ISO/IEC 30179:2023-01 (E)

Internet of Things (IoT) - Overview and general requirements of IoT system for ecological environment monitoring

Contents

Page

FOREWORD 4
INTRODUCTION 5
1 Scope 7
2 Normative references 7
3 Terms and definitions 7
4 Symbols and abbreviated terms 7
5 IoT system overview for ecological environment monitoring 8
5.1 System infrastructure overview 8
5.2 Entities description 9
5.2.1 Entities in Physical Entity Domain (PED) 9
5.2.2 Entities in Sensing and Controlling Domain (SCD) 9
5.2.3 Entities in Application and Service Domain (ASD) 11
5.2.4 Entities in User Domain (UD) 12
5.2.5 Entities in Operations and Management Domain (OMD) 12
5.2.6 Entities in Resource Access and Interchange Domain (RAID) 13
5.3 Interface description 13
6 General requirements of IoT system for EEM 14
6.1 System functional requirements 14
6.1.1 Data acquisition and data collection 14
6.1.2 Auto configuration 15
6.1.3 IoT gateway 15
6.1.4 Network communication 15
6.1.5 Applications and services 15
6.1.6 Users and supporting facilities 16
6.1.7 Operation and maintenance management 16
6.1.8 Context-awareness 16
6.1.9 Discoverability 16
6.1.10 Sharing ability 16
6.1.11 Resource access and interchange 17
6.1.12 Identification 17
6.1.13 Flexibility 17
6.1.14 Regulation 17
6.1.15 Equipment, network and service scalability 17
6.1.16 Eco-environment analysis and alarming 17
6.2 System security requirements 17
6.2.1 Reliability 17
6.2.2 Resilience 18
6.2.3 Accessibility and availability 18
6.2.4 Confidentiality and privacy 18
6.2.5 Integrity 18
6.3 System performance requirements 18

6.3.1 Data acquisition sampling rate 18
6.3.2 Data accuracy 19
6.3.3 Enclosure protection 19
6.3.4 Sensor working mode 19
6.3.5 Sensor durability 19
6.3.6 Communication protocols 19
6.3.7 Data communication latency 19
6.3.8 Power supply 20
6.3.9 Synchronization 20
6.3.10 Applications and services 20
6.3.11 Users and supporting facilities 20
6.3.12 Operation and management 20
6.3.13 Resource access and interchange 20
Bibliography 21

Figure 1 – System infrastructure of IoT system for EEM 8

Table 1 – Entity descriptions in PED 9
Table 2 – Entity descriptions in SCD 10
Table 3 – Entity descriptions in ASD 11
Table 4 – Entity descriptions in UD 12
Table 5 – Entity descriptions in OMD 13
Table 6 – Entity descriptions in RAID 13
Table 7 – Interface description 14