# IOS-1.1 ITER demonstration at q95=3, N=1.8, ne≤0.85nGW

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| **TG priority:** High | **Start date:** 2009 | **Status:**  On-going | **Personnel exchange:**  Yes |
| **IO priority:** | **End date:** 2015 | **Motivation:** Plasma Operations | |

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| **Device /**  **Association** | **Contact**  **Persons** | **TG Request** | **Activity** | | | | |
| **2012** | **2013** | **2014** | **2015** | **2016** |
| JET | G. Sips | Essential | Committed | Committed | Committed | Committed |  |
| DIII-D | T. Luce | Essential | Analysis | Committed | Committed | Considering |  |
| AUG | T. Puetterich | Essential | Committed | Committed | Committed | Committed |  |
| C-Mod | C. Kessel | Essential | Analysis | Analysis | Analysis | Analysis |  |
| KSTAR | S. Yoon | Desirable |  | Considering | Considering |  |  |
| TCV | O. Sauter | Desirable |  | Considering | Considering | Committed |  |

**Purpose**

Joint experiments are aimed at demonstrating the ITER baseline operation at q95=3,N=1.8 and ne≤0.85nGW. Each device should operate at the highest possible plasma current (\* spread from devices). The second aim is to approach ITER conditions (reduced rotation, Te=Ti). A range of operating densities should be assessed (vary collisionality and n/nGW). Issues: L-H threshold power, pedestal characteristics, plasma stability and fuelling.

**Results for 2015**

* AUG has attempted ELM mitigation with pellets, N2 seeding, and non-axisymmetric coils. Pellets and N2 have not yielded stationary conditions and the coils have a significant effect only at high collisionality.
* In DIII-D experiments focused on ELM suppression with non-axisymmetric coils. With co-NB, suppression can be achieved at low collisionality, but with reduced torque the suppression is lost.
* At JET, focus has been on analysis of 2014 results and identifying paths to address research gaps for DT operation
* No new experiments in C-Mod
* A database of AUG, C-Mod, DIII-D, JET, and JT-60U data has been compiled for the purpose of comparing the operational space found for the different machines.

**Plans for 2016**

* Complete these joint experiments in 2016 with a focus on electron heating and low torque input. JET will use increased ICRH power, AUG will use ICRH/ECH only to compare with results from DIII-D.
* Enhance and complete analysis of the joint database
* Note: This JE should be closed by 2016 and a publication should be prepared ready for the end of 2016.