

GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Email:- comncell@crpf.gov.in Tele/Fax:011-26107493)

No. B.V-7/2020-21-C (QRs)

Dated, the th 20 November'2020

To

- | | |
|---|--|
| 1. DIG (Comn), ITBP
Block No. 2, CGO Complex
Lodhi Road, New Delhi-03 | 2. DIG (Comn), NSG
Meharam Nagar
Palam, New Delhi-37 |
| 3. DIG (Comn), SSB
East Block-V, R.K Puram
New- Delhi-66 | 4. AIG (Comn), CISF
Block No. 13, CGO, Complex
Lodhi Road, New Delhi-03 |
| 5. DIG (Prov), BSF
Block No. 10, CGO Complex
Lodhi Road, New Delhi-03 | 6. Liaison Office, Assam Rifle
Room No-171, North Block, MHA
New Delhi -01 |

Subject: Regarding QRs/TDs of Communication Equipments

Please find enclosed QRs/TDs of "Tethered UAV with Digital VHF Repeater" and QRs/TDs of "Point to Multipoint communication with Aerostat" as Annexure-A & Annexure-B respectively duly approved by the competent authority is forwarded herewith for further necessary action.

Encl: 1.QRs & TDs of "Tethered UAV with Digital VHF Repeater"
2.QRs & TDs of "Point to Multipoint communication with Aerostat"



{P.R.Jha, DC (Comn)}
For DIG (Equipment)
Directorate General, CRPF

QRs of POINT TO MULTIPOINT COMMUNICATION USING AEROSTAT

S. N	Parameters/ Specifications	
1	Point to multipoint communication system using Aerostat should consist of the following	
1.1	Aerostat balloon	
1.2	Inflation & Mooring System	
1.3	Ground control station	
1.4	Day & Night camera payload or Integrated camera payload	
1.5	Digital VHF Repeater	
1.6	Airborne package equipment	
1.7	Portable generator	
1.8	Lifting gas containers	
2. Aerostat Balloon Characteristics		
2.1	Role	Seamless surveillance and detection during day and night, high altitude digital VHF repeater for enhancing communication range
2.2	Balloon Diameter (Size)	19 feet or more
2.3	Payloads carrying capability	Should have capability to carry digital VHF repeater with antenna and Day & Night camera payload or Integrated camera payload at the same time
2.4	Payload capacity	At least 18 kgs or more
2.5	Endurance	72 hours or more with all payloads at Mean Sea Level
2.6	Operating Altitude	300m Above Ground Level(AGL) or more
2.7	Launch Altitude	2500m Above Mean Sea Level (AMSL) or more
2.8	Operating Wind Conditions	Must be able to operate in wind speed of upto 40 knots /74 kmph
3. Mooring Station Characteristics		
3.1	Mounting type	Belly mounting
3.2	Manning	Crew of less than 4 members



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S. N	Parameters	Specifications
3.3	Mooring Station Type	Trailer based portable station connectible to LMV/HMV
3.4	Power Supply	Continuous AC power supply at 220V to payload
3.5	Gross Weight	2 Tons or less
3.6	Tether System	Automatic cable winding and unwinding
3.7	Tether Length	300 mtrs or more
3.8	Tether Tensile Strength	1000Kg or more
3.9	Tether insulating covering	Should be of insulating material to avoid electrical shock
4. Ground Control Station Characteristics		
4.1	GCS should be MIL- STD-810G or IP 65 Rugged laptop	
4.2	Computing Hardware	
	CPU	Intel Core i5 v Pro Processor
	Storage	1 TB or more
	Memory	4GB or more
	Display	10 inch or more – 1024x 768 resolution
4.3	Battery Operation	Minimum 02 hours at peak utilization
4.4	Battery charging time of GCS	Should be less than 3.5 hours
4.5	Data portability	Ports for data transfer to external secondary storage devices
4.6	Interface	VGA, HDMI, USB, 10/100/1000 Ethernet
5. Day & Night Camera Payload Characteristics		
5.1	Payloads required	a) Should have capability to carry VHF DMR repeater with duplexer antenna at balloon height. b) Day & Night camera payload or Integrated camera payload
5.2	Day light payload	a) Color camera with PTZ feature
		b) Resolution: 720 × 1080 pixels or better
		c) Optical Zoom: 30X Zoom lens or more

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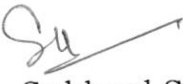
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Anil
Raj

S. N	Parameters	Specifications
5.3	Night Payload	a) Thermal camera with PTZ feature.
		b) Resolution: 640 × 480 pixels or better
		c) Digital Zoom: 4X or more
6. Digital VHF Repeater		
6.1	Protocol	DMR
6.2	RF Power output	25 watt or more
6.3	Frequency band	136-174 MHz
6.4	Antenna	Antenna with duplexer
6.5	Type	IP based digital VHF repeater, should be able to transmit data/voice using ethernet/internet
7. Airborne Package Equipment		
7.1	Design type	Modular
7.2	Securing mechanism	3 or More Hooks
7.3	Environmental conditions	Ability to withstand dust, drizzle and humid conditions
7.4	Ventilation system	Should have ventilation cooling system to avoid system overheating, if needed
8. Lifting Gas Containers		
8.1	Lifting gas	Helium gas
8.2	Containers	Containers to hold the lifting gas also need to be provided
8.3	Lifting gas filling	Filling facility directly from mooring station
8.4	Lifting gas containers	Containers holding gas for at least one complete filling and extra 50% spare. Minimum 6 or more cylinders with 7 cubic mtrs or more capacity
9. Portable Generator		
9.1	Portable generator power capacity	Generator of 1KVA power or more
10. General System Requirements		
10.1	Assembly/ Disassembly time	Less than 30 minutes each
10.2	Environmental conditions for operation and storage	The Aerostat and associated systems should operate and stored at following environment conditions. i) Operating temperature: -10°C to 50°C or better

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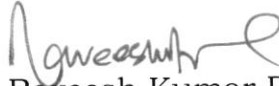
S. N	Parameters	Specifications
		ii) Storage temp: -20°C to 70°C or better
		iii) Ability to withstand dust, drizzle and humid conditions
10.3	Portability and operation	The Aerostat should be transportable on a trailer, compact, for day and night surveillance, capable of being carried and operated by less than four people.
10.4	Life of Aerostat	5 years
10.5	Comprehensive warranty on Site	1year
10.6	Accessories	a) Field Repair kit: 1 No's
		b) User, Technical & Maintenance Manual: 1set



Insp/Tele. Sukhpal Singh
ITBP



Insp/RM. Apoorv Awasth
BSF



Daud Topno, AC
SSB



Shashi Kant Singh, AD
DCPW



Dr. Raveesh Kumar, PSO(W)
BPR&D



Maj. Rajan Kumar
NSG


Aditya Bhardwaj, DC
CISF

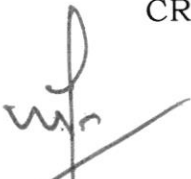

P. R. Jha, DC(Comn)
CRPF


Lt. Col. Harish Chander
Assam Rifles

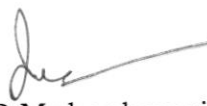

Harjinder Singh, DIG(Eqpt)
CRPF


Virendra Agrawal,
DIG(Comn), CRPF


Ravideep Singh Sahi, IG(Comn &IT)
CRPF


Sanjay Arora, IPS, ADG(HQ)
CRPF


Approved/Not Approved


Dr. A P Maheshwari, IPS
DG, CRPF

TRIAL DIRECTIVES of POINT TO MULTIPOINT COMMUNICATION USING AEROSTAT

S N	Parameter/ Specifications	Trial Directives	
1	Point to Multipoint communication system using Aerostat should consist of the following		
1.1	Aerostat balloon	BOO will check practically.	
1.2	Inflation & Mooring System		
1.3	Ground control station		
1.4	Day & Night camera payload or Integrated camera payload		
1.5	Digital VHF Repeater		
1.6	Airborne package equipment		
1.7	Portable generator		
1.8	Lifting gas containers		
2. Aerostat balloon characteristics			
2.1	Role	Seamless surveillance and detection during day and night, high altitude digital VHF repeater for enhancing communication range.	BOO will check practically.
2.2	Balloon Diameter (Size)	19 feet or more	BOO will check practically.
2.3	Payloads carrying capability	Should have capability to carry digital VHF repeater with antenna and Day & Night camera payload or Integrated camera payload at the same time	BOO will check practically.
2.4	Payload capacity	At least 18 kgs or more	BOO will check practically.
2.5	Endurance	72 hours or more with all payloads at Mean Sea Level	BOO will check practically.
2.6	Operating altitude	300m Above ground level (AGL) or more	BOO will check practically.
2.7	Launch altitude	2500m Above mean sea level (AMSL) or more	Firm will submit OEM certificate.
2.8	Operating wind conditions	Must be able to operate in wind speed of upto 40 knots / 74 kmph	Firm will submit OEM certificate.

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S N	Parameter	Specifications	Trial Directives
3. Mooring Station Characteristics			
3.1	Mounting type	Belly Mounting	BOO will check practically.
3.2	Manning	Crew of less than 4 members	
3.3	Mooring station type	Trailer based portable station connectible to LMV/HMV	
3.4	Power supply	Continuous AC power supply at 220V to payload	
3.5	Gross weight	2 Tons or less	Firm will submit OEM certificate.
3.6	Tether system	Automatic cable winding and unwinding	BOO will check practically.
3.7	Tether length	300 mtrs or more	
3.8	Tether tensile strength	1000Kg or more	Firm will submit OEM certificate.
3.9	Tether insulating covering	Should be of insulating material to avoid electrical shock	BOO will check practically.
4. Ground Control Station Characteristics			
4.1	GCS should be MIL- STD-810G or IP 65 Rugged laptop		Firm will submit certificate of Govt. Lab. or NABL/ILAC accredited laboratory.
4.2	Computing Hardware		
	CPU	Intel Core i5 v Pro Processor	BOO will check practically.
	Storage	1 TB or more	
	Memory	4GB or more	
Display	10 inch or more – 1024x 768 Resolution		
4.3	Battery operation	Minimum 02 hours at peak utilization.	
4.4	Battery charging time of GCS	Should be less than 3.5 hours	
4.5	Data portability	Ports for data transfer to external secondary storage devices	

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S N	Parameter	Specifications	Trial Directives
4.6	Interface	VGA, HDMI, USB, 10/100/1000 Ethernet.	BOO will check practically.
5. Day & Night Camera Payload Characteristics			
5.1	Payloads required	a) Should have capability to carry VHF DMR repeater with duplexer antenna at balloon height. b) Day & Night camera payload or Integrated camera payload	BOO will check practically.
5.2	Day light payload	a) Color camera with PTZ feature	BOO will check practically.
		b) Resolution: 720 × 1080 pixels or better	Firm will submit OEM certificate.
		c) Optical Zoom: 30X Zoom lens or more	BOO will check practically & firm will submit OEM certificate.
5.3	Night payload	a) Thermal camera with PTZ feature.	BOO will check practically.
		b) Resolution: 640 × 480 pixels or better	Firm will submit OEM certificate.
		c) Digital Zoom: 4X or more	BOO will check practically & firm will submit OEM certificate.
6. Digital VHF Repeater			
6.1	Protocol	DMR	BOO will check practically.
6.2	RF Power Output	25 watt or more	
6.3	Frequency Band	136-174 MHz	
6.4	Antenna	Antenna with duplexer	
6.5	Type	IP based digital VHF repeater, should be able to transmit data/voice using Ethernet/internet	
7. Airborne Package Equipment			
7.1	Design Type	Modular	BOO will check practically.

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S N	Parameter	Specifications	Trial Directives
7.2	Securing mechanism	3 or More Hooks	BOO will check practically.
7.3	Environmental conditions	Ability to withstand dust, drizzle and humid conditions	Firm will submit OEM certificate.
7.4	Ventilation system	Should have ventilation cooling system to avoid system overheating, if needed	BOO will check practically.
8. Lifting Gas Containers			
8.1	Lifting gas	Helium gas	BOO will check practically
8.2	Containers	Containers to hold the lifting gas also need to be provided	BOO will check practically
8.3	Lifting gas filling	Filling facility directly from mooring station	BOO will check practically.
8.4	Lifting gas containers	Containers holding gas for at least one complete filling and extra 50% spare. Minimum 6 or more cylinders with 7 cubic mtrs or more capacity	BOO will check practically firm will submit OEM certificate.
9. Portable Generator			
9.1	Portable generator power capacity	Generator of 1KVA Power or more	BOO will check practically.
10. General System Requirements			
10.1	Assembly/ Disassembly time	Less than 30 minutes each.	BOO will check practically.
10.2	Environmental conditions for operation and storage	The Aerostat and associated systems should operate and stored at following environment conditions.	Firm will submit OEM certificate.
		i) Operating temperature: -10°C to 50°C or better	
		ii) Storage temp: -20°C to 70°C or better	
10.3	Portability and operation	The Aerostat should be transportable on a trailer, compact, for day and night surveillance, capable of being carried and operated by less than four people.	BOO will check practically.

S N	Parameter	Specifications	Trial Directives
10.4	Life of Aerostat	5 years	Firm will submit undertaking.
10.5	Comprehensive warranty on Site	1 year	
10.6	Accessories	a) Field Repair kit: 1 No's	BOO will check practically.
		b) User, Technical & Maintenance Manual: 1set	BOO will check practically.


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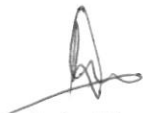

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DCPW



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BPR&D



Maj. Rajan Kumar
NSG



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Dr. A P Maheshwari, IPS
DG, CRPF