

UNIT IV EMI Standards and Regulations

Part A Questions

1. Define standard?

- a. A standard is a guide to aid the manufacture he user
- b. The performance specifications stipulated in the standard are usually necessary to know whether the particular equipment complying with the specifications will function satisfactorily within the permissible design tolerance when operating in their intended environment.

2. Enlist the need for standards.

The standards are needed for the following purpose

- i) EM spectrum protection
- ii) Provide adequate power quality
- iii) Compatibility between allocated electrical and electronic systems for trouble free application.

3. Write down the advantages of EMC standard.

- i) Compatibility is increased
- ii) Maintainability is increased
- iii) Reliability is increased
- iv) Product life and profits are increased
- v) Design safety margin is provided.

4. Enlist the standards corresponding to industrial environment.

Standard	Subjects
EN61000-6-1	Immunity for residential, commercial and light industrial environment
EN61000-6-2	Immunity for industrial environment
EN61000-6-3	Emission standard for residential, commercial and light industrial environment
EN61000-6-4	Emission standard for industrial environment

5. Define basic standard and give an example.

- i) The basic EMC standard is one that specifies the general conditions or rules necessary for achieving EMC
- ii) They deal with the fundamental process of weighting and measuring a unit.

Example: EN61000-4-X series and IEC 801-X

6. Define product standard and give an example.

These are standard that apply to specific products or families of product and provided test procedure and limits for these products.

Example: EN 55024 for immunity test in ITC equipment, EN 55022 for emission test in ITC equipment.

7. Write down the national and international EMI standardizing organizations.

IEC,ANSI,FCC,AS/NZS,CISPR,BSI,CENELEC,ACEC.

8. Distinguish the military and civilian standard.

Military Standard	Civilian Standard
1.It is made in order to ensure the system compatibility in real time military environment.	Civilian Standard are applicable for equipment used for commercial, industries and domestic applications.
2.Example MIL-STD 461 MIL-STD 461	Example IEC CISPR

9. What are all the classification of standard?

- i) Basic Standard
- ii) Generic Standard
- iii) Product Standard

Standard	Example
IEC 60335-1	Safety of household electrical appliances, Part 1: Safety requirements for the ordinary household use
IEC 60335-2-2	Safety of household electrical appliances, Part 2: Particular requirements for the safety of electric kettles
IEC 60335-2-29	Safety of household electrical appliances, Part 2: Particular requirements for the safety of electric pressure cookers
IEC 60335-2-30	Safety of household electrical appliances, Part 2: Particular requirements for the safety of electric pressure cookers

2) Briefly discuss the foll. standards,

(a) CISPR (b) FCC (c) CENELEC (d) AEC.

CISPR:- (Commissariat International Spécial des perturbations radio électriques)

- * General & Introduction
- * CISPR technical standard
- * Important standard of CISPR.
- * Test and evaluation method.

CENELEC:- (Comité Européen de Normalization Electrotechnique).

- * Introduction
- * CEN & CENELEC members
- * CEN & CENELEC management center
- * EMC specification in CENELEC.
- * Generation of CENELEC EMC standard

AEC:-

- * Introduction
- * Definition
- * AEC today.
- * IEC guide 107
- * Principle IEC-EMC product families

FCC:-

- * Objectives

* FCC Regulations, Requirements.

* FCC administrative management.

* FCC limits for conducted and radiated emissions.

3) Explain in detail about the CE, CS, RE, RS limits in military standard (MIL-STD-461E)

* General and introduction

* conducted interference control

- CE 101
- CE 102
- CE 103

* Immunity to conducted emissions (CS101 - CS116)

* Radiated Interference Controls
(RE 101 - RE 103)

* Other military standard

(i) MIL-STD 463

(ii) MIL-STD 605

(iii) MIL-STD 1541

(iv) MIL-STD 1542

(v) MIL-STD 1818

* MIL-STD-461E