TEST REPORT

Applicant:	Elsight
Address of Applicant:	3, Ariel Sharon Blvd. Or-Yehuda, Israel 6036707
Manufacturer:	Elsight
Address of Manufacturer:	3, Ariel Sharon Blvd. Or-Yehuda, Israel 6036707

Equipment Under Test (EUT)

Product Name:	Elsight Halo
Model No.:	Halo HNF4W
FCC ID:	2AWEB-HALOHNF4W
Contains FCC ID:	RI7LE910CXNF TFB-1004
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	May 27, 2020
Date of Test:	May 27, 2020-June 08, 2020
Date of report issued:	June 08, 2020
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

Testing Cert #381383

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	*June 08, 2020*	*Original*

Prepared By:	***Project Engineer***	***Date:***	*June 08, 2020*
Check By:	***Reviewer***	***Date:***	*June 08, 2020*

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4 Test Summary

Test Item	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission	FCC Part15.107	ANSI C63.4	Class B	PASS
Radiated Emissions #	FCC Part15.109	ANSI C63.4	Class B	PASS

Remarks:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *# Refer to FCC Part 15.33 (b)(1) conditional testing procedure :*

The highest frequency generated or used in the EUT	*Test frequency range of Radiated emission*
<108MHz	*30MHz ~ 1GHz*
108MHz ~ 500MHz	*30MHz ~ 2GHz*
500MHz ~ 1GHz	*30MHz ~ 5GHz*
>1GHz	*30MHz ~ 5th harmonic of the highest frequency or 40 GHz, whichever is lower.*

Note: the EUT Internal clock frequency above 108MHz.

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

5 General Information

5.1 General Description of EUT

Product Name:	Elsight Halo
Model No.:	Halo HNF4W
Power supply:	DC 9-30V

5.2 Test mode and Test voltage

Test mode:	
LAN mode	Keep the EUT in ping IP mode.
Test voltage:	
DC 9V	

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
Apple	PC	A1278	C1MN99ERDTY3
MEILI	DC POWER SUPPLY	MCH-305A	011121168

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383.

● **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

5.7 Test Location

The test was performed at:

Global United Technology Services Co., Ltd.
Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 26 2019	June. 25 2020
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 26 2019	June. 25 2020
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 26 2019	June. 25 2020
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 26 2019	June. 25 2020
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 26 2019	June. 25 2020
9	Coaxial Cable	GTS	N/A	GTS211	June. 26 2019	June. 25 2020
10	Coaxial cable	GTS	N/A	GTS210	June. 26 2019	June. 25 2020
11	Coaxial Cable	GTS	N/A	GTS212	June. 26 2019	June. 25 2020
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 26 2019	June. 25 2020
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 26 2019	June. 25 2020
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 26 2019	June. 25 2020
15	Band filter	Amindeon	82346	GTS219	June. 26 2019	June. 25 2020
16	Power Meter	Anritsu	ML2495A	GTS540	June. 26 2019	June. 25 2020
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 26 2019	June. 25 2020
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 26 2019	June. 25 2020
19	Splitter	Agilent	11636B	GTS237	June. 26 2019	June. 25 2020
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 26 2019	June. 25 2020
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 19 2019	Oct. 18 2020
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 19 2019	Oct. 18 2020
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 19 2019	Oct. 18 2020
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 26 2019	June. 25 2020

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.15 2019	May.14 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 26 2019	June. 25 2020
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 26 2019	June. 25 2020
4	ENV216 2-L-V-NETZNACHB.DE	ROHDE&SCHWARZ	ENV216	GTS226	June. 26 2019	June. 25 2020
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 26 2019	June. 25 2020
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 26 2019	June. 25 2020
9	ISN	SCHWARZBECK	NTFM 8158	GTD565	June. 26 2019	June. 25 2020

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 26 2019	June. 25 2020
2	Barometer	ChangChun	DYM3	GTS255	June. 26 2019	June. 25 2020

7 Test Results and Measurement Data

7.1 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2014
Test Frequency Range:	30MHz to 6000MHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver setup:

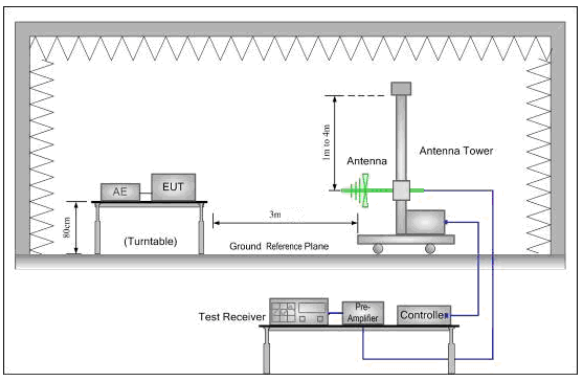
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:

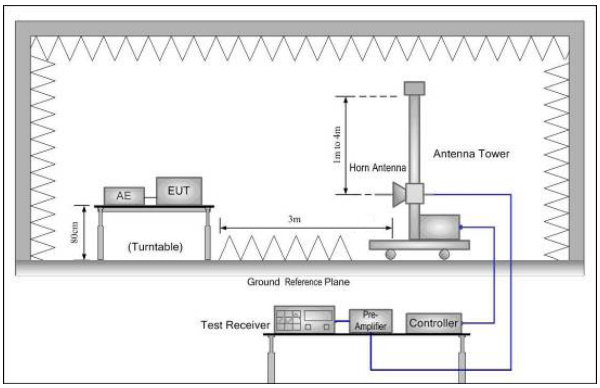
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

Test setup:

For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



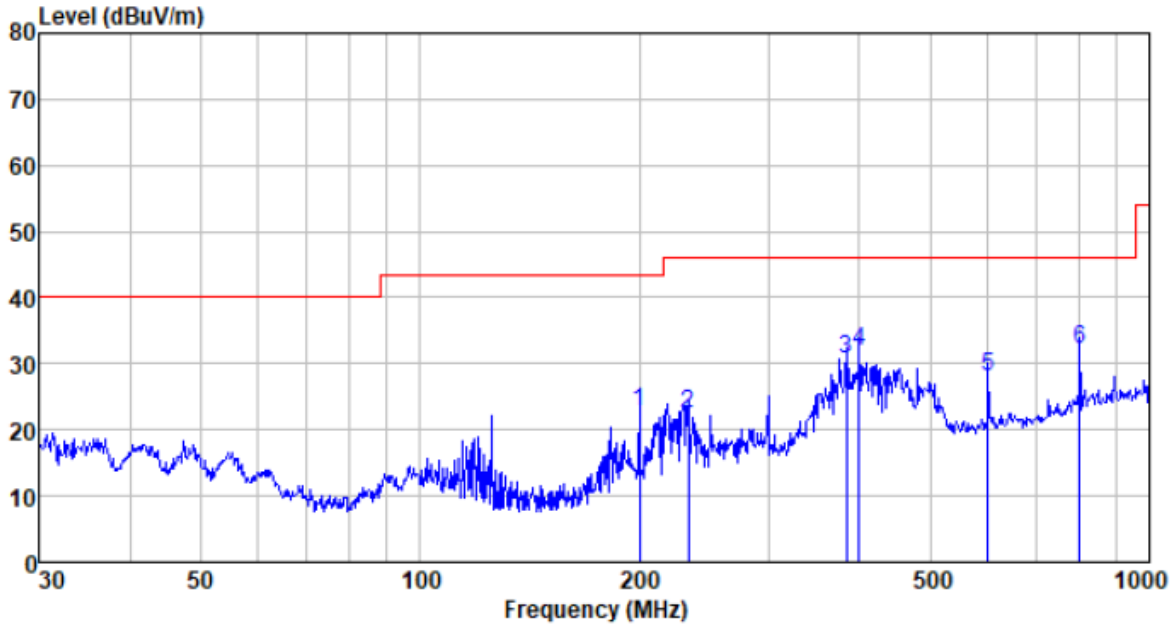
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar

Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details only show the worst case.
Test results:	Pass

Measurement Data

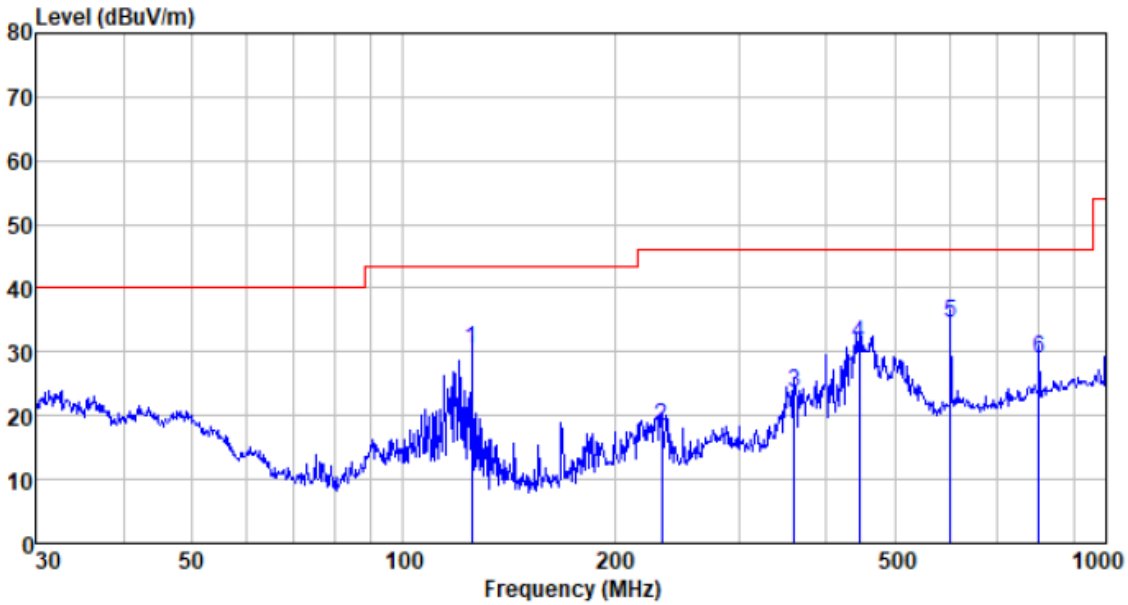
Below 1GHz

Test mode:	LAN mode	Antenna Polarity:	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
199.986	47.90	10.40	1.84	37.33	22.81	43.50	-20.69	QP
233.349	46.28	11.60	2.04	37.36	22.56	46.00	-23.44	QP
383.932	50.25	15.08	2.78	37.51	30.60	46.00	-15.40	QP
400.432	51.22	15.34	2.85	37.52	31.89	46.00	-14.11	QP
601.427	42.32	19.50	3.73	37.54	28.01	46.00	-17.99	QP
801.786	43.85	21.40	4.46	37.62	32.09	46.00	-13.91	QP

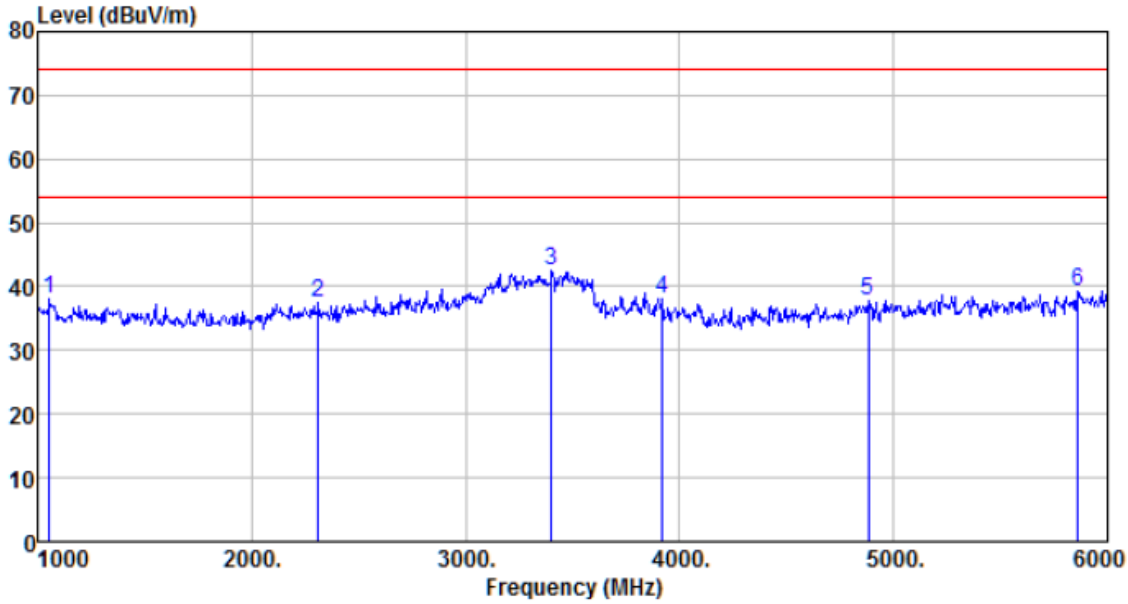
Test mode:	LAN mode	Antenna Polarity:	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
125.007	57.05	8.81	1.40	36.92	30.34	43.50	-13.16	QP
233.349	42.10	11.60	2.04	37.36	18.38	46.00	-27.62	QP
360.448	43.74	14.70	2.67	37.48	23.63	46.00	-22.37	QP
444.851	49.37	16.28	3.07	37.52	31.20	46.00	-14.80	QP
601.427	48.85	19.50	3.73	37.54	34.54	46.00	-11.46	QP
801.786	40.65	21.40	4.46	37.62	28.89	46.00	-17.11	QP

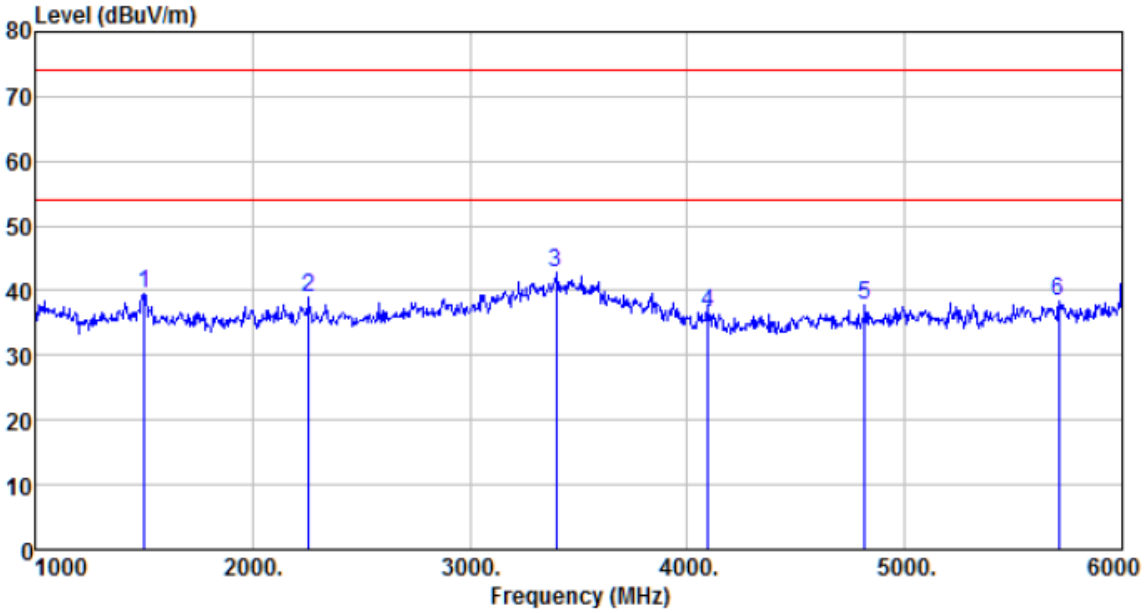
Above 1GHz

Test mode:	LAN mode	Antenna Polarity:	Horizontal



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1055.000	41.81	24.63	4.34	32.84	37.94	74.00	-36.06	Peak
2310.000	38.34	27.91	5.30	34.11	37.44	74.00	-36.56	Peak
3400.000	40.07	28.60	6.76	32.87	42.56	74.00	-31.44	Peak
3920.000	33.08	29.54	7.73	32.27	38.08	74.00	-35.92	Peak
4880.000	29.46	31.85	8.66	32.12	37.85	74.00	-36.15	Peak
5860.000	28.64	32.72	10.02	32.21	39.17	74.00	-34.83	Peak

Test mode:	LAN mode	Antenna Polarity:	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1505.000	43.14	25.21	4.68	33.62	39.41	74.00	-34.59	Peak
2260.000	40.02	28.01	5.25	34.17	39.11	74.00	-34.89	Peak
3395.000	40.32	28.60	6.76	32.87	42.81	74.00	-31.19	Peak
4095.000	30.70	29.89	7.96	32.07	36.48	74.00	-37.52	Peak
4815.000	29.36	31.79	8.61	32.09	37.67	74.00	-36.33	Peak
5710.000	28.27	32.50	9.81	32.30	38.28	74.00	-35.72	Peak

Note:

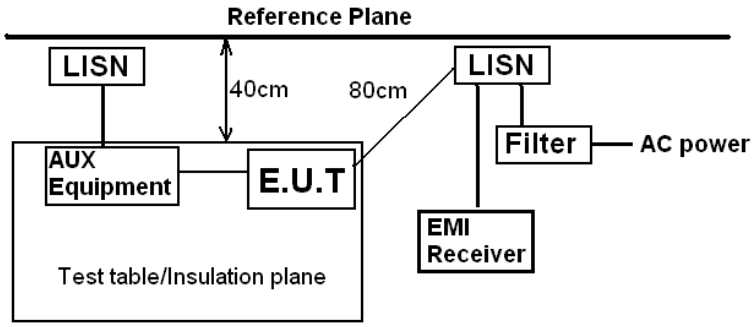
1. *The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*
2. *Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor*

7.2 Conducted Emissions

Test Requirement:	FCC Part15 B Section 15.107
Test Method:	ANSI C63.4:2014
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	

Frequency range (MHz)	Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
0.5-30	60	50

Test setup:

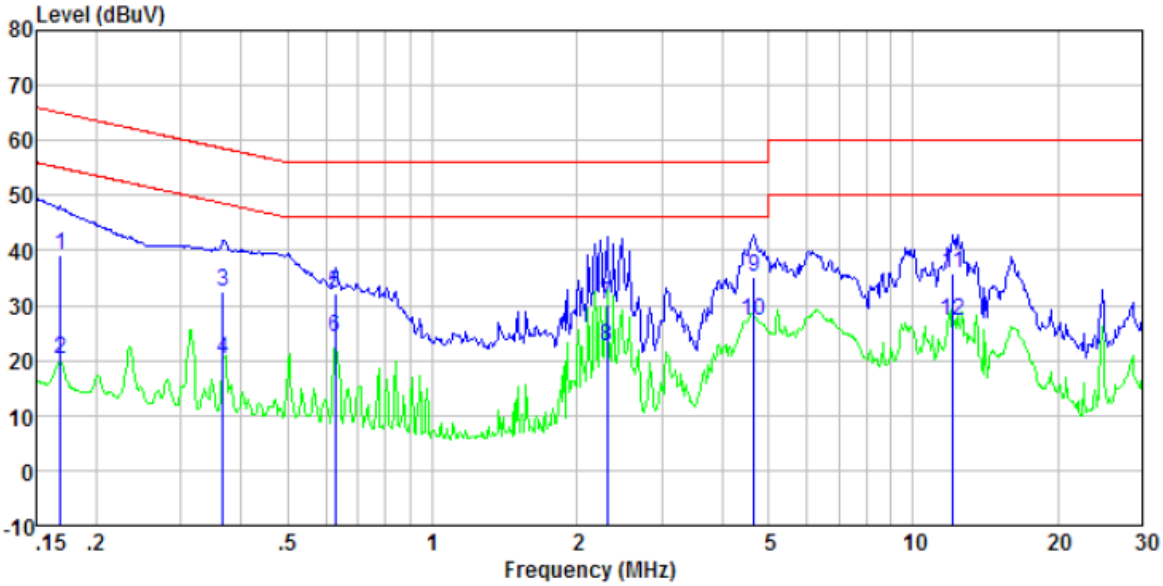


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar
Test Instruments:	Refer to section 6 for details					
Test mode:	Refer to section 5.2 for details,					
Test results:	Pass					

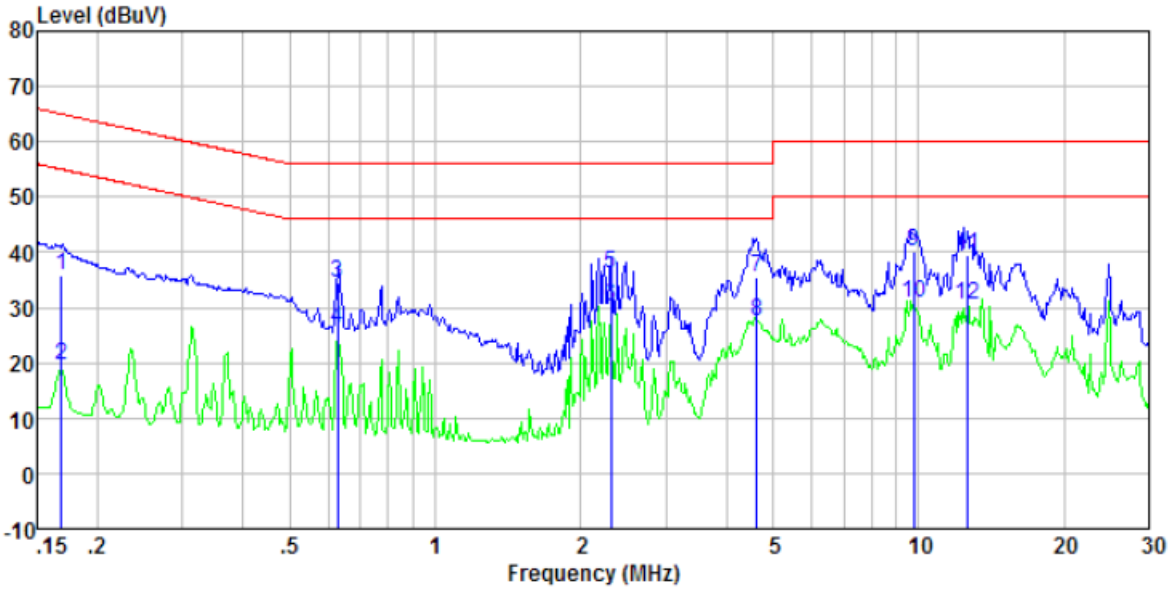
Measurement Data

Test mode:	LAN mode	Phase Polarity:	Line



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.17	18.68	20.40	0.09	39.17	65.03	-25.86	QP
0.17	-0.36	20.40	0.09	20.13	55.03	-34.90	Average
0.37	12.04	20.37	0.10	32.51	58.56	-26.05	QP
0.37	-0.13	20.37	0.10	20.34	48.56	-28.22	Average
0.63	11.85	20.28	0.12	32.25	56.00	-23.75	QP
0.63	3.83	20.28	0.12	24.23	46.00	-21.77	Average
2.31	9.91	20.20	0.18	30.29	56.00	-25.71	QP
2.31	2.28	20.20	0.18	22.66	46.00	-23.34	Average
4.67	14.94	20.20	0.17	35.31	56.00	-20.69	QP
4.67	6.76	20.20	0.17	27.13	46.00	-18.87	Average
12.12	15.48	20.20	0.20	35.88	60.00	-24.12	QP
12.12	6.64	20.20	0.20	27.04	50.00	-22.96	Average

Test mode:	LAN mode	Phase Polarity:	Neutral



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.17	15.30	20.40	0.09	35.79	65.03	-29.24	QP
0.17	-1.07	20.40	0.09	19.42	55.03	-35.61	Average
0.63	14.03	20.28	0.12	34.43	56.00	-21.57	QP
0.63	5.79	20.28	0.12	26.19	46.00	-19.81	Average
2.31	15.82	20.20	0.18	36.20	56.00	-19.80	QP
2.31	9.85	20.20	0.18	30.23	46.00	-15.77	Average
4.62	15.00	20.20	0.17	35.37	56.00	-20.63	QP
4.62	7.17	20.20	0.17	27.54	46.00	-18.46	Average
9.76	19.60	20.20	0.20	40.00	60.00	-20.00	QP
9.76	10.51	20.20	0.20	30.91	50.00	-19.09	Average
12.65	19.12	20.20	0.21	39.53	60.00	-20.47	QP
12.65	10.09	20.20	0.21	30.50	50.00	-19.50	Average

Notes:
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

------End------