

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

Test Report No. : OT-201-RED-087

AGR No. : A19OA-291

Applicant : Looxid Labs Inc.

Address : 406, Robot center, 35, Techno 9-ro, Yuseong-gu, Daejeon Metropolitan, South Korea

Manufacturer : Looxid Labs Inc.

Address : 406, Robot center, 35, Techno 9-ro, Yuseong-gu, Daejeon Metropolitan, South Korea

FCC ID. : 2AVLW-LINK-1

Type of Equipment : Looxid Link

Model Name : LINK-1

Multiple Model Name : LINK-1 (for VIVE Pro), LINK-1 (Bracket)

Serial number : N/A

Total page of Report : 39 pages (including this page)

Date of Incoming : December 02, 2019

Date of Issuing : January 14, 2020

SUMMARY

The equipment complies with the requirement of **FCC CFR 47 PART 15 SUBPART B Class B, Section 15.101.**

This test report contains only the results of a single test of the sample supplied for the examination.

It is not a general valid assessment of the features of the respective products of the mass-production.

Reviewed by:


Hee-Joong, Kim / General Manager
ONETECH Corp.

Approved by:


Gea-Won, Lee / Exe. Managing Director
ONETECH Corp.

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Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-201-RED-087	January 14, 2020	Initial Release	All

1. CERIFICATION OF COMPLIANCE

-. APPLICANT : Looxid Labs Inc.
-. ADDRESS : 406, Robot center, 35, Techno 9-ro, Yuseong-gu, Daejeon Metropolitan, South Korea
-. Manufacturer : Looxid Labs Inc.
-. ADDRESS : 406, Robot center, 35, Techno 9-ro, Yuseong-gu, Daejeon Metropolitan, South Korea
-. MODEL NAME : LINK-1
-. SERIAL NUMBER : N/A
-. BRAND/TRADE NAME : N/A
-. DATE : January 14, 2020

EQUIPMENT CLASS	Class B digital devices
E.U.T. DESCRIPTION	Looxid Link
THIS REPORT CONCERNS	Original Grant
MEASUREMENT PROCEDURES	ANSI C63.4: 2014
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
STANDARDS	FCC Part 15, Section 15.101 (CLASS B)
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	None
FINAL TEST WAS CONDUCTED ON	10 m Semi anechoic chamber

ONETECH Corp. tested the above equipment in accordance with the requirements set forth in the above standard. The test results show that equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.107	Conducted Emission Limits	Met the Limit / PASS
15.109	Radiated Emission Limits	Met the Limit / PASS

3. GENERAL INFORMATION

3.1 Product Description

The Looxid Labs Inc., Model LINK-1 (referred to as the EUT in this report) is a Looxid Link. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1 MHz)	50 MHz
ELECTRICAL RATING	AC 120 V, 60 Hz
P. C. BOARD NAME	-
NUMBER OF PCB LAYERS	-
EXTERNAL CONNECTOR	USB, Signal

3.2 Model Differences

-. The following lists consist of the added model and their differences.

Model Name	Differences	Tested
LINK-1	Basic Model (VIVE Type) The base model is an accessory that can be attached to the HTC VIVE. Match the size and curvature of the mask frame to the VIVE HMD to attach to VR.	☒
LINK-1 (for VIVE Pro)	Multiple Model (VIVE Pro Type) VIVE Pro is an upgraded model of VIVE. The size increased. This variant model matched the size and curvature of the upgraded VIVE Pro. The difference from the basic model is the size and shape of the Plastic frame. functions and materials are the same.	☒
LINK-1 (Bracket)	Multiple Model (Bracket Type) This model is attached to the VIVE Pro. It is the same function as Link-1 (for VIVE Pro). However, the method of attachment is different. Remove the cushion and attach it using a silicone cover. Plastic supports help with attachment.	☒

3.3 Related Submittal(s) / Grant(s)

Original submittal only

3.4 Test System Details

The model numbers for all the equipment, which were used in the tested system, is:

Model	Manufacturer	Description	Connected to
-------	--------------	-------------	--------------

LINK-1	Looxid Labs Inc.	Looxid Link	EUT 1	-
			EUT 2	-
142980	LG ELECTRONICS	Laptop		EUT 1
ADS-48MSP-19	Shenzhen Honor Electronics Co., Ltd.	Adapter		Laptop
SEEG100	WhaleTeq Co., Ltd	Signal Generator		EUT 2, Laptop

3.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2014. Radiated testing was performed at a distance of 10 m from EUT to the antenna.

3.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at:

- 1) 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea
- 2) 12-5, Jinsaegol-gil 75 beon-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-4112/ C-14617/ G-10666/ T-1842

IC (Industry Canada) – Registration No. Site# 3736A-3

-. Site Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

4. SYSTEM TEST CONFIGURATION

4.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	N/A	N/A	N/A
SUB BOARD	N/A	N/A	N/A

4.2 Mode of operation during the test

- . After signal generator sent sine signal to EUT, We checked the EUT and sine signal through laptop.
- . Input power condition during the measurements was AC 120 V / 60 Hz

4.3 Cable Description

Ports Name		Shielded	Ferrite Bead	Metal Shell	Length (m)	Connected to
EUT 1	USB	Y	N	N	1.2	Laptop
EUT 2	Signal	N	N	N	0.2	Signal Generator

4.4 Equipment Modifications

- . None.

4.5 Configuration of Test System

Line Conducted Test: The EUT was connected to LISN. 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.

Radiated Emission Test: Preliminary radiated emission test was conducted using the procedure in ANSI C63.4: 2014 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 10 m semi anechoic chamber.

5. PRELIMINARY TEST

5.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worst operating condition (Please check one only)
Basic Model: LINK-1	-
Multiple Model: LINK-1 (for VIVE Pro)	-
Multiple Model: LINK-1 (Bracket)	X

5.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated.

Operation Mode	The Worst operating condition (Please check one only)
Basic Model: LINK-1	-
Multiple Model: LINK-1 (for VIVE Pro)	X
Multiple Model: LINK-1 (Bracket)	-

6. FINAL RESULT OF MEASUREMENT

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level.

6.1 Conducted Emission Test

6.1.1 Operating Environment

Temperature : 22.6 °C
Relative humidity : 46.8 % R.H.

6.1.2 Test Setup

The photocopier that the EUT has been inserted in was placed on an insulator above the reference ground plane. The power of photocopier was fed through a 50 Ω / 50 μ H + 5 Ω LISN. The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

6.1.3 Measurement uncertainty

Conducted emission, quasi-peak detection : 2.14 dB
Conducted emission, CISPR-average detection : 2.14 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

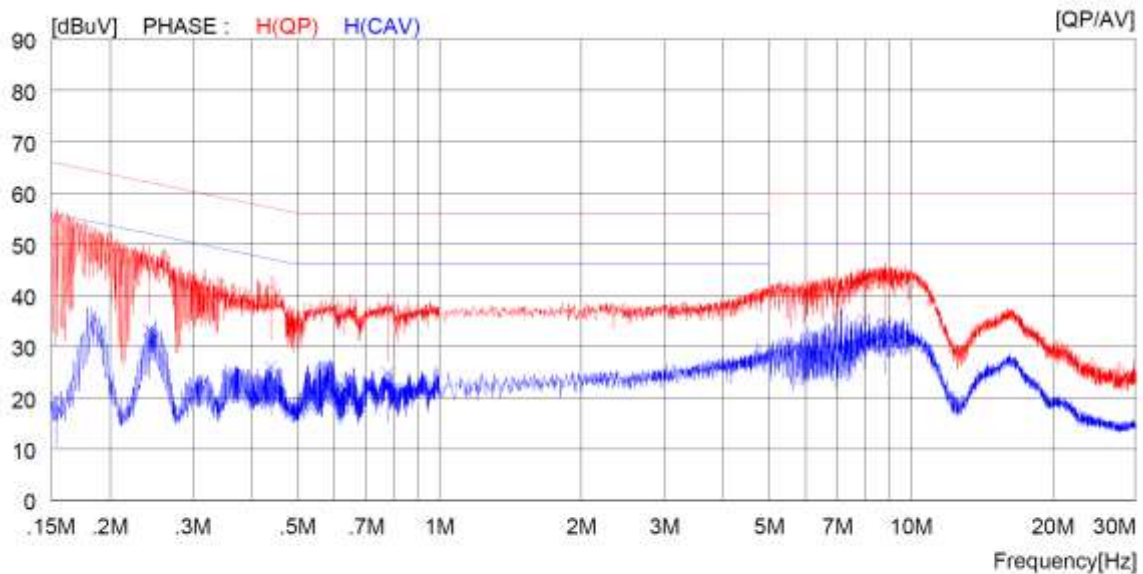
5.1.4 Limit

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	CISPR Average
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50
* Decreases with the logarithm of the frequency		

5.1.5 Test data for Basic Model: LINK-1

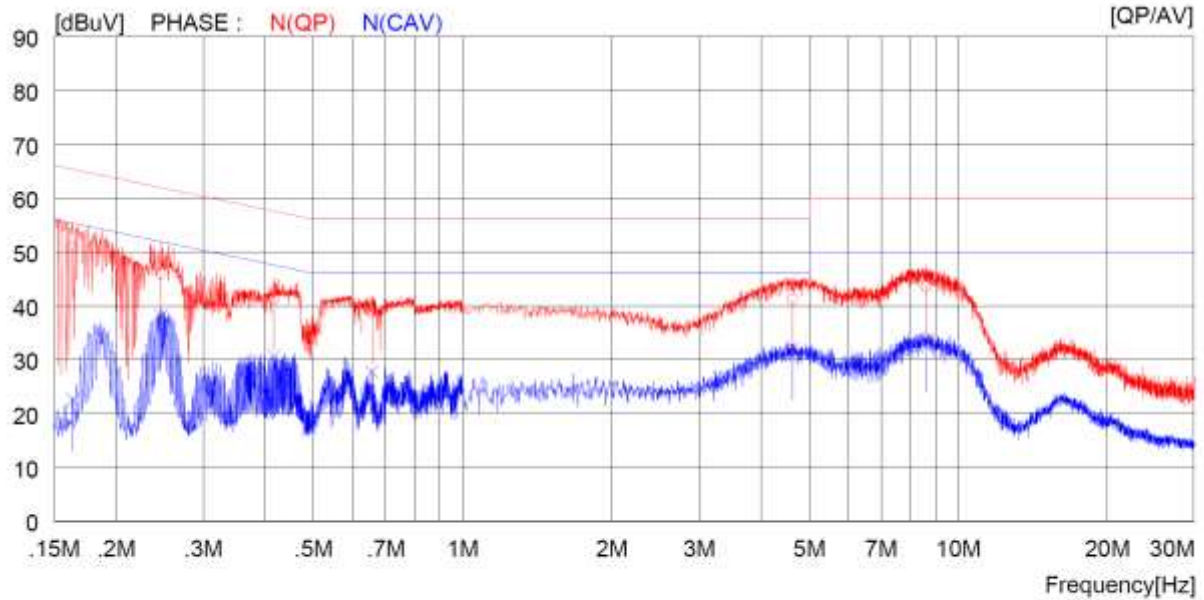
Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)
Type of Test : CLASS B
Result : PASSED BY 13.8 dB at 0.24600 MHz under CISPR-Average mode on NEUTRAL Line

EUT : LINK-1 Date: December 20, 2019
Detector : Q.P (6 dB Bandwidth: 9 kHz)
Tested Line : HOT LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15400	40.3	----	10.1	50.4	----	65.8	----	15.4	----	H (QP)
2	0.24200	35.7	----	10.1	45.8	----	62.0	----	16.2	----	H (QP)
3	0.43900	30.4	----	10.1	40.5	----	57.1	----	16.6	----	H (QP)
4	0.77700	26.5	----	10.1	36.6	----	56.0	----	19.4	----	H (QP)
5	7.96500	31.3	----	10.2	41.5	----	60.0	----	18.5	----	H (QP)
6	8.83000	33.0	----	10.2	43.2	----	60.0	----	16.8	----	H (QP)
7	0.15400	----	9.9	10.1	----	20.0	----	55.8	----	35.8	H (CAV)
8	0.24200	----	23.1	10.1	----	33.2	----	52.0	----	18.8	H (CAV)
9	0.43900	----	16.0	10.1	----	26.1	----	47.1	----	21.0	H (CAV)
10	0.77700	----	14.8	10.1	----	24.9	----	46.0	----	21.1	H (CAV)
11	7.96500	----	25.0	10.2	----	35.2	----	50.0	----	14.8	H (CAV)
12	8.83000	----	24.2	10.2	----	34.4	----	50.0	----	15.6	H (CAV)

Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.16300	40.7	----	10.1	50.8	----	65.3	----	14.5	----	N (QP)
2	0.24600	35.8	----	10.1	45.9	----	61.9	----	16.0	----	N (QP)
3	0.41600	31.2	----	10.1	41.3	----	57.5	----	16.2	----	N (QP)
4	0.65600	28.5	----	10.1	38.6	----	56.0	----	17.4	----	N (QP)
5	4.63600	31.0	----	10.1	41.1	----	56.0	----	14.9	----	N (QP)
6	8.60500	33.3	----	10.2	43.5	----	60.0	----	16.5	----	N (QP)
7	0.16300	----	12.5	10.1	----	22.6	----	55.3	----	32.7	N (CAV)
8	0.24600	----	28.0	10.1	----	38.1	----	51.9	----	13.8	N (CAV)
9	0.41600	----	20.5	10.1	----	30.6	----	47.5	----	16.9	N (CAV)
10	0.65600	----	17.6	10.1	----	27.7	----	46.0	----	18.3	N (CAV)
11	4.63600	----	21.9	10.1	----	32.0	----	46.0	----	14.0	N (CAV)
12	8.60500	----	23.4	10.2	----	33.6	----	50.0	----	16.4	N (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

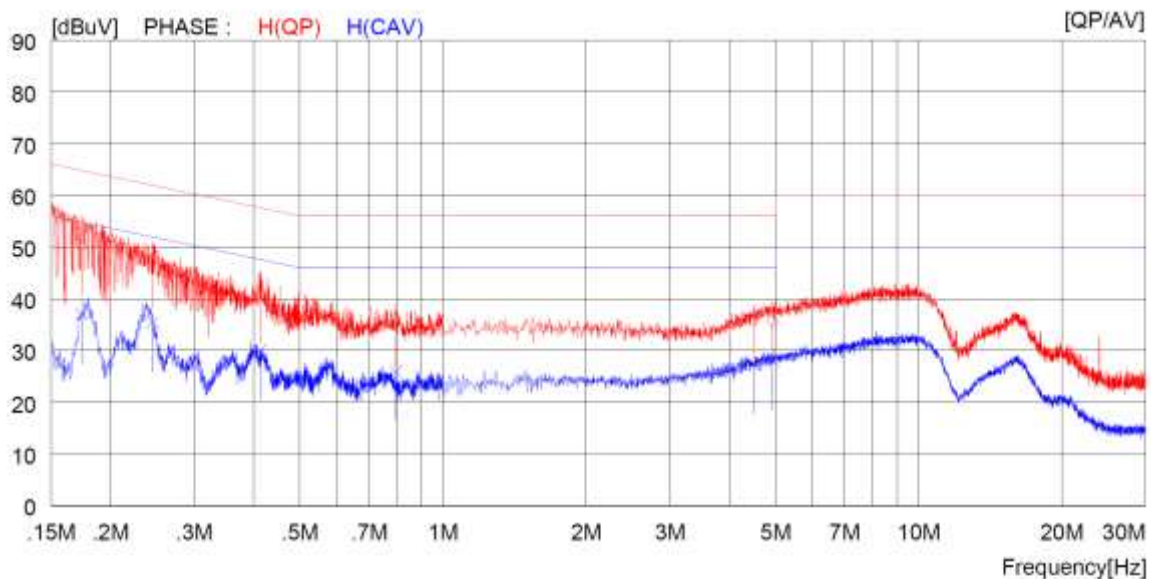
So-Young Lim

Tested by: So-Young, Lim / Project Engineer

5.1.6 Test data for Multiple Model: LINK-1 (for VIVE Pro)

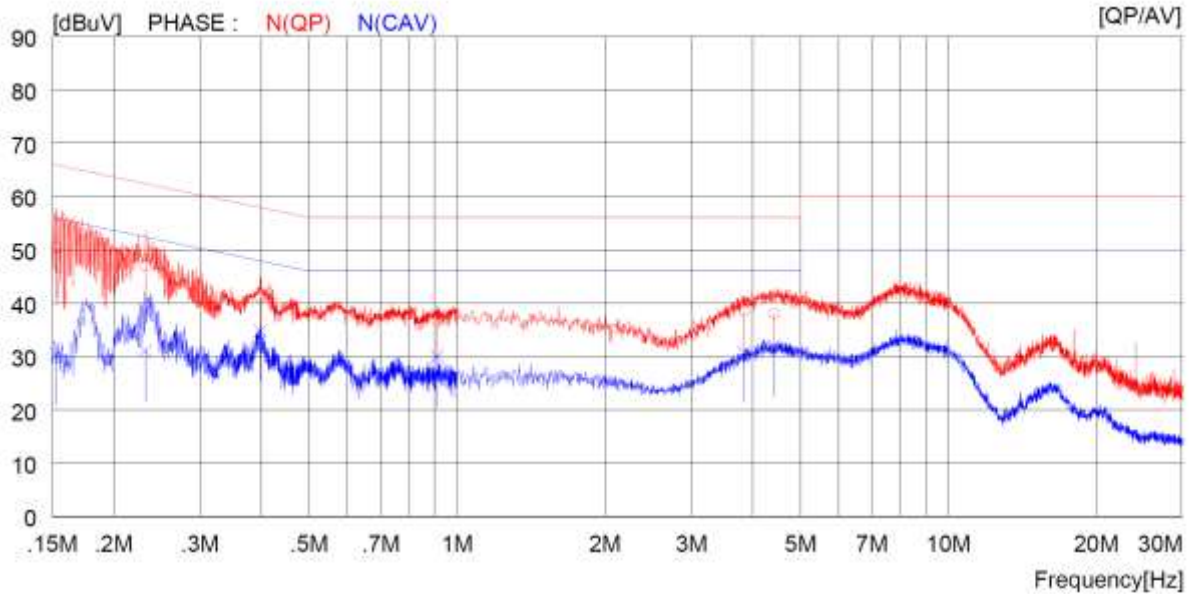
Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)
Type of Test : CLASS B
Result : PASSED BY 13.1 dB at 0.39800 MHz under CISPR-Average mode on NEUTRAL Line

EUT : LINK-1 Date: December 20, 2019
Detector : Q.P (6 dB Bandwidth: 9 kHz)
Tested Line : HOT LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.17400	40.1	----	10.1	50.2	----	64.8	----	14.6	----	H(QP)
2	0.24500	37.5	----	10.1	47.6	----	61.9	----	14.3	----	H(QP)
3	0.41300	30.7	----	10.1	40.8	----	57.6	----	16.8	----	H(QP)
4	0.79500	26.1	----	10.1	36.2	----	56.0	----	19.8	----	H(QP)
5	4.50800	25.8	----	10.1	35.9	----	56.0	----	20.1	----	H(QP)
6	4.93600	25.6	----	10.1	35.7	----	56.0	----	20.3	----	H(QP)
7	0.17400	----	26.9	10.1	----	37.0	----	54.8	----	17.8	H(CAV)
8	0.24500	----	25.3	10.1	----	35.4	----	51.9	----	16.5	H(CAV)
9	0.41300	----	20.0	10.1	----	30.1	----	47.6	----	17.5	H(CAV)
10	0.79500	----	15.9	10.1	----	26.0	----	46.0	----	20.0	H(CAV)
11	4.50800	----	17.2	10.1	----	27.3	----	46.0	----	18.7	H(CAV)
12	4.93600	----	17.9	10.1	----	28.0	----	46.0	----	18.0	H(CAV)

Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15300	40.3	----	10.1	50.4	----	65.8	----	15.4	----	N(QP)
2	0.23200	36.8	----	10.1	46.9	----	62.4	----	15.5	----	N(QP)
3	0.39800	31.0	----	10.1	41.1	----	57.9	----	16.8	----	N(QP)
4	0.91100	26.6	----	10.1	36.7	----	56.0	----	19.3	----	N(QP)
5	3.84400	28.4	----	10.1	38.5	----	56.0	----	17.5	----	N(QP)
6	4.42400	28.0	----	10.1	38.1	----	56.0	----	17.9	----	N(QP)
7	0.15300	----	20.3	10.1	----	30.4	----	55.8	----	25.4	N(CAV)
8	0.23200	----	21.0	10.1	----	31.1	----	52.4	----	21.3	N(CAV)
9	0.39800	----	24.7	10.1	----	34.8	----	47.9	----	13.1	N(CAV)
10	0.91100	----	20.0	10.1	----	30.1	----	46.0	----	15.9	N(CAV)
11	3.84400	----	20.7	10.1	----	30.8	----	46.0	----	15.2	N(CAV)
12	4.42400	----	21.9	10.1	----	32.0	----	46.0	----	14.0	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

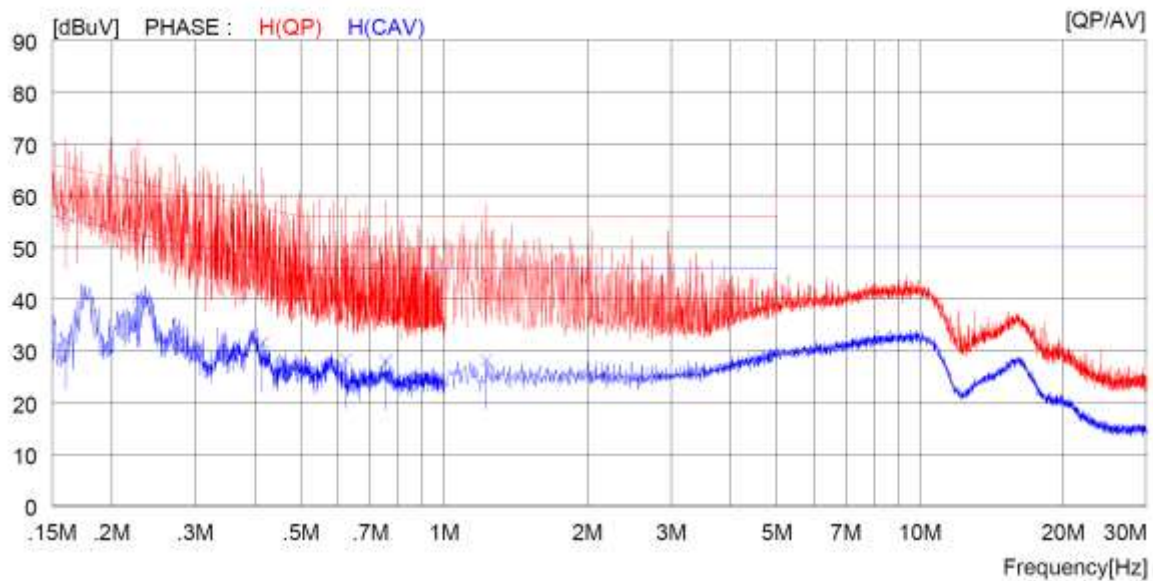
So-Young Lim

Tested by: So-Young, Lim / Project Engineer

5.1.7 Test data for Multiple Model: LINK-1 (Bracket)

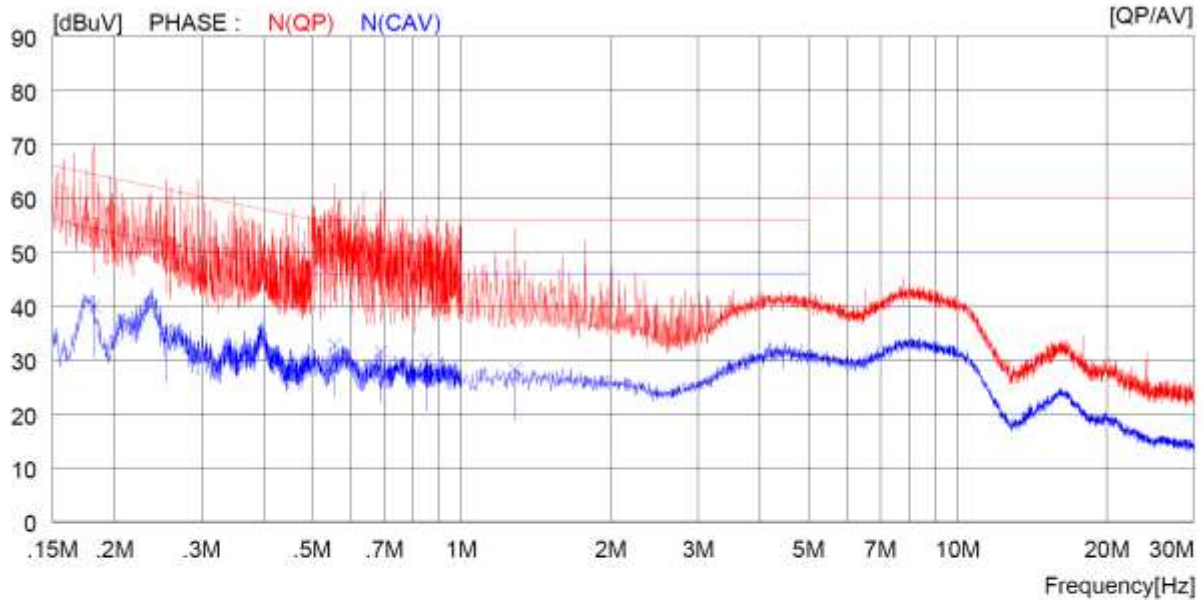
Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107 (a)
Type of Test : CLASS B
Result : PASSED BY 5.4 dB at 0.55500 MHz under CISPR-Quasi-peak mode on NEUTRAL Line

EUT : LINK-1 Date: December 20, 2019
Detector : Q.P (6 dB Bandwidth: 9 kHz)
Tested Line : HOT LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.16000	45.2	----	10.1	55.3	----	65.5	----	10.2	----	H (QP)
2	0.22700	44.7	----	10.1	54.8	----	62.6	----	7.8	----	H (QP)
3	0.41500	41.9	----	10.1	52.0	----	57.5	----	5.5	----	H (QP)
4	0.62100	38.2	----	10.1	48.3	----	56.0	----	7.7	----	H (QP)
5	0.75400	38.0	----	10.1	48.1	----	56.0	----	7.9	----	H (QP)
6	1.22800	34.3	----	10.1	44.4	----	56.0	----	11.6	----	H (QP)
7	0.16000	----	22.0	10.1	----	32.1	----	55.5	----	23.4	H (CAV)
8	0.22700	----	30.1	10.1	----	40.2	----	52.6	----	12.4	H (CAV)
9	0.41500	----	21.4	10.1	----	31.5	----	47.5	----	16.0	H (CAV)
10	0.62100	----	18.2	10.1	----	28.3	----	46.0	----	17.7	H (CAV)
11	0.75400	----	17.9	10.1	----	28.0	----	46.0	----	18.0	H (CAV)
12	1.22800	----	18.0	10.1	----	28.1	----	46.0	----	17.9	H (CAV)

Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.18200	45.3	----	10.1	55.4	----	64.4	----	9.0	----	N(QP)
2	0.25400	42.0	----	10.1	52.1	----	61.6	----	9.5	----	N(QP)
3	0.55500	40.5	----	10.1	50.6	----	56.0	----	5.4	----	N(QP)
4	0.68800	39.7	----	10.1	49.8	----	56.0	----	6.2	----	N(QP)
5	0.85000	38.8	----	10.1	48.9	----	56.0	----	7.1	----	N(QP)
6	1.28400	35.0	----	10.1	45.1	----	56.0	----	10.9	----	N(QP)
7	0.18200	----	29.8	10.1	----	39.9	----	54.4	----	14.5	N(CAV)
8	0.25400	----	25.4	10.1	----	35.5	----	51.6	----	16.1	N(CAV)
9	0.55500	----	22.7	10.1	----	32.8	----	46.0	----	13.2	N(CAV)
10	0.68800	----	21.5	10.1	----	31.6	----	46.0	----	14.4	N(CAV)
11	0.85000	----	20.0	10.1	----	30.1	----	46.0	----	15.9	N(CAV)
12	1.28400	----	18.2	10.1	----	28.3	----	46.0	----	17.7	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The result level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

So-Young Lim

Tested by: So-Young, Lim / Project Engineer

6.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

6.2.1 Operating Environment

Temperature : 22.1 °C
Relative humidity : 48.5 % R.H.

6.2.2 Test Setup

The radiated emissions measurements were on the 10 m, in 10 m semi anechoic chamber. The photocopier that the EUT has been inserted in was placed on an insulator above the ground plane.

The frequency spectrum from 30 MHz to 1 000 MHz was scanned and maximum emission levels maximized at each frequency recorded. The system was 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.

6.2.3 Measurement uncertainty

Radiated emission electric field intensity, 30 MHz ~ 1 000 MHz : 4.06 dB

Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, $k = 2$.

6.2.4 Limit

Frequency of Emission (MHz)	Resolution bandwidth	Field strength @ 3 m (dBμV/m)	
30 ~ 88 88 ~ 216 216 ~ 230 230 ~ 960 960 ~ 1 000	120 kHz	Quasi-peak	
		40.0	
		43.5	
		46.0	
		46.0	
		54.0	
> 1 000	1 MHz	Peak Limit	CISPR Average Limit
		74.0	54.0

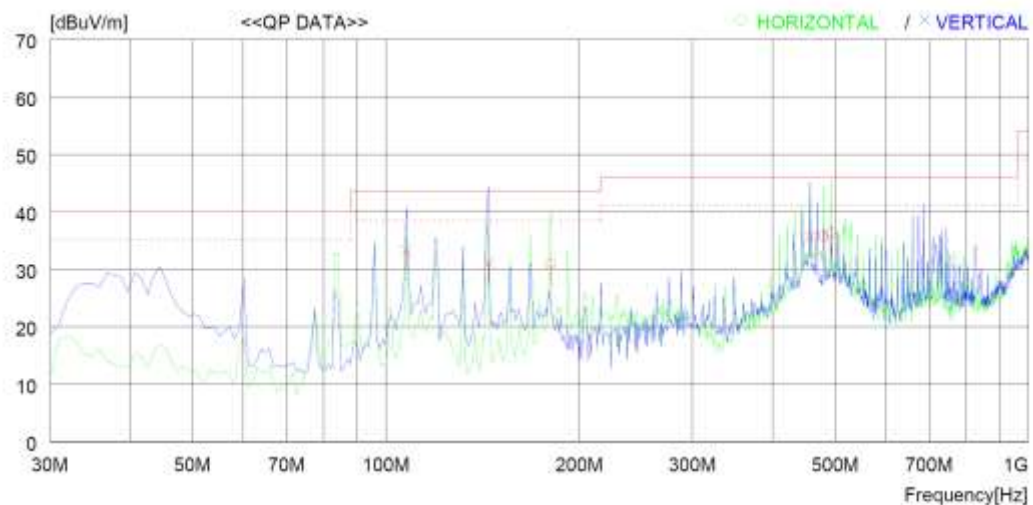
*Alternative to Limits for radiated disturbance of CISPR22 class B ITE at a measuring distance of 10 m

Frequency of Emission (MHz)	Resolution bandwidth	Field strength @ 10 m (dBμV/m)	
30 ~ 230 230 ~ 1 000	120 kHz	Quasi-peak	
		30.0	
		37.0	

6.2.5 Test data for Basic Model: LINK-1

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (g)
 Type of Test : CLASS B
 Result : PASSED BY 9.6 dB at 492.691 MHz

EUT : LINK-1 Date: December 30, 2019
 Frequency Range : 30 MHz ~ 1 000 MHz
 Detector : Q.P (6 dB Bandwidth: 120 kHz)
 Distance : 3 m



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	180.350	51.8	9.5	2.6	33.1	30.8	43.5	12.7	200	307
2	480.081	47.7	17.1	4.2	33.3	35.7	46.0	10.3	100	0
3	492.691	48.3	17.3	4.2	33.4	36.4	46.0	9.6	100	0
----- Vertical -----										
4	107.600	52.7	11.5	2.2	33.1	33.3	43.5	10.2	200	0
5	144.460	53.4	8.4	2.3	33.0	31.1	43.5	12.4	100	359
6	457.771	48.0	16.8	4.0	33.1	35.7	46.0	10.3	100	359

Remark: Margin (dB) = Limit – Result and Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

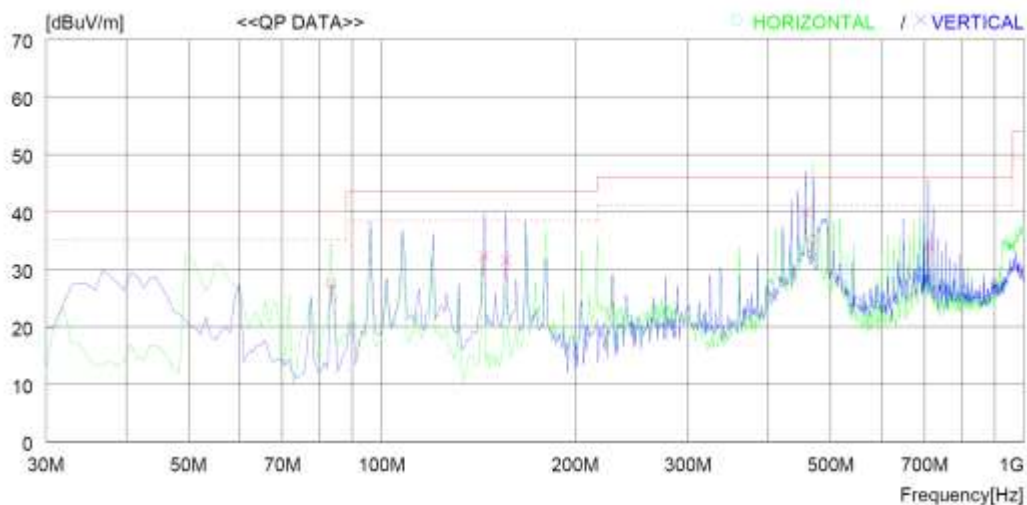


Tested by: So-Young, Lim / Project Engineer

6.2.6 Test data for Multiple Model: LINK-1 (for VIVE Pro)

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (g)
 Type of Test : CLASS B
 Result : PASSED BY 6.1 dB at 456.801 MHz

EUT : LINK-1 Date: December 30, 2019
 Frequency Range : 30 MHz ~ 1 000 MHz
 Detector : Q.P (6 dB Bandwidth: 120 kHz)
 Distance : 3 m



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	[dBuV]	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	83.350	50.2	8.5	1.9	33.1	27.5	40.0	12.5	100	0
2	468.441	47.2	17.0	4.1	33.2	35.1	46.0	10.9	200	22
----- Vertical -----										
3	144.460	54.7	8.4	2.3	33.0	32.4	43.5	11.1	200	0
4	156.100	53.5	8.6	2.4	33.0	31.5	43.5	12.0	100	335
5	456.801	52.2	16.8	4.0	33.1	39.9	46.0	6.1	100	286
6	709.965	42.1	19.8	5.3	33.4	33.8	46.0	12.2	100	359

Remark: Margin (dB) = Limit – Result and Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.

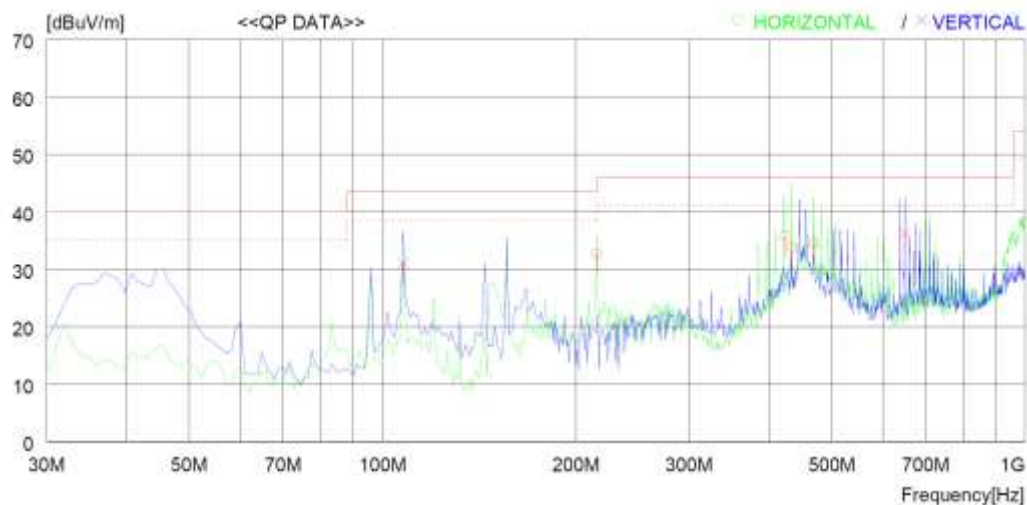


Tested by: So-Young, Lim / Project Engineer

6.2.7 Test data for Multiple Model: LINK-1 (Bracket)

Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109 (g)
Type of Test : CLASS B
Result : PASSED BY 9.8 dB at 649.826 MHz

EUT : LINK-1 Date: December 30, 2019
Frequency Range : 30 MHz ~ 1 000 MHz
Detector : Q.P (6 dB Bandwidth: 120 kHz)
Distance : 3 m



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
		QP	FACTOR							
	[MHz]	[dBuV]	[dB]	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	215.270	52.0	11.1	2.8	33.1	32.8	43.5	10.7	200	359
2	421.881	48.7	16.3	3.9	33.1	35.8	46.0	10.2	300	0
3	433.521	46.4	16.5	4.0	33.1	33.8	46.0	12.2	300	186
4	468.441	46.6	17.0	4.1	33.2	34.3	46.0	11.5	200	359
----- Vertical -----										
5	107.600	50.5	11.5	2.2	33.1	31.1	43.5	12.4	200	0
6	649.826	45.1	19.5	5.0	33.4	36.2	46.0	9.8	100	200

Remark: Margin (dB) = Limit – Result and Result = Reading Quasi-Peak + Antenna Factor + Loss – Gain

Loss and Gain in above table means Cable Loss and Pre-amplifier gain.



Tested by: So-Young, Lim / Project Engineer

7. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses.

+	Meter reading	(dB μ V)
+	Cable Loss	(dB)
+	Antenna Factor	(dB/m)
=	Corrected Reading	(dB μ V/m)
Margin (dB)		
	Specification Limit	(dB μ V/m)
-	Corrected Reading	(dB μ V/m)
=	dB Relative to Spec	($\pm$ dB)

8. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R & S	ESCI	101012	Oct. 22, 2019	One Year	■
2.			ESCI	101420	Mar. 28, 2019	One Year	□
3.			ESR	101470	Oct. 22, 2019	One Year	■
4.	Amplifier	Sonoma	310N	312544	Mar. 18, 2019	One Year	■
5.		Instrument	310N	312545	Mar. 18, 2019	One Year	□
6.		Hewlett Packard	8447D	2944A07777	Mar. 28, 2019	One Year	□
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-419	Aug. 09, 2018	Two Years	□
8.			VULB9163	9163-255	Jul. 16, 2019	One Year	■
9.	Horn Antenna	Schwarzbeck	BBHA9120D	BBHA9120D295	Aug 16, 2019	One Year	□
10.	Amplifier	Schwarzbeck	BBV9718	310	Mar. 18, 2019	One Year	□
	Pulse Limiter	R & S	ESH3-Z2	100655	Mar. 20, 2019	One Year	■
11.	LISN	EMCO	3825/2	9109-1867	Mar. 27, 2019	One Year	□
12.				9109-1869	Mar. 19, 2019	One Year	□
13.		Schwarzbeck	NSLK 8128	8128-216	Mar. 20, 2019	One Year	■
14.			NSLK 8126	8126-404	Mar. 19, 2019	One Year	□
15.			NSLK 8126	8126-480	Oct. 22, 2019	One Year	□
16.	Transient Limiter	Hewlett Packard	11947A	3107A02762	Mar. 28, 2019	One Year	□
17.	Controller	Innco System	CO3000	CO3000/904 /37211215/L	N/A	N/A	■
18.			CO3000	N/A	N/A	N/A	□
19.	Turn Table	Innco System	DT3000	DT3000/093	N/A	N/A	■
20.			DT5000-3t- Teagplatten	N/A	N/A	N/A	□
21.	Antenna Master	Innco System	MA-4000XPET	MA4000/509 /37211215/L	N/A	N/A	■
22.			MA4000-EP	N/A	N/A	N/A	□

Remark: Mark ■ mean used equipment.

APPENDIX I - TEST SET-UP PHOTOS: (Conducted emission)

-. Basic Model: LINK-1



-. Multiple Model: LINK-1 (for VIVE Pro)



-. Multiple Model: LINK-1 (Bracket)



APPENDIX II - TEST SET-UP PHOTOS: (Radiated emission)

-. Basic Model: LINK-1



-. Multiple Model: LINK-1 (for VIVE Pro)



-. Multiple Model: LINK-1 (Bracket)



APPENDIX III - PHOTOGRAPHS REPORT

-. Basic Model: LINK-1







-. Multiple Model: LINK-1 (for VIVE Pro)







-. Multiple Model: LINK-1 (Bracket)



