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Telecom Regulatory Authority of India

Subject: MAIT's counter comments on TRAI Consultation Paper on issues related to FM Radio Broadcasting

Respected Sir,

Greetings from MAIT!

At the very outset, MAIT thanks the Telecom Authority of India (TRAI) for providing us with the opportunity to provide our counter comments to the comments received by the TRAI from a multitude of stakeholders including Service Providers, Trade associations, Consumer Advocacy Group and Individuals on the consultation paper on Issues related to FM Radio Broadcasting (Consultation Paper No.: 4/2023)

Established in 1982, MAIT is the apex industry body representing the Electronic H/W & Telecom sector in India. A not-for-profit body, MAIT closely works with policymakers of Central and State Governments to enable the growth of the Electronic System H/W Design & Manufacturing sector in India. MAIT's members include Large & MSME Companies and Industries from the domain of OEMs, ODMs, EMS, Design Houses, Recyclers, PROs, Testing Laboratories and Sub-sectoral Associations.

We wish to highlight that while the focus of the Consultation Paper is on the issues related to FM Broadcasting, comments submitted by some of the stakeholders have veered away from the vexed issues and blatantly tried to encroach into areas outside the realm by attempting to draw the mobile industry into it as if it is the panacea to the issues faced by the FM industry. We hereby offer our counter comments to some of the points raised in relation to the mobile phone support of FM Broadcasting. We strongly urge TRAI to consider our counter comments in response to Q4: *Is there a need to mandate that all the Mobile handset manufactured/sold in India will require to have an in-built FM Radio receiver? Please provide detailed justification for your comments* while making its valued recommendations.

Due to various serious technical, operational (and other) concerns, we are strongly opposed to any proposal to impose an FM technology mandate on Smart Phones (by way of an in-built radio receiver in all mobile handsets manufactured/sold in India) and urge TRAI to consider these aspects.

Technical and Operational:

- **Antenna: No space to incorporate large antennas in the smartphone/mobile device:** Requiring a Smart Phone to support FM Broadcasting would require incorporating an in-built antenna for FM radio (which is comparatively larger due to the frequency band which is way lower than frequency bands used for cellular frequency bands) is functionally extremely difficult since there is no further space to incorporate the same in a smartphone/mobile device. As devices continue to evolve, chip and antenna space is considered premium real estate within the smartphone/mobile device. Requiring that devices carry an FM chip may foreclose opportunities to include other functionality that may

be innovative and more highly valued by consumers, thereby harming competition among device makers by limiting opportunities for differentiation and stifling innovation.

All major chipset manufacturers of smartphones are excluding FM radio features from their chipsets as the world has moved to 4G & 5G technologies. The inclusion of FM radio feature in Smartphones would need a separate chipset which needs to be designed separately along with amendments in the design of other components and circuits. And this would call for a fundamental re-design of the mobile handset.

Additionally, mandating an FM chip would require a separate antenna in order to accommodate the significant differences between FM signal wavelengths and cellular signal wavelengths., A possible option would be to use the wired headset as an antenna. However, wired headsets are becoming obsolete and dated (due to the clear preference of consumers to use wireless headsets) and accessing this feature would be a challenge for the consumer since the wired headset will have to be plugged into the smartphone/mobile device every time this feature has to be used.

- **Impact on the Electromagnetic Compatibility of the mobile device:**
  Going by the discussion of using wired headsets acting as the antenna for FM radio, putting a long wire onto a set of electronics to act as an antenna causes many issues with EMC. i.e. Immunity (RF, ESD etc) where the headset antenna would conduct all these signals into the heart of the electronics. Therefore, special costly geography-specific filters would be required, potentially, increasing the cost, weight and size of the final device as FM services are not the same the world over. There are observations that a 3.5mm headphone jack will be required on smartphones since the same is used for plugging in the wired headset that will act as the antenna for receiving FM radio signals. However, over the years there has been rapid development in the design of smartphones and mobile manufacturers have dropped the 3.5mm audio jack from mobile phone equipment, allowing manufacturers to add new and innovative features such as water resistance,[1] sleeker design, more battery space, more memory, better screen, etc.[2]

- **Hampers rollout of innovative products:**
  The focus of the mobile industry on innovation and new technology will be hampered. The mobile phone technology and marketplace have had a historic success story, and a significant contributor to that success is due to the fact that the authorities have wisely allowed consumers (and market forces) to pick the functions and features of their devices. These new technologies have helped drive the economy and drive innovation. An unnecessary functionality and hardware mandate will choke innovation and raise prices on consumers, which is best avoided.

<u>Impact on the mobile user and market forces</u>

- **Increase in the overall cost of the mobile handset:**
  The cost of new hardware viz adding FM radio chips would incrementally increase the cost per phone, which in turn would have to be passed on to the consumer.[3] Moreover, FM radio does not appear to be favoured by consumers. If there was a demand for this feature, manufacturers and mobile operators alike would have responded to that demand. Accordingly, mandating every mobile device to include an FM radio chip would raise the cost of producing wireless devices, with the likely outcome being that consumers would pay more for functionality that they may not desire or ever use. Moreover, addition of FM radio chips would reduce battery life and make phones larger and bulky.

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1 Google explains why it killed 3.5 mm headphone jack on pixel 2 pixel 2 XL, Hindustan Times, October 7, 2017. (Available at https://tech.hindustantimes.com/tech/news/google-explains-why-it-killed-3-5mm-headphone-jack-on-pixel-2-pixel-2-xl-story-DNSWHnWKElYFHhppjnaeqO.html)

2 What Happens If Your iPhone or Other Smartphone Has No Headphone Jack? New York Times, August 25, 2016. (Available at https://www.nytimes.com/wirecutter/blog/iphone-smartphone-no-headphone-jack/)

- **Enabling consumers to make choices**
  Multiple apps are available in the app stores that allow mobile users to access FM programs and users may download and use them at their discretion and interest. Compared to FM radio, Internet radio offers a wide variety of choices to customers by giving them access to radio stations across the world along with better sound quality. If the interest of the consumer is kept in mind, the FM service providers should push for this medium as an option to extend the scope of FM programs to listeners rather than pushing for a mandate to include FM as a technology in phones.

- **Unwarranted interference with market forces:**
  Such a decision, by way of a regulatory mandate, to provide access to a feature (which has largely been replaced) will be forced upon consumers and distort market forces. If consumers demanded the functionality of listening to FM radio on their smartphones, manufacturers would include the necessary hardware (just like any other feature). However, forcing such a functionality, through mandates in hardware design, negatively alters market forces and impedes innovation and technological growth. Also, such a mandate will lead to phone manufacturers being pulled into the issues pertaining to music royalty and intellectual property rights between the FM industry and authors and composers.

Alternatives for Disaster Management

Department of Telecom ***("DoT")*** and the Ministry of Electronics and Information Technology ***("MeitY")*** have been working with the mobile industry and other stakeholders to develop a mobile broadcast emergency alerting system (Cell Broadcast) compatible with present and future mobile air interfaces that will allow for the targeted real-time delivery of government-approved alerts. A widely available Cell Broadcast platform will soon be a reality in the country. Further, DoT and MeitY are in discussion with the mobile OEMs to implement India's satellite-based navigation system, NavIC, to improve navigation and also aid in disaster situations among others. The use of satellite technologies allows for the enhancement of relief services, which save countless lives and reduce costs during emergencies, particularly where cellular networks cannot reach.

Any future hardware mandates in the FM broadcast space would consequently conflict with DoT and TRAI's sustained efforts to improve mobile network coverage for normal and disaster management. The mission of DoT is to develop a robust and secure state-of-the-art telecommunication network providing seamless coverage with a special focus on rural and remote areas for bridging the digital divide and thereby facilitating socio-economic development. To this end, DoT has over time made various policy interventions through Minimum Rollout Obligations, National Broadband Mission and Universal Service Obligation Fund ("***USOF***") projects. Even the PM-WANI project to provide data connectivity through wireless at the Gram panchayats can be used for disaster management.

Today's mobile networks have much better coverage in the country. Mobile networks serve ordinary consumers and businesses, not only for the purposes of disaster management but also on a regular day-to-day basis. Networks are now more resilient in terms of system and network architecture and power supply. Mobile core and data centres have built-in redundancy and even if some BTSs or towers are impacted, multiple other towers may still be radiating. And in disaster situations, the brave and dedicated personnel of the operators and equipment manufacturers go to extraordinary lengths to restore connectivity in the shortest possible time. Moreover, BTSs are deployed within a few kilometres of each other and in some cases even deployed at lower distances. With an increasing number of the population relying on mobile devices connected to the Internet as their primary source of information, the reliability of the networks has improved a lot in the last decades and years.

To argue that mobile networks fail during disaster situations can be extended to the case of FM transmitters also. In addition, an FM chip would provide a materially inferior means of providing real-time alerts to mobile consumers. The existence of an FM chip in a mobile

device does not guarantee that a consumer would be tuned to a station broadcasting an announcement about an impending danger compared to what can be received say through a CB alert.

- **Erroneous references to Mexico and Brazil to garner support**
  A couple of respondents have commented that Mexico and Brazil have approved rules mandating smartphone manufacturers to activate FM chips in mobiles. Nothing can be further from the truth.

  Mexico does not mandate hardware requirements for providing FM support in all mobile phone equipment. Rather, the regulation states that if the Mobile Terminal Equipment has all the components that allow it to offer the functionality of a sound broadcasting receiver in Frequency Modulation (FM) since its manufacture, then it must be enabled and activated for the user so that there is no blocking or restriction to its operation. Therefore, in Mexico *FM receivers are only required to be activated if the mobile equipment allows it to offer the functionality of a sound broadcasting receiver in Frequency Modulation (FM) since its manufacturer does not mandate this hardware requirement.*

  An English translation of the regulation from the Mexican regulator IFT states " In the event that the ETM has all the components that allow to offer the functionality of sound broadcasting receiver in Modulated Frequency (FM) from its manufacture, it must be enabled and activated for the user, so that there is no type of blockage or restriction for its operation" [4][5]

  Brazil also follows a similar framework[6]. Extract from the Brazilian regulator Anatel portal-
  " *ANEXO AO ATO Nº 3152, DE 12 DE JUNHO DE 2020*
  REQUISITOS TÉCNICOS PARA AVALIAÇÃO DA CONFORMIDADE DE TELEFONE MÓVEL CELULAR
  4.4. O Telefone Móvel Celular que possuir hardware com capacidade de recepção de sinais do serviço de radiodifusão sonora em frequência modulada (FM) deverá que ter comprovada a habilitação desta funcionalidade, por meio de declaração apresentada no processo de avaliação da conformidade. (Incluído pelo Ato nº 10003, de 16 de novembro de 2021).

- **Mobile phone is a product meeting global mobile standards**
  A mobile device is designed for the global market in line with globally accepted technologies based on 3GPP standards. If at all, radio operators believe that the FM feature is indeed worth having in mobiles, it is advisable to approach the standard bodies to incorporate the feature rather than trying to shove it through regulations. India is aggressively pushing for mobile manufacturing in the country and all the major brands are producing and exporting phones from India. The design and manufacture of mobile phones one model for the unique Indian requirement to support FM Broadcast and the other for the globe will adversely impact the mobile manufacturing efforts. The export projection of mobile phones from India is approx. USD 10 bn and the export target of the nation is approx. USD 52-58 bn. The inclusion of any unwarranted mandate (FM Radio) which goes against the market forces will derail the pace of domestic manufacturing and most important exports for the exchequer.

<u>Conclusion:</u>

Mandating manufacturers to include FM radio will involve a complete redesign of the cellular device product (and its antennas), and this product was never created for FM radio. An analogy to elaborate on this argument is mandating an electric vehicle manufacturer to offer

[4] https://www.ift.org.mx/sites/default/files/industria/temasrelevantes/17429/documentos/22-09-13dof-diariooficialdelafederacion.pdf
5 https://www.dof.gob.mx/nota_detalle.php?codigo=5480872&fecha=27/04/2017#gsc.tab=0
[6] https://informacoes.anatel.gov.br/legislacao/atos-de-certificacao-de-produtos/2021/1605-ato-1003

a petrol engine functionality just because the cars drive through the same lanes. A similar analogy is to impose mobile manufacturers to offer 2G on all new devices just because it is an infrastructure that some people still use. It will be impossible to have space in the device to introduce new technological generations of services like 5G, 6G, Satellite, etc. if manufacturers need to support legacy technologies indefinitely.

Calls for an FM chip mandate are not about public safety but are instead about propping up a business which consumers are abandoning as they avail themselves of new, more consumer-friendly options.

Our fervent request to TRAI is to consider the above submissions and not recommend the inclusion of FM Broadcast on mobiles.

Warm regards,

Col. AA Jafri, Retd.
Director General