



## Design For Six Sigma Requirement

### 1 Introduction

**Note:** Nothing in this standard supercedes applicable laws and regulations.

**Note:** In the event of conflict between the English and domestic language, the English language shall take precedence.

**1.1 Scope.** Design for Six Sigma (DFSS)/Robust Engineering is the method GM is using to assure high quality in critical systems of our vehicles. The DFSS process flows the customer requirements to the design and then it assures that the design satisfies these requirements with minimum variation. Participation in, and support of, a DFSS project will be required by all suppliers of subsystems or components where GM product engineering is doing a GM DFSS project or where requested by GM. A supplier may be expected to conduct their own DFSS/Robust Engineering project to support meeting GM's performance requirements.

**1.2 Mission/Theme.** Not applicable.

**1.3 Classification.** Not applicable.

### 2 References

**Note:** Only the latest approved standards are applicable unless otherwise specified.

#### 2.1 External Standards/Specifications.

None

#### 2.2 GM Standards/Specifications.

GMW3059

### 3 Requirements

**3.1** If required by the Program Management Team (PMT)/Product Development Team (PDT), a DFSS or Robust Engineering Process will be followed by the supplier and presented to GM on critical design specifications. These will be a subset of the specifications given as part of the Statement of Requirements (SOR). The PMT/PDT or DFSS team will indicate which requirements are the critical few and the supplier will be expected to take the following actions:

**3.1.1** The supplier will participate with the GM DFSS project team by attending project meetings, including training if needed. The supplier will support the project by providing the appropriate engineering requested by GM.

**3.1.2** The supplier will be expected to provide to the GM team an estimate of the capability of their design both the nominal output and the expected variation on the critical few requirements highlighted within the SOR. The estimate will be accompanied by the list of major design parameters (control factors) that were used in that design.

**3.1.3** The estimate of the critical to quality (CTQ) variation will be accompanied by a list of variation parameters (noise factors) with both their means and standard deviations. These variation parameters should include the major process parameters that are monitored or controlled by supplier control plans.

**3.1.4** The performance prediction, in support of the GM DFSS project, will be done early in the design process before validation hardware is available, or by the timing needed by the PDT.

### 4 Validation

#### 4.1 General.

The validation plan may need to be altered to reflect the findings, (i.e., significant noise factors) from the DFSS project and will be updated by the GM PDT.

**4.2 Validation Cross Reference Index.** Not applicable.

**4.3 Supporting Paragraphs.** Not applicable.

### 5 Provisions for Shipping

Not applicable.

### 6 Notes

**6.1 Glossary.** Not applicable.

#### 6.2 Acronyms, Abbreviations, and Symbols.

|      |                          |
|------|--------------------------|
| CTQ  | Critical to Quality      |
| DFSS | Design for Six Sigma     |
| PDT  | Product Development Team |

**PMT** Program Management Team  
**SOR** Statement of Requirements

## 7 Additional Paragraphs

**7.1** All parts or systems supplied to this standard must comply with the requirements of GMW3059, **Restricted and Reportable Substances for Parts.**

## 8 Coding System

This standard shall be referenced in other documents, drawings, etc., as follows:

GMW14887

## 9 Release and Revisions

This standard was originated in December 2005. It was first approved by Global Design for Six Sigma in May 2006. It was first published in June 2006.

| Issue | Publication Date | Description (Organization)                   |
|-------|------------------|----------------------------------------------|
| 1     | JUN 2006         | Initial publication.                         |
| 2     | JUL 2011         | Five year refresh. (GM Design for Six Sigma) |