FORM 2

THE PATENTS ACT, 1970
(39 of 1970)
AND
THE PATENTS RULES, 2003

COMPLETE SPECIFICATION

(See Section 10; rule 13)

TITLE OF THE INVENTION

"DISTRIBUTED ANTENNA SYSTEM AND METHOD OF MANUFACTURING A DISTRIBUTED ANTENNA SYSTEM"

APPLICANT

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The following specification particularly describes
the invention and the manner in which
it is to be performed

Claims

1. Distributed antenna system (100) for transmitting and/or receiving radio frequency, RF, signals, wherein said antenna system (100) comprises at least one elliptical waveguide (110) having a basically elliptical cross-section, wherein said waveguide (110) comprises a plurality of openings (120_1, 120_2, 120_3).

2. System (100) according to claim 1, wherein said elliptical waveguide (110) comprises at least one corrugated section (110a).

3. System (100) according to one of the preceding claims, wherein said openings (120_1, 120_2, 120_3) are comprised within corrugated sections (110a) and/or non-corrugated sections of said elliptical waveguide (110).

4. System (100) according to one of the preceding claims, wherein at least one of said openings (120_1, 120_2, 120_3) comprises a substantially elliptical cross-section.

5. System (100) according to one of the preceding claims, wherein different openings (120_1, 120_2), which are provided at different length coordinates (l1, l2) of said waveguide (110), are arranged at different angular positions (α1, α2) with respect to a major axis (a1) of said elliptical cross-section.

6. System (100) according to claim 5, wherein the angular position (α) increases with a distance (l) from a feeding end (130a) of the elliptical waveguide (110).

7. System (100) according to one of the preceding claims, wherein different ones of said plurality of openings (120_1, 120_2, 120_3) comprise a different geometry and/or

orientation with respect to a surface and/or a longitudinal axis (ca) of the waveguide (110).

8. System (100) according to one of the preceding claims, wherein said at least one elliptical waveguide (110) is configured to transmit electromagnetic waves with a frequency of at least 4 GHz .

9. System (100) according to one of the preceding claims, wherein said at least one elliptical waveguide (110) comprises a longitudinal attenuation of about 4dB per 100 meters for electromagnetic waves with a frequency of about 6 GHz.

10. System (100) according to one of the preceding claims, wherein said system (100) comprises at least one transmitter (140) for transmitting RF signals to said at least one elliptical waveguide (110) and/or at least one receiver (150) for receiving RF signals from said at least one elliptical waveguide (110).

11. Method of manufacturing a distributed antenna system (100), wherein an elliptical waveguide (110) is provided (200), and wherein a plurality of openings (120_1, 120_2, 120_3) are created (210) within said elliptical waveguide (110).

12. Method according to claim 11, wherein said openings (120_1, 120_2, 120_3) are created by milling and/or drilling and/or laser cutting.

13. Method according to one of the claims 11 to 12, wherein at least some of said openings (120_1, 120_2, 120_3) are created after a step of installing said waveguide (110) in the field, wherein said step of installing said waveguide (110) in the field preferably comprises bending at least one section of said waveguide (110).

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