



RF EXPOSURE EVALUATION

EUT Specification

EUT	TD-LTE/LTE FDD UE
Model Number	A4G-400
FCC ID	2A8WC-A4G-400
Antenna gain (Max)	LTE Band 2: Maximum Gain is 3.5dBi. LTE Band 4: Maximum Gain is 2.9dBi. LTE Band 5: Maximum Gain is 0.9dBi. LTE Band 7: Maximum Gain is 2.9dBi. LTE Band 12: Maximum Gain is -0.1dBi. LTE Band 38: Maximum Gain is 2.9dBi. LTE Band 41: Maximum Gain is 2.9dBi.
Operation Frequency	LTE Band 2: 1850 ~ 1910 MHz LTE Band 4: 1710 ~ 1755 MHz LTE Band 5: 824 ~ 849 MHz LTE Band 7: 2500 ~ 2570 MHz LTE Band 12: 699MHz ~ 716MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496MHz ~ 2670MHz
Input Rating	DC 4.2-5.25V, typical value DC 5V
Max. output power	LTE B2: 23.04dBm, LTE B4: 23.66 dBm LTE B5: 24.03dBm, LTE B7: 23.62dBm LTE B12: 24.14dBm, LTE B38: 24.04dBm, LTE B41: 23.67dBm

Test Requirement:

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

11.1 Friis transmission formula: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1416

R = distance between observation point and center of the radiator in cm = 20cm

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result: PASS

Mode	Channel	Max measured power EIRP (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
LTE	B2	23.04	23±1	24	2.239	0.049972	1
	B4	23.66	24±1	25	1.950	0.062911	1
	B5	24.03	24±1	25	1.230	0.062911	0.5493
	B7	23.62	24±1	25	1.950	0.062911	1
	B12	24.14	24±1	25	0.977	0.062911	0.4660
	B38	24.04	24±1	25	1.950	0.062911	1
	B41	23.67	24±1	25	1.950	0.062911	1