



**Figure 1.** XRD scan of 500-cycle grown GaN films on sapphire (green and black) and Si substrates (blue and red) using TEG, N<sub>2</sub>/H<sub>2</sub> (95%/5%) plasma, 150 W deposition and 50 W optional *in-situ* Ar-annealing (ALA) at a substrate temperature of 240 °C. The strong (002) single-peak confirms the monocrystalline order of the grown GaN layers on sapphire substrates. The inset shows the logarithmic scale plot of the same XRD data.