



## Maximum Permissible Exposure Evaluation

### FCC ID: ZQ6-W665S3

|                                                                                                                                                                                                                                                                                                                        |   |                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------|
| Report No.                                                                                                                                                                                                                                                                                                             | : | TBR-C-202502-0011-2                                    |
| Applicant                                                                                                                                                                                                                                                                                                              | : | AMPAK Technology Inc.                                  |
| Equipment Under Test (EUT)                                                                                                                                                                                                                                                                                             |   |                                                        |
| EUT Name                                                                                                                                                                                                                                                                                                               | : | W665S3                                                 |
| Model No.                                                                                                                                                                                                                                                                                                              | : | W665S3                                                 |
| Series Model No.                                                                                                                                                                                                                                                                                                       | : | ----                                                   |
| Brand Name                                                                                                                                                                                                                                                                                                             | : | AMPAK                                                  |
| Sample ID                                                                                                                                                                                                                                                                                                              | : | RW-C-202502-0011-1-1#&RW-C-202502-0011-1-2#            |
| Receipt Date                                                                                                                                                                                                                                                                                                           | : | 2025-02-20                                             |
| Test Date                                                                                                                                                                                                                                                                                                              | : | 2025-02-20 to 2025-04-10                               |
| Issue Date                                                                                                                                                                                                                                                                                                             | : | 2025-04-10                                             |
| Standards                                                                                                                                                                                                                                                                                                              | : | FCC Part 2.1091                                        |
| Test Method                                                                                                                                                                                                                                                                                                            | : | KDB 447498 D01 General RF Exposure Guidance v06        |
| Conclusions                                                                                                                                                                                                                                                                                                            | : | <b>PASS</b>                                            |
| In the configuration tested, the EUT complied with the standards specified above.                                                                                                                                                                                                                                      |   |                                                        |
| Test By                                                                                                                                                                                                                                                                                                                | : | <div> <div>Rick Chen</div> <div>Rick Chen</div> </div> |
| Reviewed By                                                                                                                                                                                                                                                                                                            | : | <div> <div>Wade Lv</div> <div>Wade Lv</div> </div>     |
| Approved By                                                                                                                                                                                                                                                                                                            | : | <div> <div>Ivan Su</div> <div>Ivan Su</div> </div>     |
| <p>This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.</p> |   |                                                        |

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Revision History

| Report No.          | Version | Description             | Issued Date |
|---------------------|---------|-------------------------|-------------|
| TBR-C-202502-0011-2 | Rev.01  | Initial issue of report | 2025-04-10  |
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# 1. General Information about EUT

## 1.1 Client Information

|                     |   |                                                                  |
|---------------------|---|------------------------------------------------------------------|
| <b>Applicant</b>    | : | AMPAK Technology Inc.                                            |
| <b>Address</b>      | : | 3F, No. 1, Jen AI Road, Hsinchu Industrial Park, Hsinchu, Taiwan |
| <b>Manufacturer</b> | : | AMPAK Technology Inc.                                            |
| <b>Address</b>      | : | 3F, No. 1, Jen AI Road, Hsinchu Industrial Park, Hsinchu, Taiwan |

## 1.2 General Description of EUT (Equipment Under Test)

|                                                                                                                                                                                                                       |   |                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT Name</b>                                                                                                                                                                                                       | : | W665S3                                                                                                                                                                                                                                                                                                                         |
| <b>Models No.</b>                                                                                                                                                                                                     | : | W665S3                                                                                                                                                                                                                                                                                                                         |
| <b>Model Different</b>                                                                                                                                                                                                | : | ----                                                                                                                                                                                                                                                                                                                           |
| <b>Product Description</b>                                                                                                                                                                                            | : | <b>Operation Frequency:</b><br>Bluetooth V5.4: 2402MHz~2480MHz<br>802.11b/g/n(HT20): 2412MHz~2462MHz<br>802.11ax(HE20): 2412MHz~2462MHz<br>802.11n(HT40): 2422MHz~2452MHz<br>802.11ax(HE40): 2422MHz~2452MHz<br>U-NII-1: 5180MHz~5240MHz<br>U-NII-2A: 5260MHz~5320MHz<br>U-NII-2C: 5500MHz~5720MHz<br>U-NII-3: 5745MHz~5825MHz |
|                                                                                                                                                                                                                       | : | <b>Modulation Type:</b><br>Bluetooth & BLE: GFSK, Pi/4-DQPSK, 8DPSK<br>802.11b: DSSS (DQPSK, DBPSK, CCK)<br>802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11a: OFDM (QPSK, BPSK, 16QAM, 64QAM)<br>802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM)<br>802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)                    |
|                                                                                                                                                                                                                       | : | <b>Antenna Gain:</b><br>3.6dBi Dipole Antenna for BT&2.4G WIFI<br>4.97dBi Dipole Antenna for 5G WIFI                                                                                                                                                                                                                           |
| <b>Power Rating</b>                                                                                                                                                                                                   | : | DC 3.3V                                                                                                                                                                                                                                                                                                                        |
| <b>Software Version</b>                                                                                                                                                                                               | : | ----                                                                                                                                                                                                                                                                                                                           |
| <b>Hardware Version</b>                                                                                                                                                                                               | : | V1.0 BT Pin48, V2.0 BT Pin12                                                                                                                                                                                                                                                                                                   |
| <b>Remark:</b> The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible. |   |                                                                                                                                                                                                                                                                                                                                |



## 2. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| Test Item                        | Parameters                                            | Expanded Uncertainty ( $U_{Lab}$ ) |
|----------------------------------|-------------------------------------------------------|------------------------------------|
| Conducted Emission               | Level Accuracy:<br>9kHz~150kHz<br>150kHz to 30MHz     | $\pm 3.50$ dB<br>$\pm 3.10$ dB     |
| Radiated Emission                | Level Accuracy:<br>9kHz to 30 MHz                     | $\pm 4.60$ dB                      |
| Radiated Emission                | Level Accuracy:<br>30MHz to 1000 MHz                  | $\pm 4.50$ dB                      |
| Radiated Emission                | Level Accuracy:<br>Above 1000MHz                      | $\pm 4.20$ dB                      |
| RF Power-Conducted               | Level Accuracy:<br>Above 1000MHz                      | $\pm 0.95$ dB                      |
| Power Spectral Density-Conducted | Level Accuracy:<br>Above 1000MHz                      | $\pm 3$ dB                         |
| Occupied Bandwidth               | Level Accuracy:<br>30MHz to 1000 MHz<br>Above 1000MHz | $\pm 3.8\%$                        |
| Unwanted Emission-Conducted      | Level Accuracy:<br>30MHz to 1000 MHz<br>Above 1000MHz | $\pm 2.72$ dB                      |
| Temperature                      | /                                                     | $\pm 0.6^{\circ}\text{C}$          |
| Humidity                         | /                                                     | $\pm 4\%$                          |
| Supply voltages                  | /                                                     | $\pm 2\%$                          |
| Time                             | /                                                     | $\pm 4\%$                          |



### 3. Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

#### **CNAS (L5813)**

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

#### **A2LA Certificate No.: 4750.01**

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

#### **IC Registration No.: (11950A)**

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



## 4. Method of Measurement for FCC

### 4.1 EUT Operation Condition:

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

### 4.2 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

### 4.3 Simultaneous transmission MPE Considerations

According to KDB447498 D01 v06: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is  $\leq 1.0$ .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$



## 5. Test Result

| Worst MPE Result |         |                            |                    |                             |                         |                   |                                          |
|------------------|---------|----------------------------|--------------------|-----------------------------|-------------------------|-------------------|------------------------------------------|
| Test Mode        | Antenna | Conducted Power(max) (dBm) | Turn-up Power (dB) | Max tune up power (dBm) [P] | Max. ANT Gain (dBi) [G] | Distance (cm) [R] | Power Density (mW/ cm <sup>2</sup> ) [S] |
| Bluetooth        | Ant1    | 8.19                       | 8±1                | 9                           | 3.6                     | 20                | 0.00362                                  |
| 2.4G b           | Ant1    | 15.35                      | 15±1               | 16                          | 3.6                     | 20                | 0.01814                                  |
| 2.4G g           | Ant1    | 15.03                      | 15±1               | 16                          | 3.6                     | 20                | 0.01814                                  |
| 2.4G n20         | Ant1    | 10.96                      | 10±1               | 11                          | 3.6                     | 20                | 0.00574                                  |
|                  | Ant2    | 13.59                      | 13±1               | 14                          | 3.6                     | 20                | 0.01145                                  |
| 2.4G n40         | Ant1    | 11.83                      | 11±1               | 12                          | 3.6                     | 20                | 0.00722                                  |
|                  | Ant2    | 14.27                      | 14±1               | 15                          | 3.6                     | 20                | 0.01441                                  |
| 2.4G ax20        | Ant1    | 9.25                       | 9±1                | 10                          | 3.6                     | 20                | 0.00456                                  |
|                  | Ant2    | 10.96                      | 10±1               | 11                          | 3.6                     | 20                | 0.00574                                  |
| 2.4G ax40        | Ant1    | 7.93                       | 7±1                | 8                           | 3.6                     | 20                | 0.00288                                  |
|                  | Ant2    | 8.96                       | 8±1                | 9                           | 3.6                     | 20                | 0.00362                                  |
| 5G a             | Ant1    | 17.38                      | 17±1               | 18                          | 4.97                    | 20                | 0.03942                                  |
| 5G n20           | Ant1    | 15.36                      | 15±1               | 16                          | 4.97                    | 20                | 0.02487                                  |
|                  | Ant2    | 15.1                       | 15±1               | 16                          | 4.97                    | 20                | 0.02487                                  |
| 5G n40           | Ant1    | 14.83                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
|                  | Ant2    | 14.19                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
| 5G ac20          | Ant1    | 14.62                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
|                  | Ant2    | 15.25                      | 15±1               | 16                          | 4.97                    | 20                | 0.02487                                  |
| 5G ac40          | Ant1    | 14.76                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
|                  | Ant2    | 14.36                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
| 5G ac80          | Ant1    | 14.61                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
|                  | Ant2    | 14.14                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
| 5G ax20          | Ant1    | 16.09                      | 16±1               | 17                          | 4.97                    | 20                | 0.03131                                  |
|                  | Ant2    | 15.63                      | 15±1               | 16                          | 4.97                    | 20                | 0.02487                                  |
| 5G ax40          | Ant1    | 14.79                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
|                  | Ant2    | 14.18                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |
| 5G ax80          | Ant1    | 15                         | 15±1               | 16                          | 4.97                    | 20                | 0.02487                                  |
|                  | Ant2    | 14.37                      | 14±1               | 15                          | 4.97                    | 20                | 0.01976                                  |

Note: The antenna gain used max. antenna gain



## 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 <sup>2</sup> ) |
|-----------------------|--------------------------------------|
| 300-1,500             | F/1500                               |
| 1,500-100,000         | 1.0                                  |

## Summary simultaneous transmission information:

The sample supports three antennas for (Bluetooth Ant.) and (2.4G WIFI&5G WIFI Ant.1) and (2.4G WIFI&5G WIFI Ant.2).

The (Bluetooth Ant.) and (2.4G WIFI&5G WIFI Ant.1) and (2.4G WIFI&5G WIFI Ant.2) can transmit simultaneous.

The (Bluetooth Ant.) and (2.4G WIFI&5G WIFI Ant.1) and (2.4G WIFI&5G WIFI Ant.2) with three different Antenna.

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

$\sum$  of MPE ratios  $\leq 1.0$

## Summary simultaneous transmission results:

Bluetooth Antenna + (2.4G WIFI&5G WIFI Antenna1) + (2.4G WIFI&5G WIFI Antenna2) Maximum Simultaneous transmission MPE Ratios is

**$0.00362+0.03942+0.02487=0.06791 \leq 1.0$**

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

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

