

**TECHNICAL STATEMENT  
WXOW-WQOW LICENSE, LLC  
WQOW 253 KW-DA 280 M HAAT CH. 25  
EAU CLAIRE, WISCONSIN**

WXOW-WQOW License, LLC, the licensee of digital television station WQOW, Facility ID No. 64550, proposes construction of the WQOW post-auction facility on Channel 25. Reassignment from Channel 15 to Channel 25 was specified in the *Channel Reassignment Public Notice* ("CRPN"), DA 17-314, released on April 13, 2017. The licensee proposes to operate WQOW in accordance with the technical parameters listed in the CRPN, except for certain adjustments in the directional antenna relative field pattern that are the result of the new channel assignment. It is therefore proposed that WQOW will operate with an effective radiated power (ERP) of 253 kW and an antenna radiation center height above mean sea level (AMSL) of 558.1 meters. The antenna radiated center height above average terrain (HAAT) will remain unchanged.

This application seeks to utilize the antenna that WQOW currently employs in order to accommodate the channel reassignment. The existing antenna is a horizontally polarized directional Dielectric Model TUP-SP4-8-1. The horizontal azimuth pattern for operation on Channel 25 varies slightly from the relative field values associated with the licensed pattern due to the change in frequency. The horizontal azimuth pattern for the proposed minor modification is depicted in [Figure 1](#).

The aforementioned antenna height of 558.1 meters AMSL was determined based on the site elevation of the registered antenna-supporting structure and the height of the antenna radiation center of 287.2 meters above ground level (AGL).<sup>1</sup> Because there is no significant variance from the permissible contour coverage area as defined by the technical parameters specified in the CRPN, the proposed interference-free service population and area match the baseline 100 percent.<sup>2</sup> The *TVStudy* summary report provided in [Figure 2](#) demonstrates that no interference beyond 0.5 percent will be caused to the technical parameters of any other station as specified in the CRPN and the permissible coverage area will not be extended by more than one percent in any direction.

---

<sup>1</sup> Antenna Structure Registration No. 1033663 specifies a site elevation of 270.9 meters AMSL.

<sup>2</sup> The technical parameters specified in the CRPN result in an interference-free coverage area of 354,921 people and 19,351.6 sq.km. The proposed interference-free coverage area amounts to 357,640 people and 19,383.4 sq.km.



The construction permit application specifies an existing FCC registered tower that was constructed before March 16, 2001.<sup>3</sup> Given that the station will continue to utilize its existing antenna for operation on the reassignment channel, the criteria outlined in 47 CFR § 1.1307(a) for certain types of facilities that may significantly affect the environment do not apply. With regard to the rules for limiting human exposure to radio-frequency (RF) energy in 47 CFR § 1.1307(b), this application seeks authority to operate a television broadcast antenna in full compliance with those guidelines as described in greater detail below. The following technical specifications are proposed:

Frequency :	536 - 542 MHz (UHF Channel 25)
Effective Radiated Power:	253 kW
Antenna Type:	DIE TUP-SP4-8-1
Antenna Polarization:	Horizontal
Antenna Height:	287.2 meters AGL
Location coordinates:	44-48-00.0 N, 91-27-57.0 W (NAD83)
Site elevation:	270.9 meters AMSL
Overall tower height:	293.0 meters AGL
FCC ASRN:	1033663; Constructed in 1956

Using the methodology for predicting power density levels for television broadcast antennas outlined in *FCC OET Bulletin No. 65, Edition 97-01, (OET-65)*, the proposed facility is calculated to produce a maximum power density of 1.04  $\mu\text{W}/\text{cm}^2$  at points 2 meters above ground (approximate human head height). This exposure level was determined using 10 percent antenna relative field, which is generally considered to be a typical value for UHF antennas. The maximum exposure limits applicable to Channel 25, as determined in accordance with 47 CFR § 1.1310 for uncontrolled and controlled situations, are 357  $\mu\text{W}/\text{cm}^2$  and 1,787  $\mu\text{W}/\text{cm}^2$  respectively. Because the worst-case exposure level determined for the proposed facility is not more than 5% of those guidelines and considering that the base of the tower is fenced and suitable warning signs are posted, no further showing of compliance is

---


<sup>3</sup> 47 CFR Part 1, App. B, § III.A. "An antenna may be mounted on an existing tower constructed on or before March 16, 2001 without such collocation being reviewed through the Section 106 process set forth in the NPA, unless: 1. The mounting of the antenna will result in a substantial increase in the size of the tower as defined in Stipulation I.E, above; or, 2. The tower has been determined by the FCC to have an adverse effect on one or more historic properties, where such effect has not been avoided or mitigated through a conditional no adverse effect determination, a Memorandum of Agreement, a programmatic agreement, or a finding of compliance with Section 106 and the NPA; or, 3. The tower is the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106 of the National Historic Preservation Act; or, 4. The collocation licensee or the owner of the tower has received written or electronic notification that the FCC is in receipt of a complaint from a member of the public, an Indian Tribe, a SHPO or the Council, that the collocation has an adverse effect on one or more historic properties. Any such complaint must be in writing and supported by substantial evidence describing how the effect from the collocation is adverse to the attributes that qualify any affected historic property for eligibility or potential eligibility for the National Register."



necessary. Accordingly, this application complies with the RF exposure limits and is categorically excluded from environmental processing by 47 CFR § 1.1306.

Steps to limit exposure to persons authorized to access the transmitter site will be consistent with the appropriate recommendations in OET-65. All maintenance and other related work to be performed at elevations higher than 2 meters above ground will be coordinated to prevent exposure to RF fields in excess of the controlled limit. Such preventative steps shall include reducing power or shutting down the facility.

Respectfully submitted,



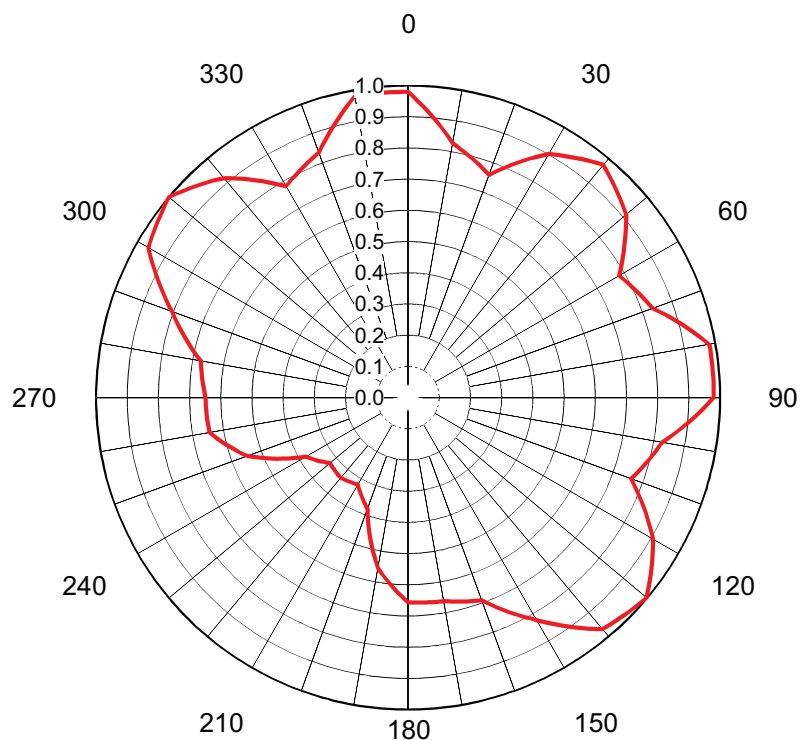
---

Scott Turpie  
Technical Consultant  
Lohnes & Culver LLC  
P.O. Box 881  
Silver Spring, MD 20918-0881  
Ph. 301-776-4488

July 10, 2017

### AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70928-1**  
 Date **27-Jun-17**  
 Call Letters **WQOW**  
 Channel **25**  
 Frequency **539 MHz**  
 Antenna Type **TUP-SP4-8-1**  
 Gain **1.62 (2.09dB)**  
 Calculated



Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.980	36	0.945	72	0.864	108	0.774	144	0.911	180	0.656	216	0.330	252	0.567	288	0.779
1	0.965	37	0.952	73	0.879	109	0.767	145	0.896	181	0.646	217	0.331	253	0.577	289	0.792
2	0.949	38	0.959	74	0.893	110	0.761	146	0.881	182	0.636	218	0.333	254	0.587	290	0.805
3	0.934	39	0.967	75	0.908	111	0.775	147	0.867	183	0.626	219	0.334	255	0.597	291	0.821
4	0.919	40	0.974	76	0.923	112	0.790	148	0.852	184	0.616	220	0.336	256	0.607	292	0.836
5	0.904	41	0.968	77	0.937	113	0.805	149	0.838	185	0.606	221	0.335	257	0.617	293	0.852
6	0.888	42	0.962	78	0.952	114	0.819	150	0.823	186	0.595	222	0.334	258	0.627	294	0.867
7	0.873	43	0.955	79	0.966	115	0.834	151	0.810	187	0.585	223	0.333	259	0.636	295	0.883
8	0.858	44	0.949	80	0.981	116	0.849	152	0.797	188	0.575	224	0.332	260	0.646	296	0.898
9	0.842	45	0.943	81	0.981	117	0.864	153	0.784	189	0.565	225	0.331	261	0.647	297	0.914
10	0.827	46	0.937	82	0.981	118	0.878	154	0.770	190	0.555	226	0.330	262	0.647	298	0.930
11	0.820	47	0.931	83	0.981	119	0.893	155	0.757	191	0.537	227	0.329	263	0.647	299	0.945
12	0.814	48	0.925	84	0.981	120	0.908	156	0.744	192	0.520	228	0.328	264	0.647	300	0.961
13	0.807	49	0.919	85	0.980	121	0.917	157	0.731	193	0.502	229	0.328	265	0.648	301	0.965
14	0.800	50	0.913	86	0.980	122	0.926	158	0.718	194	0.485	230	0.327	266	0.648	302	0.969
15	0.793	51	0.899	87	0.980	123	0.935	159	0.705	195	0.467	231	0.332	267	0.648	303	0.973
16	0.787	52	0.886	88	0.980	124	0.944	160	0.691	196	0.450	232	0.337	268	0.649	304	0.976
17	0.780	53	0.873	89	0.980	125	0.953	161	0.689	197	0.432	233	0.342	269	0.649	305	0.980
18	0.773	54	0.860	90	0.980	126	0.962	162	0.686	198	0.415	234	0.348	270	0.649	306	0.984
19	0.767	55	0.847	91	0.965	127	0.971	163	0.683	199	0.397	235	0.353	271	0.652	307	0.988
20	0.760	56	0.834	92	0.949	128	0.980	164	0.680	200	0.380	236	0.358	272	0.654	308	0.992
21	0.774	57	0.820	93	0.934	129	0.989	165	0.677	201	0.374	237	0.363	273	0.657	309	0.996
22	0.788	58	0.807	94	0.919	130	0.998	166	0.674	202	0.368	238	0.368	274	0.659	310	1.000
23	0.802	59	0.794	95	0.904	131	0.995	167	0.671	203	0.362	239	0.374	275	0.662	311	0.992
24	0.816	60	0.781	96	0.888	132	0.992	168	0.668	204	0.357	240	0.379	276	0.664	312	0.984
25	0.831	61	0.786	97	0.873	133	0.989	169	0.665	205	0.351	241	0.396	277	0.667	313	0.976
26	0.845	62	0.792	98	0.858	134	0.986	170	0.662	206	0.345	242	0.413	278	0.669	314	0.967
27	0.859	63	0.797	99	0.842	135	0.983	171	0.662	207	0.339	243	0.430	279	0.672	315	0.959
28	0.873	64	0.803	100	0.827	136	0.981	172	0.661	208	0.333	244	0.446	280	0.674	316	0.951
29	0.887	65	0.808	101	0.821	137	0.978	173	0.661	209	0.327	245	0.463	281	0.687	317	0.943
30	0.902	66	0.813	102	0.814	138	0.975	174	0.660	210	0.322	246	0.480	282	0.701	318	0.935
31	0.909	67	0.819	103	0.807	139	0.972	175	0.659	211	0.323	247	0.497	283	0.714	319	0.927
32	0.916	68	0.824	104	0.801	140	0.969	176	0.659	212	0.324	248	0.514	284	0.727	320	0.919
33	0.923	69	0.830	105	0.794	141	0.954	177	0.658	213	0.326	249	0.531	285	0.740	321	0.905
34	0.930	70	0.835	106	0.787	142	0.940	178	0.657	214	0.327	250	0.548	286	0.753	322	0.891
35	0.938	71	0.850	107	0.781	143	0.925	179	0.657	215	0.329	251	0.558	287	0.766	323	0.878

This document contains proprietary and confidential information of Dielectric. It is to be used solely for the purpose for which it is provided. No disclosure, reproduction, or use of this document or any part of it may be made without the written permission of Dielectric.

## FIGURE 2

### Analysis Summary

#### TVSTUDY, VERSION 2.2.2.

Study created: 2017.07.08 10:09:42

Study build station data: LMS TV 2017-06-25 (3)

Proposal: WQOW D25 DT APP EAU CLAIRE, WI  
Facility ID: 64550  
Station data: User record  
Record ID: 137  
Country: U. S.

All records on or after 2017-04-13 excluded

Stations potentially affected:

Call	Chan	Svc	Status	City, State	File Number	Distance
KIMT	D24	DT	BL	MASON CITY, IA	DTVBL66402	177.5 km
WHRM-TV	D24	DT	LIC	WAUSAU, WI	BLEDT20051014AAW	140.4
KTIN	D25	DT	LIC	FORT DODGE, IA	BLEDT20070822ACB	323.1
KWKB	D25	DT	LIC	IOWA CITY, IA	BLCDT20070130AJQ	341.9
WTTW	D25	DT	BL	CHICAGO, IL	DTVBL10802	448.5
WPNE-TV	D25	DT	BL	GREEN BAY, WI	DTVBL18798	277.5
KXLT-TV	D26	DT	BL	ROCHESTER, MN	DTVBL35906	153.9
WKOW	D26	DT	LIC	MADISON, WI	BLCDT20111006AAO	247.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D25  
Latitude: 44 48 0.00 N (NAD83)  
Longitude: 91 27 57.00 W  
Height AMSL: 558.1 m  
HAAT: 280.0 m  
Peak ERP: 253 kW  
Antenna: D1E TUP-SP4-8-1 0.0 deg

39.9 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	243 kW	283.5 m	84.1 km
45.0	225	266.9	81.5
90.0	243	280.2	83.6
135.0	245	277.1	83.3
180.0	109	278.7	78.4
225.0	27.8	278.5	71.0
270.0	107	288.5	79.3
315.0	233	274.2	82.6

Database HAAT does not agree with computed HAAT

Database HAAT: 280 m Computed HAAT: 278 m

Proposal service area is within baseline plus 1.0%

Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 360.6 km

Distance to Mexican border: 1884.0 km

Conditions at FCC monitoring station: Allegan MI

Bearing: 116.9 degrees Distance: 505.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 250.2 degrees Distance: 1238.5 km

Study cell size: 2.00 km

Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

No IX check failures found.