# RF Exposure evaluation

## FCC ID: 2A35W-H96MAXH618

Exposure category: General population/uncontrolled environment

EUT Type: Production Unit

Device Type: Mobile Device

## 1. Reference

According to §1.1307(b)(1), 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.

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

KDB 447498 D01v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

## 2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

| Frequency Range(MHz) | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density ($mW/cm^2$) | Averaging Time (minute) |
|---|---|---|---|---|
| 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 – 1500 | / | / | f/300 | 6 |
| 1500 – 100,000 | / | / | 5 | 6 |

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|---|---|---|---|---|
| Limits for Occupational/Controlled Exposure | | | | |
| 0.3 – 3.0 | 614 | 1.63 | (100) * | 30 |
| 3.0 – 30 | 824/f | 2.19/f | $(180/f^2)$* | 30 |
| 30 – 300 | 27.5 | 0.073 | 0.2 | 30 |
| 300 – 1500 | / | / | f/1500 | 30 |
| 1500 – 100,000 | / | / | 1.0 | 30 |

F=frequency in MHz

*=Plane-wave equivalent power density

# 3. MPE Calculation Method

Predication of MPE limit at a given distance
Equation from page 18 of OET Bulletin 65, Edition 97-01

**$S=PG/4\pi R^2$**

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

# 4. Antenna Information

H96 Max H618 MPlus can only use antennas certificated as follows provided by manufacturer;

| Antenna No. | Model No. of antenna: | Type of antenna: | Gain of the antenna (Max.) | Frequency range: |
|---|---|---|---|---|
| BT | / | PIFA antenna | 2.89dBi for 2400-2500MHz; | |
| 2.4GWIFI | / | PIFA antenna | 2.89dBi for 2400-2500MHz; | |
| 5GWIFI | / | PIFA antenna | 2.88dBi for 5180-5240MHz<br>2.42dBi for 5745-5825MHz | |

# 5. Manufacturing Tolerance

| Mode | Max. Peak Conducted Output Power (dBm) | Max. tune-up |
|---|---|---|
| BT | 0.41 | 1.0±1 |
| 2.4GWIFI | 14.89 | 15.0±1 |
| Mode | Max. Average Conducted Output Power (dBm) | Max. tune-up |
| 5.2GWIFI | 14.23 | 15.0±1 |
| 5.8GWIFI | 11.95 | 12.0±1 |

## 6. Standalone MPE Result

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, r =20cm, as well as the gain of the used antenna is refer to section 4 , the RF power density can be obtained.

| Modulation Type | Output power | | Antenna Gain (dBi) | Antenna Gain (linear) | MPE ($mW/cm^2$) | MPE Limits ($mW/cm^2$) |
|---|---|---|---|---|---|---|
| | dBm | mW | | | | |
| BT | 2.0 | 1.5849 | 2.89 | 1.9454 | 0.0006 | 1.0000 |
| 2.4GWIFI | 16.0 | 39.8107 | 2.89 | 1.9409 | 0.0154 | 1.0000 |
| 5.2GWIFI | 16.0 | 39.8107 | 2.88 | 1.7458 | 0.0154 | 1.0000 |
| 5.8GWIFI | 13.0 | 19.9526 | 2.42 | 1.9454 | 0.0069 | 1.0000 |

*Remark:*

*1. Output power (Peak) including turn-up tolerance;*

*2. MPE evaluate distance is 20cm from user manual provide by manufacturer.*

*3. BT and WLAN can be active at the same time, but only with interleaving of packages switched on board level. That means that they cannot transmit at the same time.*

## 7. simultaneous MPE Result

**N/A**

## 8. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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