Frequency Mixer TFM-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	5.92	5.74	5.62
50.3	80.3	6.36	5.99	5.84
90.5	120.5	6.38	6.09	5.93
130.8	160.8	6.38	6.06	5.90
171.0	201.0	6.31	6.06	5.97
211.2	241.2	6.36	6.10	5.97
251.4	281.4	6.42	6.16	6.02
291.7	321.7	6.35	6.13	6.02
331.9	361.9	6.41	6.18	6.05
372.1	402.1	6.41	6.18	6.05
412.3	442.3	6.47	6.23	6.08
452.6	482.6	6.49	6.26	6.11
492.8	522.8	6.55	6.27	6.08
533.0	563.0	6.60	6.29	6.12
573.2	603.2	6.67	6.39	6.19
613.5	643.5	6.74	6.49	6.30
653.7	683.7	6.87	6.61	6.42
693.9	723.9	6.98	6.68	6.44
734.1	764.1	7.00	6.64	6.42
794.5	824.5	7.07	6.65	6.43
834.7	864.7	7.20	6.70	6.44
895.0	925.0	7.86	7.00	6.60
935.3	965.3	8.24	7.28	6.68
995.6	1025.6	8.75	7.84	7.03
1035.8	1065.8	9.01	8.17	7.34
1096.2	1126.2	9.16	8.36	7.58
1136.4	1166.4	9.18	8.31	7.49
1196.7	1226.7	9.18	8.16	7.37
1237.0	1267.0	8.91	7.91	7.37
1297.3	1327.3	8.87	8.18	7.82
1337.5	1367.5	8.94	8.46	8.16
1397.9	1427.9	9.21	8.88	8.68
1438.1	1468.1	9.33	9.06	8.88
1498.4	1528.4	9.57	9.32	9.12
1538.6	1568.6	9.74	9.56	9.40
1599.0	1629.0	10.03	9.84	9.69
1639.2	1669.2	10.33	10.16	10.02
1699.5	1729.5	10.56	10.38	10.26
1739.8	1769.8	10.96	10.75	10.65
1800.1	1830.1	11.23	10.94	10.87

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+7	+10	+13
10.1	40.1	21.72	24.14	27.19
50.3	80.3	21.53	22.53	21.69
90.5	120.5	19.50	18.76	26.66
130.8	160.8	17.09	21.23	22.63
171.0	201.0	20.99	22.55	20.48
211.2	241.2	22.08	19.13	18.87
251.4	281.4	19.25	16.98	17.80
291.7	321.7	17.54	17.56	18.71
331.9	361.9	15.36	15.59	17.03
372.1	402.1	14.67	16.32	17.94
412.3	442.3	13.09	14.01	16.65
452.6	482.6	14.87	15.33	17.05
492.8	522.8	17.37	19.42	22.37
533.0	563.0	15.24	19.20	23.48
573.2	603.2	12.91	14.63	19.16
613.5	643.5	12.38	12.83	14.72
653.7	683.7	12.72	13.61	15.10
693.9	723.9	12.81	14.43	16.94
734.1	764.1	13.03	15.79	19.66
794.5	824.5	14.07	18.99	22.29
834.7	864.7	12.53	17.34	22.24
895.0	925.0	7.61	14.46	19.62
935.3	965.3	6.27	10.58	18.24
995.6	1025.6	5.93	8.29	12.69
1035.8	1065.8	6.77	8.30	12.12
1096.2	1126.2	6.96	8.55	10.92
1136.4	1166.4	6.28	7.81	10.36
1196.7	1226.7	6.15	8.94	12.16
1237.0	1267.0	7.57	11.45	13.72
1297.3	1327.3	10.88	13.51	14.84
1337.5	1367.5	12.62	14.17	14.80
1397.9	1427.9	14.20	15.27	15.60
1438.1	1468.1	14.46	15.92	17.18
1498.4	1528.4	15.03	16.17	19.42
1538.6	1568.6	16.61	15.64	17.72
1599.0	1629.0	21.34	18.93	17.11
1639.2	1669.2	18.82	24.92	19.46
1699.5	1729.5	19.10	20.91	24.87
1739.8	1769.8	19.13	18.73	21.52
1800.1	1830.1	21.25	19.73	21.33

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	-18.81	-18.58	-14.66
50.3	80.3	-19.03	-12.50	-5.85
90.5	120.5	-12.77	-7.00	-1.28
130.8	160.8	-10.35	-4.11	1.45
171.0	201.0	-5.34	0.38	4.05
211.2	241.2	-5.47	0.43	4.04
251.4	281.4	-2.07	2.71	4.32
291.7	321.7	-2.18	2.63	4.09
331.9	361.9	-1.27	3.01	3.46
372.1	402.1	-0.01	3.46	3.33
412.3	442.3	-0.67	3.10	2.94
452.6	482.6	0.68	3.29	2.49
492.8	522.8	0.07	3.08	2.39
533.0	563.0	0.75	3.06	2.25
573.2	603.2	0.49	2.96	2.11
613.5	643.5	0.27	2.67	1.97
653.7	683.7	0.71	2.51	1.83
693.9	723.9	0.27	2.18	1.89
734.1	764.1	0.75	2.05	1.86
794.5	824.5	0.81	1.84	1.88
834.7	864.7	1.17	1.70	1.69
895.0	925.0	0.97	1.26	1.22
935.3	965.3	1.10	1.19	1.19
995.6	1025.6	0.79	0.85	0.89
1035.8	1065.8	0.57	0.67	0.75
1096.2	1126.2	0.56	0.60	0.75
1136.4	1166.4	0.58	0.66	0.90
1196.7	1226.7	0.55	0.82	1.22
1237.0	1267.0	0.62	1.07	1.37
1297.3	1327.3	0.64	1.21	1.15
1337.5	1367.5	0.78	1.08	0.98
1397.9	1427.9	0.82	0.70	0.59
1438.1	1468.1	0.75	0.56	0.44
1498.4	1528.4	0.52	0.37	0.27
1538.6	1568.6	0.48	0.28	0.20
1599.0	1629.0	0.31	0.18	0.13
1639.2	1669.2	0.27	0.14	0.10
1699.5	1729.5	0.19	0.11	0.07
1739.8	1769.8	0.13	0.07	0.05
1800.1	1830.1	0.17	0.07	0.03

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=510.1MHz (dB) @LO (dBm) +10
500.0	10.1	6.30
487.4	22.7	6.23
474.9	35.2	6.12
462.3	47.8	6.13
449.7	60.4	6.23
437.2	72.9	6.13
424.6	85.5	6.08
412.1	98.0	6.08
399.5	110.6	6.00
386.9	123.2	5.97
374.4	135.7	5.98
361.8	148.3	5.98
349.2	160.9	5.95
336.7	173.4	5.99
324.1	186.0	5.99
311.5	198.6	5.99
299.0	211.1	6.02
286.4	223.7	6.02
273.8	236.3	5.99
261.3	248.8	6.06
248.7	261.4	6.09
236.2	273.9	6.05
223.6	286.5	6.10
211.0	299.1	6.15
198.5	311.6	6.08
185.9	324.2	6.08
173.3	336.8	6.12
160.8	349.3	6.11
148.2	361.9	6.16
135.6	374.5	6.21
123.1	387.0	6.18
110.5	399.6	6.21
97.9	412.2	6.24
85.4	424.7	6.18
72.8	437.3	6.20
60.3	449.8	6.29
47.7	462.4	6.26
35.1	475.0	6.28
22.6	487.5	6.35
10.0	500.1	6.40

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +10
10.0	20.1	5.97
70.6	80.7	5.87
131.2	141.3	5.92
191.7	201.8	5.91
252.3	262.4	5.91
312.9	323.0	6.05
373.5	383.6	6.05
434.1	444.2	6.16
494.7	504.8	6.21
555.2	565.3	6.19
615.8	625.9	6.26
676.4	686.5	6.38
716.8	726.9	6.39
777.4	787.5	6.01
817.8	827.9	6.23
878.3	888.4	5.96
918.7	928.8	5.86
979.3	989.4	6.19
1019.7	1029.8	6.23
1080.3	1090.4	6.30
1120.7	1130.8	6.31
1181.3	1191.4	6.14
1221.7	1231.8	6.11
1282.2	1292.3	6.07
1322.6	1332.7	6.06
1383.2	1393.3	6.39
1423.6	1433.7	6.37
1484.2	1494.3	6.84
1524.6	1534.7	7.01
1585.1	1595.2	7.35
1625.5	1635.6	7.46
1686.1	1696.2	8.17
1726.5	1736.6	8.27
1787.1	1797.2	8.90
1827.5	1837.6	9.20
1888.1	1898.2	9.69
1928.4	1938.5	10.09
1989.0	1999.1	10.63
2029.4	2039.5	10.96
2090.0	2100.1	11.29

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (dB) @LO (dBm) +10
1000.0	10.1	7.27
979.8	30.3	7.24
959.6	50.5	7.21
939.4	70.7	7.21
919.2	90.9	7.14
899.0	111.1	7.04
878.8	131.3	7.04
858.6	151.5	7.03
838.4	171.7	7.06
818.2	191.9	7.03
798.0	212.1	7.06
777.8	232.3	7.08
757.6	252.5	7.00
737.3	272.8	7.15
717.1	293.0	7.12
696.9	313.2	7.15
676.7	333.4	7.11
656.5	353.6	7.12
636.3	373.8	7.12
616.1	394.0	7.11
575.7	434.4	7.13
555.5	454.6	7.18
515.1	495.0	7.23
494.9	515.2	7.18
454.5	555.6	7.07
434.3	575.8	7.06
393.9	616.2	7.14
373.7	636.4	7.18
333.3	676.8	7.26
313.1	697.0	7.29
272.7	737.4	7.08
252.4	757.7	6.95
212.0	798.1	6.75
191.8	818.3	6.69
151.4	858.7	6.74
131.2	878.9	6.79
90.8	919.3	6.92
70.6	939.5	7.10
30.2	979.9	7.48
10.0	1000.1	7.76

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+7	+10	+13	+7	+10	+13
40.1	60.60	61.06	60.98	59.84	57.94	56.71
80.3	56.14	56.61	57.01	55.21	53.47	51.87
120.5	53.21	53.77	54.33	51.99	50.02	49.12
160.8	50.77	51.68	52.20	49.67	48.32	47.17
201.0	49.08	49.91	50.54	48.11	46.80	45.59
241.2	47.76	48.66	49.16	46.77	45.62	44.28
281.4	46.38	47.36	48.01	44.86	44.02	42.96
321.7	45.42	46.26	46.81	42.76	42.36	41.69
361.9	44.72	45.63	46.40	41.04	40.94	40.65
402.1	44.17	45.23	45.86	39.09	39.54	39.47
442.3	42.89	43.88	44.72	37.18	37.60	37.88
482.6	41.94	42.82	43.57	35.81	36.38	36.71
522.8	41.27	42.11	42.93	34.62	35.52	36.06
563.0	41.43	42.37	43.13	33.69	34.49	35.18
603.2	41.76	42.82	43.47	33.08	33.84	34.49
643.5	42.18	43.10	43.68	32.50	33.25	33.69
683.7	42.13	42.85	43.24	31.68	32.55	33.00
723.9	42.17	42.68	42.89	30.83	31.97	32.58
764.1	41.72	42.15	42.34	29.75	31.06	31.75
824.5	40.55	40.99	41.14	28.32	29.62	30.57
864.7	39.50	40.32	40.65	26.96	28.35	29.46
925.0	38.43	39.50	40.18	25.71	26.84	28.14
965.3	37.54	38.70	39.41	24.95	25.87	27.09
1025.6	36.73	38.08	39.19	24.77	25.56	26.44
1065.8	36.41	37.74	38.94	24.24	25.15	25.97
1126.2	35.71	37.11	38.15	23.91	25.05	26.00
1166.4	35.39	36.65	37.72	23.41	24.51	25.49
1226.7	33.04	34.46	35.55	23.46	24.55	25.47
1267.0	33.58	35.03	36.08	22.75	23.56	24.57
1327.3	33.87	35.31	36.38	21.96	22.91	24.00
1367.5	33.99	35.31	36.20	21.60	22.57	23.54
1427.9	34.00	35.20	36.03	21.81	22.69	23.57
1468.1	34.14	35.21	35.70	21.92	22.70	23.23
1528.4	34.04	34.86	35.38	22.51	22.99	23.47
1568.6	33.94	34.58	34.72	22.72	23.04	23.06
1629.0	33.78	34.04	33.80	23.67	23.52	23.21
1669.2	33.65	33.66	33.27	24.02	23.52	22.88
1729.5	33.58	33.36	32.96	24.81	23.79	22.89
1769.8	33.20	32.85	32.18	25.24	23.87	22.63
1830.1	32.74	32.18	31.56	26.22	24.28	22.82

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	52.97	53.01	51.67
50.3	80.3	39.12	39.18	39.05
90.5	120.5	34.48	34.05	34.62
130.8	160.8	31.80	31.81	32.20
171.0	201.0	30.54	30.40	30.82
211.2	241.2	29.32	29.55	29.60
251.4	281.4	28.58	28.82	28.97
291.7	321.7	28.22	28.32	28.63
331.9	361.9	28.11	28.51	28.83
372.1	402.1	28.13	28.47	28.71
412.3	442.3	28.19	28.69	28.98
452.6	482.6	28.03	28.49	28.58
492.8	522.8	27.54	28.04	28.43
533.0	563.0	27.10	27.74	28.34
573.2	603.2	26.08	26.47	27.20
613.5	643.5	24.53	24.78	25.10
653.7	683.7	23.33	23.25	23.29
693.9	723.9	21.87	21.86	21.68
734.1	764.1	20.52	20.27	20.03
794.5	824.5	19.21	18.95	18.73
834.7	864.7	18.75	18.44	18.31
895.0	925.0	18.37	18.06	17.95
935.3	965.3	18.21	17.87	17.65
995.6	1025.6	18.23	17.91	17.59
1035.8	1065.8	18.16	18.00	17.65
1096.2	1126.2	18.18	18.02	17.83
1136.4	1166.4	17.88	17.72	17.43
1196.7	1226.7	17.22	17.03	16.74
1237.0	1267.0	17.24	16.83	16.61
1297.3	1327.3	15.73	15.43	15.25
1337.5	1367.5	14.85	14.48	14.26
1397.9	1427.9	13.45	13.15	12.97
1438.1	1468.1	12.70	12.43	12.24
1498.4	1528.4	11.60	11.28	11.04
1538.6	1568.6	11.04	10.64	10.45
1599.0	1629.0	10.34	9.96	9.71
1639.2	1669.2	9.98	9.59	9.35
1699.5	1729.5	9.47	9.09	8.80
1739.8	1769.8	9.13	8.78	8.55
1800.1	1830.1	8.81	8.50	8.31

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+7	+10	+13
10.1	40.1	1.06	1.10	1.17
50.3	80.3	1.04	1.03	1.08
90.5	120.5	1.03	1.05	1.11
130.8	160.8	1.04	1.06	1.12
171.0	201.0	1.02	1.09	1.15
211.2	241.2	1.03	1.09	1.15
251.4	281.4	1.02	1.09	1.15
291.7	321.7	1.05	1.12	1.17
331.9	361.9	1.04	1.11	1.15
372.1	402.1	1.06	1.13	1.19
412.3	442.3	1.04	1.11	1.16
452.6	482.6	1.06	1.12	1.17
492.8	522.8	1.06	1.12	1.18
533.0	563.0	1.06	1.14	1.20
573.2	603.2	1.09	1.16	1.22
613.5	643.5	1.07	1.13	1.18
653.7	683.7	1.09	1.15	1.20
693.9	723.9	1.05	1.11	1.15
734.1	764.1	1.08	1.14	1.17
794.5	824.5	1.02	1.04	1.08
834.7	864.7	1.03	1.06	1.10
895.0	925.0	1.18	1.12	1.12
935.3	965.3	1.23	1.19	1.19
995.6	1025.6	1.40	1.33	1.29
1035.8	1065.8	1.50	1.45	1.42
1096.2	1126.2	1.62	1.56	1.52
1136.4	1166.4	1.81	1.76	1.72
1196.7	1226.7	1.86	1.80	1.75
1237.0	1267.0	2.09	2.03	1.99
1297.3	1327.3	2.10	2.07	2.03
1337.5	1367.5	2.45	2.42	2.38
1397.9	1427.9	2.41	2.40	2.39
1438.1	1468.1	2.67	2.66	2.64
1498.4	1528.4	2.63	2.63	2.62
1538.6	1568.6	2.82	2.83	2.82
1599.0	1629.0	2.81	2.82	2.83
1639.2	1669.2	2.87	2.87	2.87
1699.5	1729.5	3.03	3.04	3.04
1739.8	1769.8	3.04	3.03	3.02
1800.1	1830.1	3.26	3.24	3.24

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+7	+10	+13
40.1	1.67	2.49	3.50
80.3	1.56	2.24	3.08
120.5	1.62	2.35	3.26
160.8	1.59	2.30	3.17
201.0	1.55	2.24	3.09
241.2	1.60	2.33	3.21
281.4	1.57	2.24	3.07
321.7	1.60	2.32	3.18
361.9	1.59	2.27	3.10
402.1	1.61	2.29	3.12
442.3	1.64	2.33	3.16
482.6	1.62	2.28	3.09
522.8	1.67	2.35	3.16
563.0	1.68	2.33	3.12
603.2	1.71	2.38	3.18
643.5	1.73	2.39	3.17
683.7	1.73	2.37	3.15
723.9	1.75	2.38	3.15
764.1	1.76	2.36	3.12
824.5	1.85	2.45	3.19
864.7	1.90	2.48	3.20
925.0	1.98	2.58	3.28
965.3	1.99	2.60	3.30
1025.6	2.01	2.63	3.34
1065.8	2.01	2.62	3.33
1126.2	2.00	2.59	3.28
1166.4	2.00	2.57	3.25
1226.7	1.96	2.51	3.20
1267.0	1.95	2.52	3.22
1327.3	1.96	2.54	3.25
1367.5	2.01	2.60	3.31
1427.9	2.12	2.67	3.36
1468.1	2.23	2.77	3.42
1528.4	2.41	2.88	3.51
1568.6	2.57	3.00	3.60
1629.0	2.78	3.17	3.75
1669.2	2.98	3.31	3.85
1729.5	3.25	3.48	3.99
1769.8	3.49	3.64	4.09
1830.1	3.84	3.85	4.23

IF (OUT) (MHz)	IF VSWR @LO=1000MHz (:1) @LO (dBm)		
	+7	+10	+13
10.0	2.48	2.01	1.68
30.0	2.51	2.03	1.69
50.0	2.55	2.06	1.73
70.0	2.47	2.00	1.67
90.0	2.52	2.04	1.70
110.0	2.43	1.97	1.64
130.0	2.57	2.08	1.75
150.0	2.49	2.02	1.70
170.0	2.54	2.06	1.73
190.0	2.45	1.99	1.67
210.0	2.50	2.04	1.71
230.0	2.51	2.04	1.72
250.0	2.54	2.07	1.75
270.0	2.48	2.03	1.71
290.0	2.49	2.04	1.72
310.0	2.52	2.06	1.74
330.0	2.50	2.05	1.74
350.0	2.56	2.10	1.78
370.0	2.45	2.00	1.70
390.0	2.54	2.08	1.77
430.0	2.54	2.09	1.78
450.0	2.45	2.02	1.72
490.0	2.42	1.99	1.70
510.0	2.47	2.04	1.74
550.0	2.43	2.01	1.72
570.0	2.40	1.97	1.69
610.0	2.45	2.02	1.72
630.0	2.34	1.93	1.66
670.0	2.27	1.88	1.61
690.0	2.36	1.94	1.66
730.0	2.31	1.91	1.64
750.0	2.22	1.82	1.56
790.0	2.20	1.81	1.54
810.0	2.18	1.81	1.55
850.0	2.10	1.74	1.49
870.0	2.13	1.76	1.49
910.0	2.11	1.76	1.49
930.0	2.00	1.66	1.41
970.0	1.94	1.62	1.37
990.0	2.01	1.69	1.44

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	9	24	12	29	15	33	17	49	32	47
1	-	22	+0	34	11	40	22	40	44	35	36	43
2	84	66	48	63	49	66	49	63	55	70	53	64
3	>90	67	65	69	62	70	59	69	68	>74	68	>74
4	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
5	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
6	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
7	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
8	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
9	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
10	>90	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74	>74
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500 MHz; -10.00 dBm.
LO IN: 530 MHz; +10.00 dBm
IF OUT: 30 MHz; -16.36 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	19	34	23	42	26	44	31	57	51	64
1	-	23	+0	31	12	40	23	44	42	41	46	51
2	65	67	41	60	41	61	43	53	48	57	44	71
3	>90	51	42	54	51	61	41	78	52	56	56	49
4	>90	73	63	68	58	66	59	70	55	71	67	70
5	>90	66	67	64	52	64	51	61	50	59	58	72
6	>90	>84	>84	>84	71	>84	67	77	64	76	66	78
7	>90	>84	>84	>84	74	>84	75	>84	77	>84	69	81
8	>90	>84	>84	>84	>84	>84	81	>84	76	>84	74	>84
9	>90	>84	>84	>84	>84	>84	79	>84	76	>84	78	83
10	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500 MHz; 0.00 dBm.
LO IN: 530 MHz; +10.00 dBm
IF OUT: 30 MHz; -6.31 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.