

FEMA Siren Range Estimation Figures

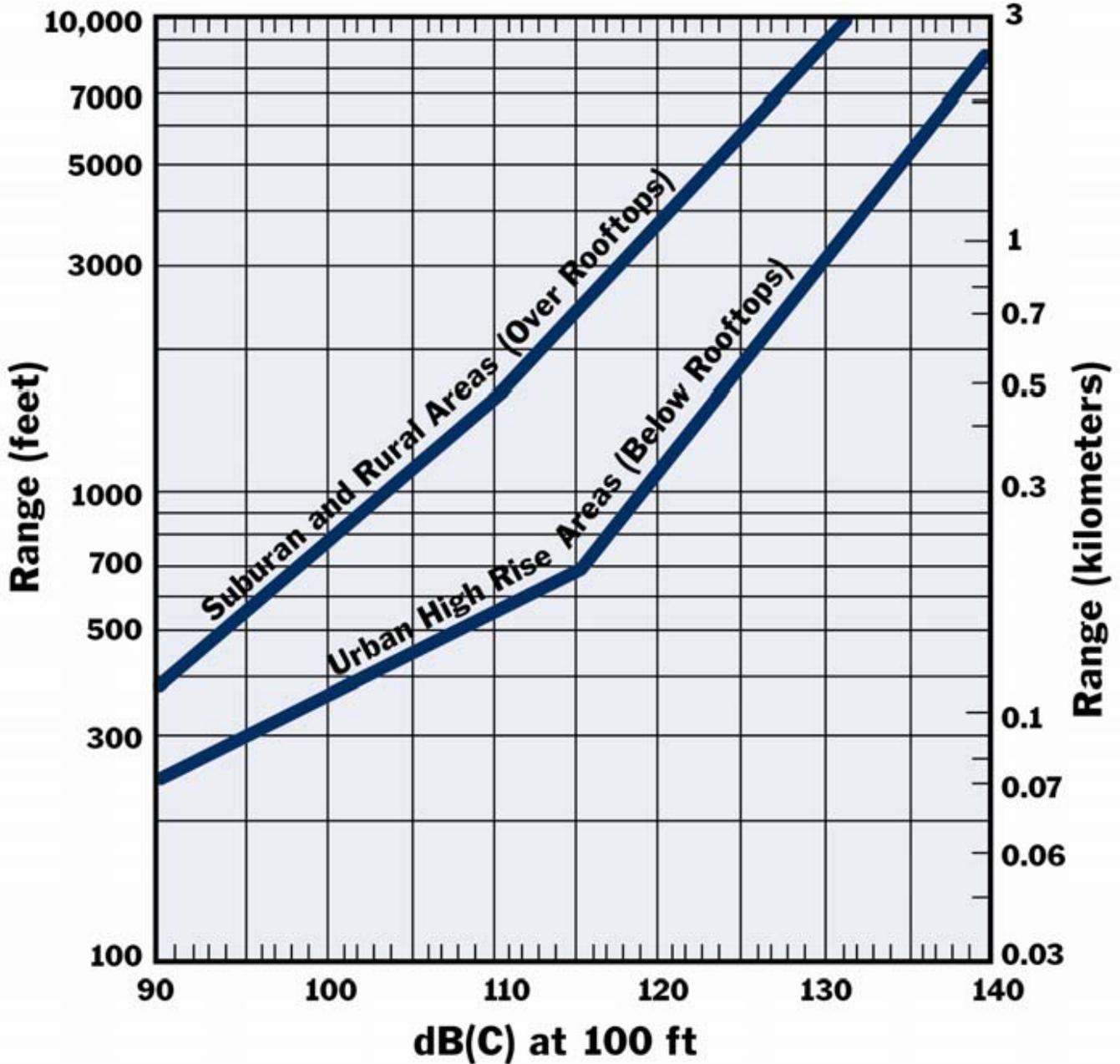


Figure F-1: Rated Output of Warning Device in dB at 100 feet

Federal Emergency Management Agency  
 "Outdoor Warning Systems" Technical Bulletin (Version 2.0), January 2006

Frequency Range	Correction (dB)
180 Hz – 224 Hz	5
224 Hz – 280 Hz	4
280 Hz – 355 Hz	2
355 Hz – 450 Hz	0
450 Hz – 560 Hz	-2
560 Hz – 710 Hz	-4
710 Hz – 900 Hz	-6
900 Hz – 1120 Hz	-7

**Table F-1:** Correction for Single Tone Sirens  
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**Methodology example:**

Siren X produces a rated output of 113 dBC, measured 100 feet from the siren. The output frequency of the siren is a single tone at 500 Hz.

- a. According to Table F-1, the frequency correction is minus 2 dB for sirens in the 450 Hz to 560 Hz range.
- b. Taking the frequency correction into account, the appropriate output rating to apply to the X-axis (dB© at 100 ft) of Figure F-1 is 113 dBC – 2 DB, or 111 dBC.
- c. Utilizing the Suburban and Rural Areas (Over Rooftops) curve, this corresponds to an estimated range of 1,600 feet.
- d. The Y-axis (Range in Feet) is a logarithmic scale.

Manufacturer Rated Sound Output (dBC at 100 feet)	Output Frequency (Hz)	Frequency Correction* (dB from Table F-1)	Effective Range** (in feet from Figure F-1)
113 dBC	500 Hz	-2 dB	1,600 feet