

TDT locator

radioCuba

Obtener coordenadas CM2TV

GPS

Latitud (DD.DDDD) Longitud (DD.DDDD)

CTx Televilla

CTx Habana Libre

CTx Balcon de Lawton

CTx Alamar

CTx Guanabo

Distancia (kms): Entre Datos	Azimuth (grados): Entre Datos
Canal SD (frec): Entre Datos	Intensidad (dBuV): Entre Datos
Canal HD (frec): Entre Datos	Intensidad (dBuV): Entre Datos

TDT Locator

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Osmani Mambuca Juan



Introducción

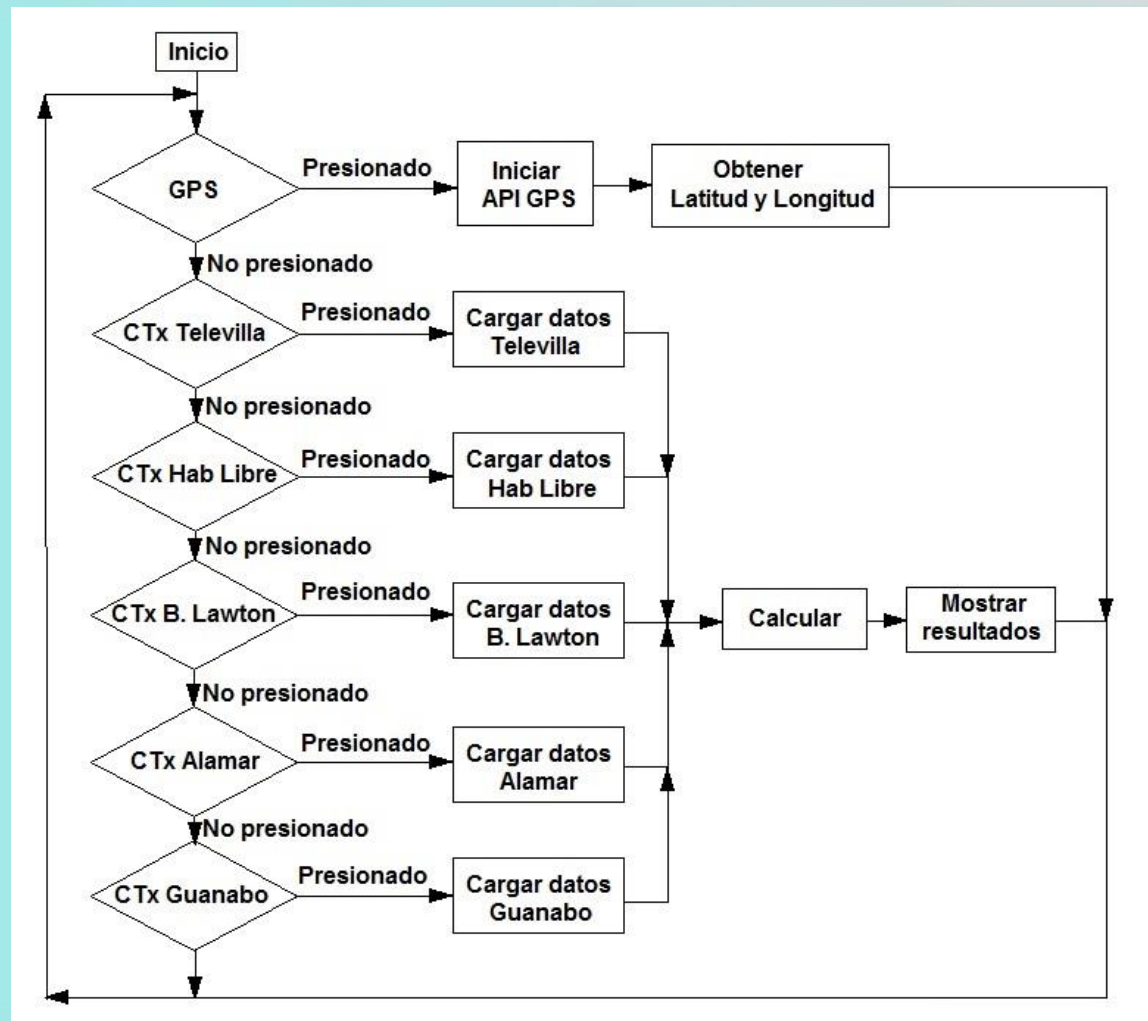
It's necessary to improve the orientation process of TDT's receiving antennas without requiring previous training or knowledge of Radiocuba's transmitters network. Smartphones have taken to people's pocket a powerful tool with a very high computing capability, that allows to automatize this annoying calculation process.

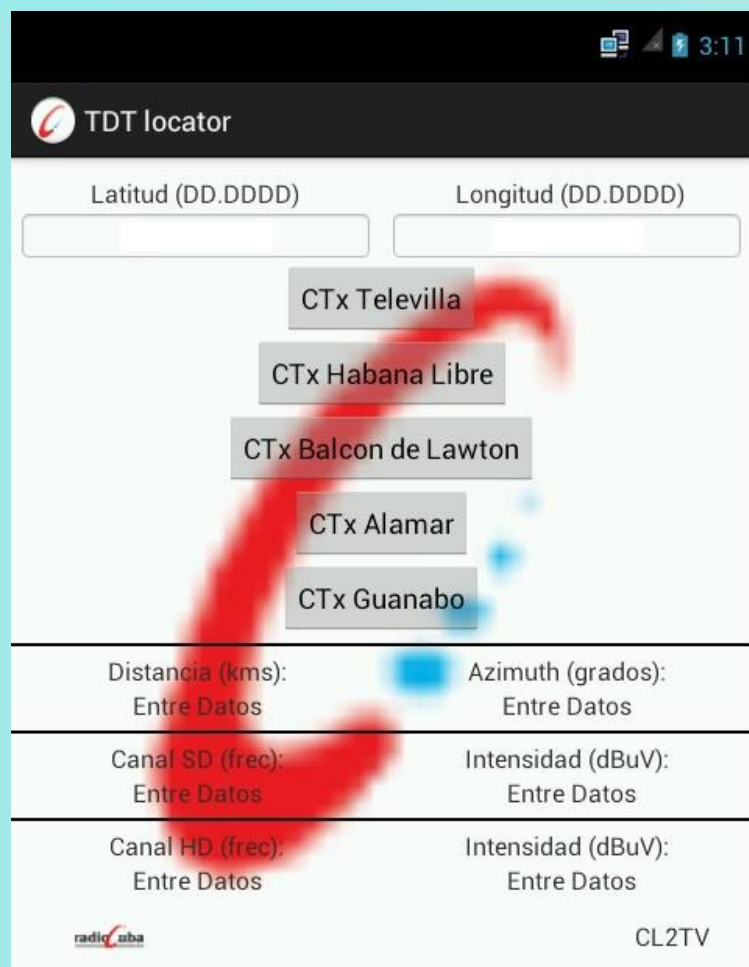


Eclipse version 22.3.0
for Windows operating
system



API14 (Android 4.0
“IceCreamSandwich”)





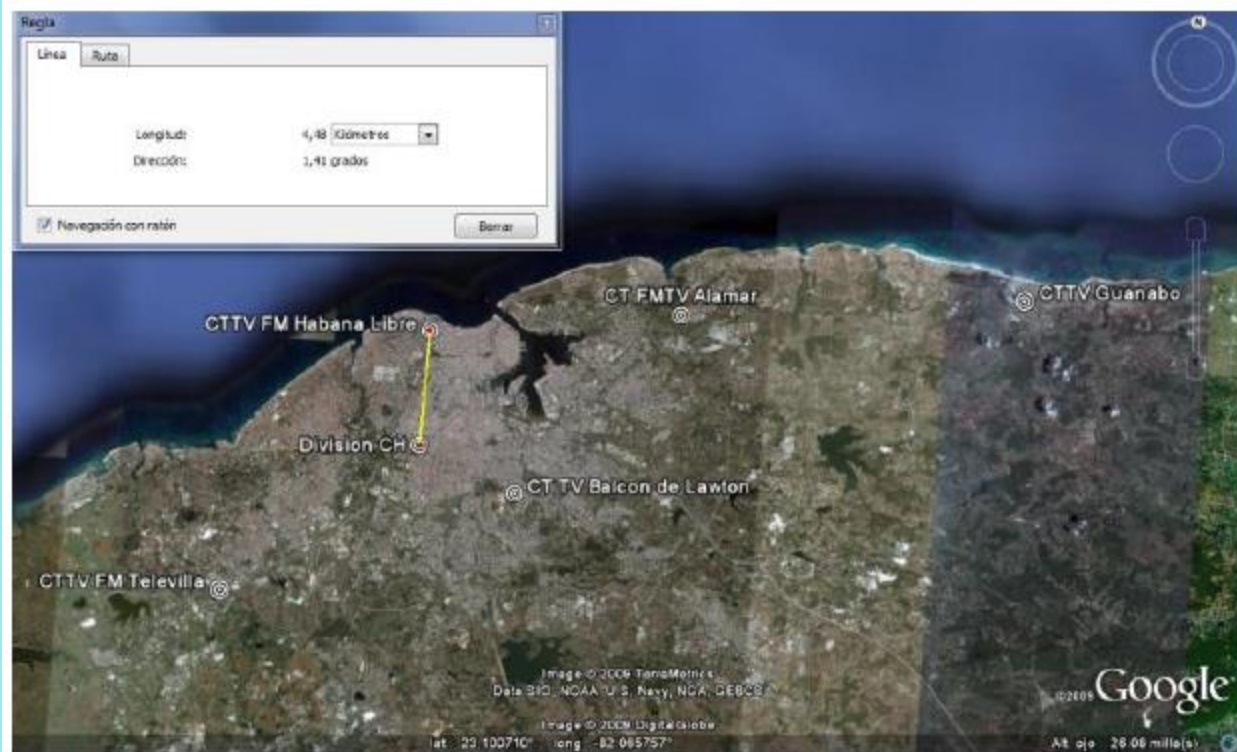
The screenshot shows the 'TDT locator' application interface. At the top, there's a status bar with icons for signal, battery, and time (3:11). Below the title bar, there are two input fields for 'Latitud (DD.DDDD)' and 'Longitud (DD.DDDD)'. A large red map of Cuba is visible in the background. Overlaid on the map are five grey buttons labeled 'CTx Televilla', 'CTx Habana Libre', 'CTx Balcon de Lawton', 'CTx Alamar', and 'CTx Guanabo'. Below these buttons, there are six rows of labels for data entry, each with 'Entre Datos' (Enter Data) below it:

Distancia (kms):	Azimuth (grados):
Entre Datos	Entre Datos
Canal SD (frec):	Intensidad (dBuV):
Entre Datos	Entre Datos
Canal HD (frec):	Intensidad (dBuV):
Entre Datos	Entre Datos

At the bottom left is the 'radiocuba' logo, and at the bottom right is the text 'CL2TV'.

TDT Locator 1.0

The version 1.0 is a pilot test for the mathematical process used by the application to calculate distance and azimuth to broadcasting sites.



TDT locator

radioCuba

Obtener coordenadas CM2TV

GPS

Latitud (DD.DDDD): 23.09929

Longitud (DD.DDDD): -82.38358

CTx Televilla

CTx Habana Libre

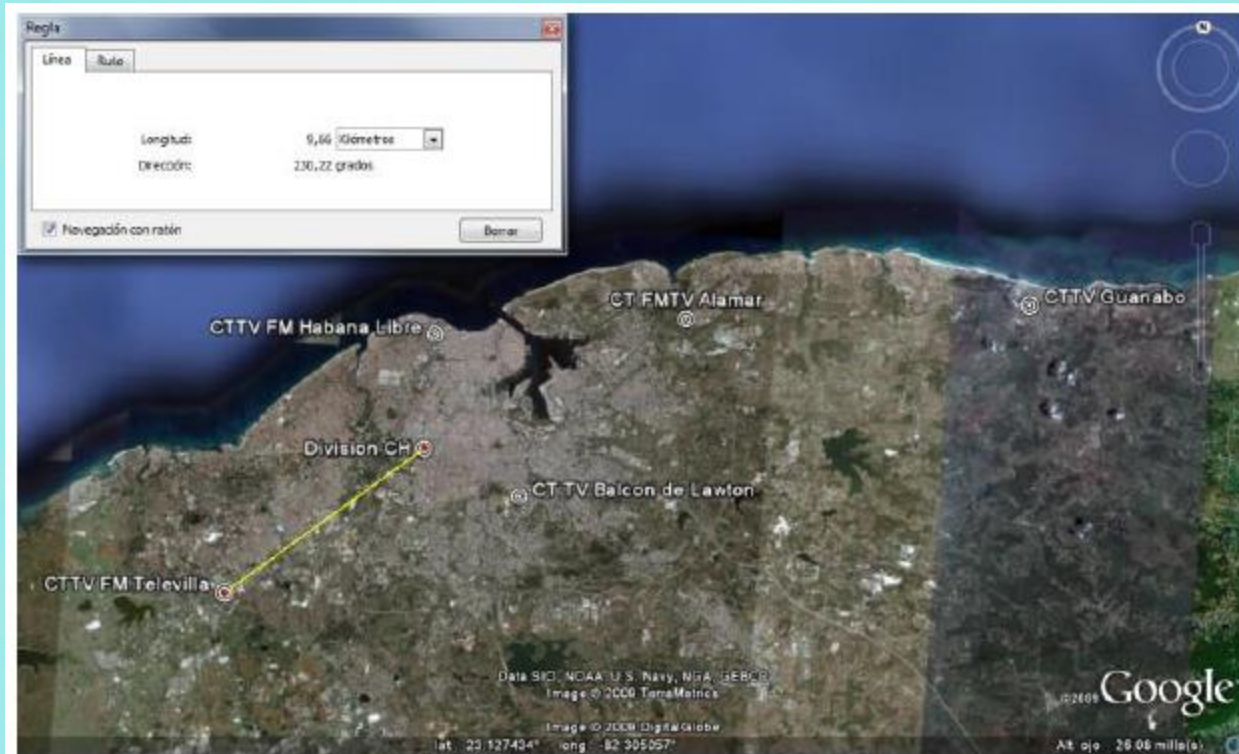
CTx Balcon de Lawton

CTx Alamar

CTx Guanabo

Distancia (kms):	Azimuth (grados):
4.1	1.7
Canal SD (frec):	Intensidad (dBuV):
CH-48 (677MHz)	52.21
Canal HD (frec):	Intensidad (dBuV):
CH-50 (689MHz)	50.51





5:24

TDT locator

radioCuba

Obtener coordenadas

CM2TV

GPS

Latitud (DD.DDDD): 23.09929

Longitud (DD.DDDD): -82.383558

CTx Televilla

CTx Habana Libre

CTx Balcon de Lawton

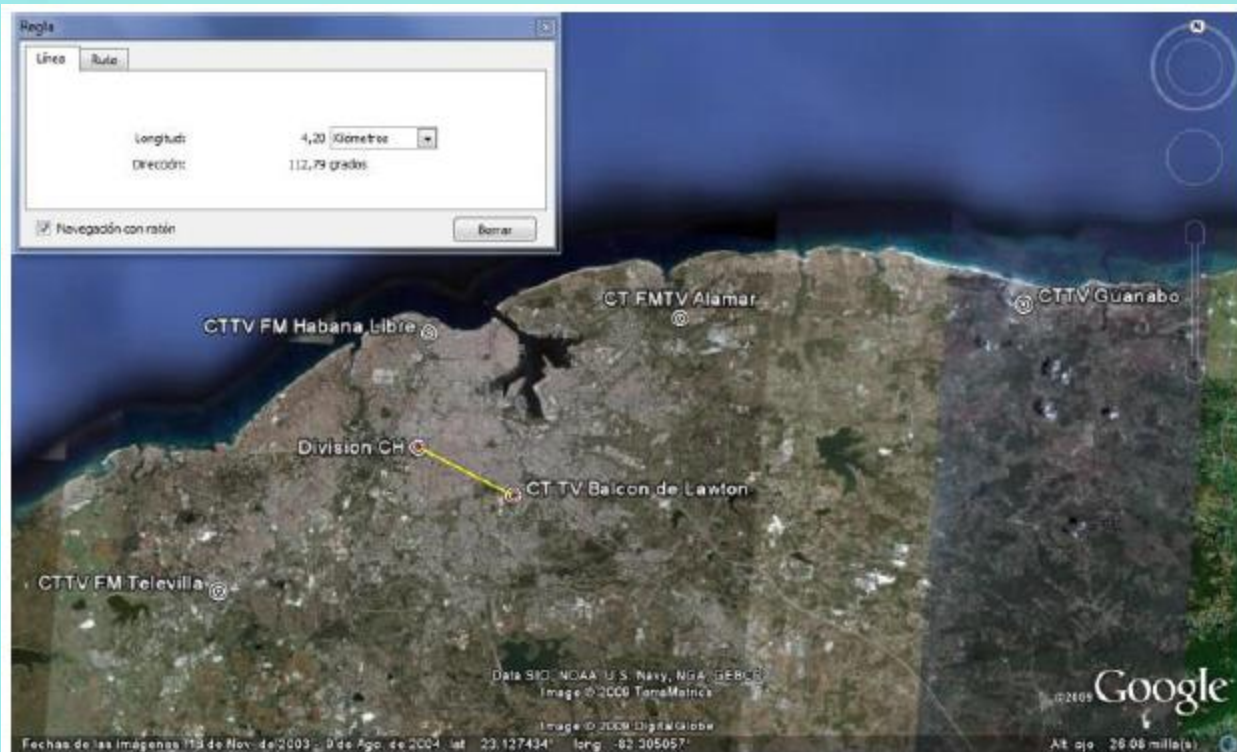
CTx Alamar

CTx Guanabo

Distancia (kms):	Azimuth (grados):
9.7	234.7
Canal SD (frec):	Intensidad (dBuV):
CH-38 (611MHz)	50.81
Canal HD (frec):	Intensidad (dBuV):
CH-26 (605MHz)	47.78



División Radiocuba Ciudad Habana



TDT locator

Obtener coordenadas

GPS

Latitud (DD.DDDD) **23.09929** Longitud (DD.DDDD) **-82.383558**

CTx Televilla

CTx Habana Libre

CTx Balcon de Lawton

CTx Alamar

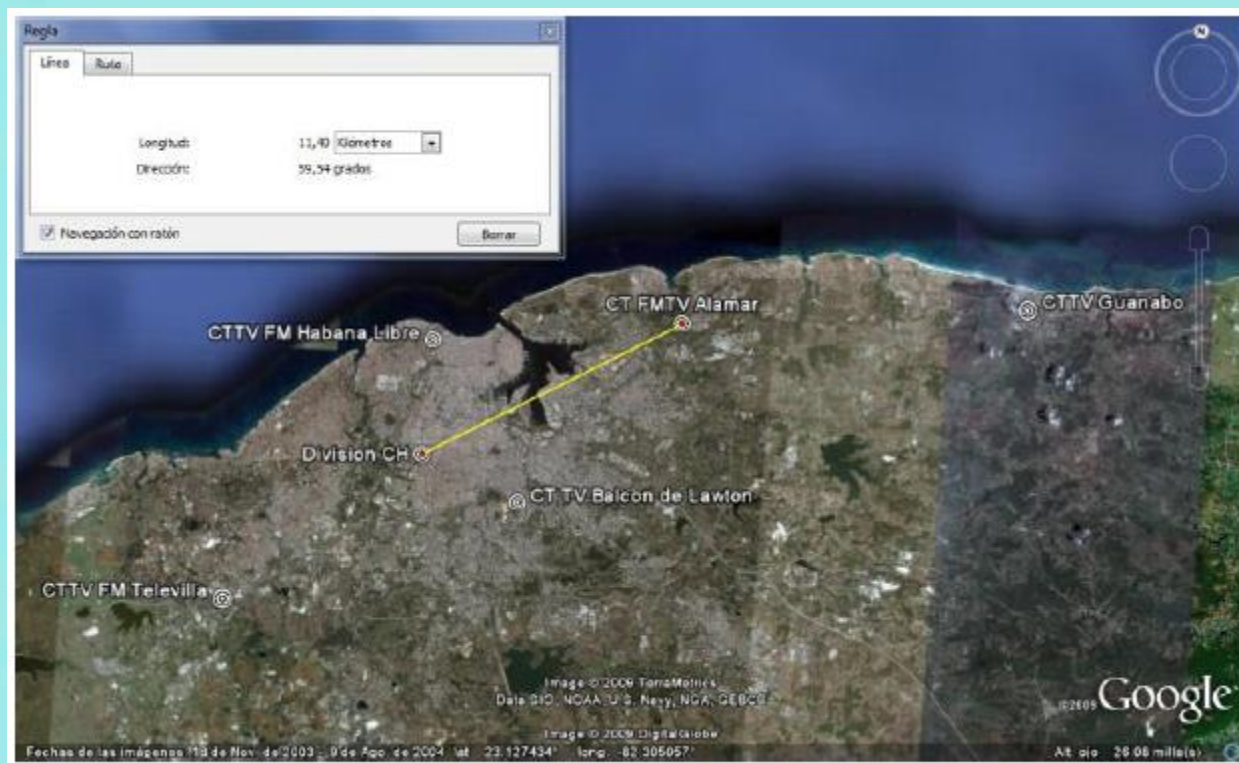
CTx Guanabo

Distancia (kms):	4.5	Azimuth (grados):	109.6
Canal SD (frec):	CH-31 (578MHz)	Intensidad (dBuV):	41.89
Canal HD (frec):	-	Intensidad (dBuV):	-



CALIPROT2017

División Ciudad Habana



TDT locator

Obtener coordenadas

GPS

Latitud (DD.DDDD) 23.09929

Longitud (DD.DDDD) -82.383558

CTx Televisión

CTx Habana Libre

CTx Balcon de Lawton

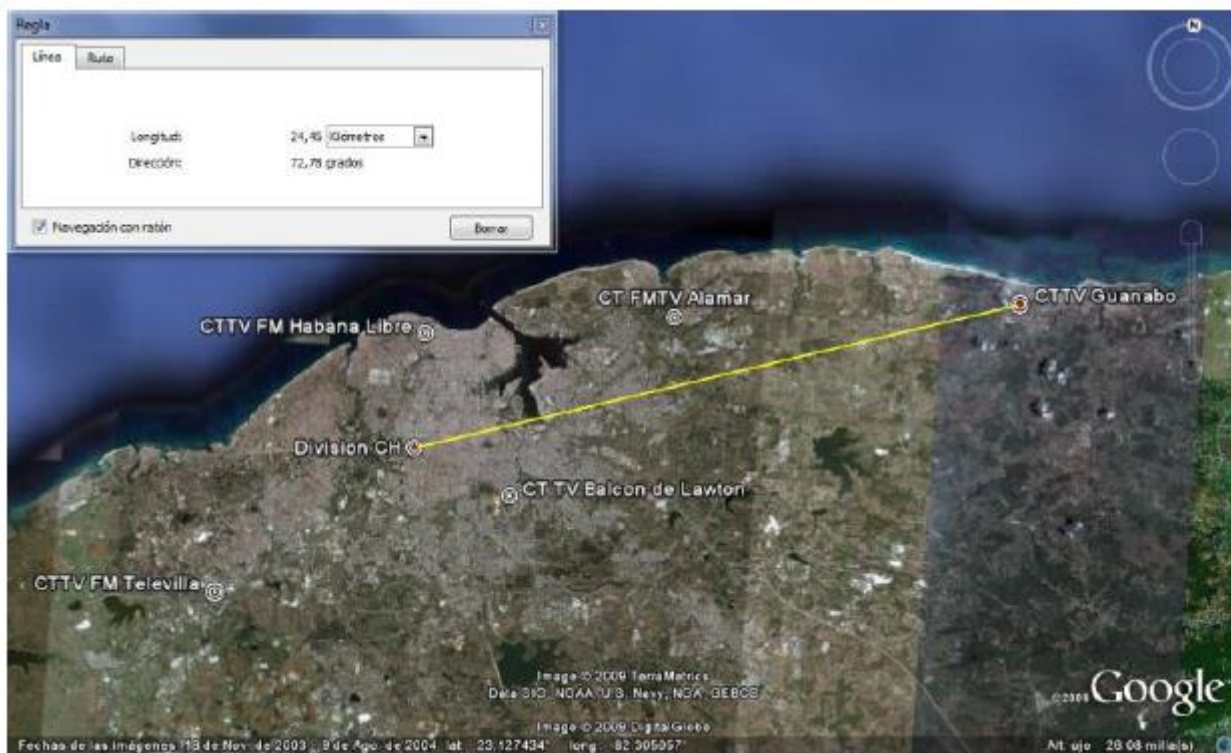
CTx Alamar

CTx Guanabo

Distancia (kms):	Azimuth (grados):
11.9	63.5
Canal SD (frec):	Intensidad (dBuV):
CH-51 (695MHz)	17.86
Canal HD (frec):	Intensidad (dBuV):
-	-



División Radiocuba Ciudad Habana



TDT locator

Obtener coordenadas

GPS

Latitud (DD.DDDD): 23.09929

Longitud (DD.DDDD): -82.383558

CTx Televisa

CTx Habana Libre

CTx Balcon de Lawton

CTx Alamar

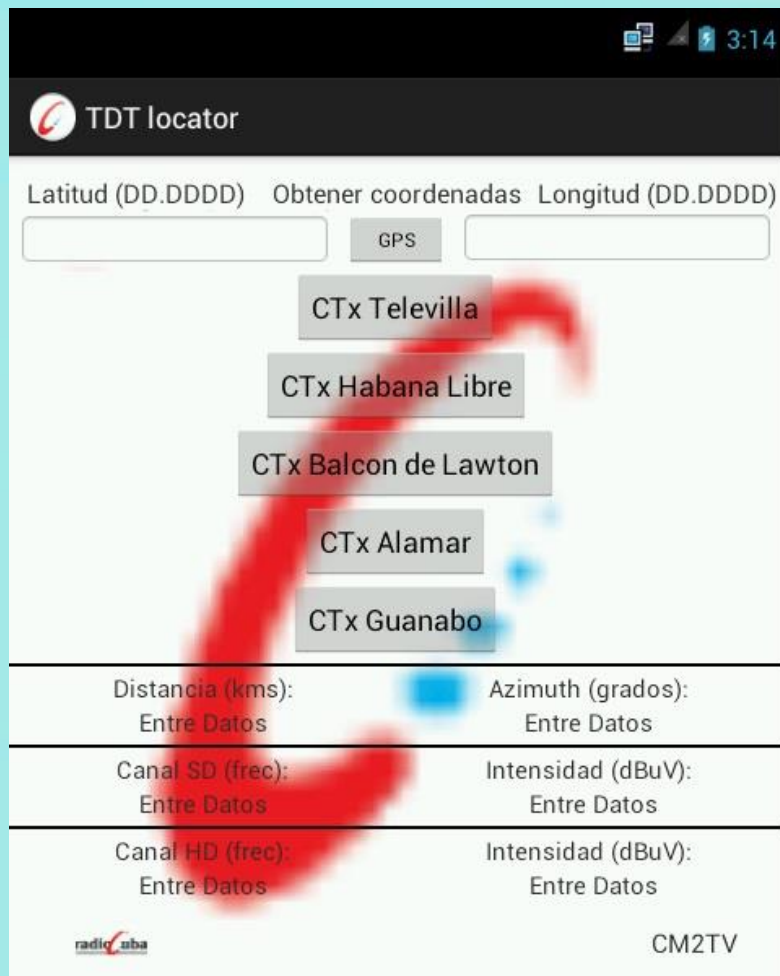
CTx Guanabo

Distancia (kms):	26.2	Azimuth (grados):	75.3
Canal SD (freq):	CH-23 (527MHz)	Intensidad (dBuV):	27.46
Canal HD (freq):	-	Intensidad (dBuV):	-



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The screenshot shows the 'TDT locator' app interface. At the top, there's a status bar with icons for signal, battery, and time (3:14). Below the app title, there are input fields for 'Latitud (DD.DDDD)' and 'Longitud (DD.DDDD)', with a 'GPS' button between them. A list of channels is displayed: CTx Televilla, CTx Habana Libre, CTx Balcon de Lawton, CTx Alamar, and CTx Guanabo. Below this list, there are four rows of data fields, each with a label and a 'Entre Datos' (Enter Data) button. The first row contains 'Distancia (kms):' and 'Azimuth (grados):'. The second row contains 'Canal SD (frec):' and 'Intensidad (dBuV):'. The third row contains 'Canal HD (frec):' and 'Intensidad (dBuV):'. At the bottom left is the 'radiocuba' logo, and at the bottom right is the text 'CM2TV'.

Latitud (DD.DDDD)	Obtener coordenadas	Longitud (DD.DDDD)
<input type="text"/>	GPS	<input type="text"/>
CTx Televilla		
CTx Habana Libre		
CTx Balcon de Lawton		
CTx Alamar		
CTx Guanabo		
Distancia (kms): Entre Datos	Azimuth (grados): Entre Datos	
Canal SD (frec): Entre Datos	Intensidad (dBuV): Entre Datos	
Canal HD (frec): Entre Datos	Intensidad (dBuV): Entre Datos	

radiocuba CM2TV

TDT Locator 1.1

This version includes the possibility of automatic coordinates search, this function works only with smartphones that uses GPS (Global Position Systems) location service.





The screenshot shows the 'TDT locator' app interface. At the top, there's a status bar with icons for signal, battery, and time (3:17). Below the app title, there's a 'radioCuba' logo and a 'CM2TV' label. The main section is titled 'Obtener coordenadas' (Get coordinates) and features a 'GPS' button. Below this, there are input fields for 'Latitud (DD.DDDD)' and 'Longitud (DD.DDDD)'. A large red arrow points from the 'GPS' button to the 'Longitud' field. Below the input fields, there are several buttons for different locations: 'CTx Televilla', 'CTx Habana Libre', 'CTx Balcon de Lawton', 'CTx Alamar', and 'CTx Guanabo'. At the bottom, there are three rows of labels for data entry: 'Distancia (kms): Entre Datos', 'Azimuth (grados): Entre Datos', 'Canal SD (frec): Entre Datos', 'Intensidad (dBuV): Entre Datos', 'Canal HD (frec): Entre Datos', and 'Intensidad (dBuV): Entre Datos'.

TDT Locator 1.2

1. In this version the graphic interface is rectified.
2. It's rectified the difference of kilometers that represents one longitude degree in terms of the latitude.
3. Introduces the formula corresponding to the free- space losses.



Free- space losses

$$L_{fs} = 32.45 + 20 * \log(D) + 20 * \log(f)$$





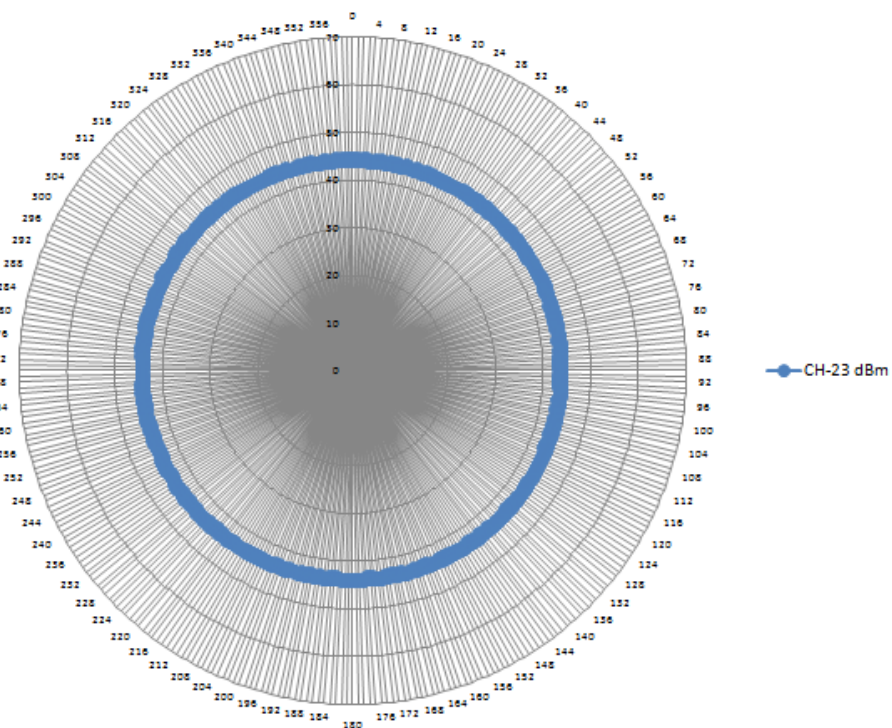
The screenshot shows the 'TDT locator' app interface. At the top, there's a status bar with icons for signal, battery, and time (3:17). Below the app title, the 'radiocuba' logo is on the left, and 'CM2TV' is on the right. The main section is titled 'Obtener coordenadas' (Get coordinates) and features a 'GPS' button. Below this are two input fields for 'Latitud (DD.DDDD)' and 'Longitud (DD.DDDD)'. A list of broadcast sites is shown with buttons: 'CTx Televilla', 'CTx Habana Libre', 'CTx Balcon de Lawton', 'CTx Alamar', and 'CTx Guanabo'. At the bottom, there are four data entry fields arranged in two columns: 'Distancia (kms): Entre Datos', 'Azimuth (grados): Entre Datos', 'Canal SD (frec): Entre Datos', and 'Intensidad (dBuV): Entre Datos'.

TDT Locator 1.3

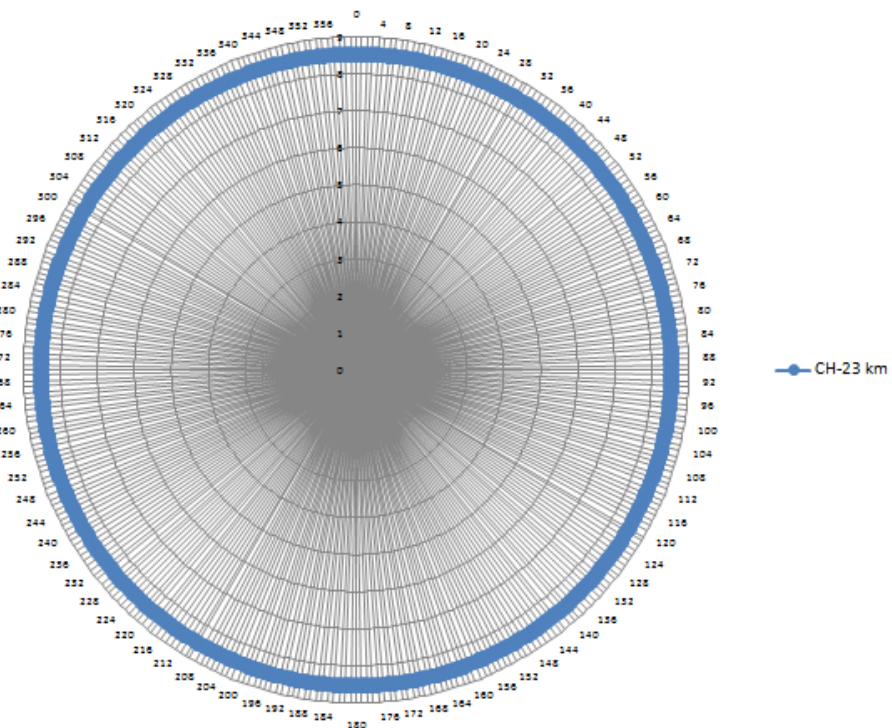
This version achieved the study of the radiation pattern's for the broadcasting sites to calculate the intensity expected, thus the reliability is improved.



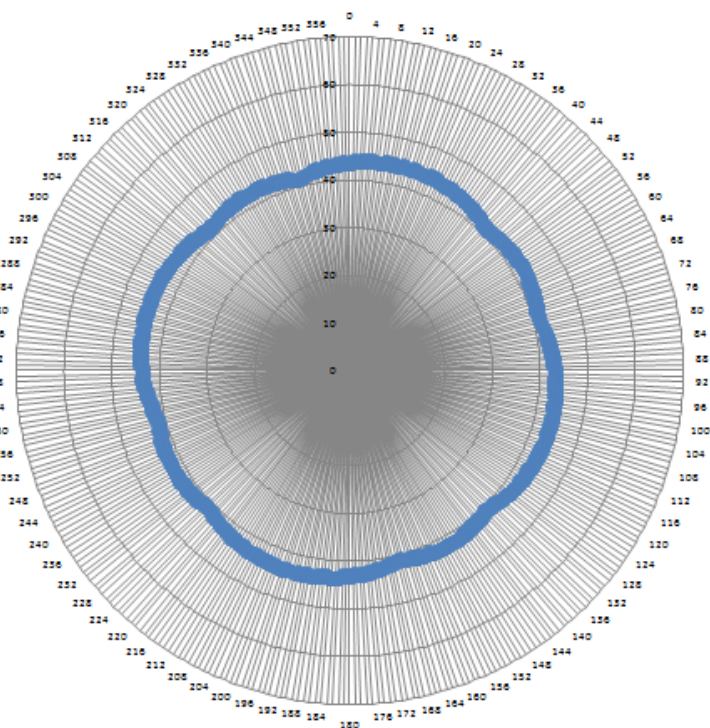
CH-23 dBm



CH-23 km

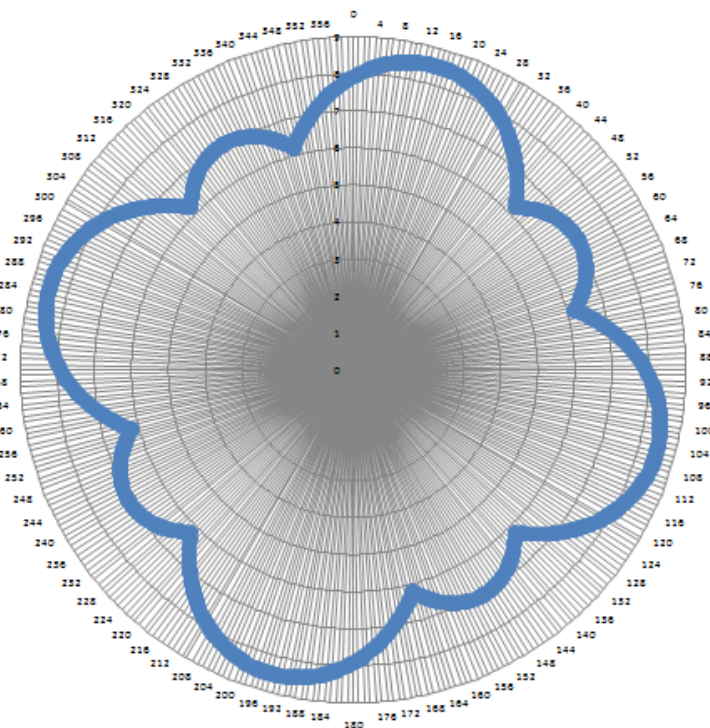


CH-31 dBm



CH-31 dBm

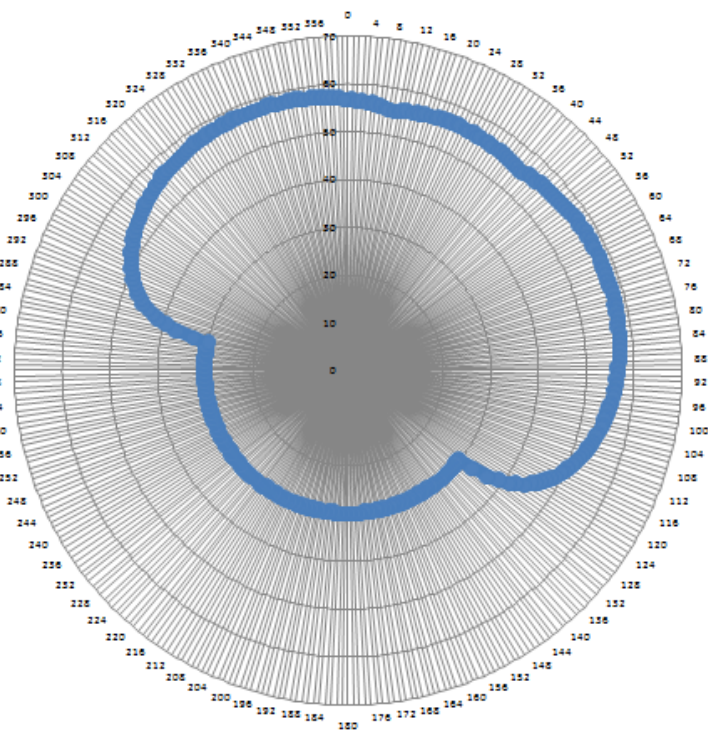
CH-31 km



CH-31 km

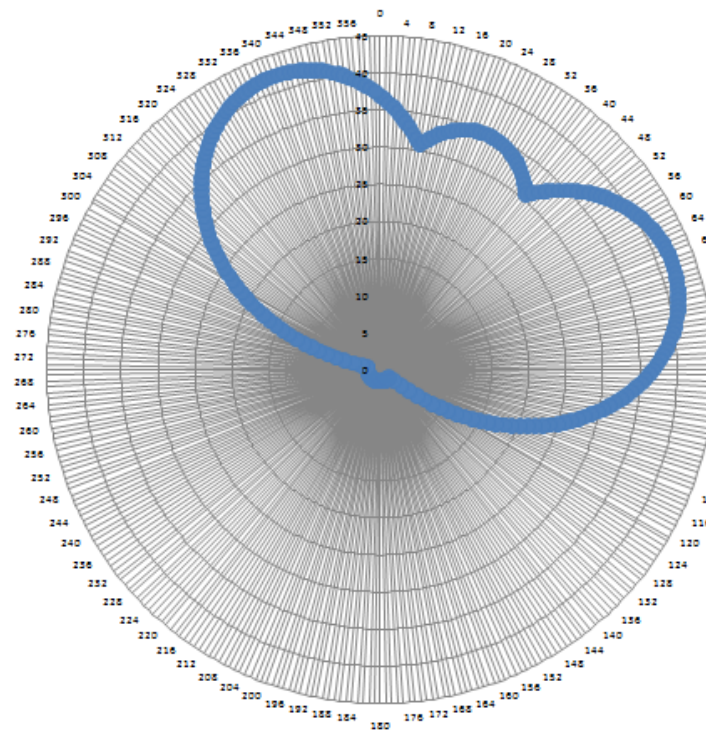


CH-36 dBm



CH-36 dBm

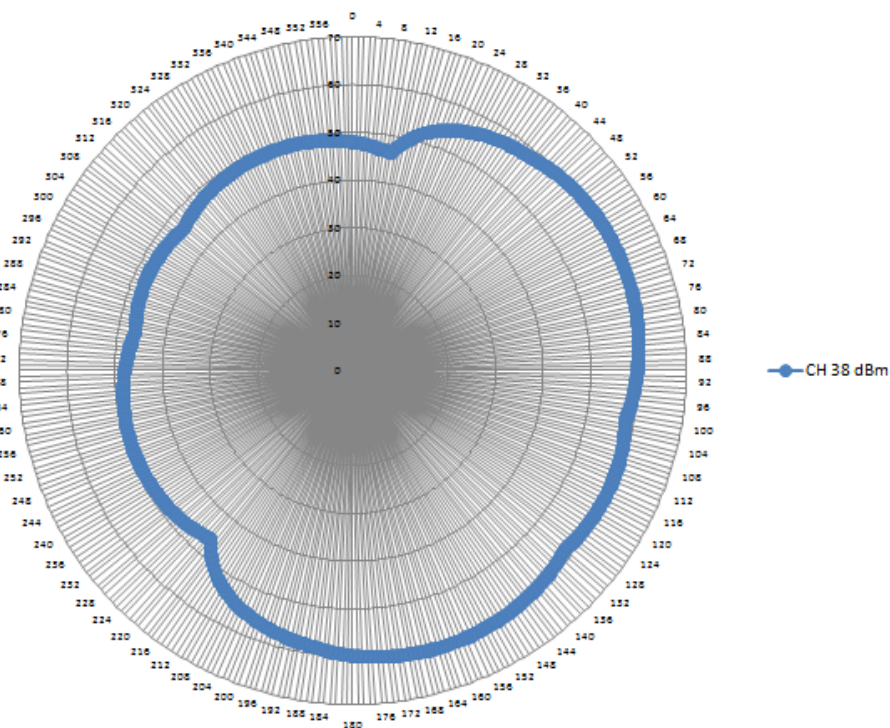
CH-36 km



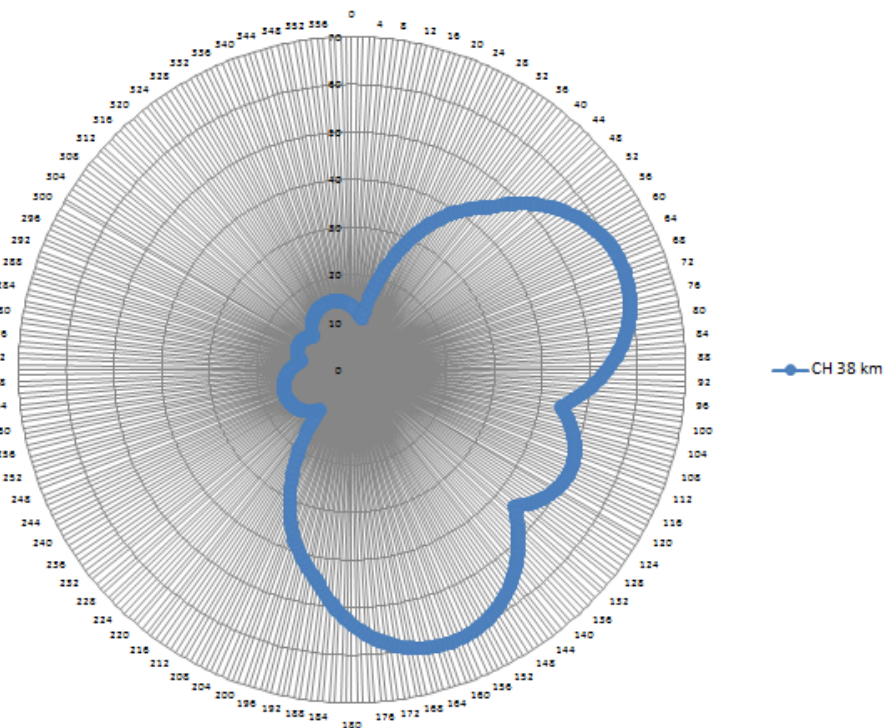
CH-36 km



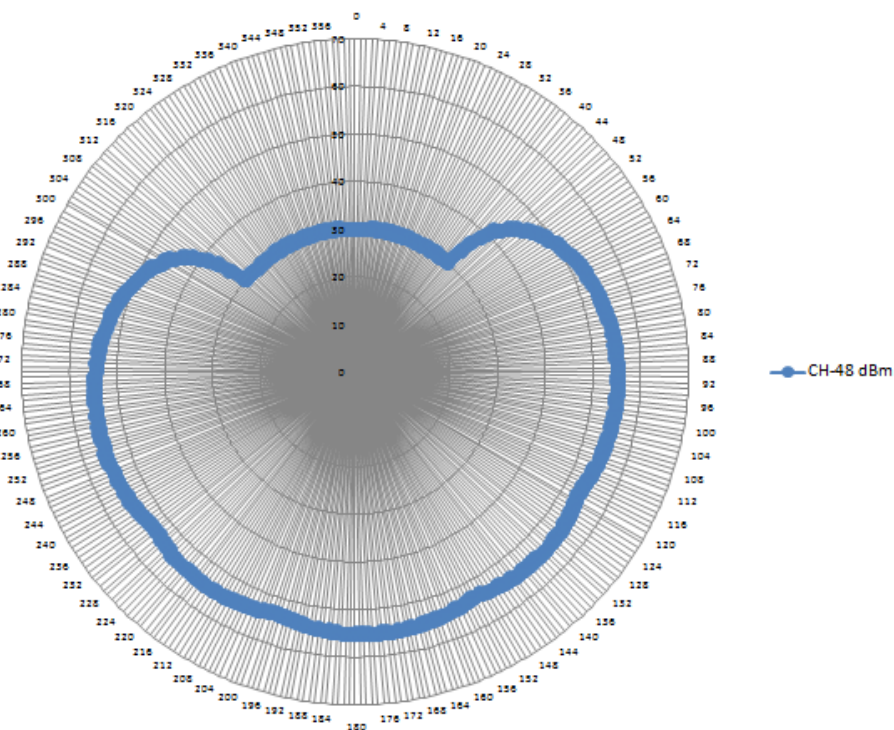
CH 38 dBm



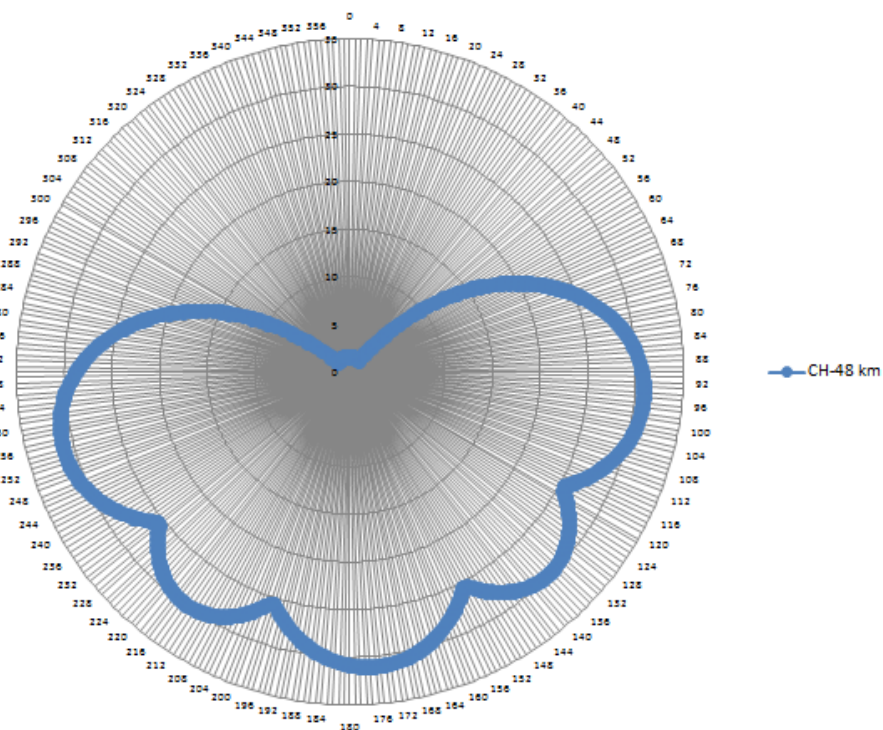
CH 38 km



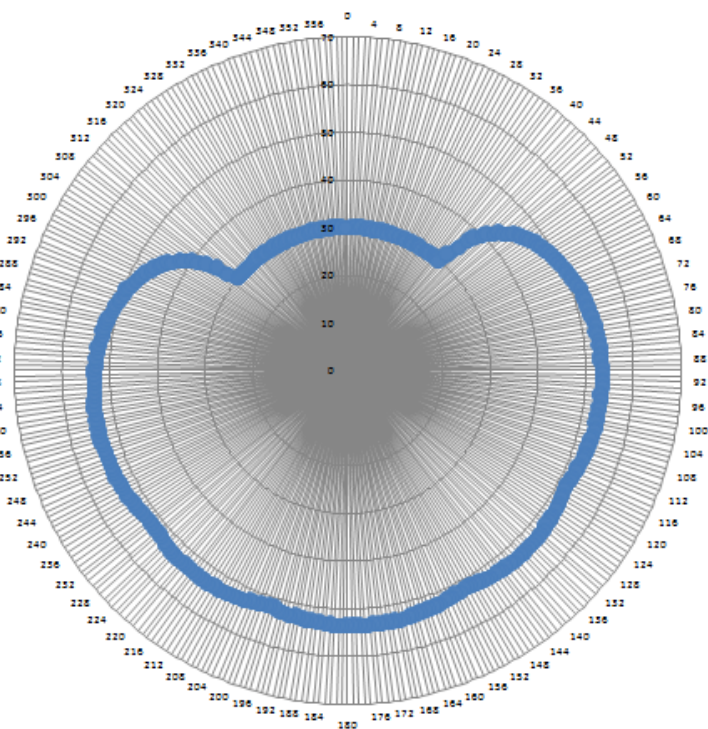
CH-48 dBm



CH-48 km

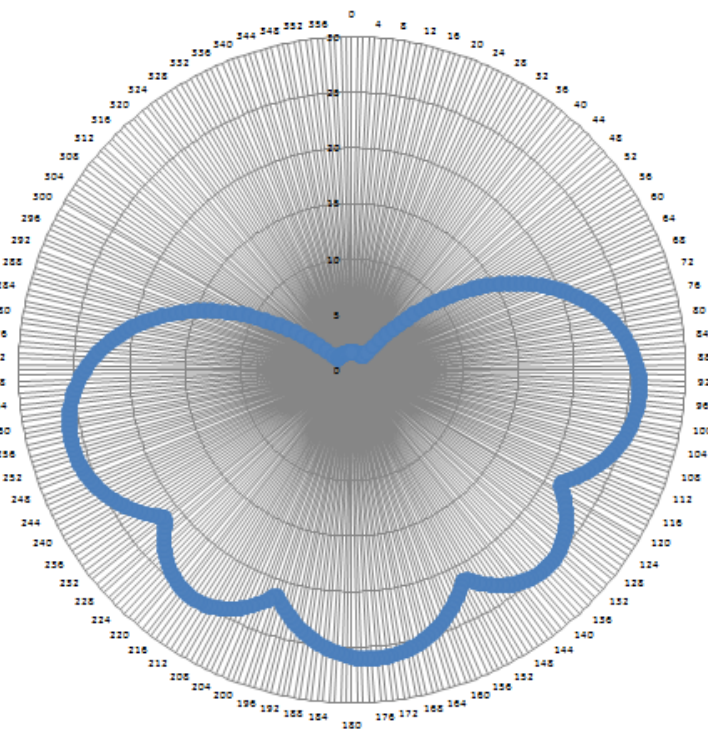


CH-50 dBm



CH-50 dBm

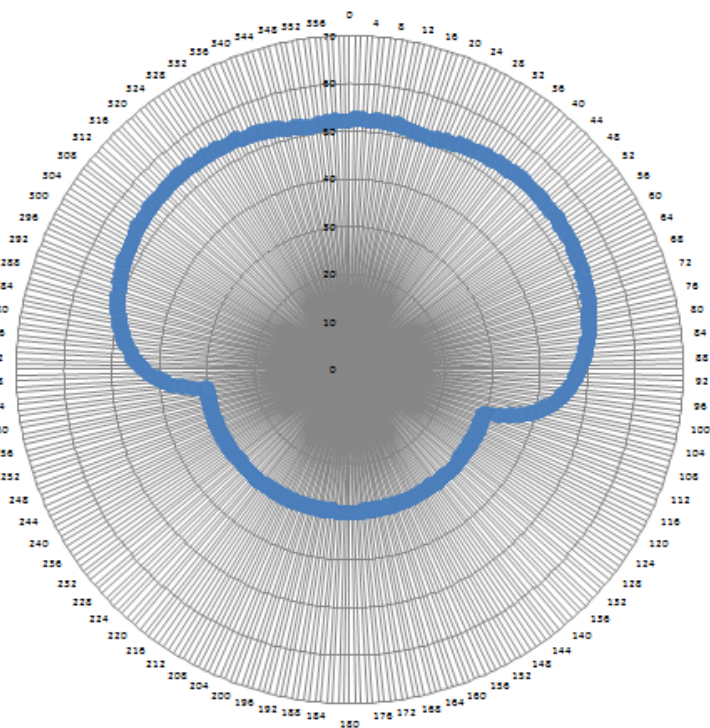
CH-50 km



CH-50 km

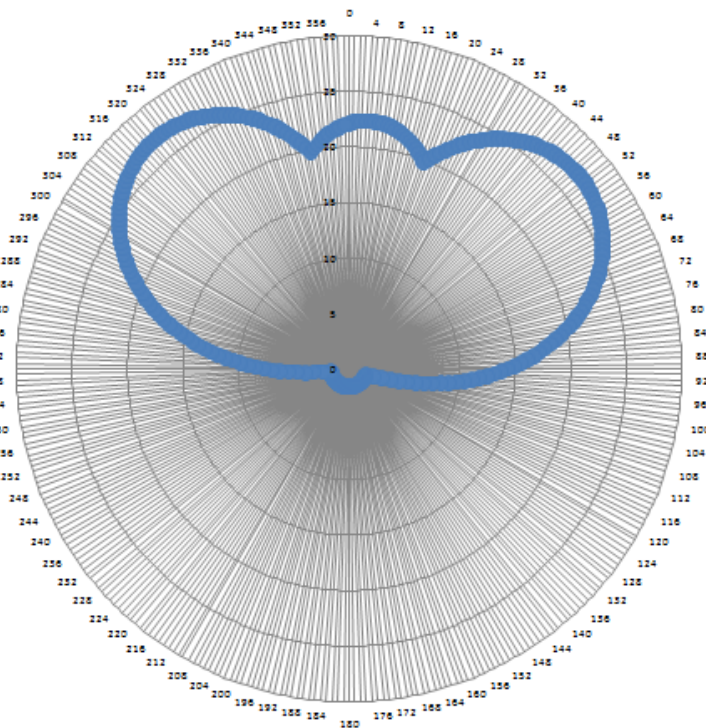


CH-51 dBm



CH-51 dBm

CH-51 km



CH-51 km



Note:

It's important emphasize, this APK does not constitute a field intensity simulator, as it only uses the free-space losses, not land heights neither the height of the transmitter or receiver antenna.



Conclusiones

The use of this application reduces considerably time and effort required to guide an antenna toward the television broadcasting sites, becoming an easy-access tool near anyone, technician or not.

With this APK there is no need to know a huge amount of technical data to choose the proper broadcasting sites for each location, because proximity do not imply a better receiving signal, as it depends on the radiation patterns.



Thank you

