



May 24, 2023

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
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	_	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
10614		IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.59	±9.6
10615	-	IEEE 802.11ac WiFi (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10616	AAC	IEEE 802.11ac WiFi (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.82	±9.6
10617	AAC	IEEE 802.11ac WiFi (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.81	±9.6
10618	AAC	IEEE 802.11ac WiFi (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.58	±9.6
10619	AAC	IEEE 802.11ac WiFi (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.86	±9.6
10620	AAC	IEEE 802.11ac WiFi (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.87	±9.6
10621	AAC	IEEE 802.11ac WiFi (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10622	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
10629	AAC	IEEE 802.11ac WiFi (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.85	±9.6
10630	AAC	IEEE 802.11ac WiFi (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.72	±9.6
10631	AAC	IEEE 802.11ac WiFi (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.81	±9.6
10632	AAC	IEEE 802.11ac WiFi (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10633	AAC	IEEE 802.11ac WiFi (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.83	±9.6
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
10646	AAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10647	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-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	AAA	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	AAC	IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.57	±9.6
10673	AAC	IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.78	±9.6
10674	AAC	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10675	AAC	IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.90	±9.6
10676	AAC	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10677	AAC	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.73	±9.6
10678	AAC	IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.78	±9.6
10679 10680	AAC	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.89	±9.6
	AAC	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WLAN	8.80	±9.6
10681	AAC	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.62	±9.6
10682	AAC	IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
10683	AAC	IEEE 802.11ax (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10684	AAC	IEEE 802.11ax (20 MHz, MCS1, 99pc duty cycle)	WLAN	8.26	±9.6
10685	AAC	IEEE 802.11ax (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10686	AAC	IEEE 802.11ax (20 MHz, MCS3, 99pc duty cycle)	WLAN	8.28	±9.6

Certificate No: EF-4060_May23

Page 16 of 21



May 24, 2023

UID	Rev	Communication System Name	Group	PAR (dB)	UncE 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
0690	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	
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		±9.6
10703	AAC	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.70	±9.6
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle)		8.82	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 90pc duty cycle)	WLAN	8.56	±9.6
10706	AAC	IEEE 802.11ax (40 MHz, MCS11, 90pc duty cycle)	WLAN	8.69	±9.6
10707	AAC	IEEE 802.11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.66	±9.6
10708	AAC		WLAN	8.32	±9.6
10709	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10709		IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
	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, MCS6, 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	8.45	±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 duty 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 802.11ax (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 802.11ax (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	AAC	IEEE 802.11ax (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.6
10725	AAC	IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10726	AAC	IEEE 802.11ax (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.72	±9.6
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	±9.6
10729	AAC	IEEE 802.11ax (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	8.46	±9.6
10733	AAC	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.40	±9.6
10734	AAC	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)	WLAN	8.33	
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		±9.6
10738	AAC	IEEE 802.11ax (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.36	±9.6
10739	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)		8.42	±9.6
10740	AAC	IEEE 802.11ax (80 MHz, MCS9, 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	±9.6
10742	AAC	IEEE 802.11ax (60 MHz, MCS11, 99pc duty cycle)	WLAN	8.43	±9.6
10743	AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle)	WLAN	8.94	±9.6
10745	AAC		WLAN	9.16	±9.6
10745	AAC	IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.93	±9.6
		IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle)	WLAN	9.11	±9.6
10747	AAC	IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle)	WLAN	9.04	±9.6
10748	AAC	IEEE 802.11ax (160 MHz, MCS5, 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	AAC	IEEE 802.11ax (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.79	±9.6
10751	AAC	IEEE 802.11ax (160 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10752	AAC	IEEE 802.11ax (160 MHz, MCS9, 90pc duty cycle)	WLAN		

Certificate No: EF-4060_May23

Page 17 of 21



EF3DV3 - SN:4060 May 24, 2023

10753 10754 10755 10756 10757 10758 10759 10760 10761 10762 10763 10764 10765 10766	AAC AAC AAC AAC AAC	IEEE DOO 11 (100 MIL MOOL OF 11	WLAN WLAN	9.00 8.94	±9.6
10755 10756 10757 10758 10759 10760 10761 10762 10763 10764 10765 10766	AAC AAC AAC	IEEE 802.11ax (160 MHz, MCS0, 99pc duty cycle)		8.94	100
10756 10757 10758 10759 10760 10761 10762 10763 10764 10765 10766	AAC AAC	IEEE 000 44 (400 kH). MOOL 00			±9.6
10757 10758 10759 10760 10761 10762 10763 10764 10765 10766	AAC	IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.64	±9.6
10758 10759 10760 10761 10762 10763 10764 10765 10766	AAC	IFFF 000 44 (100 11) 1100 11	WLAN	8.77	±9.6
10759 10760 10761 10762 10763 10764 10765 10766		IEEE 000 14 - (100 11) 11000 10	WLAN	8.77	±9.6
10760 10761 10762 10763 10764 10765 10766			WLAN	8.69	±9.6
10761 10762 10763 10764 10765 10766		IEEE COO 44 - 1400 MIL MOOF CO	WLAN	8.58	±9.6
10762 10763 10764 10765 10766	AAC	IEEE 802.11ax (160 MHz, MCS5, 99pc duty cycle)	WLAN	8.49	±9.6
10763 10764 10765 10766	AAC	IEEE DOO 44 - (400 MIL MOOT OR ALL MOOT OR	WLAN	8.58	±9.6
10764 10765 10766	AAC	IFFF 900 11 (100 NI) 11000 CC	WLAN	8.49	±9.6
10765 10766	AAC	IEEE OOD 11 USBANII 11000 CO	WLAN	8.53	±9.6
10766	AAC	IFFF COR LL CLOSE III LICEUS CO	WLAN	8.54	±9.6
	AAC		WLAN	8.54	±9.6
10767	AAE	CO MID (OR OFFILL) DO THE COOK COME	WLAN	8.51	±9.6
10768	AAD	CO VID IOD COURT OF	5G NR FR1 TDD	7.99	±9.6
10769	AAD	FO NID YOU OFFINA A DO ASSAUL OFFINA	5G NR FR1 TDD	8.01	±9.6
10770	AAD	FO ND YOU OFFINE A DO CONTILL OFFINE	5G NR FR1 TDD	8.01	±9.6
10771	AAD	FO ND YOU OFFILE A DR OFFILE A DROVE A FILE A	5G NR FR1 TDD	8.02	±9.6
		SO NO COR OFFILE A DR COMMIT CORON ASSESSED.	5G NR FR1 TDD	8.02	±9.6
10772	AAD	FO ND (OD OFFILE) DE 101111 CORRES CONTRACTOR	5G NR FR1 TDD	8.23	±9.6
0774	AAD	CO UD IOD OFFILE - DE TELLE - DE	5G NR FR1 TDD	8.03	±9.6
10774	AAD	CO NE COE OFFILE CON DE CARLO	5G NR FR1 TDD	8.02	±9.6
0776	AAD	CO LID IOD OFFICE COLUMN TO THE COLUMN TO TH	5G NR FR1 TDD	8.31	±9.6
0777	AAC	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAD	TO UP ION ARCHIVE TO THE COLUMN TO THE COLUM	5G NR FR1 TDD	8.30	±9.6
10779	AAC		5G NR FR1 TDD	8.34	±9.6
10780	AAD	ES LIS (AS ASSAULT CO.) BY THE STATE OF THE	5G NR FR1 TDD	8.42	±9.6
0781	AAD	EG LIE JOB GEOLI GOVERN	5G NR FR1 TDD	8.38	±9.6
10782	AAD	FO LID YOU GETTLE SALE DE TALLE.	5G NR FR1 TDD	8.38	±9.6
10783	AAE		5G NR FR1 TDD	8.43	±9.6
10784	AAD	FO ND YOU GERLY AREA SALES	5G NR FR1 TDD	8.31	±9.6
10785	AAD	ed tip top cent test in	5G NR FR1 TDD	8.29	±9.6
10786	AAD	FO NO YOU GERLY 144-1 BO COLUMN TO THE STATE OF THE STATE	5G NR FR1 TDD	8.40	±9.6
10787	AAD	FOLID (OD OFFILI 100) DE CELIU COMO	5G NR FR1 TDD	8.35	±9.6
10788	AAD		5G NR FR1 TDD	8.44	±9.6
10789	AAD	EQ LIB (QD ARRAY COLUMN TO CALLE)	5G NR FR1 TDD	8.39	±9.6
10790	AAD		5G NR FR1 TDD	8.37	±9.6
10791	AAE		5G NR FR1 TDD	8.39	±9.6
10792	AAD	EG VID (AD APPLI) ED VIVIVI ED VIVIVI	5G NR FR1 TDD	7.83	±9.6
10793	AAD	EALIS (AS ASSAULT AS A	5G NR FR1 TDD	7.92	±9.6
10794	AAD		5G NR FR1 TDD	7.95	±9.6
10795	AAD		5G NR FR1 TDD 5G NR FR1 TDD	7.82 7.84	±9.6
10796	AAD	EA UD IOD OFFILE I BE CALLED A COMMISSION OF THE	5G NR FR1 TDD		±9.6
0797	AAD	EA 115 (05 055) 1	5G NR FR1 TDD	7.82 8.01	±9.6
10798	AAD	FO NO COR OFFICE A PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AD	5G NR FR1 TDD	7.89	±9.6
0799	AAD	SAME OR OFFILE OF TAXABLE PROPERTY.	5G NR FR1 TDD	7.89	±9.6
0801	AAD		5G NR FR1 TDD	7.89	±9.6
0802	AAD	COMP (OR OFFILE) DR COMM COMP (OR OFFILE)	5G NR FR1 TDD	7.89	±9.6
	AAD		5G NR FR1 TDD		±9.6
0805	AAD	TO THE LOS AREAS ASSESSMENT OF THE STATE OF	5G NR FR1 TDD	7.93 8.34	±9.6
	AAD	FOUR OR OFFICE FOR OR STATE OF THE STATE OF	5G NR FR1 TDD		±9.6
	AAD	FO UP (OF OFFICE COLUMN TO	5G NR FR1 TDD	8.37 8.34	±9.6
100000000000000000000000000000000000000	AAD	EQ 110 100 ACOLL COLL COLL COLL COLL COLL COLL COL	5G NR FR1 TDD	8.34	±9.6
	AAD	FO NO (OD OFFICE SOURCE OF ALLEY ADDITIONAL OFFICE OF ALLEY ADDITIONAL OFFICE OF ALLEY ADDITIONAL OFFICE OF ALLEY ADDITIONAL OFFICE OFFICE OF ALLEY ADDITIONAL OFFICE OF ALLEY ADDITIONAL OFFICE OFFIC	5G NR FR1 TDD		±9.6
	AAE	FO NE (OF OFFICE ARREST ER FAMIL OFFICE ARREST	5G NR FR1 TDD	8.35	±9.6
	AAD	FOUR OR OFFILE ARREST BR. (ALVI). ARREST	5G NR FR1 TDD	8.35	±9.6
	AAD	FOUR OR OFFILE COLUMN TO THE C	5G NR FR1 TDD	8.34	±9.6
	AAD	FO LID (OD OFFILE LINE) FOR LIVE OF THE STATE OF THE STAT	5G NR FR1 TDD	8.33	±9.6
	AAD	FO ND (OD OFDIA 1999) DD OFFINI ODDIA 1991		8.30	±9.6
_	AAD	FO VID 100 OFFICE CONTRACTOR OF THE CONTRACTOR O	5G NR FR1 TDD 5G NR FR1 TDD	8.41	±9.6
_	AAD	FO LID YOU OFFILE AND THE WALLE OF THE PARTY		8.41	±9.6
	AAD	FO ND (OD OFBIL 1994) BB FILLS	5G NR FR1 TDD	8.36	±9.6
	AAD		5G NR FR1 TDD	8.39	±9.6
	AAD	CONDICE CERTIFICATION CONTRACTOR	5G NR FR1 TDD	8.41	±9.6
	AAD	CONDICE OFFICE CONTRACTOR CONTRAC	5G NR FR1 TDD 5G NR FR1 TDD	8.42 8.43	±9.6

Certificate No: EF-4060_May23 Page 18 of 21



May 24, 2023

UID	Rev	Communication System Name	Group	PAR (dB)	UncE k =
10829	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
	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
10833	AAD	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	±9.6
10834	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10835	AAD	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.6
10836	AAD	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10837	AAD	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.6
10839	AAD	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6
10840	AAD	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10841	AAD	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6
10843	AAD	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz) 5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.6
10844	AAD		5G NR FR1 TDD	8.49	±9.6
10846	AAD	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10854	AAD	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10855	AAD	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz) 5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10856	AAD		5G NR FR1 TDD	8.36	±9.6
10857	AAD	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz) 5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10858	AAD		5G NR FR1 TDD	8.35	±9.6
10859	AAD	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10860	AAD	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10861	AAD	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	8.41	±9.6
10863	AAD	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.6
10864	AAD	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10865	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10866	AAD	5G NR (DFT-s-OFDM, 100% NB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10868	AAD	5G NR (DFT-s-OFDM, 1 NB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 KHz)	5G NR FR1 TDD	5.89	±9.6
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.86	±9.6
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10873	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.52	±9.6
10874	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10875	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10876	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10877	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 KHz)	5G NR FR2 TDD	8.39	±9.6
10878	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	±9.6
10879	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10880	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.6
10881	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.38	±9.6
10882	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD 5G NR FR2 TDD	5.75	±9.6
10883	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.96 6.57	±9.6
10884	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD		±9.6
10885	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)		6.53	±9.6
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD 5G NR FR2 TDD	6.61 6.65	±9.6
10887	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±9.6
10889	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD		±9.6
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10891	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.6
10892	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13 8.41	±9.6
10897	AAC	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.6
10898	AAB	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10899	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10900	AAB	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10901	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10902	AAB	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD		±9.6
10903	AAB	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10904	AAB	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10905	AAB	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10906	AAB	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10907	AAC	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)		5.68	±9.6
10908	AAB	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6
100000000000000000000000000000000000000	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93 5.96	±9.6
10909					

Certificate No: EF-4060_May23

Page 19 of 21





May 24, 2023

10044	Rev	Communication System Name	Group	PAR (dB)	$Unc^{E} k = 2$
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
10916	AAB	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10917	AAB	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10918	AAC	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10919	AAB	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10921	AAB	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
10923	AAB	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10924	AAB	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10925	AAB	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10926	AAB	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10927	AAB	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10928	AAC	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10929	AAC	5G NR (DFT-s-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-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
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, 5MHz, QPSK, 15kHz)	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
10945	AAC	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10946	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	±9.6
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
		5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	50 NO 504 505	8.31	±9.6
10957			5G NR FR1 FDD	0.01	13.0
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 10959	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 FDD	8.61 8.33	
10958 10959 10960	AAA AAA AAC	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD	8.61	±9.6
10958 10959 10960 10961	AAA AAA AAC AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD 5G NR FR1 TDD	8.61 8.33	±9.6 ±9.6
10958 10959 10960 10961 10962	AAA AAC AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD 5G NR FR1 TDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40	±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963	AAA AAC AAB AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD 5G NR FR1 TDD 5G NR FR1 TDD 5G NR FR1 TDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55	±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964	AAA AAC AAB AAB AAB AAC	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29	±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965	AAA AAC AAB AAB AAB AAC AAC	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966	AAA AAC AAB AAB AAB AAC AAB AAC	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967	AAA AAC AAB AAB AAB AAC AAB AAC	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968	AAA AAC AAB AAB AAB AAC AAB AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972	AAA AAC AAB AAB AAB AAC AAB AAB AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972 10973	AAA AAC AAB AAB AAC AAB AAC AAB AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR (DF-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49 11.59 9.06	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972 10973 10974	AAA AAC AAB AAB AAC AAB AAC AAB AAC AAB AAC AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR (CP-OFDM, TM 3.1, 100 MHz, QPSK, 30 kHz) 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz) 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972 10973 10974	AAA AAC AAB AAB AAB AAB AAB AAB AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) ULLA BDR	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD ULLA	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49 11.59 9.06	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972 10973 10974 10978 10979	AAA AAA AAC AAB AAB AAC AAB AAC AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) ULLA BDR ULLA HDR4	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD USA ULLA ULLA	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49 11.59 9.06 10.28 1.16 8.58	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972 10973 10974 10978 10979	AAA AAA AAB AAB AAB AAB AAB AAB AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) ULLA BDR ULLA HDR4 ULLA HDR4	5G NR FR1 FDD 5G NR FR1 TDD ULLA ULLA	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49 11.59 9.06 10.28 1.16 8.58	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6
10958 10959 10960 10961 10962 10963 10964 10965 10966 10967 10968 10972 10973 10974	AAA AAA AAC AAB AAB AAC AAB AAC AAB AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz) 5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz) 5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz) 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) ULLA BDR ULLA HDR4	5G NR FR1 FDD 5G NR FR1 FDD 5G NR FR1 TDD USA ULLA ULLA	8.61 8.33 9.32 9.36 9.40 9.55 9.29 9.37 9.55 9.42 9.49 11.59 9.06 10.28 1.16 8.58	±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6 ±9.6

Certificate No: EF-4060_May23

Page 20 of 21



May 24, 2023

UID 10983	AAA	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10984	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10985	-	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	
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
0988	AAA	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
	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
1003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	±9.6
1004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
1005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	±9.6
1006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
1007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD		±9.6
1008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.46	±9.6
1009	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.51	±9.6
1010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.76	±9.6
1011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	±9.6
1012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	±9.6
1013	AAA	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.68	±9.6
1014	AAA	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.47	±9.6
1015	AAA	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.45	±9.6
1016	AAA	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
1017	AAA	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)		8.44	±9.6
1018	AAA	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.41	±9.6
1019	AAA	IEEE 802.11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.40	±9.6
1020	AAA	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.29	±9.6
1021	AAA	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.27	±9.6
1022	AAA	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.46	±9.6
1023	AAA	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.36	±9.6
1024	AAA	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.09	±9.6
1025	AAA	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.42	±9.6
1026	AAA	IEEE 802.11be (320 MHz, MCS0, 99pc duty cycle)	WLAN	8.37	±9.6
		(220 Milita, MOSO, SSPC duty cycle)	WLAN	8.39	±9.6

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

Certificate No: EF-4060_May23

Page 21 of 21





ANNEX E DIPOLE CALIBRATION CERTIFICATE

Dipole 835 MHz

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



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

Beijing

Certificate No. CD835V3-1023_Aug23

CALIBRATION	CERTIFICATE
Object	CD835V3 - SN: 1023
Calibration procedure(s)	QA CAL-20.v7

Calibration Procedure for Validation Sources in air

August 15, 2023 Calibration date:

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)

ID#	Cal Date (Certificate No.)	Scheduled Calibration
SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
SN: BH9394 (20k)	30-Mar-23 (No. 217-03809)	Mar-24
SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
SN: 4013	30-Dec-22 (No. EF3-4013_Dec22)	Dec-23
SN: 781	03-Jan-23 (No. DAE4-781_Jan23)	Jan-24
	SN: 104778 SN: 103244 SN: 103245 SN: BH9394 (20k) SN: 310982 / 06327 SN: 4013	SN: 104778 30-Mar-23 (No. 217-03804/03805) SN: 103244 30-Mar-23 (No. 217-03804) SN: 103245 30-Mar-23 (No. 217-03805) SN: BH9394 (20k) 30-Mar-23 (No. 217-03809) SN: 310982 / 06327 30-Mar-23 (No. 217-03810) SN: 4013 30-Dec-22 (No. EF3-4013_Dec22)

Secondary Standards	ID#	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-20)	In house check: Oct-23
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-20)	In house check: Oct-23
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-20)	In house check: Oct-23
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Oct-20)	In house check: Oct-23
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24
	Name	Function	Signature

Calibrated by: Claudio Leublei Laboratory Technician

Approved by: Niels Kuster

Issued: August 17, 2023

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: CD835V3-1023_Aug23

Page 1 of 5





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

References

 ANSI-C63.19-2019 (ANSI-C63.19-2011)
 American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

Methods Applied and Interpretation of Parameters:

- Coordinate System: y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna
 (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes.
 In coincidence with the standards [1], the measurement planes (probe sensor center) are selected to be at a
 distance of 15 mm above the top metal edge of the dipole arms.
- Measurement Conditions: Further details are available from the hardcopies at the end of the certificate. All
 figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector
 is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a
 directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- Antenna Positioning: The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections. It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- Feed Point Impedance and Return Loss: These parameters are measured using a Vector Network Analyzer.
 The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- E-field distribution: E field is measured in the x-y-plane with an isotropic E-field probe with 100 mW forward power to the antenna feed point. In accordance with [1], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 15 mm (in z) above the metal top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, in the plane above the dipole surface.

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: CD835V3-1023_Aug23	Page 2 of 5		



Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, $dy = 5 mm$	
Frequency	835 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 835 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	113.4 V/m = 41.09 dBV/m
Maximum measured above low end	100 mW input power	110.5 V/m = 40.87 dBV/m
Averaged maximum above arm	100 mW input power	112.0 V/m ± 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
800 MHz	17.0 dB	40.3 Ω - 8.3 jΩ
835 MHz	23.2 dB	$52.9 \Omega + 6.5 j\Omega$
880 MHz	16.4 dB	61.6 Ω - 12.6 jΩ
900 MHz	16.8 dB	51.3 Ω - 14.8 jΩ
945 MHz	23.4 dB	45.2 Ω + 4.3 jΩ

3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

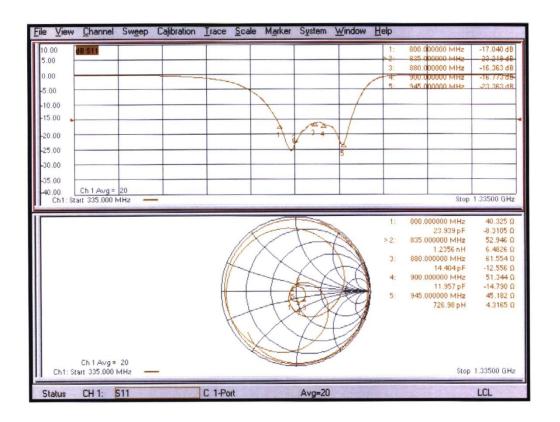
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

Certificate No: CD835V3-1023_Aug23 Page 3 of 5



Impedance Measurement Plot



Certificate No: CD835V3-1023_Aug23





DASY5 E-field Result

Date: 15.08.2023

Test Laboratory: SPEAG Lab2

DUT: HAC-Dipole 835 MHz; Type: CD835V3; Serial: CD835V3 - SN: 1023

Communication System: UID 0 - CW ; Frequency: 835 MHz Medium parameters used: $\sigma=0$ S/m, $\epsilon_r=1$; $\rho=0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

Probe: EF3DV3 - SN4013; ConvF(1, 1, 1) @ 835 MHz; Calibrated: 30.12.2022

Sensor-Surface: (Fix Surface)

Electronics: DAE4 Sn781; Calibrated: 03.01.2023

Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070

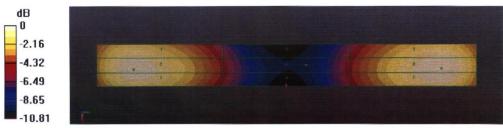
DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole E-Field measurement @ 835MHz/E-Scan - 835MHz d=15mm/Hearing Aid Compatibility Test (41x361x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 132.8 V/m; Power Drift = -0.00 dB
Applied MIF = 0.00 dB
RF audio interference level = 41.09 dBV/m
Emission category: M3

MIF scaled E-field

Grid 1 M3 40.84 dBV/m		Grid 3 M3 40.45 dBV/m
Grid 4 M4 35.82 dBV/m		Commence of the Commence of th
Grid 7 M3 41.05 dBV/m	Grid 8 M3 41.09 dBV/m	



0 dB = 113.4 V/m = 41.09 dBV/m

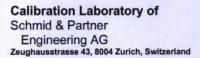
Certificate No: CD835V3-1023_Aug23

Page 5 of 5





Dipole 1880 MHz







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

Beijing

Certificate No. CD1880V3-1018_Aug23

CALIBRATION CERTIFICATE

Object

CD1880V3 - SN: 1018

Calibration procedure(s)

Calibration Procedure for Validation Sources in air

Calibration date:

August 15, 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 (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
Power sensor NRP-Z91	SN: 103245	30-Mar-23 (No. 217-03805)	Mar-24
Reference 20 dB Attenuator	SN: BH9394 (20k)	30-Mar-23 (No. 217-03809)	Mar-24
Type-N mismatch combination	SN: 310982 / 06327	30-Mar-23 (No. 217-03810)	Mar-24
Probe EF3DV3	SN: 4013	30-Dec-22 (No. EF3-4013_Dec22)	Dec-23
DAE4	SN: 781	03-Jan-23 (No. DAE4-781_Jan23)	Jan-24
S	ID#	Check Date (in house)	Scheduled Check
Secondary Standards	ID#	Check Date (in house)	Scheduled Check

Secondary Standards	ID#	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Oct-20)	In house check: Oct-23
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Oct-20)	In house check: Oct-23
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Oct-20)	In house check: Oct-23
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Oct-20)	In house check: Oct-23
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Function Laboratory Technician Calibrated by: Niels Kuster Quality Manager

Issued: August 17, 2023

This calibration certificate shall not be reproduced except in full without written approval of the laboratory

Certificate No: CD1880V3-1018_Aug23

Approved by:

Page 1 of 5





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

References

 ANSI-C63.19-2019 (ANSI-C63.19-2011)
 American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

Methods Applied and Interpretation of Parameters:

- Coordinate System: y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna
 (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes.
 In coincidence with the standards [1], the measurement planes (probe sensor center) are selected to be at a
 distance of 15 mm above the top metal edge of the dipole arms.
- Measurement Conditions: Further details are available from the hardcopies at the end of the certificate. All
 figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector
 is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a
 directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- Antenna Positioning: The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections. It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- Feed Point Impedance and Return Loss: These parameters are measured using a Vector Network Analyzer.
 The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any obstacles.
- E-field distribution: E field is measured in the x-y-plane with an isotropic E-field probe with 100 mW forward power to the antenna feed point. In accordance with [1], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 15 mm (in z) above the metal top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, in the plane above the dipole surface.

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: CD1880V3-1018_Aug23 Page 2 of 5

©Copyright. All rights reserved by CTTL.





Measurement Conditions

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

DASY Version	DASY5	V52.10.4
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	1880 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

Maximum Field values at 1880 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	87.2 V/m = 38.81 dBV/m
Maximum measured above low end	100 mW input power	85.4 V/m = 38.63 dBV/m
Averaged maximum above arm	100 mW input power	86.3 V/m ± 12.8 % (k=2)

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters

Frequency	Return Loss	Impedance
1730 MHz	28.3 dB	54.0 Ω - 0.5 jΩ
1880 MHz	23.1 dB	55.4 Ω + 5.1 jΩ
1900 MHz	22.9 dB	56.8 Ω + 3.4 jΩ
1950 MHz	30.8 dB	52.8 Ω - 1.0 jΩ
2000 MHz	20.0 dB	48.5 Ω + 9.8 jΩ

3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

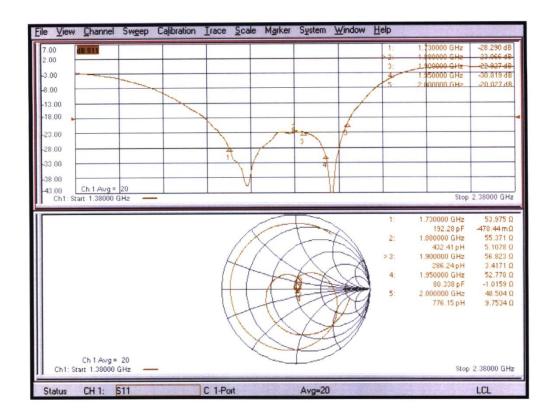
Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

Certificate No: CD1880V3-1018_Aug23



Impedance Measurement Plot



Certificate No: CD1880V3-1018_Aug23

Page 4 of 5





DASY5 E-field Result

Date: 15.08.2023

Test Laboratory: SPEAG Lab2

DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1018

Communication System: UID 0 - CW ; Frequency: 1880 MHz Medium parameters used: $\sigma=0$ S/m, $\epsilon_r=1$; $\rho=0$ kg/m³

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EF3DV3 SN4013; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 30.12.2022
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 03.01.2023
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Dipole E-Field measurement @ 1880MHz - E-Scan - 1880MHz d=15mm/Hearing Aid Compatibility Test (41x181x1):

Interpolated grid: dx=0.5000 mm, dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 150.8 V/m; Power Drift = 0.01 dB
Applied MIF = 0.00 dB
RF audio interference level = 38.81 dBV/m
Emission category: M2

MIF scaled E-field

Grid 1 M2 38.77 dBV/m	Grid 3 M2 38.44 dBV/m
Grid 4 M2 36.08 dBV/m	Grid 6 M2 35.86 dBV/m
Grid 7 M2 38.57 dBV/m	Grid 9 M2 38.28 dBV/m



0 dB = 87.25 V/m = 38.81 dBV/m

Certificate No: CD1880V3-1018_Aug23

Page 5 of 5