Application for Modification
Post – Repack Construction Permit
Engineering Exhibit

WZPX-TV – Battle Creek, MI

Facility ID: 71871

Licensee “ION MEDIA BATTLE CREEK LICENSE, INC” is currently authorized to operate on Post-Repack DTV channel 21. The Antenna Structure Registration Number is 1056751 with a Latitude of 42° 40’ 45.3” N+ and a Longitude of 085° 03’ 56.4” W-.

The purpose of this application is to request authority to modify the construction permit (0000026967) to operate from the same guyed tower utilizing an ERP of 120 kW. The HAAT is 320 m (AGL 314 m).

Antenna System

An Omni-directional top mounted antenna will be utilized. It will be affixed to an existing guyed tower structure and will not increase the overall height of the structure. Any vertical component will not exceed the horizontal pattern in any direction. Elevation and Azimuth patterns are attached.

RF Hazard (Environmental)

Human Exposure measurements were calculated using the OET- 65 equation and the outcome is compliant with FCC 1.1310. Furthermore, the calculation is under 5% of the limit categorically excluding the application from further environmental evaluations.

Calculated Maximum	Calculated Exposure	Percent of Limit
mW/cm²	mW/cm²	
0.343	0.000508	0.15%

The station will coordinate with other(s) to comply with access, antenna and/or tower issues related to RF Exposure

Broadcast Facility

§73.616 Interference Caused

A calculation using *TVStudy* version 2.2.4 using an LMS database dated 2018-02-01 indicates that there is no excessive new interference created. This study used cell spacing of 2 km and a profile spacing of 1 km.

§73.622 Maximum ERP and Antenna Height

The application does not exceed the maximum ERP for the specified HAAT.

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§73.623 DTV Allotments

The application does not change the DTV Table of Allotments.

§73.625 Coverage of Principal Community

The application's ERP will sufficiently cover Battle Creek, Michigan. RF coverage analysis attached.

§73.1030 Radio, Research and Receiving Locations

A calculation using *TVStudy* version 2.2.4 using an LMS database dated 2018-02-01 indicates that no excessive interference to any "protected" locations. As such, no coordination or notification is required.

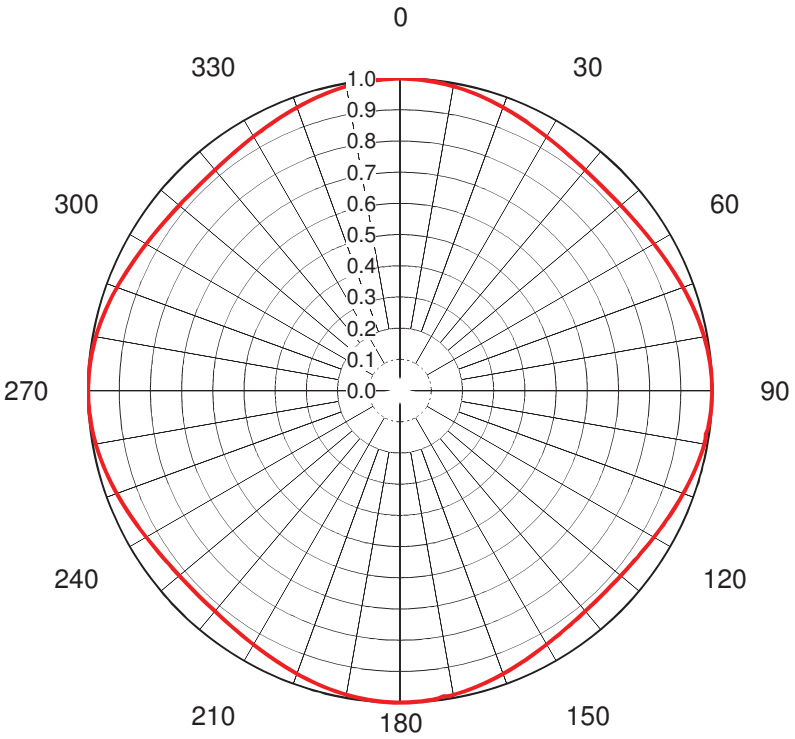
A calculation using *TVStudy* version 2.2.4 using an LMS database dated 2018-02-01 indicates that this application is 73.2km away from the FCC Monitoring Station (Allegan, MI). Calculated field strength at this monitoring station is .2 mV/m which is well under the coordination limit.

§73.1650 International Agreements

The application's transmit location is 166.3 km from Canada. A calculation using *TVStudy* version 2.2.4 using an LMS database dated 2018-02-01 indicates that this application causes no new interference to any Canadian stations.

The application's transmit location is 2043.3 km from Mexico. As such, no coordination or notification is required.

Dielectric®



AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-70408-2**
Date	**10-Mar-17**
Call Letters	**WZPX**
Channel	**21**
Frequency	**515 MHz**
Antenna Type	**TFU-24GTH/VP-R O4**
Gain	**1.08 (0.35dB)**
	Calculated
Circularity	**+/- 1.0 dB**
Drawing #	**TFU-04 D21**

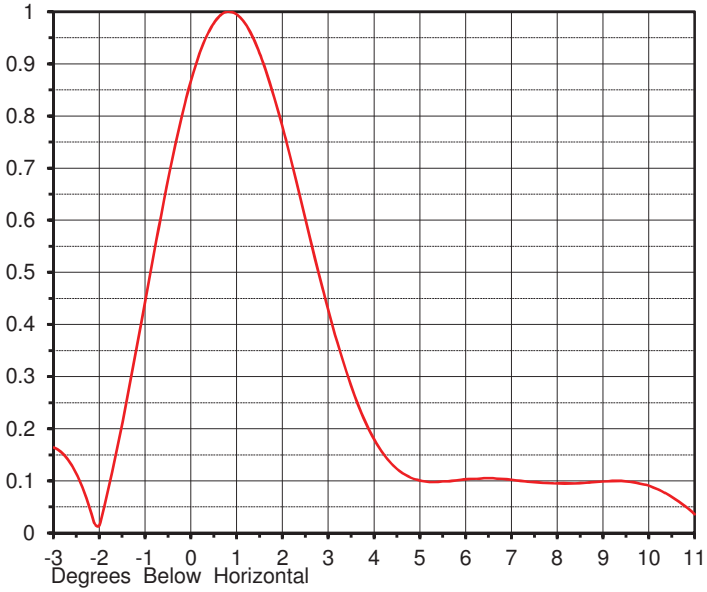
Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	1.000	36	0.928	72	0.971	108	0.971	144	0.928	180	1.000	216	0.928	252	0.971	288	0.971	324	0.928
1	1.000	37	0.927	73	0.974	109	0.969	145	0.930	181	1.000	217	0.927	253	0.974	289	0.969	325	0.930
2	1.000	38	0.925	74	0.977	110	0.966	146	0.931	182	1.000	218	0.925	254	0.977	290	0.966	326	0.931
3	0.999	39	0.924	75	0.979	111	0.963	147	0.933	183	0.999	219	0.924	255	0.979	291	0.963	327	0.933
4	0.998	40	0.923	76	0.982	112	0.960	148	0.935	184	0.998	220	0.923	256	0.982	292	0.960	328	0.935
5	0.997	41	0.923	77	0.984	113	0.958	149	0.938	185	0.997	221	0.923	257	0.984	293	0.958	329	0.938
6	0.996	42	0.922	78	0.986	114	0.955	150	0.940	186	0.996	222	0.922	258	0.986	294	0.955	330	0.940
7	0.995	43	0.922	79	0.988	115	0.952	151	0.942	187	0.995	223	0.922	259	0.988	295	0.952	331	0.942
8	0.994	44	0.921	80	0.990	116	0.950	152	0.944	188	0.994	224	0.921	260	0.990	296	0.950	332	0.944
9	0.992	45	0.921	81	0.992	117	0.947	153	0.947	189	0.992	225	0.921	261	0.992	297	0.947	333	0.947
10	0.990	46	0.921	82	0.994	118	0.944	154	0.950	190	0.990	226	0.921	262	0.994	298	0.944	334	0.950
11	0.988	47	0.922	83	0.995	119	0.942	155	0.952	191	0.988	227	0.922	263	0.995	299	0.942	335	0.952
12	0.986	48	0.922	84	0.996	120	0.940	156	0.955	192	0.986	228	0.922	264	0.996	300	0.940	336	0.955
13	0.984	49	0.923	85	0.997	121	0.938	157	0.958	193	0.984	229	0.923	265	0.997	301	0.938	337	0.958
14	0.982	50	0.923	86	0.998	122	0.935	158	0.960	194	0.982	230	0.923	266	0.998	302	0.935	338	0.960
15	0.979	51	0.924	87	0.999	123	0.933	159	0.963	195	0.979	231	0.924	267	0.999	303	0.933	339	0.963
16	0.977	52	0.925	88	1.000	124	0.931	160	0.966	196	0.977	232	0.925	268	1.000	304	0.931	340	0.966
17	0.974	53	0.927	89	1.000	125	0.930	161	0.969	197	0.974	233	0.927	269	1.000	305	0.930	341	0.969
18	0.971	54	0.928	90	1.000	126	0.928	162	0.971	198	0.971	234	0.928	270	1.000	306	0.928	342	0.971
19	0.969	55	0.930	91	1.000	127	0.927	163	0.974	199	0.969	235	0.930	271	1.000	307	0.927	343	0.974
20	0.966	56	0.931	92	1.000	128	0.925	164	0.977	200	0.966	236	0.931	272	1.000	308	0.925	344	0.977
21	0.963	57	0.933	93	0.999	129	0.924	165	0.979	201	0.963	237	0.933	273	0.999	309	0.924	345	0.979
22	0.960	58	0.935	94	0.998	130	0.923	166	0.982	202	0.960	238	0.935	274	0.998	310	0.923	346	0.982
23	0.958	59	0.938	95	0.997	131	0.923	167	0.984	203	0.958	239	0.938	275	0.997	311	0.923	347	0.984
24	0.955	60	0.940	96	0.996	132	0.922	168	0.986	204	0.955	240	0.940	276	0.996	312	0.922	348	0.986
25	0.952	61	0.942	97	0.995	133	0.922	169	0.988	205	0.952	241	0.942	277	0.995	313	0.922	349	0.988
26	0.950	62	0.944	98	0.990	134	0.921	170	0.990	206	0.950	242	0.944	278	0.994	314	0.921	350	0.990
27	0.947	63	0.947	99	0.992	135	0.921	171	0.992	207	0.947	243	0.947	279	0.992	315	0.921	351	0.992
28	0.944	64	0.950	100	0.990	136	0.921	172	0.990	208	0.944	244	0.950	280	0.990	316	0.921	352	0.994
29	0.942	65	0.952	101	0.988	137	0.922	173	0.995	209	0.942	245	0.952	281	0.988	317	0.922	353	0.995
30	0.940	66	0.955	102	0.986	138	0.922	174	0.996	210	0.940	246	0.955	282	0.986	318	0.922	354	0.996
31	0.938	67	0.958	103	0.984	139	0.923	175	0.997	211	0.938	247	0.958	283	0.984	319	0.923	355	0.997
32	0.935	68	0.960	104	0.982	140	0.923	176	0.998	212	0.935	248	0.960	284	0.982	320	0.923	356	0.998
33	0.933	69	0.963	105	0.979	141	0.924	177	0.999	213	0.933	249	0.963	285	0.979	321	0.924	357	0.999
34	0.931	70	0.966	106	0.977	142	0.925	178	1.000	214	0.931	250	0.966	286	0.977	322	0.925	358	1.000
35	0.930	71	0.969	107	0.974	143	0.927	179	1.000	215	0.930	251	0.969	287	0.974	323	0.927	359	1.000

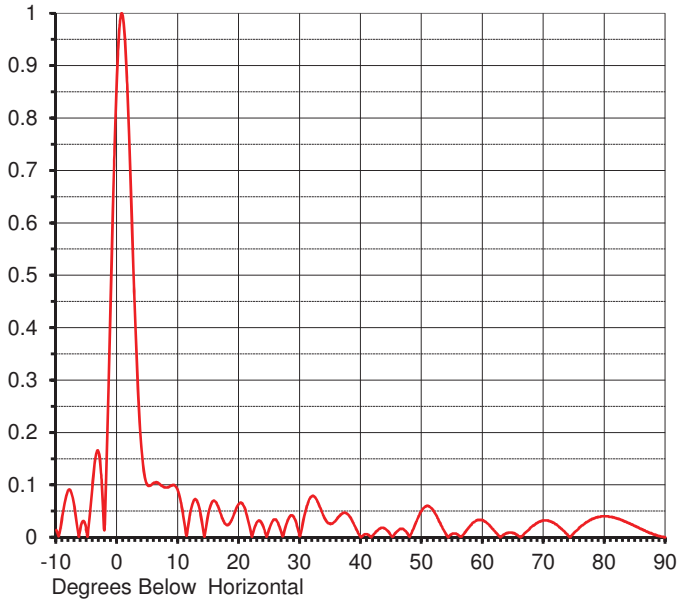
ELEVATION PATTERN

Proposal No.	**C-70408-2**
Date	**10-Mar-17**
Call Letters	**WZPX**
Channel	**21**
Frequency	**515 MHz**
Antenna Type	**TFU-24GTH/VP-R O4**

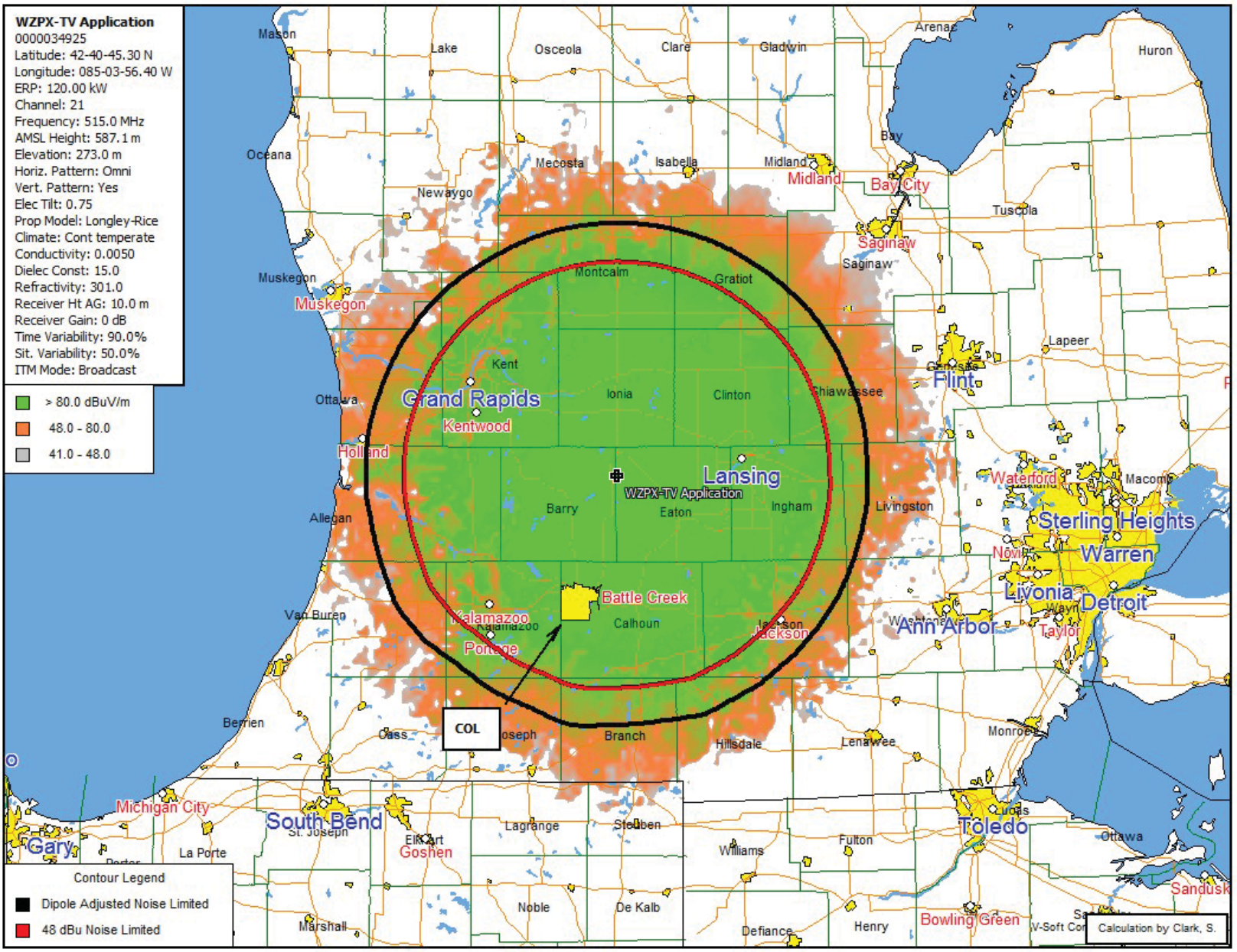
RMS Directivity at Main Lobe	**21.5 (13.32 dB)**	Beam Tilt	**0.75 deg**
RMS Directivity at Horizontal	**16.2 (12.10 dB)**	Drawing Number	**24G215075**

Calculated





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.014	10.0	0.087	30.0	0.002	50.0	0.051	70.0	0.032
-9.0	0.040	11.0	0.029	31.0	0.054	51.0	0.060	71.0	0.031
-8.0	0.090	12.0	0.047	32.0	0.079	52.0	0.049	72.0	0.025
-7.0	0.055	13.0	0.071	33.0	0.065	53.0	0.027	73.0	0.015
-6.0	0.020	14.0	0.022	34.0	0.037	54.0	0.005	74.0	0.003
-5.0	0.009	15.0	0.047	35.0	0.025	55.0	0.007	75.0	0.009
-4.0	0.108	16.0	0.069	36.0	0.034	56.0	0.004	76.0	0.020
-3.0	0.160	17.0	0.044	37.0	0.046	57.0	0.008	77.0	0.029
-2.0	0.048	18.0	0.023	38.0	0.042	58.0	0.023	78.0	0.035
-1.0	0.491	19.0	0.039	39.0	0.021	59.0	0.032	79.0	0.039
0.0	0.896	20.0	0.064	40.0	0.000	60.0	0.032	80.0	0.040
1.0	0.987	21.0	0.053	41.0	0.006	61.0	0.024	81.0	0.039
2.0	0.746	22.0	0.006	42.0	0.004	62.0	0.011	82.0	0.036
3.0	0.396	23.0	0.030	43.0	0.016	63.0	0.001	83.0	0.032
4.0	0.165	24.0	0.019	44.0	0.016	64.0	0.008	84.0	0.027
5.0	0.099	25.0	0.018	45.0	0.003	65.0	0.008	85.0	0.021
6.0	0.104	26.0	0.034	46.0	0.012	66.0	0.001	86.0	0.016
7.0	0.101	27.0	0.006	47.0	0.015	67.0	0.009	87.0	0.010
8.0	0.095	28.0	0.033	48.0	0.001	68.0	0.020	88.0	0.006
9.0	0.099	29.0	0.038	49.0	0.028	69.0	0.028	89.0	0.002
								90.0	0.000


WZPX-TV Application
0000034925
Latitude: 42-40-45.30 N
Longitude: 085-03-56.40 W
ERP: 120.00 kW
Channel: 21
Frequency: 515.0 MHz
AMSL Height: 587.1 m
Elevation: 273.0 m
Horiz. Pattern: Omni
Vert. Pattern: Yes
Elec Tilt: 0.75
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 301.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
> 80.0 dBuV/m
48.0 - 80.0
41.0 - 48.0
Contour Legend
Dipole Adjusted Noise Limited
48 dBu Noise Limited
Calculation by Clark, S.
WZPX-TV Application
COL
Grand Rapids
Kentwood
Lansing
Battle Creek
Kalamazoo
Portage
Holland
Muskegon
Flint
Saginaw
Bay City
Midland
Ann Arbor
Detroit
Warren
Sterling Heights
Livonia
Toledo
South Bend
Gary
Michigan City
Goshen
Bowling Green
Mason
Lake
Osceola
Clare
Gladwin
Arenac
Huron
Oceana
Mecosta
Isabella
Newaygo
Tuscola
Montcalm
Gratiot
Kent
Ottawa
Ionia
Clinton
Shiawassee
Lapeer
Genesee
Allegan
Barry
Eaton
Ingham
Livingston
Macomb
Waterford
Novi
Wayne
Taylor
Van Buren
Calhoun
Jackson
Berrien
Cass
Branch
Hillsdale
Lenawee
Monroe
La Porte
Lagrange
Steuben
Williams
Fulton
Ottawa
Noble
De Kalb
Defiance
Henry
Marshall