1. (normative)  
   Electromagnetic effects verification plan (EMEVP) - DRD
   1. DRD identification
      1. Requirement identification and source document

This DRD is called from ECSS-E-ST-20, requirement 6.4.1b.

* + 1. Purpose and objective

The electromagnetic effects verification plan (EMEVP) defines the approach, methods, procedures to verify electromagnetic effects.

The EMEVP provides the instruction for conducting all activities required to verify that the effects of the electromagnetic environment are compatible with the requirements of the project.

* 1. Expected response
     1. Scope and content

The EMEVP shall contain a description of the purpose, objective, content and the reason of prompting its preparation.

The EMEVP shall list the applicable and reference documents to support the generation of the document.

The EMEVP shall include any additional definition, abbreviation or symbol used.

The EMEVP shall list the requirements of the plan, including:

methods to be used to select critical circuits, used to monitor conformance to degradation criteria and safety margins, including the definition of the method of selection;

procedures used for developing failure criteria and limits;

test conditions and procedures for all electronic and electrical equipment installed in or associated with spacecraft and sequence for operations during tests, including switching;

specific tolerance for particular measurement;

implementation and application of test procedures, including modes of operation and monitoring points for each subsystem or equipment;

use of approved results from laboratory interference tests on subsystems and equipment;

methods and procedures for data readout and analysis;

means of verifying design adequacy of spacecraft electrification;

means of simulating and testing electro–explosive subsystems and devices (EEDs);

verifying electrical power quality, and methods for monitoring DC and AC power busses;

test locations and descriptions of arrangements for simulating operational performance in cases where actual operation is impractical;

configuration of equipment and subsystems modes of operation to ensure victim equipment and subsystems are tested in most sensitive modes, while culprit equipment and subsystems are tested in noisiest mode(s);

details concerning frequency ranges, channels, and combinations to be specifically tested such as image frequencies, intermediate frequencies, local oscillator, transmitter fundamental and harmonically related frequencies, and including subsystem susceptibility frequencies identified during laboratory testing;

to precise parallel or series injection for conducted susceptibility test;

personnel to perform the test, including customer and supplier personnel at all levels, and quality representatives;

list of all test equipment to use, including a description of unique EMC instrumentation for stimulating and measuring electrical, electronic, and mechanical outputs of equipment and subsystems to be monitored during the test programme;

description of cables attached to the equipment under test;

definition of the line impedance stabilization network (values of internal components);

need for calibration and check of the measurement setup;

antennas to use for RF emission and susceptibility tests;

Method of switching ON for inrush current testing.

1. to item 4 “specific tolerance for particular measurement”: See also B.2.1e.and f.

An intra–system compatibility culprit/victim test matrix shall be included in the EMEVP, showing all combinations of individual equipment/subsystems to be tested in order to verify overall intra–system compatibility;

The description of the Step–by–step test procedures for operation of all matrix equipment shall be included in the EMEVP to support test execution.

* + 1. Special remarks

None.