

## APPENDIX F: POWER REDUCTION VERIFICATION

Per the May 2017 TCBC Workshop Notes, demonstration of proper functioning of the power reduction mechanisms is required to support the corresponding SAR configurations. The verification process includes evaluation of output power levels for individual or multiple triggering mechanisms.

### F.1 Power Verification Procedure

The power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and the output power was monitored. The power measurements were confirmed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.
3. Steps 1 and 2 were repeated for all individual power reduction mechanisms and combinations thereof. 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.

### F.2 WIFI Verification Summary

**Table F-1  
Power Measurement Verification 2.4 GHz WIFI – Antenna 1**

Mode/Band	Conducted Power (dBm)			
	Un-triggered (Max)	Mechanism #1 NR Active (Reduced)	Mechanism #2 RCV Active (Reduced)	Mechanism #3 RCV Active + NR Active (Reduced)
802.11b	18.41	12.39	8.61	8.22
802.11g	17.23	12.47	8.73	8.19
802.11n (2.4GHz)	17.45	12.12	8.30	8.38
802.11ac (2.4 GHz)	16.33	12.25	8.42	7.99
802.11ax (2.4 GHz)	16.08	12.81	8.52	8.11

\*Note: MIMO WIFI modes were not evaluated due to equipment limitations. All SISO powers were taken during MIMO conditions.

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**Table F-2  
Power Measurement Verification 5 GHz WIFI – Antenna 1**

Mode/Band	Conducted Power (dBm)		
	Un-triggered (Max)	Mechanism #1 NR Active (Reduced)	Mechanism #2 RCV Active (Reduced)
802.11a	15.01	11.19	11.29
802.11n (5GHz, 20MHz BW)	15.49	11.33	11.17
802.11n (5GHz, 40MHz BW)	14.56	11.80	11.70
802.11ac (20MHz BW)	15.34	11.56	11.43
802.11ac (40MHz BW)	14.75	11.74	11.87
802.11ac (80MHz BW)	13.29	11.38	11.43
802.11ac (160MHz BW)	12.06	11.27	11.35
802.11ax (20 MHz BW)	15.62	11.65	11.27
802.11ax (40 MHz BW)	14.55	11.19	11.41
802.11ax (80 MHz BW)	13.12	11.07	11.28
802.11ax (160MHz BW)	12.19	11.58	11.48

\*Note: MIMO WIFI modes were not evaluated due to equipment limitations. All SISO powers were taken during MIMO conditions.

**Table F-3  
Power Measurement Verification 2.4 GHz WIFI – Antenna 2**

Mode/Band	Conducted Power (dBm)			
	Un-triggered (Max)	Mechanism #1 NR Active (Reduced)	Mechanism #2 RCV Active (Reduced)	Mechanism #3 RCV Active + NR Active (Reduced)
802.11b	18.55	12.26	8.37	7.99
802.11g	17.22	12.45	8.01	8.26
802.11n (2.4GHz)	17.17	12.21	7.65	8.13
802.11ac (2.4 GHz)	16.44	12.20	7.65	8.20
802.11ax (2.4 GHz)	16.38	12.34	7.48	8.05

\*Note: MIMO WIFI modes were not evaluated due to equipment limitations. All SISO powers were taken during MIMO conditions.

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**Table F-4  
Power Measurement Verification 5 GHz WIFI – Antenna 2**

Mode/Band	Conducted Power (dBm)		
	Un-triggered (Max)	Mechanism #1 NR Active (Reduced)	Mechanism #2 RCV Active (Reduced)
802.11a	15.40	11.38	10.84
802.11n (5GHz, 20MHz BW)	15.39	11.45	11.26
802.11n (5GHz, 40MHz BW)	14.44	11.50	11.52
802.11ac (20MHz BW)	15.32	11.33	11.58
802.11ac (40MHz BW)	14.62	11.71	11.80
802.11ac (80MHz BW)	13.57	11.15	11.20
802.11ac (160MHz BW)	12.18	11.13	10.81
802.11ax (20 MHz BW)	15.48	11.61	11.33
802.11ax (40 MHz BW)	14.59	11.54	11.73
802.11ax (80 MHz BW)	13.07	11.52	11.30
802.11ax (160MHz BW)	12.11	11.37	10.72

**Table F-5  
Power Measurement Verification WIFI – Bluetooth**

Mechanism(s)	Mode/Band	Conducted Power (dBm)	
1st		Un-triggered (Max)	Mechanism #1 RCV Active (Reduced)
Held-to-Ear	Bluetooth Antenna 1	15.87	6.55
Held-to-Ear	Bluetooth Antenna 2	16.12	9.31