

## RF EXPOSURE EVALUATION

### EUT Specification

|                                   |                                                                                                                                                                                                                                                 |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EUT</b>                        | <b>Access Control</b>                                                                                                                                                                                                                           |
| <b>Model Name</b>                 | <b>XK6-RX, XK5-RX, X5-RX, X6-RX, S5-X, S6-X, S9-X, S9, CR9-R, CR9-RX, CR9, CK9-R EM, CK9-R MF, CK9-R, CK9-RX, CK9, CR4, CR5, CR6, CH4, CH5, CH6, CF4, CF5, CF6, CHD4, CHD5, CHD6, CFD4, CFD5, CFD6, CK4, CK5, CK6, SK13, SK14, H4-KEY</b>       |
| <b>Frequency band (Operating)</b> | <input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz<br><input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz<br><input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz<br><input checked="" type="checkbox"/> Others(13.56MHz, 125KHz) |
| <b>Device category</b>            | <input checked="" type="checkbox"/> Portable (<20cm separation)<br><input type="checkbox"/> Mobile (>20cm separation)<br><input type="checkbox"/> Others ____                                                                                   |
| <b>Antenna diversity</b>          | <input type="checkbox"/> Single antenna<br><input checked="" type="checkbox"/> Multiple antennas<br><input type="checkbox"/> Tx diversity<br><input type="checkbox"/> Rx diversity<br><input type="checkbox"/> Tx/Rx diversity                  |
| <b>Max. output power</b>          | 13.56MHz: 56.01 dBuV/m (-39.248dBm)(0.00012 mW)<br>125KHz: 56.85 dBuV/m (-38.408dBm)(0.00014mW)                                                                                                                                                 |
| <b>Antenna gain</b>               | 0 dBi                                                                                                                                                                                                                                           |
| <b>Evaluation applied</b>         | <input type="checkbox"/> MPE Evaluation<br><input checked="" type="checkbox"/> SAR Evaluation                                                                                                                                                   |

## Standard Requirement

### Portable Device

According to §15.247(i) and §1.1307b(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 levels in excess of the Commission's guidelines. See KDB 447498 D01 General RF Exposure Guidance V6, section 4.3.1.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  for 10-g extremity SAR,<sup>16</sup> where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

### Shenzhen Anbotek Compliance Laboratory Limited

Address: 1/F., Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.  
 Tel: (86) 0755-26066440 Fax: (86) 0755-26014772 Email: service@anbotek.com



Hotline  
 400-003-0500  
 www.anbotek.com.cn



- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion.

## Measurement Result

| Channel Frequency (GHz) | Max Output power (dBm) | Max tune-up tolerance Output power (dBm) | Max Output power (dBm) | Max Output power (mW) | Calculation Value (Note 1) | Threshold Value |
|-------------------------|------------------------|------------------------------------------|------------------------|-----------------------|----------------------------|-----------------|
| 0.01356                 | -39.248                | $-39.248 \pm 1$                          | -38.248                | 0.00015               | 0.000003                   | 3.0             |
| 0.000125                | -38.408                | $-38.408 \pm 1$                          | -37.408                | 0.00018               | 0.0000004                  | 3.0             |

$$E = \text{EIRP} - 20 \log D + 104.8$$

where:

E = electric field strength in  $\text{dB}\mu\text{V/m}$ ,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

$$\text{EIRP} = E - 104.8 + 20 \log D = 56.01 - 104.8 + 20 \log 3 = -39.248 \text{ dBm}$$

Note 1: Calculation Value =  $[(\text{max. power of channel, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$ .

$$\text{Fox example: } 0.00015 / 5 \cdot \sqrt{0.01356} = 0.000003 \leq 3.0$$

$$\text{EIRP} = E - 104.8 + 20 \log D = 56.85 - 104.8 + 20 \log 3 = -38.408 \text{ dBm}$$

Note 1: Calculation Value =  $[(\text{max. power of channel, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$ .

$$\text{Fox example: } 0.00018 / 5 \cdot \sqrt{0.000125} = 0.0000004 \leq 3.0$$

**According to KDB447498 D01 V6, threshold at which no SAR required is  $\leq 3.0$  for 1-g SAR, separation distance is 5mm, and no simultaneous SAR measurement is required.**

The SAR measurement is not necessary.

