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**ENGINEERING EXHIBIT EE-1:**

**DIGITAL TELEVISION**  
**DISPLACEMENT APPLICATION**

**KM LPTV OF CHICAGO-13, L.L.C.**  
**CLASS A DIGITAL TELEVISION STATION**  
**WOCK-CA**  
**FCC FACILITY NUMBER**  
**35092**

**HAS :CHANNEL 13, CHICAGO, IL - ANALOG**  
**REQ: CHANNEL 04, CHICAGO, IL - DIGITAL**

**DECEMBER 10, 2008**

**ENGINEERING EXHIBIT**  
**IN SUPPORT OF**  
**AN APPLICATION FOR AUTHORITY TO MAKE**  
**CHANGES IN CLASS A TELEVISION BROADCAST STATION**  
**WOCK-CA**  
**CHICAGO, ILLINOIS**

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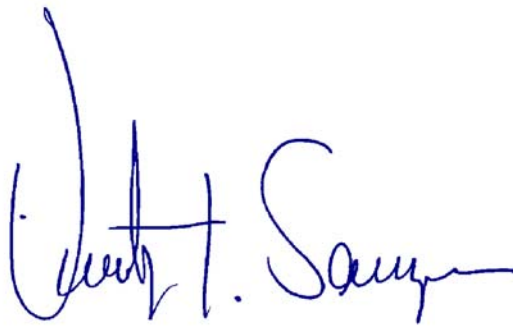
1. F.C.C. Form 301, Section III
2. F.C.C. Form 301, Section III (certification)
3. Declaration of Engineer
4. Narrative Statement
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7. Figure 3, Allocation Study

## **DECLARATION**

I, Timothy Z. Sawyer, declare and that I have provided engineering services in the area of telecommunications since 1969. My qualifications are a matter of record with the Federal Communications Commission. I am a senior engineer with the firm of Mullaney Engineering, Inc., consulting radio telecommunications engineers with offices in Gaithersburg, Maryland.

The firm of Mullaney Engineering, Inc., has been retained by KM LPTV OF CHICAGO-13, L.L.C., to prepare the instant engineering exhibit in support of **an application for authority to make changes in CLASS A TELEVISION STATION WOCK-CA Chicago, Illinois.** (FCC FACILITY ID NUMBER: 35092.)

All facts contained herein are true of my own knowledge except those stated to be on information and belief, and as to those facts, I believe them to be true. I declare under the penalty of perjury that the foregoing is true and correct.



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Timothy Z. Sawyer

Executed on the 10<sup>th</sup> day of December 2008

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**NARRATIVE STATEMENT:**

**I. GENERAL:**

This engineering statement and the instant engineering exhibit of which it is part has been prepared on behalf of KM LPTV OF CHICAGO-13, L.L.C., (hereinafter "KM").

KM is the licensee of Class-A Television Station WOCK-CA, Channel 13, Chicago, Illinois, FCC facility identification number 35092.

**Displacement Application**

By means of the instant application, KM seeks authorization to change its authorized television channel from channel 13 to channel 4.

KM's authorized operation on Television Channel 13 in Chicago has been displaced by the proposed operation of full-service digital television Channel 13 WREX-DT, Rockford, Illinois. (See channel displacement exhibits and narrative CDBS attachment exhibit 1).

DIGITAL DISPLACEMENT APPLICATION  
CLASS A TELEVISION STATION  
WOCK-CA, CHICAGO, IL

This engineering exhibit supports a "flash-cut" application for Class-A station WOCK-CA to digital television channel 4.

Station WOCK-CA is licensed to operate on analog channel 13 with a directional antenna, with an effective radiated power (ERP) of 3-kilowatts.

The proposed digital "flash-cut" facilities will operate on channel 4 with a maximum effective radiated power of 0.3 kilowatts (300 watts) and an antenna center of radiation height above mean sea level of 570.9 meters, using a directional antenna system (see Figure 2).

The proposed facilities will be built to comply with the *FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* and the instant proposal is categorically excluded from environmental processing pursuant to the provisions of Section 1.1306 of the Commission's Rules. A more detailed discussion of environmental factors is included under the heading Environmental Considerations below.

Information requested by exhibits in response to questions on Section III of FCC Form 301-CA is incorporated in the following paragraphs, figures and/or tables.

Processing of this application is requested under the rules currently in effect at the time of filing.

## **II. ENGINEERING DISCUSSION**

### **Transmitter/Antenna Location:**

KM proposes to locate its directional antenna atop the John Hancock Building West tower and operate on television channel 4. No change in the geographic coordinates of the station will occur, only a change in the tower registration number of the supporting antenna structure. (FCC Tower Registration Number: 1009013).

The antenna will be side-mounted on the west tower of the John Hancock Building with a center of radiation at 1280 feet (390.1 meters) above ground level (AGL), 1873 feet (570.9 meters) above mean sea level (AMSL).

### **Coverage & Service Contours:**

Figure 1, is a map showing the location of the present analog Channel 13 and the proposed digital Channel 4 service contours.

### **Proposed Directional Antenna:**

The antenna consists of a single bay two-element skewed CL-26 Scala (composite) antenna "SCA CL26CUSWOCK." Equal power division is employed to all elements.

Information regarding the antenna directional pattern is included in Figure 2. The maximum power at any angle (i.e., below or above the horizon will not exceed 0.3 kilowatts (300 watts).

DIGITAL DISPLACEMENT APPLICATION  
CLASS A TELEVISION STATION  
WOCK-CA, CHICAGO, IL

**Allocation Study:**

Relocation of WOCK-CA from analog Channel 13 to digital Channel 4 will not result in an increase in interference to any full service analog or digital television stations, Class-A television stations or any existing DTV allotments or full-service applications or permits.

Pending applications (if any) for low-power television secondary services (analog or digital) have been superseded by this application as a qualified priority displacement application.

KM holds a construction permit for co-located, co-channel, WOCK-LD a low-power digital companion channel television station (BDISDVL-20071029ACH).

KM as described elsewhere in this application has agreed to accept interference from the WOCK-LD digital facility and WOCK-LD has agreed to accept interference from this application. Therefore, to the extent that each facility causes or receives interference from the “other” facility it is expressly accepted.

The Commission’s Longley Rice propagation method described in OET Bulletin No. 69 were used in this determination. The results of the OET styled study are contained within Figure 3.

DIGITAL DISPLACEMENT APPLICATION  
CLASS A TELEVISION STATION  
WOCK-CA, CHICAGO, IL

**Environmental Considerations:**

The applicant believes its proposal will not significantly affect the environment for the following reasons.

The proposal does not meet any of the criteria specified in Section 1.1307 of the FCC Rules. More specifically, the proposed facilities are not known to fall within any of the categories enumerated in Sections 1.1307(a)(1)-(7) and will not involve the use of high intensity white lights. Furthermore, operation of the proposed facility will not involve the exposure of workers or the general public to levels of radio frequency electromagnetic fields exceeding guidelines adopted by the Federal Communications Commission. (The current FCC guidelines are based upon criteria contained in the National Council of Radiation Protection and Measurements (NCRP) Report No.86 (1986) and ANSI/IEEE C95.1-1992.)

With regard to the last item, the WOCK-CA digital antenna is to be mounted on the west tower atop the John Hancock building in a very complex radiofrequency environment. The building roof is inaccessible to the general public.



DIGITAL DISPLACEMENT APPLICATION  
CLASS A TELEVISION STATION  
WOCK-CA, CHICAGO, IL

Based upon a worst case downward relative field value of 1.0 for all angles below the horizon and a maximum horizontal power of 0.3 kilowatts, and an antenna height of 53 meters above the rooftop. The power density level 2 meters above the roof top is predicted to be 0.0015 mW/cm<sup>2</sup> or less. The computed power density is 0.15 percent of the Commission's guidelines for a controlled area and 0.75 percent of an uncontrolled area - no further study from the proposal is required.

However, after commissioning of the proposed facility, power density measurements will be taken to determine the contribution of the WOCK digital facility to the current radiation levels on the building roof. These measurements will be supplied to the Commission (if necessary) at the time of filing an application for station license.

The applicant will fully-cooperate and coordinate with all site users as required by the Commission's rules.

**III. SUMMARY:**

KM proposes to flash-cut the facilities of Low Power Television Station WOCK-CA to specify operation on digital television channel 4 as a result of displacement of its authorized analog channel 13 operation.

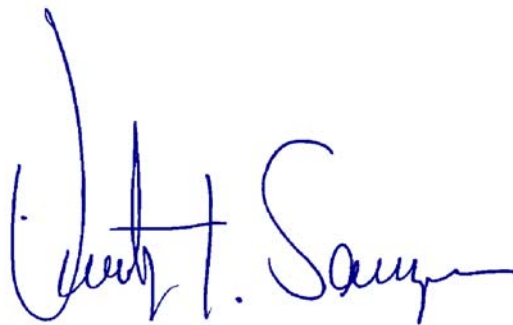
DIGITAL DISPLACEMENT APPLICATION  
CLASS A TELEVISION STATION  
WOCK-CA, CHICAGO, IL

The proposed digital “flash-cut” will operate on Digital Television Channel 4 with a maximum ERP 300 Watts, utilizing a DIRECTIONAL antenna system. The estimated digital transmitter power output (TPO) is 50 Watts.

Operation as proposed herein would not cause/increase any normally prohibited contour overlap using a terrain dependant - OET Bulletin No. 69 review, and would not have any significant impact on the environment. The proposed operation will not create any new prohibited interference – with the exception to KM’s own WOCK-LD digital channel 4 companion channel construction permit in which it has an interference agreement.

The proposed operation is fully in compliance with all other areas of the Commission’s rules and applicable international agreements.

10 December 2008



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Timothy Z. Sawyer

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**WOCK-CA**

LICENSED ANALOG FACILITY

BLTVA20021125AAU

Latitude: 41-53-56 N

Longitude: 087-37-23 W

Channel: 13-

Frequency: 212.5 MHz

ERP: 3.00 kW

Antenna AMSL Height: 542.0 m

Antenna AGL Height: 361.3 m

Site Elevation AMSL: 180.7 m

Horiz. Pattern: Directional

**WOCK-DIST**DIGITAL DISPLACEMENT  
APPLICATION

Latitude: 41-53-56 N

Longitude: 087-37-23 W

Channel: 04

Frequency: 69.0 MHz

ERP: 0.30 kW

Antenna AMSL Height: 570.8 m

Antenna AGL Height: 390.1 m

Site Elevation AMSL: 180.7 m

Horiz. Pattern: Directional

**CLASS-A TELEVISION SERVICE CONTOURS**

WOCK-CA LICENSED ANALOG CH 13 SERVICE CONTOUR

WOCK DISPLACEMENT APPLICATION DIGITAL CH 4 SERVICE CONTOUR

FIGURE 1

**WOCK-CA ANALOG CH 13**

FCC 68 DBU F(50,50) CONTOUR

**WOCK-DISPLACEMENT DIGITAL CH 4**

FCC 48 DBU F(50,90) CONTOUR

WOCK-CA  
WOCK-DIST

SERVICE CONTOUR OVERLAP - MINOR CHANGE RULE

Scale 1:1,000,000

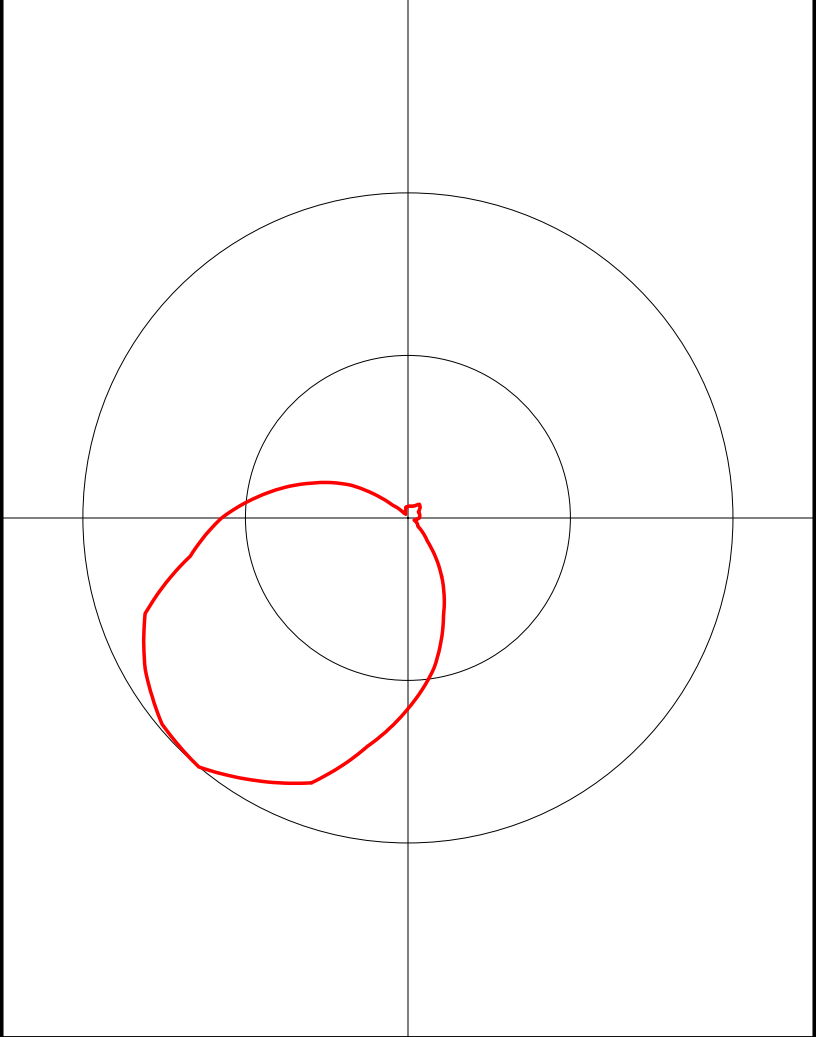
0 20 40 60 km

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CH 4 Digital Directional Antenna Pattern FIGURE 2

Azimuth (deg)	Effective Field	
0.0	0.035	
10.0	0.037	
20.0	0.038	
30.0	0.043	
40.0	0.055	
50.0	0.049	
60.0	0.037	
70.0	0.038	
80.0	0.037	
90.0	0.035	
100.0	0.027	
110.0	0.020	
120.0	0.033	
130.0	0.040	
140.0	0.093	
150.0	0.207	
160.0	0.320	
170.0	0.467	
180.0	0.587	
190.0	0.713	
200.0	0.867	
210.0	0.933	
220.0	1.000	<--MAX
230.0	0.987	
240.0	0.933	
250.0	0.860	
260.0	0.680	
270.0	0.573	
280.0	0.440	
290.0	0.313	
300.0	0.200	
310.0	0.060	
320.0	0.020	
330.0	0.013	
340.0	0.020	
350.0	0.033	



# FIGURE 3 - OET BULLETIN NUMBER 69 INTERFERENCE STUDY RESULTS

## Outgoing Interference Population Report

WOCK-DISP (04) Chicago, IL  
Broadcast Type: Digital Service: G [Simple Emission Mask]  
Lat: 41-53-56 N Lng: 087-37-23 W ERP: 0.3 kW AMSL: 570.8 m

TV Outgoing Interference Study  
Signal Resolution: 1.0 km  
Consider NTSC Taboo: Yes  
KWX error points are considered to  
be interference free coverage.  
Default # of radials computed for contours: 360  
Contours calculated using 8 radial HAAT.  
LR Profile Spacing Increment: 1.0 km  
Masked interference points are being counted  
as interference free.  
Using LPTV/translator D/U rules.  
Pop Centroid DB: 2000 US Census (SF1)

Primary Terrain: NED 3 Second US Terrain  
Secondary Terrain: V-Soft 30 Second World Terrain

Population Database: 2000 US Census (SF1)

## ----- Stations Considered:

Call Letters	City	State	Dist	Bear
WBBM-TV-D (03)	Chicago	IL	0.0	0.0
WOCK-LD-D.C (04)	Chicago	IL	0.0	0.0
WHBF-TV-D.C (04)	Rock Island	IL	240.6	261.6
WHBF-TV (04+)	Rock Island	IL	240.6	261.6
WTTV (04Z)	Bloomington	IN	303.5	155.2
WWMT (03-)	Kalamazoo	MI	190.3	64.0
WDIV-TV (04Z)	Detroit	MI	370.6	78.4
WTMJ-TV (04-)	Milwaukee	WI	134.4	350.3
WHBF-D.R (4)	ROCK ISLAND	IL	240.6	261.6

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%	
WBBM-TV-D (03)	0.0	0	9,622,326	0	0	0.0	
WOCK-LD-D.C (04)	2743.2	1,734,067	5,127,917	481,993	4,642,102	90.5	**
WHBF-TV-D.C (04)	25.6	216	1,666,509	300	488	0.0	
WHBF-TV (04+)	0.0	0	1,302,791	4,315	0	0.0	
WTTV (04Z)	0.0	0	2,389,022	0	0	0.0	
WWMT (03-)	0.0	0	2,545,774	0	0	0.0	
WDIV-TV (04Z)	0.0	0	6,148,687	0	0	0.0	
WTMJ-TV (04-)	30.8	1,151	3,249,992	223,600	3,349	0.1	
WHBF-D.R (4)	0.9	0	983,028	617	0	0.0	

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\*\* WOCK CHANNEL 4 DIGITAL COMPANION CHANNEL - SEE INTERFERENCE AGREEMENT STATEMENT  
CONTAINED WITHIN THIS APPLICATION REGARDING INTERFERENCE TO/FROM SISTER STATION  
WOCK-LD, DIGITAL COMPANION CHANNEL 4, CHICAGO, IL.

SUMMARY: APPLICANT AGREES TO ACCEPT INTERFERENCE  
FROM SISTER STATION, DIGITAL COMPANION CHANNEL 4  
WOCK-LD CHICAGO, IL.

WOCK-LD DIGITAL COMPANION STATION CHANNEL 4, CHICAGO, IL  
AGREES TO ACCEPT INTERFERENCE FROM THIS  
APPLICATION.