

SIG60 Signals

This information is preliminary and may be changed without notice

1 GENERAL

This application note describes the expected signals of the SIG60 during Transmit, Receive, and Wake from sleep operations. Figure 1 describes the block diagram of the SIG60 with its test points, I/O pins and Tx – Rx signal flow.

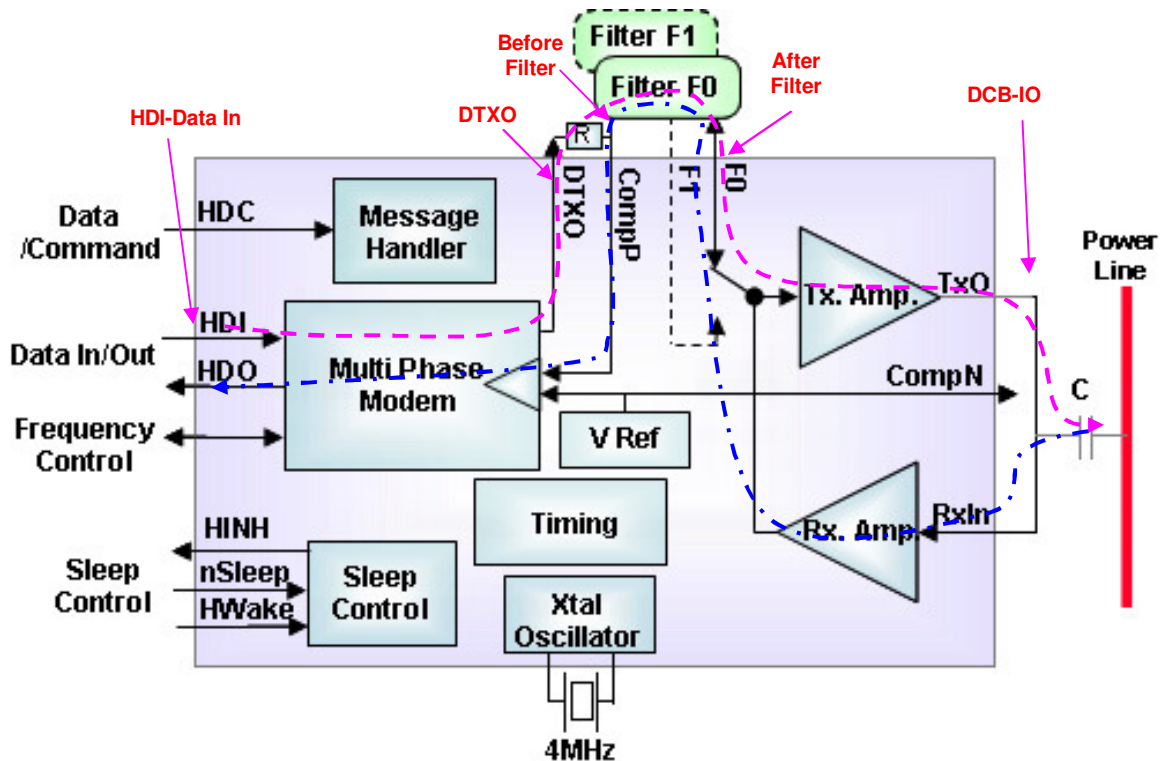


Figure 1 - SIG60 Block diagram and signal flow

2 Transmit path

The SIG60 transmission starts when an asynchronous byte (10 bits, 1 Start and 1 stop bit) is entered to HDI pin. The DTXO output switch from Tri-state mode to output a digital waveform.

This signal enters via R1 to the ceramic filter for shaping. The value of R1 (in the range of 600 – 3K ohm) is determined by the signal at TXO output. The signal at TXO is adjusted to the highest level without saturation to avoid EMI.

The transmission starts immediately at the fall of the Start bit at HDI pin and ends 1/3 bit after the end of the Stop bit, unless new byte is transmitted sequentially.

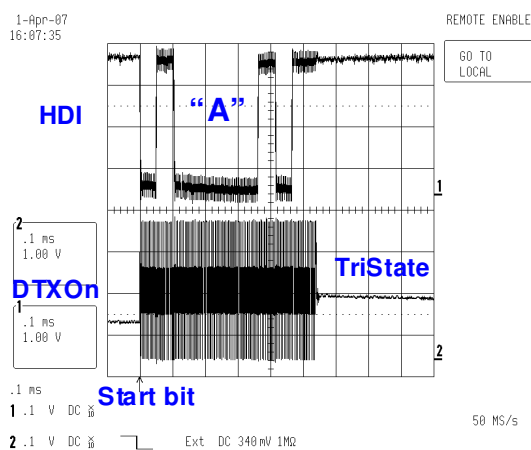


Figure 2 - "A" character Transmission

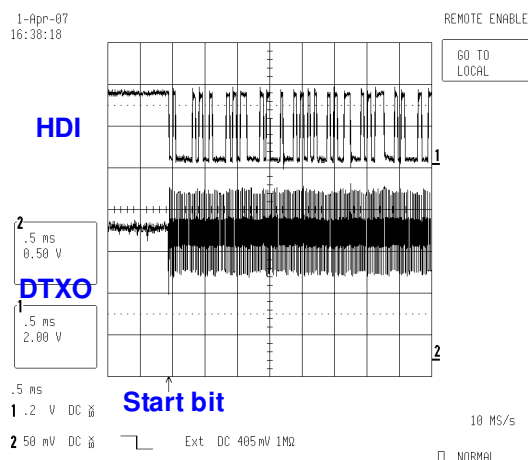
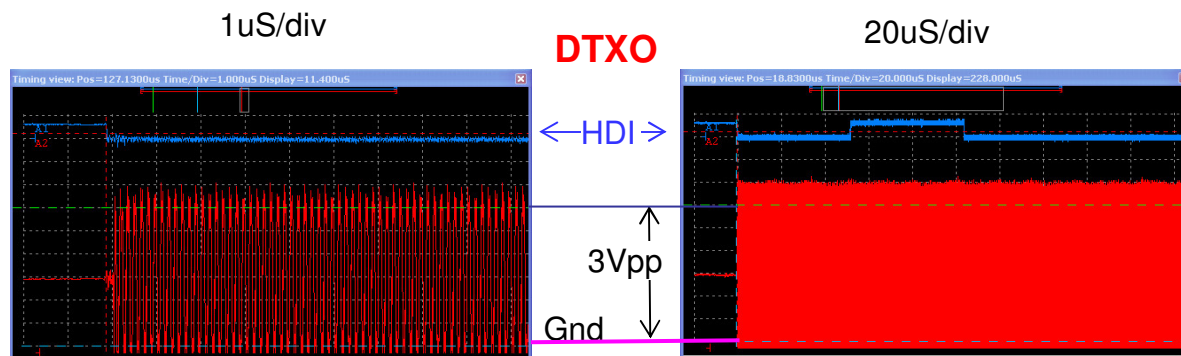


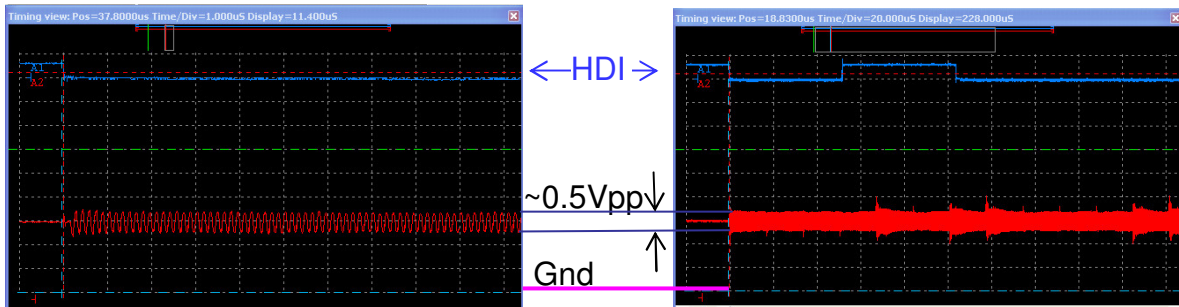
Figure 3 – Multiple characters Transmission

Figure 2 shows transmission of the "A" character. Figure 3 shows transmission of multiple consecutive bytes.

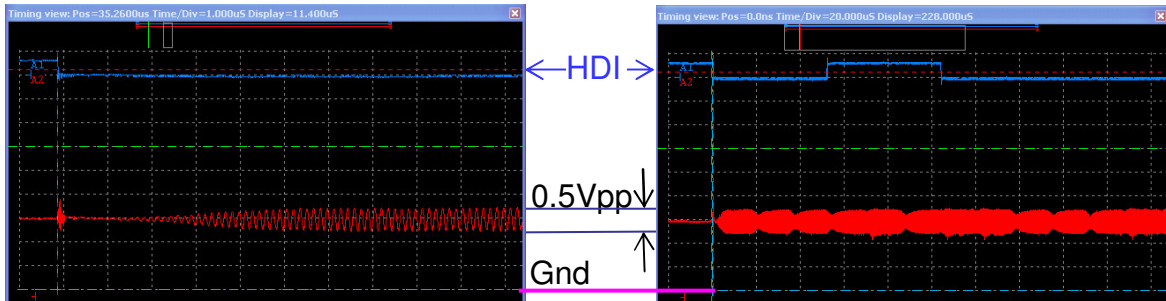
Figure 4 shows the signal levels at different points along the transmit path. The pictures are provided in two resolutions; 1uS/division and 20uS/division.



Before Ceramic Filter



After Ceramic Filter



TXO Output

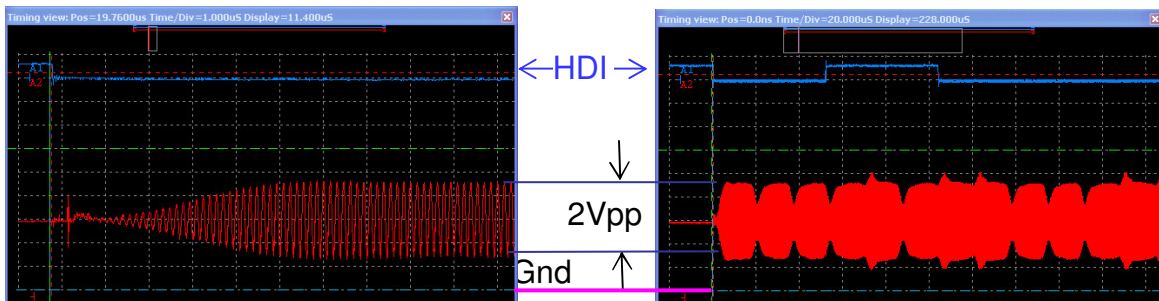


Figure 4 – Multiple waveforms in the transmit path

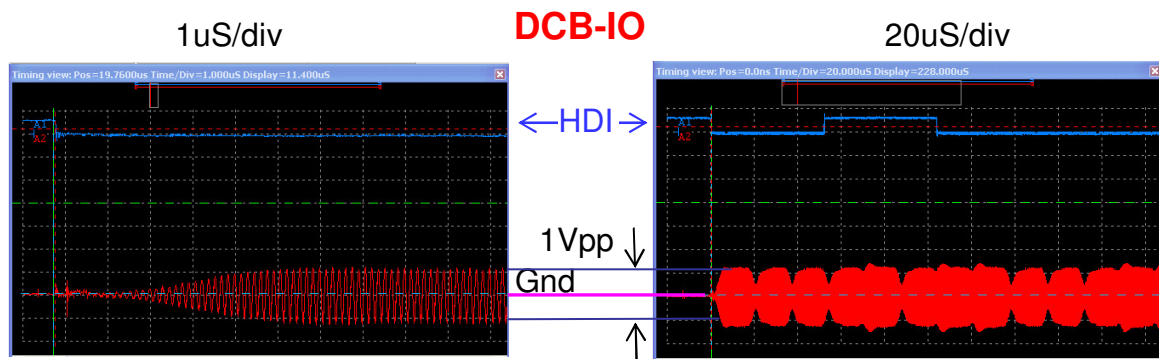
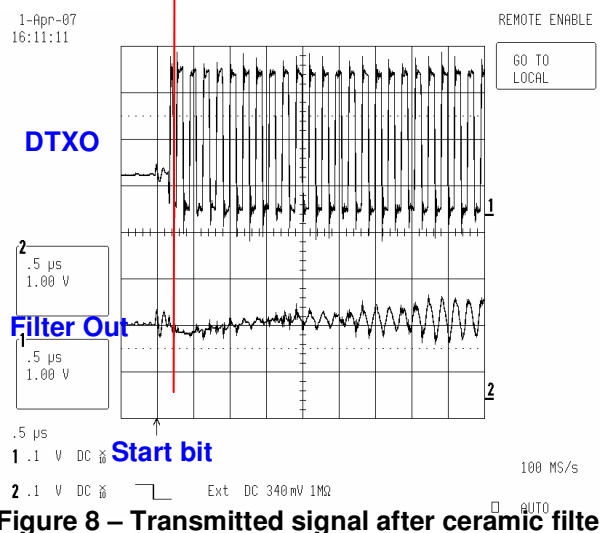
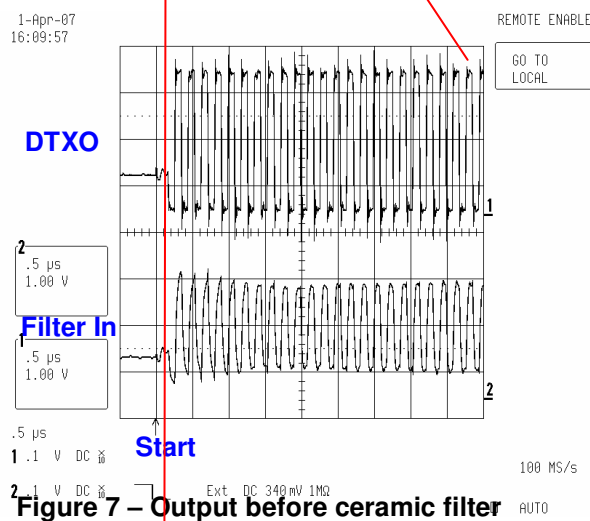
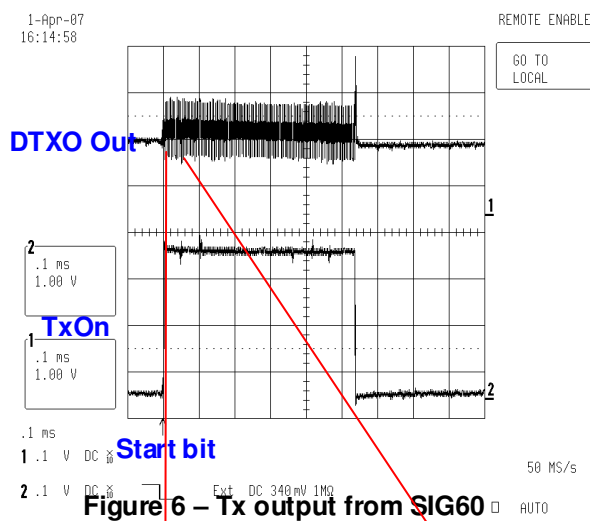


Figure 5 – Transmit signal at DCB-IO point.
Powerline impedance may affect the output level at this point.

Figure 6-8 show detailed flow of the transmitted signal from DTXO pin through the ceramic filter and its attenuation effect. The ceramic filter has delay effect on the DTXO signal as presented in figures 6 - 8.



3 Receive Path

Figure 9 presents the received signal after strong DC line attenuation (40db). The signal is amplified by the input amplifier

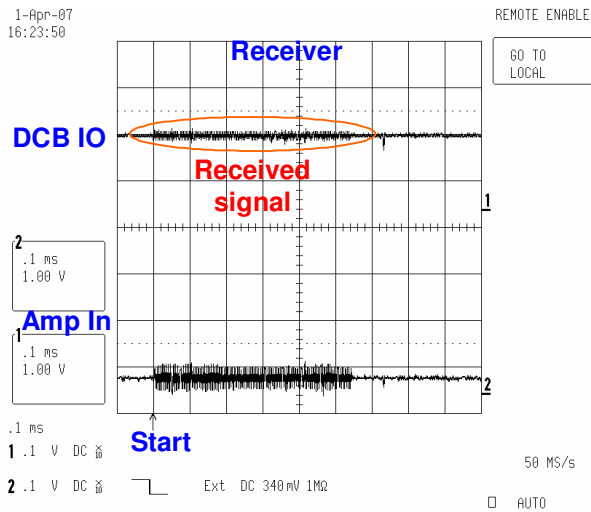


Figure 9 – Rx input from DC line

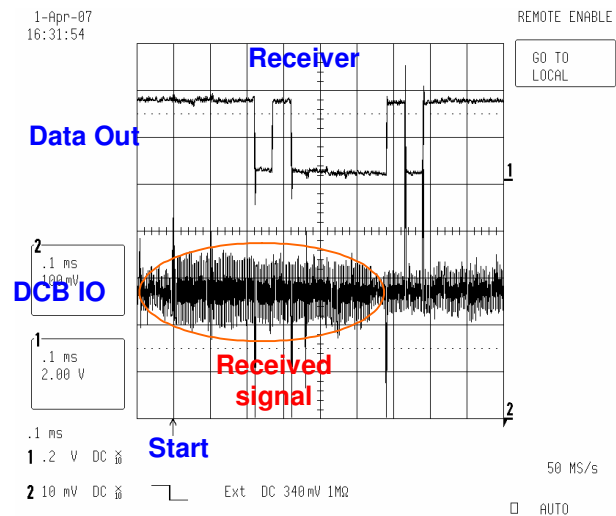


Figure 10 – Decoded data from noisy attenuated

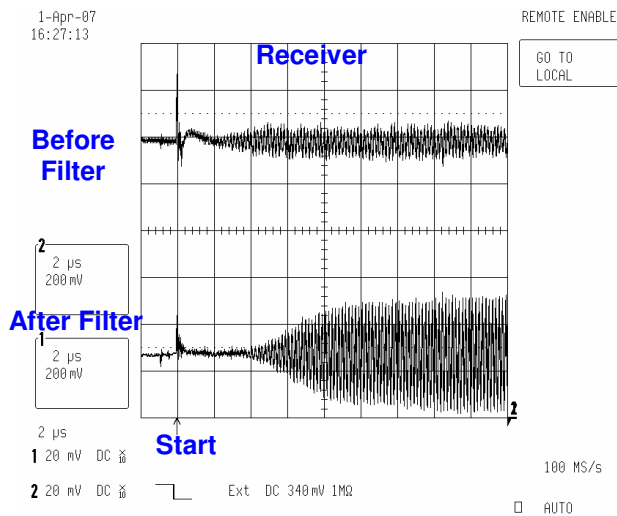


Figure 11 – Effect of ceramic filter delay

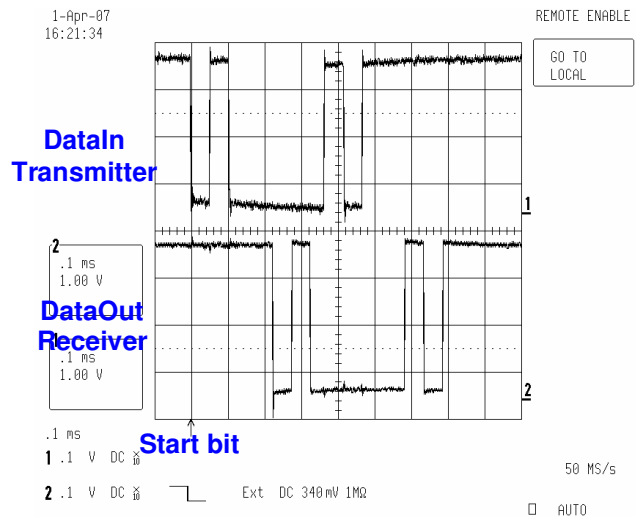


Figure 12 – From Data in to Data out

