

**TECHNICAL STATEMENT
IN SUPPORT OF THE CERTIFICATIONS
CONCERNING THE BROADCAST FACILITY
MODIFICATION AND ENVIRONMENTAL EFFECT
WKEY-FM CH. 229C3 KEY WEST, FLORIDA
SPOTTSWOOD PARTNERS II, LTD.**

INTRODUCTION

Spottswood Partners II, Ltd. (the “Applicant”), licensee of FM broadcast station WKEY-FM, Facility ID No. 34354, seeks to downgrade the station’s licensed facility to a lower class on its present channel.¹ The proposed downgrade will be achieved primarily through a decrease in effective radiated power (ERP). Aside from replacing WKEY-FM’s authorized nondirectional transmitting antenna and the slight increase in radiation center height that will result, no other changes to the station’s technical facilities are proposed.

This application for construction permit is eligible for processing under the normal procedures governing minor modifications to non-reserved FM broadcast stations.² All calculations, elevations, contours and other technical data provided herein have been determined in accordance with the technical standards of the Federal Communications Commission (FCC), unless specifically stated otherwise.

BROADCAST FACILITY MODIFICATION

As stated above, this application specifies a one-step downgrade from a Class C2 to a Class C3 station for WKEY-FM. This station is currently silent under special temporary authorization (STA), File No. BLESTA-20200925AAE, and the Applicant proposes to restore on-

¹ BLH-20131024ALL authorizes minimum Class C2 operating parameters for WKEY-FM. This application specifies a one-step downgrade to a Class C3 facility.

² 47 CFR § 73.3573(f) – Processing non-reserved FM broadcast station applications.



air operations on Channel 229 utilizing a new non-directional antenna with 6.1 kW ERP, which is sufficient for licensing a Class C3 facility.³ The new antenna to be employed is a circularly polarized Shively Model 6813-5-SS, which is a 5-bay ring-and-stub design with half-wavelength spacing. This antenna will replace the station's existing 7-bay antenna, which is side-mounted on a registered tower.⁴ An antenna sketch showing the pertinent height specifications is provided in [Figure 1](#).

The new antenna radiation center height above average terrain (HAAT) was calculated to be 43 meters. This determination represents the average of the terrain elevations within 16 kilometers the transmitter site based on the standard eight evenly spaced radials, which were calculated using the GLOBE 1-km Base Elevation Database.

Interference Protection And AM Proximity

The proposed change to a lower class on Channel 229 for WKEY-FM does not involve any pre-existing spacing issues with other FM broadcast station authorizations or prior filed FM broadcast station applications. A channel study was conducted to confirm this determination and the results are shown in [Figure 2](#). Therefore, the one-step downgrade specified for WKEY-FM complies with the minimum distance separation requirements in 47 CFR § 73.207.

The antenna currently authorized for WKEY-FM is side mounted on the nondirectional AM tower of WKWF 1600 kHz in Key West, FL, Facility ID 31636, which operates both day and night in the non-directional mode. The Applicant intends to replace the existing FM antenna and transmission line with similar equipment in accordance with 47 CFR 1.30003(a). As before, detuning equipment will be used to insure that the new FM antenna and transmission line will have no significant effect on the host AM tower. Moreover, WKEY-FM and WKWF are co-owned stations and thus routine inspection and maintenance of the detuning apparatus are the ongoing responsibility of the Applicant.

³ 47 CFR § 73.211 – The minimum requirement for a Class C3 station is the ERP must exceed 6 kW. The Class C3 maximum permissible ERP is 25 kW for antenna heights up to 100 meters HAAT.

⁴ Antenna Structure Registration (ASR) No. 1029777. The Applicant intends to replace the AM tower with an identical structure and will update the ASR number through the normal license application process.



Predicted Service Contours and Principal Community Coverage

The contour map attached as Figure 3 depicts the locations of the 60 and 70 dBu service contours based on the new operating parameters proposed for WKEY-FM. Each contour was calculated using the standard propagation methodology in 47 CFR § 73.313. As this map further demonstrates, WKEY-FM will continue to provide a 70 dBu signal over the entire community of license in accordance with 47 CFR § 73.315.

ENVIRONMENTAL EFFECT

The current licensed facility involves the collocation of an antenna on a registered tower constructed before March 16, 2001. Because the collocation of WKEY-FM's new antenna will not result in a substantial increase in the size of the registered tower or that of an eligible replacement structure, the criteria outlined in 47 CFR § 1.1307(a) for certain types of facilities that may significantly affect the environment do not apply. With regard to the rules for limiting human exposure to radio-frequency (RF) energy in 47 CFR § 1.1307(b), this application seeks authority to operate a broadcast FM antenna in full compliance with the maximum permissible exposure (MPE) limits. The following technical parameters are specified for WKEY-FM:

Frequency:	93.7 MHz (FM Channel 229C3)
ERP:	6.1 kW H-pol; 6.1 kW V-pol
EPA Element:	Type-1, ring-and-stub
Number of bays:	5
Spacing between bays:	0.5
Polarization:	Circular
Radiation center height:	42.1 meters AGL
Location coordinates:	24-34-18.5 N, 81-44-24.3 W (NAD83)
Site elevation:	1.2 meters AMSL
Overall tower height:	48.2 meters AGL

As indicated above, WKEY-FM will employ a Shively Model 6813-5-SS antenna, which is a 5-bay EPA Type-1 ring-and-stub radiator with half-wavelength spacing. An FM Model study was conducted using the antenna configuration and operating parameters specified for WKEY-



FM and the results indicate the maximum ground-level exposure predicted at points 2 meters above ground (approximate human head height) is $6.0 \mu\text{W}/\text{cm}^2$. This exposure level is 3.01 percent of the MPE limit for uncontrolled environments and 0.60 percent of the limit for controlled areas.⁵ A plot of the FM Model analysis is shown in [Figure 4](#). Because the maximum ground-level exposure prediction for WKEY-FM is less than 5% of the MPE limits, the station is not expected to be a significant contributor at other nearby tower locations where there may be other RF sources. Therefore, this application is categorically excluded from environmental processing by 47 CFR § 1.1306.

The aerial view shown in Photo 1 (below) shows that WKEY-FM's supporting tower structure is situated on a parcel of land that is densely covered with small trees and other types



of native vegetation. The Applicant owns the land and the entire property is fenced to restrict public access (the nearest fence line is approximately 53 meters from the tower base). The Applicant shall ensure that suitable warning signs to establish awareness of the potential for

⁵ The maximum permissible exposure (MPE) limits applicable to FM frequencies, as set forth in 47 CFR § 1.1310 for uncontrolled and controlled situations, are $200 \mu\text{W}/\text{cm}^2$ and $1,000 \mu\text{W}/\text{cm}^2$ respectively.



exposure are posted. All persons authorized to access the site, tower or antenna will be protected from excessive exposure to RF fields in accordance with the methods recommended in FCC OET Bulletin No. 65 - Edition 97-01 (OET-65). The station will also reduce power or cease operation in coordination with other site users.

Respectfully submitted,



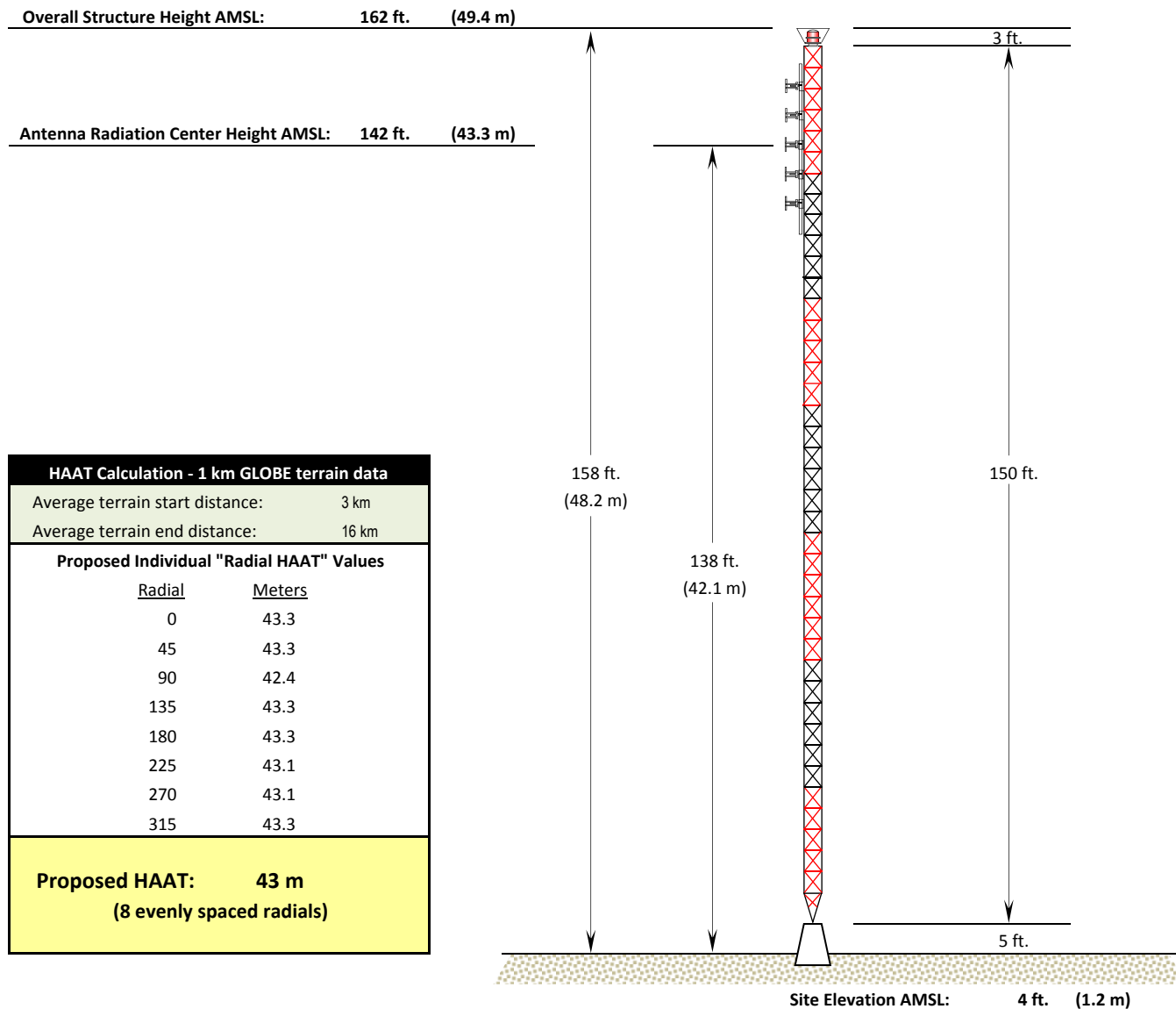
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January 5, 2021

Attachments:

Figure 1 – Antenna Sketch
Figure 2 – Channel Study
Figure 3 – Contour Map
Figure 4 – FM Model Results

Not to Scale



Geographic Site Coordinates (NAD83)

North Latitude: 24° 34' 18.5"

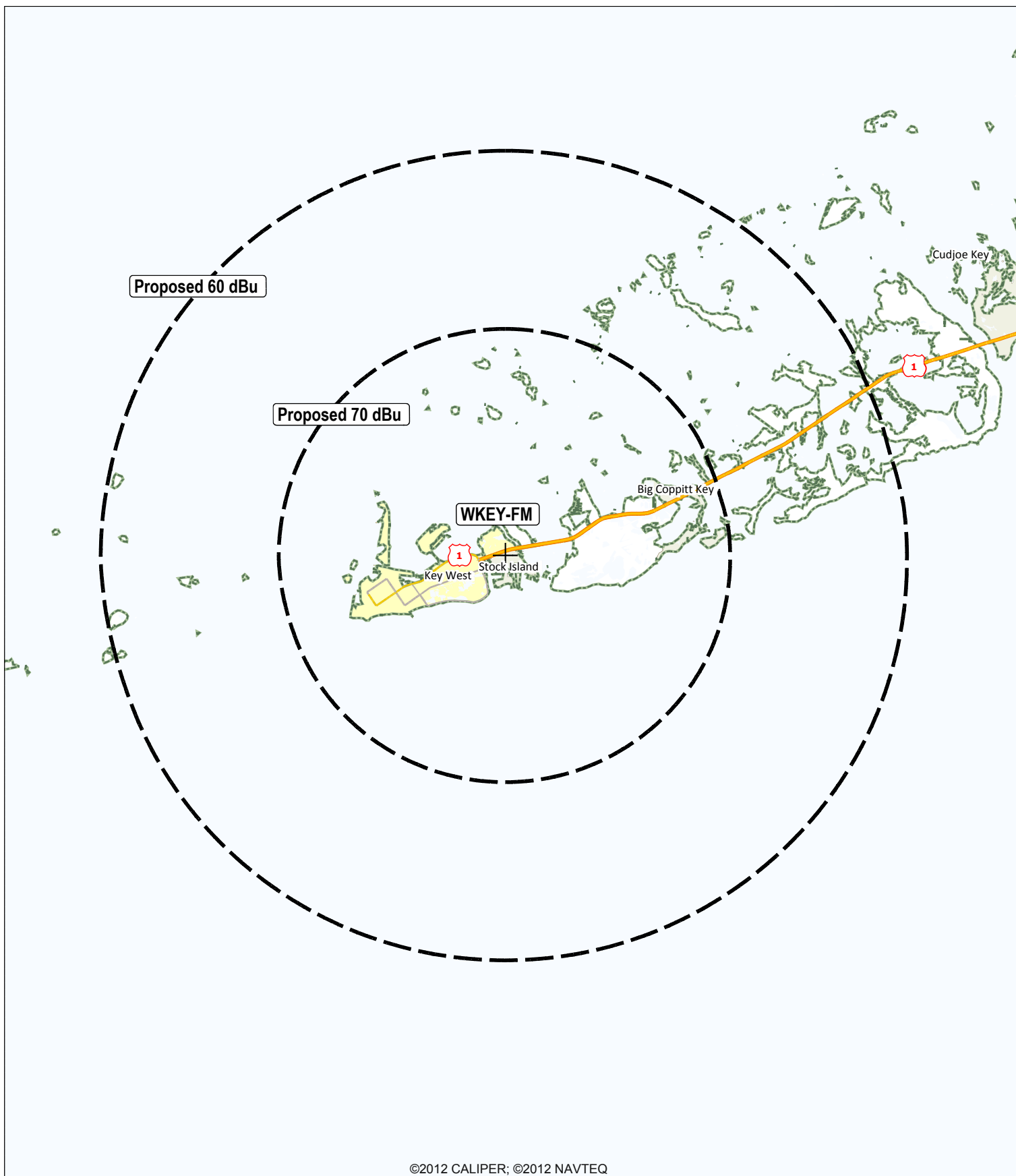
West Longitude: 81° 44' 24.3"

FIGURE 1
ANTENNA SKETCH
WKEY-FM CH. 229C3 6.1 KW 43M HAAT
KEY WEST, FLORIDA

APPLICANT: Spottswood Partners II, Ltd.
STATION: WKEY-FM
DESCRIPTION: Licensed site
COORDINATES: 24-34-18.5 N, 81-44-24.3 W; ASRN 1029777
CITY, STATE: Key West, FL
CHANNEL: 229
CLASS: C3

DATE: 1/4/2021
DB DATE: 12/31/2020

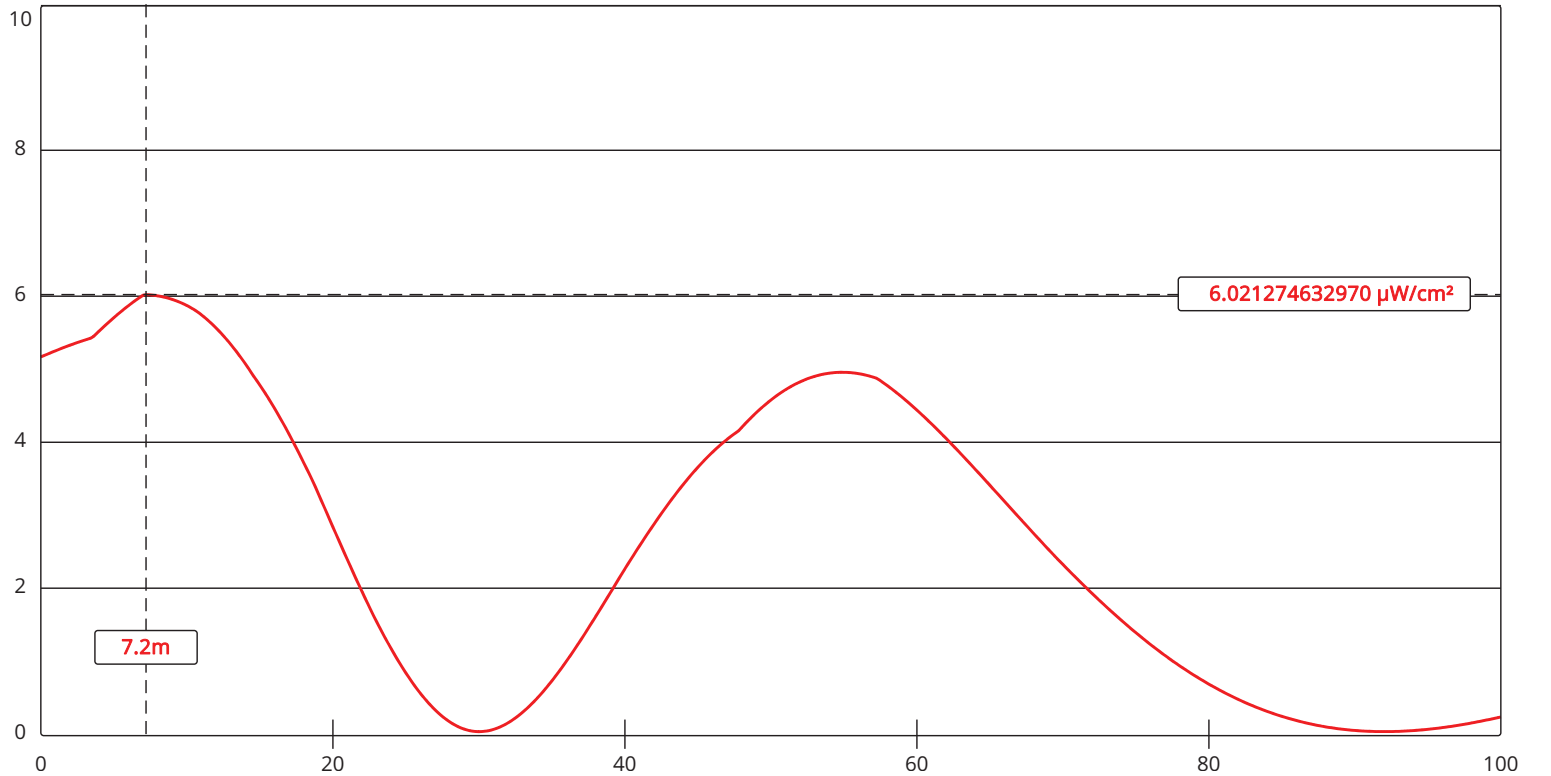
CALLSIGN	CITY	CHANNEL	ERP (kW)	LATITUDE	DIST (km)	FCC (km)	Rule
STATUS	ST FILE #	CLASS	HAAT (m)	LONGITUDE	BRG (°)	CLR (km)	Note
WFEZ	MIAMI	226	100	25-58-3.3	218.37	87	73.207
LIC	FL BLH-20050224ABN	C0	307	80-12-33.2	44.44	131.37	
WBGF	BELLE GLADE	228	15.5	26-41-1.2	255.10	99	73.207
LIC	FL BLH-20080411AAR	C3	127.8	80-43-38.2	23.17	156.1	
WBGF	BELLE GLADE	228	23.5	26-39-55.2	256.73	99	73.207
CP	FL BPH-20190102ACK	C3	103	80-38-37.2	25.04	157.73	
WZFL	ISLAMORADA	228	50	24-57-35.5	125.45	117	73.207
LIC	FL BLH-20170214ABC	C2	118	80-34-29.2	69.62	8.45	
WKEY-FM	KEY WEST	229	26	24-34-18.5	0.00	177	73.207
LIC	FL BLH-20131024ALL	C2	42	81-44-24.3	0	-177	
WHEL	SANIBEL	229	43	26-30-19.3	214.50	177	73.207
LIC	FL BLH-20100119ABA	C2	145	81-51-13.3	356.99	37.5	
WMIA-FM	MIAMI BEACH	230	100	25-58-3.3	218.37	163	73.207
LIC	FL BLH-20050225AAH	C0	307	80-12-33.2	44.44	55.37	
WGMX	MARATHON	232	26.5	24-41-31.5	65.33	56	73.207
LIC	FL BMLH-20160831AAR	C2	84	81-6-30.3	78.04	9.33	



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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](#)



Channel Selection	Channel 229 (93.7 MHz) ▾		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▾		
Height (m)	<input type="text" value="42.1"/>	Distance (m)	<input type="text" value="100"/>
ERP-H (W)	<input type="text" value="6100"/>	ERP-V (W)	<input type="text" value="6100"/>
Num of Elements	<input type="text" value="5"/>	Element Spacing (λ)	<input type="text" value="0.5"/>
Num of Points	<input type="text" value="500"/>	Apply	