No. B.V-7/2013-14-C (QRs)-(14) 9536

भारत सरकार/Government of India

गृह मंत्रालय/Ministry of Home Affairs

पुलिस आधुनिकीकरण प्रभाग /Police Modernization Division

संभरण-I डेस्क /Prov.I Desk

26, Man Singh Road, Jaisalmer House
New Delhi, the
5th November, 2014

To,

DsG : AR (through LOAR), BSF, CISF, CRPF, ITBP, SSB, NSG & BPR&D.

**Subject: QRs and Trial Directives of Ni-Mh Battery for use with Radio Set in Mobile Role.**

Sir(s),

The QRs and Trial Directives in respect of Ni-Mh Battery for use with Radio Set in Mobile Role as per Annex-I and Annex-II respectively have been accepted by the Competent Authority in MHA.

2. Henceforth, all the CAPFs should procure the above item required by them strictly as per the laid down QRs.

Yours faithfully,

5/11/14

(M. K Chahar)
Under Secretary to the Govt. of India
Tel : 23381278

Encl: As above.

Copy forwarded to SO (IT), MHA, with the request to host the QRs and Trial Directives of Ni-Mh Battery for use with Radio Set in Mobile Role on the website of MHA (under the page Organizational Set up-Police Modernization Division-Qualitative Requirements), soft copy is being sent through email.

5/11/14

(R K Soni)
Section Officer (Prov.I)

Copy to: DDG(Procurement), MHA.

Annex-I

## QRs/SPECIFICATION OF NI-MH BATTERY FOR USE WITH RADIO SET IN MOBILE ROLE

| Sl No | Specification | Parameters |
|---|---|---|
| 1 | Application | For use with HF-20W/VHF/UHF 20/ 25 Watt Radio Set in Mobile role. (User organization will decide during procurement for which Radio set battery is required) |
| 2 | Type of Battery Chemistry | Ni-MH (Nickel Metal Hydride) |
| 3 | Rated Capacity | 8AH/10AH/12AH/14AH or higher capacity @ C5 rating (User organization will decide capacity of battery during procurement) |
| 4 | Nominal Voltage | 12 Voltage |
| 5 | Packing | The power pack casing should make of PC/ PC+ABS/ ABS blend or newly developed better material. |
| 6 | Weight | Should be equivalent to the OEM supplied battery of rated capacity. |
| 7 | Size | International Size – Matches dimension of any international equipment according to the capacity of battery. Battery should be compatible with radio set in the same manner as per OEM supplied rated capacity battery where ever applicable. |
| 8 | Accessories | i) 2' long Trail- Tech female co-axis connector. (optional)<br>ii) 2' long Trail – Tech male plug and other end shall have two pin plug for connecting with Motorola 25 watt set. (optional)<br>iii) Carry pouch with belt loop for safe and secure carrying. (optional) |
| 9 | **Protection** : - Battery pack should be equipped with protection circuit to protect from :- Over Charge, Over Discharge, Over Temperature etc. | |
| 10 | **The label of the battery should be self descriptive type and specified the following:-** a) Battery voltage/ Capacity ,Month & Year of Manufacturer & trade mark " Logo" of the firms to be embossed / heat stamped/Chemistry of cells, Serial Number of & part of battery. | |
| 11 | The battery should pass the following Environmental Tests mentioned as under as per IS: 9000 or any equivalents standard followed by Capacity Test @ C/5 rate.<br>1. Equipment shall be suitable for operation in the following environmental conditions.<br>a. Operating Temp. Range: -10°C to + 55°C<br>b. Storage Temp. Range : - 40°C to + 70°C<br>c. Relative Humidity : 95% Max at + 40°C non-condensing<br>2. **Tests to be conducted & Conditions of tests as per IS: 9000**<br>a) Dry Heat: Part III/SEC.5/1977 55°C ± 2° C, RH < 50%, duration 16 hours.<br>b) Damp Heat (Cyclic) Test: Part V/SEC.2/variant1/1981 40°C (+/-) 2°C, RH 95%, Two cycles of 24 (12+12) hours each.<br>c) Cold Test: Part II/ SEC. 4/1977 (-) 10°C +/- 3° C, duration 16 hours.<br>d) Drop Test(in packed : Part VII/SEC.3/1979 Six drops one on each condition face , Height of fall 1000mm in case of hand held items and 500mm in case of other items. | |

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e) Vibration Test: Part VIII/1981 12 hours, 4 hours along with each axis, at 15-150Hz and with amplitude of 0.15mm/2g.
f) Storage Test: Part III/ SEC. 5/1977 & -40 degree C for 5 hours.Part II/SEC. 4/1977 then raises the temperature to 70 °C for 16 hrs.
g) Bump test : Part VII/SEC.2/1979 4000 bumps at peak acceleration of 400m/s sq
3. Environmental test Report with equivalent or superior conditions would be acceptable.
4. The functional tests and permissible degradation shall be as under.
No degradation in battery capacity when measured at C/5 rate.

(M S Yadav, AC (Tech), CRPF)

(D.K.Bhatt, Asstt Comdt, SSB)

(Gurbachan Singh, SSO (E), BPR&D)

(Sunil Kumar, DC (Comn), ITBP)

(Major Kapil Dahiya, TC(Eqpt),NSG)

(S.K.Singh, Comdt(C-Eqpt), BSF)

(Virendra Agrawal, DIG(Eqpt), CRPF)

(Shailendra Kumar, IG (Comn), CRPF)

APPROVED/NOT APPROVED

(Pranay Sahay, IPS)
DG, CRPF

(b) Annex-I

## TRIAL DIRECTIVE OF NI-MH BATTERY FOR USE WITH RADIO SET IN MOBILE ROLE

Trial/ Testing of Ni-MH Battery for use with HF/VHF/UHF Radio Set in Mobile Role will be conducted by a Board of Officers in the presence of representative of Firms to assess actual performance of the Battery.

2) All parameter / Specifications mentioned in the QRs will be checked by board of officers by ascertaining /verifying following checks.

**Physical Checks**: In this category specifications of equipment will be checked physically as per QRs.

**Functional Check**:- The vendors will show all features/ configuration of the equipment to the board of officers during technical evaluation.

**Submission of certificates:** - Specification which cannot be checked due to lack of testing facilities/ expertise, a certificate of test shown against each will be provided by firm during physical trial of the equipment.

| Sl No | Specification | Parameters | Trial Procedure |
|---|---|---|---|
| 1 | Application | For use with HF-20W/VHF/UHF 20/ 25 Watt Radio Set in Mobile role (User organization will decide during procurement for which set battery is required) | Board will check it practically by fitting battery in radio set where applicable or can be check as per user requirement. |
| 2 | Type of Battery / Chemistry | Ni-MH | Board will check it physically that type of chemistry of battery produced by the firm is as per tender specification. |
| 3 | Rated Capacity | 8AH/10AH/12/14AH or higher capacity @ C5 rating (User organization will decide capacity of battery during procurement) | Board will check it practically with the help of standard testing instruments. |
| 4 | Nominal Voltage | 12 Voltage | Board will check practically by measuring battery voltage with the help of multi meter. |
| 5 | Packing | The power pack casing should make of PC/ PC+ABS/ ABS blend (Acrylonitrile Butadiene Styrene) or newly developed better material. | Board will check it physically as well as firm will provide certificate about material used in power pack casing. |
| 6 | Weight | Should be equivalent to the OEM supplied battery of rated capacity. | Board will measure weight of battery with weighing machine & compare it with OEM supplied rated capacity battery weight. |
| 7 | Size | International Size – Matches dimension of any international equipment according to the capacity of battery. Battery should be compatible with radio set in the same manner as per OEM supplied rated capacity battery where ever applicable. | Board will practically check the battery after fitting in the radio set for which these batteries are being procured where ever applicable and ensure that it does not affecting function of the radio set. |
| 8 | Accessories: - i) 2' long Trail- Tech female co-axis connector. (optional)<br>ii) 2' long Trail – Tech male plug and other end shall have two pin plug for connecting with Motorola 25 watt set. (optional)<br>iii) Carry pouch with belt loop for safe and secure carrying. (optional) | | Board will check it physically/ practically. |
| 9 | Protection : - Battery pack should be equipped with protection circuit to protect from- Over Charge, Over Discharge, Over Temperature etc. | | Board will check practically is the battery is provided with safety circuit for all parameters. Firm should submit the certificate to this effect. |

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|---|---|---|
| 10 | **The label of the battery should be self descriptive type and specified the following:-** a) Battery voltage/ Capacity ,Month & Year of Manufacturer & trade mark "Logo" of the firms to be embossed / heat stamped/Chemistry of cells, Serial Number of & part of battery. | Board will check physically that description mentioned in Para is available on battery. |
| 11 | The battery should pass the following Environmental Tests mentioned as under as per IS: 9000 or any equivalents standard followed by Capacity Test @ C/5 rate.<br>1. Equipment shall be suitable for operation in the following environmental conditions.<br>a. Operating Temp. Range : -10°C to + 55°C<br>b. Storage Temp. Range : - 40°C to + 70°C<br>c. Relative Humidity : 95% Max at + 40°C non-condensing<br>2. **Tests to be conducted & Conditions of tests as per IS: 9000**<br>a) Dry Heat: Part III/SEC.5/1977 55°C ± 2°C, RH< 50%,duration 16 hrs.<br>b) Damp Heat (Cyclic) Test: PartV/SEC.2/variant1/1981 40°C (+/-) 2°C, RH 95%, Two cycles of 24 (12+12) hours each.<br>c) Cold Test: Part II/ SEC.4/1977(-) 10°C +/- 3°C, duration 16 hours.<br>d) Drop Test(in packed : Part VII/SEC.3/1979 Six drops one on each condition face , Height of fall 1000mm in case of hand held items and 500mm in case of other items.<br>e) Vibration Test: Part VIII/1981 12 hours, 4 hours along with each axis, at 15-150Hz and with amplitude of 0.15mm/2g<br>f) Storage Test: Part III/ SEC. 5/1977 & -40°C for 5 hours.Part II/SEC. 4/1977 then raises the temperature to 70°C for 16 hours.<br>g) Bump test : Part VII/SEC.2/1979 4000 bumps at peak acceleration of 400m/s sq.<br>3. Environmental test Report with equivalent or superior conditions would be acceptable.<br>4. The functional tests and permissible degradation shall be as under.<br>No degradation in battery capacity when measured at C/5 rate | The B.O.Os will check the Environmental test certificate submitted by the firm and will ensure that it is conducted in Government of India approved laboratory as per specification. |

(M S Yadav, AC (Tech), CRPF)

(Gurbachan Singh, SSO (E), BPR&D)

(Major Kapil Dahiya, TC(Eqpt),NSG)

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APPROVED/NOT APPROVED

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