

ISO 20140-5:2017-04 (E)

Automation systems and integration - Evaluating energy efficiency and other factors of manufacturing systems that influence the environment - Part 5: Environmental performance evaluation data

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Classification of EPE data	4
4.1	EPE data context information	4
4.2	Classification by source and time	4
4.3	Further classification of data	5
5	Actual data	6
5.1	Overview	6
5.2	Sources of actual data	7
5.2.1	Overview	7
5.2.2	Actual data located in Level 2	7
5.2.3	Actual data located in Level 3	7
5.2.4	Actual data located in Level 4	8
5.2.5	Selecting the source of actual data	8
5.3	Actual data in operation step	9
5.3.1	Overview	9
5.3.2	Requirements for actual data in operation step	10
5.3.3	Accessibility of actual data for EPE	10
5.3.4	Representation of environmental performance by actual data	10
5.3.5	Actual energy data	11
5.3.6	Actual material data	13
5.3.7	Manufacturing operations and process actual data	14
5.3.8	Environmental actual data	14
5.4	Actual data in CRR step	15
6	External data	15
6.1	General	15
6.2	Upstream data	15
6.2.1	General	15
6.2.2	Material upstream data	16
6.2.3	Energy upstream data	16
6.3	Environmental characteristics data (ECD)	17
6.4	Exchanged residual CRR data	17
7	Reference data	18
7.1	Overview	18
7.2	Residual CRR data	18
7.3	Production control data	19
7.4	Manufacturing system data	19
7.5	Process plan data	20

8	Mapping of EPE data	20
8.1	Overview	20
8.2	Classifications relevant to energy management	22
8.3	Differences between Levels 2 and 3 and Levels 3 and 4 actual data	22
Annex A (informative) Mapping of EPE data		24
Annex B (informative) Common object model of IEC 622642		45
Annex C (informative) Structure of a KPI record described by ISO 224002		51
Annex D (informative) Use case: Measuring the itemized and the total actual energy consumption .		54
Annex E (informative) Material upstream data -- Regional regulations and international standards ..		56
Annex F (informative) Greenhouse gas emission along the life cycle		60
Annex G (informative) Commonly used energy data models attributes		61
Bibliography		63