

No. B.V-7/2013-14-C(QRs)-(12) 413  
Government of India/भारत सरकार  
Ministry of Home Affairs/गृह मंत्रालय  
Police Modernization Division/पुलिस आधुनिकीकरण प्रभाग  
Prov.I Desk/संभरण-I डेस्क

26, Mansingh Road, Jaisalmer House,  
New Delhi, the 20<sup>th</sup> February, 2014

To,

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

**Subject : QRs and Trial Directives of Ni-MH Battery for Hand Held Radio Set.**

The QRs and Trial Directives in respect of Ni-MH Battery for Hand Held Radio Set as per Annexure-I and Annexure-II respectively have been approved by the Competent Authority in MHA.

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

Yours faithfully,



(Smt. S B Nanda)

Under Secretary(Prov.I)

Encl : As above.

Copy forwarded to SO(IT) with the request to host the QRs and Trial Directives of Ni-MH Battery for Hand Held Radio Set on the website of MHA (under the page of organizational set up Police Modernization Division - Qualitative Requirement), soft copy is being sent through email.



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

Copy to DDG(Proc.)

Copy for information to PPS to JS(PM)

## QRs/ SPECIFICATION OF NI-MH BATTERY FOR HAND HELD RADIO SET


8

Sl No	Description/ Specification	Parameters
1	Application	Use with VHF/UHF Hand Held Radio Set (Type & Model of Radio set for which battery is required will be decided by user organization during procurement)
2	<b>Electrical</b>	
	a) Type of Battery Chemistry	Ni-MH (Nickel Metal Hydride)
	b) Rated Capacity	2000/2200/2300/2500 mA/H or higher capacity @ C5 rating (Capacity of battery will be decided by user organization during procurement)
	c) Nominal Voltage	7.2Volts
3	<b>Mechanical</b>	
	a) The battery casing should make of high strength polycarbonate/ABS blend.	
	b) The Battery casing should be bonded by ultrasonic welding.	
	c) The Cell should be inter connected by spot-welded through necessary circuit.	
	d) The battery to be made of premium grade cells to achieve – consistent capacity & longer lasting performance	
	e) The Battery should communicate with the Radio/chargers easily with minimal force insertion or in same manner as the OEM supplied battery.	
	f) The battery should be equipped with spring loaded belt clip or belt clip (optional where as applicable)	
4	<b>Protection</b> :- Battery should be equipped with protection circuit to protect from :- Over Temperature, Short Circuit & Reverse Polarity etc.	
5	<b>Description</b> :- i) The sleeve of cells used should preferably indicate the following:- Part Number/Month & Year of Manufacturer/Voltage of cell/Capacity of Cell/Country of Cell. ii) The label of the battery should be self destructive type and specified the following:- Battery voltage/ Capacity/ Chemistry of cell/ Suitable Model of Set/ Serial number of/Part of battery/Month & Year of Manufacturer & trade mark " Logo" of the firm to be embossed / heat stamped. iii) Clear instruction shall be given "To charge the battery on suitable chargers".	
6	The battery should pass the following Environmental Tests mentioned as under as per IS: 9000 or any equivalent standard followed by Capacity Test @ C/5 rate. 1. Equipment shall be suitable for operation in the following environmental conditions. a. Operating Temp. Range : - 10°C to + 55°C b. Storage Temp. Range : - 40°C to + 70°C c. Relative Humidity : 95% Max at + 40°C non-condensing 2. Tests to be conducted & Conditions of tests as per IS: 9000 a) Dry Heat: Part III/SEC.5/1977 55°C ± 2 °C, RH < 50%, Duration 16 hours. 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. c) Cold Test: Part II/ SEC. 4/1977 (-)10°C +/- 3°C, Duration 16 hours. 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.	

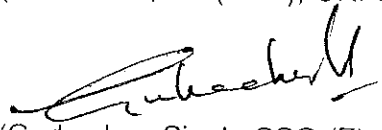
Contd.p/2

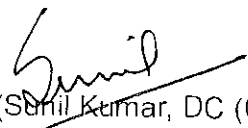


e) Vibration Test: Part VIII/1981 12 hours, 4 hours along with each axis, at 15-150Hz and with amplitude of 0.15mm/2g.  
 f) Storage Test: Part III/ SEC. 5/1977 & -40°C for 5 hours. Part II/SEC. 4/1977 then raises the temperature to 70°C for 16 hours.  
 g) Bump test : Part VII/SEC.2/1979 4000 bumps 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)

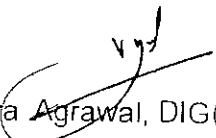
  
 (D.K. Bhatt, Asstt Comdt, SSB)

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

  
 (Sunil Kumar, DC (Comn), ITBP)

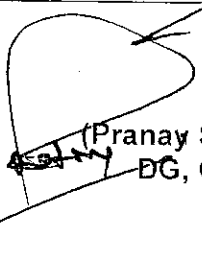
  
 (Major Kapil Dahiya, TC (Eqpt), NSG)

  
 (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

## TRIAL DIRECTIVE OF NI-MH BATTERY FOR HAND HELD RADIO SET

(6)

Trial/ Testing of Ni-MH battery for Hand Held Radio Sets 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 the 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 from Govt authorized laboratory during physical trial of the equipment.

Sl No	Description/ Specification	Parameters	Trial Procedure
1	Application	Use with VHF/UHF Hand Held Radio Set (Type & Model of Radio set for which battery is required will be decided by user organization during procurement)	Board will check it physically and practically by fitting in required radio set and its charger and will ensure that battery is as per their requirement.
2	<b>Electrical</b>		
	a) Type of Battery Chemistry	Ni-MH (Nickel Metal Hydride)	Board will check it physically that type of chemistry of battery produced by the vendors/ supplier is as per tender specification.
	b) Rated Capacity	2000/2200/2300/2500mAH or higher capacity @ C5 rating (Capacity of battery will be decided by users during procurement)	Board will check capacity of battery practically with the help of standard testing instruments.
	c) Nominal Voltage	7.2Volts	Board will ensure that voltage of battery is as per specification by measuring with the help of standard measuring instrument.
3	<b>Mechanical</b>		
	a) The battery casing should make of high strength polycarbonate/ABS blend.		Board will check it physically as well as firm will provide certificate of govt. approve laboratory about material used in power pack casing.
	b) The Battery casing is bonded by ultrasonic welding		Board will check physically.
	c) The Cell are inter connected by spot-welded through necessary circuit.		Firm will provide a loose battery during sample evolution for checking the internal connection.
	d) The battery to be made of imported premium grade cells to achieve – consistent capacity & longer lasting performance		Board will check it physically. Vendor will submit certificate to this effect.
	e) The Battery should communicate with the Radio/chargers easily with minimal force insertion or in same manner as the OEM supplied battery		Board will check it physically/ practically by inserting it in radio set as well as in battery charger.
	f) The battery should be equipped with spring loaded belt clip or belt clip (optional where as applicable)		Board will check it physically.
4	<b>Protection:</b> - Battery should be equipped with protection circuit to protect from: - Over Temperature, Short Circuit & Reverse Polarity etc.		Board will check practically that battery is provided with safety circuit for all parameters. Firm will also submit certificate in this regard.


Contd.p/2

*Deban* *Sur* *Lax* *El* *yl*

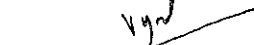
5

<p>5 <b>Description :-</b> i) The sleeve of cells used should preferably indicate the following:- Part Number/Month &amp; Year of Manufacturer/Voltage of cell/Capacity of Cell/Country of Cell. ii) The label of the battery should be self destructive type and specified the following:- Battery voltage/ Capacity/ Chemistry of cell/ Suitable Model of Set/ Serial number of/Part of battery/Month &amp; Year of Manufacturer &amp; trade mark " Logo" of the firm to be embossed / heat stamped iii) Clear instruction shall be given "To charge the battery on suitable chargers".</p>	<p>The Board will check physically that description mentioned at para 5 i) to iii) is available on battery.</p>
<p>6 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. 1. Equipment shall be suitable for operation in the following environmental conditions. a. Operating Temp. Range : -10° C to + 55° C b. Storage Temp. Range : - 40° C to + 70° C c. Relative Humidity : 95% Max at + 40°C non-condensing 2. <b>Tests to be conducted &amp; Conditions of tests as per IS: 9000</b> a) Dry Heat: Part III/SEC.5/1977 55°C ± 2°C, RH &lt; 50%, duration 16 hours. b) Damp Heat (Cyclic) Test: PartV/SEC.2/variant1/1981 40°C (+/-) 2°C, RH 95%, Two cycles of 24 (12+12) hours each. c) Cold Test: Part II/ SEC. 4/1977 (-) 10°C +/- 3° C, duration 16 hrs. 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. 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 &amp; -40°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</p>	<p>The B.O.Os will check the Environmental test certificate submitted by the firm and will ensure they are conducted in Govt. of India approved laboratory and are as per tender requirement.</p>


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

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

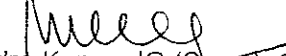
  
(Major Kapil Dahiya, TC (Eqpt), NSG)

  
(Virendra Agrawal, DIG (Eqpt), CRPF)

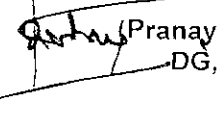
  
(D.K. Bhatt, Asstt Comdt, SSB)

  
(Sunil Kumar, DO (Comm), ITBP)

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

  
(Shailendra Kumar, IG (Comm), CRPF)

APPROVED/NOT APPROVED

  
(Pranay Sahay, IPS)  
DG, CRPF