Frequency Mixer SRA-1+

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	6.01	5.57	5.24
30.5	60.5	6.41	5.80	5.52
50.8	80.8	6.39	5.71	5.50
71.2	101.2	6.36	5.77	5.51
111.9	141.9	6.38	5.80	5.56
132.2	162.2	6.29	5.80	5.59
172.9	202.9	6.17	5.77	5.61
193.3	223.3	6.14	5.76	5.59
234.0	264.0	6.26	5.88	5.68
254.3	284.3	6.21	5.85	5.69
295.0	325.0	6.33	5.93	5.74
315.4	345.4	6.43	6.03	5.82
356.1	386.1	6.50	6.17	5.97
376.4	406.4	6.55	6.21	6.00
417.1	447.1	6.63	6.30	6.13
437.5	467.5	6.72	6.37	6.21
478.2	508.2	6.76	6.35	6.17
498.5	528.5	6.94	6.49	6.27
539.2	569.2	7.14	6.72	6.49
559.6	589.6	7.29	6.83	6.56
600.3	630.3	7.78	7.40	7.05
620.6	650.6	7.90	7.55	7.23
661.3	691.3	8.58	8.19	7.84
681.7	711.7	8.96	8.54	8.15
722.4	752.4	9.48	8.93	8.41
742.7	772.7	9.75	9.12	8.50
783.4	813.4	9.86	9.05	8.22
803.8	833.8	10.02	9.06	8.12
844.5	874.5	9.94	8.72	7.89
864.8	894.8	10.01	8.80	7.95
905.5	935.5	10.27	8.96	7.97
925.9	955.9	10.28	8.80	7.84
966.6	996.6	10.61	8.62	7.77
986.9	1016.9	10.69	8.51	7.76
1027.6	1057.6	11.08	8.61	7.93
1048.0	1078.0	11.45	8.75	8.04
1088.7	1118.7	12.13	9.02	8.32
1109.0	1139.0	12.58	9.28	8.53
1149.7	1179.7	13.38	9.83	9.01
1170.1	1200.1	13.86	10.16	9.30

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
10.1	40.1	15.83	16.77	17.77
30.5	60.5	16.40	17.69	20.82
50.8	80.8	18.48	21.14	20.76
71.2	101.2	17.87	21.11	15.72
111.9	141.9	20.02	14.50	14.75
132.2	162.2	18.25	14.21	16.39
172.9	202.9	13.05	13.48	19.00
193.3	223.3	11.98	14.43	21.20
234.0	264.0	11.72	13.96	21.16
254.3	284.3	12.83	17.83	18.49
295.0	325.0	13.50	18.97	12.94
315.4	345.4	12.49	19.54	13.61
356.1	386.1	13.26	19.26	14.49
376.4	406.4	12.92	20.41	15.62
417.1	447.1	16.49	16.79	14.21
437.5	467.5	15.28	17.11	14.37
478.2	508.2	17.62	12.99	11.99
498.5	528.5	12.37	11.38	11.72
539.2	569.2	9.72	8.35	8.94
559.6	589.6	7.09	7.25	9.05
600.3	630.3	3.88	3.36	5.39
620.6	650.6	3.31	2.46	3.38
661.3	691.3	2.65	1.88	1.85
681.7	711.7	2.74	2.09	2.10
722.4	752.4	3.54	3.55	4.03
742.7	772.7	4.32	4.74	5.67
783.4	813.4	5.57	6.54	8.53
803.8	833.8	6.01	7.44	10.14
844.5	874.5	7.69	10.72	14.69
864.8	894.8	8.37	11.98	18.82
905.5	935.5	8.78	11.98	13.58
925.9	955.9	8.96	11.88	10.79
966.6	996.6	9.68	8.70	10.74
986.9	1016.9	11.60	8.33	11.15
1027.6	1057.6	17.07	7.89	11.16
1048.0	1078.0	15.70	7.83	11.20
1088.7	1118.7	14.15	7.36	11.52
1109.0	1139.0	11.45	7.24	11.45
1149.7	1179.7	8.14	7.44	11.75
1170.1	1200.1	6.26	7.46	12.11

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	0.17	0.13	0.02
30.5	60.5	0.18	-0.04	-0.03
50.8	80.8	0.40	0.09	0.08
71.2	101.2	0.25	0.11	0.07
111.9	141.9	0.25	0.11	0.05
132.2	162.2	0.26	0.10	0.01
172.9	202.9	0.32	0.13	0.06
193.3	223.3	0.33	0.11	0.07
234.0	264.0	0.32	0.10	0.03
254.3	284.3	0.35	0.14	0.08
295.0	325.0	0.30	0.14	0.08
315.4	345.4	0.29	0.10	0.05
356.1	386.1	0.34	0.13	0.07
376.4	406.4	0.27	0.08	0.04
417.1	447.1	0.45	0.15	0.09
437.5	467.5	0.47	0.19	0.10
478.2	508.2	0.50	0.26	0.12
498.5	528.5	0.50	0.32	0.14
539.2	569.2	0.56	0.41	0.21
559.6	589.6	0.64	0.49	0.24
600.3	630.3	0.69	0.48	0.29
620.6	650.6	0.72	0.47	0.25
661.3	691.3	0.48	0.21	0.03
681.7	711.7	0.21	-0.03	-0.17
722.4	752.4	-0.22	-0.40	-0.40
742.7	772.7	-0.39	-0.53	-0.48
783.4	813.4	-0.34	-0.43	-0.26
803.8	833.8	-0.45	-0.40	-0.17
844.5	874.5	-0.20	-0.14	-0.01
864.8	894.8	-0.05	-0.01	0.09
905.5	935.5	-0.01	0.06	0.26
925.9	955.9	0.08	0.23	0.39
966.6	996.6	0.26	0.65	0.51
986.9	1016.9	0.40	0.83	0.55
1027.6	1057.6	0.59	1.04	0.57
1048.0	1078.0	0.65	1.14	0.60
1088.7	1118.7	0.68	1.30	0.66
1109.0	1139.0	0.65	1.34	0.64
1149.7	1179.7	0.76	1.34	0.60
1170.1	1200.1	0.83	1.38	0.56

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=260.1MHz (dB) @LO (dBm) +7
250.1	10.0	6.26
243.9	16.2	6.15
237.8	22.3	6.18
231.6	28.5	6.07
225.5	34.6	6.08
219.3	40.8	6.11
213.2	46.9	5.99
207.0	53.1	6.07
200.9	59.2	5.88
194.7	65.4	5.98
188.6	71.5	5.91
182.4	77.7	5.96
176.3	83.8	5.92
170.1	90.0	5.85
163.9	96.2	5.85
157.8	102.3	5.78
151.6	108.5	5.81
145.5	114.6	5.77
139.3	120.8	5.78
133.2	126.9	5.73
127.0	133.1	5.73
120.9	139.2	5.79
114.7	145.4	5.70
108.6	151.5	5.76
102.4	157.7	5.69
96.3	163.8	5.76
90.1	170.0	5.72
83.9	176.2	5.76
77.8	182.3	5.79
71.6	188.5	5.73
65.5	194.6	5.79
59.3	200.8	5.72
53.2	206.9	5.79
47.0	213.1	5.72
40.9	219.2	5.79
34.7	225.4	5.78
28.6	231.5	5.76
22.4	237.7	5.81
16.3	243.8	5.75
10.1	250.0	5.98

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +7
10.0	20.1	5.84
30.0	40.1	5.78
50.0	60.1	5.68
70.0	80.1	5.78
110.0	120.1	5.80
130.0	140.1	5.80
170.0	180.1	5.73
190.0	200.1	6.02
230.0	240.1	5.85
250.0	260.1	5.94
290.0	300.1	5.83
310.0	320.1	6.07
350.0	360.1	6.09
370.0	380.1	6.32
410.0	420.1	6.58
430.0	440.1	6.33
470.0	480.1	6.52
490.0	500.1	6.79
530.0	540.1	6.65
550.0	560.1	6.60
590.0	600.1	6.77
610.0	620.1	6.82
650.0	660.1	6.91
670.0	680.1	6.96
710.0	720.1	6.94
730.0	740.1	6.90
770.0	780.1	6.95
790.0	800.1	6.81
830.0	840.1	6.59
850.0	860.1	6.51
890.0	900.1	6.95
910.0	920.1	6.56
950.0	960.1	6.65
970.0	980.1	6.92
1010.0	1020.1	7.05
1030.0	1040.1	7.02
1070.0	1080.1	8.19
1090.0	1100.1	8.60
1130.0	1140.1	9.95
1150.0	1160.1	10.24

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=510.1MHz (dB) @LO (dBm) +7
500.1	10.0	7.06
487.5	22.6	6.95
475.0	35.1	6.77
462.4	47.7	6.68
449.8	60.3	6.64
437.3	72.8	6.47
424.7	85.4	6.37
412.2	97.9	6.34
399.6	110.5	6.31
387.0	123.1	6.27
374.5	135.6	6.22
361.9	148.2	6.21
349.3	160.8	6.19
336.8	173.3	6.17
324.2	185.9	6.13
311.6	198.5	6.12
299.1	211.0	6.14
286.5	223.6	6.16
273.9	236.2	6.20
261.4	248.7	6.25
248.8	261.3	6.29
236.3	273.8	6.27
223.7	286.4	6.30
211.1	299.0	6.32
198.6	311.5	6.32
186.0	324.1	6.32
173.4	336.7	6.36
160.9	349.2	6.41
148.3	361.8	6.41
135.7	374.4	6.40
123.2	386.9	6.38
110.6	399.5	6.38
98.0	412.1	6.37
85.5	424.6	6.38
72.9	437.2	6.43
60.4	449.7	6.44
47.8	462.3	6.44
35.2	474.9	6.47
22.7	487.4	6.50
10.1	500.0	6.65

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	65.45	69.35	76.55	73.29	70.14	67.05
60.5	63.03	65.95	69.69	71.44	68.17	66.17
80.8	59.38	61.70	66.24	69.22	66.47	65.15
101.2	56.86	59.95	63.92	66.40	65.12	63.33
141.9	53.96	57.61	62.39	59.85	59.96	59.81
162.2	51.91	55.21	59.25	56.50	57.74	58.36
202.9	49.92	53.59	57.65	52.80	54.30	54.92
223.3	49.38	53.02	56.93	51.20	53.45	54.59
264.0	47.82	50.78	53.82	48.60	50.65	52.06
284.3	47.36	50.49	53.51	47.41	49.00	50.45
325.0	46.36	49.50	52.21	45.89	46.62	48.13
345.4	45.91	49.13	52.04	46.64	46.69	47.03
386.1	44.83	47.95	50.95	43.90	46.11	48.22
406.4	43.84	46.53	48.85	43.09	45.38	47.19
447.1	42.51	45.08	47.41	41.58	43.76	44.60
467.5	41.69	44.24	46.64	41.72	44.63	45.69
508.2	40.69	42.96	45.73	41.82	43.42	44.09
528.5	40.77	43.08	45.72	43.31	42.46	42.75
569.2	40.66	43.24	45.57	46.49	44.94	42.89
589.6	40.55	42.99	44.78	43.90	46.14	43.58
630.3	39.53	42.23	44.01	37.30	37.47	38.30
650.6	39.20	42.19	44.81	36.31	35.91	36.06
691.3	38.20	40.64	42.96	35.41	34.50	33.63
711.7	37.43	39.35	41.00	34.93	33.83	32.90
752.4	37.22	39.28	41.23	34.59	33.54	32.51
772.7	37.27	39.68	42.25	34.13	33.19	32.09
813.4	36.97	39.52	42.53	33.44	32.68	31.43
833.8	37.11	40.11	43.82	31.95	31.67	30.72
874.5	36.22	39.28	42.60	28.59	28.98	28.89
894.8	36.05	38.56	41.22	27.65	27.99	28.27
935.5	36.02	37.84	39.90	24.50	25.15	26.58
955.9	36.23	38.09	40.29	22.99	23.61	25.38
996.6	35.00	37.46	40.18	20.67	21.27	22.99
1016.9	33.76	36.10	38.59	19.76	20.19	21.74
1057.6	32.80	34.59	36.48	18.42	18.19	19.40
1078.0	32.34	33.78	35.45	18.19	17.57	18.63
1118.7	31.93	32.68	33.83	18.01	16.84	17.57
1139.0	30.86	31.36	32.21	18.12	16.67	17.23
1179.7	30.40	30.70	31.43	17.92	16.40	16.86
1200.1	30.30	30.61	31.45	17.76	16.25	16.66

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	46.77	46.14	44.95
30.5	60.5	38.75	39.10	38.78
50.8	80.8	33.84	35.80	36.35
71.2	101.2	33.14	33.29	32.31
111.9	141.9	29.90	29.85	30.22
132.2	162.2	28.58	28.78	28.48
172.9	202.9	26.98	27.33	27.77
193.3	223.3	26.81	27.14	27.13
234.0	264.0	25.91	26.74	26.90
254.3	284.3	25.60	26.42	26.74
295.0	325.0	25.14	25.56	25.89
315.4	345.4	24.66	25.29	25.53
356.1	386.1	24.60	25.01	25.20
376.4	406.4	25.03	25.25	25.50
417.1	447.1	24.49	25.24	25.50
437.5	467.5	24.09	24.79	25.35
478.2	508.2	23.32	24.17	25.10
498.5	528.5	22.52	23.56	24.22
539.2	569.2	21.35	21.90	22.44
559.6	589.6	20.92	21.37	21.93
600.3	630.3	19.92	20.08	20.29
620.6	650.6	19.47	19.57	19.62
661.3	691.3	19.07	19.22	19.20
681.7	711.7	18.93	18.95	19.13
722.4	752.4	18.88	18.91	19.10
742.7	772.7	19.03	19.13	19.37
783.4	813.4	19.42	19.54	19.78
803.8	833.8	19.62	19.72	19.91
844.5	874.5	19.78	19.88	19.87
864.8	894.8	19.68	19.75	19.73
905.5	935.5	20.01	20.04	19.83
925.9	955.9	20.25	20.20	19.72
966.6	996.6	19.88	19.67	18.98
986.9	1016.9	19.54	19.25	18.59
1027.6	1057.6	18.80	18.33	17.64
1048.0	1078.0	18.33	17.75	16.99
1088.7	1118.7	17.35	16.46	15.66
1109.0	1139.0	16.87	15.96	15.19
1149.7	1179.7	15.98	14.99	14.16
1170.1	1200.1	15.59	14.65	13.85

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm) +4	+7	+10
10.1	40.1	1.42	1.27	1.05
30.5	60.5	1.36	1.18	1.09
50.8	80.8	1.34	1.19	1.08
71.2	101.2	1.35	1.16	1.06
111.9	141.9	1.28	1.11	1.02
132.2	162.2	1.23	1.08	1.01
172.9	202.9	1.18	1.04	1.04
193.3	223.3	1.16	1.02	1.06
234.0	264.0	1.13	1.02	1.12
254.3	284.3	1.11	1.04	1.14
295.0	325.0	1.06	1.08	1.16
315.4	345.4	1.05	1.09	1.18
356.1	386.1	1.01	1.12	1.22
376.4	406.4	1.02	1.15	1.25
417.1	447.1	1.08	1.21	1.31
437.5	467.5	1.11	1.26	1.36
478.2	508.2	1.13	1.33	1.45
498.5	528.5	1.12	1.33	1.46
539.2	569.2	1.12	1.32	1.44
559.6	589.6	1.09	1.29	1.40
600.3	630.3	1.05	1.15	1.25
620.6	650.6	1.06	1.11	1.18
661.3	691.3	1.16	1.10	1.07
681.7	711.7	1.24	1.17	1.12
722.4	752.4	1.39	1.31	1.26
742.7	772.7	1.48	1.41	1.35
783.4	813.4	1.64	1.56	1.51
803.8	833.8	1.73	1.65	1.61
844.5	874.5	1.93	1.85	1.84
864.8	894.8	2.01	1.93	1.92
905.5	935.5	2.20	2.12	2.11
925.9	955.9	2.36	2.25	2.24
966.6	996.6	2.64	2.49	2.48
986.9	1016.9	2.75	2.59	2.57
1027.6	1057.6	3.03	2.80	2.78
1048.0	1078.0	3.18	2.88	2.84
1088.7	1118.7	3.48	3.00	2.92
1109.0	1139.0	3.67	3.10	2.98
1149.7	1179.7	4.04	3.30	3.11
1170.1	1200.1	4.23	3.43	3.21

LO (MHz)	LO VSWR (:1) @LO (dBm) +4	+7	+10
40.1	1.09	1.50	2.24
60.5	1.09	1.43	2.08
80.8	1.11	1.41	2.01
101.2	1.09	1.44	2.07
141.9	1.11	1.48	2.14
162.2	1.09	1.46	2.08
202.9	1.06	1.53	2.18
223.3	1.06	1.56	2.23
264.0	1.06	1.57	2.21
284.3	1.09	1.62	2.28
325.0	1.15	1.71	2.38
345.4	1.18	1.73	2.38
386.1	1.26	1.84	2.52
406.4	1.31	1.89	2.58
447.1	1.38	1.94	2.62
467.5	1.43	2.00	2.68
508.2	1.55	2.11	2.77
528.5	1.61	2.16	2.82
569.2	1.74	2.31	2.98
589.6	1.81	2.39	3.06
630.3	1.90	2.50	3.19
650.6	1.97	2.58	3.29
691.3	2.09	2.69	3.39
711.7	2.14	2.71	3.40
752.4	2.28	2.83	3.51
772.7	2.34	2.87	3.54
813.4	2.48	2.94	3.56
833.8	2.56	3.00	3.60
874.5	2.73	3.10	3.68
894.8	2.89	3.20	3.74
935.5	3.17	3.39	3.89
955.9	3.27	3.43	3.91
996.6	3.51	3.53	3.95
1016.9	3.65	3.61	4.00
1057.6	3.90	3.79	4.10
1078.0	4.01	3.88	4.16
1118.7	4.21	4.01	4.23
1139.0	4.25	4.01	4.22
1179.7	4.20	3.94	4.14
1200.1	4.15	3.89	4.08

IF (OUT) (MHz)	IF VSWR @LO=500MHz (:1) @LO (dBm) +4	+7	+10
10.0	2.28	1.98	1.75
22.3	2.30	2.00	1.77
34.6	2.35	2.05	1.81
46.9	2.36	2.06	1.82
59.2	2.36	2.06	1.82
71.5	2.30	2.02	1.79
83.8	2.27	1.98	1.76
96.2	2.29	2.00	1.77
108.5	2.34	2.04	1.81
120.8	2.40	2.10	1.87
133.1	2.42	2.12	1.89
145.4	2.40	2.10	1.87
157.7	2.41	2.11	1.88
170.0	2.39	2.08	1.86
182.3	2.42	2.12	1.89
194.6	2.44	2.12	1.90
206.9	2.48	2.17	1.94
219.2	2.51	2.19	1.96
231.5	2.56	2.25	2.01
243.8	2.56	2.25	2.01
256.2	2.54	2.23	2.00
268.5	2.55	2.25	2.01
280.8	2.56	2.25	2.01
293.1	2.62	2.30	2.06
305.4	2.64	2.32	2.08
317.7	2.75	2.42	2.18
330.0	2.74	2.42	2.17
342.3	2.75	2.42	2.19
354.6	2.75	2.43	2.18
366.9	2.73	2.40	2.16
379.2	2.81	2.47	2.22
391.5	2.81	2.46	2.21
403.8	2.95	2.59	2.32
416.2	2.92	2.57	2.31
428.5	2.97	2.61	2.34
440.8	2.96	2.59	2.33
453.1	2.95	2.58	2.32
465.4	3.03	2.65	2.37
477.7	3.00	2.62	2.35
490.0	3.19	2.80	2.51

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	23	36	31	29	20	36	21	45	25	46
1	-	21	+0	34	14	42	23	37	35	51	30	57
2	>90	>70	69	>70	70	68	>70	>70	56	66	53	>70
3	>90	69	57	>70	64	>70	56	>70	53	>70	58	>70
4	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
5	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
6	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
7	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
8	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
9	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
10	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 250 MHz; -14.00 dBm.
LO IN: 280 MHz; +7.00 dBm
IF OUT: 30 MHz; -19.84 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	32	47	42	40	33	50	35	56	39	58
1	-	21	+0	33	13	47	21	37	38	53	36	62
2	72	65	58	65	61	67	66	65	49	62	48	66
3	>90	57	44	61	51	71	50	63	55	70	50	68
4	>90	>80	>80	>80	>80	>80	80	80	77	>80	66	76
5	>90	74	62	72	65	75	60	74	57	>80	55	76
6	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
7	>90	>80	76	>80	>80	>80	80	80	72	>80	69	>80
8	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>90	>80	>80	>80	>80	>80	>80	>80	76	>80	72	>80
10	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250 MHz; -4.00 dBm.
LO IN: 280 MHz; +7.00 dBm
IF OUT: 30 MHz; -9.99 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.