SORDIN SUPREME X2, X2BT

MANUAL

ENGLISH

SORDIN

EMBRACE NOISE

SordinFLEX MODULAR DESIGN PLATFORM

SordinHEAR2 HIGH END AUDIO REPRODUCTION

Fig 1

Fig 2

Fig 3

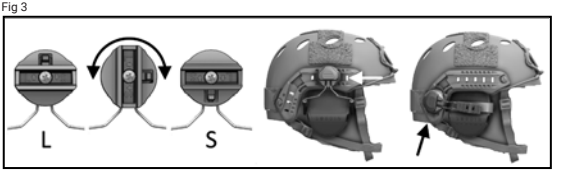

Fig 4

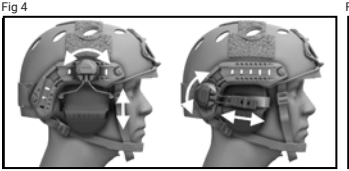

Fig 5

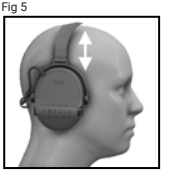

Fig 6.1

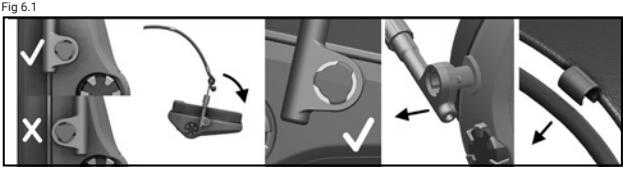

Fig 6.2

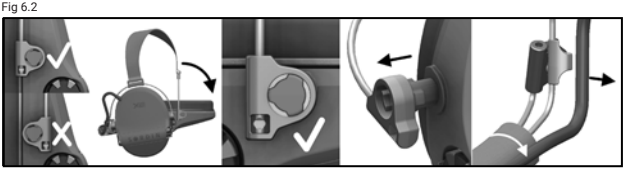

Fig 6.3

Fig 6.4

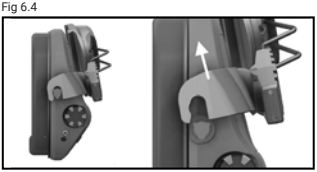

Fig 7

Fig 8

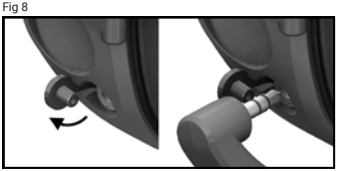

Fig 9

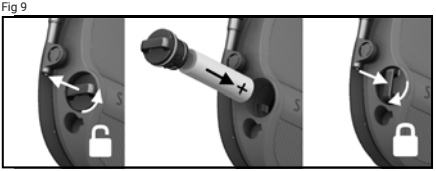

Fig 10

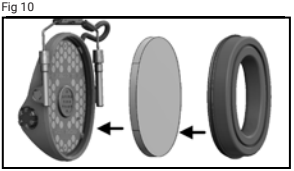

Fig 11

ENGLISH

INTRODUCTION

Sordin Supreme X2 is an electronic hearing protector designed to protect against harmful noise while providing situational awareness with ambient sound for listening and face-to-face communication. Add-on functions such as Bluetooth® and cable connection to two-way radio via PTT are available in different variants.

The hearing protector is available in the following main variants:

X2	Ambient sound
X2 BT	Ambient sound, connection to mobile phone or other Bluetooth® devices

COMPLIANCE AND APPROVALS

This product meets the Essential Health and Safety Requirements as laid out in Annex II and conforms with quality assurance of the production process, module D, laid out in Annex VIII of the PPE regulation (EU) 2016/425.

CE markings are in accordance with EN 352-1:2020; EN 352-2:2020; EN 352-3:2020; EN 352-4:2020, EN 352-6:2020 and EN 352-8:2020. The products are approved to modules B and D by BSI (NB 2797), BSI Group the Netherlands B.V. Say Building, John M. Keynesplein 9, 1066 EP Amsterdam, The Netherlands.

The product also complies with:

Directive 2001/95/EC General Product Safety.

EN IEC 62368-1:2020 / A11:2020

Audio/Video, information and communication technology equipment - Part 1: Safety Requirements.

2014/30/EU Electromagnetic Compatibility (EMC) Directive

EN 55032, EN 55035, EN 61000-6-2, EN 61000-6-3

2014/53/EU Radio Equipment Directive (RED) (applies only to X2 BT)

ETSI 301-489-1

2006/66/EC Battery Directive (applies only to variants supplied with Li-Ion battery)

The battery is certified according to IEC62133 edition 2 and UN38.3.

Directive 2011/65/EU RoHS2 Restriction of hazardous substances

Further information and the full text of the EU declaration of conformity are available at the following internet address: www.sordin.com; search for X2

Responsible manufacturer:
Sordin AB, Rostugnsvägen 17, SE-776 70 Vikmanshyttan, Sweden tel: +46-370-69 35 50

REGISTERED TRADEMARKS

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Sordin AB is under license.

SAFETY

General safety

ⓘ WARNING!

- Use and save these instructions.
- The noise attenuation of the product will be severely impaired if you do not follow the instructions in this operator's manual and may result in hearing loss or injury.
- The wearer should ensure that:
  - the hearing protector is fitted, adjusted and maintained in accordance with this manual.
  - the hearing protector is worn at all times in noisy environments.
  - the hearing protector is regularly inspected for serviceability.
- As there can be a large variation in fit and fit ability between users, which may affect noise attenuation, Sordin cannot guarantee that the specified attenuation values will be achieved for all users and in all situations.
- This hearing protector is provided with level-dependent attenuation. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice for maintenance and replacement of the battery.
- Performance may deteriorate with battery usage. The typical battery time with continuous use that can be expected from the hearing protector battery varies depending on the mode of use and volume output. The typical battery time with continuous use in ambient mode and mid-volume is >70 hours. BT version with rechargeable battery: 20–40 hours.
- When voice feedback "low battery" is heard, replace or charge the battery.
- The output level-dependent circuit of this hearing protector may exceed the external sound level.
- This hearing protector is provided with an entertainment audio facility. The entertainment audio signal sound pressure level is limited to 82 dB(A) effective to the ear.
- The audibility of warning signals at a specific workplace may be impaired while using the entertainment facility.
- The output of the electrical audio circuit of this hearing protector may exceed the daily limit sound level.
- The safety-related audio input may not be used for entertainment since the output level is not limited to the necessary innocuousness level.
- This product may be adversely affected by certain chemical substances. Refer to the manufacturer for further information.
- Clean the product regularly. Use a cloth with water and soap. Do not wash or immerse in water.
- The hearing protector, and in particular the sealing rings, may deteriorate with use and should be examined at frequent intervals for cracking and leakage, for example.
- Fitting hygiene covers over the sealing rings may affect the acoustic performance of the hearing protector.
- The product contains a battery and electrical components that may cause ignition in flammable or explosive atmospheres. Do not use in environments where sparks may cause fire or explosion.
- Do not store the product at temperatures above +55°C or below -20°C.
- Only use the product between temperatures -32°C and +55°C.
- The hearing protector meets the requirements of the drop test at -20°C.
- Only charge the battery between temperatures 0°C and +40°C (applies to variants with Li-Ion batteries).
- Ensure that the product is not damaged during transportation and use.
- Do not change or remove parts on the product. Only make changes as instructed in this manual. All service and repair work must be done by an approved service workshop.
- Only use Sordin original spare parts.
- Never use the hearing protector more than 10 years from the manufacturing date on the packaging.
- Dispose of the product in accordance with national legislation.

FCC AND ISED

ⓘ FCC WARNING:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC (Federal Communications Commission, USA)

FCC ID: WAP3027

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

> **NOTE:** This equipment has been tested and found to comply with Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

If you have any questions regarding FCC compliance or need to contact a local FCC representative, please reach out to:

Americas Compliance consulting, LLC dba iCertifi
FCC Local Agent
2445 NE Division Street, Suite 202
Bend, OR 97703
United States
+1-866-885-4575
fccagent@icertifi.com

ISED (Innovation, Science and Economic Development Canada)

IC ID (Canada):7922A-3027

This device complies with Innovation, Science and Economic Development Canada's (ISED) RSS standards. Operation is subject to the following two conditions:

1. The device may not cause interference.

2. The device must accept any interference, including interference that may cause undesired operation of the device.

If you have any questions regarding ISED compliance or need to contact a local ISED representative, please reach out to:

Americas Compliance consulting, LLC dba iCertifi
ISED Local Agent
2445 NE Division Street, Suite 202
Bend, OR 97703
United States
+1-866-885-4575
ised@icertifi.com

OPERATION

Introduction

ⓘ WARNING!

Before you operate the product, you must read and understand the safety chapter.

Before following the fitting instructions, move your hair aside and remove any objects that could affect the acoustic seal. Make sure that the sealing rings fit tightly around your ears before operating the product.

Fold Headband model (30NNNN-10N/-11N/-12N) (Fig. 1)

Adjust the headband to minimum size and fold the cups into the headband. Make sure that the sealing rings rest flat against each other.

NOTICE! Do not store the hearing protector in this position.

Use and fit Headband model (30NNNN-10N/-11N/-12N) (Fig. 2)

Place the cups over the ears and adjust the headband and cups until they are in a comfortable position. Adjust the cups until they fit tightly around your ears and against your head.

Approved size ranges: Small-Medium-Large.

To assemble Helmet ARC- and R-ARC-rail model to a helmet (30NNNN-30N/-31N) (Fig. 3)

Lift the cups out and up until they lock in standby position. Set the suspension to the correct size mode S/L according to Table 2. Push the suspension into the ARC rail on the helmet. Adjust the position to avoid interference with the helmet.

Use and fit Helmet ARC- and R-ARC-rail model (30NNNN-30N/-31N) (Fig. 4)

Put on the helmet. Adjust the cups until they fit tightly around your ears and against your head.

Only combine the hearing protector with a helmet and/or face protection device listed in Table. For an updated list of approved device combinations, visit www.sordin.com.

Approved size: See Table 2.

Use and fit Neckband (30NNNN-20N) (Fig. 5)

Place the cups over the ears and adjust the neckband and cups until they are in a comfortable position. Adjust the cups until they fit tightly around your ears and against your head.

Approved size ranges: Small-Medium-Large.

To replace suspension

Headband Fig. 6.1; Neckband Fig. 6.2; ARC Fig. 6.3

Turn the cups 90 degrees from the normal position to unlock the suspension. Carefully detach the suspension. Detach the cable from the clips or textile padding. Reverse these steps to attach suspension to cups. Visit www.sordin.com for more information.

NOTICE! Do not pull hard. No tools needed. Carefully remove the suspension when the triangle shapes on the cups and suspension align.

R-ARC Fig. 6.4

Pull R-ARC clip upwards to detach the suspension from the cup. Reverse steps to attach suspension to cups. Visit www.sordin.com for more information.

To assemble X2 Flex Com BT (Fig. 7)

Make sure that the hearing protector is switched off and connect the communication kit to the 3.5-mm input* on the right or left cup. Make sure that the guide pin and hole align. Make sure the screw does not enter the thread at an angle. Tighten the screw (Torx size T10) carefully with a hand tool (max 0.3 Nm).

To connect 3.5-mm AUX (Fig. 8)

Open cover and connect 3.5-mm AUX plug.

***NOTICE!** 3.5-mm inputs on X2 BT versions must be used only for X2 Flex Com BT, not for AUX audio input.

FUNCTIONS

Battery Installation/Replacement

The hearing protector is powered by one AA or one Sordin Li-ion rechargeable battery. The battery is protected against moisture and dirt by the battery compartment. Install and replace the battery by following the instructions (Fig.9).

Turn battery lid counterclockwise and pull to remove lid. Place battery inside compartment. Check for correct battery polarity. Place, push and turn the battery lid clockwise. We recommend using only a Sordin chargeable Li-ion battery to ensure optimum performance and safety.

Charging the unit (Only applies for unit with chargeable Li-ion battery)

To charge the battery, we recommend using a **Sordin Power** charger. Remove battery according to Battery Installation/Replacement section, then charge the battery according to the instruction for the charger.

To operate

The product is equipped with three buttons, marked [+] (plus), [-] (minus), and [O] (operate) and a [BT] button. (Fig.11).

Switch ON / OFF

- **To turn ON**, push the multifunction [O] button (Fig.11).
- **To turn OFF**, push and hold the multifunction [O] button (Fig.11) until you hear voice feedback ***"Power off"***.

NOTICE! If no function button is activated for 4 hours, the unit will turn off automatically. Before automatic switch-off, voice feedback ***"Automatic power off"*** will be heard as a warning that the product will be switched off. Press any key to delay the switch off by an additional 4 hours.

Volume adjustment, (+/-)

- **To adjust the volume in current mode**, click the [+] button (Fig.11) to turn the volume up or [-] button (Fig.11) to turn the volume down.

When in a phone call or streaming music, you need to pause to be able adjust ambient level.

AUDIO PROFILES X2

Hunter Main audio profile.

User situations: Hunting is the general profile for various types of hunting.

When the hearing protector is switched on, press the [O] button (Fig.11) to switch between Hunter and Shooter mode. You will hear voice feedback ***"Hunter"*** when entering Hunter mode.

Shooter

A profile with a lower gain and reduced frequency spectrum. Suitable for face-to-face communication.

User situations: Shooting training or recreational shooting.

When the hearing protector is switched on, press the [O] button (Fig.11) to switch between Hunter and Shooter mode. You will hear voice feedback ***"Shooter"*** when entering Shooter mode.

Focus

Higher sound amplification and a wider frequency spectrum. For improved situational awareness.

User situations: Low-sound environments where a high gain is required.

When the hearing protector is switched on, set the volume to max and press and hold the [+] button (Fig.11) until voice feedback ***"Focus"*** is heard. To leave this mode press [-] or [O] button to return to the previous mode.

Ambient off

In this mode, ambient sound is deactivated, and your hearing protector uses passive hearing protection only.

User situations: High noise environments.

When the hearing protector is switched on, set the volume to min and then press the [-] button (Fig.11) until voice feedback ***"Ambient off"*** is heard. To leave this mode press [+] or [O] button to return to previous mode.

NOTICE! If the hearing protector is switched off in the Focus or Ambient off audio profile, the start mode will return to ***"Hunter"*** or ***"Shooter"*** mode when switching on the hearing protector the next time.

Ear plugs

When using the X2 hearing protector in combination with earplugs, we recommend using audio profile ***"Focus"***.

Connections

See section Introduction for instructions on how to connect X2 Flex Com BT.

X2 Flex Com BT (X2 BT models only)

The hearing protection can be equipped with a detachable boom microphone (Fig. 7). The boom microphone can be attached on either the left or right cup. The performance is equal to the fixed boom-microphone on T2 CC models.

AUX audio input

The X2 product has a 3.5-mm AUX audio input for connection of an external voice communication device. Refer to the operating instructions for the external communication equipment to ensure that it is correctly connected. The circuit must not be subjected to a signal greater than 2 Vrms to prevent permanent damage.

X2 models: Input signal level for which the mean plus one standard deviation equals 82 dB(A): 239.4 mVrms.

Note! Please see Table 4 for more detailed information.

ⓘ WARNING!

The sound pressure level can exceed 82 dB(A) for input signal levels higher than the maximum specified input signal level.

NOTICE! X2 BT: 3.5-mm inputs must be used only for X2 Flex Com BT, not for AUX audio input.

2-way radio communication

To enable voice communication, the hearing protector must be connected to a 2-way radio either by cable or for *X2 BT by Bluetooth.

BLUETOOTH

Bluetooth pairing (X2 BT models only)

The headset can be paired with devices supporting A2DP, HFP and HSP profiles.

In order to activate pairing, push and hold the [BT] and [O] button (Fig.11) simultaneously, until voice feedback ***"Pairing"*** is heard.

In your phone, search for Bluetooth devices and select Supreme X2.

Once the Bluetooth pairing is completed, voice feedback ***"Pairing successful"*** is heard and the unit will automatically establish connection the next time it is used.

If the paring times out, the voice feedback ***"Paring failed"*** will be heard.

If a device loses connection, a 20-second timeout will begin. If no reconnection is established during this time, voice feedback ***"Disconnected"*** will be heard.

Bluetooth Multipoint

The headset can manage multiple devices connected at the same time. The following configurations are available:

- Single phone
- Single 2-way radio
- Dual phones
- One phone and one 2-way radio

2-way Bluetooth radio PTT (X2 BT models only)

When a 2-way radio is connected, press and hold the [BT] button to open the 2-way radio transmission. The transmission remains open until the button is released.

***NOTICE!** Sordin cannot guarantee compatibility with all 2-way radios available in the market. Check before use.

Voice assistant (X2 BT models only)

Push and hold the [BT] button to activate voice assistant (Siri/Google).

NOTICE! Function is not deactivated when a 2-way radio is connected via Bluetooth.

Phone calls (Bluetooth models only)

To manage phone calls, the headset must be paired with a mobile phone (see Bluetooth pairing).

- **To answer incoming call**, click [BT] button (Fig.11).
- **To end call**, click [BT] button (Fig.11).
- **To reject a call**, push and hold [BT] button (Fig11).
- **Multipoint**: If, during an ongoing call, the second party receives an incoming call, a notification will be heard. Click [BT] button to terminate the ongoing call and answer the incoming call. To reject the incoming call, push and hold [BT] button.

Streaming music (Bluetooth models only)

During streaming, use the volume buttons to adjust the streaming volume. Streaming must be paused to adjust the ambient volume.

Use your streaming app to begin streaming and then use the functions below.

- **To play or pause**, tap the [BT] button one time (Fig.11).
- **Next track**, tap the [BT] button two times (Fig.11).
- **Previous track**, tap the [s] button three times (Fig.11).

MAINTENANCE

ⓘ WARNING!

Do not wash or immerse in water.

Clean the product regularly. Use a cloth with water and soap and dry carefully.

Check the condition of the sealing rings and the foam rubber inserts before each use. Replace the sealing rings and the foam rubber inserts once every six months or more frequently, if necessary (Fig. 10). Use original spare parts, see Table 5. Visit www.sordin.com for ordering information.

Moisture may occur inside the hearing protector's cups if used for long periods. It is recommended that the foam rubber inserts are detached regularly to allow the cups to dry out completely (Fig. 10).

TRANSPORTATION, STORAGE AND DISPOSAL

Transportation and storage

When the hearing protector is not in use,

- Always store in a dry and clean place at room temperature between each usage to let it dry out completely.
- Do not expose to direct sunlight.
- When the helmet is not in use, put the hearing protectors in its operating position.

The information above also applies to transportation of the hearing protector. No additional protection is needed.

NOTICE! Do not place headband variants in the folded position for a long-term storage, as this will compress the sealing rings. Folded position should be used only for short-term storage to simplify transportation.

Disposal

Follow national regulations for disposal of the product.

ATTENUATION DATA (TABLE 1)

f = Frequencies at which attenuation is measured

M_f = Mean value

s_f = Standard deviation

APV (M_f–s_f) = Assumed Protection Value

H = High frequency attenuation value (predicted noise level reduction for noise where L_C–L_A = −2 dB)

M = Medium frequency attenuation value (predicted noise level reduction for noise where L_C–L_A = +2 dB)

L = Low frequency attenuation value (predicted noise level reduction for noise where L_C–L_A = +10 dB)

SNR = Single Number Rating (the value that is subtracted from the measured C-weighted sound pressure level, L_C, in order to estimate the effective A-weighted sound level inside the ear)

W = Weight

Notice! As there can be a large variation in fit and fit ability between users, which may affect noise attenuation, Sordin cannot guarantee that the specified attenuation values will be achieved for all users and in all situations.

CRITERION LEVELS (TABLE 3)

Typical values in accordance with EN 352-4:2020, with the volume set to maximum.

H = High frequency sound pressure level (L_C–L_A = 1,2 dB)

M = Medium frequency sound pressure level (L_C–L_A = 2 dB)

L = Low frequency sound pressure level (L_C–L_A = 6 dB)

MATERIALS

Cups and foam rubber inserts	ABS and PU foam
Suspension	Stainless steel and plastic
Suspension padding	Leather or coloured fabric
Sealing rings	ABS, PVC-foil, PU foam or silicone-gel

DATA TABLES

TABLE 1 – TECHNICAL DATA

30NNNN-10P/-11P/-12P, Headband Hygiene kit PVC

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	19.3	17.5	19.8	26.2	33.1	31.5	41.3	41.4
S_f (dB)	3.0	2.6	2.4	2.2	2.0	2.6	2.5	3.4
APV (dB)	16.2	14.9	17.5	24.0	31.1	28.9	38.8	38.1

H_m = 31.4 dB **M_m** = 28.7 dB **L_m** = 22.6 dB **SNR_m** = 31.0 dB **Weight** = 309 g

H_s = 2.2 dB **M_s** = 1.6 dB **L_s** = 2.2 dB **SNR_s** = 1.6 dB

H = 32 dB **M** = 27 dB **L** = 22 dB **SNR** = 29 dB

30NNNN-10G/-11G/-12G, Headband Hygiene kit GEL

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	20.5	19.7	21.1	26.2	30.7	31.1	41.1	42.2
S_f (dB)	2.2	2.2	2.4	2.8	2.8	2.7	3.2	2.7
APV (dB)	18.4	17.6	18.8	23.4	27.8	28.4	37.8	39.6

H_m = 33.3 dB **M_m** = 28.5 dB **L_m** = 23.9 dB **SNR_m** = 31.1 dB **Weight** = 367 g

H_s = 2.1 dB **M_s** = 1.9 dB **L_s** = 1.9 dB **SNR_s** = 1.7 dB

H = 31 dB **M** = 27 dB **L** = 22 dB **SNR** = 29 dB

30NNNN-20P Neckband, Hygiene kit PVC

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	18.1	16.9	20.6	26.9	31.9	29.2	38.5	39.6
S_f (dB)	3.0	2.0	2.6	3.0	2.8	3.6	3.5	3.9
APV (dB)	15.1	14.9	17.9	23.9	29.0	25.6	35.0	35.7

H_m = 31.8 dB **M_m** = 28.3 dB **L_m** = 22.8 dB **SNR_m** = 30.3 dB **Weight** = 275 g

H_s = 3.2 dB **M_s** = 2.0 dB **L_s** = 1.9 dB **SNR_s** = 2.0 dB

H = 29 dB **M** = 26 dB **L** = 21 dB **SNR** = 28 dB

30NNNN-20G Neckband Hygiene kit GEL

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	19.1	18.9	20.8	25.6	32.5	30.9	39.8	40.8
S_f (dB)	3.1	2.2	2.4	2.8	2.7	3.0	3.1	4.0
APV (dB)	16.0	16.8	18.5	22.8	29.8	27.9	36.7	36.8

H_m = 33.3 dB **M_m** = 28.6 dB **L_m** = 23.5 dB **SNR_m** = 31.0 dB **Weight** = 333 g

H_s = 2.5 dB **M_s** = 1.9 dB **L_s** = 1.9 dB **SNR_s** = 1.9 dB

H = 31 dB **M** = 27 dB **L** = 22 dB **SNR** = 29 dB

30NNNN-30P Helmet ARC Hygiene kit PVC

(TeamWendy Exfil LTP-Helmet Rail3.0, Size1 M/L)

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	18.4	19.7	20.3	24.4	28.3	28.8	40.6	42.9
S_f (dB)	2.2	2.0	2.4	2.3	3.0	2.8	3.4	3.4
APV (dB)	16.1	17.7	17.9	22.1	25.3	26.0	37.2	39.6

H_m = 31.1 dB **M_m** = 26.8 dB **L_m** = 22.9 dB **SNR_m** = 29.4 dB **Weight** = 288 g

H_s = 2.5 dB **M_s** = 2.0 dB **L_s** = 1.7 dB **SNR_s** = 1.8 dB

H = 29 dB **M** = 25 dB **L** = 21 dB **SNR** = 28 dB

30NNNN-30G Helmet ARC Hygiene kit GEL

(TeamWendy Exfil LTP-Helmet Rail3.0, Size1 M/L)

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	18.6	17.7	19.9	24.1	29.6	29.8	39.7	42.2
S_f (dB)	2.7	2.3	2.2	2.6	2.7	2.4	2.3	3.1
APV (dB)	15.9	15.4	17.7	21.5	26.9	27.4	37.4	39.1

H_m = 32.2 dB **M_m** = 27.0 dB **L_m** = 22.2 dB **SNR_m** = 29.6 dB **Weight** = 345 g

H_s = 2.2 dB **M_s** = 1.8 dB **L_s** = 1.4 dB **SNR_s** = 1.7 dB

H = 30 dB **M** = 25 dB **L** = 21 dB **SNR** = 28 dB

30NNNN-31P Helmet R-ARC Hygiene kit PVC

(OPS-CORE FAST CARBON HIGH CUT HELMET, M/L)

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	20.0	18.3	22.3	27.2	32.8	32.3	39.9	40.3
S_f (dB)	3.1	2.9	2.9	2.9	2.6	2.5	2.5	2.6
APV (dB)	17.0	15.3	19.3	24.4	30.2	29.8	37.4	37.7

H_m = 34.4 dB **M_m** = 29.6 dB **L_m** = 24.1 dB **SNR_m** = 32.0 dB **Weight** = 342 g

H_s = 1.8 dB **M_s** = 1.9 dB **L_s** = 2.3 dB **SNR_s** = 1.8 dB

H = 33 dB **M** = 28 dB **L** = 22 dB **SNR** = 30 dB

30NNNN-31G Helmet R-ARC Hygiene kit GEL

(OPS-CORE FAST CARBON HIGH CUT HELMET, M/L)

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	19.9	18.2	20.1	24.1	28.2	30.5	42.0	41.7
S_f (dB)	2.5	2.5	2.6	1.8	2.5	2.3	3.6	2.6
APV (dB)	17.4	15.8	17.5	22.3	25.7	28.3	38.4	39.1

H_m = 32.5 dB **M_m** = 26.9 dB **L_m** = 22.5 dB **SNR_m** = 29.7 dB **Weight** = 400 g

H_s = 2.1 dB **M_s** = 1.9 dB **L_s** = 2.1 dB **SNR_s** = 1.8 dB

H = 30 dB **M** = 25 dB **L** = 20 dB **SNR** = 28 dB

30NNNN-10P/-11P/-12P, Dual protection

Headband Hygiene kit PVC and Sordin SoftEar ear plug (M/L)

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	32.1	34.7	41.2	50.7	43.3	39.8	48.0	46.9
S_f (dB)	5.9	5.7	5.6	5.9	4.5	4.6	4.0	3.9
APV (dB)	26.2	29.1	35.6	44.8	38.8	25.3	44.0	42.9

H_m = 41.5 dB **M_m** = 42 dB **L_m** = 40.2 dB **SNR_m** = 43 dB **Weight** = 309 g

H_s = 3.8 dB **M_s** = 3.5 dB **L_s** = 4.1 dB **SNR_s** = 3.3 dB

H = 38 dB **M** = 38 dB **L** = 36 dB **SNR** = 40 dB

30NNNN-10G/-11G/-12G, Dual protection

Headband Hygiene kit GEL and Sordin SoftEar ear plug (M/L)

f(Hz)	63	125	250	500	1000	2000	4000	8000
M_f (dB)	31.6	34.0	43.8	55.8	44.5	41.2	50.1	49.0
S_f (dB)	5.3	5.0	5.6	6.1	5.5	5.5	3.7	3.8
APV (dB)	26.3	29.0	38.1	49.6	38.9	35.6	46.3	45.1

H_m = 42.7 dB	M_m = 43.0 dB	L_m = 41.2 dB	SNR_m = 44.1 dB	**Weight** = 367 g
H_s = 4.5 dB	M_s = 4.0 dB	L_s = 4.2 dB	SNR_s = 3.8 dB	
H = 38 dB	**M** = 39 dB	**L** = 37 dB	**SNR** = 40 dB	

For information related to ANSI S3.19-1974 se table 6

TABLE 2 – APPROVED HELMET COMBINATIONS

MODEL	HELMET MODEL	APPROVED SIZES and SIZE MODE *		
		S	M	L
30NNNN-30P/30G ARC with hygiene kit PVC/GEL	TeamWendy Exfil LTP-Helmet Rail3.0, Size1 M/L	S	S	S
30NNNN-31P/-31G R-ARC with hygiene kit PVC/GEL	OPS-CORE FAST CARBON HIGH CUT HELMET, M/L	L	L	L

* SIZE MODE on suspension.
See section "To assemble Helmet ARC- and R-ARC-rail model to a helmet (30NNNN-30N/-31N)" and Fig. 3.

TABLE 3 – CRITERION LEVELS

TYPE	CRTIERION LEVELS dB(A)		
	L	M	H
All variants	Not applicable	107.2	110.0

Note! There is no significant difference between the measured criterion level (L) when the level-dependent function is on or off, meaning the requirement for minimum criterion level (L) does not apply.

TABLE 4 – A-WEIGHTED DIFFUSE FIELD RELATED SOUND PRESSURE LEVEL

Signal dBV	Signal mV	Sound output level	Allowable exp time (h)*
-30	31.6	65.8	>8
-25	56.2	71.6	>8
-20	100.0	75.1	>8
-15	177.8	79.9	>8
-10	316.2	83.9	5.2
-5	562.3	87.2	2.4

*Usage time at maximum input signal corresponding to an equivalent sound output level of 82 dB(A) over 8 h.

ⓘ Warning!

The sound pressure level can exceed 82 dB(A) for input signal levels higher than the maximum specified input signal level.

Bluetooth output levels

Input (dB FS)	Output DFE (dBA)	
	Mean	SD
-39	54.1	2.9
-34	57.4	2.0
-29	62.1	2.0
-24	67.0	2.0
-19	71.7	2.3
-14	76.9	2.0
Max Level (Mean + SD)	79.0	

TABLE 5 – HYGIENE KIT

Type	Part number
PVC (Memory foam)	60197-S
GEL	60198-S

TABLE 6 – ANSI S3.19-1974

Information related to ANSI S3.19-1974. Attenuation tested according to ANSI S3.19-1974

30NNNN-10P/-11P/-12P, Headband Hygiene kit PVC

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	17	20.6	25.4	33.2	33.0	39.8	43.2	43.2	41.5
Standard deviation dB(A)	1.5	3.3	1.5	2.6	3.1	3.2	2.4	3.2	3.2

NRR = 23 dB **Headband force** = 2.3 lbs

30NNNN-10G/-11G/-12G, Headband Hygiene kit GEL

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	16.9	19.3	23.8	30.9	30.6	38.4	40.9	42.2	39.6
Standard deviation dB(A)	3.0	1.7	2.0	2.0	2.3	3.1	3.3	2.6	2.6

NRR = 23 dB **Headband force** = 2.4 lbs

30NNNN-20P Neckband, Hygiene kit PVC

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	15.8	20.1	25.7	34.0	30.1	36.0	40.3	42.2	41.1
Standard deviation dB(A)	2.6	1.8	2.0	3.5	3.2	3.6	1.9	2.7	3.2

NRR = 23 dB **Headband force** = 2.4 lbs

30NNNN-20G Neckband Hygiene kit GEL

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	16.8	19.8	25.7	31.0	31.9	39.9	42.3	40.7	40.1
Standard deviation dB(A)	3.0	1.9	2.0	2.3	2.3	2.7	2.5	2.5	2.8

NRR = 23 dB **Headband force** = 2.9 lbs

30NNNN-30P Helmet ARC Hygiene kit PVC

(TeamWendy Exfil LTP-Helmet Rail3.0, Size1 M/L)

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	17.5	18.7	22.1	29.0	30.5	37.5	39.6	43.4	42.9
Standard deviation dB(A)	2.5	2.6	1.9	3.0	3.1	2.5	2.0	3.2	2.7

NRR = 21 dB **Headband force** = 2.4 lbs

30NNNN-30G Helmet ARC Hygiene kit GEL

(TeamWendy Exfil LTP-Helmet Rail3.0, Size1 M/L)

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	17.1	18.7	22.5	27.7	30.6	37.8	41.2	43.3	42.2
Standard deviation dB(A)	2.6	2.3	1.5	1.7	2.2	2.1	3.2	3.1	2.2

NRR = 22 dB **Headband force** = 2.6 lbs

30NNNN-31P Helmet R-ARC Hygiene kit PVC

(OPS-CORE FAST CARBON HIGH CUT HELMET, M/L)

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	19.4	21.7	25.6	32.1	31.1	39.3	41.5	44.6	43.2
Standard deviation dB(A)	2.8	2.5	2.4	3.1	2.8	2.8	2.1	2.0	1.7

NRR = 23 dB **Headband force** = 2.5 lbs

30NNNN-31G Helmet R-ARC Hygiene kit GEL

(OPS-CORE FAST CARBON HIGH CUT HELMET, M/L)

Frequenzy (Hz)	125	250	500	1000	2000	3150	4000	6300	8000
Mean attenuation dB(A)	18.4	21.1	24.8	29.8	31.9	40.9	42.7	44.6	41.3
Standard deviation dB(A)	3.0	2.1	2.6	2.8	2.0	3.0	3.2	2.9	2.5

NRR = 23 dB **Headband force** = 2.8 lbs

Information required by E.P.A

The level of noise entering a person's ear, when hearing protector is worn as directed, is closely approximated by the difference between the A-weighted environmental noise level and the NRR.

Example

1. The environmental noise level as measured at the ear is 92 dBA.

2. The NRR is 21 decibels (dB).

3. The level of noise entering the ear is approximately equal to 92 dB(A) - 21 dB(A).

Caution: For noise environments dominated by frequencies below 500 Hz the C-weighted environmental noise level should be used.

Improper fit of this device will reduce its effectiveness in attenuating noise. Consult the enclosed instructions for proper fit (i.e. this manual).

Although hearing protectors can be recommended for protection against the harmful effects of impulsive noise, the Noise Reduction Rating (NRR) is based on the attenuation of continuous noise and may not be an accurate indicator of the protection attainable against impulsive noise such as gunfire.

For more information, see online manual:
www.sordin.com/manuals

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