

Frequency Mixer

RMS-30+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
80.0	110.0	16.04	10.72	8.78
160.0	190.0	7.15	6.35	6.03
240.0	270.0	5.92	5.53	5.28
320.0	350.0	5.73	5.33	5.06
400.0	430.0	5.59	5.22	4.97
480.0	510.0	5.39	5.18	5.04
560.0	590.0	5.25	5.05	4.95
640.0	670.0	5.18	4.89	4.72
720.0	750.0	6.24	5.52	5.11
800.0	830.0	7.22	6.37	5.84
880.0	910.0	7.56	6.94	6.51
960.0	990.0	7.12	6.78	6.57
1040.0	1070.0	6.67	6.42	6.31
1120.0	1150.0	6.54	6.33	6.25
1200.0	1230.0	6.34	6.14	6.08
1300.0	1330.0	6.52	6.22	6.07
1380.0	1410.0	7.08	6.63	6.41
1480.0	1510.0	7.67	7.16	6.88
1560.0	1590.0	7.72	7.19	6.88
1660.0	1690.0	7.85	7.30	7.01
1740.0	1770.0	7.77	7.27	6.97
1840.0	1870.0	7.73	7.24	6.93
1920.0	1950.0	7.72	7.20	6.90
2020.0	2050.0	7.54	7.07	6.82
2100.0	2130.0	7.51	6.99	6.74
2200.0	2230.0	7.40	6.80	6.52
2280.0	2310.0	7.43	6.82	6.53
2380.0	2410.0	7.35	6.69	6.37
2460.0	2490.0	7.33	6.56	6.16
2560.0	2590.0	7.14	6.33	5.95
2640.0	2670.0	7.12	6.25	5.91
2740.0	2770.0	7.05	6.25	5.95
2820.0	2850.0	7.21	6.43	6.15
2920.0	2950.0	7.47	6.80	6.54
3000.0	3030.0	7.76	7.22	7.01
3100.0	3130.0	8.26	7.78	7.57
3180.0	3210.0	8.80	8.37	8.15
3280.0	3310.0	9.59	9.18	8.94
3360.0	3390.0	10.13	9.74	9.50
3460.0	3490.0	10.97	10.56	10.33

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
80.0	110.0	-0.27	7.09	15.68
160.0	190.0	12.09	15.00	16.77
240.0	270.0	14.92	15.74	15.00
320.0	350.0	12.54	13.45	13.26
400.0	430.0	10.46	10.76	11.51
480.0	510.0	17.30	14.42	13.28
560.0	590.0	10.22	13.13	17.88
640.0	670.0	8.49	10.84	13.26
720.0	750.0	8.75	12.68	14.71
800.0	830.0	5.49	7.10	8.54
880.0	910.0	5.02	6.40	7.90
960.0	990.0	6.11	6.91	7.85
1040.0	1070.0	8.59	9.33	9.95
1120.0	1150.0	10.28	11.00	11.83
1200.0	1230.0	15.64	13.40	14.07
1300.0	1330.0	12.78	14.77	19.03
1380.0	1410.0	14.28	17.06	20.18
1480.0	1510.0	15.97	16.76	17.33
1560.0	1590.0	12.21	13.33	14.34
1660.0	1690.0	10.91	11.66	12.57
1740.0	1770.0	10.09	10.76	11.50
1840.0	1870.0	9.44	10.04	10.83
1920.0	1950.0	8.84	9.39	10.11
2020.0	2050.0	8.28	8.65	9.14
2100.0	2130.0	7.72	8.21	8.72
2200.0	2230.0	6.63	7.20	8.02
2280.0	2310.0	6.22	6.96	7.86
2380.0	2410.0	5.56	7.01	8.59
2460.0	2490.0	4.95	7.34	9.31
2560.0	2590.0	4.49	6.86	9.05
2640.0	2670.0	3.81	5.94	7.74
2740.0	2770.0	4.10	6.11	8.21
2820.0	2850.0	4.92	6.85	9.19
2920.0	2950.0	7.50	8.78	10.44
3000.0	3030.0	9.85	10.34	11.23
3100.0	3130.0	11.08	10.44	11.79
3180.0	3210.0	14.91	14.24	14.69
3280.0	3310.0	14.65	15.89	15.49
3360.0	3390.0	13.66	16.00	16.09
3460.0	3490.0	13.27	15.97	17.47

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
80.0	110.0	-3.25	-0.61	-0.06
160.0	190.0	1.54	1.04	0.77
240.0	270.0	1.96	1.57	1.35
320.0	350.0	2.03	1.69	1.47
400.0	430.0	1.99	1.68	1.46
480.0	510.0	1.82	1.46	1.19
560.0	590.0	1.90	1.55	1.25
640.0	670.0	2.85	2.42	2.10
720.0	750.0	2.70	2.49	2.24
800.0	830.0	1.82	1.86	1.77
880.0	910.0	1.21	1.16	1.11
960.0	990.0	1.22	0.96	0.79
1040.0	1070.0	1.15	0.90	0.72
1120.0	1150.0	0.76	0.56	0.45
1200.0	1230.0	0.58	0.36	0.25
1300.0	1330.0	0.92	0.65	0.45
1380.0	1410.0	0.99	0.79	0.63
1480.0	1510.0	0.78	0.66	0.54
1560.0	1590.0	0.83	0.71	0.58
1660.0	1690.0	0.79	0.68	0.58
1740.0	1770.0	0.80	0.68	0.58
1840.0	1870.0	0.91	0.76	0.63
1920.0	1950.0	0.93	0.78	0.67
2020.0	2050.0	1.06	0.89	0.78
2100.0	2130.0	0.96	0.82	0.73
2200.0	2230.0	1.12	0.95	0.84
2280.0	2310.0	1.12	0.91	0.76
2380.0	2410.0	1.36	1.09	0.89
2460.0	2490.0	1.50	1.19	1.04
2560.0	2590.0	1.66	1.25	1.15
2640.0	2670.0	1.69	1.27	1.14
2740.0	2770.0	1.53	1.12	0.99
2820.0	2850.0	1.40	0.99	0.82
2920.0	2950.0	1.18	0.80	0.65
3000.0	3030.0	0.99	0.68	0.53
3100.0	3130.0	0.81	0.55	0.43
3180.0	3210.0	0.70	0.47	0.36
3280.0	3310.0	0.60	0.37	0.29
3360.0	3390.0	0.58	0.35	0.26
3460.0	3490.0	0.59	0.30	0.21

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1510.1MHz (dB)
		@LO (dBm) +7
1270.1	240.0	10.32
1230.1	280.0	9.63
1190.1	320.0	9.39
1150.1	360.0	9.44
1110.1	400.0	9.20
1070.1	440.0	9.18
1030.1	480.0	9.09
990.1	520.0	8.97
950.1	560.0	8.74
910.1	600.0	8.30
870.1	640.0	7.95
850.1	660.0	7.84
810.1	700.0	7.53
790.1	720.0	7.35
750.1	760.0	7.04
730.1	780.0	6.99
690.1	820.0	6.91
670.1	840.0	6.88
630.1	880.0	6.79
610.1	900.0	6.78
570.1	940.0	6.79
550.1	960.0	6.79
510.1	1000.0	6.75
490.1	1020.0	6.69
450.1	1060.0	6.58
430.1	1080.0	6.64
390.1	1120.0	6.70
370.1	1140.0	6.75
330.1	1180.0	6.97
310.1	1200.0	6.99
270.1	1240.0	7.16
250.1	1260.0	7.25
210.1	1300.0	7.41
190.1	1320.0	7.46
150.1	1360.0	7.51
130.1	1380.0	7.50
90.1	1420.0	7.44
70.1	1440.0	7.45
30.1	1480.0	7.35
10.1	1500.0	7.55

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=189.9MHz (dB)
		@LO (dBm) +7
10.1	200.0	5.88
50.1	240.0	5.76
90.1	280.0	5.69
130.1	320.0	5.63
170.1	360.0	5.67
210.1	400.0	5.69
250.1	440.0	5.65
290.1	480.0	5.56
330.1	520.0	5.43
370.1	560.0	5.17
410.1	600.0	4.99
450.1	640.0	4.91
490.1	680.0	4.96
530.1	720.0	5.06
570.1	760.0	5.27
610.1	800.0	5.55
650.1	840.0	5.79
690.1	880.0	5.98
730.1	920.0	6.04
770.1	960.0	5.99
810.1	1000.0	6.01
830.1	1020.0	6.01
870.1	1060.0	6.01
890.1	1080.0	6.00
930.1	1120.0	5.97
950.1	1140.0	5.95
990.1	1180.0	5.92
1010.1	1200.0	5.95
1050.1	1240.0	6.10
1070.1	1260.0	6.24
1110.1	1300.0	6.58
1130.1	1320.0	6.75
1170.1	1360.0	7.37
1190.1	1380.0	7.60
1230.1	1420.0	8.21
1250.1	1440.0	8.65
1290.1	1480.0	9.15
1310.1	1500.0	9.40
1350.1	1540.0	10.11
1370.1	1560.0	10.44

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3010.1MHz (dB)
		@LO (dBm) +7
1310.1	1700.0	10.40
1270.1	1740.0	9.88
1230.1	1780.0	9.50
1190.1	1820.0	9.19
1150.1	1860.0	8.82
1110.1	1900.0	8.35
1070.1	1940.0	7.95
1030.1	1980.0	7.66
990.1	2020.0	7.38
950.1	2060.0	7.22
910.1	2100.0	7.04
870.1	2140.0	6.93
830.1	2180.0	6.87
790.1	2220.0	6.86
750.1	2260.0	6.83
730.1	2280.0	6.83
690.1	2320.0	6.85
670.1	2340.0	6.84
630.1	2380.0	6.87
610.1	2400.0	6.87
570.1	2440.0	6.90
550.1	2460.0	6.94
510.1	2500.0	7.00
490.1	2520.0	7.00
450.1	2560.0	6.99
430.1	2580.0	6.98
390.1	2620.0	6.96
370.1	2640.0	6.95
330.1	2680.0	6.94
310.1	2700.0	6.92
270.1	2740.0	6.95
250.1	2760.0	6.97
210.1	2800.0	6.99
190.1	2820.0	7.02
150.1	2860.0	7.10
130.1	2880.0	7.08
90.1	2920.0	7.13
70.1	2940.0	7.18
30.1	2980.0	7.17
10.1	3000.0	7.42

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+4	+7	+10	+4	+7	+10			+4	+7	+10
110.0	29.56	30.92	32.92	38.92	33.85	32.50	80.0	110.0	39.36	36.46	34.13
190.0	30.56	33.84	36.93	28.38	28.71	30.47	160.0	190.0	30.07	29.81	29.37
270.0	35.60	39.59	43.80	26.42	27.82	29.93	240.0	270.0	28.40	28.28	28.11
350.0	43.82	51.04	66.32	25.90	27.58	29.73	320.0	350.0	28.89	28.64	28.15
430.0	46.27	46.76	44.98	25.59	27.49	29.74	400.0	430.0	32.81	33.15	33.10
510.0	39.77	40.41	39.82	25.41	27.48	29.76	480.0	510.0	37.96	39.07	39.11
590.0	38.50	39.64	39.46	25.61	27.73	29.96	560.0	590.0	34.71	34.33	33.69
670.0	37.38	38.59	38.72	25.76	27.90	30.10	640.0	670.0	33.57	33.41	33.07
750.0	35.21	36.42	36.58	26.16	28.28	30.42	720.0	750.0	36.14	36.89	37.02
830.0	33.30	34.23	34.45	26.26	28.41	30.64	800.0	830.0	38.24	39.03	39.76
910.0	32.10	32.22	31.98	27.68	30.11	32.47	880.0	910.0	32.60	32.19	32.56
990.0	32.71	32.35	31.62	29.51	32.11	34.53	960.0	990.0	27.23	26.41	26.29
1070.0	32.48	31.85	30.94	29.70	32.58	35.30	1040.0	1070.0	23.04	22.35	22.20
1150.0	32.16	31.06	30.04	31.68	35.07	37.90	1120.0	1150.0	20.14	19.46	19.32
1230.0	32.04	30.56	29.29	33.79	36.78	38.86	1200.0	1230.0	18.76	18.31	18.05
1330.0	31.81	30.74	29.84	36.02	37.97	39.06	1300.0	1330.0	20.15	20.03	20.04
1410.0	31.79	30.83	30.43	37.17	37.40	37.08	1380.0	1410.0	22.16	22.15	22.18
1510.0	31.38	30.57	30.27	36.34	34.65	33.37	1480.0	1510.0	24.82	24.97	25.21
1590.0	30.87	30.16	29.84	33.97	31.94	30.53	1560.0	1590.0	28.18	28.42	28.71
1690.0	30.27	29.47	29.42	30.75	28.91	27.80	1660.0	1690.0	32.85	32.80	32.90
1770.0	29.83	29.19	29.17	28.40	26.91	26.04	1740.0	1770.0	31.24	30.99	31.02
1870.0	29.33	28.85	28.75	26.11	24.89	23.91	1840.0	1870.0	27.14	27.05	27.14
1950.0	29.05	28.56	28.59	24.58	23.36	22.55	1920.0	1950.0	24.90	24.95	25.08
2050.0	28.78	28.20	28.18	22.83	21.64	20.85	2020.0	2050.0	22.80	22.91	23.07
2130.0	28.86	28.44	28.41	21.61	20.45	19.60	2100.0	2130.0	21.64	21.88	21.98
2230.0	28.63	28.40	28.43	20.45	18.99	17.88	2200.0	2230.0	20.61	20.86	21.01
2310.0	28.22	28.21	28.48	19.45	17.94	16.79	2280.0	2310.0	20.05	20.31	20.40
2410.0	27.65	27.43	27.50	19.11	17.31	15.87	2380.0	2410.0	19.71	19.70	19.69
2490.0	26.75	25.95	25.37	19.92	18.20	16.64	2460.0	2490.0	20.39	20.34	20.05
2590.0	26.22	24.83	23.70	22.67	21.51	19.97	2560.0	2590.0	24.92	25.71	26.32
2670.0	27.10	25.64	24.46	24.15	22.68	20.58	2640.0	2670.0	38.61	39.42	37.69
2770.0	29.07	28.01	27.06	22.78	20.47	18.27	2740.0	2770.0	26.07	24.37	23.86
2850.0	32.19	31.42	30.42	21.50	18.83	16.51	2820.0	2850.0	22.99	22.30	22.23
2950.0	38.71	37.81	36.09	20.20	17.64	15.43	2920.0	2950.0	22.85	22.79	23.11
3030.0	45.78	41.11	38.53	18.99	16.87	15.30	3000.0	3030.0	24.77	24.83	25.22
3130.0	39.36	37.05	36.00	17.85	16.56	15.61	3100.0	3130.0	30.07	29.67	29.92
3210.0	35.40	33.94	33.47	16.88	16.15	15.61	3180.0	3210.0	29.78	28.44	28.08
3310.0	32.28	31.25	30.99	16.05	15.84	15.57	3280.0	3310.0	24.90	24.20	24.24
3390.0	30.72	29.90	29.68	15.55	15.72	15.65	3360.0	3390.0	22.39	21.86	21.81
3490.0	29.38	28.76	28.55	15.14	15.59	15.72	3460.0	3490.0	20.37	19.97	20.02

Frequency Mixer

RMS-30+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+4	+7	+10
80.0	110.0	13.92	8.77	6.39
160.0	190.0	2.91	2.62	2.50
240.0	270.0	1.81	1.70	1.64
320.0	350.0	1.45	1.34	1.28
400.0	430.0	1.30	1.21	1.15
480.0	510.0	1.27	1.26	1.27
560.0	590.0	1.23	1.20	1.20
640.0	670.0	1.60	1.51	1.45
720.0	750.0	2.86	2.65	2.48
800.0	830.0	3.76	3.47	3.22
880.0	910.0	4.03	3.86	3.67
960.0	990.0	3.80	3.77	3.70
1040.0	1070.0	3.54	3.51	3.47
1120.0	1150.0	3.25	3.20	3.17
1200.0	1230.0	2.78	2.66	2.61
1300.0	1330.0	2.74	2.55	2.41
1380.0	1410.0	3.38	3.15	3.00
1480.0	1510.0	4.07	3.83	3.67
1560.0	1590.0	4.36	4.10	3.92
1660.0	1690.0	4.44	4.16	3.97
1740.0	1770.0	4.34	4.08	3.88
1840.0	1870.0	4.14	3.88	3.70
1920.0	1950.0	3.90	3.65	3.47
2020.0	2050.0	3.59	3.33	3.14
2100.0	2130.0	3.44	3.12	2.91
2200.0	2230.0	3.17	2.82	2.58
2280.0	2310.0	2.86	2.53	2.29
2380.0	2410.0	2.48	2.16	1.92
2460.0	2490.0	2.13	1.82	1.61
2560.0	2590.0	1.76	1.50	1.34
2640.0	2670.0	1.54	1.30	1.19
2740.0	2770.0	1.23	1.15	1.23
2820.0	2850.0	1.11	1.29	1.46
2920.0	2950.0	1.38	1.62	1.83
3000.0	3030.0	1.72	1.93	2.15
3100.0	3130.0	2.21	2.37	2.54
3180.0	3210.0	2.65	2.76	2.90
3280.0	3310.0	3.26	3.32	3.43
3360.0	3390.0	3.77	3.82	3.90
3460.0	3490.0	4.39	4.40	4.46

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+4	+7	+10
110.0	36.97	23.49	13.70
190.0	7.63	5.91	6.07
270.0	3.56	4.01	4.95
350.0	2.72	3.52	4.60
430.0	2.44	3.30	4.39
510.0	2.22	3.09	4.14
590.0	2.08	2.89	3.86
670.0	2.06	2.72	3.58
750.0	2.09	2.58	3.29
830.0	2.04	2.39	2.97
910.0	1.92	2.13	2.61
990.0	1.68	1.77	2.19
1070.0	1.63	1.54	1.88
1150.0	1.61	1.38	1.65
1230.0	1.48	1.22	1.52
1330.0	1.29	1.14	1.56
1410.0	1.16	1.29	1.73
1510.0	1.17	1.53	2.02
1590.0	1.27	1.73	2.27
1690.0	1.47	1.99	2.57
1770.0	1.68	2.22	2.83
1870.0	1.95	2.48	3.10
1950.0	2.18	2.68	3.27
2050.0	2.49	2.89	3.43
2130.0	2.75	3.07	3.54
2230.0	3.06	3.19	3.52
2310.0	3.30	3.26	3.47
2410.0	3.58	3.30	3.35
2490.0	3.88	3.37	3.30
2590.0	4.14	3.34	3.05
2670.0	4.26	3.17	2.67
2770.0	4.06	2.86	2.19
2850.0	3.90	2.68	1.97
2950.0	3.43	2.42	1.87
3030.0	3.02	2.30	1.99
3130.0	2.61	2.34	2.36
3210.0	2.44	2.52	2.74
3310.0	2.45	2.80	3.19
3390.0	2.59	3.06	3.50
3490.0	2.84	3.35	3.82

IF (OUT) (MHz)	IF VSWR @LO=3000MHz (:1)		
	@LO (dBm)		
	+4	+7	+10
10.0	2.42	1.99	1.71
50.0	2.33	1.91	1.65
90.0	2.36	1.94	1.66
130.0	2.21	1.82	1.57
170.0	2.13	1.77	1.53
210.0	2.01	1.68	1.48
250.0	1.86	1.56	1.37
290.0	1.78	1.52	1.37
330.0	1.59	1.39	1.31
370.0	1.55	1.38	1.34
410.0	1.45	1.38	1.41
450.0	1.40	1.37	1.46
490.0	1.41	1.46	1.59
530.0	1.39	1.49	1.64
570.0	1.44	1.57	1.74
610.0	1.48	1.65	1.87
650.0	1.51	1.68	1.89
690.0	1.58	1.78	2.00
730.0	1.60	1.77	2.00
770.0	1.64	1.81	2.03
810.0	1.65	1.80	2.01
830.0	1.65	1.79	2.00
870.0	1.65	1.74	1.92
890.0	1.66	1.74	1.91
930.0	1.61	1.63	1.75
950.0	1.62	1.61	1.71
990.0	1.60	1.53	1.59
1010.0	1.58	1.47	1.50
1050.0	1.58	1.39	1.35
1070.0	1.57	1.35	1.27
1110.0	1.60	1.33	1.17
1130.0	1.63	1.35	1.18
1170.0	1.70	1.45	1.30
1190.0	1.77	1.54	1.43
1230.0	1.93	1.77	1.71
1250.0	2.06	1.94	1.91
1290.0	2.34	2.31	2.34
1310.0	2.55	2.55	2.61
1350.0	3.01	3.10	3.20
1370.0	3.28	3.39	3.51

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	2	17	22	33	12	46	22	46	38	54
1	-	23	+0	41	22	42	33	48	45	49	48	55
2	85	53	>68	61	65	61	67	63	52	>68	56	>68
3	>90	>68	67	>68	66	>68	>68	>68	>68	>68	>68	>68
4	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
5	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
6	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
7	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
8	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
9	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
10	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 1600 MHz; -14.00 dBm.
 LO IN: 1630 MHz; +7.00 dBm
 IF OUT: 30 MHz; -21.61 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	27	32	40	23	54	35	58	53	72
1	-	23	+0	42	22	44	34	52	48	54	53	61
2	65	45	57	50	57	55	61	64	46	65	52	65
3	>90	57	46	56	46	71	58	60	57	62	63	65
4	>90	71	>78	65	73	61	>78	65	78	67	65	74
5	>90	>78	>78	>78	70	72	64	>78	73	>78	72	76
6	>90	>78	>78	>78	>78	77	>78	75	>78	>78	>78	78
7	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
8	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
10	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1600 MHz; -4.00 dBm.
 LO IN: 1630 MHz; +7.00 dBm
 IF OUT: 30 MHz; -11.52 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.