Dekolink WIRELESS Ltd.
16 Bazel St. Qiryat-Arieh Petah-Tikva, Israel, 49510
Tel- 972-3-9180-180 Fax-972-3-9180-190
e-mail: marketing@decolink.com web www.decolink.com

PRODUCT DESCRIPTION

FOR

HIGH POWER DIGITAL SELECTIVE REPEATER

MODEL: MW-DR-800-50W90B

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TABLE OF CONTENTS

LIST OF DRAWINGS

Dekolink WIRELESS Ltd.
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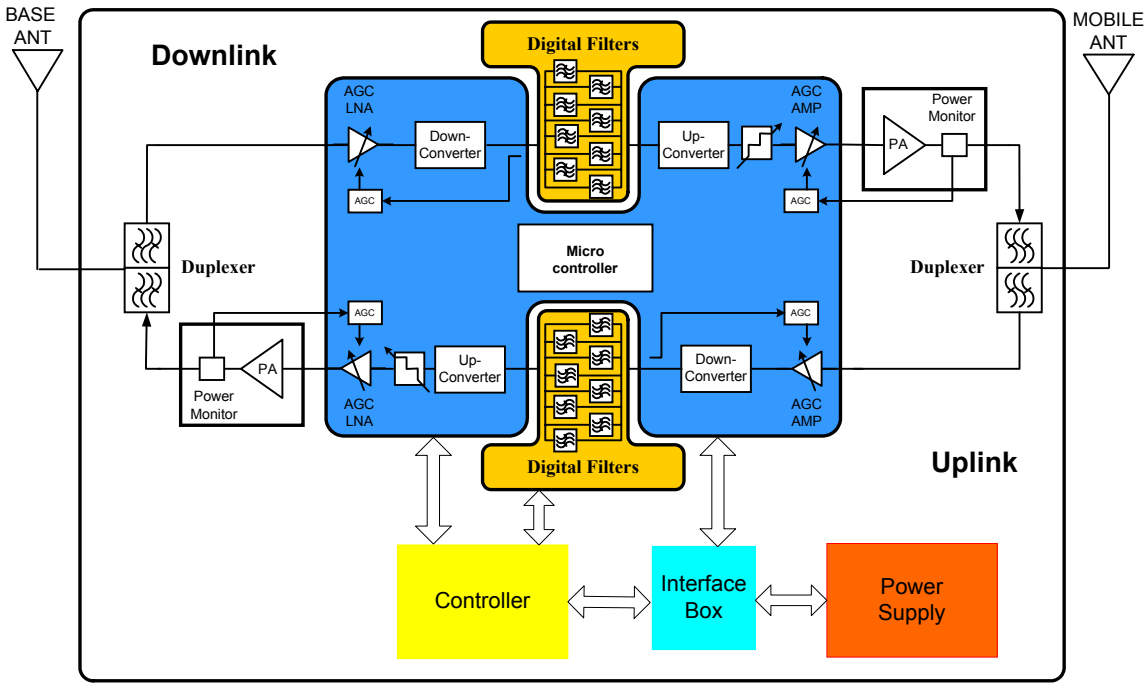
General Description

The unit is based on a modular configuration. Each module is build-up of a duplexer dual-path. Each path is down-converted to an Intermediate Frequency (IF); filtered by digital processing techniques to attain versatile programmable filter array and up-converted back.

The power amplifiers have power-monitoring circuits (Automatic Level Control - ALC) for output power limitation.
The unit is housed in a compact box for wall mounted easy installation.

BLOCK DIAGRAM DESCRIPTION:



Dekolink Wireless channel selective repeaters employ digital processing techniques to attain versatile programmable filter arrays in both the uplink &

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downlink paths.

The RF signal entering the repeater, is filtered by a duplexer, amplified, down converted & sampled to digital signals. The digital signal is filtered using fast parallel logic.

Using digital processing techniques, the system generates up to 8 separate, programmable and independent filters.

After filtration is accomplished, the digital signals are up-converted to an RF signal, amplified by a High Power Amplifier & combined by a duplexer to the output port.

REPEATER CONNECTION:

The RF connection is made via two type “N” female connectors. The RF connector labeled “Base” is connected to the antenna pointing to the base station, usually a rooftop antenna; this is a directional antenna such as Yagi or Dish antenna of 14 to 18 dBi gain. This antenna is pointed to the base station to get maximum input power. The RF connection labeled “Mobile” must be connected to the antenna pointing into the area to be covered by the Repeater. The remote antenna is usually a directional antenna designated for the coverage requirements.

For indoor applications covering a large building, the RF signals are split using power dividers and distributed to many antennas, usually omni antenna, each covering a floor or a small area.

such as inside a building or outdoor shaded area.

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COMPONENTS DESCRIPTION

Channler

Channler is complicate and most important component in repeater complex

Channler include:

1. Uplink and Downlink LNA Blocks with level control (ALC).LNA with ALC supplied constant signal level to Digital Filter units
2. Uplink and Downlink Conversion blocks.

   Conversion blocks receive RF signal ,through LNA block, filtering and down convert frequency (by down mixer and synthesizer) to IF. In IF section the signal is amplified and supplied to Digital Filter.

   After digital processing and filtering, digital signal up converted the IF frequency (by up mixer and synthesizer) to RF. The RF signal is filtering and supply to Preamplifier block.
3. Uplink and Downlink Preamplifier blocks with gain control (AGC).

   RF signal from Conversion block amplified and supplied constant level (by gain control) to Channler output.
4. Microcontroller block. Microcontroller receive alarms from all Channler blocks, process the data and through to external controller.

   Microcontroller receive from external Controller settings controls (Frequency, ALC , AGC, Power) and through to the all Channlers blocks.

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Digital Filter

The input IF signal is sampled by Digital filter unit. The digital signal is filtered using fast parallel logic. Using digital processing techniques the system generates 8 separate, programmable and independent filters. The filter parameters can be easily modified and tailored to meet specific customer requirements.

Downlink power amplifier:

This is a 50W 1dB compression amplifier operated at 10W composite output power. The power is limited by AGC mechanism to keep system performance. The amplifier uses 28VDC, 4AMP. Typ.

Uplink power amplifier:

This is a 16W 1dB compression amplifier operated up to 1W composite output power. The power is limited by AGC mechanism to keep system performance. The amplifier uses 28VDC, 1.7 AMP. Typ.

Power Amplifier AGC function

The Repeater has AGC function on both paths that serve to prevent the saturation of the Power Amplifier. When a high signal is received the AGC circuit detects the amplitude and sends a feedback signal to a variable attenuator (in Power Amplifier units), which attenuates the signal level so that the output power of the amplifier does not exceed the preset limit. The red LED on the BDA monitor (AGC Range) illuminates when the power output of the amplifier is within the set limit. AGC On/Off activated by software function. If the AGC is disabled then the amplifier gives maximum gain.

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MONITOR

The BDA monitor circuit prefer critical alarms.

All monitor Alarms based on units **current**.

When the unit current excepted setting limit, the red fault LED illuminate.

BDA MONITOR FUNCTIONS

The BDA monitor circuit prefer critical alarms.

DL Digital Filter Illuminates when the Power Supply current to Dow link Digital Filter is below or above its limits.

Channler Illuminates when the Power Supply current to Channler is below or above its limits.

+9v Illuminates when the current to from +9v Power Supply is below or above its limits.

UP Digital Filter Illuminates when the Power Supply current to UP link Digital Filter is below or above its limits.

UP Amplifier. Illuminates when the Power Supply current UP link Amplifier is below or above its limits.

+28v. Illuminates when the current to from +28v Power Supply is below or above its limits.

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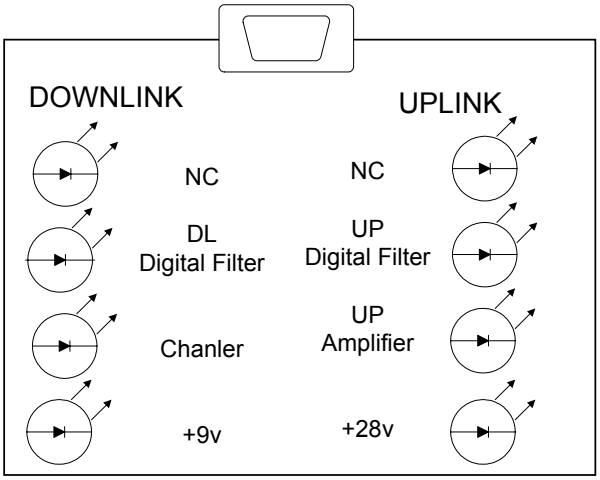
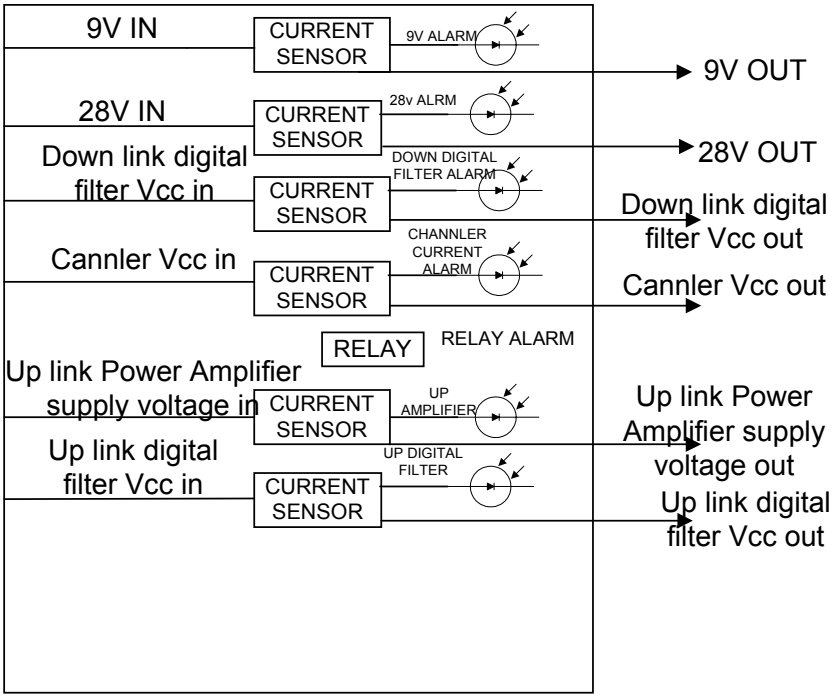
BDA MONITOR



BLOCK DIGRAM



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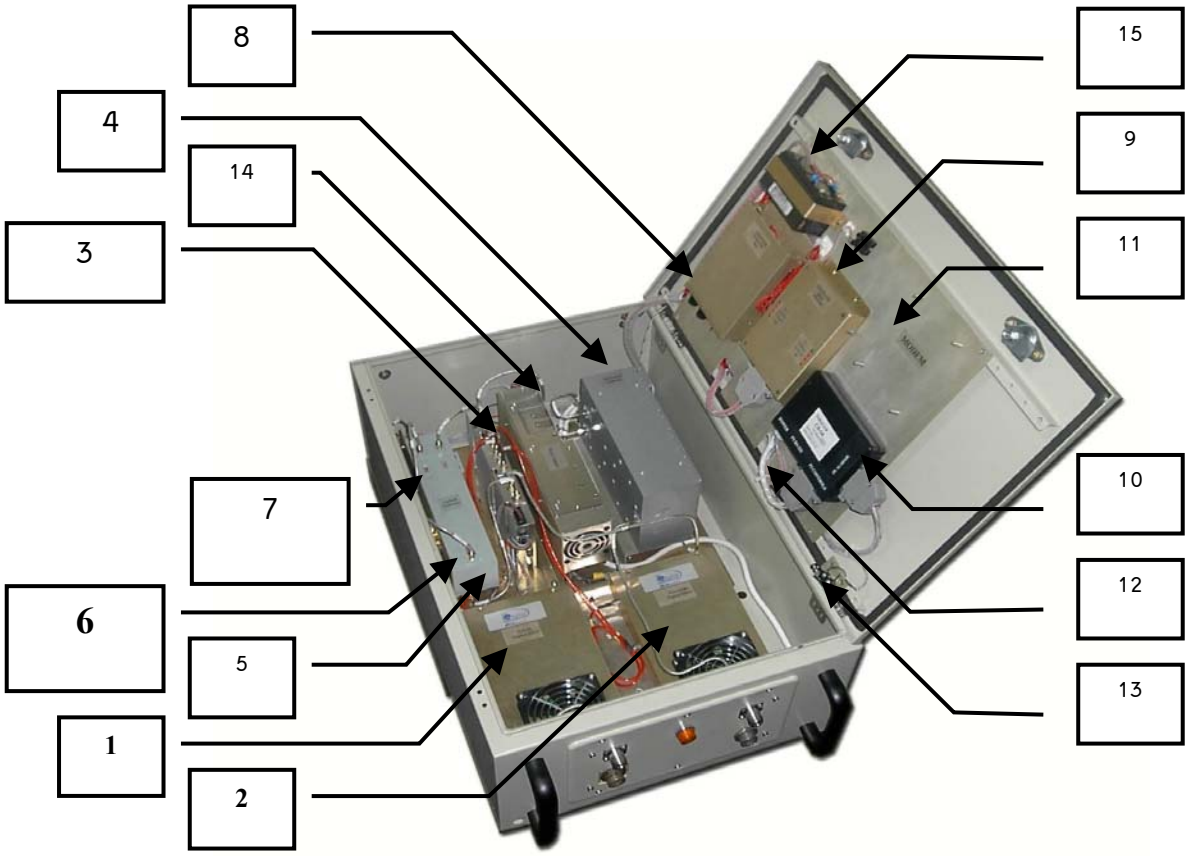
MECHANICAL LAYOUT



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1. Digital Filter Module for Downlink (include operation indication LED)
2. Digital Filter Module for Uplink (include operation indication LED)
3. Channler (Dual Up/down Converter for Uplink & Downlink Paths).
4. Diplexer to donor Antenna.
5. Diplexer to mobile Antenna (High Power).
6. Coupler for Modem Antenna.
7. Isolator for Uplink Amplifier.
8. Connections Box (include Repeater ON/Off switch).
9. BDA Monitor unit. (include alarm test button)
10. Controller Unit. (include operation status indication LED).
11. iDEN Modem Unit.
12. Door plate.
13. Door Alarm Switch.
14. Power Supply.
15. Controller Backup Battery.

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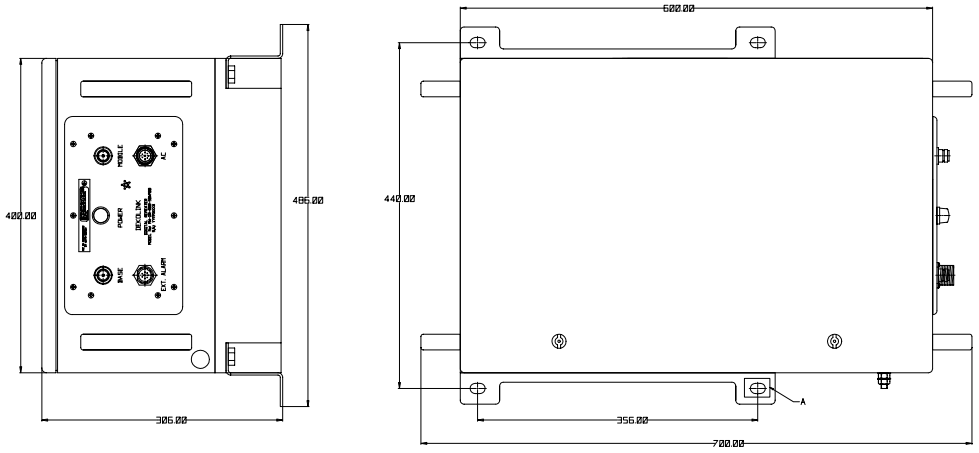
MECHANICAL OUTLINE



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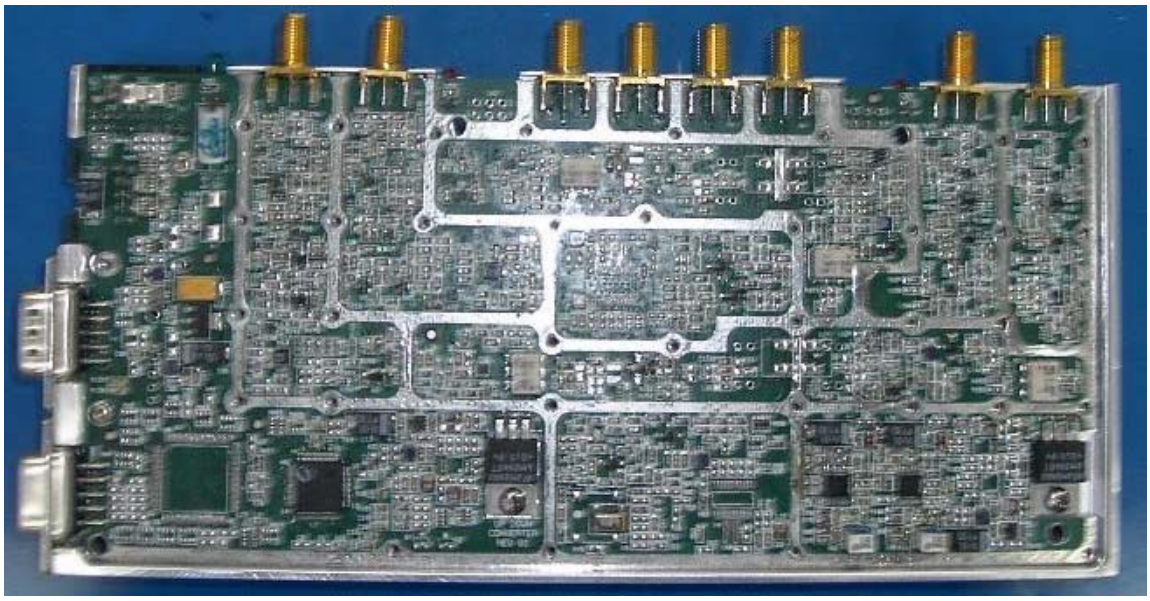
Digital Repeater Component Photos

Channler



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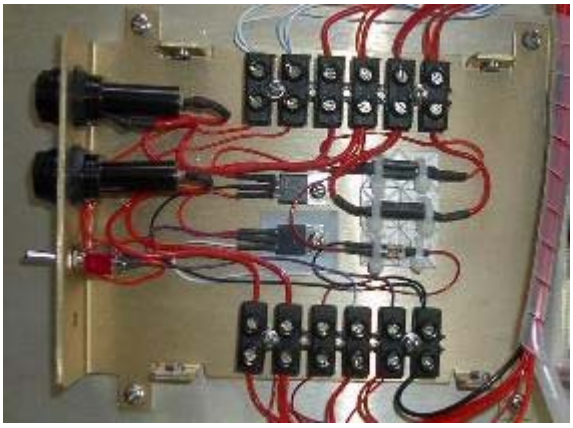
Connection box



Controller

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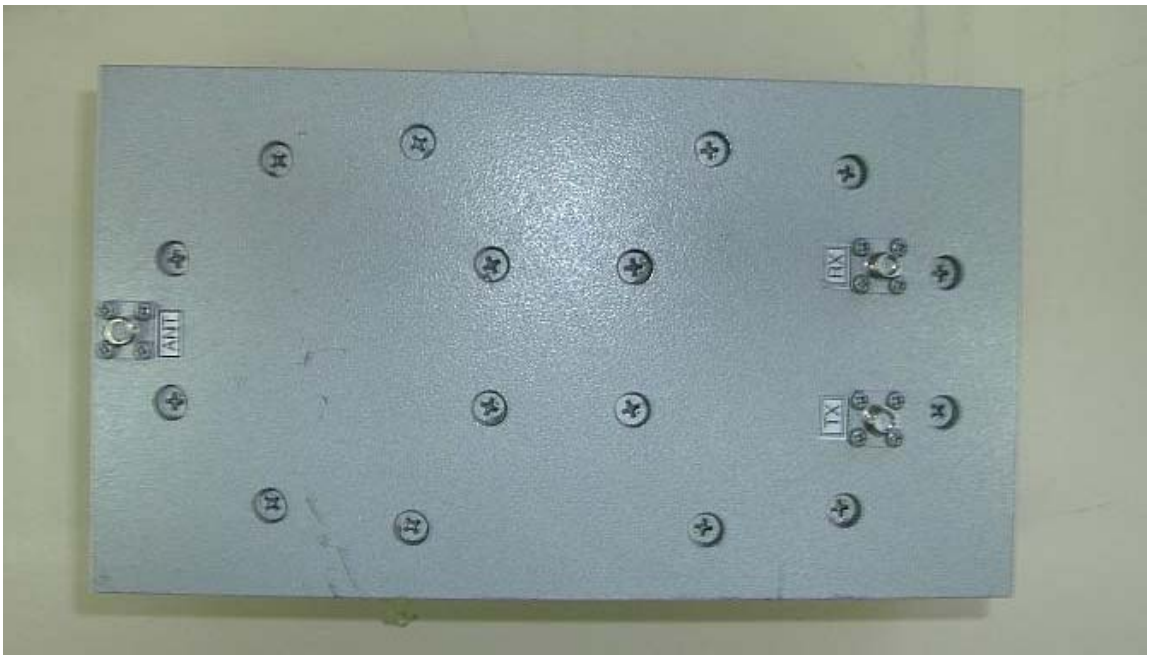
Digital filter

Down link diplexer



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Power supply

Up link diplexer

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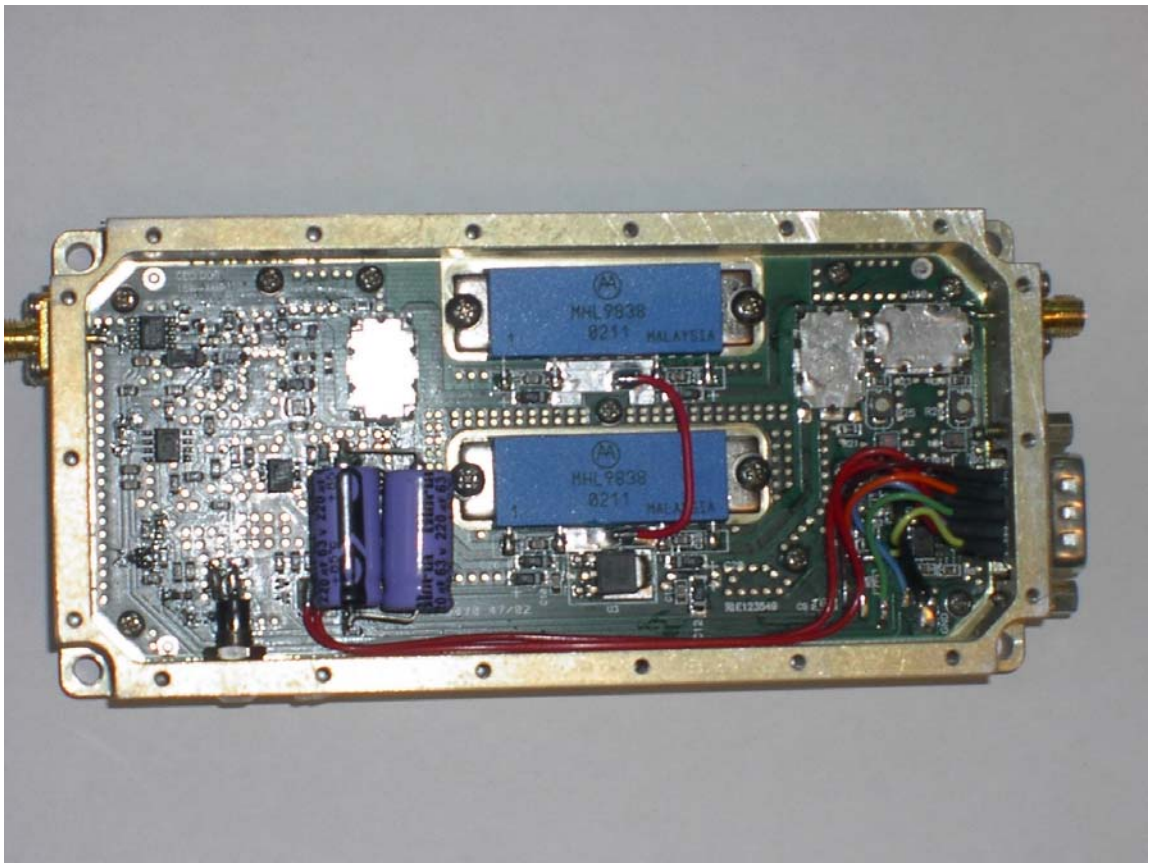
Up link Power Amplifier



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Down link Power Amplifier