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(54) **METHOD AND SYSTEM FOR PROVIDING
MULTIPLE SERVICE DISCOVERY IN A
WIRELESS ENVIRONMENT**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

2006/0116160 A1* 6/2006 Fuccello H04W 48/16
455/556.1

2007/0141988 A1 6/2007 Kuehnel et al.
(Continued)

FOREIGN PATENT DOCUMENTS

CN 102597982 7/2012
CN 102598632 7/2012

(Continued)

OTHER PUBLICATIONS

PCT/ISA/210 Search Report issued on PCT/KR2014/006530 (pp.
3).

(Continued)

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(57) **ABSTRACT**

A method and apparatus are provided for performing multiple service discovery in a wireless environment. The method includes generating a probe request containing a class information and a sub class information of a plurality of advertiser devices by a seeker device, transmitting the probe request for service discovery to at least one advertiser device of the plurality of advertiser devices and receiving a probe response from the at least one advertiser device. The probe response comprises at least one of the class information and the sub-class information associated with the at least one advertiser device.

11 Claims, 7 Drawing Sheets

