CITY COUNCIL
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TRANSCRIPT OF THE MINUTES

of the

COMMITTEE ON TECHNOLOGY IN GOVERNMENT

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September 29, 2008
Start: 10:01am
Recess: 1:20pm

HELD AT: Committee Room
City Hall

B E F O R E:
GALE A. BREWER
Chairperson

COUNCIL MEMBERS:
G. Oliver Koppell
Letitia James
James Sanders, Jr.
Bill de Blasio

A P P E A R A N C E S (CONTINUED)

Mary Landolfi
President
Local 802 Associated Musicians of Greater New York

Ira Mont
Third Vice President
Actors' Equity

Laurie Baskin
Director of Government affairs and Educational Programs
Theatre Communications Group

Heidi Mathis
Corporate Relations Manager
The Shubert Organization, Broadway League

Stuart Overby
Senior Director Global Spectrum Strategy
Motorola, Inc.

Marc Berejka
Senior Director, State Affairs and Public Policy
Microsoft

Thomas Hillgardner
Attorney
Association of Cable Access Producers

David Donovan
President
MSTV

Mark Brunner
Senior Director, Public and Industry Relations
Shure, Inc.

James Smith
Citizen Producer
Manhattan Neighborhood Network

A P P E A R A N C E S (CONTINUED)

Joshua Breitbart
Policy Director
People's Production House

Dana Spiegel
Executive Director
NYCwireless

Timothy Karr
Campaign Director
Free Press

Chris Keeley
Associate Director
Common Cause/New York

Gracey Stodder
Congresswoman Carolyn B. Maloney

John Weaver
President-CEO
Liberty Imaging, LLC

Michael Lewis
Founder
Wireless Harlem

Dharma Dailey
Director of Research
Ethos Group

CHAIRPERSON BREWER: Good morning. We're actually starting on time. My name is Gale Brewer and I chair the City Council Committee on Technology in Government. And we're here today to talk about a particular resolution, which we will go through in the PowerPoint presentation. I want to thank everyone for joining us here today. This is a Committee that has existed for the last seven years. We have a commitment to making sure that there is as much access as possible to whatever broadband exists. We've worked in schools and senior centers and we fought about spectrum. I think there's almost no topic we haven't discussed. So I really appreciate everyone being here today and your tremendous interest, so why don't we get started and then we'll hear from those who are going to testify? So this is on intro, a resolution, number 1613 that talks about the regulation and use of the unallocated portion of the radio spectrum also known as white spaces. I think if you're not as involved as people here today you wouldn't know what in the world we're talking about. But it has to do with the fact that when we go from rabbit ears, as some of us

call it, to using more sophisticated digital on some of our television sets, there will be these white spaces, which are unutilized radio wave frequencies of the electromagnetic spectrum between licensed TV channels that are used to keep one channel from bleeding into its neighbor. The Federal Communications Commission, also known as the FCC, has permitted the licensed use of white spaces for low power short-range broadcasts to groups, including broadcast networks and motion picture and television program producers. White spaces are currently utilized by numerous consumers, including sporting events, film and television productions, music productions, live theatre, certainly something that's very much a part of New York City, and houses of worship through the use of wireless microphones. The FCC issued a notice of proposed rule making, MPRM in May 2004 to allow wireless devices to use white spaces on an unlicensed basis. In October 2006, the FCC adopted a first report in order and further MPRM approving the use of fixed low power devices to operate on any channel that is not already being used by other authorized services.

The FCC also ruled that they will further study whether or not permitting low power personal portable devices, again something that people can't really even conceive of right now, to operate in the open spectrum will cause interference to other users. But again, this is all coming in the future and exciting. In response to the 2006 ruling, the FCC laboratory conducted a study to measure whether white space devices known as WSDs used spectrum sensing technology to detect the signals of other stations and its ability to interfere with TV reception, something that's on everyone's mind, and wireless microphone operations. Then in January 31st, 2007 the FCC's office of engineering and technology released a report that concluded that such devices could not reliably detect the presence of incumbent transmissions and is capable of causing interference to TV broadcasting and wireless microphones. The wireless microphones are used on Broadway. In January 2008, the FCC announced that it would begin a second phase of performance testing on these WSDs, which includes laboratory and field tests, tests is spelled wrong, that are

conducted openly for the public to view. Two field tests were conducted in August 2008, one at the FedEx Field in Landover, Maryland and at the Majestic Theatre in New York City. The FCC has not released these findings. Proponents of allowing portable wireless devices to access the Internet using unlicensed white spaces believe that the use of the unused spectrum will provide consumers with inexpensive high-speed Internet access, since signals can travel long distances and penetrate buildings. Proponents state that the availability of white spaces for portable devices will enhance local coverage and communications, spur new communication technologies and improve public safety and e-government services, something we've obviously talked about at this Committee. Proponents also believe that the WSDs, the devices that include interference reducing features are capable of detecting occupied frequency and avoiding interference to other channels. Opponents believe that the proposed wireless devices may impact wireless microphones and other technologies that have historically relied on these frequencies.

Wireless microphone operators and broadcast companies are worried that a proliferation of these devices operated by regular folks without any ability to coordinate their use will interfere with wireless microphones in local areas and clear television viewing. Many organizations feel that the FCC should not allow portable devices to use this area of the spectrum until the devices are proven to always detect other signals and avoid those frequencies. So you can see that there is a lot of discussion. I think that the bottom line is that we all want everything. And hopefully with some discussion here and in Washington, we will be successful. So I'd like to first call the first panel, which is Laurie Baskin, from the Performing Arts Alliance and Theatre Communities; Charlotte St. Martin from Broadway League, Martino; Ira Mont, who is from Actors' Equity. You should all come up to the table here. And Mary Landolfi, who is from local 802, which is the Musicians' Union. I'd like to thank Jeffrey Baker, who is Counsel to the Committee, on my left; and Colleen Pagter, who is the Policy Analyst, and Samuel Wong from my office. Also, I

think Lionel Francis is also here from the finance division. Welcome. We called four people. There's only three of you. Is that-- well, why don't we start with the three of you? Whoever would like to begin introduce yourself and please give your remarks.

MARY LANDOLFI: Thank you. Good morning. Before I begin I would like to thank the Chair, Councilwoman Brewer, and all the members of the Committee on Technology in Government for the opportunity to present testimony at this hearing. My name is Mary Landolfi, and I am the president of the American Federation of Musician's Local 802. I am here to address the serious issue of the FCC's testing of mobile Internet devices designed to operate in what is known as white spaces, the frequencies between television channels. We at local 802, and our parent organization, The American Federation of Musicians, believe this to be a very risky proposal that will have devastating effects on live concerts, Broadway productions, symphonic performances and any event where wireless microphones are used. These Internet devices will

operate on frequencies close to or even on top of those used by wireless microphones. This will create a very high chance of interference, thereby ruining the audience's experience. The economic effect of any reduction in audience enjoyment of live performance is potentially devastating. Broadway alone contributed over 5 billion dollars to New York City's economy during the 2006-2007 season. The sound engineers on each production work with broadcasters and others who use the white spaces for wireless microphones to ensure that all users operate on separate frequencies. The success of these vital steps requires, among other things, sufficient space between the frequencies in order to guarantee no interference. Permitting the use of white space devices before it is irrefutably proven that they can reliably detect when frequencies are occupied and that they will not interfere with incumbent wireless microphones puts Broadway's economic contribution to the New York economy at risk. Thus far, the Internet white space devices tested by the FCC have failed to reliably detect when white space frequencies are in use. Without reliable

detection these new devices will interfere with other incumbent microphones or broadcasters. Allowing untested mobile internet devices to operate on television white space frequencies, which will be used by non-professionals i.e. consumers who cannot be expected to coordinate frequencies with other users, will almost guarantee interference with other incumbent wireless microphone users and broadcasters. In some markets the white spaces often do not even exist. In New York City, Los Angeles, Los Vegas, Nashville and other cities with large entertainment and cultural markets, the so-called white spaces are being used by wireless microphones. In other words, there is no space for these new devices to operate. Beaconing technology, which white space device proponents claim is a suitable solution to the interference problem has yet to be tested and has never been made public by the manufacturers. We have no idea if this technology is possible or if it will work correctly. Furthermore, a great deal of professional concert halls and theatres are non-profit organizations that may not be able to

afford the beaconing technology, even if it does help with the interference problem. It should not be incumbent upon them to purchase this new technology when the FCC for the last 35 years has allowed professional theatres to operate on the television white spaces without a problem. For the record, the American Federation of Musicians is not opposed to new mobile Internet devices operating in the white spaces. We understand the benefit they might offer to the public. However, just as a responsible automobile manufacturer doesn't release a new car into the market until it has been rigorously tested in both lab and real world settings, we call on the FCC to prohibit the production, sale or use of these devices until it has done the same. The FCC must establish beyond all doubt in the lab and in the real world that these products will in no way jeopardize New York's audience experiences or pose any risk to our economy by interfering with incumbent wireless microphone use. Thank you.

CHAIRPERSON BREWER: Thank you very much. Go ahead, sir.

IRA MONT: Good morning Chairwoman

Brewer and members of the Technology in Government Committee. Thank you for holding this hearing on the regulation and use of unallocated portion of the radio spectrum known as white spaces. My name is Ira Mont and I am the Third Vice President of Actors' Equity Association, which represents more than 47,000 professional stage actors and stage managers nationwide. I am currently the production stage manager of my sixth Broadway musical, the new Mel Brooks musical, Young Frankenstein, which gives me firsthand experience on the use of the wireless microphones, headset communications and scenic elements that operate on these white spaces. For the last several decades, the theatrical community has relied on the use of wireless headsets allowing communications backstage that are indispensable to the integrity of the show, but more importantly to the safety of the actors and dozens of industry professionals who work backstage. In addition, wireless microphones are used by the actors so that the sound heard by the audience is clear, distinct and well balanced. Because of the limited space and the highly technical aspect of each production,

the choreography backstage is often more intricate than what is on stage. During each performance of Young Frankenstein I, and my stage management team, call several hundred cues. These cues are for lighting, elevators, scenery that can often weigh several tons that flies in or moves on or off stage, trapdoors opening and closing, smoke, fog and pyrotechnics, just to name a few. These cues also alert the actors to their entrances, whether it is to walk on to stage or fly in on apparatus from above the stage. The wireless microphone and communication systems are a highly complex process and they require frequent recalibration to the show's system before each performance in order to avoid interference with the many other uses of the white space spectrum, including our neighboring shows. Without these systems, theatrical venues from the 30 some odd Broadway theatres and dozens of others here in New York to the over 1,000 theatres across the country, small developing theatres, large regional theatres and arenas, they simply will not be able to operate and the results will likely be damaging for both the venues and the communities in which

they are located. These theatres, like Broadway, are often important economic engines for these cities and towns, and just like Broadway; these theatres help to support dozens of ancillary business, returning hard-earned dollars into the communities. Technological advances have allowed theatrical productions to become more inventive, incorporating elements of spectacle and wonder into the performances. However, these lavish Broadway musicals, which audiences across the nation have come to expect and enjoy, could be changed forever if the FCC allows white spaces to be used for devices that deliver high speed broadband internet to personal portable devices. The FCC testing has consistently shown these devices do not accurately detect occupied channels and could interfere with the wireless systems used in theatrical ventures. Actors Equity Association applauds the New York City Council's Committee on Technology in Government for its proposed resolution in which the Council urges the FCC to refrain from implementing the proposed regulatory amendments without ensuring such amendments will not have a negative impact on all incumbent

wireless users. Without safeguards that prove that the portable devices will not interfere with the white space usage and strongly worded protective amendments, the proposed regulatory amendments could devastate live theatre, as we know it. Thank you very much.

CHAIRPERSON BREWER: Thank you very much. Go ahead.

LAURIE BASKIN: Good morning. Dear Council Member Brewer and members of the City Council, thank you for holding this hearing on the white spaces, for providing leadership and trying to protect the performing arts here in New York City and for allowing me to appear before you to provide public testimony. I am Laurie Baskin, Director of Government and Educational Programs at Theatre Communications Group. TCG is a founding member of the Performing Arts Alliance, formerly called the American Arts Alliance. The Performing Arts Alliance members include the Association of Performing Arts Presenters, Dance USA, The League of American Orchestras, Opera America, Theatre Communications Group, Chorus America and the National Alliance for Musical Theatres. I am here

to testify on behalf of the entire Performing Arts Alliance and all of our members. I am here to stress the importance of maintaining interference free and affordable use of wireless microphone and related audio equipment currently being used by communities, performers and audiences. The Performing Arts Alliance is a national network of more than 4,000 members, comprising the professional non-profit performing arts and presenting fields. For 30 years the Performing Arts Alliance has been the premiere advocate for America's professional non-profit arts organizations, artists and their publics before the US Congress and key policymakers. Through legislative and grassroots action, the performing arts alliance advocates for national policies that recognize enhance and foster the contributions made by the performing arts to America. Professional wireless sound equipment is used to provide high quality audio to our audiences and to record and present these artistic performances to people all over the world through broadcast on cable, television, satellite and the Internet. Wireless microphones and related wireless audio

equipment are used extensively and play a critical role in the production of dance, music, opera, orchestra and theatre performances. Audiences would not hear the performers without wireless microphones and the recording of such productions provide an infinite opportunity to expand the audience and availability of these performances to individuals who are unable to attend live performances. Many performances require as many as 45 frequencies for each production. Wireless microphones and equipment are utilized to facilitate communication between backstage staff members and performers. Directors, managers, crewmembers and many others rely upon such equipment to communicate performance and lighting cues, staging movement and other vital directions. The use of wired audio equipment would not only be impractical, but would create an unsafe and dangerous work area for performers and staff. Wireless microphones and audio equipment provide the freedom to move safely and quickly through the stage environment while providing high quality and reliable audio transmissions. There is no practical or feasible alternative to the wireless

audio systems currently used by performing arts organizations. Without them the performing arts would be silent. We applaud the City Council's resolution urging the FCC to refrain from implementing proposed regulatory amendments that would allow portable devices to operate on the white space radio spectrum without ensuring that such amendments would not negatively impact the performing arts and all incumbent wireless microphone users. We have asked the Commission to craft rules, which would require that new portable devices intended to operate in this spectrum not be permitted until they are tested and verified that they will not disrupt wireless equipment. We have further requested that the Commission designate certain clean spectrum that can be used by our audio systems without the threat of interference from the new devices and to adopt appropriate protections. Without the high quality and interference free operation of wireless microphones, the audio quality of performing arts performances and recordings would be greatly diminished, impairing thousands of productions and reducing the availability and opportunity for

millions of Americans to enjoy these art forms. The performing arts sector is hopeful that whatever the technical solution, that it prevents interference and also acknowledges the sector's legitimate and continuing use within the spectrum. Performing arts organizations have used wireless technology in our performance spaces for at least 30 years. We have never fit into any of the license categories, and so we currently operate unlicensed. Yet the technology has long existed that allows our members to present high quality performances that millions of audience members across the country have come to expect and certainly deserve. It seems that the FCC simply hasn't caught up with the performing arts in terms of acknowledging optimal conditions for arts organizations to serve the public. Over the past year there have been two informal white space demonstrations held in New York City and organized by the Broadway League. Each demonstration was attended by an FCC commissioner who witnessed the kind of interference that could happen if new devices and the policies regulating those devices do not contain adequate safeguards. Further the

FCC held its final white space official field test at the Majestic Theatre, here in New York. We believe that because they have visited performing arts venues in New York and have held a final field test here that the FCC Commissioners recognize the importance of the performing arts to New York and the country, and they are interested in a solution that serves all parties. In addition, the non-profit performing arts sector cannot shoulder the financial burden of a transition alone. Our members operate under tight financial constraints and the purchase or upgrade of new equipment all at once would be impossible, even for our larger members. The Performing Arts Alliance respectfully asks the City Council to communicate to the FCC the importance of ensuring that any changes in the use of the broadcast spectrum will not disrupt dance, music, opera, orchestra and theatre performances enjoyed by millions of Americans. Absent tested and proven interference protection measures, especially the operation of personal portable devices within a performance space, could wreak havoc with the wireless microphone systems and audio equipment.

Not only would this disrupt the audience's enjoyment of the performance and impair the recording and broadcast of the performance, but it would also hinder the ability of stage crews to communicate effectively and the artists to perform safely. The FCC should continue its careful testing and craft policies that will ensure that change in the use of the broadcast spectrum will not interfere with the wireless microphone and audio equipment that is essential to brining live performances to millions. Thank you.

CHAIRPERSON BREWER: Thank you all very much. I think we all can say that we want to make sure that whatever is decided, we want to make sure that Broadway is first and foremost and any-- and the theatre in general, on anybody's list. So I appreciate your expertise that you have gained so quickly on this topic, and that you are here today to share it. We really appreciate that. I think that Heidi Mathis from the Shubert Organization wanted to also come up from the Broadway League. I know that you just got here. Why don't we ask questions and then you could bring your statement. Come on up. Yeah, come up

and join us. Well let me ask you just a couple of questions while she's coming up. One of them is this issue of the microphones and you don't want to-- I want you to be wireless. How does the microphone purchase work now? Because I don't like the word when they say you're unlicensed. It sounds like it's illegal; because you've actually been doing this for 30 years and you have amazing expertise and you coordinate and you-- so I just, I have three questions as part of that; one is, would you like to be licensed as part of this discussion? Does the way in which this is working where hopefully there will be absolutely room for Broadway and any other production to succeed; and how do you think that might work out if the FCC is doing it correctly? What would you like to see in terms of the optimum with the FCC? Those are my two questions.

LAURIE BASKIN: Honestly, I don't even know the answer to that because I'm not sure what the cost implications would be. We would like to be legitimate and to have further conversation about the best way to achieve that.

CHAIRPERSON BREWER: Okay. Anybody

else want to add to that conversation?

IRA MONT: I think that pretty much covers it. It's been so status quo for so many decades, the way the sound shops set up the systems, the cost would clearly be a factor that everyone would have to consider, but also the likely bureaucracy of changing the licensing, because of course frequencies are used by a show or an event of some kind and then that show is done and closes. And so then those frequencies are released by that show, they're not using it, and the next show coming in-- the constant turnaround by all of the different users would, even beyond cost, which is clearly preeminent in everybody's mind, just the ability to get the licensing that might be required in a timely fashion, it's pretty unlikely that it would happen the way that performing arts ventures have to happen.

CHAIRPERSON BREWER: And how did the Majestic Theatre demo go? Did it seem to go well? Was there information that was shared? Do you want to go ahead and start to testify?

HEIDI MATHIS: Yeah, sure.

CHAIRPERSON BREWER: Okay. Go ahead.

HEIDI MATHIS: Okay. I will go ahead and give the testimony--

CHAIRPERSON BREWER: [Interposing] Sure.

HEIDI MATHIS: And then answer your question. Good morning. I'm Heidi Mathis, the Corporate Relations Manager for the Shubert Organization here on behalf of the Broadway League, the national trade association of the commercial Broadway industry with over 600 members throughout North America. As you undoubtedly know, issues the FCC is deciding today will directly affect the future of Broadway and all live theatre, so we thank Council Member Brewer and the other distinguished members of this Committee for the opportunity to share our thoughts and concerns with you. There is no other assembly of theatres in the world as well respected for the quality of its productions as the Broadway community. Each year we host millions of tourists coming to New York from all over the world to experience Broadway and see the

lights of Times Square, which translates into millions spent on hotels, taxis, gifts, restaurants, and all other types of secondary spending. Broadway is essential to our economy. We are responsible for infusing New York City with over five billion dollars a year and creating the equivalent of nearly 45,000 jobs in the metropolitan area. As you may recall, the City's Comptroller estimated a $38,000,000 loss in local tax revenue during last year's 19-day stagehand strike, while other public reports suggested that overall spending in the city was down $17,000,000 per day during that period. Each year, touring Broadway visits nearly 250 North American cities, bringing the opportunity to experience the lives shows only Broadway can deliver to countless theatre fans who many never get the chance to visit New York. Our most recent studies suggest that including ancillary spending, touring performances contribute to over three billion dollars of spending nationwide each year. Approximately 12% of that money returns to New York, but the bulk of the spending supports the economies of the cities presenting touring

Broadway. No industry more so than live theatre utilizes and relies on wireless microphone technology in its daily operations. We have devoted the past three decades to building on the dynamic staging and vibrant performances afforded by the freedom of wireless microphones. Everyone is aware that actors wear wireless devices to run, dance and sing without the need for cumbersome microphone wire. But few realize that wireless systems are integral behind the scenes. Musicians, technicians, stagehands, stage managers, in fact nearly every show participant uses a wireless device and all of motorized stage equipment is operated wirelessly. Each night, productions like The Lion King, Wicket, Spamalot and Jersey Boys use up to 70 unique wireless channels to bring to life the performances that audiences expect and deserve. Managing Broadway's wireless operations is enormously complicated and our wireless systems may be gravely threatened by the introduction of proposed handheld devices, which would transmit on the bandwidth we occupy, but at a much higher power. With direct line of site a typical wireless signal on Broadway will

carry only 125 to 150 feet. Add obstructions like performers, patrons, set pieces and walls, many reinforced with steel to contain wireless waves, and a wireless signal may not carry more than 80 feet. In addition, our sound engineers constantly coordinate with other productions and scan the area for available bandwidth to reduce possible interference from local broadcasters. These new devices could effectively overpower our signals and cause our transmitters to cut out mid performance. Because we operate at extremely low power, unlike TV broadcasters, our productions do not fall within the FCC's category of licensed users. However, all of our wireless equipment is certified by the FCC as having been manufactured in accordance with Federal Broadcast Guidelines, and we do not operate on frequencies the FCC has cleared for public safety. Prior to a show's opening, our highly skilled technicians spend weeks coordinating frequencies with other theatres and local television broadcasters to ensure interference is never an issue. In all the years Broadway and touring Broadway have been operating, the FCC does not have a record of a single

complaint filed by television or radio station about interference from a Broadway show. In essence, if you will, Broadway is seven up. We have never interfered with emergency transmissions and we never will. In an effort to safeguard white space users from interference from new devices, the FCC asked manufacturers to submit proposed spectrum sensing devices for review, devices designed to refrain from transmitting when in close proximity to another wireless source. The FCC scheduled tests all over the country and under a variety of circumstances. For the final test, FCC engineers spend two days at Broadway's Majestic Theatre where Phantom plays, taking readings in and around the theatre before and during a performance of Phantom. Despite some published hyperbole to the contrary, neither of the two tested devices adequately detected operating microphones at any testing phase. One device presented by a Singapore-based firm called I2R consistently missed active wireless channels, while a device offered by Phillips showed false positive time and time again. An industry like Broadway, which relies on clear reliable wireless

transmissions, cannot support introduction of new white space devices within these results. In real world terms, a new device activated on 6th Ave. may not detect a signal emanating from a nearby Broadway theater and decide it's safe to transmit. But once activated, the new device's signal will interfere with that Broadway theatre's wireless system and affect the show's sound quality. We've heard new device proponents use terms such as enhanced spectrum sensing, beaconing and a belts and suspenders approach, which simply piles unproven technology on top of unproven technology to hide significant technical flaws in the devices and inherent limitations of the white space frequencies. One channel simply cannot be occupied by two transmitters, and available white space is already limited. Unfortunately no high tech terminology can skirt these constraints. Then we must consider the question of who would bear the burden of purchasing any equipment current users would be asked to obtain to help support the introduction of new devices. Again, we thank you for this opportunity. The Broadway League is happy to work with the City Council, the

FCC and the members of the White Space Coalition towards developing a reasonable, workable solution to this complex problem. However, we do not believe new devices should be considered for the marketplace unless and until technology permits national use of the white space without interference to current users. Therefore, we support Resolution 1613 and we ask the Committee to vote yes. Thank you.

CHAIRPERSON BREWER: Thank you very much. You certainly answered the question, so thank you. We've been joined by Council Member Oliver Koppell from the Bronx. Oliver, we're in the first panel, talking about Broadway and the issues regarding the white space. I think what you talked about was how there is great coordination before every production, and I'm just wondering, does that go on in every instance? And is that also true of some of the Off-Broadway shows as well as the Broadway shows? In other words, is it across the board?

HEIDI MATHIS: I think it more applies to Broadway where they are so densely, you know, one theatre right on top of the other. I

think it's less of an issue for Off-Broadway to coordinate quite that closely, but I think that they do to the extent they need to.

IRA MONT: That's accurate. And the sound shops that develop these systems before they're even delivered to the theatres are also speaking with one another. They know the frequencies. There are several shops that provide this equipment and support the sound design teams, and they all work with each other, knowing I'm going into this theatre, I've got this for this length of time. The point about touring also is very key, because the systems are put together in the sound shops and they know the bandwidth they're going to be in, but then they arrive in the venue in a city they haven't been to for many months or ever with this particular show, and they have a lot of testing to do to make sure those frequencies are all clean. They might have to make some adjustments. It would be very difficult if they arrived and found that they were essentially locked out of a portion of the bandwidth that was necessary. It would make it very, very complicated.

HEIDI MATHIS: Also, touring Broadway had the additional consideration that Broadway has, which is usually touring Broadway houses in addition to Broadway houses are in the central city district, which is frequently near other broadcasters. Certainly in the case of Broadway you have ABC, NBC, CBS, MTV is right across Shubert Alley from us. And that concentration of white space usage is one of the other reasons why Broadway has to balance more, because of where we are geographically located versus Off-Broadway. They are not surrounded by as many broadcasters.

LAURIE BASKIN: And I think I heard you begin to ask earlier how do performing arts organizations pay for this equipment. In the non-profit world it's not all at once. It's something where you budget a little bit every year and, you know, with time and hopefully good budgets and fundraising is going well and so forth, you buy one piece of equipment a year and you slowly build to the capacity that you need to fully present your performances. If change requires changeover of all of the equipment, you know, at a certain

date and time, we're sunk.

CHAIRPERSON BREWER: And how long does it take, for instance, you know, to put all that equipment together for a particular company? In other words, is it something that you can-- you have also a licensed person who's working with you? Obviously Local 1 is working on Broadway. How long does it take to get a Broadway show, for instance, calibrated? And then with some of the smaller shows, how do they coordinate with some of these other discussions that are going on?

IRA MONT: On Broadway, when a Broadway show is opening, especially a musical, which is certainly larger than a play in terms of its sound needs, the sound shop will start putting the package together anywhere from four to eight weeks prior to the equipment being required to be in the theatre, which is at least two to four weeks prior to the performers arriving at the theater to begin their two weeks of technical rehearsals before the audience arrives. So the beginning of the process is really a minimum of three months prior to a first public performance where the audience is going to experience the

performance. So it's a long and complicated process. And clearly, although there's a lot of legwork done, once the equipment actually arrives in the theatre, very often adjustments need to be made from what was preset at the sound shop because of what you find when you arrive in the building.

LAURIE BASKIN: And then the--

CHAIRPERSON BREWER: [Interposing] Do you need to make adjustments daily or is that something that once it's made it sticks for the show?

IRA MONT: Adjustments are often made daily, especially on the-- I don't understand the specific technology. The communications amongst the stage crew and the stage managers seem to remain rather stable to some degree, although we're often-- we refer to it as being stepped on. You're listening and calling cues and all of a sudden you hear someone, you don't know who it is, talking in your headset. And that's an accidental crossover. And it could be from another theatre during their load in process. It could be from occasionally a cab driver driving by. The

wireless microphones that the actors use are tested; each individual frequency is tested before every performance and occasionally does need adjustment.

CHAIRPERSON BREWER: Did you want to add something? Okay. I had some experience because LaGuardia High School is in my district and for their main show, somehow the microphones got lost and we ended up calling every shop in New York, we got 46 of them onstage. I never had such an experience in my life. So I know what you're going through. Oh my goodness. The Principal and I sat in the back and we prayed the entire time. My other question is this cost issue; obviously the best of all would be what you said in terms of your ending statement where we want to have devices that are able to be used effectively; we want the television to be able to not be interfered with and we want Broadway and every other show not to be interfered with. That's our goal. And so the question is in that scenario, it still would make sense, if that scenario holds, again, more testing, you know, gathering all of your evidence-- it would make sense then for you

not to be licensed into the future, because that would end up costing more. Is that sort of what you're saying? I'm just curious about that aspect of it. Or, it doesn't really matter as long as the cost is low and you have no interference.

HEIDI MATHIS: Well, it is a matter of cost; that is paramount. However, you have to consider the administration of it and who really is the end user. The frequencies change with each show that comes in and out of a theatre. It changes with each producer. If you have an understudy go on, is that the end user? Is the performer the end user? It would be very, very difficult to administrate, and you also have to consider the public good that we have established and developed over the years. And to eliminate that over a licensing issue would be a misguided choice.

CHAIRPERSON BREWER: Okay. And then I know you talked about it, but have you ever received, I think you said not, any complaints for interfering with broadcast television, reception or with any wireless microphone? I don't think that's ever happened. And when you tour in other

places, I think somebody talked about the fact that Las Vegas is not allowing any devices now, but when you tour in other places, is there interference in other locations or you've never had a problem?

HEIDI MATHIS: There hasn't been a problem that I know of. And you also have to consider, Vegas has a concentration of theatres. It's a little more spread out than Broadway--

CHAIRPERSON BREWER: [Interposing] Much more.

HEIDI MATHIS: But they also have, they have perhaps more danger involved in that there's more circus like spectacle, there's fire and flying in a lot of their shows, and all of that is guided by wireless mics. So it's extremely dangerous.

CHAIRPERSON BREWER: Okay. All right. Any other questions? Council Member, any questions? Thank you all very much. I really appreciate this and I appreciate making the time and the effort.

[Pause]

CHAIRPERSON BREWER: Okay. And the

next panel is Marc Berejka from Microsoft and Stuart Overby from Motorola.

[Pause]

CHAIRPERSON BREWER: Welcome. You can do either order you prefer, it makes no difference. And I probably pronounced everybody's name wrong, so go ahead. Thank you for coming.

[Pause]

CHAIRPERSON BREWER: It's old technology.

STUART OVERBY: Yes. It's wired microphones, I see.

CHAIRPERSON BREWER: It's really old.

STUART OVERBY: Good morning, Councilwoman Brewer and Councilman Koppell. Thank you for inviting Motorola to participate in this hearing on TV white space and on the important issue of protecting wireless microphones for Broadway, which of course is one of New York's most important businesses. Motorola has developed technology that we believe can provide the answer and allow TV stations, wireless microphones and TV white space devices to coexist in the spectrum

without interference. Before I say much more about that particular technology, let me just point out, Motorola is in the midst of celebrating our 80th year of innovation and communications. And these innovations included the first public safety radio on a police car was 70 years ago; portable cell phones while most people were looking at designing cell systems as mobile rather than portables; and the system that supported communications when the US landed on the moon. We believe that TV white space provides the opportunity for new innovation on the horizon, and that's cognitive radio technology, and that's basically technology that's smart enough to find the vacant gaps in the radio spectrum and operate on those gaps without interfering with current operations such as wireless microphones used by Broadway. All wireless communications require the foundation of radio spectrum to operate, just as your home has to have a foundation before you build the rest of the home. The TV band includes 300 megahertz of spectrum, and to put that in perspective, that's 6,000 times the amount of spectrum used for each channel on which your

police, fire departments and transit systems communicate. There are gaps in the 300 megahertz where the spectrum is not used for TV broadcast. Some of those gaps are used today of course in confined areas like Broadway theatres, houses of worship and concert venues for wireless microphones. However, we believe there are many of the spectrum gaps that still go unused. Also to kind of put this 300 megahertz into perspective, that's roughly about, you know, 1,500 potential microphone channels. Not all of those, of course, can be used in the same area. My understanding from discussions with some of the wireless microphone experts is that 12 to 15 channels of frequency as wireless mic frequencies are available for every TV channel that is set aside. Motorola has developed technology that can access these gaps in the spectrum while protecting TV broadcast and wireless microphone use. The technology is called Geo Location. And the basic approach is that before selecting a TV channel on which to operate, the TV white space device would access information on a database on which channels are used and which are vacant in a given area.

The information on TV stations is already in the FCC's database and we've been discussing this issue with wireless microphone experts and they've agreed that one of the best ways to protect wireless microphone use is to then designate some channels in the database in each market for wireless microphone use, in which TV white space devices would not operate. Further, if additional wireless mic channels are needed beyond those designated on a nationwide basis, supplemental channels could be entered in the database for protection in a given area, for example Broadway. We all need to understand that, some of the previous panelists talked about the range of the wireless microphones that are used in the TV spectrum is very short. And for example I think, you know, a channel that might be used on Broadway for wireless microphones could be reused in the Bronx for a TV white space device without any impact to Broadway. So that's one of the things to keep in mind. We believe this is a practical way to protect important operations currently in the band and at the same time open unused TV white space spectrum to help bring broadband to all

Americans across the country, help make the industries more competitive and use the limited spectrum resources more effectively. We're working with the FCC to implement rules that meet all of those important goals. And that's kind of the gist of my prepared statement. I'd be happy to answer any questions that you have.

CHAIRPERSON BREWER: Thank you very much.

STUART OVERBY: Thank you.

CHAIRPERSON BREWER: Do you want to testify, sir?

MARC BEREJKA: Sure. For the record it's Marc Berejka.

CHAIRPERSON BREWER: Got it.

MARC BEREJKA: From Microsoft. I was coming in on the train today and I had an inspired thought. And so if you will indulge me I'll supplement my written remarks with an inspired thought I had today, and if you like I'll reduce these supplemental comments to writing for you. The thought I came up with is that it's really important for us in the end to reframe this discussion. And in the process I'm hoping that

the Council will be amenable to reframing the resolution. Right now the way the debate's been framed it's been talked about as a zero sum games. The press loves zero sum games. They love the battles. As human beings we're prone to zero sum thinking frequently. It's us versus them, Wall Street versus Main Street, Uptown versus Downtown. But personally I feel that we're lucky that we live in a time when through a lot of hard work, innovation and collaboration we don't have to have zero sum outcomes. We can design and generate win-wins. And we can collaborate on a future experience that we share as opposed to our experience versus their experience. And I think as a technology representative I think this is really, really something that we excel at. You know, to reduce it to its basic, technology innovation is just about tool building. We build tools, the manufacturers of tools generate wins for themselves, but they generate wins for their users. And we're especially excited about the use of white spaces because we think these tools in the white spaces can help bridge the digital divide, both in urban areas and in rural areas.

But the magic of high technology is that you can add winners to the mix, or at least avoid inflicting harm on others, so you can have win-win-win or win-win-win and at least no harm to other interested stakeholders. And so in this regard, Microsoft is supportive of different technologies, be it Geo Location or be it the beaconing that was referred to in the earlier panel as a means to protect Broadway and other theatrical operations. And we and others in our White Space Coalition are earnest about collaborating with the performing arts to the point where we're looking for ways to help legalize their operations. As indicated in the last panel, many of the operations currently are technically unlawful, and we're looking forward to a possibility of making a fix to that. So in this way we'd also just ask for folks from the Broadway Community to alter their perspective and share our perspective on win-win. And in the end we think that things like turning on a beacon to identify when you're operating a wireless microphone is a small burden to carry when you look at the benefits of extending wireless broadband to inner

cities, be it Wireless Harlem or wireless Sterit City [phonetic] whether you're extending wireless broadband out onto an Indian reservation. So, at the very end of the day, the thought that came to me while I was riding in on the train this morning was that we have opportunity here. You know, and if there's one thing about New York City that we're supposed to cherish it's that it's a place for opportunity. In this issue in particular I hope that we can look for opportunity in a win-win form and not via combat and hyperbolic overstatement of fearful situations. So again, I'd like to ask the Council to consider reframing the resolution to frame it as a statement of opportunity, a statement for win-win outcomes, one that recognizes the value of Broadway, but also the value of Wireless Harlem and other operators like it. I think that with the application of smart technology, both Broadway and digital divide closing devices can thrive. Thank you.

CHAIRPERSON BREWER: Thank you both very much. We've been joined by Tish James, who is a Council Member from the great borough of Brooklyn. One question I have for both of you, if

we're talking about this database that you talked about and about the win-win, which I think would be great; I tried to say that in my opening remarks, is we want Broadway, we want television. We want wireless devices to be able to bring opportunity to everybody. So the best scenario would be to have all of this work together. And the question is, is it possible? How would portable devices access the database of a broadband connection if something like that is not available in an area? I mean that was something that-- go ahead sir.

STUART OVERBY: Yes, Councilwoman Brewer. The proposal that Motorola has put on the table is that any portable and mobile devices would be wirelessly tethered back to an access point, a TV white space access point. That access point would be connected, you know, through the internet to the FCC's database in this provision, so that if it loses that connection, then after some period of time the devices would go off the air as well. So there's some kind of fail-safe protection in there. I think in essence what you do is have the access point send-- could send

control signals to a mobile or portable device that's associated with it, the TV white space device, that lets it know which channel to transmit on. And so if-- again, I think the construction we've talked about is having let's say in the New York TV market area, you would enter in certain channels in the database that would always be fore wireless microphone. And so the TV white space device, when it accesses those databases, or that database, would know to stay off of those channels. In high use areas like Broadway, you could enter in for that, you know, maybe mile around Broadway or whatever the distance needs to be, you could also put in additional channels. I think you'd also do the same thing on a temporary basis just when you've got a sports-- like the super bowl or something. Obviously there's lots of kind of super scale events like that that use lots of wireless microphones and in-ear monitor systems and everything. However, what that does allow you to do is it doesn't prevent those channels from being used to bring broadband to all Americans in other areas or used in manufacturing plants, utilities

and others to be more competitive on their facilities to have video to be, you know, safer, to help work their machines and everything so that can be more economic and competitive in the world market. So there are lots of benefits to TV white space. We think we can do both and protect the wireless mic use. In essence, wireless mics are the first TV white space use. It's just been doing it on a manual basis, whereas the technology is now available to do it more automatically.

CHAIRPERSON BREWER: Do you think this would add a lot to the cost of the cultural world?

STUART OVERBY: Well, I think if you're putting them in the database, I mean I think the FCC could adopt rules that basically provides the opportunity to register-- I mean first of all, it would put some number of channels in the database that would be kind of a standard number of channels. And then if you needed extra channels, they'd provide an opportunity to register additional channels. And I can't imagine that would be that big of a burden.

CHAIRPERSON BREWER: Obviously

we're looking at a November timeframe, if that's what the FCC carries out. Do you think that it would be possible in order to support a win-win for everybody to have more time to work out all of these issues? What do you think about this timeframe that the FCC has put forward?

MARC BEREJKA: I actually think it's long overdue for the FCC to act. The FCC initiated this proceeding several years ago, and honestly has been slow in making progress on it. And we're excited about the prospect of a resolution come November, December; and from the high tech community's perspective, we fear that if the FCC does not continue to move at pace like it is now, that with the changeover in administration and potential changes in Commissioners, etcetera, we'll be pushed back by another year, if not longer. It's just the way things work down in DC. And that's another year lost in terms of innovating and rolling out service to people who need cheaper Internet access.

CHAIRPERSON BREWER: Okay.

STUART OVERBY: One other point on that. The decision before the end of the year by

November could always look forward to actual use of the TV white space devices starting when the digital TV transition ends on February 17th, 2009. I think that's the concept of TV white space, is that it's, you know, it's when the DTV transition is done, which again is mandated at February 17th, 2009. So the FCC could reach a decision in November or by the end of the year that says here's what the rules are going to be, and actual use begins February 2009.

CHAIRPERSON BREWER: Council Member--

MARC BEREJKA: [Interposing] I think--

CHAIRPERSON BREWER: [Interposing] I'm sorry. Go ahead.

MARC BEREJKA: Okay. Another thing I'd like to point out is that, this might sound a little bit too legalistic, but from the FCC's perspective the white spaces devices that the high tech community is looking forward to building and that we're supporting rules around, they will operate on what's called a secondary basis. And the FCC will not certify equipment unless-- they

will not certify equipment that operates on a secondary basis, unless that equipment can demonstrably apply with interference mitigation rules. So what we're really talking about here I don't think is, again, yes or no, either or. We're talking about under what conditions. Under what conditions should white spaces devices be permitted to operate? And on this score I'd like to point out that in the UK the regulator Ofcom has already affirmatively said that they are going to permit white spaces devices. And the London theatre district is a healthy theatre district, and the UK regulators are just as concerned as you folks are about protecting those operations. So again, you know, getting back to my theme of win-win here, it's really not yes or no; it's how.

CHAIRPERSON BREWER: Council Member Koppell, you had something you wanted to say?

COUNCIL MEMBER KOPPELL: I'm a little bit confused over; maybe we shouldn't say win-win and those phrases because they confuse me. I don't understand what they mean exactly and I think that they don't add to the discussion, they just create confusion. I don't see what's wrong

with the resolution as it reads right now; because it says there is a concern that if you open up this white space to new devices that that will interfere with television broadcasters, performing artists, professional sports leagues and incumbent wireless microphone users. There's a concern over it. And all the resolution says is that those concerns have to be addressed before there is some regulatory change, which sounds a little bit to me like deregulation. And if you want to study whether deregulation should be hastily entered into, I think that the events of recent weeks and days illustrate that that's not a good idea. So forgetting about win-win or win-lose or zero sum games and looking at the resolution, it says before the FCC shall deregulate, which it sounds like they're doing at least to some degree, these legitimate concerns of important industries should be taken into account. If the gentleman from Motorola is correct, there can be a compatible use of the portable devices; and that's fine. I'm not opposed to it if it can be done. And I don't think there's anything wrong with asking the body that regulates the use of these devices and

regulates the use of the broadcast spectrum to be particularly sensitive to the concerns that the resolution addresses. So, I don't quite understand. If you want to answer that, you can; but I don't understand why you shouldn't actually say, yes, that's fine. That resolution is fine, we think we have the answer and we'll satisfy the FCC. If you can't satisfy the FCC as this requests, then the FCC shouldn't go ahead.

MARC BEREJKA: So I'll take that on; I'm happy to. Thank you. I think at this stage in the deliberations after many years of FCC process, we can safely say that the deliberative process down there in DC has become highly politicized. We've moved away from the technical merits and it has become highly politicized. And as a natural outgrowth of that, I'm hoping it won't shock you that I believe this proceeding itself is highly politicized. And unfortunately what I find in reading the draft resolution is a lack of balance. It reads as a political statement that incorporates some of the biases and perspectives of the panel that just testified. And my suggestion is that a future version of the

resolution recognize the balance of equities, the balance of the equities of wireless microphone users today and the equity interest of people who today cannot afford broadband service, but who we hope will be able to afford broadband service either in this city, any other city or across rural America because of technologies used in the white spaces; so recognizing that this document is a political document and not a technical one, the request is that it be scrubbed to make it more balanced.

COUNCIL MEMBER KOPPELL: If I may, I'm sorry. I just would say I would certainly look at wording that you might suggest. I don't think the suggestion of the Chair is to retard progress in this area, because I know she's deeply committing to increasing use of technology.

MARC BEREJKA: So, I think to go down one more layer, I think it's important to get on the record for you that while there are technical issues at stake here, not all the technical issues are being carefully and I'll say accurately characterized. That's the province of the FCC. That's the province of technical

companies and technical experts to discuss with the FCC. And so what really concerns me is that as we sit up here in New York City, some of these technical inaccuracies, which are being used for a political agenda, are moving their way into the thinking around the resolution. And so I'd much sooner Council spend a good deal of time being briefed on the technical issues than, you know, frankly work off the written testimony that's been submitted by either side. I'll just give you one example from the immediate past panel. A statement was made on the immediate past panel that no two signals can operate on the same channel. That is inaccurate. Today, everybody can drive listening to FM radio, and every FM radio station is broadcasting that they have now a digital offering. The digital offering and the traditional analog offering of an FM broadcast operate on the same channel. Radio frequencies can be used very adeptly, as the gentleman from Motorola testified. There was also a suggestion that licensing would be difficult. I have not practiced licensing for many years, but when I did, for non-profits and for public safety

entities, the fee for a license was $35 for a five-year license. And you could license a geography; you did not have to license a particular use. So a single theatre could own a license as opposed to an individual performance. So there are these levels of factual matters that I think need to be looked at closely if you're going to make an informed resolution, or if you just frankly want to look at the social equities. You know, I do think you end up at a net balance where the social equities of what Broadway and other entertainment industries have to offer are valuable, but so are the social equities of lower cost broadband for underserved people.

CHAIRPERSON BREWER: Council Member James, did you want to say something? Okay. What exactly do these devices look like in terms of the future? In other words, we're talking about devices that would in fact be compatible, that's our win-win situation; what would they actually look like for the user who is able to then access much more broadband?

MARC BEREJKA: So my expectation is that the devices, the white space devices don't

look much different than today's WiFi devices. And if we go back in time we can, some of us, can remember the first WiFi devices. They plugged into a personal computer via a card and they had a little antenna baked into that card and that was a transmitter/receiver, much like that device there has probably a Bluetooth dongle if you can see the little gray thing hanging off that. But over time the price of the technology comes down, it gets integrated into the hardware and then you don't even notice it as a user. So for example, my cell phone, you know it operates on licensed frequencies, built by Motorola by the way, it operates on licensed frequencies, but it's also got in this little device, it's got two little wireless radios, excuse me, unlicensed radios as well. I have WiFi in here and I have Bluetooth in here, so in this little guy, Bluetooth, WiFi plus cellular. And so you can imagine any form factor, it could be this guy, that guy, that guy, this guy. You know, they could all be white space devices. And initially it would be through a plug in, but eventually they'd be baked in.

CHAIRPERSON BREWER: One question

would be say for instance you have that device and in use and it does interfere with television reception or with some of the Broadway microphones, how would you get those devices back out of the market? How would the Broadway folks feel secure?

MARC BEREJKA: So the way these--

CHAIRPERSON BREWER: [Interposing] I'm just saying for instance.

MARC BEREJKA: Yeah, for instance, I really think that that's a hypothetical that involves a bit of a stretch.

CHAIRPERSON BREWER: Okay.

MARC BEREJKA: You know, no consumer is going to open up this thing and try to figure out where the WiFi chip is or where the Bluetooth chip is. And if the consumer does open up this thing and try to mess with the WiFi or the Bluetooth chip, they're going to break it. And so, as I said earlier, the FCC will only be certifying devices that meet the interference mitigation requirements.

CHAIRPERSON BREWER: The other question I had is because we are, in New York,

focused on Broadway and I think you all know that we want to make sure that Broadway is secure, would all devices carry beacons or would that be something that the theatre industry would be more focused on?

STUART OVERBY: Well let me just--

CHAIRPERSON BREWER: [Interposing] In your scenario.

STUART OVERBY: Yeah. Let me just address that. We've talked about beacons as well. And we're not talking about this morning with the database; that's different than beacons.

CHAIRPERSON BREWER: Correct. They're two different ones.

STUART OVERBY: The beacon is basically, it's a device that is-- could be similar to a wireless microphone, but it's a higher-powered device so it could be sensed more easily than the very, very low power wireless microphone transmitter. I mean we've built a prototype beacon; we provided it to the FCC, basically built it off of a platform of a two-way radio. So it's not an issue of building, and I think the question is, you know, where is it

practical to deploy them? When is it not practical to deploy them? Clearly that's one answer. If you wanted to, say in a specific area, I need more channels than those that were set aside everywhere. I could put up a beacon and say okay, I'm also using these channels. That's one solution. The other solution is to put those channels for a confined area in the database. So I think either way would work. Based on some of the discussions we've had with, again, wireless mic experts and broadcast personnel and all, you know, what I'm gathering is it may be more practical in some cases to just put the added channels in the database as opposed to putting up a beacon. But both-- technically either one could work; just which one works practically.

CHAIRPERSON BREWER: And the beacons themselves, would they interfere with anything or not? Because they have to also operate wirelessly--

STUART OVERBY: [Interposing] Well the beacons themselves also have to operate--

CHAIRPERSON BREWER: [Interposing] Operate wirelessly.

STUART OVERBY: --on a portion of the spectrum. So they would operate-- if I'm using some of the frequencies, the wireless mic frequencies in channel 43--

CHAIRPERSON BREWER: [Interposing] Right.

STUART OVERBY: I'm picking a number out of the air.

CHAIRPERSON BREWER: Yeah.

STUART OVERBY: Let's say TV channel 43. And if I'm using some wireless mic frequencies within channel 43, I would also put up a beacon that's somewhere within that channel that would then radiate a higher powered signal than a wireless mic usually radiates and basically that, you know, if you had TV white space devices sensing those beacons, it would say oh. It would sense that it cannot operate on channel 43. Again, that's one approach. The other is to put channel 43 for Broadway into the database as an example.

MARC BEREJKA: So, to give you a practical example of this concept of co-channel operations, the field test that they performed at

FedEx field was interesting to, you know, all the geeks that were there. So, at FedEx field when they were playing this football game, the referees and everybody, they were using their wireless microphones. FedEx Field is kind of in a suburban area. You know, it's surrounded by parking lots and all, but beyond the parking lots is a residential area. In the residential area, to the FCC's knowledge, nobody ever complained that they were losing TV reception.

CHAIRPERSON BREWER: All right.

MARC BEREJKA: But it turned out that in FedEx Field during this day of testing, the wireless mics were operating on occupied TV channels. So inside FedEx the Refs were doing fine on a TV channel that outside FedEx, people were receiving regular TV on. There was co-channel operations and everybody was happy.

CHAIRPERSON BREWER: So what your point is that that could be across the board for the future, that that would--

MARC BEREJKA: [Interposing] It's workable.

CHAIRPERSON BREWER: In other

words, if there was a larger residential population, like in New York City because, with all due respect to Maryland, there are more of us here, and with a co-terminus so to speak situation, do you think that the experiment that existed Maryland could also be applicable in New York where there are so many more televisions, I think eight million televisions or whatever the number is, as well as whatever we're planning for devices? Do you think that's possible, even though it's a much more congested area? In other words, we have more televisions here. We have a lot of ball fields here. We have a lot of other uses that may not exist in more suburban rural areas. So comparing us to the suburban or rural area, do you think you'd have the same situation, or the same non-problem?

STUART OVERBY: I mean I think with, first of all, you know the FCC has to develop the rules under which TV white space devices would operate. So, if the FCC puts in channels that are designated for wireless mics in the rules-- again, some may be over the broad whole market area. Some may be extra channels

that would be put in just on Broadway. And they would also define, I think there's work, probably calculations, they can do-- some very smart engineers at the FCC, that can say oh, okay, if these extra channels are put in Broadway, you can use them if you are a mile or more away or a half mile or more away. I don't know exactly what that number is off the top of my head. But you could determine that. And you'd factor in is it indoor use or is it outdoor use. I think one of the previous panelists noted that, you know, some of the signal is absorbed by the buildings and everything. That also works for signals coming in from TV white space devices. Some of it would be absorbed. So whether it's an outdoor event or an indoor event-- I mean those things, they can be calculated. And I think the FCC can do that and then the TV white space device would say oh, at this set of coordinates, you know, I cannot use this TV channel from within a mile, a half-mile or whatever the distance is.

MARC BEREJKA: I think congestion in New York City is actually a good way to think about this problem holistically. One of the

reasons why wiring schools or using today's WiFi in schools or in public housing today is expensive is because you don't want to put wires through cinderblock or it's expensive to do that. Also these buildings made of stone and steel reinforcements, they knock down signals. And so one of the advantages of the white space is that they do a much better job penetrating walls. So, that's-- you recognized this in your initial remarks, that's why we're excited about use of the white spaces, because you can get more reach. You don't have to worry about buying more equipment. If you're going to do WiFi you don't have to worry about drilling holes through walls if you're going to lay wire. At the same time, if you think about operations, you know, in midtown, if you have somebody speaking at my level in a theatre using the wireless microphone, effectively what the beacon does is it screams, and it screams at a level that then goes beyond, through the wall, to the surrounding area, and it's up to the FCC to decide how big that surrounding area could be, but it screams and it penetrates outside the walls and basically says, don't use this channel, don't use

this channel. But by the time you get past, I don't know, you know 80th St. or something like that, that scream will have dissipated. So north of there the white space would be available and you could operate a more robust wireless internet hub.

CHAIRPERSON BREWER: Council Member James?

COUNCIL MEMBER JAMES: I apologize for being late. And as someone who has advocated with this chair to address the technology divide in quote, unquote outer boroughs and quote, unquote inner cities, I mean I recognize your concerns and in fact are sympathetic and torn about this resolution. So my question to you is, ultimately is it your position to put off this FCC regulation and to put off this resolution until such time as prototypes are developed so that they can both coexist? Is that the bottom line?

MARC BEREJKA: No, my bottom line is that I'd prefer to work in deliberate fashion, and I think I speak for the rest of our commercial interests in the White Spaces Coalition, that we'd like to work in deliberate fashion to reframe the

resolution, but not do anything to slow down the FCC's process. The FCC's process has already been delayed by a number of years.

COUNCIL MEMBER JAMES: And do you have language for another resolution, an alternative resolution?

MARC BEREJKA: I believe that others who may be on the next panel may have offered up language. I personally have not.

COUNCIL MEMBER JAMES: Thank you.

STUART OVERBY: Just one additional point. We've had a number of discussions with the FCC over the last, you know, probably 18 months or so on this issue. And when we've talked with them, again, it's the same position we had here today, is that for TV white space to be successful, I mean you have to have the right rules for TV white spaces; but you also need to protect broadcast and wireless microphones. We said that from day one. And the discussions that I've had with the people at the FCC, I think it's clear that they understand that. I mean, so I don't think they-- I mean I think they're doing exactly, you know, they're wrestling with and

doing exactly what your resolution suggests that they do, which is to find a way to authorize TV white space without it negatively impacting broadcast or wireless microphones.

COUNCIL MEMBER JAMES: And how would you--

STUART OVERBY: [Interposing] And I think that's exactly what they're doing.

COUNCIL MEMBER JAMES: And how would you describe the test that was performed at the Majestic Theatre in New York on August 12th? Was that successful, unsuccessful; how would you describe that?

STUART OVERBY: I wasn't at the, exactly at the test. So I'm probably not the best person to ask. I think, again, what we've talked about, the Geo Location technology we've talked about is not what the FCC has done most of its testing on. What they've done most of the testing on is sensing where I have to determine, I have to basically pick up a signal off the air. With Geo Location, basically you have things in the database and, you know, you determine that you cannot operate or should not operate on those

channels. So I think it's a little more reliable.

MARC BEREJKA: I'm glad you re-raised the test at the Majestic though, because it points to another, I'll just say questionable statement from the prior panel. I won't defend the Singapore device. I think everybody in our Coalition recognizes that that device was not performing well and failed. But the Philips device, this is Philips Electronics, a major manufacturer, the Philips device, yes, it was said generated multiple false positives, which makes it sound bad. But actually, if it is bad, it's bad from the perspective of folks who are proponents of white space devices; because a false positive says that this channel is occupied, don't use it. So basically, you know, in my last comment I said that the white space device could pick up a screaming beacon and not operate. Basically the Philips device was picking up whispers, and so it was over sensitive. And if anything, it demonstrates the ability to sense very low signal in TV spectrum.

COUNCIL MEMBER JAMES: And last question; I'm sorry Chair. What was the basis for

the delay, the delays related to the promulgation of FCC rules?

MARC BEREJKA: You know it's interesting; the history here is long and tortured. I'll give you the thumbnail sketch. The first FCC chairman under President Bush was Michael Powell, son of Colin Powell. And he doesn't look like it, but he's a geek. He's a geek.

CHAIRPERSON BREWER: [Off Mic]

MARC BEREJKA: No, because he's a lawyer, lobbyist, politician, right? He doesn't wear pocket protector like guys at Microsoft do. Nor does he come to work in cut off shorts and sandals. Those are the geeks I see. So, he was a big fan of spectrum reform, and in particular using spectrum reform to close the digital divide. And so he kicked off this proceeding. And as many of these proceedings go, it took time. And along the way he decided that he wanted to pursue other objectives personally, professionally. And so he moved out of the position and in the second Bush administration a new chairman came in. And the chairman sets the agenda. Basically the chairman

moved this issue further down on his list of priorities. And it took lobbying by consumer interest groups and by tech companies to say, hey look, you guys are sitting on your hands, let's get this thing done.

STUART OVERBY: Just to add, the current Chairman Martin, I think indicated last week, I believe it was reported in Dow Jones that he is supportive of TV white space. And I think when we've talked with the technical people, I mean again, they're wrestling with these issues, but I think they have much of the information that they need to move forward.

COUNCIL MEMBER JAMES: And very, very last question, if in fact the rules were delayed, to what extent would this have on communities that obviously do not have access to broadband, such as the community that I represent?

STUART OVERBY: Well, you know, the OECD said that the US is 15th down on the list of countries with broadband penetration. And so, I think, you know, obviously everyone wants to move the US up the ladder on that broadband penetration as much as possible, so we can be more competitive

in the global market. And delaying this-- you know once we have, we believe we have a solution that can address the wireless mic issues, can address protection of television and also allow TV white space to move forward. So we don't see any reason to delay, you know, actual implementation. And at the same time, there's a reason to move forward without any further delay, which is to move the US further up that ladder of broadband penetration.

CHAIRPERSON BREWER: I think even whenever it passes, we still have to get people computers, we have to get meaningful access, we have to get training, you know; and it costs money. So there's a lot of aspects to getting people real-- but you know, every bit is a step. But those are other impediments that we are working to try to deal with-- a long process. Just one final question, and I think you have answered this, but you do feel confident that the FCC has enough information to promulgate rules today so that your devices would not interfere. I mean, you feel that whatever timeframe they're under, that once they do that there would be

enough rules promulgated after that. I know whenever we pass legislation here in the City Council, it's usually some months before there are actual implementations, because there have to be rules and regulations. That's true in all government. This is much more complicated than passing vending rules or many other aspects of City government. So, obviously you're working with the FCC, but do you feel the situation is possible to promulgate rules that would keep interference out?

STUART OVERBY: Yes. I do. I think they have-- there are certainly, I mean getting information, Motorola's been to talk with them, I know Microsoft, others they're also hearing from, reputable companies like Shure; they're hearing from the broadcast representatives somewhere in the run of the day. So, I mean they've heard the different concerns I think, and they're mixing that together to put together rules that we believe will allow TV white space and at the same time, you know, protect broadcast and wireless mic use.

MARC BEREJKA: So one of the things

to bear in mind is that while my colleague and I and others sit under your spotlight today, this spotlight has been burning bright and intensely for quite a while in Washington, DC. In fact--

CHAIRPERSON BREWER: [Interposing] By all the phone calls I've been getting--

MARC BEREJKA: [Interposing] Yeah.

CHAIRPERSON BREWER: --I believe you.

MARC BEREJKA: But to give you a flavor for it, the major manufacturer, maybe the only major manufacturer of wireless microphones, Shure Corporation, has been doing a phenomenal job raising awareness about their concerns, to the point where in Washington, DC we not only see the appearance of Broadway interests, but we see the NFL, we see NASCAR, we see Hollywood and the TV broadcasters. Trust me, they carry a lot of political weight. So the FCC understands the magnitude of what's before them and the need therefore to have technical information they can rely on.

CHAIRPERSON BREWER: Thank you very much. We've been joined from Council Member James

Sanders from the borough of Queens and Council Member Bill de Blasio from Brooklyn. Thank you both very much.

MARC BEREJKA: Thank you.

STUART OVERBY: Thank you.

CHAIRPERSON BREWER: This was very informative and I appreciate your time. The next panel is Thomas Hillgardner, Association of Cable Access Producers; Mark Brunner from Shure Incorporated, which was mentioned earlier; David Donovan from MSTV and James Smith.

DAVID DONOVAN: Do you have any copies of your statement? Yeah, my written testimony. Stuart? Do you guys want some water?

THOMAS HILLGARDNER: I'm fine, thank you.

DAVID DONOVAN: Do you want some water?

[Pause]

CHAIRPERSON BREWER: Whomever would like to start, go right ahead. Just introduce yourself.

THOMAS HILLGARDNER: My name is Thomas Hillgardner, and thank you for hearing me

today and thank you for having this important hearing. I'm speaking on behalf of the Association of Cable Access Producers, and also I believe all activists who are interested in more open access to the internet and a greater variety of media sources. We're calling on the City Council to reject the resolution or to reword it. We initially started, ACAP initially started as an advocacy organization and our focus was limited to public access television. But with the changing landscape of the media, we've gotten into other areas. And one of these changes is the adoption of digital broadcasting technology and that has brought along many changes in the industry and many efficiencies that permit more efficient use of radio spectrum. While it was necessary many years ago, as we are aware, for the FCC to set aside this space, it's valuable now and it can be put to a higher use than it's being put to now. The concerns that were addressed hear earlier by the Broadway folks and certainly by the broadcasters and the NFL, etcetera, etcetera, they are important. But I don't really-- we don't really believe that-- I've got to support the

comments of the gentleman from Microsoft; it seems to be a win-win situation. I think that the situation is very much overblown. The current legislation appears to be an effort responding just to these narrow interests and preventing the opening of the spectrum for general use by the public. With regard to the field tests that were recently done, particularly with the Philips, and the point was previously made, false positives are not a problem. They're actually a problem for the maker of the device and that if anything, that these devices should work wonderfully and not interfere at all, at least the Philips device, would seem, from my judgment, would seem to have been proven by these most recent tests. It's time to end the digital divide. It's really important to do that. This is a way that a new technology can open up and more people will have access. Technology like Skype permits the immigrant communities of Queens, where I'm from, to be able to make very cheap telephone calls that otherwise they presently are making with very expensive prepaid phone cards that sometimes people get ripped off on. It will permit communication and

it will improve the quality of life for immigrants and the poorest in our community. At the end of the day, these wireless communication companies, and some of the folks here, were not the people who elected you, these narrow interests; it's the people here that you've got to serve. So I'd ask you to consider those. Thank you very much.

CHAIRPERSON BREWER: Mr. Donovan?

DAVID DONOVAN: Thank you, Madame Chair and members of the council. My name is David Donovan. I'm president of MSTV. We are the engineering arm of the television broadcast industry. And I will submit my written statement for the record. But what I'd like to do is engage a conversation here. There has been a lot of discussion today about the digital divide. And one of the key issues as we're going forward right now with the digital transition, because we did much of the engineering work that underpins that digital transition is that if you allow unregulated unlicensed devices in the television band one of the key folks that are going to get interfered with are over the air digital television viewers. Why are we so concerned about

this? In the old days with analog television, if you had interference you saw some wavy lines, you saw some sparkles, your dad's running a high-speed drill or a hairdryer in your house, you could deal with that. But when you get interference with over the air digital television, even as the FCC found, even the smallest amounts of interference can lock and freeze a picture. Now we have been involved in this for over a decade. It is in part because of our engineering working with the FCC that allowed channels 52 to 69 will now be given for WiFi, WiMAX uses, that spectrum is in the process of being auctioned off now, and also for public safety. What we're really talking about here are the remaining portion of the broadcast band. A third of it has already been given away. We're talking about the remaining two-thirds, channels 2 through 51. Now, there has been a lot of discussion here today that we can get broadband throughout New York City. And the purpose of using this spectrum of course is for long-range type communications. You can use-- this spectrum works very, very well for long-range communications, which makes it ideal for rural

broadband. There is spectrum out in rural areas because nobody lives there. There are fewer television stations. There are fewer wireless microphone users. But when you get into New York City, it is incredibly congested. So when folks tell you that there is plenty of spectrum that can be used here, you have to dig a little deeper and look at the underlying engineering assumptions that say whether or not that spectrum is available. Let me explain just a couple of things. The interference that's going to occur is not the interference of the broadcast towers, broadcast antennas on Empire. That's not going to happen. The interference occurs on the back of your television set, in the rabbit ears on top of your television set or the antenna on your roof. Now how can a small device interfere with a television set? It doesn't make sense. Picture it this way, you're a lighthouse on the beach; if you stand near that lighthouse you see a huge light. But if I go a mile or two down the beach and I stand there with a flashlight ten meters away or ten feet away from you and I flash that in your eyes, you will see the flashlight before you

will see the pin dot from the lighthouse. The interference that's going to occur to consumers is precisely that. It's how much signal are you getting to the back of your television set versus how much power or signal is coming out of an unlicensed device. And when you get into the personal and portable devices of the types we are talking about here, the interference risks are significant. They will come from your neighbors; they could come down the street. You won't know where that interference is coming from. So let's talk about two things here. Co-channel interference, can you operate an unlicensed device on the same channel folks are trying to watch? After the transition CBS in town here will be on channel 33. Can I operate an unlicensed device on channel 33 and will it cause interference? The answer is yes. And in fact, that co-channel interference will go for kilometers. I will get back to my friend from Microsoft's analysis that you can do that at the same time, because candidly from a technical standpoint, that's not quite right. If you have two signals coming from two different devices, one from a broadcast tower and

one from an unlicensed device at the same time, that will cause interference; that interference will be for kilometers. But the second type of interference is what we call adjacent channel interference, that is when you buy a television set and you're trying to watch channel 33, can I put a device on channel 34 and operate on channel 32? Whether that works depends on your television set. And the television sets manufactured today are unable to block out or reject those signals on either side. What does that mean? If you're at home or you're in an apartment and your next-door neighbor fires up one of these devices on channel 34, it will interfere with your television reception. Now, will walls diminish this problem? I guess we get into sort of the questions of building codes; you get into the question of whether you can use these unlicensed devices near windows. It becomes an incredibly complex problem. But the key point here is that the interference will occur. So how do you avoid it? Everyone aggress there's interference. How do you avoid it? The first step was sensing, and that has been tested by the FCC for the last several

years. Candidly, the tests that were conducted in Maryland indicate failure. Now the inability to sense ranges, the sensing error rate ranges anywhere between 27 to 37% for the devices that were tested by the FCC. We get to the question of is a false positive good. The reason why false positives should not be considered as being effective solutions is it's sort of like taking the SAT and you checked all the boxes off and then submitted and said yes, look, I got the right answer. If you make something so sensitive that it starts picking up everything from background noise to signals way far away, you know, hundreds of miles away, that's not a device you can sell. So as a result you have to make it less sensitive. And Philips has had four years to produce even a prototype lab device to work, and they haven't. Microsoft has submitted a number of devices; two of them failed in the recent tests, it just died. One died the year before. I2R, I think is the other, the Singapore device that has been submitted; that has also failed. So the ability to use sensing to differentiate between when a channel is being occupied and when a channel is

not being occupied, it just simply doesn't work. On an adjacent channel, the FCC's own analysis indicates that if you operate these devices on adjacent channels you are going to cause interference. I will get into some of the studies that were mentioned, you know, particularly the University of Kansas, we can talk about that. But the bottom line is, is that if you operate on that adjacent channel, you have a problem. Now, Motorola will tell you that they have a device that works just fine on the adjacent channel, your technology that they're developing with Geo Location. You need to dig a little deeper into that, because what it says is this: I'm going to develop a formula and that formula says that very weak signals at the outer edges of a station's contour, let's say in Westchester County or you get out into Jersey where the station, the signal is really weak, they will reduce their power. But as I get closer to the broadcast tower, I will increase my power. Okay? Here's the problem. In highly congested metropolitan areas, folks are getting their signals through rabbit ears, through walls. You can't make that probabilistic

analysis. Someone can be living a mile or two away from Empire State and get an extremely weak signal. So if you go down that road, you are going to have problems in high-density areas. Now, who gets hurt? The folks who get hurt here are several. First, your free over the air TV viewers in New York City; and your nationwide average, I mean you're running between 19% of the population, in some communities it's more than a third. In particular in Hispanic communities, in poor communities and with the elderly who rely very heavily on free over the air TV, they are the ones who are going to be most susceptible to damage here. The second folks who get hurt are you; it's all of us. And it's because with live news, during emergency situations, apart from folks not being able to get on their television set, we are using wireless microphones day in and day out not just at fixed locations, but around the city bringing live news and emergency events. The solutions that have been proposed to date, in particular the beacon, are not going to resolve those problems. Remember, if these devices can't sense a broadcast signal, how are they going to

sense a beacon? The sensing piece is problematic. In addition, don't underestimate the problems with cable, the National Cable and Telecommunications Association just filed data with the FCC indicating that unless you limit the power of these devices to under ten miliwatts, I don't want to get too, you know, egghead on you here, but you're going to run and create direct pickup interference to cable systems. So if you look at where we are now, and I do have a number of responses to Motorola and Microsoft in particular, which I'd like to get to on questioning, but essentially unlike wireless microphones that are involved with professional engineering, these products are designed for consumer use throughout the area. There is absolutely no way that if an error is made, if a device breaks and it turns on to a channel, that you can ever control the interference from these devices. The FCC can't recall them. Indeed think about it. If suddenly your set gets interfered with, where can you-- how would you know where it's coming from? How could you police it? And the ability to do that at the border is problematic. So in closing, New York is

significant and unique because of the Broadway interest, because of its sports, because it's a center of film. And I ask you to think about the numbers of viewers in your market, in your districts, that rely on free over the air television for their information, basic information and entertainment. They shouldn't be lost. I mean that digital divide needs to be closed so that they can continue to get service. Thank you.

CHAIRPERSON BREWER: Thank you very much. Who would like to go next? Do you want to go next? Mr. Brunner?

MARK BRUNNER: Good morning, Chairperson Brewer, members of the Committee. My name's Mark Brunner. I'm the Senior Director of Public and Industry Relations for Shure Incorporated, the worldwide leading manufacturer of wireless microphones. It's also nice to see some of our wired microphones used to capture today's hearing. Thank you for inviting me to participate today. The panel of experts you've assembled is impressive and I'm particularly pleased that you've taken the time to hear

directly from the Broadway League. The League has been a thought leader at the Federal Communications Commission and in Congress on the white spaces issue, so it's certainly appropriate that you've heard from them today. The amount of wireless audio used on Broadway throughout each and every performance is dramatic and the reps here have told you in great detail about how their mics are deployed and how Broadway contributes in such a significant way to the City's cultural and economic well being. As bright as the lights of Broadway are, however, I think it's equally important for the Council to keep in mind the multitude of other wireless microphone uses in the City. To introduce these venues to you, let me drop a few names you're familiar with, Radio City Music Hall, the Ed Sullivan Theatre, Madison Square Garden, Rockefeller Center, The Javits Center, Yankee and Shea Stadiums, both old and new. The diversity of events from ball games to political conventions, from corporate seminars to news broadcasts is tied together by a common production infrastructure in which thousands of wireless microphones and not to mention in-ear

monitors and behind the scenes intercoms are deployed on the stages, sets, streets, studios and sidelines of New York City. These major venues with huge demands for wireless audio infrastructure provide an important cultural and economic benefit for this city, the state and the entire region. These world-renowned venues, however, are just a fraction of those potentially impacted by the FCC's white spaces decision. In fact it is the smaller venues, the nightclubs, college sports broadcasts, churches, hotels and Off-Broadway and non-profit theatres who will feel an even bigger pinch from an ill-advised FCC decision, due to budget constraints and an economically challenging environment. If the new white spaces have the potential for the debilitating interference to wireless microphones that we saw throughout the FCC's recent field tests at the Majestic Theatre, tens of thousands of wireless microphones deployed on a daily basis in New York City could quickly turn from completely reliable to randomly functional. The high population density of New York already makes coordination of wireless audio extremely

challenging. In fact, Times Square has been described by audio professionals as the most difficult spectrum environment in the world. Introducing personal wireless devices that operate in the same spectrum to the general public is, in the minds of those professionals, a formula for disaster. The City's institutions can't afford to simply trash their audio technology investments, and the FCC policy should not require them to, when there is no available substitute for these high quality professional products. The bottom line, the FCC is being pressured by white space device advocates to make their decision before President Bush leaves office and the new President appoints his own Commissioners at the FCC. We think to force an arbitrary political deadline on such an important technical decision does a disservice to the many legitimate stakeholders in this debate here in New York City and in other major news and entertainment hub markets like Chicago, Los Angeles, Las Vegas, Nashville and many others. The original primary goal of the white spaces proceeding was to deliver broadband access to underserved rural areas of the country.

And the pro audio industry wholeheartedly supports this. But now we face a very different dynamic with much more severe consequences for our country's urban centers of commerce and culture. The FCC has proposals before it that we believe make sense and attempt to forge a reasoned solution. Simply put, we're encouraging the Commission to reserve sufficient spectrum for wireless microphone use that meets everyday needs and is scalable to accommodate large events. We also encourage further research on interference mitigation technology, some of which you've heard about today, that will inevitably be required in the future as an increasing population of wireless products is deployed throughout the nation. We do not, however, support blind faith that these technologies are ready for mass production until they are demonstrated to be viable both in the lab and in the field. Today, however, particularly for cities like New York, where the white spaces are really dark gray spaces, there needs to be clear priority for wireless microphone operation before white space devices may send out any transmission signals. We're hopeful that the

advocates for the new devices will see the wisdom for this approach in order to move forward with innovation without moving backwards on communications, arts and culture. Last week I was re-reading some of the FCC's filings from two of the outstanding members of Congress from New York, Representatives Maloney and Nadler. And I was once again reminded that no city, no region, will feel the impact of interference from white space devices than right here in New York. The culture and economic risks are significant and real, and the entire production community employed in this city is greatly concerned about the outcome. There simply is no second chance for a live performance. Please accept my company's appreciation for inviting me to testify here before you today. It is our hope that the Council adopts the pending resolution in a New York minute. I welcome any questions.

CHAIRPERSON BREWER: Thank you very much. Sir, would you like to testify?

JAMES SMITH: Yes. I'm a citizen producer through Manhattan Neighborhood Network. I produce a program--

CHAIRPERSON BREWER: [Interposing] Identify yourself, sir.

JAMES SMITH: Yes, my name is James Smith. I am a citizen producer at Manhattan Neighborhood Network. I produce a program called A Reader's Channel, it's a program designed to stimulate people to read more. And this issue came to me through a group for the elderly. I was excited when I bought the analog converter box, because I noticed that there were extra channels for each channel. Channel 4 has three extra channels, and the same with most of the other channels. And I saw that as a potential opportunity for public access, because public access on cable is limited because it goes only to subscribers who can afford $100 a month. That's very expensive. And the white space issue might present us with the possibility of Internet transmission, which we have, but it is weak. It's not a strong transmission. And so I was excited. I wondered about these extra channels. How, you know, what were they about? And I did a little research and I was told that you were capable of splitting a single channel into the several

channels. Unfortunately this issue was not mentioned anywhere in all the promotion of DTV on television. And the different stations were using things such as weather and another station was presenting church programs, and a few were using-- for infomercials, which we certainly don't need any more of. And I was excited. But there was a gentleman who was at the meeting who mentioned who was there because of white space. I asked him what was the possibility of that and he said well, it would be the Internet. It would reduce the cost for broadband, which is very significant. Because public access as we have it now isn't really public access, it's only to people who have subscriptions to cable. And the Internet at the moment is not that strong. I've wondered why the streaming hasn't been fortified lately. I suspect it's a political reason more than anything else, frankly. But if this white space could provide us with cheaper broadband access, I'm certainly for it. And I'm trying to learn more about it and that's why I came to testify.

CHAIRPERSON BREWER: Thank you very much and thank you for all your work at MNN. We

certainly have a show there and we love it. I guess I would say for Mr. Donovan, just maybe you want to respond to some of the things that Motorola and Microsoft were talking about. But also, maybe you could just explain for the people who are getting educated today, the DTV transition will create more white space, but that's also got some nuances to it. So I'm just wondering if you could explain that and maybe just pick up on some of Mr. Smith's ideas about could there be more broadcasts.

DAVID DONOVAN: Sure. A number of things here, because channels 52 to 69 will no longer be part of the television band, you have to take all those channels that are on those frequencies now and move them down into channels 2 through 51. They have to be moved. In addition, you have a number of low power stations, and I have the full list of low power here and I won't go through it; it is quite lengthy in New York, of stations that are in New York. You also have every wireless-- the Commission has a proposal in front of it now that says every wireless microphone that currently operates on channels 52

to 69, and there are a lot of them, they also are getting kicked out of that band and will have to move into channels 2 through 51. So, the argument that post-- with the digital transition that there will be a significant amount of room on channels 2 through 51, most of that room is going to be down in between channels 2 through 4, 2 through 5 in particular. And the reason is that broadcasters are moving out of those channels because of interference with, frankly, your power grids. As I said before even a little bit of digital interference locks in; analog you never saw it, you see it in digital. So the heaviest congested area is going to be in between channels 20 and 51. And the white space proponents want to focus their attention for the most part on channels 21 through 51, which is extremely congested. The second piece, in dealing with the multi-casting; with digital we are able to subdivide our existing allocation. We get six megahertz and you're able to subdivide that and to develop new uses with it. Consumers that are getting the digital over the air converter box that the government is pushing will now, for the first time, be able to access

those channels on their old analog television sets. That is, and I agree with you, we have not publicized enough, that is a significant benefit to the American consumer. The problem is that is a digital tuner in that box and that tuner is susceptible to the interference caused by the white space devices. So the good news is you'll get more channels; the bad news is, is as you go down the road, they are more susceptible to interference and now you're going to have problems. To respond to some of the-- I mean my wife tells me so that I can fill a room forever, so please.

CHAIRPERSON BREWER: Don't do that.

DAVID DONOVAN: Just a couple of things. I think one of the key things here is that the whole goal of reducing broadband costs, which is an important part of this debate, none of the proponents here are guaranteeing in any way, shape or fashion that you're going to get free broadband. There is only one video source in America today that you get for free, and that is for the price of an antenna and a $40 converter box you get over the air television broadcast. So

as you're working out the economic equities, I ask you to really begin to focus on that. Now my friends from Motorola talk about Geo Location. And Geo Location is an interesting thing to look at. Of course it really hasn't been thoroughly tested at the FCC. There were some tests in Maryland and they were done by manually inputting data. But if you go with a Geo Location system and you also want to protect wireless microphones, that database is going to have to include obviously your TV stations, your low power TV stations, all your wireless microphone users, schools that use wireless microphones, City Council Chambers to the extent you use wireless microphones, every church and synagogue and every theatre. You will also have to make sure you deal with cable head ends and satellite uplink facilities. That can be done; it isn't easy. The question though is as you begin to protect every school, is there going to be sufficient room to actually do the broadband services that are so advertised here in urban markets. Where I think you're really running with this in urban areas, which is why some of these folks are really into

this, is you're talking about smaller systems, in-home wireless networking, game controllers, those types of devices. And candidly, there's other spectrum to use that. The arguments that you talk about-- the spectrum having great propagation characteristics. In urban areas it also means it has greater interference characteristics. Now, on beacons, just so you understand on beacons, one, they have never been tested by the FCC; two, if a device has trouble sensing the existence of a broadcast signal, which is in a megawatt range, I don't know how well it's going to sense a 250 miliwatt beacon; three, if it is shouting as loudly as my friend from Microsoft says, that too will cause interference; four, it is very inefficient. If I, God forbid, have another event in this city or a major event and all the news trucks go together, and this is what I'm concerned with is local news, I now have to start putting up beacons in a large chunk of the spectrum that I could be used for news reporting, I am now going to have to use for centrally de-jamming beacons. It is very problematic. [Pause] I think one of the things you need to remember is--and it goes to

the fundamental question--does the FCC have enough data to make a decision. [Pause] Right now, after four years of working on this, no sensing device has worked--they have failed. Indeed the Microsoft device, I'm happy he's for a win-win situation, but he hasn't produced a device that works even in a lab. The closest you get is the Philip's device which registers every channel as occupied, it's sort of like taking your grandmother's hearing aid and turning it up real loudly. You can't live on marketed device that does that. So what you're asking the commission to do is to guess [pause] and indeed to go forward with the technology that has proven that it does not work, if it's sensing, with geolocation, a system that has just marginally been tested and I submit if you go down that road, when the government goes to certify these things, all certification says that this device was built to the rule. If you get the rule wrong, that certification almost becomes meaningless.

CHAIRPERSON BREWER: Thank you very much [Off mic]

COUNCIL MEMBER JAMES: Could you

just talk a little bit about the tests that were performed and the false positives?

DAVID DONOVAN: Sure.

COUNCIL MEMBER JAMES: Could you just go over that one more time?

DAVID DONOVAN: Yes. One of the issues, and it is in my testimony, it is correct the FCC has not produced any, produced its results on this. What you have on my testimony, we had an observer who was a former head of the FCC's engineering arm looking at all these tests and here's how it goes: The key thing about sensing is you have to be able to differentiate between a signal that is being used and when a signal that isn't being used. One of the problems with the Philip's device is that no matter where it was, it said all signals are being used. That even occurred during a lab test inside an anechoic chamber--this is a giant spectrum meat locker where no signals come in or come out. [Pause] It is clear, and I think it was admitted up here, is that what you're doing is if you crank up the sensing so much, it will always say [pause] that its spectrum is being used, that channels are

being occupied. Now their conclusion is, hey, don't worry, I'll never interfere with you [pause], but the real question for policy makers, do you have a device that works? In other words, can you put an attenuated, or can you ratchet down the sensitivity so that it actually does differentiate because you and I both know that they could never sell a device in the marketplace that essentially never turns on or does what it's supposed to do. They have to ratchet it back and they've been unable to do so.

COUNCIL MEMBER JAMES: And last question to the gentleman from Shure, Incorporated, you mentioned Congress member Maloney and Nadler, has any other member of congress and the New York delegation, do they have--have they come out with an opinion, i.e., Chairman Charlie Rangel or any other members of the caucus, the Hispanic Caucus, the Black Caucus? Have they taken a position on this?

DAVID DONOVAN: Yes.

COUNCIL MEMBER JAMES: They have. What's--

DAVID DONOVAN: Yes, you have over

80 letters from members of congress to the FCC. I believe Congressman Engel has sent a letter down. I'm not sure--I need to double-check my records as to Congressman Fossella. In addition, Congressman Gonzalez [pause] one of the--

COUNCIL MEMBER JAMES: [Interposing] The [off mic]

DAVID DONOVAN: I'm sorry?

COUNCIL MEMBER JAMES: Congresswoman Velasquez from Brooklyn, has she [crosstalk]--

DAVID DONOVAN: [Interposing] Not to--I'll check my files, I don't believe so.

COUNCIL MEMBER JAMES: Could you forward a copy of that letter to the committee?

DAVID DONOVAN: Absolutely.

COUNCIL MEMBER JAMES: Thank you.

DAVID DONOVAN: And Congressman Gonzalez, who is a leading member of the Hispanic Caucus as well.

[Off mic]

DAVID DONOVAN: No, no, no.

[Pause]

CHAIRPERSON BREWER: Given this

discussion today, one of the questions I have is, do you see that there is a time when the television and the opportunity for the devices to work and the wireless microphones to work in some way, shape, or form? Do you see that--how do we get to this place?

DAVID DONOVAN: To be blunt, you could have had rural broadband in TV white spaces in this country several years ago. Canada's doing it, they're using a licensing approach. We've never opposed this. The problem is when you get into, into urban areas where spectrum is congested and you have high-density living, your problems increase. I do not believe at this point, given the architecture of broadcasting and the way digital signals work where you don't have a signal over here and you move five feet and you get a perfect signal, that sensing is going to be an effective tool to avoiding interference. Geolocation, assuming you get the database done right and you get the rules done right, is something that's worth exploring--I'm not so--I just don't think soup [phonetic] yet.

CHAIRPERSON BREWER: Thank you all

very much, thank you very much. A great helpful panel and we look forward to more discussions.

DAVID DONOVAN: Thank you.

CHAIRPERSON BREWER: Just so everyone knows, we're not going to be voting on the resolution today and so we will be voting on it in the near future, we will let people know, but it will not be today. The next panel is Joshua Breitbart from the People's Production House, Dana Spiegel for NYCwireless, Tim Karr from Free Press, and Chris Keeley from Common Cause. [Pause] Whomever would like to go first. [Pause] What's with the water, Dana? Go ahead, whoever would like to first. Josh.

[Pause]

JOSHUA BREITBART: Good morning. Thank you to the Chair, the other members of the Committee and Council and staff who have made this hearing possible, it's a very important issue, I'm glad we're here today. My name is Joshua Breitbart, I'm the Policy Director of People's Production House. People's Production House provides young people, immigrants, and low-wage workers with a comprehensive education for the

information age, combining media production, media literacy, and media policy. We work in public schools and with community organizations in all five boroughs. I should also say I'm a Brooklyn native and I watch TV over my rabbit ears. Short of paying for everyone's internet bill, the certification of low-power white space devices, WSDs, is the single greatest step that we could take towards closing the digital divide in this country and it will not cost the taxpayers a dime. It is distressing to me and all of my organization's members that you would oppose this measure as the draft resolution suggests. The current draft resolution does not even mention the digital divide, although I do appreciate that some of these issues were raised in the opening PowerPoint presentation. This resolution, as currently drafted to discourage certification, would be harmful to the work of People's Production House and to our city. I say this as someone who has been very supportive of this committee in the past. You have done so much to bridge the digital divide, use technology to improve government, strengthen New Yorkers'

experience of technology, and boost our local economy, which is, of course, increasingly reliant on technology and telecommunications. However, this draft resolution runs counter to all of those goals. And I should say that I'm just reading briefly through the comments and my written comments are more expensive-extensive. It is sad to see this proposed resolution, which is so filled with fear and confusion. However, just now listening to the representative from the major broadcasters, you know, we just see that that-- that the main that they have on their side is fear and in contrast, engineering, the law, the economic health of our city, and the moral imperative of closing the digital divide are all on our side giving us hope for the success of device-certified access to the white spaces. The proposed resolution is simply bad policy. My written comments contain a full analysis of the resolution, including its factual errors, omissions, and misrepresentations, of which there are many. Members of this committee should ask for references to back up the claims in the resolution before you go on the record supporting

them. Since this is a technical issue that can be hard to engage the public on, People's Production House has produced two educational videos to explain what white spaces are and why they are important. One is an animated history of our airwaves, it is 3 1/2 minutes long, the other is a two minute examination of the problems immigrants face using prepaid calling cards to call friends and family in other countries, which white space devices would help solve. Abdulai Bah, who is the host of that video, wanted to be here today, but 10 a.m. on a Monday is a challenging time for those of us who aren't, like myself, professional advocates. I have included those movies on a DVD with my written comments, please watch them and show them to your constituents. They are also available on the Internet at our website, it's www.speakandlisten.net. However, to make this dense issue even more confusing, the committee Chair and the Council have both assured me personally that this resolution, while asking for the FCC to take its time in making a decision, actually supports white space devices, although cautiously. But I don't see that the resolution

says that. Why can't the resolution say nearly the same thing as it now does, but be phrased positively--as in the Council of the city of New York urges the Federal Communications Commission to implement proposed regulatory amendments that would allow portable and fixed devices to operate on the white spaces of the radio spectrum without causing harmful interference to television broadcasters and wireless microphones? It's nearly the same message, but hopeful instead of fearful. We should be excited about what this technology can do for our city, not afraid. Along with my written comments, I'm also including a model resolution which is much more positive. If you want New York City to be considered a leader in the nation on issues of technology, a visionary for the 21st century, I implore you to consider this alternate resolution. This model resolution is also available on the website and I look forward to receiving feedback from members of the Broadway League and the non-profit theater community. However, the current draft resolution sends a message that this city is closed for business in the tech sector. It tells advocates

like myself and others here today that if we want to continue our work of trying to bridge the digital divide, we must do it with one wireless hand tied behind our back. To repeat, the current draft resolution does not even mention the digital divide and even if you decide against our position on this issue, I don't see how you can ignore the 76% of low-income New Yorkers who lack a high-speed Internet connection. And, again, I know that that is not the general position of this committee, based on its past work, but this resolution just runs counter to those past positions. And Council Member James asked before about how exactly this would address the digital divide and I'd be happy to answer that in comments and there's some of that in my written comments. People's Production House, like all other WSD advocates, wants the FCC to establish rules for certifying devices that can peacefully coexist on the vacant TV channels. The FCC's tests have shown that this is feasible. Everyone agrees that if the devices can't follow the rules, they shouldn't be certified. That's simple enough, but if you want to pass a resolution to that effect, I

don't understand why it needs to be framed so negatively. Why not urge the FCC to adopt measures to protect currently unauthorized users of wireless microphone systems while also closing the digital divide and boosting our economy? The worst part of the current draft resolution is that it suggests that we have to choose between wireless microphones and new devices to close the digital divide when the new technology allows us to have both. If some groups wanted to sacrifice low-income New Yorkers to preserve Broadway, I would oppose them, but I would understand their position. But to sacrifice low-income New Yorkers for no reason at all, as this resolution does, is simply madness. I urge you to vote against this resolution as drafted.

[Pause]

CHAIRPERSON BREWER: Who wants to go next? Dana?

[Off mic]

[Pause]

DANA SPIEGEL: Thank you for inviting me. My name is Dana Spiegel, I'm the Executive Director of NYCwireless, a non-profit

here in New York City that uses WiFi technology, which is--which uses unlicensed spectrum to provide free WiFi Internet access into a number of public spaces. I'd like to first very briefly address a couple of points that were made by previous panelists here and hopefully ratchet down the hyperbole a bit. I come to you as a technologist first and foremost, a geek, if you will. I'm not a, I'm not a government liaison or any of those other types of people that you're listening to today, I make my money and do my job and volunteer building technology first and foremost not supporting the people that build technology. First of all, there was a comment that was made on a previous panel about the inability for there being--for there to be space to operate. I'd like to just point out as per--a an example, I've got a number of wireless devices in my home today. Some use Bluetooth, like this headset right here, others use WiFi like this, like this phone right here and that talks to my Bluetooth headset and at home I've got a few different WiFi networks. I've also got a number of different WiFi networks from my neighbors and

I've got at least one other device in my home that broadcasts music to my stereo from a central location, to actually to a number of stereos that's not, that's not WiFi based at all, but in fact uses a different type of mesh technology. But still in that tiny little sliver of 2.4 GHz that's made available to us by the FCC for unlicensed usage, we have--I have quite a number of devices using otherwise incompatible wireless broadcast technology that all operate seamlessly and without interference. And in fact all of my neighbors, neither do they experience any the interference from the devices that are operating inside of my apartment. This is something that has been brought out as testimony that you cannot have wireless devices that operate together, that when you have one wireless technology using a slice of the spectrum that you can't have other technologies also using those slices of spectrum and that's just patently false, because clearly you can and we all experience this daily. There was a question about, or there was a comment about the inability to coordinate frequency and I would like to point out that using WiFi technology, just

about everyone that installs a home wireless router in their apartments or their houses already does exactly this. They are able to coordinate the usage of the 2.4 GHz frequencies with just a click of a button because that's just how easy software is to operate. And so my father, who is a lawyer by trade and not a technologist, can easily make his WiFi--install and make his WiFi device operate, even though there are other WiFi devices using, using channels that are operating in the same space that he's--that he wants to install his WiFi or router for. There was a third comment about this being not an either or situation and I patently and firmly believe this. In fact, what you're going to wind up seeing technologically speaking is a very slow rollout of wireless technologies, such that come the DTV transition when the white spaces are hopefully going to become available for use by wireless technologies, you're going to see a slow rollout. Just like we saw with WiFi, it took years upon years, in fact, WiFi was first invented, precursor to WiFi was invented in 1991, and we didn't build our first WiFi hotspot until 2000. There was

another comment made by the Broadway Coalition--I forget by whom--talking about how they spend weeks upon weeks coordinating frequency usage just to launch a show and I sympathize tremendously with that painful, painful process, but the types of technologies that we're talking about introducing into the devices that make use of WiFi--sorry, white space devices are going to be not just far more efficient in their usage of the spectrum, but they will automatically take care of a lot of that coordination. So what would otherwise take three plus weeks to use and 40 to 70 channels of signal to make use of for just plain audio, will in the future instead be able to make the same functionality available on only a couple of channels of usage all automatically configured by the software and the hardware to interoperate within a matter of hours if not less instead of weeks on end. So very briefly, I'd like to just present a little bit about the history of WiFi and draw the few parallels to what, what we hope to see with white spaces--and again I come to you not to talk about the, the comments that Shure and other wireless manufacturers have made, other

people on this panel are going to talk a lot more about the technicalities of that and I'm, and I'm not going to talk to you about some of the specifics regarding white space devices either. But I wish to solely speak about the value of such white space devices for all of New York City and draw some parallels for the WiFi and its history, and I believe that there are enough similarities that we can actually draw some realistic conclusions about what might actually happen. WiFi uses radio frequency spectrum covered under FCC's Part 15 which allows companies to manufacture and sell certified devices that operate in the 2.4 GHz unlicensed frequency range, which--and allows anyone to purchase these devices and operate them without applying for an official FCC broadcast license. If you use WiFi in your house, office or park, you are using a Part 15 device. Same goes for Bluetooth headsets that you use with your mobile phones, baby monitors, garage door openers, and some cordless phones--all of which make use of this tiny, tiny little sliver of spectrum and operate perfectly fine and coordinate their interaction without much interference. The

precursor to 802.11 technology was invented in '91 and since then has enjoyed tremendous success-- you'd be hard-pressed to find a computer user today who hasn't used WiFi at some point. But it was never imagined as such ubiquitous or widely used technology. It was always originally intended that WiFi devices would be used in large office buildings only and consumer use was never even considered. In 2000, in New York and a few other cities like Boston and Seattle, technologists started using the WiFi devices to do the unimaginable--share the Internet with their neighbors. NYCwireless was founded in 2001 with a pioneering purpose of using this technology to broadcast Internet access to local neighborhoods. One of the first public hotspots in the world was in our own Tompkins Square Park. Back then devices were neither easy to use nor cheap to purchase for consumers. If you had a laptop, you could buy a WiFi card and access point for a few hundred dollars, but if you went to Tompkins Square Park or Bryant Park you could do something that no one else in the world could do--sit under a tree and use the Internet. Since 2000, New York

City has seen dozens of Parks lit up by NYCwireless and others and each year more parks and public spaces are brought online--and actually we just installed our second WiFi hotspot in Clinton Hill in Brooklyn. New York City was host to the first-ever wireless arts festival called Spectropolis in 2003 and 2004 held right here in City Hall Park. NYCwireless and others have lit up dozens of affordable housing residences and providing residents the ability to get online and have a critically important lifeline. None of these achievements would have been possible without the FCC enabling free unlicensed use of the 2.4 GHz spectrum range--and I might also add that every single device that makes use of--every single WiFi device is 100% certified by the FCC and tested completely for proper operation according to the 2.4 GHz usage rules. But even more impresses--impressive than these achievements has been the explosion of WiFi usage throughout New York City. Just about every business, both big and small, makes use of WiFi--cafés, restaurants, bars, and coffee shops offer WiFi to their customers and a significant percentage of

the over 8 million residents of this city use WiFi in their homes. And I bring this up specifically because there have been comments about the number of people that benefit from the use of existing wireless microphone devices and the huge industries that are supported by their use, and that's a very, very important component of the city, but even more important are the hundreds, thousands actually of businesses that make use of WiFi technology and who would only see benefits from the, from the use of white space devices as well. With all these people using WiFi and Bluetooth, you don't often hear about interference issues, just about everyone makes use of WiFi in their homes and businesses without issue. Bluetooth headsets work wherever you walk, baby monitors and cordless phones, devices that use the same tiny sliver 2.4 GHz spectrum work just fine too. With all of its success, it's actually surprising that WiFi is in part utterly unlike the types of devices that the FCC is considering for use in white space frequencies and the biggest difference is that the proposed FCC rules for white space devices ensure that they will not

interfere with existing spectrum users and that devices will contain technology to move around the white space spectrum automatically to ensure that they never do interfere. And this is very different from WiFi where the operator--meaning you or me in our home--have to select the frequency for operation and then tune the device ourselves and then if there is interference, it's incumbent upon us, the operator, to change this and so, in fact, the regime that the FCC is talking about implementing right now is very different in that it's far more restrictive in terms of its operation then WiFi is today. In discussing this history of WiFi and highlighting its achievements, I hope to paint a picture for the council about what space devices may mean for New York City. Such devices have the possibility of enabling larger scale Internet broadcast, providing inexpensive or free access to whole neighborhoods from the central anchor of a park. More buildings will be able to be retrofitted with Internet access--a current challenge for a number of old NYCHA buildings, for example. Schools and libraries will become Internet hubs, and in fact

some of them already are, most libraries in New York City provide free WiFi access to visitors. In short, this--the amazing things that we've done with WiFi will be amplified with the availability of white space devices. The FCC already has proposed white space device rules in place that ensure non-interference. Indeed New York City and Broadway, who make--who actually make use of WiFi in their theaters to provide Internet access to stage and production staff, stand to benefit enormously from white space devices--even while continuing to use their existing technology. Imagine if, instead of just using wireless microphones for audio, we could instead have video performances that could be broadcast across entire neighborhoods and those entire neighborhoods could be--could participate in such events. This is a promise of the white space devices that are currently being considered for the FCC--in front of the FCC today. Thank you.

CHAIRPERSON BREWER: Thank you. Who's next?

[Pause]

TIMOTHY KARR: I'll go next. Hi,

I'm Timothy Karr, I'm the Campaign Director of Free Press. Free Press is a national media reform organization, we have nearly 500,000 members of, of those there are 17,000 members who lives in New York City and I'm happy to report that that many of them are here today. As you may have guessed by now white spaces is a political issue, but it really boils down--

CHAIRPERSON BREWER: Really?

TIMOTHY KARR: Yes. But it really boils down to this, white spaces is an issue that pits those who have spectrum access and want to keep it for themselves against those who don't and want spectrum to be used to serve other purposes as well. Such purposes such as high-speed Internet access, especially for communities that have been bypassed by the incumbents or who simply can't afford access. In the middle of it all is developing technology, which despite what you have heard from some of the haves in the room today, can and will meet acceptable and certifiable standards of noninterference. The FCC is sorting that out at the moment, as it should, but it's important to understand that politics should not

stand in the way of technology, especially technology that could bring vast benefits to so many people. So let's look at the opportunity. [Pause] Free Press analyzed the five boroughs of New York City and we looked at the available spectrum in this, in this band. We found that after the February 2009 digital transition, there will be 10 vacant channels in New York City for low-power broadband use--that means 20% of the entire TV band will be laying idle. This is amazing given the usual overcrowding that occurs in heavily populated areas. By contrast, for example, in Juneau, Alaska they have 74% of similar spectrum available, still 20% is a considerable amount. But more important, if we were to limit the spectrum to licensed use, there be no white spaces for use in New York City--none at all. This is because unlicensed use permits low-power, small devices such as those being created by engineers at Philips and Motorola. [Pause] This is--license does not--this is only to underscore an important point, licensing in New York City means no new broadband providers. Unlicensing this incredible new technology is one

of the last best hopes we have to deliver vital broadband services to New Yorkers who need it most. It's important that the city council not stand in the way of this important innovation for your fellow citizens. As it is written, this resolution is not only unnecessary but also is possibly a step in the wrong direction. We urge you to ask the FCC to decide in the public's best interest and that's to open white spaces for everyone. Thank you.

CHAIRPERSON BREWER: Thank you.

[Pause]

CHRIS KEELEY: Good afternoon. My name is Chris Keeley and I'm Associate Director of Common Cause/New York. Common Cause/New York is a nonpartisan, nonprofit citizens' lobby and a leading force in the battle for honest and accountable government. In New York State, we have 18,000 members statewide, many of them here in the city. Right now we're working on several fronts, including working to increase the diversity of voices and ownership in media, to make media more responsive to the needs of citizens in a democracy, and to protect the

editorial independence of public broadcasting. For decades, we have fought to increase access to government and government transparency. The proposal before us today offers a valuable opportunity to consider major development in telecommunications, namely the burgeoning availability of white spaces. Common Cause believes that white spaces hold great potential for increased democratic participation and greater access to government. The Federal Communications Commission proposes that these spaces remain available for public use, Common Cause, here in New York and nationally, supports this proposal. In recent years, the Internet has provided far greater access by citizens to their government. Whether it is through the posting of legislation or regulatory proposals online, web streaming of committee meetings, or the availability of government forms for download, the Internet has brought access to the government decision-making process and its services right to the fingertips of citizens with an Internet connection. White spaces have the potential to unlock a wave of technological innovation that bring more citizens

high-speed Internet access. Engineers, designers, and developers would have great incentive to develop new products, thereby facilitating a drastic increase in Internet connectivity, both here in New York City and throughout the state. Instead of having locally installed broadband access or limited strength municipal wireless networks, the powerful white space frequencies would unleash the Internet connectivity at far greater speeds and easily surmount many physical and economic barriers. Common Cause expects that continued technological innovation will bring more citizens and non-citizens into the technological age and help to bridge the technological gap. Many agencies here in New York State are already harnessing the power of the Internet through web-casting and posting of agendas online. With broad access--with broader access and faster speeds, however, the white spaces would provide the concerned citizens throughout the state would bring them right into the decision-making process, regardless of economic, physical, or geographic barriers. We expect to be at the forefront in New York City and state in the fight for additional

government disclosures being provided online, such as advance notice of public meetings and the web streaming. Freeing the white spaces would broaden any of these benefits by leaps and bounds. Unleashing the white space is good for democratic process in New York and good for the citizens of New York. In recent years, New York City, the members of this committee, and its Chair, in particular, have drafted and supported forward-thinking proposals to bring the people of New York into the legislative process and decision-making process by harnessing the power of the Internet. City agency information is made available for the public to review and that is largely a credit to the members of this committee. The FCC's proposal would give the valuable efforts of this committee and Council a powerful shot in the arm by allowing this additional information to be harnessed by countless additional Internet users. Common Cause strongly supports New York's cultural institutions and members of its entertainment industry. We understand the concerns cited in Resolution 1613 regarding this industry. We, like the sponsors of this resolution, do not believe that the twin

goals of protecting New York's entertainment industry and freeing the white spaces are incompatible. However, we are concerned that this resolution in its current form will encourage those who simply oppose opening up the white spaces to broader public use. We believe that the Council is in a unique position to urge the FCC to take the necessary regulatory steps to ensure that both the broader public interest and the concerns of the entertainment profession in New York City are served by the FCC's proposed regulation. We urge the committee to revise Resolution 1613 to more strongly support the underlying goal of unleashing the power of the white spaces and facilitating broader access to our city, state, and federal government. If there exist technological fixes to the problems the resolution raises, which judging by today's discussion it seems is certainly the case, we urge the Council's modified resolution to include specific reference to some of those, to some of those fixes so that there is no gray area. We know that there are technological ways around this, we know that this is not--that these twin goals are not incompatible

and we hope that in a revised resolution we can make specific reference to those sorts of technological fixes. Thank you once again for this opportunity to testify here today and I look forward to working with the Council on this and other issues in the future.

CHAIRPERSON BREWER: Thank you very much. All of you have contributed a great deal to the work of this committee and I appreciate it and certainly our goal is what you talk about. I just think that what we're up against is a unique situation in terms of the Broadway and I think that certainly, Common Cause, you outline some of them. But my question is one of the concerns is, do you believe it is possible with current technology for all of these uses to exist at the same time? I know you say yes but in--nobody has what you have in your home in terms of all the devices. But those of us who have some portion of them, multiply that times much more and will Broadway still--let's just focus on the Broadway issue, because that's what the resolution is most concerned about. How do you think we would feel if just one Broadway show had interruption. It's

one I don't really care what I have in terms of interruption at my home, but I care very much about what goes on on Broadway. And so I just--I want people to understand, we all want what you want, but we do not want any interruption in our most--our really our--maybe only draw to New York City in 2008.

JOSHUA BREITBART: So, I mean, I have a 9-year-old sister who loves Broadway musicals--

CHAIRPERSON BREWER: We all do.

JOSHUA BREITBART: --if I, if I had to go, you know, have Roshashana [phonetic] dinner with her tonight and tell her that what I did at work today was something that would harm that, I wouldn't build to look her in the eye. There's no way that People's Production House would advocate for any technology which would disrupt our fellow cultural institutions in this city. So I can tell you that I am 100% confident in the engineers at the FCC and the Federal Communications Commission that they will find a way--or that they could find a way to--or that they would not let certified devices that would cause interference. I think

that the part of the problem right now is that the Broadway users, as they [pause] when they were at this panel before, said that they are currently unauthorized and I think that the FCC needs to address that problem as well as finding a way to open up the spectrum. And, as I believe I sent to some of the members of this committee, the Public Interest Spectrum Coalition has submitted a filing with the FCC that proposes what I think is an excellent solution. To the extent, just speaking for myself and my organization, to the extent that, you know, beaconing technology or anything along those lines requires any sort of capital outlay to solve that problem, I think that that--I think the people responsible for that capital outlay should be the wireless microphone manufacturers who have used deceptive advertising over the past few decades to get these unauthorized users to purchase their products. So--and I--and that's something, as I say in my testimony, that, you know, I've sent information to staff at the state attorney general to look at because I think that they've caused part of this problem and now what they want is regulatory

relief, not any sort of accountability.

[Pause]

DANA SPIEGEL: So I want to thank you, Council Member Brewer for asking that question because I think it is really important for us to sort of rein in our viewpoint and be very specific about the sorts of things that we're talking about here. I obviously haven't used white space devices first-hand because they're not yet available, but I do trust the technologists that both work at the FCC and work at a number of wireless equipment manufacturers, including Motorola and Microsoft even though they don't technically manufacture a whole lot of hardware, they're mostly known as a software company. I would point out that there are a couple of things that we should be considering when you do ask that question. First of all, the types of uses that we see for existing audio--wireless microphones are very limited in their scope and space size. So their--Times Square is obviously a huge headache in terms of radio spectrum usage, but you step outside of Times Square and those same frequencies are not nearly congested in the same way. So what

we're really talking about here are highly constrains relatively small, though important, parts of the city that have the potential to have some sort of concern about any legislation that the FCC might pass or rules that the FCC might pass. Same thing goes for places like Madison Square Garden, where such broadcasts are very well contained within the arena itself. We're not, you know, you can't receive a Madison Square Garden audio broadcast from their Shure microphones all the way down in the bottom of Penn Station--and maybe you can in Penn Station, but you certainly can't receive it across town in Grand Central Station. Same thing is true for Shea Stadium and Yankee Stadium and the new stadiums that are being built, you know, you'd be hard-pressed to receive much of the broadcast that they currently use along the highways that pass nearby them or potentially even the subway that passes by Yankee--to Yankee stadiums. And so when you talk about these things the--if you can't receive the signal, then a similar, then a similar broadcast from where you can't receive the signal--if I just did, you know, if I broadcast in exactly the same way

back to those people that were using that frequency, the same would be true for them. They wouldn't really be able to hear, much less have interference from the signals that I was broadcasting. And so if we're talking about relatively low power usage, which is what the Broadway folks on Broadway and off-Broadway use and the folks at all the other sporting events and arenas use, we're not talking about huge issues across all of Manhattan or New York City or anywhere else, we're talking about highly localized situations here. Some of the suggestions that have already been presented more than handle any additional issues that may crop up. For example, slicing out particular pieces of the white space spectrum for exclusive use by wireless microphone users, which is also actually something that my colleague Josh here just commented upon, will mean that everyone will be able to continue using their existing wireless microphone devices and everyone else will be able to use the other spaces that are not specifically allocated towards that type of usage. In addition, none of this takes into account any of

the vastly superior technologies that are already available and are going to become more available. In fact, I give you as an example that same little Bluetooth device that I pointed out before, this little ear headset has intelligent technology called DSSS--Distributes Spread Spectrum Signaling--that makes sure that I don't ever have to touch what channel it operates on, it figures it out automatically by coordinating with my phone. And what that means is that even though it's operating on exactly the same frequencies that my WiFi devices are operating on and any baby monitors that I might be walking nearby operate on, and a cordless phone operates on, it still functions just fine and it doesn't interfere with other devices, and that's part of the requirements for being a Part 15 device. And I point this out because this is old technology, Bluetooth has been around for a number of years and the standards have been passed quite a number of years ago, and what we're really talking about in terms of the use of white space devices is much newer technology that does an even better job than the existing excellent job that existing devices make

use of.

[Pause]

CHAIRPERSON BREWER: And what about the television issue, which is also very controversial? Do you feel similar to sort of self--the same description that you just gave for the cultural institutions? Are you also saying that there's loss of compatibility? Go ahead [off mic].

JOSHUA BREITBART: Well, unlike Dana, I'm not an engineer but my understanding of the FCC tests that the devices successfully detected signals far strong--far weaker than what a television needs to display. So I have no concerns about their ability to detect viable television signals.

CHAIRPERSON BREWER: Thank you. I'm sure there's a disagreement with that, but go ahead, Dana, did you want to comment on [crosstalk]--

DANA SPIEGEL: No, I just wanted to comment on what Josh had just mentioned, which is that sensitivity in detecting in the signal--sorry, in the devices that we're talking about

here, unlike the viewpoint raised by the folks that were on the previous panel, sensitivity is ultimately a very good thing and it's respectfully not the--not anyone's job, this council's nor mine, to indicate to a company what sort of--what sort of device they're going to be able to market, but I can tell you, certainly that if you're able to detect signals, for example TV signals, much more weakly than is really necessary for the type of, for the type of use that we're talking about here, then I am confident that those, those hardware manufacturers, like Motorola and others, are going to be able to successfully, not just build devices that are sensitive enough to not--to make sure that there's no interference, but are also useful and utilitarian for all of the uses that one might expect them to be. So I don't--I honestly don't buy that comment that was previously made about, you know, how can you, how can you manufacture and market a device that's so sensitive.

CHAIRPERSON BREWER: Okay. The timing is obviously something that we're concerned about, some others want it to be along the FCC

timetable of a November December and then some folks want to postpone it because they feel there's not enough information available. I assume that you feel it should move forward, but what would happen after that in your opinion? How far are we from implementation? It took a while to get, even though we're now in the hotspot and we have lots of background and we've certainly done a lot of hotspots in the United States, it took a little while to get the WiFi rules promulgated. So what do you think in terms of current FCC timetable, a little bit more time and how do you think that would either help or hinder what you're advocating?

TIMOTHY KARR: Well earlier panelists had indicated correctly, I think that the process has been long overdue, certainly we're hopeful that the FCC will issue an order that will set forth the rules for certification and we want to make sure that those rules do protect the various interests that are using spectrum. And as usual in the process is once those rules are promulgated, the industry then tries to build devices that meet that certification standard.

The other, the other date here of course is the February date for the DTV transition so, you know, I don't see--I don't foresee, you know, come February 18th, you know, a instant flooding of the market with white spaces devices, I expect it will take much longer than that as obviously, you know, the business side takes quite some time, but the certification process itself will have to be made very clear. So I think it's time for the FCC certainly to decide as to the time when these devices will be made available, there are so many variables in there, both on the market side and on the regulatory side. It's too hard to say.

CHAIRPERSON BREWER: What do you think the cost of, I know the gentleman who spoke earlier who's a producer at Manhattan Neighborhood Network, he's always trying and we all are to find, as you are, low cost, affordable access. So there would be obviously wireless networks, white space networks, we don't know what the--we got some descriptions earlier about what the device might look like or not look like. This is, you know, we're talking--really nobody but us knows what in the world we're talking about here, but

one question is, what would be the cost associated with all of this in terms of access? If anybody knows.

JOSHUA BREITBART: Well, that I think is what is so amazing about this technology and why we're so hopeful about it. As you know better than anybody from the, from the Diamond report, we saw that in terms of broadband availability, there's very high availability in the city, 98% have access to cable, 87% have access to DSL, yet only 56% of moderate and high income households have adopted it, and only 24% of low-income households have adopted it. When we're talking about broadband adoption, what we're talking about is trying to convince people to spend more money. That's what the, you know, that's a lot of--often the problem, that trying to make that less money or more money, it's still an additional expense that we're trying to convince people to spend. What's amazing about wireless technology is that if you look at cell phone usage, mobile phone usage, the digital divide, I've certainly won't say it's erased, but it's, according to the research from the Pew Internet

and American Life Project, it's far more equivalent than computer usage and at-home broadband usage. And what we're talking about--and in fact, you know, I can show you the data, but that, in fact, in terms of using, you know, non-voice applications, that, African-Americans and Latinos actually lead in those areas. You know, seniors who have, you know, Internet access below 30% still have like 50% use of mobile phones. So what we're talking about with wireless is the ability to deliver those services more cheaply and deliver Internet connectivity to people's mobile devices. They would be different devices, but it's something that people have already decided they would spend money on that they recycle--they buy a new device every two or three years anyway, if you're like me, I hold onto it for four years. Nevertheless people make--have decided that it's something they would purchase, something they would pay for, this would save them money and deliver broadband access to the device they're comfortable with right now.

DANA SPIEGEL: So I think there's really two--thank you--I think there's really two,

at least two different types of price questions that you are alluding to Council Member Brewer. The first is the cost for the actual technical devices--it's the headsets and the computer equipment or cards that need to be purchased and installed and whatnot and I think that we can take a lot of direction and draw a lot of conclusions from a number of different technical timelines for other somewhat similar technology. For example, WiFi, as I mentioned first, was really initially invented back in 1991 and has since, when we started, NYCwireless started, it would cost, you know, quite a few hundred dollars to buy an access point and it would cost you a few hundred dollars to buy a card that would provide slow, slow access to wireless signals. Since that time, which is about seven years, what we have seen are orders of magnitude drops in the cost of the devices themselves as a direct result of the widespread usage and widespread adoption of these devices. So now just about every phone you buy has WiFi and it has Bluetooth and because of that the magnitudes of scale drive down prices very significantly. So what I do expect is that

perhaps initially white space devices might be a little bit more expensive because they are a new technology, very quickly they're going to drop very significantly in costs such that you won't be able to necessarily purchase a laptop or a handheld device without having it built in, just like today, you really can't purchase a laptop or a handheld device without WiFi or Bluetooth being built in. The second question that you had--I'm sorry, the second part of the question is about service and what, what it's going to cost for us to make use of this new spectrum and for that I can also point to the history of NYCwireless and its use of WiFi technology. It used to be the case that, and a good example of this is Bryant Park, where we needed thousands upon thousands of dollars of Cisco equipment in order to light up the park and it worked incredibly well and we've learned a lot since then. And one of the things that we've learned is how to make use of the much--much less lower cost devices that can offer the same quality of service--in fact greater quality of service. We just installed a hotspot in Clinton at a nonprofit there providing WiFi access

to a local playground in a--right next to a low-income housing development. The cost of the hardware in its entirety was a few hundred dollars and this is, again, drops by orders of magnitude in terms of the cost of installing these devices. The biggest cost for getting FiOS, for example, that Verizon is incurring right now, are the actual street rolls [phonetic]. It's actually getting--hiring someone or contracting out with someone to go out and install the actual fiber and draw it along the streets and run it into the buildings and so on and so forth. And so what we've seen with some of the low-income housing units that we've installed free WiFi into is that we can do this--we can provide a similar level of service in terms of Internet access for maybe a thousand or a couple thousand of dollars for the entire building in terms of equipment and installation cost versus the probably tens, if not hundreds of thousands of dollars, that it might cost Time Warner cable to do the cable runs and draw out--or Verizon to draw out phone lines to those same locations. And so what we fully expect is that with white space devices, once the

hardware comes down to a point where it becomes accessible for most people and widely distributed, that we'll be able to roll out Internet service very inexpensively, far more inexpensively than most of the other Internet service providers do today.

CHAIRPERSON BREWER: All right. Thank you very much. [Off mic] I want to thank this panel for extraordinarily--working extraordinarily hard to produce testimony and for your support and we will continue to work together. Thank you very much.

MALE VOICE: There's three left, I don't--

[Pause]

CHAIRPERSON BREWER: Gracey Stodder, who's a representative of Congresswoman Carolyn Maloney.

FEMALE VOICE: These two are against.

CHAIRPERSON BREWER: [Off mic] Stephanie Lim [phonetic] and also John Weaver. [Pause] Ms. Stodder, I hope you're here still. Good, why don't you come on up. [Pause] This is

the last panel. [Pause] Go right ahead, thank you for being here. [Pause] You got to push the button, it's the old technology.

GRACEY STODDER: Okay. Thank you, Madame Chairman and members of the City Council for your attention. Congresswoman Carolyn B. Maloney regrets that she cannot be here and has asked me, Gracey Stodder, to testify on her behalf. In the interest of time, I will summarize her two-page testimony, of which I have given copies to the Master of Arms. Today, I want to offer testimony to express my strong reservations regarding the possibility that the Federal Communications Commission will permit unlicensed operation in the TV broadcast bands commonly referred to as white spaces based on the very circumspect results derived from the Commission's laboratory and field testing earlier this year. The FCC's tests, one of which was conducted right here in the Broadway district at the Majestic Theatre, demonstrated that these devices are very likely to cause debilitating interference to wireless microphones, especially in urban environments like New York City. The impact could

have serious repercussions on live theater in New York, which contributes $5 billion to the city's economy and 44,000 full-time jobs to city residents. To give you an idea of just how congested Manhattan's white space is, 40 Broadway theaters put on daily performances using up to 200 different frequencies for their microphones in each venue, and television studios such as MTV, ABC, and others share crowded airwaves using a good neighbor policy. Technology that is not ready for prime time could also interfere with pre-existing devices used by smaller, but important organizations, such as churches and community centers. Diverse groups such as the National Association of Broadcasters, the National Religious Broadcasters, churches across the nation, the NFL, NASCAR, Grand Ole Opry, the Country Music Association, Broadway, Cirque du Soleil, and the MGM Grand have expressed serious concern. Last week, proponents of these new devices held a pep rally on Capitol Hill intended, in their words, to encourage the FCC to approve white space devices this year before the presidential election. I don't believe that this

issue is so time sensitive that we should look the other way so the Bush administration can make another long-term policy decision that cannot be undone and which potentially devastates Broadway productions. It makes much more sense in my opinion, to let the next administration settle in, appoint its own FCC commissioners, and revisit the issue at that time. In conclusion, I want to emphasize that I support innovation and encourage the efficient use of public airwaves, but not at the expense of existing wireless microphone systems that provide an important public good. We can not afford the risk that premature devices will play havoc with essential equipment used by a multibillion-dollar New York City industry. I encourage the City Council to make a strong statement in support of Broadway and wireless microphone use throughout the city. Thank you.

CHAIRPERSON BREWER: Thank you very much sir?

JOHN WEAVER: Good afternoon. Thank you very much, Council Member Brewer, for having this committee meeting and my name is John Weaver, I'm with Liberty Imaging here in New York

City. I'm mostly a technologist, I've been with the broadcasting industry for about 40 years. Currently I am working on developing very high-resolution cameras for the security industry, I'm a member of the Security Industry Association and a member of the Society of Motion Picture and Television Engineers. I have several remarks in my paper on the question of the wireless microphones, but I just make two quick remarks before my statement. First of all, the FCC has established docket number 08166 to address the issue of wireless. This docket means that they have started the certification process. They will set a series of meetings within the organization to establish standards and rules for certification. I'm quite certain, I have a long history with the FCC and working with them and mostly on digital and HDTV standards issues, and I'm quite certain they're very sensitive to this issue and their history is that they certainly don't want to put anybody out of business and they'll find a way of accommodating this. The second thing I would add to that is the IEEE, which is the standards-making body, which was

mentioned earlier by one of the previous people testimony--testifying sitting in the seat which had developed 802.11, which is a very successful standard for WiFi. Has also established 802.22, which is a committee working on this issue and they will develop standards for microphone--wireless microphones. Right now, they've already established preliminary standard for fixed microphones and another group is working on the wireless, so I feel very confident from a technical point of view that the RF engineers will resolve this. I might add that of all the areas in television and audio broadcast, RF is the most, if I may say, treacherous for engineers, it's a very difficult area, highly specialized. However, RF engineers have been dealing with this problem for over 75 years and are well grounded and well familiar with the issue. So I'm quite certain that they will find a solution and it may not be--the bad news is that everybody involved in the transition from analog to digital will have to make a new investment, there's no way around this. The broadcast industry in New York City is the highest concentration anywhere in the world, they

just transitioned from analog to digital television, it's cost billions of dollars--none of them wanted to do it, but they did it anyhow and it's going to be very successful. So I'm sure that this will be successful too. The question here on, as far as my testimony is concerned, has to do with the economic opportunity that white space, white space has offered to New York City. And while it's absolutely true that white space in our spectrum here represents only about 20% of the available space as opposed to much higher allocations in rural areas, that white space also is the maybe last bastion of hope for a very low cost, high-bandwidth service throughout the city. And the issues in my, in my view are education to start with, we need to get much higher bandwidth in the schools. This is an absolute, this is not a question of [crosstalk]--

CHAIRPERSON BREWER: We're aware of that, we're aware of that.

JOHN WEAVER: I'm sure, but I'm testifying. This is an absolute. We've gone from 3rd to 16th in worldwide adaptation of broadband. You can--in Japan, you can pick up the phone and

get gigabit service. Our children are at a huge disadvantage, which won't appear in their careers for the next 20 years, but eventually it will. And New York has the most diverse population in the world which produces synergistic effect of having the most creative the population in the world and we have here the opportunity to generate a new business, a new industry. It may not be as big as broadcasting, but it's one that New York City could very easily dominate if it's handled properly. And I think there is--that opportunity's before us. We've missed out on a few other opportunities in the past, particularly HDTV because of a lack of understanding of the opportunity and a lack of investment. But in addition to that, the propagation characteristics of this spectrum is very good for video, much higher than Internet service today. So creating video services, whether they're for entertainment or law enforcement or emergency uses, would provide much better quality video than in the past. And I look at the situation for security, which is my particular focus in providing higher security systems for public buildings,

particularly public housing, which is depleted now because of the services there, the technical infrastructure there is not capable, would you like to ask questions?

CHAIRPERSON BREWER: We just need to wrap up 'cause we got, it turns out there are two more people who signed up--

JOHN WEAVER: Okay.

CHAIRPERSON BREWER: --so if you could just wrap up and we can include your--

JOHN WEAVER: All right. Sure.

CHAIRPERSON BREWER: --testimony as part of the record.

JOHN WEAVER: Okay. Yes, I did. The last thing I would suggest is just, as an initiative, we should be possibly looking at, instead we're getting too sidetracked on this, what is a solvable technical issue with microphones, possibly look at a broader view of developing some enterprise to create an industry in New York by both supplying high-bandwidth service to the community, particularly schools and libraries, but also the educational background support for our children to learn how to develop

businesses around this technology. This, I think, would be the most important thing we could do rather than being too terribly concerned about a technical issue we actually can't do much about.

CHAIRPERSON BREWER: Thank you very much, thank you both for your testimony. The final two speakers are Michael Lewis, Wireless Harlem, and Dharma Dailey of the Ethos Group and that's it. I'm sorry I didn't know that you wanted to speak.

[Pause]

[Off mic]

CHAIRPERSON BREWER: Whomever, whomever would like to start, go ahead.

MICHAEL LEWIS: Good morning. My name is Michael Lewis, I'm the founder of a nonprofit organization called Wireless Harlem. Thank you for the opportunity to testify at today's hearing. I'm here today to urge the City Council not to delay the FCC's introduction of new unlicensed wireless spectrum or TV white spaces. I wanted to just start by talking about Intel Corporation, Intel Corp. Chairman Andy Grove laid out a new principle when he discussed a concept he

called strategic inflection points. He observes this concept during his stewardship of Intel, and he said that these strategic inflection points represent moments in history when new developments in the marketplace represent an opportunity for fundamental change. One could argue that we are at such a crossroads today with TV white spaces or more importantly more and better wireless spectrum. The public benefit is very clear: for rural communities, WiFi signals could cover greater distances and reach more households and in larger cities like New York, WiFi signals over white spaces could cover more people in densely populated area and using far fewer wireless radios than necessary today. At the beginning of this year we started a program in partnership with the Children Storefront in East Harlem called Tech Saturdays where once a month we give refurbished computers to any family in Harlem that wants one. Since the beginning of this year, our volunteer group has given away nearly 500 computers to families. While today we have the computers, in fact we are running out of space to store the PCs and eMacs we get from other schools, we also use

license-free software to install word processing and educational programs, but the missing element for most families is still the broadband connection. This is primarily because the costs for families is out of reach. But our organization isn't only hearing from these families, we get calls from students, college students, small business owners, and more and more residents of Harlem e-mail us and say they cannot get affordable--cannot--who can afford broadband access but for whatever reasons have been stalled in their efforts to get connected using today's carriers. With the introduction of more and better widely available spectrum, more neighborhoods and small business owners would be able to get access especially in spaces where there is difficulty in reaching customers or when affordability is an issue or for small business owners who have to spend resources in other areas. This development shouldn't be seen as occurring at the expense of current telcos [phonetic] and cable providers. Indeed, for many residents who cannot afford broadband connectivity, WiFi over white spaces could be a viable first option from

community-based organizations like ours and many others across New York. As more residents became familiar with download and upload speeds and as their needs change, they would have the option of moving up in price and speed. Over the past several months, we have tested commercial and off-the-shelf mesh networking equipment. We believe that it represents--mesh networking represents the realization of low cost, easy to deploy broadband networks. During our tests, including several within 100 to 200 feet of large and small churches using wireless microphones, no interference issues were reported. The spectrum being freed up with TV white spaces would be key for the spread of broadband access to more of New York's neighborhoods and small businesses. I'll end by saying that today there is a great deal of positive public awareness being generated on radio and television commercials alerting residents that with the onset of DTV in February 2009, that many older televisions will not work. Our hope is that shortly after this shift takes place, we will be able to explain to consumers and small businesses that the abandoned white spaces also open the door

for more wireless broadband options for New York's neighborhoods and small businesses. Thank you for --

CHAIRPERSON BREWER: [Interposing] Thank you, and Kathy at Children's Storefront loves you, she's the principal.

MICHAEL LEWIS: Thank you very much.

CHAIRPERSON BREWER: Go ahead.

[Off mic]

[Pause]

CHAIRPERSON BREWER: You have to push the button, it's low technology. [Off mic]

DHARMA DAILEY: Okay. My name is Dharma Dailey, I am the Director of Research for the Ethos Group, a consulting company, which focuses on the social impact of local broadband. In plain language, I do participatory acts in research, which means I get to go around the country and sleep on people's couches and see what kind of connectivity that they have and try to work with, directly with community advocates, community media groups, media reform groups at the grassroots level to address the persistent

communication gaps that exist in local communities. I don't define this work as digital divide work because it's not about technology, it's about solving people's communication problems. I'm going to skip through most of my testimony 'cause I'm sure people want lunch. But briefly, there is an arc over the last hundred years that's continuous and steady progress of technologies that allow for more intensive use of the airwaves. One example that I think is really exciting I just learned about last week, which is not necessarily a wireless white space device, but an FCC engineer that I was speaking with last week, on his desk is looking at retinal implants. Retinal implants are electronic devices that are so precise, they work exactly with the brain waves in your own brain at just the right power and just very frequency to be able to give sight to the blind. And this is the kind of precision that is here and available to us and we should be using that kind of precision to get more public, more public areas available to more of the public. I've been an advocate for opening up the airwaves to the public for over 15 years, which means that

I spent about a third of my time on the road with grassroots groups and about a third of my time sitting through proceedings like this and a lot of the things that I heard today are not new. Maybe it's not Motorola or Shure, maybe it's the National Association of Broadcasters or some other group, but the tactic of couching business models and political agendas around technology is a persistent tactic that consistently we come across as we fight to open up the airwaves for public use. The National Association of Broadcasters would look like right fools if they had gone to the FCC and to Congress and said that tiny three watt stations that broadcast to a city block or a suburban neighborhood or a housing project like the one that I grew up in, would fracture their market share so we need to keep them off the air. Instead, they say tiny neighborhood radio stations will make airplanes fall out of the sky. I appreciate what the broadcast engineers today have said about the different--difference of RF or interference and the challenges that provides. My strongest recommendation to the Council would be to go directly to the FCC engineers because they

are the closest thing that we have in the public sphere to--they're engineers who work on the public's behalf and I would suggest to you that, instead of bringing in manufactures and so forth to discuss the different merits of their different technologies, pick up the phone and get some of those guys here or go down to the FCC and talk to them. There's a number of briefings that have come out in these proceedings that are meant for policymakers and meant for non-engineers that go over all of the different technologies that are being discussed. The one that I found the most helpful and useful for a non-engineer is that cognitive radio and PRM, notice of proposed rulemaking, which is what Commissioner Powell had got started, that gives an overview of all these technologies. And the important thing to understand is that most of these technologies are not new technologies, but what's innovated is not the technology itself, but the way that the technology is being applied. And what we as community advocates are asking for is we're saying let's take--let's look at the deck of all of the different cool technologies that have been around,

you know, old and new and let's shake those up to see how we can get more intensive use of the public airwaves for our public uses like broadband. [Pause] I disagree with a lot of the testimony that I heard earlier about how easy it is for mom-and-pop groups whether they're civic, cultural, economic, or small government to be able to negotiate the licensing system at the FCC as somebody that has held hands with a number of community groups going through that process and found it to be extremely difficult. And so as we look forward at the different opportunities that these new technologies, we're looking at what we'd like to do is we'd like to push the FCC and push the licensing regime down into the streets where we're lowering the barriers to entry, making the technologies do more of the work of figuring out how to share the, share the airwaves nicely and I think that that's really possible. [Pause] I'm also not a resident of New York City and, while I respect the fact that the Broadway industry is a very important industry for this country, this is unique environment. The resolution as it reads now will be read in a very politicized way as

something that is favoring the industries that exists perhaps some of the most well-endowed cultural institutions and most well-known cultural institutions in the world over, over things like rural broadband, which is what we're fighting for. [Pause] In most places in the U.S. there's a, what's called the point of presence and that is a place where you have really good broadband connectivity coming into the community that is somewhere within a few miles of most of us. And in most places in the U.S. there is competition up to that point of presence with dozens or sometimes even over a hundred different providers that are bringing connectivity into the community. But spiraling out from that point of presence in a lot of places, including some areas of where I live in Greene County, there is no broadband even by the lousy definition of broadband that we have in this country. Cable and DSL are stopgap technologies that won't be considered broadband in a few years and even so--but they haven't gotten to every place in the country. [Pause] So only 38% of rural Americans have broadband service right now and part of that is not just that they can't

afford it, which is an issue, but also it's not available. [Pause] Our area of Greene County typifies a lot of the problems that are in rural areas. Recently I spoke with a broadband adviser to former Governor Spitzer who tell me that he had familiarity with my county. He used a single word to describe our communications infrastructure--hopeless. In context, I believe he was not only discussing the infrastructure, but also the lack of vision in the county. In preparing for the hearing, I spoke with a county economic adviser who told me it was invasive and inappropriate for the county to keep track of where communication services are available for county residents, which may explain why my neighbors--some of my neighbors like 28% of rural Americans according to Pew--which I brought a copy of the most recent Pew Internet research for you--can't get broadband at any price. And like most of my county, I have something that I'm paying for that's called broadband, but the service is not what--the quality that I expect. The cables are strung from telephone poles, we have regular weather-related outages that can last for hours, and while my

neighbors are inconvenienced by not being able to get television service, for me, my livelihood depends on broadband, so it's a productivity issue for me.

CHAIRPERSON BREWER: Can you wrap up? I'm sorry. Thank you.

DHARMA DAILEY: This is the end. I just want to urge the Council to consider changing the language that you have in your current proposal to reflect the shifting expectations that the public now has to be able to use the airwaves in more intensive ways and to focus on the public demand of pushing for a regime that makes it easier for artists and everyone else to accommodate public use.

CHAIRPERSON BREWER: Thank you both very much. I want to say three things. First of all, the administration wasn't here, but the Department of Information Technology and Telecommunication did submit testimony and we will put it on the record, they do support the resolution. Second, we're going to try for the first time to get everybody's testimony up on the City Council website and we also have a blog, so

it will be up on there, and of course, it's all live I think in terms of different types of technology being used here today. And just finally, we will take everybody's words into consideration, you can see, for those of you who didn't know that this is a very important topic. The only caveat I will say, and I've said it many times today, is we all live in different parts of the country, but those of us who live in New York City feel very strongly about our industry and feel very strongly about our cultural institutions and so we want to accommodate them, as somebody with a long history of figuring out how we can have more access in the city of New York, the words of people who advocated for that, we take very seriously and I think, you know, not to be too--not to leave anybody out, we want to make sure that there's no interference for television or anything else. So we have a broad agenda, but I appreciate the time and effort that people made to come here today and we will keep in touch. We will put everything up on the web and we will share with you when there's a vote and what we're doing. Thank you very much.

C E R T I F I C A T E

I, Tammy Wittman, certify that the foregoing transcript is a true and accurate record of the proceedings. I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

Signature Tammy Wittman

Date October 22, 2008