



## The Company

Advanced Broadcast Components Ltd. is located in Hildesheim, Germany and operates since June 2005.

## Mission

*“building the best digital-terrestrial broadcast measurement receivers available in the marketplace”.*

## History

The directors of Advanced Broadcast Components Ltd. started the company in 2005 by acquiring all intellectual property to build the AdCoCom 4T2 DVB-T Portable Test Set under the ABC brand name.

Since then, more than two hundred measurement systems have been sold to clients across Europe and overseas.

Following the company mission, the products underwent a wealth of improvements, maintaining cutting-edge performance combined with outstanding durability.

## Capabilities

Advanced Broadcast Components Ltd. is a technology-driven company, with all resources tightly focused on designing and manufacturing RF-measurement receivers for digital terrestrial broadcasting. The core competences span design, assembly, and sales of the products.

Advanced Broadcast Components Ltd. is adherent to the principle of lean thinking in all company functions. Although being small in personnel, the company possesses an exquisitely furnished state-of-the-art laboratory.

All measurement product is operating on a windows platform, thus enabling the utilisation of industry standard components, and applications.

All design of measurement hardware and software is done in-house, ensuring ABC receivers are not merely assembled product, but unique in performance and functionality.

MPEG baseband analysis on multiple quality levels is available through in-house development, or through co-operation with specialist companies, like Thomson/Grass-Valley, Dektec, DVBControl, or Decontis.

## 4T2™ DVB Test Set

The 4T2™ DVB Test Set is the most accurate, compact, and robust measurement solution for DVB-T, and DVB-H available today.

The portable system combines real-time measurements of OFDM modulation parameters with transport stream analyser functions in an easy to carry instrument.

The rack mounted systems are offering the same features of the portable one, but add remote control and monitoring functionality essential for remote transmitter sites.

As the only instrument available on the market, a single 4T2 integrates

- Modulation analysis, with constellation, MER, and EVM vs Carrier displays in real-time
- Bit Error Rates with Level and MER data logging
- Spectrum analysis with mask and marker support
- Impulse Response analysis with individual transmitter power measurements in an SFN
- Multi-channel coverage analysis on a map, combining data of up to three diversity receivers with position information from GPS and pulse encoders
- Diversity receiver input with transport stream to IP streamer
- Transport stream software decoding, supporting MPEG-2 and MPEG-4 in standard and high definition, and display on built-in 1280x800 screen
- MPEG Transport Stream analysis, playback and recording
- DVB-H analysis suite
- Signal generator with COFDM RF output, variable signal and noise levels, and channel emulation features



## Training

If used right, an integrated measurement system like the 4T2 can be an indispensable, powerful tool to engineers in the field.

At ABC, training on a 4T2 is not just seen as one part of after sales support, but as essential to the development of the product.

The training is conducted by the engineers that have designed the 4T2, and the user feedback during training sessions has many times found a way into today's product.

A 'standard' training session for approx. 10 engineers usually spans two days with a short generic explanation of the transmission format and measurement principles, and an in-depth, hands-on training on the actual machines, trying to focus on real-world measurement examples. Training literature is available in English or German, other languages are available on request.

## Quality assurance

All ABC measurement receivers are calibrated and 100% functionally verified before shipment.

ABC is operating several identical stations used for calibration and corresponding protocol generation.

Each of the two calibration stations consists of the equipment below:

Manufacturer	Type	Description
Rohde & Schwarz	SFL-T	DVB-T/H Signal Generator
ProTelevision Technologies	PT5780	DVB-T/H Modulator with RF output
Hewlett Packard	HP436A	Power Meter
	HP8481A	Power Sensor
MiniCircuits	ZFSC-2	Splitter
	ZHL-2	Linear Amplifier
APC		Uninterruptible Power Supply

Every station is cross-referenced with its twin in a monthly cycle, and is calibrated by an accredited laboratory once a year.

ABC maintains a logbook of every 4T2 built, containing the manufacturing dates and configuration, including any modifications, or service after being delivered.

For 24 months after delivery, all ABC products are warranted free from defects.

ABC strives to constantly improve their equipment and does frequently announce upgrades on the company website.











It is company policy to provide all software and firmware upgrades free of charge for the lifetime of the equipment.

Since 2001 when the first 4T2 had been sold until today, software has been kept compatible and no client has been charged for software upgrades.

### List of 4T2 systems delivered to their corresponding clients between 2005 and 2009

2010	Month	Quantity	Client			Country
	1..3	40	RAI Way		Broadcast Network	Italy
2009	8..12	50	RAI Way		Broadcast Network	Italy
	5	3	RTM Malaysia		Network Provider	Malaysia
	3	3	Thomson / Grass Valley		Equipment Manufacturer	France
	1	2	BSD		Broadcast Network	Denmark
	1	1	ORS		Broadcast Network	Austria
2008	12	8	RAI Way		Broadcast Network	Italy
	10	3	RAI Way		Broadcast Network	Italy
	8	1	TAKTA/IRIB		Broadcast Network	Iran
	07	18	RAI Way		Broadcast Network	Italy
	04	3	Ministero delle Comunicazioni		Regulation Authority	Italy

03	1	ERTU		Broadcast Network	Egypt
03	5	Bundesnetzagentur		Regulation Authority	Germany
01	1	TAKTA/IRIB		Broadcast Network	Iran
01	1	UMobile		DVB-H Operator	Malaysia

2007	Month	Quantity	Client			Country
	09	1	Larcam		Equipment Manufacturer	Canada
	08	1	Bulgarian Telecom		Broadcast Network	Bulgaria
	07	8	Österreichische Rundfunksender (ORS)		Broadcast Network	Austria
	05	1	Kvant Efir		Network Installer	Ukraine
	04	4	The Bridge Networks		Network Installer	Australia
	01	1	Croatel		Broadcast Network	Croatia
	01	1	Larcam		Equipment Manufacturer	Canada
2006	Month	Quantity	Client			Country
	11	1	Kvant Efir		Network Installer	Ukraine
	10	1	Ibercom		Equipment Re-seller	Spain
	10	1	ACE-Solution		Service Provider	Taiwan

10	1	Landesmedienanstalt Düsseldorf		Government Body	Germany
07	1	Digital Multimedia Technology		Equipment Manufacturer	Italy
06	5	ProTelevision Technologies		Equipment Manufacturer	Denmark
06	1	Thomson / GrassValley		Equipment Manufacturer	France
04	1	GARV		Government Body	Germany
04	1	T-Systems		Network Provider	Germany
04	2	Thomson / GrassValley		Equipment Manufacturer	France
03	1	TEN Network		Broadcast Network	Australia
02	21	Rai Way		Broadcast Network	Italy
02	1	ProTelevision Technologies		Equipment Manufacturer	Denmark
02	1	The Bridge Networks		Network Installer	Australia
<b>2005</b>	<b>Month</b>	<b>Quantity</b>	<b>Client</b>		<b>Country</b>
	12	1	EmiTel		Network Provider Poland
	12	1	Tandberg		Equipment Manufacturer Germany
	12	1	T-Systems		Network Provider Germany
	12	2	RTM Malaysia		Network Provider Malaysia
	11	1	Ibercom		Equipment Re-seller Spain
	11	5	BSD Broadcast Services		Network Provider Denmark
	11	1	T-Systems		Network Provider Germany

11	2	Westdeutscher Rundfunk		Network Provider	Germany
09	1	Channel 7		Network Provider	Australia
09	1	Digital Multimedia Technology		Equipment Manufacturer	Italy
08	5	BSD Broadcast Services		Network Provider	Denmark
06	4	Elti		Equipment Manufacturer	Slovenia

## List of equipment used in R&D, service, and production

### R&D, DVB specific instruments:

Manufacturer	Type	Description
Tektronix	MTG 300	MPEG Signal Generator
Thomson	Mercury	MPEG Signal Generator / Analyser
Rohde & Schwarz	DVG	MPEG Signal Generator
Dektec	StreamXPert	MPEG Signal Generator / Analyser
Rohde & Schwarz	SFQ	DVB-T Signal Generator with noise and fading options
ProTelevision Technologies	PT5780	DVB-T/H Modulator with RF output
Unique Broadcast Systems	PT5780	DVB-T Modulator with RF output
ABE Elettronika		DVB-T Modulator with IF output
Teamcast	SOD100	DVB-T/H Signal Generator with noise and fading options (2 units)
ProTelevision Technologies	PT5879	MIP-Insertter

### R&D, Generic instruments:

Manufacturer	Type	Description
Hewlett Packard	8566B	Spectrum Analyser 100 Hz - 22 GHz (reference)
Agilent	8594E	Spectrum Analyser 9 kHz - 2.9 GHz
Anritsu	MS8604A	Digital Radio Transmitter Tester 100Hz - 8.5 GHz
Hewlett Packard	5351B	Microwave Frequency Counter - 26 GHz
Hewlett Packard	8753ES	S-Parameter Network Analyser 30 kHz - 3 GHz
Aeroflex	2026	Multisource Generator 10 kHz - 2.4 GHz
Eaton	2075	Noise Gain Analyser
Hewlett Packard	HP436A	Power Meter
	HP8481A	Power Sensor
	HP8483A	Power Sensor 75 Ohm
	HP8494A, 95A	Attenuators
LeCroy	DDA 120	Digital Oscilloscope 8 Gs/s, 16 Mpt. including LeCroy active differential probe
Hewlett Packard	1672G	Logic Analyser
Agilent	34401A	Digital Multi-Meter

It is ABC policy to own the technology required to build the measurement products. Although the population of printed boards is generally outsourced, ABC possesses the required SMT oven-, and hot-air-soldering equipment to populate, or re-work PCBs in house. Appropriate optical equipment is available for visual quality control.

### Equipment used in service and assembly:

Manufacturer	Type	Description
Agilent	E4403B	Spectrum Analyser 9 kHz - 2.9 GHz
Pico technologies	Scope 1000	USB oscilloscope (2 units)
LeCroy	DDA 120	Digital Oscilloscope 8 Gs/s, 16 Mpt.
Tektronix	2246	100MHz analogue oscilloscope
Sipronika	SAT520FRQ	GPS disciplined reference oscillator
Schleuniger	HC207	Programmable coaxial cable stripper
Suhner		RF-connector crimping tools
QHL	320A	SMT programmable reflow oven
CXG	853	Hot air re-work station
Pace, Weller		Several soldering stations
Wille		Stereo zoom microscope
Bonnscope	SZM-7T-STL 2	Trinocular stereo zoom microscope with USB camera Tripod with colour c-mount usb camera and lens