CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Tel: +82-31-339-9970 Fax: +82-31-624-9501
www.e-ctk.com

RF EXPOSURE EVALUATION

FCC ID : 2AFWN-WA29FO018W0
ISED certification number : 22800-WA29FO018W0

Standard Requirement

The following FCC Rule Parts and procedures are applicable :

Part 1.1310 Radiofrequency radiation exposure limits
Part 2.1091 Radiofrequency radiation exposure evaluation : Mobile device
KDB447498 D01 v06 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

Table 1 below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

Table 1—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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			**1.0**	30

*f = frequency in MHz * = Plane-wave equivalent power density*

RSS-102(Issue5) Exposure Limits

Table : RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency range (MHz)	Electric field strength (V/m rms)	Magnetic field strength (A/m rms)	Power density (W/m^2)	Reference Period (minutes)
$0.003\text{-}10^{21}$	83	90	-	Instantaneous*
0.1-10	-	$0.73 / f$	-	6**
1.1-10	$87 / f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07 / f^{0.25}$	$0.1540 / f^{0.25}$	$8.944 / f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	**$0.02619 f^{0.6834}$**	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000 / f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-05} f$	$616000 / f^{1.2}$

f is frequency in MHz,
**:Based on nerve stimulation(NS), **:Based on specific absorption rate(SAR)*

RF Output Power

802.11b : 16.12 dBm (40.926 mW)
802.11g : 15.32 dBm (34.041 mW)
802.11n-HT20 : 15.15 dBm (32.734 mW)
802.11n-HT40 : 15.36 dBm (34.356 mW)

MPE calculation

$S = EIRP / (4\pi R^2)$
Where S : Power density
EIRP : P x G
P : Maximum transmitter power
G : Antenna gain
R : distance to the centre of radiation of the antenna

FCC-MPE Limits

1 mW/cm²

EUT RF Exposure

P : 16.12 dBm (40.926 mW)
G : 3.62 dBi (x 2.301)
R : 20 cm

S = 0.019 mW/cm²

RSS-102 Limits

$0.02619\ f^{0.6834}$ => **5.44 W/m²**

EUT RF Exposure

P : 16.12 dBm (0.041 W)
G : 3.62 dBi (x 2.301)
R : 0.20 m

S = 0.187 W/m²

Safety distance(R)

P : 16.12 dBm (40.926 mW)
G : 3.62 dBi (x 2.301)
S : 1 mW/cm²

R ≥ 7.499 cm

Conclusion

This confirms compliance to the required Radio frequency radiation exposure limit.