ATTACHMENT

LTA Co., Ltd.

RF EXPOSURE EVULATION

General information

Test Performed(SAR)

Company name	:	LTA Co., Ltd.
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Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".

Accredited agencies

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2023-09-28	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	updaing	FCC CAB
VCCI	JAPAN	C-4948,	2023-09-10	VCCI registration
VCCI	JAPAN	T-2416,	2023-09-10	VCCI registration
VCCI	JAPAN	R-4483(10 m),	2023-08-15	VCCI registration
VCCI	JAPAN	G-847	2023-12-13	VCCI registration
IC	CANADA	5799A-1	updaing	IC filing

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1.1 Limit

According to §1.1310 and §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength	Magnetic field Strength	Power density	Averaging time
1.34 - 30......................................	824/f	2.19/f	*(180/ f²)	30
30 - 300......................................	27.5	0.073	0.2	30
300 - 1500....................................	....	....	f/1500	30
1500 - 100.000...............................	....	....	**1.0**	30

F = frequency in MHz

* = Plane-wave equivalent power density

1.2 MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

Power density at the specific separation:

$S = PG/(4R^2 \pi)$ $S = (5.236 * 1.66) / (4 * 5^2 * \pi)$ $S = 2.77 \text{ mW/cm}^2$	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20 cm = limit for MPE)

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1.3 MAXIMUM PERMISSIBLE EXPOSURE Prediction

- Calculated under the worst-case conditions of each mode.

(Measured power 7 dBm ± 0.5dB)

3-1. 2.4 GHz Mode

Max Peak output Power at antenna input terminal	7.19	dBm
Max Peak output Power at antenna input terminal	5.236	mW
Prediction distance	5	mm
Prediction frequency	2462	MHz
Antenna Gain(typical)	2.2	dBi
Antenna Gain(numeric)	1.66	-
Power density at prediction frequency(S)	2.77	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	0.045	mW/cm^2

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance ≤ 50 mm = **Used**

[(max.power of channel, including tune-up torelance, mW)/(min. test separation distance, mm)] * [√f(GHz)]

= [5.236 / 5] * [√2.462] = 1.64 ≤ 3.0, for 1g SAR

Thus, SAR for this device is not required.

3-2. 900 MHz RFID Mode

Max Peak output Power at antenna input terminal	29.95	dBm
Max Peak output Power at antenna input terminal	998.78	mW
Prediction distance	50	mm
Prediction frequency	902.75	MHz
Antenna Gain(typical)	1.071	dBi
Antenna Gain(numeric)	1.28	-
Power density at prediction frequency(S)	402.96	mW/cm^2
MPE limit for uncontrolled exposure at prediction frequency	201.48	mW/cm^2

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance ≤ 50 mm = **Used**

[(max.power of channel, including tune-up torelance, mW)/(min. test separation distance, mm)] * [√f(GHz)]

= [988.78 / 50] * [√902.75] = 18.79 ≤ 3.0, for 1g SAR

This product measured the SAR test for RFID.

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3-2. LTE Mode

LTE2

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance ≤ 50 mm = **Used**

[(max.power of channel, including tune-up torelance, mW)/(min. test separation distance, mm)] * [√f(GHz)]

= [154.88 / 5] * [√1.880] = 4.25 ≤ 3.0, for 1g SAR

LTE4

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance ≤ 50 mm = **Used**

[(max.power of channel, including tune-up torelance, mW)/(min. test separation distance, mm)] * [√f(GHz)]

= [190.55 / 5] * [√1.7325] = 5.016 ≤ 3.0, for 1g SAR

LTE5

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance ≤ 50 mm = **Used**

[(max.power of channel, including tune-up torelance, mW)/(min. test separation distance, mm)] * [√f(GHz)]

= [169.82 / 5] * [√0.8265] = 3.09 ≤ 3.0, for 1g SAR

This product measured the SAR test for LTE Band 2,4,5.

Conditions for Simultaneous Transmission

RFID + LTE = 18.79 + 5.016 = 23.806≤ 3.0, for 1g SAR

RFID(3.007W/kg)+LTE(0.647W/kg) = 3.654 W/kg ≤ 20.0Controlled Exposure (Hand)

*BT and WLANs are exempt from concurrent transmission conditions because they are exempt.

Number of concurrent transfers

1. BT+RFID+LTE

2. BT+RFID+WLAN

3. BT+RFID

4. BT+LTE

5. BT+WLAN