MPE Calculation

Model	:	**H82364-.**
Product Type	:	IP touch 7”
Applicant	:	ABB Genway Xiamen Electrical Equipment Co.,Ltd
Manufacturer	:	ABB Genway Xiamen Electrical Equipment Co.,Ltd
Address	:	No.7 Fangshan South Road, Torch High Technology,Development Zone (Xiang An), Industrial Zone, 361000 Xiamen S.E.Z, Fujian Province, PEOPLE'S REPUBLIC OF CHINA
FCC ID	:	2AEBL-H82364

According to subpart 15.247(i), 15.407(f), subpart §1.1307(b)(1) and §2.1091, 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 of the Commission’s guidelines. All equipment shall be considered to operate in a “general population/uncontrolled” environment.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	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;

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

Calculated Formulary:
Predication of MPE limit at a given distance
$S = PG/(4\pi R^2)$ = power density (in appropriate units, e.g. mW/cm2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

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Calculated Data:

For 2.4G WIFI:
Ant1:

Maximum peak output power at antenna input terminal (dBm):	17.34
Maximum peak output power at antenna input terminal (mW):	54.2
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	3.6
Maximum Antenna Gain (numeric):	2.29
The worst case is power density at predication frequency at 20 cm (mW/cm2):	**0.025**
MPE limit for general population exposure at prediction frequency (mW/cm2):	1.0

Ant2:

Maximum peak output power at antenna input terminal (dBm):	18.21
Maximum peak output power at antenna input terminal (mW):	66.22
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	3.6
Maximum Antenna Gain (numeric):	2.29
The worst case is power density at predication frequency at 20 cm (mW/cm2):	**0.030**
MPE limit for general population exposure at prediction frequency (mW/cm2):	1.0

0.030 (mW/cm2) < 1 (mW/cm2)

For 5G WIFI:

Maximum output power at antenna input terminal (dBm):	21.24
Maximum peak output power at antenna input terminal (mW):	133
Prediction distance (cm):	20
Antenna Gain, typical (dBi):	4.2
Maximum Antenna Gain (numeric):	2.63
The worst case is power density at predication frequency at 20 cm (mW/cm2):	**0.061**
MPE limit for general population exposure at prediction frequency (mW/cm2):	1.0

0.061 (mW/cm2) < 1 (mW/cm2)

Result: Compliant

TUV SUD China, Guangzhou Branch

Reviewed by:

Tony Liu / Project Reviewer
Date: 2018-11-30

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Date: 2018-11-30

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