

List of Figures

Title	Page no.
Chapter – 2 : Literature review	6
Fig. 2.1 – Triboelectric effect	8
Fig. 2.2 – Schematic of electrostatic discharge problem	9
Fig. 2.3 – Examples of ESD indicators/labels	10
Fig. 2.4 – Triboelectric series	11
Fig. 2.5 – Grounding of premium jacket with snaps.	12
Fig. 2.6 – Type of materials	12
Fig. 2.7 – Electric and magnetic field	13
Fig. 2.8 – Electromagnetic spectrum	15
Fig. 2.9 – Non-ionizing and ionizing radiation & penetration	16
Fig. 2.10 – Technologies in the electromagnetic spectrum	17
Fig. 2.11 – Magnetic field strength & distance	18
Fig. 2.12 – Transmission of electromagnetic waves	20
Fig. 2.13 – Different particle sizes in micron & relative particle size of air contaminants	21
Fig. 2.14 – Particle size & total particles/cubit foot relationship	22
Fig. 2.15 – Human activity and particle generation	23
Fig. 2.16 – Various cleanroom designs	25
Fig. 2.17 – Comparison of standards	27
Fig. 2.18 – Contamination control	28
Fig. 2.19 – Different cleanroom garments	29
Fig. 2.20 – Garments & contamination	30
Fig. 2.21 – Classification of common materials based on volume conductivity (S/cm) & spectrum of solution (antistatic, static dissipative, conductive & EMI products)	33
Fig. 2.22 – Conjugation paths of some inherently (or intrinsically), electrically conductive polymers (ICP's)	35

Chapter – 3 : Experimental	39
Fig. 3.1 – Weaving loom	42
Fig. 3.2 – Plain weave and twill weave	42
Fig. 3.3 – Stripe and grid patterns	43
Fig. 3.4 – Lloyd tensile tester	45
Fig. 3.5 – Megger MIT510/2 & 16008A Resistivity cell	46
Fig. 3.6 – Field (Signal) strength test set up	47
Fig. 3.7 – Fabric particle density transfer rate test set up	48
Fig. 3.8 – Images of fabric particle density transfer rate tester	49
Fig. 3.9 – Software screen picture	49
Chapter – 4 : Results & Discussions	52
Fig. 4.1 – Correlation analysis: Denier & surface resistivity	58
Fig. 4.2 – Correlation analysis: Weft space & surface resistivity	62
Fig. 4.3 – Correlation analysis: Denier & field strength	69
Fig. 4.4 – Correlation analysis: Weft space & field strength	72
Fig. 4.5 – Correlation analysis: Weft space & air permeability	80
Fig. 4.6 – Correlation analysis: Weft space & fabric particle density transfer rate	91