Supplementary Information for Interface Structure of the Dark Conglomerate Liquid Crystal Phase

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S. 1: Freeze-fracture transmission electron microscope (FFTEM) images of the dark conglomerate (DC) phase of compound Ib quenched after cooling from the isotropic to 140°C, and then fractured in the bulk. (a) A disordered structure is observed, with smooth, saddle-shaped layer surfaces and smectic layer steps. (b) Higher magnification reveals regions where curved smectic layers intersect the fracture plane obliquely. The white, wispy regions may be due to liquid crystal left on the platinum-carbon replica.
S. 2: FFTEM images of the DC phase quenched after heating from the crystal phase to 140°C, and then fractured in the bulk. Instead of the amorphous arrangement seen on cooling from the isotropic phase (S. 1), the saddle-splay regions are quite well ordered here, with hexagonal close-packing, resembling the structures observed at the air/liquid crystal interface shown in Fig. 5.
S. 3: FFTEM image of the B7 phase quenched after heating from the crystal phase to 140°C, and then fractured in the bulk (a different region of the same sample imaged in Fig. 5 and S. 2). The smectic layers are oriented parallel to the fracture plane and show typical B7 layer undulations. Several layer steps can also be identified in this image.