# RF Exposure Report
## FCC 47 CFR MPE
## Maximum Permissible Exposure

## 1. Maximum Permissible Exposure Applicable Standards

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 0.2m normally can be maintained between the user and the device.

### 1.1. Limits for Maximum Permissible Exposure (MPE)

**(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 |
| 1500-10000 | | | 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 |
| 1500-10000 | | | 1.0 | 30 |

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

## 1.2. Maximum Permissible Exposure Calculation Method

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: Pd (W/m$^2$) = $\frac{E^2}{377}$

E = Electric Field (V/m)
P = Peak RF output Power (W)
G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

# 2. Conducted Power Result

| BT(BR+EDR) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mode/Type | Frequency | Peak Output Power | Peak Output Power | Max Tune-up Power | | Antenna gain | |
| | (MHz) | (dBm) | (mW) | (dBm) | | (dBi) | (Linear) |
| GFSK | **2402** | **-1.84** | 0.655 | -1 | **± 1** | **-0.58** | **0.875** |
| | 2441 | -2.28 | 0.592 | -2 | ± 1 | -0.58 | 0.875 |
| | 2480 | -2.7 | 0.537 | **-2** | ± 1 | -0.58 | 0.875 |
| π/4-DQPSK | **2402** | **0.23** | 1.054 | 0 | **± 1** | **-0.58** | **0.875** |
| | 2441 | -0.12 | 0.973 | 0 | ± 1 | -0.58 | 0.875 |
| | 2480 | -0.51 | 0.889 | 0 | ± 1 | -0.58 | 0.875 |
| 8-DPSK | **2402** | **0.85** | 1.216 | **0** | **± 1** | **-0.58** | **0.875** |
| | 2441 | 0.44 | 1.107 | 0 | ± 1 | -0.58 | 0.875 |
| | 2480 | 0.09 | 1.021 | **0** | ± 1 | -0.58 | 0.875 |

Remark: The Peak Output Power data is derived from the RF test report number mentioned in the title of this document.

| | FCC 47 CFR MPE Report | FCC ID:2BVTQ-ST520 |
|---|---|---|

## 3. Calculated Result and Limit

| BR+EDR | | | | | | |
|---|---|---|---|---|---|---|
| Mode/Type | Max Tune-up Power | Antenna Gain | | Power Density | Limit of Power Density | Result |
| | (dBm) | (dBi) | (Linear) | (S) (mW/cm$^2$) | (S) (mW/cm$^2$) | |
| 2.4G Band | | | | | | |
| GFSK | 0 | -0.58 | 0.875 | 0.00017 | 1.0 | Complies |
| π/4-DQPSK | 1 | -0.58 | 0.875 | 0.00022 | 1.0 | Complies |
| 8-DPSK | 1 | -0.58 | 0.875 | 0.00022 | 1.0 | Complies |

**Conclusion: So, SAR test is not required**

----------***End of RF Exposure Evaluation*** ----------