

**Engineering Statement  
Special Temporary Authority**  
prepared for  
**Gray Television Licensee, LLC**  
KYCW-LD Branson, MO  
Facility ID 11135  
STA Ch. 19 (digital) 14.6 kW

*Gray Television Licensee, LLC* (“Gray”) is the licensee of Low Power Television (“LPTV”) station KYCW-LD, Channel 25, Facility ID 11135, Branson, MO. KYCW-LD’s licensed facility is presently silent (file# 0000022131). A Construction Permit (“CP”, file# 0000022132) authorizes relocation of KYCW-LD to an existing tower structure located at Fordland, MO. This statement supports *Gray’s* request for Special Temporary Authority (“STA”) to operate KYCW-LD on Channel 19 at the authorized location on an interim basis.

The KYCW-LD CP specifies use of a side-mounted directional antenna at 15 kW effective radiated power (“ERP”) on the tower structure associated with Antenna Structure Registration number 1218324. The tower structure is owned by *Gray* and is utilized by *Gray’s* KYTV(DT) (Ch. 44, Facility ID 36003, Springfield, MO). Additionally, station KGHZ(DT) (Ch. 19, Facility ID 35630, Springfield, MO) employs a side-mount nondirectional antenna on the same tower structure.

*Gray* operates KGHZ pursuant to a shared service agreement. The licensee of KGHZ has relinquished KGHZ’s Channel 19 spectrum in the recently concluded incentive auction.<sup>1</sup> The STA sought herein by *Gray* seeks to operate KYCW-LD on Channel 19 with the existing KGHZ antenna system upon the surrender of KGHZ’s license. The STA facility will allow *Gray* to provide improved CW network programming in the Springfield market.<sup>2</sup>

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<sup>1</sup>*Expanding the Economic and Innovative Opportunities of Spectrum Through Incentive Auctions*, Docket No. 12-268.

<sup>2</sup>*Gray’s* station KYTV has been reassigned to Channel 19 in the incentive auction, and *Gray* acknowledges that the KYCW-LD STA operation on Channel 19 must cease by the KYTV transition phase completion. Should KYCW-LD’s authorized Channel 25 be displaced as a result of channel reassignments, an alternate channel will be sought for KYCW-LD at the appropriate filing window.

## Engineering Statement Gray Television Licensee, LLC

KYCW-LD Branson, MO  
(page 2 of 4)



A different channel is requested due to equipment availability. Gray is unable to secure and install a Channel 25 antenna on short notice, however with the surrender of KGHZ license there will be an operational Channel 19 antenna available at the authorized KYCW-LD site.

The proposed STA facility on Channel 19 will operate at the same site and using the same antenna height as authorized in KYTV-LD's CP for Channel 25. The proposed STA facility will operate with 14.6 kW ERP, reduced just slightly from the 15 kW ERP in the KYTV-LD CP due to the transmitter's power output capability. The proposed STA facility's technical specifications are supplied in the LMS STA schedule to which this exhibit is attached.

As shown in Figure 1, the STA facility's 51 dB $\mu$  contour extends beyond the KYCW-LD licensed and CP facilities. This extension is unavoidable since the existing Channel 19 antenna is nondirectional while the Channel 25 CP specifies a directional antenna. The antenna is an elliptically polarized ERI model ATW29HS3-ESO-19H (20 percent vertical polarization). The proposed 14.6 kW ERP operation is well within the KGHZ licensed 1000 kW coverage contour.

Interference study per OET Bulletin 69<sup>3</sup> shows that the proposal complies with the FCC's interference protection requirements toward all digital television, television translator, LPTV, and Class A stations. The results, summarized in Table 1, show that any new interference does not exceed the FCC's interference limits (0.5 percent to full power and Class A stations, and 2.0 percent to secondary stations) to any facility except for KGHZ.

KGHZ would receive 49.4 percent interference to its licensed facility (BLCDT-20080818ABH). The licensee of KGHZ has agreed to accept this level of interference from KYCW-LD caused to KGHZ. A copy of a consent statement from KGHZ's licensee is attached separately. As a practical matter, the interference is theoretical because the KGHZ license will

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<sup>3</sup>FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). The implementation of OET-69 for this study followed the guidelines of OET-69 as specified therein. The default cell size of 1 km was employed. Comparisons of various results of this computer program (run on a Sun Sparc processor) to the Commission's implementation of OET-69 show excellent correlation.

## **Engineering Statement Gray Television Licensee, LLC**

KYCW-LD Branson, MO  
(page 3 of 4)



be surrendered, and because KGHZ the proposed STA Channel 19 KYCW-LD facility will not operate simultaneously.

The nearest FCC monitoring station is 632 km distant at Grand Island, NE. This exceeds by a large margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with “quiet” zones specified in §73.1030(a) and (b). There are no authorized AM stations within 3 kilometers of the site. The site location is beyond the border areas requiring international coordination.

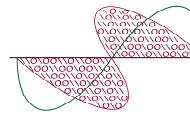
### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed facility was evaluated for human exposure to RF energy using the procedures outlined in the FCC’s OET Bulletin Number 65. Based on OET-65 equation (10) and the worst-case of 100 percent antenna relative field in downward elevations, the calculated power density attributable to the proposed facility at locations near the transmitter site at a height of two meters above ground level is  $1.9 \mu\text{W}/\text{cm}^2$ , which is 0.6 percent of the general population / uncontrolled maximum permissible exposure limit. This is well below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal’s contribution is less than five percent. When the antenna’s elevation pattern is considered, the calculated RF exposure level will be even lower

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC’s guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines. An existing antenna will be utilized and no tower work is required to carry out this proposal.

**Engineering Statement**  
**Gray Television Licensee, LLC**

KYCW-LD Branson, MO  
(page 4 of 4)



**Chesapeake RF Consultants, LLC**

Radiofrequency Consulting Engineers  
Digital Television and Radio

*List of Attachments*

Figure 1      Coverage Contour Comparison  
Table 1      Interference Analysis Results Summary

**Chesapeake RF Consultants, LLC**

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**Chesapeake RF Consultants, LLC**  
Radiofrequency Consulting Engineers  
Digital Television and Radio

**Figure 1**  
**Coverage Contour Comparison**  
**KYCW-LD Branson, MO**  
**Facility ID 11135**  
**STA Ch. 19 (digital) 14.6 kW**

prepared for  
**Gray Television Licensee, LLC**

April, 2017

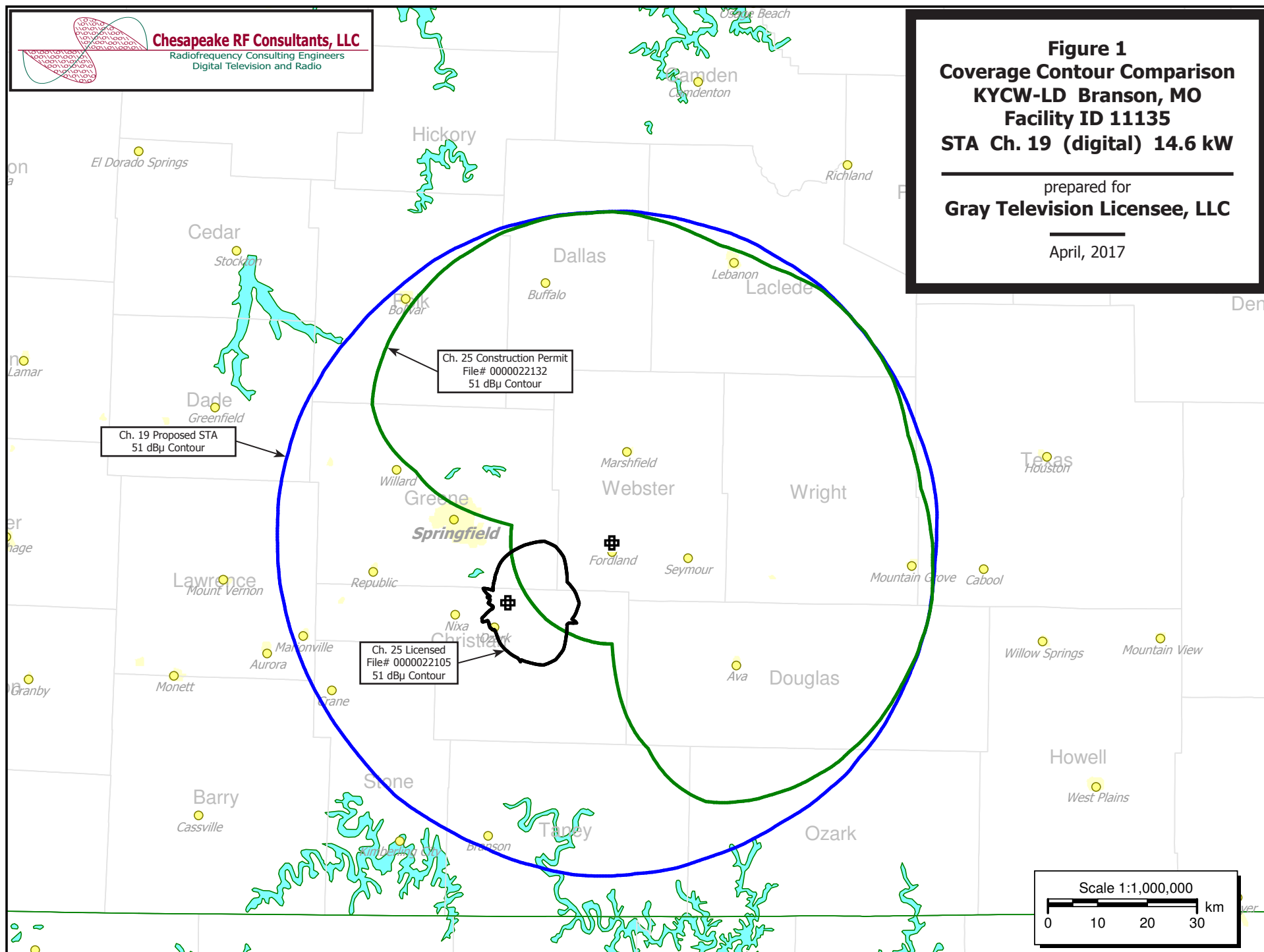
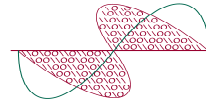


Table 1

**Interference Analysis Results Summary**

prepared for

**Gray Television Licensee, LLC****KYCW-LD Branson, MO****Chesapeake RF Consultants, LLC**Radiofrequency Consulting Engineers  
Digital Television and Radio

KYCW-LD	USERRECORD-01	BRANSON	MO US
Channel 19	ERP 14.6 kW	HAAT 575. m	RCAMSL 01023 m
FULL SERVICE MASK			
Latitude 037-10-25		Longitude 0092-56-27	
Nondirectional antenna			

The LMS application requires NAD-83 coordinates. FCC internal systems then convert to NAD-27 and port over to CDBS for processing. This interference analysis utilizes truncated NAD-27 coordinates to replicate FCC processing.

Ch.	Call	City/State	Dist (km)	Status	Application Ref. No.	---Population (2000 Census)---	
						Baseline	New Interference
18	KFSM-TV	FORT SMITH AR	184.6	LIC	BLCDT-20060530AIM	---	none
18	K18KK-D	COLUMBIA MO	188.5	CP	BNPDTL-20100804AAA	---	none
18	KJVG-LD	JOPLIN MO	156.8	CP MOD	BMPDTL-20110726AEQ	---	none
19	KIPB-LD	PINE BLUFF AR	339.4	LIC	BLDTL-20121231ALR	---	none
19	W19EE-D	JACKSONVILLE IL	372.6	CP	BNPDTL-20101013ABO	---	none
19	W19EE-D	JACKSONVILLE IL	396.3	CP MOD	BLANK-13443	---	none
19	W19EE-D	JACKSONVILLE IL	405.7	CP MOD	BLANK-13745	---	none
19	K19KF-D	PAXICO KS	353.1	CP	BNPDTL-20100514AIB	---	none
19	K19JU-D	POPLAR BLUFF MO	268.8	CP	BDCCDTL-20120308ABT	---	none
19	KGHZ	SPRINGFIELD MO	0.0	LIC	BLCDT-20080818ABH	929,325	458,876 (49.4%) *
19	KPTN-LD	ST. LOUIS MO	277.3	CP	BDISDTL-20110706AAK	2,080,613	0 (0.00%)
19	KOTV-DT	MCALISTER OK	347.3	LIC	BLCDT-20120816ABS	---	none
19	KEGG-LD	TULSA OK	316.5	LIC	BLDTL-20130222ADJ	---	none
19	WPED-LD	JACKSON TN	364.5	LIC	BLANK-4406	---	none
19	WPED-LD	JACKSON TN	367.9	CP	BLANK-4451	---	none
20	KFLU-LD	FORT SMITH AR	159.2	LIC	BLANK-8907	---	none
20	KNLJ	JEFFERSON CITY MO	185.8	LIC	BLCDT-20110121ACA	---	none
20	KFKY-LD	JOPLIN MO	156.8	CP MOD	BMPDTL-20110726AEU	---	none
20	KFKY-LD	JOPLIN MO	69.3	LIC	BLANK-7879	63,007	0 (0.00%)
20	KFKY-LD	JOPLIN MO	26.1	CP MOD	BLANK-12997	343,376	3,067 (0.89%)
21	K21JS	HARRISON AR	106.4	LIC	BLTTL-20111121DXG	---	none

\* KGHZ is accepting 49.4 percent interference from KYCW-LD.  
See engineering statement.