

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

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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.

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	Table 1.1 Power Reduction Verification for Antenna A						
11100	hanism	Band		RSI			
1st	2nd	CC14.050.14 :	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		
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Table 1.2 Power Reduction Verification for Antenna B

Mech	Mechanism			RSI	
1st	2nd	Band	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	Dariu	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	Daliu	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

Mech	Mechanism		Band		
1st	2nd	ballu	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	Daliu	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		RSI		Band	RSI	
1st	2nd	Dallu	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	

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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		SI
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	D:	SI
1st	Band	FREE	1st
1st RCV ON	Band 802.11b	FREE 0	1st 1
1st RCV ON RCV ON	802.11b 802.11g	FREE 0 0	1st 1 1
1st RCV ON	Band 802.11b	0 0 0	1st 1 1
1st RCV ON RCV ON	802.11b 802.11g	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1
1st RCV ON RCV ON RCV ON RCV ON RCV ON RCV ON	Band 802.11b 802.11g 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz)	9 PREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1
RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11n(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11n(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ar(2.4GHz) 802.11ar(2.4GHz) 802.11a(5 GHz) 802.11a(5 GHz,20MHz) 802.11a(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ar(2.4GHz) 802.11ar(2.4GHz) 802.11ar(5 GHz) 802.11n(5 GHz,20MHz) 802.11a(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1st	Band 802.11b 802.11g 802.11n 802.11n 802.11ar(2.4GHz) 802.11ar(2.4GHz) 802.11a(5 GHz) 802.11a(5 GHz,20MHz) 802.11a(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11ac(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11n(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11ac(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11n(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON RCV ON	Band 802.11b 802.11g 802.11n 802.11n 802.11ac(2.4GHz) 802.11ax(2.4GHz) 802.11ax(2.4GHz) 802.11a(5 GHz) 802.11n(5 GHz,20MHz) 802.11n(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ac(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON	Band 802.11b 802.11g 802.11n 802.11ac(2.4GHz) 802.11ac(2.4GHz) 802.11ac(2.4GHz) 802.11a(5 GHz) 802.11a(5 GHz,20MHz) 802.11n(5 GHz,20MHz) 802.11ac(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Ist RCV ON RCV ON	Band 802.11b 802.11g 802.11n 802.11ac(2.4GHz) 802.11ac(2.4GHz) 802.11ac(2.4GHz) 802.11a(5 GHz) 802.11a(5 GHz,20MHz) 802.11n(5 GHz,20MHz) 802.11ac(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(5 GHz,40MHz) 802.11ax(6 GHz,40MHz) 802.11ax(6 GHz,20MHz)	FREE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1st 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Mechanism	- Band	D	SI
1st		FREE	1st
RCV ON	BT ANT1	0	1
RCV ON	BT ANT2	0	1

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