Frequency Mixer JMS-1MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+10	+13	+16
5.0	35.0	6.39	5.99	5.81
10.0	40.0	6.66	6.21	6.01
49.5	79.5	6.05	5.73	5.55
88.8	118.8	6.01	5.70	5.54
128.2	158.2	6.04	5.74	5.62
167.6	197.6	6.01	5.75	5.63
206.9	236.9	5.97	5.75	5.64
246.3	276.3	6.05	5.80	5.67
285.7	315.7	6.06	5.83	5.68
364.4	394.4	6.07	5.81	5.66
403.8	433.8	6.18	5.87	5.68
423.4	453.4	6.23	5.93	5.71
462.8	492.8	6.32	6.04	5.82
482.5	512.5	6.29	6.01	5.81
521.8	551.8	6.24	5.94	5.76
541.5	571.5	6.24	5.93	5.77
580.9	610.9	6.32	5.99	5.81
600.6	630.6	6.37	6.03	5.85
639.9	669.9	6.57	6.21	6.01
659.6	689.6	6.65	6.31	6.10
699.0	729.0	6.82	6.51	6.27
718.7	748.7	6.95	6.62	6.37
758.0	788.0	7.10	6.73	6.46
777.7	807.7	7.21	6.83	6.55
817.1	847.1	7.30	6.86	6.57
836.8	866.8	7.32	6.87	6.57
876.1	906.1	7.32	6.82	6.54
895.8	925.8	7.30	6.79	6.52
954.9	984.9	7.54	6.99	6.70
994.2	1024.2	7.85	7.28	6.95
1013.9	1043.9	8.03	7.42	7.06
1053.3	1083.3	8.54	7.83	7.41
1073.0	1103.0	8.80	8.04	7.60
1112.3	1142.3	9.38	8.53	8.02
1132.0	1162.0	9.66	8.81	8.29
1171.4	1201.4	10.29	9.35	8.81
1191.1	1221.1	10.52	9.60	9.07
1230.4	1260.4	11.02	10.17	9.61
1250.1	1280.1	11.26	10.46	9.91

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+10	+13	+16
10.1	40.1	22.77	26.02	28.04
49.5	79.5	22.11	24.98	28.50
88.8	118.8	22.21	26.23	29.46
128.2	158.2	23.40	26.84	25.75
167.6	197.6	24.40	26.18	24.38
206.9	236.9	24.15	24.29	22.92
246.3	276.3	23.70	21.42	20.95
285.7	315.7	23.04	21.56	22.42
325.0	355.0	22.96	21.14	21.71
364.4	394.4	18.93	19.84	22.21
403.8	433.8	16.92	17.49	19.73
423.4	453.4	17.23	17.44	19.23
462.8	492.8	19.78	20.21	22.35
482.5	512.5	21.54	23.31	27.74
521.8	551.8	27.41	28.90	35.92
541.5	571.5	27.52	26.54	28.94
580.9	610.9	24.00	24.08	24.65
600.6	630.6	19.30	22.52	24.26
639.9	669.9	14.56	18.02	21.58
659.6	689.6	13.12	16.16	19.73
699.0	729.0	11.64	13.49	16.71
758.0	788.0	10.96	12.33	14.40
777.7	807.7	11.22	12.65	14.53
817.1	847.1	12.29	14.51	17.12
836.8	866.8	12.99	15.70	18.89
876.1	906.1	14.83	19.11	26.09
895.8	925.8	15.55	20.63	25.58
935.2	965.2	17.59	24.34	22.58
954.9	984.9	18.57	24.38	21.95
994.2	1024.2	19.32	21.59	20.54
1013.9	1043.9	18.87	20.28	19.80
1053.3	1083.3	17.01	18.06	19.07
1073.0	1103.0	16.17	17.96	19.16
1112.3	1142.3	14.59	16.66	19.23
1132.0	1162.0	14.38	16.46	19.88
1171.4	1201.4	13.72	16.21	19.60
1191.1	1221.1	13.86	17.28	20.53
1230.4	1260.4	14.74	19.56	21.79
1250.1	1280.1	15.86	20.74	21.09

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB) @LO (dBm)		
		+10	+13	+16
10.1	40.1	1.35	1.07	0.93
49.5	79.5	1.32	1.06	0.86
88.8	118.8	1.23	0.99	0.84
128.2	158.2	1.27	1.01	0.87
167.6	197.6	1.22	0.96	0.81
206.9	236.9	1.28	1.04	0.90
246.3	276.3	1.27	1.04	0.92
285.7	315.7	1.30	1.05	0.93
325.0	355.0	1.28	1.00	0.89
364.4	394.4	1.27	1.04	0.91
403.8	433.8	1.14	0.98	0.89
423.4	453.4	1.16	0.97	0.92
462.8	492.8	1.13	0.94	0.87
482.5	512.5	1.21	0.99	0.89
521.8	551.8	1.30	1.03	0.92
541.5	571.5	1.43	1.12	0.98
580.9	610.9	1.47	1.17	0.99
600.6	630.6	1.60	1.27	1.08
639.9	669.9	1.63	1.33	1.13
659.6	689.6	1.68	1.38	1.18
699.0	729.0	1.83	1.54	1.31
758.0	788.0	1.93	1.66	1.45
777.7	807.7	1.88	1.64	1.44
817.1	847.1	1.98	1.75	1.57
836.8	866.8	2.01	1.79	1.59
876.1	906.1	2.10	1.86	1.67
895.8	925.8	2.20	1.97	1.77
935.2	965.2	2.18	1.95	1.75
954.9	984.9	2.21	2.01	1.81
994.2	1024.2	2.10	1.94	1.75
1013.9	1043.9	2.14	1.99	1.80
1053.3	1083.3	1.93	1.87	1.73
1073.0	1103.0	1.86	1.82	1.72
1112.3	1142.3	1.71	1.75	1.69
1132.0	1162.0	1.53	1.63	1.56
1171.4	1201.4	1.45	1.61	1.58
1191.1	1221.1	1.34	1.53	1.53
1230.4	1260.4	1.25	1.44	1.45
1250.1	1280.1	1.54	1.66	1.72

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB) @LO (dBm) +13
240.0	10.1	5.84
234.1	16.0	5.81
228.2	21.9	5.79
222.3	27.8	5.78
216.4	33.7	5.78
210.5	39.6	5.76
204.6	45.5	5.77
198.7	51.4	5.75
192.8	57.3	5.73
186.9	63.2	5.71
181.0	69.1	5.71
175.1	75.0	5.73
169.2	80.9	5.71
163.3	86.8	5.69
157.4	92.7	5.69
151.5	98.6	5.66
145.6	104.5	5.66
139.7	110.4	5.65
133.8	116.3	5.62
127.9	122.2	5.59
122.1	128.0	5.57
116.2	133.9	5.60
110.3	139.8	5.63
104.4	145.7	5.63
98.5	151.6	5.63
92.6	157.5	5.62
86.7	163.4	5.62
80.8	169.3	5.64
74.9	175.2	5.64
69.0	181.1	5.63
63.1	187.0	5.62
57.2	192.9	5.62
51.3	198.8	5.63
45.4	204.7	5.67
39.5	210.6	5.68
33.6	216.5	5.68
27.7	222.4	5.68
21.8	228.3	5.70
15.9	234.2	5.72
10.0	240.1	5.87

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +13
10.0	20.1	5.69
22.3	32.4	5.52
34.6	44.7	5.51
46.9	57.0	5.54
59.2	69.3	5.52
71.5	81.6	5.56
83.8	93.9	5.59
96.2	106.3	5.57
108.5	118.6	5.58
120.8	130.9	5.58
133.1	143.2	5.57
145.4	155.5	5.63
157.7	167.8	5.65
170.0	180.1	5.67
182.3	192.4	5.68
194.6	204.7	5.66
206.9	217.0	5.68
219.2	229.3	5.70
231.5	241.6	5.69
243.8	253.9	5.72
256.2	266.3	5.75
268.5	278.6	5.76
280.8	290.9	5.77
293.1	303.2	5.78
305.4	315.5	5.79
317.7	327.8	5.83
330.0	340.1	5.83
342.3	352.4	5.82
354.6	364.7	5.84
366.9	377.0	5.85
379.2	389.3	5.83
391.5	401.6	5.81
403.8	413.9	5.78
416.2	426.3	5.81
428.5	438.6	5.85
440.8	450.9	5.90
453.1	463.2	5.91
465.4	475.5	5.89
477.7	487.8	5.88
490.0	500.1	5.89

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB) @LO (dBm) +13
490.0	10.1	5.97
477.7	22.4	5.93
465.4	34.7	5.89
453.1	47.0	5.86
440.8	59.3	5.87
428.5	71.6	5.81
416.2	83.9	5.78
403.8	96.3	5.72
391.5	108.6	5.68
379.2	120.9	5.67
366.9	133.2	5.66
354.6	145.5	5.64
342.3	157.8	5.64
330.0	170.1	5.65
317.7	182.4	5.65
305.4	194.7	5.66
293.1	207.0	5.64
280.8	219.3	5.65
268.5	231.6	5.68
256.2	243.9	5.70
243.8	256.3	5.73
231.5	268.6	5.75
219.2	280.9	5.73
206.9	293.2	5.75
194.6	305.5	5.73
182.3	317.8	5.72
170.0	330.1	5.73
157.7	342.4	5.74
145.4	354.7	5.76
133.1	367.0	5.80
120.8	379.3	5.79
108.5	391.6	5.80
96.2	403.9	5.83
83.8	416.3	5.84
71.5	428.6	5.89
59.2	440.9	5.93
46.9	453.2	5.92
34.6	465.5	5.97
22.3	477.8	5.99
10.0	490.1	6.13

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+10	+13	+16	+10	+13	+16
5.0	69.66	68.76	68.46	63.66	61.00	59.73
10.0	64.01	63.07	62.89	58.52	55.80	54.50
49.5	60.89	62.79	64.32	51.49	48.49	46.83
88.8	55.09	56.40	57.85	47.47	44.56	42.91
128.2	50.91	52.44	54.36	45.45	42.04	40.56
167.6	48.06	49.74	51.11	43.78	40.80	38.93
206.9	46.04	47.61	48.87	43.06	40.01	37.81
246.3	44.15	45.47	46.62	41.91	38.99	36.89
285.7	42.95	44.08	45.06	39.86	37.70	35.83
364.4	39.97	40.94	41.95	35.67	34.94	33.64
403.8	39.14	39.83	40.83	34.03	33.95	32.89
423.4	39.03	39.52	40.46	32.82	32.97	32.40
462.8	38.74	39.67	40.39	30.73	31.43	31.47
482.5	38.46	39.60	40.45	29.97	30.72	30.92
521.8	38.13	39.35	40.10	28.71	29.34	29.54
541.5	37.82	38.97	39.68	28.13	28.73	28.92
580.9	37.17	38.17	38.82	27.48	28.15	28.24
600.6	36.56	37.47	38.03	27.25	27.83	27.71
639.9	35.28	36.66	37.58	26.44	27.45	27.16
659.6	34.54	36.08	37.32	26.09	27.32	27.17
699.0	33.24	35.11	36.68	25.29	27.02	27.14
718.7	32.69	34.74	36.55	24.79	26.70	27.07
758.0	31.97	33.96	36.05	24.10	26.19	27.15
777.7	31.90	33.87	36.02	23.81	25.95	27.13
817.1	31.93	34.13	36.56	23.21	25.24	26.47
836.8	32.41	34.86	37.54	22.83	24.74	25.93
876.1	33.55	36.48	39.15	22.39	24.01	24.96
895.8	34.23	37.12	39.46	21.91	23.38	24.36
954.9	34.52	35.74	36.56	21.04	22.39	23.37
994.2	33.21	33.70	34.06	20.78	22.07	23.07
1013.9	32.38	32.73	33.02	20.52	21.86	22.90
1053.3	31.32	31.37	31.41	20.36	21.84	22.91
1073.0	30.57	30.46	30.46	20.28	21.81	22.95
1112.3	29.73	29.53	29.44	19.95	21.70	23.00
1132.0	29.25	28.97	28.86	19.86	21.67	23.03
1171.4	28.54	28.33	28.21	19.73	21.85	23.47
1191.1	28.11	28.04	28.07	19.55	21.79	23.54
1230.4	27.25	27.63	27.88	19.28	21.88	24.03
1250.1	26.82	27.41	27.76	19.17	21.93	24.30

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+10	+13	+16
10.1	40.1	47.76	43.73	43.63
49.5	79.5	35.20	35.16	35.20
88.8	118.8	30.63	30.84	30.96
128.2	158.2	28.14	28.37	28.44
167.6	197.6	26.54	26.75	26.92
206.9	236.9	25.52	25.87	26.12
246.3	276.3	24.79	25.02	25.30
285.7	315.7	24.81	25.22	25.52
325.0	355.0	24.55	25.45	26.04
364.4	394.4	24.56	25.69	26.57
403.8	433.8	25.31	25.95	26.49
423.4	453.4	25.88	26.28	26.55
462.8	492.8	26.69	26.95	27.25
482.5	512.5	26.24	26.73	27.29
521.8	551.8	23.89	24.63	25.43
541.5	571.5	22.12	22.70	23.36
580.9	610.9	19.38	19.53	19.78
600.6	630.6	18.39	18.39	18.46
639.9	669.9	16.84	16.62	16.57
659.6	689.6	16.26	16.06	15.96
699.0	729.0	15.37	15.15	15.10
718.7	748.7	14.88	14.63	14.59
758.0	788.0	14.20	13.94	13.88
817.1	847.1	13.33	13.06	12.95
836.8	866.8	13.08	12.84	12.71
876.1	906.1	12.62	12.50	12.54
895.8	925.8	12.48	12.43	12.47
935.2	965.2	12.30	12.35	12.49
954.9	984.9	12.25	12.32	12.49
994.2	1024.2	12.18	12.29	12.46
1013.9	1043.9	12.14	12.28	12.44
1053.3	1083.3	12.01	12.21	12.37
1073.0	1103.0	11.89	12.12	12.28
1112.3	1142.3	11.56	11.84	11.96
1132.0	1162.0	11.42	11.66	11.77
1171.4	1201.4	11.04	11.26	11.29
1191.1	1221.1	10.82	10.99	10.99
1230.4	1260.4	10.40	10.46	10.37
1250.1	1280.1	10.20	10.19	10.07

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+10	+13	+16
5.0	35.0	1.16	1.13	1.15
10.0	40.0	1.12	1.06	1.09
49.5	79.5	1.08	1.02	1.08
88.8	118.8	1.08	1.02	1.09
128.2	158.2	1.06	1.03	1.10
167.6	197.6	1.05	1.04	1.11
206.9	236.9	1.03	1.07	1.13
246.3	276.3	1.04	1.07	1.13
285.7	315.7	1.04	1.09	1.15
325.0	355.0	1.05	1.12	1.19
364.4	394.4	1.07	1.15	1.22
403.8	433.8	1.10	1.16	1.22
423.4	453.4	1.11	1.15	1.21
462.8	492.8	1.16	1.20	1.26
482.5	512.5	1.19	1.24	1.30
521.8	551.8	1.26	1.33	1.39
541.5	571.5	1.30	1.38	1.45
580.9	610.9	1.35	1.45	1.52
600.6	630.6	1.36	1.47	1.54
639.9	669.9	1.36	1.47	1.55
659.6	689.6	1.36	1.46	1.55
699.0	729.0	1.36	1.44	1.52
718.7	748.7	1.36	1.42	1.50
758.0	788.0	1.37	1.42	1.48
777.7	807.7	1.38	1.42	1.48
817.1	847.1	1.43	1.47	1.52
836.8	866.8	1.48	1.52	1.56
876.1	906.1	1.61	1.65	1.69
895.8	925.8	1.70	1.73	1.77
954.9	984.9	2.05	2.06	2.07
994.2	1024.2	2.34	2.32	2.31
1013.9	1043.9	2.50	2.46	2.45
1053.3	1083.3	2.85	2.77	2.72
1073.0	1103.0	3.03	2.92	2.86
1112.3	1142.3	3.40	3.24	3.15
1132.0	1162.0	3.54	3.37	3.26
1171.4	1201.4	3.79	3.58	3.47
1191.1	1221.1	3.87	3.66	3.53
1230.4	1260.4	3.99	3.79	3.64
1250.1	1280.1	4.02	3.82	3.67

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+10	+13	+16
5.0	1.38	2.10	3.07
10.0	1.33	2.01	2.91
49.5	1.52	2.36	3.49
88.8	1.47	2.24	3.25
128.2	1.50	2.31	3.37
167.6	1.48	2.26	3.27
206.9	1.50	2.29	3.30
246.3	1.53	2.33	3.34
285.7	1.54	2.30	3.27
325.0	1.59	2.37	3.37
364.4	1.61	2.36	3.32
403.8	1.65	2.40	3.36
423.4	1.69	2.45	3.43
462.8	1.70	2.45	3.39
482.5	1.71	2.44	3.38
521.8	1.75	2.48	3.42
541.5	1.77	2.49	3.42
580.9	1.84	2.54	3.44
600.6	1.88	2.58	3.48
639.9	1.95	2.64	3.52
659.6	1.96	2.66	3.52
699.0	2.01	2.71	3.59
718.7	2.02	2.72	3.59
758.0	2.03	2.72	3.58
777.7	2.03	2.71	3.57
817.1	2.02	2.69	3.54
836.8	2.00	2.67	3.50
876.1	2.00	2.64	3.48
895.8	2.00	2.65	3.48
954.9	2.07	2.68	3.48
994.2	2.18	2.75	3.54
1013.9	2.23	2.79	3.56
1053.3	2.34	2.86	3.60
1073.0	2.40	2.89	3.62
1112.3	2.51	2.95	3.65
1132.0	2.56	2.99	3.67
1171.4	2.66	3.05	3.70
1191.1	2.69	3.06	3.70
1230.4	2.77	3.10	3.72
1250.1	2.80	3.12	3.73

IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1) @LO (dBm)		
	+10	+13	+16
5.0	1.41	1.24	1.14
10.0	1.42	1.25	1.14
22.4	1.81	1.61	1.43
34.7	1.76	1.56	1.39
47.0	1.80	1.56	1.38
59.3	1.83	1.58	1.40
71.6	1.84	1.59	1.41
83.9	1.83	1.59	1.41
96.3	1.83	1.60	1.42
108.6	1.83	1.61	1.42
120.9	1.83	1.61	1.43
133.2	1.85	1.62	1.44
145.5	1.85	1.61	1.43
157.8	1.84	1.60	1.42
170.1	1.84	1.60	1.42
182.4	1.85	1.62	1.44
194.7	1.88	1.64	1.47
207.0	1.89	1.66	1.48
219.3	1.89	1.65	1.48
231.6	1.88	1.64	1.46
243.9	1.87	1.63	1.46
256.3	1.88	1.64	1.46
268.6	1.88	1.65	1.47
293.2	1.88	1.65	1.47
305.5	1.86	1.64	1.47
317.8	1.86	1.63	1.46
330.1	1.87	1.63	1.47
342.4	1.88	1.64	1.47
354.7	1.88	1.64	1.48
367.0	1.86	1.64	1.47
379.3	1.86	1.65	1.48
391.6	1.88	1.67	1.49
403.9	1.91	1.68	1.52
416.3	1.92	1.70	1.53
428.6	1.90	1.68	1.52
440.9	1.88	1.67	1.52
453.2	1.89	1.68	1.53
465.5	1.92	1.71	1.55
477.8	1.96	1.75	1.59
490.1	1.99	1.79	1.63

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	12	26	12	26	14	27	21	43	28	47
1	-	20	+0	29	12	32	17	30	25	53	45	43
2	98	68	45	62	45	63	44	57	43	53	49	70
3	>100	67	64	71	63	82	55	70	57	71	59	73
4	>100	88	>88	84	>88	87	84	>88	77	>88	83	86
5	>100	>88	>88	>88	85	>88	82	>88	80	>88	80	>88
6	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
7	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
8	>100	>88	>88	>88	>88	>88	>88	>88	81	>88	>88	>88
9	>100	>88	>88	>88	>88	>88	>88	>88	>88	74	>88	>88
10	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	76	>88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; -6.00 dBm.
LO IN: 280.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -11.65 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	21	38	24	41	29	46	38	63	51	62
1	-	20	+0	29	12	34	19	32	27	54	48	54
2	89	57	40	67	39	54	39	50	39	50	45	62
3	>100	46	45	51	50	54	41	48	40	50	49	62
4	>100	67	59	65	57	64	55	60	50	64	49	62
5	>100	63	69	64	53	67	51	63	48	66	49	59
6	>100	74	66	80	70	75	70	75	66	70	61	75
7	>100	76	69	79	69	85	76	81	83	76	67	73
8	>100	85	83	80	82	82	85	82	89	78	77	75
9	>100	95	83	85	79	83	79	82	81	75	81	86
10	>100	>98	98	96	88	93	82	86	84	92	83	87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 4.00 dBm.
LO IN: 280.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -1.69 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.