

## APPENDIX F: POWER REDUCTION VERIFICATION

Per the May 2017 TCBC Workshop Notes, demonstration of proper functioning of the power reduction mechanisms is required to support the corresponding SAR configurations. The verification process was divided into two parts: (1) evaluation of output power levels for individual or multiple triggering mechanisms and (2) evaluation of the keyboard angle on power reduction.

### F.1 Power Verification Procedure

The power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and the output power was monitored. The power measurements were confirmed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.
3. Steps 1 and 2 were repeated for all individual power reduction mechanisms and combinations thereof. For the combination cases, one mechanism was switched to a 'triggered' state at a time; powers were confirmed to be within tolerances after each additional mechanism was activated.

### F.2 Angle Verification Procedure

The angle verification procedure was performed according to the following procedure:

1. A base station simulator was used to establish an RF connection and to monitor the power levels. For licensed modes, the device state index on the device UI was monitored to determine the triggering state.
2. The device was opened and closed to determine the angle at which the mechanism triggers and the output power is reduced, per the FCC TCB Workshop Slides from November 2019. The triggering conditions of the angles was sufficient such that all possible user scenarios with the device in open condition are in the reduced power state."

|                              |                                                                                                                                                                                                                                                                                                        |                                   |
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| FCC ID C3K00002101           | RF EXPOSURE PART 1 TEST REPORT                                                                                                                                                                                                                                                                         | Approved by:<br>Technical Manager |
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### F.3 WIFI and Bluetooth Verification Summary

Note: The device supports manufacturer's proprietary mechanism which can detect the motion of the device and then configure the power during portable use scenarios. Details of this mechanism can be found in the Operational Description. When the device is being used near the user, the device will detect motion and reduce the time-averaged output power. The motion detection operation was verified for on-body condition to represent conservative use cases for the device. The verification results are in the tables below.

This device uses different Indices to configure different time averaged power levels based on certain exposure scenarios. For this device Index 0 represents the case where the device detects no motion or with Keyboard attached at <210deg. Indices 3 and 4 are configured when the device detects motion with no Keyboard or Keyboard attached at >210deg.

In the table below, the 'No Motion' state Index 0 corresponds to Pmax.

**Table F-1**  
**Power Measurement Verification WIFI – 2.4/5/6 GHz WLAN**

| Mode/Band          | Device State Index (DSI) |                                |                               |
|--------------------|--------------------------|--------------------------------|-------------------------------|
|                    | No Motion (Max)          | Motion, Cellular Off (Reduced) | Motion, Cellular On (Reduced) |
| 2.4 GHz WLAN Ant 3 | 0                        | 3                              | 4                             |
| 2.4 GHz WLAN Ant 4 | 0                        | 3                              | 4                             |
| 5 GHz WLAN Ant 3   | 0                        | 3                              | 4                             |
| 5 GHz WLAN Ant 4   | 0                        | 3                              | 4                             |
| 6GHz WLAN Ant 3    | 0                        | 3                              | 4                             |
| 6GHz WLAN Ant 4    | 0                        | 3                              | 4                             |

\*Note: MIMO WIFI mode was not evaluated due to equipment limitations.

**Table F-2**  
**Power Measurement Verification 2.4 GHz Bluetooth**

| Mode/Band            | Conducted Power (dBm) |                                     |                                  |                                   | Target Power (dBm) |                                     |                                  |                                   |
|----------------------|-----------------------|-------------------------------------|----------------------------------|-----------------------------------|--------------------|-------------------------------------|----------------------------------|-----------------------------------|
|                      | No Motion (Max)       | Motion WLAN OFF, WWAN Off (Reduced) | Motion WLAN or WWAN on (Reduced) | Motion WLAN and WWAN on (Reduced) | No Motion (Max)    | Motion WLAN OFF, WWAN Off (Reduced) | Motion WLAN or WWAN on (Reduced) | Motion WLAN and WWAN on (Reduced) |
| Bluetooth Chain 0    | 17.87                 | 13.51                               | 8.41                             | 6.61                              | 18.5               | 15.0                                | 10.0                             | 7.0                               |
| Bluetooth LE Chain 0 | 16.38                 | 13.85                               | 9.29                             | 6.68                              | 17.5               | 15.0                                | 10.0                             | 7.0                               |
| Bluetooth Chain 1    | 16.82                 | 13.05                               | 8.20                             | 6.85                              | 18.5               | 15.0                                | 10.0                             | 8.5                               |
| Bluetooth LE Chain 1 | 16.89                 | 12.94                               | 8.48                             | 6.79                              | 17.5               | 15.0                                | 10.0                             | 8.5                               |

|                                     |                                                                                                                                                                                                                                                                                                        |                                          |
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## F.4 Angle Verification Summary

**Table F-3**  
**Angle Detection with Keyboard Accessory**

| Mechanism(s)      | Angle Measurements (°) |                               |                       |                               | Angle (°)<br>Range per<br>Manufacturer |
|-------------------|------------------------|-------------------------------|-----------------------|-------------------------------|----------------------------------------|
|                   | Opening<br>(0 to 270)  | Opening<br>Posture<br>Readout | Closing<br>(270 to 0) | Closing<br>Posture<br>Readout |                                        |
| Keyboard<br>Angle | 0                      | Reduced                       | 270                   | Reduced                       | 210°                                   |
|                   | 10                     | Reduced                       | 260                   | Reduced                       |                                        |
|                   | 20                     | Reduced                       | 250                   | Reduced                       |                                        |
|                   | 30                     | Reduced                       | 230                   | Reduced                       |                                        |
|                   | 39                     | Reduced                       | 220                   | Reduced                       |                                        |
|                   | 40                     | Reduced                       | 215                   | Reduced                       |                                        |
|                   | 41                     | Reduced                       | 214                   | Reduced                       |                                        |
|                   | 42                     | Reduced                       | 213                   | Reduced                       |                                        |
|                   | 43                     | Reduced                       | 212                   | Reduced                       |                                        |
|                   | 44                     | Reduced                       | 211                   | Reduced                       |                                        |
|                   | 45                     | Max                           | 210                   | Max                           |                                        |
|                   | 46                     | Max                           | 209                   | Max                           |                                        |
|                   | 47                     | Max                           | 208                   | Max                           |                                        |
|                   | 48                     | Max                           | 207                   | Max                           |                                        |
|                   | 49                     | Max                           | 206                   | Max                           |                                        |
|                   | 50                     | Max                           | 205                   | Max                           |                                        |
|                   | 60                     | Max                           | 204                   | Max                           |                                        |
|                   | 70                     | Max                           | 200                   | Max                           |                                        |
|                   | 80                     | Max                           | 190                   | Max                           |                                        |
|                   | 90                     | Max                           | 180                   | Max                           |                                        |
|                   | 100                    | Max                           | 170                   | Max                           |                                        |
|                   | 110                    | Max                           | 160                   | Max                           |                                        |
|                   | 120                    | Max                           | 150                   | Max                           |                                        |
|                   | 130                    | Max                           | 140                   | Max                           |                                        |
|                   | 140                    | Max                           | 130                   | Max                           |                                        |
|                   | 150                    | Max                           | 120                   | Max                           |                                        |
|                   | 160                    | Max                           | 110                   | Max                           |                                        |
|                   | 170                    | Max                           | 100                   | Max                           |                                        |
|                   | 180                    | Max                           | 90                    | Max                           |                                        |
|                   | 190                    | Max                           | 80                    | Max                           |                                        |
|                   | 200                    | Max                           | 70                    | Max                           |                                        |
|                   | 205                    | Max                           | 60                    | Max                           |                                        |
|                   | 206                    | Max                           | 50                    | Max                           |                                        |
|                   | 207                    | Max                           | 47                    | Max                           |                                        |
|                   | 208                    | Max                           | 46                    | Max                           |                                        |
|                   | 209                    | Max                           | 45                    | Max                           |                                        |
|                   | 210                    | Reduced                       | 44                    | Max                           |                                        |
|                   | 211                    | Reduced                       | 43                    | Max                           |                                        |
|                   | 212                    | Reduced                       | 42                    | Reduced                       |                                        |
|                   | 213                    | Reduced                       | 41                    | Reduced                       |                                        |
|                   | 214                    | Reduced                       | 40                    | Reduced                       |                                        |
|                   | 220                    | Reduced                       | 39                    | Reduced                       |                                        |
|                   | 230                    | Reduced                       | 38                    | Reduced                       |                                        |
|                   | 240                    | Reduced                       | 30                    | Reduced                       |                                        |
|                   | 250                    | Reduced                       | 20                    | Reduced                       |                                        |
|                   | 260                    | Reduced                       | 10                    | Reduced                       |                                        |
|                   | 270                    | Reduced                       | 0                     | Reduced                       |                                        |

|                              |                                                                                                                                                                                                                                                                                                           |                                   |
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