

Subpart C—Technical Standards

[85 FR 38740, June 26, 2020]

§ 18.301 Operating frequencies.

ISM equipment may be operated on any frequency above 9 kHz except as indicated in §18.303. The following frequency bands, in accordance with §2.106 of the rules, are designated for use by ISM equipment:

TABLE 1 TO § 18.301

ISM frequency	Tolerance
6.78 MHz	± 15.0 kHz
13.56 MHz	± 7.0 kHz
27.12 MHz	± 163.0 kHz
40.68 MHz	± 20.0 kHz
915 MHz	± 13.0 MHz
2450 MHz	± 50.0 MHz
5800 MHz	± 75.0 MHz
24.125 GHz	± 125.0 MHz
61.25 GHz	± 250.0 MHz
122.50 GHz	± 500.0 MHz
245.00 GHz	± 1.0 GHz

§ 18.303 Prohibited frequency bands.

Operation of ISM equipment within the following safety, search and rescue frequency bands is prohibited: 490–510 kHz, 2170–2194 kHz, 8354–8374 kHz, 121.4–121.6 MHz, 156.7–156.9 MHz, and 242.8–243.2 MHz.

§ 18.305 Field strength limits.

(a) ISM equipment operating on a frequency specified in §18.301 is permitted unlimited radiated energy in the band specified for that frequency.

(b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)	
Any type unless otherwise specified (miscellaneous).	Any ISM frequency	Below 500	25	300	
		500 or more	$25 \times \text{SQRT}(\text{power}/500)$	1300	
Industrial heaters and RF stabilized arc welders.	Any non-ISM frequency ..	Below 500	15	300	
		500 or more	$15 \times \text{SQRT}(\text{power}/500)$	1300	
Medical diathermy	Any non-ISM frequency ..	Any	10	1,600	
		Any	(²)	(²)	
Ultrasonic	Below 490 kHz	Any ISM frequency	25	300	
		Any non-ISM frequency ..	15	300	
Induction cooking ranges	Below 490 kHz	Below 500	$2,400/F(\text{kHz})$	300	
		500 or more	$2,400/F(\text{kHz}) \times \text{SQRT}(\text{power}/500)$.	1300	
		490 to 1,600 kHz	Any	$24,000/F(\text{kHz})$	30
		Above 1,600 kHz	Any	15	30
Induction cooking ranges	Below 90 kHz	Any	1,500	130	
		On or above 90 kHz	Any	300	130

¹Field strength may not exceed 10 µV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

²Reduced to the greatest extent possible.

³Field strength may not exceed 10 µV/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

⁴Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

(c) The field strength limits for RF lighting devices shall be the following:

Frequency (MHz)	Field strength limit at 30 meters (µV/m)
Non-consumer equipment:	
30–88	30
88–216	50
216–1000	70
Consumer equipment:	
30–88	10
88–216	15
216–1000	20

NOTES

1. The tighter limit shall apply at the boundary between two frequency ranges.

2. Testing for compliance with these limits may be made at closer distances, provided a sufficient number of measurements are taken to plot the radiation pattern, to determine the major lobes of radiation, and to determine the expected field strength level at 30, 300, or 1600 meters. Alternatively, if measurements are made at only one closer fixed distance, then the permissible field strength