

Please find below suggestions from ASSOCHAM

No	Questions	Comments
1	<p>What is the level of demand of the spectrum in the traditional microwave backhaul bands [viz. 6 GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, and 21 GHz bands] for radio backhaul purposes?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>India's per-site backhaul needs have grown over 20,000% since the early 2000s and are expected to rise 375x with expanding 5G deployment. Traditional microwave bands (13, 15, 18, 21 GHz) are critical and non-substitutable due to limited fiber reach and diverse network design needs. To meet rising mid-band spectrum demand and support national digital goals, allocating the unutilised 7 GHz band for IMT will support continuity in spectrum planning and enabling scalable 5G rollouts.</p>
2	<p>For which commercial telecommunication services should the spectrum in traditional microwave backhaul bands be assigned for radio backhaul purposes?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>With mobile broadband expanding, exclusive access to traditional microwave backhaul bands (13, 15, 18, 21 GHz) is vital for TSPs to ensure network quality and scalability, especially where fiber is unviable. Given the high investments made in access spectrum, denying TSPs assured, undiluted backhaul risks underutilization and service degradation. Policies must prioritize these bands exclusively for TSPs holding access spectrum under Access Service Authorization.</p>
3	<p>Which of the following methods should be used for the assignment of the spectrum in traditional microwave backhaul bands for radio backhaul purposes for various commercial telecommunication services:</p> <p>(a) Block-basis in LSA, (b) Point-to-point link-basis, or (c) Any other?</p> <p>Please provide a detailed response with justifications in respect of the relevant commercial telecommunication services.</p>	<p>Given the scale of mobile networks and India's limited fiber reach, both MWA and MWB spectrum should be assigned to TSPs holding access spectrum under Access Service Authorization, on a block basis across the LSA. This model enables faster, interference-free deployment, improves spectrum efficiency, and aligns with existing charging norms.</p>
4	<p>In case it is decided to use different methods (block-based, linkbased, or any other) for the assignment of the spectrum in traditional microwave backhaul bands for radio backhaul purposes for different types of commercial telecommunication services, what quantum of spectrum, and in which of 6 GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, and 21 GHz bands should be earmarked for point to-point link-based assignments?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>MWA spectrum should continue to be assigned in a technology and service neutral manner on an exclusive, LSA-wide basis to Access-authorized TSPs, and the same approach should be extended to MWB. P2P assignments in the lower 6 GHz band must be avoided due to its critical use for rural backhaul, and 7 GHz should be excluded from P2P use as it is under consideration for access spectrum in WRC-27.</p>
5	<p>What should be the terms and conditions for the assignment of spectrum in traditional microwave backhaul bands for radio backhaul purposes of various commercial telecommunication services, such as -</p> <p>(a) Carrier size; (b) Carrier aggregation; (c) Validity period of the assignment; (d) Renewal mechanism; (e) Roll-out obligations; and (f) Surrender of spectrum etc.?</p> <p>Kindly provide a detailed response with justifications. along with the international scenario on the matter.</p>	<p>To ensure continuity, efficiency, and ease of operations, the current framework for microwave backhaul spectrum should be retained? 28 MHz carrier size, allowance for aggregation, validity co-terminus with the time till which access services are being provided, no separate rollout obligations, and existing surrender guidelines. Any deviation could disrupt existing networks and reduce spectral efficiency.</p>
6	<p>Is there a need to prescribe ceilings on the number of carriers that can be assigned to a commercial telecommunication service provider in each frequency band [6 GHz (lower)/ 7 GHz/ 13 GHz/ 15 GHz/ 18 GHz/ 21 GHz] or in a group of frequency bands for radio backhaul purposes?</p> <p>Kindly provide a detailed response with justifications.</p>	
7	<p>In case it is decided to prescribe ceilings on the number of carriers that can be assigned to a commercial telecommunication service provider (TSP) for each frequency band or each group of frequency bands, -</p> <p>(a) Should there be any criterion for the ceiling on the number of carriers that may be assigned to a TSP? If yes, what should be the criteria? (b) In case of group of frequency bands, how should the bands be grouped? (c) What should be the respective ceilings for each frequency band, or each group of frequency band(s)? (d) Should there be any provision for assignment of spectrum above the ceiling limit on a case-by-case basis? If yes, what criterion should be prescribed, based on which, additional spectrum above the ceiling limit may be assigned to a telecom service provider?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>Given the availability of adequate spectrum, there should not be any ceilings in the traditional microwave backhaul bands i.e. 6/7 GHz, 13/15/18/21 GHz.</p>
8	<p>In the new policy regime for the assignment of spectrum, whether there is a need to grant an option to telecom service providers already holding carriers in traditional microwave backhaul bands to retain the existing carriers with them?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>TSPs must be allowed to retain their existing microwave carriers to avoid massive cost, service disruption to consumers for a prolonged period, and re-planning of network design and deployment across over 5 lakh deployed links. Forcing changes would risk service interruptions for millions, especially in low-fiber areas, undermine 4G/5G rollout, and tilt competitive parity. Stability and continuity in backhaul assignments are vital to protect consumer interest and support India's digital goals.</p>
9	<p>As the 7125-8400 MHz range in the 7 GHz band and the 14.8-15.35 GHz range in the 15 GHz band are being considered for IMT in WRC-27, whether there is a need to review the usage of 7 GHz and 15 GHz microwave backhaul bands at this stage itself, or should the review be undertaken after considering the outcome of WRC-27?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>The 7 GHz band holds strategic importance for future IMT use, including 6G, due to its mid-band characteristics, wide bandwidth support, and global harmonization potential. (excluding the utilised spots), while near-term backhaul needs are met through other traditional microwave bands. 15 GHz band has huge deployments by existing TSPs as such, it should be preserved for exclusive use as radio backhaul spectrum, even post-WRC-27. No reallocation or repurposing of 15 GHz band for IMT or unlicensed applications should be undertaken, given the critical dependency of national mobile infrastructure on this band.</p>
10	<p>In case it is decided to review the usage of 7 GHz and 15 GHz bands at this stage itself, what should be the policy framework for the assignment of the spectrum in 7 GHz and 15 GHz microwave backhaul bands to take care the possible outcomes of AI 1.7 of the WRC-27?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>Please see response to questions 4, 6, and 9.</p>
11	<p>Whether there is a need to earmark certain quantum of spectrum in traditional microwave backhaul bands for the last-mile connectivity (Fixed Wireless Access) to the customer equipment of commercial telecommunication services?</p> <p>Please provide a detailed response with justifications.</p>	
12	<p>In case it is decided to earmark certain quantum of spectrum in traditional microwave backhaul bands for the last-mile connectivity (Fixed Wireless Access) to the customer equipment of commercial telecommunication services, -</p> <p>(a) What quantum of spectrum, and in which of 6 GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, and 21 GHz bands should be earmarked for such purposes? (b) What should be the eligibility conditions to obtain the spectrum in traditional microwave backhaul bands for such purposes? (c) What should be the terms and conditions for the assignment of spectrum in traditional microwave backhaul bands for such purposes through auction such as- (i) Block size; (ii) Minimum quantity for bidding; (iii) Spectrum cap; (iv) Validity period of the assignment; (v) Roll-out obligations; (vi) Surrender of spectrum etc.?</p>	<p>Please see response to questions 4, 6, and 9.</p>

	<p>(d) Whether flexible use i.e., both backhaul connectivity, and last mile connectivity (fixed wireless access) to the customer equipment should be permitted in the frequency ranges earmarked for such purposes? If yes, should the terms and conditions of the auction of spectrum be the same as those applicable for the ?access spectrum??</p> <p>Kindly provide a detailed response with justification and international practice.</p>	
13	<p>Should a certain quantum of the spectrum in traditional microwave backhaul bands be earmarked for fulfilling point-to-point connectivity requirements of captive (non-commercial/ non-TSP) users? If yes -</p> <p>(a) What quantum of spectrum, and in which of 6 GHz (lower), 7GHz, 13 GHz, 15 GHz, 18 GHz, and 21 GHz bands should be earmarked for such purposes?</p> <p>(b) What should be the terms and conditions for the assignment of spectrum for such purposes, such as-</p> <p>(i) Carrier size;</p> <p>(ii) Carrier aggregation;</p> <p>(iii) Ceiling on the number of carriers;</p> <p>(iv) Validity period of the assignment;</p> <p>(v) Renewal mechanism;</p> <p>(vi) Criteria for the assignment of additional spectrum above the ceiling limit;</p> <p>(vii) Roll out obligations; and</p> <p>(viii) Surrender of the spectrum, etc.?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>No spectrum in traditional microwave backhaul bands should be earmarked for captive (non-commercial/non-TSP) users. Another option is to allow spectrum leasing framework for TSPs to lease spectrum to these captive user entities.</p> <p>Please see response to questions 4, 6, and 9.</p>
14	<p>In case your response to Q13 is ?no?, in what manner should the point-to-point connectivity requirements of captive (noncommercial/ non-TSP) users be fulfilled?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>Please see response to questions 13.</p>
15	<p>In case it is decided to assign the spectrum in traditional microwave backhaul bands on a point-to-point link basis to cater to point-to-point connectivity requirements of commercial telecommunication service providers as well as captive (non-commercial/ Non-TSP) users, whether there is a need to prescribe minimum link lengths (path lengths) in these bands? If yes, what should be the minimum link length for each of the traditional microwave backhaul bands?</p> <p>Kindly provide a detailed response with justifications.</p>	<p>Pls see response to questions 2 and 13</p>
16	<p>Considering that the Government has decided to delicense the 6 GHz (lower) band (5.925-6.425 GHz) for low power applications, whether there is any need to prescribe certain measures to provide necessary protection to incumbent users such as Fixed Microwave (backhaul) Services, Fixed Satellite Service (FSS) etc. operating in the 6 GHz (lower) band? If yes, which specific measures should be prescribed for this purpose?</p> <p>Kindly provide a detailed response with justifications.</p>	
17	<p>Any other suggestions relevant to the assignment of spectrum in 6 GHz (lower), 7 GHz, 13 GHz, 15 GHz, 18 GHz, and 21 GHz bands may kindly be provided with detailed justifications.</p>	<p>Please see response to questions 4, 6, 8, 9, and 16.</p>
18	<p>What is the level of demand of the spectrum in the E-band (71-76 GHz, and 81-86 GHz) for each of the service/ usage viz. ?Backhaul?, ?Access? and ?Integrated Access & Backhaul (IAB)?? Kindly provide a detailed response in respect of each service/ usage with justification including availability of technical standards and ecosystem</p>	
19	<p>What is the level of demand of the spectrum in the V-band (57-64/ 66 GHz) for each of the service/ usage viz. Backhaul, Access and IAB? Kindly provide a detailed response in respect of each service/ usage with justification including availability of technical standards and eco-system.</p>	
20	<p>For which commercial telecommunication services should the spectrum in E-band and V-band be assigned for radio backhaul purposes? Responses with detailed justifications may kindly be provided for E-band and V-band separately.</p>	<p>Please see response to question 19. It should be assigned only to access service providers</p>
21	<p>Which of the following methods should be used for the assignment of the spectrum in E-band and V-band for radio backhaul purposes for various commercial telecommunication services:</p> <p>(a) Block-basis in LSA;</p> <p>(b) Point-to-point link-basis; or</p> <p>(c) Any other?</p> <p>Responses with detailed justifications may kindly be provided for E-band and V-band separately in respect of the relevant commercial telecommunication services.</p>	<p>Please see response to question 19. It should be allotted on block-basis for entire LSA to the access service providers only.,</p>
22	<p>In case it is decided to use different methods (block-based, linkbased, or any other) for the assignment of the spectrum in E-band and/ or V-band for radio backhaul purposes for different types of commercial telecommunication services, how much spectrum in Eband and V-band should be earmarked for the point-to-point linkbased assignment for radio backhaul purposes for commercial telecommunication services? Responses with justifications may kindly be provided for E-band and V-band separately.</p>	<p>Please see response to question 19. It should be allotted on block-basis for entire LSA to the access service providers only.</p>
23	<p>What should be the terms and conditions for the assignment of the spectrum in the E-band for radio backhaul purposes of commercial telecom services such as-</p> <p>(i) Band plan;</p> <p>(ii) Carrier size;</p> <p>(iii) Carrier aggregation;</p> <p>(iv) Validity period of the assignment;</p>	<p>E-band spectrum should be assigned exclusively to TSPs with Access Service Authorisation, following the globally harmonized 71?76/81?86 GHz band plan. Key terms should include?250 MHz carrier size, carrier aggregation, validity 20 years or co-terminus with license (whichever is later), no roll-out obligations, and applicability of existing surrender guidelines, to ensure consistency and operational efficiency.</p>

	(v) Renewal mechanism; (vi) Surrender of the spectrum; (vii) Ceiling on the number of carriers (spectrum cap); (viii) Criteria for the assignment of additional spectrum above the ceiling limit; and (ix) Roll-out obligations etc.?	
	Kindly provide a detailed response with justifications.	
24	What frequency range (57-64 GHz, or 57-66 GHz) in the V-band should be adopted for radio backhaul purposes? In case you are of the opinion that the 57-66 GHz range should be adopted for radio backhaul purposes, considering that the 66-71 GHz range is already identified for IMT, whether there is a need for provisioning a guard band between the 57-66 GHz range (for the backhaul purposes) and the 66-71 GHz range (for IMT)? If yes, what should be the guard band?	Please see response to question 19.
	Kindly provide a detailed response with justifications.	
25	What should be the terms and conditions for the assignment of the spectrum in the V-band for radio backhaul purposes of commercial telecom services including the following aspects: (i) Band plan; (ii) Carrier size; (iii) Carrier aggregation; (iv) Validity period of the assignment; (v) Renewal mechanism; (vi) Surrender of the spectrum; (vii) Ceiling on the number of carriers (spectrum cap); (viii) Criteria for the assignment of additional spectrum above the ceiling limit; and (ix) Roll-out obligations etc.?	
	Kindly provide a detailed response with justifications	
26	In case it is decided to earmark a few carriers in E-band and/ or Vband for services/ usages as ?Access? and/ or ?Integrated Access & Backhaul (IAB)?, - (a) What quantum of spectrum in E-band and V-band should be earmarked for such services/ usages? (b) What should be the eligibility conditions to obtain the spectrum in E-band and V-band for such services/ usages? (c) What should be the terms and conditions for the assignment of spectrum in E-band and V-band through auction such as- (i) Block size; (ii) Minimum quantity for bidding; (iii) Spectrum cap; (iv) Validity period of the assignment; (v) Roll-out obligations; and (vi) Surrender of spectrum etc.? (d) Should flexible use [i.e., radio backhaul, and last mile connectivity (fixed wireless access) to the customer equipment] be permitted in frequency ranges earmarked in E-band and/ or V-band for such services/ usages? If yes, should the terms and conditions of the auction of spectrum be the same as those applicable for ?access spectrum?? Responses with detailed justifications and international practices may kindly be provided for E-band and V-band separately.	Please see response to question 19. No consensus
27	Whether there is a need for earmarking certain quantum of spectrum in E-band and V-band for point-to-point connectivity requirements of captive (non-commercial/ non-TSP) users? If yes,- (a) What quantum of spectrum in E-band and V-band should be earmarked for such purposes? (b) What should be the terms and conditions for the assignment of spectrum such as: (i) Carrier size; (ii) Carrier aggregation; (iii) Ceiling on the number of carriers; (iv) Validity period of the assignment; (v) Renewal mechanism; (vi) Criteria for the assignment of additional spectrum above the ceiling limit; (vii) Roll out obligations; and (viii) Surrender of the spectrum etc.?	No.
	Responses with detailed justifications may kindly be provided for E band and V-band separately.	Please see response to question 19.
28	In case your response to Q27 is ?no?, in what manner should the point-to-point connectivity requirements of captive (noncommercial/ non-TSP) users be fulfilled?	Please see response to question 19.
	Kindly provide a detailed response with justifications.	
29	Whether it is feasible to allow low power indoor consumer device-to-consumer device usages on a license-exempt basis in the V-band in parallel to the use of the spectrum by telecom service providers for the establishment of terrestrial networks in a part or full V-band? Kindly provide a detailed response with justification and international scenario.	
30	In case it is decided to allow low power indoor consumer device-to-device usages on a license-exempt basis in the V-band (57-64/66 GHz), - (a) Should it be permitted in the entire V-band or only in a portion of the V-band? If it should be permitted only in a portion of the V-band, please specify the frequency range. (b) In case it is decided to permit low power indoor consumer device-to-device usages on a license-exempt basis in the entire V-band, whether the 57-64 GHz range, or the 57-66 GHz range should be considered for such usages? (c) What should be the carrier size/ channel bandwidth? (d) What should be the definition of indoor usages? (e) What technical parameters should be prescribed, including EIRP limits for low power indoor consumer device-to-device usages?	Pls see response to question 29
	Kindly provide a detailed response with justifications and international scenario.	
31	Whether there is a need for permitting ?outdoor? usages of V-band on a license-exempt basis? Kindly provide a detailed response with justification and international scenario.	
32	If the response to the Q31 is in the affirmative, whether it is feasible to allow outdoor usages on a license-exempt basis in the V-band in parallel to the use of the	Pls see response to question 19 and 29

	<p>spectrum by telecom service providers for the establishment of terrestrial networks in a part or full V-band?</p> <p>Kindly provide a detailed response with justification and international scenario.</p>	
33	<p>In case it is decided to allow outdoor usages on a license-exempt basis in the V-band (57-64/ 66 GHz), -</p> <p>(a) Should it be permitted in the entire V-band or only in a portion of the V-band? If it should be permitted only in a portion of the V-band, please specify the frequency range.</p> <p>(b) In case it is decided to permit outdoor usages on a licenseexempt basis in the entire V-band, whether the 57-64 GHz range, or the 57-66 GHz range should be considered for such. usages?</p> <p>(c) What should be the carrier size/ channel bandwidth?</p> <p>(d) What technical parameters should be prescribed, including EIRP limits for low power indoor consumer device-to-device usages?</p> <p>Kindly provide a detailed response with justifications and international scenario.</p>	Not aligned. Pls see response to question 19 and 29
34	<p>Any other suggestions relevant to the assignment of the spectrum in E-band (71-76/ 81-86 GHz) and V-band (57-64/ 66 GHz) may kindly be made with detailed justifications.</p>	Please refer to the comments above..
35	<p>In case the 6 (lower)/7/13/15/18/21 GHz bands for radio backhaul of various commercial telecom services are assigned on a Point-to- Point (P2P) Link basis, should the spectrum charges be levied:</p> <p>i. As a percentage of Adjusted Gross Revenue (AGR), or</p> <p>ii. On a per carrier/link basis, or</p> <p>iii. Through any alternative mechanism (please specify)?</p> <p>Kindly provide a detailed justification for the approach considered most suitable, along with the suggested percentage of AGR or the applicable per link/ per carrier charge.</p>	Please see response to questions 2, 4, 6, 9, and 16. Spectrum in these bands should be allotted only to access service providers .
36	<p>In case the 6 (lower)/7/13/15/18/21 GHz bands for radio backhaul of various commercial telecom services are assigned on a block basis for the entire Licensed Service Area (LSA), should the spectrum charges be levied:</p> <p>i. As a percentage of Adjusted Gross Revenue (AGR), or</p> <p>ii. On a per MHz or per carrier basis, or</p> <p>iii. Through any alternative mechanism (please specify)?</p> <p>Kindly provide a detailed justification for the approach considered most suitable, along with the suggested percentage of AGR or the applicable per carrier/ MHz charge.</p>	Please see response to questions 2, 4, 6, 9, and 16. Spectrum in these bands should be allotted only to access service providers .
37	<p>In case it is decided to assign some frequency spectrum in 6 (lower)/7/13/15/18/21 GHz spectrum bands for last mile connectivity (Fixed Wireless Access) of commercial telecom services through auction, then:</p> <p>i. Should the auction determined price of other bands by using spectral efficiency factor serve as a basis of valuation for the above bands? If yes, which spectrum bands be related, what efficiency factor or formula should be used and what is the basis for the same? Please justify your suggestions.</p> <p>ii. If response to question (i) above is no, what other methodology may be used. Please justify your suggestions.</p>	Please see response to questions 4, 6, 9, and 16. Spectrum in these bands should be allotted only to access service providers .
38	<p>In case it is decided to assign some frequency spectrum in 6 (lower)/7/13/15/18/21 GHz spectrum bands for last mile connectivity (Fixed Wireless Access) of commercial telecom services through auction, then:</p> <p>i. Should the auction determined price of other countries in 6/7/13/15/18/21 GHz spectrum bands for last mile connectivity and/or IMT services serve as a basis of valuation of microwave bands for last mile connectivity? What methodology should be followed for using this auction determined price as a basis for valuation? Support your suggestions with justifications and country-wise auction data.</p> <p>ii. If the above approach is considered appropriate, should the international auction-determined prices be normalized to account for cross-country differences such as population, GDP, purchasing power parity (PPP), subscriber base, and other relevant factors? If so, should normalization be carried out by using the ratio of auction prices of spectrum bands within the same country to neutralize the impact of cross country differences? Alternatively, please suggest any other suitable normalization methodology that may be adopted in this context.</p> <p>iii. Apart from the approaches highlighted above which other valuation approaches may be adopted for the valuation of 6(lower)/7/ /13/15/18/21 GHz spectrum bands? Please provide detailed information.</p>	Please see response to questions 4, 6, 9, and 16. Spectrum in these bands should be allotted only to access service providers .
39	<p>What valuation methodology should be followed if it is decided to assign frequency spectrum in traditional microwave backhaul bands for flexible use (i.e. both backhaul connectivity and last mile connectivity) of commercial telecom services through auction?</p> <p>Please provide detailed justification</p>	Given limited revenue generating potential, the AGR based SUC charges must be rationalized with a uniform, nominal fee, and the current SUC escalation matrix should be removed.
40	<p>Should the spectrum charges for 6 (lower)/ 7/ 13/ 15/ 18/ 21 GHz bands for non-commercial/ captive backhaul use continue to be levied as per the $M \times C \times W$ formula specified in the DoT's order No. P-11014/34/2009-PP dated 11.12.2023? Is there a need to revise this formula by inclusion of additional factors, modifying slab/factor values etc.? If yes, please specify which additional factors should be included and what should be the revised slab/factor values?</p> <p>Please provide detail of the same alongwith justification.</p>	Please refer question/ answer 39
41	<p>If the answer to above question is no, whether an alternative charging mechanism should be adopted for levying spectrum charges for 6 (lower)/ 7/ 13/ 15/ 18/ 21 GHz bands for non-commercial/ captive backhaul use?</p> <p>Please provide detailed justification.</p>	Please refer question/ answer 39
42	<p>In case the E-band (71-76/ 81-86 GHz) is assigned for Radio backhaul purpose for various commercial telecommunication services and on a Point-to-Point (P2P) link basis, should the spectrum charges be levied:</p> <p>i. As a percentage of Adjusted Gross Revenue (AGR), or</p> <p>ii. On a per carrier/link basis, or</p> <p>iii. Through any alternative mechanism (please specify)?</p> <p>Kindly provide a detailed justification for the approach considered most suitable, along with the suggested percentage of AGR or the applicable per carrier/link charge.</p>	Please refer question/ answer 39
43	<p>In case the E-band (71-76/ 81-86 GHz) is assigned for Radio backhaul purpose for various commercial telecommunication services and on a block basis for the entire Licensed Service Area (LSA), should the spectrum charges be levied:</p> <p>i. As a percentage of Adjusted Gross Revenue (AGR), or</p> <p>ii. On a per MHz or per carrier basis, or</p>	Please refer question/ answer 39

	<p>iii. Through any alternative mechanism (please specify)?</p> <p>Kindly provide a detailed justification for the approach considered most suitable, along with the suggested percentage of AGR or the applicable per MHz/per carrier charge.</p>	
44	<p>In case the V-band (57-64/66 GHz) is assigned for Radio backhaul purpose for various commercial telecommunication services and on a Point-to-Point (P2P) link basis, should the spectrum charges be levied:</p> <p>i. As a percentage of Adjusted Gross Revenue (AGR), or</p> <p>ii. On a per carrier/link basis, or</p> <p>iii. Through any alternative mechanism (please specify)?</p> <p>Kindly provide a detailed justification for the approach considered most suitable, along with the suggested percentage of AGR or the applicable per carrier/ link charge.</p>	Please refer question/ answer 39
45	<p>In case the V-band (57-64/66 GHz) is assigned for Radio backhaul purpose for various commercial telecommunication services and on a block basis for the entire Licensed Service Area (LSA), should the spectrum charges be levied:</p> <p>i. As a percentage of Adjusted Gross Revenue (AGR), or</p> <p>ii. On a per MHz or per carrier basis, or</p> <p>iii. Through any alternative mechanism (please specify)?</p> <p>Kindly provide a detailed justification for the approach considered most suitable, along with the suggested percentage of AGR or the applicable per MHz/per carrier charge.</p>	Please refer question/ answer 39
46	<p>In case it is decided to assign some frequency spectrum in E-band (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for Access (last mile connectivity)/ Integrated Access Backhaul (IAB) through auction, then:</p> <p>(i) Should the auction determined price of other bands serve as a basis of valuation for the above bands using spectral efficiency factor? If yes, which spectrum bands be related, what efficiency factor or formula should be used and what should be the basis for the same? Please justify your suggestions</p> <p>(ii) If response to question (i) above is no, what other methodology may be used? Please justify your suggestions.</p>	Please refer question/ answer 39
47	<p>In case it is decided to assign some frequency spectrum in E-band (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for Access (last mile connectivity)/ Integrated Access Backhaul (IAB) through auction, then:</p> <p>i. Should the auction determined price of other countries in Eband (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) serve as a basis of valuation of these bands? If yes, what methodology should be followed for using this auction determined price as a basis for valuation? Support your suggestions with justifications and country-wise auction data.</p> <p>ii. If the above approach is considered appropriate, should the international auction-determined prices be normalized to account for cross-country differences such as population, GDP, purchasing power parity (PPP), subscriber base, and other relevant factors? If so, should normalization be carried out by using the ratio of auction prices of spectrum bands within the same country to neutralize the impact of cross country differences? Alternatively, please suggest any other suitable normalization methodology that may be adopted in this context.</p> <p>iii. Apart from the approaches highlighted above which other valuation approaches should be adopted for the valuation of Eband (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz)?</p> <p>Please provide detailed information.</p>	Please refer question 39
48	<p>In case it is decided to assign some frequency spectrum in E-band (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for point-to-point connectivity requirements of captive (non-commercial/ non-TSP) users, then:</p> <p>(i) Should the spectrum charges for E-band (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for point-to-point connectivity requirements of captive (non-commercial/ non-TSP) users may be levied as per the $M \times C \times W$ formula as specified in the DoT's order No. P-11014/34/2009-PP dated 11.12.2023? Is there a need to revise this formula by inclusion of additional factors, modifying slab/ factor values etc.? If yes, please specify which additional factors should be included and what should be the revised slab/ factor values. Please provide detail of the same along with justification.</p> <p>(ii) If the answer to above question is no, whether an alternative charging mechanism such as link to link charges as recommended in 2014 for levying spectrum charges for E and V bands for non - commercial/ captive backhaul use, should be adopted? Please provide detailed justification.</p>	Please refer question/ answer 39
49	<p>In case it is decided to assign some frequency spectrum in 6 (lower)/ 7/13/15/18/21 GHz spectrum bands for last mile connectivity (Fixed Wireless Access) of commercial telecom services and in Eband (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for Access (last mile connectivity)/ Integrated Access Backhaul(IAB) through auction, then:</p> <p>Should the value of:</p> <p>(a) 6 (lower)/7/13/15/18/21 GHz bands (for last mile connectivity)</p> <p>(b) E-band (71:76/81:86 GHz) and V-band (57:64/ 66 GHz) (for Access (last mile connectivity)/IAB) be determined using a single valuation approach? If yes, please indicate which single valuation approach or method should be adopted in each case and provide detailed justification</p>	Please refer question/ answer 39
50	<p>In case your response to the above question is negative, will it be appropriate to take the average valuation (simple mean) of the valuations obtained through the different approaches attempted for valuation of the above spectrum bands, or some other approach like taking weighted mean etc. should be followed?</p> <p>Please support your answer with detailed justification.</p>	. Please refer question/ answer 39
51	<p>In case it is decided to assign some frequency spectrum in 6 (lower)/ 7/13/15/18/21 GHz spectrum bands for last mile connectivity (Fixed Wireless Access) of commercial telecom services and in Eband (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for Access(last mile connectivity)/ Integrated Access Backhaul (IAB) through auction, then:</p> <p>What ratio should be adopted between the reserve price for the auction and the valuation of the spectrum in:</p> <p>(a) 6 (lower)/7/13/15/18/21 GHz bands (for last mile connectivity)</p> <p>(b) E-band (71:76/81:86 GHz) and V-band (57:64/ 66 GHz) (for Access (last mile connectivity)/IAB) and why? Please support your answer with detailed justification.</p>	. Please refer question/ answer 39
52	<p>In case it is decided to assign some frequency spectrum in 6 (lower)/ 7/13/15/18/21 GHz spectrum bands for last mile connectivity (Fixed Wireless Access) of commercial telecom services and in E-band (71-76/ 81-86 GHz) and/or V-band (57-64/ 66 GHz) for Access(last mile connectivity)/ Integrated Access Backhaul (IAB) through auction, then:</p> <p>What should the payment terms and associated conditions for the assignment of</p> <p>(a) 6 (lower)/7/13/15/18/21 GHz bands (for last mile connectivity)</p>	.Please refer question/ answer 39

	(b) E-band (71?76/81?86 GHz) and V-band (57?64/66 GHz) (for Access (last mile connectivity)/IAB) relating to: i. Upfront payment ii. Moratorium period iii. Total number of instalments to recover deferred payment iv. Applicable interest rate for protecting the NPV of bid amount Please support your answer with detailed justification.	
53	Any other suggestions relevant to the subject may be submitted with detailed justification.	Please refer question/ answer 39