

MPE REPORT

FCC ID: 2ARHS-C20

Date of issue: Dec. 27, 2019

Report number: MTi19112510-4E2

Sample description: Smart Charger

Model(s): C20

Applicant: Shanghai Hyco Genyong Technology Co., Ltd.

Address: Room 105, 1/F, Building B, No.999 of Huaxu Road, Qingpu District, Shanghai, China

Date of test: Dec. 02, 2019 to Dec. 27, 2019

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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TEST RESULT CERTIFICATION	
Applicant's name:	Shanghai Hyco Genyong Technology Co., Ltd.
Address:	Room 105, 1/F, Building B, No.999 of Huaxu Road, Qingpu District, Shanghai, China
Manufacture's name:	Shanghai Hyco Genyong Technology Co., Ltd.
Address:	Room 105, 1/F, Building B, No.999 of Huaxu Road, Qingpu District, Shanghai, China
Product name:	Smart Charger
Trademark:	HYCO
Model and/or type reference .:	C20
Serial model.....:	N/A
RF exposure procedures.....:	KDB 447498 D01 v06

This device described above has been tested by Shenzhen Microtest Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by:

Demi Mu

Dec. 27, 2019

Reviewed by:

Leo Su

Dec. 27, 2019

Approved by:

Tom Xue

Dec. 27, 2019



RF EXPOSURE EVALUATION

According to FCC 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)

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

MPE Calculation Method

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

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

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



Measurement Result

BLE:

Operation Frequency: GFSK: 2402-2480MHz

Power density limited: 1mW/ cm²

Antenna Type: PCB Antenna;

BLE antenna gain: -0.5dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(-0.5/10)}=0.89$

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	4.33	4±1	5	3.162	-0.5	0.89	0.0006	1
2440		4.45	4±1	5	3.162	-0.5	0.89	0.0006	1
2480		4.08	4±1	5	3.162	-0.5	0.89	0.0006	1

Conclusion:

For the max result: 0.0006 ≤ 1.0 for 1g SAR, No SAR is required.

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