

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

PLEASE STAMP  
AND RETURN  
THIS COPY TO  
FLETCHER, HEALD & HILDRETH

In re Application of )  
)  
THE AMERICAN UNIVERSITY )  
)  
WAMU(FM), Facility ID 65399, )  
Washington, DC )  
)  
For an Experimental License To Increase )  
Digital Power to -10 dBc )

File No. BPEX-\_\_\_\_\_

RECEIVED - FCC

SEP 21 2010

Federal Communications Commission  
Bureau / Office

To: Chief, Audio Division, Media Bureau

**APPLICATION FOR EXPERIMENTAL LICENSE**

1. Introduction. Pursuant to procedures promulgated in the Media Bureau's *Order* in MM Docket No. 99-325, released January 29, 2010,<sup>1</sup> The American University hereby request an Experimental License to increase the hybrid IBOC digital power of noncommercial educational station WAMU(FM), Washington, DC, to up to -10 dBc and to experiment with asymmetrical power levels on the upper and lower sidebands. Demonstrations of asymmetrical operation are planned for the National Association of Broadcasters Radio Show in Washington, DC, September 29-30, 2010, but the station will be ready to implement higher power operation as early as September 24, 2010, if the Commission authorizes operation by that date. The initial demonstration will last for 30 days. However, an experimental license is requested beyond the NAB Radio Show, for a period of 180 days.

<sup>1</sup> *Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Service*, 25 FCC Rcd 1182 (MB 2010) (DA 10-208).

2. Purpose of the Experiment. The proposed experimental operation is intended to demonstrate the feasibility of asymmetrical digital power levels and in particular whether asymmetrical operation is a practical and effective method of operation for stations that may face interference constraints imposed by stations on the first adjacent upper channel or lower channel but not both.

3. Operating Parameters. Currently, WAMU is authorized to operate with hybrid digital IBOC at -14 dBc, with the following parameters, pursuant to BSTA-20100427ACS:

Analog ERP:	50 KW (H&V)
Digital ERP:	2.0 kW (H&V)
Analog TPO:	17 kW
Digital TPO:	0.68 kW
Combined TPO:	17.68 kW

WAMU plans to remain at its existing transmitter location, using its existing single combined analog-digital antenna. The requested power levels are as follows:

Analog ERP:	50 kW (H&V)
Digital ERP:	up to 5.0 kW ERP
Analog TPO:	17 kW
Digital TPO:	Up to 1.7 kW
Combined TPO:	Up to 18.7 kW

4. Interference. WAMU will conduct its experimental work in cooperation with NPR Laboratories. Attached is an Engineering Statement discussing interference considerations and demonstrating that the proposed hybrid digital IBOC power increase will comply with the Commission's interference standards for all stations except two construction permits for new stations: WKNZ, Facility ID 90270, and Facility ID 172441. Neither station has yet filed its initial license application. It appears that WKNZ may begin operation next month, but a

Longley-Rice study shows virtually no locations within its 60 dBu service contour where interference is predicted. WHMM appears to have no scheduled construction date as yet. WAMU will of course cooperate to mitigate any interference problems with either of these stations, as well any other station which may experience interference. The proposed asymmetrical operation will provide a means to address any interference that WHMM may experience while maintaining additional power in the sideband that does not affect WHMM.<sup>2</sup>

5. No Super Power. WAMU operates with Class B facilities which conform to the power/HAAT requirements of Section 73.211(b) of the Commission's Rules; i.e., WAMU is not a "super power" station.

6. Power Combination Method. WAMU employs low level (common amplification) HD combining. It does not have separate analog and digital transmission plants.

7. Emergency Contact. In case of any interference complaint, the Commission may contact:

John M. Holt  
Director of Engineering and Operations  
WAMU – Brandywine Building  
4400 Massachusetts Ave., N.W.  
Washington, DC 20016-8082  
Tel. 202-885-1242  
E-mail: [jholt@wamu.org](mailto:jholt@wamu.org)

8. 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

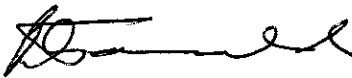
---

<sup>2</sup> When its Experimental authorization is granted, WAMU will send a copy to the permittee of WHMM and will advise them that it will cooperate in addressing any actual interference complaints.

use of the same, whether by license or otherwise, and requests an authorization in accordance with this application.

9. Anti-Drug Abuse Certification. The Applicant certifies that to its knowledge, 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.

Of Counsel:



Peter Tannenwald

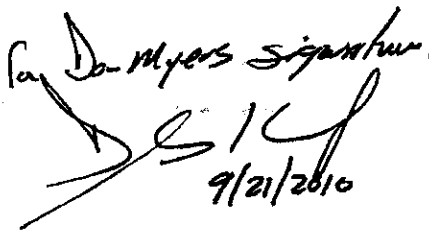
Fletcher, Heald & Hildreth, P.L.C.  
1300 N. 17<sup>th</sup> St., 11<sup>th</sup> Floor  
Arlington, VA 22209-3801  
Tel. 703-812-0404  
Fax 703-812-0486  
tannenwald@fhhlaw.com

Counsel for The American  
University (WAMU)

September 21, 2010

Respectfully submitted,


THE AMERICAN UNIVERSITY

*Approval for Don Myers signature.*  
  
9/21/2010

By:

Donald L. Myers  
Vice President for Finance and Treasurer

By:

  
John M. Holt  
Director of Engineering and Operations

Station WAMU  
Brandywine Building  
The American University  
4400 Massachusetts Ave., N.W.  
Washington, DC 20016-8082  
Telephone: 202-885-1264

John M. Holt direct: 202-885-1242  
[jholt@wamu.org](mailto:jholt@wamu.org)

## Engineering Statement of NPR Labs

This engineering study pertains to technical operation by WAMU(FM), Ch. 203B, Washington DC, to operate with asymmetrical IBOC DAB sidebands at power levels of up to -10 dBc (symmetrical). Using WAMU's currently licensed transmitting antenna, this operation will demonstrate that asymmetrical sideband transmission is practical, compatible with host FM reception and can provide satisfactory reception with digital receivers.

A study was performed in accordance with the Commission's *Order* in MM Docket No. 99-325, released January 29, 2010, to determine whether a -10 dBc IBOC DAB power would protect neighboring stations on first-adjacent channels. The attached table lists all pertinent licensed stations, construction permits and pending applications that are first-adjacent channel ( $\pm 200$  kHz) to the proponent.

The 49.5 dB $\mu$  contour of WAMU, shown in the study map, represents the field strength protection criteria for -10 dBc operation, using the table in paragraph 20 of the *Order*:

Proponent Analog F(50,10) Field Strength at Protected Analog 60 dBu F(50,50) Contour	Maximum Permissible FM Digital ERP
51.2 dB $\mu$ and above	-14 dBc
50.7 dB $\mu$ - 51.1 dB $\mu$	-13 dBc
50.3 dB $\mu$ - 50.6 dB $\mu$	-12 dBc
49.6 dB $\mu$ - 50.2 dB $\mu$	-11 dBc
49.5 dB $\mu$ or less	-10 dBc

Using the standard FCC contour prediction methodology, the F(50,50) 60 dBu contours of all protected stations are computed and shown on the attached map. (Contours in green are lower adjacent and blue are upper adjacent.) Based on the study map, the operations having the critical overlap from the F(50,10) 49.5 dBu contour of WAMU are:

WKNZ (CP), Channel 204B1, Harrington, DE, BPED19980320MD; and  
WHMM (CP), Channel 202A, Spotsylvania, VA, BNPED20071022ARL.

At present, neither station is in operation: WKNZ plans to commence operation in mid-October, 2010, and WHMM has not been constructed, according to representatives of both stations. With respect to WKNZ, a *de minimis* overlap of WAMU's 49.5 dBu contour occurs in a rural area containing a 2000 Census population of 1536. Furthermore, an Irregular Terrain Model (Longley-Rice) study of signals above 49.5 dBu from WAMU's (assuming 10% time variability and a height of 9.1 meters above ground), which is provided as an overlay on the map, shows virtually no locations within WKNZ's 60 dBu service contour that are affected. On the basis of these showings, the study does not anticipate digital interference by WAMU to WKNZ.

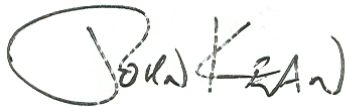
The contour overlap with WHMM involves some fields above 49.5 dBu, according to the Irregular Terrain Model. However, as WHMM is not expected to be in operation for a considerable time, operation at up to -13 dBc on its lower sideband (equivalent to -10 dBc sideband power, if symmetrical) is not expected to result in digital interference. As required by the *Order*, coordination with both WHMM and WKNZ in the resolution of any digital

interference to either station is required, as well as the reduction of digital sideband power relative to the affected station, as necessary, to avoid harmful interference.

### First-Adjacent Stations Pertinent to WAMU

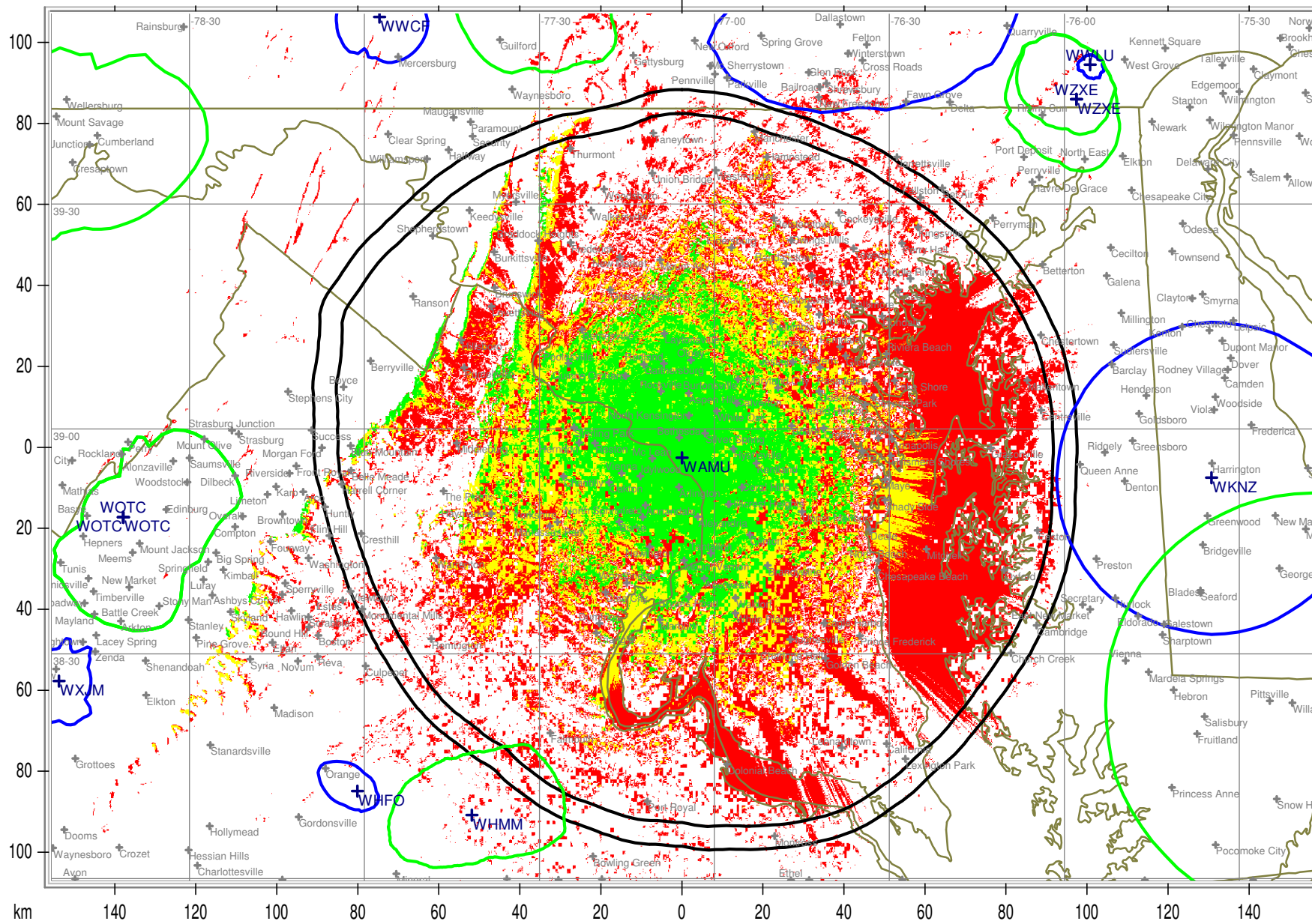
Call Sign	Status	City	State	File Number	Chan.	Class	ERP (w)	HAAT (m)	Distance (km)
WDCV-FM	LIC	CARLISLE	PA	BLED19821012AT	202	A	450	-16.34	140.9
WWEC	LIC	ELIZABETHTOWN	PA	BLED19900830KB	202	A	100	11.66	141.2
WXJM	LIC	HARRISONBURG	VA	BLED19901010KB	204	A	390	-0.54	164.4
WWLU	LIC	LINCOLN UNIVERSITY	PA	BLED1370	204	D	3	26.53	139.7
WZXQ	LIC	CHAMBERSBURG	PA	BLED20050830ADO	202	A	110	284.61	118.5
WKNZ	CP	HARRINGTON	DE	BPED19980320MD	204	B1	25000	42.51	131.3
WWCF	LIC	MCCONNELLSBURG	PA	BLED20051128AJL	204	A	9	353.54	131.8
WXPB	LIC	MIDDLETOWN	PA	BLED20070705AEB	204	B	7000	201.95	128.6
WRIQ	CP	LEXINGTON	VA	BNPED20071018AQN	204	A	3900	65.9	225.0
NEW	APP	LEESPORT	PA	BNPED20071019AGT	202	A	600	14.56	193.4
WZXE	CP	EAST NOTTINGHAM	PA	BNPED20071018AWZ	202	A	540	133.5	131.4
NEW	APP	ROBESONIA	PA	BNPED20071022AKK	202	A	12	222.89	173.3
NEW	APP	EASTVILLE	VA	BNPED20071022AKD	204	A	3500	64.42	187.2
WHFO	CP	ORANGE	VA	BNPED20071022AWU	204	A	1400	10.98	115.4
WPTT	CP	THOMAS	WV	BNPED20071022BVD	204	A	100	242.9	203.5
WSYC-FM	LIC	SHIPPENSBURG	PA	BMLED20080812ACT	204	A	130	-68.2	131.7
WRYV	CPM	MILROY	PA	BMPED20090609AAC	204	B1	2200	258.52	190.3
WWLU	CP	LINCOLN UNIVERSITY	PA	BPED20090728AAV	204	D	3	-5.14	139.7
WHMM	CP	SPOTSYLVANIA	VA	BNPED20071022ARL	202	A	2500	82.97	102.6
NEW	APP	FRACKVILLE	PA	BNPED20071019BFI	202	B1	14000	105.56	218.0
WZXE	APP	EAST NOTTINGHAM	PA	BMPED20100324AAE	202	A	480	95.06	131.4
WOTC	LIC	EDINBURG	VA	BMLED20100325AAA	202	A	1000	105.46	139.4
WOTC	CP	EDINBURG	VA	BPED20100325AAB	202	A	1000	70.9	139.3
WRAU	LIC	OCEAN CITY	MD	BLED20100625AZD	202	B	50000	141.46	168.3
WLVV	LIC	MIDLAND	MD	BLED20100818AAI	202	B1	490	416.17	171.7
WRIQ	APP	LEXINGTON	VA	BMPED20100914AAC	204	A	3900	15.99	225.0
NEW	APP	LEESPORT	PA	BNPED20071019APD	202	A	670	9.79	191.8

Prepared by:



date: September 16, 2010

John Kean  
(Senior Technologist, NPR Labs)



ITM (Longley-Rice) prediction of WAMU: green <70dBu, yellow 60-70dBu, red 49.5-60dBu