In one aspect, there is provided a multi-layer cover tape construction comprising:

a first polymeric substrate with a first major surface and a second major surface;

an adhesive layer coated on the first major surface of the first polymeric substrate;

a low adhesion backsize coating layer on the second major surface of the first polymeric substrate; and

a conductive film construction adhered to a portion of the adhesive layer such that portions of the adhesive layer remain exposed, the conductive film construction comprising:

a second polymeric substrate with a first major surface and a second major surface, wherein the second major surface of the second polymeric substrate is adhered to the adhesive layer; and

an exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate, wherein the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles is an optically transparent layer and

has a surface resistance of less than $1x10^5$ Ohms/square, and wherein the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate is coated by buff coating.

layer and has a surface resistance of less than $1x10^5$ Ohms/square, and the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate is coated by buff coating. The exposed adhesive portions are releasably adhesively bonded to the top surface of the parallel strip portions of the carrier tape.

In another aspect, there is provided a carrier tape assembly comprising:

a carrier tape for electronic component transportation, the carrier tape comprising:

parallel strip portions in a lengthwise direction, the strip portions having top and bottom surfaces, and between the parallel strip portions, a plurality of indented segments for accommodating electronic components formed intermittently in the lengthwise direction of the tape; and

a cover tape construction for releasably sealing the indented portions of the carrier tape, the cover tape construction comprising:

a first polymeric substrate with a first major surface and a second major surface;

an adhesive layer coated on the first major surface of the first polymeric substrate;

a low adhesion backsize coating layer on the second major surface of the first polymeric substrate; and

a conductive film construction adhered to a portion of the adhesive layer such that portions of the adhesive layer remain exposed, the conductive film construction comprising:

a second polymeric substrate with a first major surface and a second major surface, wherein the second major surface of the second polymeric substrate is adhered to the adhesive layer; and

an exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate, wherein the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles is an optically transparent layer and has a surface resistance of less than $1x10^5$ Ohms/square,

wherein the exposed adhesive portions are releasably adhesively bonded to the top surface of the parallel strip portions of the carrier tape.

Other embodiments of carrier tape assemblies comprise a carrier tape for electronic component transportation, the carrier tape comprising parallel strip portions in a lengthwise direction, the strip portions having top and bottom surfaces, and between the parallel strip portions, a plurality of indented segments for accommodating electronic components formed intermittently in the lengthwise direction of the tape, and a cover tape construction for releasably sealing the indented portions of the carrier tape. The cover tape construction comprises a first polymeric substrate with a first major surface and a second major surface, a low adhesion backsize coating layer on the second major surface of the first polymeric substrate, and an electrically conductive coating on the first major surface of the first polymeric substrate. The conductive layer comprises an exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the first polymeric substrate. The exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles is an optically transparent layer and has a surface resistance of less than $1x10^5$ Ohms/square, and the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate is coated by buff coating. Stripes of adhesive are present on a portion of the electrically conductive coating on the first major surface of the first polymeric substrate such that portions of the electrically conductive coating remain exposed between the adhesive stripes.

In another aspect, there is provided a multi-layer cover tape construction comprising:

a first polymeric substrate with a first major surface and a second major surface;

a low adhesion backsize coating layer on the second major surface of the first polymeric substrate; and

an electrically conductive coating on the first major surface of the first polymeric substrate, the conductive layer comprising:

an exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the first polymeric substrate, wherein

the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles is an optically transparent layer and

has a surface resistance of less than $1x10^5$ Ohms/square, and wherein the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate are coated by buff coating; and

stripes of adhesive on a portion of the electrically conductive coating on the first major surface of the first polymeric substrate such that portions of the electrically conductive coating remain exposed between the adhesive stripes.

In another aspect, there is provided a carrier tape assembly comprising:

a carrier tape for electronic component transportation, the carrier tape comprising:

parallel strip portions in a lengthwise direction, the strip portions having top and bottom surfaces, and between the parallel strip portions, a plurality of indented segments for accommodating electronic components formed intermittently in the lengthwise direction of the tape; and

a cover tape construction for releasably sealing the indented portions of the carrier tape, the cover tape construction comprising:

a first polymeric substrate with a first major surface and a second major surface;

a low adhesion backsize coating layer on the second major surface of the first polymeric substrate; and

an electrically conductive coating on the first major surface of the firstpolymeric substrate, the conductive layer comprising:

an exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the first polymeric substrate, wherein the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles is an optically transparent layer and has a surface resistance of less than $1x10^5$ Ohms/square, and

wherein the exposed layer of abrasion-resistant, electrically conductive nano-scale graphite particles coated on the first major surface of the second polymeric substrate are coated by buff coating; and

stripes of adhesive on a portion of the electrically conductive coating on the first major surface of the first polymeric substrate such that portions of the electrically conductive coating remain exposed between the adhesive stripes, and wherein the exposed adhesive stripes are releasably adhesively bonded to the top surface of the parallel strip portions of the carrier tape.

Also disclosed are methods of forming multi-layer cover tape constructions. In some embodiments, the method of forming a multi-layer cover tape constructions comprises providing an adhesive tape construction comprising a first polymeric substrate with a first major surface and second major surface, a low adhesion backsize coating on the second major surface of the first polymeric substrate, and an adhesive layer coated on the first major surface of the first polymeric substrate. The method includes forming an electrically conductive film construction comprising providing a second polymeric

substrate with a first major surface and a second major surface, applying a dry particle composition comprising graphite particles to the first major surface of the second polymeric substrate, wherein the dry particle composition comprising graphite particles comprises particles having a largest dimension of less than 100 micrometers, and comprising graphite using an applicator pad and buffing an effective amount of the graphite particles onto the surface of the polymeric substrate at a pressure normal to the surface of greater than 0 and less than about 30 grams per centimeter, where the applicator pad moves in plane parallel to the surface of the polymeric substrate in an orbital fashion. The method includes adhering the second major surface of the second polymeric substrate to the adhesive layer such that portions of the adhesive layer remain exposed on either side of the second polymeric substrate. The buff coated graphite surface on the first major surface of the second polymeric substrate is optically transparent and has a surface resistance of less than $1x10^5$ Ohms/square.

In another aspect, there is provided a method of forming a multi-layer cover tape construction comprising;

providing an adhesive tape construction comprising:

a first polymeric substrate with a first major surface and second major surface;

a low adhesion backsize coating on the second major surface of the first polymeric substrate; and

an adhesive layer coated on the first major surface of the first polymeric substrate;

forming an electrically conductive film construction comprising:

providing a second polymeric substrate with a first major surface and a second major surface;

applying a dry particle composition comprising graphite particles to the first major surface of the second polymeric substrate, wherein the dry particle composition comprising graphite particles comprises particles having a largest dimension of less than 100 micrometers, and comprising graphite using an applicator pad and buffing an effective amount of the graphite particles onto the surface of the polymeric substrate at a pressure normal to the surface of greater than 0 and less than about 30 grams per

centimeter, wherein the applicator pad moves in plane parallel to the surface of the polymeric substrate in an orbital fashion; and

adhering the second major surface of the second polymeric substrate to the adhesive layer such that portions of the adhesive layer remain exposed on either side of the second polymeric substrate, wherein the buff coated graphite surface on the first major surface of the second polymeric substrate is optically transparent and has a surface resistance of less than $1x10^5$ Ohms/square.

In other embodiments, the method of forming a multi-layer cover tape constructions comprises providing a first polymeric substrate with a first major surface and second major surface with a low adhesion backsize coating on the second major surface of the first polymeric substrate, and forming an electrically conductive coating on the first major surface of the first polymeric substrate. Forming an electrically conductive coating comprises applying a dry particle composition comprising graphite particles to the first major surface of the first polymeric substrate, wherein the dry particle composition comprising graphite particles comprises particles having a largest dimension of less than 100 micrometers, and comprising graphite using an applicator pad and buffing an effective amount of the graphite particles onto the surface of the polymeric substrate at a pressure normal to the surface of greater than 0 and less than about 30 grams per centimeter, where the applicator pad moves in a plane parallel to the surface of the polymeric substrate in an orbital fashion. The method inlcudes applying adhesive stripes to a portion of the electrically conductive coating on the first major surface of the first polymeric substrate such that portions of the electrically conductive coating remain exposed between the adhesive stripes. The buff coated electrically conductive graphite surface on the first major surface of the first polymeric substrate is optically transparent and has a surface resistance of less than $1x10^5$ Ohms/square.

In another aspect, there is provided a method of forming a multi-layer cover tape construction comprising:

providing a first polymeric substrate with a first major surface and second major surface with a low adhesion backsize coating on the second major surface of the first polymeric substrate; and

forming an electrically conductive coating on the first major surface of the first polymeric substrate, wherein forming an electrically conductive coating comprises:

applying a dry particle composition comprising graphite particles to the first major surface of the first polymeric substrate, wherein the dry particle composition comprising graphite particles comprises particles having a largest dimension of less than 100 micrometers, and comprising graphite using an applicator pad and buffing an effective amount of the graphite particles onto the surface of the polymeric substrate at a pressure normal to the surface of greater than 0 and less than about 30 grams per centimeter, wherein the applicator pad moves in plane parallel to the surface of the polymeric substrate in an orbital fashion; and

applying adhesive stripes to a portion of the electrically conductive coating on the first major surface of the first polymeric substrate such that portions of the electrically conductive coating remain exposed between the adhesive stripes; and wherein the buff coated electrically conductive graphite surface on the first major surface of the first polymeric substrate is optically transparent and has a surface resistance of less than $1x10^5$ Ohms/square.