

# RF Exposure Evaluation

## FCC ID: H79Z1V

### 1. Client Information

<b>Applicant</b>	:	Delta Electronics Incorporated
<b>Address</b>	:	3, Tungyuan Road Chungli Industrial Zone Taoyuan County 32063, Taiwan
<b>Manufacturer</b>	:	Delta Electronics Incorporated
<b>Address</b>	:	3, Tungyuan Road Chungli Industrial Zone Taoyuan County 32063, Taiwan

### 2. General Description of EUT

<b>EUT Name</b>	:	QUMI Z1V
<b>Models No.</b>	:	Z1V, Z1VC, Z1V+, Z1VB, Z1, Z1+
<b>Model Difference</b>	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.
<b>Product Description</b>	:	Operation Frequency: Bluetooth V2.1+EDR: 2402~2480 MHz
	:	Number of Channel: Bluetooth: 79 Channels
	:	Max Peak Output Power: Bluetooth: 0.947dBm( $\pi/4$ -DQPSK)
	:	Antenna Gain: 3dBi PCB Antenna
	:	Modulation Type: GFSK (1 Mbps) $\pi/4$ -DQPSK (2 Mbps)
<b>Power Rating</b>	:	Adapter(ADP-36PH A): Input: AC 100-240V, 50/60Hz, 1A max Output: DC 12V, 3A DC 7.4V by 4000mAh rechargeable Li-ion battery.
<b>Software Version</b>	:	N/A
<b>Hardware Version</b>	:	2800-ADPH15-06
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual

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

## SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

(1) Clause 4.3: General SAR test reduction and exclusion guidance

Sub clause 4.31: Standalone SAR test exclusion considerations

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance  $\leq 5$  mm are determined by:

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}]}{\leq 3.0 \text{ for 1-g SAR}}$$

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation, mm})] * [\sqrt{f_{(\text{GHz})}}]}{\leq 7.5.0 \text{ for 10-g SAR}}$$

## 2. Calculation:

Test separation: 5mm						
Bluetooth Mode (GFSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	0.343	0±1	1	1.259	0.390	3.0
2.441	0.064	0±1	1	1.259	0.393	3.0
2.480	-0.119	0±1	1	1.259	0.397	3.0
Bluetooth Mode (π/4-QPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dbm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	0.947	0±1	1	1.259	0.390	3.0
2.441	0.699	0±1	1	1.259	0.393	3.0
2.480	0.523	0±1	1	1.259	0.397	3.0

The worst RF Exposure Evaluation is calculated as  $0.397 < \text{limit } 3.0$ , So standalone SAR measurements are not required.

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