



UNITED STATES SKI AND SNOWBOARD ASSOCIATION

ADVANCED TIMING & CALCULATIONS - ALPINE

2016-2017

STUDY GUIDE

This Study Guide is intended as an educational and review aid for individuals interested in alpine officiating. Downloading, printing and reading the Study Guide must not be substituted for actual attendance at a USSA-approved Clinic or used as a replacement for actual instruction at any USSA-approved Clinic.

PLEASE NOTE: The Chief of Timing and Calculations is responsible for supervising, documenting and enforcing the quality control of actual timing and results; the purpose of this Clinic is refinement of the skills required by the position. With the exception of lower-level events where availability of personnel makes it necessary, the Chief of Timing and Calculations should not also be the individual operating the electronic timing equipment or the timing/race result software. However, training the use of timing equipment and/or timing/result software will result in higher qualified officials, so it should be included in the curriculum. In an effort to address this issue, materials are been made available for a Timing Operations Workshop that can be used to facilitate this addition.

REFERENCE PUBLICATIONS:

1. USSA Alpine Competition Regulations (ACR)
2. ICR of the FIS, Online Edition
3. Rules of the FIS Points
4. USSA Alpine Officials' Manual
5. FIS "Timing Booklet" (most current version available on FIS website)

CERTIFICATION EXAMINATION:

Advanced Timing & Calculations (Level 3) Certification Examination will be available at USSA-approved Alpine Officials' Clinics. Allowed time limit is 2.5 hours. The examination is open book and, unless an exception is granted by the respective AO Chair, it must be administered only at scheduled Clinics. It is NOT A TAKE-HOME EXAM. Allowing the use of computers for the calculation sections is STRONGLY DISCOURAGED! Completed examinations are to be retained by the Clinic examiners; they are not returned to the individuals taking them. Please refer to Regional/Divisional/State publications for schedules. *The Study Guide is not intended as a replacement for taking notes or for use during an open-book examination at any USSA-approved Clinic.*

If you have problems with this Study Guide or have suggestions for improvements, please contact the current Chair of the Alpine Officials' Education Working Group. Thank you.

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ADVANCED TIMING & CALCULATIONS - ALPINE 2016-2017

There is much information available to us - no one can possibly know it all. What we SHOULD know is WHERE to find it. Most of the sections of this Study Guide require research by the user. This will aid in the ability to understand the layout of applicable rule books/publications and will reinforce their content.

NOTE: The USSA Schedule Agreement and ACR 203.2, requires that the Chief of Timing & Calculations be appropriately certified for their position; certification requires USSA AO Membership. In addition, the Chief of Timing & Calculations for National Championship, NorAm Cup and World Cup events **should** be a Level 3 or higher certified Chief of Timing & Calculations.

REFERENCE DOCUMENTS:

The following reference items can be found at the end of this Study Guide, in “Miscellaneous Study Guide Forms” or on the FIS website. Document numbering is not sequential because it agrees with numbering in the “Master Packet of Forms”. The “Master Packet of Forms” has been updated for season 2016-2017 and can be found on the USSA website. It is suggested that forms be printed for easy reference while using the Study Guide.

- 42. Timing Checklist
FIS Timing & Data Technical Report Example
FIS List Cover Page (USSA/FIS websites)
- 39. FIS Penalty Calculation Form
FIS “Timing Booklet” (Misc. Study Guide Forms & FIS website)
- 29.-33. Replacement Time (Hand) Time of Day (TOD) EET Simplified Example/Form

I. Focus of this Study Guide is primarily FIS-level events

- A. Regional FIS
- B. Nor-Am (Continental Cup)
- C. World Cup, World Championship and Olympic Winter Games

II. Characteristics of Events

- A. Competitors are top level racers
- B. Team Captains are highly astute and knowledgeable professionals
Depending on type and level of event, 1 or 2 Team Captains may be appointed to serve as Connection Coaches. Connection Coaches:
 - Serve as liaison between all Team Captains and the Jury
 - Serve as on-hill “Eyes of the Jury”
 - May supervise yellow flag zones in DH and SG
 - Have voice but no vote in Jury matters/decisions
- C. Organizing Committee is committed to a quality event
 - 1. Media exposure means that any statement can be news
 - 2. Financial commitment entails large \$ sponsors

3. Technical Delegate, Referee, and Assistant Referee as appointed by the Technical Delegate (speed events only) [601.2.3, 601.4]

D. Organizing Committee (Organizing Committee is highly experienced and qualified)

E. Race Jury

1. World Cup: FIS Chief Race Director and FIS Race Director serve as Referee and Assistant Referee for all events – both speed and technical [601.2.1]
2. World Championships and Olympic Winter Games: All Jury members, including Start and Finish Referee, are appointed by FIS and have voting rights [601.2.2]
3. In all other races* the Technical Delegate appoints the Referee and for Downhill and Super G, the Assistant Referee [601.2.3]
4. By appointment, the above become members of the Organizing Committee [601.2.4]

*Referee, Assistant Referee and Course Setters are appointed by Nor-Am Cup Committee for Nor-Am Cup events. These officials are also appointed by USSA for Championship events.

F. Additional support officials, as required, have a high level of certification, knowledge and experience

G. Professional Timing Company and Timing System Requirements [611]

H. FIS Computer Company

1. FIS Points
 - a. Validity (4.2.4 – the current season)
 - b. Rule Observance (1.1 – not observed; race not scored)
 - c. FIS List (5.1 – FIS List is only available electronically; software that enables access is available at <ftp://fisski.ch>.) Software data and other publications are also available.
 - d. FIS Points may only be corrected by FIS Bureau. FIS Points on FIS website version of FIS Points List that are marked “C” are verified as being “confirmed”.
2. NorAm Cup Points are used for seeding of the first group of fifteen (15). They are updated after each event.* (Due to greater number of athletes qualified for Europa Cup, different procedures apply for Europa Cup, e.g.: 30 in first group/special group = 450 points.)
 - a. Entry to NorAm Cup events are quota controlled.
 - b. Overall 400-point holders from prior and current season are seeded at 16th position
 - c. Overall 400-point holders who were injured and unable to utilize special seeding during previous season may use it at the first 3 races of the following season. This is valid for a maximum of 3 starts irrespective of the events.
 - d. Overall 400-point holders are followed by the present competitors ranked within the top 30 of the FIS points list.
3. World Cup Points are used to seed first group of thirty (30); updated after each event.*
 - a. Overall 500-point holders from among top 30 WCSL present are seeded at 16th position
 - b. Overall 500-point holders from remainder of field are seeded no later than 31st position

***Refer to current Continental Cup Rules and World Cup Rules if more detail is required.**

III. What is SCORING?

A. Dimensions of scoring are:

To ensure that ALL scoring functions come together and function as a unit: Classic ICR descriptions are found as follows: Chief of Timing & Calculations [601.3.6]

1. Chief Timekeeper [612.4]
2. Assistant Timekeepers (Manual/Hand Timekeepers) [612.5]
3. Finish Controller [612.6]
4. Chief of Calculation [612.7] (When appointed.)

B. Scoring interacts with:

1. Timing Company
2. Scoring Computer Company
3. Announcer
 - a. A run or race that is rescheduled for a later time slot on the same day is **delayed**
 - b. A run or race that is rescheduled to a different date is **postponed**
 - c. A run or race that is started but cannot be completed is **terminated**. *There is no set number that has to start or finish. If even one forerunner has started and the Jury determines that the event cannot continue, it is a “terminated” event.*
 - d. A run or race that will not be held is **canceled**; cancellation of an event vacates the USSA race code/FIS codex and invalidates the event liability insurance.
 - e. Announcer should be available to announce competitors’ *unofficial* times.
 - f. Announcer should be available to announce DSQ’s. When an announcer is announcing *unofficial* times, DSQ competitor data announcement can replace posting of Report by the Referee. Team Captains must be notified beforehand if announcement of DSQ information is going to replace actual posting. [617.2.2]
4. Race Secretariat/Race Administrator

Due to requirements for preparation of accurate event documentation (these are all legal documents), it is strongly suggested that the Race Administrator not assume the duties and event-responsibilities of the Chief of Timing and Calculations.
5. Press Chief
6. Technical Delegate
 - a. Verifies timely synchronization of timing equipment
 - b. Verifies accuracy of Official Results and Penalty
 - c. Verifies accuracy and signs “FIS Timing & Data Technical Report Form” prior to its electronic transmission to FIS
7. Referee (Report by the Referee).
 - a. Chief of Timing or Assistant should track/enter NPS, DNS and DNF bib numbers on the Report by the Referee
 - b. Chief of Timing should meet with Referee (and Assistant Referee for speed events) and assist with entering DSQ competitor data, e.g.: Name, team, Gate Judge, type of fault/rule.
8. NPS – Not Permitted to Start: A competitor will not be permitted to start (NPS) in any FIS competition who does not wear a crash helmet that conforms to the Specifications for Competition Equipment (606.4), or does not have ski brakes on their skis (606.3), *does not wear or carry an*

official start number according to the rules (606.1). [627, 627.2, 627.6] An “official start number” refers to any bib issued by the local event organizer; this includes replacement bibs furnished by the Start Referee.

9. Recording “NPS” Situation - USSA and FIS Events
 - a. Due to rule(s) violation(s), athlete is not permitted to start; this could apply to either run of a 2-run event.
 - b. Athlete’s status is recorded by the Start Referee as “Not Permitted to Start” (NPS); reason must be stated. *It is suggested that the athlete’s bib as well as name be recorded.*
 - c. “NPS” should be noted in “DSQ” portion of Report by the Referee as required.
 - d. Applicable rule number(s) must be noted for results
 - e. Software will include “NPS” designation
 - f. Technical Delegate must verify accuracy of Official Results and Penalty posted on USSA/FIS websites.

NOTE: *Due to force majeure, the Technical Delegate may prepare, sign and post the Report by the Referee or may assign this duty to another official. A Report by the Referee signed by the Technical Delegate or designee is valid.*

10. Jury
 - a. In cases of system malfunctions, e.g. timing systems, Jury allows provisional reruns
 - b. In cases of doubt, Jury allows provisional reruns not based on system malfunctions
 - c. In cases of doubt, Jury allows provisional starts
 - d. Confirms validity of provisional starts and provisional reruns
 - e. Establishes start intervals for GS, SG, and DH and communicates the intervals (fixed/regular) to Chief of Timing or assistant.
 - f. In cooperation with Chief of Timing or assistant, establishes start intervals for Slalom (non-fixed/irregular)
 - g. In accordance with rules regarding minimum start intervals, establishes start intervals for Giant Slalom, Super G, Downhill Training and Downhill
 - h. Confirms start intervals for Giant Slalom, Super G and Downhill and communicates any changes with Chief of Timing or assistant
11. Provides instruction to manual/hand timekeeping crew in order to provide required manual timekeeping that is consistent and accurate

C. **QUALITY** - Establish confidence in "Real Time" timing/scoring presentations

1. Familiarize yourself with available timing systems: Start, Finish, Net Time
2. Verify scoreboard is available with: Bib #'s, Names, Unofficial Times
3. Verify location of intermediate timing points
4. Verify location and accuracy of video displays
5. Furnish progress reports to media with respect for deadlines
6. Document NPS, DNS and DNF on Report by the Referee and be available to verify NPS and DSQ competitor data, e.g.: Bib, Name, Team
7. Aid in preparation of accurate official reports according to format

IV. Initial Actions of Scoring are:

- A. Establish presence with the following:

1. Secretariat: Verify Race Secretary is using updated race result software, current/applicable Points List and confirmed technical data, etc.
 2. Timing Company: Verify use of homologated timing equipment
 3. Scoring Computer Operations: Verify scoring software has been updated and is compatible with race result software
 4. Chief of Manual/Hand Timing: Verify availability of supplies, equipment and knowledge of procedures
 5. Technical Delegate
 - a. Confirm timely synchronization of timekeeping equipment: electronic & manual
 - b. Prepare Timing & Data Technical Report for Technical Delegate's review/signature
 - c. Oversee electronic transmission of Timing & Data Technical Report to FIS
 - d. Provide consistency and accuracy
 - e. Be available to verify all official times
- B. Facilities and Schedules
1. Verify schedule for Team Captains' Meeting
 2. Verify schedule for creating seed board
 3. Verify location of Press Room and identify press room liaison personnel
 4. Verify location and availability of results reproduction facilities
 5. Inspect Finish Building and Finish Line/Finish Area [615.2]
 - a. Finish Photocells: Are they approved?
 - b. Width between Finish Posts
 - 1.) DH and SG finish line dimensions – no less than approximately 15 m*
 - 2.) SL and GS finish line dimensions – no less than approximately 10 m*
 - 3.) Line is marked horizontally with a coloring substance so that it is clearly visible to the approaching competitor
 - 4.) Timing equipment/competitor security installation

*Distance is between finish posts/banners not length of finish line. Timing posts must also adhere to these measurements.
 6. Start Area, Start Facilities and Start Gate/Area specifications [FIS "Timing Booklet 2.52"]
 - a. Homologated Start Gates
 - b. Dimensions
 - 1.) Width: Support posts should be 50 – 80 cm apart
 - 2.) Wand should be mounted approximately 35 – 50 cm from the snow
 - c. Start Wand Installation
 - 1.) Description: small diameter fiberglass rod
 - 2.) Mounting
 - a.) Only one wand is permitted
 - b.) Wand cannot be so stiff that it could cause injury or not break, but must be stiff enough to eliminate false starts
 - c.) Wand must stay open once it is triggered; *auto return wands are not permitted*

- d.) Duplicate start wand must be on hand for replacement purposes
- e.) Mounted horizontally above the starting line and at an elevation that places it at or below a racer's knees
- f.) Mounted on a hinge. As the racer propels forward across the starting line, the wand is forced to swing forward and to the side by the racer's leg. Placement of start gate must be marked on the support posts.
- g.) Replacement must be with identical gate, at same position and with same rotation
- h.) If two start gates are used in concert, they must be solidly mounted on same physical bracket. Both mechanisms and box must be stiffly connected together.

NOTE: Refer to current FIS Timing Guide for information regarding angular range and accuracy of the start wand.

3.) Starting Gate

- a.) Minimum of 2 electrically isolated contacts activated by 1 wand.
- b.) Timing wires must be connected to separate start gate contacts using separate connections.
- c.) Wand must be installed so that starting is impossible without it opening.
- d.) Exact replacement gate must be available, if required

4.) Communication

- a.) Wiring between the start wand and the timekeeper's booth is generally available through another pair or wires or is piggybacked onto an existing pair – usually backup.
- b.) A headset may be plugged into a jack at the start so that the Starter can be in constant voice communication with the timing room

7. Accompany Jury on course inspection and check for the following:

- a. Location of "yellow flag" zones and "blind" areas. FIS is reviewing language regarding yellow flag zones. Possible change may include Giant Slalom as an event requiring use of yellow flags. At this time, this is a Jury decision.
- b. Location and staffing of intermediate timing positions

V. Questions You Need to Ask:

- A. Are all entries in? Are all entries on the Board? (*This is important for DHT where rules require that all qualified competitors be entered and drawn in all training runs.*)
- B. What computer-scoring program is being used and has it been updated? Is the operator familiar/comfortable with its use?
- C. Does it meet the requirements of 611.3.5 which requires that computer software that calculates net times must use precision of ToD as used in the timing device?
- D. Is the correct and current Points List available?
- E. Is the scoring computer up to date on entries?
- F. Have all the preliminary reports been prepared?
- G. What is preparation status of timing facilities? (**Refer to #42. Timing Checklist**)

- H. Has all of the header data been entered in the computer?
- I. What timing equipment is being used? Is the operator familiar/comfortable with its use?
- J. What system will be used to transfer data between results computer and timing
 - 1. Transfer of race file which does not allow the RA to perform race data editing during race
 - 2. Transfer of timing file which involves only bib numbers and times and does allow for race data editing
- K. What start gate is being used?
- L. What finish photocells are being used? Photo Finish timing has been approved for use at FIS events for *backup purpose*. FIS has established criteria for photo finish systems, and they must be followed (see current edition of FIS “Timing Booklet”). Due to the cost of the equipment, it will mostly be used at OWG, WSC, WC levels.
- M. Are timing equipment, start gates and finish photo cells all on the homologated lists? [611.2]

NOTE: All timekeeping equipment MUST meet stipulated standards. Use of equipment that does not meet standards will result in an event not being considered (scored).

- N. Are requirements for electronic data transmission of Official Results and Penalty – wireless or network – in place?

It may seem that we are delving into areas of responsibility belonging to other officials; however, it is necessary to be sure that the interfaces are going to function smoothly and efficiently. There is not enough time to try to fix things while the competition is in operation. Since the Chief of Timing & Calculations or Scoring should evaluate these interfaces and take whatever action is necessary to get the job done without sacrificing QUALITY!

VI. Quality Assurance Actions

- A. Team Captains’ Meeting, Seeding and the Draw. According to USSA and FIS rules, the draw must be conducted (or confirmed) at a Team Captains' Meeting. An actual meeting, attended in person by Team Captains, Jury, and race officials is an inseparable and mandatory part of the competition and is important for communication of Jury instructions, support of the OC, as well as conveying OC requests and information. It is also a critical element for risk management and liability-related matters. [Refer to 621.8, 604.3]

With the approval of the Jury and at a time and place announced to all Team Captains, and where a computer-assisted Draw has been approved or is not required (e.g. YSL where TRS by class and gender is used to determine the start order), an informational meeting is still required but may be held either immediately after the completion of a race for the next day's event or on the morning prior to a race.

For all Team Captains’ Meetings for all USSA-sanctioned events—both scored and non-scored, and regardless of where and when they occur, an Attendance List must be available and signed by everyone attending the meeting. Meeting Minutes must be generated and must be included in the submitted race result packet.

- 1. Keep in close touch with Secretariat
- 2. Attend Team Captains' meetings
- 3. Recheck the Seed Board before and after Draw
 - a. Verify accuracy of the Board
 - b. Verify seed-point ties are identified

- c. Verify correct seeding of competitors entitled to 16th/31st position, if applicable (USSA “Golden Rule”, FIS NorAm & FIS World Cup)
- d. Verify grouping of competitors without points
- e. Verify additional special seeding groups as authorized by the Jury
- 4. Verify correct application of rule regarding “Snow Seed”?
- 5. Verify number of available Forerunners
- 6. Independently record the Draw
- 7. Recheck the Start or Training List against the Board
 - a. Verify header information against the appropriate source: Homologation file
 - b. Verify accuracy of footer information

NOTE: USE OF ELECTRONIC SEED BOARDS: Electronic seed boards must have the capability to simultaneously and legibly display the entire competition field. Simultaneous display of all competitors allows all Team Captains and officials to verify the overall accuracy as well as additions and deletions to the starting order in “real time”. *Using the race result software to display portions of the competition field is not acceptable.*

B. Downhill Training

- 1. Verify all timing equipment and personnel will be in place for all training runs
- 2. Verify accuracy of Start List in scoring computer
- 3. Address intermediate timing considerations
 - a. Timing machine operators
 - b. Necessity of having on-hill operators
- 4. Multiple Time Bases
 - a. Verify that score board, either electronic or paper, is available to display competitors’ times
 - b. Verify that forerunners' times will not be displayed
 - c. Verify accuracy of Time-of-Day printouts
 - d. Verify status of press room video displays, if available
 - e. Verify status of Announcer's display, if available
- 5. Press Reports (UNOFFICIAL) Standard format not required
 - a. Establish contact with Chief of Press
 - b. Establish system for press report production and distribution
 - 1.) Verify accuracy of documents released to press
 - 2.) Keep copy of all documents released to press
 - 3.) Cooperate with electronic transmission to Press Room if no runner is available
- 6. Other Reports
 - Accurately prepare all required reports in a timely manner

C. Race Day - Be prepared for the unexpected.

- 1. First Run
 - a. If possible, attend Jury inspection
 - b. Verify schedule

- c. Verify amount of 2nd Run “Bibbo” [Reverse 15? 621.11.3]
- d. Verify synchronization checks with TD; assist with compilation of “Timing & Data Technical Report”
 - 1.) Online filing required for all FIS events. *The required program is currently available at <ftp://ftp.fisski.ch/Software/Programs/TimingReport/>. It is available for Linux, MacOS and Windows, and program updates will be posted on the website as required. Software will alert when an updated version is available.*
 - 2.) Paper copy filing required for all USSA-scored, and USSA non-scored Championship (e.g. U12 Championships, Masters Championships) events. *FIS program can be used to produce a paper copy report, as required, for USSA non-FIS events. (When the software is used for a USSA event, presence of FIS logo is a non-issue.)*

The FIS program can be used to produce a paper copy report, as required, for USSA non-FIS events. The software does accept “National Race Code” which is used for a USSA Race code number (alpha character + 4-digit number); “Race Codex” is left blank and either “CHI – Children” or “JUN – Junior” category must be selected. *The XML file must not be submitted to FIS for non-FIS events or to USSA as USSA is not currently set up to accept the timing report XML file.*
- e. Verify course and weather data for headers and communicate the information to RA/DM
- f. Follow preparations of timing and computer operations
- g. Verify instructions for manual/hand timekeeping crew
- h. Verify measurement by wheel, tape or GPS for DH and SG has been accomplished
- i. Recheck start order in computer
- j. Plan press report production; follow plan
- k. Keep "Report by the Referee" up to date by noting bib # for NPS, DNS and DNF competitors
- l. Observe timing company operations
 - 1.) Verify accuracy of time-of-day printout
 - 2.) Verify accuracy of interval timing reports prior to distribution
 - 3.) Make notes on Start List
 - 4.) Track differential between main and backup timing
 - 5.) Identify five best (lowest) point holders who start race regardless of result
- m. Print unofficial listing immediately after last competitor finishes
- n. Meet Jury at finish with complete unofficial listing and “Report by the Referee”
 - 1.) Assist Referee/Assistant Referee with review of Gate Judge Cards
 - 2.) Provide a copy of unofficial competitors’ ranking for the Technical Delegate
 - 3.) Deliver DSQ list to announcer
- o. Publish Unofficial Results report
- p. After protest period verify appropriate action taken on DSQ's with computer operations
- q. Print/verify 2nd Run Start List or 1st Run Results
- r. Verify Race Administrator has been made aware of any Jury decisions that may require

documentation (Jury Minutes), e.g. application of chemicals, change in start order, change in start times, change in announced start intervals for Giant Slalom, Super G, Downhill Training and Downhill

2. For Second Run of Two-Run Events

- a. Assist TD with synchronization checks; assist with completion of “Timing & Data Technical Report” data
- b. Verify 2nd Run cutoffs
- c. Verify accuracy of Second Run Start List.
 - 1.) “Bibbo”; check for ties at last position of flipped group (30th or 15th)
 - 2.) Verify start order of ties outside of “bibbo”
 - 3.) For USSA scored non-FIS events, verify if 1st DNF/DSQ competitors are included on 2nd Run Start List

a.) Suggested Procedure for Tracking 1st Run DNF, DSQ athletes in 2nd Run:

The Chief of Timing & Calculations and the Race Administrator/Data Manager account for all competitors, and the USSA Technical Delegate Report requires documentation of these calculations. For events where 1st-run DNF, DSQ athletes are allowed to start in the 2nd run, this can create a unique challenge. Some Technical Delegates may instruct the Chief of Timing & Calculations to stop recording after all valid 2nd-run starters have completed their run. This will result in an incomplete record of the event, so the following is suggested as an alternative procedure.

- Start Referee notifies Timing when last valid 2nd-run starter has left the start
- Chief of Timing & Calculations or assistant makes appropriate notations in the DNS and DNF sections of the Report by the Referee
- Report by the Referee will now concisely reflect how many actual 2nd-run DNS and DNF competitors are to be considered in calculation of “Finishers/Total Ranked on Result”.

The following is suggested method. Chief of Timing or assistant may use recording method of their choice; e.g.: End 2nd Run, Run 1 Racers, etc.

Did not start (No.)/Pas au départ (No.)/Nicht am Start (Nr.)			4	27								
2nd Run complete	18	34	42									
Did not finish (No.)/Pas à l'arrivée (No.)/Nicht im Ziel (Nr.)			1	7	23	29	31	37	41	45	49	52
	65	72	77	81	82							
2nd Run complete	6	15	21	34								
Time published / Heure d'affichage / Anschlagzeit H:mm			Deadline / Délai / Ablauf H:mm			Date / Date / Datum m/dd/yy			Signature Referee Signature du juge arbitre Unterschrift des Schiedsrichter SI			

- d. Complete additional duties performed during 1st run
- e. If time permits, complete hand calculation of Penalty and include calculation draft when meeting with Technical Delegate after race.

VII. Review and Update

- A. **Factors:** DH - 1250 SL - 720 GS - 980 SG - 1080 AC – 1150
- B. **Electronic Equipment Setup:** The time of day times must be immediately and automatically sequentially recorded on printed strips at the maximum precision of the timing device according to the requirements for homologation.
- C. Rules and suggested procedures for USSA dual/parallel and parallel events are available. Please refer to current editions of USSA ACR and/or FIS ICR.
1. **Dual Parallel Events** can be staged using either Giant Slalom (GS) or Slalom (SL) format. Two or more competitors race simultaneously side by side down two or more courses. Winners of each run do not advance into “brackets” or elimination-type finals. Overall winner is decided either by fastest time on course (1- run format) or fastest combined time (2-run format).
 2. **Parallels** can be staged using either Giant Slalom (GS) or Slalom (SL). Two or more competitors race simultaneously side by side down two or more courses with the winners advancing into “brackets” and elimination-type finals.
- D. FIS Points are calculated to 999.00. USSA uses 999.99 to indicate an athlete has no earned USSA Points.
- E. Competitors qualified for the event must be entered and drawn for all Downhill Training runs.
- F. **Photo Finish Timing (611.3.2.2):** A Photo Finish System may be used to determine a competitor’s finish time. In case of a failure of system “A” and “B”, and where the competition has been recorded by the Photo Finish System, this time must be used in place of hand times (manual times) using a correction factor.
- The correction factor is the difference between the time taken by the Photo Finish System and the electronic times (where possible) of the 3 competitors before the missed time. Where there are not 3 previous competitors then the time of a competitor(s) immediately after the missed time can be used.
- The sum of the 3 (or less) time differences divided by 3 (or less) is applied to the photo finish time of the competitor without an electronic time.
- The photo finish time is taken when any part of the competitor’s body first crosses the finish line. **Photo finish result is only provided to the Jury!**
- G. **Wireless Timing:** According to Precisions, what is it and when can it be used?
- H. **Start Rules: Early/Late Start** rule violations and penalty [613.6, 613.7, 805.3 & 805.4]; **Delayed Start** rule violations and penalty [628.5]
- I. **Not Permitted to Start [627.6]:** How is it documented?
- J. **Results for Limited Finishes:** How many racers have to finish in order for an event to be scored?
1. **USSA:** “Ghost” racers with maximum value points may be added to bring total of finishers to 5; no race penalty can be calculated when there are fewer than 3 finishers. [2017 Alpine Competition Guide: Rules for USSA Race Penalty Calculations - Fewer than Five Racers Finish.] *Penalty will have to be calculated manually; “ghost racers” must not be inserted into the race scoring software.*
 2. **FIS:** 5 must be classified; 3 must have FIS points. [4.4.4, Rules of the FIS Points]
- K. **Race Points** [4.4.3, 4.4.6] are not calculated higher than maximum.
- L. **Category Adders** are competition level, gender and event specific.

- M. **“Z” (Correction Value)** is gender and event specific. A positive number is subtracted; a negative number is added.
- N. **Validity of Result:** [4.2.4] A FIS result is valid for the current season.
- O. **Continuing on course after losing one ski (FIS only):** [614.2.4] If a competitor loses a ski without having committed a gate fault or without coming to a complete stop, he may continue, as long as he does not interfere with the run of the next competitor or has not been passed by the next competitor.
- P. **Fall in Finish** - when manual/hand timekeepers take time [611.3.1]
- Q. **Gate Fault Prior to Crossing Finish:** Status of a racer who commits a gate fault prior to crossing the finish line [611.3.1]
- R. **Secondary Electronic Timing:** Used when primary fails
1. ICR ruling [611.3.2]
 2. Fluctuations
If system allows manual intervention of timing, timing tape must be marked. [611.3.4] It is a good idea to mark times that will require a replacement time (EET).
 3. It is not permitted to substitute time-of-day times from System B for use with System A for the purpose of net time calculations. [611.2.1]
- S. **Replacement Time (EET) - ICR description [611.3.2.1] (Refer to #27. & #28. Replacement Time (Hand) EET-Simplified)**
1. Use for secondary timing adjustment, if primary timing fails
 2. Use if both primary and secondary timing fails
 3. Use in reverse fashion to adjust electronic time to equivalent manual/hand time, if required
 4. The actual calculation(s) must be made available for the Technical Delegate’s review and must be included with the Technical Data Timing Report (if one is required by level of event), submitted in USSA’s Race Result Document Packet. Copies of the calculation(s) and the Technical Data Timing Report must also be submitted to the assigned Timing Working Group member for each USSA Division.
- T. **Timing Record:** Primary and, if required, secondary timing tapes are the official timing record for the event and must be used to proof computer input.
- U. **Timing Tapes:** Deliver timing tapes to Technical Delegate [611.3.3]. After Technical Delegate’s review, the tapes remain with the OC. *Force majeure may require that the Technical Delegate retain possession of the timing tapes.*
- V. **Online Filing of FIS Timing Data Technical Report (TDTR)** FIS requires online filing of the “Timing Data Technical Report” (TDTR). A paper copy of the online report must be made available for inclusion in required electronic or paper copy race result document packets as noted in “Distribution of Documents – FIS Events”.

The TDTR program is available for download (MAC and Windows) on the FIS ftp website, (<ftp://ftp.fis.ch/Software/Programs/TimingReport/>); it will be updated as required. Please verify that the current version is being used.

The FIS program can be used to produce a paper copy report, as required, for USSA non-FIS events. The software does accept “National Race Code” which is used for a USSA Race code number (alpha character + 4-digit number); “Race Codex” is left blank and either “CHI – Children” or “JUN – Junior” category must be selected. *The XML file must not be submitted to*

FIS for non-FIS events or to USSA as USSA is not currently set up to accept the timing report XML file.

W. FIS Penalty: (Refer to FIS List Cover Page and #39. FIS Penalty Calculation Form)

1. Understand procedure [4.4]
 - a. Identify event level
 - b. Select gender
 - c. Select event for Adder and “Z” (Correction Value) [4.4.7, 4.5]
 - 1.) If the “Z” is positive, it is subtracted
 - 2.) If the “Z” is negative, it is added
2. Understand procedure when current seed points are above maximum value or do not exist:
 - a. Maximum value is assigned to competitors who are ranked in the top 10 in time whose actual seed points are above the maximum value
 - b. Maximum value is also assigned to competitors who are ranked in the top 10 in time and have not earned FIS points
3. Understand how to recognize and apply rules regarding ties in Penalty calculation
 - a. Tie 10th place in time: consider all ties to select best (lowest) 5 seed points
 - b. Tie 5th best (lowest) seed points - higher race points
 - c. If competitors to whom maximum value has been assigned are being considered among the 5th best (lowest), competitors who had “actual” FIS Points are chosen first
4. Penalty calculations - See **CURRENT RULES OF THE FIS POINTS**.
 - a. Minimum penalty - where found [4.5]
 - b. Best 5 who start [4.4.2]
 - c. Best 5 ***FIS Points*** [4.4.3]
 - d. Less than 5 with FIS Points – assignment of maximum value [4.4.4]
 - e. Negative penalty [4.5]
 - f. Rounding [4.4.8]
 - g. Alpine Combined [4.4.9]
5. Category Adders and Minimum Penalties [4.5]

The relevant category adder is added to the calculated penalty. If the calculated penalty is less than the minimum, the minimum is assigned as the penalty.
6. At least five racers have to finish and at least three of them must have actual FIS points or the race penalty cannot be calculated and the event cannot be scored.

X. USSA Penalty – NON-FIS EVENTS

1. Minimum Penalties for USSA-scored events
 - a. The minimum penalty for a non-FIS USSA race that meets minimum vertical drop requirements is 15.00. If the calculated penalty is lower than 15.00, the applied penalty shall be 15.00. If the minimum vertical drop requirement is met, the minimum winning time requirement does not apply.
 - b. The minimum penalty for a non-FIS USSA race that does not meet minimum vertical drop requirement but does meet minimum winning time requirement as published in the 2016 Alpine Competition Guide is 30.00. If the calculated penalty is lower than 30.00, the applied penalty shall be 30.00.
 - c. If both of the published standards – the minimum vertical drop requirement and the minimum winning time requirement are not met, then the greater of the calculated

penalty plus an additional penalty as published in the 2016 Alpine Competition Guide, or the minimum penalty of 30.00 shall be applied.

2. Calculation of a USSA Penalty under particular circumstances
 - a. Race fails to meet Vertical Drop, Minimum Time Requirements

MINIMUM VERTICAL DROP PER RUN:

ALTERNATE MINIMUM TIME STANDARDS AND ADDITIONAL PENALTY:

<u>EVENT</u>	<u>MIN VD</u>	<u>ALT MIN TIME</u>	<u>ADDITIONAL PENALTY</u>
DH*	400 m	60 seconds combined/max 2 runs	26.00
SL	100 m	50 seconds combined for 2 runs	12.00
GS	250 m	50 seconds combined for 2 runs	17.00
SG	300 m	40 seconds for 1 run	21.00

NOTE: DH “combined/max 2 runs” does not eliminate 60-second minimum time for a 1-run DH.

- b. Fewer than ten racers finish, a minimum race penalty shall be applied regardless of the calculated penalty, as follows:
 - 1.) DH – 180
 - 2.) SG – 135
 - 3.) GS – 110
 - 4.) SL – 80
 - 5.) AC – 125
- c. When at least five racers with valid USSA points finish, but one or more has points over the maximum value, assign points at the maximum value as follows, prior to completing the calculation:
 - 1.) DH – 820
 - 2.) SG – 660
 - 3.) GS – 530
 - 4.) SL – 360
 - 5.) AC – 660
- d. When fewer than five racers in the first 10 have valid USSA points
 - 1.) Assign maximum value in order to bring the total of racers with points to five
 - 2.) Remember maximum value is also assigned to any of the best five whose actual USSA points are above the maximum level
- e. When fewer than five racers finish, penalty must be calculated manually:
 - 1.) Insert “ghost” racers in order to reach a total of five
 - 2.) Assign maximum USSA points to each “ghost”
 - 3.) Assign race points equal to those of the lowest ranked (slowest time) finisher
 - 4.) Calculate penalty according to the form.

RACE PENALTY CANNOT BE CALCULATED WITH FEWER THAN THREE FINISHERS!

- Y. **FIS SOFTWARE:** Understand use of FIS List and FIS TDTR software. If necessary, assist with data transmission of results to FIS Bureau. (Required software and points list data are available for free download at **ftp://ftp.fis.ch**)

“XML”: file in XML format (USSA Software identifies the correct file as “NatFIS”), is required for electronic transmission of results to FIS

1. Results not produced in “XML” format will not be entered into the database
2. If your software does not provide a “print preview” option, verify transmission format by opening file in WordPad, Notepad or similar utility. If errors are found, do not attempt to edit in Word or Word Perfect as this may damage the file; all errors should be corrected through the original software and verification process should be repeated
3. Verify keyboard characters such as an ampersand (&) have not been used; these characters will not be recognized, and electronic transmission will fail. FIS error message will state:

***The XML page cannot be displayed
Cannot view XML input using XSL style sheet. Please correct the error and
then click the [Refresh](#) button, or try again later.***

***Whitespace is not allowed at this location. Error processing resource
'file:///C:/Documents and Settings/xmlfiles/Local Setti...***

4. Successful transmission of both the race result “XML” and the TDTR “XML” files is required prior to the Technical Delegate filing an online TD Report.
- Z. **START STOP/YELLOW FLAG STOP Procedures:** Ski Patrol personnel assigned to the event – not Team Doctors, Team Captains, spectators, etc. - are “first responders” to a competitor requiring medical assistance; this also applies to manual/hand timekeeping personnel.

VIII. MISCELLANEOUS FIS RACE PENALTY INFORMATION

FIS-level Chiefs of Timing & Calculation must be aware of minimum/maximum Penalties that apply to the race being scored. The minimum is the lowest Penalty at which the event will be entered into the Points List. If the calculated Penalty is lower than the minimum, the minimum figure must be used. If the calculated Penalty is greater than the minimum, the calculated figure is used. Maximum/minimum Penalties can be found on the cover of the FIS Points List.

Correction of Penalties. The correction value (Z) - gender and event specific - is taken into account in the Penalty calculation for each race. This ensures that all Results can be compared to each other from list to list.

Category Adder and Minimum Penalty: The relevant adder - competition level, gender and event specific - is added to the calculated Penalty. If the calculated Penalty is less than the minimum, then the minimum Penalty is applied.

Calculation of FIS Points:

4.2 FIS Points (Short Summary FIS Council Meetings, Cancun (MEX), June 2016.)

4.2.1 Base FIS Points list (BL)(*) is published in mid-May

4.2.1.1 The average of the best two results in each event during the past season will be used for the calculation of the BL list.

4.2.1.2 For a competitor who has obtained only one result in any of the alpine events (Downhill, Slalom, Giant Slalom, Super G or Super Combined), during the past season period, 20% (+) of his result will be added to the result.

4.2.1.3 For a competitor who has not obtained results in any of the alpine events (Downhill, Slalom, Giant Slalom, Super G or Super Combined), during the past season period, 50% (>) will be added to the previous BL points.

4.2.1.4 If the status as injured is approved, and a competitor has not started more than two (2) times in one event and/or six (6) times across all events during the valid season 10% (#) will be added to the competitor's BL if the current points are not better than the protected points.

4.2.2 – 4.2.4 Normal FIS Points List (NL)/Base Points List (BL)/Result Validity

The 1. FIS Points List will be published on 20th May based on the BL. The NL will reflect the average of a competitor's best two results in each event during the current period if the points are better than the BL. Without BL points, 20% will be added to his result.

IX. FIS TIMING REQUIREMENTS (Refer to most current edition of FIS “Timing Booklet” available in “Miscellaneous Study Guide Forms” on USSA website or in Timing section of FIS website.)

Intermediate Timing: It is best to co-ordinate with the Technical Delegate and the race jury for placement of cells. To avoid the cells being triggered by anyone other than the competitors, it is recommended that the person responsible for that intermediate timing point use a push-button to arm the photocells only when a competitor crosses the line. When wiring for an intermediate, confirm that the momentary switch gets wired into the signal side of the wire, not the ground.

UNITED STATES SKI AND SNOWBOARD ASSOCIATION

TIMING CHECKLIST

- Interconnects 1. Is there wire? Does it work? Are you sure?
- Equipment 2. Is the equipment on the current list of timing equipment homologated by the FIS Timing Working Group?
(<http://data.fis-ski.com/services/timing-and-data/homologated-timing-equipment.html>)
- Setup 3. Do the timer tapes each report times to the maximum precision of the timing device according to the requirements for homologation?
- Software 4. If timing software is used to calculate times, is it calculating net times using the precision of ToD as used in the timing device?
- Hand Timing 5. Is hand timing that records to 1/100th (.01) precision available?
- Quality 6. Is the timing crew aware that hand times, even if not used, should be within acceptable limits?
- Start Gate 7. Does the Start Gate meet the following requirements?
a. Separate contacts?
b. One wand?
c. Installed at proper height?
d. Are identical Start Gate mechanism & Wand available for replacement?
e. Is the placement marked on the Start Posts?
f. Are the Start Posts solidly installed?
- Finish Eyes 8. Do the Finish Photocells meet the following requirements?
a. Are 2 sets available?
b. Are 4 posts available for mounting photocells?
(2 are acceptable; replacements must be available)
c. Is the vertical separation between the beams no greater than 20cm?
- Power On 9. Is the Power-On Time (this is the “warm-up” time, which is not the same as the Synchronization Time) done at least 30 minutes prior to synchronization in order to allow the quartz time bases to stabilize?
- Synchronization 10. Have system A and System B been synchronized no more than one hour (60 minutes) prior to first racer start time for each run?
11. Has the synchronization been performed from one single contact switch for all timing devices?
- Systems 12. If System A fails, is the timing crew aware of the requirement to use System B times to calculate a replacement time (EET)? Are they aware that manual timekeeping is not used to calculate a replacement time (EET) unless both System A and System B fail?



Timing & Data Technical Report Alpine

To accompany the TD report please transmit immediately only as XML and NOT as PDF or NOT in paper format to FIS.
One timing report required for each codex.

Location	Sun Valley, ID	Category	NC - National Championships	Season	2016
Nation	USA	Competition	SL - Slalom	Race Codex	1514
Event name	U. S. Alpine Championships	Gender	Men		
Race Date	25.3.2016	National race code	F0290		

	Brand	Model	Serial No	Homologation No
System A Timer (at finish)	TAG HEUER	CP 540	2004	TAG.070T.08
System B Timer (at finish)	TAG HEUER	CP 540	2298	TAG.070T.08
Timer A Start (if used)				
Timer B Start (if used)				
Start Gate	TAG HEUER	HL7-1	995	TAG.S54.03
Finish Cell A	TAG HEUER	HL 2-35 R-E	193	TAG L48.03
Finish Cell B	TAG HEUER	HL 2-35 R-E	194	TAG L48.03

Result software	Software company	Software version
	VOLA	SkiAlp Pro ver. 4.0.24

Connection to start	System A	System B	Voice connection
	Cable	Cable	Cable

Power On Time	07:30 <small>At least 30 minutes before Synchronization.</small>					
Time of day expressed in thousandths.	1st Run			2nd Run		
	System A (TOD)	System B (TOD)	Hand	System A (TOD)	System B (TOD)	Hand
Synchronisation time	10:21:00		07:48:00	13:23:00		07:48:00
Sync confirm at +1 minute	10:22:00.1363	10:22:00.1364		13:23:59.6670	13:23:59.6675	
Start TOD First Competitor	10:34:57.3461	10:34:57.3452	Net Time	13:30:00.7645	13:30:00.7649	Net Time
Finish TOD First	10:35:51.0207	10:35:51.0207	0:53.67	13:30:56.2134	13:30:56.2230	0:55.44
Hand Time First Competitor	BIB First 1		0:53.59	BIB First 47		0:55.59
Start TOD Last Competitor	11:54:25.2824	11:54:25.2819	Net Time	14:21:49.0383	14:21:49.0376	Net Time
Finish TOD Last	11:55:43.9281	11:55:43.9233	1:18.64	14:22:51.0578	14:22:51.0589	1:02.01
Hand Time Last Competitor	BIB Last 83		1:18.62	BIB Last 83		1:02.26
Best Run System A		BIB 5	0:53.77		BIB 5	0:51.98

Were all results from system A? Yes No

Comments run 1 Comments run 2

We certify that the timing and calculations of this event adhered to the FIS rules. Yes No

Technical Delegate		Chief of Timing		Timing Company	
Name/Nation	Greg Williamson (CAN)	Name/Nation	Howard Matt (USA)	Company	Pyramid Sports Timing
TD No	385	Telephone	603.387.9689	Name/Nation	Rebhan Todd (USA)
		Email	skimjh@roadrunner.com	Telephone	802.236.0887
Signature		Email	todd@pyramidtiming.com		
		Signature			



ALPINE SKIING

2016/2017

1ère LISTE DES POINTS FIS - 1st FIS POINTS LIST - 1. FIS PUNKTELISTE

Valid from 7/1/2016 to 8/10/2016

Category/Catégorie/Kategorie	Race level	Minimum penalty	Maximum penalty
OWG WSC WC		0	0
COM		0	4
WJC ANC EC FEC NAC SAC UVS ECOM	1	6	999
NC	2	8	999
YOG FIS JUN NJC NJR CIT UNI CORP	3	9	999
ENL	4	40	999

MEN						GENERAL		LADIES					
ADDER					Z-Value	Men/Ladies		ADDER					Z-Value
Dis.	Level 1	Level 2	Level 3	Level 4		F Value	Max points	Dis.	Level 1	Level 2	Level 3	Level 4	
DH	0	2	3	13	0.00	1250	310	DH	0	2	3	13	0.00
SL	0	2	3	13	0.00	720	145	SL	0	2	3	13	0.00
GS	0	2	3	13	0.00	980	200	GS	0	2	3	13	0.00
SG	0	2	3	13	0.00	1080	250	SG	0	2	3	13	0.00
SC	0	2	3	13	0.00	1150	250	SC	0	2	3	13	0.00

FÉDÉRATION INTERNATIONALE DE SKI
INTERNATIONAL SKI FEDERATION
INTERNATIONALER SKI VERBAND

PENALTY CALCULATION
CALCUL DE LA PENALITE
PUNKTEZUSCHLAGSBERECHNUNG

Name of Event <i>Nom l'événement</i> Name der Veranstaltung		
Date <i>Date</i> Datum	Event <i>Événement</i> Veranstaltung	Name of the TD <i>Nom du DT</i> Name des TDs

The best 10 at finish / 10 meilleurs à l'arrivée / Die besten 10 im Ziel

Result <i>Résultat</i> Resultat	Number <i>Dossard</i> Nummer	Name <i>Nom</i> Name	Time <i>Temps</i> Zeit	Nat <i>Nat</i> Nat	FIS-Points <i>Points FIS</i> FIS-Punkte	Best 5 <i>5 meilleurs</i> 5 besten	Race points <i>Pts de course</i> Rennpunkte

The best 5 at start / 5 meilleurs points FIS au départ / Die 5 besten FIS-Punkte am Start

TOTALS / TOTALS / SUMMEN

- (B) **FIS Points of best 5 at start**
Points FIS des 5 meilleurs au départ
Die 5 besten FIS-Punkte am Start
- (A) **FIS Points of best 5 to finish in top 10**
Points FIS des 5 meilleurs dans les premiers 10
Die 5 besten FIS-Punkte aus den ersten 10
- (C) **Race Points of corresponding competitors**
Points compétition de ces concurrents
Rennpunkte der entsprechenden Wettkämpfer

Calculated penalty / *Pénalité calculée* / Berechneter Zuschlag
A + **B** - **C** = : 10 =

Correction value / *Valeur de correction* / Korrekturwert (-z → +z Art. 4.4.7)
 Category Adder / *Additif de catégorie* / Kategorie-Adder

Penalty applied / *Pénalité appliquée* / Angewandter Punktezuschlag

Signature TD / <i>Signature du DT</i> / Unterschrift des TDs	Nr/No/Nr
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