

2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = -55°C, Sum port at pad 1

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.59	9.16	3.04	4.29	-0.39	43.10	1.04	1.05	1.06	1.06
1200	0.83	7.76	3.04	3.48	-0.51	41.22	1.00	1.01	1.09	1.09
1400	1.11	6.66	3.05	2.78	-0.65	36.41	1.02	1.02	1.11	1.10
1600	1.39	5.75	3.04	2.18	-0.79	33.20	1.03	1.04	1.12	1.11
1700	1.54	5.34	3.04	1.90	-0.86	32.76	1.04	1.05	1.11	1.11
1800	1.70	4.99	3.04	1.64	-0.92	32.42	1.04	1.07	1.11	1.10
1900	1.86	4.66	3.04	1.40	-1.01	32.37	1.05	1.08	1.11	1.10
2000	2.02	4.35	3.03	1.17	-1.06	32.47	1.06	1.09	1.10	1.10
2100	2.19	4.08	3.03	0.94	-1.13	32.10	1.06	1.10	1.10	1.09
2200	2.37	3.83	3.04	0.73	-1.18	31.12	1.06	1.10	1.09	1.09
2300	2.56	3.61	3.05	0.53	-1.27	29.52	1.07	1.11	1.09	1.09
2400	2.73	3.41	3.06	0.34	-1.35	27.97	1.07	1.11	1.09	1.09
2500	2.91	3.24	3.07	0.16	-1.49	26.77	1.08	1.11	1.09	1.10
2600	3.09	3.09	3.09	0.01	-1.62	25.70	1.08	1.11	1.09	1.10
2700	3.25	2.95	3.10	0.16	-1.69	24.93	1.10	1.12	1.09	1.11
2800	3.40	2.82	3.10	0.30	-1.71	24.41	1.12	1.12	1.10	1.11
2900	3.56	2.70	3.11	0.43	-1.72	24.39	1.14	1.13	1.10	1.11
3000	3.70	2.59	3.11	0.56	-1.72	24.57	1.15	1.13	1.12	1.11
3100	3.84	2.49	3.11	0.68	-1.71	25.20	1.17	1.13	1.13	1.12
3200	3.95	2.40	3.11	0.79	-1.73	25.87	1.18	1.13	1.15	1.12
3300	4.05	2.32	3.10	0.88	-1.75	26.12	1.19	1.13	1.16	1.12
3400	4.14	2.25	3.09	0.96	-1.79	25.73	1.21	1.12	1.17	1.12
3500	4.23	2.20	3.10	1.02	-1.82	24.91	1.22	1.12	1.18	1.13
3600	4.31	2.16	3.10	1.08	-1.93	24.04	1.22	1.12	1.19	1.13
3700	4.38	2.12	3.10	1.13	-1.91	23.48	1.22	1.12	1.19	1.14
3800	4.44	2.10	3.11	1.17	-1.98	23.21	1.22	1.12	1.20	1.15
3900	4.48	2.11	3.14	1.19	-2.06	23.09	1.22	1.12	1.22	1.16
4000	4.53	2.11	3.15	1.21	-2.20	23.58	1.21	1.11	1.22	1.17
4100	4.53	2.11	3.15	1.22	-2.25	24.44	1.19	1.11	1.22	1.18
4200	4.50	2.11	3.14	1.21	-2.30	25.57	1.16	1.10	1.20	1.18
4300	4.47	2.13	3.14	1.19	-2.62	26.58	1.13	1.10	1.19	1.19
4400	4.45	2.13	3.14	1.17	-2.82	27.12	1.09	1.08	1.19	1.19
4500	4.38	2.16	3.13	1.12	-2.94	26.47	1.06	1.07	1.17	1.18
4600	4.30	2.20	3.12	1.05	-3.34	25.01	1.04	1.06	1.16	1.17
4700	4.23	2.22	3.11	1.00	-3.35	23.95	1.01	1.05	1.15	1.16
4800	4.13	2.27	3.10	0.93	-3.37	23.48	1.02	1.05	1.14	1.15
4900	4.04	2.34	3.11	0.86	-3.54	23.59	1.05	1.04	1.14	1.13
5000	3.96	2.42	3.12	0.78	-3.74	24.24	1.08	1.04	1.15	1.11
5100	3.85	2.49	3.12	0.69	-3.61	25.33	1.09	1.05	1.16	1.09
5200	3.74	2.58	3.12	0.59	-3.71	27.05	1.10	1.06	1.16	1.08
5300	3.65	2.70	3.15	0.48	-4.08	28.51	1.11	1.06	1.16	1.08
5400	3.57	2.80	3.17	0.39	-4.13	28.72	1.14	1.09	1.16	1.07
5500	3.44	2.95	3.19	0.25	-4.17	28.20	1.15	1.10	1.18	1.06
5600	3.33	3.09	3.21	0.13	-4.34	26.14	1.17	1.11	1.19	1.07
5700	3.18	3.26	3.22	0.03	-4.06	24.76	1.16	1.14	1.17	1.07
5800	3.06	3.45	3.25	0.18	-4.20	23.15	1.18	1.16	1.18	1.08
5900	2.91	3.61	3.25	0.33	-4.33	22.10	1.16	1.20	1.18	1.10
6000	2.77	3.80	3.25	0.51	-4.30	21.43	1.17	1.21	1.18	1.12
6100	2.61	4.01	3.25	0.69	-4.55	21.28	1.17	1.22	1.19	1.14
6200	2.44	4.19	3.23	0.86	-4.19	21.34	1.16	1.23	1.20	1.15
6400	2.08	4.70	3.20	1.30	-3.51	21.90	1.15	1.26	1.23	1.18
6600	1.75	5.39	3.20	1.80	-2.88	21.92	1.12	1.28	1.26	1.23
6800	1.50	6.33	3.28	2.41	-1.68	19.99	1.17	1.29	1.34	1.29
7000	1.31	7.61	3.41	3.16	-0.61	18.73	1.28	1.34	1.47	1.42

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

Notes

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- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
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QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = -55°C, Sum port at pad 2

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.66	9.19	3.10	4.27	0.49	42.75	1.06	1.06	1.05	1.04
1200	0.91	7.81	3.12	3.45	0.60	41.05	1.09	1.09	1.01	1.00
1400	1.20	6.71	3.13	2.75	0.68	36.27	1.10	1.11	1.02	1.02
1600	1.49	5.80	3.13	2.15	0.77	33.13	1.11	1.12	1.04	1.03
1700	1.64	5.40	3.12	1.88	0.84	32.65	1.11	1.11	1.05	1.04
1800	1.79	5.04	3.12	1.62	0.87	32.35	1.10	1.11	1.07	1.04
1900	1.96	4.71	3.12	1.38	0.90	32.31	1.10	1.11	1.08	1.05
2000	2.12	4.41	3.12	1.15	0.92	32.44	1.10	1.10	1.09	1.06
2100	2.29	4.14	3.12	0.93	0.97	32.11	1.09	1.10	1.10	1.06
2200	2.47	3.89	3.12	0.72	1.00	31.08	1.09	1.09	1.10	1.06
2300	2.65	3.67	3.13	0.52	0.99	29.49	1.09	1.09	1.11	1.07
2400	2.82	3.48	3.14	0.33	0.96	27.89	1.09	1.09	1.11	1.07
2500	3.01	3.31	3.16	0.15	0.96	26.69	1.10	1.09	1.11	1.08
2600	3.18	3.16	3.17	0.01	0.93	25.56	1.10	1.09	1.11	1.08
2700	3.34	3.02	3.18	0.16	0.95	24.83	1.11	1.09	1.12	1.10
2800	3.50	2.89	3.18	0.30	1.02	24.40	1.11	1.10	1.12	1.12
2900	3.64	2.76	3.18	0.43	1.13	24.36	1.11	1.10	1.13	1.14
3000	3.78	2.65	3.18	0.57	1.25	24.59	1.11	1.12	1.13	1.15
3100	3.92	2.55	3.18	0.69	1.35	25.20	1.12	1.13	1.13	1.17
3200	4.04	2.45	3.17	0.80	1.48	25.83	1.12	1.15	1.13	1.18
3300	4.15	2.36	3.16	0.90	1.54	26.07	1.12	1.16	1.13	1.19
3400	4.24	2.29	3.16	0.98	1.64	25.68	1.12	1.17	1.12	1.21
3500	4.33	2.24	3.16	1.05	1.75	24.89	1.13	1.18	1.12	1.22
3600	4.41	2.19	3.16	1.11	1.88	24.03	1.13	1.19	1.12	1.22
3700	4.48	2.16	3.17	1.17	1.93	23.47	1.14	1.19	1.12	1.22
3800	4.55	2.14	3.18	1.21	2.07	23.22	1.15	1.20	1.12	1.22
3900	4.60	2.14	3.20	1.23	2.17	23.10	1.16	1.22	1.12	1.22
4000	4.66	2.15	3.23	1.25	2.22	23.57	1.17	1.22	1.11	1.21
4100	4.67	2.16	3.24	1.25	2.31	24.42	1.18	1.22	1.11	1.19
4200	4.66	2.18	3.25	1.24	2.39	25.57	1.18	1.20	1.10	1.16
4300	4.66	2.20	3.26	1.22	2.29	26.63	1.19	1.19	1.10	1.13
4400	4.62	2.23	3.26	1.19	2.35	27.11	1.19	1.19	1.08	1.09
4500	4.56	2.27	3.27	1.15	2.32	26.47	1.18	1.17	1.07	1.06
4600	4.48	2.33	3.27	1.08	2.02	25.11	1.17	1.16	1.06	1.04
4700	4.40	2.35	3.26	1.03	1.96	24.11	1.16	1.15	1.05	1.01
4800	4.31	2.39	3.24	0.97	2.00	23.67	1.15	1.14	1.05	1.02
4900	4.23	2.44	3.24	0.90	2.02	23.76	1.13	1.14	1.04	1.05
5000	4.13	2.52	3.25	0.81	1.68	24.37	1.11	1.15	1.04	1.08
5100	4.01	2.58	3.24	0.71	1.70	25.45	1.09	1.16	1.05	1.09
5200	3.92	2.67	3.25	0.62	1.66	27.11	1.08	1.16	1.06	1.10
5300	3.80	2.78	3.26	0.51	1.65	28.51	1.08	1.16	1.06	1.11
5400	3.70	2.90	3.28	0.40	1.56	28.61	1.07	1.16	1.09	1.14
5500	3.58	3.05	3.31	0.28	1.43	28.21	1.06	1.18	1.10	1.15
5600	3.50	3.20	3.35	0.17	1.34	26.20	1.07	1.19	1.11	1.17
5700	3.32	3.36	3.34	0.01	1.43	24.84	1.07	1.17	1.14	1.16
5800	3.20	3.55	3.37	0.16	1.27	23.26	1.08	1.18	1.16	1.18
5900	3.07	3.70	3.37	0.32	1.18	22.17	1.10	1.18	1.20	1.16
6000	2.91	3.88	3.37	0.51	0.89	21.49	1.12	1.18	1.21	1.17
6100	2.76	4.09	3.37	0.70	0.65	21.28	1.14	1.19	1.22	1.17
6200	2.56	4.28	3.34	0.89	0.98	21.27	1.15	1.20	1.23	1.16
6400	2.20	4.81	3.31	1.33	1.25	21.71	1.18	1.23	1.26	1.15
6600	1.90	5.52	3.34	1.82	1.64	21.85	1.23	1.26	1.28	1.12
6800	1.67	6.45	3.43	2.41	2.36	20.13	1.29	1.34	1.29	1.17
7000	1.52	7.68	3.59	3.11	3.13	18.92	1.42	1.47	1.34	1.28

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

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Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = -55°C, Sum port at pad 3

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.59	9.20	3.04	4.30	0.23	45.00	1.05	1.04	1.06	1.06
1200	0.83	7.81	3.05	3.49	0.23	35.82	1.01	1.00	1.09	1.09
1400	1.10	6.70	3.05	2.80	0.18	32.04	1.02	1.02	1.10	1.11
1600	1.39	5.79	3.06	2.21	0.19	29.92	1.04	1.03	1.11	1.12
1700	1.55	5.40	3.06	1.93	0.17	29.54	1.05	1.04	1.11	1.11
1800	1.70	5.04	3.06	1.67	0.15	29.24	1.07	1.04	1.10	1.11
1900	1.86	4.72	3.06	1.43	0.13	29.15	1.08	1.05	1.10	1.11
2000	2.03	4.42	3.06	1.20	0.12	28.81	1.09	1.06	1.10	1.10
2100	2.20	4.16	3.07	0.97	0.07	28.24	1.10	1.06	1.09	1.10
2200	2.38	3.91	3.08	0.76	0.02	27.27	1.10	1.06	1.09	1.09
2300	2.56	3.69	3.09	0.56	-0.08	26.39	1.11	1.07	1.09	1.09
2400	2.74	3.49	3.10	0.37	-0.14	25.73	1.11	1.07	1.09	1.09
2500	2.92	3.32	3.12	0.20	-0.23	25.24	1.11	1.08	1.10	1.09
2600	3.09	3.16	3.12	0.04	-0.33	24.86	1.11	1.08	1.10	1.09
2700	3.25	3.03	3.14	0.12	-0.35	24.93	1.12	1.10	1.11	1.09
2800	3.41	2.90	3.15	0.26	-0.35	25.20	1.12	1.12	1.11	1.10
2900	3.56	2.77	3.15	0.39	-0.35	25.58	1.13	1.14	1.11	1.10
3000	3.71	2.66	3.15	0.53	-0.35	26.00	1.13	1.15	1.11	1.12
3100	3.85	2.55	3.15	0.65	-0.30	26.72	1.13	1.17	1.12	1.13
3200	3.98	2.45	3.15	0.76	-0.25	27.22	1.13	1.18	1.12	1.15
3300	4.08	2.37	3.14	0.85	-0.22	27.11	1.13	1.19	1.12	1.16
3400	4.18	2.30	3.14	0.93	-0.18	26.69	1.12	1.21	1.12	1.17
3500	4.26	2.25	3.14	1.00	-0.06	26.34	1.12	1.22	1.13	1.18
3600	4.33	2.21	3.14	1.06	-0.03	25.97	1.12	1.22	1.13	1.19
3700	4.40	2.17	3.14	1.11	0.09	25.55	1.12	1.22	1.14	1.19
3800	4.45	2.16	3.16	1.15	0.08	25.22	1.12	1.22	1.15	1.20
3900	4.49	2.16	3.17	1.17	0.12	24.95	1.12	1.22	1.16	1.22
4000	4.54	2.17	3.20	1.19	-0.02	25.37	1.11	1.21	1.17	1.22
4100	4.55	2.18	3.21	1.19	0.02	26.15	1.11	1.19	1.18	1.22
4200	4.52	2.19	3.20	1.16	0.01	27.12	1.10	1.16	1.18	1.20
4300	4.49	2.22	3.21	1.14	-0.34	27.88	1.10	1.13	1.19	1.19
4400	4.47	2.24	3.21	1.11	-0.46	27.89	1.08	1.09	1.19	1.19
4500	4.40	2.28	3.21	1.06	-0.58	27.12	1.07	1.06	1.18	1.17
4600	4.31	2.32	3.20	0.99	-0.98	25.89	1.06	1.04	1.17	1.16
4700	4.24	2.35	3.19	0.94	-1.16	24.64	1.05	1.01	1.16	1.15
4800	4.14	2.38	3.17	0.87	-1.15	24.15	1.05	1.02	1.15	1.14
4900	4.07	2.44	3.18	0.80	-1.26	23.74	1.04	1.05	1.13	1.14
5000	3.99	2.52	3.19	0.72	-1.52	23.54	1.04	1.08	1.11	1.15
5100	3.89	2.59	3.19	0.64	-1.33	24.18	1.05	1.09	1.09	1.16
5200	3.77	2.68	3.19	0.54	-1.41	25.09	1.06	1.10	1.08	1.16
5300	3.67	2.80	3.21	0.43	-1.69	26.07	1.06	1.11	1.08	1.16
5400	3.59	2.91	3.24	0.34	-1.69	26.06	1.09	1.14	1.07	1.16
5500	3.46	3.05	3.25	0.20	-1.63	25.17	1.10	1.15	1.06	1.18
5600	3.35	3.19	3.27	0.07	-1.70	23.84	1.11	1.17	1.07	1.19
5700	3.20	3.35	3.27	0.09	-1.36	22.59	1.14	1.16	1.07	1.17
5800	3.08	3.56	3.31	0.25	-1.37	20.85	1.16	1.18	1.08	1.18
5900	2.94	3.72	3.31	0.39	-1.38	19.82	1.20	1.16	1.10	1.18
6000	2.80	3.92	3.32	0.56	-1.34	19.53	1.21	1.17	1.12	1.18
6100	2.65	4.14	3.33	0.74	-1.56	19.48	1.22	1.17	1.14	1.19
6200	2.49	4.33	3.31	0.92	-1.20	19.31	1.23	1.16	1.15	1.20
6400	2.13	4.85	3.28	1.37	-0.62	19.68	1.26	1.15	1.18	1.23
6600	1.78	5.54	3.27	1.89	0.02	19.17	1.28	1.12	1.23	1.26
6800	1.51	6.48	3.32	2.48	1.21	17.85	1.29	1.17	1.29	1.34
7000	1.32	7.74	3.44	3.19	2.39	16.97	1.34	1.28	1.42	1.47

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

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QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = -55°C, Sum port at pad 4

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.67	9.17	3.11	4.25	-0.13	45.00	1.06	1.06	1.04	1.05
1200	0.92	7.78	3.12	3.43	-0.16	35.82	1.09	1.09	1.00	1.01
1400	1.20	6.67	3.12	2.73	-0.17	32.04	1.11	1.10	1.02	1.02
1600	1.49	5.75	3.12	2.13	-0.17	29.92	1.12	1.11	1.03	1.04
1700	1.64	5.35	3.11	1.85	-0.15	29.54	1.11	1.11	1.04	1.05
1800	1.80	4.99	3.11	1.59	-0.16	29.24	1.11	1.10	1.04	1.07
1900	1.96	4.66	3.10	1.35	-0.17	29.15	1.11	1.10	1.05	1.08
2000	2.13	4.36	3.10	1.12	-0.18	28.81	1.10	1.10	1.06	1.09
2100	2.30	4.09	3.10	0.90	-0.14	28.24	1.10	1.09	1.06	1.10
2200	2.47	3.84	3.10	0.69	-0.14	27.27	1.09	1.09	1.06	1.10
2300	2.65	3.61	3.11	0.48	-0.17	26.39	1.09	1.09	1.07	1.11
2400	2.83	3.41	3.11	0.30	-0.20	25.73	1.09	1.09	1.07	1.11
2500	3.01	3.24	3.12	0.12	-0.24	25.24	1.09	1.10	1.08	1.11
2600	3.18	3.08	3.13	0.05	-0.29	24.86	1.09	1.10	1.08	1.11
2700	3.34	2.94	3.14	0.20	-0.29	24.93	1.09	1.11	1.10	1.12
2800	3.49	2.81	3.14	0.34	-0.26	25.20	1.10	1.11	1.12	1.12
2900	3.64	2.69	3.14	0.47	-0.20	25.58	1.10	1.11	1.14	1.13
3000	3.78	2.59	3.14	0.60	-0.11	26.00	1.12	1.11	1.15	1.13
3100	3.92	2.49	3.15	0.72	-0.08	26.72	1.13	1.12	1.17	1.13
3200	4.05	2.40	3.15	0.82	0.02	27.22	1.15	1.12	1.18	1.13
3300	4.15	2.33	3.15	0.92	0.06	27.11	1.16	1.12	1.19	1.13
3400	4.26	2.27	3.15	1.00	0.13	26.69	1.17	1.12	1.21	1.12
3500	4.35	2.22	3.16	1.07	0.14	26.34	1.18	1.13	1.22	1.12
3600	4.43	2.18	3.16	1.13	0.16	25.97	1.19	1.13	1.22	1.12
3700	4.50	2.14	3.16	1.18	0.13	25.55	1.19	1.14	1.22	1.12
3800	4.57	2.12	3.17	1.23	0.17	25.22	1.20	1.15	1.22	1.12
3900	4.62	2.12	3.19	1.25	0.15	24.95	1.22	1.16	1.22	1.12
4000	4.67	2.11	3.20	1.28	0.10	25.37	1.22	1.17	1.21	1.11
4100	4.68	2.12	3.21	1.28	0.12	26.15	1.22	1.18	1.19	1.11
4200	4.66	2.11	3.20	1.28	0.17	27.12	1.20	1.18	1.16	1.10
4300	4.66	2.13	3.21	1.27	0.14	27.88	1.19	1.19	1.13	1.10
4400	4.61	2.14	3.20	1.24	0.18	27.89	1.19	1.19	1.09	1.08
4500	4.56	2.17	3.20	1.21	0.11	27.12	1.17	1.18	1.06	1.07
4600	4.49	2.23	3.21	1.14	-0.23	25.89	1.16	1.17	1.04	1.06
4700	4.40	2.24	3.19	1.09	-0.18	24.64	1.15	1.16	1.01	1.05
4800	4.31	2.29	3.18	1.02	-0.15	24.15	1.14	1.15	1.02	1.05
4900	4.23	2.36	3.20	0.95	-0.16	23.74	1.14	1.13	1.05	1.04
5000	4.13	2.44	3.20	0.86	-0.37	23.54	1.15	1.11	1.08	1.04
5100	4.01	2.51	3.19	0.76	-0.42	24.18	1.16	1.09	1.09	1.05
5200	3.92	2.59	3.20	0.67	-0.55	25.09	1.16	1.08	1.10	1.06
5300	3.81	2.71	3.23	0.55	-0.77	26.07	1.16	1.08	1.11	1.06
5400	3.71	2.81	3.24	0.45	-0.99	26.06	1.16	1.07	1.14	1.09
5500	3.60	2.96	3.27	0.32	-1.15	25.17	1.18	1.06	1.15	1.10
5600	3.52	3.09	3.30	0.20	-1.27	23.84	1.19	1.07	1.17	1.11
5700	3.35	3.25	3.30	0.03	-1.09	22.59	1.17	1.07	1.16	1.14
5800	3.23	3.43	3.33	0.13	-1.28	20.85	1.18	1.08	1.18	1.16
5900	3.08	3.60	3.33	0.27	-1.34	19.82	1.18	1.10	1.16	1.20
6000	2.91	3.80	3.33	0.45	-1.62	19.53	1.18	1.12	1.17	1.21
6100	2.75	4.03	3.34	0.63	-2.10	19.48	1.19	1.14	1.17	1.22
6200	2.55	4.22	3.31	0.81	-1.92	19.31	1.20	1.15	1.16	1.23
6400	2.20	4.72	3.28	1.25	-1.69	19.68	1.23	1.18	1.15	1.26
6600	1.90	5.37	3.30	1.75	-0.99	19.17	1.26	1.23	1.12	1.28
6800	1.66	6.32	3.40	2.33	0.03	17.85	1.34	1.29	1.17	1.29
7000	1.53	7.63	3.59	3.05	0.70	16.97	1.47	1.42	1.28	1.34

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

Notes

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- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits' standard limited warranty and terms and conditions (collectively, "Standard Terms"). Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MC_Store/terms.jsp



2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = +25°C, Sum port at pad 1

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.67	9.34	3.13	4.34	-0.21	38.25	1.03	1.04	1.07	1.08
1200	0.91	7.95	3.14	3.53	-0.28	35.80	1.03	1.03	1.08	1.08
1400	1.18	6.84	3.14	2.84	-0.40	34.99	1.02	1.03	1.09	1.09
1600	1.45	5.92	3.13	2.24	-0.48	35.39	1.03	1.03	1.09	1.08
1700	1.60	5.51	3.13	1.96	-0.51	36.61	1.03	1.04	1.08	1.08
1800	1.75	5.15	3.12	1.70	-0.54	37.91	1.03	1.04	1.08	1.07
1900	1.91	4.81	3.12	1.46	-0.59	38.88	1.03	1.04	1.07	1.07
2000	2.06	4.51	3.11	1.22	-0.61	38.75	1.04	1.04	1.06	1.06
2100	2.23	4.24	3.12	1.00	-0.64	37.02	1.04	1.04	1.06	1.05
2200	2.40	3.99	3.12	0.80	-0.69	34.82	1.04	1.04	1.05	1.05
2300	2.57	3.77	3.13	0.59	-0.78	32.57	1.05	1.05	1.05	1.05
2400	2.74	3.57	3.14	0.41	-0.89	30.70	1.06	1.05	1.05	1.05
2500	2.91	3.40	3.15	0.24	-0.99	29.49	1.07	1.06	1.05	1.05
2600	3.07	3.24	3.15	0.08	-1.07	28.63	1.08	1.07	1.06	1.06
2700	3.23	3.10	3.16	0.07	-1.09	28.19	1.09	1.08	1.06	1.06
2800	3.38	2.97	3.17	0.22	-1.10	28.11	1.10	1.09	1.07	1.07
2900	3.53	2.84	3.17	0.35	-1.10	28.57	1.11	1.09	1.08	1.08
3000	3.67	2.73	3.17	0.48	-1.17	29.19	1.12	1.10	1.09	1.08
3100	3.79	2.62	3.17	0.59	-1.26	30.30	1.12	1.10	1.10	1.09
3200	3.90	2.53	3.16	0.69	-1.37	31.03	1.13	1.11	1.11	1.10
3300	3.99	2.44	3.15	0.78	-1.42	30.58	1.13	1.12	1.11	1.11
3400	4.08	2.37	3.14	0.86	-1.45	29.28	1.14	1.12	1.12	1.12
3500	4.17	2.31	3.14	0.93	-1.49	27.62	1.14	1.12	1.13	1.13
3600	4.25	2.26	3.14	0.99	-1.52	26.29	1.15	1.12	1.15	1.14
3700	4.32	2.23	3.15	1.04	-1.53	25.49	1.14	1.12	1.15	1.14
3800	4.38	2.20	3.15	1.08	-1.60	25.24	1.14	1.12	1.16	1.15
3900	4.42	2.20	3.17	1.11	-1.72	25.54	1.13	1.11	1.16	1.15
4000	4.45	2.20	3.18	1.13	-1.82	26.37	1.12	1.10	1.16	1.15
4100	4.46	2.20	3.18	1.13	-1.93	27.49	1.11	1.09	1.15	1.14
4200	4.46	2.21	3.19	1.12	-2.09	28.61	1.10	1.07	1.15	1.14
4300	4.44	2.23	3.20	1.10	-2.23	29.48	1.08	1.06	1.14	1.13
4400	4.40	2.24	3.19	1.07	-2.39	28.92	1.07	1.05	1.12	1.12
4500	4.34	2.27	3.18	1.02	-2.53	27.61	1.05	1.04	1.11	1.11
4600	4.26	2.31	3.18	0.97	-2.60	26.23	1.04	1.03	1.11	1.10
4700	4.18	2.35	3.17	0.91	-2.62	25.01	1.03	1.02	1.10	1.10
4800	4.09	2.40	3.16	0.85	-2.72	24.44	1.03	1.02	1.10	1.10
4900	4.00	2.45	3.16	0.78	-2.87	24.53	1.03	1.03	1.10	1.10
5000	3.91	2.50	3.15	0.71	-2.98	25.22	1.05	1.04	1.10	1.10
5100	3.81	2.58	3.15	0.62	-3.10	26.80	1.06	1.05	1.11	1.09
5200	3.71	2.67	3.16	0.53	-3.27	28.94	1.07	1.06	1.11	1.09
5300	3.61	2.78	3.18	0.42	-3.36	30.34	1.09	1.08	1.12	1.10
5400	3.49	2.91	3.19	0.31	-3.41	29.81	1.10	1.09	1.13	1.10
5500	3.38	3.05	3.21	0.18	-3.49	27.49	1.12	1.10	1.14	1.10
5600	3.27	3.20	3.23	0.05	-3.58	25.58	1.13	1.11	1.15	1.10
5700	3.15	3.36	3.25	0.10	-3.56	24.20	1.14	1.12	1.16	1.10
5800	3.02	3.53	3.27	0.25	-3.61	23.31	1.15	1.12	1.16	1.10
5900	2.88	3.70	3.27	0.41	-3.59	22.71	1.16	1.12	1.17	1.10
6000	2.71	3.88	3.26	0.59	-3.47	22.98	1.15	1.12	1.17	1.11
6100	2.54	4.07	3.24	0.78	-3.25	23.68	1.15	1.13	1.17	1.12
6200	2.35	4.30	3.22	0.98	-3.09	24.65	1.15	1.13	1.19	1.12
6400	1.98	4.83	3.18	1.42	-2.85	25.70	1.15	1.14	1.22	1.16
6600	1.66	5.56	3.19	1.95	-2.47	23.38	1.15	1.15	1.26	1.23
6800	1.39	6.50	3.24	2.56	-1.80	21.00	1.15	1.18	1.34	1.31
7000	1.18	7.67	3.31	3.26	-1.30	20.32	1.19	1.22	1.41	1.39

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

Notes

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2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = +25°C, Sum port at pad 2

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.66	9.35	3.12	4.34	0.34	38.02	1.08	1.07	1.04	1.03
1200	0.90	7.95	3.13	3.53	0.40	35.73	1.08	1.08	1.03	1.03
1400	1.18	6.85	3.15	2.83	0.43	34.88	1.09	1.09	1.03	1.02
1600	1.46	5.92	3.14	2.23	0.52	35.29	1.08	1.09	1.03	1.03
1700	1.60	5.51	3.13	1.96	0.58	36.58	1.08	1.08	1.04	1.03
1800	1.75	5.15	3.13	1.70	0.62	37.90	1.07	1.08	1.04	1.03
1900	1.90	4.81	3.12	1.46	0.67	38.90	1.07	1.07	1.04	1.03
2000	2.06	4.51	3.11	1.23	0.74	38.78	1.06	1.06	1.04	1.04
2100	2.22	4.24	3.11	1.01	0.80	36.98	1.05	1.06	1.04	1.04
2200	2.39	3.99	3.12	0.80	0.85	34.70	1.05	1.05	1.04	1.04
2300	2.57	3.76	3.12	0.60	0.85	32.48	1.05	1.05	1.05	1.05
2400	2.73	3.57	3.13	0.42	0.85	30.59	1.05	1.05	1.05	1.06
2500	2.90	3.39	3.14	0.25	0.84	29.37	1.05	1.05	1.06	1.07
2600	3.06	3.24	3.15	0.09	0.87	28.48	1.06	1.06	1.07	1.08
2700	3.22	3.09	3.15	0.06	0.94	28.10	1.06	1.06	1.08	1.09
2800	3.36	2.96	3.16	0.20	1.06	28.12	1.07	1.07	1.09	1.10
2900	3.51	2.83	3.16	0.33	1.18	28.56	1.08	1.08	1.09	1.11
3000	3.64	2.72	3.16	0.46	1.24	29.24	1.08	1.09	1.10	1.12
3100	3.76	2.62	3.15	0.58	1.29	30.35	1.09	1.10	1.10	1.12
3200	3.88	2.52	3.15	0.68	1.33	30.97	1.10	1.11	1.11	1.13
3300	3.98	2.44	3.14	0.78	1.33	30.51	1.11	1.11	1.12	1.13
3400	4.08	2.37	3.14	0.86	1.34	29.20	1.12	1.12	1.12	1.14
3500	4.16	2.31	3.14	0.93	1.40	27.62	1.13	1.13	1.12	1.14
3600	4.24	2.26	3.14	0.99	1.48	26.30	1.14	1.15	1.12	1.15
3700	4.32	2.23	3.15	1.05	1.56	25.51	1.14	1.15	1.12	1.14
3800	4.38	2.21	3.16	1.08	1.62	25.26	1.15	1.16	1.12	1.14
3900	4.42	2.20	3.17	1.11	1.66	25.56	1.15	1.16	1.11	1.13
4000	4.45	2.19	3.17	1.13	1.72	26.37	1.15	1.16	1.10	1.12
4100	4.46	2.20	3.18	1.13	1.76	27.49	1.14	1.15	1.09	1.11
4200	4.46	2.21	3.19	1.12	1.78	28.64	1.14	1.15	1.07	1.10
4300	4.44	2.23	3.20	1.11	1.79	29.54	1.13	1.14	1.06	1.08
4400	4.41	2.26	3.20	1.08	1.70	28.99	1.12	1.12	1.05	1.07
4500	4.35	2.29	3.20	1.04	1.68	27.66	1.11	1.11	1.04	1.05
4600	4.28	2.32	3.19	0.99	1.70	26.38	1.10	1.11	1.03	1.04
4700	4.21	2.35	3.18	0.93	1.62	25.17	1.10	1.10	1.02	1.03
4800	4.12	2.40	3.18	0.87	1.62	24.62	1.10	1.10	1.02	1.03
4900	4.03	2.45	3.17	0.79	1.60	24.70	1.10	1.10	1.03	1.03
5000	3.94	2.51	3.17	0.72	1.43	25.33	1.10	1.10	1.04	1.05
5100	3.84	2.58	3.16	0.63	1.31	26.87	1.09	1.11	1.05	1.06
5200	3.73	2.67	3.17	0.53	1.27	28.90	1.09	1.11	1.06	1.07
5300	3.64	2.78	3.19	0.44	1.15	30.17	1.10	1.12	1.08	1.09
5400	3.53	2.91	3.21	0.33	1.04	29.68	1.10	1.13	1.09	1.10
5500	3.42	3.05	3.23	0.20	0.93	27.52	1.10	1.14	1.10	1.12
5600	3.33	3.20	3.26	0.07	0.97	25.65	1.10	1.15	1.11	1.13
5700	3.22	3.35	3.28	0.07	0.84	24.26	1.10	1.16	1.12	1.14
5800	3.09	3.51	3.29	0.22	0.73	23.38	1.10	1.16	1.12	1.15
5900	2.94	3.67	3.29	0.39	0.76	22.72	1.10	1.17	1.12	1.16
6000	2.76	3.84	3.27	0.57	0.78	22.97	1.11	1.17	1.12	1.15
6100	2.57	4.04	3.24	0.76	0.92	23.60	1.12	1.17	1.13	1.15
6200	2.38	4.27	3.22	0.96	1.11	24.45	1.12	1.19	1.13	1.15
6400	2.02	4.82	3.20	1.40	1.35	25.53	1.16	1.22	1.14	1.15
6600	1.72	5.54	3.22	1.92	1.66	23.53	1.23	1.26	1.15	1.15
6800	1.49	6.48	3.31	2.51	2.13	21.23	1.31	1.34	1.18	1.15
7000	1.30	7.66	3.41	3.19	2.33	20.48	1.39	1.41	1.22	1.19

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

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2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = +25°C, Sum port at pad 3

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.67	9.35	3.13	4.34	-0.03	36.85	1.04	1.03	1.08	1.07
1200	0.90	7.95	3.13	3.53	-0.10	34.93	1.03	1.03	1.08	1.08
1400	1.17	6.83	3.13	2.84	-0.19	34.64	1.03	1.02	1.09	1.09
1600	1.45	5.91	3.13	2.23	-0.21	35.59	1.03	1.03	1.08	1.09
1700	1.60	5.51	3.13	1.96	-0.22	36.56	1.04	1.03	1.08	1.08
1800	1.75	5.15	3.12	1.70	-0.25	37.46	1.04	1.03	1.07	1.08
1900	1.90	4.82	3.12	1.46	-0.26	37.70	1.04	1.03	1.07	1.07
2000	2.06	4.51	3.11	1.23	-0.28	37.07	1.04	1.04	1.06	1.06
2100	2.23	4.24	3.12	1.00	-0.30	35.50	1.04	1.04	1.05	1.06
2200	2.40	3.99	3.12	0.80	-0.35	33.80	1.04	1.04	1.05	1.05
2300	2.57	3.76	3.13	0.60	-0.45	32.32	1.05	1.05	1.05	1.05
2400	2.75	3.57	3.14	0.41	-0.54	31.07	1.05	1.06	1.05	1.05
2500	2.91	3.39	3.14	0.24	-0.60	30.29	1.06	1.07	1.05	1.05
2600	3.07	3.24	3.15	0.08	-0.65	29.88	1.07	1.08	1.06	1.06
2700	3.23	3.10	3.16	0.07	-0.66	29.90	1.08	1.09	1.06	1.06
2800	3.38	2.97	3.17	0.21	-0.67	30.29	1.09	1.10	1.07	1.07
2900	3.53	2.84	3.17	0.35	-0.68	31.04	1.09	1.11	1.08	1.08
3000	3.67	2.72	3.17	0.48	-0.75	31.67	1.10	1.12	1.08	1.09
3100	3.80	2.61	3.16	0.59	-0.82	32.58	1.10	1.12	1.09	1.10
3200	3.91	2.52	3.16	0.69	-0.86	32.51	1.11	1.13	1.10	1.11
3300	4.01	2.44	3.15	0.78	-0.90	31.37	1.12	1.13	1.11	1.11
3400	4.10	2.37	3.15	0.86	-0.93	29.63	1.12	1.14	1.12	1.12
3500	4.18	2.31	3.15	0.93	-0.94	28.27	1.12	1.14	1.13	1.13
3600	4.25	2.27	3.15	0.99	-0.94	27.18	1.12	1.15	1.14	1.15
3700	4.32	2.23	3.15	1.05	-0.94	26.73	1.12	1.14	1.14	1.15
3800	4.38	2.21	3.16	1.09	-1.03	26.72	1.12	1.14	1.15	1.16
3900	4.42	2.20	3.17	1.11	-1.11	27.20	1.11	1.13	1.15	1.16
4000	4.45	2.20	3.18	1.13	-1.21	28.18	1.10	1.12	1.15	1.16
4100	4.46	2.20	3.18	1.13	-1.30	29.59	1.09	1.11	1.14	1.15
4200	4.46	2.21	3.19	1.12	-1.42	30.65	1.07	1.10	1.14	1.15
4300	4.43	2.23	3.19	1.10	-1.55	30.41	1.06	1.08	1.13	1.14
4400	4.38	2.25	3.19	1.07	-1.70	28.99	1.05	1.07	1.12	1.12
4500	4.33	2.28	3.19	1.03	-1.83	27.43	1.04	1.05	1.11	1.11
4600	4.27	2.31	3.18	0.97	-1.89	26.19	1.03	1.04	1.10	1.11
4700	4.19	2.34	3.17	0.91	-1.97	25.40	1.02	1.03	1.10	1.10
4800	4.11	2.39	3.17	0.85	-2.01	25.04	1.02	1.03	1.10	1.10
4900	4.02	2.44	3.16	0.78	-2.07	25.51	1.03	1.03	1.10	1.10
5000	3.93	2.50	3.16	0.71	-2.19	26.64	1.04	1.05	1.10	1.10
5100	3.82	2.58	3.16	0.62	-2.31	28.18	1.05	1.06	1.09	1.11
5200	3.72	2.68	3.17	0.52	-2.42	29.67	1.06	1.07	1.09	1.11
5300	3.62	2.78	3.18	0.42	-2.52	29.68	1.08	1.09	1.10	1.12
5400	3.51	2.90	3.19	0.29	-2.66	27.97	1.09	1.10	1.10	1.13
5500	3.39	3.04	3.21	0.17	-2.70	25.97	1.10	1.12	1.10	1.14
5600	3.27	3.19	3.23	0.04	-2.60	24.10	1.11	1.13	1.10	1.15
5700	3.15	3.35	3.25	0.10	-2.52	23.10	1.12	1.14	1.10	1.16
5800	3.02	3.51	3.26	0.25	-2.53	22.51	1.12	1.15	1.10	1.16
5900	2.87	3.68	3.26	0.39	-2.60	22.25	1.12	1.16	1.10	1.17
6000	2.71	3.86	3.25	0.57	-2.62	22.51	1.12	1.15	1.11	1.17
6100	2.53	4.06	3.23	0.76	-2.57	23.12	1.13	1.15	1.12	1.17
6200	2.35	4.28	3.21	0.96	-2.37	23.73	1.13	1.15	1.12	1.19
6400	1.98	4.81	3.17	1.42	-1.92	23.87	1.14	1.15	1.16	1.22
6600	1.65	5.55	3.18	1.94	-1.41	21.72	1.15	1.15	1.23	1.26
6800	1.38	6.49	3.22	2.55	-0.75	19.87	1.18	1.15	1.31	1.34
7000	1.16	7.66	3.29	3.24	-0.36	19.58	1.22	1.19	1.39	1.41

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

Notes

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- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits' standard limited warranty and terms and conditions (collectively, "Standard Terms"). Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @Temperature = +25°C, Sum port at pad 4

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.67	9.35	3.13	4.34	0.18	36.85	1.07	1.08	1.03	1.04
1200	0.90	7.95	3.13	3.52	0.21	34.93	1.08	1.08	1.03	1.03
1400	1.17	6.84	3.14	2.83	0.24	34.64	1.09	1.09	1.02	1.03
1600	1.45	5.92	3.13	2.23	0.29	35.59	1.09	1.08	1.03	1.03
1700	1.60	5.51	3.13	1.95	0.32	36.56	1.08	1.08	1.03	1.04
1800	1.75	5.15	3.12	1.70	0.34	37.46	1.08	1.07	1.03	1.04
1900	1.90	4.81	3.12	1.46	0.39	37.70	1.07	1.07	1.03	1.04
2000	2.06	4.51	3.11	1.23	0.45	37.07	1.06	1.06	1.04	1.04
2100	2.22	4.24	3.11	1.01	0.51	35.50	1.06	1.05	1.04	1.04
2200	2.40	3.99	3.12	0.80	0.54	33.80	1.05	1.05	1.04	1.04
2300	2.57	3.76	3.12	0.60	0.55	32.32	1.05	1.05	1.05	1.05
2400	2.74	3.56	3.13	0.42	0.56	31.07	1.05	1.05	1.06	1.05
2500	2.90	3.39	3.14	0.25	0.55	30.29	1.05	1.05	1.07	1.06
2600	3.06	3.23	3.14	0.09	0.57	29.88	1.06	1.06	1.08	1.07
2700	3.21	3.09	3.15	0.06	0.64	29.90	1.06	1.06	1.09	1.08
2800	3.36	2.96	3.16	0.20	0.71	30.29	1.07	1.07	1.10	1.09
2900	3.50	2.83	3.15	0.33	0.80	31.04	1.08	1.08	1.11	1.09
3000	3.64	2.72	3.16	0.46	0.85	31.67	1.09	1.08	1.12	1.10
3100	3.76	2.62	3.15	0.57	0.87	32.58	1.10	1.09	1.12	1.10
3200	3.88	2.53	3.15	0.68	0.91	32.51	1.11	1.10	1.13	1.11
3300	3.99	2.45	3.15	0.77	0.95	31.37	1.11	1.11	1.13	1.12
3400	4.09	2.38	3.15	0.86	1.01	29.63	1.12	1.12	1.14	1.12
3500	4.17	2.32	3.15	0.93	1.03	28.27	1.13	1.13	1.14	1.12
3600	4.25	2.28	3.15	0.99	1.08	27.18	1.15	1.14	1.15	1.12
3700	4.32	2.25	3.16	1.05	1.13	26.73	1.15	1.14	1.14	1.12
3800	4.37	2.22	3.16	1.09	1.12	26.72	1.16	1.15	1.14	1.12
3900	4.42	2.20	3.17	1.11	1.16	27.20	1.16	1.15	1.13	1.11
4000	4.45	2.20	3.18	1.13	1.18	28.18	1.16	1.15	1.12	1.10
4100	4.46	2.20	3.18	1.13	1.22	29.59	1.15	1.14	1.11	1.09
4200	4.46	2.22	3.20	1.13	1.22	30.65	1.15	1.14	1.10	1.07
4300	4.44	2.23	3.20	1.11	1.22	30.41	1.14	1.13	1.08	1.06
4400	4.40	2.26	3.20	1.08	1.15	28.99	1.12	1.12	1.07	1.05
4500	4.35	2.29	3.20	1.04	1.05	27.43	1.11	1.11	1.05	1.04
4600	4.28	2.33	3.20	0.99	1.01	26.19	1.11	1.10	1.04	1.03
4700	4.20	2.37	3.19	0.93	0.97	25.40	1.10	1.10	1.03	1.02
4800	4.11	2.41	3.18	0.87	0.95	25.04	1.10	1.10	1.03	1.02
4900	4.02	2.46	3.17	0.79	0.91	25.51	1.10	1.10	1.03	1.03
5000	3.94	2.51	3.17	0.72	0.83	26.64	1.10	1.10	1.05	1.04
5100	3.84	2.58	3.16	0.63	0.67	28.18	1.11	1.09	1.06	1.05
5200	3.74	2.66	3.17	0.54	0.62	29.67	1.11	1.09	1.07	1.06
5300	3.66	2.78	3.20	0.43	0.57	29.68	1.12	1.10	1.09	1.08
5400	3.55	2.90	3.21	0.31	0.51	27.97	1.13	1.10	1.10	1.09
5500	3.44	3.03	3.23	0.19	0.45	25.97	1.14	1.10	1.12	1.10
5600	3.33	3.18	3.25	0.06	0.51	24.10	1.15	1.10	1.13	1.11
5700	3.21	3.34	3.27	0.07	0.59	23.10	1.16	1.10	1.14	1.12
5800	3.07	3.51	3.28	0.22	0.58	22.51	1.16	1.10	1.15	1.12
5900	2.91	3.69	3.28	0.38	0.37	22.25	1.17	1.10	1.16	1.12
6000	2.72	3.88	3.26	0.56	0.23	22.51	1.17	1.11	1.15	1.12
6100	2.54	4.08	3.24	0.75	0.17	23.12	1.17	1.12	1.15	1.13
6200	2.35	4.31	3.22	0.96	0.22	23.73	1.19	1.12	1.15	1.13
6400	2.01	4.81	3.19	1.41	0.50	23.87	1.22	1.16	1.15	1.14
6600	1.72	5.55	3.23	1.92	0.82	21.72	1.26	1.23	1.15	1.15
6800	1.49	6.50	3.31	2.51	1.27	19.87	1.34	1.31	1.15	1.18
7000	1.29	7.66	3.40	3.19	1.32	19.58	1.41	1.39	1.19	1.22

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

Notes

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2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @ Temperature = +105°C, Sum port at pad 1

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.65	9.43	3.12	4.39	-0.04	39.51	1.02	1.03	1.08	1.08
1200	0.88	8.02	3.12	3.58	-0.11	35.72	1.02	1.02	1.09	1.10
1400	1.14	6.91	3.13	2.89	-0.17	34.08	1.02	1.02	1.11	1.10
1600	1.41	5.99	3.12	2.29	-0.24	33.98	1.03	1.03	1.10	1.10
1700	1.56	5.58	3.12	2.01	-0.25	35.31	1.04	1.04	1.09	1.09
1800	1.70	5.22	3.11	1.75	-0.27	37.00	1.04	1.05	1.09	1.08
1900	1.86	4.88	3.11	1.51	-0.29	38.01	1.04	1.05	1.08	1.07
2000	2.02	4.57	3.11	1.27	-0.30	37.39	1.04	1.05	1.07	1.06
2100	2.18	4.30	3.11	1.06	-0.31	35.75	1.04	1.05	1.06	1.05
2200	2.34	4.05	3.11	0.85	-0.33	34.33	1.03	1.05	1.05	1.05
2300	2.51	3.82	3.12	0.65	-0.41	33.21	1.04	1.05	1.05	1.04
2400	2.67	3.63	3.12	0.47	-0.51	32.17	1.04	1.05	1.05	1.04
2500	2.84	3.45	3.13	0.30	-0.58	31.42	1.05	1.06	1.05	1.04
2600	3.00	3.29	3.14	0.14	-0.63	30.65	1.06	1.06	1.06	1.04
2700	3.15	3.15	3.15	0.01	-0.61	30.25	1.08	1.07	1.06	1.05
2800	3.31	3.02	3.16	0.15	-0.60	30.25	1.09	1.07	1.07	1.05
2900	3.45	2.89	3.16	0.29	-0.63	30.90	1.10	1.07	1.08	1.06
3000	3.58	2.77	3.16	0.41	-0.68	31.41	1.11	1.08	1.09	1.06
3100	3.70	2.67	3.15	0.53	-0.79	32.49	1.11	1.09	1.09	1.07
3200	3.80	2.57	3.14	0.62	-0.88	33.27	1.12	1.09	1.10	1.08
3300	3.89	2.49	3.14	0.71	-0.92	32.26	1.12	1.10	1.10	1.09
3400	3.98	2.42	3.13	0.79	-0.94	30.36	1.13	1.10	1.11	1.10
3500	4.07	2.35	3.13	0.86	-0.96	28.32	1.14	1.11	1.12	1.11
3600	4.15	2.31	3.13	0.92	-1.03	26.71	1.14	1.11	1.12	1.12
3700	4.22	2.27	3.14	0.98	-1.06	25.73	1.14	1.11	1.13	1.13
3800	4.27	2.25	3.14	1.02	-1.09	25.55	1.14	1.10	1.14	1.13
3900	4.32	2.24	3.16	1.05	-1.25	25.86	1.14	1.10	1.15	1.14
4000	4.36	2.24	3.17	1.07	-1.32	26.86	1.12	1.09	1.14	1.13
4100	4.37	2.25	3.18	1.07	-1.36	28.05	1.12	1.08	1.13	1.13
4200	4.37	2.26	3.19	1.06	-1.54	28.92	1.11	1.07	1.12	1.13
4300	4.36	2.27	3.19	1.04	-1.69	29.41	1.10	1.07	1.12	1.13
4400	4.32	2.29	3.19	1.00	-1.67	29.07	1.09	1.05	1.11	1.12
4500	4.25	2.32	3.18	0.96	-1.76	27.67	1.08	1.05	1.11	1.11
4600	4.19	2.36	3.18	0.92	-1.83	25.75	1.07	1.03	1.10	1.10
4700	4.10	2.39	3.16	0.86	-1.72	25.11	1.06	1.04	1.10	1.11
4800	4.02	2.45	3.16	0.79	-1.90	24.21	1.06	1.03	1.09	1.10
4900	3.93	2.47	3.14	0.74	-1.91	24.54	1.05	1.02	1.09	1.10
5000	3.85	2.54	3.15	0.66	-2.15	25.21	1.05	1.03	1.08	1.10
5100	3.75	2.62	3.15	0.57	-2.27	26.57	1.06	1.03	1.08	1.09
5200	3.64	2.71	3.15	0.47	-2.47	28.64	1.06	1.04	1.07	1.09
5300	3.55	2.83	3.18	0.37	-2.73	29.46	1.08	1.06	1.08	1.09
5400	3.43	2.94	3.18	0.26	-2.63	29.34	1.09	1.07	1.10	1.10
5500	3.33	3.09	3.21	0.13	-2.79	27.44	1.10	1.08	1.11	1.10
5600	3.20	3.23	3.21	0.01	-2.66	25.47	1.12	1.08	1.12	1.10
5700	3.06	3.42	3.23	0.18	-2.58	24.60	1.14	1.08	1.12	1.08
5800	2.99	3.58	3.27	0.30	-3.13	23.05	1.16	1.10	1.16	1.09
5900	2.82	3.75	3.26	0.48	-2.76	23.05	1.17	1.10	1.16	1.09
6000	2.70	3.95	3.28	0.64	-2.90	23.17	1.18	1.11	1.18	1.10
6100	2.51	4.13	3.24	0.81	-2.50	24.07	1.18	1.11	1.18	1.10
6200	2.33	4.34	3.22	1.00	-2.18	25.43	1.17	1.12	1.19	1.10
6400	1.98	4.88	3.19	1.44	-2.03	25.63	1.16	1.15	1.22	1.12
6600	1.68	5.59	3.21	1.96	-1.39	22.95	1.14	1.17	1.26	1.19
6800	1.41	6.52	3.25	2.56	-0.62	21.15	1.14	1.19	1.33	1.27
7000	1.19	7.69	3.32	3.24	-0.28	21.06	1.18	1.22	1.40	1.34

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

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2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @ Temperature = +105°C, Sum port at pad 2

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.66	9.44	3.13	4.40	0.16	39.22	1.08	1.08	1.03	1.02
1200	0.89	8.05	3.14	3.58	0.15	35.63	1.10	1.09	1.02	1.02
1400	1.16	6.94	3.15	2.89	0.17	33.99	1.10	1.11	1.02	1.02
1600	1.44	6.00	3.15	2.29	0.22	33.88	1.10	1.10	1.03	1.03
1700	1.58	5.60	3.14	2.02	0.27	35.32	1.09	1.09	1.04	1.04
1800	1.72	5.23	3.13	1.76	0.29	37.01	1.08	1.09	1.05	1.04
1900	1.87	4.89	3.12	1.52	0.34	38.08	1.07	1.08	1.05	1.04
2000	2.03	4.59	3.12	1.29	0.39	37.42	1.06	1.07	1.05	1.04
2100	2.18	4.31	3.12	1.07	0.42	35.65	1.05	1.06	1.05	1.04
2200	2.35	4.06	3.12	0.86	0.45	34.16	1.05	1.05	1.05	1.03
2300	2.52	3.84	3.13	0.66	0.43	33.07	1.04	1.05	1.05	1.04
2400	2.68	3.64	3.13	0.48	0.40	32.02	1.04	1.05	1.05	1.04
2500	2.85	3.46	3.14	0.32	0.40	31.25	1.04	1.05	1.06	1.05
2600	3.00	3.30	3.15	0.16	0.43	30.48	1.04	1.06	1.06	1.06
2700	3.15	3.16	3.16	0.01	0.51	30.15	1.05	1.06	1.07	1.08
2800	3.30	3.02	3.16	0.13	0.63	30.27	1.05	1.07	1.07	1.09
2900	3.44	2.90	3.16	0.26	0.72	30.88	1.06	1.08	1.07	1.10
3000	3.57	2.78	3.16	0.39	0.74	31.49	1.06	1.09	1.08	1.11
3100	3.70	2.68	3.16	0.51	0.73	32.56	1.07	1.09	1.09	1.11
3200	3.81	2.58	3.15	0.61	0.75	33.19	1.08	1.10	1.09	1.12
3300	3.91	2.50	3.15	0.70	0.74	32.18	1.09	1.10	1.10	1.12
3400	4.00	2.43	3.14	0.78	0.75	30.26	1.10	1.11	1.10	1.13
3500	4.08	2.37	3.14	0.85	0.78	28.32	1.11	1.12	1.11	1.14
3600	4.16	2.32	3.14	0.91	0.78	26.72	1.12	1.12	1.11	1.14
3700	4.23	2.29	3.15	0.97	0.82	25.74	1.13	1.13	1.11	1.14
3800	4.29	2.26	3.16	1.01	0.85	25.56	1.13	1.14	1.10	1.14
3900	4.34	2.25	3.17	1.03	0.84	25.87	1.14	1.15	1.10	1.14
4000	4.37	2.25	3.18	1.05	0.83	26.86	1.13	1.14	1.09	1.12
4100	4.39	2.25	3.19	1.06	0.93	28.04	1.13	1.13	1.08	1.12
4200	4.39	2.28	3.21	1.05	0.88	28.94	1.13	1.12	1.07	1.11
4300	4.38	2.30	3.22	1.04	0.83	29.45	1.13	1.12	1.07	1.10
4400	4.34	2.31	3.21	1.01	0.96	29.14	1.12	1.11	1.05	1.09
4500	4.29	2.34	3.21	0.97	0.93	27.71	1.11	1.11	1.05	1.08
4600	4.24	2.38	3.21	0.93	0.82	25.87	1.10	1.10	1.03	1.07
4700	4.14	2.40	3.18	0.87	1.03	25.26	1.11	1.10	1.04	1.06
4800	4.07	2.46	3.19	0.80	0.85	24.39	1.10	1.09	1.03	1.06
4900	3.99	2.49	3.18	0.75	0.92	24.69	1.10	1.09	1.02	1.05
5000	3.91	2.56	3.18	0.67	0.56	25.31	1.10	1.08	1.03	1.05
5100	3.79	2.64	3.18	0.57	0.56	26.66	1.09	1.08	1.03	1.06
5200	3.70	2.73	3.19	0.49	0.32	28.59	1.09	1.07	1.04	1.06
5300	3.60	2.84	3.20	0.38	0.24	29.27	1.09	1.08	1.06	1.08
5400	3.49	2.96	3.22	0.27	0.24	29.18	1.10	1.10	1.07	1.09
5500	3.39	3.10	3.24	0.14	0.00	27.46	1.10	1.11	1.08	1.10
5600	3.28	3.24	3.26	0.01	0.00	25.52	1.10	1.12	1.08	1.12
5700	3.14	3.41	3.27	0.16	-0.03	24.64	1.08	1.12	1.08	1.14
5800	3.10	3.57	3.33	0.28	-0.64	23.11	1.09	1.16	1.10	1.16
5900	2.88	3.74	3.29	0.46	-0.25	23.05	1.09	1.16	1.10	1.17
6000	2.74	3.93	3.29	0.62	-0.56	23.16	1.10	1.18	1.11	1.18
6100	2.53	4.11	3.25	0.80	-0.18	23.94	1.10	1.18	1.11	1.18
6200	2.35	4.33	3.23	0.99	0.02	25.16	1.10	1.19	1.12	1.17
6400	2.02	4.85	3.21	1.42	0.20	25.55	1.12	1.22	1.15	1.16
6600	1.75	5.58	3.25	1.93	0.56	23.15	1.19	1.26	1.17	1.14
6800	1.51	6.50	3.33	2.51	1.03	21.34	1.27	1.33	1.19	1.14
7000	1.32	7.68	3.43	3.19	0.97	21.14	1.34	1.40	1.22	1.18

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

Notes

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- C. The parts covered by this specification document are subject to Mini-Circuits' standard limited warranty and terms and conditions (collectively, "Standard Terms"). Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp



2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @ Temperature = +105°C, Sum port at pad 3

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.65	9.44	3.12	4.40	0.14	38.25	1.03	1.02	1.08	1.08
1200	0.88	8.04	3.13	3.59	0.07	35.75	1.02	1.02	1.10	1.09
1400	1.14	6.92	3.13	2.90	0.01	34.42	1.02	1.02	1.10	1.11
1600	1.41	6.00	3.12	2.30	0.02	34.18	1.03	1.03	1.10	1.10
1700	1.56	5.59	3.12	2.02	0.03	34.98	1.04	1.04	1.09	1.09
1800	1.70	5.23	3.12	1.76	0.02	35.50	1.05	1.04	1.08	1.09
1900	1.86	4.90	3.12	1.52	0.03	35.52	1.05	1.04	1.07	1.08
2000	2.02	4.59	3.12	1.29	0.03	34.56	1.05	1.04	1.06	1.07
2100	2.18	4.32	3.12	1.07	0.03	33.32	1.05	1.04	1.05	1.06
2200	2.34	4.07	3.12	0.86	0.01	31.95	1.05	1.03	1.05	1.05
2300	2.51	3.84	3.13	0.66	-0.07	31.24	1.05	1.04	1.04	1.05
2400	2.67	3.64	3.13	0.48	-0.14	30.56	1.05	1.04	1.04	1.05
2500	2.84	3.47	3.14	0.32	-0.15	30.49	1.06	1.05	1.04	1.05
2600	3.00	3.31	3.15	0.15	-0.19	30.71	1.06	1.06	1.04	1.06
2700	3.15	3.17	3.16	0.00	-0.16	31.52	1.07	1.08	1.05	1.06
2800	3.30	3.03	3.16	0.14	-0.16	32.64	1.07	1.09	1.05	1.07
2900	3.44	2.90	3.16	0.27	-0.15	34.12	1.07	1.10	1.06	1.08
3000	3.58	2.78	3.16	0.40	-0.22	35.01	1.08	1.11	1.06	1.09
3100	3.70	2.67	3.15	0.51	-0.29	35.48	1.09	1.11	1.07	1.09
3200	3.82	2.58	3.15	0.61	-0.31	34.39	1.09	1.12	1.08	1.10
3300	3.91	2.50	3.15	0.70	-0.32	32.51	1.10	1.12	1.09	1.10
3400	4.00	2.43	3.14	0.78	-0.34	30.57	1.10	1.13	1.10	1.11
3500	4.08	2.37	3.14	0.85	-0.34	29.35	1.11	1.14	1.11	1.12
3600	4.16	2.33	3.15	0.91	-0.39	28.45	1.11	1.14	1.12	1.12
3700	4.23	2.29	3.15	0.97	-0.38	28.11	1.11	1.14	1.13	1.13
3800	4.28	2.27	3.16	1.01	-0.47	28.44	1.10	1.14	1.13	1.14
3900	4.33	2.26	3.17	1.04	-0.59	28.91	1.10	1.14	1.14	1.15
4000	4.36	2.26	3.18	1.06	-0.67	30.36	1.09	1.12	1.13	1.14
4100	4.37	2.26	3.19	1.06	-0.66	31.89	1.08	1.12	1.13	1.13
4200	4.36	2.27	3.19	1.05	-0.79	32.84	1.07	1.11	1.13	1.12
4300	4.35	2.29	3.20	1.03	-0.96	32.16	1.07	1.10	1.13	1.12
4400	4.30	2.31	3.19	1.00	-0.91	30.37	1.05	1.09	1.12	1.11
4500	4.25	2.34	3.19	0.96	-0.95	28.54	1.05	1.08	1.11	1.11
4600	4.20	2.37	3.19	0.91	-0.94	27.02	1.03	1.07	1.10	1.10
4700	4.11	2.39	3.17	0.85	-0.86	26.31	1.04	1.06	1.11	1.10
4800	4.03	2.45	3.17	0.77	-0.88	26.12	1.03	1.06	1.10	1.09
4900	3.95	2.48	3.15	0.72	-0.90	26.64	1.02	1.05	1.10	1.09
5000	3.86	2.56	3.16	0.65	-1.18	27.36	1.03	1.05	1.10	1.08
5100	3.75	2.64	3.16	0.55	-1.22	29.35	1.03	1.06	1.09	1.08
5200	3.65	2.73	3.17	0.46	-1.46	30.96	1.04	1.06	1.09	1.07
5300	3.56	2.84	3.19	0.36	-1.57	30.79	1.06	1.08	1.09	1.08
5400	3.44	2.96	3.20	0.23	-1.56	28.99	1.07	1.09	1.10	1.10
5500	3.33	3.11	3.22	0.12	-1.71	26.66	1.08	1.10	1.10	1.11
5600	3.19	3.25	3.22	0.02	-1.49	25.14	1.08	1.12	1.10	1.12
5700	3.05	3.43	3.23	0.18	-1.46	24.17	1.08	1.14	1.08	1.12
5800	2.98	3.60	3.28	0.29	-2.03	22.80	1.10	1.16	1.09	1.16
5900	2.80	3.76	3.25	0.46	-1.86	22.77	1.10	1.17	1.09	1.16
6000	2.68	3.94	3.27	0.62	-2.12	23.07	1.11	1.18	1.10	1.18
6100	2.50	4.10	3.23	0.80	-1.72	23.70	1.11	1.18	1.10	1.18
6200	2.31	4.31	3.20	1.00	-1.38	23.94	1.12	1.17	1.10	1.19
6400	1.96	4.84	3.17	1.44	-0.81	22.85	1.15	1.16	1.12	1.22
6600	1.66	5.58	3.19	1.95	-0.17	20.43	1.17	1.14	1.19	1.26
6800	1.39	6.50	3.23	2.55	0.65	19.05	1.19	1.14	1.27	1.33
7000	1.17	7.67	3.30	3.25	1.07	19.33	1.22	1.18	1.34	1.40

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

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2 Way 90° Power Splitter/Combiner

QCH-63

Typical Performance Data

TEST CONDITIONS: INPUT POWER =+5 dBm @ Temperature = +105°C, Sum port at pad 4

FREQ. (MHz)	TOTAL LOSS (dB)			Amp. Unbal. (±dB) See Note	Phase Unbal. (deg) See Note	ISOLATION (dB) Port 1 - Port 2	VSWR (:1)			
	Sum-Port 1	Sum-Port 2	Avg				Sum	Port 1	Port 2	Iso
1000	0.65	9.43	3.12	4.39	0.00	38.25	1.08	1.08	1.02	1.03
1200	0.88	8.03	3.13	3.57	-0.04	35.75	1.09	1.10	1.02	1.02
1400	1.15	6.91	3.13	2.88	-0.03	34.42	1.11	1.10	1.02	1.02
1600	1.42	5.98	3.13	2.28	-0.02	34.18	1.10	1.10	1.03	1.03
1700	1.56	5.57	3.12	2.00	-0.01	34.98	1.09	1.09	1.04	1.04
1800	1.71	5.21	3.12	1.75	0.00	35.50	1.09	1.08	1.04	1.05
1900	1.86	4.87	3.11	1.51	0.03	35.52	1.08	1.07	1.04	1.05
2000	2.02	4.56	3.11	1.28	0.07	34.56	1.07	1.06	1.04	1.05
2100	2.18	4.29	3.11	1.06	0.10	33.32	1.06	1.05	1.04	1.05
2200	2.35	4.03	3.11	0.85	0.11	31.95	1.05	1.05	1.03	1.05
2300	2.51	3.81	3.11	0.65	0.12	31.24	1.05	1.04	1.04	1.05
2400	2.67	3.61	3.11	0.47	0.10	30.56	1.05	1.04	1.04	1.05
2500	2.84	3.44	3.13	0.30	0.08	30.49	1.05	1.04	1.05	1.06
2600	3.00	3.27	3.13	0.15	0.08	30.71	1.06	1.04	1.06	1.06
2700	3.14	3.13	3.14	0.00	0.16	31.52	1.06	1.05	1.08	1.07
2800	3.29	3.00	3.14	0.15	0.24	32.64	1.07	1.05	1.09	1.07
2900	3.43	2.87	3.14	0.28	0.26	34.12	1.08	1.06	1.10	1.07
3000	3.56	2.76	3.14	0.40	0.29	35.01	1.09	1.06	1.11	1.08
3100	3.68	2.65	3.13	0.52	0.26	35.48	1.09	1.07	1.11	1.09
3200	3.80	2.57	3.14	0.62	0.28	34.39	1.10	1.08	1.12	1.09
3300	3.90	2.49	3.14	0.71	0.29	32.51	1.10	1.09	1.12	1.10
3400	3.99	2.42	3.13	0.79	0.33	30.57	1.11	1.10	1.13	1.10
3500	4.08	2.36	3.13	0.86	0.30	29.35	1.12	1.11	1.14	1.11
3600	4.15	2.31	3.13	0.93	0.28	28.45	1.12	1.12	1.14	1.11
3700	4.22	2.28	3.14	0.98	0.25	28.11	1.13	1.13	1.14	1.11
3800	4.28	2.25	3.15	1.02	0.26	28.44	1.14	1.13	1.14	1.10
3900	4.32	2.24	3.16	1.05	0.24	28.91	1.15	1.14	1.14	1.10
4000	4.36	2.23	3.17	1.07	0.21	30.36	1.14	1.13	1.12	1.09
4100	4.38	2.24	3.18	1.07	0.29	31.89	1.13	1.13	1.12	1.08
4200	4.38	2.26	3.19	1.07	0.20	32.84	1.12	1.13	1.11	1.07
4300	4.37	2.27	3.19	1.05	0.14	32.16	1.12	1.13	1.10	1.07
4400	4.33	2.30	3.20	1.03	0.22	30.37	1.11	1.12	1.09	1.05
4500	4.28	2.33	3.20	0.99	0.10	28.54	1.11	1.11	1.08	1.05
4600	4.23	2.37	3.20	0.94	-0.09	27.02	1.10	1.10	1.07	1.03
4700	4.13	2.40	3.18	0.88	0.18	26.31	1.10	1.11	1.06	1.04
4800	4.06	2.46	3.19	0.81	-0.09	26.12	1.09	1.10	1.06	1.03
4900	3.98	2.47	3.16	0.76	0.01	26.64	1.09	1.10	1.05	1.02
5000	3.90	2.54	3.17	0.69	-0.27	27.36	1.08	1.10	1.05	1.03
5100	3.79	2.62	3.17	0.58	-0.34	29.35	1.08	1.09	1.06	1.03
5200	3.71	2.71	3.18	0.50	-0.45	30.96	1.07	1.09	1.06	1.04
5300	3.60	2.83	3.20	0.38	-0.63	30.79	1.08	1.09	1.08	1.06
5400	3.50	2.93	3.20	0.27	-0.52	28.99	1.10	1.10	1.09	1.07
5500	3.39	3.07	3.23	0.15	-0.64	26.66	1.11	1.10	1.10	1.08
5600	3.27	3.21	3.24	0.02	-0.61	25.14	1.12	1.10	1.12	1.08
5700	3.11	3.41	3.26	0.14	-0.61	24.17	1.12	1.08	1.14	1.08
5800	3.05	3.58	3.31	0.25	-1.18	22.80	1.16	1.09	1.16	1.10
5900	2.83	3.76	3.27	0.44	-0.98	22.77	1.16	1.09	1.17	1.10
6000	2.70	3.95	3.28	0.61	-1.46	23.07	1.18	1.10	1.18	1.11
6100	2.50	4.12	3.23	0.80	-1.26	23.70	1.18	1.10	1.18	1.11
6200	2.33	4.32	3.21	0.99	-1.03	23.94	1.19	1.10	1.17	1.12
6400	2.01	4.84	3.20	1.43	-0.96	22.85	1.22	1.12	1.16	1.15
6600	1.73	5.57	3.24	1.92	-0.55	20.43	1.26	1.19	1.14	1.17
6800	1.50	6.50	3.32	2.51	-0.18	19.05	1.33	1.27	1.14	1.19
7000	1.30	7.65	3.41	3.19	-0.35	19.33	1.40	1.34	1.18	1.22

Note: Phase Unbalance shown relative to 90°; Amplitude Unbalance 1/2 of peak-to-peak difference

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