



TEST REPORT



Report No. : KES-EM241926

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KES Co., Ltd.

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1. Client

Applicant : RFENGINE CO., LTD.

Applicant Address : 1-618, Cheongju Techno S-Tower, 530 Jikji-daero, Heungdeok-gu, Cheongju-si, Chungbuk-do

2. Sample Description

Product name : 13.56MHz RFID READER

Model/Type No. : HFR-2AM

Variant Model : -

Manufacturer : RFENGINE CO., LTD.

Manufacturer Address : 1-618, Cheongju Techno S-Tower, 530 Jikji-daero, Heungdeok-gu, Cheongju-si, Chungbuk-do

3. FCC ID : 2BDL2HFR2AM

IC ID : 31937-HFR2AM

4. Date of Receipt : Jun. 03, 2024

5. Test date : Jun. 20, 2024

6. Date of Issue : Jul. 02, 2024

7. Test Results : In Compliance

Tested by

Reviewed by

Dong In, Kim
EMC Test Engineer

Dong Hun, Jang
EMC Technical Manager



REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jul. 02, 2024	KES-EM241926	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Items	Specifications	Remarks
CPU	W7100A	Clock 25MHz
RF Frequency	13.561 4 MHz (NFC)	Clock 13.56MHz
Tag Interface	ISO 15693	-
Communication	TCP/IP	-
	RS-232C	
Input Power	DC+5V , 2A	-
Upgrade	Through TCP/IP & RS-232C Port	-
Port	ANT1 , ANT2	-
	LAN , RS-232C	-
Display	4-LED (Red, Red, Green, Green) (ANT 1, ANT 2, Read & Write, Power)	-
Sound	Buzzer	On / Off
Antenna	External Antenna	-
Operation Temp.	-20 ~ +50 °C	-
Dimension	85(H)*120(W)*24(D)mm	Except fixed hole
Weight	295g	-
H/W Version	HFR-2AM (V03-KC)	-
S/W Version	"4D 26 F2"	-



1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

☒ AC 120 V, 60 Hz (AC/DC Adapter)

1.2 Variant Model Differences

Not applicable

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
13.56MHz RFID READER	HFR-2AM	-	RFENGINE CO., LTD.	EUT
AC/DC Adapter	PG122-0502000UD	-	Shenzhen Perfect Gallant Tec Co.,Ltd.	-
Antenna	HFA-13S	-	RFENGINE CO., LTD.	2 EA

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Desktop PC	-	-	-	-
Monitor	27UL550	105NTHM9Z249	LG Electronics Nanjing New Technology Co.,Ltd	-
Monitor Adapter	LCAP26B-E	-	Genmao Electronics (Suzhou) Co.,Ltd	-
Keyboard	-	-	DELL	-
Mouse	-	-	DELL	-
RFID Tag	-	-	RFENGINE CO., LTD.	2 EA



1.6 External I/O Cabling

■ #1, #2

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
13.56MHz RFID READER (EUT)	DC IN	AC/DC Adapter (EUT)	DC Jack	1.5	U
	RJ-45(LAN)	Desktop PC	RJ-45(LAN)	2.0	S
	RJ-45 (Serial)		RJ-45 (Serial)	1.0	U
	SMA	Antenna (EUT)	SMA	2.4	U
Antenna (EUT)	Wireless	RFID Tag	Wireless	-	-
Desktop PC	HDMI	Monitor	HDMI	1.5	S
	USB	Keyboard	USB	1.8	U
	USB	Mouse	USB	1.8	U
Monitor	DC IN	Monitor Adapter	DC Jack	1.5	U

* Unshielded = U, Shielded = S

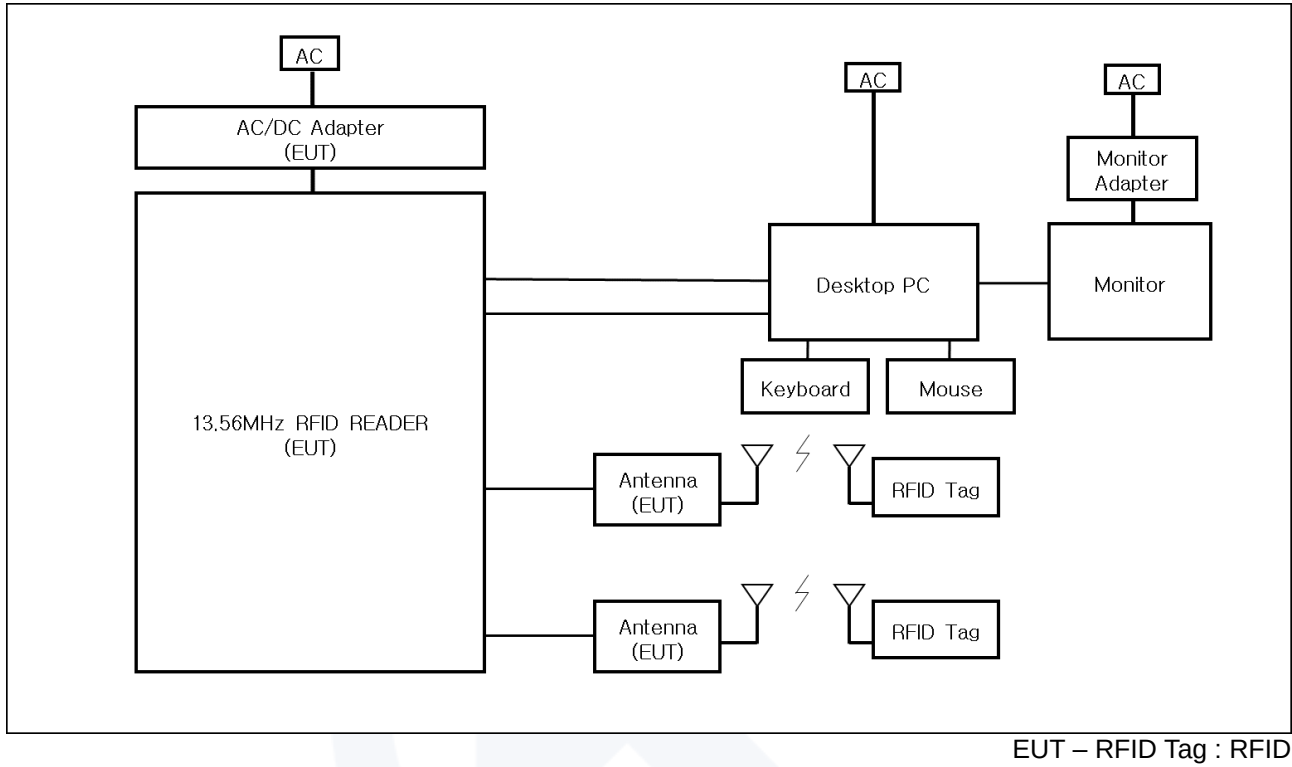
1.7 EUT Operating Mode(s)

	Test mode	Normal operating
#1	Serial	Enable the serial port of the EUT as a program on the desktop PC. Check the communication between the antenna and the RFID tag with the program.
#2	LAN	Enable the LAN port on the EUT as a program on the desktop PC. Check the communication between the antenna and the RFID tag with the program.

EUT Test operating S/W		
Name	Version	Manufacture Company
-	-	-



1.8 Configuration





1.9 Remarks when standards applied

N/A

1.10 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.11 Test Facility

The measurement facility is located at 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Measurement Procedure

- Conducted Emissions

The conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP".

- Radiated Electric Field Emissions

The test was done at a SEMI ANECHOIC CHAMBER with quasi-peak detector. The final test data was measured using a Quasi-Peak detector below 1 GHz at 10 m or 3 m distance and a Peak and Average detector above 1 GHz at 3 m distance. Test was proceeded worst case test mode and cable configuration.

Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Measurement procedures was In accordance with ANSI C63.4-2014 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2



1.13 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0008



2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☐ Class A

☒ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☐ Class A

☒ Class B



2.1 Conducted Emissions at Mains Power Ports

Test Date

Jun. 20, 2024

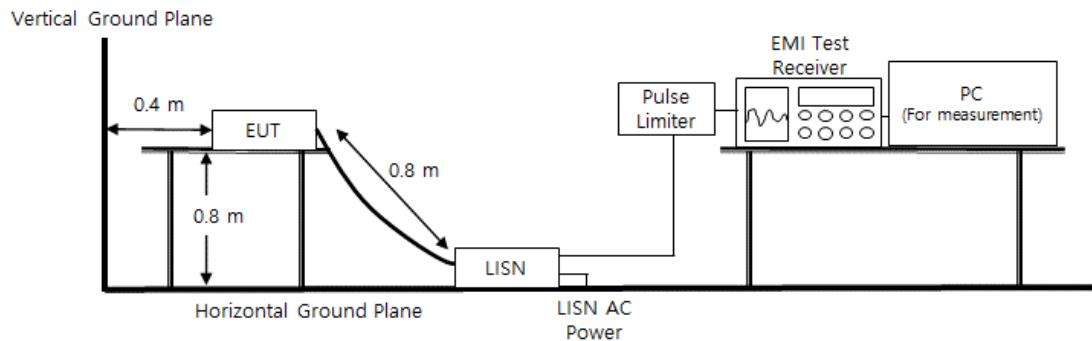
Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	EMC32	R & S	9.12.00	-	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	11, 08, 2024	1 Year
☒	LISN	ENV216	R & S	101787	11, 08, 2024	1 Year
☒	LISN	ENV216	R & S	101137	01, 10, 2025	1 Year
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 08, 2024	1 Year

Diagram of test setup





Test Conditions

Temperature: (22,9 ± 0,1) °C
Relative Humidity: (46,1 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.





2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jun. 20, 2024

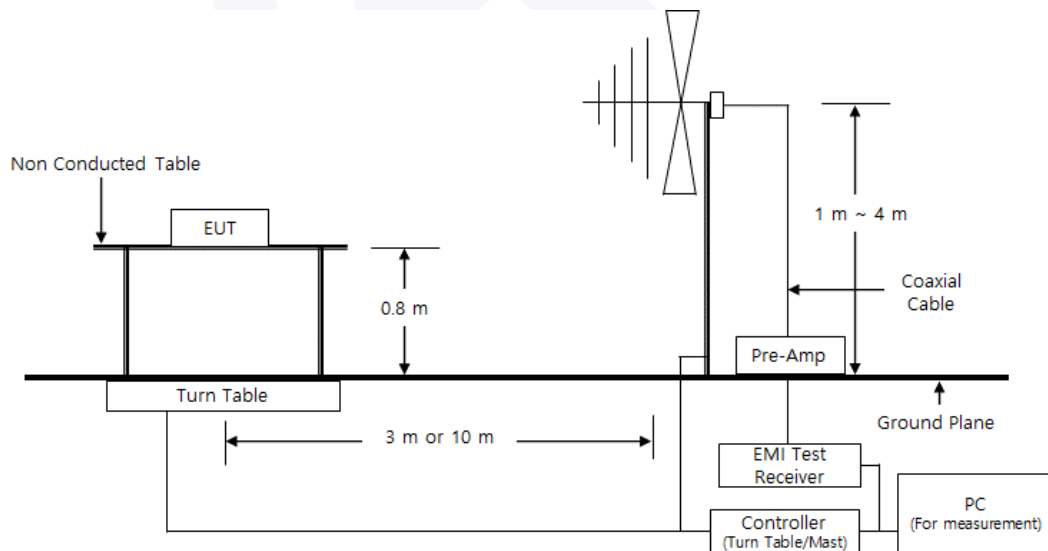
Test Location

☒ SEMI ANECHOIC CHAMBER #6(3m)☐ SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-	-
☒	EMI TEST RECEIVER	ESU26	R & S	100517	07, 31, 2024	1 Year
☒	AMPLIFIER	310N	SONOMA INSTRUMENT	401123	02, 13, 2025	1 Year
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	714	04, 19, 2026	2 Year
☒	ATTENUATOR	6806.17.A	HUBER+SUHNER	-	02, 13, 2025	1 Year

Diagram of test setup





Test Conditions

Temperature: (25,3 ± 0,0) °C
Relative Humidity: (44,0 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jun. 20, 2024

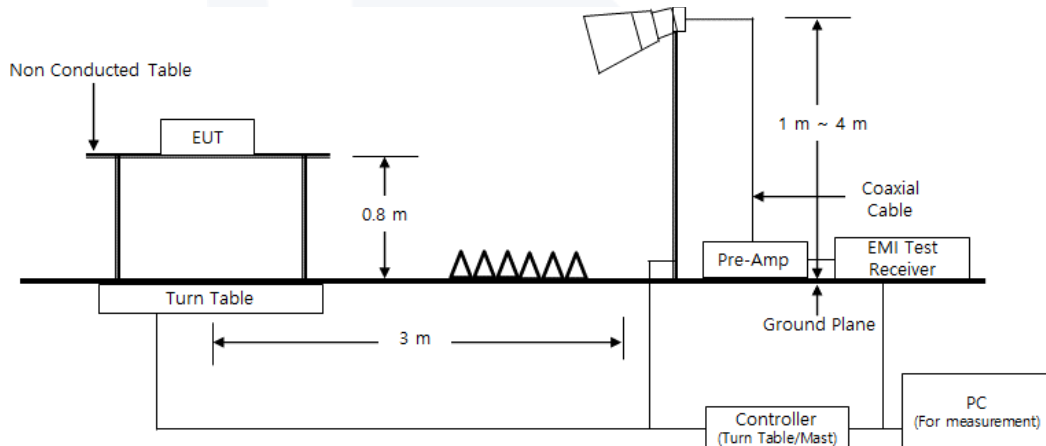
Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due	calibration interval
☒	EMI Test SW	ES10/RE	TOYO Corporation	2022.01.000	-	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	02, 13, 2025	1 Year
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 03, 2024	1 Year
☒	PREAMPLIFIER	8449B	HP	3008A00538	04, 30, 2025	1 Year
☒	ATTENUATOR	8491B	HP	23094	02, 13, 2025	1 Year

Diagram of test setup





Test Conditions

Temperature: (23,7 ± 0,0) °C
Relative Humidity: (46,5 ± 0,0) % R.H.

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

- See Appendix A for test data.
- The Average of the test data is the cispr average result.



APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

■ #1

HOT LINE

Common Information

Test Description:

Conducted Emission

Job No.:

KES-EM241926

Phase:

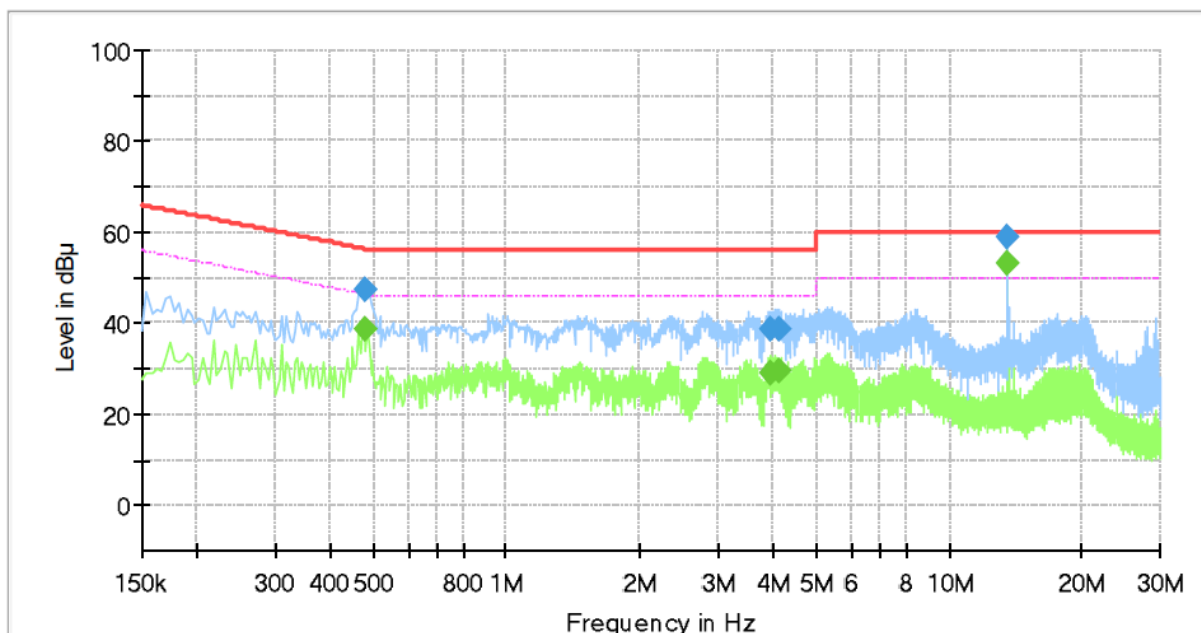
L1

Mode:

#1

Operator Name:

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.478000	---	38.95	46.37	7.42	1000.0	9.000	L1	19.5
0.478000	47.30	---	56.37	9.07	1000.0	9.000	L1	19.5
3.950000	---	29.05	46.00	16.95	1000.0	9.000	L1	19.8
3.950000	38.54	---	56.00	17.46	1000.0	9.000	L1	19.8
4.110000	---	29.34	46.00	16.66	1000.0	9.000	L1	19.9
4.110000	38.94	---	56.00	17.06	1000.0	9.000	L1	19.9
13.562000	---	53.34	50.00	-3.34	1000.0	9.000	L1	20.6
13.562000	58.94	---	60.00	1.06	1000.0	9.000	L1	20.6

* EUT Exclusion bands

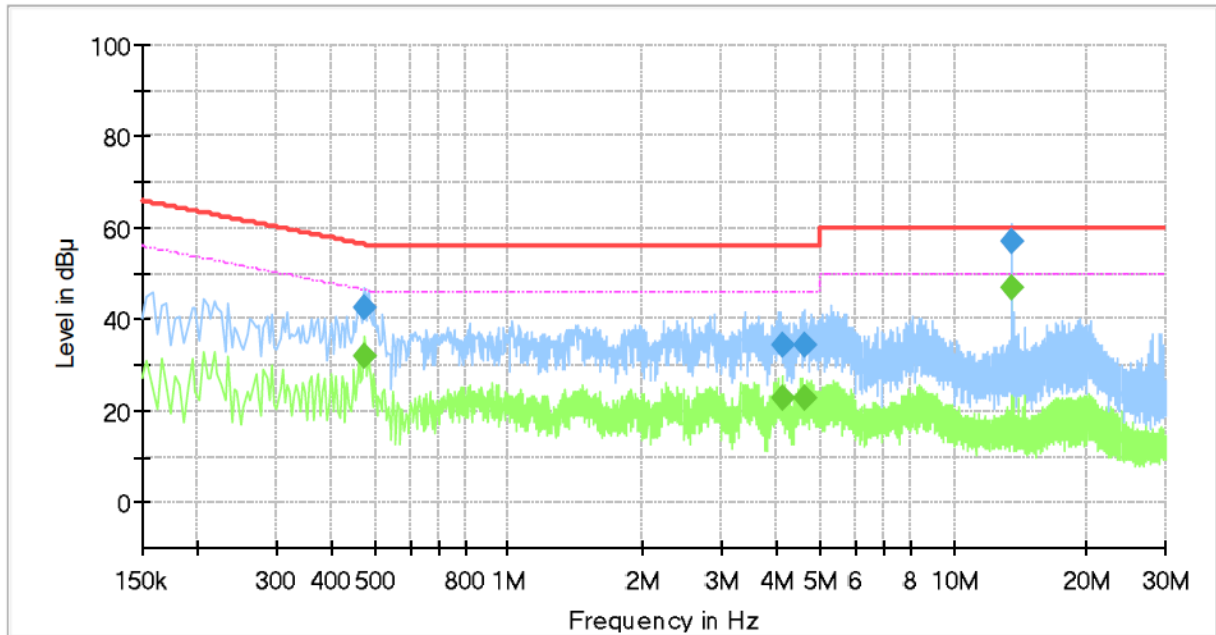
Fundamental Frequency : 13.56 MHz



NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM241926
Phase: N
Mode: #1
Operator Name: KES

**Final Result**

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.474000	---	31.86	46.44	14.58	1000.0	9.000	N	19.5
0.474000	42.66	---	56.44	13.78	1000.0	9.000	N	19.5
4.114000	---	22.87	46.00	23.13	1000.0	9.000	N	19.9
4.114000	34.45	---	56.00	21.55	1000.0	9.000	N	19.9
4.634000	---	22.83	46.00	23.17	1000.0	9.000	N	19.9
4.634000	34.28	---	56.00	21.72	1000.0	9.000	N	19.9
13.562000	---	47.11	50.00	2.89	1000.0	9.000	N	20.6
13.562000	57.16	---	60.00	2.84	1000.0	9.000	N	20.6

* EUT Exclusion bands

Fundamental Frequency : 13.56 MHz

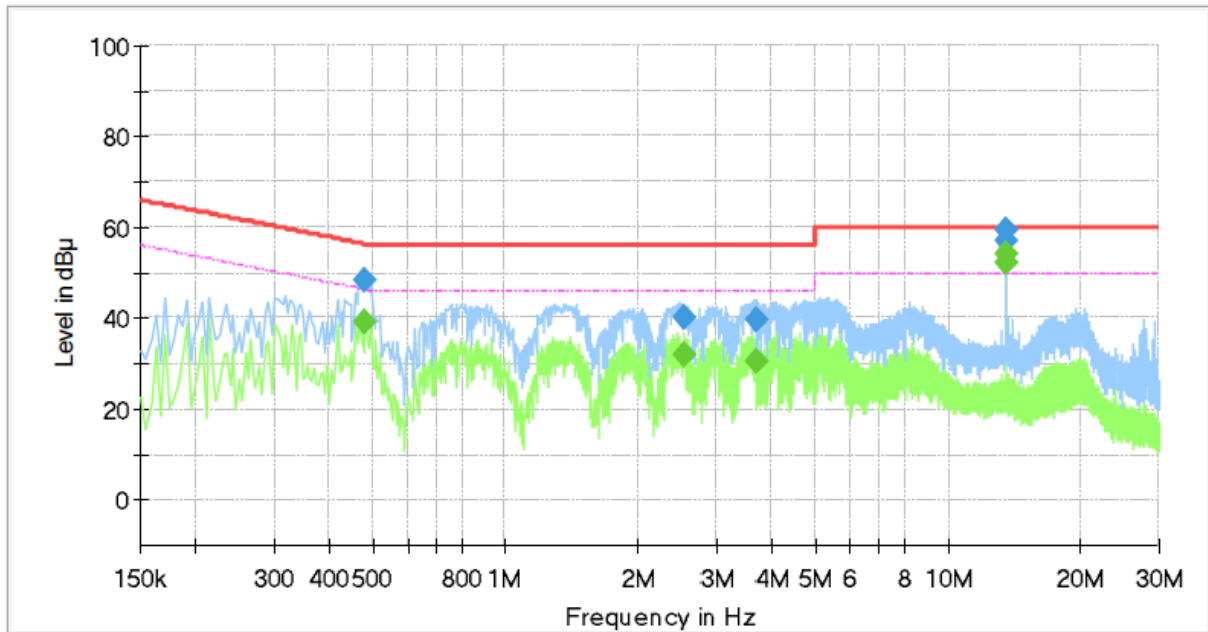


■ #2

HOT LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM241926
Phase: L1
Mode: #2
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.482000	---	39.03	46.30	7.27	1000.0	9.000	L1	19.5
0.482000	48.50	---	56.30	7.80	1000.0	9.000	L1	19.5
2.526000	---	31.96	46.00	14.04	1000.0	9.000	L1	19.7
2.526000	40.05	---	56.00	15.95	1000.0	9.000	L1	19.7
3.674000	---	30.41	46.00	15.59	1000.0	9.000	L1	19.8
3.674000	39.81	---	56.00	16.19	1000.0	9.000	L1	19.8
13.558000	---	52.20	50.00	-2.20	1000.0	9.000	L1	20.6
13.558000	57.19	---	60.00	2.81	1000.0	9.000	L1	20.6
13.562000	---	54.34	50.00	-4.34	1000.0	9.000	L1	20.6
13.562000	59.32	---	60.00	0.68	1000.0	9.000	L1	20.6

* EUT Exclusion bands

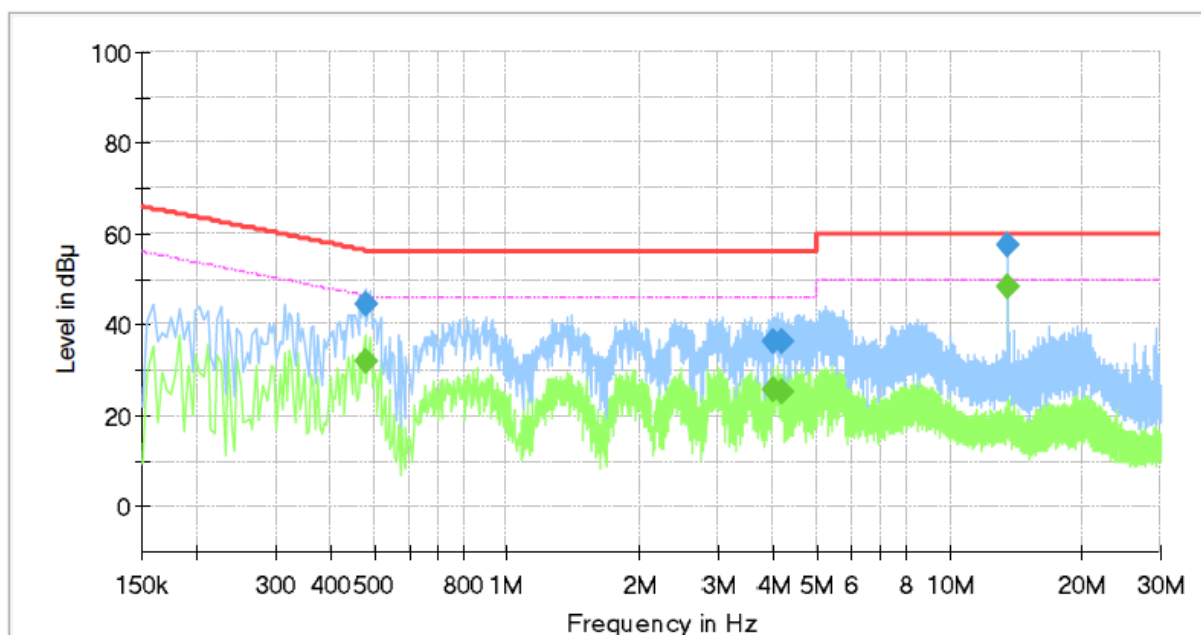
Fundamental Frequency : 13.56 MHz



NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Job No.: KES-EM241926
Phase: N
Mode: #2
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.478000	---	32.07	46.37	14.30	1000.0	9.000	N	19.5
0.478000	44.52	---	56.37	11.85	1000.0	9.000	N	19.5
3.982000	---	25.61	46.00	20.39	1000.0	9.000	N	19.9
3.982000	36.13	---	56.00	19.87	1000.0	9.000	N	19.9
4.166000	---	25.27	46.00	20.73	1000.0	9.000	N	19.9
4.166000	36.32	---	56.00	19.68	1000.0	9.000	N	19.9
13.562000	---	48.22	50.00	1.78	1000.0	9.000	N	20.6
13.562000	57.61	---	60.00	2.39	1000.0	9.000	N	20.6

* EUT Exclusion bands

Fundamental Frequency : 13.56 MHz

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

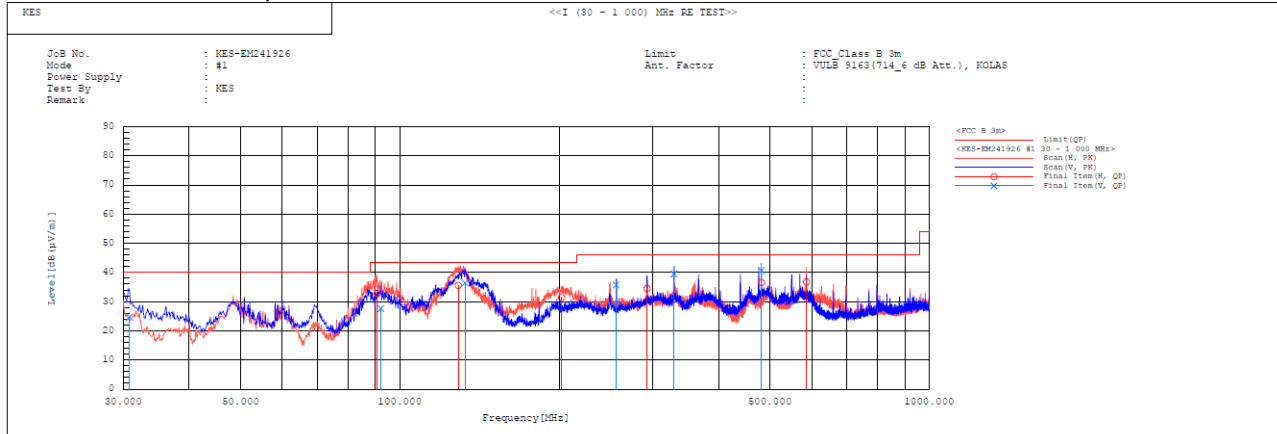
Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

**Radiated Electric Field Emissions(Below 1 GHz)**

■ #1

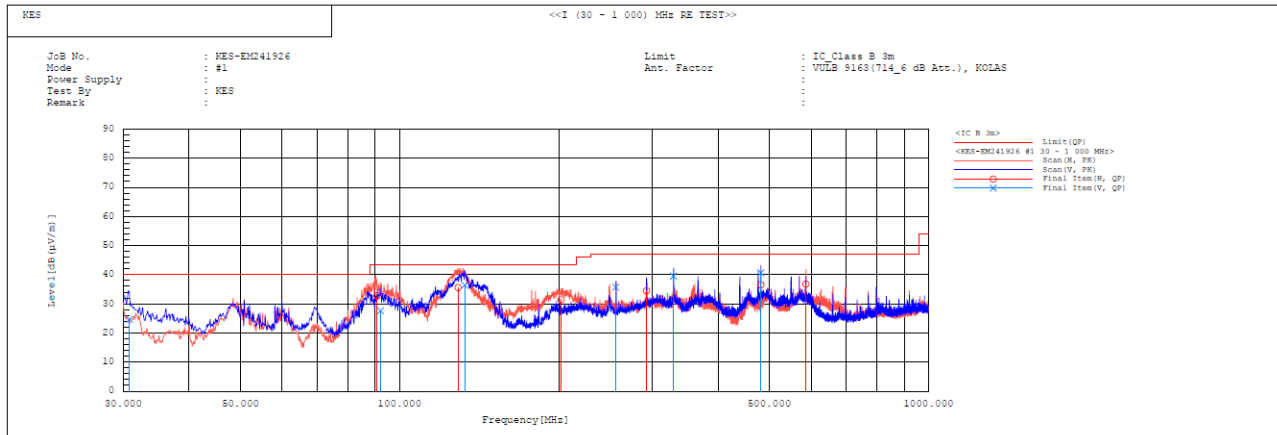
- 47 CFR Part 15, Subpart B

**Final Result**

No.	Frequency [MHz]	Pol	Reading QP [$\text{dB}(\mu\text{V})$]	c.f [$\text{dB}(1/\text{m})$]	Result QP [$\text{dB}(\mu\text{V/m})$]	Limit QP [$\text{dB}(\mu\text{V/m})$]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	30.841	V	39.4	-14.7	24.7	40.0	15.3	148.0	287.8	
2	90.598	H	47.3	-14.5	32.8	43.5	10.7	288.0	65.8	
3	92.066	V	41.8	-14.2	27.6	43.5	15.9	149.0	162.9	
4	129.034	H	50.5	-14.9	35.6	43.5	7.9	256.0	0.0	
5	132.845	V	51.5	-15.1	36.4	43.5	7.1	177.0	222.4	
6	202.067	H	43.7	-12.3	31.4	43.5	12.1	301.0	0.0	
7	256.450	V	46.4	-10.7	35.7	46.0	10.3	119.0	230.0	
8	293.140	H	44.4	-9.9	34.5	46.0	11.5	243.0	0.0	
9	329.639	V	48.0	-8.5	39.5	46.0	6.5	143.0	0.0	
10	482.313	V	46.2	-5.5	40.7	46.0	5.3	130.0	333.6	
11	482.334	H	42.0	-5.5	36.5	46.0	9.5	311.0	48.7	
12	586.527	H	40.1	-3.3	36.8	46.0	9.2	209.0	0.0	



- IC Regulation ICES-003 Issue 7



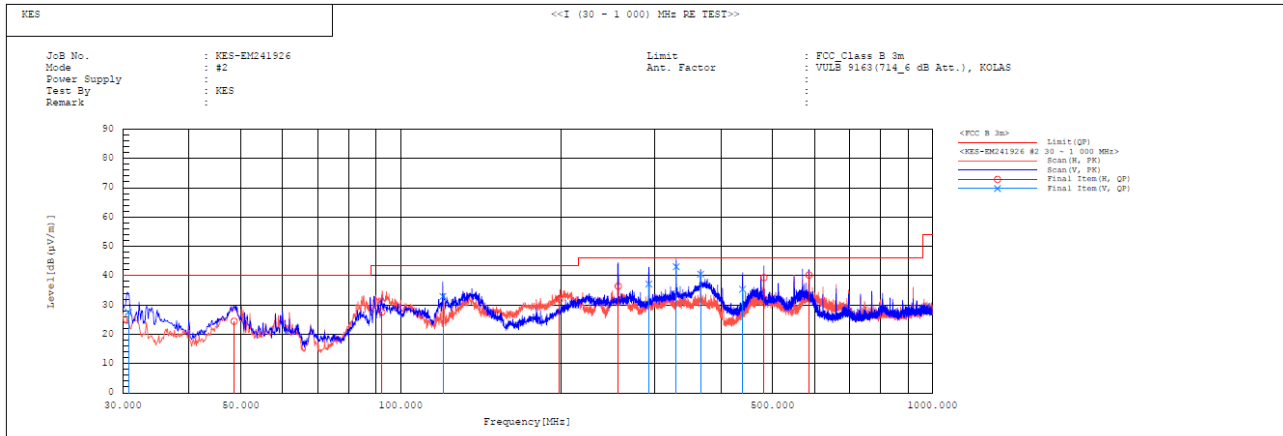
Final Result

No.	Frequency	Pol	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP		QP	QP	QP			
			[dB (μV)]	[dB (1/m)]	[dB (μV/m)]	[dB (μV/m)]	[dB]	[cm]	[deg]	
1	30.841	V	39.4	-14.7	24.7	40.0	15.3	148.0	287.8	
2	90.598	H	47.3	-14.5	32.8	43.5	10.7	288.0	65.8	
3	92.066	V	41.8	-14.2	27.6	43.5	15.9	149.0	162.9	
4	129.034	H	50.5	-14.9	35.6	43.5	7.9	256.0	0.0	
5	132.845	V	51.5	-15.1	36.4	43.5	7.1	177.0	222.4	
6	202.067	H	43.7	-12.3	31.4	43.5	12.1	301.0	0.0	
7	256.450	V	46.4	-10.7	35.7	47.0	11.3	119.0	230.0	
8	293.140	H	44.4	-9.9	34.5	47.0	12.5	243.0	0.0	
9	329.639	V	48.0	-8.5	39.5	47.0	7.5	143.0	0.0	
10	482.313	V	46.2	-5.5	40.7	47.0	6.3	130.0	333.6	
11	482.334	H	42.0	-5.5	36.5	47.0	10.5	311.0	48.7	
12	586.527	H	40.1	-3.3	36.8	47.0	10.2	209.0	0.0	



■ #2

- 47 CFR Part 15, Subpart B

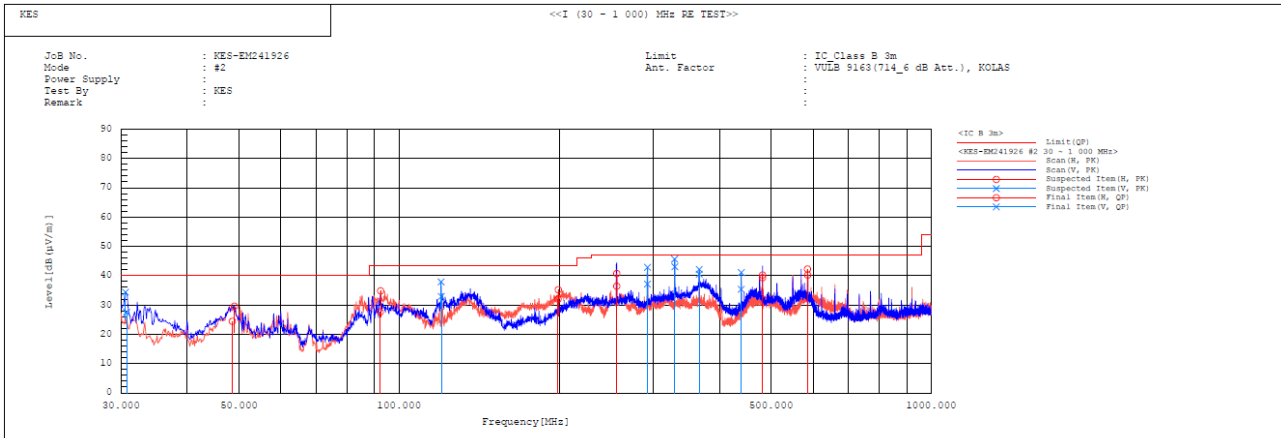


Final Result

No.	Frequency [MHz]	Pol	Reading QP [dB (μV)]	c.f [dB (l/m)]	Result QP [dB (μV/m)]	Limit QP [dB (μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	30.740	V	42.3	-14.8	27.5	40.0	12.5	143.0	350.9	
2	48.614	H	35.6	-11.2	24.4	40.0	15.6	254.0	0.0	
3	92.178	H	41.8	-14.2	27.6	43.5	15.9	299.0	136.0	
4	120.033	V	47.2	-14.3	32.9	43.5	10.6	126.0	154.4	
5	198.965	H	44.4	-12.4	32.0	43.5	11.5	269.0	337.4	
6	256.555	H	47.1	-10.7	36.4	46.0	9.6	311.0	205.1	
7	293.009	V	47.0	-9.9	37.1	46.0	8.9	164.0	0.0	
8	329.970	V	51.5	-8.5	43.0	46.0	3.0	144.0	337.4	
9	366.622	V	48.0	-7.5	40.5	46.0	5.5	127.0	327.1	
10	439.619	V	41.9	-6.6	35.3	46.0	10.7	168.0	220.4	
11	482.334	H	44.8	-5.5	39.3	46.0	6.7	264.0	27.5	
12	586.258	H	43.5	-3.3	40.2	46.0	5.8	236.0	332.6	



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Final Result

No.	Frequency [MHz]	Pol	Reading QP [dB (μV)]	c.f [dB (1/m)]	Result QP [dB (μV/m)]	Limit QP [dB (μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	30.740	V	42.3	-14.8	27.5	40.0	12.5	143.0	350.9	
2	48.614	H	35.6	-11.2	24.4	40.0	15.6	254.0	0.0	
3	92.178	H	41.8	-14.2	27.6	43.5	15.9	299.0	136.0	
4	120.033	V	47.2	-14.3	32.9	43.5	10.6	126.0	154.4	
5	198.965	H	44.4	-12.4	32.0	43.5	11.5	269.0	337.4	
6	256.555	H	47.1	-10.7	36.4	47.0	10.6	311.0	205.1	
7	293.009	V	47.0	-9.9	37.1	47.0	9.9	164.0	0.0	
8	329.970	V	51.5	-8.5	43.0	47.0	4.0	144.0	337.4	
9	366.622	V	48.0	-7.5	40.5	47.0	6.5	127.0	327.1	
10	439.619	V	41.9	-6.6	35.3	47.0	11.7	168.0	220.4	
11	482.334	H	44.8	-5.5	39.3	47.0	7.7	264.0	27.5	
12	586.258	H	43.5	-3.3	40.2	47.0	6.8	236.0	332.6	

◆ Calculation

Result(QP) [dB(μV/m)] = (Reading(QP)[dB(μV)] + c.f[dB(1/m)])

Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value



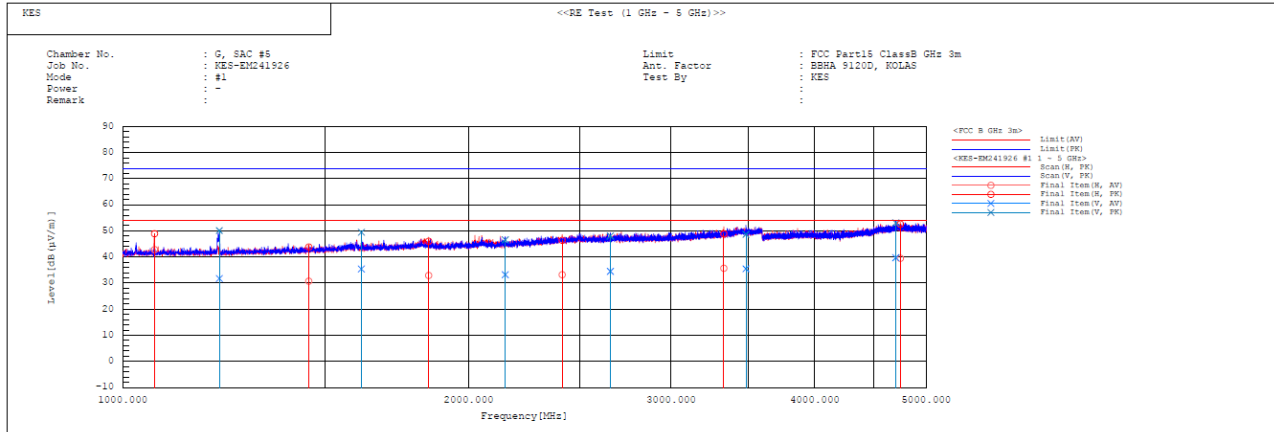
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Radiated Electric Field Emissions(Above 1 GHz)

■ #1

- (1 ~ 5) GHz



Final Result

No.	Frequency	Pol	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]		[dB (μV)]	[dB (μV)]	[dB (1/m)]	[dB (μV/m)]	[dB (μV/m)]	[dB (μV/m)]	[dB (μV/m)]	[dB]	[dB]	[cm]	[deg]	
1	1065.973	H	44.0	50.1	-1.2	42.8	48.9	54.0	74.0	11.2	25.1	246.0	4.7	
2	1213.864	V	32.1	50.5	-0.4	31.7	50.1	54.0	74.0	22.3	23.9	143.0	162.3	
3	1451.942	H	29.9	43.0	0.8	30.7	43.8	54.0	74.0	23.3	30.2	355.0	6.2	
4	1613.395	V	33.8	47.9	1.6	35.4	49.5	54.0	74.0	18.6	24.5	128.0	359.0	
5	1845.662	H	30.4	43.5	2.5	32.9	46.0	54.0	74.0	21.1	28.0	264.0	326.4	
6	2152.171	V	29.4	42.8	3.8	33.2	46.6	54.0	74.0	20.8	27.4	306.0	11.5	
7	2411.692	H	28.2	41.4	5.0	33.2	46.4	54.0	74.0	20.8	27.6	316.0	60.4	
8	2655.870	V	28.9	42.5	5.6	34.5	48.1	54.0	74.0	19.5	25.9	156.0	294.7	
9	3334.335	H	28.7	41.9	7.0	35.7	48.9	54.0	74.0	18.3	25.1	341.0	359.4	
10	3485.807	V	28.3	41.4	7.2	35.5	48.6	54.0	74.0	18.5	25.4	231.0	246.1	
11	4704.014	V	28.2	41.6	11.5	39.7	53.1	54.0	74.0	14.3	20.9	186.0	277.2	
12	4748.615	H	27.9	41.0	11.6	39.5	52.6	54.0	74.0	14.5	21.4	359.0	86.9	

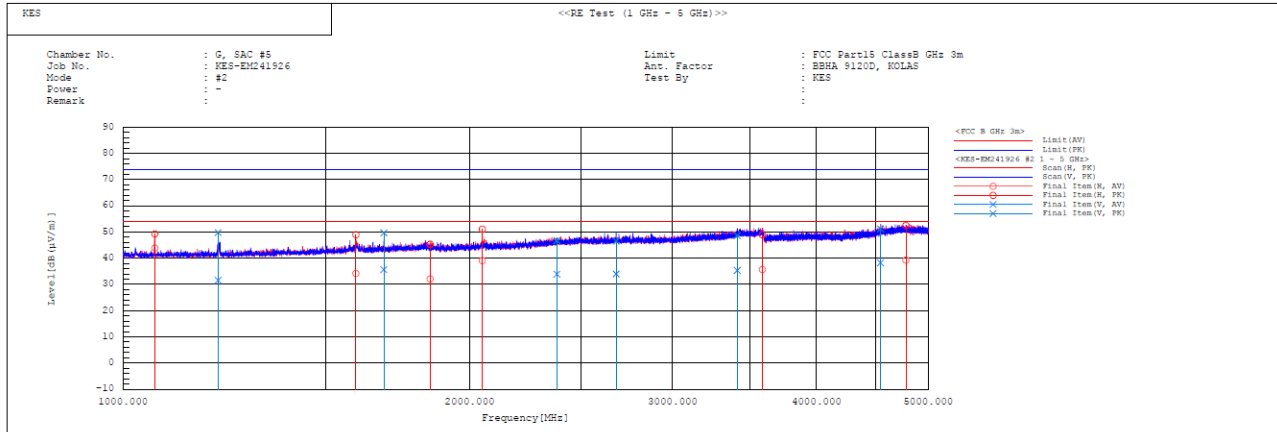


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■ #2

- (1 ~ 5) GHz



Final Result

No.	Frequency [MHz]	Pol	Reading AV [dB (μV)]	Reading PK [dB (μV)]	c.f [dB (1/m)]	Result AV [dB (μV/m)]	Result PK [dB (μV/m)]	Limit AV [dB (μV/m)]	Limit PK [dB (μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	1065.980	H	45.1	50.5	-1.2	43.9	49.3	54.0	74.0	10.1	24.7	344.0	329.9	
2	1209.590	V	32.0	50.2	-0.4	31.6	49.8	54.0	74.0	22.4	24.2	156.0	174.0	
3	1593.188	H	32.7	47.5	1.5	34.2	49.0	54.0	74.0	19.8	25.0	254.0	323.7	
4	1684.721	V	33.7	47.8	1.9	35.6	49.7	54.0	74.0	18.4	24.3	119.0	347.9	
5	1847.837	H	29.5	42.7	2.6	32.1	45.3	54.0	74.0	21.9	28.7	254.0	28.4	
6	2050.705	H	35.6	47.6	3.5	39.1	51.1	54.0	74.0	14.9	22.9	356.0	309.2	
7	2380.928	V	29.0	41.8	4.9	33.9	46.7	54.0	74.0	20.1	27.3	131.0	348.9	
8	2679.694	V	28.4	41.0	5.6	34.0	46.6	54.0	74.0	20.0	27.4	311.0	150.5	
9	3413.379	V	28.2	41.5	7.1	35.3	48.6	54.0	74.0	18.7	25.4	132.0	124.0	
10	3589.946	H	28.2	41.4	7.5	35.7	48.9	54.0	74.0	18.3	25.1	164.0	163.0	
11	4546.334	V	27.3	40.3	10.9	38.2	51.2	54.0	74.0	15.8	22.8	143.0	347.5	
12	4781.333	H	27.6	40.8	11.7	39.3	52.5	54.0	74.0	14.7	21.5	252.0	6.2	

◆ Calculation

Result(PK/CAV) [dB(μV/m)] = (Reading(PK/CAV)[dB(μV)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μV/m)] - Result(PK/CAV) [dB(μV/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value