RF Exposure Evaluation

LIMIT

◎ Single transmitter:

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
300–1500	-	-	f/300	6
1500–100,000	-	-	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
300–1500	-	-	f/1500	30
1500–100,000	-	-	1.0	30

Note: f = frequency in MHz

◎ Simultaneous transmission:

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is≤1.0.

EVALUATION METHOD

Transmission formula: **$Pd = (Pout*G)/(4*pi*r^2)$**

Where

Pd = power density in mW/cm^2, **Pout** = output power to antenna in mW, **G** = gain of antenna in linear scale;

Pi = 3.1416, **R** = distance between observation point and center of the radiator in cm

TEST RESULT

☒ **Passed** ☐ **Not Applicable**

Single transmitter:

Type	Maximum Output Power(dBm)[#1]	Maximum Duty Cycle (%)	Antenna Gain[#2] (dBi)	Minimum use distance (cm)	Power density (mW/cm^2)	Power density limit (mW/cm^2)	Result
LTE Cat M/NB Band 2	22.00	100.0	5.21	20	0.105	1.000	PASS
LTE Cat M/NB Band 4	22.00	100.0	5.26	20	0.106	1.000	PASS
LTE Cat M/NB Band 5	22.00	100.0	2.08	20	0.051	0.549	PASS
LTE Cat M/NB Band 12	22.00	100.0	0.74	20	0.037	0.466	PASS
LTE Cat M/NB Band 13	22.00	100.0	1.56	20	0.045	0.518	PASS
BLE	4.00	100.0	1.95	20	0.0008	1.000	PASS

Note:

#1: LTE Cat M, LTE Cat NB Refer to module FCC ID: RI7ME310G1W1. The product only uses the frequency bands listed in this report, and other frequency bands of the module have been disabled by software.

#2: The antenna gain is provided by the applicant, and the applicant should be responsible for its authenticity, HTW lab has not verified the authenticity of its information.

Simultaneous transmission (Worst Case):

Radio Type	Power density (mW/cm^2)	Power density level (mW/cm^2)	Computed result	Limit	Result
LTE Cat M/NB Band 4	0.105	1.000	0.1058	1.0	PASS
BLE	0.0008	1.000			