

Engineering Report Addressing W280FX Special Operating Condition
Re: Addition of FM translator to WNLK(AM) NDA day and 2 tower DA night array

The following results were measured on 11/30/2021:

Base impedance east tower: with FM antenna added	49 - j66
Base impedance west tower (unchanged)	71 - j41

After Phasor readjustment (WNLK DA-N mode):

Field ratio = 0.982. Licensed spec = 0.96 to 1.0.

Phase -96 degrees. Licensed spec = -96 +/- 2 degrees.

Single (west) tower common point impedance NDA mode = 51 - j7.5

Two tower array phasor common point impedance DA mode = 51 - j7.5

Measurements taken with Delta OIB-1 Impedance Bridge using Potomac FIM-21 as external detector.

On November 30, 2021, I took monitor point readings on the WNLK two tower array. Readings were taken with an FIM21 field intensity meter around noon so as to avoid any skip propagation from other stations. The following readings were obtained:

At monitor point 1 on the 245 deg radial FCC limit is 12.6 mV, measured at 11.8 mV

At monitor point 2 on the 330 deg radial FCC limit is 7.15 mV, measured at 1.2 mV.

For reference, the NDA daytime reading for monitor point 1 measured 64 mV

For reference, the NDA daytime reading for monitor point 2 measured 5 mV

Therefore the DA pattern is in compliance with the terms of license.

On November 29, 2021 I was at the WNLK AM site as a contract engineer to observe the installation of FM translator antenna for W280FX on the WNLK east tower (reference tower, 1kW NDA day/ 500W DA night.) I have been a broadcast engineer since 1990 and hold FCC license PG-GB-039245. I am employed full time as director of engineering for the WSHU (Sacred Heart University) public radio group.

I hereby certify that the translator antenna, power divider and cabling, and coil-type AM isocoupler, were installed in accordance with the design authorized in the underlying FM translator construction permit. Installation was performed by Hampden Communications Inc. Transmitter power was set at 138 watts, taking into account feedline, isocoupler, and power divider losses. I have reviewed and agree with this TPO calculation.

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