

Hi,

I am using mmWave Studio and I need to post process the captured data on my computer (I am also using the plots generated by PostProc feature of the mmWave Studio as a reference). Although everything looks fine, I am not very confident yet about my understanding of how everything works, I am trying to address my questions in order in the following. I have highlighted my questions, the parts without a highlight are explanations of my settings.

I thank you in advance for your help and patience.

I have already taken some measurements and the results made perfect sense when I was performing PostProc and see the results in mmWave Studio plots. For this first batch of measurements I had Tx0 and Tx1 activated in the “Channel Config” under the “StaticConfig” tab as it is shown in the figure below.

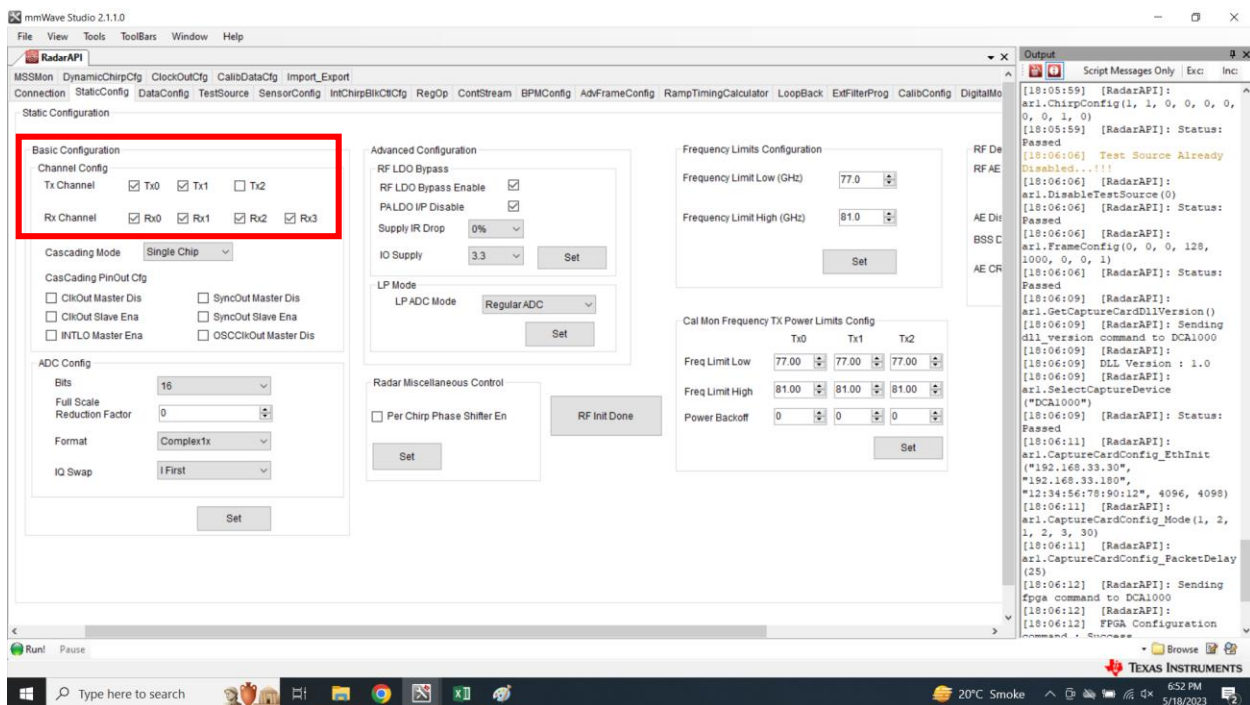


Fig. 1. Static Configuration setup

However, I took some measurements assuming that if I do not define chirp configuration “Chirp > SensorConfig” by default the radar does time division multiplexing (TDM) since I have already activated two Tx’s under “StaticConfig” tab. So I had the chirp configuration as the default figure below (Tx0 with check mark and Tx1 unchecked.)

My first question is, what happens in this case? Are both Tx0 and Tx1 active and transmitting? Does TDM happen automatically because I have check marked both Tx’s under “StaticConfig” or do I need to configure the chirp and specifically determine which Tx is active for each chirp. Now that I have some of the measurement based on the figure below (without specifically determining the chirp configuration and having only one Tx checked), does it mean the recordings are based on the transmission from Tx0 only?

Chirp

Profile Id	0	Frequency Slope Var (MHz/μs)	0.000
Start Chirp for Cfg	0	Idle Time Var (μs)	0.00
End Chirp for Cfg	0	ADC Start Var (μs)	0.00
Start Freq Var (MHz)	0.000000	TX Enable for current chirp	
		☒ TX0	☐ TX1 ☐ TX2

Fig. 2. Tx0 and Tx1 are checked in “StaticConfig”. Is it enough for TDM setting? If Tx1 is not checked and configured under “Chirp > SensorConfig”.

Then I might be wrong in thinking that the system is doing TDM automatically, so I set up the profile and chirp configurations as provided in the following. Below is a screenshot of my “SensorConfig” tab.

The screenshot displays the mmWave Studio 2.1.1.0 interface. The 'SensorConfig' tab is selected, showing various configuration parameters. The 'Chirp' section is expanded, showing 'Profile Id' 0, 'Frequency Slope Var (MHz/μs)' 0.000, and 'TX Enable for current chirp' with 'TX0' and 'TX1' checked. The 'Frame' section shows 'No of Chirp Loops' 128 and 'Periodicity (ms)' 1000.000000. The 'Output' window on the right shows a log of radar API commands and responses, including 'ar1.ChirpConfig(1, 1, 0, 0, 0, 0, 0, 0, 1, 0)' and 'Test Source Already Disabled...!!!'.

Fig. 3. SensorConfig tab

Under the frame tab I have set “No of Frames” to 0, so I can stop the recording when I want. The “No of Chirp Loops” is 128, so I am assuming there are 128 chirps per frame, and “Periodicity(ms)” is 1000, so there is 1000 ms gap between each frame.

I have set the profile as given in Fig. 4 in the “ProfConfigData.csv” under C:\ti\mmwave_studio_02_01_01_00\mmWaveStudio\Clients\AR1xController and load it to profile section.

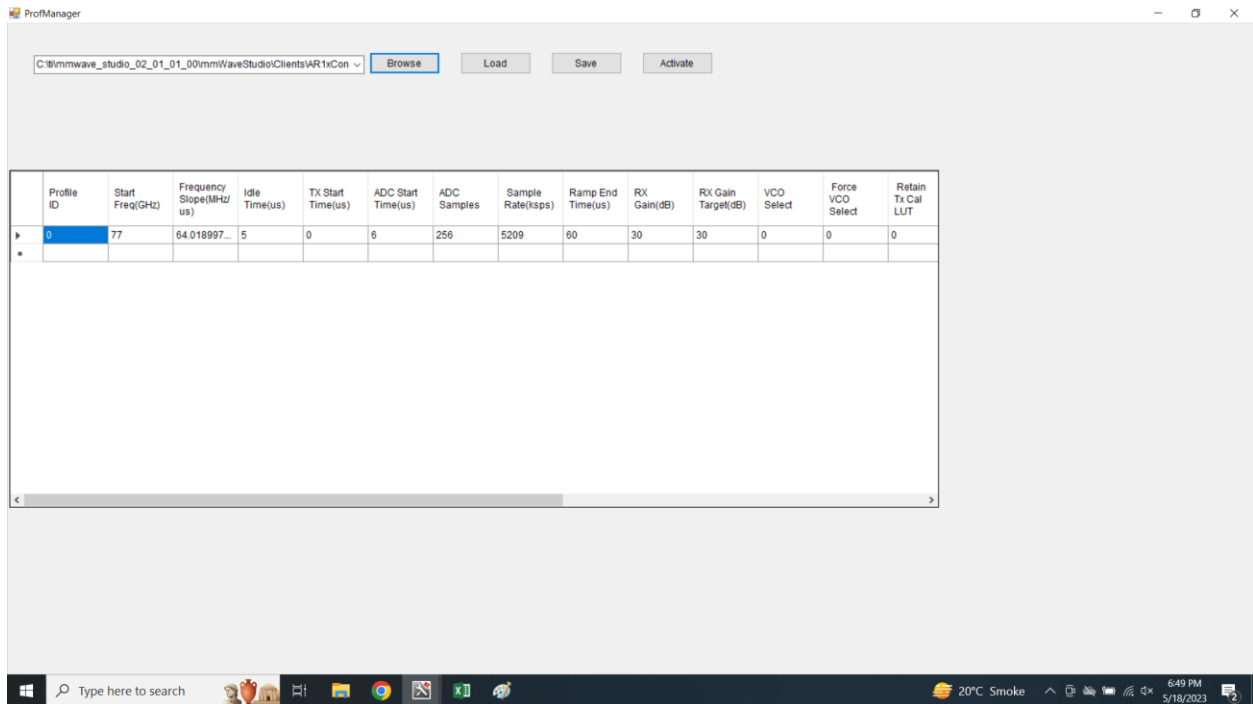


Fig. 4. Profile configuration

Similarly, the chirp configuration is set in “ChirpConfigData.csv” under C:\ti\mmwave_studio_02_01_01_00\mmWaveStudio\Clients\AR1xController and loaded to Chirp section as shown in Fig. 5.

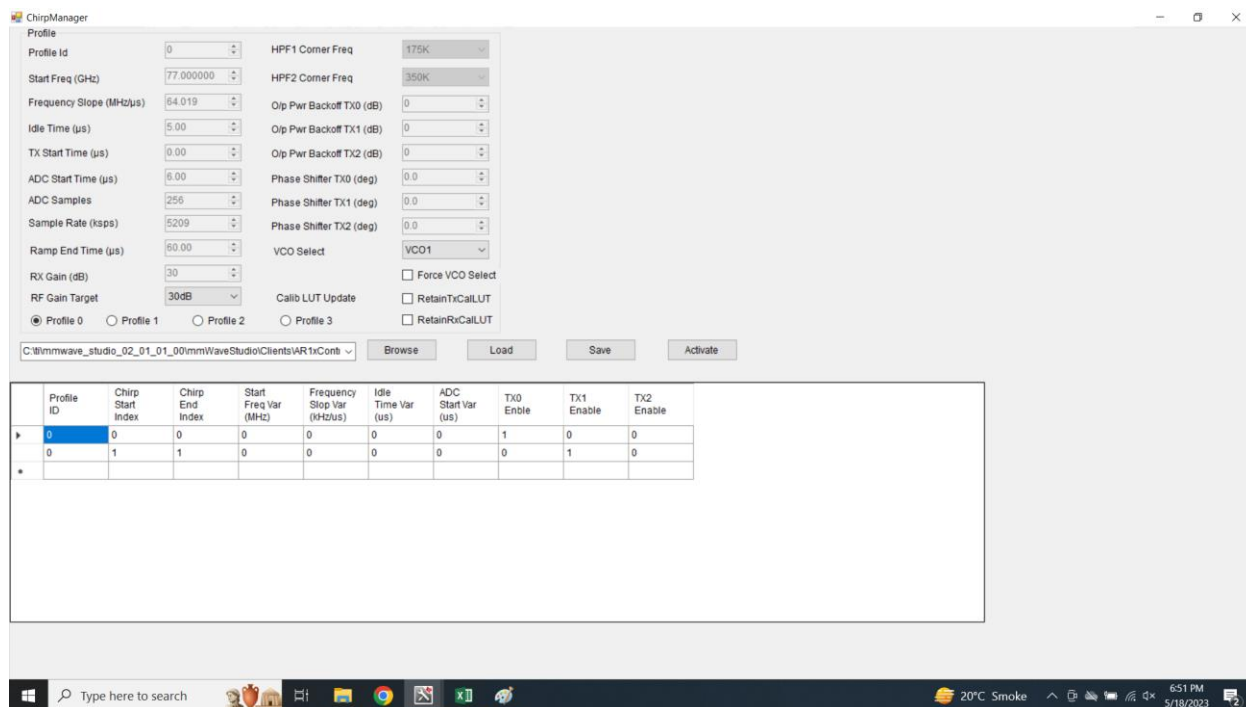


Fig. 5. Chirp configuration

My second question which I brought up in first when TI opened a case for me is, if I specify that Tx0 is transmitting chirp 1, and Tx1 is transmitting chirp 2 (as shown in Fig. 5) does the radar understands to repeat this pattern for the rest of 126 chirps? Meaning that, is the third chirp transmitted by Tx0, fourth chirp by Tx1, and so on and so forth, or do I need to specify this for all 128 chirps? And could you please confirm the pattern I am following in Fig. 5 is correct or not?

Many thanks for your time and help. I apologize for the long file I provided here. I am new to using this device and not very confident of whether I am doing everything correctly.

Best regards,

Samin