1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 Standard Applicable

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Times $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalents power density

1.2 MPE Calculation Method

$S = (30*P*G) / (377*R^2)$

S = power density (in appropriate units, e.g., mw/cm^2)

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 (in appropriate units, e.g., cm)

1.3 MPE Calculation Result

Product Name: loudspeaker box

Model No.: QS-1221B, QS-8201, QS-8202, QS-8203, QS-1013, QS-1016B, QS-1017B, QS-1018B, QS-10212, QS-1022B, QS-10213, QS-1036B, QS-10216, QS-10217, QS-10218, QS-10219, QS-10220, QS-1206B, QS-12213, QS-,1202B, QS-12201, QS-12202, QS-12203, QS-2205, QS-12206, QS-8020, QS-8021, QS-8022, QS-12101, QS-12102, QS-12103

Maximum peak output power: -0.42 (dBm)

Maximum peak output power at antenna input terminal: 0.91 (mW)

Prediction distance: >20(cm)

Prediction frequency: 2480 (MHz)

Antenna gain: 1 (dBi)

Directional gain: 1.26 (numeric)

The worst case is power density at prediction frequency at 20cm: $0.0002(mw/cm^2)$

MPE limit for general population exposure at prediction frequency: $1 (mw/cm^2)$

$0.0002(mw/cm^2) < 1 (mw/cm^2)$

Result: Pass