HCT CO.,LTD.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
TEL: +82-31-645-6300 FAX: +82-31-645-6401

FCC MPE REPORT

Certification

Applicant Name:
GS Instech Co., Ltd.

Address:
70, Gilpa-ro 71beon-gil, Nam-gu, Inchen, Korea

Date of Issue:
October 12, 2018

Location of test lab:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-1810-FC012-R1

FCC ID:	**U88CC-I13**
APPLICANT:	**GS Instech Co., Ltd.**

Model:	CC-I13
EUT Type:	Industrial RF Repeater
Frequency Range:	862 MHz ~ 894 MHz (DL) / 817 MHz ~ 849 MHz (UL)

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)

Report prepared by : Kwang Il Yoon
Engineer of telecommunication testing center

Approved by : Jong Seok Lee
Manager of telecommunication testing center

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1810-FC012	October 10, 2018	- First Approval Report
HCT-RF-1810-FC012-R1	October 12, 2018	- We recalculated with the change of Antenna Gain.

RF Exposure Statement

1. LIMITS

According to §1.1310 and §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 of 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. LTE 5 MHz Downlink

Average output Power at antenna input terminal	13.27	dBm
Average output Power at antenna input terminal	21.232	mW
Prediction distance	20.00	cm
Prediction frequency	881.500	MHz
Antenna Gain(typical)	4.000	dBi
Antenna Gain(numeric)	2.512	-
Power density at prediction frequency(S)	0.0106	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5877	mW/cm^2

2.1091

EIRP	17.27	(dBm)
ERP	15.12	(dBm)
ERP	0.03	(W)
ERP Limit	1.50	(W)
MARGIN	16.64	(dB)

3-2. LTE 5 MHz Uplink

Average output Power at antenna input terminal	18.19	dBm
Average output Power at antenna input terminal	65.917	mW
Prediction distance	20.00	cm
Prediction frequency	821.500	MHz
Antenna Gain(typical)	6.000	dBi
Antenna Gain(numeric)	3.981	-
Power density at prediction frequency(S)	0.0522	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5477	mW/cm^2

2.1091

EIRP	24.19	(dBm)
ERP	22.04	(dBm)
ERP	0.16	(W)
ERP Limit	1.50	(W)
MARGIN	9.72	(dB)

3-3. CDMA Downlink

Average output Power at antenna input terminal	13.29	dBm
Average output Power at antenna input terminal	21.330	mW
Prediction distance	20.00	cm
Prediction frequency	892.750	MHz
Antenna Gain(typical)	4.000	dBi
Antenna Gain(numeric)	2.512	-
Power density at prediction frequency(S)	0.0107	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5952	mW/cm^2

2.1091

EIRP	17.29	(dBm)
ERP	15.14	(dBm)
ERP	0.03	(W)
ERP Limit	1.50	(W)
MARGIN	16.62	(dB)

3-4. CDMA Uplink

Average output Power at antenna input terminal	18.31	dBm
Average output Power at antenna input terminal	67.764	mW
Prediction distance	20.00	cm
Prediction frequency	847.750	MHz
Antenna Gain(typical)	6.000	dBi
Antenna Gain(numeric)	3.981	-
Power density at prediction frequency(S)	0.0537	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5652	mW/cm^2

2.1091

EIRP	24.31	(dBm)
ERP	22.16	(dBm)
ERP	0.16	(W)
ERP Limit	1.50	(W)
MARGIN	9.60	(dB)