

ISO/IEC 15045-2:2012-07 (E)

Information technology - Home Electronic System (HES) gateway - Part 2: Modularity and protocol

Contents	Page
FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references	8
3 Terms, definitions and abbreviations	8
3.1 Terms and definitions	8
3.2 Abbreviations	11
4 Conformance.....	12
5 Architecture.....	12
5.1 Architectural model	12
5.2 Design philosophy.....	14
5.2.1 General approach.....	14
5.2.2 Distributed gateway system (DGS)	14
5.2.3 Modularity	15
5.2.4 Common interoperability platform	15
6 Modularity requirements	15
7 HES-gateway system	16
7.1 Conceptual process model	16
7.1.1 Common interoperability framework (CIF).....	16
7.1.2 Generic interworking function (GIWF)	17
7.2 Physical architecture	17
7.3 Modularity	18
7.3.1 General	18
7.3.2 WAN access module.....	19
7.3.3 HAN access module	21
7.3.4 Service module.....	22
7.4 Data flows	23
7.4.1 General	23
7.4.2 Control plane.....	24
7.4.3 Content (data) plane.....	24
8 Intermediate processes	24
8.1 General	24
8.2 Protocol stacks.....	24
8.2.1 Generalised model	24
8.2.2 Specific model – Simple gateway.....	25
8.2.3 GIWF application	26
8.2.4 Data flow control plane signalling	26
8.3 Intermediate bus (GL bus) and protocol (GL protocol)	27
8.3.1 General	27
8.3.2 Lower layers	27

8.3.3	Middle layers	27
8.3.4	Upper layers	27
8.4	Gateway management	28
Annex A (informative)	Case examples	29
A.1	Overview of case examples	29
A.2	VDSL scenario	29
A.3	DBS/DSL scenario	30
A.4	Healthcare management scenario	31
A.5	DSL/HomePNA scenario	31
Annex B (informative)	Intermediate logical bus topologies	33
B.1	Overview of intermediate bus topologies	33
B.2	Mesh topology	33
B.3	Star topology	33
B.4	Combined mesh and star topology	34
Annex C (informative)	Distributed gateway extension methods	35
	Bibliography	36
Figure 1	– Options for home-gateway configurations	8
Figure 2	– Interoperating networks and domain of HES-gateway standard	13
Figure 3	– Alternative distributed modular architectural models	14
Figure 4	– Common interoperability framework (CIF)	17
Figure 5	– HES-gateway architectural domains	18
Figure 6	– HES-link module linkage model	19
Figure 7	– WAN access module block diagram	20
Figure 8	– HAN access module block diagram	21
Figure 9	– Service module block diagram	22
Figure 10	– Data flows	23
Figure 11	– HES-gateway generalised protocol stack model	25
Figure 12	– HES-gateway special case: simple gateway protocol stack model	26
Figure A.1	– VDSL scenario	29
Figure A.2	– DBS/DSL scenario	30
Figure A.3	– Cable/DSL/energy management/ZigBee scenario	30
Figure A.4	– Healthcare management scenario	31
Figure A.5	– DSL/HomePNA Scenario	31
Figure B.1	– Mesh topology	33
Figure B.2	– Star topology	34
Figure B.3	– Combined mesh and star topology	34
Figure C.1	– HES-gateway GL bus extension methods	35