

Frequency Mixer

MACY-ED13234/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+16dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		0	+1	+3			0	+1	+3			0	+1	+3
800.1	830.1	9.87	10.29	11.13	800.1	830.1	21.89	22.48	27.54	800.1	830.1	0.64	0.56	0.45
840.1	870.1	8.25	8.50	9.15	840.1	870.1	21.97	21.34	21.79	840.1	870.1	1.11	1.00	0.99
880.1	910.1	7.63	7.74	8.15	880.1	910.1	18.36	18.66	20.19	880.1	910.1	1.23	1.24	1.18
920.1	950.1	7.31	7.41	7.63	920.1	950.1	18.14	17.78	17.68	920.1	950.1	1.36	1.22	1.30
960.1	990.1	8.35	8.50	9.01	960.1	990.1	18.10	18.16	19.75	960.1	990.1	0.86	0.62	0.27
1000.1	1030.1	9.24	9.35	9.50	1000.1	1030.1	21.20	24.40	21.92	1000.1	1030.1	1.02	0.82	0.62
1040.1	1070.1	8.15	8.23	8.55	1040.1	1070.1	22.04	23.19	20.15	1040.1	1070.1	1.56	1.52	1.27
1080.1	1110.1	8.09	8.18	8.48	1080.1	1110.1	22.82	20.43	21.41	1080.1	1110.1	1.61	1.67	1.71
1120.1	1150.1	8.61	8.78	9.23	1120.1	1150.1	22.90	19.79	19.23	1120.1	1150.1	1.13	1.09	1.13
1160.1	1190.1	8.03	8.11	8.47	1160.1	1190.1	26.04	28.64	23.01	1160.1	1190.1	0.90	0.88	1.05
1200.1	1230.1	7.49	7.61	7.86	1200.1	1230.1	25.88	25.83	24.26	1200.1	1230.1	0.83	0.74	0.81
1240.1	1270.1	7.01	7.08	7.22	1240.1	1270.1	27.03	24.76	24.22	1240.1	1270.1	0.79	0.75	0.99
1280.1	1310.1	6.82	6.91	6.99	1280.1	1310.1	31.23	25.50	25.38	1280.1	1310.1	0.46	0.42	0.47
1320.1	1350.1	6.70	6.68	6.78	1320.1	1350.1	33.46	27.20	27.50	1320.1	1350.1	0.35	0.40	0.36
1360.1	1390.1	6.69	6.68	6.67	1360.1	1390.1	25.36	22.70	26.57	1360.1	1390.1	0.43	0.39	0.35
1400.1	1430.1	6.75	6.75	6.69	1400.1	1430.1	29.32	29.64	26.29	1400.1	1430.1	0.46	0.43	0.41
1440.1	1470.1	7.10	7.12	7.10	1440.1	1470.1	28.59	33.09	30.98	1440.1	1470.1	0.31	0.27	0.27
1480.1	1510.1	7.22	7.25	7.29	1480.1	1510.1	28.60	26.95	29.98	1480.1	1510.1	0.40	0.39	0.36
1520.1	1550.1	7.26	7.28	7.37	1520.1	1550.1	24.53	25.83	28.19	1520.1	1550.1	0.43	0.47	0.43
1570.1	1600.1	7.43	7.45	7.55	1570.1	1600.1	31.01	24.86	25.76	1570.1	1600.1	0.54	0.57	0.53
1610.1	1640.1	8.22	8.27	8.32	1610.1	1640.1	25.57	28.65	32.88	1610.1	1640.1	0.58	0.52	0.48
1650.1	1680.1	8.52	8.55	8.57	1650.1	1680.1	30.54	27.29	29.33	1650.1	1680.1	0.43	0.45	0.34
1690.1	1720.1	8.35	8.33	8.37	1690.1	1720.1	28.70	29.85	32.13	1690.1	1720.1	0.48	0.47	0.41
1730.1	1760.1	8.60	8.61	8.63	1730.1	1760.1	28.29	25.61	33.87	1730.1	1760.1	0.56	0.51	0.48
1770.1	1800.1	8.52	8.53	8.54	1770.1	1800.1	27.47	27.97	31.64	1770.1	1800.1	0.62	0.63	0.60
1810.1	1840.1	8.39	8.33	8.35	1810.1	1840.1	28.07	26.09	27.11	1810.1	1840.1	0.79	0.75	0.68
1850.1	1880.1	8.26	8.21	8.14	1850.1	1880.1	24.72	29.71	27.39	1850.1	1880.1	0.82	0.65	0.61
1890.1	1920.1	8.46	8.38	8.28	1890.1	1920.1	26.50	33.53	25.42	1890.1	1920.1	0.84	0.68	0.64
1930.1	1960.1	8.95	8.86	8.70	1930.1	1960.1	26.49	31.32	26.57	1930.1	1960.1	0.66	0.69	0.70
1970.1	2000.1	8.90	8.81	8.67	1970.1	2000.1	29.15	26.39	25.36	1970.1	2000.1	0.79	0.74	0.70
2010.1	2040.1	8.85	8.78	8.67	2010.1	2040.1	26.77	24.58	24.37	2010.1	2040.1	0.96	0.88	0.80
2050.1	2080.1	8.92	8.86	8.78	2050.1	2080.1	25.27	24.84	26.97	2050.1	2080.1	0.90	0.88	0.77
2090.1	2120.1	8.79	8.73	8.61	2090.1	2120.1	25.63	26.16	23.88	2090.1	2120.1	0.93	0.90	0.81
2130.1	2160.1	9.05	8.98	8.90	2130.1	2160.1	29.19	24.71	27.16	2130.1	2160.1	0.94	0.85	0.75
2170.1	2200.1	9.18	9.06	8.97	2170.1	2200.1	22.26	24.46	23.63	2170.1	2200.1	0.94	0.90	0.81
2210.1	2240.1	9.63	9.58	9.50	2210.1	2240.1	25.75	25.92	24.18	2210.1	2240.1	0.85	0.66	0.63
2250.1	2280.1	10.23	10.13	10.04	2250.1	2280.1	22.75	22.90	27.47	2250.1	2280.1	0.67	0.65	0.67
2300.1	2330.1	10.76	10.65	10.58	2300.1	2330.1	23.75	26.48	26.81	2300.1	2330.1	0.51	0.48	0.44

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1405.1MHz (dB)
		@LO (dBm) +1
555.0	850.1	10.63
535.0	870.1	9.48
505.0	900.1	8.65
475.0	930.1	8.30
445.0	960.1	8.27
415.0	990.1	8.85
385.0	1020.1	9.53
355.0	1050.1	9.06
325.0	1080.1	8.37
295.0	1110.1	8.32
265.0	1140.1	8.85
235.0	1170.1	8.42
205.0	1200.1	8.04
185.0	1220.1	7.79
155.0	1250.1	7.68
125.0	1280.1	7.40
95.0	1310.1	7.38
65.0	1340.1	7.33
35.0	1370.1	6.92
15.0	1420.1	6.84
45.0	1450.1	6.77
75.0	1480.1	6.82
105.0	1510.1	7.02
135.0	1540.1	7.24
165.0	1570.1	7.28
195.0	1600.1	7.49
225.0	1630.1	8.17
265.0	1670.1	8.52
295.0	1700.1	8.52
325.0	1730.1	8.56
355.0	1760.1	8.48
385.0	1790.1	8.32
415.0	1820.1	8.19
445.0	1850.1	8.01
485.0	1890.1	8.34
515.0	1920.1	8.73
545.0	1950.1	9.12
575.0	1980.1	9.29

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1200.1MHz (dB)
		@LO (dBm) +1
10.0	1210.1	8.10
30.0	1230.1	7.67
50.0	1250.1	7.30
70.0	1270.1	6.99
90.0	1290.1	6.83
110.0	1310.1	6.69
130.0	1330.1	6.58
150.0	1350.1	6.53
180.0	1380.1	6.47
200.0	1400.1	6.52
220.0	1420.1	6.57
240.0	1440.1	6.72
260.0	1460.1	6.78
280.0	1480.1	6.90
300.0	1500.1	6.91
330.0	1530.1	7.21
350.0	1550.1	7.26
370.0	1570.1	7.39
390.0	1590.1	7.40
410.0	1610.1	7.72
430.0	1630.1	8.07
450.0	1650.1	8.25
470.0	1670.1	8.14
500.0	1700.1	7.95
520.0	1720.1	7.89
540.0	1740.1	7.88
560.0	1760.1	7.85
580.0	1780.1	8.04
600.0	1800.1	8.24
620.0	1820.1	8.39
650.0	1850.1	8.58
670.0	1870.1	8.58
690.0	1890.1	8.58
710.0	1910.1	8.56
730.0	1930.1	8.45
750.0	1950.1	8.57
770.0	1970.1	8.65
800.0	2000.1	8.72

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1610.1MHz (dB)
		@LO (dBm) +1
450.0	1160.1	9.86
440.0	1170.1	9.73
430.0	1180.1	9.64
415.0	1195.1	9.50
405.0	1205.1	9.26
395.0	1215.1	9.13
380.0	1230.1	9.09
370.0	1240.1	9.07
355.0	1255.1	8.95
345.0	1265.1	8.81
335.0	1275.1	8.69
320.0	1290.1	8.58
310.0	1300.1	8.53
300.0	1310.1	8.47
285.0	1325.1	8.39
275.0	1335.1	8.32
260.0	1350.1	8.28
250.0	1360.1	8.22
240.0	1370.1	8.16
225.0	1385.1	8.06
215.0	1395.1	8.10
205.0	1405.1	8.07
190.0	1420.1	8.03
180.0	1430.1	7.91
165.0	1445.1	7.91
155.0	1455.1	7.80
145.0	1465.1	7.75
130.0	1480.1	7.70
120.0	1490.1	7.61
110.0	1500.1	7.50
95.0	1515.1	7.47
85.0	1525.1	7.38
70.0	1540.1	7.28
60.0	1550.1	7.30
50.0	1560.1	7.30
35.0	1575.1	7.32
25.0	1585.1	7.33
10.0	1600.1	7.72

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LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	0	+1	+3	0	+1	+3
830.1	23.38	23.42	23.97	16.56	17.29	20.01
870.1	26.14	26.16	26.52	16.65	17.60	20.39
910.1	29.23	28.90	28.47	14.31	14.97	16.86
950.1	30.18	29.57	28.63	11.81	12.41	13.98
990.1	31.49	30.63	29.24	11.93	12.65	14.48
1030.1	20.55	21.25	23.33	14.15	15.23	17.54
1070.1	23.10	24.43	28.25	13.01	14.31	17.44
1110.1	21.83	22.74	25.36	10.26	11.30	13.88
1150.1	18.28	19.50	22.50	10.48	11.36	13.45
1190.1	12.94	13.43	14.85	10.48	11.44	13.64
1230.1	12.02	12.13	12.94	5.73	6.39	8.07
1270.1	15.82	15.93	16.61	6.89	7.55	9.10
1310.1	16.09	16.01	16.42	7.03	7.69	9.22
1350.1	17.38	17.30	17.88	6.02	6.66	8.12
1390.1	18.39	18.30	18.73	6.02	6.62	8.03
1430.1	18.90	18.93	19.63	6.46	7.19	8.72
1470.1	19.32	19.80	21.36	6.50	7.35	9.12
1510.1	19.27	20.44	22.85	6.20	7.04	8.88
1550.1	17.17	18.15	20.10	7.20	8.02	9.79
1600.1	13.21	13.89	15.44	10.09	10.75	12.19
1640.1	15.53	16.46	18.92	8.32	8.99	10.53
1680.1	30.95	32.06	36.04	7.75	8.53	10.37
1720.1	31.12	32.01	33.43	8.38	9.16	11.06
1760.1	28.76	30.08	32.80	9.22	9.98	11.91
1800.1	25.49	26.57	29.27	9.55	10.25	12.09
1840.1	25.12	26.14	28.84	10.11	10.72	12.40
1880.1	26.39	27.59	30.80	11.12	11.71	13.30
1920.1	21.20	21.94	24.09	11.86	12.39	13.94
1960.1	19.49	20.10	21.85	11.73	12.14	13.52
2000.1	18.50	19.05	20.63	13.07	13.51	14.70
2040.1	19.44	19.94	21.11	15.64	16.12	17.21
2080.1	22.91	23.45	24.20	20.83	21.24	21.97
2120.1	24.40	24.81	25.13	30.35	31.33	31.78
2160.1	22.79	23.00	23.30	33.41	33.21	33.76
2200.1	20.23	20.36	20.77	27.26	26.36	25.68
2240.1	18.07	18.37	19.17	26.58	26.38	26.22
2280.1	15.69	16.24	17.68	21.32	22.68	25.88
2330.1	11.94	12.37	13.67	12.91	13.71	15.56

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		0	+1	+3
800.1	830.1	33.38	34.57	32.00
840.1	870.1	25.37	26.32	27.69
880.1	910.1	21.27	21.59	22.76
920.1	950.1	19.07	19.00	19.09
960.1	990.1	22.22	22.51	23.06
1000.1	1030.1	26.70	26.96	27.25
1040.1	1070.1	21.82	21.86	22.32
1080.1	1110.1	20.33	19.97	19.73
1120.1	1150.1	18.07	17.44	17.19
1160.1	1190.1	19.64	18.66	17.13
1200.1	1230.1	22.14	20.76	18.66
1240.1	1270.1	27.70	26.44	24.69
1280.1	1310.1	30.80	28.99	26.56
1320.1	1350.1	31.27	29.70	27.69
1360.1	1390.1	33.83	32.57	30.97
1400.1	1430.1	39.66	38.26	37.15
1440.1	1470.1	41.93	43.96	42.63
1480.1	1510.1	33.83	33.33	31.96
1520.1	1550.1	28.33	28.31	28.03
1570.1	1600.1	26.54	26.75	27.18
1610.1	1640.1	29.28	29.47	29.22
1650.1	1680.1	29.63	29.77	29.75
1690.1	1720.1	28.18	28.39	28.58
1730.1	1760.1	25.86	25.98	26.01
1770.1	1800.1	24.09	24.13	24.23
1810.1	1840.1	22.45	22.49	22.37
1850.1	1880.1	21.75	21.67	21.37
1890.1	1920.1	21.47	21.46	21.31
1930.1	1960.1	19.24	19.15	19.11
1970.1	2000.1	18.37	18.28	18.22
2010.1	2040.1	20.10	20.07	19.98
2050.1	2080.1	20.64	20.59	20.42
2090.1	2120.1	19.69	19.68	19.56
2130.1	2160.1	18.88	18.80	18.68
2170.1	2200.1	17.88	17.85	17.77
2210.1	2240.1	17.52	17.59	17.68
2250.1	2280.1	17.40	17.57	17.91
2300.1	2330.1	15.89	16.04	16.19

Frequency Mixer

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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=30MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		0	+1	+3		0	+1	+3		0	+1	+3
800.1	830.1	1.64	1.53	1.38	830.1	1.76	1.74	1.69	10.1	1.74	1.71	1.66
840.1	870.1	1.88	1.80	1.62	870.1	1.68	1.66	1.62	16.1	1.63	1.60	1.57
880.1	910.1	1.95	1.89	1.76	910.1	1.59	1.57	1.54	24.1	1.63	1.63	1.67
920.1	950.1	2.06	2.02	1.91	950.1	1.48	1.47	1.45	32.1	1.62	1.57	1.72
960.1	990.1	1.90	1.84	1.72	990.1	1.39	1.37	1.35	40.1	1.67	1.67	1.70
1000.1	1030.1	1.42	1.40	1.40	1030.1	1.32	1.30	1.29	48.1	1.65	1.62	1.73
1040.1	1070.1	1.42	1.42	1.42	1070.1	1.24	1.23	1.23	56.1	1.69	1.71	1.81
1080.1	1110.1	1.30	1.29	1.28	1110.1	1.17	1.17	1.17	64.1	1.73	1.70	1.76
1120.1	1150.1	1.24	1.23	1.24	1150.1	1.11	1.10	1.13	72.1	1.74	1.72	1.77
1160.1	1190.1	1.24	1.25	1.25	1190.1	1.06	1.06	1.09	80.1	1.74	1.76	1.84
1200.1	1230.1	1.18	1.19	1.20	1230.1	1.04	1.01	1.05	88.1	1.79	1.79	1.87
1240.1	1270.1	1.21	1.23	1.27	1270.1	1.11	1.09	1.04	96.1	1.83	1.83	1.91
1280.1	1310.1	1.29	1.31	1.34	1310.1	1.28	1.25	1.17	104.1	1.83	1.85	1.95
1320.1	1350.1	1.39	1.40	1.42	1350.1	1.50	1.46	1.39	110.1	1.88	1.91	1.99
1360.1	1390.1	1.54	1.55	1.56	1390.1	1.66	1.62	1.55	118.1	1.89	1.92	2.00
1400.1	1430.1	1.70	1.70	1.71	1430.1	1.75	1.71	1.63	126.1	1.95	1.97	2.05
1440.1	1470.1	1.96	1.96	1.97	1470.1	1.85	1.80	1.71	134.1	1.99	2.02	2.10
1480.1	1510.1	2.13	2.15	2.17	1510.1	1.89	1.83	1.73	142.1	2.05	2.08	2.15
1520.1	1550.1	2.20	2.22	2.26	1550.1	1.82	1.76	1.68	150.1	2.08	2.12	2.20
1570.1	1600.1	2.30	2.32	2.37	1600.1	1.56	1.52	1.47	158.1	2.13	2.14	2.24
1610.1	1640.1	2.47	2.49	2.52	1640.1	1.39	1.36	1.32	166.1	2.18	2.20	2.27
1650.1	1680.1	2.58	2.60	2.62	1680.1	1.31	1.29	1.25	174.1	2.22	2.24	2.33
1690.1	1720.1	2.46	2.48	2.49	1720.1	1.25	1.23	1.19	182.1	2.28	2.30	2.38
1730.1	1760.1	2.42	2.43	2.45	1760.1	1.21	1.19	1.15	190.1	2.33	2.36	2.45
1770.1	1800.1	2.32	2.32	2.34	1800.1	1.20	1.17	1.12	198.1	2.37	2.38	2.47
1810.1	1840.1	2.19	2.20	2.19	1840.1	1.22	1.19	1.14	204.1	2.40	2.43	2.51
1850.1	1880.1	2.23	2.22	2.22	1880.1	1.23	1.21	1.16	212.1	2.46	2.48	2.59
1890.1	1920.1	2.18	2.16	2.15	1920.1	1.28	1.26	1.22	220.1	2.53	2.55	2.64
1930.1	1960.1	2.23	2.20	2.17	1960.1	1.34	1.32	1.29	228.1	2.57	2.60	2.69
1970.1	2000.1	2.24	2.20	2.16	2000.1	1.39	1.37	1.34	236.1	2.62	2.64	2.74
2010.1	2040.1	2.22	2.18	2.14	2040.1	1.40	1.38	1.36	244.1	2.67	2.72	2.80
2050.1	2080.1	2.32	2.26	2.19	2080.1	1.41	1.38	1.36	252.1	2.74	2.76	2.87
2090.1	2120.1	2.35	2.29	2.21	2120.1	1.43	1.40	1.36	260.1	2.81	2.83	2.94
2130.1	2160.1	2.46	2.41	2.34	2160.1	1.43	1.40	1.36	268.1	2.84	2.87	2.97
2170.1	2200.1	2.62	2.58	2.52	2200.1	1.41	1.38	1.33	276.1	2.88	2.90	3.01
2210.1	2240.1	2.83	2.80	2.76	2240.1	1.37	1.33	1.29	284.1	2.92	2.95	3.07
2250.1	2280.1	3.15	3.12	3.07	2280.1	1.33	1.30	1.25	292.1	2.99	3.02	3.14
2300.1	2330.1	3.34	3.31	3.26	2330.1	1.23	1.20	1.17	300.1	3.07	3.09	3.21

Frequency Mixer
MACY-ED13234/1

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	-10.55	-3.77	25.82	13.25	18.27	24.04	23.71	21.59	25.68	30.30
1	---	28.78	---	19.97	21.26	44.98	34.47	47.98	50.33	47.27	47.46	59.61
2	106.83	59.73	64.95	54.26	60.25	60.80	75.89	66.99	85.65	86.22	80.28	78.98
3	125.91	98.68	88.75	88.78	82.24	99.34	94.62	103.69	102.44	103.52	108.55	99.95
4	127.71	108.17	108.19	107.20	110.29	105.34	110.72	107.45	107.75	109.88	107.05	108.09
5	126.58	108.26	108.59	104.28	108.66	109.53	108.00	110.48	106.72	110.11	108.88	110.47
6	127.55	107.56	107.56	108.90	108.52	108.50	108.28	110.40	109.68	108.51	108.94	109.37
7	125.53	108.71	108.99	110.18	109.37	110.20	106.61	110.28	109.52	108.86	105.67	110.07
8	126.20	108.43	110.40	108.87	109.79	107.83	107.47	107.18	109.46	104.06	109.17	108.28
9	126.49	108.44	108.27	108.77	107.20	109.96	109.30	106.94	108.98	94.43	111.30	96.74
10	123.25	106.06	106.68	105.57	107.57	109.18	109.57	109.37	110.60	109.97	108.84	111.18
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 1405 MHz; -10 dBm.
LO IN: 1435 MHz; 0 dBm
IF OUT: 30 MHz; -16.58 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	-0.57	6.18	35.56	23.36	27.98	34.03	33.30	31.92	35.83	40.33
1	---	28.90	---	19.96	21.27	44.71	34.37	48.88	50.84	47.43	47.82	60.93
2	93.03	49.67	55.87	44.41	50.25	50.91	66.28	57.05	74.90	75.75	69.21	69.83
3	124.80	79.50	68.78	69.85	61.43	77.75	71.85	83.52	80.79	84.03	89.76	80.70
4	125.45	108.75	105.41	89.81	90.57	79.28	93.19	88.59	95.10	98.07	100.02	113.20
5	124.53	116.02	108.54	112.06	101.99	103.14	90.58	103.06	101.12	105.77	110.62	114.81
6	122.33	116.73	116.88	111.33	115.81	114.62	109.73	108.59	113.84	112.98	115.93	115.58
7	123.63	116.51	116.62	116.76	115.76	117.93	115.78	117.92	111.75	116.23	114.22	118.49
8	122.98	116.68	117.76	117.50	117.49	115.48	115.67	117.89	118.36	110.32	116.85	116.44
9	123.02	114.19	118.04	117.05	117.83	116.53	117.44	115.43	114.44	96.87	112.47	98.02
10	121.41	114.77	115.09	117.13	118.17	117.46	115.83	118.01	117.64	115.82	116.78	118.96
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 1405 MHz; 0 dBm.
LO IN: 1435 MHz; +1 dBm
IF OUT: 30 MHz; -6.69 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 represents the Harmonics level of the RF Input Signal to the mixer