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FCC MPE REPORT

Certification

Applicant Name: GS Instech Co., Ltd.	**Date of Issue:** December 06, 2018
Address: 70, Gilpa-ro 71beon-gil, Nam-gu, Inchen, Korea	**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-1812-FC014

FCC ID:	**U88-B25K**
APPLICANT:	**GS Instech Co., Ltd.**

Model:	B-25K
EUT Type:	In-building RF repeater

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.

Report prepared by : Kwang il Yooon
Engineer of telecommunication testing center

Approved by : Jong Seok Lee
Manager of telecommunication testing center

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1812-FC014	December 06, 2018	- First Approval Report

RF Exposure Statement

1. Limit
- According to § 1.1310 RF exposure is calculated.

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)
(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

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

- Lower 700 MHz – LTE 10 MHz_Uplink

Max peak output power at antenna input terminal (dBm)	19.980	dBm
Max peak output power at antenna input terminal (mW)	99.541	mW
Prediction distance	20.000	cm
Prediction frequency	709.0000	MHz
Antenna gain (typical)	9.000	dBi
Antenna gain (numeric)	7.943	-
Power density at prediction frequency	0.1573	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4727	mW/cm^2

- Lower 700 MHz – LTE 10 MHz_Downlink

Max peak output power at antenna input terminal (dBm)	10.020	dBm
Max peak output power at antenna input terminal (mW)	10.046	mW
Prediction distance	20.000	cm
Prediction frequency	739.0000	MHz
Antenna gain (typical)	7.000	dBi
Antenna gain (numeric)	5.012	-
Power density at prediction frequency	0.0100	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.4927	mW/cm^2

- Upper 700 MHz – LTE 10 MHz_Uplink

Max peak output power at antenna input terminal (dBm)	19.730	dBm
Max peak output power at antenna input terminal (mW)	93.972	mW
Prediction distance	20.000	cm
Prediction frequency	782.0000	MHz
Antenna gain (typical)	9.000	dBi
Antenna gain (numeric)	7.943	-
Power density at prediction frequency	0.1485	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5213	mW/cm^2

- Upper 700 MHz – LTE 10 MHz_Downlink

Max peak output power at antenna input terminal (dBm)	9.820	dBm
Max peak output power at antenna input terminal (mW)	9.594	mW
Prediction distance	20.000	cm
Prediction frequency	751.0000	MHz
Antenna gain (typical)	7.000	dBi
Antenna gain (numeric)	5.012	-
Power density at prediction frequency	0.0096	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5007	mW/cm^2

- Cellular – CDMA_Uplink

Max peak output power at antenna input terminal (dBm)	20.020	dBm
Max peak output power at antenna input terminal (mW)	100.462	mW
Prediction distance	20.000	cm
Prediction frequency	831.0600	MHz
Antenna gain (typical)	9.000	dBi
Antenna gain (numeric)	7.943	-
Power density at prediction frequency	0.1588	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5540	mW/cm^2

- Cellular – LTE 5 MHz_Uplink

Max peak output power at antenna input terminal (dBm)	19.900	dBm
Max peak output power at antenna input terminal (mW)	97.724	mW
Prediction distance	20.000	cm
Prediction frequency	831.0600	MHz
Antenna gain (typical)	9.000	dBi
Antenna gain (numeric)	7.943	-
Power density at prediction frequency	0.1544	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5540	mW/cm^2

- Cellular – CDMA_Downlink

Max peak output power at antenna input terminal (dBm)	10.460	dBm
Max peak output power at antenna input terminal (mW)	11.117	mW
Prediction distance	20.000	cm
Prediction frequency	873.8800	MHz
Antenna gain (typical)	7.000	dBi
Antenna gain (numeric)	5.012	-
Power density at prediction frequency	0.0111	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5826	mW/cm^2

- Cellular – LTE 5 MHz_Downlink

Max peak output power at antenna input terminal (dBm)	10.370	dBm
Max peak output power at antenna input terminal (mW)	10.889	mW
Prediction distance	20.000	cm
Prediction frequency	873.8800	MHz
Antenna gain (typical)	7.000	dBi
Antenna gain (numeric)	5.012	-
Power density at prediction frequency	0.0109	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.5826	mW/cm^2

- AWS-1 – LTE 10 MHz_Uplink

Max peak output power at antenna input terminal (dBm)	20.090	dBm
Max peak output power at antenna input terminal (mW)	102.094	mW
Prediction distance	20.000	cm
Prediction frequency	1726.090	MHz
Antenna gain (typical)	11.000	dBi
Antenna gain (numeric)	12.589	-
Power density at prediction frequency	0.2557	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- AWS-1 – LTE 10 MHz_Downlink

Max peak output power at antenna input terminal (dBm)	9.910	dBm
Max peak output power at antenna input terminal (mW)	9.795	mW
Prediction distance	20.000	cm
Prediction frequency	2124.960	MHz
Antenna gain (typical)	10.000	dBi
Antenna gain (numeric)	10.000	-
Power density at prediction frequency	0.0195	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- Broadband PCS – CDMA_Uplink

Max peak output power at antenna input terminal (dBm)	19.740	dBm
Max peak output power at antenna input terminal (mW)	94.189	mW
Prediction distance	20.000	cm
Prediction frequency	1887.860	MHz
Antenna gain (typical)	11.000	dBi
Antenna gain (numeric)	12.589	-
Power density at prediction frequency	0.2359	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- Broadband PCS – LTE 20 MHz_Uplink

Max peak output power at antenna input terminal (dBm)	19.920	dBm
Max peak output power at antenna input terminal (mW)	98.175	mW
Prediction distance	20.000	cm
Prediction frequency	1887.860	MHz
Antenna gain (typical)	11.000	dBi
Antenna gain (numeric)	12.589	-
Power density at prediction frequency	0.2459	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- Broadband PCS – CDMA_Downlink

Max peak output power at antenna input terminal (dBm)	9.940	dBm
Max peak output power at antenna input terminal (mW)	9.863	mW
Prediction distance	20.000	cm
Prediction frequency	1967.210	MHz
Antenna gain (typical)	10.000	dBi
Antenna gain (numeric)	10.000	-
Power density at prediction frequency	0.0196	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2

- Broadband PCS – LTE 20 MHz_Downlink

Max peak output power at antenna input terminal (dBm)	9.990	dBm
Max peak output power at antenna input terminal (mW)	9.977	mW
Prediction distance	20.000	cm
Prediction frequency	1967.210	MHz
Antenna gain (typical)	10.000	dBi
Antenna gain (numeric)	10.000	-
Power density at prediction frequency	0.0198	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.0000	mW/cm^2