

#### May 17, 2024

# Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
Ű,	-	CW	CW	0.00	±4.7
0010	CA8	SAR Validation (Square, 100 ms, 10 ms)	Test	10.00	±9.6
0011	CAC	UMTS-FDD (WCDMA)	WCDMA	2.91	±9.6
0012	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	±9.6
6013	CAB	IEEE 802.11p WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9,46	±9.6
0021	DAG	GSM-FDD (TDMA, GMSK)	GSM	9,39	±9.6
0.023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	±9.6
0024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	19.6
0025	DAC	EDGE-FDD (TOMA, 8PSK, TN 0)	GSM	12.62	±9.6
0026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.6
0027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	±9.6
0028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6
0029	DAC	EDGE-EDD (TDMA, BPSK, TN 0-1-2)	GSM	7.78	±9.6 +9.6
0030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)			
0031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	±9.6
	CAA	and the second se	Bluetooth	1.87	±9.6
0032	and the second second	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetoath	1.16	±9.6
0033	CAA	IEEE 802.15.1 Bluetooth (PV4-DQPSK, DH1)	Bluetooth	7.74	±9.5
0034	CAA.	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	±9.0
0035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	±9.6
0036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	±9.6
0.037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	±9.6
0038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	±9.6
0.039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	±9.6
0042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	±9.6
0044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	±9.6
0048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	±9.6
0049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	±0.6
0.056	CAA	UMTS-TOD (TD-SCOMA, 1.28 Mops)	TD-SCDMA	11.01	±9.6
8700	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6
0.069	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS; 2 Mbps)	WLAN	2.12	±9.6
080.01	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	±9.6
0061	CAB	IEEE 802.11b WIFI 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	±9.6
10062	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	19.6
0.063	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	19.6
10064	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	+9.6
0.065	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	±9.6
6600	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	19.6
0.067	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 36 Mbps)	WLAN		
6900	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 48 Mbps)	WLAN	10.12	±9.5
0.069	CAE	IEEE 802.11a/h WIFI 5 GHz (OFDM, 46 Mopa)	WLAN	10.24	::9.6
0.071	CAB	IEEE 802.11g WiFI 2.4 GHz (DSSS/OFDM, 9 Mbps)	and a second	10.56	19.6
0072	CAB		WLAN	9.83	±9.6
territoria anti-	CAB	IEEE 802.11g WFI 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	±9.6
0073		IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	±8.6
0074	CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	±9.6
		IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	±9.6
0076	CAB	IEEE 802 11g WIFI 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	±9.6
0077	CAB	IEEE 802.11g WIFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11,00	±9.6
0081	CAB	CDMA2000 (1xRTT, RC3)	COMA2000	3.97	±9.6
0082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PV4-DQPSK, Fullrate)	AMPS	4,77	±9.6
0090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	±9.6
0097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	±9.6
0098	CAC	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	±9.8
0099	DAG	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6
0100	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	±9.6
0101	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
0102	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	19.6
0103	CAH	LTE-TOD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	19.6
0104	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 18-QAM)	LTE-TDD	9.97	19.6
0105	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 54-QAM)	LTE-TOD	10.01	19.6
0108	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	19.6
0109	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	8.43	±9.6
0110	CAH	LTE-FDO (SC-FDMA, 100% HB, 5 MHz, QPSK)	LTE-FDD	6.43	and the second se
0111	CAH	LTE-FDD (SC-FDMA, 100% RB, 5MHz, 16-DAM)			±9.6
	1000.014	and the fact which construct the state 10-CHWI	LTE-FDD	6.44	#9.6

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10112	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FOD	6.59	±8.6
10113	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10114	CAE	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	±9.6
0115	CAE	IEEE 802 11n (HT Greenfield, 81 Mbps, 18-QAM)	WLAN	8.46	±9.6
0116	CAE	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	±9.6
10117	CAE	IEEE 802 11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	±9.6
0118	CAE	IEEE 802 11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	29.6
0119	CAE	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	H.13	±9.6
0140	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FOD	6.49	±9.6
0141	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	±9.6
0142	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
0143	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	£9.6
0144	CAF	LTE-FDO (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	±9.6
0145	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	±9.6
0146	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	±9.6
0147	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	±9.6
0149	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
0150	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FOD	6.60	±9.6
0151	CAH	LTE-TOD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TOD	9.28	19.6
0152	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	19.6
0153	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TOD	10.05	19.6
0154	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	and the second second
0155	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	19.8 19.6
0156	CAH				and the second se
0157	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK) LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	5.79	±9.6
	CAH		LTE-FOD	6.49	±9.6
8510	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
and the second	Sector sector sector	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-DAM)	LTE-FDD	6.56	±9.6
0160	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FOD	5.82	±9.6
0161	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
0162	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FOD	6.58	±9.6
0166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, OPSK)	LTE-FDD	5.48	±9.6
0167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	±9.6
0168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	±9.6
0169	CAF	LTE-FDD (SC-FDMA, 1 RB, 20MHz, QPSK)	LTE-FDD	5.73	±9.6
0170	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 18-QAM)	LTE-FDD	6.52	±9.6
0171	AAF	LTE FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	±9.6
0172	CAH	LTE-TDO (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	±9.6
0173	CAH	LTE-TDD (SC-FOMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
0174	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10,25	±9.6
0175	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDO	5.72	±9.6
0176	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
0177	CAJ	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDO	5.73	<b>注号.6</b>
0178	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
0179	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDO	6.50	±9.6
0180	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
0181	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	±9.6
0182	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
0183	AAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	±9.8
0184	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	<b>电</b> 增生
0185	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	8.51	±9.6
0186	AAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDO	6.50	±9.6
0187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	±9.6
0188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
0189	AAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
0193		IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6
0194	CAE	and and the first second se	WLAN	8.12	±9.6
0195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	±9.6
0196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	±9.6
0197	CAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	±9.6
0198	CAE	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	±9.6
0219	CAE	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.6
0220	CAE	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	±9.6
0221	CAE	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	±9.6
0.222	CAE	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	±9.6
0223	CAE	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	±9.6
0224	CAE	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	±9.6

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10.225	CAC	UMTS-FDD (HSPA+)	WCOMA	5.97	±9.6
0.226	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 18-QAM)	LTE-TDD	9.49	±9.6
0227	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6
0228	CAC	LTE-TDD (SC-FDMA, 1 RB, 1,4MHz, QPSK)	LTE-TDD	9.22	±9.6
0.229	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
0.230	CAE	LTE-TDD (SC-FDMA, 1 RB, 3MHz, 64-QAM)	LTE-TDD	10.25	19.6
10231	CAE	LTE-TOD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	±9.6
10232	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TOD	9.48	±9.6
0233	CAH	LTE-TOD (SC-FDMA, 1 RB, 5MHz, 64-QAM)	LTE-TOD	10.25	±9.6
10234	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TOD	9.21	±9.6
0,235	CAH	LTE-TOD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TOD	9.48	±9.6
0236	CAH	LTE-TOD (SC-FDMA, 1 RB, 10 MHz, 54-QAM)	LTE-TOD	10.25	±9.6
10237	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, GPSK)	LTE-TOD	9.21	±9.6
0238	CAG	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 16-QAM)	LTE-TDD	9.48	19.6
0.239	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
0.240	CAG	LTE-TOD (SC-FDMA, 1 RB, 15MHz, QPSK)	LTE-TOD	9.21	±9.6
0241	CAC	LTE-TOD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TOD	9.82	19.6
0242	CAC	LTE-TOD (SC-FDMA, 50% BB, 1.4 MHz, 64-QAM)	LTE-TOD	9.86	and the second sec
0243	CAC	LTE-TOD (SC-FDMA, 50% PB, 1.4 MHz, QPSK)	LTE-TDD	the second s	±9.6
0244	CAE		and the second sec	9,46	±9.6
0.245	CAE	LTE-TOD (SC-FDMA, 50% RB, 3MHz, 16-QAM)	LTE-TDD	10.06	±9.6
0246	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD LTE-TDD	10.06	19.6
	CAH			9.30	±9.6
0247	and the second states in the second	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	±9.6
0248	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	±9.6
10249	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	±9.6
10:250	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	±9.6
10251	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	19.6
0252	CAH	LTE-TDO (SC-FDMA, 50% RB, 10 MHz, OPSK)	LTE-TDD	9,24	±9.6
0253	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	±9.6
0254	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TOD	10.14	±9.6
0.255	CAG	LTE-TDD (SC-FOMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9,20	±9.6
10256	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 18-QAM)	LTE-TDD	9.96	±9.6
10257	CAG	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	主9.6
10.258	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±9.6
10.259	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9:98	±9.6
10260	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±9.6
10.261	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	±9.6
10262	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	±9.6
10.263	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	±9.6
10264	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, GPSK)	LTE-TDD	9.23	±9.6
10265	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TOD	9.92	±9.6
0.566	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 54-QAM)	LTE-TOD	10.07	±9.6
0267	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	19.6
10268	CAG	LTE-TD0 (SC-FDMA, 100% RB, 15 MHz, 16 QAM)	LTE-TOD	10.06	±9.6
10269	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	±9.6
10270	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TOD	9.58	±9.6
10274	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	±9.6
10.275	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCOMA	3.96	±9.6
0277	CAA,	PHS (QPSK)	PHS	11.81	±9.6
0.278	CAA	PHS (QPSK, BW 884 MHz, Rolloff 0.5)	PHS	11.81	±9.6
0279	CAA	PHS (QPSK, BW 884 MHz, Rollott 0.38)	PHS	12.18	±9.6
0.68.01	AAB	CDMA2000, RC1, SO65, Full Rate	CDMA2000	3.91	±9.6
0.291	AAB.	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	±9.6
0292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	£9.6
0.293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	±9.6
0295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	±9.6
0.297	AAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	±9.6
0298	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FOD	5.72	±9.6
0299	AAE	LTE-FOD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FOD	6.39	19.6
0300	AAE	LTE-FOD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FOD	6.63	±9.6
0301	AAA	IEEE 802.16e WIMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC)	WIMAX	12.03	19.6
0302	AAA	IEEE 802.16e WIMAX (29:18, 5 ms, 10 MHz, OPSK, PUSC, 3 CTRL symbols)	WMAX	12.57	±9.6
0303	AAA	IEEE 802.16e WIMAX (31:15, 5 ms, 10 MHz, 54QAM, PUSC)	WiMAX	12.52	19.6
0304	AAA	IEEE 802.16e WIMAX (29:18, 5ms, 10 MHz, 64QAM, PUSC)	WIMAX	11.86	±9.6
10305	AAA	IEEE 802.16e WIMAX (31:15, 10 ms, 10 MHz, 64QAM, PUSC, 15 symbols)	WIMAX	15.24	and the second se
0306	AAA	IEEE 802.166 WIMAX (29:18, 10 ms, 10 MHz, 64QAM, PUSC, 18 symbols)		and the second sec	19.5
- and a		The second time (second, rena, realized and real symbols)	WIMAX	14.67	±9.6

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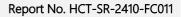


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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
10307	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, QPSK, PUSC, 18 symbols)	WIMAX	14.49	19.6
0308	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 16QAM, PUSC)	WIMAX	14.45	±9.6
0309	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 18 symbols)	WIMAX	14.58	±9.6
0310	AAA	IEEE 802.16e WIMAX (29:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 18 symbols)	WIMAX	14.57	±9.6
0311	AAE	LTE-FDD (SC-FDMA, 100% RB, 15MHz, QPSK)	LTE-FOD	6.06	±9.6
0313	AAA	DEN 1/3	IDEN.	10.51	±9.6
0314	AAA	DEN16	IDEN	13.48	±9.6
0315	AAB	IEEE 802,11b WIFI 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	WLAN	1.71	±9.6
0316	AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	+9.6
0317	AAE	IEEE 802.11a WIFI 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	19.6
0352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	±9.6
0353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	±9.6
0354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	±9.6
0355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	19.6
0356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	+9.6
0387	AAA	OPSK Waveform, 1 MHz	Generic	5.10	±9.6
0388	AAA	OPSK Waveform, 10 MHz	Generic	5.22	19.6
0396	and successive in the local division of the	a loss a debute a debute de la construction de la construction de la construction de la construction de la const	Generic	6.27	±9.6
	AAA	64-QAM Waveform, 100 kHz	A starter to be a starter of the startero of the startero of the starter of the starter of the s	6.27	A CONTRACTOR OF A CONTRACTOR A CONTR
0.399	AAA	64-QAM Waveform, 40 MHz	Generic		±9.6
0.400	AAF	IEEE 802.11ac WIFI (20 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.37	±9.6
0.401	AAF	IEEE 802 11ac WiFI (40 MHz, 64-OAM, 99pc duty cycle)	WLAN	8.60	±9.6
0402	AAF	IEEE 802.11ac WIFI (80 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.53	±9.6
0403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3,76	±9.6
0404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	±9.6
0406	AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	CDMA2000	5.22	±9.6
0410	AAH.	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Confe4)	LTE-TDD	7.82	±9.6
0414	AAA	WLAN CCDF, 64-QAM, 40 MHz	Generic	8.54	±9.6
0415	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	±9.6
0416	AAA	IEEE 802.11g WIFI 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
0417	AAD	IEEE 802.11a/h WIFI 5 GHz (OFOM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
0418	AAA.	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	WLAN	8.14	±9.6
0419	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 6 Mbps, 98pc duty cycle, Short preambule)	WLAN	8.19	$\pm 9.6$
10422	AAO	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	±9.6
0423	AAD	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	±9.6
0424	AAD	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	±9.6
0425	AAD	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	8.41	±9.6
0426	AAD	IEEE 802.11n (HT Greenfield, 90 Maps, 16-QAM)	WLAN	8.45	±9.6
0427	AAD	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	±9.6
10430	AAE	LTE-FDD (OFDMA, 5MHz, E-TM 3.1)	LTE-FDD	8.28	±9.6
0431	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	8.38	+9.6
0.432	(AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
0433	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
0.434	AAB	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	±9.6
0435	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2.3,4,7,8,9)	LTE-TDD	7.82	±9.8
0.447	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDO	7.56	±9.6
0.448	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	LTE-FDD	7.53	±9.6
0.449	AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	LTE-FDO	7.61	±9.6
0.450	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	±9.6
0.451	AAB	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	±9.6
0453	AAE	Validation (Square, 10 ms, 1 ms)	Test	10.00	±9.6
0.456	AAD	IEEE 802.11ac WIFI (160 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.63	19.6
0.457	AAB	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	±9.6
0.458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	±9.6
0.459	AAA	CDMA2000 (1xEV-DO, Rev. 8, 3 carriers)	CDMA2000	8.25	±9.6
0.460	AAB	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	
0461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframew2.3.4.7,8,8)	LTE-TDD	7.82	±9.6
0462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.30	±9.6
0.463	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2.3,4,7,8,9)	LTE-TDD	- Data State	and the second s
0464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	the problem in the second second second	8.56	±9.6
0.465	AAD	LTE-TOD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subhame=2,3,4,7,8,9)	LTE-TOD	7.82	±9.6
0.466	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-DAM, UL Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-DAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.32	±9.6
0.467	AAG	LTE-TDD (SC-FDMA, 1 HB, 3 MHz, 04-QAM, 0L Subframe=2,3,4,7,8,9) LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.57	±9.8
			LTE-TDD	7.82	±9.6
0.468	AAG	LTE-TDD (SC-FDMA, 1 RB, 5MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.32	±9.6
0.469	AAG	LTE-TDD (SC-FDMA, 1 RB, 5MHz, 64-QAM, UL Subtrame=2,3,4,7,8,9)	LTE-TOD	8.56	±9.6
0470	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE TDD	7.82	±9.6
0471	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6

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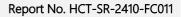


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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
10472	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,6,9)	LTE-TDD	8.57	±9.6
0473	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
0474	AAF	LTE-TOD (SC-FDMA, 1 RB, 15MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
0475	AAF	LTE-TDD (SC-FDMA, 1 RB, 15MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
0477	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.32	±9.6
0478	AAG	LTE-TDD (SC-FDMA, 1 RB, 20MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
0479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8.9)	LTE-TDD	7.74	±9.8
0.480	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,6,9)	LTE-TDD	8.18	±9.6
0.481	AAC	LTE-TDD (SC-FOMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	19.6
0482	AAD	LTE-TDD (SC-FOMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7,71	19.6
0483	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.39	±9.6
0484	AAD	LTE-TDD (SC-FDMA, 50% RB, 3MHz, 54-QAM, UL Subframe=2.3.4.7.8.9)	LTE-TOD	8.47	19.6
0.485	AAG	LTE-TOD (SC-FDMA, 50% RB, 5 MHz, OPSK, UL Subtrame=2.3.4,7,8.9)	LTE-TDD	7.59	±9.6
0486	AAG	LTE-TDD (SC-FDMA, 50% RB, 5MHz, 16-QAM, UL Subframe=2.3,4,7,8,9)	LTE-TDD	8.38	19.6
0.487	AAG	LTE-TOD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe-2,3,4,7,8,9)	LTE-TDD	8.60	19.6
			LTE-TOD	7.70	±9.6
0.488	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subtrame=2,3,4,7,8,9)	and the second sec		and the second se
0489	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.31	19.6
0490	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8,54	±9.6
0.491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subtrame=2,3,4,7,8,9)	LTE-TOD	7.74	19.6
0492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.41	±9.6
0493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
0494	AAG	LTE-TOD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
0495	AAG	LTE-TOD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.37	±9.6
0496	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
0497	AAC	LTE-TOD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TOD	7.67	±9.6
0.498	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	:9.6
0499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.68	±9.6
0500	AAD	LTE-TOD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2.3,4,7,8,9)	LTE-TOD	7.67	±9.6
0501	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8,44	±9.6
0502	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.52	±9.6
0503	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.72	±9.6
0504	AAG	LTE-TDD (SC-FDMA, 100% RB; 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.8
0505	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.54	±9.6
10506	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subhame=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
0507	AAG	LTE-TOD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subtrame=2,3,4,7,8,9)	LTE-TDD	8.36	±9.6
10508	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subtrame=2,3,4,7,8,9)	LTE-TOD	8.55	±9.5
0509	AAF	LTE-TOD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subtrame=2.3,4,7,8,9)	LTE-TDD	7.99	±9.6
0510	AAF	LTE-TOD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8.9)	LTE-TDO	8.49	29.6
0511	AAF	LTE-TOD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.51	±9.6
10512	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,6,9)	LTE-TDD	7.74	±9.6
0513	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TOD	8.42	±9.6
0514	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
0515	AAA	IEEE 802.11b WIFi 2.4 GHz (DSSS, 2 Mops, 99pc duty cycle)	WLAN	1.58	±9.6
0516	AAA	IEEE 802.11b WIFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	WLAN	1.57	±9.6
0517	AAA	IEEE 802.11b WIFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
0518	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.23	:9.6
0519	AAD	IEEE 802 11a/h WFI 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.39	:9.6
0520	and the second second	IEEE 802.11a/h WFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.12	±9.6
0521	AAD	IEEE 802.11a/h WIFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	WLAN	7.97	±9.6
0522	AAD	IEEE 802.11a/h WFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
0523	and the designed of	IEEE 802.11a/h WFI5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.08	19.6
0524	and the second sec	IEEE 802.11a/h WFI 5 GHz (OFDM, 54 Mbps, 59pc duty cycle)	WLAN	8.27	±9.6
0525	and the second se	IEEE 802.11ac WiFi (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.36	±9.6
0526		IEEE 802.11ac WIFI (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
0527		IEEE 802.11ac WiFi (20 MHz, WC31, 99pc duty cycle)	WLAN		
0528	and the second se	IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle)	and the second sec	8.21	±9.6
0529	and the second second	IEEE 802.11ac WiFI (20 MHz, MCS4, 98pc duty cycle)	WLAN	8.36	±9.6
	AAD		WLAN	8.36	±9.6
0531		IEEE 802.11ac WIFI (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.43	±9.6
0532	and the second se	IEEE 802.11ac WIFI (20 MHz, MCS7, 98pc duty cycle)	WLAN	8.29	±9.5
0533	AAD	IEEE 802.11ac WIFI (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.38	±9.6
0534	and the second sec	IEEE 802.11ac WIFI (40 MHz, MCS0, 99pc duty cycle)	WLAN	8,45	:9.6
0535		IEEE 802.11ac WIFI (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.45	±9.6
0536	the second se	IEEE 802.11ac WIFI (40 MHz, MCS2, 99pc duty cycle)	WLAN	8,32	±9.6
0537		IEEE 802.11ac WIFI (40 MHz, MCS3, 99pc duty cycle)	WLAN	8,44	±9.6
0538	AAD	IEEE 802.11ac WIFI (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.54	±9.6
0540	AAD	IEEE 802.11ac WIFI (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.39	±9.6

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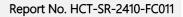


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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
0541	AAD	IEEE 802.11ac WIFI (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.46	±9.6
0542	AAD	IEEE 802.11ac WIFI (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.65	±9.6
0543	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.65	±9.6
0544	AAD	IEEE 802.11ac WIFI (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.47	±9.6
0545	AAD	IEEE 802.11ac WIFI (80 MHz, MCS1, 98pc duty cycle)	WLAN	8.55	19.6
10546	AAD	IEEE 802.11ac WIFI (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.35	±9.6
10547	AAD	IEEE 802,11ac WIFI (86 MHz, MCS3, 99cc duty cycle)	WLAN	8.49	19.6
10548	AAD	IEEE 802.11ac WIFI (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.37	±9.6
10550	AAD	IEEE 802.11ac WiFi (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.38	±9.6
10551	AAD	IEEE 802.11ac WiFi (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.50	19.6
10552	AAD	IEEE 802.11ac WIFI (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.42	±9.6
10553	AAD	IEEE 802.11ac WiFi (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.45	±9.6
10554	AAE	IEEE 802.11ac WIFI (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.48	19.6
10555	AAE	IEEE 802.11ac WIFI (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
10556	AAE	IEEE 802.11ac WIFI (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.50	±9.6
10557	AAE	IEEE 802.11ac WiFi (160 MHz, MCS3, 99pc duty cycle)	WLAN	6.50	±9.6
10558	AAE	IEEE 802.11ac WiFi (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.61	±9.6
10560	AAE	IEEE 802.11ac WIFI (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.73	19.5
10561	AAE	IEEE 802.11ac WIFI (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.56	19.6
10562	AAE	IEEE 002.11ac WiFi (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.69	19.6
10563	AAE	IEEE 802.11ac WFI (160 MHz, MCSI), 99pc duty cycle)	WLAN	8.77	19.6
10564	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.25	19.6
10565	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.45	the second se
10566	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFOM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	±9.6 ±9.6
10567	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.00	±9.6
10568	AAA	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.37	
10569	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	WLAN	and the second se	±9.6
10570	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.10	±9.6
10571	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 1 Maps, 90pc duty cycle)	WLAN	8.30	±9.6
10572	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10573	AAA	IEEE 802.11b WIFI 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10574	AAA	IEEE 802 11b WIFI 2.4 GHz (DSSS, 5.5 Wdps, 90pc duty cycle)	WLAN	1.98	±9.6
10575	AAA.	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFOM, 6 Mbps, 90pc duty cycle)	WLAN	1.98	#9.6
10576	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.59	19.6
10577	AAA	IEEE 802.11g WIFI 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	WLAN	100000000000000000000000000000000000000	±9.6
10579	AAA	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 18 Mops, 90pc duty cycle)	WLAN	8.49	±9.6
10580	AAA	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10581	AAA	EEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10582	AAA	IEEE 802 11g WIFI 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	10270.07	8.35	±9.6
10583	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN WLAN	8.67	±9.6
10584	AAD	IEEE 802 11wh WIFI 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)		8.59	±9.6
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10586	AAD	IEEE 802.11a/h WIFI 5 GHz (OFOM, 18 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10587	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	and an advantage of the second	8,49	±9.6
0588	AAD	IEEE 802.11a/h WFI 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.36	±9.6
10.588	AAD	IEEE 802.11a/h WIFI 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.5
10590	AAD	IEEE 802.11a/h WFI 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
0591	AAD	IEEE 802.11mm WH 5 GH2 (CMUM, 54 Mbps, 90pc duty cycle) IEEE 802.11n (HT Mixed, 20 MHz, MCS0, 90pc duty cycle)	WLAN	8.67	19.6
0592	AAD	IEEE 802.11n (H1 Mixed, 20 MHz, MCSU, supe duty cycle) IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)	WLAN	8.63	:: 9.6
0593	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10594	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle)	WLAN	8.64	29.6
10595	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle) IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle)	WLAN	8.74	±9.6
0596	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle) IEEE 802.11n (HT Mixed, 20 MHz, MCS5, 90pc duty cycle)	WLAN	8.74	±9.6
0597	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS8, 90pc duty cycle)	WLAN	8.71	±9.6
0598	AAD		WLAN	8.72	29.6
0599	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS7, 90pc duty cycle) IEEE 802.11n (HT Mixed, 40 MHz, MCS0, 90pc duty cycle)	WLAN	8,50	:::::::::::::::::::::::::::::::::::::::
0600	AAD	IEEE 802.111 (HT Mixed, 40 MHz, MCS0, 90pc duty cycle) IEEE 802.11n (HT Mixed, 40 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	£9.6
0601	AAD		WLAN	8.88	39.6
0802	AAD	IEEE 802 11n (HT Mixed, 40 MHz, MCS2, 90pc duty cycle)	WLAN	8.82	±9.6
ALC: NOT THE OWNER OF THE OWNER OWNE	and a state of the	IEEE 802 11n (HT Mixed, 40 MHz, MCS3, 90pc duty cycle)	WLAN	8.94	±9.6
0603	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS4, 90pc duty cycle)	WLAN	9.03	±9.6
0604	AAD AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS5, 90pc duty cycle)	WLAN	8.76	±9.6
0605	DAA	IEEE 802 11n (HT Mixed, 40 MHz, MCS6, 90pc duty cycle)	WLAN	8.97	±9.6
0606	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
0607	AAD	IEEE 802.11ac WIFi (20 MHz, MCS0, 90pc duty cycle)	WI,AN	8.64	±9.6
0.608	AAD	IEEE 802.11ac WiFi (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.77	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
0.609	AAD	IEEE 802.11ac WIFI (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.57	±9.6
0610	AAD	IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.78	±9.6
0611	AAD	IEEE 802.11ac WiFI (20 MHz, MCS4, 90pc duty cycle)	WLAN	8,70	19.6
0612	AAD	IEEE 802, 11ao WiFi (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
0613	AAD	IEEE 802 11ac WiFi (20 MHz, MC56, 90pc duty cycle)	WLAN	8.94	±9.6
0614	AAD	IEEE 802 11ac WIFI (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.59	±9.6
0615	AAD	IEEE 802 11ac WIFI (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
0616	AAD	IEEE 802 11ac WIFI (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.82	±9.6
0617	AAD	IEEE 802.11ac WIFI (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.81	±9.6
10618	AAD	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.58	±9.6
10619	AAD	IEEE 802 11ac WIFI (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
10620	AAD	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
10621	AAD	IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10622	AAD	IEEE 802 11ac WIFI (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.68	±9.6
10623	AAD	IEEE 802 11ac WiFi (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10624	AAD	IEEE 802 11ac WIFI (40 MHz, MCS8, 90pc duty cycle)	WEAN	8.96	±9.6
10625	AAD	IEEE 802 11ac WIFI (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.96	±9.6
10626	AAD	IEEE 802.11ac WIFI (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10627	AAD	IEEE 602 11ac WIFI (60 MHz, MCS1, 90pc duty cycle)	WLAN	9.88	±9.6
10628	AAD	IEEE 802.11ac WiFi (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.71	±9.6
10629	AAD	IEEE 802 11ac WIFI (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10630	AAD	IEEE 802.11ac WiFi (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.72	±9.6
10631	AAD	IEEE 802.11ac WIFi (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.81	±9.6
10832	AAD	IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)	WLAN	8,74	±9.6
10633	AAD	IEEE 802 11ac WIFI (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.83	±9.6
10634	AAD	IEEE 802 11ac WIFI (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.80	±9.6
10635	AAD	IEEE 802.11ac WIFI (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6
10636	AAE	IEEE 802 11ac WiFi (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10637	AAE	IEEE 802.11ac WIFI (160 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10638	AAE	IEEE 802.11ac WIFI (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.86	±9.6
10639	AAE	IEEE 602.11ac WIFI (160 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10640	AAE	IEEE 802.11ac WIFI (160 MHz, MCS4, 90pc duty cycle)	WLAN	8.96	±9.6
10641	AAE	IEEE 802.11ac WiFi (160 MHz, MCS5, 90pc duty cycle)	WLAN	9.06	±9.6
10.642	AAE	IEEE 802 11ac WIFI (160 MHz, MCS6, 90pc duty cycle)	WLAN	9.06	19.6
10643	AAE	IEEE 802 11ac WIFI (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.89	±9.6
10644	AAE	IEEE 802.11ac WIFI (160 MHz, MC58, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAE	IEEE 802 11ac WIFI (160 MHz, MCS9, 90pc duty cycle)	WLAN	9.11	±9.6
10646	AAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2.7)	LTE-TOD	11.96	±9.6
10547	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2.7)	LTE-TDD	11.96	±9.6
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	±9.6
10652	AAF	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TOD	6.91	±9.8
10653	AAF	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TOD	7.42	±9.6
10654	AAE	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	±9.6
10655	AAF	LTE-TDD (OFDMA, 20MHz, E-TM 3.1, Clipping 44%)	LTE-TOD	7.21	19.6
10658	AAB	Pulse Waveform (200Hz, 10%)	Test	10.00	±9.6
10659	AAB	Pulse Waveform (200Hz, 20%)	Test	6.99	:29.6
10660	AAB	Pulse Waveform (200Hz, 40%)	Test	3.98	±9.6
10661	AAB	Pulse Waveform (200Hz, 50%)	Test	2.22	±9.6
10662	AAB	Pulse Waveform (200Hz, 80%)	Test	0.97	±9.6
10670	AAA	Bluetooth Low Energy	Bluetooth	2.19	29.6
10671	AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)	WLAN	9.09	±9.6
10672	AAC	IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.57	±9.6
0673	AAC	IEEE 602.11ax (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.78	±9.0
0674	AAC	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
0675	AAC	IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.90	±9.8
0676	AAC	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
0.677	AAC	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.73	±9.6
0678	AAC	IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.78	±9.6
0.679	AAC	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.89	±9.6
0680	AAC	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WLAN	8.80	±9.6
0681	AAC	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.62	±9.6
0682	AAC	IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
0683	AAC	IEEE 802.11ax (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
	and the state of the	IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle)	WLAN	8.26	19.6
0684	AAC				
A REAL PROPERTY.	AAC	IEEE 802.11ax (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
10687	AAC	IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.45	±9.6
6688	AAC	IEEE 802 11ax (20 MHz, MCS5, 99pc duty cycle)	WLAN	8.29	19.6
0689	AAC	IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.55	±9.6
0690	AAC	IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
0891	AAC	IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle)	WEAN	8.25	±9.6
0692	AAG	IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle)	WLAN	8.29	±9.6
0.693	AAC	IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle)	WLAN	8.25	±9.6
0694	AAC	IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle)	WLAN	8.57	±9.6
0695	AAC	IEEE 802.11ax (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.78	±9.8
0696	AAC	IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.91	±9.6
0.697	AAC	IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.61	±9.6
0698	AAC	IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.89	±9.6
0699	AAC	IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.82	±9.6
the second second	AAC	IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.73	±9.6
10700			WLAN	8.86	±9.6
and the second second	AAG	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.70	±9.6
10702	AAC	IEEE 802.11ax (40 MHz, MCS7, 90pc duty cycle)	WLAN	and the second se	±9.6
0703	AAC	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)		8.82	
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.56	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 80pc duty cycle)	WLAN	8.69	±9.6
10706	AAC	IEEE 802.11ax (40 MHz, MCS11, 90pc duty cycle)	WLAN	8.66	±9.6
10707	AAC	IEEE 802 11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.32	±9.6
10708	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10709	AAC	IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10710	AAC	IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.29	±9.6
10711	AAC	IEEE 802.11ax (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.39	±9.6
10712	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.67	±9.6
10713	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.33	±9.6
10714	AAC	IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.26	±9.6
10715	AAC	IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.46	±9.6
10716	AAC	IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.30	±9.6
10717	AAC	IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.48	±9.6
10718	AAC	IEEE 802.11ax (40 MHz, MCS11, 99pc duly cycle)	WLAN	8.24	±9.6
10719	AAC	IEEE 802.11ax (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.81	±9.6
10720	AAC	IEEE 802.11 ax (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.87	±9.6
10721	AAC	IEEE 802.11ax (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.76	±9.6
10722	AAC	IEEE 802.11ex (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.55	±9.6
10723	AAC	IEEE 802.11ax (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10724	AAG	IEEE 802.11ax (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.5
10725	AAC	IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10728	AAC	IEEE 802.11ax (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.72	19.6
10727	AAC	IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.66	±9.6
10728	AAC	IEEE 802.11ax (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.65	and the second se
10729	AAG			1012	±9.6
		IEEE 802.11 ax (80 MHz, MCS10, 90pc duty cycle)	WLAN	8.64	±9.6
10730	AAC	IEEE 802.11ax (80 MHz, MCS11, 90pc duty cycle)	WLAN	8.67	±9.6
10731	AAC	IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10732	AAC	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.45	±9.6
10733	AAG	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.40	±9.6
10734	AAG	IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.25	±9.6
10735	AAC	IEEE 802.11ax (80 MHz, MCS4, 99pc duty cycle)	WEAN	8.33	±9.6
10736	AAC	IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle)	WLAN	8.27	±9.6
10737	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.36	±9.6
10738		IEEE 802.11ax (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.42	±9.6
10739	AAC	IEEE 802.11ax (80 MHz, MCIS8, 99pc duty cycle)	WLAN	8.29	±9.6
10740	AAC	IEEE 802.11ax (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.48	±9.6
10741	AAC	IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle)	WLAN	8.40	19.6
10742	AAG	IEEE 802.11ax (80 MHz, MCS11, 99pc duty cycle)	WLAN	8.43	±9.6
10743	AAG	IEEE 802.11ax (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.94	19.6
10744		IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle)	WLAN	9.16	±9.6
10745		IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.93	±9.6
10746	and the second se	IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle)	WLAN	9,11	±9.6
10747		IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle)	WLAN	9.04	±9.6
10748	and the second se	IEEE 802.11ax (160 MHz, MCSS, 90pc duty cycle)	WLAN	8.93	±9.6
10749	AAC	IEEE 802.11ax (160 MHz, MCS6, 90pc duty cycle)	WLAN	8.90	±9.6
10750	and substitution	IEEE 802.11ax (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.79	19.5
10751	AAC	IEEE 802.11ax (160 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	
	and the state of t	IEEE 802.11ax (160 MHz, MCS8, 90pc duty cycle)	and a second s		±9.6
10752	1.000	There even have the when we are able only cycle)	WLAN	8.81	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
10753	AAC	IEEE 802.11ax (160 MHz, MCS10, 90pc duty cycle)	WLAN	9.00	±9.6
10754	AAC	IEEE 802.11ax (160 MHz, MCS11, 90pc duty cycle)	WLAN	8.94	19.6
10755	AAC	IEEE 802.11ax (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.64	±9.6
10756	AAC	IEEE 802.11ax (160 MHz, MCS1, 98pc duty cycle)	WLAN	8.77	±9.6
10757	AAC	IEEE 802.11ax (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.77	±9.6
10758	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.69	±9.5
10759	AAC	IEEE 802.11ax (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.58	±9.6
10760	AAC	IEEE 802.11ax (160 MHz, MCSS, 99pc duty cycle)	WLAN	8.49	±9.6
10761	AAC	IEEE 802.11ax (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.58	19.6
10762	AAC	IEEE 802.11ax (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.49	±9.6
10763	AAC	IEEE 802.11ax (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.53	±9.6
10764	AAC	IEEE 802.11ax (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.54	29.6
10765	AAC	IEEE 802 11ax (160 MHz, MCS10, 99pc duty cycle)	WLAN	8.54	19.6
10766	AAC	IEEE 802.11ax (160 MHz, MCS11, 99pc duty cycle)	WLAN	8.51	±9.6
10767	AAG	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	±9.6
10768	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	+9.6
10769	AAD	5G NR (CP-OFDM, 1 RB, 15MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.01	±9.6
10770	AAE	5G NR (CP-OFOM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	19.6
10771	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FRI TDD	8.02	19.6
10772	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	±9.6
0773	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.03	19.6
0774	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	19.6
0775	AAF	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	19.6
0776	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15kHz)	SG NR FR1 TDD	8.30	19.6
0777	AAC	5G NR (CP-OFOM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FRI TDD	8.34	±9.6
0779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	±9.6
0780	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	SG NR FR1 TDD	8.38	±9.6
0781	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	19.6
0782	AAE	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	SG NR FR1 TDD	8.43	±9.6
0783	AAG	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	19.6
0784	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	19.6
0785	AAD	5G NR (CP-OFDM, 100% RB, 15MHz, QPSK, 15kHz)	5G NR FR1 TDD	8.40	19.6
10786	AAE	50 NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	±9.6
0787	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	±9.6
0788	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10789	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	19.6
0790	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10791	AAG	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	±9.6
0792	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	29.6
0793	GAA	5G NR (CP-OFDM, 1 RB, 15 MHz, QP5K, 30 KHz)	5G NR FR1 TDD	7.95	19.6
0794	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	7.82	±9.6
0795	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	7.84	±9.6
0.796	AAE	5G NR (CP-OFDM, 1 R8, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	7.82	±9.6
0797	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	29.6
0798	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
0799	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
0801	AAF	5G NR (CP-OFDM, 1 R8, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	19.6
0.802	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	±9.6
0803	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	the second se
0805	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6 ±9.6
0806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	19.5
0809	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FRI TDD	8.34	19.6
0810	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	19.6
0812	AAF	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 T00	8.35	±9.6
0817	AAG	5G NR (CP-OFDM, 100% R8, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	19.6
8180	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	29.6
0819	AAO	5G NR (CP-OFDM, 100% R8, 15MHz, QPSK, 30kHz)	5G NR FR1 TDD	8.33	
0820	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	50 NR FR1 TDD	8.30	:: 9.6
0.821	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TOD		29.6
0.822	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	29.6
0823	AAF	BG NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	and the second	8.41	±9.6
0824	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, CPSK, 30 kHz)	5G NR FR1 TDD 5G NR FR1 TDD	8.36	±9.6
0825	AAF	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	and the second	8.39	±9.6
0827	AAF	5G NR (CP-OFOM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	29.6
0828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	±9.6
- m - m	1000	and an and the result of mile, an an, autimat	5G NR FR1 TDD	8.43	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>e</sup> k =
10829	AAF	5G NR (CP-OFDM, 100% R8, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
0830	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	19.6
0831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TOD	7.73	±9.6
0832	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TOD	7.74	±9.8
0833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	+9.6
0834	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.6
0835	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
0836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.6
0837	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6
0839	AAF	5G NR (CP-OFDM, 1 RB, 80 MHz, QP5K, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
0840	AAE	50 NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6
0841	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, OPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.6
0843	CAA	50 NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	19.6
0844	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
0846	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
0854	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
0855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	19.6
0856	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
	a strange and a strange at	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	19.6
0857	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
		a second	5G NR FR1 TD0		
0859	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, OPSK, 60 kHz)	and the second se	8.34	±9.6
10.860	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz) 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD 5G NR FR1 TDD	8.41	±9.6
0861	AAF		and a second provide the second s	8.40	±9.6
10863	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TD0	8.37	±9.6
10865	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8,41	±9.6
10866	AAF	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10868	AAF	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	±9.6
10869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 HHz)	5G NR FR2 TDD	5.75	±9.6
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	±9.6
10-871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 18QAM, 120 kHz)	5G NR FR2 TDD	5.76	±9.6
16872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TOD	6.52	±9.6
10873	AAE	5G NR (DFT-6-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6,61	±9.6
10874	AAE	5G NR (DFT/s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TOD	6.65	±9.6
10875	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	6G NR FR2 TDD	7,78	±9.6
10876	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±9.6
10877	AAE	5G NR (CP-OFOM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TOD	7.95	±9.6
10.878	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8,41	±9.6
10879	AAE	5G NR (CP-OFOM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.6
10880	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	±9.6
10881	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.8
10882	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	±9.6
10883	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	±9.6
10.884	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	±9,6
10.885	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10887	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TOD	7.78	±9.6
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TOD	8.35	±9.6
10889	AAE	5G NR (CP-OFDM, 1 R8, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16GAM, 120 kHz)	5G NR FR2 TOD	8.40	±9.6
10.891	AAE	5G NR (CP-OFOM, 1 R8, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	19.6
10892	AAE	5G NR (CP-OFOM, 100% R8, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10897	AAE	5G NR (DFTs-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FRI TDD	5.66	+9.6
10898	AAC	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10899	and the second second	5G NR (DFTs-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	19.6
10900	AAC		5G NR FR1 TDD	5.68	±9.6
10901	AAB	5G NR (DFT-s-OFDM, 1 R8, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10902	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10903	GAA	5G NR (DFTs-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	SG NR FR1 TDD	5.68	±9.6
10904	AAC	5G NR (DFT+-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	SG NR FR1 TOD		±9.6
10905	AAD	5G NR (DFTs-OFDM, 1 R8, 80 MHz, QPSK, 30 KHz)		5.68	±9.6
10905	AAE		5G NR FR1 TDD	5.68	19.6
		5G NR (DFT-s-OFDM, 50% RB, 5MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6
10908	AAC	5G NR (DFT's OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	19.6
10909	AAB	5G NR (DFT-6-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
10910	AAG	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.5

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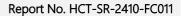


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UID	Rev	Communication System Name	Group	PAR (dB)	Uno <sup>E</sup> k = 2
0911	AAB	5G NR (DFT-a-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10912	AAC	5G NR (DFT-e-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10913	AAD	5G NR (DFT s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10914	AAC	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	±9.6
10915	AAD	5G NR (DFT-9-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6
10916	AAD	5G NR (DFT-8-OFDM, 50% RB, 80 MHz, QPSK, 33 kHz)	5G NR FR1 TDD	5.87	19.6
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10918	AAE	5G NR (DFT=OFDM, 100% RB, 5MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	19.6
10919	AAC	5G NR (DFTs-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	19.6
10920	AAB	5G NR (DFTs-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10921	AAC	5G NR (DFTs-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	19.6
10922	AAB	5G NR (DFT=0-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	19.6
	AAC	5G NR (DFTs-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.54	19.6
10923	AAD		5G NR FR1 TDD	5.84	19.5
and the beauty	And in case of the local diversion of the loc	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) 5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	
10925	AAC			1 200 0	±9.5
10926	AAD	5G NR (DFT=-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10927	AAD	5G NR (DFT=-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10929	AAD	5G NR (DFTs-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10930	AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10931	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10932	AAC	5G NR (DFT-e-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	53 NR FR1 FDD	5.51	±9.6
10933	AAC	5G NR (DFT= OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FRT FDD	5.51	±9.6
10934	AAC	5G NR (DFT+-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10935	AAD	5G NR (DFT-e-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10936	AAD	5G NR (DFT-s-OFDM, 50% RB, 5MHz, QPSK, 15kHz)	5G NR FR1 FDD	5.90	±9.6
10937	AAD	5G NR (DFT-6-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	<b>太</b> 9.6
10938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10939	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	±9.6
10940	AAC	5G NR (DFTs-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
10941	AAC	5G NR (DFT-a-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10942	AAC	9G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	50 NR FR1 FDD	5.85	±9.6
10943	(AAD	5G NR (DFT-8-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	±9.6
10944	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	53 NR FR1 FDD	5.81	±9.6
10945	AAD	5G NR (DFT-e-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10948	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.5
10948	AAC	5G NR (DFT-e-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	19.6
10950	AAC.	5G NR (DFT-e-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10.951	AAD	50 NR (DFT-s-QFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	19.6
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	19.6
10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	±9.6
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	29.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	19.6
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	±9.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	19.6
10959	AAA	5G NR DL (CP-OFDM, TM 3 1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	29.6
10960	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TOD	9.32	±9.6
10961	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	±9.6
10962	BAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64 QAM, 15 kHz)	5G NR FR1 TDD	9.40	
10963	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6
10964	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TOD	9.50	±9.6 ±9.6
		5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	19.6
10967	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	the second se	±9.6
10968	AAD	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 KHz)		9.42	±9.6
10972	AAC	SG NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	9.49	±9.6
10973	AAD	5G NR (DFT-0-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TOD	11.59	±9.6
10974	AAD	5G NR (CP-OFDM, 105% RB, 100 MHz, QFSR, 30 kHz)	5G NR FR1 TDD	9.06	±9.6
	Automation and a		5G NR FR1 TOD	10.28	±9.6
10978	AAA	ULLA BDR	ULLA	1.16	±9.6
10979	AAA	ULLA HDR4	ULLA	8,58	±9.6
10980	AAA	ULLA HDR8	ULLA	10.32	±9,6
10981	AAA	ULLA HDRp4	ULLA	3.19	±9.6
0982	AAA	ULLA HDRp8	ULLA	3,43	±9.6

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UID	Rev	Communication System Name	Group	PAR (dB)	UncE k = 1
10983	AAG	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10984	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9.6
10985	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±9.6
10985	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10987	AAC	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	19.6
10988	AAB	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDO	9.38	±9.6
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDO	9.33	±9.6
10990	AAB	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	±9.6
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	±9.6
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FD0	8.70	±9.6
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.46	±9.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	±9.6
11009	AAA	5G NR DL (CP-OFOM, TM 3.1, 25 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.76	±9.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	±9.6
11011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	±9.6
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.68	±9.6
11013	AAB	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.8
11014	AAB	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.45	19.6
11015	AAB	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAB	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAB	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAB	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAB	IEEE 802 11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAB	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	BAA.	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11022	AAB	IEEE 802 11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11023	AAB	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAB	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	19.6
11025	AAB	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11028	AAB	IEEE 802.11be (320 MHz, MCS0, 99pc duty cycle)	WLAN	8.39	19.6

E Uncertainty is determined using the max, deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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Appendix G. – Dipole Calibration Data



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The Swiss Accreditation Service Aultilateral Agreement for the rec			
Client HCT		Certificate No.	CLA13-1016_Sep23
Gyeonggi-do, Republi	c of Korea		
CALIBRATION C	ERTIFICATE	E	
Object	CLA13 - SN: 101	6	
Calibration procedure(s)	QA CAL-15.v10		
	Calibration Proce	dure for SAR Validation Sources	below 700 MHz
Calibration date:	September 21, 2	023	
	permentant and a second		
	and the state of t	onal standards, which realize the physical unit robability are given on the following pages an	
	all and the state of the state		
All calibrations have been conducte	ed in the closed laborator	y facility: environment temperature (22 ± 3)°C	and humidity < 70%,
		y facility: environment temperature (22 ± 3)°C	, and humidity < 70%,
Calibration Equipment used (M&TE	critical for calibration)		
Calibration Equipment used (M&TE Primary Standards	critical for calibration)	Cal Date (Certificate No.)	Scheduled Calibration
Calibration Equipment used (M&TE Primary Standarda Power meter NRP2	critical for calibration)	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805)	
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-ZB1	critical for calibration)	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804)	Scheduled Calibration Mar-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291	critical for calibration) ID # SN: 164778 SN: 103244 SN: 103245	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805)	Scheduled Calibration Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standurds *ower meter NRP2 *ower sensor NRP-Z91 reference 20 dB Attenuator	entical for calibration)	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809)	Scheduled Calibration Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination	critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x)	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attanuator Type-N miamatch combination Reference Probe EX3DV4	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24
Calibration Equipment used (M&TE Primary Standards Power meter NIRP2 Power sensor NRP-281 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4	Critical for calibration) ID # SN: 103245 SN: 103245 SN: C2552 (20k) SN: 310982 / 08327 SN: 3877	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. EX3-3877_Jan23)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 (AE4 Secondary Standards	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20k) SN: 310827 SN: 31877 SN: 654	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. EX3-3877_Jan23) 27-Jan-23 (No. DAE4-854_Jan23)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Jan-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRP-281 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 OAE4 Secondary Standards Power meter NRP2	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 (20x) SN: 310982 (20x) SN: 3877 SN: 654 ID #	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 2X3-3877_Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (in house)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check
Calibration Equipment used (M&TE Primary Standards Power sensor NRP-281 Power sensor NRP-291 Telerance 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 JAE4 Secondary Standards Power meter NRP2 Power sensor NRP-291	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 08327 SN: 3877 SN: 654 ID # SN: 107193	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 217-03810) 06-Jan-23 (No. EX3-3877, Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house) 08-Nov-21 (In house check Dec-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Jan-24 Jan-24 Jan-24 Jan-24 Jan-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRP-291 Power sensor NRP-291 teterence 20 dB Attenuator Pype-N mismatch combination Reference 20 dB Attenuator Reference 20 dB Atte	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 02245 SN: 02552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654 ID # SN: 107193 SN: 107193 SN: 100922	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 217-03810) 06-Jan-23 (No. 2X3-3877, Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house) 08-Nov-21 (In house check Dec-22) 15-Dec-09 (In house check Dec-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Dec-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRP-281 Power sensor NRP-291 Reference 20 dB Attanuator Pype-N miamatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter NRP2 Power meter NRP2 Power sensor NRP-291 Re generator HP 8648C	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3677 SN: 654 ID # SN: 107193 SN: 107193 SN: 100418	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 2X3-3877_Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (in house) 08-Nov-21 (in house check Dec-22) 15-Dec-08 (in house check Dec-22) 01-Jan-04 (in house check Dec-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Dec-24 In house check: Dec-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRP-281 Power sensor NRP-291 Telefarence 20 dB Attanuator Pype-N mismatch combination Reference 20 dB Attanuator Pype-N mismatch combination Reference 20 dB Attanuator Pype-N mismatch combination Reference 20 dB Attanuator Pype-N mismatch Ref Secondary Standards Power sensor NRP-291 Pype-291 Reference 20 dB Attanuator Pype-291 Reference 20 dB Attanuator Pype-291 Re	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 20552 (20k) SN: 310982 / 06327 SN: 3677 SN: 654 ID # SN: 107193 SN: 107193 SN: 100822 SN: 100418 SN: 103642U01700	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 217-03810) 06-Jan-23 (No. EX3-3877_Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house check Dec-22) 08-Nov-21 (In house check Dec-22) 01-Jan-04 (In house check Dec-22) 01-Jan-04 (In house check Dec-22) 04-Aug-99 (In house check Dec-22) 04-Aug-99 (In house check Dec-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Jun-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRIP-ZB1 Power sensor NRIP-ZB1 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 OAE4 Secondary Standards Power sensor NRIP-Z91 Power sensor NRIP-Z91 RF generator HP 8648C Network Analyzer Agilent E8358A	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20k) SN: 310982 / 08327 SN: 654 ID # SN: 107193 SN: 100418 SN: 100418 SN: US41080477	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 2X3-3877_Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house check Jan23) Check Date (In house check Dec-22) 15-Dec-09 (in house check Dec-22) 01-Jan-04 (in house check Dec-22) 01-Jan-04 (in house check Dec-22) 31-Mar-14 (in house check Oct-22)	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Dec-24 In house check: Dec-24 In house check: Jur-24 In house check: Jur-24 In house check: Jur-24
Calibration Equipment used (M&TE Primary Standards Power sensor NRIP-291 Power sensor NRIP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter NRIP2 Power sensor NRIP-291 Power sensor NRIP-291 RF generator HP 8648C Network Analyzer Agitent E8358A	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 08327 SN: 3877 SN: 654 ID # SN: 107193 SN: 107193 SN: 100922 SN: 100418 SN: US3642U01700 SN: US3642U01700 SN: US41080477 Name	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 217-03810) 06-Jan-23 (No. 2X7-03817) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house) 08-Nov-21 (In house check Dec-22) 15-Dec-09 (In house check Dec-22) 15-Dec-09 (In house check Dec-22) 04-Aug-99 (In house check Jun-22) 31-Mar-14 (In house check Oct-22) Function	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Dec-24 In house check: Dec-24 In house check: Jur-24 In house check: Jur-24 In house check: Jur-24
All calibrations have been conduct Calibration Equipment used (M&TE Primary Standards Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DA54 Secondary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Power sensor NRP-291 Ref generator HP 8648C Network Analyzer Agilent E8358A Calibrated by:	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 08327 SN: 3877 SN: 654 ID # SN: 107193 SN: 107193 SN: 100922 SN: 100418 SN: US3642U01700 SN: US3642U01700 SN: US41080477 Name	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 217-03810) 06-Jan-23 (No. 2X7-03817) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house) 08-Nov-21 (In house check Dec-22) 15-Dec-09 (In house check Dec-22) 15-Dec-09 (In house check Dec-22) 04-Aug-99 (In house check Jun-22) 31-Mar-14 (In house check Oct-22) Function	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Dec-24 In house check: Dec-24 In house check: Jur-24 In house check: Jur-24 In house check: Jur-24
Calibration Equipment used (M&TE Primary Standards Power meter NRP2-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power sensor NRP-291 Power sensor NRP-291 RF generator HP 8648C Network Analyzer Agilent E8358A Calibrated by:	Critical for calibration) ID # SN: 104778 SN: 103244 SN: 103244 SN: 202552 (20x) SN: 310982 / 06327 SN: 310982 / 06327 SN: 654 ID # SN: 107193 SN: 107193 SN: 100418 SN: 100418 SN: 103642 U1341080477 Name Jeton Kastrati	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805) 30-Mar-23 (No. 217-03809) 30-Mar-23 (No. 217-03810) 06-Jan-23 (No. 217-03810) 06-Jan-23 (No. 2X3-3877, Jan23) 27-Jan-23 (No. DAE4-854_Jan23) Check Date (In house) 08-Nov-21 (In house check Dec-22) 15-Dec-08 (In house check Dec-22) 01-Jan-04 (In house check Dec-22) 01-Jan-04 (In house check Dec-22) 04-Aug-89 (In house check Dec-22) 04-Aug-89 (In house check Dec-22) 31-Mar-14 (In house check Cet-22) Function Laboratory Technician	Scheduled Calibration Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Oct-24

F-TP22-03 (Rev. 06)



Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kallbrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

# Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	ELI4 Flat Phantom	Shell thickness: 2 ± 0.2 mm
EUT Positioning	Touch Position	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	13 MHz ± 1 MHz	

# Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 "C	55.0	0.75 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	53.1 ± 6 %	0.72 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 *C		****

# SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	1 W input power	0.539 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	0.553 W/kg ± 18.4 % (k=2)
	And the second se	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>2</sup> (10 g) of Head TSL SAR measured	condition 1 W input power	0.335 W/kg

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# Appendix (Additional assessments outside the scope of SCS 0108)

# Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.3 Ω + 0.0 jΩ	
Return Loss	- 37.8 dB	

#### Additional EUT Data

Manufactured by	SPEAG

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#### **DASY5 Validation Report for Head TSL**

Date: 21.09.2023

Test Laboratory: SPEAG, Zurich, Switzerland

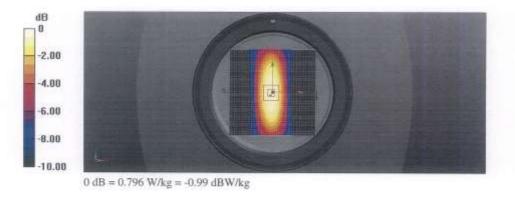
# DUT: CLA13; Type: CLA13; Serial: CLA13 - SN: 1016

Communication System: UID 0 - CW; Frequency: 13 MHz Medium parameters used: f = 13 MHz;  $\sigma = 0.72$  S/m;  $\epsilon_r = 53.1$ ; p = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 SN3877; ConvF(15.33, 15.33, 15.33) @ 13 MHz; Calibrated: 06.01.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 27.01.2023
- Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2034
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

CLA Calibration for HSL-LF Tissue/CLA-13, touch configuration, Pin=1W/Zoom Scan, dist=1.4mm (8x10x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 30.91 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 1.09 W/kg SAR(1 g) = 0.539 W/kg; SAR(10 g) = 0.335 W/kg Smallest distance from peaks to all points 3 dB below = 17.6 mm Ratio of SAR at M2 to SAR at M1 = 78.6% Maximum value of SAR (measured) = 0.796 W/kg



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# Impedance Measurement Plot for Head TSL

					6	R	1		00 MHz	51,308
				1	X	4	A		迎.44 pH	38,344 m
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# **Certification of Calibration**

Object	CLA13 – SN:1016
Calibration procedure(s)	Procedure for Calibration Extension for SAR Dipoles.
Extended Calibration date	Sep .21, 2025
Description	SAR Validation CLA13 at 13 Mbz

Note: Calibrated Before Testing. Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. signal generator) to determine the losses of the measurement path.



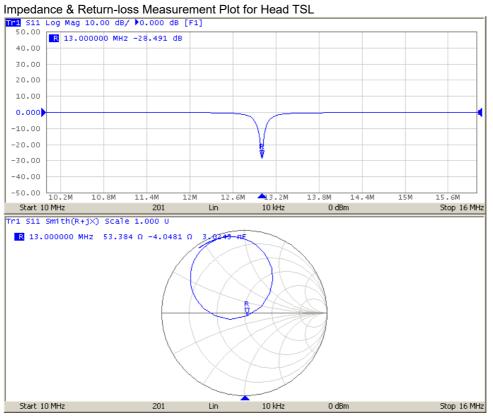
# **Dipole Calibration Extension**

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

- 1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
- 2. The return-loss meets the required 20dB minimum return-loss requirement.
- 3. The measurement of real or imaginary parts of impedance does not deviate more than  $5\Omega$  from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:





# Result

Calibration Date	Extenstion	Target Head(1g)	Measured Head SAR(1g) W/kg@17.0dBm	Deviation 1g(%)	Certificate SAR Target Head(10g) W/kg@17.0dBm		10g(%)	Certificate Impedance Head(Ohm) Real	Measured Impedance Head(Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head(Ohm) Imaginary	Measured Impedance Head(Ohm) Imaginary	Difference (Ohm) Imaginary	PASS/FAIL
09/21/2024	09/21/2025	0.02765	0.028	1.27	0.01715	0.017	-0.87	51.3	53.384	-2.084	0	-4.0481	4.0481	PASS



HCT Gyeonggi-do, Repub		Certificate No.	D750V3-1014_May24
	ERTIFICATE		
binst		걸	1
		A Com	unity
bject	D750V3 - SN:101	214	494 CJ 制造社
		2024	06 05 2024 06.05
alibration procedure(s)	QA CAL-05.v12		
	<b>Calibration Proce</b>	dure for SAR Validation Sources	between 0.7-3 GHz
	100 C		
	The second s		CONTRACTOR OF THE REAL PROPERTY OF
alibration date:	May 20, 2024		and the second second second second
alibration Equipment used (M&T	E critical for calibration)		
	1		
rimary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
rimary Standards ower meter NRP2	ID # SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
rimary Standards ower meter NRP2 ower sensor NRP-291	ID # SN: 104778 SN: 103244	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036)	Mar-25 Mar-25
imary Standards over meter NRP2 over sensor NRP-291 over sensor NRP-291	ID # SN: 104778 SN: 103244 SN: 103245	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037)	Mar-25 Mar-25 Mar-25
nmary Standards ower meter NRP2 ower sensor NRP-291 ower sensor NRP-291 eference 20 dB Attenuator	ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H8394 (20k)	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04037)	Mar-25 Mar-25 Mar-25 Mar-25
nimary Standards ower meter NRP2 ower sensor NRP-291 ower sensor NRP-291 eference 20 dB Alteruator ype-N mismatch combination	ID W SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046) 26-Mar-24 (No. 217-04047)	Маг-25 Маг-25 Маг-25 Маг-25 Маг-25
rimary Standards ower mater NRP2 ower sensor NRP-291 ower sensor NRP-291 eference 20 dB Altenuator ype-N mismatch combination eference Probe EX3DV4	ID W SN: 104778 SN: 103244 SN: 103245 SN: 8H8394 (20k) SN: 310982 / 06327 SN: 7349	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 26-Mar-24 (No. 217-04047) 03-Nov-23 (No. EX3-7349_Nov23)	Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Nov-24
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imary Standards over meter NRP-2 over sensor NRP-291 eference 20 dB Attenuator ype-N mismatch combination eference Probe EX3DV4 AE4 econdary Standards over meter E4419B over sensor HP 8481A	ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H6394 (20k) SN: 310982 / 06327 SN: 7349 SN: 781 ID # SN: G839512475 SN: U537292783	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046) 26-Mar-24 (No. 217-04047) 03-Nov-23 (No. EX3-7349_Nov23) 16-Fev-24 (No. DAE4-781_Fav24) Check Date (In house) 30-Oct-14 (In house check Oct-22) 07-Oct-15 (In house check Oct-22)	Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Nov-24 Fev-25 Scheduled Check In house check: Oct-24 In house check: Oct-24
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Calibration Equipment used (M&T Primary Standards Power meter NRP2 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4419B Power sensor HP 8481A Power sensor HP 8481A Power sensor HP 8481A	ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H6394 (20k) SN: 310982 / 06327 SN: 7349 SN: 781 ID # SN: G839512475 SN: U537292783	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046) 26-Mar-24 (No. 217-04047) 03-Nov-23 (No. EX3-7349_Nov23) 16-Fev-24 (No. DAE4-781_Fav24) Check Date (In house) 30-Oct-14 (In house check Oct-22) 07-Oct-15 (In house check Oct-22)	Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Nov-24 Fev-25 Scheduled Check In house check: Oct-24 In house check: Oct-24
Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 JAE4 Power meter E4419B	ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H8394 (20k) SN: 310982 / 06327 SN: 7349 SN: 781 ID # ID # SN: G839512475 SN: US37292783 SN: WY41093315 SN: 100972	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 03-Nov-23 (No. EX3-7349_Nov23) 16-Fev-24 (No. DAE4-781_Fev24) Check Date (in house) 30-Oct-14 (in house check Oct-22) 07-Oct-15 (in house check Oct-22) 15-Jun-15 (in house check Oct-22)	Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Nov-24 Fev-25 Scheduled Check In house check: Oct-24 In house check: Oct-24 In house check: Oct-24 In house check: Oct-24 In house check: Oct-24
nimary Standards ower meter NRP-291 ower sensor NRP-291 eference 20 dB Attenuator pp-N mismatch combination eference Probe EX3DV4 AE4 econdary Standards ower meter E44198 ower sensor HP 8481A F generator R&S SMT-06	ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H8394 (20k) SN: 310982 / 06327 SN: 7349 SN: 781 ID # ID # SN: G839512475 SN: US37282783 SN: US37282783 SN: 100972 SN: 100972 SN: US41080477	26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 26-Mar-24 (No. 217-04047) 03-Nov-23 (No. EX3-7349_Nov23) 16-Fev-24 (No. DAE4-781_Fev24) Check Date (In house) 30-Oct-14 (In house check Oct-22) 07-Oct-15 (In house check Oct-22) 15-Jun-15 (In house check Oct-22) 31-Mar-14 (In house check Oct-22)	Mar-25 Mar-25 Mar-25 Mar-25 Nov-24 Fev-25 Scheduled Check In house check: Oct-24 In house check: Oct-24
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kallbrierdienst

- Service suisse d'étalonnage
- C Service suisse d'etalonnage Servizio svizzero di taratura
- S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

# Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

# Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: D750V3-1014\_May24

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### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	CONTRACTOR OF THE OWNER
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	43.2 ± 6 %	0.88 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

# SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	8.50 W/kg ± 17.0 % (k=2)
PAD	and the second se	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 250 mW input power	1.37 W/kg

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#### Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.6 Ω + 2.7 jΩ	
Return Loss	- 27.3 dB	

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.037 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

Manufactured by	SPEAG
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### **DASY5 Validation Report for Head TSL**

Date: 20.05.2024

Test Laboratory: SPEAG, Zurich, Switzerland

# DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1014

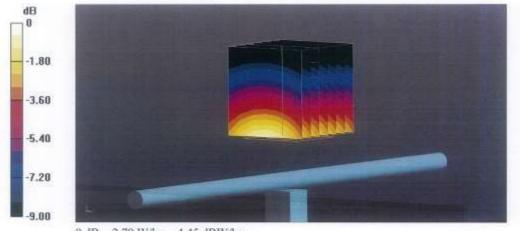
Communication System: UID 0 - CW; Frequency: 750 MHz Medium parameters used: f = 750 MHz;  $\sigma = 0.88$  S/m;  $\epsilon_r = 43.2$ ;  $\rho = 1000$  kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(10.11, 10.11, 10.11) @ 750 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- · Electronics: DAE4 Sn781; Calibrated: 16.02.2024
- · Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

# Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 59.58 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 3.13 W/kg SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.37 W/kg Smallest distance from peaks to all points 3 dB below = 24.1 mm Ratio of SAR at M2 to SAR at M1 = 66.4% Maximum value of SAR (measured) = 2.79 W/kg



0 dB = 2.79 W/kg = 4.45 dBW/kg

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# Impedance Measurement Plot for Head TSL

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Certificate No: D750V3-1014\_May24

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



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S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

# Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10,4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

# Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.6 ± 6 %	0.93 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

# SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.48 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	9.73 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL.	condition 250 mW input power	1.62 W/kg

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# Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.5 Ω - 2.5 jΩ			
Return Loss	- 31.7 dB			

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.374 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

# Additional EUT Data

Manufactured by	SPEAG

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# **DASY5 Validation Report for Head TSL**

Date: 18.04.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

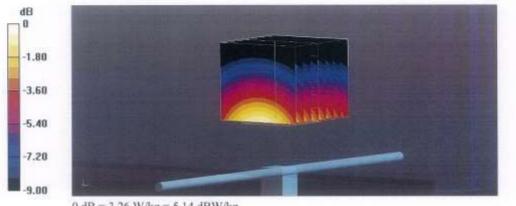
Communication System: UID 0 - CW; Frequency: 835 MHz Medium parameters used: f = 835 MHz;  $\sigma$  = 0.93 S/m;  $\epsilon_r$  = 42.6;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(9.69, 9.69, 9.69) @ 835 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- · Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

# Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (8x8x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 63.37 V/m; Power Drift = 0.00 dB Peak SAR (extrapolated) = 3.71 W/kg SAR(1 g) = 2.48 W/kg; SAR(10 g) = 1.62 W/kg Smallest distance from peaks to all points 3 dB below = 16 mm Ratio of SAR at M2 to SAR at M1 = 66.8% Maximum value of SAR (measured) = 3.26 W/kg



0 dB = 3.26 W/kg = 5.14 dBW/kg

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# Impedance Measurement Plot for Head TSL

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Certificate No: D835V2-441\_Apr24

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SN: 103245 26-Mar-24 (No. 217-04037) Mar-25
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SN: US37292783         07-Oct-15 (in house check Oct-22)         In house check: Oct-24           SN: MY41093315         07-Oct-15 (in house check Oct-22)         In house check: Oct-24           SN: 100972         15-Jun-15 (in house check Oct-22)         In house check: Oct-24           SN: US41080477         31-Mar-14 (in house check Oct-22)         In house check: Oct-24
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SN: 103244         26-Mar-24 (No. 217-04036)         Mar-25           SN: 103245         26-Mar-24 (No. 217-04037)         Mar-25           SN: 8H9394 (20k)         26-Mar-24 (No. 217-04046)         Mar-25           SN: 310982 / 06327         26-Mar-24 (No. 217-04047)         Mar-25           SN: 7349         03-Nov-23 (No. EX3-7349_Nov23)         Nov-24           SN: 601         30-Jan-24 (No. DAE4-601_Jan24)         Jan-25           ID #         Check Date (in house)         Scheduled Check

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S Schweizerischer Kalibrierdienst

- C Service suisse d'étalonnage
- Servizio svizzero di taratura

S Swiss Calibration Service Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates.

# Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

# Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

## Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 *C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.8 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

## SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.67 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	39.0 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 250 mW input power	5.08 W/kg

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## Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	45.9 Ω - 7.0 jΩ
Return Loss	- 21.5 dB

## General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 ns
Production in and a second for the second se	

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

Manufactured by	SPEAG

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## **DASY5 Validation Report for Head TSL**

Date: 15.04.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

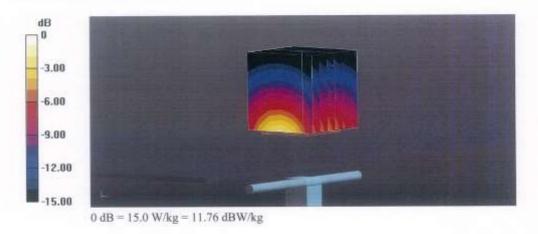
Communication System: UID 0 - CW; Frequency: 1800 MHz Medium parameters used: f = 1800 MHz;  $\sigma$  = 1.39 S/m;  $\epsilon_e$  = 40.8;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.63, 8.63, 8.63) @ 1800 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

# Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 109.6 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 17.9 W/kg SAR(1 g) = 9.67 W/kg; SAR(10 g) = 5.08 W/kg Smallest distance from peaks to all points 3 dB below = 10 mm Ratio of SAR at M2 to SAR at M1 = 54.5% Maximum value of SAR (measured) = 15.0 W/kg



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# Impedance Measurement Plot for Head TSL

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	D1900V2 - SN:50	1000	
alibration procedure(s)		1032	
	QA CAL-05.v12 Calibration Proce	dure for SAR Validation Source	es between 0.7-3 GHz
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Calibration date:	January 18, 2024	500 7 2027 R	1841E (9 43-3
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F-TP22-03 (Rev. 06)

# НСТ

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst

- C Service suisse d'étalonnage Servizio svizzero di taratura
- S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Heid And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10,4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

## Head TSL parameters

The following parameters and calculations were applied,

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.3 ± 6 %	1.40 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		(

## SAR result with Head TSL

SAR averaged over 1 cm <sup>2</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.97 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.2 W/kg ± 17.0 % (k=2)
	CONTRACTOR OF A DESCRIPTION OF A	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 250 mW input power	5.22 W/kg

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## Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.2 Ω + 6.8 jΩ	
Return Loss	- 23.4 dB	

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.182 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions' paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

## Additional EUT Data

Manufactured by	SPEAG
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#### **DASY5 Validation Report for Head TSL**

Date: 18.01.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

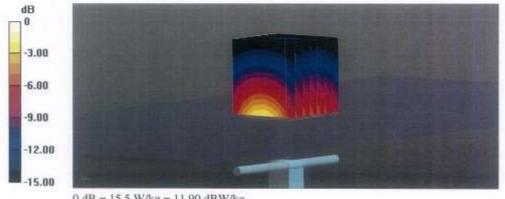
Communication System: UID 0 - CW; Frequency: 1900 MHz Medium parameters used: f = 1900 MHz;  $\sigma = 1.4 \text{ S/m}$ ;  $\varepsilon_t = 41.3$ ;  $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(8.43, 8.43, 8.43) @ 1900 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 03.10.2023
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

#### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 109.9 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 18.3 W/kg SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.22 W/kg Smallest distance from peaks to all points 3 dB below = 9.8 mm Ratio of SAR at M2 to SAR at M1 = 54.9% Maximum value of SAR (measured) = 15.5 W/kg



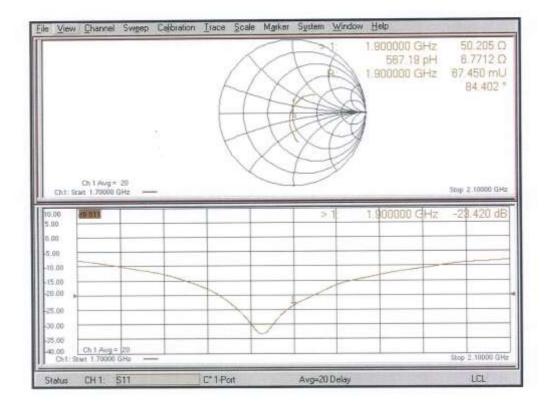
0 dB = 15.5 W/kg = 11.90 dBW/kg

Certificate No: D1900V2-5d032\_Jan24

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## Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-5d032\_Jan24

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Accredited by the Swiss Accreditat The Swiss Accreditation Service Multilateral Agreement for the re	is one of the signatorie		Accreditation No.: SCS 0108
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



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S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

## Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

## Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.5 ± 6 %	1.83 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	1	

## SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	51.8 W/kg ± 17.0 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 250 mW input power	6.09 W/kg

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## Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.5 Ω + 6.1 jΩ
Return Loss	- 22.8 dB

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.159 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

Manufactured by	SPEAG

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## **DASY5 Validation Report for Head TSL**

Date: 14.03.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

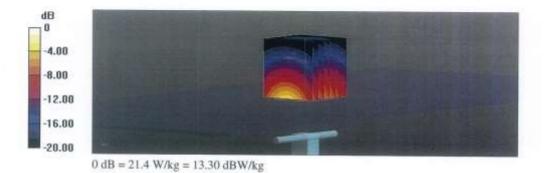
Communication System: UID 0 - CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz;  $\sigma = 1.83$  S/m;  $\varepsilon_f = 38.5$ ; p = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.96, 7.96, 7.96) @ 2450 MHz; Calibrated: 03.11.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

## Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 115.1 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 26.4 W/kg SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.09 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 50.1% Maximum value of SAR (measured) = 21.4 W/kg



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## Impedance Measurement Plot for Head TSL

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Certificate No: D2450V2-743\_Mar24

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## Appendix: Transfer Calibration at Four Validation Locations on SAM Head<sup>1</sup>

## **Evaluation Condition**

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L	
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# SAR result with SAM Head (Top $\cong$ C0)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	55.2 W/kg ± 17.5 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

## SAR result with SAM Head (Mouth ≅ F90)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	56.3 W/kg ± 17.5 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

## SAR result with SAM Head (Neck ≅ H0)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	53.0 W/kg ± 17.5 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

## SAR result with SAM Head (Ear ≅ D90)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	34.0 W/kg ± 17.5 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

Additional assessments outside the current scope of SCS 0108

Certificate No: D2450V2-743\_Mar24

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Client       HCT Gyeonggi-do, Republic of Korea       Certificate No.       D2600V2-1015_Apr24         CALIBRATION CERTIFICATE       D2600V2 - SN:1015       D2600V2 - SN:1015       D2600V2 - SN:1015         Calibration procedure(s)       DA CAL-05.v12 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz         Calibration date:       April 22, 2024         This calibration certificate documents the traceability to national standards, which resize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.         All calibration Equipment used (M&TE critical for calibration)       D* Calibration Steve been conducted in the closed laboratory facility: environment temperature (22 ± 3)*C and humidity < 70%.         Calibration Equipment used (M&TE critical for calibration)       Scheduled Calibration Primary Standards       D* Cal Date (Certificate No.)       Scheduled Calibration Mar-25         Power sensor NRP-291       SN: 103245       26-Mar-24 (No. 217-04036)       Mar-25         Power sensor NRP-291       SN: 103245       26-Mar-24 (No. 217-04037)       Mar-25         Power sensor NRP-291       SN: 103245       26-Mar-24 (No. 217-04037)       Mar-25         Power sensor NRP-291       SN: 103245       26-Mar-24 (No. 217-04037)       Mar-25         Power sensor NRP-291       SN: 103245       26-Mar-24 (No. 217-04047)       Mar-25				
CALIBRATION CERTIFICATE           Object         D2600V2 - SN:1015           Calibration procedure(s)         QA CAL-05.v12           Calibration procedure(s)         QA CAL-05.v12           Calibration Procedure for SAR Validation Sources between 0.7-3 GHz           Calibration date:         April 22, 2024           This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.           All calibration Equipment used (M&TE critical for calibration)           Primary Standards         D.#           Over sensor NRP-291         SN: 104776           SN: 104776         26-Mar-24 (No. 217-04036/04037)           Over sensor NRP-291         SN: 104776           SN: 104776         26-Mar-24 (No. 217-04036/04037)           Over sensor NRP-291         SN: 104776           SN: 104776         26-Mar-24 (No. 217-04038)           Over sensor NRP-291         SN: 103244           SN: 103245         26-Mar-24 (No. 217-04037)           Mar-25         SN: 103242           SN: 103245         26-Mar-24 (No. 217-04037)           Mar-25         SN: 103242           SN: 103245         26-Mar-24 (No. 217-04037)           SN: 1	Gyeonggi-do, Repub		Certificate N	D2600V2-1015_Apr24
Object         D2600V2 - SN:1015         Image: Similar and S		lic of Korea		
Calibration procedure(e)       QA CAL-05.v12       Image: Calibration Procedure for SAR Validation Sources between 0.7-3 GHz         Calibration date:       April 22, 2024         Calibration date:       April 22, 2024         This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).         The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.         All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)*C and humidity < 70%.         Calibration Equipment used (M&TE critical for calibration)         Priver meter NRP2       SN: 104778       26-Mar-24 (No. 217-04036)       Mar-25         Power meter NRP2       SN: 103244       26-Mar-24 (No. 217-04036)       Mar-25         Power sensor NRP-291       SN: 103244       26-Mar-24 (No. 217-04036)       Mar-25         Power sensor NRP-291       SN: 103244       26-Mar-24 (No. 217-04036)       Mar-25         Power meter NRP2       SN: 103244       26-Mar-24 (No. 217-04036)       Mar-25         Power sensor NRP-291       SN: 103244       26-Mar-24 (No. 217-04036)       Mar-25         Power sensor NRP-291       SN: 103245       26-Mar-24 (No. 217-04037)       Mar-25         SP-104 Afterence Probe EX30V4       SN: 310982 / 06327       26-Mar-24	ALIBRATION C	ERTIFICATI	E	
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Calibration procedure(s)       QA CAL-05.v12       Image: A Calibration Procedure for SAR Validation Sources between 0.7-3 GHz         Calibration date:       April 22, 2024         This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.         All calibration Equipment used (M&TE critical for calibration)       Scheduled Calibration         Primary Standards       ID #       Cal Date (Certificate No.)       Scheduled Calibration         Primary Standards       ID #       Cal Date (Certificate No.)       Scheduled Calibration         Primary Standards       ID #       Cal Date (Certificate No.)       Scheduled Calibration         Primary Standards       ID #       Cal Date (Certificate No.)       Scheduled Calibration         Primary Standards       ID #       Cal Date (No. 217-040360/0037)       Mar-25         Prover sensor NRP-291       SN: 103244       26-Mar-24 (No. 217-04036)       Mar-25         Payer-N mismatch combination       SN: 310882 / 06327       26-Mar-24 (No. 217-04037)       Mar-25         SN: 819394 (20k)       26-Mar-24 (No. 217-04036)       Mar-25       Amr-25         Secondary Standards       SN: 801       30-Jan-24 (No. 217-04023)       Mar-25       Amr-25	oject	D2600V2 - SN:10	015	2 2-
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



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S Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: D2600V2-1015\_Apr24

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F-TP22-03 (Rev. 06)



## **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

## Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.4 ± 6 %	2.04 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

## SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.5 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	56.4 W/kg ± 17.0 % (k=2)
	1	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 250 mW input power	6.41 W/kg

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#### Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.4 Ω - 5.1 jΩ	
Return Loss	- 25.2 dB	

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

Manufactured by	SPEAG

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#### **DASY5 Validation Report for Head TSL**

Date: 22.04.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1015

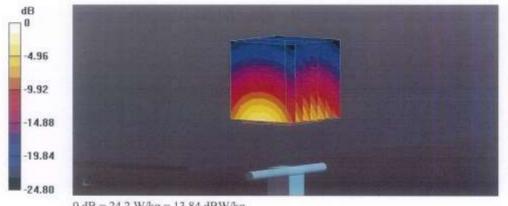
Communication System: UID 0 - CW; Frequency: 2600 MHz Medium parameters used: f = 2600 MHz;  $\sigma = 2.04 \text{ S/m}$ ;  $\epsilon_r = 37.4$ ;  $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN7349; ConvF(7.84, 7.84, 7.84) @ 2600 MHz; Calibrated: 03.11.2023
- · Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001 ٠
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501) .

#### Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 119.3 V/m; Power Drift = 0.05 dB Peak SAR (extrapolated) = 29.4 W/kg SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.41 W/kg Smallest distance from peaks to all points 3 dB below = 9 mm Ratio of SAR at M2 to SAR at M1 = 49.4% Maximum value of SAR (measured) = 24.2 W/kg



0 dB = 24.2 W/kg = 13.84 dBW/kg

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## Impedance Measurement Plot for Head TSL

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Certificate No: D2600V2-1015\_Apr24

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



- S Schweizerischer Kallbrierdienst
- C Service suisse d'étalonnage
- Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

## Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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## **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3500 MHz ± 1 MHz	

#### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.9	2.91 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.1 ± 6 %	2.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

## SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.50 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	65.1 W/kg ± 19.9 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.46 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.6 W/kg ± 19.5 % (k=2)

Certificate No: D3500V2-1132 Jan24

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## Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9 Ω - 3.8 jΩ	
Return Loss	- 27.6 dB	

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.130 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

Manufactured by	SPEAG
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## DASY5 Validation Report for Head TSL

Date: 23.01.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole 3500 MHz; Type: D3500V2; Serial: D3500V2 - SN:1132

Communication System: UID 0 - CW; Frequency: 3500 MHz Medium parameters used: f = 3500 MHz;  $\sigma = 2.9$  S/m;  $\epsilon_e = 38.1$ ;  $\rho = 1000$  kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(7.91, 7.91, 7.91) @ 3500 MHz; Calibrated: 07.03.2023
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 03.10.2023
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3500MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 66.18 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 17.1 W/kg SAR(1 g) = 6.50 W/kg; SAR(10 g) = 2.46 W/kg Smallest distance from peaks to all points 3 dB below = 8.4 mm Ratio of SAR at M2 to SAR at M1 = 75.7% Maximum value of SAR (measured) = 12.2 W/kg



0 dB = 12.2 W/kg = 10.86 dBW/kg

Certificate No: D3500V2-1132 Jan24

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## Impedance Measurement Plot for Head TSL

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Certificate No: D3700V2-1105\_Sep24

Issued: September 18, 2024

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Schweizerischer Kallbrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

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Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary

TSL tissue simulating liquid ConvF sensitivity in TSL / NORM x,y,z N/A not applicable or not measured

#### Calibration is Performed According to the Following Standards

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation

· DASY System Handbook

#### Methods Applied and Interpretation of Parameters

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center
  marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The Impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- · Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- · SAR measured: SAR measured at the stated antenna input power.
- · SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- · SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Certificate No: D3700V2-1105\_Sep24

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## D3700V2 - SN: 1105

#### September 18, 2024

#### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY8 Module SAR	16.4.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with spacer
Zoom Scan Resolution	dx, dy = 5mm, dz = 1.4mm	Graded Ratio = 1.5 mm (Z direction)
Frequency	3700MHz ±1MHz	

## Head TSL parameters at 3700 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.7	3.12 mho/m
Measured Head TSL parameters	(22.0 ±0.2)°C	37.4 ±6%	3.07 mho/m ±6%
Head TSL temperature change during test	< 0.5 °C		

#### SAR result with Head TSL at 3700 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	20 dBm input power	6.93 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	69.3 W/kg ±19.9% (k = 2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	20 dBm input power	2.54 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	25.4 W/kg ±19.5% (k = 2)

Certificate No: D3700V2-1105\_Sep24

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#### D3700V2 - SN: 1105

September 18, 2024

#### Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 3700 MHz

Impedance	47.0 Ω – 1.4 jΩ	
Return Loss	-29.3 dB	

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.139 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured. The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard. No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

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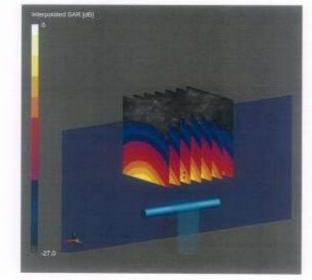


## D3700V2 - SN: 1105

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September 18, 2024
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## System Performance Check Report

Dipole			Crisquency (NI)	ω)	TSL.	Power (dSm)		
D1700V2 - 5N1105			3790		HEL.	20		
Exposure Condition	5							
Phantom Section, TSL	Test Distance [mm]	Band	Group, UID	Frequency [MHz],	Channel Number	Conversion Factor	TSL Conductivity (S/M)	TSL Permittivity
Flat	10		$\mathbb{CW}, 0 \mapsto$	3260, 0		634	3.07	37.4
Hardware Setup								
Phantom	TSL, Measured	Date	-7	hobe, Calibration D	dat .	DAE,	Calibration Date	
MFP V8.0 Center	HSL, 2024-09-	18		DK3DV4 - \$97349, 2	024-05-03	DAD	4p Sm1836, 2024-01-10	
Scans Setup					Measuremen	t Results		
				Zoom Scan	-			Zbam Scan
Grid Extents (mm)				28 × 28 × 28	Itate			2024-09-18
Grid Steps (mm)			5	0 x 5.0 x 3.4	psSAR3g (W/K	el.		6.93
Sensor Sorface (mm)				1.8	DISARIOS W	Kaj		2,54
Graded Grid				Yes	Power Drift Ja	0		-0.01
Grading Ratio				1.5	Power Scaling			Disabled
MAUN				N/A	Scaling Factor	[38]		
Surface Detecture				VMS + Sp	TSL Correction	i ()		Positive / Negative
Scan Method				Measured	-			



0 dB = 18.7 W/Kg

Certificate No: D3700V2-1105\_Sep24

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# Impedance Measurement Plot for Head TSL S11 Smith (R+jX) Scale 1.00 >1 3.700000 GHz 46.991 Q -1.391 jQ 10.00 >1 3.700000 GHz -29.325 dB 5.00 0.00 -5.00 -10.00 -15.00 -20.00 -25.00 -30.00 -35.00 3.60 3.50 3.70 3.80 3.90 GHz

D3700V2 - SN: 1105

September 18, 2024

Certificate No: D3700V2-1105\_Sep24

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e Swiss Accreditation Service ultilateral Agreement for the rec				ration Service n No.: SCS 0108
lient HCT	C. C. States	Certificate	No. D3900V2	-1086_May24
Gyeonggi-do, Republi	ic of Korea		-	
CALIBRATION C	ERTIFICATE		a 10 a	म अः अ
2000	D000010 01140	2	Agunt-3	12.
Object	D3900V2 - SN:10			10000
		44724	SW WERK	CJ / H37
Calibration procedure(s)	QA CAL-22.v7	1	2024.06.05	2024,06.05
Calibration date:	May 21, 2024		STREE CEL	
All calibrations have been conducte	ed in the closed laborator	y facility: environment temperature (22	± 3)*C and humidity	< 70%.
Calibration Equipment used (M&TE				
Calibration Equipment used (M&TE Primary Standards	E critical for calibration)	y facility: environment temperature (22 Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037)		iled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP2	E critical for calibration)	Cal Date (Certificate No.)	Schedu	iled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91	E critical for calibration)	Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037)	Schedu Mar-25	iled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k)	Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046)	Schedu Mar-25 Mar-25 Mar-25 Mar-25	iled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination	E critical for calibration) ID # SN: 104778 SN: 103244 SN: 103245 SN: 8H9394 (20k) SN: 310982 / 06327	Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046) 26-Mar-24 (No. 217-04047)	Schedu Mar-25 Mar-25 Mar-25 Mar-25 Mar-25	iled Calibration
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Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	E critical for calibration) ID.# SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 8H:9394 (20k) SN: 310982 / 06327 SN: 3603 SN: 781 ID.#	Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04046) 26-Mar-24 (No. 217-04047) 07-Mar-24 (No. 217-04047) 16-Feb-24 (No. DAE4-781_Feb24) Check Date (in house)	Schedu Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Feb-25 Schedu	iled Calibration
Calibration Equipment used (M&TE Primary Standards Power meter NRP2 Power sensor NRP-291 Power sensor NRP-291 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter E4419B	E critical for calibration) ID.# SN: 104778 SN: 103244 SN: 103245 SN: 103245 SN: 310982 / 06327 SN: 3503 SN: 781 ID.# SN: G839612475	Cal Date (Gertificate No.) 26-Mar-24 (No. 217-04036/04037) 26-Mar-24 (No. 217-04036) 26-Mar-24 (No. 217-04037) 26-Mar-24 (No. 217-04047) 26-Mar-24 (No. 217-04047) 07-Mar-24 (No. 2X3-3503_Mar24) 16-Feb-24 (No. DAE4-781_Feb24) Check Date (in house) 30-Oct-14 (in house check Oct-22)	Schedu Mar-25 Mar-25 Mar-25 Mar-25 Mar-25 Feb-25 Schedu In hous	iled Calibration
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



- S Schweizerischer Kalibrierdienst
- C Service suisse d'étalonnage
- Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

# Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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# **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	3900 MHz ± 1 MHz	

# Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	37.5	3.32 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.1 ± 6 %	3.26 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	1 1	

# SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.72 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	67.6 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 100 mW input power	2.35 W/kg

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# Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	44.0 Ω - 5.7 jΩ	
Return Loss	- 21.1 dB	

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1.099 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

The second se	
Manufactured by	SPEAG

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# **DASY5 Validation Report for Head TSL**

Date: 21.05.2024

Test Laboratory: SPEAG, Zurich, Switzerland

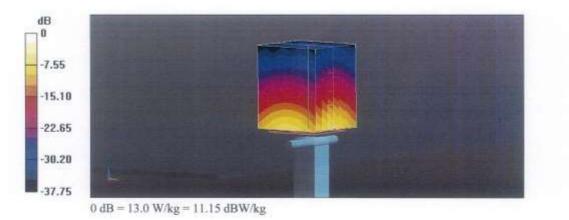
#### DUT: Dipole 3900 MHz; Type: D3900V2; Serial: D3900V2 - SN:1086

Communication System: UID 0 - CW; Frequency: 3900 MHz Medium parameters used: f = 3900 MHz;  $\sigma = 3.26$  S/m;  $\epsilon_r = 38.1$ ; p = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(7.32, 7.32, 7.32) @ 3900 MHz; Calibrated: 07.03.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn781; Calibrated: 16.02.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100 mW, d=10mm, f=3900MHz/Zoom Scan, dist=1.4mm (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 69.07 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 18.4 W/kg SAR(1 g) = 6.72 W/kg; SAR(10 g) = 2.35 W/kg Smallest distance from peaks to all points 3 dB below = 8 mm Ratio of SAR at M2 to SAR at M1 = 74.9% Maximum value of SAR (measured) = 13.0 W/kg



Certificate No: D3900V2-1086\_May24

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F-TP22-03 (Rev. 06)



# Impedance Measurement Plot for Head TSL

	Ĺ	Æ	A	900000 G 7.1251 900000 G	pF -	44.028 5.7275 7.859 m -132.72
	4	12				1000
	H	tt	7S			
		VV	1			
		$\wedge \Gamma$	1			
Ch 1 Avg × 20	~	Æ	Y		Sto	o 4.10000 G
Ch 1 Avg = 20 1: Start 3 70000 GHz			¥ 1 3	900000 d	10200	p 4.10000 G
1: Start 3.70000 GHz			1 3	900000 G	10200	/
1: Start 3.70000 GHz			1 3	900000 C	10200	/
1: Start 3.70000 GHz			1 3	90000 C	10200	/
80000 GHz				900000 C	10200	/
80989				900000 C	10200	/
80000 GHz				900000 C	10200	/
80989				900000 G	10200	(

Certificate No: D3900V2-1086\_May24

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coredited by the Swiss Accredit he Swiss Accreditation Servic fulfilateral Agreement for the r	e is one of the signatorie		Accreditation No.: SCS 0108
lient HCT		Certifica	MANO DECUNIS 4407 A-04
Gyeonggi-do, Repul	lic of Korea	Continue.	ale No. D5GHzV2-1107_Apr24
CALIBRATION	CERTIFICAT	E	20-20 12 12 12 12 12 12 12 12 12 12 12 12 12
Dhiad	DECUNUS ON	1407	and M
Object	D5GHzV2 - SN:1		12 1:
		447/94 5 1~	176-12 (5 /1403)
Calibration procedure(s)	QA CAL-22.v7	2 4 2024	10703 7224,9×03
Calibration date:	April 19, 2024		STATES IN THE REAL PROPERTY OF
All calibrations have been conduc	ted in the closed laborator	robability are given on the following pa ry facility: environment temperature (2)	sical units of measurements (SI). ages and are part of the certificate. 2 ± 3)°C and humidity < 70%.
All calibrations have been conduc Calibration Equipment used (M&	ted in the closed laborator	y facility: environment temperature (22	ages and are part of the certificate. 2 ± 3)*C and humidity < 70%.
VI calibrations have been condux Calibration Equipment used (M& Primary Standards	ted in the closed laborator E critical for calibration)		ages and are part of the certificate.
Ul calibrations have been condux Calibration Equipment used (M& Primary Standards Power meter NRP2	ted in the closed laborator E critical for calibration)	y facility: environment temperature (22 Cal Date (Certificate No.)	ages and are part of the certificate. 2 ± 3)*C and humidity < 70%. Scheduled Calibration
Il calibrations have been condux calibration Equipment used (M& mmary Standards ower meter NRP2 ower sensor NRP-291 ower sensor NRP-291	ted in the closed laborato E critical for calibration) ID # SN: 104778	y facility: environment temperature (22 Cal Date (Certificate No.) 26-Mar-24 (No. 217-04036/04037)	ages and are part of the certificate. 2 ± 3)*C and humidity < 70%. Scheduled Calibration Mar-25
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



- S Schweizerischer Kallbrierdienst
- C Service suisse d'étalonnage
- Servizio svizzero di taratura
  - Swiss Calibration Service

Accreditation No.: SCS 0108

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

# Calibration is Performed According to the Following Standards:

- a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- b) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

c) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
  of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss: This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz 5800 MHz ± 1 MHz	

# Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mbo/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.1±6%	4.65 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 *C		

# SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.97 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	80.2 W/kg ± 19.9 % (k=2)
CAD suggested over 10		
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 100 mW input power	2.29 W/kg

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# Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.5±6%	5.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	1111	1200

# SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	82.1 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 100 mW input power	2.33 W/kg

#### Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.3 ± 6 %	5.22 mha/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	142	

#### SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.95 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	79.9 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 100 mW input power	2.26 W/kg

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#### Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.2 ± 6 %	5.27 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	<u></u>	

## SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.89 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	79.3 W/kg ± 19.9 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL SAR measured	condition 100 mW input power	2.24 W/kg

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# Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	49.0 Ω - 2.7 jΩ
Return Loss	- 30.8 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.2 Ω + 1.9 jΩ
Return Loss	- 27.1 dB

#### Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	56.1 Ω + 1.6 jΩ
Return Loss	~ 24.6 dB

#### Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	55:3 Ω + 0.5 jΩ
Return Loss	- 25.9 dB

#### General Antenna Parameters and Design

Electrical Delay (one direction)	1,196 ns	
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

## Additional EUT Data

Manufactured by	SPEAG
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#### **DASY5 Validation Report for Head TSL**

Date: 19.04.2024

Test Laboratory: SPEAG, Zurich, Switzerland

#### DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1107

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz, Frequency: 5800 MHz Medium parameters used: f = 5250 MHz;  $\sigma$  = 4.65 S/m;  $\epsilon_r$  = 37.1;  $\rho$  = 1000 kg/m<sup>3</sup>, Medium parameters used: f = 5600 MHz;  $\sigma$  = 5.05 S/m;  $\epsilon_r$  = 36.5;  $\rho$  = 1000 kg/m<sup>3</sup>, Medium parameters used: f = 5750 MHz;  $\sigma$  = 5.22 S/m;  $\epsilon_r$  = 36.3;  $\rho$  = 1000 kg/m<sup>3</sup>, Medium parameters used: f = 5800 MHz;  $\sigma$  = 5.27 S/m;  $\epsilon_r$  = 36.2;  $\rho$  = 1000 kg/m<sup>3</sup> Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 SN3503; ConvF(5.39, 5.39, 5.39) @ 5250 MHz, ConvF(5, 5, 5) @ 5600 MHz, ConvF(4.98, 4.98, 4.98) @ 5750 MHz, ConvF(4.86, 4.86, 4.86) @ 5800 MHz; Calibrated: 07.03.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 73.63 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 26.9 W/kg SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.29 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 70.9% Maximum value of SAR (measured) = 18.2 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 72.81 V/m; Power Drift = 0.07 dB Peak SAR (extrapolated) = 30.3 W/kg SAR(1 g) = 8.17 W/kg; SAR(10 g) = 2.33 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 68% Maximum value of SAR (measured) = 19.4 W/kg

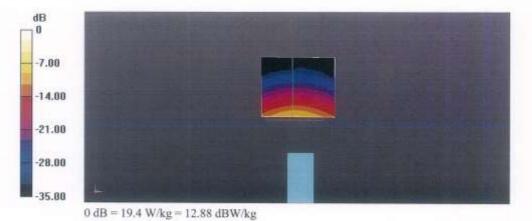
Certificate No: D5GHzV2-1107\_Apr24

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# HCT

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 71.06 V/m; Power Drift = 0.09 dB Peak SAR (extrapolated) = 30.9 W/kg SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.26 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 66.2% Maximum value of SAR (measured) = 19.1 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm Reference Value = 71.08 V/m; Power Drift = 0.08 dB Peak SAR (extrapolated) = 31.1 W/kg SAR(1 g) = 7.89 W/kg; SAR(10 g) = 2.24 W/kg Smallest distance from peaks to all points 3 dB below = 7.2 mm Ratio of SAR at M2 to SAR at M1 = 65.8% Maximum value of SAR (measured) = 19.2 W/kg



#### Certificate No: D5GHzV2-1107 Apr24

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# Impedance Measurement Plot for Head TSL

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# Appendix: Transfer Calibration at Four Validation Locations on SAM Head<sup>1</sup>

# Evaluation Conditions (f=5250 MHz)

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L
---------	------------------	-----------------------------

# SAR result with SAM Head (Top)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	85.8 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

# SAR result with SAM Head (Mouth)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	85.0 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

# SAR result with SAM Head (Neck)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	83.1 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm <sup>2</sup> (10 g) of Head TSL	condition	

# SAR result with SAM Head (Ear)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	53.8 W/kg ± 20.3 % (k=2)
SAD supressed over 10 cm <sup>3</sup> (10 c) of Ucod TO	readilies	
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

<sup>1</sup> Additional assessments outside the current scope of SCS 0108

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# Appendix: Transfer Calibration at Four Validation Locations on SAM Head<sup>2</sup>

# Evaluation Conditions (f=5800 MHz)

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L
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# SAR result with SAM Head (Top)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	82.4 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

# SAR result with SAM Head (Mouth)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	89.1 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

# SAR result with SAM Head (Neck)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	79.5 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm3 (10 g) of Head TSL	condition	

# SAR result with SAM Head (Ear)

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR for nominal Head TSL parameters	normalized to 1W	56.6 W/kg ± 20.3 % (k=2)
SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	

<sup>2</sup> Additional assessments outside the current scope of SCS 0108

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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



- S Schweizerischer Kallbrierdienst
- Service suisse d'étalonnage
- C Servizio svizzero di taratura

Accreditation No.: SCS 0108

S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

a) IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range Of 4 MHz To 10 GHz)", October 2020.

#### Additional Documentation:

b) DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point
  exactly below the center marking of the flat phantom section, with the arms oriented parallel to the
  body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.
- The absorbed power density (APD): The absorbed power density is evaluated according to Samaras T, Christ A, Kuster N, "Compliance assessment of the epithelial or absorbed power density above 6 GHz using SAR measurement systems", Bioelectromagnetics, 2021 (submitted). The additional evaluation uncertainty of 0.55 dB (rectangular distribution) is considered.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY6	V16.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	5 mm	with Spacer
Zoom Scan Resolution	dx, dy = 3.4 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	6500 MHz ± 1 MHz	

# Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	34.5	6.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.6 ± 6 %	6.24 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	1 <u>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>	

# SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	29.7 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	297 W/kg ± 24.7 % (k=2)
SAR averaged over 8 cm <sup>3</sup> (8 g) of Head TSL	Condition	
SAR measured	100 mW input power	6.64 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	66.5 W/kg ± 24.4 % (k=2)

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	100 mW input power	5.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	54.6 W/kg ± 24.4 % (k=2)

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#### Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.1 Ω - 5.5 jΩ	
Return Loss	- 25.1 dB	

#### APD (Absorbed Power Density)

APD averaged over 1 cm <sup>2</sup>	Condition	
APD measured	100 mW input power	296 W/m <sup>2</sup>
APD measured	normalized to 1W	2960 W/m <sup>2</sup> ± 29.2 % (k=2)
APD averaged over 4 cm <sup>3</sup>	condition	
APD averaged over 4 cm <sup>2</sup> APD measured	condition 100 mW input power	133 W/m <sup>2</sup>

"The reported APD values have been derived using the psSAR1g and psSAR8g.

#### General Antenna Parameters and Design

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

#### Additional EUT Data

Manufactured by	SPEAG

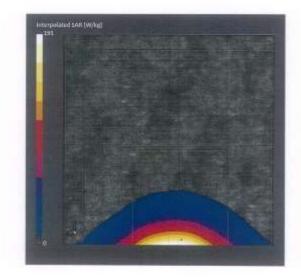
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# DASY6 Validation Report for Head TSL

Measurement Report for D6.5GHz-1012, UID 0 -, Channel 6500 (6500.0MHz)

Name, Manufa	acturer Di	mensions	[mm] IN	IEI	DUT Typ	e	
D6.5GHz	1	6.0 x 6.0 x	300.0 SN	1: 1012	a.		
Exposure Cond	titions						
Phantom	Position, Test	Band	Group,	Frequency	Conversion	TSL Cond.	TSL
Section, TSL	Distance [mm]		UID	[MHz]	Factor	[S/m]	Permittivity
Flat, HSL	5.00	Band	CW,	6500	5.14	6.24	34.6
	1201						
Hardware Seti Phantom	• I.	SL.		Probe, Calil	bration Date	DAF, Calib	pration Date
MFP V8.0 Cent		BBL600-10	000V6		N7405, 2024-07-01	1	08, 2024-03-27
Scan Setup				Measureme	ent Results		
			Zoom Scan				Zoom Sca
Grid Extents	[mm]		22.0 x 22.0 x 22.0	Date		2	024-09-17, 13:5
Grid Steps [m	(mr		3.4 x 3.4 x 1.4	psSAR1g [	W/Kg]		29.
Sensor Surfac	ce [mm]		1.4	psSAR8g [	W/Kg]		6.6
Graded Grid			Yes	psSAR10g	[W/Kg]		5.4
Grading Ratio	0		1.4	Power Dri	ft [dB]		-0.0
MAIA			N/A	Power Sca	ling		Disable
Surface Dete	ction		VMS+6p	Scaling Fai	ctor [d8]		
Scan Method	E.		Measured	TSL Correc	tion		No correctio
				M2/M1 [%	6]		50.
				Dist 3dB P	eak [mm]		4.

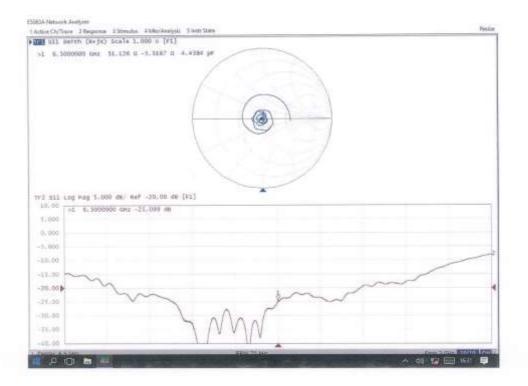


Certificate No: D6.5GHzV2-1012\_Sep24

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# Impedance Measurement Plot for Head TSL



Certificate No: D6.5GHzV2-1012\_Sep24

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Engineering AG 20ughausstrasse 43, 8004 Zurich, 5	of		ichweizerischer Kalibrierdienst iervice suisse d'étalonnage iervizio svizzero di taratura iwiss Calibration Service
ccredited by the Swiss Accreditation he Swiss Accreditation Service is lultilateral Agreement for the reco	one of the signatorie	is to the EA	editation No.: SCS 0108
lient HCT Gyconggi-do, Repub			5G-Veri10-1018_Apr24
CALIBRATION CE	ERTIFICAT	E	
Object	5G Verification 5	Source 10 GHz - SN: 1018	
	QA CAL-45.v5 Calibration proce	edure for sources in air above 6 GHz	2
Calibration date:	April 17, 2024		
The measurements and the uncertain All calibrations have been conducted	nties with confidence p f in the closed laborato	tional standards, which realize the physical units o probability are given on the following pages and ar ory facility: environment temperature (22 ± 3)°C an	e part of the certificate.
Calibration Equipment used (M&TE)	oritical for calibration)		
	Contraction of the second second second		
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Primary Standards Reference Probe EUmmWV3	Contraction of the second second second	Cal Date (Certificate No.) 04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23)	Scheduled Calibration Dec-24 Nov-24
Primary Standards Reference Probe EUmmWV3 DAE4ip	ID # SN: 9374 SN: 1602	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23)	Dec-24 Nov-24
Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards	ID # SN: 8374 SN: 1602	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23) Check Date (in house)	Dec-24 Nov-24 Scheduled Check
Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards RF generator R&S SMF100A Power sensor R&S SMF100A	ID # SN: 9374 SN: 1602	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23)	Dec-24 Nov-24
Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards RF generator R&S SMF100A Power sensor R&S SMF100A	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 101258	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23) Check Date (in house) 29-Nov-23 (in house check Nov-23) 29-Nov-23 (in house check Nov-23)	Dec-24 Nov-24 Scheduled Check In house check: Nov-24 In house check: Nov-24
Primary Standards Reference Probe EUmmWV3 DAE4ip Secondary Standards RF generator R&S SMF100A Power sensor R&S SMF100A	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 101258	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23) Check Date (in house) 29-Nov-23 (in house check Nov-23) 29-Nov-23 (in house check Nov-23) 31-Oct-19 (in house check Nov-23) 31-Oct-19 (in house check Nov-23) 31-Oct-19 (in house check Nov-23) 31-Oct-19 (in house check Nov-23)	Dec-24 Nov-24 Scheduled Check In house check: Nov-24 In house check: Nov-24 In house check: Oct-25
Primary Standards Reference Probe EUmmWV3 DAE4lp Secondary Standerds RF generator R&S SMF100A Power sensor R&S NRP10S-10 Aetwork Analyzer Keysight E5063A	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 100184 SN: 101258 SN: MY54504221	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23) Check Date (in house) 29-Nov-23 (in house check Nov-23) 29-Nov-23 (in house check Nov-23) 31-Oct-19 (in house check Nov-23) 31-Oct-19 (in house check Oct-22) 고 다 가 가 다 다 가 다 다 다 다 다 다 다 다 다 다 다 다 다	Dec-24 Nov-24 Scheduled Check In house check: Nov-24 In house check: Nov-24 In house check: Oct-25
Primary Standards Reference Probe EUmm/WV3 DAE4ip Secondary Standards RF generator R&S SMF100A Power sensor R&S NRP18S-10 Network Analyzer Keysight E5063A	ID # SN: 9374 SN: 1602 ID # SN: 100184 SN: 101258 SN: MY54504221	04-Dec-23 (No. EUmm-9374_Dec23) 08-Nov-23 (No. DAE4ip-1602_Nov23) Check Date (in house) 29-Nov-23 (in house check Nov-23) 29-Nov-23 (in house check Nov-23) 31-Oct-19 (in house check Oct-22) 고류 그가 그 나는 제품// 및 도시 가입3 1	Dec-24 Nov-24 Scheduled Check In house check: Nov-24 In house check: Nov-24 In house check: Oct-25





Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates Glossary

CW Continuous wave

# Calibration is Performed According to the Following Standards

- Internal procedure QA CAL-45, Calibration procedure for sources in air above 6 GHz.
- IEC/IEEE 63195-1, "Assessment of power density of human exposure to radio frequency fields from wireless devices in close proximity to the head and body (frequency range of 6 GHz to 300 GHz)", May 2022

# Methods Applied and Interpretation of Parameters

- Coordinate System: z-axis in the waveguide horn boresight, x-axis is in the direction of the E-field, y-axis normal to the others in the field scanning plane parallel to the horn flare and horn flange.
- Measurement Conditions: (1) 10 GHz: The radiated power is the forward power to the horn antenna minus ohmic and mismatch loss. The forward power is measured prior and after the measurement with a power sensor. During the measurements, the horn is directly connected to the cable and the antenna ohmic and mismatch losses are determined by farfield measurements. (2) 30, 45, 60 and 90 GHz: The verification sources are switched on for at least 30 minutes. Absorbers are used around the probe cub and at the ceiling to minimize reflections.
- Horn Positioning: The waveguide horn is mounted vertically on the flange of the waveguide source to allow vertical positioning of the EUmmW probe during the scan. The plane is parallel to the phantom surface. Probe distance is verified using mechanical gauges positioned on the flare of the horn.
- E- field distribution: E field is measured in two x-y-plane (10mm, 10mm + λ/4) with a vectorial E-field probe. The E-field value stated as calibration value represents the E-fieldmaxima and the averaged (1cm<sup>2</sup> and 4cm<sup>2</sup>) power density values at 10mm in front of the horn.
- Field polarization: Above the open horn, linear polarization of the field is expected. This is verified graphically in the field representation.

#### **Calibrated Quantity**

 Local peak E-field (V/m) and average of peak spatial components of the poynting vector (W/m<sup>2</sup>) averaged over the surface area of 1 cm<sup>2</sup> and 4cm<sup>2</sup> at the nominal operational frequency of the verification source. Both square and circular averaging results are listed.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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# **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY8 Module mmWave	V3.2
Phantom	5G Phantom	
Distance Horn Aperture - plane	10 mm	
Number of measured planes	2 (10mm, 10mm + λ/4)	
Frequency	10 GHz ± 10 MHz	

# Calibration Parameters, 10 GHz

# **Circular Averaging**

Distance Horn Aperture to Measured Plane	Prad' (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Avg (psPDn+, ps	er Density PDtot+, psPDmod+) /m <sup>8</sup> )	Uncertainty (k = 2)
				1 cm <sup>2</sup>	4 cm <sup>2</sup>	
10 mm	93,3	154	1.27 dB	61.4	57.0	1.28 dB

Distance Hom Aperture to Measured Plane	Prad <sup>r</sup> (mW)	Max E-field (V/m)	Uncertainty (k = 2)	psPDn+, psPD	Density tot+, psPDmod+ /m²)	Uncertainty (k = 2)
				1 cm <sup>2</sup>	4 cm <sup>2</sup>	
10 mm	93.3	154	1.27 dB	61.0, 61.5, 61.7	56.5, 57.1, 57.3	1.28 dB

#### Square Averaging

Distance Horn Aperture to Measured Plane	Prad' (mW)	Max E-field         Uncertainty         Avg Power Density           (V/m)         (k = 2)         Avg (paPDn+, paPDol+, paPDo		Uncertainty (k = 2)		
				1 cm <sup>2</sup>	4 cm <sup>2</sup>	
10 mm	93.3	154	1.27 dB	61.4	56.9	1.28 dB
Distance Horn Aperture to Measured Plane	Prad' (mW)	Max E-field (V/m)	Uncertainty (k = 2)	psPDn+, psPDt	Density ot+, psPDmod+ /m <sup>2</sup> )	Uncertainty (k = 2)
				1 cm <sup>2</sup>	4 cm <sup>2</sup>	
10 mm	93.3	154	1.27 dB	61.0, 61.5, 61.7	56.4, 57.0, 57.2	1.28 dB

# Max Power Density

Distance Horn Aperture to Measured Plane	Prad <sup>®</sup> (mW)	Max E-field (V/m)	Uncertainty (k = 2)	Max Power Density Sn, Stot, [Stot] (W/m²)	Uncertainty (k = 2)
10 mm	93.3	154	1.27 dB	62.6, 63.1, 63.3	1.28 dB

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<sup>&</sup>lt;sup>1</sup> Assessed ohmic and mismatch loss plus numerical offset: 0.30 dB

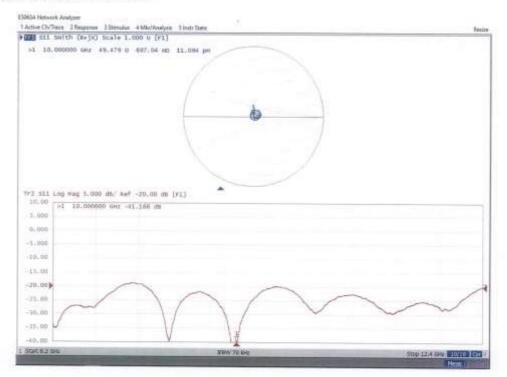


# Appendix (Additional assessments outside the scope of SCS 0108)

#### Antenna Parameters

Impedance, transformed to feed point	49.5 Ω + 0.70 jΩ	
Return Loss	- 41.2 dB	

#### Impedance Measurement Plot



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F-TP22-03 (Rev. 06)

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Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Air

Name, Manufacturer	Dimensions (mm		IME	DUT Type	
G Verification Source 10	GHz 100.0 x 100.0 x 1	172.0	SN 1018	1.4	
Exposure Condition	5				
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency (MHz), Channel Number	Conversion Factor
iG -	10.0 mm	Validation band	CW	10000.0, 10000	1.0
Hardware Setup					
Phantom	Medium		Probe, Calibra	ation Date D	AE, Calibration Date

Probe, Calibration Date

EUmmWV3 - SN9374\_F1-55GHz, 2023-12-04

Measurement Results

# mmWave Phantom - 1002

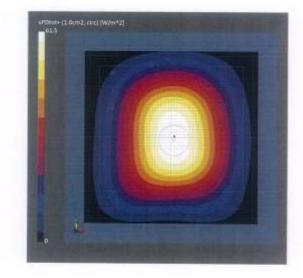
Scan Setup

Sensor Surface [mm] MAIA

5G Scan 10.0 MAIA not used

	5G Scan
Date	2024-04-17, 09:50
Avg. Area [cm <sup>2</sup> ]	1.00
Ave, Type	Circular Averaging
psPDo+ (W/m <sup>1</sup> )	61.0
psPDtat+ (W/m <sup>2</sup> )	61.5
psPDmpd+ (W/m <sup>2</sup> )	61.7
Max(Sn) [W/m <sup>2</sup> ]	62.6
Max(Stot) [W/m <sup>2</sup> ]	63.1
Max[[Stot]] [W/m <sup>1</sup> ]	63.3
Email [V/m]	154
Power Drift (dB)	-0.00

DAE, Calibration Date DAE4ip Sn1602, 2023-11-08



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Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Name, Manufacturer	Dimensions (mm	1	IME	DUT Type	
SG Verification Source 10 G	Hz 100.0 x 100.0 x 1	172.0	5N: 1018		
Exposure Conditions					
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
56 -	10.0 mm	Validation band	CW	10000.0, 10000	1.0
Hardware Setup					
Phantom	Medium		Probe, Calibr.	ation Date	DAE, Calibration Date
mmWave Phantom - 1002	Air		EUmmWV3 - 2023-12-04	5N9374_F1-55GHz,	DAE4ip Sn1602, 2023-11-08
Scan Setup				ent Results	
		5G S			5G Scar
Sensor Surface [mm]			0.0 Date	194	2024-04-17, 09:5
MAIA		MAIA not u		im,1	4.0
			Avg. Type		Circular Averaging
			psPDri+ [W/ psPDtot+ [V		56. 57.
			psPDmod+		57.3
			Max(Sn) (W		62.
			Max(Stot) []		63.
			Max[[Stot]]		63.
			Emia [V/m]		15



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Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Name, Manufacturer	Dimensions [mn	n)	IMEL	DUT Type	
5G Verification Source 10	0 GHz 100.0 x 100.0 x	172.0	SN: 1018	-*	
Exposure Condition	5				
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

#### Hardware Setup Phantom

Phantom Medium mmWave Phantom - 1002 Air

Probe, Calibration Date
EUmmWV3 - SN9374_F1-55GHz 2023-12-04

Measurement Results

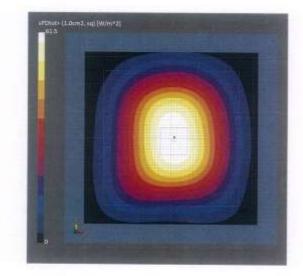
DAE, Calibration Date DAE4ip Sn1602, 2023-11-08

Det Barre

#### Scan Setup

	5G Scari	
Sensor Surface [mm]	10.0	Date
MAIA	MAIA not used	Avg. Area (c
		Avg. Type
		OKPERA (UV)

	56 Scan
Date	2024-04-17, 09:50
Avg. Area [cm <sup>2</sup> ]	1.00
Avg. Type	Square Averaging
psPDn+ (W/m <sup>2</sup> )	61.0
psPDtot+ (W/m <sup>2</sup> )	61.5
psPDmod+ (W/m <sup>3</sup> )	61.7
Max(5n) [W/m <sup>1</sup> ]	62.6
Max[Stot] [W/m <sup>2</sup> ]	63.1
Max[[Stot]] [W/m <sup>2</sup> ]	63.3
Email (V/m)	154
Power Drift (dB)	-0.00



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Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Name, Manufacturer Dimensions (m 5G Verification Source 10 GHz 100.0 x 100.0 x			IMEI 5N: 1018	DUT Type	
Exposure Condition	ns				
Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
56 -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

# Hardware Setup

Phantom mmWave Phantom - 1002

#### Scan Setup

Sensor Surface [mm] MAIA

#### 5G Scan 10.0 MAIA not used

Medium

Air

# Measurement Results

EUmmWV3 - SN9374\_F1-55GHz, 2023-12-04

Probe, Calibration Date

	5G Scan
Date	2024-04-17, 09:50
Avg. Area [cm <sup>2</sup> ]	4.00
Avg. Type	Square Averaging
psPDn+ [W/m <sup>2</sup> ]	56.4
psPDtot= (W/m <sup>2</sup> )	57.0
psPDmod+ [W/m <sup>2</sup> ]	57.2
Max(Sn) (W/m <sup>2</sup> )	62.6
Max(Stot) (W/m?)	63.1
Max[[Stot]] [W/m <sup>2</sup> ]	63.3
Emax [V/m]	154
Power Drift (dB)	-0.00

DAE, Calibration Date

DAE4ip 5n1602, 2023-11-08



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