

KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Korea
TEL: 82-31-285-0894 FAX: 82-505-299-8311
www.kctl.co.kr

Report No.:
KR19-SPF0032-A
Page (304) of (308)

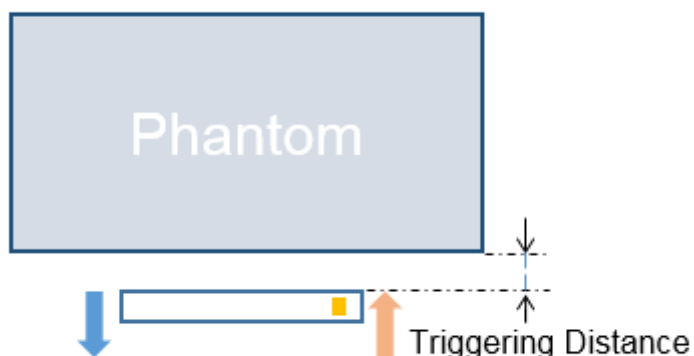
KCTL**Appendix G. Power Reduction Verification****Proximity Sensor Triggering Distance (KDB 616217 §6.2)**

Rear, Bottom and Left 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 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 contains both the full and reduced conducted power measurements.

KCTL



LEGEND

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

Resulting test positions for SAR measurements

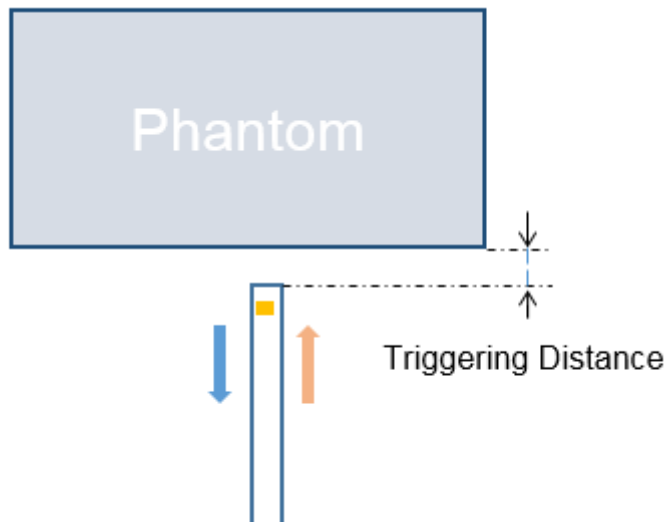
Band	Trigger distance – Rear	
	Triggering Distance	Worst case distance for SAR
WCDMA II	9 mm	8 mm
WCDMA IV	9 mm	8 mm
LTE Band 2	9 mm	8 mm
LTE Band 4	9 mm	8 mm
LTE Band 41	11 mm	10 mm
LTE Band 66	9 mm	8 mm

Proximity Sensor Triggering Distance Measurement Results – Rear Side

DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT Output Power (dBm)										
Distance (mm)	14	13	12	11	10	9	8	7	6	5
WCDMA II	23.22	23.20	23.21	23.19	23.21	21.44	21.45	21.43	21.41	21.40
WCDMA IV	22.81	22.80	22.78	22.81	22.80	20.72	20.71	20.72	20.70	20.71
LTE Band 2	23.68	23.65	23.66	23.67	23.63	21.50	21.46	21.47	21.51	21.49
LTE Band 4	22.77	22.71	22.75	22.70	22.72	20.80	20.78	20.81	20.77	20.79
LTE Band 66	23.44	23.41	23.40	23.42	23.41	21.35	21.36	21.39	21.33	21.35

Distance to DUT Output Power (dBm)										
Distance (mm)	16	15	14	13	12	11	10	9	8	7
LTE Band 41	24.41	24.40	24.38	24.40	24.37	21.01	20.98	20.95	20.99	21.02

**LEGEND**

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

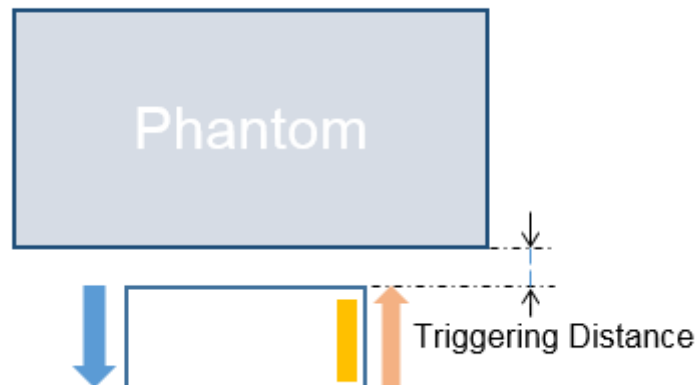
Resulting test positions for SAR measurements

Band	Trigger distance – Bottom	
	Triggering Distance	Worst case distance for SAR
WCDMA II	7 mm	6 mm
WCDMA IV	7 mm	6 mm
LTE Band 2	7 mm	6 mm
LTE Band 4	7 mm	6 mm
LTE Band 66	7 mm	6 mm

Proximity Sensor Triggering Distance Measurement Results – Bottom Side

DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance (mm)	Distance to DUT Output Power (dBm)									
	12	11	10	9	8	7	6	5	4	3
WCDMA II	23.21	23.22	23.20	23.19	23.20	21.41	21.43	21.42	21.40	21.39
WCDMA IV	22.78	22.80	22.77	22.76	22.77	20.69	20.70	20.71	20.66	20.68
LTE Band 2	23.66	23.68	23.67	23.61	23.62	21.45	21.48	21.50	21.48	21.46
LTE Band 4	22.71	22.74	22.75	22.76	22.73	20.77	20.78	20.80	20.75	20.73
LTE Band 66	23.39	23.41	23.42	23.40	23.42	21.33	21.31	21.36	21.29	21.33

**LEGEND**

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

Resulting test positions for SAR measurements

Band	Trigger distance – Left	
	Triggering Distance	Worst case distance for SAR
LTE Band 41	10 mm	9 mm

Proximity Sensor Triggering Distance Measurement Results – Left Side

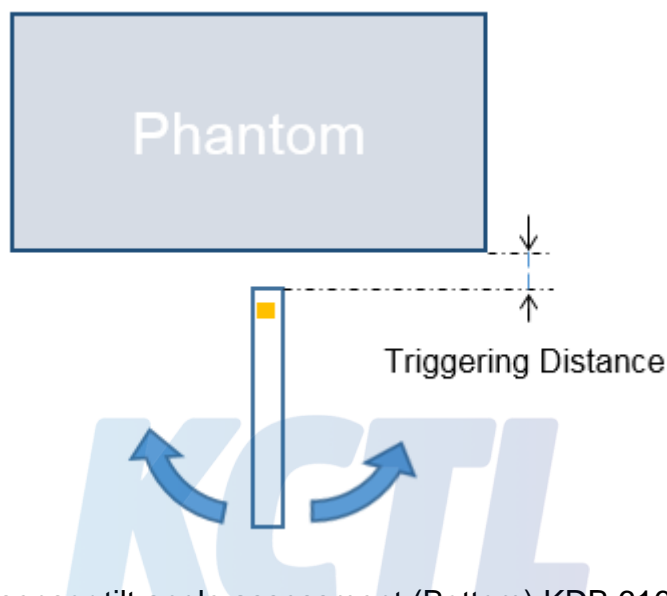
DUT Moving Toward (Trigger) and Away (Release) from the Phantom

Distance to DUT Output Power (dBm)										
Distance (mm)	15	14	13	12	11	10	9	8	7	6
LTE Band 41	24.38	24.36	24.40	23.35	23.32	20.98	20.99	21.01	20.95	20.94

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 Bottom parallel to the base of the flat phantom for each band.

The EUT was rotated about Bottom 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 (Bottom) KDB 616217 §6.4

Summary of Tilt Angle Influence to Proximity Sensor Triggering (Bottom)

Band	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over $\pm 45^\circ$	Power reduction status											
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°	
WCDMA II, IV	7 mm	7 mm	On	On	On	On	On	On	On	On	On	On	On	On
LTE B.2, 4, 66	7 mm	7 mm	On	On	On	On	On	On	On	On	On	On	On	On

Summary of Tilt Angle Influence to Proximity Sensor Triggering (Left)

Band	Minimum trigger distance measured according to KDB 616217 §6.2	Minimum distance at which power reduction was maintained over $\pm 45^\circ$	Power reduction status											
			-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°	
LTE B.41	10 mm	10 mm	On	On	On	On	On	On	On	On	On	On	On	On

End of test report