TRF2050

QUESTION: I understand that the TRF2050 was designed as a drop-in replacement for the Philips SA7025. Why is there a difference in the "test" pin configuration in relation to the Philips SA7025?

ANSWER: The 7025 does not currently support any published test modes, so the pin is tied high to assure normal mode operation. The 2050 circuit allows you to either set the pin high (normal operating mode) or to ground (test mode). The test mode allows the user to verify the division ratio of the reference divider, the auxiliary divider, and the main divider and prescaler.

The 2050 requires the "C word" to be sent at least once after power up to tell the chip whether it should go into either "7025 emulation" or EPM mode. The Philips chip does not have this EPM mode and all other C-word information is related to the Aux. loop parameters. A customer who does not use the Aux. loop, may not send the C word and therefore his software which runs the 7025 correctly must be updated to initialize the 2050 C word.

QUESTION: Are there any significant differences between the loop filter's of the 7025 and 2050?

ANSWER: The loop filter on the 2050 evaluation board uses an additional pole to further enhance 30 kHz side band suppression. The chip has been designed to drop into any application currently using the 7025, but we recommend our application circuit design to better optimize the performance of the 2050 chip.

QUESTION: Will the TRF2050 work with an N-division ratio below the 992 minimum stated?

ANSWER: In short, the PLL will operate. However, the user needs to bear in mind that the channel frequency scheme may be limited. We want to guarantee that the device is working properly over a wide range of N values. The paragraph about the Main divider in the data sheet reveals that if the B-counter reaches its terminal count, both A and B will be reset and the cycle is repeated. This would imply that if the value of B-counter is less than the A-counter the N total will be limited by the value of the B-counter. The formula of N total = 32(B-A) + 33(A) will no longer be valid. Thus the usable channel frequency would be restricted. For instance, if A=30 and B=29, then N total will be set to 957 instead of 958. Consequently the maximum VCO’s frequency would be limited to 957.8 MHz not 958 MHz.