Frequency Mixer SBL-1LH

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+7	+10	+13
2.0	32.0	7.08	6.68	6.47
4.0	34.0	6.44	5.99	5.80
5.0	35.0	6.33	5.91	5.68
10.0	40.0	6.07	5.67	5.46
29.9	59.9	5.66	5.37	5.22
49.7	79.7	5.60	5.41	5.26
69.4	99.4	5.58	5.40	5.26
89.2	119.2	5.57	5.39	5.28
109.0	139.0	5.58	5.40	5.28
128.8	158.8	5.56	5.40	5.31
148.5	178.5	5.57	5.41	5.30
188.1	218.1	5.57	5.44	5.32
207.9	237.9	5.59	5.44	5.33
227.7	257.7	5.67	5.49	5.41
247.4	277.4	5.77	5.59	5.44
267.2	297.2	5.86	5.63	5.43
287.0	317.0	5.94	5.72	5.52
306.8	336.8	5.98	5.83	5.67
326.5	356.5	6.03	5.87	5.76
346.3	376.3	6.03	5.94	5.81
366.1	396.1	6.13	5.99	5.89
385.9	415.9	6.21	6.07	6.01
445.2	475.2	6.86	6.56	6.35
465.0	495.0	7.10	6.75	6.38
484.8	514.8	7.34	7.01	6.49
504.5	534.5	7.60	7.30	6.82
524.3	554.3	7.80	7.52	7.09
544.1	574.1	7.93	7.63	7.20
583.7	613.7	8.35	7.88	7.32
603.4	633.4	8.49	7.85	7.25
643.0	673.0	8.52	7.72	7.11
662.8	692.8	8.35	7.55	7.06
702.3	732.3	8.13	7.53	7.16
722.1	752.1	8.09	7.61	7.34
761.7	791.7	8.28	8.00	7.81
781.4	811.4	8.55	8.26	8.09
821.0	851.0	8.98	8.69	8.50
840.8	870.8	9.19	8.90	8.73
880.3	910.3	9.72	9.43	9.26
900.1	930.1	10.06	9.80	9.66

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+7	+10	+13
10.1	40.1	18.62	20.30	21.08
29.9	59.9	21.35	21.16	22.26
49.7	79.7	21.10	20.87	21.47
69.4	99.4	20.69	19.51	23.23
89.2	119.2	18.94	20.72	26.62
109.0	139.0	18.97	21.99	21.75
128.8	158.8	19.22	30.69	18.81
148.5	178.5	18.30	24.81	18.12
168.3	198.3	16.74	26.35	19.46
188.1	218.1	18.65	22.51	17.62
207.9	237.9	17.14	14.23	13.84
227.7	257.7	14.39	12.09	11.45
247.4	277.4	14.76	13.05	13.06
267.2	297.2	22.85	17.39	18.19
287.0	317.0	20.61	21.42	21.19
306.8	336.8	25.28	17.19	16.84
326.5	356.5	16.50	14.50	13.96
346.3	376.3	14.22	13.03	13.02
366.1	396.1	12.86	11.88	12.86
385.9	415.9	11.91	12.24	13.85
405.7	435.7	12.93	13.19	14.14
425.4	455.4	10.58	12.67	14.27
445.2	475.2	8.63	12.02	14.38
465.0	495.0	5.66	8.49	12.66
484.8	514.8	4.30	6.06	10.04
504.5	534.5	3.40	4.27	6.78
524.3	554.3	2.92	3.46	4.98
544.1	574.1	2.89	3.29	4.33
583.7	613.7	3.60	4.30	5.57
603.4	633.4	4.48	5.68	7.24
643.0	673.0	7.53	10.21	13.30
662.8	692.8	9.40	12.32	15.99
702.3	732.3	12.68	14.72	18.40
722.1	752.1	12.02	14.08	17.07
761.7	791.7	12.42	14.50	17.15
781.4	811.4	12.11	14.17	16.29
821.0	851.0	11.19	12.92	15.31
840.8	870.8	11.01	12.20	14.12
880.3	910.3	10.81	11.62	12.85
900.1	930.1	11.12	12.16	13.51

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	1.59	1.18	0.84
29.9	59.9	1.41	1.11	0.78
49.7	79.7	1.46	1.11	0.78
69.4	99.4	1.44	0.98	0.76
89.2	119.2	1.38	0.96	0.69
109.0	139.0	1.26	0.88	0.61
128.8	158.8	1.26	0.90	0.66
148.5	178.5	1.29	0.87	0.63
168.3	198.3	1.15	0.81	0.58
188.1	218.1	1.14	0.81	0.60
207.9	237.9	1.09	0.79	0.60
227.7	257.7	1.03	0.79	0.61
247.4	277.4	1.01	0.72	0.56
267.2	297.2	0.99	0.74	0.54
287.0	317.0	1.03	0.78	0.58
306.8	336.8	1.15	0.85	0.66
326.5	356.5	1.35	1.03	0.81
346.3	376.3	1.53	1.14	0.89
366.1	396.1	1.68	1.24	0.92
385.9	415.9	1.91	1.34	0.99
405.7	435.7	2.14	1.46	1.12
425.4	455.4	2.41	1.74	1.31
445.2	475.2	2.44	1.89	1.42
465.0	495.0	2.60	2.07	1.66
484.8	514.8	2.63	2.15	1.81
504.5	534.5	2.70	2.24	1.92
524.3	554.3	2.59	2.18	1.84
544.1	574.1	2.53	2.10	1.80
583.7	613.7	2.12	1.84	1.59
603.4	633.4	2.04	1.83	1.63
643.0	673.0	1.91	1.79	1.58
662.8	692.8	2.00	1.84	1.59
702.3	732.3	2.15	1.83	1.53
722.1	752.1	2.11	1.72	1.39
761.7	791.7	1.92	1.45	1.11
781.4	811.4	1.82	1.32	1.00
821.0	851.0	1.76	1.34	1.04
840.8	870.8	1.75	1.32	1.04
880.3	910.3	1.77	1.32	1.06
900.1	930.1	1.70	1.24	1.01

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB)
		@LO (dBm)
		+10
240.0	10.1	5.79
234.1	16.0	5.74
228.2	21.9	5.64
222.3	27.8	5.60
216.4	33.7	5.56
210.5	39.6	5.52
204.6	45.5	5.51
198.7	51.4	5.46
192.8	57.3	5.41
186.9	63.2	5.38
181.0	69.1	5.42
175.1	75.0	5.43
169.2	80.9	5.40
163.3	86.8	5.39
157.4	92.7	5.38
151.5	98.6	5.38
145.6	104.5	5.41
139.7	110.4	5.41
133.8	116.3	5.38
127.9	122.2	5.35
122.1	128.0	5.38
116.2	133.9	5.40
110.3	139.8	5.41
104.4	145.7	5.40
98.5	151.6	5.40
92.6	157.5	5.42
86.7	163.4	5.43
80.8	169.3	5.46
74.9	175.2	5.46
69.0	181.1	5.43
63.1	187.0	5.41
57.2	192.9	5.41
51.3	198.8	5.41
45.4	204.7	5.44
39.5	210.6	5.46
33.6	216.5	5.47
27.7	222.4	5.49
21.8	228.3	5.51
15.9	234.2	5.53
10.0	240.1	5.66

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm)
		+10
10.0	20.1	5.24
22.3	32.4	5.14
34.6	44.7	5.14
46.9	57.0	5.13
59.2	69.3	5.16
71.5	81.6	5.18
83.8	93.9	5.20
96.2	106.3	5.20
108.5	118.6	5.21
120.8	130.9	5.22
133.1	143.2	5.24
145.4	155.5	5.31
157.7	167.8	5.34
170.0	180.1	5.33
182.3	192.4	5.38
194.6	204.7	5.40
206.9	217.0	5.41
219.2	229.3	5.47
231.5	241.6	5.47
243.8	253.9	5.47
256.2	266.3	5.51
268.5	278.6	5.44
280.8	290.9	5.45
293.1	303.2	5.56
305.4	315.5	5.71
317.7	327.8	5.98
330.0	340.1	6.12
342.3	352.4	6.24
354.6	364.7	6.40
366.9	377.0	6.39
379.2	389.3	6.35
391.5	401.6	6.21
403.8	413.9	6.05
416.2	426.3	6.04
428.5	438.6	5.98
440.8	450.9	5.97
453.1	463.2	5.93
465.4	475.5	5.87
477.7	487.8	5.90
490.0	500.1	5.92

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)
		@LO (dBm)
		+10
490.0	10.1	7.45
477.7	22.4	7.29
465.4	34.7	7.19
453.1	47.0	7.12
440.8	59.3	7.13
428.5	71.6	7.00
416.2	83.9	6.92
403.8	96.3	6.85
391.5	108.6	6.79
379.2	120.9	6.83
366.9	133.2	6.86
354.6	145.5	6.76
342.3	157.8	6.74
330.0	170.1	6.70
317.7	182.4	6.71
305.4	194.7	6.76
293.1	207.0	6.74
280.8	219.3	6.76
268.5	231.6	6.78
256.2	243.9	6.78
243.8	256.3	6.91
231.5	268.6	6.91
219.2	280.9	6.88
206.9	293.2	6.90
194.6	305.5	6.84
182.3	317.8	6.79
170.0	330.1	6.77
157.7	342.4	6.73
145.4	354.7	6.76
133.1	367.0	6.78
120.8	379.3	6.74
108.5	391.6	6.74
96.2	403.9	6.72
83.8	416.3	6.65
71.5	428.6	6.62
59.2	440.9	6.57
46.9	453.2	6.53
34.6	465.5	6.57
22.3	477.8	6.64
10.0	490.1	6.85

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+7	+10	+13	+7	+10	+13
2.0	54.70	56.27	57.70	58.13	61.48	64.77
4.0	53.93	55.49	56.87	58.13	61.08	63.47
5.0	53.83	55.45	56.81	58.22	60.78	62.56
10.0	53.50	55.36	56.81	57.55	59.10	60.35
29.9	66.49	67.58	67.91	54.91	56.49	55.61
49.7	62.40	63.45	64.36	53.70	55.29	55.08
69.4	59.37	60.72	62.07	52.94	53.67	54.47
89.2	57.15	58.64	59.89	51.86	52.74	54.06
109.0	55.88	57.32	58.31	50.54	52.32	53.60
128.8	54.78	56.55	57.78	49.67	51.52	53.07
148.5	53.47	54.93	56.00	48.48	50.64	52.60
188.1	51.65	53.06	54.33	47.25	49.40	51.39
207.9	50.72	52.07	53.11	46.68	48.85	50.73
227.7	50.40	51.85	53.07	45.98	48.40	50.09
247.4	49.81	51.20	52.28	45.63	47.94	49.63
267.2	49.57	51.01	52.17	45.14	47.00	48.38
287.0	49.23	50.79	52.17	45.46	47.39	48.36
306.8	48.18	49.94	51.70	45.38	47.35	47.73
326.5	47.71	49.24	50.72	44.18	45.33	45.79
346.3	47.34	49.15	50.88	42.80	43.64	44.04
366.1	46.27	48.03	49.73	41.22	41.54	41.70
385.9	45.54	47.68	50.09	42.26	41.48	40.68
425.4	46.32	49.06	51.13	40.44	38.17	37.04
445.2	47.23	50.87	53.36	42.41	38.57	36.75
465.0	46.71	49.47	51.28	44.04	39.67	37.10
484.8	47.14	51.35	54.48	44.05	39.89	36.76
504.5	47.92	52.12	54.38	44.26	40.47	36.42
524.3	47.43	52.28	61.35	41.97	39.94	36.45
544.1	47.56	52.51	57.91	39.46	38.25	36.06
583.7	49.02	52.35	49.90	37.82	36.75	35.18
603.4	49.85	55.37	52.82	36.69	35.75	34.15
643.0	51.64	49.57	44.45	35.21	34.13	31.09
662.8	52.92	45.07	40.25	34.03	32.49	28.72
702.3	51.41	41.53	37.85	31.47	28.44	25.69
722.1	47.66	40.05	37.06	30.02	27.35	25.07
781.4	41.99	37.12	34.23	26.08	24.72	22.99
821.0	37.58	34.66	32.14	23.79	23.15	21.72
840.8	34.92	32.94	30.78	22.81	22.49	21.15
880.3	31.88	30.94	29.21	21.30	21.25	20.16
900.1	30.45	29.82	28.31	20.59	20.70	19.74

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	45.67	47.49	44.62
29.9	59.9	38.95	38.70	39.22
49.7	79.7	34.93	35.32	35.39
69.4	99.4	32.54	32.58	33.08
89.2	119.2	31.12	31.25	31.19
109.0	139.0	29.90	30.07	30.29
128.8	158.8	28.95	29.34	29.51
148.5	178.5	28.56	28.68	28.93
168.3	198.3	28.73	28.93	29.05
188.1	218.1	28.65	29.35	30.03
207.9	237.9	27.60	28.38	29.25
227.7	257.7	27.07	27.56	27.69
247.4	277.4	26.35	26.57	26.86
267.2	297.2	26.00	26.20	26.35
287.0	317.0	26.32	26.37	26.86
306.8	336.8	25.44	25.74	26.13
326.5	356.5	24.63	24.87	25.08
346.3	376.3	23.07	23.20	23.41
366.1	396.1	21.53	21.70	21.77
385.9	415.9	20.40	20.50	20.58
405.7	435.7	19.17	19.18	19.18
425.4	455.4	18.58	18.58	18.53
445.2	475.2	17.98	17.80	17.74
465.0	495.0	17.57	17.47	17.29
484.8	514.8	17.33	17.22	17.15
504.5	534.5	16.98	16.94	16.82
524.3	554.3	17.09	16.95	16.97
544.1	574.1	17.00	16.89	16.87
583.7	613.7	17.57	17.56	17.50
603.4	633.4	17.72	17.67	17.58
643.0	673.0	17.12	16.69	16.21
662.8	692.8	16.46	15.94	15.43
702.3	732.3	14.82	14.32	13.92
722.1	752.1	14.11	13.65	13.28
761.7	791.7	12.83	12.43	12.07
781.4	811.4	12.21	11.83	11.52
821.0	851.0	11.07	10.65	10.33
840.8	870.8	10.54	10.11	9.79
880.3	910.3	9.53	9.15	8.86
900.1	930.1	9.10	8.70	8.43

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+7	+10	+13
2.0	32.0	1.61	1.65	1.69
4.5	34.5	1.32	1.36	1.40
10.1	40.1	1.21	1.14	1.12
29.9	59.9	1.21	1.10	1.06
49.7	79.7	1.17	1.08	1.03
69.4	99.4	1.13	1.06	1.04
89.2	119.2	1.12	1.05	1.04
109.0	139.0	1.08	1.04	1.07
128.8	158.8	1.08	1.07	1.09
148.5	178.5	1.08	1.08	1.12
168.3	198.3	1.08	1.11	1.15
188.1	218.1	1.10	1.16	1.22
207.9	237.9	1.14	1.19	1.25
227.7	257.7	1.16	1.20	1.24
247.4	277.4	1.17	1.22	1.26
267.2	297.2	1.18	1.25	1.31
287.0	317.0	1.19	1.28	1.35
306.8	336.8	1.25	1.33	1.40
326.5	356.5	1.32	1.40	1.46
346.3	376.3	1.41	1.50	1.57
366.1	396.1	1.50	1.60	1.68
385.9	415.9	1.58	1.69	1.74
405.7	435.7	1.62	1.71	1.75
425.4	455.4	1.58	1.68	1.70
445.2	475.2	1.54	1.63	1.65
465.0	495.0	1.50	1.56	1.56
484.8	514.8	1.46	1.50	1.49
504.5	534.5	1.44	1.46	1.44
524.3	554.3	1.39	1.40	1.38
544.1	574.1	1.33	1.33	1.31
583.7	613.7	1.18	1.13	1.07
603.4	633.4	1.19	1.12	1.08
643.0	673.0	1.37	1.36	1.37
662.8	692.8	1.48	1.49	1.51
702.3	732.3	1.70	1.73	1.76
722.1	752.1	1.81	1.85	1.89
761.7	791.7	2.08	2.11	2.14
781.4	811.4	2.20	2.23	2.25
821.0	851.0	2.38	2.38	2.38
840.8	870.8	2.44	2.44	2.42
880.3	910.3	2.54	2.52	2.49
900.1	930.1	2.61	2.57	2.54

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+7	+10	+13
2.0	1.63	2.08	2.67
4.5	1.48	1.99	2.60
10.1	1.56	2.23	3.12
29.9	1.66	2.42	3.38
49.7	1.63	2.36	3.26
69.4	1.56	2.21	3.01
89.2	1.55	2.18	2.97
109.0	1.60	2.28	3.10
128.8	1.64	2.35	3.20
148.5	1.63	2.32	3.12
168.3	1.62	2.26	3.04
188.1	1.64	2.30	3.07
207.9	1.70	2.39	3.20
227.7	1.76	2.46	3.27
247.4	1.76	2.44	3.23
267.2	1.77	2.43	3.20
287.0	1.82	2.48	3.27
306.8	1.89	2.59	3.39
326.5	1.95	2.66	3.47
346.3	1.96	2.66	3.45
366.1	1.98	2.67	3.45
385.9	2.03	2.73	3.53
405.7	2.10	2.80	3.62
425.4	2.15	2.84	3.65
445.2	2.20	2.87	3.65
465.0	2.28	2.94	3.71
484.8	2.38	3.07	3.85
504.5	2.47	3.19	3.98
524.3	2.52	3.25	4.04
544.1	2.54	3.27	4.06
583.7	2.67	3.41	4.23
603.4	2.73	3.48	4.30
643.0	2.76	3.48	4.28
662.8	2.80	3.51	4.30
702.3	2.88	3.58	4.38
722.1	2.88	3.58	4.37
761.7	2.97	3.65	4.44
781.4	3.08	3.75	4.53
821.0	3.28	3.89	4.62
840.8	3.40	3.97	4.68
880.3	3.69	4.18	4.83
900.1	3.84	4.29	4.89

IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1) @LO (dBm)		
	+7	+10	+13
2.0	1.61	1.45	1.32
4.5	1.62	1.45	1.32
10.0	2.66	2.14	1.71
22.6	2.65	2.14	1.75
35.1	2.54	2.10	1.73
47.7	2.51	2.09	1.77
60.3	2.52	2.13	1.81
72.8	2.57	2.16	1.84
85.4	2.60	2.18	1.85
97.9	2.63	2.18	1.85
110.5	2.69	2.23	1.88
123.1	2.73	2.28	1.94
135.6	2.76	2.33	2.00
148.2	2.76	2.35	2.04
160.8	2.74	2.34	2.05
173.3	2.75	2.36	2.06
185.9	2.84	2.42	2.10
198.5	2.93	2.48	2.15
211.0	2.95	2.52	2.20
223.6	2.92	2.49	2.20
236.2	2.88	2.48	2.20
248.7	2.89	2.50	2.23
261.3	2.95	2.56	2.28
273.8	3.02	2.62	2.32
286.4	3.02	2.63	2.33
299.0	3.00	2.60	2.31
311.5	3.00	2.58	2.29
324.1	3.06	2.63	2.34
336.7	3.09	2.69	2.41
349.2	3.09	2.69	2.42
361.8	3.05	2.66	2.39
374.4	3.05	2.65	2.36
386.9	3.06	2.65	2.36
399.5	3.13	2.68	2.38
412.1	3.19	2.73	2.43
424.6	3.12	2.69	2.41
437.2	3.07	2.63	2.36
449.7	3.09	2.64	2.35
462.3	3.13	2.68	2.40
474.9	3.13	2.69	2.40
487.4	3.14	2.68	2.39
500.0	2.65	2.43	2.35

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	32	34	25	42	34	47	61	61	57	77
1	-	24	+0	34	12	34	23	42	37	51	48	51
2	92	67	49	62	48	59	48	64	60	61	63	77
3	>100	50	35	49	41	54	34	49	43	50	52	57
4	>100	74	62	92	59	82	58	71	53	68	70	77
5	>100	69	63	72	50	71	48	74	49	61	62	66
6	>100	91	74	78	85	78	72	79	68	94	67	81
7	>100	83	73	77	65	74	61	84	60	76	55	68
8	>100	>94	91	>94	85	87	85	>94	79	92	75	83
9	>100	84	84	94	78	84	79	90	73	81	70	88
10	>100	>94	>94	>94	94	>94	>94	>94	91	>94	79	93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 250.1 MHz; 0.00 dBm.
LO IN: 280.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -5.7 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	22	23	14	31	23	34	43	48	40	53
1	-	23	+0	34	11	33	21	37	37	43	38	39
2	>100	70	54	67	53	64	49	63	60	68	68	73
3	>100	72	56	69	59	81	55	73	66	74	62	>84
4	>100	>84	>84	>84	>84	>84	>84	>84	78	>84	>84	>84
5	>100	>84	82	>84	80	>84	78	>84	77	>84	82	>84
6	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
7	>100	>84	>84	>84	>84	>84	>84	83	>84	>84	>84	>84
8	>100	>84	>84	>84	>84	>84	>84	>84	79	>84	>84	>84
9	>100	>84	>84	>84	>84	>84	>84	>84	>84	72	>84	>84
10	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	76	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 250.1 MHz; -10.00 dBm.
LO IN: 280.01 MHz; +10.00 dBm
IF OUT: 29.91 MHz; -15.62 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.