

Test Report

Report No. : CE2020-00114

Company : Bullsone

Representative : Lee Chang-Hun

Address : #2302, M. 32, Songdogwahak-ro, Yeonsu-gu, Incheon, 21984, Republic of Korea

1. Product Name : Air purifier
- Type and Model : Air therapy M-2
2. Use of Report : Evaluation of EMC test
3. Date of Receipt : 2020-09-21
4. Date of test : 2020-09-21 ~ 2020-11-12
5. Testing Method : FCC 47 CFR Part 15 Subpart B(B class)
ANSI C 63.4-2014
6. Test Results : as stated in the annexed paper

Tested by : Seok Hyeon, Woo

Seok Hyeon, Woo

Approved by : Nag Jin, Baek

Baek, Nag Jin

1. This report is based on the test and analysis performed with the sample(s) submitted by the client.
Therefore, the report does not guarantee the quality of entire products.
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It is only used for the purpose of the quality test.
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2020-11-12



Korea Testing Certification

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TEL : +82-1899-7654, FAX : +82-31-428-2926



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1.0 Testing Program Details

Testing procedure and testing location	
Testing Laboratory	KTC (Korea Testing Certification)
Testing location / address	[15809] 22 Heungan-daero27beon-gil, Gunpo-si, Gyeonggi-Do, Republic of Korea
Tested by (name)	Seok Hyeon, Woo
Approved by (name)	Nag Jin, Baek
Test item description	Air purifier
Trade Mark	Air therapy M-2
Manufacturer	UIL CO., Ltd, 869-26 Bogwang-ro, Kwangtan-myeon, Paju, Gyeonggi-do, Republic of Korea
Model / Type reference	Air therapy M-2
Ratings	DC 5 V
Hardware / Software version	N/A
Possible test case verdicts	
- test case does not apply to test object	N/A
- test object does meet requirement	P (Pass)
- test object does not meet requirement	F (Fail)
Testing	
Date of receipt of test item	2020-09-21
Date(s) of performance of tests	2020-09-21 ~ 2020-11-12
General remarks:	
The test results presented in this report relate only to the object tested.	
The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.	
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1.1 Applicant Information

Name	Bullsone
Address	#2302, M, 32, Songdogwahak-ro, Yeonsu-gu, Incheon, 21984, Republic of Korea

1.2 Supporting Equipment Used During Test

Use	Product Type	Manufacturer	Model	Comments
EUT	Air purifier	UIL CO., Ltd.	Air therapy M-2	
AE	Cigar jack	Shenzhen BON Electronics Co.,LTD	Bullsone Air therapy multiaction CigarJack	

Supplementary information:

EUT = Equipment Under Test, AE = Auxiliary / Associated Equipment,
SIM = Simulator (Not Subjected to Test).

1.3 Input / Output Ports

Port No.	Name	Type	Cable Max. > 3 m	Cable Shielded	Comments
1	Power port	DC	1.2	N	

Supplementary information:

AC = AC Power Port,
DC = DC Power Port,
N/E = Non-Electrical,
TP = Telecommunication Ports,
I/O = Signal Input or Output Port (Not Involved in Process Control).

1.4 Power Interface

Mode No.	Voltage (V)	Current (A)	Power (W)	Frequency (Hz)	Phases (No.)	Comments
1	DC 5 V	-	-	-	1	Test voltage & Frequency

Supplementary information :



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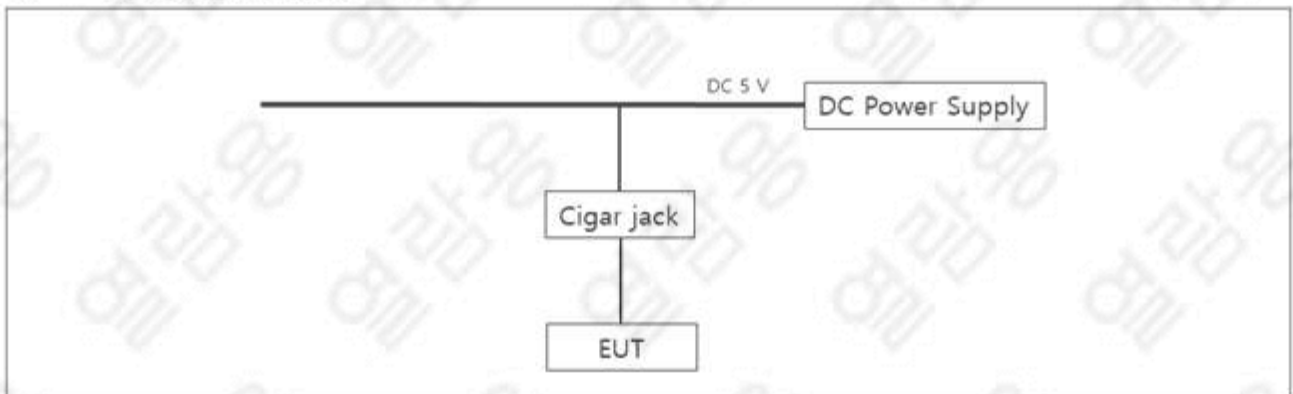
1.5 EUT Operation Modes

Mode No.	Description
1	Operating mode
Supplementary information :	

1.6 EUT Configuration Modes

Mode No.	Description
1	The EUT was connected with cigar jack.
Supplementary information:	

1.7 Test System Layout



1.8 Modification

There was no modified item during the test.

1.9 Applicable Standards for Testing

Standards	Status	Deviation
FCC 47 CFR Part 15 Subpart B ANSI C 63.4-2014	Applicable	No Deviation

1.10 Summary of Test Results

Requirement – Test	Result	Verdict
Conducted Emission	N/A	No requirements
Radiated Emissions(Below 1GHz)	P	
Radiated Emissions(Above 1GHz)	P	



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2.1 Radiated Emission

The initial preliminary exploratory scans were performed over the measuring frequency range(30 MHz to 6 GHz) using a max hold mode incorporating a Peak detector and using the software of Radiated Emission Measurement Software EP5/RE(Version 6.0.10 from TOYO). The final test data was measured using a Quasi-Peak detector below 1 GHz and a Peak and Average detector above 1 GHz. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

2.2 Limits of radiated emission measurement

- Below 1 GHz

Frequency Range [MHz]	Limits ($\mu\text{V/m}$)	Measuring Distance
	Quasi-peak	
30 ~ 88	100	Class B 3m
88 ~ 216	150	
216 ~ 960	200	
960 ~ 1 000	500	

- Above 1 GHz

Frequency Range [GHz]	Detector type	Limits ($\mu\text{V/m}$)	Measuring Distance
1 ~ 6	Average	54	Class B 3m
1 ~ 6	Peak	74	

2.3 Environment Conditions

- Below 1GHz

Temperature : 22 °C
Humidity : 41 %R.H.
Atmospheric Pressure : 100.8 kPa

- Above 1GHz

Temperature : 22 °C
Humidity : 42 %R.H.
Atmospheric Pressure : 100.8 kPa



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2.4 Test Site

10 m Semi-Anechoic Chamber in KTC Laboratory

2.5 Test Equipments

- Below 1 GHz

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	Rohde/schwarz	ESR7	101368	2020-08-17	2021-08-17
Pre amplifier	Sonoma Instrument Co.	310N	340215	2020-02-07	2021-02-07
BiconiLog Antenna	Schwarzbeck	VULB9163	1044	2019-09-17	2021-09-17
Antenna Master	innco systems	MA 4640-XP-ET-0800	7160519	-	-
Turn Table	innco systems	DT3000-3t	-	-	-

- Above 1 GHz

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	Rohde/schwarz	ESR7	101368	2020-08-17	2021-08-17
Pre amplifier	Rohde/schwarz	SCU 18	10142	2020-08-17	2021-08-17
High Gain Horn Antenna	Schwarzbeck	BBHA9120D	918	2020-09-23	2021-09-23
Antenna Mast	Maturo	AM2.0	-	-	-
Turn Table	innco systems	DT3000-3t	-	-	-



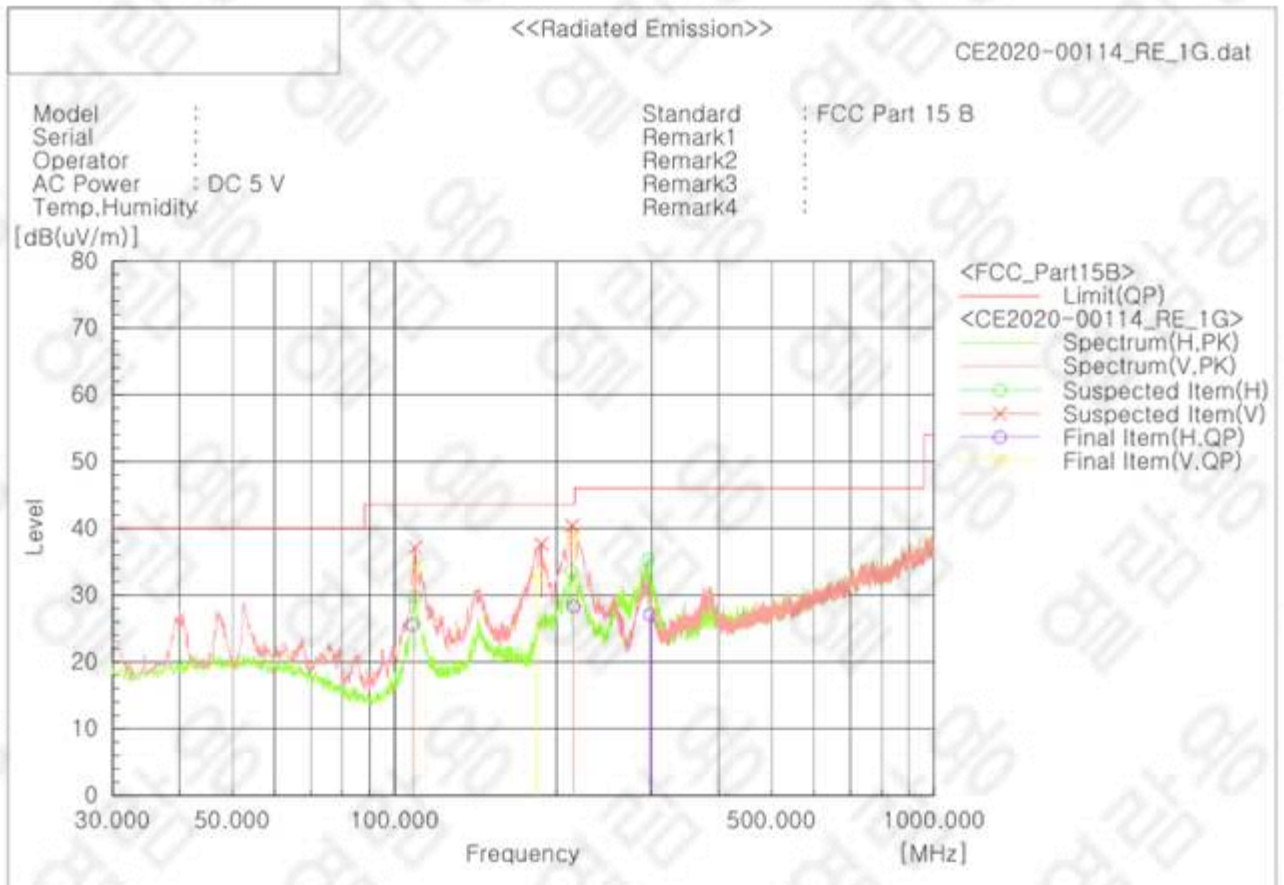
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2.6 Test Results

- Below 1GHz

Test Date : 2020. 10. 27



Final Result

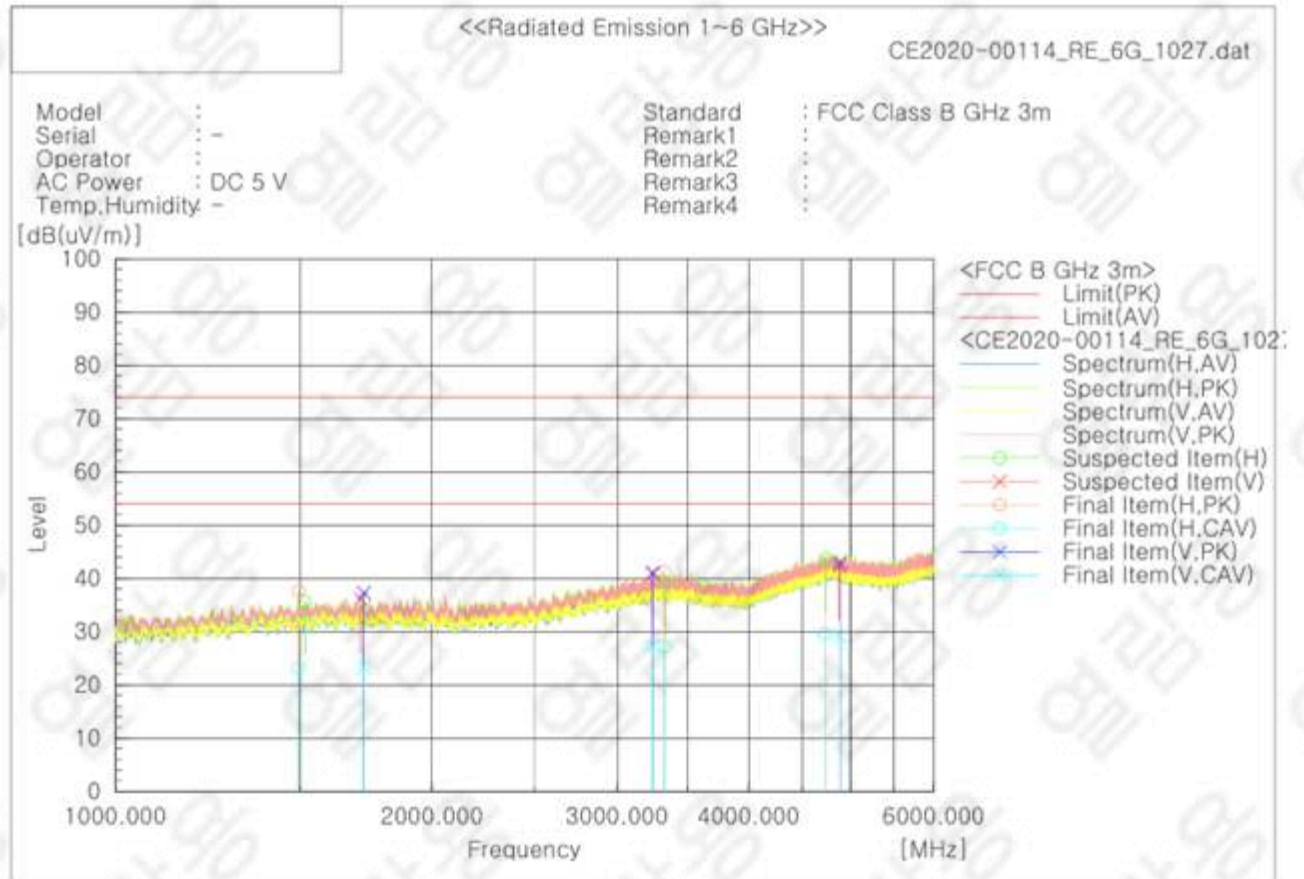
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	109.563	V	49.0	-14.8	34.2	43.5	9.3	104.6	252.8
2	108.090	H	40.5	-15.0	25.5	43.5	18.0	294.7	88.5
3	183.078	V	46.2	-13.2	33.0	43.5	10.5	109.3	34.7
4	215.104	H	42.4	-14.2	28.2	43.5	15.3	247.4	326.5
5	215.394	V	52.8	-14.2	38.6	43.5	4.9	105.6	15.5
6	297.827	H	37.3	-10.3	27.0	46.0	19.0	190.4	213.1

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- Above 1GHz

Test Date : 2020. 10. 27



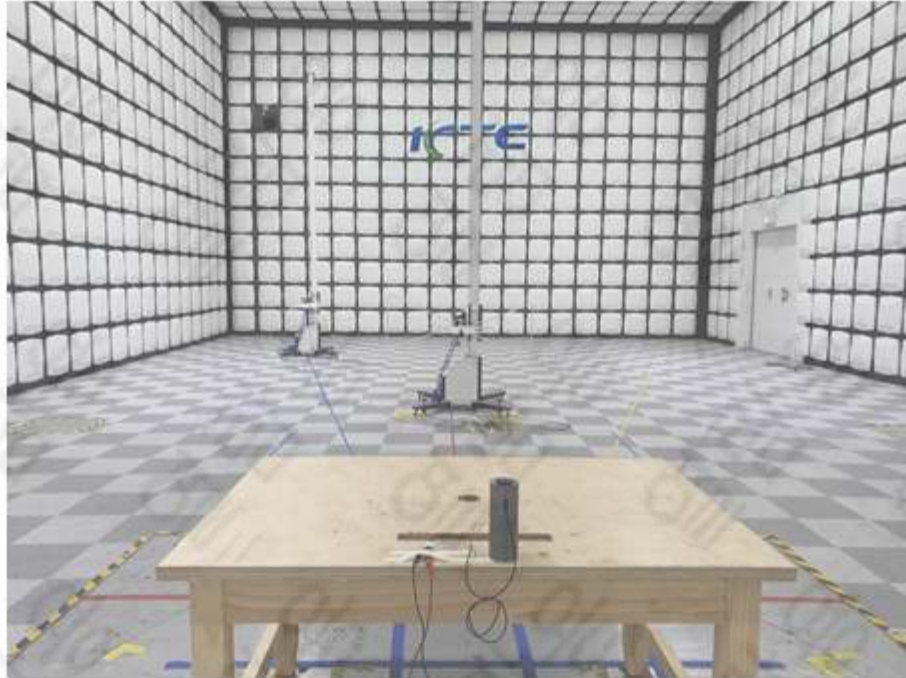
Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]
1	1493.609	H	51.2	36.7	-13.6	37.6	23.1	74.0	54.0	36.4	30.9	100.0	122.9
2	1722.455	V	50.3	36.4	-13.0	37.3	23.4	74.0	54.0	36.7	30.6	100.0	32.4
3	3243.981	V	47.4	33.7	-6.3	41.1	27.4	74.0	54.0	32.9	26.6	100.0	180.6
4	3327.788	H	47.2	33.2	-6.0	41.2	27.2	74.0	54.0	32.8	26.8	100.0	201.6
5	4727.364	H	44.7	31.3	-1.8	42.9	29.5	74.0	54.0	31.1	24.5	100.0	325.6
6	4883.955	V	44.8	30.8	-1.8	43.0	29.0	74.0	54.0	31.0	25.0	100.0	184.7

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2.7 Photographs of test setup



Below 1GHz



Above 1GHz



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3.1 Photographs of EUT



Front of EUT



Rear of EUT



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Top of EUT



Bottom of EUT



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Top of Main board



Bottom of Main board



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Top of Fan



Bottom of Fan

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Overall of EUT



Cigar Jack and Cable

End.

[Form P708-08] (Rev.2)

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