



Status of KAGRA-SAS design, prototyping testing and production February 2013

Riccardo DeSalvo,
for the vibration isolation group

KAGRA Face to Face meeting February 2013

JGW-G1301520





Timetable

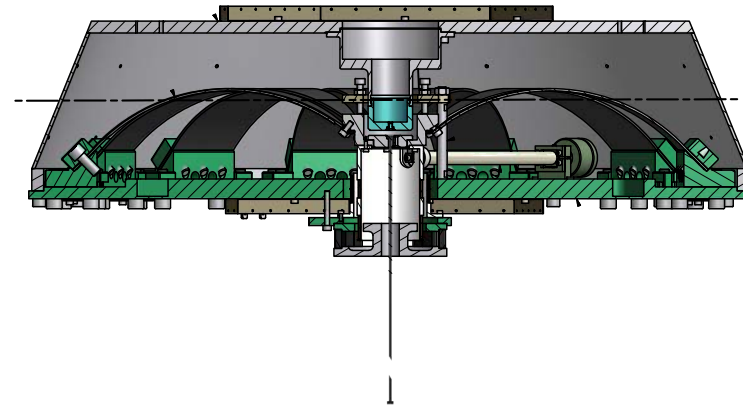


2010 2011 2012 2013 2014 2015 :

Design Standard filter

Prototype prod.

Test



Production

Storage

Material procurement Ordering Maraging from Aubert Duval (2 year delivery)



2010 2011 2012 2013 2014 2015 :

Design Pre-isolator: top filter and inverted pendulum

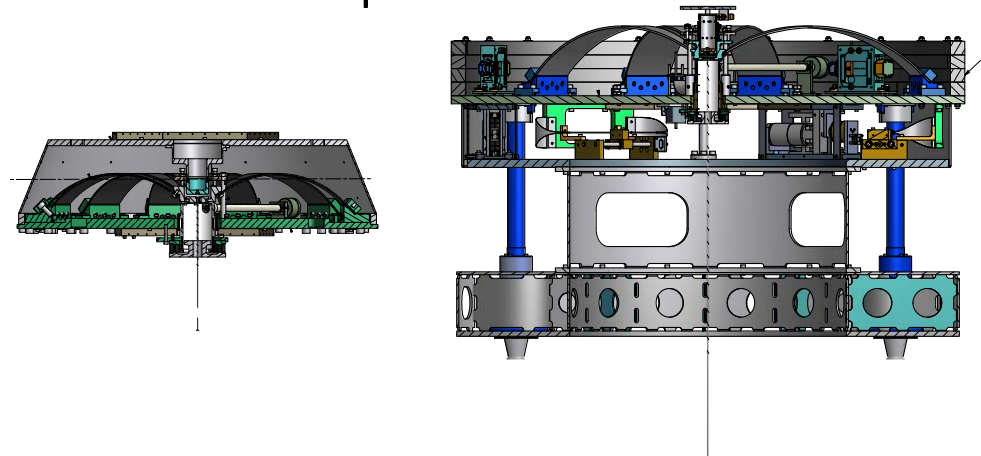
Prototype prod. Standard filter

Test Standard filter

Production

Storage

Material procurement Waiting for Maraging from Aubert Duval
(loan maraging from Virgo)





2010 2011 2012 2013 2014 2015 :

Design

Prototype prod.

Pre-isolator: top filter and
inverted pendulum

Test

Standard filter

Production

Storage

Material
procurement

Waiting for Maraging from Aubert Duval





Timetable



2010 2011 2012 2013 2014 2015 :

Design

Bottom filter - warm mirror payload

Prototype prod.

Test

Pre-isolator and Standard filter

Production

19 Standard filters



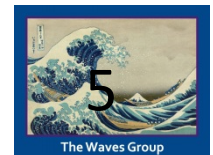
Storage

Material

procurement

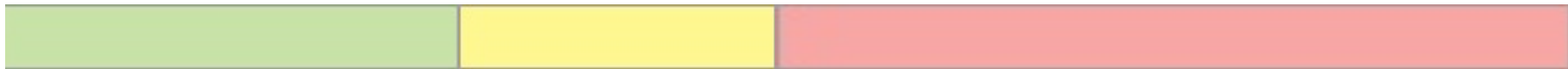
Waiting for Maraging from Aubert Duval

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Timetable



2010 2011 2012 2013 2014 2015 >

Design

Bottom filter and warm mirror payload (recyclers)
Installation structures and strategies

Prototype

Bottom filter warm mirror payload

Test

Pre-isolator: top filter and inverted pendulum

Production

Storage

19 Standard filters



Material
procurement

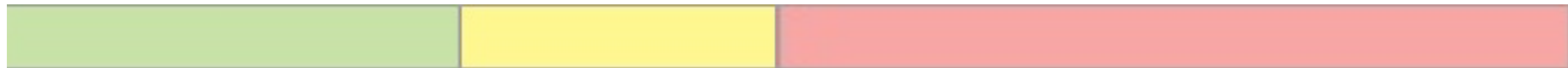
Arrival of some
ordered maraging

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Timetable



2010 2011 2012 2013 2014 2015 >

Design

Outer structure - Vacuum interface
Installation structures and strategies

Prototype

Assembly jigs

Test

Bottom filter warm mirror payload
Pre-isolator: top filter and inverted pendulum

Production

6 Pre-isolator top filters
(11 needed)

Storage

19 Standard filters

Material
procurement

Arrival of some
ordered maraging



Just
finished



Timetable

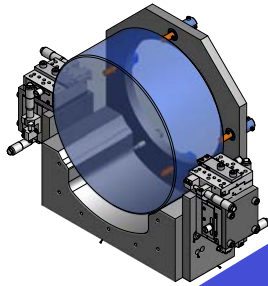


2011 2012 2013 2014 2015 >

Design

Installation structures and strategies

Prototype



Assembly jigs



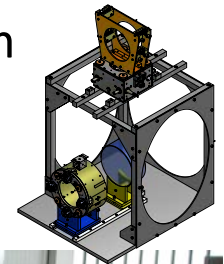
Test

Bottom filter warm mirror payload

Pre-isolator: top filter and inverted pendulum

Production

Mirror suspension tooling



Storage

6 Pre-isolator top filters

19 Standard filters

Material
procurement

Arrival of last of ordered maraging
(returned borrowed material)

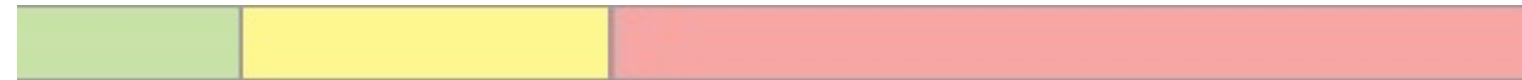


NOW

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Timetable



L1 2012 2013 2014 2015 >

Design

Bottom filter for cryogenics

Test

Bottom filter warm mirror payload

Pre-isolator: top filter and inverted pendulum

Production

Last 5 Pre-isolator top filters

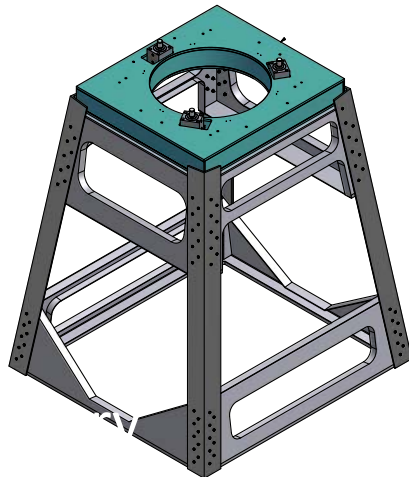
7 bottom filters

BS optical payload

7 support structures

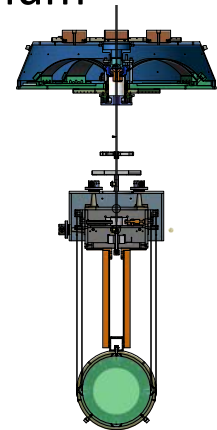
7 outer frames

Storage



6 Pre-isolator top filters

19 Standard filters



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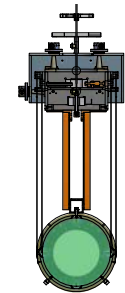
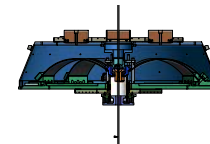
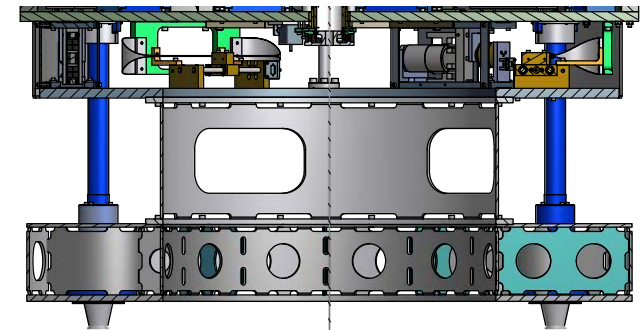




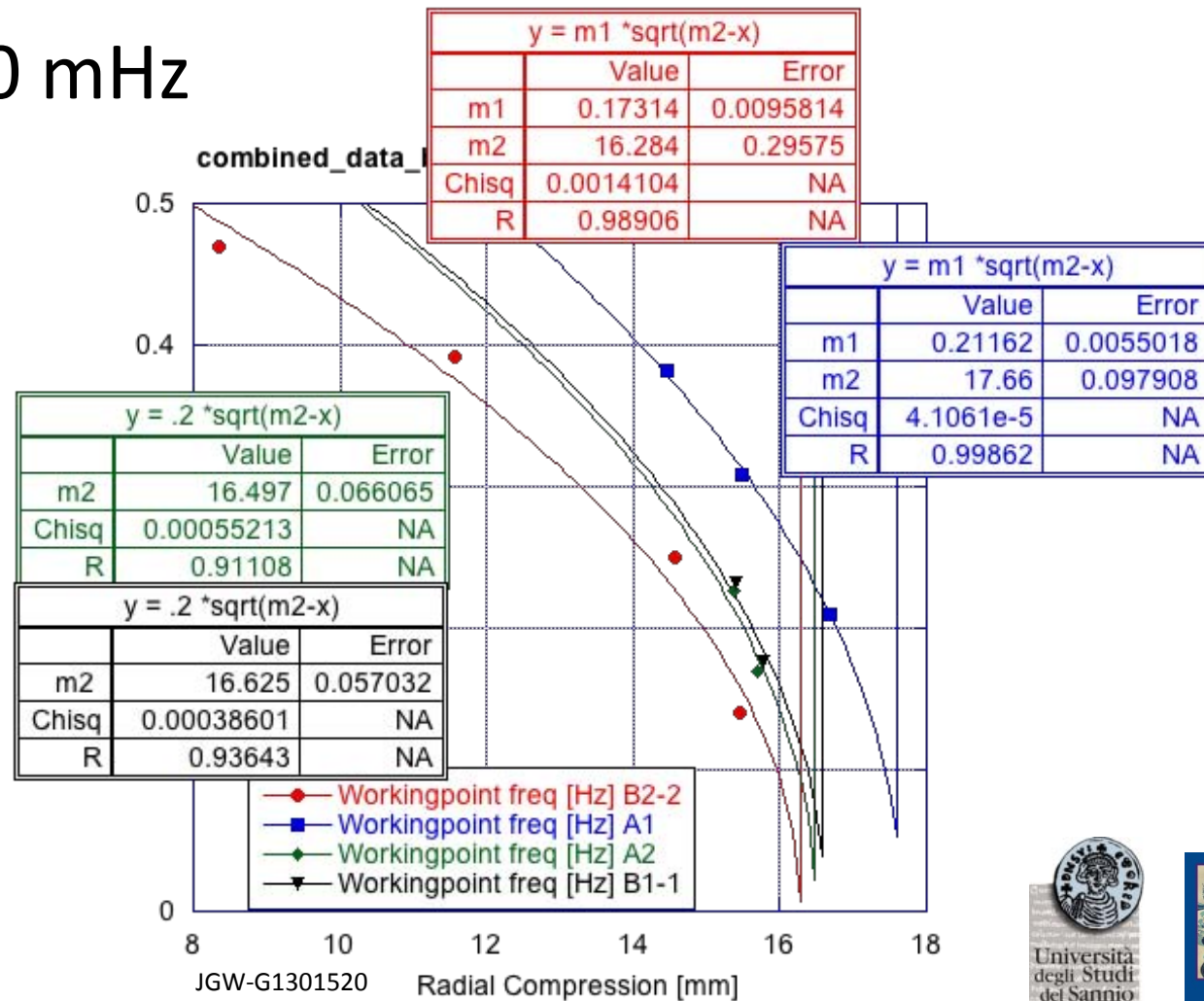
Timetable



13	2014	2015	>
Test	Bottom filter for cryogenics		
Production	11 pre-isolator inverted pendulums 4 Bottom filter for cryogenics 6 optical payloads for recyclers		
Storage	11 Pre-isolator top filters 19 Standard filters 7 bottom filters BS optical payload 7 support structures 7 outer frames		



All six top filters pre-calibrated to between 100 and 200 mHz





Paolo Radaelli and

Takanori Sekiguchi

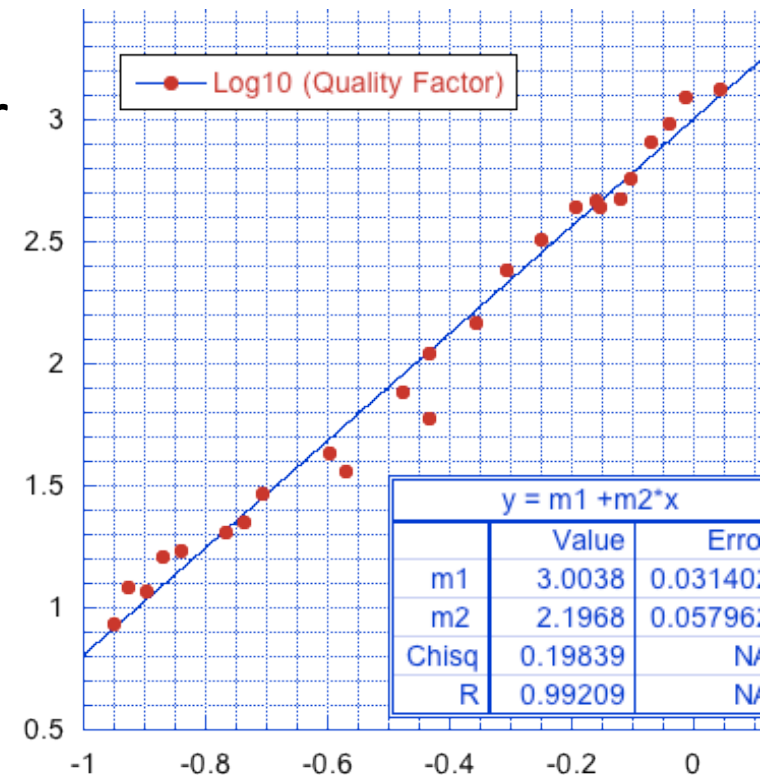
Measured top filter Quality factor
behavior vs. frequency

Found mostly quadratic behavior
(expected at low frequency)

But not quite !

Found a small exponential
component

Somewhat in contradiction with
previous results

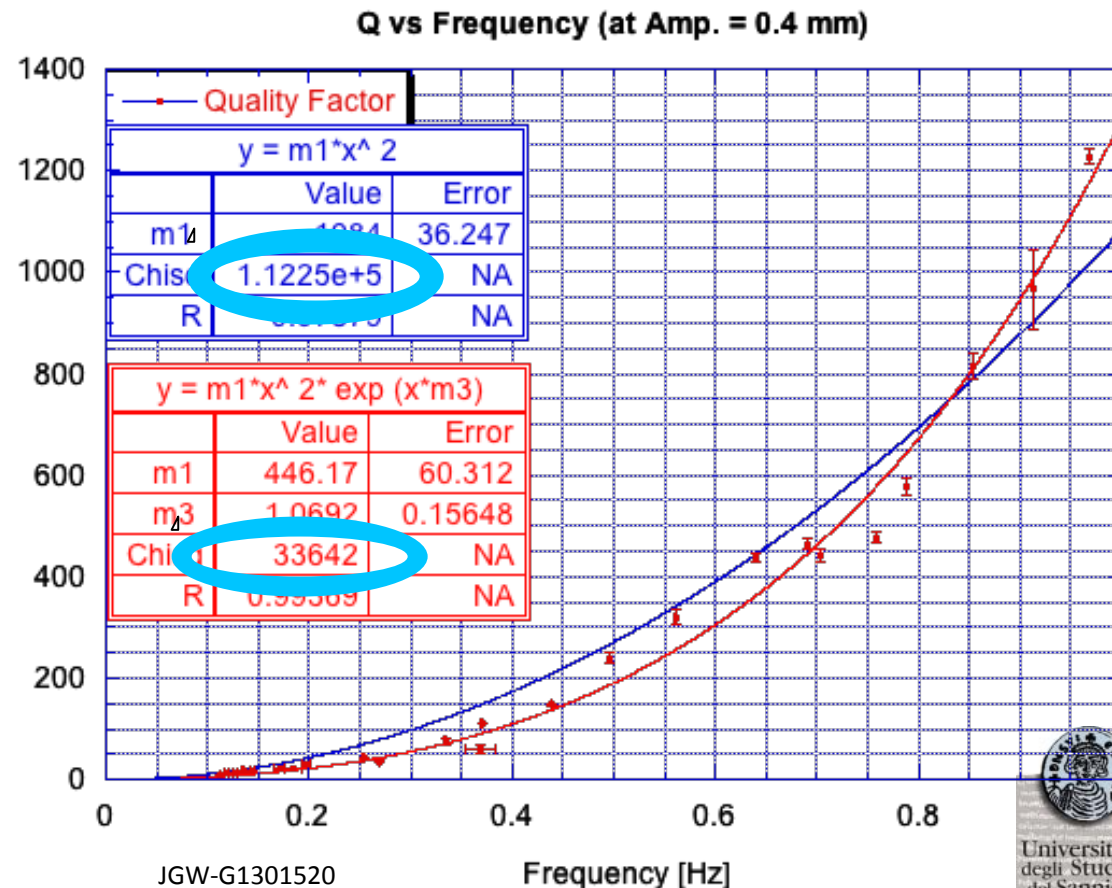


Log10 (Frequency [Hz])

Quadratic plus exponential fit still preferred

Smaller exponential component

Publication?





14 February

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