FCC CERTIFICATION TEST REPORT

For the

Product	**: SIRBOT_CIRCLE**
Model	**: 3rd generation**
FCC ID	**: 2A8VG-SIRBOT-CIRCLE**
Applicant	**: RGT Inc.**
FCC Rule	**: CFR 47 Part 15 Subpart B**

We hereby certify that the above product has been tested by us with the listed rules and found in compliance with the regulation. The test data and results are issued on the test report no. TR-W2210-007

Signature

Choi, Young-min / Technical Manager
Date: 2022-10-13

Test Laboratory: ENG Co., Ltd.

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TEST REPORT

Project Number	**: EA2209C-040**
Test Report Number	**: TR-W2210-007**
Type of Equipment	**: SIRBOT_CIRCLE**
FCC ID	**: 2A8VG-SIRBOT-CIRCLE**
Model Name	**: 3rd generation**
Multiple Model Name	**: N/A**
Applicant	**: RGT Inc.**
Address	**: 1st Floor, Building C, 252, 16, Techno 2-ro, Yuseong-gu, Daejeon, 34027, Republic of Korea**
Manufacturer	**: RGT Inc.**
Address	**: 1st Floor, Building C, 252, 16, Techno 2-ro, Yuseong-gu, Daejeon, 34027, Republic of Korea**
FCC Rule	**: FCC CFR 47 Part 15 Subpart B Class A**
Total page of Report	**: 54 pages**
Date of Receipt	**: 2022-09-20**
Date of Issue	**: 2022-10-13**
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 Chu, Woo-sik / Senior Engineer _____ (Signature) 2022-10-13 (Date)

Reviewed by Choi, Young-min / Technical Manager _____ (Signature) 2022-10-13 (Date)

ENG Co., Ltd. 135-60 Gyeongchung-daero, Gonjiam-eup, Gwangju-si, Gyeonggi-do, Korea 12813 **Report Form_01 (Rev.2)**
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Release Control Record

Issue Report No.	Issued Date	Details/Revisions
TR-W2210-007	2022-10-13	Initial Release

ENG Co., Ltd. 135-60 Gyeongchung-daero, Gonjiam-eup, Gwangju-si, Gyeonggi-do, Korea 12813 Report Form_01 (Rev.2)
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1. TEST SUMMARY

1.1 Test standards and results

The sample submitted for evaluation (Hereafter refer to as the EUT) has been tested in accordance with the following specifications:

APPLICABLE SECTION	TEST DESCRIPTION	RESULTS
Part 15 Subpart B Section 15.107 (b)	AC Power Line Conducted Emission	PASS
Part 15 Subpart B Section 15.109 (b)	Radiated Emission	PASS

1.2. Test Methodology

FCC: ANSI C 63.4: 2014, FCC CFR 47 Part 2, and Part 15

1.3 Additions, deviations, exclusions from standards

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

1.4 Purpose of the test

To determine whether the equipment under test fulfills the FCC Rules, Regulation and standards stated in section 1.1 and 1.2.

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 areaccredited as a Conformity Assessment Body (CAB) by the FCC and ISED Canada, designated by the RRA (NationalRadio 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	
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) DESCRIPTION

The RGT Inc., Model 3rd generation (referred to as the EUT in this report) is a SIRBOT_CIRCLE, which is for especially designed to serve food in restaurant with autonomous driving and advanced technology. The product specification described herein was obtained from product data sheet or user's manual.

Rated Power		120 V, 60 Hz
Battery		DC 24 V
Size (diameter, height)		440 x 440 x 1145 (mm)
Weight		about 50 kg
Speed		1.2 m/s
Charging Method		Use charging code (240 v ac 3.5 A)
Charging Time		5 hrs
Operating Time		3 days (full working time)
Tray	Quantity/Size	3 ea, 405 mm
	Payload	135 kg (45 kg for each tray)
Contained Certified Board		Product Name: LattePanda Alpha Model No: DFR0546 FCC ID: 2AIDMLPDF0546 Manufacturer: Zhiwei Robotics Corp.
RF Specification		Bluetooth: (2 402 ~ 2 480) MHz, WiFi: (2 412 ~ 2 462) MHz, (5 180 ~ 5 240) MHz, (5 260 ~ 5 320) MHz (5 500 ~ 5 700) MHz, (5 745 ~ 5 825) MHz

2.1 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.
SIRBOT_CIRCLE (EUT)	3rd generation	N/A	RGT Inc.
Notebook PC	NT500R5W	0R5D60BJ500807H	Samsung
Adapter for Notebook PC	PA-1400-96	N/A	LITE-ON TECHNOLOGY CHANGZHOU CO., LTD
Smartphone	SM-N920L	R39H206QKKT	Samsung
AP	A2004+	4AG02633	ipTime
Adapter for AP	DCP005009080K	N/A	Ziocom Electronics (Shenzhen) Ltd.

3.2 Cable Description

[Mode #1]

Description	Ports Name	Shielded (Y/N)	Ferrite Core (Y/N)	Length (m)	Connected to
EUT	AC IN	N	N	1.8	AC Mains

[Mode #2]

Description	Ports Name	Shielded (Y/N)	Ferrite Core (Y/N)	Length (m)	Connected to
EUT	-	-	-	-	-
Notebook PC	DC IN	Y	Y	1.5	Adapter for Notebook PC
Adapter for Notebook PC	AC IN	N	N	1.5	AC Mains
AP	DC IN	N	Y	1.8	Adapter for AP
Adapter for AP	AC IN	-	-	-	AC Mains
Smartphone	-	-	-	-	-

[Mode #3]

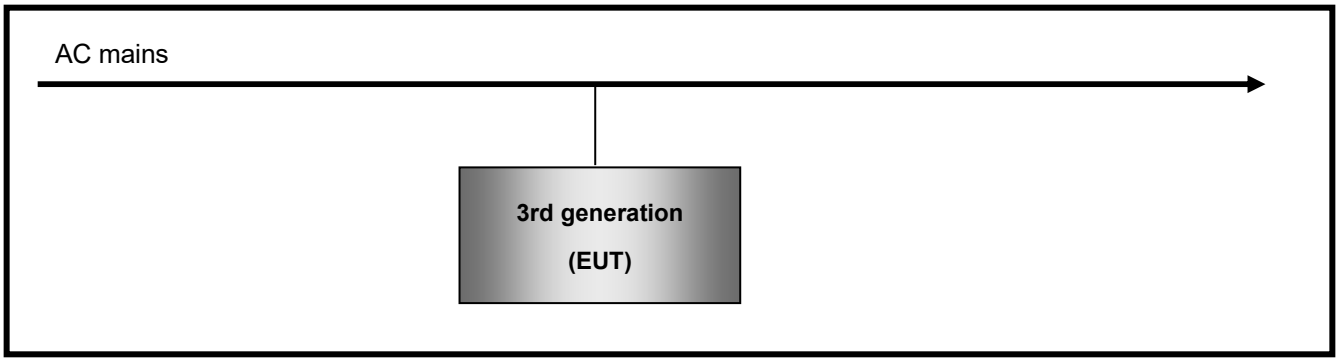
Description	Ports Name	Shielded (Y/N)	Ferrite Core (Y/N)	Length (m)	Connected to
EUT	-	-	-	-	-
Notebook PC	DC IN	Y	Y	1.5	Adapter for Notebook PC
Adapter for Notebook PC	AC IN	N	N	1.5	AC Mains
AP	DC IN	N	Y	1.8	Adapter for AP
Adapter for AP	AC IN	-	-	-	AC Mains

3.3 Mode of operation during the test

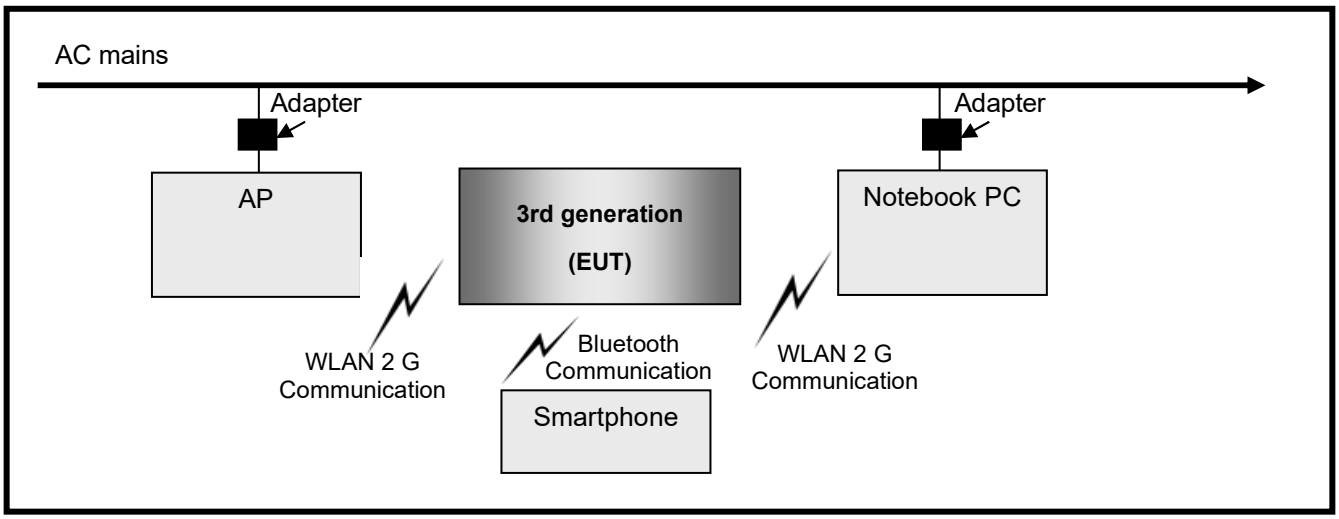
Test Mode	Description
# 1	EUT was in charging mode during the test.
# 2	The wheel in the EUT and LiDAR sensor was continuously operated by the software supplied by an applicant and communication link was maintained during the test as following. - Bluetooth Mode between the EUT and a smart phone - 2.4 GHz WiFi Mode between the EUT and a Notebook PC via access point.
# 3	The wheel in the EUT and LiDAR sensor was continuously operated by the software supplied by an applicant and communication link was maintained during the test as following. - 5 GHz WiFi Mode between the EUT and a Notebook PC via access point.

3.4 Test Setup Drawing

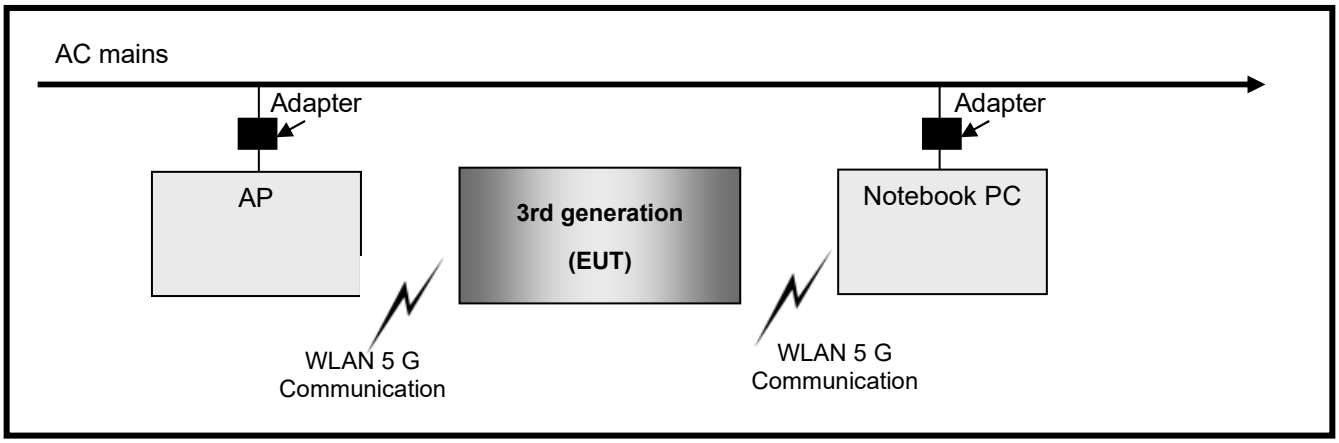
[Mode #1]



[Mode #2]



[Mode #3]



4. EUT MODIFICATIONS

During the testing, following modification was implemented on the EUT.

- Added a noise filter at the power input port. (Mfg: YUNSANDA, M/N: CW2B-10A-T)

5. EMISSION TESTS

5.1 AC Power Line Conducted Emission

5.1.1 Test setup

The EUT and all supporting equipments were placed on a non-metallic table approximately 0.8 m above the ground plane.

Power was fed to the EUT through a 50 Ω/50 μH + 5 Ω Line Impedance Stabilization Network (LISN) and all supporting equipments were connected to another LISN. The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient noise. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.4: 2014 7.3.3 to determine the worse operating conditions.

The test set-up photos are included in appendix I.

5.1.2 Sample Calculated Example

Used Software for measurement is EMC 32 supplied by Rohde&Schwarz.

At 5.31 MHz QP Limit = 73.0 dBμV

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 = 40.8 dBμV

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

Therefore Q.P Margin = 73 - 40.8 = 32.2 so the EUT has 32.2 dB margin at 5.31 MHz

5.1.3 Measurement uncertainty

Frequency range	Uncertainty
150 kHz ~ 30 MHz	2.21 dB

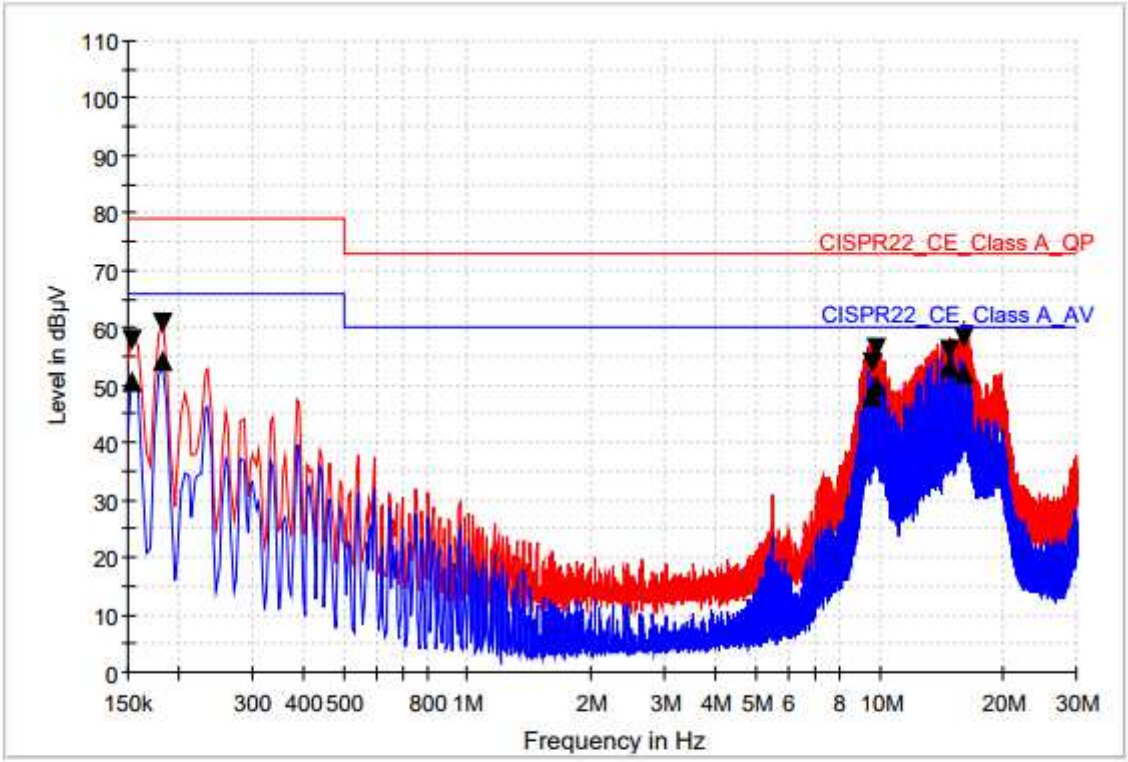
The measurement uncertainties are given with 95 % confidence.

5.1.4 Test Result

Date of Test	2022-09-20		
Temperature	(20.85 ± 0.15) °C	Relative humidity	(52.3 ± 0.1) % R.H.
Operating Input Voltage	120 Vac	Input Frequency	60 Hz
Frequency range	RBW	VBW	Detector Mode
0.15 MHz ~ 30 MHz	9 kHz	30 kHz	Peak , Q.P and/or Average
Test Mode	Mode #1		
Test Result	***Pass***	Tested By	Shin, Jae-Young

5.1.5 Test Data

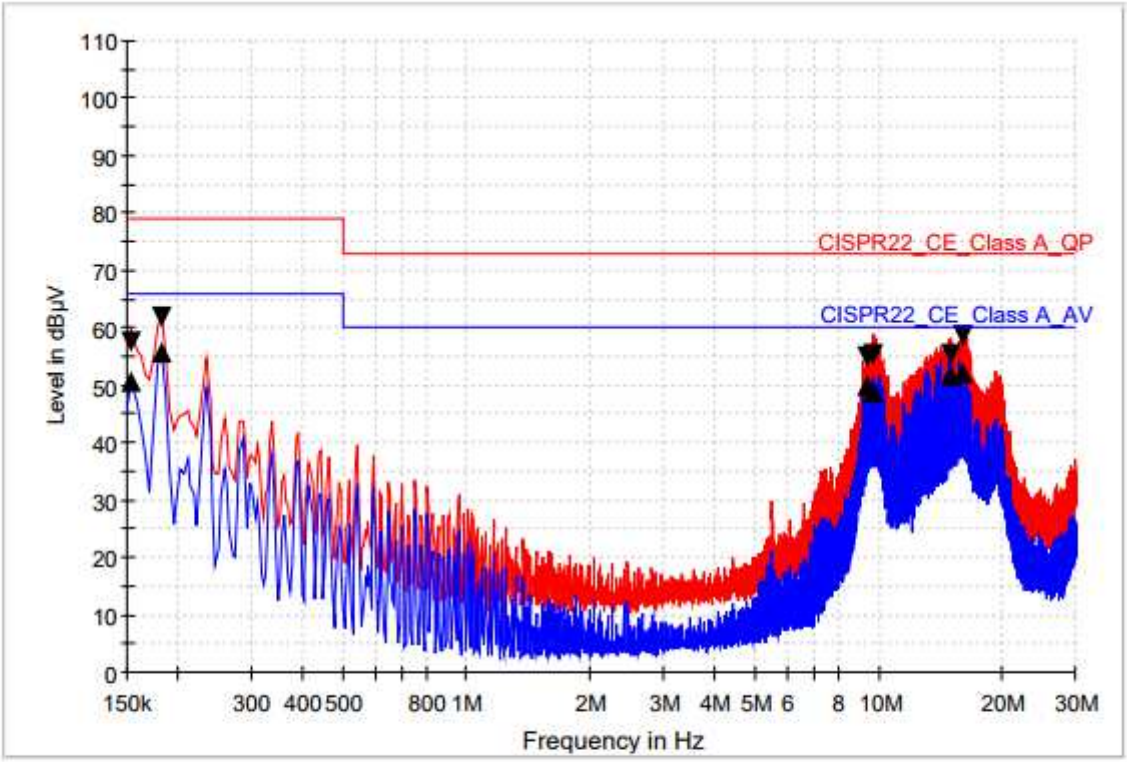
HOT LINE



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)
0.154000	57.8	50.8	9.000	L1	9.6	21.2	79.0	15.2	66.0
0.182000	61.0	54.4	9.000	L1	9.6	18.0	79.0	11.6	66.0
9.606000	54.1	48.2	9.000	L1	9.9	18.9	73.0	11.8	60.0
9.810000	56.3	50.0	9.000	L1	9.9	16.7	73.0	10.0	60.0
14.718000	56.2	53.0	9.000	L1	10.0	16.8	73.0	7.0	60.0
16.046000	58.2	52.0	9.000	L1	10.0	14.8	73.0	8.0	60.0

NEUTRAL LINE



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)
0.154000	57.7	50.6	9.000	N	9.6	21.3	79.0	15.4	66.0
0.182000	61.9	55.7	9.000	N	9.6	17.1	79.0	10.3	66.0
9.402000	54.9	50.0	9.000	N	9.9	18.1	73.0	10.0	60.0
9.710000	55.3	48.8	9.000	N	9.9	17.7	73.0	11.2	60.0
14.922000	55.5	51.9	9.000	N	10.0	17.5	73.0	8.1	60.0
16.046000	58.5	52.0	9.000	N	10.0	14.5	73.0	8.0	60.0

5.2 Radiated Emission

5.2.1 Test setup

The radiated emissions measurements were in the 3/10 m, Semi Anechoic Chamber. The EUT and all local supporting equipments were placed on a non-conductive table approximately 0.8 m above the ground plane.
The frequency spectrum from 30 MHz to the maximum frequency as specified in CFR 47 Part 15 section 15.33 was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in 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.
Preliminary radiated emission test was conducted using the procedure in ANSI C63.4: 2014 8.3.1.1 below 1 000 MHz, 8.3.1.2 above 1 GHz to determine the worse operating conditions
Measurement distance between the EUT and an antenna was as below table.

Frequency range (MHz)	Measurement Distance	
	Class B Device	Class A Device
Below 1 000 MHz	3 m	10 m
Above 1 000 MHz	3 m	3 m

The test set-up photos are included in appendix II.

5.2.2 Measurement frequency range

Highest frequency generated or used in the device or on which the device operates or tunes	Upper Frequency of Measurement range (MHz)
Below 1.705 MHz	30
(1.705 ~ 108) MHz	1 000
(108 ~ 500) MHz	2 000
(500 ~ 1 000) MHz	5 000
Above 1 000 MHz	5th harmonic of the highest freq. or 40 GHz, whichever is lower

The measurement uncertainties are given with 95 % confidence.

5.2.3 Sample Calculated Example

Used Software for measurement is manufactured by TSJ.

At 80 MHz Limit = 39.1 dBμV/m

Result =Receiver reading value + Antenna Factor + Cable Loss - Pre-amplifier gain = 30 dBμV/m

Margin = Limit - Result = 39.1 - 30 = 9.1 so the EUT has 9.1 dB margin at 80 MHz

5.2.4 Measurement uncertainty

Frequency range	Uncertainty
Below 1 000 MHz	4.64 dB
Above 1 000 MHz	4.91 dB

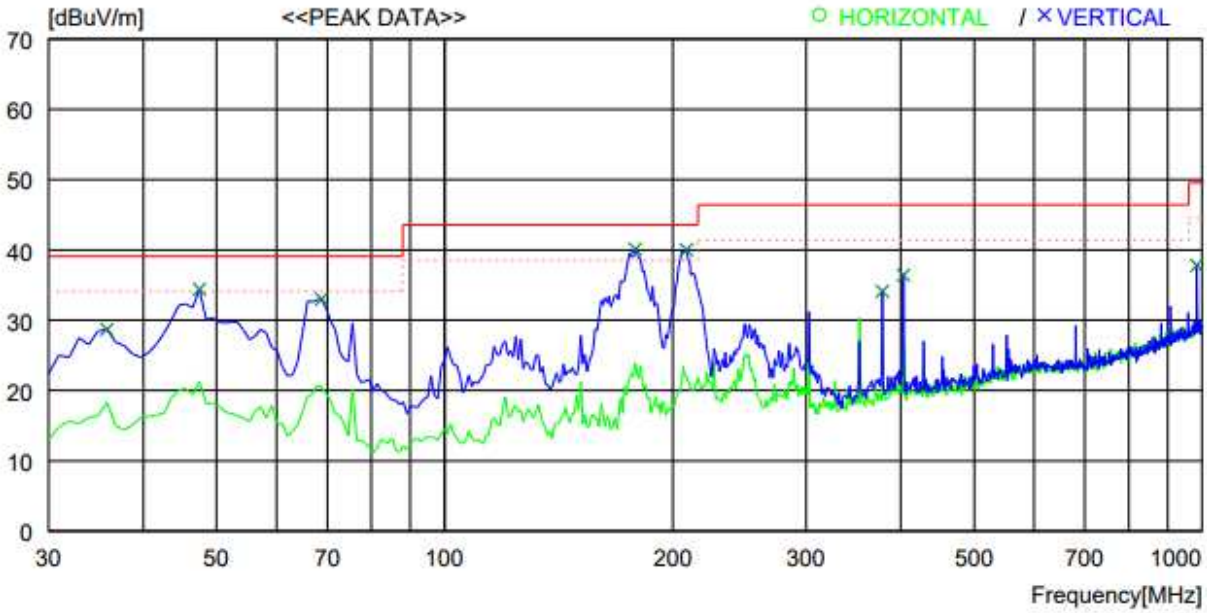
The measurement uncertainties are given with 95 % confidence.

5.2.5 Test result

Date of Test	2022-09-20			
Temperature	(21.4 ± 0.2) °C		Relative humidity	(52.15 ± 0.15) % R.H.
Operating Input Voltage	120 Vac		Input Frequency	60 Hz
Frequency range	RBW	VBW	Detector Mode	Measurement distance
Below 1 000 MHz	120 kHz	300 kHz	Peak or Q.P.	3 m
Date of Test	2022-09-20			
Temperature	(22.0 ± 0.4) °C		Relative humidity	(52.85 ± 0.55) % R.H.
Frequency range	RBW	VBW	Detector Mode	Measurement distance
Above 1 000 MHz	1 MHz	1 MHz or 10 Hz	Peak or Average	3 m
Test Mode	Mode #1			
Test Result	***Pass***	Tested By	Shin, Jae-Young	

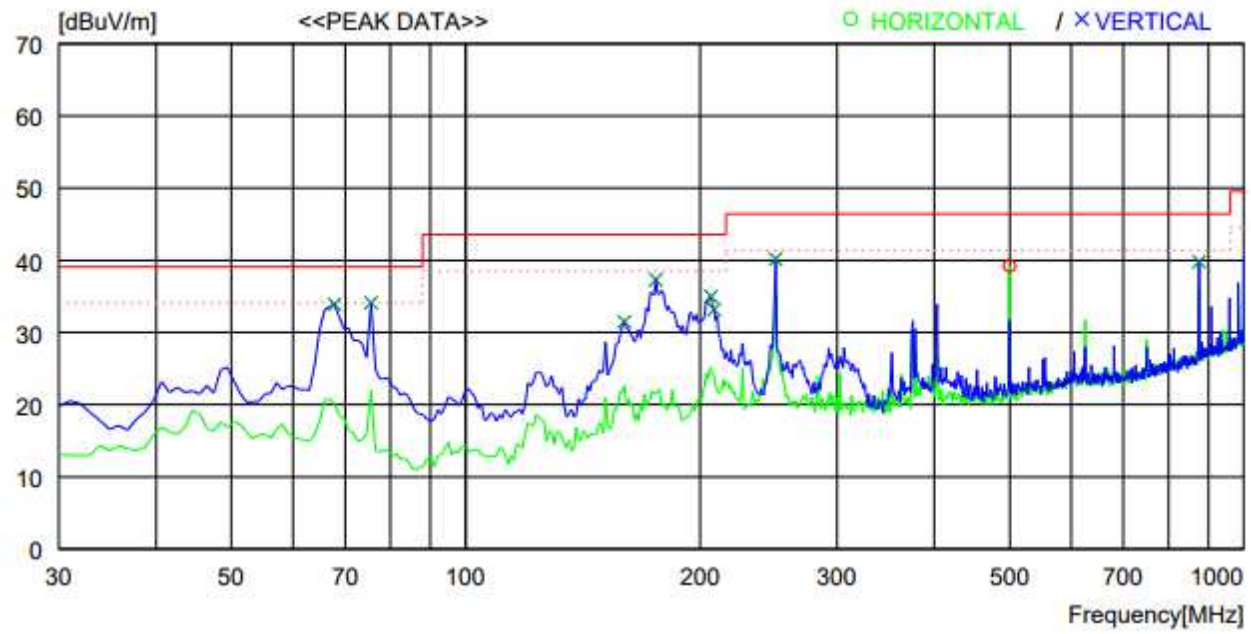
5.2.6 Test Data

Mode #1	30 MHz ~ 1 GHz



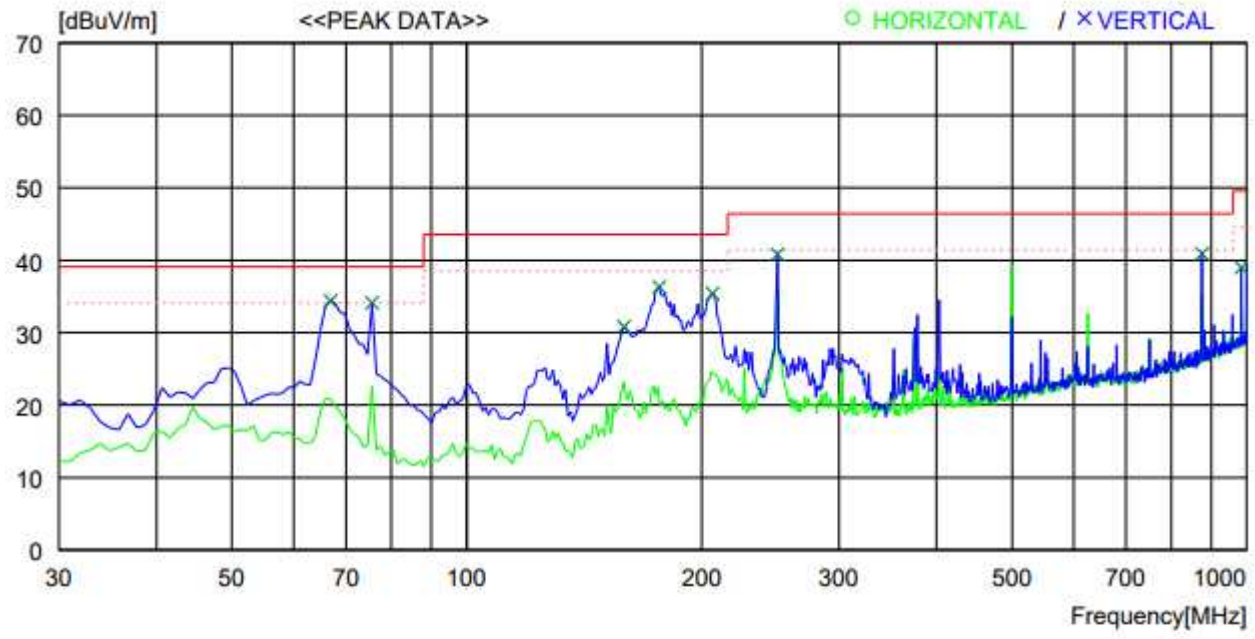
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA TABLE [cm]	[DEG]
----- Vertical ------										
1	35.820	43.2	11.7	6.7	32.9	28.7	39.1	10.4	100	0
2	47.460	46.1	14.4	6.8	32.9	34.4	39.1	4.7	300	0
3	68.800	48.6	10.2	7.1	32.9	33.0	39.1	6.1	100	0
4	178.410	55.4	9.3	7.9	32.5	40.1	43.5	3.4	400	359
5	208.480	52.8	11.4	8.2	32.4	40.0	43.5	3.5	100	14
6	378.230	42.0	15.1	9.1	32.1	34.1	46.4	12.3	400	104
7	403.450	43.6	15.7	9.2	32.1	36.4	46.4	10	100	348
8	983.496	35.6	22.6	11.5	31.9	37.8	49.5	11.7	100	0

Mode #2	30 MHz ~ 1 GHz



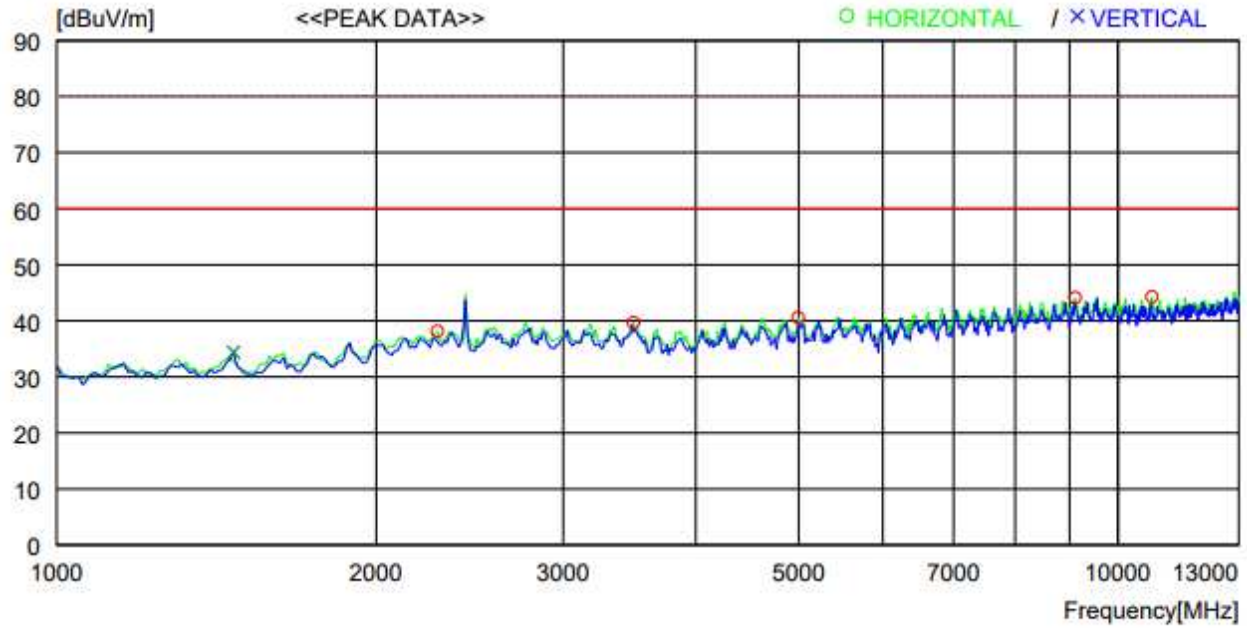
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	500.451	44.7	17.2	9.6	32.3	39.2	46.4	7.2	200	354
----- Vertical ------										
2	67.830	49.2	10.5	7.1	32.9	33.9	39.1	5.2	200	354
3	75.590	51.7	8.2	7.1	32.9	34.1	39.1	5	200	3
4	159.980	47.8	8.5	7.8	32.6	31.5	43.5	12	100	0
5	175.500	52.7	9.2	7.9	32.5	37.3	43.5	6.2	400	359
6	206.540	47.9	11.4	8.1	32.4	35.0	43.5	8.5	200	344
7	208.480	46.0	11.4	8.2	32.4	33.2	43.5	10.3	200	359
8	250.190	51.4	12.6	8.4	32.2	40.2	46.4	6.2	100	287
9	875.830	39.8	21.9	11.1	33.0	39.8	46.4	6.6	200	359

Mode #3	30 MHz ~ 1 GHz



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA TABLE [cm]	[DEG]
----- Vertical ------										
1	66.860	49.4	10.8	7.1	32.9	34.4	39.1	4.7	200	338
2	75.590	51.7	8.2	7.1	32.9	34.1	39.1	5	200	359
3	159.010	47.1	8.5	7.8	32.6	30.8	43.5	12.7	100	177
4	176.470	51.7	9.2	7.9	32.5	36.3	43.5	7.2	400	306
5	206.540	48.3	11.4	8.1	32.4	35.4	43.5	8.1	200	359
6	250.190	52.0	12.6	8.4	32.2	40.8	46.4	5.6	100	0
7	875.830	40.9	21.9	11.1	33.0	40.9	46.4	5.5	200	330
8	983.496	36.8	22.6	11.5	31.9	39.0	49.5	10.5	300	0

Mode #2	1 GHz ~ 13 GHz

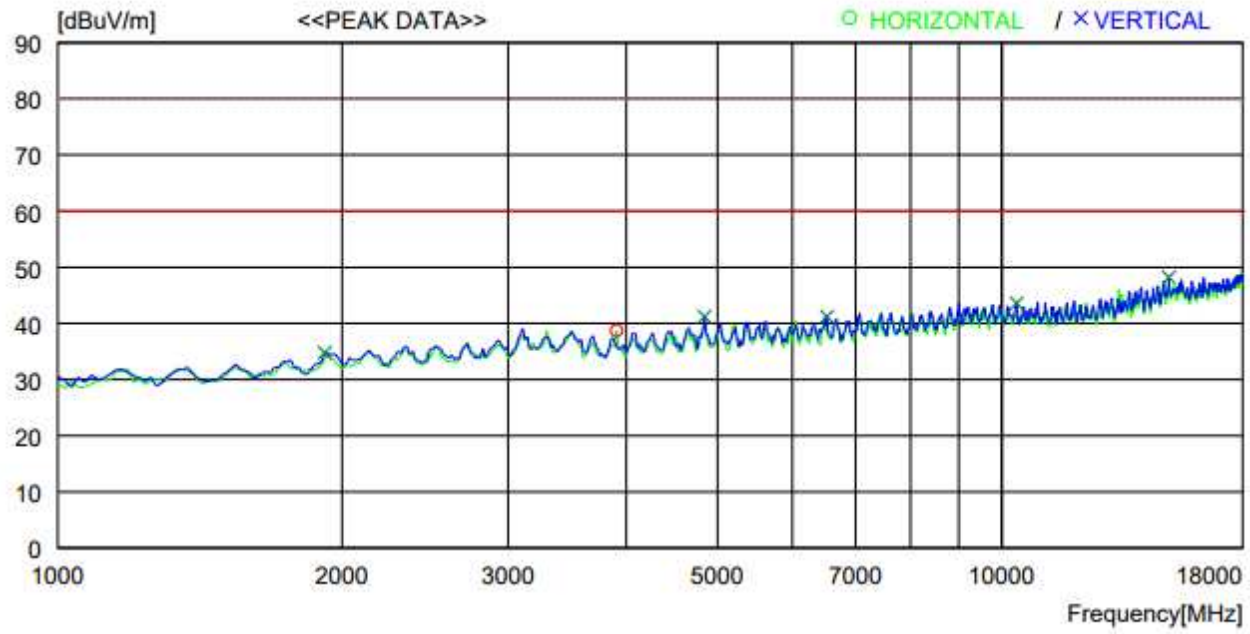


No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	2284.000	43.7	29.0	4.9	39.5	38.1	60.0	21.9	200	0
2	3496.000	43.7	32.0	3.8	39.8	39.7	60.0	20.3	100	82
3	4996.000	41.7	34.5	4.4	40.0	40.6	60.0	19.4	100	251
4	9112.000	40.5	37.1	6.6	40.1	44.1	60.0	15.9	200	0
5	10768.000	40.2	37.4	6.6	39.9	44.3	60.0	15.7	100	359
----- Vertical ------										
6	1468.000	45.5	25.8	2.7	39.6	34.4	60.0	25.6	100	182

NOTE: Notch Filter was used during the test.

Average mode was not measured, because Peak values were under the Average limit.

Mode #3	1 GHz ~ 18 GHz

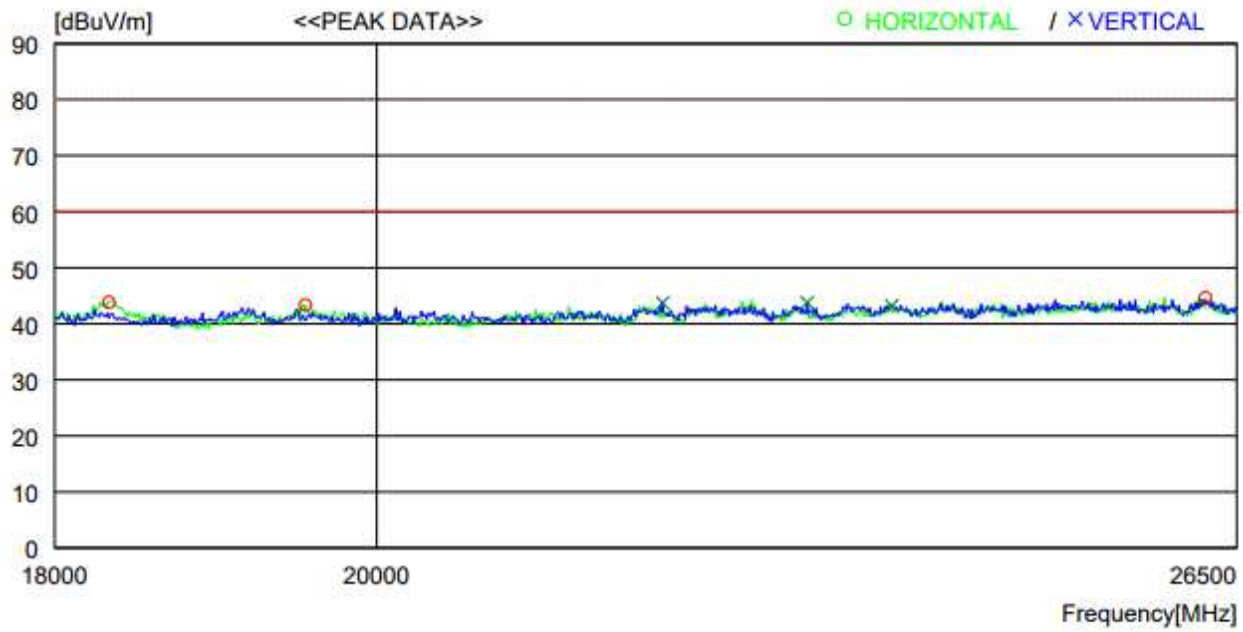


No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	3907.000	42.2	32.9	3.6	40.0	38.7	60.0	21.3	100	353
----- Vertical ------										
2	1918.000	43.5	28.2	2.6	39.5	34.8	60.0	25.2	100	359
3	4842.000	43.0	34.2	4.0	40.0	41.2	60.0	18.8	100	359
4	6525.000	41.1	35.2	4.7	39.8	41.2	60.0	18.8	100	359
5	10367.000	39.6	37.4	6.6	40.0	43.6	60.0	16.4	100	359
6	15025.000	40.3	41.1	8.1	41.3	48.2	60.0	11.8	200	347

NOTE: Notch Filter was used during the test.

Average mode was not measured, because Peak values were under the Average limit.

Mode #3	18 GHz ~ 26.5 GHz

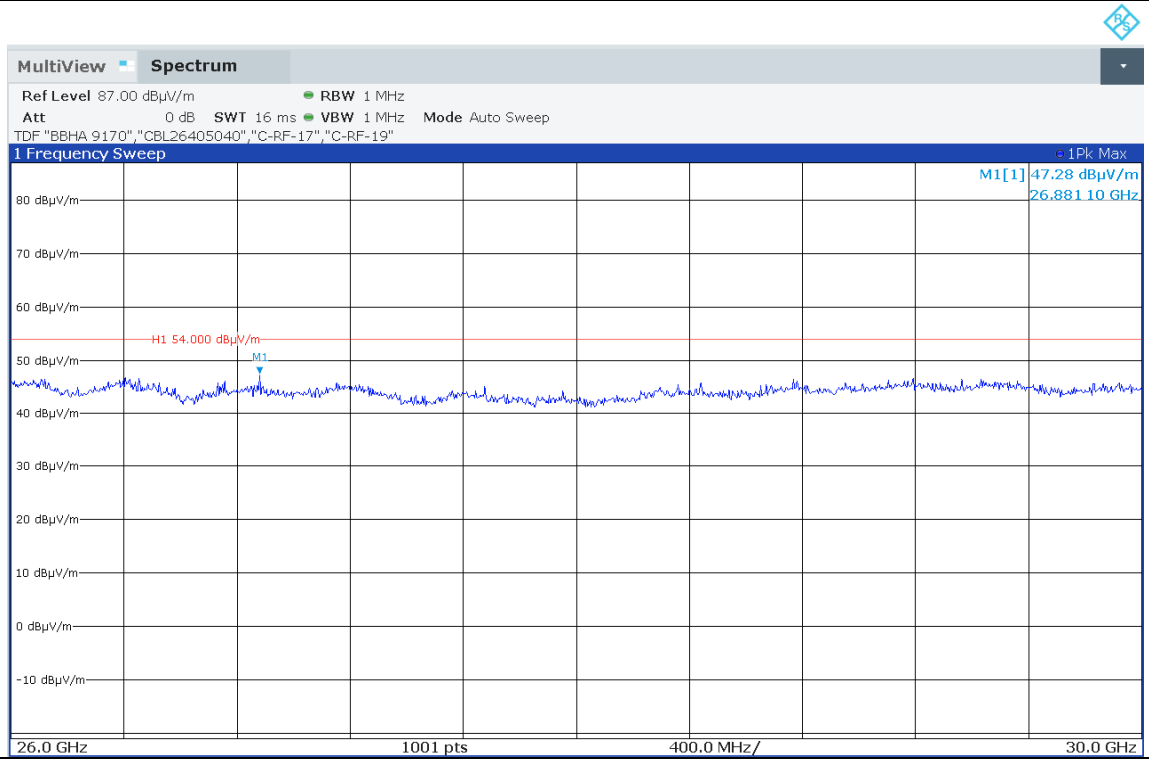


No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA TABLE [cm]	[DEG]
----- Horizontal ------										
1	18323.000	52.1	37.6	11.6	57.5	43.8	60.0	16.2	100	359
2	19538.500	50.5	37.5	11.9	56.5	43.4	60.0	16.6	100	359
3	26228.000	45.1	39.0	13.8	53.3	44.6	60.0	15.4	100	359
----- Vertical ------										
4	21961.000	49.6	38.0	12.5	56.4	43.7	60.0	16.3	100	208
5	23023.500	46.2	38.7	12.9	54.0	43.8	60.0	16.2	100	118
6	23669.500	43.5	38.6	13.2	52.1	43.2	60.0	16.8	100	271

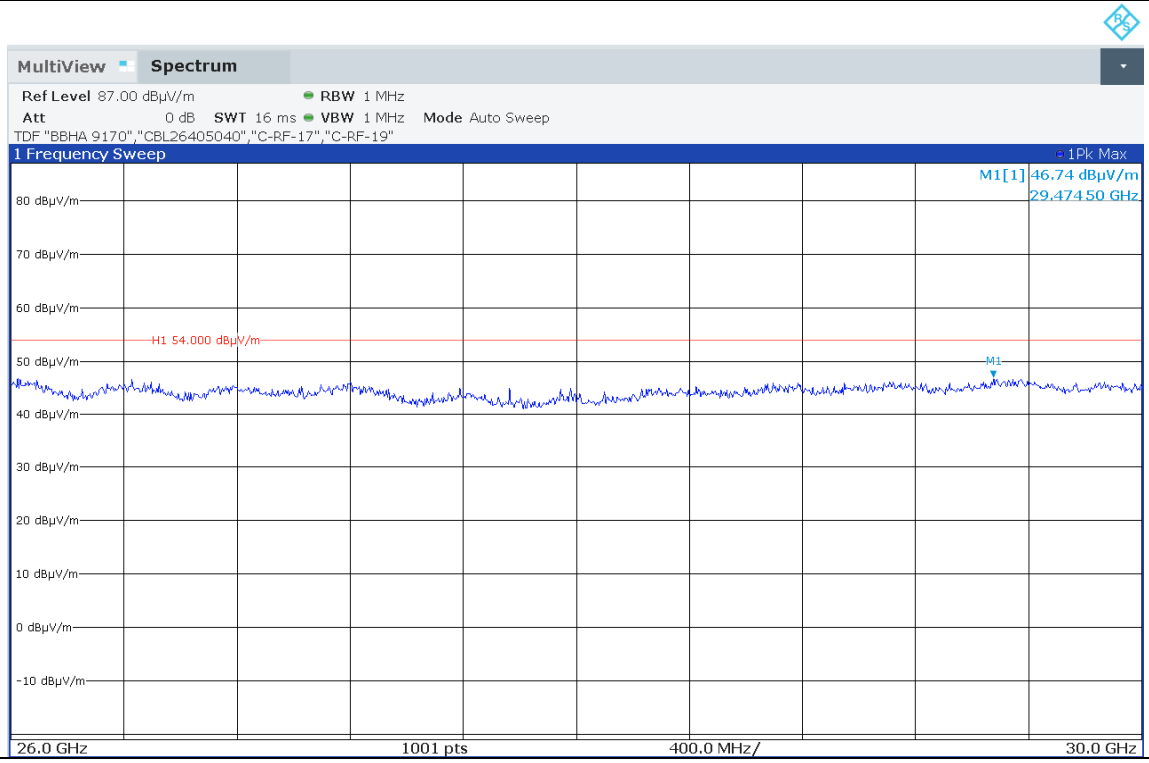
NOTE: Notch Filter was used during the test.

Average mode was not measured, because Peak values were under the Average limit.

26.5 GHz ~ 30 GHz (Vertical)



26.5 GHz ~ 30 GHz (Horizontal)



Appendix I - Test Instrumentation

Name of Equipment	Model Number	Manufacturer	Serial Number	Last Cal. (Interval)	USE
For EMISSION					
Test Receiver	ESR7	Rohde & Schwarz	101543	2022-07-15 (1Y)	■
EMI Test Receiver	ESW	Rohde & Schwarz	101197	2022-01-13 (1Y)	□
LISN	ENV4200	Rohde & Schwarz	100203	2022-01-14 (1Y)	□
LISN	ENV216	Rohde & Schwarz	100110	2022-01-13 (1Y)	■
LISN	LS16C	AFJ	16011403310	2022-07-15 (1Y)	□
LISN	NNLK8121	SchwarzBeck	8121-163	2022-07-15 (1Y)	□
Voltage Probe	TK9420	Schwarzbeck	9420-165	2022-01-14 (1Y)	□
Loop Antenna	HFH2-Z2	Rohde & Schwarz	100341	2021-05-14 (2Y)	□
8-Wire ISN CAT 3	CAT3 8158	Schwarzbeck	CAT3 8158 #70	2022-01-14 (1Y)	□
8-Wire ISN CAT 5	CAT5 8158	Schwarzbeck	CAT5 8158 #126	2022-01-14 (1Y)	□
8-Wire ISN CAT 6	NTFM 8158	Schwarzbeck	NTFM 8158 #95	2022-01-14 (1Y)	□
Test Receiver	ESU	Rohde & Schwarz	100303	2022-01-13 (1Y)	■
TRILog Broadband Antenna	VULB9163	Schwarzbeck	9163-799	2021-09-28 (2Y)	■
DOPPEL STEG HORN Antenna	HF 907	Rohde & Schwarz	102426	2021-10-21 (1Y)	■
Preamp (1-18) GHz	SCU 18D	Rohde & Schwarz	19006450	2022-04-15 (1Y)	■
Preamp 9 kHz-1 GHz	310N	Sonoma Instrument	344015	2022-01-13 (1Y)	■
Attenuators	6 dB	Rohde & Schwarz	272.4110.50	2022-01-13 (1Y)	■
Antenna Master	MA4000-EP	INNCO SYSTEM	4600814	N/A	■
Antenna Master	MA4000-XP-ET	INNCO SYSTEM	N/A	N/A	■
Turn Table	DT3000-3t	INNCO SYSTEM	1310814	N/A	■
CO3000 Controller	CO3000-4PORT	INNCO SYSTEM	CO3000/806/34130 814/L	N/A	■
CO3000 Controller	CO3000-4PORT	INNCO SYSTEM	CO3000/807/34130 814/L	N/A	■
Notch Filter	G318	MICRO-TRONICS	BRM50702	2021-11-01 (1Y)	■
Notch Filter	G319	MICRO-TRONICS	BRC50703	2021-11-01 (1Y)	■
Horn Antenna	BBHA 9170	Schwarzbeck	783	2021-10-22 (1Y)	■
PRE AMPLIFIER	CBL18265035	CERNEX	28706	2022-03-07 (1Y)	■
PRE AMPLIFIER	CBL26405040	CERNEX	28707	2022-03-07 (1Y)	■
Signal&Spectrum Analyzer	FSW 43	Rohde & Schwarz	100578	2022-04-19 (1Y)	■

The above measuring equipment have been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.