



TEST REPORT

KCTL Inc. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea Tel: 82-31-285-0894 Fax: 82-505-299-8311 www.kctl.co.kr	Report No.: KR21-SEF0021-B Page (1) of (39)	
<p>1. Client</p> <ul style="list-style-type: none"> ◦ Name : Samsung Electronics Co., Ltd. ◦ Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea ◦ Date of Receipt : 2021-03-11 <p>2. Use of Report : -</p> <p>3. Name of Product / Model : Mobile phone / SM-A125F/DS</p> <p>4. Manufacturer / Country of Origin : Samsung Electronics Co., Ltd. / Vietnam, India</p> <p>5. Date of Test : 2021-03-17 to 2021-04-02</p> <p>6. Location of Test : <input checked="" type="checkbox"/> Permanent Testing Lab <input type="checkbox"/> On Site Testing (Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)</p> <p>7. Test method used : ANSI C63.4:2014, Class B</p> <p>8. FCC ID : A3LSMA125</p> <p>9. Test Results : Refer to the test result in the test report</p>		
Affirmation	Tested by  Name : Jinwon Kim (Signature)	Technical Manager  Name : Gunsu Park (Signature)
2021-04-02		
<h2>KCTL Inc.</h2>		
<p>As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by KCTL Inc.</p>		

REPORT REVISION HISTORY

Date	Revision	Page No
2021-03-22	Originally issued	-
2021-04-01	Corrected the date typo in the data and change the test configuration	1, 2, 10, 13, 16, 22, 23, 37, 38, 39
2021-04-02	Test configuration was changed and test #5 was re-tested.	1, 2, 16, 22, 23, 37, 38, 39

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Note. The report No. KR21-SEF0021 is superseded by the report No. KR21-SEF0021-A.

The report No. KR21-SEF0021-A is superseded by the report No. KR21-SEF0021-B.

General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

Statement not required by the standard or client used for type testing

(Note: When standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

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1. Applicant information

Applicant: Samsung Electronics Co., Ltd.
Address: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do,
16677, Rep. of Korea

Manufacturer: Samsung Electronics Co., Ltd.
Address: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do,
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2. Laboratory information

Address

KCTL Inc. (Suwon Lab.)

65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea

Telephone Number: 82 31 285 0894

Facsimile Number: 82 505 299 8311

FCC Site Designation No: KR0040

VCCI Registration No.: R-20080, G-20078, C-20059, T-20056

Industry Canada Registration No. : 8035A

KOLAS NO.: KT231

SITE MAP



3. Test system configuration

3.1 Operation environment

	Temperature	Humidity	Pressure
Chamber 10 m (RE)	20.6 °C /	19.3 % R.H. /	
	21.8 °C /	19.0 % R.H. /	
	26.2 °C /	24.8 % R.H. /	-
	25.3 °C	24.1 % R.H.	
Shielded room(CE)	20.9 °C /	21.3 % R.H. /	
	26.3 °C	23.9 % R.H.	-

Test site

These testing items were performed following locations;

Test item	Test site
Conducted Emission	Shielded Room
Radiated Emission	10 m Chamber

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.

The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability. Based on CISPR 16-4-2, the measurement uncertainty level with a 95 % confidence level was applied.

Conducted Emission measurement (Confidence level about 95 %, $k = 2$)			
Shielded Room (CE#1)	9 kHz ~ 150 kHz:	3.50 dB	
	150 kHz ~ 30 MHz:	3.06 dB	
Shielded Room (CE#2)	9 kHz ~ 150 kHz:	3.05 dB	
	150 kHz ~ 30 MHz:	3.06 dB	
Radiated Emission measurement (Confidence level about 95 %, $k = 2$)			
10 m Chamber (4F)	30 MHz ~ 300 MHz	3 m:	5.36 dB
		10 m:	5.34 dB
	300 MHz ~ 1 000 MHz	3 m:	5.46 dB
		10 m:	5.44 dB
	1 GHz ~ 6 GHz	3 m:	6.24 dB
	6 GHz ~ 18 GHz	3 m:	6.60 dB
	18 GHz ~ 30 GHz	3 m:	6.72 dB
30 GHz ~ 40 GHz	3 m:	6.14 dB	
10 m Chamber (2F)	30 MHz ~ 300 MHz	3 m:	4.88 dB
		10 m:	4.86 dB
	300 MHz ~ 1 000 MHz	3 m:	4.94 dB
		10 m:	4.94 dB
1 GHz ~ 6 GHz	3 m:	6.28 dB	

3.3 Measurement Program

These test items were performed by software programs;

Test item	Measurement Program		Used
Conducted Emission	EP5/CE_Ver 5.4.0(TOYO)		☒
Radiated Emission	2F	EP5/RE_Ver 4.6.0(TOYO)	☒
	4F	EP5/RE_Ver 5.11.10(TOYO)	

4. Description of EUT

4.1 General information

Declared Hardware Version	REV1.0
Declared Software Version	A125F.001
IMEI No	352031830024898/01
Operating Band(s)	GSM 850/900/1800/1900 WCDMA FDD 1/5/8 LTE FDD 1/3/5/7/8/20/28 LTE TDD 38/40/41

4.2 Product description

Type of product	Mobile phone
Model name (Basic)	SM-A125F/DS
Model name (Variant)	SM-A125F
Difference	SIM tray difference
Serial no	-
Testing voltage	120 V, 60 Hz / DC 3.85 V
Input/Output rating	Adapter (EP-TA200) Input: AC 100 V - 240 V, 50-60 Hz, 0.5 A Output: DC 9.0 V, 1.67 A or DC 5.0 V, 2.0 A Serial no: R37N83C2N81RC3
Internal clock frequency	Above 108 MHz
RF Frequency	Bluetooth(BDR/EDR/BLE)_2 402 MHz ~ 2 480 MHz 2 412 MHz ~ 2 472 MHz (802.11b/g/n_HT20) LTE Band 5_824.7 MHz ~ 848.3 MHz LTE Band 41_2 498.5 MHz ~ 2 687.5 MHz GSM 850_824.2 MHz ~ 848.8 MHz GSM 1900_1 850.2 MHz ~ 1 909.8 MHz WCDMA 850_826.4 MHz ~ 846.6 MHz
Note	-

4.3 Auxiliary equipments

Type	Model / Part #	S/N	Manufacturer
Adapter (EUT)	EP-TA200	R37N83C2N81RC3	SAMSUNG
Earphone (EUT)	-	-	-
USIM Card	-	-	-
Micro SD Card (64 GB)	-	-	-
Note PC	6-1021TX	CND222SJJJ	HP
Adapter #1	PA-1650-32HK	WCNWU0A1R2MA QN	HP
USB Keyboard	K120	1631MG025CG8	Logitech
USB Mouse	SMH-210UB	M2UR1AKQ33530 3N	SAMSUNG
Monitor	24EA57VQ	610NTFA8L043	LG
Adapter #2	ADS-40FSG-19 19025GPG-1	HG0CD62768621A0 86	LG

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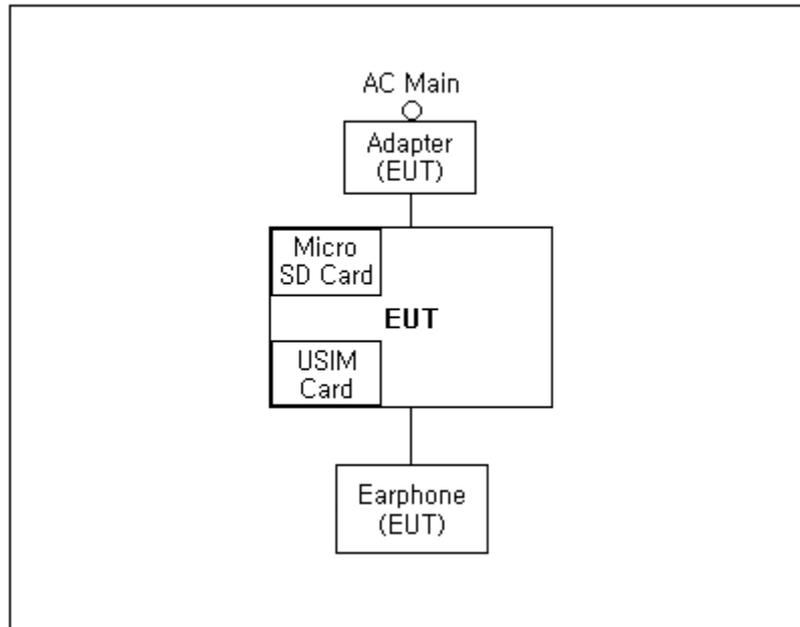
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4.4 Test configuration

[Test #1 ~ Test #4_CE / Test #1_RE]



	Start		End		Cable	
	Name	I/O port	Name	I/O port	Length (m)	Spec.
1	EUT	Power	Adapter (EUT)	-	0.8	Shield
2		USIM	USIM Card	-	Direct	-
3		Micro SD	Micro SD Card	-	Direct	-
4		Earphone	Earphone (EUT)	-	1.5	Unshield
5	Adapter (EUT)	Power	AC Main	-	Direct	-

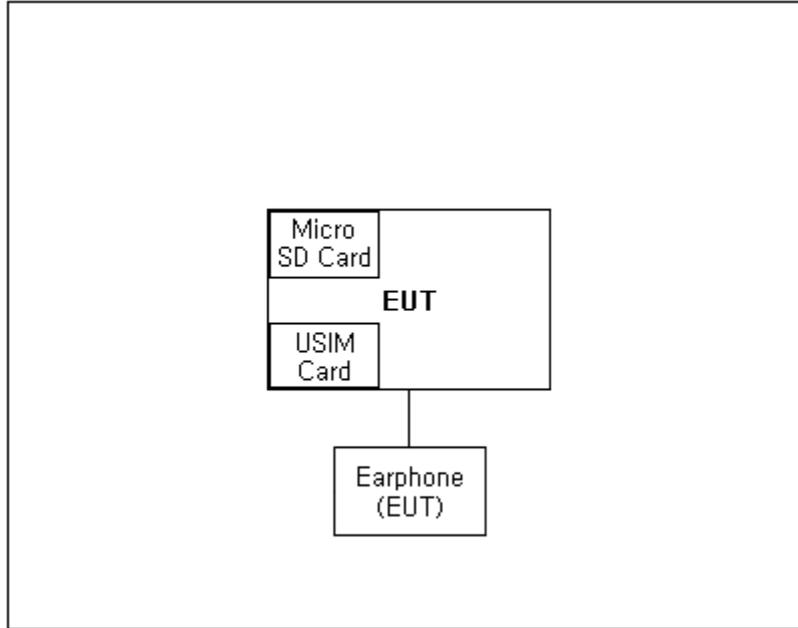
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[Test #2 ~ Test #4_RE]



	Start		End		Cable	
	Name	I/O port	Name	I/O port	Length (m)	Spec.
1	EUT	USIM	USIM Card	-	Direct	-
2		Micro SD	Micro SD Card	-	Direct	-
3		Earphone	Earphone (EUT)	-	1.5	Unshield

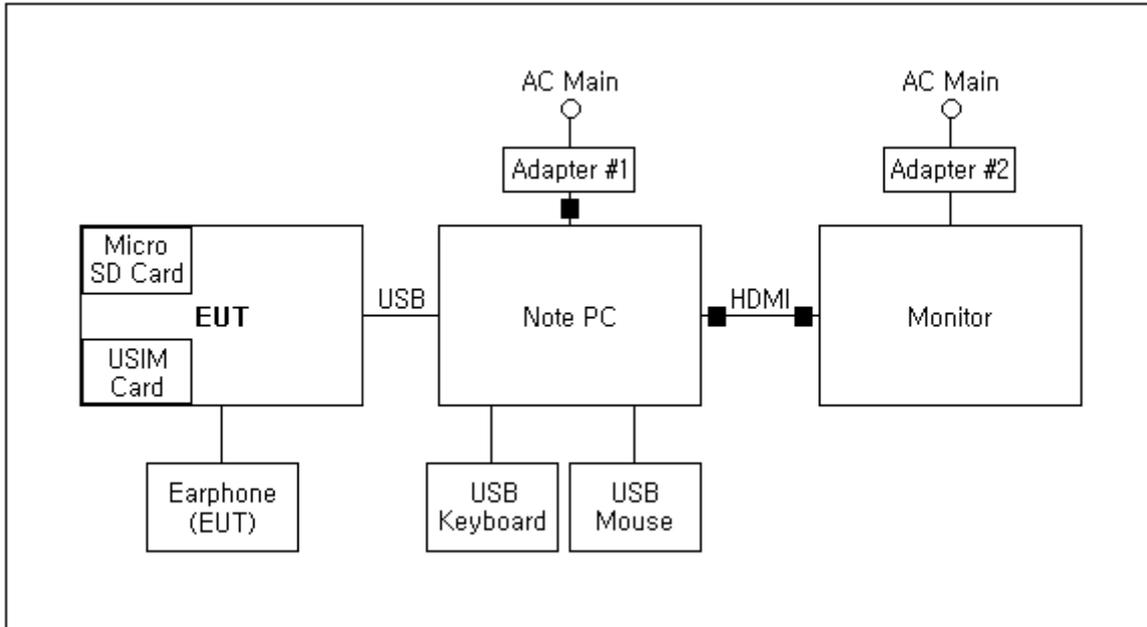
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[Test #5_CE, RE]



	Start		End		Cable	
	Name	I/O port	Name	I/O port	Length (m)	Spec.
1	EUT	USB	Note PC	USB	0.8	Shield
2		USIM	USIM Card	-	Direct	-
3		Micro SD	Micro SD Card	-	Direct	-
4		Earphone	Earphone (EUT)	-	1.5	Unshield
5	Note PC	Power	Adapter #1	-	1.5	Unshield (Core)
6		HDMI	Monitor	HDMI	1.2	Shield (Core)
7		USB	USB Keyboard	-	1.7	Shield
8		USB	USB Mouse	-	1.5	Shield
9	Monitor	Power	Adapter #2	-	1.0	Unshield

4.5 Operating conditions

The EUT was configured as normal intended use.

Test mode		Normal operating
Test #1	CE Test	Camera(Rear) + Charging + FM(Low Ch.)
Test #2		Camera(Front) + Charging(w/TA) + FM(Mid Ch.)
Test #3		Charging(w/TA) + FM(High Ch.)
Test #4		Video + Audio playback from internal memory data + Charging (w/TA)
Test #5		USB Data Communication with Note PC (from external memory data)
Test #1	RE Test	Camera(Rear) + Charging(w/TA) + FM(Low Ch.)
Test #2		Camera(Front) + FM(Mid Ch.)
Test #3		FM(High Ch.)
Test #4		Video + Audio playback from internal memory data
Test #5		USB Data Communication with Note PC (from external memory data)

Compliance with Part 15 B requirements for the receiver part of the licensed transmitter (equipment code CXX) is covered by other test report(s). [Report No.: KR21-SEF0020]

5. Summary of test results

5.1 Summary of EMI emission test results

Applied	Test items	Test method	Result
☒	Conducted Emission	FCC Part 15 Subpart B (Class B) ANSI C63.4:2014	Pass
☒	Radiated Emission	FCC Part 15 Subpart B (Class B) ANSI C63.4:2014	Pass

6. Test results

6.1 Conducted Emissions

Testing voltage		120 V, 60 Hz		
Test facility		Shielded room (CE#1)		
Date		2021-03-18 / 2021-04-02		
2021-03-18	Temperature (°C)	20.9 °C	Humidity (% R.H.)	21.3 % R.H.
2021-04-02		26.3 °C		23.9 % R.H.
Remarks		Pass		

6.1.1 Limits of conducted emissions measurement

Frequency [MHz]	Class A (dB(μ V))		Class B (dB(μ V))	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	79	66	66 ~ 56 ¹⁾	56 ~ 46 ¹⁾
0.5 ~ 5	73	60	56	46
5 ~ 30	73	60	60	50

¹⁾ The limit decreases linearly with the logarithm of frequency

6.1.2 Measurement procedure

The measurements were performed in a shielded room. EUT was setup as shown in photograph and placed on a non-metallic table height of 0.8 m above the reference ground plane. The rear of table was located 0.4 m to the vertical conducted plane. EUT was power through the LISN, which was bonded to the ground plane. The LISN power was filtered. Each EUT power lead, except ground (safety) lead was individually connected through a LISN to input power source. EUT signal cables that hung closer than 0.4 m to the Horizontal metal ground 0.3 m ~ 0.4 m long. The power cord was bundles in the center. All peripheral equipment was powered from a sub LISN. The LISN and ISN were positioned 0.8 m from the EUT. Peak and Average detection were used in preliminary testing and Quasi-peak and Average detections were used at final measurement.

6.1.3 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. Date	Used
EMI TEST RECEIVER	ESCI 3	101408	R&S	2021.08.20	<input checked="" type="checkbox"/>
TWO-LINE V-NETWORK	ENV216	101584	R&S	2021.04.06	<input checked="" type="checkbox"/>
TWO-LINE V-NETWORK	NNLK8121	8121-472	SCHWARZBECK	2021.08.20	<input checked="" type="checkbox"/>

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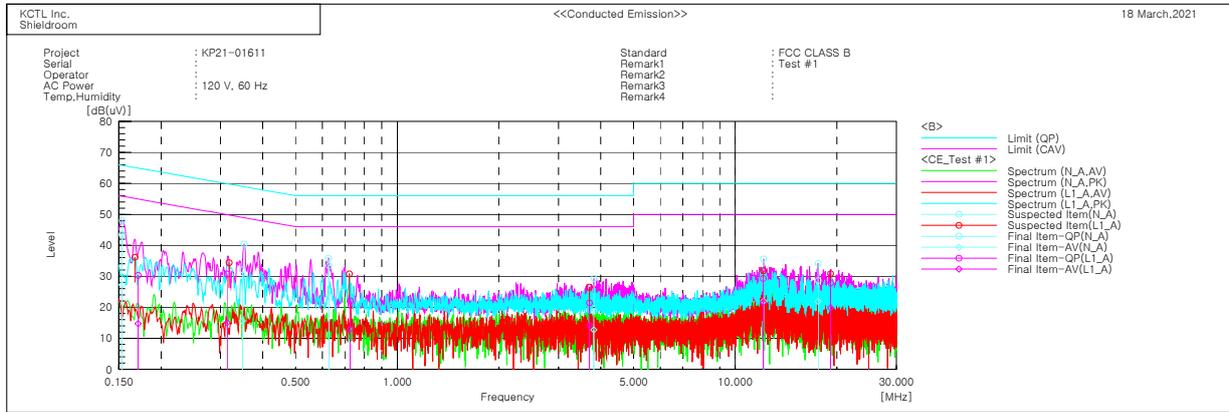
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6.1.4 Conducted emissions measurement result

AC Main



Final Result

--- N_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15318	33.4	17.3	10.0	43.4	27.3	65.8	55.8	22.4	28.5
2	0.34793	22.0	5.5	10.1	32.1	15.6	59.0	49.0	26.9	33.4
3	0.62798	23.2	13.0	10.2	33.4	23.2	56.0	46.0	22.6	22.8
4	3.81922	8.6	2.6	10.1	18.7	12.7	56.0	46.0	37.3	33.3
5	12.12179	18.9	11.5	10.5	29.4	22.0	60.0	50.0	30.6	28.0
6	17.59554	17.9	11.2	10.7	28.6	21.9	60.0	50.0	31.4	28.1

--- L1_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.17109	20.2	4.6	10.1	30.3	14.7	64.9	54.9	34.6	40.2
2	0.31354	20.9	5.2	9.8	30.7	15.0	59.9	49.9	29.2	34.9
3	0.72591	12.1	3.1	9.9	22.0	13.0	56.0	46.0	34.0	33.0
4	3.70364	11.5	4.4	9.9	21.4	14.3	56.0	46.0	34.6	31.7
5	12.11107	19.0	11.2	10.3	29.3	21.5	60.0	50.0	30.7	28.5
6	19.16988	17.3	9.3	10.6	27.9	19.9	60.0	50.0	32.1	30.1

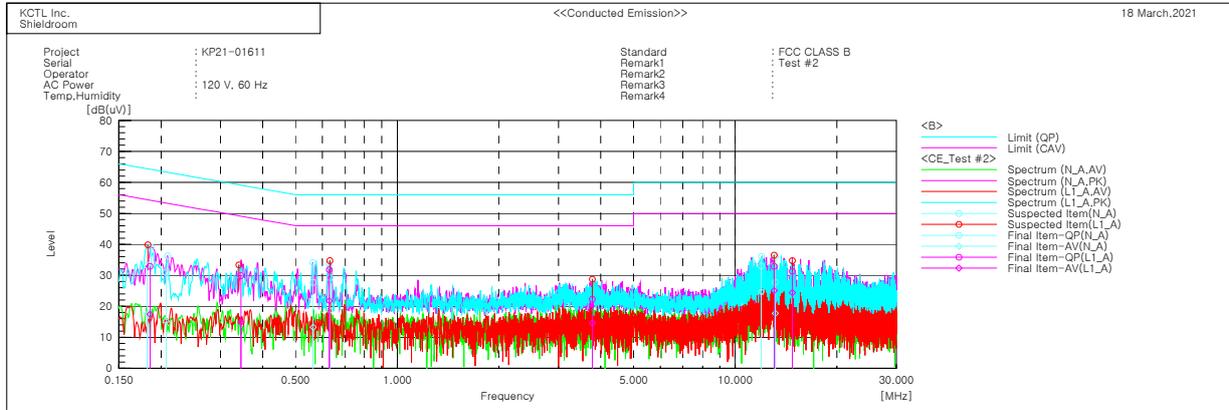
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AC Main



Final Result

--- N_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.18203	23.1	7.3	10.2	33.3	17.5	64.4	54.4	31.1	36.9
2	0.20707	20.9	5.1	10.1	31.0	15.2	63.3	53.3	32.3	38.1
3	0.56379	17.5	3.0	10.2	27.7	13.2	56.0	46.0	28.3	32.8
4	0.6316	19.0	8.4	10.2	29.2	18.6	56.0	46.0	26.8	27.4
5	11.95175	22.6	14.3	10.4	33.0	24.7	60.0	50.0	27.0	25.3
6	13.14188	17.3	7.2	10.5	27.8	17.7	60.0	50.0	32.2	32.3

--- L1_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.18557	22.9	7.4	10.0	32.9	17.4	64.2	54.2	31.3	36.8
2	0.34469	20.0	5.0	9.9	29.9	14.9	59.1	49.1	29.2	34.2
3	0.62912	21.8	11.8	10.0	31.8	21.8	56.0	46.0	24.2	24.2
4	3.77726	12.4	4.7	9.9	22.3	14.6	56.0	46.0	33.7	31.4
5	13.043	22.6	14.8	10.3	32.9	25.1	60.0	50.0	27.1	24.9
6	14.77324	20.9	14.0	10.4	31.3	24.4	60.0	50.0	26.7	25.6

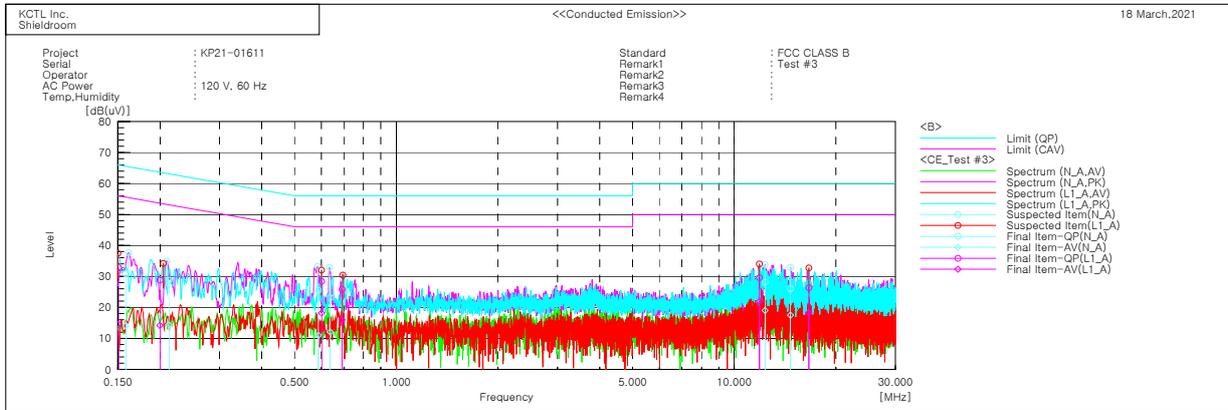
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AC Main



Final Result

--- N_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15823	20.7	3.9	10.1	30.8	14.0	65.6	55.6	34.8	41.6
2	0.21257	18.6	4.2	10.1	28.7	14.3	63.1	53.1	34.4	38.8
3	0.58851	15.4	0.8	10.2	25.6	11.0	56.0	46.0	30.4	35.0
4	0.63772	12.9	1.9	10.2	23.1	12.1	56.0	46.0	32.9	33.9
5	12.34272	17.6	8.5	10.5	28.1	19.0	60.0	50.0	31.9	31.0
6	14.66811	15.5	6.9	10.6	26.1	17.5	60.0	50.0	33.9	32.5

--- L1_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15082	23.0	4.8	9.8	32.8	14.6	66.0	56.0	33.2	41.4
2	0.19085	18.9	4.2	10.0	28.9	14.2	63.6	53.6	34.7	39.4
3	0.60075	18.4	8.2	10.0	28.4	18.2	56.0	46.0	27.6	27.8
4	0.69168	16.0	6.0	9.9	25.9	15.9	56.0	46.0	30.1	30.1
5	11.86662	19.3	11.7	10.3	29.6	22.0	60.0	50.0	30.4	28.0
6	16.62597	15.9	7.8	10.5	26.4	18.3	60.0	50.0	33.6	31.7

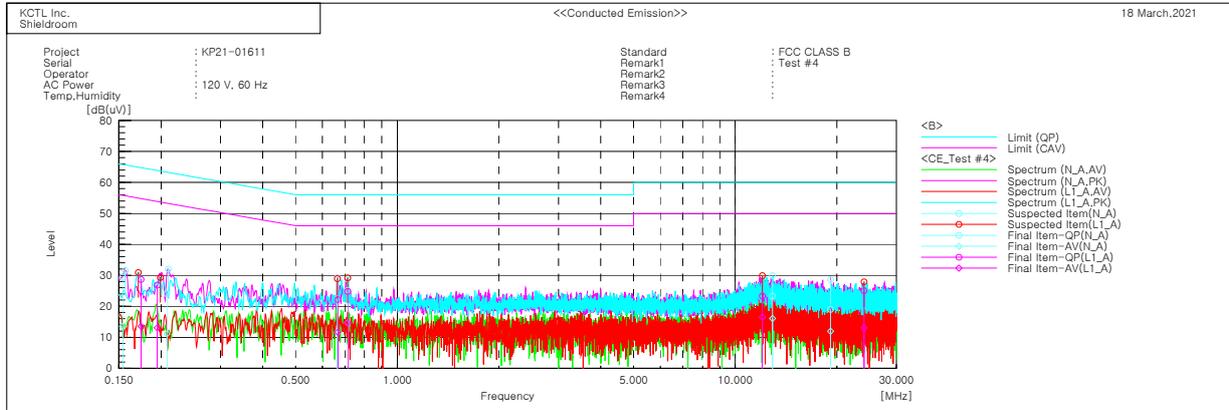
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Final Result

--- N_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15378	19.3	3.5	10.1	29.4	13.6	65.8	55.8	36.4	42.2
2	0.20813	14.0	1.0	10.1	24.1	11.1	63.3	53.3	39.2	42.2
3	0.66473	12.2	1.5	10.1	22.3	11.6	56.0	46.0	33.7	34.4
4	0.7132	15.0	4.6	10.1	25.1	14.7	56.0	46.0	30.9	31.3
5	12.90183	12.8	5.5	10.5	23.3	16.0	60.0	50.0	36.7	34.0
6	19.16562	8.2	1.2	10.8	19.0	12.0	60.0	50.0	41.0	38.0

--- L1_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c. f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.17446	18.6	3.5	10.1	26.7	13.6	64.7	54.7	36.0	41.1
2	0.19478	16.8	3.1	10.0	26.8	13.1	63.8	53.8	37.0	40.7
3	0.66669	12.3	1.8	9.9	22.2	11.7	56.0	46.0	33.8	34.3
4	0.71324	14.9	4.9	9.9	24.8	14.8	56.0	46.0	31.2	31.2
5	12.03331	13.0	6.2	10.3	23.3	16.5	60.0	50.0	36.7	33.5
6	24.07291	14.2	2.2	10.8	25.0	13.0	60.0	50.0	35.0	37.0

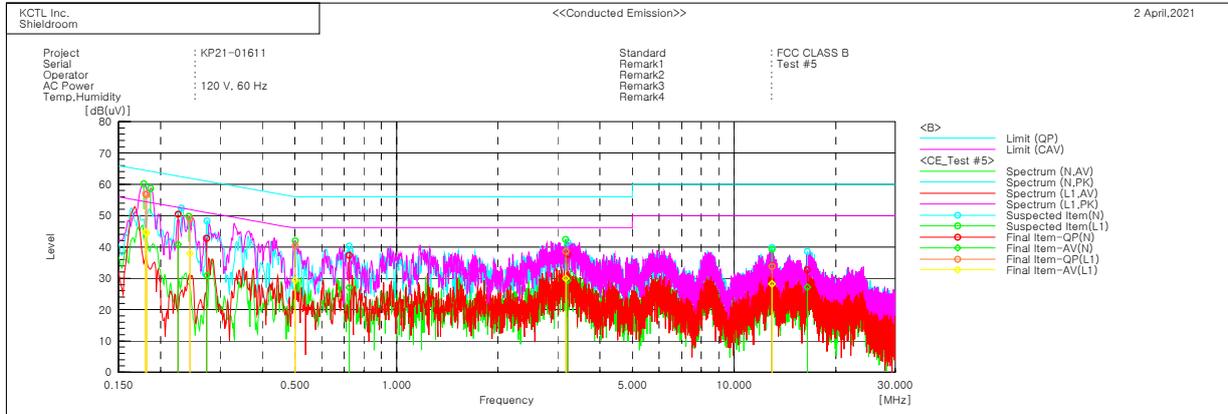
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AC Main



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin OP [dB]	Margin CAV [dB]
1	0.22522	40.8	31.2	9.7	50.5	40.9	62.6	52.6	12.1	11.7
2	0.274	33.2	21.3	9.6	42.8	30.9	61.0	51.0	18.2	20.1
3	0.72376	27.6	17.2	9.8	37.4	27.0	56.0	46.0	18.6	19.0
4	3.21142	28.0	19.6	9.7	37.7	29.3	56.0	46.0	18.3	16.7
5	12.93061	24.2	18.4	9.9	34.1	28.3	60.0	50.0	25.9	21.7
6	16.47022	22.8	17.2	9.9	32.7	27.1	60.0	50.0	27.3	22.9

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin OP [dB]	Margin CAV [dB]
1	0.18057	46.8	34.7	10.1	56.9	44.8	64.5	54.5	7.6	9.7
2	0.18202	46.7	34.5	10.0	56.7	44.5	64.4	54.4	7.7	9.9
3	0.24442	39.3	28.2	9.7	49.0	37.9	61.9	51.9	12.9	14.0
4	0.50107	30.4	19.3	10.0	40.4	29.3	56.0	46.0	15.6	16.7
5	3.17108	28.7	20.2	9.8	38.5	30.0	56.0	46.0	17.5	16.0
6	12.95158	23.9	18.3	9.9	33.8	28.2	60.0	50.0	26.2	21.8

6.2 Radiated Emission

Testing voltage	120 V, 60 Hz / DC 3.85 V			
Test facility	10 m Chamber (4F)			
Test distance	3 m			
Date	2021-03-17 [Test #1 ~ Test #4] / 2021-04-02 [Test #5]			
[Test #1 ~ Test #4] 30 MHz ~ 1 GHz	Temperature (°C)	20.6 °C	Humidity (% R.H.)	
[Test #1 ~ Test #4] 1 GHz ~ 30 GHz		21.8 °C		19.3 % R.H.
[Test #5] 30 MHz ~ 1 GHz		26.2 °C		19.0 % R.H.
[Test #5] 1 GHz ~ 30 GHz		25.3 °C		24.8 % R.H.
Remarks	Pass			

6.2.1 Limits of radiated emission measurement

Frequency [MHz]	Class A (dB(μ V/m)) @ 10 m	Class B (dB(μ V/m)) @ 3 m
30-88	39	40
88-216	43.5	43.5
216-960	46.4	46
Above 960	49.5	54

Note- Alternative standard: CISPR, Pub. 22

6.2.2 Measurement procedure

The test was done at a 10 m chamber with a quasi-peak detector. EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane. Cables were folded back and forth forming a bundle 0.3 m to 0.4 m long and were hanged at a 0.4 m height to the ground plane.

Cables connected to EUT were fixed to cause maximum emission. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.2.3 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. Date	Used
EMI TEST RECEIVER	ESR7	101078	R&S	2021.08.20	☒
Bilog Antenna	CBL 6112D	37876	TESEQ	2022.12.08	☒
AMPLIFIER	310N	293004	SONOMA	2021.08.20	☒
ATTENUATOR	8491B	MY39270292	AGILENT	-	☒
Antenna Mast	MA4640-XP-ET	-	Innco Systems	-	☒
Turn Table	TT 3.0-3t	-	MATURO	-	☒
DOUBLE RIDGED HORN ANTENNA	3117	00155787	ETS-LINDGREN	2021.10.28	☒
Broadband Pre-amplifier	BBV9718	9718-233	SCHWARZBECK	2021.08.20	☒
Horn antenna	3116	00086635	ETS-LINDGREN	2021.05.12	☒
AMPLIFIER	JS44-18004000-33-8P	2000996	L-3Narda-MITEQ	2022.01.21	☒
UXA Signal Analyzer	N9040B	US55230151	KEYSIGHT	2021.07.29	☒

6.2.4 Sample calculation

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follow:

$$\text{Result} = \text{M.R} + \text{C.F}(\text{A.F} + \text{C.L} + 6 \text{ dB Att} - \text{A.G})$$

M.R = Meter Reading

C.F = Correction Factor

A.F = Antenna Factor

C.L = Cable Loss

A.G = Amplifier Gain

6 dB Att = 6 dB Attenuator

If M.R is 30 dB, A.F 12 dB, C.L 5 dB, 6 dB, A.G 35 dB

The result is $30 + 12 + 5 + 6 - 35 = 18 \text{ dB } (\mu\text{V/m})$

Bilog Antenna and ATTENUATOR (6 dB) were calibrated together.

AV = CAV : Abbreviation of CISPR Average

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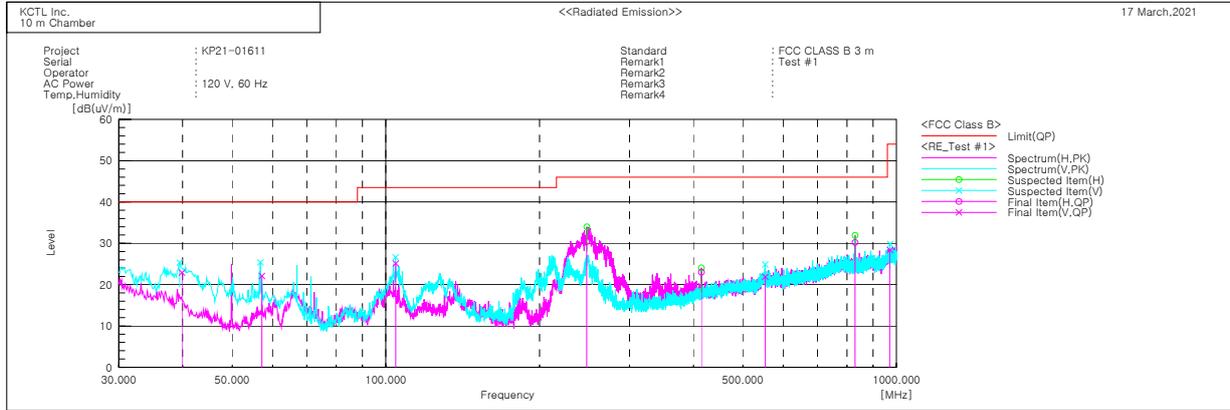
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6.2.5 Radiated emission measurement result

30 MHz ~ 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	39.851	V	32.7	-9.8	22.9	40.0	17.1	198.0	10.0
2	57.192	V	38.5	-16.4	22.1	40.0	17.9	182.0	333.0
3	104.545	V	35.3	-10.2	25.1	43.5	18.4	105.0	21.0
4	247.447	H	37.0	-6.6	30.4	46.0	15.6	289.0	186.0
5	414.980	H	23.6	-0.6	23.0	46.0	23.0	390.0	55.0
6	553.165	V	17.7	4.2	21.9	46.0	24.1	296.0	307.0
7	830.055	H	21.5	8.7	30.2	46.0	15.8	100.0	186.0
8	971.287	V	16.1	12.3	28.4	54.0	25.6	397.0	339.0

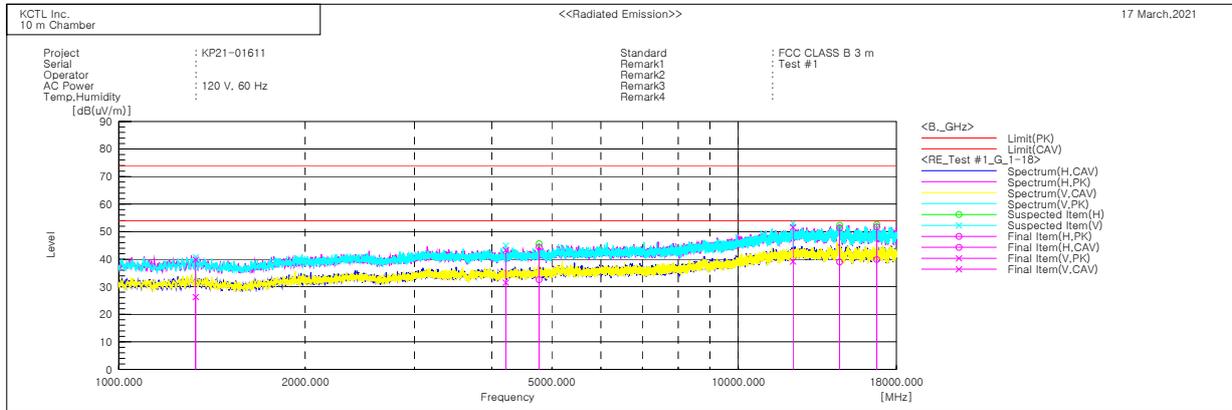
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1 GHz ~ 18 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1330.652	V	42.3	28.7	-2.4	39.9	26.3	74.0	54.0	34.1	27.7	104.0	25.0
2	4214.123	V	40.7	28.9	2.6	43.3	31.5	74.0	54.0	30.7	22.5	317.0	148.0
3	4768.543	H	40.8	29.0	3.6	44.4	32.6	74.0	54.0	29.6	21.4	379.0	312.0
4	12251.790	V	38.5	26.1	13.1	51.6	39.2	74.0	54.0	22.4	14.8	212.0	20.0
5	14574.310	H	38.5	26.1	12.9	51.4	39.0	74.0	54.0	22.6	15.0	119.0	43.0
6	16736.260	H	39.7	27.9	12.0	51.7	39.9	74.0	54.0	22.3	14.1	100.0	347.0

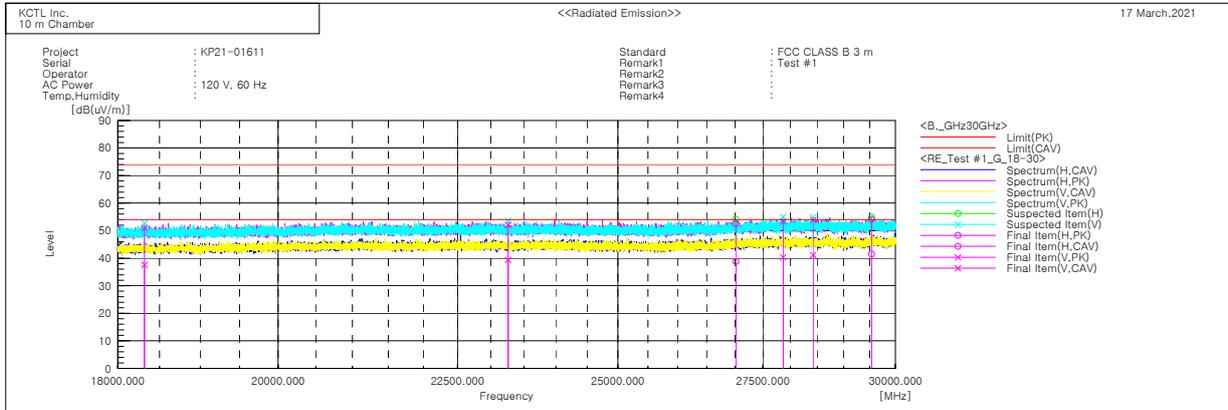
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18 GHz ~ 30 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	18317.350	V	48.8	35.4	2.2	51.0	37.6	74.0	54.0	23.0	16.4	118.0	8.0
2	23261.630	V	47.9	35.2	4.2	52.1	39.4	74.0	54.0	21.9	14.6	211.0	53.0
3	27015.840	H	46.1	32.3	6.5	52.6	38.8	74.0	54.0	21.4	15.2	400.0	297.0
4	27865.880	V	46.9	33.8	6.5	53.4	40.3	74.0	54.0	20.6	13.7	188.0	173.0
5	28421.250	V	46.9	34.2	7.0	53.9	41.2	74.0	54.0	20.1	12.8	217.0	189.0
6	29533.980	H	47.1	34.4	7.1	54.2	41.5	74.0	54.0	19.8	12.5	106.0	95.0

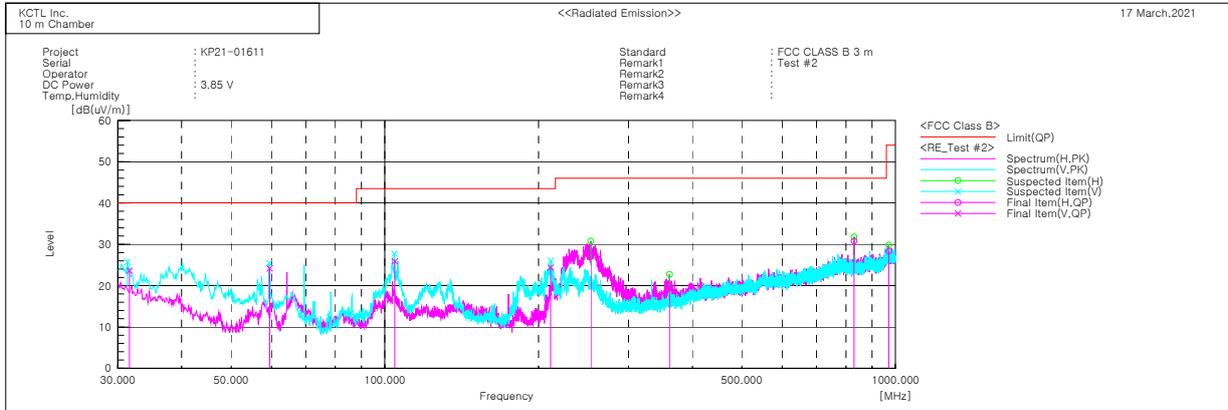
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30 MHz ~ 1 GHz



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	31.612	V	29.1	-5.5	23.6	40.0	16.4	303.0	140.0
2	59.512	V	40.5	-16.3	24.2	40.0	15.8	119.0	84.0
3	104.520	V	36.1	-10.2	25.9	43.5	17.6	293.0	9.0
4	211.127	V	35.3	-10.9	24.4	43.5	19.1	187.0	171.0
5	253.441	H	33.3	-6.1	27.2	46.0	18.8	298.0	192.0
6	360.891	H	22.7	-2.7	20.0	46.0	26.0	108.0	192.0
7	830.011	H	22.1	8.7	30.8	46.0	15.2	105.0	125.0
8	970.941	H	16.1	12.3	28.4	54.0	25.6	300.0	79.0

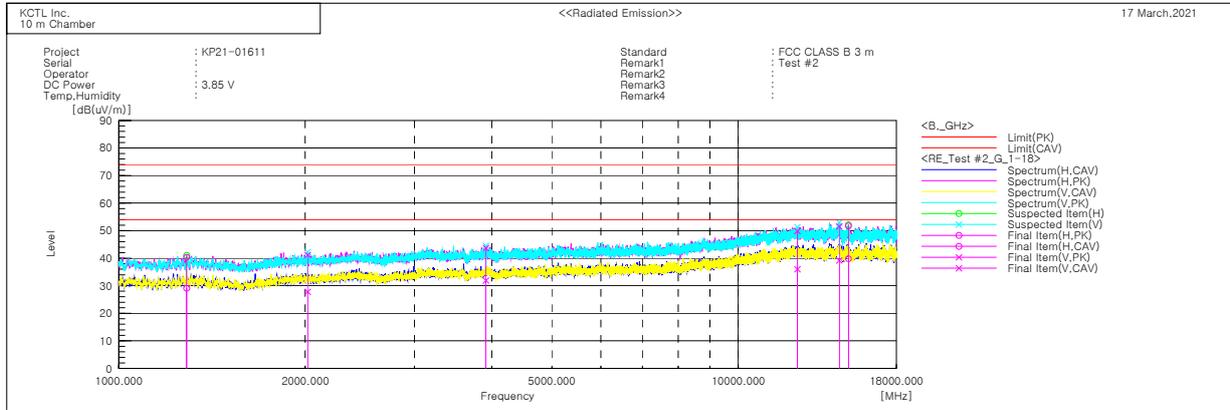
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1 GHz ~ 18 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1287.127	H	42.8	31.6	-2.5	40.3	29.1	74.0	54.0	33.7	24.9	100.0	291.0
2	2017.223	V	42.1	28.7	-0.9	41.2	27.8	74.0	54.0	32.8	26.2	313.0	12.0
3	3913.773	V	41.9	30.1	1.8	43.7	31.9	74.0	54.0	30.3	22.1	188.0	193.0
4	12457.690	V	37.5	23.6	12.4	49.9	36.0	74.0	54.0	24.1	18.0	376.0	352.0
5	14549.750	V	38.5	26.2	13.0	51.5	39.2	74.0	54.0	22.5	14.8	199.0	299.0
6	15055.060	H	39.2	27.3	12.5	51.7	39.8	74.0	54.0	22.3	14.2	302.0	104.0

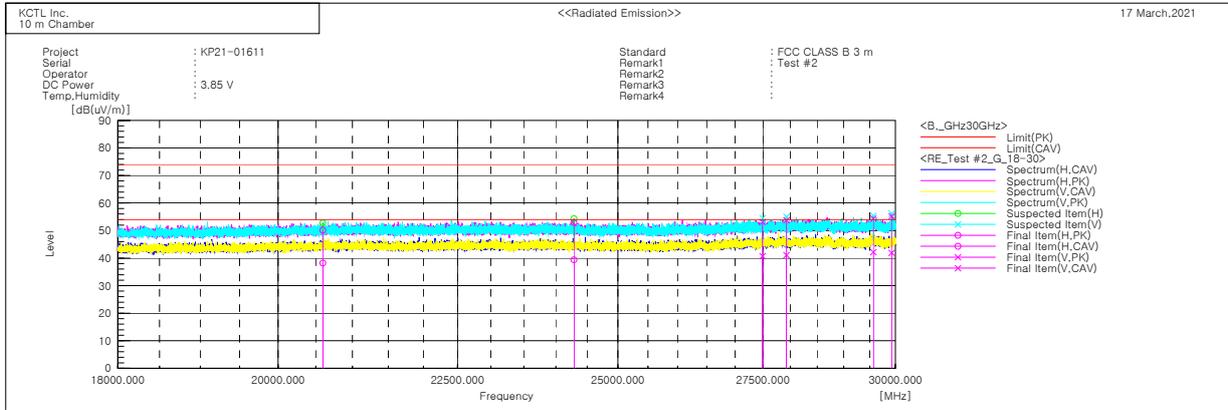
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18 GHz ~ 30 GHz



Final Result

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1	20594.810	H	47.2	35.3	2.9	50.1	38.2	74.0	54.0	23.9	15.8	387.0	94.0
2	24288.350	H	48.2	34.7	4.7	52.9	39.4	74.0	54.0	21.1	14.6	391.0	38.0
3	27491.200	V	46.6	34.1	6.6	53.2	40.7	74.0	54.0	20.8	13.3	108.0	234.0
4	27925.220	V	47.5	34.8	6.3	53.8	41.1	74.0	54.0	20.2	12.9	294.0	325.0
5	29566.640	V	47.4	35.2	7.0	54.4	42.2	74.0	54.0	19.6	11.8	115.0	227.0
6	29922.660	V	48.3	35.0	6.9	55.2	41.9	74.0	54.0	18.8	12.1	122.0	7.0

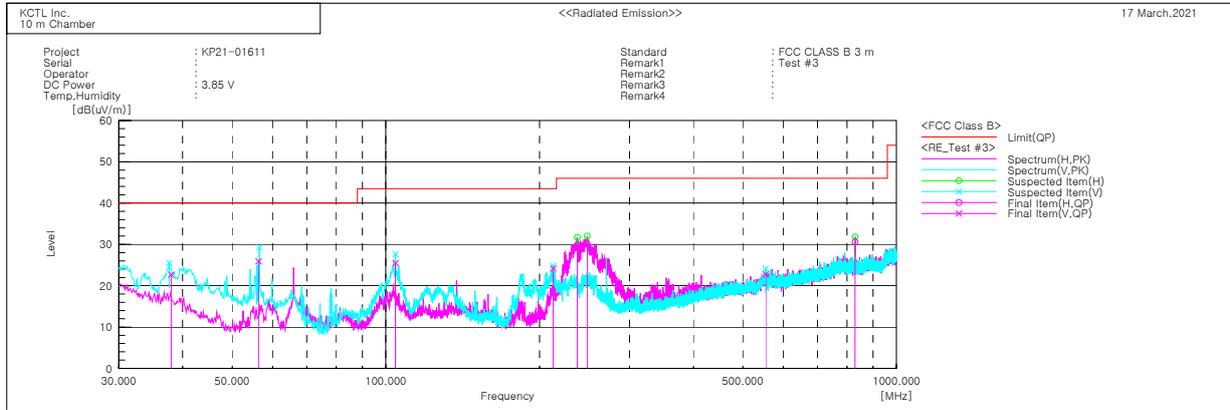
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30 MHz ~ 1 GHz



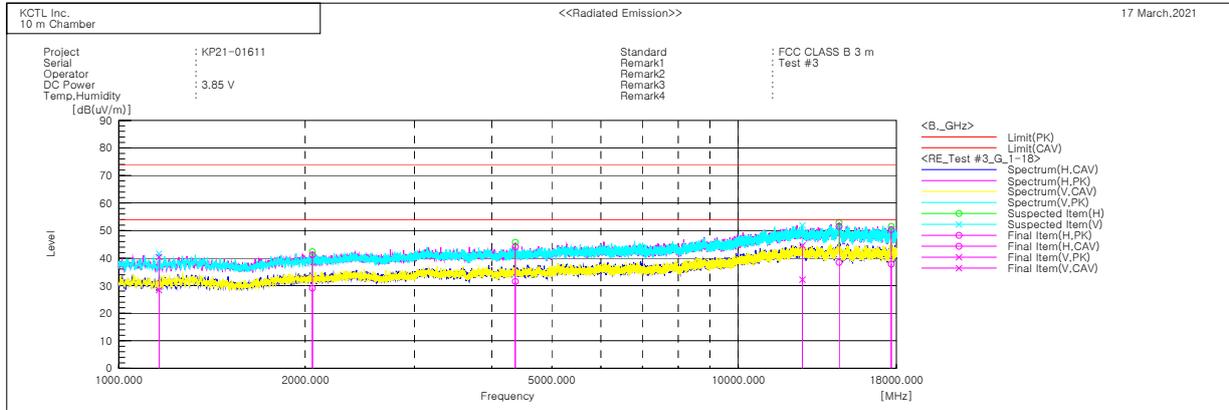
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1 GHz ~ 18 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1160.652	V	44.6	32.6	-4.2	40.4	28.4	74.0	54.0	33.6	25.6	178.0	77.0
2	2053.114	H	42.0	29.9	-0.8	41.2	29.1	74.0	54.0	32.8	24.9	331.0	301.0
3	4365.242	H	40.9	28.3	3.2	44.1	31.5	74.0	54.0	29.9	22.5	106.0	307.0
4	12684.370	V	31.9	19.5	12.7	44.6	32.2	74.0	54.0	29.4	21.8	395.0	144.0
5	14544.080	H	38.5	25.4	13.0	51.5	38.4	74.0	54.0	22.5	15.6	317.0	217.0
6	17654.310	H	37.3	24.8	13.0	50.3	37.8	74.0	54.0	23.7	16.2	208.0	79.0

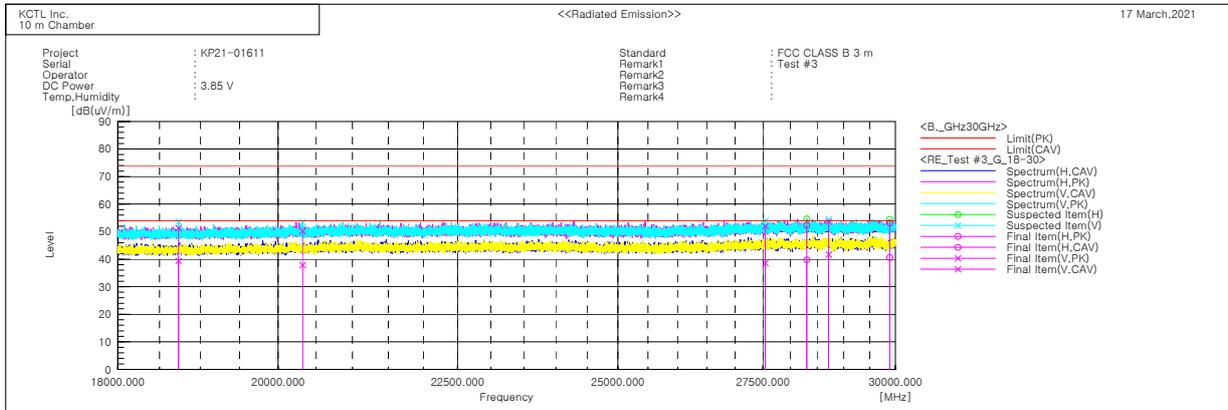
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18 GHz ~ 30 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	18732.040	V	49.2	37.3	2.1	51.3	39.4	74.0	54.0	22.7	14.6	400.0	235.0
2	20323.480	V	47.5	35.2	2.7	50.2	37.9	74.0	54.0	23.8	16.1	193.0	335.0
3	27541.880	V	45.4	32.0	6.6	52.0	38.6	74.0	54.0	22.0	15.4	185.0	175.0
4	28304.570	H	45.5	33.0	6.8	52.3	39.8	74.0	54.0	21.7	14.2	220.0	273.0
5	28713.280	V	46.5	34.5	7.2	53.7	41.7	74.0	54.0	20.3	12.3	386.0	330.0
6	29887.330	H	46.3	33.7	6.9	53.2	40.6	74.0	54.0	20.8	13.4	190.0	317.0

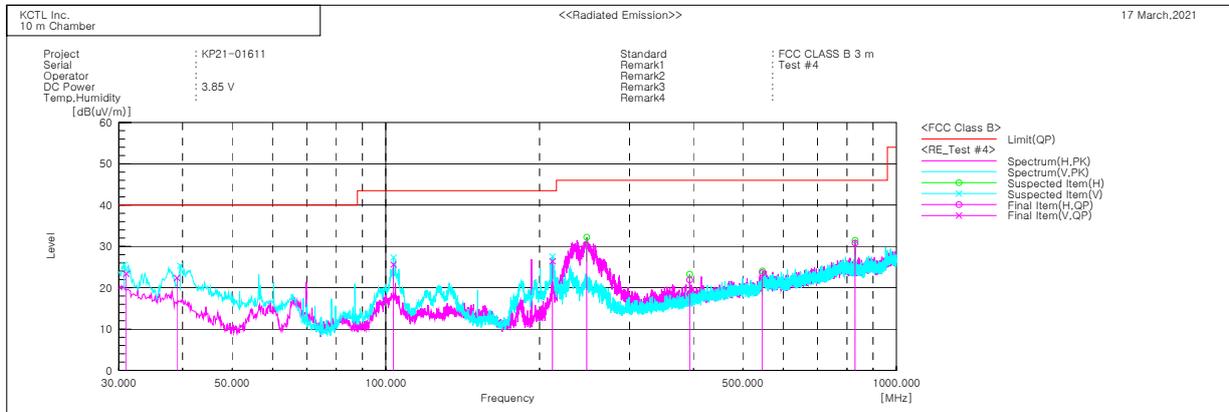
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30 MHz ~ 1 GHz



Final Result

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1	31.019	V	28.6	-5.2	23.4	40.0	16.6	202.0	51.0
2	38.995	V	31.7	-9.3	22.4	40.0	17.6	188.0	145.0
3	103.506	V	35.9	-10.3	25.6	43.5	17.9	100.0	13.0
4	211.985	V	37.3	-10.9	26.4	43.5	17.1	313.0	153.0
5	247.426	H	36.8	-6.6	30.2	46.0	15.8	376.0	221.0
6	393.533	H	23.5	-1.6	21.9	46.0	24.1	288.0	54.0
7	546.416	H	19.8	3.8	23.6	46.0	22.4	104.0	137.0
8	830.024	H	22.1	8.7	30.8	46.0	15.2	107.0	231.0

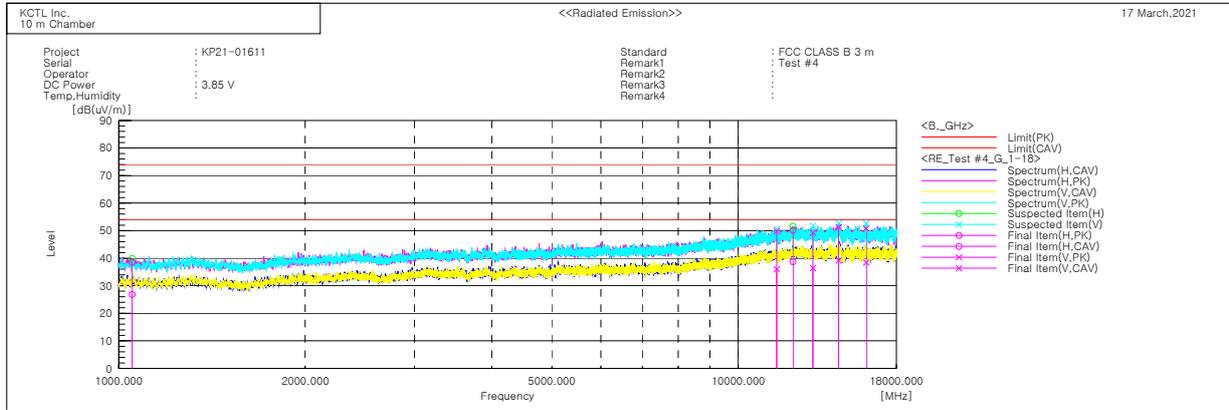
KCTL Inc.

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1 GHz ~ 18 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1051.025	H	42.8	31.1	-4.3	38.5	26.8	74.0	54.0	35.5	27.2	201.0	159.0
2	11536.850	V	38.4	24.5	11.5	49.9	36.0	74.0	54.0	24.1	18.0	126.0	148.0
3	12254.550	H	37.0	25.6	13.1	50.1	38.7	74.0	54.0	23.9	15.3	378.0	230.0
4	13195.340	V	36.4	23.5	12.9	49.3	36.4	74.0	54.0	24.7	17.6	100.0	92.0
5	14523.310	V	38.2	26.1	13.1	51.3	39.2	74.0	54.0	22.7	14.8	334.0	357.0
6	16090.230	V	38.2	25.8	12.6	50.8	38.4	74.0	54.0	23.2	15.6	118.0	152.0

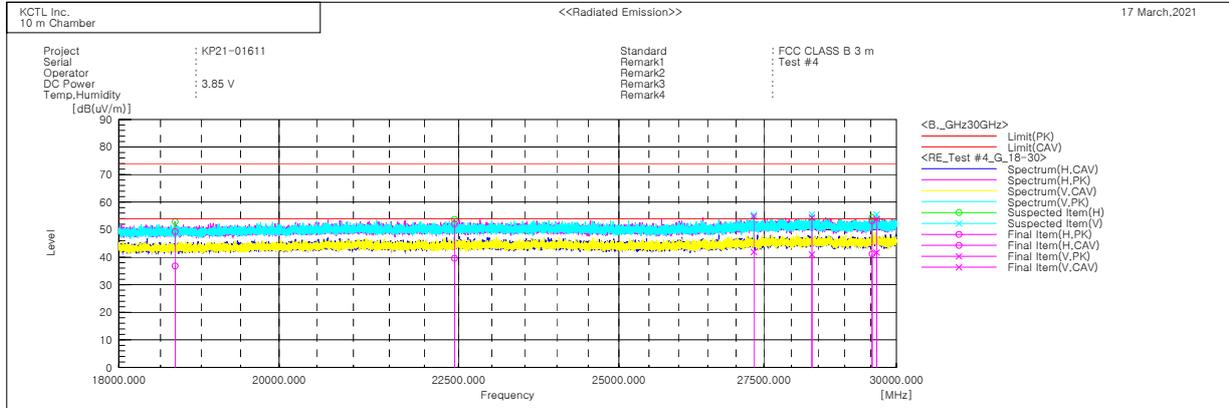
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18 GHz ~ 30 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	18676.840	H	47.2	34.7	2.1	49.3	36.8	74.0	54.0	24.7	17.2	175.0	291.0
2	22441.560	H	47.8	35.3	4.3	52.1	39.6	74.0	54.0	21.9	14.4	317.0	311.0
3	27315.880	V	48.1	35.2	6.7	54.8	41.9	74.0	54.0	19.2	12.1	107.0	330.0
4	28377.910	V	47.3	33.9	7.1	54.4	41.0	74.0	54.0	19.6	13.0	304.0	296.0
5	29526.640	H	46.1	34.1	7.1	53.2	41.2	74.0	54.0	20.8	12.8	211.0	345.0
6	29611.980	V	47.0	34.8	6.9	53.9	41.7	74.0	54.0	20.1	12.3	389.0	292.0

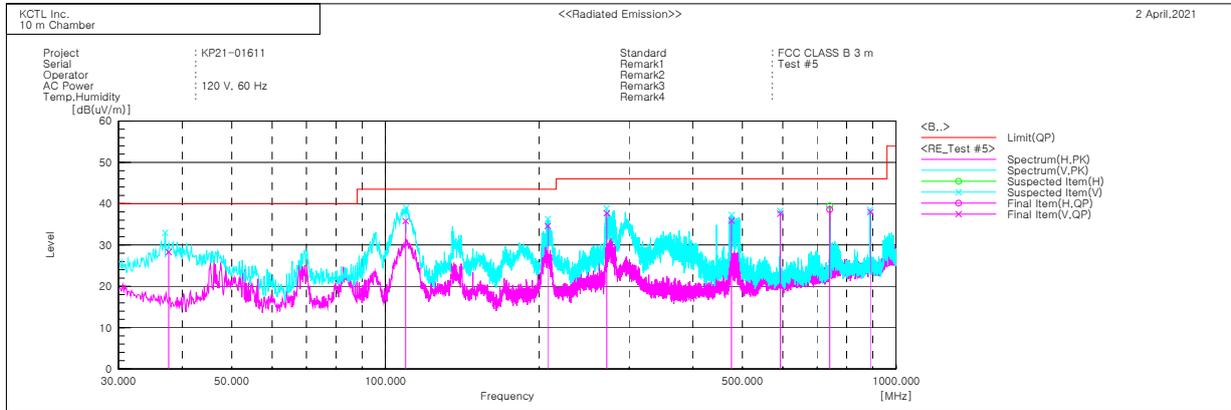
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30 MHz ~ 1 GHz



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	37.621	V	37.1	-8.8	28.3	40.0	11.7	100.0	244.0
2	109.525	V	46.1	-10.3	35.8	43.5	7.7	120.0	158.0
3	207.926	V	45.7	-11.1	34.6	43.5	8.9	388.0	13.0
4	271.225	V	44.2	-6.5	37.7	46.0	8.3	304.0	175.0
5	476.249	V	35.3	0.6	35.9	46.0	10.1	200.0	175.0
6	593.379	V	34.5	3.1	37.6	46.0	8.4	105.0	211.0
7	741.615	H	31.9	6.7	38.6	46.0	7.4	391.0	358.0
8	890.123	V	28.6	9.4	38.0	46.0	8.0	100.0	296.0

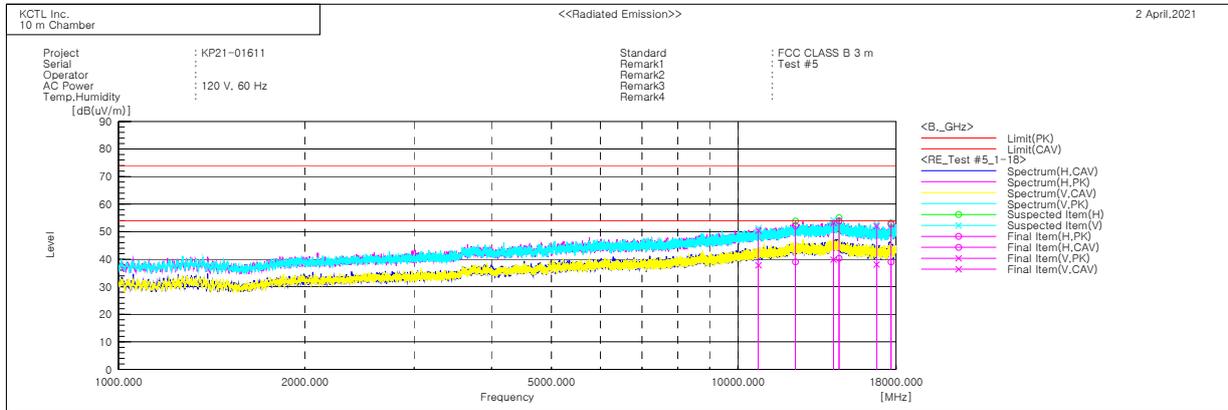
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1 GHz ~ 18 GHz



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	10790.650	V	40.2	27.6	10.2	50.4	37.8	74.0	54.0	23.6	16.2	194.0	227.0
2	12386.850	H	39.8	26.7	12.3	52.1	39.0	74.0	54.0	21.9	15.0	313.0	338.0
3	14266.400	V	40.0	26.7	13.2	53.2	39.9	74.0	54.0	20.8	14.1	200.0	295.0
4	14562.030	H	41.0	27.4	12.9	53.9	40.3	74.0	54.0	20.1	13.7	106.0	58.0
5	16743.820	V	39.9	26.0	12.1	52.0	38.1	74.0	54.0	22.0	15.9	127.0	338.0
6	17675.090	H	39.8	26.1	12.9	52.7	39.0	74.0	54.0	21.3	15.0	108.0	76.0

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18 GHz ~ 30 GHz

