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- (71) Applicant: OHIO UNIVERSITY [US/US]; 340 West State Street, Athens, OH 45701 (US).
- (72) Inventors: BARTONE, Chris, G.; 7 Dove Drive, Athens, OH 45701 (US). SCHOPIS, Joel, L.; 24 Home Street, Apt. 904, Athens, OH 45701 (US).
- (74) Agents: NORRIS, Jeffrey, C. et al.; Standley Law Group LLP, 6300 Riverside Drive, Dublin, OH 43017 (US).
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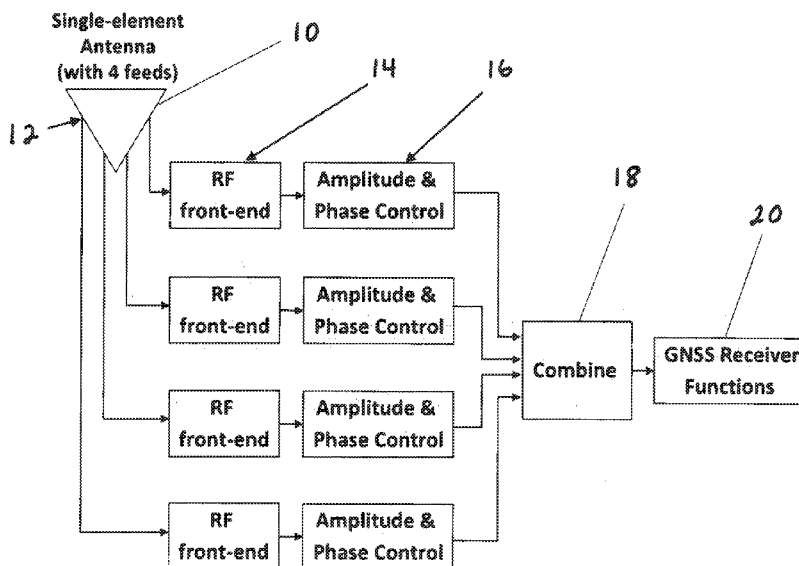
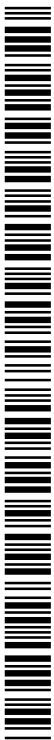


Figure 1

(57) Abstract: A single element antenna with the ability to have pattern control by placing multiple feeds on opposite ends of the antenna element and controlling the amplitude and phase distribution of each of the feed ports.



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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - H01Q 21/06 (2016.01) CPC - H01Q 3/44, H01Q 3/46, H01Q 5/307 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) IPC(8): H01Q 21/06 (2016.01) CPC: H01Q 3/44, H01Q 3/46, H01Q 5/307 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC: 343/700R (keyword limited - see terms below) Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase; GOOGLE; GoogleScholar; GooglePatents Search Terms: antenna, multiple feeds, azimuth, elevation radiation, combine feeds, amplitude, phase, antenna pattern, patch antenna, control azimuth, control elevation radiation characteristics, combine multiple feeds, frequency band, gain, feeds on opposite sides		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0151548 A1 (Kingsley et al.) 14 August 2003 (14.08.2003), entire document, especially; abstract, para. [0006], [0007], [0010], [0015], [0018], [0029], [0032]-[0034], [0040], [0043], [0046], [0053], [0065], Fig. 1, Claim 32	1 - 8, 10, 12 - 15, 17 - 27
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Y		9, 11, 16
Y	US 2014/0022126 A1 (Costas et al.) 23 January 2014 (23.01.2014), entire document, especially; abstract	9, 11, 16
A	US 2009/0174601 A1 (Dybdal et al.) 09 July 2009 (09.07.2009), entire document, especially; abstract, para. [0035], [0046], [0066], Claim 1	1 - 27
A	US 6,252,553 B1 (Solomon) 26 June 2001 (26.06.2001), entire document	1 - 27
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