

**Modify K295CH FM Translator Station**  
**Proposed CH 295D – 106.9 MHz – 0.250 kW DA 257.09 m HAAT**  
**Kansas City, KS**  
**December 8, 2022**

**TECHNICAL NARRATIVE**

This Technical Narrative and attached exhibits were prepared on behalf of Carter Broadcast Group, Inc., (“Carter”). Carter is acquiring the licensee of FM translator station K295CH, Channel 295D, Facility ID No. 36259, Kansas City, Kansas from Alpine Broadcasting Corp., (“Alpine”), the licensee. On November 18, 2022 the Commission accepted for filing an Assignment of Authorization with LMS File No. 0000203782 to transfer the license of K295CH from Alpine to Carter. That application is pending. Carter herein proposes to modify K295CH by changing the transmit antenna and lowering the height of the antenna center of radiation above ground level. K295CH will continue to operate from the same tower site. The modified K295CH will be used by Carter as a fill-in translator for co-owned FM station KPRS HD-2, Channel 277C, Facility ID No. 35495, licensed to Kansas City, MO. Carter is the licensee of KPRS. Therefore, retransmission consent is not required. The proposed K295CH facility would operate from a tower registered with ASR No. 1003006 with 250 watts ERP directional at 259 meters height above ground level and 257.09 meters HAAT.

An exhibit shows compliance with Section 74.1201(g) Fill-In Translator. The proposed K295CH FCC F(50,50) 60 dBu contour is contained inside the primary station KLRX FCC F(50,50) 60 dBu contour.

A channel study is included that uses Section 73.207 spacing distances for Class A FM stations. This study is provided as a convenience to help identify stations that could potentially receive interference from the proposed K295CH modification.

Section 74.1204 contour protection exhibits are provided for co-channel stations KTPK, Channel 295C, Topeka, KS and second adjacent stations WDAF-FM, Channel 293C1, Liberty, MO and KMJK, Channel 297C1, North Kansas City, MO.

Because there is no change to the transmit location, there is no exhibit for Section 74.1233(a) - Common Overlap.

Studies have been undertaken to show the proposed K295CH facility is in compliance with the Commission's radio frequency emission limits and environmental policies are attached as exhibits.

**K295CH**

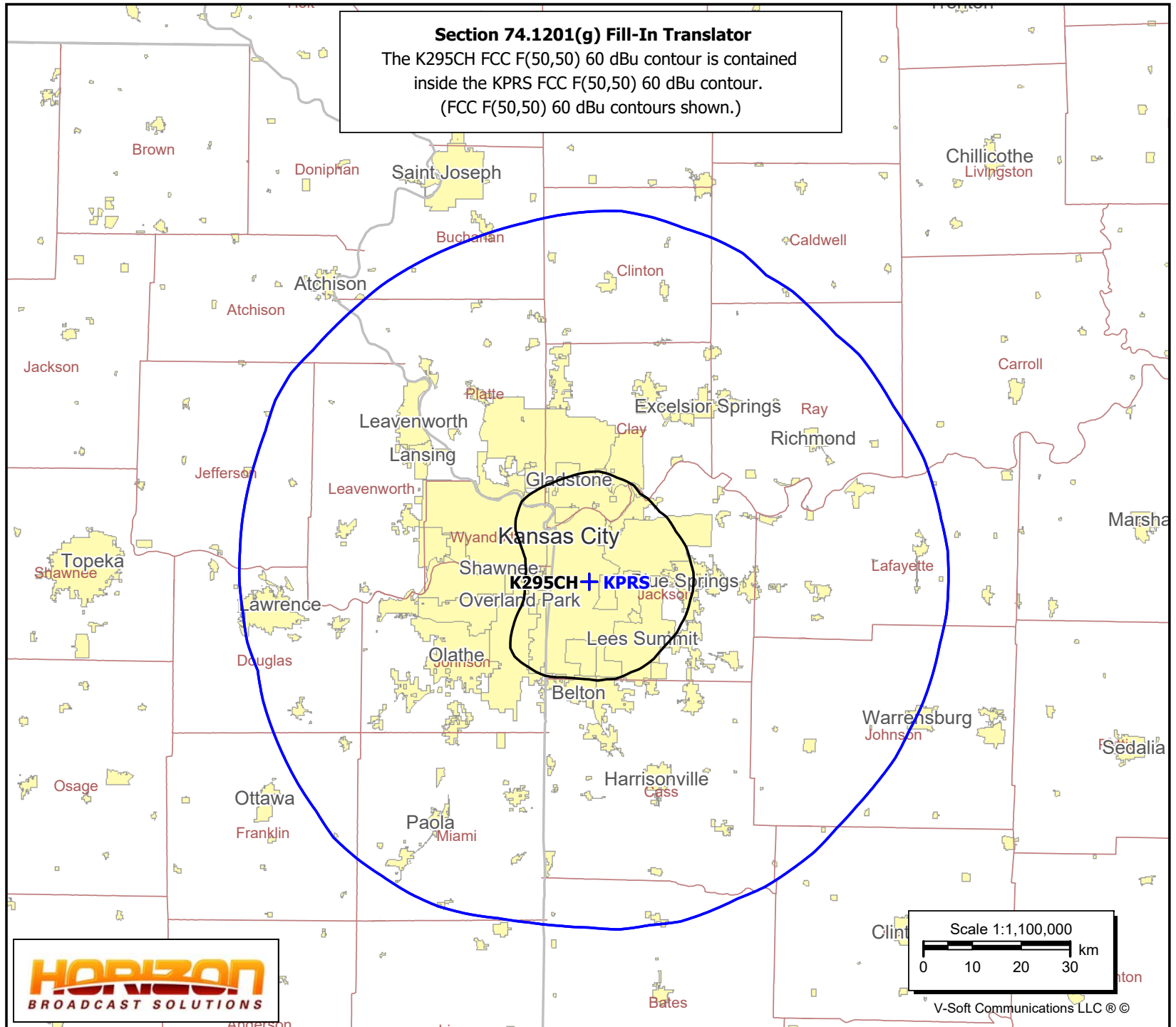
Kansas City, KS  
Latitude: 39-00-56.50 N  
Longitude: 094-30-25 W  
ERP: 0.25 kW  
HAAT: 257.09  
Channel: 295  
Frequency: 106.9 MHz  
AMSL Height: 530.3 m  
Elevation: 271.3 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: FCC Model  
Loc. Variability: 50.0%  
Time Variability: 50.0%  
HAAT Mthd: FCC

**KPRS**

Kansas City, MO  
BLH19870522KA  
Latitude: 39-00-57 N  
Longitude: 094-30-24.80 W  
ERP: 100.00 kW  
HAAT: 303.0  
Channel: 277  
Frequency: 103.3 MHz  
AMSL Height: 577.0 m  
Elevation: 273.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: FCC Model  
Loc. Variability: 50.0%  
Time Variability: 50.0%  
HAAT Mthd: FCC

**Section 74.1201(g) Fill-In Translator**

The K295CH FCC F(50,50) 60 dBu contour is contained  
inside the KPRS FCC F(50,50) 60 dBu contour.  
(FCC F(50,50) 60 dBu contours shown.)



# K295CH Class A FM Channel Study

REFERENCE				CLASS = A Int = AA		DISPLAY DATES	
39 00 56.5 N.				Current Spacings to 3rd Adj.		DATA 12-06-22	
94 30 25.0 W.				Channel 295 - 106.9 MHz		SEARCH 12-06-22	
Call	Channel	Location		Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power		HAAT		
-----							
K295CH	LIC-D 295D	Kansas City	KS 163.2	0.0	84.5	-84.5	
39 00 56.0	94 30 24.8	DCN	0.115 kW	0 M			
		Alpine Broadcasting Corpor	BLFT20180521AAS				
KTPK	LIC 295C	Topeka	KS 271.0	122.1	225.5	-103.4	
39 01 34.0	95 55 02.0	CN	100.000 kW	369 M			
		Alpha Media Licensee LLC	0000125347				
<b>Note: See Section 74.1204 Contour Protection - KTPK</b>							
WDAF-FM	LIC 293C1	Liberty	MO 16.3	6.7	74.5	-67.8	
39 04 24.0	94 29 06.8	CN	100.000 kW	299 M			
		Audacy License, LLC	BMLH20040802BEU				
<b>Note: See Section 74.1204 Contour Protection - KMJK &amp; WDAF-FM</b>							
KTXV	LIC 295C	Jefferson City	MO 102.9	179.9	225.5	-45.6	
38 38 16.1	92 29 34.6	CN	100.000 kW	381 M			
		Zimmer Radio Of Mid-Missou	BLH19900727KA				
KMJK	LIC 297C1	North Kansas City	MO 76.0	36.6	74.5	-37.9	
39 05 40.0	94 05 47.8	CN	100.000 kW	299 M			
		Cmp Houston-Kc, LLC	BLH20071003AAO				
<b>Note: See Section 74.1204 Contour Protection - KMJK &amp; WDAF-FM</b>							
K241CU	LIC-D 241D	Fairway	KS 292.4	16.5	9.5	7.0	
39 04 19.0	94 40 58.9	DCN	0.250 kW	0 M			
		Kansas City Radio, Inc.	BLFT20180426AAM				
K298DA	LIC-D 298D	St. Joseph	MO 342.5	77.5	25.5	52.0	
39 40 51.0	94 46 48.0	DCN	0.250 kW	0 M			
		Eagle Communications, Inc.	BLFT20190514AAW				
K241AR	LIC 241D	Lawrence	KS 264.3	66.5	9.5	57.0	
38 57 14.0	95 16 11.9	CN	0.250 kW	0 M			
		University Of Kansas	BLFT20160816AAG				
K294BE	LIC 294D	Saint Joseph	MO 340.8	91.0	33.5	57.5	
39 47 20.0	94 51 25.9	CN	0.080 kW	72 M			
		Catholic Radio Network, In	BLFT20070919ACO				
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**K295CH**

Kansas City, KS  
Latitude: 39-00-56.50 N  
Longitude: 094-30-25 W  
ERP: 0.25 kW  
HAAT: 257.09  
Channel: 295  
Frequency: 106.9 MHz  
AMSL Height: 530.3 m  
Elevation: 271.3 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: FCC Model  
Loc. Variability: 50.0%  
Time Variability: 50.0%  
HAAT Mthd: FCC

**KTPK**

Topeka, KS  
0000125347  
Latitude: 39-01-34 N  
Longitude: 095-55-02 W  
ERP: 100.00 kW  
HAAT: 369.0  
Channel: 295  
Frequency: 106.9 MHz  
AMSL Height: 687.0 m  
Elevation: 338.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: FCC Model  
Loc. Variability: 50.0%  
Time Variability: 50.0%  
HAAT Mthd: FCC

**Section 74.1204 Contour Protection**

KTPK Channel 295C Topeka, Kansas

+ KTPK

Topeka

Lawrence

Ottawa

Leavenworth

Lansing

Gladstone

Kansas City Inde

Bonner Springs

Shawnee

Overland Park

Lenexa

Olathe

Grandview

Belton

K295CH+

**FCC Contours Legend**

F(50,50) 60 dBu = Black

F(50,10) 40 dBu = Red

**HORIZON**  
BROADCAST SOLUTIONS

Scale 1:600,000

0 8 16 24 km

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## **Section 74.1204**

### **Contour Protection to WDAF-FM & KMJK**

This comprehensive exhibit has been prepared to demonstrate that the K295CH modification will not cause prohibited interference to second adjacent stations WDAF-FM, Channel 293C1, Liberty, Missouri and KMJK, Channel 297C1, North Kansas City, Missouri. This statement demonstrates that a lack of population and/or other factors allow this proposal to be compliant with Section 74.1204. The process commonly called “Living Way,” allows for the use of U/D Analysis, also known as “signal strength ratio methodology.” In this instant case the facilities to be protected are second adjacent and are to be afforded protection from signals 40 dB stronger than they present in the location of the proposed antenna location.

The WDAF-FM F(50,50) protected contour at the K295CH application site is 106.06 dBu. Therefore, the K295CH F(50,10) interfering contour with respect to WDAF-FM is the 146.06 dBu contour. The KMJK F(50,50) protected contour at the K295CH application site is 75.88dBu. The K295CH F(50,10) interfering contour with respect to KMJK is the 115.88 dBu contour. Therefore, K295CH will cause greater interference to KMJK and that contour will be used to determine Section 74.1204 compliance. Using the FCC's FM propagation curves program (see attached), the 115.88 dBu contour was calculated to extend 178 meters from the antenna.

It is believed that the proposed modification to K295CH will not cause prohibited interference to KMJK as no interference reaches the ground. The closest the interfering contour comes to the ground is approximately 81 meters. There are no high rise or multi

story buildings located near the proposed K295CH tower site. Therefore, it is believed the proposed K295CH is in compliance with Section 74.1204 contour protection rules with respect to WDAF-FM and KMJK.

**K295CH**

Kansas City, KS  
Latitude: 39-00-56.50 N  
Longitude: 094-30-25 W  
ERP: 0.25 kW  
HAAT: 257.09  
Channel: 295  
Frequency: 106.9 MHz  
AMSL Height: 530.3 m  
Elevation: 271.3 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: FCC Model  
Loc. Variability: 50.0%  
Time Variability: 50.0%  
HAAT Mthd: FCC

**WDAF-FM**

Liberty, MO  
BMLH20040802BEU  
Latitude: 39-04-24 N  
Longitude: 094-29-06.80 W  
ERP: 100.00 kW  
HAAT: 299.0  
Channel: 293  
Frequency: 106.5 MHz  
AMSL Height: 565.0 m  
Elevation: 269.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No

**KMJK**

North Kansas City, MO  
BLH20071003AAO  
Latitude: 39-05-40 N  
Longitude: 094-05-47.80 W  
ERP: 100.00 kW  
HAAT: 299.0  
Channel: 297  
Frequency: 107.3 MHz  
AMSL Height: 538.6 m  
Elevation: 256.6 m  
Horiz. Pattern: Omni  
Vert. Pattern: No

**Section 74.1204 Contour Protection**

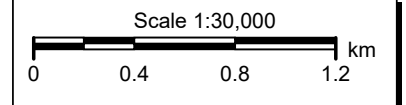
WDAF-FM Channel 293C1 Liberty, Missouri  
KMJK Channel 297C1, North Kansas City, Missouri

WDAF-FM FCC F(50,50)  
75.88 dBu contour

K295CH +

KMJK FCC F(50,50)  
106.06 dBu contour

**HORIZON**  
BROADCAST SOLUTIONS



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# FM and TV Propagation Curves

## Databases & Searches

AM Query

Antenna Height Above Average  
Terrain (HAAT) Calculator

Antenna Structure Registration  
(ASRN) Records Within A Radius

Broadcast Station Mailing  
Address Search

CDBS Database Public Files

Children's Educational  
Television Reporting - Form  
2100, Schedule H

Children's Programming Query

COLORIT HTML Color Generator

Degrees Minutes Seconds  
to/from Decimal Degrees

Distance and Azimuths  
Between Two Sets of  
Coordinates

This Javascript calculator uses the FM or TV propagation curves to find the distance to a service or interfering contour, or the corresponding field strength at a given contour distance. [More after the form.](#)

Select Contour Type:

F(50,50) Service Contour -- FM and NTSC (analog) TV  
F(50,10) Interfering Contour  
F(50,90) Digital TV Service Contour

Select Channel Range:  
(not TV Virtual Channel)

FM Radio or TV Transmit Channels 2-6  
TV Transmit Channels 7-13  
TV Transmit Channels 14-69

Find This:

Field Strength, given a Distance (in km)  
Distance, Given a Field Strength (in dBu)  
FM ERP, given Distance and Field Strength [F(50,50) Service Contour]

0.250

ERP (kW)

Distance (km)

257.09

HAAT (meters)

115.88

Field (dBu)

Find Result

Clear Form

Results:

Calculated Distance = 0.178 km

Free Space equation used to compute distance.

**Human Exposure to Radiofrequency Electromagnetic Field  
&  
Section 106 Compliance  
(Environmental)**

A study has been made to determine whether this proposal is in compliance with 47 C.F.R. 1.1307 of the Commission's rules and with OET Bulletin #65, dated August 1997, regarding human exposure to radio frequency radiation in the vicinity of broadcast towers. Carter Broadcast Group, Inc., ("Carter") is acquiring the license of FM translator station K295CH, Channel 295D, Facility ID No. 36259, Kansas City, Kansas from Alpine Broadcasting Corp., ("Alpine"), the licensee. Carter seeks to modify the license of K295CH by changing the transmit antenna and lowering the antenna center of radiation at its licensed site. The transmitting site is an existing tower registered with FCC Antenna Structure Registration number 1003006. The tower is located at 39° 00' 56.5" N ~ 94° 30' 25.0" W (NAD 83) and is 335.9 meters in overall height. No modifications to the tower are being proposed. Therefore, it is believed that this proposed facility is exempt from a Section 106 review by the SHPO/THPO. K295CH will operate on Channel 295D (106.9 MHz) with 250 watts ERP directional with the antenna center of radiation at 259 meters above ground level and 257.09 meters HAAT. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of § 1.1306 of the FCC Rules.

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the Commission's OET Bulletin Number 65. The proposed FM transmit antenna is an ERI Model LP1-E one bay directional antenna. The ERI antenna is included in the Commission's FM Model for Windows program under Type 3, opposed "U" dipole. Using the Type 3 EPA Element, the maximum calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 0.0556  $\mu\text{W}/\text{cm}$  at 256.8 meters, which is 0.028 percent of the general population/uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in 1.1307(b) regarding sites with multiple emitters, which excludes applicant from responsibility for taking any corrective action in areas where the proposal's contribution is less than five percent.

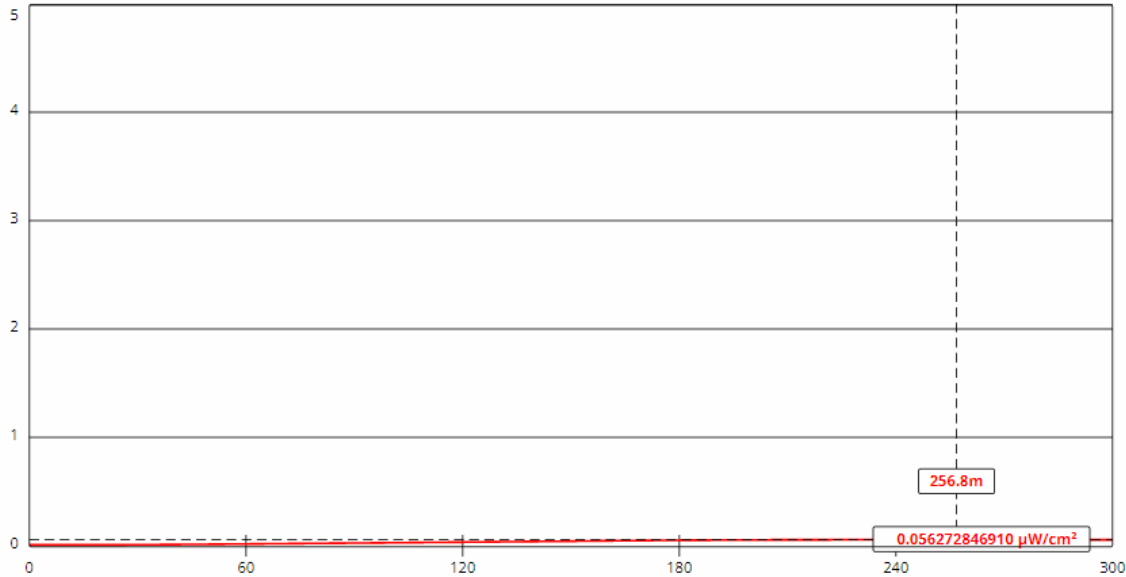
The applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

# FM Model

- Radio Frequency Safety
- FCC Policy on Human Exposure
- RF Safety FAQ
- Body Tissue Dielectric Parameters
- RF Safety Highlighted Releases
- FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data published in 1985 by the EPA.

[Show More....](#)



[View Tabular Results +](#)

Channel Selection	Channel 295 (106.9 MHz) ▼		
Antenna Type +	EPA Type 3: Opposed U Dipole ▼		
Height (m)	<input type="text" value="259"/>	Distance (m)	<input type="text" value="300"/>
ERP-H (W)	<input type="text" value="250"/>	ERP-V (W)	<input type="text" value="250"/>
Num of Elements	<input type="text" value="1"/>	$\lambda$	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	