Piła, 21 June 2016

Dear Sir or Madam,

Due to the scheduled by Asta-Net S.A. commencement of the project no RPWP.01.05.02-30-0351/15, entitled: "*The increase of competitiveness of Asta-Net S.A. through the refinement of the broadband Internet service and the implementation of the innovative transmission of video stream in the UHD standard in HFC network service*," co-founded by the European Regional Development Fund as a part of the Regional Operational Program of the Wielkopolskie Province in years 2014-2020 Sub-measure 1.5.2 *Strengthening the Competitiveness of the Key Areas of the Region's Economy*, the key element of which is "Purchase, installation and implementation of the CTMS cable modem concentrator", we are kindly requesting you to make an estimative price evaluation of the delivery, installation and implementation of a device fulfilling minimum of the parameters presented below.

Startup configuration of CMTS

- Suport of 40 Downstream service groups (minimum of 40 physical connectors for Downstream Service Groups)
- Support of 120 Upstream service groups (minimum of 120 physical connectors for Upstream Service Groups)
- Each Downstream Service Group have to contain 16 Downstream channels (DS) each 8MHz 256QAM EuroDOCSIS
- Each Upstream Service Group have to contain 4 Upstream channel (US) each 6,4MHz 64QAM

General requirements of CMTS:

- CMTS have at least 10 slots for Upstream (US) and Downstream (DS) Cards
- CMTS have 640 Downstream Channels in EuroDOCSIS standard.
- CMTS have minimum 96 Upstream Channels on single Upstream Cable Card
- CMTS will have minimum 20 physical connectors on single Upstream Cable Card
- CMTS will be able in future to support minimum 384 Downstream Channels on single Downstream Cable Card

- CMTS will be able in future to support minimum 48 Downstream Channels from single physical connector on Downstream Cable Card
- CMTS have to support separate Downstream and Upstream cable cards
- CMTS have at least 16 times 10G SFP+ uplink ports and 2 DTI ports
- CMTS have full redundancy of line cards, management cards using internal backplane
- CMTS have architecture according to Advanced Telecommunications Computing Architecture (ATCA) and CCAP specifications by CableLabs
- CMTS have support „Packet Throttling" and „Dynamic Wideband"
- CMTS have to be power efficient, it have to use less then 2W per Downstream Channel in offered configuration with maximum number of licenses.

The estimation should presuppose the realization of the order of **delivery, installation and implementation** in the third quarter of the year, in PLN currency. Please send the estimation to m.skowronski@asta-net.pl until June 26th 2016 using included form.

Best regards

Maurycy Skowroński
Chief Technology Officer