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Determination of Correlation Coefficients for RazakSAT Received Signals

By: Basri, AB (Basri, A. B.)^[1]; Badron, K (Badron, K.)^[1]; Ismail, AF (Ismail, A. F.)^[1]; Chanik, A (Chanik, A.)^[2]; Jamil, SF (Jamil, S. F.)^[2]; Salim, H (Salim, H.)^[2]

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Abstract

RazakSAT is the second Malaysian Earth observation satellite operating with downlink frequency of 2.232 GHz (S-band). RazakSAT's received signals had been recorded in percentage unit and the values are required be quantified in the common signal strength unit, dBm. This paper details how such has been achieved. Measurements were carried out in order to establish the correlation between the percentage values and dBm values. The campaign involved the setting-up of a terrestrial microwave link transmission comprised of a transmitter, a receiver, and relevant antennas at about 500 m displacement. The transmitted power was controlled with the use of a signal generator and the received power level was measured using a spectrum analyzer. Appropriate coefficients for the correlation had been determined. The slope coefficient, m has been derived to have the value of 0.7765 and its slope intercept coefficient, c has the value of 85.301. Using these coefficients, the received satellite signals can then be converted into dBm.

Keywords

Author Keywords: [Transmitter](#); [Receiver](#); [S-band](#); [Terrestrial microwave link](#)

Author Information

Reprint Address: Basri, AB (reprint author)

IIUM, Kulliyyah Engh, Dept Elect & Comp Engh, Jin Gombak, Selangor, Malaysia.

Addresses:

[1] IIUM, Kulliyyah Engh, Dept Elect & Comp Engh, Jin Gombak, Selangor, Malaysia

[2] Malaysia Space Ctr, Natl Space Agcy ANGKASA, Banting 42700, Selangor, Malaysia

E-mail Addresses: atikahbalqis32@gmail.com; khairayu@iium.edu.my; af_ismail@iium.edu.my; abadi@angkasa.gov.my; fara@angkasa.gov.my; hamid@angkasa.gov.my

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