

SM1R

TECHNICAL INFORMATION

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FORWARD

Product Safety and RF Exposure Compliance:

This product is designed to be used in isolation or in conjunction with a two-way radio. Before using this product with a two-way radio, read the operating instructions for safe usage contained in the Product Safety and RF Exposure booklet enclosed with the two-way radio.

FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to 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

TECHNICAL SPECIFICATIONS

| | Headband | Behind-the-Neck | Helmet Mount |
|-----------------------|---------------------------------------|------------------|-----------------------------------|
| Weight | 495g (17.46 oz.) | 428g (15.09 oz.) | 480g (16.93 oz.) |
| Operating temperature | -20°C to +60°C (-4°F to 140°F) | | |
| Charing temperature | 0°C to +40°C (32°F to 104°F) | | |
| | Non-Intrinsically Safe | | Intrinsically Safe |
| Battery type | 2650mAh Lithium Polymer, rechargeable | | 2250mAh Lithium ion, rechargeable |
| Battery charge time | 7 hours | | 4 hours |
| Operating time | 24 hours | | 18-24 hours |
| Housing material | PP, ABS + TPE | | |
| RoHS Compliant | Yes | | |

NRR AND SLC80

The SM1R has been certified to international hearing protection standards including AS/NZS 1270:2002, ANSI S3.19-1974, ANSI S12.6-2008, EN352-1, EN352-3, EN352-4, and EN352-6. The following passive attenuation ratings were observed:

PASSIVE ATTENUATION (ANSI S3.19-1974)

SM1R measured in accordance with ANSI S3.19 -1974.

Headband mount- SM1RB001

| <i>Frequency (Hz)</i> | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | <i>NRR</i> |
|-----------------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| Mean atten. (dB) | 22.1 | 24.4 | 31.1 | 35.1 | 35.8 | 37.0 | 39.9 | 40.7 | 40.7 | 27 dB |
| Standard dev. (dB) | 3.1 | 2.4 | 2.0 | 2.5 | 3.2 | 3.0 | 3.3 | 2.7 | 2.9 | |

Behind-the-Neck mount-SM1RE001

| <i>Frequency (Hz)</i> | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | <i>NRR</i> |
|-----------------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| Mean atten. (dB) | 18.9 | 22.4 | 28.6 | 33.6 | 33.5 | 35.3 | 37.3 | 38.8 | 37.4 | 24 dB |
| Standard dev. (dB) | 3.5 | 3.4 | 2.6 | 2.8 | 2.3 | 3.5 | 4.0 | 2.9 | 3.4 | |

Helmet mount – SM1RH001

| <i>Frequency (Hz)</i> | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | <i>NRR</i> |
|-----------------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|
| Mean atten. (dB) | 18.6 | 20.8 | 27.3 | 33.6 | 37.1 | 35.5 | 35.3 | 37.1 | 35.0 | 23 dB |
| Standard dev. (dB) | 3.2 | 2.7 | 3.1 | 3.9 | 2.3 | 3.1 | 3.8 | 3.8 | 3.4 | |

PASSIVE ATTENUATION (ANSI S12.6– 2008)

SM1R measured in accordance with ANSI S12.6 - 2008.

Headband mount- SM1RB001

| <i>Frequency (Hz)</i> | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | <i>NRR(SF)</i> |
|-----------------------|------------|------------|------------|-------------|-------------|-------------|-------------|----------------|
| Mean attenuation (dB) | 21.4 | 21.9 | 29.8 | 33.7 | 35.8 | 37.2 | 38.5 | 27 dB |
| Standard Dev. (dB) | 3.0 | 2.1 | 1.7 | 2.8 | 1.5 | 1.9 | 2.8 | |
| APV80 | 18.9 | 20.1 | 28.4 | 31.3 | 34.5 | 35.6 | 36.1 | |

Behind-the-Neck mount-SM1RE001

| <i>Frequency (Hz)</i> | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | <i>NRR(SF)</i> |
|-----------------------|------------|------------|------------|-------------|-------------|-------------|-------------|----------------|
| Mean attenuation (dB) | 18.7 | 19.9 | 28.0 | 34.1 | 31.5 | 35.6 | 35.3 | 24.3 dB |
| Standard Dev. (dB) | 3.0 | 2.5 | 2.2 | 1.7 | 3.2 | 3.4 | 4.1 | |
| APV80 | 16.2 | 17.8 | 26.2 | 32.7 | 28.8 | 32.7 | 31.9 | |

Helmet mount - SM1RH001

| <i>Frequency (Hz)</i> | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | <i>NRR(SF)</i> |
|-----------------------|------------|------------|------------|-------------|-------------|-------------|-------------|----------------|
| Mean attenuation (dB) | 15.0 | 17.7 | 25.2 | 30.4 | 33.9 | 34.5 | 33.8 | 19.1 dB |
| Standard Dev. (dB) | 6.5 | 6.7 | 6.6 | 4.0 | 3.3 | 5.9 | 5.1 | |
| APV80 | 9.5 | 12.1 | 19.7 | 27.0 | 31.1 | 29.5 | 29.5 | |

PASSIVE ATTENUATION (AS/NZS 1270:2002)

SM1R measured in accordance with AS/NZS 1270:2002.

Headband mount- SM1RB001

| <i>Frequency (Hz)</i> | <i>125</i> | <i>250</i> | <i>50</i> | <i>100</i> | <i>200</i> | <i>400</i> | <i>8000</i> | <i>SLC</i> <i>(80)</i> |
|----------------------------------|------------|------------|-----------|------------|------------|------------|-------------|---------------------------|
| Mean atten. (dB) | 20.3 | 21.7 | 30.3 | 33.2 | 35.2 | 36.6 | 37.3 | 31dB, Class 5 |
| Standard dev. (dB) | 4.3 | 3.1 | 2.7 | 3.0 | 2.7 | 2.5 | 3.3 | |
| Mean atten. – Standard dev. (dB) | 16.0 | 18.6 | 27.6 | 30.2 | 32.5 | 34.1 | 34.0 | |

Behind-the-Neck mount-SM1RE001

| <i>Frequency (Hz)</i> | <i>125</i> | <i>250</i> | <i>500</i> | <i>1000</i> | <i>2000</i> | <i>4000</i> | <i>8000</i> | <i>SLC</i> <i>(80)</i> |
|----------------------------------|------------|------------|------------|-------------|-------------|-------------|-------------|---------------------------|
| Mean attenuation(dB) | 19.3 | 20.0 | 27.0 | 33.7 | 30.5 | 33.9 | 33.0 | 27 dB, Class 5 |
| Standard deviation(dB) | 5.1 | 4.1 | 3.7 | 2.4 | 4.5 | 3.8 | 5.2 | |
| Mean atten. – Standard dev. (dB) | 14.2 | 15.9 | 23.3 | 31.3 | 26.0 | 30.1 | 27.8 | |

Helmet mount - SM1RH001

| <i>Frequency(Hz)</i> | <i>125</i> | <i>250</i> | <i>500</i> | <i>1000</i> | <i>2000</i> | <i>4000</i> | <i>8000</i> | <i>SLC</i> <i>(80)</i> |
|----------------------------------|------------|------------|------------|-------------|-------------|-------------|-------------|---------------------------|
| Mean atten. (dB) | 15.6 | 19.1 | 24.7 | 29.7 | 34.0 | 34.5 | 33.4 | 26 dB, Class 5 |
| Standard deviation(dB) | 5.7 | 5.5 | 5.2 | 3.9 | 3.0 | 5.5 | 5.0 | |
| Mean atten. – Standard dev. (dB) | 9.9 | 13.6 | 19.5 | 25.8 | 31.0 | 29.0 | 28.4 | |

PASSIVE ATTENUATION (EN352-1 AND EN352-3)

SM1R measured in accordance with EN352-1 and EN352-3.

Headband mount- SM1RB001 (EN352-1)

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | H | M | L | SNR |
|---------------------------------------|------|------|------|------|------|------|------|------|----|----|-----|
| | | | | | | | | (dB) | | | |
| Mean attenuation (dB) | 22.5 | 24.5 | 31.5 | 34.9 | 35.8 | 38.0 | 39.8 | 35 | 30 | 24 | 33 |
| Standard Dev. (dB) | 4.8 | 2.6 | 2.3 | 3.1 | 2.5 | 2.1 | 2.7 | | | | |
| Mean attenuation – Standard Dev. (dB) | 17.7 | 21.9 | 29.2 | 31.8 | 33.3 | 35.9 | 37.1 | | | | |

Behind-the-Neck mount- SM1RE001(EN352-1)

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | H | M | L | SNR |
|---------------------------------------|------|------|------|------|------|------|------|------|----|----|-----|
| | | | | | | | | (dB) | | | |
| Mean attenuation (dB) | 20.7 | 21.3 | 27.7 | 34.0 | 33.3 | 35.3 | 36.1 | 32 | 27 | 21 | 30 |
| Standard Dev. (dB) | 5.1 | 3.3 | 3.1 | 2.5 | 2.9 | 2.3 | 2.6 | | | | |
| Mean attenuation – Standard Dev. (dB) | 15.6 | 18.0 | 24.6 | 31.5 | 30.4 | 33.0 | 33.5 | | | | |

Helmet mount-SM1RH001 (EN352-3)

| Frequency (Hz) | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | H | M | L | SNR |
|---------------------------------------|------|------|------|------|------|------|------|------|----|----|-----|
| | | | | | | | | (dB) | | | |
| Mean attenuation (dB) | 20.4 | 22.2 | 28.2 | 33.5 | 36.9 | 38.0 | 37.5 | 34 | 28 | 22 | 31 |
| Standard Dev. (dB) | 3.6 | 3.3 | 3.3 | 3.6 | 2.3 | 3.9 | 3.0 | | | | |
| Mean attenuation – Standard Dev. (dB) | 16.9 | 18.8 | 24.9 | 29.8 | 34.6 | 34.1 | 34.6 | | | | |

The SM1R has level dependent facilities and the criterion levels as defined in EN352-4 are displayed below:

| <i>Model</i> | <i>H</i> | <i>M</i> | <i>L</i> |
|--------------|--------------|----------|----------|
| | <i>dB(A)</i> | | |
| SM1R | 108.6 | 104.6 | 103.4 |

TWO-WAY RADIO INPUT (EN352-6)

The electrical input level for which the mean plus one standard deviation is A-weighted diffused-field related sound pressure level is equal to 82 dB(A) is an RMS voltage $U = 108\text{mV}$.

SIZE RANGES

Warning- Earmuffs complying with EN352-1 are of 'small size range', 'Medium size range' or 'large size range'. 'Medium size range' earmuffs will fit most wearers. 'Small size range' or 'large size range' earmuffs are designed to fit wearers for whom 'medium size range' earmuffs are not suitable. The SM1R Headband, SM1R Behind-the-Neck, and SM1R Helmet adapters may be adjusted for small, medium, or large size.

MAINTENANCE AND CLEANING

The headset is an active hearing protector that allows audible contact with your surroundings while providing protection from harmful noise.

It is recommended that the headset is fitted, adjusted, and maintained in accordance with these instructions. This headset should always be worn in noisy surroundings. The headset should be regularly inspected for serviceability.

Warning:

- If these instructions are not followed the protection of the headset will be severely impaired.
- Noise reduction will be adversely affected by anything that impairs the seal of the earmuff cushions against the head, such as thick spectacle frames and balaclavas
- The reported attenuation will be obtained only if the headset is in good condition and worn as directed (Refer to AS/NZS 1269.3 for guidance).
- This product should not be used where there is a risk that the connecting cord could be caught up during use.
- This product is provided with level-dependent in-ear audio playback. 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/or replacement.

Warning:

- Performance may deteriorate with battery usage. The typical period of continuous use that can be expected from the headset will depend on the two-way radio battery.
- The output of the level-dependent circuit of this hearing protector may exceed the daily limit sound level. This limit can be adjusted with a Sensear programming tablet.
- This headset has been tested and approved according to the methods described in the EN352 series of standards.

CLAMPING FORCE

The clamping force of the SM1R has been measured in accordance with AS/NZS 1270:

| Model | Part # | Units | Initial measurements | | | Post-flex measurements | | |
|------------------------------|----------|--------------|----------------------|------|------|------------------------|------|------|
| | | | A | B | C | A | B | C |
| SM1R – Headband mount | SM1RB001 | Newtons (N) | 11.6 | 11.1 | 11.1 | 11.1 | 10.7 | 11.1 |
| | | Pounds (lbs) | 2.6 | 2.5 | 2.5 | 2.5 | 2.4 | 2.5 |
| SM1R – Behind-the-Neck mount | SM1RE001 | N | 14.2 | 14.7 | 14.2 | 14.2 | 14.7 | 14.2 |
| | | lbs | 3.2 | 3.3 | 3.2 | 3.2 | 3.3 | 3.2 |
| SM1R – Helmet mount | SM1RH001 | N | 9.3 | 9.3 | 9.3 | 9.3 | 8.9 | 9.3 |

MAINTENANCE AND STORAGE OF YOUR HEADSET

This product maybe adversely affected by certain chemical substances. Further information should be sought from the manufacturer.

The headset contains replaceable cushions (Part # SMHK0000). Cushions are recommended to be replaced every 3-6 months to maintain the appropriate hearing protection that the product is certified to. Cushions should be inspected regularly for signs of damage or wear. Cushions can be removed simply by gripping the cushion and pulling firmly to unclip from the baseplate. Replacement cushions may be pushed into the clips around the baseplate.

The headset should be stored at room temperature (between 15°C/59°F and 25°C/77°F).

INTRINSICALLY SAFE CERTIFICATION – IS MODEL

The SM1R-IS meets the following international standards for use in explosive gas environments:

- TIA-4950-A Rev. May 13, 2014

Requirements For Battery-Powered, Portable Land Mobile Radio Applications in Class I, II, III, Division 1, Hazardous (Classified) Locations

- CSA C22.2 No. 157-92 (R2012) + UPD1 + UPD2

Intrinsically Safe and Non-Incendive Equipment for use in Hazardous Locations

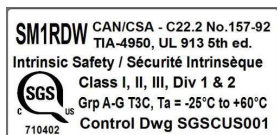
- UL913 5th Ed. February 21, 1997

Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, III, Division 1, Hazardous (Classified) Locations

MARKINGS

The SM1R-IS contains the following markings:

Manufacturer's name, Hazardous location class and group and temperature class



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Waste (Disposal) of your Electronic and Electric Equipment

EN

European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive

The European Union's WEEE directive requires that products sold into EU countries must have the crossed-out trash bin label on the product (or the package in some cases). As defined by the WEEE directive, this cross-out trash bin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste. Customers or end-users in EU countries should contact their local equipment supplier representative or service center for information about the waste collection system in their country.

FR

Directive de l'Union Européenne (UE) sur l'Élimination des Équipements Électriques et Électroniques (DEEE)

La directive DEEE de l'Union Européenne impose que les produits vendus dans les pays de l'UE portent la marque (éventuellement sur l'emballage) d'une poubelle sur roues barrée d'un croix. Comme la directive DEEE l'explique, cette marque composée d'une poubelle sur roues barrée d'un croix signifie que les clients et les utilisateurs des pays de l'UE ne devraient pas inclure leurs équipements électriques et électroniques ou accessoires dans leurs déchets ménagers. Les clients ou utilisateurs des pays de l'UE devraient contacter le représentant local de leur fournisseur d'équipement ou un centre de service pour s'informer sur le système de collection de déchets dans leur pays.

NL

De richtlijn inzake afgedankte elektrische en elektronische apparatuur (AEEA) van de Europese Unie (EU)

De richtlijn AEEA van de Europese Unie vereist dat product en die in de landen van de EU worden verkocht (of in sommige gevallen de verpakking daarvan), moeten zijn voorzien van het etiket met een doorgekruiste vuilnisbak. Zoals bepaald door de richtlijn AEEA, betekent dit etiket met de doorgekruiste vuilnisbak dat klanten en eindgebruikers in landen van de EU elektrische en elektronische apparatuur of toebehoren niet met het huisvuil mogen wegwerpen. Klanten en eindgebruikers binnen de EU moeten contact opnemen met hun plaatselijke leverancier of onderhoudscentrum voor informatie over het afvalinzamelsysteem in hun land.

DE

Richtlinie über Elektro- und Elektronik-Altgeräte (WEEE) der Europäischen Union (EU)

Produkte, die in EU-Ländern auf den Markt gebracht werden, müssen mit einer durchgestrichenen Abfalltonne gekennzeichnet sein (oder in einzelnen Fällen die Verpackung). Die WEEE Richtlinie definiert, dass Kunden und Endnutzer in Ländern der Europäischen Union (EU) elektronische und elektrische Geräte sowie elektronisches oder elektrisches Zubehör nicht in den Hausmüll entsorgen dürfen. Innerhalb der EU setzen Sie sich bitte mit dem örtlichen Vertreter oder Kundendienst Ihres Geräteherstellers in Verbindung, der Ihnen Auskunft zur Altgerätesorgung/abholung geben kann.

IT

La direttiva della Unione Europea (EU) sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)
La direttiva RAEE della Unione Europea richiede che i produttori venduti nei paesi della UE debbano essere marcati con il simbolo di un contenitore di spazzatura mobile barrato, conforme alla direttiva RAEE, significando che i clienti e i detentori finali nei paesi della UE non dovrebbero smaltire gli apparecchi, gli accessori elettronici e le apparecchiature con i rifiuti domestici. I clienti e i detentori finali nei paesi della UE dovrebbero rivolgersi al fornitore, rappresentante o centro di riparazione locale per ottenere informazioni sui sistemi predisposti nel proprio paese per la raccolta di tali apparecchi usati.

PT

Directiva da União Europeia (UE) relativa aos Resíduos de Equipamentos Eléctricos e Electrónicos (REEE)
A Directiva REEE da União Europeia exige que os produtos vendidos em países da UE tenham a etiqueta com o símbolo do contentor do lixo barrado, como uma cruz no próprio produto (ou, em determinados casos, na embalagem). Tal como definido pela Directiva REEE, este contentor do lixo barrado, como uma cruz, significa que os clientes e utilizadores finais nos países da UE não devem eliminar os equipamentos eléctricos e electrónicos ou acessórios junto com o lixo doméstico. Os clientes ou utilizadores finais nos países da UE devem contactar o representante local do fornecedor do equipamento ou um centro de assistência para obter informações relativas ao sistema de recolha do lixo nos países onde vivem.

RU

Директива Европейского Союза (ЕС) об утилизации электрического и электронного оборудования («УЭЭО»).

Директива «УЭЭО» Европейского Союза требует, чтобы на изделиях, продаваемых в странах ЕС (в отдельных случаях на их упаковке), был нанесен маркировочный вид перечнутого мусорного контейнера. Как установлено в директиве «УЭЭО», такая маркировочка в виде перечнутого мусорного контейнера означает, что покупатели и конечные пользователи не должны выбрасывать электронное и электрическое оборудование и приборы в бытовой мусор. Покупателям и конечным пользователям в странах ЕС следует обращаться к местным представителям поставщиков оборудования или в сервисные центры для получения информации о системе сбора отходов в их стране.

ES

La directiva de la Unión Europea (EU) sobre Residuos de Aparatos Eléctricos y Electrónicos (RAEE)
La directiva RAEE de la Unión Europea requiere que los productos vendidos en los países de la UE se marquen con el símbolo de un contenedor de basuras tachado sobre el producto (o en algunos casos sobre el envase). Conforme con la directiva RAEE, el símbolo del contenedor de basuras tachado significa que los clientes y usuarios finales en los países de la UE no deberían disponer los aparatos eléctricos o electrónicos ni ninguno de sus componentes junto a la basura doméstica. Clientes y usuarios finales en los países de la UE deben entrar en contacto con el centro de servicio o proveedores del equipo para obtener información acerca del sistema de recolección en su país.