

APPLICANT: CONAIR CORPORATION

FCC ID: LBBGH2405T

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TEST EQUIPMENT LIST

- 1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,
S/N 3008A00372 Cal. 10/17/99
- 2._X_Biconnical Antenna: Eaton Model 94455-1, S/N 1057
- 3.___Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
- 4._X_Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
- 5.___Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
- 6._X_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319
- 7.___18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
- 8.___Horn 40-60GHz: ATM Part #19-443-6R
- 9.___Line Impedance Stabilization Network: Electro-Metrics Model
ANS-25/2, S/N 2604 Cal. 2/9/00
- 10.___Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
- 11.___Frequency Counter: HP Model 5385A, S/N 3242A07460 Cal 10/6/99
- 12.___Peak Power Meter: HP Model 8900C, S/N 2131A00545
- 13._X_Open Area Test Site #1-3meters Cal. 12/22/99
- 14.___Signal Generator: HP 8640B, S/N 2308A21464 Cal. 9/23/99
- 15.___Signal Generator: HP 8614A, S/N 2015A07428
- 16.___Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N
9706-1211 Cal. 6/10/00
- 17.___Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
Cal. 11/24/99
- 18.___AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 9/21/99
- 19.___Digital Multimeter: Fluke Model 8012A, S/N 4810047 Cal 9/21/99
- 20.___Digital Multimeter: Fluke Model 77, S/N 43850817 Cal 9/21/99
- 21.___Oscilloscope: Tektronix Model 2230, S/N 300572 Cal 9/23/99

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal data transmission on a network.

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-1992 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The ambient temperature of the UUT was 73oF with a humidity of 58%.

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BANDWIDTH 6.0dB: The measurements were made with the spectrum analyzer's resolution bandwidth(RBW)=1.0MHz and the video bandwidth(VBW)=3.0MHz and the span set as shown on plot.

POWER OUTPUT: The RF power output was measured at the antenna feed point using a peak power meter.

ANTENNA CONDUCTED EMISSIONS: The RBW=100KHz, VBW=300KHz and the span set to 10.0MHz and the spectrum was scanned from 30MHz to the 10th Harmonic of the fundamental. Above 1.0GHz the resolution bandwidth was 1.0MHz and the VBW = 3.0MHz and the span to 50MHz.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth(RBW) of the spectrum analyzer was 100kHz up to 1GHz and 1.0MHz above 1GHz with an appropriate sweep speed. The VBW above 1.0GHz was = 3.0MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 73oF with a humidity of 58%.

PRODUCT DESCRIPTION:

The LBBGH2405T is a direct sequence spread spectrum cordless telephone radio that operates in the 2400-2483.5MHz band. The antenna used for the base and the handset is permanently attached to the UUT. Its actual frequency range is;

Channel #1	2404.8MHz Lowest
Channel #40	2474.90MHz Highest

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APPLICANT: CONAIR CORPORATION
FCC ID: LBBGH2405T
NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE
RULES PART NUMBER: 15.107(a)
REQUIREMENTS: .45 - 30 MHz 250 uV OR 47.96 dBuV
TEST PROCEDURE: ANSI STANDARD C63.4-1992. The spectrum
was scanned from .45 to 30 MHz.
TEST DATA:

THE HIGHEST EMISSION READ FOR LINE 1 WAS 4.37uV @ 28.88 MHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 3.72uV @ 9.61 MHz.

THE GRAPHS IN EXHIBITS 8 a & b REPRESENT THE EMISSIONS TAKEN FOR THIS
DEVICE.

TEST RESULTS: Both lines were observed. The measurements in-
dicate that the unit DOES appear to meet the FCC requirements for this
class of equipment.

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NAME OF TEST: 6.0dB BANDWIDTH

RULES PART NUMBER: 15.247(a)(2)

REQUIREMENTS: The 6.0dB bandwidth must be greater than 500KHz.

MEASUREMENT: The 6.0dB bandwidth for the handset measured:

@ 2404.00 MHz was 1.540 MHz

@ 2435.00 MHz was 1.525 MHz

@ 2475.00 MHz was 1.540 MHz

The 6.0dB bandwidth measured for the base:

@ 2475.00 MHz was 1.53 MHz

@ 2404.00 MHz was 1.535 MHz

@ 2435.00 MHz was 1.530 MHz

MEASUREMENT DATA: The 6dB bandwidth was measured at the Low end of band, middle of band, and the high end of the band for both the handset & the base unit. See Plots in Exhibits #9 a-f,

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NAME OF TEST: POWER OUTPUT

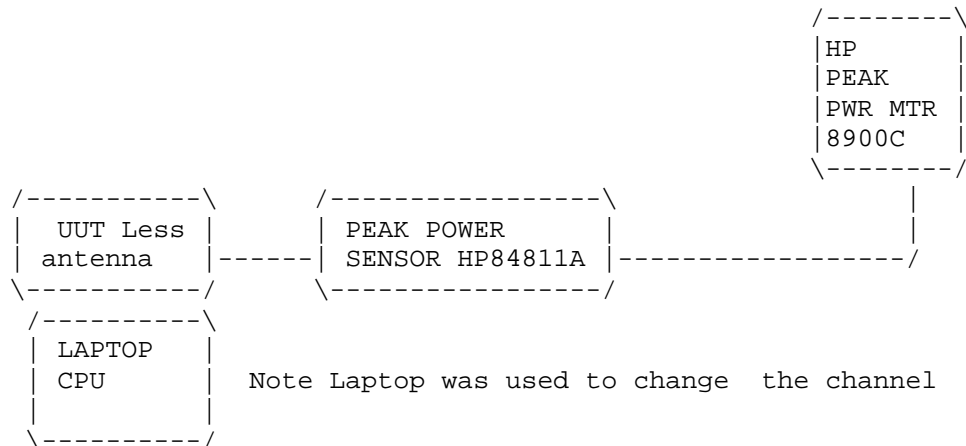
RULES PART NUMBER: 15.247(b) 1.0Watt or +30dBm

MEASUREMENT:

Channel No.	Power Output milliwatts	Unit
1	11.0	Base
20	12.0	Base
40	14.0	Base
1	10.00	Handset
20	12.0	Handset
40	13.0	Handset

15.247(c) Method of Measuring RF Power output:

The antenna was disconnected and a Peak power Sensor was connected in place of the antenna. The Power output was measured at the Low end of band, middle of band, and the high end of the band for both the handset & the base unit.



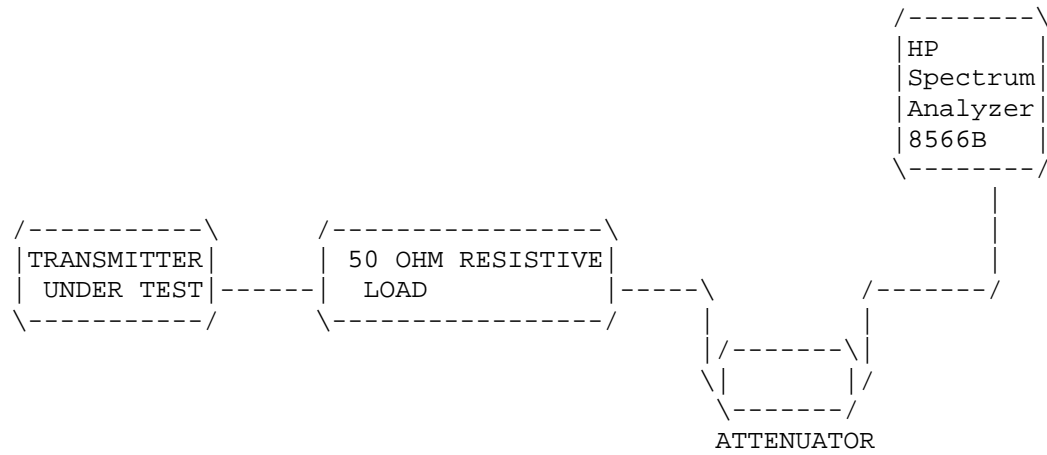
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15.247(c) Method of Measuring RF Conducted Spurious Emissions



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NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

REQUIREMENTS: Emissions must be at least 20dB down from the highest emission level within the authorized band as measured with a 100KHz RBW

	EMISSION FREQUENCY MHz	dB BELOW CARRIER
Channel 1	2404.50	00.0
Handset	4809.90	-70.7
	7215.00	-92.3
	9616.70	-85.7
	14429.60	-98.7
channel 18	2435.50	0.00
	4871.00	-75.70
	7306.30	-82.9
	9742.10	-86.3
	12177.60	-98.1
	14613.20	-94.4
Channel 40	2475.00	0.0
	4950.20	-69.6
	7425.10	-73.2
	9900.40	-78.8
	12375.70	-94.8
BASE		
Channel 1	2404.50	0.0
	4809.90	-63.0
	7215.20	-87.1
	9619.70	-76.6
	14429.60	-98.6
Channel 18	2435.10	0.0
	4871.00	-41.0
	7306.60	-81.8
	9742.10	-81.4
	12177.60	-98.8
	14613.20	-92.4
Channel 40	2474.70	0.0
	4950.20	-67.7
	7424.90	-81.9
	9900.50	-76.4
	12375.60	-96.6

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

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15.247(c),15.205 &15.209(b) Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH of Fundamental: 902-928MHz 2.4-2.4835GHz 127.38dBuV/m @3m	FIELD STRENGTH of Harmonics 54 dBuV/m @3m	S15.209 30 - 88 MHz 40 dBuV/m @3M 88 - 216 MHz 43.5 216 -960 MHz 46 ABOVE 960 MHz 54dBuV/m
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REQUIREMENTS: Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

TEST DATA:

EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRENGTH dBuV/m	FCC. LIMIT dB	MARGIN dB	ANT.
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BASE CHANNEL 1 - TUNED FREQUENCY 2404.80

2404.50	57.70	1.09	29.01	87.80	127.38	38.58	V
4809.80R	11.80	1.45	33.91	47.16	54.00	6.84	V
7214.70	6.60	1.81	36.62	45.03	67.80	22.77	V
9619.60	1.80	2.11	38.58	42.48	67.80	25.22	V

BASE CHANNEL 10 - TUNED FREQUENCY 2421.00

2420.70	57.00	1.09	29.05	87.14	127.38	40.24	V
4842.20R	10.50	1.46	33.95	45.90	54.00	8.10	V
7263.30R	6.10	1.82	36.67	44.59	54.00	9.41	V
9684.40	1.90	2.12	38.62	42.63	67.14	24.51	V

BASE CHANNEL 18 - TUNED FREQUENCY 2435.40

2435.10	57.20	1.10	29.09	87.38	127.38	40.00	V
4871.00R	10.10	1.46	33.98	45.54	54.00	8.46	V
7306.50R	7.00	1.83	36.72	45.55	54.00	8.45	V
9742.00	2.00	2.12	38.66	42.78	67.38	24.60	V

BASE CHANNEL 40 - TUNED FREQUENCY 2475.00

2474.70	56.30	1.10	29.19	86.59	127.38	40.79	V
2483.50bandedge		86.59 - 55		31.59	54.00	17.05	
4950.20R	9.50	1.47	34.07	45.04	54.00	8.96	V
7425.30R	8.10	1.84	36.85	46.80	54.00	7.20	V
9900.40	2.50	2.14	38.76	43.40	66.59	23.19	V

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15.247(c),15.205 &15.209(b) Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH of Fundamental: 902-928MHz 2.4-2.4835GHz 127.38dBuV/m @3m	FIELD STRENGTH of Harmonics 54 dBuV/m @3m	S15.209 30 - 88 MHz 40 dBuV/m@3M 88 - 216 MHz 43.5 216 -960 MHz 46 ABOVE 960 MHz 54dBuV/m
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REQUIREMENTS: Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

TEST DATA:

EMISSION FREQUENCY MHz	METER READING @ 3m dBuV	COAX LOSS dB	ACF dB	FIELD STRENGTH dBuV/m	FCC. LIMIT dB	MARGIN dB	ANT.
HANDSET CHANNEL 1 - TUNED FREQUENCY 2404.80							
2404.50	56.50	1.09	29.01	86.60	127.38	40.78	V
4809.80R	12.10	1.45	33.91	47.46	54.00	6.54	V
7214.70	1.90	1.81	36.62	40.33	66.60	26.27	H
9619.60	4.40	2.11	38.58	45.08	66.60	21.52	H
12024.50	5.20	2.34	38.52	46.05	54.00	7.95	H
HANDSET CHANNEL 10 - TUNED FREQUENCY 2421.00							
2420.70	56.70	1.09	29.05	86.84	127.38	50.45	V
4842.70R	11.20	1.46	33.95	46.60	54.00	7.40	V
7263.30R	2.70	1.82	36.67	41.19	54.00	12.81	H
9684.40	5.10	2.12	38.62	45.83	66.84	21.01	H
12105.50R	1.80	2.34	38.58	42.72	54.00	11.28	H
HANDSET CHANNEL 18 - TUNED FREQUENCY 2435.40							
2435.10	57.50	1.10	29.09	87.68	127.38	39.70	V
4871.00R	11.30	1.46	33.98	46.74	54.00	7.26	V
7306.50R	3.10	1.83	36.72	41.65	54.00	12.35	H
9742.00	5.30	2.12	38.66	46.08	67.68	21.60	V
12177.50R	3.40	2.35	38.63	44.38	54.00	9.62	H
HANDSET CHANNEL 40 - TUNED FREQUENCY 2475.00							
2474.70	58.70	1.10	29.19	88.99	127.38	38.39	V
2483.50bandedge		88.99 - 52.0		36.99	54.00	17.01	V
4950.20R	15.20	1.47	34.07	50.74	54.00	3.26	V
7425.30R	1.90	1.84	36.85	40.60	54.00	13.40	V
9900.40	4.90	2.14	38.76	45.80	68.99	23.19	V
12375.50R	1.00	2.37	38.78	42.15	54.00	11.85	H

The plots of the Delta attenuation from the channel to the edge of the restricted band of 2483.5MHz are attached as exhibits 10 a-d.

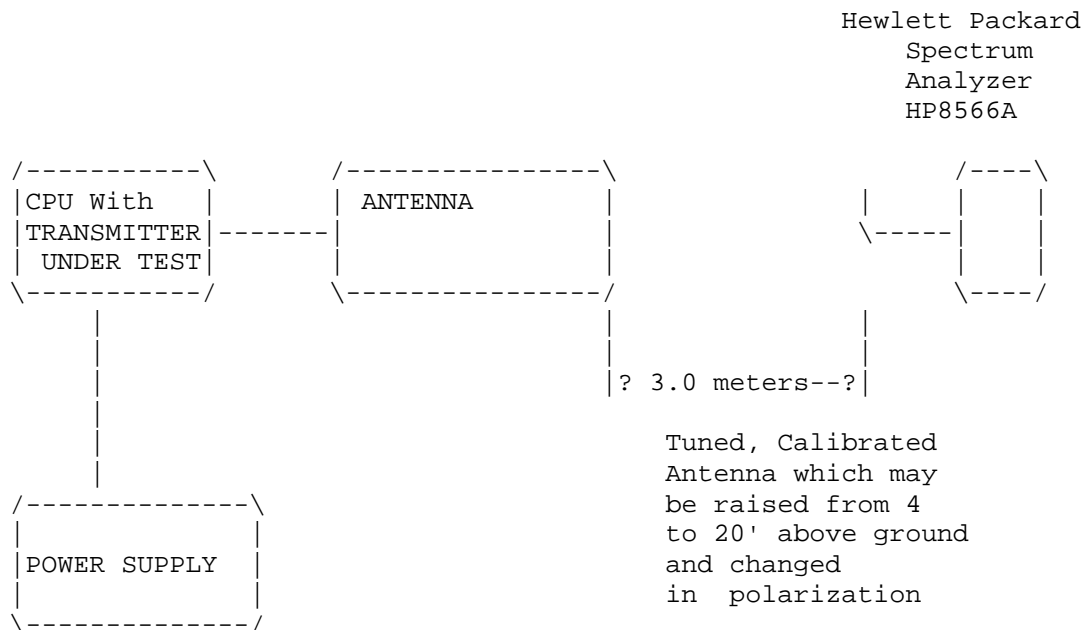
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2.993(a)(b)

2.993(a)(b) Continued Field strength of spurious emissions:

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-1992 & the Guidance on Measurements for Direct Sequence Spread Spectrum Systems. Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, NEWBERRY, FL 32669.

Method of Measuring Radiated Spurious Emissions



Equipment placed 4' above ground
on a rotatable platform.

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APPLICANT: CONAIR CORPORATION
FCC ID: LBBGH2405T
NAME OF TEST: POWER SPECTRAL DENSITY
RULES PART NUMBER: 15.247(d)
REQUIREMENTS: The peak level measured must be no greater than
+8.0dBm.
DATA: THE PLOTS ARE SHOWN IN EXHIBITS 11 a-f.

BASE UNIT

The HIGHEST level was at 2478.41MHz +5.0dBm.
The antenna was disconnected and the output was connected to a
coaxial attenuator and to the Spectrum analyzer and the power spectral
density was at the Low end of band, middle of band, and the high end of
the band for both the handset & the base unit. The plots of the power
spectral power density for the low end of the band, middle of the band
and the high end of the band for both handset & base are attached as
exhibit 21 a-f.

RULES PART NUMBER: 15.247(e)

REQUIREMENTS:

DATA: The processing gain information supplied by the
manufacturer is 10.0dB.

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