

**Dated 18<sup>th</sup> July 2023**

To,

1. *Shri Piyush Goyal*  
*Hon'ble Minister for Industries and Commerce,*  
*Government of India, New Delhi*
2. *Shri Ashwani Vaishnav,*  
*Hon'ble Minister for Communications and Railways,*  
*Government of India, New Delhi*

**Subject: Policy for 5G Network for Industries**

Dear Sirs,

Captive Industrial cellular 4G/5G networks are gaining traction globally to support Industry 4.0. With captive 4G/5G cellular networks, Innovative digital transformation is already driving the smart factories of many developed countries. Industrial and enterprise 4G/5G cellular networks – also referred to as NPNs (Non-Public Networks) have rapidly gained popularity in recent years due to privacy, security, reliability, and performance advantages over public cellular mobile networks to replace hardwired connections that are traditionally used in the Industrial environments. Most industrial countries, who want to promote their manufacturing activities to Industry 4.0, have already licensed captive cellular networks and reserved necessary frequency spectrum needed to operate these networks.

The opening of private spectrum by the national regulators in most of the Industrialized countries to Industries and captive users in these countries is accelerating the adoption of captive NPN 4G and 5G networks. The table below Indicates how industrialized nations are taking advantage of the 5G and LTE technology to modernize their local manufacturing capabilities:

Country	Policy to promote Local manufacturing competence
United States	Citizens Broadband Radio Service (CBRS) spectrum sharing scheme
Germany	3.7-3.8 GHz and 28 GHz band for 5G campus networks licenses

<b>South Korea</b>	e-Um 5G allocations in the 4.7 GHz band
<b>Japan</b>	4.6-4.9 GHz band for local 5G network licenses
<b>Finland's</b>	2.3 GHz and 26 GHz band for local 4G/5G networks licenses
<b>United Kingdom</b>	Shared and local access licensing model
<b>Canada</b>	NCL (Non-Competitive Local) licensing framework
<b>France</b>	Vertical spectrum and sub-letting arrangements
<b>Netherlands</b>	Geographically restricted mid-band spectrum assignments
<b>Bahrain</b>	Private 5G network licenses
<b>Sweden</b>	3.7 GHz and 26 GHz permits
<b>Norway</b>	Regulation of local networks in the 3.8-4.2 GHz band
<b>Poland</b>	Spectrum assignment for local government units and enterprises
<b>Australia</b>	Apparatus licensing approach
<b>Taiwan</b>	4.8-4.9 GHz spectrum for private 5G networks
<b>Hong Kong</b>	Localized Wireless Broadband System (LWBS) licenses
<b>Brazil</b>	Private Limited Service (PLS) licenses

Even in China – where mobile operators have always been at the forefront of initial private 5G installations – has started allocating private 5G spectrum licenses directly to end user organizations. Vast swaths of globally and regionally harmonized license-exempt spectrum are also available worldwide that can be used for the operation of unlicensed LTE and 5G NR-U equipment for private networks.

Industrial and enterprise cellular networks based on 3GPP LTE and 5G technologies have gained recognition as an all-inclusive connectivity platform for critical communications, Industry 4.0 and enterprise transformation-related applications. Traditionally, these sectors have been dominated by two-way radios, Wi-Fi, industrial Ethernet, fiber and other wired networks.

3GPP has been actively working on development and standardization of new features needed for Industrial and enterprise users such as Mission-Critical push to talk, video & data, Ultra-Reliable, Low-Latency Communications, and these have been effectively used by the Industrial countries to further enhance their local manufacturing capabilities.

LTE and 5G-based private cellular networks are available in many different shapes and sizes, including isolated end-to-end NPNs in industrial and enterprise settings. Despite the somewhat differing views on market definition, **one thing is clear – private LTE and 5G networks are continuing their upward trajectory with deployments targeting a multitude of use cases across various industries, ranging from dedicated connectivity in factories, warehouses, mines, power plants, substations, offshore wind farms, oil and gas facilities, construction sites, maritime ports, airports, hospitals, office buildings and university campuses.**

For India to promote “make in India” and “Atamnirbhar Bharat”, we cannot afford to remain behind the industrialized nations. While Mobile Operators are doing a great job for connecting the unconnected and reaching out to all consumers, it is necessary for the Government to consider direct assignment of Spectrum to Industries and enterprises.

We therefore call upon the government to urgently:

1. Reserve spectrum in 4.9 GHz band (and also in other bands) for direct assignment to Industries and enterprise captive users.
2. Delicense 5925-6425 MHz spectrum for advanced WiFi needed by the enterprise and innovation sectors

Thank you for your kind consideration.

Warm Regards,

**Bharat B Bhatia,**

President, ITU-APT Foundation of India (IAFI)

Vice Chairman, Asia Pacific, World Wireless Research Forum(WWRF)

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