FCC CFR 47 Part 15 Subpart B Class II Permissive Change

TECHNICAL COMPLIANCE STATEMENT

For the

Product	**: Network Webcam**
FCC ID	**: BEJAN-VC22PR**
Model	**: AN-VC22PR**
Multiple Model	**: HL-GE1**
Applicant	**: LG Electronics USA, Inc.**
FCC Rule	**: CFR 47 Part 15 Subpart B Section 15.101**
ISED Canada Rule	**: ICES-003 Issue 7 October 2020**

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-W2304-006

Signature

Choi, Young-min / Managing Director

Date: 2023-04-12

Test Laboratory: ENG Co., Ltd.

FCC/ISED Canada
TEST REPORT

Project Number	**: EA2302C-044**
Test Report Number	**: TR-W2304-006**
Type of Equipment	**: Network Webcam**
FCC ID	**: BEJAN-VC22PR**
Model Name	**: AN-VC22PR**
Multiple Model Name	**: HL-GE1**
Applicant	**: LG Electronics USA, Inc.**
Address	**: 111 Sylvan Avenue North Building, Englewood Cliffs, New Jersey, United States 07632**
Manufacturer 1	**: Hitachi-LG Data Storage Korea, Inc.**
Address	**: LG Gasan digital center 8F, 189, Gasan digital 1-ro, Geumcheon-gu, Seoul, Republic of Korea**
Manufacturer 2	**: Hitachi Electronic Products (Malaysia) Sdn Bhd**
Address	**: Lot 12, Jalan Kemajuan , Bangi Industrial Estate, 43650 Bandar Baru Bangi, Selangor Darul Ehsan, Malaysia.**
FCC Rule	**: CFR 47 Part 15 Subpart B §15.101 Class B**
ISED Canada Rule	**: ICES-003 Issue 7 October 2020**
Total page of Report	**: 46 pages**
Date of Receipt	**: 2023-02-28**
Date of Issue	**: 2023-04-12**
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 / Chief Engineer — Signature — 2023-04-12 Date

Reviewed by Choi, Young-min / Managing Director — Signature — 2023-04-12 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-W2304-006	2023-04-12	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 regulations or standards:

Agency	APPLICABLE SECTION	TEST DESCRIPTION	RESULTS
FCC	Part 15 Subpart B Section 15.107 (a)	AC Power Line Conducted Emissions	PASS
	Part 15 Subpart B Section 15.109 (a)	Radiated Emissions	PASS
ISED Canada	ICES-003 Section 3.2.1 Table 1	AC Power Line Conducted Emissions	PASS
	ICES-003 Section 3.2.2 Table 2, Table 4	Radiated Emissions	PASS

1.2 Test Methodology

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

ISED Canada: CAN/CSA-CISPR 32: 17, ANSI C63.4-2014 amended as per ANSI C63.4a-2017, ICES-Gen

1.3 Additions, deviations, exclusions from standards

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

1.4 Purpose of the test

Class II Permissive Change Procedure was performed, because following modification(s) are implemented into the EUT.

1. Added resistors, 5.1 ohms x 8 EA between TMDS line and HDMI In port, so PCB pattern was also changed.
2. Changed HDMI cable length from 1 m to 2.0 m.

To determine whether the equipment under test fulfills the FCC and ISED Canada 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 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	
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	
VCCI	Member No: 4297 Registration No.: C-20140, T-20140, R-20184, G-20179	

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

2. EUT (Equipment Under Test) Description

The LG Electronics USA Model AN-VC22PR (referred to as the EUT in this report) is a Network Webcam. This test report covers only unintentional radiator part and intentional radiator part acc. to Part 15 subpart C shall be issued other test report number. The product specification described herein was obtained from product data sheet or user's manual.

Processor	Qualcomm QRB3165
RAM	6 GB
SSD	64 GB
Camera	12 MP Wide RGB Camera 12 MP NV Camera
Input/Output Ports	DC Input, LAN, RS-232C, MPI, USB C-type, HDMI Input/Output
Rated Voltage	12 V, 2.5 A
Product installation height	2 m (78.7 inches) or less
Weight	350 g (0.7 lbs)
RF Specification	Bluetooth: (2 402 ~ 2480) MHz WiFi (IEEE 802.11 a/b/g/n/ac): (2 412 ~ 2 472) MHz (5 180 ~ 5 320) MHz, (5 500 ~ 5 700) MHz, (5 745 ~ 5 825) MHz

2.1 Additional Model

Model Name	Model Difference
AN-VC22PR	Basic Model
HL-GE1	Identical to the basic model except for the model designation
Note: The manufacturer has declared to all the additional model names into basic model name without any further evaluation by ENG Co., Ltd.	

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.
Network Webcam (EUT)	AN-VC22PR	N/A	Hitachi-LG Data Storage Korea, Inc., Hitachi Electronic Products (Malaysia) Sdn Bhd
Adapter for EUT	BM030S12F	N/A	Bridge Power Corp.
IR Remote Control for EUT	N/A	N/A	N/A
Notebook PC	81Y3	N/A	LCFC (Hefei) Electronics
Adapter for Notebook PC	ADL45WCE	N/A	CHICONY POWER TECHNOLOGY(SUZHOU) CO., LTD
MI BOX	MDZ-22-AB	N/A	Xiaomi Inc.
Adapter for MI BOX	EVVC*10052-2100	N/A	AIRLINE MECHANICAL Co., Ltd.
IR Remote Control for MI BOX	XMRM-006	N/A	Beijing Xiaomi Electronics Co., Ltd
TV	OLED55G36LA.AE UQLHX	N/A	LG Electronics
USB Mouse	TG-M305U	N/A	HANDE C&T Co., Limited
USB to C Gender	N/A	N/A	N/A

3.2 Cable Description

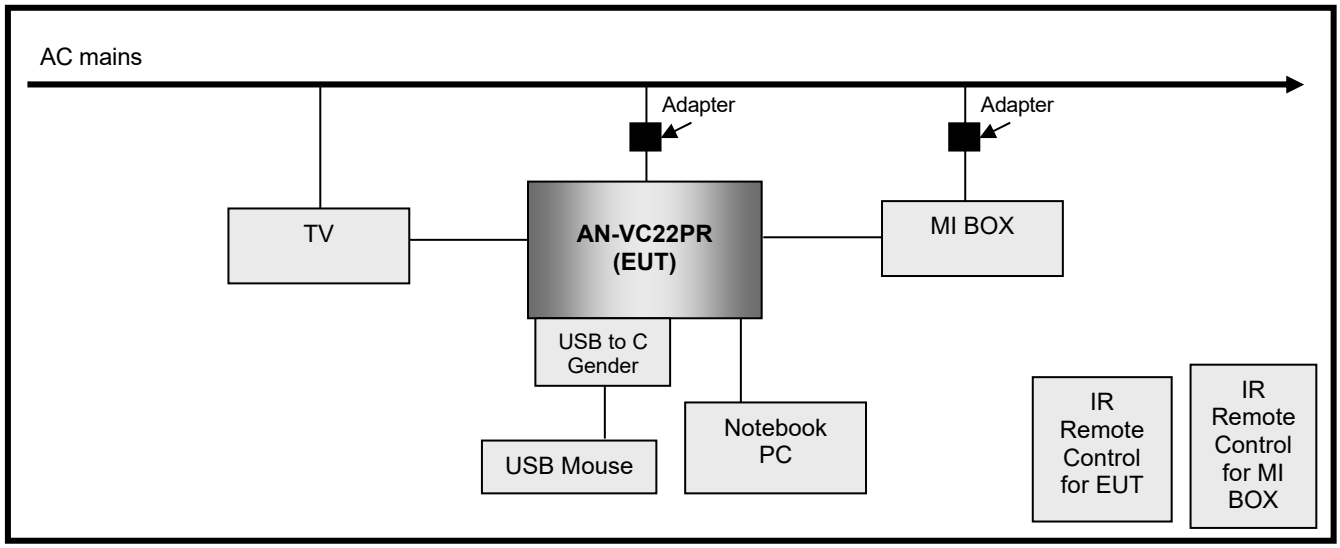
Description	Ports Name	Shielded (Y/N)	Ferrite Core (Y/N)	Length (m)	Connected to
EUT	DC IN	N	Y	1.5	Adapter for EUT
	HDMI IN	Y	N	2.0	MI BOX
	HDMI OUT	Y	Y	2.0	TV
	USB C-type	-	-	-	USB to C Gender
	LAN	Y	N	3.0	Notebook PC
USB to C Gender	USB	N	N	1.5	USB Mouse
Adapter for EUT	AC IN	N	N	2.0	AC Mains
IR Remote Control for EUT	-	-	-	-	-
IR Remote Control for MI BOX	-	-	-	-	-

* Acc. to manufacturer's declaration, RS-232C, MPI port is for debugging purpose, so the ports were not connected to peripheral device.

3.3 Mode of operation during the test

Test Mode	Description
Mode of Operation	The EUT has 2 internal cameras and a HDMI input/output, so following 3 modes were operated during the test. 1) RGB Camera, 2) IR Camera, 3) Mi Box (Settop box)
# 1	Captured images by the RGB camera on the EUT were continuously displayed on the TV through HDMI output port on the EUT and ping-test between the EUT and a notebook PC was performed.
# 2	Captured images by the IR camera on the EUT were continuously displayed on the TV through the HDMI output port on the EUT and ping-test between the EUT and a notebook PC was performed.
# 3	The video output on the settop box (Mi Box) was connected to HDMI input port on the EUT and output images were continuously displayed on the TV through the HDMI output port on the EUT and ping-test between the EUT and a notebook PC was performed.

3.4 Test Setup Drawing



4. EUT Modifications

- No EMC Relevant Modifications were performed by this test laboratory.

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 bond ed 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.

5.1.2 Sample Calculated Example

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

At 5.31 MHz QP Limit = 60.0 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 = 60 - 40.8 = 19.2 so the EUT has 19.2 dB margin at 5.31 MHz

5.1.3 Measurement uncertainty

Frequency range	Uncertainty
150 kHz ~ 30 MHz	2.21 dB

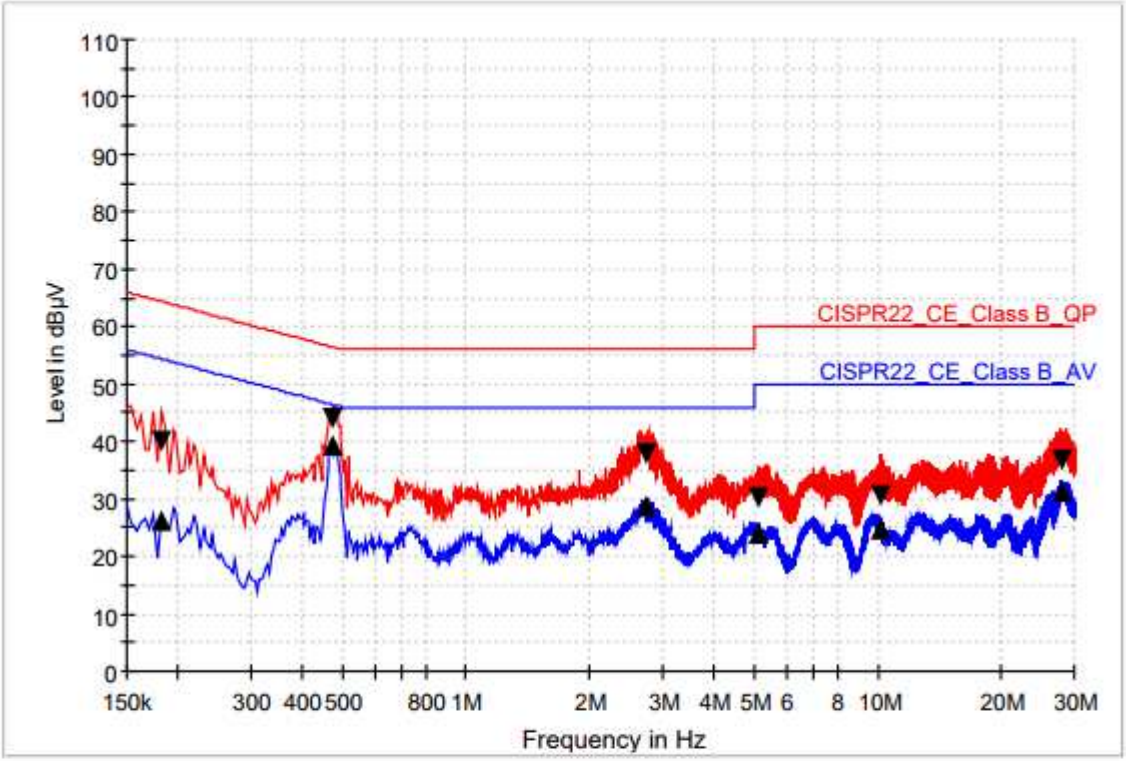
The measurement uncertainties are given with 95 % confidence.

5.1.4 Test Result

Date of Test	2023-04-07		
Temperature	(19.65 ± 0.25) °C	Relative humidity	(50.3 ± 0.2) % 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, #2, and #3		
Test Result	***Pass***	Tested By	Lim, Da-bin

5.1.5 Test Data

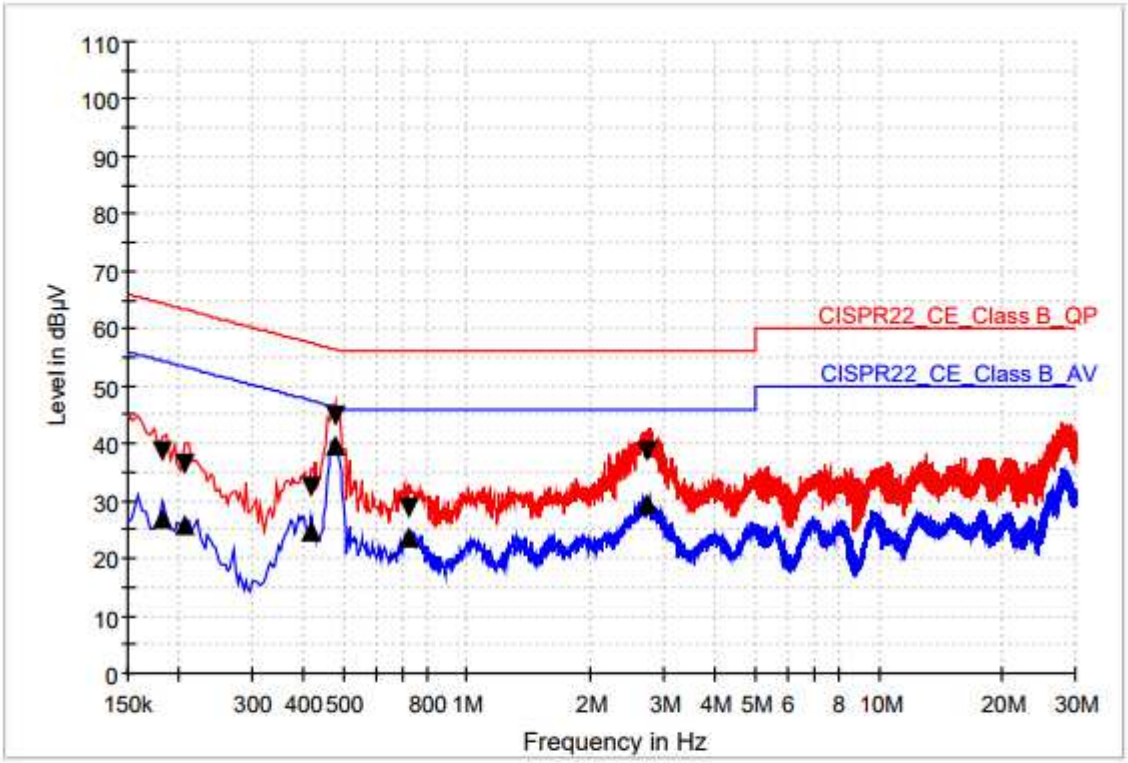
Mode #1	HOT LINE



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)
0.182000	40.0	26.2	9.000	L1	9.7	24.3	64.4	28.2	54.4
0.474000	44.2	39.4	9.000	L1	9.7	12.2	56.4	7.0	46.4
2.742000	37.8	28.6	9.000	L1	9.7	18.2	56.0	17.4	46.0
5.130000	30.1	24.2	9.000	L1	9.7	29.9	60.0	25.8	50.0
10.134000	30.7	24.9	9.000	L1	9.8	29.3	60.0	25.1	50.0
28.106000	37.0	31.5	9.000	L1	10.1	23.0	60.0	18.5	50.0

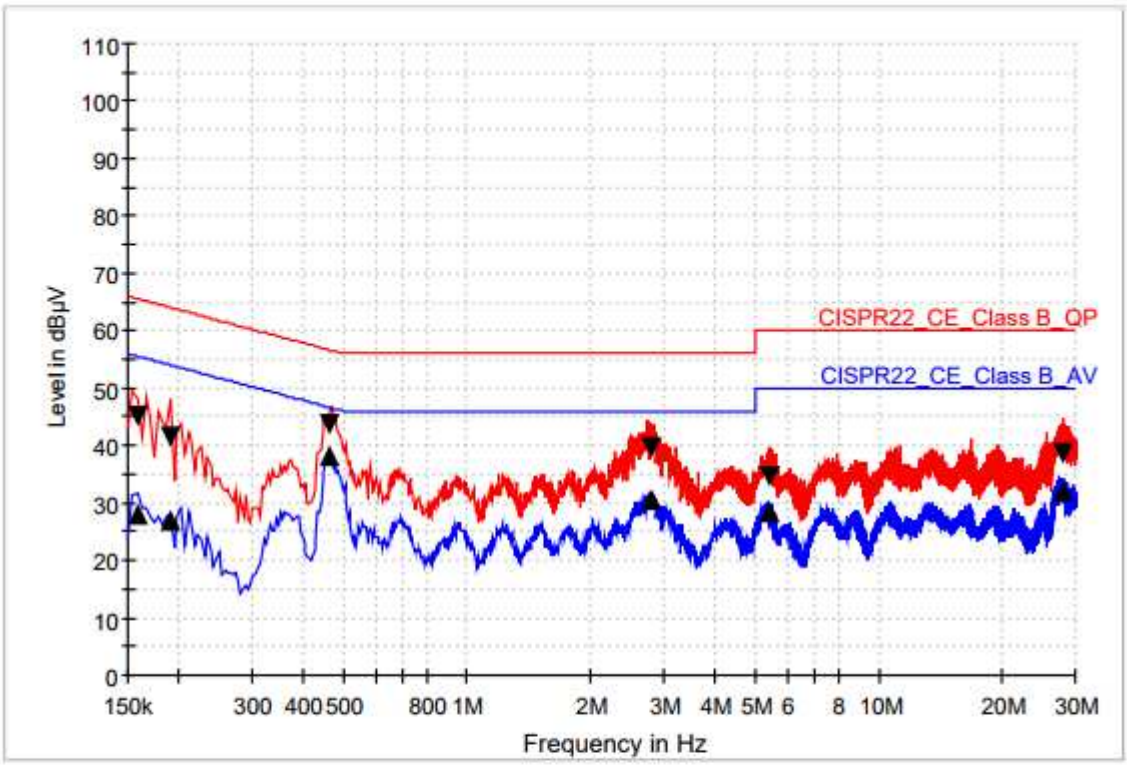
Mode #1	NEUTRAL LINE



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)
0.182000	38.5	27.0	9.000	N	9.7	25.8	64.4	27.3	54.4
0.206000	36.3	25.8	9.000	N	9.7	27.1	63.4	27.6	53.4
0.418000	32.4	24.7	9.000	N	9.7	25.1	57.5	22.8	47.5
0.478000	45.0	39.9	9.000	N	9.7	11.4	56.4	6.5	46.4
0.722000	28.8	23.7	9.000	N	9.7	27.2	56.0	22.3	46.0
2.746000	38.6	29.5	9.000	N	9.7	17.4	56.0	16.5	46.0

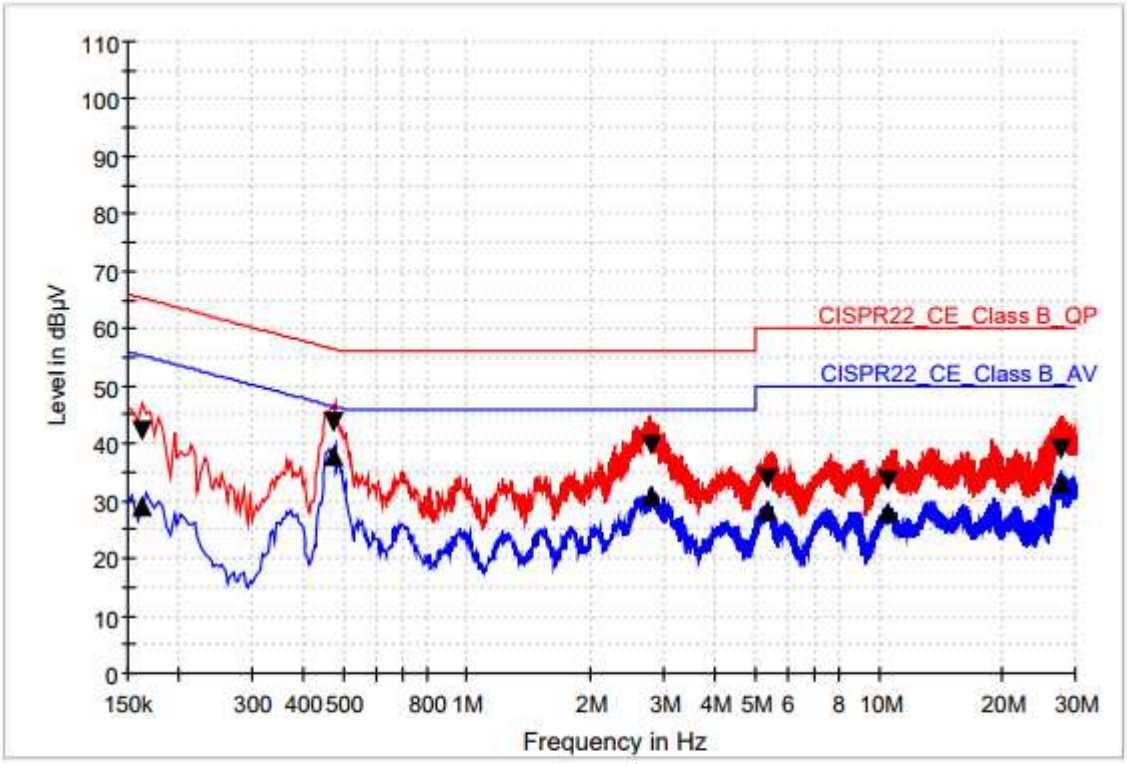
Mode #2	HOT LINE



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)
0.158000	45.2	28.0	9.000	L1	9.7	20.3	65.6	27.5	55.6
0.190000	41.3	26.9	9.000	L1	9.7	22.7	64.0	27.2	54.0
0.462000	43.6	38.3	9.000	L1	9.7	13.0	56.7	8.3	46.7
2.798000	39.8	30.7	9.000	L1	9.7	16.2	56.0	15.3	46.0
5.442000	34.6	28.4	9.000	L1	9.7	25.4	60.0	21.6	50.0
27.966000	38.5	32.2	9.000	L1	10.1	21.5	60.0	17.8	50.0

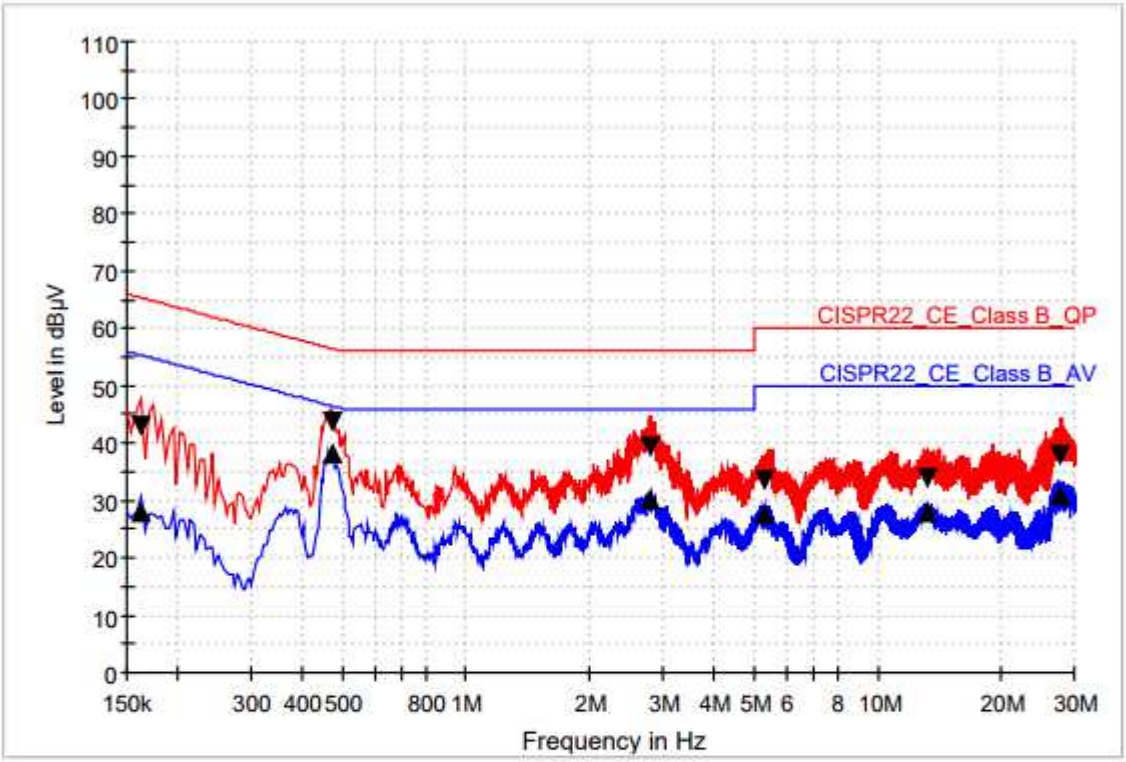
Mode #2	NEUTRAL LINE



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)
0.162000	42.4	29.1	9.000	N	9.7	23.0	65.4	26.3	55.4
0.474000	43.8	38.1	9.000	N	9.7	12.6	56.4	8.4	46.4
2.806000	39.8	30.8	9.000	N	9.7	16.2	56.0	15.2	46.0
5.370000	34.0	28.5	9.000	N	9.7	26.0	60.0	21.5	50.0
10.530000	33.3	28.1	9.000	N	9.8	26.7	60.0	21.9	50.0
27.782000	39.1	33.1	9.000	N	10.1	20.9	60.0	16.9	50.0

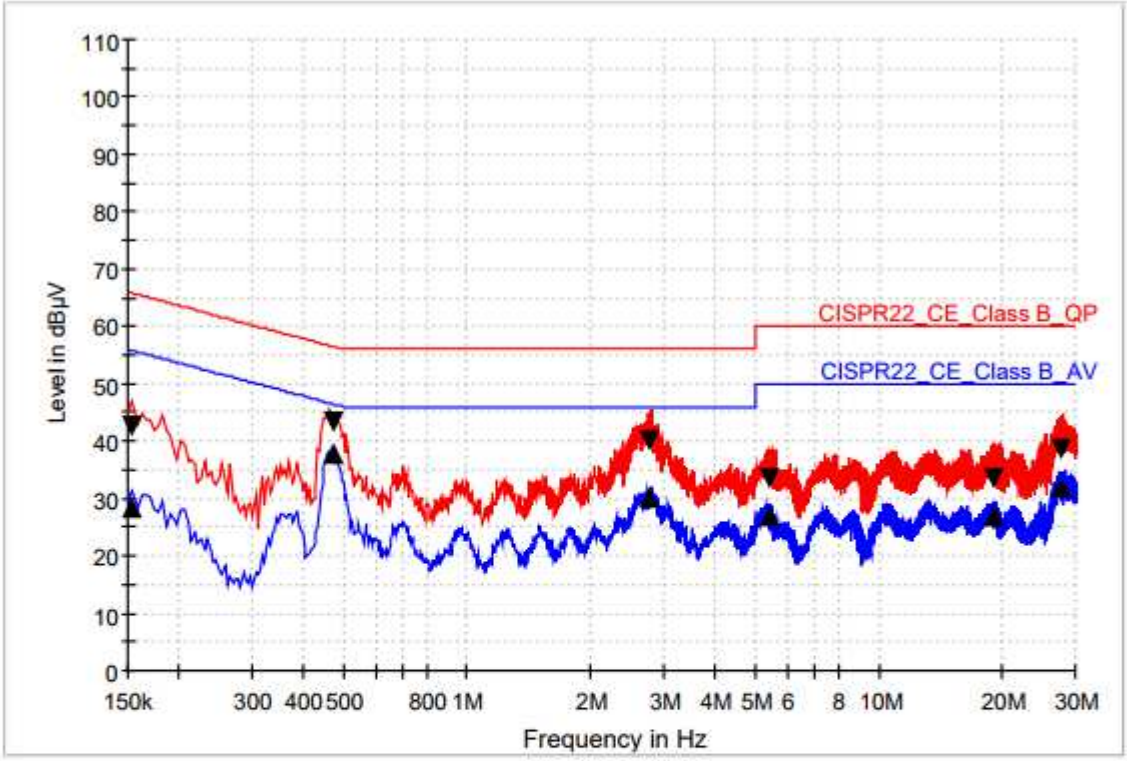
Mode #3	HOT LINE



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)
0.162000	43.0	28.0	9.000	L1	9.7	22.4	65.4	27.4	55.4
0.474000	43.6	38.2	9.000	L1	9.7	12.8	56.4	8.3	46.4
2.802000	39.5	30.2	9.000	L1	9.7	16.5	56.0	15.8	46.0
5.282000	33.6	27.8	9.000	L1	9.7	26.4	60.0	22.2	50.0
13.250000	33.8	28.1	9.000	L1	9.9	26.2	60.0	21.9	50.0
27.822000	37.7	30.9	9.000	L1	10.1	22.3	60.0	19.1	50.0

Mode #3	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	42.5	28.6	9.000	N	9.7	23.3	65.8	27.2	55.8
0.474000	43.5	38.0	9.000	N	9.7	13.0	56.4	8.4	46.4
2.782000	40.0	30.3	9.000	N	9.7	16.0	56.0	15.7	46.0
5.414000	33.6	26.9	9.000	N	9.7	26.4	60.0	23.1	50.0
19.034000	33.7	27.0	9.000	N	9.9	26.3	60.0	23.0	50.0
27.742000	38.7	32.1	9.000	N	10.1	21.3	60.0	17.9	50.0

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

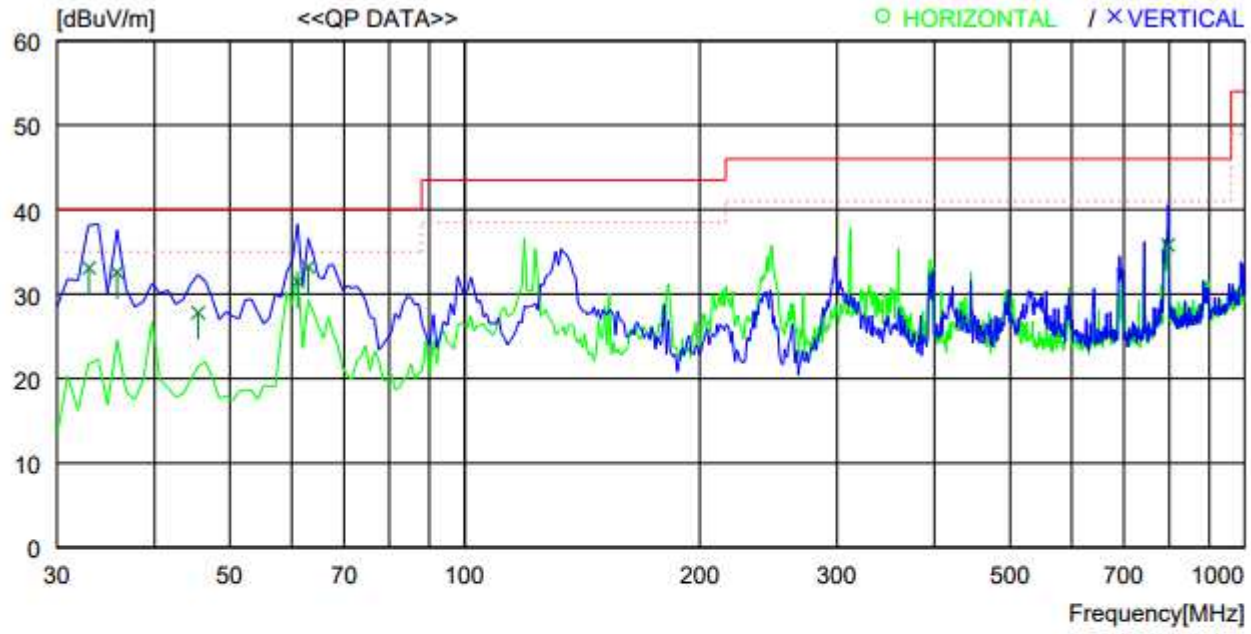
The measurement uncertainties are given with 95 % confidence.

5.2.5 Test result

Date of Test	2023-04-04			
Temperature	(18.9 ± 0.3) °C		Relative humidity	(48.75 ± 0.25) % 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	2023-04-04			
Temperature	(19.5 ± 0.2) °C		Relative humidity	(49.45 ± 0.45) % 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, #2, and #3			
Test Result	***Pass***	Tested By	Lim, Da-bin	

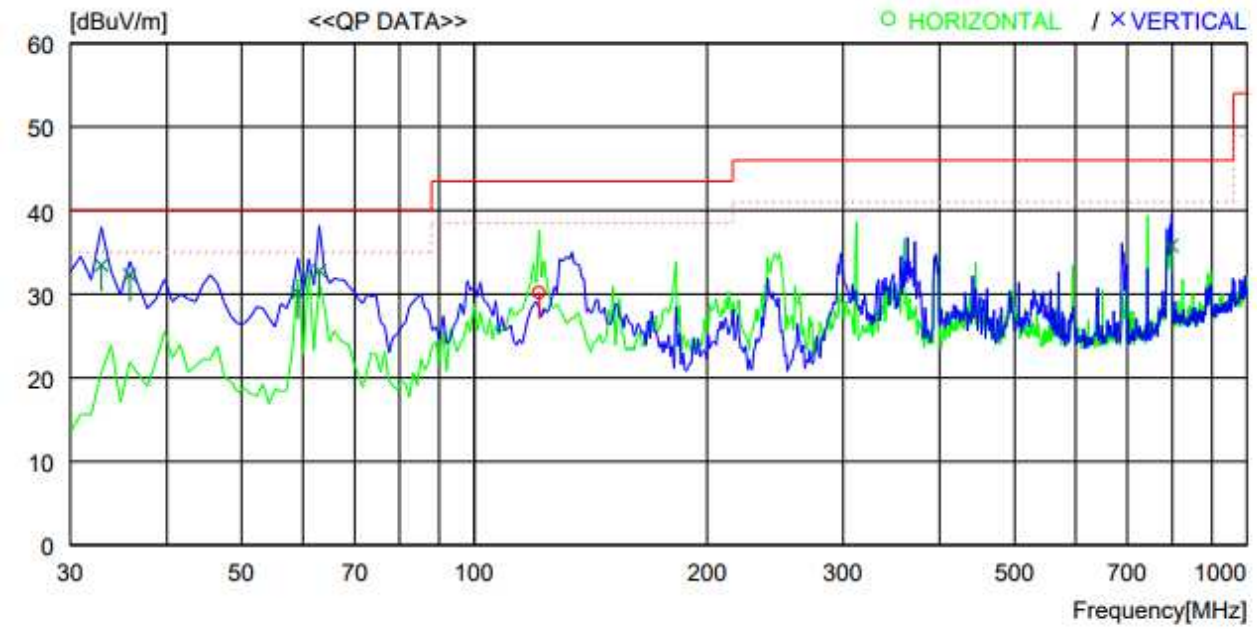
5.2.6 Test Data

Mode #1	30 MHz ~ 1 GHz



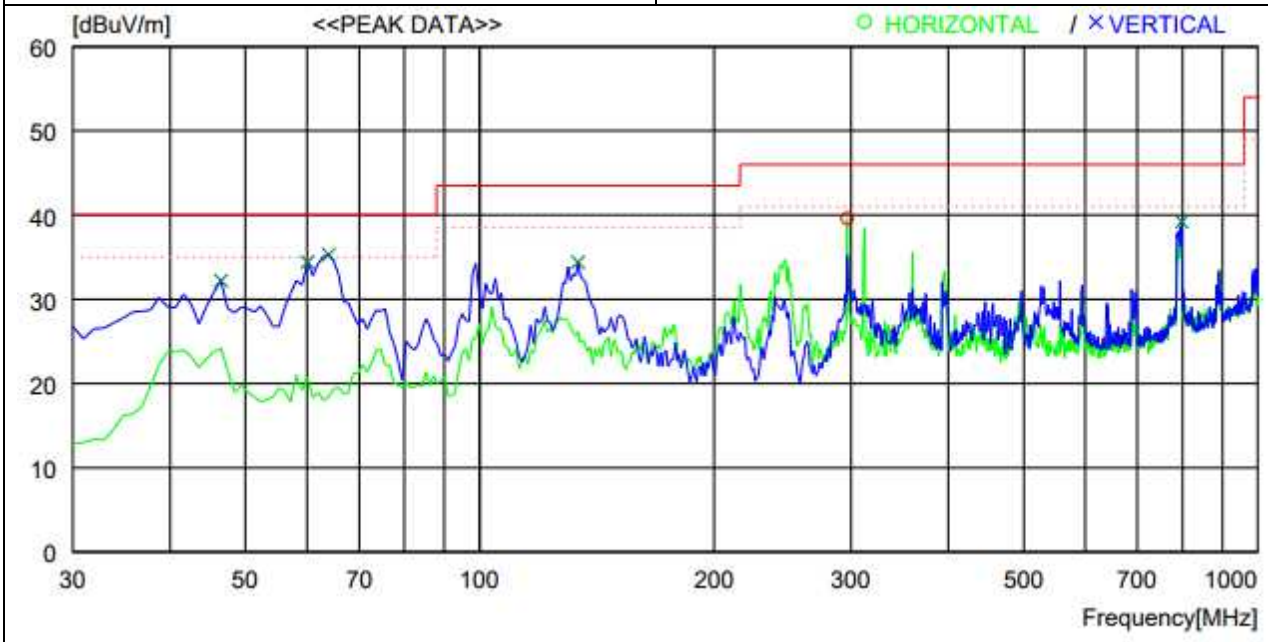
No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Vertical ------										
1	32.980	48.1	11.0	7.0	33.0	33.1	40.0	6.9	100	0
2	35.820	46.8	11.7	7.1	33.0	32.6	40.0	7.4	100	0
3	45.520	39.2	14.4	7.2	33.0	27.8	40.0	12.2	100	218
4	61.040	44.2	12.8	7.5	33.0	31.5	40.0	8.5	200	359
5	62.980	46.5	12.1	7.6	33.0	33.2	40.0	6.8	100	0
6	797.262	36.0	21.0	11.9	33.1	35.8	46.0	10.2	100	0

Mode #2	30 MHz ~ 1 GHz



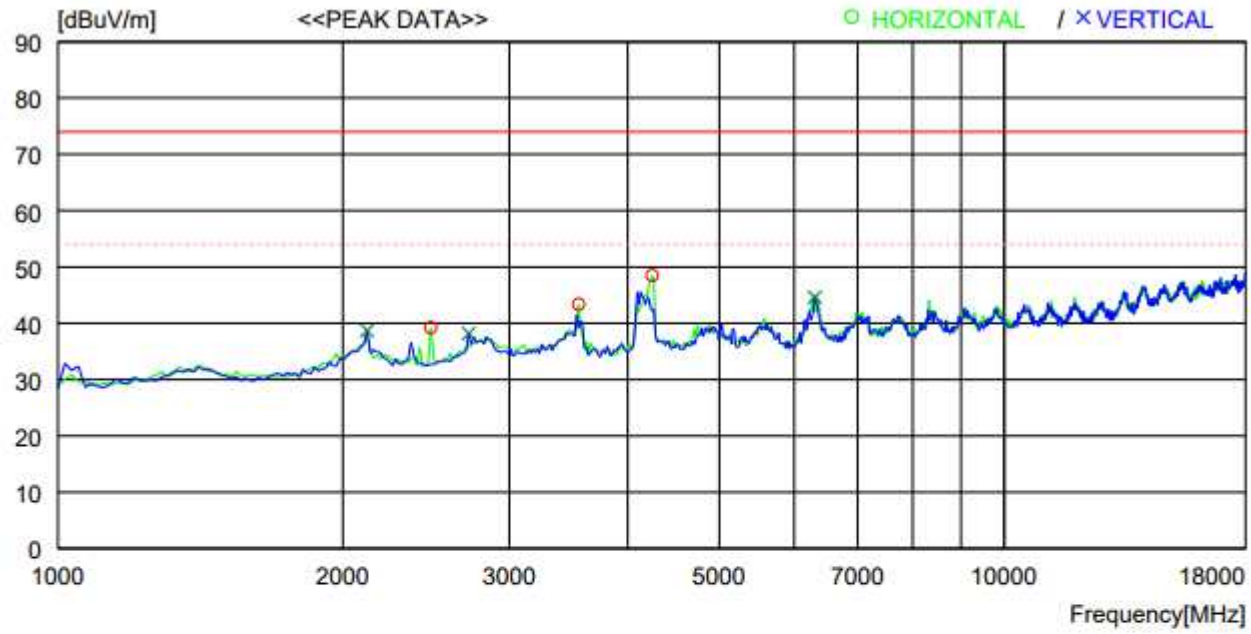
No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	121.180	45.2	9.6	8.2	32.8	30.2	43.5	13.3	200	318
----- Vertical ------										
2	32.910	48.5	11.0	7.0	33.0	33.5	40.0	6.5	100	0
3	35.820	46.5	11.7	7.1	33.0	32.3	40.0	7.7	200	359
4	59.100	42.5	13.2	7.5	33.0	30.2	40.0	9.8	100	10
5	62.980	46.1	12.1	7.6	33.0	32.8	40.0	7.2	100	0
6	798.232	36.0	21.0	11.9	33.1	35.8	46.0	10.2	100	161

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 [cm]	TABLE [DEG]
----- Horizontal ------										
1	296.750	49.1	13.2	9.5	32.2	39.6	46.0	6.4	100	180
----- Vertical ------										
2	46.490	43.6	14.4	7.2	33.0	32.2	40.0	7.8	100	271
3	60.070	46.8	13.1	7.5	33.0	34.4	40.0	5.6	100	84
4	63.950	48.8	11.8	7.6	32.9	35.3	40.0	4.7	100	0
5	133.790	50.2	8.6	8.3	32.7	34.4	43.5	9.1	100	0
6	798.232	39.4	21.0	11.9	33.1	39.2	46.0	6.8	100	0

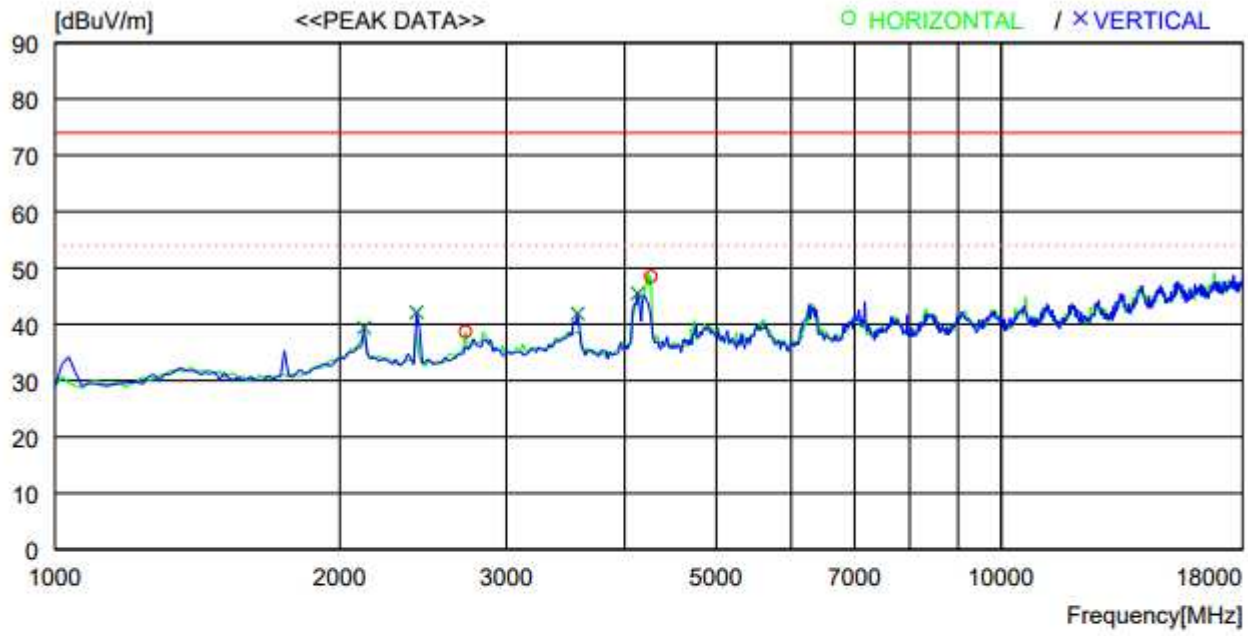
Mode #1	1 GHz ~ 18 GHz



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	2479.000	46.0	29.3	3.5	39.6	39.2	74.0	34.8	100	0
2	3550.000	46.8	32.1	4.3	39.8	43.4	74.0	30.6	100	141
3	4247.000	50.5	33.4	4.6	40.0	48.5	74.0	25.5	200	354
----- Vertical ------										
4	2122.000	46.2	28.8	3.2	39.5	38.7	74.0	35.3	200	359
5	2717.000	44.2	30.0	3.7	39.7	38.2	74.0	35.8	200	359
6	6304.000	44.2	35.0	5.3	39.9	44.6	74.0	29.4	100	0

NOTE: Average mode was not measured, because peak values were under the average limit.

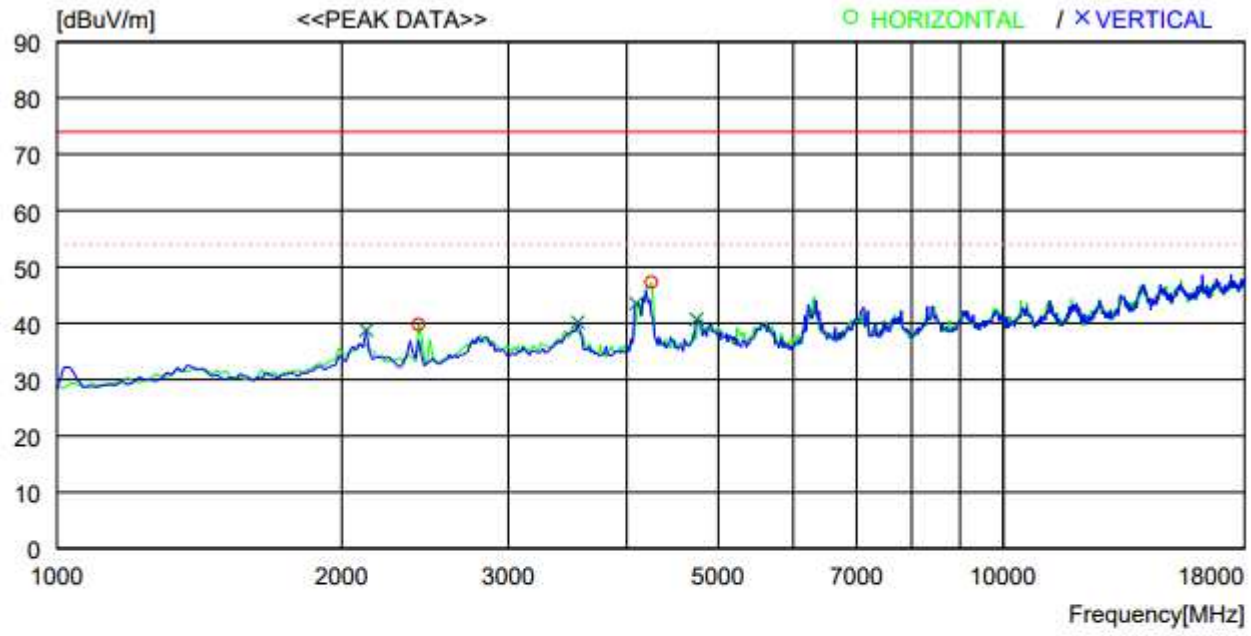
Mode #2	1 GHz ~ 18 GHz



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	2717.000	44.7	30.0	3.7	39.7	38.7	74.0	35.3	200	11
2	4264.000	50.5	33.4	4.6	40.0	48.5	74.0	25.5	200	359
----- Vertical ------										
3	2122.000	46.9	28.8	3.2	39.5	39.4	74.0	34.6	200	3
4	2411.000	49.0	29.2	3.5	39.6	42.1	74.0	31.9	200	292
5	3567.000	45.3	32.1	4.3	39.8	41.9	74.0	32.1	200	359
6	4128.000	47.7	33.3	4.6	40.1	45.5	74.0	28.5	100	0

NOTE: Average mode was not measured, because peak values were under the average limit.

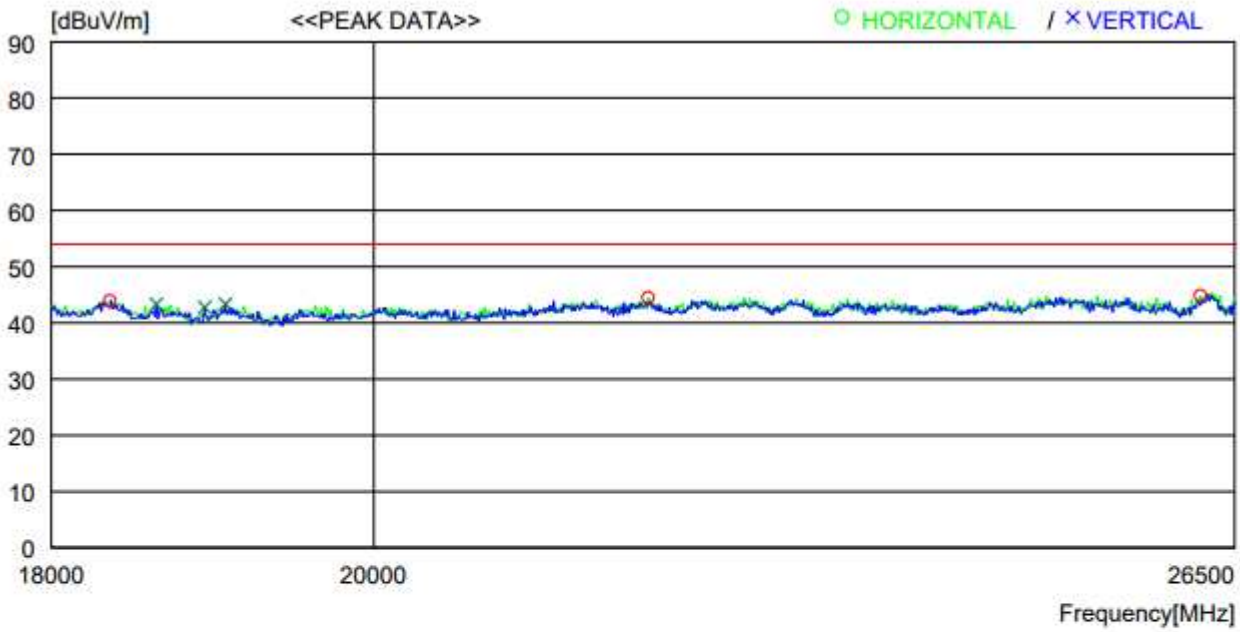
Mode #3	1 GHz ~ 18 GHz



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA TABLE [cm]	[DEG]
----- Horizontal ------										
1	2411.000	46.7	29.2	3.5	39.6	39.8	74.0	34.2	200	50
2	4247.000	49.3	33.4	4.6	40.0	47.3	74.0	26.7	200	359
----- Vertical ------										
3	2122.000	46.3	28.8	3.2	39.5	38.8	74.0	35.2	200	359
4	3550.000	43.6	32.1	4.3	39.8	40.2	74.0	33.8	100	0
5	4094.000	45.8	33.2	4.6	40.1	43.5	74.0	30.5	100	62
6	4740.000	41.8	34.1	4.8	40.0	40.7	74.0	33.3	100	40

NOTE: Average mode was not measured, because peak values were under the average limit.

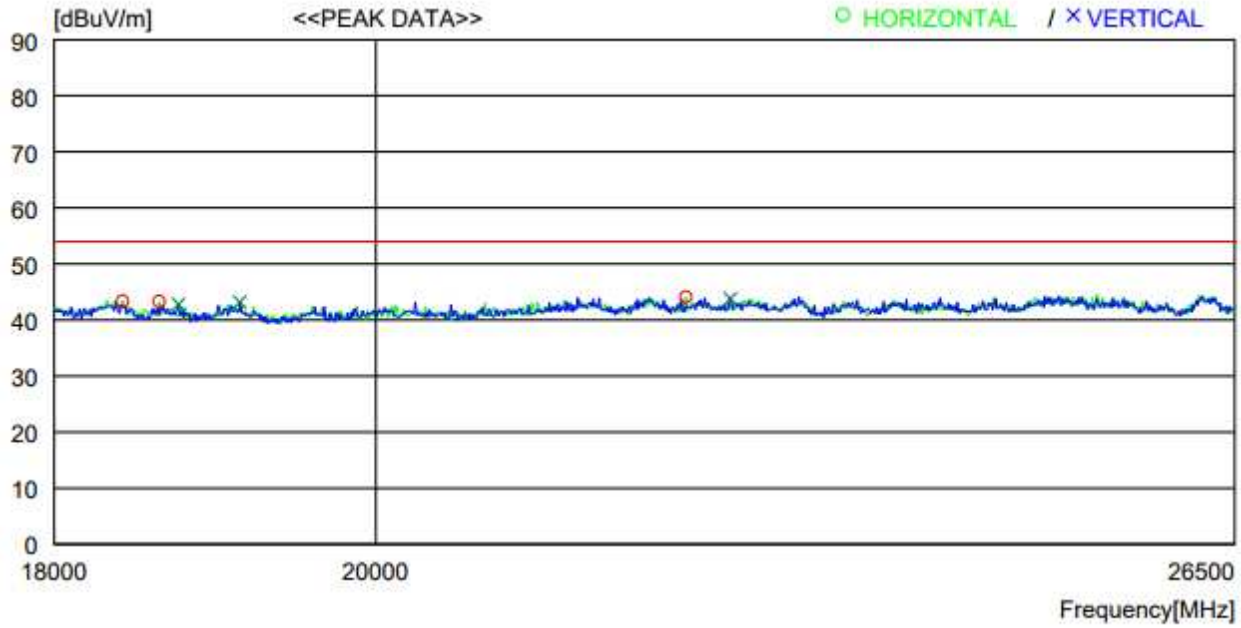
Mode #1	18 GHz ~ 26.5 GHz



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	18348.500	51.9	37.6	12.0	57.6	43.9	54.0	10.1	100	146
2	21876.000	50.2	38.0	12.9	56.6	44.5	54.0	9.5	100	348
3	26202.500	45.5	39.0	14.1	53.7	44.9	54.0	9.1	200	153
----- Vertical ------										
4	18629.000	51.3	37.6	11.9	57.5	43.3	54.0	10.7	200	359
5	18926.500	50.5	37.7	11.9	57.3	42.8	54.0	11.2	100	270
6	19054.000	50.9	37.7	12.0	57.2	43.4	54.0	10.6	200	131

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

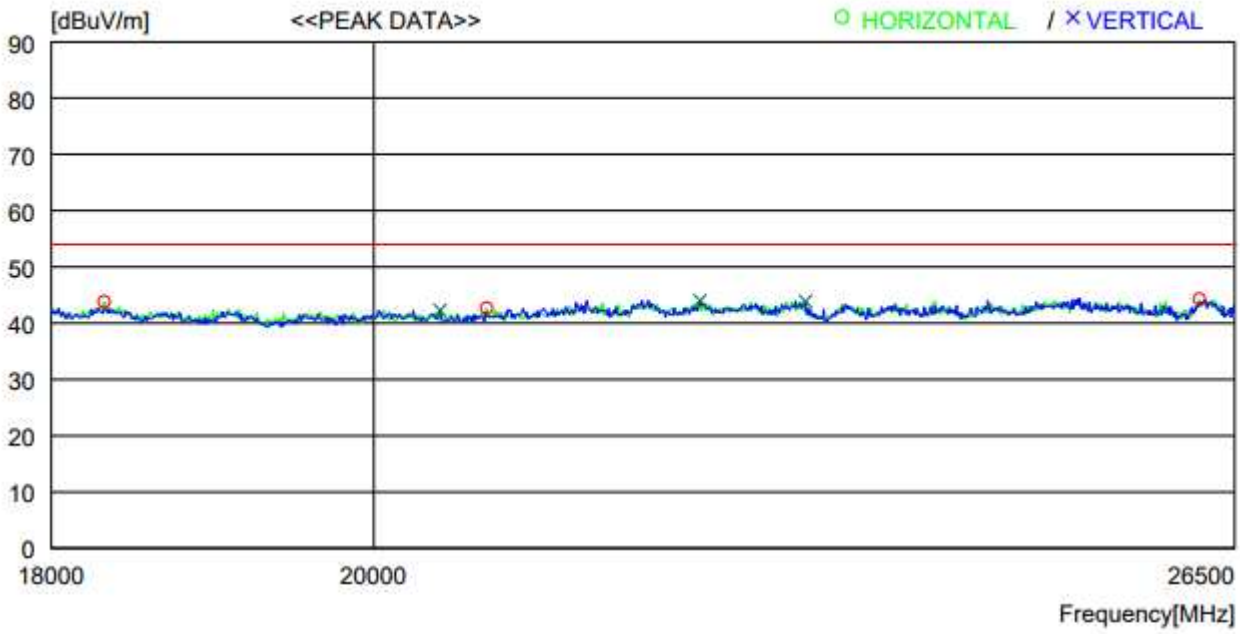
Mode #2	18 GHz ~ 26.5 GHz



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	18408.000	51.5	37.6	11.9	57.6	43.4	54.0	10.6	200	97
2	18629.000	51.3	37.6	11.9	57.5	43.3	54.0	10.7	100	353
3	22139.500	49.3	38.1	13.0	56.3	44.1	54.0	9.9	200	143
----- Vertical ------										
4	18748.000	50.7	37.6	11.9	57.4	42.8	54.0	11.2	200	75
5	19130.500	50.8	37.6	12.0	57.2	43.2	54.0	10.8	100	0
6	22462.500	48.5	38.2	13.0	55.9	43.8	54.0	10.2	100	100

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

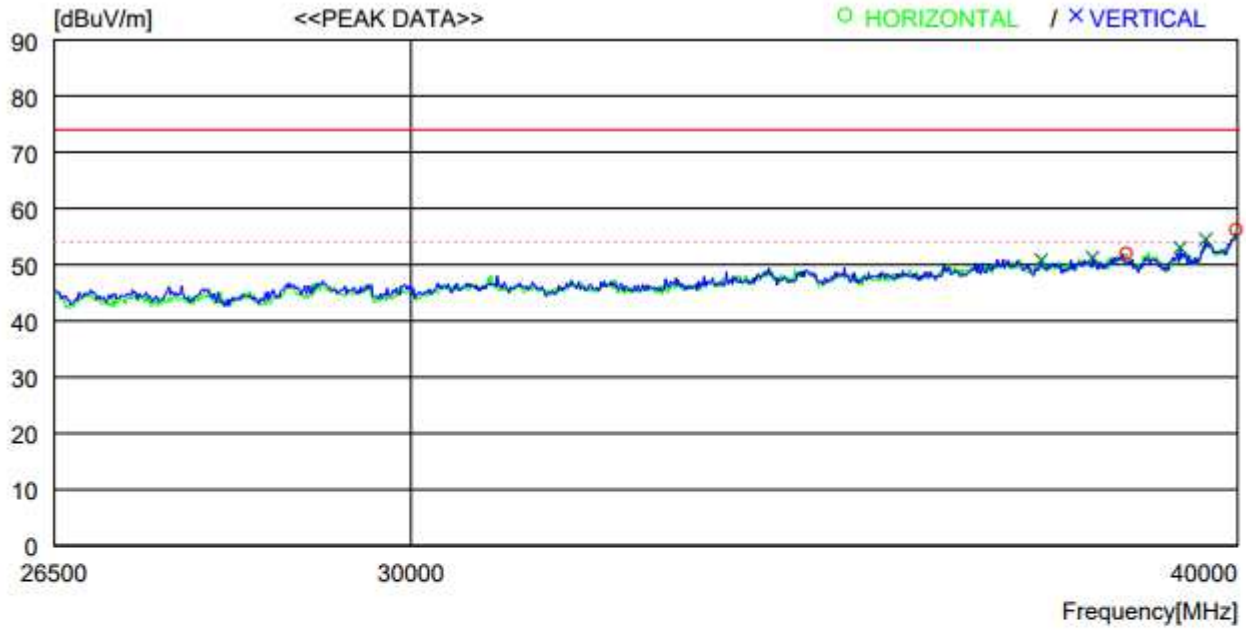
Mode #3	18 GHz ~ 26.5 GHz



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	18314.500	51.8	37.6	12.0	57.6	43.8	54.0	10.2	200	183
2	20754.000	48.6	37.7	12.6	56.2	42.7	54.0	11.3	200	237
3	26194.000	44.9	39.0	14.1	53.7	44.3	54.0	9.7	100	48
----- Vertical ------										
4	20439.500	48.4	37.6	12.5	56.2	42.3	54.0	11.7	100	71
5	22250.000	49.1	38.1	13.0	56.2	44.0	54.0	10	200	359
6	23032.000	46.3	38.7	13.2	54.3	43.9	54.0	10.1	200	359

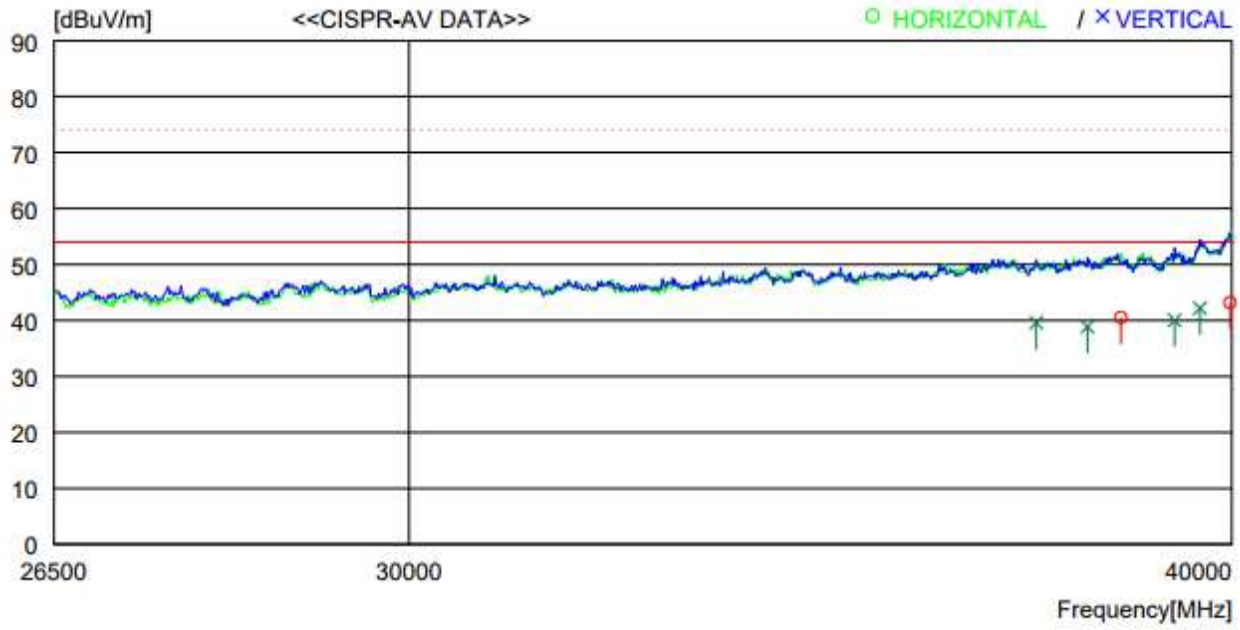
NOTE: Average mode was not measured, because Peak values were under the Average limit.

Mode #1	26.5 GHz ~ 40 GHz (Peak)



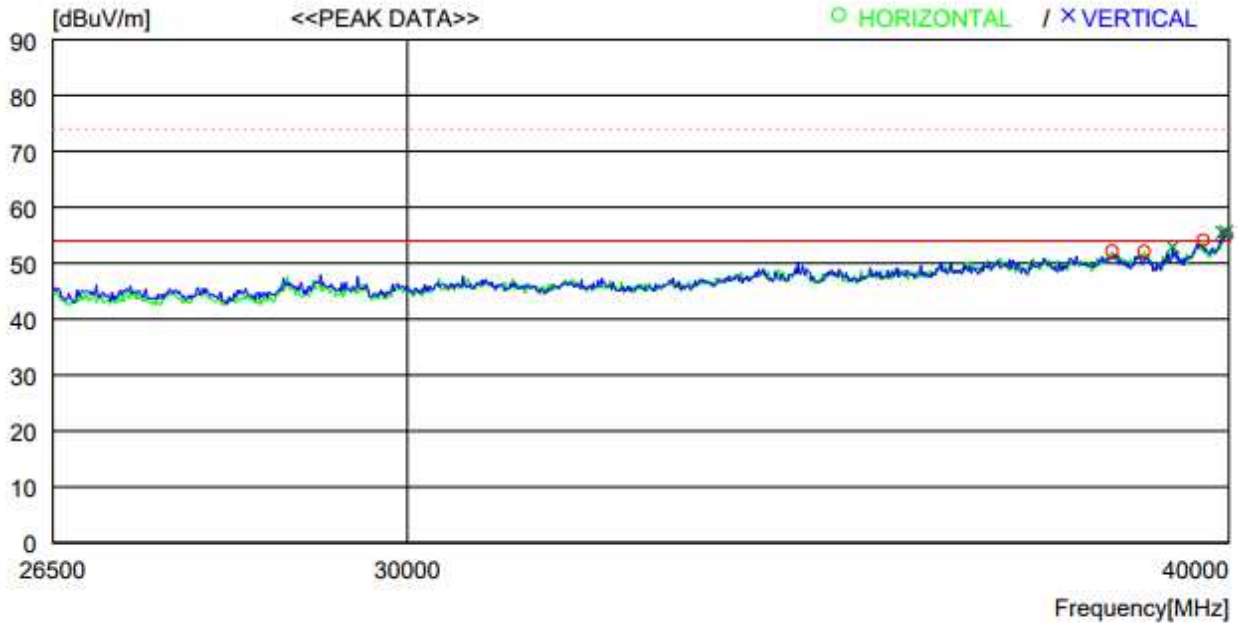
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	38474.500	55.2	44.6	17.4	65.2	52.0	74.0	22	200	359
2	39973.000	52.9	46.0	18.2	60.9	56.2	74.0	17.8	100	252
----- Vertical ------										
3	37354.000	51.4	43.4	17.4	61.4	50.8	74.0	23.2	200	359
4	38029.000	53.5	43.9	17.3	63.4	51.3	74.0	22.7	100	247
5	39203.500	53.0	45.5	17.6	63.1	53.0	74.0	21	200	192
6	39554.500	52.6	45.7	17.9	61.7	54.5	74.0	19.5	100	358

Mode #1	26.5 GHz ~ 40 GHz (Average)



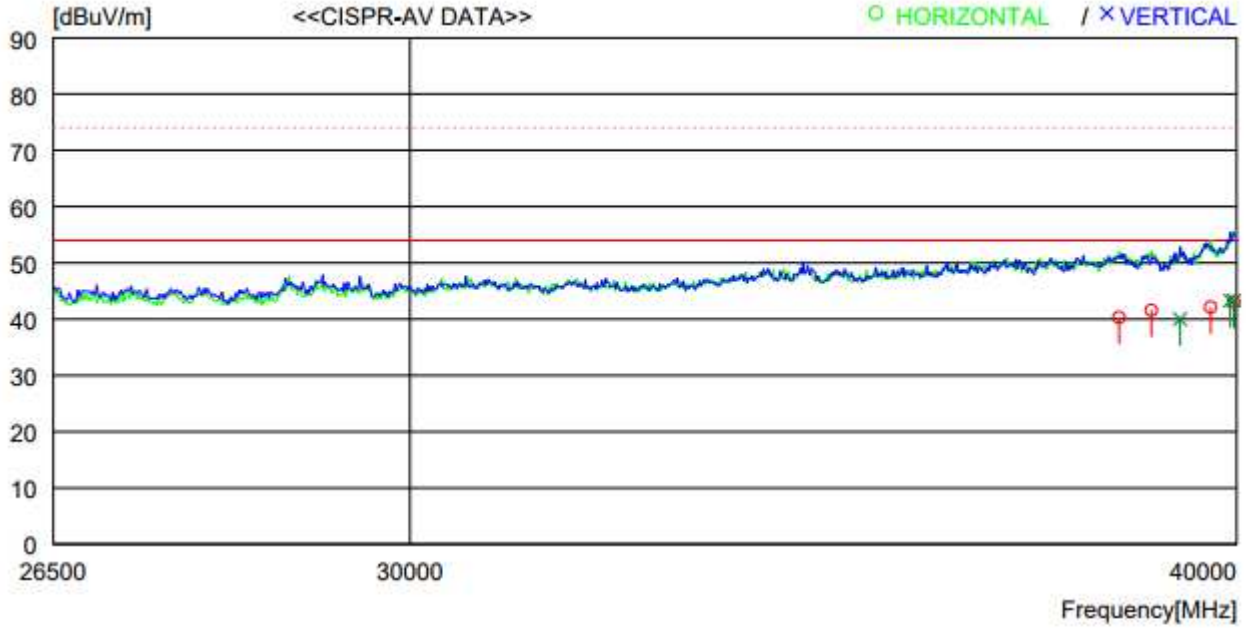
No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	38474.500	43.7	**44.6**	17.4	65.2	40.5	54.0	13.5	200	359
2	39973.000	39.9	**46.0**	18.2	60.9	43.2	54.0	10.8	100	252
----- Vertical ------										
3	37354.000	40.2	**43.4**	17.4	61.4	39.6	54.0	14.4	200	359
4	38029.000	41.1	**43.9**	17.3	63.4	38.9	54.0	15.1	100	247
5	39203.500	40.0	**45.5**	17.6	63.1	40.0	54.0	14.0	200	192
6	39554.500	40.3	**45.7**	17.9	61.7	42.2	54.0	11.8	100	358

Mode #2	26.5 GHz ~ 40 GHz (Peak)



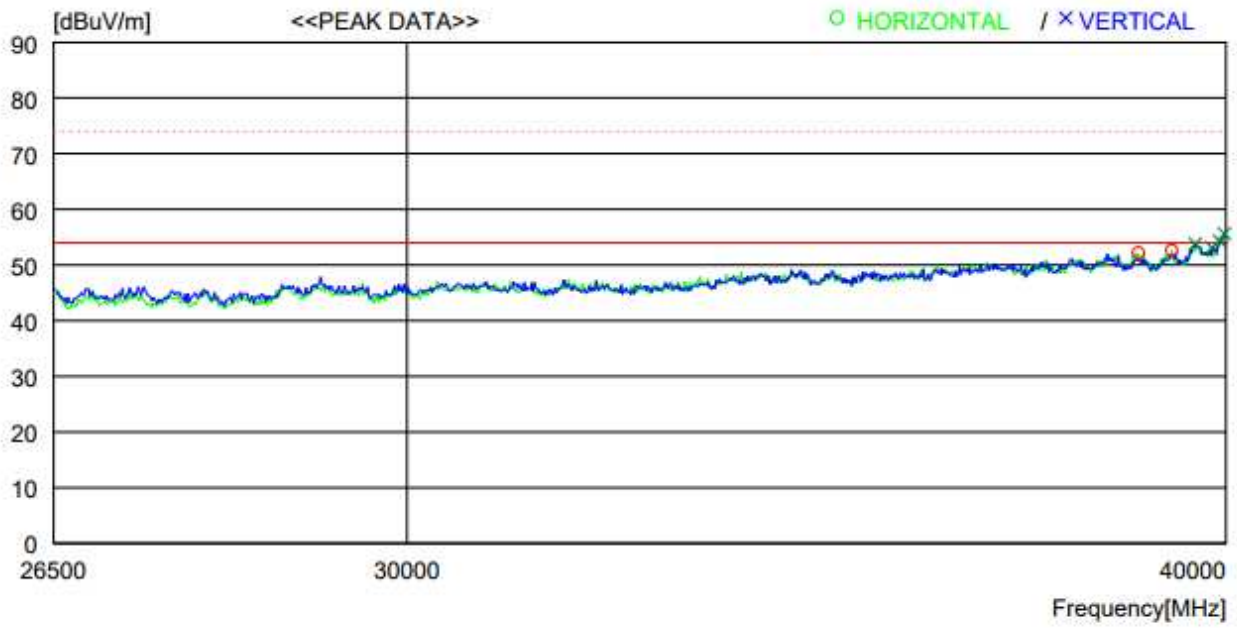
No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	38393.500	55.2	44.5	17.4	64.9	52.2	54.0	1.8	200	359
2	38825.500	54.0	45.1	17.5	64.5	52.1	54.0	1.9	100	46
3	39635.500	51.9	45.8	17.9	61.5	54.1	54.0	-.1	200	359
4	39959.500	51.7	46.0	18.2	60.9	55.0	54.0	-1	100	0
----- Vertical ------										
5	39217.000	52.9	45.5	17.6	63.1	52.9	54.0	1.1	100	0
6	39905.500	52.4	45.9	18.2	61.0	55.5	54.0	-1.5	200	299
7	39959.500	52.3	46.0	18.2	60.9	55.6	54.0	-1.6	200	283

Mode #2	26.5 GHz ~ 40 GHz (Average)



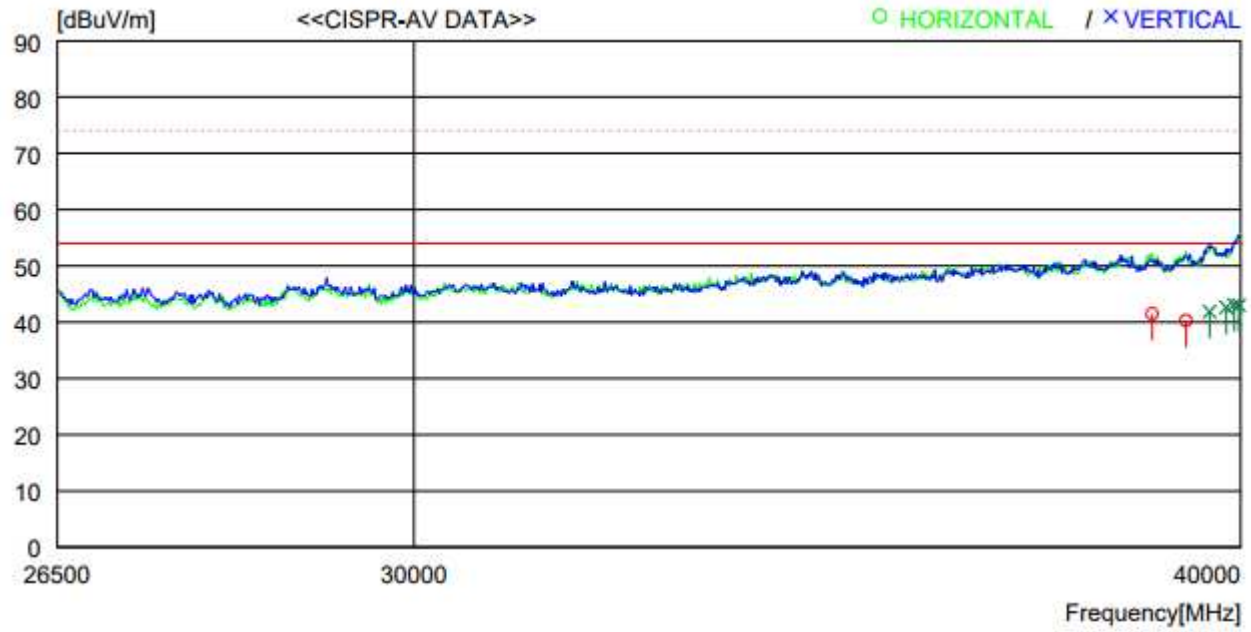
No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	38393.500	43.3	**44.5**	17.4	64.9	40.3	54.0	13.7	200	359
2	38825.500	43.5	**45.1**	17.5	64.5	41.6	54.0	12.4	100	46
3	39635.500	39.9	**45.8**	17.9	61.5	42.1	54.0	11.9	200	359
4	39959.500	39.8	**46.0**	18.2	60.9	43.1	54.0	10.9	100	0
----- Vertical ------										
5	39217.000	40.0	**45.5**	17.6	63.1	40.0	54.0	14.0	100	0
6	39905.500	40.2	**45.9**	18.2	61.0	43.3	54.0	10.7	200	299
7	39959.500	40.0	**46.0**	18.2	60.9	43.3	54.0	10.7	200	283

Mode #3	26.5 GHz ~ 40 GHz (Peak)



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	38785.000	64.2	45.1	17.5	64.6	52.2	54.0	1.8	200	359
2	39244.000	62.4	45.5	17.6	62.9	52.6	54.0	1.4	200	359
----- Vertical ------										
3	39568.000	61.9	45.7	17.9	61.7	53.8	54.0	.2	200	43
4	39797.500	60.4	45.9	18.0	61.2	53.1	54.0	.9	200	359
5	39905.500	61.2	45.9	18.2	61.0	54.3	54.0	-.3	200	359
6	39973.000	62.3	46.0	18.2	60.9	55.6	54.0	-1.6	100	0

Mode #3	26.5 GHz ~ 40 GHz (Average)



No.	FREQ [MHz]	READING CAV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	38785.000	43.5	45.1	17.5	64.6	41.5	54.0	12.5	200	359
2	39244.000	40.1	45.5	17.6	62.9	40.3	54.0	13.7	200	359
----- Vertical ------										
3	39568.000	40.0	45.7	17.9	61.7	41.9	54.0	12.1	200	43
4	39797.500	39.9	45.9	18.0	61.2	42.6	54.0	11.4	200	359
5	39905.500	40.0	45.9	18.2	61.0	43.1	54.0	10.9	200	359
6	39973.000	39.7	46.0	18.2	60.9	43.0	54.0	11.0	100	0

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	2023-01-12 (1Y)	□
LISN	ENV4200	Rohde & Schwarz	100203	2023-01-12 (1Y)	□
LISN	ENV216	Rohde & Schwarz	102572	2023-01-13 (1Y)	■
LISN	LS16C	AFJ	16011403310	2022-07-15 (1Y)	■
LISN	NNLK8121	SchwarzBeck	8121-163	2022-07-15 (1Y)	□
Voltage Probe	TK9420	Schwarzbeck	9420-165	2023-01-12 (1Y)	□
Loop Antenna	HFH2-Z2	Rohde & Schwarz	100341	2021-05-14 (2Y)	□
8-Wire ISN CAT 3	CAT3 8158	Schwarzbeck	CAT3 8158 #70	2023-01-16 (1Y)	□
8-Wire ISN CAT 5	CAT5 8158	Schwarzbeck	CAT5 8158 #126	2023-01-16 (1Y)	□
8-Wire ISN CAT 6	NTFM 8158	Schwarzbeck	NTFM 8158 #95	2023-01-16 (1Y)	□
Test Receiver	ESU	Rohde & Schwarz	100303	2023-01-12 (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	2023-01-12 (1Y)	■
Attenuators	6 dB	Rohde & Schwarz	272.4110.50	2023-01-12 (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	2022-10-28 (1Y)	□
Notch Filter	G319	MICRO-TRONICS	BRC50703	2022-10-28 (1Y)	□
Horn Antenna	BBHA 9170	Schwarzbeck	783	2021-10-22 (2Y)	■
PRE AMPLIFIER	CBL18265035	CERNEX	28706	2023-03-07 (1Y)	■
PRE AMPLIFIER	CBL26405040	CERNEX	28707	2023-03-07 (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.