From: icea@icea.org.in
To: "Akhilesh Kumar Trivedi" <advmn@trai.gov.in>
Cc: rajesh@icea.org.in, amit@icea.org.in
Sent: Monday, October 23, 2023 3:17:44 PM
Subject: Comments/inputs on Consultation Paper on Open and De-licensed Use of Unused or Limited Used Spectrum Bands for Demand Generation for a Limited Period in Tera Hertz Range.

Ref.: ICEA/TRAI/2023/700
October 23, 2023

Shri Akhilesh Kumar Trivedi
Advisor (Networks, Spectrum and Licensing)
Telecom Regulatory Authority of India,
Government of India,
New Delhi

Subject: Comments/inputs on Consultation Paper on Open and De-licensed Use of Unused or Limited Used Spectrum Bands for Demand Generation for a Limited Period in Tera Hertz Range.

Dear Shri Akhilesh Kumar Trivedi,

Greetings from India Cellular and Electronics Association (**ICEA**)!

This is in reference to the recent draft Consultation Paper on **Open and De-licensed Use of Unused or Limited Used Spectrum Bands for Demand Generation for a Limited Period in the Tera Hertz Range**.

The comments/inputs from the industry are attached in **Annexure I**. Please be advised that the comments are constituted after extensive consultation with all possible stakeholders of the industry.

With my best regards,

Rajesh Sharma
Executive Director & Principal Advisor

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Enclosure: Annexure I: Comments on TRAI_ Sub-THz Consultation paper

Questions	Comments
Stakeholders are requested to provide responses to the following questions with detailed justifications:	
Q1. Whether there is a need for permitting license-exempt operations in 116-123 GHz, 174.8-182 GHz, 185-190 GHz, and 244-246 GHz frequency ranges? Please provide a detailed response with justification.	Due to the limited distance propagation characteristics we believe that sub-THz bands are better suited for a licence-exempt regulatory framework. Unlicensed spectrum is a significant driver of the innovation that animates the market; it facilitates the most aggressive innovation by the largest number of parties. These bands provide a good basis, although minimal, to enable development above 95 GHz. However, we note that the ranges only allow up to 7.2 GHz of contiguous spectrum. The chance to enable wider channels, i.e. 20 GHz or more may be missed by limiting it to the bands shown here and not keep the door open for further wider frequency bands. We would also like to reference the recent work undertaken by the Electronic Communications Committee of the European Conference of Post and Telecommunications Administrations in enabling radar applications in the ranges which allow applications that were not possible before. Please see ECC Decision (22)03.
Q2. In case it is decided to permit license-exempt operations in 116-123 GHz, 174.8-182 GHz, 185-190 GHz, and 244-246 GHz frequency ranges, what should be the terms and conditions including technical parameters for permitting license-exempt operations in these bands, while protecting both passive and active services in and around these frequency ranges? Please provide a detailed response with justification.	Kindly align with FCC rules. (see Part 15.258 "For operation in the bands 116–123 GHz, 174.8–182 GHz, 185–190 GHz) Kindly align with ERC 70-03 Annex 1, p for wider band of 244 - 246 GHz
Q3. Whether there is a need for permitting license-exempt operations in any other bands in the 95 GHz to 3 THz frequency range? Please provide a detailed response with justification.	The frequency bands listed in Q1 have limited bandwidth. The full potential of the 95 GHz to 3 THz frequency range can only be unleashed if wide bandwidth are being made available (20 GHz or more). We suggest to preserve regulatory flexibility in recognition of the difficulty of making predictions about the future path of technology and look into shared use with incumbents adjacent to these frequency ranges
Q4. Whether there is a need for permitting license-exempt operation in 77-81 GHz band for automotive radar applications? Please provide a detailed response with justification.	
Q5. In case it is decided to permit license-exempt operations in the 77-81 GHz band for automotive radar applications, what should be the terms and conditions including technical parameters for permitting licensed-exempt operations in this frequency band? Please provide detailed response with justification.	
Q6. Whether there is a need to open the frequency spectrum between 95 GHz to 3 THz for experiment and demonstration of equipment designed to operate on any frequency above 95 GHz through a separate experimental license? Please provide a detailed response with justification.	Providing room to develop technologies at higher frequencies with larger bandwidths has the potential to significantly improve the fidelity of emerging technologies, supporting applications that are infeasible today. Please also see the answer to Q1
Q7. In case it is decided to open the frequency spectrum between 95 GHz to 3 THz for experiment and demonstration of equipment designed to operate on any frequency above 95 GHz through a separate experimental license -	
(a) what should be the terms and conditions under such a license? Kindly provide inputs in respect of, inter alia, the following aspects for the proposed separate experimental license:	We suggest similar conditions as set out by FCC which would provide a strategy to preserve regulatory flexibility in recognition of the difficulty of making predictions about the future path of technology Please see Part 5 Subpart I for experimental licenses
i. Purpose of the license;	
ii. Scope of the license;	
iii. Eligibility conditions for entities seeking to acquire the license;	
iv. Mode of applying for the license;	
v. Duration of the license;	
vi. Obligation under the license;	
vii. Financial conditions including the license fees;	
viii. Technical conditions and other terms and conditions for operations under the license;	
ix. Mechanism to ensure protection to passive services in the frequency range between 95 GHz to 3	
x. Any other (please specify).	
(b) whether the licensees should be permitted to market experimental devices designed to operate in the frequency range between 95 GHz to 3 THz via direct sale? If yes, what should be the associated terms and conditions? Please provide a detailed response with justification.	
Q8. Whether there are any other issues or inputs in respect of the frequency spectrum in Tera Hertz	