

ISO 15887:2013-06 (E)

Space data and information transfer systems - Lossless data compression

Contents	Page
1 INTRODUCTION.....	1-1
1.1 PURPOSE.....	1-1
1.2 SCOPE.....	1-1
1.3 APPLICABILITY	1-1
1.4 RATIONALE.....	1-1
1.5 BIT NUMBERING CONVENTION AND NOMENCLATURE	1-2
1.6 PATENTED TECHNOLOGIES.....	1-2
1.7 REFERENCES	1-3
2 OVERVIEW.....	2-1
2.1 GENERAL.....	2-1
2.2 THE SOURCE CODER	2-1
2.3 PACKETIZATION OF CODED DATA	2-3
2.4 ERROR CONTROL	2-3
3 ADAPTIVE ENTROPY CODER.....	3-1
3.1 CODE SPECIFICATION	3-1
3.2 FUNDAMENTAL SEQUENCE	3-2
3.3 SAMPLE SPLITTING.....	3-2
3.4 LOW ENTROPY OPTIONS	3-3
3.5 NO COMPRESSION.....	3-4
3.6 CODE SELECTION.....	3-4
4 PREPROCESSOR.....	4-1
4.1 PREPROCESSOR FUNCTION.....	4-1
4.2 PREDICTORS	4-1
4.3 REFERENCE SAMPLE.....	4-2
4.4 PREDICTION ERROR MAPPER	4-2
5 DATA FORMAT	5-1
5.1 LOSSLESS DATA STRUCTURES.....	5-1
5.2 PACKET FORMAT	5-4
6 COMPRESSION IDENTIFICATION PACKET (OPTIONAL).....	6-1
6.1 COMPRESSION IDENTIFICATION PACKET STRUCTURE.....	6-1
6.2 CIP PRIMARY HEADER.....	6-1
6.3 PACKET DATA FIELD.....	6-2

<u>Section</u>	<u>Page</u>
ANNEX A SECURITY, SANA, AND PATENT CONSIDERATIONS (INFORMATIVE)	A-1
ANNEX B GLOSSARY OF ACRONYMS AND TERMS (INFORMATIVE).....	B-1
ANNEX C INFORMATIVE REFERENCES (INFORMATIVE)	C-1

Figure

2-1 Schematic of the Source Coder.....	2-1
3-1 The Adaptive Entropy Coder with a Preprocessor.....	3-1
3-2 Split-Sample Format	3-3
4-1 A Preprocessor	4-1
4-2 Preprocessor Using a Unit-Delay Predictor	4-2
5-1 CDS Format When Sample-Splitting Option Is Selected	5-2
5-2 CDS Format When No-Compression Option Is Selected.....	5-3
5-3 CDS Format When Zero-Block Option Is Selected.....	5-3
5-4 CDS Format When the Second-Extension Option Is Selected	5-4
5-5 Packet Format for <i>l</i> CDSes	5-4
6-1 Compression Identification Packet Structure.....	6-1
6-2 Source Configuration Field.....	6-4

Table

3-1 Fundamental Sequence Codewords As a Function of the Preprocessed Samples.....	3-2
3-2 Zero-Block Fundamental Sequence Codewords As a Function of the Number of Consecutive All-Zeros Blocks.....	3-4
5-1 Selected Code Option Identification Key	5-1