

Frequency Mixer

RMS-2H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
5.0	35.0	9.06	7.85	7.26	10.1	40.1	23.00	26.76	30.85	10.1	40.1	0.42	0.15	0.07
10.0	40.0	8.86	7.64	7.07	30.3	60.3	21.27	25.86	29.63	30.3	60.3	0.19	0.03	0.03
30.3	60.3	8.24	7.15	6.64	50.5	80.5	22.17	26.08	28.31	50.5	80.5	0.28	0.15	0.05
50.5	80.5	8.18	7.24	6.77	70.7	100.7	22.99	26.36	28.91	70.7	100.7	0.30	0.13	0.06
70.7	100.7	8.12	7.16	6.71	90.9	120.9	22.23	25.46	28.22	90.9	120.9	0.09	0.01	0.04
90.9	120.9	8.26	7.21	6.73	111.1	141.1	22.17	26.09	29.82	111.1	141.1	0.21	0.05	0.06
111.1	141.1	8.24	7.19	6.71	131.3	161.3	23.75	27.45	30.28	131.3	161.3	0.35	0.11	0.07
131.3	161.3	8.12	7.11	6.68	151.5	181.5	22.37	25.86	29.10	151.5	181.5	0.35	0.12	0.07
151.5	181.5	8.21	7.17	6.70	171.7	201.7	22.37	26.49	29.50	171.7	201.7	0.16	0.08	0.07
171.7	201.7	8.21	7.15	6.72	191.9	221.9	22.91	26.66	30.85	191.9	221.9	0.32	0.14	0.06
191.9	221.9	8.11	7.05	6.70	212.1	242.1	22.55	26.81	32.28	212.1	242.1	0.25	0.15	0.07
212.1	242.1	8.01	7.01	6.66	232.3	262.3	22.31	25.98	31.61	232.3	262.3	0.29	0.16	0.07
232.3	262.3	8.10	7.05	6.71	252.5	282.5	23.08	28.04	30.69	252.5	282.5	0.40	0.18	0.07
252.5	282.5	7.94	7.01	6.73	272.8	302.8	23.97	28.15	28.55	272.8	302.8	0.41	0.15	0.05
272.8	302.8	7.80	6.99	6.69	293.0	323.0	22.73	27.79	28.47	293.0	323.0	0.35	0.16	0.07
293.0	323.0	7.84	6.96	6.69	313.2	343.2	23.37	28.50	27.39	313.2	343.2	0.43	0.15	0.06
313.2	343.2	7.82	7.00	6.72	333.4	363.4	24.85	27.97	27.22	333.4	363.4	0.56	0.14	0.06
333.4	363.4	7.72	6.99	6.74	353.6	383.6	24.58	28.02	26.98	353.6	383.6	0.54	0.16	0.08
353.6	383.6	7.73	7.00	6.72	373.8	403.8	23.94	28.49	26.31	373.8	403.8	0.55	0.13	0.07
373.8	403.8	7.71	7.01	6.73	394.0	424.0	26.31	27.08	25.63	394.0	424.0	0.54	0.14	0.07
394.0	424.0	7.62	7.01	6.72	434.4	464.4	24.78	26.01	24.82	434.4	464.4	0.57	0.20	0.13
434.4	464.4	7.65	6.99	6.71	454.6	484.6	25.29	24.98	24.48	454.6	484.6	0.57	0.15	0.10
454.6	484.6	7.67	7.05	6.75	495.0	525.0	24.60	23.79	23.88	495.0	525.0	0.47	0.16	0.14
495.0	525.0	7.74	7.10	6.73	515.2	545.2	25.82	23.21	23.38	515.2	545.2	0.57	0.15	0.13
515.2	545.2	7.74	7.18	6.83	555.6	585.6	24.41	24.07	23.71	555.6	585.6	0.54	0.14	0.13
555.6	585.6	7.79	7.25	6.86	575.8	605.8	25.04	24.75	24.65	575.8	605.8	0.56	0.15	0.15
575.8	605.8	7.77	7.26	6.90	616.2	646.2	25.47	26.07	26.70	616.2	646.2	0.64	0.26	0.20
616.2	646.2	7.83	7.24	6.88	636.4	666.4	27.41	25.66	26.53	636.4	666.4	0.65	0.29	0.23
636.4	666.4	7.82	7.19	6.84	676.8	706.8	24.36	24.21	26.67	676.8	706.8	0.58	0.33	0.26
676.8	706.8	7.92	7.20	6.82	697.0	727.0	24.44	24.01	26.17	697.0	727.0	0.72	0.44	0.28
697.0	727.0	7.91	7.18	6.80	737.4	767.4	22.16	23.17	25.83	737.4	767.4	0.67	0.42	0.33
737.4	767.4	8.09	7.37	6.90	757.7	787.7	20.58	22.20	25.00	757.7	787.7	0.74	0.48	0.39
757.7	787.7	8.10	7.39	6.92	798.1	828.1	19.16	20.70	24.16	798.1	828.1	0.71	0.45	0.39
818.3	848.3	8.32	7.68	7.14	818.3	848.3	18.60	20.17	23.13	818.3	848.3	0.71	0.42	0.38
858.7	888.7	8.47	7.82	7.30	858.7	888.7	17.85	19.31	22.23	858.7	888.7	0.67	0.45	0.40
878.9	908.9	8.57	7.92	7.44	878.9	908.9	17.89	19.16	21.91	878.9	908.9	0.65	0.43	0.37
919.3	949.3	8.72	8.04	7.51	919.3	949.3	17.33	18.65	21.31	919.3	949.3	0.63	0.48	0.42
939.5	969.5	8.85	8.12	7.62	939.5	969.5	17.04	18.28	21.00	939.5	969.5	0.58	0.46	0.41
979.9	1009.9	8.94	8.14	7.56	979.9	1009.9	17.41	18.52	21.29	979.9	1009.9	0.62	0.54	0.49
1000.1	1030.1	9.04	8.13	7.58	1000.1	1030.1	17.46	18.56	21.97	1000.1	1030.1	0.61	0.58	0.53



Frequency Mixer

RMS-2H+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
490.0	10.1	7.11	10.0	20.1	7.18	900.0	100.1	7.13
477.7	22.4	7.05	29.8	39.9	6.92	880.2	119.9	7.02
465.4	34.7	7.06	49.6	59.7	7.00	860.4	139.7	6.98
453.1	47.0	7.07	69.3	79.4	7.02	840.7	159.4	6.91
440.8	59.3	7.09	89.1	99.2	6.98	820.9	179.2	6.87
428.5	71.6	7.01	108.9	119.0	6.97	801.1	199.0	6.80
416.2	83.9	7.03	128.7	138.8	6.93	781.3	218.8	6.77
403.8	96.3	6.98	148.4	158.5	6.93	761.6	238.5	6.74
391.5	108.6	6.97	168.2	178.3	6.96	741.8	258.3	6.74
379.2	120.9	6.96	188.0	198.1	6.97	722.0	278.1	6.75
366.9	133.2	6.82	207.8	217.9	6.96	702.2	297.9	6.70
354.6	145.5	6.81	227.6	237.7	6.93	682.4	317.7	6.69
342.3	157.8	6.77	247.3	257.4	6.96	662.7	337.4	6.71
330.0	170.1	6.79	267.1	277.2	7.03	642.9	357.2	6.78
317.7	182.4	6.76	286.9	297.0	7.04	623.1	377.0	6.76
305.4	194.7	6.69	306.7	316.8	7.04	603.3	396.8	6.76
293.1	207.0	6.63	326.4	336.5	7.05	583.6	416.5	6.77
280.8	219.3	6.62	346.2	356.3	7.05	563.8	436.3	6.81
268.5	231.6	6.60	366.0	376.1	7.10	544.0	456.1	6.84
256.2	243.9	6.63	385.8	395.9	7.12	524.2	475.9	6.85
243.8	256.3	6.61	405.6	415.7	7.11	504.4	495.7	6.86
231.5	268.6	6.61	425.3	435.4	7.11	484.7	515.4	6.88
219.2	280.9	6.62	445.1	455.2	7.21	464.9	535.2	6.92
206.9	293.2	6.62	464.9	475.0	7.25	445.1	555.0	6.96
194.6	305.5	6.65	484.7	494.8	7.23	425.3	574.8	6.94
182.3	317.8	6.65	504.4	514.5	7.20	405.6	594.5	6.95
170.0	330.1	6.65	524.2	534.3	7.19	385.8	614.3	7.02
157.7	342.4	6.66	544.0	554.1	7.30	366.0	634.1	7.04
145.4	354.7	6.70	583.6	593.7	7.38	326.4	673.7	7.13
133.1	367.0	6.73	603.3	613.4	7.39	306.7	693.4	7.13
120.8	379.3	6.76	642.9	653.0	7.51	267.1	733.0	7.16
108.5	391.6	6.77	662.7	672.8	7.56	247.3	752.8	7.19
96.2	403.9	6.79	702.2	712.3	7.51	207.8	792.3	7.24
83.8	416.3	6.81	722.0	732.1	7.55	188.0	812.1	7.22
71.5	428.6	6.82	761.6	771.7	7.60	148.4	851.7	7.31
59.2	440.9	6.86	781.3	791.4	7.64	128.7	871.4	7.30
46.9	453.2	6.87	820.9	831.0	7.60	89.1	911.0	7.42
34.6	465.5	6.91	840.7	850.8	7.67	69.3	930.8	7.49
22.3	477.8	6.89	880.2	890.3	7.74	29.8	970.3	7.68
10.0	490.1	7.18	900.0	910.1	7.76	10.0	990.1	7.96



Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
5.0	64.63	66.33	68.05	72.73	72.89	71.08
10.0	62.11	63.63	65.24	71.84	68.70	65.74
30.3	51.79	54.16	56.61	64.04	58.06	55.01
50.5	46.99	49.35	51.89	62.21	54.44	50.95
70.7	43.86	46.06	48.40	61.00	52.56	48.75
90.9	41.76	43.92	46.27	57.96	50.41	47.09
111.1	40.06	42.37	44.80	56.56	48.73	44.95
131.3	38.62	41.18	43.81	55.53	47.11	43.43
151.5	37.56	39.99	42.55	54.95	46.17	42.30
171.7	36.60	38.95	41.44	53.84	45.59	41.77
191.9	35.80	38.22	40.65	53.18	45.03	41.54
212.1	35.21	37.65	40.11	53.00	43.94	40.79
232.3	34.61	37.17	39.70	52.76	43.35	40.65
252.5	34.10	36.66	38.96	51.30	43.47	40.67
272.8	33.72	36.15	38.38	52.43	43.91	40.59
293.0	33.29	35.67	37.85	51.77	44.17	40.83
313.2	33.04	35.53	37.71	50.91	44.42	40.42
333.4	32.82	35.23	37.35	54.14	45.58	40.57
353.6	32.45	34.81	36.91	53.96	45.88	40.52
373.8	32.25	34.56	36.59	54.88	47.03	40.81
394.0	32.19	34.47	36.47	55.25	47.93	40.94
434.4	31.71	33.89	35.77	51.06	47.01	40.11
454.6	31.73	33.81	35.67	47.28	46.02	39.83
495.0	31.47	33.44	35.25	44.11	43.79	39.28
515.2	31.54	33.57	35.33	41.82	41.95	38.30
555.6	31.33	33.30	34.99	39.21	39.70	37.34
575.8	31.40	33.31	35.04	37.55	38.24	37.04
616.2	31.43	33.28	34.87	35.84	36.26	35.61
636.4	31.53	33.39	35.01	34.82	35.59	35.34
676.8	31.72	33.47	34.88	33.43	34.32	34.27
697.0	31.78	33.38	34.67	32.72	33.91	33.69
737.4	32.03	33.53	34.76	31.49	32.86	32.33
757.7	32.00	33.36	34.62	30.82	32.56	32.33
818.3	32.18	33.71	35.02	29.30	31.39	31.47
858.7	32.16	33.71	35.16	28.21	30.22	31.12
878.9	32.20	33.77	35.15	28.02	30.18	31.20
919.3	32.25	33.85	35.46	27.03	29.11	30.41
939.5	32.30	33.91	35.66	26.80	28.99	30.44
979.9	32.50	34.24	36.19	26.03	28.29	29.88
1000.1	32.79	34.67	36.84	25.81	28.15	29.75

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	53.66	52.46	50.21
30.3	60.3	43.91	43.89	42.64
50.5	80.5	40.74	41.26	40.43
70.7	100.7	38.93	38.55	38.40
90.9	120.9	37.04	36.97	36.74
111.1	141.1	35.78	35.72	35.41
131.3	161.3	34.63	34.84	34.96
151.5	181.5	33.65	34.10	34.06
171.7	201.7	33.03	33.56	33.63
191.9	221.9	32.56	33.07	33.15
212.1	242.1	32.07	32.52	32.85
232.3	262.3	31.76	32.55	32.83
252.5	282.5	31.59	32.20	32.56
272.8	302.8	31.42	31.99	32.41
293.0	323.0	31.41	32.13	32.57
313.2	343.2	31.07	31.98	32.44
333.4	363.4	31.15	32.32	33.09
353.6	383.6	30.62	32.08	32.98
373.8	403.8	30.50	32.19	33.50
394.0	424.0	30.36	32.09	33.62
434.4	464.4	29.76	31.41	32.80
454.6	484.6	29.51	30.84	31.81
495.0	525.0	29.14	30.02	30.54
515.2	545.2	28.59	29.17	29.65
555.6	585.6	27.05	27.42	27.74
575.8	605.8	26.19	26.42	26.64
616.2	646.2	23.91	23.94	24.19
636.4	666.4	22.95	22.94	23.13
676.8	706.8	21.06	20.76	20.78
697.0	727.0	20.17	19.82	19.81
737.4	767.4	18.84	18.36	18.13
757.7	787.7	18.12	17.58	17.28
798.1	828.1	17.18	16.68	16.29
818.3	848.3	16.81	16.32	15.96
858.7	888.7	16.00	15.53	15.17
878.9	908.9	15.72	15.27	15.02
919.3	949.3	15.09	14.66	14.42
939.5	969.5	14.82	14.39	14.04
979.9	1009.9	14.26	13.88	13.70
1000.1	1030.1	14.00	13.68	13.45

Frequency Mixer

RMS-2H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+14	+17	+20
5.0	35.0	1.40	1.54	1.67
10.0	40.0	1.32	1.49	1.62
30.3	60.3	1.04	1.10	1.21
50.5	80.5	1.03	1.11	1.21
70.7	100.7	1.04	1.14	1.23
90.9	120.9	1.06	1.13	1.23
111.1	141.1	1.07	1.15	1.25
131.3	161.3	1.08	1.16	1.26
151.5	181.5	1.09	1.15	1.25
171.7	201.7	1.11	1.16	1.26
191.9	221.9	1.11	1.18	1.27
212.1	242.1	1.12	1.19	1.29
232.3	262.3	1.12	1.18	1.28
252.5	282.5	1.13	1.20	1.30
272.8	302.8	1.14	1.22	1.31
293.0	323.0	1.13	1.21	1.31
313.2	343.2	1.14	1.23	1.32
333.4	363.4	1.14	1.24	1.33
353.6	383.6	1.14	1.24	1.33
373.8	403.8	1.14	1.25	1.34
394.0	424.0	1.15	1.27	1.35
434.4	464.4	1.14	1.26	1.36
454.6	484.6	1.16	1.28	1.38
495.0	525.0	1.15	1.27	1.37
515.2	545.2	1.17	1.28	1.37
555.6	585.6	1.16	1.28	1.37
575.8	605.8	1.17	1.29	1.38
616.2	646.2	1.18	1.32	1.42
636.4	666.4	1.19	1.34	1.43
676.8	706.8	1.20	1.36	1.47
697.0	727.0	1.22	1.39	1.49
737.4	767.4	1.22	1.39	1.50
757.7	787.7	1.23	1.39	1.50
798.1	828.1	1.22	1.38	1.49
818.3	848.3	1.22	1.37	1.48
858.7	888.7	1.22	1.35	1.46
878.9	908.9	1.21	1.34	1.44
919.3	949.3	1.21	1.32	1.42
939.5	969.5	1.21	1.31	1.41
979.9	1009.9	1.23	1.32	1.42
1000.1	1030.1	1.25	1.33	1.43

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+14	+17	+20
5.0	1.52	1.95	2.77
10.0	1.31	1.85	2.65
30.3	1.07	1.71	2.64
50.5	1.06	1.69	2.57
70.7	1.05	1.61	2.38
90.9	1.06	1.59	2.34
111.1	1.08	1.63	2.42
131.3	1.08	1.66	2.50
151.5	1.08	1.64	2.45
171.7	1.10	1.60	2.35
191.9	1.10	1.59	2.34
212.1	1.10	1.63	2.43
232.3	1.12	1.66	2.48
252.5	1.12	1.64	2.43
272.8	1.10	1.61	2.37
293.0	1.11	1.62	2.39
313.2	1.13	1.66	2.46
333.4	1.10	1.67	2.49
353.6	1.11	1.66	2.45
373.8	1.11	1.65	2.42
394.0	1.09	1.66	2.45
434.4	1.11	1.71	2.52
454.6	1.10	1.70	2.48
495.0	1.12	1.73	2.52
515.2	1.13	1.75	2.56
555.6	1.15	1.76	2.54
575.8	1.16	1.77	2.55
616.2	1.19	1.82	2.62
636.4	1.20	1.82	2.61
676.8	1.24	1.84	2.61
697.0	1.26	1.86	2.65
737.4	1.31	1.91	2.69
757.7	1.32	1.91	2.68
798.1	1.37	1.98	2.76
818.3	1.38	1.99	2.77
858.7	1.43	2.03	2.79
878.9	1.44	2.04	2.80
919.3	1.48	2.07	2.84
939.5	1.49	2.07	2.83
979.9	1.51	2.09	2.84
1000.1	1.52	2.10	2.84

IF (OUT) (MHz)	IF VSWR @LO=1500.1MHz (:1)		
	@LO (dBm)		
	+14	+17	+20
5.0	1.31	1.07	1.07
10.0	1.32	1.08	1.06
29.8	2.69	2.05	1.69
49.6	2.60	2.03	1.68
69.3	2.57	2.02	1.68
89.1	2.61	2.04	1.69
108.9	2.63	2.04	1.68
128.7	2.64	2.05	1.69
148.4	2.62	2.05	1.69
168.2	2.61	2.05	1.70
188.0	2.62	2.05	1.69
207.8	2.66	2.07	1.70
227.6	2.66	2.08	1.71
247.3	2.61	2.04	1.68
267.1	2.59	2.03	1.67
286.9	2.62	2.05	1.69
306.7	2.61	2.04	1.68
326.4	2.57	2.01	1.66
346.2	2.58	2.03	1.67
366.0	2.58	2.04	1.68
385.8	2.54	2.00	1.65
405.6	2.53	2.00	1.64
425.3	2.56	2.04	1.68
445.1	2.54	2.02	1.68
464.9	2.51	2.00	1.66
484.7	2.52	2.01	1.67
504.4	2.52	2.02	1.68
524.2	2.48	1.99	1.66
544.0	2.47	2.00	1.66
583.6	2.48	2.02	1.69
603.3	2.41	1.97	1.66
642.9	2.44	2.01	1.71
662.7	2.42	2.00	1.69
702.2	2.36	1.97	1.69
722.0	2.31	1.94	1.67
761.6	2.33	1.97	1.70
781.3	2.33	1.98	1.72
820.9	2.18	1.88	1.64
840.7	2.18	1.89	1.66
880.2	2.16	1.88	1.67
900.0	2.12	1.85	1.65

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	21	8	23	16	33	36	51	33	44
1	-	22	+0	30	14	33	31	34	34	39	35	46
2	90	49	41	49	43	52	42	53	54	58	57	59
3	>100	69	56	68	55	68	50	67	52	83	59	77
4	>100	76	74	85	79	77	74	74	69	72	73	81
5	>100	>92	>92	86	90	91	76	85	77	86	78	>92
6	>100	>92	>92	>92	91	>92	86	84	85	>92	85	91
7	>100	>92	>92	>92	>92	>92	>92	>92	91	>92	>92	>92
8	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
9	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
10	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -1.00 dBm.
 LO IN: 530.01 MHz; +17.00 dBm
 IF OUT: 29.91 MHz; -8.17 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	36	22	41	31	45	46	56	45	65
1	-	23	+0	30	14	35	27	37	41	45	42	49
2	78	44	37	43	36	49	35	47	43	71	59	65
3	>100	56	40	59	42	60	36	52	42	55	48	56
4	>100	57	53	59	53	64	54	59	52	70	70	61
5	>100	71	58	66	53	70	52	65	49	74	52	68
6	>100	78	67	73	70	71	68	67	61	65	57	65
7	>100	83	85	91	73	78	72	81	65	76	62	89
8	>100	99	95	92	>102	81	80	78	73	74	69	73
9	>100	93	101	97	89	91	76	81	75	85	75	81
10	>100	98	>102	>102	>102	97	87	81	81	82	77	81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 9.00 dBm.
 LO IN: 530.01 MHz; +17.00 dBm
 IF OUT: 29.91 MHz; 1.87 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
 3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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