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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In re Application of	)	
	)	
NEW YORK SPECTRUM	)	
HOLDING COMPANY, LLC	)	**File No. BRXLD-20131125____**
	)	
For Renewal of an Experimental License to Conduct	)	
Experimentation with Hybrid Broadcast/Broadband	)	
Technology at New York, NY, at	)	
Stations: **Lead Station:**	)	
WYNX-LD, Facility ID 38945, Channel 26	)	
WXNY-LD, Facility ID 29231, Channel 32	)	
WNYX-LD, Facility ID 29236, Channel 35	)	
WNXY-LD, Facility ID 29233, Channel 43	)	

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To: Chief, Video Division, Media Bureau

APPLICATION FOR RENEWAL OF EXPERIMENTAL BROADCAST LICENSE

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November 25, 2013

APPLICATION FOR RENEWAL OF LICENSE

1. Introduction

New York Spectrum Holding Company, LLC (NYSHC) hereby requests a six-month renewal of its Experimental License, File No. BPEXLD-20130303ADO, to operate Stations WYNX-LD, WXNY-LD, WNYX-LD, and WNXY-LD, New York, NY, in the digital mode using an alternative technology to the ATSC standard embodied in Section 73.682(d) of the FCC's Rules and Regulations.

2. Purposes of the Experiment

As indicated in the original experimental application, the purposes of the experiment continue to be (a) to study the impact of alternative technology on the number of LPTV stations that can be accommodated in whatever television spectrum remains available after completion of the proposed spectrum repacking contemplated in Docket 12-268 (*see Expanding the Economic and Innovation Opportunities of Spectrum through Incentive Auctions*, 27 FCC Rcd. 12357 (2012); (b) to explore and to demonstrate mobile television broadcasting possibilities that are more efficient and reliable than both the current ATSC-based mobile standard and the technology used in the now-discontinued Media-Flo service; and (c) to demonstrate how television broadcasting and broadband access can be combined efficiently in available broadcast spectrum to reach both mobile and fixed receiving locations and can be bundled with existing two-way wireless services.

No change is proposed in the basic experimental program approved in the initial license, including the terms and conditions included in the initial license grant.

3. Reason for Extension

A renewal is requested because unanticipated delays prevented operations from commencing during the first five months of the initial term.

The initial plan was to install a new transmitter using CMMB technology at the transmitter site occupied by all four of the low power TV stations covered by the experimental license. However, it turned out that there is not sufficient physical space at the site to accommodate the additional transmitter. Therefore, it was necessary to change plans to use the existing ATSC transmitters to transmit CMMB signals. The new plan required consultation with CMMB exciter vendors in China to modify their equipment to be compatible with the existing Harris ATSC transmitters.

The modified transmitting equipment has been manufactured and has arrived in the United States. An engineer from China is in the United States to assist in the installation. Some delay resulted from the time required for him to obtain a U.S. visa.

Further, as noted below, the next generation of CMMB technology will become an important part of the experiment. It is close to final development, but will not be ready for deployment until 2014.

4. **Anticipated Next Steps**

Notifications to medical facilities and coordination with the Society of Broadcast Engineers are under way.

It is anticipated that installation and tuning of CMMB equipment will take approximately one week. Installation will be followed by tests to ensure that no interference is caused to other stations.

The current timetable calls for interference testing to be completed by the end of December 2013. A report is planned to demonstrate that the overall technical parameters of the CMMB operation fully comply with FCC restrictions on power and out-of-band emissions.

After non-interference has been established in the first phase, deployment and testing of handsets will be undertaken, starting in early 2014. The second phase will be delivering mobile television and digital broadcasting services to these devices. The third phase will be undertaken with carrier and over-the-top service provider partners to explore business models for converged broadcast/broadband delivery. The fourth phase will incorporate NGB-W, the next generation and more powerful version of CMMB technology that has been proposed to be adopted as ATSC 3.0 discussed in the next several paragraphs.

As indicated in the initial experimental application, the CMMB standard was jointly developed by U.S. and Chinese research institutions and has been adopted by the State Administration of Radio Film and Television (SARFT) as the national industry standard of mobile hand-held television in China. In addition, SARFT, together with leading industry participants, is organizing the development of the CMMB-2 standard, to be called Next Generation Broadcast – Wireless (NGB-W) to meet the challenge of rapidly emerging new services and applications.

On October 16, 2013, a proposal based on NGB-W was submitted to the Advanced Television Systems Committee to be incorporated into third generation ATSC 3.0. The key features of the NGB-W proposal to the ATSC include:

► Much higher speed, spectral efficiency and robustness for data delivery. The peak data rate can reach **74 Mbps** in the 6 MHz bandwidth, with a spectral efficiency 12.3 b/s/Hz. The detection threshold is as low as **-3.2 dB**. This is achieved by employing advanced BICM/LDPC codes, efficient scalable signaling, and MIMO and channel aggregation. High data-rate applications such as UHDTV and multiple HDs can be supported.

► Ultra-high network capacity. By combining single frequency network (SFN) and multi-frequency network (MFN) in deployment, and by taking advantage of distributed MIMO in local content insertion, the network capacity can be increase by **2x+**.

► Flexible service. Flexibility is achieved by using configurable and efficient pipes for different data streams, and combining local and global content services efficiently.

► Distributing content through converged broadcast and unicast networks and supporting interactive, personalization, and targeting services.

► Extending ubiquitous terrestrial-satellite coverage with much wider geographic and greater building penetration in any mobile and wireless environment.

The proposal to ATSC is summarized in a press release at:

http://www.atsc.org/cms/index.php/the-news/327-summaries-of-responses-to-atsc-30-physical-layer-call-for-proposals

Attached to this application is a reproduction of the section of the ATSC press release recognizing and enumerating the features in the proposal of the National Engineering Research Center of Digital Television (NERC), Shanghai Jiao Tong University (SJTU), Shanghai Advanced Research Institute, (SARI) and Bell Labs, Alcatel-Lucent.

The CMMB and DTMB eco-system in China is embracing the new standard. The prototype is under development and will be ready early 2014. After the equipment is ready, it will be incorporated into NYSHC's trials in New York. NYSHC believes that the ATSC is very interested in the technology and hopes and believes that ATSC will participate in the trials to further evaluate the technology.

5. **Report Pursuant to Section 74.113 of the FCC's Rules**

a. Hours of Operation. The number of hours operated is zero as of the date of this application, but there should be some hours of operation – amount not yet determined – prior to the end of the initial experimental license term on December 20, 2013.

b. Date on Research and Experimentation. None to date for on-air operations, but substantial hardware development work was undertaken during the initial license term. A description of the development of NGB-W is included in Section 4 above.

c. Data on Expense of Research. NYSHC and its parent entities have invested in the order of $400,000 for handset development and transmitting equipment in preparing for and launching the experimental project. This amount does not include much larger investments by others in developing enhanced CMMB technology.

d. Transmitter Power. None to date. Field testing to determine non-interference is anticipated in December 2013.

e. Public Participation. None to date. Public participation will not begin until 2014 and will be subject to the conditions in the experimental license.

f. Conclusions. Until actual field operations begin, no conclusions can be reached.

g. Program of Further Development. Discussed in detail in Section 4 above.

h. All Developments and Major Changes in Equipment. The only change will be incorporation of NGB-W when available – a change that has been anticipated since the beginning of the project.

i. Other Pertinent Developments. Nothing has occurred that impairs NYSHC's confidence that its experiment will result in no interference and will demonstrate the flexibility and efficiency of its technology and the ability of the technology to facilitate the rapid deployment of improved ubiquitous broadband services. Progress in the development of NBG-W technology will offer opportunities to enhance the experimental program in later phases.

6. **Required Disclaimers**

a. Section 304 Statement: The Applicant hereby waives any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application.

b. Anti-Drug Abuse Certification: The Applicant certifies that neither Applicant nor any party to this application is subject to denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862.

7. Conclusion

In light of the showings made above, including delays in obtaining equipment and a visa for the installation engineer to enter the United States, as well as the progress being made in improving CMMB technology and the importance of testing NGB-W, NYSHC respectfully requests a renewal of license and submits that a renewal is fully justified.

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Respectfully submitted,
NEW YORK SPECTRUM HOLDING COMPANY, LLC

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November 25, 2013

[redacted]

Summaries of Responses to ATSC 3.0 Physical Layer Call for Proposals

Written by Administrator

Wednesday, 02 October 2013 12:01

National Engineering Research Center of Digital Television (NERC), Shanghai Jiao Tong University (SJTU), Shanghai Advanced Research Institute, (SARI) and Bell Labs, Alcatel-Lucent

The radical shift towards mobile screens, wireless rich media and the exponential growing wireless traffics has posed a pressing need for innovative broadcasting services. While the current mega trends of cloud, big data, and mobility actually create an unprecedented opportunity for the broadcasting industry. In this proposal, we address this unique opportunity by presenting an innovative terrestrial broadcasting solution those emphases the following technical and business aspects:

- **Ultra high data rate and reliability:** The proposed system offers extremely high data rate and reception performance in all wireless environments, and is capable of delivering UHDTV to fixed and portable terminals, robust and scalable programs to portable and mobile users, as well as customized services to dedicated applications and scenarios

- **Ultra high network capacity and cost efficiency:** In addition to the greatly enhanced link performance, the proposed solution drastically improves the overall network capacity through judicious integration of a suite of sophisticated and yet easily implementable technologies such as the large scale antenna system (LSAS) and intelligent frequency reuse.

- **Ultra flexible services:** By incorporating advanced technologies such as the cloud transmission, MIMO broadcasting, and broadcasting return channels, the proposal solution provides a highly flexible service platform in anticipation of the rapidly evolving user demands.