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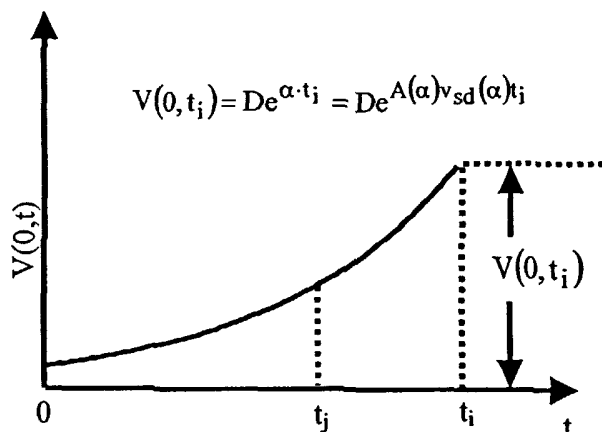
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS FOR TRANSMITTING A WAVEFORM HAVING A CONTROLLABLE ATTENUATION AND PROPAGATION VELOCITY



(57) Abstract: Systems and methods are described for transmitting a waveform having a controllable attenuation and propagation velocity. An exemplary method comprises: generating an exponential waveform, the exponential waveform (a) being characterized by the equation $V_{in} = De^{-ASD[x-(v_{SD}t)]}$, where D is a magnitude, V_{in} is a voltage, t is time, A_{SD} is an attenuation coefficient, and v_{SD} is a propagation velocity; and (b) being truncated at a maximum value. An exemplary apparatus comprises: an exponential waveform generator; an input recorder coupled to an output of the exponential waveform generator; a transmission line under test coupled to the output of the exponential waveform generator; an output recorder coupled to the transmission line under test; an additional transmission line coupled to the transmission line under test; and a termination impedance coupled to the additional transmission line and to a ground.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/25979

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 3/04
 US CL : 333/020

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 333/020,32,33; 324/532-535, 600, 629, 637, 642, 644, 645, 649, 691, 710, 713, 160, 178

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,31,632 A (OTSUJI et al.) 14 June 1994 (14.06.1994), see entire document.	1-43
A	US 5,641,318 A (BORCHERT et al.) 24 June 1997 (24.06.1997), see entire document.	1-43
A	US 6,097,755 A (GUENTHER et al.) 01 August 2000 (01.08.2000), see entire document.	1-43

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 18 February 2004 (18.02.2004)	Date of mailing of the international search report 20 APR 2004
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer <i>Shawn S. Hope</i> JOSE DEES Telephone No. 571-272-1569
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INTERNATIONAL SEARCH REPORT

PCT/US03/25979

Continuation of B. FIELDS SEARCHED Item 3:

USPAT, EPO, JPO, DERWENT search terms: exponential adj, waveform, attenuation, near 4, coefficient, time adj, domain adj, reflectometer