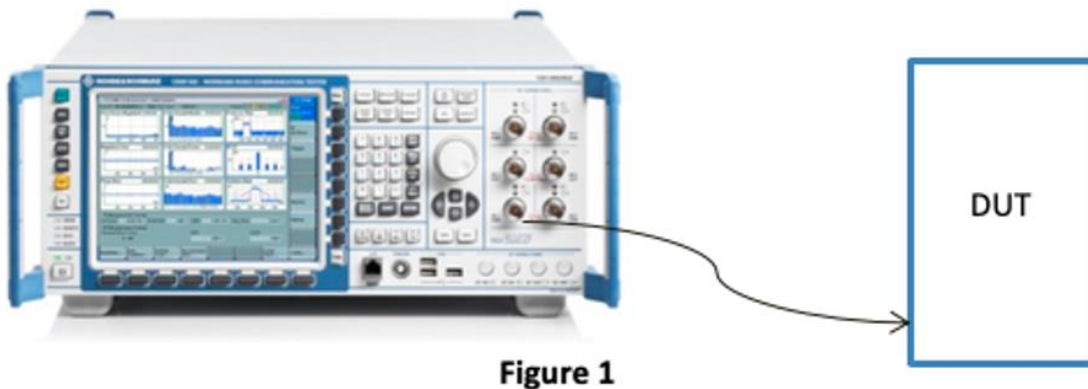


## **Appendix F. Power reduction mechanism verification**

According to the May 2017 TCBC Workshop, Demonstration of proper functioning of the detection and triggering mechanisms to support the corresponding RF exposure conditions. The verification is through a base station simulator is used to establish a conducted RF connection and monitor output power under different operating conditions related to the power reduction mechanisms. Detail of power reduction mechanisms referring to Operational Description

- In this power validation purpose is to demonstrate of proper functioning of the detection and triggering mechanisms to support the corresponding RF exposure conditions. In order to avoid real-time TX power varying may affect monitor output power related to the power reduction mechanisms, therefore power reduction verification would be disabled WIFI TAS feature.
- The verification results were provide by manufacturer

### **1. Test setup for measuring power**





**2. Verification output Power Results**

Body exposure condition		Output Power (data connection)			
		Stationary		In hand or on lap	
		Placed on a table			
Test mode		MODE 1			
Power state		Full power		Low Power	
Wireless technology	Antenna	Measured (dBm)	Max. Tune-up (dBm)	Measured (dBm)	Max. Tune-up (dBm)
		802.11b ch6	A	20.13	21
	B	20.04	21	16.58	17.5
802.11a 5.2G ch120	A	19.79	21	15.71	16.5
	B	19.98	21	15.47	16.5
802.11ax 6G ch47	A	12.62	14	13.08	14
	B	12.89	14	12.87	14



**Appendix F. Power reduction mechanism verification**

Antenna	Operation mode	Lid angle	Test Scale	802.11b ch6	802.11a 5.2G ch120	802.11ax 6G ch47
A	Lid close	0°	10°	19.33	20.32	13.44
	MODE 1	10°	10°	16.69	15.87	13.27
	MODE 1	5°	5°	16.80	15.46	13.61
	Lid close	0°	1°	19.42	19.67	13.34
	MODE 1	1°	1°	16.33	16.01	13.33
	MODE 1	2°	1°	16.50	15.71	13.34
	MODE 1	3°	1°	16.69	15.74	12.81
	MODE 1	4°	1°	16.45	15.96	12.89
	MODE 1	5°	1°	16.76	15.96	13.17
	MODE 1	6°	1°	16.82	15.73	12.73
	MODE 1	7°	1°	16.75	15.93	13.11
	MODE 1	8°	1°	16.32	15.60	13.04
	MODE 1	9°	1°	16.53	15.64	12.60
	MODE 1	10°	10°	16.40	15.85	13.02
	MODE 1	20°	10°	16.77	15.05	13.09
	MODE 1	30°	10°	16.41	15.64	13.19
	MODE 1	40°	10°	16.21	15.71	13.08
	MODE 2	50°	10°	20.13	19.79	12.62
	MODE 2	45°	5°	19.86	20.23	12.89
	MODE 1	40°	1°	16.40	15.96	13.89
	MODE 2	41°	1°	19.78	20.17	13.30
	MODE 2	42°	1°	19.45	19.84	13.11
	MODE 2	43°	1°	19.96	19.81	13.04
	MODE 2	44°	1°	20.04	19.83	13.56
	MODE 2	45°	1°	20.01	19.43	13.08
	MODE 1	40°	1°	16.79	16.07	12.85
	MODE 1	39°	1°	16.72	15.62	12.95
	MODE 1	38°	1°	16.21	15.94	13.20
	MODE 1	37°	1°	16.41	15.87	12.89
	MODE 1	36°	1°	16.68	15.85	12.82
	MODE 1	35°	1°	16.66	15.63	13.26
	MODE 2	50°	10°	19.81	19.83	12.80
	MODE 2	60°	10°	19.92	19.89	13.38
	MODE 2	70°	10°	19.31	19.82	12.99
	MODE 2	80°	10°	20.41	20.01	13.18
	MODE 2	90°	10°	19.89	19.95	13.06
	MODE 2	100°	10°	19.97	19.54	13.06
	MODE 2	110°	10°	20.01	19.72	13.40
	MODE 2	120°	10°	20.02	19.23	12.76
	MODE 2	130°	10°	19.80	19.64	13.37
MODE 2	140°	10°	19.89	19.78	12.69	
MODE 2	150°	10°	19.91	19.75	13.48	
MODE 2	160°	10°	19.96	20.07	12.77	
MODE 2	170°	10°	20.12	19.33	12.97	
MODE 2	180°	10°	20.21	19.45	13.30	
MODE 2	190°	10°	20.39	19.57	12.87	
MODE 2	200°	10°	20.19	19.61	13.14	
MODE 2	210°	10°	19.91	19.61	12.75	
MODE 1	220°	10°	16.43	15.45	13.05	
MODE 1	215°	5°	16.35	15.69	13.22	
MODE 2	210°	1°	20.27	19.32	12.74	
MODE 1	211°	1°	16.61	15.40	13.09	



MODE 1	212°	1°	16.96	15.99	13.14
MODE 1	213°	1°	16.81	15.78	12.66
MODE 1	214°	1°	16.25	15.50	13.03
MODE 1	215°	1°	16.29	15.15	13.31
MODE 2	210°	1°	20.37	19.30	13.05
MODE 2	209°	1°	19.85	19.81	12.67
MODE 2	208°	1°	19.69	20.04	13.29
MODE 2	207°	1°	19.66	19.72	12.87
MODE 2	206°	1°	19.93	19.74	12.71
MODE 2	205°	1°	19.35	19.62	12.81
MODE 1	220°	10°	16.10	15.38	13.17
MODE 1	230°	10°	16.33	15.91	12.65
MODE 1	240°	10°	16.11	16.04	13.18
MODE 1	250°	10°	16.81	15.30	12.84
MODE 1	260°	10°	16.51	15.75	12.50
MODE 1	270°	10°	16.48	15.67	13.27
MODE 1	280°	10°	16.67	15.64	13.04
MODE 1	290°	10°	16.48	15.52	12.42
MODE 1	300°	10°	16.64	15.92	13.25
MODE 1	310°	10°	16.65	15.75	12.96
MODE 1	320°	10°	16.05	15.59	12.82
MODE 1	330°	10°	16.20	15.55	12.82
MODE 1	340°	10°	16.67	15.85	12.92
MODE 1	350°	10°	16.70	15.55	12.95
MODE 1	360°	10°	16.90	15.51	13.10
MODE 1	350°	10°	16.61	15.58	12.84
MODE 1	340°	10°	16.31	15.78	13.06
MODE 1	330°	10°	16.40	15.73	13.30
MODE 1	320°	10°	16.26	15.49	13.18
MODE 1	310°	10°	16.63	15.77	12.56
MODE 1	300°	10°	17.04	15.70	12.84
MODE 1	290°	10°	16.62	15.66	12.57
MODE 1	280°	10°	16.27	15.39	13.34
MODE 1	270°	10°	16.75	15.81	13.44
MODE 1	260°	10°	16.44	15.82	13.02
MODE 1	250°	10°	16.80	15.53	13.29
MODE 1	240°	10°	16.41	15.30	12.99
MODE 1	230°	10°	16.37	15.20	13.05
MODE 1	220°	10°	17.29	15.87	13.75
MODE 2	210°	10°	20.33	19.42	12.71
MODE 1	215°	5°	16.64	15.97	13.39
MODE 1	214°	1°	16.64	15.47	12.90
MODE 1	213°	1°	16.86	15.89	13.18
MODE 1	212°	1°	16.72	16.23	12.96
MODE 1	211°	1°	16.13	15.18	13.00
MODE 2	210°	1°	20.12	20.17	13.06
MODE 2	209°	1°	19.64	19.99	13.05
MODE 2	208°	1°	19.89	19.94	12.80
MODE 2	207°	1°	19.49	19.87	13.48
MODE 2	206°	1°	20.20	19.53	13.01
MODE 2	205°	1°	20.33	19.38	12.95
MODE 2	200°	10°	19.77	19.51	12.72
MODE 2	190°	10°	19.68	19.68	12.94
MODE 2	180°	10°	19.85	19.34	13.40
MODE 2	170°	10°	19.96	19.57	13.14



MODE 2	160°	10°	19.48	19.75	13.61
MODE 2	150°	10°	19.85	20.05	12.82
MODE 2	140°	10°	20.32	19.72	12.43
MODE 2	130°	10°	19.73	20.06	12.93
MODE 2	120°	10°	19.57	19.92	12.78
MODE 2	110°	10°	20.03	19.93	13.47
MODE 2	100°	10°	19.82	19.47	12.86
MODE 2	90°	10°	19.72	19.68	13.13
MODE 2	80°	10°	20.46	19.62	13.62
MODE 2	70°	10°	19.65	20.00	13.04
MODE 2	60°	10°	20.32	19.64	13.43
MODE 2	50°	10°	20.35	19.66	12.47
MODE 1	40°	10°	16.56	15.95	13.24
MODE 1	45°	5°	16.32	15.18	13.17
MODE 2	50°	1°	20.00	19.77	12.94
MODE 1	49°	1°	16.31	15.91	13.35
MODE 1	48°	1°	16.47	15.78	12.92
MODE 1	47°	1°	16.98	15.80	13.06
MODE 1	46°	1°	16.45	15.28	12.72
MODE 1	45°	1°	15.83	15.95	12.94
MODE 2	50°	1°	20.12	20.20	13.05
MODE 2	51°	1°	20.10	19.96	12.88
MODE 2	52°	1°	19.84	19.74	13.08
MODE 2	53°	1°	19.83	19.86	13.18
MODE 2	54°	1°	20.32	19.71	13.22
MODE 2	55	1°	20.20	20.02	13.04
MODE 1	40°	10°	16.64	15.96	13.19
MODE 1	30°	10°	16.67	15.74	13.12
MODE 1	20°	10°	16.42	15.43	12.93
MODE 1	10°	10°	16.89	15.19	12.68
Lid close	0°	10°	20.05	19.88	13.84
MODE 1	5°	5°	16.66	16.09	12.63
MODE 1	4°	1°	16.66	15.23	12.39
MODE 1	3°	1°	16.60	15.79	13.39
MODE 1	2°	1°	16.64	15.84	13.07
MODE 1	1°	1°	16.54	16.27	12.74
Lid close	0°	1°	20.15	19.79	12.67



Antenna	Operation mode	Lid angle	Test Scale	802.11b ch6	802.11a 5.2G ch120	802.11ax 6G ch47
B	Lid close	0°	10°	19.47	19.69	13.33
	MODE 1	10°	10°	16.21	15.54	13.5
	MODE 1	5°	5°	16.66	15.36	13.15
	Lid close	0°	1°	19.33	19.86	13.12
	MODE 1	1°	1°	16.71	15.35	13.24
	MODE 1	2°	1°	16.23	15.55	12.57
	MODE 1	3°	1°	16.82	15.76	12.92
	MODE 1	4°	1°	16.74	15.31	12.72
	MODE 1	5°	1°	16.64	15.71	13.04
	MODE 1	6°	1°	16.08	15.73	12.72
	MODE 1	7°	1°	16.26	15.38	12.91
	MODE 1	8°	1°	16.49	15.48	13.32
	MODE 1	9°	1°	16.44	15.94	13.48
	MODE 1	10°	10°	16.85	15.58	12.51
	MODE 1	20°	10°	16.69	15.88	13.22
	MODE 1	30°	10°	16.64	15.28	12.8
	MODE 1	40°	10°	16.85	15.47	12.47
	MODE 2	50°	10°	20.04	19.98	12.89
	MODE 2	45°	5°	19.89	19.54	12.68
	MODE 1	40°	1°	16.5	16.07	13.11
	MODE 2	41°	1°	20.45	19.47	12.78
	MODE 2	42°	1°	20.02	19.85	13.27
	MODE 2	43°	1°	20.43	19.77	12.88
	MODE 2	44°	1°	19.8	19.77	12.92
	MODE 2	45°	1°	19.96	20.19	12.48
	MODE 1	40°	1°	16.88	15.56	13.19
	MODE 1	39°	1°	16.39	15.9	13.48
	MODE 1	38°	1°	16.21	15.63	13.15
	MODE 1	37°	1°	16.63	15.56	13.44
	MODE 1	36°	1°	16.2	16	12.93
	MODE 1	35°	1°	16.52	15.68	13
	MODE 2	50°	10°	19.83	19.42	13.04
	MODE 2	60°	10°	20.45	19.47	12.63
	MODE 2	70°	10°	20.11	19.6	12.69
	MODE 2	80°	10°	20.07	19.84	13.2
	MODE 2	90°	10°	20.18	19.88	12.72
	MODE 2	100°	10°	19.82	19.27	13.08
	MODE 2	110°	10°	20.36	19.49	13.22
	MODE 2	120°	10°	19.96	19.63	13.17
	MODE 2	130°	10°	19.87	19.91	12.39
MODE 2	140°	10°	20.01	19.61	12.71	
MODE 2	150°	10°	19.91	19.77	12.92	
MODE 2	160°	10°	19.95	19.4	12.86	
MODE 2	170°	10°	19.53	19.91	12.89	
MODE 2	180°	10°	19.71	19.78	13.03	
MODE 2	190°	10°	20.03	19.66	13.13	
MODE 2	200°	10°	20.06	19.54	13.42	
MODE 2	210°	10°	19.74	19.59	13.16	
MODE 1	220°	10°	16.47	15.52	12.63	
MODE 1	215°	5°	16.38	15.73	12.99	
MODE 2	210°	1°	20.11	19.62	12.75	
MODE 1	211°	1°	16.05	15.93	13.32	
MODE 1	212°	1°	16.75	16.04	13.06	
MODE 1	213°	1°	16.27	15.45	13.26	



MODE 1	214°	1°	16.41	15.67	13.01
MODE 1	215°	1°	16.07	15.72	12.88
MODE 2	210°	1°	19.93	19.55	12.83
MODE 2	209°	1°	19.51	20.15	12.87
MODE 2	208°	1°	19.89	19.47	13.42
MODE 2	207°	1°	19.82	19.6	12.88
MODE 2	206°	1°	20.33	19.88	13.09
MODE 2	205°	1°	19.97	20.19	13.04
MODE 1	220°	10°	16.55	15.47	12.95
MODE 1	230°	10°	16.77	15.28	13.2
MODE 1	240°	10°	16.5	15.36	13.01
MODE 1	250°	10°	16.57	15.78	13.46
MODE 1	260°	10°	16.28	15.44	12.91
MODE 1	270°	10°	16.74	15.4	12.88
MODE 1	280°	10°	16.38	16.12	12.62
MODE 1	290°	10°	16.31	15.9	13.28
MODE 1	300°	10°	16.42	15.49	12.93
MODE 1	310°	10°	16.72	15.58	12.58
MODE 1	320°	10°	16.73	15.79	12.8
MODE 1	330°	10°	16.61	16.24	12.66
MODE 1	340°	10°	15.88	15.51	12.86
MODE 1	350°	10°	16.36	15.8	12.97
MODE 1	360°	10°	16.64	16.08	13.12
MODE 1	350°	10°	16.66	15.23	12.84
MODE 1	340°	10°	16.64	15.86	12.94
MODE 1	330°	10°	17.34	15.54	12.75
MODE 1	320°	10°	16.22	15.8	13.29
MODE 1	310°	10°	16.59	15.43	12.95
MODE 1	300°	10°	16.05	15.65	13.03
MODE 1	290°	10°	16.5	15.39	12.93
MODE 1	280°	10°	16.92	15.28	13.07
MODE 1	270°	10°	16.4	15.68	13.29
MODE 1	260°	10°	16.61	15.75	13.38
MODE 1	250°	10°	16.28	15.67	13.17
MODE 1	240°	10°	16.29	15.71	13.19
MODE 1	230°	10°	16.9	15.65	12.8
MODE 1	220°	10°	16.81	15.93	12.49
MODE 2	210°	10°	20.2	19.83	13.18
MODE 1	215°	5°	16.62	15.76	13.49
MODE 1	214°	1°	16.68	15.84	12.95
MODE 1	213°	1°	16.69	15.74	12.9
MODE 1	212°	1°	16.6	15.25	13.09
MODE 1	211°	1°	16.14	15.91	12.85
MODE 2	210°	1°	19.97	19.5	13
MODE 2	209°	1°	20.25	19.82	13.13
MODE 2	208°	1°	19.9	19.65	13.25
MODE 2	207°	1°	19.82	19.67	13.01
MODE 2	206°	1°	20.09	19.99	13.47
MODE 2	205°	1°	20.02	19.69	12.95
MODE 2	200°	10°	20.25	19.85	13.28
MODE 2	190°	10°	20.46	19.72	12.61
MODE 2	180°	10°	20.32	19.69	13.29
MODE 2	170°	10°	19.83	19.96	13.21
MODE 2	160°	10°	20.04	19.11	13.61
MODE 2	150°	10°	19.7	19.48	12.88



MODE 2	140°	10°	19.78	19.71	12.87
MODE 2	130°	10°	19.67	19.82	12.82
MODE 2	120°	10°	20.12	19.86	13.43
MODE 2	110°	10°	20.08	19.37	12.54
MODE 2	100°	10°	19.69	19.67	13.45
MODE 2	90°	10°	20.01	19.95	12.71
MODE 2	80°	10°	20.17	19.77	13.05
MODE 2	70°	10°	20.33	20.05	13.08
MODE 2	60°	10°	19.8	19.74	12.6
MODE 2	50°	10°	20	19.85	12.96
MODE 1	40°	10°	17.05	15.75	13.28
MODE 1	45°	5°	16.43	15.98	12.74
MODE 2	50°	1°	20.03	19.72	12.72
MODE 1	49°	1°	16.54	15.94	12.8
MODE 1	48°	1°	16.65	15.27	12.82
MODE 1	47°	1°	16.28	15.77	12.76
MODE 1	46°	1°	16.49	15.26	13.44
MODE 1	45°	1°	16.35	15.54	13.41
MODE 2	50°	1°	20.04	19.34	12.87
MODE 2	51°	1°	19.81	19.79	13.08
MODE 2	52°	1°	20.11	19.39	13.21
MODE 2	53°	1°	19.72	19.99	12.7
MODE 2	54°	1°	19.98	20.12	13
MODE 2	55°	1°	19.78	19.21	12.63
MODE 1	40°	10°	16.49	15.48	13.3
MODE 1	30°	10°	16.49	15.78	13.45
MODE 1	20°	10°	16.08	15.31	12.97
MODE 1	10°	10°	16.37	15.37	12.98
Lid close	0°	10°	19.27	19.87	12.89
MODE 1	5°	5°	16.8	15.5	13.27
MODE 1	4°	1°	16.15	15.48	12.7
MODE 1	3°	1°	16.46	16.01	12.9
MODE 1	2°	1°	16.35	15.43	13.51
MODE 1	1°	1°	16.81	15.64	13.14
Lid close	0°	1°	19.38	19.99	12.76





Appendix F. Supplemental SAR Results

Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
WLAN2.4GHz	802.11b 1Mbps	Bottom Face	25mm	Ant B	Full	1	2412	AWAN	20.37	21.00	1.156	99.5	1.005	0.11	0.001	0.001
WLAN2.4GHz	802.11b 1Mbps	Edge 1	25mm	Ant B	Full	1	2412	AWAN	20.37	21.00	1.156	99.5	1.005	0.05	0.094	0.109
WLAN2.4GHz	802.11b 1Mbps	Bottom Face	25mm	Ant A	Full	11	2462	AWAN	20.26	21.00	1.186	99.5	1.005	-0.01	0.001	0.001
WLAN2.4GHz	802.11b 1Mbps	Edge 1	25mm	Ant A	Full	11	2462	AWAN	20.26	21.00	1.186	99.5	1.005	0.04	0.072	0.086
WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	25mm	Ant B	Full	54	5270	AWAN	20.52	21.00	1.117	99	1.010	0.11	0.001	0.001
WLAN5GHz	802.11n-HT40 MCS0	Edge 1	25mm	Ant B	Full	54	5270	AWAN	20.52	21.00	1.117	99	1.010	0	0.247	0.279
WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	25mm	Ant A	Full	54	5270	AWAN	20.27	21.00	1.183	99	1.010	0.1	0.001	0.001
WLAN5GHz	802.11n-HT40 MCS0	Edge 1	25mm	Ant A	Full	54	5270	AWAN	20.27	21.00	1.183	99	1.010	-0.07	0.121	0.145
WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	25mm	Ant B	Full	122	5610	AWAN	20.15	21.00	1.216	98.7	1.013	0.12	0.001	0.001
WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	25mm	Ant B	Full	122	5610	AWAN	20.15	21.00	1.216	98.7	1.013	0	0.191	0.235
WLAN5GHz	802.11n-HT40 MCS0	Bottom Face	25mm	Ant A	Full	142	5710	AWAN	20.65	21.00	1.084	99	1.010	0.13	0.001	0.001
WLAN5GHz	802.11n-HT40 MCS0	Edge 1	25mm	Ant A	Full	142	5710	AWAN	20.65	21.00	1.084	99	1.010	0.08	0.173	0.189
WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	25mm	Ant B	Full	155	5775	AWAN	20.04	21.00	1.247	98.7	1.013	-0.06	0.134	0.169
WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	25mm	Ant B	Full	155	5775	AWAN	20.04	21.00	1.247	98.7	1.013	-0.03	0.119	0.150
WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	25mm	Ant A	Full	155	5775	AWAN	20.30	21.00	1.175	98.7	1.013	0.17	0.001	0.001
WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	25mm	Ant A	Full	155	5775	AWAN	20.30	21.00	1.175	98.7	1.013	0.01	0.162	0.193
WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	25mm	Ant B	Full	171	5855	AWAN	20.02	21.00	1.253	98.7	1.013	0.08	0.001	0.001
WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	25mm	Ant B	Full	171	5855	AWAN	20.02	21.00	1.253	98.7	1.013	-0.03	0.125	0.159
WLAN5GHz	802.11ac-VHT80 MCS0	Bottom Face	25mm	Ant A	Full	171	5855	AWAN	20.76	21.00	1.057	98.7	1.013	-0.03	0.001	0.001
WLAN5GHz	802.11ac-VHT80 MCS0	Edge 1	25mm	Ant A	Full	171	5855	AWAN	20.76	21.00	1.057	98.7	1.013	0.03	0.141	0.151
WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	25mm	Ant B	Full	15	6025	AWAN	13.70	14.00	1.202	98.1	1.019	-0.11	0.001	0.001
WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	25mm	Ant B	Full	15	6025	AWAN	13.70	14.00	1.072	98.1	1.019	0.01	0.061	0.067
WLAN6GHz	802.11ax-HE160 MCS0	Bottom Face	25mm	Ant A	Full	15	6025	AWAN	13.73	14.00	1.194	98.1	1.019	0.02	0.001	0.001
WLAN6GHz	802.11ax-HE160 MCS0	Edge 1	25mm	Ant A	Full	15	6025	AWAN	13.73	14.00	1.064	98.1	1.019	0.08	0.028	0.030
Bluetooth	1Mbps	Bottom Face	25mm	Ant A	Full	78	2480	AWAN	10.49	11.00	1.125	74.1	1.124	-0.03	0.001	0.001
Bluetooth	1Mbps	Edge 1	25mm	Ant A	Full	78	2480	AWAN	10.49	11.00	1.125	74.1	1.124	-0.11	0.006	0.008