# Query Regarding AFE7950 DAC Output and 12-Point Sine Wave Configuration

Dear TI Support Team,

I am currently working with the AFE7950 DAC and have encountered an issue with the output signal when using a 12-point sine wave configuration. I wanted to confirm if my approach is correct and seek guidance to resolve the issue.

**Here are the details of my setup:**

- Sampling Rate (Fs): 11.8 Gsps

- Reference Clock: 491.52 MHz

- NCO Frequency: Configured to 1 GHz in the GUI.

- DAC Configuration: 4 DACs, each 14-bit, using 8 SerDes lanes.

- Sine Wave Configuration: A 12-point sine wave was used, corresponding to a 1 GHz output signal.

- Expected Behavior: I expected to see a 1 GHz signal from the DAC.

Observations:

1. I configured the DAC's NCO frequency to 1 GHz using the GUI and generated the 12-point sine wave values using the following approach:

- sine[i] = round(32767 × sin(2πi / 12))

- The generated values for the sine wave are:

**16'h0000, 16'h4533, 16'h746E, 16'h7EB1, 16'h60BC, 16'h2410, 16'hDBF0, 16'h9F44, 16'h814F, 16'h8B92, 16'hBACD, 16'h0000**

2. However, when I checked the output in the ILA, I did not observe the expected 1 GHz signal. The output seems to show phase shifts, but the sine wave itself is not correctly generated.

Questions:

1. Is the 12-point sine wave configuration the correct way to generate a 1 GHz signal at this sampling rate?

2. Are there additional configurations or steps I need to check in the GUI or the hardware to ensure proper DAC operation?

3. Can you confirm if the 12-point sine wave values mentioned above are accurate for the given setup?

I appreciate your guidance on resolving this issue and ensuring proper DAC output.