

Report No.: SUCR240100000806

Rev.: 01

Page: 1 of 8

TEST REPORT

Application No.: SUCR2401000008IT
Applicant: JL MARINE SYSTEMS, INC.
Address of Applicant: 9010 Palm River Road, Tampa, FL 33619, USA
Manufacturer: JL MARINE SYSTEMS, INC.
Address of Manufacturer: 9010 Palm River Road, Tampa, FL 33619, USA
EUT Description: Marine Tablet
Model No.: Vision 12
Trade Mark: Power-Pole
FCC ID: A7FVISION12
Standards: 47 CFR Part 2.1091
FCC KDB 447498 D01 v06
Date of Receipt: 2023/11/17
Date of Issue: 2024/06/17

Test Result:	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Well Wei

Well Wei
Wireless Laboratory Manager



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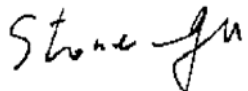
Report No.: SUCR240100000806

Rev.: 01

Page: 2 of 8

1 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024/06/17		Original

Prepared By	
	(Nick Hu) / Test Engineer
Checked By	
	(Stone Gu) / Reviewer



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Report No.: SUCR240100000806

Rev.: 01

Page: 3 of 8

Contents

1	Version	2
2	General Information.....	4
2.1	Client Information	4
2.2	Test Facility	4
2.3	General Description of EUT	5
3	RF Exposure Evaluation	6
3.1	RF Exposure Compliance Requirement	6
3.1.1	Limits	6
3.1.2	Test Procedure	7
3.1.3	EUT RF Exposure Evaluation	7
3.1.4	Exposure calculations for multiple sources	8



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Report No.: SUCR240100000806

Rev.: 01

Page: 4 of 8

2 General Information

2.1 Client Information

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Manufacturer:	JL MARINE SYSTEMS, INC.
Address of Manufacturer:	9010 Palm River Road, Tampa, FL 33619, USA

2.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 6336.01.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

IC#: 27594.

• **FCC –Designation Number: CN1312**

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized as an accredited testing laboratory.

Designation Number: CN1312.

Test Firm Registration Number: 717327



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Report No.: SUCR240100000806

Rev.: 01

Page: 5 of 8

2.3 General Description of EUT

EUT Description:	Marine Tablet		
Model No.:	Vision 12		
Trade Mark:	Power-Pole		
Hardware Version:	V3.0		
Software Version:	Vision12_20240522		
Antenna Type:	☐ External, ☒ Integrated		
Antenna Gain:	WCDMA Band II:	1.96dBi (Ant0)	WCDMA Band IV: 2.34dBi (Ant0)
	WCDMA Band V:	1.11dBi (Ant0)	
	LTE Band 2:	1.96dBi (Ant0)	LTE Band 4: 2.34dBi (Ant0)
	LTE Band 5:	1.11dBi (Ant0)	LTE Band 7: 2.24dBi (Ant0)
	LTE Band 12:	0.15dBi (Ant0)	LTE Band 13: 0.16dBi (Ant0)
	LTE Band 14:	-0.24dBi (Ant0)	LTE Band 17: 0.15dBi (Ant0)
	LTE Band 18:	1.11dBi (Ant0)	LTE Band 19: 0.9dBi (Ant0)
	LTE Band 25:	1.96dBi (Ant0)	LTE Band 26: 1.11dBi (Ant0)
	LTE Band 30:	2.31dBi (Ant0)	LTE Band 38: 2.14dBi (Ant0)
	LTE Band 41:	2.44dBi (Ant0)	LTE Band 66: 2.47dBi (Ant0)
	LTE Band 71:	-0.1dBi (Ant0)	
	Bluetooth:	2.97dBi (Ant1)	
	WIFI 2.4G:	2.97dBi (Ant1)	
	5G WIFI(U-NII-1):	2.7dBi (Ant1)	
	5G WIFI(U-NII-2A):	2.54dBi (Ant1)	
	5G WIFI(U-NII-2C):	2.89dBi (Ant1)	
	5G WIFI(U-NII-3):	2.41dBi (Ant1)	
	Sprint1:	0.8dBi (Ant1);	
	Note:	The antenna gain are derived from the gain information report provided by the manufacturer.	
	Remark: As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.		



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Report No.: SUCR240100000806

Rev.: 01

Page: 6 of 8

3 RF Exposure Evaluation

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

F=frequency in MHz
 *=Plane-wave equivalent power density
 RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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Report No.: SUCR240100000806

Rev.: 01

Page: 7 of 8

3.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually

3.1.3 EUT RF Exposure Evaluation

Output Power Into Antenna & RF Exposure Evaluation Distance:

This confirmed that the device comply with MPE limit.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Max Conducted Power (dBm)	EIRP(ERP) (dBm)	EIRP(ERP) Limit (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	conclusion
WCDMA Band II	1852.4	1.96	25.00	26.96	33.00	0.0988	1.0000	Pass
WCDMA Band IV	1712.4	2.34	25.00	27.34	30.00	0.1078	1.0000	Pass
WCDMA Band V	826.4	1.11	25.00	23.96	38.45	0.0812	0.5509	Pass
LTE Band 2	1850.7	1.96	25.00	26.96	33.00	0.0988	1.0000	Pass
LTE Band 4	1710.7	2.34	25.00	27.34	30.00	0.1078	1.0000	Pass
LTE Band 5	824.7	1.11	25.00	23.96	38.45	0.0812	0.5498	Pass
LTE Band 7	2502.5	2.24	25.00	27.24	33.00	0.1054	1.0000	Pass
LTE Band 12	699.7	0.15	25.00	23.00	34.77	0.0651	0.4665	Pass
LTE Band 13	779.5	0.16	25.00	23.01	34.77	0.0653	0.5197	Pass
LTE Band 14	790.5	-0.24	25.00	22.61	34.77	0.0595	0.5270	Pass
LTE Band 17	706.5	0.15	25.00	23.00	34.77	0.0651	0.4710	Pass
LTE Band 18 (815-824)	817.5	1.11	25.00	23.96	NA	0.0812	0.5450	Pass
LTE Band 18 (824-830)	826.5	1.11	25.00	23.96	38.45	0.0812	0.5510	Pass
LTE Band 19	832.5	0.90	25.00	23.75	38.45	0.0774	0.5550	Pass
LTE Band 25	1852.5	1.96	25.00	26.96	33.00	0.0988	1.0000	Pass
LTE Band 26 (814-824)	814.7	1.11	25.00	23.96	NA	0.0812	0.5431	Pass
LTE Band 26 (824-849)	824.7	1.11	25.00	23.96	38.45	0.0812	0.5498	Pass
LTE Band 30	2307.5	2.31	21.50	23.81	23.98	0.0478	1.0000	Pass
LTE Band 38	2572.5	2.14	25.00	27.14	33.00	0.1030	1.0000	Pass
LTE Band 41	2577.5	2.44	25.00	27.44	33.00	0.1103	1.0000	Pass
LTE Band 66	1710.7	2.47	25.00	27.47	30.00	0.1111	1.0000	Pass
LTE Band 71	665.5	-0.10	25.00	22.75	34.77	0.0615	0.4437	Pass
Bluetooth	2402.0	2.97	10.00	12.97	30.00	0.0039	1.0000	Pass
2.4GWIFI	2412.0	2.97	18.00	20.97	30.00	0.0249	1.0000	Pass
5GWIFI	5180.0	2.89	15.00	17.89	30.00	0.0122	1.0000	Pass
Sprint1	921.25	0.80	11.00	9.65	30.00	0.0030	0.6142	Pass



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3.1.4 Exposure calculations for multiple sources

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE in accordance with the provisions of Table(A) and Table(B). To comply with the MPE, the fraction of the MPE in terms of E2, H2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity.

In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Simultaneous Tx Combination	Configuration
1	WWAN + Bluetooth
2	WWAN + WiFi 2.4G
3	WWAN + WiFi 5G
4	WWAN + Sprint1

No.	Mode	Power Density (mW/cm2)	MPE Limit (mW/cm2)	Result Ratio	Total Ratio	Limit	Result
1	LTE Band 26(814-824)*	0.0812	0.5431	0.1495	0.1534	1.0000	Pass
	Bluetooth	0.0039	1.000	0.0039			
2	LTE Band 26(814-824)*	0.0812	0.5431	0.1495	0.1744	1.0000	Pass
	WiFi 2.4G	0.0249	1.000	0.0249			
3	LTE Band 26(814-824)*	0.0812	0.5431	0.1495	0.1617	1.0000	Pass
	WiFi 5G	0.0122	1.000	0.0122			
4	LTE Band 26(814-824)*	0.0812	0.5431	0.1495	0.1544	1.0000	Pass
	Sprint1	0.0030	0.6142	0.0049			

Remark*: This WWAN Band was recalculated on worst Band.

---End of Report---

