APPLICANT: CIRRONET INC.

FCC ID: HSW-2410M

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TEST REPORT CONTAINING:

EXHIBIT ATTACHMENTS:

December 3, 2001

Federal Communication Commission
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

SUBJECT: FCC ID: HSW-2410M

REFERENCE: REQUEST FOR CLASS II PERMISSIVE CHANGE

TO WHOM IT MAY CONCERN:

This letter is a request for a Class II Permissive change to market the Cirronet approved product using the two additional antennas listed below.

The approved module, FCC ID: HWS-2410M, is a part of Cirronet's WIT2410M based products under their FCC ID's: NR3UIT2525 and NR3PCRF2525.

FCC ID: NR3UIT2525 contains the HWS-2410M and was tested using the following new antenna:
Manufacturer: MAXRAD
Model: MUF24005
gain: 5 dBi Gain.

FCC ID: NR3PCRF2525 contains the HWS-2410M and was tested using the following new antenna:
Manufacturer: Mobile Mark
Model: OD9-2400
gain: 9 dBi Gain.

The test data in this report is representative of the module inside these devices using the two new antennas.

Should you require any further information, please advise.

Sincerely,

Mario R. de Aranzeta
Engineer

Encl.

APPLICANT: CIRRONET INC.
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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 8565OA, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02, S/N 3008A00372 Cal. 8/31/01 Due 8/31/02
2._X_ Biconnical Antenna: Eaton Model 94455-1, S/N 1057, Cal. 10/1/01 Due 10/1/02
3.__ Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171 Cal. 4/26/01 Due 4/26/03
4.__ Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632 Char. 3/15/00 Due 3/15/01
5._X_ Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409 Char. 3/15/00 Due 3/15/01
6.__ Log-Periodic Antenna: Electro-Metrics Model LPA-25, S/N 1122 Char. 2/10/01 Due 3/10/02
7._X_Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180, 1-18 GHz, S/N 2319 Cal. 4/27/99 Due 4/27/00
8.__ 18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20 No Cal Required
9.__ Horn 40-60GHz: ATM Part #19-443-6R No Cal Required
10.__ Line Impedance Stabilization Network: Electro-Metrics Model EM-7820, w/NEMA Adapter S/N 2682 Cal. 3/16/01 Due 3/16/02
11.__ Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7 Char. 1/27/01 Due 1/27/02
12.__ Frequency Counter: HP Model 5385A, S/N 3242A07460 Char. 11/20/00 Due 11/20/01
13.__ Peak Power Meter: HP Model 8900C, S/N 2131A00545 Char. 1/26/01 Due 1/26/02
14._X_Open Area Test Site #1-3meters Cal. 12/22/99
15.__ Signal Generator: HP 8640B, S/N 2308A21464 Cal. 11/15/01 Due 11/15/02
16.__ Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N 9706-1211 Char. 6/10/00 Due 6/10/01
17.__ Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153 Char. 11/24/00 Due 11/24/01
18.__ AC Voltmeter: HP Model 400FL, S/N 2213A14499 Cal. 10/9/01 Due 10/09/02
19._X_Digital Multimeter: Fluke Model 77, S/N 43850817 Cal. 11/16/00 Due 11/16/01
20.__ Oscilloscope: Tektronix Model 2230, S/N 300572 Char. 2/1/01 Due 2/1/02

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

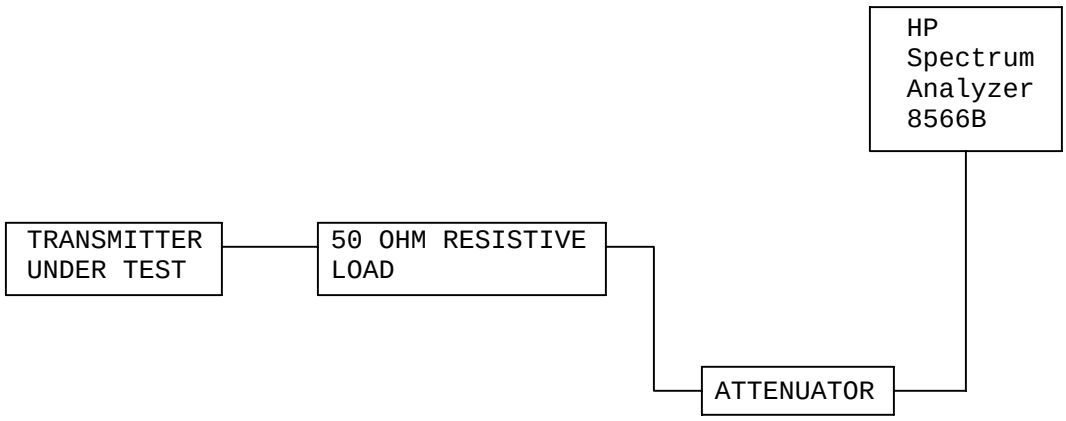
ANTENNA CONDUCTED EMISSIONS: The RBW=100kHz, VBW=300kHz and the span set to 10.0MHz and the spectrum was scanned from 30MHz to the 10th Harmonic of the fundamental. Above 1.0GHz the resolution bandwidth was 1.0MHz and the VBW = 3.0MHz and the span to 50MHz.

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 70°F with a humidity of 25%.

SYN-TECH SYSTEMS, INC. FCC ID: NR3UIT2525

USING THE 5 dBi ANTENNA ON THE CIRRONET INC. FCCID: HSW-2410M

15.247(c) Method of Measuring RF Conducted Spurious Emissions



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 100 kHz RBW.

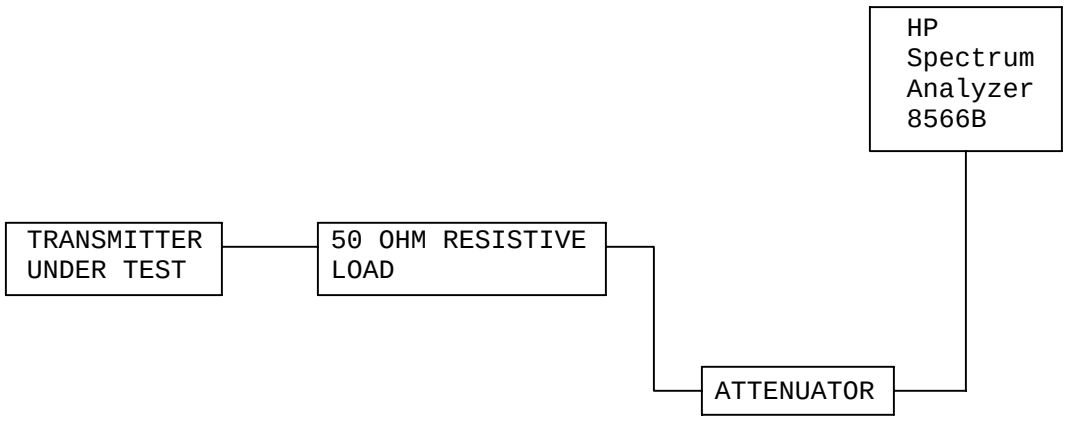
TF	EF	dB below carrier
2400	2408	0
	4816	58.7
	7316	73.7
	9757	101.6
	12192	104.4
	14592	116.7
	17044	116.7
	19444	118.9
	21868	120

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

SYN-TECH SYSTEMS, INC. FCC ID: NR3PCRF2525

USING THE 9 dBi ANTENNA ON THE CIRRONET INC. FCCID: HSW-2410M

15.247(c) Method of Measuring RF Conducted Spurious Emissions



NAME OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

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

TF	EF	dB below carrier
2400	2419	0
	4837	72
	7329	67.9
	9745	79.5
	12206	98.3
	14597	90.9
	17090	100.1
	19473	103.4

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

SYN-TECH SYSTEMS, INC. FCC ID: NR3UIT2525

USING A 5 dB ANTENNA ON THE CIRRONET INC. FCCID: HSW-2410M

Rules Part No: 15.247(c),15.205 &15.209(b)
Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH of Fundamental:	FIELD STRENGTH of Harmonics	S15.209
30 - 88 MHz	40 dBuV/m @3M	
88 -216 MHz	43.5 dBuV/m	
216 -960 MHz	46 dBuV/m	
ABOVE 960 MHz	54 dBuV/m	

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

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:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuv	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuv/m	Margin dB
2,402.7	**2,402.70**	**45.9**	**V**	**3.32**	**28.90**	**78.12**	**49.26**
2,436.3	**2,436.30**	**43.3**	**V**	**3.35**	**28.93**	**75.58**	**51.80**
2,470.5	**2,470.50**	**43.8**	**V**	**3.38**	**28.95**	**76.13**	**51.25**

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

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.

SYN-TECH SYSTEMS, INC. FCC ID: NR3PCRF2525

USING A 9 dB ANTENNA ON THE CIRRONET INC. FCCID: HSW-2410M

Rules Part No: 15.247(c),15.205 &15.209(b)
Field_strength_of_spurious_emissions:

REQUIREMENTS:

FIELD STRENGTH of Fundamental:	FIELD STRENGTH of Harmonics	S15.209
30 - 88 MHz	40 dBuV/m @3M	
88 -216 MHz	43.5 dBuV/m	
216 -960 MHz	46 dBuV/m	
ABOVE 960 MHz	54 dBuV/m	

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

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:

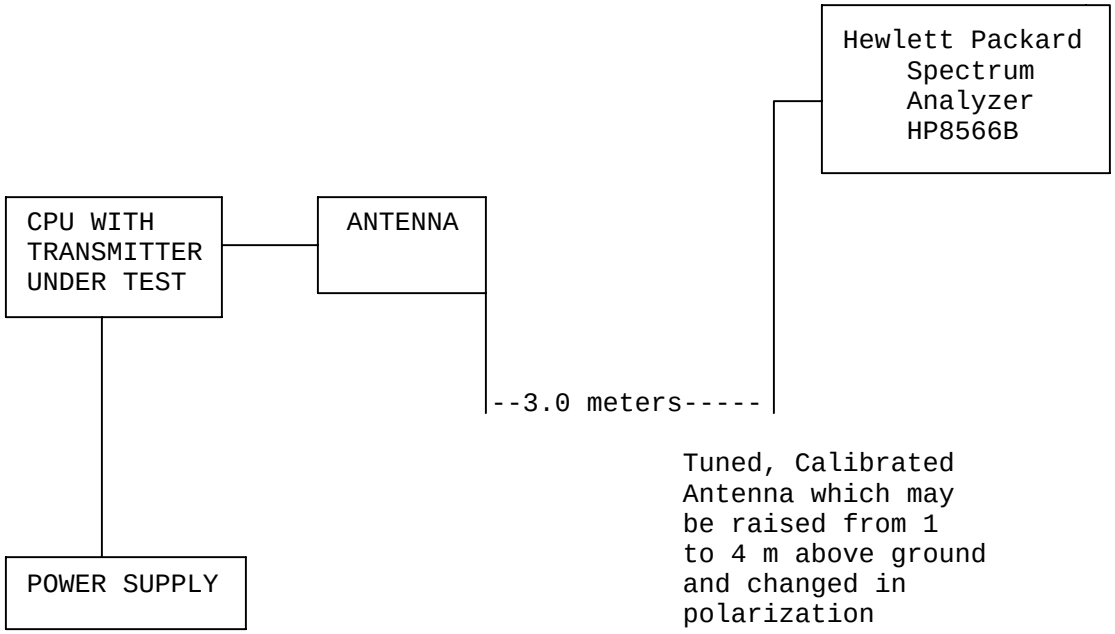
Emission Frequency MHz	Meter Reading dBuv	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuv/m	Margin dB
2,401.00	**87.4**	**V**	**3.32**	**28.89**	**119.61**	**7.77**

NOTE: THE SPECTRUM WAS SCANNED TO THE TENTH HARMONIC.

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.

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

Method of Measuring Radiated Spurious Emissions



Equipment placed 80 cm above ground
on a rotatable platform.