

Frequency Mixer

SCM-2NL+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
5.0	35.0	7.93	7.70	7.46
10.0	40.0	7.07	6.74	6.62
50.4	80.4	7.49	7.03	6.79
90.7	120.7	7.34	6.96	6.76
131.0	161.0	7.26	6.90	6.76
171.3	201.3	7.24	6.94	6.77
211.5	241.5	7.20	6.91	6.76
251.8	281.8	7.23	6.93	6.81
292.1	322.1	7.23	6.94	6.79
332.4	362.4	7.24	6.94	6.80
372.7	402.7	7.33	7.06	6.83
413.0	443.0	7.34	7.05	6.92
453.3	483.3	7.43	7.05	6.82
493.6	523.6	7.41	7.05	6.80
533.9	563.9	7.56	7.23	6.96
574.2	604.2	7.59	7.29	7.08
614.4	644.4	7.70	7.33	7.10
654.7	684.7	7.72	7.27	7.00
695.0	725.0	7.78	7.20	6.97
735.3	765.3	8.14	7.45	7.06
775.6	805.6	8.41	7.65	7.12
815.9	845.9	8.64	7.92	7.43
856.2	886.2	8.74	8.00	7.46
896.5	926.5	8.76	8.04	7.42
916.6	946.6	9.09	8.39	7.73
956.9	986.9	9.25	8.61	8.00
977.1	1007.1	9.26	8.68	8.11
1017.3	1047.3	9.46	8.86	8.37
1077.8	1107.8	9.20	8.40	7.69
1097.9	1127.9	9.23	8.32	7.58
1138.2	1168.2	8.85	7.94	7.39
1158.4	1188.4	8.74	7.85	7.41
1198.7	1228.7	8.69	8.02	7.59
1218.8	1248.8	8.60	8.00	7.65
1259.1	1289.1	9.02	8.43	8.06
1279.2	1309.2	9.31	8.72	8.35
1319.5	1349.5	9.75	9.33	8.96
1339.7	1369.7	10.23	9.75	9.46
1380.0	1410.0	10.65	10.32	10.13
1400.1	1430.1	10.66	10.35	10.17

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	18.43	18.28	22.66
50.4	80.4	16.81	21.00	18.30
90.7	120.7	17.90	19.51	18.13
131.0	161.0	16.08	20.45	17.41
171.3	201.3	18.33	16.33	19.84
211.5	241.5	17.19	20.30	16.39
251.8	281.8	14.90	16.19	16.95
292.1	322.1	16.79	16.07	16.08
332.4	362.4	15.94	17.51	17.87
372.7	402.7	12.60	14.31	16.17
413.0	443.0	12.58	12.45	14.02
453.3	483.3	17.99	20.22	19.15
493.6	523.6	13.25	17.90	16.23
533.9	563.9	11.53	12.95	18.63
574.2	604.2	9.97	10.28	11.47
614.4	644.4	10.91	11.97	13.41
654.7	684.7	16.20	21.31	23.37
695.0	725.0	20.68	15.97	15.56
735.3	765.3	11.79	13.70	14.25
775.6	805.6	8.10	13.77	12.75
815.9	845.9	7.44	11.20	14.63
856.2	886.2	7.35	10.67	13.48
896.5	926.5	6.51	9.09	11.96
916.6	946.6	5.66	7.70	10.36
956.9	986.9	5.12	6.65	8.73
977.1	1007.1	5.18	6.29	7.84
1017.3	1047.3	4.38	5.04	6.03
1037.5	1067.5	4.13	4.78	5.98
1077.8	1107.8	3.69	5.25	7.64
1097.9	1127.9	3.95	5.78	8.54
1138.2	1168.2	6.06	9.33	11.48
1158.4	1188.4	7.29	10.32	12.50
1198.7	1228.7	8.32	10.73	12.21
1218.8	1248.8	9.36	12.02	13.72
1259.1	1289.1	8.98	10.97	12.83
1279.2	1309.2	9.03	11.12	13.13
1319.5	1349.5	8.81	11.20	13.49
1339.7	1369.7	7.77	10.84	12.57
1380.0	1410.0	7.62	10.81	12.87
1400.1	1430.1	8.45	11.43	14.08

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	0.65	0.45	0.32
50.4	80.4	0.61	0.39	0.25
90.7	120.7	0.63	0.36	0.22
131.0	161.0	0.60	0.36	0.21
171.3	201.3	0.66	0.36	0.21
211.5	241.5	0.54	0.33	0.23
251.8	281.8	0.55	0.34	0.22
292.1	322.1	0.58	0.37	0.27
332.4	362.4	0.57	0.39	0.26
372.7	402.7	0.58	0.41	0.30
413.0	443.0	0.64	0.44	0.31
453.3	483.3	0.71	0.52	0.38
493.6	523.6	0.77	0.61	0.48
533.9	563.9	0.86	0.67	0.54
574.2	604.2	0.99	0.75	0.59
614.4	644.4	1.08	0.81	0.63
654.7	684.7	1.31	1.00	0.82
695.0	725.0	1.53	1.23	0.99
735.3	765.3	1.43	1.29	1.10
775.6	805.6	1.37	1.30	1.20
815.9	845.9	1.28	1.20	1.09
856.2	886.2	1.28	1.24	1.15
896.5	926.5	1.29	1.25	1.19
916.6	946.6	1.22	1.17	1.15
956.9	986.9	1.15	1.05	1.04
977.1	1007.1	1.20	1.06	1.02
1017.3	1047.3	1.19	1.00	0.93
1037.5	1067.5	1.28	1.14	1.07
1077.8	1107.8	1.36	1.28	1.24
1097.9	1127.9	1.65	1.53	1.45
1138.2	1168.2	1.92	1.72	1.45
1158.4	1188.4	2.19	1.83	1.51
1198.7	1228.7	2.43	1.88	1.53
1218.8	1248.8	2.25	1.78	1.48
1259.1	1289.1	2.30	1.85	1.58
1279.2	1309.2	2.09	1.73	1.51
1319.5	1349.5	1.77	1.54	1.43
1339.7	1369.7	1.50	1.26	1.18
1380.0	1410.0	1.31	0.97	0.82
1400.1	1430.1	1.10	0.79	0.64

Frequency Mixer

SCM-2NL+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (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)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
490.0	10.1	6.84	10.0	20.1	6.95	500.0	500.1	7.37
477.7	22.4	6.78	22.6	32.7	6.75	487.4	512.7	7.39
465.4	34.7	6.73	35.1	45.2	6.74	474.9	525.2	7.43
453.1	47.0	6.73	47.7	57.8	6.76	462.3	537.8	7.48
440.8	59.3	6.78	60.3	70.4	6.74	449.7	550.4	7.50
428.5	71.6	6.73	72.8	82.9	6.76	437.2	562.9	7.54
416.2	83.9	6.67	85.4	95.5	6.76	424.6	575.5	7.60
403.8	96.3	6.65	97.9	108.0	6.77	412.1	588.0	7.62
391.5	108.6	6.62	110.5	120.6	6.75	399.5	600.6	7.55
379.2	120.9	6.62	123.1	133.2	6.73	386.9	613.2	7.63
366.9	133.2	6.61	135.6	145.7	6.73	374.4	625.7	7.65
354.6	145.5	6.59	148.2	158.3	6.77	361.8	638.3	7.60
342.3	157.8	6.63	160.8	170.9	6.79	349.2	650.9	7.52
330.0	170.1	6.65	173.3	183.4	6.78	336.7	663.4	7.43
317.7	182.4	6.64	185.9	196.0	6.81	324.1	676.0	7.29
305.4	194.7	6.68	198.5	208.6	6.77	311.5	688.6	7.16
293.1	207.0	6.65	211.0	221.1	6.78	299.0	701.1	7.06
280.8	219.3	6.66	223.6	233.7	6.78	286.4	713.7	7.04
268.5	231.6	6.70	236.2	246.3	6.79	273.8	726.3	7.08
256.2	243.9	6.69	248.7	258.8	6.85	261.3	738.8	6.99
243.8	256.3	6.74	261.3	271.4	6.84	248.7	751.4	7.12
231.5	268.6	6.76	273.8	283.9	6.84	236.2	763.9	7.23
219.2	280.9	6.72	286.4	296.5	6.86	223.6	776.5	7.25
206.9	293.2	6.78	299.0	309.1	6.87	211.0	789.1	7.25
194.6	305.5	6.78	311.5	321.6	6.88	198.5	801.6	7.37
182.3	317.8	6.77	324.1	334.2	6.92	185.9	814.2	7.41
170.0	330.1	6.80	336.7	346.8	6.89	173.3	826.8	7.40
157.7	342.4	6.84	349.2	359.3	6.89	160.8	839.3	7.43
145.4	354.7	6.84	361.8	371.9	6.92	148.2	851.9	7.65
133.1	367.0	6.88	374.4	384.5	6.98	135.6	864.5	7.74
120.8	379.3	6.90	386.9	397.0	7.02	123.1	877.0	7.61
108.5	391.6	6.90	399.5	409.6	7.00	110.5	889.6	7.75
96.2	403.9	6.93	412.1	422.2	6.96	97.9	902.2	7.85
83.8	416.3	6.93	424.6	434.7	7.02	85.4	914.7	7.85
71.5	428.6	6.98	437.2	447.3	7.03	72.8	927.3	7.84
59.2	440.9	7.01	449.7	459.8	6.98	60.3	939.8	8.11
46.9	453.2	6.96	462.3	472.4	7.01	47.7	952.4	8.20
34.6	465.5	6.97	474.9	485.0	6.95	35.1	965.0	8.33
22.3	477.8	7.02	487.4	497.5	6.98	22.6	977.5	8.35
10.0	490.1	7.11	500.0	510.1	7.02	10.0	990.1	8.59

Frequency Mixer

SCM-2NL+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
5.0	88.15	91.15	90.85	87.15	81.65	77.95
10.0	75.96	79.06	79.76	78.96	74.26	72.26
50.4	61.36	62.53	63.15	81.09	77.35	74.17
90.7	56.14	57.19	58.08	74.46	79.37	78.21
131.0	53.25	54.41	55.17	66.20	73.03	79.57
171.3	50.48	51.83	52.82	60.83	67.19	85.68
211.5	49.01	50.38	51.28	58.19	64.22	79.43
251.8	47.66	48.94	49.82	56.61	63.24	77.36
292.1	46.37	47.74	48.67	54.44	59.92	67.81
332.4	45.53	46.87	47.97	53.89	59.46	66.20
372.7	44.81	46.12	47.27	53.32	58.70	61.36
413.0	44.21	45.81	47.12	51.40	56.15	59.55
453.3	43.21	44.72	46.00	51.45	54.51	55.13
493.6	42.51	44.14	45.49	50.85	52.94	52.14
533.9	42.05	43.77	45.21	49.83	51.62	50.65
574.2	41.16	42.97	44.55	48.01	49.07	48.43
614.4	40.81	42.58	44.16	46.03	46.49	46.25
654.7	40.34	42.03	43.67	44.44	44.06	43.65
695.0	40.39	42.37	44.11	42.76	41.98	41.53
735.3	40.44	42.27	43.87	42.47	41.04	40.30
775.6	40.17	42.15	43.77	43.08	41.02	39.47
815.9	39.92	42.08	43.80	42.84	40.55	38.56
856.2	38.89	41.25	43.22	41.44	39.78	37.86
896.5	38.59	40.88	42.94	39.30	38.30	36.80
916.6	38.22	40.44	42.44	38.61	37.67	36.30
956.9	37.51	39.67	41.98	36.54	36.23	35.65
977.1	37.35	39.51	41.72	35.71	35.49	35.13
1017.3	37.18	39.33	41.55	33.69	33.71	33.78
1077.8	36.05	38.26	40.88	31.63	31.44	31.41
1097.9	35.91	38.15	40.71	31.11	30.98	30.94
1138.2	35.61	38.50	41.82	30.34	30.31	30.03
1158.4	36.55	40.03	43.82	29.80	29.70	29.27
1198.7	36.57	40.42	45.07	28.67	28.50	28.19
1218.8	36.78	40.97	46.56	28.06	28.04	27.72
1259.1	37.29	41.84	48.79	26.95	26.93	26.79
1279.2	36.48	40.98	47.58	26.41	26.46	26.37
1319.5	36.24	40.88	47.34	25.28	25.51	25.43
1339.7	37.04	41.84	47.31	24.98	25.13	25.13
1380.0	35.69	39.99	43.62	24.01	24.38	24.44
1400.1	35.81	39.62	41.73	23.71	24.12	24.19

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	45.95	55.28	66.28
50.4	80.4	36.89	36.99	36.24
90.7	120.7	32.46	32.14	32.06
131.0	161.0	29.87	29.74	29.54
171.3	201.3	28.19	28.23	28.17
211.5	241.5	27.20	27.17	27.16
251.8	281.8	26.67	26.75	26.76
292.1	322.1	26.66	26.76	26.80
332.4	362.4	26.86	27.15	27.32
372.7	402.7	26.91	27.25	27.43
413.0	443.0	26.36	26.48	26.60
453.3	483.3	25.94	26.31	26.70
493.6	523.6	25.68	26.29	27.14
533.9	563.9	24.91	25.57	26.25
574.2	604.2	23.22	23.44	23.65
614.4	644.4	20.68	20.57	20.51
654.7	684.7	18.42	18.10	17.86
695.0	725.0	16.94	16.58	16.45
735.3	765.3	15.88	15.53	15.22
775.6	805.6	15.17	14.76	14.52
815.9	845.9	14.53	14.20	13.93
856.2	886.2	13.95	13.80	13.52
896.5	926.5	13.57	13.51	13.35
916.6	946.6	13.45	13.41	13.36
956.9	986.9	13.23	13.29	13.36
977.1	1007.1	13.11	13.18	13.29
1017.3	1047.3	12.92	13.06	13.22
1037.5	1067.5	12.98	13.13	13.37
1077.8	1107.8	13.02	13.24	13.46
1097.9	1127.9	12.94	13.25	13.36
1138.2	1168.2	13.05	13.30	13.41
1158.4	1188.4	12.95	13.19	13.31
1198.7	1228.7	12.74	12.95	12.98
1218.8	1248.8	12.66	12.77	12.80
1259.1	1289.1	12.19	12.28	12.30
1279.2	1309.2	11.99	12.05	12.04
1319.5	1349.5	11.51	11.50	11.45
1339.7	1369.7	11.22	11.19	11.10
1380.0	1410.0	10.93	10.76	10.62
1400.1	1430.1	10.70	10.52	10.34

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
5.0	35.0	6.01	5.79	5.59	5.0	4.37	4.26	5.49	5.0	1.40	1.25	1.13
10.0	40.0	2.30	2.25	2.21	10.0	2.57	3.25	4.63	10.0	1.41	1.26	1.14
50.4	80.4	1.22	1.31	1.37	50.4	1.97	2.80	3.86	22.6	2.85	2.50	2.24
90.7	120.7	1.24	1.33	1.38	90.7	1.87	2.65	3.62	35.1	2.61	2.31	2.05
131.0	161.0	1.25	1.33	1.38	131.0	1.92	2.71	3.70	47.7	2.38	2.15	1.91
171.3	201.3	1.25	1.33	1.38	171.3	1.86	2.58	3.49	60.3	2.33	2.08	1.86
211.5	241.5	1.26	1.32	1.37	211.5	1.90	2.64	3.54	72.8	2.37	2.13	1.90
251.8	281.8	1.25	1.31	1.35	251.8	1.94	2.68	3.56	85.4	2.46	2.20	1.97
292.1	322.1	1.23	1.28	1.33	292.1	1.92	2.62	3.45	97.9	2.57	2.29	2.04
332.4	362.4	1.22	1.28	1.32	332.4	2.03	2.77	3.61	110.5	2.66	2.37	2.11
372.7	402.7	1.20	1.25	1.29	372.7	2.11	2.84	3.67	123.1	2.71	2.41	2.14
413.0	443.0	1.18	1.22	1.25	413.0	2.13	2.86	3.67	135.6	2.66	2.37	2.11
453.3	483.3	1.19	1.23	1.27	453.3	2.21	2.91	3.70	148.2	2.54	2.27	2.03
493.6	523.6	1.20	1.24	1.28	493.6	2.20	2.86	3.60	160.8	2.46	2.20	1.96
533.9	563.9	1.20	1.23	1.26	533.9	2.32	2.98	3.71	173.3	2.48	2.22	1.97
574.2	604.2	1.20	1.21	1.23	574.2	2.34	2.99	3.70	185.9	2.58	2.30	2.05
614.4	644.4	1.19	1.20	1.21	614.4	2.44	3.07	3.76	198.5	2.67	2.40	2.13
654.7	684.7	1.17	1.18	1.20	654.7	2.54	3.13	3.79	211.0	2.70	2.42	2.15
695.0	725.0	1.18	1.18	1.19	695.0	2.61	3.20	3.88	223.6	2.63	2.36	2.10
735.3	765.3	1.21	1.20	1.20	735.3	2.80	3.41	4.07	236.2	2.55	2.29	2.03
775.6	805.6	1.26	1.24	1.23	775.6	2.81	3.40	4.01	248.7	2.51	2.25	2.00
815.9	845.9	1.34	1.31	1.30	815.9	2.95	3.56	4.17	261.3	2.54	2.28	2.03
856.2	886.2	1.42	1.38	1.37	856.2	3.01	3.61	4.23	273.8	2.58	2.33	2.08
896.5	926.5	1.51	1.47	1.44	896.5	3.14	3.74	4.36	286.4	2.62	2.36	2.11
916.6	946.6	1.57	1.53	1.49	916.6	3.27	3.89	4.52	299.0	2.63	2.37	2.11
956.9	986.9	1.66	1.62	1.58	956.9	3.30	3.89	4.51	311.5	2.63	2.36	2.10
977.1	1007.1	1.70	1.66	1.63	977.1	3.42	4.00	4.61	324.1	2.64	2.37	2.11
1017.3	1047.3	1.78	1.74	1.70	1017.3	3.60	4.20	4.83	336.7	2.63	2.36	2.11
1037.5	1067.5	1.79	1.75	1.72	1037.5	3.50	4.04	4.64	349.2	2.60	2.35	2.09
1077.8	1107.8	1.85	1.81	1.76	1077.8	3.51	3.98	4.54	361.8	2.57	2.32	2.07
1097.9	1127.9	1.89	1.84	1.80	1097.9	3.51	3.97	4.53	374.4	2.56	2.31	2.06
1138.2	1168.2	1.98	1.94	1.92	1138.2	3.59	4.02	4.61	386.9	2.58	2.32	2.07
1158.4	1188.4	2.03	2.00	1.98	1158.4	3.66	4.15	4.77	399.5	2.61	2.35	2.10
1198.7	1228.7	2.18	2.15	2.13	1198.7	3.73	4.24	4.86	412.1	2.62	2.36	2.11
1218.8	1248.8	2.27	2.23	2.20	1218.8	3.85	4.31	4.88	424.6	2.58	2.32	2.07
1259.1	1289.1	2.42	2.40	2.36	1259.1	4.21	4.62	5.17	437.2	2.53	2.28	2.03
1279.2	1309.2	2.51	2.49	2.45	1279.2	4.29	4.63	5.14	449.7	2.52	2.26	2.02
1319.5	1349.5	2.67	2.67	2.62	1319.5	4.68	4.91	5.38	462.3	2.52	2.27	2.04
1339.7	1369.7	2.74	2.78	2.76	1339.7	4.92	5.19	5.68	474.9	2.55	2.30	2.06
1380.0	1410.0	2.84	2.93	2.95	1380.0	5.20	5.31	5.70	487.4	2.55	2.30	2.06
1400.1	1430.1	2.89	2.97	3.01	1400.1	5.38	5.47	5.83	500.0	2.50	2.25	2.02

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	23	25	23	29	23	38	35	40	45	56
1	-	19	+0	30	12	31	24	38	46	36	42	44
2	>100	74	59	62	63	67	61	71	65	79	70	>79
3	>100	63	65	64	60	65	58	66	69	78	>79	73
4	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
5	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>100	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>100	>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: 500.1 MHz; -14.00 dBm.
LO IN: 530.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -21.12 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	32	36	35	41	34	49	49	51	57	69
1	-	21	+0	27	12	35	25	44	46	42	46	50
2	97	57	51	56	54	62	53	60	59	66	64	72
3	>100	48	45	53	62	50	45	54	54	57	70	51
4	>100	73	68	67	71	69	76	68	74	85	79	>89
5	>100	68	75	61	54	62	54	62	53	63	65	>89
6	>100	>89	>89	>89	83	>89	>89	>89	85	87	>89	>89
7	>100	83	>89	86	77	79	>89	83	81	79	74	79
8	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
9	>100	>89	>89	>89	>89	>89	>89	87	88	85	86	86
10	>100	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; -4.00 dBm.
LO IN: 530.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -11.1 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.



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