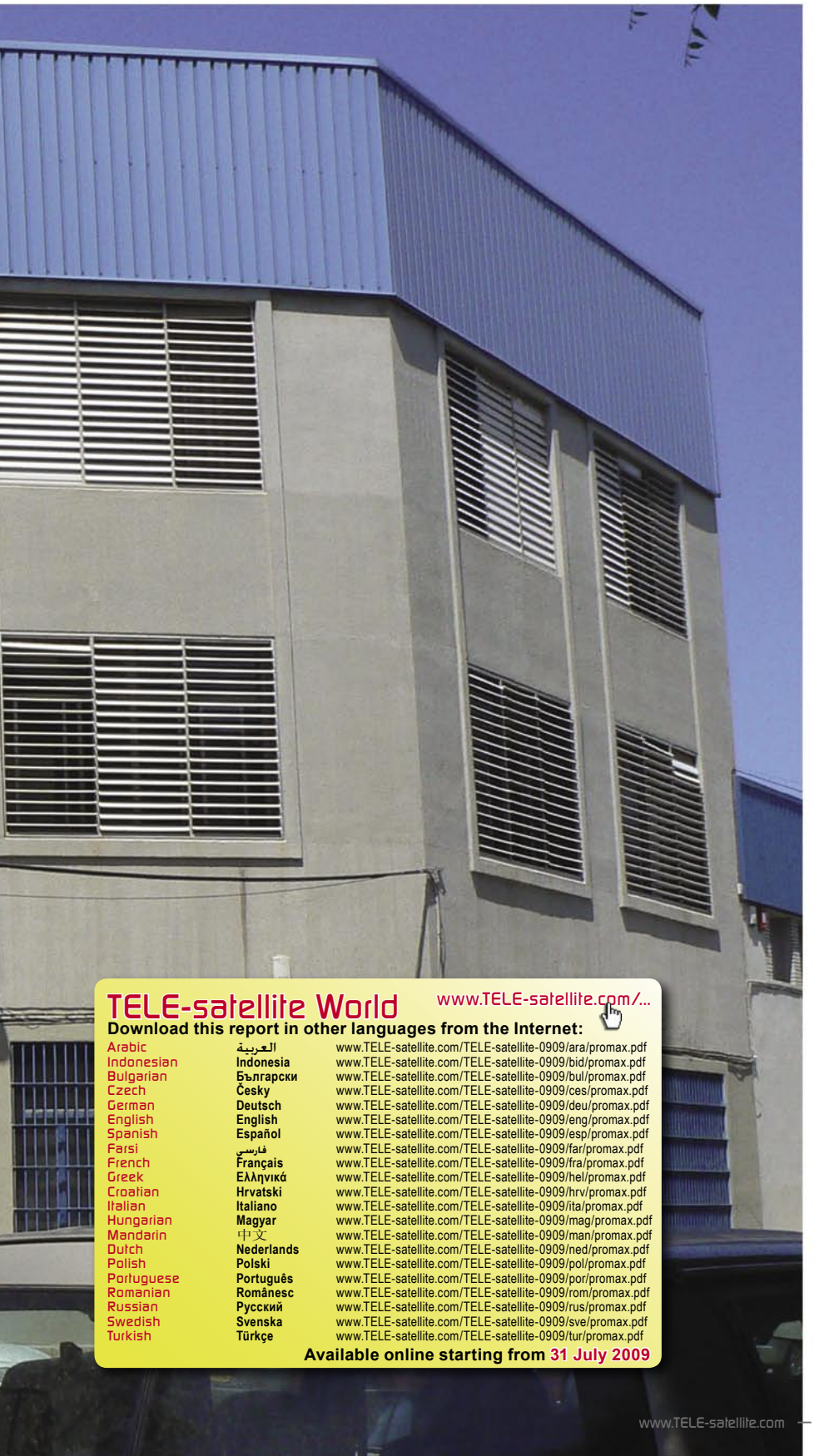
PRO

■ Founder and owner of PROMAX, José Clotet

MAX

The Four Divisions of PROMAX

TELE-satellite readers have known about PROMAX's reliable, widely used satellite signal analyzers for many years now. They are recognizable by their characteristic yellow color. But PROMAX has much more to offer: their products range from those that you already know to signal processing products all the way to end-user signal distribution components. PROMAX covers so much that we wanted to take a closer look at what they're all about so off we went to one of the most lively tourist cities – Barcelona. Up until 1981, PROMAX called downtown Barcelona home, but then they moved out to L'Hospitalet de Llobregat, a suburb that is easily reachable with the L1 Metro Line.



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Available online starting from 31 July 2009

■ **Partial view of the PROMAX fabrication and administration building in L'Hospitalet de Llobregat, a suburb south of Barcelona and close to the El Prat airport. A total of 6600 sq-m of space is at PROMAX's disposal. These buildings are occupied by 120 employees, of which 50 are in production, 30 in sales, 30 in R&D and 10 in administration.**

■ A look in the museum at an old training device: "That's how TV worked"

■ One of PROMAX's first products: a test pattern generator from 1964

José Clotet founded the company in 1963. That was only a few years after the first TV station came on the air in Barcelona. Suddenly, you had not only antenna installers but also then-existing TV manufacturers who needed signal analyzers and above all test pattern generators. In the first year PROMAX employed four engineers each of which developed their own unit. Production on these four newly designed units started the following year; in 1964 there were ten employees.

In 1968 a second TV station made its appearance in the UHF band. Again PROMAX was right there and began delivering the first UHF signal analyzers.

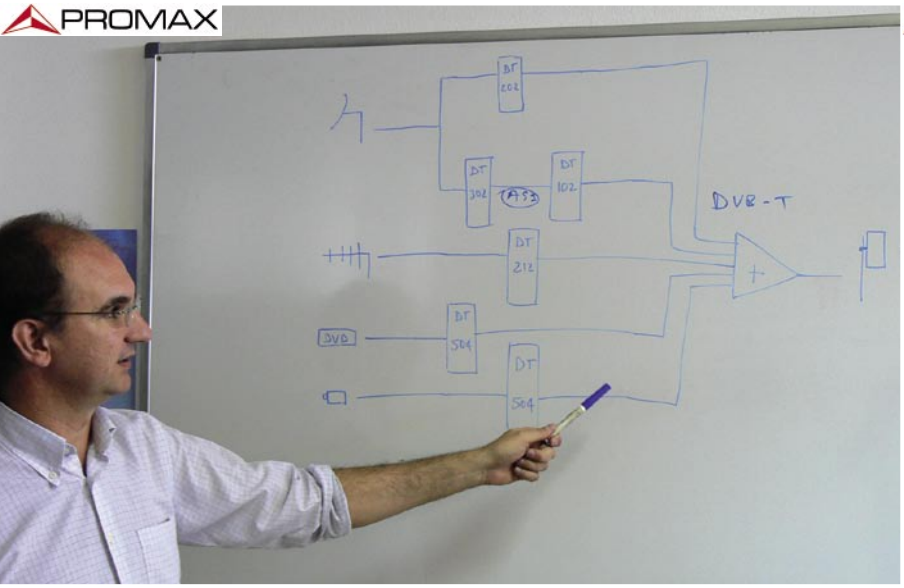
In 1986 it was another first for PROMAX: the first satellite signal analyzer and in 1993 the first microprocessor controlled universal analyzer that covered everything from VHF/UHF (including FM) to the satellite range.

Today PROMAX is still owned by José Clotet. In 2005 his son José-Maria Clotet took over business operations and in 2007 PROMAX was divided into four divisions: Test & Measurement, Broadcast, TV Distribution and Electronic Training.

That's quite an assortment and we asked José-Maria Clotet about the last one: "From the beginning PROMAX taught installers and engineers how to use our products." This service only made up about 10% of their sales but it has been a goodwill gesture by PROMAX that should not be underestimated.

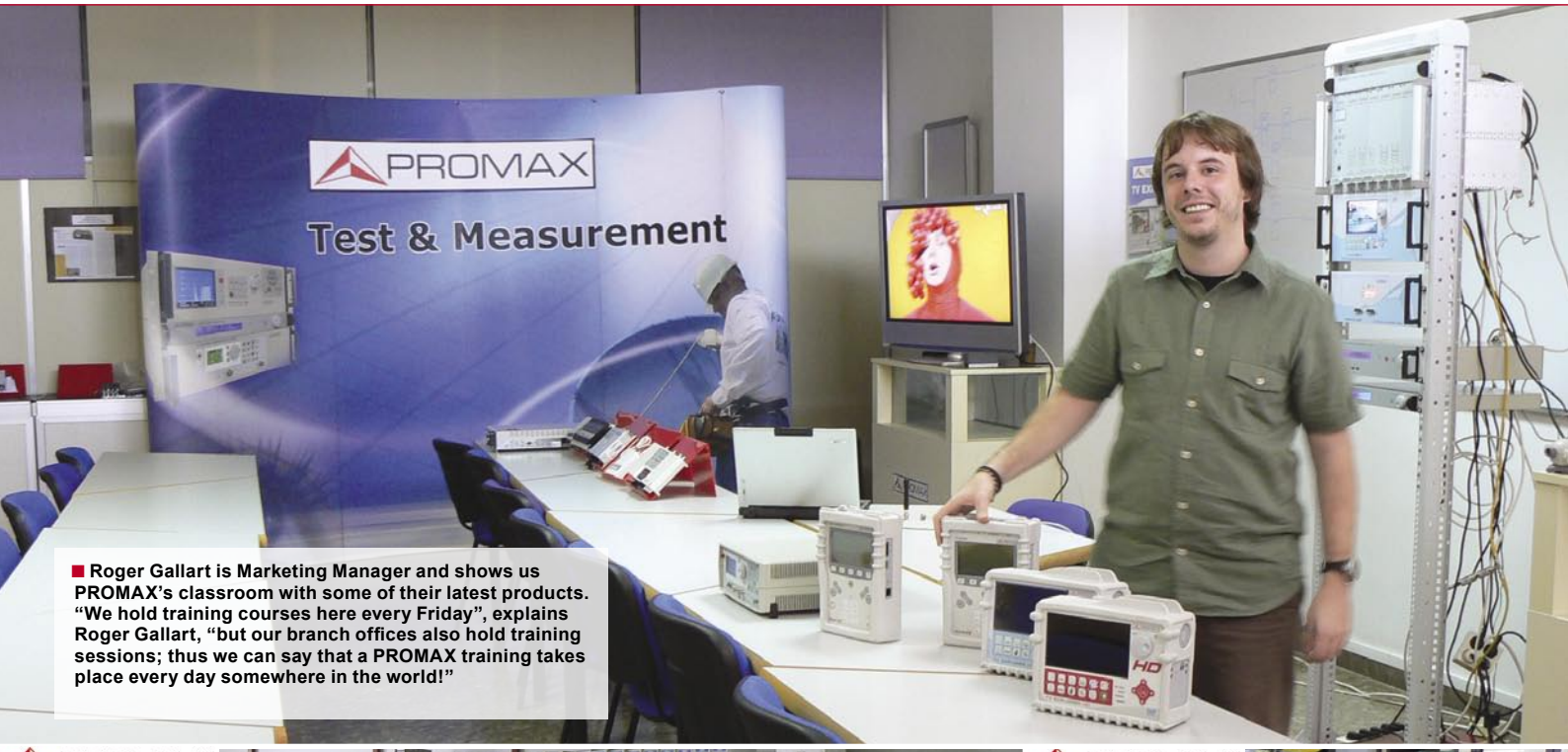
Obviously, much more important economically are their signal analyzers. "Roughly 30% of our sales can be attributed to signal analyzers", explains José-Maria Clotet. In 2009 the status of the TV Distribution division was greatly enhanced when PROMAX took over a local manufacturer of distribution products. "This division now also is responsible for 30% of our sales", comments José-Maria Clotet. The remaining 30% falls on the Broadcast division.

At first glance, there does not seem to be too much uniformity here. But as José-Maria Clotet explained the connection, the picture became clearer and the strategy could be seen. "We are strongly focused on DVB-T", says José-Maria Clotet, "Our strong points have always been the reception side with our signal



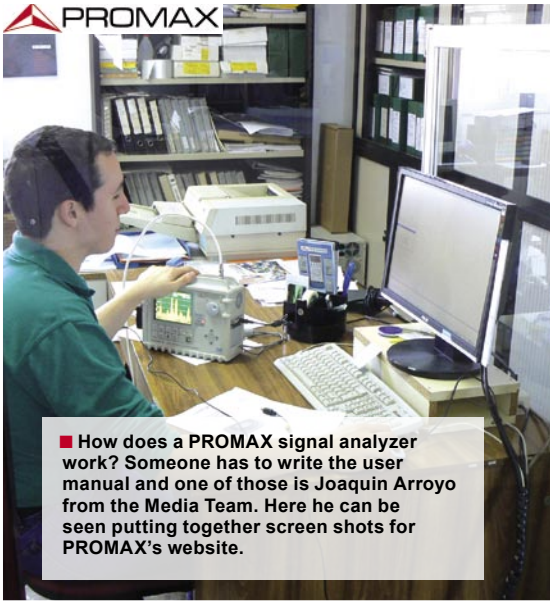
■ José-Maria Clotet, PROMAX's CEO, explains the basic idea behind the PROMAX strategy: the four possible reception sources – satellite, antenna, video sources (e.g. DVD) or live camera – are PROMAX amplified and modulated and routed using DVB-T technology wirelessly or via cable.

■ The theory is demonstrated via an actual connection: each slot represents a possible signal source. At the other end you get a combined signal in DVB-T.

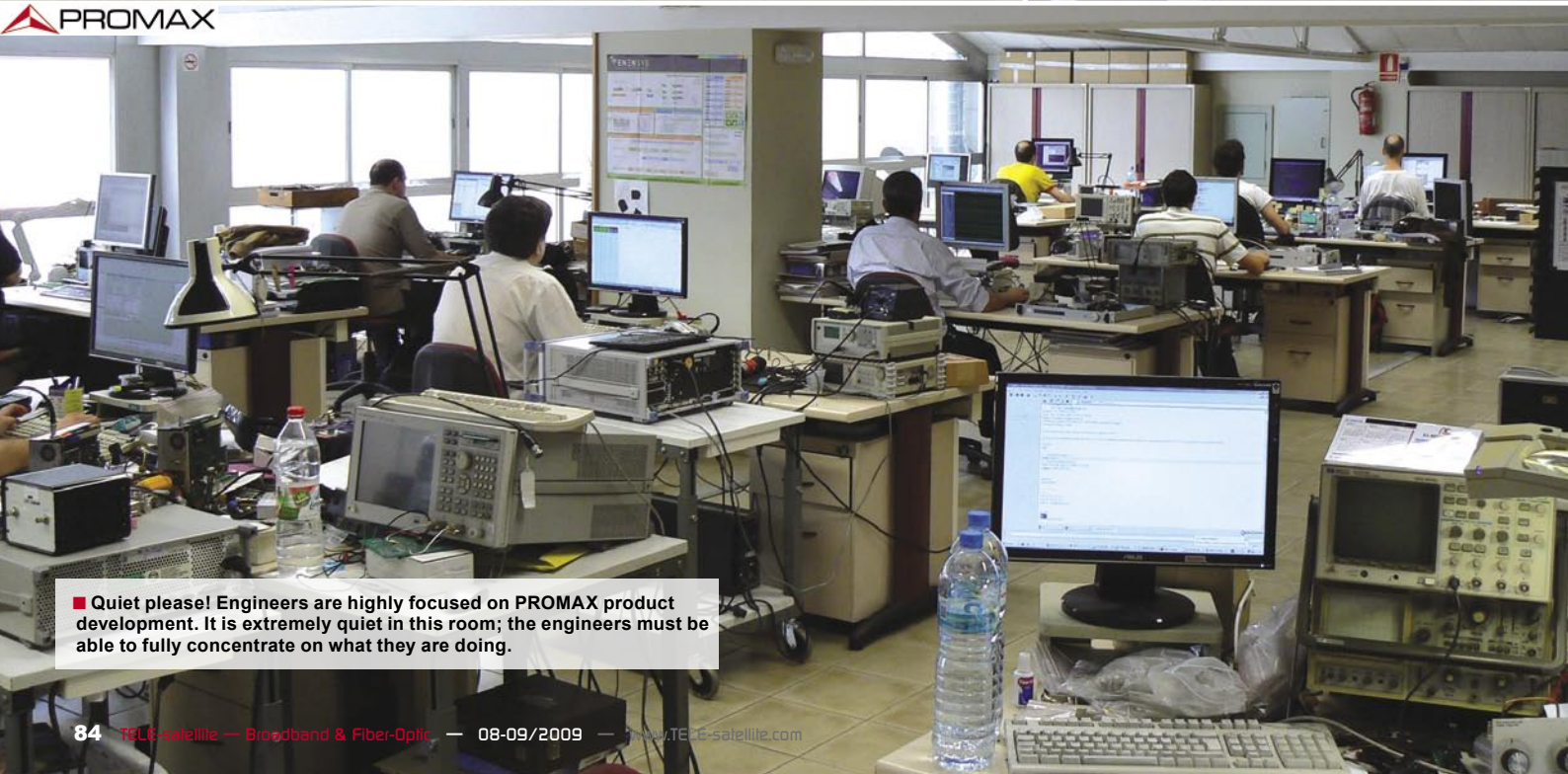


■ Roger Gallart is Marketing Manager and shows us PROMAX's classroom with some of their latest products. "We hold training courses here every Friday", explains Roger Gallart, "but our branch offices also hold training sessions; thus we can say that a PROMAX training takes place every day somewhere in the world!"

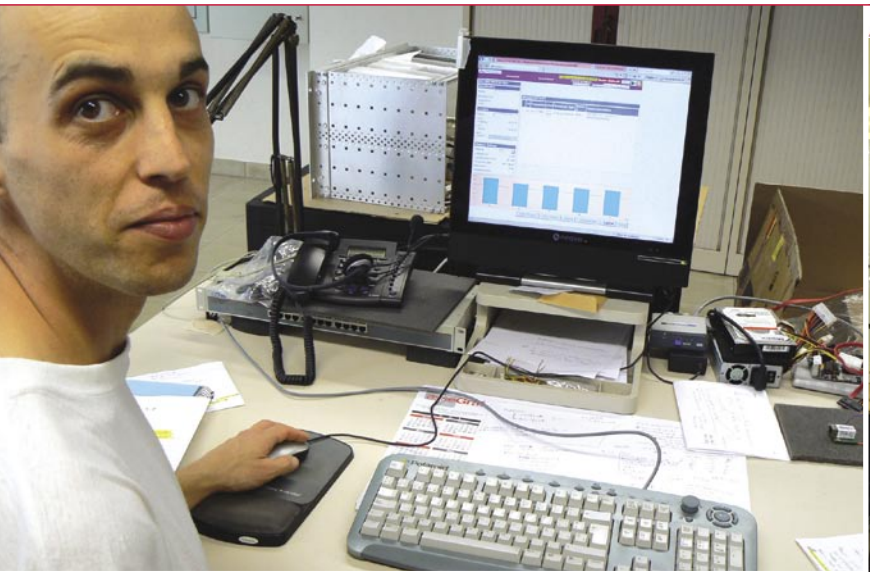
■ No time for the camera: the International Sales Team corresponds with international customers. One third of PROMAX's sales are domestic, another third go to Europe with the remaining third going to the rest of the world. This ratio has remained relatively constant for many years. Of course, PROMAX delivers products matched to the region they go to, for example, ATSC to North America or DMB-TH to China.



■ How does a PROMAX signal analyzer work? Someone has to write the user manual and one of those is Joaquin Arroyo from the Media Team. Here he can be seen putting together screen shots for PROMAX's website.



■ Quiet please! Engineers are highly focused on PROMAX product development. It is extremely quiet in this room; the engineers must be able to fully concentrate on what they are doing.



■ As a DVB-T specialist, PROMAX provides a special service: the testing of the transmitted signal. The Spanish General Direction for Telecommunication uses PROMAX products and software to not only technically verify the transmitted DVB-T signals but also to detect any illegal transmitting stations. Scattered throughout the country are automatic monitoring stations that can be accessed by technicians through a network. A reference station was also installed at PROMAX and can be seen here in this photo.

■ With just a few mouse clicks, the technician can test from a distance the DVB-T reception of any of these stations, verify the signal strength and measure any necessary parameters.

■ PROMAX's component storage room: these enormous cabinets that reach up to the ceiling contain millions of prefabricated parts, the way they will be mounted on a circuit board by the SMD Assembly machine. Juan Carlos Villar is in charge of the operation of this storage system in which the storage containers can be moved to the required positions with just the push of a button.

■ A look in the actual production area: PROMAX operates with two SMD lines that assemble the components on the circuit boards fully automatically. Human workers are only needed for quality control.

■ Optical Quality Control. Everything takes place in a clean room rated at 70ppm: this is similar to the requirements found in a hospital operating room.

■ The finished boards are mounted in a housing. And just like that, a signal analyzer is finished. Raul Ramírez performs final inspection and calibrates the finished products.

analyzers and the broadcast side with our signal processors for controlling the signals that were produced." What has been missing up to this point was the section in between – the connection from reception (antenna) to receiver (TV). This is where DVB-T comes into play: "We are convinced that DVB-T is the optimal transmission technology for many applications", says José-Maria Clotet, "You can transmit TV signals either in analog – this is yesterday's technology – or in QAM multiplex. This is complex and expensive since the end user would need a new cable receiver. IPTV is another option but is also very expensive and complex."

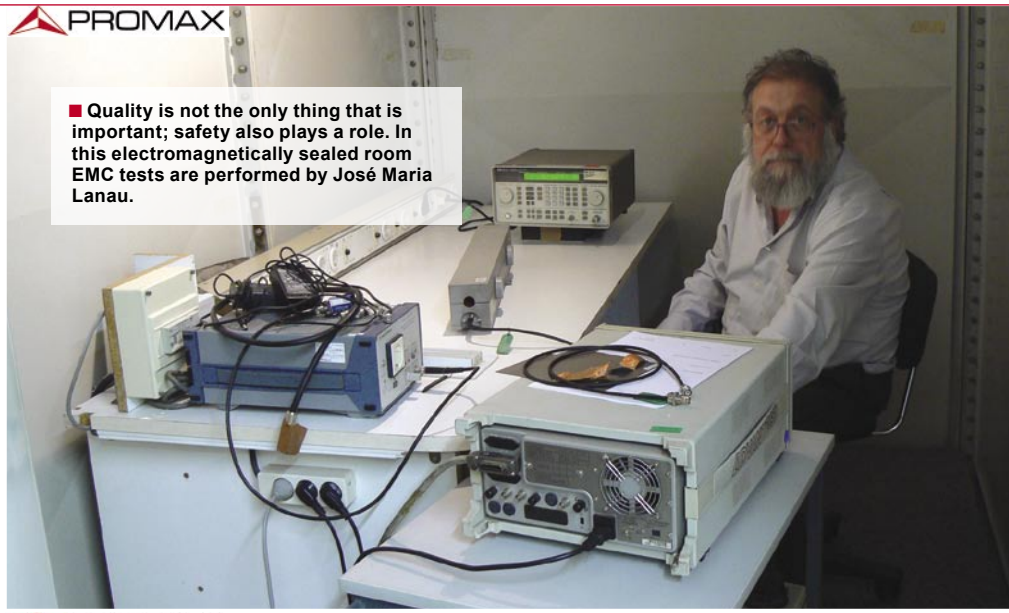
As DVB-T (or similar digital standards as ATSC and DMB-TH) will eventually become the overall terrestrial standard, for PROMAX it is obvious: DVB-T has to be used in cable distribution technology as well. TV's with built-in DVB-T tuners are already standard in many countries. What has been missing up until now has been DVB-T based signal distribution products. Now we can see why PROMAX expanded the way they did: the Broadcast division produces generators and modulators for DVB-T and the TV Distribution division provides the necessary DVB-T distribution products.

This was not only a logical move for PROMAX, technologically it also made sense: "DVB-T is extremely robust – even with old coax cable and with large signal attenuation, DVB-T still offers enough reserves", explains José-Maria Clotet regarding the advantages that DVB-T, originally conceived for wireless distribution, offers even when used with cable distribution systems.

At PROMAX the melding of all these technologies is clearly noticeable: it no longer makes any sense for there to be a separation between satellite, cable and terrestrial signal distribution. For each application there is a different optimal solution and it is becoming more and more a hybrid solution stemming from different areas.

PROMAX has clearly paced itself for this future and as José-Maria Clotet puts it, "15% of our sales are invested in research and development."

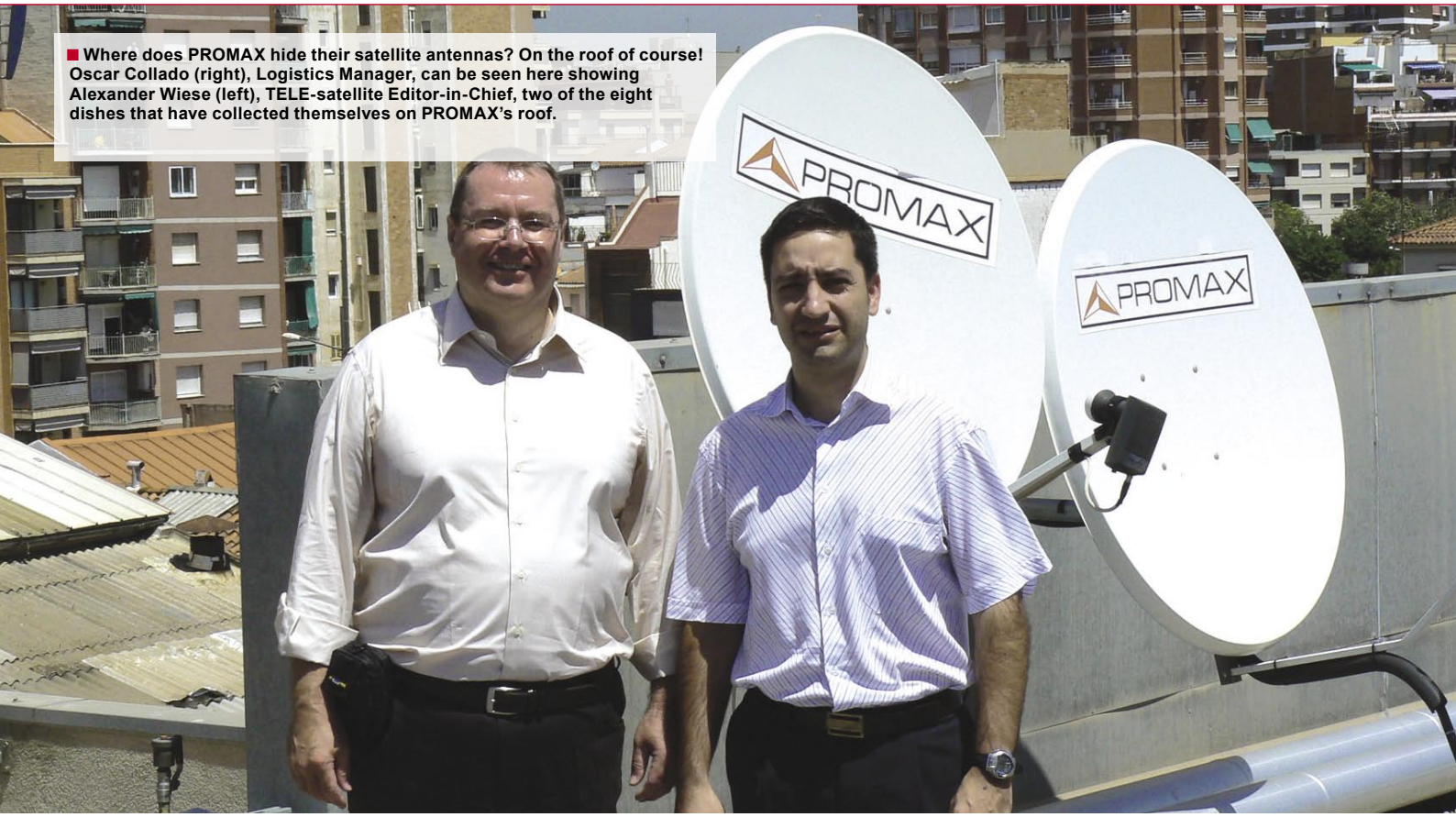
That's where innovations come from!



■ **Quality is not the only thing that is important; safety also plays a role. In this electromagnetically sealed room EMC tests are performed by José Maria Lanau.**

■ **Packing takes place here: roughly 100 shipments on average leave PROMAX every day for delivery all over the world.**

■ **A special section named Servicio Tecnico PROMAX (PROMAX Technical Service) deals with defective products sent back from installers. Miguel Calvo (left) and José Antonio del Rio (right) are some of the responsible employees.**



■ Where does PROMAX hide their satellite antennas? On the roof of course! Oscar Collado (right), Logistics Manager, can be seen here showing Alexander Wiese (left), TELE-satellite Editor-in-Chief, two of the eight dishes that have collected themselves on PROMAX's roof.

PROMAX Innovations

New products that PROMAX developed in 2009 and is introducing to the market

2

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1. The new TV EXPLORER receives not only HD signals in DVB-S2 and MPEG4, but also displays them all, including 720p and 1080i channels, on its built-in 16:9 monitor.
Since many of these channels are encrypted, the TV EXPLORER HD comes with a CAM interface so that these channels can be decrypted.

2. PROMAX developed the TV HUNTER for those installers that work really fast. It is small, handy and extremely easy to use.
The TV HUNTER was conceived for DVB-T signals; a similar unit was developed for satellite signals: the SAT HUNTER

3. The PROMAX AGIL-T is a channel-specific amplifier for digital and analog signals. It is compatible with every form of modulation and its unique selling point is the 10 programmable UHF filters with a bandwidth from 1 to 6 channels.
The AGIL-T is also available with a satellite IF input.

3