



REPORT No. : SZ18100025S03

# RF EXPOSURE EVALUATION REPORT

**APPLICANT** : Hyco Genyong Technology Co., Ltd.

**PRODUCT NAME** : Ring scanner charging cradle

**MODEL NAME** : W2X-RS232 / W2X-USB / W2X-PS2

**BRAND NAME** : HYCO

**FCC ID** : 2ARHS-W2X

**STANDARD(S)** : 47CFR 2.1091  
KDB 447498

**ISSUE DATE** : 2018-11-07

Reviewed by:                     Gan Yueming                      
Gan yueming (Reviewer)

Approved by:                     Peng Huarui                      
Peng Huarui (Supervisor)

**NOTE:** This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

**MORLAB**

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.  
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,  
Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

Tel: 86-755-36698555

Fax: 86-755-36698525

Http://www.morlab.cn

E-mail: service@morlab.cn





# DIRECTORY

1. Technical Information..... 3

1.1 Applicant and Manufacturer Information.....3

1.2 Equipment Under Test (EUT) Description..... 3

1.3 Photographs of the EUT.....4

1.4 Applied Reference Documents.....5

2. Device Category and RF Exposure Limit.....6

3. Measurement of RF Output Power..... 7

4. RF Exposure Evaluation.....7

Annex A General Information..... 8

Version No.	Date	Description
1.0	2018-11-07	Original

Tested By	
Test engineer:	Su Jinhai



# 1. Technical Information

Note: Provide by manufacturer.

## 1.1 Applicant and Manufacturer Information

<b>Applicant:</b>	Hyco Genyong Technology Co., Ltd.
<b>Applicant Address:</b>	Room 105, 1/F, Building B, No.999 of Huaxu Road, Qingpu District, Shanghai, CN
<b>Manufacturer:</b>	HYCO Information Technology Co., Ltd
<b>Manufacturer Address:</b>	Room 3A07, Tower B, North Zone, No.999, Huaxu Road, Qingpu District, Shanghai

## 1.2 Equipment Under Test (EUT) Description

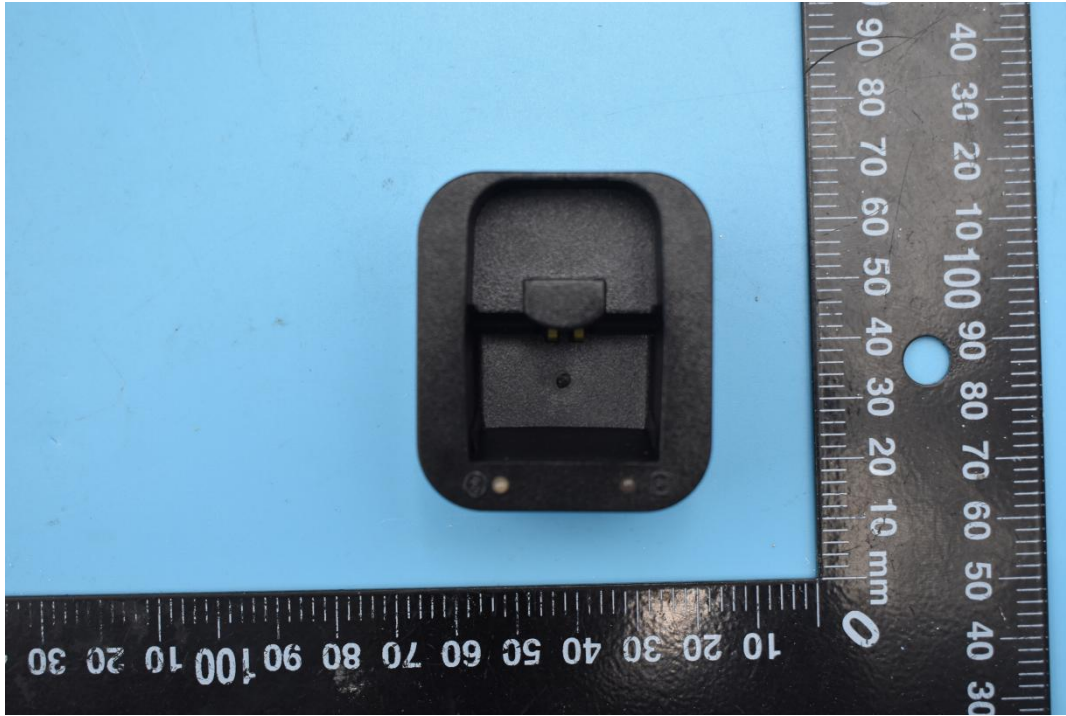
<b>EUT Type:</b>	Ring scanner charging cradle
<b>Hardware Version:</b>	V3
<b>Software Version:</b>	Charger 1.01.03
<b>Frequency Bands:</b>	Bluetooth: 2402 MHz ~2480 MHz
<b>Modulation Mode:</b>	BLE: GFSK
<b>Antenna Type:</b>	PCB Antenna
<b>Antenna Gain:</b>	-0.5dBi

**Note:**

1. W2X-RS232 --- W2X-RS232 used with U5(RS232 Transceiver) \R22\R23\C7\C31\C32\C33\C34, without R4\R5\R10\R11\R13\R39\R40\R41\R42\C22\C23\VD1\ VD2\ VD4; for communication with the other RS232 device.
2. W2X-USB --- with R4\R5\R10\R11\R13\C22\C23\VD1\VD2\VD4, without U5\R22\R23\R39\R40\R41\R42\C7\C31\C32\C33\C34; for communication with the other USB device.
3. W2X-PS2 --- with R39\R40\R41\R42\VD1\VD2, without U5\R4\R5\R10\R11\R13\R22\R23\C7\C22\C23\C31\C32\C33\C34\VD4; for communication with the other PS2 device.
4. The rest are the same, all of these three series, the RF specification were no difference.

### 1.3 Photographs of the EUT

#### 1. EUT Front View



#### 2. EUT Back View





### 1.3.1 Identification of all used EUT

The EUT identity consists of numerical and letter characters, the letter character indicates the test sample, and the following two numerical characters indicate the software version of the test sample.

EUT Identity	Hardware Version	Software Version
1#	V3	Charger 1.01.03

## 1.4 Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	47 CFR§2.1091	Radio frequency Radiation Exposure Evaluation: mobile devices
2	KDB 447498 D01v06	General RF Exposure Guidance



## 2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

### Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

### GENERAL POPULATION / UNCONTROLLED EXPOSURE

The general population/uncontrolled exposure limits are applicable to 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 made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

**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 <sup>2</sup> )	Averaging time (minutes)
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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

### 3. Measurement of RF Output Power

#### <Bluetooth Conducted Power>

Mode	Channel	Frequency (MHz)	Peak power (dBm)
			GFSK
LE	CH 00	2402	<b>-0.023</b>
	CH 19	2440	-0.147
	CH 39	2480	-0.486
Tune-up Limit (dBm)			0.000

### 4. RF Exposure Evaluation

#### Standalone transmission MPE evaluation

Bands	Frequency (MHz)	Maximum Tune-up Limit (dBm)	Antenna Gain (dBi)	EIRP (mW)	Power density (mW/cm <sup>2</sup> )	Limit for MPE (mW/cm <sup>2</sup> )
Bluetooth	2402	0.00	-0.50	0.89	0.00	1.0

#### Note:

##### 1. MPE calculation method

$$\text{Power Density} = \text{EIRP}/4\pi R^2$$

Where: EIRP = P+G

P = Output Power (dBm)

G = Antenna Gain (dBi)

R = Separation Distance (20cm)



## Annex A General Information

### 1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

### 2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

————— END OF REPORT —————