



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)

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MORLAB

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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

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

1.2 Equipment Under Test (EUT) Description

EUT Type:	Ring scanner charging cradle
Hardware Version:	V3
Software Version:	Charger 1.01.03
Frequency Bands:	Bluetooth: 2402 MHz ~2480 MHz
Modulation Mode:	BLE: GFSK
Antenna Type:	PCB Antenna
Antenna Gain:	-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 ²)	Averaging time (minutes)
(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



3. Measurement of RF Output Power

<Bluetooth Conducted Power>

Mode	Channel	Frequency (MHz)	Peak power (dBm)	
			GFSK	
LE	CH 00	2402	-0.023	
	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 ²)	Limit for MPE (mW/cm ²)
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.
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END OF REPORT