

## About This Standard

**Current Status** *Emerging*

**Standard Identifier** MISB RP 0705.2, v1.1

### **Title of Standard**

LVSD Compression Profile, Version 1.1, December 9, 2008

### **Standards History**

Introduced to Registry	Date Emerging	Date Mandated	Last Status Update	Last Status Review	Inactive/Retired
2009-07-30	2009-07-30	n/a	2009-07-30	2009-07-30	n/a

### **Replaced**

[MISB Recommended Practice 0705.1, version 1.0](#)

### **Standards Body**

[MISB](#)

[Broken Link?](#)

### **URL to Access or Acquire**

<http://www.gwg.nga.mil/misb/>

### **Working Group**

**Primary Owner** Geospatial Intelligence (GWG)  
**Secondary Interest** No Secondary Interest

### **Service Area**

GEOINT: Motion Imagery

### **KIPs**

No KIP Found

### **Standard Applicability**

#### **2009-07-30**

This standard is applicable to the compression of Wide Area Persistent Surveillance imagery. It is intended for still imagery or frame-based video compression of large frame imagery using JPEG 2000. Several current programs can leverage this standard. The standard is also available/applicable to DoD/IC programs that use NITF 2.1 as an image format. Competing standards would include other JPEG 2000 profiles defined within the BIIF profile of JPEG 2000 along with the compression profile found within STANAG 7023.

### **Standard Abstract**

#### **2009-07-30**

LVSD (Large Volume Streaming Data) is a new NATO designation for sensors that collect large arrays of image samples. These arrays may be comprised of 10 Mpixel per image frame upwards to 1 Gpixel per frame and possibly larger. LVSD systems are typically operated in a persistent mode. Imagery is collected from the camera(s) at rates from one frame-per-second (1fps) and faster. Collections may last several hours which leads to a large volume of data being collected. JPEG 2000 has been selected as a method to compress LVSD data because it provides multi-resolution and region-of-interest compression. The LPJE (LVSD Preferred JPEG 2000 Encoding) profile supports the performance requirements of LVSD systems. LPJE is a superset of the currently defined JPEG 2000 profiles NPJE (NSIF Preferred JPEG 2000 Encoding) and EPJE (Exploitation Preferred JPEG 2000 Encoding) contained within the BIIF Profile of JPEG 2000 (BPJ2K01.00). The LPJE profile offers a wider range of compression options than either the NPJE or EPJE profiles. It serves as an encoding profile for both hardware-based and software-based compression systems. LPJE compliant systems will be able

to interpret NPJE- and EPJE-compliant data in addition to their own. LPJE is intended for the compression of literal imagery and frame-based compressed motion imagery, within the confines of STANAG 4609. It is available as an optional profile for use within NSIF/NITF as well.

### **Profiling Questions**

- GEOINT: Motion Imagery**
- Does your system need to compress LVSD, WALF or WAS/WAPS imageries or use JPEG 2000 profiles?

### **Products Incorporating This Standard**

The following companies produce implementations compliant with the standard: ITT Industries IAS/A2 software as well as ENVI ZOOM PAR Government Systems GeoView 3.0 UNSW, Australia Kakadu Software, used in several JPEG 2000 DoD/IC implementations Aware Inc. JPEG2000 SDK

### **Relevant Information**

This citation was authored by the GWG Motion Imagery Standards Board (MISB).

### **Implementation Guidance**

Guidance for using/implementing this standard is available from the Motion Imagery Standards Board (MISB) [<http://www.gwg.nga.mil/misb/>].

### **Standard Selection Criteria**

#### **Interoperability/Supportability**

JPEG 2000 has been adopted as the image compression algorithm for use within the NSG. The BIIF profile of JPEG 2000 contains the two currently defined profiles of JPEG 2000 used within the NSG. These profiles however, do not meet the operational needs of currently deployed Wide Area Persistent Sensors. An additional profile, suitable for these systems is defined that will enable data interchange and provide vendors a standard to develop software and hardware systems against.

#### **Technical Maturity**

JPEG 2000 and the current BIIF profile of JPEG 2000 are technically mature and widely implemented. They have been adopted by NATO and the U.S. DoD/IC communities. The proposed amendment to the BIIF profile adds a new JPEG 2000 compression profile that is supported by several commercial software implementations, including those from ITT Industries, Aware Inc., and University of New South Wales, Australia. It is anticipated that a future version of the base BIIF profile of JPEG 2000 will be created that incorporates the proposed amendment as well as several other compression profiles currently under development. This will result in a new version of the base BIIF profile of JPEG 2000. Once this new document is created, the proposed amendment will become obsolete. The timeline for creating a new version of an ISO standard is typically at least one to two years. The earliest that the new BIIF profile of JPEG 2000 document can be created and ratified is perhaps Q2 of 2009. For this reason, the interim Version 1.1 incorporating the amendment is being proposed for the DISR until the new version of the BIIF profile of JPEG 2000 is finalized and approved.

#### **Public Availability**

The standard may be found at <http://www.gwg.nga.mil/misb/>. The document name is RP0705.2.

#### **Implementability**

The following companies produce implementations compliant with the standard: ITT Industries: IAS/A2 software as well as ENVI ZOOM PAR Government Systems: GeoView 3.0 UNSW, Australia: Kakadu Software, used in several JPEG 2000 DoD/IC implementations Aware Inc.: JPEG2000 SDK

**Authority**

The Motion Imagery Standards Board developed the profile and will maintain it. The MISB has also accepted responsibility for generating the new version of the BIIF profile of JPEG 2000 and will lead it through the ISO ratification process. The proposed amendment has been briefed to NATO and the NITF Technical Board for technical feedback.

**Standard Type** Military

**Standard Classification** Unclassified

**Keywords for Search** BIIF, GEOINT, JPEG 2000, JPEG2000, LVSD, MISB, MISP, NITF, WALF, WAPS, WAS, image compression, video compression