ENGINEERING EXHIBIT

Application for Construction Permit

prepared for

Guenter Marksteiner

WHDN-LD Boston, Massachusetts

Facility ID 59488

Ch. 38 15 kW

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This material supplies a "hard copy" of the engineering portions of this application as entered March 12, 2009 for filing electronically. Since the FCC's electronic filing system may be accessed by anyone with the applicant's name and password, and electronic data may otherwise be altered in an unauthorized fashion, we cannot be responsible for changes made subsequent to our entry of this data and related attachments.

SECTION III - ENGINEERING DATA (Digital)

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel Number:
38

2. Translator Input Channel No. :

3. Primary station proposed to be rebroadcast:

Facility Identifier	Call Sign	City	State	Channel

4. Antenna Location Coordinates: (NAD 27)
Latitude:
Degrees 42 Minutes 21 Seconds 31 (•) North ( ) South

Longitude:
Degrees 71 Minutes 03 Seconds 33 (•) West ( ) East

5. Antenna Structure Registration Number:
[x] Not Applicable [Exhibit 10] [ ] Notification filed with FAA

6. Antenna Location Site Elevation Above Mean Sea Level: 12 meters

7. Overall Tower Height Above Ground Level: 188.1 meters

8. Height of Radiation Center Above Ground Level: 186.7 meters

9. Maximum Effective Radiated Power (ERP): 15 kW

10. Transmitter Output Power: 1.52 kW

11. a.Transmitting Antenna:
Before selecting Directional "Off-the-Shelf", refer to "Search for Antenna Information" under CDBS Public Access (http://fjallfoss.fcc.gov/prod/cdbs/pubacc/prod/cdbs_pa.htm). Make sure that the Standard Pattern is marked Yes and that the relative field values shown match your values. Enter the Manufacturer (Make) and Model exactly as displayed in the Antenna Search.

( ) Nondirectional ( ) Directional "Off-the-shelf" (•) Directional composite

Manufacturer MIG Model 3-DIE-WHDN-CUSTOM

b. Electrical Beam Tilt: 0.6 degrees [ ] Not Applicable

c. Directional Antenna Relative Field Values: [ ] N/A (Nondirectional or Directional "Off-the-shelf")

Rotation (Degrees): 0 [x] No Rotation

Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value	Degrees	Value
0	0.308	10	0.267	20	0.241	30	0.304	40	0.438	50	0.581
60	0.735	70	0.905	80	0.995	90	1.000	100	0.950	110	0.851
120	0.802	130	0.819	140	0.766	150	0.705	160	0.786	170	0.932
180	0.963	190	0.894	200	0.769	210	0.728	220	0.789	230	0.791
240	0.766	250	0.841	260	0.958	270	0.995	280	0.964	290	0.876
300	0.741	310	0.584	320	0.412	330	0.287	340	0.259	350	0.305
Additional Azimuths		19	0.240	177	0.967	268	0.996	338	0.256		

Relative Field Polar Plot

NOTE: In addition to the information called for in this section, an explanatory exhibit providing full particulars must be submitted for each question for which a "No" response is provided.

12. **Out-of-channel Emission Mask:** ( ) Simple (•) Stringent

CERTIFICATION

13. **Interference** : The proposed facility complies with all of the following applicable rule sections. (•) Yes ( ) No

	47.C.F.R Sections 74.709, 74.793(e), 74.793(f), 74.793(g), 74.793(h), 74.794(b) and 73.1030.	See Explanation in [Exhibit 11]
14.	**Environmental Protection Act.** The proposed facility is excluded from environmental processing under 47. C.F.R. Section 1.1306 (i.e., The facility will not have a significant environmental impact and complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments). Unless the applicant can determine RF compliance, an **Exhibit is required.** By checking "Yes" above, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.	(•) Yes ( ) No See Explanation in [Exhibit 12]
15.	**Channels 52-59.** If the proposed channel is within channels 52-59, the applicant certifies compliance with the following requirements, as applicable: ☐ The applicant is applying for a digital companion channel for which no suitable channel from channel 2-51 is available. ☐ Pursuant to Section 74.786(d), the applicant has notified, within 30 days of filing this application, all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees.	
16.	**Channels 60-69.** If the proposed channel is within channels 60-69, the applicant certifies compliance with the following requirements, as applicable: ☐ Pursuant to Section 74.786(e), the applicant has notified, within 30 days of filing this application , all commercial wireless licenses of the spectrum comprising the proposed TV channel and the first adjacent channels thereto, for which the proposed digital LPTV or TV translator antenna site lies inside the licensed geographic boundaries of the wireless licensees or within 75 miles and 50 miles, respectively, of the geographic boundaries of co-channel and adjacent-channel wireless licensees. ☐ Pursuant to Section 74.786(e), the applicant proposing operation on channel 63, 64, 68 and 69 ("public safety channels") has secured a coordinated spectrum use agreements(s) with 700 MHz public safety regional planning committee(s) and state administrator(s) of the region(s) and state(s) within which the antenna site of the digital LPTV or TV translator station is proposed to locate, and those adjoining regions and states with boundaries within 75 miles of the proposed station location. ☐ Pursuant to Section 74.786(e), the applicant for a channel adjacent to channel 63, 64, 68 or 69 has notified, within 30 days of filing this application, the 700 MHz public safety regional planning committee(s) and state administrator(s) of the region and state containing the proposed digital LPTV or TV translator antenna site and regions and states whose geographic boundaries lie within 50 miles of the proposed LPTV or TV translator antenna site.	

PREPARERS CERTIFICATION ON PAGE 3 MUST BE COMPLETED AND SIGNED.

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name ROBERT J. CLINTON		Relationship to Applicant (e.g., Consulting Engineer) CONSULTANT
Signature		Date 3/12/2009
Mailing Address CAVELL, MERTZ & ASSOCIATES, INC. 7839 ASHTON AVENUE		
City MANASSAS	State or Country (if foreign address) VA	Zip Code 20109 - 2883
Telephone Number (include area code) 7033929090	E-Mail Address (if available) BCLINTON@CAVELLMERTZ.COM	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Exhibits

Exhibit 1
Description: REQUEST FOR DISPLACEMENT AUTHORITY

BY THE INSTANT APPLICATION, GUENTER MARKSTEINER, LICENSEE OF LOW POWER TELEVISION STATION WHDN-LD, BOSTON, MASSACHUSETTS SEEKS AUTHORITY TO DISPLACE FROM CHANNEL 26 TO CHANNEL 38. AT THIS TIME, WSBK-TV, A BOSTON STATION LICENSED TO CBS CORPORATION IS BROADCASTING ITS ANALOG AND PRE-TRANSITION DIGITAL OPERATIONS ON CHANNEL 38. FOLLOWING THE DTV TRANSITION, WSBK-TV WILL CEASE OPERATIONS ON CHANNEL 38 AND BEGIN POST-TRANSITION OPERATIONS ON CHANNEL 39. MR. MARKSTEINER IS AWARE THAT OPERATION ON CHANNEL 38 CANNOT OCCUR UNTIL WSBK-TV VACATES THAT CHANNEL. ACCORDINGLY, MR. MARKSTEINER WOULD BE WILLING TO ACCEPT A CONSTRUCTION PERMIT RESTRICTION PERMITTING OPERATION ONLY AFTER THE DIGITAL TRANSITION OCCURS ON JUNE 12, 2009.

Attachment 1

Exhibit 10
Description: EXHIBIT 10 - ANTENNA SUPPORT STRUCTURE

PLEASE SEE EXHIBIT 11 - STATEMENT A FOR ANTENNA SUPPORT STRUCTURE DISCUSSION.

Attachment 10

Exhibit 11
Description: EXHIBIT 11 - STATEMENT A

EXHIBIT 11 - STATEMENT A - ALLOCATION CONSIDERATIONS

Attachment 11

Description
EXHIBIT 11 - STATEMENT A

Exhibit 12
Description: EXHIBIT 12 - STATEMENT B

EXHIBIT 12 - STATEMENT B - ENVIRONMENTAL CONSIDERATIONS (WITH TABLE OF CONTENTS AND COPY OF FORM 346, SECTION III)

Attachment 12

Description
EXHIBIT 12 - STATEMENT B

Exhibit 12 - Statement B

ENVIRONMENTAL CONSIDERATIONS

prepared for

Guenter Marksteiner

WHDN-LD Boston, Massachusetts

Facility ID 59488

Ch. 38 (Digital) 15 kW

The instant proposal is not believed to have a significant environmental impact as defined under Section 1.1306 of the Commission's Rules. Consequently, preparation of an Environmental Assessment is not required.

Nature of The Proposal

Guenter Marksteiner (*"Marksteiner"*) proposes herein a minor modification under the LPTV displacement Rules for WHDN-LD, Channel 26, Boston, Massachusetts (file number BLTTL-20031231AAX) to specify a different operating frequency, and a different antenna system than that presently licensed.

The proposed WHDN-LD antenna will be mounted above the rooftop of an existing building. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. Since the antenna structure will extend only 4.6 meters above the top of the rooftop, notification to the FAA is not required and no change in structure marking and lighting requirements is anticipated. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

Human Exposure to Radiofrequency Radiation

The proposed operation was evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility exceeds the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

The proposed WHDN-LD antenna will have a center of radiation 186.7 meters above ground level. An ERP of 15 kilowatts, horizontally polarized, will be employed utilizing a MIG model 3-DIE-WHDN-CUSTOM directional antenna. According to data provided by the antenna manufacturer, the maximum relative field value in downward directions (between 20 and 90 degrees below the horizontal) is less than 20 percent on Channel 38. Thus, a value of 20 percent relative field is used for this calculation. The "uncontrolled/general population" limit specified in §1.1310 for Channel 38 (center frequency 617 MHz) is 411.3 $\mu W/cm^2$.

OET-65's formula for television transmitting antennas is based on the NTSC transmission standards, where the average power is normally much less than the peak power. For the DTV facility in the instant proposal, the peak-to-average ratio is different than the NTSC ratio. The DTV ERP figure herein refers to the *average* power level. The formula used for calculating DTV signal density in this analysis is essentially the same as equation (10) in OET-65.

$$\mathbf{S = (33.4098)\ (F^2)\ (ERP)\ /\ D^2}$$

Where:

S	=	power density in microwatts/cm^2
ERP	=	total (average) ERP in Watts
F	=	relative field factor
D	=	distance in meters

Using this formula, the proposed facility would contribute a power density of 0.6 $\mu W/cm^2$ at two meters above ground level near antenna support structure, or 0.15 percent of the general population/uncontrolled limit. At ground level locations away from the base of the building, the calculated RF power density is even lower, due to the increasing distance from the transmitting antenna. Access to the rooftop of the building on which the antenna support structure will be located will be restricted to trained building service and station personnel. The building materials of the rooftop serve to further attenuate the power density levels such that any occupants in the building will be shielded from RF energy. Consequently, it is believed that members of the general public will not be exposed to RF levels in excess of FCC limits.

§1.1307(b)(3) states that facilities at locations with multiple transmitters are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this proposal. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at or near ground level as defined under §1.1307(b).

Safety of Structure Workers and the General Public

Access to the rooftop of the building on which the antenna support structure is located will be restricted to trained building service and station personnel. As demonstrated herein, excessive levels of RF energy attributable to the proposal will not be caused at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public are not exposed to RF levels in excess of the Commission's guidelines.

A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the rooftop in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, placement of RF exposure warning signs on the antenna support structure, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines will be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with other users of this site.

Conclusion

Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under Section 1.1306 of the Rules, hence preparation of an Environmental Assessment is not required.