

Explanation of the FIS Data Exchange XML Protocol

Timing and Data Technical Report

Version 1.15
31.03.2021

Written by FIS IT

Valid for Timing Report software version 6.0+

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Document Control

Version History	Description
Version 1.0 (18.10.2012)	Initial version
Version 1.1 (19.03.2013)	Added attribute 'used' and element 'Notused' for <Timer>
Version 1.2 (24.07.2014)	Add new element <NAT_code>
Version 1.3 (07.10.2015)	Update description text Timing Report now for Alpine, Freestyle, Snowboard, Telemark and Masters; update accordingly using {SECTOR} as placeholder for sector code of the sport
Version 1.4 (05.11.2015)	Updated <Juryemail>,<Juryphonenbr>, <Email>,<Phonenbr>(page 7) <CertifyFIS> <Timer_start>,<Software> Jury (Chief of competition) only optional run 3 for Alpine Slalom
Version 1.5 (21.12.2015)	AL CE now needs a timing report too
Version 1.6 (30.03.2016)	Added Grass Skiing incl. run 4 for Slalom
Version 1.7 (16.06.2016)	Update text XML file, added not supported sports Cross-Country, Nordic Combined, Speed Skiing (page 4) update text Software, add Support contact information (page 5)
Version 1.8 (29.09.2016)	Add description of default timing report XML file for data transfer
Version 1.9 (03.11.2017)	Add Cross-Country, Nordic Combined (CC) as supported FIS disciplines Add photo finish cameras removed Windows XP as supported OS updated email address for sending TR XML Change of child element names for TD and Jury Change Startgate to Startdevice, add attribute Type update email address for sending the XML files TD moved from Raceheader to Jury Jury child elements now Lastname, Firstname, Nation, Number Raceheader attribute Sex now Gender
Version 1.10 (08.01.2018)	Add information about firewall settings for ports used with the application
Version 1.11 (20.11.2018)	Discontinue support Timing Report Software for Linux, Mac OS 10.9 and earlier add Finishcells and Startdevice for two courses removed Powerontime add new section Synchronisation and removed Synchronisation from each run update General section Event name optional add special cases for discipline codes add Timing Report XML description version which the software supports add operating system version add Noise Detector and Electronic Start gun as start device Update rules for expected data

Version 1.12 (24.10.2019)	Update section General, add XMLfile transmission removed Hand Net time add TOD hand time in all runs for start first, finish first, start last, finish last add device Start clock change Ladies to Women add Delayedstartdoor, Transponder, Heatstartgates, Videostart, Videofinish elements update values for Discipline add synchronisation confirmation for Timer A + B at start (if used) add Speed Skiing (SS)
Version 1.13 (01.10.2020)	Add section Rules for expected data
Version 1.14 (04.11.2020)	Add Transponder_decoder element update Discipline special cases
Version 1.15 (31.03.2021)	update example jury update rules for expected data add attribute Runs in Timing

General

This document provides an explanation of the protocol used for the FIS Data Exchange for Timing and Data Technical Reports.

Timing and Data Technical Report is used in:

- Alpine Skiing (AL)
- Freestyle Skiing (FS)
- Snowboard (SB)
- Telemark Skiing (TM)
- Masters (MA)
- Grass Skiing (GS)
- Cross-Country (CC)
- Nordic Combined (NK)
- Speed Skiing (SS)

For Freestyle Ski Cross and Snowboard Cross a Timing Report can be sent for Qualification + Finals (only one race codex in FIS calendar) or for Qualification and Finals separated (race codex for each phase in FIS calendar).

A Timing Report for Freestyle Ski Cross, Snowboard Cross and Snowboard Cross Team is only mandatory for categories Olympic Winter Games, World Championships, World Cup and World Junior Championships.

For following FIS disciplines and events NO Timing and Data Technical Report is needed:

- Freestyle Skiing: Aerials, Aerials Team, Aerials Team Qualification, Halfpipe, Slopestyle, Big Air, Big Air Team
- Snowboard: Halfpipe, Slopestyle, Big Air

XML file

Encoding of the XML file must be UTF8. A DTD definition must not be used.
Language for the content is English, French or German.

If optional elements are used (not empty) they should at least contain the required child elements. Empty elements should not be written to the XML file.

The structure of the XML file and its content will be verified by FIS and a confirmation email will be sent out to the sender of the file containing the result of processing.

XML file transmission

The timing report XML files must be sent to: results@fisski.com (alpineresults@fisski.com is also still valid)
The subject of the email must contain for easy email identification the NSA code and race codex.

Example email subject: AUT1234

File name of the xml files: <NSA code><race codex (4 digits)>.xml
Example XML file name: AUT1234.xml

Result XML files can be sent as one file or also more than one file within one email. Files can be also sent packed as ZIP file. The ZIP file must only contain the XML result file(s) but no folders or hidden system files and must not be password protected.

Software

The Timing Report XML file can be generated out of the timing software (if supported) or the FIS software *Timing and Data Technical Report* can be used.

Downloads of the installation packages for the latest Timing Report software version for Windows (7, 8, 10) and Mac OSX (macOS) 10.10+ (64bit) are available on FIS website in Timing / Data section or on FTP: <ftp://ftp.fis-ski.com/Software/Programs/TimingReport/>

The Timing Report software will need an internet connection to check for updates and download latest information about timing devices and FIS data from FIS database on a weekly base. If the computer running the Timing Report software cannot be online all the time we recommend to connect to internet at least after installation of the software and at the beginning of each season but better also several times during the season to receive the latest data.

Please make sure that following ports are open in your firewall settings for different online functionalities of the software:

- HTTP/HTTPS: 80, 8080, 443
- MySQL: 3306
- POP, IMAP, SMTP: 25, 110, 465, 587, 993, 995

Default timing report XML file for data transfer

Software version 3.4.0 and higher support an optional default timing report XML file for data transfer at software launch. The timekeeper has the option to transfer a (partly) prepared timing report XML files containing timing data from the timing system to the Timing Report software. Without any other settings, the Timing Report software will use following default paths for checking:

Windows: C:\Users\Public\Documents\FIS_Temp\fis-tr-default.xml
macOS: ~/Users/Shared/FIS_Temp/fis-tr-default.xml

When a file was found, it will be loaded at program launch. If the path or file is not available the software will start with an empty report. The path and file need to be created and written from the timing software. The default path can also be changed in the Timing Report software settings.

Support contact

For support requests, questions and feedbacks please contact the FIS IT department: it@fisski.com.

A support request for a certain race should at least contain the FIS race codex and a short description of the issue. Preferred support language is English.

Structure of XML file

{SECTOR} has to be replaced by the sector code of the selected FIS discipline: AL, FS, SB, TM, MA, GS, CC, NK or SS.

<Fisresults>

The general term for the results of all FIS competitions, root element.

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	Required/optional
OSversion				Version operating system used to generate Timing Report XML for statistical evaluations Format: [OS name]-[OS version]	string	Example: Windows-10 macOS-Mojave	optional
XMLversion				Version number of the Timing Report XML description which the software supports	string		optional
Raceheader	Sector Gender	AL, FS, SB, TM, GS, MA, CC, NK, SS M = Men W = Women A = Mixed	Season Codex Nation Discipline Category Type Eventname Place Racedate	Information to define each event. The following information is applicable to all FIS disciplines. Each FIS disciplines has a specific race header with further technical data.			required
{SECTOR}_race			Jury	Information about the chief of race			required
{SECTOR}_timingreport			Timekeeper Devices Connections Timing	Content of the timing report			required

<Raceheader>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	Required/optional
Season				FIS Season e.g. 2012 for July 2011 – June 2012	integer		required
Codex				The unique identification number for each competition with the FIS discipline (latest details can be found in the calendar section of the FIS website)	Integer		required
NAT_code				National race code, optional use for national purposes, max. 7 characters	string		optional
Nation				The three letter FIS code for the organizing nation (latest details can be found in the calendar section of the FIS website)	string		required
Discipline				The respective event to the FIS discipline	string	<p>According event code provided by FIS calendar</p> <p>Special cases:</p> <p>IN – Cross-Country Individual MS – Cross-Country Mass Start SA – Cross-Country Skiathlon SQ – Cross-Country Sprint Qualification SF – Cross-Country Sprint Final PU – Cross-Country Pursuit RE – Cross-Country Relay TS – Cross-Country Team Sprint MA – Cross-Country Marathon/Popular OT – Cross-Country Other</p> <p>GU – Nordic Combined Individual Gundersen MS – Nordic Combined Individual Mass Start TE – Nordic Combined Team TS – Nordic Combined Team Sprint SP – Nordic Combined Sprint</p> <p>PSLQ – Alpine Parallel Slalom Qualification PGSQ – Alpine Parallel Giant Slalom Qualification</p> <p>SXF – Freestyle Ski Cross Finals SXQF – Freestyle Ski Cross Qualification + Finals</p> <p>SBXF – Snowboard Cross Finals SBXQF – Snowboard Cross Qualification + Finals PSLQ – Snowboard Parallel Slalom Qualification PGSQ – Snowboard Parallel Giant Slalom Qualification</p>	required

						PSQF – Telemark Parallel Sprint Qualification + Final PSF – Telemark Parallel Sprint Final	
Category				The FIS abbreviation for the category of competition specific to the FIS discipline	string	According category code provided in FIS calendar	required
Type				Type of content	string	TR = Timing report	required
Eventname				Name of event as published in FIS calendar	string		optional
Place				Resort, town, etc. of competition venue	string		required
Racedate			Day Month Year	Date of race			required

<Racedate>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Day				Day in numerical form: 1, 11, 21, etc.	integer		required
Month				Month in numerical form: 1, 2, 10, etc.	integer		required
Year				Year in four digits numerical form: 2000, 2001, 2002, etc.	integer		required

<{SECTOR}_race>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Jury	Function	TECHNICALDELEGATE CHIEFOFTIMING (optional)	Number (only TD) Lastname Firstname Nation Email Phonenbr	Details about the jury member			required

<Jury>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Number				TD's ID number (only required for AL, SB, FS, MA)	string		required
Lastname				Last name jury member	string		required
Firstname				First name jury member	string		required
Nation				Nation (FIS abbreviation) of jury member	string		required
Email				Email address jury member	string		optional
Phonenbr				Telephone number of jury member	string		optional

<{SECTOR}_timingreport>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Timekeeper			Company Lastname Firstname Nation Email Phonenbr	Information about the timekeeper			required
Devices			Timer Timer_start Startdevice Startdevice2 Finishcells Photofinish Transponder Heatstartgates Videostart Videofinish Software	Information about the timing and timing support devices and result software			required
Connections			Mode Voice	Information about the connection			required
Timing	Runs (optional)	Number of runs used (only for XML loading purpose)	Poweron Times CertifyFIS	Information about the timing			required

<Timekeeper>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Company				Name of the timing company	string		optional
Lastname				Last name timekeeper	string		required
Firstname				First name timekeeper	string		required
Nation				Nation (FIS abbreviation) of timekeeper	string		required
Email				Email address timekeeper	string		required
Phonenbr				Telephone number of timekeeper	string		required

<Devices>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Timer	System	A B	Brand Model Serial Homologation Notused	Information about the timing device			required
	used	yes no					
Timer_start	System	A B	Brand Model Serial Homologation	Information about the timing device at start (if used)			optional
Startdevice Startdevice2	Type	10 = Start gate 15 = Start door 16 = Noise detector 17 = Electronic start gun 20 = Photo cell	Brand Model Serial Homologation	Information about the start device, CC, NK for mass start competitions not used In case of two courses are used (Startdevice = course blue, Startdevice2 = course red)			required
Startclock			Brand Model Serial Homologation	Information about start clock			required
Finishcells	System	A B A2 B2	Brand Model Serial Homologation	Information about the finish cells In case of two courses are used (A/B = course blue, A2/B2 = course red)			required
Photofinish	System	A B	Brand Model Serial (Homologation)	Information about the photo finish camera			optional
Transponder	Type	100 = active 101 = passive	Brand Model	Information about transponder chip			optional
Transponder_decoder	Type	102 = active 103 = passive	Brand Model	Information about transponder decoder			optional
Heatstartgates	Type	110 = with wand 111 = with photo cell	Brand Model	Information about heat start gates			optional
Videostart Videofinish			Brand Model Resolution Frequency	Information about video cameras used at start and/or finish			optional
Software			Brand Version	Information about the timing software			required

<Timer>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Brand				Brand/manufacture of the timer	string		required
Model				Model of the timer	string		required
Serial				Serial number of the timer	string		required
Homologation				Homologation number of the timer	string		required
Notused				Reason why timing system A/B was not used	string		optional

<Startdevice>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Brand				Brand/manufacture of the start device	string		required
Model				Model of the start device	string		required
Serial				Serial number of the start device	string		required
Homologation				Homologation number of the start device	string		required

<Startclock>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Brand				Brand/manufacture of the start clock	string		required
Model				Model of the start clock	string		required
Serial				Serial number of the start clock	string		required
Homologation				Homologation number of the start clock	string		required

<Finishcells>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Brand				Brand/manufacture of the finish cells	string		required
Model				Model of the finish cells	string		required
Serial				Serial number of the finish cells	string		required
Homologation				Homologation number of the finish cells	string		required

<Photofinish>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Brand				Brand/manufacture of the photo finish camera	string		required
Model				Model of the photo finish camera	string		required
Serial				Serial number of the photo finish camera	string		optional
Homologation				Homologation number of the photo finish camera (still not used)	string		optional

<Transponder>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Brand				Brand/manufacture of the transponder system	string		required
Model				Model of the transponder system	string		required

<Heatstartgates>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Brand				Brand/manufacture of the heat start gates	string		required
Model				Model of the heat start gates	string		required

<Videostart>, <Videofinish>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Brand				Brand/manufacture of the video camera	string		required
Model				Model of the video camera	string		required
Resolution				Resolution of the video camera	string	480p 576p 720p (HD) 1080p (Full HD) 2160p (4K) 4320p (8K)	required
Frequency				Frequency (fps) of the video camera	string	24 = 24fps 25 = 25fps 30 = 30fps 50 = 50fps 60 = 60fps 100 = 100fps 100+ = > 100fps	required

<Software>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Brand				Brand/manufacture of the software	string		required
Version				Version number of the software	string		required

<Connections>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Mode	System	A B		Information about the connections of the used systems	string	Cable Radio LAN WLAN Mobile USB Other	required
Voice				Information about the voice connections	string	Cable Radio LAN WLAN Mobile USB Other	required

<Timing>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Synchronisation			Sync Handsync Synccheck	Information about the synchronisation			required
Times	Run	1 2 3 4 (GS Slalom only)	Bibfirst Biblast BestA Allresults Comment	Information about the times			required
Delayedstartdoor				Information about usage of delayed start doors (only for Parallel events with delayed starts)	string	yes no	required
CertifyFIS				Confirmation that the timing and calculations of this event adhered to the FIS rules	string	yes no	required

<Synchronisation>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Sync				Synchronisation time of the electronic timing system	time		required
Handsync				Synchronisation time of the hand timing system	time		required
Synccheck	System	A B AStart BStart		Synchronisation check of the timing system AStart and BStart only if a start timer was used	time		required

<Times>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Bibfirst	no	Bib number	Start Finish Net	Information about start and finish times of first Bib			required
Biblast	no	Bib number	Start Finish Net	Information about start and finish times of last Bib			required
BestA			Bib	Information about the best net time	time, speed for Speed Skiing		required
Allresults	System	yes no	MissedA	Information if all results measured with system A			required
Comment				Comment to times	string		optional

<Bibfirst>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/optional
Start	System	A, B, Hand		Start time as Time of the day of the first competitor of system A, B, Hand	time		required
Finish	System	A, B, Hand		Finish time as Time of the day of the first competitor of system A, B, Hand	time		required
Net				Net time or speed (Speed Skiing) of the first competitor (if applicable)	time, speed for Speed Skiing		required

<Biblast>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Start	System	A, B, Hand		Start time as Time of the day of the last competitor of system A, B, Hand	time		required
Finish	System	A, B, Hand		Finish time as Time of the day of the last competitor of system A, B, Hand	time		required
Net				Net time or speed (Speed Skiing) of the last competitor (if applicable)	time, speed for Speed Skiing		required

<BestA>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Bib				Bib of the best competitor in system A	string		required
Time				Net time or speed (Speed Skiing) of the best competitor in system A (if applicable)	time, speed for Speed Skiing		required

<Allresults>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
MissedA			Bib Reason Timefrom	Information about the reasons of missed times of competitors in system A	string		required

<MissedA>

Element	Attributes	Attribute values	Child elements	Description	Data type	Values	required/ optional
Bib				Bib of the competitor	string		required
Reason				Reason for failure and missed times	string		required
Timefrom				From which backup system came the time	string		required

Example of timing report XML

```
<?xml version="1.0" encoding="UTF-8"?>
<Fisresults>
  <OSversion>Windows-10</OSversion>
  <XMLversion>1.11</XMLversion>
  <Raceheader Sector="{SECTOR}" Sex="L">
    <Season>2012</Season>
    <Codex>0000</Codex>
    <NAT_code>USA12</NAT_code>
    <Discipline>DH</Discipline>
    <Category>WC</Category>
    <Type>TR</Type>
    <Racedate>
      <Day>19</Day>
      <Month>1</Month>
      <Year>2012</Year>
    </Racedate>
    <Eventname>Testevent</Eventname>
    <Place>Oberhofen</Place>
    <Nation>SUI</Nation>
  </Raceheader>
  <{SECTOR}_race>
    <Jury Function="TECHNICALDELEGATE">
      <Number>TD123</Number>
      <Lastname>Defago</Lastname>
      <Firstname>Daniel</Firstname>
      <Nation>SUI</Nation>
      <Email>defago@fisski.com</Email>
      <Phonenbr>+411122334455</Phonenbr>
    </Jury>
    <Jury Function="CHIEFOFTIMING">
      <Lastname>Mueller</Lastname>
      <Firstname>Hans</Firstname>
      <Nation>GER</Nation>
      <Email>mueller@gmx.de</Email>
      <Phonenbr>+4912374567455</Phonenbr>
    </Jury>
  </{SECTOR}_race>
  <{SECTOR}_timingreport>
    <Timekeeper>
      <Company>FIS Timing</Company>
      <Lastname>Seehase</Lastname>
      <Firstname>Ulf</Firstname>
      <Nation>GER</Nation>
      <Email>seehase@fisski.com</Email>
      <Phonenbr>+411234567890</Phonenbr>
    </Timekeeper>
  </{SECTOR}_timingreport>
</Fisresults>
```



```

</Timekeeper>
<Devices>
  <Timer System="A" used="no">
    <Brand>ALGE</Brand>
    <Model>S4</Model>
    <Serial>AL12345678</Serial>
    <Homologation>ALG.005T.10</Homologation>
    <Notused_A>Timer A out of order</Notused_A>
  </Timer>
  <Timer System="B" used="yes">
    <Brand>MICROGATE </Brand>
    <Model>RACETIME2 </Model>
    <Serial>12345678</Serial>
    <Homologation> MGA.002T.11 </Homologation>
  </Timer>
  <Startdevice Type="10">
    <Brand>Longines</Brand>
    <Model>B65</Model>
    <Serial>LO1234567</Serial>
    <Homologation>LON.S57.03</Homologation>
  </Startdevice>
  <Startclock>
    <Brand>ALGE</Brand>
    <Model>SC15</Model>
    <Serial>AL3422</Serial>
    <Homologation>ALG.SC15.01</Homologation>
  </Startclock>
  <Finishcells System="A">
    <Brand>OMEGA</Brand>
    <Model>Transtime</Model>
    <Serial>987654 </Serial>
    <Homologation>OME.L67.03 </Homologation>
  </Finishcells>
  <Finishcells System="B">
    <Brand> OMEGA </Brand>
    <Model>Transtime </Model>
    <Serial>987655 </Serial>
    <Homologation>OME.L67.03 </Homologation>
  </Finishcells>
  <Photofinish System="A">
    <Brand>FINISH LYNX</Brand>
    <Model>EtherLynx Vision</Model>
    <Serial>987656</Serial>
    <Homologation></Homologation>
  </Photofinish>
  <Photofinish System="B">
    <Brand>FINISH LYNX</Brand>
    <Model>EtherLynx Vision</Model>
  </Photofinish>

```

```

    <Serial>987657</Serial>
    <Homologation></Homologation>
  </Photofinish>
  <Transponder Type="100">
    <Brand>AMD</Brand>
    <Model>TransPRO</Model>
  </Transponder>
  <Videofinish>
    <Brand>Sony</Brand>
    <Model>SX200</Model>
    <Resolution>1080p</Resolution>
    <Frequency>100</Frequency>
  </Videofinish>
  <Software>
    <Brand>ST_Alpine</Brand>
    <Version>2.1.12</Version>
  </Software>
</Devices>
<Connections>
  <Mode System="A">Cable</Mode>
  <Mode System="B">Cable</Mode>
  <Voice>Cable</Voice>
</Connections>
<Timing Runs="2">
  <Synchronisation>
    <Sync>10:10:34</Sync>
    <Handsync>10:10:23</Handsync>
    <Synccheck System="A">10:11:34.9874</Synccheck>
    <Synccheck System="B">10:11:34.9875</Synccheck>
    <Synccheck System="AStart">10:11:34.9876</Synccheck>
    <Synccheck System="BStart">10:11:34.9875</Synccheck>
  </Synchronisation>
  <Times Run="1">
    <Bibfirst no="1">
      <Start System="A">11:00:00.0023</Start>
      <Start System="B">11:00:00.4323</Start>
      <Start System="HAND">11:00:00.432</Start>
      <Finish System="A">11:01:00.0023</Finish>
      <Finish System="B">11:01:00.8767</Finish>
      <Finish System="HAND">11:01:00.876</Finish>
      <Net>1:00.00</Net>
    </Bibfirst>
    <Biblast no="112">
      <Start System="A">11:30:00.0022</Start>
      <Start System="B">11:30:00.0025</Start>
      <Start System="HAND">11:30:00.002</Start>
      <Finish System="A">11:32:00.4324</Finish>
      <Finish System="B">11:32:00.1232</Finish>
    </Biblast>
  </Times Run="1">
</Timing Runs="2">

```

```

    <Finish System="HAND">11:32:00.123</Finish>
    <Net>2:00.00</Net>
  </Biblast>
  <BestA>
    <Bib>45</Bib>
    <Time>2:01.89</Time>
  </BestA>
  <Allresults SystemA="no">
    <MissedA>
      <Bib>10</Bib>
      <Reason>Batteries</Reason>
      <Timefrom>System B</Timefrom>
    </MissedA>
    <MissedA>
      <Bib>12</Bib>
      <Reason>Batteries</Reason>
      <Timefrom>System B</Timefrom>
    </MissedA>
    <MissedA>
      <Bib>13</Bib>
      <Reason>Batteries</Reason>
      <Timefrom>System B</Timefrom>
    </MissedA>
    <MissedA>
      <Bib>14</Bib>
      <Reason>Batteries</Reason>
      <Timefrom>System B</Timefrom>
    </MissedA>
  </Allresults>
  <Comment>low batteries in photo cell A</Comment>
</Times>
<Times Run="2">
  <Bibfirst no="20">
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    <Start System="B">12:13:00.2345</Start>
    <Start System="Hand">12:13:00.23</Start>
    <Finish System="A">12:14:00.4567</Finish>
    <Finish System="B">12:14:00.4566</Finish>
    <Finish System="Hand">12:14:00.45</Finish>
    <Net>1:00.01</Net>
  </Bibfirst>
  <Biblast no="83">
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    <Start System="B">12:30:00.6789</Start>
    <Start System="Hand">12:30:00.66</Start>
    <Finish System="A">12:32:00.5678</Finish>
    <Finish System="B">12:32:00.7654</Finish>
    <Finish System="Hand">12:32:00.75</Finish>
  </Biblast no="83">
</Times Run="2">

```

```

        <Net>2:00.01</Net>
    </Biblast>
    <BestA>
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        <Time>2:00.32</Time>
    </BestA>
    <Allresults SystemA="no">
        <MissedA>
            <Bib>11</Bib>
            <Reason>Operator</Reason>
            <Timefrom>System B</Timefrom>
        </MissedA>
    </Allresults>
    <Comment>Operator missed to arm system A </Comment>
</Times>
<Delayedstartdoor>no</Delayedstartdoor>
<CertifyFIS>yes</CertifyFIS>
    </Timing>
</{SECTOR}_timingreport>
</Fisresults>

```

Rules for expected data

The following tables show which data are expected or needed by discipline to pass the validation of the data.

Alpine

Data for	DH	GS	SL	SG	AC	KOS	KOG	CAR	K	IND	CE	TP	PAR	PARQ	PGS	PGSQ	PSL	PSLQ
with start device	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
with start device B											X	X	X	X	X	X	X	X
with start clock	X	X		X	X						X							
with delayed start door											X	X	X	X	X	X	X	X
with finish cells	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
with finish cell course B											X	X	X	X	X	X	X	X
with photo finish											X	X	X		X		X	
with hand timing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
with transponders											X	X	X		X		X	
net times optional											X	X	X	X	X	X	X	X
best time optional											X	X	X	X	X	X	X	X
with 1 qualification run																X		X
with 2 qualification run														X		X		X
with finals											X	X	X		X		X	
with 2 courses											X	X	X	X	X	X	X	X
run 3 possible			X															
	for Level																	
Need timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Timer B optional											2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4
Need hand timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Need start clock	0,1,2	0,1,2		0,1,2	0,1,2						0,1,2							
Need start device	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need start device B											0,1	0,1	0,1		0,1		0,1	
Need finish cells	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need finish cells B	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Need finish cells course B											0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need photo finish											0,1	0,1	0,1		0,1		0,1	

Cross-Country

Data for	IN	MS	SA	SQ	SF	PU	RE	TS	MA	OT
With start device	X			X						
With start signal system		X	X		X		X	X	X	X
With heat start gate					X					
With start clock	X			X						
With finish cells	X	X	X	X	X	X	X	X	X	X
With photo finish	(X)	X	X	(X)	X	X	X	X	X	X
With hand timing	X	X	X	X	X	X	X	X	X	X
With transponders	X	X	X	X	X	X	X	X	X	X
With video start control						X				
Net times optional					X			X		
Best times optional					X			X		
with 1 qualification				X						
Only run 1	X	X	X	X	X	X	X	X	X	X
With finals					X			X		
Results with 1/10 th seconds	X	X	X			X	X		X	X
	for Level									
Need timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need hand timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need start clock	0,1			0,1						
Need start device/signal	0,1	0	0	0,1	0		0	0	0	0
Need heat start gate					0					
Need finish cells	0,1,2,3,4	0	0	0,1,2,3,4	0	0	0	0	0	0
Need finish cells B	0,1,2,3,4	0	0	0,1,2,3,4	0	0	0	0	0	0
Need photo finish	0	0	0	0	0	0	0	0	0	0
Need 2 photo finish		0	0		0	0	0	0	0	0
Need photo finish or video finish		1,2,3,4	1,2,3,4		1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4

Nordic Combined

Data for	GU	MS	TE	TS	SP
With start signal system		X			
With finish cells	X	X	X	X	X
With photo finish	X	X	X	X	X
With hand timing	X	X	X	X	X
With transponders	X	X	X	X	X
With video start control	X		X	X	X
Only run 1	X	X	X	X	X
Results with 1/10 th seconds	X	X	X	X	X
	for Level				
Need timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need hand timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need video start control	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need finish cells	0	0	0	0	0
Need finish cells B	0	0	0	0	0
Need photo finish	0	0	0	0	0
Need photo or video finish	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4
Need 2 photo finish	0	0	0	0	0

Freestyle Skiing

Data for	SXQF	SXF	MO	DM	SXT	XT
With start device	X	X	X	X	X	X
With start device B	X			X		
With delayed start door					X	X
With start clock	X					
With finish cells	X		X	X		
With finish cell course B				X		
With photo finish	X	X			X	X
With hand timing	X		X	X		
No hand timing		X			X	X
No hand timing run 2	X					
With transponders	X	X		X	X	X
Net times optional		X			X	X
Net times optional run 2	X					
Net times optional run 3			X			
Best times optional run 3			X			
No best times		X			X	X
No best times run 2	X					
With finals		X			X	X
With optional finals	X	X			X	X
With 1 final		X			X	X
With 1 qualification 1 final	X					
With 2 qualification 1 final			X			
With 2 courses				X		
No page 4 (timing part 1)				X		
	for Level					
Need timing	1,2,3,4		1,2,3,4	1,2,3,4		
Timer B optional	3,4 (Q)			2,3,4		
Need hand timing	1,2,3,4		1,2,3,4	1,2,3,4		
Need start clock	1 (Q)					
Need start device	1,2	1,2	1,2	1,2,3,4	1	1
Need start device B	1,2		1,2	1,2,3,4		
Need finish cells	1,2,3,4		1,2,3,4	1,2,3,4		
Need finish cells B	1,2,3,4		1,2,3,4	1		
Need finish cells course B				1,2,3,4		
Need photo finish	1,2	1,2			1,2	1,2
Need photo finish or video finish	3,4	3,4			3,4	3,4
Need 2 photo finish or video finish	1,2	1,2			1,2	1,2

Snowboard

Data for	PGS	PGSQ	PSL	PSLQ	PRT	SBXQF	SBXF	BXT	SL	GS	XT
With start device	X	X	X	X	X	X	X	X	X	X	X
With start device B	X	X	X	X	X	X	X				
With start clock						X			X	X	
With delayed start door	X		X		X			X			X
With finish cells	X	X	X	X	X	X			X	X	
With finish cell course B	X	X	X	X	X						
With photo finish	X		X		X	X	X	X			X
With hand timing	X	X	X	X		X			X	X	
No hand timing							X	X			X
No hand timing run 3 (Final)						X					
With transponders	X		X		X	X	X	X			X
Net times optional	X		X		X		X	X			X
Net times optional run 3 (Final)						X					
Best times optional	X		X		X						
No best times							X	X			X
No best times run 3 (Final)						X					
With 2 qualification		X		X							
With finals	X				X		X	X			X
With optional finals						X	X	X			X
With 2 qualification 1 final	X		X			X					
With 2 courses	X	X	X	X	X						
	for Level										
Need timing	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4			1,2,3,4	1,2,3,4	
Timer B optional	3,4	3,4	3,4	3,4	3,4	3,4 (Q)			3,4	3,4	
Need hand timing	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4			1,2,3,4	1,2,3,4	
Need start clock						1 (Q)					
Need start device	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2	1,2	1	1,2,3,4	1,2,3,4	1
Need start device B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2					
Need finish cells	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4			1,2,3,4	1,2,3,4	
Need finish cells B	1,2	1,2	1,2	1,2	1,2	1,2			1,2	1,2	
Need finish cells course B	1,2,3,4		1,2,3,4		1,2,3,4						
Need photo finish	1		1		1	1,2	1,2	1,2			1,2
Need photo finish or video finish						3,4	3,4	3,4			3,4
Need 2 photo finish or video finish						1,2	1,2	1,2			1,2

Grass Skiing

Data for	GS	SL	SG	SC	TE	PGS	PSL	K
With start device	X	X	X	X	X	X	X	X
With start device B					X	X	X	
With start clock	X		X	X				X
With finish cells	X	X	X	X	X	X	X	X
With finish cells course B					X	X	X	
With photo finish					X	X	X	
With hand timing	X	X	X	X	X	X	X	X
With transponders					X	X	X	
Net times optional					X	X	X	
No Best times					X	X	X	
With 2 courses					X	X	X	
Run 3 possible		X						
Run 4 possible		X						
	for Level							
Need timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Timer B optional	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4	2,3,4
Need hand timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need start clock	0,1,2		0,1,2	0,1,2				0,1,2
Need start device	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need start device B					0,1	0,1	0,1	
Need finish cells	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need finish cells B	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need finish cells course B					0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	

Telemark

Data for	CL	GS	PS	SP	TSP
With start device	X	X	X	X	X
With start device course B			X		X
With start clock	X	X		X	
With finish cells	X	X	X	X	X
With finish cells course B			X		X
Only run 1	X				
Net times optional			X		X
No Best times			X		X
With finals			X		X
With optional finals			X		X
With 1 qualification 1 final			X		
With 1 qualification 2 finals					X
With 2 courses			X		X
	for Level				
Need timing	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3
Need start clock	0	0		0	
Need start device	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3
Need finish cells	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3
Need finish cells B	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3	0,1,2,3

Speed Skiing

Data for	A
With start device	X
With start device B	X
With finish cells	X
With speed	X
With 1 qualification 2 finals	X
	for Level
Need timing	0
Need start device	0
Need start device B	0
Need finish cells	0
Need finish cells B	0

Masters

Data for	DH	GS	SL	SG	AC
With start device	X	X	X	X	X
With start clock	X	X		X	X
With finish cells	X	X	X	X	X
With hand timing	X	X	X	X	X
Run 1	X			X	
Run 2 optional	X	X		X	
	for Level				
Need timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need hand timing	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need start clock	0,1,2	0,1,2		0,1,2	
Need start device	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need finish cells	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4
Need finish cells B	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4	0,1,2,3,4