ISO 10303-215:2004-05 (E)

Industrial automation systems and integration - Product data representation and exchange - Part 215: Application protocol: Ship arrangement

Contents

Page

1 Scope 1
2 Normative references 3
3 Terms, definitions and abbreviations 4
3.7 Other terms and definitions 7
3.8 Abbreviations 8
4 Information requirements 9
4.1 Units of functionality 9
4.1.1 arrangement_relationships 10
4.1.2 cargoes 11
4.1.3 coatings 12
4.1.4 compartment_design_definitions 12
4.1.5 compartment_properties 12
4.1.6 compartment_requirements 13
4.1.7 configuration_management 14
4.1.8 damaged_stability 15
4.1.9 definitions 15
4.1.10 external_references 16
4.1.11 hull_class_applicability 16
4.1.12 items 16
4.1.13 loading_conditions 17
4.1.14 location_concepts 17
4.1.15 product_structures 18
4.1.16 ship_general_characteristics 18
4.1.17 ship_measures 19
4.1.18 spaces 19
4.1.19 surface_representations 19
4.1.20 tonnage 20
4.1.21 weights 20
4.2 Application objects 20
4.3 Application assertions 166
5 Application interpreted model 185
5.1 Mapping specification 185
5.2 AIM EXPRESS short listing 439
6 Conformance requirements 714
Annex A (normative) AIM EXPRESS expanded listing 725
Annex B (normative) AIM short names 884
Annex C (normative) Implemenation method specific requirements 892
Annex D (normative) Protocol implementation conformance statement (PICS) proforma 893
Annex E (normative) Information object registration 894
Annex F (informative) Application activity model 895

Annex G (normative) Application reference model 919

Annex H (informative) AIM EXPRESS-G 943

Annex J (informative) Computer-interpretable listings 973

Annex K (informative) Technical discussions 974

Bibliography 986

Index 987

Figures Figure 1 -- The full series of ship application protocols viii

Figure 2 -- Data planning model ix

Figure 4 -- Global axis placement 108

Figure F.1 -- IDEF0 basic notation 903

Figure F.2 -- A-0 Ship arrangement AAM 904

Figure F.3 -- A0 Perform ship life cycle 905

Figure F.4 -- A1 Specify ship 906

Figure F.5 -- A12 Prepare bid 907

Figure F.6 -- A122 Create preliminary design 908

Figure F.7 -- A1222 Create preliminary general arrangements 909

Figure F.8 -- A12221 Define compartments 910

Figure F.9 -- A12222 Calculate capacities 911

Figure F.10 -- A12223 Estimate weight 912

Figure F.11 -- A12224 Calculate stability and trim 913

Figure F.12 -- A2 Complete and approve ship design 914

Figure F.13 -- A21 Finalise and approve general arrangements 915

Figure F.14 -- A211 Finalise general arrangements 916

Figure F.15 -- A212 Approve general arrangements 917

Figure F.16 -- A2122 Check design against rules and regulations 918

Figure G.1 -- ARM diagram (1 of 23) 920

Figure G.2 -- ARM diagram (2 of 23) 921

Figure G.3 -- ARM diagram (3 of 23) 922

Figure G.4 -- ARM diagram (4 of 23) 923

Figure G.5 -- ARM diagram (5 of 23) 924

Figure G.6 -- ARM diagram (6 of 23) 925

Figure G.7 -- ARM diagram (7 of 23) 926
Figure G.8 -- ARM diagram (8 of 23) 927
Figure G.9 -- ARM diagram (9 of 23) 928
Figure G.10 -- ARM diagram (10 of 23) 929
Figure G.11 -- ARM diagram (11 of 23) 930
Figure G.12 -- ARM diagram (12 of 23) 931
Figure G.13 -- ARM diagram (13 of 23) 932
Figure G.14 -- ARM diagram (14 of 23) 933
Figure G.15 -- ARM diagram (15 of 23) 934
Figure G.16 -- ARM diagram (16 of 23) 935
Figure G.17 -- ARM diagram (17 of 23) 936
Figure G.18 -- ARM diagram (18 of 23) 937
Figure G.19 -- ARM diagram (19 of 23) 938
Figure G.20 -- ARM diagram (20 of 23) 939
Figure G.21 -- ARM diagram (21 of 23) 940
Figure G.22 -- ARM diagram (22 of 23) 941
Figure G.23 -- ARM diagram (23 of 23) 942
Figure H.1 -- AIM EXPRESS-G diagram application context 944
Figure H.2 -- AIM EXPRESS-G diagram product definition 945
Figure H.3 -- AIM EXPRESS-G diagram property definition 946
Figure H.4 -- AIM EXPRESS-G diagram shape aspect 947
Figure H.5 -- AIM EXPRESS-G diagram representation 948
Figure H.6 -- AIM EXPRESS-G diagram geometry and topology 949
Figure H.7 -- AIM EXPRESS-G diagram face based surface model 950
Figure H.8 -- AIM EXPRESS-G diagram topology 951
Figure H.9 -- AIM EXPRESS-G diagram point 952
Figure H.10 -- AIM EXPRESS-G diagram geometric orientation 953
Figure H.11 -- AIM EXPRESS-G diagram curve 954
Figure H.12 -- AIM EXPRESS-G diagram bounded curve 955
Figure H.13 -- AIM EXPRESS-G diagram surface curve 956
Figure H.14 -- AIM EXPRESS-G diagram surface 957

Figure H.15 -- AIM EXPRESS-G diagram elementary surface 958

Figure H.16 -- AIM EXPRESS-G diagram bounded surface 959

Figure H.17 -- AIM EXPRESS-G diagram action 960

Figure H.18 -- AIM EXPRESS-G diagram group 961

Figure H.19 -- AIM EXPRESS-G diagram approval 962

Figure H.20 -- AIM EXPRESS-G diagram document 963

Figure H.21 -- AIM EXPRESS-G diagram person and organization 964

Figure H.22 -- AIM EXPRESS-G diagram person and organization assignment 965

Figure H.23 -- AIM EXPRESS-G diagram date and time 966

Figure H.24 -- AIM EXPRESS-G diagram units 967

Figure H.25 -- AIM EXPRESS-G diagram measures 968

Figure H.26 -- AIM EXPRESS-G diagram associations and attributes 969

Figure H.27 -- AIM EXPRESS-G diagram classification assignment 970

Figure H.28 -- AIM EXPRESS-G diagram identification assignment 971

Figure H.29 -- AIM EXPRESS-G diagram effectivity assignment and defined types 972

Figure K.1 -- Ship product model 980

Figure K.2 -- SCM framework 981

Tables Table 1 -- UoFs in conformance classes 715

Table 2 -- Conformance class elements 716

Table B.1 Short names 884

Table K.1 -- ARM measures and corresponding AIM measures and units 974