

## Proximity Sensor Triggering Distance, Sensor Coverage, and Tilt Angle Assessment

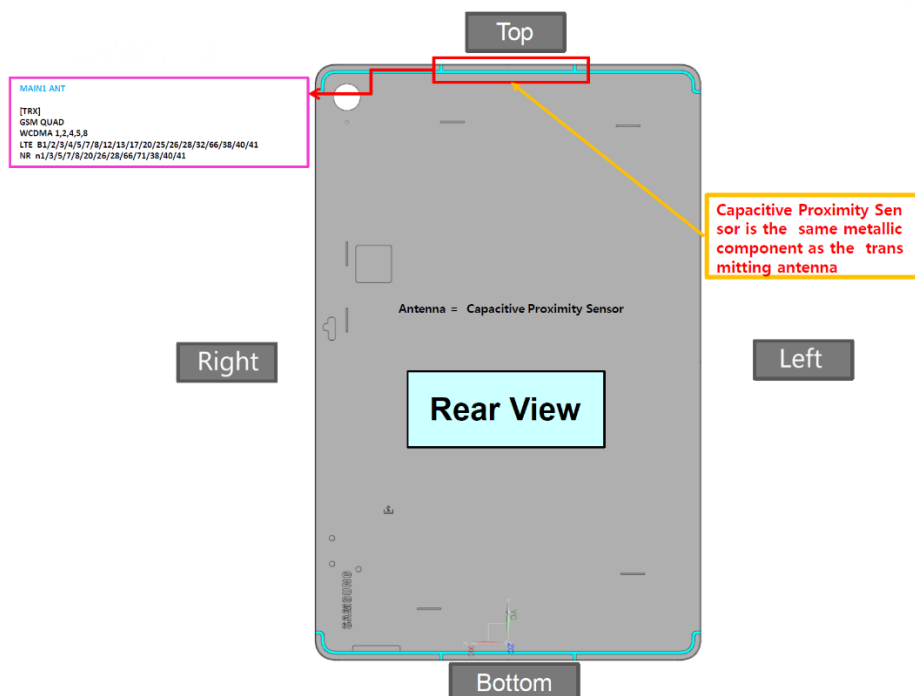
The following verification tests for the proximity sensor triggering, sensor coverage and Tilt Angle Assessment were performed by Samsung and results are presented here to support test distances used for SAR measurements.

### Power Reduction by Proximity Sensing

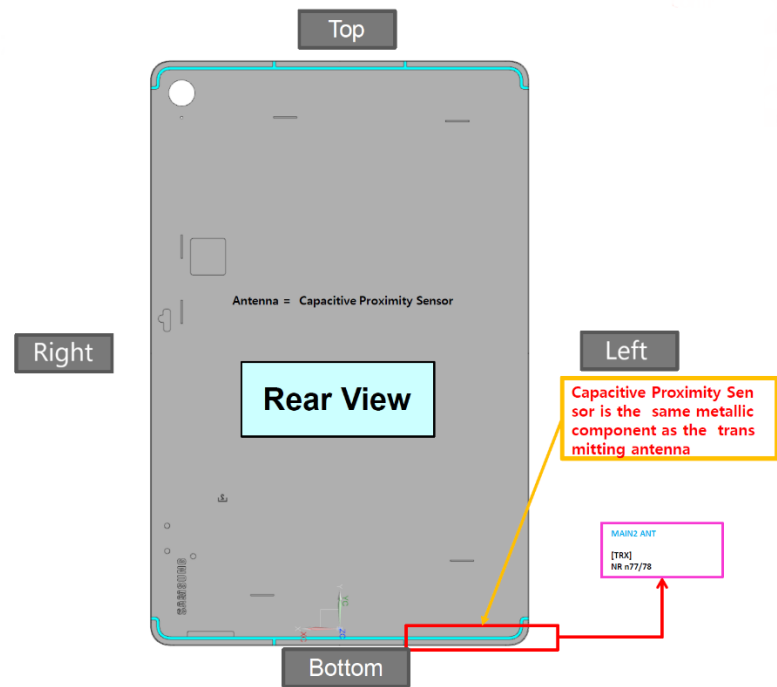
According to FCC KDB 616217 6.3, if the proximity sensors are not designed to cover the entire rear surface of the DUT, the sensing regions are limited and are spatially offset from the antenna.

However, this device uses a capacitive proximity sensor that is same metallic component as the transmitting antenna to facilitate triggering in any conditions the user may use the device in proximity of the antenna in the device. Therefore, no further sensor coverage assessments were required according to KDB 616217 D04.

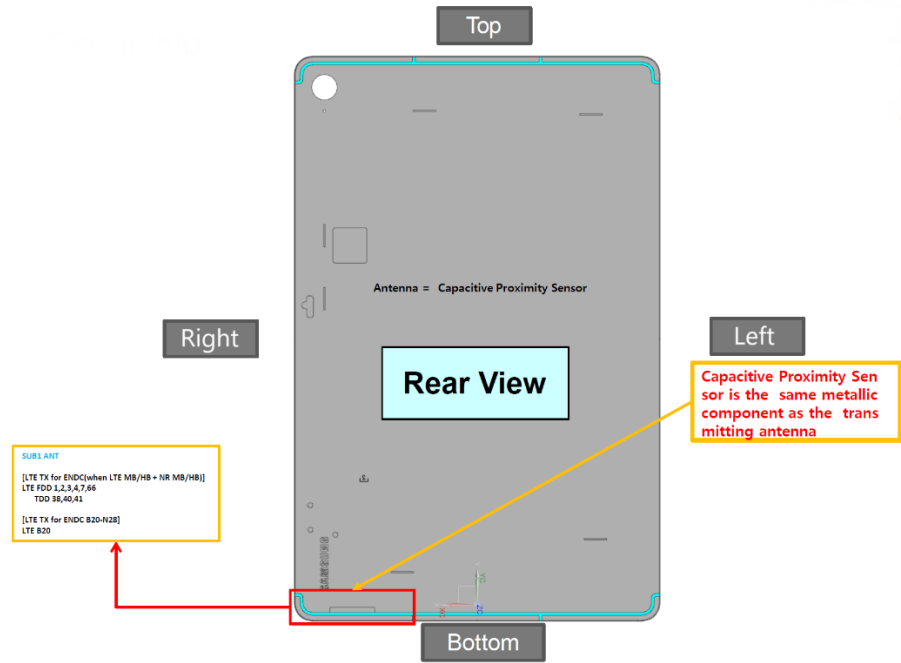
### Main 1 Antenna:



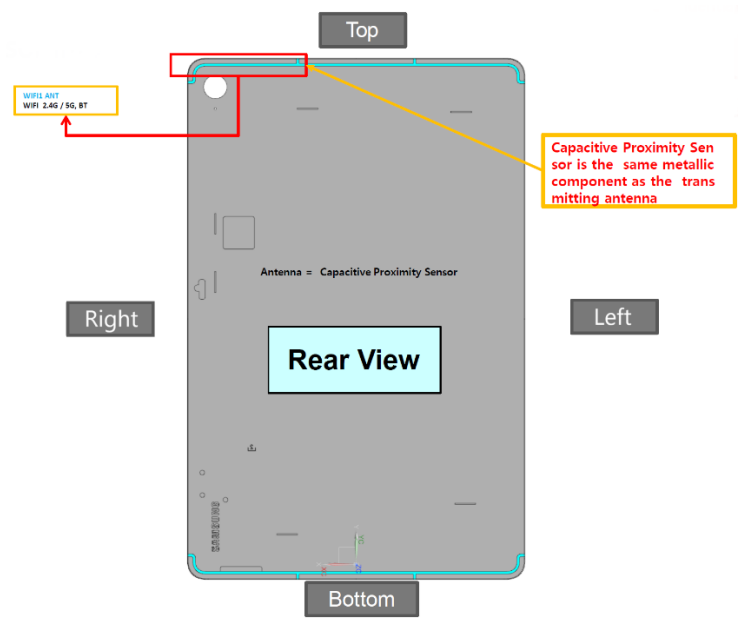
Main 2 Antenna:



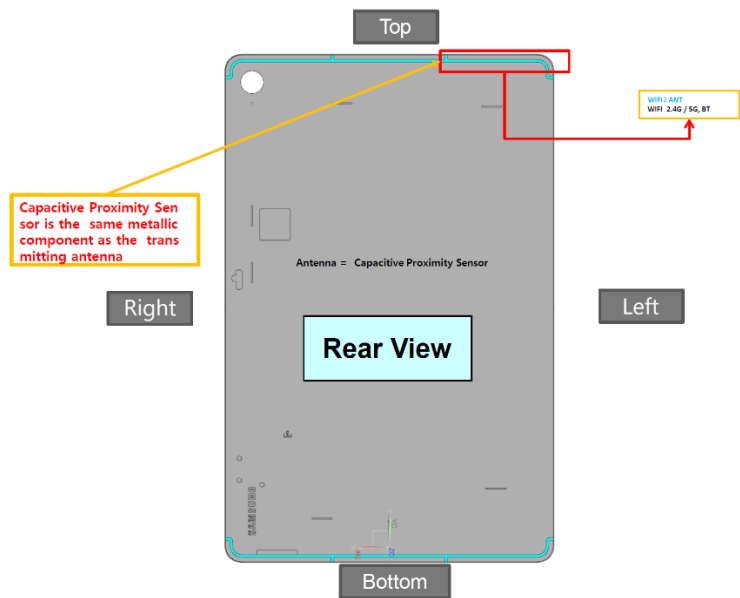
Sub 1 Antenna:



Wi-Fi 1 Antenna:



Wi-Fi 2 Antenna:



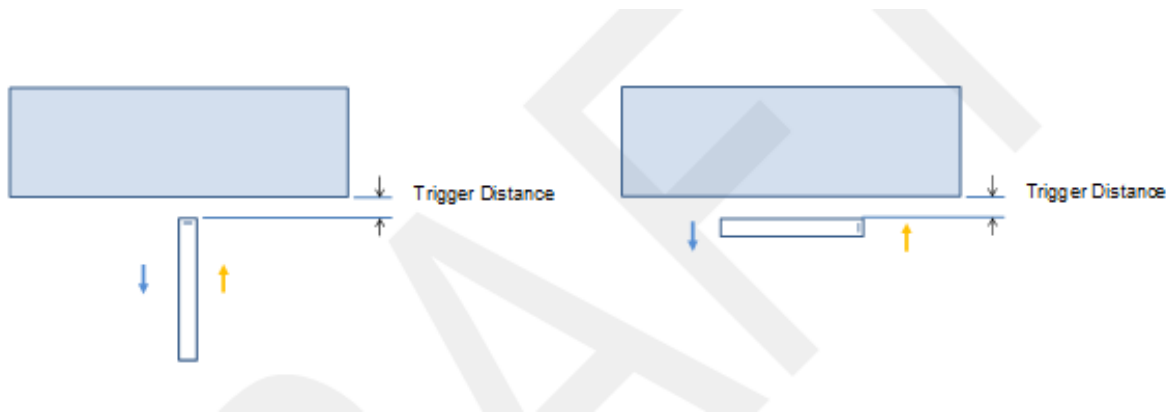
## 1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

Rear (Back Side) of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.

The measurement was then repeated for the surface of Edge Top, Right, Bottom, and Left

The DUT featured a visual indicator on its display that showed the status of the proximity sensor (Triggered or not triggered). This was used to determine the status of the sensor during the proximity sensor assessment as monitoring the output power directly was not practical without affecting the measurement.

It was confirmed separately that the output power was altered according to the proximity sensor status indication. This was achieved by observing the proximity sensor status at the same time as monitoring the conducted power. Section 9 contains both the full and reduced conducted power measurements.



Proximity Sensor Trigger Distance Assessment  
KDB 616219 §6.2, Edge Top, Right, Bottom and Left

Proximity Sensor Trigger Distance Assessment  
KDB 616219 §6.2, Rear

### LEGEND

- Direction of DUT travel for determination of power reduction triggering point
- Direction of DUT travel for determination of full power resumption triggering point

### Summary of Trigger Distances

Antenna	Trigger distance Back		Trigger distance Edge Top		Trigger distance Edge Right		Trigger distance Edge Bottom		Trigger distance Edge Left	
	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving toward phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
Main 1	21	21	27	27	-	-	-	-	-	-
Main 2	20	20	-	-	-	-	24	24	10	10
Sub 1	22	22	-	-	10	10	28	28	-	-
Wi-Fi 1	20	20	25	25	11	11	-	-	-	-
Wi-Fi 2	20	20	25	25	-	-	-	-	10	10

### Summary of SAR Test Distances

Per KDB 616217, the SAR Test Distance is the Trigger Distance of -1 mm.

Antenna	Test Position				
	Back	Edge Top	Edge Right	Edge Bottom	Edge Left
Main 1	20	26	-	-	-
Main 2	19	-	-	23	9
Sub 1	21	-	9	27	-
Wi-Fi 1	19	24	10	-	-
Wi-Fi 2	19	24	-	-	9

## Proximity Sensor Triggering Distance Measurement Results

Main 1 Antenna:

[Back](#)

Measured Power [dBm]											
Distance[mm]		33	30	27	24	21	20	19	18	17	16
GSM	850	31.6	31.8	31.8	31.9	22.4	22.2	22.2	22.3	22.3	22.1
	1900	28.5	28.9	28.8	28.7	20.4	20.3	20.1	20	20.3	20
UMTS	W2	23	23	23	23.1	13.2	13.1	13.3	13	13.1	13
	W4	23	23	23.3	23.1	13.4	13.1	13.2	13.2	13.1	13.3
	W5	23.4	23.3	23.3	23	13.4	13.1	13.1	13.2	13.2	13.2
LTE	B2	24	24.3	24.2	24.3	15.4	15.2	15.3	15.4	15.4	15.3
	B4	24	24	24.3	24.3	13.7	13.7	13.9	13.8	13.7	13.9
	B5	23	23	23.3	23.4	16.1	16.4	16.4	16.1	16.1	16
	B12	23	23.1	23.1	23	18.4	18.4	18.2	18.4	18.4	18
	B13	23.2	23.1	23	23.1	18.3	18.1	18.2	18.1	18	18.2
	B17	23.1	23.3	23.3	23.4	18.1	18.3	18	18.4	18.1	18
	B25	24.1	24.2	24.4	24	15.4	15	15.2	15.4	15.4	15.4
	B26	23.7	23.9	23.7	23.6	15.8	15.9	15.9	15.8	15.7	15.9
	B66	24	24.2	24.2	24.2	15.4	15.3	15.1	15.3	15.4	15.3
	B41	24.2	24	24.3	24.1	14.2	14.1	14.1	14.2	14.3	14.3
NR	n5	23	23	23	23.2	13	13.1	13.2	13.1	13	13.1
	n66	23.2	23.4	23.3	23.2	12.4	12.3	12.2	12.2	12.2	12
	n41	23.3	23	23	23	9.1	9.2	9.3	9.2	9.2	9.1

### Edge Top

Measured Power [dBm]											
Distance[mm]		39	36	33	30	27	26	25	24	23	22
GSM	850	31.8	31.9	31.5	31.8	22.2	22.3	22.1	22.2	22	22
	1900	28.5	28.9	28.7	28.5	20.1	20	20.3	20.1	20	20.3
UMTS	W2	23.2	23.1	23.2	23.3	13	13.1	13.2	13.3	13.2	13.1
	W4	23	23.3	23.2	23	13	13.4	13.4	13	13.1	13.3
	W5	23.1	23	23.2	23.1	13.4	13	13.1	13.2	13.1	13.3
LTE	B2	24	24.2	24.1	24	15	15.4	15.4	15.1	15.4	15
	B4	24.2	24.3	24.2	24.1	13.7	13.9	13.7	13.8	13.8	13.9
	B5	23.3	23.1	23	23.1	16.3	16.3	16.2	16	16.1	16.1
	B12	23.1	23.4	23.1	23.4	18.1	18.4	18.1	18.3	18.3	18.3
	B13	23.4	23.3	23.3	23.2	18.4	18.4	18.2	18.2	18.4	18.4
	B17	23.2	23.2	23.2	23.2	18	18.3	18	18	18	18
	B25	24	24.4	24.2	24.1	15.3	15.3	15.1	15.3	15.4	15.4
	B26	23.9	23.6	23.6	23.5	15.7	15.6	15.5	15.6	15.5	15.7
	B66	24.2	24.4	24.4	24.2	15.1	15.3	15.4	15.1	15.1	15.3
	B41	24.2	24.1	24.4	24.1	14.1	14.1	14.2	14.1	14	14
NR	n5	23.2	23	23.4	23	13.3	13.3	13.2	13.3	13.2	13.1
	n66	23.4	23.2	23.1	23.4	12.3	12.3	12.1	12	12	12.1
	n41	23.4	23.1	23	23.4	9.2	9.3	9.2	9.4	9.2	9.4

### Main 2 Antenna:

### Back

Measured Power [dBm]											
Distance[mm]		32	29	26	23	20	19	18	17	16	15
NR	n77 (PC2)	23.9	23.5	24.8	24.9	8.9	8.8	8.7	8.6	8.3	8.9
	n77 (PC3)	26.6	25.8	26.3	26.1	8.7	8	8.8	9.1	9.3	8.1

### Edge Bottom

Measured Power [dBm]											
Distance[mm]		36	33	30	27	24	23	22	21	20	19
NR	n77 (PC2)	24.2	23.9	24.6	25.1	8.7	8.7	8.7	8.4	9.2	8
	n77 (PC3)	26.2	25.5	25.8	26	8.7	8.2	8.1	8.4	8.1	9.1

### Edge Left

Measured Power [dBm]											
Distance[mm]		22	19	16	13	10	9	8	7	6	5
NR	n77 (PC2)	25.1	24.8	24.9	23.9	9.6	9.1	9	8.9	8.6	8.5
	n77 (PC3)	26.2	25.8	26.3	26.8	9.3	8.1	8.1	8.3	8.8	8.3

**Sub 1 Antenna:****Back**

Measured Power [dBm]											
Distance[mm]		34	31	28	25	22	21	20	19	18	17
LTE	B2	23.5	23.1	22.6	23.6	11.5	12.1	11.6	12.5	12.5	11.4
	B4	22.5	23.1	24	23.7	12.3	12.7	13.5	12	13.1	12.4
	B66	22.9	23.3	23.3	23.1	12.1	12.6	12.4	13.5	12.1	13.4
NR	n41	23.6	24.1	23.1	23	9.8	9.5	10.5	10.3	9.4	9.6

**Edge Right**

Measured Power [dBm]											
Distance[mm]		22	19	16	13	10	9	8	7	6	5
LTE	B2	22.7	22.6	22.8	22.5	11.4	11.1	11	11.1	11.3	11.3
	B4	22.9	22.9	22.5	22.8	12.2	12.4	12.3	12.3	12.2	12.1
	B66	22.6	22.7	22.7	22.8	12.4	12.2	12.4	12.1	12.3	12
NR	n41	23	23.3	23	23.2	9	9.3	9.3	9.1	9	9.1

**Edge Bottom**

Measured Power [dBm]											
Distance[mm]		40	37	34	31	28	27	26	25	24	23
LTE	B2	22.7	23.9	23.6	23	12.3	11.4	11.8	12.4	11.9	11.5
	B4	22.8	22.5	22.9	23.6	13.1	12.5	12.9	12.3	12.9	12.9
	B66	23.5	24.1	23.9	24.1	12.6	12.3	12.9	12.5	12.4	12
NR	n41	23.6	24.3	23.9	24.2	9.2	9.9	10.1	9.2	10.2	9

**Wi-Fi 1 Antenna:****Back**

Measured Power [dBm]										
Distance[mm]	32	29	26	23	20	19	18	17	16	15
2.4GHz WLAN 11b (1~11ch)	16.5	16.2	17.1	17.4	9	8.4	8.4	9.4	8	8.8
2.4GHz WLAN 11g(1~8ch)	16.4	15.9	15.1	16.6	7.8	8.3	9.1	7.6	8.4	8.5
2.4GHz WLAN 11n(1~8ch)	15.9	16.2	16.1	16.5	7.8	8.5	8.2	7.6	8.6	7.7
2.4GHz WLAN 11ax(1~8ch)	15.1	16.4	15.6	16	8.1	9.1	8.1	8.6	8.2	7.8
2.4GHz WLAN 11b (12ch)	4.5	5.6	4.4	5.1	4.8	4.3	5.6	4.2	4.1	5.2
2.4GHz WLAN 11b (13ch)	1.1	0.7	1.2	0.9	0.1	0.5	1	0	1.6	0.2
2.4GHz WLAN 11g(9ch)	16	16.1	15	14.5	7.6	7.8	8.3	7.9	8.2	7.8
2.4GHz WLAN 11g(10ch)	13.9	14.2	14.1	14	7.6	8.2	8.1	8.8	7.8	9.1
2.4GHz WLAN 11g(11ch)	12.8	12.7	12.9	13.5	8.3	7.8	8	8	8	8
2.4GHz WLAN 11g(12ch)	2.8	2.6	2.2	2.3	3.1	3.4	2.2	2.5	2.1	3.5
2.4GHz WLAN 11g(13ch)	-2.4	-3.6	-2.5	-3.4	-2.4	-2.9	-3.2	-3.7	-3.6	-2.5
2.4GHz WLAN 11n(9ch)	14.8	15.6	14.6	14.8	8.9	8.9	8.8	9.1	8.9	8.1
2.4GHz WLAN 11n(10ch)	13.9	14.4	13.6	14.6	7.8	8.5	8.1	7.8	8.1	7.9
2.4GHz WLAN 11n(11ch)	13.3	13.1	13.6	12.5	8.3	8.7	7.5	8.1	9	8.4
2.4GHz WLAN 11n(12ch)	4.1	3.4	4.6	4.1	3.4	3.5	2.5	2.6	3.5	2.7
2.4GHz WLAN 11n(13ch)	-3.9	-3.9	-2.7	-3.4	-2.7	-4	-3	-4	-2.4	-3.4
2.4GHz WLAN 11ax(9ch)	14.7	15.5	15.5	15.8	8.7	8.7	7.5	8.3	8.3	8.1
2.4GHz WLAN 11ax(10ch)	15	15	14.8	13.7	7.7	7.7	7.6	8	8.5	8.5
2.4GHz WLAN 11ax(11ch)	12.4	12.9	12.2	12.3	7.5	8	8.3	7.8	8.5	8.8
2.4GHz WLAN 11ax(12ch)	3.6	2.3	2	2.8	2.8	3.6	2.2	2.9	3.5	3.6
2.4GHz WLAN 11ax(13ch)	-3.4	-3.6	-2.7	-4	-2.4	-3.8	-2.7	-3.7	-2.6	-3.3
Bluetooth BDR DH5	14.2	14.4	15.2	15	10.5	11	11.2	11.4	10.1	11.5

**Edge Top**

Measured Power [dBm]										
Distance[mm]	37	34	31	28	25	24	23	22	21	20
2.4GHz WLAN 11b (1~11ch)	16.4	16.5	17.3	16.5	8.4	8.9	8.3	8.3	9.2	8.8
2.4GHz WLAN 11g(2~8ch)	15.5	15.4	16	15.4	8.3	7.7	8.2	8.8	8.2	8.9
2.4GHz WLAN 11n(2~8ch)	15.1	15.5	15.6	16.6	8.2	7.6	8.3	9.1	7.5	9.1
2.4GHz WLAN 11ax(2~8ch)	15.8	16.4	16	15.3	8.6	8	7.7	8.2	8	8.9
2.4GHz WLAN 11b (12ch)	5.5	4.4	5.5	4.2	5.1	5.1	4.3	5.4	5.4	4.9
2.4GHz WLAN 11b (13ch)	0.9	0.4	1.2	0.9	0	1	0.6	1.4	1.1	0.2
2.4GHz WLAN 11g(1,9ch)	14.7	15	15.1	14.6	7.8	8.5	8.5	8.1	7.5	7.8
2.4GHz WLAN 11g(10ch)	14.4	15.1	14.9	13.5	9	7.8	8	8.6	7.6	8.3
2.4GHz WLAN 11g(11ch)	12.5	13.5	12.5	12.8	7.7	8.6	8	7.8	8.5	8.8
2.4GHz WLAN 11g(12ch)	2.8	2.6	3.4	3.3	2	3.2	3.5	2.5	2.3	3.4
2.4GHz WLAN 11g(13ch)	-3.7	-3.3	-2.6	-2.6	-2.5	-3.7	-3.8	-3	-4	-2.6
2.4GHz WLAN 11n(1,9ch)	15	15.3	14.6	14.7	8.1	7.8	7.7	7.9	7.5	8.6
2.4GHz WLAN 11n(10ch)	13.9	14.6	13.8	13.5	7.6	7.5	8.6	9.1	8.1	8.3
2.4GHz WLAN 11n(11ch)	13.1	12	12.3	12.8	7.5	9.1	7.5	8.1	8.3	8.3
2.4GHz WLAN 11n(12ch)	4.3	4.2	3.5	4.4	3	2.3	3.1	2.3	2.8	2.8
2.4GHz WLAN 11n(13ch)	-3.9	-3.7	-3.4	-4	-3.9	-2.6	-3.5	-2.7	-3.5	-3.6
2.4GHz WLAN 11ax(1,9ch)	14.6	14.7	15.3	15.9	8.6	8.7	8.9	9	8.3	8.2
2.4GHz WLAN 11ax(10ch)	15	14.1	14.5	14.2	8.8	8.7	7.8	8.9	8.6	8.1
2.4GHz WLAN 11ax(11ch)	12.5	13.1	12.5	12.3	9.1	8.5	8	8.3	7.6	7.7
2.4GHz WLAN 11ax(12ch)	3.5	2.6	3.2	2.6	2.1	3.2	3.4	2.9	3.4	2.5
2.4GHz WLAN 11ax(13ch)	-3.6	-2.7	-2.8	-2.9	-2.8	-3.9	-3.9	-2.9	-3.3	-2.7
Bluetooth BDR DH5	14.8	15.2	14.3	14.7	11.5	10.4	10.8	10.8	10.7	10.7



## Edge Right

Distance[mm]	Measured Power [dBm]									
	23	20	17	14	11	10	9	8	7	6
2.4GHz WLAN 11b (1~11ch)	16.5	16.4	16.1	16.4	8.4	8	9.6	9.6	8.2	9.1
2.4GHz WLAN 11g(2~8ch)	15.8	16	15.5	15	7.5	7.8	8.1	7.5	7.6	7.7
2.4GHz WLAN 11n(2~8ch)	16.1	15.1	16.4	16.6	7.5	7.9	8.1	8.6	8.6	8
2.4GHz WLAN 11ax(2~8ch)	16.6	15.4	15	15.6	8.5	9	7.6	8.9	8.4	8.4
2.4GHz WLAN 11b (12ch)	4.2	4	5.3	5.5	5.5	5.4	5	4.4	4.3	5.5
2.4GHz WLAN 11b (13ch)	0.9	0.9	0.4	1.3	0.9	0.1	1.6	0.3	1.6	1
2.4GHz WLAN 11g(1,9ch)	16	14.5	15.9	14.5	8.9	8	8.3	7.9	7.8	8.7
2.4GHz WLAN 11g(10ch)	14.6	14.6	13.8	13.6	8.3	7.8	8.7	7.8	8.4	7.6
2.4GHz WLAN 11g(11ch)	13.4	12.6	12	12.3	9	7.6	8.2	7.6	8.9	8.5
2.4GHz WLAN 11g(12ch)	2.2	2.4	3.6	2.2	3.3	2.9	3.2	2.4	2.9	2.3
2.4GHz WLAN 11g(13ch)	-2.9	-2.4	-2.5	-2.9	-2.9	-3.9	-2.8	-3.1	-3.5	-2.6
2.4GHz WLAN 11n(1,9ch)	15.1	14.5	15.2	14.7	8.3	7.5	8.1	7.8	9	7.7
2.4GHz WLAN 11n(10ch)	13.7	14.3	15	13.6	8.8	8	8	9	8.1	9
2.4GHz WLAN 11n(11ch)	12.2	13.4	12.9	12.5	8.9	8.8	8.3	7.7	7.5	9.1
2.4GHz WLAN 11n(12ch)	3.2	4.3	3.9	3.7	2.9	2.4	2	3.5	2.7	3.6
2.4GHz WLAN 11n(13ch)	-3.2	-3	-2.5	-2.9	-4	-3.2	-2.6	-4	-4	-3.5
2.4GHz WLAN 11ax(1,9ch)	14.7	14.7	15.2	15.6	8.2	8.5	8.2	8.2	7.9	7.9
2.4GHz WLAN 11ax(10ch)	13.6	14.7	14.8	13.7	8.4	7.9	8.7	8.2	8.9	8.7
2.4GHz WLAN 11ax(11ch)	12.3	12.9	13.6	12.1	8.4	8.7	8.6	8.4	8.7	8.9
2.4GHz WLAN 11ax(12ch)	2.7	3.5	3.6	3	2.7	3.4	3	2.5	3.2	2.3
2.4GHz WLAN 11ax(13ch)	-3.1	-3.2	-3.2	-2.4	-2.9	-2.7	-2.7	-3	-3.7	-3.9
Bluetooth BDR DH5	14.5	14	15.1	14.1	10.2	11.2	10.5	10.4	11.1	10.2

## Wi-Fi 2 Antenna:

### Back

Distance[mm]	Measured Power [dBm]									
	32	29	26	23	20	19	18	17	16	15
5GHz WLAN 20MHz 11a UNII 1,2A	16.1	15	16.2	16.5	6.3	7.3	6.1	7.1	7.5	6.4
5GHz WLAN 20MHz 11a UNII 2C,4	16.5	16.2	15.9	15.6	8.3	7.3	7	7.9	7.4	7.6
5GHz WLAN 20MHz 11a UNII 3	12.1	12	11.8	11.9	8.6	8.3	7	8.5	8.2	7.4
5GHz WLAN 20MHz 11n/ac/ax UNII 1, 2A	14.6	14.9	15.5	14.7	7.5	7.6	6.2	7.6	6.5	6
5GHz WLAN 20MHz 11n/ac/ax UNII 2C, 4	15.1	15	15.1	14.9	8.3	7	8.5	7.1	7.3	7.4
5GHz WLAN 20MHz 11n/ac/ax UNII 3	11.6	12.7	11.9	11.8	7.7	7.5	8.5	7.7	7.4	8.3
5GHz WLAN 40MHz 11n/ac/ax UNII 1(with out 38ch), 2A	12.2	13.4	12.9	12.8	7.3	6.9	7	6.1	6.7	7.2
5GHz WLAN 40MHz 11n/ac/ax UNII 2C, 4	12.8	13.5	12.3	12.5	8.4	8	8	7.7	7.3	7.1
5GHz WLAN 40MHz 11n/ac/ax UNII 3	11.8	11.5	11.8	13	8.2	8	8	7.7	7.2	7.1
5GHz WLAN 40MHz 11n/ac/ax UNII 38ch	9	10.5	10.6	9.7	7.6	6.1	7.6	6.8	6.6	6.7
5GHz WLAN 80MHz 11n/ac/ax UNII 1, 2A	9.7	9.6	10.4	10.2	7	6.5	6.7	6.4	7.4	7.5
5GHz WLAN 80MHz 11n/ac/ax UNII 2C, 4	12.6	11	11.4	11.4	8.5	8.6	8.4	7.4	7.7	8.1
5GHz WLAN 80MHz 11n/ac/ax UNII 3	10.9	10.5	10.9	10.9	7.1	7.6	7.4	7.3	7	8

## Edge Top

Distance[mm]	Measured Power [dBm]									
	37	34	31	28	25	24	23	22	21	20
5GHz WLAN 20MHz 11a UNII 1,2A	16.1	15.1	16.5	16	6.5	7.1	7.6	6.5	7.5	6.5
5GHz WLAN 20MHz 11a UNII 2C,4	16	16.4	15.1	15.2	7.6	8.5	8	7.4	8.2	7.4
5GHz WLAN 20MHz 11a UNII 3	12.7	12.2	12.1	12.4	7.1	7.7	7.2	8.2	7.9	7.4
5GHz WLAN 20MHz 11n/ac/ax UNII 1, 2A	14.9	14.7	15.5	15.1	6.3	6.4	6.3	6.1	7.2	6.9
5GHz WLAN 20MHz 11n/ac/ax UNII 2C, 4	15.1	15.5	14.8	14.6	7.7	7.6	7.4	7.1	7.6	8.2
5GHz WLAN 20MHz 11n/ac/ax UNII 3	12.6	12.3	12.9	12.1	7.3	8.6	7.5	8.6	7.2	8.2
5GHz WLAN 40MHz 11n/ac/ax UNII 1(with out 38ch), 2A	12	13.5	13.4	13.1	6.1	6.2	6.9	7.2	7.3	6
5GHz WLAN 40MHz 11n/ac/ax UNII 2C, 4	13.3	12.7	12.3	13.6	8.6	8	7.3	8.6	8.5	7.6
5GHz WLAN 40MHz 11n/ac/ax UNII 3	12.4	12.2	12.4	13	8	8	7.3	7.8	7.1	7.2
5GHz WLAN 40MHz 11n/ac/ax UNII 38ch	9.6	9.1	10.3	9.3	7.5	7.2	6.9	6.3	6.7	6.9
5GHz WLAN 80MHz 11n/ac/ax UNII 1, 2A	10.5	10.5	10.3	9.7	7.1	6.5	6.8	6.2	6.6	6.5
5GHz WLAN 80MHz 11n/ac/ax UNII 2C, 4	11.9	12.5	11.8	11.6	7.5	8.2	8.1	7.3	7.1	7.3
5GHz WLAN 80MHz 11n/ac/ax UNII 3	11.5	10.4	10.2	10	7.8	7.2	8.5	7	7.8	7.6

## Edge Left

Distance[mm]	Measured Power [dBm]									
	22	19	16	13	10	9	8	7	6	5
5GHz WLAN 20MHz 11a UNII 1,2A	15.3	15.6	15	15.5	6.9	7.6	6	6.4	6.6	7.1
5GHz WLAN 20MHz 11a UNII 2C,4	15.7	16.6	15.2	16.5	7.6	7.8	8.5	7.5	8.5	7
5GHz WLAN 20MHz 11a UNII 3	12.8	12.1	12.8	13	7.5	8.5	8.5	7.6	7.5	8.3
5GHz WLAN 20MHz 11n/ac/ax UNII 1, 2A	14.4	14.8	14.2	14.5	6.5	6.8	7.2	7	6.6	7.1
5GHz WLAN 20MHz 11n/ac/ax UNII 2C, 4	14.5	15	14.1	15.6	7.1	8.1	7.2	8.3	7.2	8.5
5GHz WLAN 20MHz 11n/ac/ax UNII 3	11.6	13	12.3	12.1	7.2	7.7	7.6	7.1	8.3	7.5
5GHz WLAN 40MHz 11n/ac/ax UNII 1(with out 38ch), 2A	12.2	12.8	13.6	12.1	7.1	6	6.9	6.1	7.5	6.9
5GHz WLAN 40MHz 11n/ac/ax UNII 2C, 4	12.7	13.4	12.2	12.3	7.9	7.8	8.5	7.7	7.4	7
5GHz WLAN 40MHz 11n/ac/ax UNII 3	12.5	12	12.1	12.2	8.6	7.5	7.7	7.6	8.3	7.4
5GHz WLAN 40MHz 11n/ac/ax UNII 38ch	10.6	9.6	10.1	10.1	6.9	6.8	7.3	7.4	6.2	6.5
5GHz WLAN 80MHz 11n/ac/ax UNII 1, 2A	10.1	9.6	10.3	10.3	7	6.3	6.1	6.3	6.7	6.3
5GHz WLAN 80MHz 11n/ac/ax UNII 2C, 4	12.5	11.8	11	11.5	7.1	8.3	7.5	8.2	7.5	8
5GHz WLAN 80MHz 11n/ac/ax UNII 3	11.2	10.7	10.7	10.2	8.5	8.1	8.1	8.1	7.2	8.4

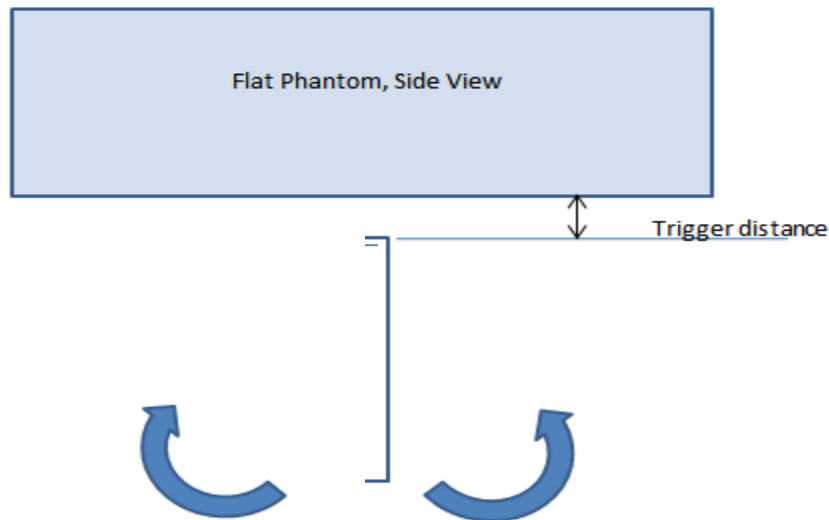
## 2. Proximity Sensor Coverage (KDB 616217 §6.3)

This device uses a capacitive proximity sensor that is same metallic component as the transmitting antenna to facilitate triggering in any conditions the user may use the device in proximity of the antenna in the device. Therefore, no further sensor coverage assessments were required according to KDB 616217 D04

## 3. Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge Top for Main 1 antenna, Edge Right for Sub 1 and WiFi 1 antenna, and Edge Left for Main 2 and WiFi 2 antenna parallel to the base of the flat phantom for each band.

The EUT was rotated about the Edges for angles up to  $\pm 45^\circ$ . If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to  $\pm 45^\circ$ .



Proximity sensor tilt angle assessment (Edge 3) KDB 616217 §6.4

### Main 1 Antenna:

		Measured Power [dBm]										
Tilt Angle[°]		-45	-35	-25	-15	-5	5	15	15	25	35	45
GSM	850	22.4	22.3	22.2	22	22	22.2	22.1	22.4	22.2	22.2	22.1
	1900	20.2	20.2	20.3	20	20.3	20.2	20.1	20	20.2	20.2	20
UMTS	W2	13.2	13.2	13.3	13.3	13.2	13.2	13.1	13.1	13.2	13.1	13.1
	W4	13.1	13.1	13.4	13.4	13	13	13	13	13.2	13.2	13.3
	W5	13	13.2	13.4	13.4	13.2	13.2	13.3	13.3	13.3	13.1	13
LTE	B2	15.2	15.2	15.2	15.3	15	15.3	15.2	15.1	15.3	15.2	15.3
	B4	13.5	13.9	13.7	13.5	13.5	13.8	13.5	13.8	13.5	13.6	13.7
	B5	16.1	16.4	16.2	16	16.1	16.4	16.3	16	16.2	16	16.3
	B12	18.1	18.3	18.3	18	18.1	18.4	18.3	18.3	18.4	18.2	18.2
	B13	18.4	18	18.3	18.2	18	18.3	18	18.1	18.4	18	18.3
	B17	18	18	18.2	18	18	18.3	18.1	18.1	18.1	18.1	18.3
	B25	15.2	15.3	15.2	15.1	15	15.3	15.3	15.2	15.2	15.2	15.3
	B26	15.8	15.5	15.9	15.5	15.6	15.5	15.9	15.9	15.5	15.5	15.5
	B66	15	15.2	15.3	15.3	15.3	15.4	15.1	15.1	15.1	15	15.3
	B41	14	14.2	14.2	14.2	14.2	14.1	14.1	14.4	14.3	14.3	14.1
NR	n5	13.1	13.3	13.1	13.1	13.4	13	13	13.3	13.1	13.2	13
	n66	12.1	12.4	12.1	12.2	12.3	12.2	12.1	12.1	12.2	12.3	12.3
	n41	9.4	9.2	9.3	9	9	9.1	9	9	9.3	9.3	9.4

[illegible]

**Sub 1 Antenna:**

		Measured Power [dBm]										
Tilt Angle[°]		-45	-35	-25	-15	-5	5	15	15	25	35	45
LTE	B2	11.3	11.3	11.2	11.4	11.3	11.4	11.1	11	11.2	11.2	11.1
	B4	12.1	12.4	12.3	12.2	12.4	12	12.4	12.2	12.4	12.3	12.3
	B66	12	12.4	12.1	12.1	12.4	12	12.3	12.2	12.3	12.1	12.4
NR	n41	9.3	9.2	9	9.4	9.1	9.4	9.4	9	9	9	9.2

### Wi-Fi 1 Antenna:

KDB 616217 6.4.a											
Measured Power (dBm)											
Tilt Angle(°)	-45	-35	-25	-15	-5	5	15	15	25	35	45
2.4GHz WLAN 11b (1~11ch)	8.1	8.1	8.4	9.2	8.1	9	8.8	8.2	8.4	8	9.4
2.4GHz WLAN 11g(2~8ch)	8.1	8.6	8.3	8.3	7.9	7.9	9.1	8.4	8.7	9.1	8.4
2.4GHz WLAN 11n(2~8ch)	7.6	7.7	8.8	8.3	8.8	7.5	9	8.5	7.6	7.9	8
2.4GHz WLAN 11ax(2~8ch)	7.7	8.4	7.8	7.6	7.6	8.7	8.8	7.6	8.3	8.5	7.6
2.4GHz WLAN 11b (12ch)	4.7	5	4.8	4.2	5	4.7	5.4	5.5	5.5	5.5	4.5
2.4GHz WLAN 11b (13ch)	0.9	0	0.5	1.1	0.7	0.2	1.4	0.5	0.5	1.3	1
2.4GHz WLAN 11g(1,9ch)	7.9	7.6	8.3	8.5	8.2	7.8	7.9	8	7.8	7.7	7.6
2.4GHz WLAN 11g(10ch)	8.8	8.1	9	7.5	8.4	7.8	8.5	8.1	8.6	9	8.9
2.4GHz WLAN 11g(11ch)	7.8	7.6	8.5	8.5	7.7	8.4	8.4	8.4	7.8	8.5	8.2
2.4GHz WLAN 11g(12ch)	2.8	3.5	3.1	2.1	3.4	3.6	3.3	3.4	3.1	3.5	3.5
2.4GHz WLAN 11g(13ch)	-2.7	-3.3	-3.1	-4	-2.9	-2.6	-3.3	-3	-3.8	-2.5	-3.9
2.4GHz WLAN 11n(1,9ch)	8	8.3	8	8.8	8.8	8.9	8.7	8.1	8.5	7.9	7.5
2.4GHz WLAN 11n(10ch)	7.6	7.5	8.4	9.1	8.8	8.6	7.5	9	9	8.3	8.8
2.4GHz WLAN 11n(11ch)	8.5	7.7	8.1	8.6	8.1	7.8	8.1	8.5	7.8	7.6	7.7
2.4GHz WLAN 11n(12ch)	2.3	2.6	3.1	2.2	3.1	2	2.7	2.8	2	2.6	2.6
2.4GHz WLAN 11n(13ch)	-2.4	-3.4	-3.7	-2.9	-4	-2.5	-2.5	-2.9	-3	-3.8	-3.6
2.4GHz WLAN 11ax(1,9ch)	8	8.6	7.8	7.7	8.9	7.5	8.8	8	7.8	7.8	8.4
2.4GHz WLAN 11ax(10ch)	9.1	7.9	8.2	7.9	8.4	8.8	7.7	8.3	7.5	8.3	7.6
2.4GHz WLAN 11ax(11ch)	7.7	8.5	7.9	8.2	8.6	8.3	8.8	9.1	7.8	8.4	8.6
2.4GHz WLAN 11ax(12ch)	3.5	2.3	3.2	2.8	2.5	3.1	2.5	3.1	3.4	3.6	2.2
2.4GHz WLAN 11ax(13ch)	-2.5	-3.2	-2.6	-3.4	-3.4	-4	-2.5	-3.8	-2.7	-3.3	-4
Bluetooth BDR DH5	11.3	10.6	10.8	10.1	10.4	11	10.4	10.4	10	10.4	10.9

[illegible]

[illegible]

### **Summary of Resulting test positions for SAR measurement**

Antenna	Position	§6.2 Triggering Distance (mm)	§6.3 Sensor Coverage	§6.4 Tilt Angle	SAR Test Distance (mm)
Main 1	Back	21	N/A	N/A	20
	Edge Top	27	N/A	N/A	26
Main 2	Back	20	N/A	N/A	19
	Edge Bottom	24	N/A	N/A	23
	Edge Left	10	N/A	N/A	9
Sub 1	Back	22	N/A	N/A	21
	Edge Right	10	N/A	N/A	9
	Edge Bottom	28	N/A	N/A	27
Wi-Fi 1	Back	20	N/A	N/A	19
	Edge Top	25	N/A	N/A	24
	Edge Right	11	N/A	N/A	10
Wi-Fi 2	Back	20	N/A	N/A	19
	Edge Top	25	N/A	N/A	24
	Edge Left	10	N/A	N/A	9

#### **Notes:**

- Per KDB 616217, the SAR Test Distance is the Trigger Distance -1 mm.
- For Phablet devices: when hotspot mode applies, Proximity Sensor SAR testing is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.