

Stenographic Transcript  
Before the

COMMITTEE ON  
ARMED SERVICES

## **UNITED STATES SENATE**

HEARING TO RECEIVE TESTIMONY ON  
DEPARTMENT OF DEFENSE SPECTRUM POLICY  
AND THE IMPACT OF THE FEDERAL COMMUNICATIONS  
COMMISSION'S LIGADO DECISION ON NATIONAL SECURITY

Wednesday, May 6, 2020

Washington, D.C.

ALDERSON COURT REPORTING  
1111 14TH STREET NW  
SUITE 1050  
WASHINGTON, D.C. 20005  
(202) 289-2260  
[www.aldersonreporting.com](http://www.aldersonreporting.com)

1 HEARING TO RECEIVE TESTIMONY ON  
2 DEPARTMENT OF DEFENSE SPECTRUM POLICY AND  
3 THE IMPACT OF THE FEDERAL COMMUNICATIONS COMMISSION'S  
4 LIGADO DECISION ON NATIONAL SECURITY

5  
6 Wednesday, May 6, 2020

7  
8 U.S. Senate  
9 Committee on Armed Services  
10 Washington, D.C.  
11

12 The committee met, pursuant to notice, at 3:05 p.m. in  
13 Room SD-G50, Dirksen Senate Office Building, Hon. James M.  
14 Inhofe, chairman of the committee, presiding.

15 Committee Members Present: Senators Inhofe  
16 [presiding], Wicker, Fischer, Cotton, Rounds, Ernst, Tillis,  
17 Sullivan, Perdue, Cramer, McSally, Blackburn, Hawley, Reed,  
18 Shaheen, Blumenthal, Hirono, Kaine, King, Peters, Manchin,  
19 Duckworth, and Jones.  
20  
21  
22  
23  
24  
25

1           OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S.  
2           SENATOR FROM OKLAHOMA

3           Chairman Inhofe: Our meeting will come to order.

4           Before starting the agenda, since a quorum is now  
5           present, I ask the committee to consider a list of 2,807  
6           pending military nominations. All these nominations have  
7           been before the committee the required length of time.

8           Is there a motion to favorably report them?

9           Senator Reed: So moved.

10          Chairman Inhofe: Second?

11          Senator Shaheen: Second.

12          Chairman Inhofe: All in favor, say aye.

13          [Chorus of ayes.]

14          Chairman Inhofe: Opposed, no.

15          [No response.]

16          Chairman Inhofe: The ayes have it. And I do not have  
17          a pen. So I have to sign this. Thank you.

18          Before the opening statement, let me just observe  
19          something here, and this comes from the heart. I have been  
20          around here a long time. I served in the House for 8 years.  
21          I started in the Senate and was on the Senate Armed Services  
22          Committee starting in 1994. And I do not think I have ever  
23          seen a more impressive group of witnesses on a specific  
24          subject who are better qualified than this in all that time.  
25          And I really mean it.

1 I mean, we talk about Mr. Deasy, who is the Department  
2 of Defense Chief Information Officer. He was also the CIO  
3 of J.P. Morgan Chase, the British Petroleum Company, and  
4 General Motors. I mean, we have not had one like that  
5 before.

6 And Dr. Griffin. Certainly he knows this issue as well  
7 as anyone anywhere. He has been our NASA Administrator.

8 Then we have Admiral Thad Allen. He has been the  
9 chairman of NASA's Space-Based Positioning, Navigation, and  
10 Timing National Advisory Board. That is GPS. So he is the  
11 authority on that.

12 And then, of course, obviously the chief of our space  
13 operations, General Jay Raymond.

14 So it is just a privilege to have you guys here, to  
15 have this much quality here, this much authority because  
16 what we are going to be talking about is an issue that could  
17 be really damaging to our country if something is wrong.

18 So I would say good morning to the committee and say  
19 good afternoon, and I appreciate your being here.

20 Now because of the unusual circumstances, there is a  
21 new, little required thing that we have to go through. So  
22 bear with me.

23 Before we begin, I want to thank all of you for being  
24 here.

25 It is required that we are abiding by guidance from the

1 Office of the Attending Physician, Sergeant at Arms, and  
2 Rules Committee as we hold this hearing today. Many steps  
3 were taken to minimize the risk to our members, our  
4 witnesses, our staff, and the public. That means we are all  
5 6 feet from one another. You have also got cleaning  
6 supplies at your seats. And if maintaining 6 feet of  
7 separation becomes a problem, then I encourage you to use  
8 your masks. That we are here today under these  
9 circumstances underscores the importance of the subject that  
10 we are addressing today.

11 And what we are going to do, we are going to have our  
12 opening statements and then proceed on with 5-minute  
13 questions. And we are going to have a second round of  
14 questions too.

15 This is a complex issue, but it ultimately boils down  
16 to risk. And I do not think it is a good idea to place at  
17 risk the GPS signals that enable our national and economic  
18 security for the benefit of one company and its investors.

19 After extensive testing and analysis, experts at almost  
20 every federal agency tell us that Ligado's plan will  
21 interfere with our GPS systems. This will certainly affect  
22 our warfighters who rely on GPS for navigation, logistics,  
23 and precision guided munitions, whether in training or on  
24 the battlefield.

25 But this is about much more than risking our military

1       readiness and capabilities. Interfering with GPS will hurt  
2       the entire American economy. We will have some good  
3       witnesses talk about that and elaborate on that. Our  
4       farmers rely on GPS to harvest their crops. Our truckers  
5       and airlines rely on GPS to move supplies and people. Our  
6       banks rely on the GPS timing function. Every American uses  
7       GPS every day. And at the end of the day, economic security  
8       is national security.

9               Now, we all agree that we need to compete with China in  
10       the 5G development. No one is disputing that fact. We have  
11       been working on that for months with the Department of  
12       Defense and the telecom industry cooperating with each other  
13       and accomplishing that very thing. That is not the issue.

14              Ligado's proposal is not tied to that work whatsoever.  
15       Now, we are talking about the 5G, the competition with  
16       China. They have tried to conflate their proposal with  
17       other mid-band spectrum sharing discussions, but in reality,  
18       these two issues are completely separate, completely  
19       separate from each other.

20              In answering the argument that GPS would be disrupted,  
21       the FCC says Ligado will be forced to pay for any  
22       disruptions its service causes to GPS. Now, the reality is  
23       that the FCC order only requires Ligado to replace  
24       government-owned devices. That does not accomplish -- if it  
25       were doable. Ultimately, the burden of mitigating harmful

1 interference will be placed on the Department of Defense and  
2 the American taxpayers would end up, as normally is the  
3 case, having to pay for it.

4 A few powerful people made a hasty decision over the  
5 weekend, in the middle of the national crisis and against  
6 the judgment of every other agency involved, and without  
7 cluing the President in on any of this. And I have had  
8 conversations with him, and I can assure you that is the  
9 case.

10 The FCC may not be in this committee's jurisdiction,  
11 but the effects of its decision really are. And I think we  
12 all understand that. I hope our witnesses will speak to the  
13 enormous risk this decision has for everyone who relies on  
14 GPS in America. With the technical and important nature of  
15 this topic, we will structure this hearing with a  
16 consolidated opening statement from the three Department of  
17 Defense witnesses, followed by the fourth witness. This  
18 will allow a detailed explanation of the national security  
19 implications of the FCC's decision and what steps the  
20 military will need to take to mitigate these effects.

21 The Department of Defense has provided materials to  
22 accompany their statement that are available in front of you  
23 and on display for the public view.

24 Now, this is very significant because some people are  
25 familiar with this organization and some are not, but those

1 who are know that this is where all of the defense people  
2 are.

3 I plan to submit for the record a letter I received  
4 from the National Defense Industrial Association, which is  
5 made up of 1,700 businesses and 70,000 individual members,  
6 stating their strong opposition to Ligado's proposal, along  
7 with a list of 71 companies and associations that are  
8 opposed as well. And also, the FCC was fully aware of this.  
9 They received the letter from this organization a week  
10 before their weekend vote.

11 So you must believe that it could not get worse, but it  
12 is. Ligado took over a bankrupt company in 2015 and has  
13 been trying to obtain FCC licensing ever since. They waited  
14 until the whole world was distracted by the virus, and when  
15 everyone was looking the other way and unannounced to the  
16 public -- and it was not announced -- in total secrecy on a  
17 weekend passed the most controversial licensing bill I think  
18 in the history of the FCC. And I say this because the  
19 federal agency opposition was unanimous. You never see  
20 that. We had all organizations, all federal agencies  
21 opposing this, not just the military, but all of government  
22 and the private sector, including the airlines, the farmers,  
23 the truckers, the maritime manufacturers, opposed the  
24 licensing and the FCC knew it. And hence, we had the  
25 weekend rushed vote.



Senator Reed?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25

1           STATEMENT OF HON. JACK REED, U.S. SENATOR FROM RHODE  
2 ISLAND

3           Senator Reed: Well, thank you, Mr. Chairman. I also  
4 want to thank the witnesses for appearing here today. This  
5 is a critical issue for the Defense Department and our  
6 nation, and it is important that we learn from these  
7 witnesses.

8           We are holding this hearing in unusual circumstances.  
9 There has been a great deal of discussion about whether we  
10 should be here in person with risks not only to Senators,  
11 but to all the support personnel who are needed to keep this  
12 institution running. In addition, the compelling point is  
13 made that if the Senate is in session, its predominant focus  
14 should be combating the pandemic. But this is a hearing I  
15 think that is essential.

16          I want to commend Chairman Inhofe for establishing and  
17 holding a weekly call so that committee members can be  
18 briefed by Defense Department officials and ask questions  
19 regarding the coronavirus. The chairman ensured that we  
20 were able to conduct oversight even in difficult  
21 circumstances. But phone calls cannot replace a hearing, so  
22 when we plan future hearings, as consideration of the annual  
23 defense bill allows, I would certainly request that we  
24 consider these hearings in the context of both physical and  
25 virtual participation. And we also should focus on the

1 effects of the pandemic on the Department of Defense and on  
2 threats that face the nation.

3 Let me now turn to today's hearing about the decision  
4 by the Federal Communications Commission, or FCC, to permit  
5 the company Ligado to operate a land-based network that by  
6 its own admission will interfere with DOD GPS systems, as  
7 well as those in other federal agencies and the civilian  
8 sector.

9 Over 10 years ago, Ligado's predecessor, LightSquared,  
10 applied to the FCC to permit a satellite-based 4G system  
11 with a secondary land-based network in areas where satellite  
12 reception could not be obtained. The application was denied  
13 because of interference with the GPS system, and  
14 LightSquared was forced into bankruptcy.

15 LightSquared and its spectrum license was then bought  
16 in bankruptcy and reorganized as Ligado. In 2016, Ligado  
17 resubmitted an amended licensing application to the FCC to  
18 build a new ground tower-only transmission system. Ligado's  
19 switch to a system of closely spaced, powerful ground tower  
20 signals threatens to interfere with GPS. Despite  
21 jeopardizing GPS and ignoring the scientific view of many  
22 federal agencies, the aviation industry, and GPS-dependent  
23 companies, the FCC granted the license without a public  
24 rulemaking to change from a satellite-based network to one  
25 that is totally land-based.

1 I believe the FCC's decision to grant the license is  
2 problematic for several reasons.

3 First, the Commerce Department's National  
4 Telecommunications and Information Administration is  
5 supposed to form a consensus among executive branch  
6 stakeholders like the Defense Department and FCC, an  
7 independent commission. In this case, the Department of  
8 Defense and other executive departments, like the Department  
9 of Transportation, objected to the application because of  
10 the interference with the GPS signal. Yet, no consensus was  
11 reached before the license was granted.

12 Second, the FCC license does not recognize the  
13 complicated nature of the Defense Department's weapon  
14 systems. Ligado maintains that DOD can simply replace  
15 affected GPS cards. But there are hundreds of thousands of  
16 GPS chips embedded in DOD weapon systems, and each chip is  
17 not only tuned to GPS, but embedded with interconnected  
18 electronics, each tuned to each other. Replacing a GPS card  
19 will also impact other features of a weapon system. How  
20 many weapon systems are affected, how they can be fixed, and  
21 the time and cost of the remedy is unknowable at this point,  
22 but the process will be lengthy and expensive.

23 For a sense of what the FCC's decision could mean, we  
24 have a real life example. In 1992, an FCC spectrum  
25 repurposing decision eliminated the B-2 radar band for DOD.

1 Moving that radar to a new band took 30 years and \$3 billion  
2 due to depot cycle rescheduling and operational demands.

3 While the FCC order states that the onus is in Ligado  
4 to fix problems, in reality the burden is actually on the  
5 Defense Department to find which weapon systems are  
6 affected, how severe the impacts are, and then negotiate  
7 with Ligado to get them fixed. Clearly, such a process will  
8 compromise military readiness.

9 The Defense Department is working on a new set of  
10 hardened GPS chips called military grade user equipment, or  
11 MGUE, which are jam-resistant to the power levels of the  
12 Ligado towers. However, these chip sets will not be  
13 installed in our weapon systems until the 2030s. The best  
14 course of action for national security would be to stay the  
15 license application and periodically review it until such  
16 time as the new chip sets can be installed in critical  
17 weapon systems.

18 Finally, I have only discussed the problems the Defense  
19 Department is facing as a result of the FCC decision. I  
20 have not discussed the myriad of problems that will be faced  
21 by literally everyone who uses GPS. I do not believe that  
22 the FCC's decision to grant this license is in the best  
23 interest of our national security or our nation.

24 I look forward to today's discussion about the issue.

25 I again thank the witnesses and my colleagues for

1 appearing at this hearing in these unusual and demanding  
2 times.

3 Thank you, Mr. Chairman.

4 Chairman Inhofe: Thank you, Senator Reed.

5 We are going to have opening statements by our  
6 witnesses. Before we do, without objection, I will ask  
7 unanimous consent that we enter into the record the National  
8 Defense Industrial Association. I have already referred to  
9 that -- the industry coalition letter with 68 signatories  
10 that strongly oppose it, the Aerospace Industry Association  
11 letter on behalf of 300 leading aerospace and defense  
12 manufacturers and suppliers who oppose the FCC's decision,  
13 the Air Line Pilots Association International letter asking  
14 the Senate Armed Services Committee, this committee, to take  
15 action and stay this FCC ruling, and the Transportation and  
16 Construction Coalition letter stating that they oppose  
17 Ligado's proposed network, and of course, the letter from  
18 Ligado. Without objection, they will be made a part of the  
19 record.

20 [The information referred to follows:]

21 [COMMITTEE INSERT]

22

23

24

25

1 Chairman Inhofe: We will start with our opening  
2 statements, with you, Mr. Deasy. You have been a great  
3 contributor to everything that we do around here and that we  
4 stand for, and we appreciate your taking the time to be here  
5 and really getting involved in this issue. You are  
6 recognized.

7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 STATEMENT OF HON. DANA S. DEASY, CHIEF INFORMATION  
2 OFFICER, DEPARTMENT OF DEFENSE

3 Mr. Deasy: Thank you, Mr. Chairman, Ranking Member,  
4 and members of the committee. Good afternoon. I am Dana  
5 Deasy, the Department of Defense Chief Information Officer.

6 Sir, as you stated in your opening, with me today on  
7 behalf of the Department are Dr. Griffin, the Under  
8 Secretary for Research and Engineering; and General Jay  
9 Raymond, Chief of Space Operations, United States Space  
10 Force.

11 In place of reading individual opening statements, we  
12 have prepared a short overview where Dr. Griffin will  
13 briefly explain the technical issues associated with FCC's  
14 ruling to allow Ligado to repurpose spectrum. Next, General  
15 Raymond will then explain the military mission impacts of  
16 that order on the Department's operations. And I will  
17 briefly cover 5G and what actions the DOD is taking to  
18 leverage this important technology, as well as cover briefly  
19 how we are pursuing sharing mid-band spectrum. Finally, I  
20 have a chart where I will summarize the key takeaways.

21 With that, I would like to turn to Dr. Griffin to  
22 begin.

23 [The prepared statement of Mr. Deasy follows:]  
24  
25



Chairman Inhofe: Dr. Griffin?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25

1 HON. MICHAEL D. GRIFFIN, UNDER SECRETARY OF DEFENSE  
2 FOR RESEARCH AND ENGINEERING

3 Dr. Griffin: Thank you. I would like to take this  
4 chart in clockwise order and first key off of the point  
5 Senator Reed made, which is that GPS is, although designed  
6 originally, developed, deployed, and sustained by the DOD,  
7 that GPS is now a public utility. It services, of course,  
8 our national security needs, as General Raymond will  
9 address, but it also services the requirements of first  
10 responders navigating to a particular address. Every time  
11 you use an ATM machine, you are using the GPS timing signal.  
12 You are not asking where the ATM is. You are using the  
13 timing signal that is provided in order to conduct an  
14 encrypted transaction. Civil aircraft, military aircraft,  
15 commercial shipping, our deployed troops, credit card  
16 swiping machines, all of these things are, in one way or  
17 another, dependent upon GPS.

18 It is forecast to be a \$140 billion-plus industry by  
19 2025. It is over \$100 billion today in economic value. A  
20 Department of Commerce study estimated -- and it is cited in  
21 my testimony -- \$1.4 trillion of economic benefit generated  
22 by GPS since the system was first deployed. So that is what  
23 is at risk.

24 How is it at risk? If you go to the upper right  
25 quadrant, you can see on your chart that the fundamental

1 aspect of the GPS infrastructure, space and ground, the  
2 entire GPS infrastructure, was designed under the assumption  
3 that GPS radio navigation systems would be placed in a very  
4 quiet band of the radio spectrum, that ground-based  
5 transmitters would not be allowed in that spectrum because  
6 they would drown out the very weak signals that come from  
7 satellites.

8 At this point with the FCC's decision, the goalposts  
9 have been moved. Now receivers meant to detect the  
10 extremely weak signals from satellites have to cope with  
11 very loud signals in the band next door.

12 The practical effect of this, irrespective of who pays  
13 for the changes in equipment that would have to occur -- and  
14 again, I will make Senator Reed's point for emphasis, that  
15 the Ligado proposal proposes only to fix federal receivers,  
16 whereas by far the majority of use is in various aspects of  
17 the civil and commercial sector. The replacement of that  
18 equipment, regardless of who pays for it, provides a market  
19 niche opportunity, a refreshing of equipment, that will be  
20 available to our competitors. So rather than the installed  
21 based of U.S. equipment holding sway, our competitors who  
22 have their own global navigation satellite systems will be  
23 arguing why, since the United States has damaged its own  
24 system -- why should we not buy from China or Russia. That  
25 is not an argument I want to have.

1           Moreover, today GPS is the world standard for satellite  
2 navigation. If we damage our own world standard, earned  
3 through decades of investment and hard work, we should only  
4 expect that users worldwide will find other standards. That  
5 will not be to our benefit.

6           It is very difficult to give you an accurate technical  
7 comparison of just how loud the Ligado signal is in  
8 comparison to GPS, but on the lower right, I have tried. So  
9 the decibel scale is what we use to measure loudness, if you  
10 will, whether radio noise or acoustic noise. So the  
11 quietest possible sound that can be heard might be  
12 represented by rustling leaves, which are quoted at 0 to 10  
13 dB in the literature. On the other hand, a jet taking off  
14 will create a sound 140 to 150 decibels. If you are  
15 standing right next to it, it will blow out your eardrums.  
16 So if 0 decibels is barely audible and 140 or 150 decibels  
17 is a jet takeoff, then what we are trying to do with GPS is  
18 to hear the sound of leaves rustling through the noise of  
19 100 jets taking off all at once. And that is a comparison  
20 that is actually favorable to Ligado. I could not put more  
21 than 100 jets on my chart. That is what we are trying to do  
22 here.

23           Finally, in the lower left quadrant of the chart,  
24 moving clockwise, there are a number of myths that have been  
25 promulgated in the media about the Ligado proposal. I chose

1 three of them to debunk, the first of which is the claim  
2 that Ligado -- a recent claim -- is critical to the build-  
3 out of U.S. 5G. In fact, my number here is not quite right.  
4 In fact, Ligado has about 3.5 percent of the sub-6 gigahertz  
5 spectrum in use today, if we count that portion of the  
6 spectrum allocated to the Citizens Broadband Radio Service,  
7 CBRS. 5G is about capacity, latency, and scale. The Ligado  
8 proposal has absolutely nothing to do with latency and  
9 scale, and its capacity is on the order of 3.5 percent of  
10 the total spectrum capacity. Ligado's existence, plus or  
11 minus, makes absolutely no difference to the involvement of  
12 U.S. in the so-called 5G race.

13 Second, the myth is that the Department of  
14 Transportation testing, which is quoted in I think all of  
15 our testimonies -- the myth is that that testing was flawed,  
16 that it did not assess receiver performance against the  
17 Ligado transmitter. That is true, but that is not the right  
18 test. The right test is the test to determine whether the  
19 band for satellite navigation has been protected, and the  
20 DOT testing addressed protection of the assigned GPS band in  
21 the most thorough manner I could have imagined. We will  
22 talk more about that later. But it protects the entire band  
23 and not just one transmitter and one receiver in an  
24 artificial scenario.

25 A third myth that has been bandied about is the Ligado

1 stations are like a 10 watt light bulb. How can they  
2 possibly interfere with GPS? Well, in case my jet noise  
3 analogy did not get across, let me talk to you about  
4 something for which I used to be responsible, the Hubble  
5 Space Telescope. The Hubble Space Telescope was designed to  
6 detect extraordinarily dim objects, so dim that on my  
7 decibel scale, a 10 watt bulb is 350 decibels brighter. If  
8 you shined a 10 watt bulb down the barrel of the Hubble  
9 Space Telescope, it would see nothing. It would be  
10 completely blinded. That is exactly the situation that we  
11 have with the GPS receiver trying to listen to GPS signals  
12 that are 170 decibels weaker than this 10 watt bulb. That  
13 is not a game that we can win in GPS. We will have to  
14 redesign and redeploy equipment, and the cost will be  
15 hundreds of billions of dollars and decades of deployment  
16 time.

17 Thank you.

18 [The prepared statement of Dr. Griffin follows:]

19

20

21

22

23

24

25

1           STATEMENT OF GENERAL JOHN W. RAYMOND, USF, CHIEF OF  
2           SPACE OPERATIONS, UNITED STATES SPACE FORCE, AND COMMANDER,  
3           U.S. SPACE COMMAND

4           General Raymond: Chairman Inhofe, Ranking Member Reed,  
5           and members of the committee, it is a pleasure to speak  
6           before you today on a matter of national importance: the  
7           protection of the GPS signal for use by our joint and  
8           coalition forces and the whole nation.

9           As both the Chief of Space Operations for the United  
10          States Space Force and as the Commander of the United States  
11          Space Command, I have the responsibility to the Secretary of  
12          the Air Force for organizing and training and equipping  
13          forces to provide GPS for the world and to the Secretary of  
14          Defense for operating, integrating, and protecting GPS for  
15          our nation. I am proud to represent the airmen, soldiers,  
16          sailors, marines, and space professionals who conduct these  
17          missions with such expertise.

18          The very first GPS satellite was launched in 1978, and  
19          it was integrated into warfare for the first time in  
20          Operation Desert Storm. You all remember in early 1990s,  
21          1990-1991 the left hook. That was enabled by a GPS  
22          constellation that was not even fully up and operating at  
23          the time. How do you navigate through a featureless terrain  
24          at night in the desert? You do it with GPS.

25          Now today -- 25 years ago last week, it became fully

1 operational. And today it represents the Department of  
2 Defense's largest constellation where 31 satellites  
3 operating over 12,000 miles above the earth's surface  
4 provide precision positioning, navigation, and timing  
5 services to 4.5 billion users and warfighters globally. And  
6 it is three times more accurate than it was when it was  
7 first launched in the late 1970s.

8 However, this critical capability is irrelevant if the  
9 signals coming off the satellite cannot be processed by the  
10 receiver on the ground. These signals, after traveling  
11 12,000 miles from space to reach earth, arrive very weak,  
12 less than a millionth of a billionth of a watt. It is hard  
13 to get your head around that small of a number. For  
14 receivers to be able to pick up such faint signals, these  
15 signals have to operate in a noise-pristine environment in  
16 that part of the spectrum. For those that ride the Amtrak  
17 train -- and I experienced this last year -- it is the quiet  
18 car. It is where people do not talk. It is where emitters  
19 do not make noise because that signal is so faint.

20 It is recognized globally as a zone reserved for  
21 satellite signals coming from space, not for emitters  
22 operating on the ground approximately a billion times more  
23 powerful than the GPS signal. These ground emitters will  
24 interrupt, reduce the accuracy of, or jam the GPS signal.  
25 We must preserve this spectrum for space-to-ground signals.



1 It is the global standard, and it puts our space  
2 capabilities, which are the gold standard, as Dr. Griffin  
3 talked about, at risk.

4 As we compete with China and Russia, we should not cede  
5 our operational advantage.

6 Because of the magnitude of the power overmatch between  
7 the ground antenna and the GPS signal, the mitigation steps  
8 the FCC has required will not retire all of the risk.  
9 Specifically, the 23 megahertz buffer zone will not mitigate  
10 all the risk of interference. We have a buffer zone today.  
11 It is the mobile SATCOM services band at which this ground  
12 emitter is being placed. And what this 23 megahertz buffer  
13 zone really implies -- it is about a half of the buffer zone  
14 that we have today.

15 I have spent most of my military career integrating GPS  
16 and other space capabilities into everything that we do as a  
17 joint force, and today there is absolutely nothing that we  
18 do as a joint that is not enabled by space and specifically  
19 GPS. In the Department alone, we have over a million GPS  
20 receivers. They are integrated into our space launched  
21 vehicles. They are integrated into our aircraft, our tanks,  
22 on ships, on communication networks, and on our most  
23 important weapon system, our people. GPS allows us to  
24 shoot, move, and communicate with speed, precision, and over  
25 great distances. It has revolutionized military operations,

1 and it is employed in every step of the kill chain to defeat  
2 our adversaries.

3 Some might ask what is the impact on the force if the  
4 emitters are only located in the continental United States.  
5 In my opinion, the impact is significant and it is  
6 unacceptable. DOD mission areas that would operate under  
7 increased risks include our most important mission, homeland  
8 defense. Assured GPS is critical to homeland defense. It  
9 could impact military and commercial space launch. We use  
10 GPS to safely launch those rockets, and if they go astray,  
11 we blow those rockets up to protect public safety. We do  
12 most of our training and building or our readiness in CONUS  
13 to be able fight the fight overseas. And most specifically,  
14 in our defense support for civil authorities, like we are  
15 doing today with Covid or like with wildfire suppression or  
16 hurricane relief or earthquake relief, our forces rely on  
17 GPS to accomplish that critical mission. These ground  
18 emitters could have multimodal impacts to transportation  
19 hubs, airfield, seaports, and airports. Finally these  
20 emitters could impact overlapping defense critical  
21 infrastructure and key resource sectors like the defense  
22 industrial base, transportation, emergency services, energy,  
23 and communications.

24 The best advice I could give is to strongly oppose the  
25 use of this spectrum that is reserved for space signals for

1 terrestrial emitters. In doing so -- if we do not, we  
2 increase the risk to our ability to conduct our critical  
3 homeland defense missions, we erode the gold standard of our  
4 space capability, ceding advantage to Russia and China, we  
5 set a dangerous precedent for repurposing this spectrum  
6 reserved for space signals, and we go against the volumes of  
7 testing that has been done, which indicate that these  
8 ground-based emitters will impact the GPS signal.

9 I will now turn it over to Mr. Deasy to talk about the  
10 spectrum.

11 [The prepared statement of General Raymond follows:]  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1           Mr. Deasy: I am going to start by saying that DOD  
2 fully supports the U.S. needing to be leaders in 5G. And  
3 there is a right way we can go about it and there is a wrong  
4 way.

5           Ligado does not provide a 5G solution. It is not  
6 offering a solution to be a 5G leader in America. The band  
7 in which Ligado operates is not even part of the FCC 5G fast  
8 plan, which is the commission's blueprint for advancing U.S.  
9 interests in 5G. The non-continuous bands that Ligado could  
10 bring to market are both fragmented and impaired.

11           DOD clearly recognizes the huge value of 5G not only  
12 for commercial use but across the U.S. military as well.

13           As you will see up here on this chart, we are getting  
14 ready to undertake a number of experiments to learn how best  
15 to utilize this technology. If you start on the far right  
16 of this slide, I point out some of the experiments we are  
17 getting ready to work with: augmented virtual reality,  
18 distributed training, smart warehousing and logistics, and  
19 eventually in a future phase, we will even start looking at  
20 how to make smart ports and bases.

21           The part of this chart I really want to draw your  
22 attention to is in the middle. We have established a  
23 dynamic spectrum sharing pilot and are examining methods to  
24 facilitate sharing between 5G and DOD airborne radars in  
25 mid-band spectrum. Let me simplify this for you.

1           What we need to be able to do in 5G is to ensure that  
2 when civilians are using their car for 5G or in their home  
3 or using it in the factory or an individual person is  
4 carrying it around, that the work we do and the operations  
5 we run in the military will not interfere, and vice versa.  
6 So that is what the 5G experimentations are all about. We  
7 will be doing these experimentations in conjunction with the  
8 National Spectrum Consortium, which is partnering with  
9 government, industry, and academia.

10           Finally, the last most important thing is one of the  
11 most important areas of 5G is what is called the mid-band  
12 spectrum. And what is important here for all of you to  
13 understand is how do we need to learn how to share that  
14 spectrum and make it available for both DOD use as well as  
15 commercial use.

16           Next, in front of you on your very last chart, you have  
17 what I like to call the key takeaways. If there is the one  
18 chart today that you should keep with you to fully  
19 appreciate what we have all shared with you, it is this  
20 chart.

21           First of all, Mr. Chairman, as you stated, this is  
22 about risk. This is risk to the resource that America's  
23 economic engine and the vital nature of it for national  
24 security. The repurposed license is a classic case of bait  
25 and switch. FCC and Ligado want to move the goalpost by

1 following terrestrial transmitters in a space communications  
2 band despite unanimous and unambiguous federal opposition.

3 DOD and DOT both performed extensive testing and  
4 studies evaluating the potential impact to 80 military and  
5 commercial GPS receivers. Those studies concluded that  
6 Ligado's solution will cause harmful interference to both.

7 The stringent conditions imposed by the FCC are  
8 inadequate to protect GPS, impractical, and could never be  
9 employed in real practice. The required guard band and  
10 reduced power levels do not sufficiently protect GPS  
11 receivers, as you have heard today from Dr. Griffin and  
12 General Raymond. Coordination requirements are simply  
13 impractical. There are millions of mobile GPS receivers in  
14 use, and there is no way to protect those from their mobile  
15 operations. Notification of the event of interference  
16 simply does not work. None of you would even know in this  
17 room today if Ligado disrupted your individual GPS device,  
18 nor would you know what to do if they did. FCC expectation  
19 for Ligado to repair or replace affected receivers is  
20 unreasonable and could never be employed in practice.

21 The American public and military rely on GPS to support  
22 a wide range of critical applications and missions from  
23 protecting our national security to our economic prosperity.  
24 We have always been world leaders in GPS, and we never want  
25 to see our country be forced to turn to foreign GPS

1 providers.

2 As General Raymond clearly articulated, the FCC  
3 decision will impact warfighter exercises, testing,  
4 training, and homeland defense.

5 GPS must remain a reliable service and always be  
6 available when you need it most; a simple example we can all  
7 appreciate: emergency services for a 911 call.

8 Ligado and 5G simply do not go together. They portray  
9 their solution to be 5G. This is not how the U.S. will lead  
10 in 5G. They only target a small subset of the 5G  
11 specifications.

12 In the next several months, DOD will be executing on  
13 important 5G experiments with government and industry.

14 I will close by simply saying it is clear to the DOD  
15 that the risk to GPS far outweighs the benefits of this FCC  
16 decision, and the FCC needs to reverse their decision.

17 Thank you for your time. We look forward to your  
18 questions.

19 Chairman Inhofe: Thank you very much, Mr. Deasy.

20 We now recognize Admiral Allen for any comments.

21

22

23

24

25

1 STATEMENT OF ADMIRAL THAD W. ALLEN, USCG, RET.

2 Mr. Allen: Mr. Chairman, Ranking Member Reed, and  
3 members of the committee, thank you for the opportunity to  
4 provide testimony today with my distinguished colleagues  
5 from the Department of Defense. My full testimony is  
6 submitted for the record.

7 I am testifying today in my private capacity as a  
8 citizen and the views expressed are mine. They are not  
9 intended to represent any government agency or private firm.  
10 My testimony is based on publicly available information. My  
11 views represent my concerns and those of GPS civil users. I  
12 will try not to repeat points previously made.

13 I have been involved in radio navigation and operations  
14 and policy for more than 50 years. 45 years ago, I was the  
15 commanding officer at Loran Station, Lampang, Thailand as  
16 the war in Vietnam ended. 10 years ago as the Commandant of  
17 the Coast Guard I personally turned the switch that  
18 decommissioned the final Loran C operating chain in the  
19 United States.

20 My fellow panelists have presented a unified testimony  
21 regarding the impact of the FCC order and authorization to  
22 allow Ligado Networks to deploy a low-power terrestrial  
23 nationwide network and the associated impacts on the  
24 Department of Defense and national security. I endorse  
25 their recommendations.



1           My purpose here today is to speak on behalf of the  
2 hundreds of millions of civil users of GPS. From the timing  
3 of financial transactions to power generation,  
4 synchronization of telecommunications, high precision  
5 agriculture, intelligent transportation systems, and air  
6 navigation and airspace management, GPS has become vital to  
7 the nation's general welfare and common defense.

8           The risk to military systems, so clearly stated by this  
9 panel, is also shared by civil GPS users. However, unlike  
10 our military forces who have the ability to reduce risk  
11 through encryption and other tools, civil users are a  
12 separate user segment with greater receiver diversity and  
13 fewer risk reduction options. The single point in  
14 government where the interests of the civil GPS users are  
15 integrated with the Department of Defense and brought into a  
16 consensus process is through the position, navigation, and  
17 timing, PNT Executive Committee and its supporting PNT  
18 Advisory Board. The PNT Advisory Board approach for  
19 reducing risk to the civil users has been a three-pronged  
20 strategy: protect the signal, toughen the receiver, augment  
21 GPS with backup or complimentary PNT services.

22           The impact of disruption or loss of a GPS signal varies  
23 with the type of receiver. This could manifest itself in  
24 anything from an ATM malfunction to the loss of navigation  
25 in an intelligent transportation system, interference with

1 an unmanned aerial system, or disruption of electrical power  
2 distribution. The uses of GPS range from a simple FITBIT to  
3 the provisions of coarse timing for highly refined, parsed  
4 timing services for financial transactions.

5 While there are a host of issues raised by the FCC OA,  
6 my written testimony addresses them specifically. I wanted  
7 to hit five things here today.

8 The administrative process for this decision has never  
9 been made public to gain comment on the allocation of  
10 spectrum of the ancillary terrestrial component of the  
11 service or the earth-based transmitters.

12 The lack of a transparent process to look at the  
13 competing criteria as to how to measure disruptions in the  
14 GPS adjacent band.

15 Third, the density of terrestrial antennas and the  
16 impact on mobile devices moving through those fields.

17 Four, the OA shifts the performance burden to the  
18 receiver rather than protecting the spectrum, as has been  
19 stated.

20 And finally, the assertion that the Ligado plan will  
21 significantly accelerate or enhance the deployment of 5G  
22 technology. There are no 5G standards for the spectrum as  
23 it has not been used for 5G anywhere else in the world.

24 The concept contained in the OA that the impacts of  
25 adjacent band interference can be measured and identified by

1 Ligado as they occur and then mitigated in a timely and  
2 effective manner without prior testing strains credibility.  
3 Tests that were utilized by the FCC were funded by Ligado,  
4 were not conducted in a transparent fashion, and not widely  
5 supported.

6 Further, the failure of the FCC to accept the standard  
7 floor for tolerance of noise that was used by the Department  
8 of Transportation in the adjacent band compatibility study  
9 is equally quizzical and its summary dismissal is troubling.  
10 This is a neutral guardrail for the spectrum. This approach  
11 rejects the concept of first do no harm and replaces it with  
12 consequence management after the event has occurred.

13 In closing, I would like to use the words of those  
14 close to this issue in the air and on the ground. My good  
15 friend, Captain Sully Sullenberger, and I spoke this morning  
16 about the concerns of the aviation community. He said  
17 putting the narrow commercial interest of one company ahead  
18 of our national security and the needs of the country is  
19 wrong-headed and dangerous. Wishful thinking and hoping  
20 that things will work out is not an effective strategy and  
21 cannot repeal the law of physics.

22 Closer to earth during a visit to my wife's family in  
23 Illinois, I spent some time talking to corn and soybean  
24 farmers who depend on GPS services for precision navigation.  
25 I asked what happens when you lose GPS. I got a two-word

1 response: we quit. While you can reboot and begin planting  
2 again, if you are flying a medevac helicopter or responding  
3 to a wildfire, it is a much different problem. Spectrum is  
4 a national asset, a precious asset, and it should be  
5 protected, not subject to arbitrary and capricious  
6 decisions.

7 I look forward to your questions.

8 [The prepared statement of Mr. Allen follows:]

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 Chairman Inhofe: Thank you very much, Admiral.

2 We are going to have a 5-minute round. Senator Reed  
3 and I are going to recommend a second round of questioning  
4 because there is a lot of stuff to cover here. And I am  
5 going to take my first 5 minutes with Director Deasy and  
6 General Raymond and Admiral Allen and then save my other  
7 question for Dr. Griffin for the second round.

8 Now, Director Deasy, the reason I bring this up is this  
9 is the one thing that is mentioned more than anything else  
10 when they are trying to defend what happened in the action  
11 of the FCC. So I would ask you, even though it has been  
12 touched on, can you describe the interagency process that  
13 caused the Department of Defense to conclude that Ligado's  
14 proposal was likely to interfere with GPS, and did the FCC  
15 consult you and did they take your concerns seriously?

16 Mr. Deasy: So, sir, the way I would start that is when  
17 a company, in this case Ligado, wants to repurpose the  
18 spectrum, they submit that request to the FCC. The FCC, in  
19 turn, turns it over to the NTIA. Sometimes those go through  
20 what is called the Independent Radio Advisory Committee, the  
21 IRAC, which has 19 members. In the case of evaluating  
22 Ligado's request for repurposing the spectrum, it was turned  
23 over to the PNT EXCOM which is made up of nine federal  
24 agencies. I co-chair that along with the Department of  
25 Transportation.

1           The EXCOM -- what they did was they, in turn, asked the  
2           Air Force to conduct a series of independent studies and  
3           testing to determine whether or not the request that Ligado  
4           had put forth was reasonable and could be accepted. The  
5           testing took place and was completed in about April of 2016,  
6           as I had mentioned in my opening remarks. What that testing  
7           did was take a number of commercial and military receivers,  
8           approximately 80, and they tested them over a long,  
9           extensive period of time, and they tested them to determine  
10          the levels of noise in which they would see interference.  
11          They used the requirements of what Ligado was specifying as  
12          acceptable, and in running those tests, they clearly  
13          indicated that the results of the tests caused interference  
14          in all cases.

15          So what was done with that information? In turn, that  
16          then was turned back over in a form of a letter that I co-  
17          signed with Department of Transportation in December of  
18          2018. That letter clearly cited the testing that was done  
19          by the Air Force. In that letter, we say that it was  
20          unambiguous and unanimously agreed across nine federal  
21          agencies that this could not move forward.

22          Given that there was still concern raised and the fact  
23          that our letter was not being acknowledged, we felt  
24          compelled to follow up with four additional communications.  
25          One was back in June of 2019 from then-Deputy Secretary

1 Shananan to the FCC stating the opposition. Secretary Esper  
2 in November of 2019 forwarded a letter also stating our  
3 concerns and opposition. The IRAC sent to the NTIA on  
4 February 20th a letter from 12 agencies that were signed  
5 expressing concerns. Dr. Griffin and myself furthermore  
6 sent an additional letter to NTIA in March of 2020. And  
7 finally, Secretary Norquist sent a letter in March of 2020,  
8 of which the final letter went from NTIA to the FCC on April  
9 2020. Each of those letters made clear and cited the  
10 testing that was done by the Air Force that this could not  
11 be accepted, nor should it be recommended to move forward,  
12 sir.

13 Chairman Inhofe: And then the second part of that  
14 question was were you consulted by or asked by the FCC for  
15 your opinions, and did they take them seriously?

16 Mr. Deasy: Sir, I will tell you that historically we  
17 have had a very good working relationship with the FCC when  
18 it comes to collaboratively studying requests like this. In  
19 the case of this particular request, no, sir, there was not  
20 a give and take, a back and forth that we typically go  
21 through. And at the end of the day, we were completely  
22 caught off guard when over that weekend in April the  
23 decision was taken by the FCC to go ahead and move forward.

24 Chairman Inhofe: Thank you, Director.

25 And then lastly, General Raymond, you did touch upon

1 this in your opening statement. Is there anything you  
2 wanted to add in terms of the impacts on the warfighter?

3 General Raymond: Thank you very much, sir.

4 The way I couch GPS, it is the DNA of our way of war.  
5 It is systemic in everything that we do. And it is clear,  
6 without question, that putting a ground emitter in with the  
7 space signals will cause an eruption. I think that will  
8 increase risk to force and risk to mission. And I outlined  
9 in my opening statement the mission areas of homeland  
10 defense, our most critical mission, defense support of civil  
11 authorities, and building the force, the training and the  
12 readiness that we need. And I think it is a risk that we  
13 should not accept.

14 Chairman Inhofe: Thank you, General.

15 Senator Reed?

16 Senator Reed: Well, thank you very much, Mr. Chairman.

17 Let me first commend all the panelists for their very  
18 cogent and coherent and compelling testimony. Thank you  
19 all.

20 Mr. Deasy, following on a thread that Admiral Cochran  
21 introduced, under the Administrative Procedure Act, as I  
22 understand it, is a significant action by a government  
23 agency must be accompanied by a public rulemaking, which  
24 includes a public comment period, response to those  
25 comments, and a publication of an order, which is then



1 subject to judicial review. And I consider the repurposing  
2 of the satellite program initially licensed to LightSquared  
3 for a satellite spectrum and then changed to a land-based  
4 system to be a very significant public action.

5 Was there any kind of rulemaking proceeding prior to  
6 the Ligado license of only a land-based network?

7 Mr. Deasy: No, sir. As I stated earlier, typically,  
8 as you point out, something of this nature -- there was a  
9 very formal process that the FCC goes through. It is a very  
10 good process, and they have used it for years. And in this  
11 particular case, we did not see that process being followed.  
12 As a matter of fact, I would go so far to say that to the  
13 best of our knowledge -- and I have talked to many people  
14 inside the DOD about this -- we think this is the first time  
15 ever where the FCC has taken an arbitrary and independent  
16 decision where it unanimously and unambiguously opposed by  
17 multiple federal agencies.

18 Senator Reed: Well, thank you.

19 And I think, as you have pointed out, the National  
20 Technical Information Administration, the NTIA, objected  
21 numerous times to the decision. Three Secretaries of  
22 Defense, Secretary Carter, Secretary Shanahan, and Secretary  
23 Esper, have all written about their opposition using the  
24 spectrum as the order directs.

25 So, Mr. Deasy, you would say this is a very unusual

1 process?

2 Mr. Deasy: I would go as far as to say that it is  
3 unheard of and the first precedent of its kind.

4 Senator Reed: Thank you.

5 Admiral Allen, you know the civilian sector very well.  
6 From your perspective, you would also describe this as  
7 highly unusual or, as Mr. Deasy said, unheard of?

8 Mr. Allen: I would concur with his remarks. The  
9 original process should have been the allocation for the  
10 mobile satellite service spectrum. If it was reallocated to  
11 terrestrial antennas for re-broadcast, that should have been  
12 subject to a notice of proposed rulemaking and public  
13 comment.

14 Senator Reed: Thank you very much.

15 One of the concerns that I have, because the spectrum  
16 is always in play, if you will, is that this will set a very  
17 dangerous precedent; i.e., as we look at 5G in the mid-range  
18 spectrum, if the FCC operates in the same way by  
19 disregarding expertise within the Federal Government, we  
20 could have a situation where, instead of trying to reach a  
21 consensus, we have the FCC basically assuming and  
22 determining everything according to their own intuitions.

23 Admiral Allen, could you give a comment on this  
24 process, this consensus process, which up until now worked  
25 but seems to be breaking down?

1           Mr. Allen: Well, the current relationship is based on  
2 an MOU between the FCC and NTIA.

3           I would just offer this comment. The FCC was created  
4 -- their remit goes back to the 1920s and 1930s regarding  
5 radio and television spectrum. We moved into a vast new era  
6 of technology, and now there are decisions being made that  
7 impact on spectrum and space operations and so forth.  
8 Independent regulatory agencies were created to create an  
9 unbiased representation and make decisions in the public  
10 interest.

11           The process we have right now is guided by National  
12 Security Presidential Directive 39 that requires that the  
13 equivalent of a deputies meeting, which the EXCOM is, to be  
14 subordinated to the Department of Commerce and NTIA for  
15 transmission to the FCC. And I would submit to you that  
16 process needs to be looked at.

17           Senator Reed: Thank you.

18           And just finally, General, as I understand the FCC  
19 order, Ligado must provide an 800 number to call and have a  
20 stop button once severe damages are detected. That is the  
21 remedy. So what does a warfighter in the middle of a war  
22 zone do when he discovers his system is going down? Does he  
23 get on the phone and dial an 800 number and make a  
24 complaint?

25           General Raymond: Sir, the warfighter is the 800 number

1 that the nation calls for us to do our nation's business.  
2 We do not want the warfighter to have to call an 800 number  
3 to report interference as they are doing our nation's work.

4 Senator Reed: I concur entirely. But I think this  
5 might underscore the absurdity, more than anything else. If  
6 this is the remedy that the FCC is proposing for  
7 interference, which would impact thousands and thousands of  
8 men and women deployed overseas, this is -- we will just  
9 stop it. It is highly unusual and probably ineffectual.

10 General Raymond: I agree, sir.

11 Senator Reed: Thank you.

12 Chairman Inhofe: Thank you, Senator Reed.

13 Senator Fischer: Thank you, Mr. Chairman. And I would  
14 like to thank you and the ranking member for having this  
15 hearing today and also compliment both of you on keeping  
16 this committee informed and active during the past several  
17 weeks. So thank you very much.

18 Mr. Deasy, there is a number of mitigation proposals  
19 that are included in the FCC order, and it is my  
20 understanding that the Department has expressed quite a few  
21 reservations on them. There is a process that is being, I  
22 think, contemplated where Ligado is going to work with  
23 agencies to identify potentially affected devices for  
24 upgrade, repair, or replacement.

25 Can you walk us through some of the practical steps of

1       how this is going to work? And I would also ask Secretary  
2       Griffin and General Raymond to jump in on this question too.

3               To get it started a little bit, if you could maybe  
4       address what sort of time, resources, personnel are going to  
5       be needed to carry it out? Do you see any classification  
6       restrictions or limits on proprietary data being an issue?  
7       And are GPS devices easily removed or replaced? And are  
8       these integrated systems? I am asking you to generalize on  
9       these, but if you could maybe walk us through some of this  
10      and how you see it working or the challenges that it would  
11      face?

12             Mr. Deasy: I will be happy to start. Then I think Dr.  
13      Griffin is well placed to carry on this conversation.

14             I think the easiest way to break this down is to look  
15      specifically at the order that FCC issued and, quote, the  
16      stringent requirements they put in place. And there are  
17      really four that I would like to call out, and I think,  
18      Senator, these touch upon what I think you are trying to get  
19      after.

20             The first one is what they call the guard band. It is  
21      this 23 megahertz. And the idea is so Ligado has always  
22      recognized that they know that their solution does cause  
23      interference. I mean, I think that is something I think we  
24      cannot lose in this conversation, which is why they have  
25      continued to figure out how to lower their power and why

1 they have created what is called this guard band. They  
2 state because they are 23 megahertz away that that in itself  
3 clearly should be sufficient to allow them to operate. I  
4 think Dr. Griffin gave some compelling testimony today that  
5 clearly showed it simply will not work and the noise that  
6 will be created.

7 The second thing they talk about is lowering the power.  
8 Now, if you go back to the original LightSquared to the  
9 early days of Ligado, they have continued to lower the  
10 power, and they are doing that because they know that their  
11 solution will cause interference to GPS. They tried to make  
12 this, quote, 10 watt light bulb sound so insignificant, but  
13 I think Dr. Griffin's comment about the Hubble telescope was  
14 really quite compelling. So it is unrealistic to think that  
15 they are ever going to get to a power level that would make  
16 ground-based terrestrial communications acceptable.

17 And they talk about coordination. Now, what they are  
18 really saying there is that as they stand up their  
19 terrestrial based solution, they are going to, quote,  
20 coordinate and that if we say there is a problem, they will  
21 address it. Well, this is how you tell if there is a  
22 problem. They install a terrestrial ground-based solution.  
23 They turn it on, and then we have to report back to them  
24 what that interference is, where that interference is  
25 causing problems. Think about the civil side of that. How

1 will that coordination actually take place? On the military  
2 side, we will have a difficult enough time given the  
3 millions and millions of GPS receivers. And to your point,  
4 when you start to talk about embedded receivers and assets  
5 that we have inside the military, it is not like you can  
6 pull that asset out and simply install a new one that will  
7 not cause interference. This will cost -- I cannot tell you  
8 specifically, ma'am, what the dollars or the people  
9 requirements would be because we would have to look at that  
10 on an asset-by-asset basis.

11 And then finally remediation. Simply put, if you read  
12 the order carefully, the burden is actually on the  
13 Department of Defense. We have to call out what the problem  
14 is and then, quote, once we clearly identify the problems,  
15 they will remediate. Well, remember, many of our assets are  
16 highly classified, and so the very point of being able to go  
17 in and articulate what those problems are and how they  
18 should go about remediating them is simply not practical.

19 Senator Fischer: Mr. Secretary, do you or the General  
20 have anything to add?

21 Dr. Griffin: I will be brief. What is not being  
22 addressed when one talks about repair and replace, even  
23 among the federal receivers which Ligado promises to  
24 replace, is the expense and the down time of doing so. Let  
25 me give you a comparison.

1           Aviation-grade receivers are designed, because of the  
2           cruciality of those -- and, Senator Inhofe, like you I am a  
3           pilot. The aviation-grade receivers in my airplane cost  
4           \$10,000 or so apiece. They are much more cumbersome. They  
5           are larger. They consume more power in order to produce a  
6           hardened design to just this type of interference. The GPS  
7           receivers that go on someone's tractor or first response  
8           vehicle or in the automotive navigation system in your car  
9           or in a routine piece of military hardware are not hardened  
10          like that, and the expense of introducing new designs to  
11          make them so is not even being discussed. It should be.

12           Senator Fischer: And also, we are talking about  
13          disruption, but we are also talking about national security,  
14          which is a definite threat that there is not time to  
15          address. Thank you, sir.

16           Chairman Inhofe: Thank you, Senator Fischer.

17           Senator Shaheen?

18           Senator Shaheen: Thank you, Mr. Chairman. And thank  
19          you to you and Senator Reed for holding this timely hearing.  
20          And I appreciate the testimony of all of our experts today.

21           I guess this question is for you, Mr. Deasy. Was DOD  
22          surprised by the FCC decision?

23           Mr. Deasy: The simple answer is yes. We had been in  
24          communications with FCC back and forth over this matter for  
25          some time, including the NTIA. Along this whole journey, if



1 you kind of go through that timeline I gave earlier, we are  
2 clearly of the belief that they understood. They had  
3 received our letters. They had received the NTIA letters  
4 and clearly knew that there was a unanimous view across  
5 federal agencies not to move forward. So I have to admit  
6 when I first read and heard about this, I was very  
7 surprised, and as I talked to other senior leaders across  
8 the DOT, likewise they have been just as surprised.

9 Senator Shaheen: So reports had suggested that the FCC  
10 was actually moving in a different direction, that they were  
11 going to deny Ligado's request. Was that your expectation  
12 before the turnaround?

13 Mr. Deasy: Yes. The head of C3 inside of my  
14 organization, a gentleman by the name of Mr. Fred  
15 Moorefield, has been in constant communications over a  
16 number of months, actually years on this with both the NTIA  
17 and FCC. One of his responsibilities was to give me weekly  
18 updates as to how the conversations were progressing with  
19 FCC and NTIA. And every time we had the conversation, it  
20 was all FCC and NTIA clearly understand our position, and at  
21 no time did he suggest that he had an indication or belief  
22 that it was going to move forward.

23 Senator Shaheen: And the decision, as you have  
24 described and as I have read, was made very unexpectedly,  
25 very hurriedly without the kind of process that Senator Reed

1 raised that is usually expected. Is that correct?

2 Mr. Deasy: Yes, ma'am.

3 Senator Shaheen: So what do you think the motivation  
4 of the FCC is in making this decision? You must have some  
5 speculation about that.

6 Mr. Deasy: Actually I do not. I would not have been  
7 surprised if I had felt I clearly understood what the  
8 motivations were because I frankly did not see this coming.

9 Senator Shaheen: Admiral, do you have any thoughts  
10 about why the FCC would have made this decision so  
11 unexpectedly?

12 Mr. Allen: It is quizzical. If you look at the order  
13 that was issued -- I think it is 74 pages long -- you do not  
14 write that overnight. It had to be in preparation for quite  
15 a while. The footnotes are extensive. You can agree or not  
16 agree with the report. What astounded me was that had to be  
17 in the works for quite a while and it happened suddenly. In  
18 my view, that was a breakdown of communications and building  
19 a consensus around proper rulemaking in a regulatory agency.

20 Senator Shaheen: So how does a decision like this  
21 happen? When you have got virtually every other federal  
22 agency that is concerned about this issue saying this is the  
23 wrong direction to take, how then does one agency -- and I  
24 appreciate it bills itself as independent, and there are  
25 certain agencies that we want to view as independent within

1 government. But one would also hope that we are all trying  
2 to move in the same direction as part of government. So can  
3 anybody speculate on how this happened and why this agency  
4 would have taken this position given that, according to all  
5 of the research you all cited, they are not a significant  
6 part of an effort in this country to move to 5G?

7 [No response.]

8 Senator Shaheen: Nobody has any ideas.

9 Mr. Allen: It would appear to be a good topic for the  
10 committee of original jurisdiction.

11 Senator Shaheen: I would certainly agree with that.

12 So the next question is then what would you like to see  
13 happen. What would you like to see this committee do, and  
14 what would you like to see Congress do to address this  
15 decision which seems clearly against the interests not just  
16 of the Department of Defense but of all of the commercial  
17 interests that are involved here?

18 Mr. Deasy: I will start by simply saying it is on my  
19 key takeaway chart. It is the last bullet that said that  
20 FCC needs to reverse their decision.

21 Senator Shaheen: But has that happened before, and how  
22 realistic do you think that is that the FCC on their own  
23 motivation will reverse their decision?

24 Mr. Deasy: There is a petition that NTIA can file  
25 requesting that the FCC go back, revisit that decision. We

1 would need to, obviously, present for the NTIA the necessary  
2 information for that petition to be filed, but there is a  
3 process that one can go through for them to reconsider their  
4 decision. And I believe we do need to go through that  
5 process.

6 Senator Shaheen: Well, thank you.

7 Mr. Chairman and Senator Reed, I look forward to  
8 joining you on your letter.

9 Chairman Inhofe: Thank you, Senator Shaheen.

10 Senator Rounds?

11 Senator Rounds: Thank you, Mr. Chairman. Let me also  
12 add my thanks to you and the ranking member for organizing  
13 and allowing us to stay informed during the time in which we  
14 were in our work periods at home. And thank you also for  
15 organizing this full committee discussion on the issue of  
16 spectrum and in particular the issue in front of us today  
17 concerning the Ligado application.

18 Mr. Deasy, I would like to spend my time with you today  
19 focusing on the other spectrum issues that we have got.

20 Last year, in the National Defense Authorization Act,  
21 this committee had proposed section 214, which has become  
22 popular all by itself in terms of the fact that it was not  
23 operational by the time we got done. It had to do with  
24 allowing for spectrum sharing. And we recognize that DOD  
25 has a critical need for spectrum and that only on an

1 organized effort can we allow for sharing of that mid-level  
2 of the spectrum.

3 This brings to light an area in the lower spectrum, but  
4 most certainly the rest of the spectrum is also at risk as  
5 well. We had proposed creating a tool last year -- and we  
6 did not realize the type of opposition we would find --  
7 creating a tool so that we could fairly share spectrum which  
8 was critical in our national defense.

9 Can you discuss a little bit with the committee the  
10 need for a tool that would allow us to appropriately share  
11 and at the same time safeguard extremely critical portions  
12 in geographic locations as well, but basically an  
13 opportunity to share what is a very, very valuable resource,  
14 and that is that mid-level spectrum?

15 Mr. Deasy: So I would start. I will be happy to  
16 comment on section 214 and then possibly Dr. Griffin to talk  
17 about what it is we are doing as far as moving forward with  
18 5G from experimentations.

19 You know, you make a very good point on section 214.  
20 The Communications Act was passed back in 1934. There have  
21 been all kinds of addendums to that act. And yet,  
22 throughout this, if you look at the policies, the processes,  
23 the tools that have been used where we go through in  
24 government to look at repurposing spectrum, they are  
25 antiquated.

1           One of the reasons I was so excited about 214 was the  
2           opportunity for these processes, these procedures, and the  
3           tools to be updated. We need these tools because not only  
4           does it help us to look at how do you repurpose spectrum,  
5           but allows us to manage and incorporate how you actually  
6           have to operate the spectrum.

7           For us to get to faster spectrum repurposing decisions  
8           -- and the key word there is "faster" -- we cannot do that  
9           without moving towards dynamic spectrum sharing. To do  
10          that, 214 provided us the opportunity to modernize the  
11          tools, to modernize the processes on how we go about doing  
12          this, sir.

13          Senator Rounds: In terms of national defense, would  
14          you say that this particular discussion concerning the  
15          Ligado application is perhaps just a shot over the bow as to  
16          how serious these issues are and the need to revisit what we  
17          were trying to do in 214 last year?

18          Mr. Deasy: I would say when it comes to the discussion  
19          of national defense, I would defer to General Raymond to  
20          discuss the views on that.

21          Senator Rounds: General Raymond?

22          General Raymond: I am not an expert on 214, but I will  
23          tell you the use of spectrum is critical to our force. It  
24          is our maneuver space. It provides us strategic operational  
25          and tactical advantage. When you look at what kind of

1 capabilities we have, we have to be able to operate in that  
2 spectrum. We have to be able to detect, characterize, and  
3 geolocate interference. We have to be able to operate in  
4 that spectrum that we train to do so every day, and it is  
5 absolutely critical to our joint force.

6 Senator Rounds: Thank you.

7 General, one more question. With regard to the amount  
8 of data that we are collecting right now with the platforms  
9 that we already have within our system today, we are  
10 collecting huge amounts of data, and the need for 5G is  
11 critical. Would it be fair to say that the Department of  
12 Defense is looking at 5G as a way to collect and to make our  
13 platforms even more capable than what they are today and  
14 that the Department of Defense is very interested in the  
15 deployment of 5G and not trying to stop it, but rather, it  
16 is necessary and it just simply has to be done correctly?

17 General Raymond: I agree wholeheartedly. You know, I  
18 go to work every day, and the folks that I am privileged to  
19 lead go to work every day trying to implement the National  
20 Defense Strategy that says we are going compete, deter, and  
21 win. That is what we do, and 5G is going to be critical to  
22 us. But I will also tell you GPS is also critical to us in  
23 being able to compete, deter, and win.

24 Senator Rounds: Yes, sir. Thank you.

25 Thank you, Mr. Chairman.

1 Chairman Inhofe: Thank you, Senator Rounds.

2 Senator Hirono?

3 Senator Hirono: I would like to ask a very brief, non-  
4 Ligado question because we do have the DOD's Chief of  
5 Information Office here.

6 So DOD has seen a significant spike in cyber attacks  
7 and misinformation directed at service members and personnel  
8 as the Pentagon shifts toward telework during this pandemic.  
9 Mr. Deasy, what additional measures are being instituted in  
10 the Department to combat the increased phishing and hacking  
11 that has occurred during this current Covid-19 pandemic?

12 Mr. Deasy: So a couple things on that. You know, we  
13 actually measure how often our network is probed, how many  
14 spams we get, how many types of interference we get on our  
15 network. We have clearly seen an uptick. One of the  
16 upticks we have seen most is spear phishing, and that is  
17 specific Covid-related emails that are coming in where the  
18 adversary is trying to take the opportunity to use Covid as  
19 the topic to get people to actively engage on.

20 However, with that said, when we look at other types of  
21 activities that U.S. Cyber Command sees -- I have a task  
22 force where we meet every week, and in that task force, we  
23 discuss the very things that you are bringing up -- we are  
24 not seeing an abnormal amount of other types of activities  
25 that our metrics would suggest go above and beyond what we



1 normally see other than specifically in the spear phishing  
2 area. We are seeing an uptick specifically related to  
3 Covid.

4 So what have we been doing? Because now we have moved  
5 to teleworking and we are using technology known as VPN and  
6 other types of tools that allow people to communicate from  
7 home, I would say a couple things have been really important  
8 here.

9 Within the first week after we started moving to  
10 teleworking, my office issued a letter, a memo that went out  
11 to all employees. It included a small card -- I do not have  
12 it with me here today -- that actually clearly listed the  
13 dos and don'ts of what you should do from your home when you  
14 are teleworking and what were the additional things to be  
15 thoughtful and mindful of now that you are working from  
16 home.

17 Additionally, U.S. Cyber Command did stand up  
18 additional task force teams to specifically look at the  
19 network and traffic activity that was occurring because of  
20 teleworking, ma'am.

21 Senator Hirono: So have you been able to identify  
22 whether the spear phishing and some of these other cyber  
23 attacks are emanating from any particular country?

24 Mr. Deasy: All I would say is to get into specifics of  
25 where those attacks are coming from and what the motivations

1 are probably go beyond the classification of this discussion  
2 today.

3 Senator Hirono: That is right. I understand.

4 So let us move on to some of the questions that are  
5 relevant to this hearing.

6 The National Advanced Spectrum and Communications Test  
7 Network, NASCTN, a multi-agency charter partnership that  
8 seeks to provide a neutral forum for testing, modeling, and  
9 analysis, performed a study to determine the impact of  
10 Ligado's proposed networks on GPS. The FCC relied on the  
11 results of this study in approving Ligado's application. I  
12 understand that DOD takes issue with the NASCTN study. As  
13 an initial matter, Ligado claimed in a filing made with the  
14 FCC that the tests it commissioned at the NASCTN were done  
15 at the request of the DOD Chief Information Officer's  
16 office. Is that true?

17 Mr. Deasy: There was a test and request made from my  
18 predecessor that asked to look at what Ligado was proposing  
19 at the time, and at the time, that testing was based on the  
20 assumption that Ligado was still going to use satellite-  
21 based communications towards the earth and only on exception  
22 would they use terrestrial-based. So when we agreed to  
23 that, it was agreed on the premise that their solution was  
24 still going to be a primary satellite-based solution and not  
25 a terrestrial ground-based solution.

1           Afterwards, the expression we have used today is they  
2           changed the goalpost. They said they now wanted to go to a  
3           terrestrial based. So basically the rules changed in the  
4           process of how that test was originally conducted to what  
5           Ligado wanted to do going forward, ma'am.

6           Senator Hirono: So in your view with the goalpost  
7           being changed and the tests that NASCTN did were really not  
8           on point to the giving of the license.

9           Mr. Deasy: I guess you would say they were on point  
10          for what was assumed at the time, but where we are today was  
11          no longer on point.

12          Senator Hirono: So you say that the FCC needs to  
13          reverse its decision, and there is a process for asking for  
14          reconsideration or reversal. Has that process begun?

15          Mr. Deasy: So what we have done from the DOD  
16          standpoint is we have had communications on a regular basis  
17          with the NTIA. I am actively getting engaged with the NTIA  
18          making a formal request for them to do a file for re-  
19          petition.

20          Senator Hirono: What is the time frame for  
21          reconsideration or reversal by FCC?

22          Mr. Deasy: I, ma'am, would have to get back to you  
23          with the specific dates. I do not know what those dates  
24          are.

25          Senator Hirono: Anyway, you are not going to let that

1 time expire before you take action.

2 Mr. Deasy: Absolutely not. I believe it is somewhere  
3 towards the end of May that we have to have communicated  
4 that re-petition.

5 Senator Hirono: Thank you.

6 Thank you, Mr. Chairman.

7 Chairman Inhofe: Thank you, Senator Hirono.

8 Senator Cramer?

9 Senator Cramer: Thank you, Mr. Chairman and Senator  
10 Reed as well. I just echo everyone's sentiment about what a  
11 great job you have done keeping us engaged and involved and  
12 communicating.

13 And thanks to each of you. I am sitting here a little  
14 bit -- well, I am curious. It is a good place to sit when  
15 you are curious when you have four really smart people to  
16 ask questions of. But some of the questions I have you are  
17 going to have to speculate about because I want to ask you  
18 about what people that support this, why they would have  
19 supported it. And that may seem a little bit unfair, but  
20 you are all I have.

21 One thing I want to get straightened out because I have  
22 heard it said that the NTIA objected, but I have also read  
23 that the NTIA did not recommend or could not recommend. Is  
24 there a distinction there between not recommending and  
25 objecting, given the NTIA's authorities? And I do not know

1       which one of you -- maybe, Mr. Deasy, you would know the  
2       answer to that. I used to be on the Energy and Commerce  
3       Committee in the House. I was a communications telecom  
4       regulator for 10 years. So I think there is a distinction  
5       there. I just want to be sure.

6             Mr. Deasy: Yes. I am not sure I could legally tell  
7       you what those distinctions are, but I will say that clearly  
8       what NTIA's role is is to represent back the agency's view  
9       on this. So in this case, you have a Position, Navigation,  
10      Timing EXCOM, which is made up of nine federal agencies.  
11      Their job was to take our view, put that in a formal letter,  
12      and then submit that view back to the FCC. So I can tell  
13      you that their job in that case was to submit the view of  
14      the PNT.

15            Senator Cramer: Does the NTIA ever recommend a yea or  
16      a nay to the FCC?

17            Mr. Deasy: I will have to ask other colleagues if they  
18      know.

19            Senator Cramer: Does anybody know? All right. We  
20      will find that out. I am curious about it because it does  
21      seem to me here the process matters. You are all too smart  
22      for me to ask technical questions of, so I am going to focus  
23      on process a little bit.

24            The other thing that sort of perplexes me a little bit  
25      is that, first of all, somehow five commissioners came to

1 some version of the same conclusion. That is another thing  
2 that just because they either voted yes or did not object,  
3 it does not necessarily mean they have the same degree of  
4 enthusiasm for a decision. But nonetheless, it was 5 to 0.  
5 My reading tells me NTIA did not object, nor did they  
6 recommend. I think they can recommend.

7 But there are some other fairly important  
8 administration folks that are concerned about national  
9 security that seem to have supported the decision unless  
10 they have changed their minds. And that would be, of  
11 course, Secretary of State Pompeo and Attorney General Barr.  
12 Does anybody know if they have changed their minds or why  
13 they feel differently?

14 [No response.]

15 Senator Cramer: Okay. I will ask them. I guess that  
16 would be the best thing to do.

17 The one other process question I have is how long was  
18 this application in. Does anybody know when the application  
19 was made? Because my sense is that there are volumes and  
20 volumes and volumes and hours and hours and hours dedicated  
21 to this. And we know about yours obviously. And I would  
22 just be interested. It just helps me to satisfy my  
23 curiosity. I have no doubt that everything you have said is  
24 absolutely 100 percent accurate and true. Do not get me  
25 wrong. But it does help me balance my thinking when I hear

1 a little more from someone else. I know that is not your  
2 objective, but it is just kind of mine.

3 So with that, Mr. Chairman, I will ask some questions  
4 other places. Thanks for doing this. It is really  
5 important information. What is really important is that  
6 other people hear it.

7 Chairman Inhofe: Let me shed a little light on that.  
8 They took over that bankrupt company in the year 2015. And  
9 I have reason, having looked at this quite a bit, to believe  
10 that they had been working on their licensing for quite some  
11 time, and while they have been looking at it, none of us  
12 that I know of were aware that that was going on. So I just  
13 think there is a level of security that they had among  
14 themselves. I am saying that as nice as I can.

15 Senator Cramer: I understand, and I am sure you are  
16 right.

17 Chairman Inhofe: Yes. Thank you, Senator Cramer.

18 Senator Kaine?

19 Senator Kaine: Thank you, Mr. Chair. And again, I  
20 echo my comments that I said to you personally yesterday.  
21 This was the only committee that I serve on -- I serve on  
22 four -- that had weekly telephone conferences during the  
23 time we were away, and they were really valuable. And we  
24 had some spirited debate, and sometimes I got an answer to a  
25 question I liked and sometimes I did not. But this was the

1       only committee that was doing that every week, and I really  
2       applaud the leadership of the chair and ranking for that.

3             Chairman Inhofe: Thank you.

4             Senator Kaine: You have made some really persuasive  
5       points, but you have not persuaded me. And the reason you  
6       have not is we have only heard one side of the case. I  
7       tried a lot of cases in my day before I got into this line  
8       of work, and I would never make a decision and agree, yes,  
9       the FCC needs to reverse their decision when the FCC is  
10      right in town and could have been at this hearing or Ligado.  
11     If Ligado knew that we were concerned, they would want to  
12     come and make their case. All of the questions and concerns  
13     and the speculation is completely unnecessary. There are  
14     two sides to this. The FCC reached a unanimous decision,  
15     which is not that common for that body on matters of  
16     controversy. And they would have something to say about all  
17     these questions. And because of your testimony, which has  
18     been great testimony, I would have really tough questions  
19     for them. But it is hard to convince an Armed Services  
20     Committee member to reverse a decision based upon the  
21     presentation of one side of the case.

22            Let me ask you a couple of questions. My understanding  
23      from the timeline is that the EXCOM -- is it the PNT EXCOM  
24      -- looked at testing that had been done beginning in 2016  
25      and made a recommendation in March of 2018 to oppose the



1 Ligado proposal. Is that basically right, that the PNT  
2 EXCOM unanimous decision opposed the proposal that was made  
3 in March of 2018?

4 Mr. Deasy: Sir, I am personally not familiar with that  
5 particular date. I am familiar with the date of December of  
6 2018 in which we formally documented to NTIA the view of  
7 PNT.

8 Senator Kaine: I am reading from materials that have  
9 been provided by the DOD. But it looks like testing was  
10 earlier. The PNT EXCOM reached a unanimous decision in  
11 March, and then it was communicated, Mr. Deasy, as you say,  
12 in December.

13 Was the proposal as tested and as opposed in March of  
14 2018 and then communicated in December of 2018 -- was that  
15 exactly the same proposal that the FCC ruled upon on April  
16 20th?

17 Mr. Deasy: Throughout this process, there have been  
18 multiple amendments to what Ligado had to propose.

19 Senator Kaine: And you mentioned a couple. You  
20 mentioned the idea of the buffer that they created and  
21 lowering power. So my surmise is that the objection that  
22 was done in 2018 was based upon a version of the Ligado  
23 proposal, but the FCC approval in April of 2020 was based  
24 upon a proposal that had changed in some ways. Is that  
25 correct?

1           Mr. Deasy: Well, the proposal, as far as I know --  
2           and, Dr. Griffin, maybe you can speak to specific testing  
3           was done. The proposal in 2020 that was just recently  
4           approved with those restrictions, when we go back and look  
5           at what was done on the testing against those restrictions,  
6           nothing has changed.

7           Senator Kaine: Well, but that is not my question. So  
8           my question is a real precise one, which is, is the proposal  
9           that the FCC ruled on the same proposal that the PNT EXCOM  
10          unanimously decided to approve -- disapprove in March of  
11          2018, or were there changes? You were suggesting to me that  
12          there were changes along the way.

13          Mr. Deasy: There have been changes along the way of  
14          which we have continued to communicate and evaluate those.  
15          The letter of 2018 -- I have to go back and --

16          Senator Kaine: Okay. Let me ask this. The April 2020  
17          ruling of the FCC had some conditions in it. Now, that was  
18          16 days ago that they reached that conclusion. Have you  
19          with the significant testing capacity at your disposal --  
20          have you gone back and rerun tests against the version of  
21          the FCC -- that the FCC approved with the requirements, the,  
22          quote, stringent requirements they put on it? So have you  
23          done any more testing since April 20th?

24          Mr. Deasy: I am not aware of any specific tests that  
25          have been done, and I think the reason is those particular

1 guard bands, power levels, coordination, and remediations  
2 were all the same that we had looked at previously.

3 Senator Kaine: Okay. I will want to get that in  
4 writing because I want to make sure that the opposition in  
5 March of 2018 in fact applied to the proposal as it existed  
6 and was approved in April 2020.

7 Senator Cramer indicated that he thinks the Attorney  
8 General and Secretary of State are now in support of the  
9 Ligado proposal before the FCC. Is that correct?

10 Mr. Deasy: That is what I had heard in the public.

11 Senator Kaine: Have you then sought to find out why  
12 that would be the case?

13 Mr. Deasy: I have not personally, no, sir.

14 Senator Kaine: Are either of those members of this  
15 nine member PNT EXCOM are State and DOJ, or are they not  
16 members of that nine member task force?

17 Mr. Deasy: They are. The Department of State is a  
18 member of that.

19 Senator Kaine: And how about the Department of  
20 Justice?

21 Mr. Deasy: The Department of Justice is not a member  
22 of that.

23 Senator Kaine: All right. I have exceeded my time.  
24 Thank you, Mr. Chair.

25 Chairman Inhofe: Thank you, Senator Kaine.

1 Senator Cotton?

2 Senator Cotton: Thank you, Mr. Chairman and Senator  
3 Reed. I want to add my voice to what Senator Kaine said.  
4 Thank you for your commitment during our long break from  
5 Washington during this pandemic for holding regular weekly  
6 conference calls, and thank you for putting together this  
7 very important hearing.

8 I will associate myself with Senator Kaine's remarks  
9 again, the second time, in that I think you make a pretty  
10 compelling case. I have read through all these materials  
11 that we have had for the hearing. But it is really  
12 important that we hear from the unanimous FCC and from  
13 Ligado as well for us to make a reasoned conclusion.

14 I will associate myself with Senator Kaine for a third  
15 time. He is probably beginning to get anxious about this.

16 [Laughter.]

17 Senator Cotton: About the Attorney General and the  
18 Secretary of State. Senator Cramer has asked this. Senator  
19 Kaine has asked this. Let me just ask Mr. Deasy and Dr.  
20 Griffin directly. What do you see that Attorney General  
21 Barr and Secretary Pompeo do not see? You oppose this  
22 proposal. They support the proposal. So what is it that  
23 you see that they do not see?

24 Mr. Deasy: Sir, you know, as a technologist for almost  
25 40 years now, I see the science. I see the studies. I see

1 the results of what has been done, and the science clearly  
2 shows everything we have talked about today in terms of the  
3 interference. So that is what I see. I cannot speculate on  
4 what Secretary Pompeo or Secretary Barr see.

5 Senator Cotton: So Senator Kaine raised this as well  
6 about the testing. Has there been specific, realistic  
7 testing done under the conditions proposed by the FCC in  
8 last month's order? I have read a lot of the materials  
9 here. I have got Secretary Esper's letter here, and there  
10 are a lot of conditional verbs in that letter. There are a  
11 lot of conditional verbs in the other material I have read  
12 here, things like "may jeopardize the effectiveness and  
13 reliability of GPS." It has the potential to disrupt  
14 commercial GPS receivers. Has there been testing on  
15 specific, realistic conditions of the FCC's order that we  
16 can say, yes, it will interfere?

17 Dr. Griffin: There has not been any testing since the  
18 order was issued 16 days ago. The testing that was done was  
19 done not by the Department of Defense but by the Department  
20 of Transportation, and it is as exquisitely well done as  
21 anything that I think I have ever seen. They tested 80  
22 receivers. They tested them against the power levels that  
23 Ligado is claiming today to use, and in answer to Senator  
24 Kaine's question, the power level is the most significant  
25 single attribute against which one would test.

1           The DOT tests, as I said in my earlier testimony, were  
2           designed to elucidate what was necessary to protect the GPS  
3           band. The issue of testing one transmitter against one  
4           receiver and substituting one receiver after another in  
5           specific scenarios is frankly a fool's errand. I can always  
6           put together a different geometry, a different scenario, and  
7           then ask the question again, would Ligado interfere with  
8           that? That is not the way to go about it. The way that the  
9           Department of Transportation did in its adjacent band  
10          compatibility test is the way to go about it. Those results  
11          were unambiguous and they were compelling. At the power  
12          levels that Ligado chooses to put forward for its ground-  
13          based transmissions, GPS receivers broadly speaking will be  
14          compromised.

15           Senator Cotton: I have one final set of questions  
16          here, and Dr. Griffin, I will direct these towards you.  
17          They are on a related matter.

18           In January, numerous media outlets, to include the  
19          "Washington Post" and the "Wall Street Journal," reported  
20          that the Pentagon was going to block a set of rules that  
21          would have limited the export of semiconductors, computer  
22          chips, and other kinds of advanced microelectronics to  
23          Huawei. Is it correct that the Department of Defense  
24          initially "non-concurred," to use the technical term, with  
25          these rule changes?

1           Dr. Griffin: I do not know if the Department of  
2           Defense non-concurred. The Research and Engineering Under  
3           Secretariat, my organization, non-concurred. We do not  
4           believe that those particular restrictions were going to be  
5           beneficial and we believed that they would hurt the U.S.  
6           semiconductor industry more than they would hurt China. If  
7           the goal is to damage China, that is not the tool to use.

8           Senator Cotton: But Secretary Esper did not agree with  
9           that.

10          Dr. Griffin: That is correct.

11          Senator Cotton: So this is just another concern that I  
12          have, is that the Department of Defense could have an  
13          exaggerated sense of scientific and technological certitude  
14          that is not appropriately balancing the strategic  
15          imperatives or the geopolitical challenges we face. I am  
16          not saying that that is the case, but in light of that  
17          decision and in light of the case I see here in front of me,  
18          much of which is contingent, I think we at least need to  
19          continue to explore that.

20          Thank you.

21          Chairman Inhofe: Thank you, Senator Cotton.

22          Senator King?

23          Senator King: Thank you, Mr. Chairman. And again,  
24          thanks for the work during the break and the time that we  
25          had talking about the coronavirus response at the

1 Department.

2 What was the power level that was used for the DOT  
3 testing please?

4 Dr. Griffin: DOT provided results for the original  
5 Ligado power level I believe of 1500 watts and specifically  
6 to the present case in the present FCC order, 10 watts.

7 Senator King: Can you put that in terms of dBW?

8 Dr. Griffin: dBW would be 10 dBW for the 10 watt  
9 transmitter --

10 Senator King: So Transportation did -- so the study  
11 did include the 9.8 dBW analysis.

12 Dr. Griffin: Correct.

13 Senator King: And then that did find clear evidence of  
14 interference.

15 Dr. Griffin: Exactly so, sir. In fact, they published  
16 carefully the power levels required to cause the suite of  
17 receivers that were tested to lock up.

18 Senator King: Could you supply that data to this  
19 committee?

20 Dr. Griffin: Absolutely.

21 Senator King: I would appreciate that.

22 I share some of the concerns that have been raised.  
23 The FCC is -- they are capable people. I do not always  
24 agree with them. It is one of the few unanimous orders I  
25 have seen them undertake. It is a 74-page order with 444



1       footnotes. It strikes me that some serious thought went  
2       into it.

3               They have two concerns, as I understand the order. One  
4       is the development of the Internet of Things. That is an  
5       important part of the future development of 5G technology  
6       and, indeed, the technology of the country. The second is  
7       efficient use of spectrum.

8               What is the shadow cast by the GPS band? In other  
9       words, how much spectrum are you seeking to tie up beyond  
10      the band that is now specified as the GPS band?

11              Dr. Griffin: Neither the Department nor any federal  
12      agency, of which I am aware, is asking for any additional  
13      spectrum to be set aside for global navigation satellite  
14      systems, of which GPS is one. What we are saying is that  
15      the spectrum already set aside for those functions should be  
16      left for those functions and not repurposed for terrestrial  
17      transmitters.

18              Senator King: How wide is that? Because the chart  
19      that was with my background shows a band between, it looks  
20      like, about 1552 and 1610.

21              Dr. Griffin: It is 1559 to 1610 megahertz, sir.

22              Senator King: Okay. So that is the band that you --  
23      that is the inviolate band that you want to protect.

24      Correct?

25              Dr. Griffin: Correct, sir.

1           Senator King: But the band that Ligado wants is, it  
2 looks like, about 1522 to 1530. That is not within the band  
3 you just defined.

4           Dr. Griffin: It is within the larger mobile satellite  
5 services band, and this is the point --

6           Senator King: Well, that is my question. What is the,  
7 quote, larger mobile services band? Because you told me a  
8 few moments ago that the band you were interested in was  
9 1559 to 16-something. Which is it?

10          Dr. Griffin: In order to protect -- it is both. I am  
11 sorry. I am not trying to obfuscate. There is a specific  
12 radio navigation satellite services band that is housed  
13 within the larger mobile satellite services band.

14          Senator King: And what is that?

15          Dr. Griffin: I do not have that in my head.

16          Senator King: I am not trying to be argumentative. I  
17 am just trying to understand this because I start with the  
18 premise that an independent agency that reached a unanimous  
19 conclusion on something that has been extensively litigated  
20 had some basis for doing so. And if your chart here of  
21 trying to hear rustling leaves over 100 jets taking off is  
22 accurate, I just find that hard to believe that they would  
23 have issued such an order if that is in fact what we are  
24 talking about.

25          Dr. Griffin: I find it hard to believe too, which is

1       why we are here.

2               The reason that the satellite services are grouped  
3 together is because all of the radio signals coming from  
4 satellites in space are quite weak. So all of the weak  
5 signals are grouped together. Not all of them are  
6 navigation signals. Some of them are mobile satellite  
7 services of other kinds, but they do not interfere with one  
8 another. If you put a ground-based transmitter in the  
9 middle of a mobile satellite services band, it has the  
10 capability of interfering with other services. In this  
11 case, we are here talking about the interference with  
12 navigation.

13              Senator King: Well, I think it is important that you  
14 specify for us how wide the band you want to protect really  
15 is because that then becomes a major policy question about  
16 access to scarce spectrum. In other words, I accept your  
17 statements and realize how important this is to the country  
18 and particularly to the Department of Defense, but I just  
19 want to understand the policy decision that we are being  
20 urged to take here in terms of how much bandwidth are we  
21 being asked to protect. If you could submit some response  
22 to that for the record, that would be --

23              Dr. Griffin: I will give you those specific numbers,  
24 but broadly speaking, we seek to protect the services  
25 reserved for satellite communication.

1           Senator King: And I understand that, but that goes  
2 beyond the band that is defined, the 1559. And the question  
3 is how much of a buffer do you need to protect yourself from  
4 a relatively low power terrestrial signal. And we can talk  
5 about the physics. But I want to know how much bandwidth  
6 you want us to protect. That is all. And I am not saying  
7 you should not do so, but I think we need to understand that  
8 in terms of what it means for other potential uses of that  
9 bandwidth.

10           Dr. Griffin: We will provide that number for the  
11 record.

12           [The information follows:]

13           [COMMITTEE INSERT]

1 Senator King: Thank you. I appreciate it.

2 Chairman Inhofe: Thank you, Senator King.

3 Senator Perdue?

4 Senator Perdue: Thank you, Mr. Chairman.

5 And I appreciate your forbearance, guys. It is a big  
6 committee and a long afternoon, but I appreciate it.

7 General Raymond, as I understand it -- and I want to be  
8 sure I am clear on this -- the GPS receivers are designed to  
9 tolerate interference from space systems in general, but  
10 they are not designed to deal with interference from  
11 terrestrial systems, which by nature is generally much  
12 stronger. Is that correct?

13 General Raymond: The signals come down from space, and  
14 they reach the ground at a very low power level. And what  
15 is critically important on this, as was just discussed on  
16 this, what I called in my opening statement the quiet car,  
17 that having that noise-pristine environment is to allow the  
18 GPS receiver on the ground, whether it is handheld or in a  
19 weapon system, to be able to pick up that faint signal and  
20 process it.

21 Senator Perdue: Right. And this Ligado system is some  
22 10 billion times stronger at the 1530 megahertz spectrum.

23 So the follow-up on that question is it looks to me  
24 like 1559 to the 1591 megahertz spectrum is what has been  
25 allocated for GPS, but it looks to me like just commercial

1 purposes bleed over from as low as 1475 all the way up to  
2 1675, that people are getting signals outside of the band of  
3 GPS just by the nature of bleeding of the GPS signal. Is  
4 that correct?

5 General Raymond: Again, as Dr. Griffin stated, that  
6 mobile SATCOM services band is designed specifically for  
7 signals that come from space to the ground. And it is not  
8 just GPS. It is commercial communication satellites and  
9 other types of satellites that bring signals down, and that  
10 buffer is meant to allow those signals that have to travel  
11 from space to ground to be able to process by receivers.

12 Senator Perdue: But again, the point I am trying to  
13 make is it is a broader spectrum that we are actually using  
14 in GPS than what has been allocated just by the nature of  
15 the signal. Is that correct?

16 General Raymond: Where you are using the GPS spectrum,  
17 part of that spectrum, but the critical part of that is  
18 where we embed that into the mobile SATCOM services to  
19 provide the buffer needed to be able to protect the  
20 receivers to be able to pick up that faint signal.

21 Senator Perdue: So if a commercial land-based  
22 terrestrial emitter can cause this sort of interference that  
23 would cause imprecision, as well as maybe even the loss of  
24 signal -- and I fully appreciate when you have precision  
25 weaponry that are using GPS coordinates, those have to be

1 precise. I get that. So the question is, do we have  
2 defenses against an adversary? If a commercial user can  
3 cause this sort of imprecision, obviously an adversary can  
4 do the same thing with a land-based emitter. I know this is  
5 not a classified environment, but if the answer is  
6 classified, then I will accept that and take it offline and  
7 we will try to do that.

8 General Raymond: I would say that we train for this.  
9 We plan for this. We have tactics, techniques, and  
10 procedures to be able to respond to this. In a combat  
11 environment, we can drop a bomb on a receiver. There is a  
12 whole spectrum of things that we can do, and in another  
13 room, I would be happy to share that with you and provide  
14 more.

15 Senator Perdue: Yes, sir. Thank you.

16 Secretary Griffin, how do you propose maintaining our  
17 technological edge that we have got today? I think most of  
18 us believe that militarily. But how do we then compete with  
19 -- and let us talk about it -- China in terms of the  
20 technological leadership that they are beginning to develop  
21 in 5G, given that their immense investment in this, their  
22 vertical nature between their commercial and their military  
23 development over there, their lack of privacy requirements  
24 and so forth, and obviously, Huawei's recent advancements in  
25 developing 5G networks around the world? How do we balance

1 those two together? I mean, I think that is the real  
2 question here, even bigger than this Ligado decision.

3 Dr. Griffin: Well, sir, I will start out by saying I  
4 do not think we as Americans will prevail by trying to  
5 become more like China.

6 Senator Perdue: Agree.

7 Dr. Griffin: We are the nation that other people want  
8 to come to, to send their students to. We are the nation  
9 from whom others are trying to steal intellectual property.  
10 And we got to this position by being the best innovators, by  
11 being the people who knew how to get innovations into the  
12 marketplace.

13 We, the DOD, are, as Mr. Deasy pointed out earlier,  
14 conducting a wide range of experiments at a variety of  
15 military bases designed specifically to help advance the  
16 technology of 5G in company with our commercial  
17 telecommunications providers by unleashing the market to do  
18 what they do best. I believe that in the long run the  
19 United States will prevail in 5G.

20 Senator Perdue: I concur.

21 Thank you, Mr. Chairman. Thank you.

22 Chairman Inhofe: Thank you, Senator Perdue.

23 Senator Duckworth?

24 Senator Duckworth: Thank you, Mr. Chairman.

25 Mr. Deasy, at the conclusion of the 2017 U.S. Air Force



1 white paper on the 1 decibel standard, it states that the 1  
2 decibel interference protection criterion is the only  
3 appropriate IPC for protecting GPS and other global  
4 navigation satellite system receivers. Does the Air Force  
5 stand by this conclusion?

6 Mr. Deasy: I am probably not the expert to answer that  
7 particular question. Yes, Dr. Griffin?

8 Dr. Griffin: Thank you for that courtesy.

9 Senator Duckworth, the 1 dB, so-called 1 dB carrier to  
10 noise standard, is the appropriate standard and, in fact,  
11 was recognized as such by the FCC itself back in 2003. I  
12 can quote from that if desired. Well, actually no. I will  
13 just take it for the record. The point being that the FCC  
14 itself endorsed that standard in multiple rulings back in  
15 the early 2000s as the appropriate way to protect radio  
16 navigation systems.

17 Senator Duckworth: Thank you.

18 Dr. Griffin: The point was made earlier that the  
19 Communications Act of 1934 began in a world of radio and TV,  
20 not in a world of satellite navigation services, and the  
21 same methods which are used traditionally to protect  
22 existing licensees from a new service are not applicable in  
23 a world of radio navigation. So the 1 dB criteria is the  
24 one that I would endorse.

25 Senator Duckworth: Thank you.

1           Mr. Chairman, I request unanimous consent to include  
2           this white paper for the record.

3           Chairman Inhofe: Without objection.

4           [The information follows:]

5           [COMMITTEE INSERT]

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 Senator Duckworth: Thank you.

2 Mr. Deasy, Secretary Griffin, General Raymond,  
3 stakeholders who support Ligado's efforts have suggested  
4 that as early as 2016, the FCC -- this is following up on  
5 the chairman's question earlier. Following the conclusion  
6 of this hearing, can you provide me in writing a timeline  
7 and list of correspondence the Department submitted to the  
8 FCC and/or NTIA on the Ligado case?

9 Mr. Deasy: Yes, we can, ma'am.

10 Senator Duckworth: Thank you.

11 This next question is for all the witnesses. What are  
12 the potential national security implications if Ligado  
13 decides to turn around and sell their spectrum band to  
14 another company? And to what extent will the Department be  
15 able to weigh in with its future concerns? And this is for  
16 the entire panel.

17 Mr. Allen: I will start. It is not a matter of  
18 spectrum. It is a matter of the power. We keep talking  
19 about spectrum. It is what you do inside the spectrum. I  
20 am a simple sailor. I am not a technical person. If you  
21 have a ground transmitter, it is a matter of how much power  
22 is transmitting and whether or not it is going to affect the  
23 adjacent spectrum. So I do not know what the intended use  
24 would be if there was a resale. Right now, the intended us  
25 is to rebroadcast from a terrestrial antenna at power that

1 will bleed over and affect GPS. It is not the spectrum. It  
2 is the power in the spectrum. But I would defer.

3 Senator Duckworth: Thank you.

4 Anyone else?

5 General Raymond: I agree. It depends on how the  
6 spectrum would be used.

7 Senator Duckworth: But they could sell it.

8 General Raymond: Yes, they can sell it.

9 Senator Duckworth: And how does that affect your  
10 ability to weigh in on this in the future?

11 General Raymond: It would depend upon the proposal  
12 which is made, as my colleagues have said.

13 The more compelling concern, though, in that regard is  
14 that if this is approved for Ligado, then what is to stop  
15 its approval from other companies seeking to repurpose  
16 spectrum that they own that would be in these satellite  
17 communications bands, which are reserved, as we have said,  
18 so that all of the weak signals are grouped together. If  
19 Ligado is permitted to do this, why should another company  
20 be denied?

21 Senator Duckworth: Thank you.

22 Finally, Admiral Allen, DOD has publicly stated that an  
23 assessment of 80 GPS receivers conducted by nine departments  
24 and agencies concluded that Ligado's proposal would, indeed,  
25 cause harmful interference to military and commercial GPS

1 users.

2 How do you determine an acceptable level of risk for  
3 the commercial expansion of spectrum bands adjacent to the  
4 GPS spectrum used for military operations, emergency  
5 services, and by commercial users? And in your assessment,  
6 is that level acceptable in the Ligado case? And I guess  
7 this goes back to the power issue that you were talking  
8 about.

9 Mr. Allen: Again, I am not going to try and get  
10 technical here. There is a tension between the acceptable  
11 power level and trying to protect the spectrum. Each  
12 individual receiver will react differently based on the  
13 power that is being transmitted. The position Ligado is  
14 taking is let us see what the power transmission does and  
15 how we might mitigate that. The presumption of the PNT  
16 EXCOM and the folks who have been involved in this is we  
17 need to protect the spectrum, not an individual receiver.  
18 And that is the dynamic that has to be resolved.

19 Senator Duckworth: Thank you.

20 Mr. Allen: I would ask for comment.

21 Senator Duckworth: Thank you.

22 I yield back, Mr. Chairman.

23 Chairman Inhofe: Thank you, Senator Duckworth.

24 This does conclude our questions from those who are  
25 here. We have a second round, so we will make time for

1 Senator Blumenthal when he gets here. I thought we would go  
2 ahead and start a second round while we are waiting for  
3 Senator Blumenthal.

4 The question I was going to ask you has already been  
5 adequately answered, but I do have two questions that have  
6 come from the Ligado spokespeople that I just would like to  
7 throw out maybe to you, Director Deasy.

8 The first would be they state that the NTIA submission  
9 relies on irrelevant and misleading data to support their  
10 claims. Could you respond to that?

11 Mr. Deasy: So for them to make that claim would  
12 suggest that the process that has been used for a very long  
13 time on evaluating all repurposing requests is at fault.  
14 And simply put, it is not. It is the process that has  
15 worked. It is the process we have used for years in  
16 repurposing. So I am not sure why all of a sudden now the  
17 process that has served the agencies well, FCC well, and  
18 NTIA well, would suddenly now be in question.

19 Chairman Inhofe: All right.

20 The other question that has come from the other side  
21 with some frequency is they state that the FCC order does  
22 not impact DOD or federal spectrum. Would you agree with  
23 that? This is what they have stated.

24 Mr. Deasy: No, clearly disagree. I mean, by the fact  
25 that we are sitting here today and you have General Raymond

1 here representing the military --

2 Chairman Inhofe: I understand that.

3 Mr. Deasy: -- would clearly suggest that it definitely  
4 impacts the military operations.

5 Chairman Inhofe: That is good.

6 Senator Wicker, we have finished our first round, but  
7 you are here in time for the first round and the second  
8 round if you want.

9 Senator Wicker: Okay. Well, as you know, I have been  
10 one floor up chairing a Commerce Committee hearing, and I  
11 did not know if I would be able to make it or not. I  
12 appreciate the witnesses sticking with us this long.

13 Let me ask -- is it Mr. Deasy? Where are you? Did I  
14 pronounce that correctly?

15 Mr. Deasy: You did, sir.

16 Senator Wicker: There has been some discussion about a  
17 test that was conducted by the National Advanced Spectrum  
18 and Communications Test Network. I suppose, Mr. Chairman,  
19 we have had some discussion about that already today. I  
20 will try not to cover too much ground that has already been  
21 covered.

22 This is a network that is administered in part by the  
23 Department of Defense. Is that not correct, sir?

24 Mr. Deasy: When you say "administer," I assume you are  
25 meaning that we are users of that and have a responsibility

1 to coordinate our use of that with civilian. Yes.

2 Senator Wicker: Okay.

3 And apparently this NASCTN network has come up with  
4 some data that is at least to an extent supportive of the  
5 FCC's action. Is that fair to say?

6 Mr. Deasy: I particularly cannot comment on that. I  
7 am not sure if others here on the committee can.

8 Senator Wicker: Okay. Well, let me just ask the  
9 question for any member of the panel. It has been suggested  
10 that this National Advanced Spectrum and Communications Test  
11 Network, NASCTN -- it came up with a flawed conclusion. And  
12 so I just wondered. Does anyone on the panel suggest that  
13 this network is somehow compromised by the fact that the FCC  
14 is the one that requested the study and that Ligado paid for  
15 the study? Does anyone make that claim?

16 Mr. Deasy: I think I can go back and answer your  
17 earlier question.

18 Senator Wicker: Okay, all right.

19 Mr. Deasy: It was similar to a conversation earlier  
20 that we had.

21 So there was a request that the former CIO made for the  
22 study to be done in conjunction with Ligado. At the time  
23 that that study was done, Ligado's primacy was that they  
24 were still going to be primarily a satellite-based solution  
25 with only on an exception as an as-needed basis a



1 terrestrial based solution. So under those assumptions, the  
2 study said that if indeed you are going to communicate from  
3 satellite down to earth, we could see where we could work in  
4 acceptable solutions.

5 What changed was Ligado then changed the rules and said  
6 actually what we want to do is not be primarily from out of  
7 space satellite, but instead we want to move to a primary  
8 terrestrial based solution.

9 Senator Wicker: At what point was that?

10 Mr. Deasy: I, sir, would have to take that for the  
11 record and get back to you with what specific point that  
12 was. I do not happen to have that in front of me. But it  
13 was when that change occurred that that then changed the  
14 fact that we obviously no longer could say their solution  
15 was acceptable based on testing that had been done.

16 Senator Wicker: Okay.

17 Is it your opinion, sir, that there is such a thing as  
18 harmful interference on the one hand and an acceptable level  
19 of interference with GPS on the other hand, or is all  
20 interference unacceptable in your view?

21 Mr. Deasy: Simply put, all interference is  
22 unacceptable because you do not know at the point in time  
23 that the interference occurs, the nature of that receiver  
24 that is impacted. If the nature of that receiver impacted  
25 at the time of that interference is one that is used for

1 emergency services, for example, I think we would all say  
2 that is completely unacceptable that emergency services  
3 could not be always dealt with in a reliable manner. So the  
4 nature of your question is it depends on what it is we are  
5 talking about and the type of receiver.

6 Senator Wicker: Well, there is a term that is used by  
7 the experts called "noise" in this regard, and it has been  
8 likened to me if I am on an airplane and I am listening to a  
9 movie on my tablet, if I hear a buzzing from the fan or some  
10 other noise that I can hear but still listen to the movie,  
11 that that is an example of non-harmful interference. Am I  
12 getting anywhere? Does that make any sense to you? Is that  
13 an argument that carries any weight at all?

14 Mr. Deasy: I think the analogy that Dr. Griffin used  
15 earlier describing the 100 jets and the rustling leaves is  
16 getting at to what you are pointing out. Sir, did you want  
17 to cover that?

18 Dr. Griffin: I think the point being made is the level  
19 of the noise. So if the level of the noise is a fan  
20 overhead while you are trying to listen to a movie and the  
21 movie is comparable to or louder than the fan, yes, you can  
22 hear the fan but it is not going to ruin the movie for you.

23 Senator Wicker: Is there such an analogy in this  
24 subject?

25 Dr. Griffin: Yes, sir. And the analogy I gave earlier

1 while you were up chairing the Commerce Committee hearing --  
2 and I understand that -- is the levels we are talking about  
3 here is listening to GPS is quite literally like listening  
4 to the rustle of leaves through the noise of 100 jet engines  
5 at takeoff power. So in this case, the noise is enormously  
6 stronger, incomparably stronger than the signal we are  
7 trying to hear, and so the noise must be kept out of the  
8 band we are trying to protect, which is the navigation  
9 services band.

10 Senator Wicker: Well, if it is that level of  
11 intensity, I would agree.

12 Let me ask you. If these issues could be resolved  
13 between the FCC and DOD to your satisfaction, is there  
14 something to be said for our economy, for our society in  
15 having the use of this L-band of spectrum for low power 5G  
16 network, or are we talking about something that basically  
17 would be of no service to the public?

18 Dr. Griffin: Well, sir, all spectrum is useful.

19 Senator Wicker: So we can resolve this in a way that  
20 would be sufficient to you, that would be satisfactory to  
21 you --

22 Chairman Inhofe: Senator Wicker, I am going to  
23 interrupt for a moment because we have one member who has  
24 not had his first turn.

25 Senator Wicker: Okay. I am sorry. I thought I was

1 the last show.

2 Chairman Inhofe: We will get back to you.

3 Senator Wicker: That concludes my questions, Mr.  
4 Chairman, and I appreciate the indulgence of the chair.

5 Chairman Inhofe: Thank you, Senator Wicker.

6 Senator Blumenthal?

7 Senator Blumenthal: Thanks so much, Mr. Chairman. I  
8 apologize for my absence, but I was at the same committee  
9 hearing that our colleague was chairing.

10 And I have just a few questions, and I think I can  
11 probably lay claim to the perhaps most layman-esque, I think  
12 is maybe the most charitable way to characterize them.

13 But I am thinking as a member of the Commerce Committee  
14 where we have just been having a hearing, and normally the  
15 FCC is considering consumer issues. And so to come here and  
16 find that the FCC has approved a license for a system that  
17 you regard as a grave national security threat leads me to  
18 wonder, well, the Russians and the Chinese do not need FCC  
19 licenses. Do they? So is this discussion not a sign that  
20 our GPS system is hugely vulnerable to malign interference  
21 if something as obvious as the Ligado application approved  
22 by the FCC poses this grave danger? Are there not other  
23 dangers?

24 General Raymond: If you do not mind, I will jump in on  
25 this one.

1 I think there is a full spectrum of threats to space  
2 capabilities, everything from low-end reversible jamming in  
3 this case all the way up to high-end direct ascent ASATs.  
4 And as the U.S. Space Command Commander responsible with the  
5 UCP mission of protecting and defending those, we are  
6 concerned about all those.

7 And as I mentioned earlier -- and I would be happy to  
8 take this offline and come talk to you in another setting --  
9 we have tactics, techniques, and procedures that we use to  
10 be able to mitigate the risk and to fight through this in  
11 certain conditions. And I would love the opportunity to  
12 share that with you.

13 Senator Blumenthal: Well, I would welcome that  
14 opportunity. Thank you, General. Because I will tell you  
15 just as kind of the layman here I am wondering how the FCC  
16 can open this grave national security threat, and yet the  
17 Chinese and the Russians have access to the same kind of  
18 technology and they do not need anybody's permission to  
19 interfere.

20 Let me go to the next question. Why are you here?  
21 What do you want? I know that others on the panel have  
22 asked General Raymond and others. Senator Shaheen asked the  
23 question. Let me just put it very bluntly, what do you want  
24 us to do? I understand the FCC can reconsider its position.  
25 I will tell you from my many years of experience with the

1 FCC, that kind of reversal would be highly unusual. But  
2 anyway, we cannot petition for reconsideration. So maybe  
3 you can tell us what you would like us to do and why.  
4 General Allen?

5 Mr. Allen: Just repeating what I said earlier,  
6 recognizing this is not the committee of original  
7 jurisdiction, it would be a referral to them to consider  
8 appropriate action.

9 Senator Blumenthal: A referral to the --

10 Mr. Allen: Commerce.

11 Senator Blumenthal: To the Commerce Committee. I am  
12 on the Commerce Committee. You have the chairman sitting  
13 here. I do not know that you need a referral. We are both  
14 hearing you. But there would have to be legislation. Is  
15 that what you are saying?

16 Mr. Allen: Again, I am with you as far as being a  
17 layman on some of these things. It occurs to me that it is  
18 either a reconsideration, a court action, or legislation.

19 Senator Blumenthal: So you are not asking that we have  
20 an amendment in the NDAA.

21 Mr. Allen: Oh, no. I am just raising the  
22 possibilities. That is all, sir.

23 Senator Blumenthal: Of an amendment in the NDAA or  
24 something in the Commerce --

25 Mr. Allen: I am not here to represent the Department

1 of Defense. I am here to represent the civil --

2 Senator Blumenthal: I understand.

3 By the way, thank you for your service, your wonderful  
4 service in the Coast Guard and all of your service.

5 But I do not know, Mr. Chairman. I am kind of at a  
6 loss, assuming that we are alarmed and outraged, where do we  
7 go from here. An amendment in the NDAA?

8 Chairman Inhofe: I can answer your question. Since  
9 you mentioned my name, it is perfectly appropriate to do so.

10 You talked about something being unprecedented in terms  
11 of the FCC, and that may be true. But also unprecedented is  
12 a decision that was made, brought to the FCC by Ligado in a  
13 form that was immediately objected to by everyone --  
14 everyone, without one exception -- coming to the military,  
15 to DOD, and we are addressing those who are responsible for  
16 this. All of them objected in a very strong way. We have a  
17 letter with 19 Senators' signatures that objected the same  
18 way after they had heard the evidence. This thing -- and  
19 this is unprecedented too.

20 The decision that was made by the FCC was made on a  
21 Sunday night. I went back and checked. I have never found  
22 a case at least in the history that we could find of the  
23 FCC, number one, that has been done on a weekend. It has  
24 never been done on the weekend before. And number two, that  
25 was done without any public participation or knowledge that

1 it was being made. To be specific, I took the initiative to  
2 find out why to make sure that no decision would be made  
3 until we got back into session. On a Thursday, there was a  
4 letter that came from the group that represents all of the  
5 defense industry a week before and the weekend before all  
6 this happened. And yet, they went ahead and did that. That  
7 is unprecedented. And I talked to the administrator on that  
8 Monday after it happened and pointed this out to him.

9 So in answer to your question, what I would want to do  
10 from what I have heard -- and I have been in this issue for  
11 quite a while and certainly for all the time that Ligado  
12 since 2015 became involved because of their purchase of --

13 Senator Blumenthal: LightSquared?

14 Chairman Inhofe: Yes. That we wanted to get this  
15 thing reversed. And I am absolutely convinced that we do.

16 So they came, after they had been invited by this  
17 committee, to come and review the decision that was made and  
18 the comments by not just -- this is interesting -- not just  
19 DOD but also the private sector, airlines and others coming  
20 forth. I covered this in some of my opening statements.  
21 But that is the genesis of the presence of these witnesses.

22 Senator Blumenthal: Well, I appreciate that, Mr.  
23 Chairman. And I do not want to prolong the hearing. But I  
24 look forward to talking to you about the potential remedies  
25 and how we square them with the license that has already



1       been issued by the FCC. But I do understand and appreciate  
2       the national security difficulties that have been raised  
3       here, and I think that a bipartisan approach here is well  
4       merited. Thank you for having this hearing.

5           Chairman Inhofe: This has been bipartisan I want you  
6       to know. You were not here but it has been, equal numbers  
7       on each side.

8           Senator Blumenthal: I followed it from afar, and I  
9       actually heard your opening statement. So I thank you.

10          Chairman Inhofe: Very good. Thank you.

11          Now, we did announce at the very beginning that we  
12       would have a second round of questions, which we will do and  
13       we will get to you again, Senator Wicker. But I have  
14       already had my second round of questions. Senator Reed?

15          Senator Reed: Well, thank you, Mr. Chairman.

16          Again, I think we have reached a point where we have  
17       explored practically everything, but just a point that I  
18       keep coming back to is that had the FCC followed what is the  
19       norm, which would be to publish a proposed rulemaking under  
20       the Administrative Procedure Act, that would have given  
21       every stakeholder the opportunity to comment on the  
22       mitigation proposals, question the science, indeed suggest  
23       by doing some testing that their scientific conclusions are  
24       wrong. Is that accurate, Mr. Deasy?

25          Mr. Deasy: Yes, sir. That is accurate. The process

1 is clearly one of give and take. The public has a chance to  
2 weigh in. Agencies can weigh in. I think it is really  
3 important. Though we keep talking about the DOD here, this  
4 is all agencies that are sharing this view just not the DOD.

5 As I have studied this and have asked the question, how  
6 does this typically work -- so you have what I said earlier.  
7 You have the request that FCC makes over to NTIA that  
8 involves federal agencies' equities. In this case,  
9 obviously Ligado clearly does. And then we have a chance to  
10 work with the various agencies to express our views. We  
11 have the science that we bring into it. And then there is  
12 typically a give-and-take period back and forth between FCC  
13 and the various agencies that are impacted by this to try to  
14 reach a conclusion. That give-and-take period has not taken  
15 place.

16 Senator Reed: And another way to look at this. You  
17 had some clues that something was happening at the FCC. I  
18 presume that. But you did not have, before you even in sort  
19 of an informal information-only sort of -- the substance of  
20 the proposal and the timing of the decision. That was a  
21 complete surprise to you -- not just you. When I speak of  
22 "you," I speak of every federal agency. Is that accurate?

23 Mr. Deasy: Yes. As I stated, I had been tracking this  
24 literally every week inside of my own organization who has  
25 been in constant communications with both the FCC and the

1 NTIA. And the last what I had heard was it was still under  
2 review but no final decision had taken place until it became  
3 announced publicly.

4 Senator Reed: The final decision was taking place.

5 And again, as you point out very appropriately -- this  
6 is DOD-focused obviously, but the impacts go to the banking  
7 community, go to FITBIT users -- I do not want to go too far  
8 beyond my technological base, which is very narrow. But we  
9 are talking about most citizens are so totally dependent  
10 upon GPS that they do not even think about it any longer.  
11 The directions from the cell phone as they are driving to  
12 someplace they have not been before, all that is GPS-  
13 related. And that could be affected.

14 Mr. Deasy: Yes. It is interesting. I just happened  
15 to write down just a few of the industries just to give you  
16 a breadth, that are impacted by this: aviation, safety and  
17 operational problems, satellite communications providers,  
18 defense providers, FedEx, UPS, Iridium, weather information  
19 companies, ability to use helicopters, low/high altitude  
20 aircraft, UAS devices. So the list goes on. And I know  
21 that the week of that decision when it was released was the  
22 same week that a very large number of companies inside the  
23 transportation and aerospace industry had written their  
24 objection as well. But yes, to your very point, it is very  
25 broad number of industries that are impacted by this.

1           Senator Reed: Just a final point of clarification too.  
2           As I understand it -- again, I will be happily corrected --  
3           the real impact will come where they place their towers,  
4           which the plan would be principally the United States unless  
5           they go overseas. This will not have an affect on areas  
6           outside the United States basically. Is that fair?

7           Mr. Deasy: Yes. The proposal was to repurpose CONUS  
8           or inside of the United States.

9           Senator Reed: Right. So for the specific warfighter  
10          effects, which would be located in the United States, but  
11          this is where we train. If systems do not work here, then  
12          what is the sense of deploying them anyplace else? Is that  
13          a fair statement, General?

14          General Raymond: Yes, sir.

15          And I would add one other thing. We have talked at  
16          length about the spectrum and the quiet part of that  
17          spectrum. This is a globally recognized standard. I mean,  
18          across the globe, countries do not put ground-based emitters  
19          in that part of the spectrum. So the other thing we need to  
20          be concerned about is the precedent-setting that this might  
21          have, and if other countries then go do that, it could have  
22          more global impacts.

23          Senator Reed: Thank you very much.

24          Thank you, Mr. Chairman.

25          Senator Blumenthal: Mr. Chairman, just one more

1 question if I may?

2 Chairman Inhofe: Well, yes. I know that for a second  
3 round --

4 Senator Blumenthal: Oh, I am sorry. I apologize.

5 Chairman Inhofe: -- Senator King has made a request to  
6 be heard.

7 Senator Blumenthal: I apologize.

8 Chairman Inhofe: And he is here.

9 Senator King: Thank you, Mr. Chairman.

10 Will autonomous vehicles -- is GPS what tells  
11 autonomous vehicles where they are and who they are passing  
12 and where they are on the road? Is that a GPS function?

13 Dr. Griffin: Yes.

14 Senator King: So a minor perturbation in GPS could have  
15 catastrophic consequences for an autonomous vehicle. Is  
16 that correct?

17 Dr. Griffin: As autonomous vehicles are developed,  
18 yes. They would want to be completely certain that GPS was  
19 not being interfered with.

20 Senator King: It would not take much of an  
21 interference to go from one lane to the other at a bad  
22 moment.

23 Dr. Griffin: It does not.

24 Senator King: Additional question about the testing.  
25 The testing showed actual interference. In other words,

1 this is not the precautionary principle at work. It is not  
2 we are worried about interference. We found interference.  
3 Is that correct?

4 Dr. Griffin: The Department of Transportation testing  
5 to which I referred examined the level of power that would  
6 actually cause receivers to lose lock. So yes, sir. That  
7 is interference. It is not hypothetical. It is not  
8 propositional. It is they actually lost lock.

9 Senator King: And they lost lock at 9.8 dBW.

10 Dr. Griffin: Or no, much lower levels. The only  
11 receivers tested which did not lose lock were those that go  
12 in cell phones for a couple of reasons which are interesting  
13 to note. First of all, the cell phone transmitter  
14 frequencies that are -- the cell phones themselves are  
15 located in different bands. But the filters in cell phone  
16 receivers are very narrow-banded for what they want to do.  
17 So it is a special design that does not exist in most of the  
18 rest of the installed base. You have asked a very good  
19 question there.

20 The certified aviation receivers that one buys, when I  
21 was talking earlier, the \$10,000 receiver that you buy for  
22 your certified airplane -- those were just barely capable of  
23 dealing with the 10 watts. For all the other classes of  
24 receivers, the common, garden variety receivers that were  
25 being discussed a moment ago that are in your automobile,

1 those die at factors of 100 or more below the 10 watt level.

2 Senator King: As I read the order, did the receiver  
3 manufacturers not end up expressing that they were all right  
4 with this decision? Did Ligado not effectively make  
5 concessions that they ended up getting a sign-off from those  
6 companies?

7 Dr. Griffin: Ligado says that they got that sign-off,  
8 but when you talk to the companies, the companies are on the  
9 list of those that Dana Deasy was just providing that have  
10 objected to this order. So none of us, of course, have been  
11 in the deliberations between these various companies and  
12 Ligado, but I think it says something when they have  
13 together and separately objected to this decision.

14 Senator King: Thank you.

15 Mr. Chairman, I suspect because this is an adjudication  
16 and not a rulemaking that the Congressional Review Act would  
17 not apply, but I do not know the answer to that.

18 Chairman Inhofe: I have heard suggestions that it  
19 might and it might not, and I do not have an answer to that.

20 Senator King: I assume somebody has appealed, has  
21 requested reconsideration before the commission. Is that  
22 true?

23 Mr. Deasy: Yes, that is what we are currently  
24 discussing with NTIA. They are the ones that would have to  
25 issue the appeal, and there is a date that that has to occur

1 by. And that is a current conversation we are in with them  
2 is that process and what is it that they will need to put  
3 that appeal into effect.

4 Senator King: Thank you.

5 Thank you, Mr. Chairman.

6 Chairman Inhofe: Let me suggest where I think we are  
7 right now. Senator Blackburn has not been heard. Senator  
8 Blackburn, we have all been through the first round and we  
9 are on the second round now. Is that all right if she goes  
10 ahead? Why do you not go ahead on your first round?

11 Senator Blackburn: Yes. Thank you, Mr. Chairman. I  
12 had to go preside.

13 And I was disappointed to have to leave the hearing  
14 because this is something that I have followed. The  
15 LightSquared/Ligado issue is something that I followed since  
16 I was in the House. And I do think it is a decision that  
17 the FCC lingered with for a longer time than we had  
18 expected, and we may not all agree with where they arrived  
19 at the decision.

20 And I really wish, Mr. Chairman, we had somebody from  
21 them here that would provide us a little bit of insight into  
22 this. LightSquared started on this years ago. So this is  
23 not a new issue, and it was an issue that I think they  
24 almost fought their way to a resolution on it. And I do  
25 wish we had heard from the FCC today.



1           I think there are a couple of things that are  
2           significant as we look at this issue. As we had the NDAA  
3           conference committee last year and as I handled and worked  
4           with Chairman Wicker on the section 214 language, we looked  
5           at how we move forward. I think we would all agree or I  
6           would certainly agree -- you all -- General Raymond may  
7           disagree with me -- I do not think that DOD needs more  
8           spectrum. I will tell you that. I think you have plenty of  
9           spectrum. Indeed, I think that you need to give some of  
10          that back for commercial entities.

11          And I think we need a reconsideration of how you work  
12          with commercial entities as we talk about how you develop  
13          uses for 21st century approaches for 5G, for supercomputing,  
14          for artificial intelligence. As we talk about the Space  
15          Force and the utilizations that are going to be there, it is  
16          going to require an enormous amount of partnership. And it  
17          is going to require brain power that we are going to need to  
18          bring in from the outside to complement what we have. So we  
19          have to be very attentive to this.

20          With that said and as we look at the transition of what  
21          was LightSquared and all their baggage and issues that they  
22          brought with them into Ligado, my question -- and, Mr.  
23          Deasy, I guess it is best coming to you. Do you trust  
24          Ligado? Do you trust them to keep their word? Do you trust  
25          that they are not going to interfere with GPS? Do you trust

1 that they are going to fly below your system and not be a  
2 source of interference?

3 Mr. Deasy: So trust in this case all comes down to the  
4 FCC order and the mitigations.

5 Senator Blackburn: Do you yourself? Do you at DOD  
6 trust that Ligado is going to be true to what they have told  
7 the FCC?

8 Mr. Deasy: I have seen no evidence that they will be  
9 able to achieve what is in the FCC order.

10 Senator Blackburn: So you look at the legacy of  
11 baggage that they have had throughout their history and feel  
12 that it will affect what we have to have work. We do not  
13 have room for error when we talk about 21st combat systems.  
14 Would you agree with that?

15 Mr. Deasy: I would.

16 Senator Blackburn: And making certain that this works  
17 appropriately is going to be an imperative. It is not an  
18 option. It is an imperative. Would you agree with that?

19 Mr. Deasy: I would.

20 Senator Blackburn: Thank you. I yield my time.

21 Chairman Inhofe: All right. Thank you, Senator  
22 Blackburn.

23 Let me just make a comment here. It has come up, you  
24 know, why were not other people invited? It is quite  
25 appropriate. First of all, the FCC is not in our

1 jurisdiction, but what is in our jurisdiction, something  
2 that is called to our attention that is a real threat to our  
3 nation. I mean, that is what we do here. So it is very  
4 appropriate to have people who are experts analyze the  
5 threat and inform us so that we can get answers.

6 Now, the proper jurisdiction is the committee that is  
7 chaired by Senator Wicker, and he may decide to have a  
8 hearing and that would be a different type of hearing  
9 altogether. We are here analyzing the threat to our  
10 country, and that is what I think we should be doing.

11 Now, we have gone through now -- and I know that there  
12 has been a request from Senator Blumenthal to be heard and  
13 you are recognized.

14 Senator Blumenthal: Thank you, Mr. Chairman.

15 Just very briefly. I noticed looking at the parties on  
16 one side and the other, there are private parties who oppose  
17 this license and the decision by the FCC. And from what I  
18 have heard from my colleagues, there are serious questions  
19 about the regulatory propriety. In fact, listening to the  
20 chairman, the procedural legality of how this license was  
21 granted, and I sort of had a flashback to my days as a State  
22 attorney general when I actually did some agency challenges.  
23 One went all the way to the United States Supreme Court, and  
24 I recall well arguing that this rule was adopted in the dead  
25 of night without the proper comment period.

1           And I guess my question is, is it not likely that this  
2           action by the FCC will be challenged in the federal courts  
3           based on possible procedural questions if it was adopted  
4           with all of the kind of irregularity that has been cited  
5           here? And I can tell you from my own experience when there  
6           are challenges in the courts, they take years sometimes to  
7           resolve. So are we here somewhat prematurely?

8           Mr. Deasy: I would say this. I cannot speculate what  
9           industry will do in terms of whether there will be lawsuits  
10          pursued out of this. I can tell you that there is a process  
11          that I understand we need to follow in objecting to this,  
12          which is done through the NTIA. I cannot speak personally.  
13          I am not an expert enough to know the legal approaches that  
14          would need to be taken here outside of our approach to go  
15          back and get this appealed through the NTIA, sir.

16          Senator Blumenthal: Are you aware of any groups or  
17          companies? I mean, I presume they would be aggrieved. They  
18          would suffer a harm. They would have a legal right to be  
19          heard. And since they were not given a comment period or  
20          any other previous right, it seems to me they would have a  
21          pretty colorable case in court. So I wonder whether you  
22          have heard about any effort in that regard.

23          Mr. Deasy: I have only heard that there are companies  
24          that also provide other forms of satellite communications  
25          that come up against the spectrum here that we are talking

1 about that have reached out and expressed concern that if  
2 this request goes through, that it will cause harm to them.

3 Senator Blumenthal: Thank you.

4 Thanks, Mr. Chairman.

5 Chairman Inhofe: Others? Senator Wicker?

6 Senator Wicker?

7 Senator Wicker: Thank you, Mr. Chairman.

8 Let me just say I think Senator Blumenthal and Senator  
9 King and Senator Blackburn have at least raised a number of  
10 issues that need a further look.

11 I have information here that this has been pending for  
12 some years at the FCC and that in April of 2016, the FCC  
13 asked federal agencies with concerns about the proposal to  
14 submit specific technical information to support those  
15 concerns and that a draft order was provided to all  
16 concerned by the FCC in mid-October of last year. So we  
17 need to find out if that is a fact.

18 We need to look at this guard band, 23-megahertz guard  
19 band between the proposed Ligado band and the GPS band, and  
20 see if that is helpful, if it solves a problem. We need to  
21 look at the fact that Ligado reduced its power levels by  
22 over 99 percent to get to this stage of the game. And  
23 Senator King is right. I believe that some folks have  
24 signed off on this. My information is NovAtel, TopCon,  
25 Leica Geosystems, Hexagon, Deere, Garmin, and Trimble have

1 notified the FCC that they did not oppose the granting of  
2 Ligado's application to modify its license.

3 I think this panel consists entirely of Americans of  
4 good will. I have to believe the unanimous decision of the  
5 FCC was arrived at by Americans of good will. And to me  
6 this has been a very valuable 3 hours, Mr. Chairman, but I  
7 would agree to the extent that other members have said that  
8 there are some things we still need to get to. And unlike  
9 Senator Blackburn, who was involved heavily in this in the  
10 House, this is a matter of fairly recent -- that has  
11 recently come to me. I do not recall having wrestled with  
12 this in the past.

13 So I would just make those observations. If anybody on  
14 the panel wants to respond to the statements that I have  
15 made, I would be happy to hear that. But I would just make  
16 that observation, Mr. Chairman.

17 Chairman Inhofe: Okay. There has been an invitation  
18 for comments from the panel. Let me make a couple comments  
19 first.

20 Senator Blumenthal, when I was making my comments, I  
21 had never looked to see what rules and laws the FCC operates  
22 under. I was talking about past history and talking about  
23 what is normally appropriate. When an organization such as  
24 the National Defense Industrial Association with 1,700  
25 businesses, 70,000 individual members, and they have strong

1 opposition to the proposal, along with some 71 companies,  
2 and then all of the groups -- we have a long list. I do not  
3 have it in front of me. I was looking for it -- of all the  
4 airlines and everybody else who is objecting to this, with  
5 that type of objection, it seemed to me, as the chairman of  
6 this committee and as just an individual, that the FCC was  
7 adequately warned of this opposition, this strong opposition  
8 -- I have never seen such united opposition to any proposal  
9 -- that they would not go ahead and do something and  
10 particularly do it on a weekend. This has not happened  
11 before.

12 So I was thinking really of what is right and what is  
13 wrong, not what is legal and what would stand in court. To  
14 me that was just a no-brainer. It should not have happened.  
15 And I told that to the director of the FCC when I was  
16 surprised to find on a Monday morning that it had been done  
17 on the weekend.

18 Now, Senator Wicker, I have said several times this is  
19 not our jurisdiction. It is your jurisdiction in the  
20 Commerce Committee, and I think you have voiced a lot of  
21 things. This is not a hearing on this. This is in response  
22 to the threat that has been posed and become obvious to us.  
23 But obviously, if you want to hold a hearing on this, it  
24 would be certainly within your purview to do that.

25 Any other comments? You know, we could wear ourselves

1 out on this thing.

2 Senator Blumenthal: I would just comment, Mr.  
3 Chairman. I was not in any way questioning your version of  
4 what happened here. I was just thinking that it sounds like  
5 a court challenge waiting to happen, and I guess it is on us  
6 to try to ask some of these questions of the private  
7 parties. And that was the reason for my question.

8 Chairman Inhofe: That is very fair, very fair.

9 If nothing else, we are adjourned. I wanted to go  
10 ahead and get adjourned before somebody else came in.

11 [Laughter.]

12 Chairman Inhofe: But let me just say to you folks and  
13 make sure -- I ask unanimous consent it be on the record. I  
14 thank you very much, all four of you. You offered a level  
15 of expertise that I do not think many of us really  
16 understand. I know I do not.

17 But I do know that when you get so many people in  
18 opposition to something with the veracity of that  
19 opposition, it is something that does concern me. There is  
20 nothing more important going on than a threat to this  
21 country. You know, I have got 20 kids and grandkids that  
22 are going to be here a lot longer than I am that are equally  
23 concerned.

24 So thank you so much for the time that you have taken  
25 and thank you for being here.



[Whereupon, at 5:44 p.m., the hearing was adjourned.]

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25