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- (71) **Applicant (for all designated States except US):** **LHC2 INC** [US/US]; 23326 E. Second Ave., Liberty Lake, WA 99019 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **HILLSTROM, Timothy, Leonard** [US/US]; c/o LHC2 INC, 23326 E. Second Ave., Liberty Lake, WA 99019 (US). **CONLEY, Robert, J.** [US/US]; c/o LHC2 INC, 23326 E. Second Ave., Liberty Lake, WA 99019 (US).
- (74) **Agents:** **FAIN, E., John** et al.; Lee & Hayes, PLLC, 601 W. Riverside Ave, Suite 1400, Spokane, WA 99201 (US).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

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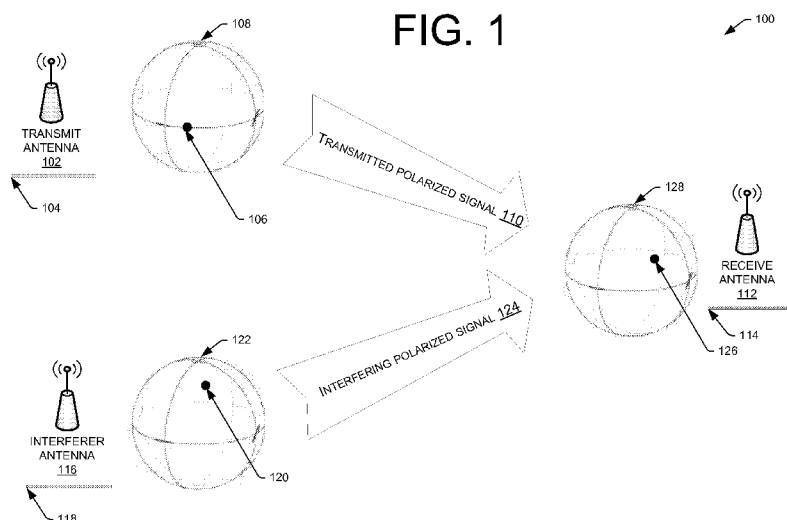
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(54) Title: ADAPTIVE POLARIZATION ARRAY (APA)

(57) **Abstract:** An Adaptive Polarization Array (APA) Algorithm is described for adjusting the polarization orientation of antennas, such as Dual-polarized array antennas. The APA Algorithm searches to find a polarization state that maximizes a signal quality of a received signal in the presence of interfering signals and noise. The search facilitates adjustment of a polarization state of, for example, receive antennas to maximize a signal quality metric. A proxy metric having no local maxima other than the global maximum is used to search the polarization search domain to find a best polarization state.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/043836**A. CLASSIFICATION OF SUBJECT MATTER****H04B 7/10(2006.01)i, H01Q 21/24(2006.01)i**

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)

H04B 7/10; H01Q 21/24

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: receive, antenna, non-equal, polarization, Poincare, sphere, SINR

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2009-0197544 A1 (PETERSSON SVEN et al.) 06 August 2009 See Claims 25,28-33; Paragraphs [20],[21],[23]-[31],[56]; Figures 1-4.	1-4,12 5-11,13-20
A	US 2004-0264592 A1 (SIBECAS SALVADOR et al.) 30 December 2004 See Claims 17-19,20,24,25,54; Paragraphs [5],[46],[52]-[55],[69],[70],[115]-[118],[120]-[122],[130]; Figures 2,3,6,8,9.	1-20
A	US 2009-0103720 A1 (KARAYIL THEKKOOTT NARAYANAN MANOJ) 23 April 2009 See Claims 1,4,6-8; Paragraphs [42]-[47],[49],[75],[90]-[97]; Figures 1-3,16-19.	1-20
A	US 2010-0098044 A1 (PRATT THOMAS G. et al.) 22 April 2010 See Claims 1,5,6; Paragraphs [13],[29],[30],[34]-[36],[49],[62]; Figures 1,6.	1-20

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

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"T" 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

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Authorized officer

KIM, Byoung Sung

Telephone No. 82-42-481-5652



INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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