Down East Microwave Inc.

Design Note

DEMI

From: DEMI R & D Dept.

DN#: 023

Date: Dec, 2, 2009

Re: Dual 10MHz. source for A-32 Synthesizer

PREFACE: This document will discuss and illustrate the correct installation of both internal and external 10 Mhz. sources to be used as a combination with the A-32 Synthesizer. If you desire the ability to switch between internal and external 10 Mhz. sources or wish to add the external 10 MHz. source capability to an A-32 with the internal 10 MHz. source installed, the following will apply.

CIRCUIT MODIFICATION: The circuit modification is simple after the internal 10 MHz. TCXO is installed. If not, please follow the instructions of the DEM OPT-I document and test its performance. If your A-32 has the TCXO option installed, connect an external coax connection to the 10 MHz input port on the A-32 board. The other end of this coax is connected to any 10 MHz source you may have available. Be sure to keep a good coaxial connection through whatever enclosure the 10 MHz signal may be routed through. To enable the internal source, just simply do not connect the external source to the A-32 board. To utilize the external 10 MHz. source, the internal source will need to be disabled. This may be done by cutting one trace on the A-32 circuit board as shown on the A-32 picture. This trace may be reconnected with a switch on either side of the board (where shown) to have the ability to easily convert back to an internal source.

TESTING: Testing is simple. It either works as before or not! If you installed a switch, be sure to disable the external source or the A-32 will get "Confused" as to which clock it should utilize. When using the internal TCXO, it will require some time to warm up when first powered, and will never be a stable or accurate as the external source, but you can now use the external source as a very accurate calibration if the frequency is measure at the output frequency of the A-32.

FURTHER DISCUSSION: Because of the High impedance output of the internal TCXO, it provides very little "loading" to the external 10 MHz when connected.