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CE TEST REPORT

Under:
EN 62311: 2008

Prepared For :
Express Communication & Navigation Company Ltd.
Sinonav Building, PuBian Industrial Zone, Shanwei City, Guangdong Province, China

EUT: MARINE GPS POLTTER/AIS

Model: KP-1299A

September 4, 2014

Issue Date:

Original Report

Report Type:

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Test Engineer: Simon Wang

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Review By: Apollo Liu / Manager

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1. General Information

1.1 Notes

The test results of this report relate exclusively to the test item specified in 1.5. The KMO Lab does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the KMO Lab.

1.2 Testing Laboratory

Ke Mei Ou Laboratory Co., Ltd.

ANSI-ASQ National Accreditation Board/ACLASS ISO/IEC 17025 Accredited Lab for telecommunication standards. The Registration Number is AT-1532. The testing quality system meets with ISO/IEC-17025 requirements, This approval results is accepted by MRA of ILAC.

FCC Test Site Registration Number: 962205

IC Test Site Registration Number: 4986A-2

Internet: www.kmolab.com

1.3 Details of Applicant

Name : Express Communication & Navigation Company Ltd.
Address : Sinonav Building, PuBian Industrial Zone, Shanwei City, Guangdong Province, China
Contact :
Tel :
Fax :

1.4 Application Details

Date of Receipt of Application : May 13, 2014
Date of Receipt of Test Item : May 13, 2014
Date of Test : May 13,~August 26, 2014

1.5 Test Item

Manufacturer : Same as Applicant
Address : Same as Applicant
Trade Name : ONWA
Model No.(Base) : KP-1299A
Model No.(Extension) : N/A
Description : MARINE GPS POLTTER/AIS

Additional Information

Frequency : Tx: 161.975MHz~162.025MHz
Rx: 161.975MHz~162.025MHz
Number of Channels : 2
Power Supply : DC 12V~32V
Operation Distance : N/A
Resolution : N/A

Note: Classification according to CEPT/ERC Recommendation 70-03

1.6 List of Ports

Port	Description	Classification ¹	Maximum Cable Length ²	Cable Type
N/A				

Note: ¹ports shall be classified as ac power, dc power or signal/control port.

²Maximum cable length corresponding to the appropriate ports shall be classified as $\leq 3\text{m}$ or $>3\text{m}$.

1.7 Ancillary and Peripheral Devices

List of Ancillary Devices Used for Testing (see note)

Description	Designation	Serial No.	Manufacturer
N/A			

List of Peripheral Devices Used for Testing

Description	Designation	Serial No.	Manufacturer
N/A			

Note: An Equipment (apparatus) used in connection with a receiver or transmitter is considered as an ancillary equipment (apparatus) if:

- The equipment is intended for use in conjunction with a receiver or transmitter to provide additional operational and/or control features to the radio equipment. (e.g. to extend control to another position or location); and
- The equipment cannot be used on a stand alone basis to provide user functions independently of a receiver or transmitter; and
- The receiver or transmitter to which it is connected, is capable of providing some intended operation such as transmitting and/or receiving without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions).

Description of Test Models

Channel	Frequency (MHz)
Low	161.975
Middle	-
High	162.025

Note: Software used to control the EUT for staying in continuous transmitting and receiving mode was programmed. After the preliminary scan all data rates. We found the test above models producing the highest emission level.

1.8 Test Standards

EN 62311: 2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

2. Technical Test

2.1 Summary of Test Results

No deviations from the technical specification(s) were ascertained in the course of the tests Performed	
Final Verdict: (only "Passed" if all single measurements are "Passed")	Passed

2.2 Human Exposure Assessment

Main Unit

EUT parameter	
Max average output power in Watt (TP)	33dBm (2w), Channel Low
Antenna gain (G)	3dBi
Minimum distance in meter (D) (from transmitting structure to the human body)	RF Safety Distance is 0.40m

Exposure evaluation	
Given $E = \frac{\sqrt{30 \times G \times TP}}{D}$	Where G: numerical gain of transmitting antenna; TP: Transmitted power in watt; D: distance from the transmitting antenna in meter
The E=27.32V/m is significant lower than the 28V/m as required in Annex III table 2 of EC Council Recommendation (1999/519/EC). This proves that the unit complies with the EN 62311 for RF exposure requirement.	

Limits: EN 62311 Human Exposure To The Electromagnetic Fields

According to EN 62311: 2008, the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified 1999/519/EC.

Table 2
Reference levels for electric, magnetic and electromagnetic fields
(0 Hz to 300 GHz, unperturbed rms values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	$4\,000/f$	$5\,000/f$	—
0,025-0,8 kHz	$250/f$	$4/f$	$5/f$	—
0,8-3 kHz	$250/f$	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	$0,73/f$	$0,92/f$	—
1-10 MHz	$87/f^{1/2}$	$0,73/f$	$0,92/f$	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375 f^{1/2}$	$0,0037 f^{1/2}$	$0,0046 f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Notes:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any $68/f^{1.05}$ -minute period (f in GHz).
4. No E-field value is provided for frequencies < 1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

3. Photographs – EUT

Main Unit

