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HCT

TEST REPORT

FCC MPE Test for CTS-CISW
Class II Permissive Change

APPLICANT
CanTops Co., Ltd.

REPORT NO.
HCT-RF-2305-FC103

DATE OF ISSUE
May 26, 2023

Tested by Jeong Ho Kim	
Technical Manager Kwon Jeong	

HCT CO., LTD.

BongJai Huh   / CEO

HCT CO., LTD.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si,
Gyeonggi-do, 17383 KOREA
Tel. +82 31 634 6300 Fax. +82 31 645 6401

HCT Co., Ltd.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
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Additional Model
CTS-CISW-MNAX, CTS-CISW-BNAX

Applicant	**CanTops Co., Ltd.** A-1002~1008, Digital Empire BLDG, 16, Deogyeong-daero 1556beon-gil, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16690, South Korea
Eut Type **Model Name**	Wireless IoT Station CTS-CISW
FCC ID	RMN-60SIPT
Frequency range	2 402 MHz – 2 480 MHz (Bluetooth) 2 402 MHz – 2 480 MHz (BT LE) 2 412 MHz ~ 2 462 MHz (WLAN) 5 180 MHz ~ 5 825 MHz (UNII)
	The result shown in this test report refer only to the sample(s) tested unless otherwise stated. This test results were applied only to the test methods required by the standard.

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	May 26, 2023	Initial Release

Engineering Statement:
The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance

If this report is required to confirmation of authenticity, please contact to www.hct.co.kr

RF Exposure Statement

1. Limit

According to §1.1310, §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures				
Frequency range (MHz)	Electric field Strength (V/m)	Magnetic field Strength (A/m)	Power density (mW/cm²)	Averaging time (minutes)
0.3 - 1.34……………………………………	614	1.63	*(100)	30
1.34 - 30…………………………………	824/f	2.19/f	*(180/ f²)	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

2. Maximum Permissible Exposure Prediction

Prediction of MPE limit at a given distance

$$S = PG/4\pi R^2$$

S = Power density

P = Power input to antenna

G = Power gain to the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

3. RESULTS

3-1. BT LE

Average output Power at antenna input terminal	10.750	dBm
Average output Power at antenna input terminal	11.885	mW
Prediction distance	20.000	cm
Prediction frequency	2 402 ~ 2 480	MHz
Antenna Gain(typical)	3.040	dBi
Antenna Gain(numeric)	2.014	-
Power density at prediction frequency(S)	0.00476	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00000	mW/cm^2

2.1091

EIRP	13.79	(dBm)
ERP	11.64	(dBm)
ERP	0.015	(W)
ERP Limit	3.00	(W)
MARGIN	23.13	(dB)

3-2. Bluetooth

Average output Power at antenna input terminal	10.790	dBm
Average output Power at antenna input terminal	11.995	mW
Prediction distance	20.000	cm
Prediction frequency	2 402 ~ 2 480	MHz
Antenna Gain(typical)	3.040	dBi
Antenna Gain(numeric)	2.014	-
Power density at prediction frequency(S)	0.00481	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00000	mW/cm^2

2.1091

EIRP	13.83	(dBm)
ERP	11.68	(dBm)
ERP	0.015	(W)
ERP Limit	3.00	(W)
MARGIN	23.09	(dB)

3-3. DTS

Average output Power at antenna input terminal	21.410	dBm
Average output Power at antenna input terminal	138.357	mW
Prediction distance	20.000	cm
Prediction frequency	2 412 ~ 2 462	MHz
Antenna Gain(typical)	3.040	dBi
Antenna Gain(numeric)	2.014	-
Power density at prediction frequency(S)	0.05543	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00000	mW/cm^2

2.1091

EIRP	24.45	(dBm)
ERP	22.30	(dBm)
ERP	0.170	(W)
ERP Limit	3.00	(W)
MARGIN	12.47	(dB)

3-4. UNII

Average output Power at antenna input terminal	21.600	dBm
Average output Power at antenna input terminal	144.544	mW
Prediction distance	20.000	cm
Prediction frequency	5 180 ~ 5 825	MHz
Antenna Gain(typical)	3.680	dBi
Antenna Gain(numeric)	2.333	-
Power density at prediction frequency(S)	0.06710	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00000	mW/cm^2

2.1091

EIRP	25.28	(dBm)
ERP	23.13	(dBm)
ERP	0.206	(W)
ERP Limit	3.00	(W)
MARGIN	11.64	(dB)