

FCC & ISED CERTIFICATION TEST REPORT

Project Number : EA2209C-041
Test Report Number : TR-W2301-005
Type of Equipment : Document reader
Model Name : M600
FCC ID : 2A9IZ-M600
ISED Canada ID : 29789-M600
Multiple Model Name : N/A
Applicant : E-SEEK Inc
Address : 9471 Ridgehaven ct, Suite E, San Diego, CA 92123, USA
Manufacturer : MIRAESMT
Address : 102-405, 22, Samjak-ro, Bucheon-si, Gyeonggi-do, Republic of Korea
Regulation : FCC Part 15 Subpart C Section 15.225, ISED RSS-210 Issue10
Total page of Report : 22 Pages
Date of Receipt : 2022-09-21
Date of Issue : 2023-01-18
Test Result : PASS

This test report only contains the result of a single test of the sample supplied for the examination.
It is not a generally valid assessment of the features of the respective products of the mass-production.

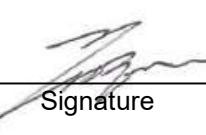
Prepared by Song, In-yong / Senior Engineer



Signature

2023-01-18
Date

Reviewed by Choi, Yeong-min / Technical Manager



Signature

2023-01-18
Date

CONTENTS

	Page
1. TEST SUMMARY	4
1.1 REGULATIONS AND RESULTS.....	4
1.2 PURPOSE OF THE TEST	4
1.3 TEST METHODOLOGY	4
1.4 ADDITIONS, DEVIATIONS, EXCLUSIONS FROM STANDARDS	5
2. EUT (EQUIPMENT UNDER TEST) INFORMATION.....	6
2.1 GENERAL DESCRIPTION	6
2.2 ADDITIONAL MODEL	6
3. TEST CONDITION.....	7
3.1 EQUIPMENT USED DURING TEST	7
3.2 CABLE DESCRIPTION	7
3.3 MODE OF OPERATION DURING THE TEST	7
3.4 PRELIMINARY TESTING FOR WORST CASE CONFIGURATION.....	7
3.5 TEST SETUP DRAWING.....	7
3.6 EUT MODIFICATIONS	9
4. ANTENNA REQUIREMENT	10
4.1 CONCLUSION.....	10
5. TEST RESULT	11
5.1 RADIATED EMISSIONS.....	11
5.2 20 DB BANDWIDTH.....	16
5.3 99% POWER BANDWIDTH	17
5.4 FREQUENCY TOLERANCE OF CARRIER SIGNAL	18
5.5 AC POWER LINE CONDUCTED EMISSION	19
APPENDIX I – TEST INSTRUMENTATION	22

Release Control Record

Issue Report No.	Issued Date	Details/Revisions
TR-W2301-005	2023-01-18	Initial Release
-	-	-

1. TEST SUMMARY

1.1 Regulations and results

The sample submitted for evaluation (Referred to below as the EUT) has been tested in accordance with the following regulations or standards.

FCC Reference Section	ISED Reference Section	Description	RESULTS			
			P	F	NT	Note
15.205, 15.209(a) & 15.225(d)	RSS-210 B.6	Radiated Spurious Emissions	P			
15.207	RSS GEN 8.8	AC Power-line Conducted Emissions	P			Note 1
15.225(a)	RSS-210 B.6	Field strength within the band (13.553-13.567) MHz	P			
15.225(b) & 15.225(c)	RSS-210 B.6	Field strength within the band (13.410-13.553) MHz and (13.567-13.710) MHz, (13.110-13.410) MHz and (13.710-14.010) MHz	P			
15.225(e)	RSS-210 B.6	Frequency Tolerance of Carrier Signal	P			
15.215	RSS GEN 6.6	20 dB Bandwidth, 99 % Bandwidth	P			

Remark:
P means Passed F means Failed NT means Not Tested

Note1. According to 5.13 of ANSI C63.10-2013, if the EUT is designed to be powered from an external power adapter and is not marketed or sold with a specific adapter, then voltage variations shall be applied to the input for typical power adapter.

1.2 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC Part 15 Subpart C Section 15.225, RGG-Gen and RSS-210.

1.3 Test Methodology

The tests mentioned in clause 1.1 in this test report were performed according to FCC CFR 47 Part 2, CFR 47 Part 15, ANSI C63.10-2013 and RSS-Gen

1.4 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

1.5 Test Facility

The measurement facilities are located at 135-60 Gyeongchung-daero, Gonjiam-eup, Gwangju-si, Gyeonggi-do 12813, Korea. Our test facilities are accredited as a Conformity Assessment Body (CAB) by the FCC and ISED Canada, designated by the RRA (National Radio Research Agency), and accredited by KOLAS (Korea Laboratory Accreditation Scheme) in Korea and approved by TUV Rheinland, TUV SÜD and Korean Register of Shipping according to the requirement of ISO/IEC 17025.

Laboratory Qualification	Registration No.	Mark
FCC	KR0160	
ISED Canada	12721A	
RRA	KR0160	 National Radio Research Agency
TUV Rheinland	UA 50314109-0002	
TUV SÜD	CARAT 094465 0004 Rev.00	
Korean Agency for Technology and Standards	KT733	
KOREAN REGISTER OF SHIPPING	PCT40841-TL001	

Remark. This report is not related to KOLAS accreditation and relevant regulation.

2. EUT (Equipment Under Test) INFORMATION

2.1 General Description

The E-SEEK Inc, Model M600 (referred to as the EUT in this report) is a Document reader. The EUT is a device for transferring RFID (13.56 MHz) signal to an RFID Smart card through wireless communication. The product specification described herein was obtained from product data sheet or user's manual.

Kind of Class	DXX- Part 15 Low Power Communication Device Transmitter
Operating Frequency	13.56 MHz
Modulation Types	ASK
Generated or used Freq. in EUT	32.768 kHz, 24 MHz, 27 MHz, 27.17 MHz
Type of Antenna	<input checked="" type="checkbox"/> Integrated Type <input type="checkbox"/> Dedicated Type PCB Pattern Antenna #1 (133 x 103 mm, 2 turns), PCB Pattern Antenna #2 (118 x 40 mm, 3 turns)
Normal Test Voltage	AC 120 V
Electrical Rating	Input power: 5 V input voltage Power adaptor: AC 110-240 V, 50/60 Hz 0.35 A Max Output: 5 V 2 Amps
Smart Card	Contactless: ISO-14443 Type A / B, NFC
Physical	Dimension: Length: 195 mm, Width: 160 mm, Height: 109 mm / 102 mm (to glass) Weight: 900 grams (2 lbs) Image capture window: 130 x 95 mm (5.12 x 3.74") Anti-reflective and scratch resistant Glass
Environmental	Temperature: Operating: -10 °C to 50 °C (14 °F to 122 °F) Storage: -20 °C to 70 °C (-4 °F to 158 °F) Humidity: Operating: 5-95 % (non-condensing) Dust: IP5x
Test SW Version	-
Software Version	1.00
Hardware Version	1.00

2.2 Additional Model

None

3. TEST CONDITION

3.1 Equipment Used During Test

The following peripheral devices and/or interface cables were connected during the measurement:

Description	Model No.	Serial No.	Manufacturer.
Document reader (EUT)	M600	60000000	MIRAESMT
SMART(RFID) Card	N/A	N/A	N/A
AC Adapter for the EUT	SWI10B-5-N-138	-	CUI INC

3.2 Cable Description

Description	Ports Name	Shielded (Y/N)	Ferrite Core (Y/N)	Length (m)	Connected to
EUT	Power connector	N	Y	1.8	AC Adapter

3.3 Mode of operation during the test

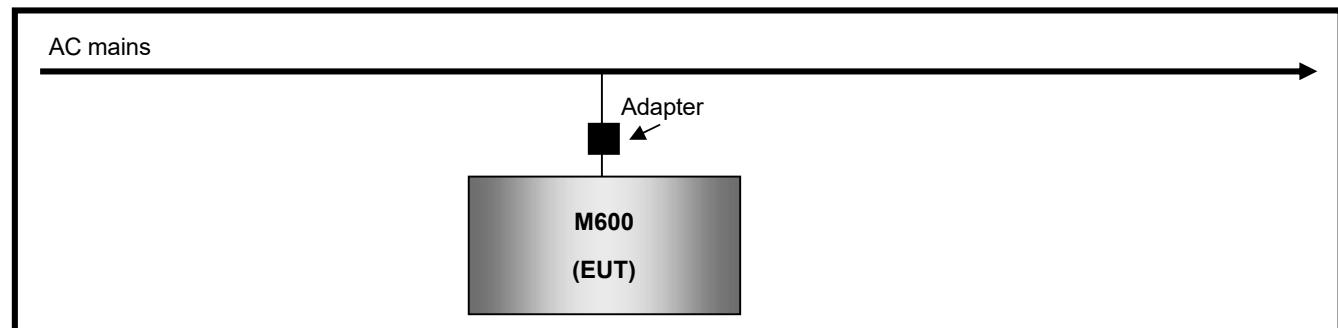
The EUT was tested using a program that allowed modulated signals to continue to be transmitted when power was applied to the EUT. The used modulation type for the testing is ASK (13.56 MHz).

3.4 Preliminary Testing for Worst case configuration

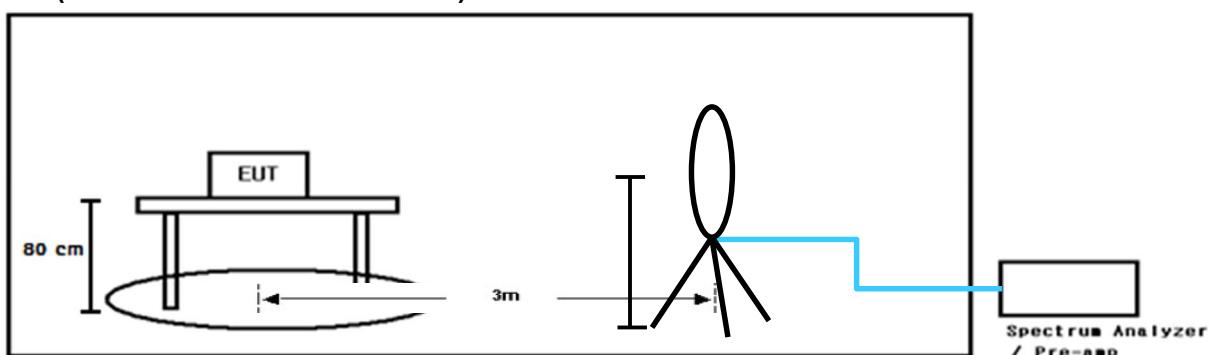
For finding worst case configuration and operating mode, preliminary testing was performed and radiated emission and conducted emission tests were performed with the EUT set to transmit with the highest output power as worst case scenario. Since the EUT is a fixed type device, all spurious emission tests were performed in one axis direction.

Test Channel	Channel	Frequency
Center Channel	-	13.56 MHz

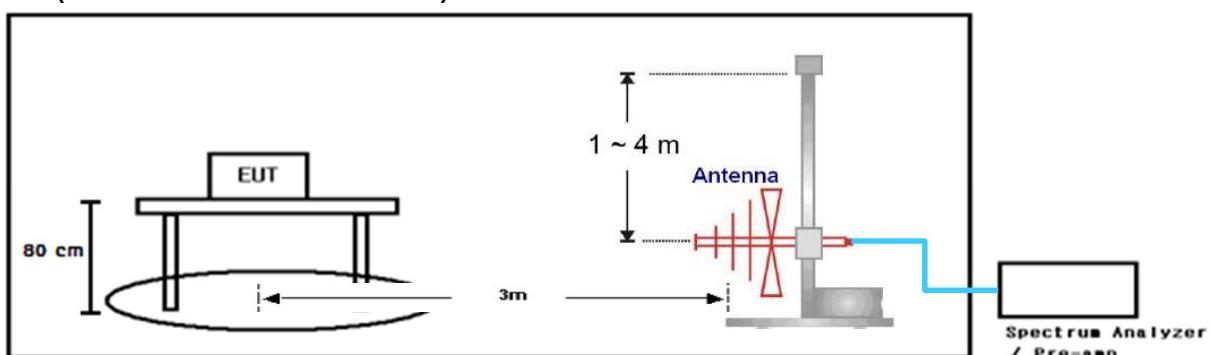
3.5 Test Setup Drawing



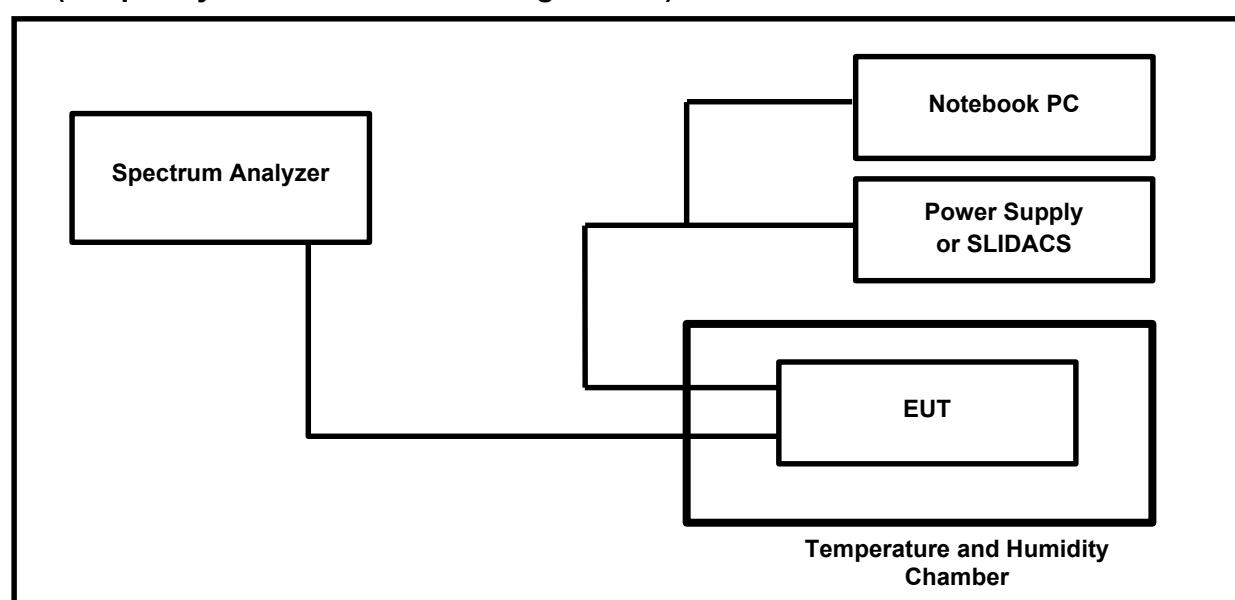
(Radiated Test below 30 MHz)



(Radiated Test below 1 GHz)



(Frequency Tolerance of Carrier Signal Test)



3.6 EUT Modifications

During the testing, following modifications were implemented on the EUT by the manufacturer.

1. Added a ferrite core on the DC output cable of the adapter and wound 2 times.
(Mfg: EMCS, M/N: EMCS-5530)
2. Added a ferrite core at the EUT side of the USB cable and wound 2 times.
(Mfg: EMCS, M/N: EMCS-5530)
3. Added a ferrite core at the computer side of the USB cable and wound 3 times.
(Mfg: E-Tech Electronics, M/N: CU1330B)
4. Added a ferrite core to Camera Board Connection Cable.
(Mfg: LAIRD, M/N: 28R0898-200)
5. Added a copper tape on the chipset of Main board.
6. Added a copper tape on the inner bottom of the housing.
7. Added a copper tape on the chipset of Main Board.
8. The case of power and USB ports are connected to the ground pattern with copper tape.
9. Added a ferrite core to the LED Board Connection Cable.
(Mfg: LAIRD, M/N: 28R0756-200)
10. Added a ferrite core to the RFID Board Connection Cable.
(Mfg: LAIRD, M/N: 28R0756-200)
11. Deleted a capacitor at C17 (18pF) and C30 (11 pF).

4. ANTENNA REQUIREMENT

According to FCC CFR 47 Part 15 section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provision of this section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31 (d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

4.1 Conclusion

The EUT has an integral PCB loop antenna, so there is no consideration of replacement by the user.

5. TEST RESULT

5.1 Radiated emissions

5.1.1 Regulation

Acc. to section 15.225, and 15.209 and RSS-210 Annex B.6, following table shall be applied.

Frequency (MHz)	Field strength limit (μ V/m) @ 30 m	Field strength limit (dB μ V/m) @ 30 m	Field strength limit (dB μ V/m) @ 3 m
13.110 – 13.410	106	40.5	80.5
13.410 – 13.553	334	50.5	90.5
13.553 – 13.567	15,848	84.0	124.0
13.567 – 13.710	334	50.5	90.5
13.710 – 14.010	106	40.5	80.5

Frequency (MHz)	Field strength limit (μ V/m)	Field strength limit (dB μ V/m)	Measurement Distance (m)
0.009 – 0.490	$2400/F$ (kHz) = 266.7 – 4.9	48.5 – 13.8	300
0.490 – 1.705	$24000/F$ (kHz) = 49.0 – 14.1	33.8 - 23.0	30
1.705 – 30.0	30	29.5	30
30 – 88	100	40.0	3
88 - 216	150	43.5	3
216 - 960	200	46.0	3
Above 960	500	54.0	3

Note: The emission limits shown in the above table are based on measurement instrumentation employing a CISPR quasi-peak detector. For the frequency bands (9 – 90) kHz, (110 – 490) kHz and above 1000 MHz, the radiated emission limits are based on measurements employing an average detector.

5.1.2 Method of Measurement

The preliminary radiated emission test was performed using the procedure in ANSI C63.10 2013 to determine the worse operating conditions. The radiated emissions measurements were performed on the 10 m Semi Anechoic Chamber

Radiated Emissions Test, 9 kHz to 30 MHz (Magnetic Field Test)

For frequencies from 150 kHz to 30 MHz measurements were made of the magnetic H field. The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. The measuring antenna is an electrically screened loop antenna. Emissions from the EUT are maximized by adjusting the orientation of the Loop antenna and rotating the EUT on the turntable. Manipulating the system cables also maximizes EUT emissions if applicable. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.

Radiated Emissions Test, below 1 000 MHz

The frequency spectrum from 30 MHz to 1 000 MHz was scanned and maximum emission levels maximized at each frequency recorded. The system rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna. The EUT is situated in three orthogonal planes (if appropriate).

5.1.3 Test Site Requirement for KDB 414788 D01

Acc. to KDB 414788 D01 Radiated Test Site v01r01, Semi Anechoic Chamber (SAC) shall be verified test results below 30 MHz with Open Area Test Site (OATS), so we compared test results between the measurements from our SAC and an OATS and found test results almost same, so we **declare test result for below 30 MHz from our SAC is valid and met the requirement acc. to KDB 414788 D01 Radiated Test Site v01r01.**

5.1.4 Measurement Uncertainty

Measurement uncertainties were not taken into account and following uncertainty levels have been estimated for tests performed on the apparatus. The measurement uncertainties are given with at least 95 % confidence.

Frequency Range	Uncertainty	Frequency Range	Uncertainty
9 kHz ~ 30 MHz	±2.07 dB	30 MHz ~ 1 GHz	±4.64 dB

5.1.5 Sample Calculated Example

Used Software for measurement is manufactured by TSJ

At 80 MHz

Limit = 40.0 dBuV/m

Result(dBuV/m) = Receiver Reading (dBuV) + Antenna Factor (dB/m) - Corr. Factor (dB) =30

Where, Corr. Factor (dB) = Pre-amplifier (dB) – Cable loss (dB)

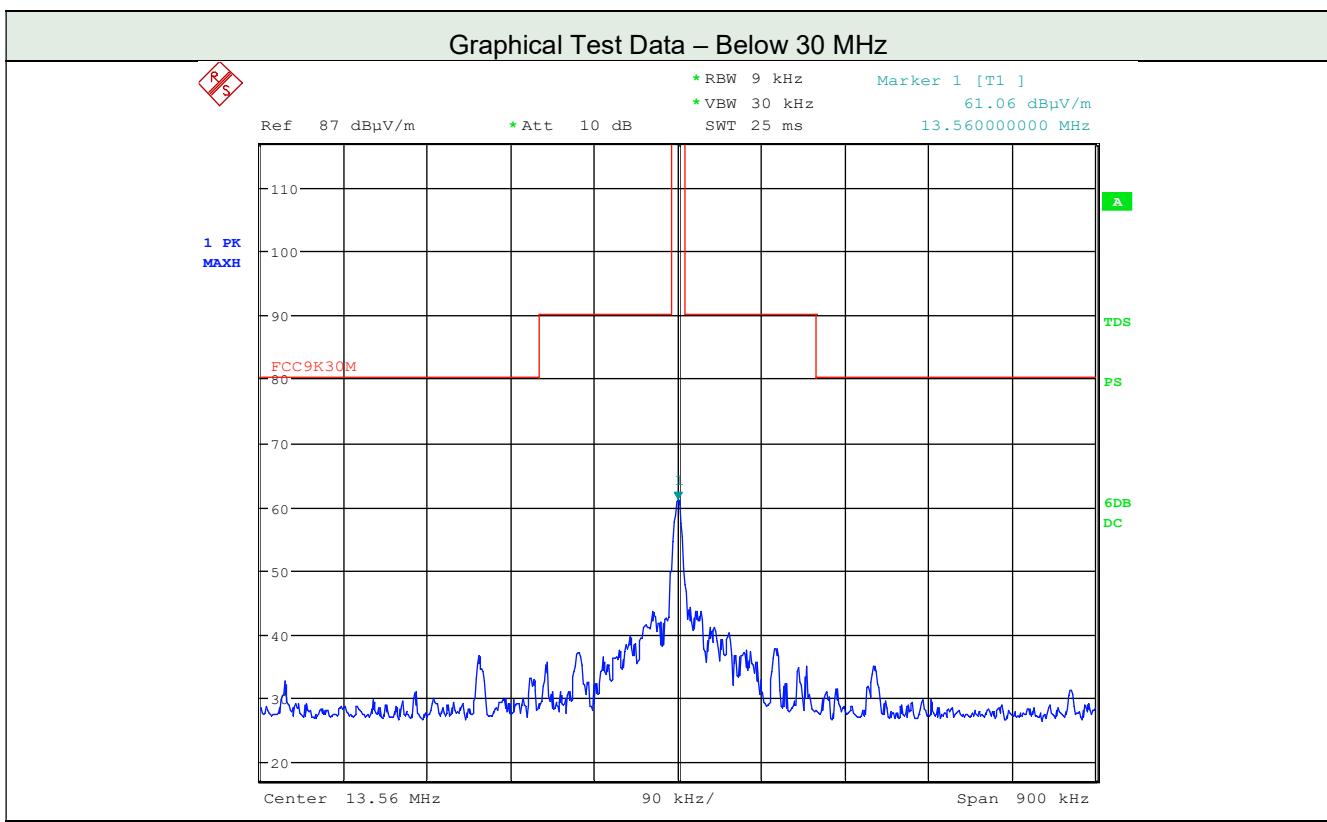
Margin = Limit – Result = 40 – 30 = 10

so the EUT has 10.0 dB margin at 80 MHz

5.1.6 Test Data

Date of Test	2022-11-18 ~ 2022-11-21	Temperature	(18.6 ± 0.3) °C			
		Relative humidity	(48.8 ± 0.2) % R.H.			
Measurement Frequency Range		9 kHz ~ 1 GHz				
Test Result		PASS	Tested By		In-yong Song 	
Frequency range	Detector Mode	Resolution BW	Video BW	Video Filtering	Measurement distance	
Below 30 MHz	Peak or Q.P.	9 kHz	30 kHz	-	3 m	
30 MHz ~ 1 000 MHz	Peak or Q.P.	100 kHz	300 kHz	-	3 m	

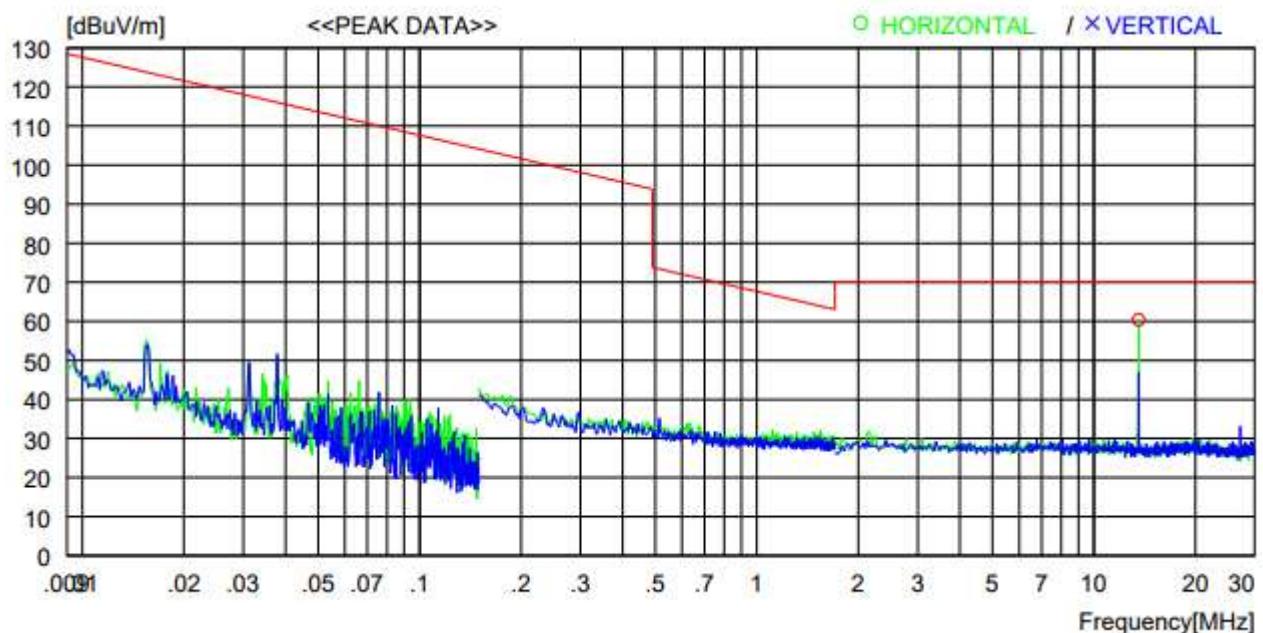
5.1.6.1 Test Data below 30 MHz



Tabulated Test Data under 15.225(a), (b)&(c)

Frequency (MHz)	Detector Mode	Pol.	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Azimuth (Degree)
13.56	Peak	H	61.06	124.00	62.94	100	213

Graphical Test Data – Below 30 MHz

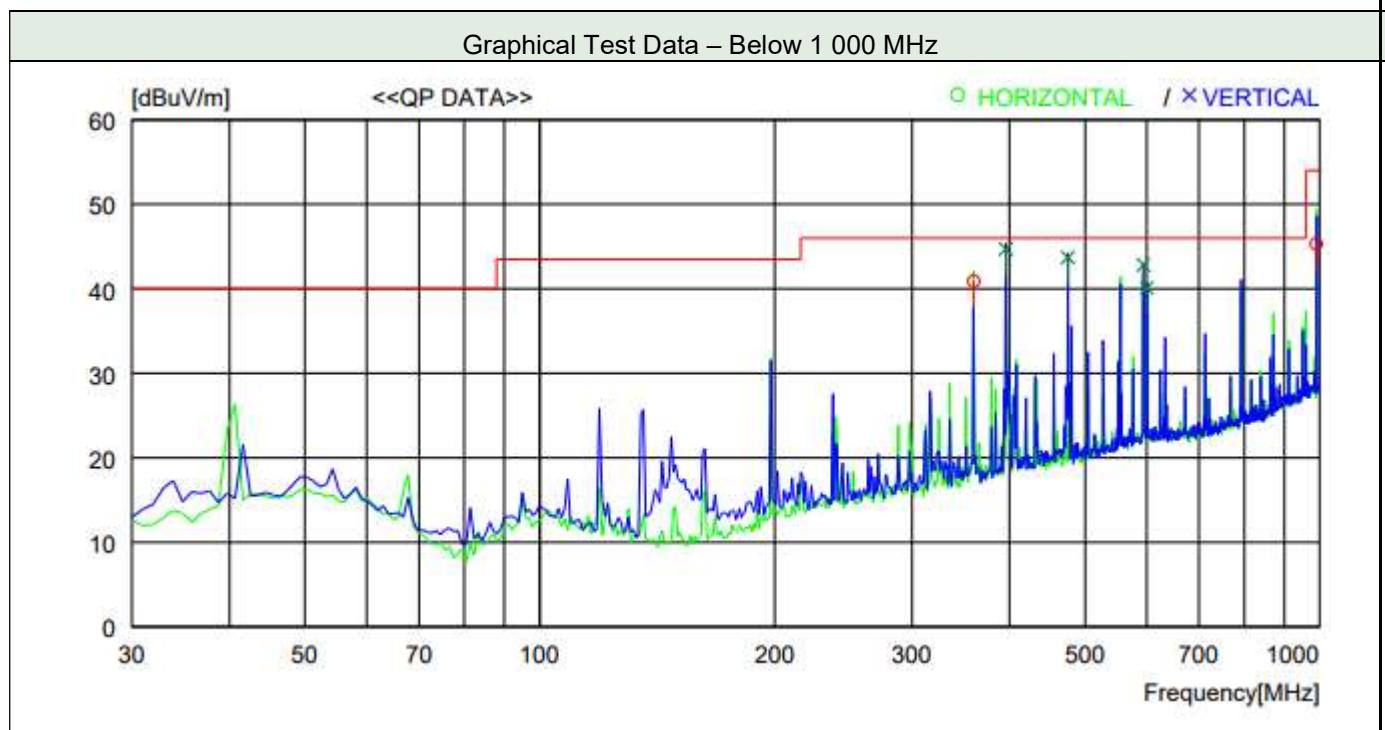


Tabulated Test Data under 15.225(d), 15.209

Frequency (MHz)	Receiver Reading (dBuV)	Detector Mode	Detector Pol.	Ant. Factor (dB/m)	Corr. Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (Degree)

* Spurious emissions that 20 dB below the limits didn't be recorded.

5.1.6.2 Test Data from 30 MHz to 1 GHz



Tabulated Test Data under 15.205(a), 15.209

Frequency (MHz)	Receiver Reading (dBuV)	Detector Mode	Pol.	Ant. Factor (dB/m)	Corr. Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Azimuth (Degree)
360.002	49.3	QP	H	14.6	23.0	40.9	46.0	5.1	100	337
395.690	52.1	QP	V	15.5	22.9	44.7	46.0	1.3	100	0
475.231	49.6	QP	V	16.8	22.7	43.7	46.0	2.3	100	324
594.001	46.2	QP	V	19.1	22.5	42.8	46.0	3.2	100	74
600.002	43.5	QP	V	19.2	22.6	40.1	46.0	5.9	100	200
990.004	42.9	QP	H	22.7	20.3	45.3	54.0	8.7	110	60

Note: "H" means Horizontal polarity, "V" means Vertical polarity

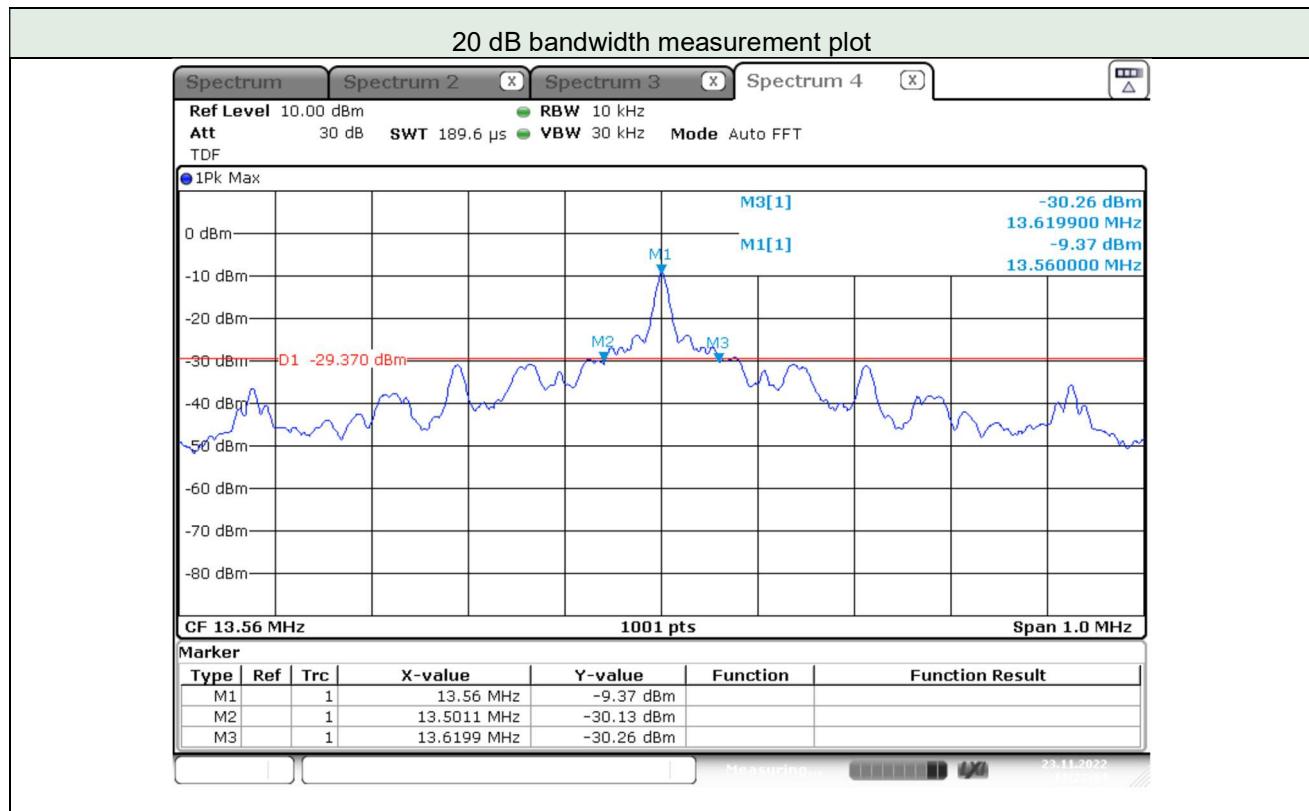
5.2 20 dB bandwidth

5.2.1 Method of Measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution is set to 30 kHz, and peak detection was used. The 20 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 20 dB.

5.2.2 Test Data

Date of Test	2022-11-23	Temperature	$(23.9 \pm 0.1) ^\circ\text{C}$
		Relative humidity	$(50.3 \pm 1.0) \% \text{ R.H.}$
Test Result	PASS	Tested by	In-yong Song 
Operating Frequency (MHz)		Measured Value (MHz)	Limit
13.56		13.501 1	$F_L > 13.110 \text{ MHz}$
		13.619 9	$F_H < 14.010 \text{ MHz}$



Note: F_L : Lowest frequency at 20 dB bandwidth

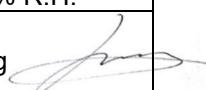
F_H : Highest frequency at 20 dB bandwidth

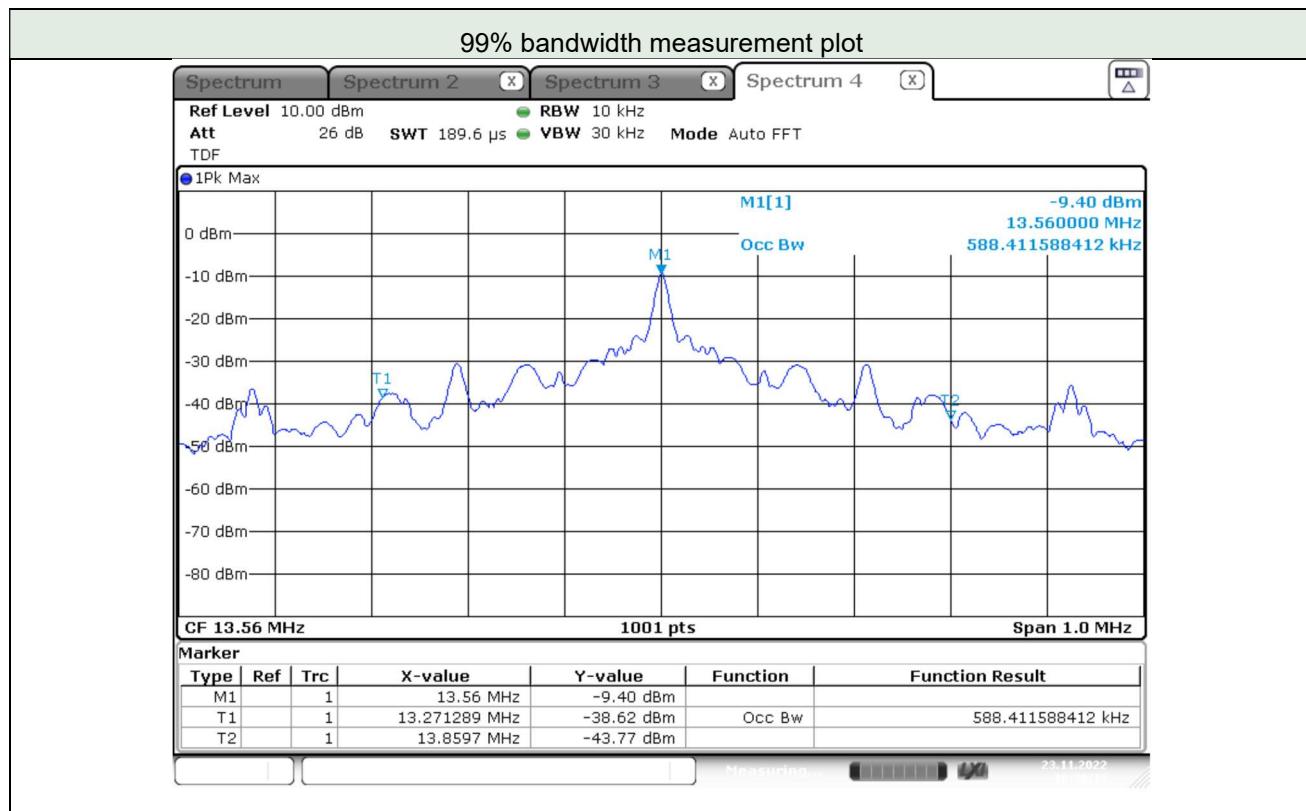
5.3 99% Power bandwidth

5.3.1 Method of Measurement

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth.

5.3.2 Test Data

Date of Test	2022-11-23	Temperature	$(23.9 \pm 0.1) ^\circ\text{C}$
		Relative humidity	$(50.3 \pm 1.0) \% \text{ R.H.}$
Test Result	PASS	Tested by	In-yong Song 
Operating Frequency (MHz)	Measured Value (kHz)	Limit	
13.56	588.412	-	



5.4 Frequency tolerance of carrier signal

5.4.1 Regulation

FCC 47CFR15-15.225(e) and RSS-210 Annex B.6

Acc. to section 15.225 (e), the frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery-operated equipment, the equipment tests shall be performed using a new battery.

5.4.2 Method of Measurement

The EUT output was connected to the spectrum analyzer through an attenuator. Turn EUT off and set chamber temperature to -20 °C and then allow sufficient time (approximately 20 to 30 minutes after chamber reach the assigned temperature) for EUT to stabilize. Turn on EUT and measured EUT operating frequency and turn off the EUT after the measurement. The temperature was raised 10 °C step from -20 °C to +50 °C. Repeat above method for frequency measurement every 10 °C step and then record all measured frequencies on each temperature step. An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 115 % of the nominal value and then was reduced to 85 % of nominal voltage. The output frequency was recorded at each step.

5.4.3 Test Data

Date of Test		2022-11-21 to 2022-11-23				Temperature		(22.2 ± 2.5) °C					
						Relative humidity		(51.2 ± 1.2) % R.H.					
Test Result		PASS				Tested by		In-yong Song 					
Carrier Frequency: 13.560 000 MHz, LIMIT: within ± 1 356 Hz													
Temp. (°C)	Volt. (V)	Carrier Frequency Measured with Time Elapsed											
		Start Up		2 minutes		5 minutes		10 minutes					
		Frequency (MHz)	Error (Hz)	Frequency (MHz)	Error (Hz)	Frequency (MHz)	Error (Hz)	Frequency (MHz)	Error (Hz)				
+50	120	13.560 317	317	13.560 319	319	13.560 324	324	13.560 319	319				
+40	120	13.560 322	322	13.560 322	322	13.560 320	320	13.560 316	316				
+30	120	13.560 339	339	13.560 339	339	13.560 338	338	13.560 322	322				
+20	138	13.560 341	341	13.560 338	338	13.560 340	340	13.560 337	337				
	120	13.560 341	341	13.560 333	333	13.560 341	341	13.560 339	339				
	102	13.560 345	345	13.560 342	342	13.560 343	343	13.560 345	345				
+10	120	13.560 362	362	13.560 361	361	13.560 362	362	13.560 362	362				
0	120	13.560 363	363	13.560 380	380	13.560 380	380	13.560 379	379				
-10	120	13.560 358	358	13.560 361	361	13.560 360	360	13.560 362	362				
-20	120	13.560 301	301	13.560 318	318	13.560 319	319	13.560 320	320				

5.5 AC Power Line Conducted Emission

5.5.1 Limit

Acc. to section 15.207 (a), following table shall be applied.

Frequency Range (MHz)	Quasi-Peak (dBuV)	Average (dBuV)
0.15 - 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 -30	60	50

5.5.2 Method of Measurement

The EUT was placed on a wooden table, 0.8 m height above the horizontal ground plane and 40 cm from the vertical ground plane. Power was fed to the EUT through a $50 \Omega / 50 \mu\text{H} + 5 \Omega$ Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

The test was performed for both Neutral and Hot lines.

5.5.3 Measurement Uncertainty

Measurement uncertainties were not taken into account and following uncertainty levels have been estimated for tests performed on the apparatus. The measurement uncertainties are given with at least 95 % confidence.

Frequency Range	Uncertainty
150 kHz ~ 30 MHz	$\pm 2.21 \text{ dB}$

5.5.4 Sample Calculated Example

Used Software for measurement is manufactured by EMC32 supplied by Rohde & Schwarz.

At 5.31 MHz

QP Limit = 60.0 dBuV

Correction Factor (C. Factor) of LISN, Pulse Limiter and cable loss at 5.31 MHz = 9.7 dB

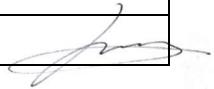
Q.P Reading from the Test receiver = 20.8 dBuV

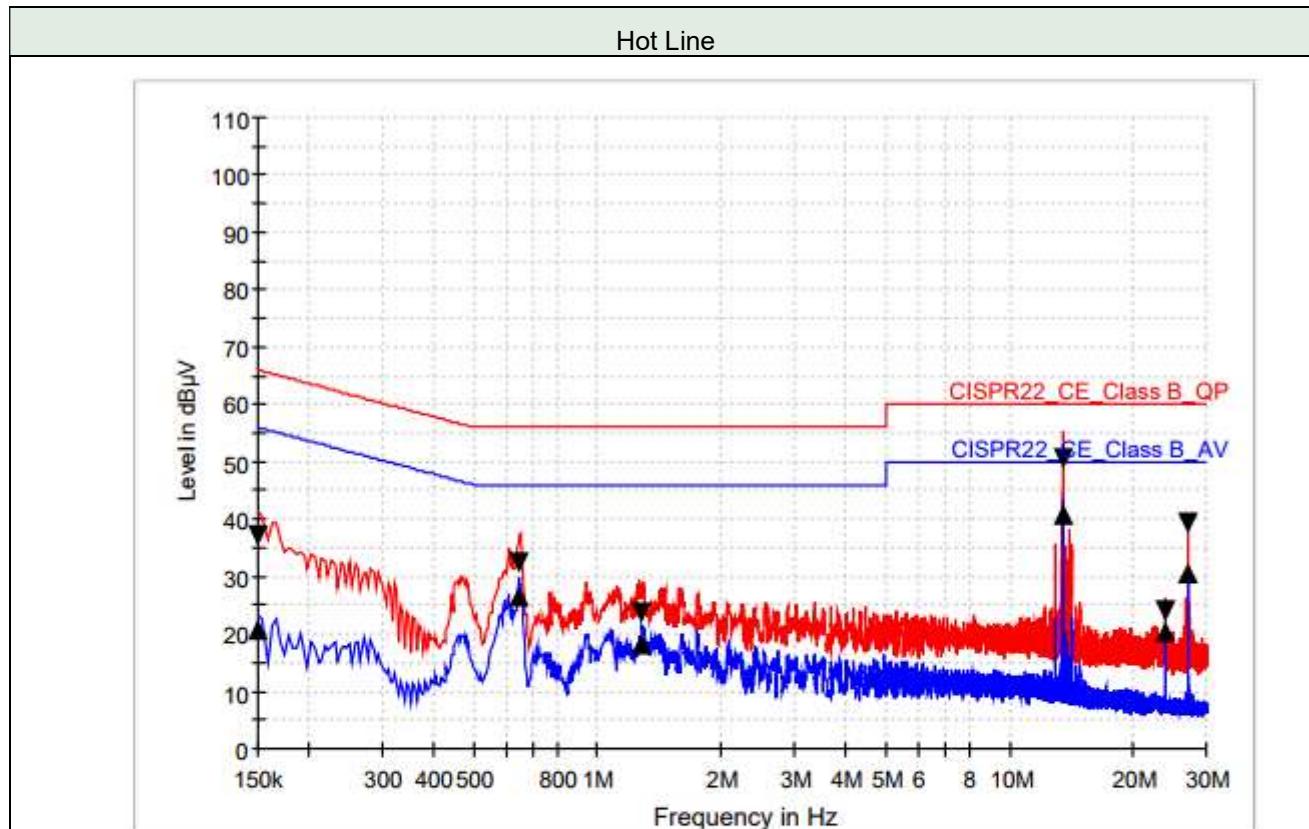
(Calculated value for system losses by software EMC32 manufactured by Rohde & Schwarz)

Therefore Q.P Margin = 60 - 20.8 = 39.2

so the EUT has 39.2 dB margin at 5.31 MHz

5.5.5 Test Data

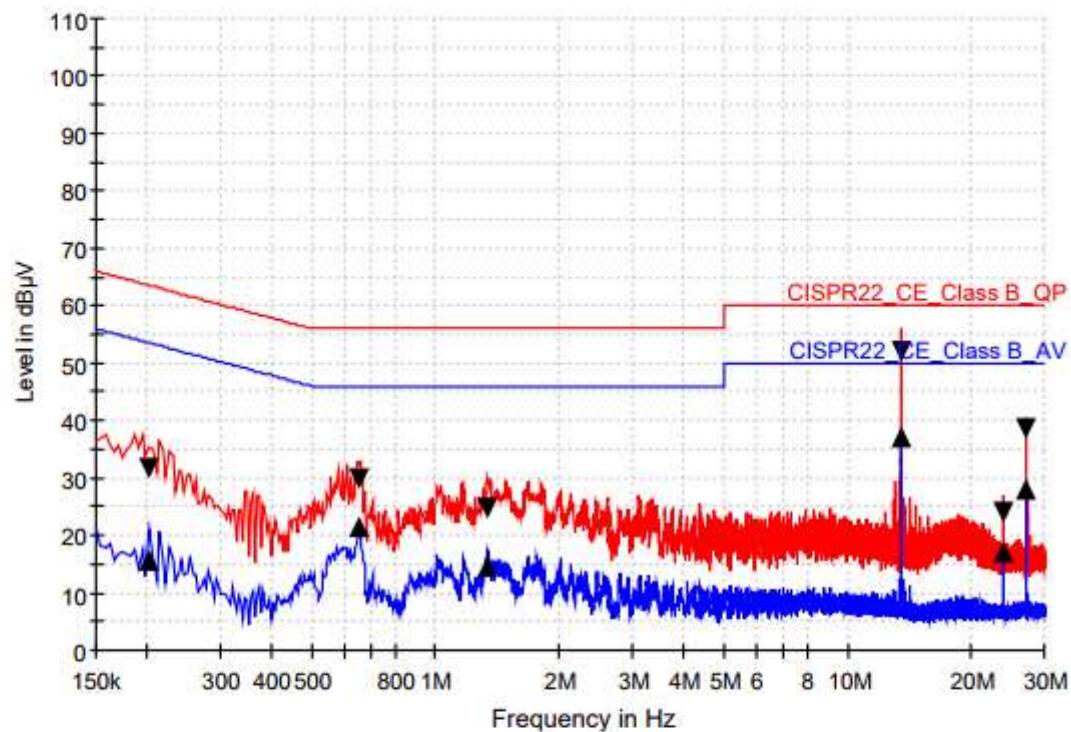
Date of Test	2022-11-18	Temperature	$(20.2 \pm 0.1) ^\circ\text{C}$
		Relative humidity	$(49.1 \pm 0.3) \% \text{ R.H.}$
Measurement Frequency Range		150 kHz ~ 30MHz	
Test Result	PASS	Tested By	In-yong Song 



Limit and Margin1

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)	Margin - CAV (dB)	Limit - CAV (dBµV)
0.150000	37.1	20.8	9.000	L1	9.6	28.9	66.0	35.2	56.0
0.646000	32.5	26.7	9.000	L1	9.7	23.5	56.0	19.3	46.0
1.278000	23.8	18.1	9.000	L1	9.7	32.2	56.0	27.9	46.0
13.566000	50.7	40.7	9.000	L1	10.0	9.3	60.0	9.3	50.0
24.002000	24.2	20.3	9.000	L1	10.2	35.8	60.0	29.8	50.0
27.118000	39.5	30.7	9.000	L1	10.2	20.5	60.0	19.3	50.0

Neutral Line



Limit and Margin1

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - CAV (dB)	Limit - CAV (dB μ V)
0.202000	31.5	15.7	9.000	N	9.6	32.0	63.5	37.9	53.5
0.650000	29.9	21.5	9.000	N	9.7	26.1	56.0	24.5	46.0
1.342000	24.9	14.6	9.000	N	9.7	31.1	56.0	31.4	46.0
13.566000	52.0	37.1	9.000	N	10.0	8.0	60.0	12.9	50.0
23.998000	24.0	16.9	9.000	N	10.2	36.0	60.0	33.1	50.0
27.118000	38.8	28.1	9.000	N	10.2	21.2	60.0	21.9	50.0

Appendix I – Test Instrumentation

Description	Model No.	Serial No.	Manufacturer.	Due for Cal. Date	Cal. Interval
Signal Analyzer	FSV 13	101243	Rohde & Schwarz	2023-01-13	1 Y
Signal Generator	SMF100A	101441	Rohde & Schwarz	2023-01-13	1 Y
Attenuator	10dB	ENG-2	Rohde & Schwarz	2023-01-13	1 Y
Temperature & Humidity Chamber	SH-241	92012087	Espec	2023-01-13	1 Y
Test Receiver	ESU 26	100303	Rohde & Schwarz	2023-01-13	1 Y
Loop Antenna	HFH2-Z2	100341	Rohde & Schwarz	2023-05-14	2 Y
TRILOG Broadband Antenna	VULB9163	9163.799	Schwarzbeck	2023-09-28	2 Y
Attenuator	6dB	272.4110.50	Rohde & Schwarz	2023-01-13	1 Y
Pre-Amplifier	310N	344015	Sonoma Instrument	2023-01-13	1 Y
Slidacs	DSD-1005	M06-117	DIGITEK POWER	N/A	N/A
Turn Table	DT3000-3t	1310814	INNCO SYSTEM	N/A	N/A
Antenna Master	MA4000-EP	4600814	INNCO SYSTEM	N/A	N/A
Camera Controller	HDCon4102	6531445048	PONTIS	N/A	N/A
EMI Test Receiver	ESCI 7	100722	Rohde & Schwarz	2023-01-13	1 Y
LISN	ENV216	100110	Rohde & Schwarz	2023-01-13	1 Y

The measuring equipment utilized to perform the tests documented in this test report has been calibrated in accordance with manufacturer's recommendations, and is traceable to recognized national standards.