

Government of India  
Ministry of Communications  
Department of Telecommunications  
National Telecommunications Institute for Policy Research, Innovation & Training  
ALTTC Campus, Govt. of India Enclave, Ghaziabad-201002 (UP)

No. 1-13/2022-NTI.WA

Dated: 11.05.2022

**Calling inputs from OEMs regarding setting up of 5G Lab**

(To whomsoever it may concern)

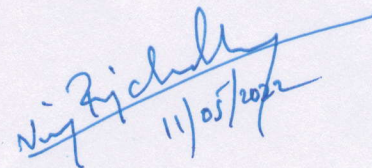
NTIPRIT, the apex capacity building arm of Department of Telecommunications, is in process of setting up 5G and Open RAN lab at its campus at Ghaziabad. The lab will host multiple 4G and 5G Cores, 4G LTE and 5G NR operating at various frequency bands at five sites and three chains of open RAN within the campus. The lab will also host various tools and testers, simulators related to 5G Core / NR /open RAN, and demo setups of 5G use cases. The primary purpose of the lab is to provide training to DoT officials, officials of central govt and state govt, and other stakeholders.

In this regard, **inputs from the Wireless Network OEMs for estimated cost of the various components, listed in the attachment are required to prepare the detailed bill of material for the setup.** The inputs for the same may be sent by **24<sup>th</sup> May 2022**, via email to [vinayraj.choudhary@gov.in](mailto:vinayraj.choudhary@gov.in).

In case of any query/clarification/request for a short Video-Conference, the following Officer may be contacted please:

- Shri Ashok Kumar, Director (Wireless Access) [ [ashok.kr100@gov.in](mailto:ashok.kr100@gov.in)/9818655056 ]

This is issued with the approval of competent authority.

  
11/05/2022

ADG  
Wireless Access  
NTIPRIT

Sr #	Item	Details required
<b>5G Core</b>		
1	5G Core (HW/SW)	Provide detailed Bill of material and estimated cost of HW and SW for one 5G SA Core based on Release 16 and upgradable to Rel 17 and 18. Each Core shall support 75K Subscribers, 50K concurrent sessions and 50GBps peak user traffic.
2	4G Core (HW / SW)	Provide detailed Bill of material and estimated cost of HW and SW to host 4G Core based on Release 15 with feature upgrades in release 16 2. Each Core shall support 75K Subscriber, 50K concurrent sessions and 10 GBps peak user traffic.
3	Hardware for other 5G Core, Demo use cases , Tools and Testers	Provide detailed Bill of material and estimated cost of only HW to host 4 numbers of 5G SA Core as detailed above .This will be used to install 5G Core developed by startup / IIT Madras / Open Source and applications related to Demo use cases etc of 5G and host tools and testers / Emulator / Simulators in addition to 5G systems mentioned above.
4	Installation and commissioning of above	Provide detailed Bill of material and estimated cost for installation and commissioning of above items.
5	AMC and Managed Service Provisioning for 5 Years	Provide detail of services and manpower of different level for AMC and Managed Service provisioning for 5 years from date of commissioning of the items.
7	Detailed spec of each NE, other eqpt	

<b>gNB Setup</b>		
1	gNB for campus in FR1 band (n78), 64 Antenna x 3 sector (One Site)	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.



Sr #	Item	Details required
2	gNB for campus in FR1 band (n78) , 32 Antenna x 3 sector (two Sites) = 6 Sectors	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.
3	gNB for campus in FR1 band (n78 and n28) , 16 Antenna x 3 sector (one site )	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.
4	gNB for campus in FR1 band (n78) , 16 Antenna x 3 sector (one site )	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.
5	gNB for campus in FR2 band (One Bands) , 2 sector ( co-located with one of 16 Antenna site)	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.
6	eNB for campus in B1 , 2T2R x 3 sector (co located with one of 16 Antenna Site )	Provide detailed Bill of material and estimated cost of HW and SW for eNB based on Release 15 and features set of rel 16.
7	BBU (DU/CU) for each of Radio	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.
8	L2/L3 License Cost for each of Radio	Provide detailed Bill of material and estimated cost of HW and SW for gNB based on Release 16 and upgradable to Rel 17 and 18 Optionally.
9	Installation and commissioning of Sites	Provide detailed Bill of material and estimated cost for installation and commissioning of above items.
10	Infrastructure for 5 gNB sites	Provide detailed Bill of material and estimated cost for battery power plant , tower and other required accessories and items and its installation and commissing. Consider two 40 meter GBT, three rooftop tower.
11	AMC and Managed Service Provisioning for 5 Years	Provide detail of services and manpower of different level for AMC and Managed Service provisioning for 5 years from date of commissioning of the above items.

Sr #	Item	Details required
12	Detailed spec of each eNB, gNB, other eqpt	
<b>Open RAN Lab Setup</b>		
1	OPEN RAN Lab setup	Provide detailed bill of material and estimated Cost for ORAN compliant 7.2 split three chains (RU / DU/ CU ), RIC, MANO of Open RAN with interoperability with each other with a mix of hw/application OEM.
2	Tools and Testers for ORAN interfaces / Protocols etc	Provide detailed bill of material
3	Installation and commissioning	Provide detailed Bill of material and estimated cost for installation and commissioning of above items.
4	AMC and Managed Service Provisioning for 5 Years	Provide detail of services and manpower of different level for AMC and Managed Service provisioning for 5 years from date of commissioning of the above items.
<b>Back haul</b>		
1	Optical Fibre based: approx 5 km including supply of cable, laying and systems in a ring topology.	Provide detailed bill of material and estimated Cost. Also provide specs of each component
2	e Band MW links (5 Set)	Provide detailed bill of material and estimated Cost. Also provide specs of each component

Sr #	Item	Details required
3	Installation and commissioning	Provide detailed Bill of material and estimated cost for installation and commissioning of above items.
4	AMC and Managed Service Provisioning for 5 Years	Provide detail of services and manpower of different level for AMC and Managed Service provisioning for 5 years from date of commissioning of the above items.
<b>Tools and Testers and IT Setup</b>		
1	Interface/NE/UE Simulators : set	Provide detailed bill of material and estimated cost for one set of HW , SW and Licences.of different Interfcaes / Nes/Nes Simulators for Open RAN.
2	Drive test tool 4G+5G	Provide detailed bill of material and estimated cost for 5 set
3	Planning Tool 4G+5G	Provide detailed bill of material and estimated cost for 2 set
4	Protocol analysers	Provide detailed bill of material and estimated cost for 2 set
5	Traffic generators	Provide detailed bill of material and estimated cost for 2 set
6	Misc tools like megger, laser meter etc in sets	Provide detailed bill of material and estimated cost for 2 set
7	IT set-up	Provide detailed bill of material and estimated cost for required IT setup ( having 25 Computer Desk Tops / 5 Laptops, its Lan Wiring and connectivity with installed Core and applications
8	Installation and commissioning	Provide detailed Bill of material and estimated cost for installation and commissioning of above items.
9	AMC and Managed Service Provisioning for 5 Years	Provode detail of services and manpower of different level for AMC and Managed Service provisioning for 5 years from date of commissioning of the above items.

Sr #	Item	Details required
<b>Training</b>		
1	Training	Provide estimated cost of 50 hours offline and 50 hours of online training on Core , Radio and Tools and Testers spread over a period of 3 years on demand basis.

**Other Information Required**

1	Dimensioning table for core and RAN elements	
2	What are all the NFs that would be required in the 5GC	
3	Essential feature list	
4	Power and space requirements	
5	List of demo setups for the lab	
6	All features / NEs related to security, including optional, need to be included in 5GC	