Appendix H. – **Power reduction verification**

Per the May 2017 TCBC Workshop notes, demonstration of proper functioning of the power reduction mechanism is required to support the corresponding SAR Configurations.

A Base station simulator was used to establish a conducted RF connection and output power was monitored. The power measurements were confirmed to be within expected tolerance for all RSI. before and after a power reduction mechanism was triggered. For the combination cases, one mechanism was switched to a 'triggered' state at a time; powers were confirmed to be within tolerances after each additional mechanism was activated

1. Power Reduction Verification for Main ANT

This device utilizes a power reduction mechanism for some wireless modes under RSI(Radio SAR Index).

For this device RSI = 0 is configured when the device cannot detect the use conditions, and RSI = 2 is configured when Hotspot mode activated. RSI = 1 is configured when receiver mode on.

Table 1.1 Power Reduction Verification for Antenna A

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	GSM 850 Voice	0	1	1
Hotspot On	RCV ON	GSM 850 Voice	0	2	1
RCV ON	Hotspot On	GSM 850 1Tx	0	1	1
Hotspot On	RCV ON	GSM 850 1Tx	0	2	1
RCV ON	Hotspot On	GSM 850 2Tx	0	1	1
Hotspot On	RCV ON	GSM 850 2Tx	0	2	1
RCV ON	Hotspot On	GSM 850 3Tx	0	1	1
Hotspot On	RCV ON	GSM 850 3Tx	0	2	1
RCV ON	Hotspot On	GSM 850 4Tx	0	1	1
Hotspot On	RCV ON	GSM 850 4Tx	0	2	1
RCV ON	Hotspot On	GSM 1900 Voice	0	1	1
Hotspot On	RCV ON	GSM 1900 Voice	0	2	1
RCV ON	Hotspot On	GSM 1900 1Tx	0	1	1
Hotspot On	RCV ON	GSM 1900 1Tx	0	2	1
RCV ON	Hotspot On	GSM 1900 2Tx	0	1	1
Hotspot On	RCV ON	GSM 1900 2Tx	0	2	1
RCV ON	Hotspot On	GSM 1900 3Tx	0	1	1
Hotspot On	RCV ON	GSM 1900 3Tx	0	2	1
RCV ON	Hotspot On	GSM 1900 4Tx	0	1	1
Hotspot On	RCV ON	GSM 1900 4Tx	0	2	1
RCV ON	Hotspot On	UMTS Band 5	0	1	1
Hotspot On	RCV ON	UMTS Band 5	0	2	1
RCV ON	Hotspot On	UMTS Band 4	0	1	1
Hotspot On	RCV ON	UMTS Band 4	0	2	1
RCV ON	Hotspot On	UMTS Band 2	0	1	1
Hotspot On	RCV ON	UMTS Band 2	0	2	1
RCV ON	Hotspot On	LTE Band 12	0	1	1
Hotspot On	RCV ON	LTE Band 12	0	2	1
RCV ON	Hotspot On	LTE Band 13	0	1	1
Hotspot On	RCV ON	LTE Band 13	0	2	1
RCV ON	Hotspot On	LTE Band 17	0	1	1
Hotspot On	RCV ON	LTE Band 17	0	2	1
RCV ON	Hotspot On	LTE Band 26	0	1	1
Hotspot On	RCV ON	LTE Band 26	0	2	1
RCV ON	Hotspot On	LTE Band 5	0	1	1
Hotspot On	RCV ON	LTE Band 5	0	2	1
RCV ON	Hotspot On	LTE Band 66	0	1	1
Hotspot On	RCV ON	LTE Band 66	0	2	1
RCV ON	Hotspot On	LTE Band 4	0	1	1
Hotspot On	RCV ON	LTE Band 4	0	2	1
RCV ON	Hotspot On	LTE Band 25	0	1	1
Hotspot On	RCV ON	LTE Band 25	0	2	1
RCV ON	Hotspot On	LTE Band 2	0	1	1
Hotspot On	RCV ON	LTE Band 2	0	2	1
RCV ON	Hotspot On	NR Band n5	0	1	1
Hotspot On	RCV ON	NR Band n5	0	2	1
RCV ON	Hotspot On	NR Band n66	0	1	1
Hotspot On	RCV ON	NR Band n66	0	2	1
RCV ON	Hotspot On	NR Band n25	0	1	1
Hotspot On	RCV ON	NR Band n25	0	2	1
RCV ON	Hotspot On	NR Band n2	0	1	1
Hotspot On	RCV ON	NR Band n2	0	2	1

Table 1.2 Power Reduction Verification for Antenna B

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	LTE Band 41 PC3	0	1	1
Hotspot On	RCV ON	LTE Band 41 PC3	0	2	1
RCV ON	Hotspot On	LTE Band 41 PC2	0	1	1
Hotspot On	RCV ON	LTE Band 41 PC2	0	2	1
RCV ON	Hotspot On	NR Band n41	0	1	1
Hotspot On	RCV ON	NR Band n41	0	2	1

Table 1.3 Power Reduction Verification for Antenna C

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	NR Band n77 SRS1	0	1	1
Hotspot On	RCV ON	NR Band n77 SRS1	0	2	1

Table 1.4 Power Reduction Verification for Antenna D

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	NR Band n41 SRS2	0	1	1
Hotspot On	RCV ON	NR Band n41 SRS2	0	2	1
RCV ON	Hotspot On	NR Band n77 SRS3	0	1	1
Hotspot On	RCV ON	NR Band n77 SRS3	0	2	1

Table 1.5 Power Reduction Verification for Antenna E

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	NR Band n41 SRS2	0	1	1
Hotspot On	RCV ON	NR Band n41 SRS2	0	2	1

Table 1.6 Power Reduction Verification for Antenna F

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	LTE Band 25	0	1	1
Hotspot On	RCV ON	LTE Band 25	0	2	1
RCV ON	Hotspot On	LTE Band 66	0	1	1
Hotspot On	RCV ON	LTE Band 66	0	2	1
RCV ON	Hotspot On	LTE Band 4	0	1	1
Hotspot On	RCV ON	LTE Band 4	0	2	1
RCV ON	Hotspot On	LTE Band 2	0	1	1
Hotspot On	RCV ON	LTE Band 2	0	2	1
RCV ON	Hotspot On	LTE Band 41 PC3	0	1	1
Hotspot On	RCV ON	LTE Band 41 PC3	0	2	1
RCV ON	Hotspot On	LTE Band 41 PC2	0	1	1
Hotspot On	RCV ON	LTE Band 41 PC2	0	2	1
RCV ON	Hotspot On	NR Band n41 SRS1	0	1	1
Hotspot On	RCV ON	NR Band n41 SRS1	0	2	1
RCV ON	Hotspot On	NR Band n77	0	1	1
Hotspot On	RCV ON	NR Band n77	0	2	1

Table 1.7 Power Reduction Verification for Antenna I

Mechanism		Band	RSI		
1st	2nd		FREE	1st	2nd
RCV ON	Hotspot On	NR Band n77 SRS2	0	1	1
Hotspot On	RCV ON	NR Band n77 SRS2	0	2	1

2. Power Reduction Verification for WLAN/BT ANT

This device uses different Device State Index [DSI] to configure different time averaged power levels based on certain exposure scenarios. For this device DSI = 1 is configured when receiver mode on Head SAR configuration. DSI = 0 is configured when the device is not activated RCV-ON[Non-Head].

Mechanism	WLAN Ant 1	DSI	
1st	Band	FREE	1st
RCV ON	802.11b	0	1
RCV ON	802.11g	0	1
RCV ON	802.11n	0	1
RCV ON	802.11ac(2.4GHz)	0	1
RCV ON	802.11ax(2.4GHz)	0	1
RCV ON	802.11a(5 GHz)	0	1
RCV ON	802.11n(5 GHz,20MHz)	0	1
RCV ON	802.11n(5 GHz,40MHz)	0	1
RCV ON	802.11ac(5 GHz,20MHz)	0	1
RCV ON	802.11ac(5 GHz,40MHz)	0	1
RCV ON	802.11ac(5 GHz,80MHz)	0	1
RCV ON	802.11ac(5 GHz,160MHz)	0	1
RCV ON	802.11ax(5 GHz,20MHz)	0	1
RCV ON	802.11ax(5 GHz,40MHz)	0	1
RCV ON	802.11ax(5 GHz,80MHz)	0	1
RCV ON	802.11ax(5 GHz,160MHz)	0	1
RCV ON	802.11ax(6 GHz,20MHz)	0	1
RCV ON	802.11ax(6 GHz,40MHz)	0	1
RCV ON	802.11ax(6 GHz,80MHz)	0	1
RCV ON	802.11ax(6 GHz,160MHz)	0	1
RCV ON	802.11a(6 GHz,20MHz)	0	1
Mechanism	WLAN Ant 2	DSI	
1st	Band	FREE	1st
RCV ON	802.11b	0	1
RCV ON	802.11g	0	1
RCV ON	802.11n	0	1
RCV ON	802.11ac(2.4GHz)	0	1
RCV ON	802.11ax(2.4GHz)	0	1
RCV ON	802.11a(5 GHz)	0	1
RCV ON	802.11n(5 GHz,20MHz)	0	1
RCV ON	802.11n(5 GHz,40MHz)	0	1
RCV ON	802.11ac(5 GHz,20MHz)	0	1
RCV ON	802.11ac(5 GHz,40MHz)	0	1
RCV ON	802.11ac(5 GHz,80MHz)	0	1
RCV ON	802.11ac(5 GHz,160MHz)	0	1
RCV ON	802.11ax(5 GHz,20MHz)	0	1
RCV ON	802.11ax(5 GHz,40MHz)	0	1
RCV ON	802.11ax(5 GHz,80MHz)	0	1
RCV ON	802.11ax(5 GHz,160MHz)	0	1
RCV ON	802.11ax(6 GHz,20MHz)	0	1
RCV ON	802.11ax(6 GHz,40MHz)	0	1
RCV ON	802.11ax(6 GHz,80MHz)	0	1
RCV ON	802.11ax(6 GHz,160MHz)	0	1
RCV ON	802.11a(6 GHz,20MHz)	0	1

Mechanism	Band	DSI	
1st		FREE	1st
RCV ON	BT ANT1	0	1
RCV ON	BT ANT2	0	1