

ENGINEERING REPORT

FM Translator Minor Change Permit Application

for

W262DC

as an AM Fill-In Translator for
WCSM(AM) – Celina, OH

March, 2020

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Broadcast Engineering Consultants
Coldwater, MI 49036

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Discussion

This firm has been retained to prepare the required engineering report in support of a Minor Change Application for FM Translator W262DC – Celina, OH. Presently W262DC is authorized under the construction permit with an AMSL of 387 meters and an ERP of 0.250 kW (H&V). Operation is proposed with an AMSL of 393 meters and an ERP of 0.250 kW (H&V) at a different tower. The Fill-In Translator will rebroadcast Class D Primary Station WCSM(AM) – Celina, OH (1350kHz); Facility ID No. 26470.

The Translator as proposed will be mounted on the existing tower bearing Antenna Structure Registration Number 1266029. A copy of the existing ASR has been included in **Exhibit 1.0**.

The proposed 60 dBμ contour of the Fill-In Translator lies wholly inside the greater of the AM primary daytime 2.0 mV/m contour and a 25 mile radius around the AM site. A map of the proposed service area in relation to the primary station service contour has been included in **Exhibit 1.1**.

It has been determined the Translator may be used in the area without interference to any existing FM broadcast station or facility. General allocation details are found in **Exhibit 1.2**. It is believed sufficient clearance exists precluding the need for additional contour protection showings.

The applicant certifies the proposed translator 34 dBu F(50:10) Interference contour does not enter Canadian territory. Documentation of the proposed 34 dBu F(50:10) Interference contour will be supplied upon request.

This translator is not within the affected distance of any TV Channel 6 stations.

The applicant would like to note use of the NED 03 second terrain database for terrain based showings contained here-in.

Discussion (continued)

RADIATION PROTECTION: The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency radiation. This report section is in response to that provision of the Rules. The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1307(b)(3) of the Commission's rules concerning RF contributors of less than 5%. ***Exhibit 17.1*** provides the details of the study that was made to demonstrate compliance. The facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.

ASR Registration Search

Registration 1266029 [Map Registration](#)**Registration Detail**

Reg Number	1266029	Status	Constructed
File Number	A0904573	Constructed	03/18/2009
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

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

Location (in NAD83 Coordinates)

Lat/Long	40-33-10.5 N 084-31-02.1 W	Address	1300 FT WEST OF DIBBLE RD N OF SR703 BY RR TRACKS
City, State	CELINA , OH		
Zip	45822	County	MERCER
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
269.7	149.3
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
419.0	143.2

Painting and Lighting Specifications

FAA Chapters 4, 8, 12

Paint and Light in Accordance with FAA Circular Number 70/7460-1K

FAA Notification

FAA Study	2008-AGL-4763-OE	FAA Issue Date	09/04/2008
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Owner & Contact Information

FRN	0004855151	Owner Entity Type	Government Entity
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Owner

OHIO, STATE OF
Attention To: MARCS PROGRAM OFFICE
1320 ARTHUR E. ADAMS DRIVE, RM 401
COLUMBUS , OH 43221

P: (866)646-2727
F: (614)995-0071
E: DAS.MARCSNOC@DAS.OHIO.GOV

Contact

BILL , ROBERT M
Attention To: MARCS PROGRAM OFFICE
4200 SURFACE ROAD
COLUMBUS , OH 43228

P: (614)995-0063
F: (614)995-0067
E: BOB.BILL@DAS.OHIO.GOV

Last Action Status

Status	Constructed	Received	05/07/2014
Purpose	Admin Update	Entered	05/07/2014
Mode	Interactive		

Related Applications

Exhibit 1.1 - WCSM(AM) - Present and Proposed W262DC Translator vs AM Contours

Putnam
Munn-Reese.com

WCSM.L

Latitude: 40-32-14 N
Longitude: 084-35-18 W
Frequency: 1350 kHz

W262DC.C

BNPFT20171201ADK
Latitude: 40-34-21.03 N
Longitude: 084-35-21.96 W
ERP: 0.25 kW
Channel: 262
Frequency: 100.3 MHz
AMSL Height: 387.0 m
Elevation: 265.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

W262DC.C.P

Proposed Operation
Latitude: 40-33-10 N
Longitude: 084-31-02 W
ERP: 0.25 kW
Channel: 262
Frequency: 100.3 MHz
AMSL Height: 393.0 m
Elevation: 269.7 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

- W262DC.C (262)
- W262DC.C.P (262)
- WCSM.L

Van Wert

Circle R = 40.0 km
2.0 mV/m

Allen

Adams

FCC F(50-50) 60.00 dBu (FCC HAAT)
FCC F(50-50) 60.00 dBu (FCC HAAT)

Auglaize

Merger

W262DC.C

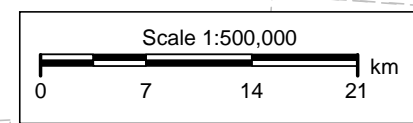
W262DC.C.P

WCSM.L

Shelby

Jay

Blair



1.1 - Proposed Allocation Contour Study

Hayco Broadcasting, Inc

REFERENCE CH# 262D - 100.3 MHz, Pwr= 0.25 kw, HAAT= 133.7 M, COR= 393 M DISPLAY DATES
 40 33 10.00 N. DATA 03-16-20
 84 31 02.10 W. Average Protected F(50-50)= 14.87 km SEARCH 03-19-20
 Omni-directional

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*
262D Celina	W262DC	CP OH	---	289.9 109.8	6.47 BNPFT20171201ADK	40 34 21.20 84 35 21.80	0.250		---Reference---		
263B Findlay	WKXA-FM	LIC OH	---	62.2 242.8	87.54 BLH19860103KB	40 55 00.10 83 35 44.70	20.000 134	61.8 393	53.0 Blanchard River Broadcasti	11.0	2.9
261A Bluffton	WFCV-FM	LIC IN	---	302.7 122.3	65.47 BLH20060202AJB	40 52 10.20 85 10 19.90	6.000 91	40.4 337	26.2 Bott Communications, Inc.	10.2	16.9
265A Portland	WPGW-FM	LIC IN	---	253.0 72.7	44.03 BLH19970911KB	40 26 10.20 85 00 53.90	4.600 55	2.0 335	19.8 wpgw, Inc.	27.5	22.9
264B Springfield	WEEC	LIC OH	---	139.8 320.2	85.74 BLH19920806KC	39 57 42.20 83 52 04.70	50.000 143	5.0 457	58.1 World Evangelistic Enterpr	66.7	25.9
260B Kettering	WCHD	LIC OH	---	164.1 344.3	96.00 BMLH20120315ACW	39 43 19.20 84 12 32.80	28.000 200	5.9 467	65.2 Citicasters Licenses, Inc.	76.2	29.1
259A Paulding	WKSD	LIC OH	---	353.7 173.6	56.61 BLH19890823KC	41 03 32.10 84 35 29.80	3.000 100	2.2 320	23.4 First Family Broadcasting,	39.2	32.1
262A Angola	WLKI	LIC IN	N_	342.2 161.9	131.81 BLH19920429KA	41 40 51.10 85 00 04.80	4.000 120	84.5 428	28.5 Swick Broadcasting Company	32.1	52.8
263B Kokomo	WWKI	LIC IN	---	265.5 84.5	128.94 BLH19901120KD	40 27 04.10 86 02 11.90	50.000 143	76.9 401	64.0 Radio License Holding Cbc,	37.4	33.9
262B Newark	WCLT-FM	LIC OH	---	107.1 288.5	188.41 BLH3646	40 02 02.20 82 24 07.50	50.000 119	136.4 415	63.6 Wclt Radio, Inc.	37.6	59.7
262D Xenia	W262BG	LIC OH	---	151.6 332.0	105.67 BLFT20100119ABJ	39 42 54.20 83 55 47.70	0.250 89	44.1 373	12.5 Town And Country Broadcast	47.8	45.1
263L1 Fort Wayne	WQSW-LP	LIC IN	---	325.0 144.7	81.80 BLL20080111AFU	41 09 15.90 85 04 37.80	0.100			57.9	52.7
262A Norwood	AL7017	RSV-A OH	---	180.9 0.9	159.09 RM11113	39 07 19.21 84 32 51.79	6.000 100	84.7 318	26.8	60.5	84.1
262A Norwood	WOSL	LIC OH	---	180.9 0.9	159.09 BLH20080116AAD	39 07 19.20 84 32 51.80	3.100 141	81.3 359	27.3 Blue Chip Broadcasting Lic	63.9	84.2
265D Fort Wayne	W265CY	LIC IN	D_	317.6 137.2	84.29 BLFT20151210AAD	41 06 39.20 85 11 43.90	0.050	0.5 436	12.1 Pathfinder Communications	68.7	71.1
265D Richmond	W265DN	LIC IN	---	203.8 23.5	87.94 BLFT20171115AAN	39 49 41.20 84 55 56.90	0.250 61	1.1 379	8.8 Rodgers Broadcasting Corp.	72.7	77.5
265A Bryan	WBNO-FM	LIC OH	---	357.2 177.1	103.00 BLH20170309AAD	41 28 41.20 84 34 41.80	6.000 89	2.8 329	29.2 Impact Radio, LLC	85.0	72.7
261L1 New Castle	WHHC-LP	LIC IN	---	226.2 45.6	100.73 BLL20170703AAW	39 55 20.10 85 22 10.80	0.100 17			78.6	73.7
209A Upland	WBCW	LIC IN	---	260.0 79.3	84.00 BMLED20080822AAG	40 25 02.10 85 29 30.90	0.150 34	169.8 300	84.6 Taylor University Broadcas	9.5R	74.5M
260D Auburn	W260BR	LIC IN	---	329.5 149.2	92.09 BLFT20071022AHB	41 15 55.20 85 04 33.90	0.038 69	0.4 324	7.1 Star Educational Media Net	76.3	83.8
259B Columbus	WRKZ	LIC OH	---	116.6 297.6	141.95 BLH19881128KA	39 58 16.20 83 01 39.60	20.000 239	5.5 484	63.4 North American Broadcastin	122.1	76.8
262A Edinburgh	WYGB	LIC IN	---	222.3 41.4	177.55 BLH20110203AAQ	39 21 45.20 85 54 23.00	4.900 110	83.2 323	26.8 Reising Radio Partners, In	80.2	102.8
208B1 Dayton	WQRP	LIC OH	D_	162.6 342.8	92.48 BLED19890112KC	39 45 28.20 84 11 35.70	6.000 64	169.8 336	84.6 Educational Media Foundati	11.5R	81.0M
209A Findlay	WTKC	LIC OH	---	52.3 232.9	91.64 BLED20110727ADO	41 03 11.10 83 39 12.70	0.200 26	169.8 268	84.6 Faith Educational Media, I	9.5R	82.1M
208A Dayton	WDPS	LIC OH	D_	162.6 342.8	92.48 BLED19931213KA	39 45 28.20 84 11 35.70	6.000 64	169.8 336	84.6 Dayton City Schools	9.5R	83.0M

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	Page # 2 *IN* (Overlap	*OUT* in km)
262B Dearborn	WNIC	LIC ____ MI		28.7 209.6	233.89 BLH19850719KR	42 23 22.10 83 08 52.70	32.000 183	133.1 374	65.3 Amfm Radio Licenses, L.L.C	85.9	102.5
260B Toledo	WKKO	LIC Z__ OH		35.4 216.1	152.72 BLH20031224AAU	41 40 05.20 83 27 10.80	50.000 152	5.9 333	64.4 Cumulus Licensing LLC	131.9	86.6
262A Edinburgh	AL9841	RSV-A ____ IN		219.4 38.5	195.44 RM11334	39 11 10.19 85 57 28.96	6.000 100	87.7 305	29.1	93.6	118.4
208B1 Archbold	WBCY	LIC D__ OH		10.7 190.8	105.18 BLED20051205AAM	41 28 59.20 84 16 57.80	20.000 96	169.8 317	84.6 Taylor University Broadcas	11.5R	93.7M
259B Frankfort	WSHW	LIC ____ IN		265.4 84.1	160.97 BMLH20171023AAP	40 25 14.10 86 24 47.00	50.000 140	5.6 388	62.9 Kaspar Broadcasting CO., I	140.7	96.2
208A Anderson	WBSB	LIC ____ IN		247.3 66.5	106.66 BLED19970324KB	40 10 38.10 85 40 22.90	0.400 111	169.8 375	84.6 Ball State University	9.5R	97.2M

Terrain database is NED 03 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. Call signs with strikeout need not be protected.
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.

Exhibit 2.1

Compliance with Radiofrequency Radiation Guidelines

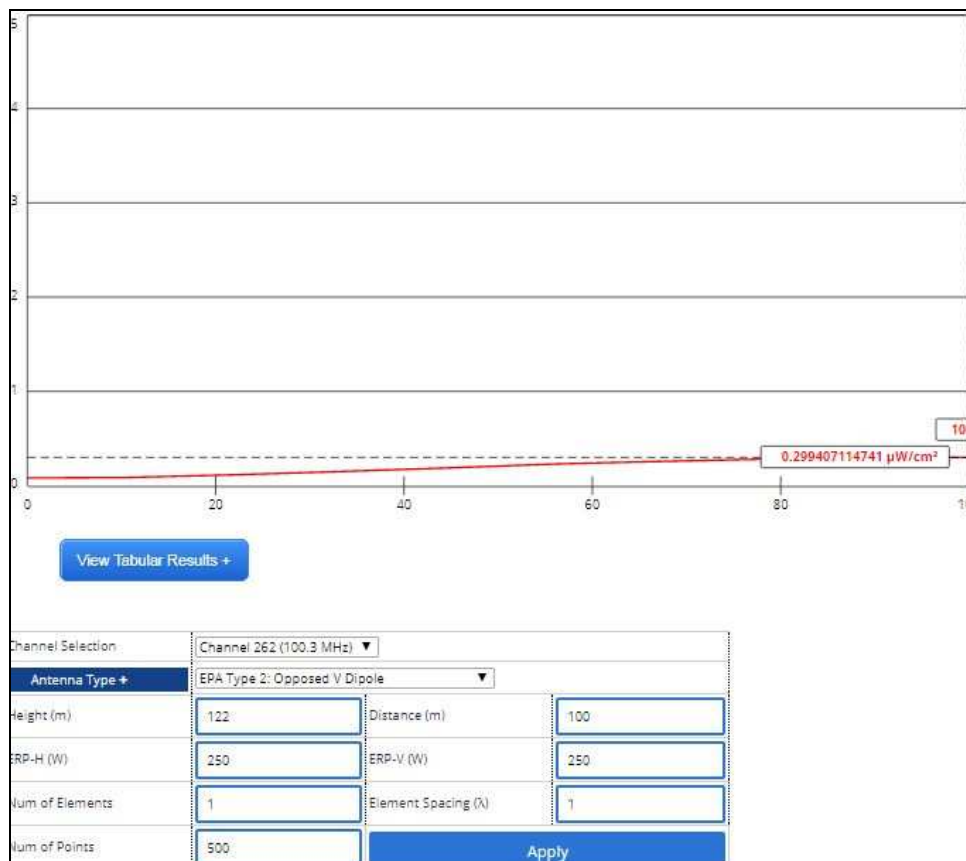
The RF Compliance Study has been evaluated for human exposure to non-ionizing radiofrequency radiation at the transmitter site. The site is intended to house multiple transmitters. The potential for human exposure to non-ionizing radiofrequency radiation at the proposed transmitter site has therefore been evaluated with regards to the §1.1307(b)(3), five percent (5%) contribution rule, for multiple transmitter sites.

The proposed operation will broadcast from an antenna COR mounted 123 meters above ground level (AGL). The facility will operate with a one bay antenna employing an EPA Type 2 element as defined by *FM Model - Appendix B* issued March 31, 2016¹. This facility will not operate with HD/IBOC facilities at this time.

To evaluate the total exposure to non-ionizing radio-frequency radiation with regards to the five percent contribution exclusion rule, it is necessary to establish 5.0% of the maximum permissible limit. 5.0% of the 200 $\mu\text{W}/\text{cm}^2$ results in 10 $\mu\text{W}/\text{cm}^2$. Therefore if the resulting contribution is less than or equal to 10 $\mu\text{W}/\text{cm}^2$ or 5.0%, the exposure is concluded to be within the guidelines of OET Bulletin No. 65 (Edition 97-01) and §1.1307(b)(3). Protection of the more restrictive uncontrolled limit implies protection of the controlled limit.

Inspection of the graph below indicates the maximum contribution for the uncontrolled environment is less than the 10 $\mu\text{W}/\text{cm}^2$ (5.0%) limit as set forth by §1.1307(b)(3), therefore the facility is in compliance with FCC guidelines. §1.1307(b)(3) states that facilities contributing less than five percent of the exposure limit at locations with multiple transmitters are categorically excluded from responsibility for taking any corrective action in the areas where its contribution is less than five percent. Since this instant application meets the five percent exclusion test at all ground level areas, the impact of the proposed facility may be considered independently from other facilities operating at or nearby this site. It is believed the impact of the proposed operation should not be considered to be a factor at ground level as defined under §1.1307(b)(3).

In addition to the protection afforded by the proposed antenna height above ground, the facility is or will be properly marked with signs, and entry to the facility will be restricted by means of fencing with locked doors and/or gates if required. Any other means that may be required to protect employees and the general public will also be employed. In the event work is required in proximity to the antenna(s) such that the person or persons working in the area will be potentially exposed to fields in excess of the current guidelines, an agreement signed by all broadcast parties at the site will be in effect for the offending transmitter(s) to reduce power, or cease operation during the critical period.



¹ The current *FM Model* web-based software application employs the standards as detailed in OET Bulletin No. 65 (Edition 97-01). FM radiofrequency radiation levels have been predicted using both the array pattern, the calculations of which are based on the number of bays in the antenna and wavelength spacing between the bays, and the element pattern. The element pattern has been determined by using measured element data prepared by the EPA and published in "An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM and TV Services," by Paul C. Gailey and Richard Tell - April 1985, U.S. Environmental Protection Agency. The results of the evaluation for the FM station have been shown at the end of this RF compliance discussion. To ensure complete protection, the maximum FM contribution has been assumed without regard to any restricted access fencing distance.

