

## RADIOFREQUENCY RADIATION ASSESSMENT

This exhibit has been included to address the issue of allowable radiofrequency radiation levels (RFR). The KDJJ 94.1 Fernley antenna would conform to the FCC guidelines with respect to OET Bulletin No. 65 (Edition 97-01, August 1997), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields." It first should be noted that KDJJ 94.1 Fernley is a not standalone FM. There are 5 other operating FM stations and one proposed station at this site. Also, there are no other stations of any type that would be required to be factored into the RFR calculations. A table listing these stations and their RFR contributions is included as the second page of this study. This table references printouts from the FCC's FM Model program located on the FCC's website. The final result of this table shows that the total contribution of RFR from these 7 stations is still only .0453 mW per square cm which is 22.65 percent of 0.2 mW per square cm, the maximum allowable level of RF radiation, which conforms to the FCC maximum permissible uncontrolled/general population RF exposure guidelines.

In addition to showing that the KDJJ 94.1 Fernley antenna meets the new OET bulletin No. 65 guidelines for a safe center of radiation, it should be noted that the transmitting tower is appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction of power or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency electromagnetic fields will not exceed the FCC guidelines. All of this information demonstrates that this application conforms to the new FCC guidelines with respect to OET Bulletin No. 65 (Edition 97-01, August 1997), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

## RFR TABLE

There are 5 currently operating FM's and 1 proposed FM located at the proposed site. . The contribution of each of these facilities has been calculated. Enclosed as attachments here are the separate results of the contributions of each of these stations at this site. Included here is a summary indicating the total results of the studies of each of these facilities.

Facility 1 – KNEZ, Fernley, NV – Antenna – EPA Type One - 14 Bay - One Wavelength Spacing  
Contribution – 0.0039 mW per square cm --- 1.95%

Facility 2 – KWNZ, Lovelock, NV – Antenna – EPA Type One - 14 Bay - One Wavelength Spacing  
Contribution – 0.0039 mW per square cm --- 1.95%

Facility 3 – KZTI, Fallon Station, NV – Antenna – EPA Type One - 14 Bay - One Wavelength Spacing  
Contribution – 0.0039 mW per square cm --- 1.95%

Facility 4 – KRZQ, Fallon, NV – Antenna – EPA Type One - 14 Bay - One Wavelength Spacing  
Contribution – 0.0039 mW per square cm --- 1.95%

Facility 5 – KQNV, Fallon, NV – Antenna – EPA Type One - 14 Bay - One Wavelength Spacing  
Contribution – 0.0005 mW per square cm --- 0.25%

Facility 6 – New 102.5, Fallon, NV – Antenna – EPA Type One - 8 Bay - Half Wavelength Spacing  
Contribution – 0.0023 mW per square cm --- 1.15%

Facility 7 – KDJJ, Fernley, NV - Antenna – EPA Type Two - 4 Bay - One Wavelength Spacing  
Contribution – 0.0269 mW per square cm --- 13.45%

The total contribution of all seven of these facilities is: 22.65% of the allowable FCC General Population/Uncontrolled Exposure Limit at ground level. This site is in compliance with RF Emission guidelines and will continue to be in compliance when the proposed antenna is added to the 5 currently operating and one proposed facilities at this site. It should be noted that access to the site is restricted and appropriate warning signs are posted at the site.



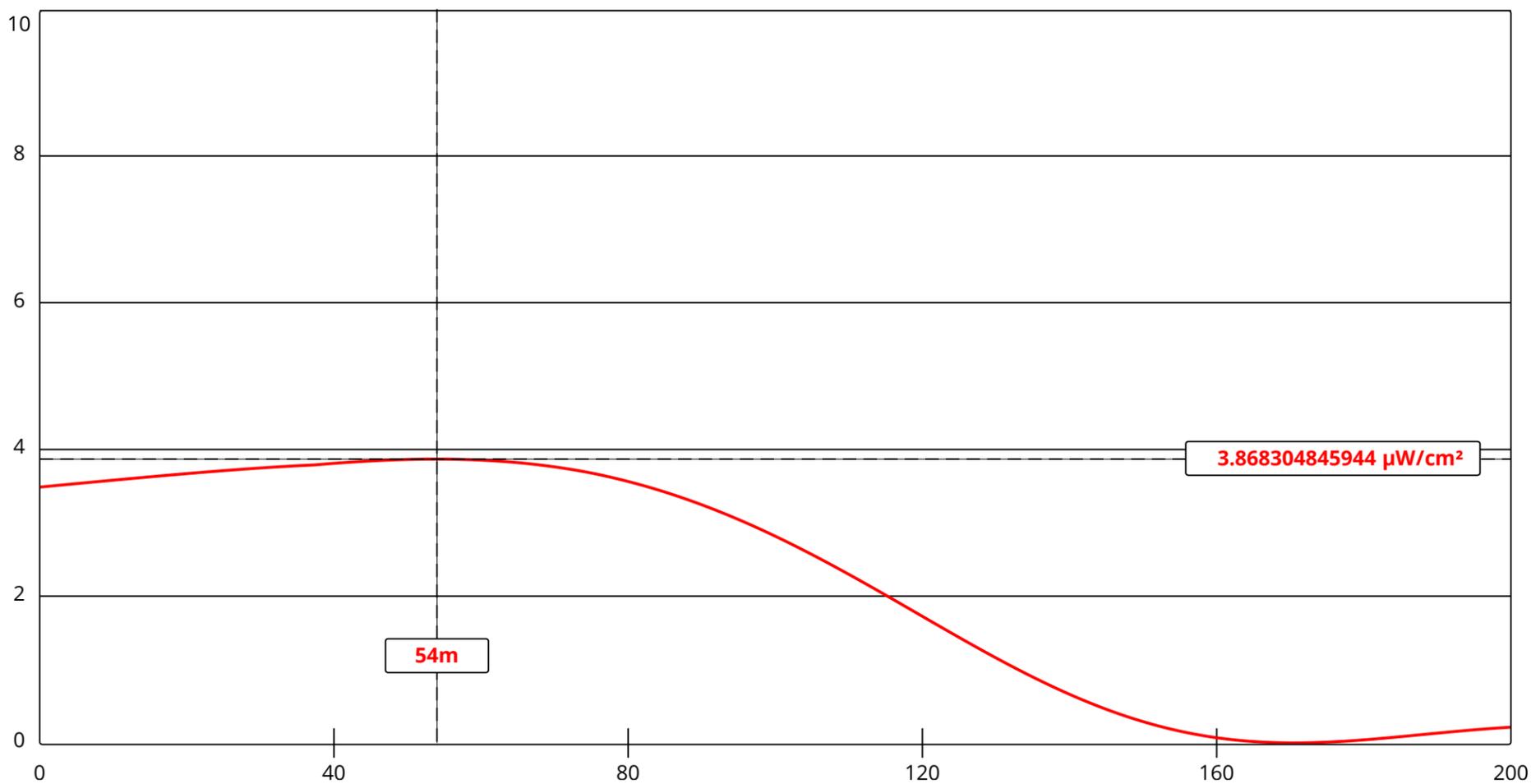
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# FM Model

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This version uses the actual distance to each antenna element, rather than the distance to the antenna's radiation center, improving separation distance precision. While most predictions using this updated FM Model will be similar to the previous version, this correction could result in significant differences from the previous model at short separation distances from the bottom element of an antenna array where accurate exposure estimation is most critical. Appendix A of the [FM Model Public Notice](/document/oet-announces-updates-fmmodel-software) contains a brief description of these changes.

Under *Antenna Type* in the user interface below is a collapsible list of associated antenna models cross-referenced with the five EPA element types, initially in Appendix B of the [FM Model Public Notice](/document/oet-announces-updates-fmmodel-software), including any subsequent changes we received. Element designs that are not in this list because they were not specifically evaluated by EPA, e.g., panel antennas, vertical dipoles, etc., should be treated as Type 1. We continue to invite suggested changes and corrections to this list. Inclusion of antenna models on this list does not constitute an endorsement of those manufacturers or their products by the FCC.



Channel Selection	Channel 297 (107.3 MHz) ▾		
<a href="#">Antenna Type +</a>	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="429"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="100000"/>	ERP-V (W)	<input type="text" value="0"/>
Num of Elements	<input type="text" value="14"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	<input type="button" value="Apply"/>	

\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview



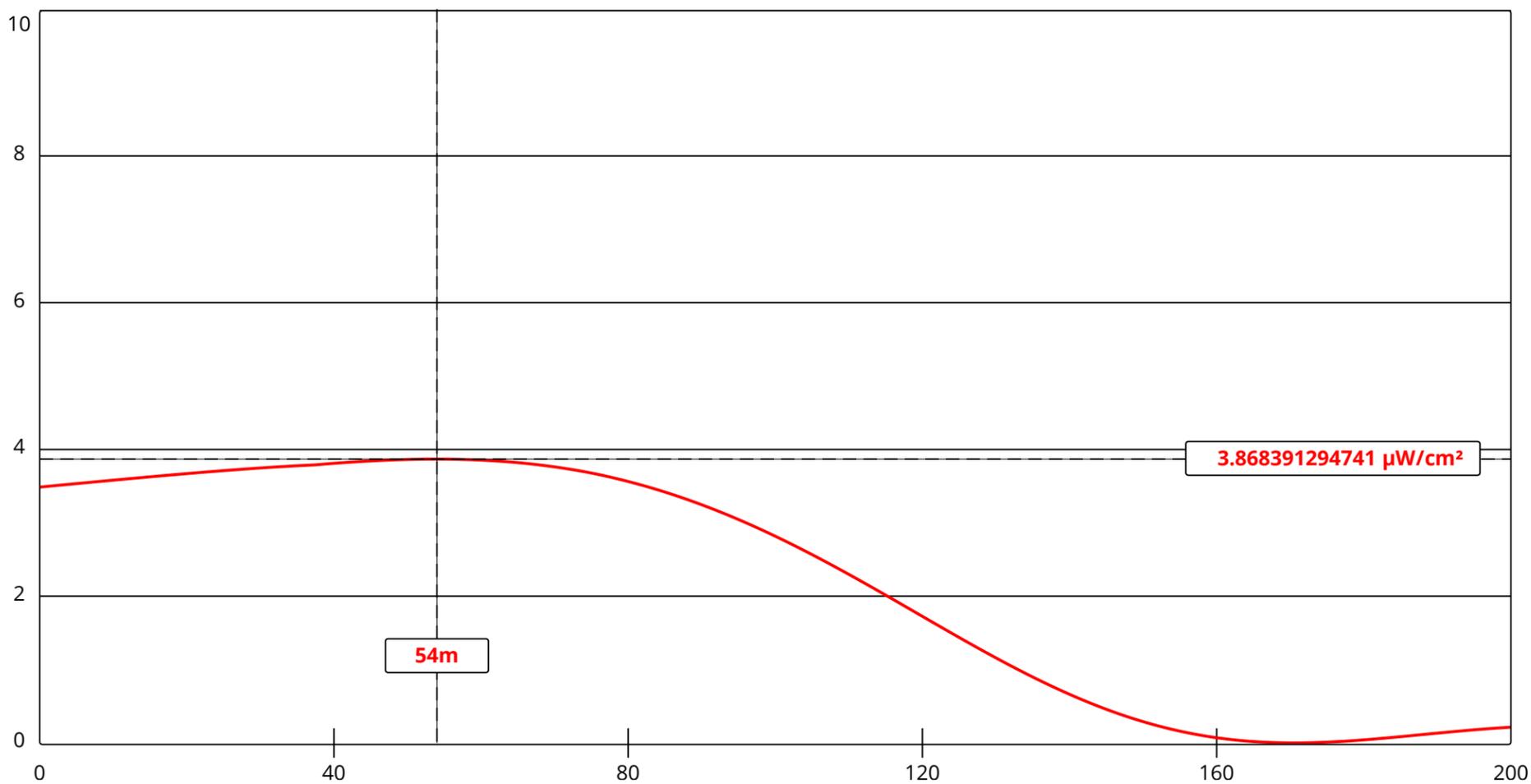
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Channel Selection	Channel 292 (106.3 MHz) ▾		
<a href="#">Antenna Type +</a>	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="429"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="100000"/>	ERP-V (W)	<input type="text" value="0"/>
Num of Elements	<input type="text" value="14"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	Apply	

**\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview**



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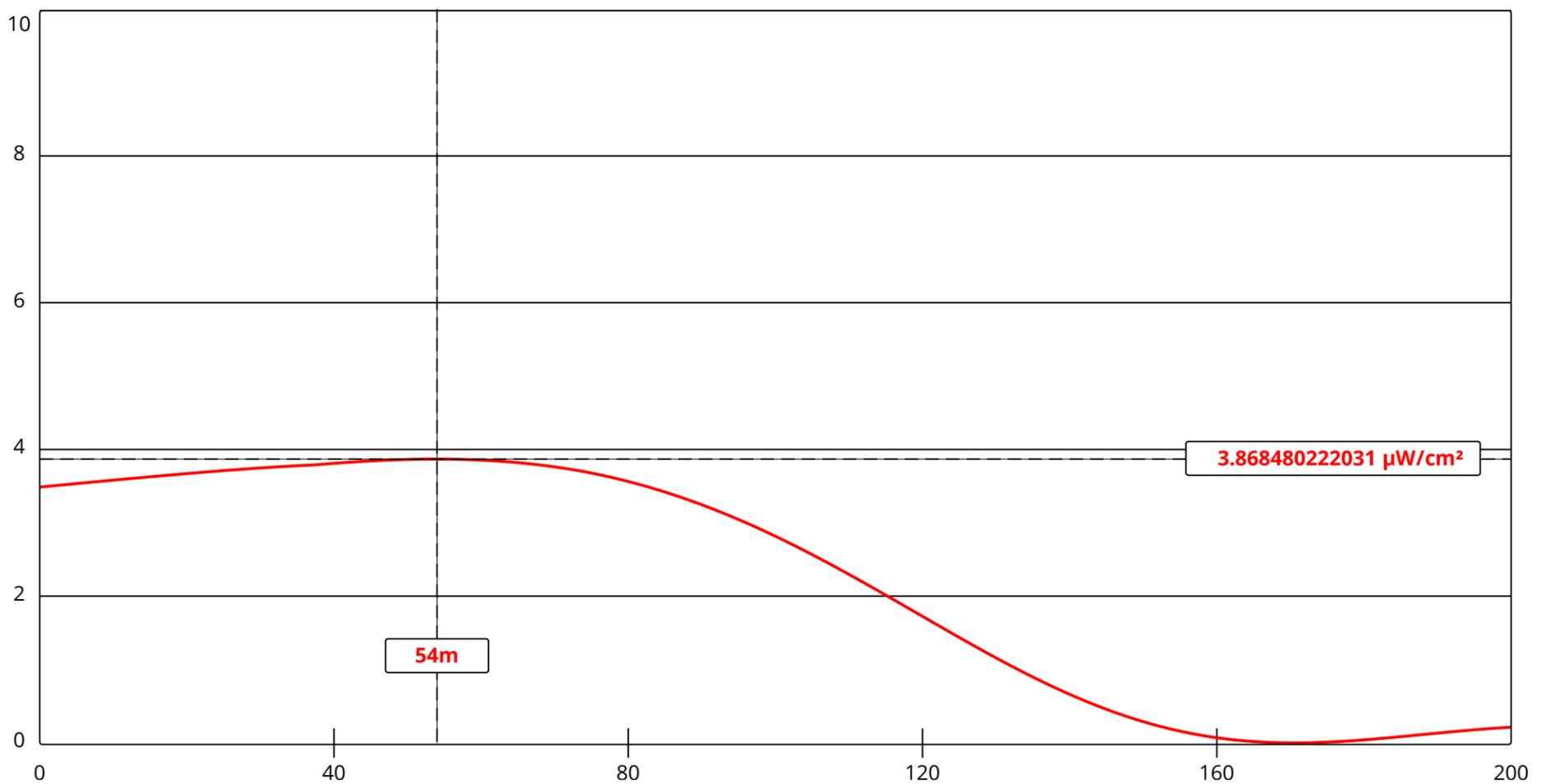
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<http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>.

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Channel Selection	Channel 287 (105.3 MHz) ▾		
<a href="#">Antenna Type +</a>	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="429"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="100000"/>	ERP-V (W)	<input type="text" value="0"/>
Num of Elements	<input type="text" value="14"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	Apply	

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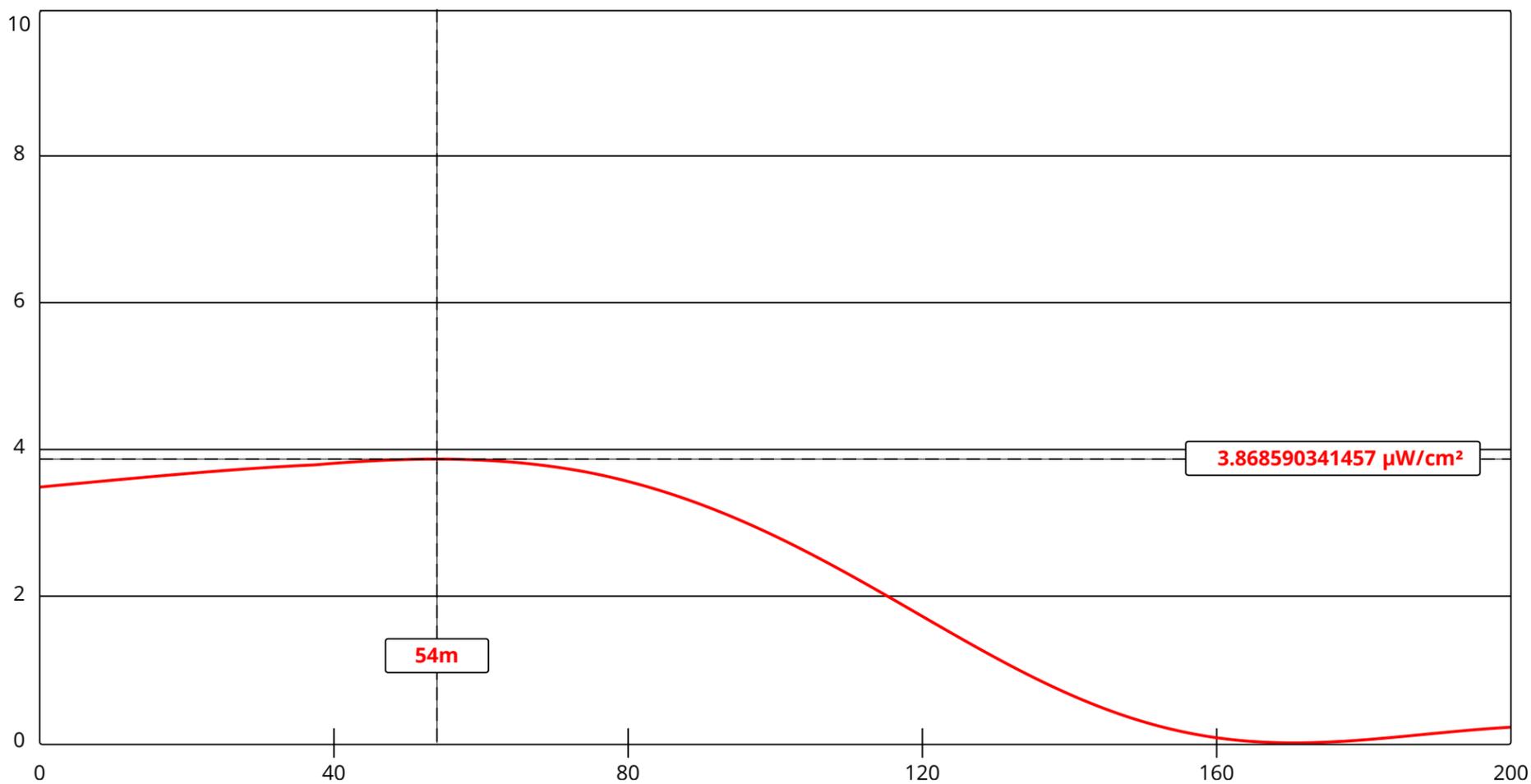
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Channel Selection	Channel 281 (104.1 MHz) ▾		
<a href="#">Antenna Type</a> +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="429"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="100000"/>	ERP-V (W)	<input type="text" value="0"/>
Num of Elements	<input type="text" value="14"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	Apply	

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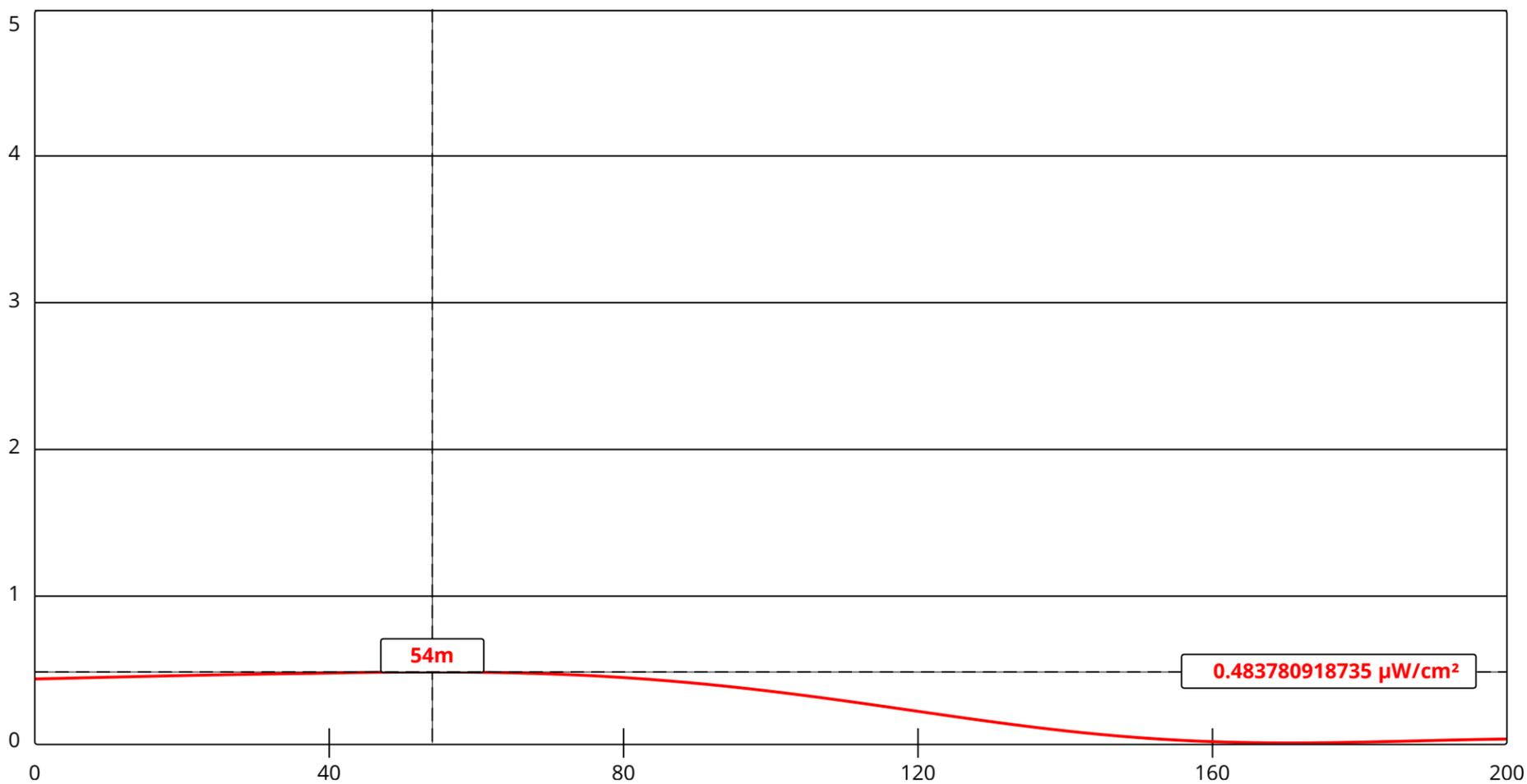
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Channel Selection	Channel 210 (89.9 MHz) ▾		
<a href="#">Antenna Type +</a>	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="429"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="12500"/>	ERP-V (W)	<input type="text" value="0"/>
Num of Elements	<input type="text" value="14"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	Apply	

**\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview**

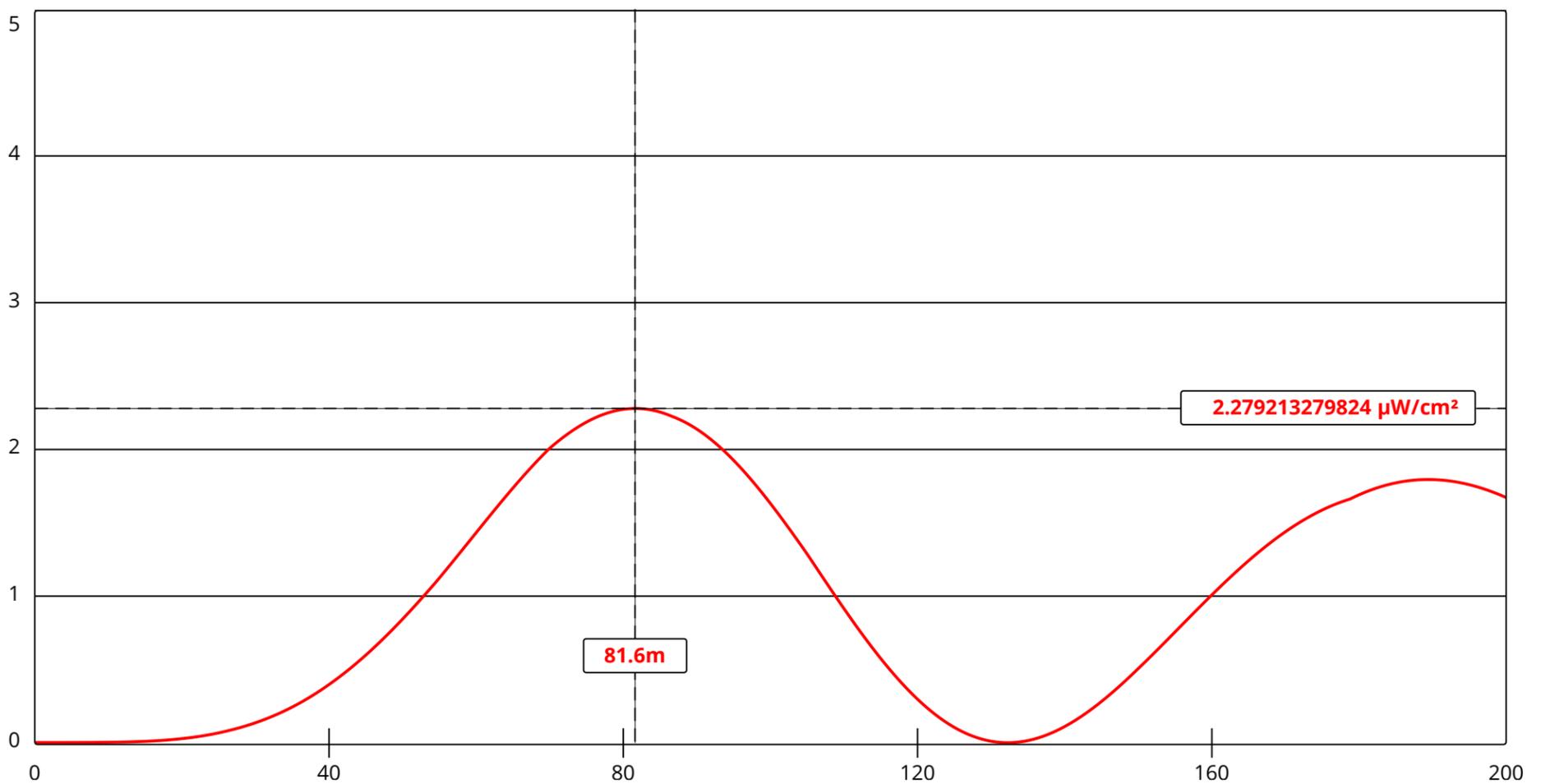
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<http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>.

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Channel Selection	Channel 273 (102.5 MHz) ▾		
<a href="#">Antenna Type</a> +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="152"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="83000"/>	ERP-V (W)	<input type="text" value="83000"/>
Num of Elements	<input type="text" value="8"/>	Element Spacing (λ)	<input type="text" value="0.5"/>
Num of Points	<input type="text" value="500"/>	Apply	

**\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview**

Hide Tabular Results -



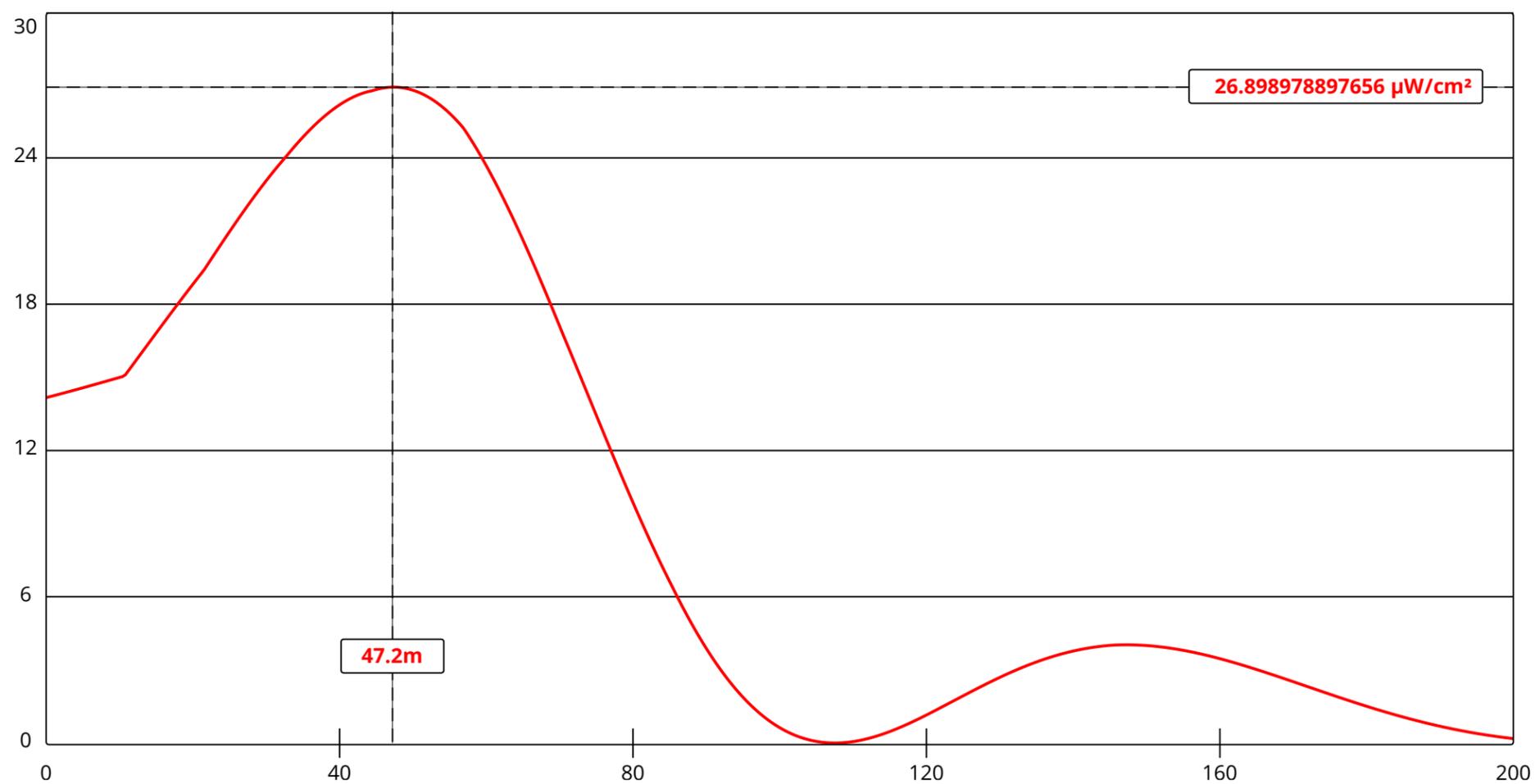
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# FM Model

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](http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL) (<http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>).

This version uses the actual distance to each antenna element, rather than the distance to the antenna’s radiation center, improving separation distance precision. While most predictions using this updated FM Model will be similar to the previous version, this correction could result in significant differences from the previous model at short separation distances from the bottom element of an antenna array where accurate exposure estimation is most critical. Appendix A of the [FM Model Public Notice](/document/oet-announces-updates-fmmodel-software) contains a brief description of these changes.

Under *Antenna Type* in the user interface below is a collapsible list of associated antenna models cross-referenced with the five EPA element types, initially in Appendix B of the [FM Model Public Notice](/document/oet-announces-updates-fmmodel-software), including any subsequent changes we received. Element designs that are not in this list because they were not specifically evaluated by EPA, e.g., panel antennas, vertical dipoles, etc., should be treated as Type 1. We continue to invite suggested changes and corrections to this list. Inclusion of antenna models on this list does not constitute an endorsement of those manufacturers or their products by the FCC.



Channel Selection	Channel 231 (94.1 MHz) ▾		
<a href="#">Antenna Type +</a>	EPA Type 2: Opposed V Dipole ▾		
Height (m)	<input type="text" value="124"/>	Distance (m)	<input type="text" value="200"/>
ERP-H (W)	<input type="text" value="45000"/>	ERP-V (W)	<input type="text" value="45000"/>
Num of Elements	<input type="text" value="4"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="500"/>	Apply	

**\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview**