

Technical Report W292FS.CP Minor Modification

This technical report is submitted for a minor modification to W292FS.CP, FCC file no. BNPFT-20180418ACS. Changes in tower site, COR and antenna are submitted. The translator will continue to serve as a fill-in facility to rebroadcast WAKY(AM) 620 kHz at Louisville, KY, FCC facility I.D. no. 30798.

W292FS.CP Modification Analysis:

An overlap study in exhibit E-1 shows the W292FS.CP modification is within the third-adjacent WVEZ(FM) 295B protected contour. A tabulation of the +40 113.21 F(50-10) dBu contour in exhibit E-2 using the vertical elevation pattern of the PSI FML two bay, 0.625 wavelength-spaced antenna (exhibit E-3) shows the lowest point above the site elevation = 44.3 meters, which will not reach any population, roads or buildings (exhibit E-4). The 60 dBu F(50-50) contour overlaps the current CP 60 dBu contour and is contained within a 25 mile/40 kilometer radius from the primary WAKY(AM) daytime tower site (exhibit E-5). The 60 dBu contour overlaps less than 50% of the W261CO and W285ER.CP 60 dBu contours, which also serve as fill-in facilities for WAKY(AM). The current W285ER licensed facility will rebroadcast another primary facility or cease operation until the W285ER.CP facility is built and licensed (exhibit E-6).

Antenna System:

The W292FS.CP modification will be relocated to the existing tower, ASR 1061956, at coordinates:

38 12 46N 85 33 13W NAD 27.

A PSI FML two bay, 0.625 wavelength-spaced, directional antenna (exhibit E-7) will be

mounted at a COR AGL of 107 meters, 314 meters AMSL, 127 meters HAAT (exhibit E-8) and operate at 0.250 kW ERP.

RF Exposure Calculation:

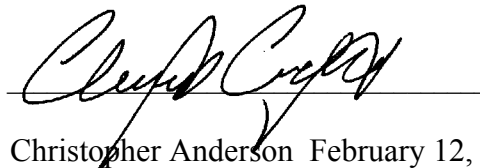
The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S \text{ (RF in microwatts/cm}^2\text{)} = \frac{33.4 \times F^2 \times (H \text{ ERP} + V \text{ ERP in watts})}{R^2 \text{ (height of radiation center in meters -2m)}}$$

Using a worst case vertical (F) factor of 1.0, the RF is calculated to be 1.51 $\mu\text{W}/\text{cm}^2$ to the ground, which is well below 5% of the 200 $\mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure allowing exclusion from consideration.

Conclusion:

It is concluded that the W292FS.CP modification complies with all Commission rules and policies.



Christopher Anderson February 12, 2019
andersce@bham.rr.com
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E-1 W292FS.CP Mod. Overlap Study

| REFERENCE 38 12 46.0 N. 85 33 13.0 W. | | CH# 292D - 106.3 MHz, Pwr= 0.25 kW DA, HAAT= 127.0 M, COR= 314 M Average Protected F(50-50)= 14.47 km Standard Directional | | | | | DISPLAY DATES DATA 02-12-19 SEARCH 02-12-19 | | | |
|---|---------|--|-------------------|---------------------------|--------------------------|--------------------|---|------------------------------------|-------------------------|-----------|
| CH CITY | CALL | TYPE STATE | ANT AZI <-- | DIST FILE # | LAT LNG | PWR(kW) HAAT(M) | INT(km) COR(M) | PRO(km) LICENSEE | *IN* (Overlap in km) | *OUT* |
| 292D Louisville | W292FS | CP DC_ KY | 52.7 232.7 | 12.28 BNPFT20180418ACS | 38 16 47.0 85 26 30.0 | 0.250 | 304 | ---Reference--- | | |
| 295B St. Matthews | AL9833 | RSV-A KY | 306.8 126.6 | 29.62 RM11334 | 38 22 19.0 85 49 33.0 | 50.000 150 | 6.8 337 | 70.5 | 9.0 | -42.1* |
| 295B St. Matthews | WVEZ | LIC CX KY | 306.8 126.6 | 29.62 BLH20070706AAP | 38 22 19.0 85 49 33.0 | 24.500 204 | 6.3 391 | 68.3 Sm-wvez, Lic | 9.6 | -39.9*(1) |
| 292L1 Shepherdsville | WIOP-LP | LIC KY | 194.4 14.4 | 22.39 BLL20160428AAH | 38 01 03.7 85 37 01.8 | 0.067 37 | 215 | | -7.1 | 0.4 |
| 292A Versailles | WCDA | LIC CN KY | 100.9 281.6 | 94.02 BLH19990115KB | 38 02 51.0 84 29 57.0 | 3.700 128 | 86.2 416 | 29.8 L.m. Communications, Inc | -5.8 | 18.4 |
| 291B North Vernon | WWWY | LIC CN IN | 352.3 172.2 | 95.87 BLH19850905KC | 39 04 02.0 85 42 10.0 | 50.000 148 | 79.2 355 | 66.1 White River Broadcasting C | 2.8 | 0.4 |
| 292C2 Horse Cave | WOVO | LIC CX KY | 203.3 22.9 | 141.26 BLH20121019ACC | 37 02 39.0 86 11 00.0 | 50.000 123 | 132.6 314 | 46.7 Soky Radio, Lic | 0.4 | 78.0 |
| 293L1 Louisville | WFMP-LP | LIC KY | 281.7 101.6 | 18.22 BLL20170404AAS | 38 14 45.0 85 45 29.0 | 0.020 66 | 216 | | 1.3 | 0.6 |
| 290A Valley Station | WAYK | LIC ZEX KY | 262.2 82.0 | 31.78 BLH20110420ABC | 38 10 24.7 85 54 50.1 | 1.250 155 | 2.1 341 | 27.9 Way Media, Inc. | 21.6 | 3.6 |
| 289A Emi nence | WHBE-FM | LIC CN KY | 64.1 244.3 | 35.65 BLH19880803LB | 38 21 09.0 85 11 09.0 | 3.000 100 | 2.4 352 | 25.5 Ub Louisville, Lic | 19.9 | 9.0 |
| 239B Jeffersonville | WOMF | LIC C_ IN | 256.1 75.8 | 34.44 BLH19990211KA | 38 08 16.0 85 56 06.0 | 28.500 196 | 81.5 387 | 27.5 Cc Licenses, Lic, As Debto | 14.5R | 19.9M |
| 293D Springfi eld | W293DG | CP C_ KY | 160.2 340.4 | 61.12 BNPFT20171214AAM | 37 41 43.0 85 19 06.0 | 0.250 | 20.9 319 | 13.6 Choice Radio Central Corpo | 27.6 | 29.8 |
| 291D El izabethtown | W291CU | LIC DC_ KY | 203.7 23.5 | 56.86 BLFT20160503ACE | 37 44 39.0 85 48 49.0 | 0.250 | 17.5 300 | 11.5 Washington County Cbc, Inc | 31.6 | 37.9 |
| 294D Frankfort | W294BG | LIC C_ KY | 91.5 271.9 | 60.43 BLFT20100114AB0 | 38 11 47.0 84 51 44.0 | 0.120 26 | 0.8 251 | 5.9 Eastern Kentucky Universi t | 46.1 | 52.7 |
| Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM In & Out distances between contours are shown at closest points. Reference zone= East Zone, Co to 3rd adjacent. All separation margins (if shown) include rounding. Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X) ***affixed to 'IN' or 'OUT' values = site inside restricted contour. « = Station meets FCC minimum distance spacing for its class. | | | | | | | | | | |

- (1) The +40 FFE F(50-10) dBu contour within the second adjacent WVEZ(FM) 295B protected contour is at the lowest point = 44.3 meters above the site elevation, which does not reach a 100% overlap.

E-2 W292FS.CP Mod. +40 dBu Tabulation Within WVEZ(FM) 295B

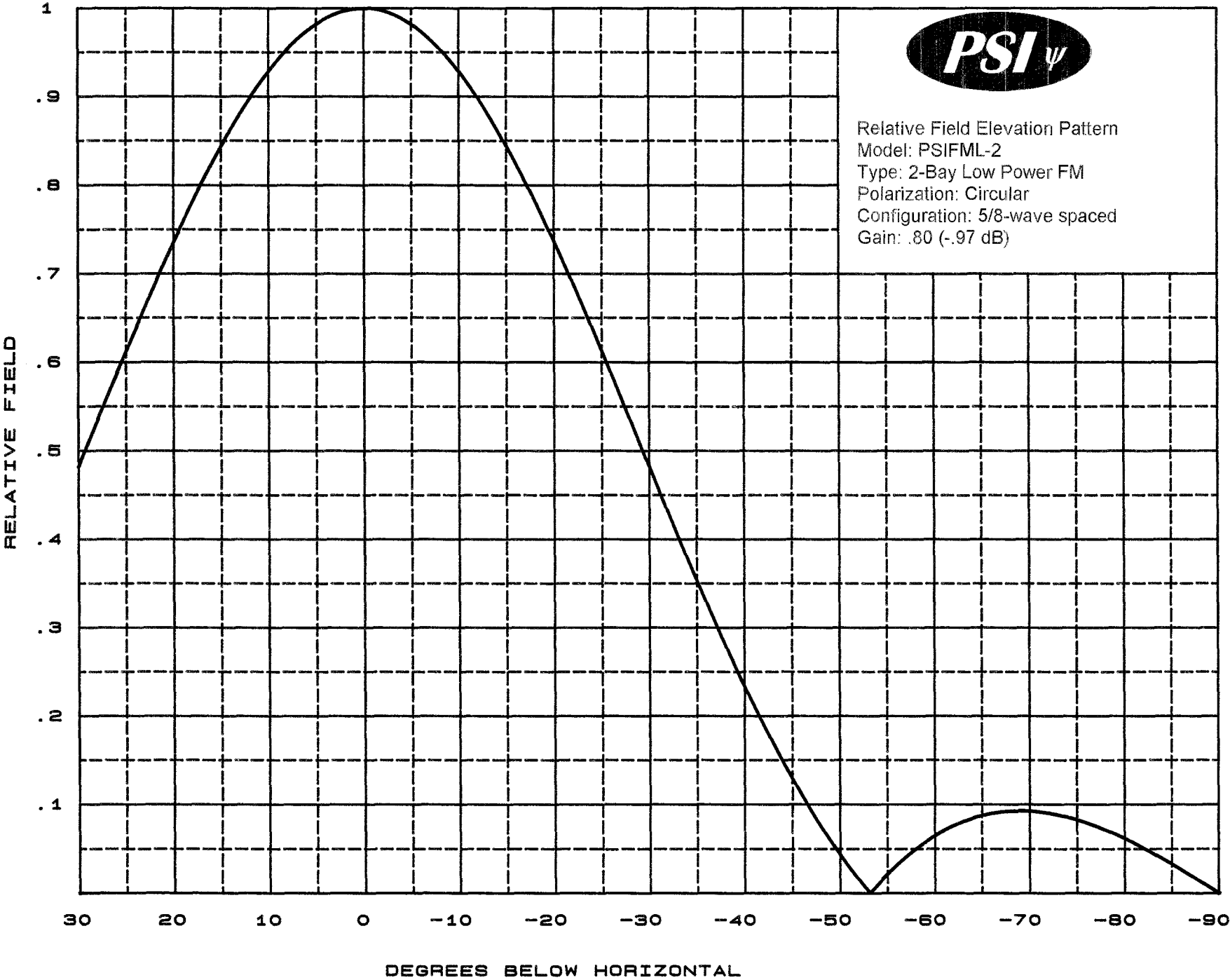
W292FS.CP Mod. Louisville, KY, Showing Protection to WVEZ(FM)
Geographic Coordinates: N. 38 12 46.00 W. 85 33 13.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.25
Translator or LPFM Antenna Height AG = 107 Meters
W292FS.CP Mod. Antenna Model = PSI-2-5-8

Protected Station's Contour = 73.21236 dBu
Translator's or LPFM's full Interference contour 113.21236

Review Azimuth = 10 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW
Distance between stations = 29.6 km
Protected Station= WVEZ(FM), 24.5 kW, 390.7 M Meters COR AMSL

| Depression Angle From Degree(Deg) | Vertical Relative Field | Horizontal Relative Field | ERP (kw) | Dist to IX Contour Along Dep. Angle(m) | Dist to IX Contour From Tower Base(m) | Height IX Above Ground (m) |
|---|-------------------------------|---------------------------------|----------|--|---|----------------------------------|
| 00.00 | 1.000 | 1.0 | 0.2500 | 242.2992 | 242.2992 | 107.000 |
| 05.00 | 0.982 | 1.0 | 0.2411 | 237.9378 | 237.0324 | 086.262 |
| 10.00 | 0.928 | 1.0 | 0.2153 | 224.8537 | 221.4376 | 067.955 |
| 15.00 | 0.844 | 1.0 | 0.1781 | 204.5005 | 197.5323 | 054.071 |
| 20.00 | 0.736 | 1.0 | 0.1354 | 178.3322 | 167.5775 | 046.007 |
| 25.00 | 0.612 | 1.0 | 0.0936 | 148.2871 | 134.3938 | 044.331 |
| 30.00 | 0.481 | 1.0 | 0.0578 | 116.5459 | 100.9317 | 048.727 |
| 35.00 | 0.352 | 1.0 | 0.0310 | 085.2893 | 069.8649 | 058.080 |
| 40.00 | 0.233 | 1.0 | 0.0136 | 056.4557 | 043.2476 | 070.711 |
| 45.00 | 0.128 | 1.0 | 0.0041 | 031.0143 | 021.9304 | 085.070 |
| 50.00 | 0.043 | 1.0 | 0.0005 | 010.4189 | 006.6971 | 099.019 |
| 55.00 | 0.021 | 1.0 | 0.0001 | 005.0883 | 002.9185 | 102.832 |
| 60.00 | 0.064 | 1.0 | 0.0010 | 015.5072 | 007.7536 | 093.570 |
| 65.00 | 0.087 | 1.0 | 0.0019 | 021.0800 | 008.9088 | 087.895 |
| 70.00 | 0.092 | 1.0 | 0.0021 | 022.2915 | 007.6242 | 086.053 |
| 75.00 | 0.083 | 1.0 | 0.0017 | 020.1108 | 005.2051 | 087.574 |
| 80.00 | 0.062 | 1.0 | 0.0010 | 015.0226 | 002.6086 | 092.206 |
| 85.00 | 0.033 | 1.0 | 0.0003 | 007.9959 | 000.6969 | 099.035 |
| 90.00 | 0.001 | 1.0 | 0.0000 | 000.2423 | 000.0000 | 106.758 |

E-3 W292FS.CP Mod. Antenna Vertical Elevation Pattern and Tabulation





Propagation Systems Inc.
 Elevation Pattern Tabulation
 Antenna: PSIFML-2 Special
 Bay spacing: 5/8 wave

| Angle | Field | dB | Angle | Field | dB | Angle | Field | dB |
|-------|-------|---------|-------|-------|---------|-------|-------|--------|
| -90.0 | 0.001 | -60.000 | -50.0 | 0.043 | -27.325 | -10.0 | 0.928 | -0.649 |
| -89.0 | 0.007 | -43.722 | -49.0 | 0.058 | -24.659 | -9.0 | 0.941 | -0.525 |
| -88.0 | 0.013 | -37.600 | -48.0 | 0.075 | -22.534 | -8.0 | 0.953 | -0.414 |
| -87.0 | 0.020 | -34.045 | -47.0 | 0.092 | -20.741 | -7.0 | 0.964 | -0.316 |
| -86.0 | 0.026 | -31.630 | -46.0 | 0.110 | -19.196 | -6.0 | 0.974 | -0.232 |
| -85.0 | 0.033 | -29.742 | -45.0 | 0.128 | -17.833 | -5.0 | 0.982 | -0.162 |
| -84.0 | 0.039 | -28.226 | -44.0 | 0.148 | -16.602 | -4.0 | 0.988 | -0.103 |
| -83.0 | 0.045 | -26.965 | -43.0 | 0.168 | -15.492 | -3.0 | 0.993 | -0.058 |
| -82.0 | 0.051 | -25.916 | -42.0 | 0.189 | -14.474 | -2.0 | 0.997 | -0.026 |
| -81.0 | 0.056 | -25.003 | -41.0 | 0.211 | -13.531 | -1.0 | 0.999 | -0.007 |
| -80.0 | 0.062 | -24.220 | -40.0 | 0.233 | -12.657 | 0.0 | 1.000 | 0.000 |
| -79.0 | 0.067 | -23.542 | -39.0 | 0.256 | -11.843 | 1.0 | 0.999 | -0.007 |
| -78.0 | 0.071 | -22.967 | -38.0 | 0.279 | -11.085 | 2.0 | 0.997 | -0.026 |
| -77.0 | 0.075 | -22.464 | -37.0 | 0.303 | -10.366 | 3.0 | 0.993 | -0.058 |
| -76.0 | 0.079 | -22.021 | -36.0 | 0.328 | -9.694 | 4.0 | 0.988 | -0.103 |
| -75.0 | 0.083 | -21.663 | -35.0 | 0.352 | -9.059 | 5.0 | 0.982 | -0.162 |
| -74.0 | 0.086 | -21.350 | -34.0 | 0.378 | -8.460 | 6.0 | 0.974 | -0.232 |
| -73.0 | 0.088 | -21.092 | -33.0 | 0.403 | -7.890 | 7.0 | 0.964 | -0.316 |
| -72.0 | 0.090 | -20.901 | -32.0 | 0.429 | -7.349 | 8.0 | 0.953 | -0.414 |
| -71.0 | 0.092 | -20.770 | -31.0 | 0.455 | -6.840 | 9.0 | 0.941 | -0.525 |
| -70.0 | 0.092 | -20.684 | -30.0 | 0.481 | -6.353 | 10.0 | 0.928 | -0.649 |
| -69.0 | 0.093 | -20.656 | -29.0 | 0.507 | -5.893 | 11.0 | 0.913 | -0.786 |
| -68.0 | 0.092 | -20.699 | -28.0 | 0.534 | -5.455 | 12.0 | 0.898 | -0.937 |
| -67.0 | 0.091 | -20.785 | -27.0 | 0.560 | -5.039 | 13.0 | 0.881 | -1.101 |
| -66.0 | 0.090 | -20.944 | -26.0 | 0.586 | -4.643 | 14.0 | 0.863 | -1.281 |
| -65.0 | 0.087 | -21.182 | -25.0 | 0.612 | -4.268 | 15.0 | 0.844 | -1.475 |
| -64.0 | 0.084 | -21.489 | -24.0 | 0.637 | -3.911 | 16.0 | 0.824 | -1.682 |
| -63.0 | 0.080 | -21.889 | -23.0 | 0.663 | -3.573 | 17.0 | 0.803 | -1.905 |
| -62.0 | 0.076 | -22.394 | -22.0 | 0.687 | -3.256 | 18.0 | 0.781 | -2.143 |
| -61.0 | 0.070 | -23.042 | -21.0 | 0.712 | -2.953 | 19.0 | 0.759 | -2.398 |
| -60.0 | 0.064 | -23.823 | -20.0 | 0.736 | -2.667 | 20.0 | 0.736 | -2.667 |
| -59.0 | 0.057 | -24.818 | -19.0 | 0.759 | -2.398 | 21.0 | 0.712 | -2.953 |
| -58.0 | 0.050 | -26.073 | -18.0 | 0.781 | -2.145 | 22.0 | 0.688 | -3.254 |
| -57.0 | 0.041 | -27.731 | -17.0 | 0.803 | -1.905 | 23.0 | 0.663 | -3.573 |
| -56.0 | 0.032 | -30.030 | -16.0 | 0.824 | -1.684 | 24.0 | 0.637 | -3.911 |
| -55.0 | 0.021 | -33.468 | -15.0 | 0.844 | -1.475 | 25.0 | 0.612 | -4.268 |
| -54.0 | 0.010 | -39.869 | -14.0 | 0.863 | -1.281 | 26.0 | 0.586 | -4.641 |
| -53.0 | 0.002 | -54.807 | -13.0 | 0.881 | -1.103 | 27.0 | 0.560 | -5.036 |
| -52.0 | 0.015 | -36.655 | -12.0 | 0.898 | -0.937 | 28.0 | 0.534 | -5.453 |
| -51.0 | 0.028 | -30.954 | -11.0 | 0.913 | -0.786 | 29.0 | 0.507 | -5.893 |
| | | | | | | 30.0 | 0.481 | -6.353 |

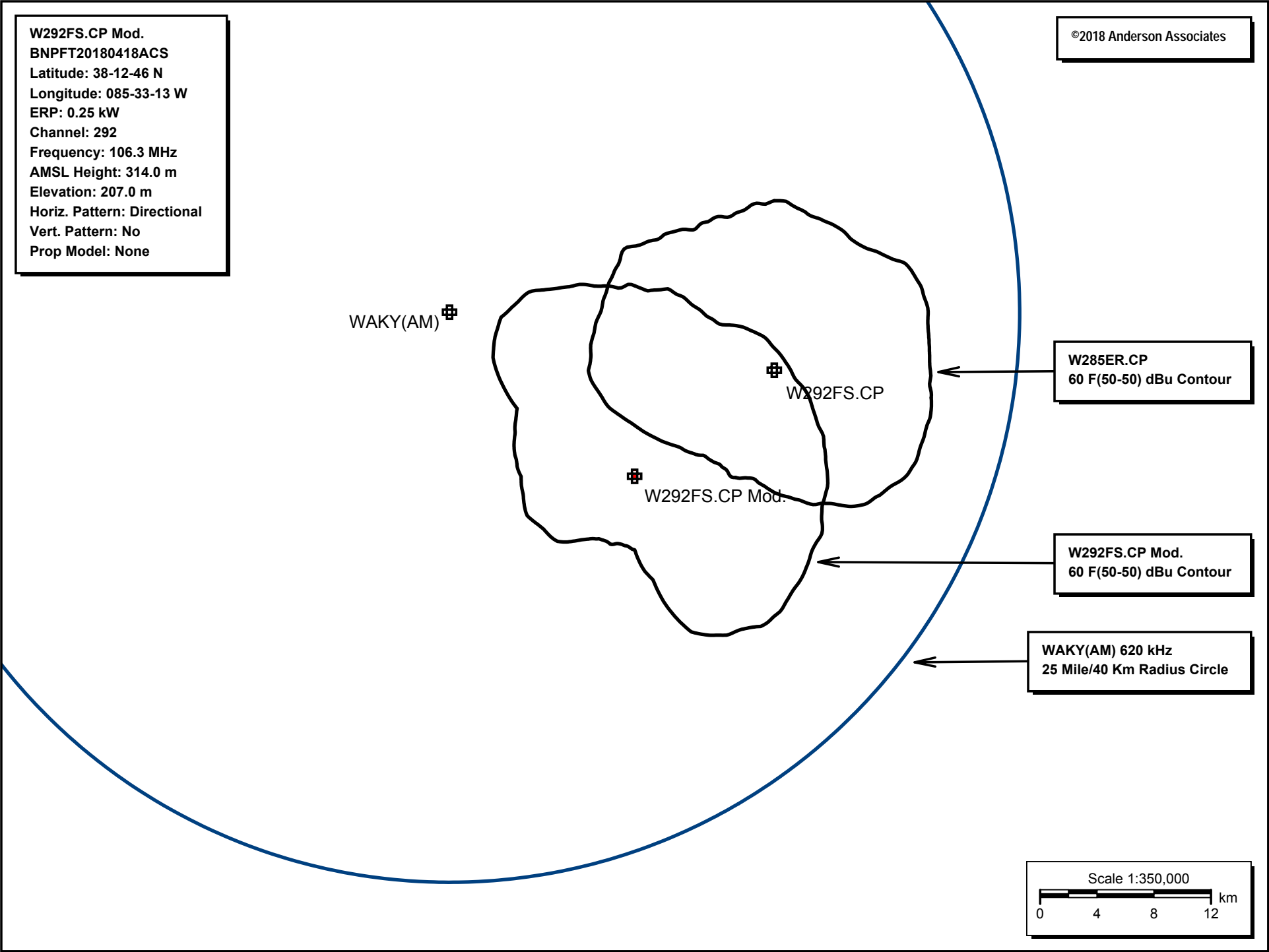
file: FML 2-bay elevation tabulation

revision: A

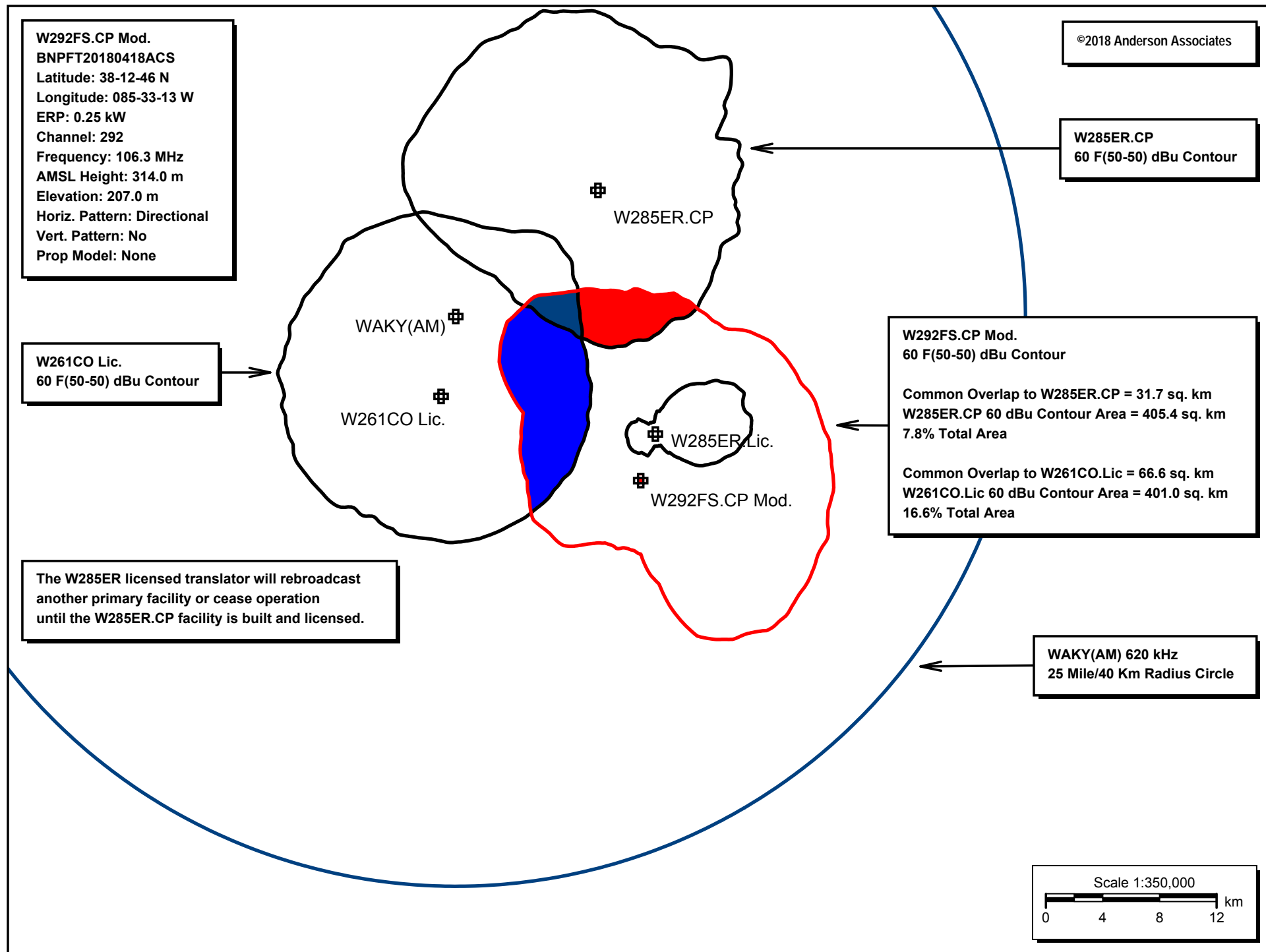
Date: 1/28/08



E-5 W292FS.CP Mod. 60 dBu Contour Plot



E-6 W292FS.CP Mod. 60 dBu Common Overlap Plot

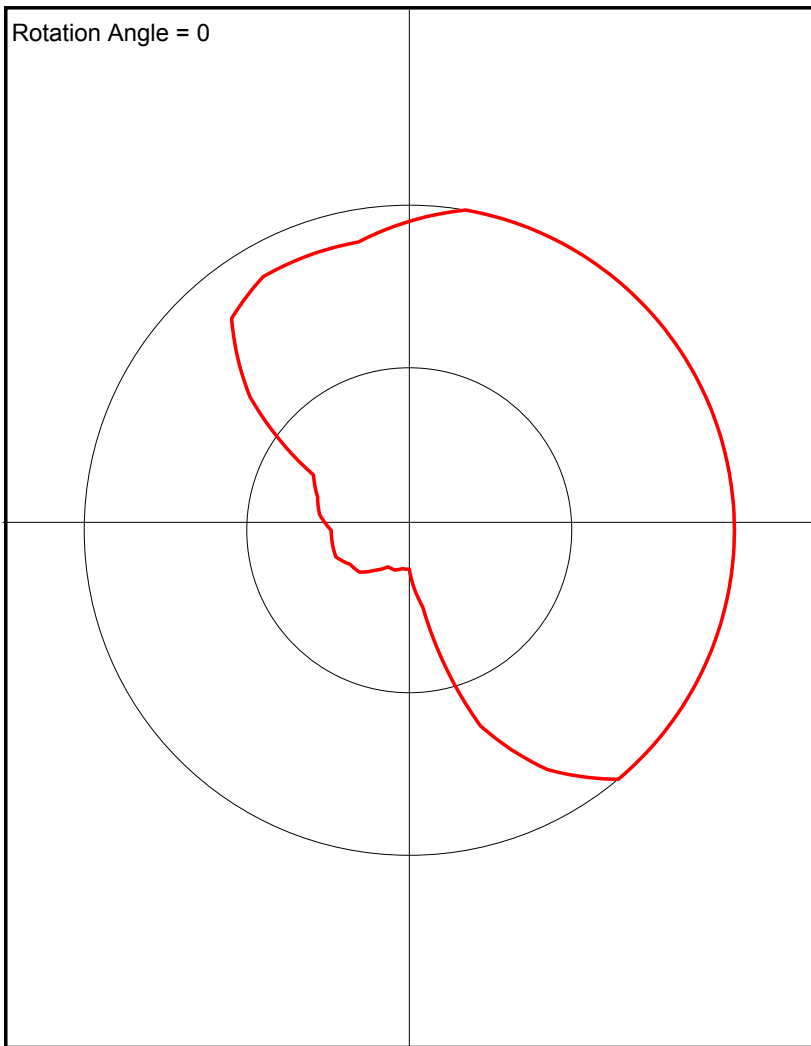


E-7 W292FS.CP Mod. Antenna Pattern

Azimuth (deg) Relative Field

| | |
|-------|------|
| 0.0 | 0.95 |
| 10.0 | 1.0 |
| 20.0 | 1.0 |
| 30.0 | 1.0 |
| 40.0 | 1.0 |
| 50.0 | 1.0 |
| 60.0 | 1.0 |
| 70.0 | 1.0 |
| 80.0 | 1.0 |
| 90.0 | 1.0 |
| 100.0 | 1.0 |
| 110.0 | 1.0 |
| 120.0 | 1.0 |
| 130.0 | 1.0 |
| 140.0 | 1.0 |
| 150.0 | 0.85 |
| 160.0 | 0.64 |
| 170.0 | 0.24 |
| 180.0 | 0.12 |
| 190.0 | 0.12 |
| 200.0 | 0.13 |
| 210.0 | 0.13 |
| 220.0 | 0.16 |
| 230.0 | 0.2 |
| 240.0 | 0.21 |
| 250.0 | 0.24 |
| 260.0 | 0.24 |
| 270.0 | 0.24 |
| 280.0 | 0.28 |
| 290.0 | 0.3 |
| 300.0 | 0.34 |
| 310.0 | 0.64 |
| 320.0 | 0.85 |
| 330.0 | 0.9 |
| 340.0 | 0.9 |
| 350.0 | 0.9 |

Rotation Angle = 0



Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **38° 12' 46"** North
Longitude **85° 33' 13"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of
38° 12' 46.25", North, 85° 33' 12.85" West (NAD 83).

Height of antenna radiation center above mean sea level: **314** meters AMSL

Number of Evenly Spaced Radials = **12** 0° is referenced to True North

Results

Calculated HAAT = **127 meters**

Antenna Height Above Average Terrain calculated
using FCC 30 second terrain database (continental USA only)

Individual "Radial HAAT" Values, in meters

| | |
|------|---------|
| 0° | 114.1 m |
| 30° | 91.2 m |
| 60° | 106.0 m |
| 90° | 110.6 m |
| 120° | 113.4 m |
| 150° | 117.8 m |
| 180° | 133.0 m |
| 210° | 115.7 m |
| 240° | 154.7 m |
| 270° | 157.2 m |
| 300° | 157.1 m |
| 330° | 148.5 m |

E-9 W292FS.CP Mod. Tower ASR

ASR Registration 1061956

Registration Detail

| | | | |
|-------------|----------|-------------|-------------|
| Reg Number | 1061956 | Status | Constructed |
| File Number | A0072466 | Constructed | 02/16/1999 |
| EMI | No | Dismantled | |
| NEPA | No | | |

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

| | | | |
|-----------------------|----------------------------|-------------------------------|----------------|
| Lat/Long | 38-12-46.0 N 085-33-13.0 W | Address | 2400 ARCEE WAY |
| City, State | JEFFERSONTOWN , KY | | |
| Zip | 40299 | County | JEFFERSON |
| Center of AM Array | | Position of Tower in Array | |

Heights (meters)

| | |
|--|--|
| Elevation of Site Above Mean Sea Level | Overall Height Above Ground (AGL) |
| 207.3 | 130.8 |
| Overall Height Above Mean Sea Level | Overall Height Above Ground w/o Appurtenances |
| 338.1 | 130.8 |

Painting and Lighting Specifications

FAA Chapters 4, 8, 13
Paint and Light in Accordance with FAA Circular Number 70/7460-1J

FAA Notification

| | | | |
|-----------|----------------|----------------|------------|
| FAA Study | 99-ASO-0380-OE | FAA Issue Date | 02/11/1999 |
|-----------|----------------|----------------|------------|

Owner & Contact Information

| | | |
|-----|------------|----------------------|
| FRN | 0006154785 | Owner Entity Type |
|-----|------------|----------------------|

Owner

| | |
|--------------------------|------------------|
| P & B TOWERS LLC | P: (502)587-7384 |
| Attention To: PERRY BOND | F: |
| 1421 SYLVAN WAY | E: |
| LOUISVILLE , KY 40205 | |

Contact

P:
F:
E:

Last Action Status

| | | | |
|---------|-------------|----------|------------|
| Status | Constructed | Received | 03/05/1999 |
| Purpose | New | Entered | 03/09/1999 |