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10575- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 6 Mbps, 90pc duty cycle)	X	4.84	67.12	16.79	0.46	130.0	± 9.6 %
		Y	4.72	66.80	16.47		130.0	<u> </u>
		Z	4.83	66.93	16.59		130.0	
10576- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 9 Mbps, 90pc duty cycle)	Х	4.86	67.28	16.85	0.46	130.0	± 9.6 %
		Υ	4.75	66.95	16.53		130.0	[
		Z	4.86	67.08	16,65		130.0	
10577- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 12 Mbps, 90pc duty cycle)	Х	5.09	67.60	17.02	0.46	130.0	± 9.6 %
	·····	Y	4.97	67.26	16.71		130.0	· · · · · · · · · · · · · · · · · · ·
		Z	5.10	67.41	16.83		130.0	
10578- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 18 Mbps, 90pc duty cycle)	X	4.99	67.77	17.12	0.46	130.0	± 9.6 %
		Y	4.86	67.43	16.80		130.0	
10		Z	4.99	67.57	16.91		130.0	
10579- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 24 Mbps, 90pc duty cycle)	X	4.77	67.19	16.53	0.46	130.0	± 9.6 %
······		Y	4.64	66.77	16.15		130.0	
		Z	4.78	67.01	16.33		130.0	
10580- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 36 Mbps, 90pc duty cycle)	Х	4.81	67.17	16.53	0.46	130.0	±9.6 %
		Y	4.68	66.78	16.16		130.0	
		Z	4.82	66.97	16.32		130.0	
10581- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 48 Mbps, 90pc duty cycle)	X	4.90	67.87	17.09	0.46	130.0	± 9.6 %
		Y	4.77	67.49	16.75		130.0	
		Z	4.90	67.66	16.87	****	130.0	
10582- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 54 Mbps, 90pc duty cycle)	Х	4.73	66.96	16.34	0.46	130.0	± 9.6 %
		Y	4.59	66.53	15.94		130.0	
		Z	4.73	66.78	16.14		130.0	
10583- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.84	67.12	16.79	0.46	130.0	± 9.6 %
		Y	4.72	66.80	16.47		130.0	
		Z	4.83	66.93	16.59		130.0	
10584- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.86	67.28	16.85	0.46	130.0	± 9.6 %
		Y	4.75	66.95	16.53		130.0	
		Z	4.86	67.08	16.65		130.0	
10585- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	5.09	67.60	17.02	0.46	130.0	± 9.6 %
		Y	4.97	67.26	16.71		130.0	
		Z	5.10	67.41	16.83		130.0	
10586- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.99	67.77	17.12	0.46	130.0	± 9.6 %
		Y	4.86	67.43	16.80		130.0	[
		Z	4.99	67.57	16.91		130.0	
10587- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.77	67.19	16.53	0.46	130.0	±9.6 %
		Y	4.64	66.77	16.15		130.0	
		Z	4.78	67.01	16.33		130.0	
10588- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.81	67.17	16.53	0.46	130.0	± 9.6 %
		Y	4.68	66.78	16.16		130.0	
		Z	4.82	66.97	16.32		130.0	
10589- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.90	67.87	17.09	0.46	130.0	± 9.6 %
		Y	4.77	67.49	16.75		130.0	
		Z	4.90	67.66	16.87		130.0	
10590- AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.73	66.96	16.34	0.46	130.0	± 9.6 %
		Y	4.59	66.53	15.94	L	130.0	
	······································	Ż	4.73	66.78	16.14		130.0	}

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10591-	IEEE 802.11n (HT Mixed, 20MHz,		4.98	67.15	16.87	0.46	130.0	±9,6 %
AAB	MCS0, 90pc duty cycle)		4.07	<u></u>	40.57		420.0	
		Y	4.87	66.85 66.97	16.57 16.68		130.0 130.0	
10592-	IEEE 802.11n (HT Mixed, 20MHz,	Z	<u>4.98</u> 5.15	67.50	16.99	0.46	130.0	± 9.6 %
AAB	MCS1, 90pc duty cycle)	^	0.10	07.50	10.99	0.40	130.0	1 9.0 %
7010		Y	5.04	67.19	16.69		130.0	
		Z	5.16	67.32	16.80		130.0	
10593-	IEEE 802.11n (HT Mixed, 20MHz,	X	5.09	67.46	16.91	0.46	130.0	±9.6 %
AAB	MCS2, 90pc duty cycle)							
***************************************		Y	4.96	67.12	16.59		130.0	
		Z	5.09	67.29	16.72		130.0	
10594-	IEEE 802.11n (HT Mixed, 20MHz,	Х	5.14	67.60	17.04	0.46	130.0	± 9.6 %
AAB	MCS3, 90pc duty cycle)							
	_	<u>Y</u>	5.02	67.28	16.73		130.0	
		Z	5.14	67.42	16.84		130.0	
10595-	IEEE 802.11n (HT Mixed, 20MHz,	X	5.11	67.58	16.95	0.46	130.0	± 9.6 %
AAB	MCS4, 90pc duty cycle)	Y	4.00	67.04	16.64		130.0	
			4.99	67.24 67.40	16.64		130.0	
10596-	IEEE 802.11n (HT Mixed, 20MHz,	Z	<u>5.12</u> 5.05	67.59	16.96	0.46	130.0	± 9.6 %
AAB	MCS5, 90pc duty cycle)	^	0.00	01.08	10.30	0.40	100.0	- 0.0 /0
		Y	4.93	67.24	16.64		130.0	
		Ż	5.06	67.40	16.76		130.0	
10597-	IEEE 802.11n (HT Mixed, 20MHz,	X	5.00	67.53	16.87	0.46	130.0	± 9.6 %
AAB	MCS6, 90pc duty cycle)							
		Y	4.88	67.16	16.53		130.0	
		Z	5.01	67.35	16.68		130.0	
10598- AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.98	67.77	17.12	0.46	130.0	± 9.6 %
		Y	4.86	67.40	16.79		130.0	
		Z	4.99	67.58	16.92		130.0	
10599- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.65	67.74	17.05	0.46	130.0	±9.6 %
		Y	5.54	67.42	16.77		130.0	
		Z	5.65	67.58	16.87		130.0	
10600- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.86	68.37	17.35	0.46	130.0	± 9.6 %
		Y	5.74	68.03	17.05	1	130.0	
***************		Z	5.87	68.25	17.19		130.0	
10601- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.71	67.99	17.17	0.46	130.0	± 9.6 %
		Y	5.59	67.67	16.88		130.0	
		Z	5.71	67.84	16.99		130.0	
10602- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.80	67.99	17.09	0.46	130.0	± 9.6 %
		Y	5.68	67.66	16.80		130.0	
		Z	5.80	67.87	16.93		130.0	
10603- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.88	68.27	17.35	0.46	130.0	± 9.6 %
		Y	5.76	67.95	17.07		130.0	
		Z	5.91	68.22	17.22		130.0	
10604- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.65	67.69	17.05	0.46	130.0	± 9.6 %
		Y	5.55	67.38	16.78		130.0	
		Z	5.65	67.55	16.88	<u> </u>	130.0	
10605- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.77	68.03	17.23	0.46	130.0	± 9.6 %
		Y	5.67	67.75	16.97	[130.0	
		<u>Z</u>	5.76	67.86	17.04		130.0	
10606- AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.54	67.48	16.82	0.46	130.0	± 9.6 %
		Y	5.42	67.14	16.52		130.0	
		Z	5.54	67.37	16.67		130.0	

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10607- AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.81	66.46	16.48	0.46	130.0	± 9.6 %
		Y	4.70	66.13	16,17		130.0	
		Z	4.81	66.25	16.27	* ******	130.0	
10608- AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.03	66.90	16.65	0.46	130.0	±9.6 %
		Y	4.90	66.55	16.34		130.0	
		Z	5.02	66.68	16.44		130.0	
10609- AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.92	66.79	16.52	0.46	130.0	± 9.6 %
		Y	4.79	66.41	16.18		130.0	
40040		Z	4.92	66.57	16.31		130.0	
10610- AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.97	66.94	16.67	0.46	130.0	± 9.6 %
		Y	4.84	66.57	16.34	-	130.0	
10611-	IEEE 802.11ac WiFi (20MHz, MCS4,	Z	4.97	66.72	16.46		130.0	
AAB	90pc duty cycle)		4.89	66.78	16.54	0.46	130.0	± 9.6 %
		Y	4.76	66.39	16.20		130.0	
10612-	IEEE 802.11ac WiFI (20MHz, MCS5,	Z	4.89	66.57	16.33		130.0	
AAB	90pc duty cycle)	X	4.92	66.95	16.59	0.46	130.0	±9.6 %
		Y	4.78	66.55	16.24		130.0	
10613-	IEEE 802.11ac WiFi (20MHz, MCS6,	ZX	4.91	66.73	16.37	0.10	130.0	
AAB	90pc duty cycle)		4.93	66.87	16.50	0.46	130.0	± 9.6 %
·····	····	Y	4.79	66.46	16.14		130.0	
10614-	IEEE 802.11ac WiFi (20MHz, MCS7,	ZX	4.93	66.66	16.28	0.40	130.0	
AAB	90pc duty cycle)		4.85	67.03	16.71	0.46	130.0	± 9.6 %
		Y	4.72	66.63	16.36		130.0	
10615-	IEEE 802.11ac WiFI (20MHz, MCS8,	Z	4.85	66.82	16.49		130.0	
AAB	90pc duty cycle)	X	4.90	66.61	16.33	0.46	130.0	±9.6 %
		Y	4.76	66.22	15.98		130.0	
10616- AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	Z X	<u>4.90</u> 5.47	66.40 66.98	16.12 16.66	0.46	130.0 130.0	± 9.6 %
/ 0 10		Y	5.36	66.66	16,38		130.0	
		Z	5.46	66.82	16.30		130.0	
10617- AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.52	67.09	16.68	0.46	130.0	± 9.6 %
		Y	5.42	66.80	16.41		130.0	
•		Z	5.52	66.93	16.49		130.0	
10618- AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	x	5.42	67.18	16.74	0.46	130.0	±9.6 %
		Y	5.31	66.84	16.45		130.0	
		Z	5.41	67.00	16.54		130.0	
10619- AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.45	67.00	16.59	0.46	130.0	± 9.6 %
		Y	5.34	66.68	16.31		130.0	
		Z	5.44	66.82	16.40		130.0	
10620- AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	Х	5.56	67.11	16.69	0.46	130.0	±9.6 %
		Y	5.44	66.75	16.39		130.0	
40004		Z	5.56	66.95	16.51		130.0	
10621- AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.53	67.13	16.81	0.46	130.0	±9.6 %
	4	Y	5.42	66.81	16.54		130.0	
1007-		Z	5,53	66.98	16.63		130.0	
10622- AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.53	67.27	16.87	0.46	130.0	±9.6 %
····		Y	5.43	66.97	16.61		130.0	
		Z	5.52	67.09	16.67		130.0	

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10623- AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.42	66.86	16.56	0.46	130.0	±9.6 %
		Y	5.30	66.51	16.26		130.0	
		Z	5.42	66.73	16.39		130.0	
10624- AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.61	67.03	16.70	0.46	130.0	±9.6 %
		Y	5.50	66.72	16.43		130.0	
		Z	5.60	66.86	16.51		130.0	
10625- AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	6.05	68.19	17.33	0.46	130.0	± 9.6 %
		Y	5.94	67.90	17.07		130.0	
		Z	6.01	67.90	17.08		130.0	
10626- AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.72	66.99	16.57	0.46	130.0	± 9.6 %
		Y	5.63	66.69	16.31		130.0	
		Z	5.71	66.84	16.40		130.0	
10627- AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.99	67.59	16.82	0.46	130.0	± 9.6 %
		Y	5,90	67.32	16.58		130.0	
		Z	5.97	67.39	16.62		130.0	
10628- AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.80	67.20	16.57	0.46	130.0	± 9.6 %
		Y	5.69	66.85	16.29		130.0	
		Z	5.79	67.05	16.40		130.0	<u> </u>
10629- AAB	IEEE 802.11ac WIFi (80MHz, MCS3, 90pc duty cycle)	X	5.88	67.25	16.59	0.46	130.0	± 9.6 %
		Y	5.77	66.92	16.31		130.0	
		Z	5.87	67.12 /	16.43		130.0	
10630- AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.51	69.31	17.62	0.46	130.0	± 9.6 %
		Y	6.37	68.86	17.28		130.0	
		Z	6.46	69.04	17.39		130.0	
10631- AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.31	68.81	17.54	0.46	130.0	± 9.6 %
		Y	6.17	68.39	17.24		130.0	
		Z	6.30	68.62	17.35		130.0	
10632- AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.95	67.61	16.96	0.46	130.0	± 9.6 %
		Y	5.85	67.34	16.73		130.0	
	\\	Z	5,94	67.45	16.78		130.0	
10633- AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.89	67.42	16.71	0.46	130.0	± 9.6 %
		Y	5.75	67.01	16.39		130.0	
		Z	5.89	67.32	16.56		130.0	
10634- AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.85	67.37	16.74	0.46	130.0	± 9.6 %
		Y	5.73	67.02	16.46		130.0	
		Z	5.86	67.27	16.59		130.0	
10635- AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5,75	66.78	16.20	0.46	130.0	± 9.6 %
		Y	5.62	66.39	15.89		130.0	
		Z	5.75	66.67	16.05		130.0	
10636- AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.13	67.38	16.66	0.46	130.0	± 9.6 %
		Y	6.05	67.09	16.42	<u> </u>	130.0	
		Z	6.12	67.24	16.50		130.0	
10637- AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.31	67.79	16.85	0.46	130.0	± 9.6 %
		Y	6.21	67.50	16.60		130.0	
		Z	6.29	67.65	16.68		130.0	
10638- AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.31	67.76	16.81	0.46	130.0	± 9.6 %
		Y	6.21	67.47	16.56		130.0	
		Z	6.29	67.60	16.64		130.0	

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10639-			T	···				
AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.30	67.76	16.86	0.46	130.0	± 9.6 %
		Y	6.20	67.43	16.59		130.0	
40040		Z	6.29	67.63	16.70		130.0	
10640- AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.34	67.87	16.86	0.46	130.0	± 9.6 %
		Y	6.22	67.50	16.57		130.0	1
		Z	6.33	67.75	16.70		130.0	1
10641- AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	Х	6.33	67.58	16.73	0.46	130.0	± 9.6 %
		Y	6.23	67.29	16.48]	130.0	
10010		Z	6.31	67.45	16.57	[130.0	1
10642- AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.39	67.88	17.04	0.46	130.0	± 9.6 %
		Y	6.28	67.58	16.79		130.0	
		Z	6.38	67.76	16.88		130.0	
10643- AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.22	67.60	16.81	0.46	130.0	± 9.6 %
••••••		Y	6.12	67.28	16.54		130.0	
		Z	6.21	67.48	16.65		130.0	
10644- AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.47	68.34	17.21	0.46	130.0	± 9.6 %
		Y	6.34	67.93	16.89		130.0	
		Z	6.46	68.22	17.05		130.0	1
10645- AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.86	69.01	17.48	0.46	130.0	± 9.6 %
		Y	6.84	68.95	17.35		130.0	
		Z	6.77	68.66	17.21		130.0	
10646- AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	39.97	118.78	39.16	9.30	60.0	±9.6 %
		Y	36.64	117.33	38.51		60.0	
		Z	28.19	109.42	36.13	•• • • • • • • • • • • • • • • • • • • •	60.0	
10647- AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	43.22	121.45	40.07	9.30	60.0	± 9.6 %
		Y	37.61	118.78	39.06	,-	60.0	
		Z	29.77	111.44	36.87		60.0	
10648- AAA	CDMA2000 (1x Advanced)	X	0.92	67.44	13.60	0.00	150.0	± 9.6 %
		Y	0.67	63.31	10.51		150.0	
		Z	0.80	64.88	12.09	·····	150.0	
10652- AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	4.65	69.66	17.99	2.23	80.0	± 9.6 %
		Y	4.35	68.72	17.32		80.0	
		Z	4.56	68.93	17.55			
10653- AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	5.05	68.61	17.89	2.23	80.0 80.0	± 9.6 %
		Y	4.81	67.90	17.37		80.0	
		Z	5.01	68.17	17.57		80.0	
10654- AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.97	68.24	17.87	2.23	80.0	±9.6 %
		ΤΥ T	4.75	67.55	17.37		80.0	
		z	4.94	67.85	17.56		80.0	
10655- AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	5.03	68.27	17.91	2.23	80.0	± 9.6 %
		Y	4.81	67.56	17.41		80.0	
10658-	Pulso Mayoform (2001 (= 4000)	Z	4.99	67.90	17.61		80.0	
AAA	Pulse Waveform (200Hz, 10%)	X	13.25	86.83	23.62	10.00	50.0	± 9,6 %
		Y	14.38	88.09	23.44		50.0	
40070		Z	11.47	83.98	22.82		50.0	
10659- AAA	Pulse Waveform (200Hz, 20%)	X	55.89	109.63	28.77	6.99	60.0	±9.6 %
		Y	73.21	111.71	28.47		60.0	······

ES3DV3-SN:3319

10660- AAA	Pulse Waveform (200Hz, 40%)	X	100.00	116.44	28.38	3.98	80.0	± 9.6 %
		Y	100.00	113.18	26.58		80.0	
		Z	100.00	116.19	28.39		80.0	
10661- AAA	Pulse Waveform (200Hz, 60%)	X	100.00	118,35	27.71	2.22	100.0	± 9.6 %
		Y	100.00	112.59	24.89		100.0	
		Z	100.00	116.83	27.13		100.0	
10662- AAA	Pulse Waveform (200Hz, 80%)	X	100.00	126.67	29.16	0.97	120.0	± 9.6 %
		Y	100.00	111.31	22.51		120.0	
		Z	100.00	120.40	26.63		120.0	

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

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





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S Swiss Calibration Service

Accreditation No.: SCS 0108

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Client PC Test

Certificate No: EX3-7308_Aug17

CALIBRATION CERTIFICATE

Object

EX3DV4 - SN:7308

Calibration procedure(s)

QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes

Calibration date:

August 16, 2017

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 NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator SN: S5277 (20x)		07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibreted by:	Leif Klysner	Laboratory Technician	NIII IIII.
			4 mig
Approved by:	Kalja Pokovic	Technical Manager	A H
			Issued: August 16, 2017
This calibration certificat	e shall not be reproduced except in f	ull without written approval of the lab	ioratory.

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tissue simulating liquid
sensitivity in free space
sensitivity in TSL / NORMx,y,z
diode compression point
crest factor (1/duty_cycle) of the RF signal
modulation dependent linearization parameters
φ rotation around probe axis
9 rotation around an axis that is in the plane normal to probe axis (at measurement center),
i.e., $\vartheta = 0$ is normal to probe axis
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 handheld 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 2010
- 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 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-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,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (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; Dx,y,z; VRx,y,z: A, B, C, D 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 ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values 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 ± 50 MHz to ± 100 MHz.
- 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).

Probe EX3DV4

SN:7308

Manufactured: Calibrated:

March 11, 2014 August 16, 2017

Calibrated for DASY/EASY Systems (Note: non-compatible with DASY2 system!)

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²) ^A	0.49	0.60	0.44	± 10.1 %
DCP (mV) ^B	97.0	91.7	98.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	С	D dB	VR mV	Unc [⊨] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	134.5	±3.3 %
		Y	0.0	0.0	1.0		130.8	
		Z	0.0	0.0	1.0		149.9	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V ⁻¹	T1 ms.V ⁻²	T2 ms.V⁻¹	T3 ms	T4 V ⁻²	T5 V ⁻¹	Т6
X	46.65	351.1	36.16	14.68	0.000	5.088	0.834	0.399	1.005
Y	52.88	402.1	36.74	19.55	0.309	5.100	0.477	0.605	1.007
Z	36.70	273.3	35.48	9.322	0.000	5.034	0.373	0.314	1.002

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%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6). ^B Numerical linearization parameter: uncertainty not required. ^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
5250	35.9	4.71	5.25	5.25	5.25	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.83	4.83	4.83	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.11	5.11	5.11	0.40	1.80	± 13.1 %

Calibration Parameter Determined in Head Tissue Simulating Media

^c Frequency validity above 300 MHz of \pm 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to \pm 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is \pm 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 \pm 110 MHz.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

The ConvF uncertainty for indicated target tissue parameters. ⁶ Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than \pm 1% for frequencies below 3 GHz and below \pm 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

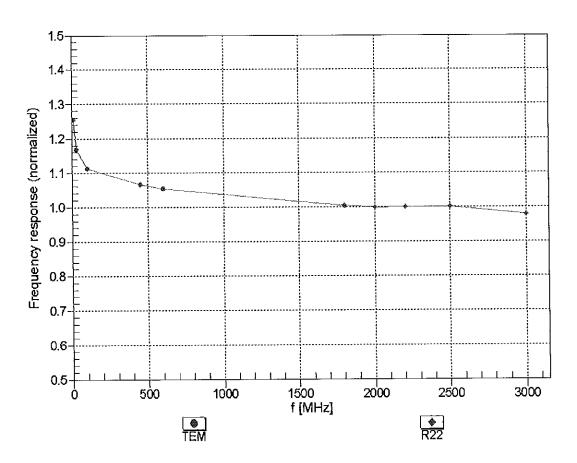
f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	10.39	10.39	10.39	0.54	0.85	± 12.0 %
835	55.2	0.97	10.21	10.21	10.21	0.47	0.84	± 12.0 %
1750	53.4	1.49	8.24	8.24	8.24	0.41	0.84	± 12.0 %
1900	53.3	1.52	7.96	7.96	7.96	0.37	0.80	± 12.0 %
2300	52.9	1.81	7.77	7.77	7.77	0.39	0.86	± 12.0 %
2450	52.7	1.95	7.66	7.66	7.66	0.35	0.85	± 12.0 %
2600	52.5	2.16	7.46	7.46	7.46	0.31	0.95	± 12.0 %
5250	48.9	5.36	4.84	4.84	4.84	0.35	1.90	± 13.1 %
5600	48.5	5.77	4.23	4.23	4.23	0.40	1.90	± 13.1 %
5750	48.3	5.94	4.50	4.50	4.50	0.40	1.90	± 13.1 %

Calibration Parameter Determined in Body Tissue Simulating Media

^c Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the 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.

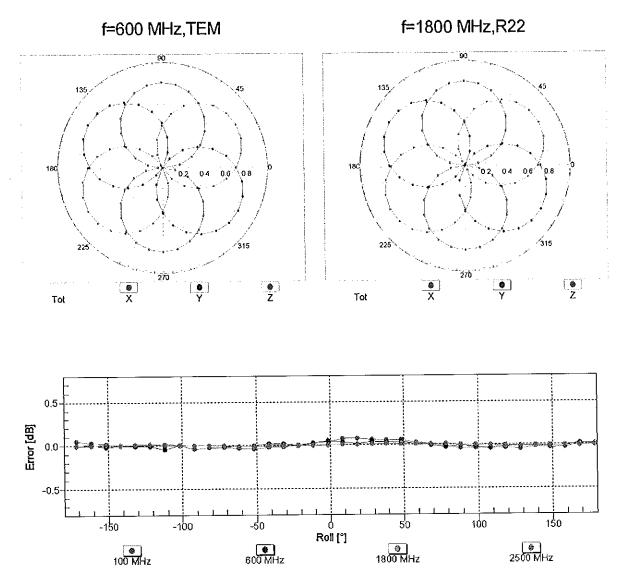
^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters. ^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is

^G 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 frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



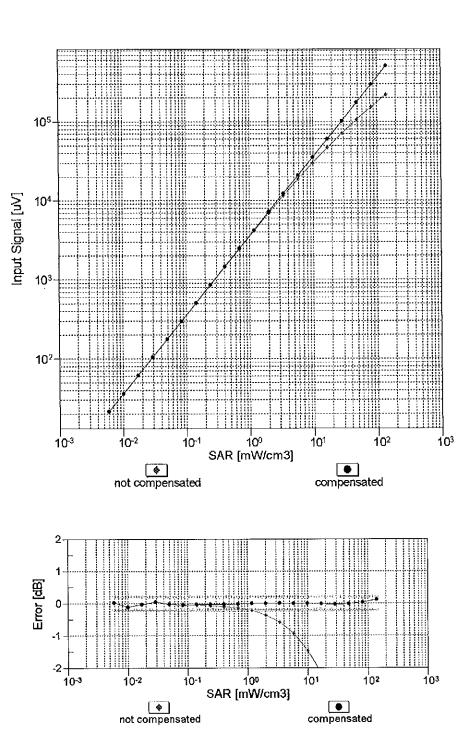
Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)

Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)



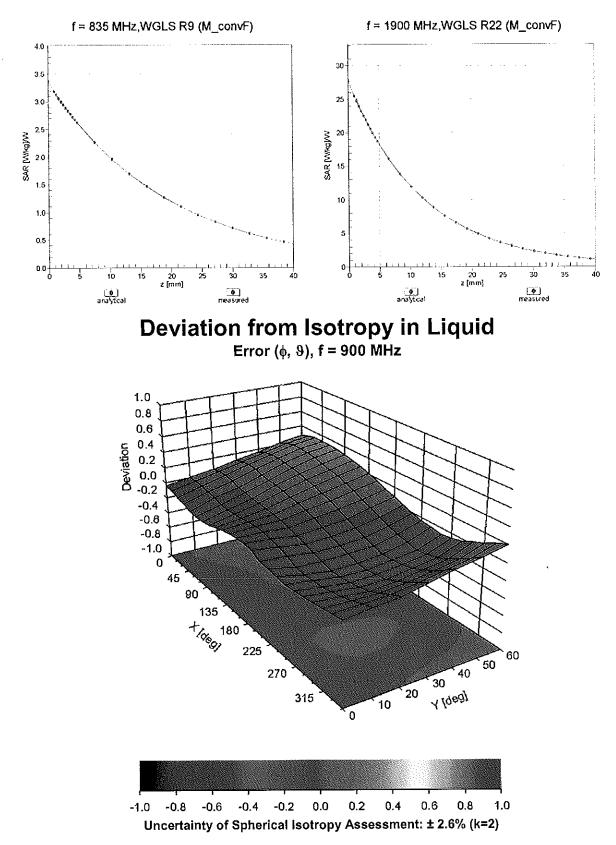
Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$

Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)



Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)

Uncertainty of Linearity Assessment: ± 0.6% (k=2)



Conversion Factor Assessment

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	108.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

Appendix: Modulation Calibration Parameters

ŪID	Communication System Name		A dB	B dBõV	С	D dB	VR mV	Max Unc ^E (k=2)
0	CW	Х	0.00	0.00	1.00	0.00	134.5	± 3.3 %
		Y	0.00	0.00	1.00		130.8	
10010-	SAR Validation (Square, 100ms, 10ms)	Z X	0.00 2.82	0.00 69.38	1.00 11.47	10.00	149.9 20.0	± 9.6 %
CAA	SAR Valuation (Square, 100ms, 10ms)	^	2.02	09.30	11.47	10.00	20.0	19.0 %
		Y	8.85	81.60	16.75		20.0	
		Ζ	1.57	63.55	8.34		20.0	
10011- CAB	UMTS-FDD (WCDMA)	X	1.10	68.34	15.94	0.00	150.0	±9.6 %
		Y	1.03	66.61	14.91		150.0	
10012-	IEEE 802.11b WiFI 2.4 GHz (DSSS, 1	Z X	1.05 1.19	68.21 64.20	15.74 15.65	0.41	150.0 150.0	±9.6 %
CAB	Mbps)			63.83	15.05	0.41	150.0	19.0 %
		Y Z	1.20 1.16	63.83	15.29		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 6 Mbps)	X	4.89	66.77	17.26	1.46	150.0	± 9.6 %
		Y	4.97	66.66	17.21		150.0	
		Z	4.71	66.76	17.06		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	100.00	115.21	27.27	9.39	50.0	± 9.6 %
		Y	100.00	118.99	29.62		50.0	
40000		Z	100.00	108.16	23.75	0.57	50.0	10.000
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	114.49	26.98 29.46	9.57	50.0 50.0	± 9.6 %
		Y Z	100.00 100.00	118.59 107.44	29.46		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	117.36	27.41	6.56	60.0	± 9.6 %
		Y	100.00	118.20	28.43		60.0	
		Z	100.00	109.72	23.49		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	9.43	102.43	43.37	12.57	50.0	± 9.6 %
		Y	5.76	81.81	33.21		50.0	
10000		ZX	6.64 12.23	89.92 103.58	37.39 38.33	9.56	50.0 60.0	±9.6 %
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	Y	12.23	103.58	37.54	9.00	60.0	19.0 %
		Z	6.87	89.09	32.73		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	121.12	28.38	4.80	80.0	± 9.6 %
		Y	100.00	119.35	28.26		80.0	
		Z	100.00	113.58	24.47		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	×	100.00	126.40	29.97	3.55	100.0	± 9.6 %
		Y	100.00	121.68	28.61		100.0	
40000		ZX	100.00 6.36	119.83 85.88	26.46	7.80	80.0	± 9.6 %
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	^ Y	7.77	88.44	30.18	7.00	80.0	I 9.0 %
		Z	4.37	77.58	26.51		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	116.71	26.74	5.30	70.0	± 9.6 %
		Y	100.00	116.86	27.45		70.0	
		Z	100.00	108.46	22.53		70.0	1
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	130.68	30.26	1.88	100.0	± 9.6 %
ļ		Y	100.00	122.76	27.68		100.0	
		Z	100.00	121.33	25.72	<u> </u>	100.0	l .

Certificate No: EX3-7308_Aug17

10032-	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	146.47	35.43	1.17	100.0	± 9.6 %
CAA							100.0	20.0 %
		Y	100.00	130.05	29.64		100.0	
10033-	IEEE 902 46 4 Divelocity (DIVA DODDIV	Z	100.00	142.38	32.95		100.0	
CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	100.00	133.81	36.67	5.30	70.0	± 9.6 %
- ·		Y	100.00	132.56	36.57		70.0	
10034-	1555 202 45 4 Pluste - 4 (Pl/4 Popol)	Z	18.79	102.95	27.19		70.0	
CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	7.76	92.37	23.91	1.88	100.0	± 9.6 %
		Y	6.00	87.65	22.68		100.0	
10035-		Z	3.22	78.87	18.00		100.0	
CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	3.37	81.04	19.87	1.17	100.0	± 9.6 %
		Y	2.89	77.85	18.94		100.0	
10036-	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Z	2.06	74.00	15.93		100.0	
CAA	TEEE 002.15.1 Bidelooin (8-DPSK, DH1)	X	100.00	134.35	36.91	5.30	70.0	± 9.6 %
		Y	100.00	133.01	36.79		70.0	
10037-	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)		38.41	113.99	30.14	L	70.0	
CAA	1222 602.15.1 Bidelooth (8-DPSK, DH3)	X	6.72	90.40	23.29	1.88	100.0	± 9.6 %
		<u>Y</u>	5.52	86.51	22.28		100.0	
10038-		Z	2.77	77.09	17.35		100.0	
	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	3.40	81.53	20.18	1.17	100.0	± 9.6 %
		Y	2.93	78.34	19.24		100.0	
10039-	CDMA2000 (1xRTT, RC1)	Z	2.07	74.35	16.21		100.0	
CAB		X	2.05	73.74	16.48	0.00	150.0	±9.6 %
		Y	1.78	70.97	15.59		150.0	
10042-	IS 54 / IS 426 FOD (TDMA/FDM DU/	Z	1.68	71.87	14.68		150.0	
CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4- DQPSK, Halfrate)	X	100.00	111.92	25.18	7.78	50.0	± 9.6 %
·		Y	100.00	114.62	26.97		50.0	· · · · · · · · · · · · · · · · · · ·
10044-	IS-91/EIA/TIA-553 FDD (FDMA, FM)	Z	100.00	105.38	21.87		50.0	
CAA	13-91/EIA/TIA-555 FDD (FDMA, FM)	X	0.00	97.13	0.41	0.00	150.0	± 9.6 %
·		Y	0.00	93.19	1.28		150.0	
10048-	DECT (TOD TONA (CDLL OFOUL T	Z	<u> 0</u> .01	94.96	0.54		150.0	
CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	100.00	111.98	26.96	13.80	25.0	±9.6 %
		Y	100.00	121.05	31.60		25.0	······································
10049-	DECT (TOD TOMA/EDM OFOX D	Ζ	34.07	91.91	20.28		25.0	
CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	1284.72	142.21	32.21	10.79	40.0	±9.6 %
		Y	100.00	117.51	29.18		40.0	
10056-	LIMTS TOD (TD SCDMA 4 20 Mars)	Z	145.96	109.32	23.74		40.0	
CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	Х	100.00	128.20	35.15	9.03	50.0	± 9.6 %
		Y	100.00	128.83	35.96		50.0	
10058-	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	Z	100.00	122.10	31.77		50.0	
DAC		X	4.71	78.88	26.31	6.55	100.0	±9.6 %
		Y	5.67	81.33	26.92		100.0	
10059- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	Z X	<u>3.54</u> 1.24	<u>73.15</u> 65.47	23.60 16.42	0.61	100.0 110.0	±9.6 %
		Y	1.27	65.00	10.40			
		Z	1.17	65.23	16.10		110.0	
10060- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	<u>64.77</u> 144.38	15.84 38.50	1.30	<u>110.0</u> 110.0	± 9.6 %
		Y	100.00	138.88	26.40		410 -	
		Z	13.09		36.40		110.0	
		<u> </u>	10.09	112.30	30.84		110.0	

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10061- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11	X	4.05	88.33	25.97	2.04	110.0	± 9.6 %
000	Mbps)	Y	4.75	88.86	25.68		440.0	
		Z	2.16	77.73	25.68		110.0 110.0	
10062- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.69	66.76	16.65	0.49	100.0	±9.6 %
		Y	4.76	66,60	16.58		100.0	
		Z	4.53	66.78	16.51		100.0	
10063- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.71	66.86	16.76	0.72	100.0	± 9.6 %
		Y	4.78	66.72	16.70		100.0	
		Z	4.54	66.86	16.60		100.0	
10064- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.99	67.12	16.99	0.86	100.0	± 9.6 %
		Y	5.09	67.02	16.95		100.0	
		Z	4.78	67.06	16.80		100.0	
10065- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.86	67.02	17.11	1.21	100.0	±9.6 %
		Y	4.96	66.95	17.08		100.0	
40000		Z	4.65	66.90	16.87		100.0	
10066- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.88	67.05	17.29	1.46	100.0	± 9.6 %
		Y	4.99	66.99	17.27		100.0	
40007		Z	4.65	66.88	17.02	0.04	100.0	100%
10067- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X Y	5.16	67.22	17.75	2.04	100.0	± 9.6 %
			5.27	67.12	17.71		100.0	1
10068- CAB	IEEE 802.11a/h WIFI 5 GHz (OFDM, 48 Mbps)	Z X	4.93 5.20	67.13 67.26	17.49 17.98	2.55	100.0 100.0	± 9.6 %
0/10		Y	5.34	67.28	18.00		100.0	
		Z	4.95	67.02	17.64		100.0	
10069- CAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.28	67.26	18.18	2.67	100.0	± 9.6 %
•,		Y	5.42	67.23	18.17		100.0	
		Z	5.02	67.05	17.83		100.0	
10071- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.98	66.86	17.58	1.99	100.0	± 9.6 %
		Y	5.07	66.77	17.55		100.0	
		Z	4.79	66.80	17.35	1	100.0	
10072- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.95	67.19	17.81	2.30	100.0	± 9.6 %
		Y	5.06	67.16	17.80		100.0	
		Z	4.74	67.03	17.53		100.0	
10073- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	5.00	67.34	18.16	2.83	100.0	± 9.6 %
		Y	5.12	67.33	18.16	<u> </u>	100.0	
		Z	4.79	67.17	17.85		100.0	
10074- CAB	IEEE 802.11g WIFI 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.97	67.20	18.31	3.30	100.0	± 9.6 %
		Y	5.10	67.22	18.33		100.0	
		Z	4.78	67.07	17.99		100.0	
10075- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	5.00	67.30	18.63	3.82	90.0	± 9.6 %
		Y	<u>5.15</u>	67.40	18.70		90.0	
		Z	4.78	67.05	18.23		90.0	
10076- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	5.00	67.05	18.74	4.15	90.0	± 9.6 %
		Y	5.14	67.12	18.78		90.0	ļ
		Z	4.81	66.90	18.39	1	90.0	
10077- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	5.02	67.11	18.84	4.30	90.0	± 9.6 %
		Y	5.16	67.16	18.87		90.0	-
		Z	4.84	66.97	18.50		90.0	

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10081- CAB	CDMA2000 (1xRTT, RC3)	X	0.91	67.10	13.23	0.00	150.0	± 9.6 %
		Ϋ́	0.87	65.55	12.69	<u> </u>	150.0	+
		Z	0.76	65.80	11.60	·	150.0	
10082- CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4- DQPSK, Fullrate)	X	0.67	60.00	4.34	4.77	80.0	± 9.6 %
		Y	0.83	60.00	4.98		80.0	<u> </u>
40000		Z	1.32	62.68	4.53	-	80.0	-
10090- DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	117.37	27.43	6.56	60.0	± 9.6 %
		<u> </u>	100.00	118.23	28.46		60.0	
10097-	UMTS-FDD (HSDPA)	Z	100.00	109.70	23.50	ļ	60.0	
CAB		X Y	1.89	68.18	16.03	0.00	150.0	± 9.6 %
			1.82	67.06	15.47		150.0	
10098-	UMTS-FDD (HSUPA, Subtest 2)	$\frac{z}{x}$	1.87	68.73	15.97		150.0	L
CAB			1.85	68.15	16.01	0.00	150.0	± 9.6 %
		Z	1.78 1.83	67.01	15.43		150.0	ļ
10099-	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	1.83	68.68 103.93	15.95		150.0	
DAC					38.44	9.56	60.0	± 9.6 %
		- <u>Y</u> Z	14.05	103.81	37.62		60.0	
10100-	LTE-FDD (SC-FDMA, 100% RB, 20	$\frac{2}{X}$	6.94 3.20	89.30	32.81	0.00	60.0	
CAD	MHz, QPSK)	Ŷ	3.15	70.68	16.98	0.00	150.0	± 9.6 %
		Z		69.96	16.53		150.0	
10101-	LTE-FDD (SC-FDMA, 100% RB, 20	X	3.05 3.27	70.44	16.91		150.0	
CAD	MHz, 16-QAM)			67.67	16.10	0.00	150.0	± 9.6 %
		Y	3.29	67.34	15.87		150.0	
10102- CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	Z X	<u>3.15</u> 3.37	67.56 67.61	16.02 16.17	0.00	150.0 150.0	± 9.6 %
		Y	3.39			· · · · · · · · · · · · · · · · · · ·		
		Z	3.39	67.30	15.96	•	150.0	
10103- CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.70	67.54 77.76	<u>16.10</u> 21.71	3.98	150.0 65.0	± 9.6 %
0/10		+						
•		Y	7.25	78.01	21.66		65.0	
10104-	LTE-TDD (SC-FDMA, 100% RB, 20	Z	5.31	74.49	20.24		65.0	
CAD	MHz, 16-QAM)	X	6.39	74.88	21.30	3.98	65.0	± 9.6 %
		Y .	7.01	75.63	21.49		65.0	
10105-	LTE-TDD (SC-FDMA, 100% RB, 20	Z	5.41	72.53	20.08		65.0	
CAD	MHz, 64-QAM)		5.93	73.22	20.87	3.98	65.0	±9.6 %
		Y	6.37	73.62	20.93		65.0	
10108- CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	Z X	4.98 2.79	70.66 69.92	19.52 16.81	0.00	65.0 150.0	± 9.6 %
		Y	2.76	69,17	10.0-			
		z	2.63	69.76	16.35		150.0	
10109-	LTE-FDD (SC-FDMA, 100% RB, 10	X	2.03	67.55	16.75	0.00	150.0	
CAE	MHz, 16-QAM)	Y			16.01	0.00	150.0	± 9.6 %
	<u> </u>	$\frac{r}{Z}$	2.94	67.14	15.76		150.0	
10110- CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.80 2.27	67.54 69.10	15.90 16.46	0.00	150.0 150.0	± 9.6 %
		† _Y †	2.25	68.23	15.96		150.0	
		Z	2.13	69.06	16.32		150.0	
		1		0			150.0	
10111- CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.65	68.45	16.32	0.00	150.0	±9.6 %
	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)		2.65	68.45 67.76	16.32	0.00	150.0 150.0	±9.6 %

10112-	LTE-FDD (SC-FDMA, 100% RB, 10		3.05	67.53	16.06	0.00	150.0	±9.6 %
CAE	MHz, 64-QAM)	1	0.00	07.00	10.00	0.00	100.0	1 3.0 %
		Y	3.07	67.13	15.82		150.0	
		Z	2.92	67.58	15.97		150.0	
10113- CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.80	68.56	16.43	0.00	150.0	± 9.6 %
		Y	2.80	67.90	16.13		150.0	
		Z	2.69	68.93	16.32		150.0	
10114- CAB	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.15	67.26	16.54	0.00	150.0	± 9.6 %
		Y	5.19	67.08	16.42		150.0	
		Z	4.99	67.20	16.47		150.0	
10115- CAB	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.43	67.37	16.60	0.00	150.0	± 9.6 %
		Y	5.52	67.34	16.56		150.0	
10110		Z	5.24	67.27	16.51	0.00	150.0	1000
10116- CAB	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.24	67.44	16.56	0.00	150.0	± 9.6 %
		Y	5.30	67.32	16.46		150.0	
1011-		Z	5.08	67.39	16.50	A 66	150.0	
10117- CAB	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.11	67.11	16.48	0.00	150.0	± 9.6 %
		Y	5.16	66.99	16.39	l	150.0	ļ
		Z	4.99	67.15	16.47	L	150.0	
10118- CAB	IEEE 802.11n (HT Mixed, 81 Mbps, 16- QAM)	X	5.51	67.58	16.71	0.00	150.0	± 9.6 %
		Y	5.61	67.54	16.67		150.0	
		Z	5.31	67.44	16.61		150.0	
10119- CAB	IEEE 802.11n (HT Mixed, 135 Mbps, 64- QAM)	X	5.22	67.40	16.54	0.00	150.0	± 9.6 %
		Y	5.27	67.25	16.44		150.0	
		Z	5.07	67.38	16.51		150.0	
10140- CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.41	67.63	16.10	0.00	150.0	± 9.6 %
		Y	3.43	67.31	15.88		150.0	
		Z	3.28	67.57	16.02		150.0	
10141- CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.53	67.71	16.25	0.00	150.0	± 9.6 %
		Y	3.55	67.40	16.05		150.0	
		Z	3.40	67.71	16.20		150.0	
10142- CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	Х	2.05	69.21	16.15	0.00	150.0	± 9.6 %
		Y	2.02	68.14	15.65		150.0	
		Ζ	1.90	69.18	15.79		150.0	
10143- CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.53	69.32	16.06	0.00	150.0	± 9.6 %
		Y	2.50	68.40	15.76		150.0	
		Z	2.39	69.52	15.59	1	150.0	
10144- CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.28	66.94	14.41	0.00	150.0	± 9.6 %
		Y	2.31	66.41	14.31		150.0	L
		Z	2.06	66.49	13.57	1	150.0	
10145- CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	1.26	65.57	12.06	0.00	150.0	± 9.6 %
		Y	1.33	65.51	12.47		150.0	1
		Z	0.90	62.72	9.31		150.0	ļ
10146- CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.87	65.71	11.26	0.00	150.0	± 9.6 %
		Y	2.34	67.84	13.03		150.0	
		Z	1.05	60.97	7.27		150.0	
10147- CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	2.17	67.47	12.23	0.00	150.0	± 9.6 %
		Y	2.79	70.16	14.23		150.0	
		Z	1.11	61.38	7.60		150.0	1

10149- CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.93	67.61	16.06	0.00	150.0	± 9.6 %
		Y	2.95	67.20	15.81	+	150.0	<u> </u>
		Ż	2.81	67.60	15.95		150.0	
10150- CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	3.06	67.58	16.10	0.00	150.0	± 9.6 %
		Ý	3.08	67.18	15.86	— —	150.0	
		Z	2.93	67.64	16.01		150.0	+
10151- CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	7.47	81.50	23.31	3.98	65.0	± 9.6 %
		Y	8.13	81.64	23.19		65.0	<u> </u>
		Z	5.82	78.02	21.74	·	65.0	·
10152- CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.96	75.09	21.13	3.98	65.0	± 9.6 %
		Y	6.59	75.82	21.34		65.0	
(Z	4.95	72.53	19.69		65.0	
10153- CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	6.33	76.00	21.87	3.98	65.0	± 9.6 %
		Y	6.98	76.72	22.08		65.0	<u> </u>
40454		Z	5.31	73.57	20.52		65.0	<u> </u>
10154- CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.32	69.50	16.70	0.00	150.0	± 9.6 %
		Y	2.30	68.63	16.21		150.0	F
40425		Z	2.17	69.43	16.55	· · ·	150.0	
10155- CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.65	68.47	16.34	0.00	150.0	± 9.6 %
		Y	2,64	67.77	16.01		150.0	<u> </u>
		Z	2.55	68.82	16.23	·	150.0	
10156- CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.90	69.38	15.98	0.00	150.0	±9.6 %
		Y	1.87	68.22	15.49	· · · · · · · · · · · · · · · · · · ·	150.0	· · · · · · · · · · · · · · · · · · ·
		Z	1.73	69.10	15.35		150.0	
10157- CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	2.13	67.61	14.49	0.00	150.0	±9.6 %
		Ý	2.14	66.94	14.37		150.0	·
10100		Z	1.88	66.88	13.39	····	150.0	· · · · · · · · · · · · · · · · · · ·
10158- CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.80	68.62	16.48	0.00	150.0	± 9.6 %
		Y	2.80	67.95	16.18		150.0	
40450		Z	2.70	69.02	16.37		150.0	
10159- CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	2.24	68.05	14.76	0.00	150.0	± 9.6 %
		Y	2.25	67.38	14.65		150.0	
40400		Z	1.97	67.26	13.62	-··.	150.0	
10160- CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.79	68.96	16.56	0.00	150.0	± 9.6 %
		Y	2.78	68.29	16.16		150.0	
10101		Z	2.67	69.03	16.52		150.0	
10161- CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.95	67.54	16.03	0.00	150.0	±9.6 %
		Y	2.97	67.10	15.79		150.0	
10160		<u>Z</u>	2.82	67.63	15.91		150.0	
10162- CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	3.06	67.69	16.14	0.00	150.0	± 9.6 %
		Y	3.08	67.22	15.89		150.0	
10160		Z	2.94	67.84	16.05		150.0	
10166- CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.60	69.71	19.22	3.01	150.0	± 9.6 %
		Y	3.76	69.53	19.10	· ,	150.0	
40407		Z	3.14	68.43	18.52		150.0	
10167- CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.49	72.92	19.79	3.01	150.0	± 9.6 %
	· · · · · · · · · · · · · · · · · · ·	14	1 - 1					
		Y	4.71	72.48	19.58		150.0	

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10168- CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	x	4.99	75.19	21.10	3.01	150.0	±9.6 %
	04-QAW)	Y	5.19	74.57	20.82		150.0	
		Z	4.03	73.14	20.02		150.0	
10169- CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	x	3.02	69.31	19.06	3.01	150.0	± 9.6 %
		Y	3.27	69.70	19.15		150.0	
		Z	2.51	66.78	17.76		150.0	
10170- CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	4.24	75.66	21.52	3.01	150.0	± 9.6 %
		Y	4.60	75.59	21.37		150.0	
		Z	3.08	71.28	19.66		150.0	
10171- AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.48	71.52	18.79	3.01	150.0	± 9.6 %
		Y	3.80	71.54	18.73		150.0	
		Z	2.62	68.04	17.18		150.0	
10172- CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	9.86	97.03	31.31	6.02	65.0	± 9.6 %
		Y	11.94	97.60	31.03		65.0	
		Z	3.49	77.54	23.86		65.0	
10173- CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	35.90	116.24	34.55	6.02	65.0	± 9.6 %
		Y	33.36	111.72	33.12		65.0	
		Z	6.56	87.15	25.45	0.07	65.0	1000
10174- CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	21.48	105.16	30.85	6.02	65.0	±9.6 %
		Y	20.65	101.59	29.68		65.0	
		Z	4.70	80.63	22.56		65.0	
10175- CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.98	69.02	18.83	3.01	150.0	± 9.6 %
		Y	3.23	69.39	18.90		150.0	
		Z	2.49	66.55	17.55		150.0	
10176- CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	4.24	75.68	21.53	3.01	150.0	± 9.6 %
		Y	4.61	75.61	21.38	<u> </u>	150.0	
		Z	3.09	71.30	19.67		150.0	
10177- CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	3.01	69.16	18.92	3.01	150.0	± 9.6 %
		Y	3.26	69.54	19.00		150.0	
		Z	2.50	66.65	17.62		150.0	
10178- CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16- QAM)	X	4.21	75.48	21.42	3.01	150.0	± 9.6 %
		Y	4.56	75.38	21.26		150.0	
		Z	3.07	71.19	19.60		150.0	
10179- CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.83	73.49	20.03	3.01	150.0	± 9.6 %
		Y	4.16	73.42	19.91		150.0	<u>+</u>
		Z	2.83	69.59	18.31		150.0	
10180- CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64- QAM)	X	3.47	71.46	18.75	3.01	150.0	± 9.6 %
		Y	3.79	71.47	18.68		150.0	_
		Z	2.62	68.01	17.15	-	150.0	
10181- CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	3.00	69.14	18.91	3.01	150.0	± 9.6 %
		Y	3.26	69.52	18.99		150.0	ļ
		Z	2.50	66.64	17.62		150.0	100%
10182- CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	4.20	75.46	21.41	3.01	150.0	± 9.6 %
		Y	4.55	75.36	21.25		150.0	_
		Z	3.07	71.17	19.59		150.0	
10183- AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.46	71.44	18.74	3.01	150.0	± 9.6 %
		Y	3.78	71.45	18.67		150.0	
<u> </u>		Z	2.62	68.00	17.14	1	150.0	· · · · · · · · · · · · · · · · · · ·

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10184- CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	3.01	69.18	18.93	3.01	150.0	± 9.6 %
		Y	3.27	69.56	19.01	<u> </u>	150.0	<u> </u>
		Ż	2.51	66.67	17.63	· · · · ·		<u> </u>
10185- CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16- QAM)	X	4.22	75.53	21.45	3.01	<u> </u>	± 9.6 %
······		Y	4.57	75.42	21.28		150.0	+
		Z	3.08	71.23	19.63	· · · · · ·	150.0	
10186- AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64- QAM)	X	3.48	71.51	18.77	3.01	150.0	± 9.6 %
		Y	3.80	71.51	18.70		150.0	
10/0-		Z	2.63	68.05	17.17		150.0	<u> </u>
10187- CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	3.02	69.24	19.00	3.01	150.0	± 9.6 %
		Y	3.28	69.61	19.07		150.0	
40400		Z	2.52	66.73	17.71		150.0	
10188- CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	4.35	76.17	21.80	3.01	150.0	± 9.6 %
		Y	4.72	76.08	21.65		150.0	
10400		<u>Z</u>	3.15	71.69	19.93		150.0	† — —
10189- AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.56	71.93	19.04	3.01	150.0	± 9.6 %
		Y	3.88	71.93	18.97		150.0	
10193-		Z	2.67	68.37	17.41	-	150.0	
CAB	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.54	66.68	16.24	0.00	150.0	± 9.6 %
		<u>Y</u>	4.59	66.47	16.13		150.0	
40404		Z	4.40	66.85	16.19		150.0	
10194- CAB	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.70	66.99	16.36	0.00	150.0	± 9.6 %
		Y	4.77	66.80	16.26		150.0	
10/05		Z	4.55	67.09	16.33		150.0	
10195- CAB	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.74	67.02	16.38	0.00	150.0	± 9.6 %
		Y	4.81	66.83	16.27		150.0	·
10100		Z	4.58	67.11	16.34		150.0	
10196- CAB	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.54	66.74	16.25	0.00	150.0	± 9.6 %
<u> </u>		Y	4.60	66.55	16.16		150.0	
10407		Z	4.39	66.85	16.19		150.0	
10197- CAB	IEEE 802.11n (HT Mixed, 39 Mbps, 16- QAM)	X	4.72	67.01	16.37	0.00	150.0	± 9.6 %
		Y	4.78	66.83	16.27		150.0	
10100		Ζ.	4.56	67.10	16.33		150.0	
10198- CAB	IEEE 802.11n (HT Mixed, 65 Mbps, 64- QAM)	_X	4.75	67.04	16.39	0.00	150.0	± 9.6 %
		Y	4.81	66.85	16.28		150.0	
10210		Z	4.58	67.11	16.34		150.0	
10219- CAB	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	х	4.49	66.76	16.22	0.00	150.0	± 9.6 %
		Y	4.55	66.56	16.12		150.0	
10220-	1555 902 44- (1)T MUL 10 211	Z	4.34	66.89	16.16		150.0	
CAB	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16- QAM)	X	4.71	66.98	16.36	0.00	150.0	± 9.6 %
		Y	4.78	66.81	16.26		150.0	
10221- CAB	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64- QAM)	Z X	<u>4.55</u> 4.75	67.06 66.96	16.32 16.37	0.00	150.0 150.0	± 9.6 %
		-,,-						
		Y	4.82	66.78	16.27		150.0	
10222-	IEEE 802.11n (HT Mixed, 15 Mbps,	_ <u>Z</u>	4.59	67.05	16.33		150.0	
CAB	BPSK)	X	5.08	67.12	16.48	0.00	150.0	±9.6 %
		Y	5.14	67.00	16.39		150.0	
		Z	4.96	67.13	16.45		150.0	

10223- CAB	IEEE 802.11n (HT Mixed, 90 Mbps, 16- QAM)	X	5.38	67.33	16.60	0.00	150.0	± 9.6 %
		Y	5.45	67.20	16.51		150.0	
		Ż	5.23	67.33	16.56		150.0	
10224- CAB	IEEE 802.11n (HT Mixed, 150 Mbps, 64- QAM)	X	5.13	67.23	16.46	0.00	150.0	± 9.6 %
		Y	5.19	67.11	16.37		150.0	
		Z	4.99	67.25	16.44		150.0	
10225- CAB	UMTS-FDD (HSPA+)	Х	2.82	66.29	15.44	0.00	150.0	± 9.6 %
		Y	2.85	65.89	15.31		150.0	
		Z	2.69	66.42	15.13		150.0	
10226- CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	40.58	118.73	35.31	6.02	65.0	±9.6 %
		Y	36.88	113.76	33.77		65.0	
		Z	6.94	88.26	25.92		65.0	
10227- CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	36.33	114.29	33.35	6.02	65.0	± 9.6 %
		Υ	31.30	108.87	31.78		65.0	
		Z	6.95	87.06	24.80		65.0	
10228- CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	х	13.65	104.05	33.59	6.02	65.0	±9.6 %
		Y	18.81	107.23	34.08		65.0	
		Z	4.50	82.80	25.97		65.0	
10229- CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16- QAM)	X	36.18	116.36	34.59	6.02	65.0	± 9.6 %
		Y	33.58	111.82	33.15		65.0	
		Z	6.61	87.25	25.49		65.0	
10230- CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64- QAM)	X	32.38	112.10	32.69	6.02	65.0	± 9.6 %
		Y	28.70	107.19	31.24		65.0	
		Z	6.54	85.97	24.36		65.0	
10231- CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	12.84	102.68	33.09	6.02	65.0	± 9.6 %
		Y	17.62	105.78	33.56		65.0	
		Z	4.35	82.09	25.62		65.0	
10232- CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16- QAM)	X	36.15	116.36	34.59	6.02	65.0	± 9.6 %
		Y	33.55	111.82	33.15		65.0	
		Z	6.59	87.23	25.48		65.0	
10233- CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64- QAM)	X	32.28	112.07	32.68	6.02	65.0	±9.6 %
		Y	28.65	107.18	31.24		65.0	
		Z	6.52	85.93	24.35		65.0	
10234- CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	12.22	101.47	32.58	6.02	65.0	± 9.6 %
		Y	16.65	104.42	33.04		65.0	ļ
		Z	4.24	81.51	25.28		65.0	
10235- CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	36.31	116.46	34.62	6.02	65.0	± 9.6 %
· · ·		Y	33.66	111.90	33.18	1	65.0	
		Z	6.60	87.26	25.49		65.0	
10236- CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	33.06	112.44	32.77	6.02	65.0	± 9.6 %
		Y	29.12	107.43	31.30		65.0	
]		Z	6.60	86.11	24.40	1	65.0	
10237- CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	12.90	102.82	33.13	6.02	65.0	± 9.6 %
		Y	17.72	105.93	33.61		65.0	1
		Z	4.35	82.12	25.64		65.0	
10238- CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	36.09	116.34	34.59	6.02	65.0	± 9.6 %
		Υ	33.52	111.82	33.15		65.0	
<u> </u>		Ż	6.58	87.20	25.47		65.0	1

10239- CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	32.17	112.03	32.67	6.02	65.0	± 9.6 %
		Y	28.59	107.16	31.23		05.0	<u> </u>
		Ż	6.49	85.89	24.34		<u>65.0</u> 65.0	·
10240- CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	12.85	102.75	33.11	6.02	65.0	± 9.6 %
		Y	17.65	105.86	33.59	<u> </u>	65.0	
10044		Z	4.34	82.09	25.63		65.0	<u> </u>
10241- CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	8.52	83.40	26.72	6.98	65.0	± 9.6 %
		Y	9.34	83.46	26.63	1	65.0	- <u> </u>
10242-	TE TOD (SC EDMA FOX DD (1)	Z	6.49	79.39	24.77		65.0	
CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	7.72	81.29	25.79	6.98	65.0	± 9.6 %
		Y	8.22	80.66	25.42		65.0	
10243-	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz,	Z	5.72	76.85	23.63		65.0	
CAA	QPSK)	X	5.95	76.72	24.82	6.98	65.0	±9.6 %
		Y	6.41	76.67	24.65		65.0	
10244-	LTE-TDD (SC-FDMA, 50% RB, 3 MHz,	Z	4.75	73.34	22.98		65.0	
CAB	16-QAM)	X	6.67	78.45	19.67	3.98	65.0	± 9.6 %
		Y -	8.20	80.91	21.14		65.0	
10245-	LTE-TDD (SC-FDMA, 50% RB, 3 MHz,	Z	3.50	69.23	14.35		65.0	
CAB	64-QAM)	Y Y	6.39	77.48	19.23	3.98	65.0	± 9.6 %
		Z	7.92	80.07	20.76		65.0	
10246-	LTE-TDD (SC-FDMA, 50% RB, 3 MHz,	X	8.15	68.65 85.97	14.03		65.0	
CAB	QPSK)	Y			22.95	3.98	65.0	± 9.6 %
		Z	9.24	86.80	23.49		65.0	
10247- CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	<u>4.03</u> 5.50	75.23 76.42	17.77 20.00	3.98	<u>65.0</u> 65.0	± 9.6 %
		Y	6.26	77.49	20.66			
		Ż	3.95	71.61	16.94		65.0	
10248- CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	x	5.40	75.54	19.60	3.98	65.0 65.0	± 9.6 %
		Y	6.16	76.66	20.28		65.0	
		Z	3.89	70.88	16.59		65.0	,
10249- CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	9.66	89.43	25.19	3.98	65.0	±9.6 %
		Y	10.35	89.11	25.13		65.0	
0000		Z	5.64	80.91	21.33		65.0	
10250- CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	6.21	78.20	22.44	3.98	65.0	± 9.6 %
		Y	6.93	79.00	22.73		65.0	
0251-	TE-TOD (SC EDMA CON DD LOT	Z	4.95	74.96	20.57		65.0	
CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	×	5.85	75.76	21.03	3.98	65.0	± 9.6 %
		Y	6.49	76.44	21.31		65.0	
0252-	LTE-TDD (SC-FDMA, 50% RB, 10 MHz,	Z	4.69	72.73	19.17		65.0	
CAD	QPSK)	X	8.41	86.24	25.10	3.98	65.0	± 9.6 %
		Y	9.13	86.11	24.91		65.0	
0253-	LTE-TDD (SC-FDMA, 50% RB, 15 MHz,	Z	5.95	81.04	22.79		65.0	
CAD	16-QAM)	X	5.81	74.45	20.83	3.98	65.0	± 9.6 %
		Y	6.39	75.11	21.05		65.0	
0254-	LTE-TDD (SC-FDMA, 50% RB, 15 MHz,	<u>z</u> x	4.88	72.13	19.42		65.0	
CAD	64-QAM)		6.16	75.32	21.51	3.98	65.0	±9.6%
		Ŷ	6.77	75.99	21.73		65.0	
		Z	5.19	73.05	20.14		65.0	

10255- CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	x	6.96	80.42	23.12	3.98	65.0	± 9.6 %
		Y	7.59	80.64	23.06	i	65.0	
		z	5.51	77.21	21.58		65.0	
10256- CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	4.89	73.41	16.49	3.98	65.0	± 9.6 %
		Y	6.68	77.30	18.76		65.0	
		Z	2.46	64.75	10.88		65.0	
10257- CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	4.63	72.26	15.89	3.98	65.0	± 9.6 %
		Y	6.35	76.13	18.19		65.0	
		Z	2.42	64.27	10.52		65.0	
10258- CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	5.50	79.01	19.45	3.98	65.0	± 9.6 %
		Y	7.01	81.77	20.90		65.0	
		Z	2.56	68.30	13.54		65.0	
10259- CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.80	77.14	20.90	3.98	65.0	± 9.6 %
		Y	6.53	78.01	21.38		65.0	
		Z	4.38	73.08	18.36		65.0	
10260- CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.78	76.67	20.70	3.98	65.0	± 9.6 %
	· · · · · · · · · · · · · · · · · · ·	Y	6.51	77.60	21.22		65.0	
		Z	4.39	72.73	18.19	0.00	65.0	100%
10261- CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	8.27	86.47	24.62	3.98	65.0	± 9.6 %
		Y	9.00	86.40	24.57		65.0	1
10262-	LTE-TDD (SC-FDMA, 100% RB, 5 MHz,	Z X	5.46 6.19	80.05 78.15	21.57 22.39	3.98	65.0 65.0	± 9.6 %
CAD	16-QAM)	Y	0.00	78.95	22.69		65.0	
		Z	6.92 4.94	74.88	20.51		65.0	
10263- CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	<u>4.54</u> 5.84	75.72	21.02	3.98	65.0	± 9.6 %
		Y	6.48	76.42	21.31	- ··	65.0	
		Z	4.68	72.71	19.16		65.0	
10264- CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	8.30	85.98	24.99	3.98	65.0	± 9.6 %
		Y	9.03	85.88	24.80		65.0	-
<u></u>		Z	5.88	80.81	22.67		65.0	
10265- CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.96	75.09	21.13	3.98	65.0	± 9.6 %
		Y	6.59	75.82	21.35		65.0	ļ
		Z	4.95	72.53	19.70		65.0	
10266- CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	6.33	75.99	21.86	3.98	65.0	± 9.6 %
		Y	6.97	76.70	22.07	<u> </u>	65.0	ļ
		Z	5.31	73.56	20.51		65.0	
10267- CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	7.45	81.44	23.28	3.98	65.0	± 9.6 %
		Y	8.11	81.58	23.17		65.0	
		Z	5.81	77.97	21.72	1	65.0	1000
10268- CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.50	74.59	21.27	3.98	65.0	± 9.6 %
		Y	7.11	75.29	21.47	<u> </u>	65.0	
		Z	5.58	72.49	20.14	1	65.0	1000
10269- CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.45	74.07	21.10	3.98	65.0	± 9.6 %
		Y	7.04	74.76	21.30	1	65.0	
· · · · ·		Z	5.59	72.11	20.01		65.0	1 1 0 0 0
10270- CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	_ X	6.83	77.38	21.77	3.98	65.0	± 9.6 %
		Y	7.44	77.78	21.79		65.0	
		Z	5.71	75.01	20.64		65.0	

10274- CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.62	66.75	15.42	0.00	150.0	± 9.6 %
		Y	2.61	66.15	15.17		150.0	<u> </u>
		Z	2.54	67.07	15.23	<u> </u>	150.0	
10275- CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.67	68.55	15.99	0.00	150.0	± 9.6 %
		Y	1.61	67.31	15.31	<u> </u>	150.0	
40077		Z	1.61	68.63	15.84	1	150.0	<u> </u>
10277- CAA	PHS (QPSK)	X	1.74	60.91	6.37	9.03	50.0	± 9.6 %
		Y	2.31	62.75	8.24		50.0	
10278-	PHS (ODSK DW) 004041 D II ((0.7)	<u>Z</u>	1.34	59.32	4.61		50.0	
<u>CAA</u>	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	9.23	83.71	19.86	9.03	50.0	± 9.6 %
·		<u>Y</u>	16.13	92.59	23.80		50.0	
10279-	PHS (QPSK, BW 884MHz, Rolloff 0.38)	Z	2.80	66.68	11.50		50.0	
CAA		X	9.55	84.14	20.09	9.03	50.0	± 9.6 %
·		Y	16.22	92.62	23.87		50.0	· · · · · · · · · · · · · · · · · · ·
10290-	CDMA2000, RC1, SO55, Full Rate	Z	2.90	67.01	11.74		50.0	
AAB		X	1.55	69.78	14.51	0.00	150.0	± 9.6 %
		4	1.48	68.23	14.09	L	150.0	
10291-	CDMA2000, RC3, SO55, Full Rate	Z	1.19	67.52	12.47		150.0	
AAB		X	0.89	66.83	13.08	0.00	150.0	± 9.6 %
		Y	0.85	65.35	12.57		150.0	
10292-	CDMA2000, RC3, SO32, Full Rate	Z	0.74	65.55	11.46		150.0	
AAB		X	1.27	72.61	16.13	0.00	150.0	±9.6 %
		Y	1.03	68.80	14.67		150.0	
10293-	CDMA2000, RC3, SO3, Full Rate	Z	1.20	72.32	14.93		150.0	
AAB		X	2.34	81.60	20.09	0.00	150.0	± 9.6 %
		Y	1.43	73.64	17.27		150.0	
10295-	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.		3.93	87.90	20.92		150.0	
AAB		X	16.32	98.49	29.02	9.03	50.0	± 9.6 %
		Y	11.98	92.39	27.58		50.0	
10297-	LTE-FDD (SC-FDMA, 50% RB, 20 MHz,	Z	18.77	96.90	26.52		50.0	
AAC	QPSK)	X	2.80	70.02	16.88	0.00	150.0	±9.6%
		Y	2.77	69.27			150.0	
10298-	LTE-FDD (SC-FDMA, 50% RB, 3 MHz,	Z	2.65	69.87	16.82		150.0	
AAC	QPSK)	X Y	1.62	68.28	14.44	0.00	150.0	±9.6 %
		Z	1.62 1.32	67.40	14.26	·	150.0	
0299- \AC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.59	66.56 69.34	<u>12.71</u> 14.00	0.00	<u> 150.0 </u> 150.0	±9.6 %
		Y	2.92	70.30	15.01		150.0	
		z	1.54	64.05	10.22		150.0	
10300- AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.92	64.86	11.14	0.00	150.0 150.0	± 9.6 %
		Y	2.24	65.95	12.27		150.0	
0001		Z	1.26	61.60	8.20		150.0	
0301- \AA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.85	66.06	17.86	4.17	50.0	±9.6 %
- <u> </u>		Y	4.97	65.84	17.76		50.0	
0000		Z	4.42	65.27	17.23		50.0	
10302- AAA	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.22	66.19	18.31	4.96	50.0	± 9.6 %
					4			
		Y Z	5.38	66.17	18.31		50.0	

10303- AAA	IEEE 802.16e WIMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.96	65.79	18.13	4.96	50.0	± 9.6 %
		Y	5.14	65.84	18.17		50.0	
		z	4.61	65.34	17.65		50.0	
10304- AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.78	65.69	17.62	4.17	50.0	±9.6 %
	1000112, 0400 00, 10007	Y	4.94	65.66	17.62		50.0	
		z	4.45	65.35	17.22		50.0	
10305- AAA	IEEE 802.16e WIMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.24	66.91	19.40	6.02	35.0	± 9.6 %
		Y	4.54	67.57	19.86		35.0	
		Ż	3.84	65.89	18.29		35.0	
10306- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.62	66.22	19.11	6.02	35.0	±9.6 %
		Y	4.86	66.59	19.39		35.0	
		Z	4.26	65.53	18.31		35.0	
10307- AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.50	66.31	19.05	6.02	35.0	± 9.6 %
		Y	4.77	66.81	19.39		35.0	
		Z	4.12	65.47	18.17		35.0	
10308- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.47	66.49	19.18	6.02	35.0	± 9.6 %
		Y	4.73	66.98	19.51		35.0	
		Z	4.09	65.63	18.30		35.0	
10309- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.68	66.45	19.27	6.02	35.0	±9.6 %
		Y	4.93	66.86	19.56		35.0	
		Z	4.28	65.63	18.41		35.0	
10310- AAA	IEEE 802.16e WIMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.56	66.25	19.08	6.02	35.0	± 9.6 %
		Y	4.81	66.65	19.36		35.0	
		Z	4.20	65.54	18.28		35.0	
10311- AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	3.16	69.26	16.50	0.00	150.0	± 9.6 %
		Y	3.13	68.60	16.08		150.0	
		Z	3.01	69.09	16.45		150.0	
10313- AAA	iDEN 1:3	X	8.00	86.23	21.34	6.99	70.0	± 9.6 %
		Y	8.53	85.21	20.95		70.0	
		Z	3.31	75.28	17.31		70.0	
10314- AAA	IDEN 1:6	X	12.68	100.31	29.33	10.00	30.0	± 9.6 %
		Y	13.31	98.73	28.67		30.0	
		Z	5.19	85.23	24.17		30.0	
10315- AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	Х	1.10	64.07	15.53	0.17	150.0	± 9.6 %
		Y	1.10	63.56	15.08		150.0	
		Z	1.08	63.95	15.31		150.0	
10316- AAB	IEEE 802.11g WiFi 2.4 GHz (ERP- OFDM, 6 Mbps, 96pc duty cycle)	X	4.59	66.75	16.41	0.17	150.0	± 9.6 %
• • •		Υ	4.66	66.58	16.32		150.0	
		Z	4.43	66.78	16.29		150.0	
10317- AAB	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duly cycle)	X	4.59	66.75	16.41	0.17	150.0	± 9.6 %
		Y	4.66	66.58	16.32		150.0	
		Z	4.43	66.78	16.29	L	150.0	ļ
10400- AAC	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	Х	4.69	67.06	16.37	0.00	150.0	± 9.6 %
		Y	4.77	66.86	16.25		150.0	
		Z	4.51	67.11	16.31		150.0	_
10401- AAC	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	Х	5.41	67.26	16.54	0.00	150.0	± 9.6 %
					1	1		1
		Y Z	5.45	67.06	16.42		150.0	

10402- AAC	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.65	67.49	16.51	0.00	150.0	± 9.6 %
		Y	5.72	67.40	40.45	·	1	L
		Z		67.43	16.45		150.0	<u> </u>
10403-	CDMA2000 (1xEV-DO, Rev. 0)	X	5.51	67.47	16.48		150.0	
AAB			1.55	69.78	14.51	0.00	115.0	± 9.6 %
		Y	1.48	68.23	14.09		115.0	
40404		Z	1.19	67.52	12.47		115.0	
10404- AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.55	69.78	14.51	0.00	115.0	±9.6 %
		Y	1.48	68.23	14.09		115.0]
40400		Z	1.19	67.52	12.47		115.0	
10406- AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	120.41	29.76	0.00	100.0	± 9.6 %
		Ϋ́	19.72	99.25	25.38		100.0	
		Z	22.86	100.95	24.14		100.0	
10410- AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	125.71	31.88	3.23	80.0	± 9.6 %
		Y	100.00	124.16	31.78		80.0	· · · ·
		Z	8.15	91.76	22.46		80.0	·
10415- AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	1.03	63.26	14.92	0.00	150.0	± 9.6 %
		Y	1.02	62.63	14.41		150.0	<u> </u>
		Z	1.03	63.39	14.88		150.0	1
10416- AAA	IEEE 802.11g WiFi 2.4 GHz (ERP- OFDM, 6 Mbps, 99pc duty cycle)	X	4.54	66.72	16.31	0.00	150.0	±9.6 %
		Y	4.59	66.51	16.19		150.0	
		Z	4.40	66.84	16.26		150.0	
10417- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.54	66.72	16.31	0.00	150.0	± 9.6 %
		ΤΥ	4.59	66.51	16.19		150.0	
		Z	4.40	66.84	16.26		150.0	·
10418- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	4.53	66.89	16.33	0.00	150.0	± 9.6 %
		Y	4.58	66.66	16.20		150.0	
		Z	4.40	67.05	16.32		150.0	
10419- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 6 Mbps, 99pc duty cycle, Short preambule)	X	4.55	66.83	16.33	0.00	150.0	± 9.6 %
		Y	4.60	66.61	16.21		150.0	
		Z	4.41	66.98	16.30		150.0	
10422- AAA	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.66	66.83	16.34	0.00	150.0	±9.6 %
		Y	4.72	66.62	16.23	· · ·	150.0	
		Z	4.52	66.95	16.31		150.0	
10423- AAA	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.82	67.13	16.45	0.00	150.0	± 9.6 %
		Y	4.90	66.96	16.35		150.0	
		Ż	4.65	67.21	16.40		150.0	
10424- AAA	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.75	67.09	16.43	0.00	150.0	± 9.6 %
		Y	4.82	66.90	16.32		150.0	
		z	4.58	67.17	16.38			
10425- AAA	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.35	67.37	16.60	0.00	150.0 150.0	± 9.6 %
		TY 1	5.42	67.27	16.52		150.0	······
		z	5.19	67.35			150.0	· · · · · · · · · · · · · · · · · · ·
10426- AAA	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.36	67.42	16.55 16.62	0.00	150.0 150.0	± 9.6 %
		Y	5.42	67.07	10.00		150 -	
		Z		67.27	16.52		150.0	
	<u> </u>	L <u>4</u>	5.21	67.42	16.58		150.0	

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10427- AAA	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	Х	5.37	67.38	16.60	0.00	150.0	±9.6 %
		Y	5.43	67.25	16.50		150.0	
		z	5.18	67.23	16.48		150.0	
10430- AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.24	70.83	18.17	0.00	150.0	± 9.6 %
		Y	4.26	70.25	18.02		150.0	
		Z	4.20	71.89	18.27		150.0	
10431- AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.21	67.30	16.30	0.00	150.0	±9.6 %
		Y	4.28	67.03	16.19		150.0	
		Z	4.03	67.45	16.18		150.0	
10432- AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.51	67.15	16.38	0.00	150.0	± 9.6 %
		Y	4.58	66.93	16.27		150.0	
		Z	4.34	67.27	16.32		150.0	
10433- AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	Х	4.76	67.12	16.45	0.00	150.0	± 9.6 %
		Y	4.83	66.94	16.34		150.0	
		Ζ	4.59	67.20	16.40		150.0	
10434- AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.34	71.72	18.14	0.00	150.0	± 9.6 %
		Y	4.35	71.03	17.99		150.0	
		Z	4.31	72.81	18.12		150.0	
10435- AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	125.48	31.77	3.23	80.0	±9.6 %
		Y	100.00	123.97	31.69		80.0	
		Z	7.63	90.76	22.11		80.0	
10447- AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	Х	3.51	67.35	15.60	0.00	150.0	±9.6 %
		Y	3.58	66.99	15.55	1	150.0	
		Z	3.28	67.36	15.16		150.0	
10448- AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%)	X	4.06	67.09	16.17	0.00	150.0	±9.6 %
		Y	4.12	66.80	16.05		150.0	
		Z	3.89	67.25	16.05		150.0	
10449- AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%)	X	4.33	66.98	16.28	0.00	150.0	± 9.6 %
		Y	4.39	66.75	16.16		150.0	
		Z	4.18	67.10	16.22		150.0	l
10450- AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.53	66.89	16.30	0.00	150.0	± 9.6 %
		Y	4.58	66.69	16.19		150.0	· · · · · · · · · · · · · · · · · · ·
		Z	4.39	66.98	16.26		150.0	
10451- AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.39	67.51	15.20	0.00	150.0	± 9.6 %
		Y	3.48	67.19	15.21		150.0	ļ
		Z	3.10	67.22	14.48	<u> </u>	150.0	L
10456- AAA	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.22	67.91	16.74	0.00	150.0	± 9.6 %
		Y	6.28	67.83	16.68		150.0	<u> </u>
		Z	6.11	67.90	16.72	1	150.0	
10457- AAA	UMTS-FDD (DC-HSDPA)	X	3.80	65.37	16.02	0.00	150.0	± 9.6 %
		Y	3.83	65.15	15.90	1	150.0	<u> </u>
		Z	3.74	65.57	15.99	1	150.0	
10458- AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.21	66.83	14.57	0.00	150.0	± 9.6 %
		- Y	3.31	66.55	14.68	<u> </u>	150.0	1
		Z	2.82	66.01	13.39	_	150.0	
10459- AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.29	65.14	15.57	0.00	150.0	± 9.6 %
		Y	4.36	64.71	15.51		150.0	
		Z	4.04	65.27	15.07		150.0	

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10460- AAA	UMTS-FDD (WCDMA, AMR)	X	0.96	69.26	16.86	0.00	150.0	± 9.6 %
-		Y Z	0.88	67.02	15.53		150.0	
10461-	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz,		100.00	69.35	16.76		150.0	
AAA	QPSK, UL Subframe=2,3,4,7,8,9)			131.25	34.47	3.29	80.0	± 9.6 %
		- <u>Y</u>	100.00	128.59	33.89		80.0	
10462-	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz,	Z	3.16	81.29	20.28	l	80.0	
AAA	16-QAM, UL Subframe=2,3,4,7,8,9)	Y	18.15	90.54	19.55	3.23	80.0	± 9.6 %
			100.00 0.71	110.06	25.23	· · · · · · · · · · · · · · · · · · ·	80.0	
10463- AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.32	60.00 68.92	7.72	3.23	80.0 80.0	± 9.6 %
		Ý	12.78	85.50	18.46	<u> </u>	80.0	1
		Z	0.72	60.00	7.06		80.0	·}
10464- AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.50	33.02	3.23	80.0	± 9.6 %
		Y	100.00	126.31	32.66		80.0	
10465-		Z	2.43	77.27	18.20		80.0	<u> </u>
10465- AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16- QAM, UL Subframe=2,3,4,7,8,9)	X	7.48	81.44	16.98	3.23	80.0	± 9.6 %
		Y	53.06	102.63	23.42		80.0	
10466-		<u>Z</u>	0.71	60.00	7.65		80.0	
AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64- QAM, UL Subframe=2,3,4,7,8,9)	X	1.86	66.75	11.37	3.23	80.0	± 9.6 %
·		Y	7.10	79.26	16.56		80.0	
10467-	LTE-TDD (SC-FDMA, 1 RB, 5 MHz,	Z	0.72	60.00	7.01		80.0	
AAC	QPSK, UL Subframe=2,3,4,7,8,9)		100.00	128.82	33.16	3.23	80.0	± 9.6 %
		Y	100.00	126.57	32.78		80.0	
10468-	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-	Z	2.60	78.29	18.60		80.0	
AAC	QAM, UL Subframe=2,3,4,7,8,9)	X	9.21	83.60	17.62	3.23	80.0	± 9.6 %
		Y	76.07	106.68	24.37		80.0	
10469-	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-	Z	0.70	60.00	7.67		80.0	
AAC	QAM, UL Subframe=2,3,4,7,8,9)	X	1.87	66.82	11.40	3.23	80.0	± 9.6 %
		Y	7.22	79.45	16.62		80.0	
10470-	LTE-TDD (SC-FDMA, 1 RB, 10 MHz,	Z	0.72	60.00	7.01		80.0	
AAC	QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.87	33.17	3.23	80.0	± 9.6 %
·		Y	100.00	126.61	32.79		80.0	
10471-	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-	<u> </u>	2.61	78.33	18.61		80.0	
AAC	QAM, UL Subframe=2,3,4,7,8,9)		9.03	83.37	17.54	3.23	80.0	±9.6 %
		Y Z	75.72	106.57	24.32		80.0	
10472- \AC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64- QAM, UL Subframe=2,3,4,7,8,9)	X	1.85	60.00 66.72	7.66 11.34	3.23	80.0 80.0	± 9.6 %
		Y	7.17	79.36	16.58		80.0	
		Z	0.72	60.00	6.99		80.0	
10473- \AC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	128.83	33.15	3.23	80.0	± 9.6 %
		Y	100.00	126.57	32.77		80.0	
0474-		Ζ	2.60	78.28	18.59		80.0	
10474- \AC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16- QAM, UL Subframe=2,3,4,7,8,9)	X	8.86	83.19	17.49	3.23	80.0	± 9.6 %
		Y	73.20	106.22	24.25		80.0	
0475-	TE-TOD (SC EDMA 4 DD 45 MILL ST	Z	0.70	60.00	7.66		80.0	
	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64- QAM, UL Subframe=2,3,4,7,8,9)	X	1.84	66.67	11.33	3.23	80.0	± 9.6 %
		Y	7.07	79.22	16.54		80.0	
	1 d	Z	0.72	60.00	6.99			

10477- AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16- QAM, UL Subframe=2,3,4,7,8,9)	х	7.55	81.52	16.98	3.23	80.0	± 9.6 %
		Y	56.45	103.26	23.54		80.0	
		Z	0.70	60.00	7.63		80.0	
10478- AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64- QAM, UL Subframe=2,3,4,7,8,9)	X	1.82	66.56	11.27	3.23	80.0	± 9.6 %
		Y	6.95	79.03	16.47		80.0	
		Z	0.72	60.00	6.98		80.0	
10479- AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	х	10.99	93.23	25.61	3.23	80.0	±9.6 %
···· · ···· ··		Y	9.79	90.18	24.96		80.0	
		Z	4.54	80.48	20.41		80.0	
10480- AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	12.16	88.23	21.88	3.23	80.0	± 9.6 %
. <u></u>		Y	11.98	87.55	22.28		80.0	
10101		Z	2.88	70.37	14.48	0.00	80.0	1000
10481- AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	8.71	82.91	19.80	3.23	80.0	±9.6 %
		Y	9.82	84.02	20.80		80.0	
40400		Z	2.18	66.77	12.57	0.00	80.0	± 9.6 %
10482- AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.05	77.33	19.19	2.23	80.0	± 9.0 %
		Y	4.17	76.68	19.19		80.0	
10100		Z	2.07	68.66	14.58	0.00	80.0	+06%
10483- AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.93	75.57	17.70	2.23	80.0	± 9.6 %
		Y	6.34	78.50	19.36		80.0	
10484-	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	Z X	1.80 4.47	63.38 74.01	11.04	2.23	80.0 80.0	± 9.6 %
AAA	64-QAW, OL Subhame-2,3,4,7,0,9)	Y	5.79	76.98	18.82		80.0	
		Z	1.76	62.89	10.79		80.0	
10485- AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.05	77.49	20.34	2.23	80.0	± 9.6 %
<u></u>		Y	4.20	76.76	20.09		80.0	
		Z	2.71	72.24	17.50		80.0	1
10486- AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.54	71.63	17.34	2.23	80.0	± 9.6 %
		Y	3.76	71.58	17.54		80.0	
		Z	2.51	67.51	14.60		80.0	
10487- AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.49	71.03	17.07	2.23	80.0	± 9.6 %
		Y	3.74	71.08	17.31		80.0	1
		Z	2.49	67.04	14.35		80.0	
10488- AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.92	74.84	20.03	2.23	80.0	± 9.6 %
[Y	4.21	74.77	19.87	<u> </u>	80.0	1
		Z	2.99	71.49	18.31		80.0	
10489- AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.58	70.14	18.01	2.23	80.0	± 9.6 %
		Y	3.82	70.22	18.04		80.0	
		Z	3.03	68.36	16.75	1	80.0	
10490- AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.66	69.89	17.90	2.23	80.0	± 9.6 %
		Y	3.90	69.97	17.95	.	80.0	
	-	Z	3.10	68.21	16.67		80.0	
10491- AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	×	4.00	72.50	19.16	2.23	80.0	± 9.6 %
		Y	4.28	72.62	19.08		80.0	
		Z	3.25	70.05	17.90		80.0	
10492- AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.86	68.99	17.79	2.23	80.0	± 9.6 %
		Y	4.11	69.18	17.85		80.0	
1		Z	3.37	67.61	16.86		80.0	1

10493- AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.92	68.82	17.72	2.23	80.0	±9.6 %
		Y	4.17	69.02	17.78	<u> </u>	000	
		z	3.43	67.50	16.80	<u> </u>	80.0	
10494- AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.43	74.41	19.78	2.23	80.0 80.0	± 9.6 %
		Y	4.75	74.52	19.68		80.0	+
		Z	3.49	71.39	18.37	<u> </u>	80.0	
10495- AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.90	69.39	18.01	2.23	80.0	± 9.6 %
		Y	4.16	69.65	18.06		80.0	
40.400		Z	3.39	67.86	17.06	· · · · · · · · · · · · · · · · · · ·	80.0	·
10496- AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.97	69.05	17.88	2.23	80.0	± 9.6 %
		Y	4.22	69.30	17.94		80.0	1
10407		Z	3.47	67.65	16.99		80.0	
10497- AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	×	2.87	72.14	16.05	2.23	80.0	± 9.6 %
		Y	3.23	72.92	16.83		80.0	
10498-		Z	1.19	62.14	10.12		80.0	1
AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.73	63.11	10.85	2.23	80.0	± 9.6 %
		Y	2.27	65.45	12.56		80.0	†
10100		Z	1.15	60.00	7.68		80.0	<u> </u>
10499- AAA 	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.65	62.30	10.28	2.23	80.0	± 9.6 %
		Ϋ́	2.18	64.69	12.05		80.0	·
		Z	1.17	60.00	7.51		80.0	
10500- AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	×	3.87	75.87	20.03	2.23	80.0	± 9.6 %
		Y	4.07	75.40	19.81		80.0	
40504		Z	2.80	71.83	17.80		80.0	i
10501- AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.57	71.05	17.60	2.23	80.0	± 9.6 %
		<u>Y</u>	3.78	70.97	17.70		80.0	
10500		Z	2.79	68.23	15.59		80.0	
10502- AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.61	70.84	17.44	2.23	80.0	± 9.6 %
		Y	3.84	70.79	17.56		80.0	
10500		Z	2.82	68.03	15.41		80.0	
10503- AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.87	74.62	19.92	2.23	80.0	± 9.6 %
		Y	4.15	74.55	19.77		80.0	
10504-		Z	2.95	71.29	18.21		80.0	
AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.57	70.04	17.95	2.23	80.0	± 9.6 %
		Y	3.80	70.13	17.99		80.0	
10505- \AC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	Z X	3.01 3.64	68.26 69.79	<u>16.69</u> 17.85	2.23	80.0 80.0	± 9.6 %
		Y	3.88	69.88	17.00			
		Z	3.09	68.12	17.89		80.0	
0506- AC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.39	74.26	16.62 19.71	2.23	80.0 80.0	±9.6 %
		Y	4.71	74.37	19.61		80.0	
0507		Z	3.46	71.26	18.30		80.0	
10507- AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	x	3.89	69.33	17.97	2.23	80.0	±9.6 %
		Y Z	4.14	69.59	18.03		80.0	

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10508- AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.95	68.98	17.84	2.23	80.0	± 9.6 %
		Υ	4.21	69.23	17.90		80.0	
		Ζ	3.46	67.59	16.95		80.0	
10509- AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	x	4.62	72.40	18.91	2.23	80.0	± 9.6 %
		Y	4.92	72.59	18.86		80.0	
		Z	3.86	70.20	17.85		80.0	
10510- AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	x	4.34	68.87	17.84	2.23	80.0	±9.6 %
10511- AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.39	68.57		2.23	80.0	±9.6 %
		Y	4.65	68.86			80.0	
		Z	3.92	67.35	17.00			
10512- AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	Х				2.23		± 9.6 %
		Υ	5.29	74.60			80.0	
			3.97					
10513- AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)					2.23		± 9.6 %
10514- AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.25	68.69	17.82	2.23	80.0	± 9.6 %
			4.51	69.03	17.90			
		Z	3.78		17.02			
10515- AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)		0.99		15.00	0.00		±9.6 %
10516- AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)					0.00		± 9.6 %
								
						0.00		100%
10517- AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)					0.00		± 9.6 %
10518- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9	Y 4.61 69.18 17.91 80.0 Z 3.85 67.53 17.06 80.0 AQAM, UL 68.57 17.74 2.23 80.0 acquare Y 4.65 68.86 17.81 80.0 box Y 4.65 68.86 17.81 80.0 DD (SC-FDMA, 100% RB, 20 X 4.95 74.43 19.59 2.23 80.0 DD (SC-FDMA, 100% RB, 20 X 4.95 74.60 19.52 80.0 DD (SC-FDMA, 100% RB, 20 X 4.24 69.19 17.98 2.23 80.0 CSC-FDMA, 100% RB, 20 X 4.24 69.19 17.98 2.23 80.0 DD (SC-FDMA, 100% RB, 20 X 4.25 68.69 17.82 2.23 80.0 DD (SC-FDMA, 100% RB, 20 X 4.25 68.69 17.82 2.23 80.0 DD (SC-FDMA, 100% RB, 20 X 4.25 68.69 17.82 2.23 80.0 D2.11b WiF	± 9.6 %					
-7001		Y	4.59	66.58	16.17			
10519- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.71	67.02	16.40	0.00	1	± 9.6 %
						1		ļ
10520- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)					0.00		± 9.6 %
10521-	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24					0.00		± 9.6 %
AAA	mops, sepc outy cycle)		1 56	66 70	16 20		150.0	┨ ────
		Z	4.33	67.02	16.25	1	150.0	
10522-	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.56	67.08	16.40	0.00	150.0	± 9.6 %
1 8 8 8				1		1		
AAA	Mibps, sope daty eyeley	Y	4.62	66.86	16.28	-	150.0	

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10523- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.44	66.96	16.26	0.00	150.0	± 9.6 %
		Y	4.50	66.72	16.12	<u> </u>	150.0	
40504		Z	4.31	67.14	16.26	<u> </u>	150.0	
10524- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.50	67.00	16.37	0.00	150.0	± 9.6 %
		Y	4.57	66.78	16.25		150.0	+
40505		Z	4.33	67.10	16.33	· · · · · ·	150.0	+
10525- AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.49	66.06	15.96	0.00	150.0	± 9.6 %
		Y	4.54	65.82	15.83		150.0	
10526-		Z	4.36	66.21	15.95		150.0	
AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.65	66.41	16.10	0.00	150.0	± 9.6 %
		Y	4.72	66.20	15.98		150.0	
10527-		Z	4.49	66.49	16.07		150.0	<u> </u>
AAA	JEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.58	66.37	16.05	0.00	150.0	± 9.6 %
		Y	4.64	66.16	15.92		150.0	
10528-		Z	4.42	66.47	16.01		150.0	T — —
AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.59	66.39	16.08	0.00	150.0	± 9.6 %
		Y	4.65	66.18	15.96		150.0	
10529-		Z	4.43	66.48	16.04		150.0	1
AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.59	66.39	16.08	0.00	150.0	± 9.6 %
		Y	4.65	66.18	15.96	·	150.0	
10531-		Z	4.43	66.48	16.04		150.0	
4AA	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.58	66.48	16.09	0.00	150.0	± 9.6 %
<u> </u>		Y	4.65	66.29	15.97		150.0	<u> </u>
10520		Z	4.40	66.51	16.02		150.0	
10532- AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.44	66.34	16.02	0.00	150.0	± 9.6 %
		Y	4.51	66.14	15.90		150.0	
10533-		Z	4.28	66.37	15.96		150.0	
AA	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.60	66.44	16.07	0.00	150.0	± 9.6 %
		Y	4.66	66.22	15.94		150.0	· · · · · · · · · · · · · · · · · · ·
0000		Z	4.44	66.56	16.05		150.0	
10534- \AA	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.13	66.46	16.12	0.00	150.0	± 9.6 %
		Y	5.19	66.32	16.03		150.0	·
0535-		Z	4.99	66.46	16.09		150.0	
10535- NAA	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.20	66.64	16.21	0.00	150.0	±9.6 %
		Y	5.25	66.49	16.10		150.0	
0536-		Z	5.03	66.59	16.15		150.0	
10536- IAA	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	5.07	66.60	16.17	0.00	150.0	± 9.6 %
		Y	5.12	66.44	16.06		150.0	
0537-		Z	_4.92	66.60	16.13		150.0	
AA	IEEE 802.11ac WIFI (40MHz, MCS3, 99pc duty cycle)	X	5.12	66.56	16.15	0.00	150.0	± 9.6 %
		Y	5.18	66.41	16.05		150.0	
0538-		Ζ	4.98	66.58	16.13		150.0	
AA	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.21	66.56	16.19	0.00	150.0	± 9.6 %
	<u> </u>	Y	5.28	66.45	16.11		150.0	
0540-		Z	5.05	66.54	16.15		150.0	
AA	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.14	66.58	16.22	0.00	150.0	± 9.6 %
		Y	5.20	66.45	16.12		150.0	
		Z	4.98					

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10541-	IEEE 802.11ac WiFi (40MHz, MCS7,	X	5.12	66.46	16.14	0.00	150.0	± 9.6 %
AAA	99pc duty cycle)		- 10		10.05			
		Y	5.18	66.32	16.05		150.0	
10510		Z	4.96	66.43	16.09	0.00	150.0	
10542- AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.27	66.53	16.19	0.00	150.0	± 9.6 %
		Y	5.33	66.40	16.10		150.0	
		Z	5.12	66.52	16.15		150.0	
10543- AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.34	66.55	16.23	0.00	150.0	±9.6 %
		Y	5.41	66.44	16.14		150.0	
	1	Z	5.19	66.58	16.21		150.0	
10544- AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.45	66.57	16.12	0.00	150.0	±9.6 %
		Y	5.49	66.44	16.03		150.0	
		Z	5.33	66.54	16.08	:	150.0	
10545- AAA	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.64	66.98	16.28	0.00	150.0	±9.6 %
		Y	5.69	66.86	16.18		150.0	
		Z	5.50	66.96	16.25		150.0	
10546- AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.50	66.75	16.18	0.00	150.0	± 9.6 %
		Y	5.56	66.68	16.11		150.0	
		Z	5.36	66.66	16.11		150.0	
10547- AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.57	66.80	16.19	0.00	150.0	±9.6 %
		Y	5.64	66.72	16.12		150.0	
		Ż	5.44	66.76	16.16		150.0	
10548- AAA	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.80	67.67	16.61	0.00	150.0	± 9.6 %
MAA		Y	5.91	67.72	16.59		150.0	
		Z	5.58	67.38	16.44		150.0	
10550- AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.54	66.80	16.21	0.00	150.0	± 9.6 %
AAA		Y	5.59	66.67	16.11		150.0	
		Z	5.42	66.83	16.21		150.0	<u> </u>
40554		X	5.54	66.82	16.18	0.00	150.0	± 9.6 %
10551- AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)				<u> </u>	0,00	150.0	2 0.0 74
		Y	5.59	66.72	16.10			l
		Z	5.36	66.63	16.07	0.00	150.0	1000
10552- AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	Х	5.46	66.64	16.10	0.00	150.0	± 9.6 %
		Y	5.51	66.51	16.00		150.0	ļ
		Z	5.34	66.66	16.08		150.0	
10553- AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.54	66.66	16.14	0.00	150.0	± 9.6 %
		Y	5.59	66.56	16.06	ļ	150.0	<u> </u>
		Z	5.39	66.61	16.09	ļ	150.0	<u> </u>
10554- AAB	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.86	66.92	16.20	0.00	150.0	± 9.6 %
		Y	5.89	66.81	16.12		150.0	<u> </u>
		Z	5.75	66.87	16.15	l	150.0	<u> </u>
10555- AAB	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.98	67.22	16.33	0.00	150.0	± 9.6 %
		Y	6.03	67.12	16.25		150.0	L
[Z	5.84	67.10	16.25		150.0	
10556- AAB	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	6.00	67.27	16.35	0.00	150.0	± 9.6 %
		Y	6.05	67.16	16.27		150.0	
		Z	5.88	67.20	16.30		150.0	
10557- AAB	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.96	67.16	16.31	0.00	150.0	± 9.6 %
		Y	6.02	67.08	16.25	1	150.0	
1		Z	5.84	67.08	16.25	1	150.0	<u> </u>

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10558-	IEEE 802.11ac WiFi (160MHz, MCS4,	X	6.01	67.90	16 14	0.00		
AAB	99pc duty cycle)		0.01	67.32	16.41	0.00	150.0	± 9.6 %
		Y	6.07	67.25	16.34	- [150.0	
40500		Z	5.85	67.15	16.31		150.0	
10560- AAB	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	6.01	67.17	16.37	0.00	150.0	± 9.6 %
		<u>Y</u>	6.06	67.10	16.31		150.0	1
10561-		Z	5.87	67.07	16.30	T	150.0	+
AAB	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.93	67.15	16.40	0.00	150.0	± 9.6 %
		Y	5.98	67.06	16.32		150.0	
10562-	IEEE 802.11ac WiFi (160MHz, MCS8,	Z	5.80	67.05	16.32		150.0	
AAB	99pc duty cycle)		6.04	67.49	16.57	0.00	150.0	± 9.6 %
			6.12	67.48	16.53	L	150.0	
10563-	IEEE 802.11ac WiFi (160MHz, MCS9,	$\frac{2}{x}$	5.85 6.18	67.23	16.41	L	150.0	
AAB	99pc duty cycle)			67.55	16.56	0.00	150.0	± 9.6 %
		Y Z	6.43	68.00	16.75		150.0	
10564-	IEEE 802.11g WiFi 2.4 GHz (DSSS-	$\frac{2}{X}$	5.95 4.86	67.17	16.35		150.0	
AAA	OFDM, 9 Mbps, 99pc duty cycle)	Y	4.86	66.88	16.45	0.46	150.0	± 9.6 %
·····		Z	4.92	66.69	16.36	<u> </u>	150.0	
10565-	IEEE 802.11g WiFi 2.4 GHz (DSSS-	X	5.08	66.96 67.30	16.39 16.76		150.0	
<u>AAA</u>	OFDM, 12 Mbps, 99pc duty cycle)	Y	5.16	67.15		0.46	150.0	± 9.6 %
		z	4.90	67.15	16.67	<u> </u>	150.0	
10566- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 18 Mbps, 99pc duty cycle)	X	4.91	67.15	<u>16.69</u> 16.58	0.46	150.0 150.0	± 9.6 %
		Y	4.99	67.00	16.50		150.0	
		Z	4.74	67.18	16.50		150.0	
10567- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 24 Mbps, 99pc duty cycle)	X	4.94	67.52	16.92	0.46	150.0	±9.6 %
		Ý	5.01	67.38	16.84		150.0	
10568-		Z	4.77	67.57	16.87		150.0	
AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 36 Mbps, 99pc duty cycle)	X	4.83	66.96	16.38	0.46	150.0	± 9.6 %
		Y	4.90	66.77	16.27		150.0	· · .
10560			4.63	66.92	16.25		150.0	
10569- \AA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 48 Mbps, 99pc duty cycle)	X	4.90	67.63	17.00	0.46	150.0	± 9.6 %
		Y	4.96	67.44	16.88		150.0	
0570-		Z	4.75	67.78	17.00		150.0	
VAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 54 Mbps, 99pc duty cycle)	X	4.93	67.48	16.92	0.46	150.0	±9.6 %
		Y	5.00	67.29	16.82		150.0	
0571-	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1	Z	4.76	67.58	16.89		150.0	
	Mbps, 90pc duty cycle)	X	1.18	64.69	15.93	0.46	130.0	±9.6 %
		Y	1.20	64.37	15.58		130.0	
0572-	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2	Z	1.13	64.22	15.49		130.0	
	Mbps, 90pc duty cycle)	X	1.19	65.27	16.29	0.46	130.0	± 9.6 %
		Y	1.21	64.91	15.92		130.0	
0573-	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5	ZX	1.14	64.74	15.83		130.0	
<u>AA</u>	Mbps, 90pc duty cycle)		2.77	92.16	26.12	0.46	130.0	± 9.6 %
		Y	1.86	83.27	22.47		130.0	
0574-	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11	ZX	1.57	83.20	23.00		130.0	
<u>AA</u>	Mbps, 90pc duty cycle)		1.31	71.26	19.39	0.46	130.0	± 9.6 %
		Y	1.31		18.63		130.0	
		Z	1.20	70.00	18.67	1	130.0	· _ · _

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10575-	IEEE 802.11g WiFi 2.4 GHz (DSSS-	x	4.64	66.67	16.51	0.46	130.0	± 9.6 %
AAA	OFDM, 6 Mbps, 90pc duty cycle)							
		Y	4.71	66.50	16.43		130.0	
10570	IEEE 802.11g WiFi 2.4 GHz (DSSS-	Z	4.47	66.69	16.39	0.40	130.0	1000
10576- AAA	OFDM, 9 Mbps, 90pc duty cycle)	X	4.66	66.83	16.58	0.46	130.0	± 9.6 %
		Y	4.73	66.66	16.49		130.0	
40577		Z	4.50	66.89	16.47	0.40	130.0	
10577- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 12 Mbps, 90pc duty cycle)	X	4.86	67.11	16.74	0.46	130.0	± 9.6 %
		Y	4.94	66.97	16.66		130.0	
10578-	IEEE 802.11g WiFi 2.4 GHz (DSSS-	Z X	4.67 4.76	67.12 67.25	16.61 16.83	0.46	130.0 130.0	± 9.6 %
AAA	OFDM, 18 Mbps, 90pc duty cycle)	Y	4.84	67.12	16.76		130.0	
		Z	4.64	67.12	16.70		130.0	
10579-	IEEE 802.11g WiFi 2.4 GHz (DSSS-	X	4.52	66.57	16.12	0.46	130.0	± 9.6 %
AAA	OFDM, 24 Mbps, 90pc duty cycle)					0.40		1 3.0 70
		Y	4.61	66.44	16.10		130.0	
40500		Z	4.33	66.48	15.99	0.46	130.0	+000
10580- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 36 Mbps, 90pc duty cycle)	X	4.57	66.63	16.21	0.46	130.0	± 9.6 %
		Y	4.66	66.47	16.12		130.0	
40704		Z	4.36	66.53	16.01	0.40	130.0	1000
10581- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 48 Mbps, 90pc duty cycle)	X	4.65	67.30	16.78	0.46	130.0	± 9.6 %
		Y	4.73	67.15	16.70		130.0	
		Z	4.48	67.34	16.69		130.0	
10582- AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS- OFDM, 54 Mbps, 90pc duty cycle)	X	4.47	66.35	15.97	0.46	130.0	± 9.6 %
		Y	4.56	66.21	15.89		130.0	
		Z	4.26	66.25	15.78		130.0	
10583- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.64	66.67	16.51	0.46	130.0	±9.6 %
		Y	4.71	66.50	16.43		130.0	
		Z	4.47	66.69	16.39		130.0	
10584- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.66	66.83	16.58	0.46	130.0	± 9.6 %
		Y	4.73	66.66	16.49		130.0	
		Z	4.50	66.89	16.47		130.0	
10585- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	Х	4.86	67.11	16.74	0.46	130.0	± 9.6 %
<u></u>		Y	4.94	66.97	16.66		130.0	
		Z	4.67	67.12	16.61		130.0	
10586- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.76	67.25	16.83	0.46	130.0	± 9.6 %
		Y	4.84	67.12	16.76		130.0	
		Z	4.57	67.26	16.72		130.0	
10587- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.52	66.57	16.17	0.46	130.0	± 9.6 %
1		Y	4.61	66.44	16.10		130.0	1
		Z	4.33	66.48	15.99		130.0	
10588- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.57	66.63	16.21	0.46	130.0	± 9.6 %
		Y	4.66	66.47	16.12		130.0	
		Z	4.36	66.53	16.01		130.0	
10589- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.65	67.30	16.78	0.46	130.0	± 9.6 %
		Y	4.73	67.15	16.70		130.0	
		Z	4.48	67.34	16.69		130.0	
10590- AAA	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.47	66.35	15.97	0.46	130.0	± 9.6 %
~~~\	mopo, copo daty cycle/	Y	4.56	66.21	15.89	1	130.0	1
		Z	4.26	66.25	15.78	-	130.0	·†

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10591- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.79	66.72	16.61	0.46	130.0	± 9.6 %
		Y	4.86	66.57	16.53		130.0	+
		Z	4.63	66.78	16.50	·	130.0	<u> </u>
10592- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	x	4.94	67.05	16.74	0.46	130.0	± 9.6 %
		Y	5.02	66.91	16.66		130.0	1
		Z	4.75	67.07	16.63		130.0	†•••••••
10593- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.86	66.96	16.62	0.46	130.0	± 9.6 %
		Y	4.94	66.83	16.55		130.0	1
		Z	4.67	66.95	16.49		130.0	· ···
10594- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.91	67.12	16.77	0.46	130.0	± 9.6 %
·		Y	5.00	66.98	16.70		130.0	
40505		Z	4.72	67.12	16.65		130.0	
10595- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.88	67.08	16.67	0.46	130.0	± 9.6 %
		Y	4.96	66.94	16.59		130.0	
40505		Z	4.69	67.10	16.56		130.0	1
10596- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.82	67.08	16.68	0.46	130.0	± 9.6 %
		Y	4.90	66.94	16.60	· · ·	130.0	
		Z	4.62	67.07	16.55		130.0	<u> </u>
10597- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.77	66.98	16.56	0.46	130.0	± 9.6 %
		Y	4.85	66.85	16.49	·	130.0	
		Z	4.57	66.94	16.41		130.0	
10598- AAA	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.75	67.19	16.80	0.46	130.0	± 9.6 %
		Y	4.83	67.08	16.74		130.0	ł · · · · · · · · · · · · · · · · · · ·
		Z	4.56	67.16	16.67		130.0	
10599- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.46	67.23	16.81	0.46	130.0	±9.6 %
		Y	5.53	67.13	16.74		130.0	
		Z	5.31	67.22	16.74		130.0	
10600- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.59	67.67	17.00	0.46	130.0	±9.6 %
		Y	5.69	67.62	16.95		130.0	
		Z	5.40	67.56	16.88		130.0	·
10601- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.48	67.41	16.88	0.46	130.0	± 9.6 %
		Y	5.56	67.33	16.83		130.0	
		Z	5.31	67.36	16.79		130.0	
10602- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.59	67.49	16.85	0.46	130.0	±9.6 %
		Y	5.65	67.34	16.75		130.0	
10000		Z	5.41	67.42	16.75		130.0	· · · · · · · · · · · · · · · · · · ·
10603- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.65	67.74	17.10	0.46	130.0	± 9.6 %
		Y	5.74	67.66	17.04		130.0	
40001		Z	5.48	67.71	17.02		130.0	·
10604- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.49	67.31	16.87	0.46	130.0	± 9.6 %
		Y	5.53	67.10	16.74		130.0	· ·
		Z	5.37	67.37	16.83		130.0	
10605- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.58	67.57	17.01	0.46	130.0	± 9.6 %
		Y	5.65	67.44	16.92		130.0	
		Z	5.40	67.46	16.88		130.0	
10606- AAA	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.32	66.88	16.52	0.46	130.0	±9.6 %
		Y	5.42	66.88	16.50		130.0	

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10607- AAA	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.63	66.06	16.24	0.46	130.0	± 9.6 %
		Y	4.69	65.87	16.14		130.0	
		Z	4.48	66.14	16.16		130.0	· · ·
10608- AAA	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.81	66.46	16.41	0.46	130.0	± 9.6 %
		Y	4.89	66.28	16.31		130.0	
		Z	4.62	66.47	16.30		130.0	
10609- AAA	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.70	66.31	16.25	0.46	130.0	±9.6 %
		Y	4.78	66.14	16.15		130.0	
		Z	4.52	66.31	16.13		130.0	
10610- AAA	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.75	66.46	16.40	0.46	130.0	± 9.6 %
		ΙΥ	4.83	66.29	16.31		130.0	
		Z	4.57	66.47	16.29		130.0	
10611- AAA	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.67	66.27	16.25	0.46	130.0	±9.6 %
		Y	4.74	66.11	16.17		130.0	
		Z	4.48	66.27	16.14		130.0	
10612- AAA	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.68	66.43	16.31	0.46	130.0	± 9.6 %
		Y	4.76	66.26	16.21		130.0	
		Z	4.47	66.40	16.18		130.0	
10613- AAA	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.68	66.30	16.19	0.46	130.0	±9.6 %
		Y	4.76	66.16	16.10		130.0	
		Z	4.47	66.22	16.03		130.0	
10614- AAA	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.62	66.47	16.40	0.46	130.0	±9.6 %
		Y	4.70	66.33	16.32		130.0	
		Z	4.44	66.44	16.27		130.0	
10615- AAA	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.67	66.12	16.05	0.46	130.0	± 9.6 %
		Y	4.75	65.95	15.95		130.0	
		Z	4.48	66.11	15.92		130.0	
10616- AAA	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.28	66.50	16.42	0.46	130.0	± 9.6 %
	, , , , ,	Y	5.35	66.40	16.35	1	130.0	
		Z	5.12	66.44	16.33		130.0	
10617- AAA	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.35	66.70	16.50	0.46	130.0	± 9.6 %
		Y	5.42	66.55	16.40		130.0	
		Z	5.16	66.57	16.37		130.0	
10618- AAA	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.24	66.70	16.51	0.46	130.0	± 9.6 %
		Y	5.30	66.57	16.42	1	130.0	
		Z	5.08	66.64	16.42		130.0	
10619- AAA	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.25	66.50	16.35	0.46	130.0	± 9.6 %
		Y	5.33	66.41	16.28		130.0	
		Z	5.09	66.45	16.26		130.0	
10620- AAA	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	×	5.34	66.53	16.41	0.46	130.0	± 9.6 %
		Y	5.42	66.46	16.35		130.0	
		Z	5.16	66.45	16.31		130.0	
10621- AAA	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.34	66.65	16.59	0.46	130.0	± 9.6 %
		Y	5.41	66.55	16.51		130.0	
		Z	5.17	66.56	16.48		130.0	
10622- AAA	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.35	66.81	16.66	0.46	130.0	± 9.6 %
		Y	5.42	66.71	16.59		130.0	
		Z	5.16	66.65	16.52		130.0	1

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10623- AAA	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.23	66.36	16.32	0.46	130.0	± 9.6 %
		Y	5.30	66.25	16.24	<u>+</u>	130.0	+
		Z	5.05	66.22	16.17	<u> </u>	130.0	-{
10624- AAA	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.42	66.55	16.47	0.46	130.0	± 9.6 %
		Y	5.50	66.45	16.40	· · · ·	130.0	1
(000		Z	5.25	66.47	16.36		130.0	1
10625- AAA	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.75	67.41	16.95	0.46	130.0	± 9.6 %
		Y	5.89	67.51	16.98		130.0	
10626-		Z	5.34	66.63	16.50		130.0	
AAA	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.59	66.56	16.38	0.46	130.0	± 9.6 %
		Y	5.64	66.46	16.31		130.0	
10627-	IEEE 802.11ac WiFi (80MHz, MCS1,	Z	5.45	66.47	16.28		130.0	
AAA	90pc duty cycle)	X	5.82	67.13	16.63	0.46	130.0	± 9.6 %
······································		Y	5.88	67.03	16.55		130.0	
10628-		Z	5.67	67.05	16.54		130.0	
AAA	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.61	66.64	16.32	0.46	130.0	± 9.6 %
	· · · · · · · · · · · · · · · · · · ·	Y	5.68	66.59	16.27		130.0	
10629-		Z	5.44	66.46	16.18		130.0	
AAA	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.69	66.69	16.34	0.46	130.0	± 9.6 %
		Y	5.78	66.69	16.31		130.0	
10630-	IEEE 802.11ac WiFi (80MHz, MCS4,	Z	5.54	66.62	16.26		130.0	
AAA	90pc duty cycle)	X	6.09	68.10	17.05	0.46	130.0	± 9.6 %
		Y	6.25	68.29	17.11		130.0	
10631-		Z	5.78	67.54	16.72		130.0	
AAA	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.99	67.90	17.13	0.46	130.0	± 9.6 %
		Y	6.12	67.99	17.15		130.0	
10632-		Z	5.75	67.56	16.92		130.0	
AAA	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.79	67.18	16.78	0.46	130.0	± 9.6 %
		Y	5.85	67.07	16.70		130.0	
10000		Z	5.67	67.21	16.76		130.0	
10633- AAA	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.68	66.80	16.43	0.46	130.0	± 9.6 %
		Ý	5.74	66.74	16.37		130.0	
10001		Z	5.48	66.57	16.27		130.0	
10634- AAA	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.66	66.82	16.49	0.46	130.0	± 9.6 %
		Y	5.73	66.76	16.44		130.0	
10625		Z	5.50	66.72	16.40		130.0	
10635- AAA	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.54	66.19	15.93	0.46	130.0	± 9.6 %
· · · · · · · · · · · · · · · · · · ·		Y	5.62	66.14	_ 15.87		130.0	
10636-		Z	5.36	66.00	15.77		130.0	
AAB	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.00	66.92	16.46	0.46	130.0	±9.6 %
		Y	6.05	66.85	16.41		130.0	
10637-		Z	5.88	66.82	16.36		130.0	
AAB	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.16	67.31	16.64	0.46	130.0	± 9.6 %
		Y	6.21	67.23	16.58		130.0	
0620		<u>Z</u>	6.00	67.12	16.50		130.0	
10638- AAB	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.16	67.28	16.60	0.46	130.0	± 9.6 %
		Y	6.21	67.20	16.54		400.0	
		z		01.20 1	10.54		130.0	

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10639-	IEEE 802.11ac WiFi (160MHz, MCS3,	X	6.13	67.21	16.61	0.46	130.0	± 9.6 %
AAB	90pc duty cycle)							
		Y	6.20	67.17	16.57		130.0	
10010		Z	5.98	67.06	16.49		130.0	
10640- AAB	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.13	67.23	16.57	0.46	130.0	±9.6 %
		Y	6.21	67.21	16.53		130.0	
		Z	5.95	66.98	16.40		130.0	
10641- AAB	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.19	67.17	16.55	0.46	130.0	± 9.6 %
		Y	6.24	67.06	16.48		130.0	
		Z	6.04	67.04	16.44		130.0	
10642- AAB	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.22	67.37	16.82	0.46	130.0	±9.6 %
		Y	6.28	67.33	16.77		130.0	
		Z	6.06	67.23	16.70		130.0	
10643- AAB	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.06	67.09	16.58	0.46	130.0	± 9.6 %
		Y	6.12	67.02	16.52		130.0	
		Z	5.91	66.93	16.45		130.0	
10644- AAB	IEEE 802.11ac WIFi (160MHz, MCS8, 90pc duty cycle)	X	6.20	67.52	16.82	0.46	130.0	± 9.6 %
		Y	6.31	67.59	16.83		130.0	
		Z	5.97	67.13	16.57		130.0	
10645- AAB	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.41	67.77	16.91	0.46	130.0	± 9.6 %
		Y	6.76	68.49	17.23		130.0	
		Z	6.10	67.18	16.56		130.0	
10646- AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	32.54	128.38	44.23	9.30	60.0	±9.6 %
		Y	33.21	124.21	42.28		60.0	
		Z	8.58	97.27	34.21		60.0	
10647- AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	24.86	122.50	42.74	9.30	60.0	± 9.6 %
		Y	27.83	120.75	41.46		60.0	-
		Z	7.33	94.04	33.20		60.0	
10648- AAA	CDMA2000 (1x Advanced)	X	0.71	63.99	11.07	0.00	150.0	±9.6 %
		Y :	0.72	63.38	11.01		150.0	
		Z	0.57	62.72	9.40		150.0	
10652- AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.64	67.29	16.91	2.23	80.0	± 9.6 %
		Y	3.79	67.25	16.93		80.0	
		Z	3.31	66.63	16.20		80.0	
10653- AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.13	66.44	16.95	2.23	80.0	± 9.6 %
		Y	4.30	66.53	16.99		80.0	
		Z	3.84	65.89	16.44		80.0	
10654- AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.11	66.04	16.93	2.23	80.0	± 9.6 %
		Y	4.26	66.17	16.97		80.0	1
		Z	3.86	65.50	16.46		80.0	
10655- AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.17	66.02	16.96	2.23	80.0	± 9.6 %
<u> </u>		Y	4.32	66.18	17.01		80.0	
		Z	3.93	65.42	16.50		80.0	

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

# APPENDIX D: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity ε' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{\left[\ln(b/a)\right]^2} \int_a^b \int_0^a \int_0^\pi \cos\phi' \frac{\exp\left[-j\omega r(\mu_0\varepsilon_r\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

where Y is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to

source and observation points, respectively,  $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$ ,  $\omega$  is the angular frequency, and  $j = \sqrt{-1}$ .

		Com	positio	n of the	e Tissue	e Equiva	alent Ma	atter				
Frequency (MHz)	750	750	835	835	1750	1750	1900	1900	2450- 2600	2450- 2600	5200- 5800	5200- 5800
Tissue	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Ingredients (% by weight)												
Bactericide			0.1	0.1								
DGBE					47	31	44.92	29.44		26.7		
HEC	Saa 8000	Saa maga	1	1					Saa maga		Saa maga	
NaCl	See page 2-3	See page	1.45	0.94	0.4	0.2	0.18	0.39	See page	0.1	See page	
Sucrose	23	-	57	44.9							5	
Polysorbate (Tween) 80	]											20
Water			40.45	53.06	52.6	68.8	54.9	70.17		73.2		80

Table D-I Composition of the Tissue Equivalent Matter

FCC ID: A3LSMJ337V		SAR EVALUATION REPORT	SAMSUNG	Approved by: Quality Manager
Test Dates:	DUT Type:			APPENDIX D:
03/25/18 - 04/10/18	Portable Handset			Page 1 of 5
18 PCTEST Engineering Labora	atory, Inc.			REV 20.09 M 03/16/2018

### 2 Composition / Information on ingredients

The Item is composed of	the following ingredients:
H ₂ O	Water, 35 – 58%
Sucrose	Sugar, white, refined, 40 – 60%
NaCl	Sodium Chloride, 0 – 6%
Hydroxyethyl-cellulose	Medium Viscosity (CAS# 9004-62-0), <0.3%
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing
	5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone,
	0.1 – 0.7%
	Relevant for safety; Refer to the respective Safety Data Sheet*.

## Figure D-1 Composition of 750 MHz Head and Body Tissue Equivalent Matter

**Note:** 750MHz liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

		ier cirg	meen	ng AG	_	_	_	S			e	a	g	_	-
hone +	usstras 41 44 eag.co	245 97	00, Fa	x +41 4	14 245										
Aeas	urem	ent C	ertif	icate	/ Ma	terial	Test								
tem Na Produc Manufa				M 075			Liquid (MS 170608-1)	L750V2)							
loonu	remen	t Moth	bod												
				meas	ured u	using ca	alibrated DA	K probe.					_		
	Valida		1			199									
Setup Validat			ere wi	thin ±	2.5%	towards	the target v	alues of M	ethanol.	_				-	
- call a call															
Target	Parar	neters						20000	Parata		and a	-			_
Target	param	neters a	as def	ined in	the II	EEE 15	28 and IEC	62209 com	pliance	stand	ards.		-	_	-
Feet C	onditi	00													
Ambier			Envir	onmer	t temp	peratur	(22 ± 3)°C a	nd humidit	1 < 70%					-	
	empera			or in the s			(								
Test D			20-Ju	n-17											
Operat	tor		CL									_		_	
1		3.000													
Additi														-	-
TSL D	ensity eat-ca			g/cm											
I SL H	eat-ca	pacity	3.000	KJ/(K	J N										
	Measu	ired	-	Targe	1	Diff.to	arget [%]								
[MHz]	e'	e"	sigma	eps	sigma	∆-eps	∆-sigma	10.0	-						
600	57.3	25.02	0.84	56.1				37 96							
000				20.1	0,95	22	-12.2	₹ 7.5		_		1	_	_	_
625	57.1	24.67	0.86	56.0	0.95	1.9	-10.1		-	-		1	-	-	-
625 650	56.8	24.32	0.86 0.88	56.0 55.9	0.95 0.96	1.9 1.6	-10.1 -8.0	Ai 5.0 2.5		-			-	_	
625 650 675	56.8 56.6	24.32 24.02	0.86 0.88 0.90	56.0 55.9 55.8	0.95 0.96 0.96	1.9 1.6 1.3	-10.1 -8.0 -5.8	Ativiti 2.5 0.0 d -2.5		-				-	-
625 650 675 700	56.8 56.6 56.3	24.32 24.02 23.71	0.86 0.88 0.90 0.92	56.0 55.9 55.8 55.7	0.95 0.96 0.96 0.96	1.9 1.6 1.3 1.1	-10.1 -8.0 -5.8 -3.8	41 5.0 2.5 0.0 -2.5 -5.0	•••	+	-	+ ++++	++	+	-
625 650 675 700 725	56.8 56.6 56.3 56.1	24.32 24.02 23.71 23.48	0.86 0.88 0.90 0.92 0.95	56.0 55.9 55.8 55.7 55.6	0.95 0.96 0.96 0.96 0.96	1.9 1.6 1.3 1.1 0.8	-10.1 -8.0 -5.8 -3.8 -1.5	5.0 2.5 0.0 -2.5 -5.0 -7.5 -10.0		+	+		+		
625 650 675 700 725 <b>750</b>	56.8 56.6 56.3 56.1 55.9	24.32 24.02 23.71 23.48 23.25	0.86 0.88 0.90 0.92 0.95 0.97	56.0 55.9 55.8 55.7 55.6 <b>55.5</b>	0.95 0.96 0.96 0.96 0.96 0.96	1,9 1,6 1,3 1,1 0,8 0,6	-10.1 -8.0 -5.8 -3.8 -1.5 0.7	5.0 2.5 0.0 -2.5 -5.0 -7.5	0 650	700	750	800 850	900	950	1000
625 650 675 700 725 <b>750</b> 775	56.8 56.6 56.3 56.1 55.9 55.6	24.32 24.02 23.71 23.48 23.25 23.04	0.86 0.88 0.90 0.92 0.95 <b>0.95</b> 0.99	56.0 55.9 55.8 55.7 55.6 55.5 55.4	0.95 0.96 0.96 0.96 0.96 0.96 0.97	1.9 1.6 1.3 1.1 0.8 0.6 0.3	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9	5.0 2.5 0.0 -2.5 -5.0 -7.5 -10.0	0 650	700		800 850 Jency MHz	900	950	1000
625 650 675 700 725 750 775 800	56.8 56.6 56.3 56.1 55.9 55.6 55.4	24.32 24.02 23.71 23.48 23.25 23.04 22.82	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02	56.0 55.9 55.8 55.7 55.6 55.6 55.4 55.4 55.3	0.95 0.96 0.96 0.96 0.96 0.96 0.97 0.97	1.9 1.6 1.3 1.1 0.8 0.6 0.3 0.1	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0	5.0 2.5 0.0 -2.5 -5.0 -7.5 -10.0	0 650	700			) 900	950	1000
625 650 675 700 725 <b>750</b> 775 800 825	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.4 55.2	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65	0.86 0.88 0.90 0.92 0.95 0.95 0.97 1.02 1.04	56.0 55.9 55.8 55.7 55.6 <b>55.5</b> 55.4 55.3 55.2	0.95 0.96 0.96 0.96 0.96 0.96 0.97 0.97	1.9 1.6 1.3 1.1 0.8 0.6 0.3	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9	5.0 2.5 0.0 -2.5 -5.0 -7.5 -10.0	0 650	700			900	950	1000
625 650 675 700 725 750 775 800	56.8 56.6 56.3 56.1 55.9 55.6 55.4	24.32 24.02 23.71 23.48 23.25 23.04 22.82	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02	56.0 55.9 55.8 55.7 55.6 55.6 55.4 55.4 55.3	0.95 0.96 0.96 0.96 0.96 0.96 0.97 0.97 0.97	1.9 1.6 1.3 1.1 0.8 0.6 0.3 0.1 -0.1	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3	Ai 5.0 2.5 0.0 2.5 -0.0 -7.5 -10.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.0 -0.	0 650	700			0 900	950	100
625 650 675 700 725 750 775 800 825 838	56.8 56.6 56.3 56.1 55.9 55.6 55.6 55.4 55.2 55.1	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.56	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02 1.04 1.05	56.0 55.9 55.8 55.7 55.6 55.5 55.4 55.3 55.2 55.2	0.95 0.96 0.96 0.96 0.96 0.96 0.96 0.97 0.97 0.98 0.98	1.9 1.6 1.3 1.1 0.8 0.6 0.3 0.1 -0.1 -0.3	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9	4 5.0 2.5 0.0 2.5 -0.0 -7.5 -10.0 60 10.0 8 7.5	0 650	700			900	950	1000
625 650 675 700 725 750 775 800 825 838 850	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.4 55.2 55.1 54.9	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.56 22.47	0.86 0.88 0.90 0.92 0.95 0.97 1.02 1.04 1.05 1.06	56.0 55.9 55.8 55.6 <b>55.6</b> <b>55.4</b> 55.3 55.2 55.2 55.2 55.2	0.95 0.96 0.96 0.96 0.96 0.96 0.96 0.97 0.97 0.98 0.98 0.99	1,9 1,6 1,3 1,1 0,8 0,6 0,3 0,1 -0,1 -0,3 -0,4	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9 7.5	4 5.0 2.5 0.0 2.5 -0.0 -7.5 -10.0 60 10.0 8 7.5	0 650	700			900	950	100
625 650 675 700 725 750 775 800 825 838 850 875	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.4 55.2 55.1 54.9 54.7	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.56 22.56 22.54 22.34	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02 1.04 1.05 1.06 1.09	56.0 55.9 55.8 55.7 55.6 <b>55.5</b> 55.4 55.3 55.2 55.2 55.2 55.2 55.2 55.1	0.95 0.96 0.96 0.96 0.96 0.96 0.97 0.97 0.97 0.98 0.98 0.99 1.02	1.9 1.6 1.3 1.1 0.8 0.6 0.3 0.1 -0.1 -0.3 -0.4 -0.7	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9 7.5 6.7	4 5.0 2.5 0.0 2.5 -0.0 -7.5 -10.0 60 10.0 8 7.5	0 650	700			900	950	100
625 650 675 700 725 750 775 800 825 838 850 875 900	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.2 55.1 54.9 54.7 54.5	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.65 22.47 22.34 22.34 22.21	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02 1.04 1.05 1.06 1.09 1.11	56.0 55.9 55.8 55.7 55.6 <b>55.5</b> 55.4 55.3 55.2 55.2 55.2 55.2 55.2 55.2 55.1 55.0	0.95 0.96 0.96 0.96 0.96 0.96 0.96 0.97 0.97 0.98 0.98 0.98 0.99 1.02 1.05	1,9 1,6 1,3 1,1 0,8 0,6 0,3 0,1 -0,1 -0,3 -0,4 -0,7 -0,9	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9 7.5 6.7 5.9	4 5.0 2.5 0.0 2.5 -0.0 -7.5 -10.0 60 10.0 8 7.5	0 650	700			900	950	100
625 650 675 700 725 750 775 800 825 838 850 875 900 925	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.4 55.2 55.1 54.9 54.7 54.5 54.3	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.56 22.56 22.47 22.34 22.21 22.34	0.86 0.88 0.90 0.92 0.95 0.97 1.02 1.04 1.05 1.06 1.09 1.11 1.14	56.0 55.9 55.8 55.7 55.6 55.5 55.4 55.3 55.2 55.2 55.2 55.2 55.2 55.2 55.2	0.95 0.96 0.96 0.96 0.96 0.96 0.96 0.97 0.98 0.98 0.99 1.02 1.05 1.06	1.9 1.6 1.3 1.1 0.8 0.6 0.3 0.1 -0.1 -0.1 -0.3 -0.4 -0.7 -0.9 -1.3	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9 7.5 6.7 5.9 6.9	Any 5.0 Any	0 650	700			900	950	1000
625 650 675 700 725 750 775 800 825 838 850 875 900 925 950	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.4 55.2 55.1 54.9 54.7 54.5 54.3 54.3 54.1	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.56 22.47 22.34 22.21 22.08 21.95	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02 1.04 1.05 1.06 1.09 1.11 1.14 1.16	56.0 55.9 55.8 55.7 55.6 <b>55.5</b> 55.4 55.3 55.2 55.2 55.2 55.2 55.2 55.2 55.0 55.0	0.95 0.96 0.96 0.96 0.96 0.97 0.97 0.97 0.98 0.98 0.99 1.02 1.05 1.06 1.08	1.9 1.6 1.3 1.1 0.8 0.6 0.3 0.1 -0.1 -0.1 -0.3 -0.4 -0.7 -0.9 -1.3 -1.6	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9 7.5 6.7 5.9 6.9 7.9	4 5.0 2.5 0.0 2.5 -0.0 -7.5 -10.0 60 10.0 8 7.5	0 650	700			900	950	100
625 650 675 700 725 800 825 838 850 875 900 925 950 975	56.8 56.6 56.3 56.1 55.9 55.6 55.4 55.4 55.2 55.1 54.9 54.7 54.5 54.3 54.3 54.1 53.8	24.32 24.02 23.71 23.48 23.25 23.04 22.82 22.65 22.56 22.47 22.34 22.21 22.08 21.95 21.86	0.86 0.88 0.90 0.92 0.95 0.97 0.99 1.02 1.04 1.05 1.06 1.09 1.11 1.14 1.16 1.19	56.0 55.9 55.8 55.7 55.6 <b>55.5</b> 55.4 55.3 55.2 55.2 55.2 55.2 55.2 55.2 55.0 55.0	0.95 0.96 0.96 0.96 0.96 0.97 0.97 0.97 0.98 0.98 0.99 1.02 1.05 1.06 1.08 1.09	1,9 1,6 1,3 1,1 0,8 0,6 0,3 0,1 -0,1 -0,1 -0,1 -0,3 -0,4 -0,7 -0,9 -1,3 -1,6 -1,9	-10.1 -8.0 -5.8 -3.8 -1.5 0.7 2.9 5.0 6.3 6.9 7.5 6.7 5.9 6.9 7.9 9.1	Any 5.0 - 10.0 - 0.0 -	0 650	700			>	950	1

Figure D-2 750MHz Body Tissue Equivalent Matter

F	CC ID: A3LSMJ337V		SAR EVALUATION REPORT	SAMSUNG	Approved by: Quality Manager
Te	est Dates:	DUT Type:			APPENDIX D:
03	3/25/18 - 04/10/18	Portable Handset			Page 2 of 5
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Schmid & Partner Engineering AG	S	p	е	а
	and the second se		_	

Zeughausstrasse 43, 8004 Zurich, Switzerland Phone +41 44 245 9700, Fax +41 44 245 9779 info@speag.com, http://www.speag.com

#### Measurement Certificate / Material Test

Item Name	Head Tissue Simulating Liquid (HSL750V2)	
Product No.	SL AAH 075 AA (Batch: 170612-4)	
Manufacturer	SPEAG	

g

Measurement Method TSL dielectric parameters measured using calibrated DAK probe.

#### Setup Validation

Validation results were within  $\pm 2.5\%$  towards the target values of Methanol.

#### Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

#### **Test Condition**

Ambient	Environment temperatur (22 ± 3)°C and humidity < 70%.
TSL Temperature	22°C
Test Date	20-Jun-17
Operator	CL

#### Additional Information

TSL Density 1.284 g/cm³ TSL Heat-capacity 2.701 kJ/(kg*K)

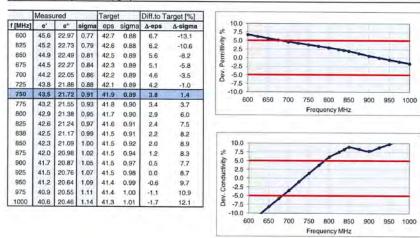


Figure D-3 750MHz Head Tissue Equivalent Matter

	FCC ID: A3LSMJ337V		SAR EVALUATION REPORT	SAMSUNG	Approved by: Quality Manager
	Test Dates:	DUT Type:			APPENDIX D:
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3 Composition / Info The Item is composed of It		
Water	50 - 73 %	
Non-ionic detergents	25 - 50 %	polyoxyethylenesorbitan monolaurate
NaCl	0 - 2%	
Preservative	0.05 - 0.1%	Preventol-D7
Safety relevant ingredients		
CAS-No. 55965-84-9	< 0.1 %	aqueous preparation, containing 5-chloro-2-methyl-3(2H)- isothiazolone and 2-methyyl-3(2H)-isothiazolone
CAS-No. 9005-64-5 According to international g marked by symbols.	<50 % guidelines, the pr	polyoxyethylenesorbitan monolaurate oduct is not a dangerous mixture and therefore not required to be

Figure D-4 Composition of 2.4 GHz Head Tissue Equivalent Matter

**Note:** 2.4 GHz head liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

Phone	+41 44 peag.co	245 9	700, Fa	ix +41	44 245	9779		S			e		a		g		
Meas	surem	nent	Certi	ficate	/ Ma	terial	Test										
Item N Produc Manuf		Į.		AH 19			Liquid (H 170619-1)	IBBL1900-3	300V3)								
	iremen			s mea:	sured	using ca	librated D	AK probe.	-	_	-	_	_	_	_	_	_
Setup	Valida	ation	uero w	ithin +	2 5%	towards	the terrel	t values of M	athanal	_	_			_	_		_
	t Para			io in 1 ±	2.070	iowaius	ane tangen	values of w	ou la noi.							_	_
Target	l paran	neters	as del	fined in	n the I	EEE 15	28 and IEC	C 62209 com	pliance s	stand	lards.		_	_			_
Test C Ambie	Conditi	ion	Envir	oomer	t term	arahir	22 + 3/00	and humidit	- 709	_	_	_	_	_	_	_	_
TSL T	emper	ature	22°C		n terny	al diul 1	Le TOTU	and number	~ 10%								
Test D Opera			20-Ju CL	in-17													
			-	-										_	_	-	-
	ensity	nform		g/cm	3		_			_			-	_			_
	leat-ca			kJ/(k	g*K)												
(MHz)	Measu	e"	sigma	Target	sigma	Diff.to T A-eps	arget [%] ∆-sigma	10.0									_
1900	41.8	12.2	1.3	40.0	1.4	4.5	-8.2	at 7.5 -									
1950	-41.6	12.3	1.3	40.0	- ±.4	4.0	-4.6	£ 60	-	-		-	-	-	-	-	-
2000	41.4	12.4	1.4	40.0	1.4	3.6	-1.3	5.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		-	-						
2100	41.1	12.7	1.5	39.8	1.5	3.1	-0.6						-				
2150	40.9	12.8	1,5	39.7	1.5	2.9	-0,2	G -5.0	-	_	-	_	_	-	Page 1	-	-
2200 2250	40.7 40.6	12,9	1.6 1.6	39.6 39.6	1.6	27	0.2	-7.5								-	
2300	40.4	13.2	1.7	39.5	17	23	1.1	-10.0	00 2100 23	100 25	00 270	2900	3100	330	0 350	0 3700	390
2350	40.2	13.3	1.7	39.4	1.7	21	1.5				Frequen	cy MH	z				
2400	40,0	13.4	1.8	39.3	1.8	1.8	2,1		_	_		-	_	-	_		_
2500	39.7	13.7	1.9	39.1	1.9	1.3	2.6	-									
2550	39.5	13.7	2.0	39,1	1.9	1.1	2.2	10.0						_			_
2600	39.3 39.1	13.9	2.0	39.0 38.9	2.0	0.8	2.5	2 ⁸ 7.5									
2700	39.0	14.2	21	38.9	2,1	02	2.7		-								-
2750 2800	38.7	14.3	22	38.8	21	-0.2	2.6	Conductivity 22 22-	1	-	-						
2850	38.4	14.5	23	38.7	22	-0.8	2.6		r								
2900	38.2	14.6	2.3	38.6	2.3	-1.0	2.6	-5.0 -	-	-			-	-	-	_	-
2950 3000	38.1	14.7	2.4	38.6	2.3	-1.3	2.6 2.6	-7.5						_	_	_	
3050	37.7	14.8	25	38,4	2,5	-2.0	2.8	19	0 2100 23	100 25	00 2700	2900	3100	330	0 350	0 3700	390
3100	37.5	14.9	2.6	38.4	2.5	-2.3	2.8	1			Freque	ancy M	Hz				
3150 3200	37.3 37.1	15.0	2.6	38.3 38.3	2.6	-2.6	29 29						-	_	_	-	_
3250	37.0	15,1	2.7	38.2	2.7	-3.3	3.0										
3300	36.8	15,2	2.8	38.2	2.7	-3.6	3.1										
3350 3400	36.6	15.3	2.8	38.1 38.0	2.8	-3.9	3.2										
3450	36.3	15.4	3.0	38.0	2.9	-4.5	3.4										
3500	36.1	15.5	3.0	37.9	29	-4.8	3.5										
3550 3600	36.0	15.5	3.1	37.9	3.0	-5.0 -5.3	3.6										
3650	35.7	15.7	3.2	37,8	3.1	-5.6	3.7										
37/00	35.5	15.7	3.2	37,7	3.1	远泉	3.9										
3750	35.4	15.8	3.3 3.4	37.6	3.2	-6.1	3.9										
3800																	

Figure D-5 2.4 GHz Head Tissue Equivalent Matter

	FCC ID: A3LSMJ337V		SAR EVALUATION REPORT	SAMSUNG	Approved by: Quality Manager
	Test Dates:	DUT Type:			APPENDIX D:
	03/25/18 - 04/10/18	Portable Handset			Page 4 of 5
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# 2 Composition / Information on ingredients

### Figure D-6 Composition of 5 GHz Head Tissue Equivalent Matter

**Note:** 5GHz head liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

	_	uies ci	Iginee	ring AG	5			_	S	p	е	а	g	
Phone	+41 44	isse 43 4 245 9 om, htt	700, F	ax +41	44 24	5 9779								
Meas	suren	nent	Certi	ificat	e/M	ateria	l Test							
Item N		-	Head	d Tiss	ue Sir	nulatin	g Liquid (H	HBBL3500	5800	V5)				
Produ	ct No. acture		SL A	AH 50	2 AG	(Batch:	170613-1	)						
			-	AG									-	
		nt Met		s moa	surad	using	alibrated D	AK proba	-				-	_
	1		110101	0 mou	Juico	using o	displated D	AR probe.	-					
	Valid tion re		/ere w	ithin +	2.5%	toward	s the targe	t values of	Meth	looe				_
				and the second second	10070	tomard	o the targe	L Values of	WED I					
		meters		fined i	n the	EEE 1	528 and IE	C 62209 co	molie	nce stan	dards			_
						and the	and the first first	- JEEVO 60	- gale	not aidir	ualua.			
Test C Ambie		ion	Envir	ronme	nt tem	peratur	(22 + 3)°C	and humid	tv <	70%	-	-		_
TSL T	emper	ature	22°C			p.serundi	1	and maring		0.70.				
Test D Opera			20-Ju CL	un-17										
	-		-		_				-					-
Additi TSL D		nform		5 a/cm	3	_				_		_	_	_
		pacity												
-	Mar	and a	-	Tan	_	Internet and		-						
f [MHz]	Measu e'	e"	sigma	Targe eps	t sigma		Larget [%] Δ-sigma	10.0	-					_
3400	38.6	15.03	2.84	38.0	2.81	1.5	1,1	2 7.5						
3500	38.5	15.00	2.92	37.9	2.91	1,5	0.3 +0.5	Parmittimery 0.0						
3700	38.2	14.96	3.08	37.7	3.12	1.3	-1.2		*****	********	*******		******	
3800	38.1	14.96	3.16	37.6	3.22	1.4	-1.9	A -2.5						-
	39.0	14.95	3 24											
3900 4000	38.0 37.9	14.95 14.95	3.24 3.33	37.5 37.4	3.43	1.5	-2.8	-5.0					-	_
3900 4000 4100	37.9 37.8	14.95 14.96	3.33 3.41	37.4 37.2	3.43 3.53	1.5 1.5	-2.8 -3.3	-7.5		2000	1100	1000	5400	
3900 4000	37.9	14.95	3.33	37.4	3.43	1.5	-2.8	-7.5	00	3900	4400 Frequ	4900 ency MHz	5400	5900
3900 4000 4100 4200 4300 4400	37.9 37.8 37.6 37.5 37.4	14.95 14.96 15.00 15.05 15.11	3.33 3.41 3.50 3.60 3.70	37.4 37.2 37.1 37.0 36.9	3.43 3.53 3.63 3.73 3.84	1.5 1.5 1.3 1.3 1.4	-2.8 -3.3 -3.6 -3.5 -3.5	-7.5	00	3900			5400	5900
3900 4000 4100 4200 4300	37.9 37.8 37.6 37.5	14.95 14.96 15.00 15.05	3.33 3.41 3.50 3.60	37.4 37.2 37.1 37.0	3.43 3.53 3.63 3.73	15 15 13 13	-2.8 -3.3 -3.6 -3.5	-7.5 -10.0 3	100	3900			5400	5900
3900 4000 4100 4200 4300 4400 4500 4600 4700	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29	3.33 3.41 3.50 3.60 3.70 3.80 3.90 4.00	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.6	3.43 3.53 3.63 3.73 3.84 3.94 4.04 4.14	15 15 13 13 14 1,1 12 12	-2.8 -3.3 -3.6 -3.5 -3.5 -3.5 -3.5 -3.5 -3.4	-7.5 -10.0 3	100	3900			5400	5900
3900 4000 4100 4200 4300 4400 4500 4600	37.9 37.8 37.6 37.5 37.4 37.2 37.1	14.95 14.96 15.00 15.05 15.11 15.18 15.24	3.33 3.41 3.50 3.60 3.70 3.80 3.90	37.4 37.2 37.1 37.0 36.9 36.8 36.8	3.43 3.53 3.63 3.73 3.84 3.94 4.04	15 15 13 13 14 1,1 1,2	-2.8 -3.3 -3.6 -3.5 -3.5 -3.5 -3.5	-7.5 -10.0 3 10.0 7.5 \$ 5.0	100	3900			5400	5900
3900 4000 4100 4200 4300 4500 4500 4600 4700 4800 4850 4900	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.7	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38	3.33 3.41 3.50 3.60 3.70 3.90 4.00 4.10 4.14 4.19	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.6 36.4 36.4 36.4 36.3	3.43 3.53 3.63 3.73 3.84 4.04 4.04 4.14 4.25 4.30 4.35	15 15 13 13 14 11 12 12 10 1,1 10	-2.8 -3.3 -3.6 -3.5 -3.5 -3.5 -3.5 -3.4 -3.4 -3.6 -3.6 -3.6	-7.5 -10.0 3 10.0 7.5 \$ 5.0	100	3900			5400	5900
3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4850	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38 15.38	3.33 3.41 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.14	37.4 37.2 37.1 36.9 36.8 36.7 36.6 36.4 36.4 36.4	3.43 3.53 3.63 3.73 3.84 4.04 4.04 4.14 4.25 4.30	15 15 13 13 14 1,1 12 12 10 1,1	-2.8 -3.3 -3.6 -3.5 -3.5 -3.5 -3.5 -3.4 -3.4 -3.6	-7.5 -10.0 3 10.0 7.5 \$ 5.0	100	3900			5400	5900
3900 4000 4100 4200 4300 4400 4500 4600 4700 4850 4850 4900 4950 5000 5050	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.7 36.6 36.5 36.5	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38 15.39 15.42 15.42 15.43	3.33 3.41 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.14 4.19 4.24 4.29 4.34	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.6 36.4 36.4 36.4 36.3 36.3 36.2 36.2	3.43 3.53 3.63 3.73 3.84 4.04 4.04 4.25 4.30 4.35 4.40 4.45 4.50	15 15 13 13 14 11 12 12 10 11 10 0.9 0.8 0.9	-28 -33 -36 -35 -35 -35 -35 -35 -35 -35 -34 -36 -36 -36 -36 -36 -36 -36 -36	-7.5 -10.0 3 10.0 7.5 \$ 5.0 0.0 00 2.5 0.0 00 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100	3900			5400	5900
3900 4000 4100 4200 4200 4400 4500 4600 4800 4850 4850 4900 4950 5000 5050 5100	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.8 36.7 36.6 36.5 36.5 36.5 36.4	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38 15.39 15.42 15.43 15.43	3.33 3.41 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.14 4.19 4.24 4.29 4.34 4.39	37.4 37.2 37.1 36.9 36.8 36.7 36.6 36.4 36.4 36.4 36.3 36.3 36.3 36.2 36.2 36.2 36.2 36.2	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.30 4.35 4.40 4.45 4.50 4.55	15 15 13 13 14 11 12 12 10 11 10 0.9 0.8 0.9 0.8	-2.8 -3.3 -3.6 -3.5 -3.5 -3.5 -3.5 -3.5 -3.4 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6	-7.5 -10.0 3 10.0 7.5 \$ 5.0 40.25 0.0 000 -2.5	800	3900			5400	5900
3900 4000 4100 4200 4300 4400 4500 4600 4850 4850 4850 4900 4850 5000 5050 5150 5150 5150	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.7 36.6 36.5 36.5	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38 15.39 15.42 15.43 15.44 15.49 15.44 15.48 <b>15.50</b>	3.33 3.41 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.14 4.19 4.24 4.29 4.34 4.39 4.43 4.48	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.6 36.4 36.4 36.3 36.2 36.2 36.2 36.2 36.2 36.2 36.1 36.0 <b>36.0</b>	3.43 3.53 3.63 3.84 4.04 4.14 4.25 4.30 4.35 4.40 4.45 4.50 4.55 4.60 4.66	15 15 13 13 14 11 12 12 10 11 10 0.9 0.8 0.9	-28 -33 -36 -35 -35 -35 -35 -35 -35 -35 -34 -36 -36 -36 -36 -36 -36 -36 -36	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	400	3800	Frequ 4400	ency MHz 4900	5400	5900
3900 4000 4100 4200 4300 4400 4400 4400 4800 4800 4850 4950 5050 5050 5150 5150 5250	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.5 36.5 36.5 36.5 36.5 36.4 36.3 36.2 36.1	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38 15.38 15.38 15.42 15.43 15.46 15.48 <b>15.50</b>	3.33 3.41 3.50 3.60 3.70 3.80 4.00 4.10 4.14 4.19 4.24 4.29 4.34 4.39 4.43 4.48 4.54	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.6 36.4 36.4 36.3 36.3 36.3 36.2 36.2 36.2 36.2 36.1 36.0 <b>35.9</b>	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.30 4.35 4.40 4.45 4.50 4.55 4.60 <b>4.66</b> 4.71	15 15 13 13 14 11 12 12 10 11 10 11 10 0.9 0.8 0.9 0.8 0.7 0.5	-28 -33 -36 -35 -35 -35 -35 -35 -34 -34 -36 -36 -36 -36 -36 -36 -38 -38 -35	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ 4400	ency MHz		
3900 4000 4100 4200 4300 4400 4500 4600 4850 4850 4850 4900 4850 5000 5050 5150 5150 5150	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.7 36.6 36.5 36.5 36.5 36.5 36.4 36.3 36.2	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.29 15.35 15.35 15.38 15.39 15.42 15.43 15.44 15.49 15.44 15.48 <b>15.50</b>	3.33 3.41 3.50 3.60 3.70 3.80 3.90 4.00 4.10 4.14 4.19 4.24 4.29 4.34 4.39 4.43 4.48	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.6 36.4 36.4 36.3 36.2 36.2 36.2 36.2 36.2 36.2 36.1 36.0 <b>36.0</b>	3.43 3.53 3.63 3.84 4.04 4.14 4.25 4.30 4.35 4.40 4.45 4.50 4.55 4.60 4.66	15 15 13 13 14 11 12 12 10 11 10 0.9 0.8 0.9 0.8 0.7 0.6	-28 -33 -36 -35 -35 -35 -35 -35 -34 -34 -36 -36 -36 -36 -36 -38 -38 -38	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ 4400	ency MHz 4900		
3900 4000 4100 4200 4300 4400 4400 4400 4400 4400 44	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.5 36.5 36.5 36.4 36.3 36.2 36.2 36.1 36.1 36.0 35.9	14.95 14.96 15.00 15.05 15.11 15.18 15.29 15.35 15.35 15.38 15.38 15.42 15.43 15.46 15.48 15.46 15.53 15.55 15.56 15.57	3.33 3.41 3.50 3.80 3.80 3.90 4.00 4.10 4.14 4.29 4.34 4.34 4.34 4.34 4.43 4.43 4.45 4.58 4.63 4.68	37.4 37.2 37.1 37.0 36.9 36.8 36.4 36.4 36.4 36.4 36.4 36.4 36.2 36.2 36.2 36.2 36.2 36.2 36.0 36.0 35.9 35.8 35.8	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.30 4.45 4.40 4.45 4.50 4.60 4.60 4.60 4.60 4.61 4.68	15 15 13 13 14 12 12 10 11 12 12 10 11 10 0.9 0.8 0.9 0.8 0.7 0.6 0.5 0.5 0.4	-28 -33 -35 -35 -35 -35 -35 -35 -34 -36 -36 -36 -36 -36 -38 -38 -38 -38 -35 -37 -37	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ 4400	ency MHz 4900		
3900 4000 4100 4200 4300 4400 4400 4500 4800 4800 4850 5000 5050 5100 5150 5200 5350 5350	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.0 36.8 36.5 36.5 36.5 36.5 36.5 36.5 36.5 36.5	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.25 15.35 15.35 15.35 15.38 15.39 15.42 15.43 15.48 15.48 15.53 15.55 15.56	3.33 3.41 3.50 3.60 3.70 3.80 4.00 4.10 4.14 4.29 4.24 4.24 4.24 4.34 4.34 4.43 4.43 4.43	37.4 37.2 37.1 37.0 36.9 36.8 36.7 36.8 36.7 36.4 36.3 36.3 36.2 36.2 36.2 36.2 36.2 36.2	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.30 4.45 4.40 4.45 4.55 4.60 <b>4.65</b> 4.60 <b>4.66</b> 4.71 4.76 4.81	15 15 13 13 14 12 12 10 11 12 12 10 11 10 0.9 0.8 0.9 0.8 0.7 0.6 0.5	-28 -33 -36 -35 -35 -35 -35 -35 -35 -35 -35 -36 -36 -36 -36 -36 -36 -38 -38 -38 -38 -38 -35 -37 -37	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ	ency MHz 4900		
3900 4000 4100 4200 4500 4500 4500 4600 4800 4900 4950 5000 5050 5100 5100 5200 5200 5300 5300 5300 5350 5400 5455 5550	37.9 37.8 37.5 37.4 37.2 37.2 37.2 37.2 37.2 37.2 36.8 36.8 36.5 36.5 36.5 36.5 36.4 36.2 36.2 36.1 36.0 35.9 35.9 35.8 35.7	14.95 14.96 15.00 15.05 15.11 15.24 15.29 15.35 15.38 15.38 15.38 15.42 15.43 15.43 15.46 15.53 15.56 15.56 15.56 15.59 15.59 15.59	3.33 3.41 3.50 3.60 3.70 3.80 4.00 4.10 4.14 4.29 4.24 4.29 4.34 4.59 4.43 4.65 4.65 4.65 4.65 4.65 4.65 4.63 4.63 4.73 4.78	37.4 37.2 37.1 36.9 36.8 36.8 36.4 36.4 36.4 36.3 36.3 36.2 36.2 36.2 36.2 36.2 36.2	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.30 4.44 4.45 4.40 4.45 4.55 4.60 4.55 4.60 4.55 4.60 4.56 4.71 4.81 4.81 4.91 4.91 5.01	15 15 15 13 13 14 14 12 12 12 10 0 0 9 0 8 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	-28 -33 -36 -35 -35 -35 -35 -35 -35 -35 -35 -36 -36 -36 -36 -36 -36 -36 -36 -36 -38 -38 -38 -38 -37 -37 -37	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ	ency MHz 4900		
3900 4000 4100 4200 4300 4500 4500 4800 4800 4900 4950 5050 5050 5050 5100 5155 5500 5350 535	37.9 37.8 37.6 37.5 37.4 37.2 37.1 37.1 37.1 37.1 37.1 36.8 36.5 36.5 36.5 36.5 36.4 36.5 36.2 36.1 36.1 36.0 36.9 35.9 35.9 35.9	14.95 14.96 15.00 15.05 15.05 15.35 15.35 15.38 15.48 15.48 15.48 15.48 15.56 15.56 15.57 15.59 15.57 15.59 15.57 15.59	3.33 3.41 3.50 3.60 3.70 3.80 4.00 4.10 4.14 4.29 4.34 4.29 4.34 4.43 4.43 4.43 4.45 4.63 4.63 4.63 4.63 4.63 4.63 4.63 4.63	37.4 37.2 37.1 36.6 36.9 36.8 36.7 36.6 36.2 36.2 36.2 36.2 36.2 36.2 36.0 35.9 35.9 35.8 35.8 35.7 <b>35.6</b>	3.43 3.53 3.83 3.84 4.04 4.14 4.25 4.30 4.45 4.40 4.45 4.40 4.45 4.55 4.60 4.55 4.60 4.55 4.60 4.56 4.61 4.71 4.88 4.81 4.88 4.81 4.86	15 15 13 13 14 1,1 1,2 1,2 1,0 1,1 1,0 0,9 0,8 0,9 0,8 0,9 0,8 0,7 0,6 0,5 0,5 0,5 0,6 0,4 0,6 0,4	-28 -33 -36 -35 -35 -35 -35 -35 -35 -34 -36 -36 -36 -36 -36 -36 -36 -36 -36 -36	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ	ency MHz 4900		
3900 4000 4100 4200 4400 4400 4400 4800 4800 4850 5000 500	37.9 37.8 37.5 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.25 15.35 15.36 15.36 15.42 15.43 15.46 15.55 15.56 15.57 15.59 15.61 15.59 15.61 15.59	3.33 3.41 3.50 3.60 3.70 3.90 4.00 4.14 4.19 4.24 4.29 4.34 4.43 4.43 4.43 4.43 4.43 4.43 4.4	37.4 37.2 37.1 37.0 36.9 36.8 36.4 36.4 36.3 36.3 36.2 36.2 36.2 36.2 36.2 36.2	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.40 4.45 4.55 4.60 4.65 4.60 4.66 4.71 4.76 4.88 4.91 4.88 4.91 5.07 5.12 5.12	15 15 13 13 14 14 11 12 12 10 11 11 12 12 12 12 10 11 11 10 09 08 09 08 09 08 09 08 07 05 05 05 05 05 04 06 03 00 2	-28 -3.5 -3.6 -3.5 -3.5 -3.5 -3.5 -3.5 -3.5 -3.5 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ	ency MHz 4900		
3900 4000 4100 4200 4300 4400 4500 4500 4500 4950 5050 5050 5100 5150 5250 5350 5350 5400 5450 5550 5650 5650 5650 5650 56	37.9 37.8 37.5 37.4 37.2 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.5 36.5 36.5 36.4 36.3 36.2 36.2 36.2 36.2 36.2 36.2 36.2	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.25 15.35 15.35 15.35 15.42 15.42 15.43 15.44 15.48 15.55 15.56 15.59 15.59 15.59 15.59 15.68 15.79 15.72 15.72	3.33 3.41 3.50 3.60 3.70 3.80 4.00 4.10 4.14 4.29 4.34 4.39 4.43 4.54 4.58 4.63 4.63 4.63 4.63 4.63 4.63 4.63 4.63	37.4 37.2 37.1 37.0 36.9 36.9 36.8 36.4 36.4 36.4 36.4 36.2 36.2 36.2 36.2 36.2 36.2 36.2 36.2	3.43 3.63 3.63 3.73 3.84 4.04 4.14 4.25 4.30 4.45 4.40 4.45 4.40 4.45 4.55 4.60 4.55 4.60 4.55 4.60 4.55 4.60 5.50 5.17 5.12 5.22	15 15 13 13 14 1,1 12 12 10 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,9 0,8 0,0 1,0 1,0 1,0 1,0 1,0 1,0 1,0 1,0 1,0	-28 -33 -36 -35 -35 -35 -35 -35 -35 -34 -34 -36 -36 -36 -36 -36 -36 -36 -36 -36 -36	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	1		Frequ	ency MHz 4900		
3900 4000 4100 4200 4400 4400 4400 4800 4800 4800 5000 50	37.9 37.8 37.5 37.5 37.4 37.2 37.1 37.0 36.8 36.8 36.8 36.8 36.8 36.8 36.8 36.8	14.95 14.96 15.00 15.05 15.11 15.18 15.24 15.25 15.35 15.36 15.36 15.42 15.43 15.46 15.55 15.56 15.57 15.59 15.61 15.59 15.61 15.59	3.33 3.41 3.50 3.60 3.70 3.90 4.00 4.14 4.19 4.24 4.29 4.34 4.43 4.43 4.43 4.43 4.43 4.43 4.4	37.4 37.2 37.1 37.0 36.9 36.8 36.4 36.4 36.3 36.3 36.2 36.2 36.2 36.2 36.2 36.2	3.43 3.53 3.63 3.73 3.84 4.04 4.14 4.25 4.40 4.45 4.55 4.60 4.65 4.60 4.66 4.71 4.76 4.88 4.91 4.88 4.91 5.07 5.12 5.12	15 15 13 13 14 1,1 12 12 10 1,1 1,2 10 1,1 1,2 10 0,9 0,8 0,9 0,8 0,7 0,5 0,5 0,5 0,5 0,5 0,5 0,5 0,5 0,4 0,0 0,2 0,4 0,2 0,4 0,4 0,4 0,5 0,5 0,5 0,5 0,5 0,5 0,5 0,5 0,5 0,5	-28 -3.5 -3.6 -3.5 -3.5 -3.5 -3.5 -3.5 -3.5 -3.5 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6 -3.6	10.0 3 10.0 7.5 5.0 2.5 0.0 2.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0			Frequ	ency MHz 4900		

Figure D-7 5GHz Head Tissue Equivalent Matter

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# APPENDIX E: SAR SYSTEM VALIDATION

Per FCC KDB Publication 865664 D02v01r02, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

	SAR System Validation Summary													
SAR							COND.	PERM.	C	W VALIDATION		N	OD. VALIDATION	
SYSTEM #	FREQ. [MHz]	DATE	PROBE SN	PROBE TYPE	PROBE C	AL. POINT	(σ)	(ɛr)	SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
E	750	3/11/2018	3213	ES3DV3	750	Head	0.890	40.788	PASS	PASS	PASS	N/A	N/A	N/A
E	835	3/5/2018	3213	ES3DV3	835	Head	0.925	43.335	PASS	PASS	PASS	GMSK	PASS	N/A
D	1750	1/4/2018	3318	ES3DV3	1750	Head	1.380	38.488	PASS	PASS	PASS	N/A	N/A	N/A
Н	1900	9/5/2017	7410	EX3DV4	1900	Head	1.446	40.104	PASS	PASS	PASS	GMSK	PASS	N/A
G	2450	10/16/2017	3332	ES3DV3	2450	Head	1.880	38.615	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
G	2600	10/16/2017	3332	ES3DV3	2600	Head	2.051	38.039	PASS	PASS	PASS	TDD	PASS	N/A
Н	5250	1/31/2018	3589	EX3DV4	5250	Head	4.516	36.066	PASS	PASS	PASS	OFDM	N/A	PASS
Н	5600	1/31/2018	3589	EX3DV4	5600	Head	4.869	35.597	PASS	PASS	PASS	OFDM	N/A	PASS
Н	5750	1/31/2018	3589	EX3DV4	5750	Head	5.112	35.351	PASS	PASS	PASS	OFDM	N/A	PASS
1	750	3/6/2018	3287	ES3DV3	750	Body	0.951	56.970	PASS	PASS	PASS	N/A	N/A	N/A
E	835	3/16/2018	3213	ES3DV3	835	Body	0.968	53.713	PASS	PASS	PASS	GMSK	PASS	N/A
Н	1750	8/30/2017	7410	EX3DV4	1750	Body	1.532	51.024	PASS	PASS	PASS	N/A	N/A	N/A
J	1900	3/9/2018	3914	EX3DV4	1900	Body	1.533	53.731	PASS	PASS	PASS	GMSK	PASS	N/A
K	2450	5/3/2017	7406	EX3DV4	2450	Body	1.995	50.521	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2450	4/3/2018	3319	ES3DV3	2450	Body	2.043	51.130	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2600	4/3/2018	3319	ES3DV3	2600	Body	2.225	50.665	PASS	PASS	PASS	TDD	PASS	N/A
D	5250	10/24/2017	7308	EX3DV4	5250	Body	5.405	48.529	PASS	PASS	PASS	OFDM	N/A	PASS
D	5600	10/24/2017	7308	EX3DV4	5600	Body	5.910	47.818	PASS	PASS	PASS	OFDM	N/A	PASS
D	5750	10/24/2017	7308	EX3DV4	5750	Body	6.135	47.546	PASS	PASS	PASS	OFDM	N/A	PASS

Table E-1SAR System Validation Summary

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to FCC KDB Publication 865664 D01v01r04.

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# APPENDIX G: POWER REDUCTION VERIFICATION

Per the May 2017 TCBC Workshop Notes, demonstration of proper functioning of the power reduction mechanisms is required to support the corresponding SAR configurations. The verification process was divided into two parts: (1) evaluation of output power levels for individual or multiple triggering mechanisms and (2) evaluation of the triggering distances for proximity-based sensors.

# **1.1** Power Verification Procedure

The power verification was performed according to the following procedure:

- 1. A base station simulator was used to establish a conducted RF connection and the output power was monitored. The power measurements were confirmed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
- 2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.
- 3. Steps 1 and 2 were repeated for all individual power reduction mechanisms and combinations thereof. For the combination cases, one mechanism was switched to a 'triggered' state at a time; powers were confirmed to be within tolerances after each additional mechanism was activated.

# 1.2 Distance Verification Procedure

The distance verification procedure was performed according to the following procedure:

- 1. A base station simulator was used to establish an RF connection and to monitor the power levels. The device being tested was placed below the relevant section of the phantom with the relevant side or edge of the device facing toward the phantom.
- The device was moved toward and away from the phantom to determine the distance at which the mechanism triggers and the output power is reduced, per KDB Publication 616217 D04v01r02 and FCC Guidance. Each applicable test position was evaluated. The distances were confirmed to be the same or larger (more conservative) than the minimum distances provided by the manufacturer.
- 3. Steps 1 and 2 were repeated for low, mid, and high bands, as appropriate (see note below Table 1-2 for more details).
- 4. Steps 1 through 3 were repeated for all distance-based power reduction mechanisms.

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# **1.3 Main Antenna Verification Summary**

Mashaniam(s)	Mode/Band						
Mechanism(s)	wode/Band	Un-triggered (Max)	Max Target	Mechanism #1 (Reduced)	Reduced Target (Held-to-Ear)	Mechanism #2 (Reduced)	Reduced Target (Hotspot)
Held-to-Ear	UMTS B2	22.77	23	21.72	22		
Held-to-Ear	GSM 1900	28.22	29.2	26.44	27		
Held-to-Ear	LTE B2	23.43	24	22.74	22.5		
Held-to-Ear	LTE B4	23.25	24	22.71	22.5		
Held-to-Ear	CDMA BC0	23.76	24	23.44	23.7		
Held-to-Ear	CDMA BC1	24.37	24.5	22.97	23		
Hotspot On	UMTS B2	22.73	23	21.69	22		
Hotspot On	GSM 1900	28.21	29.2	26.41	27		
Hotspot On	LTE B2	23.46	24	22.71	22.5		
Hotspot On	LTE B4	23.21	24	22.73	22.5		
Hotspot On	CDMA BC0	23.74	24	23.42	23.7		
Hotspot On	CDMA BC1	24.36	24.5	22.96	23		
Hotspot On, then Held-to-Ear	UMTS B2	22.72	23	21.67	22	21.65	22
Hotspot On, then Held-to-Ear	GSM 1900	28.16	29.2	26.39	27	26.41	27
Hotspot On, then Held-to-Ear	LTE B2	23.44	24	22.72	22.5	22.7	22.5
Hotspot On, then Held-to-Ear	LTE B4	23.21	24	22.69	22.5	22.71	22.5
Hotspot On, then Held-to-Ear	CDMA BC0	23.71	24	23.39	23.7	23.43	23.7
Hotspot On, then Held-to-Ear	CDMA BC1	24.32	24.5	22.94	23	22.95	23
Held-to-Ear, then Hotspot On	UMTS B2	22.73	23	21.66	22	21.73	22
Held-to-Ear, then Hotspot On	GSM 1900	28.15	29.2	26.41	27	26.39	27
Held-to-Ear, then Hotspot On	LTE B2	23.51	24	22.74	22.5	22.77	22.5
Held-to-Ear, then Hotspot On	LTE B4	23.26	24	22.71	22.5	22.76	22.5
Held-to-Ear, then Hotspot On	CDMA BC0	23.72	24	23.36	23.7	23.41	23.7
Held-to-Ear, then Hotspot On	CDMA BC1	24.34	24.5	22.96	23	22.98	23

# Table 1-1 Power Measurement Verification for Main Antenna

Tolerance: -1.5 dB ~ +1.0 dB

# Table 1-2 Distance Measurement Verification for Main Antenna

Mechanism(s) Test Condition	Band	Distance Meas	urements (mm)	Minimum Distance per Manufacturer (mm)		
Mechanism(s) Test Condition		вапи	Moving Toward			Moving Away
Held-to-Ear	Head - Right Cheek	Low	62	84	- 50	
Held-to-Ear	Head - Right Cheek	Mid	61	85		
Held-to-Ear	Head - Left Cheek	Low	63	84	50	
Held-to-Ear	Head - Left Cheek	Mid	58	85	50	

*Note: Low band refers to: CDMA BC0; Mid band refers to: CDMA BC1, GSM1900, UMTS B2, LTE B2/4.

# 1.4 WIFI Verification Summary

 Table 1-3

 Power Measurement Verification WIFI

		Conducted Power (dBm)				
Mechanism(s)	Mode/Band	Un-triggered	iggered Mechanism #1	Mechanism #1		
		(Max)	Max Target	(Reduced)	Reduced Target	
Held-to-Ear	802.11b	17.86	18	14.64	15	
Held-to-Ear	802.11a	15.59	15	9.05	10	
Held-to-Ear	802.11n (5GHz, 20MHz BW)	15.56	15	9.11	10	
Held-to-Ear	802.11n (5GHz, 40MHz BW)	14.96	14	9.63	10	

Tolerance: -1.5 dB ~ +1.0 dB

 Table 1-4

 Distance Measurement Verification for WIFI

Mechanism(s) Test Condition	Dand	Distance Meas	urements (mm)	Minimum Distance per Manufacturer (mm)		
Mechanism(s) Test Condition		Band	Moving Toward			Moving Away
Held-to-Ear	Head - Right Cheek	2.4GHz	62	85	- 50	
Held-to-Ear	Head - Right Cheek	5GHz	62	87		
Held-to-Ear	Head - Left Cheek	2.4GHz	60	86	50	
Held-to-Ear	Head - Left Cheek	5GHz	61	85	50	

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