

RADIATED EMISSION OF TRANSMITTER

Standard: FCC Part 15

Test procedure: paragraph 15.205
paragraph 15.209
paragraph 15.247

Test equipment:

TYPE	BRAND	EMITECH NUMBER
Spectrum analyzer FSP 40	Rohde & Schwarz	4088
Biconical antenna HP 11966C	Hewlett Packard	728
Log periodic antenna HL 223	Rohde & Schwarz	1999
Open site	Emitech	1274
Antenna RGA-60	Electrometrics	1204
Low-noise amplifier	Microwave DB	1922
High pass filter HP12/3200-5AA	Filtek	
Antenna WR42	IMC	1939
Power source E3610A	Hewlett Packard	4195

Test set up:

The system is tested in an open area test site (OATS).

The test unit is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

Frequency range: from 9 kHz to harmonic 10 ($F_{\text{carrier}} \leq 10 \text{ GHz}$)

Detection mode: Quasi-peak ($F < 1 \text{ GHz}$)
Peak ($F > 1 \text{ GHz}$)

Bandwidth: 120 kHz ($F < 1 \text{ GHz}$) or 100 kHz, following 15.205 or 15.247
1 MHz ($F > 1 \text{ GHz}$) or 100 kHz, following 15.205 or 15.247

Distance of antenna: between 30 m and 3 m according the frequencies and the limits.

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal

Equipment under test operating condition:

The equipment is blocked in hopping mode at the highest output power level which the transmitter is intended to operate, modulated by internal data signal.

Results:

Power source: 12 Vd.c.

The polarity column refers to the antenna polarity at which the maximum emissions level is measured.

Average value in hopping mode:

FREQUENCIES (MHz)	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Video bandwidth (Hz)	Polarization H: Horizontal V: Vertical	Field strength (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
4804	237	84	1000	10	H	< 20	54*	> 34
4882	240	78	1000	10	H	< 20	54*	> 34
4960	232	6	1000	10	H	< 20	54*	> 34

*restricted bands of operation in 15.205, this limit corresponding at the 15.209 section.

Peak value in hopping mode:

FREQUENCIES (MHz)	Antenna height (cm)	Azimuth (degree)	resolution bandwidth (kHz)	Video bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
4804	237	84	1000	1000	H	55.17	74*	18.83
4882	240	78	1000	1000	H	51.2	74*	22.8
4960	232	6	1000	1000	H	59.31	74*	14.69

*restricted bands of operation in 15.205, this limit corresponding at the 15.209 section.

Applicable limits: 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the power produced by the equipment, in 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating. In addition radiated emissions which fall in the restricted band, as defined in section 15.205 (c), must also comply with the radiated emission limits specified in section 15.209 (a). The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit (15.35(b)).

TEST CONCLUSION:

RESPECTED STANDARD