

**SUSTAINABLE DIGITAL TRANSFORMATION
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ELECTROMAGNETIC COMPATIBILITY

EMC = EMI+EMS

EMC: Electromagnetic Compatibility

EMI: Electromagnetic Interference

EMS: Electromagnetic Susceptibility (Immunity)



THEN WHAT IS EMC?

EMC: Ability for Systems or Equipment to Operate and not contribute to the Electromagnetic Environment;

EMI: Electromagnetic Energy from a System or Equipment that affects (Degrade) performance of other devices near by.

EMS: Ability of a device to operate satisfactorily in the its intended Electromagnetic Environment.



CAN EMC BE A PROBLEM IF NOT MANAGED?

Interfering Source;

- Natural (Sun and Lightening);
- Man-made (Intentional; bro, etc and Non-intentional; appliances, etc);

Medium (Coupling Path);

- Electric or Magnetic Field;
- Electromagnetic (Electric+Magnetict)
- Conducted Path (Physical Medium)

Affected Station/Receiver (Susceptible Station/System)



HOW CAN EMC PROBLEM BE SOLVED ?

1. **Eliminate** the Interfering Source
2. Improve **Immunity** of Affected Device
3. Ensure **effective coupling**
4. **Design** and **Production** of Equipment (EMC compatible equipment tends to be expensive, however sustainable)



WHY CONDUCT EMC TESTING ?

1. Protection of **Electromagnet Spectrum** (National Resource)
2. Safety of Critical Applications: **Medical, Aerospace, Aeronautical**, etc;
3. Confirm **Device Performance**: Can be ensured through EMC testing;
3. Product Compliance with **National Standards**



EMI COUPLING MECHANISM AND TESTING

Factors Contributing to EMI Levels:

- Proximity of the interfering stations;
- The transmitter power of the interfering station;
- Immunity (susceptibility) of the affected station
- The Medium (whether physical or wireless)
- Coupling mechanism (Radiated or Conducted)

EMC:

- EMI: Radiated EMI or Conducted EMI
- EMS: Radiated EMS and Conducted EMS



Thank you

