



Telecom Regulatory Authority of India



Recommendations

on

**Spectrum Usage Charges and Presumptive Adjusted Gross
Revenue for Internet Service Providers and Commercial Very
Small Aperture Terminal Service Providers**

7th March, 2017

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CHAPTER I: INTRODUCTION

- 1.1 The DoT vide its letter dated 25th June, 2014 (Annexure I) has sought TRAI recommendations on Spectrum Usage Charges (SUC) for Internet Service Providers (ISPs) and floor level of Adjusted Gross Revenue (AGR) based on amount of spectrum held by the Commercial Very Small Aperture Terminal (VSAT) operators. In this letter, DoT had mentioned that it has decided that SUC for ISPs should also be brought under the revenue sharing regime i.e. as a percentage of AGR based on amount of spectrum held along with minimum floor level AGR (i.e. minimum presumptive AGR).
- 1.2 The DoT sought TRAI's recommendations in terms of clause 11(1) of TRAI Act 1997 (as amended) on:
 - (A) ISP license
 - (i) Rates for SUC;
 - (ii) Percentage of AGR including minimum AGR; and
 - (iii) Allied issues like schedule of payment, charging of interest, penalty and Financial Bank Guarantee (FBG).
 - (B) Commercial VSAT license
 - (i) Floor level of AGR, based on the amount of spectrum held by commercial VSAT operators.
- 1.3 TRAI vide letter dated 15th May 2015 sought some information/clarifications from the DoT to proceed further on the matter. The information/clarifications were furnished by DoT vide their letter dated 2nd March 2016 (Annexure II).
- 1.4 TRAI issued a Consultation Paper (CP) on "Spectrum Usage Charges and Presumptive Adjusted Gross Revenue for Internet Service Providers and Commercial Very Small Aperture Terminal Service Providers" on 19th August 2016.

- 1.5 In response to the CP, TRAI received comments from fifteen stakeholders and counter-comments from one stakeholder. These were placed on TRAI's website www.trai.gov.in.
- 1.6 An Open House Discussion (OHD) was held on 19th January 2017. After considering the written comments and counter-comments received from various stakeholders, views expressed during the OHD and after carrying out its own analysis, the Authority has finalised these Recommendations.
- 1.7 The Recommendations are presented in four chapters. The introductory chapter contains a brief background to the recommendations. The second chapter discusses the issues raised in CP related to Internet Service license. The third chapter deals with the issues raised related to Commercial VSAT license. The fourth chapter contains a summary of the Recommendations.

CHAPTER II: ISSUES RELATED TO INTERNET SERVICE LICENSE

2.1 Internet made its entry in India in the form of ERNET project in 1986. However, it took almost another 9 years before Indian consumers could get internet as a public service. Public internet services in India were launched on 15th August 1995 by Videsh Sanchar Nigam Limited (VSNL), a Government of India company at that time (later on privatized and currently known as Tata Communications Ltd.).

Why do ISPs require spectrum?

2.2 Internet Service Providers (ISPs) offer its customers access to the internet and provide services to both residential and enterprise customers. Its traffic typically rides on Internet Protocol (IP) backbone. In most cases, the optical fibre is used in the backbone network. However, in the access network, the last mile solution could be a wired (Copper cable or Optical Fibre) or a wireless medium. To provide Internet service through wireless requires spectrum which is allocated by Wireless Planning and Coordination (WPC) wing of DoT.

Spectrum Assignment Mechanism for ISPs

2.3 As per the information provided by DoT¹, present criterion of spectrum allocation to ISPs is city-wise subject to the availability of spectrum. Its assignment is renewed annually. ISP licensees have been assigned spectrum in 2.7 GHz, 3.3 GHz, 5.7 GHz and 10.5 GHz bands. However, spectrum management is being done on spot/link-by-link basis; unlike 800/900/1800/2100/2300/2500 bands, where spectrum assignment is being done on Licence Service Area (LSA) basis. In this context, the following question was raised:

Q: Should the spectrum assignment on location basis/link-by-link basis on administrative basis to ISPs, be continued in the specified bands. If not, please suggest alternate assignment mechanism. Please justify your answer.

¹DoT letter No.- P-11014/03/2012-PP (Pt.) dated 2nd March 2016

- 2.4 Most of the stakeholders have favoured continuation of existing system of spectrum assignment based on location/link-by-link basis. These stakeholders were of the view that in current scenario, spectrum assigned to ISP licensees is primarily used for last mile access. Some stakeholders commented that ITU has identified 3.3 GHz band as IMT band. These stakeholders suggested to align with global harmonization spectrum utilization plans; a detailed roadmap to be prepared for migration from 3.3 GHz band to the 2.7 GHz band so that 3.3 GHz can be free for IMT services.
- 2.5 The Authority has examined stakeholders' comments. It has been noted that out of 262 ISP licensees, only 15 ISP licensees have been assigned spectrum by DoT. Furthermore, under the existing mechanism followed by DoT, spectrum assignment to ISP licensees is normally for one or two years only.
- 2.6 The Authority is aware of the important role being played by ISPs in facilitating internet penetration and achieving the internet and broadband targets set by the Government. NTP 2012 also recognizes the importance of broadband and internet in the development and growth of citizens as well as business, both in rural and urban areas. On this issue whether the spectrum assignment on location basis/link-by-link basis on administrative basis in specified bands to ISPs should continue, the Authority is aware that the spectrum taken by ISP licensees is primarily to fill the gap in their network connectivity at the last mile access (subscriber's end) and not for creating a ubiquitous mobile network across the entire LSA. Making spectrum assignment mandatory for entire LSA or entire city/district may discourage ISPs as they would have to pay SUC for the areas where spectrum is not even required by them. The Authority is of the view that making spectrum assignment mandatory for entire LSA or entire city/district may discourage ISPs as they would be required to pay SUC for the areas where spectrum is not even required by them. On the other hand, charging on link-by-link basis on administrative

basis would result in better utilization of the spectrum, especially when the assignment is for a limited geographical location and not exclusively for the entire LSA, as is the case for spectrum bands 800/900/1800/2100/2300/2500 MHz that are largely employed to serve a large number of mobility users that are spread across the LSA.

- 2.7 **In view of the above, the Authority recommends that existing system of spectrum assignment on location/link-by-link basis on administrative basis to ISP licensees in the specified bands (viz 2.7 GHz, 3.3 GHz, 5.7 GHz and 10.5 GHz) to continue.**

Minimum Presumptive AGR for SUC

- 2.8 Generally the licensees do not commence operations immediately from the effective date of their licenses. In case TSP(s) do not roll-out their service, spectrum remains idle and does not generate revenue from subscribers. This not only results in under or non-utilisation of spectrum but also loss of revenue to the exchequer in the form of SUC and LF (as the case may be) as they are based on revenue generated by the licensee.
- 2.9 At present, there is no minimum presumptive AGR in ISP license or Unified Licence (ISP authorization) for the purpose of LF or SUC. However, clause 18.2.1 of Chapter-III of Unified License provides *“that from second year of the effective date of respective authorization, the LF shall be subject to a minimum of 10% of the entry fee of the respective authorized service and service area as in Annexure-II”*.
- 2.10 In view of the above, the following questions were raised in the CP:
- Q: Should minimum presumptive AGR be introduced in ISP license for the purpose of charging SUC? If yes, what should be the value of minimum presumptive AGR and basis for its computation? Please provide justification for your response.*

Q: In case minimum presumptive AGR is prescribed for the ISP license, what percentage should be applied on minimum presumptive AGR to compute SUC? Please provide justifications for your response.

- 2.11 The unanimous view of the stakeholders (except one) was that no minimum presumptive AGR should be introduced for the ISP licensees. Few stakeholders commented that minimum presumptive AGR will act not only as an entry barrier but also as a deterrent for new ISPs. One stakeholder has commented that under the present scenario ISP licensees' start paying SUC/royalty in advance from the date of assignment of spectrum, thus question of spectrum hoarding and depriving Government from their share of revenue does not arise.
- 2.12 However, one of the stakeholders suggested that minimum presumptive AGR should be introduced for ISP licensees based on entry fee prescribed for ISP authorization in unified license.
- 2.13 The Authority has examined the comments received from stakeholders. The Authority in its Recommendations of 6th January 2015 titled "Definition of Revenue Base (AGR) for the Reckoning of Licence Fee and Spectrum Usage Charges" had recommended that minimum presumptive AGR for the purpose of LF and SUC should not be made applicable to any licence(s) granted by Government for providing telecom services. However, it has been noted that internet service authorization under UL does not contain any time limit for ISPs to offer the commercial services though the standalone ISP license agreement (entered prior to introduction of UL) prescribed a time limit of 24 months for offering the commercial services.
- 2.14 As discussed in the preceding paras, ISP licensees take spectrum primarily to fill the gap in their network connectivity at last mile (subscriber's end) and in selected areas (in most of the cases even not for whole city/district). They also pay in advance SUC/royalty on assignment of spectrum. Only 15 ISP licensees out of 262 licensees had been administratively assigned spectrum from DoT. It has been further noted that many ISP licensees have surrendered the assigned

spectrum in the last four years. Despite all these, the basic rationale behind concept of minimum presumptive AGR (i.e. to ensure optimum utilisation of assigned spectrum and timely start of commercial services) remains valid. It has been the view of the Authority that timely rollout of services should be ensured through effective and meaningful enforcement of license obligations and not from introducing minimum presumptive AGR. Further, DoT should undertake the audit of spectrum assigned to the ISP licensees to review the utilisation of assigned spectrum.

- 2.15 In view of the stakeholders' comments and considering that SUC/royalty is paid in advance and its earlier stand on presumptive AGR, **the Authority recommends that minimum presumptive AGR should not be made applicable to ISP licensees. For ISP licensees having spectrum assigned from the DoT, a provision should be made in the licensee agreement/internet authorization that licensee shall offer the commercial service to its subscribers on demand within 12 months from the date of spectrum assignment by DoT, failing which spectrum assigned to ISP licensee may be cancelled.**

Spectrum Usage Charge for ISPs

- 2.16 Radio Spectrum usage Charges are levied on ISP licensees in accordance with the provisions of license agreement. ISP Licensees having Broadband Wireless Access (BWA) Spectrum need to pay 1% of AGR (earned from BWA spectrum) as annual spectrum charges². However, this was modified by DoT vide order dated 12th August 2016 by introducing weighted average SUC. However, for all other assigned spectrum, presently SUC applicable on Internet Service Providers is based on a formula³ which was revised by DoT through its order dated 22nd March 2012. Existing system of charging SUC (including spectrum royalty) is formula based and has

² As per NIA of February 2010 for auction of 3G (2100 MHz) and BWA (2300 MHz) spectrum

³ DoT Order No.P-11014/34/2009-PP (II) dated 22nd March 2012

no linkage with AGR. The formula to calculate spectrum charges is as under:

$$\text{Annual Royalty (in Rupees)} = \sum_{i=1}^n M_i \times W$$

Where, n = no. of Carrier

M = distance based charge

W = bandwidth factor

2.17 On enquiry about the rationale behind DoT's decision to migrate from computation of spectrum charges based on formula to spectrum charges as a percentage of AGR, DoT, through its letter dated 2nd March 2016, clarified that:

“It was decided that ISPs have also been brought under Unified Licensing fee regime w.e.f. 1st July 2012 and spectrum usage charging i.r.o. ISPs may also be brought under the revenue sharing (i.e. as a % of AGR based on the amount of spectrum held with minimum floor level AGR).”

2.18 In view of the above, the following questions were raised in the CP:

Q: Is there a need to introduce SUC based on percentage of AGR for ISPs or should the existing formula based spectrum charges continue? Please give justification while suggesting a particular method of charging SUC.

Q: If AGR based SUC is introduced, whether the percentage of AGR should be uniform for all ISP licenses or should it be different, based on revenue/spectrum-holding/any other suitable criteria? Please suggest suitable criteria with reasons.

Q: What mechanism should be devised for ISP license to identify revenue generated from use of spectrum and revenue generated without use of spectrum? Please give your view on this with justification.

2.19 Most of the stakeholders are of the view that SUC should not be made as percentage of AGR for the ISP licensees where the

assignment of spectrum was made through administrative mechanism on a link by link basis. These stakeholders commented that most of ISPs are primarily concentrated in particular geographies and therefore require spectrum on city or link-by-link basis only. Thus, spectrum is used in a limited part of ISP operations and considering total revenue earned for the purpose of computing SUC, would not be a prudent approach.

2.20 Some stakeholders are of the view that SUC should be levied only on the revenue earned from the licensed access spectrum. Any telecom revenue that has no linkage with spectrum directly or indirectly should not be subjected to SUC. They have further opined that revenue segregation process from use of spectrum and without use of spectrum will be a difficult process. However, two stakeholders commented that SUC on the basis of AGR is relevant in cases where the assignment of the spectrum is done for an entire LSA.

2.21 Two stakeholders commented in favour of SUC as percentage based on AGR to avoid spectrum hoarding and ensure that spectrum does not remain under-utilised. One of the stakeholders has suggested that SUC should be levied on total revenue from the ISP services as all the revenue accruing to licensee is because of ISP license.

2.22 The Authority has examined stakeholders' comments. It has been noted that ISPs are not having spectrum throughout the LSA and in most cases not even in an entire city/district. A review of stakeholders comments reveals that spectrum utilisation by ISPs for providing services at the last mile (subscriber end) is minimal. Further, only about 6% of total ISP licensees have licensed spectrum from DoT for providing internet service through wireless.

2.23 Another issue related to computation of SUC levied on ISPs is to review the formula based SUC. The formula factored in number of frequencies/carriers, the maximum distance over which the wireless network would operate and the carrier bandwidth. The formula was revised by DoT vide order dated 22nd March 2012. It has been noted that charges were 250% of the earlier charges prescribed in DoT

order No. R-11014/26/2002-LR dated 1st April 2003. In this context, following question was raised in the CP:

Q: In case, Formula based spectrum charging mechanism in ISP license is to be continued, do you feel any changes are required in the formula being currently used that was specified by DoT in March 2012? If yes, suggest the alternate formula. Please give detailed justification.

2.24 Many stakeholders have commented in favour of reduction in formula based SUC charges. Some suggested 50% reduction in formula based SUC charges prescribed through DoT's March 2012 order. Few stakeholders have commented in favour of pre-2012 formula based SUC charges. One stakeholder has suggested to incorporate band factor (i.e. lower the band, better the propagation characteristics is) as well as demographic and geographic factors in the formula based spectrum charges. Two stakeholders favoured for no changes in SUC charges prescribed by March 2012 order. One stakeholder suggested to discontinue formula based SUC charges and favoured for SUC as percentage of AGR.

2.25 The Authority has examined stakeholders' comments and is aware of the fact that spectrum is a precious and scarce natural resource. It is a key input for many telecom services. In ISP segment, in some cases, last connectivity is possible only through use of spectrum because of difficult terrain/geographic conditions. However, a review of spectrum assigned to ISP licensees revealed that in general in the past four years, renewal of spectrum assignment has shown a declining trend. The reason could be better penetration of wired access or higher SUC charges.

2.26 The Authority is also aware of the role of ISPs in promoting internet and broadband and achieving the target of digital empowerment through 'Digital India'. NTP 2012 recognizes the importance of broadband and internet in the development and growth of economy.

At this point of time, it would be thus prudent to continue with the existing spectrum usage charging mechanism.

2.27 Based on the above, the Authority is of considered opinion that SUC should be levied only on revenue from ISP services provided using the spectrum. However, before moving to scenario where SUC would be levied as percentage of AGR, a proper mechanism is needed where revenue generated from the use of spectrum and revenue generated without using this spectrum could be easily identified and segregated. Existing system of SUC levied on ISP licensee does not require such segregation of revenue. Further, likely compliance and implementation cost involved in introducing a new system should not outweigh the estimated benefits. However, in the present case, in view of the manner of assignment, requirement of spectrum by ISP licensees and small contribution of revenue generated by ISP licensees using spectrum for last mile connectivity, it would not be worthwhile to go for revenue segregation exercise. Further the Authority is of the view that if any ISP has appreciable number of links on fibre and few on Micro Wave link, then charging on link-to-link basis seems more reasonable.

2.28 *In view of above, **the Authority recommends that SUC should not be levied as percentage of AGR and existing formula based mechanism of charging SUC to continue.***

OTHER ALLIED ISSUES – ISP LICENSE

Schedule of Payment for Spectrum Related Charges

2.29 As per ISP license conditions, Fee/royalty payable towards WPC Charges (i.e. SUC) is payable at such time(s) and in such manner as the WPC Wing of the DoT prescribes from time to time. At present, royalty for the use of spectrum for point to point links and other access links to Government is payable by ISP licensee in advance on annual basis. However, in wireless access service and VSAT service, spectrum related charges are payable on quarterly basis. Further, LF

is also payable on quarterly basis in all telecom licensed services. In this regard following question was raised in the CP:

Q: Do you propose any change in existing schedule of payment of spectrum related charges in the ISP license agreement?

2.30 Some stakeholders are in favour for payment of SUC on quarterly basis. These stakeholders' comments are driven by the thought of bringing in uniformity across licenses regarding payment of SUC. They have further commented that quarterly payment of SUC would help in cash flow in an appropriate manner. At the same time other stakeholders have argued for continuation of existing system of SUC payment (i.e. on annual basis) since the SUC is a fixed charge and payment is to be made in advance.

2.31 The Authority has examined the comments of stakeholders. Under existing system, SUC is payable on annual basis by ISP licensee. It has been noted that duration of frequency assignment to ISP licensees is normally one or two years and the duration of frequency assignment and schedule of payment of SUC are co-terminus. Further SUC is paid in advance and is fixed in nature. This also provides ease to DoT in spectrum management for ISP licensees. In case any shift of SUC payment on quarterly basis is made applicable, the surrender of spectrum by ISP licensees would involve extra efforts on compliance, reconciliation and spectrum management at DoT's end. Therefore, **the Authority recommends that existing system of payment of SUC charges on annual basis by ISP licensees should continue.**

Delay in payment of spectrum related charges

2.32 The Unified License (ISP service authorization) stipulates that all charges relating to spectrum are payable in the manner as prescribed by the Licensor/WPC Wing from time to time. At present, royalty for the use of spectrum for point to point links and other access links to Government is payable on annual basis. No specific clause for dealing with delays in payment of spectrum related charges and

penalty for such delays are stipulated in the license agreement. However, it has been noticed that license agreement contains provisions on delayed payment (and penalty for delay) of LF⁴, or any other dues payable under the license agreement beyond the stipulated period, attracting interest at the rate of 2% above the Prime Lending Rate (PLR) of State Bank of India [existing as on the beginning of the financial year (namely 1st April)] in respect of the license fee pertaining to the said financial year.

2.33 In this context, following question was raised in CP:

Q: Should a separate regime of interest rates for delayed payment of royalty for the use of spectrum be fixed in ISP License or should it be the same to the prevailing interest rates for delayed payment of license fee/ SUC for other licensed telecom services?

2.34 Many stakeholders were of the view that interest on delayed SUC payment should be linked with SBI Base Rate instead of SBI PLR Rate Plus 2%. These stakeholders have commented that PLR interest regime has been replaced by Base Rate system. Few stakeholders have quoted NIA of recent spectrum auction of multiple bands held in October 2016 where DoT has used SBI base rate of 9.3% for the purpose of computing installments under deferred payment option opted by bidder. Few stakeholders favoured for continuation of SBI PLR based rate for delay in payment of SUC.

2.35 The Authority has examined the comments received from stakeholders. From April 2016, Base Rate system has been replaced by Marginal Cost of Funds based Lending Rate (MCLR) and therefore, if any change in interest rate is to be done then it should be with reference with MCLR only. Although the Authority has used SBI Base rate for indexation for valuation of spectrum but the Authority is of the view that interest rate for delayed payment of SUC (or any other schedule payment) is in the nature of penalty which should be restrictive enough to prompt licensees to make payments on time

⁴ Para 20.7 of Unified License

and should be little higher. It is also noted that in licenses/authorizations being given by DoT for other services also interest rate for delayed payment is linked with SBI PLR rate+2%.

- 2.36 In view of above, **the Authority recommends that interest rate to be levied for delayed payment of SUC by ISP licensees should be 2% above the SBI PLR rate existing on the beginning of the relevant financial year.**

Financial Bank Guarantee

- 2.37 The ISP license⁵ stipulates that in addition to financial bank guarantee (FBG) for LF, licensee shall submit separate FBG, for the use of spectrum and also for possession of wireless telegraphy equipment. In Unified License (ISP service authorization)⁶, licensee is required to submit FBG of Rs. Ten lakh for category 'A' service area, Rs. One lakh for category 'B' service area and Rs. Ten Thousand for category 'C' service area with one year validity. In subsequent years, the amount of FBG shall be equivalent to LF for two quarters and other dues (not otherwise securitized).

- 2.38 In this regard following question was raised in the CP:

Q: Should separate financial bank guarantee or single financial bank guarantee be submitted by the ISP licensee covering LF payable, fees/charges/royalties for the use of spectrum and other dues (not otherwise securitized)? If yes, what should be the amount of such financial bank guarantee in either case?

- 2.39 Few stakeholders have argued for single FBG. One stakeholder was in favour of no change in existing system. Another stakeholder commented that since SUC is paid annually in advance, there is no need for securitization. However, some stakeholders were in favour of removal of requirement for FBG.

- 2.40 The Authority has examined the stakeholders' comments. Keeping in view the objective of simplified and effective monitoring, single FBG

⁵ Para 21.3 of ISP License

⁶ Para 21 and Annexure II of Unified License

covering different dues/payables is the preferred way. It should also be noted that under existing system of formula based charge, SUC is paid in advance every year, which annuls the risk of any default by ISP licensees, as the SUC is not linked with AGR and quantum of SUC to be paid is fixed and determined before beginning of the respective year. This allays any uncertainty in computation or determination of SUC.

2.41 **The Authority therefore recommends that there should be no requirement of FBG for ISP licensee in respect of formula based SUC payable.**

CHAPTER III: ISSUES RELATED TO COMMERCIAL VSAT LICENSE

- 3.1 VSAT is a Very Small Aperture Terminal, aligned towards a designated Satellite for up-linking and down-linking communication signals. With VSAT connectivity is possible even at those locations, which cannot be connected through conventional media like copper cable, optical fibre, radio, microwave and any other wire-line / wireless links. VSAT is a versatile solution, not only as a reliable primary link for non-feasible areas, but also as an alternate technology for back link.
- 3.2 A VSAT network consists of a VSAT hub, which is run by a service provider and is a shared network where VSATs of many customers are serviced through this hub. The VSAT service provider hires capacity from Department of Space, obtains the necessary regulatory approvals⁷ and provides services to the customers who have VSATs on their premises. VSAT services are majorly used by the corporate bodies, banking Sector, hospitals, stock exchanges, defence, airlines, mining companies, power projects etc. for quick network deployment including reaching out to inaccessible remote areas.

Minimum presumptive AGR

- 3.3 In case of VSAT, the transponder bandwidth is allocated by the Department of Space (DoS) and the frequency allotment is carried out by WPC, DOT. Therefore, the VSAT licensees have to essentially take the satellite bandwidth and pay the charges for the transponder-bandwidth to the DoS. In addition, they are required to pay license fee and spectrum charges to WPC, DoT.
- 3.4 As per the present regime, the Commercial CUG VSAT operators are levied license fee as 8% of adjusted Gross Revenue (AGR). Spectrum usage charges w.e.f. 1st January 2003 for commercial VSAT networks are being levied as per WPC order dated 16th April 2003. Spectrum usage charges for VSAT service varies from 3% to 4% of AGR (depending upon the data rate) (Table 3.1). However, no minimum

⁷ Para 4.2 of Chapter-XIV of Unified License (Commercial VSAT CUG Service)

levy of License fee and spectrum charges by way of prescribing minimum presumptive AGR have been specified for Commercial CUG VSAT license.

Table 3.1
Spectrum Usage Charge applicable to Commercial VSAT Operators

Range of Data Rate	Spectrum Charges
Up to 128 kbps	3.0% of AGR
Higher than 128 kbps and up to 512 kbps	3.5% of AGR
Higher than 512 kbps and up to 2 Mbps	4.0% of AGR

3.5 On LF, clause 18.2.1 of Chapter-III of Unified License provides “*that from second year of the effective date of respective authorization, the LF shall be subject to a minimum of 10% of the entry fee of the respective authorized service and service area as in Annexure-II*”.

3.6 In this regard, the following questions arise for consultation:

Q: Is there a need to specify minimum presumptive AGR for commercial CUG VSAT license for the purpose of charging SUC? If yes, what should be the value of minimum presumptive AGR and basis for its computation? Please provide justifications for your response.

3.7 Majority of stakeholders argued that no minimum presumptive AGR should be introduced. Some stakeholders commented that commercial VSAT segment is already paying substantial charges and levies to DoT/DoS. One stakeholder is of the view that timely commencement of services can be ensured through roll-out obligations specified in the license agreement instead of introducing minimum presumptive AGR. Two stakeholders have argued in favour of minimum presumptive AGR. These stakeholders are of the view that minimum presumptive AGR would encourage licensees to utilize spectrum efficiently.

3.8 The Authority has examined the comments received from stakeholders. As its consistent policy, the Authority in its Recommendations of 6th January 2015 titled “Definition of Revenue Base (AGR) for the Reckoning of Licence Fee and Spectrum Usage Charges” had recommended that minimum presumptive AGR for the purpose of LF and SUC should not be made applicable to any licence(s) granted by Government for providing telecom services. As discussed in chapter II, the Authority is of the view that timely commencement of services should be ensured through effective and meaningful enforcement of license obligations with respect to roll-out obligations and not from introducing minimum presumptive AGR. Therefore, **the Authority is of the view that minimum presumptive AGR should not be made applicable to commercial VSAT license.**

Spectrum Usage Charge for VSAT

3.9 As discussed above, SUC for commercial VSAT services ranges from 3–4% depending upon the data rate. These rates were fixed by DoT in April 2003⁸. In its Recommendations of 3rd October 2005⁹ on ‘Growth of Telecom services in rural India - The Way Forward’, the Authority had recommended (Para 7.9.1) that there should be a single rate of WPC fee (SUC) and the ceiling of 4% should be lowered to 1% to cover administrative charges only.

3.10 In this regard, following point arise for consultation:-

Q12: Should the SUC applicable to commercial VSAT services be reviewed? If yes, what should be the rate of SUC to be charged? Please give your view on this with justification.

3.11 As we are aware that in case of VSAT, the transponder bandwidth is allocated by the Department of Space (DoS), therefore, the VSAT licensees have to essentially take the satellite bandwidth and pay the charges for the transponder-bandwidth to the DoS. However the frequency allotment for VSAT service is carried out by WPC, DOT for

⁸ DoT order No. R-11014/9/2001-LR dated 16th April 2003

⁹ <http://www.trai.gov.in/WriteReadData/Recommendation/Documents/recom3oct05.pdf>

which VSAT service providers are required to pay license fee and spectrum charges to DoT.

3.12 Most of the stakeholders' were of the view that SUC should be nominal. However, one stakeholder was of the view that there should be no change in the existing SUC. While other stakeholder wanted that there should not be any difference between SUC across telecom services using spectrum and hence wanted that SUC should be uniform across all licenses.

3.13 It may be noted that TRAI has already recommended that there should be a single rate of SUC and it should be only 1% to cover administrative charges. In view of this and after considering the comments of stakeholders, **the Authority recommends that the SUC should not be more than 1% of AGR irrespective of the data rate.**

General Issues Affecting Licensees

3.14 There are certain other issues which were raised through comments or in the OHD. In this regard, the following was raised for consultation:

Q13: In addition to the issues mentioned above, comments of stakeholders is also invited on any other related matter/issues.

Delay in the Assignment of the VSAT Spectrum by DoT

3.15 With regard to delay in the assignment of the VSAT spectrum by DoT, it has been noted that in case of VSAT, the transponder bandwidth is allocated by the Department of Space (DoS) and the frequency allotment is carried out by WPC wing of DOT. Therefore, the VSAT licensees have to essentially take the satellite bandwidth and pay the charges for the transponder-bandwidth to the DoS. The VSAT licensee pays the charges to DoS from date of allotment of bandwidth. The VSAT licensee is also required to pay license fee and spectrum charges to WPC, DoT although the transponder bandwidth is allocated by the Department of Space (DoS). In addition to this the VSAT licensee has to take number of permissions/authorization from

DoT namely, Frequency Assignment, Standing Advisory Committee on Radio Frequency Allocation (SACFA) clearance, Network Operations Control Centre (NOCC) clearance. It was pointed out by stakeholders that to obtain such clearance for VSAT licensee, they are facing significant delay (6 to 12 months) in the assignment of the VSAT spectrum by DoT however; the VSAT licensee pays the charges to DoS from date of allotment of bandwidth. The stakeholders want that a time bound process should be recommended to avoid such delay.

- 3.16 In view of this and after considering the comments of stakeholders, the **Authority is of the view that DoT may take up with DoS to evolve a system where the VSAT licensees are not made to run from pillar to post to get their services activated. The clock should start from the day the bandwidth is allotted by DoS and DoT should allot frequency within 3 months of allotment of spectrum by DoS. The two departments may also explore the possibility of implementing an on-line application for automating the whole process to bring in transparency.**

Online Payment

- 3.17 When financial levies /dues and other fees are paid by the licensees for obtaining licence/ approval/ clearance / issue of NOC, presently most of these levies / fees are being paid through demand draft which not only require extra effort but also puts some financial burden on the licensees. During the OHD it was pointed out by stakeholders that when such payment is being made to DoT by the licensees through demand draft, DoT neither raises any invoice for such payment nor gives any receipt / acknowledgement for such payment to the licensees which creates uncertainty in the mind of licensees that whether the DD has been taken into account or not. Therefore, some stakeholders have suggested that all records of license applied, payments to DoT etc. should be digitized.

- 3.18 In view of this above, **the Authority recommends that the DoT should make arrangement to accept online payment of financial levies /dues such as LF, SUC and other fees that are paid by the licensees for obtaining licence/ approval/ clearance / issue of NOC from DoT.**

Online Submission of Documents

- 3.19 When a new licence is applied or some other security and technical clearance are applied for in DoT, the licensee is required to file hard copy of the supporting documents along with such application every time irrespective of the fact that these supporting documents are lying with DoT. The stakeholders have suggested that there should be a mechanism of online filing of supporting documents to facilitate early processing of application and also to avoid filing of hard copy of the documents every time with application to DoT for clearance/ NOC etc on the same issue. One of the stakeholders has suggested that all records submitted by the licensee may be digitized.
- 3.20 In view of above and after considering the comments of stakeholders, as already recommended in para 3.16, **the Authority recommends that DoT should put in place a comprehensive, integrated on-line system that acts as a single window clearance for the allocation/clearances/ issuance for approval/ clearance / issue of NOC and other permissions to the licensees.**

CHAPTER IV: SUMMARY OF RECOMMENDATIONS

- 4.1 The Authority recommends that existing system of spectrum assignment on location/link-by-link basis on administrative basis to ISP licensees in the specified bands (viz 2.7 GHz, 3.3 GHz, 5.7 GHz and 10.5 GHz) to continue. (Para 2.7)**
- 4.2 The Authority recommends that minimum presumptive AGR should not be made applicable to ISP licensees. For ISP licensees having spectrum assigned from the DoT, a provision should be made in the licensee agreement/internet authorization that licensee shall offer the commercial service to its subscribers on demand within 12 months from the date of spectrum assignment by DoT, failing which spectrum assigned to ISP licensee may be cancelled. (Para 2.15)**
- 4.3 The Authority recommends that SUC should not be levied as percentage of AGR and existing formula based mechanism of charging SUC to continue. (Para 2.28)**
- 4.3 The Authority recommends that existing system of payment of SUC charges on annual basis by ISP licensees should continue. (Para 2.31)**
- 4.4 The Authority recommends that interest rate to be levied for delayed payment of SUC by ISP licensees should be 2% above the SBI PLR rate existing on the beginning of the relevant financial year.(Para 2.36)**
- 4.5 The Authority therefore recommends that there should be no requirement of FBG for ISP licensee in respect of formula based SUC payable. (Para 3.8)**
- 4.6 The Authority is of the view that minimum presumptive AGR should not be made applicable to commercial VSAT license. (Para 3.8)**

- 4.7 The Authority recommends that the SUC should not be more than 1% of AGR irrespective of the data rate. (Para 3.13)**
- 4.8 The Authority is of the view that DoT may take up with DoS to evolve a system where the VSAT licensees are not made to run from pillar to post to get their services activated. The clock should start from the day the bandwidth is allotted by DoS and DoT should allot frequency within 3 months of allotment of spectrum by DoS. The two departments may also explore the possibility of implementing an on-line application for automating the whole process to bring in transparency. (Para 3.16)**
- 4.9 The Authority recommends that the DoT should make arrangement to accept online payment of financial levies /dues such as LF, SUC and other fees that are paid by the licensees for obtaining licence/ approval/ clearance / issue of NOC from DoT. (Para 3.18)**
- 4.10 The Authority recommends that DoT should put in place a comprehensive, integrated on-line system that acts as a single window clearance for the allocation/clearances/ issuance for approval/ clearance / issue of NOC and other permissions to the licensees. (Para 3.20)**

ANNEXURE I

Government of India
Ministry of Communications & IT
Department of Telecommunications
Wireless Planning & Co-ordination (WPC) Wing
Sanchar Bhawan, 20 Ashok Road
New Delhi - 110 001

No.P-11014/03/2012-PP(Pt)

Dated: 25-06-2014

To,
The Secretary,
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan,
Jawaharlal Nehru Marg, (Old Minto Road)
New Delhi-110 002

Sub: TRAI recommendations on spectrum uses charging for Internet Service Providers (ISPs) and floor level of AGR based on amount of spectrum held by commercial VSAT operators regarding.

Sir,

I am directed to state that it has been decided by DoT that spectrum usage charges for ISPs should also be brought under the revenue sharing regime i.e. as a percentage of AGR based on amount of spectrum held, along with minimum floor level of AGR.

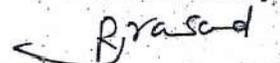
2. Presently, the spectrum usage charges (SUC) are applicable on ISPs as spectrum charging orders No.P-11014/34/2009-PP(II) dated 22nd March, 2012 (Copy enclosed) which is on formula basis. To bring the ISPs under AGR regime, TRAI is requested to provide its recommendations on the following issue:

- (i) Rates for spectrum usage charges;
- (ii) Percentage of AGR including minimum AGR;
- (iii) Allied issues like schedule of payment, charging of interest, penalty and Financial Bank Guarantee (FBG).

3. It has also been decided to introduce a floor level of AGR, based on the amount of spectrum held by a commercial VSAT operator, for appropriate spectrum charging and efficient usages of spectrum by VSAT operators. Presently, vide Order No. R-11014/9/2001-LR dated 16th April, 2003, the spectrum charges applicable on Commercial VSAT operators are based on revenue sharing, however, no minimum AGR is indicated in the said order. TRAI is requested to recommend the floor level (minimum) AGR, based on the amount of spectrum held by commercial VSAT operators.

4. TRAI may provide its recommendations on para 2 and 3 above as per the proviso under section 11(1) of TRAI Act 1997 (as amended from time to time).

Yours Sincerely


(R.B. Prasad)
Joint. Wireless Adviser

Encl:-a/a

Government of India
Ministry of Communications & IT
Department of Telecommunication
Wireless Planning & Co-ordination (WPC) Wing

Sanchar Bhavan,
20, Ashoka Road,
New Delhi-110 001

No. P-11014/34/2009-PP (II)

Date: 22nd March, 2012

ORDER

Subject: Royalty charges for Assignments of Frequencies to 'Captive Users' (users being charged on formula basis) including all Government Users, involving Multi Channel Operations for Fixed/ Land/ Land Mobile Stations.

In pursuance of Power conferred by section 4 of the Indian Telegraph Act, 1885(13 of 1885) and in supersession of this Ministry's Orders No. R-11014/26/2002-LR dated 06.05.2003, No. R-11014/26/2002-LR dated 01.04.2003, No. R-11014/4/87-LR (pt.) dated 20.07.1995 and No. R-11014/4/87-LR dated 09.12.1987, the Central Government has decided the following Royalty charges for Assignments of Frequencies to 'Captive Users' (users being charged on formula basis) including all Government Users, involving Multi Channel Operations for Fixed/ Land/ Land Mobile Stations:-

2. Annual Royalty is calculated as per the following formula and rules:

$$\text{Annual Royalty (in Rupees)} = \sum_{i=1}^n M_i \times W, \text{ where } n = \text{no. of carriers.}$$

- i. The Basic Royalty (M) given below is for *one* carrier frequency in a *Basic Link* (simplex) of 2 Fixed/ Land/ Land Mobile stations (1 station for broadcasting).
- ii. Duplex circuits (with two central frequencies) and Semi-duplex circuits shall be charged at twice the rate of simplex (single central frequency) circuits.
- iii. For multi-frequency circuits, even if operating in simplex mode, the Basic Royalty shall be charged for each frequency separately.
- iv. For the purpose of charging Royalty under Table-B, the *Bandwidth Factor W* shall be as per *Table-C*, given below.
- v. For all carrier frequencies, the chargeable bandwidth shall include the *Guard Bands* required to be provided as per *ITUs*.
- vi. The rates of Royalty apply to the specified *polarization(s)* of the assigned frequencies.
- vii. In addition to above, the explanatory "Notes" on the applicability of royalty charges, are as following:
 - To determine the "Maximum Distance" slab applicable to a case, the 'maximum power rating/ assigned' of the transmission equipment be considered, and expressly recorded in the assignment instrument Decision Letter, Agreement-in-Principle, or Wireless Operating License (DL/ AIP/ WOL).



Royalty Charges for Multi-channel

- The *duration* of a radio frequency assignment will normally be one or two years. If an applicant desires, and frequencies are available, the duration of assignment may be fixed as three or four or five years.
- Before issuing any DL/ AIP/ WOL, full amounts of Royalty shall be submitted by the applicant in advance for the entire duration of the DL/ AIP/ WOL.
- For all assignments of frequencies, all applicants or users shall pay the applicable Royalty, License Fee, etc. **at the rates and terms in force from time to time, all previously paid amounts being adjusted on pro-rata basis.**

Table-B For The 'M' Factor

Distance Cat.	"Maximum Distance (KM) Over Which the F/L/LM Network would operate"	Royalty Charges (in Rs.) for of the Basic Link.
		<i>M</i>
I	≤ 2	1500
II	≤ 5	3000
III	$> 5 \leq 25$	6000
IV	$> 25 \leq 60$	12000
V	$> 60 \leq 120$	22500
VI	$> 120 \leq 500$	37500
VII	> 500	50000

Table-C for The 'W' Factor

Slabs of Adjacent Channel Separation (BW), in MHz	Values of W
Up to and including 2	30
More than 2 but ≤ 3.5	40
More than 3.5 but ≤ 7	60
More than 7 but ≤ 14	90
More than 14 but ≤ 28	120
> 28	$120+30 \times (\text{Excess bandwidth to } 28 \text{ MHz} / 7)^\oplus$

⊕: That is, in steps of 7 MHz or part thereof.

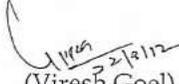
viii. Any "single channel service" that uses a channel bandwidth in excess of 375 KHz shall be covered by Charging Table-C above, where the Bandwidth Factor "W" is used from the lowest value of 30 onwards.

3. For Charging of "Licence fee and other fees, Surcharge/ late fee and Charging Methodologies for Royalty / licence fees, Order No. No. P-11014/34/2009-PP (IV) dated 22nd March, 2012 shall be applicable

M. S. S.
22/3

Royalty Charges for Multi-channel

4. This issues with the concurrence of the Wireless Finance Division, vide this Dy. No.482/Sr.DDG(WPF), dated 19/3/12.
5. This Order shall come into force from 1st April 2012.


(Viresh Goel)
Deputy Wireless Advisor
to the Government of India

Copy to:

1. All concerned
2. Wireless Finance Division
3. Wireless Monitoring Organisation
4. Director, IT DoT for uploading on DoT website
5. DWA(ASMS) for uploading on WPC Wing website

Government of India
 Ministry of Communications & IT
 Department of Telecommunications
 WPC Wing (T-Group)
 6th Floor Sanchar Bhawan, New Delhi-1

No.- P-11014/03/2012-PP (Pt.)

Date:-02.03.2016

To,
 The Secretary,
 Telecom Regulatory Authority of India
 Mahanagar Doorsanchar Bhawan,
 Jawaharlal Nehru Marg, (Old Minto Road)
 New Delhi-2

{Kind Attn:- Sh. Sanjeev Banzal, Advisor (Network, Spectrum and Licensing)}

Ref:- TRAI letter no.- 15-01/2015-F&FA dated 15 May 2015

Subject:- Recommendation sought by DoT on spectrum usages charging for Internet Service Providers (ISPs) and floor level of AGR based on amount of spectrum held by commercial VSAT operators and related issues.

Sir,

I am directed to refer to your letter at reference above on the subject and to convey the following with respect to Para-4 of the above letter:

4 (a):- It was decided that ISPs have also been brought under Unified Licensing fee regime w.e.f. 1st July, 2012 and spectrum charging i.r.o. ISPs may also be brought under the revenue sharing (i.e. as a % of AGR based on the amount of spectrum held with minimum floor level AGR).

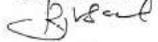
4 (b):- Spectrum charges from ISPs are NOT being levied on AGR basis at present. The spectrum charging from ISPs is on fixed formula basis as per Order No.P-11014/34/2009-PP(II) dated 22/03/2012 (Annex-I 3 pages).

4 (c):- The royalty as referred in Para-2(ii) is NOT in addition to spectrum charges mentioned in Para-2(i). The spectrum charging (including spectrum royalty) on fixed formula basis shall be discontinued once it is migrated on AGR based charging.

4 (d)-(e):- Present criteria of spectrum allocation to ISPs is on city wise basis, subject to availability of spectrum. The details of ISPs are enclosed in Annex-II (4 pages).

Encl:- As above

Yours Sincerely,


 (R B Prasad)
 Joint Wireless Adviser
 Ph- 2337 2183

Government of India
Ministry of Communications & IT
Department of Telecommunication
Wireless Planning & Co-ordination (WPC) Wing

Sanchar Bhavan,
20, Ashoka Road,
New Delhi-110 001

No. P-11014/34/2009-PP (II)

Date: 22nd March, 2012

ORDER

Subject: Royalty charges for Assignments of Frequencies to 'Captive Users' (users being charged on formula basis) including all Government Users, involving **Multi Channel Operations for Fixed/ Land/ Land Mobile Stations.**

In pursuance of Power conferred by section 4 of the Indian Telegraph Act, 1885(13 of 1885) and in supersession of this Ministry's Orders No. R-11014/26/2002-LR dated 06.05.2003, No. R-11014/26/2002-LR dated 01.04.2003, No. R-11014/4/87-LR (pt) dated 20.07.1995 and No. R-11014/4/87-LR dated 09.12.1987, the Central Government has decided the following Royalty charges for Assignments of Frequencies to 'Captive Users' (users being charged on formula basis) including all Government Users, involving **Multi Channel Operations for Fixed/ Land/ Land Mobile Stations:-**

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- iv. For the purpose of charging Royalty under Table-B, the *Bandwidth Factor W* shall be as per *Table-C*, given below.
- v. For all carrier frequencies, the chargeable bandwidth shall include the *Guard Bands* required to be provided as per *ITLIs*.
- vi. The rates of Royalty apply to the specified *polarization(s)* of the assigned frequencies.
- vii. In addition to above, the explanatory "Notes" on the applicability of royalty charges, are as following:
 - To determine the "Maximum Distance" slab applicable to a case, the 'maximum power rating/ assigned' of the transmission equipment be considered, and expressly recorded in the assignment instrument Decision Letter, Agreement-in-Principle, or Wireless Operating License (DL/ AIP/ WOL).

- The *duration* of a radio frequency assignment will normally be one or two years. If an applicant desires, and frequencies are available, the duration of assignment may be fixed as three or four or five years.
- Before issuing any DL/ AIP/ WOL, full amounts of Royalty shall be submitted by the applicant in advance for the entire duration of the DL/ AIP/ WOL.
- For all assignments of frequencies, all applicants or users shall pay the applicable Royalty, License Fee, etc. at the rates and terms in force from time to time, all previously paid amounts being adjusted on pro-rata basis.

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*: That is, in steps of 7 MHz or part thereof.

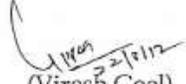
viii. Any "single channel service" that uses a channel bandwidth in excess of 375 KHz shall be covered by Charging Table-C above, where the Bandwidth Factor "W" is used from the lowest value of 30 onwards.

3. For Charging of "Licence fee and other fees, Surcharge/ late fee and Charging Methodologies for Royalty / licence fees, Order No. No. P-11014/34/2009-PP (IV) dated 22nd March, 2012 shall be applicable

Royalty Charges for Multi-channel

4. This issues with the concurrence of the Wireless Finance Division, vide this Dy. No.482/Sr.DDG(WPF), dated 19/3/12.

5. This Order shall come into force from 1st April 2012.


(Viresh Goel)
Deputy Wireless Advisor
to the Government of India

Copy to:

1. All concerned
2. Wireless Finance Division
3. Wireless Monitoring Organisation
4. Director, IT DoT for uploading on DoT website
5. DWA(ASMS) for uploading on WPC Wing website

Annex - II

Table - "A"

Spectrum Allocation Details of ISPs

Table - A

SL No.	Name of ISP	Quantity of Spectrum allotted (MHz)	Frequency Range	Number of carrier frequencies	Location of link
1.	M/s Tulip Telecom Ltd.	6+6 MHz	2.7 - 2.9 GHz	2833/2883 MHz (FDD)	Chennai, Bangalore, Delhi, Kolkata, Malapuram, Palurkot, Nilambur, Vengara, Wandoor, Mankada, AnkkiamValvano Morayoor, Pookottur, Panakkad, Kakkanchery, Lucknow, G.B. Nagar, Agra, Dehradun, Udham Singh Nagar Ahmedabad, Valsad, Jalgaon, Dhanbad, Mahendragarh, Allahabad, Jhanshi, Pondicherry, Salem, Sundergarh Thiruvananthapuram, Kangra, south Karnataka, Hassan, Gurgaon, Amritsar, East idnapur, Rohtak, Saharanpur, Banskant Mumbai, Kurukshetra, Dharwad, Raigarh, Kanpur, Bhopal, Alwar, Tirunelveli, Hyderabad, North Goa, Kolkata New Delhi, Aurangabad, Solapur, Solan, Chandigarh, Kamrup, Vishakhapatnam, Surat Karnal, Bokaro, Bilaspur, Hazaribag, Akola, Pune, Indore, Raipur, Faridabad, Jaipur, Ludhiana, Patiala, Gwalior, Kishnagiri Varrodara, Bareilly, Anand, Ambala, Aligarh, Ajmer, Aizawal, Ahmednager, Saharanpur, Gorakhpur, Hoshangabad, Howrah Haridwar, Kachchh, Kheda, Kota, Kolhapur, Karur, Patna, Gurudaspur, South Delhi, Nellore, Nagpur, Krishna, Thane, Chittoor Thrissur, Kerala, Kupwara, Darjeeling, Solapur, Nasik, East Khashi Hills, Ernakulam, Jamshedpur, Jhajar, Sonapat Udaipur, Bikaner, Sundergarh, Cuttack, Rewari, Bhavnagar, Shimla, Sangli, Ranchi, Rajkot, Kanyakumari, Mysore Moradabad, Meerut, Mathura, Mehsana, Jodhpur, Jammu, Jamnagar, Jammu, Jalgaon, Jabalpur, Erode, Burdwan, Bhiwani, Coimbatore, Kozhikode, Khorda, Alwar, Bhatinda, Bharatpur, Belgaon, Garia, Sealdah, Jupiter, Jadavpur, Duundum, Allora, Bhadup Barabazar, Bangeshwar, Hazra, SitabuldiNagar, Howrah, Jamshedpur, Kandra, Kamrup, Sangli, Banskantha, Karur, Dharwad Khorda, Hazaribag, Cherlapally, Gaziabad, Solapur, Rajkot, Kota, Aligarh, Kanpur, Mahendragarh, Bilaspur, Akola, Agra.
		6 MHz 6 MHz 1.75+1.75 MHz	3.3 - 3.4 GHz	3331.5 MHz 3381.5 MHz(TDD) 3328.875/3378.875 MHz(FDD)	New Delhi, Gurgaon, Bangalore, Pune, Ludhiana, Gaziabad, Kolkata, Valsad, G. B. Nager, Patiala, Gurdaspur, Nagpur Jammu, Jalandhar, Srinagar, Thane, Chennai, Mumbai, Amritsar, Russel, Saharanpur, Surgargarh, Rohtak, Jabalpur, Thissur Thiruvananthapuram, Mathura, Tirunelveli, Agra, Ajmer, Bhavnagar, East Khashi hills, Ambala, Bareilly, Bhatinda, Khoda Kozhikode, Dharwad, Hamirpur, Kamrup, Gorakhpur, Erode, Danbad, Dehradun, Cuttack, Chandigarh, Salem Rajkot, Goa, Karnal, Nellore, Muradabad, Murrut, Lucknow, Kurukshetra, Jalgaon, Jabalpur, Hosangabad Kolhapur, Akola, Gwalior, Mysore, Udhamsingh Nagar, Allahabad, Pondichery, Kota, Coimbatore, Bharatpur Shimla, Ernakulam, Anand, Sonapat, Surat, Bilaspur, Raipur, Madurai, Bhawadi, Jhanshi, Hazaribag, Kangra, Karnal, Valsad Khera, Nellore, Solapur, Ranchi, Patna, Nasik, Kanyakumari, Jodhpur, Vishkhapatnam, KrishnaNagar, Udaipur Tiruchirappalli, Jhanshi, Jamshedpur, Jaipur, Indore, Aizwal, Hazaribag, Akola, Thissur, Kanpur, Jamnagar, varanashi, Chittoor, Kachchh, Bhopal, Bharatpur, Aurangabad, Patiala, Nagpur, Jalandhar, Malappuram, Amritsar, Hyderabad, Bangalore Ahmedabad, Jammu, Srinagar, Ajmer, Anand, Shimla, Rajkot, Goa, Karnal, Ambala, Varanashi, Lucknow, Jabalpur Dhanbad, Sonapat, Rohtak, Surat, Bilaspur, Solapur, Hazaribag, Erode, Khoda, Kangra, Kozhikode, Kerala, Akola Jabalpur, Dharwad, Rewari, Ranchi, Raipur, Kanyakumari, Goregaon, Tirunelveli, Jaipur

					Indore, Hoshangabad, Hamirpur (HP), Gwalior, Gorakhpur, Erode, Dhanbad, Dehradun, Cuttack, Ernakulam, Chandigarh, Bhatnagar, Ambala, Ahmedabad, Bikaner, Kollhapur, Ajmer, Akola, Salem, Jodhpur, Valsad, Khoda, Kamrup, Pondicherry
2.	M/s HCL Infonet (Now M/s Tikona Infonet)	6 MHz 6 MHz	2.7 – 2.9 GHz	2733 MHz & 2739 MHz (TDD)	Hyderabad, Delhi, Ahmedabad, Faridabad, Chandigarh, Chennai, G.B. Nagar, Raipur, Mysore, Madurai, Indore, Varodara North 24 parganas, Salem, Coimbatore, Khoda, Nasik, Ernakulam, Bangalore, Gurgaon, Kolkata, Chennai, Valsad, Medak, Solan, U.S. Nagar, Jhajar, Ludhiana, Nalgonda, Goa, Vishakhapatnam, Varanasi, Thiruvananthapuram, Tiruchrapalli, Surat, Pondicherry, Patna, Nagpur, Ambala, Ghaziabad, G.B. Nagar, Guntur, Jaipur, Lucknow, Pune, Mumbai, Bangalore, Dehradun, Belgaon, Kachchi, Baruch, Thane, Valsad, Wardman, Ranchi, Chandigarh, Amritsar, Jodhpur, Thane, East Godavari, Jammu, Hissar, Ambala, Saharanpur, Warangal, Chennai, Ahmedabad, Hyderabad, Vellury
3.	M/s SIFY Technologies Limited	15 MHz 15 MHz 15 MHz 6 MHz 6 MHz	5.725 – 5.875 GHz 3.3 – 3.4 GHz	5732.5 MHz (TDD) 5792.5 MHz (TDD) 5807.5 MHz (TDD) 3303.5 MHz 3353.5 MHz (TDD)	Kerala, Madurai, Cochin, Coimbatore, Salem, Kannur, Calicut, Mysore, Manglore, Bangalore, Chennai, Shimoga, Devgiri, Hubli, Goa, Belgaon, Guntur, Vijayawada, Hyderabad, Secunderabad, Pune, Warangal, Mumbai, Thane, Nasik, Bhuvaneshwar, Nagpur, Surat, Raipur, Jamnagar, Kolkata, Indore, Bhopal, Ahmedabad, Kota, Patna, Guwahati, Jodhpur, Kanpur, Lucknow, Jaipur, Agra, Faridabad, New Delhi, Ghaziabad, Panchkula, Chandigarh, Ludhiana
4.	M/s Reliance Comms. Infrastructure Ltd.	6 MHz 6 MHz 3.50+3.50 MHz 3.50+3.50 MHz 3.50+3.50 MHz 3.50+3.50 MHz	3.3 – 3.4 GHz 10.15 – 10.65 GHz	3310.5 MHz 3360.5 MHz (TDD) 10208.5/10538.5 MHz (FDD) 10212.0/10562.0 MHz (FDD) 10215.5/10565.5 MHz (FDD) 10226.0/10576.0 MHz (FDD)	Bangalore, Chennai, Hyderabad, Pune, Mumbai, Surat, Gujarat, Baroda, Kolkata, Ahmedabad, Delhi, New Delhi.
5.	M/s Reliance WiMax Ltd (M/s Gateway)	3.50+3.50 MHz 3.50+3.50 MHz 3.50+3.50 MHz	10.15 – 10.65 GHz	10541.0/10191.0 MHz (FDD) 10544.5/10194.5 MHz (FDD) 10569.0/10219.0 MHz (FDD)	Delhi, Mumbai, Pune, Bangalore

6.	M/s Data Communications Limited	6 MHz 6 MHz	3.3 – 3.4 GHz	3317.5 MHz 3367.5 MHz(TDD)	Navi Mumbai, Andheri, Bhubaneshwar, Nasik, Surat, Raipur, Rajkot, Baroda, Kolkata, Indore, Ahmedabad, Gandhinagar Bhopal, Jhansi, Gwalior, Kanpur, Udaipur, Lucknow, Jaipur, Gurgaon, New Delhi, Delhi, Mohali, Ludhiana, Shimla Jalandhar Amritsar, Chota Shimla, Noida, Trivandrum, Kollam, Kottayam, Ernakulam, Cochin, Trichy, Coimbatore, Tripura, Calicut, Erode Cuddalore, Kannur Mysore, Bangalore, Chennai, Goa, Hyderabad, Podicherry, Pune, Mumbai, Navi Mumbai, Hubli, Chandigarh
7.	M/s Bharti Airtel Ltd.	6+6 MHz 1.75+1.75 MHz	3.3 – 3.4 GHz	3324.5/3374.5 MHz(FDD) 3334.125/3384.125 MHz(FDD)	Trivandrum(Kerala), Madurai(TN), Ernakulam, Trichy(TN), Coimbatore(TN), Calicut, Salem(TN), Pondicherry(TN) Mysore(KTK), Mangalore(KTK), Vellore(TN), Chennai, Nellore(AP), Hubli, Goa, Jalgaon Guntur(AP), Vijaywada(AP), Ghandhinager(Guj), Hyderabad, Vishakhapatnam(AP), Warngal(AP), Nasik(Maha) Bhuvneshwar, Surat, Raipur(C.garh), Bilashgarh(C.garh), Baroda, Kolkata, Udaipur(Raj), Indore(MP) Ahmedabad, Bhopal, Kota(Raj), Varanashi(UP(E)), Allahabad, Gwalior(MP), Lucknow, Agra, Ambala, Chandigarh, Ludhiana Jalandhar, Amritsar, Kapurthala, Hyderabad, Bangalore, Goregaon(E), Faridabad, Noida, Gurgaon(Har), New Delhi Delhi, Ghaziabad, Mumbai
8.	M/s Dishnet Wireless Ltd (M/s Aircel Limited)	6+6 MHz	3.3 – 3.4 GHz	3345.5/3395.5 MHz(FDD)	Madhurai, Dindigul, Ettayapuram, RVPuram, Trivandrum, Nagercoil, Trichy, Tanjaur, Nagapattnam, Coimbatore, Podanur Vellore, Erode, Coonoor, Ooty, Chidambaram, Salem, Cuddalore, Pondichery, Nyveli, Mysore, arrakonam, Chennai, Tirunavelli Tuticorin, Hosur, Bangalore, Kanchipuram, Mangalore, Vellore, Ramehwaram, Sriperumpudhur, Tumkur Chikkamagalore, Devan giri, Udpi, Karaikal, Cholavaram, Thriuthani, Kanyakumari, Sivakashi, Several other paces in TN, Simoga, Hosip Hosepet, Bidar, Gadag, Belgaum, Trimala, Tirupathi, Chittoor, Srialahthi, Puttur, Hindupur, Aanthpuram Cuddapah, Guddur, Nellore, Bellari, Kurnool, Goa, Prakasham, Srisalam, Amravati, Machilipatnam, Raichur, Krishna District, Vijaywada, West Godavari, Mahaboob Nagar, Nalgonda, Kakinada, Rajahmundry, hammam, Gulbarga Secundrabad Hyderabad, Medak, Warangal, Ranga reddy, Vijaynagaram, Nijamabad, Adilabad, East godawari Pune, Mumbai, Nasik, Aurangabad, Nagpur, Baroda, Ahmedbad, Valsad, Bhavnagar, Rajkot, Junagarh Surendra nager, Godhra, Navsari, Nadiad, Ankleshwari, Bharauch, Bhopal, Indore, Sihor, Lucknow, Jaipur, Chandigarh, Delhi.
9.	M/s Citycom Limited	6+6 MHz	3.3 – 3.4 GHz	3338.5/3388.5 MHz(TDD)	New Delhi, Vijaywada(AP)- cancelled w.e.f. 01/07/2012
10.	M/s Spectranet Commn. Limited	1.75+1.75 MHz	3.3 – 3.4 GHz	3330.625/3380.625 MHz(FDD)	Bangalore, Mumbai, Faridabad, Gurgaon, New Delhi, Delhi, Ghaziabad Assignment cancelled w.e.f. 01.07.2012
11.	M/s World Wide Wireless	6 MHz	2.7 – 2.9 GHz	2819 MHz(TDD)	Ahmedabad,, Ludhiana, Hyderabad, Mumbai, delhi, Bangalore, Pune, Kolkata, Chennai
12.	M/s IOL Telecom	6+6 MHz 6 MHz	2.7 – 2.9 GHz	2704/2754 MHz(FDD) 2889 MHz(TDD)	Gandhinagar, Bhopal, Jhansi, Gwalior, Kanpur, Udaipur, Lucknow, Jaipur, Gurgaon, New Delhi, Delhi, Mohali, Ludhiana, Shimla Jalandhar, Amritsar, Chota Shimla, Noida, Trivandrum, Kollam, Kottayam, Ernakulam Cochin, Trichy, Coimbatore, Tripura Calicut, Erode, Cuddalore, Kannur Mysore, Bangalore, Chennai, Goa, Hyderabad

13.	M/s Satelech	V	6 MHz	2.7 - 2.9 GHz	2819 MHz(TDD)	Imphal,Delhi,Gurgaon,Hyderabad,Lucknow,Dehradun,Patna,Bangalore Gandhi Nagar, Est godavarh Ranchi Jaipur Thiruvananthapuram, Bhopal, Mumbai, Raipur Goa, Khorda, East Khasi Hills, Tripura, East Sikkim, Papum Pare, Kolkata, Adilabad, Chittoor, Guntur, Kurnool, Nalgonda, Nizamabad, Vishakhapatnam, Warangal, Upper Subansiri, Dibang Valley, Bongaigaon, Chacher, Jorhat, Tinsukia, Bhagalpur, Kisanjanj, Muzaaffarpur, West Champaran, Bilaspur, Dantewada, Jashpur, Korba, Kanker, New Delhi, Ahmedabad, Junagarh Kachchh, Rajkot, Vadodara, Ambala, Faridabad, Gurgaon, Hissar, Sonapat, Kullu, Solan, Anantnag, Jammu, Bokaro, Palamu, Deoghar, Bhagalpur, Gumla, Koderma, Bangalore, Belagam, Bellary, Bijpur, Davangare, Hassan, Alappujha, Cannanore, Kollan Kozhikode, Palakkad, Chhindwara, Gwalior, Indore Jabalpur, Ujjain, Vidisha, Agmed Nagar, Aurangabad, Jalgaon, Kolhapur, Nagpur, Pune, Solapur, Aizawal, Kohima, Bofangir, Cuttack, Debagarh, Ganjans, Na barangapura, Puri, Sambalpur, Amritsar, Dhatinda Hosiapur, Kapurthala, Ludhiana, Moga, Patiala, Sangrur, Biharatpur, Bikaner, Junagarh, Gangnagar, Jodhpur, Kota, Pali Udaipur, Coimbatore, Dharampur, Erode, Thanjavur, Nagapattinam, Namakkal, Shivaganga, Tirunelveli, Tuticorin, Vellore Vallupuram, Tripura, Chamoli, Nainital, Pithoragarh, Agra, Ballia, Azamgarh, Bulandshahar, Sitapur, Aligarh, Farrukhabad Ghaziabad, Ghaziapur, Aligarh, Gorakhpur, G. B. Nagar, Jhansi, Kannauj, Kanpur, Soebhadra, Moradabad, Muzaaffarnagar Pratapgarh, Rae Bareilly, Tehri, Sitapur, Sultanpur Varanashi, Howrah, Burdwan(W), Darjeeling(W), Howrah, Jalpaiguri Cooch Behar, Purulia East Godawari, Cuddapah, Karim Nagar, Karim Nagar, Khammam, Krishna Nagar, Medak, Prakasam K.V.Rangareddy, Srikakulam Vizianagram, Papum Pare, East siang, Dibag Valley, West Kameng, Barpeta, Darrang Dhubri, Dibrugarh, Goalpara, Golaghat, Chacher, Karbi, Anglong, Kokrajhar, Lakhimpur, Marigaon, Nagaon Naibari, Sibsagar, Sonitpur, Araria, Jehanabad, Aurangabad, Banka, Kaimur, Begusara, Darbhanga, Gaya, Gopalganj, Jamui Jahanabad, Khagaria, Kaimur, Katihar, Madhubani, Muzer, Madhepura, Nalanda, Purnia, Rohtas, Samastipur, Kaimur, Katihar Munger, Madhepura, Nalanda, Purnia, Sheohar, Patna, Saran, Siupaul, Vaishali, Dantewada, Janjgir, Koriya, Raipur Mahasamund Rajnandgaon, Amreli, Anand, Banaskantha, Panchmahal, Jamnagar, Bharuch, Navsari Sabarkantha, Valsad, Bhiwani, Fatehabad, Jhajjar, Jind, Kurukshetra, Mahendragarh, Karnal, Rewari, Sirsa Faridabad, Bilaspur(HP), Kandra, Kinnaur, Lahul & Spiti, Mandi, Sirmaur, Baramulla, Doda, Kupwara, Leih, Poonch, Pulwama Rajouri, Udhampur, Hazaribagh, Dhanbad, Bhagalpur, Garhwa, Giridih, Aurangabad, Lohardaga, Pakur, Bokaro Chamrajnagar, Chitradurga, Dharward, Haveri, Kodagu, Kolar, Koppal, Mandya, Shimoga, Tumkur, Udipi, Mysore, Kolar Kasargod, Palakkad, Pathanamthitta, Thrissur, Wayanad, Karnal, Una, Jalandhar, Ajmer, Jaisalmer, Sawai, Madhopur, Kanchip uram, Shahjahanpur, Bankura, East Midnapore, East siang, Dhemaji, Sitamarhi, Raigarh, Bharuch, Guiburga Junagarh, Kamrup, Chamba, Mysore, Faridkot, Faridkot, Nawada, Gadag, Idukki, Chandigarh, Khandwa, Mayurbanj, Anantapur, Karimganj, Buxar, Saharsa, Surguja, Ambala, Hazaribagh, Kottayam
14.	M/s Natel Corporation	Tel	6 MHz	2.7 - 2.9 GHz	2839 MHz(TDD)	Guntur, Hyderabad, Vijaywada, Guwahati, Jamshe dpur, Patna, Ahmedabad, Rajkot, Gurgaon, Karnal, ernakulam, Tiruvalla Hubli, Mangalore, Mysore, Mumbai, Mahalaxmi, Borivali, Virar, Kalayan, Nagpur, Nasik, Panjim(Gao), Pune, Bhopal, Raipur Bhubneshwar, Chandigarh, Chandigarh, Ludhiana, Jaipur, Kota, Coimbatore, Madurai, Salem, Trichy, Kanpur, Lucknow Ghaziabad, Kolkata, New Delhi, Tuglakbad, Delhi Cantt, Delhi
15.	M/s Track on line Private limited	Private	1.75+1.75 MHz	3.3 - 3.4 GHz	3330.625/3380.625 MHz(FDD)	Mumbai, Chennai, Delhi, Bangalore

LIST OF ACRONYMS

S1 No.	Acronym	Description
1.	AGR	Adjusted Gross Revenue
2.	BWA	Broadband Wireless Access
3.	DoT	Department of Telecommunications
4.	FBG	Financial Bank Guarantee
5.	IMT	International Mobile Telecommunications
6.	ISP	Internet Service Provider
7.	LF	License Fee
8.	MW	Micro Wave
9.	SUC	Spectrum Usage Charges
10.	TSP	Telecom Service Provider
11.	UASL	Unified Access Service License
12.	UL	Unified License
13.	VSAT	Very Small Aperture Terminal
14.	WPC	Wireless Planning & Coordination Wing