

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

Question #	Paragraph #	Question
1	59	Are the technical considerations in the 57-64 GHz band fully applicable to deployment of unlicensed use in the 64-71 GHz band recognizing that unlicensed devices must protect allocated services including future systems?
2	59	What additional technical and operational characteristics as well as interference mitigation techniques of the anticipated unlicensed use for this band need to be considered in assessing sharing with in-band and adjacent band incumbent services?
3	66	We invite parties who are interested in mobile use of the 24 GHz band to comment on our analysis.
4	66	Are there circumstances under which this band (24 Hz) could be successfully used for the type of mobile systems, or other systems, contemplated for the mmW bands?
5	66	Are there ways of allowing widespread deployments while protecting BSS feeder links?
6	66	We ask commenters who support further consideration of this band to provide specific suggestions for addressing the issues we have identified above.
7	66	Interested parties should also comment on the services that would likely be deployed in this band given the issues implicated and the possible viable business models.
8	66	In those areas where there are incumbent fixed licenses, should we grant mobile rights to the incumbent fixed licensees?
9	66	Would licensed or unlicensed rights be best for making this spectrum available and for facilitating coexistence?
10	66	Are there rule changes that can be made to promote backhaul or other fixed uses?
11	80	In light of the competing proposals for use of this band, we seek comment on the relative merits of using this band (42-42.5 GHz) for FSS, fixed, or mobile use, or the ability to share among these different uses. What sort of services would be offered using this band?
12	80	We also ask commenters to analyze how the need to protect radio astronomy in the 42.5-43.5 GHz band affects the viability of this band for the services they support.
13	80	We also seek comment on the extent to which different services could share in this band, and what sharing mechanisms, if any, would be appropriate.
14	87	We seek comment, however, on whether the Commission should revisit its 2003 decision not to allow Part 15 operations in these bands, <sup>206</sup> and if so, what specific bands we should consider for Part 15 operations (or for licensed use) and how such operations in those bands would be compatible with existing fixed operations, as well as Federal earth stations and radio astronomy operations.
15	87	If we authorized sharing between fixed and mobile systems, what would the sharing mechanism look like and how should it be administered?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

16	87	What type of mechanisms would we need to establish to ensure there is no harmful interference?
17	91	We invite other interested parties to submit other proposals (above 86 GHz), including proposals for authorizing use under our Part 15 rules.
18	94	We seek comment on this proposal(geographic area licensing approach).
19	96	We accordingly seek comment on the proposal to award mobile operating rights to existing LMDS and 39 GHz licensees, and the costs and benefits of so doing.
20	97	In particular, we seek comment on the costs and benefits of establishing an overlay right that would allow new licensees flexibility in use, subject to noninterference with the incumbent licensees.
21	98	We invite commenters to address these and related other issues that will help us identify the most efficient means for assigning these new, flexible use rights consistent with our obligations under Section 309(j) of the Communications Act, especially in geographic areas and in spectrum that currently has incumbent licensees.
22	98	We ask commenters to provide data on the costs and benefits associated with each approach.
23	100	We therefore seek comment on a hybrid licensing scheme that would convey licensed “local area” operating rights to premises occupants by rule, and separately geographic area licenses for wide area use.
24	100	We also seek comment on variations on this proposal as discussed below.
25	100	Because this mode of licensing would not exhaustively license all geography, we seek comment on ways to establish geographic area licenses for wide area use.
26	100	We also seek comment on the proper regulatory relationship between the two categories of licenses.
27	102	We seek comment on how to define “local area” for these purposes (37 GHz band).
28	102	If we limit operations to indoor only, what applications would be precluded by limiting devices to indoor use only?
29	102	What consideration should be given to the tradeoffs between these factors? Should the rule convey rights to property owners?
30	102	If so, should the rights apply equally to private and public property?
31	102	Should we explicitly exclude outdoor “public spaces” (e.g., streets, parks)?
32	102	Should we allow those rights to be conveyed through standard instrumentalities of state law (e.g., as part of a standard property lease) or should we establish special rules governing conveyance of these operating rights?
33	102	Alternatively, should the usage rights automatically attach to the current lawful occupant of a property (i.e., tenants)?
34	102	Should the rights be conveyed only for indoor uses or should outdoor uses (e.g., courtyards, campus environments) also be authorized?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

35	102	Should the rule relate to the deployment of network facilities (e.g., a right to deploy base stations or access points in the local area) or more broadly to RF protections (e.g., a right to quietude in the local area)?
36	102	Should the local area operating rights only apply to facilities exceeding some minimum size?
37	103	We seek comment on this proposal (wide area rights in the 37 GHz band be defined as area licenses assigned through auction).
38	103	We seek comment below on the appropriate license area size.
39	104	We seek comment on the RF coexistence of local area and wide area deployments, and how the coexistence should affect the definition of and relationship between the two classes of rights.
40	104	Specifically, we seek technical comment on the propagation of this spectrum through typical building materials, and to what extent modern building materials used in energy-efficient construction affect attenuation outside of the building.
41	104	We seek comment on whether, to distinguish the rights between the use cases and facilitate coexistence through licensing rights, one of the two categories of licensees should have the right to assert claims of harmful interference against the other?
42	104	Or should it be presumed that any licensee operating within the rules will be on equal footing with any other and every user would have a duty to coordinate with its neighbors?
43	104	Could relatively lower authorized power limits for local area users minimize the interference risks to wide area users?
44	104	Conversely, could “self-help” remedies (e.g., RF shielding) protect local area users from higher power wide area network transmissions?
45	105	We seek comment on this alternative proposal (dividing the 37 GHz Band into several blocks and assign some of these blocks by rule for local area uses).
46	113	We seek comment on alternative geographic area sizes that could be used as the basis for licensing spectrum in these bands.
47	113	For 28 GHz and 39 GHz, should we maintain the existing larger license areas of BTAs or EAs, respectively?
48	113	Would maintaining the existing license areas provide any advantages in facilitating deployment of those bands?
49	113	We also seek comment on license areas historically used by the Commission such as PEAs, census blocks, or block groups.
50	113	We also seek input from FSS operators on the appropriate license area size that would accommodate their participation in the market-based mechanism described below to accommodate potential further FSS use of these bands. <sup>2</sup>
51	113	Balancing the need for sufficient geographic separation and license areas that are not unnecessarily large, are counties an appropriate license size for potential FSS use, or would smaller or larger license areas be more appropriate?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

52	113	We ask commenters to discuss and quantify the economic, technical, and other public interest considerations of licensing these bands using the particular geographic area they advocate.
53	116	We seek comment on our proposed band plans for the 28 GHz, 37 GHz, and 39 GHz bands.
54	116	Should we consider subdividing this band into multiple channels, and if so, how?
55	116	Proponents of subdividing the band should provide analyses showing that multiple operators could provide service in the band.
56	117	We seek comment on this proposal (using the existing 39 GHz band plan), as well as proposals for larger channels.
57	117	What is the cost of adopting a channel scheme that might vary between the current licenses and new initial licenses issued by competitive bidding (i.e., if the current licenses continue to follow the current band plan, but the newly created licenses subject to auction have a different band plan)?
58	117	We also seek comment on Straight Path's proposal to allow incumbent licensees to exchange licenses within a market so that incumbents can obtain contiguous spectrum.
59	118	We also seek comment on a band plan for the 37 GHz band.
60	118	We seek comment on alternative(37 GHz) band plans.
61	118	Commenters should address how their preferred plans would support a wide variety of services while maximizing access to spectrum.
62	122	We seek comment on our proposal to adopt a 10-year license term, including any costs and benefits of the proposal.
63	122	We also seek comment on whether licensees should receive a renewal expectancy for subsequent license terms if they continue to provide at least the level of service required at the end of their initial license terms through the end of any subsequent license terms.
64	122	In addition, we invite commenters to submit alternate proposals for the appropriate license term, which should similarly include a discussion on the costs and benefits.
65	122	Would a five year term for these bands be appropriate under a similar rationale?
66	138	Recognizing the services' status in the U.S. Table of Allocations, what is the extent to which mobile and FSS can coexist in a shared (28 GHz) environment?
67	138	Technically, to what extent do FSS providers anticipate that their operations may cause interference to mobile services?
68	138	In the event that parties believe there are issues of coexistence that cannot be resolved through direct discussions between the mobile and FSS operations, are there regulatory approaches that could facilitate coexistence between the two services without having a negative impact on future mobile deployment?
69	139	We therefore seek comment on the same issues of interference and facilitating co-existence for this (28 GHz sharing) proposal as we did for that other proposal.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

70	140	We seek comment on the following mechanism for upgrading existing FSS earth stations located outside the service area of an active LMDS license.
71	141	In commenting on this mechanism, we ask parties to address the following issues. First, what criteria should we use for determining that an earth station is in operation and providing service?
72	141	Second, what license area should we use for licenses offered to the FSS licensees in a potential closed filing window?
73	141	Is a census tract the appropriate area size license to award?
74	141	Are there circumstances under which an FSS operator may need to acquire a larger license area in order to avoid interference?
75	141	Third, would it serve the public interest to set up a process to allow, through a market-based approach or otherwise, future earth stations in the same license area?
76	142	We also seek comment on alternative mechanisms of upgrading FSS earth stations that are not within the service area of an LMDS licensee to co-primary status. Commenters should keep in mind that there appear to be advantages to adopting a flexible licensing framework that results in FSS operators holding Upper Microwave Flexible Use licenses.
77	146	Are there additional criteria we should consider in evaluating (28 GHz earth station secondary status) waiver requests?
78	146	Are there other ways of evaluating such requests?
79	147	We also seek comment on several possible technical mechanisms by which (28 GHz) sharing could be implemented.
80	149	In this section, we seek comment on several possible ideas for facilitating the deployment of FSS user equipment on a secondary basis. We seek comment on these ideas, as well as alternative ideas commenters wish to present. To the extent commenters believe a proposal will impose undue burdens, we encourage those commenters to describe the burden in detail and to provide detailed information on the costs involved. We also encourage commenters to discuss how these proposals would affect a variety of use cases for the mmW bands, including fixed, mobile, and satellite uses.
81	149	We also seek comment on the extent to which private agreements between FSS operators and terrestrial licensees could facilitate sharing.
82	149	Should we allow private agreements to supplement or replace any regulatory mechanisms we might establish to facilitate sharing?
83	149	Could private agreements render rules unnecessary in this area?
84	153	We seek comment on these (SAS) proposals.
85	155	We seek comment on the feasibility and desirability of this alternative (beacon signals) approach.
86	155	Would it be technically and economically feasible for 28 GHz Upper Microwave Flexible Use Service licensees to provide, and for FSS operators to use, the information provided by a beacon signal?
87	155	Would this approach be more or less burdensome for Upper Microwave Flexible Use Service licensees than establishing an SAS?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

88	155	Is there a risk that transmitting a beacon signal could cause interference in its own right?
89	155	Finally, how burdensome to require 28 GHz terrestrial licensees to provide technical information on their stations' characteristics concurrently via an SAS and by signal beacons, and would such requirements provide any added assurance that FSS stations would not interfere with terrestrial operations?
90	156	To what extent could angular separation protect the mobile user equipment that communicates with those base stations?
91	156	To what extent could angular separation protect fixed backhaul, since point-to-point links may require a variety of elevation angles?
92	157	We seek comment on the possibility that active signal cancellation could be used to limit the extent of interference between satellite and terrestrial operations.
93	158	Is such a (signal cancelling technology) concept feasible and workable?
94	158	Since FSS user equipment transmissions would be secondary in the band, would it be reasonable to require Upper Microwave Flexible Use Service licensees to generate countervailing suppression signals?
95	158	How would those burdens compare to the other benefits they would be receiving if the Commission upgrades their licenses to allow mobile operations?
96	159	We invite comments to guide our deliberations in developing those (satellite sharing) provisions.
97	160	We seek comment on three issues relating to FSS use of the 37.5-40 GHz band. First, we seek comment on whether we should make any changes to our treatment of gateway earth station applications in this band.
98	160	Second, we seek comment on whether it would be reasonable to eliminate the prohibition against ubiquitous deployment of space-to-Earth user equipment in that band.
99	160	Third, we seek further comment on allowing satellite operators in this band to increase the intensity of their PFDs above existing limits during heavy rain storms, subject to the provisions discussed below.
100	161	Under our rules, however, gateway earth stations may only be deployed if the FSS licensee obtains a 39 GHz license in the area where the earth station will be located, or if it enters into an agreement with the corresponding 39 GHz licensee. <sup>303</sup> We seek comment on whether we need to update this rule to reflect the Upper Microwave Flexible Use Service we are proposing today.
101	161	Are there any other changes we should consider to this rule?
102		In the 28 GHz band, we are seeking comment on establishing a waiver process by which non-Federal FSS earth stations could acquire co-primary status in those areas where there is no LMDS licensee if they can demonstrate that they would not have a negative impact on future terrestrial service. <sup>3</sup>
103	162	We seek comment on establishing a similar waiver process for non-Federal FSS earth stations in the 37.5- 40 GHz band.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

104	162	Does the fact that this band is space-to-Earth require any changes to the proposed waiver process?
105	163	With regard to reception of space-to-Earth signals by user equipment in this band, ViaSat argues that opportunistic access to this spectrum would be useful and appropriate for satellite operators, provided that they also have reliable access to a base of spectrum in other bands that are dedicated to satellite operations on a primary basis, where satellites will always be able to operate on an unimpeded basis. <sup>306</sup> Do other parties see potential value in this possible opportunistic use?
106	163	We seek comment on whether the concepts that we have discussed with respect to fixed satellite user equipment in the 28 GHz band could be applied to the 37.5-40 GHz band with respect to non-Federal FSS users.
107	163	Should we require satellite operators to demonstrate that they will have access to such dedicated spectrum before they begin space-to-Earth operations in the 37.5-40 GHz band on an opportunistic basis?
108	163	Would such a requirement help prevent disruptions to consumers when deployment of nearby terrestrial service would preclude continued reception of satellite signals in the 37.5-40 GHz band?
109	163	Does the potential availability of terrestrial service alternatives under these circumstances suggest that it will not be necessary to require non-Federal satellite operators to have complementary access to primary satellite spectrum?
110	164	As in the 27.5-28.35 GHz band, we seek comment on authorizing the provision of stationary non-Federal FSS user equipment in the 37.5-40 GHz band, as we propose to adopt service rules authorizing terrestrial mmW mobile operations in this band.
111	164	We invite comments on our proposal and alternatives with respect to this band.
112	165	Finally, we invite comments on the terms and conditions under which satellite operators should be allowed to increase their PFDs in the 37.5-40 GHz band to overcome rain-fade conditions, as the Commission proposed earlier in the V-Band Third FNPRM.
113	165	In particular, we invite commenters to propose means by which satellite operators might be able to discern the conditions under which terrestrial operations would be shielded by the same rain storms that are affecting satellite earth stations and, thus, would not necessarily experience interference if a satellite operator were to raise its PFD.
114	165	We also seek to identify means by which satellite operators could discern when the affected terrestrial operators would not be shielded from increased satellite PFD and would experience elevated levels of interference.
115	165	Could satellite operators use weather radar data to determine when satellite PFD adjustments are needed and when terrestrial systems would also be affected by rain fade?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

116	165	Is there commercially available equipment that would enable terrestrial operators to determine when they are experiencing elevated levels of interference from satellite signals, and to differentiate that source of interference from the rain-fade conditions that might be causing nearby satellite earth stations to request increased PFD from the satellite?
117	165	If so, we request comment on the feasibility of establishing automatic, real-time linkages between satellite and terrestrial operators so that their equipment can coordinate their strategies to overcome interference from natural causes and from each other.
118	167	In addition, we seek comment on whether the future mmW technologies might be able to support a platform that could enable expanded sharing, including two-way shared use between Federal and non-Federal users in these bands and sharing among different types of service platforms.
119	167	For instance, could the future mmW technology be used to support convergence of historically different network topologies beyond just mobile, fixed, and satellite, to include air-to-ground or ground-to-air, high altitude uses, or other uses?
120	167	Could the same benefits of mmW technology that help facilitate different users and use cases also support increased sharing between Federal and non-Federal uses in the non-Federal portions of these bands?
121	169	We seek comment on whether the existing allocation provisions are sufficient to ensure coexistence between Federal and non-Federal operations.
122	169	We seek comment on appropriate protections for Federal operations in the 39.5-40 GHz band.
123	169	What considerations should we keep in mind as we develop service rules for the 37.5-40 GHz band?
124	169	What are the appropriate principles and mechanisms we should use to ensure protection of Federal operations and coexistence with commercial operations?
125	169	Are any limitations or special rules on mobile use necessary in order to protect Federal military FSS use of the 39.5-40 GHz band?
126	169	Are there any additional measures needed in terms of Out-of-Band (OOBE) limits that are needed to protect federal MSS and FSS downlink operations in the adjacent 40-40.5 GHz band?
127	172	We seek comment on appropriate protections for Federal operations in the 37 GHz band.
128	172	. What considerations should we keep in mind as we develop service rules for the 37 GHz band?
129	172	What are the appropriate principles and mechanisms we should use to ensure protection of Federal operations and coexistence with commercial operations?
130	176	We seek comment whether any special protections are necessary or appropriate for passive services below 37 GHz.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

131	176	As noted, EESS and space research operations are not entitled to interference protection from duly authorized Fixed and Mobile Services. Nonetheless, we seek comment on whether there are steps we could take to protect those operations without unduly limiting fixed and mobile operations in the 37 GHz band.
132	176	For example, would setting the lower edge of the 37 GHz band at 37.1 GHz, thus creating a 100 megahertz guard band, be helpful?
133	176	Is it practical to establish a stricter out- of-band emission limit at the lower edge of the 37 GHz band?
134	176	We also seek comment on whether any special protections are needed to protect radio astronomy operations in the 36.43-36.5 GHz band, which is entitled to interference protection.
135	177	We seek comment on these(Upper Microwave Flexible Use Service) proposals.
136	178	While there may be administrative advantages to keeping LMDS and the 39 GHz service in Part 101, we believe establishing a new rule part would provide more clarity and more accurately reflect the nature of these licenses. We ask commenters to offer their views.
137	178	Is a new rule part appropriate?
138	178	Should the services remain in Part 101?
139	178	Alternatively, would placing these services in Part 27 of the Commission's rules be an option?
140	184	We seek comment on this( regulatory status) proposal.
141	188	We request comment on this(foreign ownership/Section 310) proposal, including any costs and benefits.
142	191	We seek comment generally on how to address any mobile spectrum holdings issues involving the bands proposed for the new radio service in order to meet our statutory requirements and our goals for these bands.
143	191	We seek comment on whether to adopt a band-specific spectrum holding limit in the licensing of these spectrum bands through competitive bidding, either for individual bands or a combination of these bands, and ask commenters to consider the costs and benefits of any such limits.
144	192	We seek comment on our proposed approach not to include these bands in the spectrum screen.
145	192	We therefore are disinclined to include these spectrum bands in the spectrum screen and seek comment on this proposed approach.
146	202	Accordingly, we are proposing a smaller coverage requirement than we have recently applied in other lower frequency bands. We seek comment on applying performance requirements at the county level
147	202	Is there another more appropriate geographic unit we should use for evaluating compliance with performance requirements?
148	205	With this in mind, we seek comment on the appropriate type of metric to be used in evaluating buildout in the mmW bands. Is it feasible and appropriate to develop a unified metric combining fixed, mobile, and satellite service?
149	205	If so, what is the best way to define that metric?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

150	206	We seek comment on whether such a population- based approach would be appropriate for the Upper Microwave Flexible Use service.
151	206	We also seek comment on the alternative of using an area-based metric.
152	207	Under this methodology if a licensee provides coverage to a census block or multiple census blocks that have a total population equal to 40% of the population of the county the licensee would be deemed to meet the performance requirement and would retain the license for the entire county. We seek comment on this methodology or whether, alternatively, we should use some other methodology for determining coverage.
153	207	We also seek comment on what engineering methodology would be appropriate to ensure consistent measurement of service area across different network topologies and technologies.
154	209	Alternatively, is there some other method to normalize performance measurement so that it applies consistently to both fixed and mobile network deployments?
155	209	For example, is it possible to assign some sort of population-based metric or area-based metric to a fixed-point-to-point link?
156	209	What factors would be appropriate to consider in assigning a population or area to a fixed link (e.g., population in or near the location of the link, interference contour around the link)?
157	209	Are there other non-population based technical metrics that should be considered in measuring performance (e.g., use of services associated with the link, capacity of the link)?
158	209	Is there some metric other than population, land area, or number of links that we should consider?
159	210	We also seek comment on the possible alternative of having a separate performance requirement for fixed services.
160	210	We seek comment on the advantages and disadvantages of adopting a performance benchmark for fixed services based on the number of links compared to the population in a licensee's service area.
161	210	We also seek comment on how we would reconcile performance requirements that vary depending on the type of service provided to ensure the spectrum is being put to use.
162	211	As noted above, we are seeking comment on means of facilitating sharing between terrestrial licensees in the 28 GHz, 37 GHz, and 39 GHz bands and FSS operators.
163	211	We seek comment on whether it would be possible to incorporate satellite operations into a unified engineering metric.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

164	211	As noted above, we are seeking comment on means of facilitating sharing between terrestrial licensees in the 28 GHz, 37 GHz, and 39 GHz bands and FSS operators. <sup>381</sup> We seek comment on whether it would be possible to incorporate satellite operations into a unified engineering metric. If we do not develop a unified metric, we propose that a FSS operator holding an Upper Microwave Flexible Use license used in association with an earth station be required to demonstrate that the earth station is in operation and providing service. We seek comment on what factors we should consider in determining whether the earth station is providing service. Should we use the same criteria we listed above?
165	211	If we do not develop a unified metric, we propose that a FSS operator holding an Upper Microwave Flexible Use license used in association with an earth station be required to demonstrate that the earth station is in operation and providing service. We seek comment on what factors we should consider in determining whether the earth station is providing service.
166	211	Should we use the same criteria we listed above?
167	213	We seek comment on this (performance milestone) proposal.
168	213	We seek comment on whether this calibration should represent the land area encompassing approximately 40 percent of population for the average U.S. county or whether it should be calibrated separately for each county in the United States.
169	213	If we adopt separate benchmarks for fixed operations, we seek comment on what those benchmarks should be.
170	213	We seek comment on whether this calibration should represent the land area encompassing approximately 40 percent of population for the average U.S. county or whether it should be calibrated separately for each county in the United States. If we adopt separate benchmarks for fixed operations, we seek comment on what those benchmarks should be. We also seek comment on adopting a special rule that FSS licensees using Upper Microwave Flexible Use licenses in connection with FSS earth stations would be required to show that the associated earth station was in operation and providing service. We seek comment on these proposals, as well as alternatives.
171	213	We seek comment on whether this calibration should represent the land area encompassing approximately 40 percent of population for the average U.S. county or whether it should be calibrated separately for each county in the United States. If we adopt separate benchmarks for fixed operations, we seek comment on what those benchmarks should be. We also seek comment on adopting a special rule that FSS licensees using Upper Microwave Flexible Use licenses in connection with FSS earth stations would be required to show that the associated earth station was in operation and providing service. We seek comment on these proposals, as well as alternatives.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

172	213	We also seek comment on adopting a special rule that FSS licensees using Upper Microwave Flexible Use licenses in connection with FSS earth stations would be required to show that the associated earth station was in operation and providing service.
173	213	We seek comment on these proposals, as well as alternatives.
174	214	We seek comment on this (buildout penalty) proposal. Are there any alternative penalties that may be appropriate?
175	214	Are there any alternative penalties that may be appropriate?
176	216	We seek comment on this (Use-or-Share Obligation) proposal, including the costs and benefits.
177	217	We also seek comment on establishing a specific framework for sharing.
178	217	How should we define “unused spectrum” for these purposes (or conversely, how would we define “use” for these purposes)?
179	217	We have previously proposed that licensees be required to make available information on their proposed facilities. Would that information be sufficient to provide information on what constituted “unused spectrum?”
180	217	What would be the best way to define and determine what areas were unused?
181	217	Should we adopt technical criteria for determining when spectrum is used?
182	217	If so, what are the appropriate criteria?
183	217	Should shared use be authorized on a licensed basis or under Part 15 of the Commission’s rules?
184	217	What mechanism should be used to maintain sharing boundaries and prevent harmful interference?
185	217	Would an SAS be the best means of administering a sharing mechanism, or should the Commission adopt some other coordination mechanism?
186	217	We seek comment on these and all other issues associated with establishing a sharing framework.
187	218	We seek comment on what requirements we should apply in the Upper Microwave Flexible Use Service after a licensee makes a performance showing after its initial license term.
188	218	As technology develops for these bands, should we require licensees to make more stringent construction showings after the initial license term?
189	218	If so, what should those additional requirements be, and when should they apply?
190	218	If a licensee substantially reduces service after making its initial buildout showing, should it be subject to penalties over and above the obligation to share spectrum?
191	218	Are there other requirements we should impose in order to ensure that spectrum continues to be put in use?
192	218	For instance, should we require a performance showing, even using the exact same metric, at some regular interval after the initial performance deadline?
193	219	We seek comment on this (incumbent license treatment) proposal.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

194	219	Alternatively, we seek comment on allowing current licensee to meet their performance requirements under the current rules at some earlier date, for example 2018.
195	220	Therefore, we also seek comment on alternative approaches we might take to ensuring deployment and spectrum utilization, as well as the costs and benefits of adopting any of those approaches.
196	221	First, we seek comment on whether the consecutive license concept discussed below would provide strong incentives to productive use that might obviate the need for construction-based performance milestones.
197	221	We seek comment on these approaches, and other alternative approaches we might take, as well as the costs and benefits of adopting any of these approaches.
198	222	Second, we also seek comment on separating interference and exclusion rights using an “option” concept to accomplish the goals of performance requirements
199	222	f this concept has merit, how should the idea be adapted to comport with the other proposals contained in this proceeding?
200	223	We also seek comment on any other alternatives to construction-based performance requirements that may be appropriate in the context of the other rules we propose herein.
201	224	As noted above, we are seeking comment on means of facilitating sharing between terrestrial licensees in the 28 GHz, 37 GHz, and 39 GHz bands and FSS operators.
202	224	We seek comment on whether it would be appropriate to make any adjustments to our performance requirements to facilitate such sharing.
203	224	As noted above, we seek comment on what FSS licensees using Upper Microwave Flexible Use licenses in connection with FSS earth stations would be required to show to demonstrate that the associated earth station was in operation and providing service.
204	224	We seek comment on these issues, as well as other issues relating to the intersection between performance requirements and sharing with satellite operators.
205	227	We seek comment on these (discontin uance ofoperations) proposals, including the associated costs and benefits.
206	228	The approach to permanent discontinuance described above is consistent with the definition that the Commission has adopted for other spectrum bands that are licensed for mobile use, including the H Block, AWS-3, and AWS-4 bands. <sup>391</sup> We note that the discontinuance periods in the Part 101 rules are different, but we tentatively conclude that those requirements are more applicable to site- licensed microwave licenses. <sup>392</sup> We seek comment on our proposal.
207	233	We seek comment on these (Partitioning and Disaggregation proposals. Commenters should discuss and quantify the costs and benefits of these proposals with respect to competition, innovation, and investment.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

208	234	We also seek comment on whether the Commission should adopt additional or different mechanisms to encourage partitioning and/or disaggregation of 28 GHz, 37 GHz, and 39 GHz spectrum, and the extent to which such policies ultimately may promote more service. .
209	234	Commenters should discuss and quantify the costs and benefits of promoting more service using mechanisms to encourage partitioning and disaggregation of spectrum in these bands, including the effects of any proposals
210	239	We seek comment on this(spectrum leasing) proposal.
211	239	Commenters should discuss the effects on competition, innovation and investment, and on extending our secondary spectrum leasing policies and rules to these bands.
212	421	We seek comment generally on any provisions in existing, service-specific rules that may require specific recognition or adjustment to comport with the supervening application of another rule part, as well as any provisions that may be necessary in this other rule part to fully describe the scope of covered services and technologies.
213	241	We seek comment on applying these rules to the spectrum that is the subject of this NPRM, and specifically on any rules that would be affected by our proposal to apply elements of the framework of these parts, whether separately or in conjunction with other requirements.
214	242	Further, we seek comment on whether we need to add any rules in order to ensure that we cover licensees in these bands under the necessary Commission rules.
215	242	Finally, we seek comment on any rules that would be affected by the proposal to apply elements of the framework of these rule parts, whether separately or in conjunction with other requirements.
216	245	We seek comment on this (competitive bidding procedure) proposal.
217	245	Additionally, we seek comment on a number of proposals relating to competitive bidding procedures discussed below, including the costs and benefits of those proposals.
218	246	We seek comment on whether any of our Part 1 rules would be inappropriate or should be modified for an auction of licenses in these frequency bands.
219	249	We seek comment on these(Small Business Provisions for Geographic Area Licenses) issues, including the costs and benefits associated with different approaches we might take.
220	250	Commenters should focus on the appropriate definitions of small businesses and very small businesses as they may relate to the size of the geographic area to be served and the spectrum allocated to each license.
221	250	Further, commenters should discuss and quantify any costs or benefits associated with these standards and associated bidding credits as they relate to the proposed geographic areas. In discussing these issues, commenters are requested to address and quantify the expected capital requirements for services in these bands and other characteristics of the service.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

222	250	Commenters are also invited to use comparisons with other frequency bands for which the Commission has already established service rules as a basis for their comments and any quantification of costs and benefits regarding the appropriate small business size standards.
223	253	We seek comment on whether it is appropriate to apply the rural service provider bidding credit to auction of the 28 GHz, 37 GHz, and 39 GHz.
224	253	While the rural service provider bidding credit is new, we have used other types of bidding credits in the past to facilitate competition for spectrum at auction. Given the nature of the services being contemplated for the mmW bands, is use of the rural service provider bidding credit appropriate?
225	253	Commenters are requested to address and quantify the expected capital requirements for service in rural areas and other characteristics of the service when provided in rural areas.
226	255	We seek comment on whether we should revise any of our bidding process and payment rules to take into consideration the administrative difficulties for the Commission in enforcing construction requirements in the 3,143 counties nationwide.
227	256	We seek comment on this concept, including its costs and benefits.
228	256	In the alternative, we seek comment on whether we should accomplish the same goal by levying license fees in consecutive intervals in lieu of performance requirements, which may not be well suited for the types of deployments contemplated in this band.
229	256	Could economic performance serve as a legally viable substitute for traditional build out or service-based performance requirements?
230	256	Would this framework encourage or discourage hoarding of Upper Microwave Flexible Use Service licenses?
231	256	Would the use of delayed payments for successive terms, in practice, lead to complications similar to those experienced in the past with installment payments?
232	256	Is the Commission's existing legal authority sufficient to permit it to adopt auction and payment rules to implement this approach?
233	256	Are there any statutory or other legal considerations that the Commission should consider in revising its existing payment, application and default rules to accommodate the re-auction proposal?
234	257	We seek comment, with respect to this proposal, on whether we should revise any of our payment rules to take into consideration the potential for applicants to become winning bidders for licenses that do not become effective until five years or more after the auction has closed.
235	257	For instance, under this proposal, should we revise our upfront payment requirement to better safeguard the Commission against defaults by a winning bidder on consecutive license terms?
236	257	Should we require a winning bidder for consecutive license terms to make a larger down payment to better safeguard the Commission from defaults in subsequent terms?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

237	257	Currently, unless otherwise noted by public notice, the Commission’s rules require that within 10 business days after being notified that it is a high bidder on a particular license the winning bidder must submit its down payment necessary to bring its total deposits up to twenty (20) percent of its winning bid(s) or it will be deemed to have defaulted. <sup>430</sup> Should we increase the down payment percentage here to be forty percent of the winning bid(s)?
238	257	Will retaining down payments on deposit for consecutive Upper Microwave Flexible Use Service license terms, particularly if the down payment obligation for such a license is increased, help the Commission safeguard against the potential of default in subsequent years?
239	258	We also seek comment on whether we should revise our default rule to ensure that if a winning bidder wins a Upper Microwave Flexible Use Service license in a licensing area for consecutive terms and defaults on a payment obligation for a license in that area, it loses the right it acquired at the auction to be granted a Upper Microwave Flexible Use Service license in that area for any consecutive term?
240	258	What incentives would be created by such a default provision, and would those incentives help to ensure that the spectrum was used productively?
241	258	In situations where the Commission has determined that a bidder’s default might have a greater potential to detrimentally impact the integrity of an auction, it has adopted a higher default percentage to serve as deterrent against such an outcome. <sup>432</sup> If we hold an auction that offers Upper Microwave Flexible Use Service licenses for consecutive terms, should we also change the default rule by holding a winning bidder for such licenses who defaults on its winning bids responsible for a larger default payment?
242	258	What percentage of the defaulted bid should be assessed as the additional payment portion of the default payment obligation?
243	258	Should the amount of the additional payment be greater than the percentage prescribed in our rules for defaults on combinatorial bids?
244	259	Would such a default rule adequately safeguard the Commission should a winning bidder file bankruptcy between the close of an auction and the date of a future payment obligation?
245	259	Commenters should address in particular the application of the Bankruptcy Code’s requirement that an agency “may not deny, revoke, suspend, or refuse to renew a license . . . or other similar grant to,” or “discriminate with respect to such a grant against,” a debtor or a bankrupt “solely because” it “has not paid a debt that is dischargeable” in bankruptcy.
246	259	Would the Commission be restricted by the bankruptcy laws in its efforts to recover and re-auction spectrum won by a defaulting bidder that had filed for bankruptcy?
247	259	Would the costs of obtaining a letter of credit be reasonable in light of the expected value of the spectrum?
248	259	Would a payment bond be equally effective in giving financial security to the Commission and protecting the Commission from a winning bidder’s bankruptcy?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

249	259	Could bids be aggregated for purposes of issuing a letter of credit, without jeopardizing the Commission's ability to recover the auction amounts and any reasonable penalty associated from default?
250	259	Would the benefits of our delayed final payment mechanism outweigh the risks in bankruptcy and the associated costs?
251	260	We seek comment on the best methods to ensure maximum effectiveness of the use of the mmW bands, cognizant of potential security vulnerabilities in light of the technology and systems that are anticipated to comprise new networks.
252	261	Generally, we seek comment on how to ensure that effective security features are built into key design principles for all mmW band communications devices and networks.
253	262	What existing or planned methods of authentication in mobile or fixed networks provide sufficient confidentiality under the conditions planned for mmW band networks?
254	262	Are there any specific uses or characteristics of the spectrum discussed in this proceeding, alone or in conjunction with other bands, that would make it difficult to ensure the confidentiality of users, either in terms of the content or the circumstances (time, place, and manner) of their use?
255	262	What implications do the proposed uses of these bands have for authentication of users?
256	262	What, if any, action should the Commission take to ensure that an appropriate level of confidentiality is provided to the content of users communications (e.g., voice, video and data) and to the data generated as part of the communication (usage history, etc.)?
257	263	Does the shorter range of communications in these bands and concomitant expected reliance on more access points increase, or decrease the ease of interception and potential compromise of integrity of the communication?
258	263	What security or architectural methods might mitigate such issues, and are they under consideration by the appropriate standards bodies?
259	263	What actions could the Commission take to assist industry in developing minimum security standards in order to ensure the integrity of devices that connect to or through other devices using these bands or any other network connection?
260	264	What conditions should be considered in order to ensure the availability and security of networks utilizing the mmW bands?
261	264	To what extent will planned capabilities be robust and secure enough to support communication all the time?
262	265	We seek comment on the extent to which existing and previous wireless protocols do not inherently derive useful security services from the underlying transport layer and how such vulnerabilities could be prevented from propagation into mmW band networks.
263	265	For example, would spectrum used in these bands to supply common carrier services have similar security requirements to similar services using lower bands, and if not, how do security requirements differ?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

264	265	Would security requirements vary based on the use of the service (i.e., voice or data), and if so, how?
265	265	We seek comment on whether the protocols established for these bands might include elements specifically designed to provide security value for higher layers of the OSI Model
266	265	Would some of these attributes be more meaningful for enterprise use, or for personal use?
267	270	We seek comment on the impact of the current (39 GHz) channel plan, which may favor FDD operations, on the ability to deploy future mmW wireless networks that might deploy either FDD or TDD based technologies.
268	270	Should we consider alternate band plans in order to accommodate TDD operations, and if so, how should we modify our proposals to accommodate such band plans?
269	275	We seek comment on these proposed transmission power limit rules.
270	276	We seek comment on whether a higher transmission power limit should be considered for the in-band application where the same equipment is used to for mobile service and backhaul service.
271	277	We seek comment on whether a similar antenna height limit should be applied to the base stations operating in the proposed bands.
272	277	Should we allow increased antenna heights in rural areas? We request that commenters provide technical analyses to justify their proposals.
273	279	We seek comment on this tentative conclusion(onEIRP limits) and invite alternative proposals.
274	285	Accordingly, we seek further comment on radiated emission limits for 5G transmitters in mmW bands.
275	286	We seek comment on whether a radiated emission limit of $43+10\log(P)$ can be supported by 5G transmitters operating in the 27.5-28.35 GHz, 37- 38.6 GHz, and 38.6-40 GHz bands, and if so, what resolution bandwidth and frequency offset should be considered to define out-of-band emissions and spurious emissions.
276	286	We request that commenters provide technical showings on how the proposed radiated emission limits can mitigate the risk of harmful interference to operations by adjacent users. <sup>494</sup>
277	288	As commenters propose emission limits for mobile stations and base stations operating in 37-40 GHz band, we ask commenters to provide interference analysis into passive service receivers operating in 36-37 GHz band, including the assumptions on the distance separation, propagation model, system loading, aggregate number of transmitters, antenna characteristics, and others as appropriate.
278	290	We seek comment on the appropriate interference protection criteria.
279	290	Specifically, is the existing field strength limit of 47 dBuV/m specified in Part 27 appropriate for mmW mobile and fixed services?
280	290	Is Straight Path's proposed PFD limit of -86 dBm/m <sup>2</sup> /MHz, which incorporates a spectral density more appropriate? Are there alternative more appropriate interference protection limits than these mentioned?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

281	290	Or, are coordination distances, such as those currently specified for the fixed services more appropriate?
282	290	Additionally we seek comment on alternative, interference limits at the geographical service area border that would protect future mmW operations from unwanted interference. Any such proposed alternative limits should be described in detail and supported by engineering analysis.
283	290	Commenters who believe that field strength limits at the license boundaries are not necessary should provide specific technical details and analysis substantiating their position that such protections will not be necessary in the future.
284	290	Additionally we also seek comments as to the applicability of any such interference limit to current or potential future fixed point-to-point terrestrial facilities.
285	290	Are the Part 27 interference protection technical limits, or alternatively those proposed by Straight Path at the geographic service area border adequate protection criteria for current and potential future fixed point-to-point terrestrial deployments?
286	290	Are there other proposed interference protection limits that would be more appropriate for protecting fixed services?
287	291	Would the Part 27 and Straight Path limits for which we seek comment have more of a limiting effect on fixed point-to-point transmitter deployments than existing rules?
288	291	Considering the reception antenna in the same scenario, would the Part 27 and Straight Path interference protection limits at the GSA border adequately protect a point-to-point fixed link close to the GSA border that uses narrow-beam, high-gain antennas?
289	291	Would the protection afforded by the proposed limit be less effective in the protection of fixed point-to-point receivers oriented toward adjacent GSAs near their borders?
290	291	Considering this worst-case scenario, should the existing rules based on specified distances from adjacent borders be retained, along with the existing coordination requirements?
291	291	Is there another more appropriate rule that could be applied specifically to current and potential future deployments of fixed point-to-point facilities?
292	291	Is there a threshold protection level that could be established that benefits the fixed point-to-point facilities as well as future mmW mobile facilities?
293	292	If it is determined that the current rules for fixed point-to-point facilities should be retained, should they be applied to mmW base station backhaul technologies?
294	292	If so, should we consider retaining the existing distance and coordination requirements with respect to cases where an mmW base station would require "in-band" wireless backhaul?
295	292	Should these distance requirements be modified and/or made uniform and applied consistently across all the bands?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

296	292	In the converse would the Part 27 and Straight Path interference protection limits allow for these distance requirements that trigger required coordination to become irrelevant in the transition to new rules for these bands?
297	293	We seek comment on this issue (Canada/Mexico border issues, including the costs and benefits of alternatives).
298	294	We seek comment on any changes to our technical rules that may be required if we adopt our proposal to authorize local area operations in the 37 GHz band by rule while issuing geographic area licenses for outdoor use.
299	294	Are there circumstances under which local area deployments could cause interference to outdoor systems, notwithstanding the heavy signal attenuation in this band? In order to avoid interference, should we propose lower authorized power for local area deployments?
300	294	What special technical rules, if any, would be needed for indoor systems to promote indoor/outdoor coexistence?
301	294	For example, do we need to establish a requirement that local area users and geographic area licensees coordinate their proposed operations?
302	294	If a coordination mechanism is necessary, how should we design that mechanism?
303	294	If we decide that geographic area licensees should have priority over local area operations, how should we define the responsibilities of the local area licensee to avoid interference?
304	294	If, on the other hand, we decide that local are operations have priority, are there any special technical rules that would be needed for outdoor operations in this environment?
305	294	We seek comment on these and other issues relating to the technical rules for our proposed hybrid licensing approach in 37 GHz.
306	296	We seek comment on this proposal (on requiring interoperability).
307	296	Are there unique issues implicated in creating interoperable equipment at the frequencies and bandwidths proposed herein?
308	296	We also seek comment on Straight Path's contention that it should be possible to achieve interoperability between different technologies, e.g., switching between LTE and Wi-Fi.
309	297	We seek comment on whether we should adopt emission limits above a certain elevation angle to terrestrial facilities in order to prevent interference between terrestrial facilities and satellites.
310	298	Therefore, such interference appears to be unlikely, but we request any technical analyses that might indicate otherwise, together with any technical limitations that might be required to prevent such interference.
311	299	Taking all three of the above sources of potential interference into account, are the existing and proposed power and emission limits for terrestrial operations in the 28 GHz band sufficient to prevent interference into satellite receivers?

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

312	299	We request comments and technical information that would assist us in determining whether it would be necessary or beneficial to limit skyward emissions from terrestrial mmW facilities in the 28 GHz band, and, if so, at what thresholds.
313	303	In addition, we seek comment on certain aspects of the rules to further the growth and development of these devices without increasing the potential for harmful interference to authorized users in these bands.
314	306	We therefore seek comment on this issue (prohibiting use on aircraft).
315	306	We request technical studies and interference analyses demonstrating whether transmissions in the 57-71 GHz band should be permitted on aircraft. Such operations may include applications in the 57-71 GHz band that support enhancement of in-flight communications service offerings by airlines to meet the increasing consumer demand for broadband connectivity on aircraft.
316	306	Is it possible to limit unlicensed device operation on aircraft to a narrower portion of the 57-64 GHz band to minimize impact to the radio astronomy observations?
317	306	If so, should we consider such a limitation?
318	307	We seek comment on whether to extend the requirements for these fixed field disturbance sensors in Section 15.255 into the proposed 64-71 GHz band.
319	310	Thus, equipment operating in the proposed 64-71 GHz band at the same emission levels would effectively be able to provide longer range and higher data throughput, as these levels are not as attenuated by the oxygen phenomenon. We seek comment on these tentative conclusions.
320	311	We propose to apply the same spurious emissions limits to transmitters operating in the proposed 64-71 GHz band. We seek comment on this proposal.
321	312	We propose to remove this(Publicly-Accessible Coordination Channel) requirement from the rules and seek comment on this proposal, including its costs and benefits
322	313	We seek comment on this(Conducted Transmitter Output Power) proposal.
323	314	We seek comment on this (Frequency Stability) proposal.
324	315	We seek comment on this (Co-location of separately-authorized transmitters) proposal.
325	317	We seek comment on the various sharing analysis framework among fixed, mobile and satellite systems, as well as between active and passive services in the millimeter bands.
326	317	Specifically, we request technical information on transmitter and receiver characteristics including peak and average transmit power and antenna performance, operational assumptions including antenna orientation and practical use case of transmitters and receivers, and appropriate propagation models for each sharing analysis that would assist in evaluating interference potential including aggregate effects as applicable.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

327	318	Throughout the next two sections, we seek comment on how we should address these technical challenges in future guidance to demonstrate compliance with the Commission's rules pertaining to equipment authorization.
328	318	Specifically, we request information on relevant research as we address two topics: 1) measurement techniques to verify that devices meet limits on peak EIRP and out- of-band emissions (OOBE), and 2) demonstration of compliance with respect to the Commission's rules on RF exposure.
329	319	We seek information on fundamental aspects of measurements of radiated emissions at these frequencies.
330	319	What are the ways to demonstrate compliance with procedures which are practical, repeatable and do not have large margins of errors.
331	319	We further seek comment on whether and how present procedures can be adapted or modified to appropriately to address these specific technical challenges presented by millimeter-wave devices.
332	320	We seek comment on what other measurement procedures may be used and whether we would need to provide any additional guidance to determine compliance with the out-of-band and spurious emission limits for millimeter-wave devices considering the technical challenges.
333	320	Additionally, out-of-band emissions limits are presently measured using a 100 kHz bandwidth at operating frequencies below 1 GHz, and are measured using a 1 MHz bandwidth at operating frequencies above 1 GHz. We seek comment on whether we should further consider widening the measurement bandwidth, say to 10 MHz above 10 GHz, and what might be the practical implications in doing so.
334	320	For example, a wider measurement bandwidth would include more thermal noise, which could make measurement more difficult because of the increased noise to a point higher than the emissions limits. We seek comment on this proposal.
335	320	Finally, spurious emissions for devices operating above 10 GHz are required by the Commission's rules to be measured up to the fifth harmonic of the highest fundamental frequency, below a certain cutoff frequency. We seek comment on whether these cutoff frequencies should be modified.
336	323	We seek comment on what major factors, considering both measurement and computational techniques, we should take into account when developing guidance to evaluate consumer portable devices operating at frequencies above 6 GHz intended to be held against the head or close to the body during normal use.
337	323	We encourage comments addressing whether the technical challenges described above regarding probe- device coupling in the near-field are surmountable when measuring MPE, and whether suitable techniques can be established to validate the computational model used in simulations of near-field power density.

Marcus Spectrum Solutions LLC Tabulation and Suggested Numbering of Docket 14-177 NPRM Questions

338	324	Recognizing also that portable devices are likely to operate at conducted power levels much lower than the proposed maximum peak EIRP due to antenna array gain and to effectively manage device power consumption among other reasons, we also seek comment on whether to maintain our continued approach to allow portable devices to be authorized up to the maximum EIRP permitted by the rules, as long as our RF exposure limits are met, and if not, what other alternative approaches we should consider.
339	324	Related to equipment authorization procedures, we specifically seek comment on whether an averaging area of one square centimeter would appropriately reflect the intent of the rationale behind our present exposure limits in the interim, until the Commission considers the issues brought forth in its RF Inquiry.
340	324	Moreover, similar to the rationale that permits consideration of lateral separation between antennas measured for peak SAR in the context of reducing test requirements for some types of equipment operating at frequencies below 6 GHz, and given the anticipated dimensions of antenna arrays for these devices, we seek comment on whether any one square centimeter averaging area across the dimensions of the array can be assessed independently while still adhering to the intent of these guidelines.