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**REGISTERED PATENT AGENTS

January 29, 2001

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Commissioner for Patents
Washington, D.C. 20231

Box Patent Application

Re: U.S. Non-Provisional Utility Patent Application under 37 C.F.R. § 1.53(b)
Appl. No. *to be assigned*; Filed: *herewith*
For: **Wireless and Wired Cable Modem Application of Universal Frequency Translation Technology**
Inventors: David F. Sorrells *et al.*
Our Ref: 1744.0140005

Sir:

The following documents are forwarded herewith for appropriate action by the U.S. Patent and Trademark Office:

1. USPTO Utility Patent Application Transmittal Form PTO/SB/05;

2. U.S. Utility Patent Application entitled:

Wireless and Wired Cable Modem Application of Universal Frequency Translation Technology

and naming as inventors:

David F. Sorrells
Michael J. Bultman
Robert W. Cook
Richard C. Looke
Charley D. Moses, Jr.

the application comprising:

a. specification containing:

i. 87 pages of description prior to the claims;

ii. 6 pages of claims (31 claims);

iii. a one page abstract;

b. 82 sheets of drawings: (Figures 1A-66);

3. 37 C.F.R. § 1.136(a)(3) Authorization to Treat a Reply As Incorporating An Extension of Time; and

4. Two return postcards.

It is respectfully requested that, of the two attached postcards, one be stamped with the filing date of these documents and returned to our courier, and the other, prepaid postcard, be stamped with the filing date and unofficial application number and returned as soon as possible.

This patent application is being submitted under 37 C.F.R. § 1.53(b) without Declaration and without filing fee.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Patrick D. O'Brien
Attorney for Applicants
Registration No. 41,224

Pdo:lna
Enclosures

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What Is Claimed Is:

1. A system for down-converting an electromagnetic signal having complex modulations, comprising:

an oscillator to generate an in-phase oscillating signal;

a phase shifter to receive said in-phase oscillating signal and to create a quadrature-phase oscillating signal;

a first universal frequency down-conversion module to receive the electromagnetic signal and said in-phase oscillating signal;

a second universal frequency down-conversion module to receive the electromagnetic signal and said quadrature-phase oscillating signal; wherein

said first universal frequency down-conversion module further comprising a first universal frequency transfer module and a first storage module, wherein said first universal frequency transfer module samples the electromagnetic signal at a rate that is a function of said in-phase oscillating signal, thereby creating a first sampled signal; and

said second universal frequency down-conversion module further comprising a second universal frequency transfer module and a second storage module, wherein said first universal frequency transfer module samples the electromagnetic signal at a rate that is a function of said quadrature-phase oscillating signal, thereby creating a second sampled signal.

2. The system of claim 1, wherein said quadrature-phase oscillating signal is out of phase with said in-phase oscillating signal by substantially 90°.

3. The system of claim 1, wherein said first storage device has a first storage first side and a first storage second side, said first storage first side being connected to said first sampled signal, and said first storage second side is connected to a first reference potential, and said second storage device has a second storage first side and a second storage second side, said second

storage first side being connected to said second sampled signal, and said second storage second side is connected to a second reference potential.

4. The system of claim 3, wherein said first storage device is a first capacitor, and said second storage device is a second capacitor.

5. The system of claim 3, wherein said first reference potential is substantially equal to ground, and said second reference potential is substantially equal to ground.

6. The system of claim 1,wherein the electromagnetic signal has a first frequency, said in-phase oscillating signal has a second frequency, and said first sampled signal has a first sampled frequency, and wherein said quadrature phase oscillating signal has a third frequency, and said second sampled signal has a second sampled frequency, wherein said first sampled frequency is substantially equal to the difference between said first frequency and "n" times said second frequency, where "n" is a subharmonic of said first frequency, and said second sampled frequency is substantially equal to the difference between said first frequency and "m" times said third frequency, where "m" is a subharmonic of said first frequency.

7. The system of claim 6, wherein "m" is substantially equal to "n."

8. The system of claim 6, wherein said first sampled frequency is substantially equal to zero, and said second sampled frequency is substantially equal to zero.

9. The system of claim 1, wherein said first sampled signal is comprised of two or more voltage levels.

10. The system of claim 9, wherein said first sampled signal is comprised of eight voltage levels.

11. The system of claim 9, wherein said first sampled signal is comprised of sixteen voltage levels.

12. The system of claim 1, wherein said second sampled signal is comprised of two or more voltage levels.

13. The system of claim 12, wherein said second sampled signal is comprised of eight voltage levels.

14. The system of claim 12, wherein said second sampled signal is comprised of sixteen voltage levels.

15. The system of claim 1, wherein said first sampled signal is a first information output signal, and said second sampled signal is a second information output signal.

16. The system of claim 1, further comprising a first amplifier receiving said first sampled signal and outputting a first amplified signal, and a second amplifier receiving said second sampled signal and outputting a second amplified signal.

17. The system of claim 16, further comprising a first filter receiving said first amplified signal and outputting a first filtered signal, and a second filter receiving said second amplified signal and outputting a second filtered signal.

18. The system of claim 1, further comprising a first filter receiving said first sampled signal and outputting a first filtered signal, and a second filter receiving said second sampled signal and outputting a second filtered signal.

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