

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