

## Tenth technical coordination meeting held in Cadarache, France



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From 9 to 10 December, the 10th Technical Coordination Meeting (TCM-10) was held at Chateau de Cadarache of CEA (French Atomic and Alternative Energy Commission), following the Design Review Meetings (DRMs). A total of 42 members, including 26 from the EU HT, 12 from the JA HT and 4 from the Project Team, attended the meeting, and other members concerned joined the meeting from Japan, Italy, Germany and Spain by video conference.

Following the TCM-10, the 8th Meeting of the BA Steering Committee (SC-8) was held on 15 December at CIEMAT (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas) in Madrid Spain, and Work Programme 2011 for the Satellite Tokamak Programme was approved.

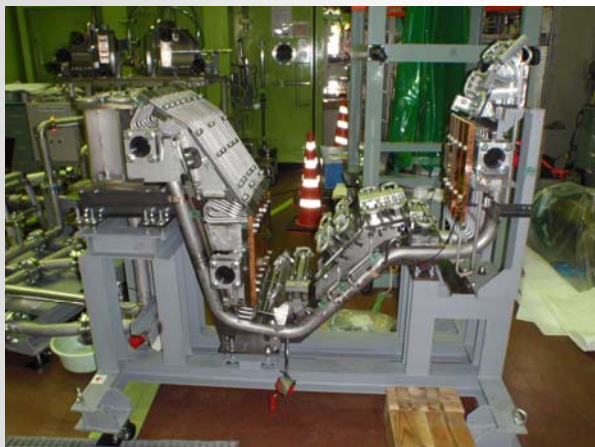
### Two DRMs held in France, prior to TCM-10



The 2nd Cryogenic System DRM was held at CEA Grenoble in France, from 7 to 8 December, and experts gathered from the EU and JA Home Teams had discussions regarding the specification of the Cryogenic System such as heat loads, etc.

On 8 December, the 4th DRM of the Power Supply was held at Chateau de Cadarache of CEA, and experts in both Home Teams discussed detailed specifications of the power supplies.

## Coolant flow for divertor examined

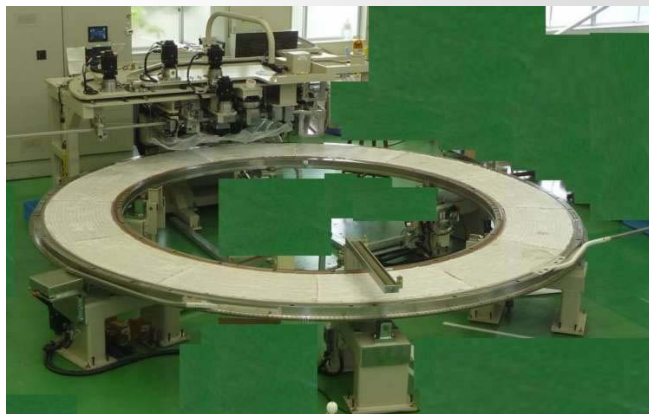


A mock-up of the coolant piping system for a divertor was fabricated in JAEA Naka Fusion Institute in Japan.

Procedures for filling and draining coolant water were checked, and its flow velocity, pressure drop and vibration were measured. There was negligible water hammer at the start of the forced filling and circulation of coolant water, which was of most concern, and no vibration even though the pipes were long and thin.

It was confirmed that the appropriate quantity of coolant water was flowing through the pipes.

## Dummy double pancake for EF4 fabricated



It was confirmed that forming of the pancake could be done mostly automatically using a specialized winding machine at the manufacturer's factory in Japan. Procedures to control the spacer for winding the conductor and positioning the pickup coil in the coil were also established. These led to completion of the dummy double pancake for the Equilibrium Field coil No.4 (EF4).

An electrical characteristic test was performed, and it was confirmed that resonance phenomena of the coil, which would have a negative impact on electrical insulation, would not occur during normal operation.

## Contracts for TF strand, cabling and jacketing signed

After the Toroidal Field (TF) coil strand contract award by the F4E Executive Committee to Furukawa Electric Company (Tokyo, JA) on the 23 September 2010, the contract was duly signed by both parties on the 17 December 2010.

The kick-off meeting is foreseen for January 2011 at the production site in Nikko (JA), and the first production batches are expected before summer 2011.

In total, around 40 t of NbTi strand and 20 t of copper strand should be provided to F4E by December 2012. The strands will then be cabled following a specific pattern and inserted into a stainless steel jacket to complete the TF conductor manufacture (see illustration). This stage will be done in the framework of the TF cabling and jacketing contract described below.

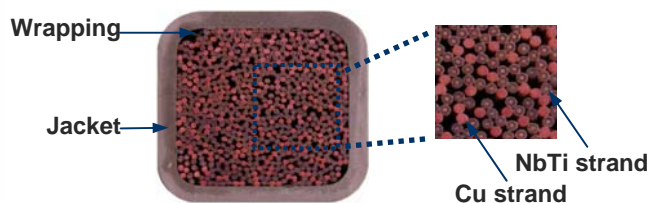
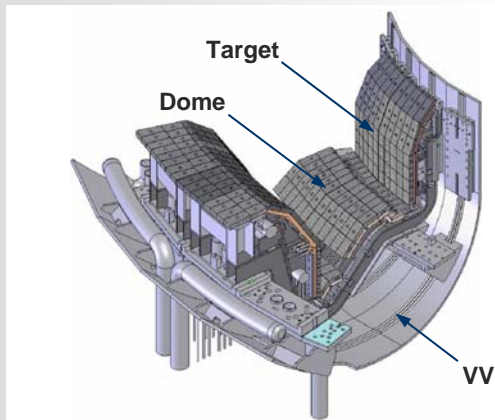


Illustration of TF conductor cross-section



10 degree cassette of Divertor

The Divertor is one of the in-vessel components, and is going to be installed at the bottom of the Vacuum Vessel (VV).

The main roles of the Divertor are: 1) to protect the VV from the flows of heat and particles from the plasma produced by the fusion reaction inside, 2) to exhaust the heat flow, and extract its heat using the divertor target cooled strongly by the coolant, 3) to extract excess fuel and exhaust impurities using the divertor with pumps behind the dome.

The Divertor is composed of thirty-six 10 degree cassettes for future remote replacement.

After the TF coil cabling and jacketing contract award by the F4E Executive Committee to the Italian Consortium for Applied Superconductivity (Frascati, IT), the contract was duly signed by both parties on the 9 December 2010.

The kick-off meeting is foreseen for January 2011 and first production batches are expected within 2011.

In total, around 115 units 240 m in length of final TF conductor should be provided to F4E by January 2014.

## Local



In Provence, the beginning of December is dedicated to the preparation of the Christmas Celebrations, and for many years, this celebration, still observed enthusiastically today, is associated with Jesus's birth. In every home, a small stable is installed with small well dressed clay statuettes ("les santons") symbolizing all the people assembled around the holy family. Christmas is a family event and especially for children, and it is also a feast of light, of joy, of peace and of hope as it is celebrated by traditional songs, meals and gifts.

In Provence, one of the most famous Christmas traditions is the thirteen desserts. Thirteen is the symbol of Jesus and his twelve disciples. The thirteen desserts are a collection of the finest sweets, cakes and autumn fruits that traditional Provence have ever produced.

First is traditional Provençal cake ("la pompe à l'huile"), cooked with flour, lemon, orange and olive oil. Second are dried fruits, also called the mendicants: walnuts, hazelnuts, dried grapes (raisins), sweet almonds, figs and dates. Then comes nougat prepared from honey and almonds (black nougat) and with eggs for white nougat. With fresh autumn fruits: apples, pears, grapes, green melon, and mandarin, the thirteen desserts are already there. However, at that point, a scrupulous count would lead you to already fourteen desserts. So, then, oranges, crystallized fruits from Carpentras, calissons from Aix-en-Provence and chocolates, can still be added with the only limit being your imagination and pleasure...

In December, in every illuminated city in Provence, Christmas markets enable you to find everything necessary to prepare and to enjoy these very special moments.

A merry Christmas and a happy new year 2011 to all of us...

CEA cadarache is located in Provence, which is about 800 km south-east of Paris, France.

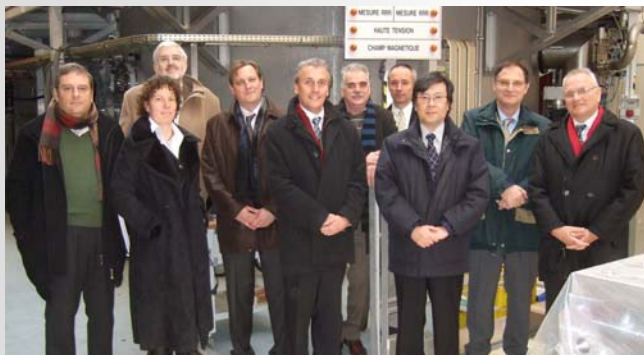
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## Contact Us

The JT-60SA Newsletter is released monthly by the JT-60SA Project Team. Suggestions and comments are welcome and can be sent to [masayasu.sato@jt60sa.org](mailto:masayasu.sato@jt60sa.org).

For more information please visit the website: <http://www.jt60sa.org/>

## Visits



At CEA Saclay in France

In Europe, the TF coil test facility will be prepared by the following EU Voluntary Contributors which participate to the BA activities; CEA in France and SCK•CEN (Belgian Nuclear Research Centre) in Belgium.

On Monday, 13 December, S. Ishida, the Project Leader (PL) of the JT-60SA project visited SCK•CEN in Mol, Belgium and discussed their involvement in fusion R&D with V. Massaut, Head of the Fusion Research Unit.

After the SC-8, the PL also visited CEA Saclay in France on Friday, 17 December, and examined the platform where the TF coil test facility will be hosted. P. Chomaz, Director of CEA-irfu, and his staff explained the progress of the work to him.

## Calendar

March 23, 2011  
8th Meeting of the STP Project Committee  
Naka, Japan

April 13-14, 2011  
11th Technical Coordination Meeting  
Naka, Japan

May 11, 2011  
9th Meeting of the BA Steering Committee,  
Naka, Japan

September 21-22, 2011  
12th Technical Coordination Meeting  
Karlsruhe, Germany