Frequency Mixer MCA-35H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+14	+17	+20
140.0	170.0	14.55	10.88	10.12
240.0	270.0	8.60	7.71	7.33
340.0	370.0	6.99	6.43	6.07
440.0	470.0	6.54	5.90	5.53
540.0	570.0	6.30	5.62	5.24
640.0	670.0	6.37	5.66	5.23
740.0	770.0	6.70	5.83	5.40
840.0	870.0	7.43	6.36	5.84
940.0	970.0	8.20	6.63	6.05
1040.0	1070.0	8.67	7.19	6.32
1140.0	1170.0	8.35	7.07	6.18
1240.0	1270.0	7.48	6.54	6.17
1340.0	1370.0	7.80	6.89	6.55
1440.0	1470.0	8.07	6.89	6.53
1540.0	1570.0	8.40	7.58	7.26
1640.0	1670.0	7.68	6.70	6.43
1740.0	1770.0	7.44	6.47	6.06
1840.0	1870.0	7.36	6.38	5.92
1940.0	1970.0	7.30	6.44	5.97
2040.0	2070.0	6.45	5.87	5.58
2140.0	2170.0	6.39	5.92	5.66
2240.0	2270.0	6.22	5.74	5.51
2340.0	2370.0	6.34	5.92	5.70
2440.0	2470.0	6.46	5.92	5.59
2540.0	2570.0	6.74	6.14	5.77
2640.0	2670.0	6.78	6.31	6.01
2740.0	2770.0	7.11	6.65	6.45
2840.0	2870.0	7.21	6.66	6.55
2940.0	2970.0	7.58	6.87	6.72
3040.0	3070.0	8.06	7.11	6.90
3140.0	3170.0	8.72	7.31	7.00
3240.0	3270.0	9.13	7.47	7.11
3340.0	3370.0	9.17	7.44	7.17
3440.0	3470.0	9.04	7.33	7.08
3540.0	3570.0	8.69	7.30	7.00
3640.0	3670.0	8.48	7.48	7.08
3720.0	3750.0	9.11	7.93	7.41
3820.0	3850.0	11.61	9.71	8.80
3900.0	3930.0	11.05	9.17	8.42
4000.0	4030.0	15.04	12.16	10.30

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+14	+17	+20
140.0	170.0	22.75	22.08	26.41
240.0	270.0	22.51	21.14	21.93
340.0	370.0	23.62	22.13	21.27
440.0	470.0	24.43	38.54	24.16
540.0	570.0	19.89	24.63	33.98
640.0	670.0	21.13	26.60	31.81
740.0	770.0	22.47	29.27	29.53
840.0	870.0	24.76	27.88	31.00
940.0	970.0	19.55	28.11	28.59
1040.0	1070.0	19.12	21.23	24.81
1140.0	1170.0	19.11	20.63	22.31
1240.0	1270.0	23.11	24.22	24.46
1340.0	1370.0	24.21	23.50	23.78
1440.0	1470.0	21.69	26.59	27.03
1540.0	1570.0	22.60	23.97	25.11
1640.0	1670.0	25.48	25.79	25.19
1740.0	1770.0	25.04	36.55	27.04
1840.0	1870.0	24.37	27.49	26.14
1940.0	1970.0	22.29	21.42	21.86
2040.0	2070.0	23.51	23.60	23.26
2140.0	2170.0	22.27	21.88	21.15
2240.0	2270.0	20.30	20.93	21.32
2340.0	2370.0	19.75	20.37	21.21
2440.0	2470.0	21.04	21.19	21.50
2540.0	2570.0	21.53	21.72	21.52
2640.0	2670.0	20.99	20.32	19.98
2740.0	2770.0	19.77	22.15	25.36
2840.0	2870.0	22.24	26.26	27.90
2940.0	2970.0	22.98	26.43	27.51
3040.0	3070.0	22.60	25.90	26.38
3140.0	3170.0	25.30	26.52	26.22
3240.0	3270.0	25.06	28.43	26.79
3340.0	3370.0	22.28	27.17	26.44
3440.0	3470.0	23.12	27.01	26.13
3540.0	3570.0	22.80	26.72	25.92
3640.0	3670.0	21.07	24.33	26.26
3720.0	3750.0	18.99	22.10	27.21
3820.0	3850.0	22.10	21.44	21.45
3900.0	3930.0	26.96	23.17	22.18
4000.0	4030.0	13.72	14.85	19.16

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB) @LO (dBm)		
		+14	+17	+20
140.0	170.0	-0.51	0.62	0.21
240.0	270.0	0.77	0.50	0.42
340.0	370.0	1.09	0.74	0.67
440.0	470.0	1.36	1.11	0.99
540.0	570.0	1.51	1.31	1.22
640.0	670.0	1.46	1.27	1.24
740.0	770.0	1.30	1.18	1.15
840.0	870.0	0.97	0.96	0.96
940.0	970.0	0.44	0.86	0.83
1040.0	1070.0	0.07	0.39	0.63
1140.0	1170.0	0.48	0.57	0.73
1240.0	1270.0	1.14	0.89	0.76
1340.0	1370.0	0.73	0.65	0.59
1440.0	1470.0	0.85	0.67	0.55
1540.0	1570.0	0.82	0.44	0.30
1640.0	1670.0	0.68	0.51	0.35
1740.0	1770.0	0.62	0.54	0.47
1840.0	1870.0	0.93	0.77	0.73
1940.0	1970.0	1.27	1.07	0.98
2040.0	2070.0	2.07	1.55	1.31
2140.0	2170.0	1.81	1.46	1.30
2240.0	2270.0	2.11	1.71	1.55
2340.0	2370.0	1.76	1.46	1.35
2440.0	2470.0	1.61	1.39	1.34
2540.0	2570.0	1.54	1.25	1.14
2640.0	2670.0	1.67	1.16	1.01
2740.0	2770.0	1.53	0.94	0.89
2840.0	2870.0	1.50	0.81	0.74
2940.0	2970.0	1.29	0.58	0.52
3040.0	3070.0	1.10	0.48	0.43
3140.0	3170.0	0.71	0.41	0.41
3240.0	3270.0	0.59	0.37	0.37
3340.0	3370.0	0.57	0.41	0.31
3440.0	3470.0	0.66	0.49	0.43
3540.0	3570.0	0.89	0.53	0.43
3640.0	3670.0	1.13	0.63	0.46
3720.0	3750.0	1.34	0.88	0.61
3820.0	3850.0	1.10	0.94	0.52
3900.0	3930.0	1.49	1.42	0.86
4000.0	4030.0	0.18	1.06	1.59

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1760.1MHz (dB) @LO (dBm) +17
1650.1	110.0	11.89
1610.1	150.0	9.63
1570.1	190.0	8.91
1530.1	230.0	8.53
1490.1	270.0	8.37
1450.1	310.0	8.31
1410.1	350.0	8.27
1370.1	390.0	8.09
1330.1	430.0	8.00
1290.1	470.0	7.95
1250.1	510.0	8.02
1210.1	550.0	7.97
1170.1	590.0	8.00
1130.1	630.0	8.03
1090.1	670.0	8.04
1050.1	710.0	7.99
1010.1	750.0	7.81
970.1	790.0	7.51
930.1	830.0	7.12
890.1	870.0	6.65
850.1	910.0	6.39
810.1	950.0	6.21
770.1	990.0	6.44
730.1	1030.0	6.74
690.1	1070.0	6.92
650.1	1110.0	7.08
610.1	1150.0	6.90
570.1	1190.0	6.69
530.1	1230.0	6.42
490.1	1270.0	6.24
450.1	1310.0	6.35
410.1	1350.0	6.44
370.1	1390.0	6.67
310.1	1450.0	6.51
270.1	1490.0	6.35
210.1	1550.0	6.03
170.1	1590.0	6.06
110.1	1650.0	6.17
70.1	1690.0	6.21
10.1	1750.0	6.48

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=489.9MHz (dB) @LO (dBm) +17
10.1	500.0	5.83
90.1	580.0	5.53
170.1	660.0	5.35
270.1	760.0	5.08
350.1	840.0	5.12
450.1	940.0	5.03
530.1	1020.0	5.30
630.1	1120.0	5.91
710.1	1200.0	5.93
810.1	1300.0	6.16
890.1	1380.0	6.46
990.1	1480.0	6.16
1070.1	1560.0	6.04
1170.1	1660.0	5.76
1250.1	1740.0	5.86
1350.1	1840.0	5.82
1430.1	1920.0	5.96
1530.1	2020.0	6.31
1610.1	2100.0	6.86
1710.1	2200.0	6.86
1790.1	2280.0	6.55
1890.1	2380.0	7.00
1970.1	2460.0	7.44
2070.1	2560.0	7.27
2150.1	2640.0	6.98
2250.1	2740.0	7.89
2330.1	2820.0	8.39
2430.1	2920.0	8.36
2510.1	3000.0	8.13
2610.1	3100.0	8.09
2690.1	3180.0	8.08
2790.1	3280.0	8.05
2870.1	3360.0	7.87
2970.1	3460.0	8.16
3050.1	3540.0	8.69
3150.1	3640.0	8.18
3230.1	3720.0	8.59
3330.1	3820.0	10.26
3410.1	3900.0	10.01
3510.1	4000.0	10.44

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3510.1MHz (dB) @LO (dBm) +17
1910.1	1600.0	10.64
1870.1	1640.0	10.39
1830.1	1680.0	10.10
1790.1	1720.0	9.80
1750.1	1760.0	9.41
1710.1	1800.0	9.35
1670.1	1840.0	9.16
1610.1	1900.0	9.28
1570.1	1940.0	9.41
1510.1	2000.0	9.13
1470.1	2040.0	8.80
1410.1	2100.0	8.91
1370.1	2140.0	8.92
1310.1	2200.0	8.85
1270.1	2240.0	8.78
1210.1	2300.0	8.71
1170.1	2340.0	8.56
1110.1	2400.0	8.35
1070.1	2440.0	8.23
1010.1	2500.0	8.06
970.1	2540.0	7.88
910.1	2600.0	7.74
870.1	2640.0	7.63
810.1	2700.0	7.63
770.1	2740.0	7.62
710.1	2800.0	7.53
670.1	2840.0	7.59
610.1	2900.0	7.59
570.1	2940.0	7.65
510.1	3000.0	7.73
470.1	3040.0	7.94
410.1	3100.0	7.97
370.1	3140.0	8.06
310.1	3200.0	7.83
270.1	3240.0	7.86
210.1	3300.0	7.49
170.1	3340.0	7.45
110.1	3400.0	7.24
70.1	3440.0	7.25
10.1	3500.0	7.28

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+14	+17	+20	+14	+17	+20
170.0	10.49	12.00	14.48	33.01	39.65	43.14
270.0	9.04	11.83	14.68	39.71	41.97	43.41
370.0	10.75	13.54	16.23	36.32	36.93	38.19
470.0	12.19	14.70	17.15	31.99	33.52	35.26
570.0	14.45	16.77	19.06	30.46	32.19	33.73
670.0	16.83	18.98	20.95	29.16	31.17	32.30
770.0	19.46	21.44	23.38	28.37	30.30	30.74
870.0	21.84	24.07	25.86	28.38	29.65	28.90
970.0	23.77	27.25	31.33	28.57	28.30	27.38
1070.0	24.45	28.34	34.04	28.47	28.18	26.80
1170.0	24.15	29.22	39.41	27.85	27.55	26.38
1270.0	22.78	28.68	39.26	27.21	27.45	26.54
1370.0	21.41	28.18	36.00	25.89	26.30	25.89
1470.0	23.21	31.34	28.20	25.48	25.92	26.49
1570.0	29.47	29.27	26.03	26.36	27.88	29.38
1670.0	30.78	27.85	26.71	27.89	30.94	32.36
1770.0	32.85	30.20	29.08	30.43	34.44	33.88
1870.0	29.77	28.83	28.83	31.20	34.23	32.91
1970.0	32.78	32.05	32.43	29.73	33.58	33.23
2070.0	29.74	29.65	30.12	28.87	33.30	35.32
2170.0	28.71	29.95	31.01	35.89	36.02	33.96
2270.0	27.30	29.28	31.11	30.96	32.45	32.82
2370.0	25.51	27.98	30.57	25.80	29.34	31.72
2470.0	25.90	28.07	30.26	29.51	32.15	33.10
2570.0	26.59	29.29	31.57	32.87	33.69	33.05
2670.0	26.76	29.69	31.90	28.38	30.26	31.39
2770.0	26.87	30.96	34.43	27.38	29.78	31.46
2870.0	25.00	28.84	33.35	26.00	28.37	29.65
2970.0	25.00	28.31	32.75	25.65	26.68	27.56
3070.0	25.97	29.44	34.04	24.65	24.98	25.50
3170.0	26.25	30.07	36.44	23.60	23.12	23.57
3270.0	26.29	30.17	38.49	25.71	23.98	24.42
3370.0	26.80	31.02	37.40	24.42	23.10	22.79
3470.0	26.57	29.85	33.99	25.06	23.76	23.22
3570.0	26.57	28.61	30.03	29.43	27.08	25.55
3670.0	25.21	25.25	25.31	28.36	26.23	24.60
3750.0	19.91	20.27	20.31	26.69	24.98	22.71
3850.0	13.04	14.30	15.25	29.30	25.78	22.43
3930.0	12.28	14.32	16.45	23.82	22.06	20.03
4030.0	12.91	14.24	15.69	19.68	20.68	20.72

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+14	+17	+20
140.0	170.0	32.86	34.64	35.56
240.0	270.0	32.15	33.48	33.88
340.0	370.0	32.08	33.04	34.42
440.0	470.0	31.33	32.20	33.15
540.0	570.0	35.05	34.56	33.22
640.0	670.0	38.20	34.69	33.13
740.0	770.0	37.86	35.31	34.07
840.0	870.0	46.85	49.72	39.57
940.0	970.0	36.51	37.49	35.60
1040.0	1070.0	32.45	32.21	33.41
1140.0	1170.0	29.52	30.70	30.56
1240.0	1270.0	26.98	26.72	26.90
1340.0	1370.0	26.92	25.67	24.62
1440.0	1470.0	24.43	22.99	22.52
1540.0	1570.0	25.12	23.38	22.54
1640.0	1670.0	26.52	26.02	25.12
1740.0	1770.0	29.40	28.64	28.42
1840.0	1870.0	31.71	30.76	29.79
1940.0	1970.0	37.48	35.91	34.80
2040.0	2070.0	29.34	30.43	30.68
2140.0	2170.0	28.22	28.07	27.93
2240.0	2270.0	30.40	29.70	29.36
2340.0	2370.0	34.38	37.29	38.32
2440.0	2470.0	24.25	25.79	27.16
2540.0	2570.0	24.14	24.79	26.10
2640.0	2670.0	25.13	25.78	27.35
2740.0	2770.0	24.69	27.76	28.42
2840.0	2870.0	25.44	25.87	25.26
2940.0	2970.0	27.52	28.10	27.31
3040.0	3070.0	28.85	32.97	31.89
3140.0	3170.0	28.12	36.10	40.88
3240.0	3270.0	26.83	30.26	32.76
3340.0	3370.0	26.08	29.34	30.86
3440.0	3470.0	24.80	27.04	28.32
3540.0	3570.0	26.81	28.65	29.85
3640.0	3670.0	28.83	29.51	29.31
3720.0	3750.0	29.75	30.62	27.57
3820.0	3850.0	27.22	26.81	25.55
3900.0	3930.0	26.65	25.35	25.12
4000.0	4030.0	23.45	26.70	31.36

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+14	+17	+20
140.0	170.0	8.86	7.63	7.76
240.0	270.0	4.12	3.96	3.86
340.0	370.0	2.33	2.24	2.19
440.0	470.0	1.78	1.64	1.55
540.0	570.0	1.85	1.66	1.54
640.0	670.0	2.35	2.12	1.96
740.0	770.0	2.94	2.59	2.38
840.0	870.0	3.70	3.17	2.90
940.0	970.0	4.45	3.71	3.33
1040.0	1070.0	4.72	4.01	3.60
1140.0	1170.0	4.40	3.81	3.40
1240.0	1270.0	3.58	3.10	2.91
1340.0	1370.0	3.18	2.70	2.47
1440.0	1470.0	2.37	2.10	1.99
1540.0	1570.0	2.38	2.10	1.97
1640.0	1670.0	2.69	2.27	2.05
1740.0	1770.0	2.69	2.34	2.11
1840.0	1870.0	2.61	2.30	2.10
1940.0	1970.0	2.44	2.17	2.01
2040.0	2070.0	2.04	1.87	1.77
2140.0	2170.0	1.92	1.75	1.63
2240.0	2270.0	1.74	1.59	1.49
2340.0	2370.0	1.70	1.57	1.50
2440.0	2470.0	1.85	1.71	1.62
2540.0	2570.0	2.12	2.00	1.92
2640.0	2670.0	2.42	2.36	2.30
2740.0	2770.0	2.80	2.79	2.78
2840.0	2870.0	3.23	3.17	3.19
2940.0	2970.0	3.90	3.68	3.62
3040.0	3070.0	4.64	4.19	4.02
3140.0	3170.0	5.42	4.61	4.27
3240.0	3270.0	5.81	4.69	4.24
3340.0	3370.0	5.79	4.51	4.06
3440.0	3470.0	5.38	4.15	3.65
3540.0	3570.0	4.77	3.79	3.29
3640.0	3670.0	3.90	3.28	2.86
3720.0	3750.0	3.19	2.70	2.36
3820.0	3850.0	2.11	1.75	1.56
3900.0	3930.0	1.76	1.57	1.51
4000.0	4030.0	1.59	1.46	1.33

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+14	+17	+20
170.0	10.19	6.21	4.72
270.0	3.07	2.63	2.99
370.0	1.76	1.92	2.57
470.0	1.22	1.59	2.26
570.0	1.20	1.36	2.02
670.0	1.55	1.25	1.80
770.0	2.01	1.30	1.59
870.0	2.40	1.35	1.38
970.0	2.70	1.47	1.25
1070.0	2.79	1.48	1.08
1170.0	2.92	1.59	1.23
1270.0	3.05	1.63	1.32
1370.0	2.69	1.63	1.49
1470.0	2.89	1.77	1.67
1570.0	2.69	1.75	1.78
1670.0	2.37	1.65	1.85
1770.0	2.05	1.63	1.97
1870.0	1.72	1.59	2.07
1970.0	1.65	1.73	2.24
2070.0	1.49	1.65	2.25
2170.0	1.17	1.63	2.30
2270.0	1.10	1.67	2.36
2370.0	1.30	1.77	2.44
2470.0	1.54	1.93	2.56
2570.0	1.70	1.99	2.57
2670.0	1.95	1.99	2.46
2770.0	2.41	2.16	2.50
2870.0	3.05	2.44	2.52
2970.0	3.81	2.69	2.46
3070.0	4.59	2.87	2.31
3170.0	5.39	2.98	2.09
3270.0	5.85	2.92	1.84
3370.0	6.09	2.88	1.74
3470.0	5.09	2.59	1.77
3570.0	3.89	2.36	1.98
3670.0	2.77	2.28	2.34
3750.0	2.35	2.36	2.57
3850.0	2.21	2.24	2.34
3930.0	1.64	1.87	2.19
4030.0	2.10	2.41	2.77

IF (OUT) (MHz)	IF VSWR @LO=3500MHz (:1) @LO (dBm)		
	+14	+17	+20
10.0	1.03	1.55	1.84
70.0	1.12	1.56	1.81
130.0	1.18	1.57	1.81
190.0	1.27	1.55	1.75
250.0	1.38	1.59	1.77
310.0	1.47	1.61	1.75
350.0	1.57	1.65	1.76
410.0	1.72	1.74	1.80
450.0	1.85	1.80	1.81
510.0	2.00	1.81	1.72
550.0	2.04	1.72	1.58
610.0	1.87	1.54	1.40
650.0	1.76	1.42	1.27
710.0	1.58	1.25	1.13
750.0	1.46	1.13	1.07
810.0	1.40	1.13	1.21
850.0	1.33	1.19	1.35
910.0	1.36	1.35	1.53
950.0	1.35	1.46	1.70
1010.0	1.42	1.64	1.88
1050.0	1.49	1.79	2.02
1110.0	1.61	1.85	2.01
1150.0	1.73	1.94	2.06
1210.0	1.85	1.94	1.98
1250.0	1.86	1.89	1.89
1310.0	1.70	1.62	1.61
1350.0	1.57	1.51	1.53
1410.0	1.28	1.26	1.35
1450.0	1.16	1.29	1.43
1510.0	1.16	1.46	1.65
1550.0	1.26	1.60	1.81
1610.0	1.49	1.91	2.17
1650.0	1.61	2.08	2.36
1710.0	1.80	2.32	2.65
1750.0	1.88	2.50	2.81
1810.0	2.13	2.78	3.19
1850.0	2.22	2.89	3.32
1910.0	2.37	3.11	3.57
1950.0	2.43	3.18	3.65
2010.0	2.50	3.25	3.74

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	8	12	7	27	14	38	26	55	39	54
1	-	31	+0	33	14	48	31	36	44	46	71	53
2	61	48	50	49	52	57	45	57	52	67	56	72
3	>90	66	61	66	62	75	68	71	68	73	78	77
4	>90	>83	>83	>83	>83	83	81	80	79	82	>83	>83
5	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
6	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
7	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
8	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
9	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
10	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 2000 MHz; -1.00 dBm.
LO IN: 2030 MHz; +17.00 dBm
IF OUT: 30 MHz; -7 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	19	21	19	37	26	51	40	77	56	68
1	-	29	+0	32	15	47	31	41	47	51	68	56
2	41	43	39	43	38	51	37	49	40	59	51	69
3	70	45	41	44	38	50	43	49	51	56	61	65
4	>90	55	56	56	64	62	57	70	55	79	59	67
5	>90	64	61	59	61	63	57	63	63	72	63	72
6	>90	86	77	69	72	77	72	70	63	70	69	68
7	>90	86	88	82	79	71	72	70	67	72	73	80
8	>90	>93	>93	>93	92	80	81	80	88	77	73	74
9	>90	>93	>93	>93	>93	>93	92	81	82	76	78	90
10	>90	>93	>93	>93	>93	>93	93	86	86	>93	90	85
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2000 MHz; 9.00 dBm.
LO IN: 2030 MHz; +17.00 dBm
IF OUT: 30 MHz; 2.89 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.