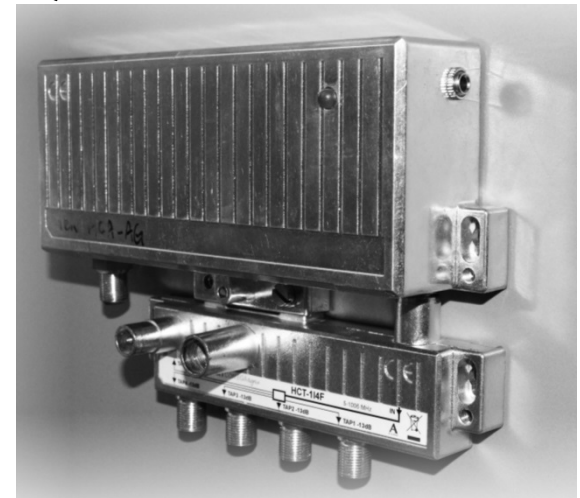




## In-Home Amplifier

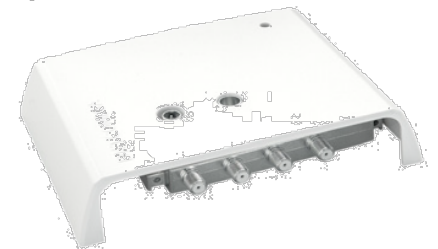
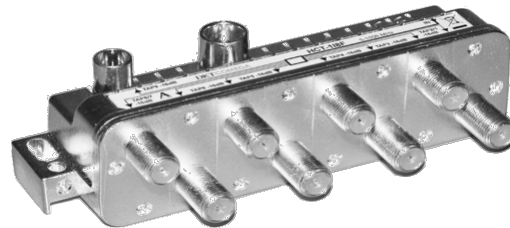
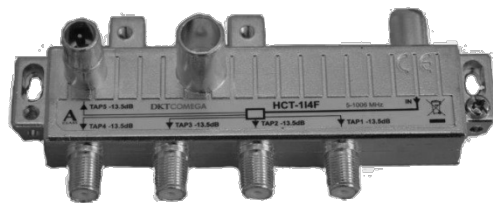
- Modular In-Home Amplifier: 1, 4+1 and 8+1 outputs
- Forward 87.5-1006MHz 25.5dB, 4dB equalizer
- AGC threshold 80dB $\mu$ V (total power)
- HCA-A65: Return 5-65MHz 16dB
- HCA-A: No return path





## Modularity

- The HCA amplifier can be used as stand-alone with one output.
- Optionally, there are two tap modules; HCT-114F and HCT-118F, with 4+1 and 8+1 output, respectively, that can be installed directly at the amplifier output.
  - One output is an IEC-male for direct connection to a TV set, or to an IPLoC unit.
- There is also a white plastic cover for the amplifier



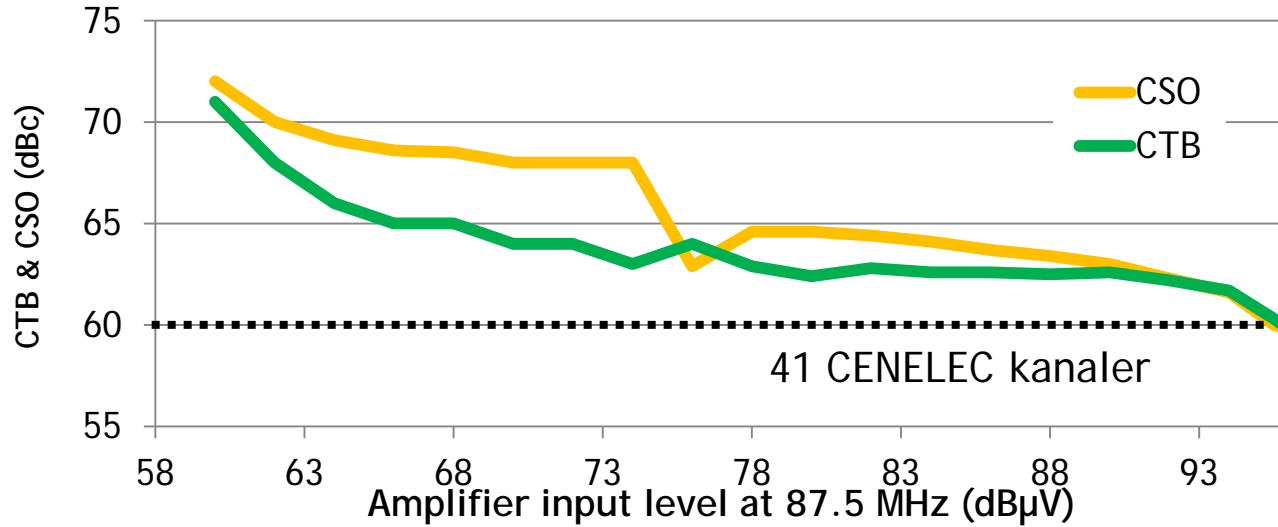
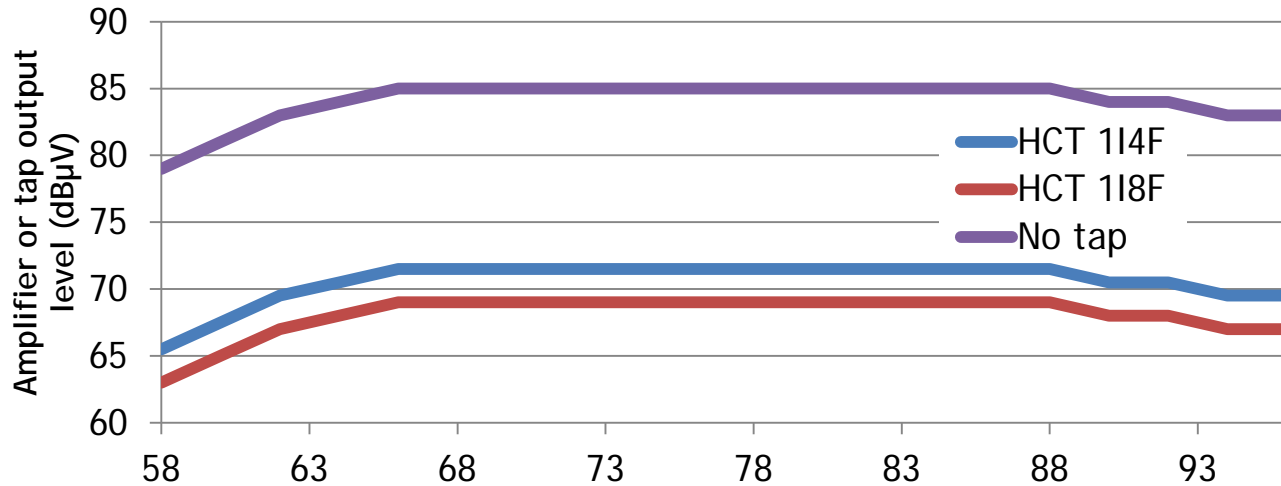


## AGC

- The amplifier's AGC (Automatic Gain Control) is tuned to keep a steady output power level on all channels independent of the input power. This prevents overdriving the amplifier and in this way keeps the signal quality.
- The amplifier monitors the total input power for all channels in the forward path. If this total power exceeds 80 dB $\mu$ V (corresponding to 64 dB $\mu$ V per TV channel with 42 channels in total) the amplifier gain is reduced correspondingly. If the total input power is below 80 dB $\mu$ V the amplifier gain is fixed and the output power will follow the input power.
  - As shown on the next slide this means that at input power per channel 58 dB $\mu$ V the output power per channel is 79 dB $\mu$ V at 87.5 MHz and 83 dB $\mu$ V at 862 MHz (4 dB equalizer)
  - When the input power is increased to 68 dB $\mu$ V per channel the AGC reduces the gain and the output power is 85 dB $\mu$ V and 89 dB $\mu$ V, respectively.
  - When the input power is increased by additionally 10 dB and 20 dB the output power remains constant.
  - As shown on the following slides the onset of the AGC means that the signal quality (measured as CTB and CSO (analogue TV) and MER (digital TV)) remains high.
  - Doubling the number of channels from 42 to 84 the total input power also doubles meaning 3 dB extra total power. This means that the threshold of the AGC is at 3 dB lower input power (61 dB $\mu$ V per channel), and the output power level is clamped to 82 dB $\mu$ V (87.5 MHz) and 86 dB $\mu$ V (862 MHz). The number of channels therefor has little influence on the amplifier performance.



## In-Home Amplifier HCA-A



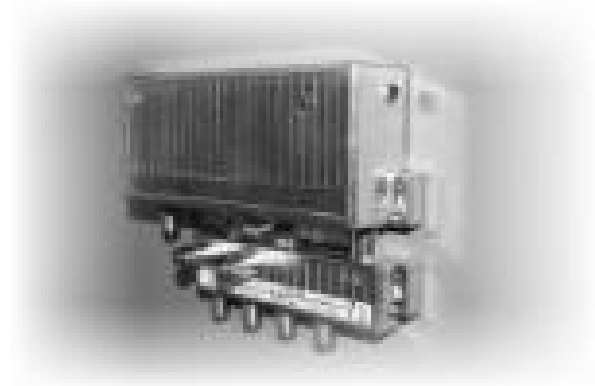


## In-Home Amplifier HCA-A

Forward path test by TDC A/S with 90 QAM256 channels

Input power (dB $\mu$ V)	Output power (dB $\mu$ V)	Gain (dB)	BER	MER (dB)
61,8	83,5	21,7	0	43
71,8	84,6	12,8	0	44
81,8	84,5	2,7	0	46
91,8	83,4	-8,4	0	46

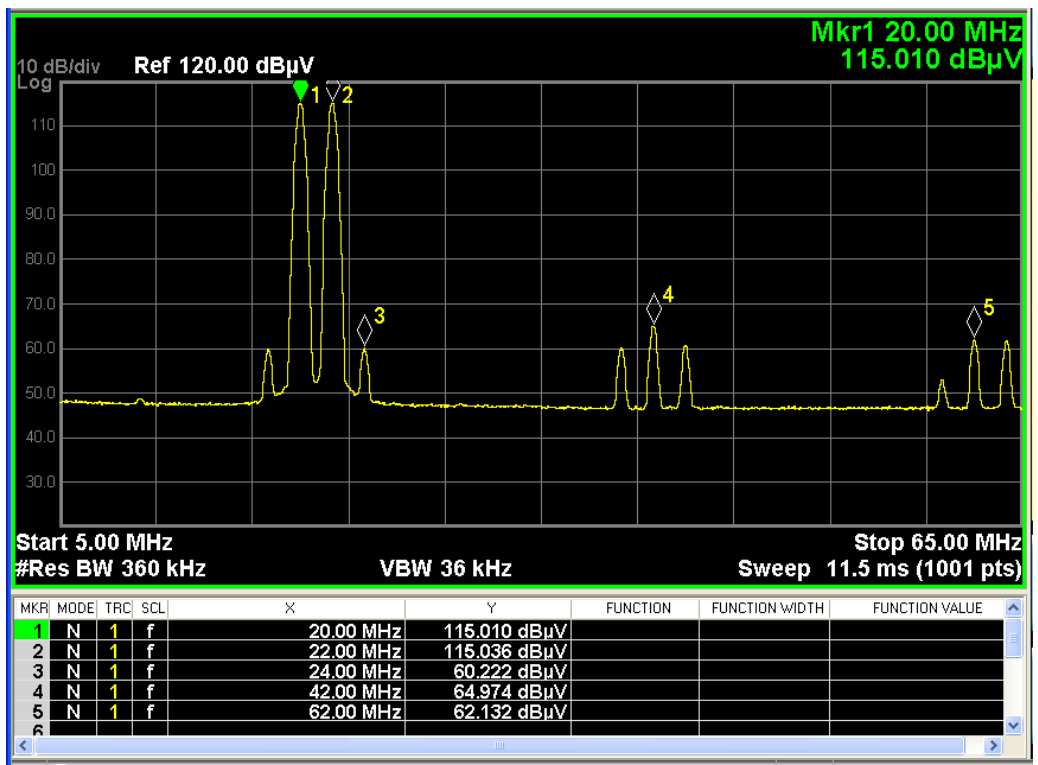
Power measured at 108MHz





## In-Home Amplifier HCA-A65

Return path measured by Stofa A/S



DKT COMEGA

