Antenna Hungaria Project

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Making Digital Broadcasting **Work.**

Solti középhullámú rádióállomás rekonstrukciós munkái

2016- 2017

ANTENNA HUNGÁRIA ZRT., located at 1119 Budapest, Petzvál József u. 31-33 provide television, radio – AM, FM and DAB to Hungary and neighboring countries.

Attila Nagy - Chief Technical Officier

SOLT Transmission facility

Antenna Hungaria operates a 2MW mediumwave radio station on 540 kHz near the town of Solt in Southern Hungary.


Wendell
Norwegian Sea
Iceland
Sweden
Finland
Norway
Russia
Kazan
Denmark
United Kingdom
Ireland
Belarus
Poland
Germany
Ukraine
Austria
France
Romania
Kazakhstan
Mongolia
Italy
Spain
Portugal
Greece
Turkey
Uzbekistan
Kyrgyzstan
Turkmenistan
China
Syria
Iraq
Iran
Afghanistan
Pakistan
Nepal
India
Tunisia
Mediterranean Sea
Morocco
Algeria
Libya
Egypt
Western Sahara
Saudi Arabia
Oman
Myanmar (Burma)
Thailand
Mauritania
Mali
Niger
Chad
Sudan
Yemen
South China Sea
Vietnam
Burkina Faso
Guinea
Nigeria
Gulf of Aden
Arabian Sea
Bay of Bengal
Gulf of Thailand
Ethiopia
Ghana
South Sudan
Kuala Lumpur
Laccadive Sea
Malaysia
Gulf of Guinea
Somalia

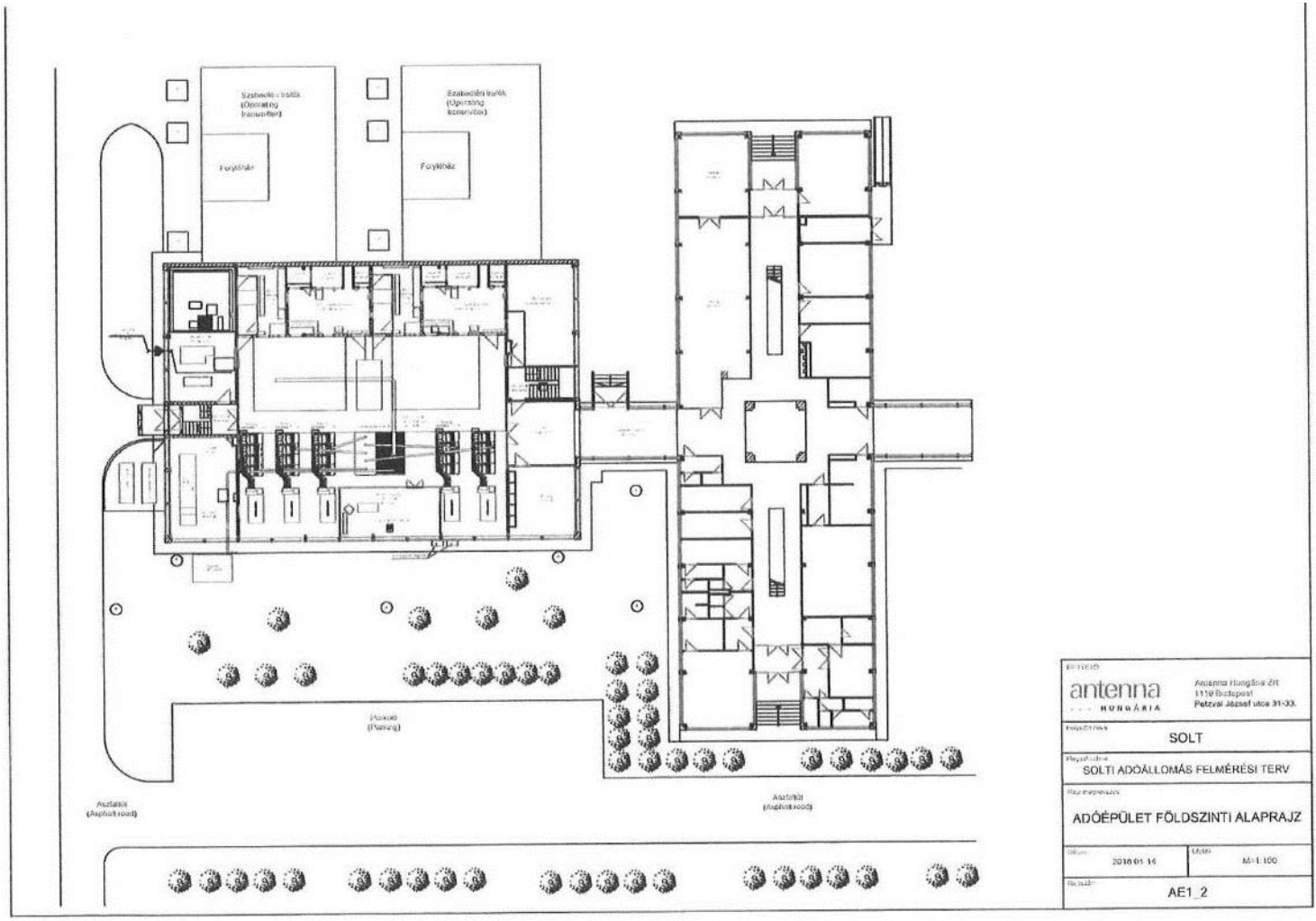

Kossuth Rádió lefedettségi térképe (adatok kHz-ben)
Nappali lakossági ellátottság: 100%
Day-time coverage of population: 100%
BÉCS
POZSONY
BUDAPEST
SOLT 540
LJUBLJANA
ZÁGRÁB
BELGRÁD
SZARAJEVÓ
SZÓFIA

The existing transmitter is a Russian tube transmitter which would have an efficiency of about 60%. With 2MW and modest modulation this would consume around 4.33MWHr of power. In my home town it would cost $641/hr to operate the transmitter. Nautel's solution could save $213/hour! The reality is not as bad as this due to the use of MDCL technology and preferred power rates.

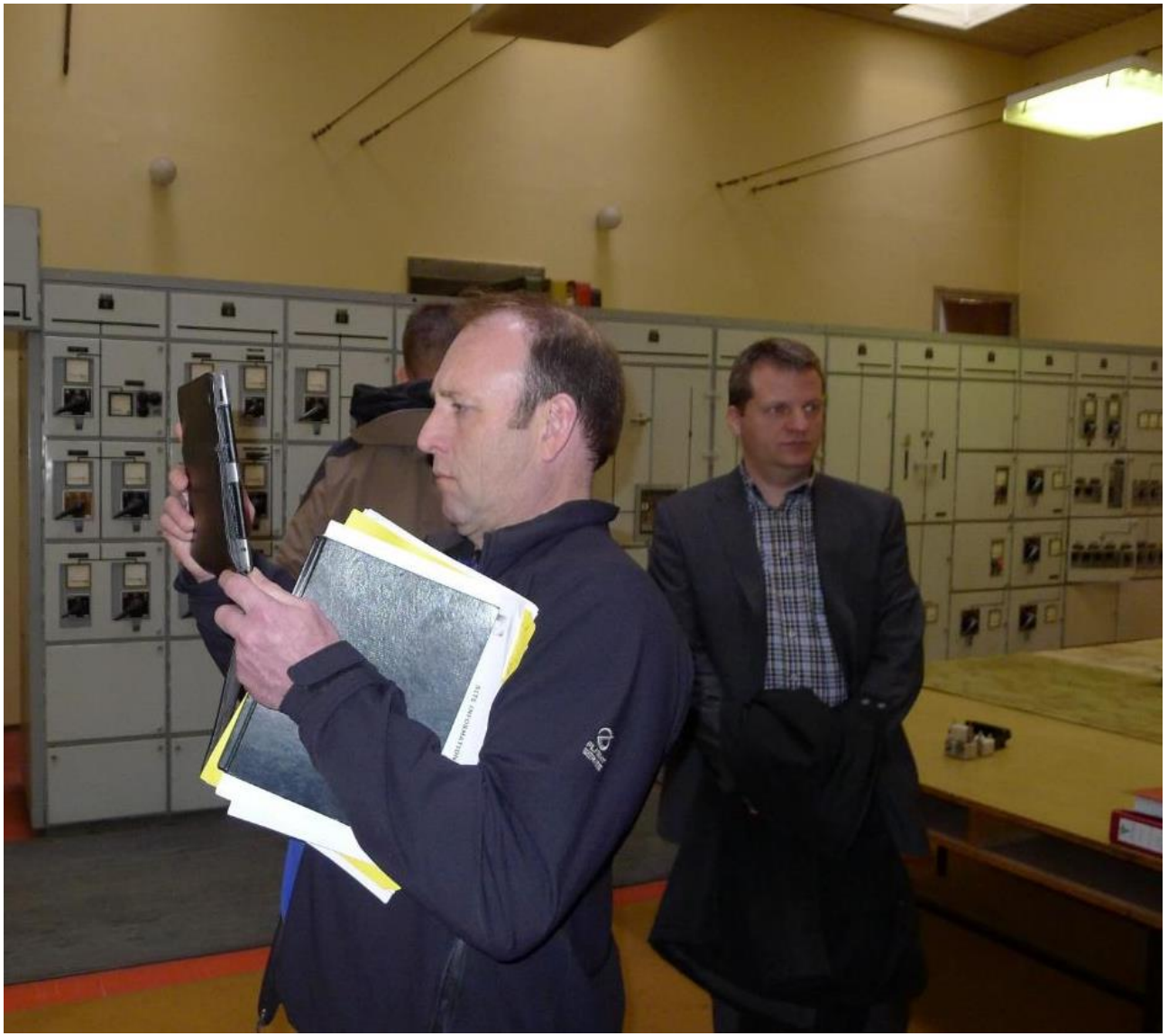
The existing transmitter is a Russian tube transmitter has a massive AC power switching assembly

The RF power is delivered to the antenna through a 60 ohm open line transmission feed.

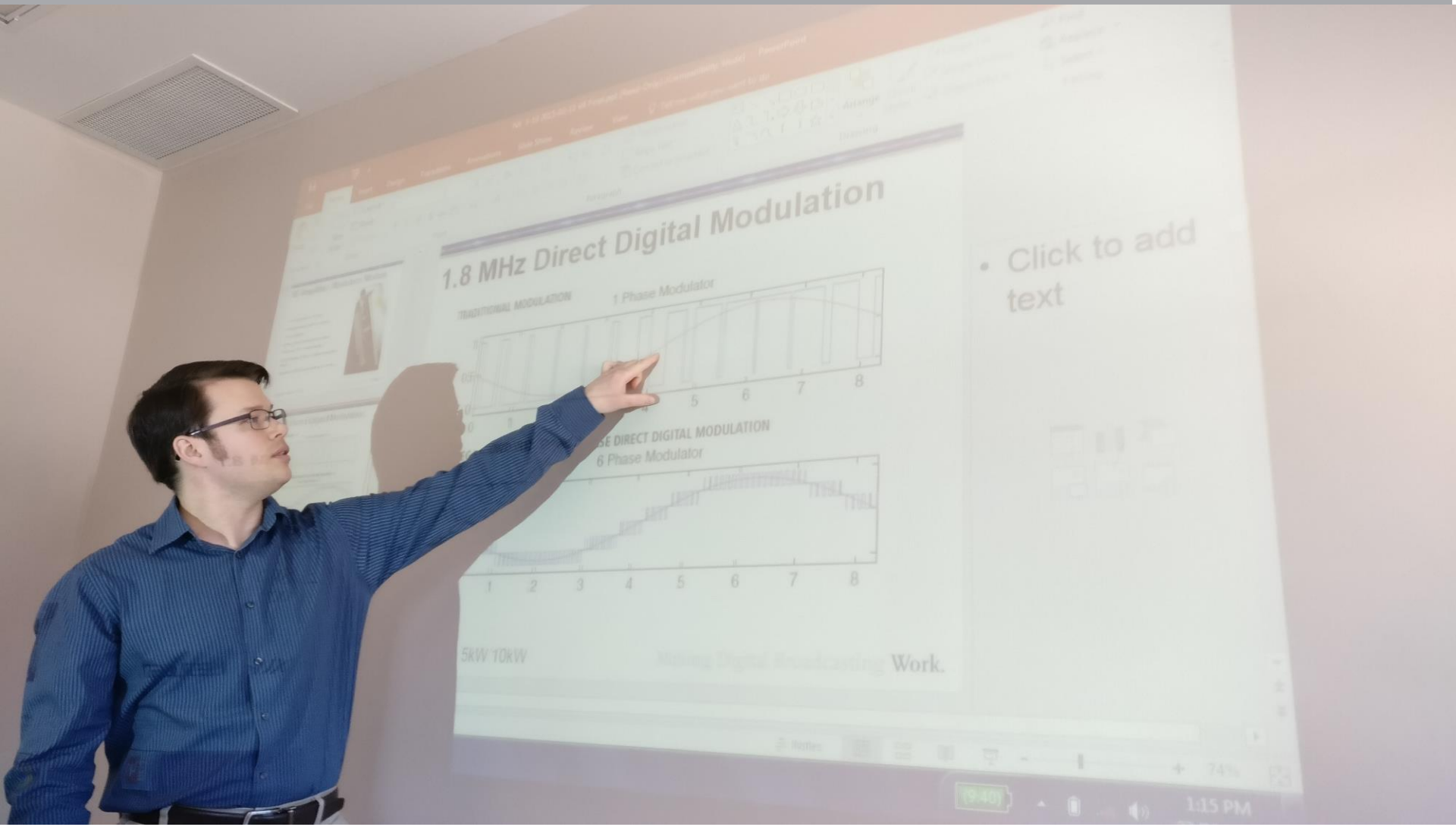
Nautel's offer included a site layout with our transmitters shown in their final location.



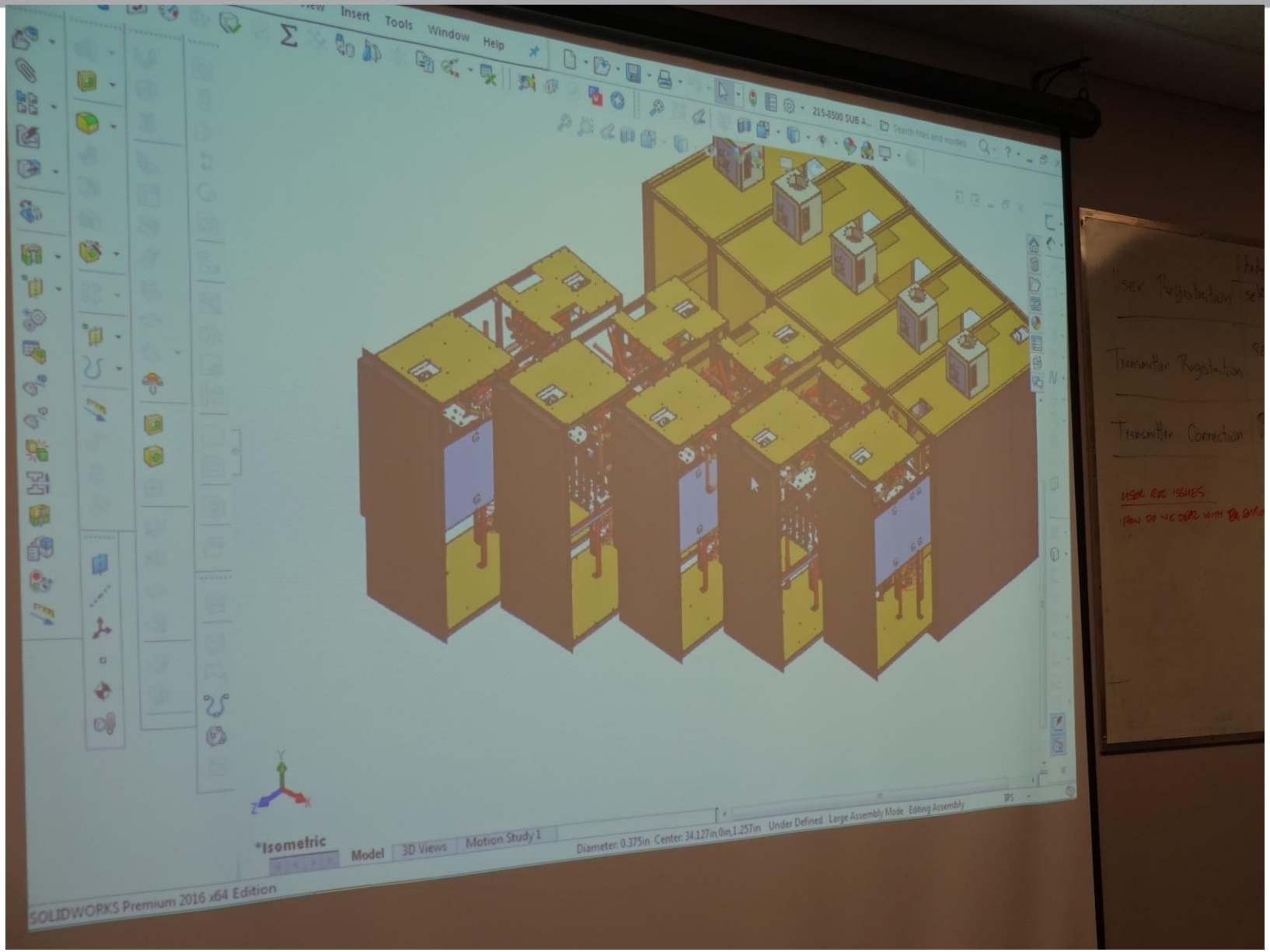
Nautel sent a team to perform a site survey to ensure we can supply a properly engineered solution. Project Manager Stephen Farley joins the engineering team on site to inspect all electrical and physical spaces.



Connections to the power transformers



Project engineer Alex Morash during training program

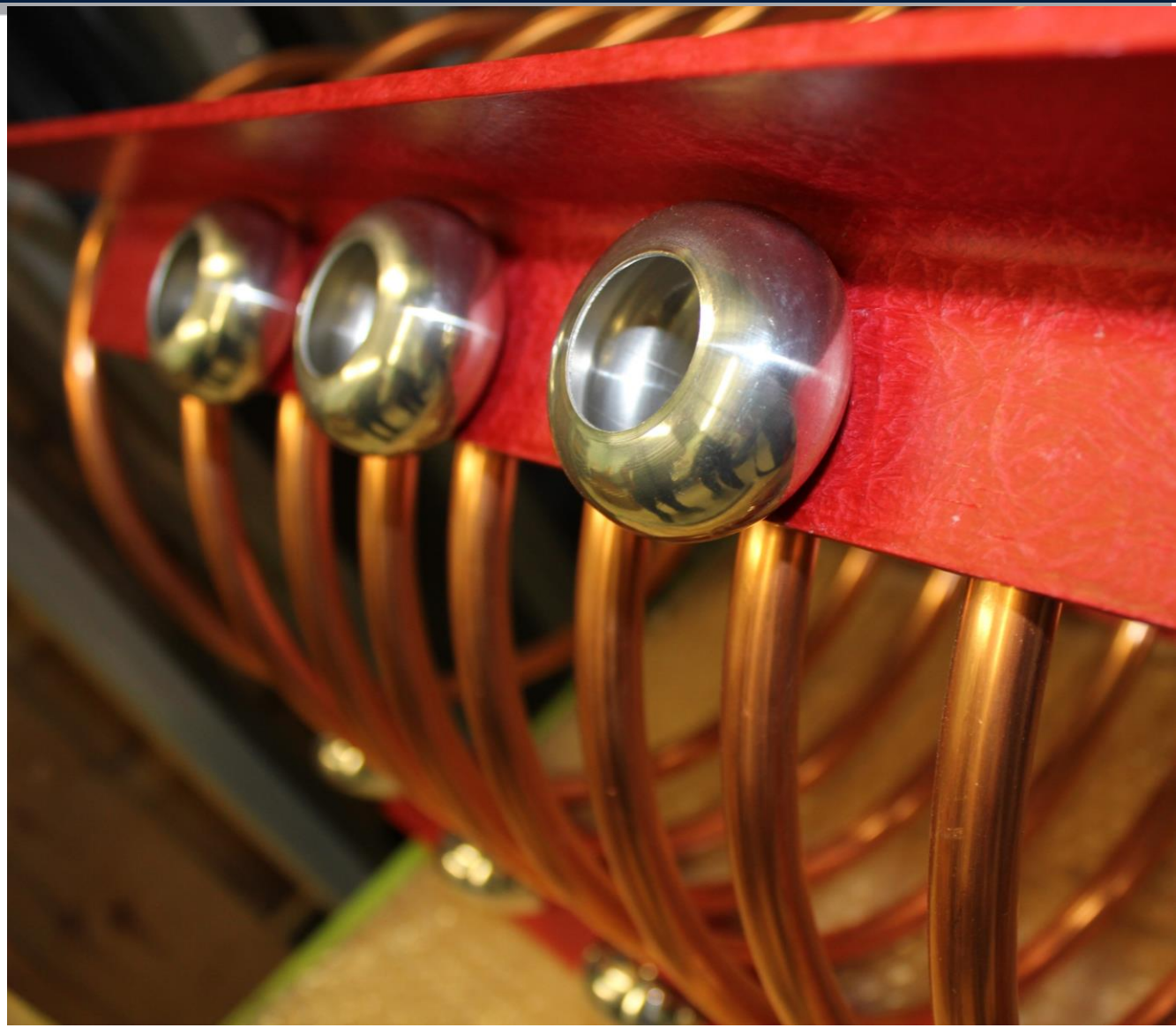

Insert
Tools
Window
Help
*Isometric
Model
3D Views
Motion Study 1
SOLIDWORKS Premium 2016 x64 Edition
Under Defined
Large Assembly Mode
Editing Assembly
User Registration
Transmitter Registration
Transmitter Correction

Antenna Hungaria FAT team with Nautel engineering reviewing the combiner concept drawings

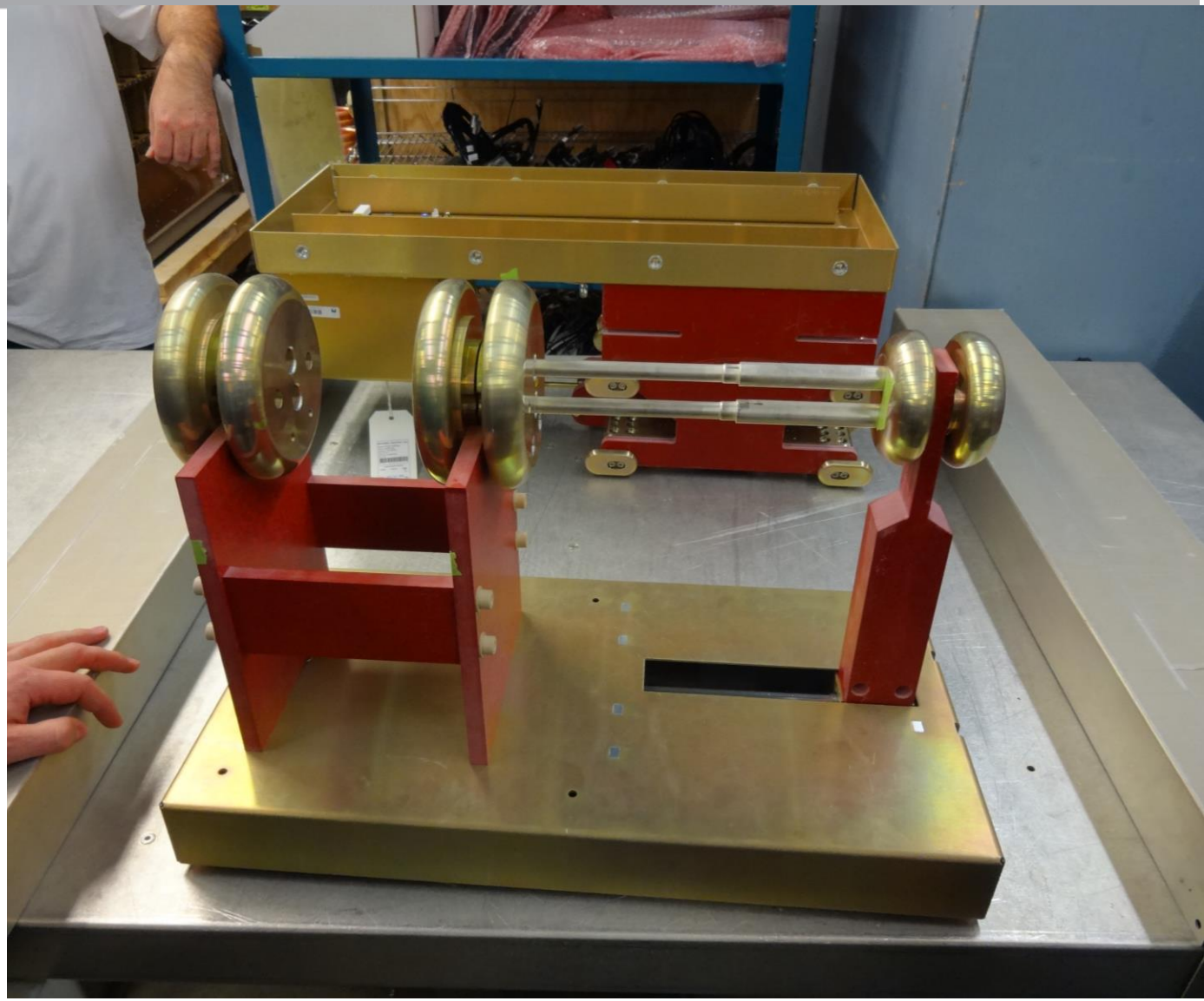
Nautel installs a new 400kW load

Combiner Manufacture

Careful attention to detail to ensure reliable operation



Nautel design high voltage contactor



Pull out section under construction

Pull out sections joined to main section

The FATs were held in a Nova Scotia winter but we still found a way to cope with the weather

Nautel hospitality for
our Hungarian friends

nautel

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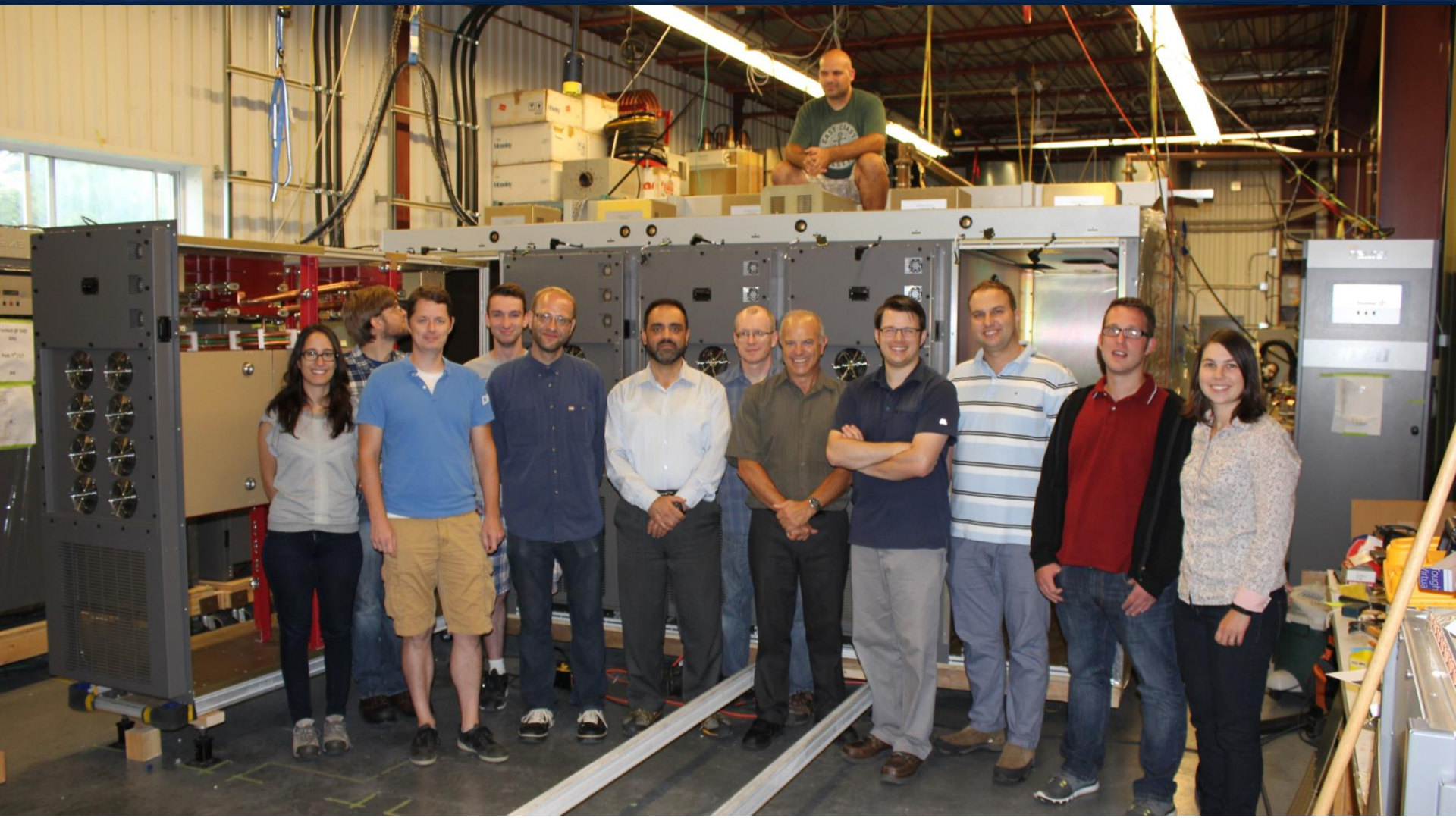
Signing of successful FAT procedure

FAT Team



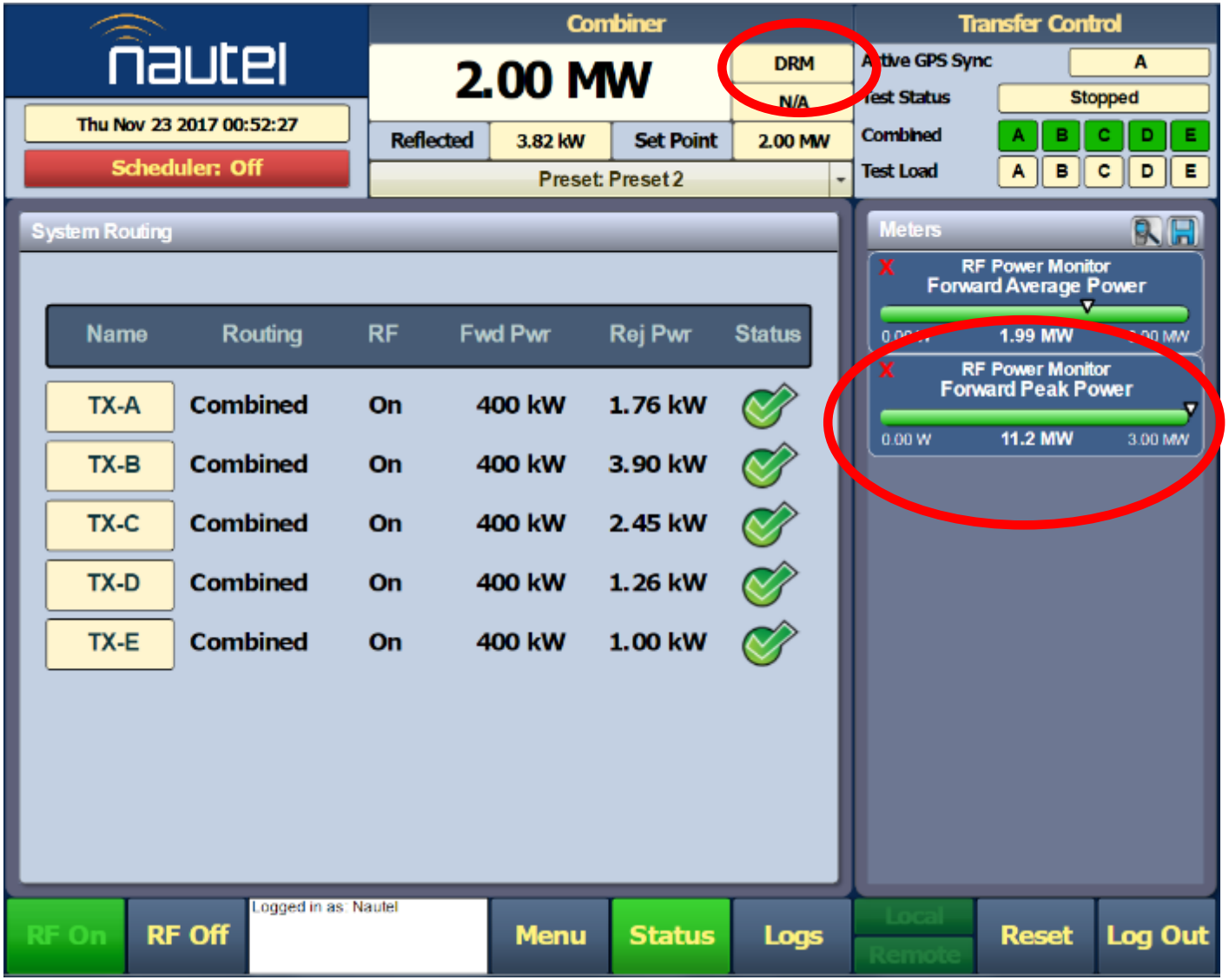
Ready to ship to Hungary

Nautel bids biztonságos utazás to the shipment

On November 23rd we received the following screen shot showing 2MW transmission

But Wait!!!!!

That is DRM with 11.2 MW Peak Power




172.23.17.121
2017-11-22 23:42:24 UTC
MUTED
RFmondial
Measure
Services
Alarms
Setup
Files
Help
Spectrum
Mask fail 4.54 dB
Frequency 0.0 (kHz)
Power 6.7 (dB)
Relative power level (dB)
Frequency (kHz)
Mask DRM30
Bandwidth 9 kHz
Mode A
Span +-40 kHz
Show Mask
Show Bandwidth
Show Cursor
Constellation
Imaginary
Real
FAC
SDC
MSC
Reference
1
2
3
4
Impulse Response
Spectrum
Spectrum Waterfall
QAM Constellation
Channel Estimation
Status (History)
SNR Carrier
Services
SNR Carrier
SNR (dB)
Carrier Index K
Status (History)
Sync
FAC
SDC
Audio
Error rate (%)
MER[dB]
SNR[dB]
Field Strength[dBm]
(dB)
(dBm)
Time (Min): 5
RF -13.4 dBm (-10 dB)
SNR 32.2 dB
MER 32.3 dB (32.3/30.3)
Sync
SDC
FAC
Audio
F 540 kHz
ΔF -0.04 Hz
Doppler 0.023 Hz
DRM Mode A (9 kHz)
IL 2000 ms, Serv ID: 0x1001
SDC 4 QAM, MSC 64 QAM PL0
Mask Fail 4.54 dB
OFF
GPS Not connected

NAUTEL PRESS RELEASE

Europe's Most Powerful MW Station Updated with Nautel

Commissioning has been successfully completed on a two Megawatt Radio site in Hungary, using a Nautel NX2000 MW system.

Hackett's Cove, Nova Scotia, December 5 2017 – Nautel's largest transmitter, a 2 Megawatt NX2000 Medium Wave system, has been fully commissioned and is now on the air at Antenna Hungaria's transmission facility near Solt, Hungary. The project involved large infrastructure changes at the site as well as installation of the new transmitter.

"The NX2000 system incorporates five Nautel NX400 transmitters along with a large, versatile combiner," said Wendell Lonergan, Nautel Head of Broadcast Sales. "Our new NXC2000 combiner can be reconfigured if one or more transmitters is shut down, which ensures that maximum power is delivered to the antenna in all cases." Nautel worked closely with Porion Digital KFT on the installation, which included building renovations and air handling modifications as well as interfacing the NX2000 to Antenna Hungaria's existing 11 kV voltage supply. The solid state Nautel system replaces an aging custom-built tube transmitter that had been in operation for 40 years.

Antenna Hungaria is wholly owned by the government of Hungary and provides broadcast, telecommunication and multimedia services throughout the country. Their Solt operation is the most powerful medium wave radio transmitter in Europe and one of the most powerful transmitters in the world. Its signal on 540 kHz can be heard all over Europe as well as in parts of Africa, Russia and Asia.

The new NX2000 system brings high efficiency - 90% - and significant power savings to an operation that had been running at around 60% efficiency with its older equipment. Nautel's high power NX transmitters, in addition to their high efficiency and outstanding reliability, offer a compact footprint for significant space savings. Individual transmitters are available in 100, 200, 300 or 400 kW designs, along with lower power units ranging down to 3 kW. As with all modern Nautel transmitters, control and monitoring are accomplished via Nautel's award winning Advanced User Interface (AUI).

https://youtu.be/QoYI7nSEA1M

Antenna Hungaria CTO Attila Nagy and Nautel Project Manager Kostia Zaharov enjoy a moment during the official transmission launch ceremony

Thank you

Wendell Lonergan
Head of Broadcast Sales

Visit Nautel at Booth N6031

49 years of NAUTEL | 1969 2018

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