

Supplementary Materials:

Thermal Stability of Rare Earth-PYSZ Thermal Barrier Coating with High-Resolution Transmission Electron Microscopy

Savisha Mahalingam ^{1,*}, Abreeza Manap ², Salmi Mohd Yunus ³ and Nurfanizan Afandi ²

¹ Institute of Sustainable Energy, Universiti Tenaga Nasional, Jalan IKRAM-UNITEN, 43000 Kajang, Selangor, Malaysia; savisha@uniten.edu.my

² College of Engineering, Universiti Tenaga Nasional, Jalan IKRAM-UNITEN, 43000 Kajang, Selangor, Malaysia; abreeza@uniten.edu.my (A.M.); nurfanizan@uniten.edu.my (N.A.)

³ Materials Engineering & Testing Group, TNB Research Sdn Bhd, No1 Lorong Ayer Itam Kawasan Institusi Penyelidikan, 43000 Kajang, Selangor, Malaysia; salmi.yunus@tnb.com.my

* Correspondence: savisha@uniten.edu.my; Tel.: 03-89212020

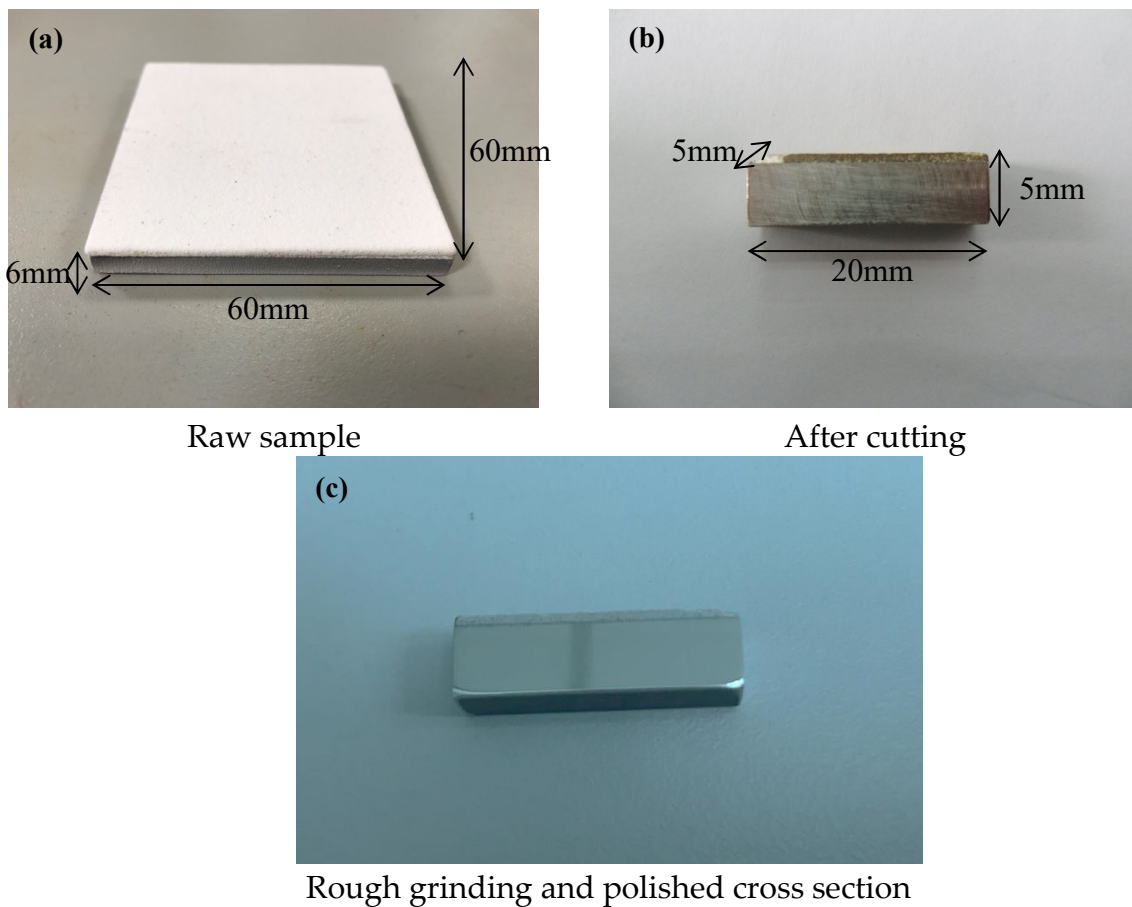
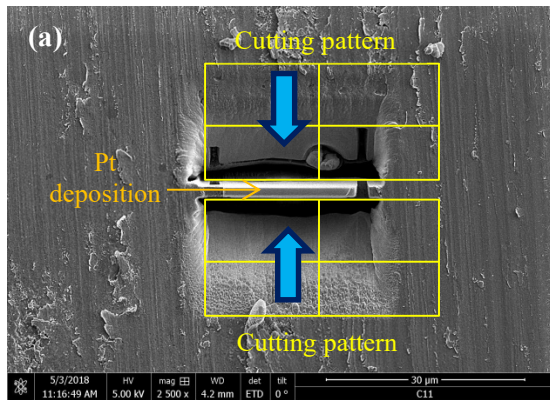
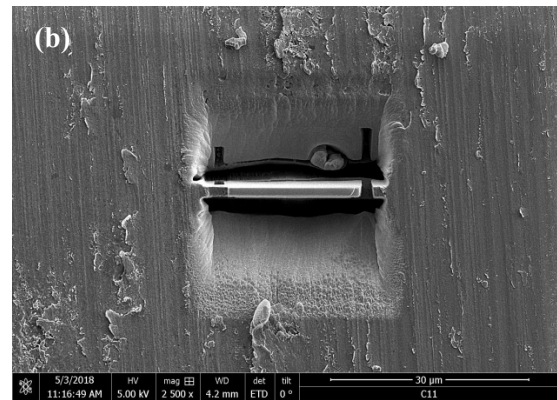


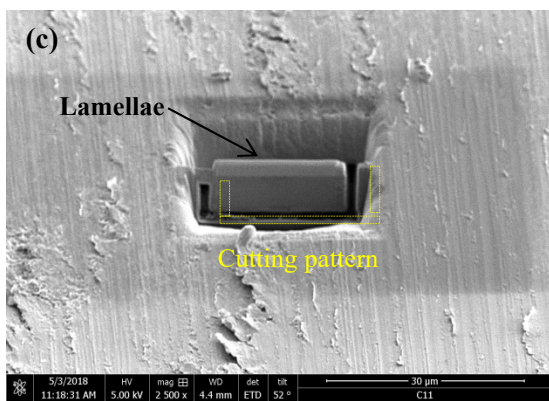
Figure S1. Sample characterization: (a) raw sample, (b) after cutting, and (c) rough grinding and polishing.



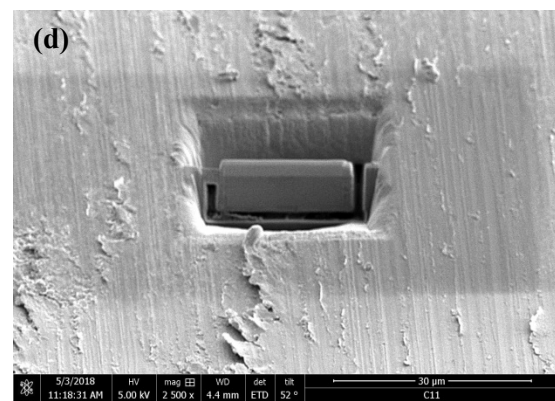
Pattern cutting of bulk-out milling



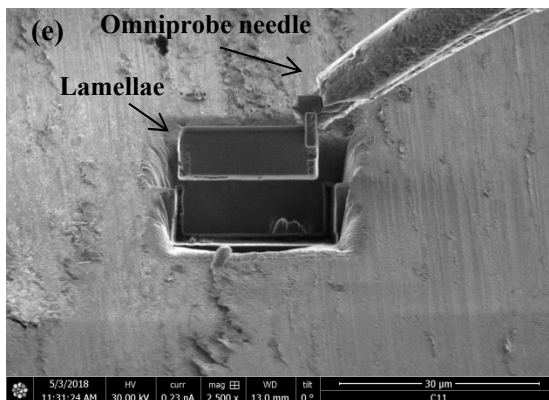
Bulk milling of TBC sample at 52° tilt



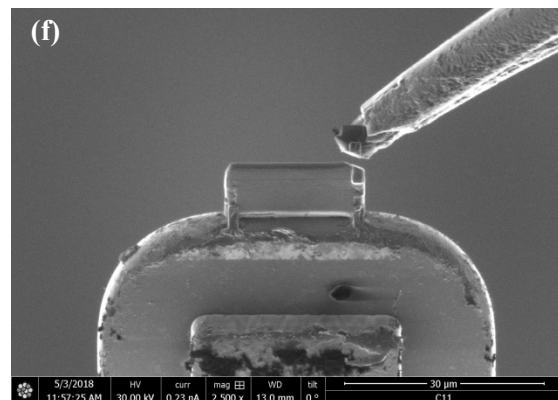
Pattern cutting of J-cut cut



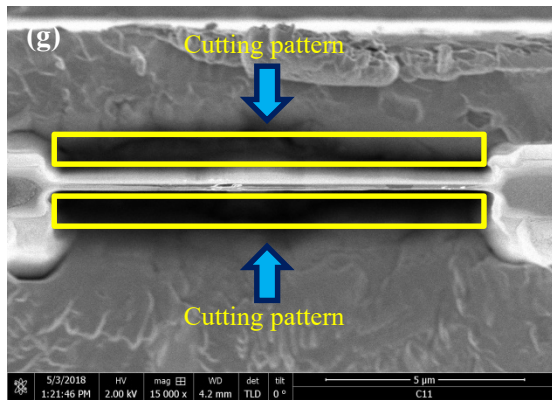
J-cut cut on TBC sample



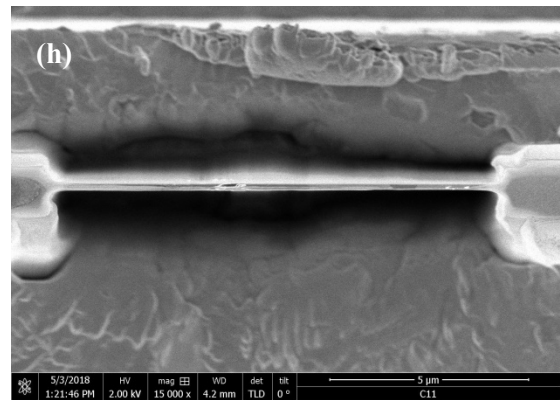
Lamellae lift out using easy lift needle



Placed lamellae on copper grid



Cutting pattern for lamellae thinning



Lamella thinning with final thickness <100 nm

Figure S2. Lamella thinning using focused ion beam.

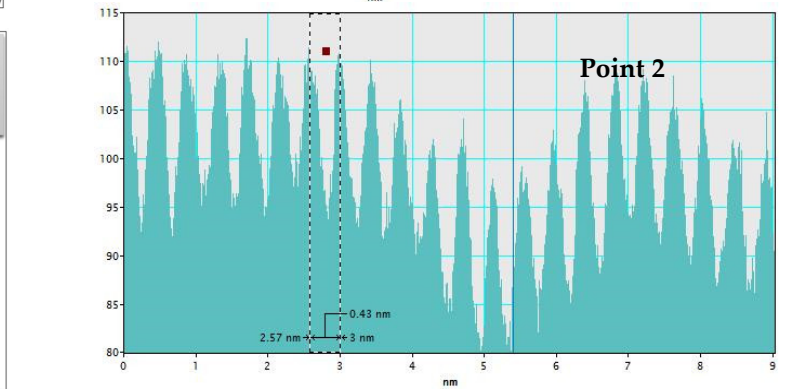
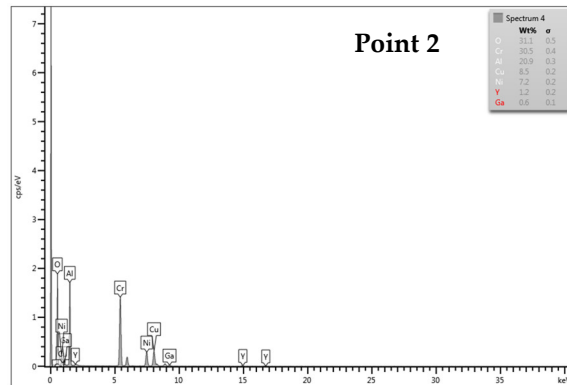
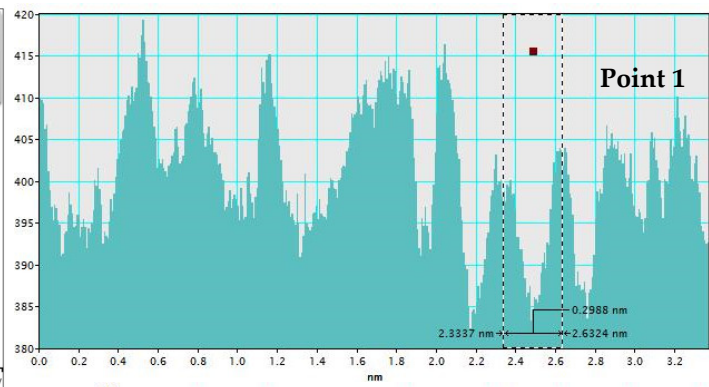
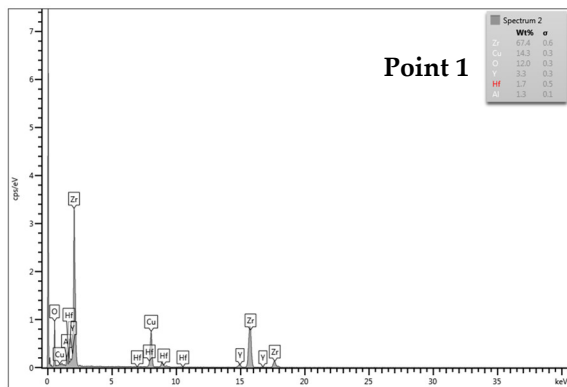


Figure S3. EDS spectrum and average fringe width profile frame for Sample A.

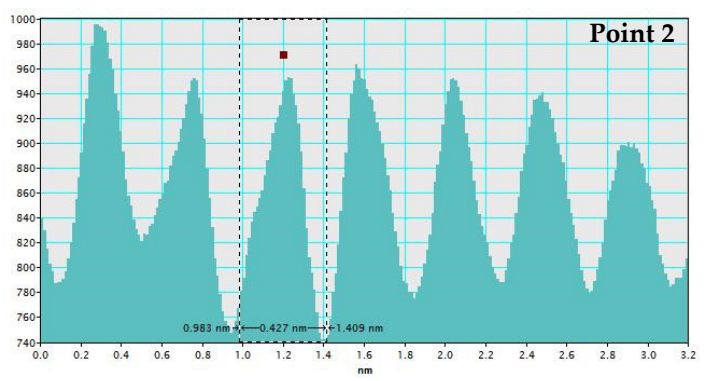
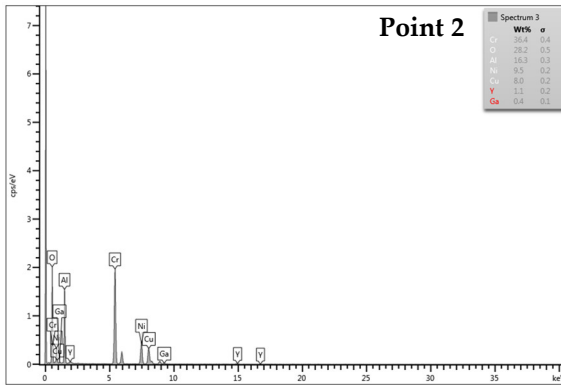
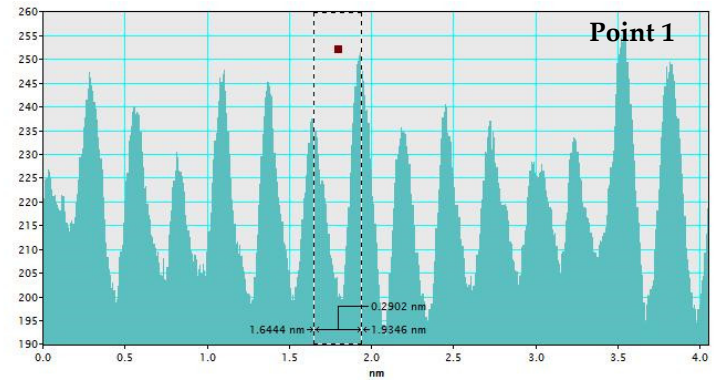
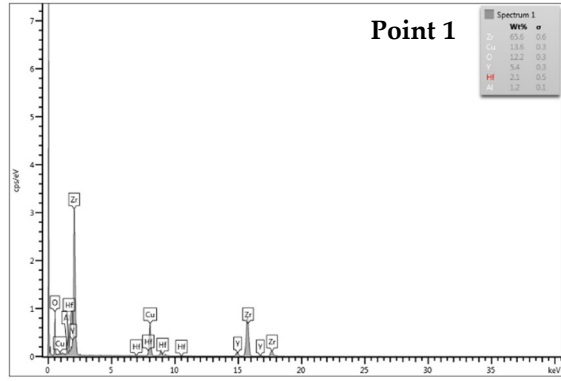
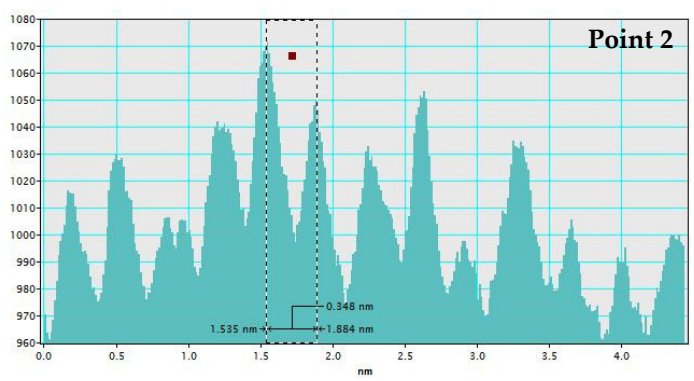
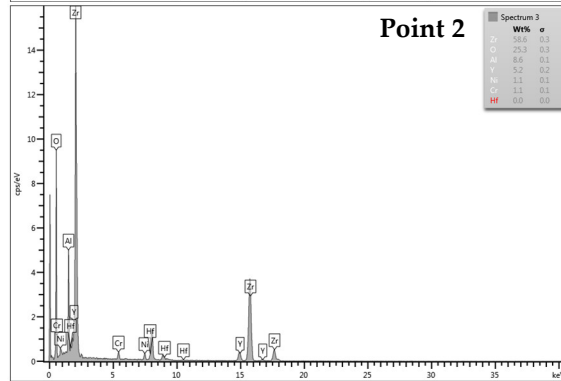
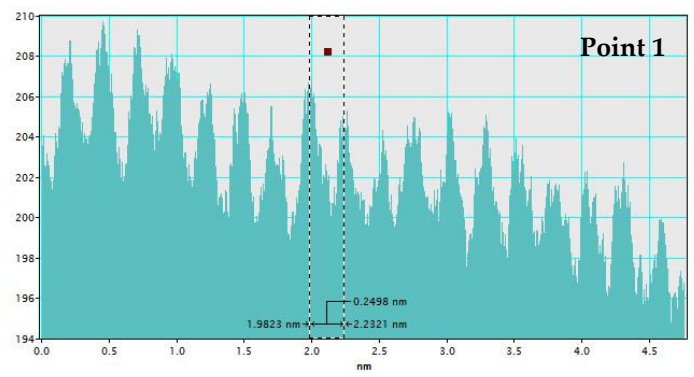
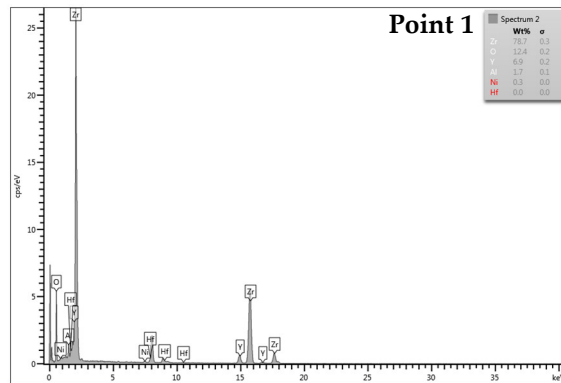


Figure S4. EDS spectrum and average fringe width profile frame for Sample H.



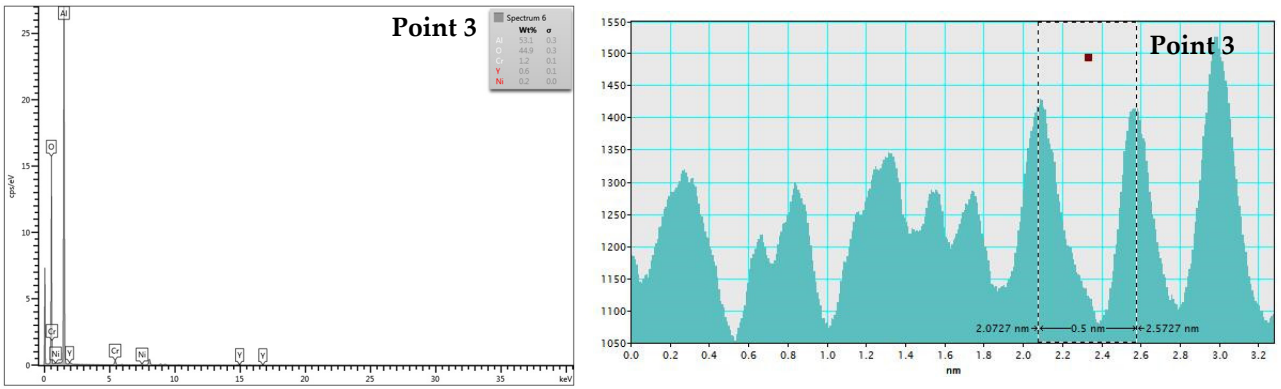


Figure S5. EDS spectrum and average fringe width profile frame for Sample A100h.

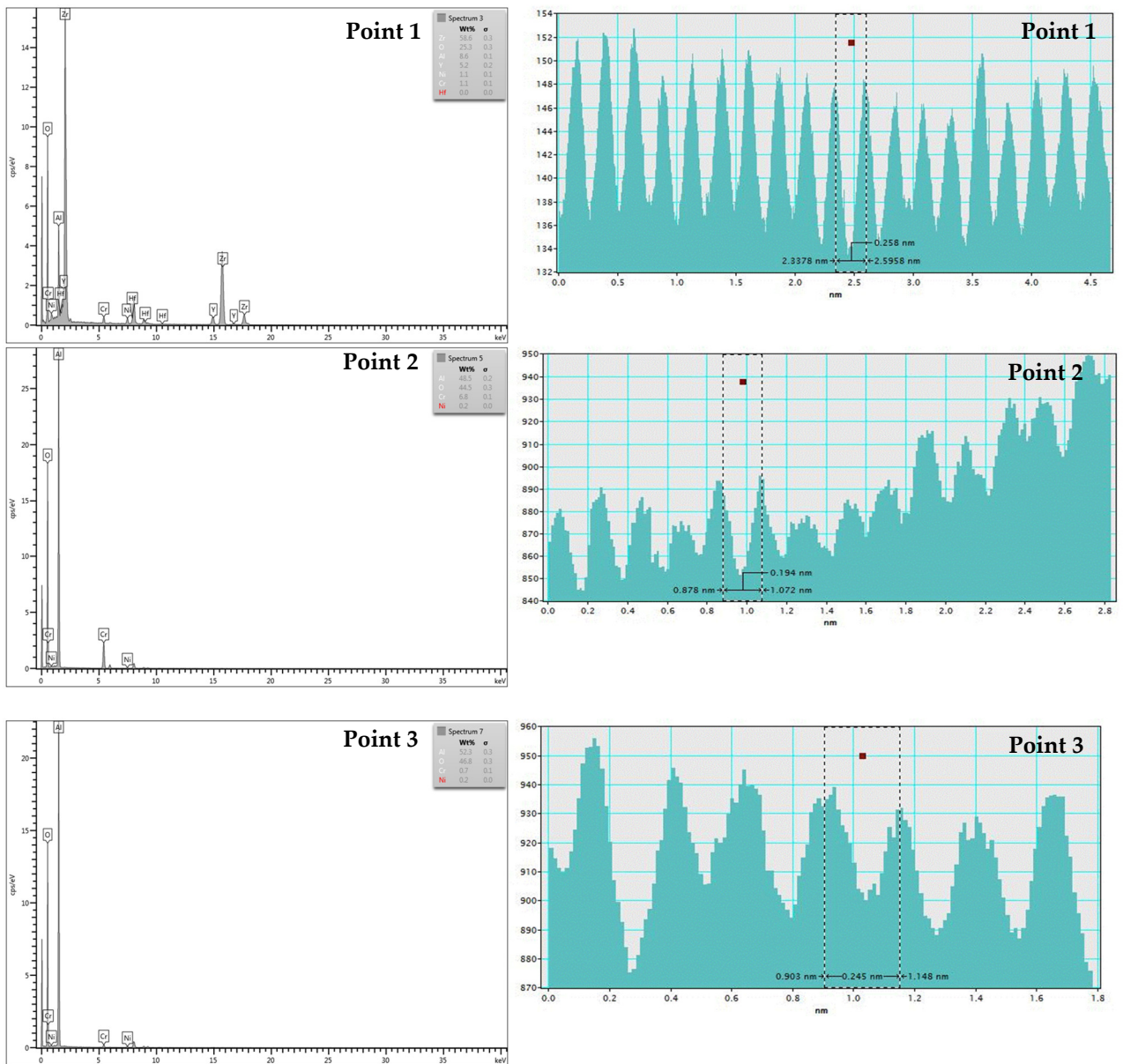


Figure S6. EDS spectrum and average fringe width profile frame for Sample H100h.

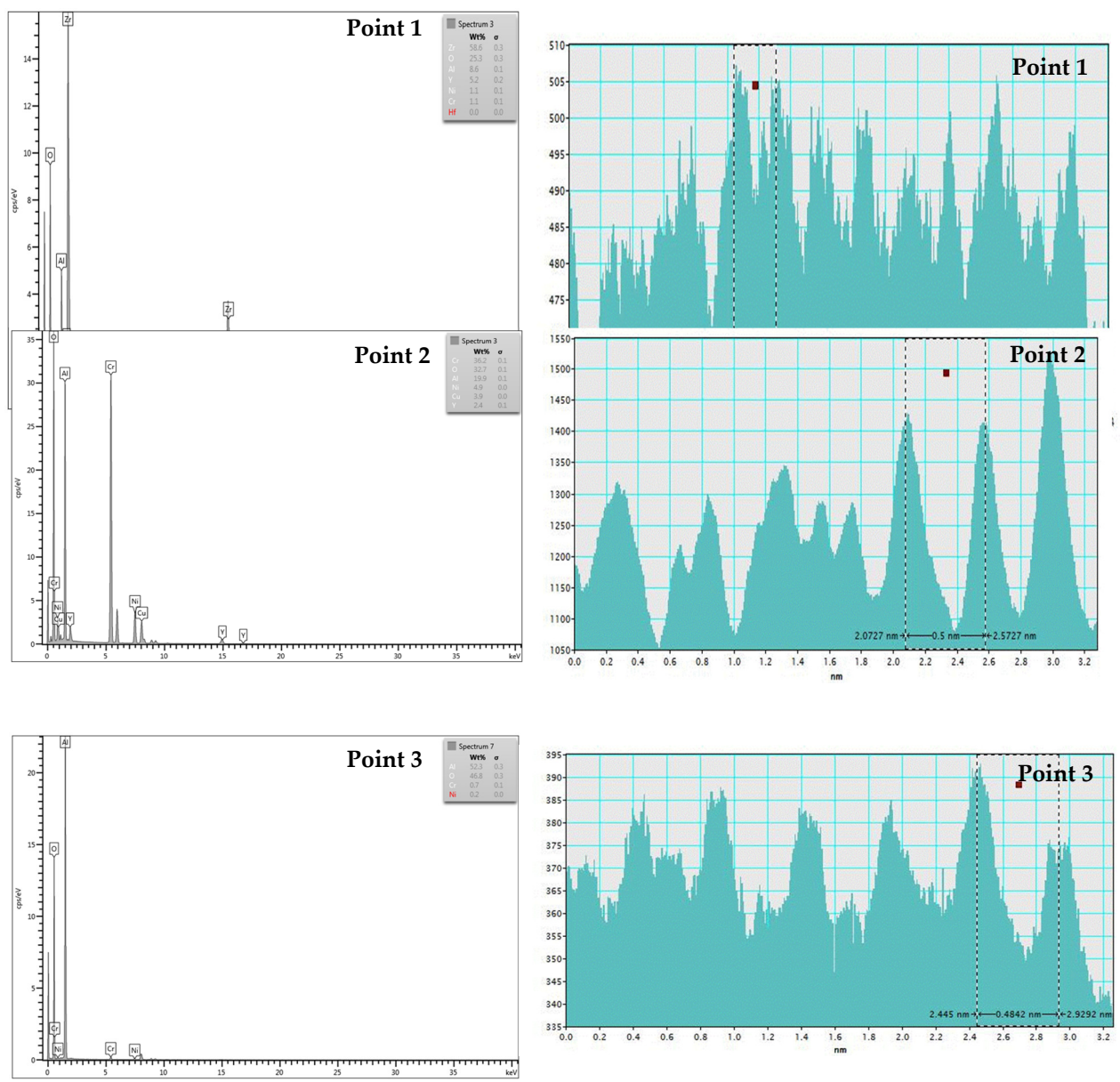


Figure S7. EDS spectrum and average fringe width profile frame for Sample A10c.

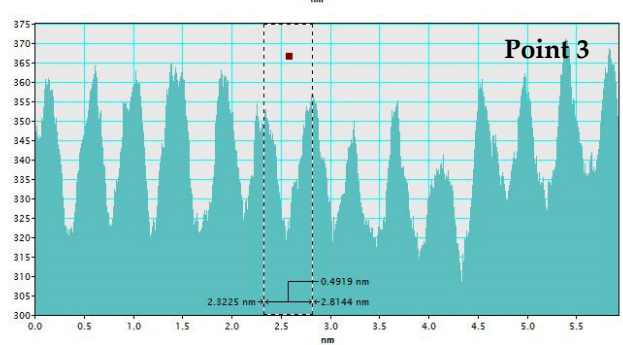
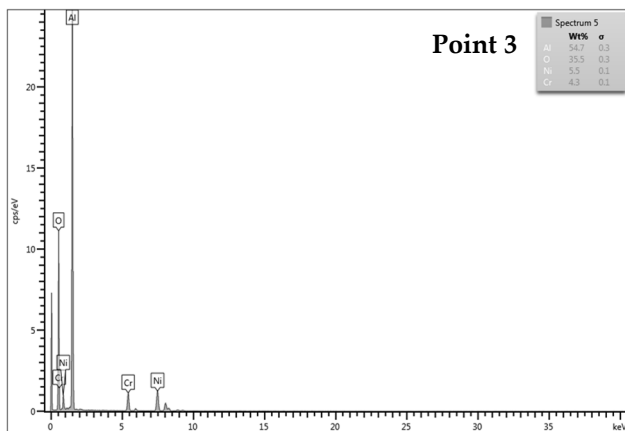
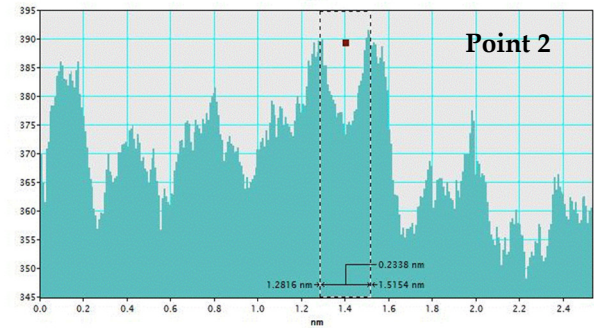
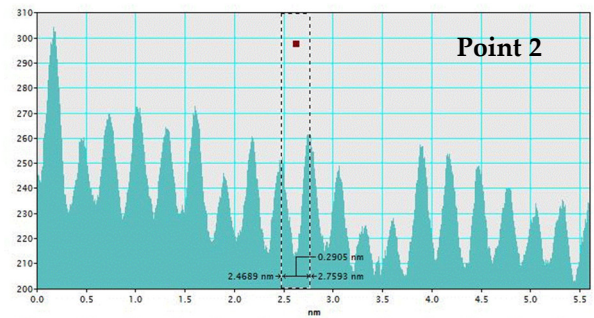
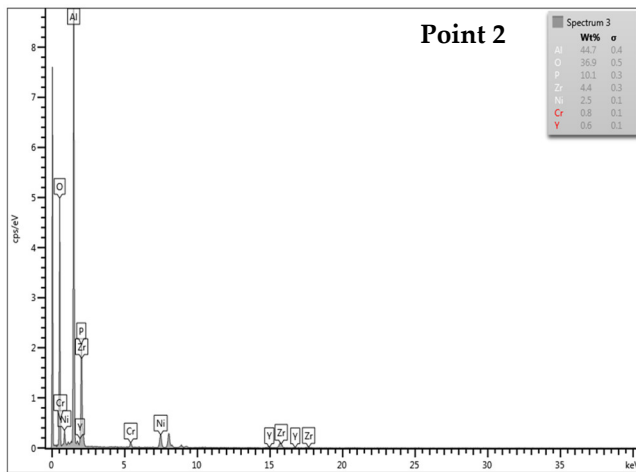
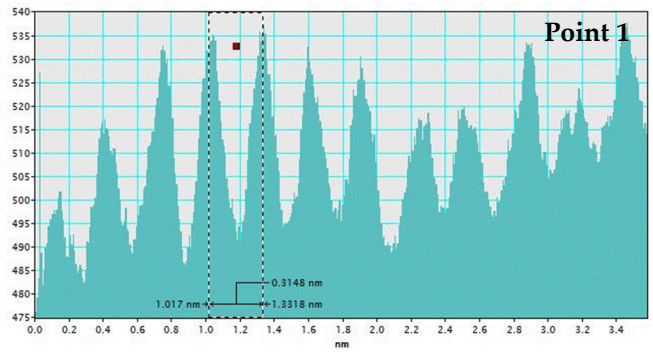
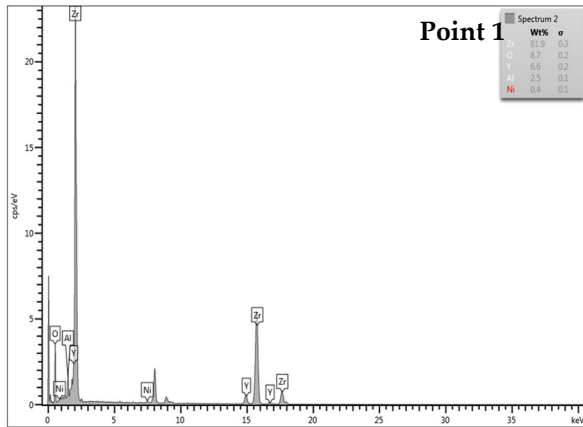


Figure S8. EDS spectrum and average fringe width profile frame for Sample H1080c.