Recommendations

on

Issues related to Low Power Small Range FM Radio Broadcasting

21st September, 2023

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Contents

List of Acronyms

Abbreviation	Description
ACMA	Australian Communications and Media Authority
AM	Amplitude Modulation
AIR	All India Radio
ASCII	American Standard Code for Information Interchange
BA	Broadcasting Act
CP	Consultation Paper
CRS	Community Radio Station
CRTC	Canadian Radio-television and Telecommunications Commission
DRM	Digital Radio Mondiale
ERP	Effective Radiated Power
EULA	End User License Agreements
FCC	Federal Communications Commission
FM	Frequency Modulation
GR	Gross Revenue
GUL	General User License
IP	Internet Protocol
ITU-R	ITU Radiocommunication Sector
J&K	Jammu & Kashmir
LLP	Limited Liability Partnership
LOI	Letter of Intent
LPFM	Low Power Frequency Modulation
LPON	Low Power Open Narrowcasting
MIB	Ministry of Information and Broadcasting
MTCTE	Mandatory Testing and Certification of Telecom Equipment
NOTEF	Non-refundable One Time Entry Fee
OFCOM	The Office of Communications
OHD	Open House Discussion
RSL	Restricted Service License
TEC	Telecommunication Engineering Centre
TRAI	Telecom Regulatory Authority of India

UK	United Kingdom
US/USA	United States/ United States of America
VHF	Very High Frequency
VLPFM	Very Low Power Frequency Modulation
WOL	Wireless Operating License
WPC	Wireless Planning & Coordination
WTA	Wireless Telegraphy Act

Chapter I

Introduction

1.1. Telecom Regulatory Authority of India (TRAI) received a reference from Ministry of Information and Broadcasting (MIB) (**Annexure I**) on 7th March 2022 wherein following was mentioned:

> *" As you are aware that the Ministry of Information and Broadcasting grants permission to eligible organizations for setting up Community Radio Stations in India. The Ministry had recently received an application from M/s PVR Limited, seeking permission to establish a Community Radio Station, to be used for commercial purposes. The application could not be acceded to as commercial (profit-oriented) entities are prohibited from applying for Community Radio license, under the Policy Guidelines for setting up Community Radio Station in India.*
>
> *2. The applicant, however, informed that he intends to establish a low power FM transmission system, to be used commercially for Drive-in theatre application. The idea behind the application is that a theatre-sized screen may be placed in an open space for viewing the content and a low power FM Transmitter, with a range confined to that space, may be used to broadcast the audio of the content on a certain frequency. The driven-in audience then would be able to tune in to the said frequency in their cars and listen to the content. This would avoid any noise pollution. The idea is additionally inspired by the restrictions imposed on large public gatherings due to ongoing pandemic.*
>
> *3. It is felt that demand for such drive-in theatre services might rise in the future which could generate sizeable and steady revenue streams for the Government. At present, however, there are no provisions under any Guidelines for this new kind of service."*

1.2. MIB sought recommendations of (TRAI) on the need & timing for introduction of new service provider under Section 11(1)(a)(i) of TRAI Act.

1.3. A drive-in theater, also known as a drive-in cinema, constitutes a cinema arrangement comprising a sizable outdoor movie screen, a projection booth, a concession stand, and an extensive parking zone for vehicles. Within this contained space, customers have the opportunity to watch movies from the convenience and seclusion of their cars. To transmit movie audio to the audience within a drive-in theater setting, low-power FM broadcasting is employed as one of the most efficient techniques.

1.4. In addition to drive-in theaters, several other use cases of low power small range FM radio broadcasting which may cater to specific locations and reception areas. Examples include hospital radio services, amusement parks, business premises, closed communities such as residential complexes, small habitations, commentary for local events such as air shows and sports events.

1.5. To deliberate on the issues referred to by MIB, TRAI issued a Consultation Paper (CP) on 'Issues related to Low Power Small Range FM Radio Broadcasting' on 17th April 2023. Written comments and counter-comments on the CP were invited from stakeholders by 22nd May 2023 and 5th June 2023 respectively. All comments received have been posted on the TRAI's website. Subsequently, an Open House Discussion (OHD) was held through video conferencing mode on 19th July 2023.

1.6. After carefully examining and analyzing various issues emanating from the written submissions of the stakeholders, the Open House Discussion and international practices, the Authority has finalized its recommendations. Chapter II discusses various issues related to Low Power Small Range FM Radio Broadcasting. A summary of the recommendations is provided in Chapter III.

Chapter II

Issues related to Low Power Small Range FM Radio Broadcasting

A. Need for the introduction of new category of service provider for using low power small range FM Radio broadcasting

2.1. Currently, FM Radio broadcasting in 88-108 MHz frequency band is exclusively permitted to All India Radio (AIR); private sector FM Radio broadcasters; and Community Radio Station (CRS) operators. MIB in its reference has sought recommendations from TRAI on the need and timing for the introduction of new service provider for using low power FM Radio broadcasting by drive-in theaters. However, the existence of numerous other applications for low power small range FM broadcasting have been recognized during the consultation process. This realization underscored the necessity of acknowledging the expansive potential of this broadcasting approach and establishing regulatory frameworks for its operation. This revelation has prompted the need to acknowledge the vast potential of this mode of Radio broadcasting and to establish a regulatory framework for it.

2.2. Given the inherent limitations in terms of transmitted power and coverage area associated with this form of broadcasting, the question of whether it should remain unregulated or be subjected to oversight was brought to the forefront. Accordingly, stakeholders were asked to provide their comments on the following question:

Q1. Should the use of low power small range FM radio broadcasting by various entities be licensed or unlicensed? Please provide your comments with detailed justification.

Stakeholders' Comments

2.3. In response, several stakeholders were in support of licensing of low power small range FM broadcasting service. One stakeholder has mentioned that there have been instances where social media, with no licensing requirements, has been exploited for anti-social activities. The stakeholder has also highlighted that terrestrial broadcasting can also be misused by malicious actors, causing significant harm to the nation before being detected.

2.4. Another stakeholder has mentioned that licensing for Low Power Small Range FM Radio broadcasting services is crucial to government control and the potential implementation of future developmental enhancements or restrictions on the said service. Some stakeholders have pointed out that without licensing, entities could use the services only for their benefit, potentially jeopardizing national and internal security. These stakeholders also mentioned that the unregulated usage might disturb the peace amongst various communities.

2.5. Another stakeholder supported the implementation of licensing for low power small range FM broadcasting as this approach aligns with the regulations for LPFM broadcasting of FCC in the United States. The stakeholder pointed out that the LPFM stations in USA are designated as secondary services and aren't safeguarded against interference from primary FM stations and this arrangement shields primary higher-power transmissions. Hence the stakeholder believes adopting this model in India could empower WPC and other agencies to monitor and regulate spectrum use, safeguard primary services from "pirate" stations, and interference from secondary services, which could destroy the quality of services in the VHF band.

International Experience

2.6. In UK, services like drive-in theatre come under restricted services (RSL) and require a broadcasting license that regulates the content of

the service ("BA license"); and a wireless telegraphy which applies to the transmission of the service ("WTA license").[1] OFCOM, the UK regulatory body reserves a particular part of the FM radio spectrum (87.7 - 87.9 MHz) for licenses issued for restricted services to cover events of short duration, usually held for up to a month.

2.7. Australian Communications and Media Authority (ACMA) manages and issues Low power open narrowcasting (LPON) license which is used for niche radio broadcasting services like drive-in cinemas. In Australia low power FM transmissions on frequency band 87.5 MHz to 88.0 MHz are permitted[2]. A General User License (GUL) for Low Power FM Broadcasting (LPFM) came into force on 17 June 2010 in New Zealand with permitted transmit carrier frequencies ranging from 87.6 to 88.2 MHz and 106.7 to 107.6 MHz.[3]

2.8. USA[4] and Canada[5] have provisions for low power broadcasting in both FM (88-108MHz) and AM (510-1705 kHz) bands. In the USA, unlicensed low power FM broadcasting is permitted up to 61 meters. Canada also exempts certain low-power FM and AM stations from requirement of a license.

Analysis

2.9. The Authority concurs with the notion that for the purpose of monitoring and regulating, the low power small range FM broadcasting should be subject to a licensing/registration/authorization requirement. Without the establishment of proper licensing or registration protocols, the potential exists for service providers to

[1] https://www.ofcom.org.uk/__data/assets/pdf_file/0027/241767/Restricted-services-guidance-notes.pdf
[2] https://www.acma.gov.au/low-power-open-narrowcasting-licences
[3] https://www.rsm.govt.nz/licensing/frequencies-for-anyone/low-power-fm-broadcasting/
[4] https://www.fcc.gov/media/radio/low-power-radio-generalinformation#:~:text=Unlicensed%20operation%20on%20the%20AM,200%20feet%20(61%20meters).
[5] https://ised-isde.canada.ca/site/spectrum-management-telecommunications/en/officialpublications/information/radiocom-information-circulars-ric/ric-40-frequently-asked-questions-low-power-fmbroadcasting

misuse the radio services by disregarding program codes and broadcast inappropriate content.

2.10. If the Radio broadcasting service is freely available in absence of formal license/registration/authorization, it would become challenging for the regulatory authorities to ensure that service providers adhere to essential guidelines, including power limits and equipment standards. Such a scenario could also lead to unwarranted interference with primary licensed services.

2.11. Hence, there is a clear necessity to institute, at the very least, a registration process to monitor and regulate the operation of such services. By having a structured registration system in place, authorities can be informed about the presence of any such services operating within a specific region. This approach serves as a vital tool in maintaining oversight and accountability, preventing misuse, and safeguarding against potential disruptions to established broadcasting services.

2.12. **The Authority recommends that the low-power small-range FM radio broadcasting services should be allowed only after grant of a License/Registration/Authorization.**

B. New category of service provider for using low power small range FM Radio broadcasting

2.13. As stated previously, the current services within the FM band are limited to Private FM channels, Community Radio Stations (CRS), and the public broadcaster, AIR. If permission for low power small range FM broadcasting were to be granted, it would need to be integrated within an existing category or potentially necessitate the creation of an entirely new service classification. If low power small range FM broadcasting is to be permitted, it would need to be integrated into either an existing

service category or the creation of an entirely new one. Therefore, in CP, following question was put forward:

Q2. In case the use of low power small range FM Radio is licensed, whether there is a need for the introduction of a new category of service provider for using low power small range FM Radio broadcasting? Please provide your comments with detailed justification.

Stakeholder's Comments

2.14. In response, some stakeholders supported the introduction of a new category of service provider to provide low power small range FM Broadcasting service. One stakeholder has suggested a new category "Ultra-Local Radio" in addition to existing services like Public Service, Commercial, Community etc. to be introduced. The stakeholder is of the opinion that a separate category should be defined based on transmission power, coverage, and use case. One stakeholder has suggested that a separate spectrum licensing model should be defined for such a category of service provider.

2.15. Another stakeholder has cited the example of the US where high power licensed Radio broadcasting is considered as primary service, whereas LPFM is considered as secondary service and is not protected from interference. The stakeholder has suggested the introduction of a new category of service provider in order to establish appropriate protection classifications for primary service (high power licensed broadcasting vs. low power broadcasting.) similar to US. It was also submitted that the secondary classification will allow regulatory protection of primary services which would be utilized in the case of emergency communications or governmental controlled programming. The stakeholder has also mentioned that LPFM services are required to meet certain standards to prevent interference to higher power services and to maintain the quality of service of other LPFM stations in the band.

2.16. Another stakeholder has mentioned that if a new service provider category is not introduced, the terms and conditions prescribed for CRS would be applicable for low power short range FM radio, which may lack justification. The stakeholder is of the opinion that this service is not comparable to CRS as their scope and operational areas substantially differ.

2.17. Some stakeholders, especially existing private FM Radio broadcasters, are entirely against the idea of granting separate licenses for low power small range FM radio broadcasting. These stakeholders are of the view that allowing a separate category for local radio broadcasting will adversely impact the FM Radio industry especially in times when the industry is going through tough times and seeking Government relief for sustenance. The stakeholders have provided following justification in support of their comments:

a) Private FM broadcasters have expended huge sums of capital on acquiring frequencies, Annual License Fees, infrastructure set ups, music royalties etc. (collectively referred to as 'Spectrum regulatory cost').
b) Being free to air medium, their only stream of revenue and recovery of these spectrum regulatory costs is through advertisement revenues, a significant share of which comes from local businesses in retail section.
c) Permission to commercialize low power FM transmission, which in fact would be almost similar to CRS, can adversely impact private FM station's revenues in the relevant areas due to obvious competition and dilution of the already scarce retail advertisement market in smaller towns and cities.
d) TRAI's recent recommendations relating to increasing the advertising time in CRS from seven (7) minutes per hour to twelve

(12) minutes per hour, which may lead to over- commercialization of CRS.

e) Allowing low Power Small Range FM Radio Broadcasting will create a parallel radio ecosystem that is hyper local, unviable for new players as well as further indenting the FM Radio industry.

f) Any additional transmissions, though low-power and limited in range, can potentially interfere with private FM broadcast quality majorly in small cities/towns due to limited area coverage which in turn could dissuade advertisers to advertise on private FM channels in such areas.

g) With the increase in the number of low power broadcasters, the Government will need to spend huge sums on regulating and monitoring these new broadcasters. Such monitoring would be extremely difficult given the short range of transmission, which may create huge risk of non-compliances with applicable law including violations of advertising codes such as AIR commercial code, ASCII codes, government advisories on prohibited advertising etc.

h) There is a huge possibility that producers of banned products like liquor, tobacco, owners of gambling websites/services and other illegal services may choose to advertise on such mediums due to low surveillance.

i) Anti-social elements could use such service to drive their agenda of creating communal/religious disharmony, which again would be difficult to monitor and control.

2.18. These stakeholders have suggested that low power FM broadcast licenses, if issued, should only be routed through existing private FM broadcasters. According to these stakeholders only existing private FM broadcasters should be authorized as 'service providers' to set-up and operate such low power FM broadcasts within their respective areas of transmission. Any person/institution/ theaters etc. should approach

and select from the available options of private FM broadcasters in their respective area.

2.19. These stakeholders have mentioned following possible benefits of allowing existing private FM broadcasters only to set-up and operate low power FM broadcasting:

a) The new applicants for low power FM broadcasting will necessarily need to invest capital in setting up infrastructure for such broadcasts, which is readily available with the private FM broadcasters.
b) The existing infrastructure could be availed on rental basis from private FM radio broadcasters creating a favorable situation for both parties.
c) Private FM broadcasters may even provide the services free of charge in return for the right to monetize the low power FM transmission through ad-revenues.
d) Saving to the government for the expenditure on creating regulatory and monitoring infrastructure for new service providers as existing private FM broadcasters already do this as part of regular compliances and reporting.
e) As service providers private FM broadcasters can maintain logs of transmissions and ensure that the risks of illegal transmissions/advertisement are minimized and properly monitored.
f) No loss to the government as any revenue earned by private FM broadcasters from the ad generated from such low power broadcast will ultimately form part of the radio revenues and will be added to part of Annual License Fee.

Analysis

2.20. The Authority has considered the comments of some of the stakeholders regarding permitting only existing private FM broadcasters to set-up

and operate low power FM broadcasts within their respective areas. In this regard, the Authority is of the view that granting private FM stations exclusive permission to setup and operate low power FM broadcasting could inadvertently lead to establishment of a monopolistic dominance within the radio broadcasting sector. Such a scenario may stifle competition and discourage innovation. It may also create a barrier for new entrants, preventing them from participating in the industry and offering innovative and diverse services. Moreover, this approach may result in an unequal distribution of broadcasting services, with a bias towards areas of higher commercial potential. Regions with lower economic viability may face a lack of infrastructure, leaving them underserved.

2.21. It may be further noted that an exclusive arrangement may discourage private FM stations from exploring alternative technologies and business models for low power FM broadcasting. At present, the FM radio infrastructure primarily supports analog broadcasting technologies, lacking provisions for the integration of digital radio technologies. In an era marked by the rapid evolution of digital platforms, confining the control of low power FM infrastructure to analog capabilities could inadvertently hinder the adoption of more efficient and innovative broadcasting methods.

2.22. The Authority has also noted that not all Indian cities currently have operational private FM stations. Presently, only 113 cities in India have operational FM stations. Granting exclusive permissions to private FM broadcasters in this scenario could further limit access to low power FM broadcasting services in regions where these stations do not exist. Furthermore, the complexities introduced by negotiations, agreements, and potential disputes among private FM stations and entities seeking to rent the infrastructure may also add an additional layer of intricacy to this approach. Accordingly, the Authority is of the view that permission for low power small range FM broadcasting services should not be confined solely to private FM Radio broadcasters.

2.23. The Authority is of the view that the utilization of low power FM broadcasting is specifically tailored to serve localized areas and meet particular requirements. Low power FM broadcasting serves niche audiences and localized needs. By creating a dedicated category, it becomes possible to formulate and implement tailored rules and guidelines that specifically cater to the unique requirements and limitations of low power FM broadcasters. This in turn will enhance the attractiveness of this new broadcasting service to potential service providers. By offering a regulatory framework that aligns with the characteristics and goals of this sector, the industry becomes more enticing for investors and operators. Additionally, from a regulatory perspective, having a distinct category makes it easier to oversee and manage the low power small range FM broadcasting services. This will ensure adherence to established standards, promotion of fair competition, and safeguarding the interests of both broadcasters and listeners.

2.24. Taking the above factors into account, the Authority strongly believes that a distinct category, 'Low Power Small Range FM Radio Broadcasting' should be established to address the specific nature of low power small range FM broadcasting. Further, in order to ensure the broadcasting of appropriate content, **the permission holder must adhere to the extant Program and Advertisement Code, as periodically amended, or any other relevant code prescribed by the Central Government as and when required.**

2.25. **The Authority recommends that a new category of service provider for provision of low power small range FM Radio should be introduced, called 'Low Power Small Range FM Radio Broadcasting'.**

Scope of 'Low Power Small Range FM Radio Broadcasting' services

2.26. The scope of 'Low Power Small Range FM Radio Broadcasting service' should include the captive use as well as low power small range FM Radio Broadcasting as a service. Captive use scenarios cover a wide range of facilities, such as drive-in theaters, shopping malls, and sports complexes, among others where the permission holder utilizes low power FM to broadcast their own content and services.

2.27. In case of low power small range FM Radio Broadcasting as a service, a permission holder will extend the services to third parties who intend to organize an event for a limited period at a specific place, such as an event ground or concert hall. Effectively, the permission holder becomes a facilitator by establishing its low power small range transmitting infrastructure at the location indicated by third parties. Here it is essential to note that all aspects of regulatory compliance have to be fulfilled by the permission holder solely, when they offer their services to third parties.

2.28. While offering services to third parties, the permission holder shall ensure that end users must furnish valid proof for 'right to use' of the location where the low-power small-range FM radio transmitter is to be established. Such proof may include ownership documentation, rental agreements, or an undertaking from the property owner granting permission to the end user for the use of the location. This will ensure that the permission for low-power broadcasting on a building/location is not misused or misappropriated by unauthorized individuals or entities.

Process of obtaining permission for Low Power Small Range FM Radio Broadcasting

2.29. In the context of obtaining permission for low power small range FM broadcasting services, the Authority is resolute in its pursuit of a

straightforward and easy process. Being a niche service, there is a need to adopt a streamlined and efficient process for granting license/registration/authorization for low power short range FM Radio broadcasting services, characterized by a straight-through or system-generated approach facilitated by an online application portal.

2.30. Straight-through processing represents an automated workflow conducted exclusively through electronic transfers, eliminating the need for manual intervention. In this system, once an applicant submits its form via the online application portal, it should receive its permission instantly. To ensure the security and authenticity of electronically submitted documents, digital signatures can be employed during the form submission process. This secure and authentic method of electronic document submission safeguards against potential fraud or tampering. Subsequently, the submitted information can be validated by the system, and if any discrepancies are detected, the permissions can be rendered invalid.

2.31. Firstly, the implementation of a straight-through processing system significantly expedites the registration timeline, ensuring swift and efficient processing. By eliminating the delays associated with manual intervention and administrative bottlenecks, this approach promotes a faster and more responsive process. Moreover, applicants benefit from an improved user experience, as they can seamlessly navigate the registration process from form submission to confirmation without unnecessary waiting periods. Overall, this system-generated process not only optimizes resource allocation and enhances accuracy but also paves the way for a cost-effective and scalable solution, especially as the volume of applications increases.

2.32. In its 'Recommendations on Ease of Doing Business in Telecom and Broadcasting Sector' dated 02.05.2023, the Authority put forth a recommendation calling for:

"All the concerned Ministries/ Departments should adopt a user-friendly, transparent and responsive digital single window system. The portal should provide easy to navigate mechanism for access to all statutory/ policy guidelines, amendments, orders, office memorandums related to a license/ registration/ permission/ clearance. The portal should be enabled with new digital technologies for achieving end-to-end inter-departmental online process."

2.33. The Authority reiterates its above recommendation for the acquisition of permission for low-power small-range FM radio broadcasting services also. All processes related to the consideration and granting of the license/registration/authorization should be fully integrated into this portal. The portal should also provide user manuals and sample forms/formats with pre-filled sample data for the said license/registration/authorization. User-friendly, drop-down menu-driven forms with simple application formats that request relevant information, such as the type of service, transmitter location, and duration of permission required, should be readily available on the portal. A convenient and user-friendly single-window portal would greatly simplify the process and encourage broader participation in low-power FM broadcasting services.

2.34. **The Authority recommends that the license/ registration/authorization for the 'Low Power Small Range FM Radio Broadcasting' should be granted through a simple registration process via an online application portal.**

C. Equipment Standard

2.35. Both private FM Radio broadcasters and CRS operators are required to employ transmitting equipment approved by the designated agency.

However, there is no standardization process for low power small range FM transmitters in place.

2.36. This prevailing lack of standardization raises concerns about the safety and prevention of interference associated with these devices. Consequently, stakeholders were prompted to provide their comments on the following question:

Q3. Should the low power Radio equipment continue to be subjected to type approval by WPC?

a. If yes, do the current technical specifications / approval process require any amendment/ modification/ simplification?

b. b. If not, please suggest as to how to ensure quality standards for the equipment and users of low power FM services.

Stakeholders Comments

2.37. In response, some stakeholders has suggested that equipment of low power broadcasting should get approval from WPC. A stakeholder has submitted that to ensure potential protection requirements to the existing primary services, low power transmission equipment must meet certain RF linearity and spectral emissions requirements to minimize noise and interference in the FM band. The stakeholder has mentioned that in the US low power transmitters are subject to approval by the FCC to ensure spectral purity and accurate power ratings.

2.38. Another stakeholder suggested that the low power equipment should be checked for noise levels and whether they are standardized or not and whether their specification is approved by WPC or not.

International Experience

2.39. In the US[4], an operator does not have to obtain a license to use a low power transmitting equipment. But the transmitting equipment itself is

required to have an FCC authorization before it can be legally marketed in the US. This authorization requirement helps ensure that such transmitting devices comply with the FCC's technical standards and, thus, are capable of being operated with little potential for causing interference to authorized radio communications.

Analysis

2.40. According to The Indian Telegraph (Amendment) Rules of 2017, all telecom equipment are obligated to undergo compulsory assessment and validation before being sold or imported to India[6]. Manufacturers are obligated to adhere to a comprehensive protocol outlined in the Mandatory Testing and Certification of Telecom Equipment (MTCTE) guidelines in order to secure certification. The evaluation process entails scrutinizing the equipment's adherence to Essential Requirements, and this assessment is conducted by the accredited laboratories that have been designated by Telecommunication Engineering Centre (TEC). After the examination of their test reports, the certification is issued by TEC.

2.41. As per the provisions of the Indian Telegraph Act of 1885, obtaining an Wireless Operating License (WOL) from Wireless Planning and Coordination (WPC) is a prerequisite for establishing, operating, and maintaining any wireless equipment within India including FM Radio channels and CRS.

2.42. The Authority is of the opinion that the approval from WPC should not be required as the existing framework overseeing the certification and licensing for wireless transmitting equipment by TEC is sufficient. This very framework of approval by TEC should also be extended to include equipment intended for low power small range FM broadcasting. And TEC should continue to play a pivotal role in setting industry standards

[6] https://www.tec.gov.in/mandatory-testing-and-certification-of-telecom-equipments-mtcte

and conducting rigorous testing for transmitting equipment for low power small range. This will simplify and streamline the entire certification and licensing procedure, reducing complexity and administrative burdens.

2.43. **The Authority recommends that like all the telecom equipment as mandated by The Indian Telegraph (Amendment) Rules of 2017, the transmitting equipment for low power small range FM broadcasting should be subjected to the approval by Telecom Engineering Centre (TEC).**

D. Terms and Conditions of the license

2.44. In case, the use of low power small range FM broadcasting is decided to be a licensed service, it becomes imperative to formulate and outline the precise terms and conditions that will govern the issuance and operation of such licenses. This process would involve defining the parameters under which various services can use low-power FM broadcasting. It involves determining the eligibility criteria, responsibilities and obligations of license holders and setting guidelines for signal strength and frequency allocation. Addressing any other technical considerations that may arise while implementing and overseeing this service will also need to be prescribed. Accordingly, stakeholders were asked to submit their comments and suggestions on the following:

Q4. In case stakeholders consider that license is necessary for low power small range FM broadcasting, what should be the:

a) Eligibility criteria

b) period of license

c) entry fee

d) license fee

e) area of operation

f) allocation of spectrum

g) technical parameters

h) any additional terms and conditions governing such licenses.

D1. Eligibility Criteria

2.45. As per the current provisions governing FM Radio broadcasting by private entities, only companies that have been formally registered in India under the Companies Act of 1956/2013 are qualified to participate in the bidding process for FM Radio channels. In the case of CRS, the permission of running a radio station is granted to entities explicitly constituted as a 'non-profit' organization and educational institutions.

2.46. The introduction of low power small range FM broadcasting introduces a realm of possibilities for numerous prospective applicants. However, it also raises concerns about potential misuse by certain entities. Therefore, it becomes imperative to establish well-defined and specific eligibility criteria for obtaining this broadcasting license as well.

Stakeholders' Comments

2.47. One Stakeholder has suggested that the criteria of CRS should apply in low power small range FM radio broadcasting also. Another stakeholder has suggested that any entity seeking a license for the low power small range FM broadcast should be:

i. an individual who is more than 18 years of age and is a citizen of India.

ii. an association of individuals or body of individuals, whether incorporated or not, whose members are citizens of India.

iii. a company as defined in the Companies Act 1956

Analysis

2.48. As per provisions of existing policy guidelines for Phase-III expansion of FM Radio broadcasting through private agencies, only Companies

registered in India under the Companies Act, 1956/2013 are eligible for bidding and obtaining permission for FM Radio channels.

"2. Eligibility Criteria:

2.1 Only Companies registered in India under the Companies Act, 1956 shall be eligible for bidding and obtaining permission for FM Radio channels as per the provisions of these Guidelines.

2.2 Disqualifications: The following types of companies shall not be eligible to apply:-

(a) Companies not incorporated in India.

(b) Any company controlled by a person convicted of an offence involving moral turpitude or money laundering/drug trafficking, terrorist activities or declared as insolvent or applied for being declared insolvent;

(c) A company which is an associate of or controlled by a Trust, Society or Non Profit Organization;

(d) A company controlled by or associated with a religious body;

(e) A company controlled by or associated with a political body;

(f) Any company which is functioning as an advertising agency or is an associate of an advertising agency or is controlled by an advertising agency or person associated with an advertising agency;

(g) Subsidiary company of any applicant in the same City;

(h) Holding company of any applicant in the same City;

(i) Companies with the Same Management as that of an applicant in the same City;

(j) More than one Inter-Connected Undertaking in the same City;

(k) A company that has been debarred from taking part in the bidding process or its holding company or subsidiary or a company with the same management or an interconnected undertaking ;

(l) The defaulters of conditions under Phase-I & Phase-II, who have contested the revocation of their Letters of Intent/License Agreements/ Bank Guarantees, thereby continue to be debarred from participating in any future bidding process.

Note 1: For the purpose of sub clause (d) above a religious body shall be:

i. A body whose objectives are wholly or mainly of a religious nature;

ii. A body, which is controlled by a religious body or an associate of religious body

Note 2: For the purpose of sub clause (e) above a political body shall be:

i. A body whose objects are wholly or mainly of a political nature;

ii. A body affiliated to a political body;

iii. A body corporate, which is an associate of a body corporate controlled, held by, operating in association or controlling a body of political nature as referred above.

Note 3: For the purposes of clause (f) an "Advertising Agency" shall mean an individual or a body corporate who carries on business as an advertising agent (whether alone or in partnership) or has control over any body corporate which carries on business as an advertising agent and any reference to an advertising agency includes a reference to an individual who-

(i) Is a director or officer of any body corporate which carries on such a business, or

(ii) Is employed by any person who carries on such a business.

Note 4: The terms "Same Management", 'Subsidiary Company' and 'Holding Company' shall have the same meaning as assigned to them under Section 4 of the Companies Act, 1956;

Note 5: The term "Inter Connected Undertakings" shall have the same meaning as assigned to it in the Monopolies and Restrictive Trade Practices Act, 1969;

Note 6: If the applicant and the subsidiary company/holding company/company with the same management/Inter-Connected Undertaking submit more than one bid for the same City, all such bids shall be rejected."

2.49. As per existing guidelines for operating CRS, following types of organizations are eligible to apply for Community Radio licences:

*"**2 Eligibility Criteria***

(i) The following types organisations shall be eligible to apply for Community Radio Licences:

a) Community based organisations, which include civil society and voluntary organisations, State Agriculture Universities (SAUs), ICAR institutions, Krishi Vigyan Kendras, Registered Societies and Autonomous Bodies and Public Trusts registered under Societies Act or any other such act relevant for the purpose. Registration at the time of application should at least be three years old.

b) Educational institutions

(ii) The following are not eligible to run a CRS:

a) *Individuals;*
b) *Political Parties and their affiliate organisations; [including students, women's, trade unions and such other wings affiliated to these parties.*
c) *Organisations operating with a motive to earn profit;*
d) *Organisations expressly banned by the Union and State Governments."*

2.50. The existing provisions have confined the permission for private FM radio channels and CRS solely to organizations or registered companies, effectively barring individuals from engaging in FM Radio broadcasting services. However, the versatility and localized nature of applications of low power FM broadcasting offer a unique platform for individual ventures that cater to niche audiences. Activities like yoga sessions, art workshops, language classes, and community-driven content find an ideal avenue for dissemination through this broadcasting medium. Recognizing the potential of these micro-broadcasts to foster community engagement and address hyper-local needs, it becomes evident that a broader spectrum of eligible entities needs to be identified.

2.51. Recognizing the substantial value that an individual or group of individuals can bring to this domain, the Authority advocates that individuals who are both 18 years of age and Indian citizens should be eligible to hold such licenses. This proposal accommodates the diverse range of potential broadcasters in low power FM domain. By allowing a diverse range of individuals to obtain licenses, the Authority envisions a broadcasting landscape that thrives on innovation, grassroots expression, and localized value creation. Furthermore, organizations and companies registered under the Companies Act 2013 including LLP and partnership firms should be afforded the same opportunity to apply

for these licenses, mirroring the provisions for private FM stations**.** As private FM Radio channels are operated by the companies registered in India under the Companies Act, 1956/2013, existing private FM Radio broadcasters are also eligible to operate low power small range FM Radio. However, companies registered in India under the Companies Act, 1956/2013, who hold permission to operate CRS should not be eligible to apply for low power small range FM Radio being a commercial service.

2.52. As individuals are recommended as eligible entities for providing low power small range FM radio, there will be no need to prescribe any net worth for seeking license / registration / authorization for this service. However, it is imperative to implement a rigorous screening process to ensure the integrity of this approach. Thus, any individual, company, or organization that has been convicted by a court of any offense, whether involving moral turpitude or otherwise, would be automatically disqualified from obtaining the license. This provision is intended to safeguard the broadcasting space from potential misuse and to maintain the highest standards of conduct among license holders.

2.53. In 2008, in 'Recommendations on Issues relating to entry of certain entities into Broadcasting and Distribution activities[7], TRAI recommended the following:

> ***"3.29 Having regard to the above, the Authority recommends that political bodies should not be allowed to enter into broadcasting activities. Accordingly, the Authority recommends that the disqualifications as contained in item 3 of Part I of the Schedule to the Broadcasting Bill, 1997 as regards political bodies be incorporated in the proposed legislation on broadcasting.***
>
> ***3.45.4.3. Having regard to the foregoing factors, the Authority is of the view that religious bodies may not be permitted to own their own broadcasting stations and***

[7] https://www.trai.gov.in/sites/default/files/Recom12nov08.pdf

teleports. The Authority accordingly recommends that the disqualifications as contained in Item 2 of Part I of the Schedule to the Broadcasting Bill, 1997 as regards disqualification of religious bodies (as enumerated in paragraph 3.42.1 above) may be incorporated in the proposed new legislation on broadcasting. However, such disqualification should not be construed to mean that religious contents in the broadcasting channels should not be allowed, so long as such content is in conformity with the appropriate content code or programme code as prescribed from time to time by the Government. Broadcasting channels may be permitted to carry programmes aimed at the propagation of different religious faiths subject to strict compliance with the applicable content code or programme code, as the case may be.

3.45.4.4. Even though the Authority does not see any reason for taking a view different than the one recommended in the preceding paragraph by the Authority, particularly because the recommendation is in consonance with the basic secular fabric of the Constitution and the need to balance the rights of religious bodies to propagate their faiths with the maintenance of public order and societal harmony, in case the Central Government deems it appropriate to review the disqualifications as contained in the Broadcasting Bill, 1997 in the proposed new legislation on broadcasting, in that event, the Authority recommends that the Central Government may appropriately consider, as a matter of public policy, the questions as to ----

(a) the eligibility requirements, if any, to be prescribed in the case of religious bodies for such entry, (such as the requirement as to registration under the Companies Act, 1956, etc.)

(b) the legal framework to be laid down for prevention of misuse or abuse of the broadcasting permission by any such body;

(c) the mechanism for ensuring strict compliance with the programme code and advertising code by such bodies,

keeping in view, inter alia, the availability of resources like radio frequencies in different bandwidths and their optimum utilisation in the national interest, the balancing of the requirements for the available frequencies for use in different

sectors like telecommunication, defence, broadcasting, etc., and the difficulties involved in the enforcement of the programme code and advertising code, etc. in the case of religious bodies. However, the Authority, even at the cost of repetition, would reiterate the significance of recommendation made in paragraph 3.45.4.3."

However, the above recommendations are still pending with the government.

2.54. Further the paras 3.28.1 and 3.42.1 of the above mentioned recommendations which provides relevant clause of the Broadcasting Bill, 1997 regarding disqualification of political and religious bodies from entering into broadcasting sector, is also reproduced below:

"3.28.1. It is also pertinent to note here that the Broadcasting Bill, 1997 (which could not be made into law) had indeed incorporated the following provisions as regards disqualification of political bodies in the broadcasting sector in item 3 of Part I of the Schedule to the said Bill , namely:-

***"3. Disqualification of political bodies**.*

(a) A body whose objects are wholly or mainly of a political nature;

(b) A body affiliated to a body, referred to in clause (a);

(c) An individual who is an officer of a body, referred to in clause (a) or (b);

(d) A body corporate, which is an associate of a body corporate referred to in clause (a) or (b);

(e) A body corporate, in which a body referred to in any of clauses (a) and (b) is a participant with more than a five per cent. interest;

(f) A body which is controlled by a person referred to in any of clauses (a) to (d) or by two or more persons, taken together;

(g) A body corporate, in which a body referred to in clause (f), other than one which is controlled by a person, referred to in clause (c) or by two or more such persons, taken together, is a participant with more than a five per cent. interest.""

"3.42.1. It is, however, seen that in India, the Broadcasting Bill, 1997 (which was not enacted into law) had proposed to disqualify religious bodies from entering into broadcasting sector. Clause 2 of Part I of the Schedule to the said Bill contained the following provisions in this regard, namely:-

"2. Disqualification of religious bodies.

(a) A body whose objectives are wholly or mainly of a religious nature;

(b) A body which is controlled by a body referred to in clause (a) or by two or more such bodies taken together.

(c) A body which controls a body referred to in clause (a);

(d) A body corporate which is associate of a body corporate referred to in clause (a), (b) or (c);

(e) A body corporate in which a body referred to in any of clauses (a) to (d) is a participant which more than five per cent. interest;

(f) An individual who is an officer of a body referred to in clause (a); and

(g) A body which is controlled by an individual referred to in clause (f) or by two or more such individuals taken together.""

2.55. However, when advocating for the inclusion of all individuals as potential license holders for low-power FM, it becomes challenging to prevent individuals associated with political parties or religious bodies from entering this space. In this regard, to ensure compliance with the law and prevent any anti-social activities, applicants should be required to sign an undertaking agreeing to adhere to local laws, refrain from engaging in hate speech, defamation, or promoting hate and disharmony. This undertaking would include an agreement to abide by local laws, refrain from hate speech, defamation cases, and the spread of hate and disharmony.

2.56. The undertaking can be modeled after the concept of End User License Agreements (EULAs) commonly employed by software applications, which users must agree to when signing up. The MIB should develop a similar undertaking or agreement that applicants must acknowledge during the registration process for low-power small-range FM

broadcasting permission. This measure helps maintain ethical broadcasting practices and ensures that the medium is used responsibly and constructively.

2.57. **The Authority recommends that the following should be eligible to hold license/ registration/ authorization for 'Low Power Small Range FM Broadcasting':**

a. Individuals who are citizens of India and above eighteen years of age. Following are not eligible to hold license/ registration/ authorization for 'Low Power Small Range FM Broadcasting':

i. A person with an unsound mind and stands so declared by a competent court;

ii. A person who is an un-discharged insolvent

iii. A person convicted by a court of any offense, whether involving moral turpitude or otherwise.

b. A company registered under the Companies Act 2013 including LLP and partnership firms. Following are not eligible to hold license/ registration/ authorization for 'Low Power Small Range FM Broadcasting':

i. Political Parties and their affiliate organizations; [including students, women's, trade unions and such other wings affiliated to these parties]

ii. A company controlled by or associated with a political body;

iii. A company controlled by or associated with a religious body;

iv. A company that has been convicted by a court of any offense, whether involving moral turpitude or otherwise.

D2. Period of Permission

2.58. In the case of Private FM Radio, licenses have been granted for a predetermined duration of 15 years. On the other hand, licenses for

community radio stations are valid for 5 years initially, with the possibility of a subsequent 5-year extension upon formal request for renewal.

2.59. Now, as we delve into the arena of low power small range FM broadcasting, we confront a paradigm shift in the nature of the broadcasting services. The traditional licensing periods may not perfectly align with the diverse applications and dynamics of this specialized broadcasting domain. Therefore, it becomes imperative to carefully consider and determine distinct license durations for possible applications of low power small range FM broadcasting.

Stakeholders' Comments

2.60. One stakeholder has suggested that the license may be granted for use up to i) 30 days ii) 90 days and iii) 1 year, including the testing period. They also advertised possibility of getting an extension of the license to the above periods.

2.61. Another stakeholder has mentioned that as this system is introduced for the first time in India therefore, the period of license should be of three years instead of 5 years. They also suggested a renewable period of 7 years. The stakeholder has also suggested that for the first three years Government should check the performance of low power small range FM broadcasting, its utility in the community and what improvements can be made to popularize the system.

International Experience

2.62. In UK, a license issued for restricted services to serve an establishment or other defined location can be issued for any period, up to a maximum of five years. But the duration of the license should not significantly exceed the duration of the event that is being covered. There is usually no limit on the number of RSL licenses an individual or organization may be granted within a year.[1]

2.63. On the other hand, in Australia LPON licences are allocated on a 'buyer beware' basis and have no guaranteed tenure. If spectrum is required for any reason (for example, to plan new mainstream broadcasting services or to vary the conditions of existing services), ACMA may take back affected LPON spectrum (without compensation) and are under no obligation to find replacement spectrum.[2]

Analysis

2.64. The services offered through low-power FM broadcasting can vary significantly in their duration and purpose. To illustrate, consider a musician hosting a concert at a local venue or a multi-day workshop conducted by an educational institution. In such cases, the need for a broadcasting permission is temporary, aligning with the duration of the event, with maybe an additional allowance for a testing phase. On the contrary, establishments like drive-in theaters or large stadiums require a more permanent and prolonged licensing arrangement. Given this diversity, the Authority recognizes the necessity for granting applicants the flexibility to select a permission period that aligns with their specific service requirements.

2.65. To cater to this need for flexibility, the Authority proposes a dynamic and adaptable system. Under this system license/ registration/ authorization seekers would have the freedom to select their desired permission duration, which could range from thirty days to a maximum of five years. Subsequently, applicants could opt for a duration of 30 days. Finally, the system would allow for a maximum of five years. Upon the expiration of the initial permission period, the applicants will have an option of renewal/ new registration provided they have adhered to the specified terms and conditions during the preceding permission period.

2.66. For permissions lasting up to thirty days, applicants would be required to provide proof of their right to use the land or property for which the

low-power small-range FM radio broadcasting permission is being sought. This proof would be submitted once during the initial application process. For long-term permissions, particularly if the property is not owned by the applicant, the requirement for demonstrating authorized use would need to be presented on an annual basis. By offering these diverse options for permission period, the Authority aims to create a well-rounded and responsive framework that can cater to the distinctive requirements of a wide array of low-power FM broadcasting services.

2.67. **The Authority recommends a permission period system for 'Low Power Small Range FM Radio Broadcasting' service should be:**

a. Up to thirty days

b. Up to five years.

2.68. **The Authority also recommends that:**

a. For permission up to thirty days, applicants should be required to provide proof of right to use the land or property for which the low-power small-range FM radio broadcasting permission is being sought at the time of submitting initial application.

b. For permission up to five years the applicant should provide proof of ownership of the property/premises. In case the property is not owned by the applicant, the authorization of use of property should be submitted on an annual basis.

D3. Entry Fee and License/Registration/Authorization Fee

2.69. For Private FM Radio, the entry fee, termed as the Non-Refundable One Time Entry Fee (NOTEF), is determined through an auction process. This fee encompasses the permission to operate an FM Radio channel and includes the charge for the associated spectrum, known as spot

frequency. The annual License Fee structure for FM Radio broadcasting is defined as follows: It is calculated as 4% of the Gross Revenue (GR) generated by the FM radio channel for the given financial year or 2.5% of the NOTEF for the specific city, with the higher value being chosen. However, an exception comes into play for certain regions, specifically the North-East, Jammu & Kashmir (J&K), and Island territories, where the percentage decreases to 2% of GR and 1.25% of NOTEF.

2.70. On the other hand, CRS operators are exempt from both the Entry fee and the License fee. Instead, they are required to pay annual charges to the WPC, including a Spectrum usage fee of Rs. 22,500/-, and License fees of Rs. 500/- per station along with the same amount for each standby set.

2.71. Given the distinctive nature of low-power small range FM broadcasting, which caters to specialized and localized services on a smaller scale, it is prudent to tailor the entry and license fee structure differently compared to Private FM and CRS. This ensures that the financial framework aligns with the unique essence and scope of these broadcasting endeavors encouraging more and more service providers to utilize low power small range FM to offer their content.

Stakeholder's Comments

2.72. Stakeholders suggested that entry and License fees must be kept low so that users are motivated to use low-power FM broadcast for small-range services. Another stakeholder suggested no entry fee. Since the area of operation of Low Power Small Range FM Radio Broadcasting is limited to particular field of operation, one stakeholder proposed that both entry fee and License fee remain free just like CRS. They also recommended taking annual charges for use of the spectrum. Initially, to settle the system for the first three years they suggested that the annual charges should be lower than the CRS of that area.

International Experience

2.73. In the UK[1], for licence applications for RSLs to cover events, a £400 nonrefundable application fee is payable. For license applications for RSLs to serve an establishment or other defined location, a £200 non-refundable application fee is payable. There is also a daily rate charge for the Broadcasting Act ('BA') license fee and for the Wireless Telegraphy Act ('WTA') license fee based on operating power (Table-1). Some countries like New Zealand do not charge any license fees for the low-power stations.[3]

Table-1: Fee for Restricted Service License in UK

	BA fee daily rate	**WTA fee daily rate**	**Total daily fees**	**BA annual limit**	**WTA annual limit**	**Total annual fees**
Up to 2W	£30	£40	£70	£150	£200	£350
Above 2W	£30	£40	£70	£900	£1200	£2100

Analysis

2.74. As discussed in earlier sections, the Authority strongly advocates for the establishment of a straightforward registration process for obtaining low-power small range FM broadcasting license/ registration/authorization. The Authority is of the opinion that to streamline processes and foster active participation from service providers in the low-power small range FM broadcasting sector, it is imperative to uphold minimal charges. Therefore, it advocates for a zero application/entry fee. Aligning with the effort to ensure accessibility, the Authority proposes to introduce a nominal fee structure that accompanies the registration process.

2.75. To cater to the diverse nature of possible applications, these registration fees will be structured in accordance with the duration of the permission. The proposed fee structure entails a minimum fee of Rs. 1000/- for a thirty day period. The fee for five years permission would be Rs. 10000/- per annum.

2.76. The Authority is of the view that these proposed charges are not only reasonable but also reflective of the nature of the services being offered. By aligning the fees with the scope and potential of the service being provided, the Authority aims to ensure that the financial aspects of acquiring low-power small range FM broadcasting licenses do not present a barrier to entry. This, in turn, is expected to inspire a more diverse range of service providers to engage in this sector of broadcasting, fostering innovation and a broader spectrum of content offerings.

2.77. **The Authority recommends that**

i. **No application/entry fee should be levied.**
ii. **License/ Permission/ Authorization Fee of Rs. 1000/- for a permission up to thirty days**
iii. **License/ Permission/ Authorization Fee of Rs. 10,000/- per annum for a permission of up to five years.**

D4. Identification of Frequency Spots for FM channel and methodology for allocation of spectrum for Low Power FM Radio broadcasting

2.78. To establish a commercial FM Radio station within a city, eligible entities are required to participate in an auction process orchestrated by the MIB for the allocation of FM Radio frequencies. In contrast, frequencies for CRS operators are assigned through administrative means. In the FM band, spanning from 88 to 108 MHz, various frequencies are designated for use within a city. To ensure interference-free broadcasting, adjacent frequencies within the same city must be

separated by a minimum of 800 KHz. For CRS operations, certain frequency spots have been reserved.

2.79. Considering that low-power short-range FM Radio broadcasting represents a relatively novel service, there arises a need to identify appropriate frequency slots. Accordingly in CP, stakeholders were invited to provide their inputs on the method of spectrum allocation for this service in addition to following question:

Q5. Whether some specific frequencies in the existing FM band can be dedicated for low power FM Radio broadcasting? Please provide details with justification.

Stakeholder's Comments

2.80. In response, some stakeholders are of the view that initially there would not be any difficulty to allot frequency spots as the area of operation of low power small range FM is limited and the service is just beginning in India. They suggested that the frequency spots for this service should be below the frequency spots allocated to CRS.

2.81. The majority of stakeholders have suggested to reserve specific frequencies in the FM band for low power small range FM. According to them authorizing a specific portion of the FM band would allow the low power short range FM broadcaster to have predefined natural interference protection as well as limited impact to existing primary services.

2.82. Another stakeholder has mentioned that specific frequencies for Low Power Small Range FM Radio Broadcasting should be dedicated in the present FM band to have a trouble-free service.

2.83. One stakeholder has mentioned that there is no need to reserve frequency bands as the large white space existing between the already

operational large power FM transmitters. The stakeholders further mentioned that though the white space can't be used for transmission in analogue FM, it can be very well utilized for transmissions in digital radio. The stakeholder also stated that multiple low power small range channels are possible in digital radio in all these white spaces and there may not be any need to reserve frequencies in the FM band for this service.

2.84. Regarding allocation of spectrum, one stakeholder proposed that auction process conducted by MIB should be used for allocation of spectrum. Another stakeholder has suggested that the licensing process must be very simple and online. The stakeholder has also suggested that all applications must be obtained online, and the spectrum must be allocated in a timebound manner and status of the application must be available online to the applicant.

International Experience

2.85. OFCOM reserves a particular part of the FM radio spectrum (87.7 - 87.9 MHz) for licenses issued for restricted services.[1] In Australia[2], parts of the 87.5 MHz to 88.0 MHz range are available for LPON allocation until 31 December 2035. LPON services are limited to FM centre frequencies 87.6 MHz, 87.8 MHz and 88.0 MHz. Permitted transmit carrier frequencies for LPFM range from 87.6 to 88.2 MHz and 106.7 to 107.6 MHz in New Zealand[3].

2.86. Also in the UK, licenses for restricted services to cover events are generally issued on demand on a first-come, first-served basis, subject to the conditions for their issue being met (as set out in these notes) and a suitable frequency being available.[1]

Analysis

2.87. The responsibility for frequency allocation is under the jurisdiction of the WPC. In the context of private broadcasting stations, these frequencies are acquired through an auction process. However, this auction-based approach isn't well-suited for facilitating low power, small range FM broadcasting services.

2.88. Low power small range FM broadcasting serves specialized and niche applications within the Radio broadcasting landscape. The unique nature of low power small range FM broadcasting makes it inherently location specific. The Authority notes that the spectrum for Low power small range FM Radio broadcasting will be used within specified limited geography. As it will be used for a limited area, it will be used with low power and within the specified geography. Therefore, the same frequency spot can be repeatedly used by other entities for low power stations at other locations on non-interference basis having different geo-coordinates of the locations. Hence, the frequency spot assignment for Low power small range FM Radio broadcasting will be for a specified geographic area of its operation and the same frequency spot can be reused with multiple assignment to large number of players. In this context, only an authorized individual with the right to use a particular piece of land would be eligible to seek frequency allocation there. Consequently, an auction process becomes impractical and redundant in this context, as the frequency allocation is intricately tied to specific geographic locations.

2.89. Moreover, the financial burden associated with participation in an auction could potentially be overwhelming for operators. The costs incurred through auctions, which can be exorbitant, have the potential to act as a significant deterrent for local service providers, especially individuals who may be interested in venturing into the realm of low-power, small-range FM broadcasting. This financial challenge could

result in a limited pool of operators and hinder the proliferation of this specialized broadcasting service.

2.90. In the case of CRS, frequency allocation is carried out administratively. In situations where multiple applicants vie for the same frequency at a given location, a committee led by the Secretary of Information and Broadcasting (I&B) is formed. This committee evaluates each applicant's community engagement, commitment, articulated objectives, resource mobilization potential, organizational credentials, and the duration of community service. The applicant with the strongest standing in these aspects is selected to receive a Letter of Intent (LOI). In the view of the Authority this same provision of administrative allotment of frequency will be most suited for the low power small range FM broadcasting. Therefore, the Authority is of the view that that WPC should assign frequencies administratively based on the location of the service to the applicant. To facilitate a seamless and efficient process for obtaining permission and frequency for this service, the Authority suggests that WPC should aim to assign an available frequency within two days of receiving the application.

2.91. Specific frequency spots such as 89.6, 90.0, 90.4 MHz, 90.8 MHz, and 91.2 MHz have been designated for CRS by the WPC. This measure ensures an ample supply of frequency slots for CRS, without disrupting private sector services. Similar considerations can be applied to the realm of low-power, small-scale FM broadcasting. However, it's essential to note that the ultimate authority and responsibility for shaping frequency-related policies lie with the WPC. Therefore, the Authority is of the opinion that it is upon WPC to conduct a thorough evaluation of this matter and, if deemed necessary, allocate appropriate frequency spots for the specific needs of low-power, small-range FM broadcasting.

2.92. The Authority firmly believes in maintaining technological neutrality when it comes to the scope of low-power, small-range FM licenses. Presently, both private sector and community radio predominantly function within the analog broadcasting landscape. However, the realm of digital FM technologies has advanced and prospered significantly. Also, digital transmission operates with lower power consumption, contributing to enhanced energy efficiency and sustainability.

2.93. According to the stakeholders, digital FM can accommodate up to four channels within a single frequency band, a notable feat in terms of spectrum optimization. Despite these advancements, the primary challenge impeding the widespread adoption of digital FM broadcasting remains the limited availability of digital receivers. However, the availability of these receivers is increasing.

2.94. Nonetheless, the Authority contends that if the audience of a low-power FM service provider is equipped with the requisite digital receivers, regulatory constraints should not hinder their engagement. Therefore, the Authority supports the notion that the focus should be on the technology's utility and its alignment with the needs of the audience, rather than on the specific technological medium. In light of these considerations, the Authority advocates for the adoption of a technologically neutral licensing framework allowing use of both analog and digital transmission techniques to provide low power small range FM broadcasting.

2.95. **The Authority recommends that**

i. WPC should conduct a thorough evaluation and reserve appropriate frequency spots for the specific needs of low-power, small-range FM broadcasting.

ii. Frequency for low power small range FM broadcasting should be assigned administratively by WPC through online portal within two days of submitting the application.

iii. License/Registration/Authorization holders for low power small range FM broadcasting should be allowed to deploy any type of transmission technologies (analog/digital/any other).

D5. Area of Operation and Licensed area of frequency assignment- location-wise or city-wise

2.96. According to the current policy guidelines, permissions for private FM Radio channels are granted on a city-specific basis. To facilitate this, cities are categorized into six groups based on their population size. In the case of CRS, there isn't a defined service area. CRS is expected to cover a range of 5-10 km. Given the nature of low-power FM broadcasting, which has a limited coverage area, it becomes necessary to establish a well-defined transmission range.

2.97. Furthermore, it's essential to identify a suitable licensed area for frequency assignment taking into account the unique characteristics of the service. Accordingly in the CP, following question was asked:

Q6. What should be the licensed area of frequency assignment- location-wise (Stadium, Auditorium, Malls, Residential complex etc.) or city-wise. Please provide details with justification.

Stakeholder's Comments

2.98. All the stakeholders have suggested that the licensed area for assignment of frequency should be location-wise. One stakeholder has mentioned that the license must be issued location-wise so that frequencies can be allocated while keeping the frequency spacing requirements in view and ensuring interference-free services. The stakeholders further stated that small range FM broadcasts are ideal for providing localized services and provide the ability to geo-target audio and data.

2.99. The stakeholders have mentioned that this service has a specific field to specialize and would require service area aligning with the content of the application. Examples of these would be stadiums for games/tournament, auditorium for music, malls for sale promotion, etc. Stakeholders have suggested that the licensed area should be set on a case-by-case basis depending on the application and audience for the service, the transmitted ERP, and the protection required to ensure limited noise and interference to primary services in the VHF band.

2.100. One stakeholder suggested an area of operation of 5 to 7 km, for each low power FM Raid broadcasting unit.

International Experience

2.101. In UK[1], the license covers coverage area that reflects what is needed to cover the event itself. This may be as small as a building or arena, or as large as part of a town. If the RSL is for the purpose of covering a series of events at the same location (for example, commentary at motor racing events), the licensed service will usually be to serve an establishment or other defined location (for example, the motor racing circuit) provided they are operating within a clearly definable single location which usually has no permanent resident population.

2.102. The maximum coverage area in UK[1] is up to around a 1 km radius. Whereas in Australia it is 2 km radius coverage in residential areas and 10km radius coverage in non-residential areas.[2]

Analysis

2.103. There is a specific requirement inherent to low power small range FM services, where the intention is to serve a restricted audience within a limited geographical area. An area with a 500-meter radius can seamlessly envelop extensive open spaces, provide reliable coverage for drive-in theaters, and adequately serve the seating areas of stadiums, among other settings.

2.104. The 500-meter transmission range strikes a harmonious balance between efficient spectrum utilization and the ability to reach the target audience effectively. This range will ensure that the low-power FM signal remains confined to the intended location, preventing unnecessary signal spillage and interference in adjacent areas. This characteristic aligns perfectly with the scope of low-power FM services, which is to provide localized, context-specific content and engagement to audiences within their immediate vicinity. Accordingly, the Authority is of the opinion that a maximum transmission range up to 500 meters would be well-suited to fulfill a wide array of applications.

2.105. The Authority firmly believes that the optimal area for frequency assignment should be determined on a location-specific basis. Stakeholders have aptly highlighted that this service operates within a distinct field of specialization, where the service area should align closely with the content and objectives of the application. For instance, in scenarios like sporting events at stadiums, musical performances in auditoriums, or promotional activities in shopping malls, the coverage area needs to be tailored precisely to the event's location.

2.106. Given the limited range characteristic of this service, it is feasible for multiple operators to broadcast their content on the same frequency, provided they maintain an appropriate separation distance within a city or town. In contrast, if frequencies were assigned on a city-wide basis, only a single operator would be able to utilize a particular frequency within the city, leading to an inefficient utilization of the already scarce spectrum resource.

2.107. Considering these factors, the Authority is of the view that that frequency assignment licenses should be granted on a location-wise basis, determined by the precise geographical coordinates such as longitude and latitude of the of the intended service location (be it a

building, stadium, temple, etc.). This approach will ensure optimal utilization of spectrum resources and supports the unique requirements of low power small range FM broadcasting.

2.108. **The Authority recommends that**

i. **The maximum permissible transmission range of 'Low Power Small Range Radio Broadcasting' should be 500 meters.**

ii. **The licensed area of frequency assignment in case of low power small range FM be defined as location-specific based on the precise geographical coordinates such as longitude and latitude of the of the intended service location (be it a building, stadium, convention center, expo area etc.).**

D6. Transmission Power

2.109. The maximum permissible transmit power for a private FM radio channel varies across the six categories of cities, categorized based on their population sizes. For metro cities, this threshold is set at 50 kW. Current guidelines for licensing Community Radio stations in India are designed to prevent interference between commercial and community radio signals. These guidelines state that transmitters may have a maximum Effective Radiated Power (ERP) of 100 W, although exceptions for higher wattage, up to 250 Watts, can be considered on a case-by-case basis. The permitted maximum antenna height for CRS is 30 meters above ground and minimum antenna height is 15 meters above ground. Maximum and minimum permitted antenna heights again vary for each six group of cities in the case of private FM broadcasting.

2.110. Given that low-power FM broadcasting will share the same frequency band as commercial FM Radio and CRS, the potential for interference between these different services is a concern. Consequently, it is crucial to establish precise technical parameters and power limits for low-power small-range FM services. To address this issue,

stakeholders were asked to provide comments on the following question:

Q7. What should be the maximum power of a low power small range FM transmitter? Please provide your inputs with detailed justification.

Stakeholder's Comments

2.111. In response, one stakeholder has suggested that TRAI should consider not only power levels, but protection requirements for each service application. The stakeholder has mentioned that a higher level of power may be appropriate for cases or applications where there are no interference considerations (co-channel, 200kHz adjacent, or 400kHz adjacent). The stakeholder has also mentioned that the foremost considerations should be protecting the primary services that are currently authorized.

2.112. Another stakeholder has pointed out that digital signals can reach much larger distances than analogue signals. According to this stakeholder for digital FM technology, ERP of the order of a few mW to 10W should be sufficient depending on the coverage required in open space or closed buildings.

International Experience

2.113. The technical parameters laid down for Licensing of low power broadcasting stations vary widely from country to country. The maximum power of a service using limited coverage spectrum in UK[1] is normally between 300 milliwatts and no more than 2 watts over a short range of up to around a 1 km radius. Whereas in New Zealand[3] maximum permitted transmit power is 0 dBW e.i.r.p. (1 Watt).

2.114. U.S. Federal Communications Commission rules specifies that no license is needed if range of the transmitter does not exceed 200 feet

(61 meters)[4]. For license free operation in the FM band the field strength of any emissions should not exceed 250 microvolts/meter at 3 meters.

2.115. The operating power for LPON (Low Power Open Narrowcasting) services in Australia is limited to a maximum of 1-watt effective radiated power (ERP) with 2 km radius coverage in residential areas and 10 watts ERP with 10km radius coverage in non-residential areas.[2] Canada has two classes of low power broadcasting: very low-power FM (VLPFM), up to 10 W ERP and low-power FM (LPFM), up to 50 W ERP[5].

Analysis

2.116. The reach of a radio signal is influenced by various factors, encompassing the signal's frequency, transmitter power, antenna gain, and the surrounding transmission environment. Among these factors, Effective Radiated Power (ERP) stands out as one of the most crucial determinants. The transmitting range of a radio signal directly corresponds to the ERP, meaning that as ERP increases, the signal's strength amplifies in the specified direction, allowing it to cover a greater distance.

2.117. Additionally, receiver sensitivity determines the minimum strength of the incoming FM signal required for successful reception. If the receiver is not sensitive enough, it may fail to pick up weaker signals, resulting in poor or no reception, especially in areas with signal interference or at the fringes of the broadcast coverage area. The sensitivity of an FM receiver affects the coverage area of a radio station. A more sensitive receiver can capture signals from a greater distance or in areas with obstacles, such as buildings or hills, where signal strength is reduced.

2.118. A study, titled 'Estimation of Frequency Modulated Radio Transmitter Power Required to Cover a Particular Distance Based on Available

Radio Receiver Sensitivity and Desired Signal Range[8]', has formulated a mathematical expression for estimating the requisite transmitter power to achieve a specific range. The paper suggests a required power for a transmission range of up to 1 kilometer to be 33.33 milliwatts (mW). This power will be adequate for ideal situations where no noise/ interference is present due to other wireless services and environmental conditions. As low power small range FM radio services will be provided in urban areas also where a lot of interference due to other wireless services and environmental conditions, a higher power of one watt will be required to cover an area of one kilometer.

2.119. Also, when considering international scenario (Table-2), it is to be noted that a recommended maximum power level for a transmission range of 1-2 kilometers typically falls around 1W. Taking this international benchmark into account, along with the results of the aforementioned calculations, the Authority proposes a maximum permissible power limit of 1 watt for low-power small range FM broadcasting. The limit of 1W would be more than sufficient to ensure effective coverage within a radius of 500 meters while also promoting efficient spectrum use and minimizing potential interference issues.

Table-2

Country	Power	Range
USA[4]	18.75mW	61 m
UK[1]	300mW to 1W	1 km
Australia[2]	1W	2 km
	10W	10 km

2.120. **The Authority recommends a maximum permissible transmission power of 1 watt for low power small range FM broadcasting.**

[8]https://www.researchgate.net/publication/331320624_Estimation_of_Frequency_Modulated_Radio_Transmitter_Power_Required_To_Cover_a_Particular_Distance_Based_on_Available_Radio_Receiver_Sensitivity_and_Desired_Signal_Range

Chapter III

Summary of Recommendations

3.1 The Authority recommends that the low power small range FM radio broadcasting services should be allowed only after grant of a License/Registration/Authorization.

3.2 The Authority recommends that a new category of service provider for provision of low power small range FM Radio should be introduced, called 'Low Power Small Range FM Radio Broadcasting'.

3.3 The Authority recommends that the license/ registration/authorization for the 'Low Power Small Range FM Radio Broadcasting' should be granted through a simple registration process via an online application portal.

3.4 The Authority recommends that like all the telecom equipment as mandated by The Indian Telegraph (Amendment) Rules of 2017, the transmitting equipment for low power small range FM broadcasting should be subjected to the approval by Telecom Engineering Centre (TEC).

3.5 The Authority recommends that the following should be eligible to hold license/ registration/ authorization for 'Low Power Small Range FM Broadcasting':

a. Individuals who are citizens of India and above eighteen years of age. Following are not eligible to hold license/ registration/ authorization for 'Low Power Small Range FM Broadcasting':

i. A person with an unsound mind and stands so declared by a competent court;

ii. A person who is an un-discharged insolvent

iii. **A person convicted by a court of any offense, whether involving moral turpitude or otherwise.**

b. **A company registered under the Companies Act 2013 including LLP and partnership firms. Following are not eligible to hold license/ registration/ authorization for 'Low Power Small Range FM Broadcasting':**

i. **Political Parties and their affiliate organizations; [including students, women's, trade unions and such other wings affiliated to these parties]**

ii. **A company controlled by or associated with a political body;**

iii. **A company controlled by or associated with a religious body;**

iv. **A company that has been convicted by a court of any offense, whether involving moral turpitude or otherwise.**

3.6 The Authority recommends following permission period for 'Low Power Small Range FM Radio Broadcasting' service:

a. **Up to thirty days**

b. **Up to five years.**

3.7 The Authority also recommends that:

a. **For permission up to thirty days, applicants should be required to provide proof of right to use the land or property for which the low-power small-range FM radio broadcasting permission is being sought at the time of submitting initial application.**

b. **For permission up to five years the applicant should provide proof of ownership of the property/premises. In case the**

property is not owned by the applicant, the authorization of use of property should be submitted on an annual basis.

3.8 The Authority recommends that:

i. **No application/entry fee should be levied.**
ii. **Fee of Rs. 1000/- for a permission up to thirty days**
iii. **Fee of Rs. 10,000/- per annum for a permission up to five years.**

3.9 The Authority recommends that:

i. **WPC should conduct a thorough evaluation and reserve appropriate frequency spots for the specific needs of low-power, small-range FM broadcasting.**
ii. **Frequency for low power small range FM broadcasting should be assigned administratively by WPC through online portal within two days of submitting the application.**
iii. **License/Registration/Authorization holders for low power small range FM broadcasting should be allowed to deploy any type of transmission technologies (analog/digital/any other).**

3.10 The Authority recommends that:

i. **The maximum permissible transmission range of 'Low Power Small Range Radio Broadcasting' should be 500 meters.**
ii. **The licensed area of frequency assignment in case of low power small range FM be defined as location-specific based on the precise geographical coordinates such as longitude and latitude of the of the intended service location ((be it a building, stadium, convention center, expo area etc.).**

3.11 The Authority recommends a maximum permissible transmission power of 1 watt for low power small range FM broadcasting.

Annexure I

MIB Reference dated 07.03.2022

No. N-35016/2/2021-O/o DD(CRS)
Government of India
Ministry of Information and Broadcasting
Room No. 116, 'A' Wing, Shastri Bhawan, New Delhi 110001

Dated 7th March, 2022

To

Shri V. Raghunandan
Secretary,
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawaharlal Nehru Marg, New Delhi 110002

Subject: Seeking inputs of TRAI regarding the possibility of new kind of service provider.
Sir,

As you are aware that the Ministry of Information and Broadcasting grants permission to eligible organizations for setting up Community Radio Stations in India. The Ministry had recently received an application from M/s PVR Limited, seeking permission to establish a Community Radio Station to be used for commercial purposes. The application could not be acceded to as commercial (profit-oriented) entities are prohibited from applying for Community Radio license, under the Policy Guidelines for setting up Community Radio Station in India.

2. The applicant, however, informed that he intends to establish a low power FM transmission system, to be used commercially for Drive-in theatre application. The idea behind the application is that a theatre-sized screen may be placed in an open space for viewing the content and a low power FM Transmitter, with a range confined to that space, may be used to broadcast the audio of the content on a certain frequency. The driven-in audience then would be able to tune in to the said frequency in their cars and listen to the content. This would avoid any noise pollution. The idea is additionally inspired by the restrictions imposed on large public gatherings due to ongoing pandemic.

3. It is felt that demand for such drive-in theatre services might rise in the future which could generate sizeable and steady revenue streams for the Government. At present, however, there are no provisions under any Guidelines for this new kind of service.

4. Keeping in view that it is a new kind of service, the Telecom Regulatory Authority of India is requested to make recommendations on the need and timing for introduction of new service provider under Section 11(1)(a)(i) of TRAI Act.

Yours sincerely,
07/03/2022

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