Frequency Mixer JMS-2LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	6.67	6.30	6.12
50.4	80.4	7.03	6.70	6.50
90.6	120.6	7.12	6.68	6.50
130.9	160.9	7.11	6.71	6.56
171.1	201.1	7.11	6.71	6.54
211.4	241.4	7.04	6.66	6.53
251.6	281.6	7.02	6.68	6.55
291.9	321.9	6.97	6.65	6.52
332.1	362.1	6.96	6.67	6.55
372.4	402.4	6.96	6.67	6.54
412.6	442.6	6.88	6.60	6.48
452.9	482.9	6.91	6.64	6.51
493.1	523.1	6.89	6.61	6.48
533.4	563.4	6.89	6.60	6.45
573.6	603.6	6.91	6.64	6.47
613.9	643.9	6.94	6.67	6.52
654.2	684.2	6.98	6.68	6.54
694.4	724.4	7.00	6.68	6.52
734.7	764.7	7.07	6.73	6.55
774.9	804.9	7.11	6.81	6.63
815.2	845.2	7.16	6.90	6.73
855.4	885.4	7.22	6.98	6.83
895.7	925.7	7.20	6.95	6.81
935.9	965.9	7.31	7.03	6.85
976.2	1006.2	7.34	7.01	6.82
1016.4	1046.4	7.35	6.96	6.78
1056.7	1086.7	7.46	6.97	6.78
1096.9	1126.9	7.61	6.99	6.76
1137.2	1167.2	7.86	7.11	6.82
1177.4	1207.4	8.07	7.29	6.88
1217.7	1247.7	8.28	7.53	7.01
1257.9	1287.9	8.47	7.78	7.20
1298.2	1328.2	8.68	8.04	7.48
1338.5	1368.5	8.97	8.29	7.76
1378.7	1408.7	9.29	8.60	8.03
1419.0	1449.0	9.67	8.98	8.33
1459.2	1489.2	9.96	9.32	8.68
1499.5	1529.5	10.23	9.64	8.97
1539.7	1569.7	10.51	9.91	9.24
1600.1	1630.1	10.88	10.30	9.66

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+7	+10	+13
10.1	40.1	19.25	23.95	25.67
50.4	80.4	18.22	21.48	25.15
90.6	120.6	18.92	21.51	24.46
130.9	160.9	20.48	20.65	26.13
171.1	201.1	20.31	22.32	26.62
211.4	241.4	20.24	23.32	23.12
251.6	281.6	20.03	24.26	25.88
291.9	321.9	21.59	24.25	24.44
332.1	362.1	23.25	22.39	23.56
372.4	402.4	21.60	25.50	26.44
412.6	442.6	22.82	24.93	26.52
452.9	482.9	20.43	19.58	22.34
493.1	523.1	21.42	22.58	26.60
533.4	563.4	19.29	25.49	29.20
573.6	603.6	17.85	20.72	27.46
613.9	643.9	19.51	21.19	26.64
654.2	684.2	21.12	24.92	28.68
694.4	724.4	20.29	20.83	23.26
734.7	764.7	21.69	22.40	24.20
774.9	804.9	16.63	22.71	25.86
815.2	845.2	14.32	16.44	21.03
855.4	885.4	13.86	14.97	18.24
895.7	925.7	14.29	14.75	16.83
935.9	965.9	14.35	15.55	17.59
976.2	1006.2	17.00	16.75	18.26
1016.4	1046.4	20.36	19.08	21.60
1056.7	1086.7	24.35	23.34	23.17
1096.9	1126.9	15.91	24.10	19.89
1137.2	1167.2	11.60	24.51	20.91
1177.4	1207.4	9.65	16.65	29.15
1217.7	1247.7	9.02	13.44	25.77
1257.9	1287.9	9.08	12.28	20.14
1298.2	1328.2	9.47	11.80	16.09
1338.5	1368.5	9.96	12.36	15.69
1378.7	1408.7	10.00	12.70	16.01
1419.0	1449.0	9.93	11.96	14.78
1459.2	1489.2	10.11	11.53	14.29
1499.5	1529.5	10.09	11.50	15.19
1539.7	1569.7	10.15	11.54	18.17
1600.1	1630.1	11.11	13.76	19.02

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	0.60	0.40	0.22
50.4	80.4	0.69	0.46	0.32
90.6	120.6	0.64	0.51	0.36
130.9	160.9	0.74	0.50	0.36
171.1	201.1	0.70	0.48	0.32
211.4	241.4	0.80	0.51	0.36
251.6	281.6	0.74	0.49	0.36
291.9	321.9	0.80	0.50	0.34
332.1	362.1	0.79	0.52	0.36
372.4	402.4	0.81	0.51	0.36
412.6	442.6	0.77	0.50	0.38
452.9	482.9	0.79	0.52	0.41
493.1	523.1	0.81	0.53	0.43
533.4	563.4	0.68	0.47	0.39
573.6	603.6	0.66	0.43	0.35
613.9	643.9	0.72	0.46	0.36
654.2	684.2	0.72	0.49	0.40
694.4	724.4	0.83	0.58	0.48
734.7	764.7	0.84	0.62	0.50
774.9	804.9	0.91	0.68	0.56
815.2	845.2	1.00	0.72	0.61
855.4	885.4	1.04	0.73	0.63
895.7	925.7	1.24	0.89	0.76
935.9	965.9	1.30	0.98	0.81
976.2	1006.2	1.50	1.11	0.94
1016.4	1046.4	1.56	1.16	0.98
1056.7	1086.7	1.60	1.26	1.03
1096.9	1126.9	1.68	1.41	1.14
1137.2	1167.2	1.52	1.36	1.08
1177.4	1207.4	1.60	1.47	1.25
1217.7	1247.7	1.44	1.28	1.17
1257.9	1287.9	1.47	1.33	1.23
1298.2	1328.2	1.32	1.20	1.10
1338.5	1368.5	1.19	1.11	1.04
1378.7	1408.7	1.09	1.08	1.08
1419.0	1449.0	0.88	0.89	0.96
1459.2	1489.2	0.79	0.78	0.92
1499.5	1529.5	0.67	0.65	0.80
1539.7	1569.7	0.58	0.58	0.75
1600.1	1630.1	0.59	0.54	0.68

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)
		@LO (dBm)
		+10
460.0	40.1	6.71
448.5	51.6	6.71
436.9	63.2	6.74
425.4	74.7	6.70
413.8	86.3	6.70
402.3	97.8	6.67
390.8	109.3	6.61
379.2	120.9	6.59
367.7	132.4	6.55
356.2	143.9	6.51
344.6	155.5	6.52
333.1	167.0	6.54
321.5	178.6	6.49
310.0	190.1	6.49
298.5	201.6	6.49
286.9	213.2	6.47
275.4	224.7	6.47
263.8	236.3	6.48
252.3	247.8	6.45
240.8	259.3	6.49
229.2	270.9	6.50
217.7	282.4	6.49
206.2	293.9	6.50
194.6	305.5	6.51
183.1	317.0	6.50
171.5	328.6	6.50
160.0	340.1	6.52
148.5	351.6	6.52
136.9	363.2	6.54
125.4	374.7	6.56
113.8	386.3	6.55
102.3	397.8	6.54
90.8	409.3	6.54
79.2	420.9	6.52
67.7	432.4	6.53
56.2	443.9	6.56
44.6	455.5	6.54
33.1	467.0	6.56
21.5	478.6	6.57
10.0	490.1	6.72

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm)
		+10
10.0	20.1	6.68
29.8	39.9	6.50
49.6	59.7	6.56
69.4	79.5	6.56
89.2	99.3	6.58
109.0	119.1	6.59
128.8	138.9	6.57
148.6	158.7	6.61
168.4	178.5	6.63
188.2	198.3	6.65
208.0	218.1	6.64
227.8	237.9	6.63
247.6	257.7	6.67
267.3	277.4	6.70
287.1	297.2	6.71
306.9	317.0	6.70
326.7	336.8	6.75
346.5	356.6	6.72
366.3	376.4	6.78
386.1	396.2	6.79
425.7	435.8	6.79
445.5	455.6	6.82
485.1	495.2	6.83
504.9	515.0	6.84
544.5	554.6	6.88
564.3	574.4	6.92
603.9	614.0	6.94
623.7	633.8	6.98
663.3	673.4	7.06
683.1	693.2	7.05
722.7	732.8	7.16
742.4	752.5	7.23
782.0	792.1	7.29
801.8	811.9	7.33
841.4	851.5	7.32
861.2	871.3	7.28
900.8	910.9	7.24
920.6	930.7	7.19
960.2	970.3	7.12
980.0	990.1	7.06

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)
		+10
990.0	10.1	7.32
970.0	30.1	7.23
950.0	50.1	7.18
930.0	70.1	7.15
910.0	90.1	7.10
890.0	110.1	7.02
870.0	130.1	6.94
850.0	150.1	6.93
830.0	170.1	6.91
810.0	190.1	6.86
790.0	210.1	6.84
770.0	230.1	6.81
750.0	250.1	6.77
730.0	270.1	6.83
710.0	290.1	6.83
690.0	310.1	6.78
670.0	330.1	6.76
650.0	350.1	6.79
630.0	370.1	6.79
610.0	390.1	6.79
570.0	430.1	6.79
550.0	450.1	6.82
510.0	490.1	6.82
490.0	510.1	6.83
450.0	550.1	6.87
430.0	570.1	6.87
390.0	610.1	6.88
370.0	630.1	6.89
330.0	670.1	6.91
310.0	690.1	6.89
270.0	730.1	6.89
250.0	750.1	6.91
210.0	790.1	6.93
190.0	810.1	6.93
150.0	850.1	7.03
130.0	870.1	7.03
90.0	910.1	7.03
70.0	930.1	7.04
30.0	970.1	7.02
10.0	990.1	7.03

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+7	+10	+13	+7	+10	+13
10.1	71.40	70.26	70.23	60.11	66.75	61.64
50.4	57.19	57.28	56.94	52.63	51.26	49.78
90.6	52.51	52.44	52.18	48.34	46.75	45.24
130.9	49.34	49.19	49.16	45.51	43.50	42.17
171.1	47.16	47.17	47.27	43.07	41.27	40.44
211.4	45.53	45.51	45.45	41.45	39.91	38.92
251.6	44.28	44.42	44.29	40.38	38.88	37.84
291.9	43.17	43.21	43.19	39.64	38.15	37.15
332.1	42.08	42.14	42.07	38.69	37.32	36.11
372.4	41.19	41.33	41.24	38.06	36.52	35.25
412.6	40.40	40.50	40.44	37.34	35.77	34.70
452.9	39.72	39.73	39.89	36.64	35.18	33.98
493.1	38.96	39.08	39.16	35.92	34.71	33.87
533.4	38.23	38.35	38.43	34.89	33.56	32.75
573.6	37.67	37.86	38.10	34.37	33.11	31.93
613.9	37.16	37.35	37.62	33.21	32.55	31.80
654.2	36.82	36.97	37.06	32.16	31.75	31.35
694.4	36.41	36.53	36.67	31.27	30.55	30.37
734.7	35.96	36.36	36.70	30.72	29.45	29.12
774.9	35.38	35.81	36.16	30.54	29.27	28.38
815.2	34.95	35.22	35.55	29.90	29.06	28.13
855.4	34.80	34.95	35.24	29.17	28.74	28.06
895.7	34.50	34.70	34.90	28.31	28.36	27.99
935.9	34.44	34.61	34.88	27.60	27.84	27.85
976.2	34.40	34.71	34.99	26.82	27.17	27.19
1016.4	34.53	34.96	35.47	25.98	26.22	26.33
1056.7	34.76	35.46	36.06	25.31	25.47	25.54
1096.9	35.04	35.96	36.62	24.87	24.68	24.78
1137.2	35.42	36.52	37.34	25.22	24.36	24.32
1177.4	35.61	37.05	37.95	25.77	24.43	24.27
1217.7	35.67	37.52	38.64	26.04	24.73	24.11
1257.9	36.02	38.07	39.83	26.21	25.22	24.21
1298.2	36.22	38.30	40.72	26.14	25.65	24.61
1338.5	36.59	38.69	41.49	25.85	25.82	24.98
1378.7	37.08	39.36	42.20	25.78	26.21	25.71
1419.0	37.34	39.66	42.54	25.67	26.38	26.21
1459.2	37.96	40.06	42.72	25.55	26.50	26.67
1499.5	38.42	40.16	42.15	25.45	26.65	27.22
1539.7	38.81	40.31	41.70	25.41	26.89	27.93
1600.1	39.53	40.60	40.88	25.14	26.83	28.34

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	46.94	46.98	43.51
50.4	80.4	38.46	37.88	37.42
90.6	120.6	33.40	33.11	32.80
130.9	160.9	30.62	30.43	30.17
171.1	201.1	28.89	28.52	28.29
211.4	241.4	27.39	27.09	26.98
251.6	281.6	26.26	26.14	25.98
291.9	321.9	25.57	25.36	25.22
332.1	362.1	25.00	24.82	24.71
372.4	402.4	24.71	24.46	24.38
412.6	442.6	24.28	24.24	24.10
452.9	482.9	23.96	23.94	23.86
493.1	523.1	23.50	23.47	23.40
533.4	563.4	23.12	23.00	22.89
573.6	603.6	22.80	22.71	22.66
613.9	643.9	22.09	22.21	22.33
654.2	684.2	21.02	21.20	21.39
694.4	724.4	20.02	20.17	20.51
734.7	764.7	19.08	19.25	19.41
774.9	804.9	18.09	18.23	18.35
815.2	845.2	17.20	17.40	17.45
855.4	885.4	16.43	16.54	16.60
895.7	925.7	15.89	15.90	15.95
935.9	965.9	15.42	15.39	15.46
976.2	1006.2	15.10	15.05	15.13
1016.4	1046.4	14.86	14.91	15.00
1056.7	1086.7	14.82	14.98	15.11
1096.9	1126.9	14.72	14.95	15.16
1137.2	1167.2	14.56	14.83	15.08
1177.4	1207.4	14.36	14.71	14.95
1217.7	1247.7	14.27	14.56	14.84
1257.9	1287.9	14.25	14.58	14.86
1298.2	1328.2	14.17	14.59	14.92
1338.5	1368.5	14.07	14.54	14.92
1378.7	1408.7	13.88	14.45	14.95
1419.0	1449.0	13.66	14.28	14.89
1459.2	1489.2	13.35	13.97	14.73
1499.5	1529.5	13.02	13.70	14.46
1539.7	1569.7	12.67	13.40	14.12
1600.1	1630.1	12.13	12.81	13.38

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+7	+10	+13
10.1	40.1	1.22	1.29	1.34
50.4	80.4	1.14	1.23	1.30
90.6	120.6	1.15	1.24	1.31
130.9	160.9	1.16	1.25	1.32
171.1	201.1	1.17	1.26	1.33
211.4	241.4	1.18	1.28	1.34
251.6	281.6	1.19	1.28	1.34
291.9	321.9	1.20	1.29	1.36
332.1	362.1	1.21	1.30	1.36
372.4	402.4	1.23	1.32	1.38
412.6	442.6	1.25	1.34	1.40
452.9	482.9	1.26	1.35	1.41
493.1	523.1	1.28	1.37	1.43
533.4	563.4	1.30	1.38	1.45
573.6	603.6	1.31	1.39	1.46
613.9	643.9	1.35	1.42	1.48
654.2	684.2	1.38	1.47	1.54
694.4	724.4	1.42	1.52	1.59
734.7	764.7	1.44	1.55	1.63
774.9	804.9	1.46	1.56	1.64
815.2	845.2	1.46	1.55	1.63
855.4	885.4	1.47	1.55	1.62
895.7	925.7	1.48	1.56	1.63
935.9	965.9	1.49	1.57	1.64
976.2	1006.2	1.50	1.59	1.67
1016.4	1046.4	1.53	1.62	1.70
1056.7	1086.7	1.55	1.65	1.72
1096.9	1126.9	1.59	1.68	1.77
1137.2	1167.2	1.63	1.72	1.80
1177.4	1207.4	1.70	1.76	1.83
1217.7	1247.7	1.80	1.84	1.90
1257.9	1287.9	1.93	1.95	1.99
1298.2	1328.2	2.08	2.08	2.10
1338.5	1368.5	2.28	2.27	2.27
1378.7	1408.7	2.51	2.48	2.47
1419.0	1449.0	2.77	2.73	2.70
1459.2	1489.2	3.04	3.00	2.96
1499.5	1529.5	3.29	3.25	3.22
1539.7	1569.7	3.54	3.52	3.48
1600.1	1630.1	3.86	3.87	3.84

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+7	+10	+13
10.1	1.72	2.42	3.53
50.4	1.74	2.57	3.59
90.6	1.69	2.44	3.39
130.9	1.73	2.52	3.51
171.1	1.69	2.44	3.37
211.4	1.71	2.46	3.43
251.6	1.71	2.48	3.43
291.9	1.70	2.44	3.37
332.1	1.74	2.51	3.48
372.4	1.73	2.48	3.39
412.6	1.76	2.52	3.45
452.9	1.78	2.53	3.46
493.1	1.78	2.53	3.43
533.4	1.83	2.57	3.48
573.6	1.84	2.57	3.45
613.9	1.88	2.61	3.50
654.2	1.91	2.62	3.49
694.4	1.94	2.65	3.50
734.7	1.98	2.68	3.52
774.9	2.01	2.72	3.56
815.2	2.05	2.76	3.60
855.4	2.07	2.76	3.60
895.7	2.11	2.78	3.61
935.9	2.14	2.79	3.58
976.2	2.17	2.79	3.56
1016.4	2.22	2.81	3.56
1056.7	2.27	2.84	3.58
1096.9	2.33	2.90	3.62
1137.2	2.39	2.97	3.66
1177.4	2.44	3.03	3.71
1217.7	2.46	3.08	3.75
1257.9	2.51	3.13	3.80
1298.2	2.53	3.14	3.82
1338.5	2.56	3.16	3.85
1378.7	2.60	3.20	3.88
1419.0	2.61	3.19	3.86
1459.2	2.65	3.22	3.90
1499.5	2.67	3.21	3.88
1539.7	2.70	3.22	3.88
1600.1	2.70	3.17	3.80

IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1) @LO (dBm)		
	+7	+10	+13
10.1	1.99	1.76	1.52
30.1	1.90	1.65	1.45
50.1	1.93	1.64	1.45
70.1	1.91	1.64	1.47
90.1	1.94	1.65	1.47
110.1	1.88	1.63	1.44
130.1	1.92	1.65	1.47
150.1	1.92	1.65	1.47
170.1	1.88	1.62	1.45
190.1	1.89	1.64	1.46
210.1	1.90	1.66	1.48
230.1	1.88	1.64	1.47
250.1	1.88	1.63	1.47
270.1	1.91	1.67	1.51
290.1	1.90	1.67	1.50
310.1	1.86	1.64	1.47
330.1	1.85	1.64	1.48
350.1	1.87	1.66	1.52
370.1	1.87	1.66	1.53
390.1	1.86	1.67	1.53
430.1	1.84	1.66	1.53
450.1	1.81	1.64	1.52
490.1	1.85	1.69	1.59
510.1	1.83	1.68	1.58
550.1	1.82	1.69	1.61
570.1	1.83	1.71	1.64
610.1	1.85	1.74	1.67
630.1	1.85	1.74	1.68
670.1	1.84	1.74	1.70
690.1	1.87	1.77	1.74
730.1	1.83	1.74	1.71
750.1	1.82	1.74	1.71
790.1	1.83	1.75	1.75
810.1	1.84	1.75	1.75
850.1	1.81	1.73	1.72
870.1	1.79	1.70	1.70
910.1	1.81	1.72	1.72
930.1	1.81	1.71	1.71
970.1	1.80	1.69	1.68
990.1	1.83	1.72	1.72

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	16	30	28	40	34	45	30	50	34	56
1	-	16	+0	33	12	45	18	35	37	43	45	50
2	90	72	42	60	41	68	42	66	45	62	42	63
3	>100	49	48	52	61	51	45	54	53	52	53	53
4	>100	71	58	70	58	67	60	68	56	63	65	73
5	>100	68	64	71	59	74	56	70	55	71	54	72
6	>100	88	79	80	84	79	77	79	70	77	69	78
7	>100	84	83	92	74	81	77	84	79	80	78	78
8	>100	>93	>93	>93	>93	88	86	85	84	85	81	84
9	>100	>93	>93	>93	90	92	83	88	82	91	82	90
10	>100	>93	>93	>93	>93	>93	>93	>93	92	>93	89	>93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 500.1 MHz; 0.00 dBm.
LO IN: 530.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -7.1 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	7	19	15	30	22	33	16	36	19	39
1	-	16	+0	33	12	43	18	32	40	37	38	44
2	>100	76	48	66	48	73	48	65	53	70	50	65
3	>100	67	68	71	69	71	60	82	64	77	65	74
4	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
5	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
6	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
7	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
8	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
9	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
10	>100	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 500.1 MHz; -10.00 dBm.
LO IN: 530.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -16.7 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.