



## Description of Changes Ha-VIS RF-R500-p / Ha-VIS RF-R500-c

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FCC ID: Z4NR-FR500  
IC: 9941A-RFR500  
Date : 2014-10-15

### Hardware:

Changes to the previous version of the hardware were taken to the analog part of the reader only.

All changes performed became necessary due to discontinued components. It was the aim of FEIG ELECTRONIC to replace these parts with compatible alternatives and successors. Blocks of the analog board that were affected are:

- Synthesizer 1 (SYN1)
- Power Amplifier (PA)
- Circulator (CIR)
- I/Q Demodulator (DEM)

### Synthesizer 1:

In the Synthesizer only the PLL component needed to be replaced. The VCO still remains the same.

The original component used was: LMX2364

This one is replaced by the following component: ADF4113BRUZ

### Power Amplifier:

In the original version of the hardware the following power amplifier was used: MWIC930GNR1

This one is replaced by the following component: MW7IC930GNR1

### Circulator:

In the original version of the hardware the following circulator was used: SDP BQ-Series

This one is replaced by the following component: MAFR-000688-000001

### I/Q Demodulator:

In the original version of the hardware the following I/Q Demodulator was used: MA4IQP900M-1291T

This one is replaced by two separate Mixer MAMXSS0012

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### Antennas:

Next to the necessary hardware modifications two additional antennas were measured and shall be certified with the reader.

Initially certified antennas:

- Ha-VIS RF-ANT-LR10-US
- Ha-VIS RF-ANT-WR30-US
- Ha-VIS RF-ANT-WR80-US

New certified antennas:

- Ha-VIS RF-ANT-LR10-US
- Ha-VIS RF-ANT-MR20-US
- Ha-VIS RF-ANT-sMR20-US
- Ha-VIS RF-ANT-WR30-US
- Ha-VIS RF-ANT-WR80-30-US