FIS PARA SNOW SPORTS EQUIPMENT SPECIFICATIONS 2022/2023

EDITION 2022/2023

INTERNATIONAL
SKI AND SNOWBOARD
FEDERATION

INTERNATIONAL
SKI AND SNOWBOARD
FEDERATION

Blochstrasse 2
CH-3653 Oberhofen am Thunersee
Switzerland

Phone: +41 33 244 6161
E-mail: mail@fisski.com
Website: fis-ski.com

Oberhofen, October 2022

TABLE OF CONTENTS

SPECIFICATIONS FOR PARA SNOW SPORTS COMPETITION EQUIPMENT 5

A DEFINITIONS 5

1 COMPETITION EQUIPMENT 5

1.1 EFFECTIVE MANUFACTURER 5

1.2 MANUFACTURER'S IDENTIFICATION 5

1.3 Competition Implements 6

1.4 Additional equipment (accessories) 6

2 SPECIFICATIONS FOR PARA ALPINE SKIING COMPETITION EQUIPMENT 7

2.1 Para Alpine Skiing Racing Skis 7

2.2 Para Alpine Skiing Competition Equipment 9

3 SPECIFICATIONS FOR PARA NORDIC COMPETITION EQUIPMENT 12

3.1 GENERAL RULES 12

3.2 RACING SKIS 12

3.3 RACING BINDINGS 13

3.4 RACING BOOTS 13

3.5 RACING POLES 13

4 SPECIFICATIONS FOR PARA SNOWBOARD COMPETITION EQUIPMENT 16

4.1 Snowboards 16

4.2 Bindings 16

4.3 Retention Devices and Leashes 16

4.4 Balance and Speed Control 16

4.5 Competition Clothing 16

4.6 Helmets 16

4.7 Ski Goggles 16

4.8 Ski Gloves 17

4.9 Protectors 17

SPECIFICATIONS FOR PARA SNOW SPORTS ADAPTIVE EQUIPMENT 18

5 DEFINITION 18

6 SPECIFICATIONS FOR PARA ALPINE SKIING ADAPTIVE EQUIPMENT 19

6.1 Sit Ski 19

6.2 Outriggers 19

6.3 Hand/Forearm Protectors 19

6.4 Orthosis; Orthotic Device 19

6.5 Prosthesis; Prosthetic Device 19

7 SPECIFICATIONS FOR PARA NORDIC ADAPTIVE EQUIPMENT .. 24

7.1 Equipment Controls 24

7.2 Equipment Rules 25

7.3 Prohibited technology 25

SPECIFICATIONS FOR PARA SNOWBOARD ADAPTIVE EQUIPMENT 27

8.1 Orthosis; orthotic device 27

8.2 Prosthesis; prosthetic device 27

SPECIFICATIONS FOR PARA SNOW SPORTS COMPETITION EQUIPMENT

A DEFINITIONS

General Principles
The FIS Council shall be the sole authority to determine whether the use of a name, designation, trademark, logo or any other distinguishing sign complies with the FIS Rules and Guidelines; and

FIS reserves the right to further interpret and/or supplement these Rules and Guidelines in order to help ensure that their spirit and purpose are respected.

1 COMPETITION EQUIPMENT

The term “competition equipment “implies all items of equipment used by athletes/guides in competitive skiing, including clothing and implements that serve a technical function. The entire set of competition equipment forms a functional unit. In this connection the following points must be observed:

- The principle of Safety
- The principle of fairness

1.1 EFFECTIVE MANUFACTURER

“Effective Manufacturer” means the enterprise which itself manufactures the Competition Equipment and/or effectively controls and manages the manufacturing of the Competition Equipment under its own responsibility through customary subcontracting processes, and whose Competition Equipment is effectively offered on the market to end users. If requested by FIS, the manufacturer shall provide documentary evidence of such commercial activities at retail level (such as manufacturing activity in the market of the relevant Competition Equipment, including control over the manufacturing process, retail activity and marketing expenditures linking the brand to the relevant piece of equipment) as a condition for the commercial markings to be accepted as a Manufacturer’s Identification as further defined in these Specifications.

1.2 MANUFACTURER’S IDENTIFICATION

“Manufacturer’s Identification” means the trade name, brand, logo, or other designation of the Effective Manufacturer under which the particular Competition Equipment is manufactured and commercially offered to the market.

The Manufacturer’s Identification must be a sports equipment brand, which means that the Manufacturer’s Identification is principally used for Competition Equipment and is (i) not principally used for non-sports equipment, and/or (ii)

cannot be confused with a similar or identical article used in another line of business, unrelated to Competition Equipment.

1.3 COMPETITION IMPLEMENTS

Competition implements refer to equipment which fulfil essential functions during the competition but which can be separated from the actual competition.

Examples: skis, bindings, boots, poles, clothing, helmets, ski goggles, back protectors.

1.4 ADDITIONAL EQUIPMENT (ACCESSORIES)

Additional competition equipment (accessories) are those components or implements which exert an influence on the technical function of the competition equipment and which are attached directly to the equipment by means of recognised fastenings. Such accessories do not perform essential functions during the competition.

Example: para-blocks, plastic tip covers, additional weights, back protectors.
Athletes/Guides must use equipment appropriate for their gender.

2 SPECIFICATIONS FOR PARA ALPINE SKIING COMPETITION EQUIPMENT

2.1 PARA ALPINE SKIING RACING SKIS

2.1.1 DEFINITION

Skis, predominantly for use in Downhill, Slalom, Giant Slalom and Super- G, racing on suitable terrain and utilising the force of gravity. In order to allow transmission of lateral forces, the edges of the running surface of the ski are made mainly of a hard material resistant to wear and tear.

2.1.2 SKI LENGTH

Minimum length, "developed" length (unwound length) in accordance with ISO Norm including a measurement tolerance.

Precision for the length of Slalom Skis*:*

When a ski tip different from the main body of the ski is used, the measurement will only be taken into account to the extent it covers a surface corresponding to the natural shape of the ski.

The manufacturer must mark the tip showing the limit of the natural shape and thereby allow an easy measurement.

To prevent doubt, specific designs of ski tips as part of the main body of the ski are allowed.

2.1.3 PROFILE WIDTH

Minimum width of the running surface under the binding and in front of the binding without any tolerance (see table in section 2.5).

2.1.4 RADIUS

The radius must be marked on the ski.

Radius measurement for DH skis with a preparation tolerance of -1 m.

2.1.5 SPECIFICATIONS OF COMPETITION EQUIPMENT APPLICABLE TO ALL FIS SANCTIONED COMPETITIONS.

Ski Length (Minimum) Ski Length measurement tolerance of – 1cm	DH Women DH Men	200 cm 205 cm
	SG Women SG Men	200 cm 205 cm
	GS Women GS Men	183 cm 188 cm
	SL Women SL Men	155 cm 165 cm
Profile Width in front of Binding	DH Women DH Men	<=95 mm <=95 mm
	SG Women SG Men	<=95 mm <=95 mm
	GS Women GS Men	<=103mm <=103mm
	SL Women SL Men	None None
Radius (Minimum)	DH Women DH Men	40 m 40m
	SG Women SG Men	40m 40m
	GS Women GS Men	30m 30m
	SL Women SL Men	None None
Maximum Standing Height (ski/plate/binding)		50mm

- VI B1 athletes (men) may use 155 cm skis for SL
- Ski length must be marked on the skis by the manufacturer
- SG skis may be used in DH competitions at all race levels
- VI B1 athletes may continue to use GS skis
- Ski length must be marked on the skis by the manufacturer.

2.2 PARA ALPINE SKIING COMPETITION EQUIPMENT

2.2.1 SAFETY BINDINGS

Safety bindings function as strain limiters. That is, these devices transfer specific demands occurring during skiing to an acceptable limit, and when this limit is overstepped, they release their firm hold on the ski.

2.2.2 ANTI-VIBRATION PLATES

Anti-vibration plates can be mounted if the following conditions are taken into consideration:
Width of ski surface: The width of the plates must not exceed the width of the ski surface.

Maximum height: Maximum height (distance between the bottom of the running surface of the ski and the ski boot sole) for all categories is 50 mm (Women, Men).

2.2.3 SKI STOPPERS

The ski stopper is a braking apparatus for skis, the function of which following the release of the safety binding is to stop or bring to a standstill the loose ski within the immediate vicinity of the skier's fall. The use of skis without ski stoppers during competitions or official training runs is prohibited. The functioning of the release mechanism must not be compromised by the method of its mounting. It is the manufacturers' responsibility to ensure that the ski stopper functions correctly.

2.2.4 SKI BOOTS

Ski boots are robust footwear developed specifically for skiing, offering protection against jolts and bumps as well as injury from ski edges and other external influences. The ski boot encloses the foot firmly, while at the same time allowing the movement necessary for skiing techniques, in that the ankle has the room it needs to flex, but at the same time facilitating the transfer of every steering movement completely to the ski. The relevant national and international guidelines and norms establish the requirements.

2.2.4.1 THICKNESS OF SKI BOOT SOLES

Distance between the ski boot sole and the base of the heel including all hard and soft parts:

Women, Men: maximum 43 mm

2.2.5 SKI POLES

The ski pole is an item of equipment, the function of which is to aid the skier and facilitate balance.

National and international rules establish the minimum requirements for ski pole tips, grips, shafts, baskets, straps, length, etc. Owing to the risk of injury, metal baskets are not permitted.

2.2.6 RACING SUITS

Competition suits and clothing is worn underneath, such as undergarments, etc., must have a textile surface on the inside and the outside. The surfaces may not be plasticised or treated by any chemical means (gaseous, liquid or solid) and must have a minimum permeability of 30 litres per m2/sec. Seams may only exist in order to join the portions of the suit. Outer tucks and darts are not allowed. The suits must be equally porous in all parts, both from the outside in and from the inside out. Minimum air permeability is established whereby the un-stretched fabric must show a medium air permeability of a minimum of 30 litres per m2/sec under 10 mm of water pressure.

In Downhill, protectors may not be integrated into the competition suit itself.
In all events these protectors must be worn underneath the racing suit. (Exception forearm protection used in SG, GS and SL and shin protection used in SL)
Protectors must fulfil the 30 litre permeability rule with the exception of the shoulder, scapular region, chest, arms and legs. The anatomical body shape may not be changed.

2.2.7 CRASH HELMETS

The use of crash helmets is compulsory for all events. Only helmets specifically designed for Alpine ski racing with the embedded FIS sticker are permitted. Helmets must have a shell and padding which cover the head and ears. Only in Slalom events soft ear helmets are allowed. Helmets with edges that protrude are not permitted. Helmets cannot be modified.

2.2.8 SKI GOGGLES

Ski goggles are devices protecting the eyes against weather and rays with optically correct lenses. Their aim is to guarantee good, contrast-free visibility in all weather conditions. The use of ski goggles is recommended. It is prohibited to reshape the ski goggles in order to obtain aerodynamic advantages.

2.2.9 SKI GLOVES

Gloves offer a protective covering against weather and external forces. The wearing of gloves is urgently recommended. Reshaping the glove, the application of a plastic coating on the outer surface, or the use of ski (imitation leather) with the aim of attaining more aerodynamic features, are not allowed. The glove must not reach beyond the elbow. Protective padding along the entire length of the glove is permitted. The use of protective guards in the form of shields, which are pulled over the glove, is permitted.

2.2.10 PROTECTORS

Protectors are an additional item of equipment, which protects the athlete's back against weather and external forces.

Back protectors must adapt to the anatomical bend of the athlete's spine and lie flat against the body. The top edge of the back protector must be situated in the area of the spinal column and may not go above the 7th cervical vertebrae (C7). The maximum thickness must be in the middle part and may not exceed 45 mm; the thickness reduces at the edges of the back protector. Designs with the view to improve aerodynamic properties are forbidden. The back protector must be worn underneath the competition suit.
Any additional protectors such as chest and shoulder protectors must be designed for alpine ski racing and worn under the racing suit.

3 SPECIFICATIONS FOR PARA NORDIC COMPETITION EQUIPMENT

3.1 GENERAL RULES

The following rules apply to all type of Cross-Country competition equipment such as skis, bindings, boots, poles and any additional equipment.

3.1.1 RESTRICTIONS

No equipment is permitted which:
a) Affect the natural push-off movement of competitors' feet and arms or those that enhance it (such as spring devices or other mechanisms in skis, poles, binding or boots).
b) Makes use of energy not originating from the competitor, such as artificial heating devices, chemical energy accumulators, electric batteries, mechanical aids, etc.).
c) Affect the external conditions of the competition to the detriment of other competitors, such as changing the track or snow conditions.
d) Increase the risk of injury to competitors and other persons who are authorized to be present at the competition venue, when used normally.

3.1.2 PROCEDURE AND COLLABORATION WITH IBU

Any new developments in equipment produced by the industry or the NSAs for the following season must be submitted to the FIS & IBU no later than the 1st of May of the year in which the season begins.
The submission must be accompanied by appropriate information material such as drawings, descriptions or test results.
Prototypes must be submitted without exception. New developments that are in compliance with the rules will be immediately approved by the FIS & IBU.
IBU and FIS shall update each other about prototypes for equipment used in both Federations' sports to ensure the same allowance process.

3.2 RACING SKIS

3.2.1 DEFINITION

The Cross-Country racing ski is a type of ski, whose features guarantee the best possible application of the gliding techniques to master Cross-Country pistes (uphills, bumpy terrain, downhills). The basic features of this type of ski are defined in these rules.

3.2.2 RESTRICTIONS

Cross-Country racing skis must have the same basic geometric features (ski width, overall height, height of the tail and height of the tip) than cross-skiing skis commercially available with the following restrictions:

3.2.2.1 Ski length

Minimum: height of skier minus 100 mm

3.2.2.2 Same construction

Both skis must be constructed in the same way and must be the same length.

3.2.2.3 Mass

Skis must weigh at least 750 g per pair (without bindings). No limitations with regard to the distribution of mass.

3.2.2.4 Running surface

The entire width of the running surface can be smooth or slightly grooved length- wise. With the exception of the running groove, however, the level must be constant in the entire length and width. Climbing aids in the form of scale patterns or step patterns are permitted. Devices that are activated by any energy other than the competitor's own muscular power are not permitted.

3.2.2.5 Edges

The edges must not face up and outwards, making the running surface narrower than the top surface (no wedge shape).

3.3 RACING BINDINGS

As commercially available. No limitations with regard to material and make, subject to the restrictions described at article 1.

3.4 RACING BOOTS

As commercially available. No limitations with regard to material and make, subject to the restrictions described at article 1.

3.5 RACING POLES

3.5.1 DEFINITION

The Cross-Country racing pole is a pole, whose features guarantee the best possible application of the gliding techniques to master Cross-Country pistes (uphills, bumpy terrain, downhills).

3.5.2 GENERAL RULES

3.5.2.1 Poles of equal length

Two poles of equal length must be used in competition, with one pole held in each hand.

3.5.2.2 Pole length

The maximum pole length must not exceed the competitor's height, nor measure below the hips (measurements are taken by placing the tip of the pole on the ski in front of the binding).

In classical technique competitions, the maximum pole length must not exceed 83% of the competitor's body height. In free technique competitions, the maximum pole length must not exceed 100% of the competitor's height. The body height is measured with ski boots on from a flat surface, to the top of the uncovered head.
The pole length is measured from the bottom of the pole to the highest attachment of the strap.
All measurements will be rounded to the nearest centimetre as follows: less than
0.5 cm will be rounded down and 0.5 cm and above will be rounded up.

3.5.2.3 Constant length

The pole must have a constant length. It may not, for example, possess a telescopic system.

3.5.2.4 Foreign energy

The pole must not create a foreign energy to favour push-off (e.g. springs or mechanical devices).

3.5.2.5 Weight

No limitations regarding the weight of the pole.

3.5.2.6 Construction

The poles may be constructed asymmetrically (e.g. there may be a difference between left- and right-hand poles).

3.5.3 TECHNICAL SPECIFICATIONS

3.5.3.1 Grip

The grip must be attached to the shaft. There are no limitations with regard to geometric features or material.

3.5.3.2 Straps

The straps must be joined to the grip or the shaft. They may be adjustable in length and width.

3.5.3.3 Shaft

There are no limitations with regard to material and make of the shaft or distribution of mass.

3.5.3.4 Baskets

Baskets with varying geometric features and materials are permitted to master various snow conditions. The baskets, however, must not change the condition of the track, so that other competitors suffer disadvantages.

3.5.3.5 Tip

Tips may be joined to the shaft at any angle. It is permitted to use one or more tips per pole. There are no limitations with regard to material.

4 SPECIFICATIONS FOR PARA SNOWBOARD COMPETITION EQUIPMENT

4.1 SNOWBOARDS

Only Snowboards can be used in competitions. Snowboard tail must have no sharp edges. The board's minimal width is restricted as follows:

Gliding surface length:	Minimal width:
up to 135 cm	14 cm
more than 135 cm	16 cm

4.2 BINDINGS

The bindings must be fixed diagonally on the long axis of the board. The boots cannot overlap each other.

Plate Systems that connect both bindings are not allowed in SBX (individual plate systems are allowed on each binding)

4.3 RETENTION DEVICES AND LEASHES

Safety leashes are optional unless required by the organiser or the ski area.

4.4 BALANCE AND SPEED CONTROL

The competitors are not allowed to wear anything on the hands besides gloves or to use any kind of devices to additionally support their balance, reduce or accelerate their speed, like poles or sticks etc.

4.5 COMPETITION CLOTHING

Snowboard Cross competition suits must be two pieces – pants and separate top. Forms fitting speed or downhill suites are not permitted. No straps, fastening devices or other methods can be used to tighten the suit material closer to the body.

4.6 HELMETS

The use of crash helmets is compulsory for all snowboard events. Helmets used in FIS and IPC Snowboard events shall be specifically designed and manufactured for the respective discipline and shall bear a CE mark and conform to recognized and appropriate standards such as CEE 1077 or US 2040, ASTM 2040. The use of full-face helmet is prohibited.

4.7 SKI GOGGLES

Ski goggles are devices protecting the eyes against weather and rays with optically correct lenses. Their aim is to guarantee good, contrast-free visibility in all weather conditions. The use of ski goggles is recommended. It is prohibited to reshape the ski goggles in order to obtain aerodynamic advantages. Goggles straps must be worn outside the helmet

4.8 SKI GLOVES

Gloves offer protective covering against weather and external forces. The wearing of gloves is urgently recommended. Reshaping the glove, the application of a plastic coating on the outer surface, or the use of ski (imitation leather) with the aim of attaining more aerodynamic features, are not allowed. The glove must not reach beyond the elbow. Protective padding along the entire length of the glove is permitted. The use of protective guards in the form of shields, which are pulled over the glove, is permitted.

4.9 PROTECTORS

Protectors are an additional item of equipment, which protects the athlete's back against weather and external forces.

Back protectors must adapt to the anatomical bend of the athlete's spine and lie flat against the body. Designs with the view to improve aerodynamic properties are forbidden. The back protector must be worn underneath the competition suit.

Any additional protectors such as chest and shoulder protectors must be designed for snow ski racing and worn under the racing suit.

SPECIFICATIONS FOR PARA SNOW SPORTS ADAPTIVE EQUIPMENT

5 DEFINITION

The term “Adaptive Equipment” refers to all the implements and apparatus adapted to the special needs of Para athletes and used by athletes during the competition on the field of play (e.g. sit-ski, protections, prostheses and orthoses).

General rules for (adaptive) equipment:

a. Safety (should not harm the athlete, spectators or environment)
b. Fairness (regulated in our rules)
c. Universality (the principal components must be commercially available and affordable)
d. Physical prowess (no motor, computer, robotically components)

(For more information, see http://www.paralympic.org/sites/default/files/document/120203164107739_Sec_ii_Chapter_3.10_IPC_Sport_Equipment_Policy.pdf)

6 SPECIFICATIONS FOR PARA ALPINE SKIING ADAPTIVE EQUIPMENT

6.1 SIT SKI

A sit-ski consists of a moulded seat mounted on a metal frame. A suspension system beneath the seat eases riding on uneven terrain and helps in turning by maximizing ski-snow contact. A metal or plastic block in the shape of a boot sole is the base that clicks into the ski's binding.

A sit-ski can be used in Uni-Ski or Dual-Ski.

A sit-ski needs a braking device on both sides of the seat. This device creates friction to prevent sliding.

6.2 OUTRIGGERS

Arm crutches with ski tips attached. The system can flip out to allow the ski attachment to rise vertically to be used as a normal crutch.

6.3 HAND/FOREARM PROTECTORS

Hand/forearm protectors are permitted.

The hand protector cannot be designed to create additional length to the hand.

No extensions perpendicular to the long axis of the forearm are permitted.

The forearm cannot exceed the skier’s anatomical length as defined in the section under unilateral upper limb prosthesis.

6.4 ORTHOSIS; ORTHOTIC DEVICE

Externally applied device used to modify the structural and functional characteristics of the neuro-muscular and skeletal systems. (For stabilizing, support, compensation, protection, prevention)

6.5 PROSTHESIS; PROSTHETIC DEVICE

Externally applied device used to replace wholly, or in part, an absent or deficient limb segment.

6.5.1 ATHLETES WITH AN UPPER LIMB IMPAIRMENT/AMPUTATION:

1. Unilateral
The overall length of the limb, including the prosthesis, cannot exceed the length of the unaffected limb with the fist closed as if gripping a pole.

2. Bilateral

The overall arm measurement from the tip of the acromion to the distal end of the prosthetic should be no longer than 0.399 x height (centimetres), with the arm in the anatomical position.
In the event that the arm can't rest in the anatomical position, then limb segments should be taken.

The Upper Arm measurement:
Tip of acromion to lateral epicondyle = 0.191 x height (cm)

The Forearm measurement:
Lateral epicondyle to radial styloid = 0.1485 x height (cm)

The Hand measurement:
Radial styloid to distal end of second metacarpal = 0.119/2 x height (cm)

The double below elbow amputee that will be wearing prosthesis, calculation can be simplified to:
Lateral epicondyle to the end of the prosthetic should be no longer than 0.208 x height (cm)

3. For those classes where the use of poles is specifically excluded (no poles), any prosthesis cannot have an extension device perpendicular to the long axis.

6.5.2 ATHLETES WITH A LOWER LIMB IMPAIRMENT/AMPUTATION:

1. Lower limb prostheses must be used with ski boots. Exception applies for proCarve, which can be used without ski boot.

2. Unilateral
The overall length of the lower limb, including the prosthesis cannot exceed the overall length of the unaffected limb.

3. Bilateral

6.5.3 ATHLETES WITH BILATERAL BELOW KNEE AMPUTATIONS:

Will be limited by the following formula as to the overall length of their lower extremities, including prostheses and ski boots for competition purposes:
Overall leg length (in cm)* = or < [(thigh length-13)/0.4 + 4.3] x 1.05
**including prosthesis and ski boots*
The overall length of the leg including the prosthesis and ski boot equals or is less than the length of the thigh minus 13, divided by 0.4, plus a 4.3cm for the thickness of the ski boot sole with an additional 5% to the final length allowing for natural variation.

The thigh length is measured from the anterior superior iliac spine to the inferior pole of the kneecap or to the lower point of the medial femoral condyle if there is no patella. This measurement is carried out with the athlete supine.
The overall length of the leg will be measured from the anterior superior iliac spine to the heel of the ski boot placed on the prosthesis with the athlete standing.
The Maximal Allowed Standing Height (including the prosthesis and ski boots) will be measured in the standing position by using a vertical line from the top of the skull to a line connecting the base of the heels of ski boots. If there is any doubt the measurement can be taken with the athlete standing on 2 sets of scales (equal weight) with the height being the vertical distance between the top of the skull and a line joining the base of both ski boot heels. Where possible a metal tape measure should be used for measuring. When the competition prosthesis has a fixed flexion in ankle or knee, the measure should be taken along the leg axis.

6.5.4 ATHLETES WITH BILATERAL ABOVE KNEE AMPUTATION:

The length of prostheses used by athletes with bilateral lower limb amputations will be determined using the 3-Step process described below.

Step 1: Estimate maximum standing height from Ulna length

Measure the distance between point of the elbow (olecranon process) and the ulna styloid.

Measure between the point of the elbow and the midpoint of the prominent bone of the wrist. The height in metres is determined from the below table based on the ulna length as measured in centimetres.

Table: Ulna length and maximum standing height		
Ulna length (centimetres)	Men height (metres)	Women height (metres)
21		1.54
21.5		1.55
22		1.56
22.5		1.58
23		1.59
23.5		1.61
24	1.64	1.62
24.5	1.66	1.63
25	1.67	1.65
25.5	1.69	1.66
26	1.71	1.68
26.5	1.73	1.69
27	1.75	1.70
27.5	1.76	1.72
28	1.80	1.73
28.5	1.82	1.75
29	1.84	1.76
29.5	1.85	1.77
30	1.87	1.79
30.5	1.89	
31	1.91	
31.5	1.93	
32	1.94	

Step 2: Estimate maximum standing height based on measurement of Demi-span.

Demi-span is measured as the distance from the middle of the sternal notch to the tip of the middle finger in the coronal plane.

The measure is best obtained with the athlete standing with their back against a stable wall, right shoulder abducted to 90° with the palm of the hand facing forward. The measure is taken in centimetres.

The maximum standing height is then calculated from the following formula:

- Women: Height in cm = (1.35 x demi-span (cm)) +60.1
- Men: Height in cm = (1.40 x demi-span (cm)) +57.8

Step 3: Final estimate of maximum standing height:

Take the mean of the two estimates, maximum standing height estimated from the ulna length and maximum standing height estimated from demi-span.

The overall standing height of the Athlete with their competitive prostheses must be less than or equal to the mean estimated height, plus 4.3cm for the thickness of the ski boot sole plus an additional 2.5% to the final figure allowing for natural variation. This is demonstrated in the below formula:

Overall standing height (cm)* = or < [(result method 1 + result method 2)/ 2 + 4.3 cm] x 1.025

*including prosthesis and ski boots

The athlete's height is measured in the standing position by using a vertical line from the top of the skull to a line connecting the base of the heels of both ski boots. If there is any doubt the measurement can be taken with the athlete standing on 2 sets of scales (equal weight) with the height being the vertical distance between the top of the skull and a line joining the base of both ski boot heels. Where possible a metal tape measure should be used for measuring.

The Maximal Allowed Standing Height (including the prosthesis and ski boots) will be measured in the standing position by using a vertical line from the top of the skull to a line connecting the base of the heels of ski boots. If there is any doubt the measurement can be taken with the athlete standing on 2 sets of scales (equal weight) with the height being the vertical distance between the top of the skull and a line joining the base of both ski boot heels. Where possible a metal tape measure should be used for measuring. When the competition prosthesis has a fixed flexion in ankle or knee, the measure should be taken along the leg axis.

7 SPECIFICATIONS FOR PARA NORDIC ADAPTIVE EQUIPMENT

7.1 EQUIPMENT CONTROLS

7.1.1 The Sub Committee Para Nordic, Technical Delegate, or designate, will monitor the use of technology and equipment at FIS Para Nordic Sanctioned Competitions to ensure that it conforms to the principles outlined in the IPC Policy on Sport Equipment. This may include, but will not be limited to, the assessment of:

7.1.1.1 whether equipment and/or prosthetic components are commercially available to all athletes (prototypes that are purpose built by manufactures exclusively for the use of a specific athlete shall not be permitted);

7.1.1.2 whether equipment contains materials or devices that store, generate or deliver energy and/or are designed to provide function to enhance performance beyond the natural physical capacity of an athlete; and/or

7.1.1.3 whether equipment conforms with the terms of Specifications for Para Nordic Adaptive Equipment art. 7.2 and 7.3.

7.1.2 An athlete will not be allowed to compete unless their adaptive equipment has been registered. For all licensed athletes all adaptive equipment, including but not limited to sit skis, prostheses, B1 goggles, corrective lenses, air rifles and adaptive support must be registered by November 15 prior to each competition season using the FPDMS Adaptive Equipment online registration.

For new athletes who become licensed after November 15, the adaptive equipment must be submitted as soon as possible (see art 7.1.2.2).

7.1.2.1 All air rifles must also be submitted whether they have adaptations related to impairments or not.

7.1.2.2 Changes, adjustments or modifications to equipment made during the season must be registered prior to the athlete's next competition and be reported to the TD prior to a team captain's meeting and will be evaluated against the equipment rules by the jury and/or members of the Para Nordic Committee.

7.1.2.3 Before and during the competition season or on submission of protests to the Technical Delegate at the competition concerned, controls may be carried out by members of the Para Nordic Committee and / or the Technical Delegate. The FIS Para Nordic Race Director will coordinate this process.

7.1.3 The final decision as to any applicable sanction(s) in respect of any breach by a competitor of competition equipment and technology rules pursuant to these Specifications for Para Nordic Adaptive Equipment shall lie with the jury.

7.2 EQUIPMENT RULES

7.2.1 The Nordic sit-ski shall consist of a sitting device with a fixed seat, which is not adjustable during the race, mounted on a pair of cross-country skis or rolling devices (summer competition). No springs or flexible articulations are allowed in any segment of the sit ski, including the connection with the skis. The connection with the skis must be rigid.

7.2.1.1 The maximum allowable height difference between the point of contact of the buttock with the seat and the top of the ski is 40cm (including the cushion segment without load).

7.2.1.2 The sit-ski athlete shall be seated on the sit-ski at all times during the race, meaning that the athlete's buttocks shall remain in contact with the seat in accordance with the FIS Para Nordic Classification Rules & Regulations.

7.2.1.3 To prevent movement of the buttocks off the seat, the upper thigh (proximal femur) or hip must be strapped to the seat using a non-flexible material.

7.2.2 Biathlon air rifles must conform to art. 12332.3 and 12332.6.2 of the Para Nordic International Competition Rules.

7.2.3 Adaptations to rifles related to an athlete's impairment (such as loading and triggering mechanisms) must be identified in the inventory and approved by the Para Nordic Committee.

7.2.4 Goggles worn by B1 athletes must conform to art. 12333.2.4 of the Para Nordic International Competition Rules.

7.3 PROHIBITED TECHNOLOGY

7.3.1 Use of the following technology is prohibited at FIS Para Nordic Sanctioned Competitions:

7.3.1.1 equipment that breaches the fundamental principles outlined in the IPC Policy on Sport Equipment;

7.3.1.2 equipment that results in athletic performance being generated by machines, engines, electronics, motors, robotic mechanisms or the like; and

7.3.1.3 osteo-integrated prosthesis.

7.3.2 At any IPC Games, FIS Para Nordic Sanctioned Competition the FIS Para Nordic Technical Delegate shall be entitled to prohibit the use of any equipment prohibited by these Regulations. In every case of a suspected breach the FIS Para Nordic Technical Delegate must report the matter to FIS Para Nordic. Upon receiving such a report FIS Para Nordic must refer the matter to the FIS Medical and Scientific Director. Any further investigation and/or action will be determined by the FIS on a case by case basis.

7.3.3 FIS Para Nordic shall be entitled to prohibit the use of equipment either permanently or on a temporary basis (to allow for further investigation) where it considers, acting reasonably, that any of the fundamental principles of equipment design and availability are breached.

8 SPECIFICATIONS FOR PARA SNOWBOARD ADAPTIVE EQUIPMENT

8.1 ORTHOSIS; ORTHOTIC DEVICE

Externally applied device used to modify the structural and functional characteristics of the neuro-muscular and skeletal systems (For stabilizing, support, compensation, protection, prevention).

8.2 PROSTHESIS; PROSTHETIC DEVICE

Externally applied device used to replace wholly, or in part, an absent or deficient limb segment.

8.2.1 ATHLETES WITH AN UPPER LIMB IMPAIRMENT/AMPUTATION:

1. Unilateral
The overall length of the limb, including the prosthesis, cannot exceed the length of the unaffected limb with the hand open.
2. Bilateral
The overall arm measurement from the tip of the acromion to the distal end of the prosthetic should be no longer than 0.399 x height (centimetres), with the arm in the anatomical position.

In the event that the arm cannot rest in the anatomical position, then limb segments should be taken.

The Upper Arm measurement:
Tip of acromion to lateral epicondyle = 0.191 x height (cm)

The Forearm measurement:
Lateral epicondyle to radial styloid = 0.1485 x height (cm)

The Hand measurement:
Radial styloid to distal end of second metacarpal = 0.119/2 x height (cm)

The double below elbow amputee that will be wearing prosthesis, calculation can be simplified to:
Lateral epicondyle to the end of the prosthetic should be no longer than 0.208 x height (cm).

8.2.2 ATHLETES WITH A LOWER LIMB IMPAIRMENT/AMPUTATION:

1. Lower limb prostheses must be used with snowboard boots

2. Unilateral
The overall length of the lower limb, including the prosthesis cannot exceed the overall length of the unaffected limb.

3. Bilateral

8.2.3 ATHLETES WITH BILATERAL BELOW KNEE AMPUTATIONS:

Will be limited by the following formula as to the overall length of their lower extremities, including prostheses and snowboard boots for competition purposes:

Overall leg length (in cm)* = or < (thigh length-13)/0.4 x 1.05
**including prosthesis*

The overall length of the leg including the prosthesis equals or is less than the length of the thigh minus 13, divided by 0.4, with an additional 5% to the final length allowing for natural variation.
The thigh length is measured from the anterior superior iliac spine to the inferior pole of the kneecap or to the lower point of the medial femoral condyle if there is no patella. This measurement is carried out with the athlete supine.
The overall length of the leg will be measured from the anterior superior iliac spine to the heel of the prosthesis with the athlete standing.
The Maximal Allowed Standing Height (including the prosthesis) will be measured in the standing position by using a vertical line from the top of the skull to a line connecting the base of the heels of prosthesis. If there is any doubt the measurement can be taken with the athlete standing on 2 sets of scales (equal weight) with the height being the vertical distance between the top of the skull and a line joining the base of both heels. Where possible a metal tape measure should be used for measuring. When the competion prosthesis have a fixed flexion in ankle or knee, the measure should be taken along the leg axis.

8.2.4 ATHLETES WITH BILATERAL ABOVE KNEE AMPUTATION:

The length of prostheses used by athletes with bilateral lower limb amputations will be determined using the 3-Step process described below.

Step 1: Estimate maximum standing height from Ulna length
Measure the distance between point of the elbow (olecranon process) and the ulna styloid.

Measure between the point of the elbow and the midpoint of the prominent bone of the wrist. The height in metres is determined from the below table based on the ulna length as measured in centimetres.

Table: Ulna length and maximum standing height		
Ulna Length (centimetres)	Men Height (metres)	Women Height (metres)
21		1.54
21.5		1.55
22		1.56
22.5		1.58
23		1.59
23.5		1.61
24	1.64	1.62
24.5	1.66	1.63
25	1.67	1.65
25.5	1.69	1.66
26	1.71	1.68
26.5	1.73	1.69
27	1.75	1.70
27.5	1.76	1.72
28	1.80	1.73
28.5	1.82	1.75
29	1.84	1.76
29.5	1.85	1.77
30	1.87	1.79
30.5	1.89	
31	1.91	
31.5	1.93	
32	1.94	

Step 2: Estimate maximum standing height based on measurement of Demi-span.
Demi-span is measured as the distance from the middle of the sternal notch to the tip of the middle finger in the coronal plane.

The measure is best obtained with the athlete standing with their back against a stable wall, right shoulder abducted to 90° with the palm of the hand facing forward. The measure is taken in centimetres.

The maximum standing height is then calculated from the following formula:
Women: Height in cm = (1.35 x demi-span (cm)) +60.1
Men: Height in cm = (1.40 x demi-span (cm)) +57.8

Step 3: Final estimate of maximum standing height:

Take the mean of the two estimates, maximum standing height estimated from the ulna length and maximum standing height estimated from demi-span.

The overall standing height of the Athlete with their competitive prostheses must be less than or equal to the mean estimated height, plus an additional 2.5% to the final figure allowing for natural variation. This is demonstrated in the below formula:

Overall standing height (cm) = or < (result method 1 + result method 2)/ 2 x 1.025
*including prosthesis

The Maximal Allowed Standing Height (including the prosthesis) will be measured in the standing position by using a vertical line from the top of the skull to a line connecting the base of the heels of prosthesis. If there is any doubt the measurement can be taken with the athlete standing on 2 sets of scales (equal weight) with the height being the vertical distance between the top of the skull and a line joining the base of both ski boot heels. Where possible a metal tape measure should be used for measuring. When the completion prosthesis has a fixed flexion in ankle or knee, the measure should be taken along the leg axis.