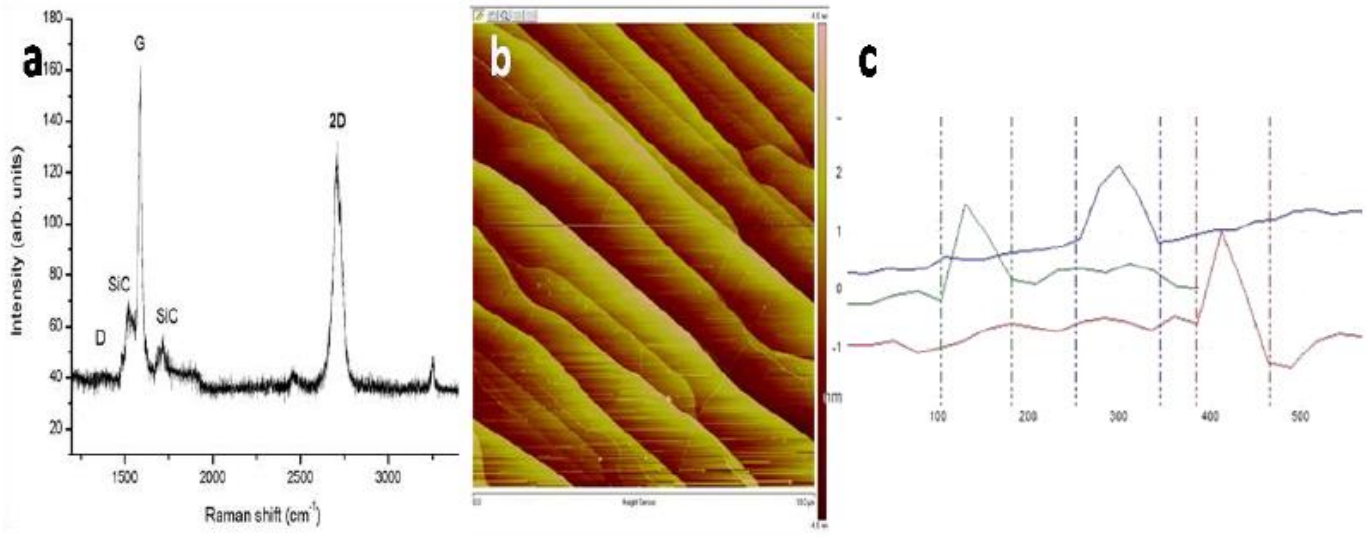
Specification of 2″ Mutilayer Graphene 4H-SiC Substrate

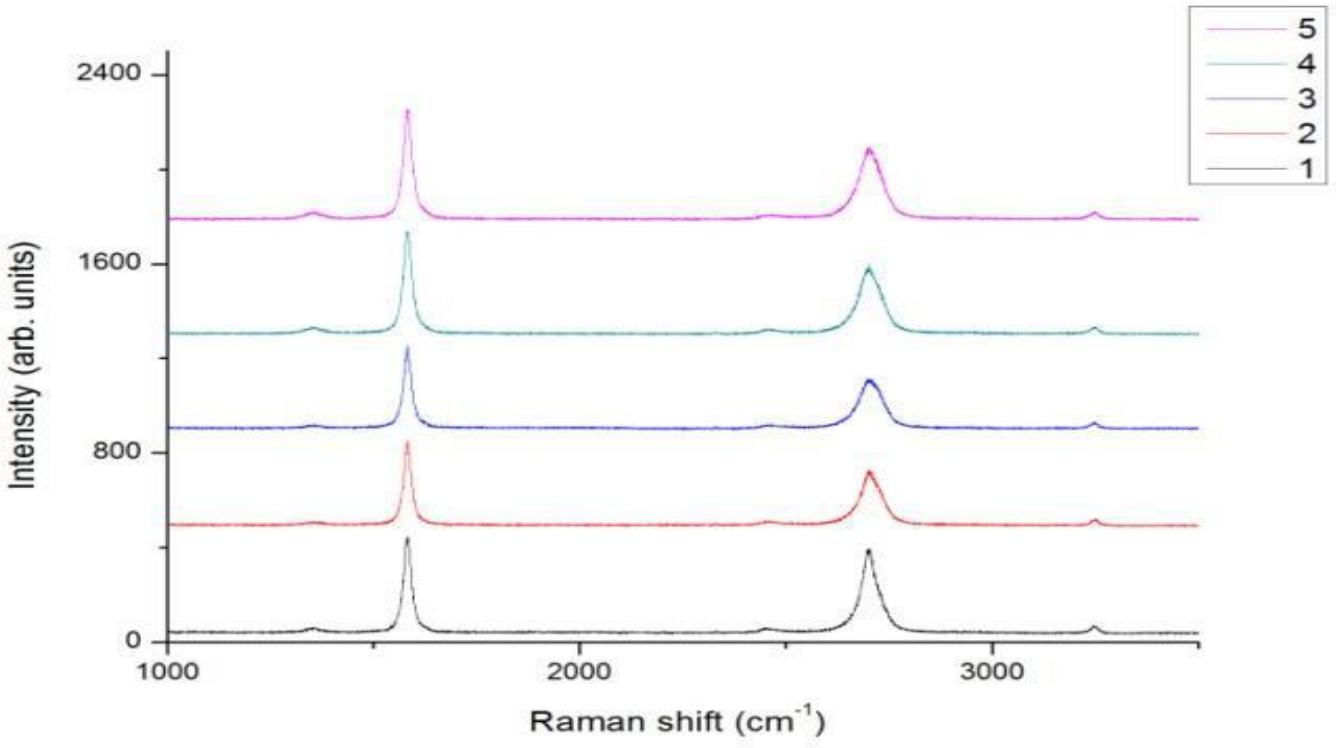
Description	Specification
Material	1~3 layer Graphene on 4H-SiC Substrate
Wafer Orientation	The miscut of the 4H-SiC is 4±0.5 degree off-axis toward <1120>, 0±0.5 degree off-axis toward <0001>.
Epitaxial Method	SiC epitaxial thermal decomposition method
Conduction Type	N-Type/Si Surface (CMP)
Effective Area	>/=90%
Micropipe Density	</=5/cm^2 (Production Grade)
Electrical Resistivity	N-Type: 0.015~0.028 Ω .cm, Si: >/=1×10^5Ω .cm
Carrier Density	>/=1×10^{12} cm^{-2}
Diameter	50.8±0.25mm
Thickness	350±25um
Flat length	16±1mm
Surface Roughness (Ra)	Ra</=0.3nm
Back Surface Roughness	Double sided polishing
Substrate Parallelism	</=10um
TTV	</=10um
BOW	-10~10um
Warp	</=20um
Scratch	None
Defective Patterns	Total defective area </=5% of wafer area; Inspection by naked eye added without bright light
Laser Marking	None
Packaging	Clean room, vacuum packing

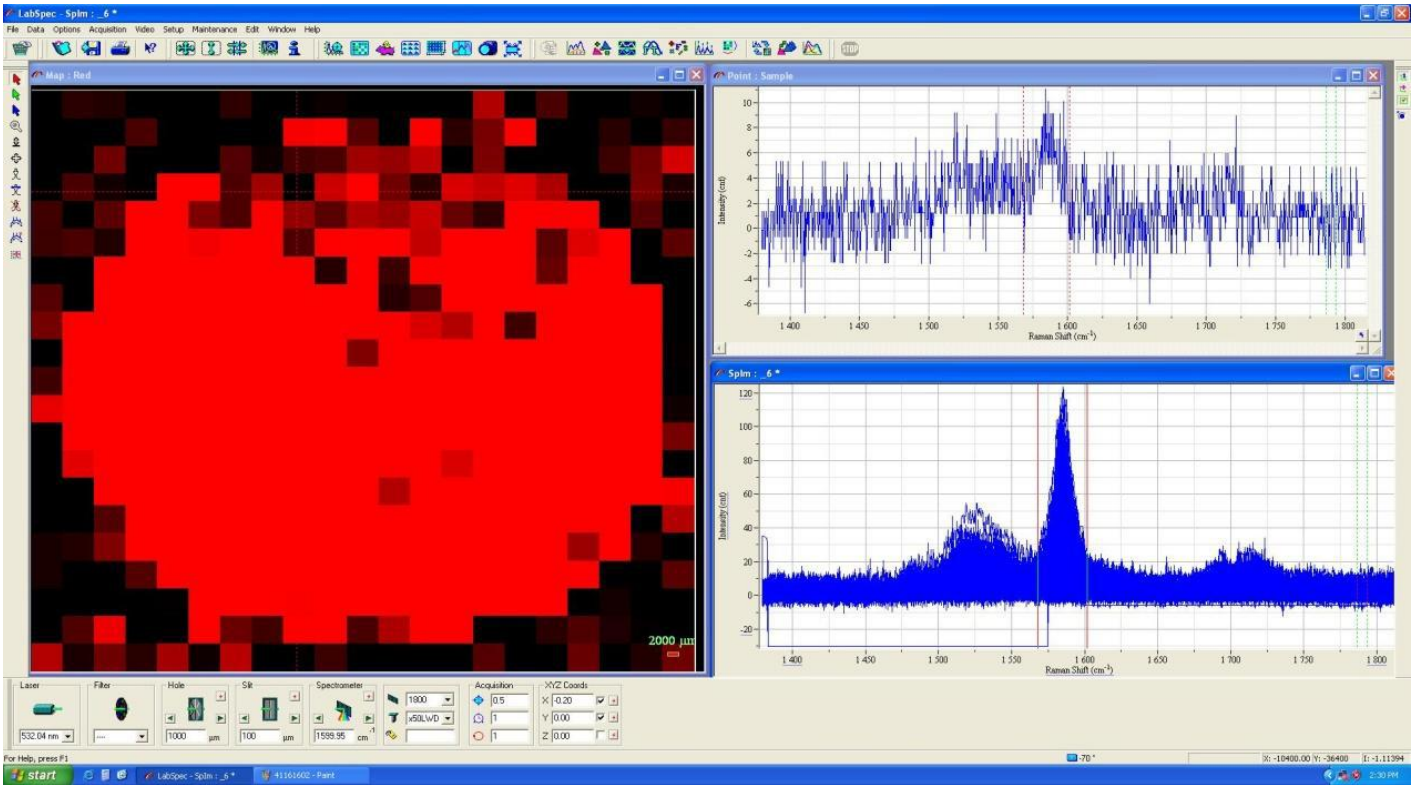
1、Graphene AFM & Raman Result



We tested the products by AFM and Raman. The G peak value is 1580cm^{-1} and the 2D peak value is 2700cm^{-1}, the 2D peak is sharp and symmetrical, and it has the characteristic of Lorentzien peak type. The half width of the 2D peak is 56 cm^{-1} and 70 cm^{-1}. AFM results show that the surface morphology of graphene is good, the thickness is 0.77 nm.

2、Graphene Raman Mapping Result





We take the G peak as the characteristic peak, and carry on the mapping Raman spectrum experiment. Results show that the effective area of graphene is as high as 90% or more.