DARE!! Instruments
EMC & RF Measurement equipment

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RadiAmp®

Part of the conducted immunity testing bundle

Product Manual

A modular, flexible and high quality solution for conducted immunity testing.

Models:
RPA0925A-025
RPA0925A-075
RPA0901A-050

RadiAmp® Product Manual

This service and operating manual pertains to the RadiAmp® system.
Model: RPA0925A-025, RPA0925A-075, RPA0901A-050
Made by DARE!! Instruments.

We ask that you read this manual carefully before operating your new product and adhere to any safety instructions it might contain.

The RadiAmp is controlled by the RadiCentre. There is a Quick Start Guide available for the RadiCentre. This is an A4 sheet that contains the basic start-up steps and the safety warnings for the RadiCentre®.

Please keep the Quick Start Guide (and this regular manual) close at hand when you operate your new RadiAmp® with the RadiCentre®.

Please contact DARE!! Instruments or your local reseller if you have any questions.

Supplier Information

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Table of Content

WARNINGS & PRECAUTIONS

Read the contents of this manual and become familiar with the safety markings, instructions, operation and handling of the system.

Become familiar with the contents of the manual.

Only qualified service personnel is allowed to carry out adjustments, maintenance or repairs on the equipment.

The Radi*A*mp® contains materials that can be recycled and reused to minimize material waste. At the 'end-of-life', specialized companies can dismantle the discarded system to collect the reusable and recyclable materials. If your product is discarded at its 'end-of-life', please return it to your local reseller for recycling.

The Radi*A*mp® requires a protective earth connection. The mains power source for the equipment must supply an uninterrupted safety ground to the IEC input connector.

The Radi*P*ower® contains no hazardous substances as described in the RoHS-directive.

NEVER USE THIS EQUIPMENT WITHOUT AN EARTH CONNECTION!

WARNINGS & PRECAUTIONS

Please make sure that (at least) one slot of 1U height is kept empty below the RadiCentre®, to ensure sufficient cooling of the system through the bottom air inlets of the cabinet.
The temperature of the amplifiers inlet cooling air must not exceed +45°C. The outlet air temperature should be maximum 20° higher that the inlet temperature.

Verify that your mains voltage is within the operating range of the equipment.
The amplifier is equipped with a power supply that can be operated at a voltage of 100 to 240 VAC. The line fuses (2x10AT) are located in the mains connection unit of the amplifier

To make the RadiCentre® system as safe as possible, each plug-in card has its own primary safety system that is designed to work with the RadiCentre®.
In addition, the RadiCentre® has its own safety interlock system which is connected, in series, with the interlock system of every plug-in card that is installed in the system.

Please be aware that there are dangerous electric voltages by using the RadiAmp®. During open-circuit operation, the voltage at the center conductor of the output connector may exceed 50 V AC. Dangerous electric voltages are used in the instrument. Operation with open covers is only allowed for service purposes and only by qualified service personnel.

The RadiAmp® generates RF power, which can be emitted unintentionally if the operating instructions and the general safety regulations are not observed!
This amplifier corresponds to rating class 1A according to VDE 0800. The AC voltage at the output is <60 Vrms. Signal or test generators with an RF power supplied via connectors and exceed-ing 4 W (PEP Peak Envelope Power) must be operated inside RF shielded rooms!

1 Introduction

1.1 Product Introduction

EMC test systems can vary, from simple systems with one or two instruments, to complex installations with several integrated measurement instruments. By the introduction of the Radi*A*mp® including in the Conducted Immunity testing bundle we enable fully automated testing, as well as the connections between the Radi*C*entre® the Radi*A*mp® amplifiers, and Radi*P*ower® power meters.

The Conducted Immunity testing bundle is a cost-effective solution. Together with the Radi*C*entre® which is designed for flexible configuration of an EMC test facility and can contain up to seven independent slots that can contain a mix of different available plug-in cards. These cards determine the test facilities and are controlled through the Radi*C*entre®, possibly in combination with the Radi*M*ation® software. In the Conducted Immunity testing bundle are the following products included: The Radi*C*entre®, The Radi*A*mp®(controlled by BCI plug-in card), The RadiGen and RadiMation CI-lite test software.

1.2 Related Products

Radi*M*ation® software

Radi*M*ation® is the EMC software package from DARE!! Instruments used for remote control and automated testing of the Radi*C*entre® plug-in cards and modules (such as the Radi*F*ield® system).

1.2.1 Available plug-in cards

The Radi*C*entre® can be expanded with many different plug-in cards. The following cards are available:

Radi*C*ontrol®

A versatile antenna tower and turntable controller.

Radi*F*ield®

Power supply plug-in card to power the Triple A, this card fills two slots.

Radi*G*en®

A range of EMC signal generators, from 9 kHz to 6 GHz.

Radi*L*ink®

A range of analogue fiber optic RF links, up to 3 GHz.

Radi*P*ower®

A four channel USB plug-in card for a range of power meters for EMC and RF applications, at 6 and 18 GHz.

Radi*S*upply®

Power supply plug-in card for battery free, laser powered, Radi*S*ense® EM Field Sensors, at 4, 6 and 18 GHz.

Radi*S*witch®

A range of coaxial switch plug-in cards with SMA, N-type and K-type relays up to 40 GHz.

2 The CI test bundle

2.1 Product Characteristics

Flexible – The CI test bundle can be adopted to your specific CI test needs, for example additional power meters for reverse power and sensing can be added.

Easy to Use – By using the CI test bundle including the Radi*A*mp®you can easily perform CI tests. Saving time and costs. RadiMation makes it available to perform the tests automatically.

Easy to Maintain - The system is 'Plug and Play', which means that every card is automatically recognized, initialized and ready for use. The user can configure and control the system with the TFT touchscreen of the Radi*C*entre® model CTR1004B. Both hardware and software updates can be done by the user, allowing for easy maintenance.

Radi*C*entre® Integrated - The RadiAmp® is integrated in the Radi*C*entre® system, which allows for easy touchscreen operation and several control interfaces such as GPIB, Ethernet and USB. This also allows for control by the Radi*M*ation® software which is fully compatible with the system.

2.2 Components

The Conducted immunity bundle with the Radi*A*mp® is delivered with the following items:

- The Radi*C*entre® mainframe, model CTR1004B
- The Radi*A*mp® RPA0925A-075
- The Radi*G*en® RGN2400A
- The Radi*P*ower® RPR2006C
- Radi*M*ation® RLT1001A – Conducted immunity and report generator modules
- RS232 cable, USB cable for the Radi*C*entre®
- USB cable for connection from the Radi*C*entre® to the Radi*A*mp®
- USB cable for connection from the RadiCentre to the RadiPower
- Signal cable (SMA – N-type) from Radi*G*en® to the Radi*A*mp®
- Interlock connector: ¼" stereo jack (for the RadiCentre CTR1004B / CTR1009B)
- 2 mains power leads (EU)
- Two sets of 19" mounting brackets
- USB stick containing the (digital) User Manual

2.3 Different Models

The Radi*A*mp® is available in different models. All models are 3U-high. The Radi*A*mp® can be delivered for different frequency ranges and different RF power levels. Please refer to the website of DARE!! for available models. The basic CI bundle is delivered with the RPA0925A-075 model. This amplifier delivers 75 W in a frequency range from 9 kHz to 250 MHz.
The Radi*C*entre® can be delivered in two different models: the CI bundle is standard delivered with the lite version, a CTR1004B which is 3U-high.

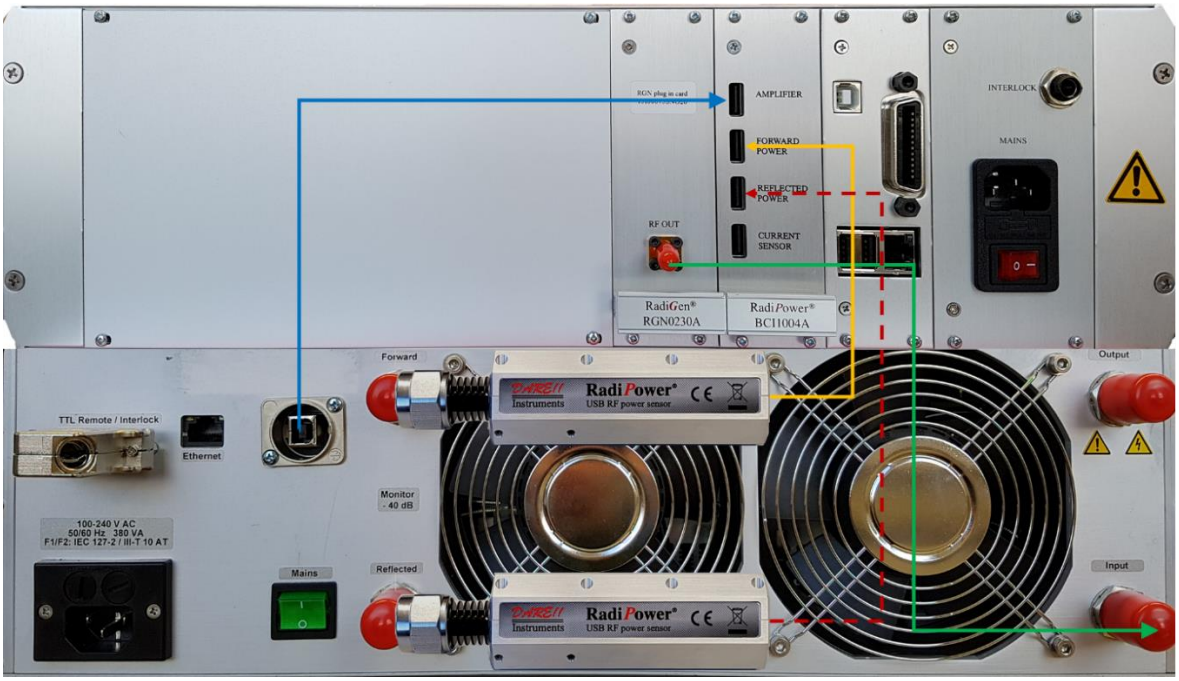
2.4 Front view of the CI bundle

The Radi*A*mp® and Radi*C*entre® both have a touch panel on the front for manual operation.

2.5 Rear view of the CI bundle

On the picture on the next page the rear panel of the Radi*A*mp® and Radi*C*entre® is shown. From left to right the Radi*C*entre® is equipped with the Radi*G*en® signal generator and the Radi*P*ower® BCI1004A plug in card to connect to the power meters and amplifier. Standard each Radi*C*entre® is equipped with a processor card providing several interfaces and a power supply card with interlock connection. Please refer to the Radi*C*entre® manual for detailed information of all connections and operation,

NOTE: The slot numbers of the RadIGen® model RGN2400A and RadiPower® BCI1004A card can be exchanges.



Above the green mains switch of the amplifier, a USB connector is located. Connect this USB port to the upper USB port of the Radi*P*ower® BCI1004A plug in card marked with "Amplifier" (connection shown in blue). Use a standard USB-A to USB-B cable (supplied with the CI Bundle).

The rear panel of the amplifier is equipped with four female N-type connectors for the RF connections. On the upper right side the RF output can be found and below this connector is the RF input. Connect the amplifiers' RF input to the Radi*G*en® RF out (connection shown in green). Connect the amplifiers' output to your CI clamp or CDN.

On the left side, the coupler outputs are situated for direct connection to a power meter.
The CI-bundle standard includes one Radi*P*ower® (RPR2006C) power meter to measure forward power. Connect this Radi*P*ower® to the forward power output and connect the USB cable of the Radi*P*ower® to the Forward power port of the BCI1004A card (connection shown in yellow).
The bundle can be easily extended with additional power meters to measure reflected power (shown in the above picture with the red connection) and current sensor values.

Connect the SUB-D interlock to the "TTL Remote / Interlock" connection of the amplifier. Pins 8 and 15 are used for the Interlock function of the amplifier. Short these pins for normal operation.
Connect the IEC mains inlet to a mains power socket. Use the green mains switch to power on the amplifier. The switch will be illuminated if the amplifier is powered.

WARNING:
The Ethernet (LAN) connector on the RadiAmp® cannot be used for controlling the amplifier.

2.5.1 Standalone operation of the RadiAmp®

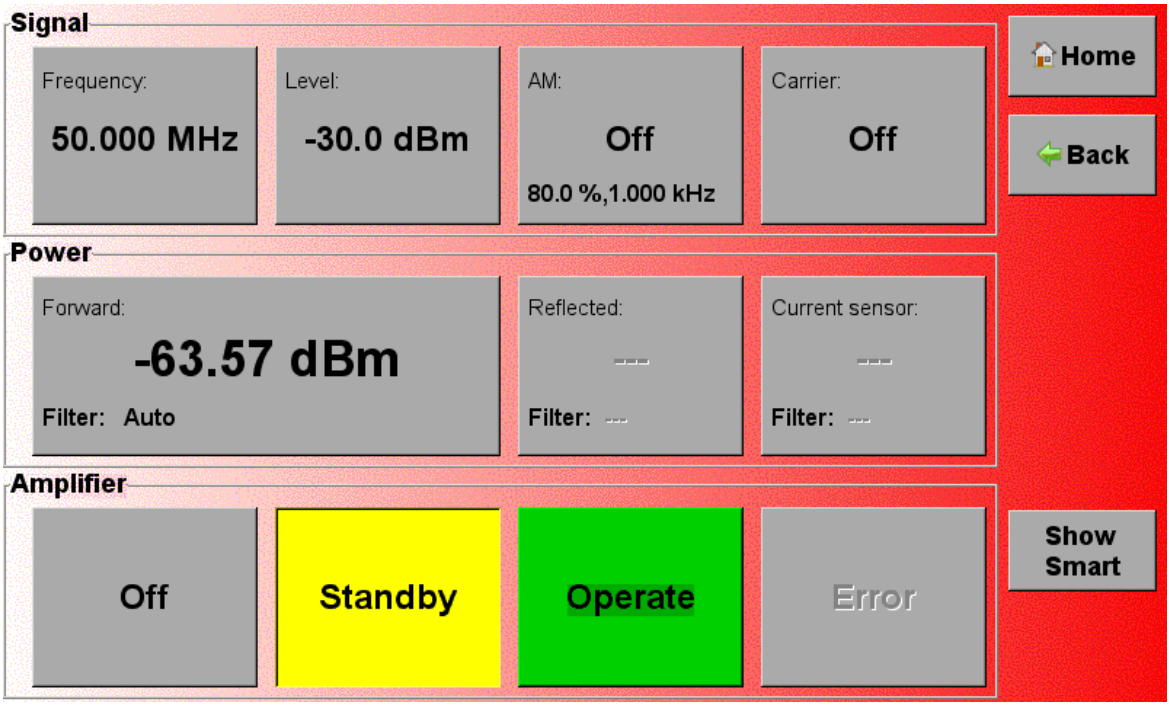
To operate the RadiAmp® manually and standalone, all remote connections (for example the USB connection to the RadiCentre) must be disconnected before switching on the amplifier.

By touching the front panel the RadiAmp® will switch on, the "POWER ON" text will light green. By default, the amplifier will be in standby mode after switching on. The "Standby" will light green. Touching the "Operate" text (dimmed orange) will turn the amplifier to operate. The "Operate" text will be light green once it is on operate mode and consequently the "Standby" text will be dimmed to orange.

2.5.2 Operation using the RadiCentre®

The complete CI bundle can be operated by the touchscreen of the RadiCentre®. For the CI Bundle a special screen was designed to provide a convenient overview of all key parameters.

In the "Signal" section the settings of the RadiGen® can be found.
In the "Power" section the settings of the RadiPower® can be found.
In the "Amplifier" section the settings of the RadiAmp® amplifier can be found.



By pressing the buttons, parameters can be changed or devices can be de(activated).

3 Installation

3.1 Hardware Configuration

The hardware configuration is carried out in the following steps:

1. Make sure that all the connections to the plug-in cards are made as described in in chapter 2.4.
2. Make sure that the remote interlock connection of the Radi*A*mp® and Radi*C*entre® system is closed.
3. Plug the mains cord into the mains inlet of the Radi*A*mp® and Radi*C*entre® system.
4. Turn on the mains of the Radi*A*mp® and Radi*C*entre®.
5. Press (any position on) the front panel touchscreen to activate the Radi*C*entre®.
6. The Radi*C*entre® will automatically detect the installed plug-in cards and will display their controls on the display. From the touch screen you can control the Radi*A*mp®.
7. Connect a transducer (current clamp or CDN) to the system. This is not included in the CI-bundle.

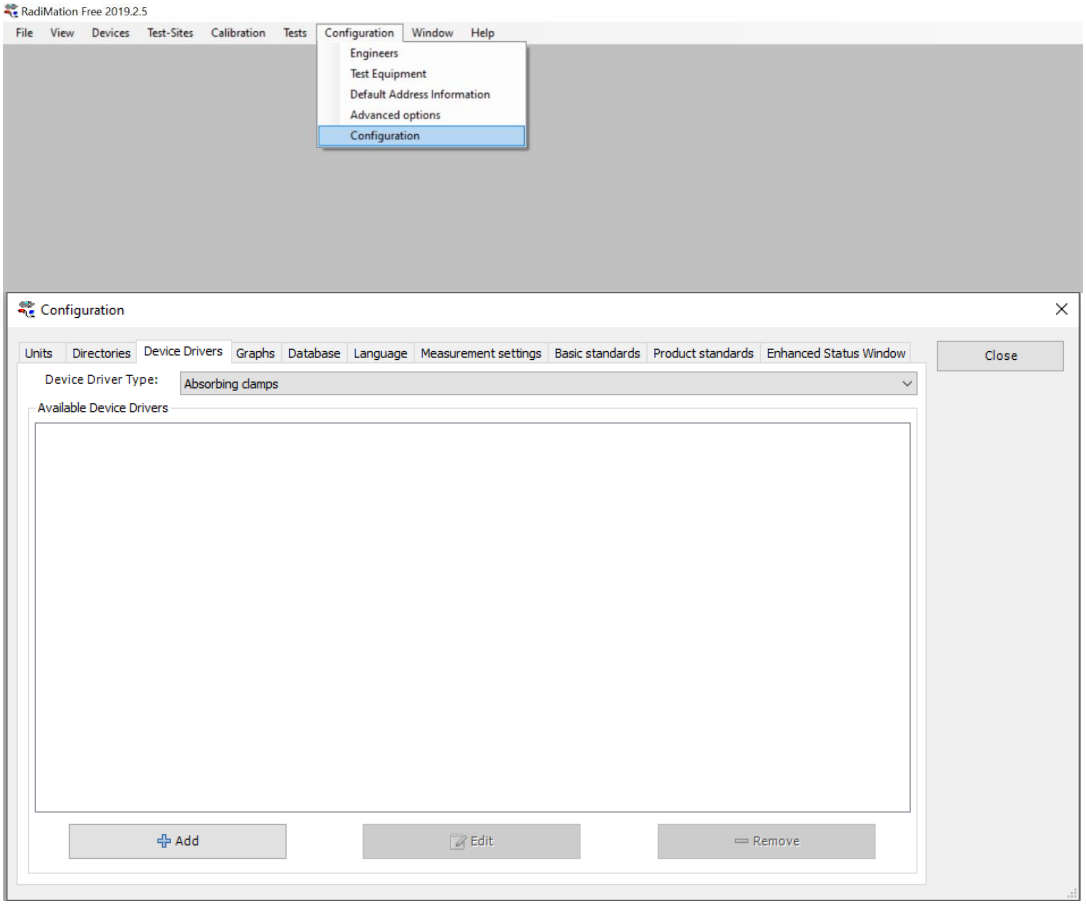
The system is now ready to be used.
The main screen will display the slot locations and the plug-in cards located in these slots. These indications can be used to open the screens of the individual plug-in cards where the main parameters for these cards are visible.

3.3 RadiMation® CI Test Bundle configuration

IMPORTANT:
Before using this RadiMation® software configuration procedure, please make sure that the CI Test Bundle is properly installed. switched ON and connected to the USB PC interface. Please ensure that the RadiGen signal generator should be placed in SLOT 1 of the RadiCentre and the RadiPower BCI1004A card in slot 2 (see paragraph 2.5 of this manual).

Start RadiMation® by clicking on the RadiMation® 'Icon'

Then select from the toolbar 'Configuration' => 'Configuration" to open the Configuration Window.

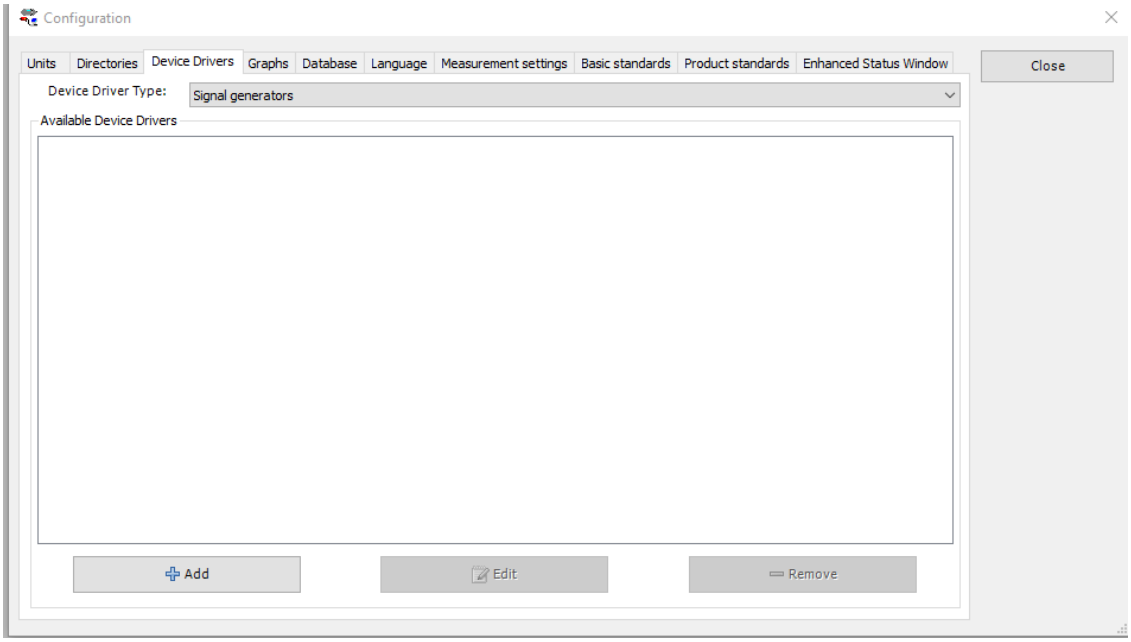


From the Configuration Window select the 'Device drivers' tab to create and configure device drivers for each device (instrument) from the CI Test Bundle.

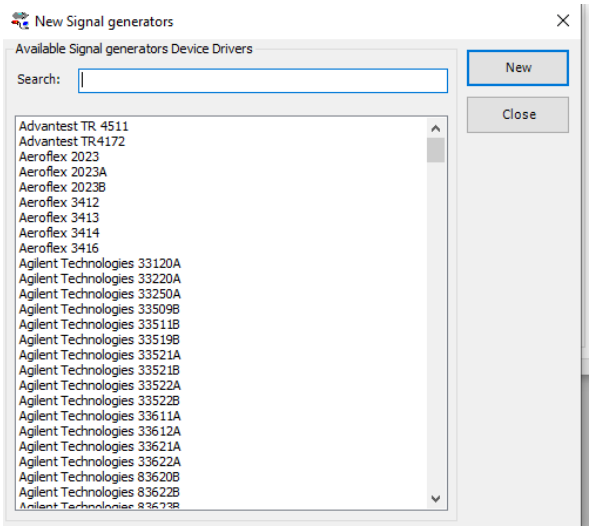
The CI Test Bundle consists of the following devices:

- RadiCentre® 2-slot mainframe
- RadiGen® RF signal generator
- RadiAmp® RF power amplifier with internal directional coupler
- RadiPower® USB power meter(s)

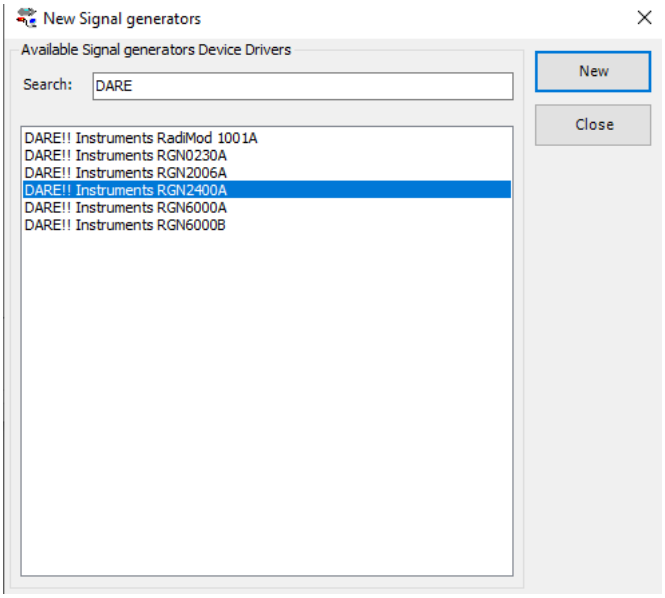
STEP 1:
For the RadiGen® device driver, select the "Device Driver Type: Signal generators'. Then the following window will open:



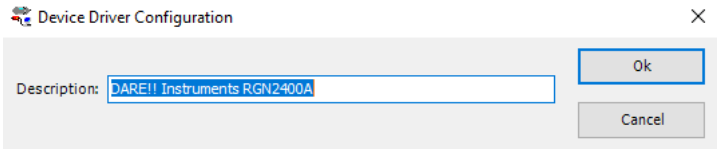
Then press on the 'Add' button on the bottom left side of the window, which will open a separate window showing all available signal generator device drivers.



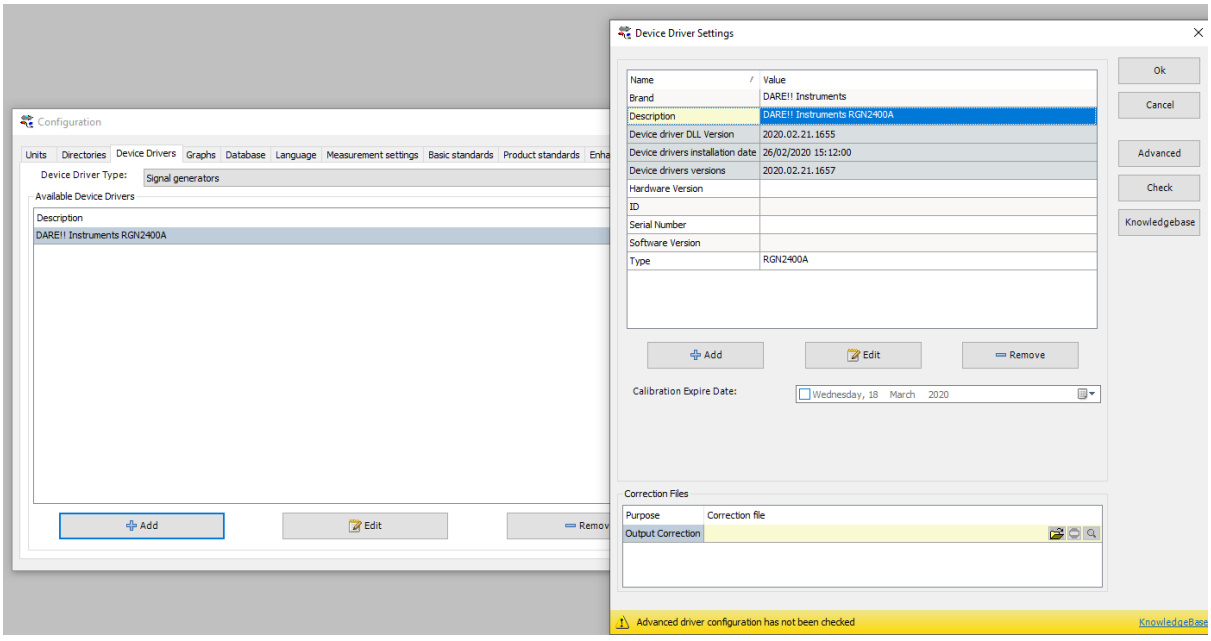
From this list scroll down or type in 'DARE' which will show all available RadiGen® device drivers and select the model RGN2400A.



Then press the 'New' button where you define the name of the RadiGen®

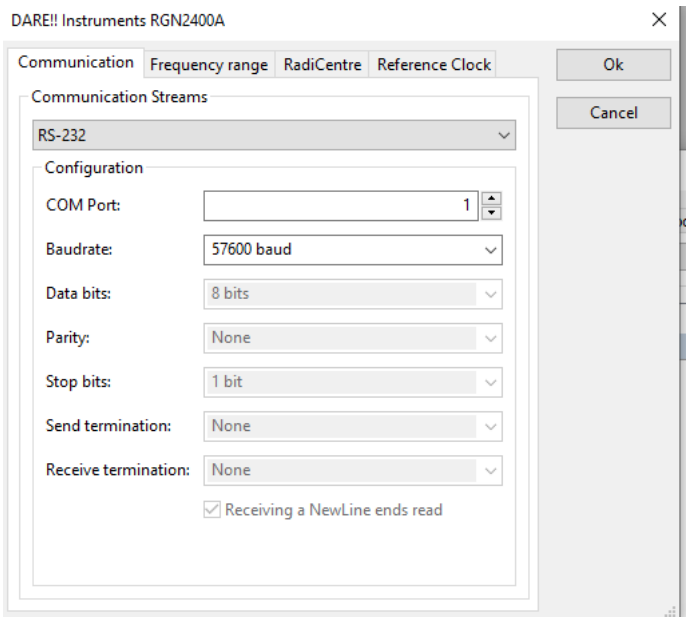


Then press 'OK'.



Now de RadiGen is shown in the 'Available Device Drivers' list (left side screen) and a new window will open which enables you to configure the RadiGen device driver. Here you could add the 'serial number', any specific ID-number and even can configure the next calibration date of the signal generator.

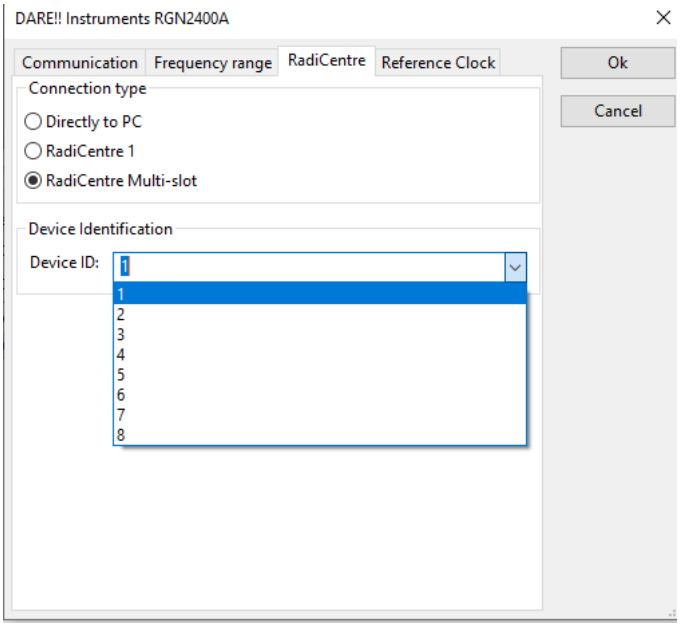
To further configure the RadiGen® device driver, press the 'Advanced' button on the right side of the screen. This will open a new window for the RGN2400A.



The configuration window has several individual tabs to configure certain settings.

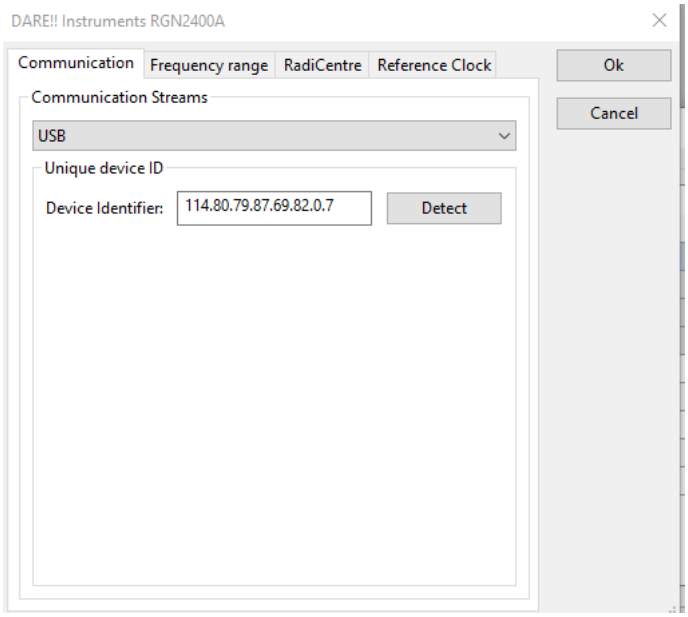
First, select the 'RadiCentre' tab to configure main settings of the RadiCentre. The CI Test Bundle uses a RadiCentre 2-slot model CTR1004B, so under the 'Connection Type' select 'RadiCentre Multi-slot'.

Typically, the RadiGen is mounted in the first slot of the RadiCentre model CTR1004B.
In this case, select 'Device ID '1' as shown below. *Remark: In case of doubt, the correct slot number can be determined by checking the front panel of the RadiCentre.*



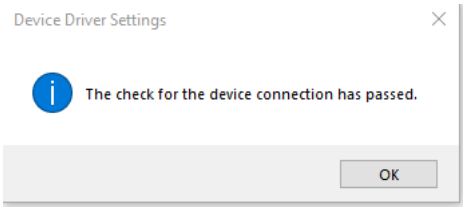
Next step, is the communication settings by selecting the 'Communication' tab.

Under ‘Communication Streams’ select the USB interface and press the ‘Detect Button’ If the RadiGen is properly installed into slot 1 and switched ON, the response will provide a USB identifier which is shown in the box (example 114.80.79.87.69.82.0.7)



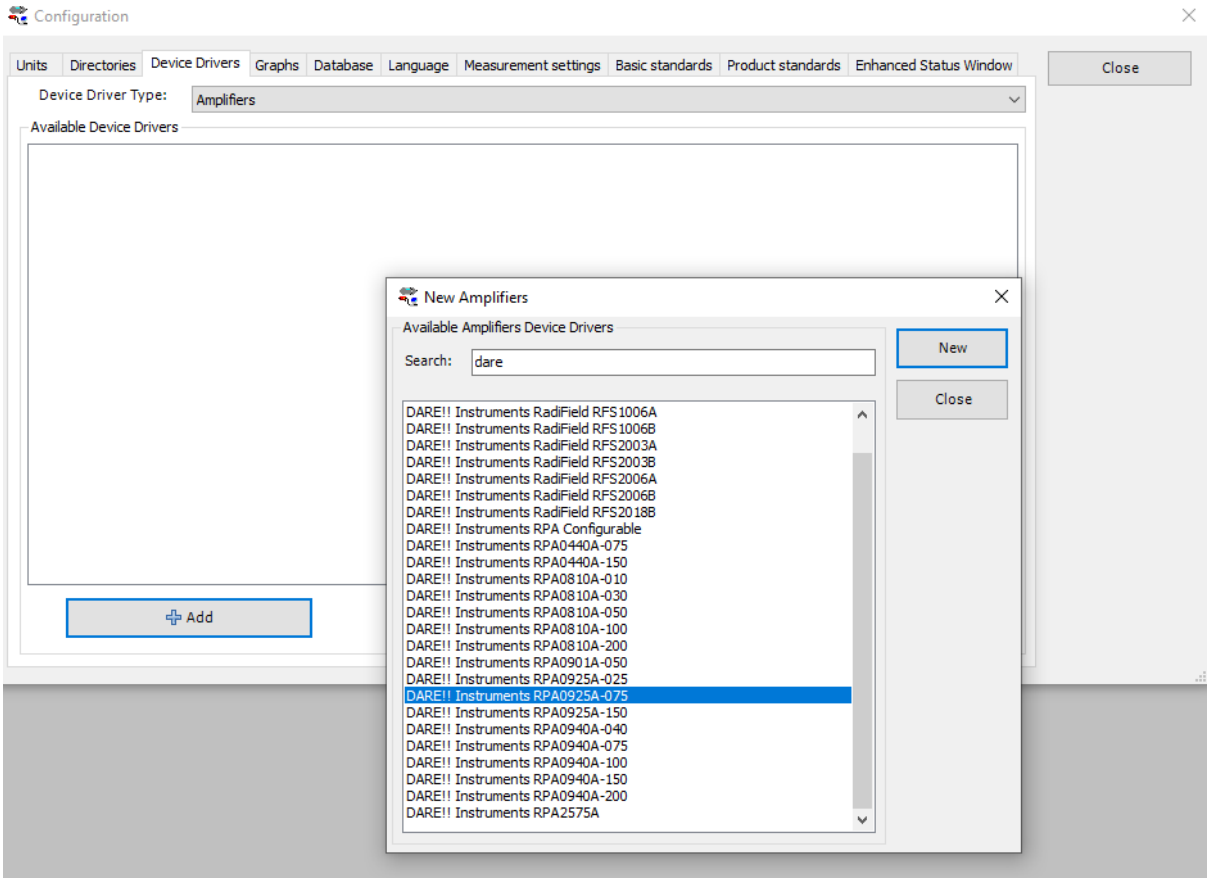
Now press the ‘OK’ button after which you will return to the Device Driver Settings window of the RGN2400A.

To check if the device driver is correctly configured, press the ‘Check’ button.
A normal response should be that the checked has passed as shown below.



STEP 2:
The following steps should now be taken for configuration of the RadiAmp® RF power amplifier, model RPA0925A-075.

From the 'Configuration' Window select the Device Driver Type ' Amplifiers' and press 'Add'. Scroll for the model or use the search function and select the RPA0925A-075.



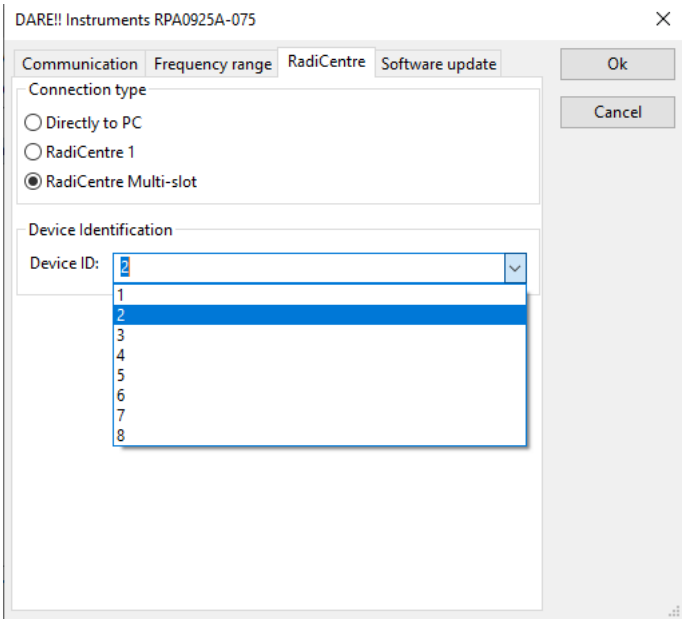
Press 'New' and then 'OK' (use default name settings or change to your own wish)

From the 'Device Driver Settings' window press the 'Advanced' button which will open the configuration window for the RadiAmp®.

Select the 'RadiCentre' tab and set the Connection type to 'RadiCentre Multi-slot' which corresponds to the 2-slot RadiCentre model CTR1004B

Next step is to define the slot number of the RadiAmp®.

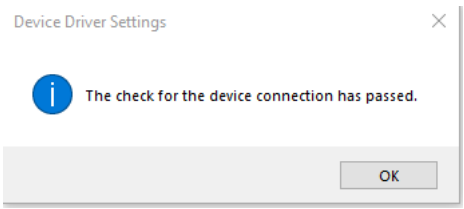
This slot number should correspond to the slot number in which the RadiPower® BCI1004A plug-in card is installed, as this card is used to control the RadiAmp® using the USB port.



Typically, the BCI1004A is installed in slot number 2 of the CTR1004B, which means that the Device ID should be set to "2". *Remark: In case of doubt, the correct slot number can be determined by checking the front panel of the RadiCentre.*

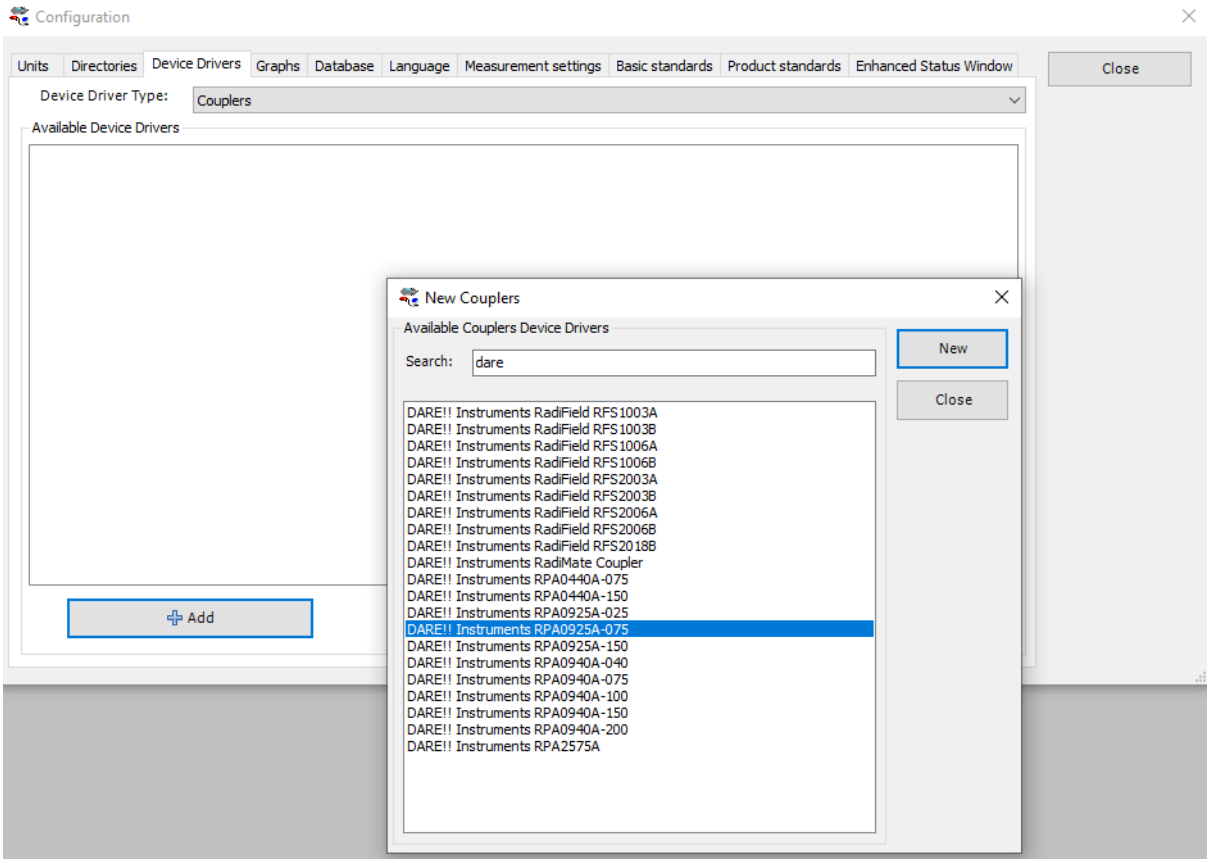
Under the 'Communication' tab the Communication Streams should be set to USB. Press the 'Detect' button to get the Device Identifier from the RadiAmp® and press 'OK'.

To test the driver configuration of the RadiAmp®, press the 'Check' button and see if the driver passes the driver check.



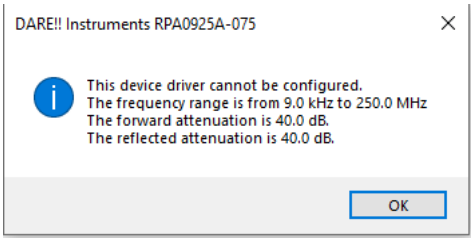
STEP 3:
The RadiAmp® RF amplifier uses an internal dual directional coupler that needs to be configures as well.

From the ‘Configuration’ Window select the Device Driver Type ‘Couplers’ and press ‘Add’. Search for the model or use the search function and select the RPA0925A-075.



Press ‘New’ and then ‘OK’ (use default name settings or change to your own wish)

From the ‘Device Driver Settings’ window press the ‘Advanced’ button which will open a message window as shown below:



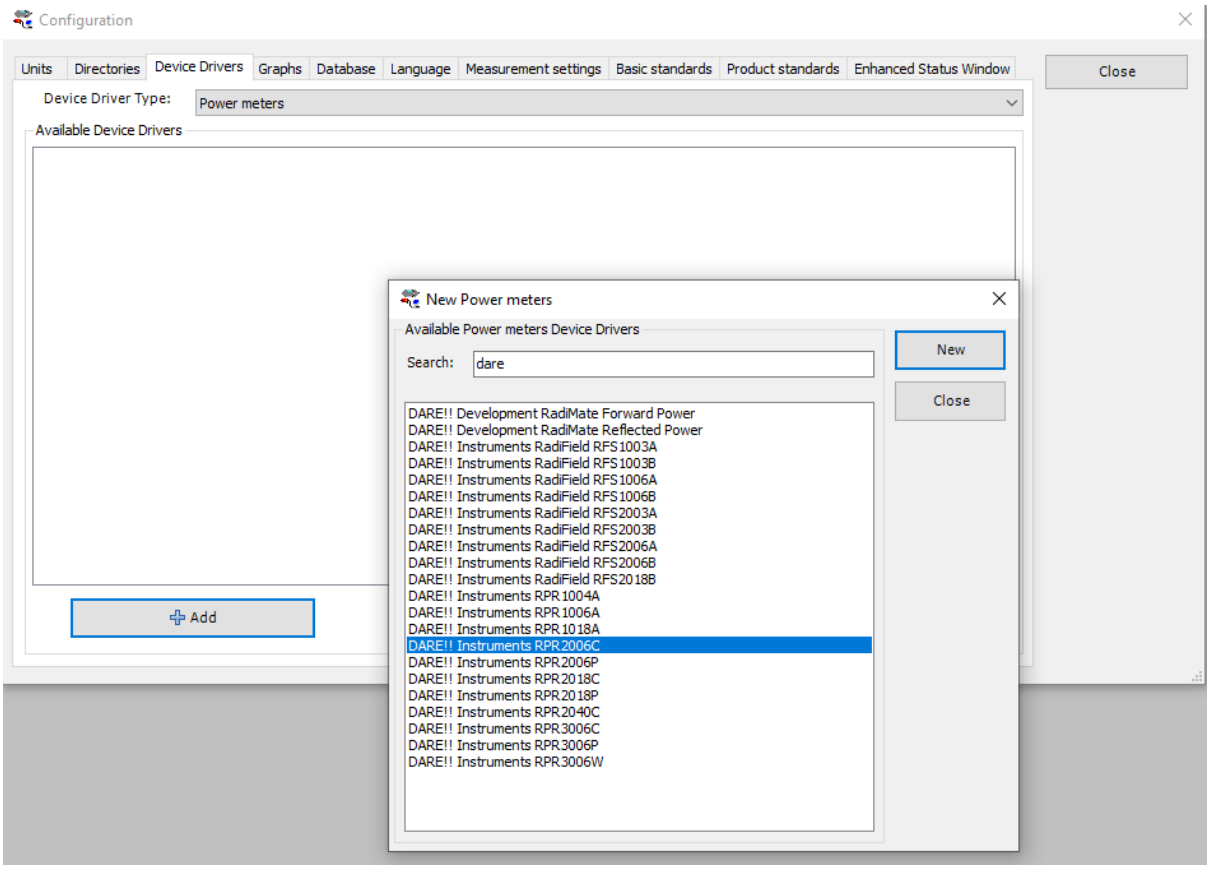
IMPORTANT: The forward- and reflected attenuation factor of 40 dB of the internal directional coupler is already covered for inside the device driver of the RadiAmp®.

Press the ‘OK’ button to close the Window.

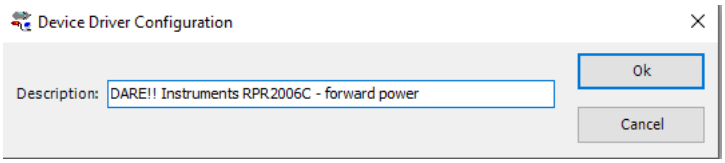
STEP 4:

The following steps should now be taken for configuration of the RadiPower® RF power meters, model RPR2006C that is used as forward power meter.

From the 'Configuration' Window select the Device Driver Type 'Power Meters' and press 'Add'. Scroll for the model or use the search function and select the RPR2006C.



Press 'New' and then advisably change the description of the RadiPower® to 'DARE!! Instruments RPR2006C - forward power' to ensure a clear definition.



From the 'Device Driver Settings' window press the 'Advanced' button which will open the configuration window for the RadiPower® Forward power meter.

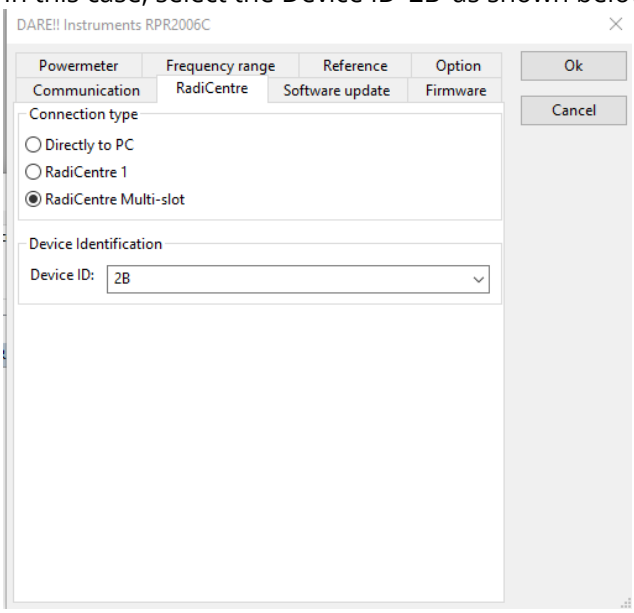
Select the 'RadiCentre' tab and set the Connection type to 'RadiCentre Multi-slot' which corresponds to the 2-slot RadiCentre® model CTR1004B

Next step is to define the slot number of the RadiPower® Forward power meter.

This slot number should correspond to the slot number in which the RadiPower® BCI1004A plug-in card is installed. Typically, the BCI1004A is installed in slot number 2 of the CTR1004B, which means that the Device ID should be set to "2". *Remark: In case of doubt, the correct slot number can be determined by checking the front panel of the RadiCentre.*

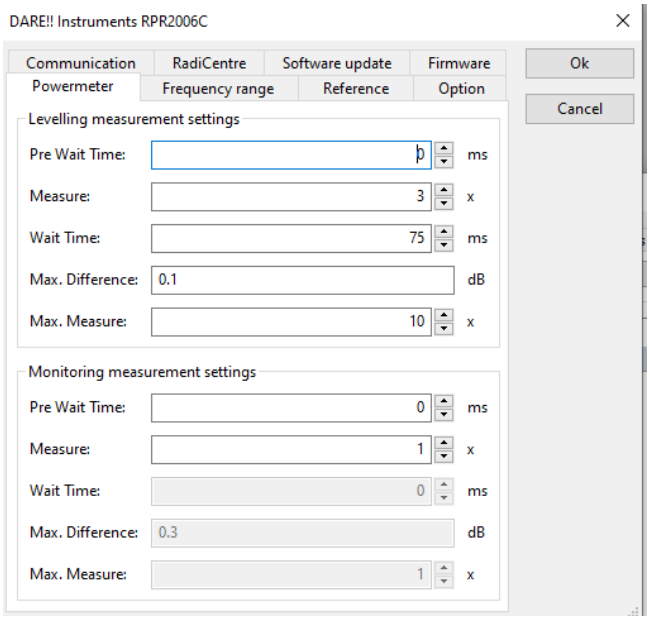
Furthermore, the correct port number should be defined to which the RadiPower® forward power meter is connected on the BCI1004A card, as the BCI1004A card has 4 USB ports. For the forward power port the Device ID should be set to port B.

In this case, select the Device ID '2B' as shown below.

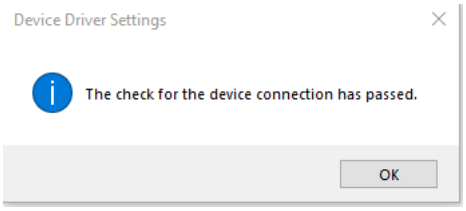


Under the 'Communication' tab the Communication Streams should be set to USB. Press the 'Detect' button to get the Device Identifier from the RadiPower®.

Under the 'Powermeter' tab the measurement settings of the RadiPower® model RPR2006C can be modified, but we advise to use the default settings as shown here.



To test the driver configuration of the RadiPower®, press the 'Check' button and see if the driver passes the driver check.



To close the device driver configuration window, press 'OK'.

Does you CI Test Bundle use multiple RadiPower® power meters?

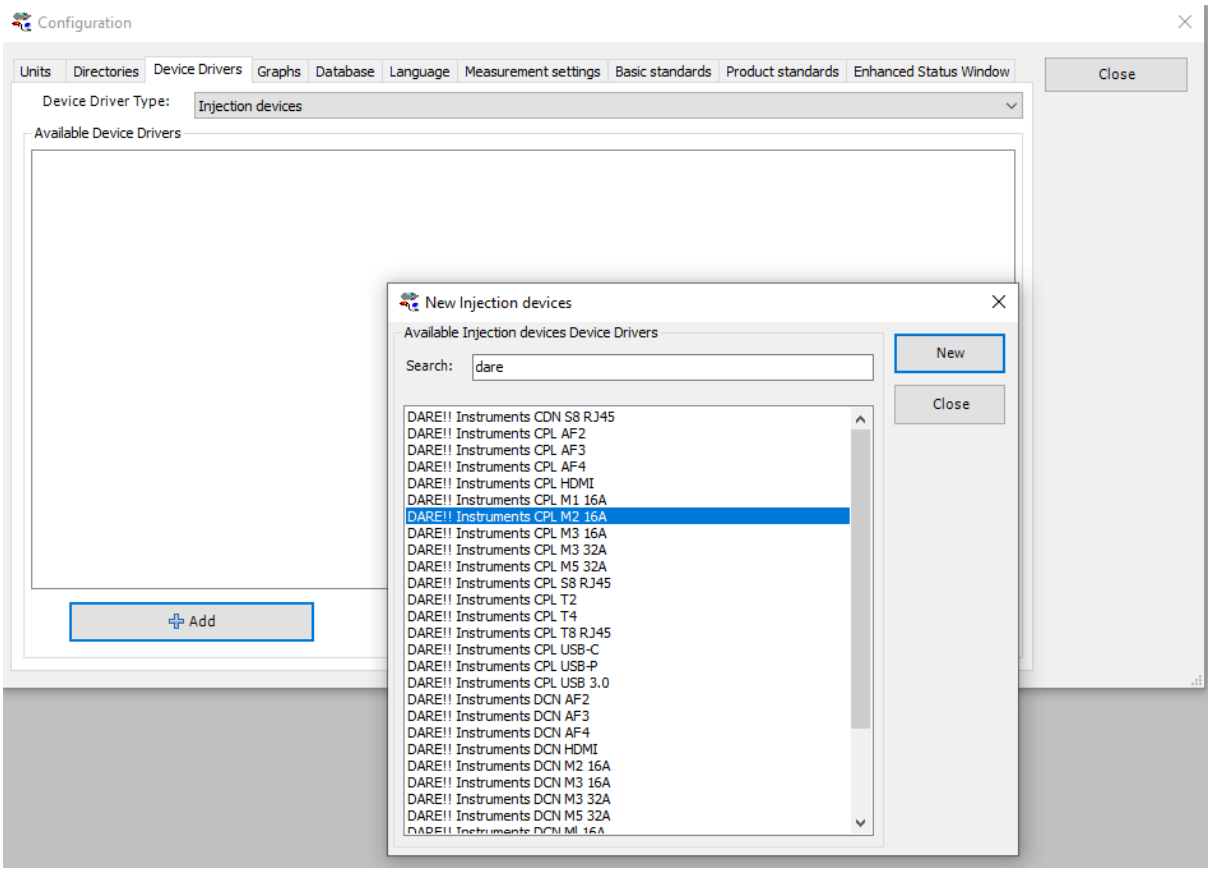
In case your CI Test Bundle consists of multiple RadiPower® models RPR2006C, for measuring reflected power and/or current sensing (BCI testing) then the same STEP 4 procedure should be followed for each RadiPower®.

Be noted that each RadiPower should be given its own unique name; E.g. Reflected power meter.

STEP 5:
The following steps should now be taken for configuration of coupling/decoupling network (CDN) devices that are used for CI testing in accordance to IEC61000-4-6.

In this example we use a RadiCoupler® model CPL M2 16A. Be noted that this is an optional device which is not standard included in the CI Test Bundle.

From the 'Configuration' Window select the Device Driver Type 'Injection Devices' and press 'Add'. Scroll for the model or use the search function and select the CPL M2 16A.



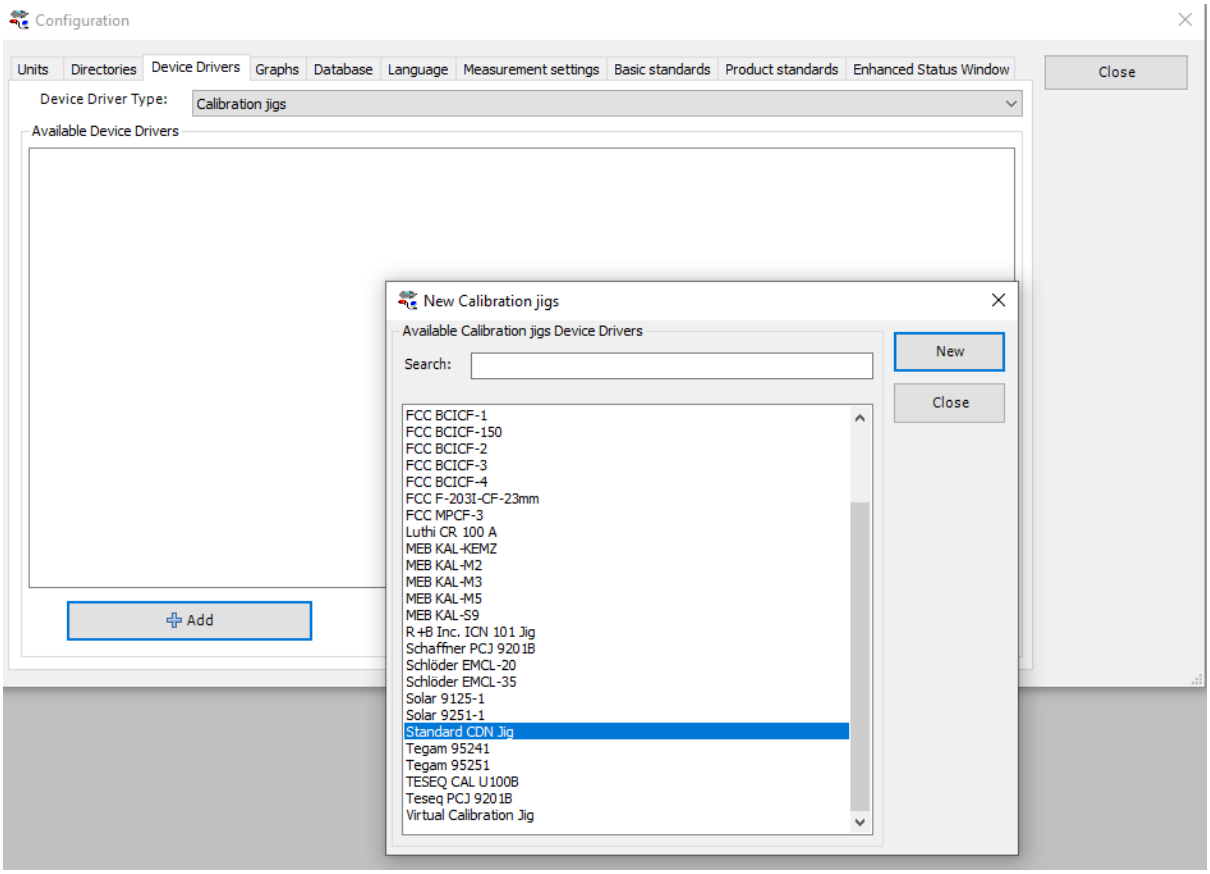
Press 'New' and then 'OK' (use default name settings or change to your own wish)

From the 'Device Driver Settings' window press the 'Advanced' button which will open the configuration window for the RadiCoupler® and shows the default settings of the device (frequency range, resistance). These settings should not be changed.

The RadiCoupler® is a passive device, so there are no further control settings.

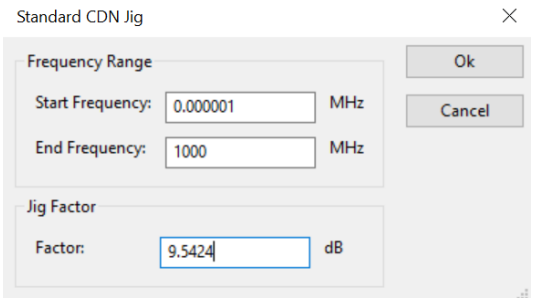
Press 'OK' to close the device driver configuration window.

For the calibration of the RadiCoupler CDN a calibration JIG is needed.
From the Device Driver Type 'Calibration Jig' you can select the 'Standard CDN Jig' driver.



Press ‘New’ and then ‘OK’ (use default name settings or change to your own wish)

From the ‘Device Driver Settings’ window press the ‘Advanced’ button which will open the configuration window for the Calibration Jig and shows the default settings of the device (frequency range, JIG factor). The default value for the Jig factor is ‘0”. This needs to be set to a value of 9.5424 as shown below.

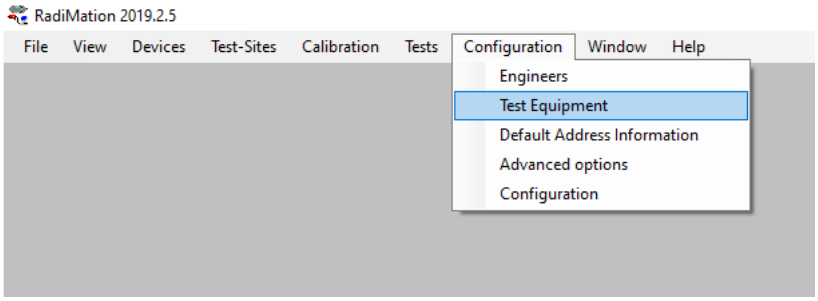


The Calibration Jig is a passive device, so there are no further control settings.

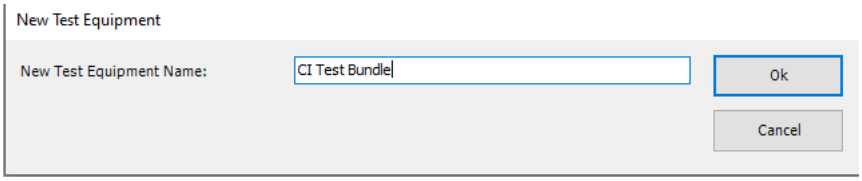
Press ‘OK’ to close the device driver configuration window.

STEP 6:
Now that all required drivers for the devices from the CI Test Bundle have been made, a system configuration can be made for the CI Test Bundle.

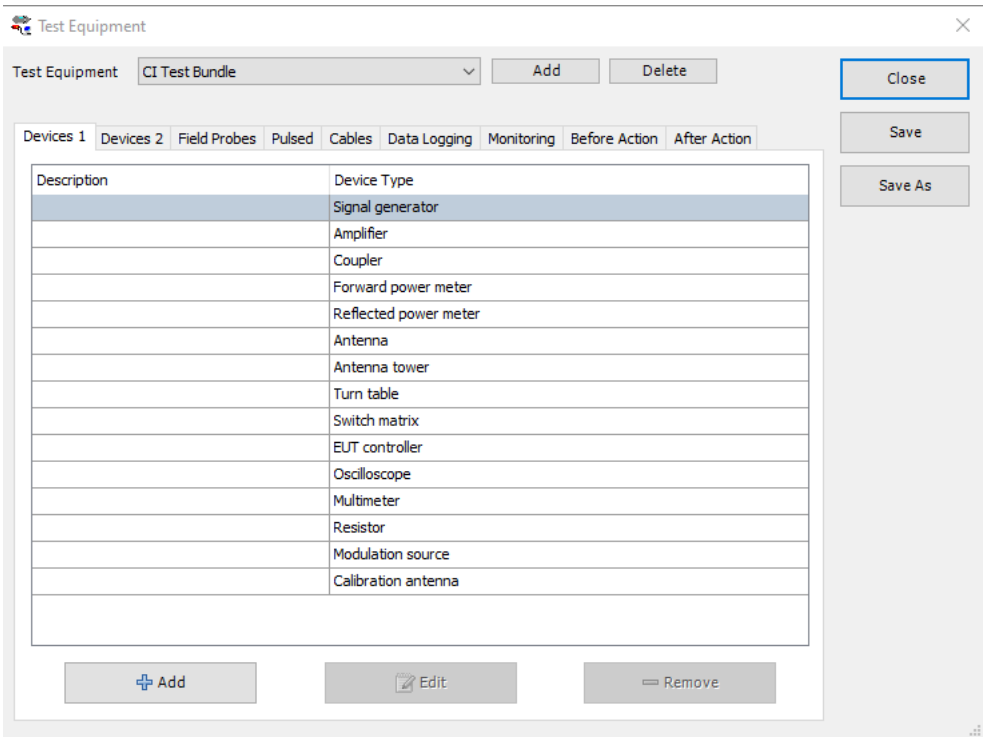
From the RadiMation® main screen, select 'Configuration' => 'Test Equipment'.



A new Test Equipment window will be opened.
Press 'Add' and define the new name for the new Test Equipment:

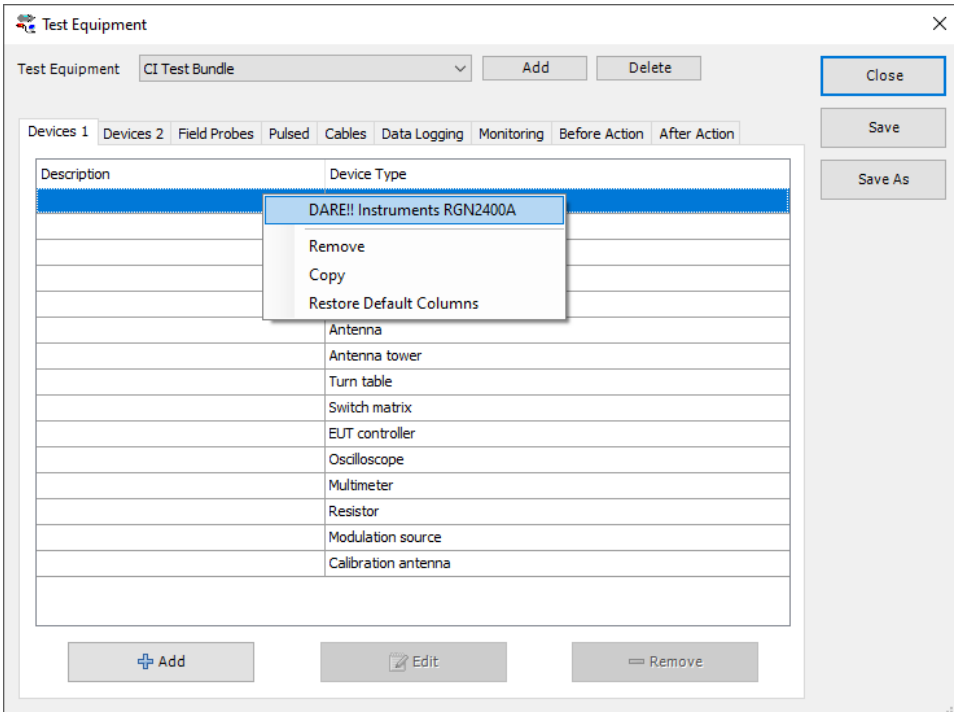


After pressing 'OK' a new Test Equipment system 'CI Test Bundle' is opened.

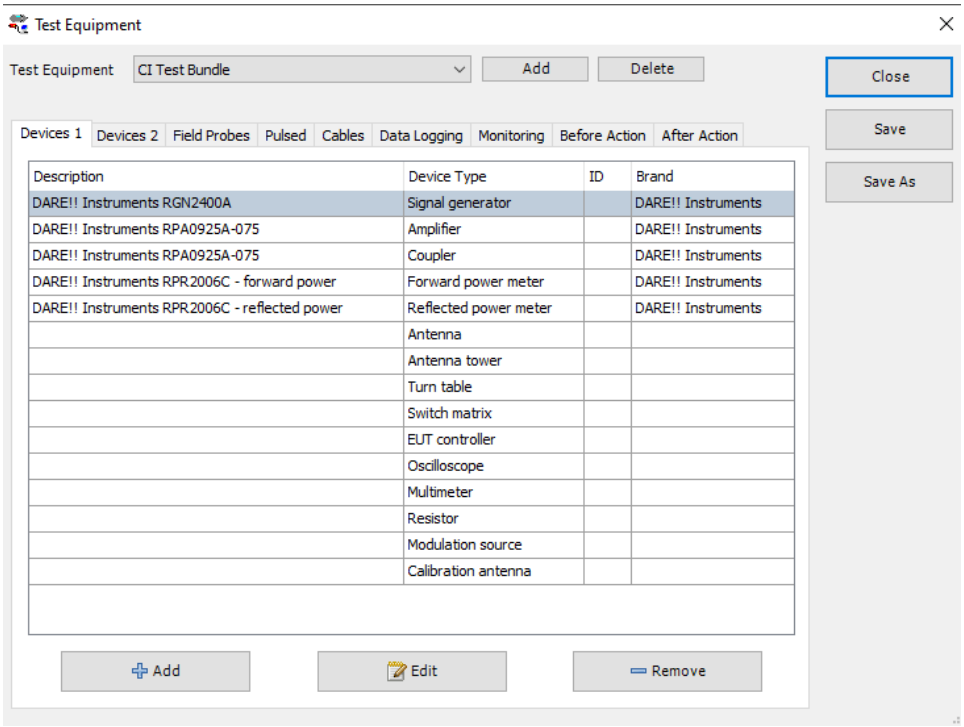


Now, all individual instruments (device drivers) that are part of the CI Test Bundle need to be selected in the "Devices 1' tab.

First, the signal generator can be selected by moving the mouse to the 'description' field next to the signal generator field and use the right-click button to show a list of available signal generators, and select the DARE!! Instruments RGN2400A.

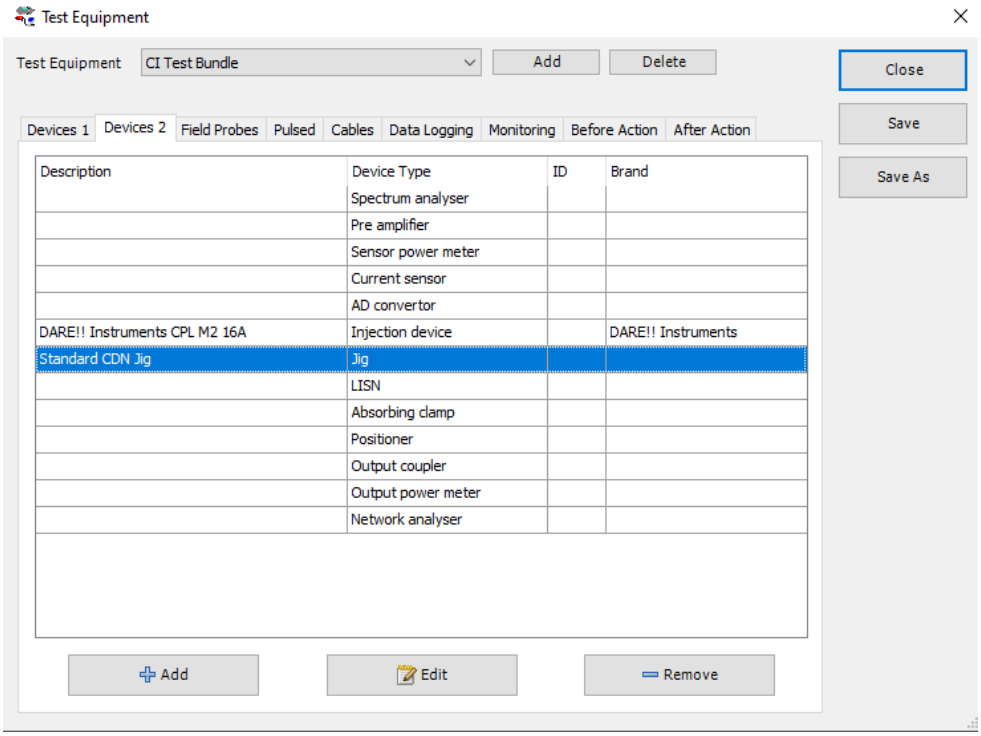


Repeat this procedure for all other devices from the CI Test Bundle as shown below.



For the configuration of the coupling / decoupling network(s) and CDN Calibration Jig the applicable devices should be selected in the "Devices 2' tab.

Repeat this procedure for these devices resulting in the screen as shown below.



Press the ‘Save’ button and then the ‘Close’ button and the CI Test Bundle is now configured in RadiMation® and ready for use.

For further information on how to perform a conducted immunity test in RadiMation®, please refer to the RadiMation Instruction video : https://www.dare.eu/emc-test-software/video-instructions-radimation/how-to-perform-a-conducted-immunity/susceptibility-test?items_id=593

4 RadiAmp® Command Set

4.1 Commands

These commands are the standard DARE!! commands. If an error occurs, there will be an error code as reply instead of the expected reply.

Default user commands		
Command	**Description**	**Reply**
*IDN?	Returns the ID of the plug-in card.	D.A.R.E!!, RadiAmp RPA0925A-075, 1.0.0
ID_NUMBER?	Returns unique identifier number, number is taken from the Dallas ID chip	x.x.x.x.x.x.x.x For example: 1.58.95.146.21.0.0.124
LOCAL	Return to local mode, the local display is used to set items.	Ok
RESET	Reset the module	Ok
CLEAR	Clear the internal error	Ok
VERSION_HW?	Returns the hardware version	x For example: 2

Commands specific for the amplifier (not case sensitive)

Product specific commands			
Command	**Description**	**Reply**	**Notes**
Off	Turns the amplifier off	Ok or error	Ok is replied when the amplifier is off.
Operate	Switches the amplifier to operate. Applied RF signal will now be amplified.	Ok or error	Ok is replied when the amplifier is in operate state.
Standby	Switches the amplifier to standby. No RF signal will be present on the RF output of the amplifier	Ok or error	Ok is replied when the amplifier is in standby state.
Lockout	Sets the display to remote lockout. Use local to switch back into local state.	Ok	
Status?	Returns the current status	Off / standby / operate / error	

Please refer to the manual of the RadiPower® for commands to control the power meters.

4.2 Error Codes

Generic errorcodes	
Errorcode	**Description**
1	Wrong command
2	Parameter too high
3	Parameter too low
4	Invalid parameter
5	Buffer overflow
6	Allready in progress
7	Parity error
30	I2C Timeout
31	I2C Not-Acknowledge (NACK)
32	I2C Arbitation lost
33	Not enough memory
34	Memory fault
35	Time out
36	Serial Number chip not connected
37	Serial Number CRC fault

5 RadiAmp® / conducted immunity bundle specifications

RadiAmp®

Model	**RPA0925A-025**
Frequency range	9 kHz to 250 MHz
Output power, CW	25 W minimum
Input power	0 dBm (for nominal power)
Gain	46 dB typical
Spurious (at Pn)	-50 dBc typical
Monitoring outputs	-50 dB
Weight	15 kg
Height	3 HU

RadiCentre®

Model	**CTR1004B**
Number of free slots for plug-in card	2 (both occupied for CI bundle)
Display	7” TFT / WVGA
Backplane	Intelligent versatile back plane
Dimension	3 HU, 19” system
Weight	7 kg
Interface	USB, LAN

RadiGen®

Model	**RGN2400A**
Frequency range	9 kHz to 400 MHz
Output level	-70 dBm to +13 dBm (+7 dBm with AM)
Output settling time	< 1 ms
Output connector	SMA
Modulation types	CW, AM, FM, Pulse and gated pulse
Frequency error	<20 ppm
Frequency resolution	1 Hz

RadiPower®

Model	**RPR2006C**
Frequency range	9 kHz to 6 GHz
Measurement function	RMS CW power, peak power
Power measuring range	-55 dBm to + 10 dBm
Input damage level	> +20 dBm
Maximum SWR	1.05 @ below 100 MHz
Frequency response accuracy	± 0.25 dB
Measuring speed	20 kSps, 100 kSps or 1 MSps

RadiMation®

Module	**RLT1001A-CR/RG**
USB License	Conducted immunity + report generator
Support/upgrade service	2 years support included

WARRANTY CONDITIONS

DARE!! Instruments offers a standard warranty term of three years on their products, starting from the shipping date. This warranty is applicable to all EMC test & measurement products, such as:

- Radi***C***entre® modular / multifunctional EMC test systems
- Radi***C***ontrol® antenna tower/turntable controllers
- Radi***F***ield® Triple A field generators
- Radi***G***en® signal generators
- Radi***P***ower® RF power meters
- Radi***S***ense® laser powered E-field probes
- Radi***S***witch® RF coaxial switches

On the conducted immunity bundle (complete system) is a warranty term of 5 years applicable.

If a defect occurs within the warranty term, a Return Material Authorization (RMA) 'Warranty Repair' request can be issued using the RMA link at http://rma.dare.eu. The defective product can then be shipped to DARE!! Instrument for repair by our service department.
There will be no charge for repair services (materials or labor) within the warranty term. The customer will need to cover the costs for returning the product to DARE!!, such as shipping and/or any applicable duties and taxes. DARE!! Instruments will arrange the courier and cover the costs for the return shipment.

These warranty terms are not applicable to:

- Fiber optic cables
- Products that have been improperly used
- Products that have been used outside their specified range
- Products that have been improperly installed and/or maintained
- Products that have been modified without approval of DARE!! Instruments
- Calibration and/or re-calibration of the product
- Consumable products such as batteries, ink etc.

Repair services on products that are not covered by the DARE!! warranty will be charged to the customer. If a defect occurs to our product outside the warranty period, a RMA repair and/or re-calibration request must be issued using the RMA link at http://rma.dare.eu.
The repairs (outside the original warranty period) have a warranty limited to six months. Shipping conditions are the same as with repairs within the original warranty period.

EUROPEAN DECLARATION OF CONFORMITY

We, DARE!! Instruments, declare under our sole responsibility that the product;

RadiAmp®

Model RPA0925A-025

to which this declaration relates, is in accordance with the following Directives:

EMC-Directive 2014/30/EU
Low Voltage Directive 2015/35/EU
RoHS-Directive: 2011/65/EG

Per the provisions of the applicable requirements of the following harmonized standards:

Emission:	EN 61326-1:2013, Class A[1] Electrical equipment for measurement, control and laboratory use.
Immunity:	EN 61326-1:2013, Industrial level, performance criteria A Electrical equipment for measurement, control and laboratory use.
Safety:	EN 61010-1:2010, Safety requirements for electrical equipment for measurement, control, and laboratory use

The Technical Construction Files are maintained at;

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Date of issue: Sept 19th, 2018

Place of issue: Woerden, the Netherlands

Authorized by:

P.W.J. Dijkstra

Title of authority: Director

[1] Conducted emission complies with Class B (household equipment)