시 험 성 적 서

TEST REPORT

성적서 번호 Report No.		ICRT-TR-E240977-0A
신청자 Client	기관명 Name	WARP Solution
	주 소 Address	307, 291, Daehak-ro, Yuseong-gu, Daejeon, South Korea
시험대상품목 Sample description		Space ON
모델명 Type description		WS-SPACEON
정 격 Ratings		DC 12.0 V
시험장소 Place of test		■ 고정시험실(Permanent Testing Lab) □ 현장시험(On Site Testing) 주소지(Address): 112, 113 Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
시험기간 Date of test		07. Mar. 2024 ~ 15. Mar. 2024
시험방법/항목 Test Method/Item		FCC Part 18 Subpart C
시험결과 Test Results		Refer to 3. Test Summary
확 인 Affirmation	작성자 Tested by 성명 Name: Eun-Hye, Kwak (Signature)	기술책임자 Technical Manager 성명 Name: Tae-Yang, Yoon (Signature)

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□ The above test report is certified that the above mentioned products have been tested for the sample.

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2024. 03. 29

주식회사 아이씨알 대표이사

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112, Hwanggeum3-ro 7beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea / Tel: 02-6351-9001 ~ 6

Contents

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
ICRT-TR-E240977-0A	2024. 03. 29	Initial Issue	All

1. Applicant & Manufacturer & Test Laboratory Information

1.1 Applicant information

Applicant	WARP Solution
Address	307, 291, Daehak-ro, Yuseong-gu, Daejeon, South Korea

1.2 Manufacturer Information

Applicant	WARP Solution
Address	307, 291, Daehak-ro, Yuseong-gu, Daejeon, South Korea

1.3 Test Laboratory Information

Laboratory	ICR Co., Ltd.
Address	112, Hwanggeum 3-ro 7beon-gil, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea
Telephone No.	+82-2-6351-9002
Fax No.	+82-2-6351-9007
KOLAS No.	KT652
KC & FCC	KR0165

1.4 Measurement Uncertainty

Parameter	Uncertainty	Limit
Supply voltages	0.06%	±3 %
Time	1.17%	±5 %
All emissions, radiated (Under the 1 ㎓)	3.22 dB	±6 dB
All emissions, radiated (Above the 1 ㎓)	3.67 dB	±6 dB

2. Equipment under Test(EUT) Information

2.1 General Information

Product Name	Space ON
Model Name	WS-SPACEON
Additional Model Name	-
FCC ID	2AUNAWS-SPACEON
Power Supply	DC 12.0 V

2.2 Additional Information

Equipment Class	-	
Device Type	Stand-alone	
Operating Frequency	ISM equipment	920 ㎒
RF Output Power	ISM equipment	104.61 dBuV/m (@3m distance)
RF Conducted Output Power	ISM equipment	28.63 dBm
Occupied Bandwidth	ISM equipment	131.87 kHz
Number of Channel	ISM equipment	1
Modulation Type	A1D	
Antenna Type	Pcb Antenna	
Antenna Gain	4.85 dBi	

2.3 Reason of Additional Model Name

- None

3. Test Summary

3.1 Test standards and results

FCC Part 18 Subpart C			
Clause	Test items	Applied	Results
§18.305 (b)	Field strength	■	PASS
§15.307 (b)	Power Line Conducted Emission	■	PASS

3.2 Purpose of the test

- To determine whether the equipment under test fulfills the requirements of the standards stated in section 3.1 and the provision of Article 3.2 of Directive 2014/53/EU

3.3 Test Methodology

- Both conducted and radiated testing was performed according to the procedures in FCC/OET MP - 5
Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4 Configuration of Test System

- Both conducted and radiated testing was performed according to the procedures in FCC/OET MP - 5
Radiated testing was performed at a distance of 3 m from EUT to the antenna.

3.4.1 Radiated emission test

- Preliminary radiated emissions test were conducted using the procedure in FCC/OET MP - 5 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 m Semi Anechoic Chamber.
The turntable was rotated through 360 degrees and the EUT was tested by positioned three orthogonal planes to obtain the highest reading on the field strength meter. Once maximum reading was determined, the search antenna was raised and lowered in both vertical and horizontal polarization.

3.5 Antenna requirement

- According to FCC/OET MP - 5, In general, an unlicensed wireless device shall be tested with all antennas provided and recommended for use with the EUT; however, variations and exceptions to this requirement may apply. See also 2.2.4

The test report shall document the antenna(s) tested with the EUT to determine compliance.

4. Test Result

4.1 Radiated Spurious Emission

4.1.1 Test procedure

FCC/OET MP-5 2.2, 2.3

4.1.2 Limit

§18.305 (b)

The field strength levels of emissions which lie outside the bands specified in § 18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500 500 or more	25 25 × SQRT(power/500)	300 [1]300
	Any non-ISM frequency	Below 500 500 or more	15 15 × SQRT(power/500)	300 [1]300
Industrial heaters and RF stabilized arc welders	On or below 5,725 MHz Above 5,725 MHz	Any Any	10 ([2])	1,600 ([2])
Medical diathermy	Any ISM frequency Any non-ISM frequency	Any Any	25 15	300 300
Ultrasonic	Below 490 kHz	Below 500 500 or more	2,400/F(kHz) 2,400/F(kHz) × SQRT(power/500)	300 [3]300
	490 to 1,600 kHz Above 1,600 kHz	Any Any	24,000/F(kHz) 15	30 30
Induction cooking ranges	Below 90 kHz On or above 90 kHz	Any Any	1,500 300	[4]30 [4]30

[1] Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

[2] Reduced to the greatest extent possible.

[3] Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

[4] Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

4.1.3 Test data

Result : Pass

- Below 30 MHz

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
0.0187	39.45	QP	H	19.60	59.05	67.95	8.9	-
0.0210	38.36	QP	H	19.60	57.96	67.95	9.99	-
0.0374	35.22	QP	H	19.40	54.62	67.95	13.33	-
0.0421	33.09	QP	H	19.40	52.49	67.95	15.46	-

- 30 MHz ~ 1 GHz

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
49.975	54.33	QP	V	-20.40	33.93	67.95	34.02	-
928.026	33.93	QP	H	-7.80	26.13	67.95	41.82	-
931.130	32.75	QP	H	-7.90	24.85	67.95	43.1	-
983.607	49.71	QP	H	-7.40	42.31	67.95	25.64	-

- 1 GHz Above

Frequency (MHz)	Reading (dBuV/m)	Detector	Pol.	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dBuV/m)	note
1839.70	70.97	PK	H	-12.90	58.07	67.95	9.88	2nd Harmonic
2760.40	52.17	PK	V	-8.10	44.07	67.95	23.88	3nd Harmonic
3680.20	48.71	PK	H	-4.80	43.91	67.95	24.04	4nd Harmonic

※10th harmonics were measured, but no emission peak was found beyond 4th harmonics.

4.2 Power Line Conducted Emission

4.2.1 Test procedure

FCC/OET MP-5 7.1

4.2.2 Limit

§18.307 (b)

For the following equipment, when 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 shall not exceed the limits in the following tables.

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 using a 50 μH/50 ohms line impedance stabilization network (LISN).

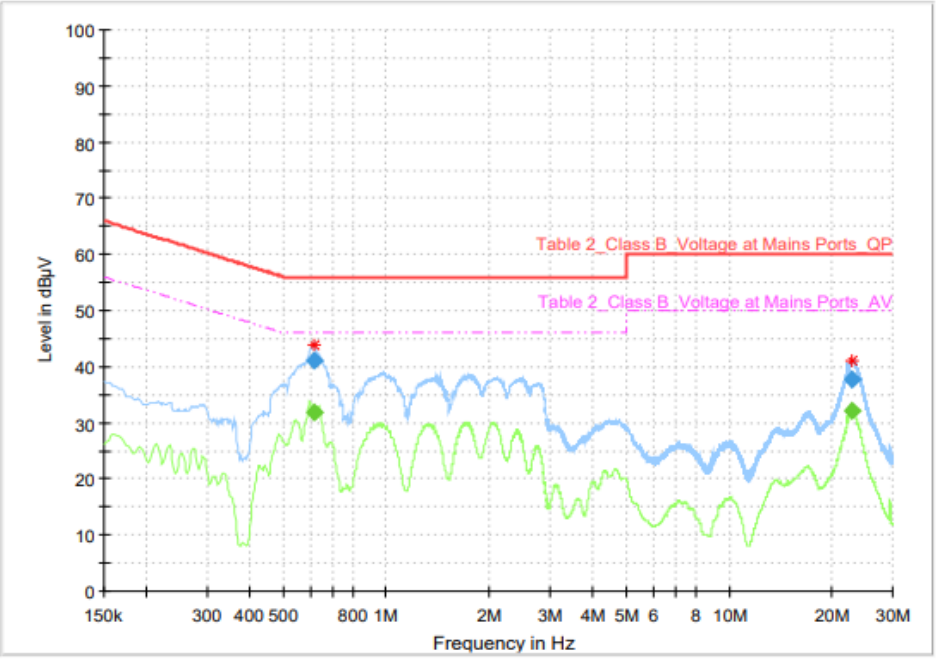
Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

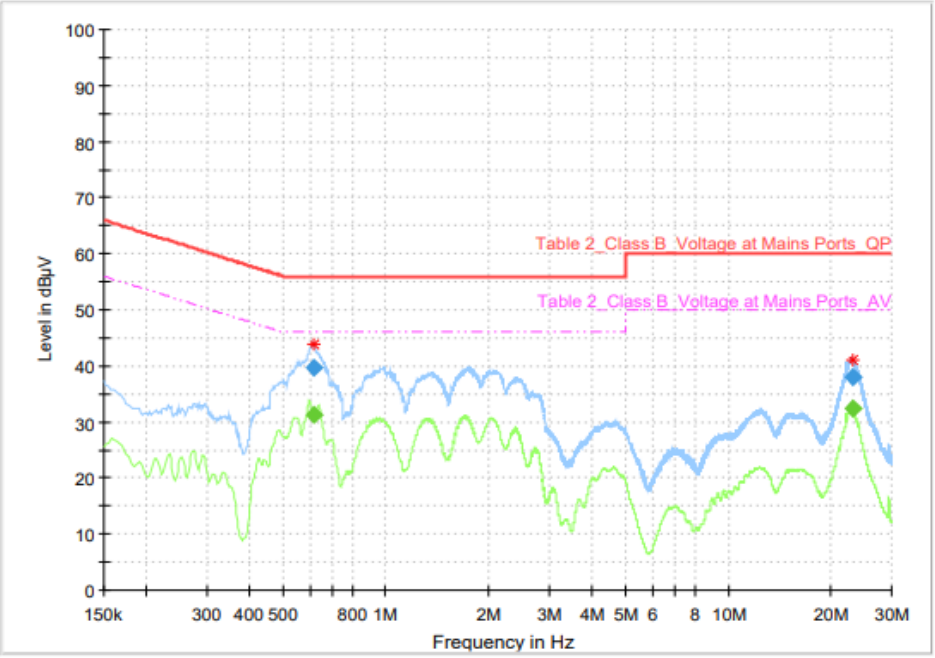
4.2.3 Test data

Result : Pass

L-Line Conducted Emission



N-Line Conducted Emission



5. Used equipment

	Description	Model Name	Manufacturer	Serial Number	Next Cal
■	LOOP ANTENNA	HFH2-Z2	ROHDE & SCHWARZ	100271	2025-03-08
■	BI-Log ANTENNA	VULB 9162	SCHWARZBECK	120	2024-12-26
■	EMI TEST RECEIVER	ESR26	ROHDE & SCHWARZ	101462	2025-03-28
■	SIGNAL CONDITIONING UNIT	SCU08	ROHDE & SCHWARZ	100746	2025-03-28
■	HORN ANTENNA	HF907	ROHDE & SCHWARZ	102556	2024-08-04
■	SIGNAL CONDITIONING UNIT	SCU18	ROHDE & SCHWARZ	102342	2025-03-28
■	EMI TEST RECEIVER	ESR26	ROHDE & SCHWARZ	101461	2025-03-28
■	DC POWER SUPPLY	XDL35-5P	XANTREX	J00385373	2025-02-27
■	SPECTRUM ANALYZER	FSV40-N	ROHDE & SCHWARZ	101303	2025-02-27
■	ELECTROMAGNETIC FIELD METER	EMF-819	LUTRON	I.329068	2025-04-15
■	RULER	K-1000S	BESTO	S75-4	2024-11-11
■	TWO LINE V-NETWORK	ENV216	ROHDE & SCHWARZ	102195	2024-09-22
■	EMI TEST RECEIVER	ESR3	ROHDE & SCHWARZ	102119	2025-03-29

- END OF REPORT.