

E DIN EN 16603-60-21:2017-02 (E)

Erscheinungsdatum: 2017-01-13

**Space engineering - Gyros terminology and performance specification; English
version prEN 16603-60-21:2016**

Inhalt

Seite

Nationaler Anhang NA (informativ) Begriffe und Abkürzungen	3
3 Begriffe und Abkürzungen	3
3.1 Begriffe aus anderen Normen	3
3.2 Begriffe zur vorliegenden Norm	3
3.3 Abkürzungen	9

Table of contents

Foreword	5
Introduction.....	6
1 Scope.....	7
2 Normative references	8
3 Terms, definitions and abbreviated terms.....	9
3.1 Terms from other standards	9
3.2 Terms specific to the present standard	9
3.3 Abbreviated terms	15
4 Functional requirements.....	16
4.1 Overview	16
4.2 Operating modes.....	16
4.2.1 Operating modes Functional requirements	16
4.2.2 Operating modes Verification requirement.....	17
4.3 Start-up.....	17
4.3.1 Start-up Functional requirements	17
4.3.2 Start-up Verification requirements	17
4.4 Warm-up.....	18
4.4.1 Warm-up Functional requirements	18
4.4.2 Warm-up Verification requirements	18
4.5 Time and frequency, datation and synchronisation	18
4.5.1 Time and frequency Functional requirements	18
4.5.2 Time and frequency Verification requirements	19
4.6 Alignment and scale factor	19
4.6.1 Alignment and scale factor Functional requirements.....	19
4.6.2 Alignment and scale factor Verification requirements	20
4.7 Commandability and observability.....	20
4.7.1 Commandability and observability Functional requirements	20
4.7.2 Commandability and observability Verification requirements	20
4.8 Failure diagnosis	20

4.8.1	Failure diagnosis Functional requirements	20
4.8.2	Failure diagnosis Verification requirements	21
4.9	Measurement mode	21
4.9.1	Measurement mode Functional requirements	21
4.9.2	Measurement mode Verification requirements	21
4.10	Auxiliary modes	21
4.10.1	Auxiliary modes Functional requirements	21
4.10.2	Auxiliary modes Verification requirements	22
4.11	Anti-aliasing filter	22
4.11.1	Anti-aliasing Functional requirements	22
4.11.2	Anti-aliasing Verification requirements	22
4.12	Stimulation	22
4.12.1	Stimulation Functional requirements	22
4.12.2	Stimulation Verification requirement	22
4.13	Lifetime and duty cycle	23
4.13.1	Lifetime and duty cycle Functional requirements	23
4.13.2	Lifetime and duty cycle Verification requirement	23
5	Performance requirements	24
5.1	Use of the statistical ensemble	24
5.1.1	Overview	24
5.1.2	Provisions	24
5.2	Performance Verification requirements	25
5.3	General Performance requirements	25
5.4	General performance metrics	26
5.4.1	Overview and definition	26
5.4.2	Bias	27
5.4.3	Noise	32
5.4.4	Scale factor error	35
5.4.5	Misalignment	38
5.4.6	Measurement datation and latency	41
5.4.7	Start-up performances	42
5.4.8	Warm-up phase performances	43
5.4.9	Measured output bandwidth	43
5.4.10	Anti-aliasing filter	43
5.4.11	Data quantization	44
5.4.12	Failure detection efficiency	44
5.4.13	Stimulation	45

5.5 Functional and performance mathematical model.....	45
Annex A (normative) Functional and performance mathematical model (FMM) description - DRD.....	48
Annex B (informative) Example of data sheet.....	50
Bibliography.....	52

Figures

Figure 3-1: mechanical reference frame (MRF)	13
Figure 3-2: example alignment reference frame	14
Figure 4-1: Example of Start-up and Warm-up phases	18
Figure 5-1: Examples of Bias evaluation from test or simulation data	27
Figure 5-2: Switch-on bias repeatability computation.....	31
Figure 5-3: Bias stability computation	32
Figure 5-4: Monolateral PSD and Allan Variance.....	34
Figure 5-5: Example of Functional Mathematical Model Architecture	47