Radiofrequency radiation exposure evaluation: mobile devices

RESULT :   **Pass**

Test Specification

Test item	:	FAT100L
Identification / Type No.	:	FAT100L
FCC ID	:	2A24I-FAT100-SU
Test standard	:	CFR47 FCC Part 2: Section 2.1091
		CFR47 FCC Part 1: Section 1.1310
		FCC KDB Publication 447498 D04

➢ **FCC requirements**

FCC requirement: Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

MPE Calculation Method according to KDB 447498 D04

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	1,920 R^2
1.34	–	30	35.6 m	–	1.6 m	3,450 R^2/f^2
30	–	300	1.6 m	–	159 mm	3.83 R^2
300	–	1,500	159 mm	–	31.8 mm	0.0128 R^2f
1,500	–	100,000	31.8 mm	–	0.5 mm	19.2R^2

Subscripts L and H are low and high; λ is wavelength.
From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.

$$P_{th} \text{ (mW)} = ERP_{20\,cm} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \tag{B.1}$$

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20\,cm}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20\,cm} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \tag{B.2}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\,cm}\sqrt{f}}\right)$$

a) EUT RF Exposure Evaluation operations, Worst Case mode

Test Mode	Conducted Power (dBm)	Conducted Power (mW)	Minimum Separation Distances (cm)	Limit (mW)
BLE	-1.48	0.711	20	768