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 was divided into two parts: (1) evaluation of output power levels for individual or multiple triggering mechanisms and (2) evaluation of the triggering distances for proximity-based sensors.

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 Angle Verification Procedure

The angle verification procedure was performed according to the following procedure:

1. A base station simulator was used to establish an RF connection and to monitor the power levels. For Unlicensed modes, the device state index on the device UI was monitored to determine the triggering state.
2. The device was opened and closed to determine the angle at which the mechanism triggers and the output power is reduced, per the FCC TCB Workshop Slides from November 2019. The triggering conditions of the angles was sufficient such that all possible user scenarios with the device in open condition are in the reduced power state.

F.3 WIFI Verification Summary

Table F-1
Power Measurement Verification WIFI – Ant R

Mechanism(s)	Mode/Band	Device State Index (DSI)	
1st		No Motion (Max)	Motion + Tablet (Reduced)
Motion	2.4 WLAN	0	1
Motion	5GHz WLAN	0	1
Motion	6GHz WLAN	0	1

Table F-2
Power Measurement Verification WIFI – Ant L

Mechanism(s)	Mode/Band	Device State Index (DSI)	
1st		No Motion (Max)	Motion + Tablet (Reduced)
Motion	2.4 WLAN	0	1
Motion	5GHz WLAN	0	1
Motion	6GHz WLAN	0	1

F.4 Bluetooth Verification Summary

Table F-3
Power Measurement Verification Bluetooth

Mechanism(s)	Mode/Band	Conducted Power (dBm)		
		No Motion (Max)	Motion + Tablet (Reduced)	Motion + Tablet with WLAN Active (Reduced)
Motion	Bluetooth Ant R	17.74	13.86	8.84
Motion	Bluetooth Ant L	17.26	13.71	8.37

F.5 Angle Verification

Table F-4
Angle Detection with Keyboard Accessory

Mechanism(s)	Angle Measurements (°)				Angle (°) Range per Manufacturer
	Opening (0 to 270)	Opening Posture Readout	Closing (270 to 0)	Closing Posture Readout	
Keyboard Angle	0	Reduced	270	Reduced	210
	10	Reduced	260	Reduced	
	20	Reduced	250	Reduced	
	30	Reduced	240	Reduced	
	40	Reduced	230	Reduced	
	50	Reduced	220	Reduced	
	60	Max	219	Reduced	
	70	Max	218	Reduced	
	80	Max	217	Reduced	
	90	Max	216	Reduced	
	100	Max	215	Reduced	
	110	Max	214	Reduced	
	120	Max	213	Reduced	
	130	Max	212	Reduced	
	140	Max	211	Reduced	
	150	Max	210	Reduced	
	160	Max	209	Reduced	
	170	Max	208	Reduced	
	180	Max	207	Reduced	
	190	Max	206	Reduced	
	200	Max	205	Reduced	
	201	Max	204	Reduced	
	202	Max	203	Reduced	
	203	Max	202	Reduced	
	204	Max	201	Reduced	
	205	Max	200	Reduced	
	206	Max	190	Max	
	207	Max	180	Max	
	208	Max	170	Max	
	209	Max	160	Max	
	210	Reduced	150	Max	
	211	Reduced	140	Max	
	212	Reduced	130	Max	
	213	Reduced	120	Max	
	214	Reduced	110	Max	
	215	Reduced	100	Max	
	216	Reduced	90	Max	
	217	Reduced	80	Max	
	218	Reduced	70	Max	
	219	Reduced	60	Max	
	220	Reduced	50	Reduced	
	230	Reduced	40	Reduced	
	240	Reduced	30	Reduced	
	250	Reduced	20	Reduced	
	260	Reduced	10	Reduced	
	270	Reduced	0	Reduced	

Per manufacturer, when the keyboard is attached and positioned within the 0–50 degree angle range for opening/closing configurations, the RF output power may be set to a low output power. This adjustment ensures a more conservative power output for this non-typical use case.