

Maximum Permissible Exposure Evaluation

FCC ID: 2A7ZM-ALTOX6

1. Client Information

| | | |
|---------------------|---|--|
| Applicant | : | JBU GLOBAL LLC |
| Address | : | 19416 NE 26th Ave, 114B, Miami, Florida 33180 |
| Manufacturer | : | GUANGZHOU MIAOSHENG ELECTRONIC TECHNOLOGY Co., LTD |
| Address | : | 1-2, second floor West Street Watermelon Ridge Dongguan village Xinya Street Huadu District, Guangzhou,China |

2. General Description of EUT

| | | | |
|----------------------------|---|--|--|
| EUT Name | : | Alto X6 | |
| Model(s) No. | : | Alto X6 | |
| Product Description | : | Operation Frequency: | Bluetooth V5.0: 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz |
| | | Number of Channel: | Bluetooth 5.0(BDR+EDR): 79 channels Bluetooth 5.0(BLE): 40 channels 802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels |
| | | RF Output Power: | BLE:1.311dBm (Max) BT:2.531dBm (Max) 802.11b: 17.575dBm (Max) 802.11g: 16.456dBm (Max) 802.11n (HT20): 18.028dBm (Max) 802.11n (HT40): 14.77dBm (Max) |
| | | Antenna Gain: | 2.3dBi FPC Antenna |
| | | Modulation Type: | GFSK, π /4-DQPSK, 8-DPSK 802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64QAM) |
| Power Supply | : | For Adapter (Model: QD-POWER-GF-01) Input: AC 110-240V 50/60Hz Output: DC 15V 3500mA | |
| Software Version | : | 5.3.0.0 | |
| Hardware Version | : | T367-V1.8.1 P40-V2.1 | |

Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.

Note: More test information about the EUT please refer the RF Test Report.

MPE Calculations for WIFI

1. Antenna Gain:

FPC Antenna: 2.3dBi

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

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 the 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. Test Result:

| Worst Maximum MPE Result | | | | | | | | |
|--------------------------|-----------------|-------------|----------------------------|--------------------|-----------------------------|--------------------|-------------------|--|
| Mode | N _{TX} | Freq. (MHz) | Conducted Power(max) (dBm) | Turn-up Power (dB) | Max tune up power (dBm) [P] | ANT Gain (dBi) [G] | Distance (cm) [R] | Power Density (mW/ cm ²) [S] |
| GFSK | 1 | 2402 | 0.465 | 0±1 | 1 | 2.3 | 20 | 0.0004 |
| | | 2441 | 2.531 | 3±1 | 4 | 2.3 | 20 | 0.0008 |
| | | 2480 | 0.884 | 1±1 | 2 | 2.3 | 20 | 0.0005 |
| π/4-DQPSK | 1 | 2402 | 0.319 | 0±1 | 1 | 2.3 | 20 | 0.0004 |
| | | 2441 | 1.326 | 1±1 | 2 | 2.3 | 20 | 0.0005 |
| | | 2480 | 0.25 | 0±1 | 1 | 2.3 | 20 | 0.0004 |
| 8-DPSK | 1 | 2402 | 0.27 | 0±1 | 1 | 2.3 | 20 | 0.0004 |
| | | 2441 | 1.647 | 2±1 | 3 | 2.3 | 20 | 0.0007 |
| | | 2480 | 0.432 | 0±1 | 1 | 2.3 | 20 | 0.0004 |
| BLE(1Mbps) | 1 | 2402 | 1.311 | 1±1 | 2 | 2.3 | 20 | 0.0005 |
| | | 2440 | 1.012 | 1±1 | 2 | 2.3 | 20 | 0.0005 |
| | | 2480 | 0.161 | 0±1 | 1 | 2.3 | 20 | 0.0004 |

| | | | | | | | | |
|---------------|---|------|--------|------|----|-----|----|--------|
| 802.11b | 1 | 2412 | 17.119 | 17±1 | 18 | 2.3 | 20 | 0.0213 |
| | | 2437 | 17.224 | 17±1 | 18 | 2.3 | 20 | 0.0213 |
| | | 2462 | 17.575 | 18±1 | 19 | 2.3 | 20 | 0.0268 |
| 802.11g | 1 | 2412 | 16.02 | 16±1 | 17 | 2.3 | 20 | 0.0169 |
| | | 2437 | 16.339 | 16±1 | 17 | 2.3 | 20 | 0.0169 |
| | | 2462 | 16.456 | 16±1 | 17 | 2.3 | 20 | 0.0169 |
| 802.11n(HT20) | 1 | 2412 | 17.438 | 17±1 | 18 | 2.3 | 20 | 0.0213 |
| | | 2437 | 17.569 | 18±1 | 19 | 2.3 | 20 | 0.0268 |
| | | 2462 | 18.028 | 18±1 | 19 | 2.3 | 20 | 0.0268 |
| 802.11n(HT40) | 1 | 2422 | 14.451 | 14±1 | 15 | 2.3 | 20 | 0.0107 |
| | | 2437 | 14.367 | 14±1 | 15 | 2.3 | 20 | 0.0107 |
| | | 2452 | 14.77 | 15±1 | 16 | 2.3 | 20 | 0.0135 |

Note:

(1) N_{TX}= Number of Transmit Antennas

(2) RF Output power specifies that Maximum Conducted Peak Output Power.

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

| Frequency Range (MHz) | Power density (mW/ cm ²) |
|-----------------------|--------------------------------------|
| 300-1,500 | F/1500 |
| 1,500-100,000 | 1.0 |

For:2402~2480MHz&2412~2462MHz

MPE limit S: 1mW/ cm²

6. Summary simultaneous transmission results

WiFi and Bluetooth support simultaneous transmit the

| WIFI ANT1 MPE (Ratio) | Bluetooth MPE (Ratio) | simultaneous MPE (Ratio) | MPE Limits (Ratio) |
|-----------------------|-------------------------|----------------------------|----------------------|
| 0.0268 | 0.0008 | 0.0276 | 1.0000 |

So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b). The RF Exposure Information page from the manual is included here for reference.

7. Conclusion:

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

-----END OF REPORT-----