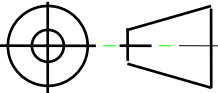



7260747	1	THIRD ANGLE PROJECTION	REVISIONS					
			LTR	ECO	DESCRIPTION	Section	DATE	APPROVED
			A		Release			

# Specification for 1.73 GHz to 2.93 GHz L-Band Synthesizer

SHEET	1	2	3	4	5	6	7	8											
REV	A	A	A	A	A	A	A	A											
SHEET																			
REV																			

		DWN	J. VIANO	10/24/05	 <b>TELEDYNE</b> <b>ELECTRONIC TECHNOLOGIES</b> Mountain View, CA Facility 94043
		ORIGINATOR	J. VIANO	10/24/05	
		ENGR.			
		MFG. ENGR.	N.K.		
		PC	B/C		TITLE  <h2 style="text-align: center;">Specification, Frequency Synthesizer, L-Band</h2>
		QA	R.J		
		DESIGN ACTIVITY			SIZE    CAGE CODE    DRAWING NO.    REV <b>A</b> <b>24022</b> <b>7260747</b> <b>A</b>
NEXT ASSY	USED ON	CUSTOMER			SCALE: NONE    SHEET 1 OF 8
APPLICATION					



## 1.0 OVERVIEW

This specification specifies Teledyne Microwave's internal requirements for an L Band Frequency Synthesizer Model# 9717

Either one of two control protocols can be selected to control the synthesizer. Selection between BCD or Binary is made through the control port.

### 1.1 Applicable Documents:

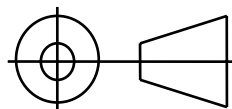
Outline dwg. Synthesizer, L-Band.	7260751
Specification, Microwave Section, Synthesizer L Band:	7260748

## 2.0 ELECTRICAL SPECIFICATIONS

### 2.1 Reference Input:

- 2.1.1 Frequency: 10 MHz +/-5 PPM
- 2.1.2 Input Power Range: -3 to +14 dBm
- 2.1.3 Phase Noise:
  - 115 dBc/Hz @10 Hz offset
  - 140 dBc/Hz @100 Hz offset
  - 150 dBc/Hz @1 KHz to 1 MHz offset
- 2.1.4 Reference Port Input Impedance, 50 ohm nominal

THIRD ANGLE PROJECTION



SIZE

**A**

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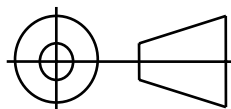
SHEET 2 OF 8



## 2.2 RF Output

- 2.2.1 Frequency: 1.73 GHz to 2.93 GHz
- 2.2.2 Frequency Step: 1 KHz
- 2.2.3 Output Power: +10 dBm min
- 2.2.4 Output power variation over temperature: 3.0dB max.
- 2.2.5 Output power variation over frequency: 5.0 dB max.
- 2.2.6 Harmonics of  $F_{out}$ : <-15 dBc
- 2.2.7 Spurious      In Band      <-70 dBc max  
    Out of Band      <-82 dBc max
- 2.2.8 Phase Noise: <-55 dBc/Hz with offset of 10 Hz  
                                  <-80 dBc/Hz with offset of 100 Hz  
                                  <-88 dBc/Hz with offset of 1 KHz  
                                  <-90 dBc/Hz with offset of 10 KHz  
                                  <-118dBc/Hz with offset of 100 KHz  
                                  <-135 dBc/Hz with offset of 1 MHz
- 2.2.9 Switching Time: 250 mSec. max
- 2.2.10 Noise Floor: <-150 dBc/Hz (Goal Only)
- 2.2.11 Characteristic Output Impedance: 50 Ohm nominal
- 2.2.12 Load VSWR: 1.5:1 max, any phase
- 2.2.13 AC Line Spurious: <-50 dBc

THIRD ANGLE PROJECTION



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### 2.3 Power Supply

The unit shall operate and meet all of the requirements of Para. 2.2 and 2.3 when operated with the following power:

2.3.1 +5.25 to +6 VDC (Unregulated) @ 150mA Max

2.3.2 +11 to +18 VDC (Unregulated) @ 450mA Max

### 2.4 Frequency Control

Asynchronous 3 wire serial control (Clock, Data, Load enable) in 8 digit BCD format (32 bits) See table I. This unit will later be controlled with either BCD or Binary selected through the control port.

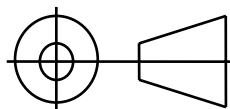
### 2.5 Alarm

Alarm output to report a lock failure in the loop.

2.5.1 Status "Good": 0.7V Max with sink capability of 3mA

2.5.2 Status "Alarm": Open collector (High Impedance, 50K $\Omega$  Min) breakdown voltage of 20V Max

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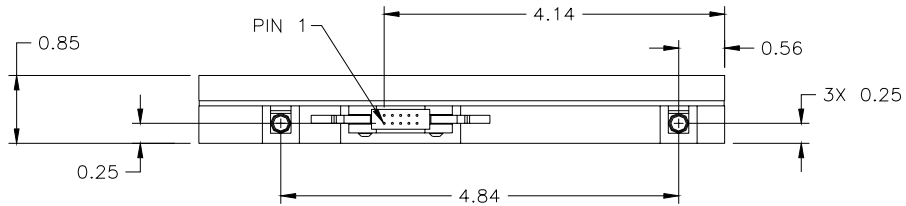
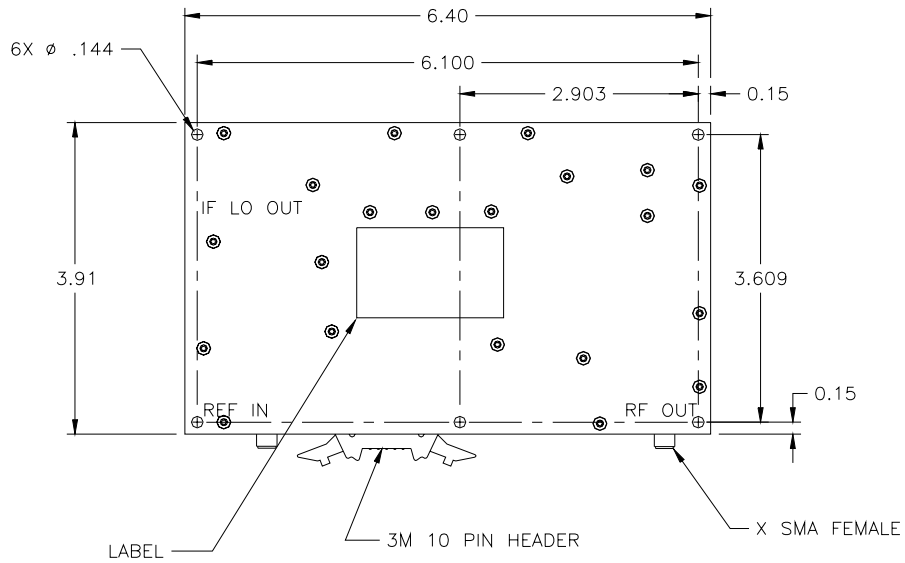
7260747

### 3.0 MECHANICAL

#### 3.1 Outline

Exact outline dimensions and connector locations are still to be determined. The unit will be constructed in a sandwich type construction. (For a detailed drawing refer to Outline Drawing 7260751).

Outline Dimensions:



THIRD ANGLE PROJECTION 	SIZE	CAGE CODE	DRAWING NO.	REV
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SCALE: NONE				<b>SHEET 5 OF 8</b>



### 3.2 Connectors

- 3.2.1 Reference Input: SMA Female  
 3.2.2 RF Output SMA Female  
 3.2.3 Control 10 Pin Header Part Number 3M3793-5XX2  
 3.2.4 Connector Pin Out:

Pin #	Description	Pin #	Description
1	GND	6	LOAD FORMAT*
2	GND	7	LOCK
3	+5.25 to +6VDC	8	CLOCK
4	+5.25 to +6VDC	9	LOAD E
5	+11 to +18 VDC	10	DATA

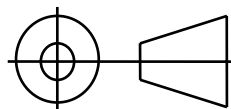
\*Load Format: Leave Un-connected for BCD load by Frequency LSB first.  
 Logic 1 (high) = BCD Load by Frequency, LSB first.  
 Logic 0 (low) = Binary Load by Channel number, MSB first

## 4.0 ENVIRONMENTAL

### 4.1 Operating

- 4.1.1 Temperature -32° C to +75° C  
 4.1.2 Humidity 10 to 95% RH, Non-Condensing

THIRD ANGLE PROJECTION



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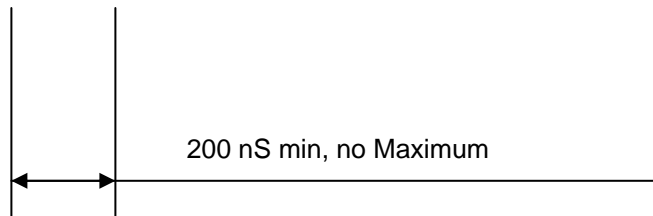
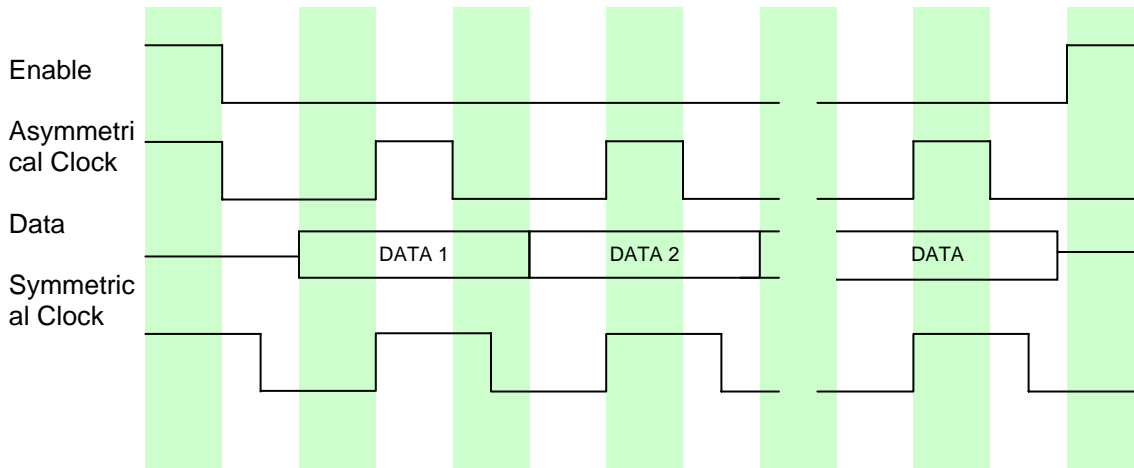
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**SHEET 6 OF 8**



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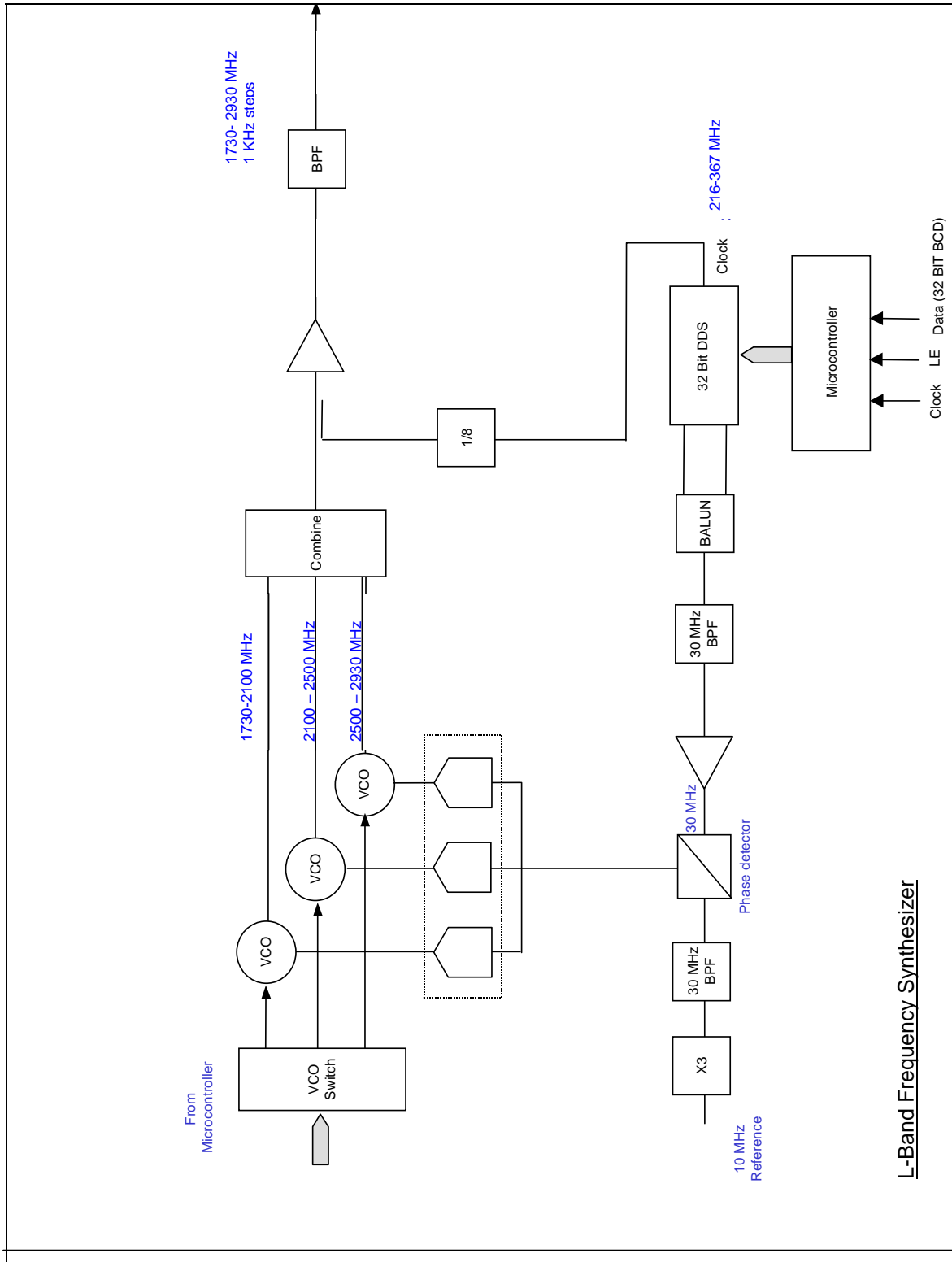
TABLE 1



THIRD ANGLE PROJECTION	SIZE	CAGE CODE	DRAWING NO.	REV
	<b>A</b>	<b>24022</b>	7260747	<b>A</b>
SCALE: NONE				<b>SHEET 7 OF 8</b>

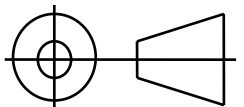


7260747



L-Band Frequency Synthesizer

THIRD ANGLE PROJECTION



SIZE

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REV

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SCALE: NONE

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