Marking Scheme for Lab-4

This lab will be marked during the Practical Session. You will be generating 15 figures (plots) associated with this lab as listed below. The best way to save them is to do the so called "Screen Dump," i.e. once you have correctly measured what you need, you will save what you see on the VNA screen and oscilloscope on your USB key or the computer hard derive[1]. The TA will then approach each team and in random will ask the team members to bring up a few of the measured plots. He will check them for accuracy and will ask you few related questions. He will then assign you a mark and collect your USB key. Pleas give your files suitable names so you can retrieve them easily.

To prepare for the lab please review your lecture note on the Dispersion. You may also want to consult the document titled "Lab 4 Supplemental: Dispersive terms" and "Lab 4 Supplemental: Periodic Transmission Line."

The aforementioned 15 files are related to the following measurements.

Frequency Domain Measurements (VNA)
Regular Transmission Line: Transmission magnitude, transmission phase, and group delay = 3 files.

Periodic Transmission Line with 12 unit cell: Transmission magnitude, transmission phase, and group delay = 3 files.

Periodic Transmission Line with 9 unit cell: Transmission magnitude, transmission phase, and group delay = 3 files.

Periodic Transmission Line with 6 unit cell: Transmission magnitude, transmission phase, and group delay = 3 files.

Time Domain Measurements (Oscilloscope)
Gaussian pulse tuned to the lower pass band of the 12 unit cell periodic transmission line (on channel 2), and the Gaussian pulse through the regular transmission line (on channel 1) = 1 file.

Gaussian pulse tuned to the higher pass band of the 12 unit cell periodic transmission line (on channel-2), and the Gaussian pulse through the regular transmission line (on channel-1) = 1 file.

Gaussian pulse tuned to the stop band of the 12 unit cell periodic transmission line (on channel-2), and the Gaussian pulse through the regular transmission line (on channel-1) = 1 file.

[1] For instruction on how to down load ("Screen Dump") see the document titled "Lab 4 Supplemental: How to Down Load the Data."

Finally, you need to compare the amount of the group delay you measured in the time domain experiments (for all the three pulses) with that of a pulse propagating the same distance in vacuum and make some comments.