HCT

TEST REPORT

FCC MPE Test for SRM200A

Certification

APPLICANT
SEONG JI INDUSTRIAL CO.,LTD

REPORT NO.
HCT-RF-1911-FI009-R1

DATE OF ISSUE
December 16, 2019

HCT

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

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FCC ID
2AS8LSRM200A

Applicant	SEONG JI INDUSTRIAL CO.,LTD
	54-33, DongtanHana 1-gil, Hwaseong-si, Gyeonggi-do, 18423, Korea
Eut Type	Monarch Quad-mode module
Model Name	SRM200A
Date of Receipt	September 09, 2019

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.

Tested by
Se Wook Park   (signature)

Technical Manager
Jong Seok Lee   (signature)

HCT CO., LTD.
Soo Chan Lee
SooChan Lee   / CEO

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	November 13, 2019	Initial Release
1	December 16, 2019	Revised the BT_LE Result on page 5

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility   for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that

includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

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/cm^2)	Averaging time (minutes)
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

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	5.00	dBm
Average output Power at antenna input terminal	3.16	mW
Prediction distance	20.00	cm
Prediction frequency	2402 – 2480	MHz
Antenna Gain(typical)	3.00	dBi
Antenna Gain(numeric)	1.995	-
Power density at prediction frequency(S)	0.00126	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.000	mW/cm^2

2.1091

EIRP	8.00	(dBm)
ERP	5.85	(dBm)
ERP	0.004	(W)
ERP Limit	3.00	(W)
MARGIN	28.92	(dB)

3-2. DTS

Average output Power at antenna input terminal	14.00	dBm
Average output Power at antenna input terminal	25.12	mW
Prediction distance	20.000	cm
Prediction frequency	2412 ~ 2462	MHz
Antenna Gain(typical)	4.44	dBi
Antenna Gain(numeric)	2.78	-
Power density at prediction frequency(S)	0.01389	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

2.1091

EIRP	18.44	(dBm)
ERP	16.29	(dBm)
ERP	0.043	(W)
ERP Limit	3.00	(W)
MARGIN	18.48	(dB)

3-3. Sigfox(RC2)

Average output Power at antenna input terminal	25.50	dBm
Average output Power at antenna input terminal	354.81	mW
Prediction distance	20.000	cm
Prediction frequency	902.1375 ~ 923.2625	MHz
Antenna Gain(typical)	1.98	dBi
Antenna Gain(numeric)	1.578	-
Power density at prediction frequency(S)	0.11136	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.601	mW/cm^2

2.1091

EIRP	27.48	(dBm)
ERP	25.33	(dBm)
ERP	0.34	(W)
ERP Limit	1.50	(W)
MARGIN	6.43	(dB)

Simultaneous transmission operations

->Simultaneous MPE 20cm is WLAN(DTS) (0.01389/1.0) + BT LE (0.00126/1.0) = 0.01515 < 1

->Simultaneous MPE 20cm is + Sigfox (0.11136/1.0) + BT LE (0.00126/1.0) = 0.11262 < 1