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(54) **Antenna and antenna-feeder device**

(57) An antenna comprises: a main reflector being a body of revolution of arbitrary curve which axis diverges from axis of the revolution; a sub-reflector being a body of the revolution of arbitrary curve along the axis of revolution, having a circle and a vertex pointing to the main reflector and being placed between the circle and the main reflector; a radiator being located along the axis of revolution and being placed between the main reflector and the sub-reflector; and wherein the main reflector and the sub-reflector are:

$$z_m(r, D) = \sum_{n=0}^4 \sum_{m=0}^6 qm_{n,m} D^{m-n+1} r^n,$$

$$z_s(r, D) = \sum_{n=0}^4 \sum_{m=0}^6 qs_{n,m} D^{m-n+1} r^n,$$

- z, r are coordinates of the main reflector and the sub-reflector measured in millimeters,
- Index m corresponds to the main reflector, index s to the sub-reflector,
- D is the main reflector diameter measured in millimeters.

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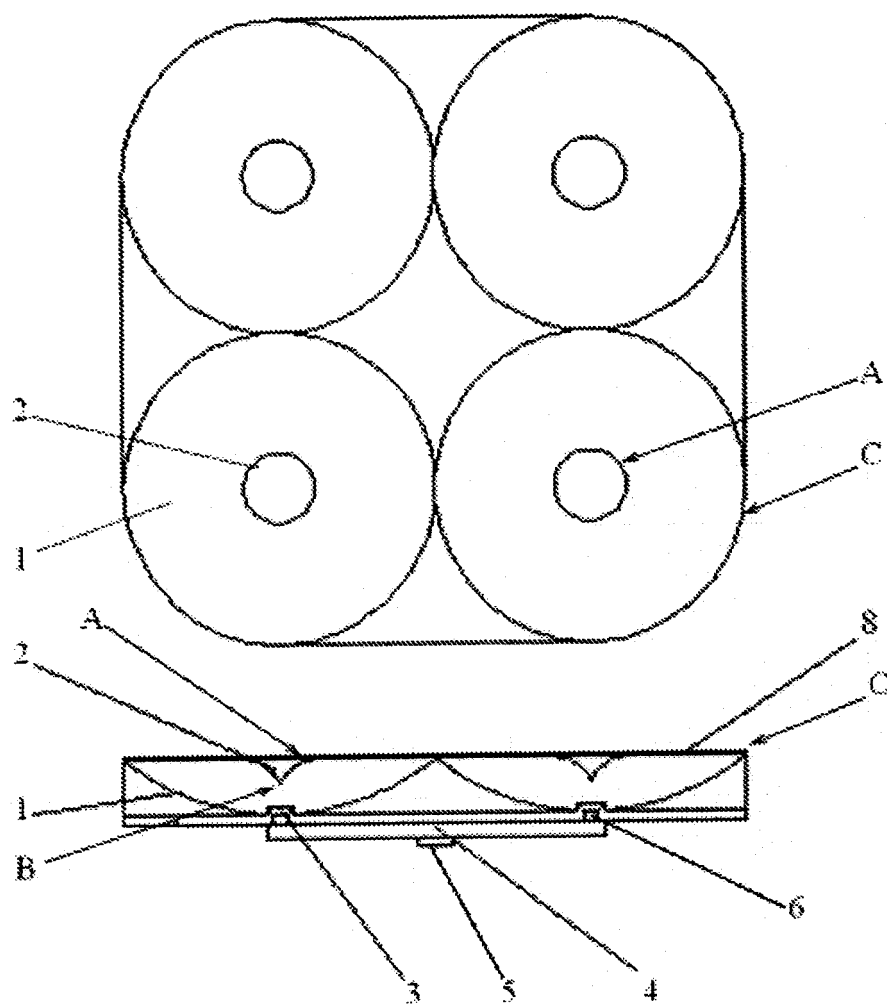


FIG. 1



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 211 834 B1 (DURHAM TIMOTHY E [US] ET AL) 3 April 2001 (2001-04-03) * claims 18,19; figure 3 *	1,3,7	INV. H01Q19/19
X	FR 2 540 297 A1 (THOMSON CSF [FR]) 3 August 1984 (1984-08-03) * claim 1; figures 1,3 *	1,3,7	ADD. H01Q25/00
X	US 2004/257290 A1 (GOTHARD GRIFFIN K [US] ET AL) 23 December 2004 (2004-12-23) * paragraph [0035]; figures 3,4 *	1,3,7	
X	US 6 020 859 A (KILDAL PER-SIMON [SE]) 1 February 2000 (2000-02-01) * abstract; figure 1a *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			H01Q
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 March 2007	Examiner MAROT-LASSAUZAIE, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

see annex



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**LACK OF UNITY OF INVENTION
SHEET B**

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-9

An antenna using a main and a sub-reflector

2. claim: 10

A feed network for four antennas

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 12 4095

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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29-03-2007

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82