Frequency Mixer SRA-220+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	5.74	5.31	5.12
70.8	100.8	6.32	5.88	5.64
131.6	161.6	6.57	6.09	5.80
192.3	222.3	6.57	6.07	5.80
253.0	283.0	6.64	6.11	5.83
313.8	343.8	6.88	6.30	6.00
374.5	404.5	6.90	6.35	6.10
435.2	465.2	6.85	6.37	6.14
496.0	526.0	7.00	6.51	6.28
556.7	586.7	7.26	6.72	6.48
617.4	647.4	7.41	6.84	6.58
678.1	708.1	7.63	7.01	6.72
738.9	768.9	7.97	7.25	6.95
799.6	829.6	8.11	7.41	7.05
860.3	890.3	8.24	7.49	7.13
921.1	951.1	8.49	7.66	7.30
981.8	1011.8	8.50	7.74	7.39
1042.5	1072.5	8.47	7.74	7.40
1103.3	1133.3	8.48	7.76	7.43
1164.0	1194.0	8.61	7.86	7.52
1224.7	1254.7	8.70	7.92	7.56
1285.5	1315.5	8.71	7.98	7.60
1346.2	1376.2	8.92	8.18	7.80
1406.9	1436.9	8.90	8.19	7.80
1467.7	1497.7	8.74	8.06	7.69
1528.4	1558.4	8.89	8.20	7.77
1589.1	1619.1	8.94	8.26	7.81
1649.9	1679.9	8.85	8.20	7.75
1730.8	1760.8	8.86	8.21	7.80
1791.6	1821.6	8.91	8.24	7.86
1872.5	1902.5	9.12	8.42	8.01
1933.3	1963.3	9.33	8.62	8.19
2014.2	2044.2	9.53	8.86	8.39
2075.0	2105.0	9.66	8.97	8.52
2156.0	2186.0	10.08	9.25	8.77
2216.7	2246.7	10.54	9.58	9.04
2297.7	2327.7	11.05	10.04	9.43
2358.4	2388.4	11.26	10.32	9.69
2439.4	2469.4	11.59	10.63	10.04
2500.1	2530.1	12.08	11.06	10.45

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+7	+10	+13
10.1	40.1	24.20	26.17	27.44
70.8	100.8	19.96	20.48	23.72
131.6	161.6	21.33	25.50	23.69
192.3	222.3	22.38	21.83	19.70
253.0	283.0	22.06	19.99	19.82
313.8	343.8	21.16	17.88	19.88
374.5	404.5	17.00	17.39	22.01
435.2	465.2	16.95	20.24	26.14
496.0	526.0	17.68	21.15	26.86
556.7	586.7	18.80	22.63	26.76
617.4	647.4	17.76	23.09	25.08
678.1	708.1	18.68	25.36	26.36
738.9	768.9	18.37	26.37	23.62
799.6	829.6	17.30	23.45	26.48
860.3	890.3	18.70	26.26	26.20
921.1	951.1	16.83	22.87	26.35
981.8	1011.8	16.18	24.22	22.11
1042.5	1072.5	16.62	22.36	19.97
1103.3	1133.3	17.11	20.87	19.28
1164.0	1194.0	18.90	20.15	19.00
1224.7	1254.7	19.02	18.89	18.72
1285.5	1315.5	20.53	19.32	19.19
1346.2	1376.2	18.69	20.68	19.71
1406.9	1436.9	17.45	19.86	19.81
1467.7	1497.7	17.70	17.88	18.13
1528.4	1558.4	18.44	18.75	17.40
1589.1	1619.1	19.23	18.00	17.45
1649.9	1679.9	17.81	17.63	17.43
1730.8	1760.8	15.62	16.31	17.06
1791.6	1821.6	15.04	15.08	16.09
1872.5	1902.5	15.14	14.70	15.79
1933.3	1963.3	15.77	15.06	15.93
2014.2	2044.2	16.67	16.53	16.76
2075.0	2105.0	17.18	18.24	17.12
2156.0	2186.0	18.67	19.11	18.65
2216.7	2246.7	19.94	19.66	19.43
2297.7	2327.7	19.39	19.88	20.74
2358.4	2388.4	17.61	19.14	20.99
2439.4	2469.4	16.40	18.60	20.86
2500.1	2530.1	16.25	18.83	22.00

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	0.88	0.34	0.30
70.8	100.8	0.58	0.37	0.19
131.6	161.6	0.49	0.24	0.13
192.3	222.3	0.56	0.30	0.17
253.0	283.0	0.58	0.32	0.16
313.8	343.8	0.44	0.25	0.13
374.5	404.5	0.50	0.24	0.11
435.2	465.2	0.53	0.21	0.10
496.0	526.0	0.43	0.17	0.07
556.7	586.7	0.37	0.13	0.07
617.4	647.4	0.35	0.13	0.06
678.1	708.1	0.31	0.11	0.05
738.9	768.9	0.28	0.09	0.04
799.6	829.6	0.25	0.09	0.04
860.3	890.3	0.30	0.10	0.05
921.1	951.1	0.38	0.13	0.07
981.8	1011.8	0.41	0.13	0.05
1042.5	1072.5	0.51	0.17	0.06
1103.3	1133.3	0.54	0.18	0.08
1164.0	1194.0	0.53	0.18	0.08
1224.7	1254.7	0.56	0.22	0.10
1285.5	1315.5	0.52	0.21	0.10
1346.2	1376.2	0.60	0.22	0.10
1406.9	1436.9	0.66	0.28	0.12
1467.7	1497.7	0.78	0.34	0.16
1528.4	1558.4	0.77	0.34	0.15
1589.1	1619.1	0.67	0.29	0.13
1649.9	1679.9	0.80	0.36	0.19
1730.8	1760.8	0.87	0.41	0.23
1791.6	1821.6	0.91	0.45	0.27
1872.5	1902.5	0.87	0.43	0.29
1933.3	1963.3	0.83	0.44	0.30
2014.2	2044.2	0.86	0.49	0.34
2075.0	2105.0	0.87	0.51	0.33
2156.0	2186.0	0.83	0.47	0.33
2216.7	2246.7	0.74	0.43	0.31
2297.7	2327.7	0.65	0.42	0.31
2358.4	2388.4	0.66	0.42	0.30
2439.4	2469.4	0.67	0.40	0.25
2500.1	2530.1	0.63	0.39	0.25

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (dB)
		@LO (dBm)
		+10
1000.0	10.1	7.55
979.8	30.3	7.48
959.6	50.5	7.48
939.4	70.7	7.61
919.2	90.9	7.63
899.0	111.1	7.72
878.8	131.3	7.71
858.6	151.5	7.70
838.4	171.7	7.91
818.2	191.9	7.86
798.0	212.1	7.77
777.8	232.3	7.88
757.6	252.5	7.76
737.3	272.8	7.88
717.1	293.0	7.79
696.9	313.2	7.83
676.7	333.4	7.79
656.5	353.6	7.73
636.3	373.8	7.83
616.1	394.0	7.68
575.7	434.4	7.61
555.5	454.6	7.63
515.1	495.0	7.63
494.9	515.2	7.55
454.5	555.6	7.45
434.3	575.8	7.49
393.9	616.2	7.45
373.7	636.4	7.44
333.3	676.8	7.50
313.1	697.0	7.51
272.7	737.4	7.43
252.4	757.7	7.48
212.0	798.1	7.49
191.8	818.3	7.53
151.4	858.7	7.56
131.2	878.9	7.56
90.8	919.3	7.65
70.6	939.5	7.50
30.2	979.9	7.72
10.0	1000.1	8.24

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm)
		+10
10.0	20.1	5.89
110.5	120.6	5.10
211.1	221.2	4.79
311.6	321.7	4.93
412.2	422.3	4.63
512.7	522.8	4.69
613.3	623.4	4.61
713.8	723.9	4.85
814.4	824.5	4.85
914.9	925.0	5.23
1015.5	1025.6	5.20
1116.0	1126.1	5.34
1216.6	1226.7	5.46
1317.1	1327.2	5.56
1417.7	1427.8	5.85
1518.2	1528.3	6.00
1598.6	1608.7	6.33
1699.2	1709.3	6.53
1779.6	1789.7	6.93
1880.2	1890.3	7.49
1960.6	1970.7	7.60
2061.1	2071.2	7.79
2141.6	2151.7	7.81
2242.1	2252.2	7.80
2322.6	2332.7	7.80
2423.1	2433.2	7.93
2503.6	2513.7	8.13
2604.1	2614.2	8.34
2684.5	2694.6	8.50
2785.1	2795.2	8.74
2865.5	2875.6	8.66
2966.1	2976.2	8.72
3046.5	3056.6	8.90
3147.0	3157.1	9.14
3227.5	3237.6	9.40
3328.0	3338.1	9.44
3408.5	3418.6	9.70
3509.0	3519.1	10.33
3589.5	3599.6	10.68
3690.0	3700.1	11.33

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2010.1MHz (dB)
		@LO (dBm)
		+10
2000.0	10.1	9.53
1939.7	70.4	9.63
1879.4	130.7	9.40
1819.1	191.0	9.28
1778.9	231.2	9.25
1718.6	291.5	9.17
1678.4	331.7	8.93
1618.1	392.0	8.84
1577.9	432.2	8.80
1517.6	492.5	8.61
1477.4	532.7	8.51
1417.1	593.0	8.41
1376.9	633.2	8.42
1316.6	693.5	8.41
1276.4	733.7	8.36
1216.1	794.0	8.34
1175.9	834.2	8.34
1115.6	894.5	8.36
1075.4	934.7	8.38
1015.1	995.0	8.48
974.8	1035.3	8.22
914.5	1095.6	8.13
874.3	1135.8	8.02
814.0	1196.1	8.07
773.8	1236.3	7.92
713.5	1296.6	7.87
673.3	1336.8	7.92
613.0	1397.1	7.98
572.8	1437.3	7.87
512.5	1497.6	7.93
472.3	1537.8	7.94
412.0	1598.1	7.97
371.8	1638.3	8.01
311.5	1698.6	8.09
271.3	1738.8	8.12
211.0	1799.1	8.09
170.8	1839.3	8.20
110.5	1899.6	8.39
70.3	1939.8	8.52
10.0	2000.1	9.25

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+7	+10	+13	+7	+10	+13
40.1	57.61	61.33	66.05	39.84	44.05	47.39
100.8	55.27	59.20	62.98	39.99	43.37	45.61
161.6	53.54	57.47	62.33	41.10	43.86	44.82
222.3	52.16	56.71	62.38	41.89	43.83	43.18
283.0	50.59	54.56	59.89	43.42	44.19	42.63
343.8	49.60	54.02	59.76	45.18	43.79	41.82
404.5	48.90	53.29	57.97	46.37	42.72	40.11
465.2	47.62	51.54	55.96	47.70	41.99	39.21
526.0	46.26	49.68	53.18	48.90	41.44	38.46
586.7	45.44	48.37	51.03	51.51	42.41	39.49
647.4	44.67	46.97	49.06	50.95	42.64	39.41
708.1	44.71	46.97	48.93	50.24	42.45	39.36
768.9	44.22	47.21	49.82	49.13	44.44	40.83
829.6	43.81	47.04	49.60	45.43	44.96	41.31
890.3	43.81	47.16	50.56	42.51	45.41	43.10
951.1	43.34	48.75	55.83	39.17	42.98	43.27
1011.8	42.46	48.15	50.78	37.36	40.79	42.71
1072.5	41.41	43.87	44.68	36.47	40.51	43.60
1133.3	40.54	41.87	42.29	35.84	40.09	44.19
1194.0	40.13	41.21	41.30	35.37	39.45	43.66
1254.7	40.51	41.47	41.72	34.53	38.57	42.93
1315.5	40.78	41.71	42.03	33.48	37.25	41.48
1376.2	41.50	42.94	43.26	32.24	35.42	38.70
1436.9	41.81	44.39	46.25	31.21	33.61	35.95
1497.7	43.31	47.09	50.53	30.58	32.91	35.21
1558.4	43.20	47.05	51.77	29.61	32.09	34.63
1619.1	42.71	45.90	49.34	28.90	31.18	33.20
1679.9	41.27	43.80	46.41	28.21	30.00	31.38
1760.8	39.93	41.97	44.02	27.05	28.12	28.79
1821.6	39.29	41.00	42.63	26.72	27.35	27.79
1902.5	38.78	40.02	41.21	27.06	27.04	27.29
1963.3	37.81	38.67	39.61	27.21	26.98	27.03
2044.2	37.08	37.82	38.32	27.23	27.03	26.57
2105.0	36.42	36.92	37.36	27.60	27.29	26.74
2186.0	36.14	36.34	36.75	28.22	27.57	26.92
2246.7	35.96	35.97	36.27	28.46	27.53	26.72
2327.7	36.00	35.82	35.55	28.77	27.64	26.37
2388.4	36.29	35.85	34.91	28.61	27.35	25.55
2469.4	36.68	35.78	34.61	28.20	26.68	24.77
2530.1	36.93	36.23	34.96	27.81	26.28	24.56

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+7	+10	+13
10.1	40.1	29.70	29.93	30.15
70.8	100.8	29.75	29.61	30.37
131.6	161.6	30.46	30.86	30.71
192.3	222.3	32.24	32.40	32.34
253.0	283.0	33.76	33.57	33.96
313.8	343.8	36.05	36.21	35.70
374.5	404.5	41.03	41.66	41.97
435.2	465.2	51.75	52.36	50.67
496.0	526.0	52.81	56.57	51.31
556.7	586.7	41.52	43.03	44.50
617.4	647.4	36.93	37.25	37.98
678.1	708.1	34.13	33.99	34.06
738.9	768.9	32.66	32.33	31.92
799.6	829.6	31.75	31.33	30.98
860.3	890.3	31.13	30.90	30.54
921.1	951.1	31.10	31.30	31.20
981.8	1011.8	32.14	32.75	33.28
1042.5	1072.5	33.37	35.23	36.72
1103.3	1133.3	33.83	35.02	36.39
1164.0	1194.0	33.15	33.82	34.43
1224.7	1254.7	31.92	31.90	32.01
1285.5	1315.5	30.52	30.23	29.85
1346.2	1376.2	29.43	29.04	28.57
1406.9	1436.9	28.03	27.29	26.94
1467.7	1497.7	27.39	26.22	25.52
1528.4	1558.4	27.00	25.83	25.23
1589.1	1619.1	27.15	26.31	25.75
1649.9	1679.9	27.87	27.09	26.54
1730.8	1760.8	29.36	28.45	27.99
1791.6	1821.6	30.07	29.35	28.64
1872.5	1902.5	30.24	29.68	29.20
1933.3	1963.3	29.42	29.57	29.13
2014.2	2044.2	27.59	27.71	27.49
2075.0	2105.0	26.69	26.76	26.60
2156.0	2186.0	26.14	26.36	26.44
2216.7	2246.7	25.96	26.38	26.73
2297.7	2327.7	26.76	27.30	27.58
2358.4	2388.4	28.07	28.51	28.75
2439.4	2469.4	30.00	29.95	30.10
2500.1	2530.1	32.08	31.33	31.04

Frequency Mixer SRA-220+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+7	+10	+13
10.1	40.1	1.54	1.29	1.19
70.8	100.8	1.55	1.36	1.24
131.6	161.6	1.62	1.44	1.32
192.3	222.3	1.73	1.53	1.42
253.0	283.0	1.87	1.66	1.54
313.8	343.8	2.02	1.79	1.67
374.5	404.5	2.14	1.91	1.81
435.2	465.2	2.27	2.05	1.96
496.0	526.0	2.40	2.19	2.08
556.7	586.7	2.57	2.31	2.20
617.4	647.4	2.74	2.46	2.33
678.1	708.1	2.87	2.59	2.44
738.9	768.9	2.99	2.67	2.50
799.6	829.6	3.02	2.70	2.52
860.3	890.3	3.06	2.69	2.51
921.1	951.1	3.06	2.68	2.50
981.8	1011.8	2.99	2.63	2.45
1042.5	1072.5	2.86	2.53	2.34
1103.3	1133.3	2.83	2.51	2.33
1164.0	1194.0	2.82	2.51	2.34
1224.7	1254.7	2.72	2.43	2.27
1285.5	1315.5	2.61	2.36	2.22
1346.2	1376.2	2.46	2.24	2.12
1406.9	1436.9	2.26	2.07	1.96
1467.7	1497.7	2.09	1.92	1.82
1528.4	1558.4	1.93	1.80	1.71
1589.1	1619.1	1.77	1.67	1.60
1649.9	1679.9	1.62	1.54	1.48
1730.8	1760.8	1.44	1.36	1.32
1791.6	1821.6	1.31	1.24	1.20
1872.5	1902.5	1.22	1.13	1.07
1933.3	1963.3	1.21	1.14	1.09
2014.2	2044.2	1.32	1.26	1.23
2075.0	2105.0	1.41	1.36	1.33
2156.0	2186.0	1.57	1.52	1.50
2216.7	2246.7	1.69	1.64	1.61
2297.7	2327.7	1.83	1.78	1.74
2358.4	2388.4	1.91	1.87	1.82
2439.4	2469.4	2.00	1.96	1.94
2500.1	2530.1	2.06	2.03	2.00

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+7	+10	+13
40.1	1.07	1.53	2.25
100.8	1.10	1.44	2.06
161.6	1.11	1.41	2.00
222.3	1.15	1.40	2.01
283.0	1.21	1.33	1.89
343.8	1.24	1.27	1.81
404.5	1.36	1.20	1.73
465.2	1.50	1.15	1.61
526.0	1.62	1.13	1.50
586.7	1.78	1.12	1.39
647.4	1.92	1.16	1.29
708.1	2.00	1.22	1.22
768.9	2.14	1.31	1.24
829.6	2.20	1.40	1.34
890.3	2.26	1.53	1.50
951.1	2.37	1.69	1.71
1011.8	2.42	1.83	1.92
1072.5	2.38	1.92	2.09
1133.3	2.31	2.01	2.26
1194.0	2.26	2.10	2.42
1254.7	2.18	2.18	2.57
1315.5	2.14	2.25	2.68
1376.2	2.08	2.26	2.69
1436.9	2.00	2.28	2.75
1497.7	1.95	2.30	2.80
1558.4	1.91	2.31	2.82
1619.1	1.91	2.37	2.90
1679.9	1.88	2.35	2.86
1760.8	1.82	2.30	2.80
1821.6	1.81	2.27	2.74
1902.5	1.81	2.24	2.66
1963.3	1.79	2.18	2.57
2044.2	1.77	2.10	2.44
2105.0	1.76	2.05	2.35
2186.0	1.74	1.99	2.25
2246.7	1.72	1.93	2.17
2327.7	1.68	1.84	2.05
2388.4	1.65	1.78	1.96
2469.4	1.63	1.70	1.85
2530.1	1.59	1.62	1.74

IF (OUT) (MHz)	IF VSWR @LO=2000MHz (:1) @LO (dBm)		
	+7	+10	+13
10.0	1.69	1.43	1.27
70.0	1.65	1.39	1.24
130.0	1.65	1.40	1.25
190.0	1.66	1.41	1.27
230.0	1.63	1.39	1.26
290.0	1.61	1.38	1.29
330.0	1.57	1.35	1.27
390.0	1.57	1.38	1.34
430.0	1.54	1.36	1.33
490.0	1.52	1.36	1.36
530.0	1.51	1.37	1.38
590.0	1.46	1.34	1.38
630.0	1.46	1.35	1.41
690.0	1.42	1.35	1.44
730.0	1.41	1.34	1.44
790.0	1.39	1.34	1.45
830.0	1.38	1.34	1.45
890.0	1.35	1.30	1.40
930.0	1.35	1.30	1.40
990.0	1.31	1.26	1.36
1030.0	1.31	1.24	1.34
1090.0	1.31	1.23	1.31
1130.0	1.31	1.22	1.29
1190.0	1.35	1.23	1.25
1230.0	1.34	1.22	1.23
1290.0	1.38	1.23	1.20
1330.0	1.39	1.23	1.18
1390.0	1.40	1.25	1.18
1430.0	1.42	1.27	1.18
1490.0	1.45	1.31	1.23
1530.0	1.48	1.33	1.25
1590.0	1.55	1.42	1.34
1630.0	1.61	1.48	1.41
1690.0	1.66	1.54	1.47
1730.0	1.73	1.62	1.55
1790.0	1.74	1.64	1.58
1830.0	1.80	1.70	1.65
1890.0	1.83	1.75	1.72
1930.0	1.86	1.79	1.76
1990.0	1.93	1.87	1.85

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	11	15	26	34	20	34	33	38	44	48
1	-	25	+0	36	14	31	36	38	39	46	50	57
2	81	61	54	58	50	57	50	63	57	66	67	71
3	>90	>72	71	>72	>72	>72	>72	>72	>72	>72	>72	>72
4	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
5	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
6	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
7	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
8	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
9	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
10	>90	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72	>72
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 1000 MHz; -10.00 dBm.
LO IN: 1030 MHz; +10.00 dBm
IF OUT: 30 MHz; -17.83 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	21	25	39	46	30	48	44	50	56	61
1	-	25	+0	37	14	32	37	39	41	47	53	59
2	62	58	44	49	42	49	42	55	49	58	59	65
3	>90	57	51	64	59	61	52	63	56	66	56	79
4	>90	71	74	69	76	68	66	70	67	74	72	76
5	>90	>82	82	>82	75	>82	73	>82	70	80	73	77
6	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
7	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
8	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
9	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
10	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1000 MHz; 0.00 dBm.
LO IN: 1030 MHz; +10.00 dBm
IF OUT: 30 MHz; -7.92 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.