Electromagnetic interference (EMI) is a disturbance in an electrical circuit often caused by the radiation of another electromagnetic source. For proper circuit function, EMI shielding of circuitry is normally employed. Common commercial materials for EMI shielding are centered on high conductivity metals, such as aluminum, copper and silver. As an alternative, the EMI shielding effectiveness (SE) of (carbon nanotube filled epoxy)-(carbon fiber) composite panels is being explored. Carbon fiber/epoxy composites are light-weight alternatives to metals, but significantly less conductive. Various approaches are being taken to increase the EMI SE of the composites, including addition of carbons to the matrix, coatings, and interlaminar fillers. An all-carbon system can mitigate galvanic corrosion, which is another problem with multi-metal systems. All panels were tested by a HP 8753D Network Analyzer per ASTM D4935-99. Panels of varying thicknesses were analyzed. The measured SE of (multi-walled carbon nanotube-filled epoxy) carbon fiber composites are compared to baseline commercial carbon fiber panels used in electronics and the aerospace industry.

All EMI SE samples are machined and tested in house to fit the specs of the ASTM method.