Frequency Mixer ZP-3LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+7	+10	+13
0.2	30.2	5.18	4.98	4.81
0.3	30.3	5.09	4.90	4.75
0.5	30.5	5.02	4.83	4.68
1.0	31.0	4.92	4.74	4.59
1.5	31.5	4.86	4.69	4.55
2.0	32.0	4.84	4.66	4.52
5.0	35.0	4.78	4.62	4.47
10.0	40.0	4.78	4.59	4.48
29.1	59.1	4.99	4.78	4.68
48.0	78.0	5.03	4.82	4.74
67.0	97.0	4.96	4.82	4.72
86.0	116.0	5.00	4.85	4.76
105.0	135.0	5.04	4.86	4.78
142.9	172.9	5.07	4.90	4.81
161.9	191.9	5.09	4.97	4.86
199.8	229.8	5.13	4.98	4.88
218.8	248.8	5.26	5.03	4.88
237.8	267.8	5.43	5.23	5.02
256.8	286.8	5.46	5.31	5.16
275.7	305.7	5.40	5.25	5.16
294.7	324.7	5.41	5.25	5.19
313.7	343.7	5.50	5.32	5.26
351.6	381.6	5.75	5.43	5.30
370.6	400.6	6.07	5.57	5.31
389.6	419.6	6.33	5.74	5.36
408.6	438.6	6.47	6.02	5.50
446.5	476.5	6.83	6.33	5.88
465.5	495.5	7.06	6.55	6.11
484.5	514.5	7.23	6.73	6.32
503.4	533.4	7.38	6.87	6.45
541.4	571.4	7.25	6.88	6.56
560.4	590.4	7.28	7.01	6.77
579.3	609.3	7.49	7.27	7.12
598.3	628.3	7.71	7.58	7.43
617.3	647.3	7.94	7.85	7.79
655.2	685.2	8.43	8.40	8.42
674.2	704.2	8.84	8.81	8.90
693.2	723.2	9.34	9.36	9.43
712.2	742.2	9.89	9.85	9.91
750.1	780.1	10.89	10.78	10.78

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+7	+10	+13
10.1	40.1	19.69	22.65	24.11
29.1	59.1	22.54	31.79	22.32
48.0	78.0	23.63	25.01	24.22
67.0	97.0	22.77	26.02	26.85
86.0	116.0	17.53	26.25	23.98
105.0	135.0	20.59	22.42	18.00
123.9	153.9	22.46	19.34	18.23
142.9	172.9	18.24	19.99	18.90
161.9	191.9	20.56	19.17	18.85
180.9	210.9	14.98	13.99	13.21
199.8	229.8	17.44	13.99	16.28
218.8	248.8	19.64	15.90	17.73
237.8	267.8	19.14	17.27	19.04
256.8	286.8	15.65	14.41	14.63
275.7	305.7	16.81	13.63	15.68
294.7	324.7	16.44	13.55	14.52
313.7	343.7	16.79	13.15	17.29
332.7	362.7	14.78	13.47	20.94
351.6	381.6	14.96	15.19	23.35
370.6	400.6	10.02	15.82	22.19
389.6	419.6	6.60	11.55	16.80
408.6	438.6	5.46	8.06	11.70
427.5	457.5	5.24	6.25	9.14
446.5	476.5	5.86	5.84	9.05
465.5	495.5	6.39	5.96	9.35
484.5	514.5	7.68	6.46	11.56
503.4	533.4	8.68	7.42	15.09
522.4	552.4	9.87	8.89	24.54
541.4	571.4	10.65	10.35	21.51
560.4	590.4	11.44	12.04	17.04
579.3	609.3	12.65	14.02	16.12
598.3	628.3	12.83	14.56	15.96
617.3	647.3	13.25	14.52	16.32
636.3	666.3	12.95	15.08	16.82
655.2	685.2	13.23	15.57	17.24
674.2	704.2	13.90	16.74	17.32
693.2	723.2	14.24	16.80	18.11
712.2	742.2	14.66	15.19	18.09
731.1	761.1	14.58	14.45	17.89
750.1	780.1	14.33	14.11	17.70

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	1.87	1.50	1.22
29.1	59.1	1.69	1.38	1.11
48.0	78.0	1.60	1.37	1.11
67.0	97.0	1.68	1.31	1.05
86.0	116.0	1.61	1.23	0.98
105.0	135.0	1.48	1.14	0.90
123.9	153.9	1.47	1.13	0.90
142.9	172.9	1.46	1.14	0.91
161.9	191.9	1.40	1.08	0.87
180.9	210.9	1.30	1.05	0.86
199.8	229.8	1.27	1.02	0.83
218.8	248.8	1.26	1.01	0.81
237.8	267.8	1.25	1.00	0.82
256.8	286.8	1.34	1.07	0.89
275.7	305.7	1.54	1.23	1.03
294.7	324.7	1.70	1.34	1.09
313.7	343.7	1.85	1.39	1.11
332.7	362.7	2.14	1.53	1.21
351.6	381.6	2.26	1.69	1.36
370.6	400.6	2.31	1.93	1.52
389.6	419.6	2.31	2.03	1.67
408.6	438.6	2.44	2.12	1.85
427.5	457.5	2.41	2.17	1.96
446.5	476.5	2.29	2.09	1.94
465.5	495.5	2.23	2.07	1.90
484.5	514.5	2.07	1.89	1.74
503.4	533.4	2.00	1.82	1.70
522.4	552.4	1.95	1.75	1.63
541.4	571.4	1.94	1.69	1.55
560.4	590.4	1.88	1.55	1.42
579.3	609.3	1.77	1.39	1.23
598.3	628.3	1.74	1.30	1.14
617.3	647.3	1.69	1.25	1.03
636.3	666.3	1.65	1.22	1.01
655.2	685.2	1.57	1.13	0.90
674.2	704.2	1.41	0.99	0.79
693.2	723.2	1.29	0.88	0.69
712.2	742.2	1.22	0.85	0.69
731.1	761.1	1.19	0.86	0.69
750.1	780.1	1.20	0.89	0.74

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=200.1MHz (dB) @LO (dBm) +10
190.0	10.1	5.21
185.4	14.7	5.19
180.8	19.3	5.15
176.2	23.9	5.10
171.5	28.6	5.08
166.9	33.2	5.03
162.3	37.8	5.01
157.7	42.4	5.01
153.1	47.0	5.02
148.5	51.6	5.00
143.8	56.3	4.99
139.2	60.9	4.98
134.6	65.5	4.95
130.0	70.1	4.96
125.4	74.7	4.97
120.8	79.3	4.96
116.2	83.9	4.96
111.5	88.6	4.96
106.9	93.2	4.95
102.3	97.8	4.92
97.7	102.4	4.92
93.1	107.0	4.95
88.5	111.6	4.95
83.8	116.3	4.93
79.2	120.9	4.94
74.6	125.5	4.93
70.0	130.1	4.93
65.4	134.7	4.93
60.8	139.3	4.95
56.2	143.9	4.95
51.5	148.6	4.96
46.9	153.2	4.94
42.3	157.8	4.93
37.7	162.4	4.92
33.1	167.0	4.93
28.5	171.6	4.94
23.8	176.3	4.96
19.2	180.9	4.93
14.6	185.5	5.02
10.0	190.1	5.19

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +10
10.0	20.1	4.61
19.7	29.8	4.51
29.5	39.6	4.44
39.2	49.3	4.49
49.0	59.1	4.52
58.7	68.8	4.49
68.5	78.6	4.55
78.2	88.3	4.59
87.9	98.0	4.59
97.7	107.8	4.60
107.4	117.5	4.61
117.2	127.3	4.63
126.9	137.0	4.62
136.7	146.8	4.65
146.4	156.5	4.70
156.2	166.3	4.74
165.9	176.0	4.74
175.6	185.7	4.77
185.4	195.5	4.80
195.1	205.2	4.75
204.9	215.0	4.74
214.6	224.7	4.75
224.4	234.5	4.74
234.1	244.2	4.76
243.8	253.9	4.88
253.6	263.7	5.03
263.3	273.4	5.12
273.1	283.2	5.23
282.8	292.9	5.26
292.6	302.7	5.23
302.3	312.4	5.27
312.1	322.2	5.21
321.8	331.9	5.15
331.5	341.6	5.13
341.3	351.4	5.01
351.0	361.1	5.01
360.8	370.9	5.05
370.5	380.6	4.96
380.3	390.4	4.95
390.0	400.1	4.97

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=400.1MHz (dB) @LO (dBm) +10
390.0	10.1	6.28
380.3	19.8	6.21
370.5	29.6	6.13
360.8	39.3	6.07
351.0	49.1	6.01
341.3	58.8	5.96
331.5	68.6	5.95
321.8	78.3	5.96
312.1	88.0	5.93
302.3	97.8	5.90
292.6	107.5	5.89
282.8	117.3	5.86
273.1	127.0	5.85
263.3	136.8	5.85
253.6	146.5	5.88
243.8	156.3	5.88
234.1	166.0	5.89
224.4	175.7	5.90
214.6	185.5	5.92
204.9	195.2	5.92
195.1	205.0	5.93
185.4	214.7	5.96
175.6	224.5	5.95
165.9	234.2	5.91
156.2	243.9	5.92
146.4	253.7	5.89
136.7	263.4	5.84
126.9	273.2	5.84
117.2	282.9	5.84
107.4	292.7	5.76
97.7	302.4	5.74
87.9	312.2	5.75
78.2	321.9	5.70
68.5	331.6	5.65
58.7	341.4	5.58
49.0	351.1	5.56
39.2	360.9	5.52
29.5	370.6	5.48
19.7	380.4	5.55
10.0	390.1	5.56

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+7	+10	+13	+7	+10	+13
0.2	68.61	69.38	70.23	95.61	85.98	81.23
0.3	68.54	69.38	70.31	95.14	85.28	81.11
0.5	68.43	69.26	70.29	91.53	86.26	81.09
1.0	68.40	69.26	70.08	86.70	83.06	79.78
1.5	68.24	69.08	70.11	84.04	80.98	78.01
2.0	68.12	68.95	69.89	81.22	78.75	76.49
5.0	67.27	68.20	69.26	73.17	71.20	69.86
10.0	65.60	66.47	67.46	67.00	65.07	63.96
29.1	64.45	64.90	64.96	53.45	51.61	50.46
48.0	59.61	60.40	61.14	49.55	47.83	46.81
67.0	56.15	57.51	57.66	46.76	45.58	44.35
86.0	53.79	54.71	55.23	45.53	43.90	43.07
105.0	52.08	52.66	52.87	43.26	42.39	41.46
142.9	48.61	48.88	49.06	41.96	40.64	39.38
161.9	47.76	47.89	47.82	41.24	39.17	38.00
199.8	43.49	43.84	43.94	40.12	38.29	36.91
218.8	43.01	43.06	43.44	40.08	37.73	36.10
237.8	42.55	42.14	42.24	38.23	36.59	34.95
256.8	42.97	42.31	41.91	35.83	34.60	33.71
275.7	43.56	42.94	42.30	34.66	33.16	32.14
294.7	42.69	41.76	40.96	34.13	32.55	31.46
313.7	42.85	42.15	41.68	33.90	31.70	30.44
351.6	42.55	42.22	41.18	32.59	29.42	27.43
370.6	41.29	41.25	40.27	32.89	28.97	26.60
389.6	40.86	41.63	41.09	31.68	28.96	26.25
408.6	40.60	41.16	40.53	30.03	27.57	25.29
446.5	39.90	40.97	40.06	28.35	26.76	24.19
465.5	38.79	39.51	38.54	27.53	26.16	24.14
484.5	39.05	40.35	39.42	26.41	25.03	22.88
503.4	39.00	39.23	36.74	26.22	24.56	21.81
541.4	37.22	36.56	33.63	25.48	23.04	19.77
560.4	35.73	34.72	31.67	24.52	21.81	18.58
579.3	34.05	32.29	29.53	24.01	20.69	17.57
598.3	32.34	30.18	27.49	23.06	19.61	16.74
617.3	30.83	28.76	26.41	21.76	18.56	16.03
655.2	27.15	25.66	23.81	19.55	17.37	15.17
674.2	25.31	24.04	22.48	18.59	16.78	14.78
693.2	23.73	22.67	21.24	17.72	16.13	14.35
712.2	22.46	21.66	20.41	16.91	15.54	13.92
750.1	20.74	20.16	19.05	16.28	15.34	13.85

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	39.34	39.93	38.57
29.1	59.1	32.34	32.99	32.47
48.0	78.0	29.05	29.17	29.14
67.0	97.0	26.55	26.94	26.82
86.0	116.0	25.17	25.50	25.56
105.0	135.0	23.86	24.06	24.29
123.9	153.9	23.35	23.60	23.78
142.9	172.9	22.92	23.29	23.48
161.9	191.9	22.65	23.26	23.83
180.9	210.9	22.03	22.56	22.93
199.8	229.8	22.34	22.80	23.14
218.8	248.8	22.74	23.33	23.92
237.8	267.8	23.50	24.09	24.93
256.8	286.8	24.99	25.75	26.64
275.7	305.7	25.07	25.99	26.86
294.7	324.7	23.82	24.67	25.56
313.7	343.7	22.01	22.88	23.51
332.7	362.7	20.38	20.87	21.35
351.6	381.6	19.22	19.82	20.30
370.6	400.6	18.16	18.74	19.38
389.6	419.6	17.73	18.44	19.31
408.6	438.6	17.29	18.07	19.19
427.5	457.5	17.27	17.88	19.08
446.5	476.5	17.59	18.18	19.20
465.5	495.5	18.16	18.62	19.11
484.5	514.5	18.60	18.84	18.96
503.4	533.4	18.61	18.51	18.26
522.4	552.4	17.99	17.46	16.93
541.4	571.4	16.77	16.17	15.53
560.4	590.4	15.49	14.77	14.19
579.3	609.3	14.09	13.46	12.98
598.3	628.3	13.16	12.56	12.06
617.3	647.3	12.14	11.55	10.99
636.3	666.3	11.26	10.74	10.25
655.2	685.2	10.34	9.82	9.38
674.2	704.2	9.45	9.01	8.58
693.2	723.2	8.75	8.37	8.05
712.2	742.2	8.00	7.66	7.40
731.1	761.1	7.51	7.28	6.99
750.1	780.1	6.98	6.72	6.47

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+7	+10	+13
0.3	30.3	1.20	1.21	1.24
0.5	30.5	1.14	1.15	1.19
1.0	31.0	1.09	1.10	1.14
2.0	32.0	1.08	1.06	1.11
5.0	35.0	1.09	1.03	1.09
10.0	40.0	1.12	1.02	1.07
29.1	59.1	1.31	1.21	1.13
48.0	78.0	1.31	1.20	1.13
67.0	97.0	1.27	1.17	1.10
86.0	116.0	1.25	1.15	1.09
105.0	135.0	1.22	1.13	1.07
123.9	153.9	1.21	1.12	1.06
142.9	172.9	1.17	1.09	1.05
161.9	191.9	1.18	1.08	1.04
180.9	210.9	1.16	1.08	1.03
199.8	229.8	1.14	1.06	1.03
218.8	248.8	1.13	1.04	1.06
237.8	267.8	1.13	1.06	1.09
256.8	286.8	1.09	1.05	1.08
275.7	305.7	1.04	1.05	1.11
294.7	324.7	1.03	1.11	1.17
313.7	343.7	1.06	1.15	1.20
332.7	362.7	1.05	1.14	1.18
351.6	381.6	1.05	1.10	1.15
370.6	400.6	1.11	1.06	1.09
389.6	419.6	1.18	1.07	1.05
408.6	438.6	1.24	1.14	1.03
427.5	457.5	1.31	1.21	1.10
446.5	476.5	1.37	1.27	1.17
465.5	495.5	1.50	1.39	1.28
484.5	514.5	1.60	1.49	1.41
503.4	533.4	1.70	1.59	1.53
522.4	552.4	1.76	1.67	1.63
541.4	571.4	1.81	1.75	1.71
560.4	590.4	1.89	1.85	1.82
579.3	609.3	2.02	1.99	1.95
598.3	628.3	2.13	2.10	2.05
617.3	647.3	2.24	2.18	2.13
636.3	666.3	2.26	2.21	2.17
655.2	685.2	2.29	2.24	2.20
674.2	704.2	2.33	2.26	2.23
693.2	723.2	2.39	2.33	2.28
712.2	742.2	2.44	2.37	2.31
731.1	761.1	2.50	2.42	2.37
750.1	780.1	2.50	2.41	2.35

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+7	+10	+13
0.3	1.82	2.67	3.81
0.5	1.78	2.64	3.77
1.0	1.73	2.57	3.67
2.0	1.69	2.52	3.61
5.0	1.55	2.36	3.42
10.0	1.59	2.40	3.46
29.1	1.62	2.43	3.42
48.0	1.62	2.42	3.40
67.0	1.55	2.26	3.16
86.0	1.52	2.20	3.08
105.0	1.55	2.24	3.10
123.9	1.58	2.33	3.23
142.9	1.60	2.34	3.24
161.9	1.59	2.28	3.12
180.9	1.58	2.27	3.10
199.8	1.60	2.29	3.12
218.8	1.65	2.36	3.21
237.8	1.70	2.39	3.21
256.8	1.70	2.37	3.16
275.7	1.69	2.40	3.22
294.7	1.71	2.39	3.19
313.7	1.75	2.44	3.26
332.7	1.79	2.44	3.25
351.6	1.81	2.42	3.20
370.6	1.87	2.48	3.24
389.6	1.93	2.54	3.29
408.6	2.01	2.65	3.40
427.5	2.04	2.71	3.46
446.5	2.03	2.71	3.46
465.5	2.03	2.71	3.46
484.5	2.06	2.73	3.50
503.4	2.09	2.77	3.53
522.4	2.10	2.78	3.52
541.4	2.09	2.75	3.46
560.4	2.10	2.72	3.40
579.3	2.12	2.73	3.40
598.3	2.14	2.75	3.40
617.3	2.14	2.73	3.37
636.3	2.15	2.74	3.35
655.2	2.18	2.73	3.34
674.2	2.25	2.78	3.38
693.2	2.33	2.84	3.42
712.2	2.39	2.88	3.42
731.1	2.48	2.94	3.48
750.1	2.51	2.94	3.45

IF (OUT) (MHz)	IF VSWR @LO=400.1MHz (:1) @LO (dBm)		
	+7	+10	+13
0.3	1.33	1.22	1.10
0.5	1.34	1.23	1.11
1.0	1.35	1.23	1.11
2.0	1.36	1.24	1.12
5.0	1.39	1.26	1.13
10.0	1.47	1.31	1.16
20.0	2.13	1.69	1.47
30.0	2.03	1.62	1.42
40.0	1.93	1.56	1.35
50.0	1.83	1.49	1.30
60.0	1.82	1.46	1.29
70.0	1.83	1.49	1.32
80.0	1.87	1.54	1.38
90.0	2.02	1.65	1.46
100.0	2.08	1.70	1.51
110.0	2.09	1.72	1.53
120.0	2.04	1.70	1.52
130.0	2.01	1.67	1.50
140.0	1.97	1.64	1.49
150.0	2.00	1.66	1.51
160.0	2.06	1.72	1.57
170.0	2.09	1.78	1.63
180.0	2.13	1.82	1.68
190.0	2.12	1.82	1.69
200.0	2.10	1.80	1.67
210.0	2.09	1.80	1.68
220.0	2.09	1.81	1.70
230.0	2.11	1.83	1.72
240.0	2.10	1.83	1.73
250.0	2.09	1.84	1.74
260.0	2.07	1.83	1.75
270.0	2.03	1.81	1.74
280.0	2.04	1.80	1.73
290.0	2.09	1.83	1.75
300.0	2.11	1.87	1.79
310.0	2.08	1.87	1.79
320.0	2.04	1.83	1.77
330.0	2.01	1.80	1.73
340.0	1.99	1.78	1.71
350.0	1.97	1.77	1.70
360.0	1.98	1.77	1.70
370.0	2.01	1.78	1.71
380.0	2.03	1.81	1.73
390.0	2.01	1.80	1.73
400.0	1.97	1.78	1.72

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	20	38	24	49	33	55	39	50	50	54
1	-	18	+0	27	12	38	24	45	41	51	50	57
2	>100	59	42	57	42	52	42	55	68	61	50	65
3	>100	42	36	42	39	43	35	45	46	52	55	58
4	>100	66	54	71	53	64	53	69	50	66	76	70
5	>100	73	59	75	52	64	49	64	50	58	62	68
6	>100	85	69	>95	62	80	65	82	64	69	81	73
7	>100	81	78	74	70	71	64	74	60	65	56	73
8	>100	>95	87	90	89	81	72	85	67	79	68	75
9	>100	88	84	>95	78	85	74	84	79	91	72	77
10	>100	94	>95	>95	>95	>95	81	93	76	95	76	82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 200.1 MHz; 0.00 dBm.
LO IN: 230.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -5.23 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	11	27	12	41	22	41	24	37	36	40
1	-	17	+0	24	11	32	23	39	44	45	39	42
2	>100	68	45	56	44	64	44	63	70	74	55	63
3	>100	60	59	62	61	66	58	63	63	73	62	79
4	>100	82	79	82	74	78	71	81	72	>85	77	>85
5	>100	>85	82	>85	81	82	80	>85	77	>85	84	>85
6	>100	>85	>85	>85	>85	>85	82	>85	>85	>85	>85	>85
7	>100	>85	>85	>85	>85	>85	>85	74	>85	>85	>85	>85
8	>100	>85	>85	>85	>85	>85	>85	>85	65	>85	>85	>85
9	>100	>85	>85	>85	>85	>85	>85	>85	>85	71	>85	>85
10	>100	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 200.1 MHz; -10.00 dBm.
LO IN: 230.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -15.2 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.