



CALAMBA WATER DISTRICT

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PROJECT : **Supply, Delivery and Installation/Commissioning of Various Radio Communication Equipment**

SUBJECT : Terms of Reference

I. SCOPE OF WORKS

To supply, deliver and install/ commission various radio communication equipment for Calamba Water District (CWD).

A. ITEM SPECIFICATIONS

ITEM	SPECIFICATIONS
Radio Base	Frequency Range (TX): 136 - 174 MHz Frequency Range (RX): 136 - 174 MHz Mode: F3E (FM) Power Requirement: 13.8 V DC \pm 15 %, negative ground Current Drain (Transmit): Less than 14 A (High), less than 8 A (Low) Current Drain (Receive): Less than 1 A Operation Temperature Range: -20 °C ~ +60 °C Antenna Impedance: 50 Ω Microphone Impedance: 600 Ω Frequency Tolerance: \pm 2.5 ppm (-20 °C ~ +60 °C) Dimensions (W x H x D), (Projections included): 160 x 43 x 126 mm 161 x 43 x 170.5 mm Weight: 1.13 kg <u>TRANSMITTER</u> RF Power Output Hi / Lo: 65 W / 25 W Modulation: Variable reactance modulation Maximum Frequency Deviation: Wide: \pm 5 kHz, Narrow: \pm 2.5 kHz Modulation Distortion: Less than 3 % (300 Hz - 3 kHz) <u>RECEIVER</u> Circuitry: Double super heterodyne Intermediate (1 st IF): 49.95 MHz Intermediate (2 nd IF): 450 kHz Sensitivity (12 dB SINAD): Less than 0.18 μ V (Narrow: less than 0.22 μ V) Squelch Sensitivity: Less than 0.1 μ V Selectivity (-6 dB): More than 12 kHz (Narrow: more than 10 kHz) Selectivity (-60 dB): Less than 30 kHz (Narrow: less than 24 kHz) Audio Output Power: More than 2 W (5 % distortion)
Diamond Antenna	Antenna VHF Base, Connector UHF-Female Frequency: 144 to 174 MHz Gain: 7.8dB Max Power: 200 Watt Length: 460 cm Weight: 1.7 Kg Rated Wind Velocity: 50m/sec. Mast Diameter Accepted: 30-62mm diameter

	<p>Connector: MJ / UHF / SO-239 Type: Omnidirectional 3x5/8, FRP Outersheel. EACH PACKING INCLUDES: 1 Pcs Antenna, 1 Set Mounting Materials, 1 Pcs User Manual English</p>
20amp Power Supply	<p>Output: 9-15V DC Adjustable or 13.8V Fixed Output Current: 20A Dimensions (LxWxH): 205x150x65cm Input: 220-230VAC</p>
RG-8 Cable (4rolls x 25m/roll)	<p>Conductor Size AWG: 10AWG Conductor Material: Solid Bare Copper Outside Diameter: .405in Jacket Material: PVC (Polyvinyl Chloride)</p>
PL259 Connector	<p>Connector Type: UHF Coaxial Connector Body Style: Straight Plug Coaxial Termination: Solder Coaxial Cable Types: RG8, RG9, RG11, RG13, RG63, RG87A, RG149, RG213, RG214, RG216, RG225 Contact Material: Brass Contact Plating: Silver Plated Contacts Frequency Max: 300MHz Connector Mounting: Cable Mount</p>
Two-way portable with battery pack, clip, antenna & charger	<p>Frequency Range (Type 1): 440 - 480 MHz Frequency Range (Type 2): 400 - 430 MHz Number of Channels: 16 channels Channel Spacing Wide / Narrow: 25 kHz / 12.5 kHz Channel Step: 5, 6.25 kHz Operating Voltage: 7.5 V DC \pm20 % Battery Life (5-5-90 duty cycle, save off) with KNB-63L: Approx. 10 hours Operating Temperature: -20°C ~ +60°C Frequency Stability: 2.5 ppm Antenna Impedance: 50 Ω Channel Frequency Spread: 40 MHz Dimensions (W x H x D), Projections not Included (Radio only): 54 x 113 x 14 mm Dimensions (W x H x D), Projections not Included (with KNB-63L): 54 x 113 x 24.9 mm Weight (net) (Body only): Approx. 130 g Weight (net) (with KNB-63L): Approx. 203 g FCC ID (Type 1): ALH437300 FCC ID (Type 2): ALH437301 FCC Compliance: Parts 15 / 90</p> <p><u>RECEIVER</u> Sensitivity (12 dB SINAD) Wide / Narrow: 0.25 μV / 0.28 μ Selectivity Wide / Narrow: 70 dB / 60 dB Intermodulation Distortion Wide / Narrow: 65 dB / 60 dB Spurious Response: 60 dB Audio Distortion: Less than 5 % Audio Output: 500 mW / 8 Ω</p>

	<u>TRANSMITTER</u> RF Power Output (High / Low): 4 W / 1 W Spurious Response: 65 dB Modulation Wide / Narrow: 16K0F3E / 11K0F3E FM Hum & Noise Wide / Narrow: 45 dB / 40 dB Audio Distortion: Less than 5 %
Battery pack with Clip	Lithium-Ion Rechargeable DC 7.4V, 1130 mAh, 8.4wh KNB-63L for TH-K20A

B. DURATION OF CONTRACT

1. The winning bidder shall complete the delivery and installation of work within 30 calendar days from the date of receipt of approved Purchase Order.

C. WARRANTY

1. The warranty period for each Radio Communication Equipment covers one (1) year upon issuance of certificate of acceptance by CWD.
2. Replacement of defective items within the duration of the warranty.
3. The supplier further warrants that all items supplied under this Contract shall have no defect, arising from design, materials, or workmanship or from any act or omission of the supplier that may develop under normal use of the supplied items.
4. Supplier shall be responsible for all the cost related to the warranty period.
5. Supplier should provide spare parts as needed within the warranty period.

D. INSTALLATION AND TESTING

1. Upon award, supplier will coordinate with the end-user with regards to the installation and testing of these equipment.

E. PAYMENT TERMS

1. Payment shall be made upon completion of delivery and issuance of Certificate of Final Acceptance from the Administrative Department Head.

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