HCT CO.,LTD

FCC MPE REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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Date of Issue:
February 22, 2019

Location of test lab:
HCT CO., LTD.,
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Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-1902-FC053

FCC ID:	**A3LRT4401-48A**
APPLICANT:	**SAMSUNG Electronics Co.,Ltd.**

Model: RT4401-48A

EUT Type: RRU(RT4401)

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.

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Approved by : Jong Seok Lee
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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1902-FC053	February 22, 2019	- 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
3.1 Max Power
3.1.1 20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers (QPSK, High)

EIRP[Radiated Power]	46.45	dBm
EIRP[Radiated Power]	44157.045	mW
Prediction distance	80.00	cm
Prediction frequency	3675.00	MHz
Power density at prediction frequency (S)	0.54905	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

3.1.2 10 MHz Bandwidth / 1 Carriers (16QAM, High)

EIRP[Radiated Power]	46.25	dBm
EIRP[Radiated Power]	42169.650	mW
Prediction distance	80.00	cm
Prediction frequency	3695.00	MHz
Power density at prediction frequency (S)	0.52434	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

3.1.3 20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers (64QAM, High)

EIRP[Radiated Power]	46.46	dBm
EIRP[Radiated Power]	44258.837	mW
Prediction distance	80.00	cm
Prediction frequency	3675.00	MHz
Power density at prediction frequency (S)	0.55031	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

3.1.4 20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers (256QAM, High)

EIRP[Radiated Power]	46.40	dBm
EIRP[Radiated Power]	43651.583	mW
Prediction distance	80.00	cm
Prediction frequency	3675.00	MHz
Power density at prediction frequency (S)	0.54276	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

Note:

1)   MPE is calculated at the worst case of conducted output power for 1cc and 4cc

3.2 Min Power

3.2.1 20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers (QPSK, High)

EIRP[Radiated Power]	46.94	dBm
EIRP[Radiated Power]	49431.069	mW
Prediction distance	80.00	cm
Prediction frequency	3690.00	MHz
Power density at prediction frequency (S)	0.61462	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

3.2.2 20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers (16QAM, High)

EIRP[Radiated Power]	46.88	dBm
EIRP[Radiated Power]	48752.849	mW
Prediction distance	80.00	cm
Prediction frequency	3690.00	MHz
Power density at prediction frequency (S)	0.60619	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

3.2.3 10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers (64QAM, High)

EIRP[Radiated Power]	46.99	dBm
EIRP[Radiated Power]	50003.453	mW
Prediction distance	80.00	cm
Prediction frequency	3685.00	MHz
Power density at prediction frequency (S)	0.62174	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

3.2.4 20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers (256QAM, High)

EIRP[Radiated Power]	46.97	dBm
EIRP[Radiated Power]	49773.708	mW
Prediction distance	80.00	cm
Prediction frequency	3690.00	MHz
Power density at prediction frequency (S)	0.61889	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	1.00	mW/cm^2

Note:

1) MPE is calculated at the worst case of conducted output power for 1cc and 4cc