Item no.	Product	Barcode	Photo
31988	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000319887	
31989	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000319894	
31990	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000319900	
32943	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000329435	
32944	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000329442	
32945	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000329459	
34139	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000341390	
34140	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000341406	
34141	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000341413	
34142	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000341420	
34242	**Brand – Serie**: Hoptimist **Product name: Rechargeable LED lamp** **Materials: plastic**	5722000342427	
33145	**Brand – Serie**: Hoptimist **Product name: Rechargeable Bluetooth speaker** **Materials: plastic**	5722000331452	
33146	**Brand – Serie**: Hoptimist **Product name: Rechargeable Bluetooth speaker** **Materials: plastic**	5722000331469	

33147	**Brand – Serie**: Hoptimist **Product name: Rechargeable Bluetooth speaker** **Materials: plastic**	5722000331476	
33159	**Brand – Serie**: Hoptimist **Product name: Rechargeable Bluetooth speaker** **Materials: plastic**	5722000331599	
33160	**Brand – Serie**: Hoptimist **Product name: Rechargeable Bluetooth speaker** **Materials: plastic**	5722000331605	
33161	**Brand – Serie**: Hoptimist **Product name: Rechargeable Bluetooth speaker** **Materials: plastic**	5722000331612	

Importer:

F&H GROUP A/S
Gl. Skivevej 70
DK-8800 Viborg, Denmark

User type:
Other consumers

Chemical Safety Assessment:

The article complies with Rohs & REACH.

Electrical Safety Assessment:

Injury Scenario	Injury Type	Severity	Likelihood	Risk Level	Risk management
Electrical Hazard	Electric shock	High	Rare	Low	Supplied by certified battery. Use a qualify charger to charge the product
Heat Production	Burn, scald	Low	Rare	Low	Nothing required

Other risks:

Injury Scenario	Injury Type	Severity	Likelihood	Risk Level	Risk management
Mechanical Injury (e.g., fall, pinch)	Bruises, fractures, cuts	Low	Rare	Low	Don't insert the fingers into the spring
Fire Hazard	Burns, smoke inhalation	High	Rare	Low	Battery has been tested with EN 62133-2. Don't charge the product for a

					very long time
Thermal (hot surfaces)	Burns	Low	Rare	Low	Nothing required

2025.01.07, Viborg

Date and place

F&H GROUP A/S
Gl. Skivevej 70
DK-8800 Viborg

IT IS NOT
A TOY

Danish Design

User manual

LARGE & X-LARGE SPEAKERS

Hoptimist®
SINCE 1968

USER MANUAL

This manual is for the large and x-large speakers.

SPECIFICATIONS, LARGE SPEAKER

- Wireless speaker
- 4.5 hours charge time
- 3-3.5 hours at maximum volume
- 5-6 hours at 60% volume
- USB-C cable included
- Power consumption: 5W
- For indoor use only

SPECIFICATIONS, X-LARGE SPEAKER

- Wireless speaker
- 7-8 hours charge time
- 4 hours at maximum volume
- 6-8 hours at 60% volume
- USB-C cable included
- Power consumption: 5W
- For indoor use only

This is not a toy. It is not designed or intended for children under the age of 12.

WARNINGS AND PRECAUTIONS

The USB cable is not waterproof and must be kept in a dry place at all times. This product is not intended for use in pools or ponds.

Never charge the product in a pool, water or rain; charge in a dry indoor location. Unplug the power supply when not in use.

Do not stand, sit or jump on this product.

Keep away from chemicals and heat. Do not attempt to disassemble the product.

Unauthorised disassembly of the product will invalidate the warranty.

The product can only be charged by a charger with a maximum output of 5V. If over 5V, the battery will be damaged.

Replacing a battery with an incorrect type may compromise safety.

Disposing of a battery by throwing it into a fire or a hot oven, or by mechanically crushing or cutting it, may cause an explosion.

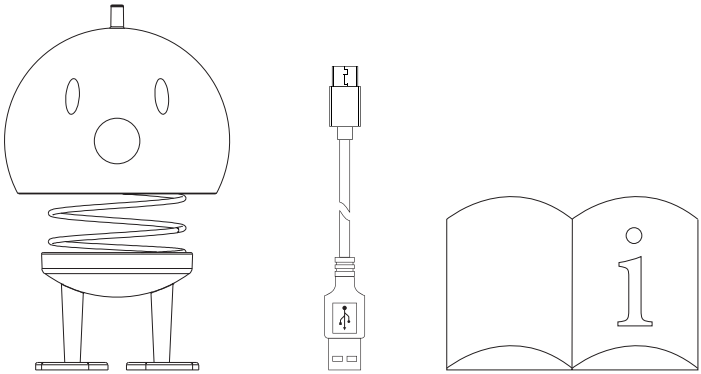
If a battery is left in an environment with extremely high temperatures, it may result in an explosion or the leakage of flammable liquid or gas. Additionally, a battery exposed to extremely low air pressure may cause an explosion or leakage of flammable liquid or gas.

**Notice: All icons from this instruction are for reference only,please refer to the actual product for details.*

OPERATION

Product with accessories

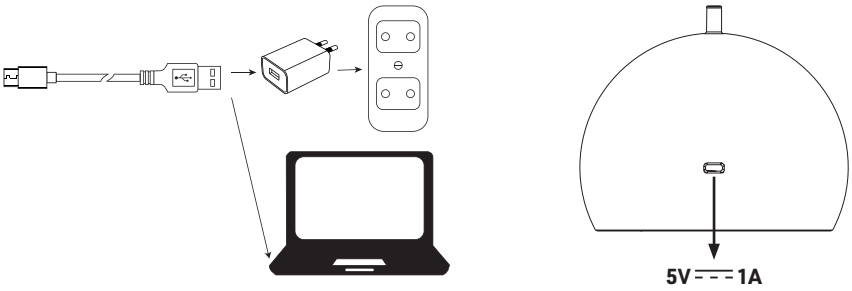
1: 1 x Speaker
2: 1 x USB cable
3: 1 x User manual



1 2 3

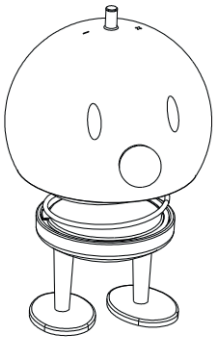
Charging your speaker

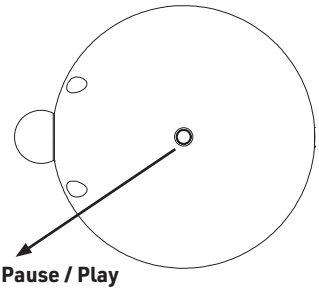
Use the included cable to recharge your speaker. Connect the cable to a computer or a DC 5V charger. Please note that the charger is not included.



Turn on/off and connect your speaker

1. Press and hold the top button on the speaker. The speaker is automatically ready for wireless connection.
2. Press and hold the top button on the speaker again. The speaker will automatically turn off.
3. During playback, briefly press the top button on the speaker to pause and play.
4. You can adjust the volume up and down by touching the '+' and '-' buttons. In multi-connection mode, only the master speaker can adjust the volume.
5. The product will enter power saving mode when the wireless connection to your device is disconnected. The product will shut down 10 minutes after the disconnection.





Playing music

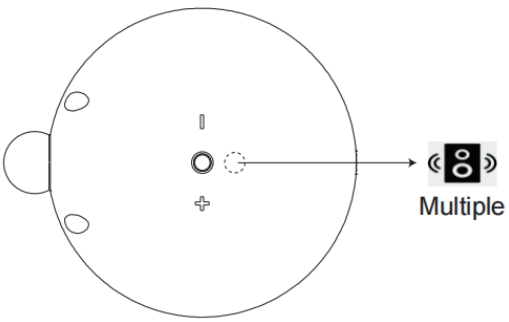
After turning on your speaker and activating the pairing function, start the pairing function on your mobile device and select "Hoptimist" from the list of available devices.

Multiple pairing to play music

If you decide to buy more Hoptimist speakers, you can choose to connect them all at once and have them play synchronised.

The first time you connect more speakers

When you activate the wireless connection, press and release the 'Multiple' button on one of the speakers until you hear the beep.



Note: Your device cannot connect to more than one Hoptimist speaker, so if more than one speaker appears in your device's wireless connection list, you will need to delete all but one and then connect to the remaining speaker.

MAINTAINING THE PRODUCT AND ACCESSORIES

Cleaning: We recommend that you use a dry, soft cloth to wipe down the speaker.
F&H Group A/S hereby declares that the wireless speaker complies with directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.fh-group.dk.

RECYCLING AND DISPOSAL

INFORMATION ON WASTE DISPOSAL FOR CONSUMERS OF ELECTRICAL & ELECTRONIC EQUIPMENT

This mark on a product and/or accompanying documents indicates that when it is to be disposed of it must be treated as Waste Electrical & Electronic Equipment (WEEE). Any WEEE marked waste products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used. For proper treatment, recovery and recycling; please take all WEEE marked waste to your Local Authority Civic waste site, where it will be accepted free of charge. If all consumers dispose of Waste Electrical & Electronic Equipment correctly, they will be saving valuable resources and preventing potential negative effects upon human health and the environment from hazardous materials that the waste may contain.

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

This device may not cause harmful interference.

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

BEDIENUNGSANLEITUNG

Diese Anleitung gilt für die großen und X-Large Lautsprecher.

SPEZIFIKATIONEN – GROSSER LAUTSPRECHER

- Kabelloser Lautsprecher
- Ladezeit: 4,5 Stunden
- 3–3,5 Stunden bei maximaler Lautstärke
- 5–6 Stunden bei 60 % Lautstärke
- USB C Kabel enthalten
- Stromverbrauch: 5 W
- Nur für den Innenbereich

PEZIFIKATIONEN – X LARGE LAUTSPRECHER

- Kabelloser Lautsprecher
- Ladezeit: 7–8 Stunden
- 4 Stunden bei maximaler Lautstärke
- 6–8 Stunden bei 60 % Lautstärke
- USB C Kabel enthalten
- Stromverbrauch: 5 W
- Nur für den Innenbereich

Dies ist kein Spielzeug. Es ist nicht für Kinder unter 12 Jahren entworfen oder vorgesehen.

WARNHINWEISE UND VORSICHTSMASSNAHMEN

Das USB Kabel ist nicht wasserdicht und muss jederzeit an einem trockenen Ort aufbewahrt werden. Dieses Produkt ist nicht für den Einsatz in Pools oder Teichen vorgesehen.

Laden Sie das Produkt niemals in einem Pool, im Wasser oder bei Regen auf; laden Sie es an einem trockenen, innenliegenden Ort auf. Ziehen Sie den Netzstecker, wenn das Gerät nicht in Gebrauch ist.

Stehen, sitzen oder springen Sie nicht auf diesem Produkt.

Halten Sie das Produkt von Chemikalien und Hitze fern. Versuchen Sie nicht, das Produkt zu zerlegen.

Eine unbefugte Demontage des Produkts führt zum Erlöschen der Garantie.

Das Produkt darf nur mit einem Ladegerät mit einer maximalen Ausgangsspannung von 5 V aufgeladen werden. Bei mehr als 5 V wird der Akku beschädigt.

Der Austausch eines Akkus durch einen falschen Typ kann die Sicherheit beeinträchtigen.

Das Entsorgen eines Akkus durch Einwerfen in ein Feuer oder einen heißen Ofen, oder durch mechanisches Zerkleinern oder Schneiden, kann eine Explosion verursachen.

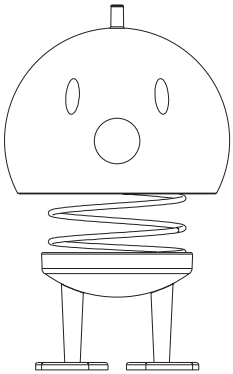
Wenn ein Akku in einer Umgebung mit extrem hohen Temperaturen aufbewahrt wird, kann dies zu einer Explosion oder zum Austreten von brennbaren Flüssigkeiten oder Gasen führen. Ebenso kann ein Akku, der extrem niedrigem Luftdruck ausgesetzt ist, eine Explosion oder das Austreten von brennbaren Flüssigkeiten oder Gasen verursachen.

Hinweis: Alle Symbole in dieser Anleitung dienen nur zur Orientierung. Bitte entnehmen Sie die Details dem tatsächlichen Produkt.

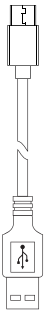
BEDIENUNG

Produkt und Zubehör

1: 1 x Lautsprecher
2: 1 x USB-Kabel
3: 1 x Bedienungsanleitung



1



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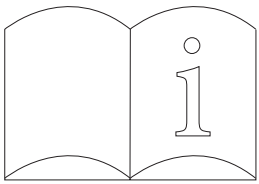
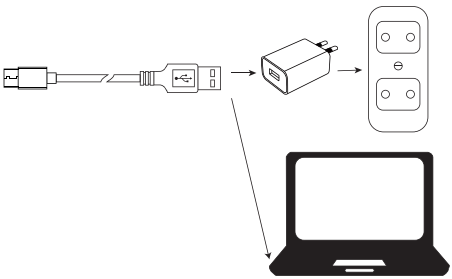
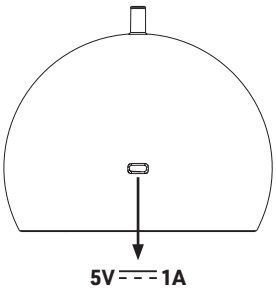


3

Aufladen Ihres Lautsprechers

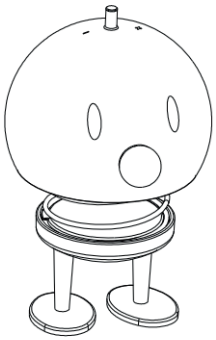
Verwenden Sie das beiliegende Kabel, um Ihren Lautsprecher aufzuladen. Schließen Sie das Kabel an einen Computer oder ein DC 5 V Ladegerät an. Bitte beachten Sie, dass das Ladegerät nicht enthalten ist.

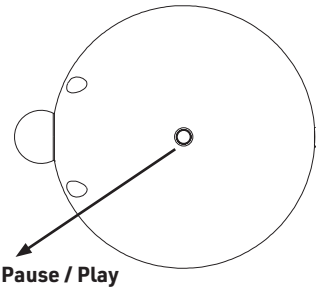




Ein- und Ausschalten sowie Verbinden Ihres Lautsprechers

1. Drücken und halten Sie die obere Taste am Lautsprecher. Der Lautsprecher ist dann automatisch für eine kabellose Verbindung bereit.
2. Drücken und halten Sie die obere Taste am Lautsprecher erneut. Der Lautsprecher schaltet sich automatisch aus.
3. Während der Wiedergabe drücken Sie kurz die obere Taste, um zu pausieren oder die Wiedergabe fortzusetzen.
4. Sie können die Lautstärke erhöhen oder verringern, indem Sie die „+"- und „–"-Tasten berühren. Im Mehrfachverbindungsmodus kann nur der Hauptlautsprecher die Lautstärke einstellen.
5. Das Gerät wechselt in den Energiesparmodus, wenn die kabellose Verbindung zu Ihrem Gerät unterbrochen wird, und schaltet sich 10 Minuten nach der Trennung automatisch aus.





Musik abspielen

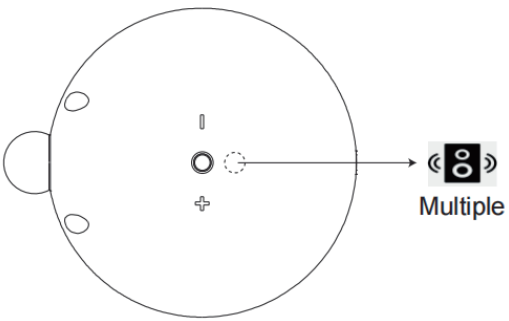
Schalten Sie Ihren Lautsprecher ein und aktivieren Sie die Pairing Funktion. Starten Sie dann die Kopplung auf Ihrem Mobilgerät und wählen Sie „Hoptimist“ aus der Liste der verfügbaren Geräte aus.

Mehrfach-Pairing zur synchronen Musikwiedergabe

Wenn Sie weitere Hoptimist Lautsprecher erwerben, können Sie diese alle gleichzeitig verbinden und synchron wiedergeben lassen.

Beim erstmaligen Verbinden mehrerer Lautsprecher

Wenn Sie die kabellose Verbindung aktivieren, drücken und lassen Sie an einem der Lautsprecher die „Multiple“-Taste los, bis Sie einen Signalton hören.



Hinweis: Ihr Gerät kann sich nicht mit mehr als einem Hoptimist Lautsprecher verbinden. Wenn daher mehr als ein Lautsprecher in der Liste der kabellosen Verbindungen erscheint, müssen Sie alle bis auf einen löschen und sich dann mit dem verbleibenden verbinden.

PFLEGE DES PRODUKTS UND DES ZUBEHÖRS

Reinigung: Wir empfehlen, den Lautsprecher mit einem trockenen, weichen Tuch abzuwischen.

F&H Group A/S erklärt hiermit, dass der kabellose Lautsprecher der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU Konformitätserklärung ist verfügbar unter: www.fh-group.dk.

RECYCLING UND ENTSORGUNG

INFORMATIONEN ZUR ENTSORGUNG VON ELEKTRO- UND ELEKTRONIKGERÄTEN

Das Zeichen auf einem Produkt und/oder den Begleitdokumenten weist darauf hin, dass es bei der Entsorgung als Elektro- und Elektronik Altgerät (WEEE) behandelt werden muss. WEEE gekennzeichnete Abfälle dürfen nicht mit dem Hausmüll vermischt werden, sondern müssen getrennt für die Behandlung, Wiedergewinnung und das Recycling der enthaltenen Materialien aufbewahrt werden. Bitte bringen Sie alle WEEE gekennzeichneten Abfälle zu Ihrer örtlichen kommunalen Wertstoffsammelstelle, wo sie kostenfrei angenommen werden. Richtig entsorgt, sparen Verbraucher wertvolle Ressourcen und vermeiden potenzielle negative Auswirkungen auf die Gesundheit und Umwelt durch gefährliche Stoffe in den Abfällen.

Dieses Gerät entspricht Teil 15 der FCC Vorschriften. Der Betrieb ist unter folgenden Bedingungen gestattet:

Dieses Gerät darf keine schädlichen Störungen verursachen.

Dieses Gerät muss jede empfangene Störung akzeptieren, einschließlich solcher, die einen unerwünschten Betrieb verursachen können.

MANUEL D'UTILISATION

Ce manuel concerne les enceintes large et X large.

SPÉCIFICATIONS – ENCEINTE LARGE

- Enceinte sans fil
- Temps de charge : 4,5 heures
- 3–3,5 heures en volume maximum
- 5–6 heures à 60 % du volume
- Câble USB C inclus
- Consommation d'énergie : 5 W
- Usage intérieur uniquement

SPÉCIFICATIONS – ENCEINTE X-LARGE

- Enceinte sans fil
- Temps de charge : 7–8 heures
- 4 heures en volume maximum
- 6–8 heures à 60 % du volume
- Câble USB C inclus
- Consommation d'énergie : 5 W
- Usage intérieur uniquement

Ce n'est pas un jouet. Il n'est ni conçu ni destiné aux enfants de moins de 12 ans.

AVERTISSEMENTS ET PRÉCAUTIONS

Le câble USB n'est pas étanche et doit être conservé en permanence dans un endroit sec. Ce produit n'est pas destiné à être utilisé dans des piscines ou des étangs.

Ne chargez jamais le produit dans une piscine, dans l'eau ou sous la pluie ; chargez-le dans un lieu sec à l'intérieur. Débranchez l'alimentation lorsqu'il n'est pas utilisé.

Ne vous tenez pas, ne vous asseyez pas et ne sautez pas sur ce produit.

Tenez-le à l'écart des produits chimiques et de la chaleur. N'essayez pas de démonter le produit.

Le démontage non autorisé du produit annulera la garantie.

Le produit ne peut être chargé qu'avec un chargeur dont la sortie maximale est de 5 V. Une tension supérieure à 5 V endommagera la batterie.

Remplacer la batterie par un type incorrect peut compromettre la sécurité.

Jeter une batterie dans un feu ou dans un four chaud, ou la broyer ou la couper mécaniquement, peut provoquer une explosion.

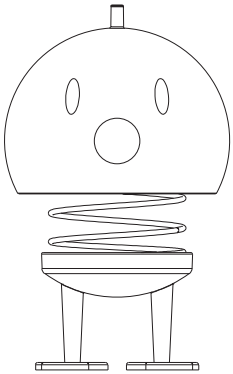
Si une batterie est laissée dans un environnement à températures extrêmement élevées, cela peut entraîner une explosion ou une fuite de liquide ou de gaz inflammable. De plus, une batterie exposée à une pression atmosphérique extrêmement basse peut provoquer une explosion ou une fuite de liquide ou de gaz inflammable.

Note : Tous les symboles de ce manuel sont donnés à titre indicatif. Veuillez vous référer au produit réel pour plus de détails.

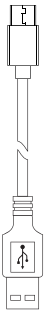
UTILISATION

Produit avec Accessoires

1: 1 x Enceinte
2: 1 x Câble USB
3: 1 x Manuel d'utilisation



1



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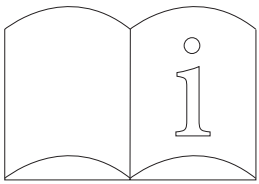
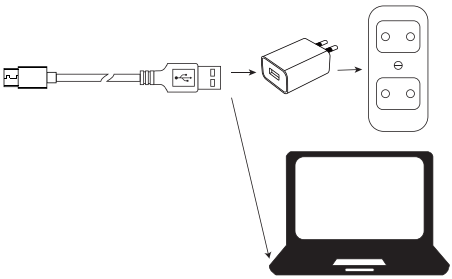
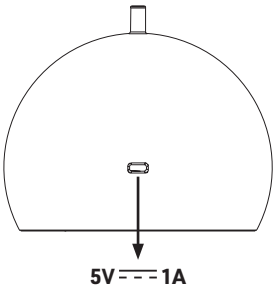


3

Recharger votre Enceinte

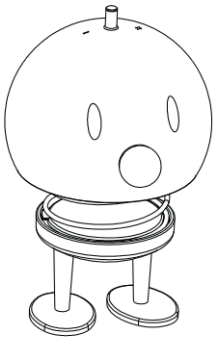
Utilisez le câble fourni pour recharger votre enceinte. Connectez le câble à un ordinateur ou à un chargeur DC 5 V. Veuillez noter que le chargeur n'est pas inclus.

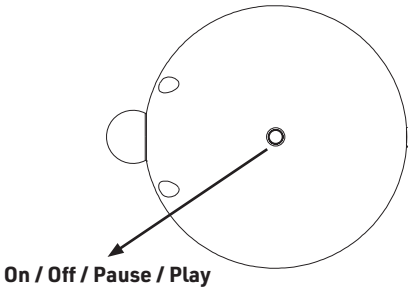




Allumer/Éteindre et Connecter votre Enceinte

1. Appuyez longuement sur le bouton supérieur de l'enceinte. Celle-ci sera automatiquement prête à se connecter sans fil.
2. Appuyez à nouveau longuement sur le bouton supérieur. L'enceinte s'éteindra automatiquement.
3. Pendant la lecture, appuyez brièvement sur le bouton supérieur pour mettre en pause ou reprendre la lecture.
4. Vous pouvez régler le volume en appuyant sur les boutons « + » et « – ». En mode de connexion multiple, seule l'enceinte principale peut ajuster le volume.
5. Le produit passera en mode économie d'énergie lorsque la connexion sans fil à votre appareil sera interrompue, et il s'éteindra 10 minutes après la déconnexion.

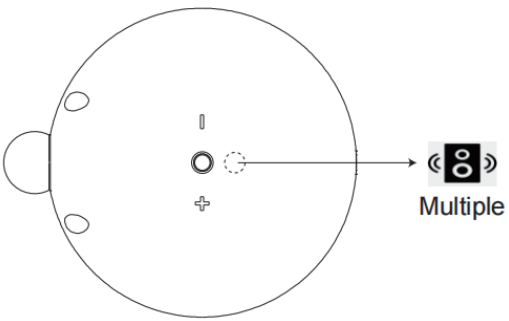




Lire de la Musique
Après avoir allumé votre enceinte et activé la fonction de couplage, lancez cette fonction sur votre appareil mobile et sélectionnez « Hoptimist » dans la liste des appareils disponibles.

Couplage Multiple pour Lire de la Musique
Si vous décidez d'acheter d'autres enceintes Hoptimist, vous pouvez les connecter toutes simultanément pour une lecture synchronisée.

La Première Fois que Vous Connectez Plusieurs Enceintes
Lorsque vous activez la connexion sans fil, appuyez sur le bouton « Multiple » sur l'une des enceintes et relâchez-le jusqu'à entendre le signal sonore.



Note : Votre appareil ne peut se connecter qu'à une seule enceinte Hoptimist. Si plusieurs enceintes apparaissent dans la liste des connexions sans fil, vous devrez en supprimer toutes sauf une, puis vous connecter à l'enceinte restante.

ENTRETIEN DU PRODUIT ET DES ACCESSOIRES

Nettoyage : Nous vous recommandons d'utiliser un chiffon doux et sec pour essuyer l'enceinte.
F&H Group A/S déclare par la présente que l'enceinte sans fil est conforme à la directive 2014/53/UE. Le texte intégral de la déclaration de conformité de l'UE est disponible à l'adresse suivante : www.fh-group.dk.

RECYCLAGE ET ÉLIMINATION

INFORMATIONS SUR L'ÉLIMINATION DES DÉCHETS D'ÉQUIPEMENTS ÉLECTRIQUES ET ÉLECTRONIQUES

Ce marquage sur un produit et/ou ses documents d'accompagnement indique qu'il doit être traité comme des Déchets d'Équipements Électriques et Électroniques (DEEE) lors de son élimination.

Les déchets marqués DEEE ne doivent pas être mélangés avec les ordures ménagères, mais conservés séparément pour le traitement, la récupération et le recyclage des matériaux utilisés. Veuillez apporter tous les déchets DEEE à votre déchetterie locale, où ils seront acceptés gratuitement. Une élimination correcte permet d'économiser des ressources précieuses et d'éviter des effets négatifs potentiels sur la santé humaine et l'environnement dus aux substances dangereuses contenues dans ces déchets.

Cet appareil est conforme à la Partie 15 des règles de la FCC. Son fonctionnement est soumis aux deux conditions suivantes :

Cet appareil ne doit pas causer d'interférences nuisibles.

Cet appareil doit accepter toute interférence reçue, y compris celles pouvant provoquer un fonctionnement indésirable.

Hoptimist®
SINCE 1968

Hoptimist

#hoptimist

www.hoptimist.design

F&H GROUP

Gl. Skivevej 70
DK-8800 Viborg

info@fh-group.dk
www.fh-group.dk

T +45 8928 1300

Declaration of conformity

Identity of the product:

Item number:	33145, 33146, 33147
Description of the product:	X-Large speaker
Trademark:	Hoptimist
Model/Type reference:	33145, 33146, 33147

Identity of the manufacturer of the product:

Company name:	F&H Group A/S
Address:	Gl. Skivevej 70. DK-Viborg
E-mail address:	Info@fh-as.dk
Phone no.:	+45 8928 1300

Legislation & Standards:

Legislation	**Standard no.**	**Title of the standard**
Directive 2011/65/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment with its Amendments Directive 2015/863/EU **(ROHS directive)**	EN IEC 63000: 2018	Technical documentation for the assessment of electrical and electronic products with respect to the restrictions of hazardous substances.
Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment **(RED directive)**	EN 55032: 2015/A1:2020	Electromagnetic compatibility of multimedia equipment - Emission Requirements
	EN 55035: 2017/A11:2020	Electromagnetic compatibility of multimedia equipment - Immunity requirements
	ETSI EN 301 489-1 V2.2.3 (2019-11)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility

Legislation	Standard no.	Title of the standard
	ETSI EN 301 489-17 V3.2.4 (2020-09)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband and Wideband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility
	ETSI EN 300 328 V2.2.2 (2019-07)	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum
	EN 62479: 2010	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
	EN 50663: 2017	Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (10 MHz - 300 GHz)

Legislation	Symbol
REGULATION (EU) 2023/1542 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC	Use of symbol on battery.

CE-marking:

The last two digits of the year in which the CE-marking was affixed (that is 08 if the year is 2008).	24

The undersigned hereby declares that the tested specimen of the product described on page 1 meets the legislation and standards mentioned above in this declaration of conformity. This declaration of conformity is issued under the sole responsibility of the manufacturer.	
Date:	2024.12.11
Title and name:	Quality Engineer and June He
Signature/stamp:	F&H GROUP Gl. Skivevej 70 DK-8800 Viborg

Supplier declaration
REACH and Substances of Very High Concern (SVHC)
Regulation 1907/2006/EC

Identity of the supplier:

[redacted]

Product no.:	31988	Hoptimist LED lampe XL White
	31989	Hoptimist LED lampe XL Latte
	31990	Hoptimist LED lampe XL Chrome
	32943	Hoptimist LED lampe L White
	32944	Hoptimist LED lampe L Latte
	32945	Hoptimist LED lampe L Chrome
	34139	Hoptimist Soft LED lampe L Sky
	34140	Hoptimist Soft LED lampe L Choko
	34141	Hoptimist Soft LED lampe XL Sky
	34142	Hoptimist Soft LED lampe XL Choko
	34242	Hoptimist Soft PE-lampe XL White
	33145	Hoptimist Speaker Soft Bumble XL Soft White
	33146	Hoptimist Speaker Soft Bumble XL Soft Latte
	33147	Hoptimist Speaker Soft Bumble XL Soft Grey
	33159	Hoptimist Speaker Soft Bumble L Soft White
	33160	Hoptimist Speaker Soft Bumble L Soft Latte
	33161	Hoptimist Speaker Soft Bumble L Soft Grey
	31988	Hoptimist LED lampe XL White
	31989	Hoptimist LED lampe XL Latte
	31990	Hoptimist LED lampe XL Chrome
	32943	Hoptimist LED lampe L White
	32944	Hoptimist LED lampe L Latte
	32945	Hoptimist LED lampe L Chrome

	34139	Hoptimist Soft LED lampe L Sky
	34140	Hoptimist Soft LED lampe L Choko
	34141	Hoptimist Soft LED lampe XL Sky
	34142	Hoptimist Soft LED lampe XL Choko
	34242	Hoptimist Soft PE-lampe XL White
	33145	Hoptimist Speaker Soft Bumble XL Soft White
	33146	Hoptimist Speaker Soft Bumble XL Soft Latte
	33147	Hoptimist Speaker Soft Bumble XL Soft Grey
	33159	Hoptimist Speaker Soft Bumble L Soft White
	33160	Hoptimist Speaker Soft Bumble L Soft Latte
	33161	Hoptimist Speaker Soft Bumble L Soft Grey

Compliances:

Do you commit yourself to ensuring that all products mentioned above (including packaging) delivered by you comply with Regulation 1907/2006/EC as amended?	Yes:	☒	No:	☐
Do you have a system in place to secure that you are always updated on changes in Regulation 1907/2006/EC?	Yes:	☒	No:	☐

Substances with restrictions:

Do you commit yourself to informing F&H GROUP A/S if any of the articles / products (including packaging) delivered to F&H GROUP A/S contain any substances subject to restrictions as mentioned in Annex XVII of Regulation 1907/2006/EC as amended?	Yes:	☒	No:	☐
Do you commit yourself to informing F&H GROUP A/S if an update of Annex XVII of Regulation 1907/2006/EC affects any products / articles (including packaging) sold to F&H GROUP A/S within the previous six months, or going to be sold to F&H GROUP A/S?	Yes:	☒	No:	☐

SVHC – Substances of Very High Concern:

Do you have a system in place to secure that you are always updated on changes on the candidate list of substances of very high concern, http://echa.europa.eu/web/guest/candidate-list-table.	Yes:	☐	No:	☒
Do you commit yourself to informing F&H GROUP A/S in case an update of the candidate list of SVHC affects any products / articles (including packaging) sold to F&H GROUP A/S within the previous six months, or products / articles (including packaging) going to be sold to F&H GROUP A/S?	Yes:	☒	No:	☐

Will all products (including packaging) delivered by you be produced without SVHC?	Yes:	☒	No:	☐
If yes, this declaration can cover all assortments, different colours and designs				
If no, please answer the following questions:				
Do you commit yourself to informing F&H GROUP A/S of the presence and of the content (%) of SVHC in products and articles (including packaging) sold to or to be sold to F&H GROUP A/S?	Yes:	☒	No:	☐
Do you commit yourself to supplying F&H GROUP A/S with documentation (e.g., laboratory tests and reports) informing about the content/absence of SVHC?	Yes:	☒	No:	☐

Date:	2025-1-3
Name:	Miya.Li
Signature/stamp:	*For and on behalf of* POWER BEAUTY INDUSTRIAL LIMITED 寶奈貿易香港有限公司 *Authorized Signature(s)*

MSDS 报告
MSDS Report

报告编号： Report No.：	LA2023B1392002M

样品名称 Samples	锂离子电池 Li-ion Battery
样品型号 Model	ZEC 18650
[redacted]	
生效日期 Effective Date	2024-01-01

深圳市莱恩瑞斯科技有限公司

Shenzhen Lionaces Technology Co., Ltd.

Shenzhen Lionaces Technology Co., Ltd.
Add: 301, Building B6, Junfeng Industrial Zone, Yonghe Road, Heping Community, Fuhai Street, Baoan, Shenzhen, Guangdong, China.
Tel: 0755-28280690 E-mail: service@lionaces.com
Website: www.lionaces.com

化学品安全技术说明书
Material Safety Data Sheet

依据 GB/T16483-2008&ISO11014:2009 编制
According to GB/T16483-2008&ISO11014:2009

第一部分 化学品及企业标识
Section 1 - Chemical Product and Company Identification

化学品信息 Chemical product information	
样品名称 Sample Name	锂离子电池 Li-ion Battery
型号与规格 Model and specification	ZEC 18650 3.7V, 5000mAh, 18.5Wh
产品推荐及限制用途 Sample Uses	N/A
单位信息 Company information	
实验室 Laboratory	深圳市莱恩瑞斯科技有限公司 Shenzhen Lionaces Technology Co., Ltd.
实验地址 Testing Address	深圳市宝安区福海街道和平社区永和路骏丰工业区 B6 栋 301 301, Building B6, Junfeng Industrial Zone, Yonghe Road, Heping Community, Fuhai Street, Baoan, Shenzhen, Guangdong, China

[redacted]

收样日期 Receiving Date	2023-11-29		完成日期 Completing Date	2023-12-13	
主检人： Prepared by		审核人： Checked by		批准人： Approved by	

第二部分 危险性概述
Section 2 - Hazards Identification

紧急情况概述：无相关详细资料。
Emergency overview：No information available.
GHS 危险性分类：根据化学品全球统一分类与标签制度(GHS)的规定，不是危险物质。
Classification according to GHS：Not a dangerous substance according to GHS.

GHS 标签要素 Label elements	
危害类型象形图 Hazard pictogram(s)	无数据 No data available
警示词 Signal word	无数据 No data available
危险性说明 Hazard statement(s)	无数据 No data available
防范说明 Precautionary statement(s)	
预防措施 Prevention	无数据 No data available
事故响应 Response	无数据 No data available
安全储存 Safe storage	无数据 No data available
废弃处置 Disposal	无数据 No data available

物理和化学危险：无相关详细资料。
Physical and chemical risk: No information available.
健康危害：无相关详细资料。
Health hazard: No information available.
环境危害：无相关详细资料。
Environmental hazards: No information available.
其它危害：无相关详细资料。
Other hazards: No information available.

第三部分 成分/组成信息
Section 3 - Composition, Information on Ingredients

该物质或混合物的分类：□物质 ☒混合物
Classification of the substance or mixture: □ substance ☒ mixture

化学名称 Chemical Composition	CAS No.	百分含量 Weight（%）
镍钴锰酸锂 Lithium nickel cobalt manganate	346417-97-8	34.2
六氟磷酸锂 Lithium hexafluorophosphate	21324-40-3	13.1
石墨 Graphite	7782-42-5	19.1
铜 Copper	7440-50-8	9.9
铝 Aluminum	7429-90-5	21.4
丁苯橡胶 SBR Styrene-Butadiene polymer	61789-96-6	1.3
聚(亚乙烯氟) PVDF Polyvinylidene fluoride	24937-79-9	0.6
导电碳黑 Garbon black（SP）	1333-86-4	0.4

注Note：CAS：化学文摘社Chemical Abstracts Service (Division of the American Chemical Society). “N/A”
：无数据No Data

第四部分 急救措施
Section 4 - First Aid Measures

总说明：正常情况下，不需要特别的措施。
General information: No special measures required.
吸入：立即将人员移至通风处，如果呼吸困难，速进行人工呼吸抢救。如症状持续，速就医。
After inhalation: Remove victim to fresh area. Administer artificial respiration if breathing is difficult. Seek medical attention.
皮肤接触：脱去污着衣物，用大量的水清洗，然后清洗双手，衣物清洗后再使用。如果症状持续，速就医。
After skin contact: Remove contaminated clothing and shoes. Immediately wash with water and soap and rinse thoroughly. Wash clothing and shoes before reuse. If irritation occurs, get medical attention.
眼睛接触：张开眼睛在流水下冲洗数分钟，如果症状仍然持续，请咨询医生。
After eye contact: Flush eyes with plenty of water for several minutes while holding eyelids open. Get medical attention if irritation persists.
食入：禁止催吐，速就医。
After swallowing: Do not induce vomiting. Get medical attention.
急性和迟发效应
Acute and delayed effects
主要症状：无相关详细资料。
The main symptoms: No relevant details information.
健康影响：无相关详细资料。
Health effects: No relevant details information.

对保护施救者的忠告：无相关详细资料。
To protect the rescuers advice: No relevant details information.
对医生的建议：需要及时的医疗处理及特别处理的症状，无相关详细资料。
To the doctor's advice: Need timely medical treatment and special symptoms, no relevant details information.

第五部分 消防措施
Section 5 - Fire Fighting Measures

灭火剂：使用适合当地情况和周围环境的灭火剂，如干粉，CO_2。
Suitable extinguishing agents: Use extinguishing agent suitable for local conditions and the surrounding environment . Such as dry powder , CO_2.
特别危险性：在起火条件下，电池可能会破裂，释放出有害的分解产物。在经受高温(> 150℃(302℉))时，含有易燃电解液的电池，可能泄漏，点燃，产生火花，当损坏或滥用(如机械损伤或过度充电)时，可能燃烧迅速与耀斑燃烧效果，也可能引燃其他在电池附近衣服。
Special hazards arising from the substance or mixture: Battery may burst and release hazardous decomposition products when exposed to a fire situation. Battery contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature(>150℃(302℉)), when damaged or abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in clothes proximity.
灭火方法注意事项及防护措施：如起火，佩戴自主呼吸机和防护服。
Attention extinguishing method and protective measures: Wear self-contained respirator. Wear fully protective impervious suit.

第六部分 泄露应急处理
Section 6 - Accidental Release Measures

作业人员防护措施、防护装备和应急处置程序：穿上保护装备，疏散人群，确保有足够的通风。
Homework personnel protective measures, protective equipment and emergency disposal procedures: Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation
环境保护措施：若无政府许可，勿将材料排入周围环境。
Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.
泄漏化学品的收容、清除方法及所使用的处置材料：从泄露区移除所有的火源，隔离人员。用一个不产生粉尘的方法打扫处理泄漏物，尽可能多地收集泄漏处理物于有标签的合适的容器中。泄露处理物禁止倒入下水道，沟渠或水源。所有废弃物必须参照联合国，国家，地方性法规进行处置。
Steps to be taken in case material is spilled or released and Waste disposal method: Remove ignition sources, evacuate area. Sweep up using a method that does not generate dust. Collect as much of the spilled material as possible, placed the spilled material into a suitable disposal container. Keep spilled material out of sewers, ditches and bodies of water. All waste must refer to the United Nations, the national and local regulations for disposal.
防止次生灾害的预防措施：有关安全处理的资料请参阅第七部分。有关个人保护装备的资料请参阅第八部分。有关弃置的资料请参阅第十三部分。

To prevent the secondary disasters prevention measures: See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

第七部分 操作处置与储存
Section 7 - Handling and Storage

操作注意事项：储存时远离食物和水源。吃饭喝水前彻底清洗双手。储有化学物的容器搬用时需防止静电的产生和积聚。
Precautions for safe handling: Consumption of food and beverage should be avoided in work areas. Wash hands with soap and water before eating, drinking. Ground containers when transferring liquid to prevent static accumulation and discharge.
有关火灾及防止爆炸的资料：电池在拆开、挤压、遇火或高温情况下，会引起起火或爆炸，严禁短路或非正确操作。
Information about fire and explosion protection: Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.
储存注意事项：储存在一个低温，干燥，通风良好的环境。远离热源，避免长时间阳光照射。未使用时密封容器。
Conditions for safe storage, including any incompatibilities: Requirements to be met by storerooms and receptacles. Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

第八部分 接触控制/个体防护
Section 8 - Exposure Controls, Personal Protection

职业接触限值：无相关详细资料。
Occupational exposure limit: no relevant details information.
生物限值：无相关详细资料。
Biological limit: no relevant details information.
检测方法：无相关详细资料。
Detection: no relevant details information.
工程控制
Engineering control
一般保护和卫生措施：当处理化学物品时，应遵循一般的预防措施。远离食物和水源。立即脱掉所有脏衣服或被污染的衣物。在休息之前和工作结束之后洗手。
General protective and hygienic measures:The usual precautionary measures for handling chemicals should be followed.Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work.
呼吸防护：高浓度的情况时，使用适当的呼吸器。
Respiratory Protection: Use suitable respirator when high concentrations are present.
个体防护设备Personal Protection

手防护 Hand protection	眼睛防护 Eye protection
 *Protective gloves*	 *Tightly sealed goggles*

第九部分 理化特性
Section 9 - Physical and Chemical Properties

外观：蓝色
Appearance: Blue
形状：近长方体
Form: Approximate Cuboid
气味：泄漏时，有刺激性气味。
Odour: If leaking, smells of medical ether
酸碱度：不适用
pH: Not applicable as supplied.
闪点：针对单个组分暴露情况，其他不适用。
Flash Point: Not applicable unless individual components exposed.
易燃度：针对单个组分暴露情况，其他不适用。
Flammability: Not applicable unless individual components exposed.
相对密度：针对单个组分暴露情况，其他不适用。
Relative density: Not applicable unless individual components exposed.
溶解性（水溶性）：针对单个组分暴露情况，其他不适用。
Solubility (water): Not applicable unless individual components exposed
溶解性（其他）：针对单个组分暴露情况，其他不适用
Solubility (other): Not applicable unless individual components exposed.

第十部分 稳定性和反应活性
Section 10 - Stability and Reactivity

稳定性：正常情况下稳定。
Chemical stability：Stable in normal circumstances.
危险反应：无资料。
Possibility of hazardous reactions：Data not available.
应避免条件：火焰，火花和其他热源，禁忌物。
Conditions to Avoid: Flames, sparks, and other sources of ignition, incompatible materials.
禁配物：氧化剂，酸，碱。
Incompatibilities: Oxidizing agents, acid, base.
危险的分解产物：二氧化碳，一氧化碳。
Hazardous Combustible Products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

第十一部分 毒理学资料
Section 11 - Toxicological Information

对毒理学影响的信息
Information on toxicological effects
急性毒性LC50/LD50：无相关详细资料。
Acute toxicity LD/LC50 Values relevant for classification: Not available.
注：LC50：半数致死浓度（lethal concentration, 50 percent kill） LD50
：半数致死剂量（lethal dose, 50 percent kill）
皮肤刺激/腐蚀：无相关详细资料。
Skin irritation/corrosion: No further relevant information available.
眼睛刺激/腐蚀：无相关详细资料。
Eyes stimulus/corrosion: No further relevant information available.
呼吸或皮肤过敏：无相关详细资料。
Breathing or skin irritation: No further relevant information available.
生殖细胞突变性：无相关详细资料。
Germ cell respectively: No further relevant information available.
致癌性： 无相关详细资料。
Carcinogenicity: No further relevant information available.
生殖毒性：无相关详细资料。
Reproductive toxicity: No relevant details information.
特异性靶器官系统毒性——一次性接触：无相关详细资料。
Specific target organ system toxicity disposable contact: No further relevant information available.
特异性靶器官系统毒性——反复接触：无相关详细资料。
Specific target organ system toxicity, repeated contact: No further relevant information available.
吸入危害：无相关详细资料。
Inhalation hazard: No further relevant information available.
潜在的有害效应：无相关详细资料。
Potentially harmful effects: No further relevant information available.

第十二部分 生态学资料
Section 12 - Ecological Information

生态毒性
Ecological toxicity
水生毒性：无相关详细资料。
Aquatic toxicity: No further relevant information available.
持久性和降解性：无相关详细资料。
Persistence and degradability: No further relevant information available.
环境系统习性
Behaviour in environmental systems
潜在的生物累积性: 无相关详细资料。
Bioaccumulative potential: No further relevant information available.
土壤内移动性：无相关详细资料。
Mobility in soil: No further relevant information available.

生态学资料
Ecological effects
额外的生态学资料：无相关详细资料。
Additional ecological information :No further relevant information available.
总括注解：若无政府许可，勿将材料排入周围环境。
General notes:Do not allow material to be released to the environment without proper governmental permits.
其他副作用：无相关详细资料。
Other adverse effects: No further relevant information available.

第十三部分 废弃处置
Section 13 - Disposal Considerations

废弃处置方法建议：请参考国家和地方的相关法规正确进行处理。
Waste treatment methods and Recommendation: Consult state, local or national regulations to ensure proper disposal.
受污染的容器和包装建议：必须根据官方的规章来丢弃。
Uncleaned packaging and Recommendation: Disposal must be made according to official regulations.

第十四部分 运输信息
Section 14 - Transport Information

运输标签：锂电池标签，或锂电池第九类危险品标签，或仅限货机标签
Label for conveyance: Lithium Battery Label, or Lithium Battery Class 9 Label, or Cargo Aircraft only
UN 编号：3480 & 3481
UN Number: 3480 & 3481
包装等级：N/A
Packaging Group: N/A
海洋污染物：无
Marine pollutant: No
正确的装运名称：锂离子电池(包括锂聚合物电池)，或锂离子电池与设备包装在一起，或锂离子电池安装在设备中
Proper Shipping name: Lithium Ion Battery (Including Lithium Polymer Battery) , Lithium Ion Battery Packed With Equipment, Lithium Ion Battery Contained In Equipment
运输信息: 锂电池已通过联合国《试验和标准手册》第III部分 38.3 小节相应测试要求，（报告编号：LA2023B1392002U）。
锂离子电池瓦时额定值不超 100Wh，或者锂离子电芯瓦时额定值不超 20Wh，根据第 65 版 DGR 手册 965 第 IB 节或 966~967 第 II 节的指令可以运输。货物运输应遵守 IMDG CODE (Amdt. 41-22) 2022 版特殊规定 188 的要求，该货物属于非限制性货物。
Transport information: Lithium battery is of a type proved to meet the Requirements of each test in the UN Manual of Tests And Criteria, Part Ⅲ, sub-section 38.3. (Report No. : LA2023B1392002U)
The lithium-ion battery with a watt-hour rating not exceeding 100Wh or the cell with the watt-hour rating is not exceeding 20Wh, The lithium-ion battery according to Section IB of Packing Instruction 965, or Section II of Packing Instruction 966~967 of the Dangerous Goods regulations

65th Edition may be transported. The goods shall be complied with the requirements of special provision 188 of IMDG CODE (Amdt. 41-22) 2022 , The goods to be transport as Unrestricted goods.

第十五部分 法规信息
Section 15 - Regulatory Information

法律信息
Law information
《危险物品规则》
《Dangerous Goods Regulations》
《对危险货物运输的有关规定的建议》
《Recommendations on the Transport of Dangerous Goods Model Regulations》
《国际海运危险货物规则》
《International Maritime Dangerous Goods》
《危险品安全运输技术指令》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《危险货物分类和品名编号》
《Classification and code of dangerous goods》
《职业安全卫生法》
《Occupational Safety and Health Act》(OSHA)
《有毒物质控制法》
《Toxic Substance Control Act》(TSCA)
《消费产品安全法》
《Consumer Product Safety Act》(CPSA)
《联邦环境污染控制法》
《Federal Environmental Pollution Control Act》(FEPCA)
《石油污染法案》
《The Oil Pollution Act》(OPA)
《超级基金修正案和再授权法案III(302/311/312/313)》
《Superfund Amendments and Reauthorization Act TitleIII（302/311/312/313)》(SARA)
《资源保护及恢复法案》
《Resource Conservation and Recovery Act》(RCRA)
《安全饮用水法》
《Safety Drinking Water Act》(CWA)
《加州 65 提案》
《California Proposition 65》
《美国联邦法规》
《Code of Federal Regulations》(CFR)
In accordance with all Federal, State and local laws
根据所有联邦、州和地方法律。
此MSDS符合法规 (EU) No 2020/878.
This Material Safety Data Sheet complies with the requirements of Regulation (EU) No 2020/878.

第十六部分 其他信息
Section 16 - Additional Information

注意 Declare to reader：

上述信息是基于现有的数据信息，在实际应用过程中可能出现其他未预料的情况，其相应信息可能需要修改，我方不承担此项责任。在操作中请根据实际情况作出相应的正确的处置。

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

声　明
Statement

1、 本报告无本单位报告专用章和批准人签章无效。

This report is invalid without the special seal for report of Lionaces and the signatures of approver.

2、 本报告涂改和删除无效。

This report is invalid if it is blotted out and deleted.

3、 委托单位对检测结果有异议，应于收到报告之日起十五日内向我司提出。

If the applicant has any questions about results, shall submit to Lionaces within 15 days.

4、 本报告仅对客户所送样品负责。

This report is responsible for the sample provided by the client only.

5、 未经本单位许可，不得部分复制、摘用本报告书内容。

This report shall not be reproduced except in full,or extracted,without the written approval of Lionaces.

6、 委托单位必须如实提供样品和资料，有关报告中的产品信息、参数、图纸、关键元器件清单等所有产品信息均由委托单位提供，否则本单位不承担任何相关责任。

The applicant must provide samples and materials truthfully. All of information such as product information, parameters, drawings, components, etc. are provided by the applicant. Otherwise we will not take on any relevant responsibilities for this report.

----报告结束----
----End of report----

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 62133-2
Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems

Report Number..... :	CN23PDS4 001
Date of issue..... :	2023-12-12
Total number of pages ..... :	25 pages
Name of Testing Laboratory preparing the Report ..... :	Shenzhen TCT Testing Technology Co., Ltd.

[redacted]

Test specification:

Standard ..... :	IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
TRF template used..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62133_2C
Test Report Form(s) Originator .... :	DEKRA Certification B.V.
Master TRF ..... :	Dated 2022-07-01

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	Li-ion Battery		
Trade Mark(s) ..... :	N/A		
Manufacturer ..... :	Same as applicant		
Model/Type reference ..... :	ZEC 18650		
Ratings ..... :	3.7V, 5000mAh, 18.5Wh		
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒ **CB Testing Laboratory:**	**Shenzhen TCT Testing Technology Co., Ltd.**		
Testing location/ address.....:	2101&2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Street, Bao'an District, Shenzhen, China		
Tested by (name, function, signature).....:	Rohan Xie (Project Engineer)	Rohan Xie	
Approved by (name, function, signature)...:	Aiden Liu (Reviewer)	Aiden.Liu	
☐ **Testing procedure: CTF Stage 1:**			
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐ **Testing procedure: CTF Stage 2:**			
Testing location/ address.....:			
Tested by (name + signature) .....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐ **Testing procedure: CTF Stage 3:**			
☐ **Testing procedure: CTF Stage 4:**			
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

Attachment 1: (Republic of Korea) NATIONAL DIFFERENCES (3 pages);

Attachment 2: Photo documentation (4 pages);

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
cl.5.6.2 Design recommendation; cl.7.1 Charging procedure for test purposes (for Cells and Batteries); cl.7.2.1 Continuous charging at constant voltage (Cells); cl.7.2.2 Case stress at high ambient temperature (Batteries); cl.7.3.1 External short circuit (Cells); cl.7.3.2 External short circuit (Batteries); cl.7.3.3 Free fall (Cells and Batteries); cl.7.3.4 Thermal abuse (Cells); cl.7.3.5 Crush (Cells); cl.7.3.6 Over-charging of battery; cl.7.3.7 Forced discharge (Cells); cl.7.3.8 Mechanical tests (Batteries); cl.7.3.9 Design evaluation – Forced internal short circuit (Cells); Tests are made with the number of cells and batteries specified in IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021 Table 1.	**Shenzhen TCT Testing Technology Co., Ltd.** 2101&2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Street, Bao'an District, Shenzhen, China

Summary of compliance with National Differences (List of countries addressed):

KR

KR= Korea, Republic of

☒ **The product fulfils the requirements of <u>EN 62133-2:2017, EN 62133-2:2017/A1:2021</u>**

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

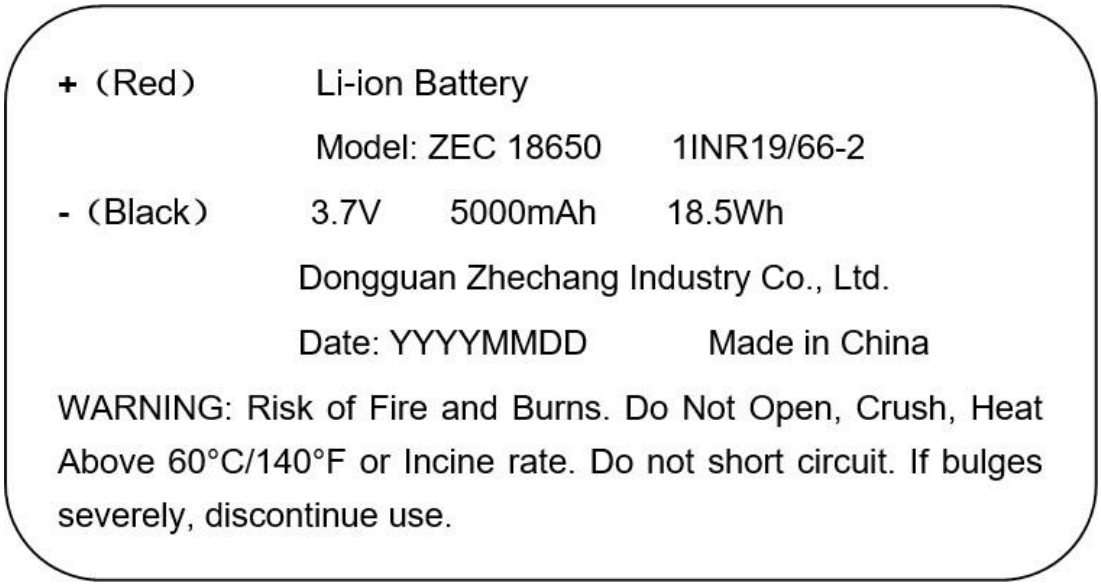
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Date code: YYYYMMDD
YYYY=Year, MM=Month, DD=Day
e.g.: 20231114=14 Nov, 2023

Test item particulars.....:	
Classification of installation and use.....:	To be defined in final product
Supply Connection .....:	DC Connector
Recommend charging method declared by the manufacturer .....:	Charging the battery with 1000mA constant current and 4.2V constant voltage until the current reduces to 50mA at ambient 20°C±5°C.
Discharge current (0,2 It A) .....:	500mA
Specified final voltage.....:	3.0V
Upper limit charging voltage per cell.....:	4.25V
Maximum charging current .....:	2500mA
Charging temperature upper limit .....:	45°C
Charging temperature lower limit.....:	0°C
Polymer cell electrolyte type.....:	☐ gel polymer ☐ solid polymer ☒ N/A
Possible test case verdicts:	
- test case does not apply to the test object .....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing..... :	
Date of receipt of test item .....:	2023-11-20
Date (s) of performance of tests .....:	2023-11-21 to 2023-11-28

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	Same as applicant

General product information and other remarks:

This battery is constructed with two lithium-ion cells (1S2P), and has overcharge, over-discharge, over current and short-circuits proof circuit.

The main features of the battery are shown as below (clause 7.1.1):

Model (Battery)	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current	Maximum Charge Voltage	Final Voltage
ZEC 18650	5000mAh	3.7V	1000mA	1000mA	2500mA	5000mA	4.2V	3.0V

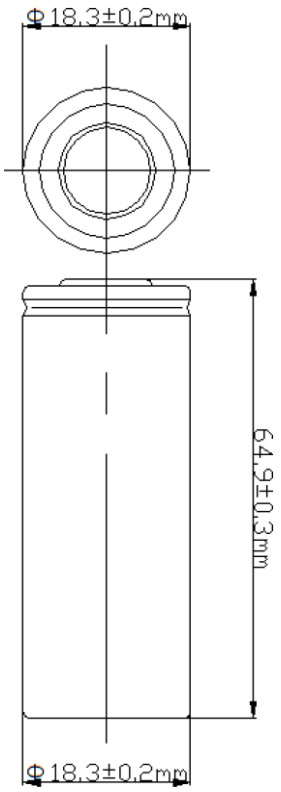
The main features of the cell in the battery are shown as below (clause 7.1.1):

Model (Cell)	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current	Maximum Charge Voltage	Final Voltage
ZEC 18650 2500mAh	2500mAh	3.7V	500mA	500mA	2500mA	2500mA	4.25V	2.75V

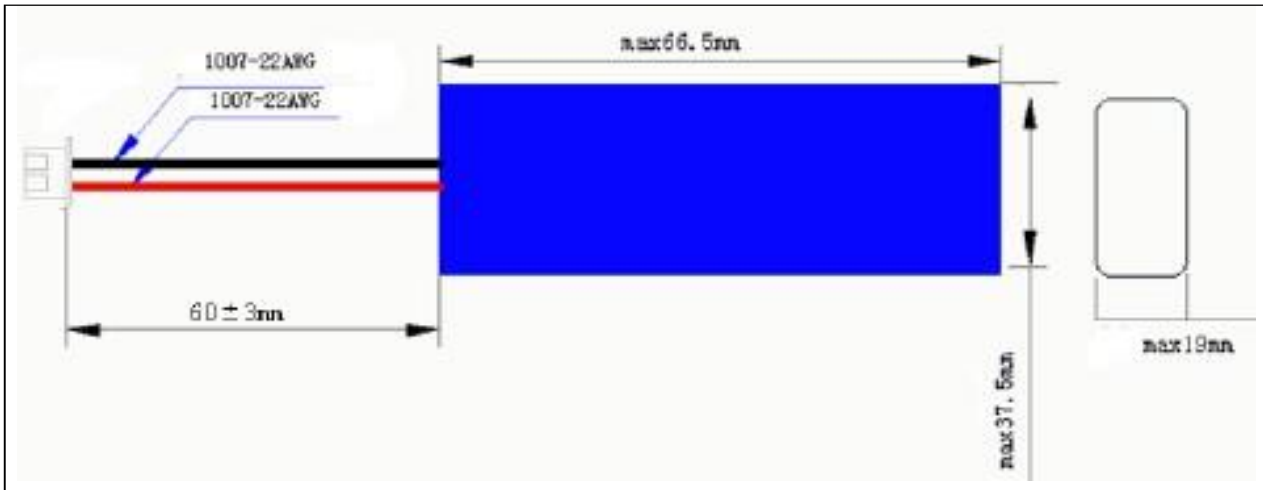
The main features of the cell in the battery are shown as below (clause 7.1.2):

Model (Cell)	Upper limit charge voltage	Taper-off current	Lower charge temperature	Upper charge temperature
ZEC 18650 2500mAh	4.25V	125mA	0°C	45°C

Construction:

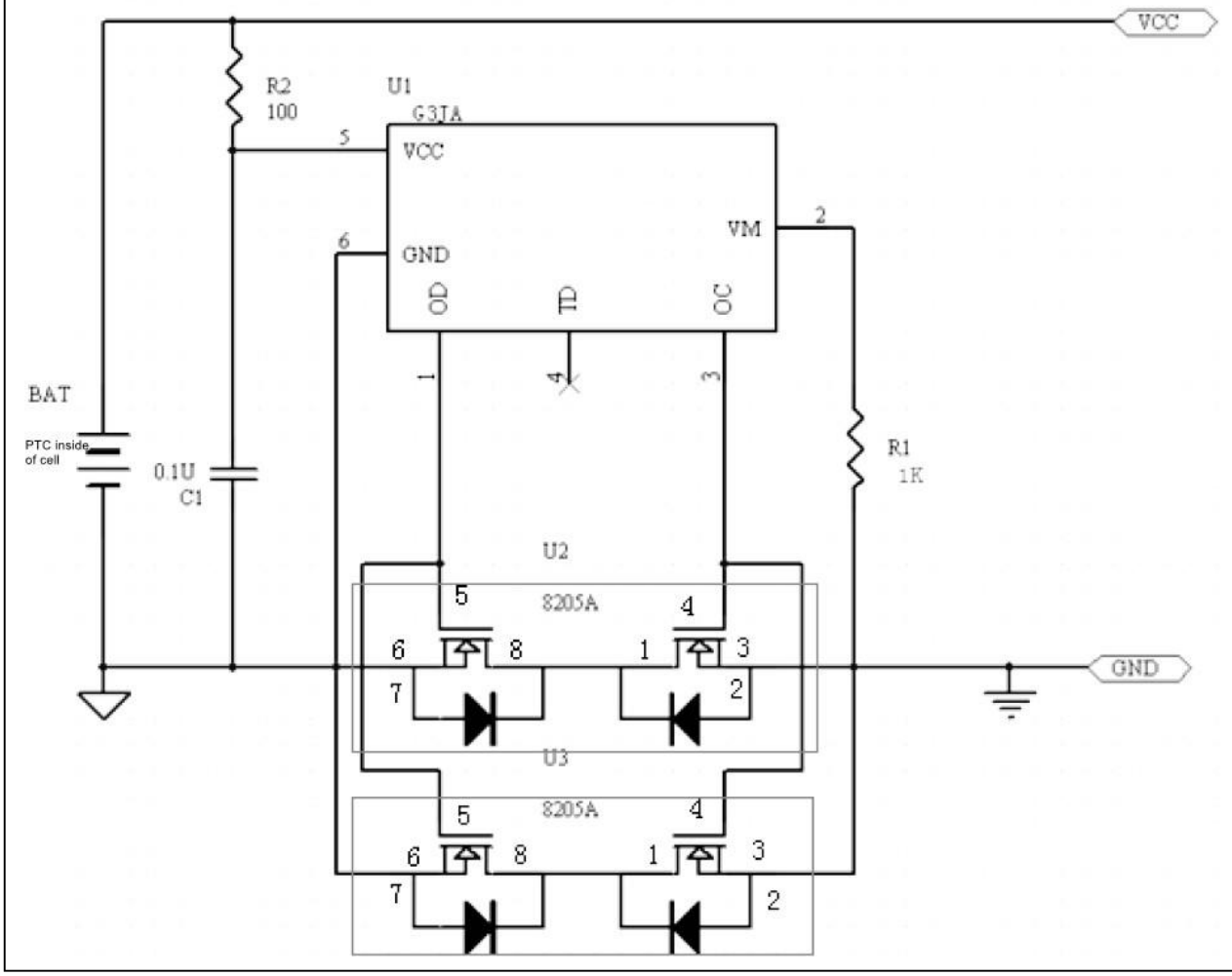


Cell



Battery

Circuit diagram:



IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
4	**PARAMETER MEASUREMENT TOLERANCES**		P
	Parameter measurement tolerances		P
5	**GENERAL SAFETY CONSIDERATIONS**		P
5.1	**General**		P
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse		P
5.2	**Insulation and wiring**		P
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ	No metal surface exists.	N/A
	Insulation resistance (MΩ) ..... :		—
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements		P
	Orientation of wiring maintains adequate clearances and creepage distances between conductors		P
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse		P
5.3	**Venting**		P
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition	Venting mechanism exists on top of the cylindrical cell.	P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief		N/A
5.4	**Temperature, voltage and current management**		P
	Batteries are designed such that abnormal temperature rise conditions are prevented	Overcharge, over discharge, over current and short-circuit proof circuit used in this battery. See tests of clause 7.	P
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	See above.	P
	Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified	The charging limits specified in the manufacturer's specification.	P
5.5	**Terminal contacts**		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current	DC Connector contacts complied with the requirements.	P
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance		P
	Terminal contacts are arranged to minimize the risk of short circuits		P
5.6	**Assembly of cells into batteries**		P
5.6.1	General		P
	Each battery has an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region	1S2P, Protective circuit equipped on battery.	P
	This protection may be provided external to the battery such as within the charger or the end devices		N/A
	If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation		N/A
	If there is more than one battery housed in a single battery case, each battery has protective circuitry that can maintain the cells within their operating regions		N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly	Current, voltage and temperature limits specified by cell manufacturer.	P
	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer		N/A
	Protective circuit components are added as appropriate and consideration given to the end-device application		P
	The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance	Safety analysis report provided by manufacturer.	P
5.6.2	Design recommendation		P
	For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage of the cell does not exceed the upper limit of the charging voltage specified in Table 2	1S2P, Max. charging voltage of each cell: 4.20V, not exceed 4.25V specified in Table 2.	P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks		N/A
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks		N/A
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage are not counted as an overcharge protection		N/A
	For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer		N/A
	It is recommended that the cells and cell blocks are not discharged beyond the cell manufacturer's specified final voltage	Final voltage of cell assembled in the battery: 3.0V, not exceed the final voltage specified by cell manufacturer: 2.75V.	P
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry are incorporated into the battery management system		N/A
5.6.3	Mechanical protection for cells and components of batteries		P
	Mechanical protection for cells, cell connections and control circuits within the battery are provided to prevent damage as a result of intended use and reasonably foreseeable misuse	Mechanical protection for cell connections and control circuits provided.	P
	The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product	Built-in batteries, mechanical protection for cells should be provided by end product.	N/A
	The battery case and compartments housing cells are designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer	To be evaluated in final system.	N/A
	For batteries intended for building into a portable end product, testing with the battery installed within the end product is considered when conducting mechanical tests		N/A
5.7	**Quality plan**		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery	Complied. Battery manufacturer provided ISO 9001: 2015 certificate. Cell manufacturer provided ISO 9001: 2015 certificate.	P
5.8	**Battery safety components**	See TABLE: Critical components information	P
6	**TYPE TEST AND SAMPLE SIZE**		P
	Tests are made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old		P
	The internal resistance of coin cells are measured in accordance with Annex D. Coin cells with internal resistance less than or equal to 3 Ω are tested in accordance with Table 1	Not coin cells.	N/A
	Unless otherwise specified, tests are carried out in an ambient temperature of 20 °C ± 5 °C		P
	The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and over discharge protection		P
	When conducting the short-circuit test, consideration is given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test	See clause 7.3.2.	P
7	**SPECIFIC REQUIREMENTS AND TESTS**		P
7.1	**Charging procedure for test purposes**		P
7.1.1	First procedure		P
	This charging procedure applies to subclauses other than those specified in 7.1.2		P
	Unless otherwise stated in this document, the charging procedure for test purposes is carried out in an ambient temperature of 20 °C ± 5 °C, using the method declared by the manufacturer	See page 6.	P
	Prior to charging, the battery has been discharged at 20 °C ± 5 °C at a constant current of 0,2 It A down to a specified final voltage	See page 6.	P
7.1.2	Second procedure		P
	This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	After stabilization for 1 h to 4 h, at an ambient temperature of the highest test temperature and the lowest test temperature, respectively, as specified in Table 2, cells are charged by using the upper limit charging voltage and maximum charging current, until the charging current is reduced to 0,05 It A, using a constant current to constant voltage charging method	Charge temperature specified by manufacturer: 0-45°C. 0°C used for lower limit tests. 45°C used for upper limit tests.	P
7.2	**Intended use**		P
7.2.1	Continuous charging at constant voltage (cells)	Tested complied.	P
	Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer	Charging for 7 days with 500mA.	P
	Results: no fire, no explosion, no leakage..... :	(See appended table 7.2.1)	P
7.2.2	Case stress at high ambient temperature (battery)	Tested as request by client.	P
	Oven temperature (°C) ..... :	70°C	—
	Results: no physical distortion of the battery case resulting in exposure of internal protective components and cells	No physical distortion of the battery casing.	P
7.3	**Reasonably foreseeable misuse**		P
7.3.1	External short-circuit (cell)	Tested complied.	P
	The cells were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		P
	Results: no fire, no explosion ..... :	(See appended table 7.3.1)	P
7.3.2	External short-circuit (battery)	Tested complied.	P
	The batteries were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		P
	In case of rapid decline in short circuit current, the battery pack remained on test for an additional one hour after the current reached a low end steady state condition		P
	A single fault in the discharge protection circuit is conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test	Single fault conducted on three samples.	P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	A single fault applies to protective component parts such as MOSFET (metal oxide semiconductor field-effect transistor), fuse, thermostat or positive temperature coefficient (PTC) thermistor	Single fault applies on MOSFET (U2 pin3 – pin6)	P
	Results: no fire, no explosion ..... :	(See appended table 7.3.2)	P
7.3.3	Free fall	Tested complied.	P
	Results: no fire, no explosion	No fire. No explosion	P
7.3.4	Thermal abuse (cells)	Tested complied.	P
	Oven temperature (°C) ..... :	130°C	—
	Results: no fire, no explosion	No fire. No explosion	P
7.3.5	Crush (cells)	Tested complied.	P
	The crushing force was released upon:		P
	- The maximum force of 13 kN ± 0,78 kN has been applied; or		P
	- An abrupt voltage drop of one-third of the original voltage has been obtained		N/A
	Results: no fire, no explosion ..... :	(See appended table 7.3.5)	P
7.3.6	Over-charging of battery	Tested complied.	P
	The supply voltage which is:		P
	- 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or	5.95V applied.	P
	- 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and		N/A
	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached		P
	Test was continued until the temperature of the outer casing:		P
	- Reached steady state conditions (less than 10 °C change in 30-minute period); or		P
	- Returned to ambient		N/A
	Results: no fire, no explosion ..... :	(See appended table 7.3.6)	P
7.3.7	Forced discharge (cells)	Tested complied.	P
	Discharge a single cell to the lower limit discharge voltage specified by the cell manufacturer	Lower limit discharge voltage 2.75V	P
	The discharged cell is then subjected to a forced discharge at 1 It A to the negative value of the upper limit charging voltage		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	- The discharge voltage reaches the negative value of upper limit charging voltage within the testing duration. The voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration		N/A
	- The discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration. The test is terminated at the end of the testing duration		P
	Results: no fire, no explosion ..... :	(See appended table 7.3.7)	P
7.3.8	Mechanical tests (batteries)		P
7.3.8.1	Vibration	Tested complied.	P
	Results: no fire, no explosion, no rupture, no leakage or venting. ..... :	(See appended table 7.3.8.1)	P
7.3.8.2	Mechanical shock	Tested complied.	P
	Results: no leakage, no venting, no rupture, no explosion and no fire ..... :	(See appended table 7.3.8.2)	P
7.3.9	Design evaluation – Forced internal short-circuit (cells)	Tested complied.	P
	The cells complied with national requirement for .....:	France, Japan, Korea, Switzerland	—
	The pressing was stopped upon:		P
	- A voltage drop of 50 mV has been detected; or		N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	800N for cylindrical cells.	P
	Results: no fire..... :	(See appended table 7.3.9)	P
8	**INFORMATION FOR SAFETY**		P
8.1	**General**		P
	Manufacturers of secondary cells provides information about current, voltage and temperature limits of their products	Information for safety mentioned in manufacturer's specifications.	P
	Manufacturers of batteries provides information regarding how to minimize and mitigate hazards to equipment manufacturers or end-users	Information for safety mentioned in manufacturer's specifications.	P
	Systems analyses are performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product		N/A
	As appropriate, any information relating to hazard avoidance resulting from a system analysis is provided to the end user		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Do not allow children to replace batteries without adult supervision		P
8.2	**Small cell and battery safety information**	Not small cells. Not small batteries.	N/A
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:		N/A
	- Keep small cells and batteries which are considered swallowable out of the reach of children		N/A
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion		N/A
	- In case of ingestion of a cell or battery, seek medical assistance promptly		N/A
9	**MARKING**		P
9.1	**Cell marking**	The final product is battery	N/A
	Cells are marked as specified in IEC 61960, except coin cells		N/A
	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity		N/A
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked		N/A
9.2	**Battery marking**		P
	Batteries are marked as specified in IEC 61960, except for coin batteries	See marking plate on page 5.	P
	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity	Not coin batteries.	N/A
	Batteries are marked with an appropriate caution statement		P
	- Terminals have clear polarity marking on the external surface of the battery, or	The “+(Red)” and “-(Black)” polarity explicitly marked on surface of the battery.	P
	- Not be marked with polarity markings if the design of the external connector prevents reverse polarity connections	DC Connector used.	P
9.3	**Caution for ingestion of small cells and batteries**		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Coin cells and batteries identified as small batteries include a caution statement regarding the hazards of ingestion in accordance with 8.2	Not coin cells. Not coin batteries.	N/A
	Small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion is given on the immediate package	Not intended for direct sale.	N/A
9.4	**Other information**		P
	The following information are marked on or supplied with the battery:		P
	- Storage and disposal instructions	Information for storage and disposal instructions mentioned in manufacturer's specifications.	P
	- Recommended charging instructions	Information for storage and disposal instructions mentioned in manufacturer's specifications.	P
10	**PACKAGING AND TRANSPORT**		N/A
	Packaging for coin cells are not be small enough to fit within the limits of the ingestion gauge of Figure 3	Not coin cells.	N/A
ANNEX A	**CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE**		P
A.1	**General**		P
A.2	**Safety of lithium ion secondary battery**	Complied.	P
A.3	**Consideration on charging voltage**	Complied.	P
A.3.1	General		P
A.3.2	Upper limit charging voltage	4.25V applied.	P
A.3.2.1	General		P
A.3.2.2	Explanation of safety viewpoint		P
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied	4.25V applied.	N/A
A.4	**Consideration of temperature and charging current**		P
A.4.1	General		P
A.4.2	Recommended temperature range	See A.4.2.2.	P
A.4.2.1	General		P
A.4.2.2	Safety consideration when a different recommended temperature range is applied	Charging temperature declared by client is: 0-45°C.	P
A.4.3	High temperature range		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.4.3.1	General		N/A
A.4.3.2	Explanation of safety viewpoint		N/A
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range		N/A
A.4.3.4	Safety considerations when specifying a new upper limit in the high temperature range		N/A
A.4.4	Low temperature range		N/A
A.4.4.1	General		N/A
A.4.4.2	Explanation of safety viewpoint		N/A
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range		N/A
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range		N/A
A.4.5	Scope of the application of charging current		P
A.4.6	Consideration of discharge		P
A.4.6.1	General		P
A.4.6.2	Final discharge voltage and explanation of safety viewpoint	Specified final voltage of the cell assembled in the battery is 3.0V, not exceed 2.75V specified by cell manufacturer.	P
A.4.6.3	Discharge current and temperature range		P
A.4.6.4	Scope of application of the discharging current		P
A.5	**Sample preparation**		P
A.5.1	General		P
A.5.2	Insertion procedure for nickel particle to generate internal short		P
A.5.3	Disassembly of charged cell		P
A.5.4	Shape of nickel particle		P
A.5.5	Insertion of nickel particle in cylindrical cell		P
A.5.5.1	Insertion of nickel particle in winding core		P
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator		P
A.5.6	Insertion of nickel particle in prismatic cell		N/A
A.6	**Experimental procedure of the forced internal short-circuit test**		P
A.6.1	Material and tools for preparation of nickel particle		P
A.6.2	Example of a nickel particle preparation procedure		P
A.6.3	Positioning (or placement) of a nickel particle		P
A.6.4	Damaged separator precaution		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.6.5	Caution for rewinding separator and electrode		P
A.6.6	Insulation film for preventing short-circuit		P
A.6.7	Caution when disassembling a cell		P
A.6.8	Protective equipment for safety		P
A.6.9	Caution in the case of fire during disassembling		P
A.6.10	Caution for the disassembling process and pressing the electrode core		P
A.6.11	Recommended specifications for the pressing device		P
ANNEX B	**RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS**		N/A
ANNEX C	**RECOMMENDATIONS TO THE END-USERS**		N/A
ANNEX D	**MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS**		N/A
D.1	**General**	Not coin cells.	N/A
D.2	**Method**		N/A
	A sample size of three coin cells is required for this measurement		N/A
	Coin cells with an internal resistance greater than 3 Ω require no further testing .....:		N/A
	Coin cells with an internal resistance less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1		N/A
ANNEX E	**PACKAGING AND TRANSPORT**		N/A
ANNEX F	**COMPONENT STANDARDS REFERENCES**		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.2.1	TABLE: Continuous charging at constant voltage (cells)	P

Sample No.	Recommended charging voltage Vc (Vdc)	Recommended charging current I_{rec} (A)	OCV before test (Vdc)	Results
TS231025023C01#	4.20	0.5	4.19	P
TS231025023C02#	4.20	0.5	4.19	P
TS231025023C03#	4.20	0.5	4.19	P
TS231025023C04#	4.20	0.5	4.20	P
TS231025023C05#	4.20	0.5	4.20	P

Supplementary information:

- No fire or explosion
- No leakage

7.3.1	TABLE: External short circuit (cell)	P

Sample No.	Ambient (°C)	OCV at start of test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ΔT (K)	Results
Samples charged at charging temperature upper limit (45°C)					
TS231025023C06#	55.0	4.22	80	14.4	P
TS231025023C07#	55.0	4.23	84	14.2	P
TS231025023C08#	55.0	4.22	83	13.7	P
TS231025023C09#	55.0	4.22	82	14.1	P
TS231025023C10#	55.0	4.23	80	14.0	P
Samples charged at charging temperature lower limit (0°C)					
TS231025023C11#	55.0	4.19	81	13.3	P
TS231025023C12#	55.0	4.20	84	12.9	P
TS231025023C13#	55.0	4.20	82	13.2	P
TS231025023C14#	55.0	4.19	83	12.1	P
TS231025023C15#	55.0	4.19	82	13.4	P

Supplementary information:

- No fire or explosion

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.2	TABLE: External short circuit (battery)	P

Sample No.	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ΔT (K)	Component single fault condition	Results
TS231025023B04#	23.0	4.18	83	16.6	Short circuit MOSFET (U2 pin3–pin6)	P
TS231025023B05#	23.0	4.17	82	15.3	Short circuit MOSFET (U2 pin3–pin6)	P
TS231025023B06#	23.0	4.18	84	16.7	Short circuit MOSFET (U2 pin3–pin6)	P
TS231025023B07#	23.0	4.18	84	0.2	--	P
TS231025023B08#	23.0	4.17	81	0.3	--	P

Supplementary information:

- No fire or explosion

7.3.5	TABLE: Crush (cells)	P

Sample No.	OCV before test (Vdc)	OCV at removal of crushing force (Vdc)	Maximum force applied to the cell during crush (kN)	Results
Samples charged at charging temperature upper limit (45°C)				
TS231025023C29#	4.23	4.23	13.02	P
TS231025023C30#	4.22	4.22	13.01	P
TS231025023C31#	4.22	4.22	13.03	P
TS231025023C32#	4.23	4.23	13.03	P
TS231025023C33#	4.22	4.22	13.01	P
Samples charged at charging temperature lower limit (0°C)				
TS231025023C34#	4.19	4.19	13.03	P
TS231025023C35#	4.20	4.20	13.02	P
TS231025023C36#	4.20	4.20	13.04	P
TS231025023C37#	4.19	4.19	13.04	P
TS231025023C38#	4.19	4.19	13.02	P

Note: A 13kN force applied at the longitudinal axis of the cylindrical cells. No voltage abrupt occurred.

Supplementary information:

- No fire or explosion

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.6	TABLE: Over-charging of battery				P
Constant charging current (A) .....:		10.0			—
Supply voltage (Vdc) .....:		5.95			—
Sample No.	**OCV before charging (Vdc)**	**Total charging time (minute)**	**Maximum outer case temperature (°C)**	**Results**	
TS231025023B12#	3.31	45	23.2	P	
TS231025023B13#	3.32	45	23.4	P	
TS231025023B14#	3.32	45	23.2	P	
TS231025023B15#	3.31	45	23.3	P	
TS231025023B16#	3.31	45	23.1	P	
Supplementary information: - No fire or explosion					

7.3.7	TABLE: Forced discharge (cells)			P
Sample No.	**OCV before application of reverse charge (Vdc)**	**Measured reverse charge I_t (A)**	**Lower limit discharge voltage (Vdc)**	**Results**
TS231025023C39#	3.07	2.5	2.75	P
TS231025023C40#	3.08	2.5	2.75	P
TS231025023C41#	3.08	2.5	2.75	P
TS231025023C42#	3.07	2.5	2.75	P
TS231025023C43#	3.08	2.5	2.75	P
Supplementary information: - No fire or explosion				

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.8.1	TABLE: Vibration				P
Sample No.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
TS231025023B 17#	4.17	4.17	93.687	93.687	P
TS231025023B 18#	4.18	4.18	93.804	93.804	P
TS231025023B 19#	4.17	4.17	93.696	93.696	P

Supplementary information:

- No fire or explosion
- No rupture
- No leakage
- No venting

7.3.8.2	TABLE: Mechanical shock				P
Sample No.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
TS231025023B 20#	4.17	4.17	93.887	93.887	P
TS231025023B 21#	4.18	4.18	93.380	93.380	P
TS231025023B 22#	4.18	4.18	93.875	93.875	P

Supplementary information:

- No fire or explosion
- No rupture
- No leakage
- No venting

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.9	TABLE: Forced internal short circuit (cells)				P
Sample No.	**Chamber ambient T (°C)**	**OCV before test (Vdc)**	**Particle location [1)]**	**Maximum applied pressure (N)**	**Results**
Samples charged at charging temperature upper limit (45°C)					
TS231025023C44#	45	4.23	1	800	P
TS231025023C45#	45	4.23	1	800	P
TS231025023C46#	45	4.22	1	800	P
TS231025023C47#	45	4.23	1*	800	P
TS231025023C48#	45	4.22	1*	800	P
Samples charged at charging temperature lower limit (0°C)					
TS231025023C49#	0	4.20	1	800	P
TS231025023C50#	0	4.19	1	800	P
TS231025023C51#	0	4.19	1	800	P
TS231025023C52#	0	4.20	1*	800	P
TS231025023C53#	0	4.20	1*	800	P

Supplementary information:

[1)] Identify one of the following:

1: Nickel particle inserted between positive and negative (active material) coated area.

2: Nickel particle inserted between positive aluminium foil and negative active material coated area.

- No fire

Remark: *No position 2 exists

D.2	TABLE: Internal AC resistance for coin cells			N/A
Sample no.	**Ambient T (°C)**	**Store time (h)**	**Resistance Rac (Ω)**	**Results [1)]**

Supplementary information:

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Cell	Jiangxi Dongteng Lithium Co., Ltd	ZEC 18650 2500mAh	3.7V, 2500mAh	IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021	Tested with appliance
-Positive electrode	Jiangxi Dongteng Lithium Co., Ltd	TLM512	$Li(Ni_{0.5}Co_{0.2}Mn_{0.3})O_2$, PVDF, Aluminum foil	--	--
-Negative electrode	Jiangxi Dongteng Lithium Co., Ltd	HY-5	Graphite, CMC, SBR, Copper Foil	--	--
-Electrolyte	Xia'men Shouneng Technology Co., Ltd	SN3334H	$LiPF_6$+EC+DMC+VC	--	--
-Separator	Shenzhen Jinglitai Technology Co., Ltd	ND14	PE, Shutdown temperature: 135°C, Thickness: 14μm	--	--
-PTC	Huizhou JuDing Electronics Co Ltd	JD-D1	V_{max}: 15V, V_r: 15V, I_h: 3.5A, I_t: 7A, I_{max}: 40A, T_{moa}: 70°C	UL 1434	UL E482764
PCB	SHEN ZHEN JING XIANG TAI ELECTRONIC CO LTD	JXT-01	V-0, 130°C, Thickness: 0.6mm	UL 796 UL 94	UL E344256
PCB (Alternative)	Interchangeable	Interchangeable	V-0, 130°C, Thickness: 0.6mm	UL 796 UL 94	UL approved
Protect IC (U1)	Wuxi Zhong Weimicro Limited by Share Ltd	G3JA	V_{CU}: 4.28±0.05V, V_{DL}: 3.0±0.075V	--	Tested with appliance
MOSFET (U2, U3)	Promowell Company Linited	8205A	V_{DS}: 20V, V_{GS}: ±12V, I_D: 6A	--	Tested with appliance
Lead wire	DONGGUAN DANYANG ELECTRONIC WIRE CO LTD	1007	22AWG, 80°C, 300Vdc	UL 758	UL E332522
Lead wire (Alternative)	Interchangeable	Interchangeable	22AWG, 80°C, 300Vdc	UL 758	UL approved
DC Connector	SHENZHEN JUNAD CONNECTOR CO LTD	XH2.54	2Pins, 250V, 5A, Prevent reverse polarity connections	--	--

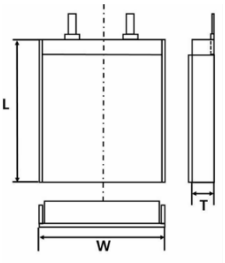
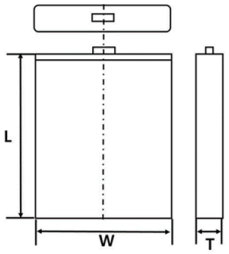
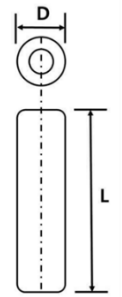
Supplementary information:

1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. License available upon request.

-- End of Report --

ATTACHMENT to IEC62133_2C			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 62133-2** **(Republic of Korea) NATIONAL DIFFERENCES** (Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary lithium cells, and for batteries made from them, for use in portable applications - Part 2: Lithium systems)			
Differences according to ..... :	National standard KC62133-2(2020-07)		
TRF template used:..... :	IECEE OD-2020-F3:2022, Ed. 1.2		
Attachment Form No. ..... : **Attachment Originator .....** : **Master Attachment**..... :	KR_ND_IEC62133_2C KTR 2023-08-02		
	National Differences		P
7.3.6	Over-charging of battery		P
(Revision)	***[Add the bolded text]*** b) Test The test shall be carried out in an ambient temperature of 20 °C ± 5 °C. Each test battery shall be discharged at a constant current of 0,2 I_t A, to a final discharge voltage specified by the manufacturer. Sample batteries shall then be charged at a constant current of 2,0 I_t A, using a supply voltage which is: • 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or • 1,2 times the upper limit charging voltage presented in Table A.1 per cell for series connected multi-cell batteries, and • sufficient to maintain a current of 2,0 I_t A throughout the duration of the test or until the supply voltage is reached. **• In case the charging voltage specified by the manufacturer is higher than the overcharge test voltage, the maximum charging voltage specified by manufacturer should be applied with 2.**0 I_t A**,** **(e.g., quick charging power bank, etc.)**	Constant charging current (A): 10.0 Supply voltage (Vdc): 5.95	P

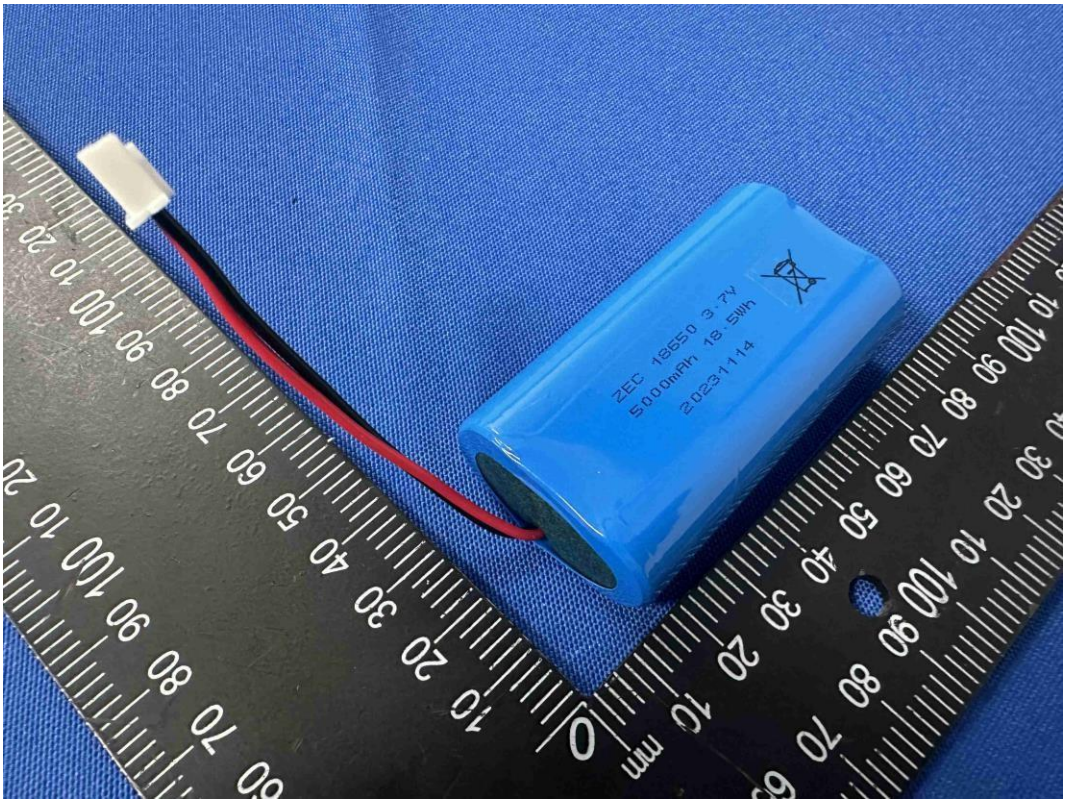
ATTACHMENT to IEC62133_2C			
Clause	Requirement + Test	Result - Remark	Verdict
	[Replace to the following statement] c) Acceptance criteria Filling beyond the manufacturer's specified limits should not result in ignition or explosion		P
Annex G	**Definition for shape and materials of outer case for cell**		—
(Addition)	G.1 General Annex G provides definitions for shape and materials of outer case for cell G.2 Shape of outer case for cell G 2.1 Cylindrical cell Cell with a cylindrical shape in which the overall height is equal to or greater than diameter. G 2.2 Prismatic cell Cell having the shape of a parallelepiped whose faces are rectangular G.3 Materials of outer case for cell G.3.1 Soft case Non-metallic outer case or container for cell G.3.2 Hard case Metallic outer case or container for cell.	(Shape of outer cases) ☒ Cylindrical ☐ Prismatic (Materials of outer cases) ☒ Hard ☐ Soft	—
Annex H	**Calculation method of the volumetric energy density for cell**		—
(Addition)	Annex H provide a calculation method of the volumetric energy density for cell in use of smart phone, tablet, notebook. H.1 General Unless otherwise stated in the Annex E, the dimensions for calculation are based on these for cell before shipment and the volumetric energy density shall be calculated with a maximum values specified by manufacturer. If the specification for cell can't be provided a dimension for calculation, the manufacturer's other documentation shall be provided to demonstrate compliance for its calculation.	527.79Wh / L	—

ATTACHMENT to IEC62133_2C			
Clause	Requirement + Test	Result - Remark	Verdict
	H.2 Calculation Method  L : Length (max.) of cell (including terrace) W : Width (max.) of cell T : Thickness (max.) when shipping charge (For reference, Please Exclude the dimension of any tape that Is attached to cell) $Volumetric\ energy\ density\ (Wh/L) = \frac{Nominal\ voltage\ (V) \times Rated\ capacity\ (Ah)}{Length\ (L) \times Width\ (W)\ \times Thickness\ (T)}$ [H.1 – Prismatic cell using soft case]  L : Length (max.) of cell W : Width (max.) of cell T : Thickness when shipping charge (For reference, Please Exclude the dimension of any tape that Is attached to cell) $Volumetric\ energy\ density\ (Wh/L) = \frac{Nominal\ voltage\ (V) \times Rated\ capacity\ (Ah)}{Length\ (L) \times Width\ (W)\ \times Thickness\ (T)}$ [H.2 – Prismatic cell using hard case]  D : Diameter (max.) of cell L : Length (max.) of cell (According to shape of cell at shipping, The dimension of tube for cell may be included In overall dimension of cell) $Volumetric\ energy\ density\ (Wh/L) = \frac{Nominal\ voltage\ (V) \times Rated\ capacity\ (Ah)}{3.14159 \times \frac{Diameter\ (D)^2}{4} \times Length(L)}$ [H.3 – Cylindrical cell using hard case]		—

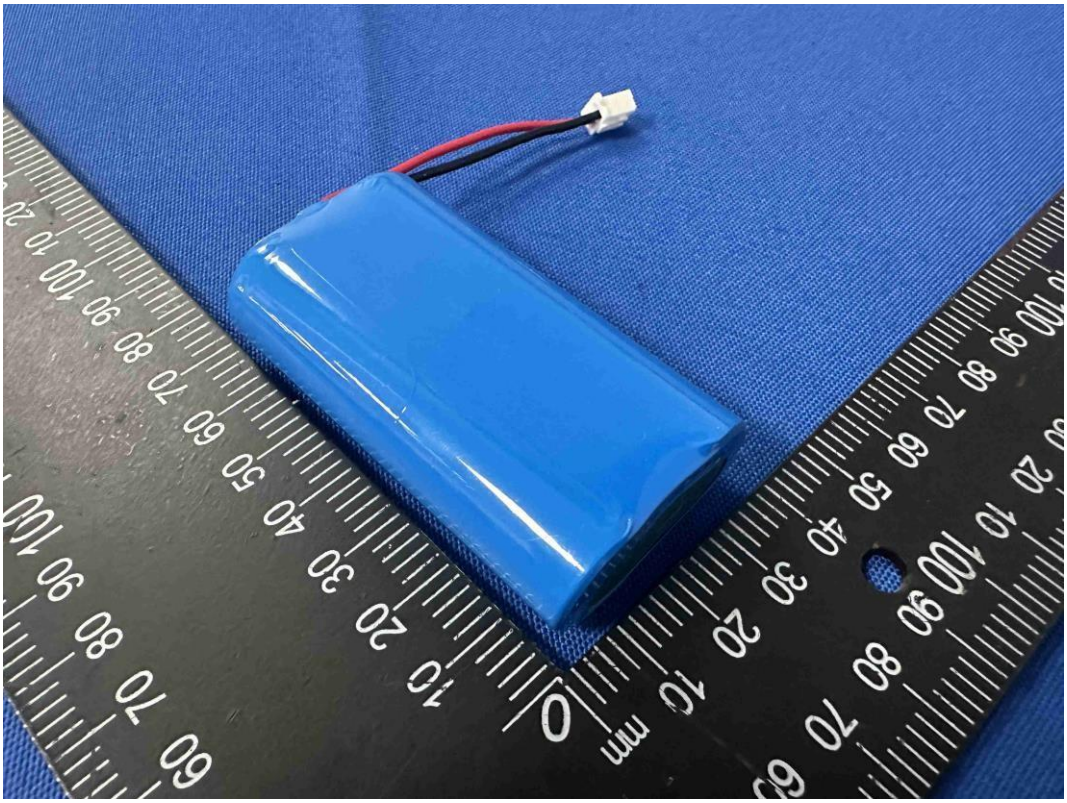
Attachment 2 Photo Documentation

Product: Li-ion Battery

Type Designation: ZEC 18650



Picture 1. Front view of battery

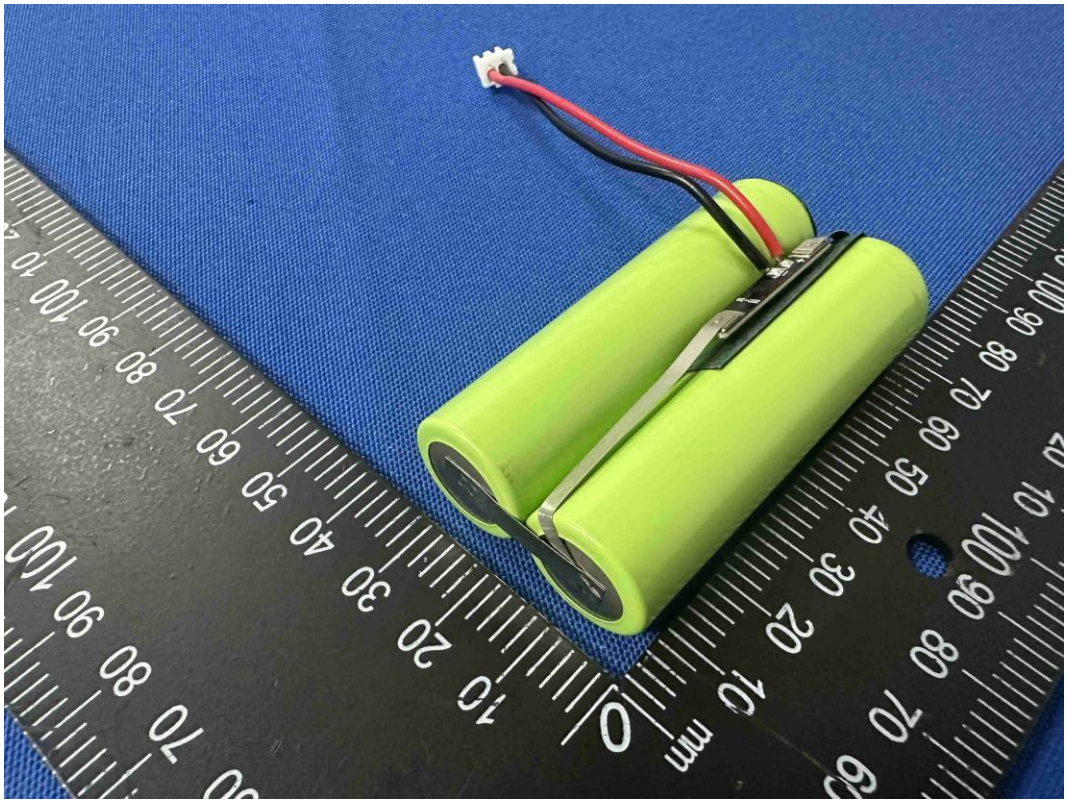


Picture 2. Back view of battery

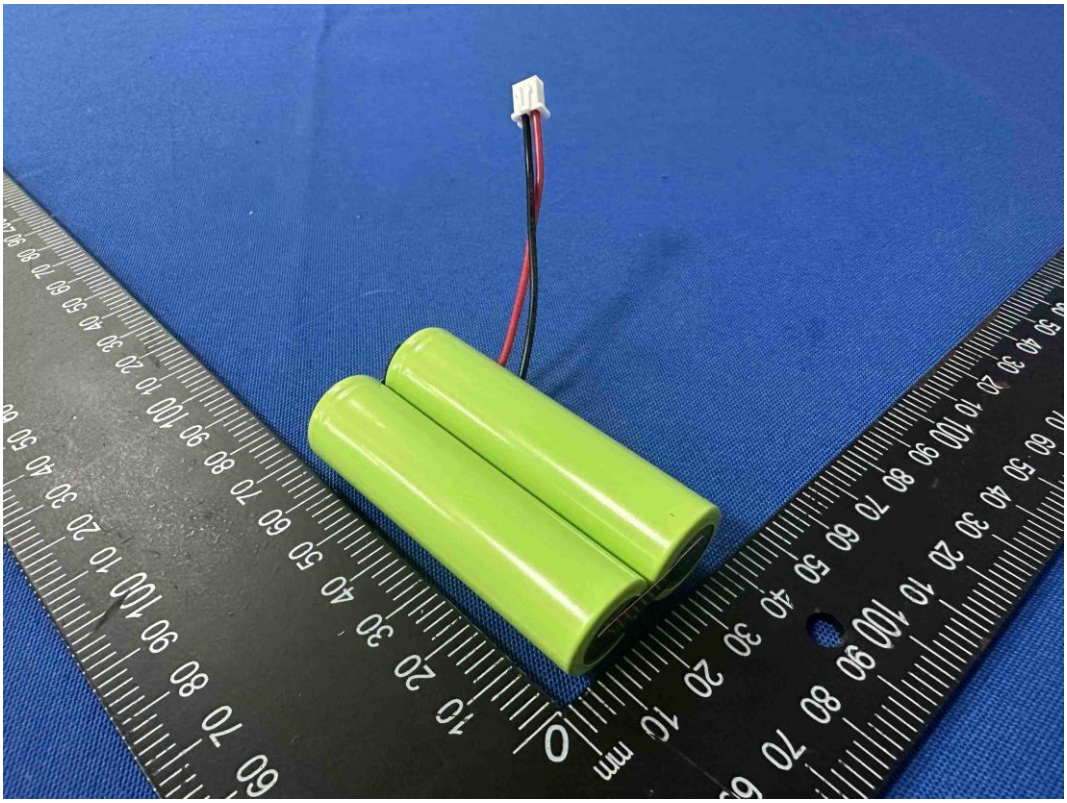
Attachment 2 Photo Documentation

Product: Li-ion Battery

Type Designation: ZEC 18650



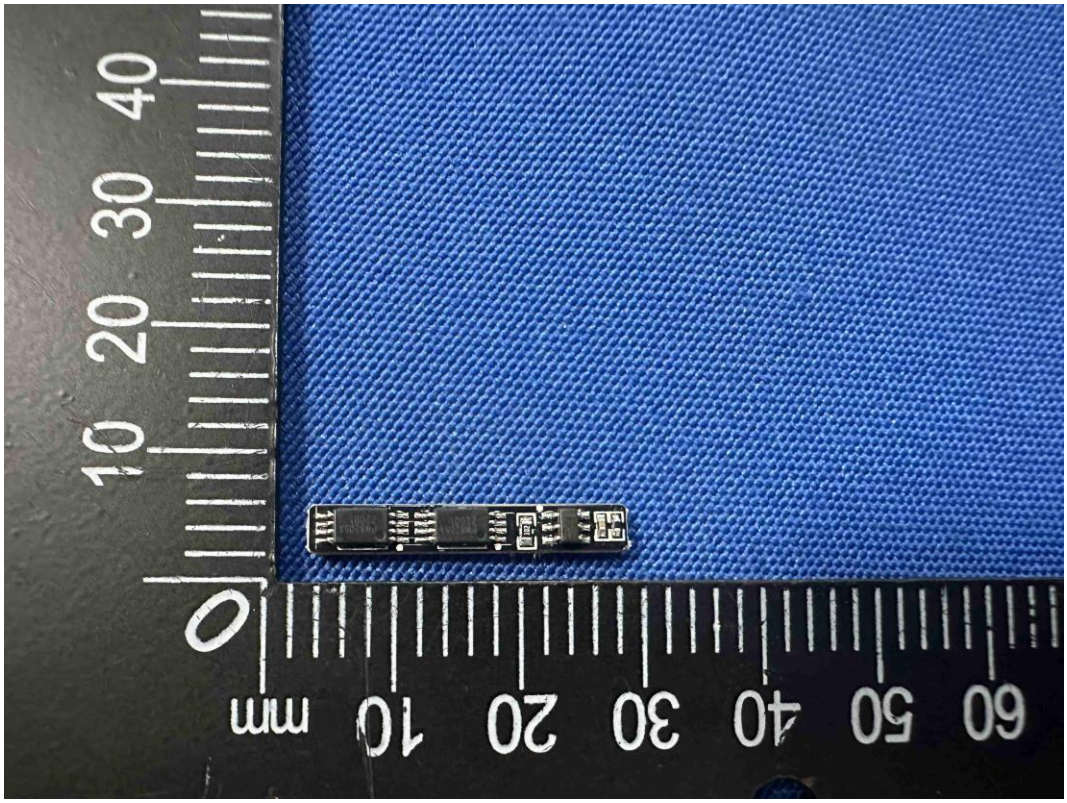
Picture 3. Inner view-1 of battery



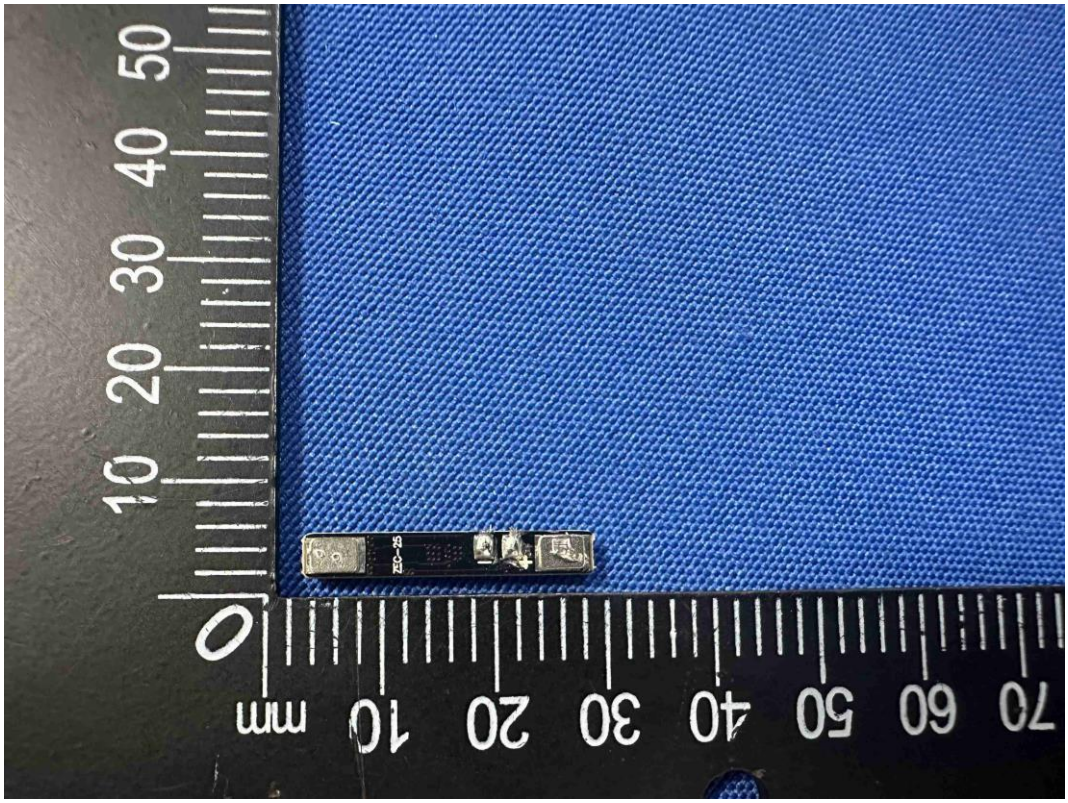
Picture 4. Inner view-2 of battery

Product: Li-ion Battery

Type Designation: ZEC 18650



Picture 5. Front view of protection board

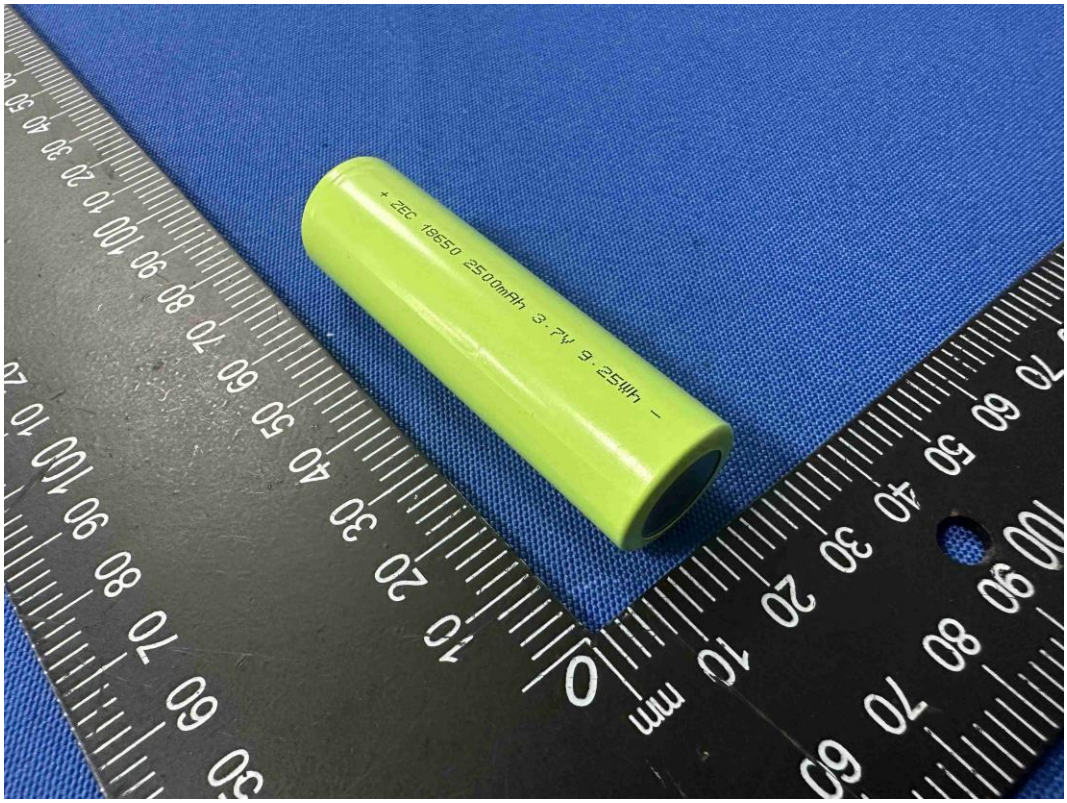


Picture 6. Back view of protection board

Attachment 2 Photo Documentation

Product: Li-ion Battery

Type Designation: ZEC 18650



Picture 7. Front view of cell

Picture 8. Back view of cell