

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	6.62	6.10	5.83
30.1	60.1	5.99	5.68	5.50
50.1	80.1	5.70	5.47	5.34
75.1	105.1	5.70	5.43	5.29
100.1	130.1	5.86	5.53	5.34
140.1	170.1	5.63	5.39	5.22
180.1	210.1	5.72	5.42	5.25
220.1	250.1	5.81	5.49	5.28
260.1	290.1	5.69	5.41	5.22
300.1	330.1	5.99	5.60	5.31
350.1	380.1	5.68	5.41	5.22
400.1	430.1	5.89	5.51	5.27
450.1	480.1	5.71	5.48	5.30
500.1	530.1	5.65	5.45	5.32
550.1	580.1	5.47	5.32	5.24
600.1	630.1	5.62	5.40	5.26
700.1	730.1	6.12	5.71	5.45
800.1	830.1	6.52	6.06	5.77
900.1	930.1	6.77	6.38	6.15
1000.1	1030.1	6.81	6.53	6.40
1100.1	1130.1	6.62	6.51	6.44
1200.1	1230.1	6.31	6.26	6.29
1300.1	1330.1	6.10	6.03	6.07
1400.1	1430.1	6.78	6.56	6.48
1500.1	1530.1	7.46	7.18	6.95
1600.1	1630.1	7.34	7.13	7.02
1700.1	1730.1	7.22	6.98	6.91
1900.1	1930.1	7.66	7.14	6.96
2050.1	2080.1	7.84	7.42	7.20
2200.1	2230.1	7.63	7.38	7.23
2350.1	2380.1	7.84	7.28	7.01
2500.1	2530.1	7.90	7.12	6.77
2700.1	2730.1	7.28	6.89	6.62
2900.1	2930.1	7.01	6.64	6.50
3100.1	3130.1	7.16	6.76	6.64
3300.1	3330.1	7.46	7.01	6.85
3500.1	3530.1	7.85	7.48	7.34
3700.1	3730.1	8.37	8.15	8.05
3900.1	3930.1	9.32	9.01	8.81
4100.1	4130.1	10.47	10.04	9.92

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	22.36	26.19	32.92
30.1	60.1	24.14	27.38	27.52
50.1	80.1	25.74	26.45	26.92
75.1	105.1	24.05	25.15	25.60
100.1	130.1	22.95	24.39	25.02
140.1	170.1	23.62	24.06	26.32
180.1	210.1	22.65	24.37	27.10
220.1	250.1	22.31	24.52	27.33
260.1	290.1	22.51	25.58	29.73
300.1	330.1	21.84	24.35	27.66
350.1	380.1	26.45	29.30	29.73
400.1	430.1	25.60	29.67	31.46
450.1	480.1	26.94	27.80	27.92
500.1	530.1	28.75	31.67	29.94
550.1	580.1	24.72	31.03	34.13
600.1	630.1	21.42	24.23	27.74
700.1	730.1	22.86	25.94	29.60
800.1	830.1	22.45	24.28	25.72
900.1	930.1	21.44	22.84	23.90
1000.1	1030.1	22.34	22.83	22.74
1100.1	1130.1	23.25	23.73	25.59
1200.1	1230.1	29.39	25.95	27.38
1300.1	1330.1	24.74	31.75	31.52
1400.1	1430.1	24.19	24.69	27.47
1500.1	1530.1	28.78	28.85	31.47
1600.1	1630.1	27.50	27.13	27.60
1700.1	1730.1	26.35	29.26	33.09
1900.1	1930.1	25.73	26.81	30.25
2050.1	2080.1	24.25	25.11	26.46
2200.1	2230.1	24.66	23.88	23.86
2350.1	2380.1	22.25	23.29	25.35
2500.1	2530.1	24.40	24.55	25.37
2700.1	2730.1	20.60	23.24	26.32
2900.1	2930.1	22.23	25.89	26.14
3100.1	3130.1	21.29	23.79	27.03
3300.1	3330.1	27.74	25.47	24.36
3500.1	3530.1	28.34	28.53	28.87
3700.1	3730.1	23.87	26.56	28.02
3900.1	3930.1	22.90	24.74	28.20
4100.1	4130.1	22.98	24.10	29.53

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	0.46	0.39	0.31
30.1	60.1	0.60	0.46	0.31
50.1	80.1	0.70	0.50	0.30
75.1	105.1	0.74	0.52	0.32
100.1	130.1	0.82	0.62	0.46
140.1	170.1	0.95	0.74	0.55
180.1	210.1	0.92	0.74	0.54
220.1	250.1	1.09	0.92	0.78
260.1	290.1	1.13	0.95	0.74
300.1	330.1	1.01	0.90	0.79
350.1	380.1	1.11	0.93	0.73
400.1	430.1	0.99	0.89	0.74
450.1	480.1	0.98	0.78	0.59
500.1	530.1	1.07	0.81	0.63
550.1	580.1	1.22	0.92	0.66
600.1	630.1	1.39	1.14	0.92
700.1	730.1	1.60	1.44	1.24
800.1	830.1	1.41	1.30	1.11
900.1	930.1	1.03	0.95	0.75
1000.1	1030.1	0.63	0.55	0.39
1100.1	1130.1	0.41	0.32	0.26
1200.1	1230.1	0.29	0.22	0.13
1300.1	1330.1	0.38	0.25	0.09
1400.1	1430.1	0.66	0.54	0.32
1500.1	1530.1	0.36	0.28	0.18
1600.1	1630.1	0.39	0.32	0.15
1700.1	1730.1	0.42	0.36	0.20
1900.1	1930.1	0.30	0.31	0.20
2050.1	2080.1	0.19	0.23	0.15
2200.1	2230.1	0.41	0.33	0.26
2350.1	2380.1	0.25	0.35	0.34
2500.1	2530.1	0.48	0.49	0.49
2700.1	2730.1	0.69	0.54	0.50
2900.1	2930.1	0.76	0.53	0.38
3100.1	3130.1	0.65	0.42	0.36
3300.1	3330.1	0.57	0.39	0.31
3500.1	3530.1	0.46	0.46	0.25
3700.1	3730.1	0.54	0.35	0.26
3900.1	3930.1	0.70	0.55	0.35
4100.1	4130.1	0.81	0.45	0.30

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1250.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=100.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+23			+23			+23
0.5	1249.6	6.33	0.5	100.6	5.49	0.5	2499.6	7.18
0.8	1249.4	6.28	0.8	100.9	5.43	0.8	2499.4	7.13
1.0	1249.1	6.26	1.0	101.1	5.42	1.0	2499.1	7.11
2.0	1248.1	6.23	2.0	102.1	5.39	2.0	2498.1	7.09
3.0	1247.1	6.24	3.0	103.1	5.39	3.0	2497.1	7.08
4.0	1246.1	6.23	4.0	104.1	5.38	4.0	2496.1	7.08
5.0	1245.1	6.23	5.0	105.1	5.39	5.0	2495.1	7.08
6.0	1244.1	6.23	6.0	106.1	5.39	6.0	2494.1	7.07
8.0	1242.1	6.24	8.0	108.1	5.39	8.0	2492.1	7.08
10.0	1240.1	6.25	10.0	110.1	5.41	10.0	2490.1	7.09
15.0	1235.1	6.27	15.0	115.1	5.45	15.0	2485.1	7.11
20.0	1230.1	6.27	20.0	120.1	5.49	20.0	2480.1	7.11
25.0	1225.1	6.29	25.0	125.1	5.52	25.0	2475.1	7.13
30.0	1220.1	6.30	30.0	130.1	5.55	30.0	2470.1	7.12
35.0	1215.1	6.31	35.0	135.1	5.57	35.0	2465.1	7.15
40.0	1210.1	6.31	40.0	140.1	5.57	40.0	2460.1	7.16
50.0	1200.1	6.33	50.0	150.1	5.53	50.0	2450.1	7.18
65.0	1185.1	6.35	65.0	165.1	5.59	65.0	2435.1	7.15
80.0	1170.1	6.39	80.0	180.1	5.56	80.0	2420.1	7.18
100.0	1150.1	6.47	100.0	200.1	5.52	100.0	2400.1	7.26
120.0	1130.1	6.49	120.0	220.1	5.62	120.0	2380.1	7.29
140.0	1110.1	6.53	140.0	240.1	5.64	140.0	2360.1	7.38
160.0	1090.1	6.60	160.0	260.1	5.73	160.0	2340.1	7.39
180.0	1070.1	6.63	180.0	280.1	5.64	180.0	2320.1	7.41
200.0	1050.1	6.73	200.0	300.1	5.60	200.0	2300.1	7.45
220.0	1030.1	6.80	220.0	320.1	5.68	220.0	2280.1	7.48
240.0	1010.1	6.83	240.0	340.1	5.68	240.0	2260.1	7.50
260.0	990.1	6.97	260.0	360.1	5.82	260.0	2240.1	7.45
280.0	970.1	7.03	280.0	380.1	5.80	280.0	2220.1	7.46
300.0	950.1	7.14	300.0	400.1	5.83	300.0	2200.1	7.52
320.0	930.1	7.19	320.0	420.1	5.95	320.0	2180.1	7.58
340.0	910.1	7.35	340.0	440.1	5.96	340.0	2160.1	7.62
360.0	890.1	7.46	360.0	460.1	6.03	360.0	2140.1	7.68
380.0	870.1	7.53	380.0	480.1	5.99	380.0	2120.1	7.82
400.0	850.1	7.69	400.0	500.1	5.97	400.0	2100.1	7.88
420.0	830.1	7.78	420.0	520.1	6.12	420.0	2080.1	7.91
440.0	810.1	7.98	440.0	540.1	6.11	440.0	2060.1	7.93
460.0	790.1	8.04	460.0	560.1	6.11	460.0	2040.1	8.01
480.0	770.1	8.18	480.0	580.1	6.03	480.0	2020.1	8.11
500.0	750.1	8.27	500.0	600.1	5.99	500.0	2000.1	8.12

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+20	+23	+26	+20	+23	+26
10.1	85.12	85.54	84.02	81.21	73.09	59.57
30.1	70.99	70.97	74.24	52.79	53.40	54.66
50.1	65.25	65.17	68.68	52.16	53.71	55.59
75.1	61.09	61.05	65.92	52.87	55.00	56.98
100.1	58.12	58.10	63.09	55.03	58.09	59.60
140.1	55.02	55.00	58.17	58.91	72.77	63.02
180.1	52.86	52.85	58.03	58.80	56.06	51.65
220.1	51.09	51.08	55.17	51.04	50.22	48.13
260.1	50.29	50.27	54.90	46.56	46.70	45.61
300.1	48.70	48.69	53.18	42.74	42.29	41.02
350.1	47.63	47.62	51.12	40.46	40.92	40.76
400.1	46.23	46.22	51.25	37.15	37.11	36.41
450.1	46.28	46.27	50.33	35.64	36.39	36.50
500.1	45.39	45.38	49.87	33.51	33.66	33.29
550.1	45.20	45.20	51.29	32.65	33.66	33.90
600.1	43.89	43.88	48.79	30.58	31.01	30.95
700.1	41.37	41.36	46.07	28.14	28.71	28.95
800.1	41.81	41.79	46.38	26.75	27.14	27.41
900.1	43.57	43.55	50.31	25.40	25.83	26.13
1000.1	43.69	43.66	52.19	23.31	23.97	24.28
1100.1	42.51	42.48	48.28	21.51	21.92	22.14
1200.1	39.99	39.99	45.35	20.21	20.56	20.67
1300.1	38.62	38.61	42.77	19.51	19.82	19.94
1400.1	37.83	37.82	41.01	19.46	19.78	19.93
1500.1	38.06	38.05	41.69	19.63	20.06	20.32
1600.1	38.50	38.49	44.24	19.95	20.54	20.94
1700.1	37.69	37.69	43.91	20.30	21.10	21.66
1900.1	37.58	37.58	41.18	21.33	22.42	23.28
2050.1	38.52	38.51	41.59	22.47	23.66	24.56
2200.1	38.13	38.12	44.96	23.91	25.22	26.18
2350.1	37.48	37.47	43.26	25.66	26.47	26.96
2500.1	39.09	39.09	42.00	26.91	26.72	26.52
2700.1	39.06	39.06	39.80	27.20	27.28	27.48
2900.1	37.00	37.00	44.69	31.64	31.68	30.69
3100.1	37.62	37.60	45.64	34.28	34.51	33.46
3300.1	34.35	34.37	46.16	30.98	30.18	29.93
3500.1	33.72	33.69	42.20	27.59	26.29	25.31
3700.1	32.89	32.89	42.35	24.25	23.41	22.99
3900.1	31.35	31.34	36.81	22.40	22.18	22.22
4100.1	32.29	32.28	36.25	20.88	21.15	21.73

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	60.52	48.98	37.10
30.1	60.1	65.19	60.28	44.61
50.1	80.1	56.21	55.34	49.33
75.1	105.1	54.08	57.61	54.94
100.1	130.1	53.73	54.79	42.66
140.1	170.1	50.69	49.60	49.04
180.1	210.1	47.21	48.64	50.11
220.1	250.1	41.75	42.80	44.77
260.1	290.1	41.54	42.84	41.74
300.1	330.1	41.70	42.29	39.99
350.1	380.1	40.15	40.62	39.82
400.1	430.1	38.65	41.18	41.92
450.1	480.1	37.79	38.04	37.03
500.1	530.1	37.99	38.74	40.19
550.1	580.1	34.56	34.55	33.74
600.1	630.1	32.11	32.61	34.40
700.1	730.1	28.75	29.33	29.89
800.1	830.1	27.53	28.21	28.99
900.1	930.1	27.86	27.82	28.18
1000.1	1030.1	29.27	28.94	29.05
1100.1	1130.1	28.50	27.97	28.29
1200.1	1230.1	27.84	27.45	27.50
1300.1	1330.1	28.82	28.80	28.73
1400.1	1430.1	30.27	30.53	30.84
1500.1	1530.1	30.46	30.57	30.81
1600.1	1630.1	31.13	31.28	31.42
1700.1	1730.1	32.36	32.38	32.49
1900.1	1930.1	35.82	35.63	35.64
2050.1	2080.1	38.46	38.42	38.38
2200.1	2230.1	40.82	40.15	39.92
2350.1	2380.1	41.75	41.31	41.02
2500.1	2530.1	40.38	40.34	40.42
2700.1	2730.1	34.60	34.69	35.50
2900.1	2930.1	33.87	34.81	36.04
3100.1	3130.1	39.18	41.75	40.83
3300.1	3330.1	48.63	56.52	53.22
3500.1	3530.1	40.97	38.45	37.13
3700.1	3730.1	33.94	33.37	32.88
3900.1	3930.1	29.81	29.02	28.55
4100.1	4130.1	29.19	27.93	26.83

Frequency Mixer

RAY-11+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)				IF (OUT) (MHz)	IF VSWR @LO=2500.1MHz (:1)			
		@LO (dBm)				@LO (dBm)					@LO (dBm)			
		+20	+23	+26		+20	+23	+26	+20		+23	+26		
10.1	40.1	1.98	1.86	1.78	10.1	31.03	28.49	15.26	0.5	1.31	1.46	1.68		
30.1	60.1	1.45	1.35	1.30	30.1	4.22	3.87	3.66	0.8	1.10	1.25	1.47		
50.1	80.1	1.37	1.29	1.25	50.1	2.79	3.17	3.32	1.0	1.10	1.15	1.38		
75.1	105.1	1.37	1.28	1.24	75.1	3.40	4.86	7.47	2.0	1.18	1.08	1.29		
100.1	130.1	1.44	1.33	1.26	100.1	2.97	4.37	6.83	3.0	1.17	1.09	1.30		
140.1	170.1	1.43	1.33	1.27	140.1	2.22	2.81	3.14	4.0	1.15	1.10	1.31		
180.1	210.1	1.41	1.32	1.26	180.1	2.95	4.61	7.97	5.0	1.14	1.11	1.32		
220.1	250.1	1.45	1.34	1.28	220.1	2.13	2.72	2.99	6.0	1.13	1.11	1.33		
260.1	290.1	1.40	1.30	1.23	260.1	2.78	4.20	7.11	8.0	1.12	1.12	1.34		
300.1	330.1	1.43	1.33	1.26	300.1	2.24	2.93	3.19	10.0	1.11	1.12	1.34		
350.1	380.1	1.37	1.29	1.24	350.1	2.63	3.86	6.01	15.0	1.12	1.13	1.34		
400.1	430.1	1.39	1.31	1.27	400.1	2.19	2.81	3.27	20.0	1.13	1.13	1.34		
450.1	480.1	1.39	1.36	1.34	450.1	2.53	3.43	4.25	25.0	1.14	1.14	1.34		
500.1	530.1	1.41	1.41	1.41	500.1	2.21	2.83	3.33	30.0	1.16	1.15	1.34		
550.1	580.1	1.43	1.43	1.43	550.1	2.38	3.10	3.76	35.0	1.17	1.16	1.34		
600.1	630.1	1.52	1.48	1.47	600.1	2.19	2.78	3.19	40.0	1.18	1.17	1.35		
700.1	730.1	2.40	2.29	2.21	700.1	2.07	2.49	2.72	50.0	1.21	1.19	1.36		
800.1	830.1	3.86	3.63	3.47	800.1	2.02	2.30	2.54	65.0	1.24	1.23	1.39		
900.1	930.1	4.59	4.34	4.17	900.1	2.01	2.20	2.41	80.0	1.27	1.27	1.43		
1000.1	1030.1	4.22	4.03	3.90	1000.1	2.02	2.18	2.35	100.0	1.32	1.34	1.48		
1100.1	1130.1	3.42	3.31	3.24	1100.1	1.91	2.08	2.28	120.0	1.37	1.40	1.55		
1200.1	1230.1	2.58	2.48	2.43	1200.1	1.66	1.80	2.03	140.0	1.42	1.46	1.61		
1300.1	1330.1	2.10	1.94	1.85	1300.1	1.52	1.57	1.76	160.0	1.47	1.53	1.69		
1400.1	1430.1	2.41	2.29	2.17	1400.1	1.38	1.42	1.55	180.0	1.52	1.61	1.77		
1500.1	1530.1	2.43	2.34	2.25	1500.1	1.27	1.32	1.44	200.0	1.57	1.67	1.83		
1600.1	1630.1	2.30	2.22	2.16	1600.1	1.18	1.28	1.41	220.0	1.63	1.74	1.92		
1700.1	1730.1	2.57	2.48	2.42	1700.1	1.11	1.24	1.37	240.0	1.68	1.81	2.00		
1900.1	1930.1	5.77	5.28	5.00	1900.1	1.08	1.28	1.40	260.0	1.72	1.87	2.07		
2050.1	2080.1	9.08	8.31	7.70	2050.1	1.31	1.56	1.69	280.0	1.77	1.94	2.15		
2200.1	2230.1	5.70	5.17	4.83	2200.1	1.65	1.97	2.20	300.0	1.81	2.01	2.24		
2350.1	2380.1	2.97	2.71	2.50	2350.1	1.80	2.06	2.27	320.0	1.84	2.06	2.29		
2500.1	2530.1	1.57	1.46	1.33	2500.1	1.87	2.08	2.21	340.0	1.88	2.12	2.37		
2700.1	2730.1	1.66	1.64	1.63	2700.1	1.80	1.92	2.06	360.0	1.90	2.16	2.42		
2900.1	2930.1	2.59	2.46	2.40	2900.1	2.01	2.03	2.10	380.0	1.92	2.18	2.46		
3100.1	3130.1	2.36	2.08	2.05	3100.1	3.10	2.85	3.08	400.0	1.96	2.24	2.54		
3300.1	3330.1	1.74	1.67	1.71	3300.1	3.25	2.72	2.52	420.0	1.95	2.25	2.55		
3500.1	3530.1	1.69	1.88	2.10	3500.1	3.01	2.47	2.30	440.0	1.95	2.25	2.55		
3700.1	3730.1	1.91	1.95	2.07	3700.1	2.78	2.59	2.60	460.0	1.95	2.28	2.59		
3900.1	3930.1	1.47	1.47	1.53	3900.1	2.75	2.78	2.72	480.0	1.94	2.28	2.60		
4100.1	4130.1	2.55	2.62	2.56	4100.1	3.30	3.56	3.58	500.0	1.91	2.25	2.57		

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+9	33	18	47	28	36	18	33	25	33
1	-	24	+0	45	22	42	42	53	39	47	54	52
2	96	71	59	74	62	74	69	75	72	79	54	85
3	>122	91	75	87	67	104	79	91	88	93	88	84
4	>122	108	102	100	101	91	103	105	105	107	>119	104
5	>121	119	>120	120	113	115	96	>123	104	118	118	>120
6	>119	>123	>125	>125	>123	124	117	>118	>122	>124	>121	>121
7	>122	>121	>122	>123	>123	>121	>123	121	>122	>124	>123	>123
8	>121	>122	>123	>122	>122	>123	123	>124	>119	>122	>123	>123
9	>120	>122	>122	>122	>121	>124	>122	>122	124	>120	>122	>123
10	>119	>120	>124	>122	>122	>121	>122	>123	>123	>125	>120	>122
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1300.1 MHz; -.04.00 dBm.
LO IN: 1330.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -6.09 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	43	28	58	37	47	31	44	53	45
1	-	23	+0	46	22	43	42	56	40	53	58	64
2	84	66	49	61	53	67	60	69	65	73	48	66
3	>120	75	57	62	47	68	60	72	69	75	65	66
4	>120	91	85	86	76	69	80	83	79	88	92	88
5	>122	89	101	84	93	76	69	90	77	86	89	91
6	>120	95	101	102	95	94	93	81	97	104	101	107
7	>119	100	98	105	102	104	103	96	80	111	87	102
8	>121	113	103	103	>129	117	98	102	98	87	105	101
9	>120	125	120	107	109	118	113	112	110	103	90	114
10	>120	119	132	129	121	115	128	127	109	115	103	98
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1300.1 MHz; 9.99.00 dBm.
LO IN: 1330.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 3.92 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.



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