

**TECHNICAL REPORT  
MINOR MODIFICATION TO  
W291BF.CP**

This technical report has been developed in support of a minor modification to the translator construction permit W291BF.CP at Brookville, PA, FCC file no. BNPFT-20030829BEV. The application proposes to change the facility to channel 290, move to another existing tower, and implement a new directional antenna as a fill-in translator for the primary station WDSN 293A at Reynoldsville, PA.

The data for all terrain utilized in this report and application exhibits were obtained from the V-Soft Probe 3 computer program, which utilizes the V-Soft 30 second terrain database. The 60 dBu F(50-50) service contours were calculated utilizing the same program, which is based on the Commission's own F5050 program and data points, and produces contours congruent with Section 73.333 propagation curves.

The following exhibits are provided as required by FCC form 349:

- E-1 Channel Overlap Study
- E-2 HAAT Calculation
- E-3 60 dBu Coverage within WDSN and  
Overlap of the 60 dBu Contour to Current CP
- E-4 Interference Plot of W291BF.CP to WMKX 288B1
- E-5 DA Horizontal Pattern

**W291BF Antenna:**

W291BF will be relocated to an existing tower, ASR no. 1064439, at a COR AGL of 85 meters using a Scala CL-FM/CP, circularly polarized, directional antenna

# Charles M. Anderson Associates

Broadcast Consultants  
1519 Euclid Avenue  
Bowling Green, KY 42103

Telephone 270-782-0246  
Fax 270-793-9129  
Cell 270-535-4432

operating at 0.250 kW ERP at coordinates:

41-11-02 N 79-09-56 W NAD 27

## **WMKX Interference Calculation:**

The W291BF.CP facility is well inside the WMKX 288B1 57 dBu contour, as shown in exhibit E-1. As a result, the interference ratio is utilized to determine the actual W291BF.CP interfering contour in accordance with FCC-02-244 paragraph 12. Exhibit E-4 shows that WMKX places a 82.98 dBu contour at the W291BF.CP site. Adding the 40 dBu 2<sup>nd</sup> adjacent channel interference ratio yields an interfering contour of 122.98 dBu. The interference contour does not encompass any buildings, roads, or population, and therefore does not cause any potential interference to potential listeners (see attached areial photograph and topographic map)/ In fact, if the vertical factor of the antenna were to be used, the contour would not reach the ground. A waiver of section 74.1204 is requested in accordance with well-established Commission precedent.

Exhibit E-1 also shows an overlap to WDSN. As it is the primary facility of rebroadcast, this interference overlap may be ignored following CFR 74.1204(e), as the 60 dBu contour of the W291BF.CP does not cover the community boundary of the WDSN community of license.

## **RF Exposure Calculation:**

The RF contribution from the 0.250 kW facility was evaluated using the Commission's FMMODEL program. The worst-case 1.0 F factor RF contribution of the

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facility from a height of 2 meters above ground was calculated to be  $0.517 \mu\text{Watts}/\text{cm}^2$  at

a distance of 86 meters from the tower, which is considerably less than the 5% of the 200

$\mu\text{Watts}/\text{cm}^2$  permissible for general public exposure, and may be excluded from

consideration.

## **Conclusion:**

It is concluded that the minor modification of the W291BF.CP complies with all Commission rules and policies.



Christopher Anderson April 25, 2007  
andersce@yahoo.com  
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E-1 W291BF.CP Overlap Study

REFERENCE CH# 290D - 105.9 MHz, Pwr= 0.25 kW, HAAT=161.0 M, COR= 618 M DISPLAY DATES  
 41 11 02.0 N. Average Protected F(50-50)= 16.59 km DATA 04-24-07  
 79 09 56.0 W. SEARCH 04-25-07

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*
290B Pittsburgh	WXDX-FM	LIC _CN PA		222.0 41.4	103.27 BLH5106	40 29 27.0 79 58 55.0	72.000 131	141.9 432	64.5 Capstar Tx Limited Partner	-41.09	26.03
288B1 Brookville	WMKX	LIC NC_ PA		128.8 308.8	10.90 BLH19980611KC	41 07 21.0 79 03 51.0	16.000 126	4.2 595	46.5 Strattan Broadcasting, Inc	-8.29*	-36.94*
291D Brookville	W291BF	CP DV_ PA		149.0 329.1	8.32 BNPFT20030829BEV	41 07 11.0 79 06 52.0	0.150	17.2 609	11.7 Priority Communications, I	-21.15*	-21.60*
293A Reynoldsville	WDSN	LIC _CN PA		100.2 280.4	24.52 BMLH19970307KB	41 08 41.0 78 52 41.0	6.000 100	2.8 589	29.2 Priority Communications, I	4.70	-5.75*
291A Farmington Township	NEW	CP ZCX PA		327.6 147.4	41.24 BNPH20060309ADZ	41 29 48.0 79 25 52.0	4.120 118	41.7 574	27.2 World Radio Link, Inc.	-2.85	10.39
290A Philipsburg	WJOW	LIC ZC_ PA		117.3 297.9	94.02 BLH19991020AAD	40 47 34.0 78 10 29.0	0.710 290	66.5 796	22.0 Magnum Broadcasting, Inc.	10.80	18.62
236D Treasure Lake	W236AH	LIC _CN PA		88.7 269.0	39.84 BLFT19980922TE	41 11 28.0 78 41 27.0	0.006 145	45.3 659	26.5 The Pennsylvania State Uni	3.0R	36.8M
290A Little Valley	NEW	CP _CX NY		14.6 194.8	120.48 BNPH20060310AFN	42 13 58.0 78 47 47.0	1.830 183	80.9 714	28.0 Radioactive, Llc	36.94	83.57
289A Portage	WLKJ	LIC _C_ PA		154.2 334.6	98.69 BMLED20060201AWR	40 22 59.0 78 39 31.0	3.000 98	43.6 741	28.7 Educational Media Foundati	43.80	53.57
292A Blairsville	WLCY	LIC _CN PA		183.8 3.8	73.95 BLH19860502KB	40 31 10.0 79 13 26.0	2.400 111	2.0 497	21.8 The St. Pier Group, Llc	68.62	52.08
290D State College	WJOW-FM1	LIC _C_ PA		111.2 292.0	118.29 BLFTB20051004ABX	40 47 36.0 77 51 28.0	0.100	18.6 371	5.6 Magnum Broadcasting, Inc.	82.30	57.51
292A Smethport	WORM	LIC _CX PA		42.7 223.3	95.25 BLH20030331ABI	41 48 36.0 78 23 10.0	1.030 240	1.9 803	24.6 Farm & Home Broadcasting C	83.53	70.17

Terrain database is NGDC 30 SEC  
 ERP and HAAT are on direct line to and from reference station.  
 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 protected contour.

**E-2 W291BF.CP HAAT Calculation**

**N. Lat. = 411102 W. Lng. = 790956**

**HAAT and Distance to Contour - FCC Method - NGDC 30 SEC**

<b>Azi.</b>	<b>AV EL</b>	<b>HAAT</b>	<b>ERP kW</b>	<b>dBk</b>	<b>Field</b>	<b>60-F5</b>
000	475.8	142.2	0.0002	-36.48	0.030	2.33
030	505.6	112.4	0.0090	-20.45	0.190	6.05
060	459.9	158.1	0.1190	-9.24	0.690	13.50
090	458.2	159.8	0.2401	-6.20	0.980	16.33
120	445.8	172.2	0.2098	-6.78	0.916	16.43
150	457.1	160.9	0.0740	-11.31	0.544	12.14
180	423.6	194.4	0.0006	-32.04	0.050	3.66
210	420.2	197.8	0.0002	-36.48	0.030	2.60
240	454.2	163.8	0.0003	-35.39	0.034	2.66
270	471.0	147.0	0.0004	-33.98	0.040	2.83
300	430.5	187.5	0.0004	-33.98	0.040	3.11
330	477.6	140.4	0.0002	-36.48	0.030	2.32

**Ave El= 456.62 M HAAT= 161.38 M AMSL= 618 M**

# E-3 W291BF.CP 60 dBu Plot

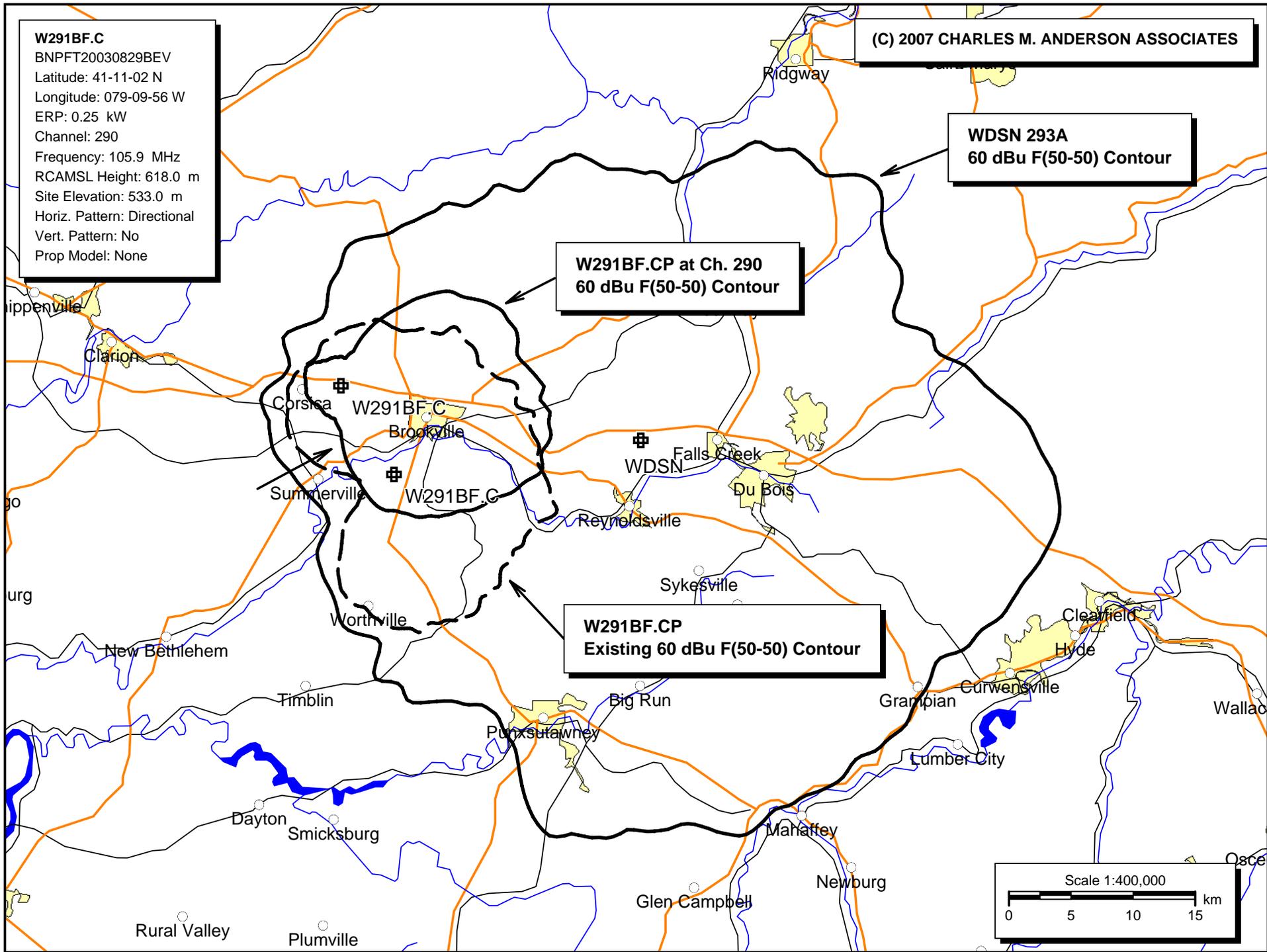
(C) 2007 CHARLES M. ANDERSON ASSOCIATES

**W291BF.C**  
BNPFT20030829BEV  
Latitude: 41-11-02 N  
Longitude: 079-09-56 W  
ERP: 0.25 kW  
Channel: 290  
Frequency: 105.9 MHz  
RCAMSL Height: 618.0 m  
Site Elevation: 533.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

**WDSN 293A**  
60 dBu F(50-50) Contour

**W291BF.CP at Ch. 290**  
60 dBu F(50-50) Contour

**W291BF.CP**  
Existing 60 dBu F(50-50) Contour



# E-4 W291BF.CP Interference Plot

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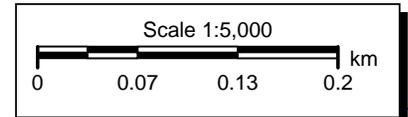
**W291BF.C**  
BNPFT20030829BEV  
Latitude: 41-11-02 N  
Longitude: 079-09-56 W  
ERP: 0.25 kW  
Channel: 290  
Frequency: 105.9 MHz  
RCAMSL Height: 618.0 m  
Site Elevation: 533.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None



**WMKX 288B1**  
82.98 dBu Contour

W291BF.C

**W291BF.CP**  
122.98 dBu F(50-10)  
Interference Contour  
Population Coverage = 0



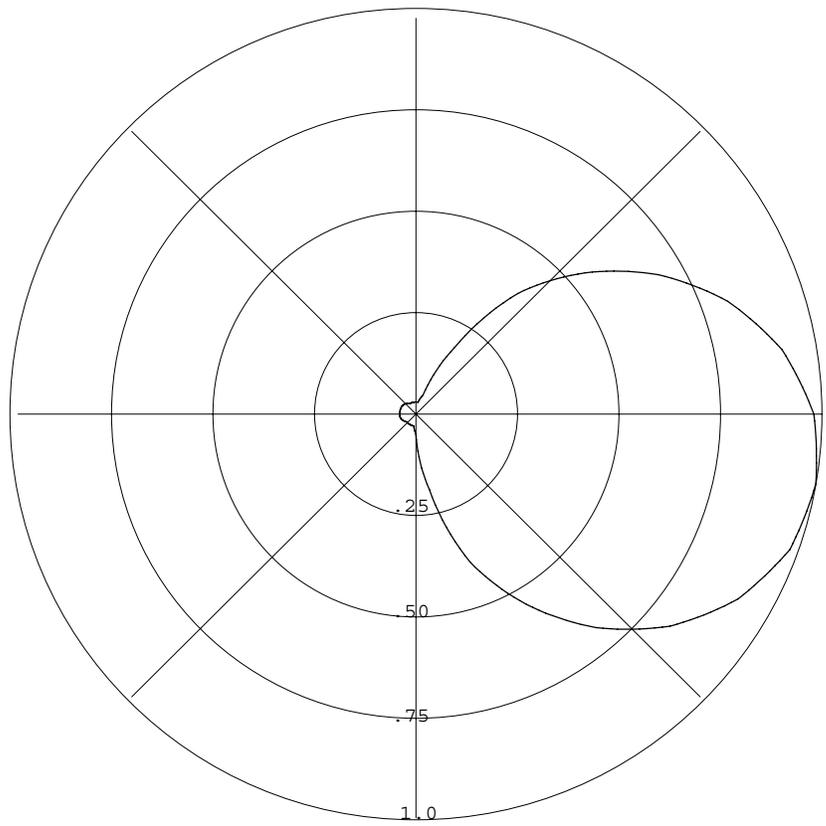
# E-5 W291BF.CP DA Pattern

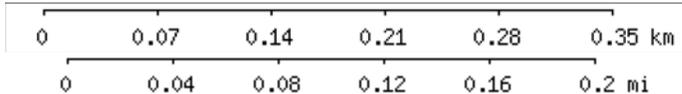
RMS (V) = .467

Bearing    Field % Voltage

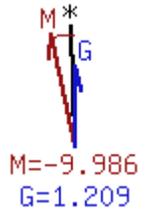
Graph is Percent Relative Field Voltage

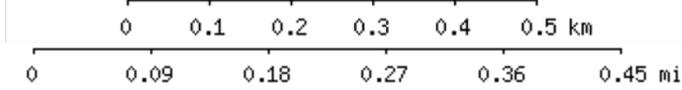
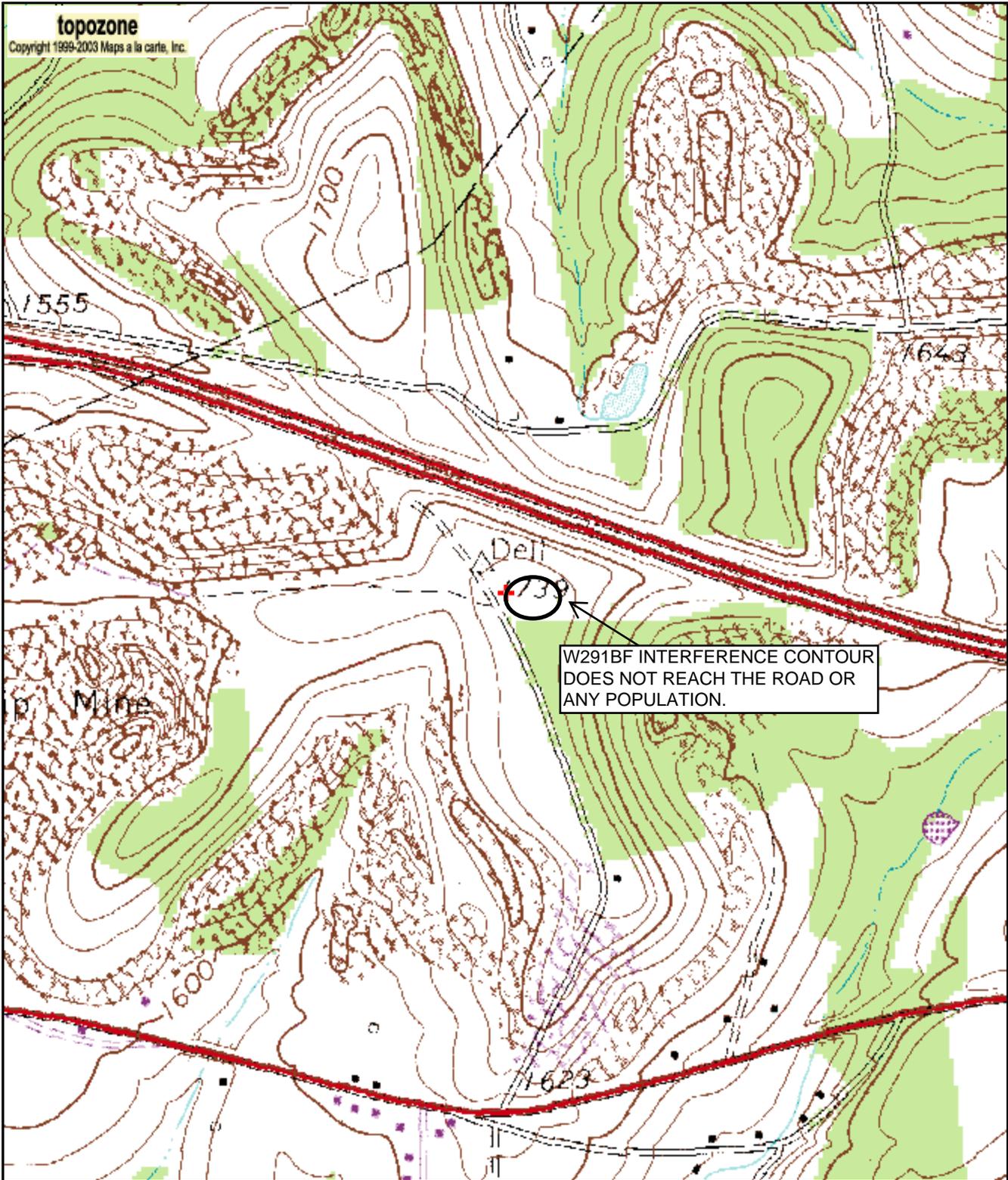
000	=	0.030
010	=	0.030
020	=	0.050
030	=	0.190
040	=	0.390
050	=	0.544
060	=	0.690
070	=	0.817
080	=	0.916
090	=	0.980
100	=	1.000
110	=	0.980
120	=	0.916
130	=	0.817
140	=	0.690
150	=	0.544
160	=	0.390
170	=	0.190
180	=	0.050
190	=	0.030
200	=	0.030
210	=	0.030
220	=	0.030
230	=	0.030
240	=	0.034
250	=	0.038
260	=	0.040
270	=	0.040
280	=	0.040
290	=	0.040
300	=	0.040
310	=	0.038
320	=	0.034
330	=	0.030
340	=	0.030
350	=	0.030





41° 11' 02"N, 79° 09' 56"W (NAD27)  
Elevation 533.4 m  
**Township of Union, USGS Corsica (PA) Quadrangle**  
NAD27 Datum



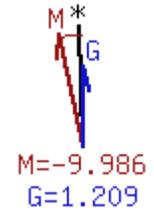


41° 11' 02"N, 79° 09' 56"W (NAD27)

Elevation 533.4 m

**Township of Union, USGS Corsica (PA) Quadrangle**

Projection is UTM Zone 17 NAD83 Datum



# ASR Registration 1064439

ASR Registration Search

## Registration 1064439

 [Reference Copy](#)  [Map Registration](#)

### Registration Detail

Reg Number	1064439	Status	Constructed
File Number	A0402378	Constructed	06/19/1999
FAA Study	2003-AEA-170-OE	EMI	No
FAA Issue Date	02/07/2003	NEPA	No

### Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Communications Purposes

#### Location (in NAD83 Coordinates)

Lat/Long 41-11-02.2 N 079-09-55.0 W T.R. 336 Radio Tower Road Off Route 322  
City, State UNION , PA  
Center of AM Array

### Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
533.4	94.5
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
627.9	91.4

### Painting and Lighting Specifications

FCC Paragraphs A1, H, 3, 11, 21, 23

### Owner & Contact Information

FRN	0005793534	Licensee ID	L00132207
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#### Owner

CROWN ATLANTIC COMPANY, LLC  
Attention To: Regulatory Department  
2000 Corporate Drive  
Canonsburg , PA 15317

P: (724)416-2000  
E: Monica.Gambino@Crowncastle.com

#### Contact

Gambino , Monica  
2000 Corporate Drive  
Canonsburg , PA 15317

P: (724)416-2516  
E: Monica.Gambino@Crowncastle.com

### Last Action Status

Status	Constructed	Received	11/04/2004
Purpose	Notification	Entered	11/04/2004
Mode	Interactive		

### Related Applications

11/04/2004 A0402378 - Notification (NT)  
05/05/2004 A0375674 - Modification (MD)  
02/26/2003 A0313838 - Notification (NT)  
Related applications (8)

### Comments

#### Comments

None

### Automated Letters

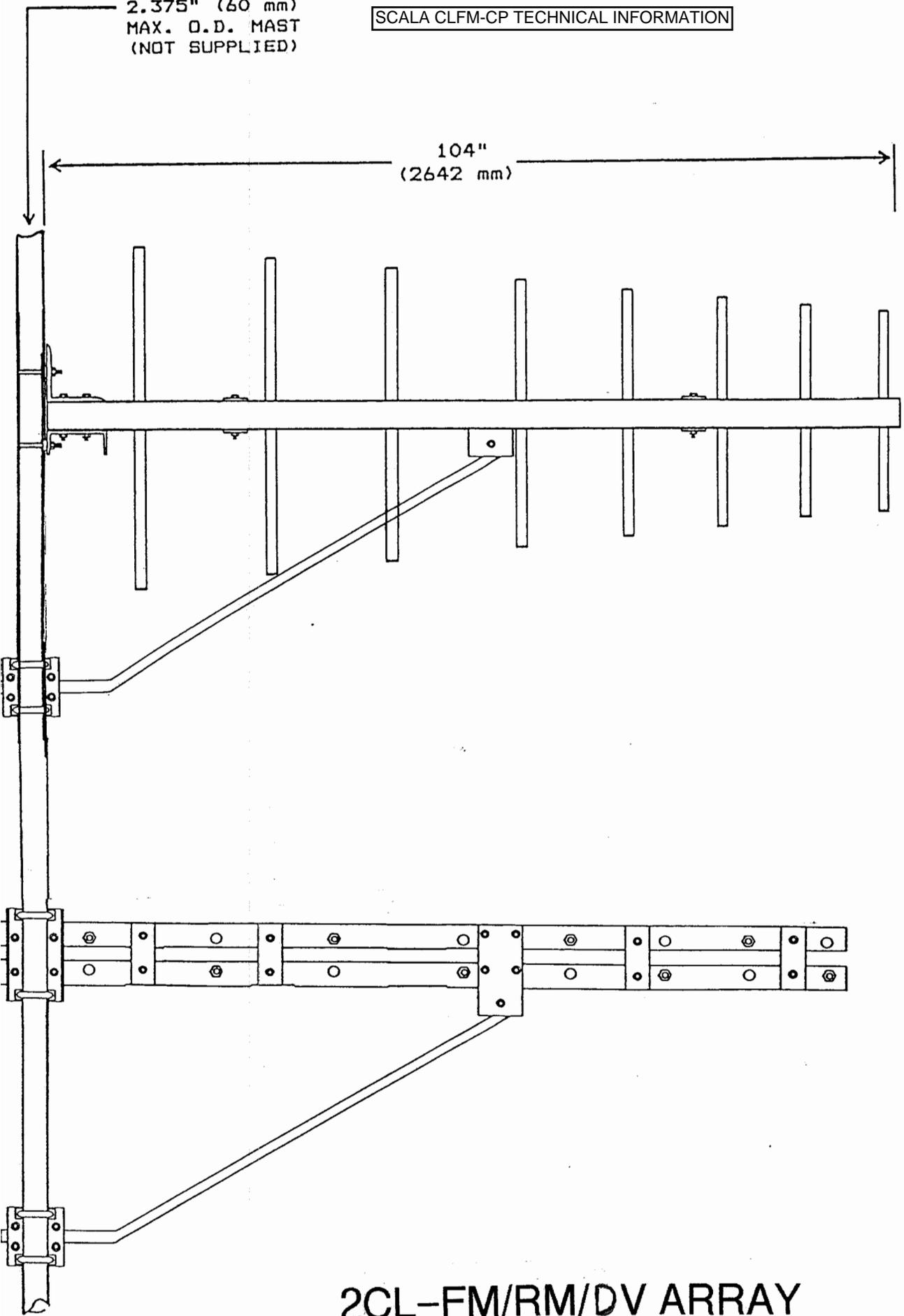
05/07/2004	Authorization, Reference 331945
02/26/2003	Authorization, Reference 273614
11/14/2002	Authorization, Reference 247113

2.375" (60 mm)  
MAX. O.D. MAST  
(NOT SUPPLIED)

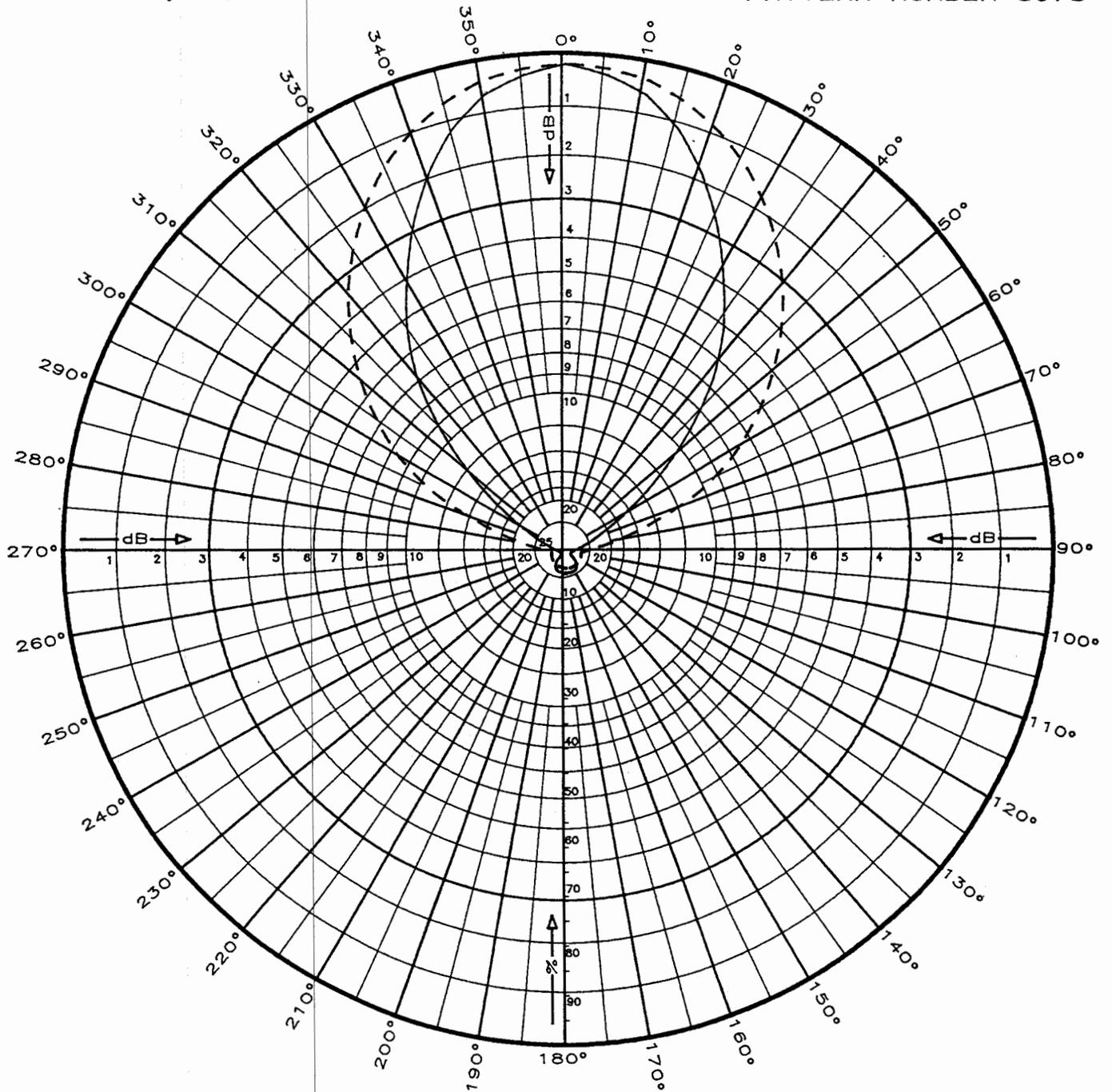
SCALA CLFM-CP TECHNICAL INFORMATION

104"  
(2642 mm)

$S' = 0.87\lambda$



2CL-FM/RM/DV ARRAY



A — H.POL

B - - V.POL

(A) ONE CL-FM/HRM LOG-PERIODIC  
 ORIENTED AT 0 DEG WITH 50% POWER  
 GAIN: 4.0 dBd. (POWER GAIN: 2.5)  
 HORIZONTAL POLARIZATION

(B) ONE CL-FM/VRM LOG-PERIODIC  
 ORIENTED AT 0 DEG WITH 50% POWER  
 GAIN: 4.0 dBd. (POWER GAIN: 2.5)  
 VERTICAL POLARIZATION

HORIZONTAL PLANE PATTERN

ONE INPUT

**SCALA**

SCALA ELECTRONIC CORPORATION

Post Office Box 4580  
Medford, OR 97501 (USA)

Phone: (541) 779-6500  
Fax: (541) 779-3991

Composite Tabulation

MARCH 15, 2002

Pattern number: 6073

Field values adjusted relative to maximum gain of: 4.0 dBd

Azimuth	Horiz. Field	Vert. Field	Max. Field
0	1.000	1.000	1.000
10	0.950	0.980	0.980
20	0.820	0.916	0.916
30	0.645	0.817	0.817
40	0.470	0.690	0.690
50	0.250	0.544	0.544
60	0.085	0.390	0.390
70	0.020	0.190	0.190
80	0.010	0.050	0.050
90	0.010	0.030	0.030
100	0.010	0.030	0.030
110	0.010	0.030	0.030
120	0.015	0.030	0.030
130	0.025	0.030	0.030
140	0.034	0.030	0.034
150	0.038	0.030	0.038
160	0.040	0.030	0.040
170	0.040	0.030	0.040
180	0.040	0.030	0.040
190	0.040	0.030	0.040
200	0.040	0.030	0.040
210	0.038	0.030	0.038
220	0.034	0.030	0.034
230	0.025	0.030	0.030
240	0.015	0.030	0.030
250	0.010	0.030	0.030
260	0.010	0.030	0.030
270	0.010	0.030	0.030
280	0.010	0.050	0.050
290	0.020	0.190	0.190
300	0.085	0.390	0.390
310	0.250	0.544	0.544
320	0.470	0.690	0.690
330	0.645	0.817	0.817
340	0.820	0.916	0.916
350	0.950	0.980	0.980