

Appendix C Proximity Sensor Triggering

Proximity Sensor Triggering distance from KDB 616217 Section 6.2

Rear, Top, Right, Bottom and Left of the EUT was placed directly below the flat phantom. The EUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 Section 6.2 to determine the trigger distance for enabling power reduction. The EUT was moved away from the phantom to determine the trigger distance for resuming full power.

The EUT 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 as monitoring the conducted power. Section 8 contains both the full and reduced conducted power measurements.



Proximity Sensor Trigger Distance Assessment
KDB 616217 §6.2, Edge 1, Edge 3,



Proximity Sensor Trigger Distance Assessment
KDB 616217 §6.2, Rear

- Yellow arrow: Direction of DUT travel for determination of power reduction triggering point
- Blue arrow: Direction of DUT travel for determination of full power resumption triggering point

C.1 Summary of Trigger Distances

Antenna	Trigger distance - Rear		Trigger distance - Top					
	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom				
Main 1 Ant.	19 mm	19 mm	22 mm	22 mm				
Antenna	Trigger distance - Rear		Trigger distance - Bottom					
	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom				
Sub 2 Ant.	19 mm	19 mm	19 mm	19 mm				
Antenna	Trigger distance - Rear		Trigger distance - Top				Trigger distance - Edge 4	
	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom			Moving toward phantom	Moving from phantom
WiFi 1 Ant.	19 mm	19 mm	22 mm	22 mm			19 mm	19 mm
Antenna	Trigger distance - Rear		Trigger distance - Top				Trigger distance - Edge 2	
	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom		
WiFi 2 Ant.	19 mm	19 mm	22 mm	22 mm	19 mm	19 mm		

C.2 Proximity Sensor Triggering Distance Measurement Results
 C.2.1 Main 1 Ant.

Rear, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
GSM850 Voice, GPRS 1Tx	32.44	32.47	32.51	32.43	32.45	25.03	24.92	25.01	25.02	25.06
GSM850 GPRS 2Tx	30.45	30.56	30.55	30.44	30.59	21.91	22.09	22.10	21.98	21.98
GSM850 GPRS 3Tx	29.09	29.05	29.10	28.90	29.02	19.91	19.96	20.02	20.06	20.10
GSM850 GPRS 4Tx	27.01	26.98	27.01	26.90	27.08	18.57	18.58	18.46	18.50	18.45
GSM850 EGPRS 1Tx	26.44	26.53	26.44	26.59	26.57	24.41	24.52	24.43	24.45	24.42
GSM850 EGPRS 2Tx	23.91	24.01	24.10	23.94	23.91	21.42	21.44	21.53	21.58	21.42
GSM850 EGPRS 3Tx	22.91	22.97	22.90	22.97	23.01	19.41	19.49	19.53	19.40	19.47
GSM850 EGPRS 4Tx	22.05	21.92	21.95	21.99	21.95	17.97	18.05	18.07	18.00	17.96
GSM1900 Voice, GPRS 1Tx	29.60	29.59	29.45	29.41	29.60	23.08	23.05	23.06	23.03	22.97
GSM1900 GPRS 2Tx	26.93	26.97	27.10	26.92	26.93	20.01	20.08	19.91	20.03	20.04
GSM1900 GPRS 3Tx	25.91	25.90	25.92	26.07	25.98	18.03	18.07	18.02	18.08	17.99
GSM1900 GPRS 4Tx	25.08	25.08	24.91	24.90	24.91	16.91	17.04	16.95	16.91	17.07
GSM1900 EGPRS 1Tx	25.94	26.03	25.94	26.07	26.08	22.55	22.56	22.40	22.58	22.60
GSM1900 EGPRS 2Tx	23.55	23.51	23.45	23.50	23.45	20.03	19.92	19.90	20.05	19.94
GSM1900 EGPRS 3Tx	22.10	22.05	21.98	22.03	21.92	18.01	18.08	17.95	18.04	18.07
GSM1900 EGPRS 4Tx	20.60	20.53	20.44	20.57	20.57	16.46	16.54	16.52	16.42	16.43
WCDMA2	23.55	23.41	23.60	23.42	23.55	12.49	12.60	12.50	12.45	12.53
WCDMA4	24.09	23.96	24.10	23.92	24.00	11.92	12.10	12.02	11.99	11.92
WCDMA5	23.47	23.49	23.51	23.42	23.57	15.92	16.03	16.09	15.96	15.95
LTE B2	23.97	23.99	23.90	24.02	23.97	13.43	13.42	13.41	13.58	13.52
LTE B4	23.48	23.48	23.46	23.58	23.41	11.99	11.93	11.98	11.97	12.01
LTE B5	23.96	24.03	24.07	23.91	24.03	14.02	14.05	14.01	14.06	13.92
LTE B12	23.97	23.95	24.08	24.10	24.09	15.92	15.91	15.90	16.04	15.92
LTE B13	23.97	23.95	24.04	24.04	23.97	16.09	16.08	15.91	16.05	15.98
LTE B17	24.09	24.00	24.05	24.05	24.08	15.94	15.96	15.93	16.05	15.94
LTE B26	24.04	24.08	23.90	23.95	23.96	14.07	13.93	14.04	13.90	14.05
LTE B41	24.00	24.06	23.98	24.09	24.05	12.96	12.90	13.00	13.02	13.08
LTE B66	23.47	23.59	23.45	23.50	23.47	13.05	13.07	12.94	12.98	13.05
NR n5	23.98	24.08	24.00	23.92	23.98	14.05	13.97	13.91	13.95	13.90
NR n66	24.09	23.92	23.95	23.98	23.90	13.46	13.57	13.44	13.48	13.60

Top, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	28	27	26	25	24	23	22	21	20	19
GSM850 Voice, GPRS 1Tx	32.49	32.40	32.56	32.43	32.56	24.93	24.95	24.94	24.90	25.05
GSM850 GPRS 2Tx	30.57	30.53	30.55	30.42	30.52	22.10	22.01	22.05	22.07	21.93
GSM850 GPRS 3Tx	29.04	28.90	28.94	29.06	28.93	20.00	20.08	19.93	19.91	20.09
GSM850 GPRS 4Tx	26.94	26.99	26.96	26.97	27.10	18.59	18.58	18.53	18.57	18.44
GSM850 EGPRS 1Tx	26.59	26.54	26.60	26.52	26.50	24.46	24.56	24.46	24.48	24.43
GSM850 EGPRS 2Tx	23.99	23.91	23.94	23.92	24.08	21.58	21.54	21.59	21.50	21.40
GSM850 EGPRS 3Tx	22.96	23.02	23.07	22.93	22.93	19.47	19.58	19.44	19.58	19.48
GSM850 EGPRS 4Tx	21.98	22.01	22.00	21.90	21.92	18.03	17.93	18.02	18.07	17.98
GSM1900 Voice, GPRS 1Tx	29.56	29.59	29.45	29.40	29.46	23.07	22.90	23.01	22.93	23.09
GSM1900 GPRS 2Tx	26.90	26.96	26.95	27.00	27.02	20.05	19.95	20.08	20.09	19.98
GSM1900 GPRS 3Tx	25.98	25.94	26.09	25.94	26.03	18.00	18.09	17.98	17.92	18.07
GSM1900 GPRS 4Tx	25.03	24.99	24.97	25.05	25.04	17.03	17.01	16.97	17.00	16.96
GSM1900 EGPRS 1Tx	25.94	26.02	26.01	26.07	25.93	22.56	22.43	22.60	22.50	22.41
GSM1900 EGPRS 2Tx	23.48	23.45	23.53	23.44	23.49	19.96	19.96	20.10	19.96	20.01
GSM1900 EGPRS 3Tx	22.02	22.10	22.10	22.00	21.92	17.97	17.93	17.95	18.02	18.10
GSM1900 EGPRS 4Tx	20.52	20.52	20.45	20.42	20.54	16.56	16.50	16.51	16.56	16.60
WCDMA2	23.50	23.57	23.50	23.56	23.55	12.43	12.52	12.40	12.42	12.53
WCDMA4	23.91	24.03	23.94	23.91	24.07	11.95	11.97	12.00	11.96	11.91
WCDMA5	23.43	23.51	23.43	23.50	23.44	15.91	15.99	16.09	16.07	15.90
LTE B2	23.94	23.92	24.05	23.91	24.09	13.60	13.48	13.53	13.42	13.59
LTE B4	23.43	23.56	23.60	23.60	23.46	12.09	11.95	12.02	12.07	11.91
LTE B5	24.04	23.95	24.02	24.04	23.98	13.92	14.08	14.09	13.93	14.08
LTE B12	24.04	24.02	24.00	24.07	24.03	16.07	16.05	15.99	15.98	16.09
LTE B13	23.99	23.91	24.05	24.01	24.09	15.97	15.95	15.97	15.94	16.03
LTE B17	23.91	24.09	24.02	24.01	24.01	15.94	16.09	15.91	15.92	15.91
LTE B26	23.92	23.90	23.90	24.07	24.05	13.95	14.05	13.92	13.97	14.08
LTE B41	23.91	23.92	23.97	23.95	23.95	12.90	12.92	12.99	12.98	13.05
LTE B66	23.53	23.53	23.43	23.45	23.57	13.07	13.03	12.92	13.08	13.06
NR n5	23.97	24.05	23.95	23.93	24.00	13.97	14.05	13.98	13.90	14.02
NR n66	24.08	24.09	24.09	23.92	23.94	13.44	13.52	13.43	13.52	13.48

C.2.2 Sub 2 Ant.

Rear, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
L TE B2	22.98	23.02	23.05	23.07	23.05	10.57	10.44	10.59	10.40	10.41

Edge 5, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
L TE B2	23.04	23.05	22.96	23.01	23.09	10.44	10.48	10.57	10.52	10.43

C.2.3 WiFi 1 Ant.

Rear, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
2.4GHz WLAN 11b	19.07	18.97	19.00	19.04	19.10	11.06	10.96	10.94	11.06	10.92
5GHz WLAN(20MHz BW) 11a 36~64ch	13.98	14.01	13.95	14.08	14.10	5.54	5.49	5.48	5.57	5.59
5GHz WLAN(20MHz BW) 11a 100~165ch	15.90	16.02	15.98	15.94	16.01	7.47	7.46	7.44	7.52	7.50
5GHz WLAN(80MHz BW) 11ac 36~64ch	13.04	13.06	12.94	13.04	13.02	5.44	5.41	5.46	5.56	5.51
5GHz WLAN(80MHz BW) 11ac 100~165ch	14.90	14.92	15.08	15.09	15.01	7.57	7.59	7.40	7.46	7.52
Bluetooth BDR	13.91	13.93	14.08	13.97	13.92	11.09	10.94	10.98	11.02	10.95

Top, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
2.4GHz WLAN 11b	19.07	18.97	19.00	19.04	19.10	11.06	10.96	10.94	11.06	10.92
5GHz WLAN(20MHz BW) 11a 36~64ch	13.98	14.01	13.95	14.08	14.10	5.54	5.49	5.48	5.57	5.59
5GHz WLAN(20MHz BW) 11a 100~165ch	15.90	16.02	15.98	15.94	16.01	7.47	7.46	7.44	7.52	7.50
5GHz WLAN(80MHz BW) 11ac 36~64ch	13.04	13.06	12.94	13.04	13.02	5.44	5.41	5.46	5.56	5.51
5GHz WLAN(80MHz BW) 11ac 100~165ch	14.90	14.92	15.08	15.09	15.01	7.57	7.59	7.40	7.46	7.52
Bluetooth BDR	13.91	13.93	14.08	13.97	13.92	11.09	10.94	10.98	11.02	10.95

Right, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
2.4GHz WLAN 11b	18.94	18.97	19.03	19.10	18.98	10.99	10.95	11.10	10.99	11.00
5GHz WLAN(20MHz BW) 11a 36~64ch	13.96	14.03	14.08	14.01	13.93	5.50	5.48	5.45	5.40	5.57
5GHz WLAN(20MHz BW) 11a 100~165ch	15.98	15.99	16.00	16.04	15.91	7.40	7.52	7.50	7.57	7.49
5GHz WLAN(80MHz BW) 11ac 36~64ch	12.95	13.00	13.00	13.09	12.92	5.48	5.44	5.52	5.40	5.50
5GHz WLAN(80MHz BW) 11ac 100~165ch	15.03	14.93	15.05	15.04	15.07	7.41	7.44	7.49	7.54	7.43
Bluetooth BDR	13.95	13.95	14.06	13.97	13.95	11.03	11.00	11.02	11.00	10.96

C.2.4 WiFi 2 Ant.

Rear, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
2.4GHz WLAN 11b	18.91	19.02	19.03	18.92	19.05	10.99	10.90	11.10	11.06	11.07
5GHz WLAN(20MHz BW) 11a 36~64ch	13.91	14.01	13.96	14.08	13.99	5.50	5.56	5.47	5.56	5.55
5GHz WLAN(20MHz BW) 11a 100~165ch	16.10	16.10	15.98	15.90	16.08	7.60	7.42	7.42	7.54	7.41
5GHz WLAN(80MHz BW) 11ac 36~64ch	13.02	13.04	12.94	13.00	13.03	5.45	5.60	5.41	5.55	5.53
5GHz WLAN(80MHz BW) 11ac 100~165ch	14.98	14.99	14.90	15.02	14.94	7.50	7.42	7.55	7.48	7.53
Bluetooth BDR	13.91	14.06	14.04	14.00	14.10	10.96	11.02	10.90	11.02	10.97

Top, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	28	27	26	25	24	23	22	21	20	19
2.4GHz WLAN 11b	19.01	18.95	19.10	19.03	18.93	11.00	11.09	10.91	11.04	11.07
5GHz WLAN(20MHz BW) 11a 36~64ch	14.09	13.92	14.02	14.05	13.97	5.50	5.48	5.42	5.49	5.50
5GHz WLAN(20MHz BW) 11a 100~165ch	15.90	16.09	15.94	16.09	15.93	7.48	7.47	7.54	7.49	7.51
5GHz WLAN(80MHz BW) 11ac 36~64ch	12.97	12.96	13.04	13.03	13.08	5.44	5.51	5.45	5.51	5.53
5GHz WLAN(80MHz BW) 11ac 100~165ch	14.94	14.94	15.09	15.02	15.02	7.45	7.56	7.58	7.51	7.54
Bluetooth BDR	13.93	14.01	14.06	14.02	14.04	11.04	10.91	11.06	10.96	10.90

Left, EUT Moving Toward(Trigger) and Away (Release) from the Phantom

KDB 616217 6.2.6										
Measured Power [dBm]										
Distance[mm]	25	24	23	22	21	20	19	18	17	16
2.4GHz WLAN 11b	19.00	18.90	18.94	18.90	18.94	10.95	11.09	11.10	11.06	11.05
5GHz WLAN(20MHz BW) 11a 36~64ch	14.07	14.05	14.03	13.91	14.03	5.55	5.52	5.52	5.56	5.53
5GHz WLAN(20MHz BW) 11a 100~165ch	16.01	16.09	15.94	15.93	16.07	7.59	7.42	7.49	7.52	7.53
5GHz WLAN(80MHz BW) 11ac 36~64ch	13.03	13.09	13.04	12.93	12.93	5.54	5.60	5.44	5.54	5.40
5GHz WLAN(80MHz BW) 11ac 100~165ch	14.98	14.95	14.96	14.91	15.02	7.40	7.49	7.59	7.59	7.48
Bluetooth BDR	13.91	13.90	14.00	13.91	14.05	11.09	11.02	10.99	11.02	10.97

C.2.5 Proximity Sensor Coverage from KDB 616217 Section 6.3

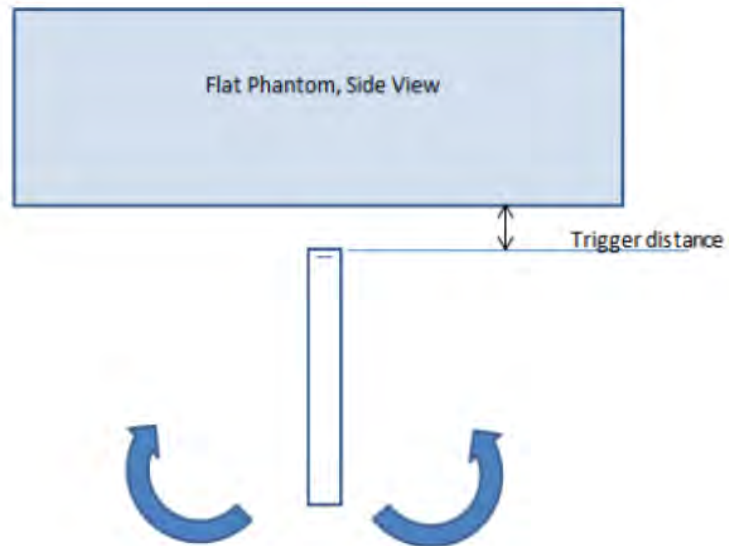
As there is no spatial offset between the antenna and the proximity sensor element, except on the display side of the antenna, proximity sensor coverage did not need to be assessed.

Proximity Sensor Tilt Angle from KDB 616217 Section 6.4

The EUT was positioned directly below the flat phantom at the minimum measured trigger distance with edge 1 and 3 parallel to the base of the flat phantom for each band.

The EUT was rotated in both directions about edge 1 and 3.

The proximity sensor remained triggered with the EUT positioned at the minimum measured trigger distance from the phantom for all angles up to 45°



Proximity sensor tilt angle assessment (Edge 1, Edge 3) KDB 616217 §6.4

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering (Right)

Antenna	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over +/-45°	Power reduction status										
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
WiFi 1 Ant.	20 mm	20 mm	On	On	On	On	On	On	On	On	On	On	On
Main 1 Ant.	20 mm	20 mm	On	On	On	On	On	On	On	On	On	On	On

G.4 Resulting test positions for SAR measurements

Wireless technologies	Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for SAR
Main 1 Ant.	Rear	20 mm	N/A	N/A	19 mm
	Top	23 mm	N/A	23 mm	22 mm
	Left	20 mm	N/A	20 mm	19 mm
	Right	20 mm	N/A	20 mm	19 mm
WiFi 1 Ant.	Rear	20 mm	N/A	N/A	19 mm
	Top	23 mm	N/A	23 mm	22 mm
	Right	20 mm	N/A	20 mm	19 mm
WiFi 2 Ant.	Rear	20 mm	N/A	N/A	19 mm
	Top	23 mm	N/A	23 mm	22 mm
	Left	20 mm	N/A	20 mm	19 mm
Sub 2 & Sub 4 Ant.	Rear	20 mm	N/A	N/A	19 mm
	Bottom	20 mm	N/A	20 mm	19 mm