

DESCRIPTION OF CIRCUIT OPERATION

BASE UNIT :

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.3 of J3 is sent to IC2 (COMPANDER IC) Pin no.15 for Expansion. The expended audio signal output from Pin no.19 is coupled to Q12,13 during the TEL. mode. The audio signal is sent to the Telephone Line via hybrid Transformer HBY1.

The demodulated data code from J3 Pin no.3 is Generated by Q5, Q6. It's output is connected to CODE Input Pin no.42 of IC4.

The Audio signal receiving from TEL-LINE is input to IC2 Pin no.8 for compression. The compressed audio signal from Pin no.1 of IC2 is connected to Pin no.10 of J3 for TX modulation.

Pin no.28 of IC4 is the output port for data codes that should be transmitted to the handset. The data code is connected to Pin no.10 of J3 for modulation.

Relay controlling is done by Pin no.19 of IC4.

Ring signal monitored by IC7 (PHOTO COUPLER IC) is detected by Pin no.39 of IC4 resulting a data code to the handset.

DTMF dialing is generated by IC4 Pin no.34 this signal output through the HYB1.

When the handset is placed on the base cradle, the charging is detected by Pin no.15 of IC4 and IC4 sends data codes to handset for security code setting.

When the handset is far away from base unit, squelch circuit of IC1 operates and Pin no.13 of IC1 goes "HI". This will be detected by the micro processor and after 20 sec. go to Stand by mode.

The power to the base unit is supplied by IC5(5V REGULATOR IC).

LED display control Pin no.3 of IC4.

On hook mode, Type 1 caller id signal is entered to Pin no.5 of IC1 from Tip,ring Through IC3C,D.

The demodulated caller id signal is input to IC4 from IC1

IC1 detect it, then transmit to Handset through the RF.

Off hook mode, Type2 caller id signal is entered to pin no.5 of IC1 from HYB1
Through IC3 C,D.

The demodulated caller id signal is input to IC4 from IC1.

IC1 detect it, then transmit to Handset through the RF.

The selection of Type 1 or 2 caller id signal is accomplished by controlling of Q15.

HAND SET :

The demodulated signal, resulting from Double Super Heterodyne system, which appears at output Pin no.3 of CON1 is connected to IC102B Pin no.16 Expander input. The audio output from IC102B Pin no.19 is finally amplified by Q2 and A.C coupled to the Receiver unit with HAC compatibility.

The demodulated data code from CON1 Pin no.3 is fed to Q104,105.

Q104,105 is connected to (DATA IN) Pin no.42 of IC104.

Voice signal from C-MIC is coupled to Pin no.8 of IC102A. The voice signal is compressed by IC2A and output Pin no.1 is connected to Pin no.10 of CON1 for modulation.

Pin no.34 of IC104 is the output port for data code that should be transmitted to the base unit. This data code is connected to the Pin no.10 of CON1 for modulation.

During the charging, it is detected by IC104 Pin no.29.

Key board operation is monitored by Pin no.47-54 of IC104.

Key Tone and the ringing from Pin no.55 of IC104 drives the BUZZER.

LCD operation is com. Signal and seg signal.

1. BASE RF MODULE

1) RX PART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AND RF LOW NOISE AMPLIFIER, A ACTIVE TRANSISTOR MIXER, A CERAMIC FILTER AND 10.7MHz IF AMPLIFIER.

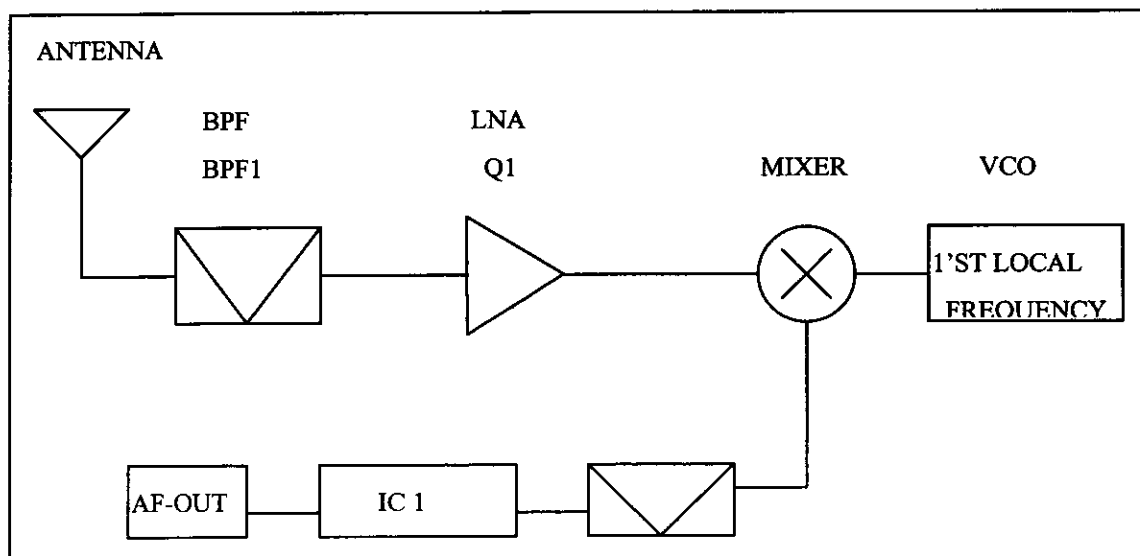
ALSO IT INCLUDES BUFFER AMPLIFIERS FOR THE GENERATION OF LOCAL OSCILLATOR POWER.

THIS FRONT-END RECEIVER RECEIVERS AND RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 2403.05MHz ~ 2475.95MHz PASS THROUGH RF AMP (Q1) AND BAND PASS FITER.

AFTER PASSING THROUGH THE BAND PASS FILTER AND THE SIGNAL IS MIXED WITHIN 1'ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE OF AMP TRANSISTOR (Q3) AND THE SIGNAL PASS THROUGH THE CERAMIC FILTER (10.7MHz).

AFTER THE IF SIGNAL PASS THE CERAMIC FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC1.

AND THE SIGNAL IS MIXED IN THE FM IF IC (DBL5018V). THE SIGNAL PASS THROUGH THE CERAMIC FILTER (450KHz). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR TO THE BASE.



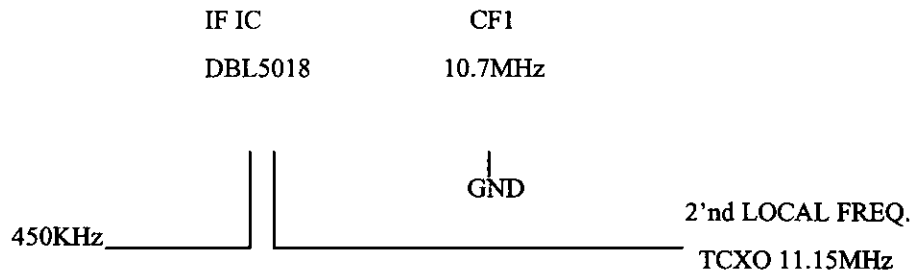


FIG. 1

2)TX PART

THE SIGNAL IS MADE TO THE BASE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR(CON1 OF PIN NO.10).

THE SIGNAL SEND THE MOD TERMINAL OF THE TX VCO.

THE SIGNAL IS MIXED IN THE TX VCO MIXING THE RF SIGNAL, THE RF SIGNAL ADJUST THE TRIMMER CAPACITOR (VC1).

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR Q5

THE SIGNAL IS AMPLITUDE IN THE Q7. ENTER BY THE BAND PASS FILTER.

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TO WARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 2403.05MHz ~ 2475.95MHz.

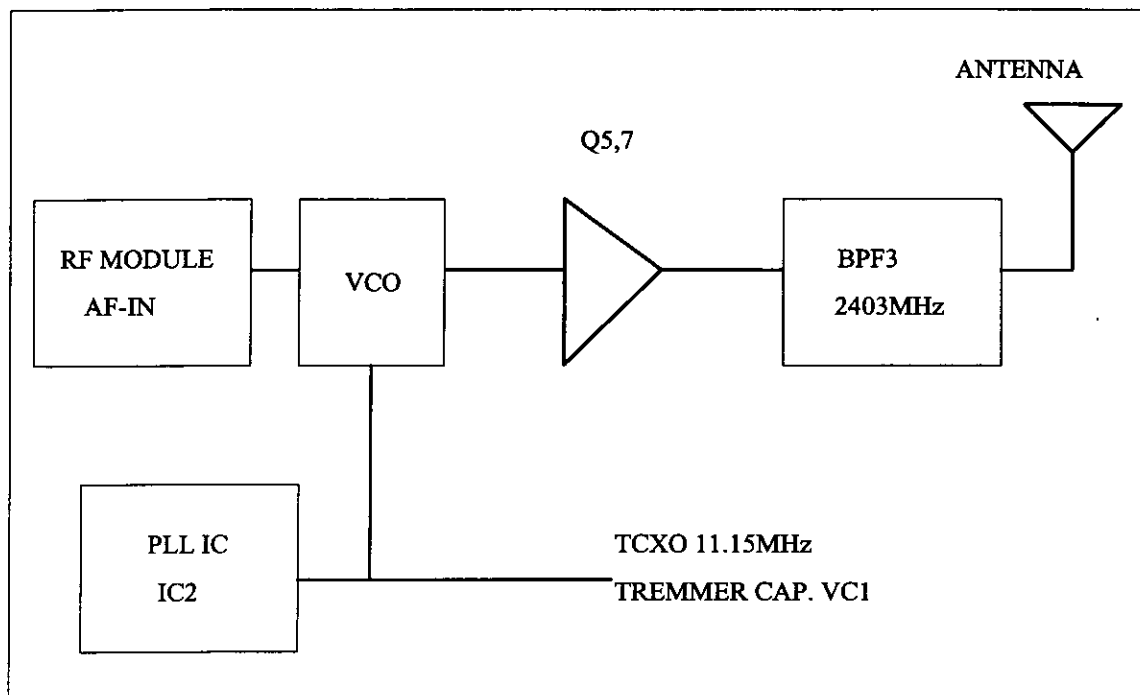


FIG. 2

2. PORTABLE RF MODULE

1) RX RART

THE RECEIVER FRONT-END CONTAINS A BAND PASS FILTER, AND RF LOW NOISE AMPLIFIER, ACTIVE TRANSISTOR MIXER, CERAMIC FILTER AND 10.7MHz "IF" AMPLIFIER.

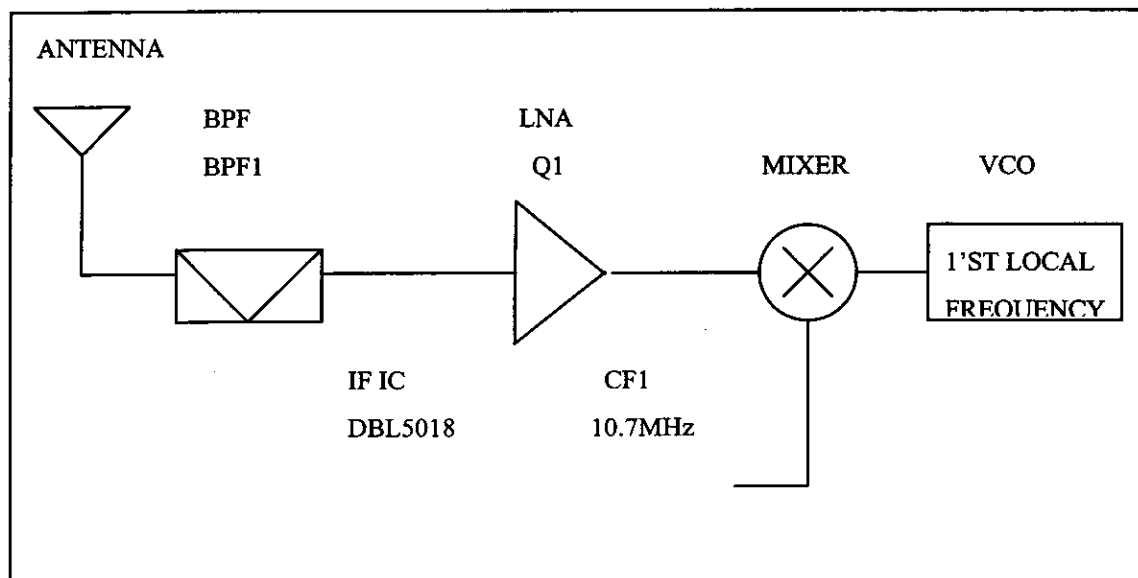
ALSO IT INCLUDES BUFFER AMPLIFIERS OR THE GENERATION OF LOCAL OSCILLATOR POWER.

THIS FRONT-END RECEIVERS AND RF SIGNAL FROM THE ANTENNA. AND RF SIGNALS WITHIN THIS FREQUENCY RANGE IS 2403.05MHz ~ 2475.95MHz PASS THROUGH RF AMP (Q1) AND BAND PASS FILTER..

AFTER PASSING THROUGH THE BAND PASS FILTER, THE SIGNAL IS MIXED WITHIN 1ST LOCAL FREQUENCY FROM VOLTAGE CONTROLLED

OSCILLATOR. THE SIGNAL IS AMPLIFIED ON THE IF AMP TRANSISTOR (Q3) AND THE SIGNAL PASS THROUGH THE CERANIC FILTER (10.7MHz)

AFTER THE IF SIGNAL PASS THE MCF FILTER, THE SIGNAL ENTER BY THE FM IF (INTERMEDIATE FREQUENCY) IC. AND THE SIGNAL IS MIXED IN THE FM IF IC (DBL5018V). THE SIGNAL PASS THROUGH THE CERAMIC FILTER (450KHz). THE OUTPUT SIGNAL IN THE FM IF IC STREAMS FROM THE AF-OUT TERMINAL OF THE CONNECTOR 1 TO THE PORTABLE.



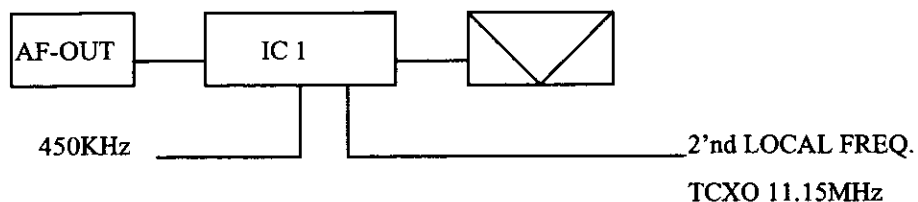


FIG.3

2) TX PART

THE SIGNAL IS MADE TO THE PORTABLE, ENTER BY THE AF-IN TERMINAL OF THE CONNECTOR.

THE SIGNAL SEND THE MOD TERMINAL OF THE TX VCO.

THE SIGNAL IS MIXED IN THE TX VCO MIXING THE RF SIGNAL, THE RF SIGNAL ADJUST THE TRIMMER CAPACITOR VC1.

THE RF SIGNAL ENTER BY THE TRANSMISSION POWER AMP TRANSISTOR (Q5,7). ENTER BY THE BAND PASS FILTER.

THE RF SIGNAL PASS THROUGH THE BAND PASS FILTER, TO WARDS THE ANT. THE LAST TRANSMISSION RF SIGNAL IS 2403.025MHz ~ 2475.95MHz.

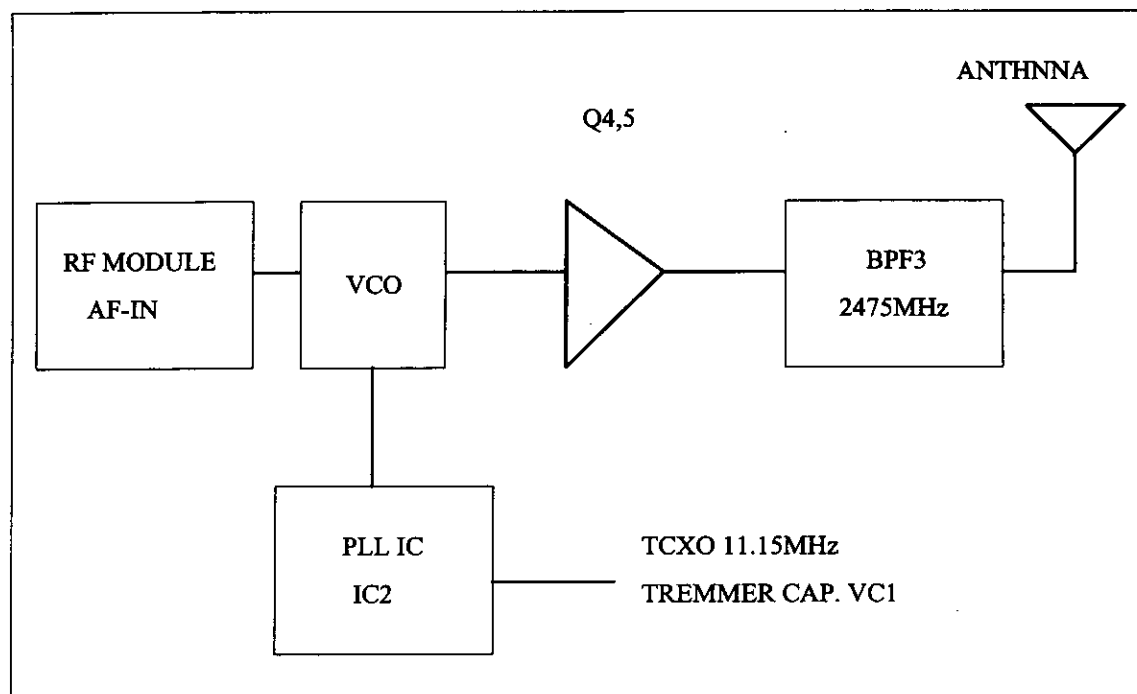


FIG. 4

Table2-1.LMX1602 CLP DUAL PLL FREQ CH_1

main pll					<BASESET> for Unicom		
Ch	Tx(Mhz)	Tx_Vco(Mhz)	P	B_CNT(D)	B_CNT(B)	A_CNT(D)	A_CNT(B)
1	2403.05	801.016667	16	3003	101110111011	13	1101
2	2403.1	801.033333	16	3003	101110111011	14	1110
3	2403.15	801.05	16	3003	101110111011	15	1111
4	2403.2	801.066667	16	3004	101110111100	0	0000
5	2403.25	801.083333	16	3004	101110111100	1	0001
6	2403.3	801.1	16	3004	101110111100	2	0010
7	2403.35	801.116667	16	3004	101110111100	3	0011
8	2403.4	801.133333	16	3004	101110111100	4	0100
9	2403.45	801.15	16	3004	101110111100	5	0101
10	2403.5	801.166667	16	3004	101110111100	6	0110
11	2403.55	801.183333	16	3004	101110111100	7	0111
12	2403.6	801.2	16	3004	101110111100	8	1000
13	2403.65	801.216667	16	3004	101110111100	9	1001
14	2403.7	801.233333	16	3004	101110111100	10	1010
15	2403.75	801.25	16	3004	101110111100	11	1011
16	2403.8	801.266667	16	3004	101110111100	12	1100
17	2403.85	801.283333	16	3004	101110111100	13	1101
18	2403.9	801.3	16	3004	101110111100	14	1110
19	2403.95	801.316667	16	3004	101110111100	15	1111
20	2404	801.333333	16	3005	101110111101	0	0000
21	2404.05	801.35	16	3005	101110111101	1	0001
22	2404.1	801.366667	16	3005	101110111101	2	0010
23	2404.15	801.383333	16	3005	101110111101	3	0011
24	2404.2	801.4	16	3005	101110111101	4	0100
25	2404.25	801.416667	16	3005	101110111101	5	0101
26	2404.3	801.433333	16	3005	101110111101	6	0110
27	2404.35	801.45	16	3005	101110111101	7	0111
28	2404.4	801.466667	16	3005	101110111101	8	1000
29	2404.45	801.483333	16	3005	101110111101	9	1001
30	2404.5	801.5	16	3005	101110111101	10	1010
31	2404.55	801.516667	16	3005	101110111101	11	1011
32	2404.6	801.533333	16	3005	101110111101	12	1100
33	2404.65	801.55	16	3005	101110111101	13	1101
34	2404.7	801.566667	16	3005	101110111101	14	1110
35	2404.75	801.583333	16	3005	101110111101	15	1111
36	2404.8	801.6	16	3006	101110111110	0	0000
37	2404.85	801.616667	16	3006	101110111110	1	0001
38	2404.9	801.633333	16	3006	101110111110	2	0010
39	2404.95	801.65	16	3006	101110111110	3	0011
40	2405	801.666667	16	3006	101110111110	4	0100

1) Tx_Vco = Tx/3

2) Rx_Vco = (Rx - 10.7Mhz) / 3

3) Fvco = [(16 * B) + A] * Fref

4) Fref (16.66666Khz) = 11.15Mhz / [r_cnt (669)]

5) 29D (H) = 1010011101(B)

Table2-2. LMX1602 CLP DUAL PLL FREQ CH_2

Ch	Rx(Mhz)	Rx_Vco(Mhz)	aux pll		<BASESET		
			P	B_CNT(D)	B_CNT(B)	A_CNT(D)	A_CNT(B)
1	2,474.000	828.233333	16	3105	110000100001	14	1110
2	2,474.050	828.25	16	3105	110000100001	15	1111
3	2,474.100	828.266667	16	3106	110000100010	0	0000
4	2,474.150	828.283333	16	3106	110000100010	1	0001
5	2,474.200	828.3	16	3106	110000100010	2	0010
6	2,474.250	828.316667	16	3106	110000100010	3	0011
7	2,474.300	828.333333	16	3106	110000100010	4	0100
8	2,474.350	828.35	16	3106	110000100010	5	0101
9	2,474.400	828.366667	16	3106	110000100010	6	0110
10	2,474.450	828.383333	16	3106	110000100010	7	0111
11	2,474.500	828.4	16	3106	110000100010	8	1000
12	2,474.550	828.416667	16	3106	110000100010	9	1001
13	2,474.600	828.433333	16	3106	110000100010	10	1010
14	2,474.650	828.45	16	3106	110000100010	11	1011
15	2,474.700	828.466667	16	3106	110000100010	12	1100
16	2,474.750	828.483333	16	3106	110000100010	13	1101
17	2,474.800	828.5	16	3106	110000100010	14	1110
18	2,474.850	828.516667	16	3106	110000100010	15	1111
19	2,474.900	828.533333	16	3107	110000100011	0	0000
20	2,474.950	828.55	16	3107	110000100011	1	0001
21	2,475.000	828.566667	16	3107	110000100011	2	0010
22	2,475.050	828.583333	16	3107	110000100011	3	0011
23	2,475.100	828.6	16	3107	110000100011	4	0100
24	2,475.150	828.616667	16	3107	110000100011	5	0101
25	2,475.200	828.633333	16	3107	110000100011	6	0110
26	2,475.250	828.65	16	3107	110000100011	7	0111
27	2,475.300	828.666667	16	3107	110000100011	8	1000
28	2,475.350	828.683333	16	3107	110000100011	9	1001
29	2,475.400	828.7	16	3107	110000100011	10	1010
30	2,475.450	828.716667	16	3107	110000100011	11	1011
31	2,475.500	828.733333	16	3107	110000100011	12	1100
32	2,475.550	828.75	16	3107	110000100011	13	1101
33	2,475.600	828.766667	16	3107	110000100011	14	1110
34	2,475.650	828.783333	16	3107	110000100011	15	1111
35	2,475.700	828.8	16	3108	110000100100	0	0000
36	2,475.750	828.816667	16	3108	110000100100	1	0001
37	2,475.800	828.833333	16	3108	110000100100	2	0010
38	2,475.850	828.85	16	3108	110000100100	3	0011
39	2,475.900	828.866667	16	3108	110000100100	4	0100
40	2,475.950	828.883333	16	3108	110000100100	5	0101

Table2-3. LMX1602 CLP DUAL PLL FREQ CH_1

main pll					<HANDSET>		
Ch	Tx(Mhz)	Tx_Vco(Mhz)	P	B_CNT(D)	B_CNT(B)	A_CNT(D)	A_CNT(B)
1	2,474.000	824.66667	16	3092	110000010100	8	1000
2	2,474.050	824.68333	16	3092	110000010100	9	1001
3	2,474.100	824.7	16	3092	110000010100	10	1010
4	2,474.150	824.71667	16	3092	110000010100	11	1011
5	2,474.200	824.73333	16	3092	110000010100	12	1100
6	2,474.250	824.75	16	3092	110000010100	13	1101
7	2,474.300	824.76667	16	3092	110000010100	14	1110
8	2,474.350	824.78333	16	3092	110000010100	15	1111
9	2,474.400	824.8	16	3093	110000010101	0	0000
10	2,474.450	824.81667	16	3093	110000010101	1	0001
11	2,474.500	824.83333	16	3093	110000010101	2	0010
12	2,474.550	824.85	16	3093	110000010101	3	0011
13	2,474.600	824.86667	16	3093	110000010101	4	0100
14	2,474.650	824.88333	16	3093	110000010101	5	0101
15	2,474.700	824.9	16	3093	110000010101	6	0110
16	2,474.750	824.91667	16	3093	110000010101	7	0111
17	2,474.800	824.93333	16	3093	110000010101	8	1000
18	2,474.850	824.95	16	3093	110000010101	9	1001
19	2,474.900	824.96667	16	3093	110000010101	10	1010
20	2,474.950	824.98333	16	3093	110000010101	11	1011
21	2,475.000	825	16	3093	110000010101	12	1100
22	2,475.050	825.01667	16	3093	110000010101	13	1101
23	2,475.100	825.03333	16	3093	110000010101	14	1110
24	2,475.150	825.05	16	3093	110000010101	15	1111
25	2,475.200	825.06667	16	3094	110000010110	0	0000
26	2,475.250	825.08333	16	3094	110000010110	1	0001
27	2,475.300	825.1	16	3094	110000010110	2	0010
28	2,475.350	825.11667	16	3094	110000010110	3	0011
29	2,475.400	825.13333	16	3094	110000010110	4	0100
30	2,475.450	825.15	16	3094	110000010110	5	0101
31	2,475.500	825.16667	16	3094	110000010110	6	0110
32	2,475.550	825.18333	16	3094	110000010110	7	0111
33	2,475.600	825.2	16	3094	110000010110	8	1000
34	2,475.650	825.21667	16	3094	110000010110	9	1001
35	2,475.700	825.23333	16	3094	110000010110	10	1010
36	2,475.750	825.25	16	3094	110000010110	11	1011
37	2,475.800	825.26667	16	3094	110000010110	12	1100
38	2,475.850	825.28333	16	3094	110000010110	13	1101
39	2,475.900	825.3	16	3094	110000010110	14	1110
40	2,475.950	825.31667	16	3094	110000010110	15	1111

1) Tx_Vco = Tx/3

2) Rx_Vco = (Rx + 10.7Mhz) /3

3) Fvco = [(16 * B) + A] * Fref

4) Fref(16.6666Khz) = 11.15Mhz / [r_cnt (669)]

5) 29D (H) = 1010011101(B)

Table2-4. LMX1602 CLP DUAL PLL FREQ

Ch	aux pll		P	B_CNT(D)	B_CNT(B)	<HANDSET>	
	Rx(Mhz)	Rx_Vco(Mhz)				A_CNT(D)	A_CNT(B)
1	2403.05	797.450	16	2990	101110101110	7	0111
2	2403.1	797.467	16	2990	101110101110	8	1000
3	2403.15	797.483	16	2990	101110101110	9	1001
4	2403.2	797.500	16	2990	101110101110	10	1010
5	2403.25	797.517	16	2990	101110101110	11	1011
6	2403.3	797.533	16	2990	101110101110	12	1100
7	2403.35	797.550	16	2990	101110101110	13	1101
8	2403.4	797.567	16	2990	101110101110	14	1110
9	2403.45	797.583	16	2990	101110101110	15	1111
10	2403.5	797.600	16	2991	101110101111	0	0000
11	2403.55	797.617	16	2991	101110101111	1	0001
12	2403.6	797.633	16	2991	101110101111	2	0010
13	2403.65	797.650	16	2991	101110101111	3	0011
14	2403.7	797.667	16	2991	101110101111	4	0100
15	2403.75	797.683	16	2991	101110101111	5	0101
16	2403.8	797.700	16	2991	101110101111	6	0110
17	2403.85	797.717	16	2991	101110101111	7	0111
18	2403.9	797.733	16	2991	101110101111	8	1000
19	2403.95	797.750	16	2991	101110101111	9	1001
20	2404	797.767	16	2991	101110101111	10	1010
21	2404.05	797.783	16	2991	101110101111	11	1011
22	2404.1	797.800	16	2991	101110101111	12	1100
23	2404.15	797.817	16	2991	101110101111	13	1101
24	2404.2	797.833	16	2991	101110101111	14	1110
25	2404.25	797.850	16	2991	101110101111	15	1111
26	2404.3	797.867	16	2992	101110110000	0	0000
27	2404.35	797.883	16	2992	101110110000	1	0001
28	2404.4	797.900	16	2992	101110110000	2	0010
29	2404.45	797.917	16	2992	101110110000	3	0011
30	2404.5	797.933	16	2992	101110110000	4	0100
31	2404.55	797.950	16	2992	101110110000	5	0101
32	2404.6	797.967	16	2992	101110110000	6	0110
33	2404.65	797.983	16	2992	101110110000	7	0111
34	2404.7	798.000	16	2992	101110110000	8	1000
35	2404.75	798.017	16	2992	101110110000	9	1001
36	2404.8	798.033	16	2992	101110110000	10	1010
37	2404.85	798.050	16	2992	101110110000	11	1011
38	2404.9	798.067	16	2992	101110110000	12	1100
39	2404.95	798.083	16	2992	101110110000	13	1101
40	2405	798.100	16	2992	101110110000	14	1110