21. The system of claim 19 wherein said hub station transmits to a plurality of said subscriber stations.

22. The system of claim 19 wherein said hub station comprises at least one dual band antenna transmitting on said first frequency using a first antenna beam and receiving on said second frequency using a second antenna beam.

23. The system of claim 22 wherein said subscriber stations comprise at least one dual band antenna receiving on said first frequency using a first antenna beam and transmitting on said second frequency using a second antenna beam.

24. The system of claim 23 wherein said hub station first antenna beam and said subscriber station first antenna beam have co-spatial footprints and said hub station second antenna beam and said subscriber station second antenna beam have co-spatial footprints.

25. A data communications station using spectrum allocation for wireless data communications, said station comprising:

means for establishing separate co-spatial reception and transmission antenna beams, said beams employing disparate frequencies in different bands of operation to transmit and receive data signals; and

means for duplexing said data signals received and transmitted on said disparate frequencies in said different bands of operation;

wherein at least one of said disparate frequencies is in a licensed band and at least one other of said disparate frequencies is in an unlicensed band.

26. The station of claim 25 further comprising means for filtering said data signals.

27. The station of claim 25 wherein said frequencies are separated by a bandwidth of at least one percent of the lower of said frequencies used to transmit and receive data signals.

28. The station of claim 25 wherein said disparate frequencies are separated by at least one octave.

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29. The station of claim 25 wherein said station is a hub station which communicates with a plurality of subscriber stations.

30. The station of claim 29 wherein said hub station comprises a plurality of said antenna beam means for communicating with said plurality of subscriber stations.

31. The station of claim 25 wherein said station is a subscriber station.

32. (Canceled)

33. (Canceled)

34. The station of claim 25 wherein said at least one licensed band frequency is used for downstream data communications from a hub station to at least one subscriber station.

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. The station of claim 34 wherein said at least one unlicensed band frequency is used for upstream data communications from at least one subscriber station to a hub station.

39. The station of claim 38 further comprising means for filtering said data signals, wherein filtering requirements for received upstream data communications at said hub are greater than filtering requirements for received downstream data communications at said at least one subscriber station.

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Page 191

Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

REQUEST FOR ORAL HEARING

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant hereby requests an oral hearing in the above-identified matter.

The amount of $500.00 covering the fee set forth in 37 CFR 41.20(b)(3) will be paid by credit card. The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 06-2380, under Order No. 68144/P009US/10501230.

Dated: February 19, 2007

Respectfully submitted,

By _____
R. Ross Viguet
Registration No.: 42,203
FULBRIGHT & JAWORSKI L.L.P.
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Attorney for Applicant

25731940.1

Electronic Patent Application Fee Transmittal

Application Number:	10095307
Filing Date:	11-Mar-2002
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Filer:	David H. Tannenbaum/Carol Martin
Attorney Docket Number:	68144/P009US/10501230
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Request for oral hearing	2403	1	500	500
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	500

Electronic Acknowledgement Receipt

EFS ID:	1526684
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	David H. Tannenbaum/Carol Martin
Filer Authorized By:	David H. Tannenbaum
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	19-FEB-2007
Filing Date:	11-MAR-2002
Time Stamp:	17:14:11
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$500
RAM confirmation Number	2165
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)

1		P009US.pdf	675992	yes	21
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Appeal Brief Filed		1	20	
	Request for Oral Hearing		21	21	
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8191	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	684183		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/095,307	03/11/2002	Randy J. Karr	68144/P009US/10501230	3972

29053 7590 04/26/2007

DALLAS OFFICE OF FULBRIGHT & JAWORSKI L.L.P.
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER	
LEVITAN, DMITRY	
ART UNIT	**PAPER NUMBER**
2616	

MAIL DATE	DELIVERY MODE
04/26/2007	PAPER

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10095307	3/11/02	KARR ET AL.	68144/P009US/10501230

DALLAS OFFICE OF FULBRIGHT & JAWORSKI L.L.P.
2200 ROSS AVENUE
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EXAMINER	
Dmitry Levitan	
ART UNIT	**PAPER**
2616	20070424

DATE MAILED:

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Commissioner for Patents

The reply brief, filed 4/23/07, has been entered and considered. The application has been forwarded to the Board of Patent Appeals and Interferences for decision on the appeal.

DMITRY LEVITAN
PRIMARY EXAMINER

Dmitry Levitan
Primary Examiner
Art Unit: 2616

PTO-90C (Rev.04-03)

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FULBRIGHT & JAWORSKI L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

Appeal No: 2007-2570
Application: 10/095,307
Appellant: Randy J. Karr et al.

Board of Patent Appeals and Interferences
Docketing Notice

Application 10/095,307 was received from the Technology Center at the Board on May 16, 2007 and has been assigned Appeal No: 2007-2570.

A review of the file indicates that the following documents have been filed by appellant:

Appeal Brief filed on:	November 02, 2006
Reply Brief filed on:	February 19, 2007
Request for Hearing filed on:	February 19, 2007

In all future communications regarding this appeal, please include both the application number and the appeal number.

The mailing address for the Board is:

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Board of Patent Appeals and Interferences

FULBRIGHT & JAWORSKI, L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

Appeal No:	2007-2570
Appellant:	Randy J. Karr et al.
Application No:	10/095,307
Hearing Room:	B
Hearing Docket:	B
Hearing Date:	Tuesday, November 06, 2007
Hearing Time:	09:00 AM
Location:	Madison Building - East Wing 600 Dulany Street, 9th Floor Alexandria, Virginia 22313-1450

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Your attention is directed to 37 CFR § 41.47. The above identified appeal will be heard by the Board of Patent Appeals and Interferences on the date indicated. Hearings will commence at the time set and as soon as the argument in one appeal is concluded, the succeeding appeal will be taken up. The time allowed for argument is twenty minutes unless additional time is requested and permitted before the argument is commenced. If there are any inquires, please contact the Clerk of the Board at 571-272-9797.

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_____ _____ _____
Signature of Attorney/Agent/Appellant Date Registration No.

Names of other visitors expected to accompany counsel: _____
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DATE: October 17, 2007

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FROM: Robert L Greeson (RG12978)

PHONE: (214) 855-7430

PAGES (Including Cover Sheet): 2 **HARD COPY TO FOLLOW:** [ ] YES [x] NO

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APPEAL NO.: 2007-2570

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Initials 1st ____ Initials 2nd ____

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Board of Patent Appeals and Interferences

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Attorney Robt Ross
Docket No. Adaptiv
Action Req'd 10095/1053P130 Due Due
CONFIRMATION DUE = 10/24/07

ORAL HEARING = 11/06/07

FULBRIGHT & JAWORSKI, L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

Appeal No:	2007-2570
Appellant:	Randy J. Karr et al.
Application No:	10/095,307
Hearing Room:	B
Hearing Docket:	B
Hearing Date:	Tuesday, November 06, 2007
Hearing Time:	09:00 AM
Location:	Madison Building - East Wing 600 Dulany Street, 9th Floor Alexandria, Virginia 22313-1450

NOTICE OF HEARING
CONFIRMATION REQUIRED WITHIN TWENTY-ONE DAYS

Your attention is directed to 37 CFR § 41.47. The above identified appeal will be heard by the Board of Patent Appeals and Interferences on the date indicated. Hearings will commence at the time set and as soon as the argument in one appeal is concluded, the succeeding appeal will be taken up. The time allowed for argument is twenty minutes unless additional time is requested and permitted before the argument is commenced. If there are any inquires, please contact the Clerk of the Board at 571-272-9797.

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Robert Greeson — Signature of Attorney/Agent/Appellant
10/17/07 — Date
52,966 — Registration No.

Robert Greeson
Names of other visitors expected to accompany counsel: Ross Viguet + Byron Young

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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RANDY J. KARR,
JEAN-FRANCOIS GRENON, and FRANK D. COLE

Appeal 2007-2570
Application 10/095,307
Technology Center 2600

Oral Hearing Held: November 6, 2007

Before JAMES D. THOMAS, JOSEPH F. RUGGIERO, and
ALLEN R. MACDONALD, *Administrative Patent Judges.*

ON BEHALF OF THE APPELLANTS:

Robert Greeson, Esquire
Ross Viquet, Esquire
FULBRIGHT & JAWORSKI LLP
2200 Ross Avenue
Suite 2800
Dallas, TX 75201

ALSO PRESENT:

BYRON YOUNG, Adaptics

The above-entitled matter came on for hearing on November 6, 2007 commencing at 9:21 a.m., at the U.S. Patent and Trademark Office, 600

Dulany Street, Alexandria, Virginia, before Kenyan C. Hopchas, Notary Public.

PROCEEDINGS

THE CLERK: Calendar number three, appeal number 2007-2570, Mr. Greeson.

JUDGE THOMAS: Good morning, gentlemen. Have you been to the Board before?

MR. GREESON: No, sir.

JUDGE THOMAS: Okay, generally we work by principal and you get 20 minutes to present your position. Unfortunately that clock is an hour off, so you can still use it as a guide and please introduce the other colleagues.

MR. GREESON: Sure. I'm Robert Greeson, Fulbright & Jaworski, here for Adaptics. I have with me Ross Viquet, partner Fulbright & Jaworski, and Byron Young, a representative of Adaptics. Unless the Board has any initial questions I'd like to go ahead and begin by providing a summary of Appellant's claimed features in hopes of doing so may provide for a more efficient discussion today.

I believe that a summary of the claimed features will help distinguish the Appellant's invention in view of the cited references. Generally, Appellant's invention provides a wireless system where stations on the network communicate with each other over different frequency bands.

So according to preferred embodiment, a first station transmits to another station over a first frequency band, for example a licensed frequency

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band, and the other station transmits back to the first station on a second frequency band, for example an unlicensed frequency band.

Throughout prosecution, the examiner has relied upon Arnold to satisfy Appellant's invention. Now Arnold provides a personal access communication system where a base station and subscriber station communicate with one another either over a licensed band or an unlicensed band. That is, the subscriber station operates in dual mode and operates in FDD mode when it communicates with a base station over a licensed band. It communicates in TDD mode when communicating with a base station over an unlicensed band.

A purpose of Arnold is to provide its user with unlicensed band communication as a default or as a first priority, to avoid that user paying for licensed band communication from a service provider. Now I'm going to go ahead and talk about why the examiner's rejection is improper and should be reversed. As an initial matter I want to point out that Arnold does not satisfy every limitation of Appellant's invention. So for example referring to claim one, claim one recites a first station transmitting in a first frequency band and receiving in a second frequency band and, put simply, Arnold does not teach this feature. Instead Arnold teaches a first set of base stations that transmit over -- that communicate with a subscriber over a licensed band and a second set of base stations that communicate with a subscriber over an unlicensed band.

JUDGE RUGGIERO: Do you intend first and second bands to be different bands, I take it in your claim? If so, the claim doesn't recite that.

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MR. GREESON: Well, the claim does recite a first band and a second band wherein one band is licensed and the other band is licensed.

JUDGE MACDONALD: Let me interrupt here for a second and make sure I'm understanding you correctly. I -- reading through Arnold, I understood this to be, at least the half that operates outside of the home, the FDD portion could be the conventional prior art system, which you described in your own specification and the conventional prior art system operates in two frequencies for transmit and receive. It's just that they're right next to each other and they're both in a licensed band.

MR. GREESON: Sure, that's correct.

JUDGE MACDONALD: And I read the claim -- my understanding of what you were conveying here in the structure of the claim was that the first four steps essentially described the generic operation of the prior art and then the last, the "wherein" clause was a differentiation between saying that "now I've described the conventional but I'm going to have frequencies which are in different -- one licensed and one unlicensed."

MR. GREESON: No, I don't agree with that at all. First, if you read the claims, we require one station communicating with another station and the other station communicating back with that station. Arnold doesn't disclose that. At best, Arnold talks about a subscriber communicating with one port, a first base station in only one band, perhaps a licensed band. And when Arnold goes outside of the home for instance it communicates with a second base station.

JUDGE MACDONALD: You're right. I misspoke. The -- in the prior art it's different frequencies. The band is the same.

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MR. GREESON: Sure. But just to make sure we're on the same page, not only is it different frequencies, it's different base stations. So for instance, Arnold's subscriber station never communicates with a single base station over a licensed and unlicensed band. And Arnold is very clear about that. For instance, Arnold in column seven --

JUDGE MACDONALD: But it does communicate with a single station over two frequencies.

MR. GREESON: No, within the same frequency band.

JUDGE MACDONALD: Within the same band but two different frequencies.

MR. GREESON: Well, not only -- only in frequency division mode where it would communicate uplink, downlink, separated by 80 megahertz of band but in time division mode it communicates over the same frequency --

JUDGE MACDONALD: And that being Arnold's real contribution; it uses 80 megahertz separation rather than a 10 megahertz.

MR. GREESON: Well, I believe that that would be a contribution of Arnold, sure. But going back to my point that Arnold doesn't teach a first station transmitting and a first frequency and receiving a second frequency band, and I'm saying band --

JUDGE MACDONALD: Well, let's come back to that, because if you define a band two different ways, one is at least an octave separation and the other is at least 1 percent separation.

MR. GREESON: Well that would be the separation between bands.

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JUDGE MACDONALD: Yes, but it certainly looks like that's the separation in Arnold; it's 80 megahertz and that's well more than 1 percent, so it would strike me that by -- the definition of band being that kind of separation, that certainly Arnold teaches two bands for its two frequencies by their own definition.

MR. GREESON: Well, in talking about our embodiments we talk about communicating in bands that are separated by an octave.

JUDGE MACDONALD: Well, but also there's a claim that's directed to at least 1 percent bandwidth separation, which I understand is, the octave is wider than that.

MR. GREESON: Sure.

JUDGE MACDONALD: But certainly bands is not limited to being an octave apart.

MR. GREESON: Right, I agree with that.

JUDGE MACDONALD: It appears to me that the only difference I'm seeing from Arnold to your claim is the distinction of a licensed band versus an unlicensed band.

MR. GREESON: No, I mean, I don't agree with that, in that the communication itself is different. So, you know, if we've got communication in two frequency bands between two stations Arnold just doesn't have that set up. Arnold at best teaches communication over one frequency band between two stations.

JUDGE MACDONALD: I think we're coming back to the fact that you've defined band a certain way for your claim, but you're trying to use a different definition for looking at what is a band in Arnold. The fact that

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Arnold calls it a frequency band to me is not determinative, because it's separated -- the two frequencies are separated by the same distance that you're requiring in the claim.

MR. GREESON: Well, all we can compare our claim language to Arnold, right, so that's determined. And our claim language defines bands in terms of a licensed band and an unlicensed band and that's according to the claim, the plain language of the claim.

JUDGE MACDONALD: And the problem I have there is I don't see the distinction in terms of -- to me that's a subjective distinction and it's not based on something that a person looking at the claim would view as a technology difference. I'm just looking at it as a label on the band.

MR. GREESON: Well, would you agree that certainly whether or not a band is licensed or unlicensed is an objective question?

JUDGE MACDONALD: Yes, but if the bands -- prior to being licensed, they were unlicensed, that these frequencies didn't change, their characteristics didn't change when the government said "I'm going to give a license for that."

MR. GREESON: Not at all, but we don't claim to have, you know, characteristics of frequencies, you know, and our claim language -- look, we're communicating between using a licensed band or an unlicensed band. So we do limit the bands that we communicate over.

JUDGE MACDONALD: But certainly in the specification you talk about the megahertz they operate at and they're clearly physical characteristics of the band.

MR. GREESON: Right.

JUDGE MACDONALD: Those aren't mentioned in your claim.

MR. GREESON: Right, we're not claiming the physical characters.

JUDGE MACDONALD: But you're putting a label on it in attempting to distinguish licensed versus unlicensed and I don't see that there is an actual difference between these frequencies, based upon whether they're licensed by a government versus not licensed by a government.

MR. GREESON: Well, some of the characteristics and some of the advantages are recognized in operating in those bands.

JUDGE MACDONALD: Right.

MR. GREESON: So for instance we've recognized that in our case, that it's exceptionally beneficial to communicate data in the downlink on the licensed band for higher data throughput and the like. So, you know, we don't pretend to claim characteristics of bands and things like that, but we were very clear to claim, you know, communication in a licensed band and an unlicensed band and it's significant, because the things that fall from that are novel.

We get higher data throughput on the output. Our filtering requirements are a bit different. Overall it's a more efficient system for the system that we had envisioned, that is the last-mile type systems for campus settings and the like. And I understand your point but again, you know, we do put the limitation and we added that, by amendment in prosecution, to be very clear that one of the bands is licensed and one of them is unlicensed. And however you, you know, construe Arnold in that, "well Arnold's base station may receive and transmit from a base station over two frequencies perhaps in FDD mode because they're separated by 80 megahertz,"

nonetheless, each one of those frequencies is in a licensed band. And Arnold is very clear about that.

And Arnold's very clear about why they did that. You know, the 80 megahertz separation is to avoid cross-talk, interference between uplink and downlink, as you're probably well aware. So, you know, again we don't pretend to claim characteristics of bands and whatnot, but we do get benefits via -- from communicating over frequency bands or, excuse me, unlicensed bands and licensed bands. And, you know, I think it's plain that Arnold just does not have a base station that does that.

Now of course, the rejection is in terms of 103 and, you know, I'll go ahead and point out that it wouldn't be obvious to modify Arnold to have that base station. You know, doing so would require that every base station of Arnold be reconfigured, you know, different filtering would have to be employed. It would be expensive, and even if one were to ignore all of that and go ahead and modify Arnold as the examiner suggests, Arnold wouldn't work, because as I think you probably know, according to Arnold the unlicensed band lies between the licensed bands. And as you and I just talked about, the licensed bands of Arnold are separated by 80 megahertz.

But of course that just doesn't work if Arnold's subscriber station is forced to transmit in a licensed band and receive in an unlicensed band. We get the -- Arnold would get the cross-talk, the interference that we just talked about. And I'll go ahead and point out that Arnold, I think very clearly teaches away from the examiner's proposed modifications. For example we just talked about, that in the unlicensed band Arnold is limited to indoor

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communication, you know, because the unlicensed band is subject to a lower power transmit level, it's constrained.

And so as a result, that type of communication is limited to short range indoor use. But Arnold's very clear that it intends to provide a system for outdoor and indoor pedestrian use. But of course if we modify Arnold according to the examiner's suggestion we're effectively limiting Arnold to only indoor use, certainly not what Arnold intended. Further, you know, Arnold provides a system where its users don't have to pay for unlicensed use and that's a primary benefit of Arnold's system.

So, you know, again, modifying Arnold so that its subscriber stations receive in an unlicensed band and transmit in a licensed band or vice versa, well in that case the user's forced to pay for that communication in any event, which is directly at odds with Arnold's teaching. And of course in that situation a user would have the worst of both worlds. Not only would they have to pay for licensed band communication, on the other side they'd get the relatively worse service, you know, that's generally associated with unlicensed communication.

Now, I mean I think there's -- and that's talking about Arnold, you know -- I understand it seems that the examiner has pointed to Arnold's subscriber station and said "well, Arnold's subscriber station is able to communicate in licensed and unlicensed bands, but even if in his proposed modification where the subscriber station could communicate during the same call in an unlicensed and licensed band -- ," but a point that the examiner has missed is one that I started with, and that is even if Arnold's subscriber station was modified to do that, we still don't have a base station;

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Arnold doesn't provide a base station that does the same thing. So, you know, does that clear up questions that you had or is there something further that you'd like to discuss?

JUDGE MACDONALD: In terms of the operation of the device, I have a question.

MR. GREESON: Okay. Well does the Board have any further questions?

JUDGE THOMAS: I don't believe so.

MR. VIQUET: If I might address the Board for a second, is that all right? I think Judge Macdonald you had asked --

JUDGE MACDONALD: Can you let the reporter know your name?

MR. VIQUET: Okay, I'm Ross Viquet with Fulbright & Jaworski, and just trying to address one of your questions earlier, Judge Macdonald, you had mentioned that licensed bands and unlicensed bands, you know, did that really make any difference, the licensed bands was unlicensed before the FCC got involved. I think the real difference, or a real difference comes in in that fundamentally your systems operate differently when you're in licensed or unlicensed. In unlicensed you're subject to interference. Anybody else can transmit whatever. You will receive radar pulses, all sorts of stuff like that. So generally the quality of service is more poor and you have to kind of work around that. So Arnold recognizes that and they say, well, it's free and we can use unlicensed bands where it's available and when we have a chance to.

JUDGE MACDONALD: I think you're hitting on my concern -- hitting the nail right on the head, because in the unlicensed there

are things that you will have to do differently. However, I don't see any of those in the claims.

MR. VIQUET: Well, they're not -- the fact though that we do communicate in both is counterintuitive. Yes, people have had communications in licensed and yes they have communications in unlicensed. But the --, you know, there's different reasons for doing both.

Licensed, it costs money but you get better quality of service, you don't get all this interference, so our filtering requirements can be different, you know, the system fundamentally works differently. In licensed, there's a cost savings. We don't have to pay for spectrum, but, you know, there's a disadvantage; we get interference and that kind of stuff. So typically people will go one way or the other. Why pay for a licensed spectrum if you're going to suffer interference?

So here we've discovered -- well, look: in our particular system we want high throughput in one direction. The other direction is primarily acknowledgements or data requests, that kind of stuff. So the gears start turning in our inventors' heads and say, hey, we can kind of, you know, suffer through the down-sides of unlicensed bands and so we can take that spectrum for our acknowledgements and stuff, because they can be low throughput and low bandwidth. We can repeat them if they happen to get blocked by radar pulse or whatever, but we want the licensed spectrum and we don't want to take out chunks of it for this other kind of overhead stuff and we can, you know, kind of broaden up what we have available for our downlink and have a bigger pipe and wow, we can send lots of data down

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and we own that spectrum; it's going to be interference free, the quality of service is going to be great.

So it seems like a teeny step when you look at it. You say, well gosh, people communicate at unlicensed and gosh, people communicated licensed before. But it's really counterintuitive to do both at the same time. There are reasons, you know, people pick either or and I believe it's inventive to have realized in this particular embodiment where they're doing it that, hey, we can get by with both and suffer the disadvantages of both because we get this extra advantage. So I think that's where it boils down to.

And if you can get past, hey, these guys didn't invent communications in licensed and hey they didn't invent communications in unlicensed, but the combination of doing both at the same time is totally counterintuitive, nobody's done that, I think it's clear from the art that they did not do it, so could you make a system do that?

Yeah, you could go through the entire Arnold network, reconfigure all the base stations to have, you know, licensed communications and unlicensed communications. There's nothing to suggest that it would require significant infrastructure change and nobody thought of it. You get the worst of both worlds. We realized it. Our inventors realized that, you know, in their particular situation we could do it. So I think that's the question and I think if you really dig into it you'll agree with us that that's probably --.

JUDGE MACDONALD: I don't have anything in front of me, I mean the references that leads me to believe that ultimately we're here going to -- as shown by the references, but I'm looking at the claims and I just don't see that you put into the claims the distinctions in the device and the

functions of the device that would bring that out, you know, the differences in filtering, the differences in bandwidth, the differences -- all things that are not just a label placed on something. I think the closest I saw was in the claim here where you talk about the filtering, claim 39, wherein the means for filtering, it says data signals, wherein the filtering requirements for upstream and the filtering requirements for downstream, one is greater than the other. Unfortunately it's -- in terms of the filtering requirements rather than the filter itself, which creates a problem, but I mean that's where there really becomes a difference in the equipment that's being used.

MR. VIQUET: True. That starts getting to what's implicit, but I don't think we have to get into in the claims why we do it or how it's done. In the art they just don't do it. We do have the language that expressly requires communication in licensed and unlicensed bands. The art just doesn't do that, and if we agree the art doesn't do it it'd have to be a 103. Why would somebody modify that? And they wouldn't. Arnold itself teaches away from that.

There's disadvantages, so they only use unlicensed when they're in the home; when it's low-power. When they communicate, they get the advantage of it being free. When they're outside they need higher power, they need further range, they go with licensed and they used licensed exclusively. So I think even under the broader reading of KSR or whatever, you know, it's a little bit easier to make a 103 rejection. I still don't think you can get there. You have to change the art to get to our claims. There's nothing to have led anyone to that. One's skill in the art normally doesn't undertake to invent -- you know, they're just trying to solve a problem.

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There's nothing identified in the art that suggests this solution that we've come up with. There's nothing to suggest the, you know, going through wholesale changing the network in order to enable this. So I don't think you can get there with the language that we have in the pipe.

JUDGE MACDONALD: Anything else?

MR. VIQUET: No, that's it. Thanks for your time.

(Whereupon, at 9:44 a.m., the proceedings were concluded.)

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RANDY J. KARR, JEAN-FRANCOIS GRENON,
and FRANK D. COLE

Appeal 2007-2570[1]
Application 10/095,307
Technology Center 2600

Decided: February 25, 2008

Before JAMES D. THOMAS, JOSEPH F. RUGGIERO, and ALLEN R. MACDONALD, *Administrative Patent Judges*.

MACDONALD, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] Hearing held on November 6, 2007.

STATEMENT OF CASE

Appellants appeal[2] under 35 U.S.C. § 134 from a final rejection of claims 1-5, 10-13, 18-19, 21-31, 34, and 38-39 (App. Br. 2). Claims 6-9, 14-17, 20, 32-33, and 35-37 have been cancelled (App. Br. 2). We have jurisdiction under 35 U.S.C. § 6(b).

According to Appellants, Appellants invented systems and methods for providing wireless data transmission spectrum allocation by utilizing separate bands for upstream and downstream wireless data communication. In one embodiment, if an operator has a license in only one band, the operator can enhance use of the available spectrum in the licensed band by employing unlicensed bands for one direction of communication. (Spec. ¶¶ [0012] and [0014]).

Representative Claim(s)

Representative independent claim 1 under appeal reads as follows:

1. A spectrum allocation method for wireless data communication comprising the steps of:

transmitting data from a first station using a first frequency within a first band of operation;

receiving data at said first station using a second frequency within a second band of operation;

transmitting data from at least one other station to said first station using said second frequency within said second band of operation; and

[2] Appeal Brief filed November 2, 2006 fully replacing the Brief filed June 30, 2006. Reply Brief filed February 19, 2007.

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receiving data at said at least one other station using said first frequency within said first band of operation;

wherein one of said frequencies is in a licensed band and another of said frequencies is an unlicensed band.

Prior Art

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Arnold	US 5,475,677	Dec. 12, 1995
Sugita	US 5,852,767	Dec. 22, 1998

This Board additionally relies on the following prior art:

Newell	US 5,815,804	Sep. 29, 1998
Mangal	US 6,801,519 B1	Oct. 5, 2004 (filed Apr. 11, 2000)

Rejections

(1) The Examiner rejected claims 1-5, 10, 12-13, 18-19, 21-23, 25, 27-31, 34, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Arnold.

(2) The Examiner rejected claims 11 and 26 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Arnold and Sugita.

(3) The Examiner rejected claim 24 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

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(4) The Examiner rejected claim 39 under 35 U.S.C. § 112, second paragraph as being indefinite.

Appellants' Contentions

(1) Appellants contend that the subject matter of claims 1-5, 10, 12-13, 18-19, 21-23, 27-31, 34, and 38 would not have been obvious. More specifically, with respect to claims 1, 3-5, 10, 12, 19, or 21, Appellants contend that the Examiner has erred in rejecting the claims because:

(A) Arnold fails to teach "using a licensed band for one direction of communication and an unlicensed band for another" (App. Br. 6-7).

(B) "Arnold does not teach or suggest the desirability of transmitting in a licensed band *while* receiving signals in an unlicensed band, or the reverse" (App. Br. 7) (*Emphasis* added).

With respect to claims 2 or 13, Appellants contend that the Examiner has erred in rejecting the claims because:

(C) Arnold does not teach an octave of separation between a transmission frequency and a reception frequency (App. Br. 8-9).

With respect to claims 18, 22, or 23, Appellants contend that the Examiner has erred in rejecting the claims because:

(D) Arnold's 7% bandwidth would not be considered by one of ordinary skill in the art to meet the bandwidth requirement to be a dual band antenna (App. Br. 9).

With respect to claims 25, 27, 29-31, 34, or 38, Appellants contend that the Examiner has erred in rejecting the claims because:

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(E) Arnold does not teach a duplexer (App. Br. 9).

(F) In a repeat of Argument (1)(A) above, Arnold fails to teach "using a licensed band for one direction of communication and an unlicensed band for another (App. Br. 10).

(G) There is no motivation to modify Arnold to meet the licensed and unlicensed limitations of these claims (App. Br. 10).

With respect to claim 28, Appellants contend that the Examiner has erred in rejecting the claim because:

(H) In a repeat of Argument (1)(C) above, Arnold does not teach an octave of separation between a transmission frequency and a reception frequency (App. Br. 10).

(2) Appellants contend that the subject matter of claims 11 and 26 would not have been obvious. More specifically, with respect to claim 11, Appellants contend the Examiner has erred in rejecting the claim because:

(A) Sugita is not relied upon to provide the limitations that Appellants contend are missing from Arnold with respect to the rejection of claim 10 from which claim 11 depends (see Arguments (1)(A) and (1)(B) above) (App. Br. 11).

(B) The rejection of record does not provide (i) information with respect to the proposed modification of the references or (ii) an explanation of why one skilled in the art would be motivated to make the required modification (App. Br. 11-12).

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With respect to claim 26, Appellants contend that the Examiner has erred in rejecting the claim because:

> (C) In a repeat of Argument (2)(B)(ii) above, the rejection of record does not provide an explanation (objective reason) of why one skilled in the art would be motivated to make the required modification (App. Br. 12-13).

(3) Appellants contend that claim 24 meets the enablement requirement of 35 U.S.C. § 112, first paragraph. More specifically, Appellants contend that one of ordinary skill in the art could implement "co-spatial footprints" with out undue experimentation and that this is confirmed by the Examiner's finding that Arnold teaches "co-spatial reception and transmission beams" (see Arnold, col. 8, ll. 29-38) (App. Br. 13-14).

(4) Appellants contend that claim 39 meets the definiteness requirement of 35 U.S.C. § 112, second paragraph. More specifically, Appellants contend that one of ordinary skill in the art would understand that the "greater" filtering requirement means more stringent reduction of potential interference in adjacent frequency bands (App. Br. 14-15).

Result

We affirm-in-part.

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ISSUE(S)

Have Appellants established that the Examiner erred in rejecting claims 1-5, 10, 12-13, 18-19, 21-23, 25, 27-31, 34, and 38 as being unpatentable under 35 U.S.C. § 103(a) over Arnold?

Have Appellants established that the Examiner erred in rejecting claims 11 and 26 as being unpatentable under 35 U.S.C. § 103(a) over Arnold and Sugita?

Have Appellants established that the Examiner erred in rejecting claim 24 under 35 U.S.C. § 112, first paragraph?

Have Appellants established that the Examiner erred in rejecting claim 39 under 35 U.S.C. § 112, second paragraph?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Appellants' Invention

1. Appellants' invention generally relates to wireless radio frequency (RF) data communications, and specifically relates to spectrum allocation systems and methods for multi-band wireless RF data communications (Spec. ¶ [0001]).

2. Appellants' invention enables communication of upstream data on one band of operation while downstream data is communicated on a different band of operation (Spec. ¶ [0029]).

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3. Appellants' bands are preferably separated by more than one percent bandwidth (Spec. ¶ [0029]).

4. In a preferred embodiment, Appellants' bands are separated by at least one octave of bandwidth (Spec. ¶ [0029]).

5. The two bands may both be licensed bands or both may be unlicensed bands (Spec. ¶ [0029]).

6. However, in one preferred embodiment, one band is a licensed band while another is an unlicensed band (Spec. ¶ [0029]).

7. Preferably, Appellants' hub 300 (Fig. 3) employs a multi-lobe antenna assembly with each lobe comprising a dual band antenna 301. Similar to subscriber station, 200, the pattern of dual band antenna 301, the side lobes, gain and front to back ratio of antenna beams for the two different bands employed by the hub for transmitting and receiving are preferably matched as close as possible to the same gain and pattern of the complimentary subscriber station antenna beam patterns. In short, the footprint of a reception antenna beam pattern preferably approximates the footprint for a transmission antenna beam pattern for both hub antenna 301 and subscriber station antenna 201, such that the beam patterns for both stations are substantially co-spatial. (Spec. ¶ [0035] .)

Appellants' Admissions

8. Currently, there are data transmission systems which are designed to deliver high speed and/or high data capacity from the internet

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backbone to an end user or to provide high speed data communications in a campus-like setting (Spec. ¶ [0002]).

9. Point-to-point systems typically have a pair of transceivers communicating only with each other, for example from one building to another. Point to multi-point systems communicate between a hub station, or the like and a number of subscriber stations, or the like. (Spec. ¶ [0002].)

10. Typically, these systems utilize one frequency band of operation, generally, transmitting and receiving on separate frequencies within the same basic band employing frequency division duplexing (FDD) (Spec. ¶ [0003]).

11. These prior art systems employ a sub-channel scheme for upstream and downstream in which the frequencies of such sub-channels are relatively closely spaced (Spec. ¶ [0003]).

12. The band utilized for communication in such prior art systems may be a licensed band or it may be an unlicensed band (Spec. ¶ [0003]).

13. A band is a generally contiguous portion of the electromagnetic spectrum which is regulated by a governmental entity, such as the Federal Communications Commission (FCC) for the United States (Spec. ¶ [0003]).

14. In FDD, a base station may simultaneously transmit and receive, and a subscriber station may simultaneously transmit and receive (Spec. ¶ [0005]).

15. However, the upstream and downstream communications frequencies are typically in the same regulated band (Spec. ¶ [0005]).

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16. In the prior art, the radio of a hub-station or subscriber station may include a duplexer, which employs filters to filter the upstream out of the downstream, and vice versa (Spec. ¶ [0006]).

17. A frequency octave is a doubling of frequencies. In other words, an octave is an interval between two frequencies having a ratio of two-to-one. (Spec. ¶ [0016].)

Arnold

18. Arnold describes a portable radio communication system having a portable handset which operates in a frequency-division duplexing (FDD) mode for communication in the licensed portion of the frequency band (Abstract).

19. In the FDD mode, different frequencies are used to separate a downlink transmission to a portable from a port from an uplink transmission from a port to a portable (Abstract).

20. Downlink transmission from a port to a portable is in digital format at the port's assigned downlink frequency in the licensed spectrum in the downlink band at a frequency between 1930 and 1990 MHz (Col. 6, ll. 75-60).

21. The portable digitally transmits in bursts to that same port in the uplink band between 1850 and 1910 MHz at a frequency that is 80 MHz below the downlink frequency (Col. 6, ll. 61-63).

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22. However, adjacent ports are situated sufficiently close together in order to provide an appropriate degree of overlap of their respective service areas thereby ensuring no loss of coverage occurs during call handoff (Col. 8, ll. 29-32).

23. Each port utilizes a suitable antenna, such as antenna 31 for port 30, to carry its TDM transmissions to its associated portables and to receive TDMA bursts therefrom (Col. 8, ll. 32-35).

24. FIG. 3 is a block diagram of the front-end circuitry of a portable handset (Col. 6, ll. 26-27).

25. In the transmit chain 308, the IF circuitry (not shown) produces a signal, which when filtered by filter 310 to remove spurious signal components, is the desired IF signal which is then mixed by mixer 302 with the synthesizer signal and filtered by filter 303 to remove out-of-band components, thus producing the RF signal to be transmitted uplink to the port at frequency (Col. 10, ll. 42-49).

26. In the receive chain 309, filter 311 filters signal components that are out of the downlink band (Col. 10, ll. 53-54).

27. FIG. 6 is a block diagram of a portable handset that is compatible for operation in both an FDD and TDD mode (Col. 6, ll. 34-35).

28. In the FDD mode, diversity is performed at the portable and the antenna over which transmission is made is determined based on a comparison of downlink signal quality measurements made through each antenna (Col. 13, ll. 44-48).

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29. Thus, in the FDD mode, for each burst, switch 615 is connected by microcontroller 602 to that particular antenna through which in that same frame the "best" signal was measured (Col. 13, ll. 48-51).

30. With reference to FIGS. 4 and 6, in each frame in the FDD mode, switch 612 is connected to receive and switch 615 is sequentially connected to receive over both antennas 613 and 614 (Col. 14, ll. 32-35).

31. During the first two time-slots, the receive chain circuitry "listens" to downlink signals directed to other portables from the port to which it has established communication (Col. 14, ll. 35-38).

32. From the QM, RS SI and WEI measures determined during both antenna measurement periods, the "best" antenna over which to receive signals is determined (Col. 14, ll. 38-40).

33. In the third time-slot, switch 615 is connected to that "best" antenna and the burst transmitted by the port in time-slot TS2 is received and decoded by the receive chain circuitry and the quality measures, QM, RSSI and WEI, for that burst are stored by microcontroller 602 (Col. 14, ll. 40-45).

34. In the next time slot, switch 612 is connect to its transmit side and a burst is transmitted by the transmit chain circuitry over the just determined "best" antenna (Col. 14, ll. 45-48).

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Sugita

35. Sugita describes first and second radio communication units communicate using the frequency band of an existing microwave transmission system (Abstract).

36. FIG. 2 is a block diagram showing the configuration of the communication terminal equipment on the mobile station side of the unlicensed PCS according to the first embodiment of the present invention (Col. 2, ll. 58-61).

37. FIG. 3 is a block diagram showing the configuration of communication terminal equipment on the fixed station side of the unlicensed PCS (Col. 2, ll. 62-64).

38. FIG. 6 is a block diagram showing the configuration of the communication terminal equipment on the mobile station side according to the second embodiment (Col. 3, ll. 4-6).

39. Sugita describes that in the prior art, in the communication system called PCS in the U.S.A., two communication systems exist: one is the licensed PCS for communicating via a predetermined communication pay service and one is the free unlicensed PCS for communicating without using a predetermined communication service (Col. 1, ll. 13-18).

40. The unlicensed PCS is realized by releasing the frequency band which is now used in the microwave transmission systems (Col. 1, ll. 19-21).

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41. In the second embodiment, dual mode communication terminal equipment is capable of corresponding to both of the licensed PCS and unlicensed PCS (Col. 6, l. 65 through col. 7, l. 2).

42. In the dual mode communication terminal equipment shown in this embodiment, circuits of the transmitting and receiving systems can be used in common since the frequency band of the licensed PCS touches that of the unlicensed PCS (Col. 7, ll. 2-5).

43. In FIG. 6, corresponding parts to FIG. 2 are denoted by the same numerals as FIG. 2, reference numeral 40 shows the communication terminal equipment on the mobile station side according to this embodiment (Col. 7, ll. 6-9).

44. The communication terminal equipment 40 (Fig. 6), at step SP42 (Fig. 7), receives a transmitting signal transmitted by the base station of the licensed PCS, and at next step SP43, judges whether it is operable as unlicensed PCS or not based on the received information of the base station of the licensed PCS (Col. 7, ll. 62-66).

45. Terminal equipment 40 judges whether the present position is within an operable area as unlicensed PCS, based on information specifying the position of the base station included in the transmitting signal of the licensed PCS, in similar manner with the first embodiment (Col. 7, l. 67 through col. 8, l. 4).

46. As a result of the judgment, if operable as unlicensed PCS, the communication terminal equipment 40 proceeds to step SP44 to start an

unlicensed PCS mode, and at next step SP45, it operates as a normal mobile station of the unlicensed PCS (Col. 8, ll. 5-9).

47. While if not operable as unlicensed PCS, the communication terminal equipment 40 proceeds to step SP46 to start a licensed PCS mode, and at next step SP47, it operates as a normal mobile station of the licensed PCS (Col. 8, ll. 10-13).

48. According to the above structure, the communication terminal equipment 40 uses the circuits of the transmitting and receiving systems (the reception radio frequency circuit 41, the demodulator for PCS 42, the transmission radio frequency circuit 44, and the modulator for PCS 45) in common between the unlicensed PCS and the licensed PCS, by utilizing the feature that the frequency band of the licensed PCS touches that of the unlicensed PCS (Col. 8, ll. 14-21).

Newell

49. Newell describes a dual band filter network for a radio communication apparatus where the network has an antenna (212) for receiving and transmitting signals from a first frequency band and a second frequency band (Abstract).

50. FIG. 1 shows a schematic of a prior art filter network (Col. 1, l. 18).

51. In the filter network of the prior art (Fig. 1), the first duplexer operates in a first frequency band and the second duplexer operates in a

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second frequency band, therefore, the transmit (Tx) and receive (Rx) filters in each duplexer are necessarily of the same frequency band (Col. 1, ll. 28-33).

52. FIG. 2 shows a schematic/block diagram of a dual band filter network. The dual band filter network is capable of operating in both a first and a second frequency band. A first duplex pair 202 including a first transmit filter 204 is provided. Filter 204 includes a first passband in the second frequency band and a first stop-band in the first frequency band. (Col. 2, ll. 27-34.)

53. A second receive filter 206 is also included in the first duplex pair 202. Filter 206 includes a second pass-band in the first frequency band and a second stop-band in the second frequency band. The first filter 204 and the second filter 206 together define a first duplex pair 202. (Col. 2, ll. 35-39.)

54. Antenna 212 is capable of both receiving and transmitting signals from a first frequency band and a second frequency band (Col. 2, ll. 58-60).

55. FIG. 3 shows a specific example of the dual band filter network applied to the DCS and GSM frequency bands. FIG. 3 is substantially identical to FIG. 2 and all reference numbers in FIG. 2 are hereby incorporated into FIG. 3. (Col. 3, ll. 61-64.)

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56. In FIG. 3, the DCS-Tx filter 304 at 1710-1785 MHz is advantageously duplexed (paired or connected to) the GSM-Rx filter 306 at 925-960 MHz (Col. 4, ll. 7-9).

57. In the case of GSM and DCS frequency bands, the band separation is almost an octave (Col. 4, ll. 16-17).

58. By pairing the filters in this manner, the magnitude of the reflective phase coefficient out of band is approximately equal to one which will result in improved duplexing characteristics (Col. 4, ll. 19-24).

Mangal

59. Mangal describes a wireless communication system using a media access control (MAC) layer comprising a subscriber unit system and a base station system (Abstract).

60. In describing the prior art, Mangal teaches that to control the quality of service for wireless communications such as voice, video and data, service providers operate wireless systems in licensed frequencies. These frequencies are typically licensed from the Federal Communications Commission (FCC) to the service provider on a geographic basis. (Col 1, ll. 43-48.)

61. Once licensed, the service provider exercises management control over the frequencies in the specified coverage area ensuring the necessary quality of service. Some examples of licensed frequencies include Personal Communication Service (PCS), Microwave Multipoint Distribution

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System (MMDS), and Local Multipoint Communication Systems. (Col. 1, ll. 48-55.)

62. On the other hand, the FCC also allocates blocks of un-licensed frequencies that may be used by any service provider or end user. Unlicensed frequencies however, while freely available, do not allow service providers to manage the quality of service provided for sensitive communication. Some examples of unlicensed frequencies include Unlicensed Personal Communication Service (UPCS) and Industrial Scientific Medical (ISM) bands. (Col. 1, ll. 56-63.)

63. The invention of Mangal provides a method and system for dynamically controlling wireless communication service traffic over a licensed wireless transmission link and unlicensed wireless transmission link based on a quality of service (Col. 2, ll. 3-7).

64. The invention supports the varying quality of service requirements by dynamically exchanging communication service traffic over the licensed wireless transmission link where the required quality of service is high and exchanging communication service traffic over the unlicensed wireless transmission link where the required quality of service is low (Col. 2, ll. 10-16).

65. FIG. 1 illustrates an example of a wireless system according to the present invention (Col. 2, ll. 42-43).

66. The subscriber wireless transceiver 102 and the base station wireless transceiver 108 comprise a first wireless transmission link between

the subscriber unit system 100 and the base station system 109 and employ licensed frequencies for wireless transmissions. Some examples of the first wireless transmission link include without limitation, a multipoint multi-channel distribution link, a personal communication service link, and a millimeter wave link using code division multiple access or time division multiple access technology. (Col. 4, ll. 6-15.)

67. The subscriber wireless transceiver 104 and the base station wireless transceiver 110 comprise a second wireless transmission link between the subscriber unit system 100 and the base station system 109 employing unlicensed frequencies for wireless transmissions. Some examples of the second wireless transmission link include without limitation, a national information infrastructure link, an unlicensed personal communication service link, and an industrial scientific medical link using code division multiple access or time division multiple access technology. (Col. 4, ll. 15-24.)

68. FIG. 3 is a flow chart illustrating one example for providing communication services over a wireless communication system according to the present invention (Col. 6, ll. 1-2).

69. The base station control system 111 determines the type of communication service requested and transmits the request for the communication service to the subscriber control system 101 (Col. 6, ll. 19-22).

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70. The wireless signaling link can operate on either the licensed frequency or unlicensed frequency (Col. 6, ll. 23-26).

71. The base station control system 111 determines a required quality of service for the requested communication service (Col. 6, ll. 27-29).

72. The base station control system 111 selects one of the licensed allocation sub frame 201 or the unlicensed allocation sub frame 202 based on the determined required quality of service for the requested communication service (Col. 6, ll. 35-37).

73. The communication service is provided between the network system 113 and the requesting communication device 105, 106, and 107 over the selected portion of the MAC layer through the network interface system 112, the communication interface system 103, and the pair of wireless transceivers corresponding to the selected portion of the MAC layer, e.g., 102 and 108 which employ licensed frequencies (Col. 6, ll. 46-53 and col. 4, ll. 9-10).

74. Once the communication service concludes, the session terminates and wireless capacity tears down in reverse order ending the session (Col. 6, ll. 53-56).

PRINCIPLES OF LAW

Appellants have the burden on appeal to the Board to demonstrate error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86

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(Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection [under § 103] by showing insufficient evidence of prima facie obviousness or by rebutting the prima facie case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998)).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S. Ct. at 1734 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

In *KSR*, the Supreme Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art," *id.* at 1739, and discussed circumstances in which a patent might be determined to be obvious without an explicit application of the teaching, suggestion, motivation test.

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In particular, the Supreme Court emphasized that "the principles laid down in *Graham* reaffirmed the 'functional approach' of *Hotchkiss*, 11 How. 248." *KSR* at 11 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966) (emphasis added)), and reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* The Court explained:

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740. The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.*

Under this framework, once an Examiner demonstrates that the elements are known in the prior art and that one of ordinary skill could combine the elements as claimed by known methods and would recognize that the capabilities or functions of the combination are predictable, then the Examiner has made a prima facie case that the claimed subject matter is

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likely to be obvious. The burden then shifts to the Appellants to show that the Examiner erred in these findings or to provide other evidence to show that the claimed subject matter would have been nonobvious.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR*, 127 S. Ct. at 1741 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

§ 103 ANALYSIS – ARNOLD-BASED REJECTIONS

Claim Construction

To determine whether Arnold alone or Arnold in combination with Sugita render the rejected claims obvious, we must first determine the scope of the claims. We focus our claim construction on the critical "licensed band" and "unlicensed band" limitations found in all the claims.

Our reviewing court stated in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005):

> The claims, of course, do not stand alone. Rather, they are part of "a fully integrated written instrument," *Markman*, 52 F.3d at 978, consisting principally of a specification that concludes with the claims. For that reason, claims "must be read in view of the specification, of which they are a part." *Id.* at 979. As we stated in *Vitronics*, the specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." 90 F.3d at 1582.

Upon our review of the term "band" in light of Appellants' Specification, we conclude that "a band is a generally contiguous portion of the electromagnetic spectrum which is regulated by a governmental entity, such as the Federal Communications Commission (FCC) for the United States . . ." (Spec. ¶ [0003]). "The band utilized for communication in such prior art systems may be a licensed band or it may be an unlicensed band."

Upon our review of the term "licensed band" in light of Appellants' Specification, we conclude that a band is licensed because a license holder has a license (Spec. ¶ [0007], last three lines).

Upon our review of the term "unlicensed band" in light of Appellants' Specification, we conclude that a band is unlicensed because no operator has a license.

> In 1997 the FCC created a wireless arena called Unlicensed National Information Infrastructure (UNII). System operators are free to operate wireless equipment in three sub-bands (5.15 to 5.25 GHz, 5.25 to 5.35 GHz and 5.725 to 5.825 GHz) without acquiring a licensed frequency spectrum.

(Spec. ¶ [0010]). Additionally, an unlicensed band is regulated by the government entity. *Id.* ("The FCC specifies the conditions for operating wireless equipment in the UNII frequency band.") Further, unlicensed bands are not protected (we read this to be in a legal sense) from possible interference. *Id.* ("However, operators are not protected from possible interference from other UNII operators transmitting in the vicinity or even other systems or devices which utilize the same frequencies.") Lastly, we

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construe this to also indicate that "licensed bands" are protected (in a legal sense) from possible interference.

Consistent with our construction above, we conclude that a "licensed band" and an "unlicensed" band are both a portion of the electromagnetic spectrum regulated by a governmental entity. We further conclude that these bands differ only in the legal rights afforded to the operator by the governmental entity. For a licensed band the license holder (operator) is protected from interference via the legal rights granted by the governmental entity whereas for an unlicensed band the operator is not protected.

Lastly, we find that Appellants' Specification sets forth no functional or structural difference between a "licensed band" and an "unlicensed" band other than that a given band cannot be both licensed and unlicensed. Therefore, we conclude that there is no functional or structural difference other than the bands cannot be coextensive.

Thus, we conclude, "licensed" and "unlicensed" are merely labels indicating legal rights in the band and we construe the labels as only requiring "a first band" and "a second band" that is not coextensive with the first band.

Claims 1, 3-5, 10, 12, 19, and 21

With respect to claims 1, 3-5, 10, 12, 19, or 21, Appellants contend that the Examiner has erred because:

(A) Arnold fails to teach "using a licensed band for one direction of communication and an unlicensed band for another" (App. Br. 6-7).

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(B) "Arnold does not teach or suggest the desirability of transmitting in a licensed band *while* receiving signals in an unlicensed band, or the reverse" (App. Br. 7-8) (*Emphasis* added).

We disagree. With respect to (A), as discussed *supra*, we have concluded that the labels licensed and unlicensed merely require different bands for each direction of communication. Such is clearly taught in Arnold's FDD mode of operation. See FF 19-21. With respect to (B), Appellants do not point to claim language that requires transmitting *while* receiving and our review of the claims find no such limitation. Appellants' claims merely require transmitting *and* receiving which is not time specific. Again, such is clearly taught in Arnold's FDD mode of operation. See FF 19-21.

Therefore, for the reasons above, Appellants have not established that the Examiner erred with respect to this rejection of claims 1, 3-5, 10, 12, 19, and 21 under § 103(a).

Claims 2 and 13

With respect to claims 2 or 13, Appellants contend that the Examiner has erred in rejecting the claims because:

(C) Arnold does not teach an octave of separation between a transmission frequency and a reception frequency (App. Br. 8-9).

We disagree. In the rejection the Examiner explicitly acknowledged that Arnold does not teach an octave of separation (Final Rejection 7:1).

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The Examiner then explained why an octave of separation would have been suggested by Arnold alone (Final Rejection 7:2-5). Thus, the contention in Appellants' Brief does not in fact challenge the Examiner's conclusion. We note that Appellants' attempt to remedy this in the Reply Brief at page 10 by presenting a "teaching away" argument directed to the rejection. However, by not presenting this argument in the main brief, we deem it to be waived.

Additionally, even had the argument been properly presented, it would be unpersuasive as shown by the newly cited Newell patent since it is known in the art to separate the transmitting and receiving by an octave with accompanying benefits. See FF 49-58.

Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claims 2 and 13 under § 103(a) for the reasons above.

Claims 18, 22, and 23

With respect to claims 18, 22, or 23, Appellants contend that the Examiner has erred in rejecting the claims because:

> (D) Arnold's 7% bandwidth would not be considered by one of ordinary skill in the art to meet the bandwidth requirement to be a dual band antenna (App. Br. 9).

We disagree. Appellants' claim 12 sets forth that in their dual band system "said first frequency and said second frequency are separated by at

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least one percent of the lower of said frequencies." Thus Appellants' argument is contradicted by Appellants' own claim 12.

Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claims 18, 22, and 23 under § 103(a) for the reasons above.

Claims 25, 27, 29-31, 34, and 38

With respect to claims 25, 27, 29-31, 34, or 38, Appellants contend that the Examiner has erred in rejecting the claims because:

(E) Arnold does not teach a duplexer (App. Br. 9).

(F) In a repeat of Argument (A) above with respect to claims 1, 3-5, 10, 12, 19, or 21, Arnold fails to teach "using a licensed band for one direction of communication and an unlicensed band for another" (App. Br. 10).

(G) There is no motivation to modify Arnold to meet the licensed and unlicensed limitations of these claims (App. Br. 10).

As to argument (E), we disagree. Appellants admit that "[i]n the prior art, the radio of a hub-station or subscriber station may include a duplexer, which employs filters to filter the upstream out of the downstream, and vice versa." (Spec. ¶ [0006].) Arnold's Fig. 3 teaches just such filtering circuitry (i.e., a duplexer). See FF 24-26.

As to argument (F), we disagree for the same reason set forth *supra* with respect to claims 1, 3-5, 10, 12, 19, or 21.

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As to argument (G), we disagree as we conclude that no modification of Arnold is required to meet the licensed and unlicensed limitations of these claims. As previously discussed, we conclude, "licensed" and "unlicensed" are merely labels indicating legal rights in the band and we construe the labels as only requiring "a first band" and "a second band" that is not coextensive with the first band. Such is clearly taught in Arnold's FDD mode of operation. See FF 19-21.

Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claims 25, 27, 29-31, 34, and 38 under § 103(a) for the reasons above.

Claim 28

With respect to claim 28, Appellants contend that the Examiner has erred in rejecting the claim because:

> (H) In a repeat of Argument (C) above with respect to claims 2 and 13, Arnold does not teach an octave of separation between a transmission frequency and a reception frequency (App. Br. 10).

We disagree for the same reasons set forth *supra* with respect to claims 2 and 13. Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claim 28 under § 103(a) for the reasons above.

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§ 103 ANALYSIS – ARNOLD IN COMBINATION WITH SUGITA

Claim 11

With respect to claim 11, Appellants contend the Examiner has erred in rejecting the claim because:

> (A) Sugita is not relied upon to provide the limitations that Appellants contend are missing from Arnold with respect to the rejection of claim 10 from which claim 11 depends (see Arguments (A) and (B) above with respect to claims 1, 3-5, 10, 12, 19, or 21) (App. Br. 11).
>
> (B) The rejection of record does not provide (i) information with respect to the proposed modification of the references or (ii) an explanation of why one skilled in the art would be motivated to make the required modification (App. Br. 11-12).

As to argument (A), we disagree. As discussed *supra*, we have found that the limitations that Appellants contend are missing from Arnold, with respect to the rejection of claim 10, are not missing.

As to argument (B), we disagree. Although Arnold teaches that duplexers (Fig. 3) are known in the portable station, Arnold is silent as to the structure of the described ports (fixed stations). The Examiner relies on Fig. 3 of the Sugita reference solely to show that duplexers are known in the fixed station. We conclude that the Examiner's explanation of the combination of Arnold and Sugita is more than sufficient articulated reasoning to meet the requirements to support the legal conclusion of obviousness as set forth in *KSR*.

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Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claim 11 under § 103(a) for the reasons above.

Claim 26

With respect to claim 26, Appellants contend that the Examiner has erred in rejecting the claim because:

> (C) In a repeat of Argument (B)(ii) above with respect to claim 11, the rejection of record does not provide an explanation (objective reason) of why one skilled in the art would be motivated to make the required modification (App. Br. 12-13).

We disagree for the same reason set forth *supra* with respect to claim 11.

Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claim 26 under § 103(a) for the reasons above.

§ 103 ANALYSIS – CONCLUSION

This Panel's rationale *supra* for affirming the Examiner's § 103 rejections, based on Arnold alone or Arnold in combination with Sugita, differs significantly from the rationale set forth by the Examiner and for some claims includes additional evidence. Therefore, we designate the

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affirmance of each rejection under §103(a) as a new grounds of rejection under 37 C.F.R. § 41.50(b).

§ 112, FIRST PARAGRAPH, ANALYSIS

Appellants contend that claim 24 meets the enablement requirement of 35 U.S.C. § 112, first paragraph. More specifically, Appellants contend that one of ordinary skill in the art could implement "co-spatial footprints" without undue experimentation and that this is confirmed by the Examiner's finding that Arnold teaches "co-spatial reception and transmission beams" (see Arnold, col. 8, ll. 29-38) (App. Br. 13-14).

We agree. We conclude that claim 24 merely recites that transmission and reception beams must be co-spatial, i.e., they must overlap in some form. We find that it is a fact well-known in that art that for a system such as Appellants' system to be operative the beams must overlap. Thus claim 24 is enabled.

On the record before us, it follows that the Examiner erred in rejecting Claim 24 under § 112, first paragraph.

§ 112, SECOND PARAGRAPH, ANALYSIS

Appellants contend that claim 39 meets the definiteness requirement of 35 U.S.C. § 112, second paragraph. More specifically, Appellants contend that claim 39 is definite because one of ordinary skill in the art would understand that the "greater" filtering requirement means more

stringent reduction of potential interference in adjacent frequency bands (App. Br. 14-15). We disagree.

Appellants' claim 39 recites that the "station" further comprises structure in the form of "means for filtering said data signals". Claim 39, then recites "wherein filtering requirements for received upstream data communications at said hub are greater than filtering requirements for received downstream data communications at said at least one subscriber station." While we agree with Appellants that the "greater" filtering requirement means a more stringent reduction of potential interference, we find nothing in claim 39 that clarifies whether the "greater" limitation (1) is directed to structure that performs this greater filtering (the statement modifies the means for filtering), or (2) is merely a statement that there is more interference in the upstream data communications (modifies the data).

Therefore, Appellants have not established that the Examiner erred with respect to this rejection of claim 39 under § 112, second paragraph.

Because this Panel provides further rationale for the rejection beyond that found in the Examiner's rejection under §112, second paragraph, we designate the affirmance of this rejection, as a new grounds of rejection under 37 C.F.R. § 41.50(b).

VI. NEW GROUNDS OF REJECTION

A. *35 U.S.C. § 102(b)*

We reject claim 1 under 35 U.S.C. § 102(b), using our authority under 37 C.F.R. § 41.50(b).

The second embodiment of Sugita anticipates Appellants' claim 1 (see FF 41-48).

Sugita's base station transmits to the mobile 40 in a licensed band and the mobile judges if it can operate in an unlicensed mode (FF 44) based on the position of the base station (FF 45).

We note that the second embodiment of Sugita anticipates Appellants' claim 1 even if we give weight to the licensed and unlicensed labels placed on the two different frequency bands.

B. *35 U.S.C. § 102(e)*

We reject claim 1 under 35 U.S.C. § 102(e), using our authority under 37 C.F.R. § 41.50(b).

Mangal anticipates Appellants' claim 1 (see FF 59-74). All of the steps within Appellants' claim 1 occur in Mangal's process. Appellants' claim 1 does not preclude (1) bi-directional transmissions in both frequency bands, or (2) the transmitting (upstream) and receiving (downstream) occurring at separate times.

We also note that Mangal anticipates Appellants' claim 1 even if we give weight to the licensed and unlicensed labels placed on the two different frequency bands.

C. *Other Issues*

The Board of Patent Appeals and Interferences is a review body, rather than a place of initial examination. We have made several rejections above under *37 C.F.R. § 41.50(b)*. However, we have not reviewed claims 2-5, 10-13, 18-19, 21-31, 34, and 38-39 to the extent necessary to determine whether these claims are unpatentable over the Sugita or Mangal patents. We leave it to the instant Examiner to determine the appropriateness of any further rejections based on these references alone or in combination with other references.

D. *35 U.S.C. § 112, second paragraph*

Using our authority under 37 C.F.R. § 41.50(b), we reject claims 1-5, 10-13, 18-19, 21-24 under 35 U.S.C. § 112, second paragraph, as being indefinite.

Appellants' claim 1 recites "a first frequency within a first band" and "a second frequency within a second band." Appellants then recite "one of said frequencies is in a licensed band" and "another of said frequencies is an unlicensed band." While it is clear how a frequency "*is in*" a licensed band, it is unclear how a frequency "*is*" an unlicensed band. Also, claiming that

the frequency "is" a band contradicts the earlier limitation that the frequency is "within" a band.

E. *37 C.F.R. § 41.50(b)*

37 C.F.R. § 41.50(b) provides that, "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellants, *WITHIN TWO MONTHS FROM THE DATE OF THE DECISION*, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of proceedings (37 C.F.R. § 1.197 (b) as to the rejected claims:

> (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner …
>
> (2) Request rehearing. Request that the proceeding be reheard under 37 C.F.R. § 41.52 by the Board upon the same record …

CONCLUSIONS OF LAW

(1) Appellants have failed to establish that the Examiner erred in rejecting claims 1-5, 10, 12-13, 18-19, 21-23, 25, 27-31, 34, and 38 as being unpatentable under 35 U.S.C. § 103(a) over Arnold.

(2) Appellants have failed to establish that the Examiner erred in rejecting claims 11 and 26 as being unpatentable under 35 U.S.C. § 103(a) over Arnold and Sugita.

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(3) Appellants have established that the Examiner erred in rejecting claim 24 under 35 U.S.C. § 112, first paragraph.

(4) Appellants have failed to establish that the Examiner erred in rejecting claim 39 under 35 U.S.C. § 112, second paragraph.

(5) Claims 1-5, 10-13, 18-19, 21-31, 34, and 38-39 are not patentable.

(6) Since we have entered a new rejection, our decision is not a final agency action.

DECISION

The Examiner's rejections of claims 1-5, 10-13, 18-19, 21-23, 25-31, 34, and 38-39 are affirmed.

The Examiner's rejection of claim 24 is reversed.

We reject claims 1-5, 10-13, 18-19, 21-24 under 35 U.S.C. § 112, second paragraph.

We reject claim 1 under 35 U.S.C. § 102(b) as being unpatentable over Sugita.

We reject claim 1 under 35 U.S.C. § 102(e) as being unpatentable over Mangal.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART
37 C.F.R. § 41.50(b)

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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	10/095,307-Conf. #3972
Filing Date	March 11, 2002
First Named Inventor	Randy J. Karr
Art Unit	2616
Examiner Name	D. Levitan
Attorney Docket Number	68144/P009US/10501230

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
   - a. [ ] Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
     - i. [ ] Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
     - ii. [ ] Other _____
   - b. [X] Enclosed
     - i. [X] Amendment/Reply
     - ii. [ ] Affidavit(s)/Declaration(s)
     - iii. [ ] Information Disclosure Statement (IDS)
     - iv. [ ] Other _____
2. Miscellaneous
   - a. [ ] Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
   - b. [ ] Other _____
3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
   - a. [X] The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 06-2380 .
     - i. [ ] RCE fee required under 37 CFR 1.17(e)
     - ii. [ ] Extension of time fee (37 CFR 1.136 and 1.17)
     - iii. [ ] Other _____
   - b. [ ] Check in the amount of $ _____ enclosed
   - c. [X] Payment by credit card is submitted herewith.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	R. Ross Viguet	Date	April 25, 2008
Name (Print/Type)	R. Ross Viguet	Registration No.	42,203

Request for Continued Examination Transmittal
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: April 25, 2008 Signature: Carol Martin (Carol Martin)

60095716

Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

AMENDMENT AFTER BOARD DECISION UNDER 37 C.F.R. § 41.50(B)(1) & M.P.E.P. § 1214.01

MS RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Decision on Appeal dated February 25, 2008 (hereinafter the "Decision"), please amend the above-identified U.S. patent application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

1.-23. (Cancelled)

24. (Currently Amended) ~~The system of claim 23~~ A system for spectrum allocation in wireless data communication comprising:

a first data communications station transmitting data on a first frequency in a first band of operation and receiving data on a second frequency in a second band of operation; and

at least one other data communications station transmitting data on said second frequency in said second band of operation and receiving data on said first frequency in said first band of operation;

wherein one of said frequencies is in a licensed band and another of said frequencies is an unlicensed band, wherein said first station is a hub station and said at least one other data communications station is at least one subscriber station, wherein said hub station comprises at least one dual band antenna transmitting on said first frequency using a first antenna beam and receiving on said second frequency using a second antenna beam, wherein said subscriber stations comprise at least one dual band antenna receiving on said first frequency using a first antenna beam and transmitting on said second frequency using a second antenna beam, wherein said hub station first antenna beam and said subscriber station first antenna beam have co-spatial footprints and said hub station second antenna beam and said subscriber station second antenna beam have co-spatial footprints.

25.-39. (Cancelled)

40. (New) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency in a low interference frequency band;

transmitting, at said subscriber station, data on a second frequency in a high interference frequency band, and

wherein said low interference frequency band and said high interference frequency are separated by at least one octave.

41. (New) The method of claim 40 wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

42. (New) The method of claim 40 wherein said data is frequency division duplexed.

43. (New) The method of claim 40 further comprising:

receiving, at a base station, data on said second frequency in said high interference frequency band;

transmitting, at said base station, data on said first frequency in said low interference frequency band;

wherein said first frequency and said second frequency are separated by at least one octave.

44. (New) The method of claim 43 wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

45. (New) The method of claim 43 wherein said data is frequency division duplexed.

46. (New) The method of claim 43 wherein said base station performs higher order filtering on signals received at said base station than said mobile station performs on signals received at said mobile station.

47. (New) The method of claim 46 wherein the filtering performed at said base station is performed by a multi-pole filter.

48. (New) The method of claim 46 wherein said mobile station performs lower order filtering on signals received at said mobile station than said base station performs on signals received at said base station.

49. (New) The method of claim 48 wherein the filtering performed at said mobile station is performed by FIR filtering.

50. (New) The method of claim 48 wherein the filtering performed at said mobile station is performed by SAW filtering.

51. (New) The method of claim 40 wherein said low interference frequency band is determined to be low interference and said high interference frequency band is determined to be high interference according to regulation of each of said frequency bands by a governmental entity.

52. (New) The method of claim 51 wherein said governmental entity is the FCC.

53. (New) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

transmitting, at a base station, data on a first frequency in a low interference frequency band; and

receiving, at said base station, data on a second frequency in a high interference frequency band;

wherein said first frequency and said second frequency are separated by at least one octave.

54. (New) The method of claim 53 wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

55. (New) The method of claim 53 wherein said data is frequency division duplexed.

56. (New) The method of claim 53 further comprising:

receiving, at a subscriber station, data on said first frequency in said low interference frequency band;

transmitting, at said subscriber station, data on said second frequency in said high interference frequency band,

wherein said first frequency and said second frequency are separated by at least one octave.

57. (New) The method of claim 56 wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

58. (New) The method of claim 56 wherein said data is frequency division duplexed.

59. (New) The method of claim 56 wherein said base station performs higher order filtering on signals received at said base station than said mobile station performs on signals received at said mobile station.

60. (New) The method of claim 59 wherein the filtering performed at said base station is performed by a multi-pole filter.

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61. (New) The method of claim 59 wherein said mobile station performs lower order filtering on signals received at said mobile station than said base station performs on signals received at said base station.

62. (New) The method of claim 61 wherein the filtering performed at said mobile station is performed by FIR filtering.

63. (New) The method of claim 60 wherein the filtering performed at said mobile station is performed by SAW filtering.

64. (New) The method of claim 53 wherein said low interference frequency band is determined to be low interference and said high interference frequency band is determined to be high interference according to regulation of each of said frequency bands by a governmental entity.

65. (New) The method of claim 64 wherein said governmental entity is the FCC.

66. (New) A method for increasing wireless communication capacity, said method comprising:

providing a base station, said base station adapted to transmit data in a low noise frequency band and to receive data in a high noise frequency band; and

providing a plurality of subscriber stations, said plurality of subscriber stations adapted to data in said high noise frequency band and to receive data in said low noise frequency band;

wherein said base station performs higher order filtering on signals received at said base station than said plurality of mobile station perform on signals received at said plurality of mobile stations.

67. (New) The method of claim 66 wherein the filtering performed at said base station is performed by a multi-pole filter.

68. (New) The method of claim 66 wherein the filter performed at said mobile station is performed by FIR filtering.

69. (New) The method of claim 66 wherein the filter performed at said mobile station is performed by SAW filtering.

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70. (New) The method of claim 66 wherein said low noise frequency and said high noise frequency band are separated by at least one octave.

71. (New) The method of claim 66 wherein said data is frequency division duplexed.

72. (New) A wireless communication system, said system comprising:

at least one subscriber station, said at least one subscriber station comprising:

a multi-band antenna, said multi-band antenna employing more than one polarity in each band of operation; and

a multi-band duplexer, said multi-band duplexer operating in a first frequency band a second frequency band, where said first frequency band and said second frequency band are separated by at least on octave.

73. (New) The wireless communication system of claim 72 wherein said multi-band duplexer comprises a waveguide assembly.

74. (New) The wireless communication system of claim 72 wherein said multi-band antenna substantially matches the antenna pattern of the uplink and downlink.

75. (New) The wireless communication system of claim 73 wherein said waveguide assembly comprises a first waveguide component and second waveguide component, where the waveguide of said first waveguide component is approximately twice as large as the waveguide of said second waveguide component.

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Page 263

REMARKS

I. Background

On November 6, 2007, Applicant presented oral arguments before the Board of Patent Appeals and Interferences (the "Board") with regard to previously pending claims 1-5, 10-13, 18-19, 21-31, 34, and 38-39 (now cancelled). On February 25, 2008, the Board issued its Decision and designated new grounds of rejection under 37 C.F.R. § 41.50(b) for each of previously pending claims 1-5, 10-13, 18-19, 21-23, 25-31, 34, and 38-39. *See* Decision at pgs. 32-35 (setting forth a rejection under 37 C.F.R. 41.50(b) for claims 1-5, 10, 11, 12-13, 18-19, 21-23, 25, 26, 27-31, 34, 38 at pg. 32; claim 39 at pg. 33; claim 1 at pg. 34; and claims 1-5, 10-13, 18-19, and 21-24 at pg. 35). The Board determined that previously pending claim 24 is allowable.

In response to the Board's new rejections, Applicant now cancels claims 1-5, 10-13, 18-19, 21-23, 25-31, 34, and 38-39, presents allowed claim 24 in independent form, and presents new claims 40-75. Claims 40-75 are supported in the original specification and originally submitted claims. Therefore, no new matter has been added.

Claim 24 has been written in independent form to include the limitations of base claim 10 and intervening claims 19, 22, and 23. Because the Board indicated claim 24 as containing allowable subject matter, Applicant asserts that claim 24 is in condition for allowance.

New claim 40 recites "receiving, at a subscriber station, data on a first frequency in a low interference frequency band; and transmitting, at said subscriber station, data on a second frequency in a high interference frequency band, wherein said low interference frequency band and said high interference frequency are separated by at least one octave." The foregoing is not present in the art of record. Accordingly, Applicant asserts that claim 40, and claims 41-52 dependent therefrom, are patentable over the art of record.

New claim 53 recites "transmitting, at a base station, data on a first frequency in a low interference frequency band; and receiving, at said base station, data on a second frequency in a high interference frequency band; wherein said first frequency and said second frequency are separated by at least one octave." The foregoing is not present in the art of record. Accordingly,

Applicant asserts that claim 53, and claims 54-65 dependent therefrom, are patentable over the art of record.

New claim 66 recites "providing a base station, said base station adapted to transmit data in a low noise frequency band and to receive data in a high noise frequency band; and providing a plurality of subscriber stations, said plurality of subscriber stations adapted to data in said high noise frequency band and to receive data in said low noise frequency band; wherein said base station performs higher order filtering on signals received at said base station than said plurality of mobile station perform on signals received at said plurality of mobile stations." The foregoing is not present in the art of record. Accordingly, Applicant asserts that claim 66, and claims 67-71 dependent therefrom, are patentable over the art of record.

New claim 72 recites "at least one subscriber station, said at least one subscriber station comprising: a multi-band antenna, said multi-band antenna employing more than one polarity in each band of operation; and a multi-band duplexer, said multi-band duplexer operating in a first frequency band a second frequency band, where said first frequency band and said second frequency band are separated by at least on octave." The foregoing is not present in the art of record. Accordingly, Applicant asserts that claim 72, and claims 73-75 dependent therefrom, are patentable over the art of record.

II. Conclusion

In view of the above, Applicant believes the pending application is in condition for allowance. Applicant believes no fee is due with this response. However, if a fee is due, please

charge our Deposit Account No. 06-2380, under Order No. 68144/P009US/10501230 from which the undersigned is authorized to draw.

Dated: April 25, 2008

Respectfully submitted,

By _____
R. Ross Viguet
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Attorney for Applicant

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: April 25, 2008

Signature: _____
(Carol Martin)

Electronic Patent Application Fee Transmittal

Application Number:	10095307
Filing Date:	11-Mar-2002
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Filer:	David H. Tannenbaum/Carol Martin
Attorney Docket Number:	68144/P009US/10501230
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**405**

Electronic Acknowledgement Receipt

EFS ID:	3212495
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	David H. Tannenbaum/Carol Martin
Filer Authorized By:	David H. Tannenbaum
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	25-APR-2008
Filing Date:	11-MAR-2002
Time Stamp:	17:16:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$405
RAM confirmation Number	2361
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1		AdaptixP009USRCEAmdt.pdf	284184 c129ef1e81661a24a0e20fe9e4b92389fd73f4ac	yes	10
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Request for Continued Examination (RCE)		1	1	
	Amendment Submitted/Entered with Filing of CPA/RCE		2	2	
	Claims		3	7	
	Applicant Arguments/Remarks Made in an Amendment		8	10	
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8212 da4bdcfd7f59360e86729a9c8483115ala51dbea	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	292396		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30 (01-08)
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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	10/095,307-Conf. #3972
Filing Date	March 11, 2002
First Named Inventor	Randy J. Karr
Art Unit	2616
Examiner Name	D. Levitan
Attorney Docket Number	68144/P009US/10501230

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).
   - a. [ ] Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
     - i. [ ] Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
     - ii. [ ] Other _____
   - b. [X] Enclosed
     - i. [X] Amendment/Reply
     - ii. [ ] Affidavit(s)/Declaration(s)
     - iii. [ ] Information Disclosure Statement (IDS)
     - iv. [ ] Other _____
2. Miscellaneous
   - a. [ ] Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
   - b. [ ] Other _____
3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
   - a. [X] The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments to Deposit Account No. 06-2380 .
     - i. [ ] RCE fee required under 37 CFR 1.17(e)
     - ii. [ ] Extension of time fee (37 CFR 1.136 and 1.17)
     - iii. [ ] Other _____
   - b. [ ] Check in the amount of $ _____ enclosed
   - c. [X] Payment by credit card is submitted herewith.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	R. Ross Viguet	Date	April 25, 2008
Name (Print/Type)	R. Ross Viguet	Registration No.	42,203

Request for Continued Examination Transmittal
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: April 25, 2008 Signature: Carol Martin (Carol Martin)

60095716

PTO/SB/06 (07-06)
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/095,307	03/11/2002	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/25/2008	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 37	Minus	** 39	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 5	Minus	***3	= 2	X $105 =	210	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	210	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/JOY DOBBS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/095,307	03/11/2002	Randy J. Karr	68144/P009US/10501230	3972

29053 7590 05/13/2008
FULBRIGHT & JAWORSKI L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER	
LEVITAN, DMITRY	
ART UNIT	PAPER NUMBER
2616	
MAIL DATE	DELIVERY MODE
05/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/095,307	KARR ET AL.	
	Examiner	Art Unit	
	Dmitry Levitan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24 and 40-75* is/are pending in the application.

4a) Of the above claim(s) *24 and 72-75* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *24 and 72-75* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date: _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Amendment, filed 4/25/08 has been entered. Claims 24 and 40-75 remain pending.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 40-71, drawn to communication over free space combining or distributing information via frequency channels, classified in class 370, subclass 343.

II. Claims 24 and 72-75, drawn to radio wave antennas, classified in class 343, subclass 700.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable.

In the instant case, subcombination of Group I has separate utility such as transmitting and receiving data in two frequency bands with high and low interference/noise environment, which does not necessarily requires the particulars of Group II.

Subcombination of Group II has separate utility such as utilizing an antenna with particular co-spatial or polarity characteristics, which does not necessarily requires the particulars of Group I.

See MPEP § 806.05(d).

3. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

4. During a telephone conversation with Robert Greeson on 5/05/08 a provisional election was made without traverse to prosecute the invention of Group I, claims 40-71. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 24 and 72-75 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 66-71 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 66 limitation, directed to "plurality of mobile stations" is not supported by the disclosure as filed. Contrarily to the claiming the stations mobile, the disclosure is directed to a static system, wherein the stations are permanently located at the buildings, as disclosed on [0002] and [0013].

Claims 67-71 are rejected as the claims depending on claim 66.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 40-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 40, 51, 53, 64 and 66 limitations, directed to "low interference frequency band", "high interference frequency band", "high noise frequency band" and "low noise frequency band" are unclear because in any frequency band interference and noise are subjects to constant

change and cannot identify the frequency band, as at some point "low interference band" can have higher interference than "high interference band".

In addition, the level of noise and interference depends on the direction of the transmission, as interference/noise measured in the same frequency band at the base and the subscriber station are different, making the limitations unclear.

Claims 40, 53 and 66 limitations, directed to providing communications on "a first frequency" or a "second frequency" are unclear, because communication systems are typically utilize a spectrum of frequencies for communication. The transmit or receive signal comprises a group/spectrum of frequencies, as transmitting and receiving data on a single frequency is not possible.

Examiner will interpret first/second frequencies as spectrums/group of frequencies, characterized by first or second frequency.

Other claims are rejected as the claims depending on the rejected claims above.

Claim Objections

10. Claims 49, 50, 62, 63, 68 and 69 are objected to because of the following informalities: use of abbreviations FIR and SAW without explanation. Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 40-71 are rejected (as best understood) under 35 U.S.C. 103(a) as being unpatentable over Mangal (US 6,801,519) in view of Admitted Prior Art (Current application, Background, pages 1-5).

13. Regarding claims 40, 43, 51-53, 56, 64 and 65, Mangal substantially teaches the limitations of the claims:

A method for increasing capacity of a wireless data communication system (communication wireless system operating in two bands, one licensed and other unlicensed, to connect a base station 109 and a subscriber station 100, as shown on Fig. 1 and disclosed on 4:6-26), said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency, transmitted from the base station, in a low quality frequency band (selecting a receiving band for the subscriber station based on the quality needs for the service, as disclosed on 6:1-46, which is received at the subscriber station and could be low, as disclosed on 7:34-55);

transmitting, at said subscriber station to the base station, data on a second frequency in a high quality frequency band (selecting a transmitting band for the subscriber station based on the quality needs for the service, which is transmitted from the subscriber station, as disclosed on 6:1-46, and could be high, as disclosed on 7:34-55).

In addition, Mangal teaches one of the frequency band as a licensed from FCC and the other frequency band as un-licensed by FCC, as disclosed on 1:44-67, and using the method for one way communications, as disclosed on 9:19-23.

Mangal does not teach interference as quality characteristics and the bands separated by at least one octave.

Official notice is taken that using interference as quality characteristics is well known and expected in the art.

Admitted Prior Art teaches using licensed and unlicensed bands separated by at least one octave, as disclosed on pages 4 and 5.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using licensed and unlicensed bands separated by at least one octave of Admitted Prior Art and use of interference and noise as a quality measurement to the system of Mangal to improve the system operation by separating the transmit and receive frequencies by an octave to reduce their interference and utilize well-known quality parameter as interference to provide appropriate quality level of communications in the system.

14. Claim 66 is rejected (as best understood) under 35 U.S.C. 103(a) as being unpatentable over Mangal (US 6,801,519) in view of Admitted Prior Art (Current application, Background, pages 1-5).

Mangal substantially teaches the limitations of the claims:

A method for increasing capacity of a wireless data communication system (communication wireless system operating in two bands, one licensed and other unlicensed, to connect a base station 109 and a subscriber station 100, as shown on Fig. 1 and disclosed on 4:6-26), said

method comprising the steps of:

receiving, at a subscriber station, data on a first frequency in a low quality frequency band (selecting a receiving band for the subscriber station based on the quality needs for the service, as disclosed on 6:1-46, which is received at the subscriber station and could be low, as disclosed on 7:34-55);

transmitting, at said subscriber station, data on a second frequency in a high quality frequency band (selecting a transmitting band for the subscriber station based on the quality needs for the service, which is transmitted from the subscriber station, as disclosed on 6:1-46, and could be high, as disclosed on 7:34-55).

In addition, Mangal teaches one of the frequency band as a licensed from FCC and the other frequency band as un-licensed by FCC, as disclosed on 1:44-67, and using the method for one way communications, as disclosed on 9:19-23.

Mangal does not teach noise as quality characteristic, using a plurality of stations and performing higher order filtering at the base station than the subscriber stations.

Official notice is taken that using noise as quality characteristic is well known and expected in the art.

Admitted Prior Art teaches using point-to-multipoint systems for radio communication systems, as disclosed on page 2, and filtering a received signal at a hub/base station or subscriber stations, as disclosed on page 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using point-to-multipoint systems and performing filtering for the received signals of Admitted Prior Art and use of noise as a quality measurement to the system of Mangal

to improve the system operation by providing service to multiple users at different locations by utilizing a point-to-multipoint system, reduce the system cost by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations and utilize well-known quality parameters as noise to provide appropriate quality level of communications in the system.

15. Regarding claims 41, 44, 54 and 57, Mangal teaches performing receiving and transmitting operation almost at the same time, as the transmission link and the receive link belong to the same MAC layer and are capable to support such bidirectional communications, requiring almost simultaneous transmit and receive operations, like telephony, as disclosed on 2:1-29, or web browsing, as disclosed on 1:25-32.

16. Regarding claims 42, 45, 55, 58 and 71, Admitted prior art teaches using of frequency division duplexing (FDD), as disclosed on page 2.

17. Regarding claim 70, Admitted Prior Art teaches using licensed and unlicensed bands separated by at least one octave, as disclosed on pages 4 and 5.

18. Claims 46, 48, 59 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangal in view of Admitted Prior Art.

Mangal in view of Admitted Prior Art substantially teaches the limitations of the claims (see the parent claims rejection above).

Mangal in view of Admitted Prior Art does not teach performing higher order filtering on the base station in comparison with the lower order filtering at subscriber stations.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add performing higher order filtering on the base station in comparison with the subscriber stations to the system of Mangal in view of Admitted Prior Art to improve the system

cost by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations.

19. Claims 47-50, 60-63 and 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangal in view of Admitted Prior Art.

Mangal in view of Admitted Prior Art substantially teaches the limitations of the claims (see the parent claims rejection above), including filtering at base and subscriber stations.

Mangal in view of Admitted Prior Art does not teach using multi-pole, FIR and SAW filters.

Official notice is taken that multi-pole, FIR and SAW filters are well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add multi-pole filters to the system of Mangal in view of Admitted Prior Art to utilize well-known filtering methods in the system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dmitry Levitan
Primary Examiner
Art Unit 2616

/Dmitry Levitan/
Primary Examiner, Art Unit 2616

Notice of References Cited	Application/Control No. 10/095,307	Applicant(s)/Patent Under Reexamination KARR ET AL.	
	Examiner Dmitry Levitan	Art Unit 2616	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,801,519 B1	10-2004	Mangal, Manish	370/349
*	B	US-5,815,804 A	09-1998	Newell et al.	455/78
*	C	US-5,828,948 A	10-1998	Almgren et al.	455/450
*	D	US-5,168,459 A	12-1992	Hiller, Donald R.	708/322
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10095307	KARR ET AL.
	Examiner	Art Unit
	Dmitry Levitan	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/08/2008								
	1	-								
	2	-								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10095307	KARR ET AL.
	Examiner	Art Unit
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE									
Final	Original	05/08/2008									
	37	-									
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	Art Unit
	Dmitry Levitan	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/08/2008								
	73	-								
	74	-								
	75	-								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10095307	KARR ET AL.
	Examiner	Art Unit
	Dmitry Levitan	2616

SEARCHED			
Class	Subclass	Date	Examiner
370	329,332, 341, 349, 395.21, 395.43	5/08/08	DL
455	450, 452, 464, 560, 561, 552.1	5/08/08	DL

SEARCH NOTES		
Search Notes	Date	Examiner
IEEE, EAST	5/08/08	DL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L6	6	(radio or wireless or rf or cellular) and (un$licensed near2 frequency) and ((licensed near2 frequency) near4 (up$link or down$link or up $stream or down $stream or link or connection)) and @ay<"2004"	US-PGPUB; USPAT; EPO	OR	ON	2008/05/07 14:10
L16	40	(radio or wireless or rf or cellular) and (un$licensed near2 frequency) and (licensed near2 frequency) and ((quality or qos or interference or noise) near2 (up $link or down$link or up$stream or down$stream or link or connection)) and @ay<"2004"	US-PGPUB; USPAT; EPO	OR	ON	2008/05/07 14:23
L23	103	(radio or wireless or rf or cellular) and ((high or low) near2 ((quality or qos or interference or noise) near2 (up $link or down$link or up$stream or down$stream))) and @ay<"2004"	US-PGPUB; USPAT; EPO	OR	ON	2008/05/07 14:56

L26	6	(radio or wireless or rf or cellular) and (un$licensed near2 frequency) and ((licensed near2 frequency) near4 (up$link or down$link or up $stream or down $stream or return or link or connection)) and @ay<"2004"	US-PGPUB; USPAT; EPO	OR	ON	2008/05/07 15:11

5/7/08 4:04:41 PM
C:\Documents and Settings\DLevitan\My Documents\EAST\Workspaces\10095307.wsp

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/095,307	03/11/2002	Randy J. Karr	68144/P009US/10501230	3972

29053 7590 07/31/2008
FULBRIGHT & JAWORSKI L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER	
LEVITAN, DMITRY	
ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
07/31/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	Application No.	Applicant(s)	
	10/095,307	KARR ET AL.	
	Examiner	Art Unit	
	Dmitry Levitan	2616	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Dmitry Levitan*. (3)_____.

(2) *Robert L. Greeson*. (4)_____.

Date of Interview: *30 July 2008*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *40-71*.

Identification of prior art discussed: *Mangal US 6,801,519*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Examiner explained his position on clarity problems of the claims. Regarding the art rejection over Mangal, Examiner requested a written response, because the rejection comprises Mangal teaching, Official notice and Admitted Prior art,and Examiner has not seen the Applicant's arguments prior the interview* .

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Dmitry Levitan/
Primary Examiner, Art Unit 2616
Examiner's signature, if required

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

RESPONSE TO NON-FINAL OFFICE ACTION

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated May 13, 2008 (hereinafter the "Current Action"), and the Office Communication (Interview Summary) mailed July 31, 2008, please consider the following remarks:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

AMENDMENTS TO THE CLAIMS

1.-23. (Cancelled)

24. (Withdrawn) A system for spectrum allocation in wireless data communication comprising:

a first data communications station transmitting data on a first frequency in a first band of operation and receiving data on a second frequency in a second band of operation; and

at least one other data communications station transmitting data on said second frequency in said second band of operation and receiving data on said first frequency in said first band of operation;

wherein one of said frequencies is in a licensed band and another of said frequencies is an unlicensed band, wherein said first station is a hub station and said at least one other data communications station is at least one subscriber station, wherein said hub station comprises at least one dual band antenna transmitting on said first frequency using a first antenna beam and receiving on said second frequency using a second antenna beam, wherein said subscriber stations comprise at least one dual band antenna receiving on said first frequency using a first antenna beam and transmitting on said second frequency using a second antenna beam, wherein said hub station first antenna beam and said subscriber station first antenna beam have co-spatial footprints and said hub station second antenna beam and said subscriber station second antenna beam have co-spatial footprints.

25.-39. (Cancelled)

40. (Currently Amended) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency in a ~~low interference~~ frequency band expected to experience low interference;

transmitting, at said subscriber station, data on a second frequency in a ~~high interference~~ frequency band expected to experience high interference, ~~and~~

wherein said low interference frequency band and said high interference frequency

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are separated by at least one octave; and

wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

41. (Cancelled)

42. (Previously Presented) The method of claim 40 wherein said data is frequency division duplexed.

43. (Currently Amended) The method of claim 40 further comprising:

receiving, at a base station, data on said second frequency in said ~~high~~ interference frequency band expected to experience high interference;;

transmitting, at said base station, data on said first frequency in said ~~low~~ frequency band expected to experience low interference;;

wherein said first frequency and said second frequency are separated by at least one octave.

44. (Currently Amended) The method of claim 43 wherein at least a portion of said receiving at a base station and at least a portion of said transmitting at a base station occur at the same time.

45. (Previously Presented) The method of claim 43 wherein said data is frequency division duplexed.

46. (Currently Amended) The method of claim 43 wherein said base station performs higher order filtering on signals received at said base station than said ~~mobile~~ subscriber station performs on signals received at said ~~mobile~~ subscriber station.

47. (Previously Presented) The method of claim 46 wherein the filtering performed at said base station is performed by a multi-pole filter.

48. (Currently amended) The method of claim 46 wherein said ~~mobile~~ subscriber station performs lower order filtering on signals received at said ~~mobile~~ subscriber station than said base station performs on signals received at said base station.

49. (Currently amended) The method of claim 48 wherein the filtering performed at said ~~mobile~~ subscriber station is performed by finite impulse response (FIR) filtering.

50. (Currently amended) The method of claim 48 wherein the filtering performed at said ~~mobile~~ subscriber station is performed by surface acoustical wave (SAW) filtering.

51. (Currently Amended) The method of claim 40 wherein said ~~low~~ interference frequency band expected to experience low interference is determined to be low interference and said ~~high~~ interference frequency band expected to experience high interference is determined to be high interference according to regulation of each of said frequency bands by a governmental entity.

52. (Previously Presented) The method of claim 51 wherein said governmental entity is the FCC.

53. (Currently Amended) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

transmitting, at a base station, data on a first frequency in a ~~low interference~~ frequency band expected to experience low interference; ~~and~~

receiving, at said base station, data on a second frequency in a ~~high interference~~ frequency band expected to experience high interference;

wherein said first frequency and said second frequency are separated by at least one octave; and

wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

54. (Cancelled)

55. (Previously Presented) The method of claim 53 wherein said data is frequency division duplexed.

56. (Currently Amended) The method of claim 53 further comprising:

receiving, at a subscriber station, data on said first frequency in said ~~low interference~~ frequency band expected to experience low interference;

transmitting, at said subscriber station, data on said second frequency in said ~~high~~

~~interference~~ frequency band expected to experience high interference;

wherein said first frequency and said second frequency are separated by at least one octave.

57. (Currently Amended) The method of claim 56 wherein at least a portion of said receiving at a subscriber station and at least a portion of said transmitting at a subscriber station occur at the same time.

58. (Previously Presented) The method of claim 56 wherein said data is frequency division duplexed.

59. (Currently amended) The method of claim 56 wherein said base station performs higher order filtering on signals received at said base station than said ~~mobile~~ subscriber station performs on signals received at said ~~mobile~~ subscriber station.

60. (Previously Presented) The method of claim 59 wherein the filtering performed at said base station is performed by a multi-pole filter.

61. (Currently amended) The method of claim 59 wherein said ~~mobile~~ subscriber station performs lower order filtering on signals received at said ~~mobile~~ subscriber station than said base station performs on signals received at said base station.

62. (Currently amended) The method of claim 61 wherein the filtering performed at said ~~mobile~~ subscriber station is performed by finite impulse response (FIR) filtering.

63. (Currently amended) The method of claim 60 wherein the filtering performed at said ~~mobile~~ subscriber station is performed by surface acoustical wave (SAW) filtering.

64. (Currently Amended) The method of claim 53 wherein said ~~low interference~~ frequency band is determined to be low interference and said ~~high interference~~ frequency band expected to experience high interference is determined to be high interference according to regulation of each of said frequency bands by a governmental entity.

65. (Previously Presented) The method of claim 64 wherein said governmental entity is the FCC.

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66. (Currently Amended) A method for increasing wireless communication capacity, said method comprising:

providing a base station, said base station adapted to transmit data in an expected low noise frequency band and to receive data in an expected high noise frequency band; and

providing a plurality of subscriber stations, said plurality of subscriber stations adapted to transmit data in said expected high noise frequency band and to receive data in said expected low noise frequency band;

wherein said base station performs higher order filtering on signals received at said base station than said plurality of ~~mobile~~ subscriber station perform on signals received at said plurality of ~~mobile~~ subscriber stations.

67. (Previously Presented) The method of claim 66 wherein the filtering performed at said base station is performed by a multi-pole filter.

68. (Currently amended) The method of claim 66 wherein the filter performed at said ~~mobile~~ subscriber station is performed by finite impulse response (FIR) filtering.

69. (Currently amended) The method of claim 66 wherein the filter performed at said ~~mobile~~ subscriber station is performed by surface acoustical wave (SAW) filtering.

70. (Previously Presented) The method of claim 66 wherein said low noise frequency and said high noise frequency band are separated by at least one octave.

71. (Previously Presented) The method of claim 66 wherein said data is frequency division duplexed.

72. (Withdrawn) A wireless communication system, said system comprising:

at least one subscriber station, said at least one subscriber station comprising:

a multi-band antenna, said multi-band antenna employing more than one polarity in each band of operation; and

a multi-band duplexer, said multi-band duplexer operating in a first frequency band a second frequency band, where said first frequency band and said second frequency band are separated by at least on octave.

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73. (Withdrawn) The wireless communication system of claim 72 wherein said multi-band duplexer comprises a waveguide assembly.

74. (Withdrawn) The wireless communication system of claim 72 wherein said multi-band antenna substantially matches the antenna pattern of the uplink and downlink.

75. (Withdrawn) The wireless communication system of claim 73 wherein said waveguide assembly comprises a first waveguide component and second waveguide component, where the waveguide of said first waveguide component is approximately twice as large as the waveguide of said second waveguide component.

76. (New) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency in a frequency band expected to experience low interference;

transmitting, at said subscriber station, data on a second frequency in a h frequency band a frequency band expected to experience high interference;

wherein said low interference frequency band and said high interference frequency are separated by at least one octave; and

wherein said transmitting and said receiving occur during the same communication session.

77. (New) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

transmitting, at a base station, data on a first frequency in a first frequency in a frequency band expected to experience low interference;

receiving, at said base station, data on a second frequency in a second frequency in a h frequency band a frequency band expected to experience high interference;

wherein said first frequency and said second frequency are separated by at least one octave; and

wherein said transmitting and said receiving occur during the same communication session.

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REMARKS

I. Introduction

- Claims 40-71 (group I) and claims 24 and 72-75 (group II) have been restricted;
- Claims 66-71 are rejected under 35 U.S.C. 112, first paragraph;
- Claims 40-71 are rejected under 35 U.S.C. 112, second paragraph;
- Claims 49, 50, 62, 63, 68, and 69 are objected to because of informalities; and
- Claims 40-71 are rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 6,801,519 to Mangal (hereinafter "Mangal") in view of Applicant's Admitted Prior Art (hereinafter "AAPA").

Claims 24, 40, 42-53, 55-71, 76-77 are pending. Claims 40, 46, 48, 49, 50, 53, 59, 61, 63, 66 and 69 have been amended, and claims 24 and 72-75 have been withdrawn. Claims 76-77 are newly added. Support for these claims can be found in the original specification at, e.g., paragraphs [0016] and [0029]-[0030] . Claims 40, 43, 44, 46, 48-51, 53, 56-57, 59, 61-64, 66, and 68-69 have been amended to correct informalities and to better define Applicant's invention. Support for these claim amendments can be found in the original specification and in the original claims. Accordingly, no new matter has been added. Each of the amendments contained herein are not made in the face of prior art, but are instead made in an effort to expedite prosecution. Applicant hereby traverses the rejections of record and requests reconsideration and withdrawal of such in view of the remarks contained herein.

II. Summary of Interview

On July 30, 2008, the Examiner and Robert Greeson (#52,966) had a telephone conference to discuss the issues raised in the Current Action. Applicant and the Examiner briefly discussed the rejections of record, but no resolution could be reached.

III. Election/Restriction

During a previous telephone conference with the Examiner, Applicant provisionally elected group I for prosecution. Applicant hereby affirms its election of group I.

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IV. Rejections Under 35 U.S.C. 112(1)

In the Current action, the Examiner rejects claims 66-71 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In doing so, the Examiner asserts "a 'plurality of mobile stations' is not supported by the disclosure as filed." *See* Current Action, pg. 4 (emphasis original). Contrary to the Examiner's assertion, a "mobile station" is supported in the original disclosure. The disclosure often refers to "subscribers" and/or "subscriber stations." *See* specification, e.g., paragraphs [0031]-[0033], [0037]. One of ordinary skill in the art would understand that a "subscriber," in the present context, refers to an equipment set providing connectivity between subscriber equipment and a base station in a network (wireless or otherwise). Accordingly, "subscriber," as set forth in the disclosure, entails both fixed and mobile stations. Nevertheless, for the sake of expediting prosecution, Applicant has amended claim 66 to recite "subscriber station" in place of "mobile station." Applicant has also replaced "mobile station" with "subscriber station," where appropriate, throughout the claims. Therefore, the 35 U.S.C. 112(1) rejection of record has been obviated.

V. Rejections Under 35 U.S.C. 112(2)

In the Current Action, the Examiner rejects claims 40-71 under 35 U.S.C. 112, second paragraph, for being indefinite. In doing so, the Examiner asserts the claims are "unclear because in any frequency band interference and noise are subject to constant change...." *See* Current Action, pg. 4. Applicant acknowledges that interference and/or noise levels may change within a frequency band over time. Applicant asserts that the claims, as currently pending, are sufficiently clear in view of the specification. Nevertheless, in a good faith attempt to expedite prosecution, Applicant has amended the claims to additionally recite "expected" high/low interference/noise frequency bands, where appropriate. Support for these amendments is found in the specification at, e.g., paragraphs [0014] and [0029]-[0031]. If the Examiner disagrees with the effectiveness of these amendments, Applicant solicits the Examiner's advice with respect to amendments that should overcome the 35 U.S.C. 112(2) rejection of record.

The Examiner also rejects claims 40, 53, and 66 under 35 U.S.C. 112, second paragraph, for being indefinite. In doing so, the Examiner asserts "'a first frequency' or 'a second frequency' are unclear because... transmitting and receiving data on a single

frequency is not possible." *See id.* Contrary to the Examiner's assertion, data *is* transferred over a given frequency when such communication takes place. As such, Applicant asserts the pending claims are sufficiently clear to one of ordinary skill in the art, as currently drafted. Therefore, Applicant requests withdrawal of the rejection of record.

VI. Claim Objections

Claims 49, 50, 62, 63, 68, and 69 are objected to because each uses "abbreviations FIR and SAW without explanation." The claims have been amended to obviate the objections of record.

VII. Rejection under 35 U.S.C. 103

Claims 40-71 are rejected under 35 U.S.C. 103 as being unpatentable over Mangal in view of AAPA. In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Examiner can satisfy this burden by showing some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) (citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Applicant. *Piasecki*, 745 F.2d at 1472, 233 USPQ at 788. Thus, the Examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the Examiner's conclusion. Moreover, to support an obviousness rejection, "[u]nder § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 15 - 17 (1966). As will be discussed, with regard to the rejections under 35 U.S.C. § 103(a), the Examiner has failed to show that the pending claims are obvious under the framework set out in *Graham*. That is, the Examiner has failed to ascertain the differences between the cited references and the pending claims. Therefore, Applicant requests that such rejections be withdrawn.

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Failure to Satisfy Every Claim Limitation

For example, independent claim 40, as amended, recites "wherein at least a portion of said receiving [in a low interference frequency band] and at least a portion of said transmitting [in a high interference frequency band] occur at the same time." Independent claim 53, as amended, recites a similar limitation. In the Current Action, the Examiner points to Mangal, at col. 2 lines 1-29 and col. 1 lines 25-32, as satisfying this limitation. *See* Current Action, pg. 9. However, Applicant points out that at the Examiner's citations, and throughout its disclosure, Mangal teaches bidirectional communication in **one of** a licensed band, e.g., a low interference band, or an unlicensed band, e.g., a high interference band, at the same time. However, Mangal wholly fails to describe transmitting in one band and receiving in another band at the same time. According to Mangal, a base station selects one of a licensed sub frame or a unlicensed sub frame, for communication, based on a required quality of service for a communication service. *See* Mangal, col. 6 lines 35-38. Once the licensed or unlicensed communication concludes, "the session terminates and wireless capacity tears down in reverse order ending the session." *Id.* at lines 54-57. Clearly, Mangal describes transmitting and receiving in only one of an unlicensed band or an unlicensed band during a single communication session. The selection of an unlicensed or licensed communication session is based on a quality of service requirement. When a given session is terminated, Mangal requires a reverse tear down before another session begins. This, of course, is in stark contrast to the pending claims, which set forth receiving in a low interference frequency band and transmitting in a high interference frequency band at the same time. Therefore, Applicant requests withdrawal of the rejection of record.

Claims 42-52 depend from claim 40 and claims 55-65 depend from claim 53. Each dependent claim inherits every limitation of the claims from which it depends. As shown above, the combination of Mangal and AAPA fails to satisfy every limitation of claims 40 and 53. As such, claims depending therefrom are patentable for at least the reasons set forth above. Moreover, the dependent claims set forth additional limitations making them patentable in their own right.

Claim 66 recites "wherein said base station performs higher order filtering on signals received at said base station than said plurality of subscriber station perform on signals received at said plurality of subscriber stations." As Applicant best understands, the

Examiner acknowledges that Mangal and AAPA do not satisfy this limitation. However, the Examiner apparently deems this limitation as obvious because it reduces "the system cost by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations." *See* Current Action, pg. 9.

Applicant asserts that a *prima facie* case of obviousness has not been established because the Examiner has not provided an objective reason to combine the teachings of the references. *See* M.P.E.P. 2143.01(IV). In attempting to show the necessary motivation for the proposed combination, the Examiner merely states that it would have been obvious to combine or modify Mangal to reduce costs. *See* Current Action, pg. 9. The proposed motivation put forth by the Examiner—i.e., cost savings, is merely general incentive, and not an objective reason to combine the references. Applicant points out that "[a] general incentive does not make obvious a particular result, nor does the existence of techniques by which those efforts can be carried out." *In re Deuel*, 51 F.3d 1552, 1559 (Fed. Cir. 1995). Therefore, the motivation for the combination is improper. Accordingly, Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 103(a) rejection of record.

Mangal Cannot be Used to Support a 35 U.S.C. 103 Rejection

Applicant additionally points out that Mangal cannot be modified to satisfy claims 40, 42-53, and 55-65 because such modification would change Mangal's principle of operation. Where the "suggested combination would require a substantial reconstruction and redesign of the elements in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate, the references are not sufficient to render the claims obvious." *See In re Ratti*, 270 F.2d 810, 814 123 USPQ (CCPA 1959). As discussed above, Mangal is required to select one of licensed or unlicensed communication for a given communication session. *See* Mangal, Figure 3, 303; col. 6, lines 35-38. After a communication session concludes, the session terminates and wireless capacity tears down in reverse order to end the session. *Id.* at col. 6 lines 54-57. Only after the reverse tear down is complete can Mangal then begin a new communication session in one of the subsequently selected bands.

In order to satisfy the pending claims, Mangal would require modification so that it transmits in a licensed band and receives in unlicensed band, or vice versa, at the same time.

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As can be easily seen, such a modification would require a complete abandonment of the tear down process mentioned above, and would further require a complete overhaul of Mangal's communication scheme. By way of example, the method according to Mangal (as shown at Figure 3), would necessitate a complete re-work. That is, steps 303-306 would have to be abandoned and newly formulated steps would have to be conceived. For at least these reasons, Applicant submit the 35 U.S.C. 103 rejection of record should be withdrawn.

VIII. Conclusion

In view of the above, Applicant believes the pending application is in condition for allowance. Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 68144/P009US/10501230 from which the undersigned is authorized to draw.

Dated: August 12, 2008

Respectfully submitted,

By Robert L. Greeson

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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: August 12, 2008 Signature: Carol Martin
(Carol Martin)

Electronic Acknowledgement Receipt

EFS ID:	3764230
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	Robert L. Greeson/Carol Martin
Filer Authorized By:	Robert L. Greeson
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	12-AUG-2008
Filing Date:	11-MAR-2002
Time Stamp:	11:54:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		AdaptixP009USAmdt081208.pdf	672661 c1b3a9f1de6ff20afaa7906327a73d540ce200a	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	1
	Amendment - After Non-Final Rejection	2	2
	Claims	3	8
	Applicant Arguments/Remarks Made in an Amendment	9	14
Warnings:			
Information:			
	Total Files Size (in bytes):	672661	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

AMENDMENT TRANSMITTAL LETTER

Docket No.	
68144/P009US/10501230	

Application No.	Filing Date	Examiner	Art Unit
10/095,307-Conf. #3972	March 11, 2002	D. Levitan	2616

Applicant(s): Randy J. Karr et al.

Invention: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELES S RF DATA COMMUNICATIONS

TO THE COMMISSIONER FOR PATENTS

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

CLAIMS AS AMENDED

	Claims Remaining After Amendment	Highest Number Previously Paid	Number Extra Claims Present	Rate	
Total Claims	32	- 77 =	0	x	0.00
Independent Claims	5	- 7 =	0	x	000
Multiple Dependent Claims (check if applicable)		☐			
Other fee (please specify):					
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT:					0.00

☐ Large Entity ☒ Small Entity

☒ No additional fee is required for this amendment.

☐ Please charge Deposit Account No. _____ in the amount of $ _____. A duplicate copy of this sheet is enclosed.

☐ A check in the amount of $ _____ to cover the filing fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized to charge and credit Deposit Account No. 06-2380 as described below. A duplicate copy of this sheet is enclosed.

☒ Credit any overpayment.

☒ Charge any additional filing or application processing fees required under 37 CFR 1.16 and 1.17.

Robert Greeson

Dated: August 12, 2008

Robert Greeson
Attorney/Agent Reg. No.: 52,966

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Amendment Transmittal

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being electronically filed with the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: August 12, 2008 Signature: Carol Martin (Carol Martin)

60113089.1

Document code: WFEE

United States Patent and Trademark Office
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/095,307	03/11/2002	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	08/12/2008	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 37	Minus	** 39	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 7	Minus	***5	= 2	X $105 =	210	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	210	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARQUETTA MCGEE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/095,307	03/11/2002	Randy J. Karr	68144/P009US/10501230	3972

29053 7590 10/06/2008
FULBRIGHT & JAWORSKI L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER	
LEVITAN, DMITRY	
ART UNIT	PAPER NUMBER
2616	
MAIL DATE	DELIVERY MODE
10/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/095,307	KARR ET AL.	
	Examiner	Art Unit	
	Dmitry Levitan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24 and 40-77* is/are pending in the application.

4a) Of the above claim(s) *24 and 72-75* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-71,76 and 77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *24 and 72-75* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date: _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Amendment, filed 8/12/08 has been entered. Claims 40, 42-53, 55-71, 76 and 77 remain pending. Claims 24 and 72-75 have been withdrawn.

Claim Rejections - 35 USC § 112

1. In light of Applicant's amendment the rejection of claims 66-71 under 35 U.S.C. 112, first paragraph, has been withdrawn.

2. In light of Applicant's amendment the rejection of claims, claims 40-71 under 35 U.S.C. 112, second paragraph, directed to "low interference frequency band", "high interference frequency band", is withdrawn.

3. Claims 40, 42-53, 55-71, 76 and 77 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 40, 53 and 66 limitations, directed to providing communications on "a first frequency" or a "second frequency" are unclear, because communication systems are typically utilize a spectrum of frequencies for communication. The transmit or receive signal comprises a group/spectrum of frequencies, as transmitting and receiving data on a single frequency is not possible.

Examiner will interpret first/second frequencies as spectrums/group of frequencies, characterized by first or second frequency.

Claims 76 and 77 recite the limitation "the same communication session" in lines 9. There is insufficient antecedent basis for this limitation in the claim. In addition, the

application's disclosure provides no clarification on claims 76 and 77 limitations, directed to a communication session.

Claim 77 limitations, directed to "on a first frequency in a first frequency" and "on a second frequency in a second frequency" are unclear as written.

Other claims are rejected as the claims depending on the rejected claims above.

Claim Objections

4. Claims 76 and 77 are objected to because of the following informalities: typographical error on lines 5, "in a h frequency band". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. Claims 40, 42-53, 55-71, 76 and 77 are rejected (as best understood) under 35 U.S.C. 103(a) as being unpatentable over Mangal (US 6,801,519) in view of Admitted Prior Art (Current application, Background, pages 1-5).

6. Regarding claims 40, 43, 51-53, 56, 64, 65, 76 and 77, Mangal substantially teaches the limitations of the claims:

A method for increasing capacity of a wireless data communication system (communication wireless system operating in two bands, one licensed and other unlicensed, to connect a base station 109 and a subscriber station 100, as shown on Fig. 1 and disclosed on 4:6-26), said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency, transmitted from the base station, in a frequency band expected to experience low quality of service (selecting a receiving band for the subscriber station, based on the quality needs for the service, as disclosed on 6:1-46, which is received at the subscriber station and could be low, as disclosed on 7:34-55);

transmitting, at said subscriber station to the base station, data on a second frequency in a frequency band expected to experience high quality of service (selecting a transmitting band for the subscriber station based on the quality needs for the service, which is transmitted from the subscriber station, as disclosed on 6:1-46, and could be high, as disclosed on 7:34-55),

wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time/same session (providing communication service, using the same MAC control frame, as shown on Fig. 2 and 5:24-30, utilizing licensed and unlicensed frequency bands, inherently performing receiving and transmitting operation almost at the same time, because almost simultaneous bi-directional communication is essential for the system operation with real-time services, like telephony, as disclosed on 2:1-29, and web browsing, as disclosed on 1:25-32, wherein a subscriber 100 interchange of information from com devices 105-107 with base station 109 is a communication session, as shown on Fig. 1).

In addition, Mangal teaches one of the frequency band as a licensed from FCC and the other frequency band as un-licensed by FCC, as disclosed on 1:44-67, and using the method for one way communications, as disclosed on 9:19-23.

Mangal does not teach interference as quality characteristics and the bands separated by at least one octave.

Official notice is taken that using interference as quality characteristic is well known and expected in the art.

Admitted Prior Art teaches using licensed and unlicensed bands separated by at least one octave, as disclosed on pages 4 and 5.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using licensed and unlicensed bands separated by at least one octave of Admitted Prior Art and use of interference and noise as a quality measurement to the system of Mangal to improve the system operation by separating the transmit and receive frequencies by an octave to reduce their interference and utilize well-known quality parameter as interference to provide appropriate quality level of communications in the system.

7. Claim 66 is rejected (as best understood) under 35 U.S.C. 103(a) as being unpatentable over Mangal (US 6,801,519) in view of Admitted Prior Art (Current application, Background, pages 1-5).

Mangal substantially teaches the limitations of the claims:

A method for increasing capacity of a wireless data communication system (communication wireless system operating in two bands, one licensed and other unlicensed, to connect a base station 109 and a subscriber station 100, as shown on Fig. 1 and disclosed on 4:6-26), said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency in a low quality frequency band (selecting a receiving band for the subscriber station based on the quality needs for the service, as disclosed on 6:1-46, which is received at the subscriber station and could be low, as disclosed on 7:34-55);

transmitting, at said subscriber station, data on a second frequency in a high quality frequency band (selecting a transmitting band for the subscriber station based on the quality needs for the service, which is transmitted from the subscriber station, as disclosed on 6:1-46, and could be high, as disclosed on 7:34-55).

In addition, Mangal teaches one of the frequency band as a licensed from FCC and the other frequency band as un-licensed by FCC, as disclosed on 1:44-67, and using the method for one way communications, as disclosed on 9:19-23.

Mangal does not teach noise as quality characteristic, using a plurality of stations and performing higher order filtering at the base station than the subscriber stations.

Official notice is taken that using noise as quality characteristic is well known and expected in the art.

Admitted Prior Art teaches using point-to-multipoint systems for radio communication systems, as disclosed on page 2, and filtering a received signal at a hub/base station or subscriber stations, as disclosed on page 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using point-to-multipoint systems and performing filtering for the received signals of Admitted Prior Art and use of noise as a quality measurement to the system of Mangal to improve the system operation by providing service to multiple users at different locations by utilizing a point-to-multipoint system, reduce the system cost by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations and utilize well-known quality parameters as noise to provide appropriate quality level of communications in the system.

8. Regarding claims 44 and 57, Mangal teaches performing receiving and transmitting operation almost at the same time, as the transmission link and the receive link belong to the same MAC layer and are capable to support such bidirectional communications, requiring almost simultaneous transmit and receive operations, like telephony and web browsing.

9. Regarding claims 42, 45, 55, 58 and 71, Admitted prior art teaches using of frequency division duplexing (FDD), as disclosed on page 2.

10. Regarding claim 70, Admitted Prior Art teaches using licensed and unlicensed bands separated by at least one octave, as disclosed on pages 4 and 5.

11. Claims 46, 48, 59 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangal in view of Admitted Prior Art.

Mangal in view of Admitted Prior Art substantially teaches the limitations of the claims (see the parent claims rejection above).

Mangal in view of Admitted Prior Art does not teach performing higher order filtering on the base station in comparison with the lower order filtering at subscriber stations.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add performing higher order filtering on the base station in comparison with the subscriber stations to the system of Mangal in view of Admitted Prior Art to improve the system cost by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations.

12. Claims 47, 49, 50, 60, 62, 63 and 67-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mangal in view of Admitted Prior Art.

Mangal in view of Admitted Prior Art substantially teaches the limitations of the claims (see the parent claims rejection above), including filtering at base and subscriber stations.

Mangal in view of Admitted Prior Art does not teach using multi-pole, FIR and SAW filters.

Official notice is taken that multi-pole, FIR and SAW filters are well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add multi-pole filters to the system of Mangal in view of Admitted Prior Art to utilize well-known filtering methods in the system.

Response to Arguments

13. Applicant's arguments filed 8/12/08 have been fully considered but they are not persuasive.

On page 10 of the Response, Applicant argues that Examiner did not identify the difference between the cited references and pending claims.

Examiner respectfully disagrees.

Rejection of pending claims over teachings of Mangal and Admitted Prior Art was clearly explained to Applicant (see rejections of the claims above).

On pages 9 and 10 of the Response, Applicant argues that transmitting data on single frequency is clear.

Examiner respectfully disagrees.

Applicant failed to provide any evidence to support his statement on transmitting data on a single frequency. Applicant did not clarify the claims limitations, directed to transmitting data on a single frequency, but added more unclear limitations in claims 76 and 77, directed to transmitting data on a frequency in a frequency.

On page 11 of the Response, Applicant argues that Mangal does not teach using licensed and unlicensed bands at the same time.

Examiner respectfully disagrees.

Mangal clearly teaches using both bands in the same MAC frame for real-time phone communications, like telephony and web browsing, as shown on Fig. 2 and 3, as disclosed on 6:30-57, including tearing down the session/phone call, after the communication/session is over at step 307 END on Fig. 3.

Mangal does not teach to tear down the session before the end of the session on 6:54-57, as asserted by Applicant, but "Once the communication service concludes, the session terminates..".

On page 12 of the Response, Applicant argues that cost saving is not a sufficient motivation to modify Mangal teaching.

Examiner respectfully disagrees.

The Supreme Court opinion in KSR case (04-1350, U.S. Apr. 30, 2007), rejected the rigid application of the test, requiring "teaching, suggesting or motivation" in the prior art which would lead one of the ordinary skills in the art to combine the prior art teachings.

In current case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Mangal by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations to reduce cost of the system. Therefore, using known techniques to improve prior art yields predictable results.

On pages 12 and 13 of the Response, Applicant argues that modification of Mangal teaching to meet limitations of claims 40, 42-53 and 55-65 would change Mangal's principle of operation. Examiner respectfully disagrees.

Mangal clearly teaches simultaneous use of licensed and unlicensed bands in a MAC allocation process, as shown on Fig. 2, wherein distribution of the communication slots in licensed and unlicensed bands of the system transceivers is performed to satisfy the quality needs of the services, as disclosed on 6:27-57.

Applicant's interpretation of Mangal's teaching, wherein selecting licensed or unlicensed band will exclude the other band, is not supported by the cited portion of Mangal's teaching, which is directed to conclusion of the communication service, comprising licensed and unlicensed bands.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dmitry Levitan
Primary Examiner
Art Unit 2616

/Dmitry Levitan/
Primary Examiner, Art Unit 2616

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10095307	KARR ET AL.
	Examiner	Art Unit
	Dmitry Levitan	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/08/2008	09/29/2008							
	1	-	-							
	2	-	-							
	3	-	-							
	4	-	-							
	5	-	-							
	6	-	-							
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	34	-	-							
	35	-	-							
	36	-	-							

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	10095307	KARR ET AL.
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/08/2008	09/29/2008							
	37	-	-							
	38	-	-							
	39	-	-							
	40	✓	✓							
	41	✓	-							
	42	✓	✓							
	43	✓	✓							
	44	✓	✓							
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	67	✓	✓							
	68	✓	✓							
	69	✓	✓							
	70	✓	✓							
	71	✓	✓							
	72	÷	N							

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10095307	KARR ET AL.
	Examiner	Art Unit
	Dmitry Levitan	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	05/08/2008	09/29/2008							
	73	=	N							
	74	=	N							
	75	=	N							
	76		✓							
	77		✓							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10095307	KARR ET AL.
	Examiner	Art Unit
	Dmitry Levitan	2616

SEARCHED			
Class	Subclass	Date	Examiner
370	329,332, 341, 349, 395.21, 395.43	9/29/08	DL
455	450, 452, 464, 560, 561, 552.1	9/29/08	DL

SEARCH NOTES		
Search Notes	Date	Examiner
IEEE, EAST	9/29/08	DL

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Application No. : 10/095,307 Attorney Docket No.: 68144/P009US/10501230

Certificate of Electronic Filing Under 37 CFR 1.8

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with 37 CFR 1.6(a)(4):

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

on October 21, 2008
Date

Signature

Scott Matthews
Typed or printed name of person signing Certificate

N/A
Registration Number, if applicable

(214) 855-7415
Telephone Number

Note: Each paper must have its own certificate of mailing.

Certificate of E-Filing (1 page)
Request for Refund to Deposit Account (2 pages)

60131969.1

Docket No.:
68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

REQUEST FOR REFUND TO THE DEPOSIT ACCOUNT NO. 06-2380

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

It is respectfully requested that a refund in the amount of **$210.00** be credited back to the Deposit Account No.: 06-2380 which was erroneously charged by the United States Patent and Trademark Office to our Docket No.: 68144-P009US-10501230, Application No.: 10/095,307 on September 25, 2008.

The $210.000 fee, fee code 2201, is not warranted because the fees associated with the filing of Amendment dated August 8, 2008 that added two additional Independent Claims were already paid for and replaced the two of the original Independent Claims that were previously withdrawn. The Independent Claims that are remaining after the Amendment was filed has not surpassed the highest number of Independent Claims that were previously paid.

Therefore, attorney for the applicant respectfully requests that the United States Patent and Trademark Office credit the amount of **$210.00** to Deposit Account No.: 06-2380.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 06-2380, under Order No. 68144/P009US/10501230.

Dated: October 20, 2008

Respectfully submitted,

By Robert Greeson

Robert L. Greeson
Registration No.: 52,966
FULBRIGHT & JAWORSKI L.L.P.
2200 Ross Avenue, Suite 2800
Dallas, Texas 75201-2784
(214) 855-7430
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Attorney for Applicant

TP-Link Ex. 1004
Page 332

Electronic Acknowledgement Receipt

EFS ID:	4152176
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	David H. Tannenbaum/Scott Matthews
Filer Authorized By:	David H. Tannenbaum
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	21-OCT-2008
Filing Date:	11-MAR-2002
Time Stamp:	18:03:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		10095307ReqRefund.pdf	74398 cfab69f49c1292ade2049b933f855a64b6c8 3066	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Miscellaneous Incoming Letter	1	1
	Refund Request	2	3
Warnings:			
Information:			
	Total Files Size (in bytes):	74398	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/095,307	03/11/2002	Randy J. Karr	68144/P009US/10501230	3972

29053 7590 02/09/2009
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2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER	
LEVITAN, DMITRY	
ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
02/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	Application No.	Applicant(s)	
	10/095,307	KARR ET AL.	
	Examiner	Art Unit	
	Dmitry Levitan	2416	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Dmitry Levitan*. (3)_____.

(2) *Robert L. Greeson*. (4)_____.

Date of Interview: *03 February 2009*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *40*.

Identification of prior art discussed: *Mangal US 6,801,519*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant's representative provided his interpretation of Mangal teaching, including subscriber station 100 and timing of licensed and unlicensed frequencies. Examiner explained his position on the clarity problem of claims 40, 53 and 66.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Dmitry Levitan/ Primary Examiner, Art Unit 2416	

Applicant's Interview Summary
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).
Dated: February 24, 2009 Signature: Carol Martin
Carol Martin

Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307

Confirmation No.: 3972

Filed: March 11, 2002

Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS

Examiner: D. Levitan

APPLICANT'S INTERVIEW SUMMARY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

On February 3, 2009, the Examiner and attorney for Applicant, Robert Greeson ("Applicant"), discussed the rejections of record. Specifically, the Examiner and Applicant discussed the cited reference, U.S. Patent No. 6,801,519 to Mangal (hereinafter "Mangal") with respect to the rejection of claim 40 under 35 U.S.C. §103. The Examiner and Applicant also discussed the 112, second paragraph, rejection of pending claims 40, 42-53, 55-71, and 76-77. No specific agreement could be reached with regard to claim 40 and Mangal or pending claims 40, 42-53, 55-71, and 76-77 and the 112, second paragraph, rejection.

Applicant believes no fee is due with this response. However, if a fee is due, please charge any fees required or credit any overpayment to Deposit Account No. 06-2380 under Order No. 68144/P009US/10501230 during the pendency of this Application pursuant to 37 CFR 1.16

through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Dated: Feburary 24, 2009

Respectfully submitted,

By Robert Greeson

Robert L Greeson
Registration No.: 52,966
FULBRIGHT & JAWORSKI L.L.P.
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Dallas, Texas 75201-2784
(214) 855-4730
(214) 855-8200 (Fax)
Attorney for Applicant

Electronic Acknowledgement Receipt

EFS ID:	4849555
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	David H. Tannenbaum/Carol Martin
Filer Authorized By:	David H. Tannenbaum
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	24-FEB-2009
Filing Date:	11-MAR-2002
Time Stamp:	16:46:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant summary of interview with examiner	AdaptixP009USInterviewSum022409.pdf	57513 eb65e9b9421f8094e89b3600de5f9507403da8864	no	2

Warnings:	
Information:	

Total Files Size (in bytes):	57513

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/32 (01-09)
Approved for use through 02/28/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR ORAL HEARING BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES	Docket Number (Optional) 68144/P009US/10501230

In re Application of	Randy J. Karr et al.	
Application Number	10/095,307-Conf. #3972	Filed: March 11, 2002
For	SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS	
Art Unit	2616	Examiner: D. Levitan

Applicant hereby requests an oral hearing before the Board of Patent Appeals and Interferences in the appeal of the above-identified application.

The fee for this Request for Oral Hearing is (37 CFR 41.20(b)(3)) $ 1,080.00

[x] Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ 540.00

[ ] A check in the amount of the fee is enclosed.

[x] Payment by credit card.

[ ] The Director has already been authorized to charge fees in this application to a Deposit Account.

[x] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 06-2380

[X] A petition for an extension of time under 37 CFR 1.136(b) (PTO/SB/23) is enclosed. For extensions of time in reexamination proceedings, see 37 CFR 1.550.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

[ ] applicant/inventor.

Robert Greeson
Signature

[ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

Robert L. Greeson
Typed or printed name

[x] attorney or agent of record. Registration number 52,966

March 6, 2009
Date

[ ] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34.

(214) 855-7430
Telephone number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

[ ] *Total of 1 forms are submitted.

Requst for Oral Hearing

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: March 6, 2009 Signature: (Linda L. Gibson)

PTO/SB/31 (12-08)
Approved for use through 01/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES	Docket Number (Optional) 68144/P009US/10501230

In re Application of: Randy J. Karr et al.	
Application Number: 10/095,307-Conf. #3972	Filed: March 11, 2002
For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS	
Art Unit: 2416	Examiner: D. Levitan

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 540.00

[x] Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ **270.00**

[ ] A check in the amount of the fee is enclosed.

[x] Payment by credit card.

[ ] The Director has already been authorized to charge fees in this application to a Deposit Account.

[x] The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 06-2380.

[ ] A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

WARNING: INFORMATION ON THIS FORM MAY BECOME PUBLIC. CREDIT CARD INFORMATION SHOULD NOT BE INCLUDED ON THIS FORM. PROVIDE CREDIT CARD INFORMATION AND AUTHORIZATION ON PTO-2038.

I am the

[ ] applicant /inventor.

[ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

[x] attorney or agent of record. Registration number 52,966

[ ] attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____

Robert Greeson
Signature

Robert L. Greeson
Typed or printed name

(214) 855-7430
Telephone number

March 6, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

[ ] *Total of 1 forms are submitted.

Notice of Appeal

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: March 6, 2009 Signature: _____ (Linda L. Gibson)

Electronic Patent Application Fee Transmittal

Application Number:	10095307
Filing Date:	11-Mar-2002
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Filer:	David H. Tannenbaum/Linda Gibson
Attorney Docket Number:	68144/P009US/10501230

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Notice of appeal	2401	1	270	270
Request for oral hearing	2403	1	540	540
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 2 months with $0 paid	2252	1	245	245
Miscellaneous:				
		Total in USD ($)		**1055**

Electronic Acknowledgement Receipt

EFS ID:	4920644
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	David H. Tannenbaum/Linda Gibson
Filer Authorized By:	David H. Tannenbaum
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	06-MAR-2009
Filing Date:	11-MAR-2002
Time Stamp:	15:45:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1055
RAM confirmation Number	1188
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1		10095307.pdf	156991 ee8c1289a06a6952a932fb489112a75cad9c00c	yes	3

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Extension of Time	1	1
Request for Oral Hearing	2	2
Notice of Appeal Filed	3	3

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	33618 8e186388461f42ee89cd17b9ce3e696de5760c5c	no	2

Warnings:

Information:

Total Files Size (in bytes):	190609

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/22 (12-08)
Approved for use through 01/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2009 *(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)*	Docket Number (Optional) 68144/P009US/10501230
Application Number 10/095,307-Conf. #3972	Filed March 11, 2002
For SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS	
Art Unit 2416	Examiner D. Levitan

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	
[ ]	One month (37 CFR 1.17(a)(1))	$130	$65	$
[X]	Two months (37 CFR 1.17(a)(2))	$490	$245	$ $245.00
[ ]	Three months (37 CFR 1.17(a)(3))	$1110	$555	$
[ ]	Four months (37 CFR 1.17(a)(4))	$1730	$865	$
[ ]	Five months (37 CFR 1.17(a)(5))	$2350	$1175	$

[x] Applicant claims small entity status. See 37 CFR 1.27.

[ ] A check in the amount of the fee is enclosed.

[x] Payment by credit card.

[ ] The Director has already been authorized to charge fees in this application to a Deposit Account.

[x] Please charge any additional fees required or credit any overpayment to Deposit Account 06-2380, under Order No. 68144/P009US/10501230 during the pendency of this Application pursuant to 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

[ ] applicant/inventor.

[ ] assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

[x] attorney or agent of record. Registration Number 52,966

[ ] attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____

Robert L. Greeson
Signature

March 6, 2009
Date

Robert L. Greeson
Typed or printed name

(214) 855-7430
Telephone Number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

[ ] Total of 1 forms are submitted.

Two (2) Month Request for Extension of Time

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: March 6, 2009 Signature: _____ (Linda L. Gibson)

Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

AMENDMENT AFTER APPEAL UNDER 37 C.F.R. § 41.33 AND M.P.E.P. § 1206

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

Pursuant to 37 C.F.R. 41.33 and M.P.E.P. 1206, Appellant files this Amendment after the filing of a Notice of Appeal and prior to the date of filing an Appeal Brief. Accordingly, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

1.-23. (Canceled)

24. (Withdrawn) A system for spectrum allocation in wireless data communication comprising:

a first data communications station transmitting data on a first frequency in a first band of operation and receiving data on a second frequency in a second band of operation; and

at least one other data communications station transmitting data on said second frequency in said second band of operation and receiving data on said first frequency in said first band of operation;

wherein one of said frequencies is in a licensed band and another of said frequencies is an unlicensed band, wherein said first station is a hub station and said at least one other data communications station is at least one subscriber station, wherein said hub station comprises at least one dual band antenna transmitting on said first frequency using a first antenna beam and receiving on said second frequency using a second antenna beam, wherein said subscriber stations comprise at least one dual band antenna receiving on said first frequency using a first antenna beam and transmitting on said second frequency using a second antenna beam, wherein said hub station first antenna beam and said subscriber station first antenna beam have co-spatial footprints and said hub station second antenna beam and said subscriber station second antenna beam have co-spatial footprints.

25.-39. (Canceled)

40. (Previously Presented) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

receiving, at a subscriber station, data on a first frequency in a frequency band expected to experience low interference;

transmitting, at said subscriber station, data on a second frequency in a frequency band expected to experience high interference,

wherein said low interference frequency band and said high interference frequency are separated by at least one octave; and

wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

41. (Canceled)

42. (Previously Presented) The method of claim 40 wherein said data is frequency division duplexed.

43. (Previously Presented) The method of claim 40 further comprising:

receiving, at a base station, data on said second frequency in said interference frequency band expected to experience high interference;

transmitting, at said base station, data on said first frequency in said frequency band expected to experience low interference;

wherein said first frequency and said second frequency are separated by at least one octave.

44. (Previously Presented) The method of claim 43 wherein at least a portion of said receiving at a base station and at least a portion of said transmitting at a base station occur at the same time.

45. (Previously Presented) The method of claim 43 wherein said data is frequency division duplexed.

46. (Previously Presented) The method of claim 43 wherein said base station performs higher order filtering on signals received at said base station than said subscriber station performs on signals received at said subscriber station.

47. (Previously Presented) The method of claim 46 wherein the filtering performed at said base station is performed by a multi-pole filter.

48. (Previously Presented) The method of claim 46 wherein said subscriber station performs lower order filtering on signals received at said subscriber station than said base station performs on signals received at said base station.

49. (Previously Presented) The method of claim 48 wherein the filtering performed at said subscriber station is performed by finite impulse response (FIR) filtering.

50. (Previously Presented) The method of claim 48 wherein the filtering performed at said subscriber station is performed by surface acoustical wave (SAW) filtering.

51. (Previously Presented) The method of claim 40 wherein said interference frequency band expected to experience low interference is determined to be low interference and said interference frequency band expected to experience high interference is determined to be high interference according to regulation of each of said frequency bands by a governmental entity.

52. (Previously Presented) The method of claim 51 wherein said governmental entity is the FCC.

53. (Previously Presented) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

transmitting, at a base station, data on a first frequency in a frequency band expected to experience low interference;

receiving, at said base station, data on a second frequency in a frequency band expected to experience high interference;

wherein said first frequency and said second frequency are separated by at least one

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octave; and

wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time.

54. (Canceled)

55. (Previously Presented) The method of claim 53 wherein said data is frequency division duplexed.

56. (Previously Presented) The method of claim 53 further comprising:

receiving, at a subscriber station, data on said first frequency in said frequency band expected to experience low interference;

transmitting, at said subscriber station, data on said second frequency in said frequency band expected to experience high interference;

wherein said first frequency and said second frequency are separated by at least one octave.

57. (Previously Presented) The method of claim 56 wherein at least a portion of said receiving at a subscriber station and at least a portion of said transmitting at a subscriber station occur at the same time.

58. (Previously Presented) The method of claim 56 wherein said data is frequency division duplexed.

59. (Previously Presented) The method of claim 56 wherein said base station performs higher order filtering on signals received at said base station than said subscriber station performs on signals received at said subscriber station.

60. (Previously Presented) The method of claim 59 wherein the filtering performed at said base station is performed by a multi-pole filter.

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61. (Previously Presented) The method of claim 59 wherein said subscriber station performs lower order filtering on signals received at said subscriber station than said base station performs on signals received at said base station.

62. (Previously Presented) The method of claim 61 wherein the filtering performed at said subscriber station is performed by finite impulse response (FIR) filtering.

63. (Previously Presented) The method of claim 60 wherein the filtering performed at said subscriber station is performed by surface acoustical wave (SAW) filtering.

64. (Previously Presented) The method of claim 53 wherein said frequency band is determined to be low interference and said frequency band expected to experience high interference is determined to be high interference according to regulation of each of said frequency bands by a governmental entity.

65. (Previously Presented) The method of claim 64 wherein said governmental entity is the FCC.

66. (Previously Presented) A method for increasing wireless communication capacity, said method comprising:

providing a base station, said base station adapted to transmit data in an expected low noise frequency band and to receive data in an expected high noise frequency band; and

providing a plurality of subscriber stations, said plurality of subscriber stations adapted to transmit data in said expected high noise frequency band and to receive data in said expected low noise frequency band;

wherein said base station performs higher order filtering on signals received at said base station than said plurality of subscriber station perform on signals received at said plurality of subscriber stations.

67. (Previously Presented) The method of claim 66 wherein the filtering performed at said base station is performed by a multi-pole filter.

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68. (Previously Presented) The method of claim 66 wherein the filter performed at said subscriber station is performed by finite impulse response (FIR) filtering.

69. (Previously Presented) The method of claim 66 wherein the filter performed at said subscriber station is performed by surface acoustical wave (SAW) filtering.

70. (Previously Presented) The method of claim 66 wherein said low noise frequency and said high noise frequency band are separated by at least one octave.

71. (Previously Presented) The method of claim 66 wherein said data is frequency division duplexed.

72. (Withdrawn) A wireless communication system, said system comprising:

at least one subscriber station, said at least one subscriber station comprising:

a multi-band antenna, said multi-band antenna employing more than one polarity in each band of operation; and

a multi-band duplexer, said multi-band duplexer operating in a first frequency band a second frequency band, where said first frequency band and said second frequency band are separated by at least on octave.

73. (Withdrawn) The wireless communication system of claim 72 wherein said multi-band duplexer comprises a waveguide assembly.

74. (Withdrawn) The wireless communication system of claim 72 wherein said multi-band antenna substantially matches the antenna pattern of the uplink and downlink.

75. (Withdrawn) The wireless communication system of claim 73 wherein said waveguide assembly comprises a first waveguide component and second waveguide component, where the waveguide of said first waveguide component is approximately twice as large as the waveguide of said second waveguide component.

76. (Currently Amended) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

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Page 354

receiving, at a subscriber station, data on a first frequency in a frequency band expected to experience low interference;

transmitting, at said subscriber station, data on a second frequency in ~~a h frequency band~~ a frequency band expected to experience high interference;

wherein said low interference frequency band and said high interference frequency band are separated by at least one octave; and

wherein said transmitting and said receiving occur during the same communication session.

77. (Currently Amended) A method for increasing capacity of a wireless data communication system, said method comprising the steps of:

transmitting, at a base station, data on a first frequency in a first ~~frequency in a~~ frequency band expected to experience low interference;

receiving, at said base station, data on a second frequency in a second frequency ~~in a h frequency band a frequency~~ band expected to experience high interference;

wherein said first frequency and said second frequency are separated by at least one octave; and

wherein said transmitting and said receiving occur during the same communication session.

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Page 355

REMARKS

I. General

On October 6, 2008, the Examiner mailed a Final Action during the pendency of this Application (hereinafter "Final Action"). In response, Appellant filed a Notice of Appeal on March 6, 2009. Appellant now files this Amendment after the filing of the Notice of Appeal and prior to filing the Appeal Brief pursuant to M.P.E.P. § 1206(I) and 37 C.F.R. § 41.33. Specifically, Appellant files the Amendment to "comply with any requirement of form expressly set forth in a previous action" and/or to "present rejected claims in better form for consideration on appeal." *See* M.P.E.P. § 1206(I)(B)-(C).

In the Final Action, the Examiner expressly set forth a requirement of form with respect to claims 76 and 77, requiring appropriate correction of "typographical errors" in claims 76 and 77. *See* Final Action, page 3. In response, Appellant amends claims 76 and 77 to correct the typographical error pointed out by the Examiner. Appellant also amends claims 76 and 77 to correct another typographical error noticed by Appellant and noted by the Examiner, *see id.*, to present the claims in better form for consideration on appeal. As such, no new matter has been added and the scope of the claims has not been changed.

II. Conclusion

In view of the above, Appellant believes the Amendment should be entered. Applicant believes no fee is due with this response. However, if a fee is due, please Please charge any fees required or credit any overpayment to Deposit Account No. 06-2380 under Order No. 68144/P009US/10501230 during the pendency of this Application pursuant to 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Dated: April 30, 2009

Respectfully submitted,

By Robert Greeson

Robert L Greeson
Registration No.: 52,966
FULBRIGHT & JAWORSKI L.L.P.
2200 Ross Avenue, Suite 2800
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(214) 855-7430
(214) 855-8200 (Fax)
Attorney for Applicant

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4).

Dated: 04/30/2009 Signature: Carol Martin
(Carol Martin)

Electronic Acknowledgement Receipt

EFS ID:	5253426
Application Number:	10095307
International Application Number:	
Confirmation Number:	3972
Title of Invention:	Spectrum allocation system and method for multi-band wireless RF data communications
First Named Inventor/Applicant Name:	Randy J. Karr
Customer Number:	29053
Filer:	Robert L. Greeson/Carol Martin
Filer Authorized By:	Robert L. Greeson
Attorney Docket Number:	68144/P009US/10501230
Receipt Date:	30-APR-2009
Filing Date:	11-MAR-2002
Time Stamp:	16:30:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AdaptixP009USAmdtAfterAppeal.pdf	365241 8e0e1a2fdb1eba83534c9fdb2b6033656 8d5253c	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	8
	Amendment/Argument after Notice of Appeal	9	10
Warnings:			
Information:			
	Total Files Size (in bytes):	365241	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/095,307	03/11/2002	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
AMENDMENT	04/30/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 37	Minus	** 39	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 7	Minus	***7	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/STEFANIE BRYCE/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2616

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

AMENDMENT AFTER APPEAL UNDER 37 C.F.R. § 41.33 AND M.P.E.P. § 1206

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

OK TO ENTER: /D.L./

Dear Sir:

INTRODUCTORY COMMENTS

Pursuant to 37 C.F.R. 41.33 and M.P.E.P. 1206, Appellant files this Amendment after the filing of a Notice of Appeal and prior to the date of filing an Appeal Brief. Accordingly, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/095,307	03/11/2002	Randy J. Karr	68144/P009US/10501230	3972

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EXAMINER	
LEVITAN, DMITRY	
ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
05/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	Application No.	Applicant(s)	
	10/095,307	KARR ET AL.	
	Examiner	Art Unit	
	Dmitry Levitan	2416	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 30 April 2009 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☐ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires *3* months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☒ The Notice of Appeal was filed on *06 March 2009*. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *40,42-53,55-71,76 and 77*.
   Claim(s) withdrawn from consideration: *24 and 72-75*.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/Dmitry Levitan/
Primary Examiner, Art Unit 2416

Docket No.: 68144/P009US/10501230
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Randy J. Karr et al.

Application No.: 10/095,307 | Confirmation No.: 3972

Filed: March 11, 2002 | Art Unit: 2416

For: SPECTRUM ALLOCATION SYSTEM AND METHOD FOR MULTI-BAND WIRELESS RF DATA COMMUNICATIONS | Examiner: D. Levitan

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Pursuant to 37 C.F.R. § 41.37(e), this brief is filed with a request for a two-month extension of time along with the required fee for this extension and the fee for filing this Appeal Brief. The Notice of Appeal was filed in this case on March 6, 2009. Thus, the two-month date for filing the Appeal Brief was May 6, 2009. With a two-month extension of time, this Appeal Brief is timely filed under 37 C.F.R. § 41.37(e) and is in furtherance of said Notice of Appeal.

The fees required under 37 C.F.R. § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

I. Real Party In Interest
II Related Appeals and Interferences

III. Status of Claims
IV. Status of Amendments
V. Summary of Claimed Subject Matter
VI. Grounds of Rejection to be Reviewed on Appeal
VII. Argument
VIII. Claims Appendix
IX. Evidence Appendix
X. Related Proceedings Appendix

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Adaptix, Inc., a corporation organized under the laws of the State of Delaware, with its principal place of business at 4100 Midway Road, Suite 2010, Carrollton, TX 75007.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 32 claims pending in the application.

B. Current Status of Claims

1. Claims canceled: 1-23; 25-39, 41, and 54
2. Claims withdrawn from consideration but not canceled: 24 and 72-75
3. Claims pending: 40, 42-53, 55-71, and 76-77
4. Claims allowed: None
5. Claims rejected: 40, 42-53, 55-71, and 76-77

C. Claims on Appeal: 40, 42-53, 55-71, and 76-77.

IV. STATUS OF AMENDMENTS

Appellant filed an Amendment after Appeal (hereinafter the "Amendment"), pursuant to 37 C.F.R. 41.33 and M.P.E.P. 1206(I), on April 30, 2009, after the final Office Action mailed on

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October 6, 2008 (hereinafter the "Final Action"). The Amendment places the claims in better condition for either allowance or appeal. The Advisory Action dated May 4, 2009 indicates that the Amendment has been entered. As such, the claims on Appeal are in the same form as amended in the Amendment.

V. SUMMARY OF CLAIMED SUBJECT MATTER

According to independent claim 40, a method for increasing capacity of a wireless data communication system comprising: receiving, at a subscriber station (pg. 11, paragraph [0030], lines 6-7, Fig. 1, subscriber unit S1), data on a first frequency in a frequency band expected to experience low interference (pg. 11, paragraph [0030], lines 7-8); transmitting, at said subscriber station (pg. 11, paragraph [0030], line 9, Fig. 1, subscriber unit S1), data on a second frequency in a frequency band expected to experience high interference (pg. 11, paragraph [0030], lines 9-10); wherein said low interference frequency band and said high interference frequency are separated by at least one octave (pg. 10, paragraph [0029], lines 4-5); and wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time (pg. 6, paragraph [0015], lines 3-6).

According to dependent claim 44, the method of claim 43 wherein at least a portion of said receiving at a base station and at least a portion of said transmitting at a base station occur at the same time (pg. 6, paragraph [0015], lines 3-6).

According to dependent claim 46, the method of claim 43 wherein said base station performs higher order filtering on signals received at said base station than said subscriber station performs on signals received at said subscriber station (pg. 11, paragraph [0030], lines 19-21).

According to dependent claim 48, the method of claim 46 wherein said subscriber station performs lower order filtering on signals received at said subscriber station than said base station performs on signals received at said base station (pg. 11, paragraph [0030], lines 19-21).

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According to independent claim 53, a method for increasing capacity of a wireless data communication system, said method comprising the steps of transmitting, at a base station (pg. 11, paragraph [0030], lines 6-7, Fig 1, base station 10), data on a first frequency in a frequency band expected to experience low interference (pg. 11, paragraph [0030], lines 7-8); receiving, at said base station, data on a second frequency in a frequency band expected to experience high interference (pg. 11, paragraph [0030], lines 9-10); wherein said first frequency and said second frequency are separated by at least one octave (pg. 10, paragraph [0029], lines 4-5); and wherein at least a portion of said receiving and at least a portion of said transmitting occur at the same time (pg. 6, paragraph [0015], lines 3-6).

According to dependent claim 57, the method of claim 56 wherein at least a portion of said receiving at a subscriber station and at least a portion of said transmitting at a subscriber station occur at the same time (pg. 6, paragraph [0015], lines 3-6).

According to dependent claim 59, the method of claim 56 wherein said base station performs higher order filtering on signals received at said base station than said subscriber station performs on signals received at said subscriber station (pg. 11, paragraph [0030], lines 19-21).

According to dependent claim 61, the method of claim 59 wherein said subscriber station performs lower order filtering on signals received at said subscriber station than said base station performs on signals received at said base station (pg. 11, paragraph [0030], lines 19-21).

According to independent claim 66, a method for increasing wireless communication capacity, said method comprising: providing a base station (Fig. 1, base station 10), said base station adapted to transmit data in an expected low noise frequency band and to receive data in an expected high noise frequency band (pg. 11, paragraph [0030], lines 6-10); and providing a plurality of subscriber stations (Fig. 1, subscriber units S1, Sn), said plurality of subscriber stations adapted to transmit data in said expected high noise frequency band and to receive data in said expected low noise frequency band (pg. 11, paragraph [0030], lines 6-10); wherein said base station performs higher order filtering on signals received at said base station than said

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plurality of subscriber stations perform on signals received at said plurality of subscriber stations (pg. 11, paragraph [0030], lines 19-21).

According to independent claim 76, a method for increasing capacity of a wireless data communication system, said method comprising the steps of: receiving, at a subscriber station (pg. 11, paragraph [0030], lines 6-7, Fig. 1, subscriber unit S1), data on a first frequency in a frequency band expected to experience low interference (pg. 11, paragraph [0030], lines 7-8); transmitting, at said subscriber station (pg. 11, paragraph [0030], line 9, Fig. 1, subscriber unit S1), data on a second frequency in a frequency band expected to experience high interference (pg. 11, paragraph [0030], lines 9-10); wherein said low interference frequency band and said high interference frequency band are separated by at least one octave (pg. 10, paragraph [0029], lines 4-5); and wherein said transmitting and said receiving occur during the same communication session (pgs. 5-6, paragraph [0012], lines 3-5; pg. 6, paragraph [0014], lines 6-11; pg. 6, paragraph [0015], lines 3-6; pgs. 10-11, paragraph [0029]; pg. 11, paragraph [0030]).

According to independent claim 77, a method for increasing capacity of a wireless data communication system, said method comprising the steps of transmitting, at a base station (pg. 11, paragraph [0030], lines 6-7, Fig 1, base station 10), data on a first frequency in a first frequency band expected to experience low interference(pg. 11, paragraph [0030], lines 7-8); receiving, at said base station, data on a second frequency in a second frequency band expected to experience high interference (pg. 11, paragraph [0030], lines 9-10); wherein said first frequency and said second frequency are separated by at least one octave (pg. 10, paragraph [0029], lines 4-5); and wherein said transmitting and said receiving occur during the same communication session (pgs. 5-6, paragraph [0012], lines 3-5; pg. 6, paragraph [0014], lines 6-11; pg. 6, paragraph [0015], lines 3-6; pgs. 10-11, paragraph [0029]; pg. 11, paragraph [0030]).

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 40, 42-53, 55-71, and 76-77 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,801,519 to Mangal (hereinafter "*Mangal*") in view of Appellant's alleged Admitted Prior Art (hereinafter "AAPA").

B. Claims 40, 42-53, 55-71, and 76-77 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

VII. ARGUMENT

Rejections Under 35 U.S.C. § 103

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Examiner can satisfy this burden by showing some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR Int'l. v. Teleflex Inc.*, 550 U.S. 398, 401; 127 S. Ct. 1727, 1741; 82 USPQ2d 1385, 1396 (2007) (citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellant. *Piasecki*, 745 F.2d at 1472, 233 USPQ at 788. Thus, the Examiner must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the Examiner's conclusion. Moreover, to support an obviousness rejection, "[u]nder § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 15 - 17 (1966). With regard to the rejections under 35 U.S.C. § 103(a), the Examiner has failed to show that the pending claims are obvious under the framework set out in *Graham*. That is, the Examiner has failed to ascertain the differences between the cited references and the pending claims. Therefore, Appellant requests that the Board *reverses* the rejection of record.

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Failure to Satisfy Every Claim Limitation

A. Rejection of claims 40, 42-53, 55-71, and 76-77 under 35 U.S.C. § 103(a) as being unpatentable over *Mangal* in view of AAPA.

1. *Independent claims*

Independent claims 40 and 53

Independent claim 40 recites "wherein at least a portion of said receiving [in a low interference frequency band] and at least a portion of said transmitting [in a high interference frequency band] occur at the same time." Independent claim 53 recites a similar limitation. In the Final Action, the Examiner points to *Mangal*, at col. 2 lines 1-29 and col. 1 lines 25-32, as satisfying this limitation. *See* Final Action, pg. 4. In doing so, the Examiner equates *Mangal*'s subscriber unit system 100 with the claimed "subscriber station." However, this is an inappropriate interpretation of *Mangal*'s subscriber unit system 100. For instance, *Mangal* specifies that its "subscriber unit system 100 is configured to transmit the request for communication service to the base station system and exchange the communications for the communication service" over only one portion of the MAC layer, i.e. the selected portion. *Id.* at Abstract; *see also*, *id.* at Figs. 4 and 5 and col. 6, lines 4-13. As such, *Mangal*'s subscriber unit system 100 merely manages the data exchange between communication devices 105, 106, and 107 and network system 113, but it does not itself perform the functions of a "subscriber station." Moreover, Appellant submits that *Mangal*'s system 100 cannot reasonably be construed as subscribing to anything. In view of the above, Appellant respectfully points out that the Examiner goes against the express teachings of *Mangal* in attempting to construe subscriber unit system 100 as the claimed "subscriber station."

If *Mangal* discloses the claimed "subscriber station," only its communication devices 105, 106, and 107 could appropriately be interpreted as the recited "subscriber stations" because only devices 105, 106, and 107 perform the functions of a "subscriber station." *See Mangal* at Fig. 1 and col. 3, lines 37-43. Moreover, communication devices 105, 106, and 107 are disclosed any devices that transfer or receive information such as voice, data or video. *See id.* Therefore, only these devices could reasonably be construed as "subscribing" to a network

service. As such, the equivalent of the recited "subscriber station" in *Mangal*, if one exists, would be devices 105, 106,107.

Given that *Mangal*'s devices 105, 106, and 107 could only reasonably be interpreted as the claimed "subscriber station," *Mangal* discusses bidirectional communication between its device, e.g., 105, and network system 113 taking place entirely in only one of a low interference band or a high interference band at the same time. That is, *Mangal* fails to describe transmitting data in one band and receiving data in another band, both transmission and reception occurring at the same time. According to *Mangal*, base station system 109 selects either the licensed sub frame 201 or the unlicensed sub frame 202 to provide communication service to a requesting device, e.g. 105, based on the required quality of the requested service. *See id.*, col. 6 lines 35-38. Once *Mangal*'s base station system 109 selects the appropriate portion of the media access control (MAC) frame format, e.g. the licensed link, the communication service is provided over just "the selected portion of the MAC layer." *Id.* at lines 46-49 (emphasis added). In fact, *Mangal* specifically discusses base station control system 111 having a choice in "continually exchanging traffic" between a device, e.g. 105, and network system 113 using either the licensed or unlicensed portion. *Id.* at col. 7, lines 45-55. Similarly, the "upstream and downstream voice communication" between network 113 and requesting device, e.g. 105, is provided for by a virtual connection path based only on the selected sub frame, i.e., licensed or unlicensed band. *Id.* col. 8, lines 1-6. Further, *Mangal* mentions that its base station control system 111 selects an unlicensed sub frame to exchange *both* upstream and downstream internet communications. *Id.* col. 8, line 65 – col. 9, line 3. At best, *Mangal* describes transmitting and receiving at a subscriber station at the same time in only one of a licensed, (i.e., low interference), or unlicensed (i.e., high interference) band, but not both. This, of course, is in stark contrast to claims 40 and 53, which set forth a subscriber station receiving in a low interference frequency band and transmitting in a high interference frequency band, both occurring *at the same time*. The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed combination fails to satisfy every claim limitation of claims 40 and 53. Therefore, Appellant requests that the Board reverse the rejection of record.

Moreover, regardless of the interpretation of *Mangal*'s subscriber unit system 100, *Mangal* does not discuss the possibility of having both the licensed and unlicensed allocation sub frames of the MAC frame format being used at the same time, and therefore, cannot satisfy the claims in either case. The Examiner's comment that "almost simultaneous bi-directional communication is essential for the system operation of real-time services" (*see* Final Action, pg. 4) does not clarify how *Mangal* satisfies this limitation. Because *Mangal*'s alleged "almost simultaneous bi-directional communication" still occurs in only one frequency band, *Mangal* does not disclose the limitation of receiving data on one frequency band and transmitting data on a second frequency band, wherein the receiving and transmitting occur at the same time. In fact, *Mangal* describes reservation slots and queuing methods (*see* col. 5 lines 34-67) and tearing down of virtual connection paths after a communication service, such as a call, has concluded (*see* col. 6 lines 53-56, col. 8 lines 17-19, and col. 9 lines 7-9). This disclosure suggests that *Mangal* intends for its system to handle or provide communication services for only one communication request at a time. At the very least, stating that various queuing methods could be used to reserve the slots in the MAC sub frames indicates that *Mangal* does not contemplate providing service to two simultaneous communication requests.

Further, in describing each of its embodiments, *Mangal* clearly discusses the reverse tear down process at the end of each communication session. *See e.g., id.* at col. 6, lines 53-56 (stating "the session terminates and wireless capacity tears down in reverse order ending the session at step 307"). For instance, when the request is a call, *Mangal*'s system provides the voice communication service through a virtual connection path, at the end of which, "the virtual path connection and wireless capacity is torn down in reverse order after [the] call is completed." *Id.* at col. 8, lines 17-19. Similarly, after the user terminates an internet session, the wireless capacity tears down in reverse. *Id.* at col. 9, lines 7-9. As such, in *Mangal*, a reverse tear down must be completed at the end of each communication session before a new communication session can begin on the subsequently selected link. Thus, the queuing procedure and reverse tear down discussions in *Mangal* indicate that the exchange of data *both* upstream and downstream for a communication session between one of *Mangal*'s devices (i.e., 105, 106, and 107) and network 113 occurs in only the selected band at any given time in *Mangal*. Therefore,

Mangal does not satisfy the limitation that receiving on the low interference band and transmitting on the high interference band occur at the same time (emphasis added). The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed combination fails to satisfy every claim limitation of claims 40 and 53. Therefore, Appellant requests that the Board reverse the rejection of record.

Independent claim 66

Claim 66 recites "wherein said base station performs higher order filtering on signals received at said base station than said plurality of subscriber station perform on signals received at said plurality of subscriber stations." The Examiner acknowledges that *Mangal* "does not teach . . . performing higher order filtering at the base station than the subscriber stations." *See* Final Action, pg. 6. As Appellant best understands, the Examiner points to AAPA disclosure of "filtering a received signal at a hub/base station or subscriber stations" as satisfying this limitation. *Id.* However, the combination of *Mangal* and AAPA clearly does not satisfy this limitation. Filtering of a received signal at either a base station or subscriber station is simply not the same as a "base station perform[ing] higher order filtering [of] signals received at said base station than said plurality of subscriber stations perform on signals received at [the] subscriber stations." Also, the Official notice taken by the Examiner that "using noise quality characteristic is well known" does not relate to performing of higher order filtering at the base station.

Moreover, Appellant notes that it is inappropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. *In re Zurko*, 258 F.3d 1379, 1385 (Fed. Cir. 2001). As such, the Examiner must recite a reference in support of his assertions. Pursuant to 37 C.F.R. 1.104(d)(2), if the Examiner is relying on personal knowledge to support the finding of what is known in the art, the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding.

Most importantly, combining *Mangal* and AAPA as the Examiner suggests would merely result in *Mangal*'s base station and subscriber stations filtering received signals without regard to the order of filtering performed at such base station and subscriber stations. Without pointing to

a reference, the Examiner apparently deems this limitation as obvious because it reduces "the system cost by using a single higher order filter at hub/base in comparison with multiple filters at subscriber stations." *See* Final Action, pg. 6. As such, the Examiner fails to meet his burden because the combination of *Mangal* and AAPA does not satisfy the limitation of claim 66 setting forth "wherein said base station performs higher order filtering on signals received at said base station than said plurality of subscriber station perform on signals received at said plurality of subscriber stations." The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed combination fails to satisfy every claim limitation. Therefore, Appellant requests that the Board *reverses* the rejection of record.

Appellant asserts that a *prima facie* case of obviousness has not been established because the Examiner has not provided an objective reason to combine the teachings of the references. In attempting to show the necessary motivation for the proposed combination, the Examiner merely states that it would have been obvious to combine or modify *Mangal* to reduce costs. *See* Final Action, pg. 6. The proposed motivation put forth by the Examiner, i.e., cost savings, is merely general incentive, and not an objective reason to combine the references. Appellant points out that "[a] general incentive does not make obvious a particular result, nor does the existence of techniques by which those efforts can be carried out." *In re Deuel*, 51 F.3d 1552, 1559 (Fed. Cir. 1995). Moreover, such a rejection is based on mere conclusory statements that the Supreme Court has explicitly rejected as sufficient basis to sustain an obviousness rejection. *See KSR*, 550 U.S. at 401, 127 S. Ct. at 1741, 82 USPQ2d at 1396. Therefore, the motivation for the combination is improper. Accordingly, Appellant requests that the Board *reverses* the rejection of record.

Independent claims 76 and 77

Independent claim 76 recites "wherein said transmitting [in a low interference frequency band] and said receiving [in a high interference frequency band] occur during the same communication session." Claim 77 recites a similar limitation. In the Final Action, the Examiner points to *Mangal*, at col. 2 lines 1-29 and col. 1 lines 25-32, as satisfying this limitation. *See* Final Action, pg. 4. For the reasons discussed above, the Examiner inappropriately interprets *Mangal*'s subscriber unit system 100 as the claimed "subscriber

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station." *Mangal*'s subscriber unit system 100 facilitates or manages the data exchange between communication devices 105, 106, and 107 and network system 113, but does not itself perform the functions of a "subscriber station." If *Mangal* discloses the claimed "subscriber station" at all, only its communication devices 105, 106, and 107 could appropriately be interpreted as the recited "subscriber stations" because only devices 105, 106, and 107 perform the functions of a "subscriber station." Given that *Mangal*'s devices 105, 106, and 107 could only reasonably be interpreted as the claimed "subscriber station," *Mangal* fails to describe transmitting data in one band and receiving data in another band, both transmission and reception occurring in the same communication, as set forth by the claims. That is, as discussed above, *Mangal*'s devices 105-107 transmit and receive in *one of* a licensed band or unlicensed band, depending upon, e.g., quality of service requirements.

Further, the Examiner also inappropriately interprets subscriber station unit 100 "interchange of information from . . . devices 105-107 with base station [system unit] 109" as the claimed "communication session." *See* Final Action, pg. 4. In fact, *Mangal* specifically refers to the communication service provided between network 113 and a device as a "session." *See Mangal*, col. 6, lines 54-55. Subscriber station unit 100 simply *transmits a request* for communication service to base station control system 111 and *receives instruction* to provide such communication service. *See id.* at col. 6, lines 9-13 and 39-46.

Given the proper interpretation of *Mangal*'s devices 105-107 and the communication service, *Mangal* discloses bidirectional communication during a communication session taking place entirely in either a low interference band or a high interference band (i.e., transmitting and receiving occurring in one band). That is, *Mangal* fails to describe transmitting data in one band and receiving data in another band, where both receiving and transmitting take place during the same communication session, as recited by claims 76 and 77. As discussed above, *Mangal*, at best, describes both transmitting and receiving at requesting device, e.g. 105, occurring during the same communication session in only one of a licensed or unlicensed band at any given time, which is in stark contrast with claims 76 and 77.

Even if Appellant accepts the Examiner's improper interpretation, *Mangal* still does not satisfy this limitation of claims 76 and 77 because transmitting of a request and receiving of instruction, if assumed to constitute a "communication session," still occurs over one frequency band instead of two. *See id.* at col. 6, lines 23-26 (stating that the wireless signal link between subscriber station unit 100 and base station unit 109 can operate on either the licensed or unlicensed frequency but not both at the same time). The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed combination fails to satisfy every claim limitation of claims 76 and 77. Therefore, Appellant requests that the Board *reverses* the rejection of record.

Moreover, regardless of the interpretation of *Mangal*'s subscriber unit system 100 and communication session, *Mangal* does not discuss the possibility of having both the licensed and unlicensed allocation sub frames of the MAC frame format being used at the same time. For instance, *Mangal* describes reservation slots and queuing methods (*see* col. 5 lines 34-67) and tearing down of virtual connection paths after a communication service, such as a call, has concluded (*see* col. 6 lines 53-56, col. 8 lines 17-19, and col. 9 lines 7-9). This disclosure suggests that *Mangal* intends for its system to handle or provide communication services for only one communication request at a time. At the very least, stating that various queuing methods could be used to reserve the slots in the MAC sub frame indicates that *Mangal* does not contemplate its system handling two simultaneous communication requests.

Further, *Mangal* clearly describes the tearing down process at the end of each communication session for each of its embodiments. *See e.g., id.* at col. 6, lines 53-56. As discussed above, in *Mangal*, a reverse tear down must be completed at the end of each communication session before a new communication session can begin on the subsequently selected link. Thus, the queuing methods and reverse tear down of *Mangal* indicate *both* upstream and downstream data exchange for any of *Mangal*'s devices 105-107 and network 113 in a given communication session occur in only the selected frequency band. Therefore, *Mangal* does not satisfy the limitation receiving on the low interference band *and* transmitting on the high interference band occur in the same communication session. The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed

combination fails to satisfy every claim limitation of claims 76 and 77. Therefore, Appellant requests that the Board *reverses* the rejection of record.

Mangal Cannot be Used to Support a 35 U.S.C. 103 Rejection

Moreover, Appellant points out that the Examiner's proposed combination is inappropriate insomuch as it would change the principle of operation of *Mangal*. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious." *In re Ratti*, 270 F.2d 810. In the case at hand, *Mangal* requires the base station unit 109 to select one of licensed or unlicensed wireless link for a given communication session. *See* Mangal, Fig. 3, element 303; col. 6, lines 35-38. After a communication session concludes, the session terminates and wireless capacity tears down in reverse order to end the session. *Id.* at col. 6 lines 54-57. *Mangal*'s system can begin a new communication session in one of the subsequently selected bands only after the reverse tear down is complete.

In order to satisfy the pending claims, *Mangal* would require a substantial modification so that it transmits in a licensed band and receives in an unlicensed band, or vice versa, at the same time or during the same communication session. As can easily be seen, such a modification would require a complete abandonment of the tear down process mentioned above and would further require a complete overhaul of *Mangal*'s communication scheme. By way of example, the method according to *Mangal* (as shown at Fig. 3), would necessitate a complete re-work. Also, each of *Mangal*'s devices 105, 106, and 107 would need to be reconfigured with new hardware and/or firmware to facilitate simultaneous communications in two bands. That is, steps 303-306 would have to be abandoned and newly formulated steps would have to be conceived. For at least these reasons, Appellant requests that the Board *reverses* the rejection of record.

2. Dependent Claims

Claims 42-52, 55-65, and 67-71 depend from claims 40, 53, and 66, respectively. Each dependent claim inherits every limitation of the claim from which it depends. As shown above,

the combination of *Mangal* and AAPA fails to satisfy every limitation of claims 40, 53, and 66. As such, claims depending therefrom are patentable for at least the reasons set forth above. Moreover, the dependent claims set forth additional limitations making them patentable in their own right.

Dependent Claims 44 and 57

For instance, dependent claims 44 and 57 recite "wherein at least a portion of said receiving [in a low interference frequency band] and at least a portion of said transmitting [in a high interference frequency band] occur at the same time." As discussed above, the Examiner inappropriately equates *Mangal*'s subscriber unit system 100 with the claimed "subscriber station." If *Mangal* discloses the claimed "subscriber station," only its communication devices 105, 106, and 107 constitute "subscriber stations" because only they perform the functions of a "subscriber station." Accordingly, *Mangal* discusses bidirectional communication between its device, e.g., 105, and network system 113 taking place entirely in either a low interference band or a high interference band. At best, *Mangal* describes both transmitting and receiving occurring at the same time in only one of either a licensed or unlicensed band, i.e., where each of devices 105, 106, and 107 communicates in *one of* a licensed or unlicensed band over the network. As such, each of *Mangal*'s devices receives and transmits in *one of* licensed band or unlicensed band, but *not both*. This, of course, is in stark contrast to claims 44 and 57, which sets forth receiving in a low interference frequency band and transmitting in a high interference frequency band, both occurring at the same time (emphasis added). The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed combination fails to satisfy every claim limitation of claims 44 and 57. Therefore, Appellant requests that the Board *reverses* the rejection of record.

Even if Appellant accepts the Examiner's improper interpretation, *Mangal* does not discuss the possibility of having both the licensed and unlicensed allocation sub frames of the MAC frame format being used at the same time. As discussed previously, *Mangal* describes various queuing methods could be used to reserve the slots in the MAC sub frames, indicating that *Mangal* does not contemplate providing service to two simultaneous communication

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requests. Since a reverse tear down must be completed in *Mangal* at the end of each communication session before a new communication session can begin, the exchange of data both upstream and downstream for such communication session occurs in only the selected band at any given time. Therefore, *Mangal* does not satisfy the limitation that receiving on the low interference band and transmitting on the high interference band occur in the same session (emphasis added). The Examiner does not rely on any other reference as satisfying this limitation. As shown, the Examiner's proposed combination fails to satisfy every claim limitation of claims 44 and 57. Therefore, Appellant requests that the Board *reverses* the rejection of record.

Dependent Claims 46, 48, 59 and 61

Claims 46 and 59 recite "wherein said base station performs higher order filtering on signals received at said base station than said subscriber station performs on signals received at said subscriber stations." Claims 48 and 61 recite "wherein said subscriber station performs lower order filtering on signals received at said subscriber station than said base station performs on signals received at said base station." In rejecting these claims, the Examiner acknowledged that *Mangal* in view of AAPA "does not teach performing higher order filtering at the base station than the subscriber stations." *See* Final Action, pg. 7. The Examiner's acknowledgment that the combination of *Mangal* and AAPA does not satisfy this limitation is contrary to the Examiner's assertion, as Appellant best understands, that this same combination satisfies a similar limitation in claim 66. The Examiner does not point to another reference as satisfying this limitation. Instead, the Examiner simply states that this limitation would have been obvious "to add performing higher order filtering . . . to improve the system cost." *Id.* Clearly, the Examiner has not met his burden of establishing obviousness by failing to satisfy every claim limitation. For at least this reason, Appellant requests that the Board *reverses* the rejection of record.

Even if Appellant assumes that the Examiner rejected these claims under the same rationale used in rejecting claim 66, the Examiner's proposed combination still fails to satisfy every claim limitation. As discussed above, the alleged AAPA teaching of filtering of a received