Frequency Mixer ZP-5X+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	6.17	5.96	5.69
50.1	80.1	6.57	6.15	5.93
90.1	120.1	6.40	6.09	5.94
150.1	180.1	6.62	6.26	6.10
190.1	220.1	6.58	6.27	6.10
250.1	280.1	6.64	6.33	6.14
290.1	320.1	6.69	6.35	6.17
350.1	380.1	6.70	6.37	6.17
390.1	420.1	6.82	6.48	6.27
450.1	480.1	6.74	6.37	6.16
490.1	520.1	6.92	6.53	6.28
550.1	580.1	6.88	6.53	6.32
590.1	620.1	7.10	6.72	6.48
650.1	680.1	7.08	6.68	6.47
690.1	720.1	7.20	6.75	6.51
750.1	780.1	7.26	6.76	6.51
790.1	820.1	7.37	6.84	6.54
850.1	880.1	7.45	6.91	6.57
890.1	920.1	7.52	6.98	6.59
950.1	980.1	7.62	7.11	6.70
990.1	1020.1	7.67	7.18	6.79
1050.1	1080.1	7.55	7.09	6.71
1090.1	1120.1	7.52	7.02	6.64
1150.1	1180.1	7.27	6.77	6.50
1190.1	1220.1	7.23	6.77	6.55
1250.1	1280.1	7.13	6.75	6.57
1290.1	1320.1	7.18	6.82	6.65
1350.1	1380.1	7.29	6.96	6.80
1390.1	1420.1	7.39	7.06	6.91
1450.1	1480.1	7.62	7.29	7.15
1490.1	1520.1	7.79	7.46	7.31
1550.1	1580.1	8.11	7.75	7.61
1590.1	1620.1	8.38	7.99	7.83
1650.1	1680.1	8.76	8.36	8.21
1690.1	1720.1	9.15	8.69	8.52
1750.1	1780.1	9.57	9.09	8.95
1790.1	1820.1	10.09	9.49	9.33
1850.1	1880.1	10.52	9.90	9.74
1890.1	1920.1	11.13	10.39	10.16
1950.1	1980.1	11.54	10.75	10.47

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
10.1	40.1	16.27	18.95	20.57
50.1	80.1	17.06	18.00	19.30
90.1	120.1	16.49	20.95	18.97
150.1	180.1	19.17	17.79	15.35
190.1	220.1	15.13	13.82	14.26
250.1	280.1	14.38	13.78	15.07
290.1	320.1	12.23	12.60	13.96
350.1	380.1	13.96	14.42	16.23
390.1	420.1	11.28	12.68	14.66
450.1	480.1	11.61	12.91	16.56
490.1	520.1	11.17	12.50	15.10
550.1	580.1	11.15	12.51	13.97
590.1	620.1	10.96	13.31	16.20
650.1	680.1	9.75	14.97	20.77
690.1	720.1	9.18	12.78	16.06
750.1	780.1	8.08	9.38	11.49
790.1	820.1	9.03	9.20	10.31
850.1	880.1	8.01	9.22	9.73
890.1	920.1	7.84	9.86	10.99
950.1	980.1	6.33	8.23	10.85
990.1	1020.1	5.48	6.95	9.23
1050.1	1080.1	5.38	6.78	8.87
1090.1	1120.1	6.15	8.32	10.16
1150.1	1180.1	8.29	10.57	11.27
1190.1	1220.1	9.38	11.92	11.73
1250.1	1280.1	9.04	12.15	12.56
1290.1	1320.1	9.80	12.96	13.60
1350.1	1380.1	10.14	12.93	13.63
1390.1	1420.1	10.02	12.33	13.06
1450.1	1480.1	9.56	11.70	12.60
1490.1	1520.1	9.54	11.75	13.22
1550.1	1580.1	9.09	11.99	13.63
1590.1	1620.1	8.85	12.02	14.25
1650.1	1680.1	9.12	12.43	14.91
1690.1	1720.1	9.07	12.88	15.77
1750.1	1780.1	10.32	14.37	18.37
1790.1	1820.1	11.12	14.41	19.23
1850.1	1880.1	14.44	15.58	19.13
1890.1	1920.1	13.27	15.36	18.62
1950.1	1980.1	10.08	13.04	17.20

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	1.26	0.80	0.34
50.1	80.1	1.00	0.65	0.47
90.1	120.1	1.30	0.86	0.60
150.1	180.1	1.07	0.70	0.48
190.1	220.1	1.26	0.87	0.61
250.1	280.1	1.12	0.76	0.55
290.1	320.1	1.23	0.87	0.64
350.1	380.1	1.21	0.87	0.65
390.1	420.1	1.20	0.87	0.65
450.1	480.1	1.31	0.99	0.76
490.1	520.1	1.22	0.94	0.74
550.1	580.1	1.32	1.03	0.82
590.1	620.1	1.25	0.94	0.75
650.1	680.1	1.35	1.05	0.84
690.1	720.1	1.29	1.05	0.86
750.1	780.1	1.25	1.08	0.90
790.1	820.1	1.17	1.05	0.90
850.1	880.1	1.13	1.03	0.91
890.1	920.1	1.15	1.03	0.92
950.1	980.1	1.12	0.97	0.89
990.1	1020.1	1.09	0.91	0.82
1050.1	1080.1	1.21	0.96	0.82
1090.1	1120.1	1.20	0.94	0.75
1150.1	1180.1	1.46	1.05	0.73
1190.1	1220.1	1.39	0.90	0.59
1250.1	1280.1	1.48	0.85	0.57
1290.1	1320.1	1.37	0.74	0.50
1350.1	1380.1	1.30	0.65	0.42
1390.1	1420.1	1.22	0.59	0.35
1450.1	1480.1	1.14	0.50	0.28
1490.1	1520.1	1.09	0.48	0.26
1550.1	1580.1	1.08	0.45	0.23
1590.1	1620.1	1.07	0.45	0.24
1650.1	1680.1	1.00	0.43	0.22
1690.1	1720.1	1.00	0.45	0.22
1750.1	1780.1	0.94	0.43	0.22
1790.1	1820.1	0.93	0.46	0.23
1850.1	1880.1	0.94	0.52	0.27
1890.1	1920.1	0.94	0.59	0.31
1950.1	1980.1	0.99	0.64	0.41

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=750.1MHz (dB) @LO (dBm) +7
740.0	10.1	6.69
720.0	30.1	6.71
700.0	50.1	6.68
680.0	70.1	6.74
660.0	90.1	6.76
640.0	110.1	6.78
620.0	130.1	6.77
600.0	150.1	6.72
580.0	170.1	6.77
560.0	190.1	6.68
540.0	210.1	6.72
520.0	230.1	6.70
500.0	250.1	6.78
480.0	270.1	6.77
460.0	290.1	6.67
440.0	310.1	6.70
420.0	330.1	6.62
400.0	350.1	6.59
380.0	370.1	6.68
360.0	390.1	6.61
340.0	410.1	6.73
320.0	430.1	6.67
300.0	450.1	6.68
280.0	470.1	6.65
260.0	490.1	6.63
240.0	510.1	6.61
220.0	530.1	6.81
200.0	550.1	6.78
180.0	570.1	6.80
160.0	590.1	6.76
140.0	610.1	6.82
130.0	620.1	6.91
110.0	640.1	6.83
100.0	650.1	6.82
80.0	670.1	6.84
70.0	680.1	6.66
50.0	700.1	6.70
40.0	710.1	6.74
20.0	730.1	6.67
10.0	740.1	7.05

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +7
10.0	20.1	5.98
50.0	60.1	5.72
90.0	100.1	5.46
150.0	160.1	5.87
190.0	200.1	5.59
250.0	260.1	5.63
290.0	300.1	5.80
350.0	360.1	5.70
390.0	400.1	5.64
450.0	460.1	5.95
490.0	500.1	5.79
550.0	560.1	5.72
590.0	600.1	5.92
650.0	660.1	5.85
690.0	700.1	5.95
750.0	760.1	5.89
790.0	800.1	6.04
850.0	860.1	6.38
890.0	900.1	6.31
950.0	960.1	6.55
990.0	1000.1	6.80
1050.0	1060.1	6.66
1090.0	1100.1	6.54
1150.0	1160.1	6.51
1190.0	1200.1	6.39
1250.0	1260.1	6.55
1290.0	1300.1	6.86
1350.0	1360.1	7.17
1390.0	1400.1	7.41
1450.0	1460.1	7.54
1490.0	1500.1	7.64
1550.0	1560.1	7.82
1590.0	1600.1	8.24
1650.0	1660.1	8.20
1690.0	1700.1	8.77
1750.0	1760.1	9.38
1790.0	1800.1	9.42
1850.0	1860.1	10.11
1890.0	1900.1	10.73
1950.0	1960.1	11.02

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1500.1MHz (dB) @LO (dBm) +7
1490.0	10.1	9.45
1449.5	50.6	9.04
1408.9	91.2	8.69
1368.4	131.7	8.47
1327.8	172.3	8.21
1287.3	212.8	8.04
1246.7	253.4	7.86
1206.2	293.9	7.73
1165.6	334.5	7.62
1125.1	375.0	7.55
1084.5	415.6	7.49
1044.0	456.1	7.39
1003.4	496.7	7.35
962.9	537.2	7.31
922.3	577.8	7.33
881.8	618.3	7.30
841.2	658.9	7.25
800.7	699.4	7.26
760.1	740.0	7.31
719.6	780.5	7.22
679.0	821.1	7.36
638.5	861.6	7.53
597.9	902.2	7.68
557.4	942.7	7.63
516.8	983.3	7.53
476.3	1023.8	7.44
435.8	1064.3	7.50
395.2	1104.9	7.40
354.7	1145.4	7.28
314.1	1186.0	7.32
273.6	1226.5	7.32
253.3	1246.8	7.30
212.7	1287.4	7.31
192.5	1307.6	7.33
151.9	1348.2	7.37
131.6	1368.5	7.38
91.1	1409.0	7.40
70.8	1429.3	7.40
30.3	1469.8	7.44
10.0	1490.1	7.75

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	62.46	57.44	55.21	61.76	62.38	62.91
80.1	59.85	55.12	52.44	58.58	59.37	60.06
120.1	57.18	52.73	50.39	56.32	57.20	57.91
180.1	55.67	50.79	48.55	54.86	55.74	56.47
220.1	54.50	49.94	47.57	53.32	54.27	54.83
280.1	51.99	48.01	45.80	52.46	53.42	54.15
320.1	52.10	47.80	45.49	51.41	52.30	52.98
380.1	51.22	47.03	44.62	50.68	51.65	52.24
420.1	49.96	46.21	43.82	50.06	50.99	51.68
480.1	48.99	45.62	43.33	49.45	50.32	51.01
520.1	47.81	44.55	42.32	48.99	49.99	50.68
580.1	47.54	44.64	42.36	48.39	49.23	49.87
620.1	45.93	43.52	41.44	48.12	49.04	49.71
680.1	45.17	43.06	41.11	47.63	48.54	49.17
720.1	44.11	42.39	40.51	47.29	48.26	48.94
780.1	43.37	41.72	39.88	47.19	48.13	48.83
820.1	42.30	41.28	39.80	46.66	47.73	48.42
880.1	41.36	40.58	39.22	46.49	47.55	48.31
920.1	41.03	40.31	38.94	46.17	47.07	47.70
980.1	39.85	39.39	38.15	45.80	46.77	47.46
1020.1	39.32	39.12	37.98	45.60	46.55	47.09
1080.1	37.97	38.42	37.83	44.88	45.78	46.46
1120.1	37.52	37.99	37.52	44.85	45.72	46.34
1180.1	36.35	36.89	36.66	44.66	45.67	46.37
1220.1	36.08	36.63	36.40	44.62	45.57	46.25
1280.1	35.33	36.16	35.90	44.63	45.64	46.30
1320.1	35.17	35.95	35.57	44.68	45.56	46.11
1380.1	34.12	35.32	35.34	44.55	45.30	45.73
1420.1	33.94	35.38	35.50	44.56	45.24	45.52
1480.1	33.24	35.23	35.80	44.56	45.05	45.20
1520.1	33.05	35.04	35.63	44.70	45.12	45.13
1580.1	32.11	34.23	35.25	44.61	44.91	44.85
1620.1	31.63	33.46	34.46	44.52	44.84	44.83
1680.1	31.19	32.90	34.00	43.90	44.25	44.27
1720.1	30.64	32.10	33.12	43.89	44.29	44.33
1780.1	30.10	31.51	32.66	43.14	43.62	43.87
1820.1	29.69	31.04	32.18	43.09	43.54	43.67
1880.1	29.69	30.98	32.08	43.09	43.74	44.12
1920.1	29.05	30.14	31.10	42.85	43.47	43.75
1980.1	29.04	30.21	31.10	42.87	43.73	44.18

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	51.99	51.89	52.29
50.1	80.1	37.83	38.22	38.43
90.1	120.1	32.95	33.28	33.47
150.1	180.1	29.56	29.98	30.26
190.1	220.1	27.74	28.12	28.41
250.1	280.1	26.36	26.80	27.14
290.1	320.1	26.02	26.58	26.99
350.1	380.1	25.04	25.69	26.26
390.1	420.1	24.91	25.59	26.17
450.1	480.1	24.97	25.81	26.52
490.1	520.1	24.43	25.35	26.22
550.1	580.1	24.30	25.25	26.02
590.1	620.1	24.61	25.67	26.54
650.1	680.1	23.49	24.28	24.67
690.1	720.1	22.66	23.09	23.18
750.1	780.1	21.42	21.69	21.78
790.1	820.1	20.63	20.76	20.90
850.1	880.1	20.54	20.73	20.85
890.1	920.1	20.89	21.01	21.15
950.1	980.1	21.66	21.86	21.86
990.1	1020.1	22.79	23.03	23.03
1050.1	1080.1	25.52	25.64	25.27
1090.1	1120.1	27.83	27.25	26.12
1150.1	1180.1	27.58	25.46	24.16
1190.1	1220.1	24.81	23.09	22.11
1250.1	1280.1	20.91	19.72	19.07
1290.1	1320.1	18.81	17.86	17.26
1350.1	1380.1	16.32	15.45	14.93
1390.1	1420.1	15.09	14.17	13.70
1450.1	1480.1	13.74	12.86	12.32
1490.1	1520.1	12.97	11.99	11.51
1550.1	1580.1	12.05	11.08	10.57
1590.1	1620.1	11.54	10.60	10.06
1650.1	1680.1	10.76	9.92	9.42
1690.1	1720.1	10.41	9.57	9.12
1750.1	1780.1	9.89	9.10	8.72
1790.1	1820.1	9.66	8.82	8.51
1850.1	1880.1	9.36	8.58	8.21
1890.1	1920.1	9.28	8.59	8.20
1950.1	1980.1	8.96	8.39	8.08

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+4	+7	+10
10.1	40.1	1.12	1.06	1.09
50.1	80.1	1.28	1.11	1.02
90.1	120.1	1.26	1.10	1.03
150.1	180.1	1.26	1.14	1.07
190.1	220.1	1.31	1.18	1.11
250.1	280.1	1.31	1.20	1.13
290.1	320.1	1.35	1.24	1.16
350.1	380.1	1.39	1.26	1.18
390.1	420.1	1.43	1.30	1.22
450.1	480.1	1.48	1.33	1.24
490.1	520.1	1.52	1.37	1.26
550.1	580.1	1.62	1.49	1.38
590.1	620.1	1.65	1.51	1.41
650.1	680.1	1.70	1.54	1.44
690.1	720.1	1.72	1.56	1.48
750.1	780.1	1.85	1.65	1.56
790.1	820.1	1.89	1.69	1.58
850.1	880.1	1.99	1.77	1.63
890.1	920.1	2.00	1.80	1.64
950.1	980.1	2.02	1.84	1.68
990.1	1020.1	1.98	1.82	1.68
1050.1	1080.1	1.86	1.71	1.58
1090.1	1120.1	1.74	1.59	1.48
1150.1	1180.1	1.55	1.41	1.34
1190.1	1220.1	1.44	1.32	1.28
1250.1	1280.1	1.30	1.19	1.16
1290.1	1320.1	1.23	1.12	1.10
1350.1	1380.1	1.14	1.02	1.06
1390.1	1420.1	1.13	1.06	1.12
1450.1	1480.1	1.20	1.21	1.26
1490.1	1520.1	1.25	1.28	1.34
1550.1	1580.1	1.37	1.44	1.52
1590.1	1620.1	1.43	1.51	1.60
1650.1	1680.1	1.57	1.71	1.81
1690.1	1720.1	1.63	1.78	1.90
1750.1	1780.1	1.78	1.99	2.12
1790.1	1820.1	1.81	2.06	2.20
1850.1	1880.1	1.93	2.22	2.38
1890.1	1920.1	1.95	2.27	2.46
1950.1	1980.1	2.02	2.37	2.55

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+4	+7	+10
40.1	1.84	2.77	4.08
80.1	1.77	2.58	3.69
120.1	1.72	2.46	3.42
180.1	1.78	2.59	3.64
220.1	1.69	2.38	3.27
280.1	1.82	2.65	3.69
320.1	1.74	2.46	3.38
380.1	1.76	2.49	3.42
420.1	1.78	2.52	3.47
480.1	1.72	2.41	3.27
520.1	1.86	2.66	3.65
580.1	1.75	2.44	3.29
620.1	1.81	2.56	3.48
680.1	1.80	2.52	3.40
720.1	1.81	2.51	3.37
780.1	1.89	2.66	3.60
820.1	1.83	2.52	3.38
880.1	1.88	2.61	3.50
920.1	1.85	2.54	3.38
980.1	1.88	2.61	3.49
1020.1	1.99	2.75	3.67
1080.1	1.91	2.60	3.46
1120.1	1.98	2.69	3.55
1180.1	1.99	2.72	3.62
1220.1	1.99	2.71	3.58
1280.1	2.02	2.73	3.62
1320.1	2.06	2.78	3.67
1380.1	2.07	2.76	3.62
1420.1	2.07	2.73	3.57
1480.1	2.11	2.77	3.60
1520.1	2.13	2.80	3.63
1580.1	2.16	2.80	3.60
1620.1	2.18	2.80	3.59
1680.1	2.23	2.86	3.65
1720.1	2.26	2.89	3.67
1780.1	2.27	2.89	3.64
1820.1	2.28	2.90	3.64
1880.1	2.30	2.92	3.67
1920.1	2.31	2.92	3.65
1980.1	2.31	2.90	3.62

IF (OUT) (MHz)	IF VSWR @LO=1500.1MHz (:1) @LO (dBm)		
	+4	+7	+10
10.1	1.14	1.13	1.14
50.1	1.07	1.02	1.06
90.1	1.06	1.01	1.06
130.1	1.08	1.02	1.06
170.1	1.10	1.04	1.05
210.1	1.10	1.04	1.05
250.1	1.10	1.04	1.05
290.1	1.09	1.06	1.09
330.1	1.11	1.09	1.13
370.1	1.16	1.15	1.17
410.1	1.20	1.18	1.20
450.1	1.25	1.22	1.23
490.1	1.29	1.26	1.26
530.1	1.31	1.27	1.27
570.1	1.37	1.34	1.34
610.1	1.43	1.40	1.40
650.1	1.53	1.50	1.48
690.1	1.60	1.57	1.55
730.1	1.68	1.63	1.60
770.1	1.75	1.70	1.65
810.1	1.80	1.74	1.69
850.1	1.88	1.82	1.77
890.1	1.97	1.91	1.86
930.1	2.10	2.04	1.98
970.1	2.17	2.11	2.05
1010.1	2.22	2.17	2.11
1050.1	2.26	2.22	2.15
1090.1	2.27	2.23	2.17
1130.1	2.35	2.33	2.28
1170.1	2.36	2.34	2.30
1210.1	2.43	2.43	2.40
1250.1	2.41	2.41	2.38
1290.1	2.40	2.40	2.38
1310.1	2.42	2.43	2.41
1350.1	2.42	2.42	2.41
1370.1	2.37	2.36	2.35
1410.1	2.41	2.41	2.40
1430.1	2.44	2.42	2.41
1470.1	2.42	2.40	2.39
1490.1	2.49	2.47	2.45

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	17	9	22	27	18	36	30	44	36	48
1	-	15	+0	37	16	29	29	27	43	40	48	41
2	78	54	60	48	61	67	>69	59	48	67	53	66
3	>90	62	60	63	57	68	60	64	67	64	>69	68
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 750.1 MHz; -14.00 dBm.**
LO IN: 780.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.8 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	26	19	31	39	33	53	49	68	56	72
1	-	15	+0	37	16	34	32	33	48	51	62	57
2	58	57	56	48	59	48	56	56	44	60	54	67
3	>90	39	41	44	43	61	57	47	51	46	59	57
4	>90	74	65	55	68	54	66	63	>79	66	57	72
5	>90	72	76	75	56	63	52	64	55	63	64	63
6	>90	>79	>79	>79	71	70	>79	68	>79	69	79	71
7	>90	>79	>79	>79	>79	75	72	>79	68	>79	69	75
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 750.1 MHz; -4.00 dBm.**
LO IN: 780.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.82 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.