

James Cook University
Electrical and Computer Engineering
EE4306 Assignment 2

Introduction

This assignment is worth 15% of the total of the course and covers RF electronics. The assignment is to be submitted by 10am Monday the 30th of October.

Task

Do a complete paper design for a satellite receiver, which has a signal of -100dBm at a frequency of $1.687.1\text{ GHz}$, at the back of the antenna. The impedance for the antenna output signal is 50 ohm . The required signal occupies a 2.0 MHz bandwidth. That signal is to be frequency shifted, filtered and amplified to produce a 0.5 Volt pp signal into 800 ohms at an 18.48 MHz centre frequency. The frequency conversion requires local oscillators with a frequency stability better than 50kHz .

Draw the complete circuit diagram and specify all the components to be used.

Note: Filtering to ensure that only the required 2 MHz signal bandwidth appears at the output must be included.

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22 Sep 00