Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

ZOOM TELEPHONICS, INC.  
Complainant,

vs.

COMCAST CABLE
COMMUNICATIONS, LLC,
A Subsidiary of
COMCAST CORPORATION,
Respondent.

TO: Chief, Media Bureau

COMPLAINT

Kevin J. Martin  
Matthew B. Berry*  
PATTON BOGGS LLP  
2550 M Street, NW  
Washington, D.C. 20037  
(202) 457-6000

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* Admitted only in Virginia
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Complainant Zoom Telephonics, Inc. ("Zoom" or "Zoom Telephonics") makes the following allegations against Respondent Comcast Cable Communications, LLC ("Comcast"):  

I. INTRODUCTION AND SUMMARY

1. This is an action seeking relief for violations of the Commission’s regulations implementing Section 629 of the Communications Act of 1934, 47 U.S.C. § 549. Comcast, the nation’s largest cable operator and provider of broadband Internet access service, has flagrantly violated the Commission’s rules by infringing subscribers’ right to attach cable modems of their choice to Comcast’s network.

2. This year, Comcast instituted a new Physical and Environmental (P&E) testing regime that cable modems sold at retail must pass before Comcast will allow them to be attached to its network. This new testing program is in addition to four other sets of testing that a cable modem
must pass before it may be attached to Comcast’s network: a set of tests designed to ensure that a cable modem meets Federal Communications Commission (“FCC”) requirements; safety testing administered by Underwriters Laboratories (“UL”) or another nationally recognized testing laboratory (“NRTL”); a set of tests administered by CableLabs; and a certification testing regime administered by Comcast itself.

3. While the Commission’s regulations permit Comcast to restrict subscribers’ ability to attach cable modems only to prevent such devices from causing harm to the network or facilitating theft of service, the vast majority of Comcast’s P&E testing regime has nothing to do with either of these objectives.

4. Rather, Comcast’s P&E testing regime contains a host of unreasonable, irrelevant, time-consuming, and costly requirements that curtail the availability of cable modems at retail outlets and thereby encourage subscribers to lease or rent cable modems directly from Comcast. These new standards, among other things, address a modem’s weight, labeling, and packaging as well as its physical appearance following the application of various substances, such as waxes. They also require a cable modem to suffer no degradation in performance at temperatures far in above those generally found in the United States and well above the requirement for electronics equipment such as an iPad or a personal computer. Moreover, Comcast’s new testing regime requires cable modem manufacturers to pay for Comcast personnel to conduct lengthy site inspections at the manufacturer’s facility (along with business class airfare and expensive hotels).

5. In addition to implementing this unlawful set of requirements, Comcast has also violated the Commission’s rules by arbitrarily refusing even to test a new cable modem model with wireless connectivity that Zoom would like to introduce into the retail market. When Zoom
informed Comcast earlier this year that it wanted to submit two new cable modem models for testing, Comcast only agreed to accept one, notwithstanding the fact that Comcast is the only cable operator who charges cable modem manufacturers for such testing.

6. Unless the Commission provides relief in a prompt manner, Comcast’s anti-competitive behavior will harm consumers in at least two ways.

7. First, consumers’ ability to purchase cable modems at retail will be significantly diminished. Because Comcast provides service to approximately 39% of the cable market in the United States, a cable modem is not attractive to national retail chains unless that cable modem can be connected to the Comcast network. And Comcast’s new requirements significantly increase the cost and time required for a cable modem to qualify for attachment to the Comcast network (assuming that Comcast even agrees to accept that cable modem for testing). As a result, if Comcast’s new testing standards are allowed to remain in place, Zoom Telephonics, the second largest supplier of cable modems sold at retail in the United States, likely will not attempt to introduce any new cable modem models into the United States retail market, and the number of cable modems qualified in the future for use on Comcast’s network will substantially diminish.

8. Comcast’s new testing regime, as well as its arbitrary refusal to test certain new cable modems, therefore threatens all of the benefits associated with a competitive retail market for devices such as cable modems. Consumers will be faced with fewer choices, higher prices, and less innovation. The number of attractive cable modem products sold at national retailers such as Best Buy and Staples will diminish, and consumers will be even more likely to lease or rent a cable modem from Comcast. The retail cable modem market, already restricted by unusually
high costs and delays associated with the current certification processes, will become even less
dynamic and competitive, and may come to resemble the more troubled market for set-top boxes.

9. Second, in addition to harming the competitive retail market for cable modems
envisioned by Section 629, Comcast’s new testing regime and unilateral refusal to even test
certain devices also violate the Commission’s Open Internet principles. See Appropriate
Framework for Broadband Access to the Internet Over Wireline Facilities, Policy Statement, 20
proceeding, Comcast has stated that it has an “abiding commitment to the four principles of the
FCC’s Internet Policy Statement” and that it “is and will remain committed to the principles of
the Internet Policy Statement.” Opposition to Petitions to Deny and Response to Comments, MB
Docket No. 10-56, at 195 (filed July 21, 2010). Moreover, Comcast has represented to the
Commission that “[s]ince the company began offering [broadband service] in 1996, as one of the
first companies to deliver broadband to American homes, Comcast has operated in a manner
consistent with the openness embodied by the four principles of the FCC’s Internet Policy
Statement.” Id. at 193.

10. Comcast’s actions clearly violate the Commission’s Open Internet principles, which
entitle consumers to connect to the Internet their choice of non-harmful and legal devices. See
Policy Statement at ¶ 4. Indeed, Comcast does not even recognize this right to attach. Rather,
the company informed Zoom last month that “Comcast is under no obligation to certify Zoom’s
or any other vendor’s high speed Internet devices for use with Comcast’s broadband Internet
network.” This explicitly conflicts with the representations that Comcast has made about its
commitment to the Commission’s Open Internet principles in the Comcast-NBC Universal
merger proceeding.
11. This is not the first time that Comcast has threatened the open character of the Internet. In 2008, the Commission found that Comcast had unreasonably interfered with its customers’ use of peer-to-peer networking applications, including those that use the BitTorrent protocol. See In the Matters of Formal Complaint of Free Press and Public Knowledge Against Comcast Corporation for Secretly Degrading Peer-to-Peer Applications and Broadband Industry Practices Petition of Free Press et al. for Declaratory Ruling that Degrading an Internet Application Violates the FCC’s Internet Policy Statement and Does Not Meet an Exception for “Reasonable Network Management,” Memorandum Opinion and Order, 23 FCC Rcd 13028 (2008) (“Comcast Network Management Order”). The Commission concluded that Comcast’s actions had significantly impeded Internet users’ ability to use applications and access content of their choice. See id. at ¶ 44.

12. In order to remedy the anticompetitive effects of Comcast’s conduct, protect the competitive retail market for cable modems, and safeguard the open nature of the Internet, Zoom Telephonics respectfully requests that the Commission find Comcast in violation of the Commission’s rules implementing Section 629, 47 C.F.R. §§ 76.1201-03, enjoin Comcast from requiring cable modems sold at retail to participate in its P&E testing regime, enjoin Comcast from requiring cable modems sold at retail to participate in any Comcast testing unrelated to preventing harm to the network or theft of service; require Comcast to test Zoom’s two new cable modem models in an expedited fashion without charge; enjoin Comcast from asking CableLabs to add any additional testing requirements to its testing of these two new cable modems; enjoin Comcast from refusing to test Zoom cable modems in the future; order Comcast to publish its standards for testing cable modems and (i) provide a detailed justification for how each test relates to whether a device will harm its network or facilitate theft of service and (ii)
require Comcast to provide an explanation of why the CableLabs testing process does not fully address any justification or concerns about cable modems harming Comcast’s network or facilitating theft of service; and order other appropriate relief.

II. PARTIES

13. Complainant Zoom Telephonics produces cable modems and numerous other communications products. Currently, Zoom is the second largest supplier of cable modems to retailers in the United States, and cable modems represent approximately one-third of Zoom’s total sales. Zoom Telephonics is incorporated in Delaware. Complainant’s address is 207 South Street, Boston, MA 02111, and its telephone number is 617-423-1072.

14. Respondent Comcast Cable Communications, LLC is a subsidiary of Comcast Corporation. Comcast is the nation’s largest cable operator and provider of broadband Internet access service. Comcast’s address is One Comcast Center, Philadelphia, PA 19103. Its telephone number is 215-286-1700.

III. JURISDICTION AND CERTIFICATION

15. The Commission has jurisdiction over this complaint pursuant to Section 629 of the Communications Act and the regulations promulgated by the Commission to implement that statutory provision. This complaint is filed pursuant to 47 C.F.R. § 1.41 and 47 C.F.R. § 76.7.

16. Attached hereto as Exhibit 3 is a declaration executed by William Hume Vance, Director of Firmware Engineering for Zoom Telephonics, supporting the allegations set forth herein. See 47 C.F.R. § 76.6(a)(3).

17. Attached here to as Exhibits 4 through 7 is correspondence between Zoom personnel and Comcast personnel, supporting the allegations set forth herein. See 47 C.F.R. § 76.6(a)(3).
IV. STATUTORY AND REGULATORY BACKGROUND

18. In 1996, Congress, pursuant to Section 629 of the Communications Act, directed the Commission to “adopt regulations to assure the commercial availability, to consumers of multichannel video programming and other services offered over multichannel video programming systems, of converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor.” 47 U.S.C. § 549(a) (adopted as part of the Telecommunications Act of 1996, Pub. L. 104-104, 110 Stat. 56 (1996)) (emphasis added).


21. In its 1998 Report and Order, the Commission stated that “[t]he language of Section 629 indicates that Congress sought to have the marketplace offer consumers a choice over a broad range of equipment.” Id. at ¶ 25. The Commission therefore concluded that “Section 629 neither exempts nor limits any category of equipment used to access multichannel video programming or services offered over such systems from its coverage.” Id. The Commission specifically listed “televisions, VCRs, cable set-top boxes, personal computers, program guide
equipment, and cable modems,” id. (emphasis added), as examples of “navigation devices” that would be covered by the Commission’s regulations implementing Section 629.

22. In order to promote competition and facilitate the commercial availability of equipment, the Commission “mandate[d] that subscribers have a right to attach any compatible navigation device to an MVPD system, regardless of its source, subject to the proviso that the attached equipment not cause harmful interference, injury to the system or compromise legitimate access control mechanisms.” Id. at ¶ 26. The Commission concluded that this “right to attach” would create a “substantial incentive” for manufacturers “to develop and distribute new products in response to consumer demands for equipment and features” and “lead to a broader market for equipment used with MVPD systems.” Id.

23. The Commission codified this “right to attach” in three separate rules that are relevant for purposes of this complaint proceeding.

24. First, the Commission prohibited any MVPD from “prevent[ing] the connection or use of navigation devices to or with its multichannel video programming system, except in those circumstances where electronic or physical harm would be caused by the attachment or operation of such devices or such devices may be used to assist or are intended or designed to assist in the unauthorized receipt of service.” 47 C.F.R. § 76.1201.

25. Second, the Commission forbid any MVPD to “by contract, agreement, patent right, intellectual property right or otherwise prevent navigation devices that do not perform conditional access or security functions from being made available to subscribers from retailers, manufacturers, or other vendors that are unaffiliated with such owner or operator, subject to [theft of service protections].” 47 C.F.R. § 76.1202.
26. Third, while the Commission allowed an MVPD to develop "standards and
descriptions of devices that may not be used with or attached to its system," the Commission
required that those "standards shall foreclose the attachment or use only of such devices as raise
reasonable and legitimate concerns of electronic or physical harm or theft of service." 47 C.F.R.
§ 76.1203 (emphasis added). The Commission also cautioned that any standards developed by
an MVPD may not be used "as a means to unreasonably restrict the use of navigation devices
obtained from a source other than an MVPD." 1998 Report and Order at ¶ 38.

27. Following the 1998 adoption of these regulations, the Commission has not amended
any of these three rules that form the core of the “right to attach”: 47 C.F.R. §§ 76.1201-76.1203.

28. Neither has the Commission deviated from its position that cable modems are
covered by Section 629 and the rules it adopted to assure the commercial availability of
navigation devices. Most recently, in its National Broadband Plan, the Commission reaffirmed
that Section 629 covers cable modems. See Connecting America: The National Broadband Plan,
at 24, n.24 (2010).

29. In 2005, the Commission issued a Policy Statement affirming the Commission’s
commitment to maintaining the open character of the Internet. Specifically, the Commission
concluded that it had “a duty to preserve and promote the vibrant and open character of the
Internet as the telecommunications marketplace enters the broadband age.” Policy Statement at ¶
5. It therefore adopted four principles “to ensure that broadband networks are widely deployed,
open, affordable, and accessible to all consumers.” Id. at ¶ 4.

30. One of these principles states as follows: “To encourage broadband deployment and
preserve and promote the open and interconnected nature of the public Internet, consumers are
entitled to connect their choice of legal devices that do not harm the network.” Id.
31. In 2008, the Commission concluded that Comcast had run afoul of federal Internet policy by selectively targeting and interfering with its customers’ use of peer-to-peer applications. See Comcast Network Management Order. Specifically, the Commission found that Comcast had acted contrary to one of the principles set forth in its Policy Statement by “significantly impeding consumers’ ability to access the content and use the applications of their choice.” Id. at ¶ 44. Thus, the Commission concluded that Comcast’s conduct posed “a substantial threat to both the open character and efficient operation of the Internet.” Id. at ¶ 51.

32. While the U.S. Court of Appeals for the District of Columbia Circuit ruled in 2010 that the Commission had failed to demonstrate that it had the statutory authority to take enforcement action against Comcast for its conduct, it did not dispute any of the Commission’s factual findings regarding Comcast’s behavior. See Comcast Corp. v. FCC, 600 F.3d 642 (D.C. Cir. 2010).

V. STATEMENT OF FACTS

A. Zoom Telephonics

33. Zoom Telephonics was founded in 1977. It is based in Boston and produces cable modems, ADSL modems, dial-up modems, wireless products, Voice over Internet Protocol products, and other communications products. Ex. 3, ¶ 4.

34. Zoom began to produce cable modems in 2001. Since that time, it has developed and offered for sale in the United States six cable modem models. Ex. 3, ¶ 8.

35. Currently, Zoom produces two cable modem models: a DOCSIS 2.0 model; and a DOCSIS 3.0 model. Ex. 3, ¶ 8.

36. Zoom focuses on producing and distributing its cable modems to national retail outlets. Although Zoom also sells cable modems through a few smaller cable service providers
in the United States and abroad, the majority of Zoom’s customers buy cable modems at high-volume retailers such as Best Buy, Staples, Fry’s, and Micro Center. Ex. 3, ¶ 9.

37. Zoom is currently the second-largest producer of cable modems at retail in the United States – second only to Motorola. At present, cable modems comprise one-third of Zoom’s current sales. Ex. 3, ¶ 9.

B. Testing and Certification Requirements for Cable Modems

38. Before a cable modem model may be sold in the United States and attached to cable operators’ networks, it must undergo a plethora of tests and meet a variety of standards. The required certification programs vary both in terms of cost and the time needed to complete testing. Ex. 3, ¶ 10-15.

39. First, the Federal Communications Commission (“FCC”) requires that cable modems and other home electronics equipment meet the requirements of Part 15, Subpart B of the Commission’s rules (“FCC Part 15B”). These requirements restrict the electronic emissions of a cable modem or other electronic device radiated into the environment or conducted onto AC power lines. When an independent lab performs testing of a cable modem that meets the FCC’s requirements, the process, including tests, generation of a test report, and receipt of a certificate of FCC conformity from the testing lab, generally takes about four weeks and costs between $6,000 and $8,000. Ex. 3, ¶ 11.

40. Second, to be sold in all jurisdictions and used in all workplaces within the United States, cable modems must be safety tested. The requisite testing may be administered by any nationally recognized testing laboratory (“NRTL”). Underwriters Laboratories (“UL”) is the largest and most widely recognized NRTL. UL tests cable modems for a variety of potential safety risks, such as fire, electric shock, and hot surfaces. Safety testing of a cable modem typically costs between $6,500 and $8,500 and takes six to eight weeks. Ex. 3, ¶ 12.
41. Third, cable modems must complete CableLabs testing. CableLabs is a research and development consortium of cable operators. CableLabs tests cable modems for adherence to a set of standards called the Data Over Cable Service Interface Specification ("DOCSIS"). These standards have been developed so that all equipment from all cable modem manufacturers can operate on the networks of all cable operators. DOCSIS includes radio frequency interface ("RFI") standards designed, among other considerations, to ensure that a cable modem will not inject harmful signals into a cable operator's network, and a Baseline Privacy Interface ("BPI") to ensure that a cable modem will not facilitate theft of services. DOCSIS also ensures that a cable modem will not transmit in a time slot reserved for another cable modem. Ex. 3, ¶ 13.

42. A cable modem manufacturer seeking certification from CableLabs first must conduct a suite of tests that verify its cable modem complies with DOCSIS standards and turn in appropriate documentation as part of its submission. Success in this part of the CableLabs certification is defined as passing every test, with not a single failure unless CableLabs agrees to a documented exception. CableLabs itself then may run the cable modem through any or all of the tests specified in the DOCSIS test suite. CableLabs also evaluates how the cable modem handles large data flows over extended periods and tests for interoperability with other DOCSIS equipment in its laboratories. The interoperability testing evaluates in a realistic setting whether the cable modem injects harmful signals into the network and/or transmits at times reserved for other cable modems. CableLabs also verifies the validity of the cable modem's security mechanisms to ensure that the device will not facilitate theft of service. Ex. 3, ¶ 14.

43. CableLabs testing for new cable modem models generally costs $75,000 and takes twelve weeks to complete, though tests for a DOCSIS 2.0 cable modem model may take as few as eight weeks. Ex. 3, ¶ 15.
44. Because CableLabs certification testing verifies that a cable modem adheres to DOCSIS specifications, it is extremely unlikely that a CableLabs-certified cable modem will inject harmful signals into a network, or otherwise cause electronic or physical harm to a network. DOCSIS specifications ensure within very stringent limits that a cable modem’s signals will neither harm the provider’s network nor interfere with other cable modems or equipment connected to that network. Ex. 3, ¶ 28.

45. It is also extremely unlikely that a CableLabs-certified cable modem will facilitate the unauthorized receipt of service from a cable operator. DOCSIS specifications include the BPI security infrastructure that dramatically minimizes the possibility that someone could steal service using a cable modem. Ex. 3, ¶ 29.

46. Once a cable modem model has been certified by the FCC, an NRTL, and CableLabs, it may be attached to the networks of many cable operators in the United States. For example, Time Warner Cable does not require a cable modem to undergo any additional company-specific testing. Ex. 3, ¶ 19.

47. However, some other cable operators have their own proprietary certification programs. For example, Cox Communications requires additional certification testing at the company’s own laboratories before a cable modem is permitted to attach to its network. Ex. 3, ¶ 19.

C. Comcast’s Testing and Certification Requirements for Cable Modems

48. Comcast, the nation’s largest cable operator and broadband service provider, runs its own testing program. Cable modems must pass Comcast’s tests before they may be attached to Comcast’s network. See Ex. 12. Comcast mandates this testing both for cable modems that are distributed to retailers and cable modems that Comcast directly purchases and leases to customers. Ex. 3, ¶ 22.
49. Comcast’s extensive testing in its laboratories begins after a cable modem has
obtained FCC, NRTL, and CableLabs approval. Moreover, Comcast imposes a fee for its
mandatory tests, and Zoom is unaware of any other cable operator in the United States that does
so. Comcast’s lab testing regime costs $25,000, can only begin at certain times specified by
Comcast, and takes 6 weeks for laboratory tests followed by another 3 weeks for a beta test,
where a modem is placed in a live operating network and its performance is monitored. Ex. 3, ¶
23, 25.

50. Any cable modem model sold through nationwide retailers in the United States must
be accepted on the Comcast network in order for it to be a commercially viable product. This is
because Comcast accounts for approximately 39% of all cable customers in the United States. A
cable modem that does not have Comcast certification and that is offered, for example, in all
Best Buy and Staples stores will have an extremely high return rate, unless it clearly states that it
cannot be used on Comcast’s network, thereby significantly reducing the available market. Ex.
3, ¶ 27.

D. Comcast’s Testing of Zoom’s New DOCSIS 3.0 Cable Modem Model

51. Earlier this year, Zoom introduced a new DOCSIS 3.0 cable modem model into the
retail market and encountered substantial difficulty in obtaining certification so that it could be
attached to Comcast’s network. See Ex. 3, ¶ 26.

52. In January 2010, Zoom contacted Comcast’s test group to initiate submission of its
new DOCSIS 3.0 cable modem model for testing. After several discussions, Zoom was
informed that the DOCSIS 3.0 model would have to undergo Comcast’s Physical and
Environmental (“P&E”) tests in addition to its standard “certification” tests. Ex. 3, ¶ 32-33.

53. Because Zoom sells its modems at retail rather than selling them directly to Comcast,
these P&E tests had never before been applied to Zoom’s cable modems. Comcast provided
little information about these new P&E tests, other than a flow chart about the process that, among other things, mentioned an “onsite-evaluation” requirement. Ex. 10. Zoom’s OEM partner for the device suggested that the P&E testing was inappropriate for a cable modem to be provided at retail, and that Zoom should ask Comcast to waive this testing for this reason. Ex. 3, ¶ 34-36.

54. Following further discussions between Zoom and Comcast, Comcast agreed to waive the P&E testing for Zoom’s new DOCSIS 3.0 cable modem model because, like prior Zoom models, it was going to be sold at retail rather than being purchased directly by Comcast. Ex. 3, ¶ 37, 44.

55. Zoom received CableLabs certification for its DOCSIS 3.0 cable modem on February 23, 2010. However, Zoom’s attempt to get its cable modem model certified for attachment to Comcast’s network was delayed. Zoom planned to submit the new DOCSIS 3.0 cable modem model to Comcast on March 1, 2010, so that testing would be completed in mid-April. As the project progressed, it may not have been possible for Zoom to prepare and submit samples to Comcast by March 1. In any case, Comcast informed Zoom in late February that there was a bottleneck for “DOCSIS devices” to be sold at retail in its testing facility and that Zoom’s submission would need to be delayed. Ex. 3, ¶ 38-40.

56. More than a month later, Comcast lifted this hold and allowed Zoom to submit the new DOCSIS 3.0 cable modem model for testing on April 1, 2010. Ex. 3, ¶ 42.

57. Zoom’s submission did not pass Comcast’s tests because of an issue Comcast identified with the software for the Texas Instruments chipset in the modem. Specifically, following a power outage or similar disruption to service, there could be a delay before the cable modem registered with the network. This problem, however, would not have caused electronic
or physical harm to Comcast’s network. Neither would it have facilitated theft of service. The registration delay would have been an inconvenience to the cable modem’s owner. Additionally, once a cable modem has registered, it is likely to remain connected for a considerable length of time, typically months or even years, before it experiences a service disruption, depending, for instance, on the time until the next power outage. During that time, a code update could have been propagated to users, so that the vast majority would never have experienced the problem at all. Ex. 3, ¶ 42, 46.

58. Zoom addressed this issue and resubmitted the modem to Comcast on May 1, 2010. This time, the new DOCSIS 3.0 cable modem model passed Comcast’s tests, and it was approved for attachment to Comcast’s network on June 23, 2010, more than two months after the date that Zoom had initially anticipated that testing would be completed. Ex. 3, ¶ 43.

59. When Comcast notified Zoom that its new DOCSIS 3.0 cable modem model had passed testing, it informed Zoom that the modem had “passed our lab-based certification tests for a retail-only device. As noted before, this means we did not execute physical and environmental tests since these are not devices to be purchased by Comcast.” Ex. 7, at 10; Ex. 3, ¶ 44.

60. The substantial delay caused by Comcast’s testing process caused Zoom significant hardship in dealing with retail stores that initially expected shipments of cable modems by April 15, 2010. Ex. 3, ¶ 45.

E. Zoom’s Two New DOCSIS 2.0 Cable Modem Models

61. During the summer of 2010, Zoom concluded that it needed to produce a new DOCSIS 2.0 cable modem model. This is because Zoom soon would no longer be able to produce its current model due to the fact it was becoming impossible to obtain the necessary parts. Ex. 3, ¶ 49.
62. Zoom planned to produce a direct replacement for the current model with a wired Ethernet Local Access Network ("LAN") port, and another DOCSIS 2.0 cable modem model with wireless connectivity. Ex. 3, ¶ 49.

63. Zoom’s DOCSIS 2.0 cable modem model currently outsells its DOCSIS 3.0 cable modem by a margin of greater than two-to-one. This, in part, is because the DOCSIS 2.0 model sells for about twenty dollars less than the DOCSIS 3.0 model, and in part is because broadband service tiers that require DOCSIS 3.0 modems to achieve the higher speeds associated with those tiers cost considerably more than comparatively slower tiers whose speeds are supported by both DOCSIS 2.0 and DOCSIS 3.0 modems. Ex. 3, ¶ 50.

64. On August 31, 2010, Hume Vance, Director of Firmware Engineering at Zoom Telephonics, informed Comcast that Zoom would have to stop manufacturing its current DOCSIS 2.0 cable modem next year and was planning to produce a new DOCSIS 2.0 model ("Model 5242") to replace it. Ex. 3, ¶ 51. Mr. Vance shared some details regarding the activity of Model 5242’s light-emitting diodes (LEDs) and asked if Comcast would be able to approve such a cable modem. Ex. 6, at 2.

65. Earle Iveson, the Director of Comcast’s Certification Lab, responded to Mr. Vance’s inquiry on September 8, 2010. In his e-mail message, he questioned whether Comcast would even be willing to test a new DOCSIS 2.0 cable modem. Ex. 6, at 1; Ex. 3, ¶ 51.

66. The next day, Frank Manning, Zoom’s President and Chief Executive Officer, contacted Jason Livingood, Executive Director of Internet Systems Engineering at Comcast, to seek a clarification of Comcast’s position regarding the testing of DOCSIS 2.0 cable modems. In particular, Mr. Manning expressed his concern that Comcast might not be willing to test new DOCSIS 2.0 cable modems. Mr. Manning indicated that Zoom was looking to update its current
DOCSIS 2.0 cable modem and was also considering the introduction of a DOCSIS 2.0 cable modem with wireless connectivity for retail. Mr. Manning expressed Zoom’s view that Comcast “must have a process for certifying these cable modems” and that the “FCC and Congress would not accept the notion of Comcast effectively preventing any new [DOCSIS] 2.0 cable modems from being offered by national retailers like Best Buy and Staples.” He further pointed out that DOCSIS 3.0 cable modems were much more expensive to manufacture than DOCSIS 2.0 cable modems. In conclusion, Mr. Manning asked Mr. Livingood to confirm that Comcast would continue to certify DOCSIS 2.0 cable modems in a timely manner and stated that he looked forward to continuing to work cooperatively with Comcast. Ex. 6, at 3; Ex. 3, ¶ 52.

67. Mr. Livingood responded to Mr. Manning later that day but did not address any of Mr. Manning’s concerns. Rather, Mr. Livingood indicated that because Mr. Manning had mentioned “the FCC and/or legal action,” he could not be “further involved in this topic” and was referring the matter to Jeffrey Smith, Comcast Vice President and Deputy General Counsel. Ex. 6, at 3; Ex. 3, ¶ 52.

68. Following further discussions between Mr. Manning and Mr. Smith, Mr. Manning sent a letter to Mr. Smith on September 13, 2010. Mr. Manning asked that Comcast promptly agree to test Zoom’s two new DOCSIS 2.0 cable modems models provided that they complied with certain principles set forth in Mr. Manning’s letter. Mr. Manning also quoted the language of Section 629 of the Communications Act and stated that it was important for Comcast to act in a manner consistent with that provision. Ex. 3, ¶ 54.

69. Mr. Smith answered Mr. Manning’s letter on October 6, 2010. In his response, Mr. Smith stated that “Comcast ceased its review and certification of DOCSIS 2.0 devices approximately one year ago.” Although Mr. Smith admitted that Comcast had “not yet
designated DOCSIS 2.0 modems as ‘End of Life’” and continued to purchase and deploy such modems, he maintained that Comcast had “scaled back its purchase of those modems significantly and increasingly deploys DOCSIS 3.0 modems to its customers.” Ex. 5, at 2.

70. In his October 6 letter, Mr. Smith also took the position that “Comcast is under no obligation to certify Zoom’s or any other vendor’s high speed Internet devices for use with Comcast’s broadband Internet network.” In support of that position, Mr. Smith falsely claimed that Section 629 did not apply to “cable modem devices or services,” but rather “clearly and solely applies to converter boxes and other equipment used to access multichannel video programming and services.” Ex. 5, at 2. See Ex. 3, ¶ 56.

71. Mr. Smith concluded his letter by stating that notwithstanding Comcast’s concerns, it was willing to test “Zoom’s modification to its previously approved DOCSIS 2.0 device only.” He informed Mr. Manning that Comcast was “currently evaluating the impact of such an exception to [its] existing device testing process and policies, and [was] reviewing resources required to accommodate [Zoom’s] request.” He further advised Mr. Manning that a representative from Comcast would contact Zoom “with additional information in the next few weeks.” Ex. 5, at 2.

72. On October 7, 2010, Mr. Manning sought clarification from Mr. Smith as to what Comcast was willing to test. Mr. Smith responded that Comcast was only willing to proceed with testing one device: “the device for which [Zoom is] changing the current chipset (and accompanying electronics).” Ex. 6, at 5. Mr. Manning thanked Mr. Smith for the clarification. He stated that Zoom would “go forward with that one DOCSIS 2.0 cable modem product right away.” Ex. 6, at 7. See Ex. 3, ¶ 58.
73. On October 12, 2010, Norm Baker, a Senior Network Engineer at Comcast, contacted Mr. Manning and Mr. Vance. Mr. Baker indicated that he had been asked to contact Zoom to begin making arrangements for the testing of Zoom’s new DOCSIS 2.0 cable modem device. Mr. Baker attached to his e-mail message, Ex. 6, at 7, documents related to Comcast’s P&E testing regime. Ex. 8; Ex. 9; and Ex. 11. See Ex. 3, ¶ 59.

74. Because Zoom’s cable modems had never before been subject to Comcast’s P&E testing regime, Mr. Vance was concerned by Mr. Baker’s message and reached out to Mr. Livingood. Ex. 3, ¶ 60. In his e-mail message, Mr. Vance first expressed Zoom’s appreciation that Comcast had agreed to test Zoom’s new DOCSIS 2.0 cable modem device. He then informed Comcast that Zoom’s plan was to sell this device at retail only and recounted that when Zoom had submitted its new DOCSIS 3.0 cable modem model to Comcast earlier in the year, Comcast had waived its P&E testing requirements because the cable modem was to be sold at retail only. Mr. Vance then asked whether the P&E tests similarly could be waived for Comcast’s new DOCSIS 2.0 cable model device. Ex. 6, at 10; Ex. 3, ¶ 61.

75. In response to Mr. Vance’s question, Mr. Livingood refused to waive Comcast’s P&E tests. Rather, he indicated that Comcast’s “testing/cert policies continue to evolve” and that Comcast now believed “it is important that all devices in the network, whether customer-purchased or Comcast-purchased, should pass P&E evaluation.” Ex. 6, at 10; Ex. 3, ¶ 62.

76. Mr. Vance asked both Mr. Livingood and Mr. Iveson when Comcast had changed its testing policies and if there was a document that described those policies. Mr. Livingood responded that he wasn’t sure why it mattered when the policy had changed and that any questions concerning the policy modification should be referred to Mr. Smith. Mr. Livingood further stated: “I’m sure we can send you a formal letter explaining the fact that P&E testing is
part of the certification process, but I’m unsure of the utility of that given that we’ve already explained that via email.” Ex. 6, at 16; Ex. 3, ¶ 62.

F. Comcast’s P&E Testing Regime

77. That same day, Mr. Vance and Mr. Baker exchanged e-mail messages that shed additional light on the requirements of Comcast’s P&E testing regime. For example, Mr. Baker indicated that Comcast would need to perform two weeks of onsite inspections at Zoom’s facilities. Ex. 6, at 12-14.

78. The vast majority of the requirements contained in Comcast’s P&E testing regime have nothing to do with preventing electronic or physical harm to Comcast’s network or theft of service, and are unreasonable for Comcast to apply to cable modems purchased by their subscribers at retail. Ex. 3, ¶ 67-68.

79. For example, Comcast evaluates the performance of cable modems at temperatures far above those generally found in the United States and far above those at which many other electronic devices are designed to operate. Specifically, Ex. 8, at 11. Zoom’s cable modems support operation at ambient temperatures from 0° to 40°C (32° to 104°F). For reference, the Apple iPad is specified to operate from 0° to 35°C (32° to 95°F), and a typical HP PC (for example, the model HP Pro 3130 Minitower) is specified to operate from 5° to 35°C (41° to 95°F). Even if a cable modem were to suffer decreased performance at extremely high temperatures, this would not cause harm to the network or facilitate theft of service. Ex. 3, ¶ 69.

80. Comcast places greater restrictions on the surface temperatures of cable modems than are found in UL safety standards. Specifically,
Ex. 8, at 13. Zoom’s cable modems meet UL safety standards (UL 60950) that a plastic case of an electronic device may nowhere exceed 70°C, when the device is operated at an ambient temperature of 25°C. Stricter regulations regarding the temperature of a cable modem’s outside surface neither protect Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.

81. Comcast regulates how the prolonged application of certain substances to a cable modem affects its appearance. Specifically, Ex. 8, at 20. This requirement neither protects Comcast’s network from harm nor prevents theft of service. Ex. 3, ¶ 69.

82. Comcast regulates a cable modem’s weight. Specifically, Ex. 8, at 14. This requirement neither protects Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.

83. Comcast regulates the strength of a cable modem’s packaging. Specifically Ex. 8, at 19. This requirement neither protects Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.

84. Comcast places labeling requirements on cable modems. Specifically,
neither protects Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.

85. Comcast sets forth rules regarding the placement of a bar code label on a cable modem’s packaging. Specifically, Comcast Ex. 8, at 15. This requirement neither protects Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.

86. Comcast regulates how fluctuations in voltage affect the modem’s performance. Specifically, Ex. 8, at 19. These requirements neither protect Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.

87. Comcast tests how a cable modem’s performance is affected by sudden changes in humidity. Specifically, Ex. 8, at 20. The criteria listed for this test do not include testing for harm to the network, or for the potential theft of services. Ex. 3, ¶ 69.

88. Comcast sets absurd standards for testing the robustness of a cable modem’s buttons and switches. Specifically, Ex. 8, at 24. UL safety testing already confirms that Zoom’s cable modems meet relevant overvoltage protection requirements. These requirements neither protect Comcast’s network from harm nor prevent theft of service. Ex. 3, ¶ 69.
Ex. 8, at 20. Zoom’s cable modems include a reset button that is very unlikely to be pressed even 100 times in a product’s lifespan. This requirement neither protects Comcast’s network from harm nor prevents theft of service. Ex. 3, ¶ 69.

89. Zoom informed its supplier for another cable modem model that Comcast was now applying its P&E requirements to devices sold at retail. The supplier made independent inquiries to Comcast and concluded that the cost to Zoom of Comcast’s P&E testing would be approximately $40,000. Ex. 3, ¶ 66.

90. Some of this expense would be incurred because Comcast requires a cable modem manufacturer to pay for Comcast personnel to travel via business class and stay at a five-star hotel while two weeks of site inspections at the manufacturing facility is carried out. In the case of Zoom’s new DOCSIS 2.0 cable modem model, this would involve a trip to Asia. Ex. 3, ¶ 66.

91. Zoom also consulted with the supplier for Zoom’s new DOCSIS 2.0 cable modem model regarding Comcast’s P&E testing. The supplier’s personnel informed Zoom that they believed the device would not pass the ingress requirements spelled out in a test suite referred to as SCTE 40, Ex. 9, that is part of Comcast’s P&E tests. Comcast’s requirements go beyond any requirements under the DOCSIS specifications in demanding that a cable modem successfully decode a weak signal in the presence of multiple severe impairments. Ingress requirements do not relate to harmful signals that the cable modem might inject into the network, nor do they relate to potential theft of a cable operator’s service. Ex. 3, ¶ 63, 64.

92. The supplier’s personnel also told Zoom that they doubted that any current DOCSIS 2.0 cable modem device would be able to meet the P&E requirements, including devices that Comcast was continuing to distribute to its subscribers. Ex. 3, ¶ 65.
93. The supplier’s personnel indicated that meeting the ingress requirements as well as satisfying other elements of the P&E testing regime would require a redesign of the modem and cost considerable time and money. They also informed Zoom that any attempt at such a redesign might not succeed on the first attempt. Ex. 3, ¶ 65. In addition, the supplier estimated that Comcast’s P&E requirements would increase by five to seven dollars the previous unit price quote for Zoom’s volume purchase of a new DOCSIS 3.0 cable modem model with wireless connectivity. The higher price is caused by design changes that would need to be made to the cable modem to attempt to meet the P&E requirements. These changes are not necessary to prevent harm to the network or theft of service. Ex. 3, ¶ 73.

94. Because of the costs associated with Comcast’s new P&E testing as well as the uncertainties associated with whether a redesigned DOCSIS 2.0 cable modem model could pass Comcast’s tests and be approved for attachment to its network, Zoom decided that it could not bring its new DOCSIS 2.0 cable modem model to market if it was subject to Comcast’s P&E requirements. Ex. 3, ¶ 66.

95. Moreover, Zoom executives have concluded that it likely will be unable to introduce another cable modem model at retail if Zoom is required to participate in P&E testing before a new cable modem model may be attached to Comcast’s network. Ex. 3, ¶ 72.

96. In all of its experience with manufacturing cable modems, Zoom is not aware of an instance where one of its devices has caused harm to a cable operator’s network, or where a Zoom device has facilitated the theft of service from a cable operator. Ex. 3, ¶ 30.
COUNT ONE

UNLAWFUL STANDARDS FOR ATTACHING DEVICES
47 C.F.R. § 76.1203

97. Complainant Zoom repeats and realleges each and every allegation contained in
paragraphs 1 through 96 of this Complaint.

98. 47 C.F.R. § 76.1203 provides in full: “A multichannel video programming distributor
may restrict the attachment or use of navigation devices with its system in those circumstances
where electronic or physical harm would be caused by the attachment or operation of such
devices or such devices that assist or are intended or designed to assist in the unauthorized
receipt of service. Such restrictions may be accomplished by publishing and providing to
subscribers standards and descriptions of devices that may not be used with or attached to its
system. Such standards shall foreclose the attachment or use only of such devices as raise
reasonable and legitimate concerns of electronic or physical harm or theft of service.” (Emphasis
added).

99. Navigation devices are defined in the Commission’s rules to be “[d]evices such as
converter boxes, interactive communications equipment, and other equipment used by consumers
to access multichannel video programming and other services offered over multichannel video
programming systems.” 47 C.F.R. § 76.1200(c).

100. A cable modem is a navigation device pursuant to the Commission’s definition
because it is used by consumers to access other services (namely, broadband Internet access
services) offered over a multichannel video programming system.

101. Comcast currently will not certify a new cable modem model for attachment to its
system unless that cable modem has been deemed to comply with the standards set forth in its
P&E testing regime.
102. Numerous standards contained in Comcast's P&E testing regime do not relate to whether a cable modem will cause electronic or physical harm to Comcast's network or facilitate theft of service.

103. Accordingly, by virtue of the acts described above, Comcast has violated 47 C.F.R. § 76.1203 by employing standards through its P&E testing regime that foreclose the attachment of cable modems to its system even when there are no reasonable and legitimate concerns that such modems would cause electronic or physical harm to its network or theft of service.

**COUNT TWO**

**VIOLATION OF RIGHT TO ATTACH**

47 C.F.R. § 76.1201

104. Complainant Zoom repeats and realleges each and every allegation contained in paragraphs 1 through 96 of this Complaint.

105. 47 C.F.R. § 76.1201 provides in full: “No multichannel video programming distributor shall prevent the connection or use of navigation devices to or with its multichannel video programming system, except in those circumstances where electronic or physical harm would be caused by the attachment or operation of such devices or such devices may be used to assist or are intended or designed to assist in the unauthorized receipt of service.”

106. Navigation devices are defined in the Commission’s rules to be “[d]evices such as converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems.” 47 C.F.R. § 76.1200(c).

107. A cable modem is a navigation device pursuant to the Commission’s definition because it is used by consumers to access other services (namely, broadband Internet access services) offered over a multichannel video programming system.
108. Comcast currently will not allow subscribers to attach newly designed cable modem models to its system unless those cable modem models have participated in Comcast’s P&E testing regime and been deemed to comply with Comcast’s P&E standards.

109. Numerous standards contained in Comcast’s P&E testing regime do not relate to whether a cable modem will cause electronic or physical harm to Comcast’s network or facilitate theft of service.

110. Accordingly, by virtue of the acts described above, Comcast is preventing the connection of cable modems to its system in circumstances other than those where electronic or physical harm would result or such devices could be used to assist in the unauthorized receipt of service, thereby infringing its subscribers’ right to attach equipment in violation of 47 C.F.R. § 76.1201.

COUNT THREE

RESTRICTING AVAILABILITY OF DEVICES
47 C.F.R. § 76.1202

111. Complainant Zoom Telephonics repeats and realleges each and every allegation contained in paragraphs 1 through 96 of this Complaint.

112. 47 C.F.R. § 76.1202 provides in full: “No multichannel video programming distributor shall by contract, agreement, patent right, intellectual property right or otherwise prevent navigation devices that do not perform conditional access or security functions from being made available to subscribers from retailers, manufacturers, or other vendors that are unaffiliated with such owner or operator, subject to 76.1209.”

113. Navigation devices are defined in the Commission’s rules to be “[d]evices such as converter boxes, interactive communications equipment, and other equipment used by consumers
to access multichannel video programming and other services offered over multichannel video programming systems.” 47 C.F.R. § 76.1200(c).

114. A cable modem is a navigation device pursuant to the Commission’s definition because it is used by consumers to access other services (namely, broadband Internet access services) offered over a multichannel video programming system.

115. Comcast currently will not allow subscribers to attach newly designed cable modem models to its system unless those cable modem models have participated in Comcast’s P&E testing regime and been deemed to comply with Comcast’s P&E standards.

116. Given that Comcast is the largest provider of cable Internet services in the county, manufacturers are unlikely to introduce new cable modem models to national retailers unless those cable modems are approved for attachment to Comcast’s network.

117. The expense, delays, difficulties, and uncertainties associated with Comcast’s new P&E testing regime will prevent cable modem manufacturers from introducing certain new cable modem models into the retail market.

118. Accordingly, by virtue of the acts described above, Comcast has violated 47 C.F.R. § 76.1202 by employing impermissible testing standards for cable modems that have the effect of preventing cable modems from being made available to its subscribers by retailers and manufacturers unaffiliated with Comcast.

COUNT FOUR

UNLAWFUL STANDARDS FOR ATTACHING DEVICES
47 C.F.R. § 76.1203

119. Complainant Zoom repeats and reallege each and every allegation contained in paragraphs 1 through 96 of this Complaint.
120. 47 C.F.R. § 76.1203 provides in full: "A multichannel video programming distributor may restrict the attachment or use of navigation devices with its system in those circumstances where electronic or physical harm would be caused by the attachment or operation of such devices or such devices that assist or are intended or designed to assist in the unauthorized receipt of service. Such restrictions may be accomplished by publishing and providing to subscribers standards and descriptions of devices that may not be used with or attached to its system. Such standards shall foreclose the attachment or use only of such devices as raise reasonable and legitimate concerns of electronic or physical harm or theft of service."

(Emphasis added).

121. Navigation devices are defined in the Commission's rules to be "[d]evices such as converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems." 47 C.F.R. § 76.1200(c).

122. A cable modem is a navigation device pursuant to the Commission's definition because it is used by consumers to access other services (namely, broadband Internet access services) offered over a multichannel video programming system.

123. Comcast will not allow a subscriber to attach cable modem model to its system unless that cable modem model has been tested by Comcast and deemed to meet Comcast's standards.

124. In October 2010, Comcast would not test Zoom's new DOCSIS 2.0 cable modem model with wireless connectivity, and its reasons for refusing to accept Zoom's new model for testing had nothing to do with concerns that the modem would cause harm to Comcast's network or facilitate theft of service.
125. Accordingly, by virtue of the acts described above, Comcast has violated 47 C.F.R. § 76.1203 by refusing to test Zoom’s new DOCSIS 2.0 cable modem model with wireless connectivity so that it could be attached to Comcast’s network.

COUNT FIVE

RESTRICTING AVAILABILITY OF DEVICES
47 C.F.R. § 76.1202

126. Complainant Zoom Telephonics repeats and realleges each and every allegation contained in paragraphs 1 through 96 of this Complaint.

127. 47 C.F.R. § 76.1202 provides in full: “No multichannel video programming distributor shall by contract, agreement, patent right, intellectual property right or otherwise prevent navigation devices that do not perform conditional access or security functions from being made available to subscribers from retailers, manufacturers, or other vendors that are unaffiliated with such owner or operator, subject to 76.1209.”

128. Navigation devices are defined in the Commission’s rules to be “[d]evices such as converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems.” 47 C.F.R. § 76.1200(c).

129. A cable modem is a navigation device pursuant to the Commission’s definition because it is used by consumers to access other services (namely, broadband Internet access services) offered over a multichannel video programming system.

130. Comcast will not allow a subscriber to attach cable modem model to its system unless that cable modem model has been tested by Comcast and deemed to meet Comcast’s standards.
131. In October 2010, Comcast would not test Zoom’s new DOCSIS 2.0 cable modem model with wireless connectivity. Because Comcast currently is the largest cable operator in the United States, it is not economically viable for Zoom to introduce a new cable modem model into the retail market unless it is approved for use on Comcast’s system.

132. Accordingly, by virtue of the acts described above, Comcast has violated 47 C.F.R. § 76.1202 by arbitrarily refusing to test a new Zoom DOCSIS 2.0 cable modem model with wireless connectivity and thus preventing that model from being made available to its subscribers by retailers and manufacturers unaffiliated with Comcast.

COUNT SIX

UNLAWFUL STANDARDS FOR ATTACHING DEVICES
47 C.F.R. § 76.1203

133. Complainant Zoom repeats and realleges each and every allegation contained in paragraphs 1 through 96 of this Complaint.

134. 47 C.F.R. § 76.1203 provides in full: “A multichannel video programming distributor may restrict the attachment or use of navigation devices with its system in those circumstances where electronic or physical harm would be caused by the attachment or operation of such devices or such devices that assist or are intended or designed to assist in the unauthorized receipt of service. Such restrictions may be accomplished by publishing and providing to subscribers standards and descriptions of devices that may not be used with or attached to its system. Such standards shall foreclose the attachment or use only of such devices as raise reasonable and legitimate concerns of electronic or physical harm or theft of service.” (Emphasis added).

135. Navigation devices are defined in the Commission’s rules to be “[d]evices such as converter boxes, interactive communications equipment, and other equipment used by consumers
to access multichannel video programming and other services offered over multichannel video programming systems.” 47 C.F.R. § 76.1200(c).

136. A cable modem is a navigation device pursuant to the Commission’s definition because it is used by consumers to access other services (namely, broadband Internet access services) offered over a multichannel video programming system.

137. Comcast does not publish or make publicly available the standards that it uses to determine whether a cable modem may be attached to its network.

138. Additionally, many of Comcast’s P&E standards are vague and ambiguous. For example, Comcast does not provide cable modem manufacturers with an objective standard for how much a cable modem may weigh. Rather, Ex. 8, at 11.

139. Accordingly, by virtue of the acts described above, Comcast has violated 47 C.F.R. § 76.1203 by failing to publish or make publicly available the standards that it uses in determining whether cable modems will be restricted from Comcast’s network and by utilizing vague and ambiguous standards that do not provide sufficient notice to manufacturers or subscribers.

VI. PRAYER FOR RELIEF

Complainant respectfully requests that the Commission:

(a) find Comcast in violation of 47 C.F.R. § 76.1201, 47 C.F.R. § 76.1202, and 47 C.F.R. § 76.1203;

(b) enjoin Comcast from requiring cable modems being sold at retail to be evaluated in its Physical and Environmental testing regime before such modems may be attached to Comcast’s network;
(c) enjoin Comcast from requiring cable modems sold at retail to participate in any 
Comcast testing unrelated to preventing harm to the network or theft of service;

(d) order Comcast to remedy the delay that it has caused Zoom Telephonics in bringing 
its two newest DOCSIS 2.0 cable modems to the retail market by testing those modems in an 
expedited fashion and at no charge;

(e) enjoin Comcast from asking CableLabs to add any additional testing requirements to 
its testing of Zoom's two newest DOCSIS 2.0 cable modems;

(f) order Comcast to agree to test any new DOCSIS 2.0 cable modem model or DOCSIS 
3.0 cable modem model that Zoom submits in the next three years;

(g) order Comcast to publish its standards for testing all cable modems and (i) provide a 
detailed justification for how each test relates to whether a device will harm its network or 
facilitate theft of service and (ii) require Comcast to provide a detailed explanation of why the 
CableLabs testing process does not fully address any justification or concerns about cable 
modems harming Comcast's network or facilitating theft of service; and

(i) order any other relief that the Commission may deem appropriate.

November 29, 2010

Respectfully submitted,

ZOOM TELEPHONICS, INC.

By:

Kevin J. Martin
Matthew B. Berry*
Patton Boggs LLP
2550 M Street, N.W.
Washington, D.C. 20037
(202) 457-6000

Its Counsel
* Admitted only in Virginia
CERTIFICATE OF SERVICE

I, Matthew B. Berry, hereby certify that on this 29th day of November 2010, I caused a true and correct copy of the foregoing Complaint to be served via first-class mail, postage prepaid, upon:

Ms. Sheila Smith
Comcast Cable Communications LLC
One Comcast Center
Philadelphia, PA 19103

Matthew B. Berry
EXHIBIT 1
47 U.S.C. § 549 Competitive availability of navigation devices

(a) Commercial consumer availability of equipment used to access services provided by multichannel video programming distributors — The Commission shall, in consultation with appropriate industry standard-setting organizations, adopt regulations to assure the commercial availability, to consumers of multichannel video programming and other services offered over multichannel video programming systems, of converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor. Such regulations shall not prohibit any multichannel video programming distributor from also offering converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, to consumers, if the system operator's charges to consumers for such devices and equipment are separately stated and not subsidized by charges for any such service.

(b) Protection of system security — The Commission shall not prescribe regulations under subsection (a) of this section which would jeopardize security of multichannel video programming and other services offered over multichannel video programming systems, or impede the legal rights of a provider of such services to prevent theft of service.

(c) Waiver — The Commission shall waive a regulation adopted under subsection (a) of this section for a limited time upon an appropriate showing by a provider of multichannel video programming and other services offered over multichannel video programming systems, or an equipment provider, that such waiver is necessary to assist the development or introduction of a new or improved multichannel video programming or other service offered over multichannel video programming systems, technology, or products. Upon an appropriate showing, the Commission shall grant any such waiver request within 90 days of any application filed under this subsection, and such waiver shall be effective for all service providers and products in that category and for all providers of services and products.

(d) Avoidance of redundant regulations

(1) Commercial availability determinations — Determinations made or regulations prescribed by the Commission with respect to commercial availability to consumers of converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, before February 8, 1996, shall fulfill the requirements of this section.

(2) Regulations — Nothing in this section affects section 64.702(e) of the Commission's regulations (47 C.F.R. 64.702(e)) or other Commission regulations governing interconnection
and competitive provision of customer premises equipment used in connection with basic common carrier communications services.

(e) Sunset — The regulations adopted under this section shall cease to apply when the Commission determines that —

(1) the market for the multichannel video programming distributors is fully competitive;

(2) the market for converter boxes, and interactive communications equipment, used in conjunction with that service is fully competitive; and

(3) elimination of the regulations would promote competition and the public interest.

(f) Commission's authority. — Nothing in this section shall be construed as expanding or limiting any authority that the Commission may have under law in effect before February 8, 1996.

( June 19, 1934, ch. 652, title VI, Sec. 629, as added Pub.L. 104-104, title III, Sec. 304, Feb. 8, 1996, 110 Stat. 125.)
EXHIBIT 2
47 C.F.R. § 76.1201 Rights of subscribers to use or attach navigation devices.

No multichannel video programming distributor shall prevent the connection or use of navigation devices to or with its multichannel video programming system, except in those circumstances where electronic or physical harm would be caused by the attachment or operation of such devices or such devices may be used to assist or are intended or designed to assist in the unauthorized receipt of service.

47 C.F.R. § 76.1202 Availability of navigation devices.

No multichannel video programming distributor shall by contract, agreement, patent right, intellectual property right or otherwise prevent navigation devices that do not perform conditional access or security functions from being made available to subscribers from retailers, manufacturers, or other vendors that are unaffiliated with such owner or operator, subject to §76.1209.

47 C.F.R. § 76.1203 Incidence of harm.

A multichannel video programming distributor may restrict the attachment or use of navigation devices with its system in those circumstances where electronic or physical harm would be caused by the attachment or operation of such devices or such devices that assist or are intended or designed to assist in the unauthorized receipt of service. Such restrictions may be accomplished by publishing and providing to subscribers standards and descriptions of devices that may not be used with or attached to its system. Such standards shall foreclose the attachment or use only of such devices as raise reasonable and legitimate concerns of electronic or physical harm or theft of service. In any situation where theft of service or harm occurs or is likely to occur, service may be discontinued.
EXHIBIT 3
DECLARATION OF WILLIAM HUME VANCE

I, William Hume Vance, hereby declare under penalty of perjury that the following is true and correct to the best of my knowledge.

1. My full name is William Hume Vance; I am generally known as Hume Vance. I am currently the Director of Firmware Engineering for Zoom Telephonics, Inc ("Zoom" or "Zoom Telephonics").

2. I received a Master of Engineering Degree in Electrical Engineering from Cornell University in 1984, and for the last twenty-six years have worked in the electronics industry.

3. My primary focus has been in the field of telecommunications. From 1984 to 1985, I designed test fixtures and programs for telecommunications integrated circuits at LTX Corporation. From 1985 to 1990, I worked on signal processing at Raytheon Corporation. From 1990 to 1994, I was employed by Motorola, Inc., where I
focused primarily on Dataphone Digital System ("DDS") equipment. DDS was an early digital telecommunications technology. I wrote embedded software for this equipment, including as co-lead software designer of a multi-point DDS system. This system included a master device that coordinated communications among the master and multiple slave devices that shared a transmission medium on digital private telephone lines.

4. Since 1994, I have worked at Zoom Telephonics. Zoom was founded in 1977 and is based in Boston, Massachusetts. Zoom produces cable modems, ADSL modems, dial-up modems, wireless products, Voice over Internet Protocol products, and other communications products.

5. While at Zoom, I have worked on products including dialers, routers, Voice over IP ("VoIP") products, cable modems and Internet TV. I am an inventor or co-inventor on two U.S. patents relating to dialer and VoIP technology, and co-inventor on a patent application related to VoIP technology. All of these patents are assigned to Zoom Telephonics, Inc.

6. For the past ten years, my primary responsibilities at Zoom have been in the areas of engineering and product management. With respect to engineering, my focus has been on issues relating to embedded software and other software in communications products. With respect to product management, I have concentrated on cable modem and VoIP products as well as products that relate to Internet TV.

7. In 2001, I assumed full responsibility at Zoom for firmware development related to cable modems and continue to have that responsibility today. As a result, I
have been actively involved in the certification processes for Zoom's cable modems from 2001 to the present.

8. Zoom began producing cable modems in 2001. In total, Zoom has offered a total of six cable modem models for sale over the past decade. Currently, Zoom has two models in production: a Data Over Cable Service Interface Specification ("DOCSIS") 2.0 model; and a DOCSIS 3.0 model.

9. Zoom sells its cable modems primarily through high-volume retailers including Best Buy, Staples, Fry's, and Micro Center. Zoom is the second-largest provider of cable modems sold at retail in the United States, trailing only Motorola. Zoom also sells cable modems through a few small cable service providers in the United States and overseas. Cable modems comprise approximately one-third of Zoom's total sales.

10. Cable modems sold in the United States must meet the regulatory and certification requirements of several entities.

11. The Federal Communications Commission ("FCC") requires that cable modems and other home electronics equipment meet the requirements of Part 15, Subpart B of the Commission's rules ("FCC Part 15B"). These requirements restrict the electronic emissions of a cable modem or other electronic device radiated into the environment or conducted onto AC power lines. When an independent lab performs testing of a cable modem that meets the FCC's requirements, the process, including tests, generation of a test report, and receipt of a certificate of FCC conformity from the testing lab, generally takes about four weeks and costs between $6,000 and $8,000.
12. Underwriters Laboratories ("UL") tests cable modems against a set of safety standards. These standards are designed to protect against the risk of fire, and of injury from electric shock and other causes, such as dangerously hot surfaces. Products that meet these standards may be "listed." Safety listing is not universally required of electronic devices, such as cable modems, that are sold in the United States. However, safety testing under UL60950 or equivalent standards is required for cable models used in workplaces and certain jurisdictions within the United States. The testing may be administered by any nationally recognized testing laboratory ("NRTL"). UL is the oldest, largest, and most widely recognized of these laboratories. Safety testing of a cable modem typically costs between $6,500 and $9,500, and takes between six and eight weeks.

13. CableLabs, a research and development consortium of cable operators, tests cable modems for adherence to a set of standards called the Data Over Cable Service Interface Specification ("DOCSIS"). These standards have been developed to make it possible for equipment from all cable modem manufacturers to operate on the networks of all cable operators. The standards relate to the radio frequency interface ("RFI") to the cable network, to security mechanisms (Baseline Privacy Interface, or "BPI"), to data protocols, to management interfaces, and other items. The RFI standards include specifications designed, among other considerations, to ensure that a cable modem will not inject harmful signals into the network. The BPI standards are designed to ensure that cable modems that adhere to these standards will not facilitate theft of services from cable operators. The protocol standards also ensure that a cable modem will not transmit in a time slot reserved for another cable modem.
14. A cable modem manufacturer seeking certification from CableLabs first must demonstrate adherence to the DOCSIS standards by running a suite of tests that verify DOCSIS compliance. The tests may be run by the manufacturer or by some other entity. When the manufacturer submits a cable modem model to CableLabs for certification, the manufacturer must include, as part of the submission, documentation that shows successful completion of the DOCSIS test suites. Success in this part of the CableLabs certification is defined as passing every test, with not a single failure unless CableLabs agrees to a documented exception. From five to thirty samples of the cable modem are also included in the submission. CableLabs may run the sample cable modems through any or all of the tests specified in the DOCSIS test suite. CableLabs also evaluates the robustness of the cable modem in handling large data flows over extended periods and tests for interoperability with other DOCSIS equipment in their laboratories. The interoperability testing provides a method to verify in a realistic setting that the cable modem does not inject harmful signals into the network, and does not transmit at times reserved for other cable modems. CableLabs also verifies the validity of the manufacturer’s security certificates and of its implementation of the DOCSIS BPI specification so that the device will not facilitate theft of service from cable service providers.

15. This “full submission” testing conducted by CableLabs generally occurs in a CableLabs “wave” that takes about 12 weeks and currently costs $75,000 (although a DOCSIS 2.0 cable modem may complete the testing process in as short as eight weeks, again for $75,000). If a product has previously been certified by CableLabs, then it is also possible to do an “OEM submission” of the same product on a different manufacturer’s
brand for a CableLabs charge of $10,000. OEM stands for Original Equipment Manufacturer. In the case of cable modems, an OEM may certify a product with CableLabs under its own name and then pass on that certification to one or more other manufacturers that would re-brand the product. CableLabs requires that such a previously certified and re-branded product must be re-submitted as an “OEM of a Certified/Qualified Product,” in order to pass on the certification. The review of such a submission generally takes four to six weeks.

16. All of the time and cost estimates mentioned above assume that the cable modem passes each test. Failure in any test requires undergoing and paying for another test cycle, thus adding to both the time and costs associated with the certification process.

17. In some cases, the FCC and UL test cycles may be run at the same time. Technically, the CableLabs testing could also be run in parallel with FCC and UL testing. As a general matter, however, this is typically impractical because failure in the FCC or UL testing could results in design changes to the device. Those design changes would then require that the device be resubmitted to CableLabs, which would cost a manufacturer an additional $75,000. For a previously CableLabs certified OEM product that also has prior FCC and UL approvals, the risk of failing FCC or UL testing is small enough that it makes sense a manufacturer to submit the device simultaneously to FCC, UL, and CableLabs.

18. In addition to the FCC, UL, and CableLabs testing processes explained above, cable operators have widely different policies when it comes to the question of additional testing.
19. Some cable operators impose no other testing requirements on cable modems before they may be attached to their networks. For example, Time Warner Cable, the nation's second largest cable operator, accepts for attachment to its network any cable modem that has been certified by CableLabs.

20. Charter Communications also initially accepts any cable modem that has been certified by CableLabs for attachment to its network. Charter, however, does request sample cable modems for testing and reserves the right to deny access later to cable modem models with which it finds problems, either in the company's lab or operationally in its network.

21. Conversely, some cable operators require cable modems to undergo additional testing (beyond that performed by the FCC, UL, and CableLabs) before such modems may be attached to their networks. Cox Communications, for instance, requires additional certification testing at the company's own laboratories before a cable modem is permitted to attach to its network.

22. Comcast also requires that any cable modem model must achieve certification through Comcast's proprietary testing in Comcast's laboratories before it will accept that cable modem model for attachment to Comcast's network. This requirement applies to cable modems distributed at retail as well as those that Comcast purchases directly from manufacturers.

23. Comcast's tests are by far the most extensive of those performed by any cable operator. Moreover, Comcast charges manufacturers for these tests, and I am unaware of any other cable operator in the United States that does so.
24. Before Zoom may submit a new cable modem model to Comcast for testing, it first must be certified by CableLabs and to the best of my knowledge must receive relevant FCC and UL approvals.

25. For Comcast’s most recent testing of a new Zoom cable modem model, it charged Zoom a fee of $25,000. The testing regime lasted approximately six weeks, with an additional three weeks for a beta test and for provisioning the Comcast network to accept the cable modem. In the Comcast beta test, cable modems are placed in live operating networks and monitored for any performance or other issues.

26. If a cable modem device fails Comcast’s initial round of testing, then it must be submitted again for another six-week cycle of testing. In addition, if the device fails the beta test, then the testing cycle must start from the beginning. Last spring, a Zoom DOCSIS 3.0 cable modem model did not pass Comcast’s initial round of testing so Zoom had to submit it for a second round. Comcast did not charge Zoom for the additional testing, but reserved the right to do so in the future in an April 22, 2010 e-mail message from Jason Livingood, Executive Director, Internet Systems Engineering, National Engineering & Technical Operations at Comcast.

27. Any cable modem model sold nationwide in the United States must be accepted on the Comcast network in order for it to be a commercially viable product. This is because Comcast accounts for approximately 39% of all cable customers in the United States. Nationwide retailers typically put a nationally carried product in all of their stores, including the many stores that are in areas where Comcast service is offered. A cable modem that does not have Comcast certification and that is offered, for example, in all Best Buy and Staples stores will suffer crippling return rates.
28. It is very unlikely that a cable modem conforming to CableLabs requirements would inject harmful signals into a cable used for cable service, or otherwise cause electronic or physical harm to a network. This is because CableLabs certification testing verifies that a cable modem adheres to DOCSIS specifications. The DOCSIS specifications define spectral, amplitude and other characteristics with which transmitted signals must comply. The DOCSIS specifications also define protocols that ensure one cable modem will not broadcast at the same time as another. DOCSIS standards specify within very stringent limits that a cable modem’s signals will neither harm the provider’s network nor interfere with other cable modems or equipment connected to that network.

29. It is also very unlikely that a CableLabs-certified cable modem will facilitate theft of service from a cable operator. The DOCSIS specifications define a comprehensive security infrastructure called BPI that the CableLabs certification ensures is fully implemented. BPI minimizes nearly to the vanishing point the possibility that someone could steal service using a cable modem.

30. I cannot recall an instance in Zoom’s experience with manufacturing cable modems when a Zoom device has caused harm to a cable operator’s network, or when a Zoom device facilitated theft of service from a cable operator.

31. A cable modem can have interoperability issues on a particular network when new equipment, technologies or configurations and procedures are introduced to that network. During the several-year lifetime of a typical Zoom cable modem, the company may confront a handful of such issues. For a particular cable operator, that means Zoom typically does not confront any interoperability issues, but Zoom may
encounter one or more issues with some operators. Zoom works with cable operators to resolve any such issues. To my recollection, Zoom has not encountered an issue that posed a threat of harm to any operator’s network.

32. In January 2010, Zoom contacted Comcast’s testing group to alert them that Zoom wanted to submit a new DOCSIS 3.0 cable modem model for Comcast certification. Zoom and Comcast employees then exchanged e-mail messages over the course of several weeks, discussing both technical and logistical issues relating to Zoom’s upcoming submission.

33. During that exchange, Zoom was informed that its new cable modem device would be required to participate in Comcast’s Physical and Environmental (“P&E”) testing, in addition to the company’s standard “certification” testing described above.

34. I was unfamiliar with Comcast’s P&E testing and what it entailed. Such testing had not been previously required for Zoom’s cable modem models. At that time, I was unaware that this P&E testing had been previously applied only to cable modems that were sold directly to Comcast (rather than cable modems sold at retail).

35. When Comcast informed Zoom about the need for P&E testing, it did not provide Zoom with any documentation of what the testing covered. However, Comcast did provide us with a flow chart that outlined the P&E testing process. That flow chart and one or more e-mail messages from Comcast employees also mentioned a “on-site evaluation” requirement as part of the P&E testing process.
36. When Zoom brought up the P&E testing with our OEM supplier, it suggested that this testing was inappropriate for a retail product and that Zoom should ask Comcast to waive this requirement.

37. I do not remember the details of discussions relating to P&E testing as they unfolded in the winter of 2010. However, based on an e-mail sent by Charles Cusson, Director, Physical and Environmental Evaluations at Comcast, on March 29, 2010, Zoom inferred that Comcast had decided that the P&E testing would not apply to Zoom’s new DOCSIS 3.0 cable modem model because it was only to be sold at retail. Accordingly, this model was never submitted for such testing.

38. Zoom received CableLabs certification for its DOCSIS 3.0 cable modem model on February 23, 2010, and was working towards submitting it to Comcast on March 1, 2010, for an anticipated completion of Comcast laboratory and beta testing in mid-April. As the project progressed, it may not have been possible for Zoom to prepare and submit sample cable modems to Comcast by March 1. In any case, Comcast, in February, raised technical issues with the software for the Texas Instruments chipset that Zoom was using in its new DOCSIS 3.0 cable modem model. Comcast wanted to make sure that these potential problems were addressed in any code that Zoom submitted to them for testing. None of the issues related to harm to Comcast’s network, or to potential theft of Comcast services.

39. Moreover, on February 22, 2010, Chris Griffiths of Comcast, who is generally responsible for selecting and scheduling cable modems for testing in Comcast’s labs, informed Zoom that Comcast was putting the test schedule for Zoom’s new DOCSIS 3.0 cable modem model on hold as Comcast worked through its testing process.
He informed Zoom that he would be back in touch if and when Comcast decided to proceed with certifying Zoom’s device on the Comcast network.

40. I was very disturbed by this development and reached out to Comcast to seek clarification of what was going on. Chris Griffiths and Jason Livingood, who is Executive Director, Internet Systems Engineering, National Engineering & Technical Operations at Comcast, indicated that Comcast was experiencing a bottleneck in testing a large number of DOCSIS devices to be offered for sale at retail. They informed me that new investments in lab space and equipment should expedite the process in the future and asked for Zoom’s patience. Notwithstanding Comcast’s claim that it was experiencing a bottleneck in its testing of DOCSIS devices, Comcast has only added two retail cable modems to its list of approved cable modems in the last year.

41. This delay in testing was unacceptable to Zoom. Zoom informed Comcast that it was under pressure from its retail partners to deliver the DOCSIS 3.0 cable modem for sale in thousands of stores across the United States by April 15 and that Comcast’s testing delay was severely jeopardizing Zoom’s ability to meet this deadline. Zoom let Comcast know that if Zoom was not able to meet this deadline, its relationship with retailers would be jeopardized and its revenues would be diminished.

42. Following further communications with Comcast, Zoom was allowed to submit its new DOCSIS 3.0 cable modem for testing on April 1, 2010. Unfortunately, the modem did not pass Comcast’s tests because of an issue that was introduced in the course of resolving the issues that Comcast had previously identified with the software for the modem’s Texas Instruments chipset. The issue identified by Comcast did not threaten Comcast’s network in any way. Rather, it related to the time that it took the
cable modem to register with the network after a power outage or similar disruption to service.

43. Zoom worked to address Comcast’s concern and resubmitted the modem to Comcast on May 1, 2010. This time, the cable modem passed Comcast’s tests, and was cleared for attachment to Comcast’s network as of June 23, 2010.

44. In an e-mail informing Zoom that the new cable modem model had passed testing, Earle Iveson of Comcast wrote, “Zoom has passed our lab-based certification tests for a retail-only device. As noted before, this means we did not execute physical and environmental tests since these are not devices to be purchased by Comcast.”

45. This two-month delay beyond our original shipment date of April 15 caused Zoom considerable difficulty in dealing with its retailers. It was only through Zoom’s strenuous efforts and extraordinary logistics, including pre-shipping units to two major retailers’ warehouses in anticipation of a probable Comcast certification in June, that Zoom was able to retain its shelf space.

46. Changing the registration timeframe had nothing to do with preventing harm to Comcast’s network; the registration delay simply would have been an inconvenience to the owner of the cable modem. Moreover, once a cable modem has registered, it is likely to remain connected for a considerable length of time, typically months or even years depending on the reliability of the electrical power and the cable network, before the cable modem experiences a service disruption. During that time, a code update could have been propagated to users, so that the vast majority of users would never have experienced the issue at all. I therefore believe that Comcast should not have rejected Zoom’s DOCSIS 3.0 cable modem during its first round of testing.
47. Once Zoom’s new DOCSIS 3.0 cable modem was accepted for attachment
to Comcast’s network, Comcast asked us to improve the behavior of a feature that relates
to Internet Protocol version 6 (IPv6). Comcast currently uses Internet Protocol version 4
(IPv4) for handling Internet addresses, but is concerned about running out of such
addresses. IPv6 provides a vastly increased supply of Internet addresses, and Comcast
has publicly stated that it plans to migrate its system towards IPv6. Zoom has been
working with our OEM supplier to provide the support Comcast needs for IPv6 in an
upcoming code release.

48. In this instance, Comcast is continuing to accept attachment of the cable
modem to its network as Zoom cooperates with Comcast to upgrade its modem to support
improved operations.

49. During the summer of 2010, Zoom made the determination that it needed
to bring a new DOCSIS 2.0 cable modem model to market in early 2011. Zoom must
introduce a new DOCSIS 2.0 model because it soon will become impossible for Zoom to
manufacture its current DOCSIS 2.0 model. The current model is now several years old,
and among other issues, it is becoming difficult to find certain parts to manufacture it.
We discussed introducing a direct replacement for the current model with a wired
Ethernet Local Access Network ("LAN") port, and another DOCSIS 2.0 model that
included a wireless LAN port.

50. DOCSIS 2.0 cable modems continue to be extremely popular at retail.
Zoom’s DOCSIS 2.0 cable modem currently outsells its DOCSIS 3.0 cable modem by a
ratio of greater than two-to-one. I believe that this is because Zoom’s DOCSIS 2.0 cable
modem model sells at retail for approximately $70, whereas its DOCSIS 3.0 cable
modem model costs approximately $90. It is also because service tiers that require DOCSIS 3.0 cable modems typically cost more than basic service tiers. Comcast offers services it calls Performance (12Mbps) and Blast (20Mbps) at $44.95 and $54.95 per month, respectively. There is also an Economy service (1.5Mbps) offered for $26.95 per month. These services are available with DOCSIS 2.0 cable modems. Comcast also offers services it calls Ultra (30Mbps) and Extreme (50Mbps) at $64.95 and $99.95 per month, respectively. These services require DOCSIS 3.0 cable modems. These prices are for customers who already subscribe to Comcast cable television services. The difference between standard cable Internet service (Performance, at $44.95 per month.) and the minimum service that requires a DOCSIS 3.0 cable modem (Ultra, at $64.95 per month.) is $20.00 a month, or $240.00 annually.

51. On August 31, 2010, I wrote an e-mail message to appropriate Comcast personnel to alert them that Zoom would be submitting a new DOCSIS 2.0 cable modem model for Comcast's certification testing. A week later, on September 8, 2010, Comcast's lab director, Earle Iveson, replied and informed me that he wasn't certain that Comcast would certify any more DOCSIS 2.0 cable modems for attachment to its network.

52. The next day, Frank Manning, President and CEO of Zoom, responded to this development. He directed his email to Jason Livingood of Comcast, stating that he was "very sure that the FCC and Congress would not accept the notion of Comcast effectively preventing any new DOCSIS 2.0 cable modems from being offered by national retailers like Best Buy and Staples." Jason Livingood replied later that day,
indicating that he was turning Zoom’s query over to Comcast’s legal department, because Frank Manning had mentioned the FCC.

53. Over the course of the next month, Frank Manning exchanged e-mail messages, letters and phone conversations relating to the testing of Zoom’s new DOCSIS 2.0 cable modem model with Comcast Vice President and Deputy General Counsel Jeffrey Smith.

54. In particular, Frank Manning, on September 13, 2010, sent a letter to Jeffrey Smith. In this letter, Mr. Manning asked that Comcast agree to test two new Zoom DOCSIS 2.0 cable modem models, one with wireline Local Area Network ("LAN") connectivity only, and the other with wireless LAN connectivity. Mr. Manning pointed out that DOCSIS 2.0 cable modems continue to vastly outsell DOCSIS 3.0 models at retail and that Comcast was continuing to supply some of its own customers with DOCSIS 2.0 cable modems. Moreover, he noted that while all DOCSIS 1.0 and 1.1 cable modem models shown on Comcast’s list of approved modems appear to be marked End of Life, many DOCSIS 2.0 modems are not so marked. Mr. Manning also emphasized that it was important for Comcast to act in a manner consistent with Section 629 of the Communications Act, which he referred to as Section 304A of the Telecommunications Act of 1996.

55. Jeffrey Smith responded to Mr. Manning’s letter on October 6, 2010. He indicated that because Comcast desired to migrate its network to the higher speeds possible under the DOCSIS 3.0 standard, it had ceased certifying new DOCSIS 2.0 cable modems approximately one year ago and had scaled back its own purchases of DOCSIS 2.0 models for distribution to its customers.
56. Additionally, Mr. Smith claimed that "Comcast is under no obligation to certify Zoom's or any other vendor's high speed Internet devices for use with Comcast's broadband Internet network. The provision you cited from the Telecommunications Act of 1996 clearly and solely applies to converter boxes and other equipment used to access multichannel video programming and services. That provision never has been applied to cable modem devices or services."

57. Nevertheless, Mr. Smith indicated to Zoom that Comcast would agree to test one Zoom DOCSIS 2.0 cable modem model to replace the model that Zoom would no longer be able to manufacture.

58. While I was disappointed that Comcast would not agree to test Zoom's new DOCSIS 2.0 cable modem model with wireless connectivity, I was relieved that Comcast at least had agreed to test one new DOCSIS 2.0 cable modem model. I proceeded to work with the OEM supplier for Zoom's new DOCSIS 2.0 cable modem model to arrange FCC and UL approvals, and to prepare for a CableLabs submission as well as a subsequent submission to Comcast for testing.

59. The week after Zoom received Jeffrey Smith's letter, I received an e-mail message from the P&E group at Comcast stating that Zoom's new DOCSIS 2.0 model would be subject to this group's evaluation. Attached to this e-mail message were three documents that described in some detail the requirements for this evaluation.

60. I was surprised to be contacted by Comcast's P&E group since Zoom's cable modems had never before been subject to P&E testing and Comcast had agreed earlier in the year to waive P&E testing for Zoom's new DOCSIS 3.0 cable modem model because it was to be sold only at retail.
61. I quickly responded to the e-mail message from Comcast and asked for the P&E tests to be waived for the new DOCSIS 2.0 cable modem model, just as they had been waived for Zoom’s DOCSIS 3.0 cable modem earlier in the year, since Zoom would also be selling this device at retail only.

62. Jason Livingood responded to my message. He stated that Comcast’s test requirements had evolved, and that P&E testing now applied to all devices connecting to Comcast’s network, including devices provided by third parties at retail. When I subsequently asked Mr. Livingood when this policy change had occurred, he stated: “I’m not sure why that matters” and indicated that any questions concerning the policy change would have to be directed to Jeffrey Smith.

63. I conferred with employees of Zoom’s OEM supplier for the model in question to discuss Comcast’s P&E testing regime. Personnel from the OEM supplier informed us that they believed the device would not pass the ingress requirements spelled out in a test suite referred to as SCTE 40 that is part of the P&E tests. Ingress refers to extraneous signals that might enter a cable network, such as from a broadcast radio or television station. My understanding is that Zoom’s OEM supplier meant ingress also to refer to bleeding of signals from adjacent channels into a channel under test, and may also have meant other sources of interference.

64. Comcast’s SCTE 40 requirements go beyond any requirements under the DOCSIS specifications in demanding that a cable modem successfully decode a weak signal in the presence of multiple severe impairments. Cable modem designers, including Zoom’s OEM partner for our proposed DOCSIS 2.0 model, have typically not sought to meet these requirements. Ingress does not relate to harmful signals that the cable modem
might inject into the network, nor does it relate to potential theft of a cable operator’s services.

65. Zoom’s OEM supplier further informed us that it doubted that any current DOCSIS 2.0 cable modem device would be able to pass Comcast’s requirements, including devices that Comcast was continuing to distribute to its subscribers. It also informed Zoom that meeting the ingress requirements as well as satisfying other elements of the P&E testing regime would require a redesign of the modem and cost considerable time and money. Finally, it indicated that any attempt at such a redesign might not succeed on the first attempt and therefore might have to be repeated.

66. Independent of this new DOCSIS 2.0 cable modem device, Zoom had been discussing the possibility of producing a new DOCSIS 3.0 cable modem model with a wireless LAN capability provided by an OEM manufacturer. When Zoom made the manufacturer aware that Comcast was now applying its P&E requirements to devices sold at retail, the manufacturer made some independent inquiries to Comcast and concluded that Comcast’s P&E testing would cost Zoom approximately an additional $40,000. Part of this cost relates to a site inspection that Comcast conducts at the manufacturer’s factory. According to Hitron, Comcast requires that the manufacturer pay for several Comcast personnel to travel via business class and stay at a five-star hotel for approximately two weeks while the site inspection is carried out. For a trip to Asia, which is where Zoom’s products are manufactured, these inspections account for a substantial part of the $40,000 cost of the P&E testing.

67. Based on this information as well as Zoom’s internal evaluation, I concluded that, given the time constraints we faced in replacing our older DOCSIS 2.0
cable modem model, the risks associated with attempting to meet Comcast’s P&E requirements, and the costs of the tests, Zoom could not realistically plan to bring its new DOCSIS 2.0 cable modem model to market if it was subject to the P&E requirements.

68. Having studied Comcast’s P&E requirements, it is my conclusion that the bulk of Comcast’s P&E testing program is irrelevant to whether a cable modem device would cause harm to Comcast’s network, or facilitate the theft of Comcast services. I also believe that the P&E testing program is filled with unreasonable requirements for a cable modem that is to be sold at retail. (I do not object to Comcast applying these requirements to cable modems that Comcast buys itself).

69. For example, Comcast’s P&E testing requires cable modems to meet the following standards that have no bearing on causing harm to Comcast’s network, or of protecting against theft of Comcast’s services.

a. 

Zoom’s cable modems support operation at ambient temperatures from 0° to 40°C (32° to 104°F). For reference, the Apple iPad is specified to operate from 0° to 35°C (32° to 95°F), and a typical HP PC (for example, the model HP Pro 3130 Minitower) is specified to operate from 5° to 35°C (41° to 95°F).

b. 

Zoom’s cable modems meet UL safety standards (UL 60950) that a plastic case of an electronic device may nowhere exceed 70°C, when the device is operated at an ambient temperature of 25°C.
UL safety testing already confirms that Zoom’s cable modems meet relevant overvoltage protection requirements.
The criteria listed for this test do not include testing for harm to the network, or for the potential theft of services.

Zoom’s cable modems include a reset button that is very unlikely to be pressed even 100 times in the product’s lifespan.

70. Additionally, based on my review of the documents provided by Comcast, many of Comcast’s P&E requirements are so vaguely defined that they are open to almost any interpretation Comcast wishes to give to them, and there is no guarantee that Comcast will interpret them consistently from one product to another.

71. For example, instead of providing Zoom with an acceptable weight range for cable modems, this requirement is vague, and the results of the testing could depend on the stiffness, length, or angle of attachment of the cable that is connected to the cable modem. In addition, there is no authoritative third party to review whatever conclusions are reached by Comcast during the testing.

72. Finally, setting aside Zoom’s other objections to Comcast’s P&E testing, the significant expense, added time and uncertainty imposed by the P&E tests makes it unlikely that Zoom will ever introduce another cable modem model at retail if Zoom is
required to participate in P&E testing before a new modem may be attached to Comcast’s network.

73. As I mentioned before, Comcast’s P&E testing imposes direct costs on Zoom of approximately $40,000 per cable modem tested. It also imposes substantial delays in bringing products to market. The P&E testing cycle runs seven weeks, including allowances for buffers, and may require multiple extra weeks if there are any failures. For our new DOCSIS 2.0 cable modem device, there is significant doubt that it could ever meet all of Comcast’s requirements. Moreover, I have been informed by an OEM manufacturer that Comcast’s P&E requirements would increase by five to seven dollars the previous unit price quote for Zoom’s volume purchase of a new DOCSIS 3.0 cable modem model with wireless connectivity. The higher price is caused by design changes that would need to be made to the cable modem to attempt to meet the P&E requirements. These changes are not necessary to prevent harm to the network or theft of service.

74. Zoom is a significant participant in the cable modem market, selling more devices at retail than any company other than Motorola, but Zoom works on thin margins. The testing regime as it existed prior to Comcast’s application of its P&E testing to our retail devices was challenging. However, Zoom was sufficiently confident in its ability to navigate through the multiple testing requirements that it was willing to take the attendant risk. But now, with the added burden of Comcast’s P&E testing, Zoom has concluded that the balance has tipped in the opposite direction, and Zoom is unlikely to bring additional cable modem products to the retail market if this requirement stands. In
particular, if Comcast's P&E testing requirement is allowed to stand, Zoom likely will no longer be able to sell DOCSIS 2.0 cable modems within a year.

75. If Comcast's current test standards for retailer-offered cable modems continue in effect, the availability of such modems from Zoom and others is likely to diminish. This reduced competition to cable modems leased by Comcast and other service providers will lead to fewer choices for consumers, and is likely to lead to less innovation in the marketplace and higher costs for cable modems.

76. Because cable modems represent such a significant proportion of the Zoom's revenues, a significant reduction in sales for this market would jeopardize Zoom's profitability and its very existence.
I am familiar with the contents of the foregoing Complaint. The factual assertions made in the Complaint are true to the best of my knowledge and belief.

Dated: November 17, 2010

[Signature]

William Hume Vance
EXHIBIT 4
September 13, 2010

Mr. Jeffrey Smith, Attorney
Comcast

Dear Jeff:

I’m following up the phone conversation we had today and related emails between Zoom and Comcast regarding Comcast’s potential certification of Zoom’s Docis 2.0 cable modems in the first half of 2011. Zoom’s view is that it’s very important for Comcast to have a process that lets their customers purchase at retail and use on the Comcast system our new Docis 2.0 models planned for introduction in the first half of 2011.

As we discussed, Zoom is number 2 to Motorola at retail in the USA; and our cable modem retailers include Best Buy, Staples, Fry’s, and Micro Center. We currently have two cable modems, one a Docis 2.0 model and one a Docis 3.0 model, certified by CableLabs and Comcast. The 2.0 model has fairly old integrated circuit technology, and we don’t expect to be able to supply that through all of 2011. We would like to update the Docis 2.0 cable modem to a Broadcom-based unit with fresh firmware, and we are also considering a Docis 2.0 cable modem with wireless-N for retail. Of course we would get CableLabs certification for these new units. Of course we’d like customers of Best Buy, Staples, and other retailers to be able to use these cable modems with Comcast for a number of reasons, including the fact that Comcast serves about 39% of all the cable TV subscribers in the USA, a huge share of the total available cable modem service market. If one of our two new Docis 2.0 cable modems was not allowed onto the Comcast system, that would significantly reduce the total available market for that cable modem; and would also make inventory management very difficult for any national retailer forced to try to keep inventory out of stores serving territories dominated by Comcast. In all likelihood lack of Comcast certification for a new Docis 2.0 cable modem would make it difficult or impossible to place that cable modem with national retailers in the USA.

It’s important to note some important facts about Docis 2.0 cable modems:
1) Docis 2.0 cable modems currently far outsell Docis 3.0 cable modems at retail.
2) Basic Docis 2.0 cable modems currently cost almost 50% less to build than basic Docis 3.0 cable modems. (By “basic” I mean that the cable modem doesn’t include costly extra features such as WiFi or voice ports.)
3) Basic Docis 2.0 cable modems typically cost at least $20 less than basic Docis 3.0 cable modems at retail.
4) Comcast continues to place Docis 2.0 cable modems with its customers.
5) Comcast’s certified-modems list appears to show all Docis 1.0 and 1.1 cable modems as “EOL” or “End Of Life,” but shows many Docis 2.0 cable modems that are not listed as EOL.
You asked me to suggest a principle that determines when Comcast should certify a particular cable modem. In offering this principle, I'm trying to hear your concern that Comcast might be asked to certify Docsis 1.0 or 1.1 cable modems, for example. This should not be a real concern, since Cablelabs certification typically costs $75,000. Comcast certification typically costs $25,000, and there's minimal if any market demand for Docsis 1.0 and 1.1 cable modems. Nevertheless, I offer the following principle:

Comcast must be willing to certify any Cablelabs certified cable modem if:

1) The company seeking certification is willing to pay a reasonable Comcast certification fee (currently $25,000), and the company either has good credit or prepays the fee.

AND

2) A) The highest Docsis version of the cable modem is at least as high as the Docsis version of cable modems that Comcast supplies to some of its customers who are receiving a cable modem with their new cable modem service;

   OR

B) The highest Docsis version of the cable modem is at least as high as at least one cable modem that is not marked EOL on Comcast's certified-modems list:

   OR

C) The cable modem is of a Docsis version, such as 2.0, that has at least 25% share of cable modem unit sales in Best Buy or Staples;

   OR

D) The cable modem is of a Docsis version 2.0 or higher where the 5000-unit shipment unit cost of a basic cable modem is typically 75% or less of the 5000-unit shipment unit cost of cable modems of a higher Docsis version.

Jeff, a Docsis 2.0 cable modem from Zoom would comply with this principle even if you replaced each OR with an AND in number 2. I am fairly certain that a Docsis 1.0 or 1.1 cable modem would not satisfy any of 2A, 2B, 2C, and 2D; but please let me know if you disagree. If necessary, one of these 4 clauses could be modified.

As we also discussed, it's important that Comcast act in a manner consistent with the Telecommunications Act of 1996 Section 304A, which includes the following: "The Commission shall, in consultation with appropriate industry standard-setting organizations, adopt regulations to assure the commercial availability, to consumers of multichannel video programming and other services offered over multichannel video programming systems, of converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems, from manufacturers, retailers, and other vendors not affiliated with any multichannel video programming distributor."
Jeff, Comcast does not need to set general policy at this time. We do ask that Comcast promptly agree to test Zoom's Docsis 2.0 cable modems when they comply with the principle offered in this letter.

Sincerely,

[Signature]

Frank Manning
President and CEO
EXHIBIT 5
October 6, 2010

Via UPS Next Day Air
Tracking # 1Z F11 E45 01 9090 1209

Mr. Frank Manning
President & CEO
Zoom Telephonics
207 South Street
Boston, MA 02111
E-mail: frankm@zoom.com

Re: Your Letter dated September 13, 2010

Dear Frank:

I am in receipt of your letter dated September 13, 2010, in which you express your view that Comcast is required to certify Zoom's new DOCSIS 2.0 modems, notwithstanding that Comcast ceased its review and certification of DOCSIS 2.0 devices approximately one year ago. As you have acknowledged, Comcast previously has certified both a DOCSIS 2.0 and a DOCSIS 3.0 modem for Zoom. My understanding is that Zoom has identified an alternative integrated circuit that it desires to use in the manufacture of the previously approved DOCSIS 2.0 modem, and that it is considering development of an entirely new model DOCSIS 2.0 modem with wireless-N for retail.

Over the past few years Comcast has transitioned virtually all of its networks to a DOCSIS 3.0 platform. In conjunction with that transition, Comcast has begun offering higher Internet speed tiers, and has increased the speeds it offers through its existing tiers. In addition, as you may be aware, Comcast markets and provides its customers with Powerboost® - a patented technology that permits customers to achieve download and upload speeds in excess of their modem's provisioned speeds under certain circumstances. Comcast anticipates that over time additional increases in download speeds will be driven by the competitive marketplace.

DOCSIS 2.0 modems are not capable of reaching the higher speed tiers that Comcast has begun to offer and that increasingly will become the norm in the marketplace. Moreover, as Comcast increases the speeds available in its existing tiers, its customers who own or lease
DOCSIS 2.0 modems may require device replacements in order to enjoy the full benefit and extent of their services. While Comcast has not yet designated DOCSIS 2.0 modems as "End of Life," it has scaled back its purchases of those modems significantly and increasingly deploys DOCSIS 3.0 modems to its customers. For these and other reasons Comcast has not certified new DOCSIS 2.0 modems or EMTAs for close to a year.

Contrary to what you suggested in our conversation and in your letter to me, Comcast is under no obligation to certify Zoom’s or any other vendor’s high speed Internet devices for use with Comcast’s broadband Internet network. The provision you cited from the Telecommunications Act of 1996 clearly and solely applies to converter boxes and other equipment used to access multichannel video programming and services. That provision never has been applied to cable modem devices or services. Notwithstanding as much, Comcast has demonstrated an interest and willingness to review and certify cable modem devices from a variety of vendors for use on its network — indeed Comcast previously has certified devices from Zoom which have been authorized on Comcast’s network. However, Comcast is not obligated to accept any particular devices for certification simply because a vendor determines that doing so would be in that vendor’s financial interest. Consumers who wish to purchase DOCSIS 2.0 modems have a number of alternatives available to them that previously have cleared Comcast’s certification process, including Zoom’s existing model. The proposed principles you set forth in your letter are intended to achieve your goal of having Zoom’s devices reviewed through Comcast’s certification process while denying Comcast any discretion as to the management of that process or the ability to promote the use of more advanced devices on its network.

Notwithstanding these concerns, Comcast is willing to evaluate Zoom’s modification to its previously approved DOCSIS 2.0 device only. We are currently evaluating the impact of such an exception to our existing device testing process and policies, and are reviewing resources required to accommodate your request. While I am not in a position to advise you regarding specific scheduling, a representative from Comcast will contact you with additional information in the next few weeks.

Sincerely,

Jeffrey E. Smith
Vice President & Deputy General Counsel

JES/srp
cc: Jason Livingood (via e-mail)
EXHIBIT 6
Hume Vance

From: Iveson, Earle [Earle_Iveson@Cable.Comcast.com]
Sent: Wednesday, September 08, 2010 1:34 PM
To: Hume Vance; Zapar, Will; Zedan, Nathan; Griffiths, Chris
Subject: RE: Help in re LED behavior

Hume,

I don't think we any other spec document for 2.0 devices other than what the CL spec calls.

I think the larger question here is whether we would go thru the Cert process on a 2.0 retail device at this point, that is something that Chris should address.

Thanks,
Earle

From: Hume Vance [mailto:humev@zoom.net]
Sent: Thursday, September 02, 2010 4:18 PM
To: Zapar, Will; Zedan, Nathan; Iveson, Earle; Griffiths, Chris
Subject: RE: Help in re LED behavior

Hi,

I'm following up on this query. The unit is an Askey device; we believe it is the same platform as the Thomson DCM425.

The device is based on the BCM3349 chipset with the BCM3421 Tuner. Do you have any particular comments about this platform or about Askey as an ODM?

We feel that the LED behavior could be improved on, and I would appreciate your comments on that as described below.

Regards,

Hume

From: Hume Vance
Sent: Tuesday, August 31, 2010 4:11 PM
To: 'Zapar, Will'; 'Zedan, Nathan'; 'Iveson, Earle'; 'Griffiths, Chris'
Subject: Help in re LED behavior

Hi Chris, Earle, Will and Nathan,

Our D2 CM will go end of life next year and we are looking at a new model to replace it. This would be a retail product, like our other CMs.

The model we are looking at has LEDs that do not conform to the recommendations in the CableLabs document CM-SP-OSSlv2.0-C01-081104.pdf, section 10.1. In particular, there is no LED activity to indicate DS synch, ranging, and registration.
Here is the LED description:

<table>
<thead>
<tr>
<th>Default Software LED Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PC</strong></td>
</tr>
<tr>
<td>No CPE connected – The LED is OFF.</td>
</tr>
<tr>
<td>CPE connected – The LED is ON to indicate a data link is established. The LED will blink whenever data is being transferred between CPE and the modem.</td>
</tr>
<tr>
<td><strong>Cable</strong></td>
</tr>
<tr>
<td>When the CM is registered, the LED is ON and will remain illuminated continuously; otherwise the LED is OFF.</td>
</tr>
<tr>
<td><strong>Send</strong></td>
</tr>
<tr>
<td>The LED will blink whenever data is being transmitted by the modem; otherwise the LED is OFF.</td>
</tr>
<tr>
<td><strong>Receive</strong></td>
</tr>
<tr>
<td>The LED will blink whenever data is being received by the modem; otherwise the LED is OFF.</td>
</tr>
<tr>
<td><strong>Power</strong></td>
</tr>
<tr>
<td>Whenever the CM is powered on, the LED is ON and will remain illuminated continuously.</td>
</tr>
</tbody>
</table>

These LEDs could easily be relabeled LINK ONLINE US DS & POWER. However, note that they are in the opposite order of the preferred CableLabs orientation.

Does Comcast have a requirement for LED designation and behavior that you could share? Would Comcast be able to approve a CM with the above behavior?

I appreciate your help in this.

Thanks and regards,

Hume

Hume Vance  
Director, Firmware Engineering  
Zoom Telephonics, Inc.  
207 South Street  
Boston, MA 02111  
USA  
humev@zoom.com  
+1 617 753-0032
Frank - Given your mention of FCC and/or legal action, I cannot be further involved in this topic (company guidelines require me to refer it to Legal). I am unfortunately this forced to refer this to our attorney for you both to discuss. His name is Jeff Smith and he is copied here.

Regards
Jason

From: Frank Manning <frankm@zoom.net><mailto:frankm@zoom.net>>
Date: Thu, 9 Sep 2010 13:58:54 -0500
To: Jason Livingood
<jason_livingood@cable.comcast.com><mailto:jason_livingood@cable.comcast.com>>
Cc: Hume Vance <humev@zoom.net><mailto:humev@zoom.net>>
Subject: Docsis 2.0 cable modem certification by Comcast

Jason, I'm writing to make sure I understand Comcast's position regarding certification of Docsis 2.0 cable modems.

Yesterday Comcast's Earle Iveson wrote to Zoom's Hume Vance:

Hume,

I don't think we any other spec document for 2.0 devices other than what the CL spec calls.

I think the larger question here is whether we would go thru the Cert process on a 2.0 retail device at this point, that is something that Chris should address.

Thanks,
Earle
----------

Earle's suggestion that Comcast might not have a certification process for Docsis 2.0 cable modems really worries Zoom, given the importance of cable modems to Zoom's business. As you probably know, Jason, Zoom is number 2 to Motorola at retail in the USA. We currently have a Docsis 2.0 and a Docsis 3.0 cable modem at retail. However, we would like to update the Docsis 2.0 cable modem to a Broadcom-based unit with fresh firmware, and
we are also considering a Docsis 2.0 cable modem with wireless-N for retail. Of course we'd get Cablelabs certification for these units, and of course we'd want customers of Best Buy, Staples, and other retailers to be able to use these cable modems with Comcast. This means that we need a way to get them certified for use with Comcast. There seem to be only 2 ways to do that:
1) Comcast tests and certifies the units, similar to what they did recently for Zoom's Docsis 3.0 cable modem; or
2) Comcast certifies the units without testing, relying on other information including the Cablelabs certification, Broadcom firmware rev, or whatever else is available and relevant.

Our view is that Comcast must have a process for certifying these cable modems. If Comcast were to take the position that it won't certify Docsis 2.0 cable modems anymore and that uncertified cable modems cannot be used with Comcast service, Comcast would effectively be preventing any new (that is, not yet certified by Comcast) Docsis 2.0 cable modems from being offered by large retail store chains. This is especially true because Comcast is by far the largest cable service provider in the USA, and is often the only cable modem service available to a particular customer.

I feel very sure that the FCC and Congress would not accept the notion of Comcast effectively preventing any new Docsis 2.0 cable modems from being offered by national retailers like Best Buy and Staples.

As you probably know, Docsis 3.0 cable modems cost a lot more to build than Docsis 2.0 cable modems, and we haven't seen any evidence that this will change soon. This makes Comcast's policy toward Docsis 2.0 cable modems even more important.

Please confirm that Comcast will continue to certify Docsis 2.0 cable modems including ones from Zoom with a process at least as timely as the one you have for Docsis 3.0 cable modems. This confirmation is critical to Zoom's cable modem plans.

Jason, we have been impressed by the professionalism of Comcast. We want to continue to work cooperatively with Comcast. I hope to hear from you soon.

Regards,
Frank Manning
President and CEO, Zoom Telephonics
Regardless of model numbers, we are agreeing to proceed only with the device for which you are changing the current chipset (and accompanying electronics). One device.

-----Original Message-----
From: Frank Manning [mailto:frankm@zoom.net]
Sent: Thursday, October 07, 2010 12:35 PM
To: Smith, Jeff [CORP]
Cc: Livingood, Jason; Hume Vance
Subject: RE: Your October 6 letter to Zoom

Jeff, my confusion relates to your terms "modification" in you October 6 letter and "existing model" in the email below. I had already mentioned that this was a change of chipset and that we'd need to do a new CableLabs submission. We're trying to deal with the obsolescence of one chipset, and that issue has driven a change to a new unit with a Broadcom chipset. What is the issue for Comcast? If the issue is the model number, please let me know and we will consider using the same model number. We want to work with you, and I'm uncertain about what you want.

Regards,
Frank

P.S. A change in the primary cable modem chipset always requires a change in the electronics. I assumed that Comcast knew that.

-----Original Message-----
From: Smith, Jeff [CORP] [mailto:Jeff_E_Smith@Comcast.com]
Sent: Thursday, October 07, 2010 12:02 PM
To: Frank Manning
Cc: Livingood, Jason; Hume Vance
Subject: RE: Your October 6 letter to Zoom

I was only referring to your existing model for which you are proposing a change in chipset. We currently our reviewing our processes and policies, and have made no decision with respect to any other devices.

-----Original Message-----
From: Frank Manning [mailto:frankm@zoom.net]
Sent: Thursday, October 07, 2010 11:50 AM
To: Smith, Jeff [CORP]
Cc: Livingood, Jason; Hume Vance
Subject: Your October 6 letter to Zoom
Importance: High

Dear Jeff,

Thank you for your letter of October 6, 2010 and the insights it provides into Comcast's perspective and plans. I want to make sure that I understand your statement: "Notwithstanding these concerns, Comcast is willing to evaluate Zoom's modification of its previously approved DOCSIS 2.0 device only." I am assuming that "modification of its previously approved DOCSIS 2.0 device only" refers to the basic DOCSIS 2.0 cable modem we've discussed, the one that uses a Broadcom chipset instead of the Conexant chipset used in our currently approved DOCSIS 2.0 model. The "Broadcom model" (our Model 5242) has similar functionality to the "Conexant model" (our model 5241), but different electronics and plastics, and Zoom needs to get CableLabs certification for this new cable modem as previously mentioned. This is the cable modem that Comcast is willing to evaluate, right? I want to make very sure about this, since it's so important to Zoom's plans.

If this works for you and Comcast, we will move quickly forward with this product; and will not move forward with a DOCSIS 2.0 cable modem with wireless capability. We hope to hear from you soon.

Thank you for your help with this.

Regards,

Frank Manning
Hello Zoom folks,

Attached is our Comcast Physical & Environmental (P&E) test documents and process, of which Hume is familiar. Jason Livingood has requested we engage you for a D2.0 device referenced below. Please send us some spec sheets on the device. Also, please give us a target date for the P&E and SCTE40 pretest data (as a complete package, not in pieces with different dates) and locations where the P&E and SCTE40 onsite product verification will take place and we will go from there.

Thanks,
Norm Baker

Norm Baker
NE&TO Product Engineering - Quality Assurance
Comcast Cable Communications, Inc.
1002 Cornerstone Blvd.
Downingtown, PA 19335
484-364-4138 (work)
484-354-9447 (cell)
Norman_Baker@cable.comcast.com

>On 10/7/10 2:43 PM, “Frank Manning” <frankm@zoom.net> wrote:
>
>>Jeff, thank you for that clarification. We will go forward with that one
>>DOCSIS 2.0 cable modem product right away. That device has a Broadcom
>>chipset and accompanying electronics, and is in new and appropriate
>>plastics.
>>
>>Thank you for your cooperation and Comcast’s. We appreciate it.
>>
>>Regards..Frank
>>
>>>>Original Message------
>>From: Smith, Jeff [CORP] [mailto:Jeff_E_Smith@Comcast.com]
>>Sent: Thursday, October 07, 2010 2:36 PM
>>To: Frank Manning
>>Cc: Livingood, Jason; Hume Vance
Subject: RE: Your October 6 letter to Zoom

Regardless of model numbers, we are agreeing to proceed only with the device for which you are changing the current chipset (and accompanying electronics). One device.

-----Original Message-----
From: Frank Manning [mailto:frankm@zoom.net]
Sent: Thursday, October 07, 2010 12:35 PM
To: Smith, Jeff [CORP]
Cc: Livingood, Jason; Hume Vance
Subject: RE: Your October 6 letter to Zoom

Jeff, my confusion relates to your terms "modification" in your October 6 letter and "existing model" in the email below. I had already mentioned that this was a change of chipset and that we'd need to do a new CableLabs submission. We're trying to deal with the obsolescence of one chipset, and that issue has driven a change to a new unit with a Broadcom chipset. What is the issue for Comcast? If the issue is the model number, please let me know and we will consider using the same model number. We want to work with you, and I'm uncertain about what you want.

Regards,
Frank

P.S. A change in the primary cable modem chipset always requires a change in the electronics. I assumed that Comcast knew that.

-----Original Message-----
From: Smith, Jeff [CORP] [mailto:Jeff_E_Smith@Comcast.com]
Sent: Thursday, October 07, 2010 12:02 PM
To: Frank Manning
Cc: Livingood, Jason; Hume Vance
Subject: RE: Your October 6 letter to Zoom

I was only referring to your existing model for which you are proposing a change in chipset. We currently our reviewing our processes and policies, and have made no decision with respect to any other devices.

-----Original Message-----
From: Frank Manning [mailto:frankm@zoom.net]
Sent: Thursday, October 07, 2010 11:50 AM
To: Smith, Jeff [CORP]
Cc: Livingood, Jason; Hume Vance
Subject: Your October 6 letter to Zoom
Importance: High
>>>Dear Jeff,
>>>Thank you for your letter of October 6, 2010 and the insights it
>>>provides into Comcast's perspective and plans.
>>>I want to make sure that I understand your statement: "Notwithstanding
>>>these concerns, Comcast is willing to evaluate Zoom's modification of
>>>its previously approved DOCSIS 2.0 device only." I am assuming that
>>>"modification of its previously approved DOCSIS 2.0 device only"
>>reffers
>>>to the basic DOCSIS 2.0 cable modem we've discussed, the one that uses
>>>a
>>>Broadcom chipset instead of the Conexant chipset used in our currently
>>>approved DOCSIS 2.0 model. The "Broadcom model" (our Model 5242) has
>>>similar functionality to the "Conexant model" (our model 5241), but
>>>different electronics and plastics, and Zoom needs to get CableLabs
>>>certification for this new cable modem as previously mentioned. This
>>>is
>>>the cable modem that Comcast is willing to evaluate, right? I want to
>>>make very sure about this, since it's so important to Zoom's plans.
>>>If this works for you and Comcast, we will move quickly forward
>>>with this product; and will not move forward with a DOCSIS 2.0 cable
>>>modem with wireless capability. We hope to hear from you soon.
>>>Thank you for your help with this.
>>>Regards,
>>>Frank Manning

>
Our testing/cert policies continue to evolve. We now believe it is important that all devices in the network, whether customer-purchased or Comcast-purchased should pass P&E evaluation.

Regards
Jason

From: Hume Vance <hume@zoom.net>
Date: Tue, 12 Oct 2010 12:30:30 -0500
To: Jason Livingood
Cc: Frank Manning
Subject: Question relative to Physical & Environmental Testing

Dear Jason,

We are very pleased that Comcast has agreed to accept for certification testing our new D2 CM to replace our Model 5241, which is going EOL next year. The new CM is the Model 5242. We thank you for this opportunity.

As you know, our CMs are retail models. While we would be more than happy to sell our CMs directly to Comcast, our initial plan with the Model 5242 is to sell this at retail only. Last spring, when we submitted our Model 5341 D3 CM, you waived the Physical and Environment testing requirements in view of the fact that this model was to be sold at retail only. We wish to remind you of that, and to ask whether the P&E tests can be waived for the same reason relative to the Model 5242.

For reference, we anticipate receiving CableLabs certification sometime in January.

Best regards,

Hume

Hume Vance
Director, Firmware Engineering
Zoom Telephonics, Inc.
207 South Street
Boston, MA 02111
USA
Hume Vance

From: Baker, Norman [Norman_Baker@cable.comcast.com]
Sent: Tuesday, October 12, 2010 5:49 PM
To: Hume Vance; Frank Manning
Cc: Peart, Richard; Cusson, Charles; Iveson, Earle
Subject: RE: Your October 6 letter to Zoom

Hume,

As long as the CL was completed before your execution of the test plans starts, or you did not change the device after you started to execute the test plans to be able to pass the CL cert, that should be OK.

Norm Baker
NEATC Product Engineering - Quality Assurance
Comcast Cable Communications, Inc.
1002 Cornerstone Blvd.
Downingtown, PA 19335
484-364-4138 (work)
484-354-9447 (cell)
Norman_Baker@cable.comcast.com

-----Original Message-----
From: Hume Vance [mailto:humev@zoom.net]
Sent: Tuesday, October 12, 2010 5:01 PM
To: Baker, Norman; Frank Manning
Cc: Peart, Richard; Cusson, Charles; Iveson, Earle
Subject: RE: Your October 6 letter to Zoom

Norm,

If our data was ready before the CL certification announcement, does that mean you would wait until the CL announcement and then buffer in the 3 weeks to review the data, or would the review start when you had all the data you need?

Thanks,

Hume

-----Original Message-----
From: Baker, Norman [mailto:Norman_Baker@cable.comcast.com]
Sent: Tuesday, October 12, 2010 3:26 PM
To: Hume Vance; Frank Manning
Cc: Peart, Richard; Cusson, Charles; Iveson, Earle
Subject: RE: Your October 6 letter to Zoom

As I said, give a target date for all the pretest data being completed as a single package and locations where the onsite will be and we will look at our schedule. We will buffer in at least 3 weeks from your date
to the date of onsite test for data review.

Norm Baker
NE&T Product Engineering - Quality Assurance
Comcast Cable Communications, Inc.
1002 Cornerstone Blvd.
Downingtown, PA 19335
484-364-4138 (work)
484-354-9447 (cell)
Norman_Baker@cable.comcast.com

-----Original Message-----
From: Hume Vance [mailto:humev@zoom.net]
Sent: Tuesday, October 12, 2010 2:55 PM
To: Baker, Norman; Frank Manning
Cc: Peart, Richard; Cusson, Charles; Iveson, Earle
Subject: RE: Your October 6 letter to Zoom

Thanks, Norm.

Do you have waves for your P&E and SCTE40 testing, or can testing start up whenever all the pre-requisites are in place?

Related to that, how much lead time do you need to start a test cycle? Does this vary, and if so by how much?

For reference, we anticipate receiving CableLabs certification sometime in January. CL D2 certifications are now done on a rolling basis, so we won't know for certain what the date will be until we receive the result.

Regards,

Hume

-----Original Message-----
From: Baker, Norman [mailto:Norman_Baker@cable.comcast.com]
Sent: Tuesday, October 12, 2010 2:00 PM
To: Hume Vance; Frank Manning
Cc: Peart, Richard; Cusson, Charles; Iveson, Earle
Subject: RE: Your October 6 letter to Zoom

Hume,

Answers below.

Norm

Norm Baker
NE&T Product Engineering - Quality Assurance
Comcast Cable Communications, Inc.
1002 Cornerstone Blvd.
Hi Norm,

Could you remind me what the schedule parameters are for your testing?

1.) Do you require CL certification before your Physical & Environmental and SCTE40 testing can proceed?

FCC, UL and CL certs should be completed as these may cause you to change the hardware.

2.) Are there any other pre-requisites before you can start testing?

We need your pretest data at least 3 weeks before we go onsite for product verification - this gives us time to review it, while working other projects, to see if it is ready for us to come onsite.

3.) Once we provide the pre-test data and any other prerequisites, how long does it take to complete your testing? Does this proceed in parallel with the DOCSIS and functional testing that takes place in Earle's labs?

We typically schedule a week onsite for P&E and if the P&E goes well another week onsite for SCTE40. After the second week / SCTE40 we will have an issues list written within 2 weeks which we need your response to within one week as to how you are going to mitigate the issues / defects we found retesting may be required. If all goes well Charlie will send out a conditional approval or approval after the issues are resolved. Ideally our test cycle should be first as it may cause you to change your hardware requiring any testing to date to have to be redone.

Norm
On 10/14/10 9:15 AM, "Hume Vance" <humev@zoom.net> wrote:

> Hi Earle,
>
> Would you be able to help us here? I haven't heard back from Jason.

Any questions concerning the policy modifications can be referred to our legal counsel, Jeff Smith. The letter he sent you already indicated that these policies are in the process of changing.

> When was the policy change made to require P&E testing of all submitted devices, including CMs sold at retail?

I'm not sure why that matters.

> Is there a document that describes Comcast test policies that we could see?

It is best for you to contact Jeff Smith. I'm sure we can send you a formal letter explaining the fact that P&E testing is part of the certification process, but I'm unsure of the utility of that given that we've already explained that via email.

Jason

> Thanks,
>
> Hume

>-----Original Message-----
> From: Hume Vance
> Sent: Tuesday, October 12, 2010 5:04 PM
> To: 'Livingood, Jason'
> Cc: Frank Manning
> Subject: RE: Question relative to Physical & Environmental Testing
>
> Hi Jason,
>
> As a follow-up, we wonder when this policy modification was put in place.
> Is there a document that you could refer us to that describes Comcast
test policies?
>
Thanks and regards,
>
Hume
>
-----Original Message-----
> From: Livingood, Jason [mailto:Jason_Livingood@cable.comcast.com]
> Sent: Tuesday, October 12, 2010 1:33 PM
> To: Hume Vance
> Cc: Frank Manning
> Subject: Re: Question relative to Physical & Environmental Testing
>
> Our testing/cert policies continue to evolve. We now believe it is
> important that all devices in the network, whether customer-purchased or
> Comcast-purchased should pass P&E evaluation.
>
> Regards
> Jason
>
> From: Hume Vance <humev@zoom.net><mailto:humev@zoom.net>>
> Date: Tue, 12 Oct 2010 12:30:30 -0500
> To: Jason Livingood
> <jason_livingood@cable.comcast.com><mailto:jason_livingood@cable.comcast.com>
> Cc: Frank Manning <frankm@zoom.net><mailto:frankm@zoom.net>>
> Subject: Question relative to Physical & Environmental Testing
>
> Dear Jason,
>
> We are very pleased that Comcast has agreed to accept for certification
> testing our new D2 CM to replace our Model 5241, which is going EOL next
> year. The new CM is the Model 5242. We thank you for this opportunity.
>
> As you know, our CMs are retail models. While we would be more than happy
> to sell our CMs directly to Comcast, our initial plan with the Model 5242
> is to sell this at retail only. Last spring, when we submitted our Model
> 5341 D3 CM, you waived the Physical and Environment testing requirements
> in view of the fact that this model was to be sold at retail only. We
> wish to remind you of that, and to ask whether the P&E tests can be
> waived for the same reason relative to the Model 5242.
>
> For reference, we anticipate receiving CableLabs certification sometime
> in January.
>
> Best regards,
>
Hume

>
Hume Vance

From: Iveson, Earle [Earle_Iveson@Cable.Comcast.com]
Sent: Friday, October 29, 2010 1:07 PM
To: Hume Vance
Cc: Livingood, Jason; Griffiths, Chris
Subject: RE: Specifications for Comcast certification testing

Hume,

Attached is our DOCSIS requirements documents. I hesitate to give you a detailed list of test requirements as we do not want to solely focus on the items we can test for. As you can understand there are plenty of DOCSIS specs that we would not have the ability to test for in our lab environment and would hate for you to focus your efforts on just what we can test for. Obviously, we count heavily on you building a fully DOCSIS compliant device and not just something that will pass our limited test abilities.

Here is an outline of some of the items we test for;

Software Secure Download - SSD
OSS
Provisioning - PROV
IP Performance - PERF
RF Capability - RFCAP
Stability - STAB
Dynamic Channel Change - DCC
IPv6

Thanks,
Earle

From: Hume Vance [mailto:humev@zoom.net]
Sent: Thursday, October 28, 2010 12:16 PM
To: Iveson, Earle
Cc: Livingood, Jason; Griffiths, Chris
Subject: Specifications for Comcast certification testing

Hi Earle,

Since Zoom is trying to plan regarding possible new cable modem submissions to Comcast, it would be very helpful if we could see the specification documents that you test against. We would like to know ahead of time what the complete set is of your requirements, to help assure that we not submit a cable modem that fails your requirements.

Our first interest is what the requirements are for a DOCSIS 2.0 CM. You may be aware that Jeff Smith agreed that Comcast would be willing to test a Zoom D2 model to replace our current model.

If there is separate documentation that covers D3 CMs, we would like to see that, as well, in anticipation of further C3 submissions.

Regards,
Hume Vance
Director, Firmware Engineering
Zoom Telephonics, Inc.
207 South Street
Boston, MA 02111
USA
humev@zoomtel.com
+1 617 753-0032
Hume -

I know you and Chris have already spoken. This test bottleneck affects not just Zoom but any other device manufacturer as well. It is relatively new for us to see so many new DOCSIS devices coming to retail. While this is great, it poses some short-term logistical challenges.

As we saw this coming we budgeted for and are making lab investments to expand our testing capacity, which should be available soon (and we have also reorganized our lab test organization to better suit this). I am also charged with developing a fair process for all vendors like yourself, that could be shared publicly, with test interval commitments and so on. I suspect we may need to try to get your device tested before all of that is finalized.

Thanks for your continued patience and we will be in touch soon. While you are out, it would be helpful for you to designate a good day-to-day operational contact at Zoom that we can work with as we move ahead.

Regards,
Jason

Jason Livingood
Executive Director
Internet Systems Engineering
National Engineering & Technical Operations
Comcast Cable Communications
215-286-7813
jason_livingood@cable.comcast.com

On 2/22/10 3:28 PM, "Hume Vance" <humev@zoom.net> wrote:

> Hi Chris,
> 
> I want to emphasize that it's urgent for us to get through your testing in 
> time for product getting onto retail shelves.
> 
> Can we count on a fast turnaround time? We really need your help with this.
> 
> Thank you.
> 
> Hume
> 
> -----Original Message-----
> From: Hume Vance
> Sent: Monday, February 22, 2010 2:35 PM
> To: 'Griffiths, Chris'
> Cc: Frank Manning; Jason Livingood; Tom Hanson; Paul Prohodski
> Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM
> 
> Hi Chris,
> 
> Thanks for your call a little while ago. I appreciate your explanation that 
> Comcast has had to halt all testing of new devices while you work through some 
> issues in your lab.
Follow-up questions: once you have worked through those issues, how soon can we expect you will be able to start testing our product? Is it true that your testing runs roughly 4-6 weeks from start to finish?

As I mentioned in our call, I am copying two colleagues on this email. I will be out for about ten days starting this coming Thursday. Please copy Tom and Paul on any emails that you send. They will make sure to respond in my absence.

Thanks,

Hume

-----Original Message-----
From: Griffiths, Chris [mailto:Chris_Griffiths@Cable.Comcast.com]
Sent: Monday, February 22, 2010 1:30 PM
To: Hume Vance
Cc: Frank Manning; Jason Livingood
Subject: Re: Zoom Telephonics upcoming DOCSIS 3.0 CM

I am well aware of our conversations so far and have communicated to you as I have had updates. We are on hold for all new devices not currently in testing as we work through our internal processes. I understand you have your own processes and timelines and ask for your patience in this matter.

Thanks

---
Chris Griffiths
Comcast

On Feb 22, 2010, at 1:23 PM, "Hume Vance" <humev@zoom.net> wrote:

Hi Chris,

I'm very surprised and disappointed by the email you sent today. In that email you said: "We are on hold for testing your devices at this time as we work through our testing processes. I will be back in touch if and when we decide to certify your device on the Comcast network."

As you know, Comcast is by far the largest cable service provider in the country. And as you probably know, the US Congress and the FCC have made it very clear that they want to encourage consumer choice in Internet-access equipment. They do not want this equipment area monopolized by anyone, and they do not want it effectively controlled by the largest cable service provider in the country. There has to be a process whereby equipment is certified for use on the Comcast network. We understand that Cablelabs certification is part of that process. Comcast has chosen to require additional testing, and we are attempting to get that testing done. This is urgent for us, as we have commitments from both Best Buy and Staples to carry our DOCSIS 3.0 cable modem soon. We can't live with the idea that you may decide not to test our device for certification. And frankly, we don't think that the FCC would live with it either.

Your email quoted above suggests some obvious questions:
1) You say you are on hold for testing our devices at this time.
Are you on hold for testing all other cable modems?
2) You say that you will be back in touch "if and when we decide to certify your device on the Comcast network." Who is "we"? Who at Comcast makes that decision?

We have been in communication since January 15, when I sent an email introducing myself and letting you know that Zoom has a DOCSIS 3.0
cable modem. I said we wanted to submit our cable modem for testing
and certification in Comcast's labs.

I followed up on Jan. 21 with more details about the Hitron product
on which our design is based, and I explained that our product would
be placed at retail in Best Buy. We need to ship high volumes to
Best Buy in April.

On February 9 I sent a brief email touching base and following up on
an email from Norm Baker. Norm had advised me that you would be
getting in touch relative to scheduling Comcast testing for our
product.

On February 10 you responded with two emails. The first email
invited us to submit our product to Comcast's test labs. A second
email retracted that invitation pending internal Comcast discussions.

I responded with an email later that day, requesting a call so that
we could understand your process better.

I followed up with a call the next day (Feb. 11) that went to
voicemail. You responded either later that day or the next with a
voicemail to me. I returned that call, and gave you my cell phone
number to call in case I wasn't at my desk when you called.

I left two or three other phone messages over the subsequent week
and again this morning. I appreciate finally getting your email
response below. However, we really need to have a definite plan for
testing now, one consistent with our required ship date to Best Buy.

We are trying very hard to be cooperative. However, we feel that
you and Comcast have a responsibility to cooperate with us. A good
start is for Comcast to provide a reasonable schedule for
certification, one consistent with our needs and the needs of Best
Buy.

I hope to hear from you soon.

Sincerely,

Hume Vance
Director of Firmware Engineering, Zoom Telephonics

cc: Frank Manning, Zoom Telephonics President and CEO

-----Original Message-----
From: Griffiths, Chris [mailto:Chris_Griffiths@Cable.Comcast.com]
Sent: Monday, February 22, 2010 12:03 PM
To: Hume Vance
Cc: Chandrashekar, Sumi; Iveson, Earle; Baker, Norman
Subject: Re: Zoom Telephonics upcoming DOCSIS 3.0 CM

We are on hold for testing your devices at this time as we work
through our
testing processes. I will be back in touch if and when we decide to
certify
your device on the Comcast network.

Thanks

On 2/22/10 9:23 AM, "Hume Vance" <humev@zoom.net> wrote:

Hi Chris,
I'm checking to make sure you have received the several voice mails I left for you over the last week and a half.

Do you make the final decision on what CMs to test in your labs? If not you, to whom should I be directing our inquiries? We at Zoom need to understand what we need to do in order to get our DOCSIS 3.0 CM into your lab.

As I have mentioned before, our CM is scheduled to go into 2500 or so retail outlets in mid-April. Zoom certainly doesn't want to subject our customers to the confusion that would ensue if these CMs could not be attached to Comcast service, and I imagine Comcast wouldn't want that to happen, either.

Regards,

Hume

Hume Vance
Director, Firmware Engineering
Zoom Telephonics, Inc.
207 South Street
Boston, MA 02111
USA
humev@zoom.com
+1 617 753-0032w
+1 617 895-6979c

-----Original Message-----
From: Iveson, Earle [mailto:Earle_Iveson@Cable.Comcast.com]
Sent: Thursday, January 21, 2010 5:24 PM
To: Hume Vance; Griffiths, Chris; Baker, Norman
Cc: Chandrashekar, Sumi
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

I think it's Chris G. on this thread..

Chris if you are not the right guy, any ideas??

Thanks,
Earle

-----Original Message-----
From: Hume Vance [mailto:humev@zoom.net]
Sent: Thursday, January 21, 2010 3:43 PM
To: Iveson, Earle; Griffiths, Chris; Baker, Norman
Cc: Chandrashekar, Sumi
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hi Earle,

Do you know the answer to the below? If not, who should I be directing my questions to?

Thanks,

Hume
Hi Earle,

Thank you. Who should I be talking to about the decision to certify our product? Would that person also be able to address the other needs that you refer to?

Thanks,

Hume

From: Iveson, Earle [Earle_Iveson@Cable.Comcast.com]
Sent: Saturday, January 16, 2010 11:17 AM
To: Hume Vance; Griffiths, Chris; Baker, Norman
Cc: Chandrashekar, Sumi
Subject: Re: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hume,

When/If the decision is made at Comcast to certify your device my lab would need a minimum of 10 devices. There may be other needs that I can not speak to so please do not consider that to be the end result.

Thanks,
Earle

From: Hume Vance <humev@zoom.net>
To: Griffiths, Chris; Iveson, Earle; Baker, Norman
Cc: Chandrashekar, Sumi
Sent: Fri Jan 15 15:17:12 2010
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

Chris,

Thanks, and I appreciate your communication with the Comcast QA team.

Can you or someone else indicate how many test units you will need from us? It will help us in our planning to know that.

Hume

From: Griffiths, Chris [mailto:Chris_Griffiths@Cable.Comcast.com]
Sent: Friday, January 15, 2010 3:11 PM
To: Hume Vance; Iveson, Earle; Baker, Norman
Cc: Chandrashekar, Sumi
Subject: Re: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hume,

We expect all vendors to go through CL certification first, then complete the full Comcast certification before we will certify your device to come onto the network regardless of it being only sold at retail. We will need to make sure that the appropriate folks are aware this is coming. Earle's team is one part of that certification process.
I am also copying in the QA team so they can be aware as well.

Thanks

On 1/15/10 11:19 AM, "Hume Vance" <humev@zoom.net> wrote:

Hi Earle,

Our CM will be sold at retail. We'd of course be happy to sell
direct to
Comcast, but there is currently no agreement to do so.

How many units will you need us to submit once we have the CL OEM
certification?

Thanks,

Hume

From: Iveson, Earle [mailto:Earle_Iveson@Cable.Comcast.com]
Sent: Friday, January 15, 2010 9:41 AM
To: Hume Vance
Cc: Chandrashekar, Sumi; Griffiths, Chris
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hi Hume,

As for getting this device accepted by the Business Unit I would
refer
you to Chris Griffiths. As for CL cert, we do require you to
complete
that certification prior to Comcast starting our certification..

Thanks much,

Earle

From: Hume Vance [mailto:humev@zoom.net]
Sent: Wednesday, January 13, 2010 1:41 PM
To: Iveson, Earle
Cc: Chandrashekar, Sumi
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hi Earle,

I look forward to hearing from you.

Thanks,

Hume

From: Chandrashekar, Sumi
[mailto:Sumi_Chandrashekar2@cable.comcast.com]
Sent: Wednesday, January 13, 2010 11:24 AM
To: Hume Vance
Cc: Iveson, Earle
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hi Hume,
Please contact our Director, Earle Iveson (CC'ed).

Thanks,

Sumi
Hi Sumi,

Relative to my earlier email, the copy to Dennis bounced, so I infer he is no longer at Comcast.

Would you be able to respond to my below query? We plan to submit our OEM submission to CableLabs next week or early the following week. We anticipate samples would be available to provide to Comcast a week or two following.

Regards,

Hume

---

From: Hume Vance [mailto:humev@zoom.net]
Sent: Wednesday, January 13, 2010 10:28 AM
To: Chandrashekar, Sumi
Cc: dennis_matthew@cable.comcast.com
Subject: RE: Zoom Telephonics upcoming DOCSIS 3.0 CM

Hi Dennis and Sumi,

We are excited that Zoom will soon be offering a DOCSIS 3.0 CM. We will be submitting the CM as an OEM submission to Cable Labs very shortly. We will also wish to submit to your labs for certification.

Could you please forward me information on requirements for your certification?

Do you require the completion of the CL OEM certification before you will accept a submission from us, or given that the OEM version of
the
CM has already been certified by Cable Labs, will you accept our
submission in parallel?

Thanks and best regards,

Hume

PS Do you have any status on the updated 5241 CMs that I believe
are in your labs?

From: Hume Vance
Sent: Wednesday, November 25, 2009 1:17 PM
To:
dennis_matthew@cable.comcast.com<den
'sumil.chandrashekar2@cable.comcast.com<s
 Subject: Contact change at Zoom Telephonics

Hi Dennis and Sumi,

Dean Panagopoulos has left Zoom, and I am taking over his
responsibilities relative to interfacing with cable service
providers. I have already exchanged communications with Sumi in my role as
engineering manager for our cable projects.

I believe that sample Zoom 5241 CMs with updated code are going
through your labs. Please let me know if you have any updates on the status
of your evaluation.

My contact information is below. Please don't hesitate to get in
touch for any reason.

Regards,

Hume
Hume Vance

Director, Firmware Engineering

Zoom Technologies, Inc.

207 South Street

Boston, MA 02111

USA

humev@zoom.com

+1 617 753-0032

--

Chris Griffiths

Comcast Cable Communications, Inc.

National Engineering and Technical Operations

215-286-3992 - Desk

215-776-6416 - Cell

--

Chris Griffiths

Comcast Cable Communications, Inc.

National Engineering and Technical Operations

215-286-3992 - Desk

215-776-6416 - Cell
Thanks for the calls.

To clarify, Zoom has passed our lab-based certification tests for a retail-only device. As noted before, this means we did not execute physical and environmental tests since these are not devices to be purchased by Comcast. The final phase of certification is the completion of a field soak test, which ensures that nothing unexpected happens. We have had devices pass the lab portion of certification and then encounter issues in the field, which is why this is an important quality check. That being said, if you are under tremendous pressure to get devices into retail, then you may wish to consider the lab testing completion as a conditional approval, which is now only contingent upon a successful field test. Hopefully that can relieve the pressure you may be under, as long as you bear in mind that it is still possible that a severe issue could cause a failure in the field (we'd of course work with you to try to resolve any issues to the extent we can assist). In addition, until the field test is completed, we do not have bootfiles across the entire network so during this phase a device purchased at retail would not yet work anywhere in the network.

Earle

Hi Earle,

Thanks for this email.

I'm following up on a voicemail I left a few minutes ago. I'm happy to hear we're moving on to field trials. Does this mean we passed the cert wave?

At the same time, I'm confused. I was unaware of a field trial phase to Comcast's testing. What does this mean relative to when the devices may be attached to the Comcast network? In other words, when can our retail partners start selling the units?

Thanks and regards,

Hume
Hume,

We just did our test results review and with a couple exceptions we have decided to move to field trials with your device. We need to start the process on our end which includes getting a small number of devices out to certain markets for testing. Can we get Zoom to ship us 10 units for this activity? We will then redistribute to two markets (5 each) once those are identified.

Thanks in advance,
Earle

--------------------
From: Hume Vance [mailto:humev@zoom.net]
Sent: Tuesday, June 01, 2010 11:47 AM
To: Iveson, Earle
Cc: Livingood, Jason
Subject: Test wave wrap-up

Hi Earle,

I hope you had an excellent holiday weekend.

I want to let you know where we are on clarifying the IPv4 vs IPv6 questions, and I want to ask how your schedule looks relative to giving us final word about approval.

We want to do the best possible job for Comcast relative to the IPv4 to IPv6 question. We anticipate code that will address the MPP Override issue very shortly. We have also been working to precisely define IPv4 vs IPv6 behavior w.r.t. the 1.4.0.26 code that is under test.

We have worked with Hitron to refine their test plan relative to IPv4 & IPv6, and to re-test where necessary. They have done this. We simply need to confirm that Hitron is setting Router Advertisement messages with M & O bits set appropriately to indicate whether the CM should request IPv4 or IPv6 Addresses, and that the CM is responding to these messages. I will send the updated plan and results as soon as we have this clarification.

On the second point, as you know, my management is extremely anxious to receive the earliest possible answer relative to Comcast approval. How soon could that be?

Regards,

Hume

Hume Vance
Director, Firmware Engineering
Zoom Telephonics, Inc.
207 South Street
Boston, MA 02111
USA
humev@zoom.com
+1 617 753-0032

11/16/2010
EXHIBIT 8
EXHIBIT CONFIDENTIAL
NOT FOR PUBLIC INSPECTION
EXHIBIT 9
EXHIBIT 10