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9.2.1 Correlation9.2.2 Delay Compensation; 9.2.3 Combining; 9.3 Results; 9.3.1 Telemetry Array Gain; 9.3.2 Radio Metric Array Gain; References; Chapter 10: Future Development; 10.1 The Square Kilometer Array; 10.2 The Allen Telescope Array; 10.3 The DSN Large Array; 10.3.1 Correlation; 10.3.2 Monitor and Control; 10.3.3 Signal Distribution; 10.3.4 Maintenance; 10.3.5 Data Routing; 10.4 The Uplink Array; 10.4.1 Electronic Stability; 10.4.2 Tropospheric Variation; 10.5 Software Combiner; 10.6 Final Remarks; References; Appendix A: Antenna Location; Appendix B: Array Availability
Appendix C: Demodulation ProcessC.1 Signal Model; C.2 Carrier Demodulation; C.3 Subcarrier Demodulation; C.4 Symbol Demodulation; Appendix D: Gamma Factors for DSN Antennas; Appendix E: Closed-Loop Performance; Appendix F: Subcarrier and Symbol-Loop SNR Performance; F.1 Subcarrier I- and IQ-Loops; F.2 Digital Data-Transition Tracking I- and IQ-Loops; Appendix G: Derivation of Equations for Complex-Symbol Combining; G.1 Derivation of Eq . (6.2-5); G.2 Derivation of Eq . (6.2-11); General Reference List; Acronyms and Abbreviations

Sommario/riassunto

An introduction to antenna Arraying in the Deep Space networkAntenna arraying is the combining of the output from several antennas in order to improve the signal-to-noise ratio (SNR) of the received signal. Now implemented at the Goldstone Complex and other Deep Space Network (DSN) overseas facilities, antenna arraying provides flexible use of multiple antennas to increase data rates and has enabled NASA's DSN to extend the missions of some spacecraft beyond their planned lifetimes.Antenna Arraying Techniques in the Deep Space Network introduces the development and use of anten