Frequency Mixer MCA-35LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+7	+10	+13
140.0	170.0	14.27	11.45	10.48
240.0	270.0	9.06	8.08	7.64
340.0	370.0	7.31	6.72	6.38
440.0	470.0	6.78	6.19	5.83
540.0	570.0	6.57	5.94	5.56
640.0	670.0	6.67	5.95	5.52
740.0	770.0	7.04	6.17	5.70
840.0	870.0	7.71	6.67	6.13
940.0	970.0	8.20	6.89	6.29
1040.0	1070.0	8.82	7.41	6.56
1140.0	1170.0	8.82	7.49	6.56
1240.0	1270.0	8.29	7.10	6.53
1340.0	1370.0	8.50	7.54	7.03
1440.0	1470.0	8.63	7.36	6.86
1540.0	1570.0	8.98	7.99	7.53
1640.0	1670.0	8.11	7.11	6.77
1740.0	1770.0	7.74	6.76	6.30
1840.0	1870.0	7.40	6.52	6.09
1940.0	1970.0	7.30	6.52	6.08
2040.0	2070.0	6.89	6.19	5.88
2140.0	2170.0	6.74	6.18	5.89
2240.0	2270.0	6.65	6.13	5.83
2340.0	2370.0	6.84	6.34	6.05
2440.0	2470.0	6.89	6.31	6.00
2540.0	2570.0	7.13	6.49	6.09
2640.0	2670.0	7.15	6.53	6.16
2740.0	2770.0	7.45	6.92	6.59
2840.0	2870.0	7.58	7.07	6.84
2940.0	2970.0	7.90	7.25	7.03
3040.0	3070.0	8.41	7.55	7.22
3140.0	3170.0	8.89	7.73	7.37
3240.0	3270.0	9.27	7.98	7.54
3340.0	3370.0	9.40	8.07	7.64
3440.0	3470.0	9.58	8.07	7.67
3540.0	3570.0	9.48	8.07	7.65
3640.0	3670.0	9.74	8.43	7.96
3720.0	3750.0	10.98	9.42	8.84
3820.0	3850.0	11.39	9.80	8.92
3900.0	3930.0	11.23	9.52	8.51
4000.0	4030.0	15.93	13.02	11.42

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+7	+10	+13
140.0	170.0	16.44	17.85	22.95
240.0	270.0	15.71	13.33	13.97
340.0	370.0	14.94	14.03	14.27
440.0	470.0	21.82	20.21	17.73
540.0	570.0	14.34	18.15	21.04
640.0	670.0	14.71	19.21	23.66
740.0	770.0	16.11	22.02	28.45
840.0	870.0	16.62	22.84	27.59
940.0	970.0	15.00	23.38	20.75
1040.0	1070.0	12.68	15.67	19.49
1140.0	1170.0	11.50	13.77	16.86
1240.0	1270.0	14.14	16.46	18.49
1340.0	1370.0	13.76	14.79	16.18
1440.0	1470.0	14.99	18.65	19.16
1540.0	1570.0	14.96	16.02	17.18
1640.0	1670.0	15.96	16.91	17.58
1740.0	1770.0	17.41	18.11	17.26
1840.0	1870.0	17.63	17.30	17.15
1940.0	1970.0	15.63	15.35	15.36
2040.0	2070.0	17.67	17.90	17.49
2140.0	2170.0	15.96	16.08	16.89
2240.0	2270.0	14.95	15.75	16.53
2340.0	2370.0	12.74	13.68	14.69
2440.0	2470.0	14.18	14.65	15.26
2540.0	2570.0	13.95	14.61	15.22
2640.0	2670.0	14.62	15.23	15.28
2740.0	2770.0	13.90	14.60	16.04
2840.0	2870.0	14.41	16.08	17.81
2940.0	2970.0	16.76	17.45	17.90
3040.0	3070.0	18.71	18.30	18.37
3140.0	3170.0	19.54	18.49	18.83
3240.0	3270.0	20.85	20.06	19.35
3340.0	3370.0	17.56	19.50	19.58
3440.0	3470.0	17.43	19.45	19.33
3540.0	3570.0	17.54	19.18	19.46
3640.0	3670.0	15.08	17.42	19.00
3720.0	3750.0	13.53	14.71	16.14
3820.0	3850.0	14.63	13.52	14.86
3900.0	3930.0	15.19	16.34	16.33
4000.0	4030.0	6.66	10.73	11.71

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+6dBm (dB) @LO (dBm)		
		+7	+10	+13
140.0	170.0	0.10	0.34	0.16
240.0	270.0	0.64	0.39	0.27
340.0	370.0	0.86	0.53	0.41
440.0	470.0	0.96	0.67	0.55
540.0	570.0	1.06	0.76	0.63
640.0	670.0	1.06	0.80	0.69
740.0	770.0	0.91	0.73	0.65
840.0	870.0	0.72	0.60	0.55
940.0	970.0	0.42	0.55	0.47
1040.0	1070.0	0.04	0.22	0.33
1140.0	1170.0	0.14	0.24	0.37
1240.0	1270.0	0.65	0.56	0.42
1340.0	1370.0	0.51	0.42	0.37
1440.0	1470.0	0.65	0.53	0.36
1540.0	1570.0	0.58	0.38	0.24
1640.0	1670.0	0.61	0.45	0.29
1740.0	1770.0	0.59	0.45	0.31
1840.0	1870.0	0.78	0.53	0.35
1940.0	1970.0	0.94	0.62	0.42
2040.0	2070.0	1.26	0.77	0.50
2140.0	2170.0	1.21	0.80	0.60
2240.0	2270.0	1.35	0.91	0.68
2340.0	2370.0	1.24	0.86	0.68
2440.0	2470.0	1.12	0.82	0.67
2540.0	2570.0	1.13	0.84	0.70
2640.0	2670.0	1.34	0.87	0.69
2740.0	2770.0	1.14	0.71	0.56
2840.0	2870.0	0.96	0.59	0.47
2940.0	2970.0	0.82	0.46	0.35
3040.0	3070.0	0.72	0.35	0.26
3140.0	3170.0	0.58	0.33	0.24
3240.0	3270.0	0.47	0.31	0.23
3340.0	3370.0	0.55	0.34	0.22
3440.0	3470.0	0.53	0.37	0.26
3540.0	3570.0	0.63	0.43	0.31
3640.0	3670.0	0.79	0.50	0.30
3720.0	3750.0	0.77	0.61	0.33
3820.0	3850.0	0.84	0.84	0.57
3900.0	3930.0	1.38	1.17	0.85
4000.0	4030.0	0.39	1.15	1.32

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1760.1MHz (dB) @LO (dBm) +10
1650.1	110.0	11.79
1610.1	150.0	10.13
1570.1	190.0	9.45
1530.1	230.0	9.07
1490.1	270.0	8.89
1450.1	310.0	8.81
1410.1	350.0	8.76
1370.1	390.0	8.60
1330.1	430.0	8.53
1290.1	470.0	8.44
1250.1	510.0	8.50
1210.1	550.0	8.46
1170.1	590.0	8.44
1130.1	630.0	8.47
1090.1	670.0	8.47
1050.1	710.0	8.43
1010.1	750.0	8.25
970.1	790.0	7.94
930.1	830.0	7.61
890.1	870.0	7.13
850.1	910.0	6.88
810.1	950.0	6.77
770.1	990.0	7.00
730.1	1030.0	7.30
690.1	1070.0	7.53
650.1	1110.0	7.67
610.1	1150.0	7.53
570.1	1190.0	7.28
530.1	1230.0	7.11
490.1	1270.0	6.90
450.1	1310.0	6.90
410.1	1350.0	6.95
370.1	1390.0	7.14
310.1	1450.0	7.08
270.1	1490.0	6.95
210.1	1550.0	6.53
170.1	1590.0	6.48
110.1	1650.0	6.54
70.1	1690.0	6.58
10.1	1750.0	6.79

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=489.9MHz (dB) @LO (dBm) +10
10.1	500.0	6.11
90.1	580.0	5.87
170.1	660.0	5.71
270.1	760.0	5.53
350.1	840.0	5.55
450.1	940.0	5.52
530.1	1020.0	5.68
630.1	1120.0	6.17
710.1	1200.0	6.26
810.1	1300.0	6.52
890.1	1380.0	6.87
990.1	1480.0	6.61
1070.1	1560.0	6.47
1170.1	1660.0	6.22
1250.1	1740.0	6.35
1350.1	1840.0	6.27
1430.1	1920.0	6.46
1530.1	2020.0	6.63
1610.1	2100.0	7.09
1710.1	2200.0	7.37
1790.1	2280.0	7.06
1890.1	2380.0	7.34
1970.1	2460.0	7.88
2070.1	2560.0	7.88
2150.1	2640.0	7.50
2250.1	2740.0	8.17
2330.1	2820.0	8.87
2430.1	2920.0	9.02
2510.1	3000.0	8.97
2610.1	3100.0	8.78
2690.1	3180.0	8.74
2790.1	3280.0	8.66
2870.1	3360.0	8.56
2970.1	3460.0	8.58
3050.1	3540.0	9.20
3150.1	3640.0	9.01
3230.1	3720.0	9.35
3330.1	3820.0	10.50
3410.1	3900.0	10.81
3510.1	4000.0	12.68

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3510.1MHz (dB) @LO (dBm) +10
1790.1	1720.0	10.66
1750.1	1760.0	10.17
1710.1	1800.0	9.95
1670.1	1840.0	9.67
1630.1	1880.0	9.64
1590.1	1920.0	9.71
1550.1	1960.0	9.86
1510.1	2000.0	9.77
1470.1	2040.0	9.48
1430.1	2080.0	9.43
1390.1	2120.0	9.46
1350.1	2160.0	9.52
1310.1	2200.0	9.45
1270.1	2240.0	9.37
1230.1	2280.0	9.33
1190.1	2320.0	9.23
1150.1	2360.0	9.11
1110.1	2400.0	9.00
1070.1	2440.0	8.91
1010.1	2500.0	8.82
970.1	2540.0	8.60
910.1	2600.0	8.41
870.1	2640.0	8.25
810.1	2700.0	8.20
770.1	2740.0	8.22
710.1	2800.0	8.16
670.1	2840.0	8.21
610.1	2900.0	8.16
570.1	2940.0	8.18
510.1	3000.0	8.24
470.1	3040.0	8.45
410.1	3100.0	8.53
370.1	3140.0	8.63
310.1	3200.0	8.47
270.1	3240.0	8.55
210.1	3300.0	8.28
170.1	3340.0	8.27
110.1	3400.0	8.04
70.1	3440.0	8.05
10.1	3500.0	8.05

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+7	+10	+13	+7	+10	+13
170.0	10.86	12.07	14.07	32.88	37.43	40.95
270.0	9.29	11.63	14.05	36.95	39.49	41.18
370.0	10.86	13.28	15.62	34.73	35.81	36.90
470.0	12.29	14.49	16.64	31.14	32.38	33.69
570.0	14.26	16.30	18.24	29.39	30.79	32.03
670.0	16.53	18.36	20.09	27.91	29.36	30.39
770.0	18.90	20.51	22.01	27.27	28.64	29.23
870.0	21.03	22.79	24.26	26.79	27.77	27.78
970.0	22.91	25.46	27.93	26.63	26.80	26.28
1070.0	23.84	26.74	30.31	26.64	26.48	25.68
1170.0	23.74	27.54	33.06	26.29	25.97	25.14
1270.0	23.04	27.81	35.55	25.78	25.59	24.96
1370.0	22.20	28.08	41.52	24.88	25.11	24.75
1470.0	24.23	33.27	32.50	24.28	24.78	25.09
1570.0	31.29	35.38	28.94	25.19	26.20	27.12
1670.0	40.28	31.29	28.27	26.84	28.58	29.33
1770.0	38.44	31.95	29.92	28.66	30.75	30.68
1870.0	34.68	31.12	29.74	29.82	31.62	30.74
1970.0	32.23	30.96	30.81	29.13	31.03	30.67
2070.0	30.73	29.73	29.60	29.57	32.40	32.78
2170.0	31.09	30.40	30.24	35.63	34.54	32.27
2270.0	29.53	29.91	30.38	31.80	32.09	31.35
2370.0	27.47	28.61	29.67	27.80	30.62	31.70
2470.0	26.92	28.21	29.66	28.58	31.55	33.05
2570.0	27.26	28.82	30.37	32.43	33.70	33.19
2670.0	27.47	29.38	31.03	30.45	31.24	31.36
2770.0	27.08	29.51	31.53	29.59	30.77	31.21
2870.0	26.88	30.11	32.85	28.00	29.29	29.94
2970.0	25.67	28.78	32.27	26.27	27.33	28.13
3070.0	25.57	28.30	31.77	25.00	25.80	26.38
3170.0	26.35	29.43	33.64	23.77	23.73	24.48
3270.0	26.14	28.99	33.57	24.44	23.78	24.56
3370.0	26.70	29.57	33.17	23.62	23.01	23.37
3470.0	26.13	27.94	30.27	22.74	21.56	21.89
3570.0	25.00	25.37	26.10	24.25	22.91	22.85
3670.0	22.29	21.49	21.49	24.67	24.18	24.18
3750.0	17.27	17.08	17.34	24.45	24.02	23.63
3850.0	14.24	15.72	17.28	24.90	24.06	23.01
3930.0	14.11	16.30	18.83	25.63	23.37	21.27
4030.0	13.86	15.13	16.37	27.65	25.70	23.59

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+7	+10	+13
140.0	170.0	31.28	33.27	34.85
240.0	270.0	30.90	32.34	33.22
340.0	370.0	31.14	32.46	33.55
440.0	470.0	31.22	32.30	33.31
540.0	570.0	34.31	34.77	33.93
640.0	670.0	36.69	34.67	33.09
740.0	770.0	36.90	34.51	33.09
840.0	870.0	47.33	46.87	40.24
940.0	970.0	38.57	38.49	35.71
1040.0	1070.0	32.62	32.44	32.50
1140.0	1170.0	28.96	29.22	29.37
1240.0	1270.0	26.37	25.83	25.87
1340.0	1370.0	25.54	24.17	23.36
1440.0	1470.0	23.65	22.40	21.98
1540.0	1570.0	23.77	22.09	21.49
1640.0	1670.0	25.37	24.08	23.43
1740.0	1770.0	27.48	26.95	26.60
1840.0	1870.0	28.49	27.75	27.29
1940.0	1970.0	32.06	31.30	30.64
2040.0	2070.0	27.61	28.37	28.52
2140.0	2170.0	27.56	27.28	27.06
2240.0	2270.0	29.71	28.89	28.42
2340.0	2370.0	34.75	37.00	37.50
2440.0	2470.0	24.37	25.75	26.73
2540.0	2570.0	23.19	24.02	25.02
2640.0	2670.0	24.00	24.57	25.22
2740.0	2770.0	23.57	24.57	25.68
2840.0	2870.0	23.89	24.23	24.43
2940.0	2970.0	26.86	27.36	27.39
3040.0	3070.0	29.35	32.36	32.63
3140.0	3170.0	26.78	31.29	33.89
3240.0	3270.0	24.87	27.01	28.51
3340.0	3370.0	25.43	28.02	29.65
3440.0	3470.0	23.84	25.25	26.05
3540.0	3570.0	23.40	24.25	24.83
3640.0	3670.0	24.22	24.64	25.05
3720.0	3750.0	25.19	24.79	24.17
3820.0	3850.0	31.73	29.34	26.83
3900.0	3930.0	39.64	36.61	31.96
4000.0	4030.0	30.88	29.56	28.50

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+7	+10	+13
140.0	170.0	8.60	7.66	7.60
240.0	270.0	4.01	3.87	3.79
340.0	370.0	2.30	2.23	2.19
440.0	470.0	1.75	1.63	1.55
540.0	570.0	1.78	1.61	1.49
640.0	670.0	2.25	2.03	1.87
740.0	770.0	2.82	2.49	2.30
840.0	870.0	3.54	3.08	2.82
940.0	970.0	4.15	3.55	3.21
1040.0	1070.0	4.53	3.92	3.53
1140.0	1170.0	4.41	3.86	3.47
1240.0	1270.0	3.76	3.30	3.07
1340.0	1370.0	3.24	2.85	2.64
1440.0	1470.0	2.54	2.28	2.14
1540.0	1570.0	2.42	2.18	2.07
1640.0	1670.0	2.59	2.22	2.04
1740.0	1770.0	2.59	2.24	2.02
1840.0	1870.0	2.42	2.11	1.92
1940.0	1970.0	2.21	1.95	1.79
2040.0	2070.0	1.92	1.71	1.60
2140.0	2170.0	1.85	1.66	1.54
2240.0	2270.0	1.68	1.53	1.43
2340.0	2370.0	1.64	1.50	1.41
2440.0	2470.0	1.73	1.58	1.50
2540.0	2570.0	1.95	1.83	1.74
2640.0	2670.0	2.19	2.11	2.05
2740.0	2770.0	2.57	2.53	2.49
2840.0	2870.0	2.99	2.94	2.94
2940.0	2970.0	3.56	3.43	3.40
3040.0	3070.0	4.25	3.99	3.88
3140.0	3170.0	4.91	4.37	4.16
3240.0	3270.0	5.28	4.56	4.22
3340.0	3370.0	5.31	4.51	4.10
3440.0	3470.0	5.10	4.13	3.73
3540.0	3570.0	4.61	3.77	3.30
3640.0	3670.0	3.84	3.25	2.86
3720.0	3750.0	2.82	2.43	2.18
3820.0	3850.0	2.12	1.81	1.62
3900.0	3930.0	2.11	1.84	1.68
4000.0	4030.0	1.67	1.48	1.33

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+7	+10	+13
170.0	9.08	6.11	4.86
270.0	3.05	2.68	2.86
370.0	1.79	1.88	2.35
470.0	1.26	1.49	2.02
570.0	1.24	1.25	1.78
670.0	1.56	1.15	1.57
770.0	1.95	1.26	1.39
870.0	2.31	1.38	1.21
970.0	2.59	1.52	1.10
1070.0	2.71	1.58	1.06
1170.0	2.80	1.70	1.28
1270.0	2.86	1.75	1.39
1370.0	2.65	1.77	1.55
1470.0	2.76	1.88	1.69
1570.0	2.62	1.85	1.76
1670.0	2.37	1.74	1.79
1770.0	2.10	1.67	1.85
1870.0	1.81	1.59	1.90
1970.0	1.72	1.66	2.02
2070.0	1.63	1.63	2.04
2170.0	1.33	1.51	2.02
2270.0	1.14	1.48	2.04
2370.0	1.05	1.50	2.07
2470.0	1.22	1.59	2.14
2570.0	1.35	1.64	2.16
2670.0	1.51	1.64	2.09
2770.0	1.83	1.75	2.08
2870.0	2.29	1.95	2.09
2970.0	2.80	2.15	2.06
3070.0	3.35	2.35	1.99
3170.0	3.94	2.53	1.89
3270.0	4.41	2.64	1.80
3370.0	4.79	2.77	1.81
3470.0	4.61	2.75	1.92
3570.0	4.05	2.64	2.11
3670.0	3.27	2.57	2.39
3750.0	2.92	2.56	2.46
3850.0	2.11	1.99	2.04
3930.0	1.66	1.89	2.20
4030.0	2.46	2.68	2.99

IF (OUT) (MHz)	IF VSWR @LO=3500MHz (:1) @LO (dBm)		
	+7	+10	+13
10.0	1.03	1.40	1.69
70.0	1.10	1.42	1.68
130.0	1.16	1.43	1.68
190.0	1.24	1.43	1.65
250.0	1.34	1.49	1.68
310.0	1.44	1.54	1.69
350.0	1.53	1.58	1.70
410.0	1.66	1.65	1.72
450.0	1.78	1.72	1.74
510.0	1.93	1.72	1.65
550.0	1.94	1.65	1.53
610.0	1.81	1.50	1.38
650.0	1.72	1.40	1.27
710.0	1.56	1.24	1.13
750.0	1.46	1.14	1.07
810.0	1.42	1.16	1.20
850.0	1.37	1.22	1.33
910.0	1.44	1.38	1.51
950.0	1.46	1.49	1.66
1010.0	1.53	1.65	1.85
1050.0	1.60	1.80	2.01
1110.0	1.72	1.89	2.06
1150.0	1.83	2.01	2.13
1210.0	1.96	2.06	2.11
1250.0	2.01	2.05	2.07
1310.0	1.93	1.87	1.85
1350.0	1.86	1.80	1.80
1410.0	1.61	1.55	1.57
1450.0	1.50	1.50	1.57
1510.0	1.35	1.49	1.62
1550.0	1.35	1.56	1.73
1610.0	1.44	1.77	1.99
1650.0	1.54	1.92	2.16
1710.0	1.69	2.15	2.44
1750.0	1.81	2.34	2.67
1810.0	2.00	2.62	3.01
1850.0	2.09	2.75	3.16
1910.0	2.24	2.97	3.43
1950.0	2.30	3.04	3.52
2010.0	2.36	3.13	3.62

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	6	16	8	26	14	32	33	51	53	53
1	-	26	+0	32	14	38	33	39	50	52	60	53
2	76	51	56	53	57	56	49	62	53	66	62	74
3	>90	65	63	65	63	72	69	74	72	>75	>75	>75
4	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
5	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
6	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
7	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
8	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
9	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
10	>90	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75	>75
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 2000 MHz; -9.00 dBm.
LO IN: 2030 MHz; +10.00 dBm
IF OUT: 30 MHz; -15.42 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	24	20	39	26	46	47	62	64	67
1	-	25	+0	31	14	43	33	44	50	60	65	59
2	56	42	46	42	42	48	41	58	44	58	57	80
3	>90	46	44	45	41	52	45	69	55	65	69	67
4	>90	63	62	71	66	71	69	67	63	74	64	75
5	>90	71	70	64	67	66	63	78	66	73	69	>84
6	>90	>84	82	79	77	82	78	77	77	>84	74	81
7	>90	>84	>84	>84	>84	77	82	83	78	83	79	83
8	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	84	>84
9	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
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: 2000 MHz; 1.00 dBm.
LO IN: 2030 MHz; +10.00 dBm
IF OUT: 30 MHz; -5.51 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.