



Engineering Application Note: Fractional PLL (Phase Lock Loop) Implementation

The purpose of this Engineering Application Note is to inform our customer's engineers (i.e., those responsible for system design) of the use of fractional PLL technology in the quad-channel, L-band Downconverter, model 2416-x02, manufactured by Cross Technologies, Inc.

In our effort to meet the demanding size, space and price requirements necessary to develop a quad-channel product, we selected a multi-function component that utilized a fractional PLL design. In our typical customers commercial, broadcast applications we anticipated few if any issues resulting from the fractional PLL over our current "exact frequency" PLL designs.

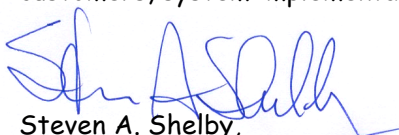
To date, this has proved to be true. As with any/all "fractional PLL " design(s) however, there can be very slight, exact and calculable variations in frequency & phase coherence that are not present in "exact frequency" PLL designs. These variances are extremely small (in the millihertz range) and should not cause problems in the traditional commercial and/or broadcast application market.

Nevertheless, we have also become aware that there may be applications (tracking, telemetry, etc.) where even these small frequency/phase coherence variances could present a problem. There is no way of determining, in advance, whether these slight variances will be an issue, unless the user has had previous (and negative) experience with fractional PLL solutions.

In an effort to maintain our 100% Customer Satisfaction goal, Cross is taking three (3) steps to inform our customers - in advance of purchase - while minimizing the impact of any fractional PLL design:

- 1) We are modifying our datasheets to indicate that this model unit utilizes a fractional mode PLL design and attaching this App Note.
- 2) We will be attaching this Application Note to every 2416-x02 Quote and Order Confirmation in an effort to inform the customer of the fractional PLL design implementation before they purchase. This Application Note will also appear in the 2416-x02 manual.
- 3) We are currently designing an "exact frequency mode" version of this product (model 2416-402I) that we expect to have available in the very near future.

If your Engineers have any questions regarding the viability of fractional PLL's in your, or your customers, system implementation, please have them contact us for more details.


Steven A. Shelby,
Vice President, Sales & Marketing
Cross Technologies, Inc.
1-888-900-8005 x 228