Frequency Mixer MCA-35MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+10	+13	+16
140.0	170.0	16.43	11.97	10.75
240.0	270.0	9.62	8.38	7.90
340.0	370.0	7.62	7.00	6.63
440.0	470.0	7.07	6.43	6.05
540.0	570.0	6.84	6.15	5.77
640.0	670.0	6.88	6.15	5.68
740.0	770.0	7.20	6.26	5.76
840.0	870.0	7.94	6.85	6.28
940.0	970.0	8.52	6.90	6.29
1040.0	1070.0	9.27	7.63	6.67
1140.0	1170.0	9.43	7.90	6.80
1240.0	1270.0	8.66	7.16	6.52
1340.0	1370.0	8.75	7.60	7.05
1440.0	1470.0	9.47	7.60	7.08
1540.0	1570.0	9.75	8.38	7.78
1640.0	1670.0	8.88	7.67	7.31
1740.0	1770.0	8.62	7.31	6.82
1840.0	1870.0	8.20	7.03	6.54
1940.0	1970.0	8.39	7.22	6.58
2040.0	2070.0	7.97	6.64	6.21
2140.0	2170.0	7.14	6.41	6.12
2240.0	2270.0	6.90	6.32	6.07
2340.0	2370.0	7.03	6.48	6.21
2440.0	2470.0	7.05	6.49	6.21
2540.0	2570.0	7.25	6.58	6.21
2640.0	2670.0	7.17	6.45	6.12
2740.0	2770.0	7.45	6.83	6.51
2840.0	2870.0	7.60	7.14	6.90
2940.0	2970.0	7.92	7.42	7.20
3040.0	3070.0	8.35	7.58	7.35
3140.0	3170.0	8.72	7.77	7.57
3240.0	3270.0	9.37	7.96	7.62
3340.0	3370.0	9.93	8.08	7.67
3440.0	3470.0	10.09	8.13	7.71
3540.0	3570.0	10.11	8.02	7.62
3640.0	3670.0	9.84	8.00	7.55
3720.0	3750.0	9.89	8.26	7.72
3820.0	3850.0	12.11	9.72	8.95
3900.0	3930.0	12.67	10.10	9.24
4000.0	4030.0	14.37	11.57	10.38

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+10	+13	+16
140.0	170.0	24.72	18.07	22.81
240.0	270.0	20.49	18.31	18.29
340.0	370.0	21.16	18.23	17.42
440.0	470.0	23.42	23.17	18.91
540.0	570.0	16.33	19.46	25.47
640.0	670.0	16.01	18.62	28.20
740.0	770.0	16.96	21.52	28.67
840.0	870.0	16.52	20.35	24.93
940.0	970.0	15.89	27.19	24.80
1040.0	1070.0	14.51	17.70	23.03
1140.0	1170.0	14.55	15.95	21.02
1240.0	1270.0	16.91	20.70	22.75
1340.0	1370.0	18.31	19.05	21.51
1440.0	1470.0	17.94	23.91	24.97
1540.0	1570.0	19.78	19.90	21.59
1640.0	1670.0	18.74	21.09	22.46
1740.0	1770.0	20.01	27.76	23.15
1840.0	1870.0	23.43	28.52	24.14
1940.0	1970.0	17.88	22.76	21.55
2040.0	2070.0	20.73	23.11	20.97
2140.0	2170.0	19.65	19.09	18.72
2240.0	2270.0	19.75	20.65	21.37
2340.0	2370.0	18.37	18.89	20.24
2440.0	2470.0	16.92	17.15	18.23
2540.0	2570.0	17.09	17.89	18.25
2640.0	2670.0	18.94	21.20	21.44
2740.0	2770.0	18.48	19.76	20.56
2840.0	2870.0	17.50	17.90	18.12
2940.0	2970.0	18.83	18.28	19.20
3040.0	3070.0	20.26	21.32	21.77
3140.0	3170.0	19.86	22.12	21.51
3240.0	3270.0	20.01	24.03	21.52
3340.0	3370.0	20.51	24.00	22.93
3440.0	3470.0	19.27	22.63	22.60
3540.0	3570.0	18.51	20.89	21.17
3640.0	3670.0	19.17	20.86	21.61
3720.0	3750.0	17.42	18.71	20.70
3820.0	3850.0	18.43	16.39	18.40
3900.0	3930.0	20.41	16.95	17.82
4000.0	4030.0	12.52	18.74	29.64

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB) @LO (dBm)		
		+10	+13	+16
140.0	170.0	-0.52	0.37	0.19
240.0	270.0	0.42	0.26	0.15
340.0	370.0	0.67	0.35	0.26
440.0	470.0	0.65	0.42	0.35
540.0	570.0	0.66	0.43	0.38
640.0	670.0	0.66	0.40	0.39
740.0	770.0	0.49	0.42	0.42
840.0	870.0	0.24	0.21	0.27
940.0	970.0	-0.08	0.31	0.32
1040.0	1070.0	-0.55	-0.16	0.13
1140.0	1170.0	-0.49	-0.27	0.14
1240.0	1270.0	0.14	0.37	0.30
1340.0	1370.0	0.23	0.23	0.21
1440.0	1470.0	0.00	0.35	0.21
1540.0	1570.0	0.21	0.20	0.15
1640.0	1670.0	0.25	0.26	0.13
1740.0	1770.0	0.14	0.21	0.13
1840.0	1870.0	0.31	0.27	0.16
1940.0	1970.0	0.20	0.20	0.16
2040.0	2070.0	0.55	0.50	0.26
2140.0	2170.0	1.05	0.66	0.41
2240.0	2270.0	1.26	0.70	0.46
2340.0	2370.0	1.21	0.80	0.59
2440.0	2470.0	0.97	0.66	0.51
2540.0	2570.0	0.79	0.60	0.48
2640.0	2670.0	1.13	0.73	0.54
2740.0	2770.0	1.07	0.63	0.49
2840.0	2870.0	0.91	0.50	0.40
2940.0	2970.0	0.70	0.33	0.26
3040.0	3070.0	0.69	0.29	0.22
3140.0	3170.0	0.69	0.24	0.15
3240.0	3270.0	0.42	0.27	0.17
3340.0	3370.0	0.40	0.31	0.18
3440.0	3470.0	0.34	0.36	0.17
3540.0	3570.0	0.45	0.43	0.20
3640.0	3670.0	0.66	0.53	0.25
3720.0	3750.0	0.94	0.70	0.31
3820.0	3850.0	0.79	0.82	0.42
3900.0	3930.0	0.33	0.68	0.40
4000.0	4030.0	-0.16	0.43	0.41

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1760.1MHz (dB) @LO (dBm) +13
1650.1	110.0	14.04
1610.1	150.0	11.36
1570.1	190.0	10.18
1530.1	230.0	9.67
1490.1	270.0	9.51
1450.1	310.0	9.42
1410.1	350.0	9.43
1370.1	390.0	9.28
1330.1	430.0	9.23
1290.1	470.0	9.18
1250.1	510.0	9.27
1210.1	550.0	9.34
1170.1	590.0	9.25
1130.1	630.0	9.36
1090.1	670.0	9.36
1050.1	710.0	9.29
1010.1	750.0	9.03
970.1	790.0	8.66
930.1	830.0	8.29
890.1	870.0	7.91
850.1	910.0	7.69
810.1	950.0	7.56
770.1	990.0	7.70
730.1	1030.0	8.08
690.1	1070.0	8.31
650.1	1110.0	8.51
610.1	1150.0	8.48
570.1	1190.0	8.12
530.1	1230.0	8.03
490.1	1270.0	7.56
450.1	1310.0	7.62
410.1	1350.0	7.39
370.1	1390.0	7.76
310.1	1450.0	7.74
270.1	1490.0	7.64
210.1	1550.0	7.17
170.1	1590.0	7.08
110.1	1650.0	7.04
70.1	1690.0	7.14
10.1	1750.0	7.29

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=489.9MHz (dB) @LO (dBm) +13
10.1	500.0	6.31
90.1	580.0	6.10
170.1	660.0	6.00
270.1	760.0	5.80
350.1	840.0	5.84
450.1	940.0	5.70
530.1	1020.0	5.82
630.1	1120.0	6.27
710.1	1200.0	6.60
810.1	1300.0	6.65
890.1	1380.0	7.14
990.1	1480.0	6.92
1070.1	1560.0	6.82
1170.1	1660.0	6.52
1250.1	1740.0	6.41
1350.1	1840.0	6.38
1430.1	1920.0	6.77
1530.1	2020.0	6.81
1610.1	2100.0	6.96
1710.1	2200.0	7.49
1790.1	2280.0	7.43
1890.1	2380.0	7.16
1970.1	2460.0	7.64
2070.1	2560.0	7.79
2150.1	2640.0	7.59
2250.1	2740.0	7.72
2330.1	2820.0	8.30
2430.1	2920.0	8.46
2510.1	3000.0	8.57
2610.1	3100.0	8.42
2690.1	3180.0	8.33
2790.1	3280.0	8.20
2870.1	3360.0	8.14
2970.1	3460.0	8.09
3050.1	3540.0	8.38
3150.1	3640.0	8.49
3230.1	3720.0	8.46
3330.1	3820.0	9.42
3410.1	3900.0	10.17
3510.1	4000.0	10.74

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3510.1MHz (dB) @LO (dBm) +13
1730.1	1780.0	10.45
1690.1	1820.0	10.24
1650.1	1860.0	9.98
1610.1	1900.0	9.98
1570.1	1940.0	10.10
1530.1	1980.0	10.22
1490.1	2020.0	9.99
1450.1	2060.0	9.89
1410.1	2100.0	9.84
1370.1	2140.0	9.88
1330.1	2180.0	9.90
1290.1	2220.0	9.81
1250.1	2260.0	9.74
1210.1	2300.0	9.64
1170.1	2340.0	9.52
1130.1	2380.0	9.41
1090.1	2420.0	9.28
1050.1	2460.0	9.19
1010.1	2500.0	9.08
970.1	2540.0	8.92
930.1	2580.0	8.74
890.1	2620.0	8.59
850.1	2660.0	8.43
810.1	2700.0	8.32
770.1	2740.0	8.32
710.1	2800.0	8.26
670.1	2840.0	8.28
610.1	2900.0	8.25
570.1	2940.0	8.22
510.1	3000.0	8.29
470.1	3040.0	8.37
410.1	3100.0	8.52
370.1	3140.0	8.61
310.1	3200.0	8.43
270.1	3240.0	8.60
210.1	3300.0	8.41
170.1	3340.0	8.43
110.1	3400.0	8.20
70.1	3440.0	8.20
10.1	3500.0	8.11

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+10	+13	+16	+10	+13	+16
170.0	10.60	11.63	13.57	31.92	36.20	40.28
270.0	8.64	11.01	13.40	36.54	39.62	41.35
370.0	10.17	12.66	14.97	35.85	36.79	37.37
470.0	11.52	13.83	15.95	32.01	33.04	34.18
570.0	13.58	15.71	17.69	30.38	31.51	32.61
670.0	15.73	17.75	19.49	28.54	30.03	30.99
770.0	18.04	19.83	21.47	27.53	29.26	30.22
870.0	20.15	22.07	23.52	27.21	28.61	28.95
970.0	22.07	24.58	26.82	27.18	27.78	27.47
1070.0	23.00	25.82	29.28	27.22	27.47	26.75
1170.0	22.88	26.41	31.38	26.64	26.86	26.13
1270.0	22.08	26.67	33.27	25.60	26.19	25.81
1370.0	20.70	26.01	34.77	24.22	25.03	25.03
1470.0	21.00	27.82	35.26	23.54	24.52	24.95
1570.0	26.02	34.18	31.23	23.72	25.06	26.17
1670.0	33.30	33.20	29.37	24.55	26.60	27.99
1770.0	41.76	34.20	31.27	25.64	27.93	29.03
1870.0	39.48	32.51	30.42	26.36	29.03	29.71
1970.0	36.72	33.29	32.40	25.83	28.24	29.32
2070.0	33.27	31.34	30.98	24.69	27.28	28.89
2170.0	33.90	32.37	31.62	28.54	29.80	30.18
2270.0	32.23	31.68	31.61	27.41	28.35	29.02
2370.0	29.64	30.58	31.21	24.48	26.30	27.66
2470.0	27.70	29.24	30.61	23.32	25.57	27.41
2570.0	28.15	29.68	31.00	26.06	27.15	27.96
2670.0	28.16	30.60	32.25	25.78	26.67	27.42
2770.0	27.03	29.50	31.62	24.68	25.73	26.71
2870.0	26.61	29.56	32.11	23.34	24.63	25.69
2970.0	25.61	28.75	31.89	21.95	23.21	24.31
3070.0	24.42	27.04	30.11	21.30	22.48	23.64
3170.0	25.81	28.90	32.28	20.78	21.38	22.44
3270.0	24.91	27.54	31.33	21.06	21.13	21.85
3370.0	25.47	27.21	29.41	21.76	21.22	21.48
3470.0	25.43	27.40	28.99	21.46	20.44	20.42
3570.0	24.78	25.33	26.13	22.35	21.03	21.07
3670.0	23.69	23.19	23.13	24.90	23.87	23.49
3750.0	21.04	20.27	19.99	27.81	26.38	25.05
3850.0	14.44	14.67	15.16	31.01	26.25	23.69
3930.0	11.60	12.90	14.55	33.48	25.70	22.77
4030.0	10.70	11.68	12.63	32.89	27.91	24.58

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+10	+13	+16
140.0	170.0	31.38	32.26	33.87
240.0	270.0	29.68	31.55	32.18
340.0	370.0	30.12	31.15	32.23
440.0	470.0	29.83	30.57	31.30
540.0	570.0	32.60	33.22	32.58
640.0	670.0	35.15	34.12	32.84
740.0	770.0	35.22	32.68	31.70
840.0	870.0	40.34	40.65	38.84
940.0	970.0	40.81	45.34	36.68
1040.0	1070.0	35.71	36.44	35.28
1140.0	1170.0	31.69	32.51	31.96
1240.0	1270.0	29.30	28.60	28.71
1340.0	1370.0	29.21	26.49	25.68
1440.0	1470.0	27.86	24.61	23.73
1540.0	1570.0	27.17	23.87	22.93
1640.0	1670.0	29.65	26.16	25.14
1740.0	1770.0	32.25	29.92	28.64
1840.0	1870.0	35.11	32.47	31.08
1940.0	1970.0	37.27	34.15	32.82
2040.0	2070.0	30.23	33.29	33.31
2140.0	2170.0	28.39	28.31	28.34
2240.0	2270.0	31.09	29.91	29.41
2340.0	2370.0	38.22	35.25	34.15
2440.0	2470.0	27.69	29.12	30.12
2540.0	2570.0	23.46	24.49	25.76
2640.0	2670.0	24.05	24.59	25.08
2740.0	2770.0	23.54	24.12	24.66
2840.0	2870.0	22.34	22.36	22.67
2940.0	2970.0	24.66	24.64	25.06
3040.0	3070.0	29.30	29.91	30.39
3140.0	3170.0	31.84	40.80	42.40
3240.0	3270.0	25.89	28.25	29.85
3340.0	3370.0	25.59	29.22	31.73
3440.0	3470.0	24.48	26.50	27.26
3540.0	3570.0	23.72	24.73	25.12
3640.0	3670.0	23.27	23.99	24.67
3720.0	3750.0	24.12	24.29	24.70
3820.0	3850.0	26.30	25.69	25.19
3900.0	3930.0	27.23	28.83	28.33
4000.0	4030.0	28.05	29.08	28.93

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+10	+13	+16
140.0	170.0	9.53	7.94	7.70
240.0	270.0	4.29	4.09	3.99
340.0	370.0	2.48	2.40	2.35
440.0	470.0	1.89	1.76	1.67
540.0	570.0	1.81	1.64	1.53
640.0	670.0	2.18	1.95	1.81
740.0	770.0	2.68	2.35	2.16
840.0	870.0	3.41	2.93	2.67
940.0	970.0	3.99	3.31	3.00
1040.0	1070.0	4.44	3.79	3.39
1140.0	1170.0	4.52	3.90	3.46
1240.0	1270.0	3.90	3.33	3.07
1340.0	1370.0	3.48	2.99	2.75
1440.0	1470.0	2.82	2.40	2.25
1540.0	1570.0	2.63	2.35	2.21
1640.0	1670.0	2.95	2.52	2.32
1740.0	1770.0	3.13	2.67	2.42
1840.0	1870.0	3.00	2.59	2.36
1940.0	1970.0	2.90	2.52	2.32
2040.0	2070.0	2.52	2.20	2.07
2140.0	2170.0	2.22	2.00	1.89
2240.0	2270.0	1.90	1.74	1.65
2340.0	2370.0	1.65	1.51	1.43
2440.0	2470.0	1.57	1.42	1.33
2540.0	2570.0	1.68	1.56	1.48
2640.0	2670.0	1.94	1.84	1.78
2740.0	2770.0	2.38	2.33	2.27
2840.0	2870.0	2.87	2.85	2.82
2940.0	2970.0	3.45	3.39	3.36
3040.0	3070.0	4.15	3.94	3.86
3140.0	3170.0	4.80	4.37	4.22
3240.0	3270.0	5.49	4.66	4.31
3340.0	3370.0	6.05	4.83	4.32
3440.0	3470.0	5.74	4.50	3.97
3540.0	3570.0	5.34	4.09	3.53
3640.0	3670.0	4.69	3.71	3.19
3720.0	3750.0	3.73	3.09	2.69
3820.0	3850.0	2.52	2.12	1.92
3900.0	3930.0	2.16	1.86	1.78
4000.0	4030.0	1.21	1.05	1.05

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+10	+13	+16
170.0	10.89	7.31	5.20
270.0	3.58	2.76	2.80
370.0	1.97	1.89	2.25
470.0	1.40	1.41	1.89
570.0	1.41	1.13	1.63
670.0	1.74	1.08	1.42
770.0	2.18	1.28	1.25
870.0	2.58	1.45	1.09
970.0	2.96	1.64	1.06
1070.0	3.11	1.72	1.16
1170.0	3.19	1.85	1.37
1270.0	3.34	1.97	1.50
1370.0	3.06	1.91	1.58
1470.0	3.05	2.08	1.79
1570.0	2.99	2.03	1.83
1670.0	2.80	1.91	1.81
1770.0	2.42	1.76	1.81
1870.0	2.14	1.65	1.82
1970.0	1.98	1.70	1.91
2070.0	1.95	1.70	1.93
2170.0	1.61	1.47	1.85
2270.0	1.45	1.40	1.84
2370.0	1.25	1.32	1.83
2470.0	1.14	1.32	1.85
2570.0	1.17	1.36	1.86
2670.0	1.27	1.32	1.80
2770.0	1.53	1.41	1.79
2870.0	1.92	1.57	1.76
2970.0	2.40	1.77	1.73
3070.0	2.98	2.00	1.72
3170.0	3.69	2.26	1.69
3270.0	4.43	2.54	1.71
3370.0	5.14	2.79	1.79
3470.0	5.65	3.03	1.98
3570.0	5.51	3.07	2.19
3670.0	4.66	2.95	2.44
3750.0	3.91	2.92	2.67
3850.0	3.44	2.92	2.70
3930.0	2.55	2.17	2.07
4030.0	1.63	1.72	1.96

IF (OUT) (MHz)	IF VSWR @LO=3500MHz (:1) @LO (dBm)		
	+10	+13	+16
10.0	1.16	1.36	1.64
70.0	1.21	1.37	1.64
130.0	1.26	1.40	1.66
190.0	1.36	1.43	1.65
250.0	1.47	1.50	1.68
310.0	1.54	1.55	1.69
350.0	1.62	1.60	1.71
410.0	1.74	1.71	1.79
450.0	1.85	1.79	1.83
510.0	1.99	1.89	1.88
550.0	2.18	1.97	1.88
610.0	2.22	1.89	1.75
650.0	2.13	1.75	1.60
710.0	1.89	1.51	1.37
750.0	1.73	1.33	1.20
810.0	1.63	1.23	1.10
850.0	1.55	1.20	1.18
910.0	1.57	1.30	1.35
950.0	1.55	1.38	1.48
1010.0	1.57	1.50	1.64
1050.0	1.59	1.63	1.81
1110.0	1.66	1.74	1.91
1150.0	1.75	1.90	2.06
1210.0	1.88	2.04	2.14
1250.0	1.98	2.12	2.18
1310.0	2.06	2.11	2.11
1350.0	2.11	2.13	2.12
1410.0	2.01	1.94	1.90
1450.0	1.94	1.88	1.86
1510.0	1.70	1.69	1.73
1550.0	1.59	1.63	1.71
1610.0	1.46	1.63	1.79
1650.0	1.47	1.72	1.90
1710.0	1.54	1.90	2.13
1750.0	1.61	1.99	2.31
1810.0	1.74	2.30	2.65
1850.0	1.81	2.43	2.79
1910.0	1.93	2.65	3.06
1950.0	1.97	2.71	3.14
2010.0	2.00	2.78	3.22

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	1	22	7	27	18	30	36	41	41	50
1	-	50	+0	36	15	43	32	36	37	48	50	50
2	71	57	62	53	56	59	49	62	57	70	73	69
3	>90	>77	69	69	64	>77	71	74	70	70	72	>77
4	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
5	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
6	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
7	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
8	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
9	89	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
10	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 2000 MHz; -6.00 dBm.
LO IN: 2030 MHz; +13.00 dBm
IF OUT: 30 MHz; -13 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	11	31	18	37	30	44	49	60	51	71
1	-	43	+0	34	16	43	34	38	39	52	56	53
2	51	49	50	44	45	51	39	55	49	55	65	63
3	85	52	50	46	48	62	51	58	48	52	60	65
4	>90	67	66	71	64	67	63	66	69	76	64	72
5	>90	66	65	64	66	67	60	75	65	82	81	75
6	>90	85	73	>87	79	78	74	71	78	72	78	82
7	>90	>87	86	82	>87	82	85	85	84	85	>87	>87
8	>90	>87	>87	>87	85	>87	>87	>87	85	82	>87	87
9	>90	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
10	>90	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2000 MHz; 4.00 dBm.
LO IN: 2030 MHz; +13.00 dBm
IF OUT: 30 MHz; -3.07 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.