



UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
10609	AAC	IEEE 802.11ac WiFi (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.57	±9.6
10610	AAC	IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.78	±9.6
10611	AAC	IEEE 802.11ac WiFi (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10612	AAC	IEEE 802.11ac WiFi (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10613	AAC	IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.94	±9.6
		IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.59	±9.6
0614	AAC		WLAN	8.82	±9.6
0615	AAC	IEEE 802.11ac WiFi (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
0616	AAC	IEEE 802.11ac WiFi (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.81	±9.6
0617	AAC	IEEE 802.11ac WiFi (40 MHz, MCS1, 90pc duty cycle)	8.0000000000000000000000000000000000000	8.58	±9.6
0618	AAC	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN		
0619	AAC	IEEE 802.11ac WiFi (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
0620	AAC	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
0621	AAC	IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
0622	AAC	IEEE 802.11ac WiFi (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.68	±9.6
10623	AAC	IEEE 802.11ac WiFi (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10624	AAC	IEEE 802.11ac WiFi (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.96	±9.6
10625	AAC	IEEE 802.11ac WiFi (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.96	±9.6
10626	AAC	IEEE 802.11ac WiFi (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10627	AAC	IEEE 802.11ac WiFi (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
10628	AAC	IEEE 802.11ac WiFi (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.71	±9.6
	AAC	IEEE 802.11ac WiFi (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10629		IEEE 802.11ac WiFi (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.72	±9.6
10630	AAC	IEEE 802.11ac WiFi (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.81	±9.6
10631	AAC		WLAN	8.74	±9.6
10632	AAC	IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.83	±9.6
10633	AAC	IEEE 802.11ac WiFi (80 MHz, MCS7, 90pc duty cycle)			-
10634	AAC	IEEE 802.11ac WiFi (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.80	±9.6
10635	AAC	IEEE 802.11ac WiFi (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6
10636	AAD	IEEE 802.11ac WiFi (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.83	±9.6
10637	AAD	IEEE 802.11ac WiFi (160 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10638	AAD	IEEE 802.11ac WiFi (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.86	±9.6
10639	AAD	IEEE 802.11ac WiFi (160 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10640	AAD	IEEE 802.11ac WiFi (160 MHz, MCS4, 90pc duty cycle)	WLAN	8.98	±9.6
10641	AAD	IEEE 802.11ac WiFi (160 MHz, MCS5, 90pc duty cycle)	WLAN	9.06	±9.6
10642	AAD	IEEE 802.11ac WiFi (160 MHz, MCS6, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAD	IEEE 802.11ac WiFi (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.89	±9.6
10644	AAD	IEEE 802.11ac WiFi (160 MHz, MCS8, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAD	IEEE 802.11ac WiFi (160 MHz, MCS9, 90pc duty cycle)	WLAN	9.11	±9.6
		LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10646	AAH		LTE-TDD	11.96	±9.6
10647	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	CDMA2000	3.45	±9.6
10648	AAA	CDMA2000 (1x Advanced)			
10652	AAF	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	±9.6
10653	AAF	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	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, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	±9.6
10658	AAB	Pulse Waveform (200Hz, 10%)	Test	10.00	±9.6
10659	AAB	Pulse Waveform (200Hz, 20%)	Test	6.99	±9.6
10660	AAB	Pulse Waveform (200Hz, 40%)	Test	3.98	±9.6
10661	AAB	Pulse Waveform (200Hz, 60%)	Test	2.22	±9.6
10662	AAB	Pulse Waveform (200Hz, 80%)	Test	0.97	±9.6
10670		Bluetooth Low Energy	Bluetooth	2.19	±9.6
10671	AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)	WLAN	9.09	±9.6
10672		IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.57	±9.
10672		IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.78	±9.6
	1000		WLAN	8.74	±9.
10674	-	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)		_	
10675		IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.90	±9.0
10676	7.0.0	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.0
10677	_	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.73	±9.0
10678		IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.78	±9.
10679	AAC	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.89	±9.6
10680	AAC	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WLAN	8.80	±9.
10681	AAC	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.62	±9.
10682		IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
10683	-	IEEE 802.11ax (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.
10684		IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle)	WLAN	8.26	±9.
10685	_	IEEE 802.11ax (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.
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UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
10687	AAC	IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.45	±9.6
10688	AAC	IEEE 802.11ax (20 MHz, MCS5, 99pc duty cycle)	WLAN	8.29	±9.6
10689	AAC	IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.55	±9.6
10690	AAC	IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10691	AAC	IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.25	±9.6
10692	AAC	IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle)	WLAN	8.29	±9.6
10693	AAC	IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle)	WLAN	8.25	±9.6
10694	AAC	IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle)	WLAN	8.57	±9.6
10695	AAC	IEEE 802.11ax (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.78	±9.6
10696	AAC	IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.91	±9.6
10697	AAC	IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.61	±9.6
10698	AAC	IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.89	±9.6
10699	AAC	IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.82	±9.6
10700	AAC	IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.73	±9.6
10701	AAC	IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.86	±9.6
10702	AAC	IEEE 802.11ax (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.70	±9.6
10703	AAC	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.56	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 90pc 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
10709	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
10711	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.67	±9.6
10712		IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.33	±9.6
10713		IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.26	±9.6
10715		IEEE 802.11ax (40 MHz. MCS8, 99pc duty cycle)	WLAN	8.45	±9.6
10715		IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.30	±9.6
10716		IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.48	±9.6
			WLAN	8.24	±9.6
10718		IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle)	WLAN	8.81	±9.6
10719		IEEE 802.11ax (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.87	±9.6
10720		IEEE 802.11ax (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.76	±9.6
10721	AAC	IEEE 802.11ax (80 MHz, MCS2, 90pc duty cycle) IEEE 802.11ax (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.55	±9.6
10722		IEEE 802.11ax (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.70	±9.6
10723		IEEE 802.11ax (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.6
10724		IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10725		IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.72	±9.6
10726		IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.66	±9.6
10727		IEEE 802.11ax (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.65	±9.6
10729		IEEE 802.11ax (80 MHz, MCS10, 90pc duty cycle)	WLAN	8.64	±9.6
10729		IEEE 802.11ax (80 MHz, MCS11, 90pc duty cycle)	WLAN	8.67	±9.6
			WLAN	8.42	±9.6
10731		IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)  IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.46	±9.6
10732	_	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.40	±9.6
10733			WLAN	8.25	±9.6
10734			WLAN	8.33	±9.6
10735			WLAN	8.27	±9.6
10736	_		WLAN	8.36	±9.6
10737			WLAN	8.42	±9.6
10738			WLAN	8.29	±9.6
10739	_		WLAN	8.48	±9.6
10740			WLAN	8.40	±9.6
1			WLAN	8.43	±9.6
10742			WLAN	8.94	±9.6
10743			WLAN	9.16	±9.6
10744	_		WLAN	8.93	±9.6
10745			WLAN	9.11	±9.6
10746			WLAN	9.04	±9.6
			WLAN	8.93	±9.6
10748	_		WLAN	8.90	±9.6
10749	_		WLAN	8.79	±9.6
10750			WLAN	8.82	±9.6
10751			WLAN	8.81	±9.6
10752	2 AAC	IEEE OUZ.118X (100 MHZ, MC59, 90pc duty cycle)	WLAN	0.01	19.0

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UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
0753	AAC	IEEE 802.11ax (160 MHz, MCS10, 90pc duty cycle)	WLAN	9.00	±9.6
0754	AAC	IEEE 802.11ax (160 MHz, MCS11, 90pc duty cycle)	WLAN	8.94	±9.6
0755	AAC	IEEE 802.11ax (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.64	±9.6
	AAC	IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.77	±9.6
756		IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.77	±9.6
757	AAC		WLAN	8.69	±9.6
758	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.58	±9.6
759	AAC	IEEE 802.11ax (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.49	±9.6
760	AAC	IEEE 802.11ax (160 MHz, MCS5, 99pc duty cycle)			
0761	AAC	IEEE 802.11ax (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.58	±9.6
0762	AAC	IEEE 802.11ax (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.49	±9.6
0763	AAC	IEEE 802.11ax (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.53	±9.6
0764	AAC	IEEE 802.11ax (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.54	±9.6
0765	AAC	IEEE 802.11ax (160 MHz, MCS10, 99pc duty cycle)	WLAN	8.54	±9.6
0766	AAC	IEEE 802.11ax (160 MHz, MCS11, 99pc duty cycle)	WLAN	8.51	±9.6
0767	AAE	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	±9.6
0768	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
0769	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
		5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
0770	AAD		5G NR FR1 TDD	8.02	±9.6
0771	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	±9.6
0772	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	±9.6
10773	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10774	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)		8.31	±9.6
10775	AAD	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD		-
10776	AAD	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	±9.6
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	±9.6
10780	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10781	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10782	AAD	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	±9.6
10783	AAE	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10784		5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	±9.6
		5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	±9.6
10785		5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	±9.6
10786			5G NR FR1 TDD	8.44	±9.6
10787	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD		±9.6
10788	_	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)		_	±9.6
10789		5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD		
10790		5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD		±9.6
10791	AAE	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10792	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	_	±9.6
10793	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10794	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10795	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	±9.6
10796		5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10797		5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	±9.0
10798		5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.0
10799		5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.
10801		5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	_	±9.6
		5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.0
10802			5G NR FR1 TDD		±9.
10803		5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.
10805		5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)			
10806			5G NR FR1 TDD		±9.
10809			5G NR FR1 TDD		±9.
10810	AAD	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.
10812	AAD	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.
10817	AAE	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.
10818	3 AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.
	AAD		5G NR FR1 TDD	8.33	±9.
10819	_		5G NR FR1 TDD	8.30	±9.
			5G NR FR1 TDD	_	±9.
10820			5G NR FR1 TDD		±9.
10820	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	JOINN FRI IDD	0.41	
10820 10821 10822	AAD AAD		The state of the s		+9
10820 10821 10822 10823	AAD AAD AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	±9.
10820 10821 10822 10823	AAD AAD AAD AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD 5G NR FR1 TDD	8.36 8.39	±9.
10820 10821 10822 10823	AAD AAD AAD AAD AAD AAD AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz) 5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz) 5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36 8.39 8.41	_

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10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
10830	AAD	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	±9.6
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±9.6
10832	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	±9.6
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10834	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.6
10835	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10836	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.6
10837	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6
10839	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10840	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6
10841	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.6
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	±9.6
10844	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10846	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10854	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10856	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	±9.6
10858	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10859	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10860	AAD	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10861	AAD	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.6
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10864	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10866	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10868	AAD	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 kHz)	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
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	±9.6
10873		5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10874	_	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10875		5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10876		5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±9.6
10877		5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	±9.6
10878		5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10879		5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.6
10880		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	±9.6
10882		5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	±9.6
10883	_	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	±9.6
10884		5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	±9.6
10885		5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10886		5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10887		5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10888	_	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±9.6
10889	_	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10890		5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.6
10891		5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	±9.6
10892		5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10897		5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.6
10898		5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10899		5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10900	_	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10901		5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10902	_	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10903		5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10904		5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10905		5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10906	-	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10907		5G NR (DFT-s-OFDM, 50% RB, 5MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10908		5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10909		5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10910		5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
.5510				0.00	20.0

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May 31, 2023

UID	Rev	Communication System Name	Group	PAR (dB)	Unc <sup>E</sup> k =
10911	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10912	AAB	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10913	AAB	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10914	AAB	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	±9.6
10915	AAB	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6
			5G NR FR1 TDD	5.87	±9.6
10916	AAB	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
0917	AAB	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)			
0918	AAC	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
0919	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
0920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
0921	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
0923	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0924	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0925	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
0926	AAB	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
0927	AAB	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
0928	AAC	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
0929	AAC	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
	1000000	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10930	AAC		5G NR FR1 FDD	5.52	±9.6
0931	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-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)			_
10933	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10934	AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10935	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10936	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10937	AAC	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±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 (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
10941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10942	AAC	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10943	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	±9.6
10944	AAC	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	±9.6
		5G NR (DFT-s-OFDM, 100% RB, 5MHz, QPSK, 15KHz)	5G NR FR1 FDD	5.85	±9.6
10945	AAC		5G NR FR1 FDD	5.83	±9.6
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)			1000000
10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10948	AAC	5G NR (DFT-s-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	±9.6
10950	AAC	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10951	AAD	5G NR (DFT-s-OFDM, 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	±9.6
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	±9.6
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	±9.6
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	±9.6
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	±9.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD		±9.6
			5G NR FR1 TDD	9.32	±9.
10960	AAC	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	
10961	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)		1000000	±9.
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD		±9.
10963	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD		±9.
10964	_	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD		±9.
10965	AAB	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD		±9.
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD		±9.
10967	AAB	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±9.
10968	AAB	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	±9.
10972	_	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	±9.
10973		5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	±9.
10974		5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	_	±9.
10978		ULLA BDR	ULLA	1.16	±9.
	-	ULLA HDR4	ULLA	8.58	±9.
10979	_		ULLA	10.32	±9.
10980	AAA	ULLA HDR8 ULLA HDRp4	ULLA	3.19	±9.
10981	AAA				

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May 31, 2023

UID	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
10983	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10984	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9.6
10985	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±9.6
10986	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10987	AAA	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±9.6
10988	AAA	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
10989	AAA	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	±9.6
10990	AAA	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 FDD	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-OFDM, 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	AAA	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
11014	AAA	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±9.6
11015	AAA	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAA	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAA	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAA	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAA	IEEE 802.11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAA	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	AAA	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11022	AAA	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11023	AAA	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAA	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11025	AAA	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11026		IEEE 802.11be (320 MHz, MCS0, 99pc duty cycle)	WLAN	8.39	±9.6

 $<sup>^{\</sup>rm E}$  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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#### **Probe 7307 Calibration Certificate**





Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2117

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http://www.caict.ac.cn

Client CTTL

Certificate No: J23Z60283

#### **CALIBRATION CERTIFICATE**

Object EX3DV4 - SN: 7307

Calibration Procedure(s) FF-Z11-004-02

Calibration Procedures for Dosimetric E-field Probes

Calibration date: June 21, 2023

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)

Primary Standards	ID#	Cal Date(Calibrated by, Certificate No.) Scheduled	Calibration
Power Meter NRP2	101919	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101547	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Power sensor NRP-Z91	101548	12-Jun-23(CTTL, No.J23X05435)	Jun-24
Reference 10dBAttenuator	18N50W-10d	B 19-Jan-23(CTTL, No.J23X00212)	Jan-25
Reference 20dBAttenuator	18N50W-20d	B 19-Jan-23(CTTL, No.J23X00211)	Jan-25
Reference Probe EX3DV4	SN 7517	27-Jan-23(SPEAG, No.EX-7517_Jan23)	Jan-24
DAE4	SN 1555	25-Aug-22(SPEAG, No.DAE4-1555_Aug22)	Aug-23
Secondary Standards	ID#	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	12-Jun-23(CTTL, No.J23X05434)	Jun-24
Network Analyzer E5071C	MY46110673	10-Jan-23(CTTL, No.J23X00104)	Jan-24
Reference 10dBAttenuator	BT0520	11-May-23(CTTL, No.J23X04061)	May-25
Reference 20dBAttenuator	BT0267	11-May-23(CTTL, No.J23X04062)	May-25
OCP DAK-3.5	SN 1040	18-Jan-23(SPEAG, No.OCP-DAK3.5-1040_Ja	n23) Jan-24

Name Function Signature

Calibrated by: Yu Zongying SAR Test Engineer

Reviewed by: Lin Hao SAR Test Engineer

Approved by: Qi Dianyuan SAR Project Leader

Issued: June 27, 2023

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Certificate No: J23Z60283 Page 1 of 9









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Glossary:

tissue simulating liquid NORMx,y,z sensitivity in free space sensitivity in TSL / NORMx,y,z ConvF DCP diode compression point

crest factor (1/duty\_cycle) of the RF signal CF modulation dependent linearization parameters A,B,C,D

Polarization Φ Φ rotation around probe axis

θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i Polarization θ

θ=0 is normal to probe axis

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices:

Measurement Techniques", June 2013 b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from

hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016

c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

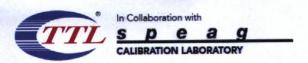
#### Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- $NORM(f)x,y,z = NORMx,y,z^*$  frequency\_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx.v.z: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- Ax, y,z; Bx, y,z; Cx, y,z; VRx, y,z:A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z\* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ±50MHz to ±100MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

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## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7307

#### **Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm(µV/(V/m)²)A	0.46	0.57	0.62	±10.0%
DCP(mV) <sup>B</sup>	101.0	101.1	102.1	

#### **Modulation Calibration Parameters**

UID	Communication System Name		A dB	B dBõV	С	D dB	VR mV	Unc <sup>E</sup> ( <i>k</i> =2)
0	CW	X	0.0	0.0	1.0	0.00	163.4	±2.0%
		Υ	0.0	0.0	1.0		184.7	
		Z	0.0	0.0	1.0		195.5	

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%.

<sup>&</sup>lt;sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 4).

<sup>&</sup>lt;sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>&</sup>lt;sup>E</sup> Uncertainly 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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### DASY/EASY - Parameters of Probe: EX3DV4 - SN:7307

#### Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity (S/m) F	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth <sup>G</sup> (mm)	Unct. (k=2)
750	41.9	0.89	10.45	10.45	10.45	0.17	1.26	±12.7%
900	41.5	0.97	10.05	10.05	10.05	0.16	1.33	±12.7%
1450	40.5	1.20	8.85	8.85	8.85	0.18	1.08	±12.7%
1750	40.1	1.37	8.59	8.59	8.59	0.27	0.98	±12.7%
1900	40.0	1.40	8.30	8.30	8.30	0.30	0.95	±12.7%
2000	40.0	1.40	8.29	8.29	8.29	0.29	0.95	±12.7%
2300	39.5	1.67	8.10	8.10	8.10	0.65	0.65	±12.7%
2450	39.2	1.80	7.85	7.85	7.85	0.58	0.70	±12.7%
2600	39.0	1.96	7.66	7.66	7.66	0.65	0.65	±12.7%
3300	38.2	2.71	7.11	7.11	7.11	0.45	0.95	±13.9%
3500	37.9	2.91	6.93	6.93	6.93	0.44	1.00	±13.9%
3700	37.7	3.12	6.79	6.79	6.79	0.42	1.05	±13.9%
3900	37.5	3.32	6.69	6.69	6.69	0.35	1.35	±13.9%
4100	37.2	3.53	6.78	6.78	6.78	0.35	1.25	±13.9%
4200	37.1	3.63	6.65	6.65	6.65	0.40	1.25	±13.9%
4400	36.9	3.84	6.54	6.54	6.54	0.35	1.35	±13.9%
4600	36.7	4.04	6.49	6.49	6.49	0.35	1.52	±13.9%
4800	36.4	4.25	6.45	6.45	6.45	0.45	1.25	±13.9%
4950	36.3	4.40	6.05	6.05	6.05	0.40	1.40	±13.9%
5250	35.9	4.71	5.54	5.54	5.54	0.50	1.30	±13.9%
5600	35.5	5.07	4.98	4.98	4.98	0.50	1.35	±13.9%
5750	35.4	5.22	5.07	5.07	5.07	0.50	1.30	±13.9%

<sup>&</sup>lt;sup>c</sup> Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

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F At frequency up to 6 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>&</sup>lt;sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

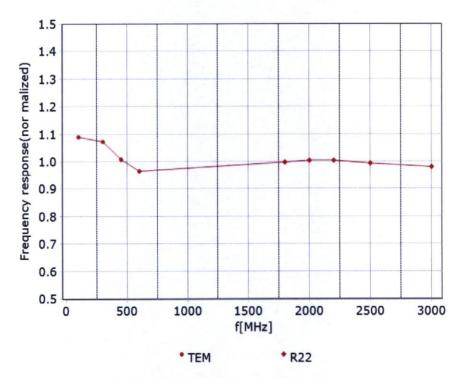








## Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)

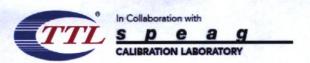


Uncertainty of Frequency Response of E-field: ±7.4% (k=2)

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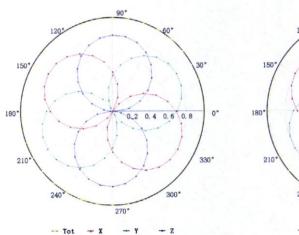


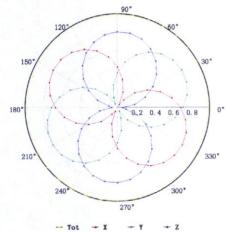


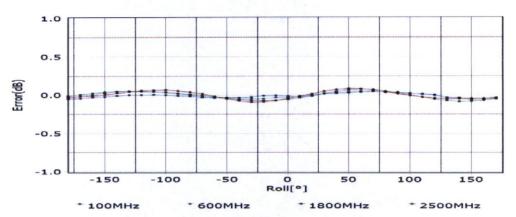
## Receiving Pattern (Φ), θ=0°

## f=600 MHz, TEM

## f=1800 MHz, R22







Uncertainty of Axial Isotropy Assessment: ±1.2% (k=2)

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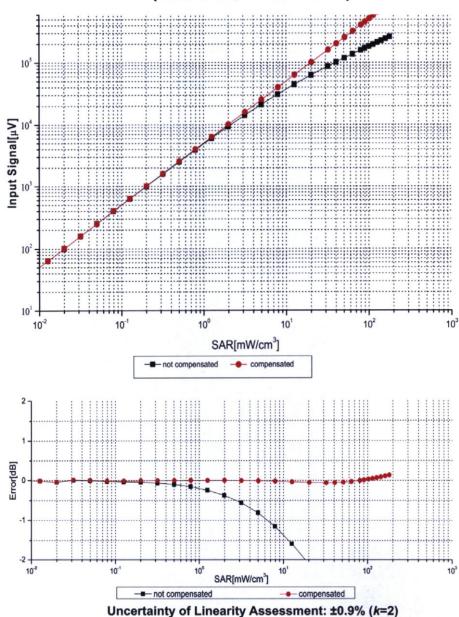




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# Dynamic Range f(SAR<sub>head</sub>) (TEM cell, f = 900 MHz)



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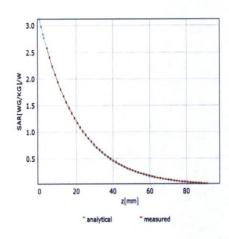


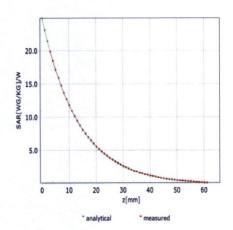


## **Conversion Factor Assessment**

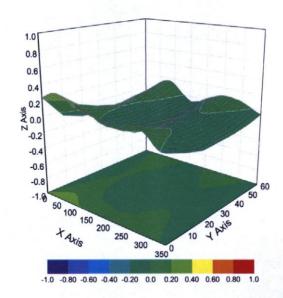
f=750 MHz,WGLS R9(H\_convF)

f=1750 MHz,WGLS R22(H\_convF)





## **Deviation from Isotropy in Liquid**



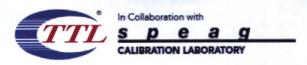
Uncertainty of Spherical Isotropy Assessment: ±3.2% (k=2)

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## DASY/EASY - Parameters of Probe: EX3DV4 - SN:7307

#### **Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	16.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

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## **ANNEX H** Dipole Calibration Certificate

#### 13 MHz Dipole Calibration Certificate

Calibration Laboratory of Schmid & Partner

Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



Schweizerischer Kalibrierdienst 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

Client CTTL

Certificate No. CLA13-1009 May23

ALIBRATION C	ERTIFICATE		
Dbject	CLA13 - SN: 100	9	
Calibration procedure(s)	QA CAL-15.v10 Calibration Proce	dure for SAR Validation Sources	below 700 MHz
Calibration date:	May 19, 2023		
The measurements and the uncertainty	ainties with confidence pr	onal standards, which realize the physical unit obability are given on the following pages and y facility: environment temperature $(22 \pm 3)^{\circ}$ C	d are part of the certificate.
Calibration Equipment used (M&TE	critical for calibration)		
200 sababa 1997 saba 19 bala saba - €0 - €0 - oda baba sabab 19 - madaye - v €0 - o 0 0 0 0 0 0 0 0	E critical for calibration)	Cal Date (Certificate No.)	Scheduled Calibration
Primary Standards	1	Cal Date (Certificate No.) 30-Mar-23 (No. 217-03804/03805)	Scheduled Calibration Mar-24
Primary Standards Power meter NRP2	ID#		
Primary Standards Power meter NRP2 Power sensor NRP-Z91	ID # SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91	ID # SN: 104778 SN: 103244	30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804)	Mar-24 Mar-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination	ID # SN: 104778 SN: 103244 SN: 103245	30-Mar-23 (No. 217-03804/03805) 30-Mar-23 (No. 217-03804) 30-Mar-23 (No. 217-03805)	Mar-24 Mar-24 Mar-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877	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)	Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4	ID # SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327	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)	Mar-24 Mar-24 Mar-24 Mar-24 Mar-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877	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. DAE4-654_Jan23)	Mar-24 Mar-24 Mar-24 Mar-24 Jan-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 DAE4 Secondary Standards Power meter NRP2	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654	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)	Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654	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. DAE4-654_Jan23) Check Date (in house)	Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter NRP2	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654  ID #  SN: 107193	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. DAE4-654_Jan23) Check Date (in house)	Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter NRP2 Power sensor NRP-Z91	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654  ID #  SN: 107193 SN: 100922	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. DAE4-654_Jan23)  Check Date (in house)  08-Nov-21 (in house check Dec-22) 15-Dec-09 (in house check Dec-22)	Mar-24 Mar-24 Mar-24 Mar-24 Mar-24 Jan-24 Jan-24 Scheduled Check In house check: Dec-24 In house check: Dec-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 RF generator HP 8648C	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654  ID #  SN: 107193 SN: 100922 SN: 100418	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. DAE4-654_Jan23)  Check Date (in house) 08-Nov-21 (in house check Dec-22) 15-Dec-09 (in house check Dec-22) 01-Jan-04 (in house check Dec-22)	Mar-24 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
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4  Secondary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 3877 SN: 654  ID #  SN: 107193 SN: 100922 SN: 100418 SN: US3642U01700	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. DAE4-654_Jan23)  Check Date (in house) 08-Nov-21 (in house check Dec-22) 15-Dec-09 (in house check Dec-22) 01-Jan-04 (in house check Dec-22) 04-Aug-99 (in house check Jun-22)	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: Jun-24 In house check: Oct-24 In house check: Oct-24
Primary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 Reference 20 dB Attenuator Type-N mismatch combination Reference Probe EX3DV4 DAE4 Secondary Standards Power meter NRP2 Power sensor NRP-Z91 Power sensor NRP-Z91 RF generator HP 8648C	ID #  SN: 104778 SN: 103244 SN: 103245 SN: CC2552 (20x) SN: 310982 / 06327 SN: 654  ID #  SN: 107193 SN: 100922 SN: 100418 SN: US3642U01700 SN: US41080477	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. DAE4-654_Jan23)  Check Date (in house) 08-Nov-21 (in house check Dec-22) 15-Dec-09 (in house check Dec-22) 01-Jan-04 (in house check Dec-22) 04-Aug-99 (in house check Jun-22) 31-Mar-14 (in house check Oct-22)	Mar-24 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 In house check: Jun-24

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#### Calibration Laboratory of

Schmid & Partner **Engineering AG** 





Schweizerischer Kalibrierdienst C Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

Zeughausstrasse 43, 8004 Zurich, Switzerland

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:

tissue simulating liquid TSL

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

#### 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	53.6 ± 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	0.558 W/kg	
SAR for nominal Head TSL parameters	normalized to 1W	0.573 W/kg ± 18.4 % (k=2)	

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	1 W input power	0.344 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	0.353 W/kg ± 18.0 % (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	49.6 Ω - 1.7 jΩ	
Return Loss	- 35.2 dB	

#### **Additional EUT Data**

Manufactured by	SPEAG
manadara ay	

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

Date: 19.05.2023

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: CLA13; Type: CLA13; Serial: CLA13 - SN: 1009

Communication System: UID 0 - CW; Frequency: 13 MHz

Medium parameters used: f = 13 MHz;  $\sigma = 0.72$  S/m;  $\varepsilon_r = 53.6$ ;  $\rho = 1000$  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 = 31.63 V/m; Power Drift = -0.07 dB

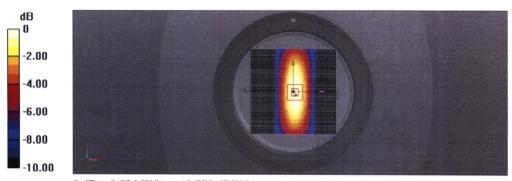
Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.558 W/kg; SAR(10 g) = 0.344 W/kg

Smallest distance from peaks to all points 3 dB below = 15.2 mm

Ratio of SAR at M2 to SAR at M1 = 77.5%

Maximum value of SAR (measured) = 0.836 W/kg



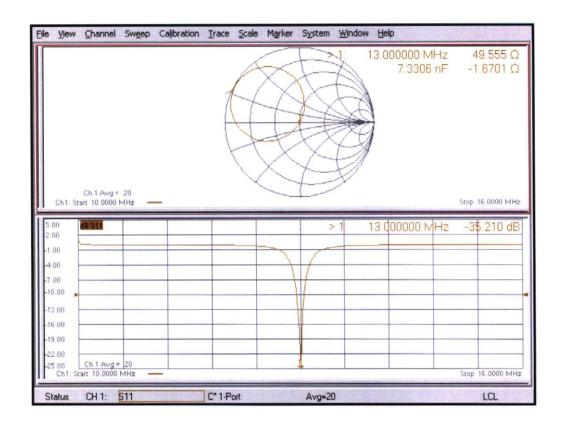
0 dB = 0.836 W/kg = -0.778 dBW/kg

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#### Impedance Measurement Plot for Head TSL



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