प्रसार भारती/ PRASAR BHARATI
भारत का लोक सेवा प्रसारक/ INDIA'S NATIONAL PUBLIC SERVICE BROADCASTER
आकाशवाणी महानिदेशालय/DIRECTORATE GENERAL: ALL INDIA RADIO
योजना औरविकास एकक आकाशवाणी भवन, संसद मार्ग,नई दिल्ली-110001
P & D UNIT, AKASHVANI BHAWAN, SANSAD MARG, NEW DELHI-110001
[क्रय अनुभाग/PURCHASE SECTION]

No. 01(61)11/NIT-38/2020-D(P)E/ 2451 Dated: 29.10.2020

Corrigendum/ Addendum-VII to NIT-38/2020

Reference: 1. Tender No.12(52)01/10kW/2020/D(P)/670-D(P-S)Cell/E
2. Tender No.12(59)01/20kW/2020/D(P)672-D(P-S)Cell/E
3. Tender no. 12(60)01/SW/2020/D(P)673-D(P-S)Cell/E

The following comments / amendments (enclosed) / extension of bid submission / opening date for the tenders mentioned below are hereby authorized-

A. **Tender No. 12(59)01/20kW/2020/D(P)672-D(P-S)Cell/E for the Supply of 20 kW Digital Compatible VHF FM solid state MOSFET technology based Broadcast Transmitter (Liquid Cooled) in (1+1) Configuration and Associated Equipments / items.**

The Corrected Excel sheets of Technical bid and Price Bid are being uploaded. The Excel sheets of Price Bid and Unprice Bid uploaded previously will be treated as cancelled.

B. **Tender no. 12(60)01/SW/2020/D(P)673-D(P-S)Cell/E for the Supply, Testing & Commissioning of 50 kW AM - DRM SW Transmitter.**

Amendments to specification no XTE-SW/1002 dated 26.10.2020 are enclosed.

Following information is being intimated as sought by them in reference of following letters -

1. Letter No. Nil, dated 03.10.2020 & 05.10.2020 from M/s Falcon Technologies Pvt. Ltd.

i) RF / Antenna switching with provision/ option of interlock port shall be provided by AIR.
ii) The approximate distance between Transmitter hall and NVIS antenna shall be 70 meters.

2. Letter No. BECIL/Tender/AIR/STC50kWTx/2020-21, dated 15.10.2020 from M/s BECIL.

i) In r/o Point B of above mentioned BECIL letter, it is clarified that note # 21 (AP2-6) at page 14 of Appendix 2 (Rev.WRC-03) of ITU RR- 2020 as quoted below states:

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"It is suggested that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would be suitable for single-sideband emissions.

Considering above note it is felt that no changes in clause 3.2.3 of AIR Specifications is required.

ii) In r/o Point G of above mentioned BECIL letter, it is clarified that clause 3.6.1(c) pertains to DRM Modulator only and not to the Transmitter.

C. Extension of tender submission / opening dates:

Sl. No.	Tender Ref. No.	Description of Stores	Tender Submission Date (Online)		Tender Opening Date (Online)	
			FOR	READ	FOR	READ
1	No.12(52)01/ 10kW/2020/D (P)/670-D(P-S)Cell/E	Supply of 10 kW Digital Compatible VHF FM solid state MOSFET Technology based Broadcast Transmitter (Liquid Cooled) in (1+1) Configuration and Associated Equipments / items.	28.10.2020 (02:30 PM)	**11.11.2020 (02:30 PM)**	28.10.2020 (03:00 PM)	**11.11.2020 (03:00 PM)**
2	No.12(59)01/ 20kW/2020/D (P)672-D(P-S)Cell/E	Supply of 20 kW Digital Compatible VHF FM solid state MOSFET technology based Broadcast Transmitter (Liquid Cooled) in (1+1) Configuration and Associated Equipments / items.	28.10.2020 (02:30 PM)	**11.11.2020 (02:30 PM)**	28.10.2020 (03:00 PM)	**11.11.2020 (03:00 PM)**
3	No. 12(60)01/SW/ 2020/D(P)673 -D(P-S)Cell/E	Supply, Testing & Commissioning of 50 kW AM - DRM SW Transmitter.	11.11.2020 (02:30 PM)	**20.11.2020 (02:30 PM)**	11.11.2020 (03:00 PM)	**20.11.2020 (03:00 PM)**

Encl: Amendment to Specification no XTE-SW/1002 dated 26.10.2020.

NOTE:

i. The bid forms, General Instructions to Bidders and other details including amendments/ changes can be viewed/ downloaded from the website http://prasarbharati.eproc.in.

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ii. Tender notice is also available on the Prasar Bharati website www.prasarbharati.gov.in (using the link: Tender) and CPP PORTAL on website http://eprocure.gov.in.

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प्रसारभारती / **Prasar Bharati**
(India's Public Service Broadcaster)
आकाशवाणीमहानिदेशालय/ **Directorate General: All India Radio**
योजनाएवंविकासएकक, आकाशवाणीभवन, संसदमार्ग, नईदिल्ली, पिन - **110001**
P & D Unit, Akashvani Bhawan, Sansad Marg, New Delhi-110001
ट्रान्समिटर डिज़ाइन/ **Transmitter Design**

AMENDMENT TO SPECIFICATION DOCUMENT XTE-SW/1002DATED15/07/2020, FOR SUPPLY, TESTING & COMMISSIONING OF 50 kW AM-DRM SHORT WAVE TRANSMITTERAT AIR KURSEONG (WB)

The following amendments are made in the specifications document XTE-SW/1002, Dated-15/07/2020

S. NO	AIR SPECIFICATION CLAUSE NO.	ORIGINAL	AMENDED
1.	**1.7**	**DELIVERY OF EQUIPMENT: (A)Supply of Equipment:** The delivery of the entire equipment at AIR's transmitter site shall have be completed within 12 (twelve) months from the date of acceptance of tender or 9(Nine) months from date of decision letter from WPC (to be provided by AIR), if required in respect of RF equipment, whichever is later.	**DELIVERY OF EQUIPMENT: (A) Supply of Equipment:** The delivery of the entire equipment at AIR's transmitter site shall have be completed within 16 (Sixteen) months from the date of acceptance of tender or 9(Nine) months from date of decision letter from WPC (to be provided by AIR), if required in respect of RF equipment, whichever is later.
2.	**2.1.3**	**R.F. SECTION:** RF Section shall consist of three stages namely Modulator with Preamplifier (capable of working both in AM & DRM Mode), driver stage and Power amplifier, Filter & matching network. The Driver unit shall be tunable to 3.2-17.9 MHz Band. The design of RF section should be such as to permit a quick wave change	**R.F. SECTION:** RF Section shall consist of three stages namely Modulator with Preamplifier (capable of working both in AM & DRM Mode), driver stage and Power amplifier, Filter & matching network. The Driver unit shall be tunable to 3.2-17.9 MHz Band. The design of RF section should be such as to permit a quick wave change

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		of any frequency in the desired range of shortwave band. Facilities shall be provided for the rapid and accurate tuning and matching of all the stages on full power, Special attention shall be paid to the design of moveable contacts in case variable inductance tuning is used as to ensure freedom from sparking and long trouble free service. The tuning and matching circuits in the final stage shall be designed for optimum operating conditions leading to the highest efficiency and lowest voltage and current stresses on the components in the tuning circuits. A BNC socket, (50 Ω) for monitoring of carrier frequency shall be provided. A 50 Ω BNC Socket also shall be provided for connecting an external RF source (Synthesizer).	of any frequency in the desired range of shortwave band. Facilities shall be provided for the rapid and accurate tuning and matching of all the stages on full power, Special attention shall be paid to the design of moveable contacts in case variable inductance tuning is used as to ensure freedom from sparking and long trouble free service. The tuning and matching circuits in the final stage shall be designed for optimum operating conditions leading to the highest efficiency and lowest voltage and current stresses on the components in the tuning circuits
3.	**2.1.11.2**	**HT DC SUPPLIES:** c. The average power consumption for the transmitter shall be indicated along with instantaneous power requirement on the transmitter panel. It shall be possible to operate the transmitter on reduced power (to about 10 kW) if necessary. For this purpose the other potentials like bias etc. shall change along with HT with single operation only.	**HT DC SUPPLIES:** c. The average power consumption for the transmitter shall be indicated along with instantaneous power requirement on the transmitter panel. It shall be possible to operate the transmitter on reduced power if required. For this purpose the other potentials like bias etc. shall change along with HT with single operation only.

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4.	2.1.17	**IMPEDANCE TRANSFORMATION NETWORK:-** The salient features of the Impedance Transformation Network shall be:- **2.1.13.1** This Network shall be used for transforming the output impedance of the transmitter (50 Ω) to match with the feeder line impedance 300 Ω balanced. **2.1.13.2** It will be a self-contained, single cabinet and Network will be realized with inductors and capacitors. The components of Impedance transformation network shall be designed for adequate bandwidth, amplitude and phase linearity to allow AM/DRM. **2.1.13.3 Input/ output connections**:-It shall have One Input port and One Output Port each rated for the power output rating to be specified as per site requirements. **2.1.13.4** The design of the network shall be such that no forced ventilation is required. **2.1.13.5 Power handling apacity**:-As mentioned under Section-III. **2.1.13.6 Mounting & Safety switch**: - The network shall be floor mounted fully enclosed. It shall be inaccessible to operator in ON condition	**IMPEDANCE TRANSFORMATION NETWORK:-** The salient features of the Impedance Transformation Network shall be:- **2.1.17.1** This Network shall be used for transforming the output impedance of the transmitter (50 Ω) to match with the feeder line impedance 300 Ω balanced. **2.1.17.2** It will be a self-contained, single cabinet and Network will be realized with inductors and capacitors. The components of Impedance transformation network shall be designed for adequate bandwidth, amplitude and phase linearity to allow AM/DRM **2.1.17.3 Input/ output connections**:-It shall have One Input port and One Output Port each rated for the power output rating to be specified as per site requirements. **2.1.17.4** The design of the network shall be such that no forced ventilation is required. **2.1.17.5 Power handling capacity**:-As mentioned under Section-III. **2.1.17.6 Mounting & Safety switch**: - The network shall be floor mounted fully enclosed. It shall be inaccessible to operator in ON condition

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		with an interlocked access door. All other safety requirements as needed in a RF networks are to be provided.	with an interlocked access door. All other safety requirements as needed in a RF networks are to be provided.
5.	**3.2.1**	**Type of Emission** A3E (Double side Band full carrier Broadcasting), DRM all modes and AM-DRM.	**Type of Emission** 1. **A3E**- Double side Band for full carrier broadcasting. 2. **DRM**- DRM all modes. 3. **AM-DRM**- Simulcast
6.	**3.2.5**	**Carrier Output Power** i. 50 kW (Nominal) with 100% modulation for AM-DSB ii. 40 kW pure DRM	**Carrier Output Power** i. 50 kW (Nominal) with 100% modulation for AM-DSB ii. Any power in range of 20 kW to 40 kW in pure DRM Mode.
7.	**3.2.7**	**Harmonics** **a.** RF Harmonics: ≤50 mW up to 40MHz. For DRM out of band emission limit shall be as per ETSI EN302 245-2 (amended up to date) **b.** Spurious Emission: <1 mW.	**Harmonics** **a. A3E (Analog Mode)** **i.** RF Harmonics: ≤50 mW up to 40MHz **ii.** Spurious Emission: <1mW for A3E Emission **b. DRM MODE** **Out of Band & Spurious Emission**: Shall conform to ETSI EN302 245-2 (amended up to date) For DRM
8.	**3.2.17 iii.**	**Noise level:** <60 db Un weighted	**Noise level:** <58 db at full rated \ transmitting power
9.	**3.2.18**	**MER** : 35db minimum for DRM transmission	**MER** : >30dB as per ETSI EN 302 245-2
10.	**3.2.19**	**Inter Modulation** : < 30 db for highest IM Component in reference to modulation signal of 60/7000 Hz at 85% Modulation.	**Inter Modulation** : <30 dB using SMPTE Inter-modulation test method (where two signals of frequency 60Hz and 7kHz, with 4:1 amplitude ratio are used as input) with Transmitter running at 80% modulation at full rated output power of Transmitter

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