type="checkbox"/> Certification <input type="checkbox"/> Supplier's Declaration of Conformity	
	FCC ID	A3LSMX808U	
	Kind of product	Portable Device	
	Model No.	SM-X808U	
	Variant Model No.	Refer to clause 4.6	
	Manufacturer	Samsung Electronics Vietnam THAI NGUYEN Co., Ltd. Yen Binh Industrial Zone Pho Ten Dist., Thai Nguyen Province, Vietnam	
Applied Standards		47 CFR Part 15, Subpart B, Class B / ANSI C63.4-2014	
Test Period		November 4, 2021 ~ November 9, 2021	
Issue date		December 10, 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 : Eun-Kyung Oh 		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	November 10, 2021	There are no revisions and this version is basic test report.
Issue 1	November 25, 2021	Changed S-Pen model name as per customer's request.
Issue 2	December 10, 2021	Changed comment related to receiver mode. (clause 1.1/4.8) Added GNSS mode in clause 4.6.

※ Remark

Only compliance with Part 15b (Section 15.107 Conducted limits) Requirements for the receiver part of the licensed transmitter (equipment code CXX) is covered by this 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:

Description	Model No.	Serial No.	Manufacturer / Trademark	FCC ID
Portable Device	SM-X808U	-	SAMSUNG	A3LSMX808U
Battery	EB-BT975ABY	-	SDI	-
Headset	GHSS028-K7	-	BUJEON	-
Data Cable	EP-DW767	-	RFTECH	-
Laptop Computer	Latitude5580	1WYRYM2	Dell	DoC
Laptop Computer	Latitude5580	D3HRYM2	Dell	DoC
Laptop AC Adapter	LA65NM130	5DEA	Dell	DoC
Laptop AC Adapter	LA65NM130	5B3C	Dell	DoC
Mouse	AA-SM7PCPB	CN57BA5903634ADV8JJCD 4371	SAMSUNG	DoC
Mouse	SMH-210UB	TAKGA05788 Z	SAMSUNG	DoC
Router	DIR-806A	RF0F1D8018454	D-Link	DoC
Router	DIR-806A	RF0F1D8011504	D-Link	DoC
Travel Adapter	EP-TA800	R37N9AQ96L8SE3	SOLU-M	-
DP Monitor	27DU88	711NTQD8H004	LG	DoC
DP Monitor Power Supply	LCAP31	EH8NN629490055062	LG	DoC
DP Cable	JCA141	BW2K1709000770	J5CREATE	DoC
Micro SD Card	64GB	-	SAMSUNG	-
Keyboard	EF-DT970	-	SAMSUNG	-
S-Pen	EJ-PT870	-	WACOMM	-

This tablet device does not contain the minimum number of ports required for personal computer testing per ANSI C63.4, but the EUT is attached to a computer through its only available port, which represents worst case emissions. All other aspects of C63.4 testing requirements were maintained.

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) + Book cover keyboard (Pogo pin)
2	Camera (Front) + Charging (w/TA) + Book cover keyboard (Pogo pin)
3	Video + Audio playback from internal memory + Charging (w/TA) + Book cover keyboard (Pogo pin)
4	USB data communication with PC (from external memory) + Book cover keyboard (Pogo pin)

4.2.2 Radiated Emission

No.	Operating mode
1	Camera (Rear) + Charging (w/TA) + Book cover keyboard (Pogo pin)
2	Camera (Front) (w/Headset) + Book cover keyboard (Pogo pin)
3	Video + Audio playback from internal memory (w/Headset) + Book cover keyboard (Pogo pin)
4	Video + Audio playback from internal memory + Display out (w/ USB to Direct DP cable) + Book cover keyboard (Pogo pin)
5	USB data communication with PC (from external memory) + Book cover keyboard (Pogo pin)

4.3 Details of Sampling

Customer selected, single unit.

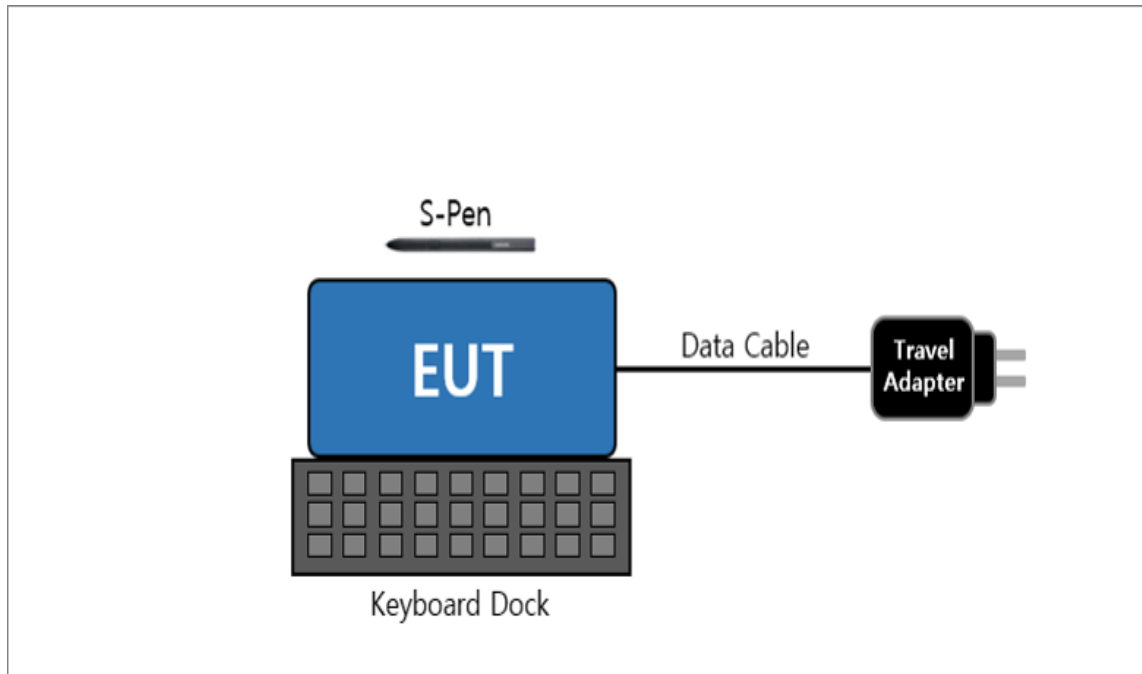
4.4 Used cable description

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:

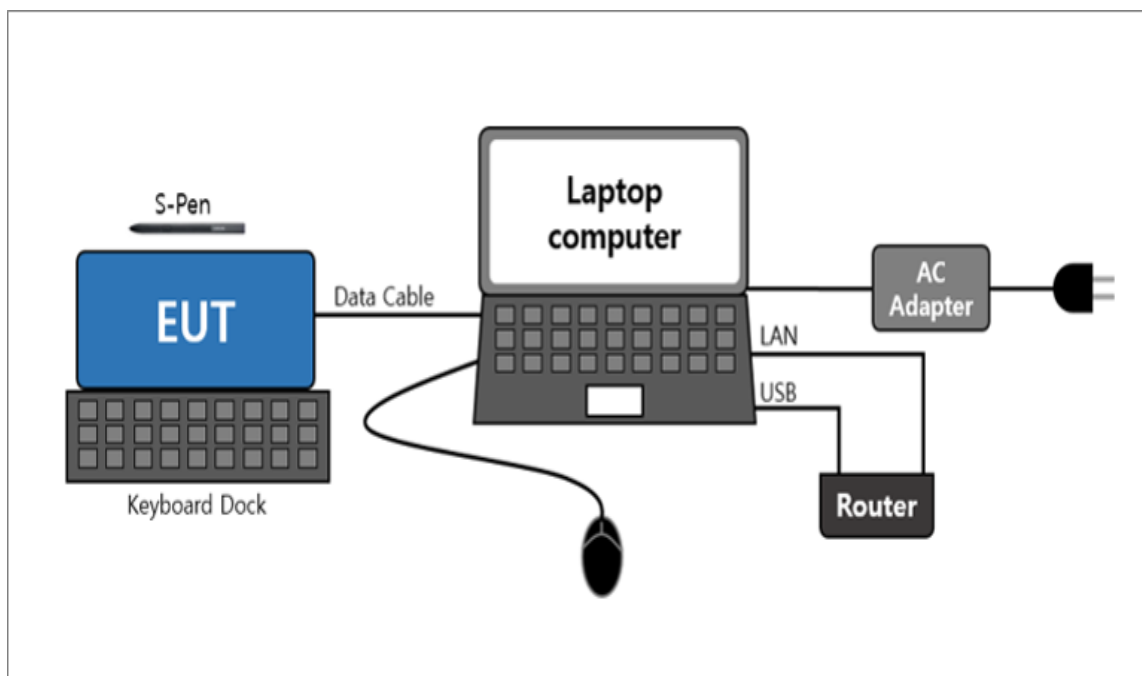
Connected cable	Length [m]	Shielded [Y/N]	Note
Data Cable	1.8	Y	From EUT to Laptop Computer or Travel Adapter
Headset	1.2	N	For EUT
Power	1.8	N	From Laptop Computer to AC Adapter
Power	1.5	N	For Laptop AC Adapter
LAN	1.5	N	From Laptop Computer to Router
USB	0.8	Y	From Laptop Computer to Router for DC Power
USB	1.8	Y	From Laptop Computer to Mouse
DP Cable	1.1	Y	From EUT to DP Monitor
Power	1.2	N	From DP Monitor to Power Supply
Power	2.2	N	For DP Monitor Power Supply

4.5 Test arrangement

4.5.1 Conducted Emission

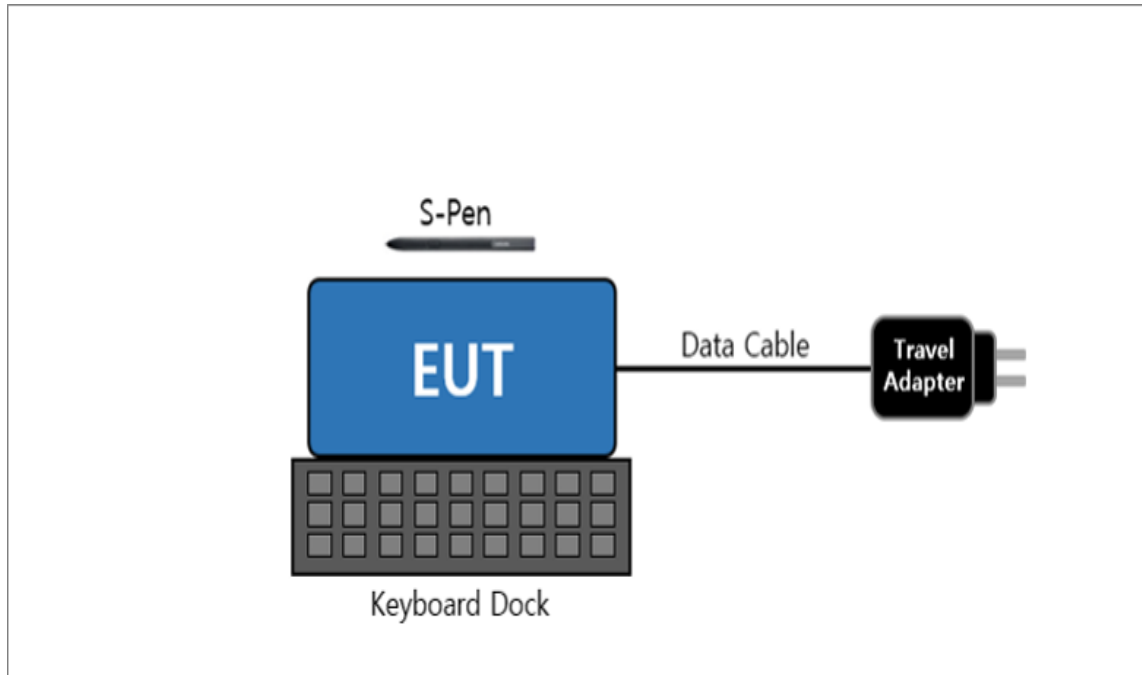


[Mode 1 – 3]

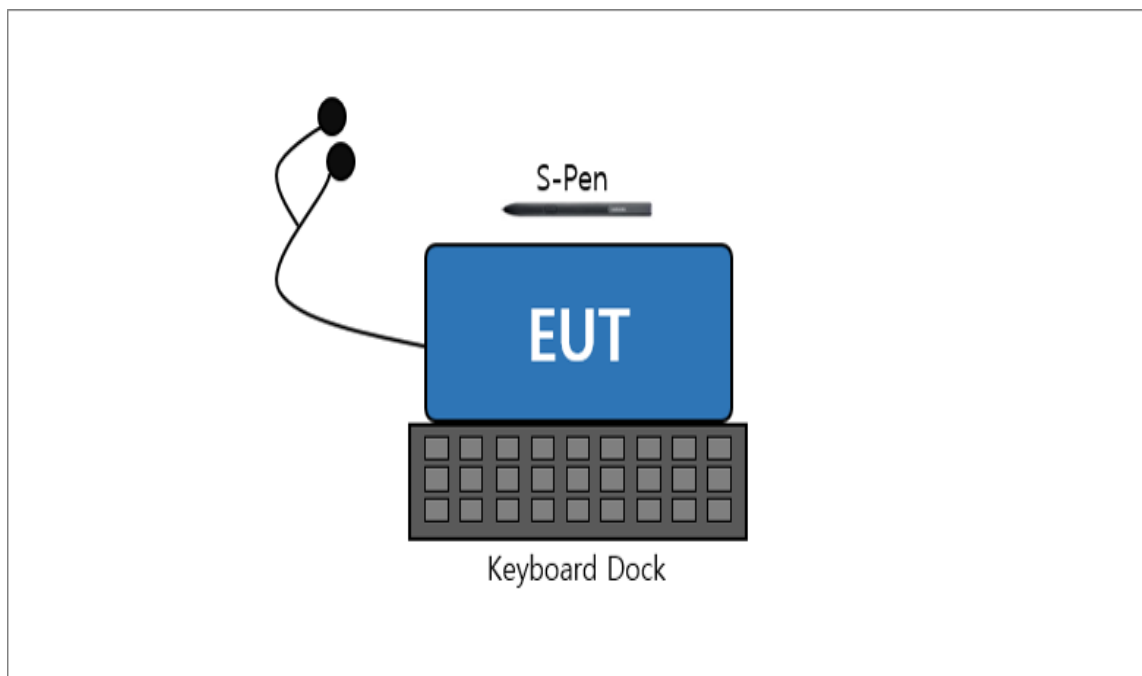


[Mode 4]

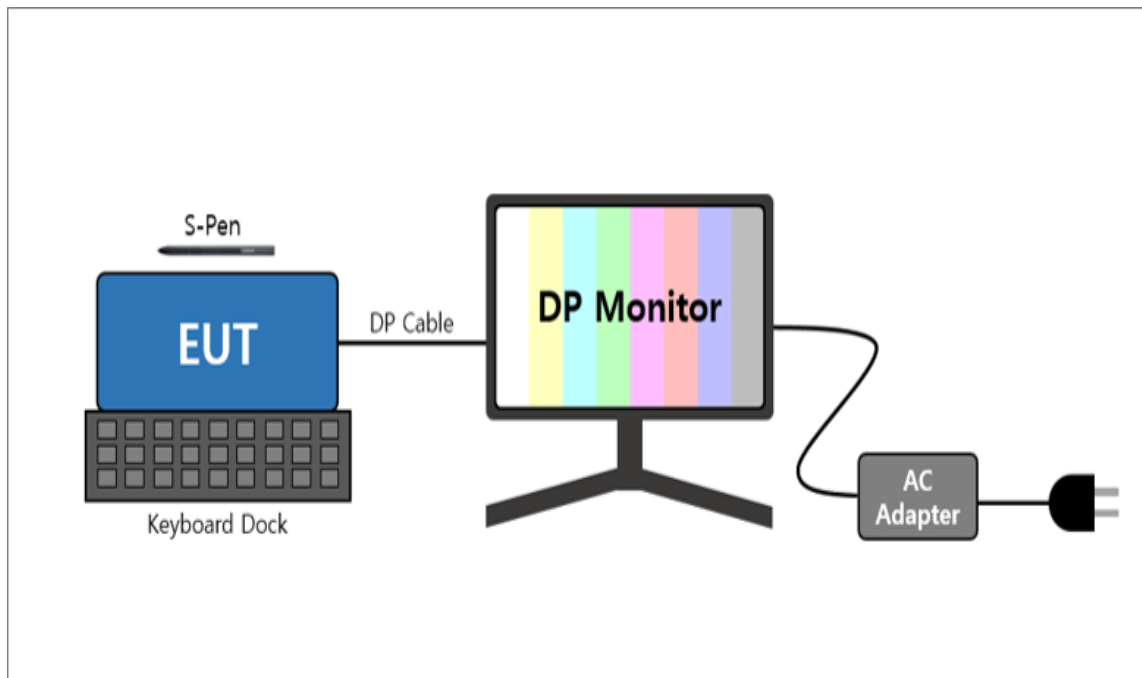
4.5.2 Radiated Emission



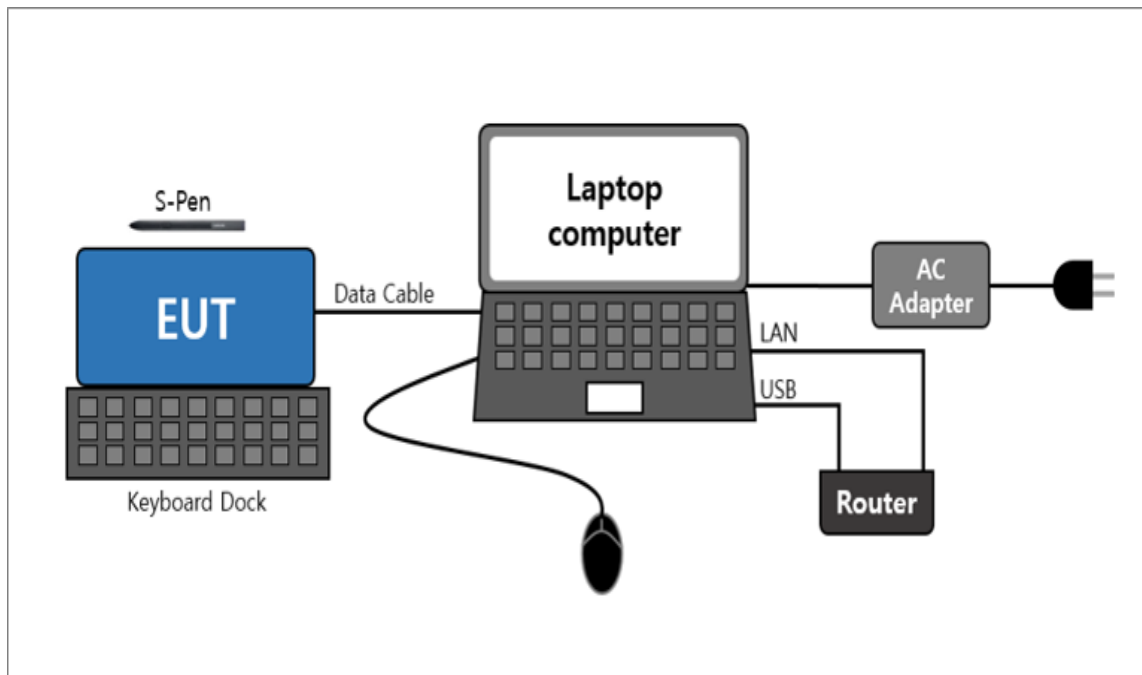
[Mode 1]



[Mode 2 – 3]



[Mode 4]



[Mode 5]

4.6 EUT Description

The EUT is a tablet type portable device which can operate on WCDMA FDD 1/2/4/5/8, LTE FDD 1/2/3/4/5/7/8/12/13/20/25/26/28/29/66/71, LTE TDD41/46, 5G NR n2/5/25/41/66/71/77/78/257/260/261 and incorporates a Bluetooth, Wi Fi (802.11 b/g/n/a/ac/ax), Camera, Audio, Video, GNSS, DP, Pogo Pin and S-Pen.

4.6.1 The variant models

- None

4.7 EUT Frequencies

The highest frequencies (Generated and used)	Frequency [MHz]
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 for AC conducted emission test 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 audio were repetitively played with the earphone connected.

The video and audio 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	2.82 dB
Radiated Emission (Below 1 GHz)	Horizontal	5.03 dB
	Vertical	6.13 dB
Radiated Emission (Above 1 GHz)	Horizontal	4.99 dB
	Vertical	4.99 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

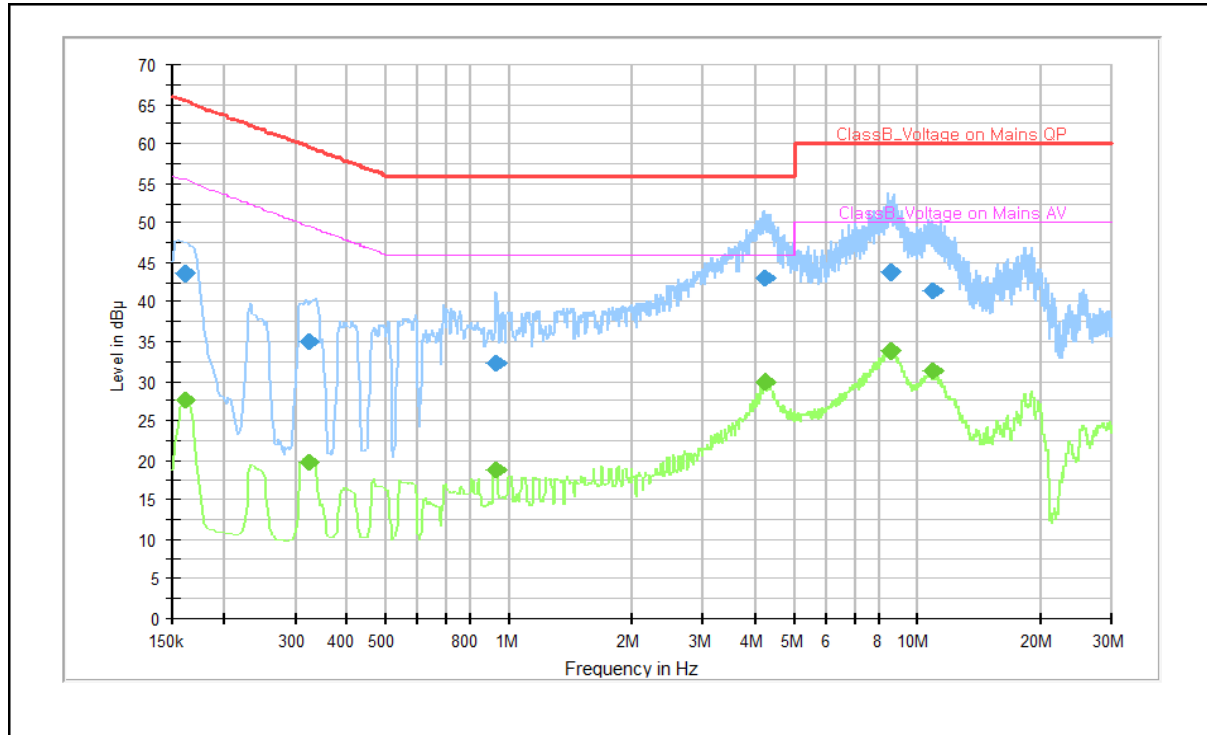
EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Next Calibration	
					Date	Interval (Month)
E5I-006	LTE Communicator	CMW500	R&S	132728	2022-04-06	12
E5I-127	Two-Line V-Network	ENV216	R&S	102061	2022-08-02	12
E5I-016	EMI Test Receiver	ESU8	R&S	100482	2022-06-03	12
-	Test software	EMC32	R&S	Ver 10.60.20	-	-

5.1.2 Temperature and humidity condition

Test date	2021-11-09	Test engineer	Eun-Kyung Oh
Climate condition	Ambient temperature	(24.3 ± 0.5) °C	Limit (15.0 to 35.0) °C
	Relative humidity	(32.5 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.3 ± 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:

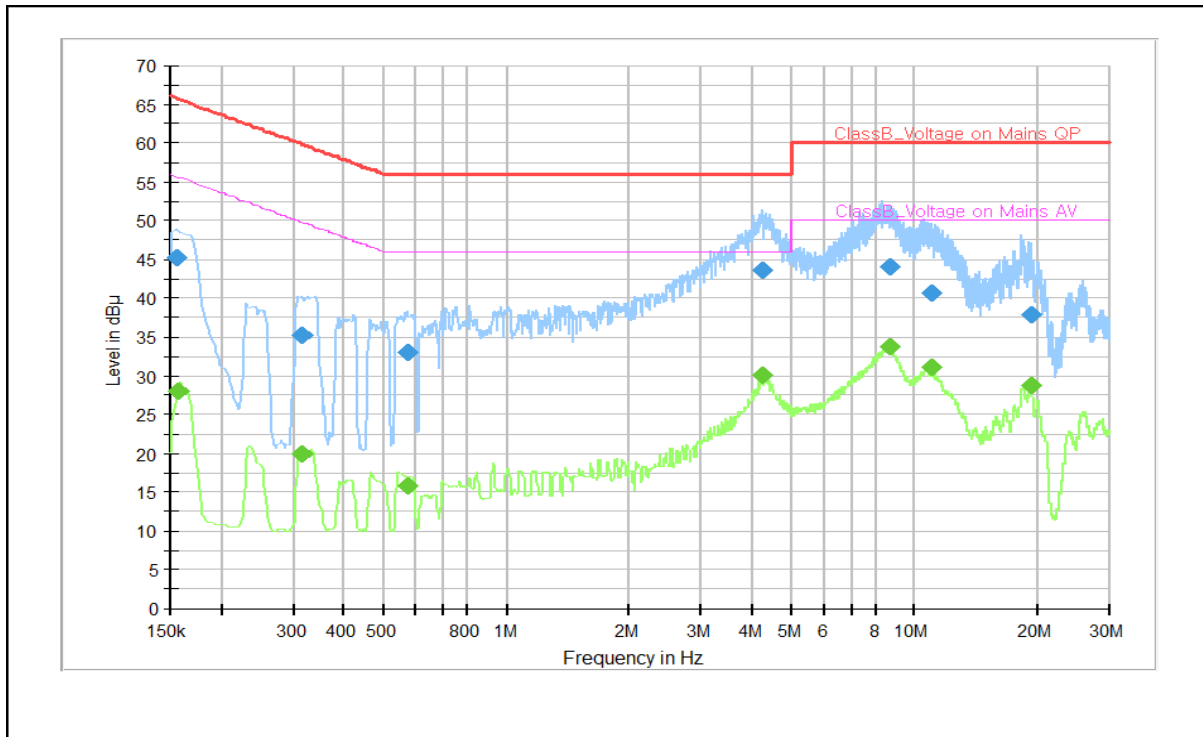
Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.161	43.7	---	65.4	21.7	L1	10.0
0.161	---	27.6	55.4	27.8	L1	10.0
0.321	---	19.8	49.7	29.8	L1	10.1
0.321	34.9	---	59.7	24.8	L1	10.1
0.929	---	18.7	46.0	27.3	L1	10.0
0.929	32.2	---	56.0	23.8	L1	10.0
4.225	43.1	---	56.0	12.9	L1	9.9
4.225	---	30.0	46.0	16.0	L1	9.9
8.653	---	33.8	50.0	16.2	L1	10.1
8.653	43.9	---	60.0	16.1	L1	10.1
10.860	41.4	---	60.0	18.6	L1	10.2
10.860	---	31.3	50.0	18.7	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:

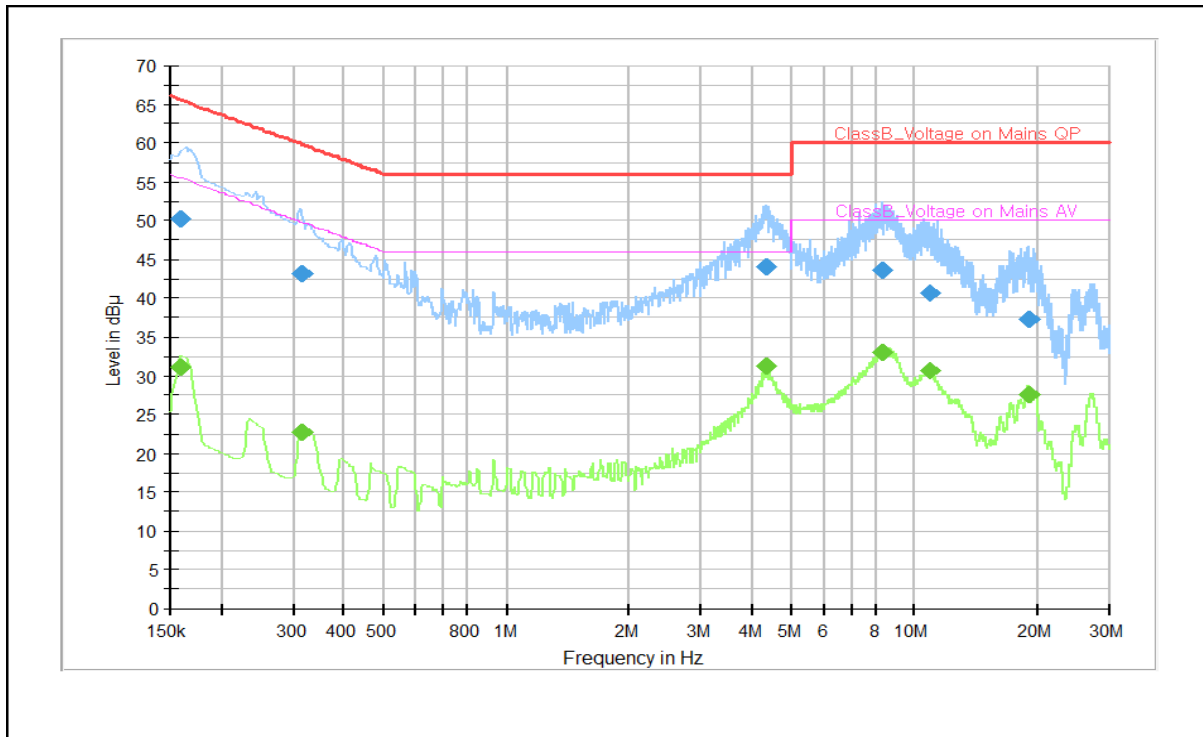
Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.155	45.2	---	65.8	20.6	N	9.8
0.157	---	27.9	55.6	27.7	L1	10.0
0.314	35.3	---	59.9	24.6	L1	10.0
0.314	---	20.0	49.9	29.8	L1	10.0
0.571	---	15.9	46.0	30.1	N	10.1
0.571	33.0	---	56.0	23.0	N	10.1
4.256	43.5	---	56.0	12.5	L1	9.9
4.256	---	30.0	46.0	16.0	L1	9.9
8.687	43.9	---	60.0	16.1	L1	10.1
8.687	---	33.8	50.0	16.2	L1	10.1
10.970	40.7	---	60.0	19.3	L1	10.2
10.970	---	31.2	50.0	18.8	L1	10.2
19.239	38.0	---	60.0	22.0	L1	10.5
19.239	---	28.7	50.0	21.3	L1	10.5

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



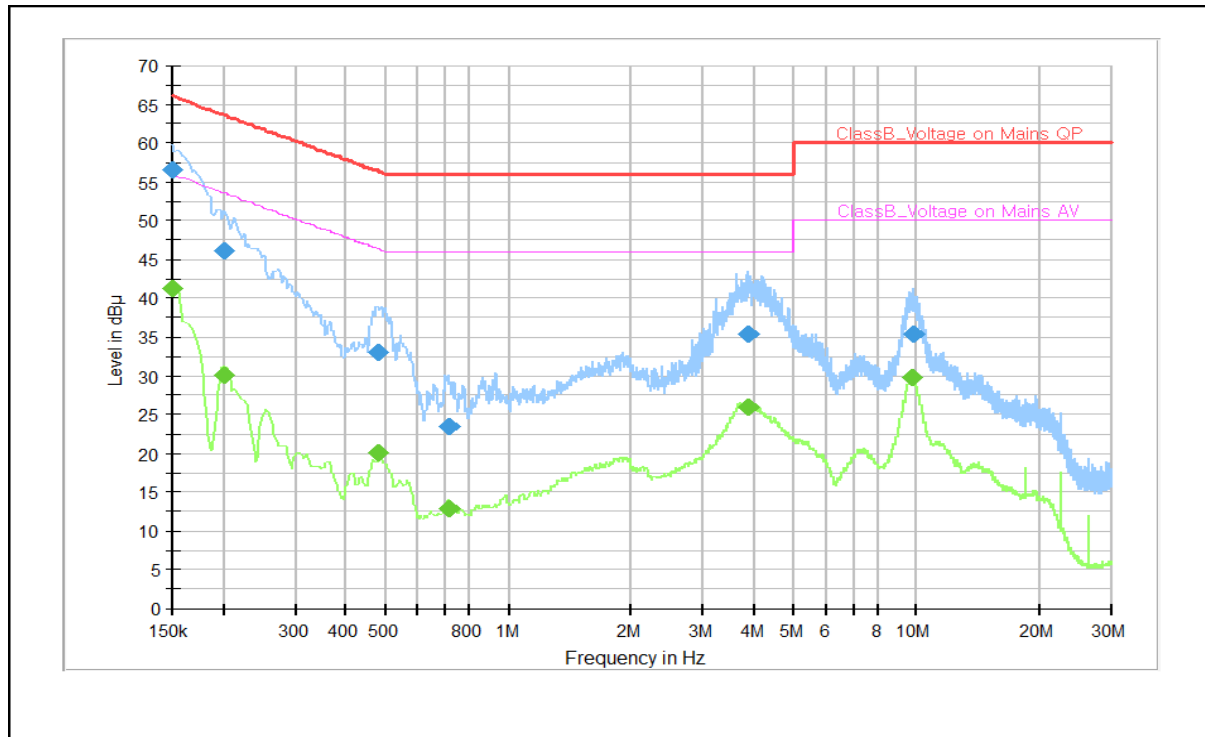
Note 1) Two graphs measured for both Live(L1) and Neutral(N) of the LISN are combined into one graph.

QP / CAV final measurement results table:

Frequency (MHz)	QP (dBμV)	CAV (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.159	---	31.1	55.5	24.4	N	9.9
0.159	50.3	---	65.5	15.2	N	9.9
0.314	---	22.6	49.9	27.2	N	10.0
0.314	43.3	---	59.9	16.6	N	10.0
4.331	---	31.4	46.0	14.6	L1	9.9
4.331	44.0	---	56.0	12.0	L1	9.9
8.306	43.6	---	60.0	16.4	L1	10.1
8.306	---	33.0	50.0	17.0	L1	10.1
10.878	40.7	---	60.0	19.3	L1	10.2
10.878	---	30.7	50.0	19.3	L1	10.2
19.032	---	27.5	50.0	22.5	L1	10.5
19.032	37.4	---	60.0	22.6	L1	10.5

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)
0.150	---	41.3	56.0	14.7	N	9.8
0.150	56.4	---	66.0	9.6	N	9.8
0.202	---	30.2	53.5	23.4	N	9.9
0.202	46.2	---	63.5	17.4	N	9.9
0.476	---	20.2	46.4	26.2	L1	10.1
0.476	33.1	---	56.4	23.3	L1	10.1
0.713	---	12.8	46.0	33.2	N	9.9
0.713	23.5	---	56.0	32.5	N	9.9
3.890	35.4	---	56.0	20.6	L1	9.8
3.890	---	25.9	46.0	20.1	L1	9.8
9.744	---	29.7	50.0	20.3	L1	9.9
9.863	35.5	---	60.0	24.5	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

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 Polarization	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 Polarization	Resolution Bandwidth [MHz]	Video Bandwidth [MHz]	Turntable position [degrees]
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 [$\text{dB}(\mu\text{V/m})$]	10 m [$\text{dB}(\mu\text{V/m})$]
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 D1(3m) to D2(10m)

: Limit at D2 = Limit at D1 + $20\text{Log}(D1/D2)$

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-020	EMI Test Receiver	ESU40	R&S	100375	2022-09-23	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-149	Horn Antenna	HF907	R&S	102525	2022-07-10	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	2022-09-10	12
-	Test software	EP7RE	TOYO	Ver 8.0.20	-	-
-	Test software	EMC32	R&S	Ver 9.25.00	-	-

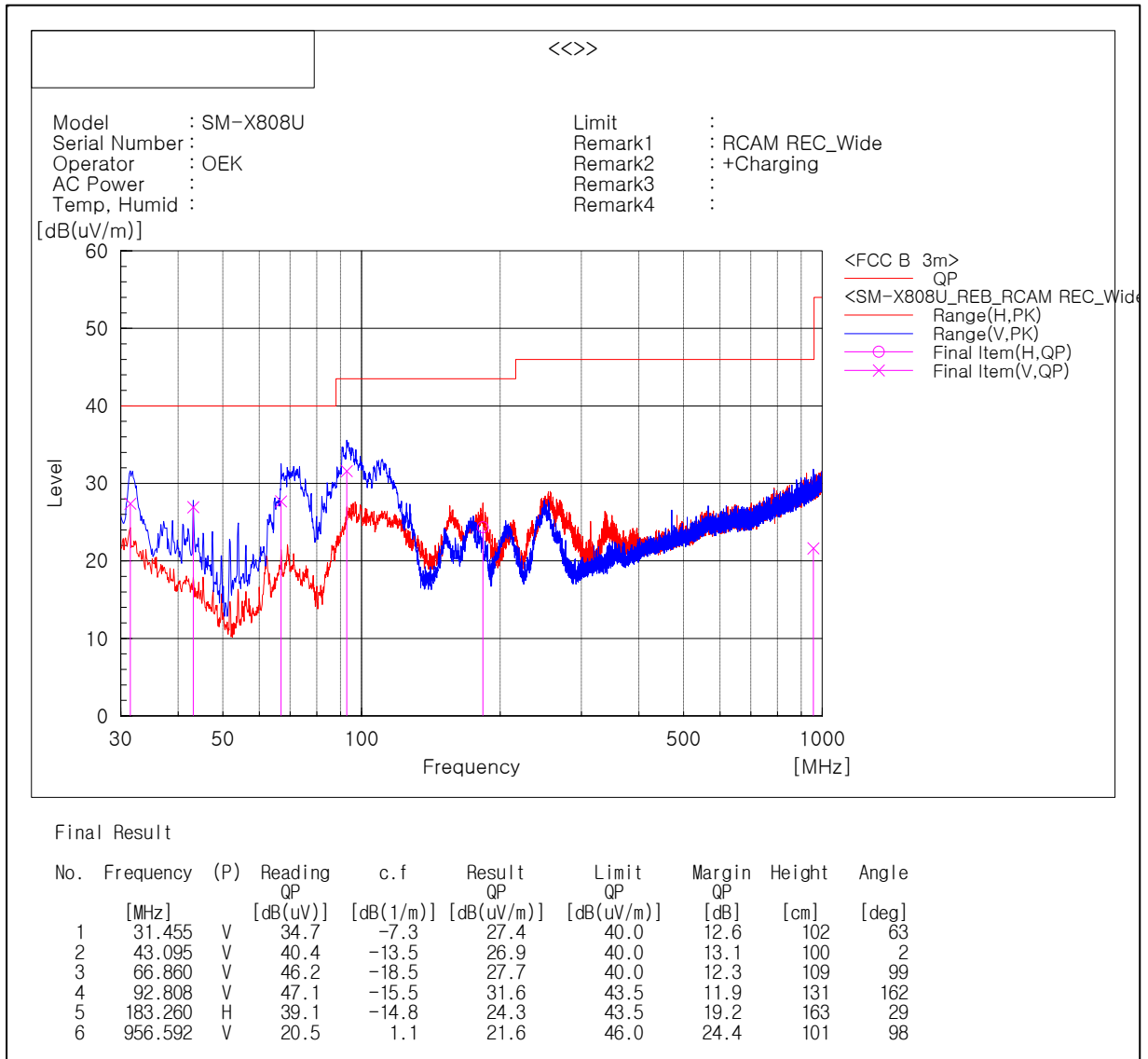
5.2.1 Temperature and humidity condition

Test date	2021-11-04 ~ 2021-11-05	Test engineer	Eun-Kyung Oh
Climate condition	Ambient temperature	(23.2 ± 0.5) °C	Limit (15.0 to 35.0) °C
	Relative humidity	(41.3 ± 0.5) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.7 ± 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



Note1) Receiving antenna polarization : Horizontal, Vertical

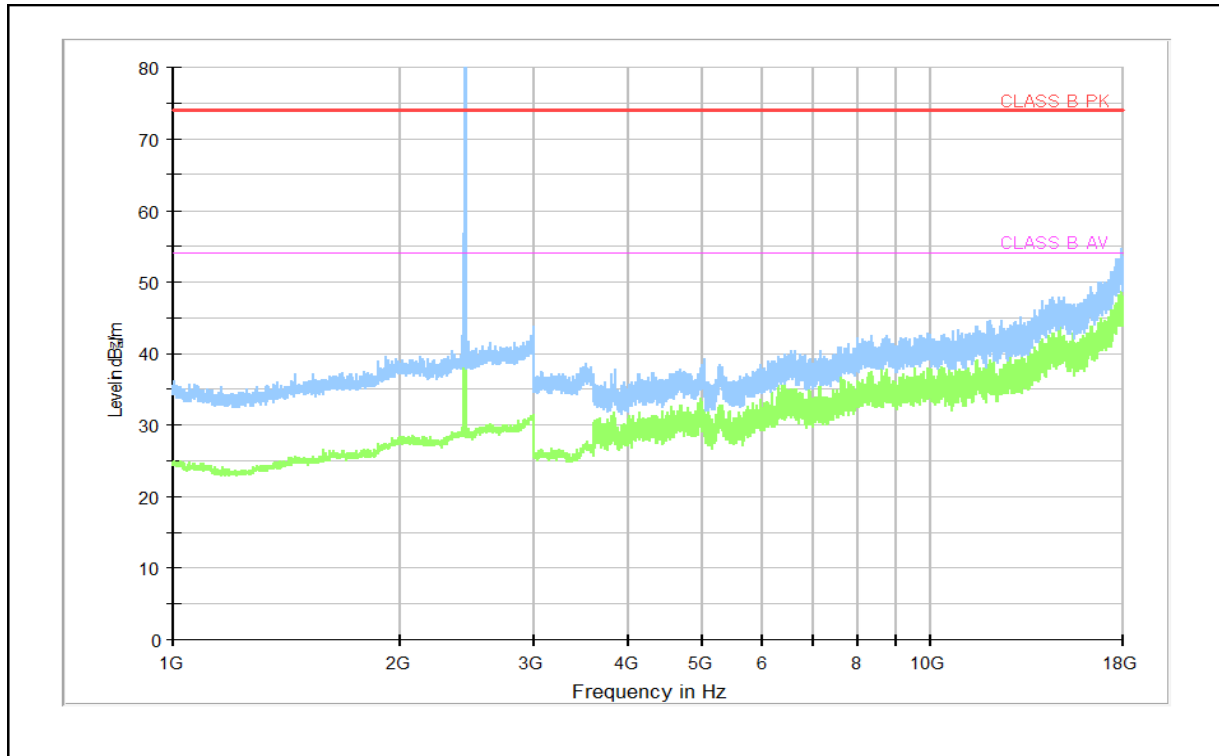
Test Distance : 3 m, Antenna Height : 1 to 4 meters

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

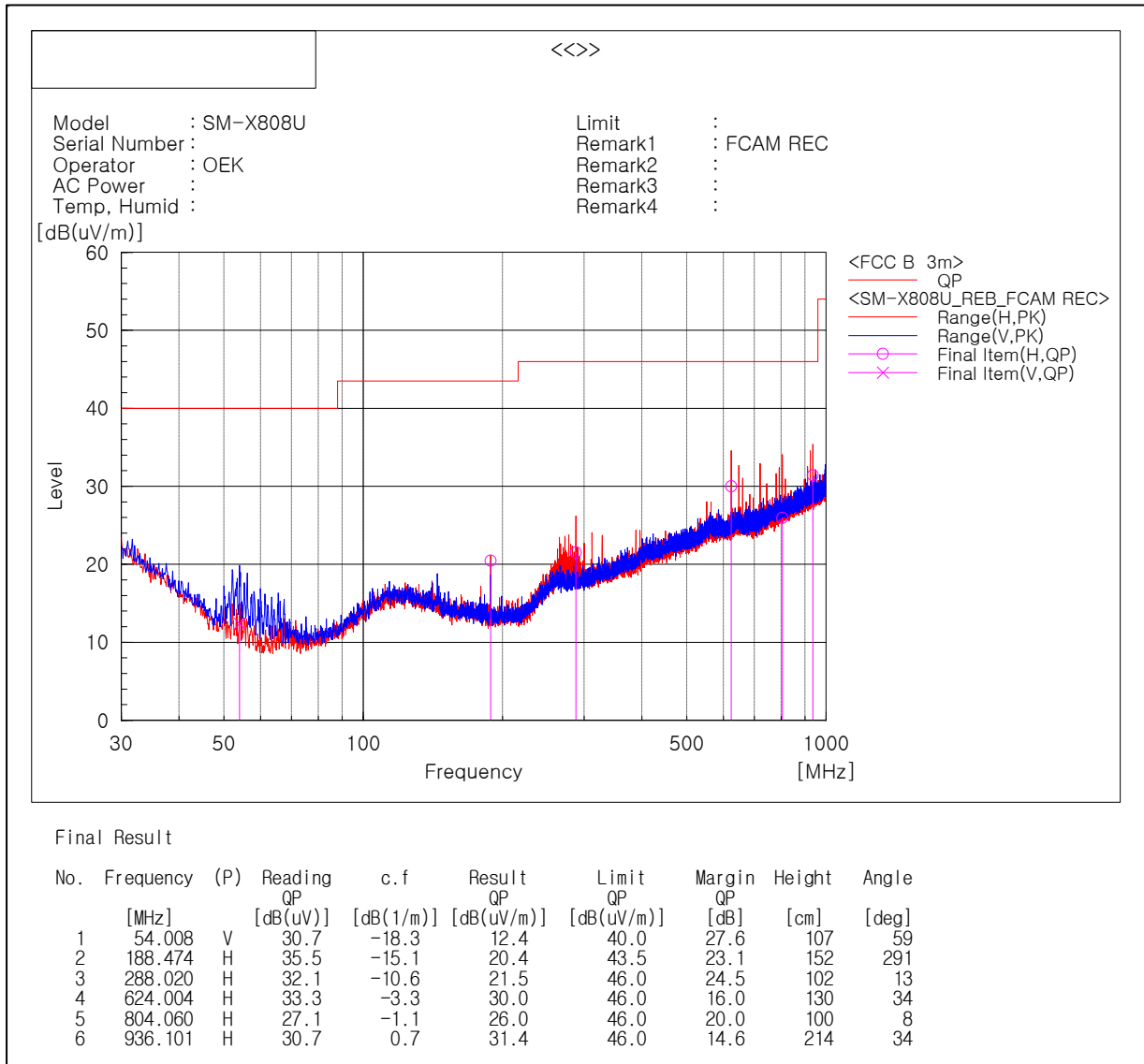
Note 3) Radiated emissions (Tx / Rx frequency) from the transceiver shall be ignored.

- Data transmission in the 2.4 GHz ISM band (Bluetooth/Wi-Fi)

: Operating frequencies (2 400 ~ 2 483.5) MHz

□ Operating Mode 2

- Frequencies below 1 GHz



Note1) Receiving antenna polarization : Horizontal, Vertical

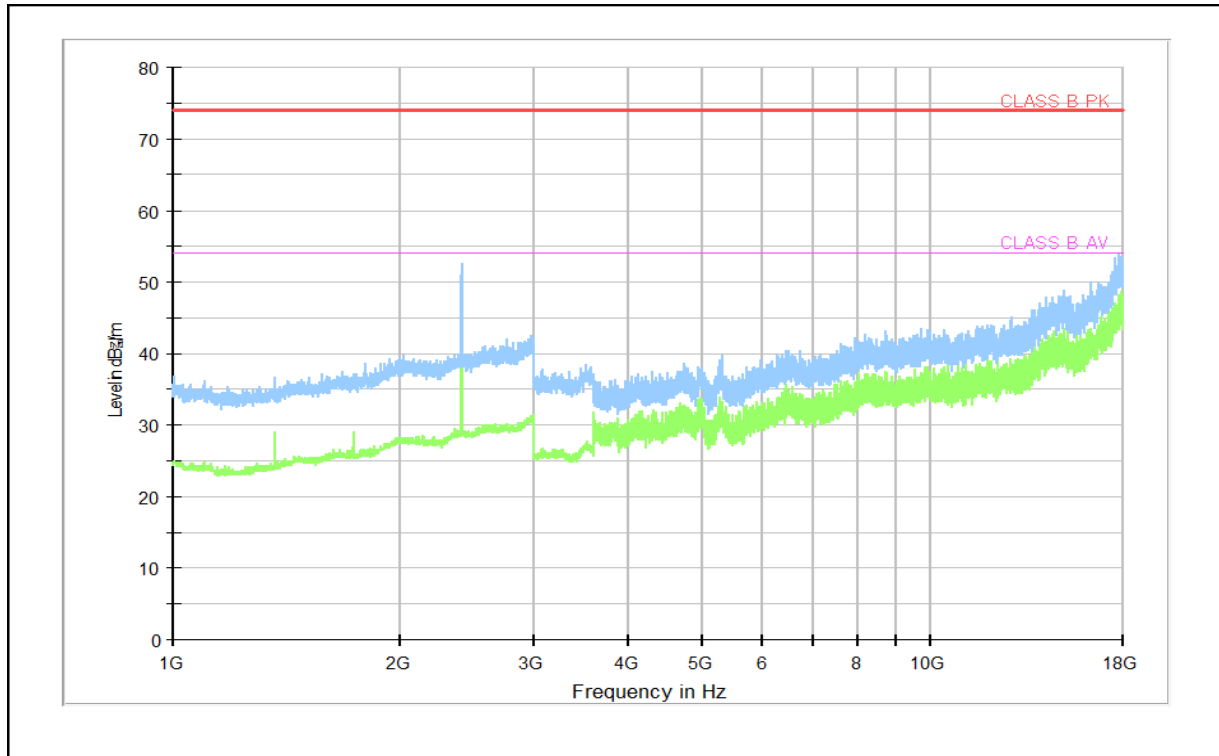
Test Distance : 3 m, Antenna Height : 1 to 4 meters

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

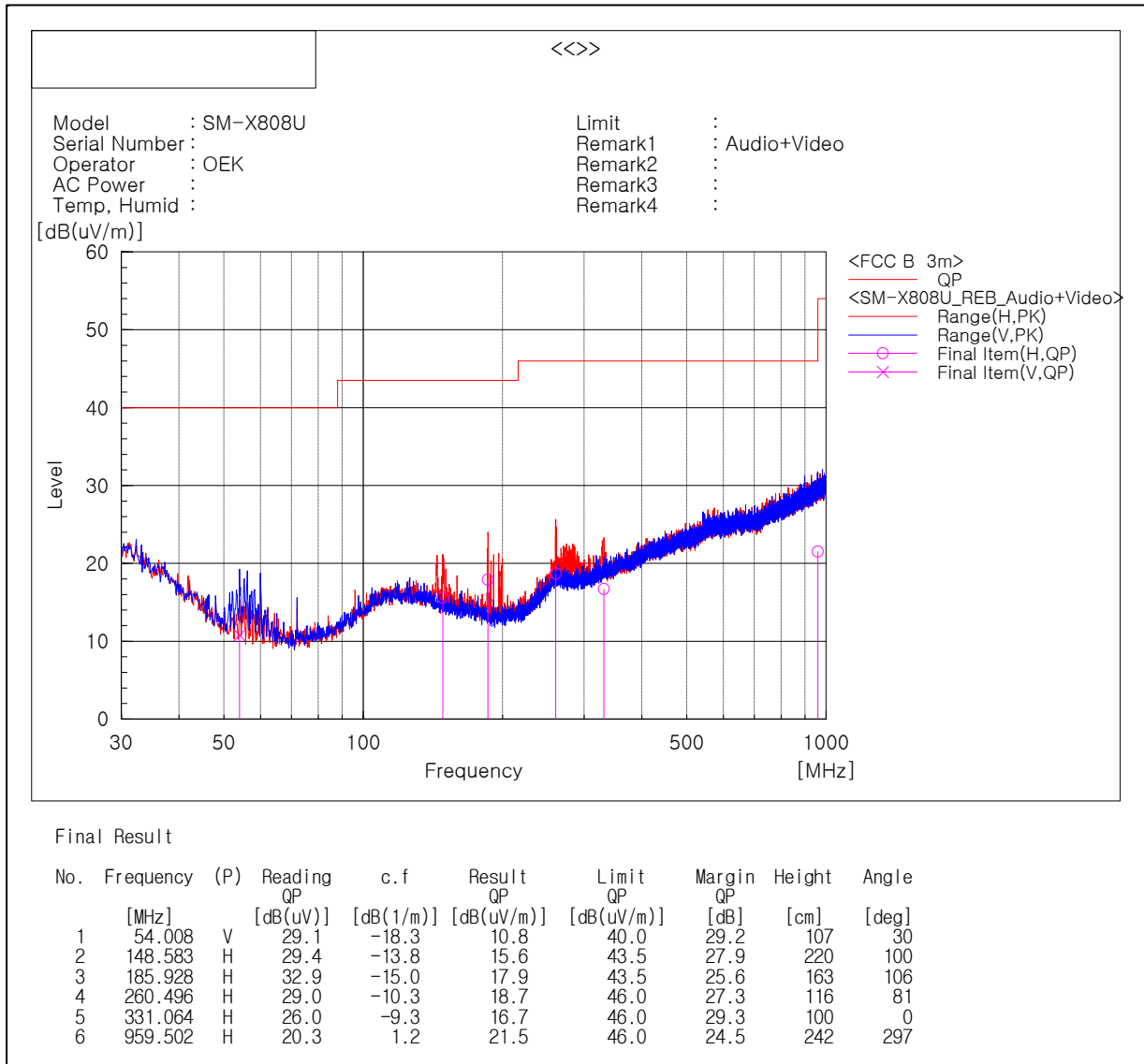
Note 3) Radiated emissions (Tx / Rx frequency) from the transceiver shall be ignored.

- Data transmission in the 2.4 GHz ISM band (Bluetooth/Wi-Fi)

: Operating frequencies (2 400 ~ 2 483.5) MHz

□ Operating Mode 3

- Frequencies below 1 GHz



Note1) Receiving antenna polarization : Horizontal, Vertical

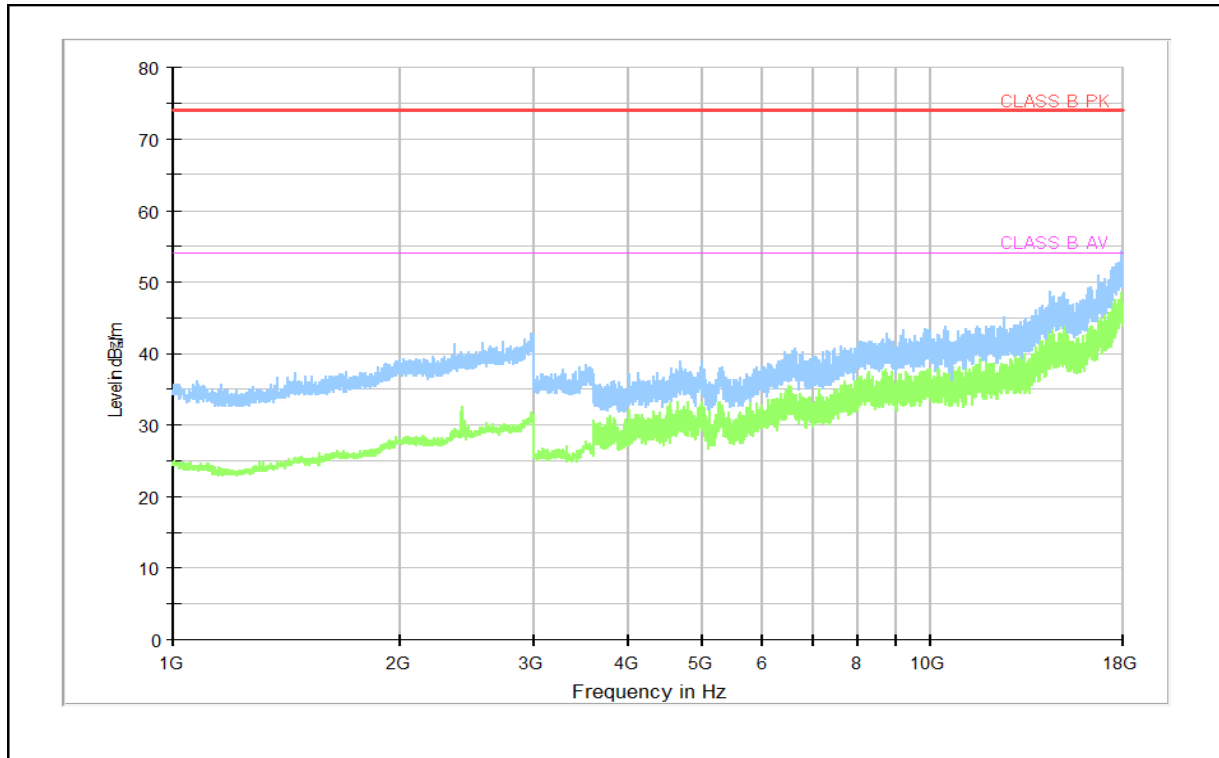
Test Distance : 3 m, Antenna Height : 1 to 4 meters

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

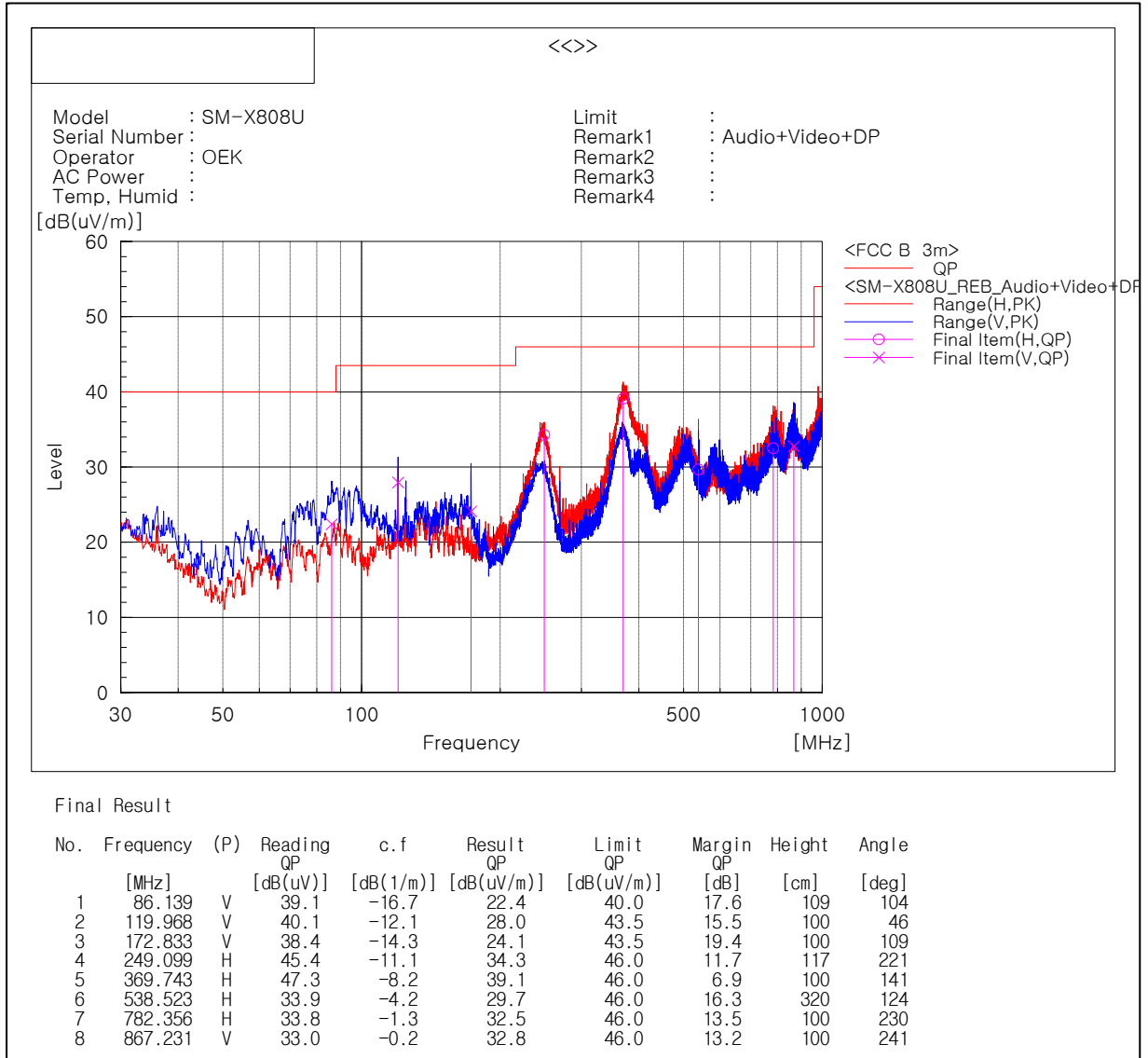
Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain)

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

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

□ Operating Mode 4

- Frequencies below 1 GHz



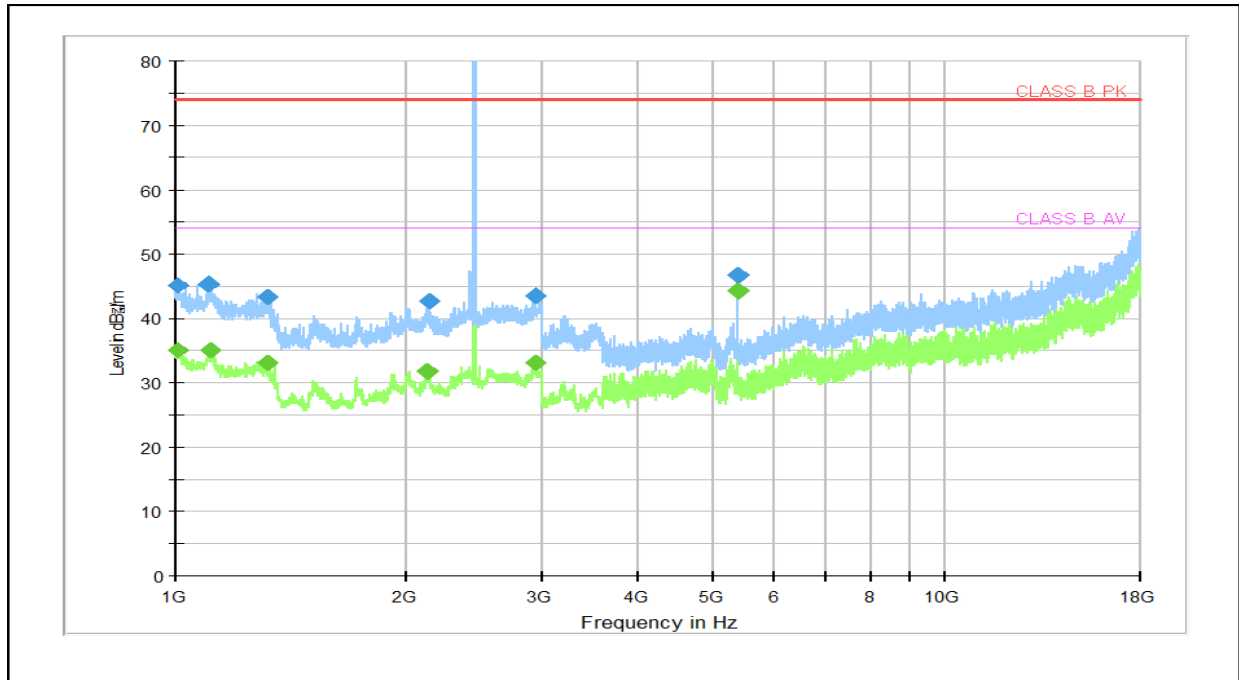
Note1) Receiving antenna polarization : Horizontal, Vertical

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)
1 006.000	---	35.09	54.00	18.91	101.00	H	192.00	6.61
1 006.500	45.23	---	74.00	28.77	101.20	H	185.00	6.60
1 100.000	45.40	---	74.00	28.60	101.40	H	244.00	6.41
1 108.000	---	35.02	54.00	18.98	101.60	H	198.00	6.34
1 314.000	43.27	---	74.00	30.73	100.50	V	237.00	6.96
1 320.000	---	33.06	54.00	20.94	100.70	V	240.00	7.01
2 128.500	---	31.82	54.00	22.18	101.30	H	241.00	11.90
2 133.000	42.71	---	74.00	31.29	101.40	H	236.00	11.90
2 932.500	43.65	---	74.00	30.35	101.00	V	121.00	15.07
2 932.500	---	33.06	54.00	20.94	100.90	V	121.00	15.07
5 399.500	46.79	---	74.00	27.21	100.20	H	130.00	6.22
5 400.000	---	44.18	54.00	9.82	100.30	H	124.00	6.21

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

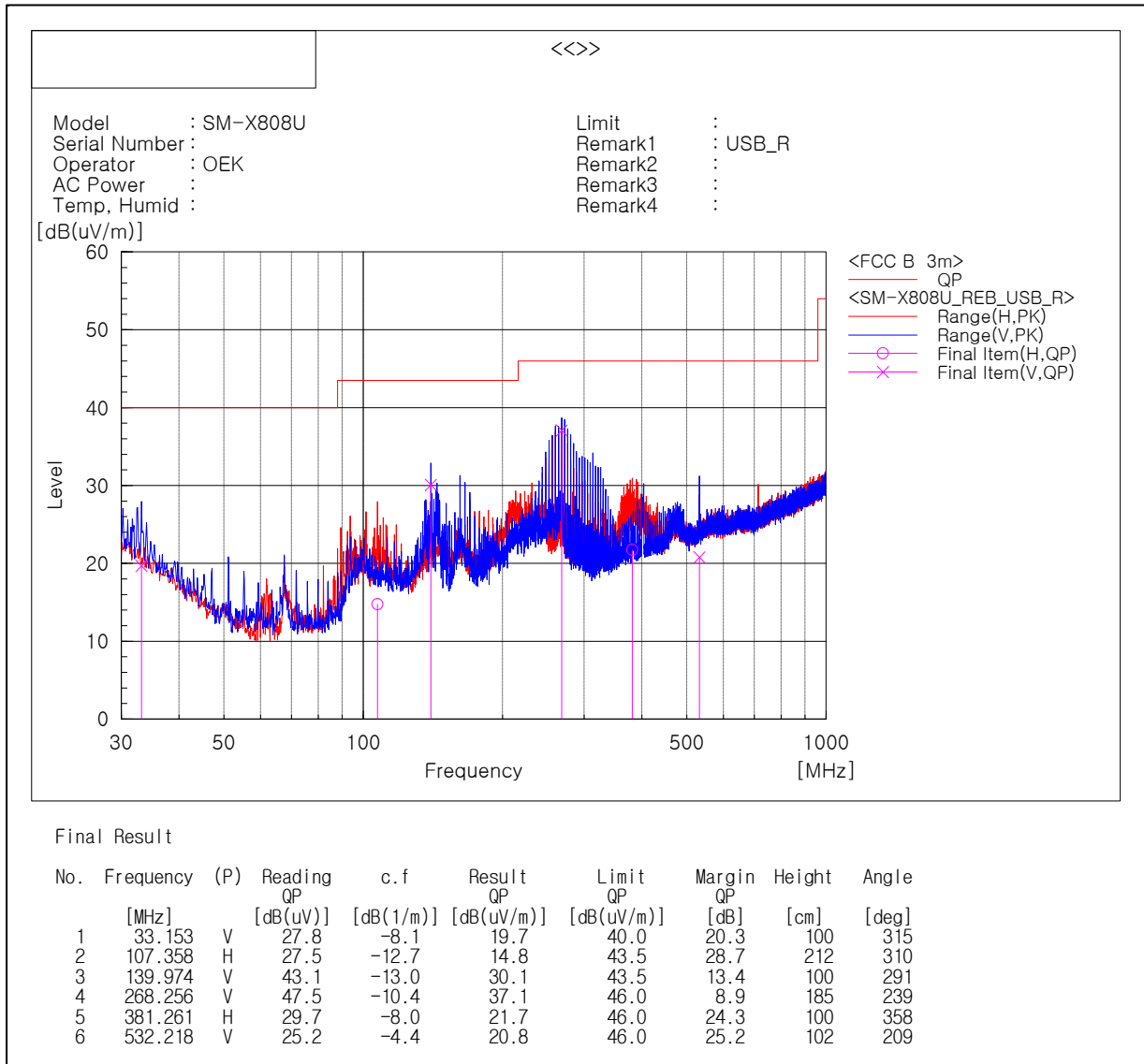
Note 3) Radiated emissions (Tx / Rx frequency) from the transceiver shall be ignored.

- Data transmission in the 2.4 GHz ISM band (Bluetooth/Wi-Fi)

: Operating frequencies (2 400 ~ 2 483.5) MHz

□ Operating Mode 5

- Frequencies below 1 GHz



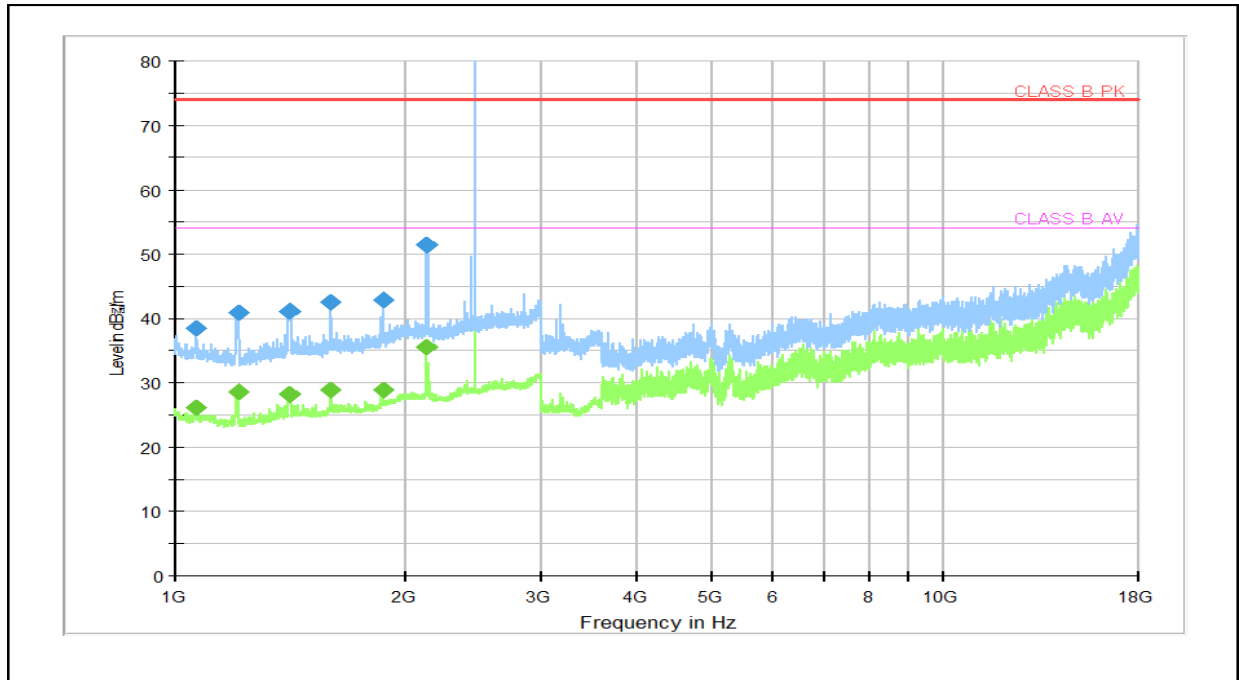
Note1) Receiving antenna polarization : Horizontal, Vertical

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)
1 061.500	38.52	---	74.00	35.48	100.70	V	203.00	6.14
1 063.500	---	26.24	54.00	27.76	100.80	V	56.00	6.15
1 209.500	---	28.58	54.00	25.42	101.10	V	351.00	6.04
1 210.500	40.81	---	74.00	33.19	101.30	V	359.00	6.04
1 406.500	---	28.11	54.00	25.89	100.20	V	329.00	7.66
1 409.000	41.22	---	74.00	32.78	100.50	V	347.00	7.70
1 595.500	42.39	---	74.00	31.61	101.50	V	128.00	9.29
1 595.500	---	28.77	54.00	25.23	101.40	V	128.00	9.29
1 866.000	42.96	---	74.00	31.04	101.70	V	123.00	10.45
1 866.500	---	28.90	54.00	25.10	101.80	V	120.00	10.45
2 127.500	---	35.59	54.00	18.41	100.80	V	167.00	11.89
2 129.000	51.29	---	74.00	22.71	100.90	V	167.00	11.90

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)

: Operating frequencies (2 400 ~ 2 483.5) MHz