Even if the Commission continues to ignore FS user needs and procrastinate in completing negotiations with NTIA for blanket 23 GHz Band conditional licensing, at a minimum, it must reverse position now and allow it on all frequencies in that band if the ERP does not exceed 55 dBm. This decision clearly would serve the public interest because it would support critical applications by many industry users and would expedite access to the band without any risk of harmful interference to government users because of the low ERP being used. Thus, if it does not allow across-the-board full-power 23 GHz Band conditional licensing, Alcatel respectfully requests that the Commission permit conditional licensing on any FS frequency in the 23 GHz Band provided the proposed system would operate with an ERP at or below 55 dBm.

LMDS TECHNICAL RULES MUST BE REVISED

Use of LMDS, to provide high-speed, sophisticated broadband wireless services, is increasing. In the NPRM, the Commission suggests various revisions to Part 101 technical rules that are intended to support LMDS as a viable platform for these services.[62] Alcatel supports the Commission's approach regarding LMDS.

A. Alcatel's Proposal Regarding Out-of-Band Emission Measurements Must Be Adopted.

In the attached April 12, 2000, letter to the Chief, Public Safety and Public Wireless Division, WTB, Alcatel proposed that Section 101.111(a)(2) should be

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[62] NPRM, 15 FCC Rcd at 3156-58.

interpreted to exclude frequencies inside the authorized bandwidth when measuring out-of-band emissions. This solution would meet LMDS radio equipment manufacturer requirements, would not necessitate a rule change, and would provide adequate safeguards against harmful interference. For the reasons set forth below, Alcatel requests that the Commission include this proposal in the record of the NPRM and adopt it with all the other changes supported herein.

Deployment of LMDS and other broadband networks, which are supported by FS backbone infrastructure, requires increased use of digital systems in the bands above 15 GHz. More importantly, this growing use of digital radios, combined with the inherent technical attributes of the bands above 15 GHz, makes it easier to operate FS systems in a narrowband environment and increase utilization of a finite resource. Unfortunately, the Commission's Section 101.111(a)(2)(ii) out-of-band emission limitations frustrate efficient usage of these bands by making it more difficult to utilize narrowband technology and to design products for such operation.

Under Section 101.111(a)(2)(ii), the out-of-band emission limits are specified to be measured in a 1 MHz band removed from the assigned center frequency by more than 50% of the authorized bandwidth up to and including 250% of the authorized bandwidth. This requirement implies that the measurement is allowed to encroach into the authorized channel by 500 kHz (50% of the 1 MHz measurement bandwidth).

For narrowband signals operating inside the authorized bandwidth but near the band edge, this measurement criterion can include a significant part of the authorized

in-band signal in the out-of-band emission measurement. To meet this requirement, a guard band must be used to keep the authorized signal away from the band edge.[63] This is the solution that is used in the industry.

This industry approach, which requires a guard band, wastes precious spectrum. Instead, Alcatel proposes that the out-of-band emission measurement, to test compliance with Section 101.111(a)(2)(ii), should be interpreted to exclude frequencies inside the authorized bandwidth.

Under Alcatel's proposal, the 1 MHz measurement center frequency should be removed from the assigned frequency by more than the sum of 50 percent of the authorized bandwidth plus 500 kHz, up to and including 250 percent of the authorized bandwidth.[64] Testing for spurious emissions under this standard would eliminate the need for a guard band and for unnecessary filtering, but still would allow radio manufacturers to make the proper interference and operation analyses.

Adopting Alcatel's approach is in the public interest. First, allowing emission testing to be conducted totally outside the authorized bandwidth would promote additional available FS spectrum by increasing the actual usable capacity of each narrowband channel. Second, permitting testing under Alcatel's interpretation would not compromise necessary interference protection because FS radio manufacturers still

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[63]See Diagram 1, which is part of Alcatel's attached letter ruling request. It depicts this guard band configuration.

[64]See Diagram 1, attached to Alcatel's letter ruling request, which also depicts the proposal made therein.

would evaluate the same amount of out-of-band signals to determine if any unacceptable emissions exist. Third, it would facilitate narrowband digital radio product design because unnecessary and time consuming procedures no longer would be needed. Finally, excluding authorized bandwidth frequencies from out-of-band emission limitation testing would enhance marketability of domestically manufactured digital radios in global markets because products could be sold more quickly without having to meet overly stringent requirements.

B. LMDS Transmitters Must Be Subject To Verification.

Under Section 101.139, LMDS point-to-multipoint transmitters must be certificated by the Commission prior to marketing.[65] In contrast, other Part 101 transmitters only are subject to the less burdensome self-verification procedures.[66]

The Commission proposes applying the verification procedures to LMDS transmitters.[67] Alcatel supports adoption of this proposal. No compelling reason exists to treat such equipment more stringently than the other Part 101 devices. In fact, when the Commission adopted significant revisions to its equipment authorization rules, Part 101 point-to-point transmitters were made subject to self-verification procedures instead of the certification procedure:

> We continue to believe that the authorization requirements for these transmitters may be relaxed, due to the excellent record of compliance

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[65] 47 C.F.R. §101.139 (2000).

[66] Id.

[67] NPRM, 15 FCC Rcd at 3157-58.

> thus far. We now believe that verification would be more appropriate. These transmitters are operated under the terms of a license. Therefore, we can locate and contact a licensee to resolve any interference problems that may develop. Moreover, we believe that the manufacturers of these transmitters are capable of performing the necessary measurements to ensure compliance of the equipment.[68]

This rationale for subjecting point-to-point transmitters to verification also applies to LMDS transmitters.

FS SPECTRUM SHOULD NOT BE AUCTIONED

Under the Balanced Budget Act of 1997,[69] the Commission is obligated to auction all mutually exclusive ("MX") partial license applications. In the NPRM, the Commission seeks comment on how it might modify Part 101 general licensing to ensure that it satisfies this requirement.[70]

The use of auctions for FS links, however, is not appropriate for several reasons:

- **Auctions are unnecessary and will not improve operations on FS frequencies.** The existing frequency coordination process works and

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[68]Amendment of Parts 2, 15, 18 and Other Parts of the Commission's Rules to Simplify and Streamline the Equipment Authorization Process for Radio Frequency Equipment, Report and Order, 13 FCC Rcd 11415, 11426 (1998).

[69]Balanced Budget Act of 1997, Pub. L. No. 105-33, 111 Stat. 251.

[70]NPRM, 15 FCC Rcd at 3166-68. Specifically, the Commission proffers four (4) options for addressing the auction requirement with respect to the FS: Option I - license Part 101 microwave spectrum based upon an appropriate channelization plan and geographic service area through use of auctions to choose among MX applications (similar to approach in 38 GHz Band); Option II - relocate licensees so that spectrum is clear for licensing by auction, provided that a "home" for the displaced licensees could be located (similar to 2 GHz band PCS); Option III - identify certain bands where incumbents could retain co-primary status and other bands where incumbents would have secondary status (similar to 31 GHz band LMDS licensing); and Option IV - retain current approach, utilizing various channelization plans and site-by-site licensing, but using auctions to resolve MX applications. Id.

assures virtually no MX applications will be filed. Carriers depend upon microwave facilities because, under this licensing procedure, such facilities can be constructed and made operational rapidly. Auctions would ruin a licensing procedure that does not need to be changed and would cause significant processing and system deployment delays.

- **Auctions threaten effective microwave licensing.** Subjecting microwave applications to competitive bidding could wreak havoc with providers' plans to offer their services to the public.

- **Auctions for microwave links would complicate the licensing process significantly.** Since networks consist of numerous microwave paths, it is quite likely that each link in a particular network would be subject to a separate auction. Licenses could be granted at different times and different licensees for each separate link in the end-to-end network could exist. This would result in a licensee being subject to multiple auctions simply to complete its system, which would make network development and implementation exceedingly difficult. Such "splintered" responsibility for maintenance of network microwave facilities likely would result in disabling or severely degrading operations.

- **Auctions would seriously impede a carrier's ability to efficiently maintain its network in a least-cost manner.** Carriers could not accurately estimate build-out costs for end-to-end service since they would be unable to determine the total cost of any particular microwave path or license.

- **Auctions are inappropriate for shared bands.** Most FS bands below 24 GHz are shared with satellite users which are not subject to auctions.

ADOPTION OF PROPOSED RULES FOR 10 GHz BAND OPERATIONS AND PART 74 DIGITAL TRANSMISSIONS ALSO WOULD SERVE THE PUBLIC INTEREST

The TIA Fixed Section, in its Petition, made other proposals that, if adopted, would serve the public interest. It recommended revising the maximum allowable EIRP for the 10 GHz Band to avoid problems with longer paths and it proposed revisions to

Part 74 so that broadcast support operations can utilize digital technologies more readily.

In the NPRM, however, neither proposal is included. The Commission proposes a revision to the 10 GHz Band EIRP that would make it harder, rather than easier, for long-haul FS users to operate.[71] This revision must be changed as set forth herein. The Commission also defers any proposals to modify Part 74 until a later proceeding,[72] but such delay is unacceptable.

A. The EIRP for the 10.60-10.68 GHz Band Should Be Modified

The Commission proposes reducing the Maximum Allowable EIRP for the 10.6-10.68 GHz band from +55 dBW to +40 dBW, stating that this is required by Part 2.106, US footnote 265.[73] Since most systems in this segment of the 10 GHz Band are bi-directional, this change effectively would reduce the EIRP limit for the entire 10.55-10.68 GHz band to +40 dB.

This lower EIRP limit would restrict the maximum antenna size and make the band difficult to use for long paths relocated from the 2 GHz band. Thus, more power would be required in the 10 GHz Band to compensate since the band is affected by rain outage.

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[71] NPRM, 15 FCC Rcd at 3153.

[72] Id., 15 FCC Rcd at 3158 n.172.

[73] Id., 15 FCC Rcd at 3153.

The following table lists calculated EIRP values assuming a typical 10.5 GHz digital radio using a +27 dBm transmit power, various Andrew antennas, and 50 feet of Andrew EW-90 elliptical waveguide:

Antenna Model	Antenna diameter	Antenna Gain	EIRP (dBm)	EIRP (dBW)
VHP2-105	2 foot	34.1 dBi	59.5	29.5
VHP4-105	4 foot	39.9 dBi	65.3	35.3
HP6-105C	6 foot	43.5 dBi	68.9	38.9
HP8-105C	8 foot	45.9 dBi	71.3	41.3
HP10-105C	10 foot	47.8 dBi	73.2	43.2

The +40 dBW maximum EIRP would limit the maximum antenna size to a 6 foot diameter in this example. If the Commission wants to limit the EIRP, it should change the maximum EIRP for the 10 GHz Band in Section 101.113(a) from 55 dBw to 45 dBW. This change would allow up to a 10 foot diameter dish at each station. Antenna sizes of 10 foot will provide adequate system gain for most FS applications in the 10 GHz band.

As an alternative, Alcatel proposes that the following footnote should be added to the EIRP limit for the 10.55-10.68 GHz band in Section 101.113(a):

> Transmitters licensed after [effective date] shall not exceed an EIRP limit of 40 dBW. ATPC power reduction may be used to meet the 40 dBW EIRP limit for transmitters with an EIRP between 40 dBW and 55 dBW.

This alternative rule change would maintain the current 55 dBW EIRP limit, but would require systems to reduce their power to the 40 dBW level using Automatic Transmit

Power Control ("ATPC"). Transmitters only would exceed the 40 dBW level during short periods of multipath or rain fading.

B. The Commission Promptly Should Initiate A Rulemaking to Revise Part 74.

The TIA Fixed Section proposed that the Commission make specific changes in the Television Broadcast Auxiliary Service to ensure that digital transmission technologies can be utilized fully.[74] Alcatel and many others supported this proposal.[75] Inexplicably, after the two (2) year delay in acting on the Petition, the Commission has decided to defer action on this proposal even longer by stating that it would establish a separate proceeding at some undetermined future date.[76]

This delay is intolerable. It is critical that technical standards be prescribed to ensure the reliability of all digital paths. Specific technical rules in this service, such as digital modulation, maximum EIRP for short paths, and ATPC, will support and promote HDTV over microwave paths.

Under current Part 74 rules, television broadcasters cannot install an STL in the 6.875-7.125 GHz and 12.7-13.25 GHz bands using digital modulation. The rules only permit analog modulation.

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[74]Petition at 26-27.

[75]See, e.g., comments filed on the Petition by the Society of Broadcasting Engineers at 1-3.

[76]NPRM, 15 FCC Rcd at 3158 n.172.

Broadcasters, therefore, are unable to install new digital radios to carry HDTV. If broadcasters cannot get digital television signals from the studio to the transmitter, they cannot provide digital television service.

This problem is not speculative. Certain broadcasters at the forefront of providing HDTV have been frustrated because the Commission will not grant applications for digital STL links. Anything but prompt action on this proposal threatens a successful HDTV roll-out. Thus, the Commission must act immediately and issue a Notice of Proposed Rulemaking proposing revisions to Part 74 that permit digital modulation.

CONCLUSION

A compelling need exists for expanding access to FS spectrum. This increased access can be achieved by acting on several fronts. First, utilization of the 23 GHz Band is a viable solution for FS users if conditional licensing is more readily available, if the 23 GHz Band incorporates channelization and operating criteria based upon current digital technology to make it more accessible to FS users, and if consistent rules for FS users are adopted. Second, to complement the increased vitality of the 23 GHz Band and to increase user flexibility, changes must be made to the rules for FS operation in the 10 GHz Band. Third, specific rules for growth technologies, such as LMDS and HDTV, can be adopted to facilitate their deployment.

By adopting the rules proposed in the NPRM as modified herein, the Commission now has the opportunity to accomplish those objectives and bring closure to Part 101.

Thus, Alcatel requests that the Commission expeditiously take this important step and adopt these new rules.

Respectfully submitted,

ALCATEL USA, INC.

By: _____

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July 19, 2000

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April 12, 2000

Ms. D'Wana Terry
Chief, Public Safety and Private Wireless Division
Wireless Telecommunications Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Request for Letter Ruling Concerning Section 101.111(a)(2)(ii) Out-of-Band Emission Limitations

Dear Ms. Terry:

The importance of the terrestrial fixed point-to-point microwave radio service ("FS") is well-established. These services support emerging wireless technologies and essential public services. Health and safety providers, local exchange carriers, cellular telephone companies, utilities, railroads, petroleum companies, financial institutions, and federal, state and local governments all rely upon FS networks to support their operations. These users have made FS the medium of choice because it is the most reliable, cost-effective, flexible, and terrain-insensitive technology available.

Increasing available spectrum for these FS is essential. To assist in achieving this goal, Alcatel USA, Inc. ("Alcatel"), a major domestic manufacturer of FS equipment,[1] herein seeks a Wireless

[1]Alcatel is a wholly-owned subsidiary of Alcatel N.V., one of the world's largest corporations and the world's largest manufacturer and supplier of telecommunications equipment, including FS radios. Alcatel's equipment is used for a wide range of services, including short, medium and long-haul voice, video and data transmission. Its customers

Telecommunications Bureau ("Bureau") letter ruling clarifying the procedures to measure out-of-band emission limitations for above 15 GHz band digital operations.

Specifically, Alcatel requests a Bureau ruling that the 1 MHz bandwidth used to measure out-of-band emissions for digital radios under Section 101.111(a)(2)(ii) of the Commission's rules is not required to include any of the authorized channel bandwidth being tested. This interpretation, as detailed below, would promote increased FS frequency availability by optimizing spectrum efficiency, facilitating product development and preserving adequate safeguards against harmful interference to protected operations. For these reasons, the Bureau promptly should grant this letter ruling request.

EROSION OF FS SPECTRUM MUST BE PREVENTED

Alcatel, as well as the entire industry, is concerned that spectrum to support FS is being diluted. The 2 GHz band no longer is available because FS users were relocated to clear spectrum for emerging technologies, including personal communications services ("PCS")[2] and Mobile Satellite-Services ("MSS").[3] Access to replacement spectrum in the 6 GHz, 18 GHz, 23 GHz and other bands generally remains limited.

To combat this spectrum shortage, initiatives must be taken that increase the capacity of frequencies already assigned for FS use. Improved spectrum management and more effective efficiency standards must be promoted. For example, the Commission recently established a proceeding to adopt FS industry proposals for increasing capacity in the 23 GHz band.[4]

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include all the Bell Operating Companies, most major independent telephone companies, cellular operators, power and other utility companies, oil companies, railroads, industrial companies, and state and local government agencies.

[2]Amendment of the Commission's Rules to Establish New Personal Communications Services, Second Report and Order, 8 FCC Rcd 7700 (1993).

[3]Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Services, First Report and Order and Further Notice of Proposed Rule Making, 12 FCC 7388 (1997), recon. denied, Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order, 13 FCC Rcd 23949 (1998).

[4]These proposed changes to the 23 GHz band are set forth in the Commission's Part 101 proceeding, Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, Memorandum

In addition to these efforts, the Commission can increase FS spectrum availability by ensuring that its rule interpretations and applications are consistent with these objectives. Deployment of broadband networks, which are supported by FS backbone infrastructure, requires increased use of digital systems in the bands above 15 GHz. More importantly, this growing use of digital radios, combined with the inherent technical attributes of the bands above 15 GHz, makes it easier to operate FS systems in a narrowband environment and increase utilization of a finite resource. Unfortunately, the Commission's Section 101.111(a)(2)(ii) out-of-band emission limitations frustrate efficient usage of these bands by making it more difficult to utilize narrowband technology and to design products for such operation.

THE COMMISSION MUST RULE THAT TESTING OUT-OF-BAND EMISSION LIMITATIONS FOR DIGITAL FS OPERATION ABOVE 15 GHz DOES NOT REQUIRE FREQUENCIES INSIDE THE AUTHORIZED BANDWIDTH

The Commission's Part 101 emission limitations serve a useful purpose. These restrictions are intended to protect against harmful interference to other FS stations and to maximize available FS channels.

Pursuant to Section 101.111(a)(2)(ii) of the Commission's Rules:[5]

Opinion and Order and Notice of Proposed Rule Making, WT Dkt. No. 94-148 and RM-9418 (FCC No. 00-33, released February 14, 2000) ("NPRM"). The proposals in the NPRM initially were submitted in a Petition for Rulemaking (RM-9418) ("Petition") by the Fixed Point-to-Point Communications Section, Wireless Communications Division, Telecommunications Industry Association ("TIA Fixed Section"). The Telecommunications Industry Association ("TIA") is the principal industry association representing all telecommunications equipment manufacturers, including manufacturers of FS equipment. Members of the TIA Fixed Section serve, among others, companies, including telephone carriers, utilities, railroads, state and local governments, and cellular carriers, licensed by the Commission to use private and common carrier bands for provision of important and essential telecommunications services. As was the case with the TIA Fixed Section's Petition, sometimes a product-oriented division or a section of such a division within TIA will file in a proceeding representing the views of only the members of that division or section.

[5]47 C.F.R § 101.111(a)(2)(ii) (2000).

> (a) The mean power of emissions must be attenuated below the mean output power of the transmitter in accordance with the following schedule:
>
> * * * * *
>
> (2) When using transmissions employing digital modulation techniques (see Sec. 101.141(b)) in situations not covered in this section.
>
> * * * * *
>
> (ii) For operating frequencies above 15 GHz, in any 1 MHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 11 decibels:
>
> A = 11 + 0.4(P - 50) + 10 Log<INF> B. (Attenuation greater than 56 decibels is not required.)

Under Section 101.111(a)(2)(ii), the out-of-band emission limits are specified to be measured in a 1 MHz band removed from the assigned center frequency by more than 50% of the authorized bandwidth up to and including 250% of the authorized bandwidth. This requirement implies that the measurement is allowed to encroach into the authorized channel by 500 kHz (50% of the 1 MHz measurement bandwidth).

For narrowband signals operating inside the authorized bandwidth but near the band edge, this measurement criterion can include a significant part of the authorized in-band signal in the out-of-band emission measurement. To meet this requirement, a guard band must be used to keep the authorized signal away from the band edge.[6] This is the solution that is used in the industry and is a solution that Alcatel also could use.

This industry approach, which requires a guard band, wastes precious spectrum. Alcatel proposes that the out-of-band emission measurement, to test compliance with Section 101.111(a)(2)(ii), can be interpreted to exclude frequencies inside the authorized bandwidth.

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[6]See Diagram 1, which depicts this guard band configuration.

The 1 MHz measurement center frequency should be removed from the assigned frequency by more than the sum of 50 percent of the authorized bandwidth plus 500 kHz, up to and including 250 percent of the authorized bandwidth.[7] Testing for spurious emissions under this standard would eliminate the need for a guard band and for unnecessary filtering, but still would allow radio manufacturers to make the proper interference and operation analyses.

Issuing a letter ruling supporting Alcatel's position is in the public interest. First, allowing emission testing to be conducted totally outside the authorized bandwidth would promote additional available FS spectrum by increasing the actual usable capacity of each narrowband channel. Second, permitting testing under Alcatel's interpretation would not compromise necessary interference protection because FS radio manufacturers still would evaluate the same amount of out-of-band signals to determine if any unacceptable emissions exist. Third, it would facilitate narrowband digital radio product design because unnecessary and time consuming procedures no longer would be needed. Finally, excluding authorized bandwidth frequencies from out-of-band emission limitation testing would enhance marketability of domestically manufactured digital radios in global markets because products could be marketed more quickly without having to meet overly stringent requirements.

Should you have any questions or require additional information, kindly contact the undersigned counsel for Alcatel USA, Inc.

Sincerely,

Robert J. Miller

RJM/kma

cc: Michael Pollak, Federal Communications Commission

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[7] See Diagram 1, which depicts Alcatel's proposal.

DIAGRAM 1

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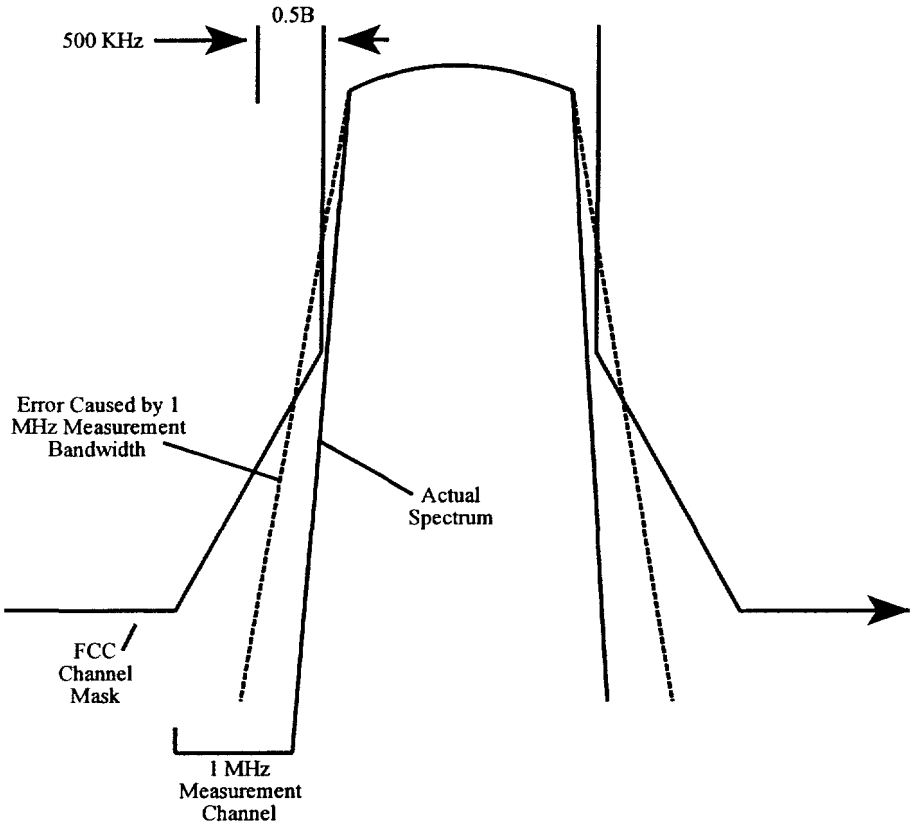

Error due to measurement of narrowband spectrum using a 1 MHz measurement bandwidth causes spectrum to appear to exceed the emission limits. This is due to inclusion of spectral power from inside the authorized channel.

854012.1