



FCC SAR Test Report

Report No. : FA592302D

	FR1 n48	40M	BPSK	50	28	Front	10mm	Ant 4	DSI4	641666	3624.99	22.53	24.00	1.403			-0.03	0.712	1.000	
	FR1 n48	40M	BPSK	50	28	Front	10mm	Ant 4	DSI4	638000	3570	22.45	24.00	1.429			0.10	0.690	0.985	
	FR1 n48	40M	BPSK	50	28	Front	10mm	Ant 4	DSI4	645332	3679.98	22.47	24.00	1.422			0.11	0.698	0.992	
	FR1 n48	40M	BPSK	100	0	Front	10mm	Ant 4	DSI4	641666	3624.99	22.48	24.00	1.419			-0.19	0.654	0.929	
	FR1 n48	40M	BPSK	1	1	Back	10mm	Ant 4	DSI4	641666	3624.99	22.56	24.00	1.393			-0.09	0.751	1.046	
83	FR1 n48	40M	BPSK	1	1	Back	10mm	Ant 4	DSI4	638000	3570	22.51	24.00	1.409			-0.11	0.759	1.069	
	FR1 n48	40M	BPSK	1	1	Back	10mm	Ant 4	DSI4	645332	3679.98	22.53	24.00	1.403			0.06	0.730	1.024	
	FR1 n48	40M	BPSK	50	28	Back	10mm	Ant 4	DSI4	641666	3624.99	22.53	24.00	1.403			-0.18	0.741	1.040	
	FR1 n48	40M	BPSK	50	28	Back	10mm	Ant 4	DSI4	638000	3570	22.45	24.00	1.429			-0.18	0.719	1.027	
	FR1 n48	40M	BPSK	50	28	Back	10mm	Ant 4	DSI4	645332	3679.98	22.47	24.00	1.422			0.07	0.721	1.026	
	FR1 n48	40M	BPSK	100	0	Back	10mm	Ant 4	DSI4	641666	3624.99	22.48	24.00	1.419			-0.11	0.726	1.031	
	FR1 n48	40M	BPSK	1	1	Front	5mm	Ant 5	DSI4	641666	3624.99	17.98	19.40	1.387			0.07	0.588	0.816	
	FR1 n48	40M	BPSK	1	1	Front	5mm	Ant 5	DSI4	638000	3570	17.95	19.40	1.396			0.19	0.577	0.806	
	FR1 n48	40M	BPSK	1	1	Front	5mm	Ant 5	DSI4	645332	3679.98	17.93	19.40	1.403			0.15	0.499	0.700	
	FR1 n48	40M	BPSK	50	28	Front	5mm	Ant 5	DSI4	641666	3624.99	17.96	19.40	1.393			0.10	0.612	0.852	
	FR1 n48	40M	BPSK	50	28	Front	5mm	Ant 5	DSI4	638000	3570	17.86	19.40	1.426			-0.04	0.599	0.855	
	FR1 n48	40M	BPSK	50	28	Front	5mm	Ant 5	DSI4	645332	3679.98	17.87	19.40	1.422			0.14	0.466	0.662	
	FR1 n48	40M	BPSK	100	0	Front	5mm	Ant 5	DSI4	641666	3624.99	17.91	19.40	1.409			-0.08	0.541	0.762	
	FR1 n48	40M	BPSK	1	1	Back	5mm	Ant 5	DSI4	645332	3679.98	17.98	19.40	1.387			-0.03	0.219	0.303	
	FR1 n48	40M	BPSK	50	28	Back	5mm	Ant 5	DSI4	641666	3624.99	17.96	19.40	1.393			0.06	0.214	0.298	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 5	DSI4	641666	3624.99	17.98	19.40	1.387			-0.09	0.637	0.883	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 5	DSI4	638000	3570	17.95	19.40	1.396			0.12	0.592	0.827	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 5	DSI4	645332	3679.98	17.93	19.40	1.403			0.17	0.522	0.733	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 5	DSI4	641666	3624.99	17.96	19.40	1.393			0.01	0.621	0.865	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 5	DSI4	638000	3570	17.86	19.40	1.426			0.04	0.644	0.918	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 5	DSI4	645332	3679.98	17.87	19.40	1.422			-0.14	0.526	0.747	
	FR1 n48	40M	BPSK	100	0	Back 1	5mm	Ant 5	DSI4	641666	3624.99	17.91	19.40	1.409			-0.06	0.574	0.809	
	FR1 n48	40M	BPSK	1	1	Front	5mm	Ant 10	DSI 4	641666	3624.99	17.11	18.50	1.377			0.02	0.001	0.001	
	FR1 n48	40M	BPSK	50	28	Front	5mm	Ant 10	DSI 4	641666	3624.99	17.08	18.50	1.387			0.05	0.001	0.001	
	FR1 n48	40M	BPSK	1	1	Back	5mm	Ant 10	DSI 4	641666	3624.99	17.11	18.50	1.377			0.17	0.093	0.128	
	FR1 n48	40M	BPSK	50	28	Back	5mm	Ant 10	DSI 4	641666	3624.99	17.08	18.50	1.387			-0.10	0.092	0.127	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	641666	3624.99	17.11	18.50	1.377			0.09	0.454	0.625	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	638000	3570	17.06	18.50	1.393			-0.04	0.420	0.585	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	645332	3679.98	17.09	18.50	1.384			0.12	0.430	0.596	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 10	DSI 4	641666	3624.99	17.08	18.50	1.387			-0.03	0.419	0.582	
	FR1 n48	40M	BPSK	1	1	Front	5mm	Ant 19	DSI 4	641666	3624.99	17.28	18.70	1.387			0.12	0.154	0.213	
	FR1 n48	40M	BPSK	50	28	Front	5mm	Ant 19	DSI 4	641666	3624.99	17.25	18.70	1.396			-0.05	0.125	0.175	
	FR1 n48	40M	BPSK	1	1	Back	5mm	Ant 19	DSI 4	641666	3624.99	17.28	18.70	1.387			-0.13	0.164	0.228	
	FR1 n48	40M	BPSK	50	28	Back	5mm	Ant 19	DSI 4	641666	3624.99	17.25	18.70	1.396			-0.07	0.184	0.258	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	641666	3624.99	17.28	18.70	1.387			-0.04	0.702	0.974	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	638000	3570	17.25	18.70	1.396			-0.15	0.742	1.036	
	FR1 n48	40M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	645332	3679.98	17.27	18.70	1.39			0.03	0.564	0.784	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 19	DSI 4	641666	3624.99	17.25	18.70	1.396			-0.10	0.631	0.881	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 19	DSI 4	638000	3570	17.21	18.70	1.409			0.11	0.665	0.937	
	FR1 n48	40M	BPSK	50	28	Back 1	5mm	Ant 19	DSI 4	645332	3679.98	17.18	18.70	1.419			0.01	0.647	0.918	
	FR1 n48	40M	BPSK	100	0	Back 1	5mm	Ant 19	DSI 4	641666	3624.99	17.23	18.70	1.403			0.05	0.649	0.911	
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 4	DSI3	633332	3499.98	18.25	18.70	1.109			-0.03	0.834	0.925	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 4	DSI3	633332	3499.98	18.24	18.70	1.112			0.06	0.739	0.821	
	FR1 n77	100M	BPSK	270	0	Front	5mm	Ant 4	DSI3	633332	3499.98	18.21	18.70	1.119			0.13	0.823	0.921	
	FR1 n77_HPUE	100M	BPSK	1	1	Front	5mm	Ant 4	DSI3	633332	3499.98	21.26	22.50	1.33	50.0	1.0	0.05	0.787	1.047	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 4	DSI3	633332	3499.98	18.25	18.70	1.109			-0.09	0.204	0.226	
	FR1 n77_HPUE	100M	BPSK	1	1	Front	5mm	Ant 4	DSI 3	633332	3499.98	21.07	22.50	1.39	50.0	1.0	0.02	0.710	0.987	Other PA
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 4	DSI3	633332	3499.98	18.24	18.70	1.112			-0.16	0.167	0.185	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 4	DSI3	633332	3499.98	18.25	18.70	1.109			-0.18	0.632	0.701	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 4	DSI3	633332	3499.98	18.24	18.70	1.112			-0.03	0.578	0.642	
	FR1 n77	100M	BPSK	1	1	Front	10mm	Ant 4	DSI4	633332	3499.98	22.28	22.70	1.102			0.16	0.751	0.828	
	FR1 n77	100M	BPSK	135	69	Front	10mm	Ant 4	DSI4	633332	3499.98	22.25	22.70	1.109			0.18	0.675	0.748	
	FR1 n77	100M	BPSK	270	0	Front	10mm	Ant 4	DSI4	633332	3499.98	22.23	22.70	1.114			0.17	0.742	0.826	
	FR1 n77	100M	BPSK	1	1	Back	10mm	Ant 4	DSI4	633332	3499.98	22.28	22.70	1.102			-0.03	0.878	0.968	
	FR1 n77	100M	BPSK	135	69	Back	10mm	Ant 4	DSI4	633332	3499.98	22.25	22.70	1.109			-0.04	0.756	0.838	
	FR1 n77	100M	BPSK	270	0	Back	10mm	Ant 4	DSI4	633332	3499.98	22.23	22.70	1.114			-0.10	0.287	0.320	
	FR1 n77_HPUE	100M	BPSK	1	1	Back	10mm	Ant 4	DSI4	633332	3499.98	25.29	26.50	1.321	50.0	1.0	0.05	0.798	1.054	
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 5	DSI4	633332	3499.98	18.74	19.20	1.112			-0.03	0.645	0.718	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 5	DSI4	633332	3499.98	18.71	19.20	1.119			-0.04	0.680	0.761	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 5	DSI4	633332	3499.98	18.74	19.20	1.112			0.04	0.277	0.308	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 5	DSI4	633332	3499.98	18.71	19.20	1.119			0.04	0.291	0.326	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 5	DSI4	633332	3499.98	18.74	19.20	1.112			-0.15	0.728	0.810	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 5	DSI4	633332	3499.98	18.71	19.20	1.119			0.00	0.731	0.818	
	FR1 n77	100M	BPSK	270	0	Back 1	5mm	Ant 5	DSI4	633332	3499.98	18.64	19.20	1.138			-0.18	0.715	0.814	
	FR1 n77_HPUE	100M	BPSK	135	69	Back 1	5mm	Ant 5	DSI4	633332	3499.98	21.64	23.00	1.368	50.0	1.0	-0.07	0.677	0.926	
	FR1 n77_HPUE	100M	BPSK	135	69	Back 1	5mm	Ant 5	DSI 4	633332	3499.98	21.39	23.00	1.449	50.0	1.0	0.05	0.628	0.910	Other PA
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant												



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	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 10	DSI 4	633332	3499.98	16.72	17.20	1.117			0.04	0.230	0.257	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 10	DSI 4	633332	3499.98	16.69	17.20	1.125			0.05	0.212	0.238	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	633332	3499.98	16.72	17.20	1.117			0.14	0.875	0.977	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 10	DSI 4	633332	3499.98	16.69	17.20	1.125			-0.09	0.703	0.791	
	FR1 n77	100M	BPSK	270	0	Back 1	5mm	Ant 10	DSI 4	633332	3499.98	16.65	17.20	1.135			-0.17	0.661	0.750	
	FR1 n77_HPUE	100M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	633332	3499.98	19.68	21.00	1.355	50.0	1.0	-0.03	0.787	1.066	
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 19	DSI 4	633332	3499.98	17.31	18.70	1.377			0.08	0.355	0.489	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 19	DSI 4	633332	3499.98	17.29	18.70	1.384			0.07	0.324	0.448	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 19	DSI 4	633332	3499.98	17.31	18.70	1.377			-0.02	0.184	0.254	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 19	DSI 4	633332	3499.98	17.29	18.70	1.384			-0.14	0.194	0.268	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	633332	3499.98	17.31	18.70	1.377			-0.14	0.740	1.019	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 19	DSI 4	633332	3499.98	17.29	18.70	1.384			0.19	0.724	1.002	
	FR1 n77	100M	BPSK	270	0	Back 1	5mm	Ant 19	DSI 4	633332	3499.98	17.27	18.70	1.39			0.10	0.678	0.942	
84	FR1 n77_HPUE	100M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	633332	3499.98	20.30	21.70	1.38	50.0	1.0	-0.05	0.776	1.071	
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 4	DSI3	656000	3840	18.26	18.70	1.107			-0.11	0.375	0.415	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 4	DSI3	656000	3840	18.24	18.70	1.112			0.07	0.298	0.332	
	FR1 n77_HPUE	100M	BPSK	1	1	Front	5mm	Ant 4	DSI3	656000	3840	21.23	22.50	1.34	50.0	1.0	-0.07	0.354	0.475	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 4	DSI3	656000	3840	18.26	18.70	1.107			0.03	0.093	0.103	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 4	DSI3	656000	3840	18.24	18.70	1.112			0.08	0.088	0.098	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 4	DSI3	656000	3840	18.26	18.70	1.107			-0.11	0.232	0.257	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 4	DSI3	656000	3840	18.24	18.70	1.112			0.06	0.227	0.253	
	FR1 n77	100M	BPSK	1	1	Front	10mm	Ant 4	DSI4	656000	3840	22.24	22.70	1.112			-0.01	0.312	0.347	
	FR1 n77	100M	BPSK	135	69	Front	10mm	Ant 4	DSI4	656000	3840	22.23	22.70	1.114			-0.09	0.281	0.313	
	FR1 n77	100M	BPSK	1	1	Back	10mm	Ant 4	DSI4	656000	3840	22.24	22.70	1.112			-0.14	0.369	0.410	
	FR1 n77	100M	BPSK	135	69	Back	10mm	Ant 4	DSI4	656000	3840	22.23	22.70	1.114			0.03	0.321	0.358	
	FR1 n77_HPUE	100M	BPSK	1	1	Back	10mm	Ant 4	DSI4	656000	3840	25.25	26.50	1.334	50.0	1.0	-0.14	0.358	0.478	
	FR1 n77_HPUE	100M	BPSK	1	1	Front	5mm	Ant 4	DSI 3	656000	3840	21.07	22.50	1.39	50.0	1.0	0.16	0.338	0.470	Other PA
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 5	DSI4	656000	3840	18.73	19.20	1.114			0.04	0.593	0.661	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 5	DSI4	656000	3840	18.71	19.20	1.119			-0.06	0.477	0.534	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 5	DSI4	656000	3840	18.73	19.20	1.114			-0.13	0.222	0.248	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 5	DSI4	656000	3840	18.71	19.20	1.119			-0.16	0.183	0.205	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 5	DSI4	656000	3840	18.73	19.20	1.114			0.06	0.631	0.703	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 5	DSI4	656000	3840	18.71	19.20	1.119			-0.08	0.565	0.633	
	FR1 n77_HPUE	100M	BPSK	1	1	Back 1	5mm	Ant 5	DSI4	656000	3840	21.78	23.00	1.324	50.0	1.0	0.06	0.614	0.813	
	FR1 n77_HPUE	100M	BPSK	1	1	Back 1	5mm	Ant 5	DSI 4	656000	3840	21.48	23.00	1.419	50.0	1.0	0.05	0.542	0.769	Other PA
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 10	DSI 4	656000	3840	16.54	17.20	1.164			-0.03	0.001	0.001	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 10	DSI 4	656000	3840	16.53	17.20	1.167			0.02	0.001	0.001	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 10	DSI 4	656000	3840	16.54	17.20	1.164			-0.16	0.056	0.065	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 10	DSI 4	656000	3840	16.53	17.20	1.167			0.09	0.047	0.055	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	656000	3840	16.54	17.20	1.164			0.04	0.257	0.299	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 10	DSI 4	656000	3840	16.53	17.20	1.167			0.09	0.242	0.282	
	FR1 n77_HPUE	100M	BPSK	1	1	Back 1	5mm	Ant 10	DSI 4	656000	3840	19.54	21.00	1.4	50.0	1.0	-0.13	0.245	0.343	
	FR1 n77	100M	BPSK	1	1	Front	5mm	Ant 19	DSI 4	656000	3840	17.31	18.70	1.377			0.05	0.073	0.100	
	FR1 n77	100M	BPSK	135	69	Front	5mm	Ant 19	DSI 4	656000	3840	17.30	18.70	1.38			0.12	0.063	0.087	
	FR1 n77	100M	BPSK	1	1	Back	5mm	Ant 19	DSI 4	656000	3840	17.31	18.70	1.377			0.18	0.246	0.339	
	FR1 n77	100M	BPSK	135	69	Back	5mm	Ant 19	DSI 4	656000	3840	17.30	18.70	1.38			0.05	0.228	0.314	
	FR1 n77	100M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	656000	3840	17.31	18.70	1.377			-0.08	0.729	1.004	
	FR1 n77	100M	BPSK	135	69	Back 1	5mm	Ant 19	DSI 4	656000	3840	17.30	18.70	1.38			-0.14	0.679	0.938	
	FR1 n77	100M	BPSK	270	0	Back 1	5mm	Ant 19	DSI 4	656000	3840	17.27	18.70	1.39			0.01	0.611	0.849	
	FR1 n77_HPUE	100M	BPSK	1	1	Back 1	5mm	Ant 19	DSI 4	656000	3840	20.32	21.70	1.374	50.0	1.0	0.14	0.692	0.951	

【WLAN 2.4GHz_5GHz SAR】

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	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)	Note1
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 7	Body worn Standalone	1	2412	19.85	20.50	1.161	97.45	1.026	0.02	0.637	0.759	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 7	Body worn Standalone	1	2412	19.85	20.50	1.161	97.45	1.026	0.11	0.245	0.292	
	WLAN2.4GHz	802.11b 1Mbps	Back 1	5mm	Ant 7	Body worn Standalone	1	2412	19.85	20.50	1.161	97.45	1.026	0.08	0.621	0.740	
	WLAN2.4GHz	802.11b 1Mbps	Front	5mm	Ant 14	Body worn Standalone	1	2412	19.77	20.50	1.183	97.45	1.026	0.12	0.636	0.772	
	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 14	Body worn Standalone	1	2412	19.77	20.50	1.183	97.45	1.026	0.17	0.165	0.200	
	WLAN2.4GHz	802.11b 1Mbps	Back 1	5mm	Ant 14	Body worn Standalone	1	2412	19.77	20.50	1.183	97.45	1.026	0.06	0.604	0.733	
	WLAN2.4GHz	802.11n-HT40 MCS0	Front	5mm	Ant 7+14	Body worn Standalone	6	2437	22.27	23.00	1.184	100.0	1.0	-0.04	0.766	0.907	
	WLAN2.4GHz	802.11n-HT40 MCS0	Front	5mm	Ant 7+14	Body worn Standalone	3	2422	22.14	23.00	1.219	100.0	1.0	-0.14	0.765	0.932	
	WLAN2.4GHz	802.11n-HT40 MCS0	Front	5mm	Ant 7+14	Body worn Standalone	9	2452	22.26	23.00	1.187	100.0	1.0	0.12	0.808	0.959	
	WLAN2.4GHz	802.11n-HT40 MCS0	Back	5mm	Ant 7+14	Body worn Standalone	6	2437	22.27	23.00	1.184	100.0	1.0	0.06	0.326	0.386	
	WLAN2.4GHz	802.11n-HT40 MCS0	Back 1	5mm	Ant 7+14	Body worn Standalone	6	2437	22.27	23.00	1.184	100.0	1.0	-0.04	0.889	1.052	
	WLAN2.4GHz	802.11n-HT40 MCS0	Back 1	5mm	Ant 7+14	Body worn Standalone	3	2422	22.14	23.00	1.219	100.0	1.0	-0.03	0.860	1.048	
85	WLAN2.4GHz	802.11n-HT40 MCS0	Back 1	5mm	Ant 7+14	Body worn Standalone	9	2452	22.26	23.00	1.187	100.0	1.0	-0.05	0.902	1.071	
	WLAN5GHz	802.11n-HT40 MCS0	Front	5mm	Ant 8+15(15)	Body worn Standalone	54	5270	17.31	18.00	1.172	100.0	1.0	-0.06	0.724	0.848	
	WLAN5GHz	802.11n-HT40 MCS0	Front	5mm	Ant 8+15(15)	Body worn Standalone	62	5310	16.78	17.50	1.18	100.0	1.0	0.02	0.786	0.927	
	WLAN5GHz	802.11n-HT40 MCS0	Back	5mm	Ant 8+15(15)	Body worn Standalone	54	5270	17.31	18.00	1.172	100.0	1.0	-0.14	0.296	0.347	
86	WLAN5GHz	802.11n-HT40 MCS0	Back 1	5mm	Ant 8+15(15)	Body worn Standalone	54	5270	17.31	18.00	1.172	100.0	1.0	0.05	0.919	1.077	



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	WLAN5GHz	802.11n-HT40 MCS0	Back 1	5mm	Ant 8+15(15)	Body worn Standalone	62	5310	16.78	17.50	1.18	100.0	1.0	-0.05	0.878	1.036	
	WLAN5GHz	802.11a 6Mbps	Front	5mm	Ant 8+15(8)	Body worn Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	0.00	0.777	0.926	
87	WLAN5GHz	802.11a 6Mbps	Front	5mm	Ant 8+15(8)	Body worn Standalone	116	5580	18.43	19.00	1.14	98.97	1.01	0.06	0.843	0.971	
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Ant 8+15(8)	Body worn Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	-0.04	0.251	0.299	
	WLAN5GHz	802.11a 6Mbps	Back 1	5mm	Ant 8+15(8)	Body worn Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	0.13	0.806	0.961	
	WLAN5GHz	802.11a 6Mbps	Back 1	5mm	Ant 8+15(8)	Body worn Standalone	116	5580	18.43	19.00	1.14	98.97	1.01	0.12	0.690	0.794	
	WLAN5GHz	802.11a 6Mbps	Front	5mm	Ant 8+15(8)	Body worn Standalone	165	5825	19.60	20.50	1.23	98.97	1.01	-0.06	0.855	1.062	
88	WLAN5GHz	802.11a 6Mbps	Front	5mm	Ant 8+15(15)	Body worn Standalone	149	5745	19.13	20.00	1.222	98.97	1.01	-0.03	0.879	1.085	
	WLAN5GHz	802.11a 6Mbps	Back	5mm	Ant 8+15(8)	Body worn Standalone	165	5825	19.60	20.50	1.23	98.97	1.01	-0.07	0.323	0.401	
	WLAN5GHz	802.11a 6Mbps	Back 1	5mm	Ant 8+15(8)	Body worn Standalone	165	5825	19.60	20.50	1.23	98.97	1.01	0.13	0.773	0.961	
	WLAN5GHz	802.11a 6Mbps	Back 1	5mm	Ant 8+15(15)	Body worn Standalone	149	5745	19.13	20.00	1.222	98.97	1.01	-0.15	0.715	0.883	

【Bluetooth SAR】

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	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)	Note1
	Bluetooth	1Mbps	Front	5mm	Ant 7	Body-worn Standalone	0	2402	14.67	16.00	1.358	76.68	1.086	0.05	0.150	0.221	
	Bluetooth	1Mbps	Back	5mm	Ant 7	Body-worn Standalone	0	2402	14.67	16.00	1.358	76.68	1.086	-0.08	0.059	0.087	
	Bluetooth	1Mbps	Back 1	5mm	Ant 7	Body-worn Standalone	0	2402	14.67	16.00	1.358	76.68	1.086	-0.17	0.141	0.207	
	Bluetooth	1Mbps	Front	5mm	Ant 14	Body-worn Standalone	0	2402	15.92	17.50	1.439	76.68	1.086	-0.07	0.175	0.274	
	Bluetooth	1Mbps	Back	5mm	Ant 14	Body-worn Standalone	0	2402	15.92	17.50	1.439	76.68	1.086	0.05	0.002	0.003	
89	Bluetooth	1Mbps	Back 1	5mm	Ant 14	Body-worn Standalone	0	2402	15.92	17.50	1.439	76.68	1.086	0.03	0.194	0.303	

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	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)	Measured APD (W/m^2)
	WLAN6GHz	802.11ax-HE160 MCS0	Front	5mm	Ant 8+15(8)	For Body-worn Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.08	0.164	0.202	1.08
	WLAN6GHz	802.11ax-HE160 MCS0	Back	5mm	Ant 8+15(8)	For Body-worn Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.01	0.082	0.101	0.704
90	WLAN6GHz	802.11ax-HE160 MCS0	Back1	5mm	Ant 8+15(8)	For Body-worn Standalone	207	6985	15.59	16.50	1.233	100	1.000	-0.05	0.219	0.270	1.55
	WLAN6GHz	802.11ax-HE160 MCS0	Back1	5mm	Ant 8+15(15)	For Body-worn Standalone	15	6025	13.34	14.00	1.164	100	1.000	-0.09	0.139	0.162	0.984
	WLAN6GHz	802.11ax-HE160 MCS0	Back1	5mm	Ant 8+15(8)	For Body-worn Standalone	47	6185	13.60	14.50	1.230	100	1.000	0.1	0.132	0.162	0.934
	WLAN6GHz	802.11ax-HE160 MCS0	Back1	5mm	Ant 8+15(8)	For Body-worn Standalone	111	6505	15.57	16.50	1.239	100	1.000	-0.18	0.175	0.217	1.24
	WLAN6GHz	802.11ax-HE160 MCS0	Back1	5mm	Ant 8+15(8)	For Body-worn Standalone	143	6665	15.44	16.00	1.138	100	1.000	0.1	0.199	0.226	1.41



16.4 Product specific 10g SAR

【WLAN 2.4GHz_5GHz SAR】

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	Note1
	WLAN5GHz	802.11n-HT40 MCS0	Front	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.03	0.877	1.084	
	WLAN5GHz	802.11n-HT40 MCS0	Back	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.06	0.147	0.182	
	WLAN5GHz	802.11n-HT40 MCS0	Back 1	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.08	0.230	0.284	
91	WLAN5GHz	802.11n-HT40 MCS0	Back Right	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.06	1.430	1.767	
	WLAN5GHz	802.11n-HT40 MCS0	Back Top	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.17	1.040	1.285	
	WLAN5GHz	802.11n-HT40 MCS0	Left Side	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	0.18	0.072	0.089	
	WLAN5GHz	802.11n-HT40 MCS0	Right Side	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	0.04	1.250	1.545	
	WLAN5GHz	802.11n-HT40 MCS0	Top Side	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.14	1.160	1.434	
	WLAN5GHz	802.11n-HT40 MCS0	Bottom Side	0mm	Ant 8+15(15)	Extremity Standalone	54	5270	17.08	18.00	1.236	100.0	1.0	-0.10	0.024	0.030	
	WLAN5GHz	802.11a 6Mbps	Front	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	-0.05	1.290	1.537	
	WLAN5GHz	802.11a 6Mbps	Back	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	0.08	0.189	0.225	
	WLAN5GHz	802.11a 6Mbps	Back 1	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	-0.14	0.316	0.377	
	WLAN5GHz	802.11a 6Mbps	Back Right	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	0.07	1.880	2.241	
	WLAN5GHz	802.11a 6Mbps	Back Right	0mm	Ant 8+15(15)	Extremity Standalone	116	5580	18.66	19.50	1.213	98.97	1.01	0.00	1.690	2.070	
	WLAN5GHz	802.11a 6Mbps	Back Top	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	0.07	1.420	1.692	
	WLAN5GHz	802.11a 6Mbps	Left Side	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	-0.01	0.106	0.126	
92	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	-0.00	1.900	2.264	
	WLAN5GHz	802.11a 6Mbps	Right Side	0mm	Ant 8+15(15)	Extremity Standalone	116	5580	18.66	19.50	1.213	98.97	1.01	-0.18	1.730	2.119	
	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	0.17	1.410	1.680	
	WLAN5GHz	802.11a 6Mbps	Bottom Side	0mm	Ant 8+15(8)	Extremity Standalone	100	5500	18.28	19.00	1.18	98.97	1.01	-0.16	0.031	0.037	

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	Measured APD (W/m^2)
	WLAN6GHz	802.11ax-HE160 MCS0	Front	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	-0.01	0.277	0.342	6.3
	WLAN6GHz	802.11ax-HE160 MCS0	Back	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.02	0.062	0.076	1.41
	WLAN6GHz	802.11ax-HE160 MCS0	Back1	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	-0.05	0.069	0.085	1.55
	WLAN6GHz	802.11ax-HE160 MCS0	Back Right	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	-0.08	0.373	0.460	8.75
	WLAN6GHz	802.11ax-HE160 MCS0	Back Top	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.06	0.147	0.181	3.41
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.1	0.414	0.510	9.73
	WLAN6GHz	802.11ax-HE160 MCS0	Top Side	0mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	-0.08	0.262	0.323	6.17
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+15(15)	For Extremity Standalone	15	6025	13.34	14.00	1.164	100	1.000	0.04	0.369	0.430	8.6
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+15(8)	For Extremity Standalone	47	6185	13.60	14.50	1.230	100	1.000	0.09	0.310	0.381	7.19
93	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+15(8)	For Extremity Standalone	111	6505	15.57	16.50	1.239	100	1.000	0.02	0.442	0.548	10.3
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	0mm	Ant 8+15(8)	For Extremity Standalone	143	6665	15.44	16.00	1.138	100	1.000	-0.07	0.437	0.497	10.1



16.5 6GHz PD Test Result

WLAN PD

Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Grid Step (λ)	iPDn	iPD ratio (≥ -1)	Normal psPD (W/m ²)	Total psPD (W/m ²)
WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	0.0625	1.59	3.22	2.690	3.720
WLAN6GHz	802.11ax-HE160 MCS0	Right Side	10mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	0.15	0.757		0.538	0.665
WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(15)	For Extremity Standalone	15	6025	13.34	0.0625	2.39	1.26	1.590	3.610
WLAN6GHz	802.11ax-HE160 MCS0	Right Side	8.59mm	Ant 8+15(15)	For Extremity Standalone	15	6025	13.34	0.15	1.79		0.782	0.968

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Grid Step (λ)	Scaling Factor for measurement uncertainty	Power Drift (dB)	Normal psPD (W/m ²)	Scaled Normal psPD (W/m ²)	Total psPD (W/m ²)	Scaled Total psPD (W/m ²)
01	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(8)	For Extremity Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.0625	1.5535	-0.03	2.690	5.15	3.720	7.13
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(15)	For Extremity Standalone	15	6025	13.34	14.00	1.164	100	1.000	0.0625	1.5535	-0.04	1.590	2.88	3.610	6.53
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(8)	For Extremity Standalone	47	6185	13.60	14.50	1.230	100	1.000	0.0625	1.5535	-0.16	1.480	2.83	2.720	5.20
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(8)	For Extremity Standalone	111	6505	15.57	16.50	1.239	100	1.000	0.0625	1.5535	-0.03	2.540	4.89	3.640	7.01
	WLAN6GHz	802.11ax-HE160 MCS0	Right Side	2mm	Ant 8+15(8)	For Extremity Standalone	143	6665	15.44	16.00	1.138	100	1.000	0.0625	1.5535	0.01	2.080	3.68	3.340	5.90
	WLAN6GHz	802.11ax-HE160 MCS0	Front	2mm	Ant 8+15(8)	For Head Standalone	207	6985	15.59	16.50	1.233	100	1.000	0.0625	1.5535	-0.06	1.200	2.30	2.070	3.97
	WLAN6GHz	802.11ax-HE160 MCS0	Front	2mm	Ant 8+15(15)	For Head Standalone	15	6025	14.38	15.00	1.153	100	1.000	0.0625	1.5535	0.01	2.580	4.62	3.760	6.74
	WLAN6GHz	802.11ax-HE160 MCS0	Front	2mm	Ant 8+15(8)	For Head Standalone	47	6185	13.60	14.50	1.230	100	1.000	0.0625	1.5535	0.1	1.800	3.44	2.790	5.33
02	WLAN6GHz	802.11ax-HE160 MCS0	Front	2mm	Ant 8+15(8)	For Head Standalone	111	6505	13.56	14.50	1.242	100	1.000	0.0625	1.5535	0.03	2.170	4.19	4.110	7.93
	WLAN6GHz	802.11ax-HE160 MCS0	Front	2mm	Ant 8+15(8)	For Head Standalone	143	6665	14.87	15.50	1.156	100	1.000	0.0625	1.5535	0.05	2.500	4.49	4.120	7.40



16.6 Repeated SAR Measurement

[Repeat SAR 1g - FCC]

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	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)	Ratio
1st	FR1 n71	35M_BPSK_1_1	Back 1	5	Ant 1	DSI4	136100	680.5	21.81	22.60	1.199	100.0	1.0	-0.03	0.844	1.012	-
2nd	FR1 n71	35M_BPSK_1_1	Back 1	5	Ant 1	DSI4	136100	680.5	21.81	22.60	1.199	100.0	1.0	0.11	0.827	0.992	1.02
1st	WCDMA V	RMC 12.2Kbps	Back 1	5	Ant 1	DSI4	4233	846.6	22.02	22.70	1.169	100.0	1.0	-0.03	0.892	1.043	-
2nd	WCDMA V	RMC 12.2Kbps	Back 1	5	Ant 1	DSI4	4233	846.6	22.02	22.70	1.169	100.0	1.0	0.19	0.864	1.010	1.03
1st	FR1 n66	45M_BPSK_1_1	Right Tilted	0	Ant 4	DSI1	349000	1745	18.23	18.70	1.114	100.0	1.0	-0.01	0.935	1.042	-
2nd	FR1 n66	45M_BPSK_1_1	Right Tilted	0	Ant 4	DSI1	349000	1745	18.23	18.70	1.114	100.0	1.0	-0.12	0.918	1.023	1.02
1st	WCDMA II	RMC 12.2Kbps	Back	10	Ant 4	DSI4	9400	1880	24.37	25.00	1.156	100.0	1.0	-0.16	0.918	1.062	-
2nd	WCDMA II	RMC 12.2Kbps	Back	10	Ant 4	DSI4	9400	1880	24.37	25.00	1.156	100.0	1.0	0.13	0.902	1.043	1.02
1st	WLAN2.4GHz	802.11n-HT40 MCS0	Back 1	5	Ant 7+14	Body worn Standalone	9	2452	22.26	23.00	1.187	100.0	1.0	-0.05	0.902	1.071	-
2nd	WLAN2.4GHz	802.11n-HT40 MCS0	Back 1	5	Ant 7+14	Body worn Standalone	9	2452	22.26	23.00	1.187	100.0	1.0	0.02	0.878	1.042	1.03
1st	LTE Band 41	20M_QPSK_1_0	Back	10	Ant 4	DSI4	40620	2593	25.28	25.70	1.102	62.9	1.006	-0.02	0.952	1.055	-
2nd	LTE Band 41	20M_QPSK_1_0	Back	10	Ant 4	DSI4	40620	2593	25.28	25.70	1.102	62.9	1.006	0.17	0.935	1.037	1.02
1st	FR1 n77	100M_BPSK_1_1	Back	10	Ant 4	DSI4	633332	3499.98	22.28	22.70	1.102	100.0	1.0	-0.03	0.878	0.968	-
2nd	FR1 n77	100M_BPSK_1_1	Back	10	Ant 4	DSI4	633332	3499.98	22.28	22.70	1.102	100.0	1.0	-0.14	0.846	0.932	1.04
1st	WLAN5GHz	802.11n-HT40 MCS0	Back 1	5	Ant 8+15(15)	Body worn Standalone	54	5270	17.31	18.00	1.172	100.0	1.0	0.05	0.919	1.077	-
2nd	WLAN5GHz	802.11n-HT40 MCS0	Back 1	5	Ant 8+15(15)	Body worn Standalone	54	5270	17.31	18.00	1.172	100.0	1.0	0.18	0.897	1.051	1.02
1st	WLAN5GHz	802.11ac-VHT160 MCS0	Left Cheek	0	Ant 8+15(8)	Head Standalone	114	5570	13.75	14.50	1.189	100.0	1.0	0.04	0.847	1.007	-
2nd	WLAN5GHz	802.11ac-VHT160 MCS0	Left Cheek	0	Ant 8+15(8)	Head Standalone	114	5570	13.75	14.50	1.189	100.0	1.0	-0.15	0.831	0.988	1.02
1st	WLAN5GHz	802.11a 6Mbps	Front	5	Ant 8+15(15)	Body worn Standalone	149	5745	19.13	20.00	1.222	98.97	1.01	-0.03	0.879	1.085	-
2nd	WLAN5GHz	802.11a 6Mbps	Front	5	Ant 8+15(15)	Body worn Standalone	149	5745	19.13	20.00	1.222	98.97	1.01	0.11	0.855	1.055	1.03

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR 1.45W/kg , only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16.7 NR Linearity Data Analysis

General Note:

This device support Power Class 2 and Power Class 3 operations for 5GNR n41/n77/n78. The highest available duty cycle for Power Class 2 operation is 50% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each 5GNR configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are <1.4 W/kg for 1g and < 3.5 W/kg for 10g, Separate SAR testing for Power Class 2 is not required.

NR n77 Part27Q (HPUE)-Linearity Data for Head Ant4			NR n77 Part27O (HPUE)-Linearity Data for Head Ant4		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	14.20	18.00	Maximum Tune up Power (dBm)	14.20	18.00
Reported 1g SAR (W/kg)	0.774	0.947	Reported 1g SAR (W/kg)	0.398	0.486
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	26.30	31.55	Frame Averaged (mW)	26.30	31.55
Linearity SAR (W/kg)	0.928		Linearity SAR (W/kg)	0.477	
% deviation from expected linearity		2.01%	% deviation from expected linearity		1.81%
NR n77 Part27Q (HPUE)-Linearity Data for Body-worn Ant4			NR n77 Part27O (HPUE)-Linearity Data for Body-worn Ant4		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.70	22.50	Maximum Tune up Power (dBm)	18.70	22.50
Reported 1g SAR (W/kg)	0.925	1.047	Reported 1g SAR (W/kg)	0.415	0.475
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	74.13	88.91	Frame Averaged (mW)	74.13	88.91
Linearity SAR (W/kg)	1.109		Linearity SAR (W/kg)	0.498	
% deviation from expected linearity		-5.63%	% deviation from expected linearity		-4.57%
NR n77 Part27Q (HPUE)-Linearity Data for Hotspot Ant4			NR n77 Part27O (HPUE)-Linearity Data for Hotspot Ant4		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	14.20	18.00	Maximum Tune up Power (dBm)	14.20	18.00
Reported 1g SAR (W/kg)	0.150	0.172	Reported 1g SAR (W/kg)	0.142	0.167
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	26.30	31.55	Frame Averaged (mW)	26.30	31.55
Linearity SAR (W/kg)	0.180		Linearity SAR (W/kg)	0.170	
% deviation from expected linearity		-4.40%	% deviation from expected linearity		-1.95%
NR n41(HPUE)-Linearity Data for Head Ant4			NR n41(HPUE)-Linearity Data for Head Ant5		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	16.70	20.50	Maximum Tune up Power (dBm)	17.70	21.50
Reported 1g SAR (W/kg)	0.880	1.055	Reported 1g SAR (W/kg)	0.821	0.987
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	46.77	56.10	Frame Averaged (mW)	58.88	70.63
Linearity SAR (W/kg)	1.055		Linearity SAR (W/kg)	0.985	
% deviation from expected linearity		-0.05%	% deviation from expected linearity		0.23%
NR n41(HPUE)-Linearity Data for Body worn Ant4			NR n41(HPUE)-Linearity Data for Body worn Ant5		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	17.70	21.50	Maximum Tune up Power (dBm)	19.20	23.00
Reported 1g SAR (W/kg)	0.492	0.575	Reported 1g SAR (W/kg)	0.862	1.052
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	58.88	70.63	Frame Averaged (mW)	83.18	99.76
Linearity SAR (W/kg)	0.590		Linearity SAR (W/kg)	1.034	
% deviation from expected linearity		-2.56%	% deviation from expected linearity		1.75%
NR n41(HPUE)-Linearity Data for Hotspot Ant4			NR n41(HPUE)-Linearity Data for Hotspot Ant5		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	16.70	20.50	Maximum Tune up Power (dBm)	17.70	21.50
Reported 1g SAR (W/kg)	0.243	0.288	Reported 1g SAR (W/kg)	0.420	0.464



Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	46.77	56.10	Frame Averaged (mW)	58.88	70.63
Linearity SAR (W/kg)	0.291		Linearity SAR (W/kg)	0.504	
% deviation from expected linearity		-1.19%	% deviation from expected linearity		-7.89%

NR n77 Part27Q (HPUE)-Linearity Data for Head Ant5			NR n77 Part27O (HPUE)-Linearity Data for Head Ant5		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.70	21.50	Maximum Tune up Power (dBm)	17.70	21.50
Reported 1g SAR (W/kg)	0.800	0.989	Reported 1g SAR (W/kg)	0.530	0.629
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	58.88	70.63	Frame Averaged (mW)	58.88	70.63
Linearity SAR (W/kg)	0.960		Linearity SAR (W/kg)	0.636	
% deviation from expected linearity		3.07%	% deviation from expected linearity		-1.05%
NR n77 Part27Q (HPUE)-Linearity Data for Body-worn Ant5			NR n77 Part27O (HPUE)-Linearity Data for Body-worn Ant5		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	19.20	23.00	Maximum Tune up Power (dBm)	19.20	23.00
Reported 1g SAR (W/kg)	0.818	0.926	Reported 1g SAR (W/kg)	0.703	0.813
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	83.18	99.76	Frame Averaged (mW)	83.18	99.76
Linearity SAR (W/kg)	0.981		Linearity SAR (W/kg)	0.843	
% deviation from expected linearity		-5.62%	% deviation from expected linearity		-3.58%
NR n77 Part27Q (HPUE)-Linearity Data for Hotspot Ant5			NR n77 Part27O (HPUE)-Linearity Data for Hotspot Ant5		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.70	21.50	Maximum Tune up Power (dBm)	17.70	21.50
Reported 1g SAR (W/kg)	0.377	0.491	Reported 1g SAR (W/kg)	0.445	0.489
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	58.88	70.63	Frame Averaged (mW)	58.88	70.63
Linearity SAR (W/kg)	0.452		Linearity SAR (W/kg)	0.534	
% deviation from expected linearity		8.59%	% deviation from expected linearity		-8.38%
NR n41(HPUE)-Linearity Data for Head Ant6			NR n41(HPUE)-Linearity Data for Head Ant7		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	26.00	27.50	Maximum Tune up Power (dBm)	21.10	24.10
Reported 1g SAR (W/kg)	0.176	0.134	Reported 1g SAR (W/kg)	1.023	1.053
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	398.11	281.17	Frame Averaged (mW)	128.82	128.52
Linearity SAR (W/kg)	0.124		Linearity SAR (W/kg)	1.021	
% deviation from expected linearity		7.80%	% deviation from expected linearity		3.18%
NR n41(HPUE)-Linearity Data for Body worn Ant6			NR n41(HPUE)-Linearity Data for Body worn Ant7		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	23.50	27.00	Maximum Tune up Power (dBm)	21.60	24.60
Reported 1g SAR (W/kg)	0.952	1.010	Reported 1g SAR (W/kg)	1.082	1.013
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	223.87	250.59	Frame Averaged (mW)	144.54	144.20
Linearity SAR (W/kg)	1.066		Linearity SAR (W/kg)	1.079	
% deviation from expected linearity		-5.22%	% deviation from expected linearity		-6.15%
NR n41(HPUE)-Linearity Data for Hotspot Ant6			NR n41(HPUE)-Linearity Data for Hotspot Ant7		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	23.50	27.00	Maximum Tune up Power (dBm)	21.10	24.10
Reported 1g SAR (W/kg)	0.523	0.551	Reported 1g SAR (W/kg)	0.725	0.681
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	223.87	250.59	Frame Averaged (mW)	128.82	128.52
Linearity SAR (W/kg)	0.585		Linearity SAR (W/kg)	0.723	
% deviation from expected linearity		-5.88%	% deviation from expected linearity		-5.85%



NR n77 Part27Q (HPUE)-Linearity Data for Head Ant10			NR n77 Part27O (HPUE)-Linearity Data for Head Ant10		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	25.70	28.50	Maximum Tune up Power (dBm)	25.70	28.50
Reported 1g SAR (W/kg)	0.224	0.222	Reported 1g SAR (W/kg)	0.056	0.051
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	371.54	353.97	Frame Averaged (mW)	371.54	353.97
Linearity SAR (W/kg)	0.213		Linearity SAR (W/kg)	0.053	
% deviation from expected linearity		4.02%	% deviation from expected linearity		-4.41%
NR n77 Part27Q (HPUE)-Linearity Data for Body-worn Ant10			NR n77 Part27O (HPUE)-Linearity Data for Body-worn Ant10		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.20	21.00	Maximum Tune up Power (dBm)	17.20	21.00
Reported 1g SAR (W/kg)	0.977	1.066	Reported 1g SAR (W/kg)	0.299	0.343
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	52.48	62.95	Frame Averaged (mW)	52.48	62.95
Linearity SAR (W/kg)	1.172		Linearity SAR (W/kg)	0.359	
% deviation from expected linearity		-9.03%	% deviation from expected linearity		-4.36%
NR n77 Part27Q (HPUE)-Linearity Data for Hotspot Ant10			NR n77 Part27O (HPUE)-Linearity Data for Hotspot Ant10		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	17.20	21.00	Maximum Tune up Power (dBm)	17.20	21.00
Reported 1g SAR (W/kg)	0.190	0.235	Reported 1g SAR (W/kg)	0.112	0.131
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	52.48	62.95	Frame Averaged (mW)	52.48	62.95
Linearity SAR (W/kg)	0.228		Linearity SAR (W/kg)	0.134	
% deviation from expected linearity		3.12%	% deviation from expected linearity		-2.48%

NR n77 Part27Q (HPUE)-Linearity Data for Head Ant19			NR n77 Part27O (HPUE)-Linearity Data for Head Ant19		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.70	21.70	Maximum Tune up Power (dBm)	18.70	21.70
Reported 1g SAR (W/kg)	1.084	1.025	Reported 1g SAR (W/kg)	0.274	0.255
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	74.13	73.96	Frame Averaged (mW)	74.13	73.96
Linearity SAR (W/kg)	1.081		Linearity SAR (W/kg)	0.273	
% deviation from expected linearity		-5.22%	% deviation from expected linearity		-6.71%
NR n77 Part27Q (HPUE)-Linearity Data for Body-worn Ant19			NR n77 Part27O (HPUE)-Linearity Data for Body-worn Ant19		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.70	21.70	Maximum Tune up Power (dBm)	18.70	21.70
Reported 1g SAR (W/kg)	1.019	1.071	Reported 1g SAR (W/kg)	1.004	0.951
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	74.13	73.96	Frame Averaged (mW)	74.13	73.96
Linearity SAR (W/kg)	1.017		Linearity SAR (W/kg)	1.002	
% deviation from expected linearity		5.35%	% deviation from expected linearity		-5.05%
NR n77 Part27Q (HPUE)-Linearity Data for Hotspot Ant19			NR n77 Part27O (HPUE)-Linearity Data for Hotspot Ant19		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	18.70	21.70	Maximum Tune up Power (dBm)	18.70	21.70
Reported 1g SAR (W/kg)	0.381	0.355	Reported 1g SAR (W/kg)	0.432	0.422
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	74.13	73.96	Frame Averaged (mW)	74.13	73.96
Linearity SAR (W/kg)	0.380		Linearity SAR (W/kg)	0.431	
% deviation from expected linearity		-6.60%	% deviation from expected linearity		-2.08%

Sensor off

NR n77 Part27Q (HPUE)-Linearity Data for Body-worn Ant4			NR n77 Part27O (HPUE)-Linearity Data for Body-worn Ant4		
	NR n77 (Power Class 3)	NR n77 (Power Class 2)		NR n77 (Power Class 3)	NR n77 (Power Class 2)
Maximum Tune up Power (dBm)	22.70	26.50	Maximum Tune up Power (dBm)	22.70	26.50
Reported 1g SAR (W/kg)	0.968	1.054	Reported 1g SAR (W/kg)	0.410	0.478
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	186.21	223.34	Frame Averaged (mW)	186.21	223.34
Linearity SAR (W/kg)	1.161		Linearity SAR (W/kg)	0.492	
% deviation from expected linearity		-9.22%	% deviation from expected linearity		-2.80%
NR n41(HPUE)-Linearity Data for Body worn Ant4			NR n41(HPUE)-Linearity Data for Body worn Ant6		
	NR n41 (Power Class 3)	NR n41 (Power Class 2)		NR n41 (Power Class 3)	NR n41 (Power Class 2)
Maximum Tune up Power (dBm)	23.70	27.50	Maximum Tune up Power (dBm)	26.00	27.50
Reported 1g SAR (W/kg)	0.952	1.031	Reported 1g SAR (W/kg)	0.711	0.539
Duty Cycle	100.00%	50.00%	Duty Cycle	100.00%	50.00%
Frame Averaged (mW)	234.42	281.17	Frame Averaged (mW)	398.11	281.17
Linearity SAR (W/kg)	1.142		Linearity SAR (W/kg)	0.502	
% deviation from expected linearity		-9.71%	% deviation from expected linearity		7.34%

17. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN 2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN 5GHz	Yes	Yes	Yes	Yes
3.	WWAN + WLAN 6GHz	Yes	Yes		Yes
4.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
5.	5GHz WLAN + Bluetooth	Yes	Yes	Yes	Yes
6.	6GHz WLAN + Bluetooth	Yes	Yes		Yes
7.	5GHz WLAN + 2.4GHz WLAN	Yes	Yes	Yes	Yes
8.	6GHz WLAN + 2.4GHz WLAN	Yes	Yes		Yes
9.	WWAN +5GHz WLAN + Bluetooth	Yes	Yes	Yes	Yes
10.	WWAN +6GHz WLAN + Bluetooth	Yes	Yes		Yes
11.	WWAN +5GHz WLAN + 2.4GHz WLAN	Yes	Yes	Yes	Yes
12.	WWAN +6GHz WLAN + 2.4GHz WLAN	Yes	Yes		Yes
13.	WWAN + WLAN 2.4GHz+ NFC				Yes
14.	WWAN + WLAN 5GHz+ NFC				Yes
15.	WWAN + WLAN 6GHz+ NFC				Yes
16.	WWAN + Bluetooth+ NFC				Yes
17.	5GHz WLAN + Bluetooth+ NFC				Yes
18.	6GHz WLAN + Bluetooth+ NFC				Yes
19.	5GHz WLAN + 2.4GHz WLAN+ NFC				Yes
20.	6GHz WLAN + 2.4GHz WLAN+ NFC				Yes
21.	WWAN +5GHz WLAN + Bluetooth+ NFC				Yes
22.	WWAN +6GHz WLAN + Bluetooth+ NFC				Yes
23.	WWAN +5GHz WLAN + 2.4GHz WLAN+ NFC				Yes
24.	WWAN +6GHz WLAN + 2.4GHz WLAN+ NFC				Yes

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. WWAN above includes 5G NR bands and EN-DC combination.
3. WLAN2.4GHz/WLAN5GHz/6GHz MIMO SAR can represent SISO SAR to do co-located SAR analysis.
4. EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
5. For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed SAR exposure limit. Therefore, simultaneous transmission compliance between 4G+5G NR operations within an antenna group is demonstrated in the Part 2 Report during algorithm validation.
6. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
7. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only). WLAN 6GHz has no hotspot function.
8. According to the EUT characteristic, WLAN 5GHz/6GHz and Bluetooth can transmit simultaneously.
9. According to the EUT characteristic, WLAN 5GHz/6GHz and WLAN 2.4GHz can transmit simultaneously.
10. According to the EUT characteristic, when WLAN 2.4GHz and Bluetooth cannot transmit simultaneously.
11. According to the EUT characteristic, WLAN 5GHz and WLAN 6GHz can't transmit simultaneously.
12. Bluetooth BR/EDR supports Beamforming mode, so Bluetooth BR/EDR standalone SAR summed together as Bluetooth BR/EDR Beamforming SAR.
13. NFC can transmit simultaneously with other Radios in extremity exposure condition.
14. The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
15. When stand-alone SAR is not required for a transmitter or antenna, its SAR is considered zero in the SAR summing process to assess Multi-band transmission SAR compliance.
16. For standalone WWAN, always choose the highest SAR among all WWAN bands within the selected antenna for

- each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each band.
17. The equipment under test (EUT) contains the Qualcomm modems supporting 2G/3G/4G/5G technologies and WLAN/BT technologies. these modems are always enabled with Qualcomm Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure follows the FCC requirement. Smart Transmit algorithm controls the total RF exposure from all WWAN/WLAN/BT to not exceed FCC limit and each antenna group has controlled the total RF exposure from all transmitter to not exceed FCC limit. Therefore, in Part.1 report, it is evaluated whether the sum of the groups of each antenna does not exceed FCC limit or spatial separation is applied. In addition, each antenna needs to satisfy simultaneous transmission analysis with External radios (NFC) in this report at extremity exposure condition.
 18. The maximum SAR summation is calculated based on the same configuration and test position.
 19. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - ii) $SPLSR = (SAR1 + SAR2)^{1.5} / (\text{min. separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - iii) If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
 - iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR 4.0W/kg.
 - v) The SPLSR calculated results please refer to section 17.8.
 20. Since the WPT will only operate on body condition, therefore, WPT transmit with WWAN/WLAN/BT only consider at hotspot / body-worn/extremity conditions, the further Sim-Tx analysis include in section 17.7.

17.1 MIMO SAR Test condition and verification

General Note:

- Smart Transmit EFS v20 (or lower) uses SISO Plimit to calculate RF exposure from MIMO transmission scenario. Therefore, if MIMO is supported for WWAN technologies (including 5G sub6 NR), below procedure should be performed for validity of Smart Transmit operation:
 - Below procedure should also be performed for Smart Transmit EFS v21 (or higher) if MIMO Plimit is not populated in the EFS but MIMO operation is supported for antennas belonging to the same antenna group (refer to Section 4.2.5 of Qualcomm's document 80-W2112-4).
- Measure SAR for supported MIMO scenarios in FTM mode with each of the MIMO antennas set to transmit continuously at $P_{test} = \text{minimum } \{P_{limit}(i), P_{max}(i); i=1 \text{ to } n \text{ MIMO antennas}\}$, where $P_{limit}(i)$ is the power level entered in the Smart Transmit EFS for antenna i under the corresponding tech/band/DSI. For Smart Transmit to ensure the compliance in MIMO transmission scenario, the below criteria should be met for measured MIMO SAR (i.e., highest peak spatial-average SAR from the measurement):

$$\text{reported } SAR_{MIMO} = \text{Measured MIMO } SAR_{MIMO} \text{ at } (P_{test} + \text{device total uncertainty}) \leq \text{calc. SAR}$$

$$\text{Where } \text{calc. SAR} = \sum_{i=1}^n \left[SAR_design_target * 10^{\left(\frac{\text{total uncertainty} + P_{test} - P_{limit}(i) - \text{backoff}(i)}{10} \right)} \right]$$

Here,

- n is number of MIMO antennas (in case of 2x2MIMO, $n=2$).
 - $P_{limit}(i)$ is EFS P_{limit} for antenna $i \in$ MIMO for a given tech/band/DSI. P_{limit} corresponds to SAR_design_target .
 - $backoff(i)$ is backoff from SAR_design_target used for the i th antenna's P_{limit} to meet TER with external radios (i.e., radios outside of Smart Transmit control). If EFS P_{limit} of antenna i corresponds to SAR_design_target , then $backoff(i) = 0$ in the above equation.
 - P_{test} (i.e., power level used for MIMO SAR measurement, $MIMO.SAR @ P_{test}$) = $\min \{P_{limit}(i), P_{max}(i), i = 1 \text{ to } n \text{ MIMO antenna}\}$. To further clarify, $P_{test} = \min \{P_{limit}(i), SISO.P_{max}(i), MIMO.P_{max}, i = 1 \text{ to } n \text{ antenna} \in MIMO\}$, where, P_{limit} corresponds to SAR_design_target ; $SISO.P_{max}$ and $MIMO.P_{max}$ correspond to the maximum output power (nominal levels without device uncertainty) that device is capable; here, P_{test} is nominal power level, not measured level.
- If the $\text{reported } SAR_{MIMO}$ does not meet the above condition, then $P_{limit}(i)$ for each of the MIMO antenna in the Smart Transmit EFS should be reduced by $10 * \log_{10}[\text{reported } SAR_{MIMO} / \text{calc. SAR}]$ dB.
 - This test is not needed if MIMO antennas are in different AGs.
 - Per Qualcomm's document guideline, WLAN MIMO Plimit is configured in the EFS and WLAN MIMO antennas belong to the same antenna group, then SAR measurement results at MIMO Plimit for the corresponding WLAN MIMO transmission scenario can be referred to section 16 in this report.
 - Per Qualcomm's document guideline, FR1/BT MIMO Plimit is not populated in the EFS file, but MIMO operation is supported for antennas belonging to the same antenna group, the detail FR1/BT MIMO analysis results please referred to appendix H.

17.2 Sub6 Antenna Groups

The Qualcomm® Smart Transmit™ Plus of Smart Transmit (GEN2) Feature operates based on pre-defined sub6 antenna groups (AG). Sub6 Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG. This is accomplished by demonstrating below conditions for all exposure positions under each DSI for a given exposure category.

- 1) Case 1: Demonstrate that Sum of maximum reported SAR from each of the sub6 AGs and the reported normalized SAR values from radios outside Smart Transmit should be less than regulatory limits for each supported DSI. This condition must be demonstrated for all antenna combinations of sub6 AGs.
 - i. For a given DSI, obtain the highest *reported* SAR for each antenna out of all supported technologies and frequency bands. Obtain the maximum *reported* SAR for each AG by taking the maximum out of *reported* SAR for all antennas belonging to each AG.
 - ii. Demonstrate that the sum of maximum reported SAR (normalized to regulatory limit) from each of the sub6 AGs and the sum of reported SAR (normalized to regulatory limit) from all supported radios outside of Smart Transmit should be less than 1.0
- 2) Case 2: If the Case 1 is NOT met, then for a given antenna grouping scheme plus external radios/antennas (ERs) (referred to as 'configuration'), demonstrate all AG pairs, all ER pairs and all (AG, ER) pairs in the configuration meet SPLSR criteria (Section 4.3.2 (c) in FCC KDB 447498 D01 v06) for each exposure position under each supported DSI. For a given exposure position under a given DSI, prove all AG pairs, all ER pairs and all (AG, ER) pairs (if there are external radios outside Smart Transmit) in the configuration meet SPLSR.

This device supports two sub6 AG: AG0 and AG1, the detailed please refer to the below table:

Antenna Group 0 (AG0)	ANT1 & ANT4& ANT5& ANT7 & ANT8 & ANT10 & ANT14 & ANT15 & ANT19
Antenna Group 1 (AG1)	ANT0 & ANT6

- 3) This model's multi_Tx_factor is 1.0.

The conditions are verified through the following criterias:

- i) (SAR1 + SAR2 criteria): If SPLSR criteria is not used, then the highest reported SAR at *Plimit* for each antenna should be obtained out of all supported technologies and frequency bands for each DSI. Demonstrate that the sum of reported SAR of one antenna from each of the sub6 AGs and the sum of RF exposure from all supported radios outside of Smart Transmit should be less than the regulatory limit as given below for each DSI.
 1. Obtain the worst-case reported SAR for each antenna group (i.e., maximum *reported* SAR at *Plimit* out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and obtain the worst-case RF exposure for each external radio, and demonstrate that the sum of these RF exposures meets: $\{ [\text{max.SAR.AG0} + \text{max.SAR.AG1}] + \text{each external radio worst-case reported SAR (ex: NFC)} \} \leq 1.6$ (for 1g, or 4.0 for 10g). (each external radio worst-case reported SAR is the worst SAR in all combinations of each external radio simultaneous transmission).
- ii) (SPLSR criteria): For each antenna, obtain the highest reported SAR value at *Plimit* out of all supported technologies for each frequency band. Using these values, demonstrate for a given DSI that every antenna from one sub6 AG meets SPLSR criteria with every antenna in another sub6 AG for all frequency bands. This criteria must be demonstrated for all antenna pair combinations irrespective of supported simultaneous transmission scenarios as given below for each DSI:
 - a. SPLSR criteria should be met for all antenna pair combinations of AG0 and AG1. As it can be seen, these include all combinations of antenna groups, antennas, and frequency bands.
 - b. Obtain combined SAR per AG: Obtain the worst-case conservative combined SAR and its peak location for each AG.
 - c. Use the 'closest' peak location out of all antennas of AGj to evaluate SPLSR with other AGs in the configuration. Note, by 'closest', select the peak location out of all antennas (ε AGj) that is closest to the peak location of other AG where SPLSR is evaluated.
- iii) (combination of SPLSR SAR1+SAR2 criteria): If SPLSR criteria for all the combinations of sub6g antenna groups in (i) is demonstrated to show that each AG is mutually exclusive from other AGs, and if the WIFI/BT antennas supported outside of Smart Transmit do not meet SPLSR criteria, then the condition in (ii) reduces to: $\{\text{max.SAR.AG0} + \text{worst-case reported SAR}\} \leq 1.6$ and $\{\text{max.SAR.AG1} + \text{worst-case reported SAR}\} \leq 1.6$ for compliance demonstration (for 1g, or 4.0 for 10g).
- iv) Obtain the worst-case reported SAR for each antenna group, (i.e., maximum *reported* SAR at *Plimit* out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and WIFI/BT antennas supported Smart Transmit technology and there is no other radios in this report, and demonstrate that the sum of these RF exposures meets: $\{ [\text{max.SAR.AG0} + \text{max.SAR.AG1}] \} \leq 1.6$ (for 1g, or 4.0 for 10g).

For summed SAR results and SPLSR detailed analysis please refer to section 17.3 / 17.4 / 17.5 / 17.6/ 17.7/ 17.8 of this report. All of the combinations of sub6 antenna groups are sufficient to show that AG0 is mutually exclusive from AG1

and that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

17.3 Head Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

<AG0 maximum reported SAR>:

Test Position	Ant1	Ant4	Ant5	Ant7	Ant10	Ant19	WLAN2.4GHz Ant7	WLAN2.4GHz Ant14	WLAN2.4GHz Ant7+14	WLAN5GHz Ant8+15	WLAN6GHz Ant8+15	BT Ant7	BT Ant14	MAX
Right Cheek	0.742	1.056	1.093	0.915	0.078	0.687	0.330	0.453	0.508	0.564	0.229	0.201	0.360	1.093
Right Tilted	0.143	1.042	0.382	0.190	0.073	0.148	0.089	0.495	0.518	0.624	0.243	0.002	0.382	1.042
Left Cheek	1.091	0.560	0.571	1.087	0.224	1.091	0.590	0.891	0.966	1.015	0.525	0.336	0.617	1.091
Left Tilted	0.173	0.691	0.162	0.441	0.137	0.314	0.177	0.988	0.939	0.994	1.094	0.103	0.700	1.094

<AG1 maximum reported SAR>:

Test Position	Ant0	Ant6	MAX
Right Cheek	0.362	0.235	0.362
Right Tilted	0.198	0.109	0.198
Left Cheek	0.251	0.184	0.251
Left Tilted	0.144	0.101	0.144

<Simultaneous Transmission analysis of AG0 + AG1 Worse-case>:

Test Position	AG0	AG1	AG0+AG1
Right Cheek	1.093	0.362	1.46
Right Tilted	1.042	0.198	1.24
Left Cheek	1.091	0.251	1.34
Left Tilted	1.094	0.144	1.24

17.4 Hotspot Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

<AG0 maximum reported SAR>:

Test Position	Ant1	Ant4	Ant5	Ant7	Ant10	Ant19	WLAN2.4GHz Ant7	WLAN2.4GHz Ant14	WLAN2.4GHz Ant7+14	WLAN5GHz Ant8+15	BT Ant7	BT Ant14	MAX
Front	0.689	0.277	0.296	0.320	0.030	0.175	0.279	0.292	0.316	0.335	0.091	0.138	0.689
Back	0.766	0.442	0.470	0.459	0.509	0.499	0.386	0.425	0.523	0.633	0.110	0.005	0.766
Left Side	1.034	0.203	0.749	0.028	0.033	0.002	0.001	0.073	0.054	0.164	0.001	0.005	1.034
Right Side	0.062	0.065	0.079	0.725	0.076	0.160	0.621	0.091	0.600	0.671	0.180	0.196	0.725
Top Side	0.002	0.641	0.123	0.136	0.039	0.051	0.084	0.651	0.513	0.709	0.001	0.233	0.709
Bottom Side	0.002	0.023	0.075	0.033	0.024	0.068	0.001	0.001	0.001	0.093	0.001	0.005	0.093

<AG1 maximum reported SAR>:

Test Position	Ant0	Ant6	MAX
Front	0.344	0.316	0.344
Back	0.407	0.381	0.407
Left Side	0.207	0.187	0.207
Right Side	0.528	0.089	0.528
Top Side	0.001	0.001	0.001
Bottom Side	0.233	0.551	0.551

<Simultaneous Transmission analysis of AG0 + AG1 Worse-case>:

Test Position	AG0	AG1	AG0+AG1
Front	0.689	0.344	1.03
Back	0.766	0.407	1.17
Left Side	1.034	0.207	1.24
Right Side	0.725	0.528	1.25
Top Side	0.709	0.001	0.71
Bottom Side	0.093	0.551	0.64

17.5 Body-Worn Accessory Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

<AG0 maximum reported SAR>:

Test Position	Ant1	Ant4	Ant5	Ant7	Ant10	Ant19	WLAN2.4GHz Ant7	WLAN2.4GHz Ant14	WLAN2.4GHz Ant7+14	WLAN5GHz Ant8+15	WLAN6GHz Ant8+15	BT Ant7	BT Ant14	MAX
Front	1.027	1.073	0.915	0.943	0.040	0.489	0.759	0.772	0.959	1.085	0.202	0.221	0.274	1.085
Back	0.607	0.350	0.330	0.352	0.257	0.339	0.292	0.200	0.386	0.401	0.101	0.087	0.003	0.607
Back1	1.090	1.052	1.075	1.093	1.066	1.087	0.740	0.733	1.071	1.077	0.270	0.207	0.303	1.093

<AG1 maximum reported SAR>:

Test Position	Ant0	Ant6	MAX
Front	0.666	0.813	0.813
Back	0.631	0.909	0.909
Back1	0.765	1.010	1.010

<Simultaneous Transmission analysis of AG0 + AG1 Worse-case>:

Test Position	AG0	AG1	AG0+AG1
Front	1.085	0.813	1.90
Back	0.607	0.909	1.52
Back1	1.093	1.010	2.10

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Front 5mm				
Ant combination	AG1	AG0	AG0+AG1	SPLSR
	SAR	SAR		
Ant0-Ant1	0.666	1.027	1.69	1
Ant0-Ant4	0.666	1.073	1.74	2
Ant0-Ant5	0.666	0.915	1.58	
Ant0-Ant7	0.666	0.943	1.61	3
Ant0-Ant10	0.666	0.040	0.71	
Ant0-Ant19	0.666	0.489	1.16	
Ant0-WLAN2.4GHz Ant7	0.666	0.759	1.43	
Ant0-WLAN2.4GHz Ant14	0.666	0.772	1.44	
Ant0-WLAN2.4GHz Ant7+14	0.666	0.959	1.63	4
Ant0-WLAN5GHz Ant8+15	0.666	1.085	1.75	5
Ant0-WLAN6GHz Ant8+15	0.666	0.202	0.87	
Ant0-BT Ant7	0.666	0.221	0.89	
Ant0-BT Ant14	0.666	0.274	0.94	
Ant6-Ant1	0.813	1.027	1.84	6
Ant6-Ant4	0.813	1.073	1.89	7
Ant6-Ant5	0.813	0.915	1.73	8
Ant6-Ant7	0.813	0.943	1.76	9
Ant6-Ant10	0.813	0.040	0.85	
Ant6-Ant19	0.813	0.489	1.30	
Ant6-WLAN2.4GHz Ant7	0.813	0.759	1.57	
Ant6-WLAN2.4GHz Ant14	0.813	0.772	1.59	
Ant6-WLAN2.4GHz Ant7+14	0.813	0.959	1.77	10
Ant6-WLAN5GHz Ant8+15	0.813	1.085	1.90	11
Ant6-WLAN6GHz Ant8+15	0.813	0.202	1.02	
Ant6-BT Ant7	0.813	0.221	1.03	
Ant6-BT Ant14	0.813	0.274	1.09	



Back1 5mm				
Ant combination	AG1	AG0	AG0+AG1	SPLSR
	SAR	SAR		
Ant0-Ant1	1.093	1.090	2.18	14
Ant0-Ant4	1.093	1.052	2.15	15
Ant0-Ant5	1.093	1.075	2.17	16
Ant0-Ant7	1.093	1.093	2.19	17
Ant0-Ant10	1.093	1.066	2.16	18
Ant0-Ant19	1.093	1.087	2.18	19
Ant0-WLAN2.4GHz Ant7	1.093	0.740	1.83	20
Ant0-WLAN2.4GHz Ant14	1.093	0.733	1.83	21
Ant0-WLAN2.4GHz Ant7+14	1.093	1.071	2.16	22
Ant0-WLAN5GHz Ant8+15	1.093	1.077	2.17	23
Ant0-WLAN6GHz Ant8+15	1.093	0.270	1.36	
Ant0-BT Ant7	1.093	0.207	1.30	
Ant0-BT Ant14	1.093	0.303	1.40	
Ant6-Ant1	1.010	1.090	2.10	24
Ant6-Ant4	1.010	1.052	2.06	25
Ant6-Ant5	1.010	1.075	2.09	26
Ant6-Ant7	1.010	1.093	2.10	27
Ant6-Ant10	1.010	1.066	2.08	28
Ant6-Ant19	1.010	1.087	2.10	29
Ant6-WLAN2.4GHz Ant7	1.010	0.740	1.75	30
Ant6-WLAN2.4GHz Ant14	1.010	0.733	1.74	31
Ant6-WLAN2.4GHz Ant7+14	1.010	1.071	2.08	32
Ant6-WLAN5GHz Ant8+15	1.010	1.077	2.09	33
Ant6-WLAN6GHz Ant8+15	1.010	0.270	1.28	
Ant6-BT Ant7	1.010	0.207	1.22	
Ant6-BT Ant14	1.010	0.303	1.31	

<Sensor Off>

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

<AG0 maximum reported SAR>:

Test Position	Ant4	MAX
Front	1.008	1.008
Back	1.076	1.076

<AG1 maximum reported SAR>:

Test Position	Ant0	Ant6	MAX
Front	0.336	0.904	0.904
Back	0.451	1.026	1.026

<Simultaneous Transmission analysis of AG0 + AG1 Worse-case>:

Test Position	AG0	AG1	AG0+AG1
Front	1.008	0.904	1.91
Back	1.076	1.026	2.10

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Front 10mm				
Ant combination	AG1	AG0	AG0+AG1	SPLSR
	SAR	SAR		
Ant0-Ant4	0.336	1.008	1.34	
Ant6-Ant4	0.904	1.008	1.91	1

Back 10mm				
Ant combination	AG1	AG0	AG0+AG1	SPLSR
	SAR	SAR		
Ant0-Ant4	0.451	1.076	1.53	
Ant6-Ant4	1.026	1.076	2.10	2

17.6 Product specific 10g SAR Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.
Simultaneous Transmission Evaluation of WWAN+WLAN+BT + NFC:
<AG0 maximum reported SAR>:

Test Position	WLAN5GHz Ant8+15	MAX
Front	1.537	1.537
Back	0.225	0.225
Back 1	0.377	0.377
Back Right	2.241	2.241
Back Top	1.692	1.692
Left Side	0.126	0.126
Right Side	2.264	2.264
Top Side	1.680	1.680
Bottom Side	0.037	0.037

<Simultaneous Transmission analysis of AG0 + AG1 + NFC Worse-case>:

Test Position	AG0	AG1	NFC	AG0+AG1+NFC
Front	1.537		0.001	1.54
Back	0.225		0.017	0.24
Back 1	0.377		0.014	0.39
Back 2			0.013	0.01
Back Right	2.241			2.24
Back Top	1.692			1.69
Left Side	0.126		0.001	0.13
Right Side	2.264		0.001	2.27
Top Side	1.680		0.001	1.68
Bottom Side	0.037		0.001	0.04

17.7 Total Exposure Ratio

<Total exposure ratio>

Max 1g SAR	WPT SAR	TER
(W/Kg)	(W/Kg)	Reported SAR/1.6 + WPT SAR /1.6 Summation
1.59	0.000001190	0.994

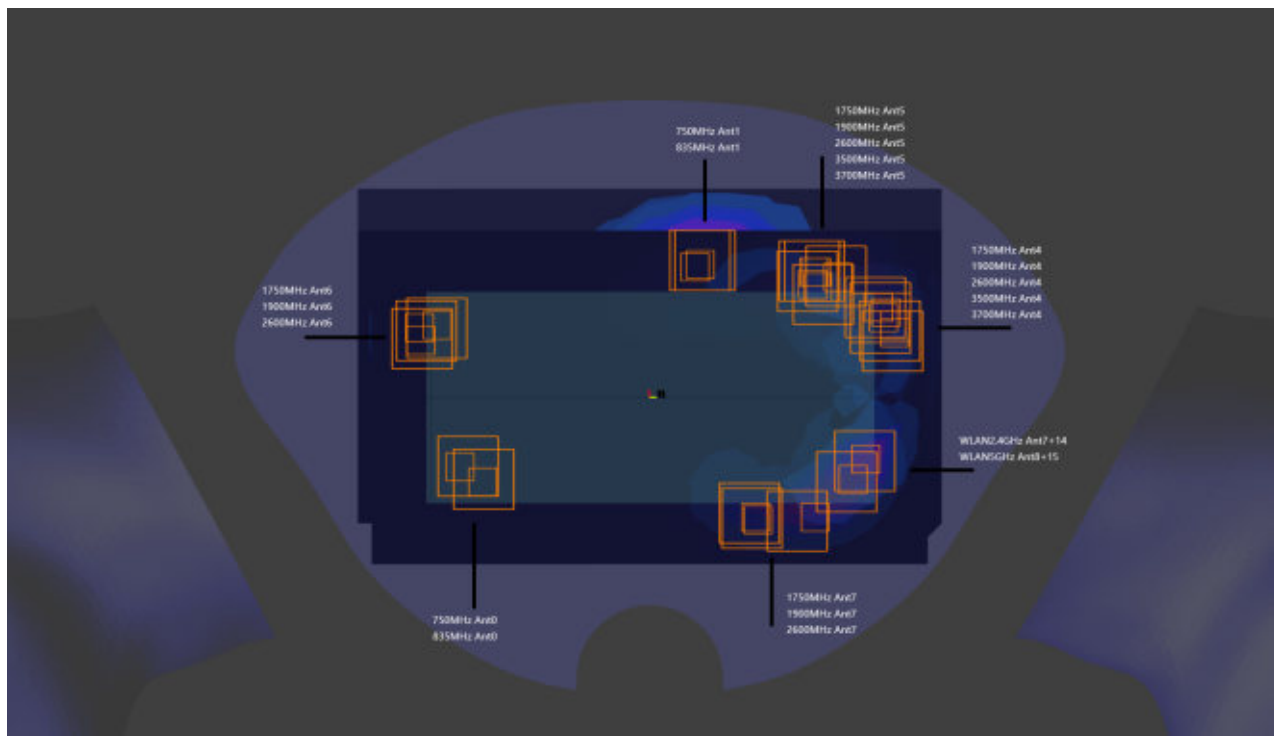
Max 10g SAR	WPT SAR	TER
(W/Kg)	(W/Kg)	Reported SAR/4.0 + WPT SAR /4.0 Summation
2.27	0.000000794	0.566

Remark: WPT SAR value is from another WPT SAR report which is submitted separately.

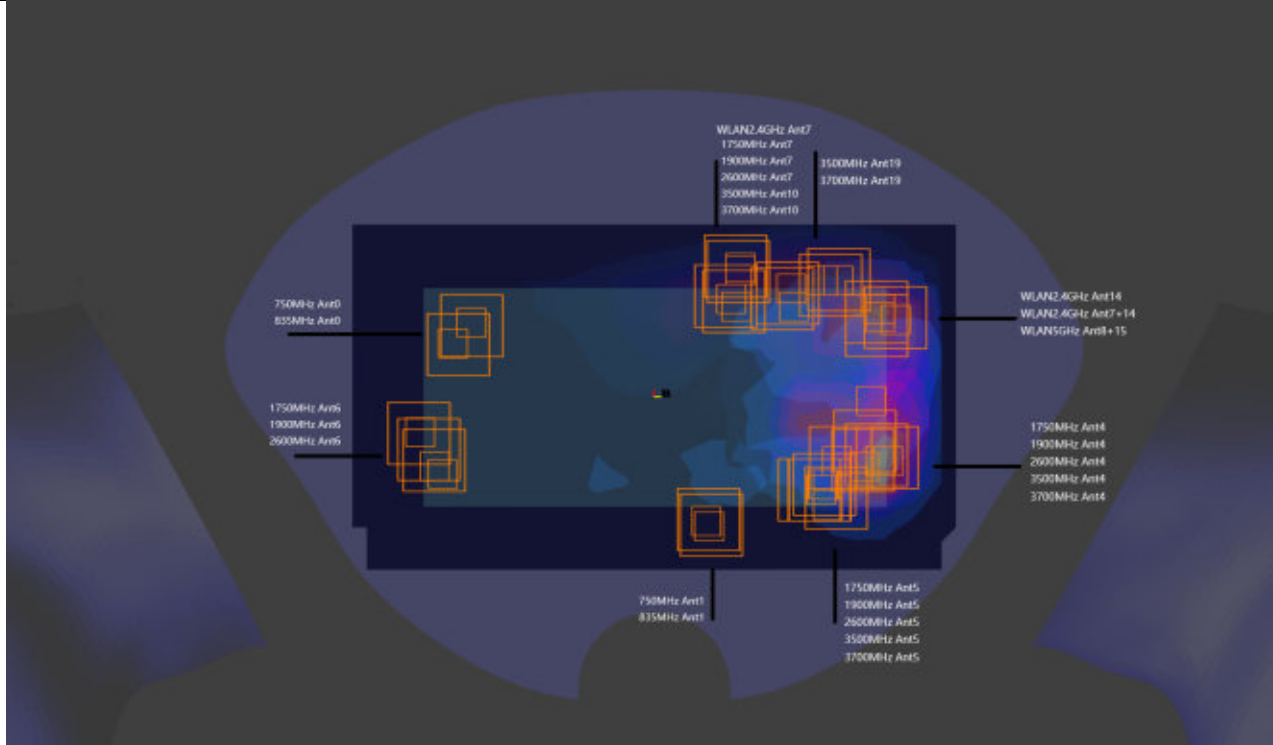
17.8 SPLSR Evaluation and Analysis

General Note:

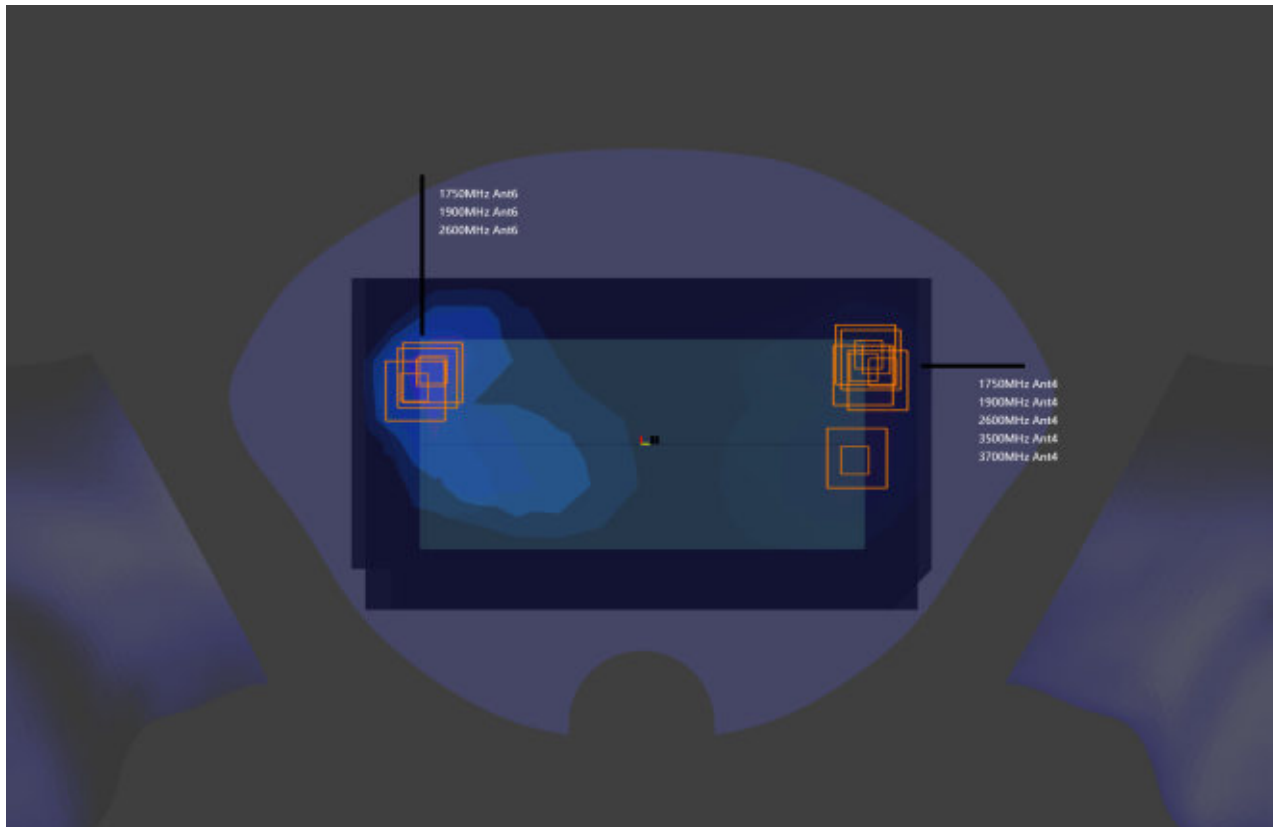
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. $SPLSR = (SAR_1 + SAR_2)1.5 / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$ for 1g SAR, simultaneously transmission SAR measurement is not necessary.
3. Per April 2022 TCB Workshop Notes, AG0 was summed algebraically with the WIFI Antenna 7/8/14/15 for the purposes of hybrid SPLSR combination and they are located at the top of the device.
4. Per April 2022 TCB Workshop, instead of doing a small volume scan over a co-located antenna pair, used summing the SAR values of the co-located pair and using that value in SPLSR calculation. In the calculation used the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.
5. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.
6. The axis peak locations refer to Section 17.9.



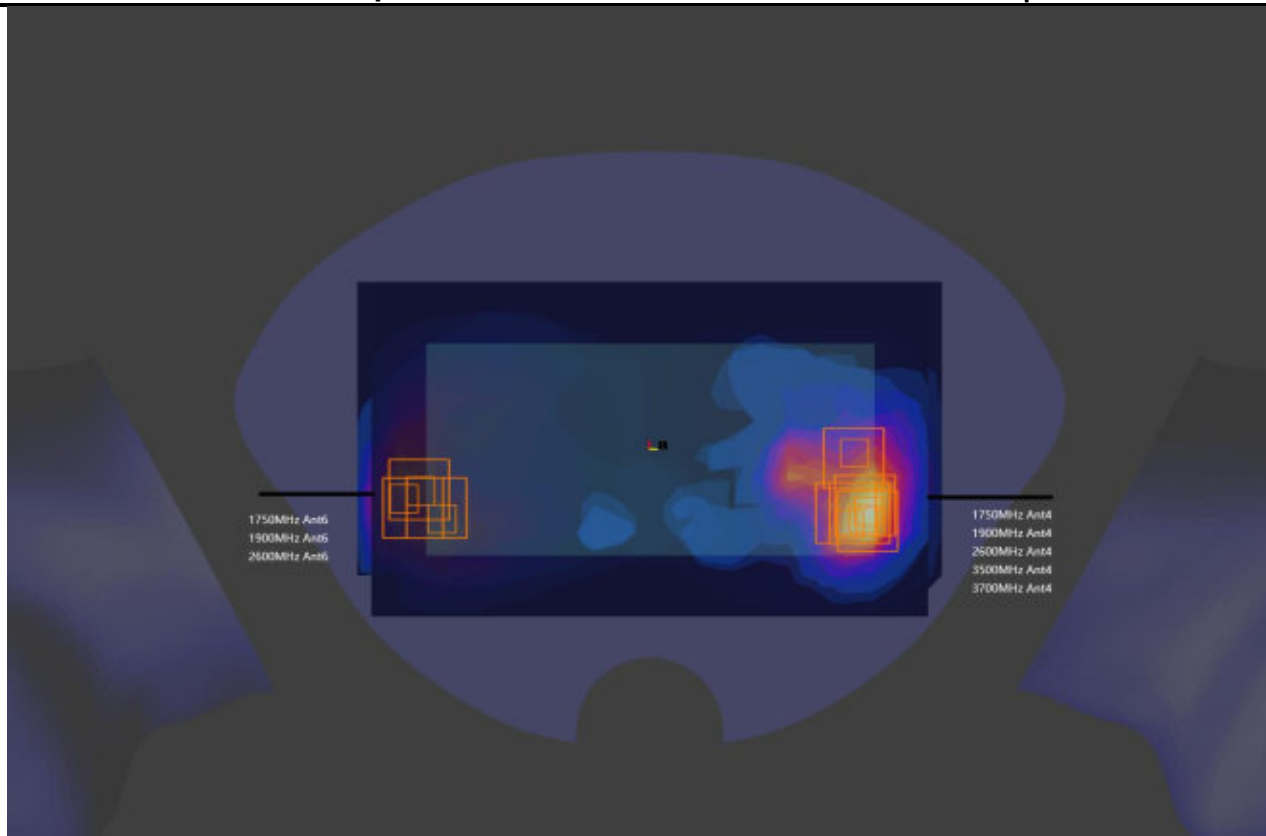
Body-worn WWAN+WWAN+BT Front 5mm



Body-worn WWAN+WWAN+BT Back1 5mm



Body-worn WWAN+WWAN+BT Front 10mm


Body-worn WWAN+WWAN+BT Back 10mm
<Body-worn>

No.1	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Front	0.666	1.69	5mm	1.8	-56.3	-204	102.3	1.69	0.02	Not required
Ant1		1.027		5mm	-71.5	15	-204				
No.2	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Front	0.666	1.74	5mm	3.2	-55.5	-204	146.2	1.74	0.02	Not required
Ant4		1.073		5mm	-51.2	80.2	-204				
No.3	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Front	0.666	1.61	5mm	3.2	-55.5	-204	94.2	1.61	0.02	Not required
Ant7		0.943		5mm	16.3	37.8	-204				
No.4	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Front	0.666	1.63	5mm	3.2	-55.5	-204	126.5	1.63	0.02	Not required
WLAN2.4GHz Ant7+14		0.959		5mm	6	71	-204				
No.5	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Front	0.666	1.75	5mm	3.2	-55.5	-204	133.7	1.75	0.02	Not required
WLAN5GHz Ant8+15		1.085		5mm	-2	78.1	-207				
No.6	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Front	0.813	1.84	5mm	-52	-75	-204	92.1	1.84	0.03	Not required
Ant1		1.027		5mm	-71.5	15	-204				
No.7	Position	SAR 1g	Summed	Gap	SAR peak location (mm)			3D	Summed	SPLSR	Simultaneous



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		SAR (W/kg)			X	Y	Z	distance (mm)	SAR (W/kg)		
Ant6	Front	0.813	1.89	5mm	-52	-75	-204	155.0	1.89	0.02	Not required
Ant4		1.073		5mm	-55	80	-204				
No.8	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Front	0.813	1.73	5mm	-52	-75	-204	134.7	1.73	0.02	Not required
Ant5		0.915		5mm	-70	58.5	-204				
No.9	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Front	0.813	1.76	5mm	-52	-75	-204	131.9	1.76	0.02	Not required
Ant7		0.943		5mm	16.3	37.8	-204				
No.10	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Front	0.813	1.77	5mm	-52	-75	-204	157.1	1.77	0.02	Not required
WLAN2.4GHz Ant7+14		0.959		5mm	6	71	-204				
No.11	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Front	0.813	1.90	5mm	-52	-75	-204	161.1	1.90	0.02	Not required
WLAN5GHz Ant8+15		1.085		5mm	-2	78.1	-207				

No.14	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.18	5mm	-49	-64.5	-204	102.0	2.18	0.03	Not required
Ant1		1.090		5mm	12.2	17	-207				
No.15	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.15	5mm	-49	-64.5	-204	133.1	2.15	0.02	Not required
Ant4		1.052		5mm	-7.7	62	-207				
No.16	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.17	5mm	-49	-64.5	-204	130.6	2.17	0.02	Not required
Ant5		1.075		5mm	9	52.5	-207				
No.17	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.19	5mm	-61.2	-65.4	-207	94.2	2.19	0.03	Not required
Ant7		1.093		5mm	-68.5	28.5	-207				
No.18	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.16	5mm	-49	-64.5	-204	92.4	2.16	0.03	Not required
Ant10		1.066		5mm	-58.7	27.3	-207				
No.19	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.18	5mm	-61.2	-65.4	-207	104.9	2.18	0.03	Not required
Ant19		1.087		5mm	-61.5	39.5	-207				
No.20	Position	SAR 1g SAR	Summed	Gap	SAR peak location (mm)			3D distance	Summed SAR	SPLSR Results	Simultaneous SAR



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		(W/kg)			X	Y	Z	(mm)	(W/kg)		
Ant0	Back1	1.093	1.83	5mm	-61.2	-65.4	-207	112.7	1.83	0.02	Not required
WLAN2.4GHz Ant7		0.740		5mm	-69.5	47	-207				
No.21	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	1.83	5mm	-49	-64.5	-204	143.6	1.83	0.02	Not required
WLAN2.4GHz Ant14		0.733		5mm	-53	79	-204				
No.22	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.16	5mm	-49	-64.5	-204	149.5	2.16	0.02	Not required
WLAN2.4GHz Ant7+14		1.071		5mm	-51	85	-207				
No.23	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back1	1.093	2.17	5mm	-49	-64.5	-204	149.9	2.17	0.02	Not required
WLAN5GHz Ant8+15		1.077		5mm	-47.3	85.4	-207				
No.24	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.10	5mm	-7.7	-79.4	-207	98.4	2.10	0.03	Not required
Ant1		1.090		5mm	12.2	17	-207				
No.25	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.06	5mm	-7.7	-79.4	-207	140.4	2.06	0.02	Not required
Ant4		1.052		5mm	-2.8	60.9	-207				
No.26	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.09	5mm	-7.7	-79.4	-207	133.0	2.09	0.02	Not required
Ant5		1.075		5mm	9	52.5	-207				
No.27	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.10	5mm	-13	-80.5	-207	122.3	2.10	0.02	Not required
Ant7		1.093		5mm	-68.5	28.5	-207				
No.28	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.08	5mm	-13	-80.5	-207	117.1	2.08	0.03	Not required
Ant10		1.066		5mm	-58.7	27.3	-207				
No.29	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.10	5mm	-13	-80.5	-207	129.4	2.10	0.02	Not required



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Ant19		1.087		5mm	-61.5	39.5	-207				
No.30	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	1.75	5mm	-13	-80.5	-207	139.5	1.75	0.02	Not required
WLAN2.4GHz Ant7		0.740		5mm	-69.5	47	-207				
No.31	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	1.74	5mm	-13	-80.5	-207	164.5	1.74	0.01	Not required
WLAN2.4GHz Ant14		0.733		5mm	-53	79	-204				
No.32	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.08	5mm	-13	-80.5	-207	169.8	2.08	0.02	Not required
WLAN2.4GHz Ant7+14		1.071		5mm	-51	85	-207				
No.33	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back1	1.010	2.09	5mm	-13	-80.5	-207	169.4	2.09	0.02	Not required
WLAN5GHz Ant8+15		1.077		5mm	-47.3	85.4	-207				

<Sensor Off>

No.1	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Front	0.904	1.91	10mm	-52	-75	-204	151.6	1.91	0.02	Not required
Ant4		1.008		10mm	-47.5	76.5	-204				

No.2	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant6	Back	1.026	2.10	10mm	-13	-79	-204	133.1	2.10	0.02	Not required
Ant4		1.076		10mm	-16.5	54	-207				



17.9 Maximum Reported SAR and SAR Peak Locations

General Note:

1. The maximum reported SAR and SAR Peak Locations corresponding to each position of each frequency band of each antenna in the below tables are as follows.
2. The unit of SAR evaluation is W/kg. The unit of x, y, z with Axis evaluation is mm.

Front 5mm																			
Band		Ant0			Ant1			Ant4			Ant5			Ant6			Ant7		
GSM850	SAR	0.351			0.753														
	Axis	2.1	-65.2	-204.0	-71.5	21.0	-204.0												
GSM1900	SAR							0.574			0.756								
	Axis							-52.1	87.5	-204.0	-62.5	61.5	-204.0						
WCDMA II	SAR							0.959			0.705								
	Axis							-53.7	86.4	-204.0	-63.2	62.5	-204.0						
WCDMA IV	SAR							0.819			0.793								
	Axis							-53.7	85.2	-204.0	-65.1	61.8	-204.0						
WCDMA V	SAR	0.474			0.971														
	Axis	2.5	-63.4	-204.0	-72.1	20.0	-204.0												
LTE Band 12	SAR	0.494			1.014														
	Axis	3.2	-55.5	-204.0	-72.1	18.0	-204.0												
LTE Band 13	SAR	0.666			0.989														
	Axis	2.5	-59.8	-204.0	-71.3	21.0	-204.0												
LTE Band 26	SAR	0.511			1.027														
	Axis	3.0	-62.5	-204.0	-71.1	21.0	-204.0												
LTE Band 7	SAR							0.858			0.507			0.628			0.421		
	Axis							-51.5	82.4	-204.0	-63.4	63.7	-204.0	-50.5	-80.4	-204.0	16.3	37.8	-204.0
LTE Band 25	SAR							0.722			0.614			0.623			0.834		
	Axis							-51.8	84.7	-204.0	-65.7	61.2	-204.0	-51.8	-78.0	-204.0	17.5	41.5	-204.0
LTE Band 66	SAR							0.680			0.650			0.468			0.748		
	Axis							-52.4	83.7	-204.0	-66.3	61.5	-204.0	-50.3	-76.5	-204.0	18.1	42.1	-204.0
LTE Band 71	SAR	0.320			0.882														
	Axis	1.8	-56.3	-204.0	-70.5	18.0	-204.0												
LTE Band 41	SAR							0.902			0.892			0.545			0.589		
	Axis							-55.0	83.2	-204.0	-62.5	65.0	-204.0	-48.5	-78.5	-204.0	16.8	41.8	-204.0
LTE Band 42	SAR							0.685			0.290								
	Axis							-51.2	80.2	-204.0	-58.0	61.8	-204.0						
LTE Band 48	SAR							1.073			0.689								
	Axis							-49.5	83.5	-207.0	-60.0	62.1	-204.0						
FR1 n12	SAR	0.521			1.015														
	Axis	3.5	-58.5	-204.0	-71.5	15.0	-204.0												
FR1 n26	SAR	0.552			0.914														
	Axis	0.5	-69.0	-204.0	-71.5	24.3	-204.0												
FR1 n7	SAR							0.812			0.527			0.730			0.851		
	Axis							-55.0	80.0	-204.0	-70.5	61.5	-207.0	-45.0	-81.0	-204.0	16.0	40.0	-204.0
FR1 n25	SAR							0.881			0.834			0.653			0.922		
	Axis							-52.0	87.0	-204.0	-70.0	58.5	-204.0	-50.5	-84.0	-204.0	18.5	43.5	-204.0
FR1 n66	SAR							0.907			0.915			0.631			0.943		
	Axis							-53.5	87.0	-204.0	-68.5	60.0	-204.0	-52.0	-75.0	-204.0	18.5	43.5	-204.0
FR1 n71	SAR	0.204			0.900														
	Axis	2.0	-58.5	-204.0	-71.5	28.5	-204.0												
FR1 n41	SAR							0.481			0.837			0.813			0.789		
	Axis							-56.0	86.0	-204.0	-67.0	69.0	-204.0	-47.5	-80.5	-204.0	17.5	42.1	-204.0
FR1 n48	SAR							0.986			0.854								
	Axis							-51.5	86.0	-207.0	-65.0	60.0	-204.0						
FR1 n77	SAR							1.047			0.761								



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	Axis									-54.5	86.0	-207.0	-65.0	59.0	-204.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Back1 5mm																			
Band		Ant0			Ant1			Ant4			Ant5			Ant6			Ant7		
GSM850	SAR	0.445			1.085														
	Axis	-65.3	-66.0	-207.0	15.5	24.5	-207.0												
GSM1900	SAR							0.640			0.948								
	Axis							-8.2	81.3	-207.0	12.0	62.5	-207.0						
WCDMA II	SAR							1.052			0.948								
	Axis							-3.0	83.0	-207.0	12.0	57.5	-207.0						
WCDMA IV	SAR							1.025			1.075								
	Axis							-7.7	62.0	-207.0	13.6	60.8	-207.0						
WCDMA V	SAR	0.670			1.043														
	Axis	-42.4	-69.6	-207.0	12.9	18.8	-207.0												
LTE Band 12	SAR	0.609			1.079														
	Axis	-56.5	-67.1	-207.0	12.9	21.8	-207.0												
LTE Band 13	SAR	0.765			0.994														
	Axis	-63.5	-67.3	-207.0	13.4	21.8	-207.0												
LTE Band 26	SAR	0.707			1.090														
	Axis	-65.3	-66.2	-207.0	12.2	17.0	-207.0												
LTE Band 7	SAR							0.881			0.527			0.903			0.654		
	Axis							-2.5	79.5	-207.0	9.5	61.5	-207.0	-12.5	-80.5	-207.0	-66.8	-47.3	-207.0
LTE Band 25	SAR							0.929			0.767			0.742			0.858		
	Axis							-7.0	80.8	-207.0	10.6	60.1	-207.0	-7.7	-79.4	-207.0	-67.2	-31.3	-207.0
LTE Band 66	SAR							0.989			0.820			0.583			0.805		
	Axis							-2.8	60.9	-207.0	10.6	60.8	-207.0	-8.4	-81.5	-207.0	-68.5	-28.5	-207.0
LTE Band 71	SAR	0.412			0.920														
	Axis	-61.2	-65.4	-207.0	13.1	20.5	-207.0												
LTE Band 41	SAR							1.016			0.925			0.852			1.093		
	Axis							-4.0	79.0	-207.0	9.5	61.5	-207.0	-13.0	-80.5	-207.0	-64.8	-49.8	-207.0
LTE Band 42	SAR							0.752			0.350						0.933		
	Axis							-3.0	79.5	-207.0	9.0	55.6	-207.0				-57.3	-29.2	-207.0
LTE Band 48	SAR							0.919			0.839						0.980		
	Axis							-1.5	79.0	-207.0	10.0	52.2	-207.0				-58.7	-27.3	-207.0
FR1 n12	SAR	0.603			1.063														
	Axis	-62.8	-67.5	-207.0	14.4	19.3	-207.0												
FR1 n26	SAR	0.720			1.016														
	Axis	-37.2	-73.1	-207.0	16.6	18.0	-207.0												
FR1 n7	SAR							0.875			0.491			0.863			1.090		
	Axis							-4.5	84.0	-207.0	14.0	60.0	-204.0	-13.5	-82.0	-207.0	-64.8	-49.3	-207.0
FR1 n25	SAR							1.004			1.008			0.807			0.982		
	Axis							-4.3	80.6	-207.0	11.6	59.3	-207.0	-8.2	-82.6	-207.0	-66.2	-37.8	-207.0
FR1 n66	SAR							1.029			1.020			0.753			0.995		
	Axis							-1.3	79.1	-207.0	13.8	57.8	-207.0	-7.1	-84.9	-207.0	-66.7	-35.8	-207.0
FR1 n71	SAR	0.247			1.012														
	Axis	-49.0	-64.5	-204.0	14.0	18.0	-207.0												
FR1 n41	SAR							0.492			1.052			1.010			1.082		
	Axis							-0.5	76.5	-207.0	14.0	61.0	-204.0	-10.5	-83.5	-207.0	-66.0	-49.2	-207.0
FR1 n48	SAR							0.687			0.918						0.625		
	Axis							-2.1	75.7	-207.0	9.0	52.5	-207.0				-57.2	-29.0	-207.0



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FR1 n77	SAR							0.701			0.926									1.066		1.071			
	Axis							-1.0	75.0	-207.0	9.0	56.0		-207.0							-59.6	28.0	-207.0	-61.5	39.5
WLAN2.4GHz Ant7	SAR	0.740				WLAN2.4GHz Ant14	SAR	0.733				WLAN2.4GHz Ant7+14	SAR	1.070											
	Axis	-69.5	47.0	-207.0			Axis	-53.0	79.0	-204.0			Axis	-51.0	85.0	-207.0									
WLAN5GHz Ant8+15	SAR	1.077																							
	Axis	-47.3	85.4	-207.0																					

<Sensor Off>

Front 10mm									
Band		Ant4			Ant6				
GSM850	SAR								
	Axis								
GSM1900	SAR	0.195							
	Axis	-51.2	83.5	-204.0					
WCDMA II	SAR	0.694							
	Axis	-51.2	82.5	-204.0					
WCDMA IV	SAR	0.537							
	Axis	-52.5	85.0	-204.0					
WCDMA V	SAR								
	Axis								
LTE Band 12	SAR								
	Axis								
LTE Band 13	SAR								
	Axis								
LTE Band 26	SAR								
	Axis								
LTE Band 7	SAR	0.835			0.529				
	Axis	-51.2	80.5	-204.0	-51.5	-81.0	-204.0		
LTE Band 25	SAR	0.619			0.733				
	Axis	-45.6	78.5	-204.0	-51.5	-76.5	-204.0		
LTE Band 66	SAR	0.535			0.729				
	Axis	-48.3	79.1	-204.0	-51.5	-76.8	-204.0		
LTE Band 71	SAR								
	Axis								
LTE Band 41	SAR	0.520			0.316				
	Axis	-52.4	81.3	-204.0	-49.5	-80.5	-204.0		
LTE Band 42	SAR	0.614							
	Axis	-48.0	81.0	-204.0					
LTE Band 48	SAR	0.574							
	Axis	-46.5	79.5	-204.0					
FR1 n12	SAR								
	Axis								
FR1 n26	SAR								
	Axis								
FR1 n7	SAR	0.618			0.459				
	Axis	-56.0	81.0	-204.0	-45.0	-81.0	-204.0		
FR1 n25	SAR	0.717			0.904				
	Axis	-47.5	76.5	-204.0	-52.0	-75.0	-204.0		
FR1 n66	SAR	0.616			0.777				
	Axis	-53.5	87.0	-204.0	-52.0	-75.0	-204.0		
FR1 n71	SAR								
	Axis								
FR1 n41	SAR	0.610			0.567				
	Axis	-55.0	87.0	-204.0	-48.0	-76.0	-204.0		
FR1 n48	SAR	1.009							
	Axis	-44.0	79.0	-204.0					



FR1 n77	SAR	0.828					
	Axis	-44.0	78.0	-204.0			

Back 10mm							
Band		Ant4			Ant6		
GSM850	SAR						
	Axis						
GSM1900	SAR	0.318					
	Axis	-5.6	81.9	-207.0			
WCDMA II	SAR	1.076					
	Axis	-2.3	83.4	-207.0			
WCDMA IV	SAR	0.977					
	Axis	-8.0	82.4	-207.0			
WCDMA V	SAR						
	Axis						
LTE Band 12	SAR						
	Axis						
LTE Band 13	SAR						
	Axis						
LTE Band 26	SAR						
	Axis						
LTE Band 7	SAR	1.010			0.665		
	Axis	0.0	80.0	-207.0	-10.5	-82.5	-204.0
LTE Band 25	SAR	0.954			0.917		
	Axis	-8.0	81.9	-207.0	-7.7	-81.9	-207.0
LTE Band 66	SAR	1.004			0.889		
	Axis	-4.5	82.3	-207.0	-6.9	-82.4	-207.0
LTE Band 71	SAR						
	Axis						
LTE Band 41	SAR	1.055			0.376		
	Axis	-0.5	78.0	-207.0	-11.0	-81.2	-204.0
LTE Band 42	SAR	0.713					
	Axis	-16.5	54.0	-207.0			
LTE Band 48	SAR	0.751					
	Axis	-5.0	73.5	-207.0			
FR1 n12	SAR						
	Axis						
FR1 n26	SAR						
	Axis						
FR1 n7	SAR	0.963			0.585		
	Axis	3.0	80.0	-207.0	-13.0	-79.0	-204.0
FR1 n25	SAR	0.997			1.026		
	Axis	-4.4	80.1	-207.0	-6.4	-80.9	-207.0
FR1 n66	SAR	1.047			0.937		
	Axis	2.9	78.9	-207.0	-4.9	-86.6	-207.0
FR1 n71	SAR						
	Axis						
FR1 n41	SAR	1.031			0.711		
	Axis	-0.5	77.5	-207.0	-10.0	-83.0	-207.0
FR1 n48	SAR	1.069					
	Axis	-1.5	79.5	-207.0			
FR1 n77	SAR	1.054					
	Axis	-1.0	79.0	-207.0			

Test Engineer : Martin Li, Varus Wang, Light Wang, Ricky Gu

18. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	$1/k^{(b)}$	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) k is the coverage factor

Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Uncertainty Budget According to IEC/IEEE 62209-1528 (Frequency band: 4 MHz - 10 GHz range)							
Error Description	Uncert. Value (±%)	Prob. Dist.	Div.	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System errors							
Probe calibration	18.6	N	2	1	1	9.3	9.3
Probe calibration drift	1.7	R	1.732	1	1	1.0	1.0
Probe linearity and detection Limit	4.7	R	1.732	1	1	2.7	2.7
Broadband signal	2.8	R	1.732	1	1	1.6	1.6
Probe isotropy	7.6	R	1.732	1	1	4.4	4.4
Other probe and data acquisition errors	2.4	N	1	1	1	2.4	2.4
RF ambient and noise	1.8	N	1	1	1	1.8	1.8
Probe positioning errors	0.006	N	1	0.5	0.5	0.0	0.0
Data processing errors	4.0	N	1	1	1	4.0	4.0
Phantom and Device Errors							
Measurement of phantom conductivity (σ)	2.5	N	1	0.78	0.71	2.0	1.8
Temperature effects (medium)	5.4	R	1.732	0.78	0.71	2.4	2.2
Shell permittivity	14.0	R	1.732	0.5	0.5	4.0	4.0
Distance between the radiating element of the DUT and the phantom medium	2.0	N	1	2	2	4.0	4.0
Repeatability of positioning the DUT or source against the phantom	1.0	N	1	1	1	1.0	1.0
Device holder effects	3.6	N	1	1	1	3.6	3.6
Effect of operating mode on probe sensitivity	2.4	R	1.732	1	1	1.4	1.4
Time-average SAR	1.7	R	1.732	1	1	1.0	1.0
Variation in SAR due to drift in output of DUT	2.5	N	1	1	1	2.5	2.5
Validation antenna uncertainty (validation measurement only)	0.0	N	1	1	1	0.0	0.0
Uncertainty in accepted power (validation measurement only)	0.0	N	1	1	1	0.0	0.0
Correction to the SAR results							
Phantom deviation from target (ϵ' , σ)	1.9	N	1	1	0.84	1.9	1.6
SAR scaling	0.0	R	1.732	1	1	0.0	0.0
Combined Std. Uncertainty						14.5%	14.4%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						29.0%	28.8%

SAR Uncertainty Budget for frequency range 4MHz to 10GHz

cDASY6 Module mmWave Uncertainty Budget Evaluation Distances to the Antennas $\lambda/2\pi$ In Compliance with IEC TR 63170					
Error Description	Uncertainty Value (±dB)	Probability	Divisor	(Ci)	Standard Uncertainty (±dB)
Uncertainty terms dependent on the measurement system					
Probe Calibration	0.49	N	1	1	0.49
Probe correction	0.00	R	1.732	1	0.00
Frequency response	0.20	R	1.732	1	0.12
Sensor cross coupling	0.00	R	1.732	1	0.00
Isotropy	0.50	R	1.732	1	0.29
Linearity	0.20	R	1.732	1	0.12
Probe scattering	0.00	R	1.732	1	0.00
Probe positioning offset	0.30	R	1.732	1	0.17
Probe positioning repeatability	0.04	R	1.732	1	0.02
Sensor mechanical offset	0.00	R	1.732	1	0.00
Probe spatial resolution	0.00	R	1.732	1	0.00
Field impedance dependence	0.00	R	1.732	1	0.00
Amplitude and phase drift	0.00	R	1.732	1	0.00
Amplitude and phase noise	0.04	R	1.732	1	0.02
Measurement area truncation	0.00	R	1.732	1	0.00
Data acquisition	0.03	N	1	1	0.03
Sampling	0.00	R	1.732	1	0.00
Field reconstruction	2.00	R	1.732	1	1.15
Forward transformation	0.00	R	1.732	1	0.00
Power density scaling	0.00	R	1.732	1	0.00
Spatial averaging	0.10	R	1.732	1	0.06
System detection limit	0.04	R	1.732	1	0.02
Uncertainty terms dependent on the DUT and environmental factors					
Probe coupling with DUT	0.00	R	1.732	1	0.0
Modulation response	0.40	R	1.732	1	0.2
Integration time	0.00	R	1.732	1	0.0
Response time	0.00	R	1.732	1	0.0
Device holder influence	0.10	R	1.732	1	0.1
DUT alignment	0.00	R	1.732	1	0.0
RF ambient conditions	0.04	R	1.732	1	0.0
Ambient reflections	0.04	R	1.732	1	0.0
Immunity / secondary reception	0.00	R	1.732	1	0.0
Drift of the DUT		R	1.732	1	
Combined Std. Uncertainty					1.34
Expanded STD Uncertainty (95%)					2.68
PD Uncertainty Budget					

19. References

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- [17] IEC TR 63170: 2018 Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz
- [18] SPEAG DASY6 Application Note (Interim Procedures for Devices Operating at 6-10 GHz)

Appendixes

Please refer to separated files for the following appendixes

Appendix A. Plots of System Performance Check

Appendix B. Plots of High SAR Measurement

Appendix C. DASY Calibration Certificate

Appendix D. Test Setup Photos

Appendix E. Conducted RF Output Power Table

Appendix F. Power measurement connection diagram and CA Conducted RF Output Power Table

Appendix G. Power reduction mechanism verification

Appendix H. Verify MIMO SAR analysis results

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