



# FCC Test Report

Report No: FCS202407165W01

Issued for

Applicant:	Ningbo Henglang Import and Export Co., Ltd
Address:	Global Center 26-1, No. 295 Qiaoyuan North Road, Taoyuan Street, Ninghai County, Zhejiang Province, China
Product Name:	Desktop vacuum cleaner with wireless charging
Brand Name:	ODISTAR
Model Name:	LP-066X
Series Model:	N/A
FCC ID:	2BHV7LP-066X
Issued By: Flux Compliance Service Laboratory Add: Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan Tel: 769-27280901 Fax:769-27280901 <a href="http://www.fcs-lab.com">http://www.fcs-lab.com</a>	

## TEST RESULT CERTIFICATION

Applicant's Name .....: Ningbo Henglang Import and Export Co., Ltd

Address.....: Global Center 26-1, No. 295 Qiaoyuan North Road, Taoyuan Street, Ninghai County, Zhejiang Province, China

Manufacture's Name .....: Ningbo Henglang Import and Export Co., Ltd

Address.....: Global Center 26-1, No. 295 Qiaoyuan North Road, Taoyuan Street, Ninghai County, Zhejiang Province, China

### Product Description

Product Name .....: Desktop vacuum cleaner with wireless charging

Brand Name .....: ODISTAR

Model Name .....: LP-066X

Series Model.....: N/A

Test Standards.....: FCC Rules and Regulations Part 15 Subpart C

Test Procedure.....: ANSI C63.10:2013

This device described above has been tested FCS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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### Date of Test .....

Date (s) of performance of tests : 10 July, 2024 ~ 17 July, 2024

Date of Issue .....: 17 July, 2024

Test Result.....: Pass

Tested by

:

*Scott Shen*

(Scott Shen)

Reviewed by

:

*Duke Qian*

(Duke Qian)

Approved by

:

*Jack Wang*

(Jack Wang)



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**Revision History**

Rev.	Issue Date	Effect Page	Contents
00	17 July, 2024	ALL	Initial Issue

## 1. SUMMARY OF TEST RESULTS

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	Pass

## NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) All tests are according to ANSI C63.10-2013

## 1.1 TEST FACTORY

Company Name:	Flux Compliance Service Laboratory
Address:	Room 105 Floor Bao hao Technology Building 1 NO.15 Gong ye West Road Hi-Tech Industrial, Song shan lake Dongguan
Telephone:	+86-769-27280901
Fax:	+86-769-27280901
FCC Test Firm Registration Number: 514908 Designation number: CN0127 A2LA accreditation number: 5545.01 CNAS: L15566	

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	Conducted Emission (9KHz-150KHz)	$\pm 4.13$ dB
2	Conducted Emission (150KHz-30MHz)	$\pm 4.74$ dB
3	All emissions, radiated 9kHz-30MHz	$\pm 3.10$ dB
4	All emissions, radiated 30MHz-1000MHz	$\pm 3.20$ dB
5	Occupied Channel Bandwidth	$\pm 3.5\%$

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Desktop vacuum cleaner with wireless charging
Trade Name	ODISTAR
Model Name	LP-066X
Series Model	N/A
Model Difference	N/A
Operation frequency	113kHz-205kHz
Modulation Technology	ASK
Antenna Type	Loop coil antenna
Antenna gain	0dBi
Power Supply	Input: DC5V/1.2A Output: 5W
Battery	DC 3.7V, 1400mAh
Hardware version number	V1.0
Software version number	V1.0
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	ODISTAR	LP-066X	Loop coil antenna	N/A	0	N/A

## 2.2 DESCRIPTION OF THE TEST MODES

Test Mode	Description	
Mode 1	AC Adapter + EUT + phone	Record
Mode 2	Test the EUT in idle mode.	Pre-tested
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

## 2.3 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

EUT was tested in normal configuration (Please See following Block diagram)

Mode 1



### Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
1	USB Cable	ODISTAR	N/A	N/A	20cm

### Support units

No.	Equipment	Mfr/Brand	Model No.	Serial No.	Power cord	Signal cord
1	Adapter	HNT	HNT-QC530	N/A	N/A	N/A
2	Phone	OSCAL	PILOT2	N/A	N/A	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



## 2.4 EQUIPMENTS LIST

### Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESRP 3	FCS-E001	2024.02.08	2025.02.07
Signal Analyzer	R&S	FSV40-N	FCS-E012	2024.02.08	2025.02.07
Active loop Antenna	ZHINAN	ZN30900C	FCS-E013	2024.02.08	2025.02.07
Bilog Antenna	SCHWARZBECK	VULB 9168	FCS-E002	2024.02.08	2025.02.07
Horn Antenna	SCHWARZBECK	BBHA 9120D	FCS-E003	2024.02.08	2025.02.07
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	FCS-E018	2024.02.08	2025.02.07
Pre-Amplifier(0.1M-3G Hz)	EMCI	EM330N	FCS-E004	2024.02.08	2025.02.07
Pre-Amplifier (1G-18GHz)	N/A	TSAMP-0518SE	FCS-E014	2024.02.08	2025.02.07
Pre-Amplifier (18G-40GHz)	TERA-MW	TRLA-0400	FCS-E019	2024.02.08	2025.02.07
Temperature & Humidity	HTC-1	victor	FCS-E005	2024.02.08	2025.02.07

### Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESPI	FCS-E020	2024.02.08	2025.02.07
LISN	R&S	ENV216	FCS-E007	2024.02.08	2025.02.07
LISN	ETS	3810/2NM	FCS-E009	2024.02.08	2025.02.07
Temperature & Humidity	HTC-1	victor	FCS-E008	2024.02.08	2025.02.07

### RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Company No.	Last calibration	Calibrated until
Spectrum Analyzer	Keysight	N9020A	FCS-E015	2024.02.08	2025.02.07
Spectrum Analyzer	Agilent	E4447A	MY50180039	2024.02.08	2025.02.07
Spectrum Analyzer	R&S	FSV-40	101499	2024.02.08	2025.02.07

### 3. CONDUCTED EMISSION MEASUREMENT

#### 3.1 LIMIT

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emissionlimit (dBUV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

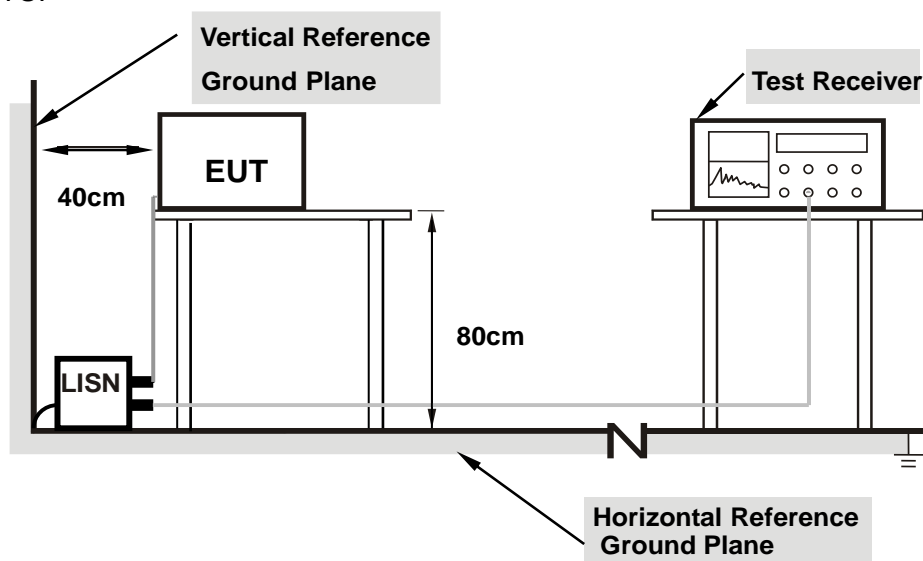
#### 3.2 TEST PROCEDURE

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

- a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.3 TEST SETUP

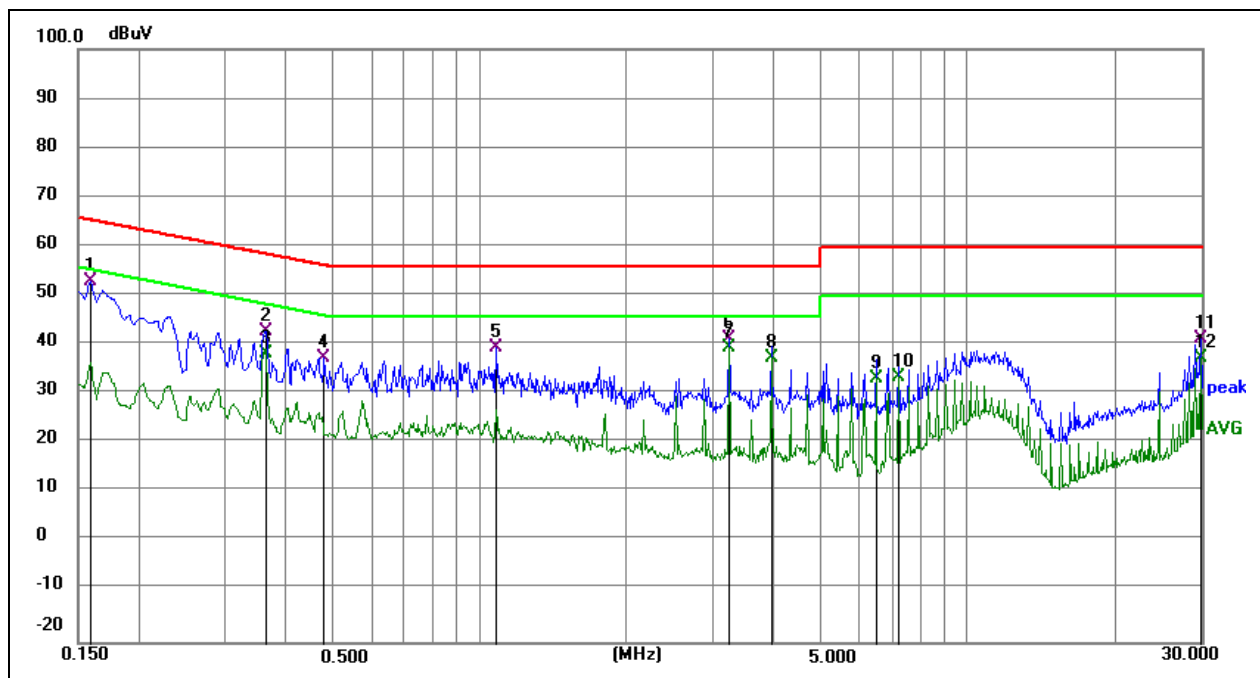


**Note: 1.**Support units were connected to second LISN.

**2.**Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

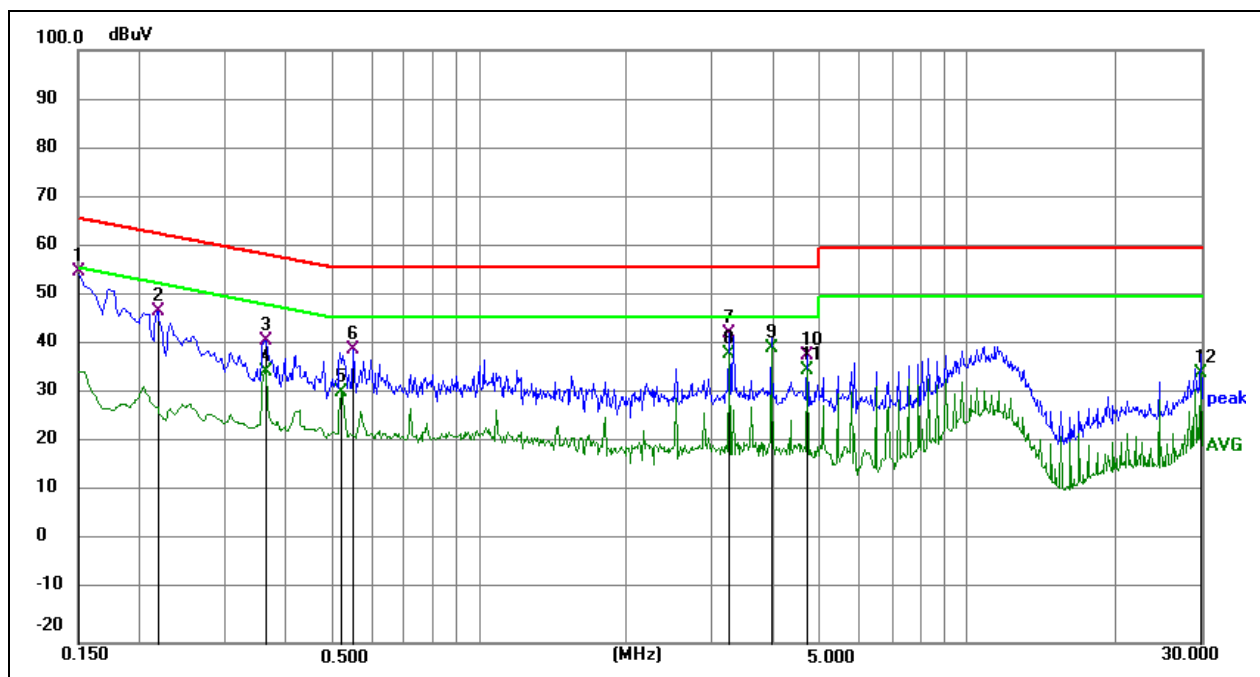
### 3.4 TEST RESULTS

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	L
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1725	41.12	10.84	51.96	64.84	-12.88	QP
2	0.2850	31.82	10.84	42.66	60.67	-18.01	QP
3	0.5144	27.59	10.84	38.43	56.00	-17.57	QP
4	3.2415	32.59	10.94	43.53	56.00	-12.47	QP
5	3.2415	30.83	10.94	41.77	46.00	-4.23	AVG
6	3.9615	28.34	11.10	39.44	46.00	-6.56	AVG
7	4.6815	27.63	11.12	38.75	56.00	-17.25	QP
8	4.6815	23.99	11.12	35.11	46.00	-10.89	AVG
9	7.5615	24.87	11.18	36.05	50.00	-13.95	AVG
10	8.2815	25.70	11.19	36.89	50.00	-13.11	AVG
11	8.6415	24.58	11.20	35.78	50.00	-14.22	AVG
12	9.7215	29.68	11.12	40.80	60.00	-19.20	QP

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	N
Test Voltage :	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	43.17	12.03	55.20	66.00	-10.80	QP
2	0.2175	36.43	10.83	47.26	62.91	-15.65	QP
3	0.3615	30.50	10.83	41.33	58.69	-17.36	QP
4	0.3615	24.20	10.83	35.03	48.69	-13.66	AVG
5	0.5190	20.02	10.84	30.86	46.00	-15.14	AVG
6	0.5505	28.64	10.84	39.48	56.00	-16.52	QP
7	3.2415	31.63	10.93	42.56	56.00	-13.44	QP
8	3.2415	27.71	10.93	38.64	46.00	-7.36	AVG
9	3.9615	28.64	11.09	39.73	46.00	-6.27	AVG
10	4.6815	27.00	11.12	38.12	56.00	-17.88	QP
11	4.6815	24.07	11.12	35.19	46.00	-10.81	AVG
12	29.8815	23.25	11.41	34.66	50.00	-15.34	AVG

Remark: Correct Factor = Insertion loss of LISN + Cable loss + Insertion loss of Pulse Limiter;

Measurement Result = Reading Level +Correct Factor;

Margin = Measurement Result- Limit;

## 4. RADIATED EMISSION MEASUREMENT

### 4.1 LIMIT

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

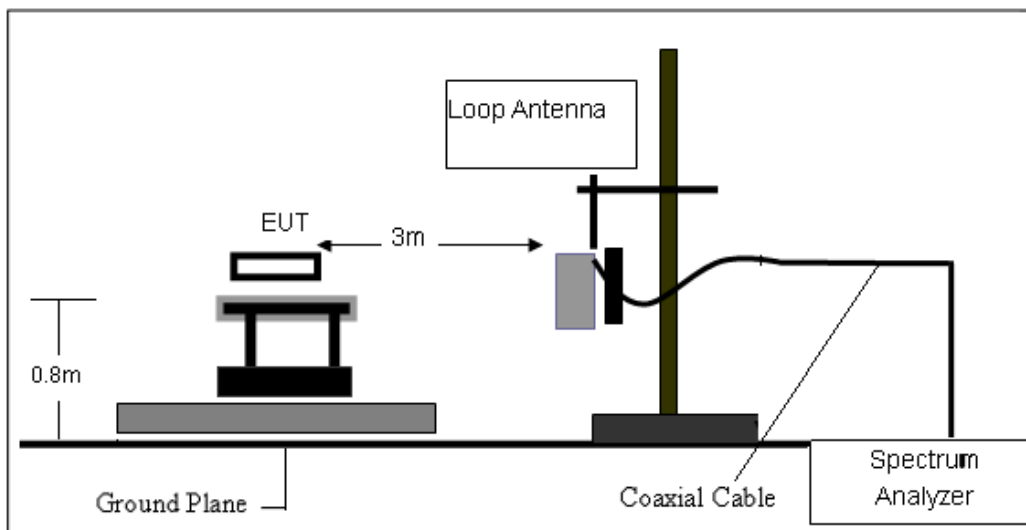
Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Receiver setup:

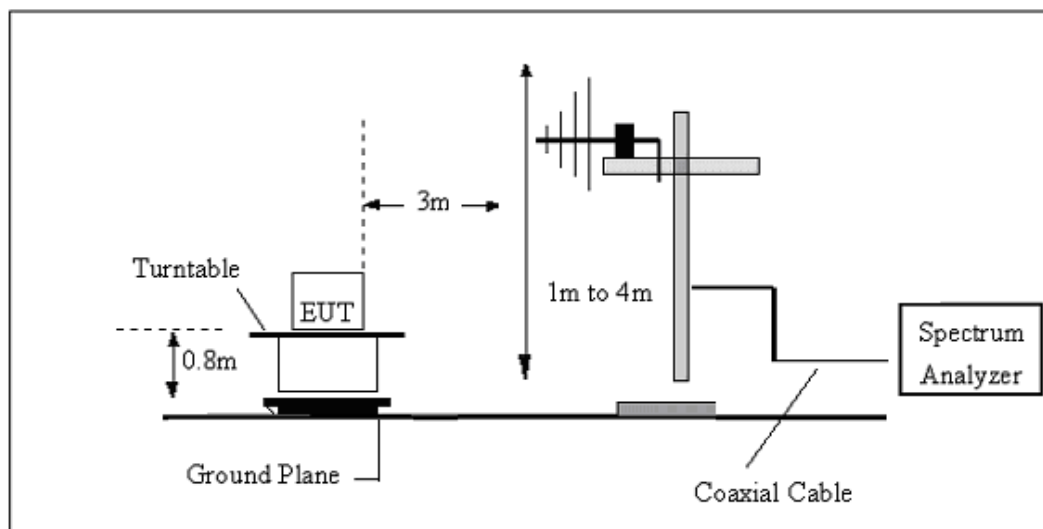
Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

## 4.2 TEST SETUP

### (A) Radiated Emission Test-Up Frequency Below 30MHz



### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz

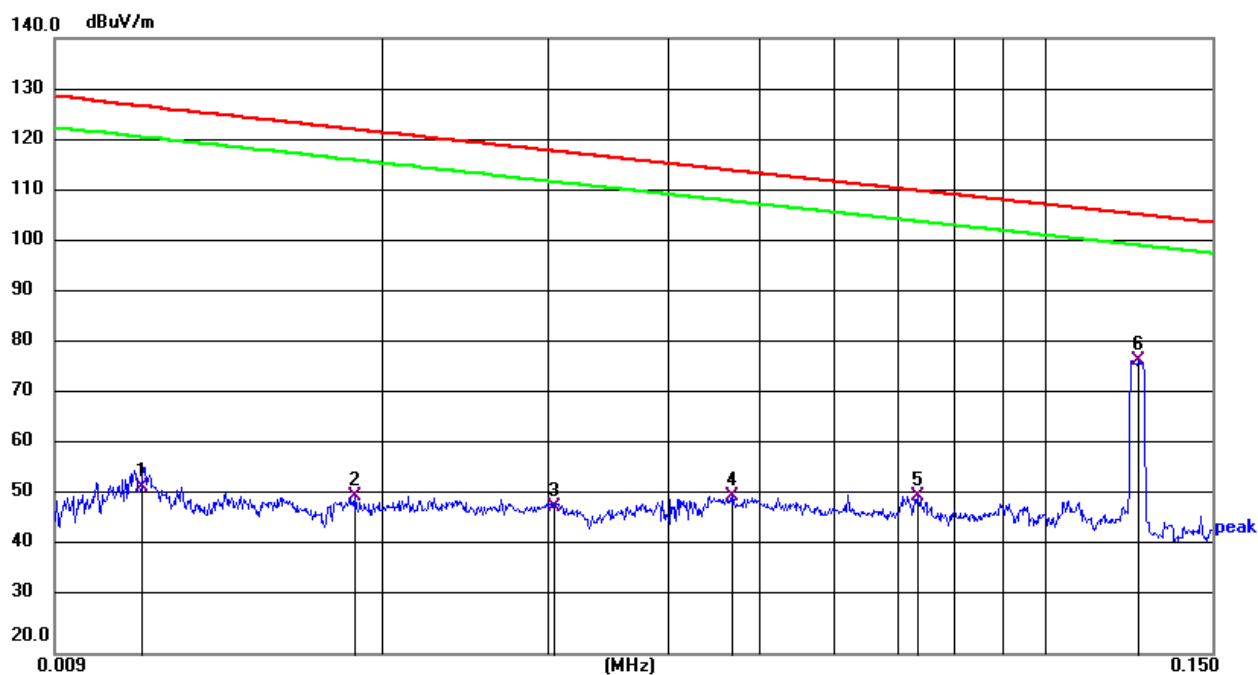


#### 4.4 TEST RESULTS

We pretest AC 120V and AC 230V in full load, half load and no load, the worst voltage was AC 120V in full load and the data recording in the report.

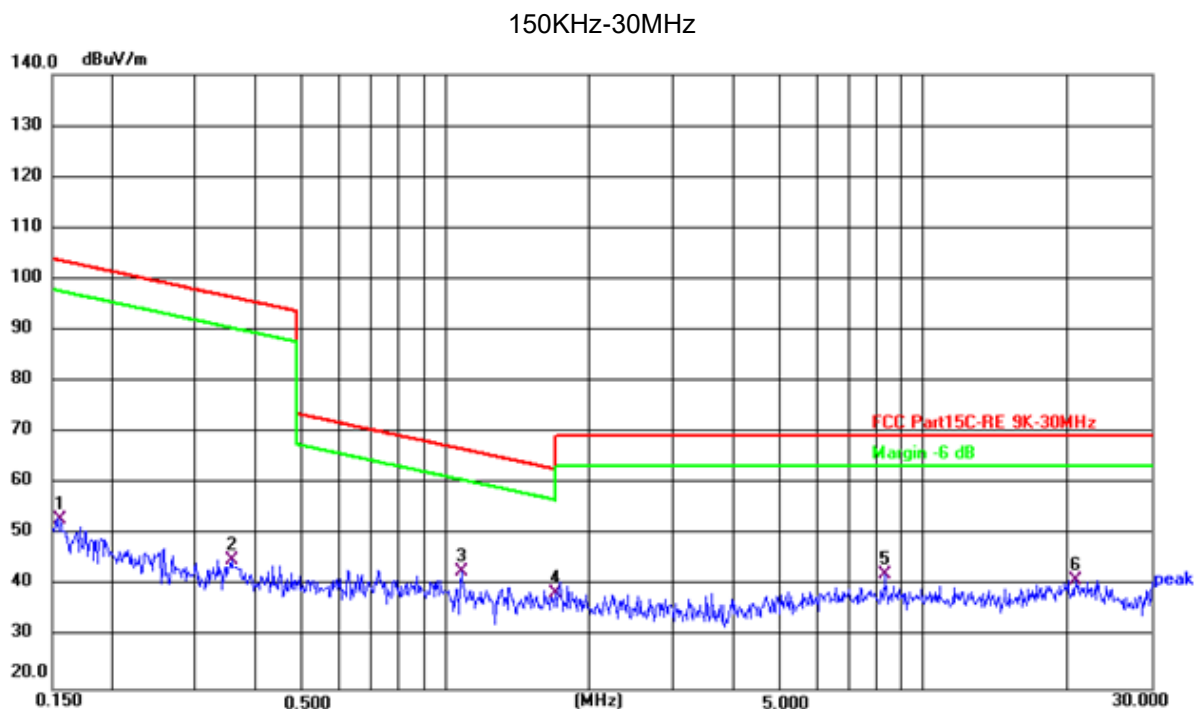
Mode1 :

9KHz-150KHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.0111	31.25	21.36	52.61	126.70	-74.09	QP
2	0.0187	29.89	20.88	50.77	122.17	-71.40	QP
3	0.0303	27.31	21.42	48.73	117.98	-69.25	QP
4	0.0468	28.39	22.41	50.80	114.20	-63.40	QP
5	0.0734	28.12	22.68	50.80	110.29	-59.49	QP
6 *	0.1252	54.99	22.15	77.14	105.65	-28.51	QP





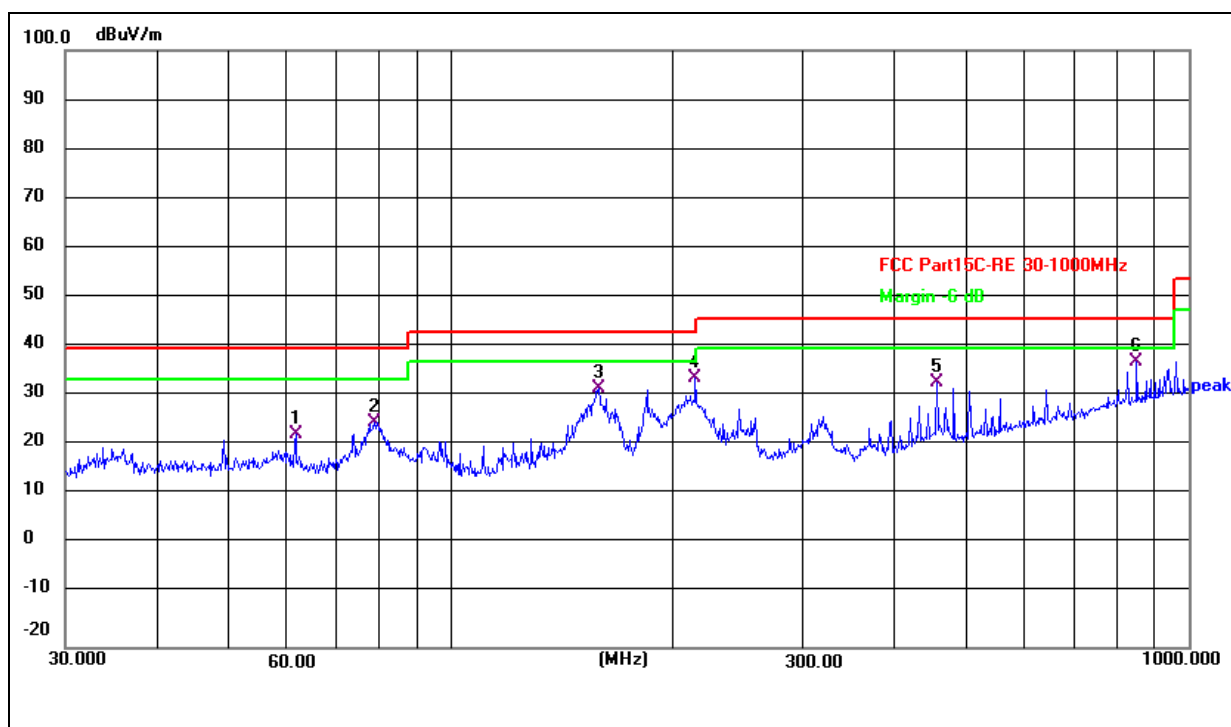
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	0.1554	31.41	21.87	53.28	103.78	-50.50	QP
2 *	0.3600	43.87	21.57	65.44	96.54	-31.10	QP
3	1.0766	20.35	22.58	42.93	66.96	-24.03	QP
4	1.6980	16.44	22.46	38.90	63.01	-24.11	QP
5	8.2788	19.69	22.84	42.53	69.54	-27.01	QP
6	20.8137	13.24	28.14	41.38	69.54	-28.16	QP

Note:

Pre-scan in the all of mode, the worst case in of was recorded.

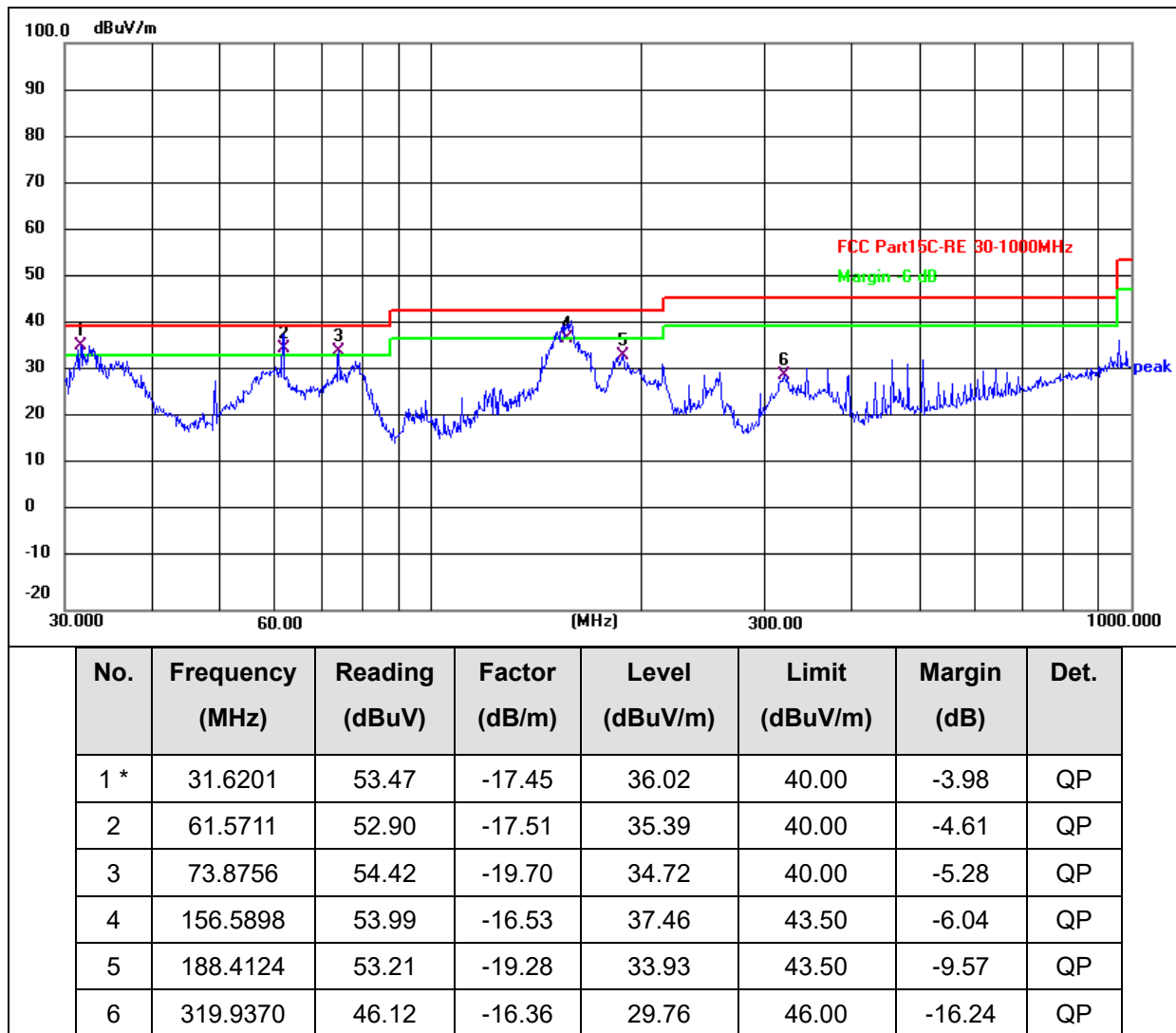
30MHz-1GHz

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	61.5617	40.31	-17.51	22.80	40.00	-17.20	QP
2	78.6885	45.99	-20.67	25.32	40.00	-14.68	QP
3	158.6677	48.61	-16.53	32.08	43.50	-11.42	QP
4	214.5143	54.43	-20.28	34.15	43.50	-9.35	QP
5	455.9057	46.57	-13.13	33.44	46.00	-12.56	QP
6 *	851.0353	42.90	-5.40	37.50	46.00	-8.50	QP

Temperature:	26°C	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz		



#### Remarks:

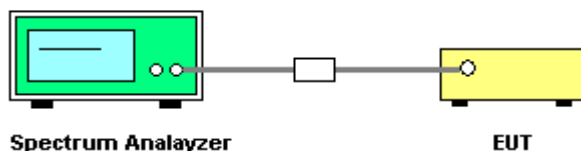
- 1.Emission Level = Reading + Factor;
- 2.Factor = Antenna Factor + Cable Loss – Pre-amplifier;
- 3.Margin= Emission Level - Limit.
- 4.The emission levels of other frequencies are very lower than the limit and not show in test report.

## 5. 20 dB BANDWIDTH TEST

### 5.1 TEST PROCEDURE

1. Set RBW = 3 Hz.
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

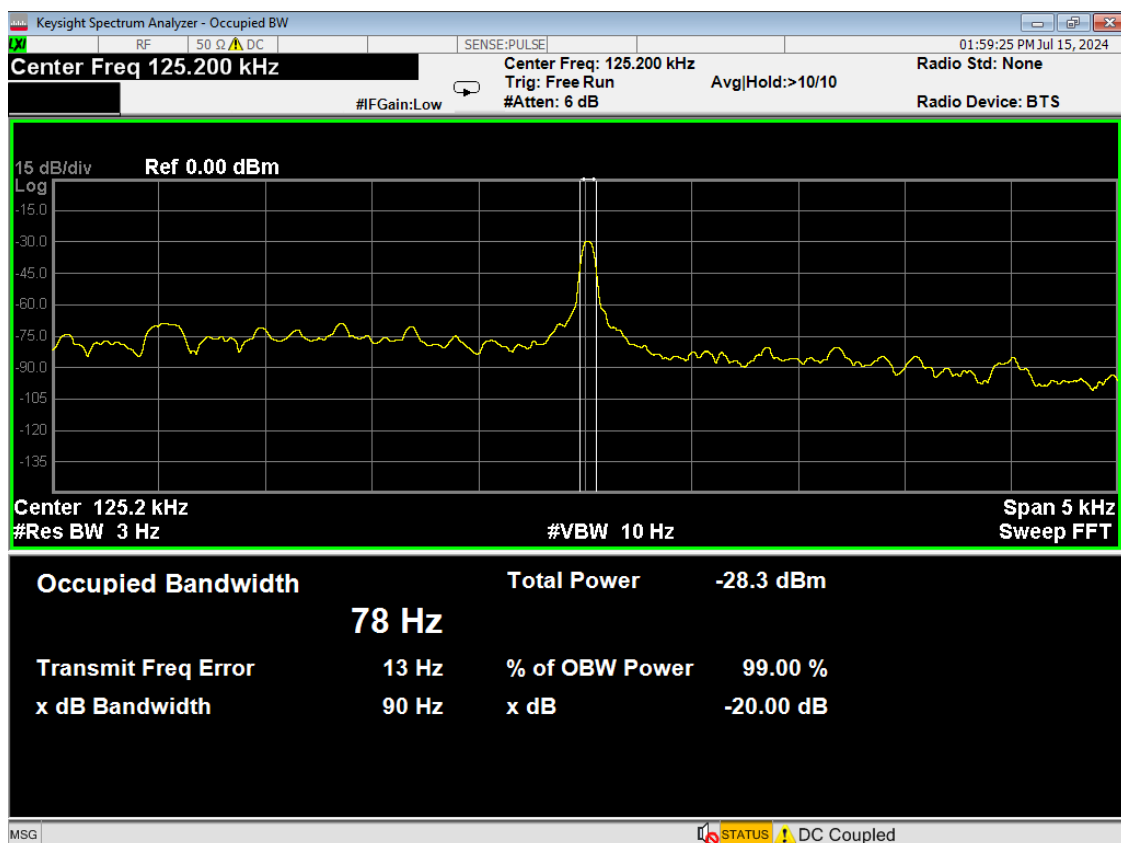
### 5.2 TEST SETUP



## 5.4 TEST RESULTS

Temperature:	20 °C	Relative Humidity:	44%
Pressure:	101kPa		

Frequency (KHz)	20dB bandwidth (KHz)	99% bandwidth (KHz)	Result
125.2	0.090	78	Pass



## 6. ANTENNA REQUIREMENT

### 6.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### 6.2 EUT ANTENNA

The antennas used for this product are Loop Coil antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 0 dBi.

※※※※※END OF THE REPORT※※※※※