RF EXPOSURE EVALUATION

1. PRODUCT INFORMATION

Product Description	GPS tracker
Model Name	G1C
FCC ID	2AWGT-G1C

2. EVALUATION METHOD AND LIMIT

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE

Frequency Range (MHz)	E-field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (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

*Note:

1. f= Frequency in MHz * Plane-wave Equivalent Power Density

2. The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirement for mobile and portable transmitters.

3.Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.0 / 2.0 in linear scale.

Friis Formula

Friis transmission formula: S = (P*G)/(4* Pi * R 2)

Where

$S=PG/4\pi R^2$

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

Pi = 3.1416

CALCULATION

A minimum test separation distance ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits. The distance must be at least 20 cm and fully supported by the operating and installation configurations of the transmitter and its antenna(s), according to the source-based time-averaged maximum power requirements of § 2.1091(d)(2). In cases where cable losses or other attenuations are applied to determine compliance, the most conservative operating configurations and exposure conditions must be evaluated.

Band	Frequency (MHz)	Ant Gain (dBi)	Conducted Average Output Power (dBm)	Output Power Antenna(dBm)	EIRP (ERP) Limit (dBm)	Output Power Antenna (mw)	Power Density R = 20cm (mW/cm2)	Limit (mW/cm2)	Gain according EIRP(dBi)	Gain according P (dBi)	Max Gain Allowed (dBi)	Result
GSM 850	824.20	-1.00	23.31	20.16	38.45	103.7528	0.0339	0.5495	8.10	14.25	8.10	PASS
GSM 1900	1850.20	0.90	20.81	21.71	33.00	148.2518	0.0295	1.0000	3.00	15.30	3.00	PASS
LTE NB1 BAND 2	1850.20	0.90	21.00	21.90	33.00	154.8817	0.0308	1.0000	12.00	15.11	12.00	Pass
LTE NB1 BAND 4	1710.10	1.6	21.00	22.60	30.00	125.8925	00.362	1.0000	9.00	16.01	9.00	Pass
LTE NB1 BAND12	699.10	-1.40	21.00	17.45	34.77	125.8925	0.0181	0.4661	15.92	12.69	12.69	Pass
LTE NB1 BAND13	777.10	-0.70	21.00	18.15	34.77	125.8925	0.0213	0.5181	15.92	13.15	13.15	Pass
LTE CatM1 BAND2	1850.70	0.90	22.00	22.90	33.00	158.4893	0.0388	1.0000	11.00	15.01	11.00	Pass
LTE CatM1 BAND 4	1710.70	1.60	22.00	23.60	30.00	158.4893	0.0456	1.0000	8.00	15.01	8.00	Pass
LTE CatM1 BAND12	699.70	-1.40	22.00	18.45	34.77	158.4893	0.0228	0.4665	14.92	11.70	11.70	Pass
LTE CatM1 BAND13	779.50	-0.70	22.00	19.15	34.77	158.4893	0.0268	0.5197	14.92	12.16	12.16	Pass

Note: Refer to report No. ZR/2019/8003201 for EUT test Max Conducted Output Power value.