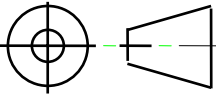



7260714	1	THIRD ANGLE PROJECTION	REVISIONS							
			LTR	ECO	DESCRIPTION	Section	DATE	APPROVED		
			A		Release		5/10/04			
			B		DO5562		10/28/05			

Specification for 4.4 GHz to 5.6 GHz C-Band Synthesizer

SHEET	1	2	3	4	5	6	7	8	9												
REV	B	B	B	B	B	B	B	B	B												
SHEET																					
REV																					

		DWN	J. VIANO	5/10/04	 TELEDYNE ELECTRONIC TECHNOLOGIES Mountain View, CA Facility 94043			
		ORIGINATOR	J. Viano	6/3/04				
		ENGR.	J. Crowley	6/10/04				
		MFG. ENGR.	N.K.	6/10/04				
		PC	B/C	6/10/04				
		QA			TITLE			
		DESIGN ACTIVITY			C-Band Synthesizer			
NEXT ASSY	USED ON	CUSTOMER			SIZE	CAGE CODE	DRAWING NO.	REV
					A	24022	7260714	B
APPLICATION					SCALE: NONE		SHEET 1 OF 9	



1.0 OVERVIEW

This specification specifies Teledyne Microwave's internal requirements for a C Band Frequency Synthesizer Model 9715.

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:

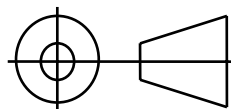
Outline dwg. Synthesizer, C-Band.	7260713
Specification, Microwave Section, Synthesizer C Band:	7260720

2.0 ELECTRICAL SPECIFICATIONS

2.1 Reference Input:

- 2.1.1 Frequency: 10 MHz +/-5 PPM
- 2.1.2 Nominal Power: -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

THIRD ANGLE PROJECTION



SIZE

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SCALE: NONE

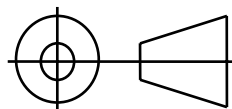
SHEET 2 OF 9



2.2 RF Output

- 2.2.1 Frequency: 4.4 GHz to 5.6 GHz
- 2.2.2 Frequency Step: 1 KHz
- 2.2.3 Nominal Power: +10 dBm min
- 2.2.4 Output power variation over temperature: 3.0dB max.
- 2.2.5 Output power variation over frequency: 5.0dB max.
- 2.2.6 Harmonics of F_{out} : <-15 dBc
- 2.2.7 Sub-Harmonics: <-55 dBc
 (all harmonics of the internal VCO's)
- 2.2.8 Spurious: In Band <-70 dBc max
 Out of Band <-82 dBc max
- 2.2.9 Phase Noise: <-55 dBc/Hz with offset of 10 Hz
 <-80 dBc/Hz with offset of 100 Hz
 <-85 dBc/Hz with offset of 1 KHz
 <-90 dBc/Hz with offset of 10 KHz
 <-112dBc/Hz with offset of 100 KHz
 <-132 dBc/Hz with offset of 1 MHz
- 2.2.10 Switching Time: 10 mSec. max
- 2.2.11 Noise Floor: <-150 dBc/Hz (Goal Only)
- 2.2.12 Characteristic Output Impedance: 50 Ohm nominal
- 2.2.13 Load VSWR: 1.5:1 max, any phase
- 2.2.14 AC Line Spurious: <-50 dBc

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SCALE: NONE

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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) @ 500mA 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.

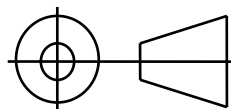
2.5 Alarm

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 Ω Min) breakdown voltage of 20V Max

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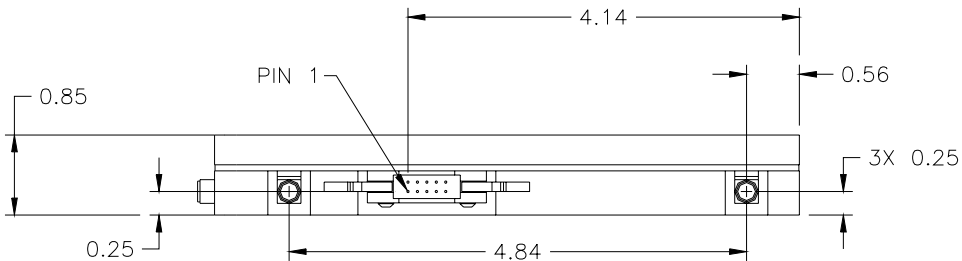
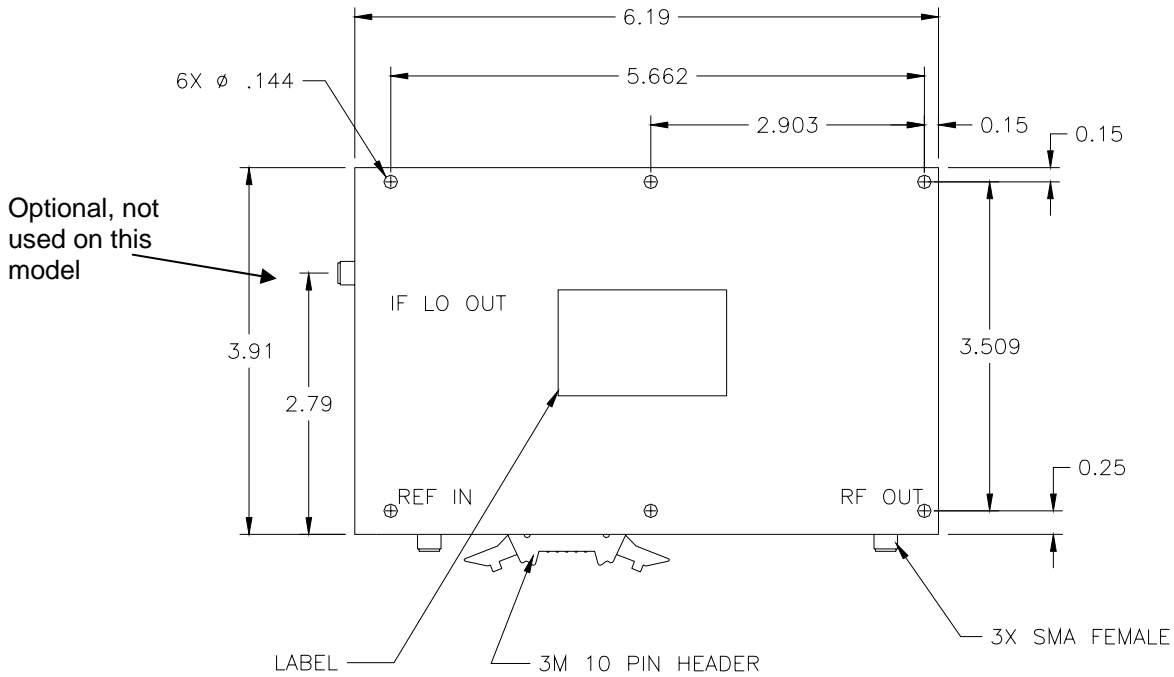
7260714

3.0 MECHANICAL

3.1 Estimated Outline

Outline dimensions and connector locations are shown below. The unit will be constructed in a sandwich type construction. (For a detailed drawing refer to Outline Drawing 7260713)

Outline Dimensions:



TOLORANCE:
.xx +/- .010
.XXX +/- .005

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	SCALE: NONE		SHEET 5 OF 9	



Connectors

- 3.1.1 Reference Input: SMA Female
 3.1.2 RF Output SMA Female
 3.1.3 Control 10 Pin Header Part Number 3M3793-5XX2
 3.1.4 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

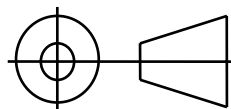
*Load Format: Leave Un-connected for BCD load by Frequency LSB first.
 Logic 1 (high) = BCD Load by Frequency, LSB first.
 Logic 0 (low) = Binary Load by Channel number, MSB first

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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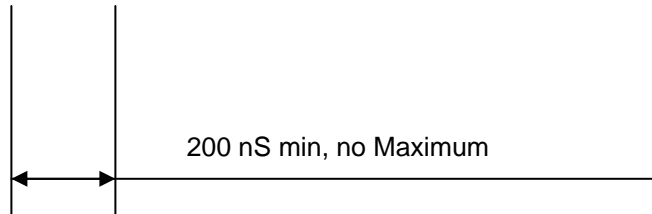
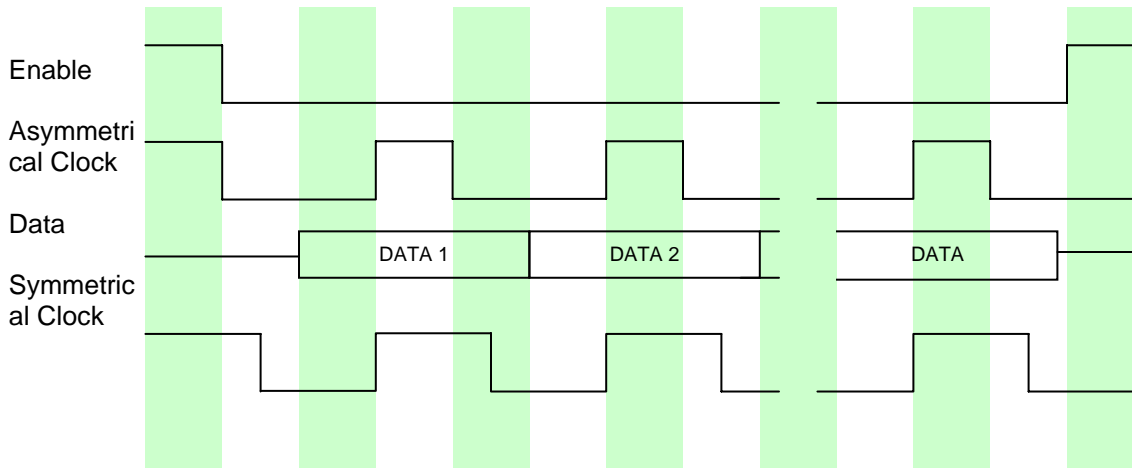
B

SCALE: NONE

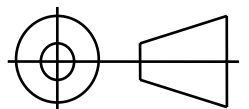
SHEET 6 OF 9



TABLE 1



THIRD ANGLE PROJECTION



SIZE

A

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REV

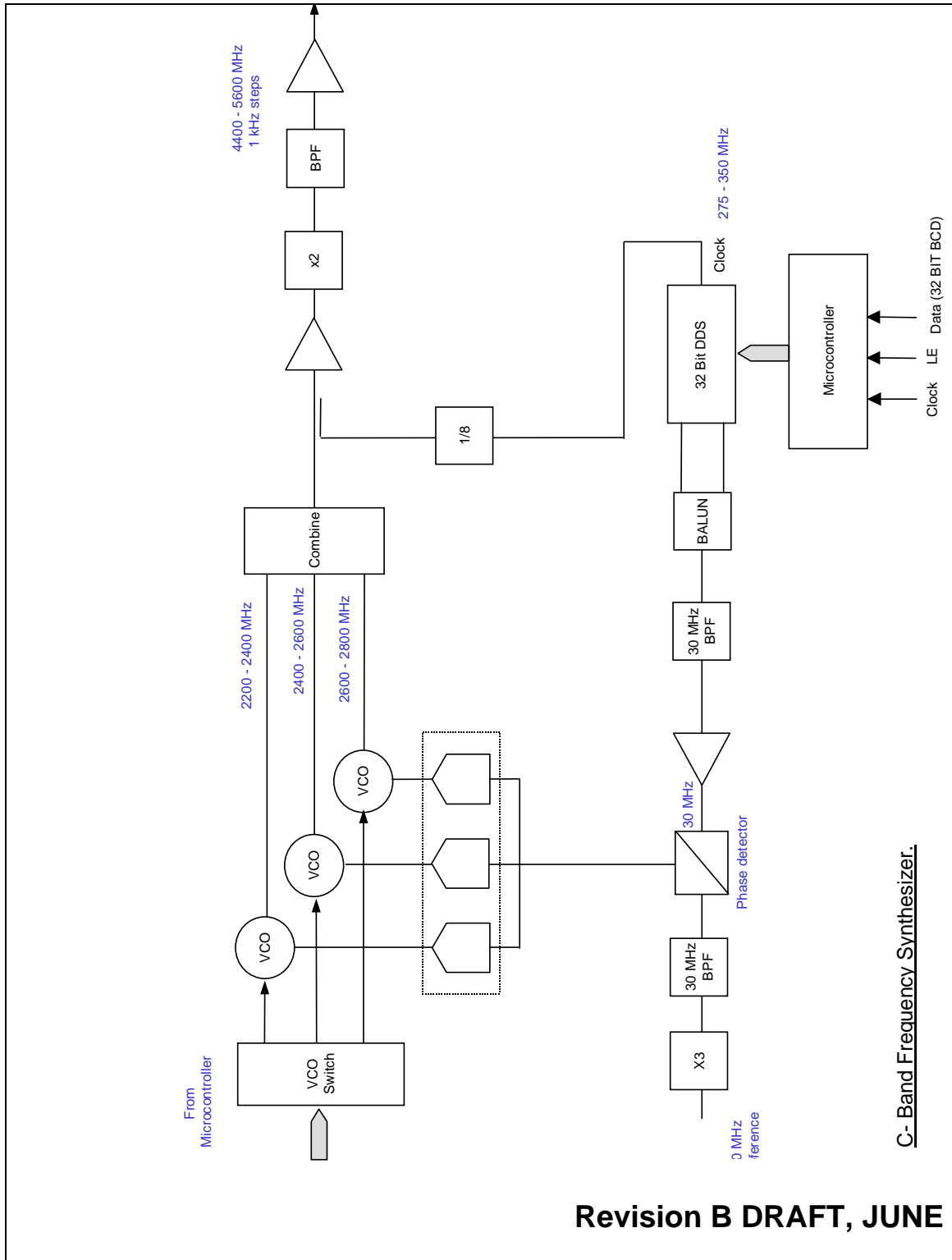
B

SCALE: NONE

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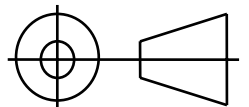
7260714



C- Band Frequency Synthesizer.

Revision B DRAFT, JUNE 23, 2005

THIRD ANGLE PROJECTION



SIZE

A

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DRAWING NO.

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REV

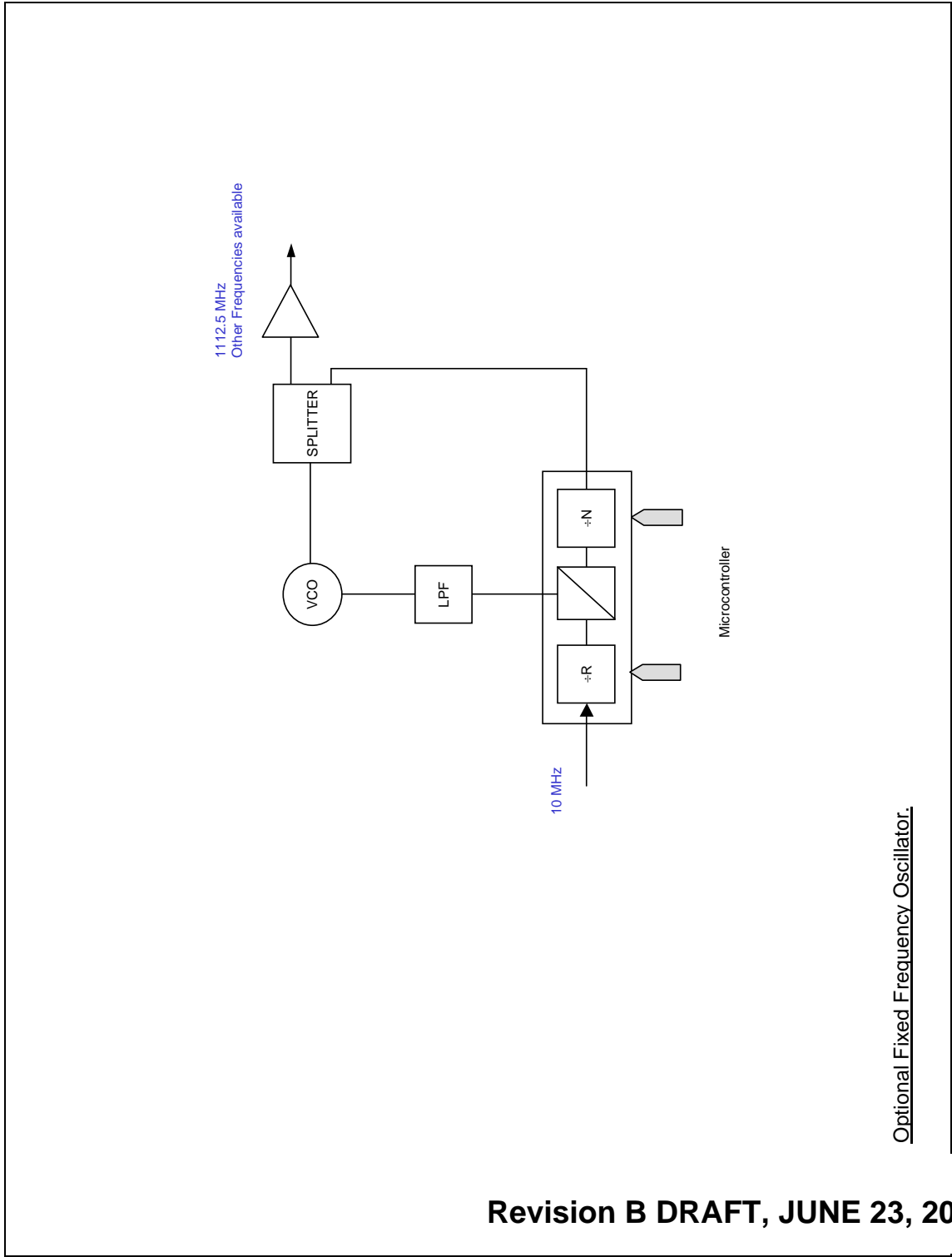
B

SCALE: NONE

SHEET 8 OF 9



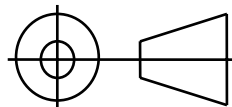
7260714



Optional Fixed Frequency Oscillator.

Revision B DRAFT, JUNE 23, 2005

THIRD ANGLE PROJECTION



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A

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DRAWING NO.

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REV

B

SCALE: NONE

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