U.S. Department of Commerce

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To the Honorable	Commissioner of Patents and Trademarks: Please record			
Name of control Olli Piiraine Aki Happo	/ · · · · · · · · · · · · · · · · · · ·	2. Name and address of receiving party(ies): Nokia Networks Oy P.O. Box 300 FIN-00045 Nokia Group FINLAND		
	s) of conveying party(ies) 🔲 Yes 🗵 No	Additional name(s) & addresses attached? Yes No		
	conveyance:			
Assignmer Security A				
Execution Date	e: 30 January 2001, 30 January 2001			
4. Application	n number(s) or patent number(s)			
If this document is being filed together with a new application, the execution date of the application is:				
A. Patent App 09/765492	plication Number(s)	Patent Number(s)		
Additional numbers attached? ☐ Yes ☒ No				
	address of party to whom correspondence cument should be mailed: Michael B. Lasky Altera Law Group 6500 City West Parkway – Suite 100 Minneapolis, Minnesota 55344-7701	 6. Total number of applications and patents involved: 1 7. Total fee (37 C.F.R. §3.41) \$40.00 ☑ Enclosed – Any excess or insufficiency should be credited or debited to deposit account ☑ Authorized to charged to deposit account 8. Deposit Account number: 50-1038 		
12/2001 DBYRNE 00000066 09765492 DO NOT USE THIS SPACE				
9. Statement and Signature: To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document. Michael B. Lasky 28 March 2001				
Name of Pers		gnature Date		
	U	Total number of pages including cover sheet, attachments, and document:		
	CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigne paper, as described herein, are being deposited in the sufficient postage, in an envelope addressed to: Assist 20231 on 28 March 2001. Michael B. Lasky Name	United States Postal Services, as first class mail, with		

PATENT REEL: 011669 FRAME: 0081

US 23282 Altera Ref. No.: 975.323USW

PATENT ASSIGNMENT TO CORPORATION WORLDWIDE

WHEREAS.

1. Olli Piirainen residing at Pikisaarentie 1 E 11, flN-90100 Oulu, Finland and a citizen of Finland;

2. Aki Happonen residing at Rysakuja 5, FIN-90900 Kiiminki, Finland and a citizen of Finland;

3. residing at and a citizen of ;
4. residing at and a citizen of :

hereafter referred to as "THE UNDERSIGNED", have made an invention entitled CHANNEL IMPULSE RESPONSE ESTIMATION USING RECEIVED SIGNAL VARIANCE

AND, WHEREAS, Nokia Networks Oy, hereafter referred to as ASSIGNEE, a corporation organized under the laws of Finland and whose place of business and business address is P.O.. Box 300, FIN-00045 Nokia Group, Finland, is desirous of acquiring the entire right, title and interest in the same;

NOW, THEREFORE in consideration of the sum of One Dollar, the receipt whereof is acknowledged, and other good and valuable consideration, THE UNDERSIGNED hereby sell, assign and transfer unto ASSIGNEE the full and exclusive right to the said invention in the United States and the entire right, title and interest in and to all divisionals, continuations, continuations in part, reissues, reexaminations or renewals thereof, all Letters Patent which may be granted therefrom, and all reissues or extension of such patents, and in and to any and all applications which have been or shall be filed in any foreign countries for Letters Patent on the said invention including an assignment of all rights under the provision of international conventions and all Letters Patent of foreign countries which may be granted therefrom; the UNDERSIGNED hereby authorize the Commissioner of Patents to issue any and all United States Letters Patent for the aforesaid invention to ASSIGNEE of the entire right, title and interest in and to the same, for the use of the ASSIGNEE, its successors and assigns.

THE UNDERSIGNED, hereby agree that THE UNDERSIGNED, their executors and legal representatives will make, execute and deliver (without charge but at the expense of the ASSIGNEE) any and all other instruments in writing including any and all further application papers, affidavits, assignments and other documents, and will communicate to said ASSIGNEE, its successors and representatives all facts Known to THE UNDERSIGNED relating to said invention and the history thereof and will testify in all legal proceedings and generally do all things which may be necessary or desirable to vest the ASSIGNEE, its successors or assigns the entire right, title and interest in and to the said invention, applications, Letters Patent, rights, titles and benefits, privileges and advantages hereby sold, assigned and conveyed, or intended so to be.

THE UNDERSIGNED represent and agree with said Assignee its successors and assignees, that no assignment grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been or will be made to others by THE UNDERSIGNED, and that full right to convey the same as herein expressed is possessed by THE UNDERSIGNED.

IN TESTIMONY WHEREOF, THE UNDERSIGNED have hereunto set their hand on the dates indicated below.

Ola /-	X 30,01,2001
Olli Piiraineh	Date
Ay	30.01.2001
Aki Happonen	Date
	Date
No Logalization Poquired	Date

PATENT
RECORDED: 03/30/2001 REEL: 011669 FRAME: 0082