Consultation Paper No. 14/2024

Telecom Regulatory Authority of India

Consultation paper

on

formulating a Digital Radio Broadcast Policy

for private Radio broadcasters

30th September 2024

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Written comments on the consultation paper are invited from the stakeholders by 28th October 2024. Counter comments, if any, may be submitted by 11th November 2024.

The comments and counter comments may be sent, preferably in electronic form to Shri Deepak Sharma, Advisor (B & CS), Telecom Regulatory Authority of India, on the e-mail: advbcs-2@trai.gov.in and jtadvbcs-1@trai.gov.in .

Comments and counter comments will be posted on TRAI's website www.trai.gov.in

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CHAPTER I
INTRODUCTION

1.1 Radio remains an integral part of India's rich culture, social and economic landscape. Radio broadcasting[1] is one of the most popular and affordable means for mass communication, largely owing to its wide coverage, low set up costs, terminal portability and affordability.

1.2 At present, analog terrestrial radio broadcast in India is carried out in Medium Wave (MW) (526–1606 KHz), Short Wave (SW) (6–22 MHz), and VHF-II (88–108 MHz) spectrum bands. VHF-II band is popularly known as FM band due to deployment of Frequency Modulation (FM) technology in this band. All India Radio (AIR) - the public service broadcaster - provides radio broadcasting services in MW, SW and FM bands.

1.3 Until year 2000, AIR was the sole radio broadcaster in the country. In the year 2000, looking at the changing market dynamics, the government took an initiative to open the FM radio broadcast for private sector participation. In Phase-I of FM Radio, the government auctioned 108 FM radio channels in 40 cities. Out of these, only 21 FM radio channels became operational and subsequently migrated to Phase-II in 2005. Phase-II of FM Radio commenced in 2005 when a total of 337 channels were put on bid across 91 cities having population equal to or more than 3 lakhs. Of 337 channels, 222 channels became operational. At the end of Phase-II, 243 FM Radio channels were operational in 86 cities.

1.4 In Phase-III expansion of FM radio, 966 FM radio channels are to be made available in 333 cities. In the first batch of Phase-III, 135 private FM Radio channels in 69 existing cities were put to auction in 2015.

[1] Internationally, the term 'Audio broadcasting' is used. However, in this paper term 'Radio broadcasting' is used in place of 'Audio broadcasting' and has the same meaning.

Out of these, 96 FM Radio channels in 55 cities have been successfully auctioned[2]. In the second batch of Phase-III, 266 private FM Radio channels in 92 cities were put to auction in 2016[3]. Out of these, 66 FM Radio channels in 48 cities have been successfully auctioned[4]. At the end of June 2024, 388 FM radio channels have been made operational in 113 cities by 36 private FM Radio broadcasters.

1.5 In addition to the public broadcaster AIR and private FM radio, Community Radio Stations (CRS) are present in India, each serving a local and well-defined community, with a focus on the day to day concerns of its audience and satisfy their specific information and entertainment needs. At present 499 community radio stations are operational throughout the nation.

1.6 Presently radio signals are largely transmitted in analog mode in the country. Analog terrestrial radio broadcasting when compared with digital mode is inefficient and suffers from operational restrictions.

1.7 With the advancement in technologies, digital radio technologies around the globe have been developed and adopted by a number of countries in order to offer more choice to listeners along with efficient use of spectrum. Digital Radio broadcasting provides a number of advantages over analog radio broadcasting. The biggest advantage of digital radio is that it is possible to broadcast three to four channels on a single frequency carrier while ensuring excellent quality of audio for all the channels whereas analog mode broadcasts only one channel on a frequency carrier.

1.8 AIR has initiated digitization of its analog MW and SW radio broadcast network. In the first phase, AIR has replaced its existing 38 analog

[2] http://www.mib.nic.in/WriteReadData/documents/1st_Batch_FM_Phase-III_Auction_results.pdf
[3] http://mib.nic.in/WriteReadData/documents/NIA-_E-Auction_of_Second_Batch_of_Private_FM_Radio_Phase-III_Channels.pdf
[4] http://www.mib.nic.in/WriteReadData/documents/IInd_Batch_FM_Phase-III_Auction_results.pdf

transmitters with digital transmitters[5]. AIR has also conducted trials for digital radio technologies in FM band also. However, any initiative in digitization of FM radio by private FM radio broadcasters is still awaited. In a competitive environment, digital radio broadcasting can provide exciting new opportunities to radio broadcasters as well as a host of value-added services to the listeners.

1.9 In order to develop an eco-system, which can facilitate deployment of digital radio broadcasting, the Telecom Regulatory Authority of India (TRAI) had *suo-motu* sent its recommendations on "Issues related to Digital Radio Broadcasting in India" to the Government on 1st February 2018. The salient features of the recommendations were:

(i) Government should notify the policy framework for digital radio broadcasting in India in time bound manner with clear roadmap for rollout of digital radio broadcasting services.

(ii) Private sector should be permitted to provide digital radio broadcasting services within the existing frequency band of 88 – 108 MHz used for FM radio broadcasting.

(iii) Frequency and geographical area coverage planning for digital radio broadcasting using the vacant 600 KHz spectrum in VHF-II (88 –108 MHz) should be completed by BECIL, AIR, and WPC together in phased manner.

(iv) The broadcasters should be allowed to make use of any available digital technology, recognized by ITU, within the allocated/liberalized spectrum for providing digital radio broadcasting services subject to adaptation, if any, recommended by MIB/TRAI from time to time.

(v) Existing analog FM Radio channels should be allowed to remain operational for the remaining period of their Phase-III permissions.

(vi) The auction of remaining channels of Phase-III should be done by delinking them from technology. Broadcasters should be permitted to use any technology (analog or digital or both) for radio

[5] https://prasarbharati.gov.in/drm-digital-radio-of-air/#tech_info

broadcasting on the frequency allocated to them through auction in future.

(vii) For initial three years after declaration of digital radio broadcasting policy, the Government should grant fiscal incentives in the form of lower tax rates to manufacturers of digital radio receivers.

1.10 Now, MIB vide its reference dated 23rd April 2024 has sought recommendations of TRAI on formulating a digital radio broadcast policy for private Radio broadcasters. MIB has mentioned that in order to cater to technology shift, some existing licensing regulations under FM Phase-III policy may require a relook. MIB has also highlighted certain issues that may be considered while formulating recommendations for digital radio broadcast policy.

1.11 Accordingly, TRAI has initiated this consultation process in order to seek stakeholders' comments on various issues relating to formulation of digital radio broadcast policy for private Radio broadcasters.

1.12 The consultation paper has been divided into five chapters. Chapter 2 provides various available digital radio broadcasting technologies and international scenarios on deployment of these digital technologies. Chapter 3 discusses various issues relating to digital radio broadcasting. Chapter 4 summarizes all the issues for consultation.

Chapter II

Digital radio broadcasting technologies and international scenario

2.1 The evolution and adoption of digital radio broadcasting standards by various countries have been influenced by the existing transmission technologies used, chosen standards, and infrastructure available in those countries. Countries around the world have chosen different standards through rigorous trials and examining the suitability of the new technology for various popular applications and ease of implementation. Digital switchover plans have been formulated keeping in view the technological options. Digital radio standards differ in terms of audio formats in addition to the modulation and transmission techniques used.

Standards for Digital Radio Broadcasting

2.2 A number of digital radio broadcasting technologies have been developed around the world. However, following digital terrestrial radio broadcasting standards have been recognized by the International Telecommunication Union (ITU)[6]:

(i) Digital System A (DAB/DAB+)
(ii) Digital System C (HD Radio)
(iii) Digital System F (ISDB-TSB)
(iv) Digital System G (DRM/DRM+)
(v) Digital System H (CDR)
(vi) Digital System I (RAVIS)

[6] Recommendation ITU-R BS.1114-12(01/2022)

A. Digital System A (DAB/DAB+):

2.3 Digital System A, also known as the Eureka 147 Digital Audio Broadcasting (DAB) system, was developed for both satellite and terrestrial broadcasting applications in order to allow a common low-cost receiver to be used. During 1980s, DAB was introduced as a research project in Europe and was gradually adopted by the different standardization bodies such as ITU and ETSI. The first country to broadcast a range of radio station through DAB was United Kingdom (UK). DAB uses a wide-bandwidth broadcast technology. It operates in VHF Band III (174-240 MHz) and L band (1452-1492 MHz). DAB has country specific modes of transmission, operating in varied bands according to requirements.

2.4 In February 2007, DAB+ standard was introduced as an upgraded version of DAB. The forward compatibility of DAB receivers was not in line with the DAB+ receivers i.e. DAB receivers were unable to receive DAB+ programmes.

2.5 DAB/DAB+ is a popular radio technology around the world which is gaining momentum across Asia Pacific, Europe, Arab nations and South Africa. In 1995, public DAB services were first launched in Norway and UK. Over the years, the DAB services were expanded to Austria, Germany, Denmark, Switzerland, Malta and Netherlands. Driven through wide variety of programming, not offered in FM radio, countries such as England, Scotland, Wales, Northern Ireland gained substantial listenership by the year 2005. Moreover, with the advent of DAB+, upbringing of new technologies have reduced the transmission costs per programme and also enhanced capacity. In 2009, Australia fruitfully launched DAB+ services. In Hong Kong, five DAB channels were launched in 2012. Norway is the first country which has completed the digital switchover and has shut down the analog FM in December 2017.

B. Digital System C (HD Radio)

2.6 Digital System C, also known as the In Band On Channel (IBOC), was designed to provide vehicular, portable, mobile phone and fixed reception using terrestrial transmitters. A digital signal is embedded on frequency immediately above and below a standard analog signal, and the audio and data are transmitted through the AM and FM radio stations, hence providing to listeners, the same program, with either HD (less noisy digital radio) or standard analog radio broadcast (a standard sound quality). A significant feature of the system is its ability to offer simulcasting of analogue and digital signals in the existing FM band. This system feature would allow for a rational transition for existing FM broadcasters seeking to transition from analogue to digital broadcasting. The system offers improved performance in multipath environments resulting in greater reliability than is offered by existing analogue FM operations. Digital System C offers enhanced audio quality comparable to that obtained from consumer digital recorded media. Moreover, the system incorporates flexibility for broadcasters to offer new data-casting services in addition to the enhanced audio programming. In addition, the system allows for allocation of bits between audio and data-casting capacity to maximize the data-casting capabilities.

2.7 United States in 2002, designated HD Radio, as a digital radio broadcasting system approved by the Federal Communications Commission (FCC). It is a trademarked system owned by a consortium of private companies, named iBiquity and has been implemented for digital radio broadcasting on VHF Band I (medium wave) and VHF Band II. In North American countries, iBiquity successfully achieved high penetration of HD radio technology via automotive OEM (Original Equipment Manufacturer) market. In addition, HD Radio technology has been deployed in Canada, Mexico and Philippines.

C. Digital System F (ISDB-TSB)

2.8 Digital System F, also known as Integrated Services Digital Broadcasting for Terrestrial Sound Broadcasting (ISDB-TSB) system, is a standard for digital radio broadcasting developed in Japan to deliver high-quality sound and data broadcasting with high consistency and provide flexibility, expandability, and commonality for multimedia broadcasting using terrestrial networks. It is designed to provide high-quality sound and data broadcasting with high reliability even in mobile reception. The system is also designed to provide flexibility, expandability, and commonality for multimedia broadcasting using terrestrial networks. The system is a rugged system which uses OFDM modulation, two-dimensional frequency-time interleaving and concatenated error correction codes. The OFDM modulation used in the system is called band segmented transmission (BST)-OFDM. ISDB-TSB can be operated either as a single transmission with a bandwidth of around 0.5 MHz or 1.5 MHz or as fragment of a full channel ISDB-T transmission in channel bandwidth of either 6,7 or 8 MHz[7]. This technology is not implemented

D. Digital System G (DRM/DRM+)

2.9 Digital System G, also known as the Digital Radio Mondiale (DRM) system, has been developed for terrestrial broadcasting applications in all the frequency bands allocated worldwide for analogue sound broadcasting. DRM standard for digital terrestrial radio broadcasting is specially designed for switchover to digital radio broadcasting from the current analog radio broadcasting. It works across all the radio frequency bands i.e. AM (SW and MW) and the FM/VHF bands. The two modes of operation in DRM are:

- DRM30: This mode covers the AM broadcast bands below 30 MHz

[7] https://www.itu.int/en/ITU-D/Technology/Documents/Broadcasting/TrendsinBroadcasting.pdf

- DRM+: This mode covers the radio spectrum above 30 MHz including VHF Band III (174-230 MHz) and VHF Band II (88-108 MHz).

2.10 DRM30 system uses SW and MW frequency bands and is based on signal bandwidths of 9 kHz or 10 kHz. It also consists of modes which utilize wider bandwidths of 18 kHz or 20 kHz as well as modes requiring 4.5 kHz or 5 kHz of bandwidth. DRM+ requires a narrow bandwidth and is intended to suit FM broadcast band plan with 100 kHz of inter channel frequency gap. DRM allows broadcasting of single or small numbers of audio services together with bit rates ranging from 37 kbps to 186 kbps, allowing four services simultaneously. This allows DRM to operate parallel to analog transmission.

2.11 Several European countries have experimented with DRM. In Germany, UK, Vatican, Sri Lanka and France successful DRM+ trials in frequency band I, II and III have been supported. Currently, DRM+ trials are being held in Sweden.[8]

2.12 Brazil has also conducted trials of DRM technology for SW and MW radio broadcasting. It is under test phase and aim is to evaluate equipment behavior, stability and quality of signal[9].

2.13 In Indonesia, trials of DRM technology were conducted in 2015 and 2016 by Indonesian public broadcaster RRI and DRM Consortium for AM bands.

E. Digital System H (CDR)

2.14 Digital System H, also known as the Convergent Digital Radio (CDR) system, has been developed to provide vehicular, portable and fixed reception using terrestrial transmitters. A digital radio solution

[8] The Digital Future of FM
[9], [9] www.worldradio.com

operating in China, CDR is built on core technology similar to HD Radio and DRM, operating in the VHF/FM band. The system started operational testing in 2013 and is currently expanding national rollout through China National Radio and other networks. CDR incorporates the efficient Converged Mobile Multimedia Broadcast (CMMB) protocols used in China's digital mobile services. During simulcast stage, Digital System H can make full use the unoccupied spectrum in currently FM channel, provide several additional digital radio services, the system offers improved performance in multipath environments resulting in greater reliability than is offered by existing analogue FM operations.

F. Digital System I (RAVIS)

2.15 Digital System I, also known as the RAVIS (Real-time Audio Visual Information System), based on Russian patents, has been developed for terrestrial broadcasting applications in all the frequency bands allocated worldwide for analogue FM sound broadcasting. The system is designed as a digital-only system. It offers audio quality comparable to that obtained from consumer digital recorded media or better. In addition, Digital System I also offer video service and various data services, including images and electronic programme guides, and the capability of dynamically rearranging the various services contained in the multiplex. However, its implementation status for digital radio is not available.

Table 1: Frequency Band of Digital Systems

Digital Systems	Frequency Band
A (Digital Audio Broadcasting)	VHF Band III (174 – 230 MHz) 1.5 GHz
F (ISDB-TSB System)	VHF Band III (174 – 230 MHz) 2.6 GHz
C (IBOC DSB System)(HD Radio)	VHF Band II (88-108 MHz)
G (Digital Radio Mondiale)	VHF Band I (47-72 MHz) VHF Band II (88-108 MHz) VHF Band III (174 – 230 MHz)
H (Convergent Digital Radio)	VHF Band II (88-108 MHz)
I (Real-time Audio-Visual Information System (RAVIS))	VHF Band II (88-108 MHz)

2.16 As per an industry report[10], there are four key digital radio technologies adopted globally, which include:

(i) Digital Radio Mondiale (DRM) - for AM across India by AIR, Germany and South Africa

(ii) Digital Audio Broadcasting (DAB/DAB+) - across UK and European countries

(iii) HD Radio (HDR) (a trademarked term for an in-band on-channel (IBOC) digital radio broadcast technology) - for AM and FM across United States of America, Canada, Mexico, Panama and Philippines

(iv) Convergent Digital Radio (CDR) - in the China Region

International Scenario on Digital Radio Broadcasting

Australia:

- Stakeholders in Australia have successfully tested DRM in medium wave and FM between 2019-2022. The demonstrations were carried out using

[10] https://icea.org.in/blog/wp-content/uploads/2022/08/ICEA-Digital-Radio-Report_Final.pdf

a variety of desktop and professional receivers as well as in cars and on Android devices.

Canada:

- Initially DAB was used for digital radio broadcasting. The Canadian Radio-television and Telecommunications Commission (CRTC) stopped renewing licenses for DAB post 2012, after which several Canadian FM stations deployed HD Radio. Currently, 34+ Canadian FM stations in 14 markets are broadcasting in HD Radio catering to more than 50% of the population. Almost 3.3 million cars in Canada are equipped with HD Radio receivers, representing about 13% of vehicles on the road. More than 33% of new vehicles sold include an HD Radio receiver

China:

- Three government organisations, NRTA, MIIT and SAMR officially published a joint document in September 2023, actively guiding the Chinese automotive industry to support DRM in AM band and encourage province transmission stations to broadcast domestic DRM services.
- China has installed and uses seven DRM shortwave transmitters domestic coverage (aimed for the large populous region of eastern China primarily, but also for the rest of the country). They can also be used for overseas transmissions (SW services) by China Radio International (CRI)

Indonesia:

- The policy for radio digitisation has been issued by the Ministry of Communication and Informatics in August 2023. Indonesia has announced the adoption of DRM for both medium wave (526.5 – 1606.5 kHz) and FM (DRM in VHF Band II (87.0 – 108 MHz) and DRM in VHF Band III (174 – 202 MHz) with the rest of Band III allocated to DAB+.
- RRI have purchased and installed five DRM FM transmitters installed in strategic locations. They have also acquired the necessary Content Servers. The transmitters are capable of broadcasting emergency alerts

by using DRMs Emergency Warning Functionality (EWF), integrated in the national disaster warning infrastructure. Transmissions started in 2020.

- This follows the successful DRM tests/demonstrations carried out by the public broadcaster, Radio Republik Indonesia (RRI), in both the AM and FM bands over the last few years and which are now ITU reference documents.
- RRI is also planning to install five DRM mediumwave and one shortwave transmitter in key locations (ring of fire) in the country. RRI proposes the procurement of transmitters for 52 disaster-prone locations in 2024 as a national priority.
- The Ministry of Communication and Informatics is drafting the comprehensive digital radio policy.

Mexico:

- In 2011, the Mexican communications regulator (CoFeTel) adopted HD Radio as a voluntary standard for the transmission of digital radio nationwide. Currently, there are 119 FM stations in Mexico carrying 192 program services on HD Radio. In Mexico, digital stations cover 41% of the population, reaching approximately 51 million people, with more than 22 brands and 115 models that offer HD Radio receivers in new vehicles.

South Africa:

- The SA government has recommended officially both DRM and DAB+ as solutions for the radio digitisation of the country. The double-headed solution is called Digital Sound Broadcasting (DSB). DSB Services Regulations were issued by the South African Regulator (ICASA) in April 2021.
- This follows the DRM successful demonstrations in both AM and FM bands over several years, proving that the standard works very well and without interferences. The DRM FM demonstration showed there was no

interference at all to analogue FM broadcasts in the very crowded spectrum of Johannesburg. It also showed that in the full FM spectrum of Johannesburg up to 48 extra DRM FM stations could be fitted.

Switzerland

- Digital radio on DAB+ in Switzerland reaches over 99% of the population (outdoor 99%, indoor over 96%). 99% of the roads are covered, including highway tunnels.
- In 2020, just under 600,000 DAB+ radios (including car radios) were sold. A total of 5.7 million DAB+ devices have been sold since 2000.
- Swiss radio broadcasters are expected to shut down FM as planned on 31 December 2024.

CHAPTER III

Issues related to Digital Radio Broadcast policy for private Radio broadcasters

A. Technology to be used for Digital radio broadcasting

3.1 The prime issue for deployment of digital radio broadcasting is to decide the technology to be used for digital radio broadcasting. As discussed in chapter 3, various digital radio broadcasting technologies have been developed for different frequency bands. A comparison of digital audio broadcasting standards currently recommended by ITU is given in Table 1. It can be noted that in VHF Band II (88 – 108 MHz), HD Radio (IBOC) and DRM+ technologies can be used for digital radio broadcasting. Whereas in VHF Band III (174-230 MHz), DAB, DAB+, ISDB-TSB and DRM+ technologies can be used for digital radio broadcasting.

3.2 In several countries DAB or DAB+ technology has been adopted for digital broadcasting as a replacement of analog FM broadcasting. However, in India VHF Band III (174-230 MHz) is not available for digital radio broadcasting and is being used by Doordarshan for terrestrial TV broadcasting. Further, National Frequency Allocation Plan (NFAP) 2022, has following provisions for VHF Band III:

*"**IND 20** Subject to not constraining the deployment of the services to which the band 174-230 MHz has been allocated, requirement of fixed and mobile services including those of wireless telemetry seismic systems may also be considered in the band.*

***IND 21** Subject to coordination, the requirements of wind profiler radars may be considered in 200-220 MHz coordination."*

3.3 In case, VHF III is considered for deployment, new transmission infrastructure needs to be created even by existing radio broadcasters, as existing infrastructure supports only VHF II band. In case of VHF II band, digital radio broadcasting can be deployed by upgrading the

existing infrastructure. Considering these facts, suitable technologies for digital broadcasting in India seem to be HD radio and DRM+ which can be deployed in VHF II band.

3.4 Digital radio broadcasting technologies can be deployed using two methods for transmission - in-band and out-of-band. In-band methods use the existing analog frequency bands, while out-of-band methods use additional frequency bands. DRM+ and IBOC (HD Radio) use in-band method, whereas DAB and DAB+ use out-of-band method. Out-of-band methods are able to enlarge the throughput of data and enable provisioning of various application services to broadcasters[11]. In the in-band method, digital signal can be transmitted in the frequency gap which is the guard band between analog FM signals. This may enable deployment of digital technologies in the same band that is used for analog FM broadcasting at present. This will enhance the ease of implementation and facilitate simultaneous operation of both analog and digital signal.

3.5 In US, Canada, Mexico and Philippines, HD Radio technology has been deployed in VHF II band. Whereas DRM technology has been deployed for MW and SW services in VHF I band only. Trials for DRM technology in VHF II band have been undertaken in some countries. In India, AIR has adopted DRM30 technology for replacement of its MW and SW transmitters. In addition, AIR has conducted trials for DRM and HD technologies in VHF II band also. As per information available, DRM digital radio receivers have been fitted in approximately 6 million cars which can listen to digital MW services of AIR. At present digital radio receivers of HD Radio technology are not available in India.

[11] IEEE Transactions on Broadcasting, March 2013 : Laboratory Trials and Evaluations of In-Band Digital Radio Technologies: HD Radio and DRM+ - *Myung-Sun Baek, Sora Park, Geon Kim, Yong-Hoon Lee, Hyoung-Soo Lim, Yun-Jeong Song, Chae-Hun Im, and Yong-Tae Lee, Member, IEEE*

Table 2 shows the comparison between different digital radio technologies that can be deployed in VHF II band.

Table 2: Comparison of different digital radio technologies in VHF II band[12]

Parameter	HD Radio	DRM
Frequency range for Digital FM radio - VHF I, VHF II, VHF III (Very High Frequency)	HD Radio can work in VHF II FM band and can work in the other VHF bands.	DRM works on all FM VHF bands available i.e., VHF I, VHF II and VHF III.
RF bandwidth	400 KHz	100 KHz
Analogue Digital simulcast	Simulcast is currently operational. This is the main operation mode adopted by HD Radio countries to manage their digital transition.	It is possible to broadcast DRM in simulcast mode. Additionally, DRM's AFS (Alternate Frequency Signaling) feature allows the receiver to switch between analogue and DRM services independent of their actual transmission frequency – even across multiple broadcast bands.
Range of audio quality and types of reception	Range is from 12 to 96 kbit/s using the HD Codec(1) decoder, including support of various formats of multichannel audio. The system is intended for vehicular, portable and fixed reception.	Range of the useful content bit rate is from 37 to 186 kbit/s for the whole multiplex ensemble with a maximum of four services in all modes. Using the MPEG-4 HE-AAC v2 audio decoder CD quality is achieved. It is also capable of 5.1 multichannel audio. The system is intended for vehicular, portable and fixed reception.
Single frequency network (SFN)	HD Radio supports SFN. It has been successfully demonstrated in the USA.	DRM supports SFN in all frequency bands hence offers flexibility for frequency/ coverage planning.

[12] Recommendation ITU-R BS.1114-12 (01/2022) - Systems for terrestrial digital sound broadcasting to vehicular, portable and fixed receivers in the frequency range 30-3 000 MHz
EY- ICEA Report - Digital broadcast radio in India Perspectives on the opportunity and requirements for a successful Implementation April 2022

Usability in cars	HD Radio can be used in cars. It is currently in the trial phase in India.	DRM can be used in cars. (DRM receivers for AM service available in 6 million cars)
Usability in congested cities with tall buildings	Blockages could be possible if the path contains barriers.	Blockages could be possible if the path contains barriers.
Signal loss	When HD Radio tuner loses the station's digital signal, it will automatically switch over to the analogue signal broadcast at the same frequency.	When DRM loses the station's digital signal, it will automatically switch over to the analogue signal broadcast at the same frequency.
Ability to use inside home/ office	HDR can be used inside homes and offices.	DRM can be used inside homes and offices.
Sound quality (HD/ Stereo/ Dolby)	HD Radio brings FM radio quality to about the level of CD quality sound, while AM Radio in HD is about the same as conventional FM Radio broadcasts in terms of quality. HD Radio technology can deliver surround sound programming to automobiles.	DRM supports mono, stereo and surround sound transmissions. Surround sound is supported by DRM by using the "MPEG Surround" technology. MPEG Surround allows for 5.1, 7.1 and higher speaker setups.
Emergency alerts	Yes	Yes
Spectrum efficiency better than FM	FM stereo quality and data achievable without additional spectrum; co-channel and adjacent channel protection requirements much less than those for FM. System is interleaved to mitigate first adjacent channel issues and is more robust in the presence of co-channel analogue digital interference.	FM stereo quality and data achievable within 100 kHz bandwidth; co-channel and adjacent channel protection requirements much less than those for FM. Further improvement in the efficiency of spectrum use can be achieved by operating multiple transmitters on the same frequency Efficiency is especially high in the case of repeaters reusing the same frequency.
Receiver low-cost manufacturing	Allows for single-chip implementation compatible with low-cost portable receivers and mobile devices.	Allows for mass production manufacturing and low-cost consumer receivers.
Standard	Proprietary	Open source
Global coverage	HD Radio is used primarily by AM and FM radio stations in the United States, Canada, and Mexico, with a few implementations outside North America.	DRM has been adopted by India (for AM transmissions), Germany, Hungary, Romania, Nigeria, France, and a few other nations. Russia, Brazil, and South Africa

		are currently under the testing phase.
Current status in India	The HD Radio digital FM broadcast system has been tested by AIR.	Currently, India has 35 Medium Wave transmitters and 3 short wave transmitters of DRM 28% of new cars on the road currently are equipped with a DRM digital radio receiver. Trials for DRM technology in FM band has been undertaken by AIR.

3.6 In case single digital radio technology is used for replacement of analog FM broadcasting, it will enable availability of affordable receivers to listeners due to economies of scale for digital radio receiver manufacturers. In case different digital technologies are used, listeners may be required to buy separate receivers, which may restrict the proliferation of digital radio broadcasting due to unavailability of digital radio receivers with the listeners at affordable cost. The other option could be the use of multi-standard receivers, in case different digital technology is adopted for replacement of FM broadcasting, however, such receivers are yet to be developed.

3.7 In case existing private FM broadcasters migrate to digital broadcasting, they may be required to simulcast both analog and digital radio signals in order to sustain their revenue as their business model is dependent on advertisements which is directly linked to number of listeners. In such a scenario, the choice of technology will also depend upon its ability to support simulcast of analog and digital radio signals. In the case of simulcast both analog and digital radio signals will be available to listeners. As listeners may not like to purchase separate receivers for analog and digital radio services, availability of receivers providing reception of both analog and digital signals need to be ensured.

3.8 It, therefore, needs examination whether single digital radio technology can be adopted for the entire country or multiple technologies are to be

permitted, and which digital radio broadcast technology/ technologies should be used. Various aspects that can be examined, based on the specifications, features and available data related to the technologies and their commercial operation appear to be:

a) Efficiency of use of spectrum.
b) Compatibility of the digital radio technology with the existing analogue FM services in VHF band II.
c) Feasibility of leveraging existing broadcast infrastructure and the extent of additional equipment/ infrastructure required.
d) Coverage vis-a-vis existing analogue services
e) Interference possibility of (i) a digital radio signal into an adjacent digital radio signal with the same configuration (ii) a digital radio signal into adjacent analogue FM transmission, and (iii) an analogue FM signal into adjacent digital transmission.
f) International deployment scenario.
g) Maturity of supplier ecosystem for the technology i.e. manufacturers of broadcaster equipment as well as those of the commercial receiver devices.
h) Typical cost for a broadcaster to adopt the technology or any other potential barriers.
i) Availability of end-user (reception) devices as well as feasibility of augmenting any existing digital radio receivers for receiving digital radio in VHF-II band.
j) Feasibility of upgrading the existing mobile phones for receiving digital radio.
k) Compatibility or integration of the technology into any IP or streaming services.
l) Feasibility to measure service use by listeners.
m) Support for Common Alert Protocol Emergency Alerts for emergency warning functionality
n) Feasibility of enabling manufacturing in India for domestic development and production.
o) Feasibility of any additional audio and data services etc. that may provide monetization opportunities.

Issues for consultation:

Q1. Do you agree that single digital radio technology adoption is preferable for entire country? If not, support your reply with justification.

Q2. In case a single digital radio broadcast technology is to be adopted for the entire country, which technology should be adopted for digital radio broadcasting? Please give your suggestions with detailed justification.

Q3. In case multiple digital broadcasting technologies are to be adopted, please specify whether it should be left to the market forces to decide the appropriate technologies and what could be the potential problems due to adoption of multiple technologies? Please suggest probable solutions to the problems, with detailed justification.

B. Roadmap for implementation of digital radio broadcasting

3.9 At present 388 private FM radio channels are operational in 113 cities under Phase-III of FM radio. The Government has also notified auction of FM radio channels in 234 new cities wherein auction would take place in FM Phase III. However, in Phase-III only analog FM technology has been considered. Looking at the advantages of the digital radio broadcasting technologies, there is a need to deploy these technologies. Deployment of digital radio broadcasting would allow the radio broadcasters to offer a variety of channels which will provide diverse content to the listeners. It may also result in enhanced proliferation of radio broadcasting in different markets and would result in growth of the revenue of the broadcasters and the government as well. Some of the advantages of digital radio technologies are enumerated below:

- Better quality of signal or clear reception with high and consistent sound performance.

- Efficient use of allocated frequency – multiple radio channels can be broadcasted on a single frequency.
- Frequency reuse possible – to cover a large geographical area, it can offer credible "single frequency network (SFN)".
- Technical perspective – capacity to offer a range of transmission modes to broadcasters.
- Reduced transmission power requirements.
- Impact of noise is minimised, and interference is reduced.
- Automatic tuning of various available private and public radio stations.
- Efficient reception of radio channels in static, portable and mobile environments such as moving vehicles, mobile phones etc.
- Value Added Services such as Emergency Program Guide, Emergency Warning Feature (EWF), updates on news and weather etc can be provided simultaneously along with program relay.
- Digitization of radio will allow the government to retrieve spectrum and re-allocate it for more efficient use.
- Possibility of Simulcast allowing broadcasters to save cost of transmitting signal in both formats, analog as well as digital formats.

3.10 The Authority in its recommendations dated 01.02.2018 recognized that that there is a need to bring all the stakeholders - radio broadcasters, transmission equipment manufacturers, and digital radio receiver manufacturers - on one platform and to encourage them to work collectively for developing the ecosystem for digital radio broadcasting. The Authority emphasized that the government should come out with a detailed policy framework for Digital Radio Broadcasting in India which should provide detailed roadmap for rollout of digital radio broadcasting services in a time bound manner. Accordingly, the Authority recommended that:

"The Government should notify the policy framework for Digital Radio Broadcasting in India in time bound manner with a clear roadmap for rollout of digital radio broadcasting services. It will encourage all stakeholders to work collectively for developing the ecosystem for digital radio broadcasting."

3.11 Existing broadcasters need to migrate their analog FM radio channels to digital radio channels. Initially existing FM radio broadcasters may opt to migrate to digital radio broadcasting in metro and major cities to increase number of radio channels as they see good revenue model. However, the same may not be the case in smaller cities due to lack of infrastructure and business opportunities. Further, the business model of radio broadcasters depends on advertisement revenue which in turn depends on the number of listeners of their channels. While migrating to digital radio broadcasting, revenue of existing radio broadcasters may be impacted due to low availability of digital radio receivers initially. In order to sustain the revenue of existing radio broadcasters while introducing digital radio broadcasting, it has to be ensured that existing analog transmission remains in operation. In such a scenario, if digital radio broadcasting is implemented without any eco-system in place, it may not become popular and may not ensure return on investment for digital radio broadcasters.

3.12 Looking at the above scenario, the Authority in its recommendation on Digital Radio dated 01.02.2018 recommended a managed introduction approach for rolling out digital radio broadcasting services in India. In a managed introduction the regulator/government provides a clear roadmap enabling a conducive environment and ecosystem for deployment of digital radio broadcasting by existing radio broadcasters. In this approach digital transmission can be introduced in simulcast mode initially while reducing the analog transmission gradually based on the availability of digital receivers.

3.13 The Authority in its recommendations dated 01.02.2018 also noted that new digital transmitters can be introduced within the existing FM environment in following three ways:

(i) Simulcast operation of digital and analog transmission on the same frequency band allocated for FM radio broadcast
(ii) Replacing an existing FM transmitter with digital transmitter
(iii) Interleaving of digital transmission within existing operational FM frequencies

3.14 In the first option there is simulcast operation of digital radio and analog FM radio on the same frequency allocated to existing radio broadcasters for providing FM Radio broadcasting services. In this option existing infrastructure already in use for FM Radio broadcasting services can be utilized for digital radio broadcasting also. However, this may not be an effective option due to non-availability of digital radio receivers.

3.15 In the second option the existing FM transmitter is replaced with a new digital transmitter. This option cannot be adopted in the initial stages of development as the limited number of digital radio receivers will result in a significant reduction in listenership and hence revenue of existing radio broadcasters. This option may be adopted at a later stage when an adequate number of digital radio receivers will become available, and the ecosystem is well developed.

3.16 The third option entails the introduction of digital transmission on new frequencies identified in between the existing operational analog FM frequencies. While doing so, it has to be ensured that transmission of digital radio has no interference with FM radio broadcast and quality of FM radio reception is not compromised.

3.17 In view of the above, the Authority in its recommendations on Issues related to Digital Radio Broadcasting in India dated 1st February 2018 recommended the following roadmap for migration to digital radio broadcasting**:**

3.46.1 Private sector should be permitted to provide digital radio broadcasting services within the existing frequency band of 88 –108 MHz used for FM radio broadcasting.

3.46.2 The frequency and geographical area coverage planning for digital radio broadcasting for vacant 600 KHz spectrum between two allocated FM frequencies in VHF-II band should be completed by BECIL, AIR, and WPC together within three months for category A+ (4 Metro cities), and category A cities (8 cities) in first phase.

3.46.3 The frequency and geographical area coverage planning for digital radio broadcasting services in VHF-II band for rest of the country should be completed by BECIL, AIR, and WPC together in second phase.

3.46.4 Frequency and geographical area coverage planning for digital radio broadcasting services using VHF-III (174-230 MHz) band of spectrum should also be carried out by BECIL, AIR, and WPC together in third phase, after this spectrum get vacated.

3.46.5 WPC should notify the channel plan for each type of digital radio broadcasting technology.

3.46.6 200 KHz bandwidth spectrum between two allocated FM frequencies in VHF-II band should be auctioned for providing digital Radio broadcasting services in category A+ (4 Metro cities), and category A cities (8 cities) immediately after notification of the policy for digital radio broadcasting and notification of channel plan by WPC.

3.46.7 Auction should be carried out in phases – starting with cities of category 'A+' and 'A' and subsequently in cities of other categories.

3.46.8 Immediately after the successful auction of spectrum for digital radio broadcasting, an offer should be made to the existing FM Radio broadcasters to get their existing frequency bandwidth of ± 100 KHz, already allocated to them through auction in Phase-III of FM Radio, liberalized and provide digital radio broadcasting services in simulcast mode with analog FM Radio services.

3.46.9 For liberalizing of existing spectrum, already allocated to the FM radio broadcasters in Phase-III of FM Radio, they will have to pay an amount equal to the difference of auction determined price of equivalent spectrum for digital radio broadcasting in a city and amount paid for allocation of FM radio frequency.

3.46.10 In case market determined prince of 200 KHz for digital radio broadcasting is less than or equal to the price paid by FM radio broadcasters than FM radio broadcasters will not be required to pay any additional amount and he will be permitted to provide digital radio broadcasting services also for the remaining period of permission.

3.46.11 The broadcasters should be allowed to make use of any available digital technology, recognized by ITU, within the allocated/liberalized spectrum for providing digital radio broadcasting services subject to adaptation, if any, recommended by MIB/TRAI from time to time.

3.18 In line with TRAI's recommendations, MIB constituted a committee consisting of Prasar Bharti, Wireless Planning and Coordination (WPC), Broadcast Engineering Consultants India Ltd (BECIL) and Association of Radio Operators for India (AROI) for frequency and geographical area

coverage planning for digital radio broadcasting in category A+ and A cities. The committee has identified frequencies for digital radio broadcasting in 4 category A+ cities and 9 category A cities.

3.19 MIB vide its reference dated 23.04.2024 has sought reserve prices for auction of digital channels in in 4 category A+ cities and 9 category A cities. Subsequent to TRAI's recommendations, MIB will conduct an auction in these 13 cities.

3.20 Once TRAI makes its recommendations as an outcome of this consultation process, MIB may notify the Digital Radio Broadcast Policy as a first step. Subsequently existing radio broadcasters may be given an option to migrate to digital radio broadcasting. For providing digital radio broadcasting services in simulcast mode, existing radio broadcasters will be required to upgrade their infrastructure. For ensuring timebound migration of existing radio broadcasters to digital radio broadcasting, a timeframe for various activities, such as giving an option to migration to existing radio broadcasters, cutoff date for exercising the option, deployment of digital broadcasting technology, commencement of digital radio broadcast, may need to be prescribed.

3.21 At present the period of permission for FM radio is 15 years. Phase-III of FM radio commenced in 2015, when 231 FM radio channels operational in Phase-II migrated to Phase-III. Subsequent to batch-I and batch -II auction conducted in 2015 and 2016, 157 channels became operational during 2016-2022. The existing operational channels have already completed a period of 2 to 9 years out of the total permission of 15 years. It may take another 2-3 years to migrate existing FM channels to digital radio. By that time most of the existing channels would have completed 4-12 years out of their total 15 years of existing permission. In such a scenario, some existing broadcasters may not be inclined to adopt digital radio as it may not be possible to recover the expenditure incurred by them for upgradation of existing network for digital radio broadcasting. Therefore, some measures such

as extension of the existing permission period without paying any additional fee for existing FM channels who migrate to digital radio, may be required. Further, after completion of the existing period of 15 years, the permission of those radio broadcasters who migrate to digital radio broadcasting, may be renewed by paying market determined price, arrived through auction of digital radio channels, of the bandwidth already allocated to them for ensuring continuity of their operations.

Q4. What should be the approach for migration of existing FM radio broadcasters to digital radio broadcasting?

Q5. What should be the timeframe for various activities related to the migration of existing FM radio broadcasters to digital radio broadcasting?

Q6. Please suggest measures that should be taken to encourage existing FM radio broadcasters to adopt digital radio broadcasting.

C. Affordability of Digital Radio Receivers

3.22 Terrestrial radio broadcasting is free-to-air service. A consumer can simply procure radio receiver equipment and tune into various radio channels available in that region. The business model of radio broadcasting services is based on advertisement revenue and the rates of the advertisements are generally linked with the listenership of a particular channel. In the absence of good quality receivers that are affordable and widely available, there are no incentives for broadcasters to broadcast in digital format, which in turn may discourage the investments by receiver manufacturers. Therefore, in order to ensure adequate return on investment for radio broadcasters, adequate availability of receivers at affordable price is a must irrespective of the technology adopted for digital broadcasting.

3.23 FM Radio receivers presently used for listening to FM Radio programs can be classified into four different categories - (1) Standalone Radio receivers, (2) FM Radio receivers installed in passenger vehicles, (3) FM Radio receivers integrated with Mobile handsets, and 4) FM Radio receivers integrated with blue tooth speakers and music systems. In the case of migration to digital radio broadcasting, digital radio receivers for all the above categories will need to be made available.

3.24 Some automobile manufacturers have also started fitting digital radio receivers in the new models of their vehicles. At present digital radio receivers are available in approximately 6 million cars. But there are large number of older vehicles, in which analog FM receivers have been installed. In the case of migration to digital broadcasting analog FM receivers installed in passenger vehicles may need to be replaced. For new vehicles the cost of digital radio receivers may be integrated within the cost of vehicle and may not be separately visible to buyer. However, replacement of radio receivers in old vehicles will entail cost.

3.25 In the absence of availability of digital radio receivers at affordable cost, listeners may not become interested in digital broadcasting services. In order to proliferate digital radio broadcasting, some measures may be required to reduce the prices of digital radio receivers for making them affordable for masses. These may include clear decision on adoption of technology, long term roadmap for migration to digital radio broadcasting, creation of core group to look into all issues and support development of ecosystem etc. Stakeholders' views are invited on this vital issue.

3.26 Presently the mobile handsets in India have integrated FM radio receivers and is most popular medium among listeners due to its convenience and portability. There will be a need to integrate digital receivers into mobile handsets.

3.27 Radio continues to serve as a powerful medium for connecting with the masses, bridging gaps, and fostering inclusivity. Its significance is particularly evident during disasters and emergencies, where radio provides a reliable source of information and communication. Recognising the immense value of integrating a radio receiver into mobile handsets, especially for economically disadvantaged individuals, the Authority acknowledges the numerous benefits that this inclusion brings.

3.28 By incorporating a radio receiver into mobile handsets, individuals who are financially underprivileged can now access radio programming without the need to invest in an additional device. This accessibility is particularly crucial as radio offers a wide range of content, including news, entertainment, educational programs, and agricultural or health-related information. It serves as a valuable source of knowledge and empowerment for those who may not have access to other forms of media. Furthermore, by enabling free radio reception without the requirement for costly data plans from Telecom Service Providers, individuals at the lowest socio-economic strata can enjoy infotainment and entertainment.

3.29 The seamless accessibility to radio content can be enabling in a number of circumstances including local information and alerts. By ensuring that every mobile handset is equipped with a built-in radio receiver, the most economically disadvantaged individuals can be empowered to enjoy the advantages of radio without any financial burden. This not only promotes inclusivity but also recognizes the transformative potential that radio holds in uplifting communities and enhancing their well-being.

3.30 In line with this recognition, the Ministry of Electronics and Information Technology (MeitY) recently released an advisory to ICEA and MAIT on 28th April 2023. The advisory emphasizes the importance of ensuring that mobile phones equipped with built-in FM radio receiver functions

or features are not disabled or deactivated. The advisory urges that these functions or features remain enabled and activated in the mobile phones, promoting widespread access to radio content. An excerpt from the advisory is provided below:

"2. The FM broadcast is a robust and reliable communication system. FM stations serve as important communication links between the local authorities and people in times of natural disasters (i.e., in catastrophic situations). As per International Telecommunication Union (ITU) - "In times of emergencies and disaster, Radio broadcasting is one of the most powerful and effective ways of delivering early warnings and alerting the public to save lives". Further, there is need for speedy, timely, and reliable communication via FM enabled mobile phones (apart from regular standalone Radio sets and car receivers) during disasters as this can save precious lives, livelihood and also prepares us better to deal with the disasters. The availability of vast network of FM transmitters and FM radio in the country played a key role in India's fight against the COVID-19 pandemic.

3. In view of the above, it should be ensured that wherever the mobile phone is equipped with an inbuilt FM Radio receiver function or feature, that function or feature is not disabled or deactivated but is kept enabled / activated in the mobile phone. Further, it is advised that if the FM Radio receiver function or feature is not available in the mobile phones, it may be included."

3.31 In order to ensure the effective implementation of the advisory issued by MeitY, the Authority in its recommendations on "Issues related to FM Radio Broadcasting" dated 5th September 2023 recommended that:

i. *Functions or features pertaining to FM radio should remain enabled and activated on all mobile handsets having the necessary hardware. Built-in FM radio receiver in mobile handset must not be subjected to any form of disablement or deactivation.*
ii. *A Standing Committee, headed by a senior officer of Joint Secretary or above level, to oversee and monitor the compliance of enabling the FM Radio in Mobile Handsets (as per (i) above) by mobile phone manufacturers (or importers) may be established by MeitY. The*

committee should include key stakeholders such as MIB, AROI, MAIT, and ICEA.

iii. *An online grievance redressal portal should be provided for submitting information or complaints of case of any non-compliance as regards enablement of FM radio functionality in such mobile handsets that have the necessary functionality for FM receivers.*

3.32 European Union in Annex XI to the European Electronic Communications Code (EECC)[13] dated 11th December 2018 has mandated that:

"Any car radio receiver integrated in a new vehicle of category M which is made available on the market for sale or rent in the Union from 21 December 2020 shall comprise a receiver capable of receiving and reproducing at least radio services provided via digital terrestrial radio broadcasting. ……"

3.33 Similar measures for facilitating availability of digital radio receivers in mobile handsets and passenger vehicles may need to be considered.

Issue for consultation:

Q7. What measures should be taken to facilitate the availability of affordable digital radio receivers?

D. Simulcast of live channel on Internet without any extra cost

3.34 MIB in its reference has mentioned that FM radio industry body AROI have been raising certain issues for consideration such as permitting private FM broadcasters to simulcast their live terrestrial channels on Internet with no additional cost to broadcasters.

[13] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L1972

3.35 Extant policy guidelines have no explicit provision regarding simulcast of live FM radio terrestrial channels on the Internet. Presently music streaming Apps are gaining momentum and have become popular as listeners can enjoy music of their choice. However, on these Apps, no live information related to weather, traffic, education, local events etc. is available as provided by radio jockeys on live radio channels. In case, radio broadcasters are permitted to simulcast their live radio channels on Internet, it may help radio broadcasters to enhance their revenue. However, some terms and conditions may need to be prescribed for such simulcast.

Q8. Should private radio broadcasters be permitted to simulcast their live terrestrial channels on Internet? If yes, what should be the terms and conditions for such simulcast? Please provide your comments with detailed justification.

E. Provisions of FM Phase-III policy guidelines that may require review for inclusion in Digital Radio Broadcast Policy

3.36 MIB notified Policy Guidelines on expansion of FM Radio Broadcasting Services through Private Agencies for FM Phase-III on 25th July 2011 which have been amended from time to time. These guidelines contain comprehensive terms and conditions for providing FM radio broadcasting services such as eligibility criteria, financial competence, period of permission, annual license fee, PBG, EMD, technical parameters, Program content, Penalty provisions etc. In the proposed policy guidelines for Digital Radio Broadcast similar provisions may be adopted. However, provisions of existing policy guidelines may require review as digital radio technologies have advantages over analog FM technology as mentioned in chapter 1, the major one is availability of multiple channels on single frequency.

3.37 MIB in its reference dated 23.04.2024 has mentioned following provisions of exiting FM Phase-III policy guidelines that may require review:

E1. <u>Eligibility Criteria</u>

3.38 For the grant of any license/authorisation for providing a service, eligibility criteria need to be mentioned in the guidelines, so that only eligible entities apply for the license/authorisation.

3.39 Clause 2 of the FM Phase-III policy guidelines provide the following provisions regarding eligibility criteria of an entity for providing FM Radio services:

*" **2. <u>Eligibility Criteria:</u>***

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."

3.40 Stakeholders are requested to provide their comments whether the prescribed eligibility criteria in policy guidelines for Phase - III of FM Radio can be extended to digital radio broadcasting policy too.

Issue for Consultation:

Q9. (i) Should the provisions relating to eligibility criteria prescribed in FM Phase-III Policy guidelines be adopted for Digital Radio Broadcast Policy?

(ii) If yes, is there any need to add or remove any criteria?

(iii) If not, please suggest the plausible eligibility criteria for granting authorisation for digital radio broadcasting.

E2. Financial Competence

3.41 For providing radio broadcasting services, an eligible entity need to participate in the auction and after successful bidding of a frequency, need to roll out a network in a stipulated timeline. Both of these activities require significant investment. The net-worth of an entity is an important parameter for gauging its financial standing. Accordingly, a minimum net worth criterion need to be prescribed for eligible entities so as to restrain the non-serious players from entering into the business.

3.42 Clause 2.3 of the FM Phase-III policy guidelines provide the following provisions regarding assessment of financial competence of an eligible company:

"2.3 Financial Competence:

2.3.1 The financial eligibility of each applicant company shall be assessed on the basis of the following criteria:

***Minimum Net Worth required as per City Category in each region**:*

D category Cities and cities with population upto 1 lakh:	*Rs. 50 Lakhs.*
C category Cities:	*Rs. 1 Crore.*
B category Cities:	*Rs. 2 Crore.*
A category Cities:	*Rs. 3 Crore.*
A+ category Cities:	*Rs. 3 Crore.*
All categories of Cities in all regions:	*Rs. 10 Crore.*

Illustration: For two or more C category cities in the same region, Net Worth of Rs. 1 crore is required. If the two C category cities are in two different regions, Net Worth of Rs. 2 crore is required.

[1]: Net worth requirement for two or more B category cities in one region will suffice the net worth requirement for a combination of two or more B category or lower category cities (ie, cities in C, D and J&K/ Ladakh/NE

(border) categories) also in the same region. Similarly, for other categories.

2.3.2 ***Region*** *shall mean North or East or South or West region, comprising states/UT s as under:*

North Region: *J&K, Punjab, Himachal Pradesh, Haryana, Rajasthan, Delhi, Uttar Pradesh, Uttarakhand & Chandigarh.*

East Region: *Arunachal Pradesh, Assam, Bihar, Jharkhand, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Sikkim, Tripura, West Bengal, Andaman & Nicobar Islands.*

South Region: *Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Puducherry, Lakshadweep*

West Region: *Chhattisgarh, Goa, Gujarat, Madhya Pradesh, Maharashtra, Daman & Diu, Dadar and Nagar Haveli*

2.3.3 Each applicant shall indicate the category or categories of cities and the region (s) it desires to bid for at the time of bidding and its eligibility shall be determined accordingly. In case the applicant does not wish to intimate these details and wishes to have the option to take part in any or all categories in all the regions, the applicant company must have the minimum net worth of Rs.10 Crore.

2.3.4 The cut off date for determination of networth shall be as mentioned in the tender document.

2.3.5 Irrespective of any other definition provided anywhere else, the networth shall be interpreted and calculated as per the proforma given at ***Annexure-I*** *and should be certified by Statutory Auditors of the Company duly supported by certified accounts by the Statutory Auditors. It is further clarified that the networth of only the applicant company will be considered to determine the eligibility and the networth of holding companies or subsidiaries or group companies or interconnected undertakings will not be taken into account.*

2.3.6 The existing FM permission holders will also be required to fulfill the networth criteria.

2.3.7 It is clarified that the amount of One Time Entry Fee already paid to the Government cannot be taken as a tangible asset either in full or in part for the purposes of calculation of Networth."

3.43 Stakeholders are requested to provide their comments on the criteria for assessing the financial competence of an applicant company for operating radio channels under the Digital Radio Broadcast Policy.

Q10. Should the financial eligibility criteria provided in existing policy guidelines be adopted for digital radio broadcasting policy? If not, what should be the financial eligibility criteria for different categories of cities for digital radio broadcasting? Provide your suggestions with detailed justification.

E3. Period of Permission

3.44 Clause 3 of the FM Phase-III policy guidelines provide the following provisions regarding period of permission:

*"The Permission shall be valid for a period of **fifteen (15) years** from the effective date as defined below. There shall be no extension and the Permission, unless cancelled or revoked earlier, shall automatically lapse and expire at the end of the aforesaid fifteen years' period and the Permission Holder shall thereafter have no rights whatsoever to continue to operate the Channel after the date of expiry of the Permission. Government at the appropriate time shall determine procedure for issue of fresh permissions.*

The effective date of the Permission Period shall be reckoned from the date of operationalisation of the Channel or the expiry of the time limit for operationalisation as specified in Para 5, whichever is earlier, unless the time limit for operationalisation has been extended by the

Secretary, Ministry of Information & Broadcasting as per para 5 in which case the effective date of the Permission Period shall be the last date so fixed."

3.45 Stakeholders are requested to provide their comments on the period of authorisation granted for operating radio channels under the Digital Radio Broadcast Policy.

Issue for Consultation:

Q11. Should the provisions regarding the period of permission as per existing Policy Guidelines be adopted for the Digital Radio Broadcast Policy? If not, what should be the validity of the period of permission for Digital Radio Broadcasting? Provide your suggestions with detailed justification.

E4. Earnest Money Deposit (EMD)

3.46 In order to ensure that only serious bidders participate in the auction, prospective bidders are required to deposit an amount, known as Earnest Money Deposit (EMD), equal to certain percentage of the reserve price of a radio channel.

3.47 Clause 4.4 of the extant policy guidelines have the following provisions regarding EMD:

"Prospective bidders for a channel shall be required to deposit Earnest Money , along with the application for pre-qualification, in the form of a Bank Guarantee from a Scheduled Bank (as per the format specified by the Ministry) which shall be 25% of the reserve price of that city per channel."

3.48 Stakeholders are requested to provide their comments on the provisions relating to Earnest Money Deposit for the Digital Radio Broadcast Policy.

Q12. Should the provisions regarding the Earnest Money Deposit provided in existing policy guidelines be adopted for the Digital Radio Broadcast policy? If not, what should be the Earnest Money Deposit for digital radio broadcasting services?

E5. Application Processing Fee

3.49 For participating in the auction process for radio channels an entity has to submit an application to MIB in the prescribed format along with requisite documents. MIB processes the application for checking eligibility criteria, financial competence etc. For this purpose, an application processing fee has been prescribed in extant policy guidelines.

3.50 Clause 2.3 of the FM Phase-III policy guidelines provide the following provisions regarding application processing fee:

> *"The applicant shall pay a non-refundable application processing fee of Rs. 25,000/- payable to Pay and Accounts, Ministry of Information and Broadcasting, New Delhi, through a demand draft."*

3.51 The issue comes up about whether the provision regarding application processing fee provided in the extant policy guidelines can also apply to digital radio broadcast policy.

Issue for Consultation:

Q13. What should be the amount of application processing fee for Digital Radio Broadcast services? Please provide your suggestions with justification.

E6. Performance Bank Guarantee (PBG)

3.52 The purpose of insisting on a PBG is to ensure that the authorisation/permission holder complies with the obligations cast upon it by virtue of the grant of a particular authorisation.

3.53 As per Clause 4.12 of the Phase-III policy guidelines, before signing the Grant of Permission Agreement (GOPA), a FM radio broadcaster has to furnish a Performance Bank Guarantee (PBG), on the format specified by the Ministry for an amount equal to the annual fee for complying with all the terms and conditions contained in GOPA including the timely payment of due annual fee.

3.54 Stakeholders may provide their comments whether the provisions regarding Performance Bank Guarantee as prescribed in existing policy guidelines can be applied to the digital radio broadcast policy as well.

Issue for Consultation:

Q14. Should the provisions regarding the Performance Bank Guarantee provided in existing policy guidelines be adopted for the Digital Radio Broadcasting services? If not, what should be the amount of Performance Bank Guarantee for digital radio broadcasting services?

E7. Requirement to adhere to time schedule

3.55 For timely roll out of radio broadcasting services, a time schedule for operationalisation providing timelines for completing various activities involved in rolling out of a radio channel, need to be mentioned in policy guidelines.

3.56 Clause 5 of the extant policy guidelines casts following requirements on authorisation holders to adhere to time schedule for signing of Grant of Permission Agreement (GOPA) and operationalisation of radio channels:

*"**5. Requirement to adhere to Time Schedules:***

5.1 Time Schedule for signing of GOPA:

5.1.1 Following time limits will be required to be adhered to for cities of Phase-II where it is a vacant channel or additional channel(s) is (are) proposed and CTI has been created:

(i) Agreement with PB and making payment for LTI lease : within 60 days of the issue of LOI

(ii) Agreement with BECIL and making payment for CTI creation : within 90 days of the issue of LOI

(iii) Signing of GOPA with Ministry of I&B : within six months of Grant of LOI.

5.1.2 For cities not covered in 5.1.1 and where PB infrastructure is available, following time lines will be required to be adhered to in such cities:

(i) Agreement with PB and making payment for LTI lease : within 90 days of the issue of LOI

(ii) Agreement with and making payment to mutually agreed upon system integrator, which could be BECIL or any other agency, by LOI holder for creation of CTI: within 90 days of the issue of LOI

(iv) Signing of GOPA with Ministry of I&B : within six months of Grant of LOI.

***N.B.** In case no system integrator could be mutually agreed upon, agreement entered into and payment made within a period of 90 days, then all the LOI holders for the city will be mandatorily required to sign agreement and make payment for creation of CTI within a further period of 30 days with BECIL, which automatically will take over as system integrator after 90 days of issue of LOI.*

5.1.3 For cities not covered in 5.1.1 and 5.1.2 and where suitable PB infrastructure is not available, all the LOI holders in a city will be

required to appoint an agency, enter into agreement and pay their respective share for creation of CTI to the agency within a period of 90 days of issue of LOI. This agency will be responsible for identification of suitable LTI and creation of CTI as per the following time schedules.

(i) In case the system integrator is able to locate a suitable and readily available LTI then all the LOI holders will be required to enter into an agreement with the LTI provider and make the necessary payments within a further period of 30 days, i.e. within a period of 120 days from the issue of LOI . GOPA will be required to be signed within a further period of five months, i.e. within a period of 9 months from the issue of LOI

(ii) In case no suitable LTI is readily available, it has to be created at the cost of LOI holders. The LOI holders will be required to enter into agreement with the agency for creation of LTI and make payment of their respective share within a further period of 30 days, i.e. within a period of 150 days from the issue of LOI. GOPA will be required to be signed within a further period of five months, i.e. within a period of 10 months from the issue of LOI

(ii) In case no system integrator could be mutually agreed upon, agreement entered into and payments made within a period of 90 days of issue of LOI for identification of suitable LTI and creation of CTI as provided above, then all the LOI holders will be mandatorily required to sign agreement with BECIL and make payments for the same within 120 days of issue of LOI. GOPA will be required to be signed within a further period of five months, i.e. within a period of 11 months from the issue of LOI.

5.2 Time Schedule for operationalisation:

5.2.1 The permission holder shall be liable to install the radio station and take action to obtain WOL and operationalise the channel within the timeframe prescribed as follows:

(i) Where it is a vacant channel of Phase-II or additional channel in a city of Phase-II and CTI has been created : within a period of Twelve months from issue of LOI

(ii) Where suitable LTI of PB or any other agency is readily available: within a period of 18 months from the date of issue of LOI

(iii) Where suitable LTI is not readily available: within a period of 24 months from the date of issue of LOI.

Note: A channel shall be taken as 'operationalised' from the date of launch of its commercial transmission (with or without advertisement) on a fixed/regular transmission schedule after the test transmission, if any, which shall not normally exceed 10 days, is over.

5.3 Time Schedule in totality :

The time schedules for various activities covered under 5.1 and 5.2 above are summarized as follows :

S.No.	Activity	Period of completion from issue of LOI				
		For cities where vacant channel of Ph-II or additional channel in city of Ph-II , where CTI had been created (Ref. Para 5.1.1)	**For cities (other than those covered under Para 5.1.1) where P.B. LTI is available (Ref. Para 5.1.2)**	**For cities other than those covered under Para 5.1.1 & 5.1.2) where suitable LTI other than P.B. is available [Ref. Para 5.1.3(i)]**	**For cities where no suitable LTI is readily available [Ref. Para 5.1.3 (ii)]**	**Remarks**
1.	Signing of agreement and making payment to LTI provider	60 days	90 days	120 days	150 days	
2.	Appointment of mutually agreed CTI creator, signing of agreement and making payment	90 days	90 days (x) (120 days) (+)	90 days (x) (120 days) (+)	90 days (x) (120 days) (+)	(x) & (+) Please refer to N.B. below
3.	Signing of GOPA with M/o I & B	6 months	6 months	9 months	10 months	

4	Creation of CTI	12 months	12 months	18 months	24 months	
5.	Operationalisation of FM Channel	12 months	18 months	18 months	24 months	
(x) N.B. In case the LOI holders of a city do not mutually agree upon appointment of a CTI integrator, enter into agreement and make payment of their share of CTI to the integrator within a period of 90 days of issue of LOI, then BECIL will automatically be mandated to be their CTI integrator and periods as indicated vide (+) will be applicable for entering into agreement with BECIL and making necessary payments of the share of each LOI holder for creation of CTI to BECIL.						

5.4 In the event of default in operationalisation of a channel being attributable to delay beyond reasonable period by BECIL/system integrator/Prasar Bharati/Wireless Planning & Coordination Wing, of Ministry of Communications & IT, the prescribed time limit for operationalisation may, at the request of the Permission Holder, be extended by such period of delay by the Secretary, Ministry of Information & Broadcasting, whose decision shall be final and binding on both the parties. Such an extension shall however not be for a period exceeding one year beyond the time limit for operationalisation prescribed in para 5.2 and 5.3 above.

5.5 However, in exceptional cases and on a written request from the permission holder detailing the circumstances for the delay in operationalisation, the time limit can, at the discretion of the Secretary, Ministry of Information & Broadcasting, be further extended for a maximum period of one year subject to the following:

(i) The date from which such an extension is granted shall be reckoned as the date for the beginning of the permission period.

(ii) The permission holder pays in one lump sum, in advance, the annual fee for such an extended period,"

3.57 In view of the fact that infrastructure for digital radio is yet to be established, stakeholders are requested to provide their comments on whether any relaxation needs to be given in the time schedule for

signing of authorisation and operationalisation of radio channel for Digital Radio Broadcasting services.

Issue for Consultation:

Q15. Should the provisions regarding the time schedule for signing of authorisation and operationalisation of radio channel as prescribed in existing policy guidelines be adopted for Digital Radio Broadcasting services? If not, please suggest with justification the changes required in the time schedule for signing of authorisation and operationalisation for channels for Digital Radio Broadcasting services.

E8. Annual Fee

3.58 Annual fee is a rent to a government or authorising authority for the right to operate a network, provide a service or use a limited resource. In the case of radio broadcasters, spectrum is allocated to them for providing service.

3.59 Clause 6 of the Phase-III policy guidelines have following provisions regarding annual fee to be paid by FM radio permission holders and methodology of payment of annual license fee:

*"**6. Annual Fee:***

6.1 (a) Subject to the provisions contained in sub-para (b), the Permission Holder shall be liable to pay an Annual Fee to the Government of India every year charged @ 4% of Gross Revenue of its FM radio channel for the financial year or @ 2.5% of NOTEF for the concerned city, whichever is higher.

6.1(aa). Notwithstanding the provision in Clause 6.1 (a) and subject to provision contained in 6.1 (ba); the Permission holder in uncovered new cities under Batch- III FM Phase-III auction shall be liable to pay an

Annual Fee to the Government of India every year charged @ 4% of Gross Revenue of its FM radio channel for the financial year for the concerned city excluding Goods and Service Tax. Other Clauses of these policy guidelines in so far, they relate to the permission holder in uncovered new cities under Batch III FM Phase Ill, shall be read accordingly."

(b) The permission holders in the States of North East (i.e. Arunachal Pradesh, Assam, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim and Tripura,) and Jammu & Kashmir (J&K) and island territories (i.e Andaman and Nicobar islands and Lakshadweep) will be required to pay an Annual Fee to the Government of India charged @ 2% of Gross Revenue for each year or 1.25% of NOTEF for the concerned city, whichever is higher, for an initial period of three years from the date from which the annual license fee becomes payable and the permission period of 15 years begins. The revised fee structure will also be applicable to existing operators in these States/UTs to enable them to effectively compete with the new operators. The three year period for the existing operators shall be reckoned from the first day of the commencement of the next quarter (refer para 6.3) subsequent to the date of issuance of these guidelines.

6.1(ba). The Permission holder in the uncovered new cities in the States of North East i.e., Manipur, Meghalaya, Mizoram, Nagaland and Tripura; Union Territories of Jammu & Kashmir; and island territories (i.e, Andaman and Nicobar islands and Lakshadweep)under Batch-III FM Phase-III auction will be required to pay an Annual Fee to the Government of India charged @ 2% of Gross Revenue excluding Goods and Service tax for each year for an initial period of three years from the date from which the annual license fee becomes payable and the permission period of 15 years begins. Other Clauses of these policy guidelines for such permission holders shall be read accordingly.

6.2 Gross Revenue for this purpose would be the gross inflow of cash, receivables or other consideration arising in the course of ordinary

activities of the FM Radio Broadcasting enterprise from rendering of services and from the use by others of the enterprise resources yielding rent, interest, dividend, royalties, commissions etc. Gross Revenue shall, therefore, be calculated, without deduction of taxes and agency commission, on the basis of billing rates, net of discounts to advertisers. Barter advertising contracts shall also be included in the gross revenues on the basis of relevant billing rates. In the case of a permission holder providing or receiving goods and services from other companies that are owned or controlled by the owners of the permission holder, all such transactions shall be valued at normal commercial rates and included in the profit and loss account of the permission holder to calculate its gross revenue.

6.3 Annual Fee shall be paid in advance on quarterly basis in four equal instalments within the first fortnight of each quarter of a financial year. For this purpose, four quarters shall be trimonthly periods beginning 1st April, 1st July, 1st October and 1st January respectively.

6.4 The first year's fee shall become payable with effect from the date of operationalisation of the channel or the expiry of the period prescribed in para 5, whichever is earlier. The permission holder shall be required to initially pay advance quarterly installments calculated on the basis of the minimum prescribed % of the NOTEF mentioned in para 6.1 (a) or (b) as applicable, till the end of the financial year and even beyond till the determination of the first year's gross revenues.. After the determination of first year's gross revenue, the quarterly installments will be determined on the basis of NOTEF or the gross revenue of the last year, for which gross revenue has been determined, whichever is higher.

6.5 Once the final fee for the financial year is determined on the basis of actual gross revenue as given in para 6.1, and is found to be higher than the prescribed percentage of the NOTEF the permission holder shall pay the balance in one lump sum within a period of one month from the

date of such determination, and in any case not later than 30th September of the following year.

6.6 From the second year onwards, the permission holder shall pay advance annual fee on the basis of the last year for which the gross revenue has been determined, or minimum prescribed % of the NOTEF, whichever is higher, within the first fortnight of each quarter, and balance due of final annual fee, if any, by 30th September of the following financial year. Any delay on the part of the permission holder to pay the quarterly fee, or the balance due of the final annual fee, determined on the basis of the gross revenue figure, will attract simple interest @ 1% per month for the period of such delay.

6.7 Every permission holder shall furnish a performance bank guarantee as mentioned in para 4.12 for an amount equal to the annual fee calculated on the basis of NOTEF formula given in para 6.1(a) or (b) as applicable, and maintain its validity throughout the currency of the permission. Amount of bank guarantee shall be increased so as to be equal to the annual license fee paid by the licensee for the previous year if such annual license fee exceeded the bank guarantee already furnished by the licensee. The Permission Holder shall be liable to pay the Annual Fees within the prescribed time period, failing which the Government will have the right to invoke the Bank Guarantee furnished by the Permission Holder without any prior notice. Such right shall be without prejudice to any other action that may be taken by the Government under the terms and conditions of the Permission. In the event of invocation of the Performance Bank Guarantee, the Permission Holder shall furnish a fresh bank guarantee of the same amount within a period of three months from date of invocation of the Performance Bank Guarantee, in favour of the Government.

6.8 In the event of Permission Holder's failure/ inability to operationalise the Channel as required within the prescribed time period, the Government shall have the right to recover the Annual Fee

for the first year and all the years of such failure/inability as a lump-sum payment, and in the event of default by the Permission Holder, by invocation of the Performance Bank Guarantee furnished by it. As aforesaid, in the event of invocation of the Performance Bank Guarantee , the Permission Holder shall furnish a fresh bank guarantee of the same amount within a period of three months from date of invocation of the Performance Bank Guarantee, in favour of the Government, for the succeeding year's Annual Fee.

6.9 Every Permission Holder shall maintain separate financial accounts for each Channel, which shall be audited by the Statutory Auditors. At the end of each financial year, the company shall provide the statement of gross revenue forming part of the final accounts of the Permission Holder as per the format (Annexure-II), duly certified by the Statutory Auditors and duly supported by the audited accounts for the financial year. It may be noted that the income heads specified in Annexure-II are only indicative and illustrative and the Auditor would include all the relevant heads qualifying for gross revenue whether or not specifically included in the said format. In addition, the income from the Related Parties shall have to tally with the Related Parties schedule as per Accounting Standards no. 18. Besides, the company shall disclose the following information at the end of each financial year, duly certified by the Statutory Auditor:

(i) Total trade and other discounts.
(ii) Total agency commission.
(iii) Total Related Party Transactions.

6.10 So as to verify that the Gross Revenue is correctly disclosed to it, the Government shall have the right to get the accounts of any permission holder audited by CAG or any other professional auditors at their discretion. In case of difference between the Gross Revenue determined by the Statutory Auditor of the Company and the Government appointed auditors, the views of the government appointed auditor subject to opportunity of hearing to the permission holder shall

prevail and the expenses of such audit shall be borne by the permission holder.

In case any amount is to be deposited by the licensee as per provisions of Para 6.8 it shall be deposited within 15 days of such determination along with interest calculated as already mentioned in para 6.5."

……."

3.60 According to Phase-III policy, a permission holder is liable to pay an annual license fee @ 4% of Gross Revenue of its FM radio channel for the financial year or @ 2.5% of NOTEF for the concerned city, whichever is higher.

3.61 However, the permission holders in the States of North East (i.e. Arunachal Pradesh, Assam, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim and Tripura,) and Jammu & Kashmir (J&K) and island territories (i.e Andaman and Nicobar islands and Lakshadweep) are required to pay an Annual Fee @ 2% of Gross Revenue for each year or 1.25% of NOTEF for the concerned city, whichever is higher, for an initial period of three years. This special provision is designed to account for the unique terrain and socio-economic conditions in these states and UTs.

3.62 TRAI in its Recommendations on Issues related to FM Radio Broadcasting dated 5th September 2023 noted that linking license fee to Non-Refundable One Time Entry Fee (NOTEF) has resulted in significantly higher license fees in some cities. It was also noted that the definition of Gross Revenue (GR) prescribed in extant FM policy guidelines includes taxes. The Authority was of the view that incorporating taxes or GST in the GR calculation is deemed unjust since it results in the license fee being assessed on an amount that does not truly represent the FM stations' actual revenue. Accordingly, the Authority recommended the following:

" the annual license fee of a FM radio channel should be de-linked from Non-Refundable One Time Entry Fee (NOTEF). The license fee should be calculated as 4% of the Gross Revenue (GR) of the FM radio channel during the respective financial year. GST should be excluded from Gross Revenue (GR)."

3.63 MIB has accepted the above recommendations for FM radio channels in uncovered new cities to be auctioned under Batch III of FM Phase-III and notified the amendments in FM Phase-III policy guidelines on 10th September 2024. However, these amendments have not been made applicable to the existing operational FM radio channels. In order to encourage migration of existing radio channels to migrate to digital radio broadcasting, the provision of levying annual license fee only on GR may need to be extended to existing operational FM radio channels who migrate to digital radio broadcasting.

3.64 In case the annual license fee for the digital radio broadcasters is prescribed as 4% of the GR of the radio channel during the respective financial year, it may be possible that new radio broadcasters do not generate revenue during initial period after commencing broadcasting. In sch a scenario, a minimum amount of annual license fee may need to be levied from new radio broadcasters as they will be using the frequency allocated to them.

3.65 Stakeholders are requested to provide their comments on the amount of license fee, its payment methodology and minimum amount of annual license fee for digital radio broadcasting.

Issues for Consultation:

Q16. What should be the provisions relating to annual fee including payment methodology be adopted for digital radio broadcasting services? Provide your suggestions with detailed justification.

Q17. Should there be a minimum amount of annual fee for digital radio broadcasting services? What should be the criteria for deciding such minimum annual fee? Provide your suggestions with detailed justification.

Q18. Do you agree that the amended provisions of calculating annual fee as 4% of GR only and de-linking it from Non-Refundable One Time Entry Fee (NOTEF), be made applicable to existing operational FM radio channels, who migrate to digital radio broadcasting?

Q19. What should be the definition of Gross Revenue (GR) to be adopted for digital radio broadcasting services? Provide your suggestions with detailed justification.

E9. <u>Restrictions on Multiple permissions in a city</u>

3.66 In order to avoid monopoly by a broadcaster and to ensure plurality of programs, there is a need to put restrictions on the number of channels owned by a radio broadcaster in a city.

3.67 Clause 7 of the extant policy guidelines stipulate following restrictions on the ownership of multiple channels in a city by a radio broadcaster:

*"**7. <u>Restrictions on Multiple permissions in a city and other conditions:</u>***

7.1 "Every applicant shall be allowed to run not more than 40% of the total channels in a city subject to a minimum of three different operators in the city. However, in case the 40% figure is a decimal, it will be rounded off to the nearest whole number."

Note(1): The channels allotted to the following categories of companies would be reckoned together for the purpose of calculating the total channels allocated to an entity

(a) Subsidiary company of any applicant/allottee;

(b) Holding company of any applicant/allottee:

(c) Companies with the Same Management as that of applicant/ allottee

(d) More than one Inter-Connected Undertaking with regard to the applicant/allottee."

Note (2) In respect of existing license/permission/LOI holders, the license(s)/permission(s)/LOI(s) already held by them shall also be taken into consideration for calculating the 40% limit."

3.68 In case of digital broadcasting**,** multiple channels are available on single frequency. The issue arises whether frequency should be considered, or multiple channels operated on single frequency should be considered for the purpose of putting restriction on multiple channels in a city.

Issues for Consultation:

Q20. Should the provisions regarding the restrictions on multiple permissions in a city be adopted for Digital Radio Broadcasting services? Please provide your suggestions with detailed justification.

Q21. Should the frequency be considered, or multiple channels operated on single frequency be considered for the purpose of putting restriction on multiple channels in a city? Please provide your suggestions with detailed justification.

E10. Optimum number of channels for auction

3.69 Extant policy guidelines stipulate the number of channels available for allocation to private broadcasters in different categories of cities as below:

"17. Number of Frequencies:

17.1 Subject to availability of frequencies the total number of channels for allocation to private broadcasters would be kept as follows for Phase III:-

	City category	***No. of Channels***
(i)	*Category A+ cities*	*9 to 11 Channels*
(ii)	*Category A cities*	*6 Channels*
(iii)	*Category B cities*	*4 Channels*
(iv)	*Category C cities*	*4 Channels*
(v)	*Category D cities and cities with population less than one lakh*	*3 Channels*

……."

3.70 MIB in its reference has mentioned that the frequency planning committee constituted by it has identified new channels to facilitate smooth roll out of digital radio broadcasting under Phase-I in 13 cities belonging to A+ and A categories with maximum number of permissible new channels in each city as follows:

Table 3: Number of digital radio channels identified by MIB in category A+ and A cities

City	No. of Channels
Delhi	4
Mumbai	4
Kolkata	8
Chennai	11
Hyderabad	7
Bengaluru	8
Ahmedabad	10
Surat	12
Pune	5
Jaipur	14
Lucknow	7
Kanpur	5

Nagpur	14
Total 13 cities	**Total 109 channels**

3.71 Most of the channels in cities of category A+ and A were successfully auctioned and became operational in Phase-I and Phase-II of FM Radio broadcasting. Few vacant channels in category A+ and A cities, auctioned in first /second batch of Phase-III, attracted very high bids. This indicates a high demand for radio channels in category A+ and A cities. MIB in its reference has sought TRAI's recommendations regarding the maximum number of channels that can be auctioned in category A+ and A cities.

Issue for consultation:

Q22. Do you agree that the maximum number of channels that has been identified by MIB in category A+ and A cities as given in Table 3 should be put up for auction for digital radio broadcasting? If not, please give your suggestions with detailed justification and criteria for deciding the maximum number of channels in each of the cities mentioned in Table 3 above.

E11. Program Content/Genre

3.72 Clause 12 of the extant policy guidelines provides following provisions regarding the programme content broadcasted on the radio channels:

"12.1 The permission holder shall follow the same Programme and Advertisement Code as followed by All India Radio as amended from time to time or any other applicable code, which the Central Government may prescribe from time to time.

12.2 The Permission Holder shall also broadcast Public Interest Announcements as may be required by the Central Government/concerned State Government for maximum of one hour per

day suitable/proportional time slots interspersed during that day shall be earmarked for this purpose. In case the total demand of Central Government and the State Government exceeds one hour per day, the concerned State Government shall be eligible for announcements covering only the period remaining after meeting the demand of the Central Government.

12.3 The Permission Holder shall ensure that at least fifty percent (50%) of the programmes broadcast by it are produced in India.

12.4 In case of multiple permissions to an entity/related entities in a city the attempt should be to distinguish programming on each channel based on era of music, language of music, genre of music etc to the extent possible to ensure diversity of programming to the listener."

3.73 At present FM radio broadcasters are permitted to broadcast the news bulletins of All India Radio in exactly same format(unaltered). No other independent news and current affairs programs are permitted. Clause 11 of the Phase-III policy guidelines have following provisions regarding News and Current Affairs Program:

"11.1 The permission Holder will be permitted to carry the news bulletins of All India Radio in exactly same format (unaltered) on such terms and conditions as may be mutually agreed with Prasar Bharati, No other news and current affairs programs are permitted under the Policy (Phase-III).

11.2 The broadcast pertaining to the following categories will be treated as non-news and current affairs broadcast and will therefore be permissible:

(a) Information pertaining to sporting events excluding live coverage. However live commentaries of sporting events of local nature may be permissible;

(b) Information pertaining to Traffic and Weather;

(c) Information pertaining to and coverage of cultural events, festivals;

(d) Coverage of topics pertaining to examinations, results, admissions, career counseling;

(e) Availability of employment opportunities;

(f) Public announcements pertaining to civic amenities like electricity, water supply, natural calamities, health alerts etc. as provided by the local administration;

(g) Such other categories not permitted at present, that may subsequently be specifically permitted by Ministry of Information and Broadcasting from time to time."

3.74 TRAI in its Recommendations on Issues related to FM Radio Broadcasting dated 5th September 2023 recommended the following:

"i Private FM Radio Operators should be allowed to broadcast news and current affairs programs, limited to 10 minutes in each clock hour.

ii The program code of conduct as applicable to All India Radio for news content may also be applied to Private FM Radio channels."

3.75 The recommendations dated 05.09.2023 are pending with MIB.

3.76 In analog radio broadcasting, the technology restricts each frequency to transmitting just one channel at a time. This limitation means that the variety of content available to listeners is constrained by the number of frequencies available. As a result, listeners are often limited to fewer choices and less flexibility in their radio experience, with each frequency dedicated to a single broadcast stream.

3.77 In contrast, digital radio broadcasting introduces a significant advancement in how frequencies are utilized. By employing digital encoding techniques, it is possible to transmit multiple channels simultaneously on a single frequency. This approach maximizes the efficiency of the frequency spectrum, allowing broadcasters to offer a greater diversity of programming without requiring additional frequencies. In such a scenario, a radio broadcaster may provide programs of different genres including News and Current Affairs.

3.78 Extant policy guidelines already permit a radio broadcaster owning multiple channels in a city to broadcast distinguish programs on each channel based on the era of music, language of music, genre of music etc. to ensure diversity of programming to the listener. In case private radio broadcasters are permitted news channels, they can also have channels dedicated to news and current affairs.

Issues for Consultation:

Q23. Should the provisions regarding the Programme Content provided in the existing policy guidelines be adopted for Digital Radio Broadcasting?

Q24. Should digital radio broadcasters be allowed to broadcast self-curated news and current affairs programs as recommended by TRAI in its recommendations dated 5th September 2023? If yes, what should be the duration of such programs. Please give your suggestions with detailed justifications.

Q25. Is there a need to prescribe the guidelines for genres of programmes that a broadcaster can provide on multiple channels available on a single frequency allocated to it for digital radio broadcasting? If yes, what should be the genres of channels permitted in digital broadcasting? Please give your suggestions with detailed justifications.

E12. Provisions related to Penalties

3.79 In order to ensure adherence to the terms and conditions of the policy guidelines by radio broadcasters, penal provisions need to be prescribed.

3.80 Clause 14 of extant policy guidelines have following provisions regarding penalty for non-operationalisation of radio channel within stipulated timelines:

> *"**14. Penalty for Non operationalisation of Awarded Licenses:***
>
> *14.1 Each permission holder shall operationalize the channel and ensure completion of the activities preceding thereto within the time limits prescribed in para 5 and para 18, failing which the permission will be revoked, and permission holder shall be debarred from allotment of another channel in the same city for a period of five years from the date of such revocation. The frequency so released may be allotted to the next highest bidder from the waiting list if available and valid or through subsequent bidding. The permission holder shall be liable to pay one year's annual fee. The government shall be well within its right to recover the same from the Performance Bank Guarantee already submitted. No claim will be admissible against the Non-refundable OTEF paid to the Government.*
>
> *14.2 The Ministry of Information & Broadcasting may also revoke the permission if the channel is closed down either continuously or intermittently for more than 180 days in any continuous period of 365 days for whatever reason."*

3.81 Clause 24 of the Phase-III policy guidelines have the following provisions regarding penalties for contravention to the Program Code:

> *" **Penalties:***
>
> *24.1 In case there is any violation of conditions cited in 11.1, 11.2 and 12.1, Government may suo motto or on basis of complaints take cognisance and place the matter before the **Inter-ministerial***

Committees on Programme and Advertising Codes *for recommending appropriate penalties. On the recommendation of the Committee a decision to impose penalties shall be taken. However, before the imposition of a penalty the Permission Holder shall be given an opportunity to represent its case. The Ministry shall however be at liberty to specify any other mechanism to take action for such violations.*

24.2 Except wherever provided otherwise, in the event of a permission holder violating any of the terms and conditions of permission, or any other provisions of the FM Radio policy, the Ministry of Information and Broadcasting shall have the right to impose the following penalties:

24.2.1 In the event of first violation, suspension of the permission and prohibition of broadcast up to a period of 30 days.

24.2.2 In the event of second violation, suspension of the permission and prohibition of broadcast up to a period of 90 days.

24.2.3 In the event of third violation, revocation of the permission and prohibition of broadcast up to the remaining period of the permission.

24.2.4 In the event of any violation as mentioned in Para 24.2 , the Ministry of Information and Broadcasting shall be well within its right to award a lesser penalty which may include issuance of an advisory or a warning or a direction to run an apology on the channel or in any other manner depending on the gravity of the violation.

24.2.5 In the event of the failure of the permission holder to comply with the penalties imposed within the prescribed time, revocation of permission and prohibition to broadcast for the remaining period of the permission and disqualification to hold any fresh permission in future for a period of five years.

24.3 In the event of suspension of permission the permission holder will continue to discharge its obligations under the terms and conditions of permission including the payment of fee.

24.4 In the event of revocation of permission, the Government shall not be responsible for any investment towards the operationalisation of the channel, not limited to capital and operating expenditure, in case of imposition of any penalty referred above.

24.5 The Performance Bank Guarantee deposited by the permission holder for the channel may also be forfeited for failure to comply with any of the terms and conditions of GOPA.

24.6 All the penalties mentioned above shall be imposed only after giving a written notice to the permission holder to rectify the violation within a period of 15 days, failing which he shall be liable for the proposed penalty."

3.82 The issue is whether the provisions regarding penalties prescribed in extant guidelines can be applied to digital radio broadcasting as well.

Issue for Consultation:

Q26. Should the provisions regarding penalties prescribed in extant guidelines be adopted for digital radio broadcasting? If not, what are your suggestions for modifications? Please give your suggestions with detailed justification for each.

E13. Co-location of Transmission Infrastructure

3.83 For providing FM radio services, broadcasters have to establish their transmission infrastructure. Due to the presence of multiple channels

in a city, private FM radio broadcasters have been mandated to share existing transmission infrastructure of AIR.

3.84 Extant policy guidelines mandate private radio broadcasters in a city to co-locate their transmission facilities either with the infrastructure of Prasar Bharti or among themselves by creating a common transmission infrastructure (CTI). Extant policy guidelines have the following provisions regarding co-location:

> ***18. Co-location:***
> *18.1 It will be mandatory for all Phase-III operators to co-locate transmission facilities in all the cities, irrespective of the fact as to whether the infrastructure of Prasar Bharati is available or not.*
> *18.2 In cities where it is a vacant channel of Phase-II or an additional channel is proposed and CTI has been created by BECIL, Co-location at the site already chosen and utilization of CTI already created by BECIL will be mandatory.*
> *18.3 In other cities where Prasar Bharati Infrastructure is available, co-location shall be on such existing facilities of Prasar Bharati on terms and conditions to be prescribed separately, on the existing PB towers. The successful bidders will have a choice to form a consortium and set up required CTI for that city. They will mutually decide infrastructure sharing*
> *methodology, commercial revenue sharing mode, service level agreement and methodology for upkeep of such infrastructure.*
> *18.4 If suitable infrastructure of Prasar Bharati is not available, successful bidders will have a choice to form a consortium and set up required land & tower infrastructure (LTI) and (CTI) for co-location of all transmitters identified for that city. They will mutually decide infrastructure sharing methodology, commercial revenue sharing mode, service level agreement and methodology for upkeep of such infrastructure.*
> *…….”*

3.85 Almost all the channels in cities of category A+ and A were successfully auctioned and became operational in Phase-I and Phase-II of FM Radio broadcasting. Accordingly, common transmission infrastructure is already in place in these cities. However, these infrastructure may not be capable of catering to the additional infrastructure required for new channels in these cities. Existing FM radio broadcasters may adopt simulcast of analog and digital services. In such cases existing radio broadcasters will be required to modify/upgrade their transmission infrastructure.

3.86 MIB in its reference has mentioned that the committee constituted by it examined the matter of co-location of the new channels identified in category A+ and A cities with the existing CTI setups. Due to technical constraints, these new channels cannot be accommodated within the existing CTI setups. Therefore, a new CTI setup is required for all such new channels in a given city. As far as the existing broadcasters in these cities is concerned, they may avail the facilities for simulcast/ pure digital operations by modifying their existing CTI setups itself, with the condition that separate transmission of digital components are made, subject to feasibility, as defined by the respective standards, Alternatively, transmission facility for combined transmission (analogue & digital components) at existing CTI location need to be established with additional infrastructure, subject to feasibility, or establishment of a new CTI.

3.87 In response to TRAI's consultation paper on Reserve Prices for auction of FM Radio channels dated 1st August 2024, some stakeholders have mentioned that Prasar Bharati is charging higher cost for sharing its infrastructure than what is available in the open market.

3.88 Stakeholders are requested to provide their comments on the methodology for examination and creation of new CTI setups required for new channels; and for modifications to existing CTI setups or

creation of new CTI setups required for transmission of digital components/ simulcast operation by existing broadcasters.

Issues for Consultation:

Q27. What should be the methodology for examination and creation of new Common Transmission Infrastructure (CTI) setups required for new channels including their upkeep, given that existing CTI setups and towers may not have vacant space and apertures, respectively, for accommodating additional new channels in category A+ and A cities?

Q28. What should be the methodology for examination and modifications to existing CTI setups or creation of new CTI setups required for transmission of digital components/ simulcast operation by existing broadcasters including its upkeep given that existing CTI setups, including towers, may not support the addition of digital components without modifications?

E14. Financial Accounting Reporting by Broadcasters

3.89 Radio broadcasters are required to pay annual fee as a percentage of their gross revenue to the government. For the purpose of calculating GR, statement of financial accounts needs to be reported by radio broadcasters to the government.

3.90 Existing Phase-III policy guidelines provides the following format for reporting the Financial Accounting reporting by broadcasters:

Statement of Gross Revenue forming part of the Final Accounts of the FM permission holder

	INCOME HEADS	Tariff rate/ rate card	Discounts		Agency commission	Taxes	Net as per P& L a/c
sl.no			trade	others			
		(Amount Rupees in lacs)					
		A	B	C	D	E	F
1	Advertisement						
2	Promotional Events						
2.1	Musical/Star Events						
2.2	*Sponsored Programmes*						
3	Marketing Rights						
4	Commission						
5	Royalties						
6	Sale of recorded cassettes, CDs etc						
7	Rent –Premises						
8	Rent-Equipment						
9	Interest/Dividend						
10	Related Party Transactions						
10.1	Goods Sold						
10.2	Services rendered						
10.3	Production						
10.4	Marketing						
10.5							
10.6							

Notes.

1. The income heads are only indicative and illustrative and the Auditor would include all the relevant Heads of the FM Permission Holder.

The income from the Related Parties shall tally with the Related Parties schedule as per accounting standards no 18.

Additional columns may be introduced in appendix D if required.

Column F is the total revenue as per profit and loss account. To arrive at the gross revenue as per column the taxes, agency commission as applicable are to be added.

Gross Revenue (A) = B + C + D + E + F

Gross Revenue for Annual Fee @ 4% = [A – (B + C)] x 4%

3.91 MIB vide its notification dated 10th September 2024 has excluded taxes from GR for the purpose of calculating annual license fee for FM Radio channels. In case a similar provision is included in the digital radio broadcast policy, the format regarding the Financial Accounting reporting by broadcasters may need to be amended.

Issue for Consultation:

Q29. Are there any changes required in the format prescribed for reporting of Financial Accounting by radio broadcasters for the Digital Radio Broadcast Policy? If yes, please suggest changes with justification.

E15. Review of any other provision

3.92 In addition to the provisions of the existing Phase-III policy guidelines discussed above, there are other provisions of the existing policy guidelines that may require review for the purpose of inclusion in digital radio broadcast policy. Stakeholders are requested to suggest the changes required in any other provisions of the existing Phase-III policy guidelines.

Q30. Whether any other provision of the existing policy guidelines that may require review for their adoption in Digital Radio Broadcast Policy? If yes, please provide your comments with reasons thereof for amendments (including any addition(s)) required in the existing policy guidelines for FM Radio, that the stakeholder considers necessary. The stakeholders may provide their comments in the format specified in Table 4 explicitly indicating the existing clause, suggested amendment and the reason/ full justification for the amendment in the existing policy guidelines for FM Radio for inclusion in Digital Radio Broadcast Policy.

Table 4: Format for stakeholders' response on amendments required in Policy guidelines for expansion of FM Radio Broadcasting services through private agencies (Phase III) for inclusion in Digital Radio Broadcast Policy

S. No.	Clause No. of Existing Policy Guidelines for FM Radio	Provisions of the existing clause(2)	Amendment/ new provision(s) suggested by the stakeholder (3)	Reasons/ full justification for the proposed amendment (4)

F. Methodology for estimation of Reserve price for Digital radio channels

3.93 On 22nd August 2019, MIB sought TRAI's recommendations on fresh reserve prices for 283 cities (260 new and 23 existing cities) under the FM Phase-III Policy. These recommendations were to consider various factors such as inflation and indexation of reserve prices calculated between 2011 and 2015. In response, after due consultation, the Authority sent its recommendations on 'Reserve Price for auction of FM Radio channels' on 10.04.2020.

3.94 The detailed methodology for valuation of FM Radio channels in a city, as adopted by the Authority in its recommendations dated 10th April 2020 is explained below:

3.95 The detailed methodology for valuation of FM Radio channels in a city, as adopted by the Authority in its recommendations dated 10th April 2020 is explained below:

Step-1
• Cities were categorized based on the population (A+, A, B, C, D and 'Other') as per criteria specified in Phase-III Policy guidelines (**Table -1**).

Step-2
• Cities were characterized based on three additional variables – per capita income, Gross Revenues earned by the FM Radio broadcasters in the existing cities, and estimated FM Radio listenership. • **Per capita income:** In the absence of city/district-level data, the closest parameter for measuring the per capita income in a particular city/region could be the Gross State Domestic Product (**GSDP**). Therefore, per capita GSDP of a state was taken as a proxy indicator for assessing the level of economic activity and, hence, the revenue generation potential in that state. GSDP data[14] for 2017-18 was used. • **Per capita Gross Revenue (GR):** The per capita GR in a state was estimated by taking into consideration the sum of GRs reported to MIB for all the cities where FM Radio stations were operational in a state and dividing it by the population of that state. GR data[15] of existing FM Radio broadcasters for 2017-18, as obtained from MIB, was used. • **Estimated Listenership:** For radio listenership estimates data[16] given by IRS weighed by population of each state for Q3 of 2019 was utilized.

Step-3
• The values of the above parameters (step-2) were estimated on the basis of available data on a State-wise basis and mean values were obtained

[14] Data as on August 2019 available on website of Ministry of Statistics and Programme Implementation (MoSPI) http://www.mospi.gov.in/
[15] Provided by Ministry of Information and Broadcasting
[16] IRS data published by Media Research Users Council India

for each of the three variables. Then, under each category, the value obtained for a state is compared with the mean value under that category and based on the comparison, states were categorized into three groups for each category. States having value more than 125% of the mean value of the concerned variable i.e. more than 1.25 times the mean value, were placed in the first group. States having value between 75% to 125% of the mean value i.e. between 0.75 to 1.25 times the mean value were placed in the second group. States having value of the concerned variable less than 75% of the mean value i.e. less than 0.75 times the mean value, were placed in the third group.

- Following the above method, three groups of states were obtained under each of the categories i.e. per capita GSDP, per capita GR earned and FM radio listenership, as follows:
  i. On the basis of the State-wise estimates of **per capita GSDP**, States were categorized into three **groups viz. J, K, and L** (**Annexure-II**).
  ii. On the basis of the State-wise estimates of **per capita GR earned**, States were categorized into three **groups viz. F, G, and H** (**Annexure-III**),
  iii. Based on the State-wise estimates of **radio listenership**, States were categorized into three groups **viz. Q, R, and S** (**Annexure-IV**).

Step-4

- After the above grouping, existing cities were classified into three different ways by considering population of the city as one characteristic, and one of the above three variables i.e. per capita GGSDP, per capita GR earned and FM Radio listenership as the second characteristic. Hence, three different classification matrices or tables were obtained viz (i) classification of cities based on a combination of population of city and State category (in which the city lies) on the basis of per capita GSDP (ii) classification of cities based on a combination of population of city and State category on the basis of per capita GR earned, and (iii) classification of cities based on a

combination of population of city and State category on the basis of FM radio listenership.

- For instance, the first classification on the basis of population of the city and State category based on per capita GSDP was carried out by marking the category of cities i.e. A+, A, B, C, D & Others (as per **Table-1**) on the horizontal axis and State category on the basis of per capita GSDP i.e. Group J, K, L on the vertical axis. For classifying city under this grouping scheme, the population category of city is determined using **Table-1**, and the group to which the state (of the city) belongs is obtained from Annexure-II and accordingly, the city is placed in the cell corresponding to these two categories. For instance, Karnal belongs to category 'D' based on population and its state Haryana belongs to group J based on per capita GSDP. So, it was classified in the (1,4) cell of Matrix-I (**Annexure-V**). Similarly, all remaining existing cities of different population categories were classified into various cells of Matrix-I.
- In similar way, cities were classified in Matrix-II (**Annexure-VI**) on the basis of population of the city and State category based on the per capita GR, and finally, classified in Matrix-III (**Annexure-VII**) on the basis of population of the city and State category based on density of FM Radio receivers.

Step-5
Estimation of Reference Prices for the cities based on the population and the three variables

- For estimating the reference prices, to begin with the Authority used the most recent market-driven prices available to it, which were actual bid prices obtained in the Phase-III auctions held in 2015 and 2016. As successful bidding could take place in 81 cities in Phase III, the market driven prices were available to the Authority only for these many cities. Moreover, the number of successful bids in each city also varied based on number of channels in that city. Hence, the price for

each city was taken as the average of the prices quoted in all the successful bids in that city. (**Annexure-VIII**)

- As the total number of reference prices obtained above (81 only) was limited, the Authority decided to improve the estimation by extrapolating the prices for those cities where successful auctions took place in 2005 but which did not undergo auction in 2015 and 2016 in Phase-III.
- For extrapolating the reference price for such cities, the factor for extrapolation was calculated by taking the ratio of the average market prices obtained in 2005 and 2015/2016 for those cities where successful auction took place in both the phases. Based on data available at Annexure-VIII, this ratio was taken for 45 cities after excluding outliers identified as per next para.
- While calculating the price ratio between 2005 and 2015/16 prices at Annexure-IX, a city was considered as outlier by following a three-pronged approach viz., (i) if there is only one city available in a category; (ii) if no city in a particular state is being put up for auction, the same state has not been considered; and (iii) if the ratio for a particular city exceeds twice the average for the category, the concerned city ratio has been eliminated.
- It may be seen that out of 45 cities for which ratio of prices was obtained, 10 cities belonged to category B, 31 cities to category C and 4 cities to category D. Hence, the extrapolation factor for each category i.e. B, C and D, was obtained by taking the average for all the cities in that category. The average ratio factor is tabulated at **Annexure IX**.
- Using the extrapolation factor obtained as above, the extrapolated reference prices were calculated for the 17 cities where successful auctions took place in 2005 but which did not undergo auction in 2015 and 2016 in phase-III (**Annexure IX)**.
- Accordingly, a consolidated dataset of 98 data points was built including market drive prices for 81 cities as well as extrapolated

prices for 17 cities, which were utilised to determine average reference prices for each city classification. (**Annexure-X**)

Step-6

- Once the indexed reference price for 98 cities were obtained (Annexure IX) these prices were mapped against their respective cities into the three matrices i.e. Matrix-I, Matrix-II, and Matrix-III obtained at step 4 above i.e. the mapping links reference prices to the cities in that group in the matrices.
- Now for each cell of the matrices, an average of the indexed reference prices of all the cities falling in that cell is determined i.e. the total sum of the indexed reference prices of all cities in the cell is divided by the number of cities in the cell. (**Annexure-XI, XII & XIII**)

Step-7

- The above steps yield three matrices corresponding to Matrix-I, Matrix-II and Matrix-III with averages of indexed reference prices assigned to each cell. As a result, each matrix provided a reference price for each city category based on the variable under consideration for that matrix. For example, Annexure-XI lists the reference price for each city category based on per capita GSDP. Similarly, Annexure-XII lists the reference price for each city category based on per capita GR while Annexure-XIII lists the reference price for each city category based on radio listenership.
- As a next step, all the cell values in each matrix were assessed for consistency with other cell values of the matrix. In an ideal situation, value of a superior cell in terms of population size and the other characteristic viz., GSDP, GR or listenership should be higher than or should dominate any cell which is inferior in one or both the characteristics. However, in the aforesaid exercise, it was observed that some of the cell values arrived were coming out inconsistent. Accordingly, all the inconsistent cell values were required to be identified and eliminated before proceeding to determine RPs.

- While deciding on which cell value(s) to be considered as inconsistent and to be eliminated, regard was given to: (i) the extent of inconsistency; and (ii) the number of cities falling in concerned cell values. (**Annexure-XIV, XV, and XVI**)

Step-8

- After the reference price corresponding to each cell in all the matrices was determined as above, the new cities were depending on their population based city category and the State-level variable for the matrix.
- As a result, for each new city, upto three numerical price values were obtained from the three matrices arrived at in Step 7.
- For instance, suppose a new city of category C fell in groups J, R and H against the three other State level variables. Then the prices from the relevant cell of the relevant matrix were mapped to the city i.e. the price values contained in the cells corresponding to C and J in terms of per capita GSDP, C and R in terms of listenership and C and H in terms of per capita GR were assigned to each of the new cities. Thus, based on three different characteristics of these new cities, three distinct values were assigned to each of the new cities.
- Then the average of the values assigned to a city from three matrices is computed and the resulting estimates is termed as the Average Value. (**Annexure-XVII**)

Step-9

- To arrive at a final valuation for FM Radio channels in each city, the Average Value of a city is modified by multiplying it with the city factor as reflected in Market Intensity Index (MII). (**Annexure- XVII**)

Step-10

- For the purpose of calculating the reserve price, the Authority took into consideration the fact that while setting the reserve price for access spectrum used for telecommunication services, a multiplication factor of 0.8 was used i.e. the RP was obtained by

multiplying the valuation price of access spectrum by 0.8, based on past domestic as well as international experience. Accordingly, the same multiplication factor of 0.8 was used for estimating the RP for FM Radio channels in new cities.

- The Government, in order to encourage expansion of FM radio in cities of NE states, J&K, and Andaman and Nicobar has prescribed a 50 % lower rate of annual fee from the FM radio channels situated in these areas. Accordingly, the Authority had applied the factor of 0.4 to the cities situated in these areas to get RP. (**Annexure- XVIII**)

3.96 Stakeholders are requested to provide their views on whether the methodology outlined in TRAI's recommendations dated 10.04.2020 should be used for determining the reserve prices of FM radio channels in the cities of Bilaspur, Rourkela and Rudrapur.

3.97 Further, in 2020 recommendations, the radio listenership estimates data, as given by IRS weighed by population of each state for Q3 of 2019, was utilized and the Market Intensity Index (MII), as given in R.K. Swamy Hansa's Guide to Market Planning (2017 Fourth Edition), were used. Since then, updated data related to radio listenership and MII are not available although data for GSDP and GR for the year 2022-23 is available. In such a case, a question arises whether the same data for radio listenership and MII can be used for the present exercise.

3.98 The Authority in its Recommendations on 'Auction of Spectrum in frequency bands identified for IMT/5G' dated 11.04.2022 was of the view that to ensure healthy competition, leading to the discovery of the true market price, and recommended that the reserve price should be set at the level of 70% of average valuation.

3.99 In case of digital radio broadcasting, multiple channels can be provided on single frequency as against one channel in case of analog FM radio broadcasting.

Issues for Consultation:

Q31. Do you agree that the methodology used in TRAI's recommendations dated 10th April 2020 for determining reserve prices of FM Radio channels should be used for determining reserve prices of digital Radio channels?

a. If yes, please provide detailed justification for your views.

b. If not, please suggest an alternative approach/ methodology with details and justifications.

Q32. Do you agree that due to non-availability of updated radio listenership estimates data and Market Intensity Index, whether the same data, as used in 2020 recommendation, can be used in the present exercise as well? In case the answer is no, which alternative data/methodology can be used for the same purpose?

Q33. Do you agree that a multiplication factor of 0.7 be used for estimating the reserve price from average valuation of FM Radio channels or otherwise? Please provide your suggestions with detailed justification.

G. Any other issue

Q34. Stakeholders may also provide their comments/ suggestions along with detailed justification on any other issue that may be relevant to the present consultation.

CHAPTER IV

Summary of Issues for Consultation

Q1. Do you agree that single digital radio technology adoption is preferable for entire country? If not, support your reply with justification.

Q2. In case a single digital radio broadcast technology is to be adopted for the entire country, which technology should be adopted for digital radio broadcasting? Please give your suggestions with detailed justification.

Q3. In case multiple digital broadcasting technologies are to be adopted, please specify whether it should be left to the market forces to decide the appropriate technologies and what could be the potential problems due to adoption of multiple technologies? Please suggest probable solutions to the problems, with detailed justification.

Q4. What should be the approach for migration of existing FM radio broadcasters to digital radio broadcasting?

Q5. What should be the timeframe for various activities related to the migration of existing FM radio broadcasters to digital radio broadcasting?

Q6. Please suggest measures that should be taken to encourage existing FM radio broadcasters to adopt digital radio broadcasting.

Q7. What measures should be taken to facilitate the availability of affordable digital radio receivers?

Q8. Should private radio broadcasters be permitted to simulcast their live terrestrial channels on the Internet? If yes, what should be

the terms and conditions for such simulcast? Please provide your comments with detailed justification.

Q9. (i) Should the provisions relating to eligibility criteria prescribed in FM Phase-III Policy guidelines be adopted for Digital Radio Broadcast Policy?

(ii) If yes, is there any need to add or remove any criteria?

(iii) If not, please suggest the plausible eligibility criteria for granting authorisation for digital radio broadcasting.

Q10. Should the financial eligibility criteria provided in existing policy guidelines be adopted for digital radio broadcasting policy? If not, what should be the financial eligibility criteria for different categories of cities for digital radio broadcasting? Provide your suggestions with detailed justification.

Q11. Should the provisions regarding the period of permission as per existing Policy Guidelines be adopted for the Digital Radio Broadcast Policy? If not, what should be the validity of the period of permission for Digital Radio Broadcasting? Provide your suggestions with detailed justification.

Q12. Should the provisions regarding the Earnest Money Deposit provided in existing policy guidelines be adopted for the Digital Radio Broadcast policy? If not, what should be the Earnest Money Deposit for digital radio broadcasting services?

Q13. What should be the amount of application processing fee for Digital Radio Broadcast services? Please provide your suggestions with justification.

Q14. Should the provisions regarding the Performance Bank Guarantee provided in existing policy guidelines be adopted for the Digital

Radio Broadcasting services? If not, what should be the amount of Performance Bank Guarantee for digital radio broadcasting services?

Q15. Should the provisions regarding the time schedule for signing of authorisation and operationalisation of radio channel as prescribed in existing policy guidelines be adopted for Digital Radio Broadcasting services? If not, please suggest with justification the changes required in the time schedule for signing of authorisation and operationalisation for channels for Digital Radio Broadcasting services.

Q16. What should be the provisions relating to the annual fee including payment methodology be adopted for digital radio broadcasting services? Provide your suggestions with detailed justification.

Q17. Should there be a minimum amount of annual fee for digital radio broadcasting services? What should be the criteria for deciding such a minimum annual fee? Provide your suggestions with detailed justification.

Q18. Do you agree that the amended provisions of calculating annual fee as 4% of GR only and de-linking it from Non-Refundable One Time Entry Fee (NOTEF), be made applicable to existing operational FM radio channels, who migrate to digital radio broadcasting?

Q19. What should be the definition of Gross Revenue (GR) to be adopted for digital radio broadcasting services? Provide your suggestions with detailed justification.

Q20. Should the provisions regarding the restrictions on multiple permissions in a city be adopted for Digital Radio Broadcasting

services? Please provide your suggestions with detailed justification.

Q21. Should the frequency be considered, or multiple channels operated on single frequency be considered for the purpose of putting restriction on multiple channels in a city? Please provide your suggestions with detailed justification.

Q22. Do you agree that the maximum number of channels that has been identified by MIB in category A+ and A cities as given in Table 3 should be put up for auction for digital radio broadcasting? If not, please give your suggestions with detailed justification and criteria for deciding the maximum number of channels in each of the cities mentioned in Table 3 above.

Q23. Should the provisions regarding the Programme Content provided in the existing policy guidelines be adopted for Digital Radio Broadcasting?

Q24. Should digital radio broadcasters be allowed to broadcast self-curated news and current affairs programs as recommended by TRAI in its recommendations dated 5th September 2023? If yes, what should be the duration of such programs. Please give your suggestions with detailed justifications.

Q25. Is there a need to prescribe the guidelines for genres of programmes that a broadcaster can provide on multiple channels available on a single frequency allocated to it for digital radio broadcasting? If yes, what should be the genres of channels permitted in digital broadcasting? Please give your suggestions with detailed justifications.

Q26. Should the provisions regarding penalties prescribed in extant guidelines be adopted for digital radio broadcasting? If not, what

are your suggestions for modifications? Please give your suggestions with detailed justification for each.

Q27. What should be the methodology for examination and creation of new Common Transmission Infrastructure (CTI) setups required for new channels including their upkeep, given the fact that existing CTI setups and towers may not have vacant space and apertures, respectively, for accommodating additional new channels in category A+ and A cities?

Q28. What should be the methodology for examination and modifications to existing CTI setups or creation of new CTI setups required for transmission of digital components/ simulcast operation by existing broadcasters including its upkeep given the fact that existing CTI setups, including towers, may not support the addition of digital components without modifications?

Q29. Are there any changes required in the format prescribed for reporting of Financial Accounting by radio broadcasters for the Digital Radio Broadcast Policy? If yes, please suggest changes with justification.

Q30. Whether any other provision of the existing policy guidelines that may require review for their adoption in Digital Radio Broadcast Policy? If yes, please provide your comments with reasons thereof for amendments (including any addition(s)) required in the existing policy guidelines for FM Radio, that the stakeholder considers necessary. The stakeholders may provide their comments in the format specified in Table 4 explicitly indicating the existing clause, suggested amendment and the reason/ full justification for the amendment in the existing policy guidelines for FM Radio for inclusion in Digital Radio Broadcast Policy.

Table 4: Format for stakeholders' response on amendments required in Policy guidelines for expansion of FM Radio Broadcasting services through private agencies (Phase III) for inclusion in Digital Radio Broadcast Policy

S. No.	Clause No. of Existing Policy Guidelines for FM Radio	Provisions of the existing clause(2)	Amendment/ new provision(s) suggested by the stakeholder (3)	Reasons/ full justification for the proposed amendment (4)

Q31. Do you agree that the methodology used in TRAI's recommendations dated 10th April 2020 for determining reserve prices of FM Radio channels should be used for determining reserve prices of digital Radio channels?

a. If yes, please provide detailed justification for your views.

b. If not, please suggest an alternative approach/ methodology with details and justifications.

Q32. Do you agree that due to non-availability of updated radio listenership estimates data and Market Intensity Index, whether the same data, as used in 2020 recommendation, can be used in the present exercise as well? In case the answer is no, which alternative data/methodology can be used for the same purpose?

Q33. Do you agree that a multiplication factor of 0.7 be used for estimating the reserve price from average valuation of FM Radio channels or otherwise? Please provide your suggestions with detailed justification.

Q34. Stakeholders may also provide their comments/ suggestions along with detailed justification on any other issue that may be relevant to the present consultation.

List of Acronyms

Abbreviation	Description
AAC	Advanced Audio Codec
AIR	All India Radio
AM	Amplitude Modulation
BECIL	Broadcast Engineering Consultants India Limited
CRS	Community Radio Station
DAB	Digital Audio Broadcasting
DoT	Department of Telecommunications
DRM	Digital Radio Mondiale
eAAC+	HE-AAC version 2 audio codec
EBU	European Broadcasting Union
ETSI	European Telecommunications Standards Institute
FCC	Federal Communications Commission
FM	Frequency Modulation
GOPA	Grant of Permission Agreement
HD	High Definition
HVXC	Harmonic Vector Excitation Coding
IBOC	In-band on-channel
IEEE	Institute of Electrical and Electronics Engineers
IISc	Indian Institute of Science
IIT	Indian Institutes of Technology
ISDB-Tsb	Integrated Services Digital Broadcasting for Terrestrial Sound Broadcasting
ITU	International Telecommunication Union
LF	Low frequency
MF	Medium frequency
MIB	Ministry of Information and Broadcasting
MP2	MPEG-1 Audio Layer 2 audio codec
MPEG	Moving Picture Experts Group
MW	Medium Wave
NFAP	National Frequency Allocation Plan

OEM	Original Equipment Manufacturer
OFDM	Orthogonal Frequency-Division Multiplexing
PBG	Performance Bank Guarantee
PS	Parametric Stereo
QAM	Quadrature Amplitude Modulation
RF	Radio Frequency
RRI	Radio Republik Indonesia
SBR	Spectral Band Replication
SW	Short wave
TRAI	Telecom Regulatory Authority of India
UHF	Ultra high frequency
VHF	Very High Frequency
WPC	Wireless Planning and Coordination

Annexure I

MIB reference dated 23.04.2024

संजीव शंकर, (भा.प्र.से.)
संयुक्त सचिव (प्रसारण)
SANJIV SHANKAR, IRS
Joint Secretary (Broadcasting)

भारत सरकार
सूचना एवं प्रसारण मंत्रालय
शास्त्री भवन, नई दिल्ली - 110115
GOVERNMENT OF INDIA
MINISTRY OF
INFORMATION & BROADCASTING
SHASTRI BHAWAN, NEW DELHI - 110115

D.O. No. – N-38014/1/2024-FM/214 **Dated:**23.04.2024

Dear Shri Raghunandan,

As you are aware, under the Private FM Phase-III policy, 388 Private FM channels are operational in 113 cities in the country. Out of this, 162 channels operationalized based on two auctions conducted in 2015 and 2016, while remaining channels migrated from FM Phase-II to FM Phase-III policy. The permission periods of these FM Phase-III channels will begin expiring from 1st April, 2030 onwards.

2. TRAI on 01.02.2018 regarding the Issues related to Digital Radio Broadcasting has inter-alia recommended the following:

a) Introduction of Digital Radio Broadcasting services through a Digital Policy framework with a roadmap for its rollout within existing FM frequency band of 88-108 MHz.

b) Auctions for digital services in phases starting with A+ and A category cities.

c) Existing FM broadcasters be given an offer to liberalize their spectrum to provide simulcast broadcast services.

d) Allow broadcasters to use any ITU recognized digital technology.

3. In this context, it is informed that an MIB constituted frequency planning committee has identified new channels to facilitate smooth roll out of digital radio broadcasting under Phase-I in 13 cities belonging to A+ and A categories with maximum number of permissible channels in each city annexed as **Annexure-I**. In line with the TRAI recommendations mentioned in paragraph 2 above, the committee has recommended a digital technology neutral approach, which will allow competitive market forces for advancement of digital radio broadcasting. It has ensured that all new channels proposed can use any of the ITU recommended standard for digital technology applicable within the VHF-II (FM) frequency band of 88-108 MHz for either simulcast or pure digital transmission.

4. The committee also examined the matter of co-location of these new channels with the existing C.T.I. setups. Due to technical constraints, these new channels cannot be accommodated within the existing C.T.I. setups. Therefore, a new C.T.I. setup is required for all such new channels in a given city. As far as the existing broadcasters in these cities is concerned, they may avail the facilities for simulcast / pure digital operations by modifying their existing C.T.I setups itself, with the condition that separate transmission of digital components are made, subject to feasibility, as defined by the respective standards. Alternatively, transmission facility for combined transmission (analogue & digital components) at existing CTI location need to be established with additional infrastructure, subject to feasibility, or establishment of a new CTI. The technical parameters of analogue / digital components for simulcast operations of these simulcast / pure digital channels are at **Annexure-II**.

Contd...2

5. There are certain issues from both the broadcasters as well as the listener's perspective, which need to be addressed in order to effect a smooth rollout of digital radio broadcasting in the country. These are highlighted as below:

a) What should be the optimum number of such channels for auction in each city?

b) What would be the methodology for examination and creation of new C.T.I. setups required for such new channels including its upkeep, given the fact that existing C.T.I. setups and towers do not have vacant space and apertures, respectively, for accommodating additional new channels in these 13 cities?

c) What would be the methodology for examination and modifications to existing CTI setups or creation of new C.T.I setups required for transmission of digital components/ simulcast operation by existing broadcasters including its upkeep given the fact that existing C.T.I. setups, including towers, cannot support addition of digital components without modifications?

d) Potential problems arising due to different broadcasters in a given city deciding to adopt different ITU recommended standard of technology. Probable solutions, which would minimize the hardships for development of associated ecosystem.

e) There are certain issues which the FM radio industry body AROI have been raising for consideration such as permitting private FM broadcasters to simulcast their live terrestrial channels on internet with no additional cost to broadcasters.

f) Besides, to cater to the technology shift, some existing licensing regulations under FM Phase-III policy which may require a relook are indicated in **Annexure-III**.

6. Since broadcasting has been notified to be a Telecommunication Service under Section 2 (1) (k) of TRAI Act recommendations of TRAI are sought as per provisions of Section 11(1) (a) on formulating a digital radio broadcast policy for private operators. Suggestions and issues highlighted in paragraphs 3, 4 and 5 above may also be considered while formulating recommendations for digital radio broadcasting.

7. As Government is keen to bring the digital radio policy, I would request you to kindly have the recommendations of the Authority expedited on priority.

Best Regards,

Encl. as above.

Yours sincerely,

(Sanjiv Shankar)

Shri V. Raghunandan,
Secretary, Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
JLN Marg, Old Minto Road,
New Delhi 110 002

Annexure - I

List of all the channels identified in category A+ and A cities:

City	No. of Channels
Delhi	4
Mumbai	4
Kolkata	8
Chennai	11
Hyderabad	7
Bengaluru	8
Ahmedabad	10
Surat	12
Pune	5
Jaipur	14
Lucknow	7
Kanpur	5
Nagpur	14
Total 13 cities	**Total 109 channels**

Annexure - II

Technical Parameters of analogue / digital components for digital radio broadcasting

'A+' Category.

	Analog	Digital	
		DRM	HD Radio
ERP	46 – 47 dBW (40 – 50 KW)	ΔP=6 dB with reference to Analogue ERP.	ΔP= 8.5 dB (digital total) with reference to Analogue ERP
EHAAT	100 – 175 Mt. (Delhi; 200 Mt.)	100 -175 Mt.	100- 175 Mt.
Frequency spacing	-	ΔF : 200 KHz	PU/PL: ± 150 KHz
Mode	-	4 QAM, R=1/3	MP11
Class of Emission		350KX9EHX	400KX9EHX

'A' Category.

	Analog	Digital	
		DRM	HD Radio
ERP	43– 44.8 dbW (20 – 30 KW)	ΔP=6 dB with reference to Analogue ERP	ΔP= 8.5 dB (digital total) with reference to Analogue ERP
EHAAT	75 – 150 Mt.	75 – 150 Mt.	75- 150 Mt.
Frequency spacing	-	ΔF : 200 KHz	PU/PL: ± 150 KHz
Mode	-	4 QAM, R=1/3	MP11
Class of Emission		350KX9EHX	400KX9EHX

Polarization: Right Hand Circular (RCP) Polarization for all Analogue and digital components. In case common antenna with orthogonally polarized feeds for HD Radio is deployed, the digital component shall be LCP.

Notes:

1. ΔF: Frequency difference between the analogue and digital carrier
2. ΔP: Reduced power level of digital component with respect to analogue component, in dB scale
3. PU / PL: Frequency difference of the upper and lower digital block with respect to analogue component

Annexure-III

Existing FM Phase-III Policy regulations which may need review

1. Eligibility conditions – net worth criterion, etc.
2. Definitions / amounts of various fees charged from broadcasters like Reserve Price/NOTEF, EMD, Annual Fee, PBG, Monitoring fee, WPC spectrum charges etc. and their payment methodology.
3. Any restrictions on channel holdings like city wide basis
4. As digital broadcasts permit multiple channels on single frequency what may be the guidelines for Program content / genres for different channels. Similarly, penalty provisions for violation of programme code by different genre channels? The reporting format for financial accounting by broadcasters.
5. Terms and conditions for allowing digital broadcasting to existing operators in A+ and A category cities.
6. Considering ecosystem for digital broadcasting is not readily available, what should be the prescribed time schedule for operationalizing digital broadcasting.
7. Any other regulations according to TRAI.

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Annexure-II

Grouping of states & UTs based on per capita GSDP

S. No.	State/UT	Per Capita GSDP in Thousands (2017-18) (Rs.)	Groups
1	Goa	460.4	J
2	Sikkim	357.6	J
3	Haryana	221.5	J
4	Karnataka	206.9	J
5	Telangana	203.9	J
6	Uttarakhand	202.3	J
7	Kerala	200.5	J
8	Maharashtra	199.3	J
9	Andaman and Nicobar	199.3	J
10	Gujarat	196.2	K
11	Tamil Nadu	194	K
12	Punjab	161.8	K
13	Andhra Pradesh	155.9	K
14	Arunachal Pradesh	148.1	K
15	Tripura	116.7	L
16	Nagaland	114.1	L
17	Rajasthan	109.6	L
18	West Bengal	103.8	L
19	Jammu & Kashmir	103.4	L
20	Odisha	100.3	L
21	Chhattisgarh	100.3	L
22	Madhya Pradesh	89.81	L
23	Assam	85.06	L
24	Manipur	78	L
25	Jharkhand	74.93	L
26	Uttar Pradesh	61.99	L
27	Bihar	41.17	L

Group J: States/UTs with more than 25% of the mean value of per Capita GSDP
Group K: States/UTs with ± 25% of the mean value of per capita GSDP
Group L: States/UTs with less than −25% of the mean value of per capita GSDP

Annexure-III

Grouping of states & UTs based on per capita Gross Revenue

S. No.	State/UT	Per Capita GR (2017-18)	Groups
1	Goa	47.72	F
2	Maharashtra	45.14	F
3	Karnataka	32.03	F
4	Tamil Nadu	30.55	F
5	Kerala	28.66	F
6	Sikkim	27.59	F
7	Telangana	27.5	F
8	Gujarat	27.38	F
9	West Bengal	14.82	G
10	Rajasthan	13.3	G
11	Punjab	11.87	H
12	Madhya Pradesh	10.65	H
13	Jammu & Kashmir	9.5	H
14	Chhattisgarh	8.36	H
15	Andhra Pradesh	7	H
16	Uttar Pradesh	6.66	H
17	Jharkhand	6.66	H
18	Assam	5.87	H
19	Haryana	5.07	H
20	Odisha	4.43	H
21	Arunachal Pradesh	4.11	H
22	Bihar	2.49	H
23	Tripura	1.89	H

Group F: States/UTs with more than 25% of the mean value of per capita Gross Revenue
Group G: States/UTs with ± 25% of the mean value of per capita Gross Revenue
Group H: States/UTs with less than -25% of the mean value of per capita Gross Revenue

Annexure-IV

1.1 Grouping of states and UTs based on radio listenership

S. No.	State/UT	Radio listenership weighted by population (Q3 2019)	Groups
1	Uttar Pradesh	181128	Q
2	Maharashtra	104792	Q
3	West Bengal	86596	Q
4	Bihar	86558	Q
5	Tamil Nadu	70909	Q
6	Madhya Pradesh	66514	Q
7	Rajasthan	61788	Q
8	Gujarat	57466	Q
9	Karnataka	57308	Q
10	Andhra Pradesh	44811	R
11	Odisha	34998	R
12	Telangana	33059	R
13	Jharkhand	29697	S
14	Kerala	29543	S
15	Assam	28805	S
16	Punjab	26973	S
17	Haryana	24444	S
18	Chhattisgarh	21931	S
19	Uttarakhand	9646	S
20	Jammu & Kashmir	4230	S
21	Tripura	3458	S
22	Manipur	1589	S
23	Goa	1416	S
24	Nagaland	1266	S
25	Sikkim	679	S

Group Q: States/UTs with more than 25% of the mean value of radio listenership
Group R: States/UTs with ± 25% of the mean value of density of radio listenership
Group S: States/UTs with less than −25% of the mean value of radio listenership

Annexure-V

Grouping of existing cities based on the per capita GSDP and population

City category (based on population) / State category (based on per capita GSDP)	A+	B	C	D
J	Mumbai	Cochin	Hubli-Dharwad, Mysuru, Gulbarga, Mangalore, Alappuzha (Alleppey), Kozhikode, Kannur, Thiruvananthapuram, Thrissur, Ahmednagar, Akola, Amravati, Aurangabad, Dhule, Jalgaon, Nanded, Sangli, Sholapur, Warangal	Hissar, Karnal, Gangtok
K	Chennai	Vijayawada, Vishakapatnam, Rajkot, Vadodra, Amritsar, Madurai, Coimbatore	Nellore, Rajahmundry, Tirupati, Bhavnagar, Jamnagar, Patiala, Jalandhar, Erode, Salem, Tiruchy, Tirunelveli, Vellore, Tuticorin	Itanagar, Bharuch, Godhra, Junagadh, Mehsana, Palanpur, Porbandar, Veraval
L	-	Jamshedpur, Bhopal, Indore, Jabalpur, Agra, Allahabad, Asansol	Guwahati, Muzaffarpur, Bilaspur, Raipur, Jammu, Srinagar, Ranchi, Ujjain, Gwalior,Rourkela, Ajmer, Bikaner, Kota, Udaipur, Aligarh, Bareily, Gorakhpur, Jhansi, Siliguri	Durg–Bhillainagar, Raigarh, Agartala

Annexure-VI

Grouping of existing cities based on the per capita GR and population

City category (based on population) / State category (based on per capita GR)	A+	B	C	D
F	Mumbai, Chennai	Rajkot, Vadodra, Cochin, Madurai, Coimbatore	Bhavnagar, Jamnagar, Hubli–Dharwad, Mysuru, Gulbarga, Mangalore, Alappuzha (Alleppey), Kozhikode, Kannur, Thiruvananthapuram, Thrissur, Ahmednagar, Akola, Amravati, Aurangabad, Dhule, Jalgaon, Nanded, Sangli, Sholapur, Erode, Salem, Tiruchy, Tirunelveli, Vellore, Tuticorin, Warangal	Bharuch, Godhra, Junagadh, Mehsana, Palanpur, Porbandar, Veraval, Gangtok
H	-	Asansol	Ajmer, Bikaner, Kota, Udaipur, Siliguri	-
G	-	Vijayawada, Vishakapatnam, Jamshedpur, Bhopal, Indore, Jabalpur, Amritsar, Agra, Allahabad	Rajahmundry, Guwahati, Muzaffarpur, Bilaspur, Raipur, Jammu, Srinagar, Ranchi, Ujjain, Gwalior, Rourkela, Patiala, Jalandhar, Aligarh, Bareily, Gorakhpur, Jhansi	Itanagar, Durg–Bhillainagar, Raigarh, Hissar, Karnal, Agartala

Annexure-VII

Grouping of existing cities based on the radio listenership and population

City category (based on population) / State category (based on listenership)	A+	B	C	D
Q	Mumbai, Chennai	Rajkot, Vadodra, Bhopal, Indore, Jabalpur, Madurai, Coimbatore, Agra, Allahabad, Asansol	Muzaffarpur, Bhavnagar, Jamnagar, Mysuru, Gulbarga, Mangalore, Ujjain, Gwalior, Ahmednagar, Akola, Amravati, Dhule, Jalgaon, Nanded, Sangli, Sholapur, Ajmer, Bikaner, Kota, Udaipur, Tiruchy, Tirunelveli, Tuticorin, Aligarh, Bareily, Gorakhpur, Jhansi, Siliguri	Bharuch, Godhra, Junagadh, Mehsana, Palanpur, Porbandar, Veraval
R	-	Vijayawada, Vishakapatnam	Nellore, Rajahmundry, Tirupati, Bhubaneshwar, Rourkela, Warangal	-
S	-	Jamshedpur, Amritsar	Guwahati, Bilaspur, Raipur, Jammu, Srinagar, Ranchi, Alappuzha (Alleppey), Kozhikode, Kannur, Thiruvananthapuram, Thrissur, Patiala, Jalandhar	Durg–Bhillainagar, Raigarh, Hissar, Karnal, Gangtok, Agartala

Annexure-VIII

Indexed reference prices derived from successful bids of Phase-III auction

S. No.	City	State/UT	Category as per MIB	Successful Bid Amount 1 (in Rs.)	Successful Bid Amount 2 (in Rs.)	Successful Bid Amount 3 (in Rs.)	Successful Bid Amount 4 (in Rs.)	Average Successful Bid Amount (in Rs.)	Average Successful Bid Amount (in Rs. Lakhs)
1	Ahmedabad	Gujarat	A	426876267				426876267	4269
2	Bangalore	Karnataka	A	1092545545				1092545545	10925
3	Hyderabad	Telangana	A	180000000	180000000	180000000	234348266	193587066	1936
4	Jaipur	Rajasthan	A	283498387				283498387	2835
5	Kanpur	Uttar Pradesh	A	80055000	80055000	80055000		80055000	801
6	Lucknow	Uttar Pradesh	A	140055000	140055000	140055000		140055000	1401
7	Nagpur	Maharashtra	A	77633411	77633411			77633411	776
8	Pune	Maharashtra	A	420350268	420350268			420350268	4204
9	Surat	Gujarat	A	36000000	36000000			36000000	360
10	Chennai	Tamil Nadu	A+	533883479				533883479	5339
11	Mumbai	Maharashtra	A+	1228131349	1228131349			1228131349	12281
12	Agra	Uttar Pradesh	B	25600050	25600050			25600050	256
13	Allahabad	Uttar Pradesh	B	40877024	40877024			40877024	409
14	Amritsar	Punjab	B	60397038				60397038	604
15	Asansol	West Bengal	B	19405000				19405000	194
16	Cochin	Kerala	B	150483548				150483548	1505
17	Jamshedpur	Jharkhand	B	12644366				12644366	126
18	Madurai	Tamil Nadu	B	64908963				64908963	649
19	Patna	Bihar	B	178983876	178983876	178983876		178983876	1790

20	Rajkot	Gujarat	B	60808376				60808376	608
21	Varanasi	Uttar Pradesh	B	174918947				174918947	1749
22	Vijayawada	Andhra Pradesh	B	70020000				70020000	700
23	Ahmednagar	Maharashtra	C	4713312	4713312			4713312	47
24	Ajmer	Rajasthan	C	7908589	7908589			7908589	79
25	Akola	Maharashtra	C	2959000	2959000	5898152		3938717	39
26	Alappuzha (Alleppey)	Kerala	C	70200100	70200100			70200100	702
27	Aligarh	Uttar Pradesh	C	3100000	3100000	3100000		3100000	31
28	Amravati	Maharashtra	C	35100000				35100000	351
29	Aurangabad	Maharashtra	C	62339493	62339493			62339493	623
30	Bareily	Uttar Pradesh	C	5259650	5259650			5259650	53
31	Bhavnagar	Gujarat	C	35100000	35100000			35100000	351
32	Bhubaneshwar	Odisha	C	74013559				74013559	740
33	Bikaner	Rajasthan	C	3100000	3100000	3100000		3100000	31
34	Bilaspur	Chhattisgarh	C	3345541	3345541	3345541		3345541	33
35	Dehradun	Uttarakhand	C	156100590				156100590	1561
36	Dhule	Maharashtra	C	4659000	4659000			4659000	47
37	Erode	Tamil Nadu	C	70200100	70200100			70200100	702
38	Gorakhpur	Uttar Pradesh	C	3100000	3100000			3100000	31
39	Guwahati	Assam	C	41111343				41111343	411
40	Hubli-Dharwad	Karnataka	C	70200100	70200100			70200100	702
41	Jalgaon	Maharashtra	C	3659000	3659000			3659000	37

42	Jammu	Jammu & Kashmir	C	10107090	10107090	10107090		10107090	101
43	Jamnagar	Gujarat	C	35100000	35100000			35100000	351
44	Jhansi	Uttar Pradesh	C	3100000	5695446	5695446		4830297.333	48
45	Jodhpur	Rajasthan	C	114439124				114439124	1144
46	Kolhapur	Maharashtra	C	94424489	94424489			94424489	944
47	Kota	Rajasthan	C	10073018				10073018	101
48	Kozhikode	Kerala	C	70200100	70200100			70200100	702
49	Muzaffarpur	Bihar	C	43531244	1510000	1510000	1510000	12015311	120
50	Mysuru	Karnataka	C	32130990				32130990	321
51	Nanded	Maharashtra	C	2959000	2959000			2959000	30
52	Nasik	Maharashtra	C	146624270	146624270			146624270	1466
53	Nellore	Andhra Pradesh	C	70200100				70200100	702
54	Patiala	Punjab	C	16493619				16493619	165
55	Rajahmundry	Andhra Pradesh	C	15000500	15000500			15000500	150
56	Rourkela	Odisha	C	10212651	10212651			10212651	102
57	Salem	Tamil Nadu	C	70200100	70200100			70200100	702
58	Sangli	Maharashtra	C	4659000	4705590			4682295	47
59	Sholapur	Maharashtra	C	7203811	7203811			7203811	72
60	Siliguri	West Bengal	C	6500501				6500501	65
61	Srinagar	Jammu & Kashmir	C	6120090	6120090	6120090		6120090	61
62	Tiruchy	Tamil Nadu	C	50000500				50000500	500
63	Tirunelveli	Tamil Nadu	C	12600000				12600000	126

64	Tirupati	Andhra Pradesh	C	45050000				45050000	451
65	Udaipur	Rajasthan	C	10517476				10517476	105
66	Ujjain	Madhya Pradesh	C	35100000				35100000	351
67	Vellore	Tamil Nadu	C	70200100	70200100			70200100	702
68	Warangal	Telangana	C	12525000	12525000			12525000	125
69	Agartala	Tripura	D	1620000	7071529			4345764	43
70	Bharuch	Gujarat	D	17100000	17100000			17100000	171
71	Durg-Bhillainagar	Chhattisgarh	D	17100000				17100000	171
72	Godhra	Gujarat	D	17100000				17100000	171
73	Hissar	Haryana	D	8384735				8384735	84
74	Itanagar	Arunachal Pradesh	D	4372914	1303000			2837957	28
75	Junagadh	Gujarat	D	17100000	17100000			17100000	171
76	Karnal	Haryana	D	10418625				10418625	104
77	Mehsana	Gujarat	D	17100000	17100000			17100000	171
78	Palanpur	Gujarat	D	17100000				17100000	171
79	Porbandar	Gujarat	D	17100000				17100000	171
80	Raigarh	Chhattisgarh	D	17100000				17100000	171
81	Veraval	Gujarat	D	17100000				17100000	171

Annexure-IX

Cities which received successful bids in both 2005 and 2015-16 and ratio of bids received in 2016 and 2005

S. No.	City	State/UT	City category as per Phase-III policy	Average of successful bids received (a) (Rs.) 2005	Average of successful bids received (a) (Rs.) 2015-2016	Ratio Avg. successful bid of Phase-II & Phase-III	Ratios considered for calculating average ratios for category	Identification of outliers
1	Agartala	Tripura	D	1332363	4345764.5	3.26	3.26	
2	Agra	Uttar Pradesh	B	25236713	25600050	1.01	1.01	
3	Ahmednagar	Maharashtra	C	3546333	4713312	1.33	1.33	
4	Aizwal	Mizoram	D	882545	1608222	1.82		Not considered as no city from Mizoram (Other than in border areas) is to be auctioned
5	Ajmer	Rajasthan	C	4225023	7908589	1.87	1.87	
6	Akola	Maharashtra	C	2089667	3938717.333	1.88	1.88	
7	Aligarh	Uttar Pradesh	C	2900045	3100000	1.07	1.07	
8	Allahabad	Uttar Pradesh	B	11666863	40877024	3.50	3.50	
9	Amritsar	Punjab	B	19652523	60397038	3.07	3.07	
10	Asansol	West Bengal	B	13527545	19405000	1.43	1.43	
11	Aurangabad	Maharashtra	C	21229500	62339493	2.94	2.94	
12	Bareily	Uttar Pradesh	C	2833363	5259650	1.86	1.86	
13	Bhubaneshwar	Odisha	C	6225030	74013559	11.89		Eliminated as Ratio exceeds twice the Average of Ratios for all cities in same category
14	Bikaner	Rajasthan	C	2900045	3100000	1.07	1.07	

15	Bilaspur	Chhattisgrah	C	2507498	3345541	1.33	1.33	
16	Dhule	Maharashtra	C	3409500	4659000	1.37	1.37	
17	Gorakhpur	Uttar Pradesh	C	2353363	3100000	1.32	1.32	
18	Guwahati	Assam	C	3072773	41111343	13.38		Eliminated as Ratio exceeds twice the Average of Ratios for all cities in same category
19	Hissar	Haryana	D	4128623	8384735	2.03	2.03	
20	Itanagar	Arunachal Pradesh	D	1022697	2837957	2.77	2.77	
21	Jalgaon	Maharashtra	C	2629775	3659000	1.39	1.39	
22	Jammu	J&K	C	10107090	10107090	1.00	1.00	
23	Jamshedpur	Jharkhand	B	8338663	12644366	1.52	1.52	
24	Jhansi	Uttar Pradesh	C	2900045	4830297.333	1.67	1.67	
25	Jodhpur	Rajasthan	C	11251773	114439124	10.17		Eliminated as Ratio exceeds twice the Average of Ratios for all cities in same category
26	Karnal	Haryana	D	8055000	10418625	1.29	1.29	
27	Kochi	Kerala	B	95763334	150483548	1.57	1.57	
28	Kolhapur	Maharashtra	C	22100000	94424489	4.27	4.27	
29	Kota	Rajasthan	C	4347523	10073018	2.32	2.32	
30	Kozhikode	Kerala	C	55600050	70200100	1.26	1.26	
31	Madurai	Tamil Nadu	B	55704000	64908963	1.17	1.17	
32	Muzaffarpur	Bihar	C	1056363	12015311	11.37		Eliminated as Ratio exceeds twice the Average of Ratios for all cities in same category
33	Mysore	Karnataka	C	31115995	32130990	1.03	1.03	
34	Nanded	Maharashtra	C	1820000	2959000	1.63	1.63	
35	Nasik	Maharashtra	C	30579500	146624270	4.79	4.79	
36	Patiala	Punjab	C	8827523	16493619	1.87	1.87	
37	Patna	Bihar	B	51300000	178983876	3.49	3.49	

38	Rajahmundry	Andhra Pradesh	C	10550515	15000500	1.42	1.42	
39	Rajkot	Gujarat	B	26253197	60808376	2.32	2.32	
40	Rourkela	Odisha	C	2008363	10212651	5.09	5.09	
41	Sangli	Maharashtra	C	4344500	4682295	1.08	1.08	
42	Shillong	Meghalaya	D	1394697	6915070	4.96		Not considered as no city from Meghalaya (other than in border areas) is to be auctioned
43	Sholapur	Maharashtra	C	5093330	7203811	1.41	1.41	
44	Siliguri	West Bengal	C	5263875	6500501	1.23	1.23	
45	Srinagar	J&K	C	6120090	6120090	1.00	1.00	
46	Tiruchy	Tamil Nadu	C	40750250	50000500	1.23	1.23	
47	Tirunelveli	Tamil Nadu	C	10467050	12600000	1.20	1.20	
48	Tirupati	Andhra Pradesh	C	28375495	45050000	1.59	1.59	
49	Udaipur	Rajasthan	C	5369273	10517476	1.96	1.96	
50	Varanasi	Uttar Pradesh	B	12700000	174918947	13.77		Eliminated as Ratio exceeds twice the Average of Ratios for all cities in same category
51	Vijayawada	Andhra Pradesh	B	66510000	70020000	1.05	1.05	
52	Warrangal	Andhra Pradesh	C	8312730	12525000	1.51	1.51	

Determination of Average Ratios for estimation of Reference Prices

City Classification	Ratio
B	2.01
C	1.81
D	2.34

Application of ratios determined above to remaining cities of Phase-II to obtain further unique data points for estimation of reference prices

S. No.	City	State/UT	City category as per Phase-III policy	Average of successful bids received in 2005 (Rs.)	City category ratio Phase-III/Phase-II	Indexed value for 2016 (Rs.)	Identification of outliers
1	Bhopal	Madhya Pradesh	B	27489998	2.01	55254895.98	
2	Coimbatore	Tamil Nadu	B	63833333	2.01	128304999.3	
3	Indore	Madhya Pradesh	B	47506963	2.01	95488995.63	
4	Jabalpur	Madhya Pradesh	B	11872750	2.01	23864227.5	
5	Vadodra	Gujarat	B	34079973	2.01	68500745.73	
6	Vishakapatnam	Andhra Pradesh	B	40046663	2.01	80493792.63	
7	Gulbarga	Karnataka	C	10052950	1.81	18195839.5	
8	Gwalior	Madhya Pradesh	C	6788748	1.81	12287633.88	
9	Jalandhar	Punjab	C	23125023	1.81	41856291.63	
10	Kannur	Kerala	C	14406534	1.81	26075826.54	
11	Mangalore	Karnataka	C	16052648	1.81	29055292.88	
12	Raipur	Chhattisgrah	C	14677501	1.81	26566276.81	
13	Ranchi	Jharkhand	C	4412747	1.81	7987072.07	
14	Thiruvananthapuram	Kerala	C	37355372	1.81	67613223.32	
15	Thrissur	Kerala	C	22123625	1.81	40043761.25	
16	Tuticorin	Tamil Nadu	C	10000467	1.81	18100845.27	
17	Gangtok	Sikkim	D	1619298	2.34	3789157.32	
18	Shimla	Himachal Pradesh	D	8613363	2.34		Not considered as none of cities of HP is going for auction now

Annexure-X

Consolidated list of reference prices derived from successful bids of Phase-II and Phase-III auction

S. No.	City	State/UT	Category as per MIB	Successful bid amount 1 (in Rs.)	Successful bid amount 2 (in Rs.)	Successful bid amount 3 (in Rs.)	Successful bid amount 4 (in Rs.)	Average successful bid amount (in Rs.)	Reference price (in Rs. lakhs)
1	Nellore	Andhra Pradesh	C	70200100				70200100	702
2	Rajahmundry	Andhra Pradesh	C	15000500	15000500			15000500	150
3	Tirupati	Andhra Pradesh	C	45050000				45050000	451
4	Vijayawada	Andhra Pradesh	B	70020000				70020000	700
5	Vishakapatnam	Andhra Pradesh	B	Extrapolated Price				80493793	805
6	Itanagar	Arunachal Pradesh	D	4372914	1303000			2837957	28
7	Guwahati	Assam	C	41111343				41111343	411
8	Muzaffarpur	Bihar	C	43531244	1510000	1510000	1510000	12015311	120
9	Patna	Bihar	B	178983876	178983876	178983876		178983876	1790
10	Bilaspur	Chhattisgarh	C	3345541	3345541	3345541		3345541	33
11	Durg-Bhillainagar	Chhattisgarh	D	17100000				17100000	171
12	Raigarh	Chhattisgarh	D	17100000				17100000	171
13	Raipur	Chhattisgarh	C	Extrapolated Price				26566277	266
14	Ahmedabad	Gujarat	A	426876267				426876267	4269
15	Bharuch	Gujarat	D	17100000	17100000			17100000	171
16	Bhavnagar	Gujarat	C	35100000	35100000			35100000	351
17	Godhra	Gujarat	D	17100000				17100000	171
18	Jamnagar	Gujarat	C	35100000	35100000			35100000	351

19	Junagadh	Gujarat	D	17100000	17100000			17100000	171
20	Mehsana	Gujarat	D	17100000	17100000			17100000	171
21	Palanpur	Gujarat	D	17100000				17100000	171
22	Porbandar	Gujarat	D	17100000				17100000	171
23	Rajkot	Gujarat	B	60808376				60808376	608
24	Surat	Gujarat	A	36000000	36000000			36000000	360
25	Veraval	Gujarat	D	17100000				17100000	171
26	Vadodra	Gujarat	B	Extrapolated Price				68500746	685
27	Hissar	Haryana	D	8384735				8384735	84
28	Karnal	Haryana	D	10418625				10418625	104
29	Jammu	Jammu & Kashmir	C	10107090	10107090	10107090		10107090	101
30	Srinagar	Jammu & Kashmir	C	6120090	6120090	6120090		6120090	61
31	Jamshedpur	Jharkhand	B	12644366				12644366	126
32	Ranchi	Jharkhand	C	Extrapolated Price				7987072	80
33	Bangalore	Karnataka	A	1092545545				1092545545	10925
34	Hubli-Dharwad	Karnataka	C	70200100	70200100			70200100	702
35	Mysuru	Karnataka	C	32130990				32130990	321
36	Gulbarga	Karnataka	C	Extrapolated Price				18195840	182
37	Mangalore	Karnataka	C	Extrapolated Price				29055293	291
38	Alappuzha (Alleppey)	Kerala	C	70200100	70200100			70200100	702
39	Cochin	Kerala	B	150483548				150483548	1505
40	Kozhikode	Kerala	C	70200100	70200100			70200100	702
41	Kannur	Kerala	C	Extrapolated Price				26075827	261
42	Thiruvananthapuram	Kerala	C	Extrapolated Price				67613223	676
43	Thrissur	Kerala	C	Extrapolated Price				40043761	400
44	Ujjain	Madhya Pradesh	C	35100000				35100000	351

45	Bhopal	Madhya Pradesh	B	Extrapolated Price				55254896	553
46	Gwalior	Madhya Pradesh	C	Extrapolated Price				12287634	123
47	Indore	Madhya Pradesh	B	Extrapolated Price				95488996	955
48	Jabalpur	Madhya Pradesh	B	Extrapolated Price				23864228	239
49	Ahmednagar	Maharashtra	C	4713312	4713312			4713312	47
50	Akola	Maharashtra	C	2959000	2959000	5898152		3938717	39
51	Amravati	Maharashtra	C	35100000				35100000	351
52	Aurangabad	Maharashtra	C	62339493	62339493			62339493	623
53	Dhule	Maharashtra	C	4659000	4659000			4659000	47
54	Jalgaon	Maharashtra	C	3659000	3659000			3659000	37
55	Kolhapur	Maharashtra	C	94424489	94424489			94424489	944
56	Mumbai	Maharashtra	A+	1228131349	1228131349			1228131349	12281
57	Nagpur	Maharashtra	A	77633411	77633411			77633411	776
58	Nanded	Maharashtra	C	2959000	2959000			2959000	30
59	Nasik	Maharashtra	C	146624270	146624270			146624270	1466
60	Pune	Maharashtra	A	420350268	420350268			420350268	4204
61	Sangli	Maharashtra	C	4659000	4705590			4682295	47
62	Sholapur	Maharashtra	C	7203811	7203811			7203811	72
63	Bhubaneshwar	Odisha	C	74013559				74013559	740
64	Rourkela	Odisha	C	10212651	10212651			10212651	102
65	Amritsar	Punjab	B	60397038				60397038	604
66	Patiala	Punjab	C	16493619				16493619	165
67	Jalandhar	Punjab	C	Extrapolated Price				41856292	419
68	Ajmer	Rajasthan	C	7908589	7908589			7908589	79
69	Bikaner	Rajasthan	C	3100000	3100000	3100000		3100000	31
70	Jaipur	Rajasthan	A	283498387				283498387	2835
71	Jodhpur	Rajasthan	C	114439124				114439124	1144

72	Kota	Rajasthan	C	10073018				10073018	101
73	Udaipur	Rajasthan	C	10517476				10517476	105
74	Gangtok	Rajasthan	D	Extrapolated Price				3789157	38
75	Chennai	Tamil Nadu	A+	533883479				533883479	5339
76	Erode	Tamil Nadu	C	70200100	70200100			70200100	702
77	Madurai	Tamil Nadu	B	64908963				64908963	649
78	Salem	Tamil Nadu	C	70200100	70200100			70200100	702
79	Tiruchy	Tamil Nadu	C	50000500				50000500	500
80	Tirunelveli	Tamil Nadu	C	12600000				12600000	126
81	Vellore	Tamil Nadu	C	70200100	70200100			70200100	702
82	Coimbatore	Tamil Nadu	B	Extrapolated Price				128304999	1283
83	Tuticorin	Tamil Nadu	C	Extrapolated Price				18100845	181
84	Hyderabad	Telangana	A	180000000	180000000	180000000	234348266	193587067	1936
85	Warangal	Telangana	C	12525000	12525000			12525000	125
86	Agartala	Tripura	D	1620000	7071529			4345765	43
87	Agra	Uttar Pradesh	B	25600050	25600050			25600050	256
88	Aligarh	Uttar Pradesh	C	3100000	3100000	3100000		3100000	31
89	Allahabad	Uttar Pradesh	B	40877024	40877024			40877024	409
90	Bareily	Uttar Pradesh	C	5259650	5259650			5259650	53
91	Gorakhpur	Uttar Pradesh	C	3100000	3100000			3100000	31
92	Jhansi	Uttar Pradesh	C	3100000	5695446	5695446		4830297	48
93	Kanpur	Uttar Pradesh	A	80055000	80055000	80055000		80055000	801

94	Lucknow	Uttar Pradesh	A	140055000	140055000	140055000		140055000	1401
95	Varanasi	Uttar Pradesh	B	174918947				174918947	1749
96	Dehradun	Uttarakhand	C	156100590				156100590	1561
97	Asansol	West Bengal	B	19405000				19405000	194
98	Siliguri	West Bengal	C	6500501				6500501	65

Annexure-XI

Category 'A+', 'B', 'C' and 'D' cities grouped based on per capita GSDP and category-wise average of indexed reference prices

City	State/UT	Category as per MIB	Indexed reference price (Rs. in lakh)	Group based on per capita GSDP
Mumbai	Maharashtra	A+	12281	J
		A+ Average	12281	
Hubli-Dharwad	Karnataka	C	702	J
Mysuru	Karnataka	C	321	J
Gulbarga	Karnataka	C	182	J
Mangalore	Karnataka	C	291	J
Alappuzha (Alleppey)	Kerala	C	702	J
Kozhikode	Kerala	C	702	J
Kannur	Kerala	C	261	J
Thiruvananthapuram	Kerala	C	676	J
Thrissur	Kerala	C	400	J
Ahmednagar	Maharashtra	C	47	J
Akola	Maharashtra	C	39	J
Amravati	Maharashtra	C	351	J
Aurangabad	Maharashtra	C	623	J
Dhule	Maharashtra	C	47	J
Jalgaon	Maharashtra	C	37	J
Nanded	Maharashtra	C	30	J
Sangli	Maharashtra	C	47	J
Sholapur	Maharashtra	C	72	J
Warangal	Telangana	C	125	J
		C Average	298	
Hissar	Haryana	D	84	J
Karnal	Haryana	D	104	J
Gangtok	Sikkim	D	38	J
		D Average	75	
Chennai	Tamil Nadu	A+	5339	K
		A+ Average	5339	
Vijayawada	Andhra Pradesh	B	700	K
Vishakapatnam	Andhra Pradesh	B	805	K

Rajkot	Gujarat	B	608	K
Vadodra	Gujarat	B	685	K
Amritsar	Punjab	B	604	K
Madurai	Tamil Nadu	B	649	K
Coimbatore	Tamil Nadu	B	1283	K
		B Average	762	
Nellore	Andhra Pradesh	C	702	K
Rajahmundry	Andhra Pradesh	C	150	K
Tirupati	Andhra Pradesh	C	451	K
Bhavnagar	Gujarat	C	351	K
Jamnagar	Gujarat	C	351	K
Patiala	Punjab	C	165	K
Jalandhar	Punjab	C	419	K
Erode	Tamil Nadu	C	702	K
Salem	Tamil Nadu	C	702	K
Tiruchy	Tamil Nadu	C	500	K
Tirunelveli	Tamil Nadu	C	126	K
Vellore	Tamil Nadu	C	702	K
Tuticorin	Tamil Nadu	C	181	K
		C Average	423	
Itanagar	Arunachal Pradesh	D	28	K
Bharuch	Gujarat	D	171	K
Godhra	Gujarat	D	171	K
Junagadh	Gujarat	D	171	K
Mehsana	Gujarat	D	171	K
Palanpur	Gujarat	D	171	K
Porbandar	Gujarat	D	171	K
Veraval	Gujarat	D	171	K
		D Average	153	
Jamshedpur	Jharkhand	B	126	L
Bhopal	Madhya Pradesh	B	553	L
Indore	Madhya Pradesh	B	955	L
Jabalpur	Madhya Pradesh	B	239	L
Agra	Uttar Pradesh	B	256	L
Allahabad	Uttar Pradesh	B	409	L
Asansol	West Bengal	B	194	L
		B Average	390	

Guwahati	Assam	C	411	L
Muzaffarpur	Bihar	C	120	L
Bilaspur	Chhattisgarh	C	33	L
Raipur	Chhattisgarh	C	266	L
Jammu	Jammu & Kashmir	C	101	L
Srinagar	Jammu & Kashmir	C	61	L
Ranchi	Jharkhand	C	80	L
Ujjain	Madhya Pradesh	C	351	L
Gwalior	Madhya Pradesh	C	123	L
Rourkela	Odisha	C	102	L
Ajmer	Rajasthan	C	79	L
Bikaner	Rajasthan	C	31	L
Kota	Rajasthan	C	101	L
Udaipur	Rajasthan	C	105	L
Aligarh	Uttar Pradesh	C	31	L
Bareily	Uttar Pradesh	C	53	L
Gorakhpur	Uttar Pradesh	C	31	L
Jhansi	Uttar Pradesh	C	48	L
Siliguri	West Bengal	C	65	L
		C Average	115	
Durg-Bhillainagar	Chhattisgarh	D	171	L
Raigarh	Chhattisgarh	D	171	L
Agartala	Tripura	D	43	L
		D Average	128	

Annexure-XII

Category 'A+', 'B', 'C' and 'D' cities grouped based on per capita GR and category-wise average of indexed reference prices

City	State/UT	Category as per MIB	Indexed reference price (Rs. in lakh)	Group based per capita GR
Mumbai	Maharashtra	A+	12281	F
Chennai	Tamil Nadu	A+	5339	F
		A+ Average	8810	
Rajkot	Gujarat	B	608	F
Vadodra	Gujarat	B	685	F
Cochin	Kerala	B	1505	F
Madurai	Tamil Nadu	B	649	F
Coimbatore	Tamil Nadu	B	1283	F
		B Average	946	
Bhavnagar	Gujarat	C	351	F
Jamnagar	Gujarat	C	351	F
Hubli-Dharwad	Karnataka	C	702	F
Mysuru	Karnataka	C	321	F
Gulbarga	Karnataka	C	182	F
Mangalore	Karnataka	C	291	F
Alappuzha (Alleppey)	Kerala	C	702	F
Kozhikode	Kerala	C	702	F
Kannur	Kerala	C	261	F
Thiruvananthapuram	Kerala	C	676	F
Thrissur	Kerala	C	400	F
Ahmednagar	Maharashtra	C	47	F
Akola	Maharashtra	C	39	F
Amravati	Maharashtra	C	351	F
Aurangabad	Maharashtra	C	623	F
Dhule	Maharashtra	C	47	F
Jalgaon	Maharashtra	C	37	F
Nanded	Maharashtra	C	30	F
Sangli	Maharashtra	C	47	F

Sholapur	Maharashtra	C	72	F
Erode	Tamil Nadu	C	702	F
Salem	Tamil Nadu	C	702	F
Tiruchy	Tamil Nadu	C	500	F
Tirunelveli	Tamil Nadu	C	126	F
Vellore	Tamil Nadu	C	702	F
Tuticorin	Tamil Nadu	C	181	F
Warangal	Telangana	C	125	F
		C Average	343	
Bharuch	Gujarat	D	171	F
Godhra	Gujarat	D	171	F
Junagadh	Gujarat	D	171	F
Mehsana	Gujarat	D	171	F
Palanpur	Gujarat	D	171	F
Porbandar	Gujarat	D	171	F
Veraval	Gujarat	D	171	F
Gangtok	Sikkim	D	38	F
		D Average	154	
Ajmer	Rajasthan	C	79	G
Bikaner	Rajasthan	C	31	G
Kota	Rajasthan	C	101	G
Udaipur	Rajasthan	C	105	G
Siliguri	West Bengal	C	65	G
		C Average	76	
Vijayawada	Andhra Pradesh	B	700	H
Vishakapatnam	Andhra Pradesh	B	805	H
Jamshedpur	Jharkhand	B	126	H
Bhopal	Madhya Pradesh	B	553	H
Indore	Madhya Pradesh	B	955	H
Jabalpur	Madhya Pradesh	B	239	H
Amritsar	Punjab	B	604	H
Agra	Uttar Pradesh	B	256	H
Allahabad	Uttar Pradesh	B	409	H
		B Average	516	
Rajahmundry	Andhra Pradesh	C	150	H

Guwahati	Assam	C	411	H
Muzaffarpur	Bihar	C	120	H
Bilaspur	Chhattisgarh	C	33	H
Raipur	Chhattisgarh	C	266	H
Jammu	Jammu & Kashmir	C	101	H
Srinagar	Jammu & Kashmir	C	61	H
Ranchi	Jharkhand	C	80	H
Ujjain	Madhya Pradesh	C	351	H
Gwalior	Madhya Pradesh	C	123	H
Rourkela	Odisha	C	102	H
Patiala	Punjab	C	165	H
Jalandhar	Punjab	C	419	H
Aligarh	Uttar Pradesh	C	31	H
Bareily	Uttar Pradesh	C	53	H
Gorakhpur	Uttar Pradesh	C	31	H
Jhansi	Uttar Pradesh	C	48	H
		C Average	150	
Itanagar	Arunachal Pradesh	D	28	H
Durg-Bhillainagar	Chhattisgarh	D	171	H
Raigarh	Chhattisgarh	D	171	H
Hissar	Haryana	D	84	H
Karnal	Haryana	D	104	H
Agartala	Tripura	D	43	H
		D Average	100	

Annexure-XIII

Category 'A+', 'B', 'C' and 'D' cities grouped based on radio listenership and category-wise average of indexed reference prices

City	State/UT	Category as per MIB	Indexed reference price (Rs. in lakh)	Group based on radio listenership
Mumbai	Maharashtra	A+	12281	Q
Chennai	Tamil Nadu	A+	5339	Q
		A+ Average	8810	
Rajkot	Gujarat	B	608	Q
Vadodra	Gujarat	B	685	Q
Bhopal	Madhya Pradesh	B	553	Q
Indore	Madhya Pradesh	B	955	Q
Jabalpur	Madhya Pradesh	B	239	Q
Madurai	Tamil Nadu	B	649	Q
Coimbatore	Tamil Nadu	B	1283	Q
Agra	Uttar Pradesh	B	256	Q
Allahabad	Uttar Pradesh	B	409	Q
Asansol	West Bengal	B	194	Q
		B Average	583	
Muzaffarpur	Bihar	C	120	Q
Bhavnagar	Gujarat	C	351	Q
Jamnagar	Gujarat	C	351	Q
Mysuru	Karnataka	C	321	Q
Gulbarga	Karnataka	C	182	Q
Mangalore	Karnataka	C	291	Q
Ujjain	Madhya Pradesh	C	351	Q
Gwalior	Madhya Pradesh	C	123	Q
Ahmednagar	Maharashtra	C	47	Q
Akola	Maharashtra	C	39	Q

Amravati	Maharashtra	C	351	Q
Dhule	Maharashtra	C	47	Q
Jalgaon	Maharashtra	C	37	Q
Nanded	Maharashtra	C	30	Q

Sangli	Maharashtra	C	47	Q
Sholapur	Maharashtra	C	72	Q
Ajmer	Rajasthan	C	79	Q
Bikaner	Rajasthan	C	31	Q
Kota	Rajasthan	C	101	Q
Udaipur	Rajasthan	C	105	Q
Tiruchy	Tamil Nadu	C	500	Q
Tirunelveli	Tamil Nadu	C	126	Q
Tuticorin	Tamil Nadu	C	181	Q
Aligarh	Uttar Pradesh	C	31	Q
Bareily	Uttar Pradesh	C	53	Q
Gorakhpur	Uttar Pradesh	C	31	Q
Jhansi	Uttar Pradesh	C	48	Q
Siliguri	West Bengal	C	65	Q
		C Average	147	
Bharuch	Gujarat	D	171	Q
Godhra	Gujarat	D	171	Q
Junagadh	Gujarat	D	171	Q
Mehsana	Gujarat	D	171	Q
Palanpur	Gujarat	D	171	Q
Porbandar	Gujarat	D	171	Q
Veraval	Gujarat	D	171	Q
		D Average	171	
Vijayawada	Andhra Pradesh	B	700	R
Vishakapatnam	Andhra Pradesh	B	805	R
		B Average	753	
Nellore	Andhra Pradesh	C	702	R

Jammu	Jammu & Kashmir	C	101	S
Srinagar	Jammu & Kashmir	C	61	S
Ranchi	Jharkhand	C	80	S
Alappuzha (Alleppey)	Kerala	C	702	S
Kozhikode	Kerala	C	702	S
Kannur	Kerala	C	261	S
Thiruvananthapuram	Kerala	C	676	S
Thrissur	Kerala	C	400	S
Patiala	Punjab	C	165	S
Jalandhar	Punjab	C	419	S
		C Average	329	
Durg-Bhillainagar	Chhattisgarh	D	171	S
Raigarh	Chhattisgarh	D	171	S
Hissar	Haryana	D	84	S
Karnal	Haryana	D	104	S
Agartala	Tripura	D	43	S
Gangtok	Sikkim	D	38	S
		D Average	102	
Rajahmundry	Andhra Pradesh	C	150	R
Tirupati	Andhra Pradesh	C	451	R
Bhubaneshwar	Odisha	C	740	R
Rourkela	Odisha	C	102	R
Warangal	Telangana	C	125	R
		C Average	378	
Jamshedpur	Jharkhand	B	126	S
Amritsar	Punjab	B	604	S
		B Average	365	
Guwahati	Assam	C	411	S
Bilaspur	Chhattisgarh	C	33	S
Raipur	Chhattisgarh	C	266	S

Annexure-XIV

Valuation matrix derived on the basis of per capita GSDP

City category (based on population) / State/UT category (based per capita GSDP)	A+	B	C	D
J	12281		298	75
K	5339	762	423	153
L		390	115	128

Note: No reference values were obtained for cells (A+,L) and (B,J). The reference value arrived for cell (C,J) was 298 which was considered inconsistent considering the value of cell (C,K) was significantly higher at 423. Similarly, the cell value 75 for cell (D,J) was considered inconsistent considering the value of cell (D,K) was higher at 153. The cell value (D,L) was higher than cell value (C,L), however, considering the extent of difference, (D,L) was not considered inconsistent. Accordingly, cell values (C,J) and (D,J) were eliminated from next step of computation of RPs, while other values including (D,L) have been considered for computation of RPs.

Annexure-XV

Valuation matrix derived on the basis of per capita GR

City category (based on population) / State/UT category (based per capita GR)	A+	B	C	D
F	8810	946	343	154
G			76	
H		516	150	100

Note: No reference values were obtained for cells (A+,G), (A+,H), (B,G) and (D,G). The reference value arrived for cell (C,G) was 76 which was considered inconsistent considering the value of cell (C,H) was significantly higher at 150. Accordingly, cell value (C,G) was eliminated from next step of computation of RPs.

Annexure-XVI

Valuation matrix derived on the basis of radio listenership

City category (based on population) / State/UT category (based on listenership)	A+	B	C	D
Q	8810	583	147	171
R		753	378	
S		365	329	102

Note: No reference values were obtained for cells (A+,R), (A+,S) and (D,R). The reference values arrived for cells (B,Q) and (C,Q) were considered inconsistent considering these were significantly lower than values of cells (B,R) and (C,R), respectively. Accordingly, cell values (B,Q) and (C,Q) were eliminated from the next step of computation of RPs

Annexure-XVII

Details of reserve prices for 273 cities

S. No. (1)	City (2)	State/UT (3)	District (4)	City categoryas per MIB (5)	Group based on GSDP per capita (6)	Group based on GR per capita (7)	Group based on radio listenership (8)	Valuation basedon per capita GSDP (Rs. in lakh) (9)	Valuation based on per capita GR (Rs. in lakh) (10)	Valuation based on radio listener ship (Rs. in lakh) (11)	Average value (Rs. in lakh) (12)	City MII (13)	City MII adjusted value (14)	Factor for RP (80%/ 40%) (Rs. in lakh) (15)	Factor based RP (Rs. in lakh) (16)	Adjustment to RP (17)	Final RP (Rs. in lakh) (18)
1	Port Blair	Andaman and Nicobar	NA	D	Refer to paragraph 2.37 for details of computation of reserve price												41
2	Adoni	Andhra Pradesh	Kurnool	D	K	H	R	153	100		127	0.94	119	80%	95	No Adjustment	95
3	Anantapuram	Andhra Pradesh	Anantapur	D	K	H	R	153	100		127	0.96	122	80%	98	No Adjustment	98
4	Bhimavaram	Andhra Pradesh	West Godavari	D	K	H	R	153	100		127	1.05	133	80%	106	No Adjustment	106
5	Chilakaluripet	Andhra Pradesh	Guntur	D	K	H	R	153	100		127	1.05	133	80%	107	No Adjustment	107
6	Chirala	Andhra Pradesh	Prakasam	D	K	H	R	153	100		127	0.96	122	80%	97	No Adjustment	97
7	Chittoor	Andhra Pradesh	Chittoor	D	K	H	R	153	100		127	0.99	126	80%	101	No Adjustment	101
8	Cuddapah	Andhra Pradesh	Y.S.R.	D	K	H	R	153	100		127	0.97	123	80%	98	No Adjustment	98

S. No. (1)	City(2)	State/UT (3)	District(4)	City category as per MIB (5)	Group based on GSDP per capita (6)	Group based on GR per capita (7)	Group based on radio listenership (8)	Valuation basedon per capita GSDP (Rs. in lakh) (9)	Valuation based on per capita GR (Rs. in lakh) (10)	Valuation based on radio listener ship (Rs. in lakh) (11)	Average value (Rs. in lakh) (12)	City MII (13)	City MII adjusted value (14)	Factor for RP (80%/ 40%) (Rs. in lakh) (15)	Factor based RP (Rs. in lakh) (16)	Adjustment to RP (17)	Final RP (Rs. in lakh) (18)
9	Dharmavaram	Andhra Pradesh	Anantapur	D	K	H	R	153	100		127	0.96	122	80%	98	No Adjustment	98
10	Eluru	Andhra Pradesh	West Godavari	D	K	H	R	153	100		127	1.05	133	80%	106	No Adjustment	106
11	Guntakal	Andhra Pradesh	Anantapur	D	K	H	R	153	100		127	0.96	122	80%	98	No Adjustment	98
12	Hindupur	Andhra Pradesh	Anantapur	D	K	H	R	153	100		127	0.96	122	80%	98	No Adjustment	98
13	Kakinada	Andhra Pradesh	East Godavari	C	K	H	R	423	150	378	317	1.06	337	80%	270	Lower (Factored RP, MIB RP)	270
14	Kurnool	Andhra Pradesh	Kurnool	C	K	H	R	423	150	378	317	0.94	298	80%	239	Lower (Factored RP, MIB RP)	239
15	Machilipatnam	Andhra Pradesh	Krishna	D	K	H	R	153	100		127	1.21	154	80%	123	No Adjustment	123
16	Madanapalle	Andhra Pradesh	Chittoor	D	K	H	R	153	100		127	0.99	126	80%	101	No Adjustment	101
17	Nandyal	Andhra Pradesh	Kurnool	D	K	H	R	153	100		127	0.94	119	80%	95	No Adjustment	95

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18	Narasaraopet	Andhra Pradesh	Guntur	D	K	H	R	153	100		127	1.05	133	80%	107	No Adjustment	107
19	Nellore	Andhra Pradesh	Sri Potti Sriramulu Nellore	C	K	H	R	423	150	378	317	1.03	326	80%	261	Lower (Factored RP, Highest Bid)	261
20	Ongole	Andhra Pradesh	Prakasam	D	K	H	R	153	100		127	0.96	122	80%	97	No Adjustment	97
21	Proddatur	Andhra Pradesh	Y.S.R.	D	K	H	R	153	100		127	0.97	123	80%	98	No Adjustment	98
22	Rajahmundry	Andhra Pradesh	East Godavari	C	K	H	R	423	150	378	317	1.06	337	80%	270	Higher (Factored RP, Highest Bid)	270
23	Srikakulam	Andhra Pradesh	Srikakulam	D	K	H	R	153	100		127	0.83	105	80%	84	No Adjustment	84
24	Tadpatri	Andhra Pradesh	Anantapur	D	K	H	R	153	100		127	0.96	122	80%	98	No Adjustment	98
25	Tirupati	Andhra Pradesh	Chittoor	C	K	H	R	423	150	378	317	0.99	316	80%	253	Higher (Factored RP, Highest Bid)	450

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26	Vijayawada	Andhra Pradesh	Krishna	B	K	H	R	762	516	753	677	1.21	822	80%	658	Higher (Factored RP, HighestBid)	700
27	Visakhapatnam	Andhra Pradesh	Vishakhapatnam	B	K	H	R	762	516	753	677	1.22	826	80%	661	Lower (Factored RP, MIB RP)	466
28	Vizianagaram	Andhra Pradesh	Vizianagaram	D	K	H	R	153	100		127	0.88	112	80%	89	No Adjustment	89
29	Itanagar	Arunachal Pradesh	NA	D	K	H	#N/A	153	100		127	#N/A	NA	40%	51	Higher (Factored RP, HighestBid)	51
30	Dibrugarh	Assam	Dibrugarh	D	L	H	S	128	100	102	110	0.89	98	40%	39	No Adjustment	39
31	Jorhat	Assam	Jorhat	D	L	H	S	128	100	102	110	0.92	101	40%	41	No Adjustment	41
32	Nagaon (Nowgang)	Assam	Nagaon	D	L	H	S	128	100	102	110	0.64	71	40%	28	No Adjustment	28
33	Silchar	Assam	Cachar	D	L	H	S	128	100	102	110	0.66	73	40%	29	No Adjustment	29

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34	Tezpur	Assam	Sonitpur	D	L	H	S	128	100	102	110	0.66	72	40%	29	No Adjustment	29
35	Tinsukia	Assam	Tinsukia	D	L	H	S	128	100	102	110	0.78	86	40%	34	No Adjustment	34
36	Arrah	Bihar	Bhojpur	D	L	H	Q	128	100	171	133	0.57	76	80%	61	No Adjustment	61
37	Aurangabad	Bihar	Aurangabad	D	L	H	Q	128	100	171	133	0.49	65	80%	52	No Adjustment	52
38	Bagaha	Bihar	Pashchim Champaran	D	L	H	Q	128	100	171	133	0.46	62	80%	50	No Adjustment	50
39	Begusarai	Bihar	Begusarai	D	L	H	Q	128	100	171	133	0.55	73	80%	59	No Adjustment	59
40	Bettiah	Bihar	Pashchim Champaran	D	L	H	Q	128	100	171	133	0.46	62	80%	50	No Adjustment	50
41	Bhagalpur	Bihar	Bhagalpur	C	L	H	Q	115	150		133	0.58	77	80%	62	No Adjustment	62
42	Bihar Sharif	Bihar	Nalanda	D	L	H	Q	128	100	171	133	0.53	70	80%	56	No Adjustment	56

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43	Chapra	Bihar	Saran	D	L	H	Q	128	100	171	133	0.53	70	80%	56	No Adjustment	56
44	Darbhanga	Bihar	Darbhanga	D	L	H	Q	128	100	171	133	0.50	66	80%	53	No Adjustment	53
45	Gaya	Bihar	Gaya	C	L	H	Q	115	150		133	0.51	67	80%	54	No Adjustment	54
46	Kishanganj	Bihar	Kishanganj	D	L	H	Q	128	100	171	133	0.43	57	80%	45	No Adjustment	45
47	Motihari	Bihar	Purba Champaran	D	L	H	Q	128	100	171	133	0.49	65	80%	52	No Adjustment	52
48	Munger	Bihar	Munger	D	L	H	Q	128	100	171	133	0.65	87	80%	69	No Adjustment	69
49	Purnia	Bihar	Purnia	C	L	H	Q	115	150		133	0.44	58	80%	47	No Adjustment	47
50	Saharsa	Bihar	Saharsa	D	L	H	Q	128	100	171	133	0.45	59	80%	47	No Adjustment	47
51	Sasaram	Bihar	Rohtas	D	L	H	Q	128	100	171	133	0.56	75	80%	60	No Adjustment	60
52	Sitamarhi	Bihar	Sitamarhi	D	L	H	Q	128	100	171	133	0.46	61	80%	49	No Adjustment	49

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53	Siwan	Bihar	Siwan	D	L	H	Q	128	100	171	133	0.53	71	80%	57	No Adjustment	57
54	Ambikapur	Chhattisgarh	Surguja	D	L	H	S	128	100	102	110	0.57	63	80%	51	No Adjustment	51
55	Durg	Chhattisgarh	Durg	D	L	H	S	128	100	102	110	0.98	108	80%	87	Lower (Factored RP, Highest Bid)	87
56	Jagdalpur	Chhattisgarh	Bastar	D	L	H	S	128	100	102	110	0.60	66	80%	53	Lower (Factored RP, MIB RP)	53
57	Korba	Chhattisgarh	Korba	D	L	H	S	128	100	102	110	0.99	109	80%	87	Lower (Factored RP, MIB RP)	87
58	Raigarh	Chhattisgarh	Raigarh	D	L	H	S	128	100	102	110	0.76	84	80%	67	Lower (Factored RP, Highest Bid)	67
59	Raipur	Chhattisgarh	Raipur	C	L	H	S	115	150	329	198	0.94	187	80%	149	Lower (Factored RP, MIB RP)	149

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60	Daman	Gujarat	NA	D	K	F	Q	153	154	171	160	#N/A	NA	80%	128	No Adjustment	128
61	Panaji	Goa	North Goa	D	J	F	S		154	102	128	2.40	308	80%	246	Lower (Factored RP, MIB RP)	171
62	Amreli	Gujarat	Amreli	D	K	F	Q	153	154	171	160	1.04	165	80%	132	No Adjustment	132
63	Bharuch	Gujarat	Bharuch	D	K	F	Q	153	154	171	160	1.17	186	80%	149	Lower (Factored RP, Highest Bid)	149
64	Bhavnagar	Gujarat	Bhavnagar	C	K	F	Q	423	343		383	1.06	406	80%	325	Lower (Factored RP, Highest Bid)	325
65	Bhuj	Gujarat	Kachchh	D	K	F	Q	153	154	171	160	1.17	186	80%	149	No Adjustment	149
66	Botad	Gujarat	Bhavnagar	D	K	F	Q	153	154	171	160	1.06	169	80%	135	Lower (Factored RP, MIB RP)	135

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67	Dahod	Gujarat	Dohad	D	K	F	Q	153	154	171	160	0.57	91	80%	73	Lower (Factored RP, MIB RP)	73
68	Gandhidham	Gujarat	Kachchh	D	K	F	Q	153	154	171	160	1.17	186	80%	149	No Adjustment	149
69	Godhra	Gujarat	Panch Mahals	D	K	F	Q	153	154	171	160	0.75	120	80%	96	Lower (Factored RP, Highest Bid)	96
70	Jamnagar	Gujarat	Jamnagar	C	K	F	Q	423	343		383	1.18	452	80%	362	Lower (Factored RP, Highest Bid)	351
71	Jetpur Navagadh	Gujarat	Rajkot	D	K	F	Q	153	154	171	160	1.44	229	80%	184	Lower (Factored RP, MIB RP)	171
72	Junagadh	Gujarat	Junagadh	D	K	F	Q	153	154	171	160	1.10	175	80%	140	Lower (Factored RP, Highest Bid)	140
73	Mehsana	Gujarat	Mahesana	D	K	F	Q	153	154	171	160	1.09	174	80%	140	Lower (Factored RP, Highest Bid)	140

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74	Palanpur	Gujarat	Banas Kantha	D	K	F	Q	153	154	171	160	0.73	116	80%	93	Lower (Factored RP, Highest Bid)	93
75	Patan	Gujarat	Patan	D	K	F	Q	153	154	171	160	0.86	137	80%	110	Lower (Factored RP, MIB RP)	110
76	Porbandar	Gujarat	Porbandar	D	K	F	Q	153	154	171	160	1.17	187	80%	150	Lower (Factored RP, Highest Bid)	150
77	Surendranagar Dudhrej	Gujarat	Surendranagar	D	K	F	Q	153	154	171	160	1.02	163	80%	131	Lower (Factored RP, MIB RP)	131
78	Veraval	Gujarat	Junagadh	D	K	F	Q	153	154	171	160	1.10	175	80%	140	Lower (Factored RP, Highest Bid)	140
79	Ambala	Haryana	Ambala	D	J	H	S		100	102	101	1.53	155	80%	124	No Adjustment	124

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80	Bhiwani	Haryana	Bhiwani	D	J	H	S		100	102	101	1.08	110	80%	88	No Adjustment	88
81	Jind	Haryana	Jind	D	J	H	S		100	102	101	1.09	110	80%	88	No Adjustment	88
82	Kaithal	Haryana	Kaithal	D	J	H	S		100	102	101	1.17	118	80%	95	No Adjustment	95
83	Panipat	Haryana	Panipat	D	J	H	S		100	102	101	1.40	141	80%	113	No Adjustment	113
84	Rewari	Haryana	Rewari	D	J	H	S		100	102	101	1.36	138	80%	110	No Adjustment	110
85	Rohtak	Haryana	Rohtak	D	J	H	S		100	102	101	1.36	138	80%	110	No Adjustment	110
86	Sirsa	Haryana	Sirsa	D	J	H	S		100	102	101	1.21	122	80%	98	No Adjustment	98
87	Thanesar	Haryana	Kurukshetra	D	J	H	S		100	102	101	1.32	133	80%	107	No Adjustment	107
88	Anantnag	Jammu & Kashmir	NA	D	L	H	S	128	100	102	110	#N/A	NA	40%	44	No Adjustment	44
89	Bokaro Steel City	Jharkhand	Bokaro	D	L	H	S	128	100	102	110	0.96	106	80%	85	No Adjustment	85

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90	Deoghar	Jharkhand	Deoghar	D	L	H	S	128	100	102	110	0.63	69	80%	55	No Adjustment	55
91	Dhanbad	Jharkhand	Dhanbad	B	L	H	S	390	516	365	424	1.02	433	80%	346	No Adjustment	346
92	Giridih	Jharkhand	Giridih	D	L	H	S	128	100	102	110	0.53	59	80%	47	No Adjustment	47
93	Hazaribag	Jharkhand	Hazaribagh	D	L	H	S	128	100	102	110	0.74	82	80%	65	No Adjustment	65
94	Medninagar (Daltonganj)	Jharkhand	Palamu	D	L	H	S	128	100	102	110	0.53	59	80%	47	No Adjustment	47
95	Bagalkot	Karnataka	Bagalkot	D	J	F	Q		154	171	163	0.86	140	80%	112	No Adjustment	112
96	Belgaum	Karnataka	Belgaum	C	J	F	Q		343		343	0.97	331	80%	265	Lower (Factored RP, MIB RP)	265
97	Bellary	Karnataka	Bellary	C	J	F	Q		343		343	1.03	352	80%	282	Lower (Factored RP, MIB RP)	282
98	Bidar	Karnataka	Bidar	D	J	F	Q		154	171	163	0.82	133	80%	106	No Adjustment	106

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99	Bijapur	Karnataka	Bijapur	C	J	F	Q		343		343	0.45	155	80%	124	No Adjustment	124
100	Chikmagalur	Karnataka	Chikmagalur	D	J	F	Q		154	171	163	1.09	177	80%	141	No Adjustment	141
101	Chitradurga	Karnataka	Chitradurga	D	J	F	Q		154	171	163	0.96	156	80%	125	No Adjustment	125
102	Davangere	Karnataka	Davanagere	C	J	F	Q		343		343	1.03	353	80%	283	Lower (Factored RP, MIB RP)	283
103	Gadag Betigeri	Karnataka	Gadag	D	J	F	Q		154	171	163	0.89	145	80%	116	No Adjustment	116
104	Gulbarga	Karnataka	Gulbarga	C	J	F	Q		343		343	0.84	290	80%	232	Lower (Factored RP, MIB RP)	150
105	Hassan	Karnataka	Hassan	D	J	F	Q		154	171	163	1.03	167	80%	134	No Adjustment	134
106	Hospet	Karnataka	Bellary	D	J	F	Q		154	171	163	1.03	167	80%	133	No Adjustment	133
107	Hubli-Dharwad	Karnataka	Dharwad	C	J	F	Q		343		343	1.10	378	80%	303	Lower (Factored RP,	303

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																Highest Bid)	
108	Kolar	Karnataka	Kolar	D	J	F	Q		154	171	163	1.06	172	80%	137	No Adjustment	137
109	Mangaluru	Karnataka	Dakshina Kannada	C	J	F	Q		343		343	1.40	480	80%	384	Lower (Factored RP, MIB RP)	275
110	Mysuru	Karnataka	Mysore	C	J	F	Q		343		343	1.19	410	80%	328	Higher (Factored RP, Highest Bid)	328
111	Raichur	Karnataka	Raichur	D	J	F	Q		154	171	163	0.83	135	80%	108	No Adjustment	108
112	Shimoga	Karnataka	Shimoga	C	J	F	Q		343		343	1.14	393	80%	314	No Adjustment	314
113	Tumkur	Karnataka	Tumkur	D	J	F	Q		154	171	163	1.07	174	80%	139	No Adjustment	139
114	Udupi	Karnataka	Udupi	D	J	F	Q		154	171	163	1.30	212	80%	169	No Adjustment	169

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115	Alappuzha (Alleppey)	Kerala	Alappuzha	C	J	F	S		343	329	336	1.72	579	80%	463	Lower (Factored RP, Highest Bid)	463
116	Kanhangad (Kasaragod)	Kerala	Kasaragod	D	J	F	S		154	102	128	1.47	189	80%	151	No Adjustment	151
117	Kannur	Kerala	Kannur	C	J	F	S		343	329	336	1.65	554	80%	443	Lower (Factored RP, MIB RP)	250
118	Palakkad	Kerala	Palakkad	D	J	F	S		154	102	128	1.53	196	80%	157	No Adjustment	157
119	Thrisur	Kerala	Thrissur	C	J	F	S		343	329	336	1.80	606	80%	485	Lower (Factored RP, MIB RP)	349
120	Kavaratti	Lakshadweep	NA	D	Refer to paragraph 2.36 for details of computation of Reserve Price											No Adjustment	5
121	Betul	Madhya Pradesh	Betul	D	L	H	Q	128	100	171	133	0.71	94	80%	75	No Adjustment	75
122	Burhanpur	Madhya Pradesh	Burhanpur	D	L	H	Q	128	100	171	133	0.73	97	80%	78	Lower (Factored RP, MIB RP)	78

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123	Chhattarpur	Madhya Pradesh	Chhatarpur	D	L	H	Q	128	100	171	133	0.64	85	80%	68	Lower (Factored RP, MIB RP)	68
124	Chhindwara	Madhya Pradesh	Chhindwara	D	L	H	Q	128	100	171	133	0.75	100	80%	80	Lower (Factored RP, MIB RP)	80
125	Damoh	Madhya Pradesh	Damoh	D	L	H	Q	128	100	171	133	0.65	87	80%	70	Lower (Factored RP, MIB RP)	70
126	Guna	Madhya Pradesh	Guna	D	L	H	Q	128	100	171	133	0.67	90	80%	72	Lower (Factored RP, MIB RP)	72
127	Itarsi	Madhya Pradesh	Hoshangabad	D	L	H	Q	128	100	171	133	0.87	116	80%	92	Lower (Factored RP, MIB RP)	92
128	Khandwa	Madhya Pradesh	Khandwa (East Nimar)	D	L	H	Q	128	100	171	133	0.73	97	80%	78	Lower (Factored RP, MIBRP)	78
129	Khargone	Madhya Pradesh	Khargone (West Nimar)	D	L	H	Q	128	100	171	133	0.64	85	80%	68	Lower (Factored RP, MIB RP)	68

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130	Mandsaur	Madhya Pradesh	Mandsaur	D	L	H	Q	128	100	171	133	0.75	100	80%	80	Lower (Factored RP, MIB RP)	80
131	Murwara (Katni)	Madhya Pradesh	Katni	D	L	H	Q	128	100	171	133	0.70	94	80%	75	Lower (Factored RP, MIB RP)	75
132	Neemuch	Madhya Pradesh	Neemuch	D	L	H	Q	128	100	171	133	0.79	105	80%	84	Lower (Factored RP, MIB RP)	84
133	Ratlam	Madhya Pradesh	Ratlam	D	L	H	Q	128	100	171	133	0.76	101	80%	81	Lower (Factored RP, MIB RP)	81
134	Rewa	Madhya Pradesh	Rewa	D	L	H	Q	128	100	171	133	0.64	85	80%	68	Lower (Factored RP, MIB RP)	68
135	Sagar	Madhya Pradesh	Sagar	C	L	H	Q	115	150		133	0.75	100	80%	80	No Adjustment	80
136	Satna	Madhya Pradesh	Satna	D	L	H	Q	128	100	171	133	0.68	91	80%	73	Lower (Factored RP, MIB RP)	73
137	Seoni	Madhya Pradesh	Seoni	D	L	H	Q	128	100	171	133	0.62	82	80%	66	No Adjustment	66

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138	Shivpuri	Madhya Pradesh	Shivpuri	D	L	H	Q	128	100	171	133	0.60	79	80%	64	Lower (Factored RP, MIB RP)	64
139	Singrauli	Madhya Pradesh	Singrauli	D	L	H	Q	128	100	171	133	0.63	84	80%	67	Lower (Factored RP, MIB RP)	67
140	Ujjain	Madhya Pradesh	Ujjain	C	L	H	Q	115	150		133	0.95	127	80%	101	Lower (Factored RP, Highest Bid)	101
141	Vidisha	Madhya Pradesh	Vidisha	D	L	H	Q	128	100	171	133	0.70	93	80%	74	Lower (Factored RP, MIB RP)	74
142	Achalpur	Maharashtra	Amravati	D	J	F	Q		154	171	163	1.00	163	80%	130	Lower (Factored RP, MIB RP)	130
143	Amravati	Maharashtra	Amravati	C	J	F	Q		343		343	1.00	344	80%	275	Lower (Factored RP, Highest Bid)	275
144	Barshi	Maharashtra	Solapur	D	J	F	Q		154	171	163	1.02	165	80%	132	Lower (Factored RP, MIB RP)	132

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145	Chandrapur	Maharashtra	Nagpur	C	J	F	Q		343		343	1.54	528	80%	422	No Adjustment	422
146	Dhule	Maharashtra	Dhule	C	J	F	Q		343		343	0.87	300	80%	240	Higher (Factored RP, Highest Bid)	240
147	Gondiya	Maharashtra	Gondiya	D	J	F	Q		154	171	163	0.86	141	80%	113	Lower (Factored RP, MIB RP)	113
148	Latur	Maharashtra	Latur	C	J	F	Q		343		343	0.87	299	80%	239	No Adjustment	239
149	Malegaon	Maharashtra	Nashik	C	J	F	Q		343		343	1.13	388	80%	311	Lower (Factored RP, MIB RP)	311
150	Nanded	Maharashtra	Nanded	C	J	F	Q		343		343	0.81	277	80%	221	Higher (Factored RP, Highest Bid)	221
151	Nandurbar	Maharashtra	Nandurbar	D	J	F	Q		154	171	163	0.65	105	80%	84	No Adjustment	84
152	Osmanabad	Maharashtra	Osmanabad	D	J	F	Q		154	171	163	0.83	135	80%	108	No Adjustment	108

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153	Udgir	Maharashtra	Latur	D	J	F	Q		154	171	163	0.87	142	80%	113	No Adjustment	113
154	Wardha	Maharashtra	Wardha	D	J	F	Q		154	171	163	1.09	177	80%	142	Lower (Factored RP, MIB RP)	142
155	Yavatmal	Maharashtra	Yavatmal	D	J	F	Q		154	171	163	0.86	139	80%	111	Lower (Factored RP, MIB RP)	111
156	Imphal	Manipur	NA	C	L	#N/A	S	115		329	222	#N/A	NA	40%	89	No Adjustment	89
157	Dimapur	Nagaland	NA	D	L	#N/A	S	128		102	115	#N/A	NA	40%	46	No Adjustment	46
158	Kohima	Nagaland	NA	D	L	#N/A	S	128		102	115	#N/A	NA	40%	46	No Adjustment	46
159	Baleshwar	Odisha	Baleshwar	D	L	H	R	128	100		114	0.77	88	80%	70	No Adjustment	70
160	Baripada	Odisha	Mayurbhanj	D	L	H	R	128	100		114	0.58	66	80%	53	No Adjustment	53
161	Berhampur	Odisha	Ganjam	C	L	H	R	115	150	378	214	0.79	169	80%	136	No Adjustment	136

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162	Bhadrak	Odisha	Bhadrak	D	L	H	R	128	100		114	0.76	87	80%	70	No Adjustment	70
163	Puri	Odisha	Puri	D	L	H	R	128	100		114	0.80	92	80%	73	No Adjustment	73
164	Sambalpur	Odisha	Sambalpur	D	L	H	R	128	100		114	0.95	109	80%	87	No Adjustment	87
165	Abohar	Punjab	Firozpur	D	K	H	S	153	100	102	118	1.33	157	80%	126	No Adjustment	126
166	Barnala	Punjab	Barnala	D	K	H	S	153	100	102	118	1.43	169	80%	135	No Adjustment	135
167	Bathinda	Punjab	Bathinda	D	K	H	S	153	100	102	118	1.44	170	80%	136	No Adjustment	136
168	Firozpur	Punjab	Firozpur	D	K	H	S	153	100	102	118	1.33	157	80%	126	No Adjustment	126
169	Hoshiarpur	Punjab	Hoshiarpur	D	K	H	S	153	100	102	118	1.61	190	80%	152	No Adjustment	152
170	Ludhiana	Punjab	Ludhiana	B	K	H	S	762	516	365	548	1.79	979	80%	783	No Adjustment	783
171	Moga	Punjab	Moga	D	K	H	S	153	100	102	118	1.46	173	80%	138	No Adjustment	138

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172	Muktsar	Punjab	Muktsar	D	K	H	S	153	100	102	118	1.34	159	80%	127	No Adjustment	127
173	Pathankot	Punjab	Gurdaspur	D	K	H	S	153	100	102	118	1.43	170	80%	136	No Adjustment	136
174	Alwar	Rajasthan	Alwar	C	L	G	Q	115			115	0.89	103	80%	82	No Adjustment	82
175	Banswara	Rajasthan	Banswara	D	L	G	Q	128		171	150	0.55	83	80%	66	No Adjustment	66
176	Beawar	Rajasthan	Ajmer	D	L	G	Q	128		171	150	1.10	164	80%	132	No Adjustment	132
177	Bharatpur	Rajasthan	Bharatpur	D	L	G	Q	128		171	150	0.78	116	80%	93	No Adjustment	93
178	Bhilwara	Rajasthan	Bhilwara	C	L	G	Q	115			115	0.87	100	80%	80	No Adjustment	80
179	Chittaurgarh	Rajasthan	Chittaurgarh	D	L	G	Q	128		171	150	0.85	127	80%	101	No Adjustment	101
180	Churu	Rajasthan	Churu	D	L	G	Q	128		171	150	0.79	119	80%	95	No Adjustment	95
181	Dhaulpur	Rajasthan	Dhaulpur	D	L	G	Q	128		171	150	0.67	100	80%	80	No Adjustment	80

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182	Ganganagar	Rajasthan	Ganganagar	D	L	G	Q	128		171	150	1.01	151	80%	121	No Adjustment	121
183	Hanumangarh	Rajasthan	Hanumangarh	D	L	G	Q	128		171	150	0.85	128	80%	102	No Adjustment	102
184	Hindaun	Rajasthan	Karauli	D	L	G	Q	128		171	150	0.67	100	80%	80	No Adjustment	80
185	Jhunjhunun	Rajasthan	Jhunjhunun	D	L	G	Q	128		171	150	0.92	137	80%	110	No Adjustment	110
186	Makrana	Rajasthan	Nagaur	D	L	G	Q	128		171	150	0.80	120	80%	96	No Adjustment	96
187	Nagaur	Rajasthan	Nagaur	D	L	G	Q	128		171	150	0.80	120	80%	96	No Adjustment	96
188	Pali	Rajasthan	Pali	D	L	G	Q	128		171	150	0.89	133	80%	106	No Adjustment	106
189	Sawai Madhopur	Rajasthan	Sawai Madhopur	D	L	G	Q	128		171	150	0.76	114	80%	91	No Adjustment	91
190	Sikar	Rajasthan	Sikar	D	L	G	Q	128		171	150	0.90	135	80%	108	No Adjustment	108
191	Sujangarh	Rajasthan	Churu	D	L	G	Q	128		171	150	0.79	119	80%	95	No Adjustment	95

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192	Tonk	Rajasthan	Tonk	D	L	G	Q	128		171	150	0.79	118	80%	94	No Adjustment	94
193	Gangtok	Sikkim	NA	D	J	F	S		154	102	128	#N/A	NA	80%	102	Lower (Factored RP, MIB RP)	31
194	Coonoor	Tamil Nadu	The Nilgiris	D	K	F	Q	153	154	171	160	1.28	204	80%	163	No Adjustment	163
195	Dindigul	Tamil Nadu	Dindigul	D	K	F	Q	153	154	171	160	1.20	192	80%	153	No Adjustment	153
196	Erode	Tamil Nadu	Erode	C	K	F	Q	423	343		383	1.44	551	80%	441	Lower (Factored RP, Highest Bid)	441
197	Karaikudi	Tamil Nadu	Sivaganga	D	K	F	Q	153	154	171	160	1.16	186	80%	149	No Adjustment	149
198	Karur	Tamil Nadu	Karur	D	K	F	Q	153	154	171	160	1.32	210	80%	168	No Adjustment	168
199	Nagarcoil/ Kanyakumari	Tamil Nadu	Kanniyakumari	D	K	F	Q	153	154	171	160	1.51	241	80%	193	No Adjustment	193

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200	Neyveli	Tamil Nadu	Cuddalore	D	K	F	Q	153	154	171	160	1.23	196	80%	157	No Adjustment	157
201	Pudukkottai	Tamil Nadu	Pudukkottai	D	K	F	Q	153	154	171	160	1.09	173	80%	139	No Adjustment	139
202	Rajapalayam	Tamil Nadu	Virudhunagar	D	K	F	Q	153	154	171	160	1.25	199	80%	159	No Adjustment	159
203	Salem	Tamil Nadu	Salem	C	K	F	Q	423	343		383	1.28	492	80%	394	Lower (Factored RP, Highest Bid)	394
204	Thanjavur	Tamil Nadu	Thanjavur	D	K	F	Q	153	154	171	160	1.23	196	80%	157	No Adjustment	157
205	Tiruchy	Tamil Nadu	Tiruchirappalli	C	K	F	Q	423	343		383	1.33	508	80%	407	Higher (Factored RP, Highest Bid)	500
206	Tirunelveli	Tamil Nadu	Tirunelveli	C	K	F	Q	423	343		383	1.26	485	80%	388	Higher (Factored RP, Highest Bid)	388
207	Tiruvannamalai	Tamil Nadu	Tiruvannamalai	D	K	F	Q	153	154	171	160	1.03	164	80%	131	No Adjustment	131

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208	Tuticorin	Tami Nadu	Thoothukkudi	C	K	F	Q	423	343		383	1.37	526	80%	421	Lower (Factored RP, MIB RP)	150
209	Vaniyambad i	Tamil Nadu	Vellore	D	K	F	Q	153	154	171	160	1.21	193	80%	154	No Adjustment	154
210	Vellore	Tamil Nadu	Vellore	C	K	F	Q	423	343		383	1.21	463	80%	370	Lower (Factored RP, Highest Bid)	370
211	Adilabad	Telangana	Adilabad	D	J	F	R		154		154	0.92	143	80%	114	No Adjustment	114
212	Karimnagar	Telangana	Karimnagar	D	J	F	R		154		154	1.04	160	80%	128	No Adjustment	128
213	Khammam	Telangana	Khammam	D	J	F	R		154		154	1.00	154	80%	123	No Adjustment	123
214	Kothagudem	Telangana	Khammam	D	J	F	R		154		154	1.00	154	80%	123	No Adjustment	123
215	Mahbubnagar	Telangana	Mahbubnagar	D	J	F	R		154		154	0.84	129	80%	104	No Adjustment	104
216	Mancherial	Telangana	Adilabad	D	J	F	R		154		154	0.92	143	80%	114	No Adjustment	114

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217	Nalgonda	Telangana	Nalgonda	D	J	F	R		154		154	0.97	150	80%	120	No Adjustment	120
218	Nizamabad	Telangana	Nizamabad	C	J	F	R		343	378	361	0.98	352	80%	281	No Adjustment	281
219	Ramagundam	Telangana	Karimnagar	D	J	F	R		154		154	1.04	160	80%	128	No Adjustment	128
220	Suryapet	Telangana	Nalgonda	D	J	F	R		154		154	0.97	150	80%	120	No Adjustment	120
221	Warangal	Telangana	Warangal	C	J	F	R		343	378	361	1.01	366	80%	293	Higher (Factored RP, Highest Bid)	293
222	Agartala	Tripura	NA	D	L	H	S	128	100	102	110	#N/A	NA	40%	44	Higher (Factored RP, Highest Bid)	71
223	Akbarpur	Uttar Pradesh	Ambedkar Nagar	D	L	H	Q	128	100	171	133	0.59	78	80%	63	No Adjustment	63
224	Azamgarh	Uttar Pradesh	Azamgarh	D	L	H	Q	128	100	171	133	0.63	84	80%	67	No Adjustment	67

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225	Badaun	Uttar Pradesh	Budaun	D	L	H	Q	128	100	171	133	0.58	77	80%	62	No Adjustment	62
226	Bahraich	Uttar Pradesh	Bahraich	D	L	H	Q	128	100	171	133	0.49	65	80%	52	No Adjustment	52
227	Ballia	Uttar Pradesh	Ballia	D	L	H	Q	128	100	171	133	0.61	82	80%	65	No Adjustment	65
228	Banda	Uttar Pradesh	Banda	D	L	H	Q	128	100	171	133	0.58	77	80%	61	No Adjustment	61
229	Basti	Uttar Pradesh	Basti	D	L	H	Q	128	100	171	133	0.62	82	80%	66	No Adjustment	66
230	Deoria	Uttar Pradesh	Deoria	D	L	H	Q	128	100	171	133	0.64	85	80%	68	No Adjustment	68
231	Etah	Uttar Pradesh	Etah	D	L	H	Q	128	100	171	133	0.63	84	80%	67	No Adjustment	67
232	Etawah	Uttar Pradesh	Etawah	D	L	H	Q	128	100	171	133	0.73	97	80%	77	No Adjustment	77
233	Faizabad/ Ayodhya	Uttar Pradesh	Faizabad	D	L	H	Q	128	100	171	133	0.68	91	80%	73	No Adjustment	73

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234	Farrukhabad cum Fatehgarh	Uttar Pradesh	Farrukhabad	D	L	H	Q	128	100	171	133	0.65	87	80%	70	No Adjustment	70
235	Fatehpur	Uttar Pradesh	Fatehpur	D	L	H	Q	128	100	171	133	0.61	81	80%	65	No Adjustment	65
236	Ghazipur	Uttar Pradesh	Ghazipur	D	L	H	Q	128	100	171	133	0.64	85	80%	68	No Adjustment	68
237	Gonda	Uttar Pradesh	Gonda	D	L	H	Q	128	100	171	133	0.57	76	80%	61	No Adjustment	61
238	Hardoi	Uttar Pradesh	Hardoi	D	L	H	Q	128	100	171	133	0.55	74	80%	59	No Adjustment	59
239	Jaunpur	Uttar Pradesh	Jaunpur	D	L	H	Q	128	100	171	133	0.66	88	80%	70	No Adjustment	70
240	Lakhimpur	Uttar Pradesh	Kheri	D	L	H	Q	128	100	171	133	0.57	75	80%	60	No Adjustment	60
241	Lalitpur	Uttar Pradesh	Lalitpur	D	L	H	Q	128	100	171	133	0.63	84	80%	67	No Adjustment	67
242	Mainpuri	Uttar Pradesh	Mainpuri	D	L	H	Q	128	100	171	133	0.63	84	80%	68	No Adjustment	68

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243	Mathura	Uttar Pradesh	Mathura	D	L	H	Q	128	100	171	133	0.82	109	80%	87	No Adjustment	87
244	Maunath Bhanjan (Distt. Mau)	Uttar Pradesh	Mau	D	L	H	Q	128	100	171	133	0.69	92	80%	73	No Adjustment	73
245	Mirzapur cum Vindhyachal	Uttar Pradesh	Mirzapur	D	L	H	Q	128	100	171	133	0.68	91	80%	73	No Adjustment	73
246	Moradabad	Uttar Pradesh	Moradabad	B	L	H	Q	390	516		453	0.77	350	80%	280	No Adjustment	280
247	Muzaffarnagar	Uttar Pradesh	Muzaffarnagar	C	L	H	Q	115	150		133	0.89	118	80%	94	Lower (FactoredRP, MIB RP)	94
248	Orai	Uttar Pradesh	Jalaun	D	L	H	Q	128	100	171	133	0.70	93	80%	75	No Adjustment	75
249	Raebareli	Uttar Pradesh	Rae bareli	D	L	H	Q	128	100	171	133	0.67	89	80%	72	No Adjustment	72
250	Saharanpur	Uttar Pradesh	Saharanpur	C	L	H	Q	115	150		133	0.90	119	80%	95	Lower (FactoredRP, MIB RP)	95

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251	Shahjahanpur	Uttar Pradesh	Shahjahanpur	C	L	H	Q	115	150		133	0.65	86	80%	69	Lower (Factored RP, MIB RP)	69
252	Shikohabad	Uttar Pradesh	Firozabad	D	L	H	Q	128	100	171	133	0.79	105	80%	84	No Adjustment	84
253	Sitapur	Uttar Pradesh	Sitapur	D	L	H	Q	128	100	171	133	0.56	75	80%	60	No Adjustment	60
254	Sultanpur	Uttar Pradesh	Sultanpur	D	L	H	Q	128	100	171	133	0.56	75	80%	60	No Adjustment	60
255	Dehradun	Uttarakhand	Dehradun	C	J		S			329	329	1.64	540	80%	432	Lower (Factored RP, Highest Bid)	432
256	Haldwani-cum Kathgodam	Uttarakhand	Nainital	D	J		S			102	102	1.30	132	80%	106	No Adjustment	106
257	Haridwar	Uttarakhand	Hardwar	D	J		S			102	102	1.19	121	80%	97	No Adjustment	97
258	Alipurduar	West Bengal	Jalpaiguri	D	L	G	Q	128		171	150	0.78	116	80%	93	No Adjustment	93

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259	Asansol	West Bengal	Barddhaman	B	L	G	Q	390			390	0.98	383	80%	306	Higher (Factored RP, Highest Bid)	306
260	Baharampur	West Bengal	Murshidabad	C	L	G	Q	115			115	0.68	78	80%	63	No Adjustment	63
261	Balurghat	West Bengal	Dakshin Dinajpur	D	L	G	Q	128		171	150	0.73	109	80%	87	No Adjustment	87
262	Bankura	West Bengal	Bankura	D	L	G	Q	128		171	150	0.67	100	80%	80	No Adjustment	80
263	Barddhaman	West Bengal	Barddhaman	C	L	G	Q	115			115	0.98	113	80%	90	No Adjustment	90
264	Bongaon	West Bengal	North Twenty Four Parganas	D	L	G	Q	128		171	150	0.91	135	80%	108	No Adjustment	108
265	Darjiling	West Bengal	Darjiling	D	L	G	Q	128		171	150	1.08	162	80%	130	No Adjustment	130
266	Dhulian	West Bengal	Murshidabad	D	L	G	Q	128		171	150	0.68	102	80%	81	No Adjustment	81
267	EnglishBazar	West Bengal	Maldah	C	L	G	Q	115			115	0.64	74	80%	59	No Adjustment	59

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268	Kharagpur	West Bengal	Paschim Medinipur	D	L	G	Q	128		171	150	0.72	107	80%	86	No Adjustment	86
269	Kolkata	West Bengal	Kolkata	A+	Refer to paragraph 2.34 for details of computation of Reserve Price											GR Adjustment	5339
270	Krishnanagar	West Bengal	Nadia	D	L	G	Q	128		171	150	0.80	119	80%	95	No Adjustment	95
271	Puruliya	West Bengal	Puruliya	D	L	G	Q	128		171	150	0.60	90	80%	72	No Adjustment	72
272	Raiganj	West Bengal	Uttar Dinajpur	D	L	G	Q	128		171	150	0.58	87	80%	70	No Adjustment	70
273	Silliguri	West Bengal	Darjiling	C	L	G	Q	115			115	1.08	125	80%	100	Higher (Factored RP, Highest Bid)	100

Annexure XVIII

Details of auction of FM radio channels in cities of 'Others' category

S. No.	Name of City	State / UT	Total Number of channels available	Number of channels successfully bid	Successful bid amount (in Rs.)
1	Leh	Ladakh	3	3	5 lakh
2	Kargil	J & K	3	2	5 lakh
3	Kathua	J & K	3	2	5 lakh
4	Poonch	J & K	3	2	5 lakh
5	Bhaderwah	J & K	3	1	5 lakh
6	Dhubri	Assam	3	1	5 lakh
7	Haflong	Assam	3	1	5 lakh
8	Mokukchung	Nagaland	3	1	5 lakh
9	Jowai	Meghalaya	3	0	-
10	Lunglei	Mizoram	3	0	-
11	Belonia	Tripura	3	0	-