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President
Mukesh Aghi



November 27, 2017

Shri Arvind Kumar
Advisor (BB&PA)
Telecom Regulatory Authority of India

Subject: USISPF Response to TRAI Consultation Paper on Promoting Local Telecom Equipment Manufacturing

Dear Sir,

Greeting from U.S. India Strategic Partnership Forum (USISPF), a non-profit organization focused on strengthening business relations between the U.S. and India, and enhancing the U.S.-India strategic relationship. We are committed to creating the most powerful strategic partnership between the two countries. Promoting bilateral trade is an important part of USISPF's work, but USISPF's mission reaches far beyond this. We believe it is about business and government coming together in new ways to create meaningful opportunities that have the power to change the lives of citizens. USISPF is headquartered in Washington DC, with offices in New York, Silicon Valley, Delhi and Mumbai.

I am writing to you in response to the Consultation Paper on Promoting Local Telecom Equipment Manufacturing released by TRAI on 18th September 2017. Our detailed responses to the questions that the Consultation Paper raises have been attached as Annexure.

USISPF appreciates the Indian government on its 'Make in India' program aimed at encouraging national, as well as multi-national companies to manufacture products in India and is keen to support in this endeavor. For any further information, feel free to contact me or my Technology, Media & Telecom Lead, Ms. Shagufta Kamran in New Delhi at skamran@usispf.org or +91 9999107923.

Once again, we thank you and your colleagues at TRAI for providing the opportunity to comment. We look forward to our continued partnership on all issues impacting the growth of India's digital economy.

Sincerely,

A handwritten signature in black ink, appearing to read "Mukesh Aghi", is written over a white rectangular background.

Mukesh Aghi
President
US India Strategic Partnership Forum

Annexure

USISPF Response to TRAI Consultation Paper on Promoting Local Telecom Equipment Manufacturing

Question 1: Large number of initiatives have been taken by the government to promote electronics manufacturing, while these initiatives have succeeded in attracting significant investments in other sectors like LED, consumer electronics, mobile handsets, automotive electronics etc., they have failed to attract investments in telecom equipment sector e.g. PMA has worked very effectively in LED sector but did not work so effectively in telecom. Please enumerate the reasons with justifications for the poor performance of local telecom manufacturing industry in spite of numerous initiatives by the government/industry.

Question 2: What policy measures are required to be instituted to boost Innovation and productivity of local Telecom manufacturing in our country? Please provide details in terms of Short-Term, Medium-Term and Long-Term objectives.

Electronics industry can be decomposed into following spectrum addressing specific industry verticals:



**Complexity defined by # of layers on a printed circuit board; # of components on the board; % of semi-conductor; Bill of Material cost;

Generally speaking, **consumer products are easier to localize**. Given the high volume and low complexity of such consumer products, one can find more examples of consumer electronics being localized. The manufacturing footprint strategy for consumer products is hinged upon:

- Lowest operating cost – labor, freight, facilities, electricity, etc.
- Proximity to customer base

On the other end of the spectrum are products procured by Enterprise & Service Providers. The **manufacturing for Enterprise / Service Provider products can be characterized as high complexity and low volume**. The manufacturing footprint strategy for Enterprise / Service Provider products is hinged upon:

- Operating cost in balance with operating capabilities – industry maturity; technical talent; new product introduction capabilities; etc.
- Proximity to key suppliers & key customers – esp. for smooth product launches and transitions

Due to high complexity in enterprise telecom manufacturing, it is imperative for companies to establish manufacturing at global locations that can cater to as large a market as possible to achieve economies of scale by maximising volumes.

The need for large market and scale directly translates into the necessity for increased focus on an **India for the World strategy** for telecom manufacturing instead of relying only on an India for India strategy.

To put the rationale for India for the World strategy in perspective, it is worth noting that India's Domestic Demand for electronic goods was approximately \$64 billion in 2014-15. In comparison, the world market in 2014 was \$2 trillion.

Consequently, keeping an India for the World strategy at the front and centre of pragmatic policy making – enabling cost parity and market-access measures (such as PMA-G) need to be used in a judicious combination to provide the required stimulus for both domestic and foreign-owned manufacturers to exponentially increase production in the country.

The increased production and simultaneous capability build-up will also have added benefit of opportunities to Indian SMEs to grow as component manufacturers and suppliers to local factories.

The telecom sector has witnessed poor growth of manufacturing on account of:

- 1. Unviable Exports:** There is about **5% cost differential** in manufacturing in India for Exports. There is a cost disparity of exports of India vis-à-vis existing global nodes (e.g. Malaysia, China).

	Landed cost element	India vs. China / Malaysia / Thailand (May 2016 study details)
a)	Bill of Material (BoM)	 India comparable <ul style="list-style-type: none"> • Global pricing list Global pricing for components
b)	Inbound freight for shipping components into India factory	 3 % unfavorable (Sized as <u>3%</u> of Bill of Material cost) Compared to global/regional benchmarks, India is farther away from component factories and the shipping rates are more expensive due to lower volume flowing into India specific transportation lanes vs. the ones going to “mega factories” in Malaysia, Thailand, Mexico, etc.
c)	Transformation cost / Conversion (raw material into finished goods)	 India comparable India factory lack scale compared to China factories; Advantageous labor rates in India are offset by fully burdened cost of facilities & electricity
d)	Outbound freight for shipping out finished goods	 2% unfavorable (Sized as <u>2%</u> of Bill of Material cost) Due to low export volumes compared to global benchmarks, the logistics rates are slightly higher. Higher exports volume is needed to offset.

This cost disparity needs to be addressed for India for the World strategy to be successful.

- 2. Policies such as Telecom PMA- Government procurement (PMA – G) do not incentivize production scale-up (volume):**

One of the main themes of Telecom PMA policy is focus on high local value-addition norms (50%+) calculated in terms of Bill of Material (BoM) percentages.

To quote from Niti Aayog's Report on Electronics Manufacturing (May 2016) – "A common belief among policy makers is that the higher the domestic value added in a product the better. This belief often leads countries to curb the exports of primary inputs (for example cotton and iron ore in the case of India) and protect the final good (for example, cotton clothes and steel). This is an erroneous approach. **High value added is not a virtue in itself if the product is not competitive in the world markets.** It will simply not get produced on a large enough scale to make a dent in employment. On the other hand, a product may have only a small value added but if it is globally competitive, it can be produced on a mass scale with large number of jobs created. China is sometimes derided for adding just \$7 to the iPhone, which then sells for several hundred dollars. But it is forgotten that China produces hundreds of millions of these phones, which add up to a significant number of good jobs for its workers. **It is not important how much value per unit of a product a country adds. What matters is how much total value it adds.**"

To enable Export-oriented electronics manufacturing, PMA policy needs to:

- Change value-add norms (currently based on BOM%) to allow market access to manufacturers based on achieving the following stages (based on globally accepted norms of "substantial transformation") which can be operationally verified as:
 - Stage 1: Final Assembly & Test (FA&T);
 - Stage 2: Printed Circuit Board Assembly (PCBA); and
 - Stage 3: Local sourcing of components (based on cost, delivery, quality parity)

Note: Authentic large-scale multinational electronics manufacturers will not be able to currently qualify high % bill of material content threshold due to lack of quality component eco-system in India.

However, once Stage 1 and 2 are achieved for a good volume of products, it will create a large pull-effect towards promotion of Indian component eco-system.
- Provide a framework for allowing hi-tech companies to sell under PMA - Government procurement (PMA G) based on the total portfolio volume being manufactured out of the India factory – both domestic & exports
 - "Deemed Domestic Manufacturing" (DDM): Total \$ throughput from India factory (including exports)
 - As no global node can manufacture the entire product portfolio, the global hi-tech OEM can use the \$ for \$ "DDM" credits to qualify for PMA bids

Question 3: Are the existing patent laws in India sufficient to address the issues of local manufacturers? If No, then suggest the measures to be adopted and amendments that need to be incorporated for supporting the local telecom manufacturing industry.

Patent Laws of India facilitate grant of patent for innovations akin to similar position in most of the Patent Laws across the world. It is a well-known fact that local innovation and consequent patent registration are more guided by commercial considerations and needs to be protected by strong patent law provisions. The issue of lack of innovations by Indian telecom manufacturers cannot be addressed by

modification/amendment on the existing patent regime in India as patent laws and promotion of manufacturing are separate issues with different drivers and should not be conflated.

In order to enforce patents, what is really required is an improvement in the IPR enforcement by courts. Currently there are huge delays and not enough incentives for patent holders to enforce their rights due to high pendency at courts coupled with limited bandwidth of the judiciary due to lack of specialized IPR courts or trained man-power.

Several large global organizations have made India the home for their R&D and design which spur the local eco-system and local companies. This investment in local talent, capability build-up for R&D and design needs to be promoted further. Strong patent protection policies will encourage growth and investment.

Question 4: Is the existing mechanism of Standardization, Certification and Testing of Telecom Equipment adequate to support the local telecom manufacturing? If not, then please list out the shortcomings and suggest a framework for Standardization, Certification and Testing of Telecom Equipment.

Again quoting from the Niti Aayog's Manufacturing paper (May2016) - "Before we rush to forcing our standards in the domestic market, we need to create a business-friendly ecosystem and grow larger. Premature adoption of standards can scuttle the growth of the industry prematurely. One way to see this is to ask whether the adoption and enforcement of a local standard in mobile telephony in the early 2000s would have permitted the phenomenal expansion of mobile phones that we saw in the last decade."

It is critical that for an India for the World strategy to succeed, Indian standards, certification and testing mechanism are harmonised with global standards and best practices. Otherwise, standard-setting in siloes will hamper the growth of Indian Telecom Manufacturing.

Furthermore, it is important that government incentivises the setting up of a good testing lab infrastructure in the country which is capable of certifying to international standards and practices. STQC-International Common Criteria Certification Scheme is one such example where India can grant international Common Criteria certificates on security aspects.

Question 5: Please suggest a dispute resolution mechanism for determination of royalty distribution on FRAND (Fair Reasonable and Non Discriminatory) basis.

In light of the anticipated broad applicability of standards related to 5G and the "Internet of Things" that will impact a wide range of industry sectors, USISPF would like to encourage the Government of India to allow industry players/ patent holders to provide licenses to standards implementers on fair, reasonable and non-discriminatory ("FRAND") terms and conditions. While doing so, it must also ensure that dilutions in SEP licensing does not become a disincentive for the ability of Indian start-ups to invest in R&D.

Dispute Resolution Mechanisms

Dispute can be prevented or mitigated significantly if the companies involved in the discussion negotiates in "good faith". Most of disputes are driven by either party acting to extract unreasonable value out of the negotiations. To promote "good faith" negotiation, we suggest that the Government consider appropriate mechanisms to provide further guidance to companies involved about latest judgments from international courts that today have become the guiding principles in licensing SEPs under FRAND terms. These mechanisms will provide guidance regarding the licensing of FRAND-encumbered SEPs and the resolution of related disputes, taking into consideration internationally-recognized contract

law and competition law principles. It will also increase predictability and legal security in the standard-setting context both for those participating in the development of standards and for those implementing them, while providing some flexibility to tackle the diversity of situations which may arise in connection with patents and standards. In particular, such mechanisms can offer all stakeholders a better understanding of the nature and scope of the common SSO obligation to license SEPs on FRAND terms and conditions

Education and guidance may be especially beneficial in the following areas:

- **Contract law considerations resulting from FRAND licensing commitments**
- **FRAND negotiations**
- **FRAND disputes and determinations**
- **SSO processes and policies**

Such education should strengthen the framework that supports, encourages and promotes the overarching collaborative standard setting system offered by SSOs. Collaborative standard setting frameworks enable Indian entities to leverage their international counterparts by allowing them to participate in and contribute to the standard development process, which in turn incentivises production and increased investments in R&D. This collaborative system ensures a well-defined balance by rewarding innovators on one hand and dissemination technology by licensing on the other.

We'd suggest that the system is left open to ensure that India does not go the Institute of Electronics and Electrical Engineers (IEEE) route - In March 2015, the IEEE made significant modifications to its patent policies, which, among other things, prevented patent holders from receiving proper value for their patented inventions, prevented patent holders from enforcing their patent rights, and required licensing to take place at the smallest saleable patent practicing unit levels, instead of the most appropriate device level.

As a result, several contributors to IEEE's standards are now dissuaded from providing positive letters of assurance, *i.e.*, undertakings through which they agree to make licenses for SEPs available at reasonable rates, and are instead submitting negative letters of assurance indicating that the contributor is unwilling to license SEPs under the new IEEE IPR Policy. The events at the IEEE demonstrate that a decline in the market supply of an input here, of patented technology inputs can be indicative of an uncompetitive market or at least evidence of significant restraint of trade¹.

Question 6: Are the current fiscal incentives sufficient to promote the local telecom manufacturing? Please suggest the fiscal incentives required to be instituted along with the suitable mechanism for implementation of these incentives?

- 1) There is an urgent need to correct the Cost disparity of about 5% for exports for an India for the World manufacturing strategy to succeed through relevant interventions.
- 2) Another fiscal incentive that will make large scale manufacturing in India viable is the reduction in import duties on components to zero.

¹ The IEEE controversial policy on Standard Essential Patents – the empirical record since adoption by Ron D. Katznelson

Question 7: Are there any issues under ITA which need to be addressed for making the local Telecom Manufacturing more competitive and robust

The ITA not only removes tariffs on a vast array of technology products – it also promotes innovation, accelerates productivity, creates new jobs, lowers consumer prices and provides unfettered access to best-of-the-breed technology.

Hence, India needs to remain committed to ITA principles while undertaking measures to promote local telecom manufacturing.

Question 8: Should an export oriented/promotion approach be adopted in the telecom equipment manufacturing sector? If yes, Please suggest the steps to be taken to create suitable environment to attract foreign investment players for setting up establishments which in turn can result in technology dissemination, innovation, generation of jobs, skilled labour force, etc.?

Yes, an export-oriented strategy is essential for the high-end telecom manufacturing sector to achieve the necessary volumes to be globally competitive, thereby creating larger number of jobs, building capabilities within the country and creating pull for local component suppliers to establish and grow.

There is a unique value-addition of advanced global telecom manufacturing coming into the country. The co-location of R&D and high-tech manufacturing leads to a fly-wheel effect, resulting in faster product development and accelerated time-to-market. This builds the eco-system and achieves self-sustainable continuous growth.

Niti Aayog’s Manufacturing paper also points out that “..import substitution is unlikely to lead to rapid enough expansion of our electronic industry. If we want rapid transformation, we must adopt an export-oriented strategy and work towards creating an ecosystem in which the industry can be globally competitive without import protection.”

Question 9: Does the existing PMA policy require any change? If yes, then please provide complete details with justifications?

We present a high-level overview of the current challenges in the PMA faced by the ESDM sector and potential solutions/enablers:

I. Unachievable High Value Addition Norms:

A. Challenges

- ✓ The PMA policy, in general, prescribes the following conditions for the government departments for procurement of electronic goods:
 - Specified percentage of procurements from domestically manufactured goods
 - 25% to 50%+ of the BOM is made of domestically manufactured goods
 - Automatic increase of 5% on domestic value addition from year 2 onwards
 - Requirement of complete local manufacturing for certain products from year 3 onwards
- However, given the industry infancy, the component supply base is practically non-existent in India. See below illustrative BOM table for a set-top box for reference –

An ILLUSTRATIVE Set To Box Bill of Material (BoM)

Commodity category	Component	Suppliers (incl. global leaders)	Present in India – Y/N	Indicative Sizing
1 Plastics & mechanicals	•Mechanical fabrication (base cover, sheet metal, ...) •Plastic fabrication •Cables / wires	•Flextronics, Supreme	•Y	15% of costed BoM
		•Rosti, G-Plast, Nypro •Amphenol, Molex, FCI, Volex	•Y	
2 Electro-mechanical (elect.+ specialty)	•Caps & Resistors (thru-hole) •Heat sinks •Batteries & power supplies •Connectors •Printed Circuit Brd. (2-4 lyrs) •Caps & resistors (SMT) •Inductors & magnetics	•Vishay	•Y	5 % of costed BoM
		•Auto ancillary (e.g. Jindal extruders) •Laird Tech, Murata •Tyco, Molex, FCI, Amphenol •AT&S, Epitome, Ascent •Belfuse, Delta, Lineage, Panasonic •Delta, Jan Mao	•Y •Y •Y •Y •N •N	
3 Semi-conductor (aka Silicon)	•Communications module •Diodes •Linear Voltage Regulator •Logic, Memory •Chipsets; Logic devices •Timing devices •Transistor	•Broadcom, Marvell, Maxim •Diodes Inc, Fairchild, ST Micro, ... •Maxim, TI, National Semi, Linear Tec. •NXP, Hynix, Samsung, Fairchild, TI •Freescale, Fairchild, Broadcom, PMC •Maxim, Pericom, Kyocera, Analog •Fairchild, Central Semiconductor	N	80% of costed BoM

- ✓ Apart from the plastics & mechanicals and electro-mechanical components that contribute only about 15% to Bill of Materials (BoM) for some of the low value products, there is no presence of specialty electronics and semi-conductor products which contribute about 80% to BoM. The current system of computing value addition for PMA or every product may not be feasible as the prescribed levels of value addition may not be achievable given the depth and breadth of manufacturing in India.
- ✓ The current PMA qualification threshold constrain large electronics manufacturers from qualifying for PMA.

The following suggestions would assist supporting India Manufacturing:

B. Enablers:

Revising the PMA policy by a) incorporating the substantial transformation rules for value-addition as per global norms and b) providing deemed domestic manufacturing credits i.e. allowing \$ for \$ to qualify for PMA in lieu of exports.

- ✓ Aligning value-add to the concept of substantial transformation through operational steps of technology assembly basis the stage of eco-system development. The Substantial transformation norm for the purpose of this policy would mean:
 - Goods transformed through final assembly and testing. PMA preference should be provided for testing these stages.
 - The OEM commits to develop the manufacturing process over the following three stages spread over a period of 5-15 years dependent on the evolution and maturity of the ESDM ecosystem.
 - (i) Stage 1: Final Assembly & Test (FA&T);
 - (ii) Stage 2: Printed Circuit Board Assembly (PCBA); and
 - (iii) Stage 3: Local sourcing of components (based on cost, delivery, quality parity).

II. **Manufacture of select portfolio in India and Import of other products**

A. Challenges

- ✓ The PMA policy prescribes domestic manufacturing criteria at a ‘product’ level. Currently manufacturing all the products in India may not be feasible or possible from a technology, infrastructure and commercial parameter for any investor or manufacturer willing to Make in India.
- ✓ Global supply chain implies that no site manufactures the entire portfolio of products and only a set of products are manufactured at each facility based on defined parameters
- ✓ Evolution of the supply-chain & manufacturing eco-system in mature countries allude to the fact that products with very high-end technology, complex manufacturing processes and low volume would continue to be imported until the required supply and manufacturing ecosystem is developed and fully evolved to support local manufacture of such hi-end products and demand growth makes manufacturing viable.

The following suggestions would assist supporting India Manufacturing:

B. Enablers

The product portfolio & technology composition, domestic & global demand, existing global manufacturing base, stage of evolution of the domestic manufacturing ecosystem, global access & export feasibility etc. are factors that would determine the eligible share of product portfolio that can be manufactured in India and those which would have to be imported into India.

- Government of India (“GoI”) to take note of the fact that all the products prescribed for PMA may not be feasible to be sourced from the domestic Indian market given the technological, infrastructural and commercial constraints.
- The Original Equipment Manufacturers (“OEMS”) should be granted a deemed domestic manufacturing credit for 100% of their manufacturing volume – independent of product, export / domestic consumption. The credit can be used for supply of imported portfolio products against PMA contracts.

Question 10: Any other relevant issues that needs to be addressed to encourage local telecom manufacturing in our country.

Ease-of-business climate in the country is a big limiting factor in decision-making by large manufacturers to enter India. While the government has taken substantial measures to provide fast-tracking and ease-of-business for companies looking to invest in the country, similar focus and urgency is needed to resolve day-to-day operational issues companies face while dealing with the Government. Some of these issues include manual paper-based government processes, Infrastructure constraints such as availability and quality of power, among others.