

# Maximum Permissible Exposure(MPE) Report

## 1. Applicable Standard

FCC Part §1.1310

## 2. Requirements

| Limits For Maximum Permissible Exposure (MPE) |                              |                              |                                     |                          |
|-----------------------------------------------|------------------------------|------------------------------|-------------------------------------|--------------------------|
| Frequency range (MHz)                         | Electric field strength(V/m) | Magnetic field Strength(A/m) | Power density (mw/cm <sup>2</sup> ) | Averaging time (minutes) |
| 0.3-1.34                                      | 614                          | 1.63                         | *100                                | 30                       |
| 1.34-30                                       | 824/f                        | 2.19/f                       | *180/f <sup>2</sup>                 | 30                       |
| 30-300                                        | 27.5                         | 0.0173                       | 0.2                                 | 30                       |
| 300-1,500                                     |                              |                              | f/1500                              | 30                       |
| 1,500-100,000                                 |                              |                              | 1.0                                 | 30                       |

## 3. MPE Calculation

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = Power density (In appropriate units, e.g., mW/cm<sup>2</sup>)

P = Power input to the antenna ( In appropriate units, e.g., mW)

G = Power gain og the antenna in the direction of interest relative to an isotropic radiator, the power gain factor,

Is normally numeric gain

R =Distance tp the center of radiation of the antenna(In appropriate units, e.g., cm

## 4. Test Result

| Operation Bands | Frequency (MHz) | Max. Output power(dBm) | Cable loss (dB) | Power to Antenna(mW) | Antenna gain |         |
|-----------------|-----------------|------------------------|-----------------|----------------------|--------------|---------|
|                 |                 |                        |                 |                      | Isotropic    | Numeric |
| UL824-869       | 838.03          | 20.40                  | 5.49            | 30.97                | 9            | 7.94    |
| UL698-716       | 701.47          | 22.32                  | 5.21            | 51.40                | 9            | 7.94    |
| UL776-787       | 779.32          | 23.49                  | 5.21            | 67.30                | 9            | 7.94    |
| DL869-894       | 875.25          | 8.69                   | 2.29            | 4.37                 | 7            | 5.01    |
| DL728-746       | 736.44          | 8.53                   | 2.19            | 4.31                 | 7            | 5.01    |
| DL746-757       | 748.33          | 9.82                   | 2.19            | 5.79                 | 7            | 5.01    |

| Operation Bands | Power (mW) | Antenna gain(G) | Measure Distance(cm) | Power density (mW/cm <sup>2</sup> ) | MPE limit (mW/cm <sup>2</sup> ) |
|-----------------|------------|-----------------|----------------------|-------------------------------------|---------------------------------|
| UL824-869       | 30.97      | 7.94            | 20                   | 0.0489                              | 0.56                            |
| UL698-716       | 51.40      | 7.94            | 20                   | 0.0812                              | 0.47                            |
| UL776-787       | 67.30      | 7.94            | 20                   | 0.1063                              | 0.52                            |
| DL869-894       | 4.37       | 5.01            | 20                   | 0.0044                              | 0.58                            |
| DL728-746       | 4.31       | 5.01            | 20                   | 0.0043                              | 0.49                            |
| DL746-757       | 5.79       | 5.01            | 20                   | 0.0058                              | 0.50                            |

**Results: PASS**