

Spectrum processing :
No peaks omitted

Processing option : All elements analyzed (Normalised)
Number of iterations = 3

Standard :
C CaCO3 1-Jun-1999 12:00 AM
O SiO2 1-Jun-1999 12:00 AM
Zn Zn 1-Jun-1999 12:00 AM

| Element | Weight% | Atomic% |
|---------|---------|---------|
| C K | 18.49 | 51.59 |
| O K | 4.18 | 8.76 |
| Zn K | 77.33 | 39.65 |
| Totals | 100.00 | |

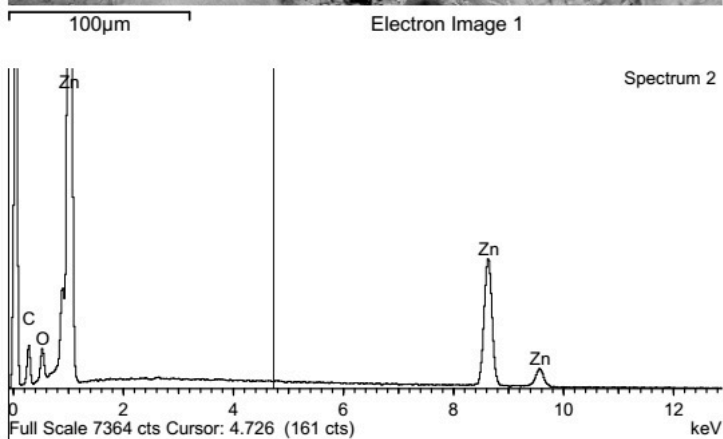


Figure S1. The EDAX analysis of Zinc.

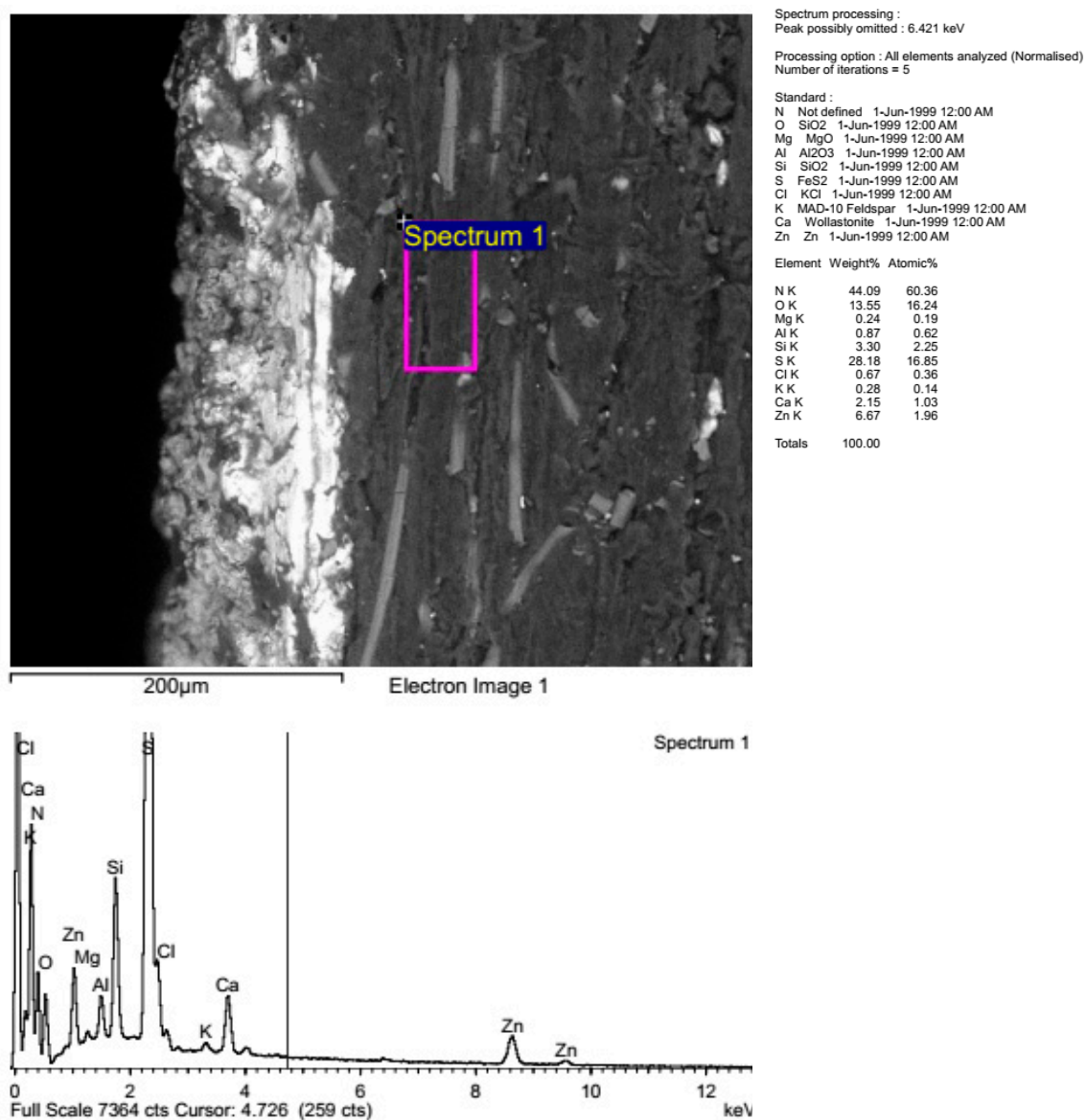


Figure S2. The EDAX analysis of PPS.

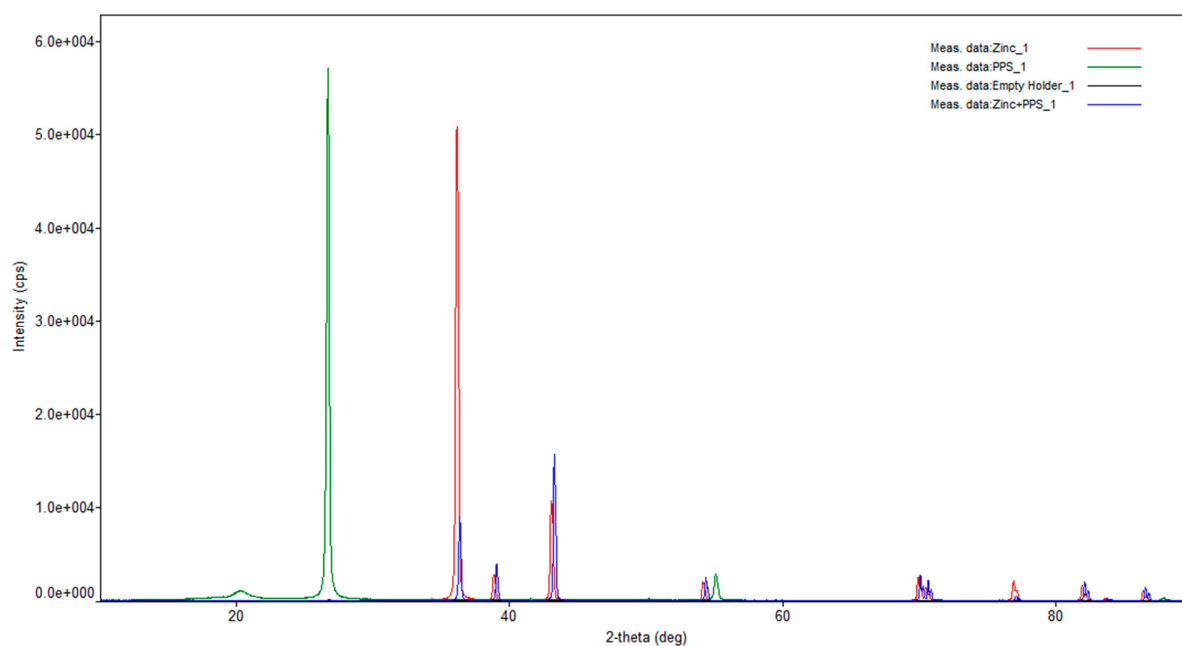


Figure S3. The XRD analysis of Zn_PPS.

Table S1 shows the relative permeability, permittivity, boundary conditions, mesh quality, and frequency range of coating materials.

Table S1. EMI simulation parameters of coatings.

| Parameters/Sample | Zinc | PPS | PEEK | PPA | Al-Bronze |
|-----------------------|------------|------------|------------|------------|-----------|
| Relative Permeability | 1.00021 | 1 | 1 | 1 | 1.000021 |
| Permittivity | 3.21 | 3.21 | 3.23 | 4.3 | 3.21 |
| Boundary conditions | Perfect E | Perfect E | Perfect E | Perfect E | Perfect E |
| Mesh quality | Default | Default | Default | Default | Default |
| Frequency (GHz) | 0.01 – 1.5 | 0.01 – 1.5 | 0.01 – 1.5 | 0.01 – 1.5 | 0.01-1.5 |
| | GHz | GHz | GHz | GHz | GHz |
| Step frequency (MHz) | 7.45 | 7.45 | 7.45 | 7.45 | 7.45 |
| Excitation type | Wave port | Wave port | Wave port | Wave port | Wave port |

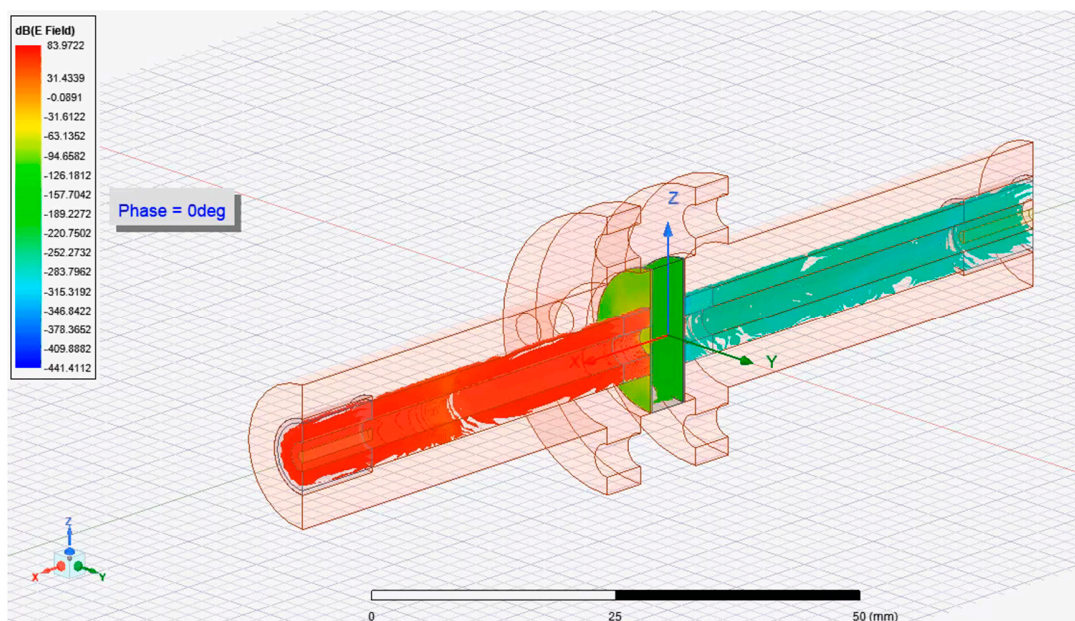


Figure S4. Simulation of E-Field at 1.05 GHz for PPA sample in the EMI fixture.