

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.87	68.57	16.07	0.00	150.0	± 9.6 %
		Y	0.68	65.20	13.52		150.0	
		Z	0.87	67.82	15.83		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	131.24	33.42	3.29	80.0	± 9.6 %
		Y	35.87	117.39	30.79		80.0	
		Z	100.00	130.05	33.95		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.66	60.00	7.14	3.23	80.0	± 9.6 %
		Y	0.79	61.10	8.71		80.0	
		Z	8.69	83.27	17.68		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.68	60.00	6.41	3.23	80.0	± 9.6 %
		Y	0.71	60.00	7.47		80.0	
		Z	2.00	67.52	11.81		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.01	31.31	3.23	80.0	± 9.6 %
		Y	22.40	108.37	27.69		80.0	
		Z	100.00	127.29	32.50		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.66	60.00	7.05	3.23	80.0	± 9.6 %
		Y	0.73	60.44	8.30		80.0	
		Z	4.63	76.72	15.62		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.69	60.00	6.36	3.23	80.0	± 9.6 %
		Y	0.71	60.00	7.41		80.0	
		Z	1.67	65.70	11.02		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.52	31.53	3.23	80.0	± 9.6 %
		Y	31.48	113.23	28.92		80.0	
		Z	100.00	127.61	32.64		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.65	60.00	7.08	3.23	80.0	± 9.6 %
		Y	0.75	60.65	8.44		80.0	
		Z	5.35	78.25	16.12		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.69	60.00	6.36	3.23	80.0	± 9.6 %
		Y	0.71	60.00	7.41		80.0	
		Z	1.67	65.74	11.03		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.55	31.53	3.23	80.0	± 9.6 %
		Y	32.51	113.69	29.02		80.0	
		Z	100.00	127.65	32.64		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.65	60.00	7.06	3.23	80.0	± 9.6 %
		Y	0.74	60.60	8.40		80.0	
		Z	5.27	78.07	16.05		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.69	60.00	6.34	3.23	80.0	± 9.6 %
		Y	0.71	60.00	7.40		80.0	
		Z	1.66	65.66	10.98		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	127.50	31.51	3.23	80.0	± 9.6 %
		Y	31.93	113.42	28.95		80.0	
		Z	100.00	127.61	32.62		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.65	60.00	7.06	3.23	80.0	± 9.6 %
		Y	0.74	60.58	8.38		80.0	
		Z	5.19	77.93	16.01		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.69	60.00	6.34	3.23	80.0	± 9.6 %
		Y	0.71	60.00	7.40		80.0	
		Z	1.65	65.61	10.97		80.0	

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.65	60.00	7.03	3.23	80.0	± 9.6 %
		Y	0.73	60.41	8.27		80.0	
		Z	4.63	76.73	15.60		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.69	60.00	6.32	3.23	80.0	± 9.6 %
		Y	0.71	60.00	7.39		80.0	
		Z	1.63	65.53	10.92		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	16.00	99.74	26.44	3.23	80.0	± 9.6 %
		Y	11.93	95.50	25.33		80.0	
		Z	7.94	87.98	23.97		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.79	80.48	17.75	3.23	80.0	± 9.6 %
		Y	4.94	77.21	17.06		80.0	
		Z	8.84	84.07	20.72		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.30	71.66	14.25	3.23	80.0	± 9.6 %
		Y	2.92	70.45	14.14		80.0	
		Z	6.89	79.97	18.98		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.71	66.57	13.32	2.23	80.0	± 9.6 %
		Y	1.47	64.69	12.19		80.0	
		Z	3.77	76.31	18.90		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.97	64.83	11.62	2.23	80.0	± 9.6 %
		Y	1.80	63.81	11.12		80.0	
		Z	4.65	74.88	17.60		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.88	64.05	11.24	2.23	80.0	± 9.6 %
		Y	1.74	63.14	10.78		80.0	
		Z	4.29	73.52	17.08		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.42	70.99	16.75	2.23	80.0	± 9.6 %
		Y	2.20	69.63	15.96		80.0	
		Z	3.80	76.41	19.93		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.25	66.38	13.82	2.23	80.0	± 9.6 %
		Y	2.07	65.25	13.10		80.0	
		Z	3.45	71.18	17.22		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.24	65.94	13.58	2.23	80.0	± 9.6 %
		Y	2.07	64.88	12.89		80.0	
		Z	3.42	70.64	16.97		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.77	70.73	17.86	2.23	80.0	± 9.6 %
		Y	2.65	70.03	17.45		80.0	
		Z	3.79	74.17	19.68		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.87	67.90	16.40	2.23	80.0	± 9.6 %
		Y	2.78	67.42	16.09		80.0	
		Z	3.52	69.75	17.81		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.95	67.76	16.33	2.23	80.0	± 9.6 %
		Y	2.86	67.30	16.03		80.0	
		Z	3.60	69.51	17.71		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.06	69.47	17.55	2.23	80.0	± 9.6 %
		Y	2.96	68.94	17.24		80.0	
		Z	3.91	72.06	18.89		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.23	67.24	16.58	2.23	80.0	± 9.6 %
		Y	3.15	66.90	16.36		80.0	
		Z	3.81	68.69	17.61		80.0	



EX3DV4- SN:7346

February 28, 2018

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.29	67.13	16.53	2.23	80.0	± 9.6 %
		Y	3.21	66.80	16.31		80.0	
		Z	3.87	68.53	17.55		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.27	70.74	18.00	2.23	80.0	± 9.6 %
		Y	3.15	70.13	17.67		80.0	
		Z	4.33	73.95	19.50		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.24	67.47	16.79	2.23	80.0	± 9.6 %
		Y	3.17	67.13	16.58		80.0	
		Z	3.85	69.12	17.83		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.33	67.29	16.73	2.23	80.0	± 9.6 %
		Y	3.26	66.97	16.53		80.0	
		Z	3.92	68.78	17.71		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	0.97	60.40	8.81	2.23	80.0	± 9.6 %
		Y	0.92	60.00	8.28		80.0	
		Z	2.78	71.82	16.09		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.11	60.00	7.28	2.23	80.0	± 9.6 %
		Y	1.10	60.00	7.02		80.0	
		Z	1.82	63.65	11.31		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.13	60.00	7.10	2.23	80.0	± 9.6 %
		Y	1.12	60.00	6.85		80.0	
		Z	1.74	62.87	10.77		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.56	70.86	17.19	2.23	80.0	± 9.6 %
		Y	2.39	69.84	16.59		80.0	
		Z	3.69	74.97	19.64		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.57	67.44	15.02	2.23	80.0	± 9.6 %
		Y	2.42	66.58	14.46		80.0	
		Z	3.48	70.59	17.44		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.61	67.24	14.84	2.23	80.0	± 9.6 %
		Y	2.45	66.39	14.29		80.0	
		Z	3.53	70.40	17.29		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.74	70.53	17.76	2.23	80.0	± 9.6 %
		Y	2.61	69.82	17.34		80.0	
		Z	3.74	73.96	19.58		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.85	67.79	16.34	2.23	80.0	± 9.6 %
		Y	2.76	67.31	16.02		80.0	
		Z	3.50	69.66	17.75		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.93	67.66	16.27	2.23	80.0	± 9.6 %
		Y	2.84	67.20	15.96		80.0	
		Z	3.58	69.42	17.66		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.25	70.60	17.92	2.23	80.0	± 9.6 %
		Y	3.13	69.98	17.59		80.0	
		Z	4.29	73.80	19.43		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.23	67.41	16.75	2.23	80.0	± 9.6 %
		Y	3.16	67.06	16.53		80.0	
		Z	3.84	69.06	17.79		80.0	

Certificate No: EX3-7346_Feb18

Page 29 of 39

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.32	67.22	16.68	2.23	80.0	± 9.6 %
		Y	3.25	66.89	16.48		80.0	
		Z	3.91	68.71	17.66		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.67	69.70	17.56	2.23	80.0	± 9.6 %
		Y	3.56	69.21	17.30		80.0	
		Z	4.55	72.10	18.70		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.71	67.18	16.82	2.23	80.0	± 9.6 %
		Y	3.64	66.88	16.65		80.0	
		Z	4.30	68.66	17.68		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.78	67.02	16.78	2.23	80.0	± 9.6 %
		Y	3.71	66.74	16.61		80.0	
		Z	4.34	68.36	17.58		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.75	70.91	17.94	2.23	80.0	± 9.6 %
		Y	3.61	70.30	17.63		80.0	
		Z	4.87	74.09	19.36		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.59	67.30	16.88	2.23	80.0	± 9.6 %
		Y	3.52	66.98	16.70		80.0	
		Z	4.20	68.99	17.82		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.64	66.98	16.78	2.23	80.0	± 9.6 %
		Y	3.58	66.69	16.62		80.0	
		Z	4.20	68.49	17.65		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.95	63.34	14.65	0.00	150.0	± 9.6 %
		Y	0.86	62.15	13.49		150.0	
		Z	0.95	63.02	14.53		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.59	70.82	17.39	0.00	150.0	± 9.6 %
		Y	0.41	65.72	13.46		150.0	
		Z	0.57	69.76	16.78		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.79	65.16	15.25	0.00	150.0	± 9.6 %
		Y	0.68	63.22	13.51		150.0	
		Z	0.80	64.83	15.08		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.32	66.89	16.15	0.00	150.0	± 9.6 %
		Y	4.22	66.51	15.84		150.0	
		Z	4.51	66.68	16.14		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.47	67.05	16.23	0.00	150.0	± 9.6 %
		Y	4.36	66.68	15.93		150.0	
		Z	4.69	66.91	16.26		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.33	66.99	16.15	0.00	150.0	± 9.6 %
		Y	4.22	66.59	15.83		150.0	
		Z	4.54	66.87	16.18		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.26	66.96	16.13	0.00	150.0	± 9.6 %
		Y	4.15	66.55	15.81		150.0	
		Z	4.48	66.86	16.16		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.31	67.07	16.22	0.00	150.0	± 9.6 %
		Y	4.20	66.66	15.89		150.0	
		Z	4.54	66.96	16.25		150.0	



EX3DV4- SN:7346

February 28, 2018

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.24	67.09	16.15	0.00	150.0	± 9.6 %
		Y	4.13	66.68	15.83		150.0	
		Z	4.42	66.83	16.10		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.26	67.04	16.22	0.00	150.0	± 9.6 %
		Y	4.15	66.64	15.89		150.0	
		Z	4.48	66.87	16.21		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.30	66.16	15.85	0.00	150.0	± 9.6 %
		Y	4.19	65.75	15.53		150.0	
		Z	4.47	65.93	15.81		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.41	66.43	15.96	0.00	150.0	± 9.6 %
		Y	4.30	66.01	15.64		150.0	
		Z	4.63	66.29	15.95		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.35	66.40	15.90	0.00	150.0	± 9.6 %
		Y	4.23	65.98	15.57		150.0	
		Z	4.56	66.25	15.89		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.36	66.42	15.93	0.00	150.0	± 9.6 %
		Y	4.25	65.99	15.61		150.0	
		Z	4.57	66.27	15.93		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.36	66.42	15.93	0.00	150.0	± 9.6 %
		Y	4.25	65.99	15.61		150.0	
		Z	4.57	66.27	15.93		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.32	66.43	15.91	0.00	150.0	± 9.6 %
		Y	4.21	66.00	15.57		150.0	
		Z	4.56	66.37	15.94		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.21	66.30	15.84	0.00	150.0	± 9.6 %
		Y	4.09	65.86	15.50		150.0	
		Z	4.42	66.22	15.87		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.37	66.50	15.94	0.00	150.0	± 9.6 %
		Y	4.25	66.07	15.60		150.0	
		Z	4.58	66.32	15.92		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	4.92	66.39	15.99	0.00	150.0	± 9.6 %
		Y	4.82	66.05	15.73		150.0	
		Z	5.10	66.37	15.98		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	4.96	66.51	16.05	0.00	150.0	± 9.6 %
		Y	4.86	66.16	15.78		150.0	
		Z	5.17	66.54	16.06		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.85	66.52	16.03	0.00	150.0	± 9.6 %
		Y	4.75	66.15	15.75		150.0	
		Z	5.04	66.49	16.02		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	4.91	66.52	16.03	0.00	150.0	± 9.6 %
		Y	4.82	66.17	15.77		150.0	
		Z	5.10	66.46	16.01		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	4.98	66.47	16.05	0.00	150.0	± 9.6 %
		Y	4.88	66.13	15.79		150.0	
		Z	5.19	66.48	16.06		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	4.91	66.43	16.04	0.00	150.0	± 9.6 %
		Y	4.81	66.08	15.78		150.0	
		Z	5.12	66.49	16.08		150.0	

Certificate No: EX3-7346_Feb18

Page 31 of 39



EX3DV4- SN:7346

February 28, 2018

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	4.90	66.36	15.99	0.00	150.0	± 9.6 %
		Y	4.80	66.01	15.73		150.0	
		Z	5.09	66.37	16.01		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.05	66.46	16.06	0.00	150.0	± 9.6 %
		Y	4.95	66.12	15.80		150.0	
		Z	5.24	66.44	16.06		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.12	66.53	16.12	0.00	150.0	± 9.6 %
		Y	5.03	66.22	15.89		150.0	
		Z	5.32	66.47	16.09		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.27	66.47	15.98	0.00	150.0	± 9.6 %
		Y	5.17	66.14	15.74		150.0	
		Z	5.41	66.49	15.98		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.43	66.88	16.14	0.00	150.0	± 9.6 %
		Y	5.34	66.58	15.92		150.0	
		Z	5.60	66.88	16.13		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.29	66.59	16.01	0.00	150.0	± 9.6 %
		Y	5.20	66.26	15.77		150.0	
		Z	5.48	66.69	16.05		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.37	66.69	16.06	0.00	150.0	± 9.6 %
		Y	5.29	66.39	15.83		150.0	
		Z	5.54	66.73	16.06		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.50	67.26	16.32	0.00	150.0	± 9.6 %
		Y	5.41	66.94	16.08		150.0	
		Z	5.76	67.57	16.45		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.35	66.76	16.11	0.00	150.0	± 9.6 %
		Y	5.27	66.47	15.89		150.0	
		Z	5.50	66.70	16.07		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.29	66.55	15.97	0.00	150.0	± 9.6 %
		Y	5.19	66.22	15.73		150.0	
		Z	5.51	66.75	16.05		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.28	66.60	15.99	0.00	150.0	± 9.6 %
		Y	5.18	66.26	15.74		150.0	
		Z	5.43	66.56	15.97		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.33	66.54	15.99	0.00	150.0	± 9.6 %
		Y	5.23	66.21	15.75		150.0	
		Z	5.51	66.59	16.01		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.68	66.80	16.06	0.00	150.0	± 9.6 %
		Y	5.60	66.49	15.83		150.0	
		Z	5.82	66.85	16.07		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.77	67.01	16.15	0.00	150.0	± 9.6 %
		Y	5.68	66.70	15.92		150.0	
		Z	5.94	67.13	16.19		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.81	67.11	16.19	0.00	150.0	± 9.6 %
		Y	5.73	66.82	15.98		150.0	
		Z	5.96	67.18	16.21		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.77	67.00	16.15	0.00	150.0	± 9.6 %
		Y	5.68	66.69	15.93		150.0	
		Z	5.93	67.09	16.19		150.0	

Certificate No: EX3-7346_Feb18

Page 32 of 39



EX3DV4- SN:7346

February 28, 2018

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.78	67.05	16.19	0.00	150.0	± 9.6 %
		Y	5.68	66.72	15.96		150.0	
		Z	5.98	67.25	16.28		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.80	66.98	16.20	0.00	150.0	± 9.6 %
		Y	5.70	66.67	15.98		150.0	
		Z	5.97	67.11	16.25		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.73	66.96	16.22	0.00	150.0	± 9.6 %
		Y	5.64	66.66	16.00		150.0	
		Z	5.90	67.07	16.26		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.78	67.12	16.30	0.00	150.0	± 9.6 %
		Y	5.68	66.80	16.07		150.0	
		Z	6.01	67.43	16.44		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	5.88	67.11	16.26	0.00	150.0	± 9.6 %
		Y	5.80	66.82	16.05		150.0	
		Z	6.21	67.65	16.51		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.63	66.89	16.27	0.46	150.0	± 9.6 %
		Y	4.54	66.57	16.00		150.0	
		Z	4.83	66.77	16.31		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.83	67.31	16.59	0.46	150.0	± 9.6 %
		Y	4.73	66.98	16.33		150.0	
		Z	5.06	67.21	16.62		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.66	67.11	16.39	0.46	150.0	± 9.6 %
		Y	4.57	66.78	16.12		150.0	
		Z	4.90	67.06	16.44		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.70	67.53	16.77	0.46	150.0	± 9.6 %
		Y	4.60	67.20	16.51		150.0	
		Z	4.92	67.44	16.79		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.55	66.82	16.11	0.46	150.0	± 9.6 %
		Y	4.45	66.47	15.82		150.0	
		Z	4.81	66.84	16.23		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.69	67.77	16.92	0.46	150.0	± 9.6 %
		Y	4.59	67.44	16.66		150.0	
		Z	4.88	67.54	16.86		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.69	67.54	16.80	0.46	150.0	± 9.6 %
		Y	4.59	67.20	16.53		150.0	
		Z	4.91	67.38	16.78		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.08	63.88	15.15	0.46	130.0	± 9.6 %
		Y	1.00	62.92	14.25		130.0	
		Z	1.14	64.25	15.52		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.08	64.40	15.50	0.46	130.0	± 9.6 %
		Y	1.00	63.37	14.56		130.0	
		Z	1.15	64.80	15.87		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	1.29	80.57	21.65	0.46	130.0	± 9.6 %
		Y	0.81	72.73	17.38		130.0	
		Z	1.91	85.72	23.49		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.13	69.56	18.30	0.46	130.0	± 9.6 %
		Y	0.99	67.49	16.76		130.0	
		Z	1.24	70.37	18.75		130.0	

Certificate No: EX3-7346_Feb18

Page 33 of 39



EX3DV4- SN:7346

February 28, 2018

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.40	66.63	16.27	0.46	130.0	± 9.6 %
		Y	4.32	66.34	16.03		130.0	
		Z	4.62	66.57	16.38		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.44	66.84	16.36	0.46	130.0	± 9.6 %
		Y	4.35	66.55	16.13		130.0	
		Z	4.65	66.73	16.45		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.60	67.07	16.50	0.46	130.0	± 9.6 %
		Y	4.51	66.79	16.28		130.0	
		Z	4.85	67.02	16.61		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.50	67.22	16.62	0.46	130.0	± 9.6 %
		Y	4.42	66.93	16.38		130.0	
		Z	4.75	67.17	16.71		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.25	66.37	15.84	0.46	130.0	± 9.6 %
		Y	4.17	66.06	15.59		130.0	
		Z	4.51	66.47	16.03		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.28	66.41	15.86	0.46	130.0	± 9.6 %
		Y	4.20	66.10	15.60		130.0	
		Z	4.56	66.52	16.06		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.41	67.30	16.59	0.46	130.0	± 9.6 %
		Y	4.33	67.01	16.36		130.0	
		Z	4.64	67.21	16.66		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.18	66.12	15.61	0.46	130.0	± 9.6 %
		Y	4.09	65.81	15.35		130.0	
		Z	4.45	66.23	15.83		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.40	66.63	16.27	0.46	130.0	± 9.6 %
		Y	4.32	66.34	16.03		130.0	
		Z	4.62	66.57	16.38		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.44	66.84	16.36	0.46	130.0	± 9.6 %
		Y	4.35	66.55	16.13		130.0	
		Z	4.65	66.73	16.45		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.60	67.07	16.50	0.46	130.0	± 9.6 %
		Y	4.51	66.79	16.28		130.0	
		Z	4.85	67.02	16.61		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.50	67.22	16.62	0.46	130.0	± 9.6 %
		Y	4.42	66.93	16.38		130.0	
		Z	4.75	67.17	16.71		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.25	66.37	15.84	0.46	130.0	± 9.6 %
		Y	4.17	66.06	15.59		130.0	
		Z	4.51	66.47	16.03		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.28	66.41	15.86	0.46	130.0	± 9.6 %
		Y	4.20	66.10	15.60		130.0	
		Z	4.56	66.52	16.06		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.41	67.30	16.59	0.46	130.0	± 9.6 %
		Y	4.33	67.01	16.36		130.0	
		Z	4.64	67.21	16.66		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.18	66.12	15.61	0.46	130.0	± 9.6 %
		Y	4.09	65.81	15.35		130.0	
		Z	4.45	66.23	15.83		130.0	

Certificate No: EX3-7346_Feb18

Page 34 of 39



EX3DV4- SN:7346

February 28, 2018

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.56	66.73	16.40	0.46	130.0	± 9.6 %
		Y	4.49	66.46	16.18		130.0	
		Z	4.77	66.63	16.48		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.68	67.01	16.52	0.46	130.0	± 9.6 %
		Y	4.60	66.74	16.30		130.0	
		Z	4.93	66.97	16.61		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.60	66.88	16.37	0.46	130.0	± 9.6 %
		Y	4.51	66.60	16.15		130.0	
		Z	4.85	66.88	16.49		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.65	67.06	16.54	0.46	130.0	± 9.6 %
		Y	4.57	66.79	16.33		130.0	
		Z	4.90	67.04	16.65		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.62	67.04	16.45	0.46	130.0	± 9.6 %
		Y	4.53	66.76	16.23		130.0	
		Z	4.87	66.99	16.54		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.55	66.99	16.44	0.46	130.0	± 9.6 %
		Y	4.46	66.71	16.21		130.0	
		Z	4.80	66.99	16.55		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.50	66.86	16.29	0.46	130.0	± 9.6 %
		Y	4.41	66.57	16.05		130.0	
		Z	4.75	66.89	16.43		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.49	67.11	16.57	0.46	130.0	± 9.6 %
		Y	4.41	66.82	16.34		130.0	
		Z	4.74	67.12	16.69		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.24	67.17	16.64	0.46	130.0	± 9.6 %
		Y	5.18	66.96	16.48		130.0	
		Z	5.44	67.18	16.69		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.32	67.47	16.76	0.46	130.0	± 9.6 %
		Y	5.27	67.29	16.61		130.0	
		Z	5.56	67.53	16.84		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.24	67.29	16.69	0.46	130.0	± 9.6 %
		Y	5.18	67.09	16.53		130.0	
		Z	5.46	67.32	16.75		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.32	67.29	16.61	0.46	130.0	± 9.6 %
		Y	5.26	67.08	16.44		130.0	
		Z	5.55	67.35	16.68		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.39	67.60	16.90	0.46	130.0	± 9.6 %
		Y	5.33	67.39	16.74		130.0	
		Z	5.63	67.64	16.96		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.27	67.22	16.69	0.46	130.0	± 9.6 %
		Y	5.20	66.98	16.50		130.0	
		Z	5.45	67.16	16.70		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.32	67.35	16.75	0.46	130.0	± 9.6 %
		Y	5.25	67.14	16.59		130.0	
		Z	5.55	67.45	16.85		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.11	66.82	16.34	0.46	130.0	± 9.6 %
		Y	5.05	66.61	16.17		130.0	
		Z	5.31	66.83	16.40		130.0	

Certificate No: EX3-7346_Feb18

Page 35 of 39



EX3DV4- SN:7346

February 28, 2018

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.41	66.09	16.05	0.46	130.0	± 9.6 %
		Y	4.33	65.79	15.81		130.0	
		Z	4.61	65.96	16.11		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.55	66.40	16.19	0.46	130.0	± 9.6 %
		Y	4.46	66.10	15.95		130.0	
		Z	4.80	66.36	16.28		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.45	66.24	16.01	0.46	130.0	± 9.6 %
		Y	4.36	65.92	15.76		130.0	
		Z	4.69	66.21	16.12		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.50	66.41	16.19	0.46	130.0	± 9.6 %
		Y	4.41	66.10	15.95		130.0	
		Z	4.74	66.37	16.28		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.41	66.20	16.02	0.46	130.0	± 9.6 %
		Y	4.32	65.88	15.78		130.0	
		Z	4.65	66.17	16.12		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.40	66.31	16.06	0.46	130.0	± 9.6 %
		Y	4.30	65.98	15.80		130.0	
		Z	4.66	66.33	16.17		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.39	66.13	15.90	0.46	130.0	± 9.6 %
		Y	4.30	65.80	15.64		130.0	
		Z	4.67	66.21	16.05		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.37	66.38	16.16	0.46	130.0	± 9.6 %
		Y	4.27	66.05	15.91		130.0	
		Z	4.61	66.39	16.28		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.40	66.02	15.78	0.46	130.0	± 9.6 %
		Y	4.31	65.70	15.53		130.0	
		Z	4.66	66.02	15.91		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.05	66.37	16.23	0.46	130.0	± 9.6 %
		Y	4.97	66.11	16.03		130.0	
		Z	5.26	66.43	16.30		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.09	66.48	16.26	0.46	130.0	± 9.6 %
		Y	5.01	66.22	16.06		130.0	
		Z	5.33	66.60	16.36		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.00	66.56	16.31	0.46	130.0	± 9.6 %
		Y	4.92	66.28	16.11		130.0	
		Z	5.21	66.61	16.38		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.02	66.38	16.16	0.46	130.0	± 9.6 %
		Y	4.95	66.13	15.97		130.0	
		Z	5.23	66.42	16.22		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.09	66.37	16.20	0.46	130.0	± 9.6 %
		Y	5.01	66.12	16.01		130.0	
		Z	5.32	66.46	16.29		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.10	66.50	16.39	0.46	130.0	± 9.6 %
		Y	5.02	66.25	16.20		130.0	
		Z	5.32	66.59	16.47		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.09	66.58	16.42	0.46	130.0	± 9.6 %
		Y	5.01	66.32	16.23		130.0	
		Z	5.33	66.74	16.54		130.0	

Certificate No: EX3-7346_Feb18

Page 36 of 39



EX3DV4- SN:7346

February 28, 2018

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	4.98	66.14	16.06	0.46	130.0	± 9.6 %
		Y	4.90	65.88	15.86		130.0	
		Z	5.21	66.29	16.19		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.17	66.40	16.26	0.46	130.0	± 9.6 %
		Y	5.10	66.15	16.07		130.0	
		Z	5.40	66.48	16.34		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.26	66.52	16.38	0.46	130.0	± 9.6 %
		Y	5.18	66.28	16.20		130.0	
		Z	5.75	67.39	16.85		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.38	66.40	16.18	0.46	130.0	± 9.6 %
		Y	5.31	66.15	16.00		130.0	
		Z	5.56	66.50	16.26		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.60	66.96	16.44	0.46	130.0	± 9.6 %
		Y	5.53	66.75	16.28		130.0	
		Z	5.79	67.03	16.48		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.37	66.37	16.07	0.46	130.0	± 9.6 %
		Y	5.30	66.11	15.88		130.0	
		Z	5.59	66.59	16.20		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.47	66.54	16.15	0.46	130.0	± 9.6 %
		Y	5.41	66.33	15.99		130.0	
		Z	5.66	66.63	16.22		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	5.68	67.37	16.57	0.46	130.0	± 9.6 %
		Y	5.61	67.15	16.41		130.0	
		Z	6.05	68.00	16.90		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.68	67.48	16.82	0.46	130.0	± 9.6 %
		Y	5.60	67.24	16.65		130.0	
		Z	5.98	67.87	17.02		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.60	67.16	16.68	0.46	130.0	± 9.6 %
		Y	5.54	66.97	16.53		130.0	
		Z	5.76	67.09	16.65		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.40	66.46	16.15	0.46	130.0	± 9.6 %
		Y	5.32	66.20	15.96		130.0	
		Z	5.66	66.76	16.32		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.43	66.66	16.30	0.46	130.0	± 9.6 %
		Y	5.36	66.40	16.12		130.0	
		Z	5.64	66.78	16.39		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.29	65.89	15.64	0.46	130.0	± 9.6 %
		Y	5.21	65.62	15.45		130.0	
		Z	5.52	66.14	15.81		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.81	66.74	16.26	0.46	130.0	± 9.6 %
		Y	5.75	66.51	16.10		130.0	
		Z	5.97	66.86	16.34		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	5.92	67.03	16.39	0.46	130.0	± 9.6 %
		Y	5.86	66.80	16.23		130.0	
		Z	6.12	67.23	16.51		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	5.96	67.11	16.41	0.46	130.0	± 9.6 %
		Y	5.89	66.88	16.25		130.0	
		Z	6.12	67.21	16.48		130.0	

Certificate No: EX3-7346_Feb18

Page 37 of 39



EX3DV4- SN:7346

February 28, 2018

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	5.91	66.98	16.39	0.46	130.0	± 9.6 %
		Y	5.84	66.75	16.23		130.0	
		Z	6.10	67.16	16.50		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	5.87	66.86	16.27	0.46	130.0	± 9.6 %
		Y	5.79	66.60	16.09		130.0	
		Z	6.10	67.18	16.45		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	5.96	66.94	16.33	0.46	130.0	± 9.6 %
		Y	5.90	66.72	16.18		130.0	
		Z	6.15	67.08	16.42		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	5.99	67.15	16.61	0.46	130.0	± 9.6 %
		Y	5.92	66.92	16.45		130.0	
		Z	6.19	67.33	16.71		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	5.84	66.83	16.34	0.46	130.0	± 9.6 %
		Y	5.77	66.59	16.17		130.0	
		Z	6.03	67.02	16.45		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	5.89	67.02	16.45	0.46	130.0	± 9.6 %
		Y	5.82	66.76	16.27		130.0	
		Z	6.18	67.50	16.71		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.01	67.04	16.43	0.46	130.0	± 9.6 %
		Y	5.95	66.83	16.28		130.0	
		Z	6.48	67.98	16.92		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	7.70	95.53	33.78	9.30	60.0	± 9.6 %
		Y	6.86	91.23	32.03		60.0	
		Z	21.92	116.52	40.27		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	6.53	92.04	32.66	9.30	60.0	± 9.6 %
		Y	6.02	88.67	31.21		60.0	
		Z	18.18	112.72	39.29		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.49	61.53	8.17	0.00	150.0	± 9.6 %
		Y	0.39	60.00	6.31		150.0	
		Z	0.66	63.15	10.45		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.19	66.37	15.95	2.23	80.0	± 9.6 %
		Y	3.09	65.90	15.62		80.0	
		Z	3.59	66.99	16.74		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.74	65.68	16.24	2.23	80.0	± 9.6 %
		Y	3.66	65.37	16.03		80.0	
		Z	4.09	66.23	16.79		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	3.76	65.29	16.28	2.23	80.0	± 9.6 %
		Y	3.69	65.01	16.09		80.0	
		Z	4.06	65.86	16.78		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	3.83	65.21	16.31	2.23	80.0	± 9.6 %
		Y	3.77	64.93	16.13		80.0	
		Z	4.12	65.84	16.81		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	5.18	73.54	13.48	10.00	50.0	± 9.6 %
		Y	12.90	83.93	17.73		50.0	
		Z	100.00	112.89	26.88		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	100.00	100.82	19.67	6.99	60.0	± 9.6 %
		Y	100.00	104.30	21.46		60.0	
		Z	100.00	113.27	26.00		60.0	

Certificate No: EX3-7346_Feb18

Page 38 of 39



EX3DV4- SN:7346

February 28, 2018

10660- AAA	Pulse Waveform (200Hz, 40%)	X	100.00	100.08	18.20	3.98	80.0	± 9.6 %
		Y	100.00	101.00	18.65		80.0	
		Z	100.00	116.39	26.02		80.0	
10661- AAA	Pulse Waveform (200Hz, 60%)	X	100.00	99.50	17.02	2.22	100.0	± 9.6 %
		Y	100.00	91.55	13.76		100.0	
		Z	100.00	121.08	26.66		100.0	
10662- AAA	Pulse Waveform (200Hz, 80%)	X	100.00	89.20	12.01	0.97	120.0	± 9.6 %
		Y	12.37	204.34	5.78		120.0	
		Z	100.00	125.71	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



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

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

Accreditation No.: **SCS 0108**

Client **Auden**

Certificate No: **DAE4-916_Dec17**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BK - SN: 916**

Calibration procedure(s) **QA CAL-06.v29**
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: **December 14, 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
Keithley Multimeter Type 2001	SN: 0810278	31-Aug-17 (No:21092)	Aug-18
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Auto DAE Calibration Unit	SE UWS 053 AA 1001	05-Jan-17 (in house check)	In house check: Jan-18
Calibrator Box V2.1	SE UMS 006 AA 1002	05-Jan-17 (in house check)	In house check: Jan-18

Calibrated by:	Name Adrian Gehring	Function Laboratory Technician	Signature 
Approved by:	Sven Kühn	Deputy Manager	

Issued: December 14, 2017

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

Certificate No: DAE4-916_Dec17

Page 1 of 5

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



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

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

Accreditation No.: **SCS 0108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.



DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.884 $\pm$ 0.02% (k=2)	403.669 $\pm$ 0.02% (k=2)	403.797 $\pm$ 0.02% (k=2)
Low Range	3.97333 $\pm$ 1.50% (k=2)	3.98680 $\pm$ 1.50% (k=2)	3.98020 $\pm$ 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	238.5 ° $\pm$ 1 °
---	-------------------

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199996.23	0.63	0.00
Channel X + Input	20003.65	2.14	0.01
Channel X - Input	-19998.76	2.37	-0.01
Channel Y + Input	199994.60	-1.16	-0.00
Channel Y + Input	20004.68	3.16	0.02
Channel Y - Input	-20000.71	0.39	-0.00
Channel Z + Input	199994.84	-0.41	-0.00
Channel Z + Input	20002.82	1.45	0.01
Channel Z - Input	-20000.52	0.78	-0.00

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2001.04	-0.12	-0.01
Channel X + Input	201.39	-0.17	-0.08
Channel X - Input	-198.41	-0.09	0.05
Channel Y + Input	2001.24	0.16	0.01
Channel Y + Input	201.23	-0.21	-0.10
Channel Y - Input	-199.20	-0.70	0.35
Channel Z + Input	2001.24	0.34	0.02
Channel Z + Input	200.33	-1.01	-0.50
Channel Z - Input	-199.76	-1.29	0.65

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	3.69	2.10
	- 200	-2.84	-3.91
Channel Y	200	-16.51	-16.72
	- 200	15.71	15.34
Channel Z	200	-22.90	-22.96
	- 200	21.15	21.04

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	-0.80	-2.10
Channel Y	200	5.15	-	1.24
Channel Z	200	8.26	3.19	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15874	13962
Channel Y	16116	17456
Channel Z	15959	15134

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.18	-0.52	0.90	0.28
Channel Y	-0.21	-1.32	0.38	0.33
Channel Z	-0.24	-1.75	0.97	0.41

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9