

█ See Complaint, Ex. 8 at 13. Taken literally, this requirement is absurd since █

█ See Ex. 1 at ¶ 20. And if this is not what Comcast means, then it is unclear how this requirement would be measured. Moreover, it is unreasonable for Comcast to require █

█ In short, this poorly designed requirement will drive design confusion, increase product cost, and enhance Comcast's gatekeeper role by putting it in the position of interpreting this vague specification. See id.

Comcast also requires that █

█ Id. at 24. Furthermore, █

█ Id. As Zoom indicated in its Complaint, UL standards already adequately address concerns related to voltage fluctuations. See Complaint, Ex. 3 at ¶ 69. Comcast's standards, by contrast, are exceptionally vague. For example, there are an infinite number of possible █ and it is

exceptionally difficult, if not impossible, to prove through testing that the device will not be

█ See Ex. 1 at ¶ 21. This problem is also compounded because Comcast does not specify for which types of █ it will test. Likewise, it is extremely difficult, if not impossible, to prove that █

[REDACTED] This is because there are an infinite number of ways that [REDACTED] could occur. See id.

Comcast defends its need for voltage fluctuation testing by referencing a small number of incidents of sparking and brief flaming that allegedly occurred with a particular modified set-top box model. Comcast alleges that this set-top box satisfied UL requirements and that the incidents were caused by “slightly unusual brownout conditions.” See Answer, Ex. 6 at 14. Zoom, however, is unaware of any incident where any customer has complained about one of its cable modems sparking or flaming as a result of a voltage fluctuation, nor is Zoom aware of any such incident involving any cable modem. See id. Moreover, in order to ensure that devices remain safe when unusual circumstances arise, UL requires that they must contain the type of damage described by Comcast. This is called fire enclosure construction, and is described in section 4.4.6 of the UL 60950 specification. See id. The cases of all Zoom cable modems serve as fire enclosures and meet UL’s fire enclosure requirements. See id. In the incidents referenced by Comcast, the damage appears to have been contained within the device’s fire enclosure consistent with UL specifications. See id.; Answer, Ex. 21.

More importantly, Comcast’s voltage fluctuations tests are not targeted to evaluate whether a device poses a safety hazard. Rather, as reviewed above, they broadly assess [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] For all of these reasons, Comcast’s voltage fluctuation

requirements are plainly unreasonable. They will serve to increase the cost of modems and decrease their availability at retail. See Ex. 1 at ¶ 21.

Comcast also confirms in its Answer that it requires manufacturers with facilities outside the United States, such as Zoom, to pay for Comcast personnel's business class airfare and hotel stays when they travel to the manufacturer's facilities as part of Comcast's P&E testing program.¹⁵ See Answer, Ex. 6 at 9-10. Moreover, Comcast indicates that these expenses are necessary because Comcast instituted a P&E testing program without even having the necessary facilities or equipment to conduct P&E tests. See Answer, Ex. 6 at 9.

While Zoom could fill up many more pages analyzing each one of Comcast's P&E requirements on an individual basis, the general story is the same. Comcast is attempting to micromanage the engineering process, see Answer at 24, with the effect of driving up engineering costs, development time, and product costs. This is not the role for MVPDs envisioned by Section 629 and is fundamentally incompatible with the competitive market for devices Congress intended to foster through that statutory provision.¹⁶

¹⁵ Although Comcast indicates that it provides manufacturers with the alternative of performing the required P&E tests at an independent laboratory, see Answer Ex. 6, at 9, this option would likely be even more expensive for a manufacturer than paying for the international travel expenses of Comcast personnel. See Ex. 1 at ¶ 22. Additionally, while Comcast denies that it requires manufacturers to pay for Comcast personnel to stay in five-star hotels, see Answer, Ex. 6, at 10, an OEM manufacturer informed Zoom in November 2010 that Comcast had indicated that vendors were required to pay for Comcast personnel to fly business class and stay at a five-star hotel. See Complaint, Ex. 3 at ¶ 66. Notably, nowhere does Comcast state in its Answer that its personnel will stay at whatever hotel the manufacturer chooses so long as the hotel is close to its facilities.

¹⁶ Comcast's claim that anonymous blog comments demonstrate consumer support for and the reasonableness of Comcast's testing program is laughable. See Answer at 33. Comcast presents no evidence as to the identity of these commenters; for example, the quoted comments could have been posted by Comcast employees. Moreover, there is no evidence that these commenters are familiar with Comcast's testing program or representative of public opinion. Finally, Comcast ignores the large number of blog comments that have been posted in support of Zoom's Complaint. See, e.g., <http://arstechnica.com/civis/viewtopic.php?f=2&t=1129656> ("As long as it

Finally, Comcast's settlement proposal is wholly unacceptable to Zoom and does not render Comcast's P&E testing regime either reasonable or legal. As an initial matter, Comcast's offer applies by its terms only to a single modem and would not change any of Comcast's P&E testing policies and procedures on an ongoing basis. See Answer, Ex. 20. Additionally, Comcast's offer would not result in any change to the P&E tests themselves, and it is those tests to which Zoom is objecting. See id. Requiring Zoom's cable modems to pass these tests as a condition of Comcast allowing them to be attached to its network is unlawful and unreasonable, whether those tests are performed by Zoom engineers, Comcast engineers, or third-party engineers.¹⁷

III. COMCAST'S REQUIRED DOCSIS TESTING EXTENDS BEYOND WHAT IS ALLOWED UNDER THE COMMISSION'S RULES AND WARRANTS FURTHER COMMISSION SCRUTINY

With respect to Comcast's DOCSIS testing program, it is important to understand the precise nature of the relief that Zoom is seeking in this proceeding. Consistent with the Commission's rules, Zoom is requesting that Comcast be enjoined from conditioning a subscriber's right to attach a modem to Comcast's network on any test that is not related to preventing harm to its network or theft of service. And, in order to facilitate implementation of this relief, Zoom is asking the Commission to require Comcast to provide a justification for how

meets DOCSIS standards then Comcast is wrong here. With all that is coming out about Comcast recently, it makes me think they [are] worse than what MSFT was in the 80's and 90's") (last visited Dec. 28, 2010).

¹⁷ It should not come as a surprise that Comcast, for purposes of this proceeding, would be able to successfully solicit letters of support from companies, such as Arris and Ubee, which sell a large quantity of equipment directly to Comcast. See Answer at 18-19. Zoom understands well the strong economic incentive that manufacturers have to maintain a good relationship with Comcast given its size and power in the marketplace.

each of the DOCSIS tests that Comcast wishes to require are related to preventing harm to the network or theft of service.

Contrary to the claims contained in Comcast's Answer, Zoom does not object to Comcast administering a network-specific testing program to optimize a device's performance on Comcast's network, and Zoom would be happy to participate voluntarily in such a program. It is obviously in the interest of Zoom for its modems to work well on Comcast's network, and Zoom does not deny that Comcast's DOCSIS testing, while time-consuming¹⁸ and expensive, has at times improved the performance of its modems on Comcast's network.¹⁹

The critical question from Zoom's perspective, however, is this: Who will decide whether its modems, which have been certified to conform to numerous standards including those of the FCC, UL, and CableLabs, will be attached to Comcast's network, Comcast or its subscribers? When the issue involves harm to Comcast's network or theft of service, Zoom agrees with the Commission that the determination should be made by Comcast so long as its conclusions are reasonable. But when the issue involves the performance level of a modem,

¹⁸ While Comcast claims that it did not place a "hold" on testing Zoom's DOCSIS 3.0 modem earlier this year, see Answer at 12-13, n.21, the contemporaneous documentary evidence rebuts Comcast's assertion. When Zoom approached Comcast in February about testing its new modem, Chris Griffiths of Comcast wrote to Hume Vance of Zoom: "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." See Complaint, Ex. 7 at 3 (emphasis added). With respect to the question of how long it takes a device to complete Comcast's DOCSIS testing, the figures provided in the Complaint reflects Zoom's experience with the process. See Complaint at ¶ 49. To the extent that Comcast has taken steps recently to expedite its DOCSIS testing program, see Answer at 9, n.11, Zoom believes that this is a welcome development but does not obviate the need for the relief requested.

¹⁹ Comcast recounts the example of finding through DOCSIS testing that Zoom's DOCSIS 3.0 modem would take more than five minutes in certain situations to re-register with Comcast's network after the modem was reset. See Answer at 11-12. While the modem would re-register within 15.1 minutes, see Ex. 1 at ¶ 23, and Comcast provides no explanation of why, for example, re-registration after five minutes is acceptable but after re-registration after ten minutes is unacceptable, Zoom improved the device's performance in this regard.

Zoom strongly believes that the determination should be made by the subscriber, which is the way that a competitive market generally works.

As discussed above, Comcast has a conflict of interest when it comes to evaluating modems sold at retail and not to Comcast since those modems compete directly with modems that Comcast leases to its subscribers. Moreover, the risks associated with this conflict of interest are heightened when the test criteria applied by Comcast involve inherently subjective determinations. How well must a modem perform? There is not one objectively correct answer to this question. As such, in the competitive retail market envisioned by Section 629, the determination should be made by the consumer, not Comcast.

The parade of horrors depicted by Comcast if Zoom's relief were to be granted with respect to DOCSIS testing is nonsensical. As reviewed above, many other cable operators, including TWC and Charter, do not condition a subscriber's right to attach on the completion of any network-specific tests. This arrangement has been successful over the years, and Zoom has worked cooperatively with these operators to resolve minor issues that arise from time to time. There is no reason why this arrangement could not work with Comcast as well. After all, it is in Zoom's commercial interest to ensure that its modems perform without any problems on an operator's network.

In short, Zoom's goal is to provide its customers with high-quality products at reasonable prices and is eager to work with cable operators as partners to accomplish that objective. Zoom believes, however, that a cable operator's authority to act as a gatekeeper must be sharply circumscribed, and that in most instances, it should be the consumer's decision whether to attach a particular device to the network. This is the case today with DSL providers and many cable

operators as well, and it is what is mandated by Section 629 and the Commission's rules implementing that provision.

IV. COMCAST VIOLATED THE COMMISSION'S RULES BY REFUSING TO TEST A ZOOM CABLE MODEM

Notwithstanding Comcast's attempt to obfuscate the issue, the record with respect to Zoom's request that Comcast test two new DOCSIS 2.0 cable modems is clear. Zoom asked Comcast to agree to test two new DOCSIS 2.0 cable modem models – one with wireless connectivity and one without such capability. See, e.g., Complaint, Ex. 4, at 2. (“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”) (emphasis added). In response, Comcast only agreed to test the model without wireless connectivity. See, e.g., Complaint, Ex. 5, at 2 (“Comcast is willing to evaluate Zoom's modification to its previously approved DOCSIS 2.0 device only.”); Id., Ex. 6, at 5 (“[W]e are agreeing to proceed only with the device for which you are changing the current chipset (and accompanying electronics). One device”) (emphasis added).

In its Answer, Comcast for the first time claims that it would not agree to test the new DOCSIS 2.0 modem with wireless connectivity because the device was “still-hypothetical.” Answer at 21. This, however, is nothing more than a post hoc justification. Comcast never raised this concern with Zoom at the time. Rather, Comcast, in its correspondence with Zoom, made clear the rationale for its refusal to agree to test Zoom's DOCSIS 2.0 modem with wireless connectivity: its desire not to test additional DOCSIS 2.0 devices. See, e.g., Complaint, Ex. 5. Neither is there any merit to Comcast's argument that Zoom was not developing a DOCSIS 2.0 modem with wireless connectivity. See Answer at 21, n.49. While Comcast points out that Zoom informed Comcast on October 7, 2010 that it would not be moving forward with the DOCSIS 2.0 model with wireless connectivity, it only made this decision after Comcast had told

Zoom the day before that it would only test one DOCSIS 2.0 device. See Complaint, Ex. 5. At this point, Zoom was understandably attempting to reach an accommodation with Comcast and was willing to forego the DOCSIS 2.0 model with wireless connectivity in order to secure Comcast's agreement to test its other new DOCSIS 2.0 model. The Commission's rules, however, prohibited Comcast from putting Zoom in such a position by arbitrarily refusing to test more than one DOCSIS 2.0 modem.²⁰

Comcast also justifies its refusal to test a Zoom DOCSIS 2.0 cable modem with wireless connectivity by arguing that DOCSIS 2.0 devices are not sufficiently advanced. See Answer at 20-21. But this justification is inadequate for at least four reasons. First, it is not related to preventing harm to the network or theft of service, the only exceptions to the right to attach recognized by the Commission's rules. Comcast makes no argument that Zoom's DOCSIS 2.0 cable modem with wireless connectivity would have injured Comcast's network or facilitated theft of service, and therefore may not arbitrarily refuse to test it and thus exclude it from Comcast's network. Second, Comcast concedes that DOCSIS 2.0 modems are capable of delivering to consumers the speeds available on two of Comcast's current tiers of service, see Answer at 20, and thus Zoom's new product could have been of use to many Comcast customers. Third, there is still strong consumer demand for DOCSIS 2.0 modems. As noted in the Complaint, Zoom's DOCSIS 2.0 model currently outsells its DOCSIS 3.0 model by margin of greater than two-to-one. See Complaint, Ex. 3 at ¶ 50. And fourth, Comcast itself continues to lease DOCSIS 2.0 modems to its subscribers (including new customers). See id. at ¶ 54.

²⁰ To the extent that Comcast is arguing that it did not refuse to test a DOCSIS 2.0 cable modem with wireless connectivity because it did not completely foreclose changing its mind and agreeing to do so at some unspecified point in the future, it is just engaging in semantics. Zoom requested that Comcast test two DOCSIS 2.0 devices, and Comcast would only agree to test one such device. By any reasonable standard, Comcast refused Zoom's request, and unless it had a permissible justification for doing so, Comcast violated the Commission's rules.

Comcast cannot lease DOCSIS 2.0 modems to subscribers but at the same time claim that it is under no obligation to certify DOCSIS 2.0 modems that are sold at retail. This is precisely the type of discriminatory conduct by an MVPD that Section 629 and the Commission's implementing rules were designed to prevent.

V. COMCAST IS VIOLATING THE COMMISSION'S RULES BY REFUSING TO PUBLISH AND MAKE PUBLICLY AVAILABLE ITS TESTING STANDARDS

In its Complaint, Zoom alleged that Comcast was violating 47 C.F.R. § 76.1203 by failing to publish and make publicly available the standards that it uses in determining whether cable modems will be restricted from Comcast's network. See Complaint at ¶ 139. That rule provides that an MVPD may restrict the attachment or use of devices with its system in certain circumstances and that "[s]uch 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." 47 C.F.R. § 76.1203. Comcast, in its Answer, barely responds to this allegation; its only reply is that it "provided Zoom with its testing plans each time Zoom requested such information." Answer at 62.

Comcast's defense is wholly inadequate for two reasons. First, Comcast has not published and made available to subscribers the standards that determine which devices may not be attached to its network as is required by 47 C.F.R. § 76.1203. And second, as reviewed above, Comcast conceded in its Answer that the testing plans it provided to Zoom were significantly inaccurate and thus did not reflect Comcast's actual standards. As such, the Commission should find that Comcast has violated 47 C.F.R. § 76.1203 and order Comcast to publish and make available to its subscribers the testing standards it employs to determine whether a device may be attached to its network. This relief will also have the added benefit of

allowing for a more informed public debate over whether there is a need for Commission action to protect subscribers' right to attach.

VI. COMCAST'S CONDUCT RUNS AFOUL OF THE COMMISSION'S OPEN INTERNET PRINCIPLES

In light of the D.C. Circuit's decision in Comcast Corp. v. FCC, 600 F.3d 642 (2010), none of the specific counts set forth in Zoom's Complaint alleges violations of the Commission's Open Internet principles. Nevertheless, because Comcast claims to be following those principles and the Commission stated in its Internet Policy Statement that it "would incorporate" the Open Internet principles "into its ongoing policymaking activities," Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities et al., Policy Statement ("Internet Policy Statement"), 20 FCC Rcd 14986 at ¶ 5 (2005), Zoom believed that it was important to point out that Comcast's conduct here has been inconsistent not only with the Commission's rules implementing Section 629 but also with the Open Internet principle that "consumers are entitled to connect their choice of legal devices that do not harm the network." Id. at ¶ 4 (emphasis added). While Comcast claims that its "customers *can* attach any legal, non-harmful device they want to the network," Answer at 44-45 (emphasis in original), such an assertion is plainly false. As reviewed above, Comcast, before allowing devices to be attached to its system, requires that they pass numerous tests that have nothing to do with preventing harm to the network. Moreover, Comcast would not even agree to test Zoom's DOCSIS 2.0 modem with wireless connectivity, and its rationale had nothing to do with any allegation that the device would harm Comcast's network.

Comcast also argues that its testing regime does not run afoul of the Commission's Open Internet Principles because it constitutes "reasonable network management." Answer at 45. While the Commission did indicate in its Internet Policy Statement that the Open Internet

Principles “are subject to reasonable network management,” Internet Policy Statement at ¶ 5, n.15, Comcast’s testing program does not qualify for such treatment. To begin with, for the many reasons explained above, Comcast’s testing program is not “reasonable” and thus by definition cannot constitute “reasonable network management.”

Moreover, Comcast’s testing regime does not fall within the definition of “reasonable network management” that the Commission adopted recently in its Open Internet rulemaking proceeding. There, the Commission held that “[a] network management practice is reasonable if it is appropriate and tailored to achieving a legitimate network management purpose, taking into account the particular network architecture and technology of the broadband Internet access service.” Open Internet Report and Order, at ¶ 82. It then further explained that “legitimate network management purposes include: ensuring network security and integrity, including by addressing traffic that is harmful to the network; addressing traffic that is unwanted by end users (including by premise operators), such as by providing services or capabilities consistent with an end user’s choices regarding parental controls or security capabilities; and reducing or mitigating the effects of congestion on the network.” Id. The vast majority of Comcast’s testing program, however, has nothing to do with network security and integrity, addressing traffic that is unwanted by end users, or reducing network congestion, and there is nothing in the Open Internet Report and Order otherwise suggesting that Comcast’s testing program would constitute reasonable network management.

For these reasons, Zoom believes that Comcast’s conduct in this case is inconsistent not only with the Commission’s Open Internet principles but also the new Open Internet rules adopted by the Commission in December. See 47 C.F.R. § 8.5 (“A person engaged in the provision of fixed broadband Internet access service, insofar as such person is so engaged, shall

not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management.”)

VII. THE COMMISSION SHOULD GRANT ZOOM CERTAIN RELIEF IN AN EXPEDITIOUS MANNER

As indicated in the Complaint, Zoom has an urgent business need to replace the DOCSIS 2.0 modem that it currently sells at retail because at some point this year it will no longer be able to obtain the parts necessary to make that device. See Complaint at ¶ 61; Ex. 1, at ¶ 24. And, as set forth in the Complaint, the principal barrier right now to Zoom bringing a replacement device to the retail market is Comcast’s P&E testing regime. See Ex. 1, at ¶ 24; Complaint Ex. 3, at ¶ 67. Given Comcast’s market share, a cable modem must be able to be attached to Comcast’s network or else it will not be a commercially viable product that can be sold successfully through national retail outlets. See Ex. 1 at ¶ 24; Complaint at ¶ 50.

Zoom therefore requests that the Commission consider in an expedited fashion its request that Comcast be enjoined from requiring cable modems sold at retail to be evaluated in its P&E testing regime before they may be attached to Comcast’s network along. Moreover, to ensure that this relief is effective, Zoom also asks the Commission at the same time to: (1) require Comcast to remedy the delay that it has caused Zoom in bringing its newest DOCSIS 2.0 modems to the retail market by performing its DOCSIS tests on those modems in an expedited basis; and (2) enjoin Comcast from asking CableLabs to add any additional testing requirements to its testing of Zoom’s newest DOCSIS 2.0 modems.

While Zoom, of course, would welcome quickly obtaining all of the relief it is requesting in this proceeding, it is extremely important that Zoom receive the relief outlined above in an expedited manner. Under such a scenario, the Commission could then decide the other issues raised by this case at a later date. Zoom has demonstrated that Comcast’s new P&E testing

regime blatantly violates the Commission's rules, and the Commission should act swiftly to ensure that Comcast's unlawful testing requirements do not jeopardize Zoom's financial future and the competitive retail market for cable modems.

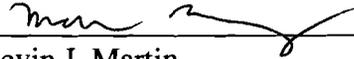
VIII. CONCLUSION

For all of the foregoing reasons, the Commission should grant the relief requested by Zoom in its Complaint.²¹

January 3, 2011

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*

²¹ Because Comcast served Zoom its Answer by mail, 47 C.F.R. § 1.4(h) applies, consistent with guidance from Commission staff. That rule provides Zoom with an additional three days (excluding holidays) to file its Reply. Therefore, because Comcast served Zoom by mail on December 20, 2010, Zoom's Reply was due on January 5, 2011, and it is hereby timely filed.

CERTIFICATE OF SERVICE

I, Matthew B. Berry, hereby certify that on this 3rd day of January 2011, I caused a true and correct copy of the foregoing Reply of Zoom Telephonics, Inc. to Answer of Comcast Cable Communications, LLC to be served via first-class mail, postage prepaid, upon:

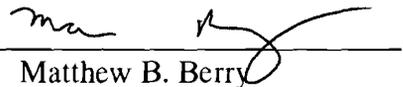
Ms. Lynn Charytan
Comcast Corporation
300 New Jersey Avenue, NW, Suite 700
Washington, DC 20001

Mr. Jeffrey E. Smith
Comcast Cable Communications, LLC
One Comcast Center
Philadelphia, PA 19103

Jonathan Friedman
Ryan Wallach
Daniel Alvarez
Willkie Farr & Gallagher LLC
1875 K Street, NW
Washington, DC 20006

Mr. Brendan Murray
Media Bureau
Federal Communications Commission
445 12th Street, SW
Room 4-A737
Washington, DC 20554

Best Copy and Printing, Inc.
Portals II
445 12th Street, SW
Room CY-B402
Washington, DC 20554


Matthew B. Berry

VERIFICATION

I, Matthew B. Berry, do hereby declare and state under penalty of perjury as follows:

1. I am counsel for Zoom Telephonics, Inc.

2. I have read the foregoing Reply of Zoom Telephonics, Inc. to Answer of Comcast Cable Communications, LLC. To the best of my knowledge, information, and belief, it is well grounded in fact and is warranted by existing law or a good faith argument for the extension, modification, or reversal of existing law. It is not interposed for any improper purpose.

January 3, 2011

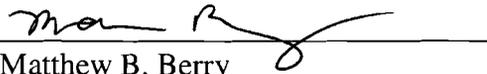

Matthew B. Berry

Exhibit 1

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

_____)	
In the Matter of)	
)	
ZOOM TELEPHONICS, INC.)	MB Docket No. 10-263
Complainant,)	
)	
vs.)	
)	
COMCAST CABLE)	
COMMUNICATIONS, LLC,)	
A Subsidiary of)	
COMCAST CORPORATION,)	
Respondent.)	
_____)	

DECLARATION OF FRANK MANNING

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

1. My full name is Frank Blasé Manning, and I am generally known as Frank Manning. I am currently President, Chief Executive Officer, Acting Chief Financial Officer, and Chairman of Zoom Telephonics, Inc (“Zoom” or “Zoom Telephonics”).

2. I hold a B.S, M.S., and Ph.D. in Electrical Engineering, with all degrees earned at the Massachusetts Institute of Technology (“MIT”). I started at MIT in 1966 and completed my Ph.D. in 1975.

3. After earning my Ph.D., I did post-doctoral research at MIT for about a year and began work with the goal of starting a company. I then left MIT, continued my efforts to start a company, and co-founded Zoom Telephonics in 1977.

4. I have been President and CEO of Zoom since its inception. In Zoom's early years, I was its sole electrical engineer; I designed the electronics, including the firmware, for the Demon Dialer. This speed dialer connected in series with one or more phones, and was controlled by any of those phones to dial up to 176 phone numbers based on the codename or codenumber dialed, or to repeatedly dial a busy or unanswered number. The Demon Dialer included call progress tone detection, including detection of busy signals, ringback signals, and the call progress tones used by Sprint and MCI for "alternate long distance" dialing.

5. As Zoom grew and engineers were hired, I was a hands-on engineering manager and designer as well as President and CEO. There were times in Zoom's history when we were larger and had a head of engineering other than myself. Currently, however, I am in charge of engineering and fortunate to be able to rely on a small staff of capable engineers.

6. Since its founding, Zoom has sold well over five million modems to consumers in the United States, including more than two hundred thousand cable modems.

7. Zoom has never been sued by anyone claiming to have been injured by a Zoom modem. Indeed, I am not aware of any incident where anyone has been personally injured by a Zoom modem.

8. I am not aware of any incident where a Zoom modem has caused harm to any broadband service provider's network, including the system of any cable operator.

9. I am unaware of any broadband service provider other than Comcast that has sought to subject Zoom modems to P&E tests.

10. Zoom has not dealt with any DSL service providers that require Zoom's modems to pass network-specific tests before they may be attached to their networks.

11. Many cable operators, including Time Warner Cable and Charter, do not require Zoom modems to undergo any network-specific testing as a condition of subscribers being allowed to attach them to their networks.

12. With respect to Time Warner Cable, Zoom confirmed in September 2010 that our modems may be attached to Time Warner Cable's network, and Time Warner Cable informed Zoom at that time that approximately 1,800 Zoom modems were being used by Time Warner Cable subscribers. With respect to Charter, Charter does not require any network-specific tests before Zoom's modems may be attached to its networks. Instead, Charter has worked with Zoom in a cooperative manner to resolve any issues that arise in the field or in the laboratory

13. In the months immediately preceding Zoom filing its Complaint with the Commission, during Comcast's discussions with Zoom employees about testing Zoom's new DOCSIS cable modems, Comcast never indicated that any of the tests contained in the document, "Physical & Environmental (P&E) Test and Evaluation Plan For Customer Premise Indoor Gateway Devices (DOCSIS based eMTA & CM)," were not applicable to devices sold at retail and not sold to Comcast. Rather, Comcast led Zoom to believe that its modems would need to pass the same tests as modems that were purchased by Comcast

14. For years, Zoom has tested the performance of its modems and other products in heat chambers at 0, 25, and 45 degrees Celsius. There have been very few reports from Zoom's millions of customers of temperature-related performance problems. I do

not believe that it is reasonable or necessary for Comcast to require a modem sold by Zoom through retailers (and not to Comcast) not to suffer [REDACTED]

[REDACTED]

[REDACTED]

15. With respect to cable modems, [REDACTED] is a very broad and vague concept. Besides relating to the modem's transmission of data, it can, for example, involve the cable modem's reception of data, its status indicators, its switches, its connectors, its speed of powering up, and a host of other functional, operational, or mechanical performance criteria that do not relate in any way to harming the network or facilitating theft of service. In addition, there is no consensus regarding how well a cable modem should operate, so whether a modem's performance has deteriorated below an acceptable standard often would involve a subjective determination.

16. Comcast requires that [REDACTED]

[REDACTED]

[REDACTED] is well above the typical warranty of a consumer product and the typical length of time that a customer uses a cable modem. Based on Zoom's experience, this requirement is unreasonable and does not come close to approximating the conditions under which Zoom's customers operate their cable modems. This requirement will tend to increase the development cost, development time, and unit cost of cable modems, and to reduce the number of modems available at retail.

17. Comcast also requires that [REDACTED]

[REDACTED]

[REDACTED] Thus,
as a condition of allowing a modem to be attached to its network, Comcast requires a
modem [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] Based on

Zoom's experience, these requirements are unreasonable and do not come close to
approximating the conditions under which Zoom's customers operate their cable
modems. Moreover, these requirements go far beyond what other consumer electronic
products, including HP and Apple products, are typically specified to do. These
requirements will tend to increase the development cost, development time, and unit cost
of cable modems, and to reduce the number of modems available at retail.

18. Comcast also requires that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] This requirement is unreasonable and not
close to the widely accepted safety standards promulgated by Underwriters Laboratories
(UL) and the European Union. The temperature differentials between the ambient
temperature and a device's surface temperature allowed by UL depend on the material in
question. The lowest allowed increase is 30 degrees Celsius for a metal knob, and the
highest allowed rise is 70 degrees Celsius for plastic and rubber surfaces so long as the

materials do not deform and are not used as a handle, grip, knob, or similar functional element. Thus, when a popular form of plastic is used for a modem's case, UL generally permits the plastic to rise to 126 degrees Fahrenheit over ambient temperature, rather than the [REDACTED] allowed by Comcast. Interestingly, Comcast's P&E specification says that [REDACTED]

[REDACTED] However, Comcast's requirement exceeds [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] It has not been my experience that customers perceive that a modem's surface becomes "too hot to the touch" above [REDACTED] or even at much higher temperatures. Comcast's requirement will tend to increase the size and/or fan requirement of a modem with given electronics since more ventilation will be required to pass this test. It will also tend to increase the development cost, development time, and unit cost of cable modems, and to reduce the number of modems available at retail.

19. Joseph Carfagno of Comcast states in paragraph 50 of Exhibit 1 that [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] After reading Mr.

Carfagno's statements, I instructed a Zoom employee to heat one of Zoom's cable modems to 145 degrees Fahrenheit in a heat chamber. I then kept my hand pressed to the surface and it merely felt warm. It was not uncomfortable, and my skin did not burn. I also pressed the modem to my face. Again, it only felt warm, and I experienced no discomfort or burning. I subsequently asked two other Zoom employees to do the same with respect to a Zoom modem that had been heated to 145 degrees Fahrenheit in a heat chamber. After keeping their hands pressed against the modem and touching the modem to their faces, both also reported that they felt no discomfort and experienced no burning. Rather, they merely indicated that it felt warm. Then all three of us repeated the experiment with the cable modem surface at 155 degrees Fahrenheit. We could keep our hands to the plastic surface indefinitely, and we could touch the plastic surface to our faces for many seconds. The surface felt quite warm, but it was acceptable and did not burn our skin. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

20. Comcast mandates that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] If this is not what Comcast means, then it is unclear what Comcast means and how this requirement would be measured. Moreover, it is unreasonable for Comcast [REDACTED]

[REDACTED]

[REDACTED] Such a device in many instances would unnecessarily disturb and worry Zoom's customers. This requirement also will generate design confusion. It will also tend to increase the development cost, development time, and unit cost of modems, and to reduce the number of modems available at retail.

21. Comcast also requires that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Furthermore, [REDACTED]

[REDACTED]

[REDACTED] Id. These standards are very vague. There are an infinite number of possible [REDACTED] and it is exceptionally

23. Earlier this year, Comcast indicated [REDACTED]

[REDACTED]

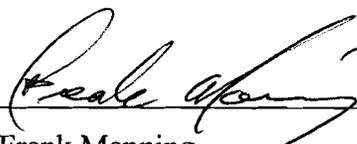
[REDACTED]

[REDACTED]

24. It is very important for Zoom to be able to bring to market a new DOCSIS 2.0 cable modem model within a short period of time. Because Zoom soon will no longer be able to manufacture its current DOCSIS 2.0 cable modem model, the company will suffer serious financial consequences if it does not have a replacement model available quickly. Among other things, Zoom will lose a significant amount of revenue as well as shelf space at major national retailers. For the last three months, by far the most significant barrier to bringing our replacement model to market has been Comcast's P&E testing requirements, which have never before been applied to Zoom's modems. Unless Zoom's replacement model may be attached to Comcast's network, it will not be a commercially viable product at national U.S. retailers in light of Comcast's share of the cable market.

I am familiar with the contents of the foregoing Reply. The factual assertions made in the Reply are true to the best of my knowledge and belief.

Dated: January 3, 2011


Frank Manning