

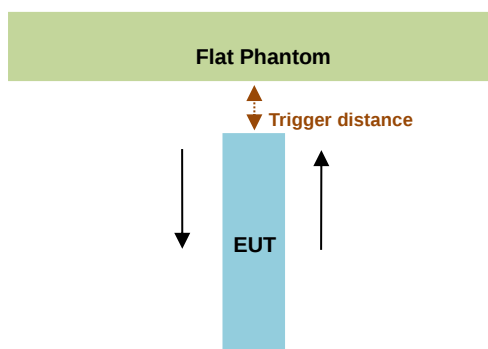
## Appendix E. Proximity Sensor Verification

### <Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.

Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated as following, and the shortest triggering distances were reported and used for SAR assessment.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



| Ant 1 Proximity Trigger Distance |                |             |                |             |                |             |                |             |
|----------------------------------|----------------|-------------|----------------|-------------|----------------|-------------|----------------|-------------|
| Position                         | Front          |             | Back           |             | Right Side     |             | Top Side       |             |
| Minimum (mm)                     | Moving towards | Moving away | Moving towards | Moving away | Moving towards | Moving away | Moving towards | Moving away |
|                                  | 20             | 21          | 20             | 21          | 26             | 26          | 16             | 16          |

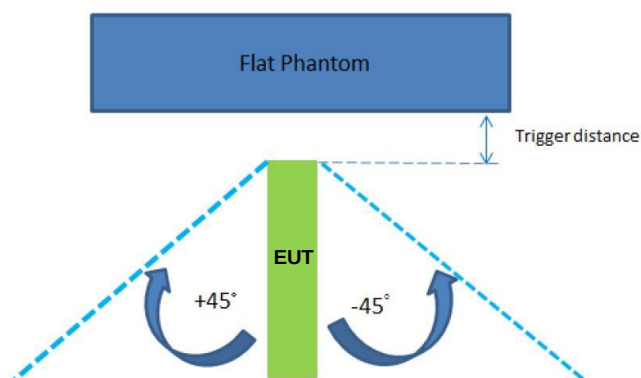
| Ant 4 Proximity Trigger Distance |                |             |                |             |                |             |
|----------------------------------|----------------|-------------|----------------|-------------|----------------|-------------|
| Position                         | Front          |             | Back           |             | Top Side       |             |
| Minimum (mm)                     | Moving towards | Moving away | Moving towards | Moving away | Moving towards | Moving away |
|                                  | 16             | 16          | 16             | 17          | 23             | 22          |

### <Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section 6.3, these procedures do not apply and are not required for this device. due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

**<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:**

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at above separation distance. Rotating the tablet around the edge next to the phantom in  $\leq 10^\circ$  increments until the tablet is  $\pm 45^\circ$  from the vertical position at  $0^\circ$ , and the maximum output power remains in the reduced mode.



| Ant 1 Proximity Trigger Distance |            |     |          |     |
|----------------------------------|------------|-----|----------|-----|
| Position                         | Right Side |     | Top Side |     |
| Minimum (mm)                     | +45        | -45 | +45      | -45 |
|                                  | 26         | 26  | 16       | 16  |

| Ant 4 Proximity Trigger Distance |          |     |
|----------------------------------|----------|-----|
| Position                         | Top Side |     |
| Minimum (mm)                     | +45      | -45 |
|                                  | 22       | 22  |

**Proximity sensor power reduction in open mode**

| Transmit Ant 1                    |                                                  | Transmit Ant 4                    |                                      |
|-----------------------------------|--------------------------------------------------|-----------------------------------|--------------------------------------|
| Exposure Position / wireless Band | Front, Back, Right Side, Top Side <sup>(1)</sup> | Exposure Position / wireless Band | Front, Back, Top Side <sup>(1)</sup> |
| GSM1900                           | 5.17 dB                                          | WLAN 2.4GHz                       | 0.50 dB                              |
| WCDMA Band II                     | 7.78 dB                                          | WLAN 5.2GHz                       | 0.10 dB                              |
| WCDMA Band IV                     | 5.45 dB                                          | WLAN 5.3GHz                       | 0.10 dB                              |
| LTE Band 2                        | 7.42 dB                                          | WLAN 5.8GHz                       | 3.90 dB                              |
| LTE Band 4                        | 2.58 dB                                          | WLAN 5.9GHz                       | 3.90 dB                              |
| LTE Band 7                        | 4.32 dB                                          | WLAN 6GHz UNII5                   | 6.00 dB                              |
| LTE Band 25                       | 7.36 dB                                          | WLAN 6GHz UNII6                   | 4.30 dB                              |
| LTE Band 66                       | 5.60 dB                                          | WLAN 6GHz UNII7                   | 7.52 dB                              |
| LTE Band 38                       | 2.19 dB                                          | WLAN 6GHz UNII8                   | 3.90 dB                              |
| LTE Band 38 HPUE                  | 2.50 dB                                          |                                   |                                      |
| LTE Band 41                       | 2.09 dB                                          |                                   |                                      |
| LTE Band 41 HPUE                  | 2.50 dB                                          |                                   |                                      |
| LTE Band 48                       | 0.98 dB                                          |                                   |                                      |
| FR1 n2                            | 6.17 dB                                          |                                   |                                      |
| FR1 n7                            | 3.55 dB                                          |                                   |                                      |
| FR1 n25                           | 6.10 dB                                          |                                   |                                      |
| FR1 n30                           | 1.56 dB                                          |                                   |                                      |
| FR1 n66                           | 5.77 dB                                          |                                   |                                      |
| FR1 n70                           | 2.74 dB                                          |                                   |                                      |
| FR1 n38                           | 5.20 dB                                          |                                   |                                      |
| FR1 n41                           | 5.15 dB                                          |                                   |                                      |
| FR1 n41 HPUE                      | 4.09 dB                                          |                                   |                                      |
| FR1 n48                           | 1.47 dB                                          |                                   |                                      |
| FR1 n77 27O                       | 2.54 dB                                          |                                   |                                      |
| FR1 n77 27Q                       | 2.54 dB                                          |                                   |                                      |
| FR1 n78 27O                       | 2.73 dB                                          |                                   |                                      |
| FR1 n78 27Q                       | 2.60 dB                                          |                                   |                                      |

**General Note:**

- <sup>(1)</sup>: Reduced maximum limit applied by activation of proximity sensor.
- Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown below
- For the power verification was selected worst case power reduction level of band of each transmit antenna to verify.
- Additional conservative evaluation of the top and right side to ensure that users can use it in hand exposure at a low power state.
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1 was performed:

**Ant 1:**

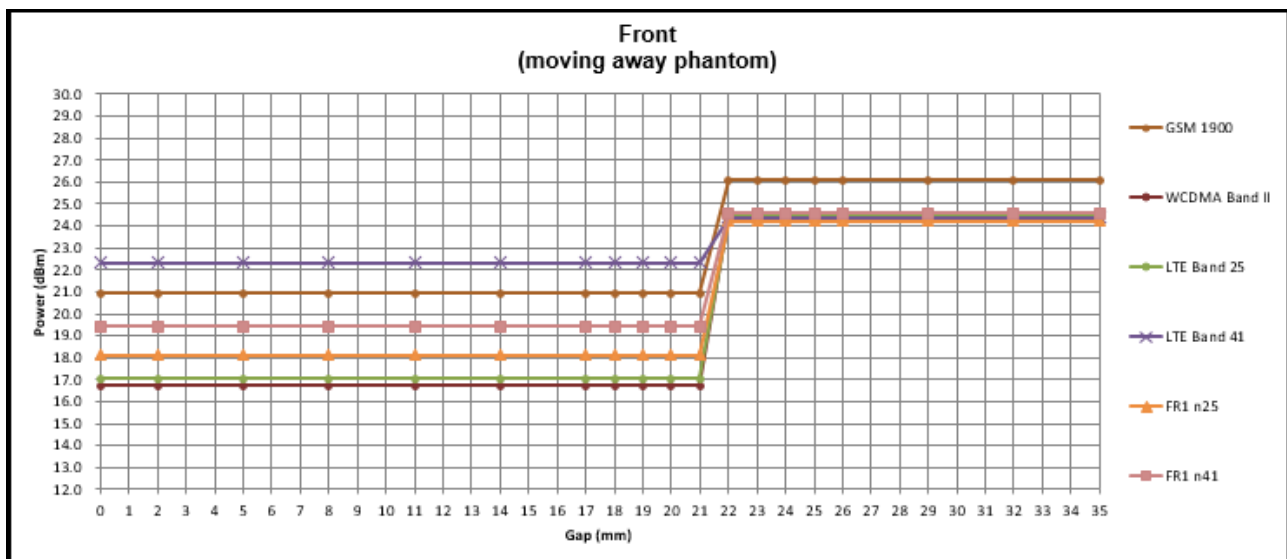
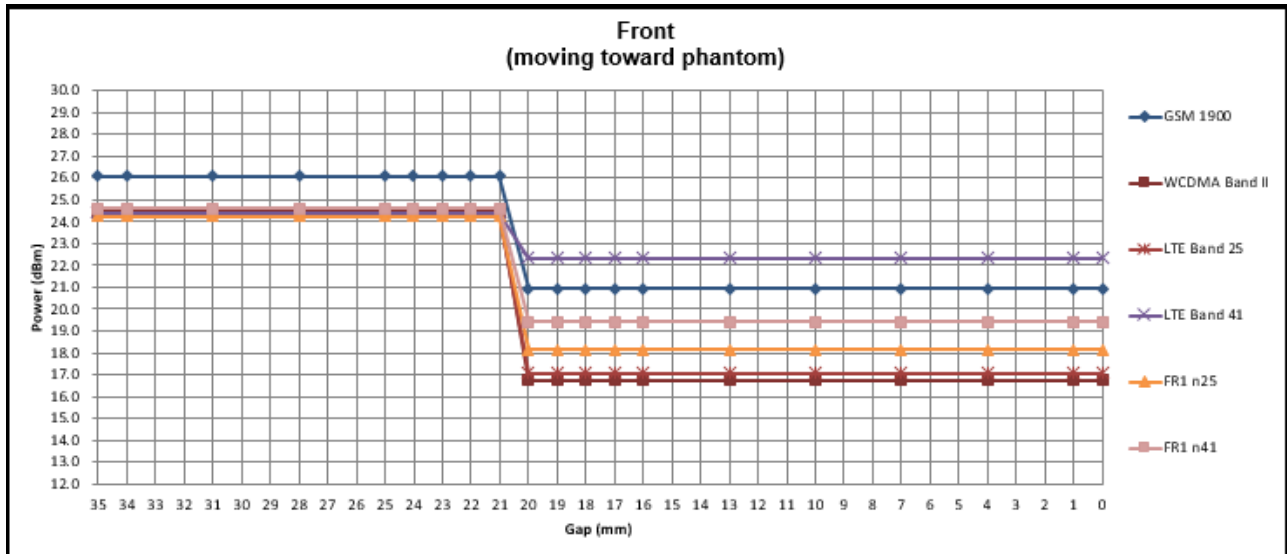
Front: [19 mm](#)  
 Back: [19 mm](#)  
 Right Side: [25 mm](#)  
 Top Side: [15 mm](#)

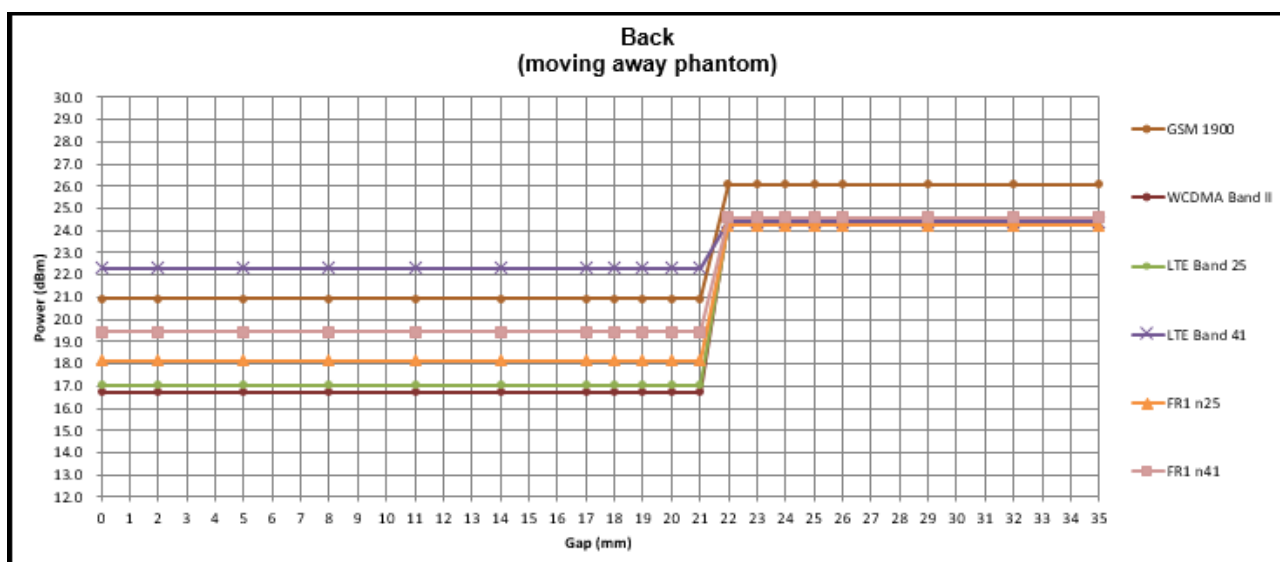
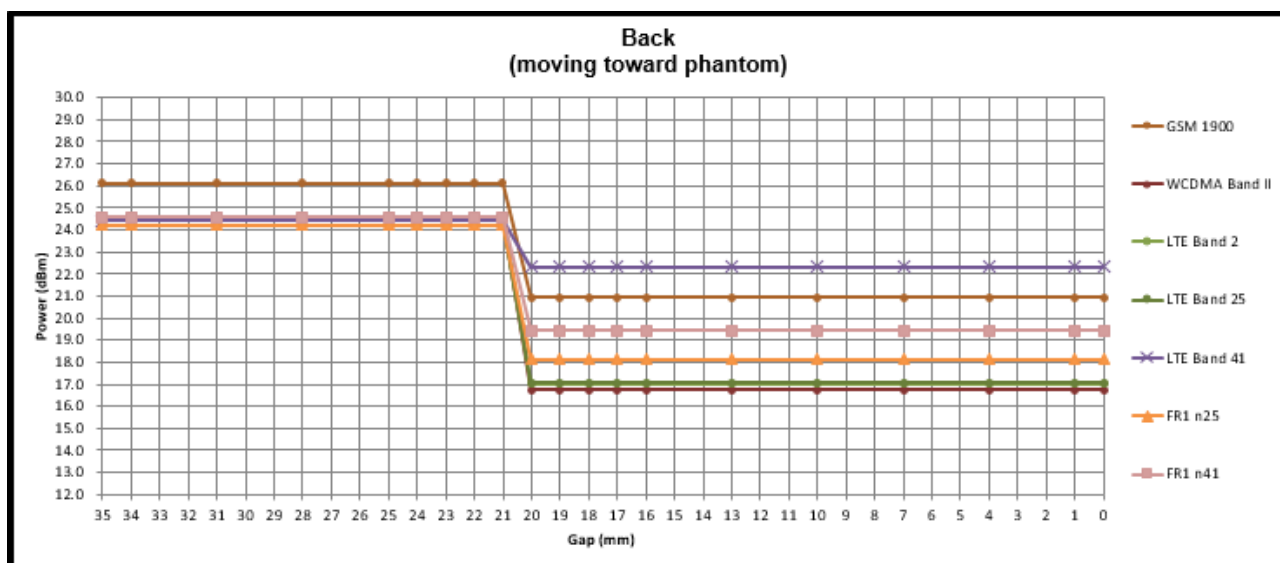
**Ant 4:**

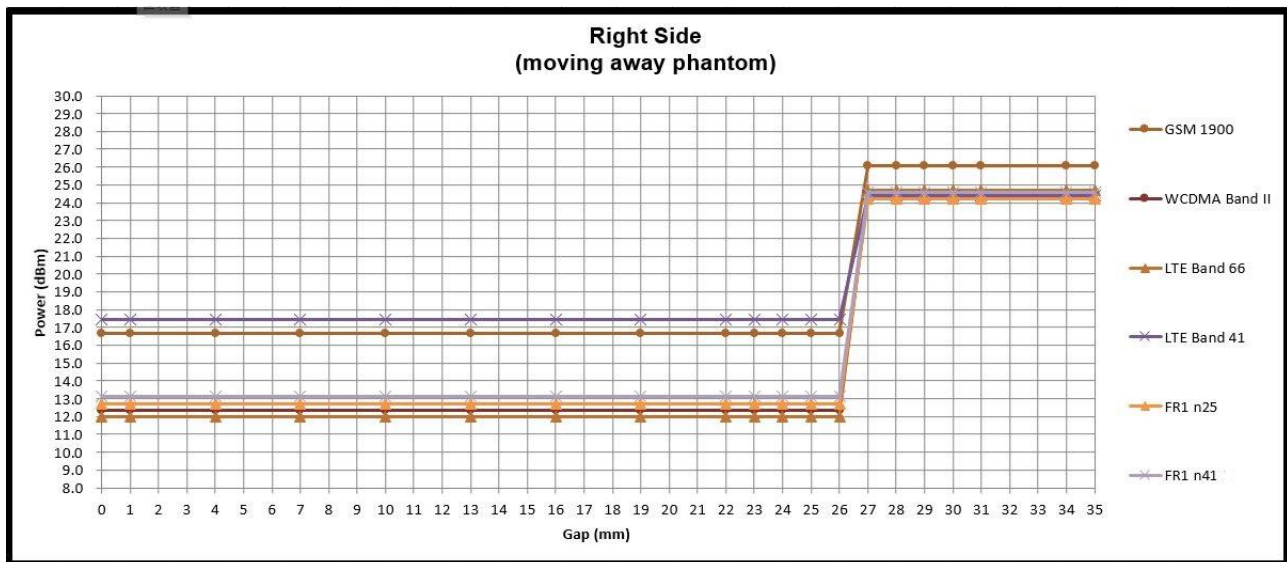
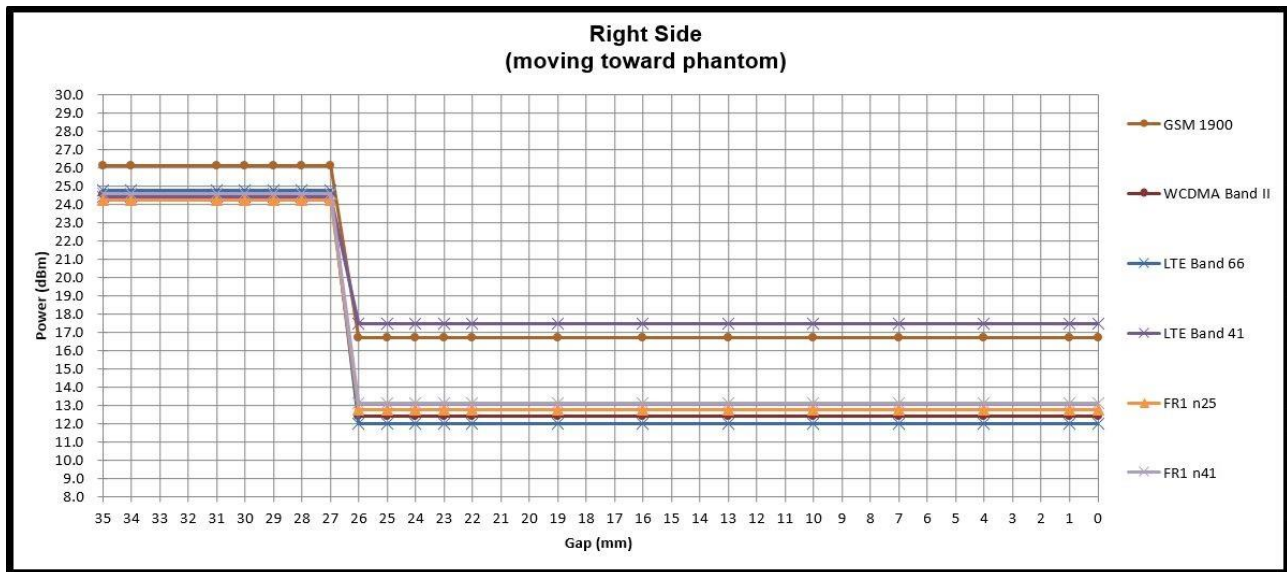
Front: [15 mm](#)  
 Back: [15 mm](#)  
 Top Side: [21 mm](#)

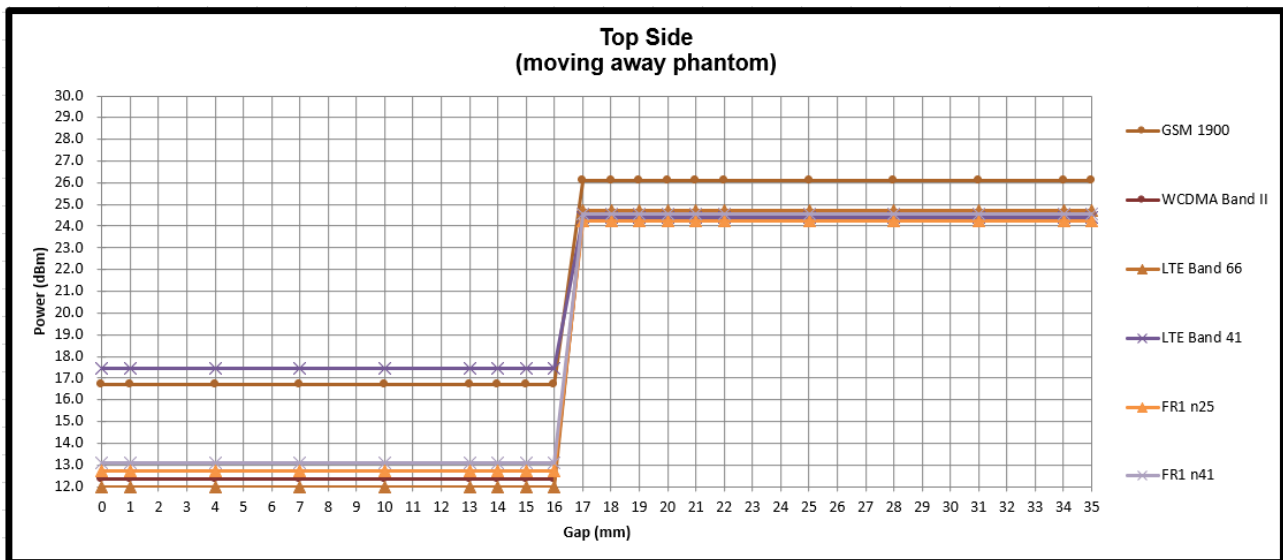
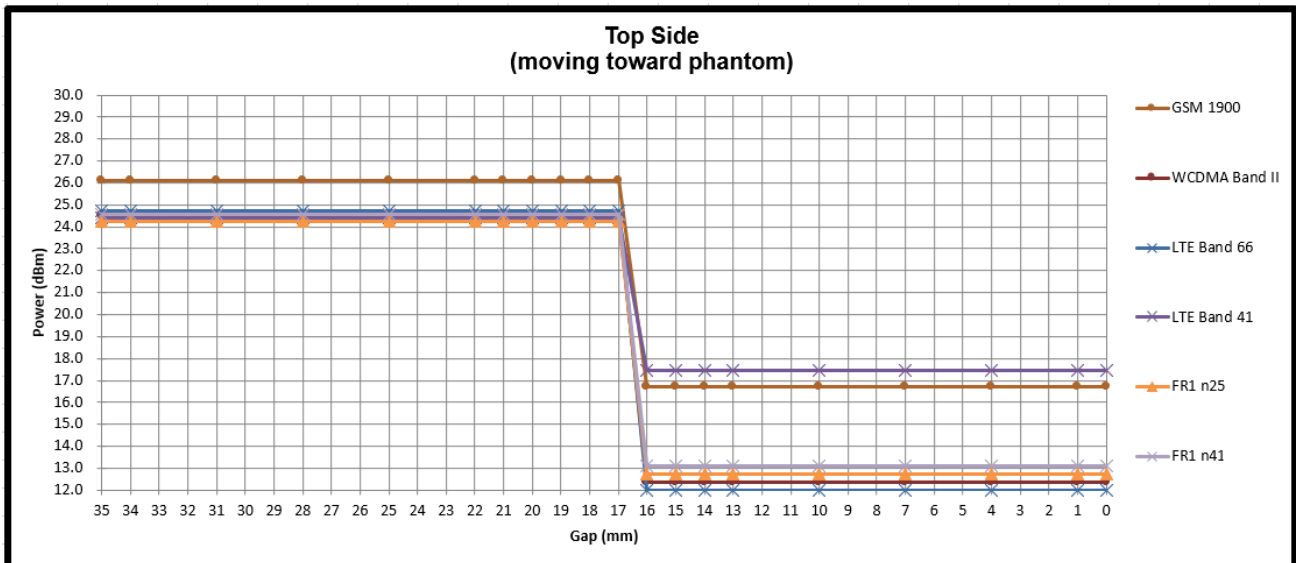
Power Measurement during Sensor Trigger distance testing

Ant 1

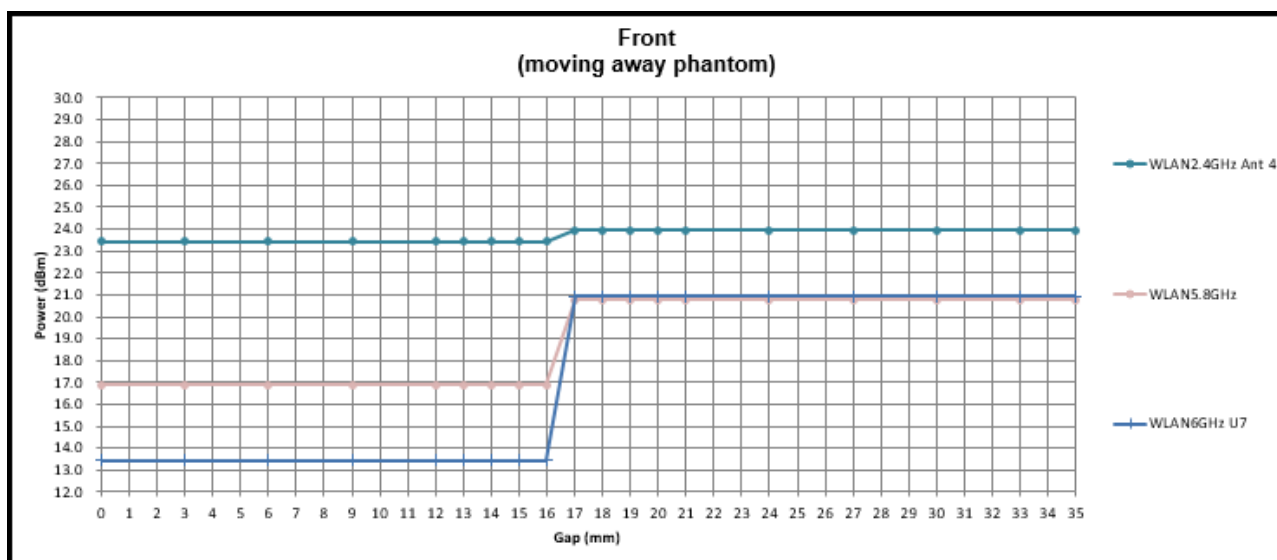
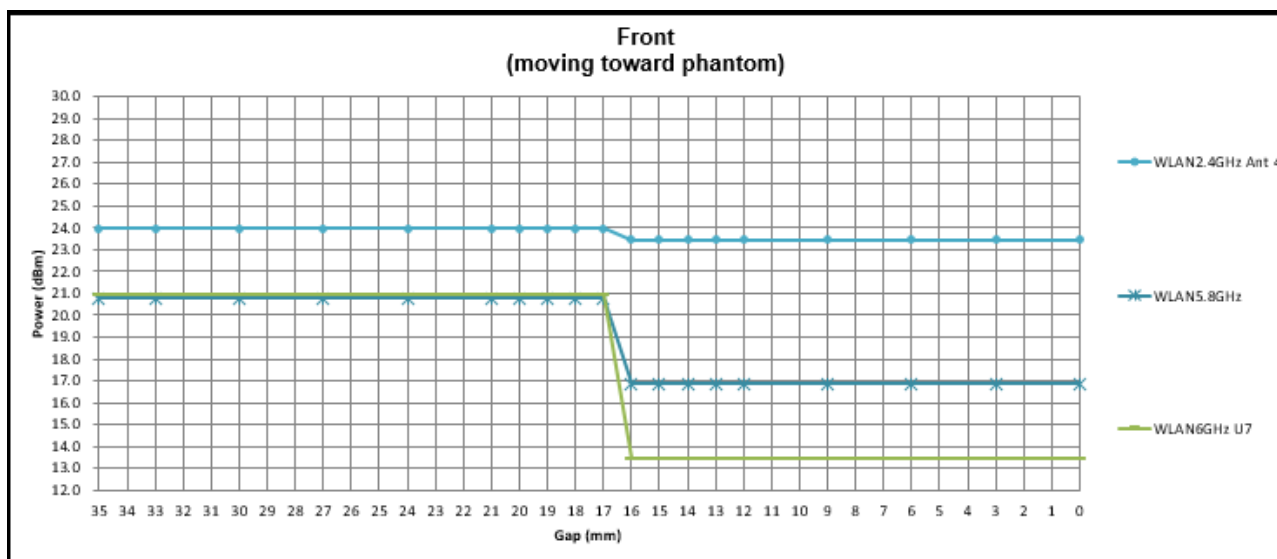


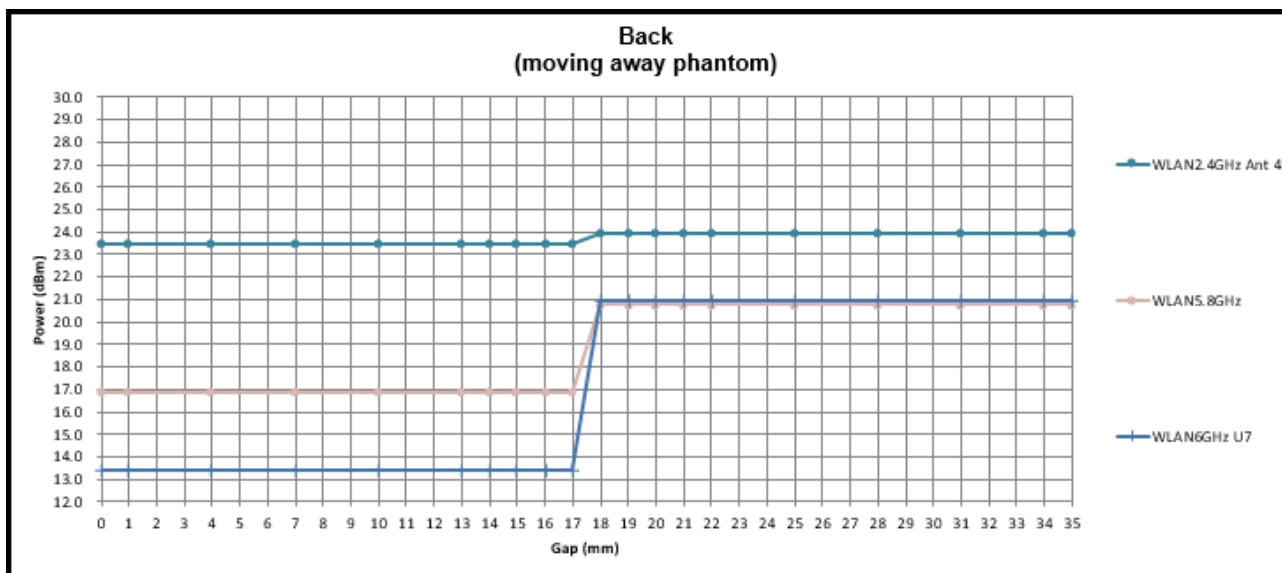
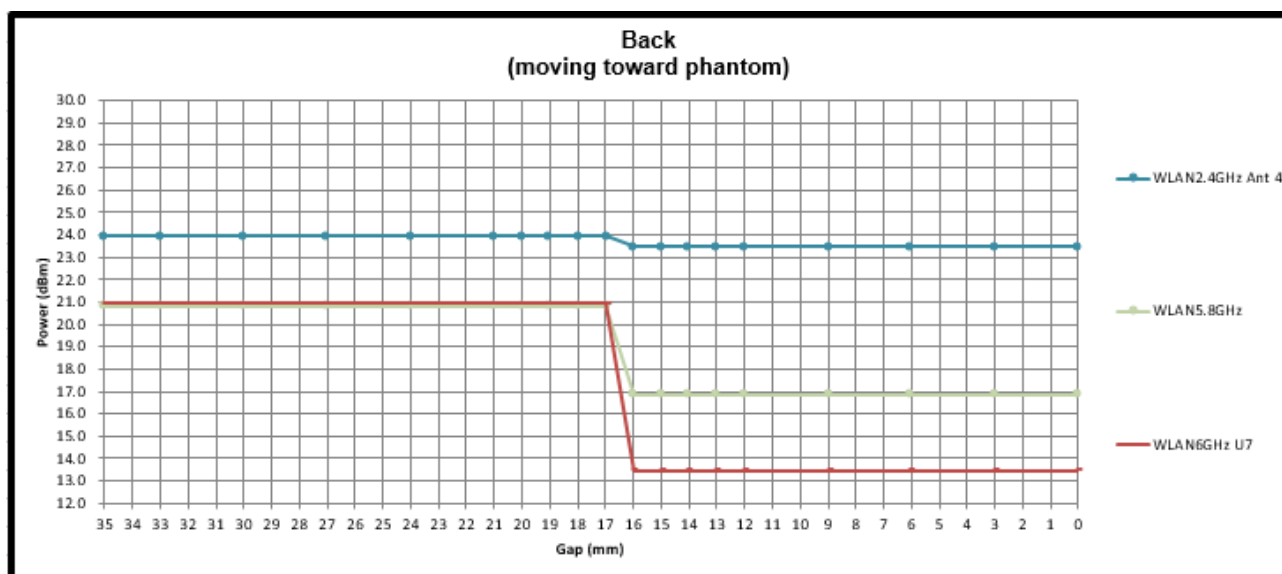


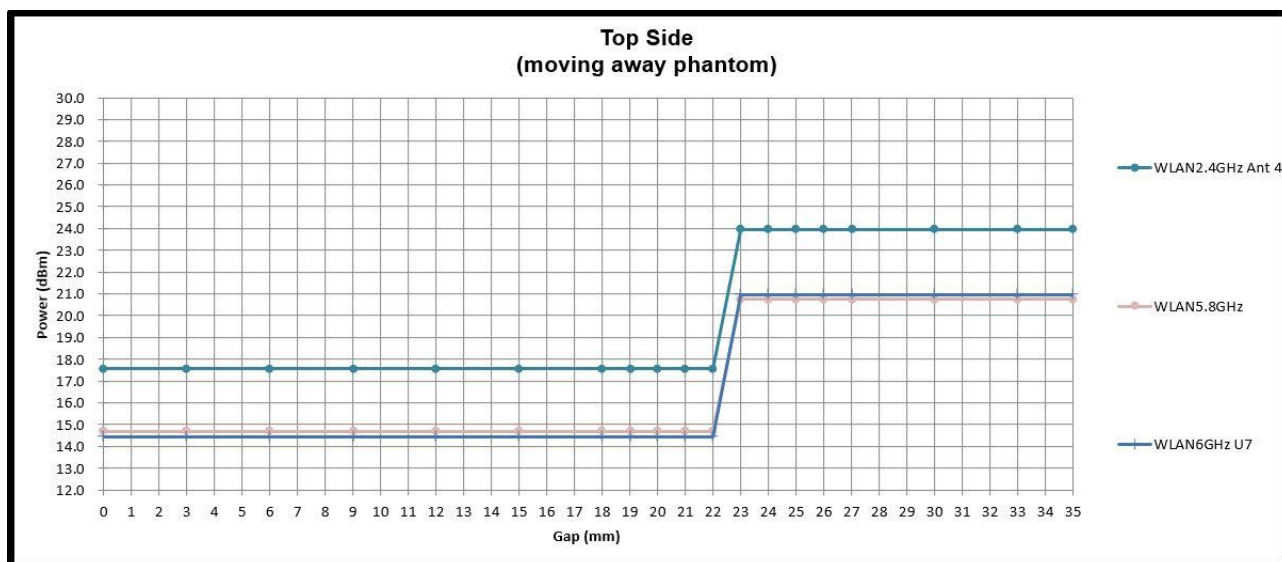
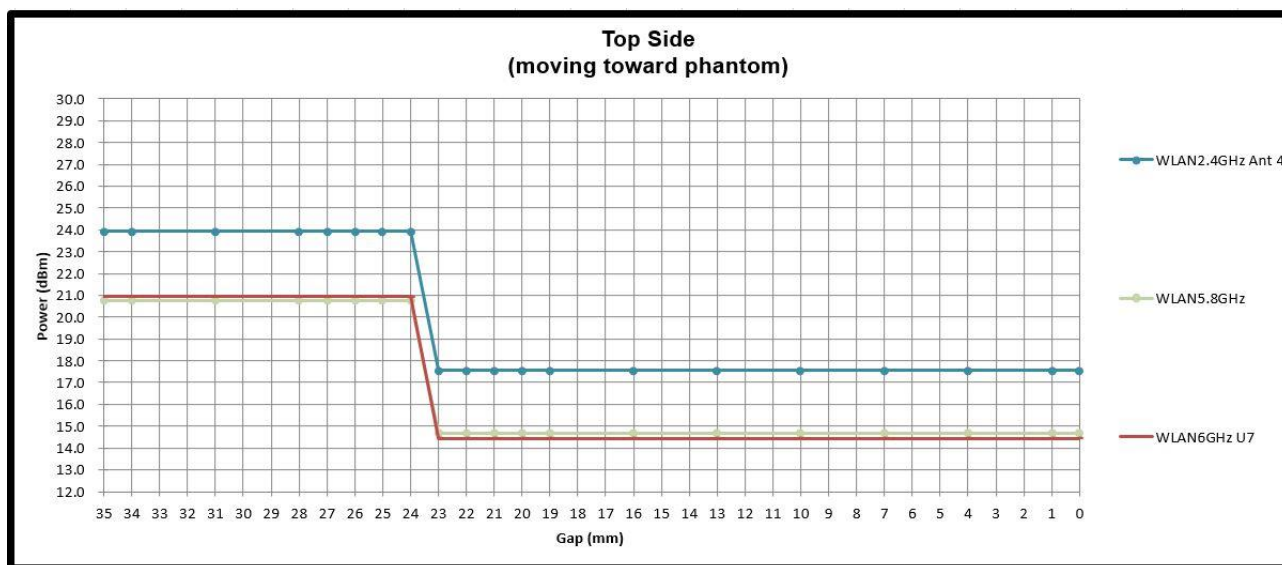




**Ant 4**







## Appendix E. Lid angle and power verification

### General Note:

- The following guidance should be applied to device that use Hall Effect or gravity sensors to detect lid angle for the purpose of power reduction:  
 Step 1: With the lid is in closed mode (0 degrees), open the screen in 10 degree steps until laptop mode is obtained  
 Step 2: Lower the screen 5 degrees. Closed mode should be reobtained. If not keep lowering in 5 degree steps  
 Step 3: Open the screen in 1 degree steps until device is reobtained  
 Step 4: Continue opening the screen in 1 degree steps until at least 5 degrees past where device was obtained  
 Step 5: Then continue opening the screen in 10 degree steps until device is obtained  
 Step 6: Power measurements should be taken at each step  
 Step 7: Reverse this procedure going from device in open mode back down to device into closed mode
- The worst power reduction bands were selected to power verification and list below.
- WLAN and BT function are turned off to associate with body-worn standalone mode, and motion sensor, proximity sensor is active, the verification is to observe the WWAN power transition between index 5 (close mode) and index 10 (open mode) versus lid angle change.
- WWAN function is turned off to associate with body-worn standalone mode, and motion sensor, proximity sensor is active, the verification is to observe the WLAN power transition between index 4-1 (close mode) and index 9-1 (open mode) versus lid angle change.

| Lid angle verification between close mode an open mode |                         |         |          |          |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |      |
|--------------------------------------------------------|-------------------------|---------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
|                                                        | Wireless                |         | GSM      |          |       | WCDMA |       |       | LTE   |       |       |       |       |       | FR1   |       |       |       |       |      |
|                                                        | Antenna                 | Ant 0   | Ant 1    | Ant 2    | Ant 0 | Ant 2 | Ant 1 | Ant 5 | Ant 0 | Ant 0 | Ant 2 | Ant 6 | Ant 1 | Ant 5 | Ant 0 | Ant 0 | Ant 2 | Ant 1 | Ant 6 |      |
|                                                        | Band                    | GSM 850 | GSM 1900 | GSM 1900 | B5    | B2    | B4    | B2    | B2    | B13   | B30   | B48   | B66   | N2    | N2    | N14   | N7    | N25   | N48   |      |
| Screen angle (degree ) v.s. power                      | Close mode to open mode | 0       | 27.7     | 23.9     | 21.9  | 23.8  | 17.5  | 19.7  | 23.2  | 20.9  | 24.1  | 17.2  | 23.9  | 19.0  | 23.6  | 22.3  | 24.1  | 17.3  | 20.9  | 24.2 |
|                                                        |                         | 6       | 27.7     | 23.9     | 21.9  | 23.8  | 17.5  | 19.7  | 23.2  | 20.9  | 24.1  | 17.2  | 23.9  | 19.0  | 23.6  | 22.3  | 24.1  | 17.3  | 20.9  | 24.2 |
|                                                        |                         | 7       | 27.7     | 23.9     | 21.9  | 23.8  | 17.5  | 19.7  | 23.2  | 20.9  | 24.1  | 17.2  | 23.9  | 19.0  | 23.6  | 22.3  | 24.1  | 17.3  | 20.9  | 24.2 |
|                                                        |                         | 8       | 27.7     | 23.9     | 21.9  | 23.8  | 17.5  | 19.7  | 23.2  | 20.9  | 24.1  | 17.2  | 23.9  | 19.0  | 23.6  | 22.3  | 24.1  | 17.3  | 20.9  | 24.2 |
|                                                        |                         | 9       | 27.7     | 23.9     | 21.9  | 23.8  | 17.5  | 19.7  | 23.2  | 20.9  | 24.1  | 17.2  | 23.9  | 19.0  | 23.6  | 22.3  | 24.1  | 17.3  | 20.9  | 24.2 |
|                                                        |                         | 10      | 27.7     | 23.9     | 21.9  | 23.8  | 17.5  | 19.7  | 23.2  | 20.9  | 24.1  | 17.2  | 23.9  | 19.0  | 23.6  | 22.3  | 24.1  | 17.3  | 20.9  | 24.2 |
|                                                        |                         | 11      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 12      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 13      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 14      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 15      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 20      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 30      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 40      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 50      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 60      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 70      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 80      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 90      | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        |                         | 100     | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5 |
|                                                        | 110                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 120                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 130                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 140                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 150                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 160                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 170                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | 180                     | 27.7    | 21.1     | 18.2     | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 19.5  |      |
|                                                        | Open mode to close mode | 180     | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 18.0 |
|                                                        |                         | 170     | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 18.0 |
|                                                        |                         | 160     | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 18.0 |
|                                                        |                         | 150     | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 18.0 |
|                                                        |                         | 140     | 27.7     | 21.1     | 18.2  | 23.8  | 17.3  | 18.7  | 21.8  | 19.5  | 24.1  | 17.9  | 22.1  | 19.5  | 22.2  | 19.6  | 24.1  | 20.0  | 18.0  | 18.0 |



|  |     |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|--|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|  | 130 | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 120 | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 110 | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 100 | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 90  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 80  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 70  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 60  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 50  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 40  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 30  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 20  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 10  | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 9   | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 8   | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 7   | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 6   | 27.7 | 21.1 | 18.2 | 23.8 | 17.3 | 18.7 | 21.8 | 19.5 | 24.1 | 17.9 | 22.1 | 19.5 | 22.2 | 19.6 | 24.1 | 20.0 | 18.0 | 18.0 |
|  | 5   | 27.7 | 23.9 | 21.9 | 23.8 | 17.5 | 19.7 | 23.2 | 20.9 | 24.1 | 17.2 | 23.9 | 19.0 | 23.6 | 22.3 | 24.1 | 17.3 | 20.9 | 24.2 |
|  | 4   | 27.7 | 23.9 | 21.9 | 23.8 | 17.5 | 19.7 | 23.2 | 20.9 | 24.1 | 17.2 | 23.9 | 19.0 | 23.6 | 22.3 | 24.1 | 17.3 | 20.9 | 24.2 |
|  | 3   | 27.7 | 23.9 | 21.9 | 23.8 | 17.5 | 19.7 | 23.2 | 20.9 | 24.1 | 17.2 | 23.9 | 19.0 | 23.6 | 22.3 | 24.1 | 17.3 | 20.9 | 24.2 |
|  | 2   | 27.7 | 23.9 | 21.9 | 23.8 | 17.5 | 19.7 | 23.2 | 20.9 | 24.1 | 17.2 | 23.9 | 19.0 | 23.6 | 22.3 | 24.1 | 17.3 | 20.9 | 24.2 |
|  | 1   | 27.7 | 23.9 | 21.9 | 23.8 | 17.5 | 19.7 | 23.2 | 20.9 | 24.1 | 17.2 | 23.9 | 19.0 | 23.6 | 22.3 | 24.1 | 17.3 | 20.9 | 24.2 |
|  | 0   | 27.7 | 23.9 | 21.9 | 23.8 | 17.5 | 19.7 | 23.2 | 20.9 | 24.1 | 17.2 | 23.9 | 19.0 | 23.6 | 22.3 | 24.1 | 17.3 | 20.9 | 24.2 |

| Lid angle verification between close mode an open mode |                            |       |             |             |             |             |
|--------------------------------------------------------|----------------------------|-------|-------------|-------------|-------------|-------------|
| Screen angle<br>(degree)<br>v.s.<br>power              | Wireless                   |       | WLAN Ant 3  |             | WLAN Ant 4  |             |
|                                                        | Band                       |       | 2.4GHz WLAN | 5.2GHz WLAN | 2.4GHz WLAN | 5.2GHz WLAN |
|                                                        | Close mode to<br>open mode | 0     | 19.11       | 13.92       | 19.48       | 14.20       |
|                                                        |                            | 6     | 19.11       | 13.92       | 19.48       | 14.20       |
|                                                        |                            | 7     | 19.11       | 13.92       | 19.48       | 14.20       |
|                                                        |                            | 8     | 19.11       | 13.92       | 19.48       | 14.20       |
|                                                        |                            | 9     | 19.11       | 13.92       | 19.48       | 14.20       |
|                                                        |                            | 10    | 19.11       | 13.92       | 19.48       | 14.20       |
|                                                        |                            | 11    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 12    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 13    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 14    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 15    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 20    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 30    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 40    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 50    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 60    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 70    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 80    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 90    | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 100   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 110   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 120   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 130   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 140   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 150   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 160   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        |                            | 170   | 20.91       | 14.41       | 21.00       | 15.34       |
|                                                        | 180                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
| Open mode to<br>close mode                             | 180                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 170                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 160                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 150                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 140                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 130                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 120                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 110                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 100                        | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 90                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 80                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 70                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 60                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 50                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 40                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 30                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 20                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 10                         | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 9                          | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 8                          | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 7                          | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 6                          | 20.91 | 14.41       | 21.00       | 15.34       |             |
|                                                        | 5                          | 19.11 | 13.92       | 19.48       | 14.20       |             |
|                                                        | 4                          | 19.11 | 13.92       | 19.48       | 14.20       |             |
|                                                        | 3                          | 19.11 | 13.92       | 19.48       | 14.20       |             |
|                                                        | 2                          | 19.11 | 13.92       | 19.48       | 14.20       |             |
|                                                        | 1                          | 19.11 | 13.92       | 19.48       | 14.20       |             |
| 0                                                      | 19.11                      | 13.92 | 19.48       | 14.20       |             |             |

## Appendix E. Power reduction mechanism verification

According to the May 2017 TCBC Workshop, Demonstration of proper functioning of the detection and triggering mechanisms to support the corresponding RF exposure conditions. The verification is through a base station simulator is used to establish a conducted RF connection and monitor output power under different operating conditions related to the power reduction mechanisms. Detail of power reduction mechanisms referring to Operational Description

### 1. Power verification procedure

- Establish voice call and audio routed through the earpiece to monitor output power under head with simultaneous transmitting power states.
  - Tradition voice call for GSM/WCDMA, voice over IP CMRS operations for LTE/WIFI/5G FR1
  - GSM is set to 1TX slot, LTE is set at 'highest BW, 1RB, RB Offset = 0, QPSK, WCDMA is set AMR 12.2Kbps, 5G FR1 is set at highest BW MHz, 1RF, RB offset = 1
- Establish data connection monitor hotspot power state.
  - GSM is set to GPRS 4TX slot, LTE is set at 'highest BW, 1RB, RB Offset = 0, QPSK, WCDMA is set RMC 12.2Kbps, 5G FR1 is set at highest BW MHz, 1RF, RB offset = 1
- Establish data connection monitor body worn power state.
  - GSM is set to GPRS 4TX slot, LTE is set at 'highest BW, 1RB, RB Offset = 0, QPSK, WCDMA is set RMC 12.2Kbps, 5G FR1 is set at highest BW MHz, 1RF, RB offset = 1
  - Body Detect mechanism was performed for the in-hand and on a stationary object (placed on a table)
  - Proximity sensor detect mechanism only for Ant 1 and Ant 4
  - Proximity sensor Detect mechanism was performed for the in-hand to trigger body detection and hand close to the Ant 1 and Ant 4 within proximity sensor detect range, to trigger power reduction is when body detect and proximity sensor detect are triggered simultaneously.
- This device incorporates the Samsung S.LSI TAS algorithm feature and through under varying Tx power transmission scenarios in real-time to maintain the time-averaged Tx power compliant with FCC RF exposure requirement.
- In this power validation purpose is to demonstrate of proper functioning of the detection and triggering mechanisms to support the corresponding RF exposure conditions. In order to avoid real-time TX power varying may affect monitor output power related to the power reduction mechanisms, therefore power reduction verification would be disabled WWAN TAS feature.
- Verification performed for each technology to demonstrate that the power reduction applies for both technology and call origination.

2. Test setup for measuring power



**Figure 1**

### 3. Verification output Power Results

#### Head exposure conditions

| Close Mode                  |         | Output Power for Voice Call |                    |                |                    |
|-----------------------------|---------|-----------------------------|--------------------|----------------|--------------------|
| Ear acoustic output Status: |         | ON                          |                    | ON             |                    |
| WiFi Status:                |         | OFF                         |                    | ON             |                    |
| Power state                 |         | WWAN Index 2                |                    | WWAN Index 3   |                    |
| Wireless technology         | Antenna | Measured (dBm)              | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| GSM1900 (1TX)               | Ant 2   | 29.77                       | 30.50              | 29.72          | 30.50              |
|                             | Ant 1   | 23.75                       | 24.70              | 22.74          | 23.90              |
| UMTS Band 4                 | Ant 2   | 24.33                       | 25.60              | 24.28          | 25.60              |
|                             | Ant 1   | 13.57                       | 15.00              | 12.81          | 14.20              |
| LTE Band 66 (FDD)           | Ant 2   | 23.61                       | 25.60              | 23.60          | 25.60              |
|                             | Ant 1   | 13.29                       | 14.70              | 12.44          | 13.90              |
| LTE Band 26 (FDD)           | Ant 0   | 23.71                       | 25.70              | 23.70          | 25.70              |
|                             | Ant 1   | 23.45                       | 24.00              | 21.74          | 23.20              |
| LTE Band 38 (TDD)           | Ant 2   | 25.00                       | 25.00              | 24.99          | 25.00              |
|                             | Ant 1   | 24.98                       | 25.00              | 24.99          | 25.00              |
| NR SA n2                    | Ant 2   | 23.31                       | 25.30              | 23.3           | 25.30              |
|                             | Ant 1   | 14.87                       | 16.20              | 14.42          | 15.40              |

| Close Mode                  |               | Output Power for Voice Call |                    |                |                    |
|-----------------------------|---------------|-----------------------------|--------------------|----------------|--------------------|
| Ear acoustic output Status: |               | ON                          |                    | ON             |                    |
| WWAN Status:                |               | OFF                         |                    | ON             |                    |
| Power state                 |               | WIFI Index 1-1              |                    | WIFI Index 2-1 |                    |
| Wireless technology         | Antenna       | Measured (dBm)              | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| WiFi 802.11g CH6            | (Ant4+3)Ant 3 | 16.67                       | 17.00              | 15.44          | 15.50              |
|                             | (Ant4+3)Ant 4 | 16.71                       | 17.00              | 14.92          | 15.50              |
| WiFi 802.11a 6Mbps CH44     | (Ant4+3)Ant 3 | 16.37                       | 19.00              | 14.74          | 17.00              |
|                             | (Ant4+3)Ant 4 | 17.12                       | 19.00              | 14.92          | 17.00              |

**Hotspot exposure condition**

| Close Mode                 |               | Output Power for data connection |                    |                                |                       |
|----------------------------|---------------|----------------------------------|--------------------|--------------------------------|-----------------------|
| Wifi Hotspot Status        |               | ON                               |                    | OFF                            |                       |
| BT Hotspot Status          |               | OFF                              |                    | ON                             |                       |
| Power state                |               | WWAN Index 4<br>WIFI Index 4-1   |                    | WWAN Index 4<br>WIFI Index 4-1 |                       |
| Wireless                   | Antenna       | Measured<br>(dBm)                | Max. Tune-up (dBm) | Measured<br>(dBm)              | Max. Tune-up<br>(dBm) |
| Technology                 |               |                                  |                    |                                |                       |
| GSM1900 (4TX)              | Ant 2         | 20.42                            | 21.80              | 20.40                          | 21.80                 |
|                            | Ant 1         | 22.98                            | 24.90              | 22.94                          | 24.90                 |
| UMTS Band 4                | Ant 2         | 16.89                            | 18.20              | 16.88                          | 18.20                 |
|                            | Ant 1         | 17.22                            | 19.00              | 17.22                          | 19.20                 |
| LTE Band 66 (FDD)          | Ant 2         | 16.08                            | 17.40              | 16.05                          | 17.40                 |
|                            | Ant 1         | 16.35                            | 18.10              | 16.34                          | 18.10                 |
| LTE Band 7 (FDD)           | Ant 2         | 16.42                            | 17.60              | 16.40                          | 17.60                 |
|                            | Ant 1         | 20.38                            | 21.80              | 20.34                          | 21.80                 |
| LTE Band 38 (TDD)          | Ant 2         | 18.96                            | 20.20              | 18.99                          | 20.20                 |
|                            | Ant 1         | 22.81                            | 24.00              | 22.80                          | 24.00                 |
| NR SA n7                   | Ant 2         | 16.70                            | 17.30              | 16.75                          | 17.30                 |
|                            | Ant 1         | 21.26                            | 22.60              | 21.24                          | 22.60                 |
| WiFi 802.11g CH6           | (Ant4+3)Ant 3 | 19.11                            | 19.50              |                                |                       |
|                            | (Ant4+3)Ant 4 | 19.48                            | 19.50              |                                |                       |
| WiFi 802.11a<br>UNII ,CH44 | (Ant4+3)Ant 3 | 13.92                            | 16.00              |                                |                       |
|                            | (Ant4+3)Ant 4 | 14.20                            | 16.00              |                                |                       |

**Body worn exposure condition**

| Close Mode          |         | Output Power (data connection) |                    |                     |                    |                |                    |
|---------------------|---------|--------------------------------|--------------------|---------------------|--------------------|----------------|--------------------|
|                     |         | Stationary                     |                    | Body Worn (In hand) |                    |                |                    |
| WIFI/BT Status      |         | OFF                            |                    | OFF                 |                    | ON             |                    |
| Power state         |         | WWAN Index 1                   |                    | WWAN Index 5        |                    | WWAN Index 6   |                    |
| Wireless Technology | Antenna | Measured (dBm)                 | Max. Tune-up (dBm) | Measured (dBm)      | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| GSM1900 (4TX)       | Ant 2   | 25.72                          | 27.50              | 21.17               | 22.80              | 20.54          | 22.00              |
|                     | Ant 1   | 25.52                          | 27.50              | 23.72               | 25.70              | 22.92          | 24.90              |
| UMTS Band 4         | Ant 2   | 24.33                          | 25.60              | 17.62               | 19.00              | 16.91          | 18.20              |
|                     | Ant 1   | 23.83                          | 25.60              | 19.02               | 20.80              | 18.19          | 20.00              |
| LTE Band 66 (FDD)   | Ant 2   | 24.17                          | 25.60              | 16.82               | 18.20              | 16.03          | 17.40              |
|                     | Ant 1   | 23.83                          | 25.60              | 18.03               | 19.80              | 17.22          | 19.00              |
| LTE Band 7 (FDD)    | Ant 2   | 23.52                          | 25.00              | 17.19               | 18.40              | 16.42          | 17.60              |
|                     | Ant 1   | 23.20                          | 25.00              | 21.16               | 22.60              | 20.37          | 21.80              |
| LTE Band 38(TDD)    | Ant 2   | 24.98                          | 25.00              | 20.02               | 21.30              | 19.34          | 20.50              |
|                     | Ant 1   | 24.99                          | 25.00              | 24.42               | 25.00              | 24.38          | 24.80              |
| NR SA n7            | Ant 2   | 23.14                          | 25.10              | 17.54               | 18.10              | 16.78          | 17.30              |
|                     | Ant 1   | 23.10                          | 25.10              | 21.99               | 23.40              | 21.25          | 22.60              |

| Close Mode              |               | Output Power (data connection) |                    |                |                    |                |                    |
|-------------------------|---------------|--------------------------------|--------------------|----------------|--------------------|----------------|--------------------|
|                         |               | Stationary                     |                    | In hand        |                    |                |                    |
| WWAN Status:            |               | OFF                            |                    | OFF            |                    | ON             |                    |
| Power state             |               | WIFI Index 0                   |                    | WIFI Index 3-1 |                    | WIFI Index 4-1 |                    |
| Wireless technology     | Antenna       | Measured (dBm)                 | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| WiFi 802.11g CH6        | (Ant4+3)Ant 3 | 22.00                          | 22.00              | 20.50          | 21.00              | 18.97          | 19.50              |
|                         | (Ant4+3)Ant 4 | 22.00                          | 22.00              | 20.98          | 21.00              | 19.49          | 19.50              |
| WiFi 802.11a UNII ,CH44 | (Ant4+3)Ant 3 | 16.44                          | 19.00              | 16.16          | 19.00              | 14.35          | 16.00              |
|                         | (Ant4+3)Ant 4 | 16.91                          | 19.00              | 16.88          | 19.00              | 14.34          | 16.00              |

**Head exposure conditions**

| Open Mode                   |         | Output Power for Voice Call |                    |                |                    |
|-----------------------------|---------|-----------------------------|--------------------|----------------|--------------------|
| Ear acoustic output Status: |         | ON                          |                    | ON             |                    |
| WiFi Status:                |         | OFF                         |                    | ON             |                    |
| Power state                 |         | WWAN Index 7/8              |                    | WWAN Index 7/8 |                    |
| Wireless technology         | Antenna | Measured (dBm)              | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| GSM1900 (1TX)               | Ant 2   | 29.58                       | 30.50              | 29.56          | 30.50              |
|                             | Ant 1   | 24.65                       | 25.80              | 24.64          | 25.80              |
| UMTS Band 4                 | Ant 2   | 24.06                       | 25.60              | 24.05          | 25.60              |
|                             | Ant 1   | 16.47                       | 18.10              | 16.45          | 18.10              |
| LTE Band 66 (FDD)           | Ant 2   | 23.60                       | 25.60              | 23.60          | 25.60              |
|                             | Ant 1   | 16.23                       | 17.70              | 16.22          | 17.70              |
| LTE Band 7 (FDD)            | Ant 2   | 23.06                       | 25.00              | 23.01          | 25.00              |
|                             | Ant 1   | 17.25                       | 18.50              | 17.20          | 18.50              |
| LTE Band 38 (TDD)           | Ant 2   | 24.96                       | 25.00              | 24.98          | 25.00              |
|                             | Ant 1   | 19.04                       | 20.30              | 19.02          | 20.30              |
| NR SA n7                    | Ant 2   | 23.20                       | 25.10              | 23.20          | 25.10              |
|                             | Ant 1   | 17.53                       | 18.90              | 17.52          | 18.90              |

| Open Mode                    |               | Output Power for Voice Call |                    |                |                    |
|------------------------------|---------------|-----------------------------|--------------------|----------------|--------------------|
| Ear acoustic output Status:  |               | ON                          |                    | ON             |                    |
| WWAN Status:                 |               | OFF                         |                    | ON             |                    |
| Power state                  |               | WIFI Index 5-1              |                    | WIFI Index 5-1 |                    |
| Wireless technology          | Antenna       | Measured (dBm)              | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| WiFi 802.11g CH6             | (Ant4+3)Ant 3 | 10.34                       | 10.50              | 10.41          | 10.50              |
|                              | (Ant4+3)Ant 4 | 9.97                        | 10.50              | 9.50           | 10.50              |
| WiFi 802.11a 6Mbps UNII CH44 | (Ant4+3)Ant 3 | 3.16                        | 6.00               | 4.18           | 6.00               |
|                              | (Ant4+3)Ant 4 | 4.02                        | 6.00               | 4.58           | 6.00               |

**Hotspot exposure condition**

| Open Mode           |               | Output Power for data connection |                    |                                |                       |
|---------------------|---------------|----------------------------------|--------------------|--------------------------------|-----------------------|
| Wifi Hotspot Status |               | ON                               |                    | OFF                            |                       |
| BT Hotspot Status   |               | OFF                              |                    | ON                             |                       |
| Power state         |               | WWAN Index 9<br>WIFI Index 9-1   |                    | WWAN Index 9<br>WIFI Index 9-1 |                       |
| Wireless            | Antenna       | Measured<br>(dBm)                | Max. Tune-up (dBm) | Measured<br>(dBm)              | Max. Tune-up<br>(dBm) |
| Technology          |               |                                  |                    |                                |                       |
| GSM1900 (4TX)       | Ant 2         | 17.09                            | 19.00              | 17.12                          | 19.00                 |
|                     | Ant 1         | 17.54                            | 19.50              | 17.53                          | 19.50                 |
| UMTS Band 2         | Ant 2         | 16.23                            | 17.60              | 16.21                          | 17.60                 |
|                     | Ant 1         | 13.45                            | 15.30              | 13.42                          | 15.30                 |
| LTE Band 66 (FDD)   | Ant 2         | 17.82                            | 19.20              | 17.81                          | 19.20                 |
|                     | Ant 1         | 15.17                            | 16.90              | 15.16                          | 16.90                 |
| LTE Band 7 (FDD)    | Ant 2         | 17.89                            | 19.00              | 17.85                          | 19.00                 |
|                     | Ant 1         | 17.51                            | 19.00              | 17.52                          | 19.00                 |
| LTE Band 38 (TDD)   | Ant 2         | 18.91                            | 20.20              | 18.88                          | 20.20                 |
|                     | Ant 1         | 19.52                            | 20.70              | 19.50                          | 20.70                 |
| NR SA n7            | Ant 2         | 18.42                            | 18.90              | 18.40                          | 18.90                 |
|                     | Ant 1         | 18.36                            | 19.70              | 18.38                          | 19.70                 |
| WiFi 802.11g CH6    | (Ant4+3)Ant 3 | 20.91                            | 21.00              |                                |                       |
|                     | (Ant4+3)Ant 4 | 21.00                            | 21.00              |                                |                       |
| WiFi 802.11a CH44   | (Ant4+3)Ant 3 | 14.41                            | 17.50              |                                |                       |
|                     | (Ant4+3)Ant 4 | 15.34                            | 17.50              |                                |                       |

**Body worn exposure condition**

| Open Mode           |         | Output Power (data connection) |                    |                     |                    |                |                    |
|---------------------|---------|--------------------------------|--------------------|---------------------|--------------------|----------------|--------------------|
|                     |         | Stationary                     |                    | Body Worn (In hand) |                    |                |                    |
| WIFI/BT Status      |         | OFF                            |                    | OFF                 |                    | ON             |                    |
| Power state         |         | WWAN Index 1                   |                    | WWAN Index 10       |                    | WWAN Index 11  |                    |
| Wireless Technology | Antenna | Measured (dBm)                 | Max. Tune-up (dBm) | Measured (dBm)      | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| GSM1900 (4TX)       | Ant 2   | 25.78                          | 27.50              | 18.21               | 19.80              | 17.24          | 19.00              |
| UMTS Band 2         | Ant 2   | 24.27                          | 25.60              | 16.97               | 18.40              | 16.19          | 17.60              |
| LTE Band 25(FDD)    | Ant 2   | 23.52                          | 25.30              | 16.52               | 18.20              | 15.70          | 17.40              |
| LTE Band 7 (FDD)    | Ant 2   | 23.57                          | 25.00              | 19.50               | 20.60              | 18.67          | 19.80              |
| LTE Band 38(TDD)    | Ant 2   | 24.99                          | 25.00              | 19.75               | 21.00              | 18.98          | 20.20              |
| NR SA n7            | Ant 2   | 23.20                          | 25.10              | 20.39               | 20.90              | 19.62          | 20.10              |

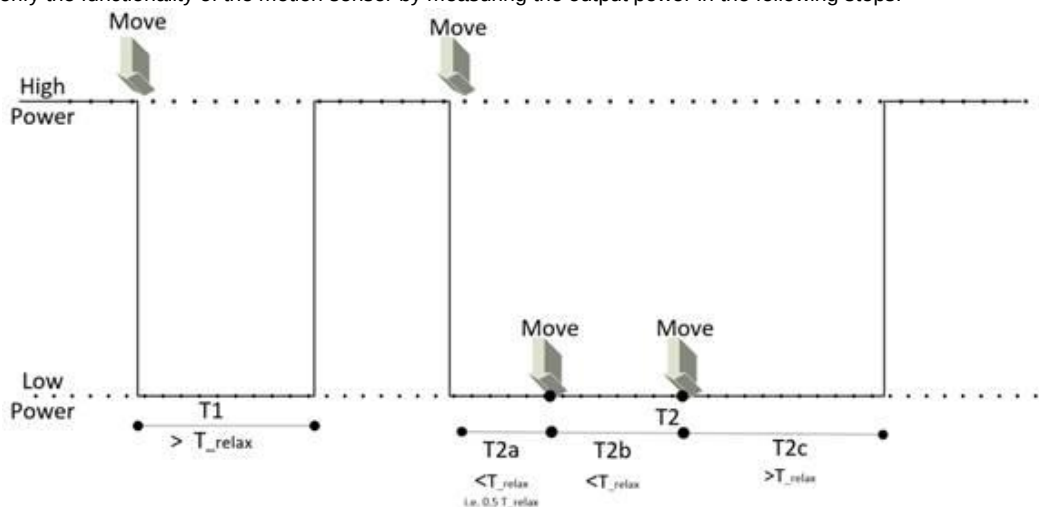
| Open Mode           |         | Output Power (data connection) |                    |                     |                    |                |                    |
|---------------------|---------|--------------------------------|--------------------|---------------------|--------------------|----------------|--------------------|
|                     |         | Stationary                     |                    | Body Worn (In hand) |                    |                |                    |
| WIFI/BT Status      |         | OFF                            |                    | OFF                 |                    | ON             |                    |
| Proximity Sensor    |         | OFF                            |                    | ON                  |                    | ON             |                    |
| Power state         |         | WWAN Index 1                   |                    | WWAN Index 10       |                    | WWAN Index 11  |                    |
| Wireless Technology | Antenna | Measured (dBm)                 | Max. Tune-up (dBm) | Measured (dBm)      | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| GSM1900 (4TX)       | Ant 1   | 25.57                          | 27.5               | 19.91               | 21.90              | 19.14          | 21.10              |
| UMTS Band 2         | Ant 1   | 23.82                          | 25.6               | 16.32               | 18.10              | 15.48          | 17.30              |
| LTE Band 25(FDD)    | Ant 1   | 23.31                          | 25.3               | 16.13               | 18.20              | 15.44          | 17.40              |
| LTE Band 7 (FDD)    | Ant 1   | 23.2                           | 25.00              | 19.45               | 20.90              | 18.65          | 20.10              |
| LTE Band 38(TDD)    | Ant 1   | 24.98                          | 25.00              | 22.51               | 23.50              | 21.71          | 22.70              |
| NR SA n7            | Ant 1   | 23.16                          | 25.10              | 20.58               | 21.90              | 19.76          | 21.10              |

| Open Mode           |         | Output Power (data connection) |                    |                     |                    |                |                    |
|---------------------|---------|--------------------------------|--------------------|---------------------|--------------------|----------------|--------------------|
|                     |         | Stationary                     |                    | Body Worn (In hand) |                    |                |                    |
| WIFI/BT Status      |         | OFF                            |                    | OFF                 |                    | ON             |                    |
| Proximity Sensor    |         | OFF                            |                    | OFF                 |                    | OFF            |                    |
| Power state         |         | WWAN Index 1                   |                    | WWAN Index 10       |                    | WWAN Index 11  |                    |
| Wireless Technology | Antenna | Measured (dBm)                 | Max. Tune-up (dBm) | Measured (dBm)      | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| GSM1900 (4TX)       | Ant 1   | 25.57                          | 27.5               | 25.52               | 27.50              | 25.5           | 27.50              |
| UMTS Band 2         | Ant 1   | 23.82                          | 25.6               | 23.81               | 25.60              | 23.82          | 25.60              |
| LTE Band 25(FDD)    | Ant 1   | 23.31                          | 25.3               | 23.28               | 25.30              | 23.27          | 25.30              |
| LTE Band 7 (FDD)    | Ant 1   | 23.2                           | 25.00              | 23.19               | 25.00              | 23.17          | 25.00              |
| LTE Band 38(TDD)    | Ant 1   | 24.98                          | 25.00              | 24.96               | 25.00              | 24.95          | 25.00              |
| NR SA n7            | Ant 1   | 23.16                          | 25.10              | 23.12               | 25.10              | 23.11          | 25.10              |

| Open Mode               |               | Output Power (data connection) |                    |                |                    |                |                    |
|-------------------------|---------------|--------------------------------|--------------------|----------------|--------------------|----------------|--------------------|
|                         |               | Stationary                     |                    | In hand        |                    |                |                    |
| WWAN Status:            |               | OFF                            |                    | OFF            |                    | ON             |                    |
| Proximity Sensor        |               | OFF                            |                    | ON             |                    | ON             |                    |
| Power state             |               | WIFI Index 0                   |                    | WIFI Index 8-1 |                    | WIFI Index 9-1 |                    |
| Wireless technology     | Antenna       | Measured (dBm)                 | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) | Measured (dBm) | Max. Tune-up (dBm) |
| WiFi 802.11g CH6        | (Ant4+3)Ant 3 | 21.93                          | 22.00              | 21.90          | 22.00              | 20.53          | 21.00              |
|                         | (Ant4+3)Ant 4 | 22.00                          | 22.00              | 21.98          | 22.00              | 20.63          | 21.00              |
| WiFi 802.11a UNII ,CH44 | (Ant4+3)Ant 3 | 17.01                          | 19.00              | 16.99          | 19.00              | 15.35          | 17.50              |
|                         | (Ant4+3)Ant 4 | 17.78                          | 19.00              | 18.13          | 19.00              | 16.30          | 17.50              |

| Open Mode                  |               | Output Power (data connection) |              |                |              |                |              |
|----------------------------|---------------|--------------------------------|--------------|----------------|--------------|----------------|--------------|
|                            |               | Stationary                     |              | In hand        |              |                |              |
| WWAN Status:               |               | OFF                            |              | OFF            |              | ON             |              |
| Proximity Sensor           |               | OFF                            |              | OFF            |              | OFF            |              |
| Power state                |               | WIFI Index 0                   |              | WIFI Index 6-1 |              | WIFI Index 7-1 |              |
| Wireless technology        | Antenna       | Measured                       | Max. Tune-up | Measured       | Max. Tune-up | Measured       | Max. Tune-up |
|                            |               | (dBm)                          | (dBm)        | (dBm)          | (dBm)        | (dBm)          | (dBm)        |
| WiFi 802.11g<br>CH6        | (Ant4+3)Ant 3 | 21.93                          | 22.00        | 21.88          | 22.00        | 20.51          | 21.00        |
|                            | (Ant4+3)Ant 4 | 22.00                          | 22.00        | 21.94          | 22.00        | 21.43          | 22.00        |
| WiFi 802.11a<br>UNII ,CH44 | (Ant4+3)Ant 3 | 17.01                          | 19.00        | 17.02          | 19.00        | 15.33          | 17.50        |
|                            | (Ant4+3)Ant 4 | 17.78                          | 19.00        | 18.11          | 19.00        | 17.54          | 19.00        |

- Body Detect mechanism will be performed for the in-hand and on a stationary object (placed on a table).
- Verify the functionality of the motion sensor by measuring the output power in the following steps.



**Figure 1 Illustration of the procedure for the validation of the power reduction**

The device is embedded with motion sensors only, no proximity sensors are installed.

- Placed on a table:** Make the DUT transmit with the maximum output power by using a base station simulator.
  - Confirm that motion sensor is not triggered by letting the DUT remain stationary with no movements for the period  $T_{relax}$  for the motion sensor to reach stationary state.
  - Record  $P_{step1}$  (high power)
- In-hand:** Move the DUT to trigger the motion sensor. Apply the motion of the DUT with respect to movements in intended and reasonably foreseeable use conditions of the DUT.
  - Record  $P_{step2}$  (low power)
- For the validation of  $T_{relax}$ , wait a time period  $T_1 > T_{relax}$  and confirm DUT restores to high power ( $P_{step1}$ ).
- Move the DUT to trigger the motion sensor.
- Move DUT within  $T_{relax}$  to ensure  $T_{relax}$  resets when DUT is in motion.

DUT can be moved once or twice within  $T_{relax}$ , (after time periods  $T_{2a}$  and  $T_{2b}$  in Figure 1.) followed by waiting for a time period greater than  $T_{relax}$  (time period  $T_{2c}$  in Figure 1.) for DUT to restore high power. The total time duration of this step is  $T_2$ , and the power during the whole period  $T_2$  shall be reduced (low power –  $P_{step2}$ ).

$T_{relax}$ : 20 sec

Monitor period,  $T_1$ : 25 sec,  $T_{2a}$ : 15 sec,  $T_{2b}$ : 15 sec,  $T_{2c}$ : 25 sec

| Close Mode                     |             | Output Power (data connection)<br>(dBm) |              |                          |              |                                               |              |                                                 |              |                                                 |              |                                                  |              |
|--------------------------------|-------------|-----------------------------------------|--------------|--------------------------|--------------|-----------------------------------------------|--------------|-------------------------------------------------|--------------|-------------------------------------------------|--------------|--------------------------------------------------|--------------|
|                                |             | Stationary<br>Placed on a table         |              | In hand                  |              | Stationary<br>Placed on a table               |              | In hand                                         |              |                                                 |              | Stationary<br>Placed on a table                  |              |
| WWAN Index 5<br>WLAN Index 3-1 |             | Full Power<br>$P_{step1}$               |              | Low Power<br>$P_{step2}$ |              | Full Power<br>$P_{step1}$ & $T_1 > T_{relax}$ |              | Low Power<br>$P_{step2}$ & $T_{2a} < T_{relax}$ |              | Low Power<br>$P_{step2}$ & $T_{2b} < T_{relax}$ |              | Full Power<br>$P_{step1}$ & $T_{2c} > T_{relax}$ |              |
| Wireless technology            | Antenna     | Measured                                | Max. Tune-up | Measured                 | Max. Tune-up | Measured                                      | Max. Tune-up | Measured                                        | Max. Tune-up | Measured                                        | Max. Tune-up | Measured                                         | Max. Tune-up |
| GSM_1900                       | Ant 2       | 25.82                                   | 27.50        | 21.52                    | 22.8         | 25.73                                         | 27.50        | 21.52                                           | 22.80        | 21.55                                           | 22.80        | 25.71                                            | 27.50        |
| WCDMA IV                       | Ant 2       | 24.62                                   | 25.60        | 18.72                    | 19.00        | 24.66                                         | 25.60        | 18.75                                           | 19.00        | 18.77                                           | 19.00        | 24.56                                            | 25.60        |
| LTE Band 66                    | Ant 2       | 23.88                                   | 25.60        | 17.77                    | 18.20        | 23.91                                         | 25.60        | 17.85                                           | 18.20        | 17.92                                           | 18.20        | 23.86                                            | 25.30        |
| NR SA n7                       | Ant 2       | 24.32                                   | 25.10        | 17.66                    | 18.10        | 24.35                                         | 25.10        | 17.62                                           | 18.10        | 17.60                                           | 18.10        | 24.31                                            | 25.10        |
| WLAN2.4G                       | Ant 3+4 (3) | 20.12                                   | 22.00        | 20.15                    | 21.00        | 20.12                                         | 22.00        | 20.13                                           | 21.00        | 20.12                                           | 21.00        | 20.11                                            | 22.00        |
|                                | Ant 3+4 (4) | 20.95                                   | 22.00        | 20.92                    | 21.00        | 20.94                                         | 22.00        | 20.95                                           | 21.00        | 20.91                                           | 21.00        | 20.92                                            | 22.00        |

| Open Mode                       |                | Output Power (data connection)<br>(dBm) |                 |                                 |                 |                                                            |                 |                                                              |                 |                                                              |                 |                                                               |                 |
|---------------------------------|----------------|-----------------------------------------|-----------------|---------------------------------|-----------------|------------------------------------------------------------|-----------------|--------------------------------------------------------------|-----------------|--------------------------------------------------------------|-----------------|---------------------------------------------------------------|-----------------|
|                                 |                | Stationary<br>Placed on a table         |                 | In hand                         |                 | Stationary<br>Placed on a table                            |                 | In hand                                                      |                 |                                                              |                 | Stationary<br>Placed on a table                               |                 |
| WWAN Index 10<br>WLAN Index 8-1 |                | Full Power<br>$P_{\text{step1}}$        |                 | Low Power<br>$P_{\text{step2}}$ |                 | Full Power<br>$P_{\text{step1}} \& T_1 > T_{\text{relax}}$ |                 | Low Power<br>$P_{\text{step2}} \& T_{2a} < T_{\text{relax}}$ |                 | Low Power<br>$P_{\text{step2}} \& T_{2b} < T_{\text{relax}}$ |                 | Full Power<br>$P_{\text{step1}} \& T_{2c} > T_{\text{relax}}$ |                 |
| Wireless<br>technology          | Antenna        | Measured                                | Max.<br>Tune-up | Measured                        | Max.<br>Tune-up | Measured                                                   | Max.<br>Tune-up | Measured                                                     | Max.<br>Tune-up | Measured                                                     | Max.<br>Tune-up | Measured                                                      | Max.<br>Tune-up |
| GSM_1900                        | Ant 2          | 25.22                                   | 27.50           | 19.22                           | 19.80           | 25.16                                                      | 27.50           | 19.23                                                        | 19.80           | 19.22                                                        | 19.80           | 25.18                                                         | 27.50           |
| WCDMA II                        | Ant 2          | 24.77                                   | 25.60           | 17.54                           | 18.40           | 24.63                                                      | 25.60           | 17.32                                                        | 18.40           | 17.42                                                        | 18.40           | 24.57                                                         | 25.60           |
| LTE Band 25                     | Ant 2          | 23.51                                   | 25.30           | 17.66                           | 18.20           | 23.52                                                      | 25.30           | 17.57                                                        | 18.20           | 17.56                                                        | 18.20           | 23.57                                                         | 25.30           |
| NR SA n7                        | Ant 2          | 23.85                                   | 25.10           | 19.30                           | 20.90           | 23.75                                                      | 25.10           | 19.28                                                        | 20.90           | 19.29                                                        | 20.90           | 23.79                                                         | 25.10           |
| WLAN2.4G                        | Ant 3+4<br>(3) | 16.77                                   | 19.00           | 16.75                           | 19.00           | 16.83                                                      | 19.00           | 16.79                                                        | 19.00           | 16.82                                                        | 19.00           | 16.75                                                         | 19.00           |
|                                 | Ant 3+4<br>(4) | 18.22                                   | 19.00           | 18.25                           | 19.00           | 18.24                                                      | 19.00           | 18.27                                                        | 19.00           | 18.25                                                        | 19.00           | 18.21                                                         | 19.00           |