IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

INTELLECTUAL VENTURES I LLC, Plaintiff, v. AT&T MOBILITY LLC; AT&T MOBILITY II LLC; and NEW CINGULAR WIRELESS SERVICES, INC., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	:	C.A. No. 13-1668-LPS
INTELLECTUAL VENTURES I LLC, Plaintiff, v. LEAP WIRELESS INTERNATIONAL, INC. and CRICKET COMMUNICATIONS, INC., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	:	C.A. No. 13-1669-LPS

INTELLECTUAL VENTURES I LLC, Plaintiff, v. NEXTEL OPERATIONS, INC. and SPRINT SPECTRUM L.P., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	: : : : : : : : : : : : : : : : :	C.A. No. 13-1670-LPS

INTELLECTUAL VENTURES I LLC, Plaintiff, v. T-MOBILE USA, INC. and T-MOBILE US, INC., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	: : : : : : : : : : : : : : : : :	C.A. No. 13-1671-LPS

INTELLECTUAL VENTURES I LLC, Plaintiff, v. UNITED STATES CELLULAR CORPORATION, Defendant, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	: : : : : : : : : : : : : : : : :	C.A. No. 13-1672-LPS
INTELLECTUAL VENTURES II LLC, Plaintiff, v. AT&T MOBILITY LLC; AT&T MOBILITY II LLC; and NEW CINGULAR WIRELESS SERVICES, INC., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	: : : : : : : : : : : : : : : : :	C.A. No. 14-1229-LPS

INTELLECTUAL VENTURES II LLC, Plaintiff, v. LEAP WIRELESS INTERNATIONAL, INC. and CRICKET COMMUNICATIONS, INC., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	:	C.A. No. 14-1230-LPS

INTELLECTUAL VENTURES II LLC, Plaintiff, v. NEXTEL OPERATIONS, INC. and SPRINT SPECTRUM L.P., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	:	C.A. No. 14-1231-LPS

INTELLECTUAL VENTURES II LLC, Plaintiff, v. T-MOBILE USA, INC. and T-MOBILE US, INC., Defendants, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	: : : : : : : : : : : : : : : :	C.A. No. 14-1232-LPS

INTELLECTUAL VENTURES II LLC, Plaintiff, v. UNITED STATES CELLULAR CORPORATION, Defendant, and ERICSSON INC. AND TELEFONAKTIEBOLAGET LM ERICSSON Intervenors.	: : : : : : : : : : : : : : : :	C.A. No. 14-1233-LPS

ORDER

At Wilmington, this **12th** day of **August, 2016**:

For the reasons set forth in the Memorandum Opinion issued this date,

IT IS HEREBY ORDERED that the disputed claim terms of U.S. Patent Nos. 5,602,831

("the '831 patent"), 6,952,408 ("the '408 patent"), 6,640,248 ("the '248 patent"), 7,385,994 ("the '994 patent"), and 7,787,431 ("the '431 patent") are construed as follows:

"identifying changes in signal drop-out characteristics" ['831 patent, claim 1]	"more than one characteristic of a signal drop-out"
"encoding packets into packet blocks" ['831 patent, claim 1]	"forming blocks by interleaving a discrete number of packets together"
"an encoder for combining and varying the number of packets transmitted in each of the packet blocks" ['831 patent, claim 9]	"an encoder for forming blocks by interleaving a discrete number of packets together and varying the number of packets transmitted in each of the blocks"
"frequency hopping" ['408 patent, claims 1, 2]	The preamble term limits the claim and means "switching the frequency in a non-sequential sequence"
"a structure for allocating ones of baseband outputs from a digital channelizer to ones of logical inputs of digital signal processors and allocating ones of baseband inputs of a digital combiner to ones of logical outputs of said digital signal processors according to said mapping signal" ['408 patent, claim 2]	Means-plus-function limitation under § 112 ¶ 6 **Function:** (1) allocating ones of baseband outputs from a digital channelizer to ones of logical inputs of digital signal processors and (2) allocating ones of baseband inputs of a digital combiner to ones of logical outputs of said digital signal processors according to said mapping signal **Structure:** time division multiplexed bus
"allocating resources"/ "allocates bandwidth resource"/ "allocates resources" ['248 patent, claims 1, 20]	"[allocating / allocates] an amount of bandwidth"
"application aware resource allocator at the MAC layer" / "application-aware media access control (MAC) layer" ['248 patent, claims 1, 20]	"a [resource allocator/ media access control layer] that has knowledge of the type of data application and further takes into account, when allocating bandwidth, information about applications at International Standards Organization's Open Systems Interworking (OSI) application layer 7" In Claim 20, this term appears in the preamble and limits the claim, and thus should be construed as set forth above.
"a module operative to recognize an application type of said software application associated with said IP flow" / "identifying means for identifying	Means-plus-function limitation under § 112 ¶ 6 **Function:** to recognize an application type of said

an application type of a software application associated with an IP flow" ['248 patent, claims 17, 20]	software application associated with said IP flow **Function:** identifying an application type of a software application associated with an IP flow **Structure:** Packet header identification component 1502 or 1602
"allocating means for allocating resources to said IP flow . . . so as to optimize end user application IP QoS requirements of said software application" ['248 patent, claim 20]	Means-plus-function limitation under § 112 ¶ 6 **Function:** Indefinite **Structure:** The Court does not reach this issue
"allocating a proportion of said total number of data packets to a number of the tiers of service to allow individual packet data queues on a number of tiers to share a communication resource" ['994 patent, claims 1, 11]	Plain and ordinary meaning
"means for allocating a tier of service for each of a plurality of individual packet data queues, wherein the means for allocating allocates different weights to each tier of service based on a number of users requiring access to the available communication resource" ['994 patent, claim 11]	Means-plus-function limitation under § 112 ¶ 6 **Function:** allocating a tier of service for each of a plurality of individual packet data queues, wherein the means for allocating allocates different weights to each tier of service based on a number of users requiring access to the available communication resource **Structure:** RNC236-240 and/or Logic 248-250 implementing algorithm: $\varphi_{tier\_i} = (N_{tier\_i} * S_{tier\_i})/(\Sigma_{k=1 \text{ to } L} : N_{tier\_k} * S_{tier\_k})$
"means for determining a total number of data packets that can use an available communication resource" ['994 patent, claim 11]	Means-plus-function limitation under § 112 ¶ 6 **Function:** determining a total number of data packets that can use an available communication resource **Structure:** RNC236-240 and/or Logic 248-250 using the method disclosed at 6:29-37. Specifically, the total number of data packets is equal to the bandwidth speed*round duration/packet size. This structure, and thus the claim, only applies where data packets are of a fixed size.
"scheduling means to provide said communication resource to queued packet data users on a tier-by-tier basis, such that said	Means-plus-function limitation under § 112 ¶ 6 **Function:** provide said communication resource to

resource is made available to all tiers" ['994 patent, claim 11]	queued packet data users on a tier-by-tier basis, such that said resource is made available to all tiers **Structure:** RNC236-240 and/or Logic 248-250 adapted to facilitate packet queuing and scheduling in a round-robin fashion as disclosed in the patent at 7:53-8:14
"means . . . for allocating a proportion of said total number of data packets to a number of the tiers of service to allow individual packet data queues on a number of tiers to share a communication resource" ['994 patent, claim 11]	Means-plus-function limitation under § 112 ¶ 6 **Function:** allocating a proportion of said total number of data packets to a number of the tiers of service to allow individual packet data queues on a number of tiers to share a communication resource **Structure:** RNC236-240 and/or Logic 248-250 implementing the algorithm $\theta_i = \varphi_{nn} - *\beta_i$
"primary preamble sufficient to enable radio operations" ['431 patent, claims 8, 18]	"information at the beginning of a transmission that alone enables radio operations"
"an autocorrelation having a large correlation peak with respect to sidelobes; a cross-correlation with other primary preambles having a small cross-correlation coefficient with respect to power of other primary preambles; and a small peak-to-average ratio; and wherein a large number of primary preamble sequences exhibit the properties" ['431 patent, claims 8, 18]	Indefinite
"wherein the core-band is substantially centered at an operating center frequency" ['431 patent, claims 8, 18]	Plain and ordinary meaning

HON. LEONARD P. STARK
UNITED STATES DISTRICT COURT