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(71) Applicant: CPG TECHNOLOGIES, LLC. [US/US];
202N I-35, Suite C, Red Oak, TX 75154 (US).

(72) Inventors: CORUM, James, F.; 202N I-35, Suite C, Red Oak, TX 75154 (US). CORUM, Kenneth, L.; 202N I-35, Suite C, Red Oak, TX 75154 (US). PINZONE, Jr., Basil, F.; 202N I-35, Suite C, Red Oak, TX 75154 (US).

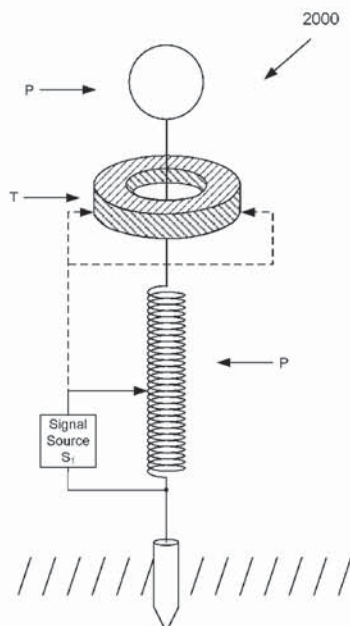
(74) Agents: D'AURELIO, Michael, J. et al.; Thomas | Horstemeyer, LLP., 400 Interstate North Parkway, Ste. 1500, Atlanta, GA 30339 (US).

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(54) Title: HYBRID PHASED ARRAY TRANSMISSION

**FIG. 21**

(57) Abstract: Disclosed are various embodiments of an electromagnetic hybrid phased array system. One such embodiment includes a guided surface waveguide probe, and a contrawound toroidal helix antenna collocated with the guided surface waveguide probe in which the contrawound toroidal helix comprises ring elements spaced from each other and wrapped around the guided surface waveguide probe. The system further includes a signal source applied to at least the guided surface waveguide probe, such that the guided surface waveguide probe and the contrawound toroidal helix contribute individual vertical electric fields to form a radiation pattern based on the phase and amplitude characteristics of the individual vertical electric fields.



LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, KM, ML, MR, NE, SN, TD, TG).

— *as to the applicant's entitlement to claim the priority of
the earlier application (Rule 4.17(iii))*

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted
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PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
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From the INTERNATIONAL BUREAU

To:

D'AURELIO, Michael, J.
Thomas | Horstemeyer, LLP.
400 Interstate North Parkway, Ste. 1500
Atlanta, GA 30339
ÉTATS-UNIS D'AMÉRIQUE

Date of mailing (day/month/year) 24 January 2018 (24.01.2018)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 170300-2380	
International application No. PCT/US2016/047675	International filing date (day/month/year) 19 August 2016 (19.08.2016)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address CPG TECHNOLOGIES, LLC. 202N I-35, Suite C Red Oak, TX 75154 United States of America	State of Nationality US	State of Residence US
	Telephone No.	
	Facsimile No.	
	E-mail address	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address CPG TECHNOLOGIES, LLC. 1130 Dale Acres Road Italy, Texas 76651 United States of America	State of Nationality US	State of Residence US
	Telephone No.	
	Facsimile No.	
	E-mail address ☐ Notifications by e-mail authorized	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the International Preliminary Examining Authority
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Doherty Fiona e-mail pct.team4@wipo.int Telephone No. +41 22 338 74 04
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