MISB MOTION IMAGERY STANDARDS BOARD	MISB TRM 1605
TECHNICAL REFERENCE MATERIAL	
NATO STANAG 4609 Edition 3 Mapped to NATO STANAG 4609 Edition 4	**27 October 2016**

1 Scope

This TRM defines the mapping of NATO STANAG 4609 Edition 3, and its corresponding NATO Allied Engineering Documentation Publication-8 (AEDP-8) Edition 3 standards to NATO STANAG 4609 Edition 4 standards and requirements as represented in MISP-2015.1. STANAG 4609 Edition 4 introduces a new structure of documents, where STANAG 4609 is now a cover document rather than a standalone document, which points directly to the U.S. Motion Imagery Standards Profile (MISP).

2 References

[1] NATO STANAG 4609: NATO Digital Motion Imagry Standard, Edition 4 (unpublished), Nov 2016.

[2] NATO AAP-03 Edition J Version 2, Nov 2011.

[3] NATO STANAG 4609: NATO Digital Motion Imagery Standard, Edition 3, Oct 2009.

[4] NATO AEDP-8: NATO Motion Imagery STANAG 4609 Implementation Guide, Edition 3, Dec 2009.

[5] MISB MISP-2015.1 Motion Imagery Standards Profile, Oct 2014.

3 Terms & Acronyms

AAP-03	Allied Administrative Publication-03
AEDP-8	Allied Engineering Documentation Publication-8
MISB	Motion Imagery Standards Board
MISP	Motion Imagery Standards Profile
NATO	North Atlantic Treaty Organization
STANAG	Standardization Agreement

4 Revision History

Revision	Date	Summary of Changes
TRM 1605	10/27/2016	Initial release

5 STANAG 4609 to MISP-2015.1 Mapping

Until STANAG 4609 Edition 4 [1] all previous versions of STANAG 4609 and AEDP-8 were standalone documents, which referenced standards defined by the U.S. Motion Imagery Standards Board (MISB), Society of Motion Picture & Television Engineers (SMPTE), International Organization of Standardization/International Electrotechnical Commission (ISO/IEC), International Telecommunication Union (ITU), etc. The intent has been for STANAG 4609 to be technically equivalent to the U.S. Motion Imagery Standards Profile (MISP). However, keeping the documents in sync resulted in duplicate documentation, excessive maintenance costs, and invariably minor differences.

The NATO Standardization Office (NSO) published NATO Allied Administrative Publication-03 (AAP-03) Edition J Version 2 [2] in November 2011 entitled "Production, Maintenance and Management of NATO Standardization Documents." AAP-03 defines a STANAG as a standalone document, distinct from a standard, which covers one or several subject-related Allied standards. This guidance, in conjunction with an initiative within the MISB to rewrite the MISP to be requirements-based and sensor locale agnostic, provided an opportunity to condense all Motion Imagery guidance for the U.S. and NATO into one unified set of documents. This allows the STANAG to directly reference the MISP and its supporting standards. MISP-2015.1 was the initial MISP version published with this new organization, and STANAG 4609 Edition 4 directly cites MISP-2015.1 as the Non-NATO Standard for Motion Imagery.

This TRM provides the mapping of STANAG 4609 Edition 3 [3] / AEDP-8 Edition 3 [4] to MISP-2015.1 [5]. Table 1 maps all cited standards from STANAG 4609 Edition 3, and Table 2 maps the AEDP-8 Edition 3 to standards or requirements in STANAG 4609 Edition 4 resulting from the re-architecture of the STANAG between the two STANAG editions.

Table 1: Mapping of STANAG 4609 Edition 3 standards to STANAG 4609 Edition 4 standards or requirements

Item	Ed. 3	Doc	Name
1	STANAG	ST 0202	Standard Definition Digital Motion Imagery Sampling Structure
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-06	Motion Imagery in digital form shall remain in digital form.	
	MISP-2015.1-18	The Motion Imagery sampling format for Standard Definition (SD) Motion Imagery shall be defined by ITU-R BT.601.	
Item	**Ed. 3**	**Doc**	**Name**
2	STANAG	ST 0219	Analog Video Migration

	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-05	Legacy Motion Imagery in analog form shall be converted into digital form.	
	MISP-2015.1-06	Motion Imagery in digital form shall remain in digital form.	
	MISP-2015.1-17	Analog Motion Imagery that conforms to NTSC or PAL formats and is converted to digital shall comply with ITU-R BT.601 component (4:2:2).	
	MISP-2015.1-18	The Motion Imagery sampling format for Standard Definition (SD) Motion Imagery shall be defined by ITU-R BT.601.	
Item	**Ed. 3**	**Doc**	**Name**
3	STANAG	ST 0211	Progressively Scanned Enhanced Definition Digital Motion Imagery
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-06	Motion Imagery in digital form shall remain in digital form.	
	MISP-2015.1-19	The Motion Imagery sampling format for Enhanced Definition (ED) Motion Imagery shall be defined by ITU-R BT.1358.	
Item	**Ed. 3**	**Doc**	**Name**
4	STANAG	ST 0210	High Definition Television Systems (HDTV)
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-06	Motion Imagery in digital form shall remain in digital form.	
	MISP-2015.1-20	The Motion Imagery sampling format for 1280x720 progressive-scan High Definition (HD) Motion Imagery shall be defined by SMPTE ST 296.	
	MISP-2015.1-21	The Motion Imagery sampling format for 1920x1080 progressive-scan High Definition (HD) Motion Imagery shall be defined by SMPTE ST 274.	
Item	**Ed. 3**	**Doc**	**Name**
5	STANAG	ST 0203	Digital Motion Imagery, Uncompressed Baseband Signal Transport & Processing
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-23	The Container format for Standard Definition (SD) Class 0 Motion Imagery for source aspect ratios of 4:3 and 16:9 shall be defined by SMPTE ST 259 Levels C and D respectively.	
	MISP-2015.1-24	The Container format for Enhanced Definition (ED) 525- and 625-line Class 0 Motion Imagery over SMPTE ST 292-1 shall be defined by SMPTE ST 349.	
	MISP-2015.1-25	The Container format for High Definition (HD) Class 0 Motion Imagery up to 1080p at 60 frames per second shall be defined by SMPTE ST 424. The Container format for High Definition Class 0 Motion Imagery up to 1080p at 30 frames per second may use SMPTE ST 292-1.	
	MISP-2015.1-26	The Container format for High Definition (HD) Class 0 Motion Imagery up to 1080p at 60 frames per second shall be defined by SMPTE ST 424 with signal mapping specified in SMPTE ST 425.	

Item	Ed. 3	Doc	Name
6	STANAG	ST 0201	Digital Motion Imagery Compression Systems
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-32	Class 1 Motion Imagery compressed using H.264/AVC shall comply with ITU-T Rec. H.264.	
	MISP-2015.1-33	Class 1 Motion Imagery compressed using H.264/AVC shall use Baseline, Main or High Profile.	
	MISP-2015.1-34	Class 1 Motion Imagery compressed using MPEG-2 shall comply with ISO/IEC 13818-2.	
	MISP-2015.1-35	Class 1 Motion Imagery compressed using MPEG-2 shall use Main or High Profile.	
	MISP-2015.1-36	At least one Point of Interoperability (POI) (Table 6) shall be supported by a Class 1 Motion Imagery [H.264/AVC] Encoder.	
	Notes		
	STANAG 4609 Ed. 3 ST 0201 identified specific profiles & levels for MPEG-2 for SD, ED, & HD while only identifying H.264 as a viable alternative without further guidance. The MISP-2015.1 Requirements 32-36 modify this direct guidance to be less restrictive. This modification is not expected to result in any compatibility issues.		
Item	**Ed. 3**	**Doc**	**Name**
7	STANAG	ST 0204	Use of MPEG-2 System Streams
	Notes		
	STANAG 4609 Ed. 3 ST 0204 mandates MPEG-2 Transport Stream for streaming applications for NATO. MISP-2015.1 identifies MPEG-2 Transport Stream as a valid Container and levies requirements on constructing a compliant MPEG-2 Transport Stream. Therefore, there is no equivalent mandate to use, but requirements if chosen for use.		
Item	**Ed. 3**	**Doc**	**Name**
8	STANAG	ST 0223	Compressed High Definition Advanced Television (ATV) and Associated Motion Imagery Systems
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-36	At least one Point of Interoperability (POI) (Table 6) shall be supported by a Class 1 Motion Imagery [H.264/AVC] Encoder.	
	MISP-2015.1-38	A Class 1 Motion Imagery Decoder shall support the decoding of Class 1 Motion Imagery compressed using MPEG-2 Main Profile at Main and High Level.	
	MISP-2015.1-39	A Class 1 Motion Imagery Decoder for MPEG-2 shall fully meet the compliance requirements of ISO/IEC 13818-2 per Profile and Level.	
	MISP-2015.1-40	A Class 1 Motion Imagery Decoder shall support the decoding of Class 1 Motion Imagery compressed using H.264/AVC Baseline Profile, Main Profile and High Profile up to and including Level 4.	
	MISP-2015.1-41	A Class 1 Motion Imagery Decoder for H.264/AVC shall fully meet the compliance requirements of ISO/IEC 14496-10 per Profile and Level.	

	Notes		
	STANAG 4609 Ed. 3 states: MP@HL shall be used for HD; states all systems shall decode / process / display all sampling structures & temporal rates within MPEG-2 High Level; NATO origination, acquisition, production, manipulation & processing systems must generate at least one of 1280x720@60p,50p,30p,25p,24p w/ 16:9 Aspect Ratio or 1920x1080@30p,25p,24p w/ 16:9 Aspect Ratio; NATO origination, acquisition, production, manipulation & processing systems must generate at least one of 720x576@50p,25p,25i,24p w/ 16:9or4:3 Aspect Ratio, 720x480@60p,30p,30i,30i/1.001,24p w/ 16:9or4:3 Aspect Ratio or 640x480@60p,50p,30p,25p,24p w/ 4:3 Aspect Ratio. MISP-2015.1 considers the use of MPEG-2 encoding as legacy, and gives guidance called Points of Interoperability (POI) for H.264 encodings along with requirement MISP-2015.1-36, while still maintaining legacy POI for MPEG-2, but does contain a requirement for MPEG-2. The differences should not cause backwards compatibility issues, but additional requirements are levied which will impact new data producers & data consumers. **NOTE:** MISP-2015.1-40 requirements incorrectly stated H.264 Level 4.1 in MISP-2015.1. This was subsequently changed in the dot 2 version, and so has been changed here for consistency.		
Item	**Ed. 3**	**Doc**	**Name**
9	STANAG	ST 0206	Motion Imagery Still Frames
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-16	Digital Images extracted from Motion Imagery as a NITF (National Imagery Transmission Format)/NSIF (NATO Secondary Imagery Format) shall comply with MIL-STD-2500C / STANAG 4545 respectively.	
Item	**Ed. 3**	**Doc**	**Name**
10	STANAG	ST 0802	Advanced Motion Imagery
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-51	Class 2 Motion Imagery compressed using JPEG2000 shall comply with ISO/IEC BIFF Profile BPJ2K.	
	MISP-2015.1-54	A Class 2 Motion Imagery Decoder for JPEG2000 shall meet the compliance requirements of ISO/IEC 15444-4.	
	MISP-2015.1-57	Class 2 Motion Imagery placed into a NITF (National Imagery Transmission Format) / NSIF (NATO Secondary Imagery Format) shall comply with MIE4NITF.	
	Notes		
	MISP-2015.1 levies two additional requirements not in STANAG 4609 Ed. 3 regarding LVMI data; First, a requirement on JPEG2000 decoders used with LVMI data, and second, a requirement to use NITF 2.1 (NSIF) based profile (MIE4NITF) as a container for LVMI data.		
Item	**Ed. 3**	**Doc**	**Name**
11	STANAG	ST 0803	Infrared Motion Imagery
	Ed. 4		
	Req. Number	**Requirement Name**	

	MISP-2015.1-37	When Infrared Motion Imagery with a Pixel Value Range greater than 8 bits is converted into Class 1 Motion Imagery and compressed using MPEG-2 or H.264/AVC it shall comply with MISB ST 0404.
	MISP-2015.1-38	A Class 1 Motion Imagery Decoder shall support the decoding of Class 1 Motion Imagery compressed using MPEG-2 Main Profile at Main and High Level.
	MISP-2015.1-39	A Class 1 Motion Imagery Decoder for MPEG-2 shall fully meet the compliance requirements of ISO/IEC 13818-2 per Profile and Level.
	MISP-2015.1-40	A Class 1 Motion Imagery Decoder shall support the decoding of Class 1 Motion Imagery compressed using H.264/AVC Baseline Profile, Main Profile and High Profile up to and including Level 4.
	MISP-2015.1-41	A Class 1 Motion Imagery Decoder for H.264/AVC shall fully meet the compliance requirements of ISO/IEC 14496-10 per Profile and Level.
	MISP-2015.1-52	Class 2 Motion Imagery compressed with H.264/AVC shall use High 4:2:2 Profile (Hi422P) or High 4:4:4 Predictive Profile (Hi444PP).
	MISP-2015.1-53	Infrared Class 2 Motion Imagery compressed with H.264/AVC shall comply with MISB ST 0404.
	MISP-2015.1-55	A Class 2 Motion Imagery Decoder for H.264/AVC shall support the decoding of High 4:2:2 Profile (Hi422P) and High 4:4:4 Predictive Profile (Hi444PP) up to and including Level 4.2.
	MISP-2015.1-56	A Class 2 Motion Imagery Decoder for H.264/AVC shall fully meet the compliance requirements of ISO/IEC 14496-10 per Profile and Level.
	Doc	**Name**
	ST 0404.1	Compression of Infrared Motion Imagery, Feb 2014
	Notes	
	The Motion Imagery Systems Matrix (MISM) for each phenomenology has been deprecated in MISP-2015.1. It is replaced by the Points of Interoperability which are more aligned with ISO/ITU testing requirements, which is generic to phenomenology characteristics. In addition, MISB ST 0404.1 identifies the endorsed methodologies for handling the high bit depth data associated with IR data and mappings into truncated data ranges, as well as encoding profiles, which are discussed in MISP-2015.1 as Class 1. The handling of IR data at native rates up to 12 bits is also discussed in MISB ST 0404.1, as well as in MISP-2015.1 as Class 2 Motion Imagery. This modification is not expected to result in any compatibility issues. **NOTE:** MISP-2015.1-40 requirements incorrectly stated H.264 Level 4.1 in MISP-2015.1. This was subsequently changed in the dot 2 version, and so has been changed here for consistency.	

Item	**Ed. 3**	**Doc**	**Name**
12	STANAG	ST 0212	Motion Imagery Metadata Dictionary Structure
	Ed. 4		
	Doc	**Name**	
	ST 0607.3	MISB Metadata Registry and Processes, Feb 2014	
	Notes		

	MISP-2015.1 supports SMPTE ST 335 & SMPTE ST 336 as metadata constructs. MISB ST 0607.3: MISB Metadata Registry and Processes, Oct 2014 defines the MISB endorsed metadata registry, structure and organization. This modification is not expected to result in any compatibility issues.		
Item	**Ed. 3**	**Doc**	**Name**
13	STANAG	ST 0213	Data Encoding using Key-Length-Value
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-07	KLV (Key-Length-Value) Metadata shall be encoded in accordance with SMPTE ST 336.	
	MISP-2015.1-08	KLV Metadata shall be formatted in accordance with MISB ST 0107.	
	Doc	**Name**	
	ST 0107.2	Bit and Byte Order for Metadata in Motion Imagery Files and Streams, Feb 2014	
	Notes		
	AEDP-8 Ed.3 listed requirements in Annex D: Compliance Test & Certification. Within Annex D, it explicitly specified the bit and byte ordering, which is equivalent to MISB ST 0107. The addition of Req. MISP-2015.1-08 is not expected to result in any compatibility issues.		
Item	**Ed. 3**	**Doc**	**Name**
14	STANAG	ST 0207	Metadata Dictionary
	Ed. 4		
	Doc	**Name**	
	ST 0807.14	MISB KLV Metadata Registry	
Item	**Ed. 3**	**Doc**	**Name**
15	STANAG	ST 0207	Embedded Time Reference for Motion Imagery Systems
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-43	Class 1 Motion Imagery compressed using H.264/AVC shall contain a Precision Time Stamp in accordance with MISB ST 0604.	
	MISP-2015.1-44	Class 1 Motion Imagery compressed using MPEG-2 shall contain a Precision Time Stamp in accordance with MISB ST 0604.	
	Doc	**Name**	
	ST 0603.2	Common Time Reference for Digital Motion Imagery Using Coordinated Universal Time (UTC), Feb 2014	
	Notes		
	STANAG 4609 Ed. 3 ST 0208 states SMPTE ST 12-1 shall be the NATO STANDARD for time annotation & embedded time reference for MI, and SMPTE ST 309 shall be the NATO STANDARD for precision time and date embedding into SMPTE ST 12-1 time-code data streams. Furthermore, within SMPTE ST 309, NATO will use the Modified Julian Date (MJD) encoding format and Coordinated Universal Time (UTC) as time zone format. MISB ST 0603.2 states UTC shall be time reference source for deriving time stamps in ST 0603, the Precision Time Stamp shall be derived from UTC, Precision Time Stamp shall be a 64-bit UINT representing Microseconds since 1970, Commercial Time Stamp (CTS), also known as SMPTE ST 12-1, shall be derived from UTC, CTS shall represent the identical Precision Time		

	Stamp within resolution of the CTS, and when the CTS is used it shall be represented in accordance with SMPTE ST 12-2. MISB ST 0603.2 has dropped the use of MJD and only requires UTC represented as Precision Time Stamp but also allows it to be represented as CTS. The elimination of MJD is not expected to result in any compatibility issues as no implementations are known to use MJD. MISB ST 0603.2 and subsequently MISP-2015.1 requires Precision Time Stamp (microseconds since 1970) to be the embedded time reference and not SMPTE 12-1 is an issue for backwards compatibility. However, it is unknown how many systems only use SMPTE 12-1 as the embedded time as opposed to Precision Time Stamp, so the extent of impact is unknown as well.		
Item	**Ed. 3**	**Doc**	**Name**
16	STANAG	ST 0214	Time Code Embedding
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-29	Class 0 Motion Imagery carried by a SMPTE ST 292-1 or SMPTE ST 424 Container shall contain a Precision Time Stamp in accordance with MISB ST 0605.	
	Doc	**Name**	
	ST 0605.4	Time Stamping and Metadata Transport in High Definition Uncompressed Motion Imagery, Feb 2014	
	Notes		
	STANAG 4609 Ed. 3 ST 0214 states D-VITC shall be embedded on digital video line 9 of all component and bit-serial interface systems. Furthermore, SMPTE Ancillary Time Code may be used instead of D-VITC. MISB ST 0605.4 states Precision Time Stamp, Commercial Time Stamp, and KLV metadata shall only be encoded into the VANC space, a VANC Precision Time Stamp representing UTC of the start of the active motion imagery frame shall be present in the SMPTE RP214 packet in the VANC space of each uncompressed motion imagery frame, the VANC Precision Time Stamp Pack shall be the first SMPTE ST 291 packet on Line 9 of the video frame, when available a Commercial Time Stamp representing the relative UTC of the start of the active motion imagery frame shall be present in SMPTE ST 12-2 packet in the VANC space of each uncompressed motion imagery frame, and when present the Commercial Time Stamp shall be the first SMPTE ST 291 packet on the Line 14 of the motion imagery frame. MISB ST 0605 deprecates the use of D-VITC in lieu of a Precision Time Stamp within digital uncompressed motion imagery, which may impact systems that only support D-VITC. Conclusion: The number of systems that only support D-VITC is estimated to be very low, so the impact of this change should be minimal across the enterprise.		
Item	**Ed. 3**	**Doc**	**Name**
17	STANAG	ST 0215	Time Reference Synchronization
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-03	All Motion Imagery shall include a Precision Time Stamp in accordance with MISB ST 0603.	
	MISP-2015.1-04	Any Metadata that contains a time stamp element shall include a Precision Time Stamp in accordance with MISB ST 0603.	
	Doc	**Name**	
	ST 0603.2	Common Time Reference for Digital Motion Imagery Using Coordinated Universal Time (UTC), Feb 2014	

	Notes		
	STANAG 4609 Ed. 3 references MISB RP 0603, Aug 2006. MISP-2015.1 references MISB ST 0603.2, Feb 2014. The summary of changes are as follows: **ST 0603.1:** Removed MI Time Synchronization Methods (Section 5) as it contained no real substance; removed equations on Reformatting UTC to SMPTE 12-1 as duplicative of SMPTE EG 40; removed Annex B Metadata Timing Examples as it contained no real sustenance; removed Annex C Proof-of-Concept Demonstration as it contained no real sustenance; added definitions of Precision Time Stamp & Commercial Time Stamp; and editorial corrections. **ST 0603.2:** Incorporated MISB ST 9715 into ST 0603 & deprecated ST 9715; applied EARS to highlight all requirements; modified guidelines for Commercial Time Stamp; added definitions and editorial corrections. **Conclusion:** The overall premise of ST 0603 has remained intact, but there are several differences between RP 0603 and ST 0603.2 which could result in potential backwards compatibility issues; however, the overall impact should be low-to-minimal.		
Item	**Ed. 3**	**Doc**	**Name**
18	STANAG	ST 0218	Timing Reconciliation Universal Metadata Set for Digital Motion Imagery
	Notes		
	DEPRECATED: STANAG ST 0218 (equivalent to MISB RP 0103.1) was developed to enhance the accuracy of the time stamp associated with metadata within a stream / file where only capture time of the frame is available (e.g. MISB EG 00104.5). MISB RP 0103.1 allows users to describe the potential difference in time between the stream / file / frame timestamp and the metadata capture / sampling timestamp associated with an element or set / pack of metadata. As this approach has been overcome by more recent metadata structures (ST 0601, ST 0902), MISB RP 0103.1 was deprecated from use on 14 May 2009. This should have minimal to no impact on backwards compatibility as no known implementations exist.		
Item	**Ed. 3**	**Doc**	**Name**
19	STANAG	ST 0216	Packing KLV Packets into SMPTE 291 Ancillary Data Packets
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-30	Class 0 Motion Imagery Metadata inserted into SMPTE ST 292-1or SMPTE ST 424 shall comply with MISB ST 0605.	
	Doc	**Name**	
	ST 0605.4	Time Stamping and Metadata Transport in High Definition Uncompressed Motion Imagery, Feb 2014	
Item	**Ed. 3**	**Doc**	**Name**
20	STANAG	ST 0217	Packing KLV Packets into MPEG-2 Systems Streams
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-48	Class 1 Motion Imagery encapsulated in a MPEG-2 Transport Stream Container shall comply with MISB ST 1402.	
	MISP-2015.1-49	Security metadata encapsulated in a MPEG-2 Transport Stream Container shall be inserted into only one of the two carriage mechanisms available: the Synchronous	

		Stream Multiplex Method or the Asynchronous Stream Multiplex Method in accordance with MISB ST 1402.	
	Doc	**Name**	
	ST 1402	MPEG-2 Transport of Compressed Motion Imagery and Metadata, Feb 2014	
Item	**Ed. 3**	**Doc**	**Name**
21	STANAG	ST 0224	Bit and Byte Order for Metadata in Motion Imagery Files and Streams
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-08	KLV Metadata shall be formatted in accordance with MISB ST 0107.	
	Doc	**Name**	
	ST 0107.2	Bit and Byte Order for Metadata in Motion Imagery Files and Streams, Feb 2014	
Item	**Ed. 3**	**Doc**	**Name**
22	STANAG	ST 0209	Use of Closed Captioning for Core Metadata Legacy Analog Video Encoding
	Notes		
	DEPRECATED: STANAG ST 0209 specifies EIA-608 as the NATO STANDARD for legacy system analog video vertical interval metadata encoding using video line 21. MISP-2015.1 contains a deprecated requirement, MISP-2015.1-78 (Deprecated), which states "Encoding metadata on Line 21 of the vertical interval of legacy system video shall be in accordance with CEA-608 and CEA-708." As a deprecated requirement, it is no longer recommended for new implementations. However, a technology underpinning a deprecated standard or requirement may be actively fielded; a period of time is afforded before disallowing its use, which is done to maintain backward compatibility. Assuming a 5-10 year technology refresh cycle, at that time a deprecated standard or requirement will move to the status of retired. Once retired, the guidance is no longer required to be supported and should not be used in new implementations.		
Item	**Ed. 3**	**Doc**	**Name**
23	STANAG	ST 0801	Unmanned Aerial System (UAS) Datalink Local Metadata Set
	Ed. 4		
	Doc	**Name**	
	ST 0601.8	UAS Datalink Local Set, Oct 2014	
	Notes		
	STANAG 4609 Ed. 3 references MISB ST 0601.2, Oct 2008. MISP-2015.1 references ST 0601.8, Oct 2014. The summary of changes are as follows: **ST 0601.3:** Added Local Set nodes for MISB ST 0806 & MISB ST 0903; corrected conversion formula for tags 45 & 46; added Ellipsoid Height versions for Sensor & Alternate Platform heights; revised Generic Flag Data (tag 47) to include value representing the measured / calculated state of Slant Range (tag 21); editorial corrections **ST 0601.4:** Removed REQ-3.04 & references to CRC as tag 1 represents a checksum; added REQ-4.03 metadata items containing TBD within their descriptions are considered informative; corrected referenced UDS key for Alternate Platform Ellipsoid Height (tag 76); editorial corrections & clarifications		

<table>
<tr><td></td><td colspan="3"><u>ST 0601.5:</u> Added REQ-2.08 for all ST 0601 decoders to accept Universal Keys with any version number defined by byte 8; REQ-3.04 now mandates the Version Number (tag 65); corrected referenced UDS key for Checksum (tag 1); added an "Image Invalid" flag to Generic Flag Data 01 (tag 47), added Image Corner Pixel Pack (tag 81); editorial corrections & clarifications
ST 0601.6: Added MIIS Core Identifier (tag 94); deprecated REQ-2.08 as difficult to enforce & is covered by REQ-1.02; added REQ-4.04 for systems to use full-range metadata representations over range-limited encodings when both types are included within same metadata packet; editorial corrections & clarifications
<u>ST 0601.7:</u> Added SAR MI Metadata LS (tag 95); added REQ-1.20 for systems to use Height Above Ellipsoid metadata representations over Mean Sea Level encodings when both types are included within same metadata packet; editorial corrections & clarifications
<u>ST 0601.8:</u> No technical changes; only reformatting to new template
<u>Conclusion:</u> Based on these changes, there should not be backwards compatibility issues, but additional requirements / capabilities are levied which will impact new producers & data consumers.</td></tr>
<tr><th>Item</th><th>Ed. 3</th><th>Doc</th><th>Name</th></tr>
<tr><td rowspan="8">24</td><td>STANAG</td><td>N/A</td><td>STANAG 4586 and STANAG 4609 Minimum KLV Metadata Elements (Subset of UAS Local Metadata Set)</td></tr>
<tr><th>Ed. 4</th><td colspan="2"></td></tr>
<tr><th>Req. Number</th><th colspan="2">Requirement Name</th></tr>
<tr><td>MISP-2015.1-75</td><td colspan="2">Motion Imagery shall contain Motion Imagery Sensor Minimum Metadata in accordance with MISB ST 0902.</td></tr>
<tr><th>Doc</th><th colspan="2">Name</th></tr>
<tr><td>ST 0902.4</td><td colspan="2">Motion Imagery Sensor Minimum Metadata Set, Oct 2014</td></tr>
<tr><th colspan="3">Notes</th></tr>
<tr><td colspan="3">STANAG 4609 Ed. 3 references elements from MISB ST 0601.2 that are mandatory for implementation as agreed to by STANAG 4586 & STANAG 4609 CSTs. MISP-2015.1 references MISB ST 0902.4 as the authoritative document for the mandatory minimum metadata set of elements from ST 0601. The technical differences between STANAG 4609 Ed. 3 and ST 0902.4 are: original elements for platform roll & pitch angles were truncated for efficiency but new tags that allow for full ranges were added with rules on which to use, original elements for altitude were MSL based but new tags allow for HAE were added with rules on which to use, added Motion Imagery Core Identifier (tag 94) , specified security tag elements 48/1, 48/2, 48/3, 48/4, 48/5, 48/6, 48/12, 48/13 & 48/22 of the security LS as opposed to leaving open. Potential issues for backward compatibility are minimal, but additional requirements are levied which will impact new data producers & data consumers.</td></tr>
<tr><th>Item</th><th>Ed. 3</th><th>Doc</th><th>Name</th></tr>
<tr><td rowspan="8">25</td><td>STANAG</td><td>ST 0901</td><td>Security Metadata Universal Set for Digital Motion Imagery</td></tr>
<tr><th>Ed. 4</th><td colspan="2"></td></tr>
<tr><th>Req. Number</th><th colspan="2">Requirement Name</th></tr>
<tr><td>MISP-2015.1-73</td><td colspan="2">Motion Imagery shall include Security Metadata in accordance with MISB ST 0102.</td></tr>
<tr><th>Doc</th><th colspan="2">Name</th></tr>
<tr><td>ST 0102.11</td><td colspan="2">Security Metadata Universal and Local Sets for Digital Motion Imagery, Oct 2014.</td></tr>
<tr><th colspan="3">Notes</th></tr>
</table>

	STANAG 4609 Ed. 3 references MISB ST 0102.4, Dec 2007. MISP-2015.1 references ST 0102.11, Oct 2014. The summary of changes are as follows: **ST 0102.5:** Corrected reference Universal Label Key for local set; incorporated use of "//" after each classification value; incorporated use of "//" before each classifying country; and editorial corrections **ST 0102.6:** Mandated use of Object Country Coding Method element; mandated use of Object Country Code; and editorial corrections **ST 0102.7:** Allowed combinations of representations for Object Country Coding Method and editorial corrections **ST 0102.8:** Removed use of "Other" for Object Country Coding Method and added Normative & Informative text regarding use of "Mixed" country coding methods; and editorial corrections **ST 0102.9:** Removed use of STANAG 1059 Numeric; removed allowed use of Mixed country codes; added elements for Classifying Country and Releasing Instructions Country Coding Method Version Date & Object Country Coding Method Version Date; and editorial corrections **ST 0102.10:** Updated all references; added GENC country codes; applied EARS to highlight all requirements; reformatted document to new template; and editorial corrections **ST 0102.11:** Clarified release instructions to eliminate requirement for NATO systems / missions to place country code of originating country first in releasing instructions; and, updated Table 1 & Table 2 to leverage SMPTE ST 335:2012 regarding Default Lengths of strings being "stated" versus "normative" allowing strings to be as long as needed unless specifically stated by controlling dictionary **Conclusion:** Based on these changes, there should be only minimal backwards compatibility issues, but additional requirements / capabilities are levied which will impact new producers & data consumers.

Item	Ed. 3	Doc	Name
26	STANAG	ST 0802	Time Stamping Compressed Motion Imagery
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-43	Class 1 Motion Imagery compressed using H.264/AVC shall contain a Precision Time Stamp in accordance with MISB ST 0604.	
	MISP-2015.1-44	Class 1 Motion Imagery compressed using MPEG-2 shall contain a Precision Time Stamp in accordance with MISB ST 0604.	
	Doc	**Name**	
	ST 0604.3	Time Stamping Compressed Motion Imagery, Feb 2014	
	Notes		
	STANAG 4609 Ed. 3 references MISB ST 0604, Oct 2008. MISP-2015.1 references ST 0604.3, Feb 2014. The summary of changes are as follows: **ST 0604.1:** Added guidance for inserting asynchronous metadata into a transport stream which already carries asynchronous metadata; added guidance for inserting synchronous metadata into a transport stream which already carries synchronous metadata; and editorial corrections **ST 0604.2:** Added definitions for Sync/Async Metadata Multiplexing Methods; added requirements for timing information source; added requirements for PTS in MPEG-2 & H.264 streams; added requirements for sync & async metadata carriage methods; added Appendix to illustrate how to calculate PTS; and editorial corrections **ST 0604.3:** Revised to cover timestamping only & transport info moved to MISB ST 1402; removed requirement for Commercial Time Stamp; and included material from MISB ST 9708		

	Conclusion: The overall premise of ST 0604 has remained intact, but there are several differences between ST 0604 and ST 0604.3 which could result in potential backwards compatibility issues; however, the overall impact should be low to minimal.		
Item	**Ed. 3**	**Doc**	**Name**
27	STANAG	ST 0205	Use of MPEG-2 System Streams for Simple File Applications
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-11	Only those Containers specified in this document (MISP) shall be used for Class 0 Motion Imagery, Class 1 Motion Imagery, and Class 2 Motion Imagery.	
	MISP-2015.1-48	Class 1 Motion Imagery encapsulated in a MPEG-2 Transport Stream Container shall comply with MISB ST 1402.	
	Doc	**Name**	
	ST 1402	MPEG-2 Transport of Compressed Motion Imagery and Metadata, Feb 2014	
	Notes		
	STANAG 4609 Ed. 3 ST 0205 allows the use of MPEG-2 Transport Streams or MPEG-2 Program Streams for simple file applications, and states all NATO systems must receive & decode both MPEG-2 Transport Streams & MPEG-2 Program Streams. MISP-2015.1 identifies MPEG-2 Transport Stream as a valid Container, and levies requirements on constructing a compliant MPEG-2 Transport Stream. Therefore, there is no equivalent mandate to use, but requirements if chosen for use. MISP-2015.1 does not identify MPEG-2 Program Stream as a valid Container, so this is a potential backward compatibility issue. The number of NATO systems that use MPEG-2 Program Stream is unknown, so the impact is undetermined at this time.		
Item	**Ed. 3**	**Doc**	**Name**
28	STANAG	ST 0902	Advanced File Format
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-12	For file exchange, operational patterns 1a (OP-1a) and 1b (OP-1b) as per SMPTE ST 378 and SMPTE ST 391, respectively, shall be used.	
	MISP-2015.1-13	Motion Imagery, Metadata and Audio shall use the method of Frame-based mapping within the generic container in accordance with SMPTE ST 379-1 and SMPTE ST 381-1.	
	MISP-2015.1-14	All data constraints for a MXF file shall comply with MISB ST 0301.	
	MISP-2015.1-15	Although possibly not interpreted, a MXF player shall accept dark (unknown) data.	
	Doc	**Name**	
	ST 0301.5	MISB Profile for Aerial Surveillance and Photogrammetry Applications (ASPA), Jul 2010	
	Notes		
	STANAG 4609 Ed. 3 references MISB ST 0301.4, May 2009. MISP-2015.1 references ST 0301.5, Jul 2010. The summary of changes is as follows: **ST 0301.5:** Added support for MISB ST 0601 & MISB ST 0102; and editorial corrections		

	Conclusion: There should be no backwards compatibility issues but additional capabilities are levied which will impact new producers & data consumers.

Table 2: Mapping of AEDP-8 Edition 3 standards to STANAG 4609 Edition 4 standards or requirements

Item	Ed. 3	Doc	Name
29	AEDP-8	RP 0220	Motion Imagery System Matrix
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-36	At least one Point of Interoperability (POI) (Table 6) shall be supported by a Class 1 Motion Imagery [H.264/AVC] Encoder.	
	MISP-2015.1-38	A Class 1 Motion Imagery Decoder shall support the decoding of Class 1 Motion Imagery compressed using MPEG-2 Main Profile at Main and High Level.	
	MISP-2015.1-39	A Class 1 Motion Imagery Decoder for MPEG-2 shall fully meet the compliance requirements of ISO/IEC 13818-2 per Profile and Level.	
	MISP-2015.1-40	A Class 1 Motion Imagery Decoder shall support the decoding of Class 1 Motion Imagery compressed using H.264/AVC Baseline Profile, Main Profile and High Profile up to and including Level 4.	
	MISP-2015.1-41	A Class 1 Motion Imagery Decoder for H.264/AVC shall fully meet the compliance requirements of ISO/IEC 14496-10 per Profile and Level.	
	Notes		
	AEDP-8 Ed. 3 and previous versions of the MISP contain Motion Imagery System Matrices (MISM). The MISM tables were an attempt to define broad categories of Motion Imagery Systems using Levels in order to provide a common framework to describe the fundamental technical capabilities of Motion Imagery Systems. MISM tables existed for EO, IR, and LVMI. However, the MISM tables were fraught with ambiguous or nominal values not reflective of the wide performance capabilities of encodings as technology evolved over time. In an effort to standardize encoding performance and combine all phenomenologies into one table, MISP-2015.1 defines Points of Interoperability (POI) for H.264 encodings that standardizes on the processing throughput of the encoder per ISO/ITU measurements. Exemplar POI for H.264 are found in Table 6, and those for MPEG-2 legacy systems in Table 7. In addition, MISP-2015.1 requires all decoders to process the full gamut of potential encodings in the POI. Differences between AEDP-8 Ed. 3 RP 0220 and MISP-2015.1 could result in potential backwards compatibility issues, but the overall impact should be low-to-minimal. **NOTE:** MISP-2015.1-40 requirements incorrectly stated H.264 Level 4.1 in MISP-2015.1. This was subsequently changed in the dot 2 version, and so has been changed here for consistency.		
Item	**Ed. 3**	**Doc**	**Name**
30	AEDP-8	RP 0200	Authorized Limited Applications of DV Format Video
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-58	Class 3 Motion Imagery shall be compressed using H.264/AVC or MPEG-2.	

	MISP-2015.1-59	When time stamp information is available in Class 3 Motion Imagery, it shall be converted to a Precision Time Stamp according to MISB ST 0603.
	MISP-2015.1-60	When a Precision Time Stamp is generated from Class 3 Motion Imagery, it shall be inserted into a H.264/AVC or MPEG-2 compressed elementary stream in accordance with MISB ST 0604.
	MISP-2015.1-61	When time stamp information is available in Class 3 Motion Imagery and after conversion to a Precision Time Stamp according to MISB ST 0603, it shall be inserted as Metadata according to MISB ST 0601.
	MISP-2015.1-62	When location information is available in Class 3 Motion Imagery, it shall be inserted as Metadata according to MISB ST 0601.
	MISP-2015.1-63	When converting Class 3 Motion Imagery to meet MISP requirements, a Minor Core Identifier shall be generated and inserted according to MISB ST 1204.1.
	MISP-2015.1-64	Class 3 Motion Imagery Audio shall be compressed according to MISB ST 1001.
	MISP-2015.1-65	When converting Class 3 Motion Imagery to meet MISP requirements, the mandatory security metadata elements from MISB ST 0102 shall be included.
	MISP-2015.1-66	When converting Class 3 Motion Imagery to meet MISP requirements, it shall be encapsulated in a MISP approved Container.
	Doc	**Name**
	ST 0603.2	Common Time Reference for Digital Motion Imagery Using Coordinated Universal Time (UTC), Feb 2014
	ST 0604.3	Time Stamping Compressed Motion Imagery, Feb 2014
	ST 0601.8	UAS Datalink Local Set, Oct 2014
	ST 1204.1	Motion Imagery Identification System (MIIS) Core Identifier, Oct 2013
	ST 1001.1	Audio Encoding, Feb 2014
	ST 0102.11	Security Metadata Universal and Local Sets for Digital Motion Imagery, Oct 2014
	ST 1402	MPEG-2 Transport of Compressed Motion Imagery and Metadata, Feb 2014
	Notes	
	AEDP-8 Ed. 3 authorizes NATO applications to use DV Format Video for handheld cameras, but limits its use to direct ingest, which cannot be forwarded onto other processing nodes. MISP-2015.1 recognizes the expansion of Motion Imagery sensors into ground-based, sea-based, etc. domains, which may use consumer grade cameras that do not meet the specifications mandated within the MISP. In addition, data obtained where the sensor is unknown or not procured through NATO / government acquisition will more than likely not adhere to MISP mandated specifications. For these reasons, MISP-2015.1 defines Class 3 Motion Imagery per these characteristics and places requirements (MISP-2015.1-58 through MISP-2015.1-66) to instruct users on how to transform the data before distributing to other users. MISP-2015.1 does not authorize the use of DV Format Video; however, Class 3 Motion Imagery covers all non-MISP mandated formats for commercial grade sensors. There should be no impact to backwards compatibility.	

Item	**Ed. 3**	**Doc**	**Name**
31	AEDP-8	RP 0201	Node Structure for the SMPTE Metadata Dictionary
	Notes		

	DEPRECATED: MISP-2015.1 does not reference SMPTE EG 37:2001. MISB ST 0607.3 defines the MISB Metadata Registry per SMPTE ST 335:2012. As NATO systems may use SMPTE RP 210:2013 keys as well, RP 0201 just informs the user of the structure. Limited value within the MISP, so it was not carried forward. There should be no impact on backwards compatibility.		
Item	**Ed. 3**	**Doc**	**Name**
32	AEDP-8	RP 0202	X-on-2
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-47	Class 1 Motion Imagery encapsulated in a MPEG-2 Transport Stream Container shall comply with ISO/IEC 13818-1 (a.k.a. ITU-T Rec H.222.0).	
	Notes		
	ISO 13818-1:2013 defines the types of elementary streams which may be carried in an MPEG-2 Transport Stream. MISP-2015.1 no longer uses the term "X-on-2", and it is replaced with requirement MISP-2015.1-47. There should be no impact to interpretability or backwards compatibility.		
Item	**Ed. 3**	**Doc**	**Name**
33	AEDP-9	RP 0204	MXF Profile for Aerial Surveillance and Photogrammetry Applications (ASPA)
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-14	All data constraints for a MXF file shall comply with MISB ST 0301.	
	Doc	**Name**	
	ST 0301.5	MISB Profile for Aerial Surveillance and Photogrammetry Applications (ASPA), Jul 2010	
	Notes		
	AEDP-8 Ed. 3 references MISB ST 0301.4, May 2009. MISP-2015.1 references ST 0301.5, Jul 2010. The summary of changes are as follows: **ST 0301.5:** Added support for MISB ST 0601 & MISB ST 0102; and editorial corrections **Conclusion:** There should be no backwards compatibility issues, but additional capabilities are levied which will impact new producers & data consumers.		
Item	**Ed. 3**	**Doc**	**Name**
34	AEDP-8	RP 0701	Common Metadata System: Structure
	Ed. 4		
	Doc	**Name**	
	RP 0701	Common Metadata System: Structure, Aug 2007	
Item	**Ed. 3**	**Doc**	**Name**
35	AEDP-8	RP 0702	Common Time Reference for Digital Motion Imagery Using Coordinated Universal Time (UTC)
	Ed. 4		
	Doc	**Name**	
	ST 0603.2	Common Time Reference for Digital Motion Imagery Using Coordinated Universal Time (UTC), Feb 2014	

	Notes		
	STANAG 4609 Ed. 3 references MISB RP 0603, Aug 2006. MISP-2015.1 references MISB ST 0603.2, Feb 2014. The summary of changes are as follows: **ST 0603.1:** Removed MI Time Synchronization Methods (Section 5) as it contained no real sustenance; removed equations on Reformatting UTC to SMPTE 12-1 as duplicative of SMPTE EG 40; removed Annex B Metadata Timing Examples as it contained no real sustenance; removed Annex C Proof-of-Concept Demonstration as it contained no real sustenance; added definitions of Precision Time Stamp & Commercial Time Stamp, and editorial corrections. **ST 0603.2:** Incorporated MISB ST 9715 into ST 0603 & deprecated ST 9715; applied EARS to highlight all requirements; modified guidelines for Commercial Time Stamp; added definitions and editorial corrections. **Conclusion:** The overall premise of ST 0603 has remained intact, but there are several differences between RP 0603 and ST 0603.2 which could result in potential backwards compatibility issues; however, the overall impact should be low-to-minimal.		
Item	**Ed. 3**	**Doc**	**Name**
36	AEDP-8	RP 0703	Inserting Time Code and Metadata into High Definition Uncompressed Video
	Ed. 4		
	Doc	**Name**	
	ST 0605.4	Time Stamping and Metadata Transport in High Definition Uncompressed Motion Imagery, Feb 2014	
	Notes		
	AEDP-8 Ed. 3 references MISP RP 0605.2, May 2008. MISP-2015.1 references MISB ST 0605.4, Feb 2014. The summary of changes are as follows: **ST 0605.3:** Incorporated guidance for encoding Precision Time Stamp and Commercial Time Stamp; incorporated "shalls" into VANC KLV Packet Encoding Practices; and editorial corrections **ST 0605.4:** Removed requirement for Commercial Time Stamp; applied EARS to highlight all requirements; added Annex Table 2 for HD-SDI & 3G-SDI Formats & Standards **Conclusion:** The overall premise of ST 0605 has remained intact; however, there are some minor differences between RP 0605.2 and ST 0605.4, which should not impact backwards compatibility but does levy new requirements which will impact new producers & data consumers.		
Item	**Ed. 3**	**Doc**	**Name**
37	AEDP-8	RP 0704	Infrared Motion Imagery System
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-36	At least one Point of Interoperability (POI) (Table 6) shall be supported by a Class 1 Motion Imagery [H.264/AVC] Encoder.	
	Notes		
	AEDP-8 Ed. 3 and previous versions of the MISP contain Infrared System Matrices (IRSM). The IRSM tables were an attempt to define broad categories of Motion Imagery Systems using Levels in order to provide a common framework to describe the fundamental technical capabilities of Motion Imagery Systems. Tables existed for EO, IR, and LVSD. Although a worthwhile attempt, the IRSM tables were fraught with ambiguous or nominal values that were not reflective of the wide performance		

	capabilities of encodings as technology evolves over time. In an effort to standardize encoding performance and combine all phenomenologies into one table, MISP-2015.1 developed Points of Interoperability (POI) for H.264 encodings that standardizes on the processing throughput of the encoder per ISO/ITU measurements. Exemplar POI for H.264 are found in Table 6 and for MPEG-2 legacy systems in Table 7. In addition, MISP-2015.1 maintains requirements for all decoders to process the gamut of potential encodings. Differences between AEDP-8 Ed. 3 RP 0220 and MISP-2015.1 could result in potential backwards compatibility issues but the overall impact should be low to minimal.		
Item	**Ed. 3**	**Doc**	**Name**
38	AEDP-8	RP 0705	Bit-Serial Digital Interface for Infrared Motion Imagery
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-28	The mapping of digital infrared Class 0 Motion Imagery into a SMPTE ST 292-1 interface shall be defined by MISB ST 0403.	
	MISP-2015.1-37	When Infrared Motion Imagery with a Pixel Value Range greater than 8 bits is converted into Class 1 Motion Imagery and compressed using MPEG-2 or H.264/AVC it shall comply with MISB ST 0404.	
	Doc	**Name**	
	ST 0403.2	Digital Representation and Source Interface Formats for Infrared Motion Imagery Mapped into 1280 x 720 Format Bit-Serial Digital Interface, Feb 2014	
	ST 0404.1	Compression of Infrared Motion Imagery, Feb 2014	
Item	**Ed. 3**	**Doc**	**Name**
39	AEDP-8	RP 0706	Annotation Universal Metadata Set
	Ed. 4		
	Doc	**Name**	
	ST 0602.4	Annotation Metadata Set, Feb 2014	
	Notes		
	AEDP-8 Ed. 3 references MISB RP 0602.1, Jun 2007. MISP-2015.1 references MISB ST 0602.4, Feb 2014. The summary of changes are as follows: **RP 0602.2:** Added restriction that MIME Data will contain MIME encoded data of annotation message & restricted to formats defined in its associated reference document for bmp, cgm, gif, jpeg, & png; added meaning of X & Y Viewport Position; and editorial corrections **RP 0602.3:** Applied EARS to highlight all requirements; added Z-order; and editorial corrections **ST 0602.4:** Promoted to ST & modified name; no technical changes **Conclusion:** The changes made to ST 0602 should not cause backwards compatibility issues, but does levy new requirements which will impact new producers & data consumers.		
Item	**Ed. 3**	**Doc**	**Name**
40	AEDP-8	RP 0707	Motion Imagery Identification
	Notes		
	DEPRECATED: AEDP-8 RP 0707 (equivalent to MISB RP 0608.1) was developed as a mechanism to uniquely identify each Motion Imagery stream. As such, identifier was an 80-byte string comprised of Acquisition Start Date & Time, Acquisition End Date & Time, Motion Imagery Stream ID, Platform		

	Type and Production Date & Time. This approach leveraged techniques utilized within NITF (NSIF) and proved to not be as flexible or convenient to implement as originally intended. As such, MISB RP 0608 was deprecated in Oct 2013 in lieu of MISB ST 1204: Motion Imagery Identification System - Core Identifier and MISB ST 1301: Motion Imagery Identification System - Augmentation Identifiers. AEDP-8 RP 0707 / MISB RP 0608 was not a requirement, so the breadth of implementation is unknown, but there is no backwards compatibility with the new ST 1204 / ST 1301. Also note, MISB ST 1204.1 is a required element in MISB ST 0902.4: Motion Imagery Sensor Minimum Metadata Set, so it is no longer optional for implementation within MISP-2015.1. Requirements MISP-2015.1-62-64 stipulate ST 1204 / ST 1301 use.		
Item	**Ed. 3**	**Doc**	**Name**
41	AEDP-8	RP 0708	Large Volume Streaming Data (LVSD) Compression
	Notes		
	DEPRECATED: AEDP-8 RP 0708 (equivalent to MISB RP 0705.2) was developed as initial guidance on JPEG 2000 compression for Large Volume Streaming Data (now known as Large Volume Motion Imagery within MISP-2015.1) with the intention it would be deprecated once the ISO BIIF Profile for JPEG 2000, Version 01.10, 15 April 2009 (BPJ2K01.10) was approved. BPJ2K01.10 was approved in 2009, and RP 0705.2 was deprecated from the MISP on Oct 2013. Requirement MISP-2015.1-51 states BPJ2K01.10 shall be used for all motion imagery compressed with JPEG 2000. There should be no backwards compatibility issues or impacts for this change.		
Item	**Ed. 3**	**Doc**	**Name**
42	AEDP-8	EG 0803	Engineering Guideline to Facilitate Integration of Motion Imagery Products into the STANAG 4559 DATA MODEL
	Ed. 4		
	Doc	**Name**	
	RP 0813.1	Integration of Motion Imagery into the STANAG 4559 Data Model, Feb 2014	
	Notes		
	AEDP-8 Ed. 3 references MISB EG 0813, Mar 2009. MISP-2015.1 references MISB RP 0813.1, Feb 2014. The summary of change is as follows: **RP 0813.1:** Promoted document to RP; applied EARS to highlight all requirements; and editorial corrections **Conclusion:** There should be no backward compatibility issues with these modifications.		
Item	**Ed. 3**	**Doc**	**Name**
43	AEDP-8	EG	Basic Predator KLV Metadata
	Notes		
	DEPRECATED: MISB EG 0104.5: Predator UAV Basic Universal Metadata Set, Dec 2006 was developed to transition the analog ESD data from early versions of the Predator ISR system into digital KLV. Within MISP-2015.1, EG 0104.5 is deprecated, and only for legacy use and new acquisitions / upgrades are forbidden from using it. There are more complete metadata standards required for all Motion Imagery systems, MISB ST 0902.4. There should be no backwards compatibility issues or impacts from this change.		
Item	**Ed. 3**	**Doc**	**Name**
44	AEDP-8	RP	Timing Reconciliation Metadata Set
	Notes		

	DEPRECATED: AEDP-8 (equivalent to MISB RP 0103.1) was developed to enhance the transition of digitizing analog ESD data from the early versions of the Predator ISR system into KLV. As MISB EG 0104.5 is only for legacy use and newer STs are available for timing guidance (MISB ST 0603, ST 0604, ST 0605, ST 1402, ST 0601, ST 0902), MISB RP 0103.1 was deprecated from use on 14 May 2009. This should have minimal to no impact on backwards compatibility.		
Item	**Ed. 3**	**Doc**	**Name**
45	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-01	The Motion Imagery Source Aspect Ratio (SAR) shall be in the range [0.25, 4.0]. (see MISB TRM 1404)	
	Doc	**Name**	
	TRM 1404	H.264 Compression Principles, Oct 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
46	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-02	The Motion Imagery format at the Imager (Sensor) and for any Motion Imagery conversions or transcodes shall be a progressive-scan format.	
	Notes		
	STANAG 4609 Ed. 3 references the move to all digital, progressive-scan sensors in the Roadmap section, and progressive scan is referenced throughout the document. MISP-2015.1 now formally has a requirement that all Motion Imagery sensors shall be progressive scan.		
Item	**Ed. 3**	**Doc**	**Name**
47	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-09	When using KLV and mapping between floating point values and integer values, the mapping shall comply with MISB ST 1201.	
	Doc	**Name**	
	ST 1201.1	Floating Point to Integer Mapping, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
48	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	

	MISP-2015.1-10	Multi-dimensional arrays of data expressed in KLV shall be formatted according to MISB ST 1303.	
	Doc	**Name**	
	ST 1303	Multi-Dimensional Array Pack, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
49	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP 2015.1-22	The Motion Imagery sampling structures for 3840x2160 and 7680x4320 progressive-scan Ultra High Definition (UHD) Motion Imagery shall be defined by SMPTE ST 2036-1.	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
50	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-27	The Container format for Ultra High Definition (UHD) Class 0 Motion Imagery shall be defined by SMPTE ST 435-2with signal mapping specified in SMPTE ST 2036-3.	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
51	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-31	One AES3 Audio channel (one stereo pair) encoded in accordance with SMPTE ST 291 and inserted into the Horizontal Ancillary Space (HANC) of a Serial Digital Interface (SDI) shall be reserved for mission Audio (narration, etc.).	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
52	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-42	A Class 1 Motion Imagery Decoder that supports graphic overlay shall comply with MISB ST 0602.	
	Doc	**Name**	

	ST 0602.4	Annotation Metadata Set, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
53	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-45	Class 1 Motion Imagery Metadata shall be represented using KLV (Key Length Value).	
	Notes		
	STANAG 4609 Ed. 3 ST 0203 establishes KLV as the encoding protocol for motion imagery streams within NATO. MISP-2015.1 now formally has a requirement specifically to Class 1 motion imagery to use KLV. This requirement is identical to the technical intent in STANAG 4609.		
Item	**Ed. 3**	**Doc**	**Name**
54	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-46	Class 1 Motion Imagery compressed Audio shall comply with MISB ST 1001.	
	Doc	**Name**	
	ST 1001.1	Audio Encoding, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
55	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-50	Class 1 Motion Imagery encapsulated in a MPEG-2 Transport Stream Container shall meet the compliance requirements of ISO/IEC 13818-4.	
	Notes		
	STANAG 4609 Ed. 3 RP 0220 assumes the base transport for HD / SD digital motion imagery is MPEG-2 Transport Stream (ISO/IEC 13818-1). This requirement is identical to the technical intent of STANAG 4609.		
Item	**Ed. 3**	**Doc**	**Name**
56	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-67	Graphic and text information overlaid onto Motion Imagery shall be nondestructive to the Motion Imagery content (i.e. “burned-in metadata” is not allowed).	

	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
57	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-68	Motion Imagery shall contain a Core Identifier in accordance with MISB ST 1204.	
	Doc	**Name**	
	ST 1204.1	Motion Imagery Identification System (MIIS) Core Identifier, Oct 2013	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
58	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-69	Supplemental identifiers to be used with MISB ST 1204 shall be defined by MISB ST 1301.	
	Doc	**Name**	
	ST 1301.2	Motion Imagery Identification System - Augmentation Identifiers, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
59	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-70	When implementing MISB ST 0801 the threshold and objective profiles for photogrammetric Metadata elements shall be defined by MISB ST 1107.	
	Doc	**Name**	
	ST 0801.5	Photogrammetry Metadata Set for Digital Motion Imagery, Feb 2014	
	ST 1107.1	Metric Geopositioning Metadata Set, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
60	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-71	Transforming two-dimensional Motion Imagery from one coordinate system into a second two-dimensional coordinate system shall comply with MISB ST 1202.	

	Doc	**Name**	
	ST 1202.1	Generalized Transformation Parameter, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
61	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-72	When Standard Deviation and Correlation coefficient Metadata is available, it shall be provided in accordance with MISB ST 1010.	
	Doc	**Name**	
	ST 1010.1	Generalized Standard Deviation and Correlation Coefficient Metadata, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
62	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-74	When implementing MISB ST 1206 the threshold profiles for Synthetic Aperture Radar Motion Imagery Metadata elements shall be defined by MISB ST 1403.	
	Doc	**Name**	
	ST 1206	SAR Motion Imagery Metadata, Feb 2014	
	ST 1403	SARMI Threshold Metadata Sets, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
63	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-76	A MPEG-2 Transport Stream encapsulated in Real Time Protocol (RTP) shall comply with MISB ST 0804.	
	Doc	**Name**	
	ST 0804.4	Real-Time Protocol for Motion Imagery and Metadata, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
64	N/A	N/A	N/A
	Ed. 4		

	Req. Number	**Requirement Name**	
	MISP-2015.1-77	Class 1 Motion Imagery encapsulated in Real Time Protocol (RTP) shall comply with MISB ST 0804.	
	Doc	**Name**	
	ST 0804.4	Real-Time Protocol for Motion Imagery and Metadata, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
65	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-78	Class 2 Motion Imagery encapsulated in Real Time Protocol (RTP) shall comply with MISB ST 0804.	
	Doc	**Name**	
	ST 0804.4	Real-Time Protocol for Motion Imagery and Metadata, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
66	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-79	JPEG2000 Interactive Protocol (JPIP) shall be implemented in accordance with MISB RP 0811.	
	Doc	**Name**	
	ST 0811.1	JPIP Profile (Client/Server Functions), Oct 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
67	N/A	N/A	N/A
	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-80	KLV to Cursor-on-Target (CoT) encoding shall be in accordance with MISB ST 0805.	
	Doc	**Name**	
	ST 0805.1	KLV to Cursor-on-Target (CoT) Conversions, Feb 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
68	N/A	N/A	N/A

	Ed. 4		
	Req. Number	**Requirement Name**	
	MISP-2015.1-81	When requesting Class 1 Motion Imagery or Class 2 Motion Imagery from a platform that supports MISB ST 1101 the use of messages shall comply with MISB ST 1101.	
	Doc	**Name**	
	ST 1101	Control of Motion Imagery Payloads, Oct 2014	
	Notes		
	New Requirement not represented in STANAG 4609 Ed. 3 / AEDP-8 Ed. 3.		
Item	**Ed. 3**	**Doc**	**Name**
69	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 1205.1	Motion Imagery Test Sequences, Feb 2014	
	Notes		
	New Document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
70	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 1108.2	Motion Imagery Interpretability and Quality Metadata, Feb 2014	
	Notes		
	New Document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
71	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 1002.1	Range Motion Imagery, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
72	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 0903.4	Video Moving Target Indicator and Track Metadata, Oct 2014	
	Notes		

	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
73	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 0901.2	Video-National Imagery Interpretability Rating Scale, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
74	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 0809.1	KLV Representation of Meteorological Data, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
75	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 0808.1	Ancillary Text Metadata Sets, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
76	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 0806.4	Remote Video Terminal Metadata Set, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
77	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 1302	Inserting KLV in Session Description Protocol (SDP), Feb 2014	

	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
78	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	ST 1203.3	Video Interpretability and Quality Measurement and Prediction, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
79	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	RP 1011.1	LVSD Motion Imagery Streaming, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
80	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	RP 0904.1	H.264 Bandwidth/Quality/Latency Tradeoffs, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		
Item	**Ed. 3**	**Doc**	**Name**
81	N/A	N/A	N/A
	Ed. 4		
	Doc	**Name**	
	RP 0802.2	H.264/AVC Motion Imagery Coding, Feb 2014	
	Notes		
	New document referenced within MISP-2015.1 regarding metadata content specific to a domain or collection. If utilized, ST / RP contains requirements for conformance.		