

Frequency Mixer

SCM-1LHNL

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+7	+10	+13	+7	+10	+13	+7	+10	+13						
1.0	31.0	6.20	5.80	5.56	10.1	40.1	21.89	21.26	25.29	10.1	40.1	1.11	0.78	0.56
2.2	32.2	5.89	5.50	5.28	30.4	60.4	19.60	23.55	25.26	30.4	60.4	0.92	0.76	0.48
4.1	34.1	5.67	5.36	5.15	50.6	80.6	20.24	24.29	25.42	50.6	80.6	0.96	0.67	0.47
6.0	36.0	5.62	5.32	5.12	70.9	100.9	23.38	25.83	24.42	70.9	100.9	1.03	0.63	0.46
9.9	39.9	5.60	5.25	5.09	91.1	121.1	21.12	26.07	20.60	91.1	121.1	0.99	0.61	0.42
10.1	40.1	5.50	5.13	4.97	111.4	141.4	21.92	19.52	18.22	111.4	141.4	0.84	0.57	0.37
30.4	60.4	5.93	5.51	5.30	131.6	161.6	24.62	20.46	17.12	131.6	161.6	0.91	0.58	0.39
50.6	80.6	5.89	5.50	5.34	151.9	181.9	26.73	18.56	16.09	151.9	181.9	0.87	0.56	0.39
70.9	100.9	5.76	5.44	5.34	172.2	202.2	21.30	16.15	15.91	172.2	202.2	0.88	0.50	0.35
91.1	121.1	5.80	5.48	5.33	192.4	222.4	18.95	16.40	15.58	192.4	222.4	0.79	0.50	0.36
131.6	161.6	5.74	5.48	5.37	212.7	242.7	16.53	14.75	15.45	212.7	242.7	0.79	0.50	0.36
151.9	181.9	5.74	5.47	5.37	232.9	262.9	16.25	14.10	13.58	232.9	262.9	0.83	0.53	0.39
172.2	202.2	5.74	5.51	5.42	253.2	283.2	13.88	14.17	14.92	253.2	283.2	0.75	0.53	0.39
192.4	222.4	5.74	5.52	5.39	273.4	303.4	12.86	11.89	13.60	273.4	303.4	0.76	0.51	0.40
212.7	242.7	5.73	5.51	5.42	293.7	323.7	13.62	11.98	12.47	293.7	323.7	0.74	0.48	0.37
253.2	283.2	5.81	5.57	5.46	313.9	343.9	16.13	14.18	14.37	313.9	343.9	0.73	0.45	0.34
273.4	303.4	5.91	5.65	5.52	334.2	364.2	18.16	17.41	18.62	334.2	364.2	0.82	0.56	0.40
293.7	323.7	5.96	5.76	5.60	354.5	384.5	15.30	21.42	23.64	354.5	384.5	0.94	0.70	0.50
313.9	343.9	6.07	5.86	5.70	374.7	404.7	11.45	13.58	20.32	374.7	404.7	0.97	0.70	0.53
334.2	364.2	6.07	5.85	5.67	395.0	425.0	10.49	10.71	12.79	395.0	425.0	1.10	0.77	0.60
354.5	384.5	6.17	5.87	5.70	415.2	445.2	10.31	10.00	10.55	415.2	445.2	1.32	0.92	0.69
374.7	404.7	6.26	5.99	5.79	435.5	465.5	9.89	9.89	10.24	435.5	465.5	1.41	0.99	0.75
395.0	425.0	6.23	6.02	5.86	455.7	485.7	9.94	10.02	10.50	455.7	485.7	1.59	1.13	0.86
415.2	445.2	6.27	6.09	5.96	476.0	506.0	9.51	10.46	11.85	476.0	506.0	1.77	1.25	0.97
435.5	465.5	6.29	6.13	6.02	496.3	526.3	9.90	11.33	13.77	496.3	526.3	1.90	1.27	1.00
455.7	485.7	6.37	6.19	6.08	516.5	546.5	9.62	12.88	17.09	516.5	546.5	2.09	1.42	1.10
476.0	506.0	6.36	6.19	6.07	536.8	566.8	8.72	12.29	15.90	536.8	566.8	2.22	1.64	1.23
496.3	526.3	6.42	6.21	6.05	557.0	587.0	6.44	10.78	13.55	557.0	587.0	2.25	1.83	1.34
536.8	566.8	6.70	6.23	6.03	577.3	607.3	4.68	8.78	12.28	577.3	607.3	2.20	1.85	1.38
557.0	587.0	6.89	6.32	6.08	597.5	627.5	3.56	6.14	10.96	597.5	627.5	2.38	1.95	1.54
597.5	627.5	7.26	6.80	6.33	617.8	647.8	3.10	5.06	9.55	617.8	647.8	2.32	1.92	1.57
617.8	647.8	7.40	6.92	6.34	638.0	668.0	2.73	3.78	6.72	638.0	668.0	2.32	1.91	1.60
638.0	668.0	7.76	7.28	6.71	658.3	688.3	2.56	3.58	5.93	658.3	688.3	2.11	1.79	1.51
658.3	688.3	8.01	7.47	6.87	678.6	708.6	2.74	3.58	5.32	678.6	708.6	1.87	1.64	1.44
678.6	708.6	8.39	7.78	7.15	698.8	728.8	2.74	3.65	5.12	698.8	728.8	1.49	1.38	1.27
698.8	728.8	8.86	8.17	7.50	719.1	749.1	3.18	4.01	5.27	719.1	749.1	1.05	1.03	1.04
719.1	749.1	9.40	8.70	7.97	739.3	769.3	3.61	4.57	5.98	739.3	769.3	0.67	0.74	0.86
759.6	789.6	10.37	9.51	8.69	759.6	789.6	3.98	5.18	6.62	759.6	789.6	0.40	0.55	0.70
779.8	809.8	10.96	10.03	9.13	779.8	809.8	4.46	5.71	7.41	779.8	809.8	0.03	0.26	0.51
800.1	830.1	11.02	10.00	9.02	800.1	830.1	5.39	6.83	8.77	800.1	830.1	0.00	0.34	0.68

Frequency Mixer

SCM-1LHNL

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+10			+10			+10
240.0	10.1	5.65	10.0	20.1	5.36	490.0	10.1	6.32
234.1	16.0	5.63	22.3	32.4	5.19	477.7	22.4	6.22
228.2	21.9	5.53	34.6	44.7	5.20	465.4	34.7	6.15
222.3	27.8	5.53	46.9	57.0	5.22	453.1	47.0	6.14
216.4	33.7	5.49	59.2	69.3	5.18	440.8	59.3	6.17
210.5	39.6	5.46	71.5	81.6	5.24	428.5	71.6	6.07
204.6	45.5	5.48	83.8	93.9	5.25	416.2	83.9	5.99
198.7	51.4	5.42	96.2	106.3	5.23	403.8	96.3	5.96
192.8	57.3	5.38	108.5	118.6	5.25	391.5	108.6	5.91
186.9	63.2	5.38	120.8	130.9	5.23	379.2	120.9	5.94
181.0	69.1	5.38	133.1	143.2	5.21	366.9	133.2	6.00
175.1	75.0	5.41	145.4	155.5	5.27	354.6	145.5	5.96
169.2	80.9	5.36	157.7	167.8	5.32	342.3	157.8	5.98
163.3	86.8	5.33	170.0	180.1	5.29	330.0	170.1	5.98
157.4	92.7	5.33	182.3	192.4	5.32	317.7	182.4	5.98
151.5	98.6	5.32	194.6	204.7	5.28	305.4	194.7	6.02
145.6	104.5	5.34	206.9	217.0	5.31	293.1	207.0	6.00
139.7	110.4	5.34	219.2	229.3	5.35	280.8	219.3	6.04
133.8	116.3	5.33	231.5	241.6	5.33	268.5	231.6	6.10
127.9	122.2	5.31	243.8	253.9	5.36	256.2	243.9	6.12
122.1	128.0	5.31	256.2	266.3	5.38	243.8	256.3	6.19
116.2	133.9	5.35	268.5	278.6	5.33	231.5	268.6	6.20
110.3	139.8	5.38	280.8	290.9	5.39	219.2	280.9	6.18
104.4	145.7	5.37	293.1	303.2	5.39	206.9	293.2	6.24
98.5	151.6	5.37	305.4	315.5	5.38	194.6	305.5	6.24
92.6	157.5	5.37	317.7	327.8	5.44	182.3	317.8	6.23
86.7	163.4	5.37	330.0	340.1	5.43	170.0	330.1	6.24
80.8	169.3	5.40	342.3	352.4	5.45	157.7	342.4	6.21
74.9	175.2	5.42	354.6	364.7	5.48	145.4	354.7	6.18
69.0	181.1	5.42	366.9	377.0	5.50	133.1	367.0	6.17
63.1	187.0	5.41	379.2	389.3	5.55	120.8	379.3	6.13
57.2	192.9	5.42	391.5	401.6	5.61	108.5	391.6	6.14
51.3	198.8	5.43	403.8	413.9	5.57	96.2	403.9	6.21
45.4	204.7	5.47	416.2	426.3	5.65	83.8	416.3	6.23
39.5	210.6	5.50	428.5	438.6	5.62	71.5	428.6	6.28
33.6	216.5	5.50	440.8	450.9	5.59	59.2	440.9	6.30
27.7	222.4	5.50	453.1	463.2	5.50	46.9	453.2	6.28
21.8	228.3	5.52	465.4	475.5	5.40	34.6	465.5	6.32
15.9	234.2	5.55	477.7	487.8	5.34	22.3	477.8	6.33
10.0	240.1	5.68	490.0	500.1	5.28	10.0	490.1	6.39

Frequency Mixer

SCM-1LHNL

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13
1.0	83.37	83.76	87.11	51.05	53.19	55.41
2.2	80.29	81.75	84.73	50.88	52.98	55.24
4.1	76.80	78.65	80.73	50.71	52.80	55.05
6.0	73.73	75.79	77.97	50.65	52.76	55.04
9.9	69.98	71.74	73.71	50.41	52.50	54.80
10.1	68.59	69.79	70.72	80.42	63.20	64.99
30.4	60.84	62.98	64.44	66.72	62.38	59.78
50.6	56.64	58.69	60.50	65.20	60.74	58.89
70.9	53.84	55.36	57.51	65.21	61.53	59.57
91.1	51.31	53.42	55.71	64.84	61.11	59.21
131.6	48.68	51.22	53.36	64.62	62.27	58.86
151.9	47.38	49.91	51.97	62.95	62.79	59.32
172.2	46.27	48.59	50.63	60.44	61.30	59.45
192.4	45.74	47.96	49.87	57.88	59.36	58.43
212.7	44.96	47.34	49.23	56.02	58.44	58.94
253.2	43.56	45.74	47.75	51.86	54.37	56.69
273.4	43.26	45.33	47.11	51.34	52.60	54.87
293.7	42.40	44.56	46.49	51.09	53.41	53.78
313.9	42.10	44.20	46.17	49.50	52.58	55.42
334.2	42.16	44.12	45.89	48.38	51.10	54.61
354.5	41.78	43.76	45.54	48.40	50.82	53.97
374.7	41.40	43.42	45.30	48.29	51.13	54.21
395.0	41.08	43.58	45.64	46.99	50.46	53.50
415.2	40.72	43.20	45.40	46.22	49.66	53.54
435.5	39.72	42.26	44.45	44.76	47.75	50.82
455.7	39.81	42.38	44.70	44.11	46.62	49.07
476.0	38.84	41.19	43.48	42.98	45.36	47.09
496.3	38.32	40.79	43.16	42.55	45.25	47.39
536.8	37.86	40.70	44.05	43.06	45.04	46.04
557.0	38.08	40.97	43.96	43.77	44.85	45.46
597.5	37.31	40.17	43.17	46.92	46.13	44.69
617.8	36.78	39.53	42.47	47.72	47.93	45.18
638.0	36.44	39.18	42.16	46.41	48.74	46.16
658.3	35.77	38.27	40.99	44.31	47.10	47.72
678.6	35.83	38.75	41.89	41.93	44.11	46.47
698.8	35.84	38.57	41.41	39.32	40.22	41.63
719.1	35.90	39.14	43.08	38.10	38.06	38.60
759.6	36.53	39.95	44.35	37.28	36.70	36.17
779.8	36.72	39.86	43.54	37.25	36.62	35.90
800.1	37.09	40.60	45.15	36.91	36.41	35.82

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	50.62	50.13	57.21
30.4	60.4	39.32	38.84	40.62
50.6	80.6	35.56	35.93	36.34
70.9	100.9	32.56	33.19	33.50
91.1	121.1	30.86	31.51	31.70
111.4	141.4	29.56	30.23	30.51
131.6	161.6	28.62	28.98	29.26
151.9	181.9	27.68	28.25	28.47
172.2	202.2	26.99	27.36	27.86
192.4	222.4	27.08	27.50	27.84
212.7	242.7	26.54	27.38	27.93
232.9	262.9	26.18	26.99	27.73
253.2	283.2	25.88	26.89	27.80
273.4	303.4	25.22	25.95	26.91
293.7	323.7	25.92	26.27	26.81
313.9	343.9	26.32	26.65	26.90
334.2	364.2	27.52	27.99	28.27
354.5	384.5	28.35	29.38	30.20
374.7	404.7	28.59	30.00	31.63
395.0	425.0	28.48	29.90	31.62
415.2	445.2	26.64	27.31	28.16
435.5	465.5	24.92	25.30	25.59
455.7	485.7	23.59	23.75	23.76
476.0	506.0	22.38	22.47	22.60
496.3	526.3	21.84	22.02	22.11
516.5	546.5	21.51	21.94	21.97
536.8	566.8	21.48	21.67	21.76
557.0	587.0	21.49	21.57	21.60
577.3	607.3	21.17	21.02	20.87
597.5	627.5	20.99	20.83	20.36
617.8	647.8	20.92	20.69	20.14
638.0	668.0	20.98	20.68	20.07
658.3	688.3	21.24	20.83	20.28
678.6	708.6	21.72	21.34	20.86
698.8	728.8	22.46	22.10	21.67
719.1	749.1	23.06	22.90	22.59
739.3	769.3	23.27	23.17	22.87
759.6	789.6	22.90	22.80	22.68
779.8	809.8	22.13	22.18	22.00
800.1	830.1	21.17	21.12	20.95

Frequency Mixer

SCM-1LHNL

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+7	+10	+13		+7	+10	+13		+7	+10	+13
1.0	31.0	1.38	1.36	1.35	1.0	1.86	2.49	3.42	0.3	2.24	2.02	1.82
2.2	32.2	1.25	1.21	1.19	2.2	1.62	2.32	3.27	0.7	2.24	2.02	1.82
4.1	34.1	1.21	1.16	1.13	4.1	1.53	2.24	3.18	1.2	2.24	2.03	1.82
6.0	36.0	1.20	1.14	1.10	6.0	1.48	2.20	3.13	1.6	2.24	2.02	1.82
9.9	39.9	1.19	1.13	1.09	9.9	1.38	2.08	3.01	2.0	2.25	2.03	1.83
10.1	40.1	1.21	1.10	1.04	10.1	1.44	2.10	2.86	3.0	2.25	2.03	1.83
30.4	60.4	1.24	1.10	1.02	30.4	1.51	2.28	3.26	4.8	2.25	2.03	1.83
50.6	80.6	1.20	1.08	1.01	50.6	1.51	2.28	3.26	6.5	2.25	2.03	1.83
70.9	100.9	1.18	1.06	1.01	70.9	1.46	2.15	3.05	8.3	2.26	2.04	1.84
91.1	121.1	1.17	1.05	1.03	91.1	1.46	2.17	3.09	10.0	2.25	2.04	1.84
111.4	141.4	1.12	1.03	1.06	111.4	1.45	2.17	3.07	22.6	2.40	2.18	1.99
131.6	161.6	1.11	1.03	1.06	131.6	1.50	2.26	3.21	47.7	2.19	1.98	1.80
151.9	181.9	1.11	1.03	1.07	151.9	1.51	2.24	3.15	60.3	2.19	1.97	1.79
172.2	202.2	1.10	1.04	1.09	172.2	1.49	2.18	3.05	72.8	1.97	1.75	1.58
192.4	222.4	1.07	1.06	1.11	192.4	1.52	2.20	3.07	85.4	1.84	1.62	1.46
212.7	242.7	1.06	1.07	1.13	212.7	1.54	2.28	3.17	97.9	1.71	1.49	1.33
232.9	262.9	1.06	1.08	1.13	232.9	1.60	2.34	3.27	123.1	2.40	2.18	2.01
253.2	283.2	1.05	1.10	1.15	253.2	1.61	2.33	3.21	135.6	2.36	2.15	1.98
273.4	303.4	1.06	1.08	1.14	273.4	1.67	2.39	3.31	148.2	2.29	2.09	1.93
293.7	323.7	1.08	1.11	1.15	293.7	1.62	2.33	3.19	160.8	2.24	2.06	1.90
313.9	343.9	1.10	1.14	1.18	313.9	1.71	2.44	3.33	173.3	2.27	2.09	1.94
334.2	364.2	1.13	1.19	1.24	334.2	1.77	2.50	3.38	198.5	2.42	2.23	2.08
354.5	384.5	1.13	1.22	1.29	354.5	1.79	2.48	3.32	211.0	2.43	2.24	2.09
374.7	404.7	1.15	1.23	1.31	374.7	1.88	2.57	3.39	223.6	2.37	2.20	2.05
395.0	425.0	1.17	1.24	1.31	395.0	1.87	2.58	3.42	236.2	2.31	2.14	2.00
415.2	445.2	1.18	1.25	1.31	415.2	1.97	2.70	3.59	248.7	2.29	2.12	1.99
435.5	465.5	1.22	1.28	1.33	435.5	1.97	2.71	3.58	273.8	2.37	2.21	2.08
455.7	485.7	1.20	1.27	1.31	455.7	2.10	2.85	3.75	286.4	2.37	2.22	2.10
476.0	506.0	1.21	1.27	1.31	476.0	2.04	2.71	3.56	299.0	2.33	2.19	2.07
496.3	526.3	1.20	1.26	1.29	496.3	2.09	2.78	3.61	311.5	2.31	2.16	2.04
536.8	566.8	1.17	1.21	1.24	536.8	2.23	2.86	3.66	324.1	2.31	2.16	2.04
557.0	587.0	1.19	1.20	1.23	557.0	2.39	3.00	3.81	349.2	2.32	2.18	2.07
577.3	607.3	1.23	1.22	1.24	577.3	2.42	3.05	3.82	361.8	2.28	2.15	2.05
597.5	627.5	1.30	1.27	1.28	597.5	2.57	3.25	4.04	374.4	2.26	2.12	2.02
617.8	647.8	1.41	1.37	1.38	617.8	2.59	3.31	4.09	386.9	2.27	2.13	2.02
638.0	668.0	1.58	1.53	1.52	638.0	2.69	3.42	4.23	399.5	2.32	2.17	2.06
658.3	688.3	1.77	1.71	1.68	658.3	2.70	3.38	4.19	412.1	2.33	2.18	2.07
678.6	708.6	2.02	1.94	1.89	678.6	2.73	3.47	4.30	424.6	2.28	2.13	2.03
698.8	728.8	2.31	2.21	2.14	698.8	2.88	3.60	4.43	437.2	2.23	2.09	1.98
719.1	749.1	2.65	2.54	2.44	719.1	2.90	3.61	4.45	449.7	2.23	2.08	1.96
739.3	769.3	3.00	2.86	2.73	739.3	3.09	3.82	4.67	462.3	2.27	2.11	1.99
759.6	789.6	3.33	3.18	3.03	759.6	2.99	3.67	4.48	474.9	2.31	2.14	2.01
779.8	809.8	3.71	3.53	3.35	779.8	3.11	3.77	4.59	487.4	2.30	2.13	2.01
800.1	830.1	3.95	3.73	3.52	800.1	3.14	3.79	4.59	500.0	2.41	2.40	2.39

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	37	40	38	40	45	55	48	74	57	58
1	-	22	+0	32	12	45	17	36	39	55	50	49
2	94	56	72	58	64	59	75	56	64	68	60	72
3	>100	48	39	50	42	57	36	55	45	55	58	66
4	>100	68	77	72	78	69	82	66	79	68	72	87
5	>100	69	54	64	53	63	51	70	49	60	50	66
6	>100	87	80	76	75	79	81	87	81	87	87	80
7	>100	78	71	73	61	73	64	73	65	77	62	78
8	>100	>94	>94	>94	>94	88	86	>94	81	>94	83	>94
9	>100	>94	>94	90	83	81	73	84	73	77	71	82
10	>100	>94	>94	>94	>94	94	>94	88	>94	93	83	88
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 250.1 MHz; 0.00 dBm.

LO IN: 280.01 MHz; +10.00 dBm

IF OUT: 29.91 MHz; -5.68 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	28	27	28	34	44	34	50	42	42
1	-	21	+0	31	11	44	16	34	46	47	43	39
2	>100	70	67	65	65	68	68	82	67	83	64	75
3	>100	64	54	64	55	74	52	65	54	71	63	77
4	>100	>84	>84	>84	>84	82	>84	>84	>84	>84	>84	>84
5	>100	>84	>84	>84	>84	>84	78	>84	77	>84	76	>84
6	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
7	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
8	>100	>84	>84	>84	>84	>84	>84	>84	81	>84	>84	>84
9	>100	>84	>84	>84	>84	>84	>84	>84	>84	68	>84	>84
10	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	78	>84
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 250.1 MHz; -10.00 dBm.

LO IN: 280.01 MHz; +10.00 dBm

IF OUT: 29.91 MHz; -15.7 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.

REV. X2

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