EMC TEST REPORT

Project No.	LBE20190680	**Issue No.**	1
Applicant	**Name of organization**	Samsung Electronics Co., Ltd.	
	Address	(Maetan-dong) 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Republic of Korea	
	Date of application	April 25, 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	A3LSMA205U	
	Kind of product	Mobile Phone	
	Model No.	SM-A205U	
	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		April 26, 2019 ~ May 03, 2019	
Issue date		May 31, 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 : Mi-Young Lee	**Reviewed by** : Young-Hun 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.

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

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1. Report Information

1.1 Revision history

No.	Date of Issue	Revised detailed information
Issue 0	10 May, 2019	There are no revisions and this version is basic test report.
Issue 1	31 May, 2019	Changed Manufacturer (TianJin China, Gumi Korea → Vietnam)
		Changed LTE Band (Deleted LTE Band14/29/30)

1.2 RSE test report no.

No.	Remark
1M1904240065-12	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-A205U	-	SAMSUNG	A3LSMA205U
B	Battery	EB-BA505ABU	-	SAMSUNG	-
C	Headset	EHS61ASFBE	-	SAMSUNG	-
D	Data Cable	EP-DR140ABE	-	SAMSUNG	-
E	Micro SD Card	64GB	-	SAMSUNG	-
F	Laptop Computer	Latitude5580	1CHRYM2	Dell	-
			D3HRYM2	Dell	-
G	Laptop AC Adapter	LA65NM130	5D77	Dell	-
			5B3C	Dell	-
H	Mouse	AA-SM7PCPB	CN57BA5903634ADV 8JK281082	SAMSUNG	-
			CNBA5903634ADV8J 31O3050	SAMSUNG	-
I	OTG Gender	EE-UG970	-	SAMSUNG	
J	Router	DIR-806A	RF0F1D5000688	D-Link	-
			RF0F1D8011504	D-Link	-
K	Travel Adapter	EP-TA200	R37M14MKCP1DK3	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	Y	From EUT to Laptop Computer
2	Headset	1.6	N	For EUT
3	Power	1.8	N	For Laptop Computer to Laptop AC Adapter
4	Power	1.5	N	For Laptop AC Adapter
5	LAN	1.5	Y	From Laptop Computer to Router
6	USB	0.8	N	From Laptop Computer to Router for DC Power
7	USB	1.8	N	From OTG Gender to Mouse

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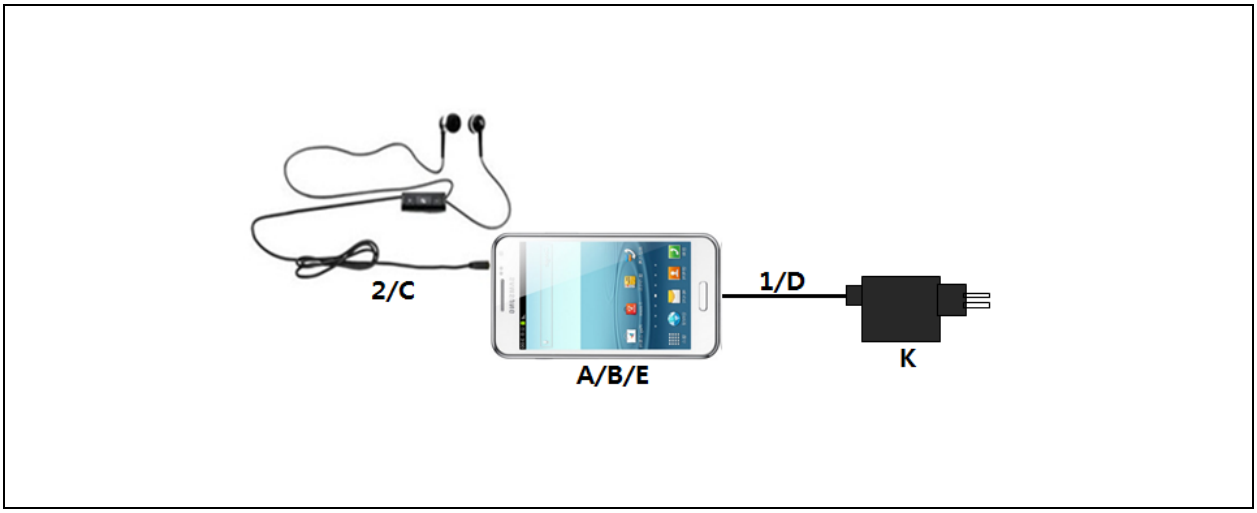
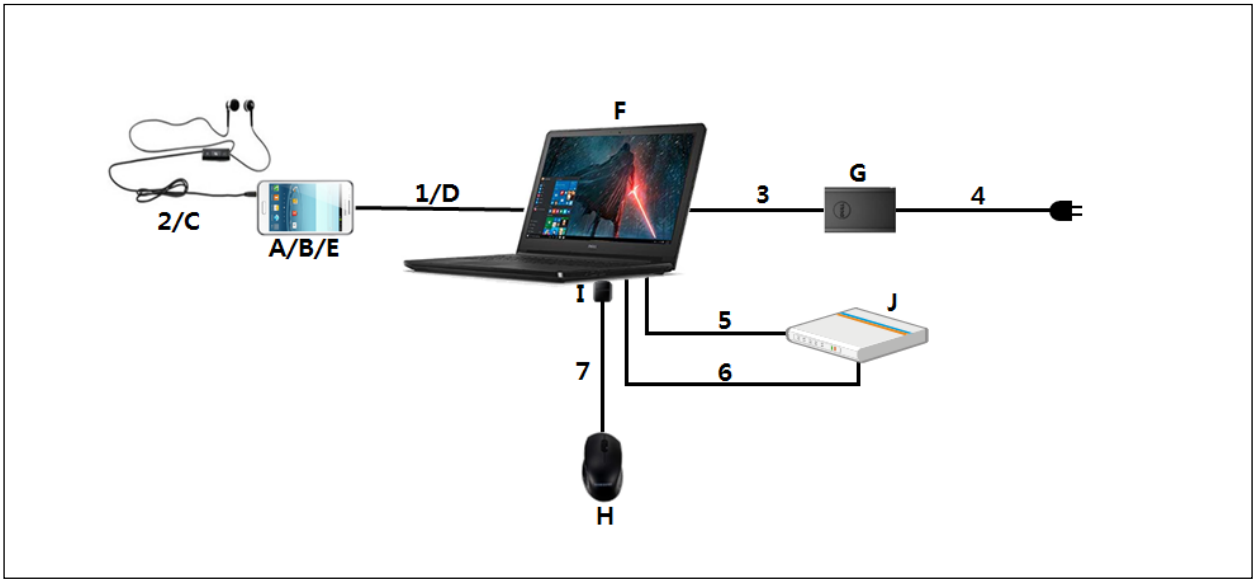
4.5 Test arrangement

4.5.1 Conducted Emission



[Mode 1 - 4]



[Mode 5]

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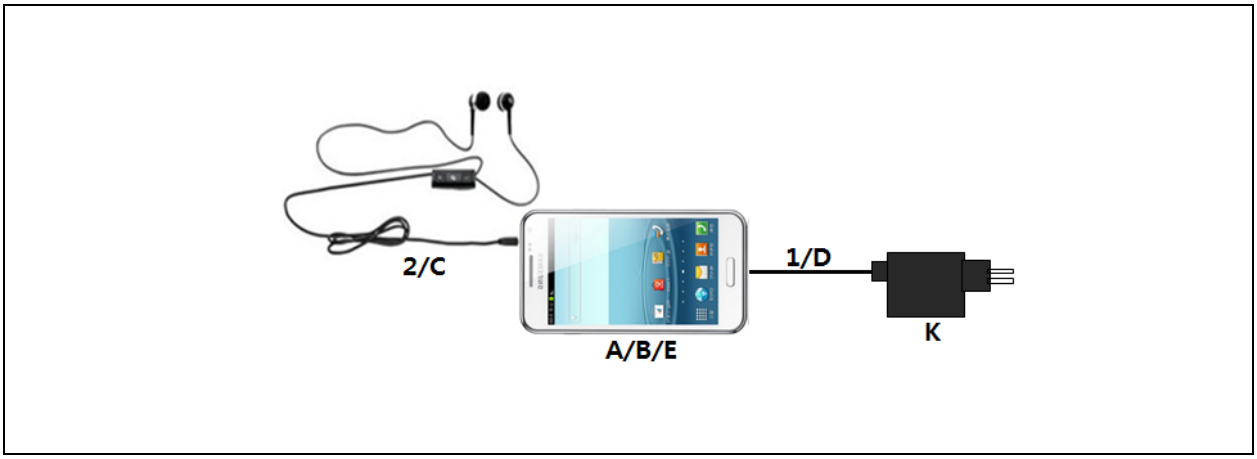
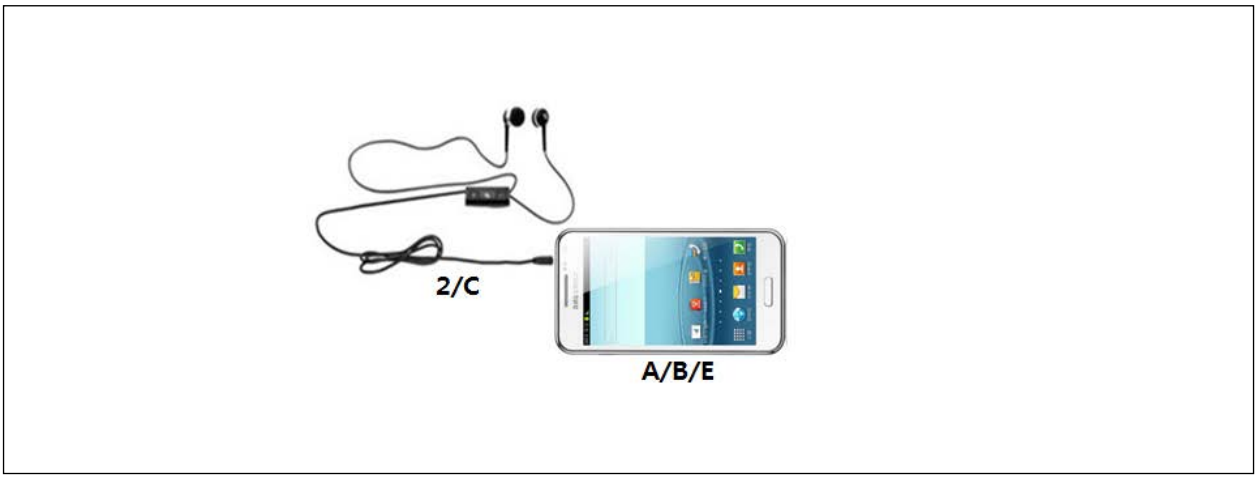
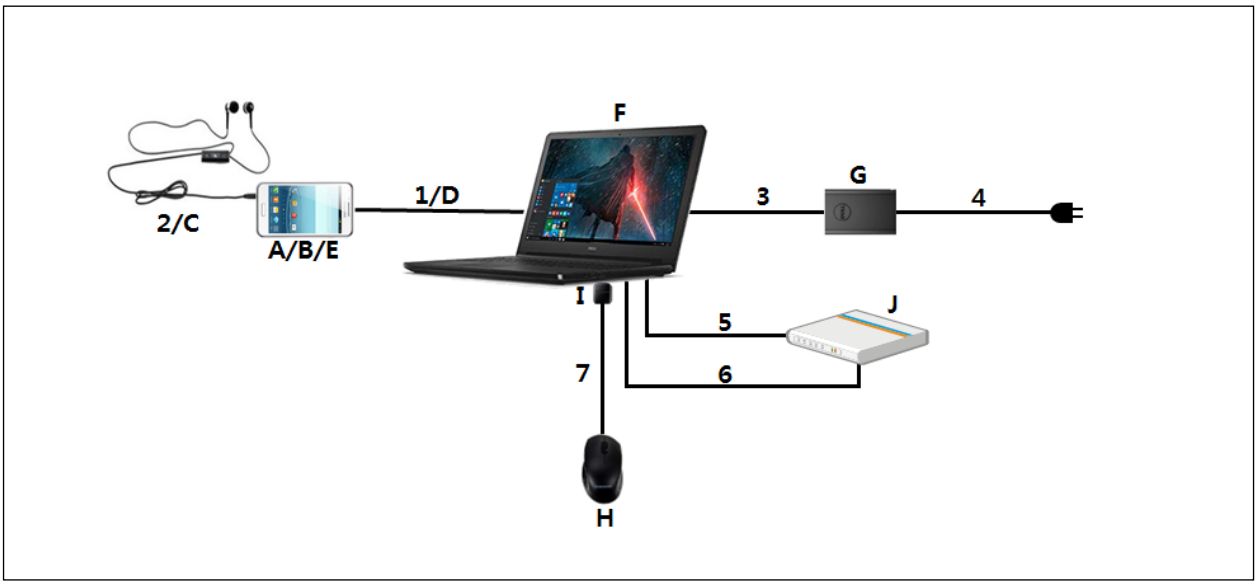
4.5.2 Radiated Emission



[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 FDD1/2/3/4/5/7/8/12/13/17/20/25/26/28/66/71, LTE TDD38/39/40/41, CDMA BC0/1/10 and Incorporates a camera, Bluetooth, Wi-Fi, FM Radio, GNSS, NFC and Audio/Video.

4.6.1 The variant models

- None

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) 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 (1 GHz ~ 6 GHz)	Horizontal	5.33 dB
	Vertical	5.06 dB
Radiated Disturbance (6 GHz ~ 18 GHz)	Horizontal	5.33 dB
	Vertical	5.32 dB

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5. Results of individual test

5.1 Conducted disturbance

The EUT is connected to a LISN via travel adapter. If the EUT is connected to the Laptop Computer USB port, the Laptop AC adapter is connected to a LISN.

Both conducted lines are measured in Quasi-Peak and CISPR-Average mode, including the worst-case data points for each tested configuration. The EUT measured in accordance with the methods described in standards.

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

Frequency range Limits [MHz]	Resolution Bandwidth [kHz]	Limits [dB(μV)]	
		Quasi-peak	Average
0,15 to 0,50	9	66 to 56	56 to 46
0,50 to 5	9	56	46
5 to 30	9	60	50
NOTE 1 The lower limit shall apply at the transition frequency. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.			

5.1.1 Test instrumentation

EMC No.	Test Instrument	Model name	Manufacturer	Serial No.	Calibration	
					Date	Interval (Month)
E5I-002	Universal Radio Communicator	CMU200	R&S	100612	2018-08-31	12
E5I-017	EMI Test Receiver	ESU8	R&S	100483	2019-01-16	12
E5I-127	Two-Line V-Network	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	2019-04-26	Test engineer	Mi-Young Lee
Climate condition	Ambient temperature	(21.5 ~ 22.2) ℃	Limit (15.0 to 35.0) ℃
	Relative humidity	(44.5 ~ 46.3) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(100.8 ~ 101.0) kPa	Limit (86.0 to 106.0) kPa
Test place	Shield Room (SR8)		

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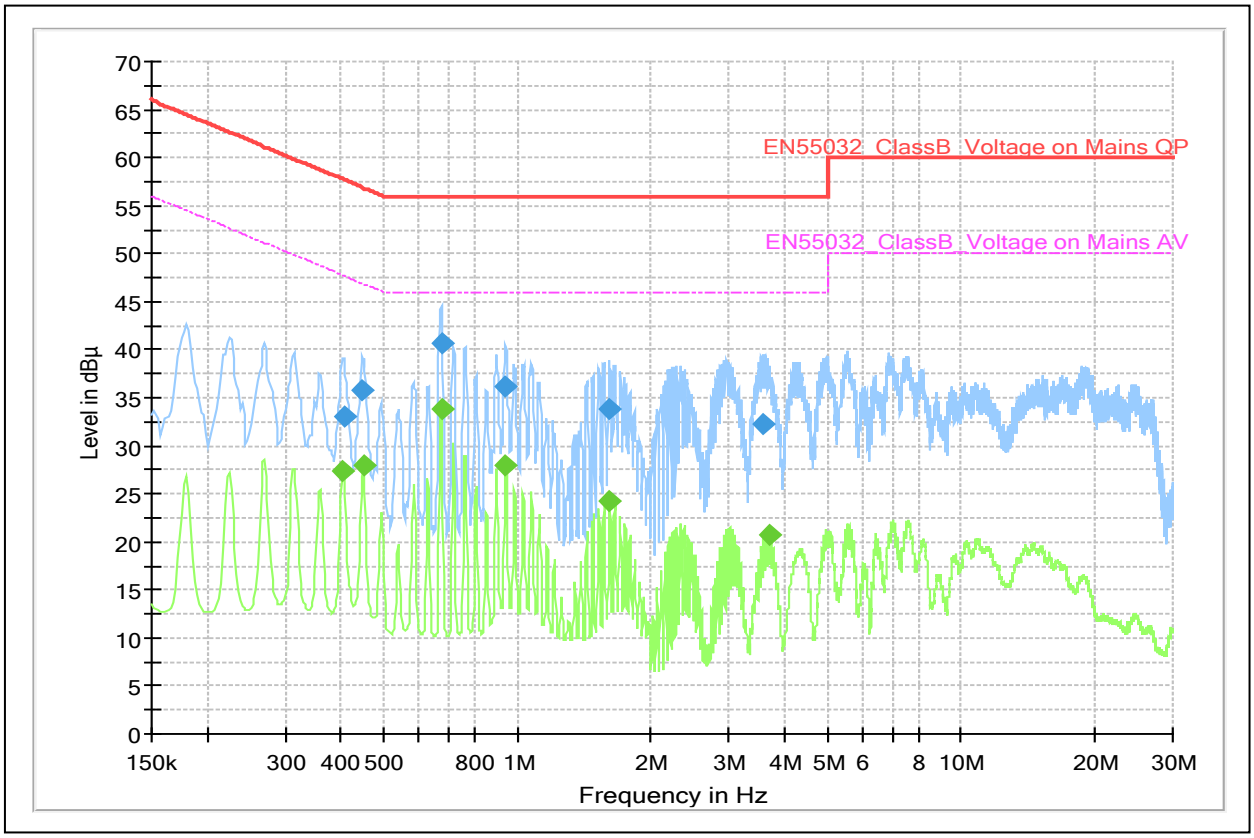
5.1.3 Test results

☐ 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)
0.404	---	27.3	47.8	20.5	L1	10.2
0.409	33.0	---	57.7	24.7	L1	10.2
0.447	35.8	---	56.9	21.1	L1	10.2
0.449	---	28.0	46.9	18.9	L1	10.2
0.674	---	33.9	46.0	12.1	L1	10.2
0.674	40.7	---	56.0	15.3	L1	10.2
0.942	36.1	---	56.0	19.9	L1	10.0
0.942	---	28.0	46.0	18.0	L1	10.0
1.610	33.8	---	56.0	22.2	L1	10.0
1.615	---	24.3	46.0	21.7	L1	10.0
3.570	32.3	---	56.0	23.7	L1	10.0
3.683	---	20.6	46.0	25.4	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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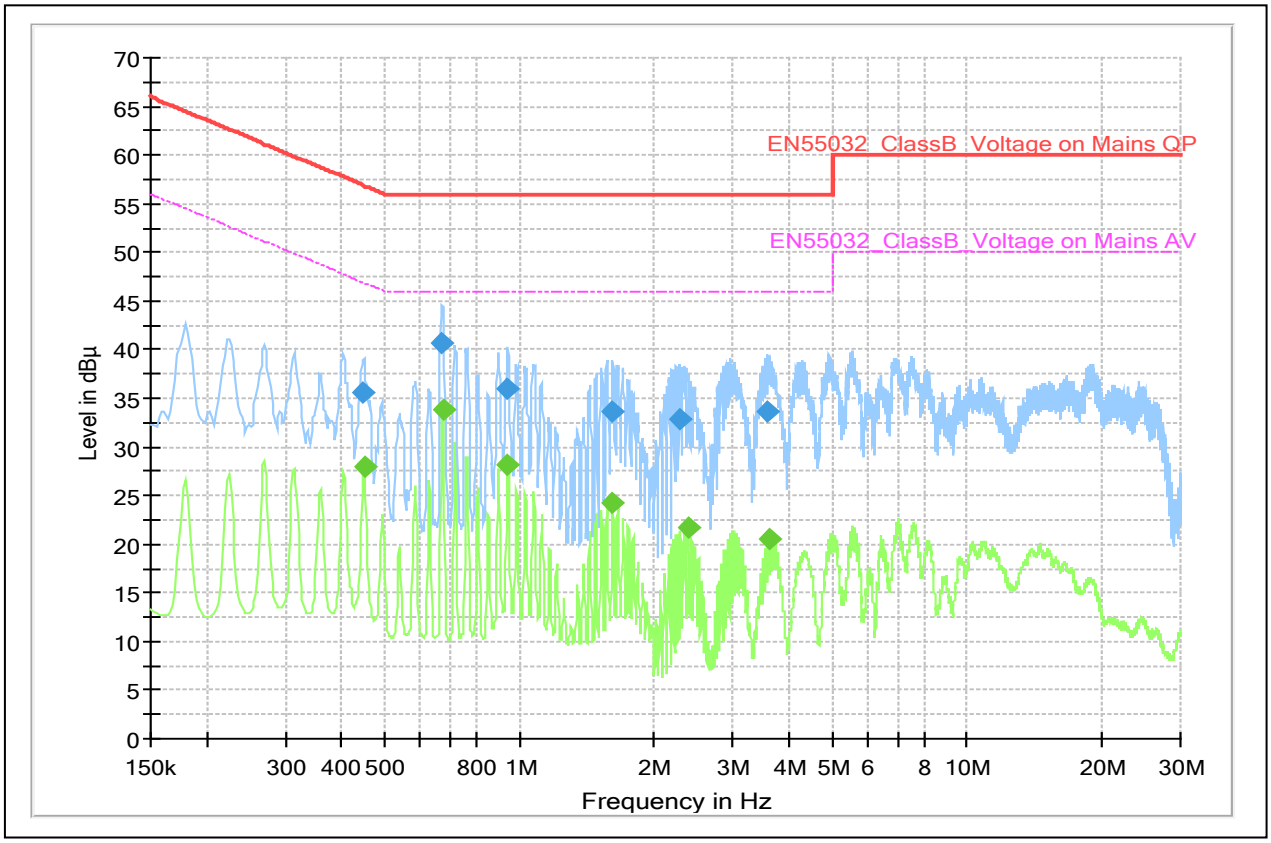
☐ Operating Mode 2: AC Mains



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)
0.447	35.7	---	56.9	21.2	L1	10.2
0.449	---	28.0	46.9	18.9	L1	10.2
0.672	40.8	---	56.0	15.2	L1	10.2
0.674	---	33.9	46.0	12.1	L1	10.2
0.942	---	28.1	46.0	17.9	L1	10.0
0.942	35.9	---	56.0	20.1	L1	10.0
1.608	33.7	---	56.0	22.3	L1	10.0
1.615	---	24.3	46.0	21.7	L1	10.0
2.292	32.8	---	56.0	23.2	L1	10.0
2.380	---	21.8	46.0	24.2	L1	10.0
3.584	33.6	---	56.0	22.4	L1	10.0
3.633	---	20.5	46.0	25.5	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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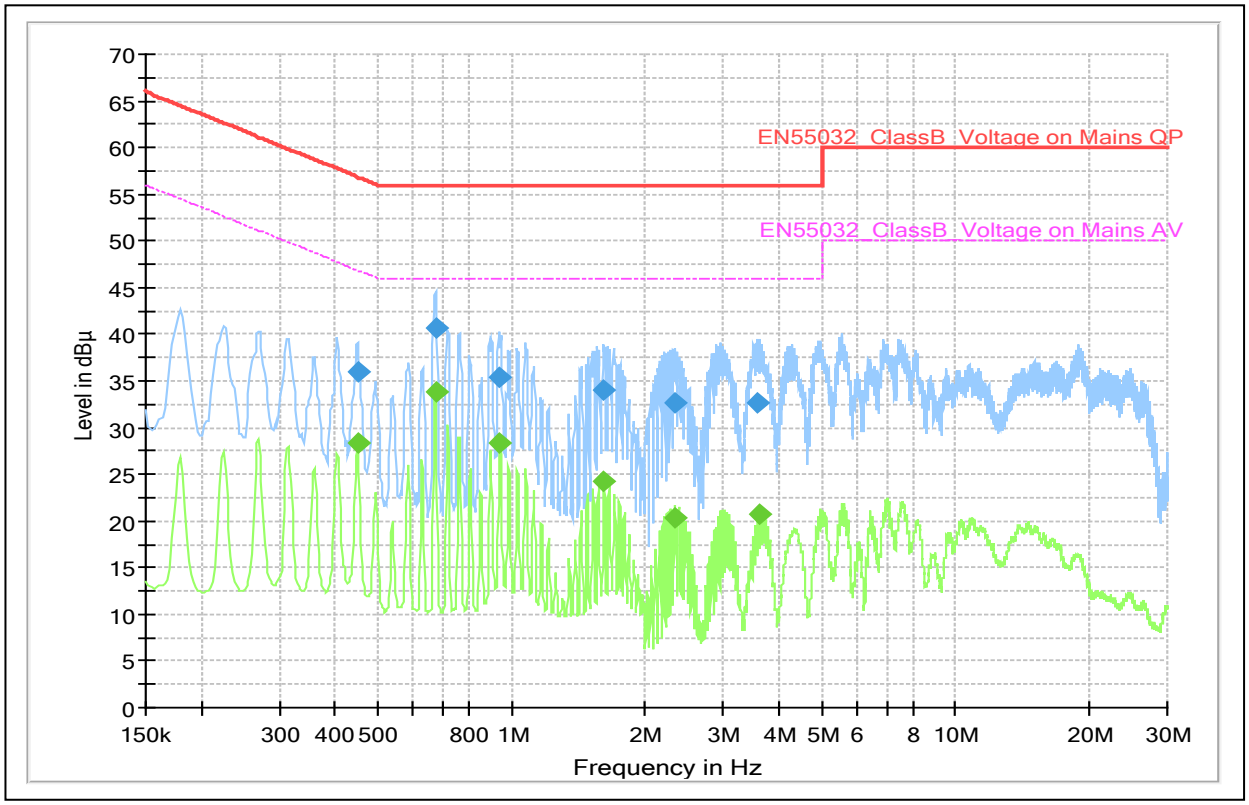
☐ Operating Mode 3: AC Mains



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)
0.449	---	28.3	46.9	18.6	L1	10.2
0.449	36.0	---	56.9	20.9	L1	10.2
0.674	---	33.9	46.0	12.1	L1	10.2
0.674	40.7	---	56.0	15.3	L1	10.2
0.938	35.4	---	56.0	20.6	L1	10.0
0.942	---	28.3	46.0	17.7	L1	10.0
1.613	34.1	---	56.0	21.9	L1	10.0
1.617	---	24.3	46.0	21.7	L1	10.0
2.326	---	20.3	46.0	25.7	L1	10.0
2.339	32.7	---	56.0	23.3	L1	10.0
3.563	32.7	---	56.0	23.3	L1	10.0
3.640	---	20.7	46.0	25.3	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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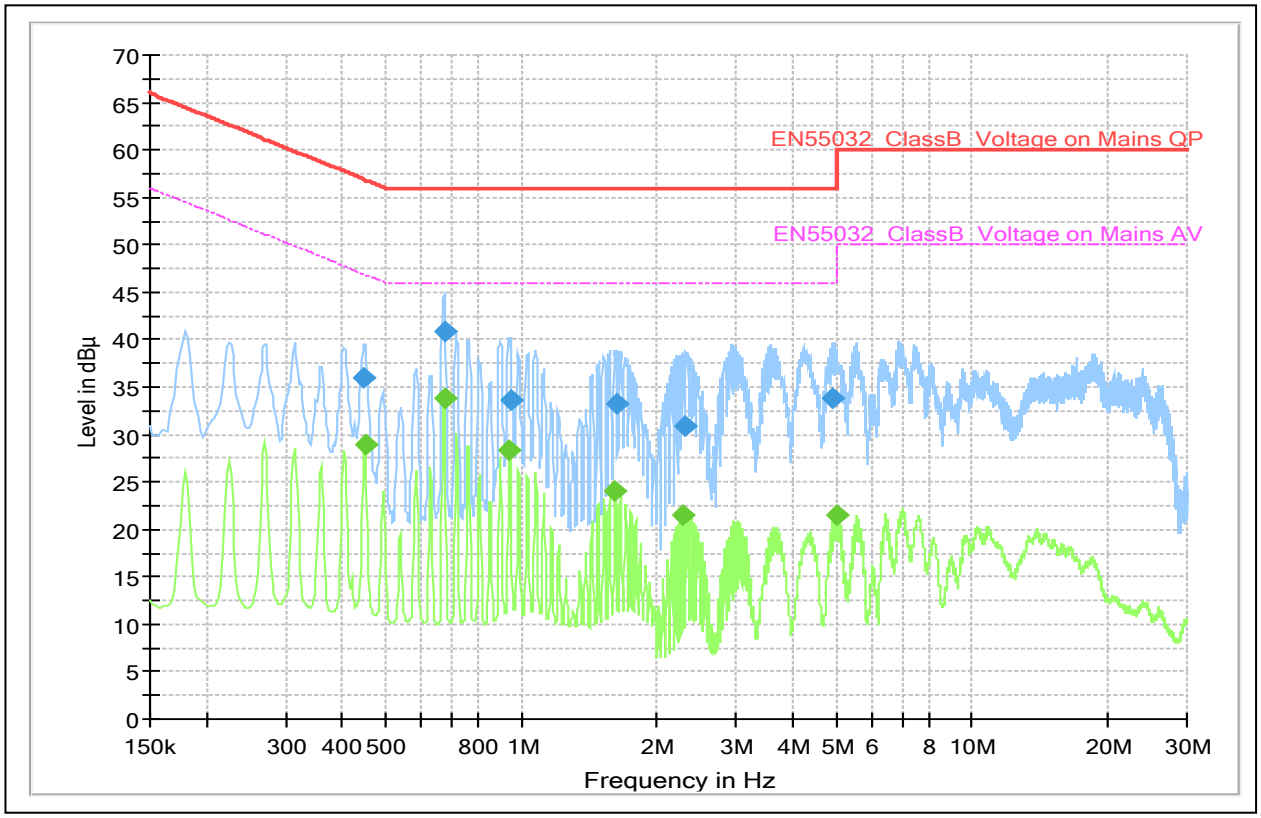
☐ Operating Mode 4: AC Mains



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)
0.447	35.9	---	56.9	21.0	L1	10.2
0.449	---	29.0	46.9	17.9	L1	10.2
0.674	---	33.9	46.0	12.1	L1	10.2
0.674	40.8	---	56.0	15.2	L1	10.2
0.942	---	28.4	46.0	17.6	L1	10.0
0.949	33.7	---	56.0	22.3	L1	10.0
1.617	---	24.1	46.0	21.9	L1	10.0
1.624	33.2	---	56.0	22.8	L1	10.0
2.290	---	21.5	46.0	24.5	L1	10.0
2.319	30.9	---	56.0	25.1	L1	10.0
4.913	33.8	---	56.0	22.2	L1	10.0
5.008	---	21.5	50.0	28.5	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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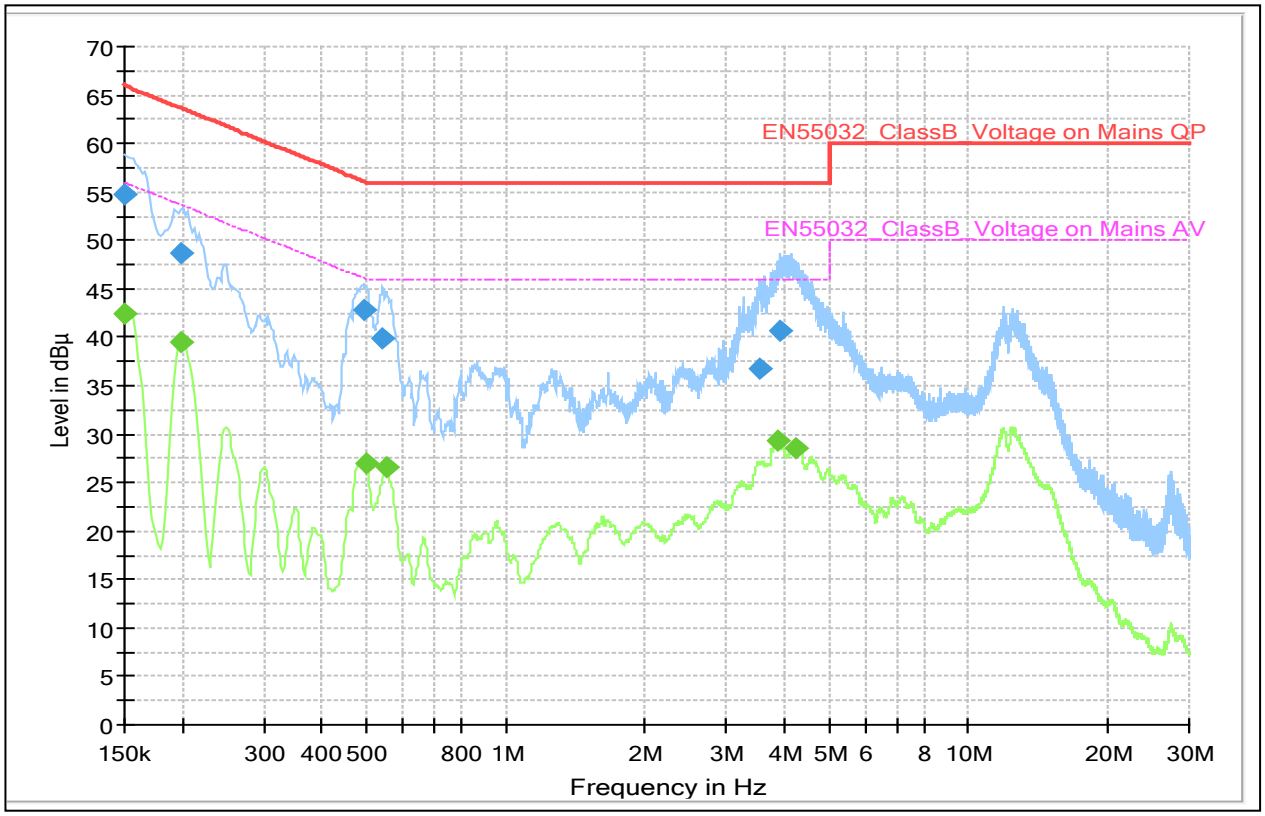
☐ Operating Mode 5: AC Mains



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	54.7	---	66.0	11.3	N	9.9
0.150	---	42.4	56.0	13.6	L1	9.9
0.200	---	39.5	53.6	14.1	L1	10.0
0.200	48.7	---	63.6	14.9	L1	10.0
0.494	42.8	---	56.1	13.3	L1	10.2
0.499	---	26.9	46.0	19.1	L1	10.2
0.544	39.9	---	56.0	16.1	L1	10.2
0.553	---	26.6	46.0	19.4	L1	10.2
3.530	36.8	---	56.0	19.2	N	9.9
3.858	---	29.3	46.0	16.7	L1	10.0
3.921	40.8	---	56.0	15.2	N	9.9
4.261	---	28.6	46.0	17.4	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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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	2019-01-30	12
E5I-149	Horn Antenna	HF907	R&S	102525	2018-06-15	24
E5I-039	Signal Conditioning Unit	SCU-18	R&S	10211	2019-01-23	12
E5I-037	Wide Band Horn Antenna	WBH 18-40K	R&S	11201	2019-01-31	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	2019-05-02 ~ 2019-05-03	**Test engineer**	Mi-Young Lee
Climate condition	Ambient temperature	(22.5 ~ 23.2) ℃	Limit (15.0 to 35.0) ℃
	Relative humidity	(46.6 ~ 50.3) % R.H.	Limit (25.0 to 75.0) % R.H.
	Atmospheric pressure	(101.8 ~ 102.5) kPa	Limit (86.0 to 106.0) kPa
Test place	Semi-Anechoic Chamber (SAC4)		

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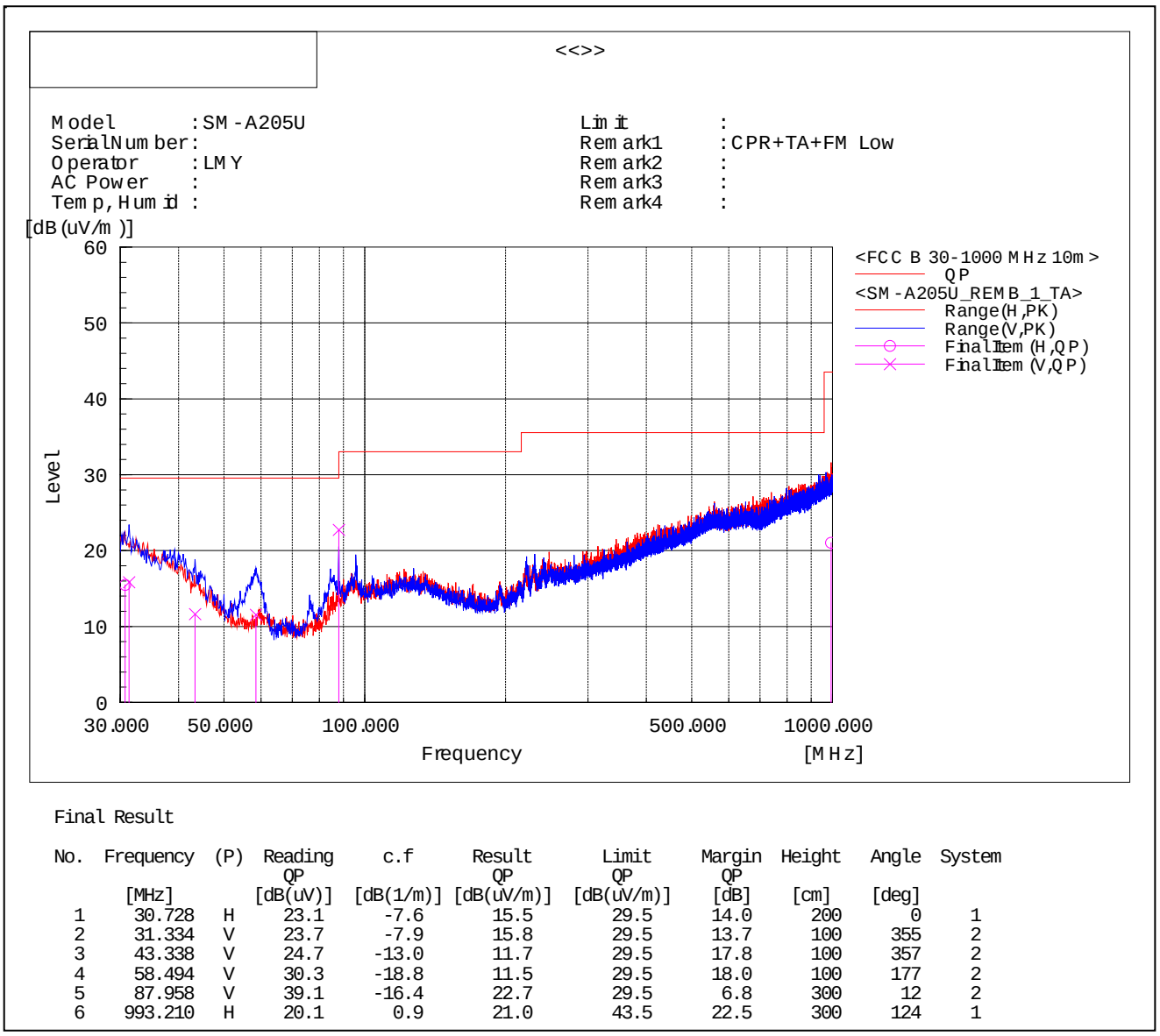
5.2.3 Test results

☐ 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	30.728	H	23.1	-7.6	15.5	29.5	14.0	200	0	1
2	31.334	V	23.7	-7.9	15.8	29.5	13.7	100	355	2
3	43.338	V	24.7	-13.0	11.7	29.5	17.8	100	357	2
4	58.494	V	30.3	-18.8	11.5	29.5	18.0	100	177	2
5	87.958	V	39.1	-16.4	22.7	29.5	6.8	300	12	2
6	993.210	H	20.1	0.9	21.0	43.5	22.5	300	124	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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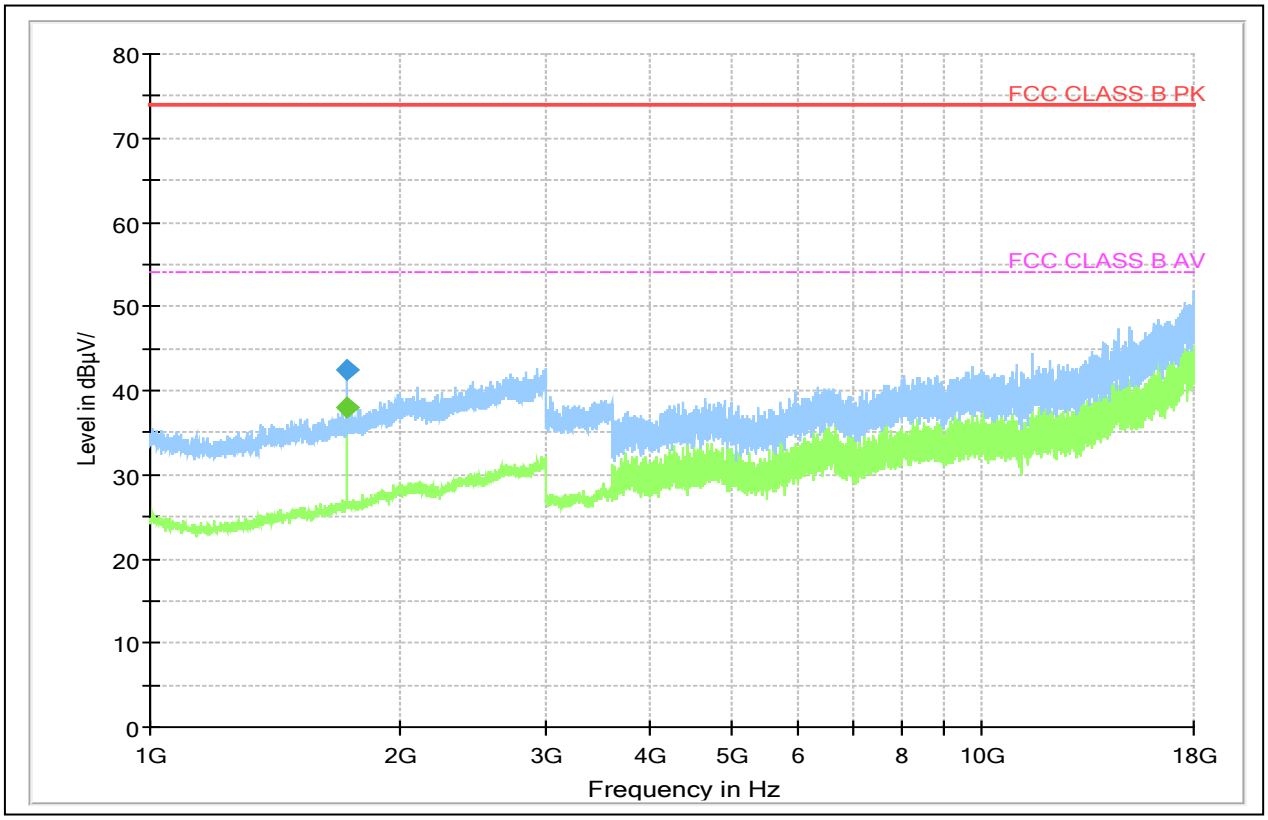
- Frequencies above 1 GHz



Frequency (MHz)	PK (dBµV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 723.600	---	38.0	54.0	16.0	100.0	V	226.0	10.8
1 723.600	42.6	---	74.0	31.4	100.0	V	226.0	10.8

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

Note 2) Receiving antenna polarization : Horizontal, Vertical

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

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

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

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

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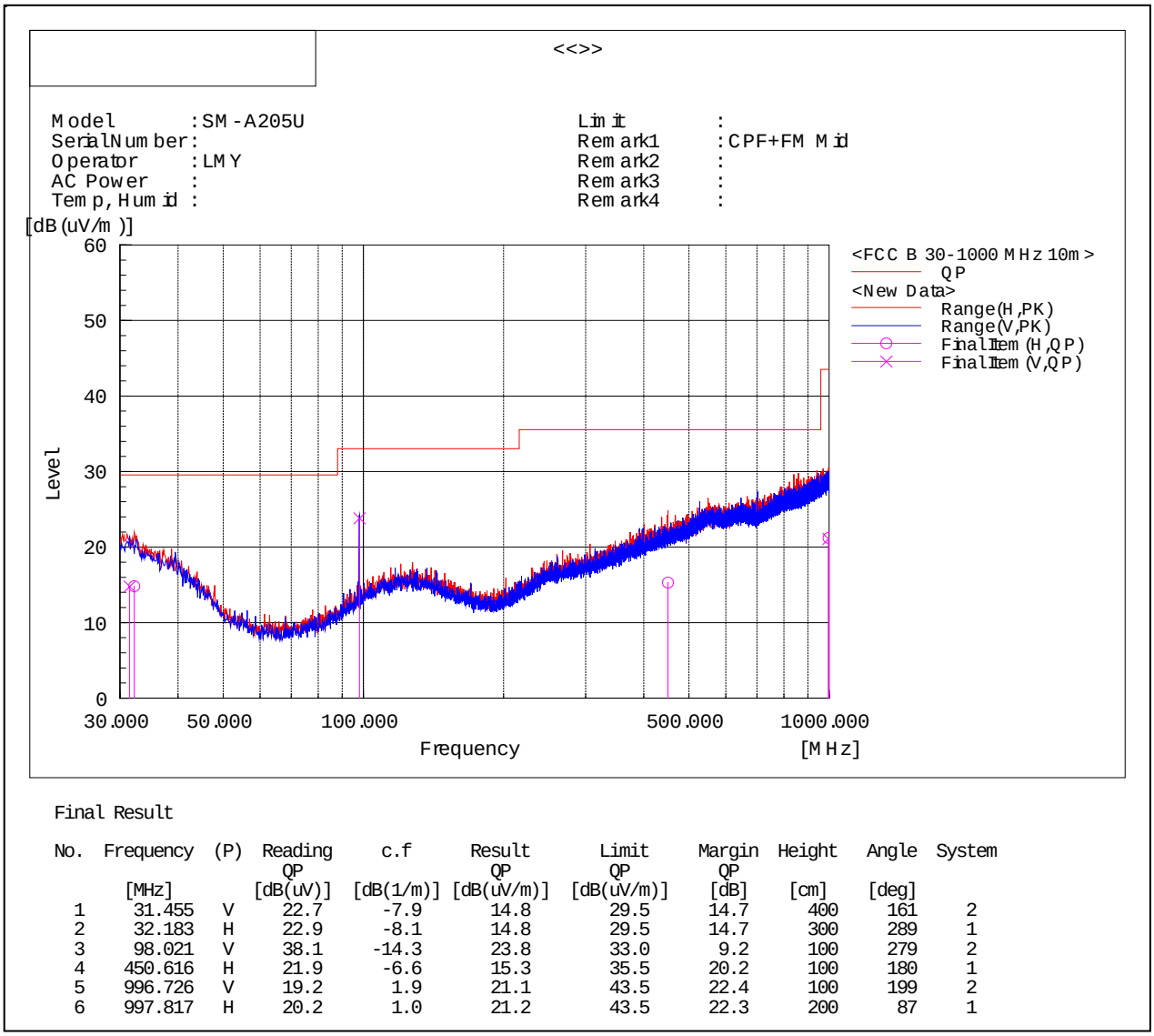
☐ Operating Mode 2

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	31.455	V	22.7	-7.9	14.8	29.5	14.7	400	161	2
2	32.183	H	22.9	-8.1	14.8	29.5	14.7	300	289	1
3	98.021	V	38.1	-14.3	23.8	33.0	9.2	100	279	2
4	450.616	H	21.9	-6.6	15.3	35.5	20.2	100	180	1
5	996.726	V	19.2	1.9	21.1	43.5	22.4	100	199	2
6	997.817	H	20.2	1.0	21.2	43.5	22.3	200	87	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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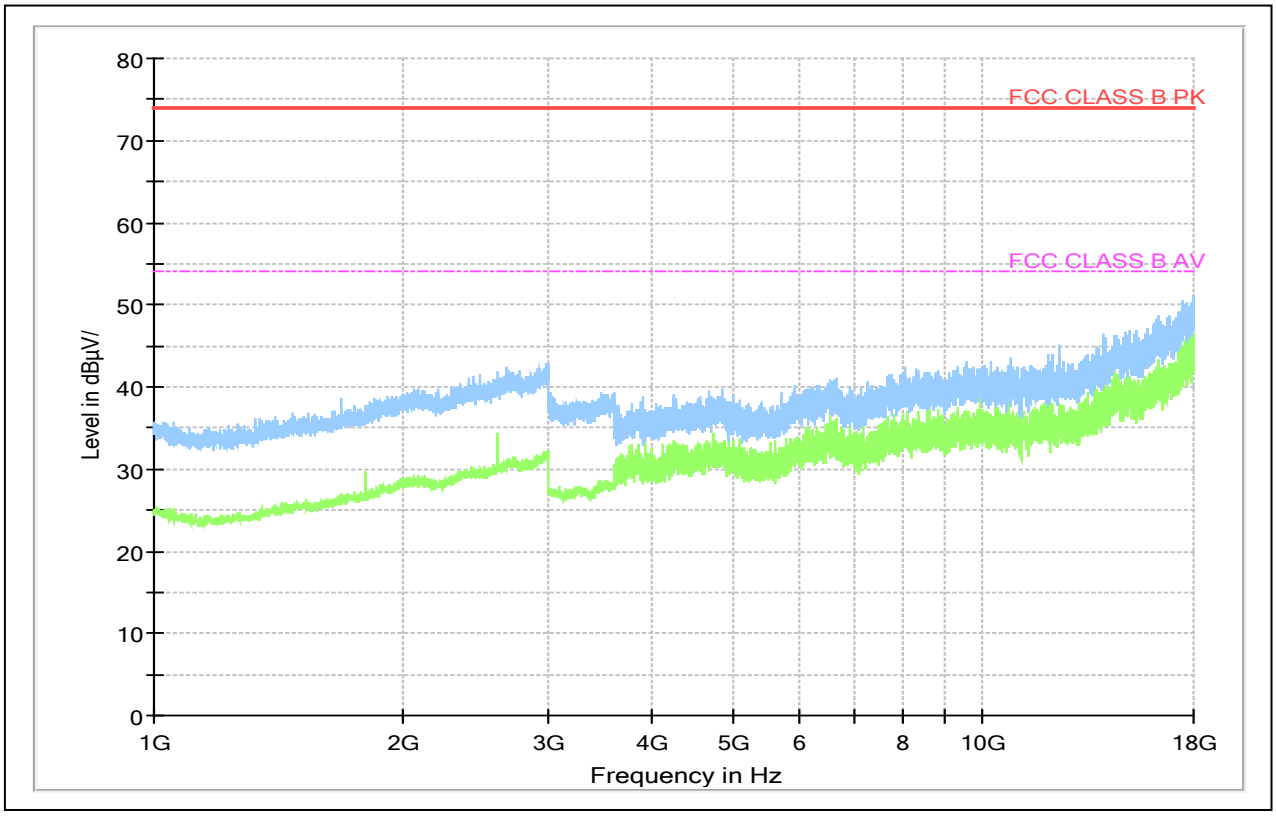
- Frequencies above 1 GHz



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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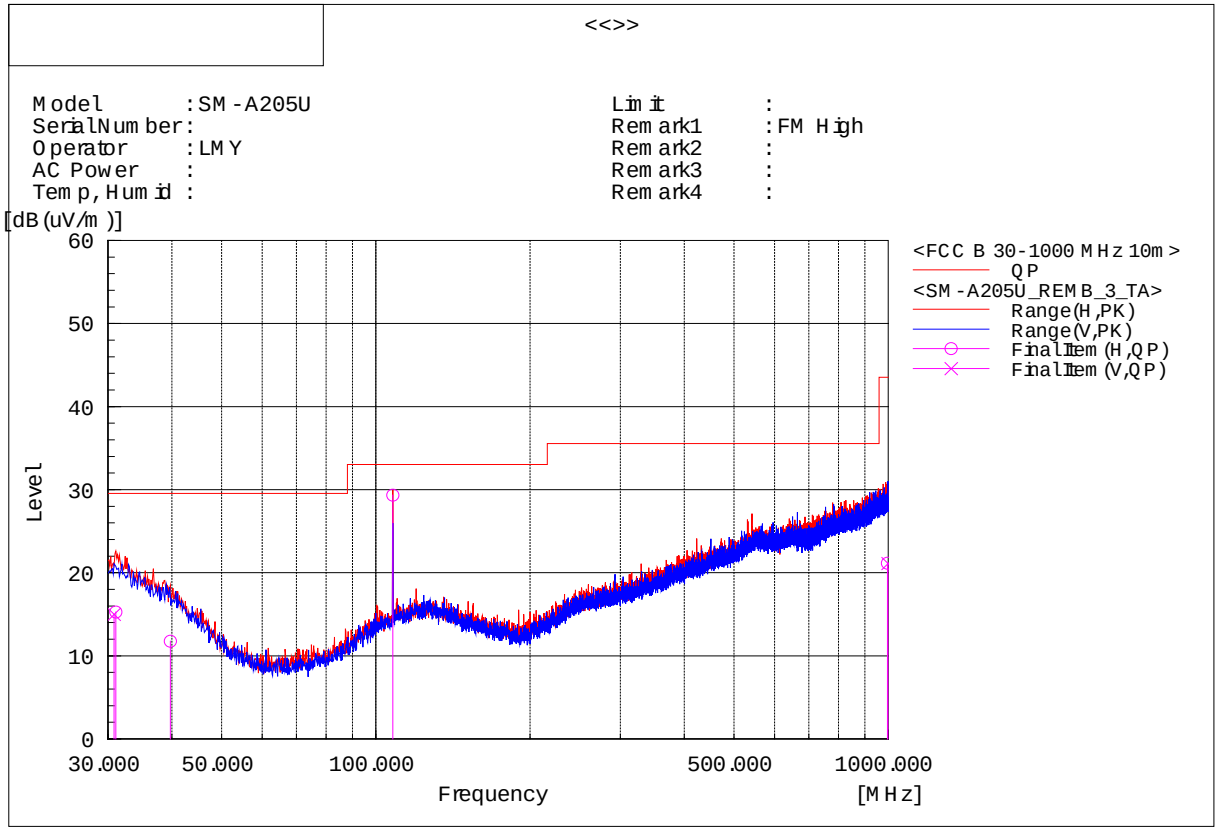
☐ Operating Mode 3

- 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	30.849	V	22.8	-7.8	15.0	29.5	14.5	400	270	2
2	31.091	H	23.0	-7.7	15.3	29.5	14.2	100	241	1
3	39.700	H	23.0	-11.2	11.8	29.5	17.7	100	351	1
4	107.964	H	42.6	-13.3	29.3	33.0	3.7	400	248	1
5	996.847	H	20.2	1.0	21.2	43.5	22.3	100	55	1
6	998.302	V	19.2	1.9	21.1	43.5	22.4	300	110	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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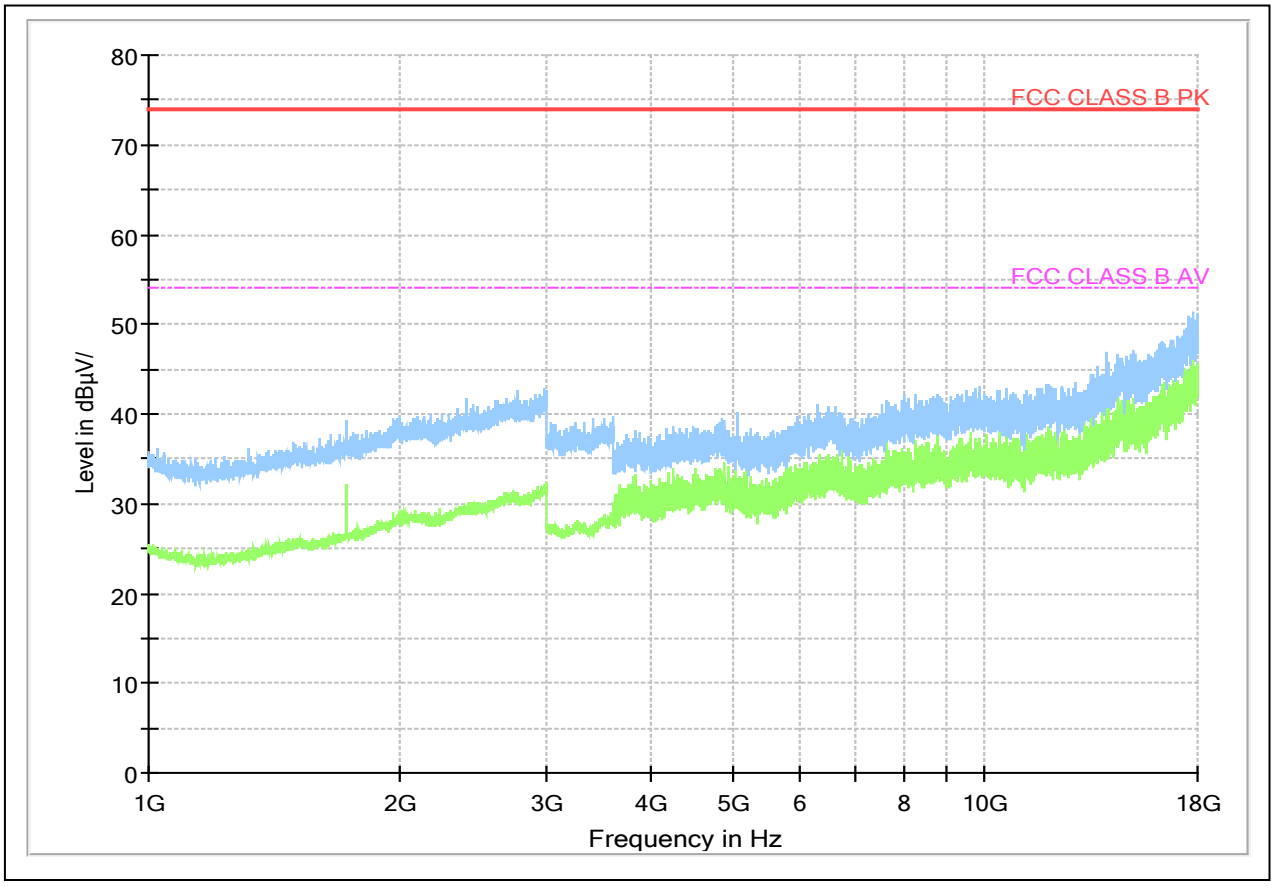
- Frequencies above 1 GHz



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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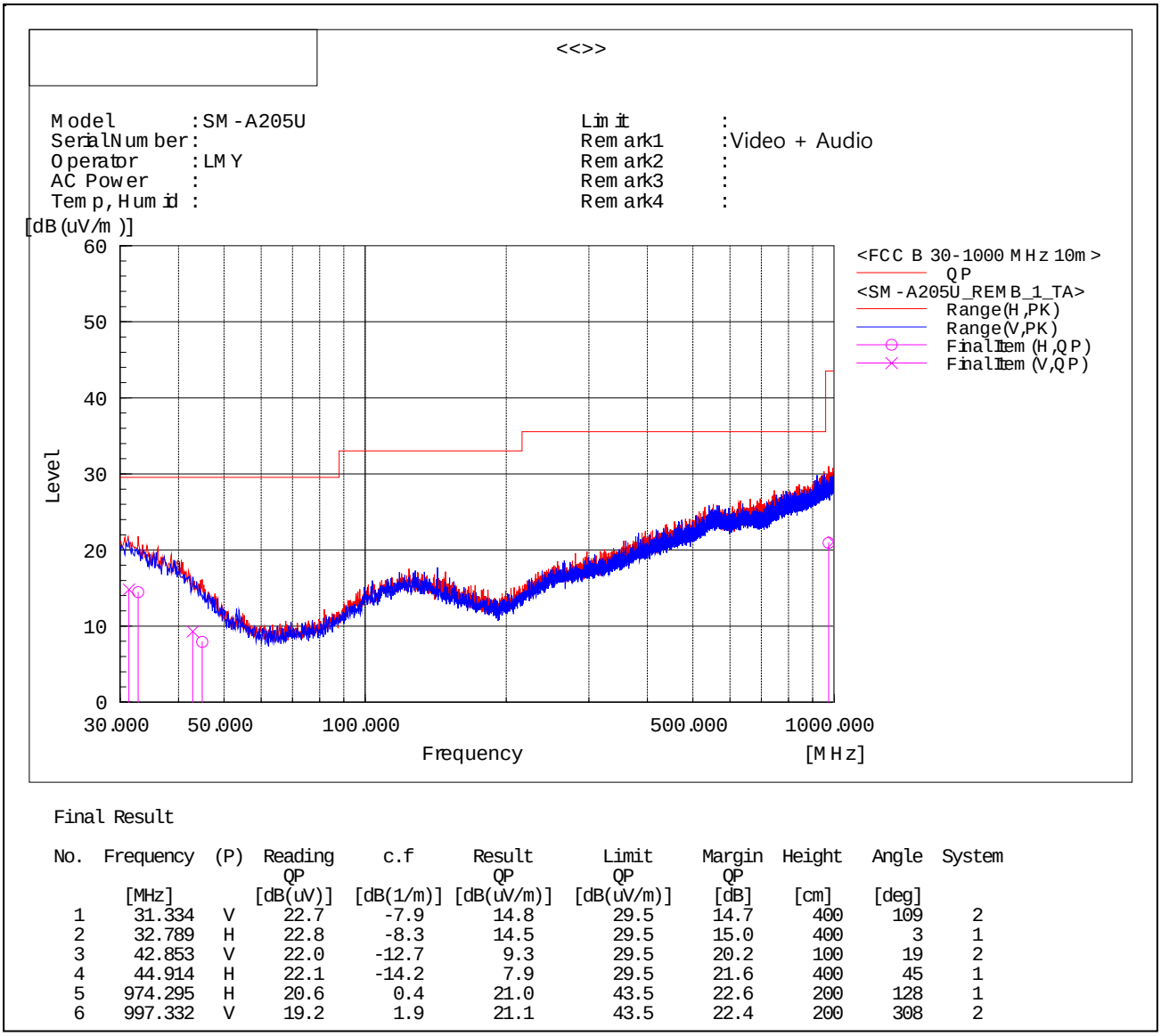
☐ Operating Mode 4

- 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	31.334	V	22.7	-7.9	14.8	29.5	14.7	400	109	2
2	32.789	H	22.8	-8.3	14.5	29.5	15.0	400	3	1
3	42.853	V	22.0	-12.7	9.3	29.5	20.2	100	19	2
4	44.914	H	22.1	-14.2	7.9	29.5	21.6	400	45	1
5	974.295	H	20.6	0.4	21.0	43.5	22.6	200	128	1
6	997.332	V	19.2	1.9	21.1	43.5	22.4	200	308	2

Note1) Receiving antenna polarization : Horizontal, Vertical
Test Distance : 10 m, Antenna Height : 1 to 4 meters
Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain)
Margin (QP) = Limit – Level (QP)
QP = Quasi-Peak, c.f = Correction Factor

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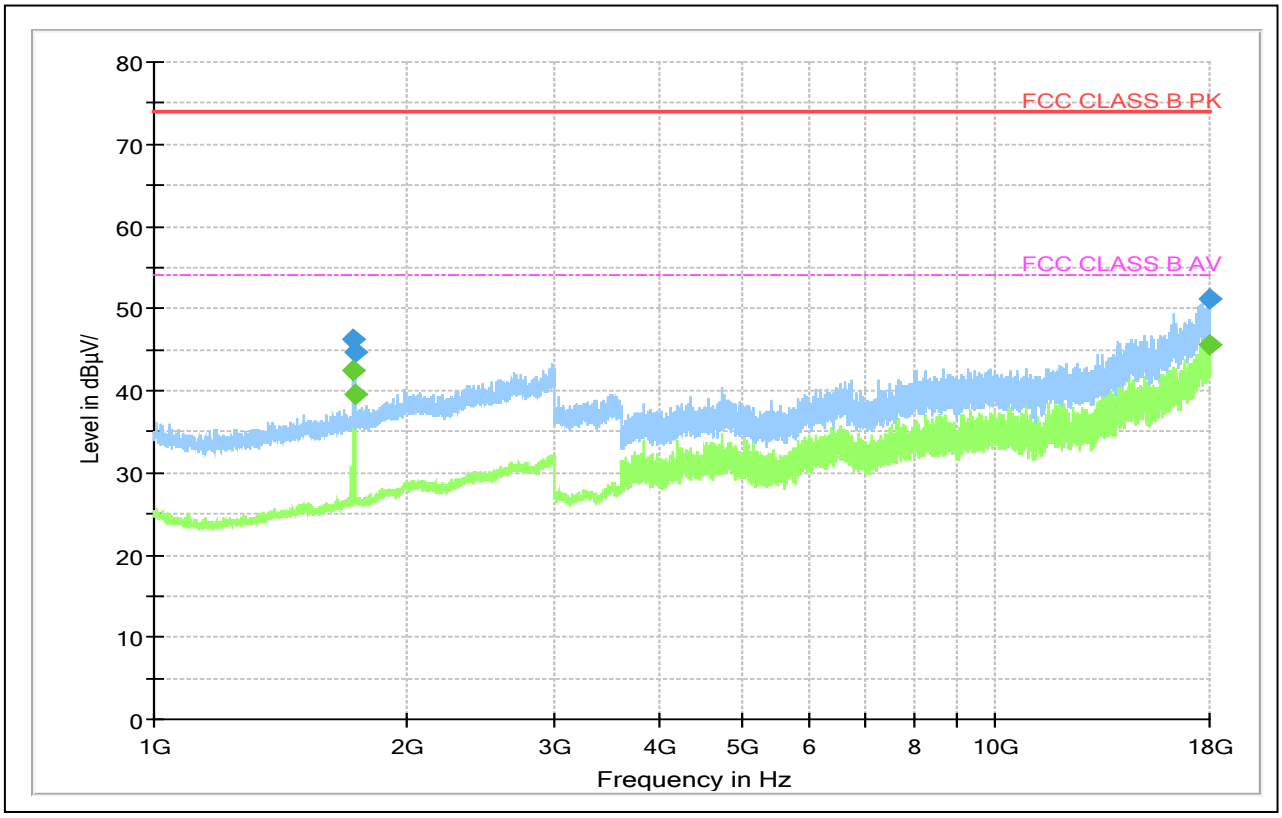
- Frequencies above 1 GHz



Frequency (MHz)	PK (dBµV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 723.600	---	42.6	54.0	11.4	100.0	H	350.0	10.8
1 723.600	46.3	---	74.0	27.7	100.0	H	350.0	10.8
1 733.600	---	39.6	54.0	14.4	100.0	H	318.0	10.8
1 733.600	44.6	---	74.0	29.4	100.0	H	318.0	10.8
17 997.000	51.3	---	74.0	22.7	100.0	H	336.0	35.3
17 998.500	---	45.6	54.0	8.4	100.0	V	155.0	35.3

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

Note 2) Receiving antenna polarization : Horizontal, Vertical

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

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

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

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

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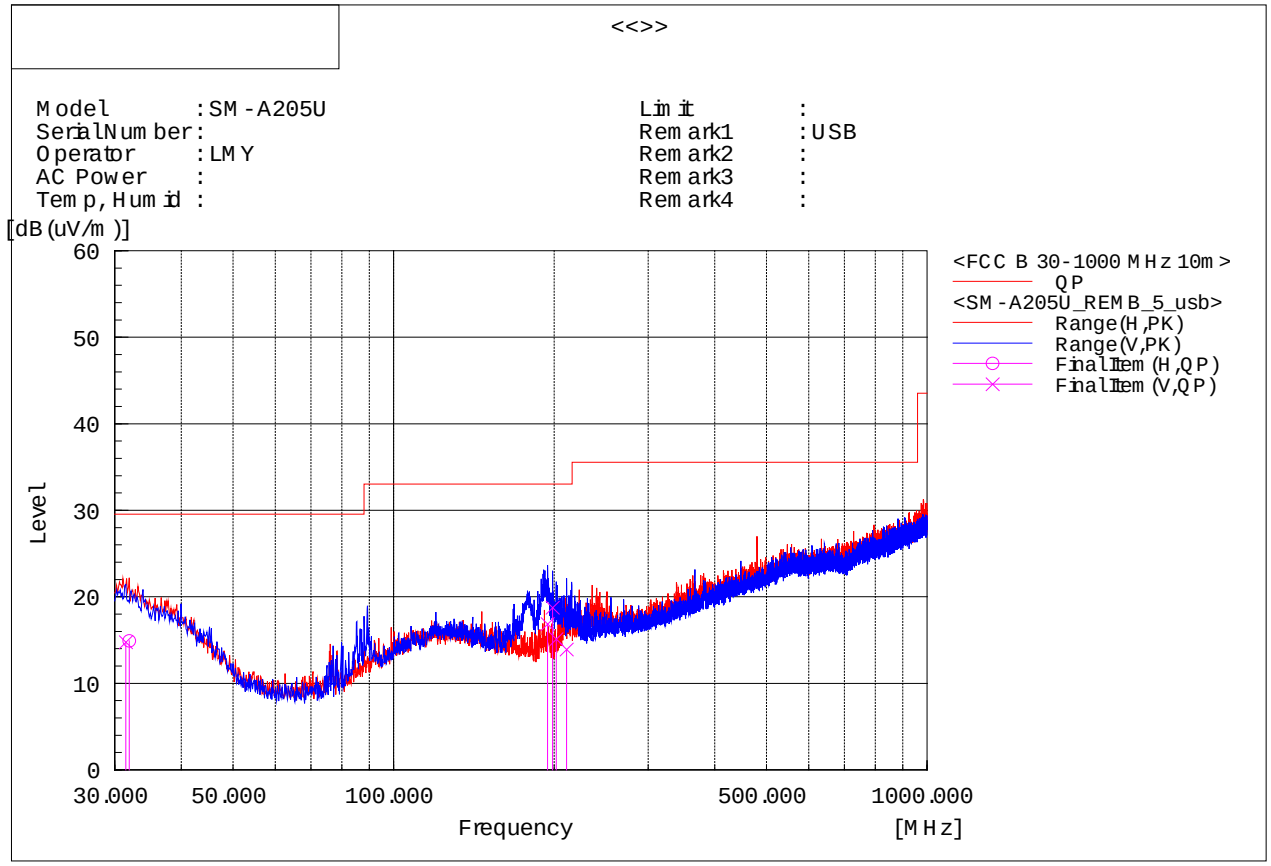
☐ Operating Mode 5

- Frequencies below 1 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	System
1	31.940	H	22.9	-8.0	14.9	29.5	14.6	300	306	1
2	31.455	V	22.7	-7.9	14.8	29.5	14.7	200	106	2
3	194.415	V	31.8	-14.9	16.9	33.0	16.1	100	192	2
4	198.659	V	33.4	-14.6	18.8	33.0	14.2	100	2	2
5	211.026	V	27.7	-13.8	13.9	33.0	19.1	100	334	2
6	201.690	V	29.5	-14.4	15.1	33.0	17.9	100	359	2

Note1) Receiving antenna polarization : Horizontal, Vertical
Test Distance : 10 m, Antenna Height : 1 to 4 meters
Result (QP) = Reading (QP) + c.f (Antenna Factor + Cable Loss - Amp. Gain)
Margin (QP) = Limit – Level (QP)
QP = Quasi-Peak, c.f = Correction Factor

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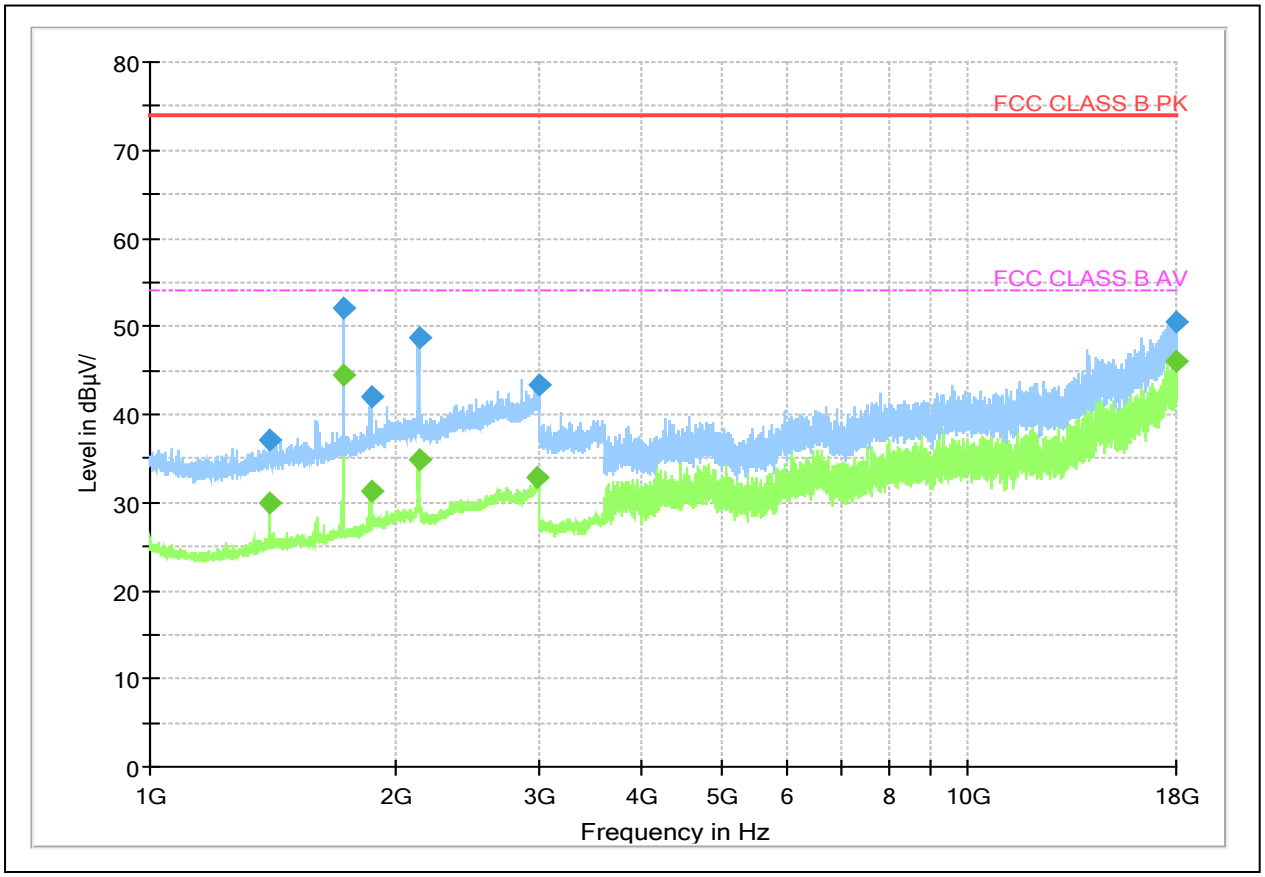
- Frequencies above 1 GHz



Frequency (MHz)	PK (dBµV/m)	CAV (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1 398.800	---	30.0	54.0	24.0	100.0	H	58.0	8.6
1 399.200	37.0	---	74.0	37.0	100.0	H	58.0	8.6
1 724.400	---	44.5	54.0	9.5	100.0	V	126.0	10.8
1 724.400	52.0	---	74.0	22.0	100.0	V	126.0	10.8
1 863.600	41.9	---	74.0	32.1	100.0	V	126.0	11.7
1 864.800	---	31.3	54.0	22.7	100.0	V	126.0	11.7
2 132.000	---	34.9	54.0	19.1	100.0	V	149.0	12.9
2 133.600	48.7	---	74.0	25.3	100.0	V	149.0	12.9
2 982.400	---	32.8	54.0	21.2	100.0	V	325.0	16.6
2 995.600	43.3	---	74.0	30.7	100.0	V	244.0	16.7
17 982.500	50.5	---	74.0	23.5	100.0	H	56.0	35.0
17 996.500	---	46.0	54.0	8.0	100.0	H	40.0	35.3

Note 1) We have also tested from 18 GHz to 30 GHz and found no emissions
Note 2) Receiving antenna polarization : Horizontal, Vertical
Test Distance : 3 m, Antenna Height : 1 to 4 meters
Level (PK and/or CAV) = Reading (PK and/or CAV) + Corr. (Antenna Factor + Cable Loss - Amp. Gain)
Margin (PK and/or CAV) = Limit – Level (PK and/or CAV)
PK = Peak, CAV = CISPR-Average, Corr. = Correction Factor

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