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Report No.: TMWK2202000670KR

FCC ID: YAI-TONAL

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Rev.: 00

KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

Wireless Console Module

Model: Hercules

Brand Name: InnoComm Mobile

Issued to

InnoComm Mobile Technology Corp.
3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu , Taiwan , 30078

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan. (R.O.C.)
Issue Date: March 9, 2022

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	March 9, 2022	Initial Issue	ALL	Allison Chen

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1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
KDB 447498 D03	
47 C.F.R. Part 1, Subpart I, Section 1.1310	Compliance
47 C.F.R. Part 2, Subpart J, Section 2.1091	
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

Approved by:



Sky Zhou
Asst. Section Manager
Compliance Certification Services Inc.

2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of the chapter.

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Note 1 to Table 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

3. EUT SPECIFICATION

EUT	Wireless Console Module														
Model	Hercules														
Brand Name	InnoComm Mobile														
Model Discrepancy	N/A														
Received Date	February 17, 2022														
Frequency band (Operating)	<input checked="" type="checkbox"/> IEEE 802.11a/n HT20: 5260 MHz ~ 5320 MHz / 5500 MHz ~ 5700 MHz <input checked="" type="checkbox"/> IEEE 802.11n HT40: 5270 MHz ~ 5310 MHz / 5510 MHz ~ 5670 MHz <input type="checkbox"/> Others														
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others														
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure ($S = 5\text{mW/cm}^2$) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure ($S=1\text{mW/cm}^2$)														
Antenna Specification	WIFI 5GHz: Gain: 4.66 dBi 5GHz: Gain : 4.66 dBi (Numeric gain: 2.92) Worst														
Maximum Measurement Average Power	<table border="1"> <tr> <td>5GHz</td> <td></td> <td></td> </tr> <tr> <td>IEEE 802.11a Mode:</td> <td>15.40 dBm</td> <td>(34.674 mW)</td> </tr> <tr> <td>IEEE 802.11n HT 20 Mode:</td> <td>15.40 dBm</td> <td>(34.674 mW)</td> </tr> <tr> <td>IEEE 802.11n HT 40 Mode:</td> <td>15.46 dBm</td> <td>(35.156 mW)</td> </tr> </table>			5GHz			IEEE 802.11a Mode:	15.40 dBm	(34.674 mW)	IEEE 802.11n HT 20 Mode:	15.40 dBm	(34.674 mW)	IEEE 802.11n HT 40 Mode:	15.46 dBm	(35.156 mW)
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IEEE 802.11n HT 40 Mode:	15.46 dBm	(35.156 mW)													
Maximum tune up power	<table border="1"> <tr> <td>5GHz</td> <td></td> <td></td> </tr> <tr> <td>IEEE 802.11a Mode:</td> <td>16.00 dBm</td> <td>(39.811 mW)</td> </tr> <tr> <td>IEEE 802.11n HT 20 Mode:</td> <td>16.00 dBm</td> <td>(39.811 mW)</td> </tr> <tr> <td>IEEE 802.11n HT 40 Mode:</td> <td>16.00 dBm</td> <td>(39.811 mW)</td> </tr> </table>			5GHz			IEEE 802.11a Mode:	16.00 dBm	(39.811 mW)	IEEE 802.11n HT 20 Mode:	16.00 dBm	(39.811 mW)	IEEE 802.11n HT 40 Mode:	16.00 dBm	(39.811 mW)
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IEEE 802.11n HT 40 Mode:	16.00 dBm	(39.811 mW)													
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> N/A														

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. The tune up power referred the AVG power of the test report TMWK2202000669KR for RF Exposure assessment purpose.

4. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377d^2}$$

Changing to units of mW and cm, using:

$$P (\text{mW}) = P (\text{W}) / 1000 \text{ and}$$

$$d (\text{cm}) = d(\text{m}) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \text{ Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

IEEE 802.11 a mode:

Ch.	Freq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
52	5260	39.811	2.92	20	0.0231	1

IEEE 802.11 n HT20 mode:

Ch.	Freq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
52	5260	39.811	2.92	20	0.0231	1

IEEE 802.11 n HT40 mode:

Ch.	Freq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
54	5270	39.811	2.92	20	0.0231	1

--End of Report--