

2002051811

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



162162

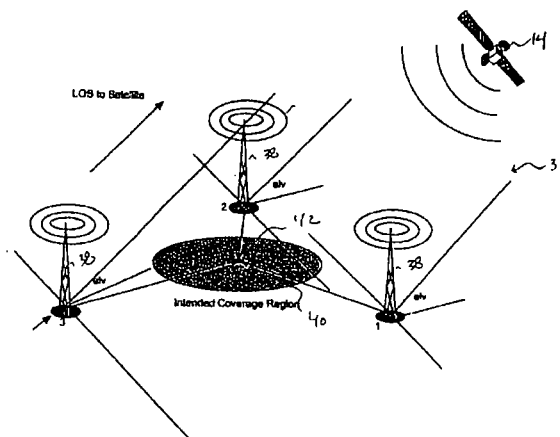
(43) International Publication Date
7 September 2001 (07.09.2001)

PCT

(10) International Publication Number
WO 01/65749 A1

- (51) International Patent Classification⁷: **H04J 11/00**, 4/00, H04B 7/212, H04L 27/06, H04B 1/04
- (21) International Application Number: PCT/US01/06337
- (22) International Filing Date: 28 February 2001 (28.02.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/185,701 29 February 2000 (29.02.2000) US
09/640,686 18 August 2000 (18.08.2000) US
- (71) Applicant: **WORLDSPACE MANAGEMENT CORPORATION** [US/US]; 2400 N Street, N.W., Washington, DC 20037 (US).
- (72) Inventor: **CAMPANELLA, S., Joseph**; 18917 Whetstone Circle, Gaithersburg, MD 20879 (US).
- (74) Agents: **HOLMES, John et al.**; Roylance, Abrams, Berdo & Goodman, L.L.P., 1300 19th Street, N.W., Suite 600, Washington, DC 20036 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR MOBILE PLATFORM RECEPTION AND SYNCHRONIZATION IN DIRECT DIGITAL SATELLITE BROADCAST SYSTEM



WO 01/65749 A1

(57) Abstract: A satellite system employing time diversity and a single frequency network of terrestrial re-radiation stations is provided wherein each terrestrial re-radiation station inserts a delay into a terrestrial signal. The delay allows the time of arrival of the early time diversity signal at the center of terrestrial coverage to coincide with the arrival of the corresponding late time diversity signal, thereby improving hand-off between terrestrial and satellite signals at a receiver. The delay also adjusts for distance differences between each terrestrial re-radiation station and the satellite and between each station and the center of the terrestrial coverage region. This adjustment optimizes the TDM-MCM reception by synchronizing at the center of the SFN the phase of the MCM signals re-radiated from the re-radiating stations of the SFN. The delay also compensates for the processing delay encountered when converting a satellite LOS TDM stream into a multicarrier modulated stream for transporting the satellite LOS TDM stream into a multicarrier modulated stream for transporting the satellite LOS TDM stream to user receivers and for the diversity delay between the early and late signals.



ACTION