

TECHNICAL SUMMARY
APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT
LMS FILE NO. 0000034177
TV STATION WPCB-TV
GREENSBURG, PENNSYLVANIA
CHANNEL 28 530 KW (DA) 278 m

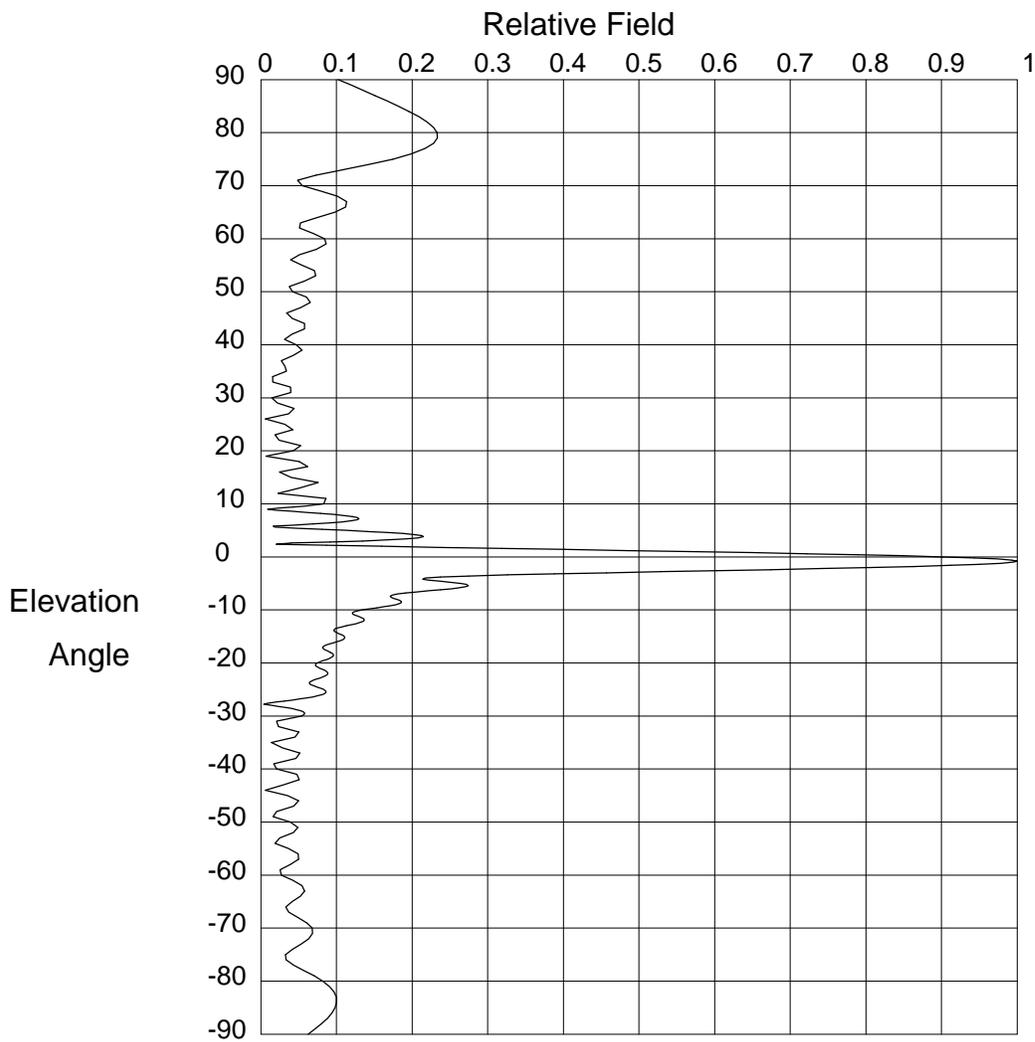
1. The instant application proposes to modify the outstanding construction permit (“CP”, LMS File No. 0000034177) for WPCB-TV on channel 28 at Greensburg, Pennsylvania. Specifically, it is proposed to change the directional antenna (DA) from an SWR model SWCDT16OI/28-EP DA to an SWR model SWCDT18OI/28-EP DA. The DA change is necessary as the antenna manufacturer (SWR) was not able to match the “as built” DA with the authorized DA. There will be no other changes, including no change in the authorized maximum ERP of 530 kW or the RCAMSL of 595.2 meters. There will also be no change in the overall structure height of the existing tower (ASRN 1056234).

2. Freeze Compliance: Figure 1 shows the predicted NLSC contours for the CP and proposed WPCB-TV operations. As indicated, the proposed NLSC contour extends slightly beyond the CP along some azimuths. However, the extension is considered insignificant as the maximum extension is 0.6 km or less. In addition, the horizontal plane relative field values for the proposed DA will only exceed the CP DA by 0.3 dB or less, which is within the FCC’s +/- 0.5 dB tolerance. Therefore, the proposal is believed to be in substantial compliance with the FCC’s 4/05/2013 Freeze Order Public Notice (DA 13-618).

3. Based on the attached *TVStudy* analysis for WPCB-TV’s proposed operation, excessive interference is caused to the CP operation of WWAT-CD on channel 29 at Charleroi, Pennsylvania (LMS File No. 0000073061). However, as indicated by the attached *TVStudy* analysis for WPCB-TV’s CP operation, the WPCB-TV CP causes more interference to the WWAT-CD CP than the proposed WPCB-TV operation. It is apparent that the WWAT-CD CP, which was granted after the WPCB-TV CP, accepted the interference caused by WPCB-TV’s CP operation. Thus, it is believed that the proposed WPCB-TV operation complies with the FCC’s interference requirements with respect to the WWAT-CD CP as there would be a reduction in interference caused to the WWAT-CD CP. It is noted that both *TVStudy* analyses were based on a cell size of 2.0 km and profile resolution of 0.2 points/km.

4. RFR Compliance: The proposed facilities were evaluated in terms of potential radiofrequency radiation (RFR) exposure at ground level to workers and the general public. The radiation center for the proposed DTV antenna will be located 230.4 meters above ground level. The total DTV ERP is 810.4 kW (530 kW-horizontal, 280.4 kW-vertical). A conservative vertical plane relative field value of 0.10 is presumed for the antenna's downward radiation in both the horizontal and vertical planes of polarization (for angles below 60 degrees downward, see attached antenna information). The calculated power density at a point 2 meters above ground level is 5.2 uW/cm^2 which is 1.4% of the FCC's recommended limit of 371.3 uW/cm^2 for channel 28 for an uncontrolled environment. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the RF emission rules.

Access to the transmitting site is restricted and appropriately marked with RFR warning signs. Also, as this is a multi-user site, a formal RFR protection protocol is in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate measure will be taken to assure worker safety with respect to RFR exposure. Such measures include limiting the exposure time, wearing protective clothing, reducing power to an acceptable level or termination of transmitter output power all together until workers leave the restricted area.



Elevation Pattern

Scale: Linear

Units: Field, Relative

Systems With Reliability

CLIENT: *WPCB-TV*

Date: 5/4/2018

ANTENNA TYPE: SWCDT18OI/28-EP

FREQUENCY: 557 MHz

PATTERN POL.: Elliptical

DIRECTIVITY(Peak): 18.259/12.615 dBd

Beam Tilt (Deg.) : -0.75

DIRECTIVITY(Horiz): 14.854/11.718 dBd

Null Fill(s)(%) : 20, 15, 10

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
3.2	.168 (-15.49)	-4.4	.223 (-13.036)	-12.0	.137 (-17.295)
3.0	.134 (-17.439)	-4.6	.237 (-12.494)	-12.2	.135 (-17.424)
2.8	.091 (-20.776)	-4.8	.252 (-11.967)	-12.4	.131 (-17.67)
2.6	.04 (-27.944)	-5.0	.264 (-11.559)	-12.6	.126 (-18.021)
2.4	.02 (-33.813)	-5.2	.272 (-11.312)	-12.8	.119 (-18.46)
2.2	.087 (-21.232)	-5.4	.274 (-11.235)	-13.0	.113 (-18.952)
2.0	.16 (-15.935)	-5.6	.271 (-11.325)	-13.2	.107 (-19.447)
1.8	.238 (-12.486)	-5.8	.264 (-11.573)	-13.4	.101 (-19.883)
1.6	.319 (-9.929)	-6.0	.252 (-11.964)	-13.6	.098 (-20.19)
1.4	.402 (-7.913)	-6.2	.238 (-12.477)	-13.8	.096 (-20.323)
1.2	.486 (-6.272)	-6.4	.222 (-13.08)	-14.0	.097 (-20.275)
1.0	.568 (-4.914)	-6.6	.206 (-13.726)	-14.2	.099 (-20.087)
.8	.647 (-3.78)	-6.8	.192 (-14.347)	-14.4	.102 (-19.822)
.6	.722 (-2.834)	-7.0	.181 (-14.864)	-14.6	.105 (-19.546)
.4	.79 (-2.049)	-7.2	.174 (-15.205)	-14.8	.108 (-19.312)
.2	.85 (-1.408)	-7.4	.171 (-15.339)	-15.0	.11 (-19.155)
.0	.902 (-0.896)	-7.6	.172 (-15.289)	-15.2	.111 (-19.098)
-.2	.943 (-0.506)	-7.8	.175 (-15.121)	-15.4	.11 (-19.151)
-.4	.974 (-0.229)	-8.0	.18 (-14.912)	-15.6	.108 (-19.316)
-.6	.993 (-0.062)	-8.2	.183 (-14.73)	-15.8	.105 (-19.587)
-.8	1.00 (0)	-8.4	.186 (-14.621)	-16.0	.101 (-19.949)
-1.0	.995 (-0.043)	-8.6	.186 (-14.612)	-16.2	.096 (-20.376)
-1.2	.978 (-0.19)	-8.8	.184 (-14.72)	-16.4	.091 (-20.825)
-1.4	.95 (-0.443)	-9.0	.179 (-14.95)	-16.6	.087 (-21.242)
-1.6	.912 (-0.803)	-9.2	.172 (-15.299)	-16.8	.084 (-21.561)
-1.8	.863 (-1.275)	-9.4	.163 (-15.755)	-17.0	.082 (-21.73)
-2.0	.807 (-1.863)	-9.6	.153 (-16.295)	-17.2	.082 (-21.725)
-2.2	.744 (-2.574)	-9.8	.143 (-16.878)	-17.4	.084 (-21.565)
-2.4	.675 (-3.416)	-10.0	.134 (-17.446)	-17.6	.086 (-21.305)
-2.6	.603 (-4.396)	-10.2	.127 (-17.926)	-17.8	.089 (-21.007)
-2.8	.53 (-5.523)	-10.4	.122 (-18.246)	-18.0	.092 (-20.728)
-3.0	.457 (-6.799)	-10.6	.121 (-18.365)	-18.2	.094 (-20.511)
-3.2	.388 (-8.216)	-10.8	.122 (-18.293)	-18.4	.096 (-20.381)
-3.4	.326 (-9.73)	-11.0	.125 (-18.089)	-18.6	.096 (-20.356)
-3.6	.274 (-11.229)	-11.2	.128 (-17.826)	-18.8	.095 (-20.442)
-3.8	.237 (-12.497)	-11.4	.132 (-17.574)	-19.0	.093 (-20.638)
-4.0	.217 (-13.257)	-11.6	.135 (-17.383)	-19.2	.09 (-20.935)
-4.2	.214 (-13.384)	-11.8	.137 (-17.284)	-19.4	.086 (-21.313)

Systems With Reliability

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CLIENT: *WPCB-TV*
 ANTENNA TYPE: *SWCDT18OI/28-EP*
 FREQUENCY: *557 MHz*
 PATTERN POL.: *Elliptical*
 DIRECTIVITY(Peak): *18.259/12.615 dBd*
 DIRECTIVITY(Horiz): *14.854/11.718 dBd*

Date: *5/4/2018*

Beam Tilt (Deg.) : *-0.75*
 Null Fill(s)(%) : *20, 15, 10*

Relative Field Tabulation

Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)	Elev. Angle	Rel. Fld(dB)
-19.6	.082 (-21.742)	-27.2	.031 (-30.249)	-54.0	.019 (-34.542)
-19.8	.078 (-22.172)	-27.4	.02 (-34.154)	-55.0	.036 (-28.775)
-20.0	.075 (-22.542)	-27.6	.008 (-41.447)	-56.0	.049 (-26.148)
-20.2	.073 (-22.785)	-27.8	.004 (-48.687)	-57.0	.05 (-26.042)
-20.4	.072 (-22.853)	-28.0	.014 (-37.171)	-58.0	.039 (-28.126)
-20.6	.073 (-22.74)	-28.2	.024 (-32.471)	-59.0	.025 (-31.908)
-20.8	.075 (-22.483)	-28.4	.033 (-29.672)	-60.0	.027 (-31.291)
-21.0	.078 (-22.143)	-28.6	.041 (-27.799)	-61.0	.042 (-27.451)
-21.2	.081 (-21.787)	-28.8	.047 (-26.499)	-62.0	.054 (-25.306)
-21.4	.084 (-21.469)	-29.0	.052 (-25.611)	-63.0	.058 (-24.791)
-21.6	.087 (-21.226)	-29.2	.056 (-25.047)	-64.0	.052 (-25.65)
-21.8	.088 (-21.082)	-29.4	.058 (-24.76)	-65.0	.041 (-27.665)
-22.0	.089 (-21.051)	-29.6	.058 (-24.727)	-66.0	.033 (-29.628)
-22.2	.088 (-21.14)	-29.8	.057 (-24.939)	-67.0	.037 (-28.714)
-22.4	.086 (-21.347)	-30.0	.054 (-25.404)	-68.0	.049 (-26.22)
-22.6	.083 (-21.666)	-31.0	.021 (-33.644)	-69.0	.061 (-24.342)
-22.8	.079 (-22.081)	-32.0	.023 (-32.6)	-70.0	.068 (-23.388)
-23.0	.074 (-22.561)	-33.0	.05 (-25.981)	-71.0	.069 (-23.277)
-23.2	.07 (-23.055)	-34.0	.045 (-26.934)	-72.0	.063 (-23.95)
-23.4	.067 (-23.492)	-35.0	.014 (-36.997)	-73.0	.054 (-25.4)
-23.6	.065 (-23.786)	-36.0	.029 (-30.798)	-74.0	.042 (-27.561)
-23.8	.064 (-23.868)	-37.0	.052 (-25.728)	-75.0	.033 (-29.692)
-24.0	.065 (-23.716)	-38.0	.047 (-26.634)	-76.0	.033 (-29.565)
-24.2	.068 (-23.374)	-39.0	.017 (-35.434)	-77.0	.043 (-27.242)
-24.4	.071 (-22.919)	-40.0	.021 (-33.558)	-78.0	.057 (-24.858)
-24.6	.076 (-22.438)	-41.0	.048 (-26.44)	-79.0	.071 (-23.027)
-24.8	.079 (-21.995)	-42.0	.051 (-25.912)	-80.0	.082 (-21.72)
-25.0	.083 (-21.637)	-43.0	.03 (-30.492)	-81.0	.091 (-20.834)
-25.2	.085 (-21.393)	-44.0	.006 (-44.524)	-82.0	.097 (-20.286)
-25.4	.086 (-21.283)	-45.0	.035 (-29.056)	-83.0	.10 (-20.017)
-25.6	.086 (-21.321)	-46.0	.05 (-26.045)	-84.0	.10 (-19.986)
-25.8	.084 (-21.521)	-47.0	.043 (-27.247)	-85.0	.098 (-20.168)
-26.0	.08 (-21.897)	-48.0	.021 (-33.565)	-86.0	.094 (-20.548)
-26.2	.075 (-22.47)	-49.0	.016 (-35.861)	-87.0	.088 (-21.12)
-26.4	.069 (-23.271)	-50.0	.039 (-28.23)	-88.0	.08 (-21.889)
-26.6	.061 (-24.343)	-51.0	.049 (-26.181)	-89.0	.072 (-22.871)
-26.8	.052 (-25.76)	-52.0	.043 (-27.363)	-90.0	.062 (-24.098)
-27.0	.041 (-27.647)	-53.0	.025 (-31.999)	90.0	.00 (-50)

Systems With Reliability

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