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[Continued on next page]

(54) Title: LOW POWER LOCALIZED DISTRIBUTED RADIO FREQUENCY TRANSMITTER

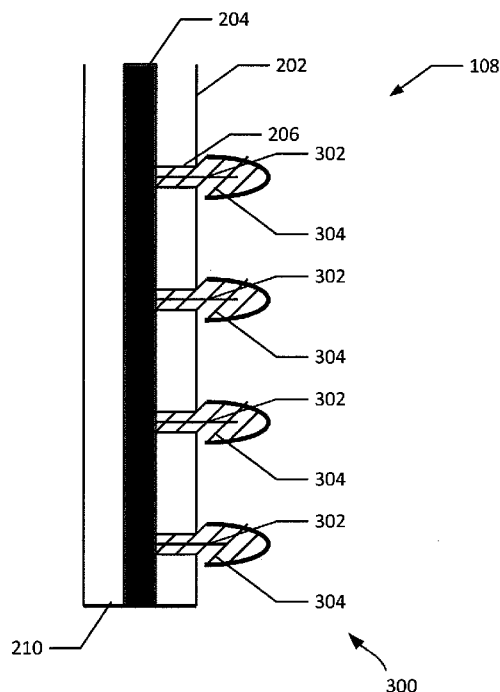


Figure 4

(57) Abstract: Methods and systems are disclosed for wireless communication, and in particular using a coaxial antenna for distributed wireless transmission. In one example, a wireless transmitter is disclosed that includes a radio frequency signal source and a coaxial cable including a near end and a far end. The near end is electrically connected to the radio frequency signal source and configured to receive signals from the radio frequency signal source. The coaxial cable has an inner conductor and an outer conductor. The wireless transmitter includes a shorting connection at the far end of the coaxial cable, the shorting connection electrically connecting the inner conductor and the outer conductor, and a plurality of openings along the coaxial cable spaced at predetermined locations to output signals generated by the radio frequency signal source. The invention can be used for RF attenuation monitoring and/or testing applications.



SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/066201

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01Q13/20
ADD.

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)
H01Q

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

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

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 221 921 A1 (VIVANT MEDICAL INC [US]) 25 August 2010 (2010-08-25)	1,2
Y	abstract paragraphs [0004] - [0006], [0017] - [0027] figures 1-14	3-6
X	JP 2003 133849 A (TOSHIBA CORP) 9 May 2003 (2003-05-09)	1,7-15
Y	abstract paragraphs [0001] - [0026] figures 1-6	3-6
A	US 3 364 489 A (WAYNE MASTERS ROBERT) 16 January 1968 (1968-01-16) abstract column 1, lines 10-67 column 7, line 60 - column 8, line 61 figures 1-6	1-15

☐

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

"E" earlier application or patent but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

24 April 2012

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/066201

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-15

Wireless communication systems

1.1. claims: 1-6

Transmitter with a leaky cable.

Problem: how to arrange the emitting slots pattern.

Solution: slot are placed at a distance having a relationship with the wavelength of the standing wave.

1.2. claims: 7-15

Low power wireless communication system.

Problem: how provide coverage in limited size spaces.

Solution: use of a leaky cable antenna.

2. claims: 16-19

Electromagnetic shielding monitoring system.

Problem: how to detect shielding holes.

Solution: broadcast an electromagnetic field and measure the leaking signal.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/066201

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 2221921	A1	25-08-2010	AU 2010200640 A1	09-09-2010
			CA 2693744 A1	20-08-2010
			EP 2221921 A1	25-08-2010
			JP 2010194317 A	09-09-2010
			US 2010217251 A1	26-08-2010

JP 2003133849	A	09-05-2003	NONE	

US 3364489	A	16-01-1968	NONE	
