Radiated Measurements

§15.247(b) / §15.205 & §15.209

Transfer Rate: 1 Mbps

Distance of Measurements: 3 Meters

Channel: 01

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
4802	-106.2	40.39	V	41.19	114.68	-12.81
7203	-114.5	47.42	V	39.92	99.08	-14.08
9604	-122.3	50.3	V	35.00	56.23	-19.00
12005	-135	53.7	V	25.7	19.28	-28.3

Table A-6. Peak Radiated Measurements @ 3 meters

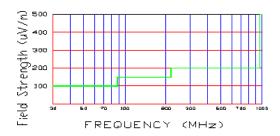


Figure A-5. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 $\mu\text{V/m}$ (54dB $\!\mu\text{/m})$ at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 1 Mbps

Distance of Measurements: 3 Meters

Channel: 06

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL (H/V)	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
4880	-103.9	40.5	V	43.60	151.36	-10.4
7320	-114.5	48	V	40.50	105.93	-13.5
9760	-119.5	50.3	V	37.80	77.62	-16.2
12200	-135	53.7	V	25.70	19.28	-28.3

Table A-7. Peak Radiated Measurements @ 3 meters

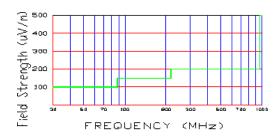


Figure A-6. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < - 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 1 Mbps

Distance of Measurements: 3 Meters

Channel: 11

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL (H/V)	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
4924	-105	40.7	V	42.7	136.46	-11.3
7386	-112.4	48.2	V	42.8	138.04	-11.2
9848	-122	50.4	V	35.4	58.88	-18.6
12310	-135	53.8	V	25.8	19.50	-28.3

Table A-8. Peak Radiated Measurements @ 3 meters

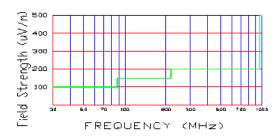


Figure A-7. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < - 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 $\mu\text{V/m}$ (54dB $\!\mu\text{/m})$ at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 36 Mbps

Distance of Measurements: 3 Meters

Channel: 01

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
4824	-103.6	40.39	V	43.79	154.70	-10.21
7236	-113.2	47.42	V	41.22	115.08	-12.78
9648	-123.7	50.3	V	33.60	47.86	-20.40
12060	-135	53.7	V	25.7	19.28	-28.3

Table A-9. Peak Radiated Measurements @ 3 meters

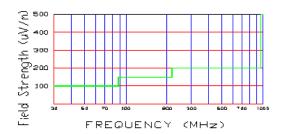


Figure A-8. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < - 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 36 Mbps

Distance of Measurements: 3 Meters

Channel: 06

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL (H/V)	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
4874	-104.9	40.5	V	42.60	134.90	-11.4
7311	-116.3	48	٧	38.70	86.10	-15.3
9748	-135	50.3	V	22.30	13.03	-31.7
12185	-135	53.7	٧	25.70	19.28	-28.3

Table A-10. Peak Radiated Measurements @ 3 meters

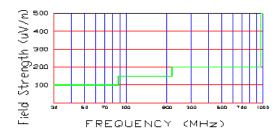


Figure A-9. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < - 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 36 Mbps

Distance of Measurements: 3 Meters

Channel: 11

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL (H/V)	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
4958	-105.3	40.7	V	42.4	131.83	-11.6
7437	-118.2	48.2	V	37	70.79	-17
9916	-122.5	50.4	V	34.9	55.59	-19.1
12395	-135	53.8	V	25.8	19.50	-28.2

Table A-11. Peak Radiated Measurements @ 3 meters

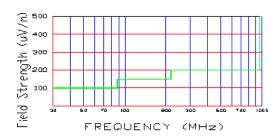


Figure A-10. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated.

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Radiated Measurements (Cont.)

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Transfer Rate: 36 Mbps

Distance of Measurements: 3 Meters

Channel: 149

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
11490	-114.0	52.8	V	43.3	146.22	-10.7
17235	-119.5	62.3	٧	40.8	109.65	-13.2
22980	-135.0	66.0	V	38	79.43	-16
28725	-135.0	69.0	V	41	112.20	-13

Table A-12. Peak Radiated Measurements @ 3 meters

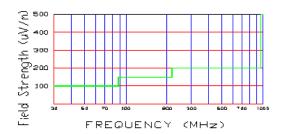


Figure A-11. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < - 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 μ V/m (54dB μ /m) at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 36 Mbps

Distance of Measurements: 3 Meters

Channel: 157

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
11570	-113.2	52.9	V	43.6	151.36	-10.4
17355	-124.2	62.5	٧	40.6	107.15	-13.4
23140	-135	66.4	V	38.4	83.18	-15.6
28925	-135	69.4	V	41.4	117.49	-12.6

Table A-13. Peak Radiated Measurements @ 3 meters

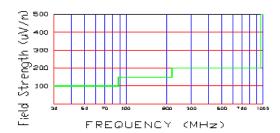


Figure A-12. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < - 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 $\mu\text{V/m}$ (54dB $\!\mu\text{/m})$ at 3 meters radiated.

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Radiated Measurements (Cont.)

§15.247(b) / §15.205 & §15.209

Transfer Rate: 36 Mbps

Distance of Measurements: 3 Meters

Channel: 165

Frequency (MHz)	Level (dBm)	AFCL (dB)	POL	F/S (dBuV/m)	F/S (uV/m)	Margin (dB)
11650	-112.2	53	V	42.8	138.04	-11.2
17475	-122.1	63.7	٧	42.7	136.46	-11.3
23300	-135	66.9	V	38.9	88.10	-15.1
29125	-135	69.9	V	41.9	124.45	-12.1

Table A-14. Peak Radiated Measurements @ 3 meters

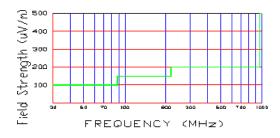


Figure A-13. Radiated limits at 3 meters.

- 1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in Table A-19. (Note: * = Restricted Band measured frequency)
- 2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz
- 3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz
- 4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.
- 5. The antenna is manipulated through typical positions, polarity and length during the tests.
- 6. The EUT is supplied with nominal AC voltage or/and a new/fully-recharged battery.
- 7. The spectrum is measured from 9kHz to the 10th harmonic and the worst-case emissions are reported.
- 8. < 135 dBm are below the analyzer floor level.
- 9. Above 1 GHz, the limit is 500 $\mu\text{V/m}$ (54dB $\mu\text{/m})$ at 3 meters radiated.

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Radiated Restricted Band Measurements

§15.205 / §15.209

Special attention is made for the EUT's harmonic and spurious radiated emission in the restricted bands of operations. The EUT was tested from 9kHz and up to the tenth harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHZ. Above 1 GHz, average measurement was used, using RBW 1MHz – VBW 10Hz and linearly polarized horn antennas. All harmonics/spurs are at least 20dB below the highest emission in the authorized band using RBW = 100kHz. In addition, peak measurements were taken to ensure that the peak levels are not more than 20dB above the average limit. All out of band emissions, other than those created by the spreading sequence, data sequence, and the carrier modulation must not exceed the limits show in Table G-1 per Section 15.247.

Frequency	F/S (mV/m)	Measured Distance (Meters)
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table A-19. Restricted Band Limits

TEST MEASUREMENT EQUIPMENT

Agilent E4448A	PSA Spectrum Analyzer 3 Hz - 50GHz
HP 8566B	Spectrum Analyzer 100Hz – 22GHz
HP 83017A	Microwave Analyzer 40dB Gain (0.5 – 26.5GHz)
HP 3784A	Digital Transmission Analyzer
EMCO 3115	Horn Antenna (1 – 18GHz)
HP 8495A	20dB Attenuator (DC-40GHz) 0 -70dB
HP 8493B	10dB Attenuator
MicroCoax Cables	Low Loss Microwave Cables (1 – 26.5GHz)
CDI Dipoles	Dipole Antennas (30 – 1000MHz)
EMCO 3116	Horn Antenna (18 – 40GHz)

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Radiated Restricted Band Measurements (Cont.)

§15.205 /§15.209 courtesy

Operating Frequency: 2462 MHz

Distance of Measurements: 3 Meters

Data Rate: 6 Mbps

FREQ (MHz)	Level (dBm)	AFCL (dB/m)	POL (H/V)	F/S (dBμV/m)	F/S (uV/M)	Margin (dB)
2483.8	-88.7	33	V	51.3	367.28	-2.7
2484.5	-90	33	V	50	316.23	-4
2484.4	-100	33.1	V	40.1	101.16	-13.9
2485.1	-99.6	33.1	V	40.5	105.93	-13.5
2493.0	-104.4	33.2	V	35.8	61.66	-18.2
2496.0	-120	33.2	V	20.2	10.23	-33.8

Table A-20. Radiated Restricted Band Measurements at 3-meters

- 1. The antenna is manipulated through typical positions, polarity and length during the testing.
- 2. The EUT is supplied with the minimal AC voltage or/and a new/fully recharged battery.
- 3. The spectrum is measured from 9kHz up to the 10th harmonic and the worst-case emissions are reported.
- 4. The conducted limits are shown on Figure A-14. Above 1 GHz the limit is $500\mu V/m$.
- 5. < -135 dBm is below the analyzer measurement floor level.
- 6. The data in the table are Average Measurements > 1 GHz using RBW = 1 MHz VBW = 10 Hz
- 7. The peak emissions above 1 GHz are not more than 20 dB above the average limit.

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Support Equipment

1	Symbol Bar Scanner	FCC ID:	H9PMC9094	S/N:	ALP82778
2	Cable Adapter Module (CAM)	P/N:	ADP9000-100	S/N:	M9K7VC
3	CAM Power Supply	Model:	PSA-18U-480C		
		1.5m	Unshielded cord with 1 Ferrite Bead		
		2m	Unshielded AC Cord		
4	Toshiba Notebook	Model:	PA1221U-S2A	S/N:	07621293-3
		1.9m	Unshielded AC power cord		
	w/ NETGEAR PCMCIA Card	Model:	FA411	S/N:	FA42A31344130
		1.5m	Ethernet Cord		
5	WLAN(a) Access Point	FCC ID:	LDK102045	S/N:	FTX0903R0XV
	w/ Power Supply	Model:	PSA18U-480C		
		1.5m	Unshielded cord with 1 Ferrite Bead		
6	WLAN(b) Access Point	FCC ID:	H9PLA4131M	S/N:	00A0F851BB3B
	w/ Power Supply	P/N:	50-24000-024		
		2m	Unshielded AC power cord		
7	WLAN(g) Access Point	FCC ID:	LDK102049	S/N:	FTX0905R2Q3
		2m	Unshielded AC power cord		

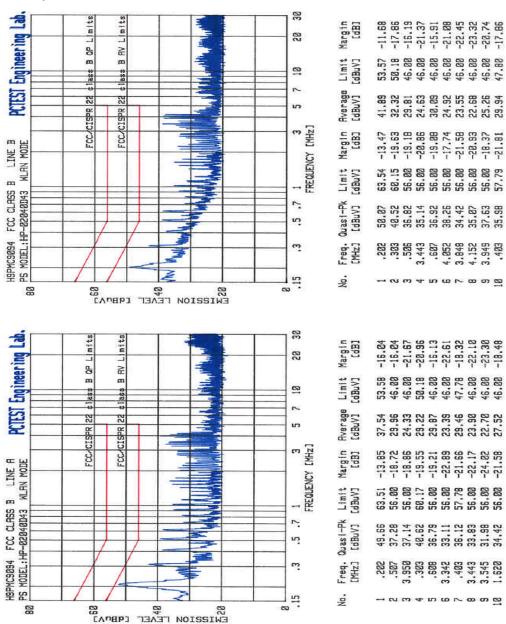
Note: Access Points (a) and (g) used the same

power supply

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Line-Conducted Test Data





Notes:

- 1. All Modes of operation were investigated and the worst-case emissions are reported.
- 2. The limit for Class B device(s) from 150kHz to 30MHz are Specified in EN55022.
- 3. Line A = Phase; Line B = Neutral
- 4. Deviations to the Specifications: None.

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Receiver Spurious Measurements

§15.205 / §15.209

Operating Frequency: 2462 MHz

Distance of Measurements: 3 Meters

Data Rate: 6 Mbps

FREQ (MHz)	Level (dBm)	AFCL (dB/m)	POL (H/V)	Height (m)	Azimuth (° angle)	F/S (uV/M)	Margin (dB)
33.2	-74.9	-0.4	V	3.5	30	38.1	-6.4
166.4	-84.7	14.7	Н	1.4	210	70.8	-6.5
199.7	-88.1	16.5	V	2.5	80	58.9	-8.1
166.7	-87.3	19.4	V	2.2	270	90.2	-6.9
666.7	-97.3	29.3	Н	1.3	180	89.2	-7.0
905.1	-102.7	32.7	Н	1.6	200	70.8	-9.0

Table A-18. Radiated Measurements at 3-meters

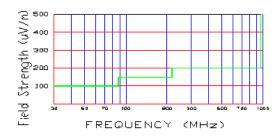


Figure A-17. Radiated limits at 3 meters

- 1. All emissions were investigated and the worst-case emissions are reported.
- 2. For hand-held devices, the EUT is rotated through three orthogonal axes to determine which configuration produces the maximum emissions.
- 3. The EUT is supplied with the minimal AC voltage or/and a new/fully re-charged battery.
- 4. The EUT was tested up to the 10th harmonic (25GHz) and no significant emission was found.
- 5. Above 1 GHz the limit is $500\mu V/m$ at 3 meters radiated.

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