

FCC/ISED DTS RF TEST REPORT



Vista Labs
TEST • CERTIFY • COMPLY

Test Report Number.....	HVN-19042201-LC-RF
Applicant.....	KINO-MO LTD
Applicant Address.....	2nd Floor, Soho Wharf, 1 Click Street, London, United Kingdom, SE1 9DG
Product Name.....	High-definition 3D holographic emulating device
Model Number.....	HYPERVSN
Family Product/Model.....	MS-L
FCC ID.....	2ANPD20181010
ISED ID.....	24834-0807
Date of EUT received.....	08/12/2019
Date of Test.....	08/12/2019 – 08/30/2019
Report Issue Date.....	08/30/2019
Test Standards.....	47CFR Part 15.247 RSS-247 Issue 2.0: Feb 2017 RSS-Gen Issue 5: Apr 2018
Test Result.....	Pass

Issued By:

Vista Laboratories

1261 Puerta Del Sol, San Clemente, CA 92673 USA

www.vista-compliance.com

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report. This report is not to be reproduced by any means except in full and in any case not without the written approval of Vista Laboratories.

Tested by:

Sherwin Lee/Test Engineer

Approved By:

David Zhang/Technical Manager

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



Laboratory Introduction

Vista Labs is an A2LA accredited 17025 compliant regulatory compliance testing laboratories (Cert. number: 4848-01) strategically located in Orange County, providing services in the electrical and telecommunication industries. Vista labs is also recognized testing facility for Australia (ACMA), Chinese Taipei (BSMI), Chinese Taipei (NCC), Hong Kong (OFCA), Israel (MOC), Korea (RRA), Singapore (IMDA), Vietnam (MIC), etc.

Our comprehensive testing services include safety testing, EMC emission and susceptibility testing, RF and wireless testing (including DFS).

As your partner, Vista investigates appropriate test standards, develops test plans, performs troubleshooting & failure analysis, reviews documentation, and provides test reports for a complete compliance testing and certification package.




Accredited Laboratory
 A2LA has accredited
VISTA LABORATORIES, INC.
 San Clemente, CA
 for technical competence in the field of
Electrical Testing
 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-IAC-IAF Communiqué dated April 2017).
 Presented this 21st day of June 2018.

 President and CEO
 For the Accreditation Council
 Certificate Number 4848.01
 Valid to July 31, 2020
For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

17025 Product Testing Accreditation Certificate




Accredited Product Certification Body
 A2LA has accredited
VISTA LABORATORIES, INC.
 San Clemente, CA
 This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 Requirements for bodies certifying products, processes and services. This product certification body also meets the A2LA R308 – Specific Requirements – ISO/IEC 17065 – Telecommunication Certification Body Accreditation Program and R322 – Specific Requirements – Notified Body Accreditation Requirements. This accreditation demonstrates technical competence for a defined scope and the operation of a management system.
 Presented this 1st day of October 2018.

 President and CEO
 For the Accreditation Council
 Certificate Number 4848.02
 Valid to July 31, 2020
For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation.

17065 Product Certification Accreditation Certificate



Electromagnetic Compatibility
 Radio Frequency
 Product Certification
 International Approval

1261 Puerta Del Sol
 San Clemente, CA, 92673
 +1 (949) 393-1123
www.vista-compliance.com

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



TABLE OF CONTENTS

1 GENERAL INFORMATION5

1.1 Applicant5

1.2 Product information5

1.3 Test standard and method6

1.4 Test Purpose and statement6

2 TEST SITE INFORMATION7

3 MODIFICATION OF EUT.....7

4 TEST CONFIGURATION AND OPERATION.....7

4.1 EUT test configuration.....7

4.2 EUT test mode7

4.3 Supporting Equipment8

4.4 EUT setup diagram8

4.5 EUT operation8

4.6 Test software.....8

5 EUT AND TEST SETUP PICTURES9

5.1 EUT pictures9

5.2 EUT test setup pictures10

6 TEST SUMMARY13

7 UNCERTAINTY OF MEASUREMENT14

8 TEST SUMMARY AND RESULT15

8.1 Radiated Band-Edge & Spurious Emissions into Restricted Frequency Bands15

8.2 Conducted Emissions24

9 TEST INSTRUMENT LIST28



Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

1261 Puerta Del Sol
San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



REVISION HISTORY

Revision	Issue Date	Description	Note
Original	08/30/2019	Original release	N/A



Electromagnetic Compatibility
 Radio Frequency
 Product Certification
 International Approval

1261 Puerta Del Sol
 San Clemente, CA, 92673
 +1 (949) 393-1123
www.vista-compliance.com

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



1 General Information

1.1 Applicant

Applicant:	KINO-MO LTD
Applicant address:	2nd Floor, Soho Wharf, 1 Click Street, London, United Kingdom, SE1 9DG
Manufacturer:	KINO-MO LTD
Manufacturer Address:	2nd Floor, Soho Wharf, 1 Click Street, London, United Kingdom, SE1 9DG

1.2 Product information

Product Name	High-definition 3D holographic emulating device
Model Number	MS-L
Family Model Number	N/A
Serial Number	H-S1706056
Frequency Band	802.11b/g/n-20MHz: 2412-2462MHz
Type of modulation	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM-CCK (BPSK, QPSK, 16QAM, 64QAM)
Equipment Class/ Category	DTS
Maximum output power	15.53 dBm
Antenna Information	Staight Whip antenna / 3 dBi
Clock Frequencies	N/A
Port/Connectors	RJ-485, micro-USB
Input Power	100-240VAC, 50/60Hz
Power Adapter Manu/Model	N/A
Power Adapter SN	N/A
Hardware version	N/A
Software version	N/A
Simultaneous Transmission	N/A
Additional Info	The Device is a cutting-edge visual solution, designed for creating, managing and displaying 3D video content perceived by viewers as high-resolution holograms floating in mid-air.

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



1.3 Test standard and method

Test standard	47CFR Part 15.247 RSS-247 Issue 2.0: Feb 2017 RSS-Gen Issue 5: Apr 2018
Test method	RSS-Gen Issue 5: Apr 2018 ANSI C63.10: 2013 558074 D01 15.247 Meas Guidance v05r02

1.4 Test Purpose and statement

The purpose of this test report is intended to demonstrate the compliance of product listed in section 1.2, received from company listed in section 1.1, to the requirements of standard and method listed in section 1.3. Based on our test results, we conclude that the product tested complies with the requirements of the standards indicated. This is not a full FCC RF test report. It's the spurious emission test report for permissive change submission purpose.

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



2 Test site information

Lab performing tests	Vista Laboratories
Lab Address	1261 Puerta Del Sol, San Clemente, CA 92673 USA
Phone Number	+1 (949) 393-1123
Website	www. Vista-compliance.com

Test condition	Test Engineer	Test Environment	Test Date
Radiated Emission	Sherwin Lee	23.0°C / 58.2%/1006 mbar	08/12/2019 – 08/30/2019

3 Modification of EUT

The EUT is an engineering test sample loaded with RF test firmware specifically designed to support the RF TX/RX measurement in different aspects. No modification on the hardware.

4 Test configuration and operation

4.1 EUT test configuration

EUT is mounted onto a development board to support testing. A laptop with test software is used to send command to EUT. The test command is used to set EUT to different transmission mode in terms of radio mode bandwidth, power level, test channel, etc.

4.2 EUT test mode

Radio	Channel	Frequency (MHz)
802.11-b	1	2412
802.11-b	6	2437
802.11-b	11	2462
802.11-g	1	2412
802.11-g	6	2437
802.11-g	11	2462
802.11-n-20	1	2412
802.11-n-20	6	2437
802.11-n-20	11	2462



Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



4.3 Supporting Equipment

Index	Description	Model	S/N	Brand	Remark
1	Laptop	G752V	F9N0CY758592398	ASUS	Sending command

4.4 EUT setup diagram



4.5 EUT operation

The radio can be set to transmit continuously in different modulation, test channel and data rate.

4.6 Test software

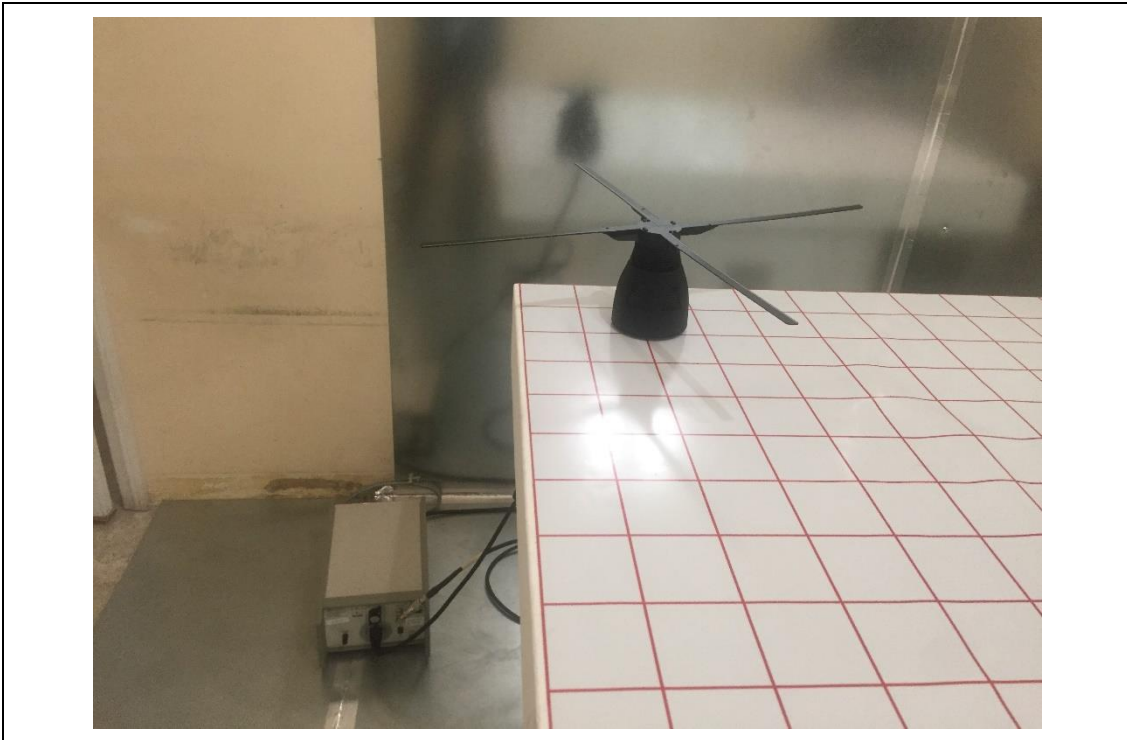
Index	Description	Remark
1	EMISoft Vasona 6.0049	EMC/Spurious emission test software used during testing

5 EUT and test setup pictures

5.1 EUT pictures



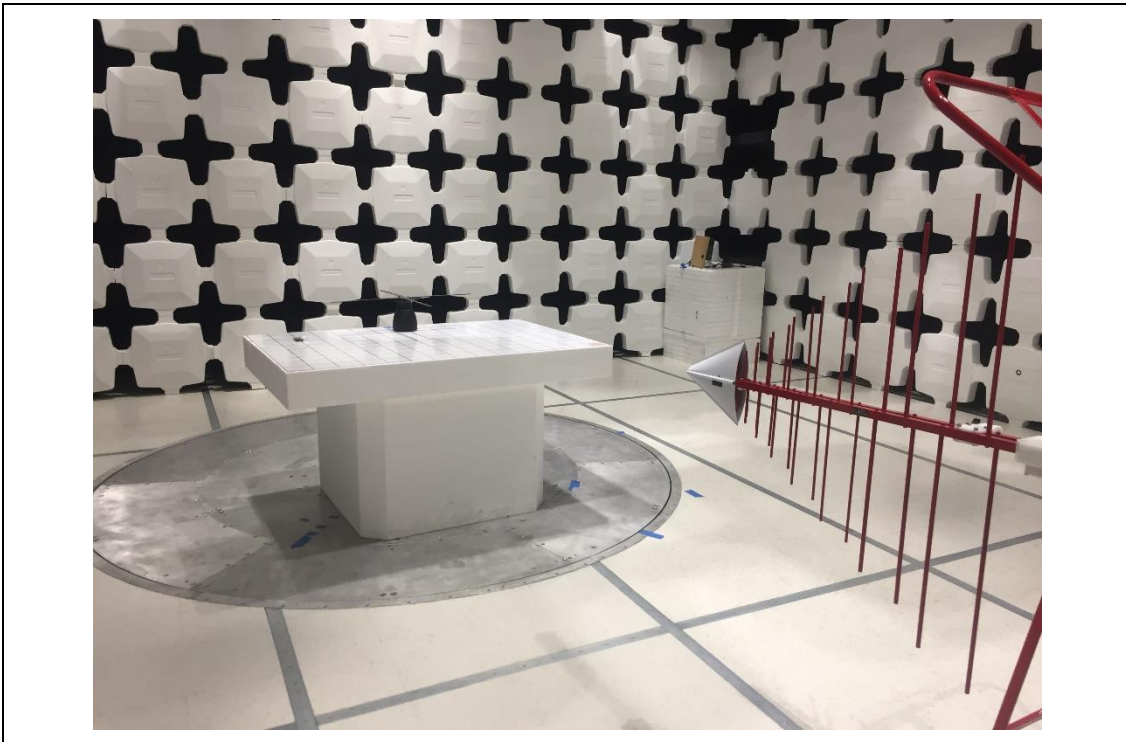
5.2 EUT test setup pictures



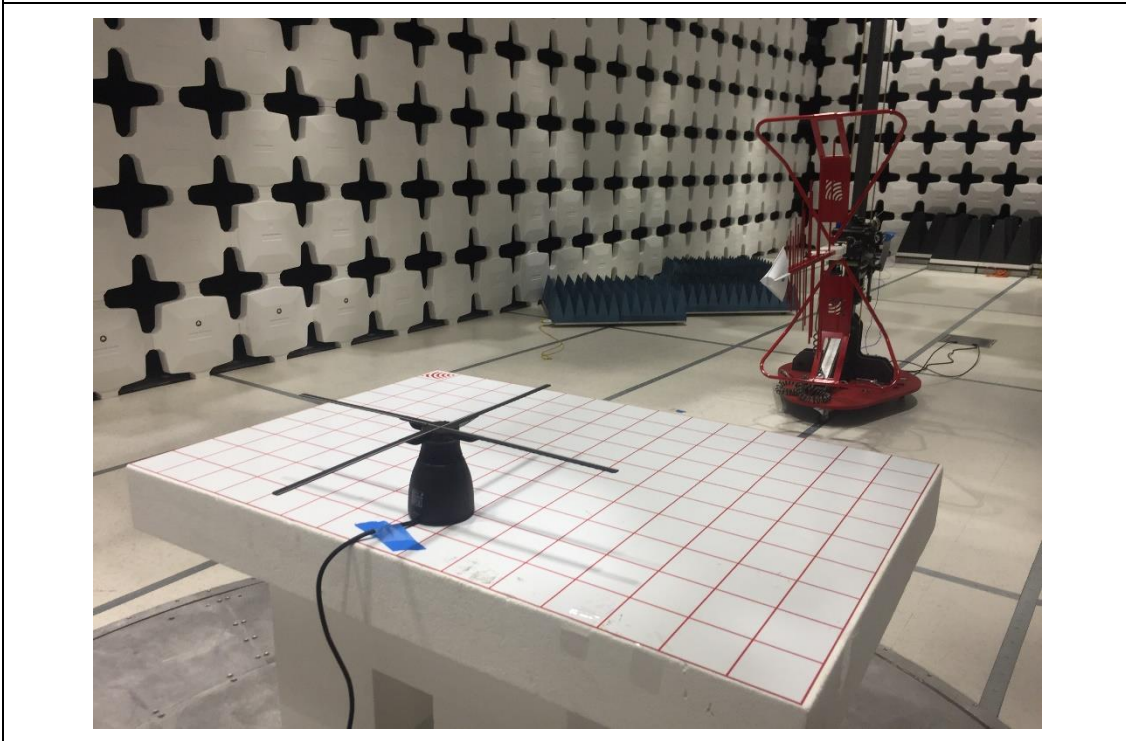
AC Line Conducted Emission setup – Front



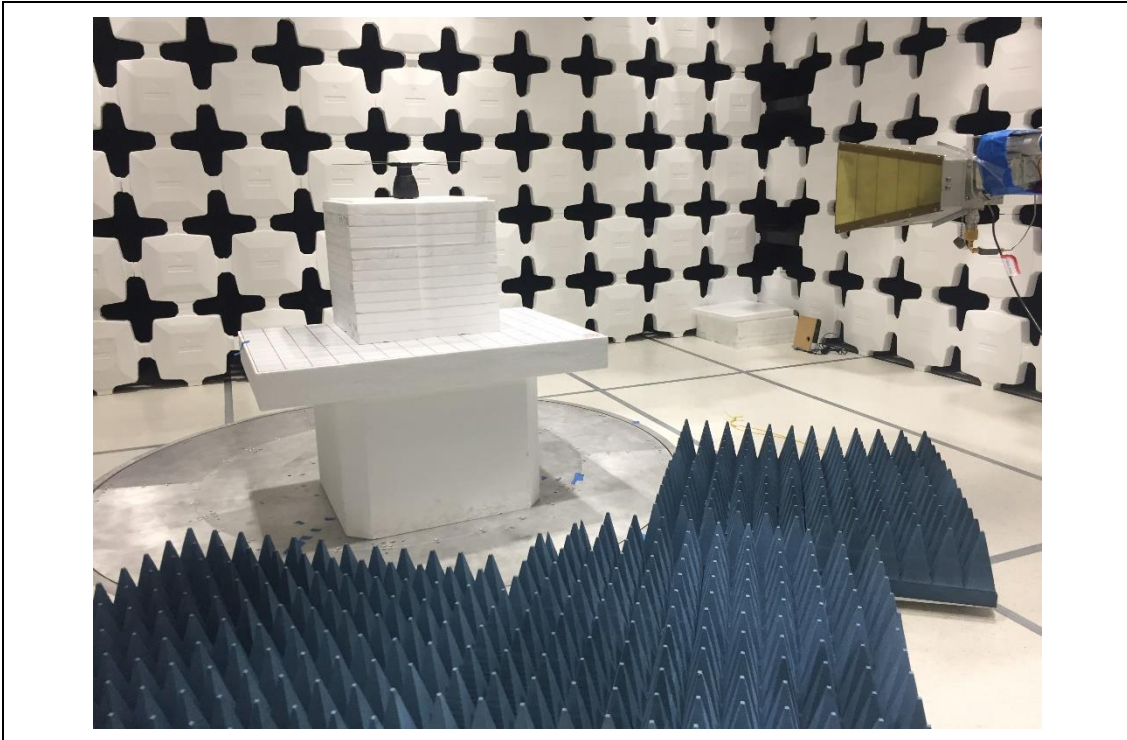
AC Line Conducted Emission setup – Rear



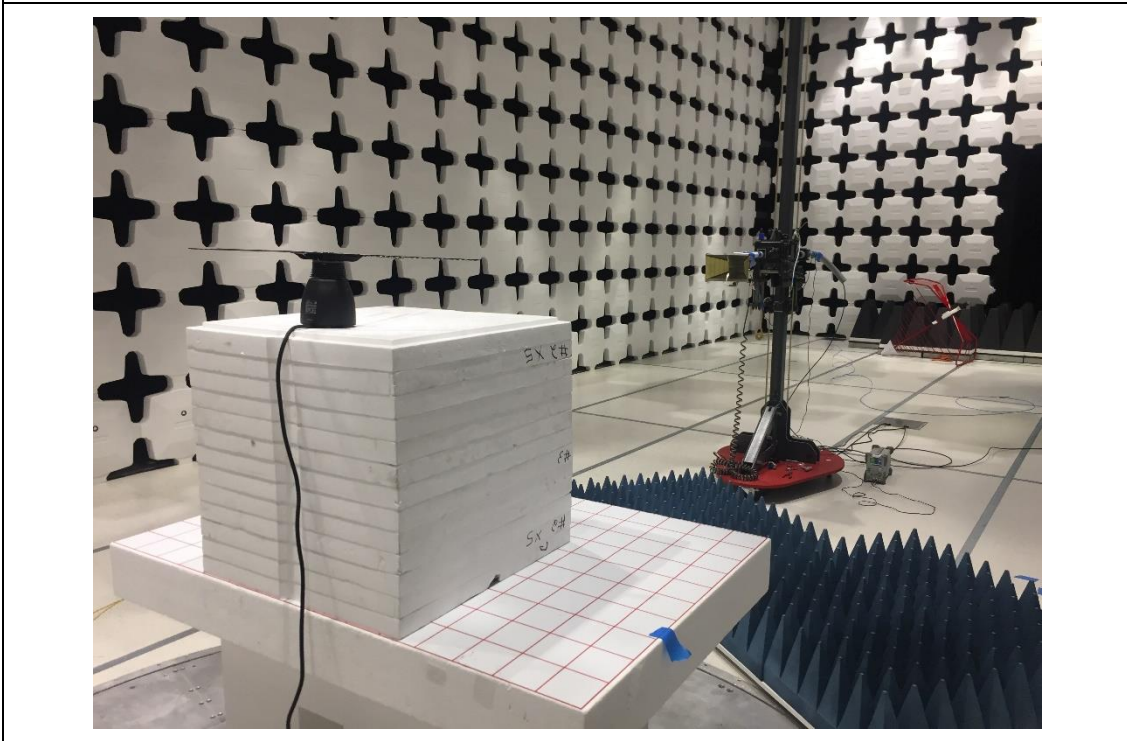
Radiated Emissions Below 1GHz setup – Front



Radiated Emissions Below 1GHz setup – Rear



Radiated Emissions Above 1GHz setup – Front



Radiated Emissions Above 1GHz setup – Rear

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



6 Test Summary

ISED Rules	ISED Rules	Test Item	Section	Verdict
§15.205, §15.209, §15.247(d)	RSS-247 §5.5	Radiated Emissions & Unwanted Emissions into Restricted Frequency Bands	8.1	Pass
§15.207 (a)	RSS-Gen §8.8	AC Power Line Conducted Emissions	8.2	Pass

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



7 Uncertainty of Measurement

Test item	Measurement Uncertainty (dB)
RF Output Power (Conducted)	±1.2 dB
Power Spectral Density	±0.9 dB
Unwanted Emission (conducted)	±2.6 dB
Occupied Channel Bandwidth	±5 %
Radiated Emission (9KHz-30MHz)	±3.5 dB
Radiated Emission (30MHz-1GHz)	±4.6 dB
Radiated Emission (1-18GHz)	±4.9 dB
Radiated Emission (18-40GHz)	±3.5 dB

8 Test summary and result

8.1 Radiated Band-Edge & Spurious Emissions into Restricted Frequency Bands

8.1.1 Requirement

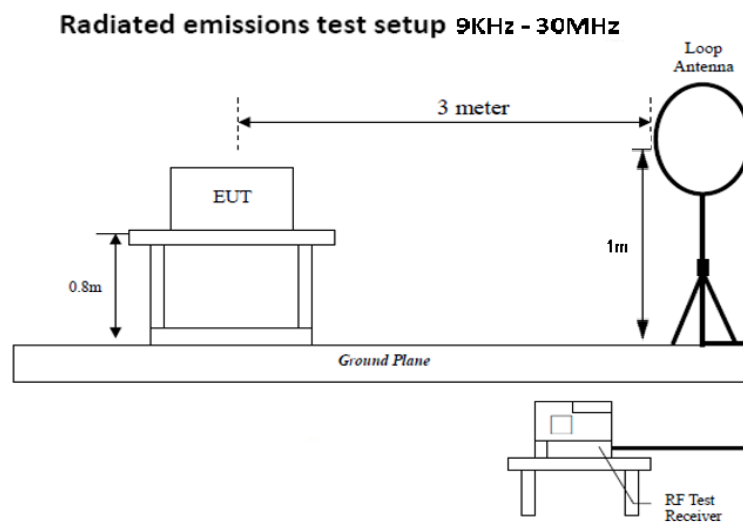
§ 15.247 (d), RSS-247 §5.5

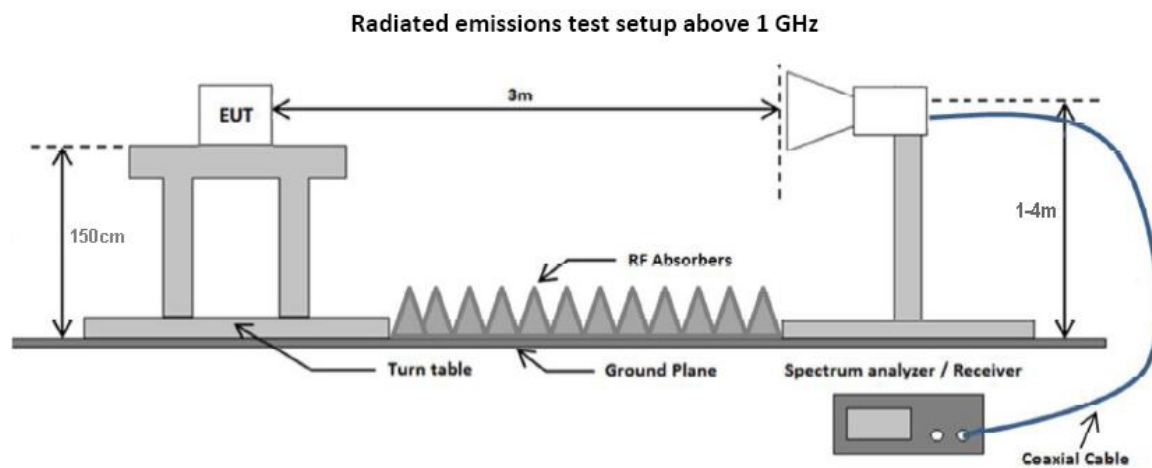
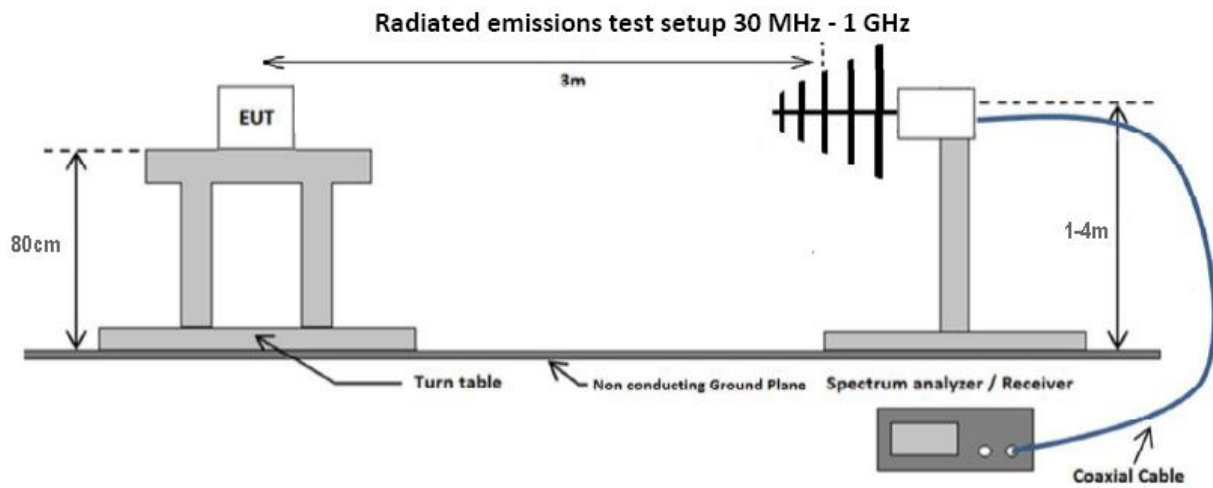
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in §15.209(a) and RSS-Gen is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Frequency range (MHz)	Field Strength ($\mu\text{V}/\text{m}$)
0.009~0.490	2400/F(KHz)
0.490~1.705	24000/F(KHz)
1.705~30.0	30
30 – 88	100
88 – 216	150
216 960	200
Above 960	500

8.1.2 Test setup





Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



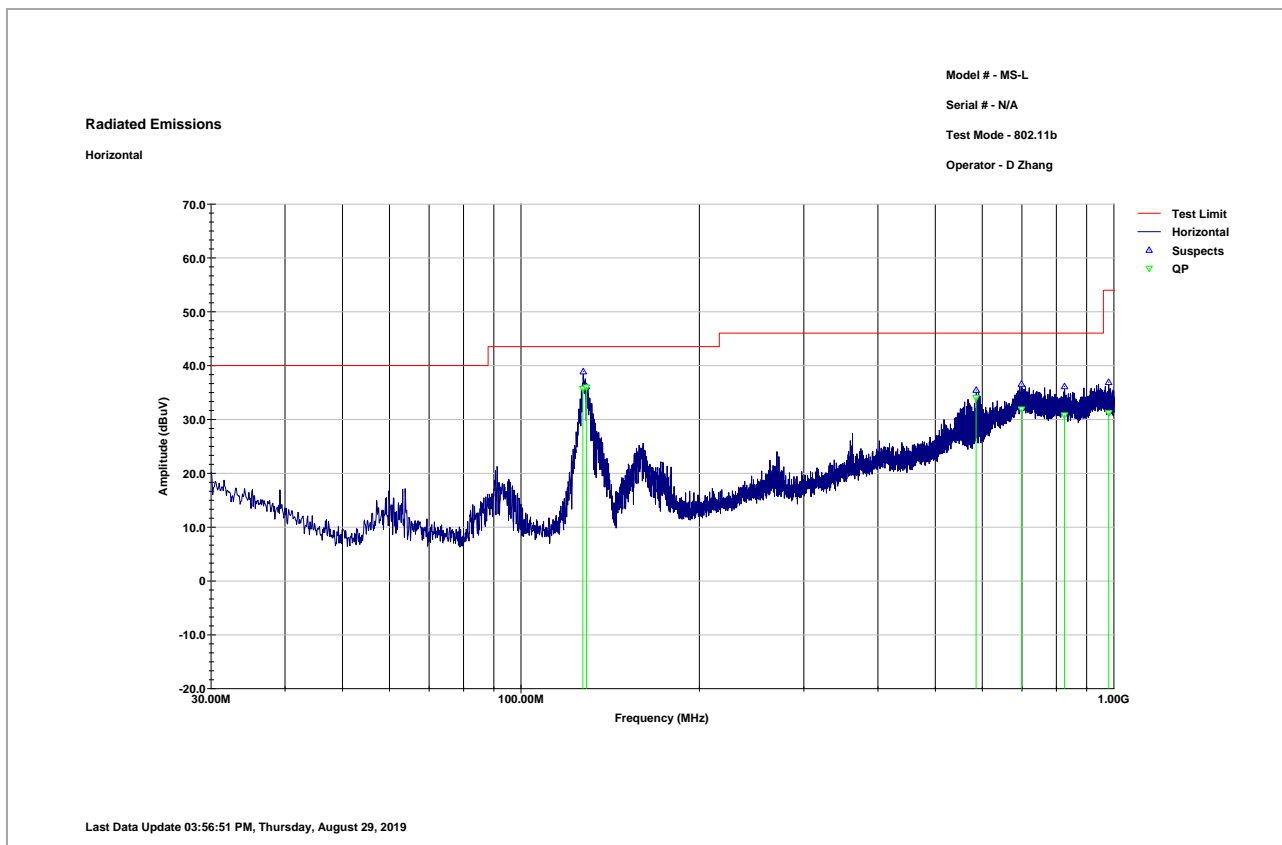
8.1.3 Test Procedure

According to section 8.6 in KDB 558074 D01 DTS Meas Guidance v05r02 and subclause 11.12.2.7 Radiated spurious emission measurements in ANSI C62.10-2013 as well as the procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 was followed. Bore-sight antenna mast was used during the scanning to point to EUT to maximize the emission. The process will be repeated in 3 EUT orientations.

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
 - a. Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
 - b. The EUT was then rotated to the direction that gave the maximum emission.
 - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 300 Hz for frequency below 150KHz.
4. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 10 kHz for frequency between 150KHz – 30MHz.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-Peak detection at frequency between 30MHz - 1GHz.
6. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak and average measurement at frequency above 1GHz.
7. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

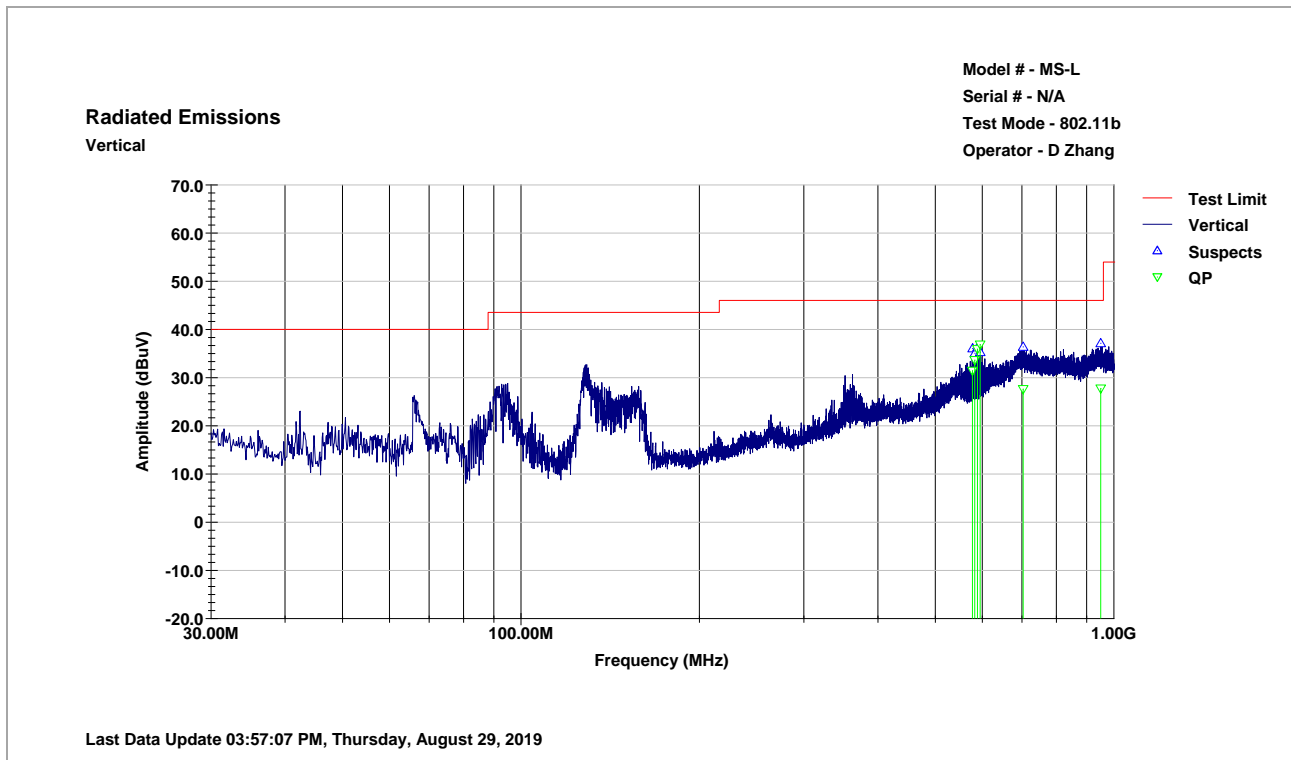
8.1.4 Test Result

30-1000MHz test result – Horizontal – 11b mode



Frequency MHz	QP dBuV/m	Test_Limit dBuV/m	Margin dB	Ant Fac dB	Cable Fac dB	AZ Deg	HGT cm
127.2	35.69	43.5	-7.81	7.62	2.31	76	281
128.93	35.95	43.5	-7.55	7.7	2.36	286	258
585.85	34.04	46	-11.96	19.93	6.59	72	124
698.75	31.86	46	-14.14	22.9	8.22	106	375
825.75	30.77	46	-15.23	23.48	7.69	67	399
980.56	31.19	54	-22.81	24.18	7.66	23	382

30-1000MHz test result – Vertical – 11b mode

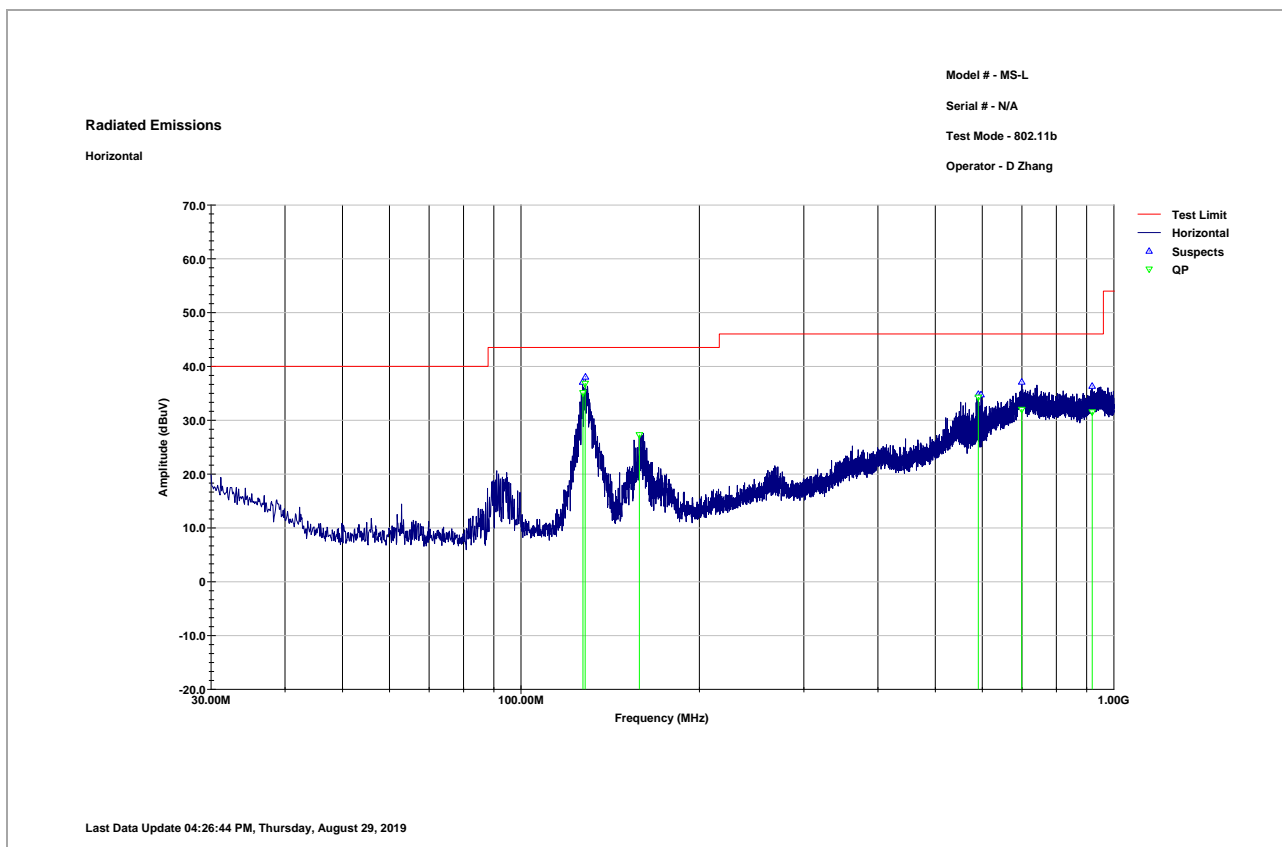


Frequency MHz	QP dBuV/m	Test_Limit dBuV/m	Margin dB	Ant Fac dB	Cable Fac dB	AZ Deg	HGT cm
577.61	31.41	46	-14.59	19.75	6.51	148	175
582.81	33.62	46	-12.38	19.86	6.56	151	148
588.96	35.91	46	-10.09	20.06	6.62	157	158
595.16	36.85	46	-9.15	20.2	6.68	157	167
703.35	27.61	46	-18.39	22.83	8.22	196	259
950.51	27.74	46	-18.26	24.98	7.6	0	318

Note:

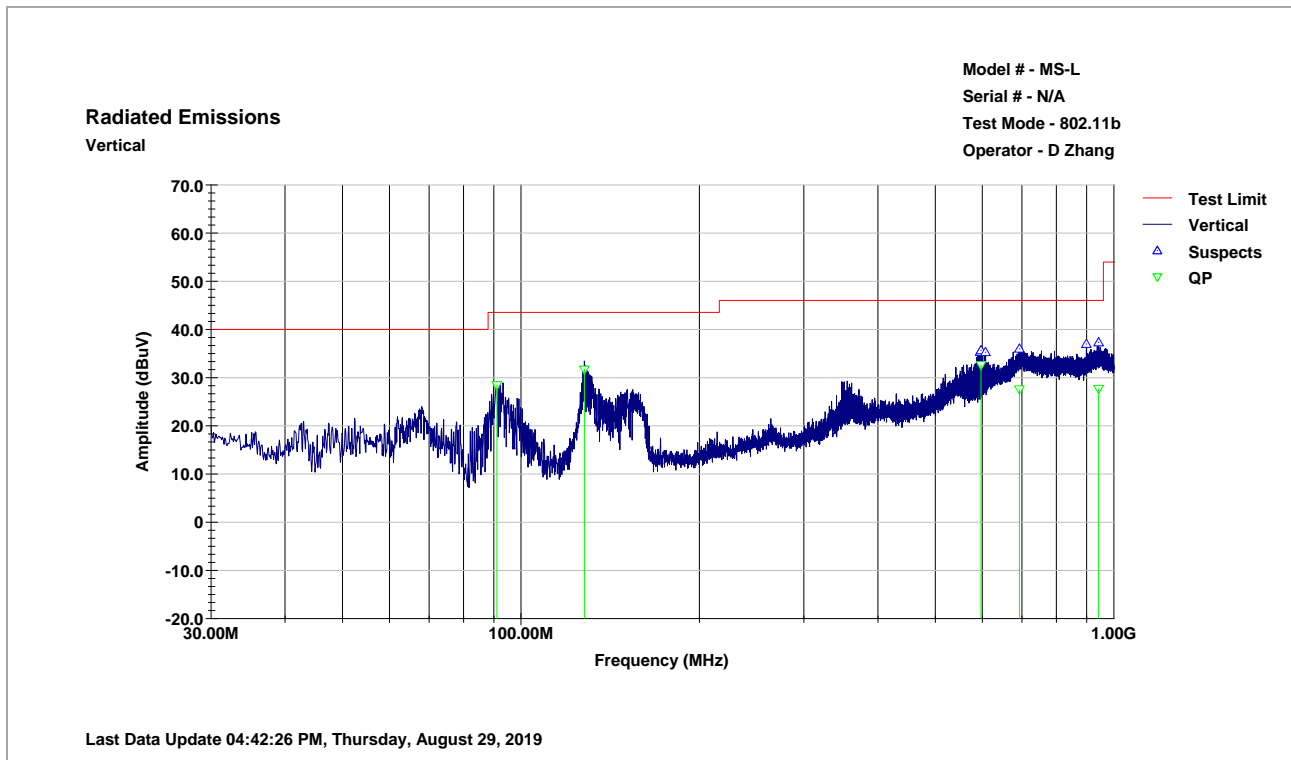
- 1) For below 1GHz, all different channel and modes were verified but only the worst case result is shown here.

30-1000MHz test result – Horizontal – 11g mode



Frequency	QP	Test_Limit	Margin	Ant Fac	Cable Fac	AZ	HGT
MHz	dBuV/m	dBuV/m	dB	dB	dB	Deg	cm
127.21	35.05	43.5	-8.45	7.62	2.31	263	140
128.32	36.79	43.5	-6.71	7.7	2.34	272	149
158.38	27.24	43.5	-16.26	10.42	3.11	241	181
590.94	34.21	46	-11.79	20.12	6.64	72	140
699.45	31.95	46	-14.05	22.9	8.23	68	100
919.54	31.5	46	-14.5	24.58	7.55	293	400

30-1000MHz test result – Vertical – 11g mode



Frequency	QP	Test_Limit	Margin	Ant Fac	Cable Fac	AZ	HGT
MHz	dBuV/m	dBuV/m	dB	dB	dB	Deg	cm
91.086	28.42	43.5	-15.08	7.01	1.52	218	116
127.92	31.64	43.5	-11.86	7.69	2.33	259	149
597.03	32.58	46	-13.42	20.2	6.7	175	149
693.02	27.55	46	-18.45	22.86	8.13	279	275
942.82	27.64	46	-18.36	25	7.59	241	375

Note:

- 1) For below 1GHz, all different channel and modes were verified but only the worst case result is shown here.

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



1GHz – 18GHz test result

11b – Low CH

Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
14334.38	23.56	26.54	2.45	52.54	PK	V	189	153	54	-1.46
17585.63	16.84	29.27	4.63	50.74	PK	H	205	231	54	-3.26
14631.88	20.33	27.43	0.18	47.94	PK	H	328	101	54	-6.06
8395.00	28.60	21.19	-5.58	44.21	PK	H	254	210	54	-9.79
15216.25	18.21	28.34	-2.66	43.89	PK	H	142	275	54	-10.11
1212.50	46.42	14.33	-19.30	41.45	PK	V	143	180	54	-12.55
4761.25	35.05	17.34	-13.68	38.71	PK	H	100	224	54	-15.29

11b – Mid CH

Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
14323.75	23.22	26.51	2.43	52.16	PK	H	311	203	54	-1.84
17575.00	15.97	29.25	4.49	49.71	PK	V	265	221	54	-4.29
14621.25	20.62	27.39	0.27	48.29	PK	H	135	273	54	-5.71
15088.75	18.46	28.43	-2.03	44.86	PK	H	174	186	54	-9.14
7948.75	28.87	21.23	-6.41	43.69	PK	V	133	110	54	-10.31
1223.13	46.88	14.35	-19.38	41.86	PK	V	328	271	54	-12.14
5090.63	34.09	17.42	-12.87	38.65	PK	V	300	132	54	-15.36

11b – High CH

Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
14270.63	22.76	26.34	2.35	51.45	PK	V	289	72	54	-2.55
17628.13	16.23	29.32	4.26	49.81	PK	H	214	231	54	-4.19
14833.75	20.46	28.02	-0.91	47.57	PK	H	103	48	54	-6.43
15333.13	19.98	28.26	-3.37	44.87	PK	V	102	316	54	-9.13
7970.00	28.87	21.24	-6.34	43.77	PK	H	119	309	54	-10.23
1233.75	46.42	14.37	-19.45	41.34	PK	H	232	196	54	-12.66
5451.88	34.33	17.52	-12.40	39.45	PK	V	112	33	54	-14.55

Note: Testing was done up to 25GHz. Average reading was not performed if the peak result is below average limit of 54 dBuV/m.



Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

1261 Puerta Del Sol
San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



1GHz – 18GHz test result

11g – Low CH

Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
14334.38	23.22	26.54	2.45	52.20	PK	V	174	64	54	-1.80
17575.00	16.29	29.25	4.49	50.03	PK	H	101	185	54	-3.97
14844.38	21.31	28.05	-0.97	48.39	PK	V	144	116	54	-5.61
15333.13	19.24	28.26	-3.37	44.13	PK	V	111	116	54	-9.87
7938.13	29.27	21.23	-6.44	44.05	PK	V	110	179	54	-9.95
1244.38	47.10	14.40	-19.53	41.97	PK	V	116	276	54	-12.03
4750.63	35.56	17.34	-13.74	39.15	PK	V	200	89	54	-14.85

11g – Mid CH

Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
14313.13	23.09	26.47	2.42	51.98	PK	V	193	250	54	-2.02
17596.25	16.54	29.28	4.78	50.60	PK	H	201	236	54	-3.40
14833.75	20.34	28.02	-0.91	47.45	PK	V	186	107	54	-6.55
15195.00	18.95	28.36	-2.55	44.76	PK	H	110	20	54	-9.25
7980.63	28.60	21.25	-6.31	43.54	PK	H	160	274	54	-10.46
1212.50	46.99	14.33	-19.30	42.02	PK	V	168	154	54	-11.98
4740.00	34.73	17.34	-13.79	38.27	PK	V	300	76	54	-15.73

11g – High CH

Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
14291.88	23.40	26.41	2.39	52.20	PK	V	321	360	54	-1.80
17585.63	16.63	29.27	4.63	50.53	PK	V	100	210	54	-3.47
14631.88	20.70	27.43	0.18	48.30	PK	V	203	90	54	-5.70
8416.25	28.49	21.18	-5.56	44.11	PK	V	132	184	54	-9.89
15333.13	18.85	28.26	-3.37	43.73	PK	V	168	270	54	-10.27
1244.38	46.66	14.40	-19.53	41.53	PK	H	318	153	54	-12.47
5090.63	34.48	17.42	-12.87	39.03	PK	H	300	144	54	-14.97

Note: Testing was done up to 25GHz. Average reading was not performed if the peak result is below average limit of 54 dBuV/m.



Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

1261 Puerta Del Sol
San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com

8.2 Conducted Emissions

8.2.1 Requirement

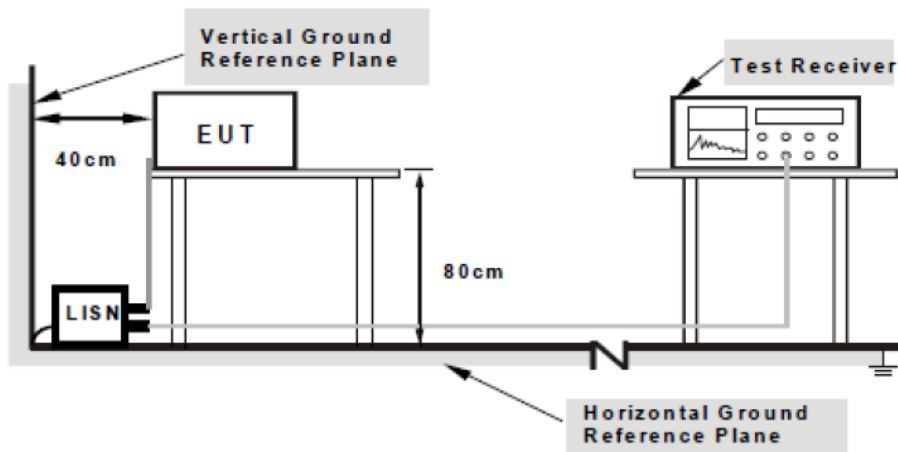
Per § 15.207 (a), an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Limits for Conducted Emissions at the Mains Ports

Section	Frequency ranges (MHz)	Limit (dBuV)	
		QP	Average
Class B devices	0.15 – 0.5	66 – 56	56 – 46
	0.5 – 5	56	46
	5 - 30	60	50

NOTE 1 The lower limit shall apply at the transition frequencies.

8.2.2 Test setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



8.2.3 Test Procedure

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
4. All other supporting equipment was powered separately from another main supply.
5. The EUT was switched on and allowed to warm up to its normal operating condition.
6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver.
7. High peaks, relative to the limit line, were then selected.
8. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. For FCC tests, only Quasi-peak measurements were made; while for CISPR/EN tests, both Quasi-peak and Average measurements were made
9. All possible modes of operation were investigated. Only the worst case emissions were measured and reported. All other emissions were relatively insignificant.

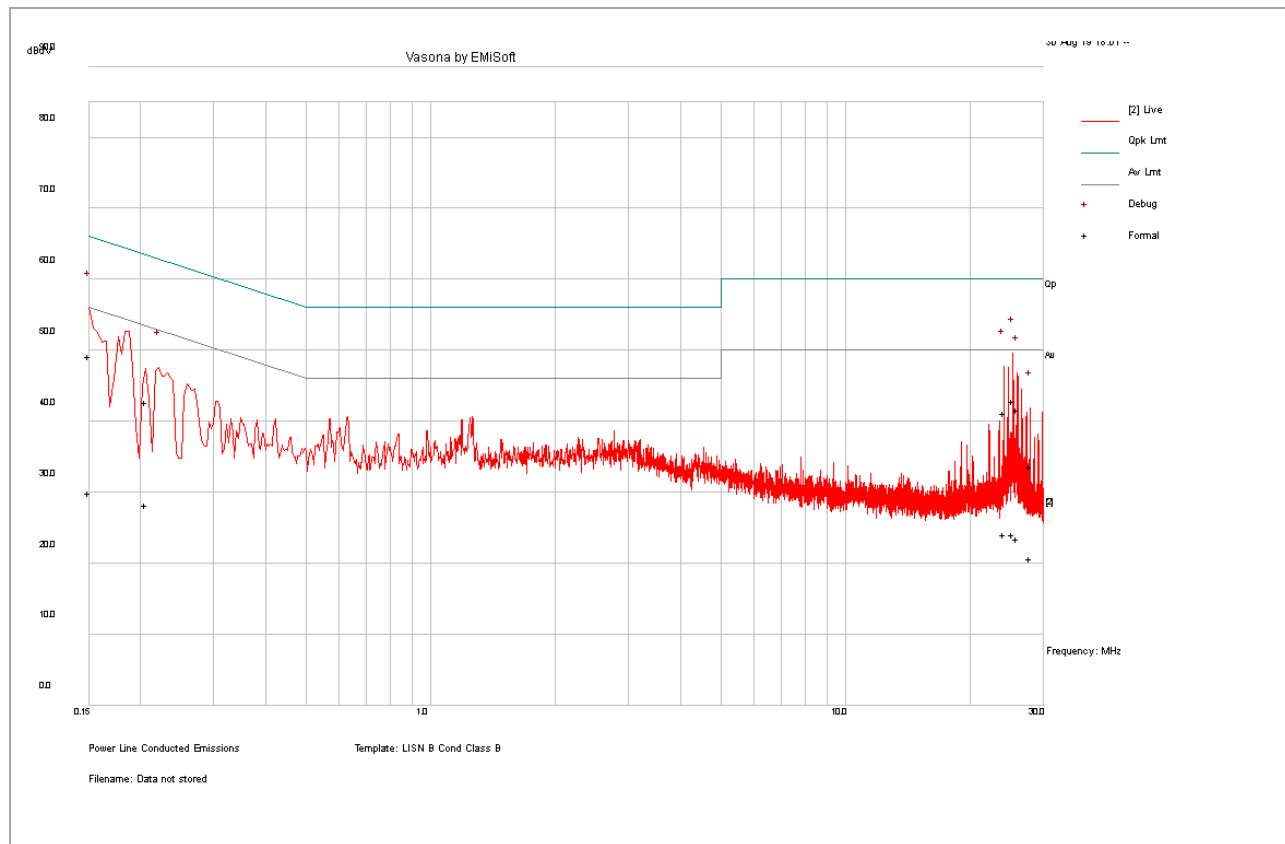
Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



8.2.4 Test Result

Live Line

Test Standard:	47CFR 15.207	Mode:	Line
Frequency Range:	0.15-30MHz	Test Date:	08/30/2019
Antenna Type/Polarity:	N/A	Test Personnel:	David Zhang
Remark:	120VAC, 60Hz	Test Result:	Pass



Frequency (MHz)	Level (dBuV/m)	Meas. Type	Line	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.15	39.16	10.07	-0.02	49.21	QP	Live
25.30	30.39	10.85	1.60	42.85	QP	Live
24.05	28.50	10.83	1.90	41.23	QP	Live
25.94	29.19	10.86	1.54	41.59	QP	Live
0.21	32.67	10.08	0.01	42.76	QP	Live
27.88	21.20	10.89	1.60	33.69	QP	Live
0.15	19.94	10.07	-0.02	29.99	AV	Live
25.30	11.64	10.85	1.60	24.09	AV	Live
24.05	11.40	10.83	1.90	24.13	AV	Live
25.94	11.00	10.86	1.54	23.39	AV	Live
0.21	18.16	10.08	0.01	28.25	AV	Live
27.88	8.17	10.89	1.60	20.66	AV	Live



Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

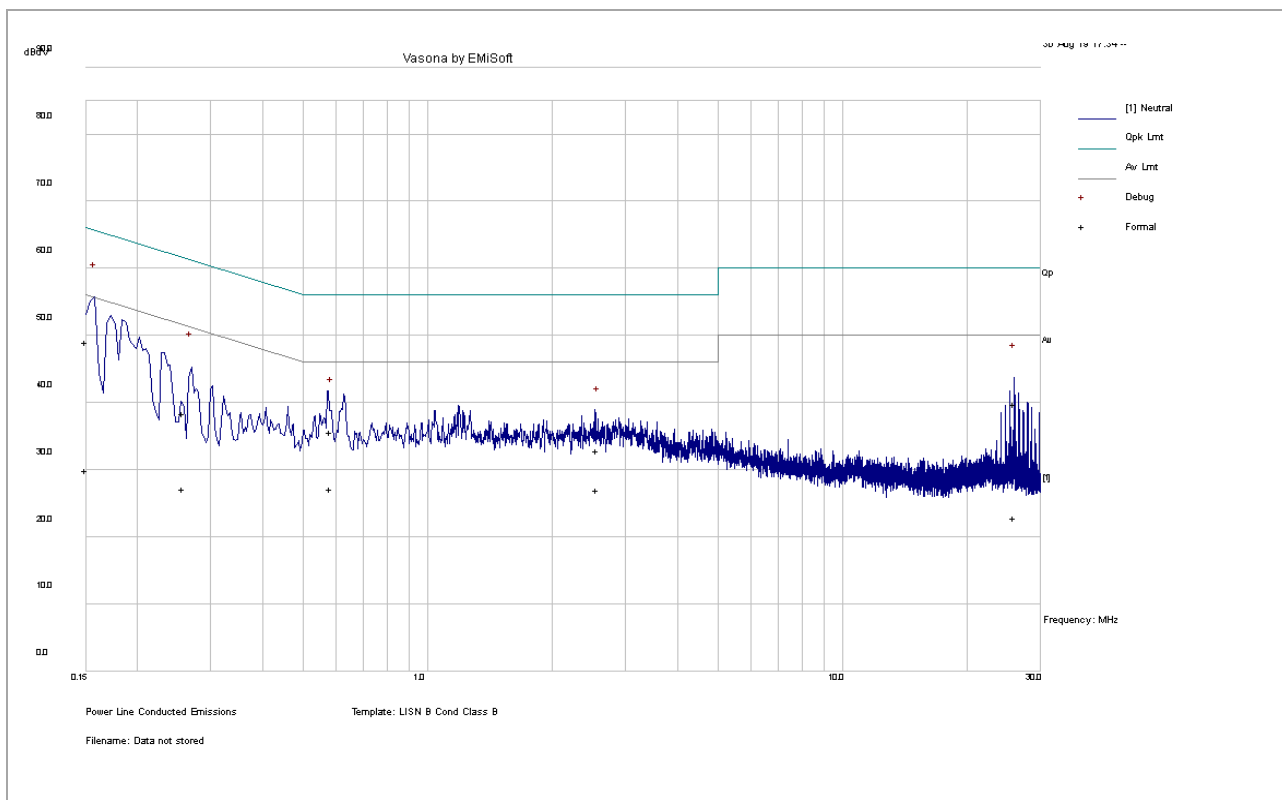
1261 Puerta Del Sol
San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



Neutral Line

Test Standard:	47CFR 15.207	Mode:	Line
Frequency Range:	0.15-30MHz	Test Date:	08/30/2019
Antenna Type/Polarity:	N/A	Test Personnel:	David Zhang
Remark:	120VAC, 60Hz	Test Result:	Pass



Frequency (MHz)	Level (dBuV/m)	Meas. Type	Line	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.15	38.97	10.07	-0.02	49.02	QP	Neutral
0.26	28.55	10.08	-0.16	38.47	QP	Neutral
25.95	27.34	10.86	1.55	39.75	QP	Neutral
0.58	25.28	10.12	0.22	35.63	QP	Neutral
2.56	22.33	10.26	0.20	32.79	QP	Neutral
0.15	19.82	10.07	-0.02	29.87	AV	Neutral
0.26	17.30	10.08	-0.16	27.22	AV	Neutral
25.95	10.46	10.86	1.55	22.87	AV	Neutral
0.58	16.82	10.12	0.22	27.16	AV	Neutral
2.56	16.47	10.26	0.20	26.93	AV	Neutral
0.15	38.97	10.07	-0.02	49.02	QP	Neutral
0.26	28.55	10.08	-0.16	38.47	QP	Neutral
25.95	27.34	10.86	1.55	39.75	QP	Neutral
0.58	25.28	10.12	0.22	35.63	QP	Neutral
2.56	22.33	10.26	0.20	32.79	QP	Neutral



Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

1261 Puerta Del Sol
San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com

Report Number:	HVN-19042201-LC-RF
Product:	High-definition 3D holographic emulating device
Model Number:	MS-L



9 Test instrument list

Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Due
Semi-Anechoic Chamber	ETS-Lindgren	10M	VL001	5/11/2019	5/11/2020
Shielding Control Room	ETS-Lindgren	Series 81	VL006	N/A	N/A
Spectrum Analyzer	Keysight	N9020A	MY50110074	5/4/2019	5/4/2020
EMC Test Receiver	R&S	ESL6	100230	5/7/2019	5/7/2020
LISN (9KHz – 30MHz)	EMCO	3816/2	9705-1066	5/4/2019	5/4/2020
Bi-Log Antenna	ETS-Lindgren	3142E	217921	11/15/2018	11/15/2019
Horn Antenna (1-18GHz)	Electro-Metrics	EM-6961	6292	5/2/2019	5/2/2020
Horn Antenna (18-40GHz)	Com-Power	AH-840	101109	5/2/2019	5/2/2020
Preamplifier	RF Bay, Inc.	LPA-10-20	11180621	5/10/2019	5/10/2020
True RMS Multi-meter	UNI-T	UT181A	C173014829	5/10/2019	5/10/2020
Temp / Humidity / Pressure Meter	PCE Instruments	PCE-THB 40	R062028	5/9/2019	5/9/2020
RF Attenuator	Pasternack	PE7005-3	VL061	5/10/2019	5/10/2020
Preamplifier 100KHz - 40GHz	Aeroflex	33711-392- 77150-11	064	5/10/2019	5/10/2020
EM Center Control	ETS-Lindgren	7006-001	160136	N/A	N/A
Turn Table	ETS-Lindgren	2181-3.03	VL002	N/A	N/A
Boresight Antenna Tower	ETS-Lindgren	2171B	VL003	N/A	N/A
Loop Antenna (9k-30MHz)	Com-Power	AL-130	121012	5/9/2019	5/9/2020
RE test cable(below 6GHz)	Vista	RE-6GHz-01	RE-6GHz-01	5/10/2019	5/10/2020
RE test cable (1-18GHz)	PhaseTrack	II-240	RE-18GHz-01	5/10/2019	5/10/2020
RE test cable (>18GHz)	Sucoflex	104	344903/4	5/10/2019	5/10/2020
Pulse limiter	Com-Power	LIT-930A	531727	5/15/2019	5/15/2020
CE test cable #1	FIRST RF	FRF-C-1002-001	CE-6GHz-01	5/10/2019	5/10/2020
CE test cable#2	FIRST RF	FRF-C-1002-001	CE-6GHz-02	5/9/2019	5/9/2020



Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

1261 Puerta Del Sol
San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com