Application Note - AN105

Usage of *PlaneTRack* Video Output

0. General

This Application Note describes the usage of the Video output of Planevision Systems *PlaneTRack* devices.

0.1 Applicability of Application Note

Planevision Systems device	Applicable	Remark
PlaneTRack, all types	Yes	with Video output only

0.2 Record of Revisions

Version	Date of issue	Revision
1.0	24 Jan 2016	Initial release

Fig. 1 - PlaneTRack ADS-B receiver Typ RDM with two VIdeo Output terminals

(c) 2016 - all rights reserved - V1.0 - 26 JAN 2016
Planevision Systems GmbH - Grellkamp 6b - 22113 Oststeinbek - Germany

1. Purpose of Video Output

The Video Output is a designated maintenance or commissioning output. It shall not be used in normal operations of the PlaneTRack device. Its purpose is the qualitative control of proper commissioning and installation of antennas and cables (signal shape).

The Video Output is linked to the output of the RF stage of the receiver, i.e. after a logarithmic amplifier that boosts the incoming 1090MHz RF signal.

2. Video Output Level

The Video Output is buffered and amplified, but it is not calibrated. The voltage output of the RF stage follows an almost linear function of the RF input power in dBm (according to Fig. 2), however no conversion factor between Video Output voltage and RF input power is published,

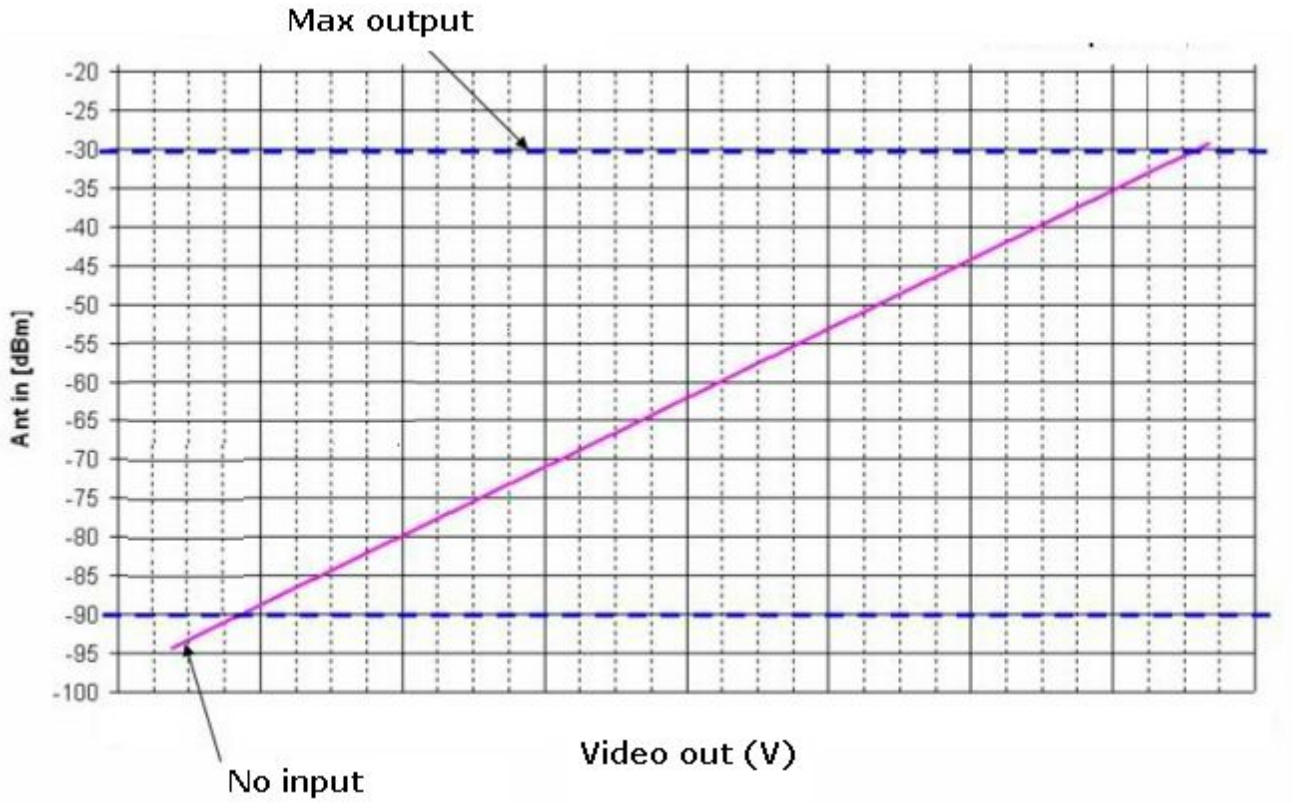

Fig. 2 - Video Output voltage follows RF input power

(c) 2016 - all rights reserved - V1.0 - 26 JAN 2016
Planevision Systems GmbH - Grellkamp 6b - 22113 Oststeinbek - Germany

3. Qualitative assessment of ADS-B signal shapes

ADS-B transmissions are strictly line-of sight and as such ADS-B antennas shall be commissioned free of any obstacles, be it nearby or in distance. Typical obstacles that can have an impact on ADS-B reception by shadowing or reflections are

- Mast structures
- Nearby antennas
- Buildungs, Towers, Hangars
- Vehicles
- Trees
- Hills, Mountains

Undistorted sample frames can be seen in Fig. 3 and Fig. 4

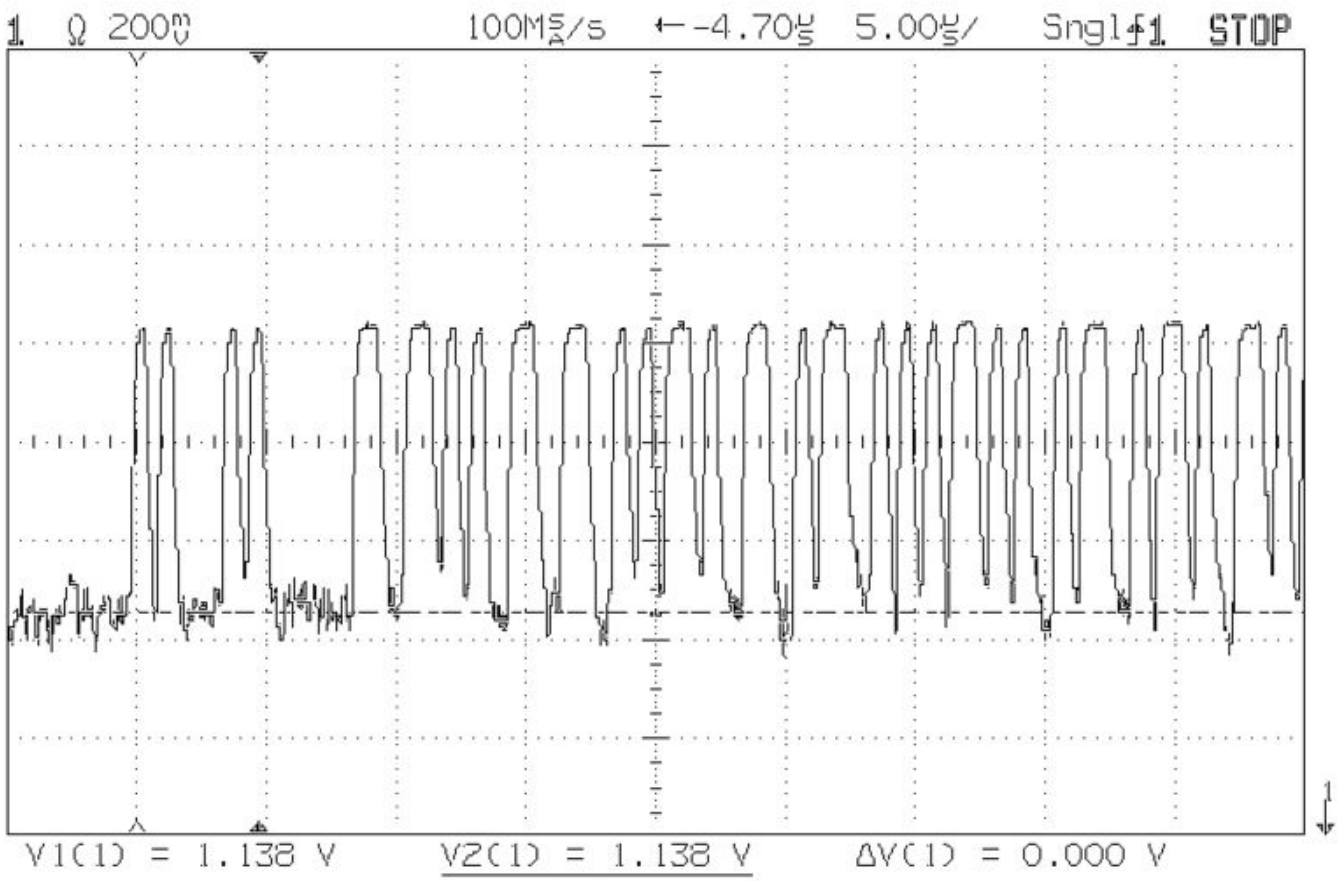

Fig. 3 - Typ. ADS-B frame

(c) 2016 - all rights reserved - V1.0 - 26 JAN 2016
Planevision Systems GmbH - Grellkamp 6b - 22113 Oststeinbek - Germany

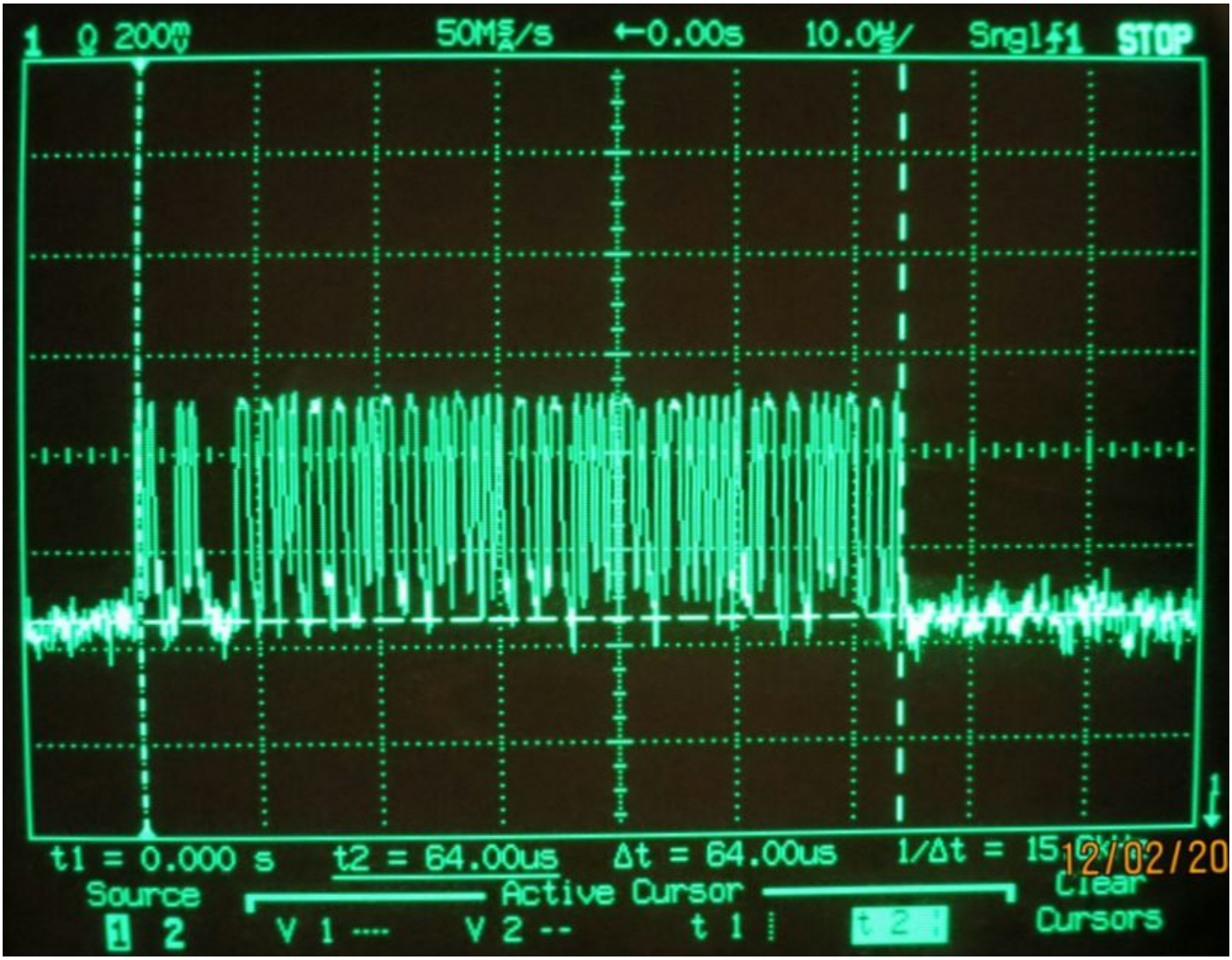

Fig. 4 - Typ. Mode-S frame (56 bit)

Fig. 5 shows signal pulses (SSR frame) with typical reflections. Part of the original signal is reflected and appears a few 100 ns later. Reflections can irritate signal quality heavily up to a point were decoding is not possible and should be avoided starting with a proper placement of the antenna.

(c) 2016 - all rights reserved - V1.0 - 26 JAN 2016
Planevision Systems GmbH - Grellkamp 6b - 22113 Oststeinbek - Germany

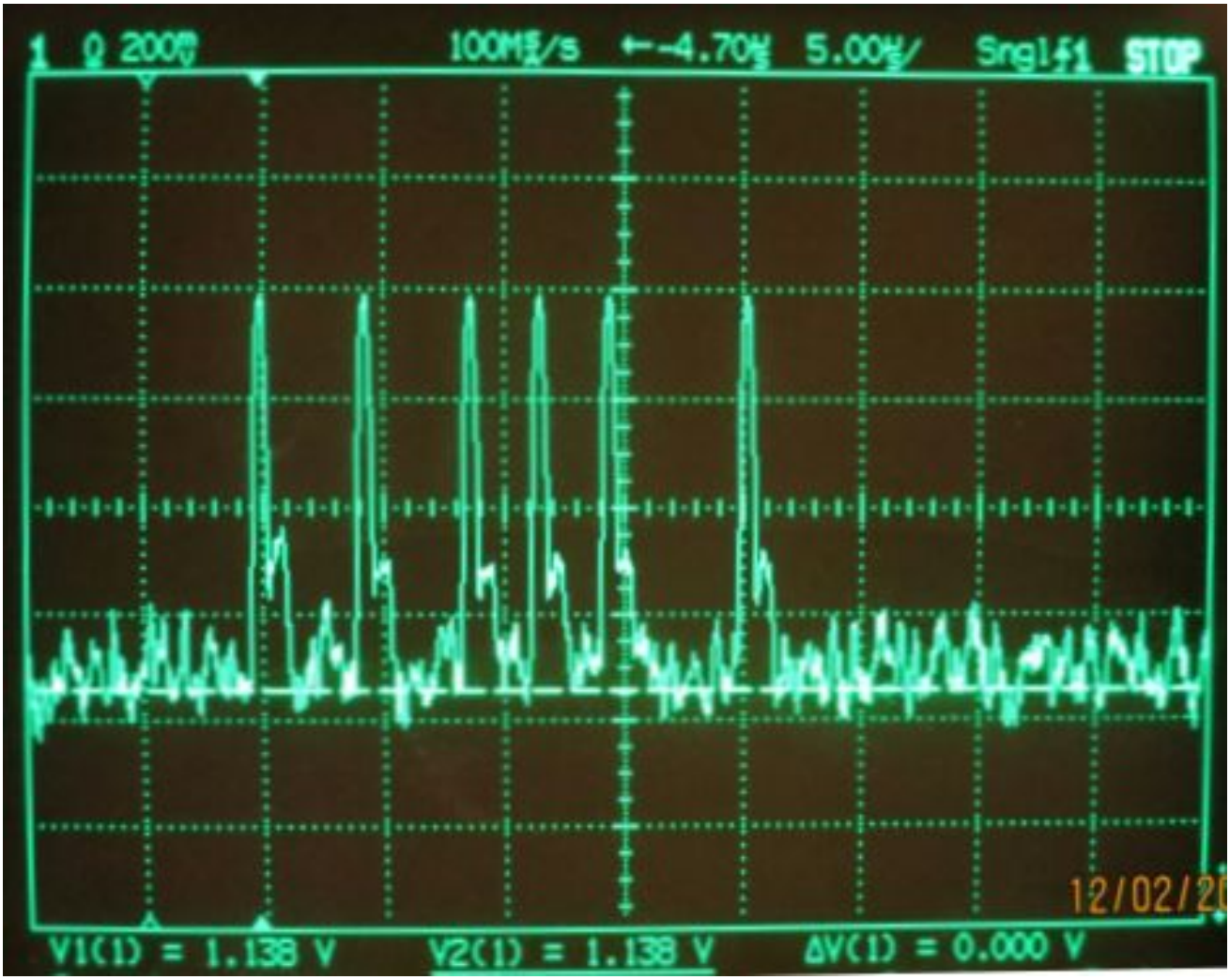

Fig. 5 - SSR frame with reflections

4. Technical data of Video Output

Socket:	BNC female
Impedance:	50 Ohms
Max output level:	ca. +4 V

DISCLAIMER

Planevision Systems ADS-B equipment is not intended and not certified for air traffic control, navigational or other aircraft on-board services or other life critical services and in no case may be used for any other but sole information purposes.

(c) 2016 - all rights reserved - V1.0 - 26 JAN 2016
Planevision Systems GmbH - Grellkamp 6b - 22113 Oststeinbek - Germany