



TECHNOLOGY AND DISABILITY POLICY HIGHLIGHTS - SEPTEMBER 2019

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Overview

In September, National Preparedness Month was celebrated, and many took the opportunity to inform citizens of the importance of being prepared in the event of a local or national emergency. For example, ReadyDC's campaign objective was to provide information that was both accessible and readily available. Their website contains information and resources on how to create emergency kits, communications plans, and how to remain informed about various types of emergencies. Also, the site has [preparedness information that is specific to the needs of people with disabilities](#). For example, persons with a speech disability are advised to plan how they will communicate with others if their assistive technology equipment is not working or not with them. The page also addresses preparedness for persons with vision disabilities, mobility disabilities, persons who need behavior support, and for those who have service animals.

In Wireless RERC news, we submitted reply comments to the Federal Communications Commission's (FCC) Further Notice of Proposed Rulemaking *Improving Video Relay Service and Direct Video Calling [CG Docket No. s 10-51 and 03-123]*. The Wireless RERC supported stakeholders' opposition to requiring a log-in for users of enterprise and public videophones. As asserted by the Consumer Groups, such a requirement runs counter to functional equivalency as defined by multiple pieces of legislation. While the VRS filing focused on technology access in public spaces, another effort was dedicated to improving access to smart home technology in our release of a video tutorial series for independent set-up of the Amazon Echo:

[Part 1 - **Out of the Box and Onto the Table**-A Step-By-Step Guide to Unboxing and Powering On your Amazon Echo for People with Vision Disabilities.](#)

[Part 2 - **Buttons at 12, 3, 6, and 9 O'clock**-A Tutorial on the Location and Operation of Buttons on the Amazon Echo for People with Vision Disabilities.](#)

[Part 3 - **Part 3: Synching your Echo to the Alexa App**-A Tutorial on how to Set Up your Echo for People with Vision Disabilities.](#)

This issue also includes news about 5G, spectrum reallocation, a novel brain-computer interface, smart cities, AI, a smart cane, Comcast, and more.

LEGISLATIVE ACTIVITIES

5G COULD BE DETRIMENTAL TO WEATHER FORECASTING

September 30, 2019 – Much of what is written about 5G anticipates how it will advance wireless connectivity and applications that can be revolutionary at the individual user, community, and national levels. However, House Representative Eddie Bernice Johnson (D-Tex.), who is also the chairwoman of the House Science, Space, and Technology Committee, has expressed concern about the impact of 5G on weather sensing and forecasting technologies. The FCC proposal to reallocate 1675-1680 MHz band of spectrum for commercial use “seeks to spur innovation and investment in new technologies [read 5G] without significantly affecting incumbent federal users that currently use this spectrum for important weather forecasting services.” However, the spectrum band sits next to the spectrum that the National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA), and the U.S. Department of Defense use to monitor weather and for other reasons. As such, they are concerned about the interference that could be caused by commercial activity in the adjacent bands. Specifically, cited is the potential loss of data that is used to sense the formation of storms and project their path, and proffered evidence that the FCC’s proposed emission limits do not create enough of a buffer.

Representative Johnson composed a letter to the FCC Chairman requesting a report on the technical analysis that the FCC has conducted or reviewed on out-of-band emissions limits. Restating that these spectrum bands pose a concern for potential interference with weather data collected by passive sensors in adjacent spectrum bands. This could cause a loss of forecast accuracy, and according to the U.S. Navy, would result in a “partial-to complete loss of remotely sensed water-vapor measurements.” The U.S. Navy, along with several other agencies, concurred that the FCC should tighten the out of band interference rules. In her letter, Representative Johnson asks the FCC to provide the scientific evidence that is guiding their current spectrum reallocation considerations by October 7, 2019 for the Committee to review at their October 28th meeting [Sources: The House Science, Space and Technology Committee; Andrew Freedman, Washington Post].

ADDITIONAL INFORMATION:

[Read Representative Johnson’s Letter](#)

<https://science.house.gov/imo/media/doc/9.30.19%20Letter%20to%20FCC%20re%20NOAA%20NASA%20Studies%201.pdf>

[Weather forecast accuracy is at risk from 5G wireless technology, key lawmaker warns FCC, seeking documents](#)

<https://www.washingtonpost.com/weather/2019/09/30/weather-forecast-accuracy-is-risk-g-wireless-technology-key-lawmaker-warns-fcc-seeking-documents/>

REGULATORY ACTIVITIES

THE INTRODUCTION OF INNOVATION ZONES FOR EXPERIMENTAL WIRELESS LICENSES

September 26, 2019 – In a Public Notice [**ET Docket 19-257**], the FCC’s Office of Engineering and Technology (OET) created Innovation Zones for Program Experimental Licenses in designated portions of New York City and Salt Lake City. The Public Notice identifies a small area in upper Manhattan in New York City, and about 4 square miles in St. Lake City, Utah, as the two pilot Innovation Zones. Innovation Zones, as defined by Platforms for Advanced Wireless Research (PAWR) program’s proposal, are zones that focus on enabling experimental exploration of robust new wireless devices, communication techniques, networks, systems, and services. The spectrum bands in which these experiments can operate are 698-763 MHz, 914.87-915.13 MHz, 1710-1780 MHz, 2110-2180 MHz, 2390-2483.5 MHz, 3300-3600 MHz, 3700-4200 MHz, 5650-5850 MHz, 5850-5925 MHz, 5925-7125 MHz. The aim of the Innovation Zones is to “provide opportunities for qualified licensees to test new advanced technologies and prototype networks – such as those that can support 5G technologies – outside a traditional small campus or laboratory setting.” [Sources: FCC and INCompliance]

ADDITIONAL INFORMATION:

[Public Notice \[**ET Docket 19-257**\]](#)

<https://docs.fcc.gov/public/attachments/DA-19-923A1.pdf>

[FCC Establishes Innovation Zones for Experimental Wireless Licenses](#)

<https://incompliancemag.com/fcc-establishes-innovation-zones-for-experimental-wireless-licenses/>

WIRELESS RERC UPDATES

THREE-PART VIDEO TUTORIAL SERIES ON THE AMAZON ECHO LAUNCHED ON THE WIRELESS RERC’S YOUTUBE CHANNEL!

New owners of Amazon’s series of Echo devices with vision disabilities now have a step-by-step video guide they can reference to set up their devices without sighted assistance. This new three-part series of videos was produced by the Wireless RERC’s consumer outreach team. The videos provide a thorough tutorial on the set-up and overall operation of the Amazon Echo.

- Part 1 – Guides the user through unboxing the Echo and powering it up.
- Part 2 - Educates the viewer on what the four top buttons do.
- Part 3 - Shows what to expect when synching the Alexa app and your new Echo.

While the videos are mainly geared towards users with vision disabilities, the videos also feature open captions and American Sign Language (ASL) interpretation to aid our viewers with hearing loss or use ASL as their primary form of communication. These videos were produced in response to data we

received from focus groups we conducted regarding smart home virtual intelligent assistants. Participants who are blind or have low-vision particularly pointed out their need for sighted assistance in the initial set-up of these smart home devices, like the Echo or Google Home. They wanted to be able to set up the device independently.

You can view each of the videos at the links provided below:

- [Part 1 - **Out of the Box and Onto the Table**-A Step-By-Step Guide to Unboxing and Powering On your Amazon Echo for People with Vision Disabilities.](https://youtu.be/6IzUPH6T3gk)
[<https://youtu.be/6IzUPH6T3gk>]
- [Part 2 - **Buttons at 12, 3, 6, and 9 O'clock**-A Tutorial on the Location and Operation of Buttons on the Amazon Echo for People with Vision Disabilities.](https://youtu.be/5UsbI6PvAcU)
[<https://youtu.be/5UsbI6PvAcU>]
- [Part 3 - **Part 3: Synching your Echo to the Alexa App**-A Tutorial on how to Set Up your Echo for People with Vision Disabilities.](https://youtu.be/NSdOoOoqQJo) [<https://youtu.be/NSdOoOoqQJo>]

A link to transcripts for all three of the videos can be found

here: <http://www.wirelessrerc.gatech.edu/scripts-accessible-out-box-and-set-experience-amazon-echo-people-vision-disabilities>.

We encourage you to subscribe to our YouTube channel, where we often upload videos related to the accessibility of consumer-focused wireless technology. Be sure to hit the Like button for the videos and leave a comment if you want. We read all your comments and will respond if you have a great new idea for a video we should do, or if you have a question related to the content of a video. Tell us how we're doing!

ADDITIONAL INFORMATION:

[Wireless RERC YouTube Channel](https://www.youtube.com/user/WirelessRERC)

<https://www.youtube.com/user/WirelessRERC/videos>

WIRELESS RERC ON THE RECORD – VRS ON PUBLIC AND ENTERPRISE PHONES

September 4, 2019 – The Wireless RERC submitted reply comments to the FCC's Further Notice of Proposed Rulemaking *Improving Video Relay Service and Direct Video Calling* [**CG Docket No. s 10-51 and 03-123**]. The Wireless RERC supported consumer and provider stakeholders' opposition to requiring a log-in for users of enterprise and public videophones. As asserted by the Consumer Groups, such a requirement runs counter to functional equivalency as defined by Section 255 of the Americans with Disabilities Act, the Telecommunications Act of 1996, and the Twenty-First Century Communications and Video Accessibility Act of 2010. To the Wireless RERC's knowledge, no person

without a disability in the workplace or public places such as a hospital or airport is required to log-in to use a business or public telephone.

Further, as stated by the Consumer Groups, “there are some VRS users whose cognitive abilities may not be sufficient to enter their VRS telephone number on demand, much less a PIN.¹” In support of this assertion, the Wireless RERC noted that approximately 2,835,949 non-institutionalized civilians are living with comorbid hearing and cognitive disabilities.² Cognitive domains impacted could include memory recall and memorizing ability. Also, the Wireless RERC agreed with and supported Convo’s assertion that “The best method to ensure that these public or enterprise devices are not misused remains what is already the current standard industry practice, VIs will disconnect a call when it is clear that the caller does not use or need ASL to telecommunicate.³” Not only does this practice relieve the consumer of burden, but it is also a less costly solution, in time and capital, compared to implementing a password or PIN safeguard.

ADDITIONAL INFORMATION:

[Read the Wireless RERC’s Reply Comments](#)

[https://ecfsapi.fcc.gov/file/1090478182582/Wireless%20RERC Reply%20Comments Improving%20VRS.pdf](https://ecfsapi.fcc.gov/file/1090478182582/Wireless%20RERC%20Reply%20Comments%20Improving%20VRS.pdf)

OTHER ITEMS OF INTEREST

NATIONAL EMERGENCY PREPAREDNESS AWARENESS

September 24, 2019 - In September, National Preparedness Month serves as an opportunity to bring awareness to emergency preparedness as each state, locality, and district prompts conversation around disaster readiness and informs citizens of the importance of being prepared. ReadyDC is the National Preparedness sponsor for the District of Columbia, and the campaign’s main objective was to provide information that is both accessible and readily available. Launched in 2016, the website, ready.dc.gov, was revamped with more current information that both individuals and business entities can utilize. It contains information and resources on how to create emergency kits, communications plans, as well as how to remain informed as emergency events unfold.

¹ Consumer Groups. (2019). Comments submitted in response to *Improving Video Relay Service and Direct Video Calling* [10-51; 03-123]. Washington, D.C., August 5, 2019. Available at <https://ecfsapi.fcc.gov/file/1080633036563/Consumer%20Groups%20VRS%20Structure%20FNPRM%20Comments.pdf>

² Calculations based on U.S. Census Bureau, 2017 American Community Survey, Public Use Microdata Sample. Based on a sample and subject to sampling variability. Durham, NH: University of New Hampshire, Institute on Disability.

³ Convo. (2019). Comments submitted in response to *Improving Video Relay Service and Direct Video Calling* [10-51; 03-123]. Washington, D.C., August 5, 2019. Available at <https://ecfsapi.fcc.gov/file/10805121727164/Convo%20Comments%202019%20FNPRM.pdf>

In addition to these features, the relaunch has preparedness information that is specific to the needs of people with disabilities. For example, people who are blind or have low vision are reminded to keep braille/text communication cards, if used, for 2-way communication. Persons with a speech disability are advised to plan how they will communicate with others if their assistive technology equipment is not working or not with them. For persons with mobility disabilities who use power wheelchairs, they are encouraged to keep records about the size and weight of their wheelchair, in addition to whether it is collapsible, in emergency kits. It is recommended for persons who need behavior support to keep handheld electronic devices preloaded with movies and games (and spare batteries/chargers) and to pack headphones to decrease auditory distractions. Finally, the [Ready.DC.Gov](https://www.readydc.gov/) website advises that those who have service animals to make plans for their service animal's health and safety whether sheltering in place or evacuating. In the case of evacuation, they are reminded to have identification, licenses, health/vaccination records, leash, harness, and a favorite toy. The website also contains preparedness and response information tailored to faith-based organizations, schools, and private businesses. ReadyDC is an example of how creating tailored information can help create a safer and more resilient community.

In other places around the country, such as Marshall County, emergency officials hosted talks with emergency preparedness tips such as having enough necessities that will last at least 72 hours in the event of a flood, blizzard, or any other storm. These emergency kits should include all-hazard weather radio, water, manual can opener, and any necessary medications. They also recommend that residents review their insurance policies for coverage. [Sources: ReadyDC; Hannah Goetz, 13 WOWK, WTRF.com]

ADDITIONAL INFORMATION:

[ReadyDC](https://www.readydc.gov/)

<https://ready.dc.gov/page/people-disabilities>

[Kanawha County takes part in National Preparedness Month](https://www.wowktv.com/news/kanawha-county-takes-part-in-national-preparedness-month/)

<https://www.wowktv.com/news/kanawha-county-takes-part-in-national-preparedness-month/>

[Emergency officials provide tips for National Preparedness Month](https://www.wtrf.com/community/emergency-officials-provide-safety-tips-for-national-preparedness-month/)

<https://www.wtrf.com/community/emergency-officials-provide-safety-tips-for-national-preparedness-month/>

BRAIN MONITORING SENSORS TO REPLACE EEGS FOR BRAIN-COMPUTER INTERFACE

September 24, 2019 - As the US military continues to invest in the technology of brain-powered machines, new technology is being developed that could replace the ones that have already been developed. SKINTRONICS is a system developed by a group of scientists from multiple academic institutions, including the Georgia Institute of Technology (Georgia Tech). Woon-Hong Yeo, a researcher at Georgia Tech, described the system as a "portable, flexible wearable system [that] can

control an electric wheelchair, minicar, and a software-presentation.” Traditionally, this type of brain-computer interface uses sensor-studded caps that need to be connected to multiple wires, that are then connected to other machines requiring a rather elaborate setup to work efficiently. It is a system that is unsuitable for use cases that involve daily tasks.

SKINTRONICS, however, is a newly designed system that would allow for a strip to be placed upon the upper neck area that collects electroencephalogram (EEG) data, supplanting the need for the cap. The brain signals captured would then be utilized by software to produce data that could be used to operate machinery or other computers. The team of research scientists developed this technology for those who have lost mobility so that they could more easily control their environments and navigate daily life. The U.S. military has contributed to this type of research, as well. For example, in 2015, the Defense Advanced Research Projects Agency revealed that a woman who had a chip surgically implanted was able to pilot a virtual F-35. Many advances such as this have progressed over the past several years, and although SKINTRONICS is still under development and testing, it aims to enable those with mobility disabilities to independently interface with technologies using less intrusive methods. [Source: Patrick Tucker, Nextgov; Mahmood et al. (2019). *Journal of Nature Machine Intelligence*]

ADDITIONAL INFORMATION:

[A New Joystick for the Brain-Controlled Vehicles of the Future](https://www.nextgov.com/emerging-tech/2019/09/new-joystick-brain-controlled-vehicles-future/160103/)

<https://www.nextgov.com/emerging-tech/2019/09/new-joystick-brain-controlled-vehicles-future/160103/>

[Fully portable and wireless universal brain-machine interfaces enabled by flexible scalp](https://www.nature.com/articles/s42256-019-0091-7.epdf?no_publisher_access=1&r3_referer=nature)

https://www.nature.com/articles/s42256-019-0091-7.epdf?no_publisher_access=1&r3_referer=nature

THE RISE OF SMART CITIES IS GLOBAL

September 23, 2019 - In cities around the world, new technologies are being developed that could revolutionize how people with vision disabilities navigate public and private spaces. It includes technology that would allow for recognizing people and places that would otherwise be inaccessible to them. With the use of artificial intelligence and smartphone devices, there are many cities that are already in the process of transitioning into what is known as a “smart city.” For example, in Poland, the city capital, Warsaw, launched a smart city project known as “Virtual Warsaw,” that aims to positively impact non-visual access to the city’s transportation system. By installing transmitters into the buildings within the city, the systems would then send information about the surrounding area to the user via Bluetooth. This information could include building entrances and bus stops, the distance between their last stop and their destination, and what is along the way.

Additionally, in 2018, Dubai began testing its smart city project with an iPhone app that would allow written information at metro stations to be converted into audio messages. These projects could augment mobility and orientation for persons with vision disabilities traveling through public spaces. However, these initiatives could be taken further by developing points of access that would have automated information that is more descriptive of what it is in the area. This type of technology is also being implemented in "smart buildings," bridging indoor and outdoor access. Smart cities, although still in its beginning stages, is appearing in many major cities around the world and are another example of how the evolution of technology can be used to facilitate access and inclusion. [Source: Drishty Sobnath and Ikram Ur Rehman, GCN]

ADDITIONAL INFORMATION:

[Smart cities could give the visually impaired a new outlook on urban life](#)

https://gcn.com/articles/2019/09/23/smart-cities-visually-impaired.aspx?s=gcnsciot_240919

SHOW AND TELL, AMAZON'S AI-POWERED ITEM IDENTIFICATION FEATURE

September 23, 2019 - With the advancements made in artificial intelligence (AI) technology, major companies are working to develop new features that are responsive to the experiences of those with disabilities. In late September, Amazon revealed a new feature, Show and Tell, on the 'Alexa' device that would allow customers who are blind or have low vision to have home goods identified. To access the feature, a verbal command is given, which will then prompt Alexa to send verbal and audio cues to place the item to be identified in front of the camera. Sarah Caplener, the head of Amazon Alexa's for Everyone team, emphasized that the idea of the Show and Tell feature came from collaborating with Amazon employees who are blind providing input at every step of development.

Show and Tell is just one of many different features that Amazon has added to its Alexa products as part of its accessibility initiative. Other major technology companies are also investing in accessibility. Google has launched three separate projects for people with atypical speech, deafness, and limited mobility. Microsoft has also released a navigation app that facilitates people who have visual disabilities in creating mental maps while traveling. These initiatives, and others like it, illustrate the importance of inclusive design and maximizing the potential of technology. Additionally, collaborating with users shows the importance of listening to and working with those who are directly affected so that the resultant product or feature is accessible to and usable by people with different types of disabilities. [Source: Kyle Wiggers, Venture Beat]

ADDITIONAL INFORMATION:

[Echo Show camera can identify items thanks to Alexa's Show and Tell](#)

<https://venturebeat.com/2019/09/23/echo-show-camera-can-identify-items-thanks-to-alexas-show-and-tell/>

GOOGLE BLOGS ABOUT WEWALK – A SMART CANE

September 11, 2019– The smart cane known as “WeWalk,” was developed by Kursat Ceylan, an engineer who is blind. Ceylan is also the founder of the Turkish non-profit organization, Young Guru Academy. The “smart cane” is a technologically enhanced white-cane that aids people with vision disabilities to independently and efficiently navigate their surroundings. It is complete with speakers, voice assistant, the Google search engine, as well as sensors that send alerts about ground and head level obstacles and intrusions. This technology is intended to enable more ease of navigation of public transportation and provide walking directions. It reportedly enables independent travel while mitigating the risks of injury due to low hanging signs, branches, and other obstacles. As a person who is blind, Ceylan believed that he best knew how to alleviate the problems he faced while traveling by himself and saw the smart cane as a technology that would improve people’s lives in a remarkable way. [Source: Joel Shor and Dotan Emanuel, Google AI Blog]

ADDITIONAL INFORMATION:

[Blind Engineer Invents A ‘Smart Cane’ That Uses Google Maps to Help Blind People Navigate](https://www.boredpanda.com/blind-engineer-invents-smart-cane-wewalk/)
<https://www.boredpanda.com/blind-engineer-invents-smart-cane-wewalk/>

COMCAST PROVIDES SERVICES TO CLOSE DIGITAL DIVIDE

September 10, 2019 – Comcast announced its partnership with the federal Internet Essentials program for the creation and delivery of digital literacy training programs specifically designed to address the needs of low-income people in the disability community. The Internet Essentials program provides low-income households with internet access and seeks to address three of the major barriers to broadband access: (1) a lack of digital literacy skills, lack of awareness of the relevance of the Internet to everyday life needs, and fear of the Internet; (2) the lack of a computer; and (3) the cost of internet service. In support of their collaborative efforts, Comcast hosted events across Washington, D.C. to raise awareness about the digital divide and to promote their projects. Throughout their promotional tour, Comcast held a digital literacy assembly at Walker Jones Elementary School and gave 50 sixth graders free laptops and six months of complimentary Internet Essentials Services. They continued providing these surprises throughout their tour at several other locations, including Cornerstone Schools in Ward 7 and Friends of Fort Dupont Ice Arena. [Source: Business Wire]

ADDITIONAL INFORMATION:

[Comcast Partners with the American Association of People with Disabilities to Help Close the Digital Divide](https://www.businesswire.com/news/home/20190910005251/en/Comcast-Partners-with-the-American-Association-of-People-with-Disabilities-to-Help-Close-the-Digital-Divide)
<https://www.businesswire.com/news/home/20190910005251/en/>

UPCOMING EVENTS

2019 GSMA MOBILE WORLD CONGRESS (MWC) AMERICAS

MWC Los Angeles 2019 will convene October 22-24, 2019, bringing together leading companies and influential experts from all sectors within the mobile technology industry to advance Intelligent Connectivity – a fusion of 5G, IoT, AI, and Big Data.

ADDITIONAL INFORMATION:

[2019 Mobile World Congress Americas](#)

<https://www.mwcamericas.com>

2019 ONLINE KT CONFERENCE: INNOVATIVE KT STRATEGIES THAT WORK!

The Center on Knowledge Translation for Disability & Rehabilitation Research (KTDRR) is hosting the 2019 Online KT Conference: Innovative KT Strategies that Work! The free, virtual conference takes place across three afternoons during one week: 1:00 pm to 5:00 pm ET each day on October 28, 30, and November 1, 2019. The conference is designed for grantees and other stakeholders of the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). The panelists will present on impactful topics including:

- Setting the stage for KT.
- Research synthesis and planning for impact.
- Innovative dissemination strategies and tools.

To register for the free 2019 Online KT Conference, visit

<https://www.surveygizmo.com/s3/5057953/Registration-KTDRR19>.

TECHNOLOGY AND DISABILITY POLICY HIGHLIGHTS, SEPTEMBER 2019

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The Technology and Disability Policy Highlights (TDPH) is a monthly newsletter that reports on national public policy events and tracks emerging issues of interest to individuals with disabilities, researchers, policymakers, industry, and advocacy professionals. The Wireless RERC is a research center that promotes universal access to wireless technologies and explores their innovative applications in addressing the needs, user experiences, and expectations of people with disabilities. For more information on the Wireless RERC, please visit our website at [\[http://www.wirelessrerc.org\]](http://www.wirelessrerc.org). For further information on items summarized in this report, or if you have items of interest that you would like included in future editions, please contact this edition's editors Salimah LaForce [salimah@cacp.gatech.edu] or Dara Bright [dara.bright@cacp.gatech.edu].

If you wish to update your email address, send an email to salimah@cacp.gatech.edu.

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