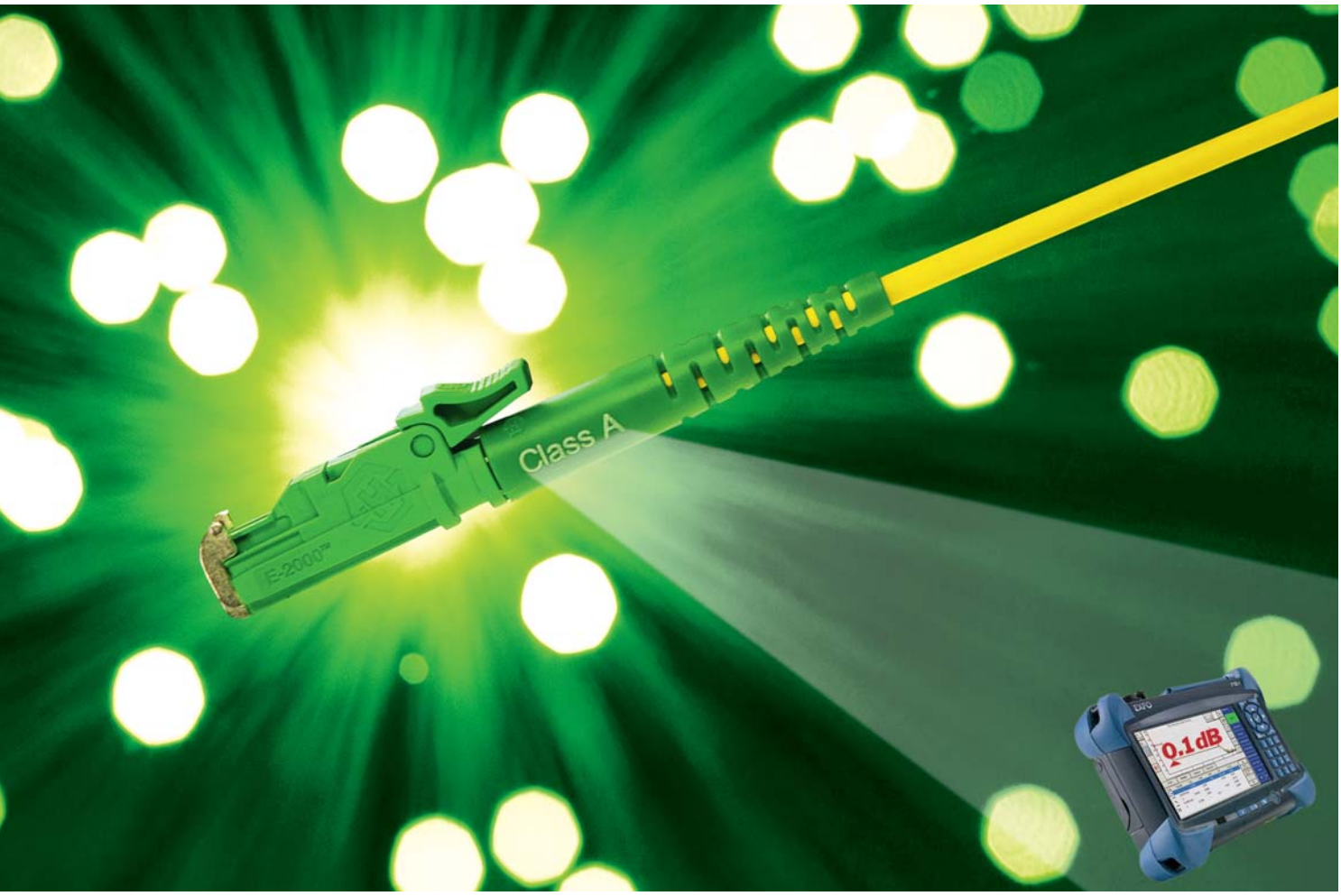
fibre optical components GmbH

At the speed of light into the future.



foc flash-light

March 2012

foc flash-light

Contents

Editorial

Photo: Rico Prauss

Has the world of telecommunications with its applications itself sufficient driving force to push ahead the deployment of broadband networks? If you have a look at the statistics and reflect on the lectures and discussions of the FTTH Council Europe in Munich, Germany, the answer is a univocal NO as far as the situation in Germany is concerned.

However, regional developments in order to keep up with the worldwide "normality" were clearly recognisable in Munich. Munich has set itself the aim of connecting half of the city, i.e. about 350,000 homes, via optical fibres by 2013. The city utility works and the Mnet regional carrier are investing approximately € 250 million into the required development of the infrastructure.

So there they will probably be able to achieve the aim of the EU, which stipulates that all European citizens shall have Internet access at 30+Mbps and that 50% of the population shall have 100 Mbps connections. This deployment will be implemented via optical fibre, which is in the interest of the FTTH Council.

However, a deployment requiring such tremendous investments must not be performed as an end in itself only, just for achieving symmetrical and high telecommunications data rates.

Apart from existing applications such as the fast development of cloud technology, the field of telecommunications applications needs to be left. And you do not justice to the importance of broadband access for each home, just by achieving arbitrarily fixed targets and by their political proclamation.

Investments in an all- secure energy supply of the future are not sustainable without intelligent networks. This fact has already become a political guideline in many countries and is motivating investors, as we have seen during our activities within the framework of the Renewable Energy Development Hub – KwaZulu Natal project.

After nine months we can confirm that no problems have been reported during the operational introduction of our LSH HRL Class A connector. The data base, which in the meantime includes many tens of thousands of connectors, shows clearly that our concept of providing connectors for the most stringent requirements is right and that the additionally introduced technology has proven its performance and compatibility under real-world conditions. We will continue to make every endeavour to create a broad basis for their use and for a traceable and application-related quality control together with users, suppliers and independent institutions. I would like to take this opportunity to thank all active partners for their contributions.

Christian Kutza, Managing Director

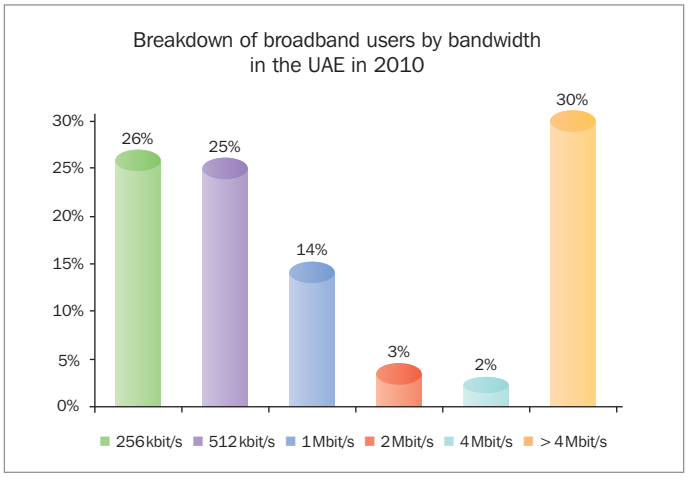
FOC at GITEX in Dubai

FOC fair stand at Gitex in Dubai 2011

The United Arab Emirates have developed to become a major economic area in the Arab region. In spite of the 2008 crisis the enthusiasm for innovation continues to be at full swing in the Emirates. This can be seen in the major fairs from different industries held there.

International platforms offer new opportunities

The telecommunications market plays a major role in the economy of the UAE with an investment volume equivalent to €1,687 million (source: UAE Telecommunications Regulatory Authority) and a share of 5.3% in the GDP in 2010. The mobile radio segment holds the biggest share in the turnover in telecommunications, followed by fixed network. However, the Internet offers the biggest potential for the future. From 2009 to 2010 alone, the turnover in the Internet segment rose by 8% to reach a total of €587 million in 2010. The share of broadband users with a bandwidth of more than 4Mbps increased from 1% in 2009 to 30% in 2010.



Source: Telecommunications Regulatory Authority

For the first time at Gitex, FOC presented its lilix reflector together with its partner IKD. The lilix reflector made by FOC is a passive optical component and plays a major role in the permanent monitoring of fibre-optic networks.
With its service portfolio in the fields of analysis, planning and implementation of fibre-optic networks our partner IKD offered potential customers an additional, attractive solution.

Most visitors to the FOC fair stand were interested in seeing the lilix demonstration system simulating a passive optical network (PON) with a total of 32 subscribers. Each of the ports is fitted with a reflector reflecting the signal of the optical reflectometer (OTDR) thus indicating the operational availability of the optical link. During a live demonstration of a simulated fibre break the visitors were able to see how the failure of one subscriber link was detected and localised.

Christian Kutza, FOC Managing Director, gave a positive review of the past fair: "We were surprised of the formidable echo we received at the fair. This fair has shown us the impressive potential of fibre-optic technology in the Arab countries. The fair has been a huge success and by far exceeded our expectations."
The next issue of Gitex will be held from 14th to 18th October 2012 in Dubai.

Stefan Nier

NGA forum of the German Federal Network Agency

Everybody does what he pleases… but nobody what really is right. This is the motto under which currently networks consisting of undefined, non-standardized network components are deployed in Germany. This situation also affects processes which define the later operation and non-discriminatory third-party access ("Open Access") to these networks.

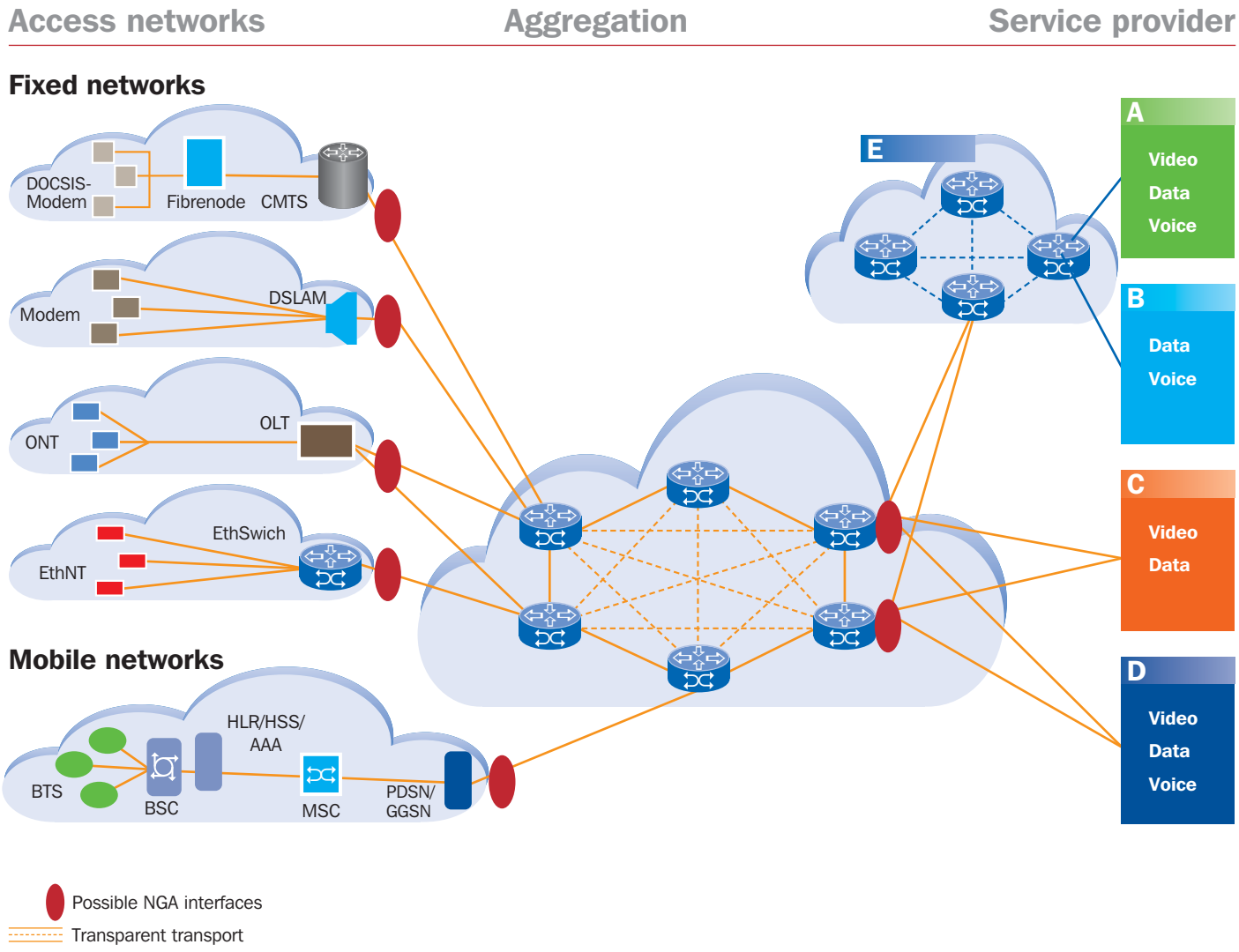


Figure 1 Optimum management of NGA network customers (source: NGA-Forum)

Figure 1 shows the structure of an NGA (Next Generation Access) network and the market participants required for its operation.

In order to prevent an uncontrolled development in the deployment and operation of future broadband access networks a body called Next-Generation-Access-Forum (NGA-Forum) was established by the regulating German Federal Network Agency in Bonn in 2010. Detailed information can be found in the Internet on their website at: http://www.bundesnetzagentur.de/cln_1911/DE/Sachgebiete/Telekommunikation/RegulierungTelekommunikation/NGAForum/NGAForum_node.html;jsessionid=759724937C7BAF372720E6D02C8181B1.

standardizes deployment and fault-clearance processes of future broadband access networks

Calculations performed by the NGA-Forum have shown, for example, that about EUR 70 to 80 bn will be required for a nationwide upgrade of all local community networks in Germany to fibre-optic cables (FTTH). More than 80% of the money would be needed for the related civil-engineering works for "burying" the cables in the ground. This amount could literally mean, that this technology with its almost unlimited bandwidth will be "buried", because none of the active German network operators has the economic power to shoulder this large investment on its own.

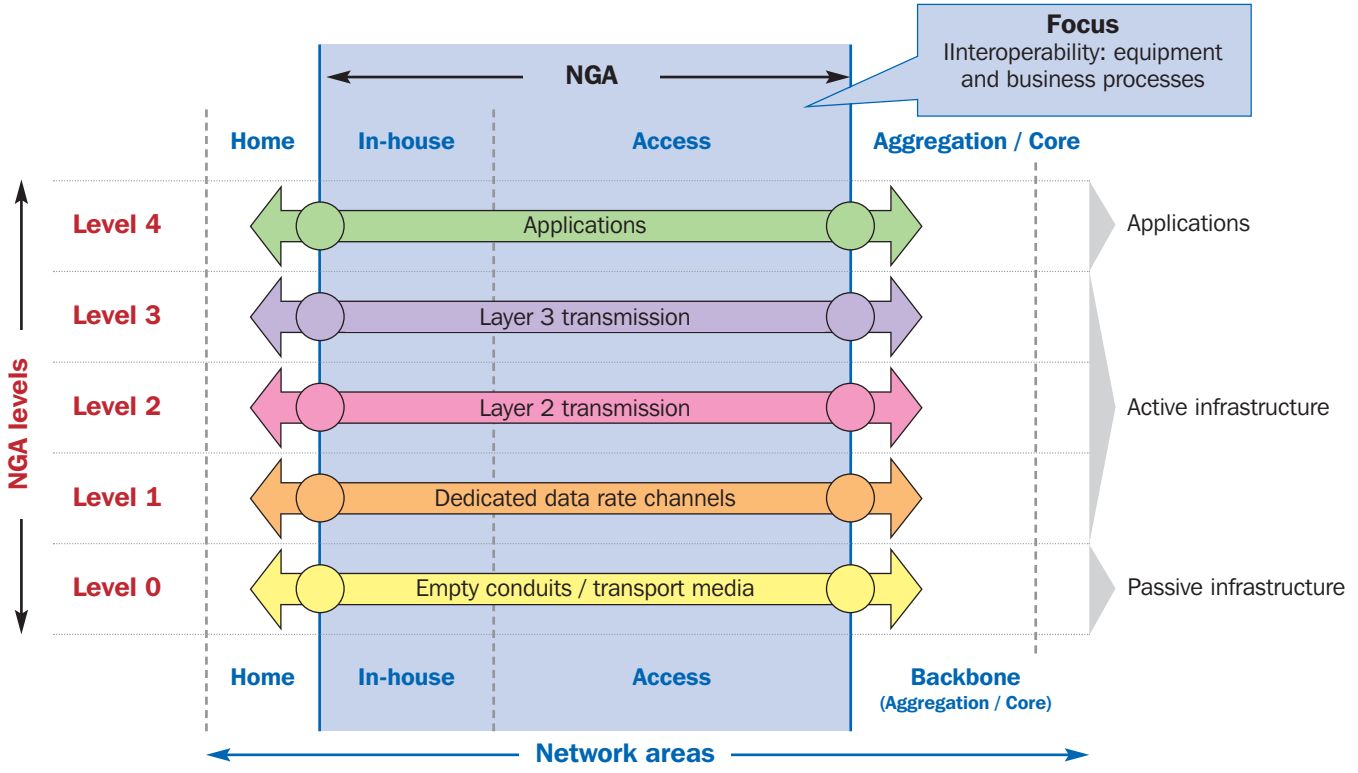


Figure 2 NGA levels (source: NGA-Forum)

An important step in order to sustainably shape the required investments is to standardize the technological and logistic interfaces for planning, building and operating such networks. Now the NGA-Forum has started to define the deployment (non-discriminatory access) and operation of NGA networks.

One issue the NGA-Forum dealt with in great detail until November 2011 had been raised in the Interoperability working group. As a result document L2-BSA IV-"Diagnosis Interface" (DIAGSS) was prepared. Section 2.3 (draft V0.9, dated 10/10/2011) describes the "getLineInfo" (INF) method designed to detect the status of a residential customer's port within an NGA access network.

The "getLineInfo" method retrieves the status information on the port from the status messages sent by the connected active equipment. This communication takes place within Levels 1 to 3 of the NGA Level Model (see Figure 2). However, this method requires that the underlying passive infrastructure (Network Level 0) is working flawlessly and the active equipment is connected, functional and enabled on both sides. The current draft of the diagnosis interface does not support checking the passive infrastructure in case of an active equipment failure or checking unused ports.

The DIAGSS needs to support status requests on all network levels.

Against the background of interoperability it would be desirable to limit the status requests sent to a port not to the active infrastructure only but to extend them to „Network Level 0" of the passive infrastructure. This is relevant, for example, to the suppliers of so-called wholesale products on Network Level 0. The following paragraph explains how a query of the passive infrastructure could be designed in detail at the diagnosis interface in order to support e. g. network monitoring on a purely passive level.

Figure 3 shows the process chart of the "getLineInfo" method

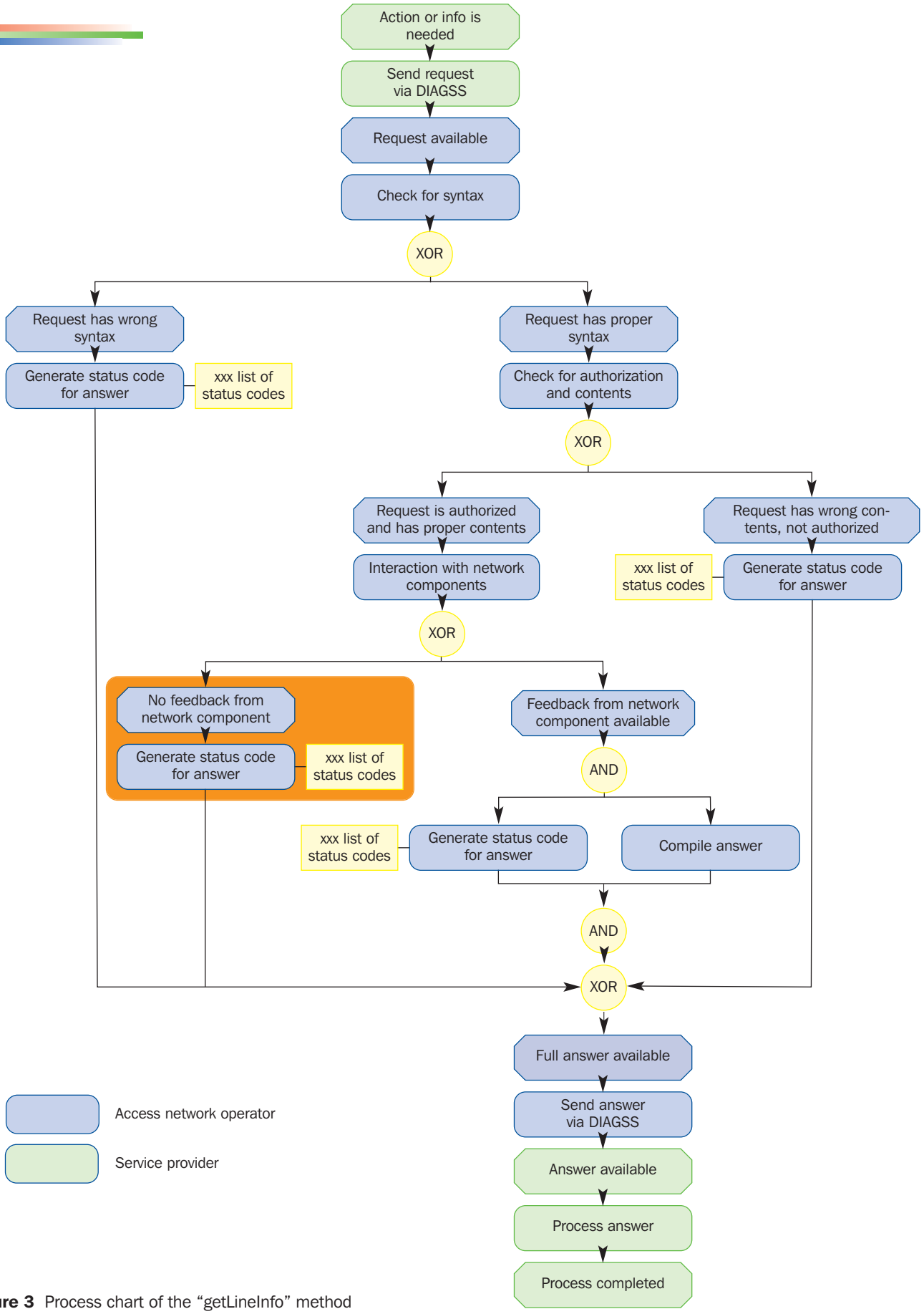


Figure 3 Process chart of the "getLineInfo" method

defined in the current draft of the interface including a supplement (in orange) which is meant to cover the passive infrastructure. This example takes the case into consideration, where no acknowledgement is received on the status request sent to the network components. Then a defined error code taken from the "Status Code List" (where this error code has to be added) is generated as a return value. Additionally the response parameters LineID and Reference (see Table 3 in the DIAGSS draft), which can be taken over from the request, shall be returned. An appropriate extension should also be made when the "setLineReset" method is used (not explained in more detail here). On the one hand, in this way it is guaranteed that the diagnosis interface will always generate a valid status message and that no status request is lost. On the other hand, the error code can be used together with LineID and Reference to systematically trigger a monitoring action on Network Level 0 upon failure of the active equipment, in order to check the passive infrastructure (i. e. the optical fibre) of a defined subscriber port.

The network monitoring principle on the passive level (Network Level 0) is shown in Figure 4. First a reflector is installed on each subscriber port as an additional element. This reflector is transparent for the traffic wavelengths and operates in a narrow monitoring band only. In combination with a backscatter measurement the reflection can be used to check the link from the Central Office.

Thus it is possible to detect faults in the passive infrastructure. These faults can be distinguished from faults caused by the active components (or the lack of active components) and from faults caused by the customer himself. For example it would be possible to request and determine the status of an optical fibre which was not operated for some time after a relocation of the customer and thus was not switched to an active broadband port.

Also a permanent status request of the link to the end-user and its acquisition and storage in a database is possible using passive network monitoring. Thus network operators will be able to prove the proper operation of their networks any time without much effort just by an automatically triggered test. Against the background of interoperability this capability will be of crucial importance in the future. After the wavelength range of 1625...1675 nm envisaged for network monitoring, the reflector and the WDM have already been standardized, in the mean time many network operators have performed laboratory tests on the new procedure and also gained initial experience with field installations.

The lilix FTTx reflector made by FOC has specifically been designed for passive network monitoring and fulfils all requirements of the IEC standard. It is available in several versions in order to enable an efficient and practical installation on the customer's port.

Tilo Kuehnel, FOC and
Dr. Martina Vitt, FOC

Optimum management of NGA network customers

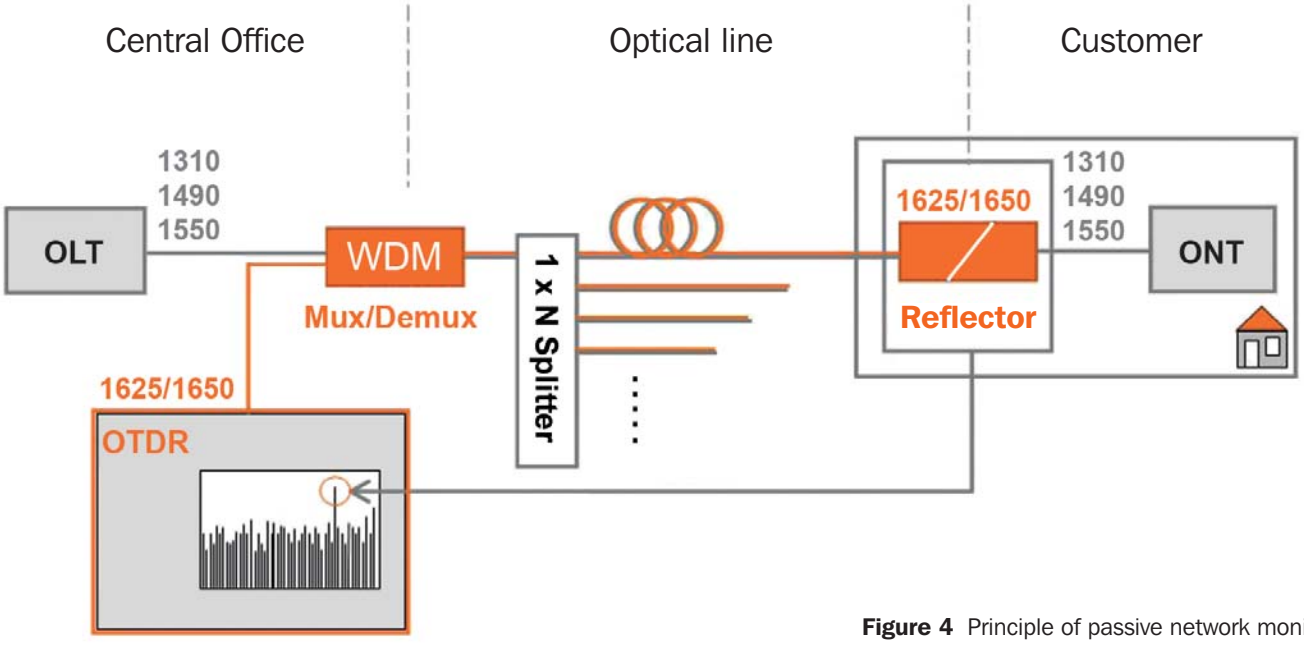


Figure 4 Principle of passive network monitoring

ITU-T Recommendation G.984.5, Amendment 1 (Monitoring volume), IEC 61753-041-2 Ed.1.0 (reflector), IEC 61753-089-2 Ed.1.0 (WDM)

Test setup

for performing comparison measurements on E-2000™ (0.1dB) and LSH-HRL Class A connectors

Background

In 2011 the company FOC launched an LSH connector system for which we guarantee a 100% optical compatibility with the E-2000™ (0.1dB) connector system from DIAMOND. The aim was to achieve insertion losses of 0.1dB against reference connectors and against LSH connectors terminated at Diamond and FOC and to guarantee these values in the running production without any selection.

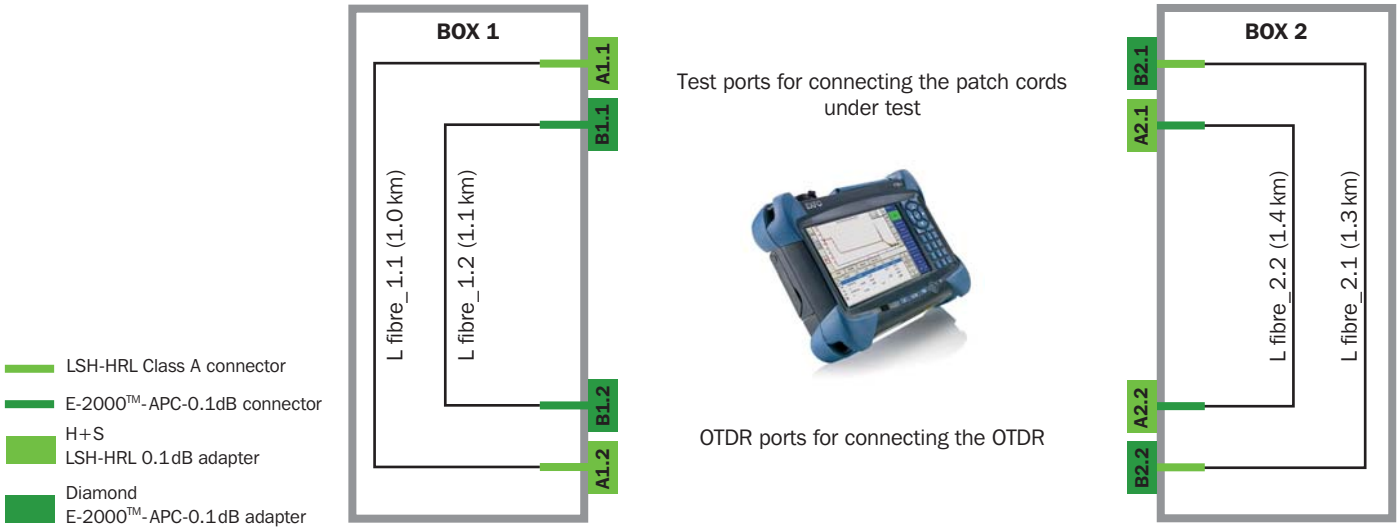
In the course of the commercial launch FOC provided its customer base with free sample patch cords with Class A connectors, in order to allow them to perform comparison measurements with the DIAMOND connectors used before.

After an analysis of the measurements performed by the customers using the most different test procedures and methods we frequently noted uncertainties with the test setup and analysis. For this reason we decided early in 2012 to implement a test setup and a test system providing meaningful measurement results using the so-called random procedure, where each connector is measured against each other connector. Since the customers rarely have optical loss test sets available allowing reproducible loss measurements according to DIN EN 61300-3-4 to be made, we have developed a test setup and operational instructions on the basis of OTDRs. The advantage is that the customers can use the OTDR units they mostly have at their disposal, anyway. As an option the customer may also use OTDR units provided by FOC. The customer also can either borrow the test setup from FOC or perform the measurements together with an FOC engineer. Depending on the number of patch cords to be measured the test results may be available within one working day already. Thus the customer will incur almost no additional effort and, most of all, no cost.

Test setup

The test setup consists of the following components, units and tools:

- 4 launch fibres for simulating the link lengths, each connectorized with one E-2000™ (0.1dB) on the A side and one Class A connector on the B side.
- 2 Vario boxes each containing 2 E-2000™ (0.1dB) and two Class A freed-through adapters.
- Cleaning tools and agents for cleaning the connector end-faces.
- 1 OTDR (Optical Time Domain Reflectometer) unit with FC/APC-to-E-2000™ adapter (provided by FOC on request).



- 1 video microscope for inspecting the connector end-faces.
- Several patch cords, at least in the following configurations:
  - Patch cord 1,2 m, Diamond (0.1 dB) connector on both ends, connectors numbered
  - Patch cord 2,2 m, Diamond (0.1 dB) connector on both ends, connectors numbered
  - Patch cord 3,2 m, Class A connector on both ends, connectors numbered
  - Patch cord 4,2 m, Class A connector on both ends, connectors numbered

Test procedure

In order to achieve comparable results with the random test method, defined procedures have to be followed:

1. The connectors have to be cleaned before and after each mating cycle at the patch panel using the provided cleaning tools and agents.
2. The connector end-faces should be inspected at least randomly using a video microscope. Loss values of >0.25 dB per mated connection always require an inspection to be made.
3. With each measurement configuration two OTDR test wavelengths at 1310 nm and 1510 nm shall always be used.
4. Use of an Excel tool for collecting and analysing the test results.

Below the individual test configurations / series are presented which allow you to achieve comparable test results at the end of the test series.

Patch cord **1** between ports **A1.1** and **B2.1**	Test at **1310** nm	FOC-Dia via H+S adapter	Test value
		Dia-FOC via Dia adapter	Test value
Patch cord **1** between ports **A1.1** and **B2.1**	Test at **1510** nm	FOC-Dia via H+S adapter	Test value
		Dia-FOC via Dia adapter	Test value
Patch cord **1** between ports **A1.1** and **A2.1**	Test at **1310** nm	FOC-Dia via H+S adapter	Test value
		Dia-FOC via Dia adapter	Test value
Patch cord **1** between ports **A1.1** and **A2.1**	Test at **1510** nm	FOC-Dia via H+S adapter	Test value
		Dia-FOC via Dia adapter	Test value
Patch cord **2** between ports **A1.1** and **B2.1**	Test at **1310** nm	FOC-Dia via H+S adapter	Test value
		Dia-FOC via Dia adapter	Test value
Patch cord **2** between ports **A1.1** and **B2.1**	Test at **1510** nm	FOC-Dia via H+S adapter	Test value
		Dia-FOC via Dia adapter	Test value
And so on for patch cords **3** and **4**	...	...	...

Test series 1: OTDR on Port A1.2
The connector on the patch cord with the lower number is plugged into Port A1.1.
The measurements are performed as indicated in Table 1 and collected in the Excel table provided for later analysis.
The spatial resolution and the dynamic range of the OTDR have to be taken into consideration for the measurements. The OTDR might not be able to differentiate between the two mated connections of a patch cord and provide just one single loss value for the whole patch cord.
Test series 2: OTDR on Port A1.2
The connector on the patch cord with the higher number is plugged into Port A1.1. The test values are collected in the Excel table.
Test series 3: OTDR on Port B1.2
In the 3rd (and 4th) test series the measurement direction is reversed.
For the 3rd and 4th test series the OTDR is connected with port B1.2. For test series #3 the patch cords will be measured again from the lower number to the direction of the higher number.
Test series 4: OTDR on Port B1.2
Here the patch cords are again measured from the higher number to the direction of the lower number.

Result

The Excel analysis tables provide a clear overview of the test values achieved. Both the impacts of the ferrule technology combinations and of the measurement direction and the adapter types can be recognized.
At the end of the 4 test series each test value can be compared with each other value. The test values for Class A and E-2000™ (0.1dB) for the same port should be almost identical within a measurement uncertainty of 0.05dB. In case of larger deviations immediate action should be taken during the test series already and the test repeated after inspecting and cleaning the connector end-face.

Comparing quality by means of field tests

If the test value should not improve after cleaning, other possible causes (damaged fibre, break in the patch cord, a.s.o.) should be checked.
Do not hesitate to contact us, if you need further information or would like to borrow the test equipment. Our distribution and sales department in Berlin will be pleased to support you.

Tilo Kuehnel, FOC

Second largest German electricity transporter 50Hertz

(source: 50Hertz)

The German power grid

The German power grid consists of four levels. At the highest level of the supra-regional transmission grids electricity is transported at a maximum voltage of 380 or 220 kilovolt from the power plants via large distances to high demand areas – also to the European neighbours. The second level covers the distribution networks of the regional power utility companies. They distribute the electricity at a level of 110 kilovolt (high voltage) over a larger area and supply the large industry with power. Level three includes the local networks (medium voltage of less than 110 kilovolt) supplying industry and commerce. The lowest voltage level (low voltage of less than 1 kilovolt) is responsible for supplying the households and smaller enterprises. The different voltage levels are linked with one another via substations. Here the voltage is transformed from a higher to a lower level.

The transmission network operator 50Hertz ensures the operation, maintenance, planning and extension of the 380/220 kilovolt transmission grid in the North and East of Germany (see Figure 1). Its network covers an area of 109,000 km^2 and has a length of about 9,750 km, which is approximately equivalent to the distance from Berlin to Rio de Janeiro. A part of this network is fitted with fibre-optical (FO) cables and serves for internal communication as well as for control purposes.

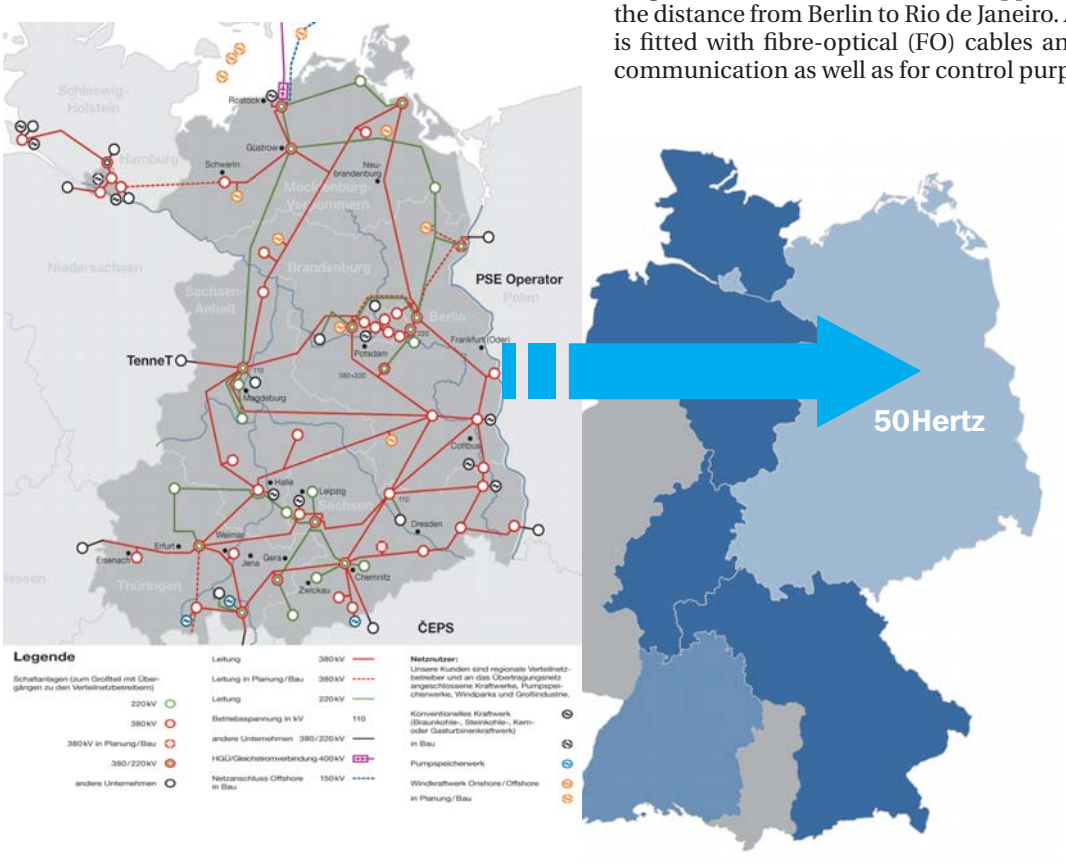


Figure 1 Service area of the company 50Hertz (source: 50Hertz) (source: EEX)

approves LSH-HRL Class A connector for use in its own network

Small connector – big effect

50Hertz is part of the international Elia group. This Belgian transmission network operator holds 60 percent of the shares in the company. 40 percent of 50Hertz are held by the Australian Industry Funds Management (IFM) investment funds.
The fibre-optical cables and the power lines both physically end at the substations.

Bertikow substation (source: 50Hertz)

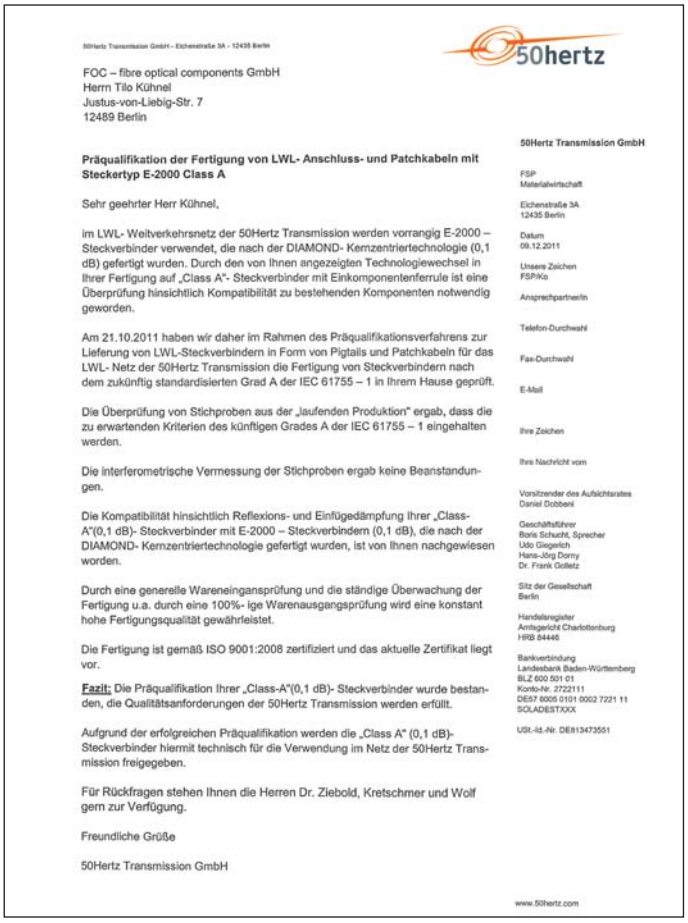
There the FO cables are terminated in service rooms at optical cable terminations, typically standard splice and patch panels. In order to ensure a smooth operation of the fibre-optical network the company decided to use E-2000™ connectors in 0.1dB quality already some years ago.

In summer 2011 FOC hit the headlines with the development and commercial launch of a technologically equivalent alternative to the DIAMOND 0.1dB E-2000™ connector. Since 50Hertz Transmission GmbH had already used FOC products fitted with E-2000™ technology before, they quite naturally made the step towards the alternatively available LSH-HRL Class A technology.

Visiting FOC

On 21 October 2011 the technical and commercial managers from 50Hertz visited the FOC headquarters in Berlin. On that day during intensive talks and after performing some technical test series on products from the running manufacture at FOC the Class A connector technology was pre-qualified.
We were informed of the result with the attached letter dated 9 December 2011.
Thus the Class A products are approved for use at 50Hertz.

Tilo Kuehnel, FOC



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50hertz

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FSP
Materialwirtschaft

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12435 Berlin

Datum
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Präqualifikation der Fertigung von LWL- Anschluss- und Patchkabeln mit Steckertyp E-2000 Class A

Sehr geehrter Herr Kühnel,

im LWL- Weitverkehrsnetz der 50Hertz Transmission werden vorrangig E-2000 – Steckverbinder verwendet, die nach der DIAMOND- Kernzentriertechnologie (0,1 dB) gefertigt wurden. Durch den von Ihnen angezeigten Technologiewechsel in Ihrer Fertigung auf „Class A"- Steckverbinder mit Einkomponentenferrule ist eine Überprüfung hinsichtlich Kompatibilität zu bestehenden Komponenten notwendig geworden.

Am 21.10.2011 haben wir daher im Rahmen des Präqualifikationsverfahrens zur Lieferung von LWL-Steckverbindern in Form von Pigtails und Patchkabeln für das LWL- Netz der 50Hertz Transmission die Fertigung von Steckverbindern nach dem zukünftig standardisierten Grad A der IEC 61755 – 1 in Ihrem Hause geprüft.

Die Überprüfung von Stichproben aus der „laufenden Produktion" ergab, dass die zu erwartenden Kriterien des künftigen Grades A der IEC 61755 – 1 eingehalten werden.

Die interferometrische Vermessung der Stichproben ergab keine Beanstandungen.

Die Kompatibilität hinsichtlich Reflexions- und Einfügedämpfung Ihrer „Class-A"(0,1 dB)- Steckverbinder mit E-2000 – Steckverbindern (0,1 dB), die nach der DIAMOND- Kernzentriertechnologie gefertigt wurden, ist von Ihnen nachgewiesen worden.

Durch eine generelle Wareneingangsprüfung und die ständige Überwachung der Fertigung u.a. durch eine 100%- ige Warenausgangsprüfung wird eine konstant hohe Fertigungsqualität gewährleistet.

Die Fertigung ist gemäß ISO 9001:2008 zertifiziert und das aktuelle Zertifikat liegt vor.

Fazit: Die Präqualifikation Ihrer „Class-A"(0,1 dB)- Steckverbinder wurde bestanden, die Qualitätsanforderungen der 50Hertz Transmission werden erfüllt.

Aufgrund der erfolgreichen Präqualifikation werden die „Class A" (0,1 dB)- Steckverbinder hiermit technisch für die Verwendung im Netz der 50Hertz Transmission freigegeben.

Für Rückfragen stehen Ihnen die Herren Dr. Ziebold, Kretschmer und Wolf gern zur Verfügung.

Freundliche Grüße

50Hertz Transmission GmbH

Vorsitzender des Aufsichtsrates
Daniel Dobbeni

Geschäftsführer
Boris Schucht, Sprecher
Udo Giegerich
Hans-Jörg Dorny
Dr. Frank Golletz

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www.50hertz.com

Smart grids

offer new opportunities for fibre-optic industry

Integration of energy and other supply networks with public broadband networks

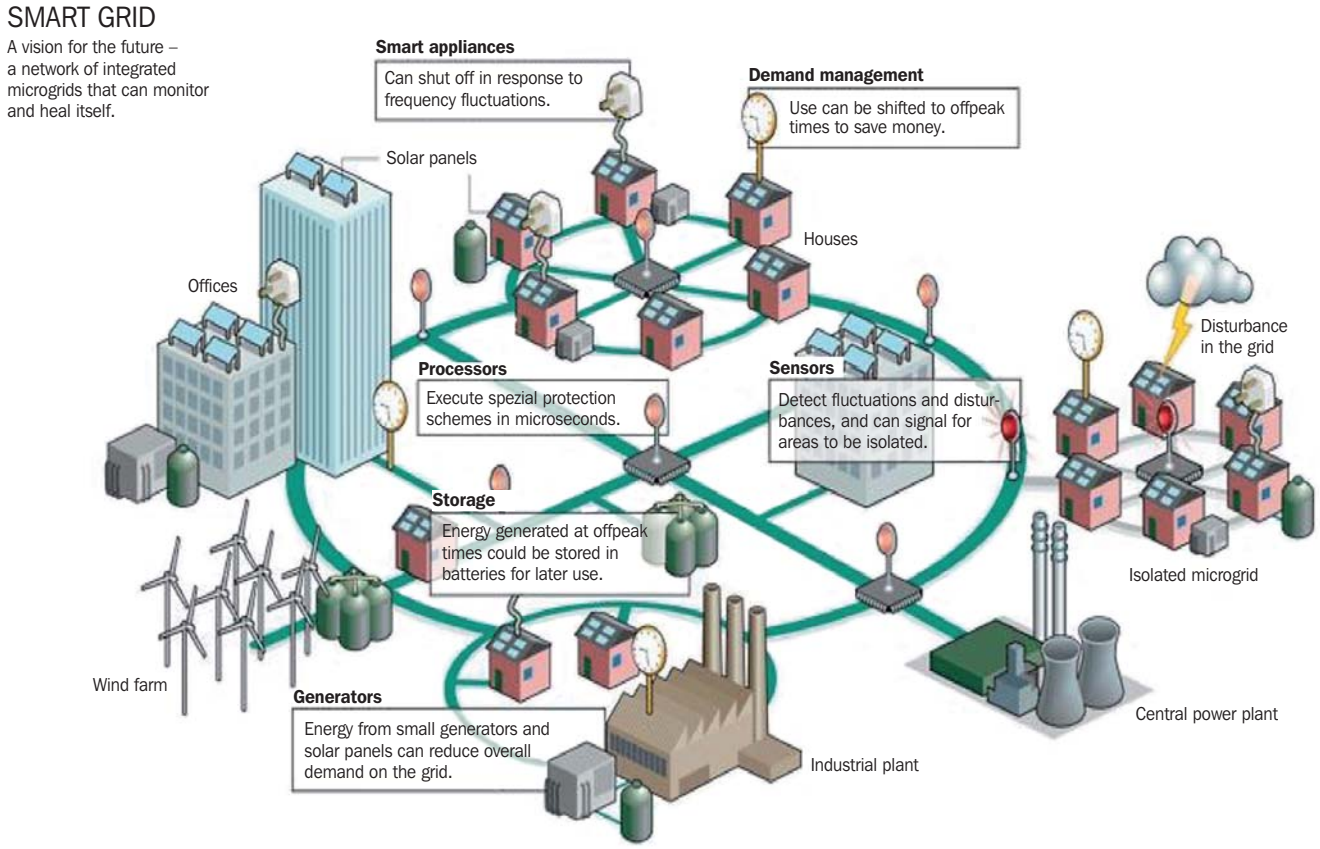

Figure 1 Smart Grid (source: consumerenergyreport/smartgrid)

In connection with the consolidation of structures on the renewable energies growth market new market opportunities arise for companies from the optoelectronics industry also outside of Germany. For the development of integrated power and communication networks containing energy management features and based on hybrid power generation technologies powerful and secure fibre-optic networks consisting of high-quality components are needed. The concept of a virtual power plant based on a smart grid enables the load distribution and storage of electrical energy generated from renewable energies such as photovoltaic and wind power plants and bioenergy to be controlled more efficiently. This will support the development of decentralized electricity producers. Virtual power plants feed their energy also directly into the medium and low voltage levels of the power distribution network. Thus the deployment of smart grids offers the chance of integrating communal, state and private infrastructure projects for supplying the population with broadband access for HDTV, Internet and telephone as well as for controlling water and sewage systems, for transport and traffic management, medical care and emergency medical services, police and security.

In addition to reducing the carbon footprint the conversion of the power grids to renewable energy sources functions as a catalyst for stimulating the communications engineering market.

FOC and CFS position themselves in the renewable energies segment in South Africa

Smart Grids FTTx - platform of the future

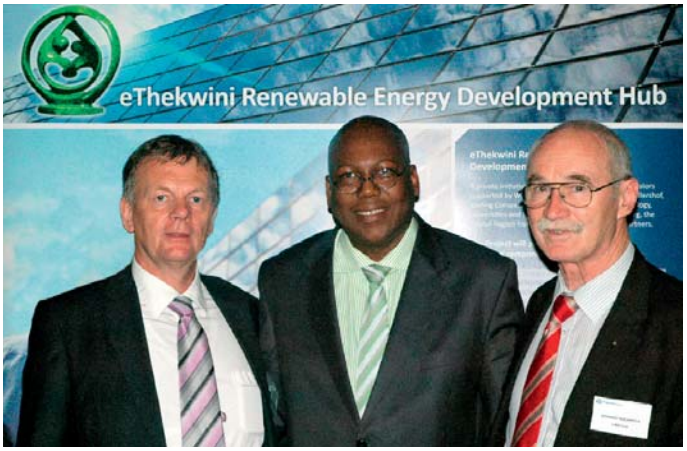

Figure 2 Launch of the Renewable Energy Development Hub – KwaZulu-Natal on the occasion of the COP17 climate change conference in Durban, South Africa in December 2011.
Mr. Michael Mabuyakhulu, (centre) Minister of Economic Development and Tourism - MEC Member of the Executive Cabinet, KwaZulu-Natal government,
Mr. Christian Kutza, CEO FOC GmbH (left) and Mr. Konrad Hochhold, CEO IKD-International GmbH (right).

Apart from China, India and South Korea the introduction of renewable energies (RE) in the context of the deployment of smart grids gains in importance also in countries of the Middle East and in Africa and is state-subsidized. As an example, in South Africa in the province of KwaZulu-Natal the establishment of the Renewable Energy Development Hub – KwaZulu-Natal was announced on the occasion of the COP17 climate change conference in Durban.

This project deals with the planning, construction and operation of RE technology hubs for southern Africa focussing on:

1. A business development/ business incubator and technology park with clusters:
   I. Renewable energy power generation focussing on:
   II. Integrated networks, power, transport, communication and security
   III. Environmental protection, sustainability/biodiversity
   IV. A vocational training centre for renewable energy systems and technologies
2. An academy for renewable energy
3. 150 MWp power generators – wind/solar/bioenergy hybrid plant

Based on an agreement signed between the ARDOR Group investor, the government of KwaZulu-Natal and the company IKD-International Know-how Transfer and Business Development working as the programme manager the companies and members of the OpTecBB and Berlin Solar Network associations resident in the Berlin WISTA science and technology park have the chance of applying for participation in the project as preferred technology suppliers.

Last year and in February 2012 two delegations visited Berlin/ Brandenburg in order to convince themselves of the capability of this network consisting mainly of medium-sized companies. The delegations led by the mayor of the city of Durban, Mr. James Nxumalo, and by the Minister of Economic Development and Tourism of the province of KwaZulu-Natal, Mr. Michael Mabuyakhulu, also visited the manufacturing site of FOC and were informed about the concept of the CFS-city fibre systems GmbH on integrated networks. Quality and system competence of FOC were the decisive factors for their selection as a supplier for the fibre-optical network for the project in South Africa.

Konrad Hochhold, IKD International GmbH

Photos: Rico Prauss

Figure 3 South-African delegation at FOC; visiting solar and wind power plants in winter

Optical transmission technology *in the broadcast world*

The broadcast world, i. e. the production, editing and distribution within the production companies and TV broadcasters, is confronted with an increasing need for bandwidth. This trend can be compared with the development in the telecommunications sector. Apart from a few exceptions, the entire video and sound production, just like its distribution, is digitized. However, the transmission rates in production and editing are much higher than the rates used for transporting the digitized video and sound signals to the subscriber. In TV production transmission rates of up to about 3 Gbitps for HD-SDI (High Definition Serial Digital Interface) are common. It goes without saying, that in view of such rates the transmission via the conventional 75 Ohms coaxial cable rapidly reaches its limits. In this case cable lengths of a maximum of 100m can be implemented. For this reason it makes sense to use fibre-optic cables as a transmission medium.

LYNX Technik AG selects FOC as a competent partner for demanding filter technology

These were the reasons why LYNX Technik AG in Weiterstadt, Germany, a leading manufacturer in the field of video terminal equipment, early decided to use optical fibres. Moreover they soon recognized the potential of WDM (Wavelength Division Multiplex) technology. Using WDM it is possible to transport a great number of transmission channels via one single optical fibre. Although this WDM technology is already used in telecommunications, the challenge was to adapt it to the specific situation in the broadcast area. LYNX Technik AG uses CWDM (Coarse Wavelength Division Multiplex) technology. CWDM enables up to 18 transmission channels with a bandwidth of 20 nm to be carried in the range of about 1270 nm to about 1610 nm. Here the filter elements used have to meet stringent optical and mechanical requirements. With these requirements in mind LYNX Technik AG selected FOC as the supplier of this filter technology. Another challenge was to integrate the filter elements in an existing box without impairing the optical and mechanical properties. FOC accepted this challenge. Leveraging their comprehensive experience in the field of passive optical components FOC was able to offer the customer a bespoke solution.

LYNX Technik AG and FOC are top players also for major sporting events

The currently biggest project managed by LYNX Technik AG using optical components is an international sporting event to be held in London this summer. The SDI video-to-optical fibre or optical fibre-to-SDI video converters developed by the company are combined with filter modules supplied by FOC. Only the consistent use of high-quality components and modules ensures the secure transmission of the 3D video signals from the productions sites to the broadcasting centre. When you, dear readers, will be closely following the fascinating sporting events taking place in London this summer in a high sound and video quality, you can be sure that the reliable equipment supplied by LYNX Technik AG and FOC will be part of the game.

Michael Werner Riecke, FOC

About LYNX Technik AG

LYNX Technik AG is a leading provider of concepts and developments for modular interface solutions for professional TV broadcast equipment. It is an independent, privately-owned company with headquarters, development and manufacture in Germany. Sales and first-line service are implemented via independent partners from the main organisation.
Further details on products and services can be found on www.lynx-technik.com. You can follow LYNX Technik also on Facebook.

FOC workshop talks 2012

Topics and dates

Also in 2012 we will arrange our FOC Workshop Talks on the following topics:

1. Deployment and troubleshooting of passive FTTx infrastructures in reference to the NGA-Forum of the German Federal Network Agency (BNetzA)
2. Compatibility tests on E-2000™ and LSH-HRL Class A in the network with test setup
   Please bring your own cable along for testing.

We would be pleased to welcome you and/or your colleagues in our house.
Please select a date and register via
fax (+49 30 565507-19) or e-mail (info@foc-fo.de).
Keyword: “2012 Workshop Talks”

The workshop talks will be held from 11 hrs to 15 hrs on:

· Thursday, 19 April, at the Berlin central office ☐
· Thursday, 24 May, at the Berlin central office ☐
· Thursday, 31 May, in Duesseldorf ☐

We look forward to interesting talks with you.
Yours sincerely,

Christian Kutza, Managing Director

BEL··2· The third!

at the Berlin Adlershof Science City

In cooperation with BUGLAS e.V., OpTecBB e.V., Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institute, SächsTel e.V. and Gemeinschaftsseminar the BEL2 professional and public fair for fibre-optical technology will be held in Berlin on 25 and 26 April 2012.

The practice-oriented concept of this fair is based on three organisational columns:
- Exhibition (free for visitors)
- Workshops (free for invited guests)
- Plenum and technical modules (participants will incur a fee)

With its topics and organisation the BEL2 addresses both the general public and the experienced professional: Target groups are thus local administrations, city utility companies, housing societies, network operators, service providers, data centres, etc. but also manufacturers, planning institutions, installers and the technical management level as well as chambers of industry and commerce, institutes, universities and technical colleges.

Main topics of the Congress part

- Broadband - Vision 2020
- Energy Turnaround = Renewable Energies + Energy Efficiency
- Data centres – data security – data protection
- Optical networks – infrastructure of a new generation
- Fibre-optical measuring instruments
- FTTx networks: planning - financing - promoting
- Contractor's Meeting Point

Organiser

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Justus-von-Liebig-Strasse 7, 12489 Berlin, Germany
Tel: (+49-30) 65 47 40 36 und (+49-33920) 50 685
Fax: (+49-30) 65 47 40 37
http://www.bel2.net/

FOC service

When you complete and return the below form to FOC, you can visit the exhibition, the workshops as well as the plenum and the technical modules free of charge.

Your FOC Team

Return fax +49 30 565507-19

Confirmation of participation in the BEL 2 professional and public fair from 25 to 26 April

I, Mrs. / Mr. .....

Company .....

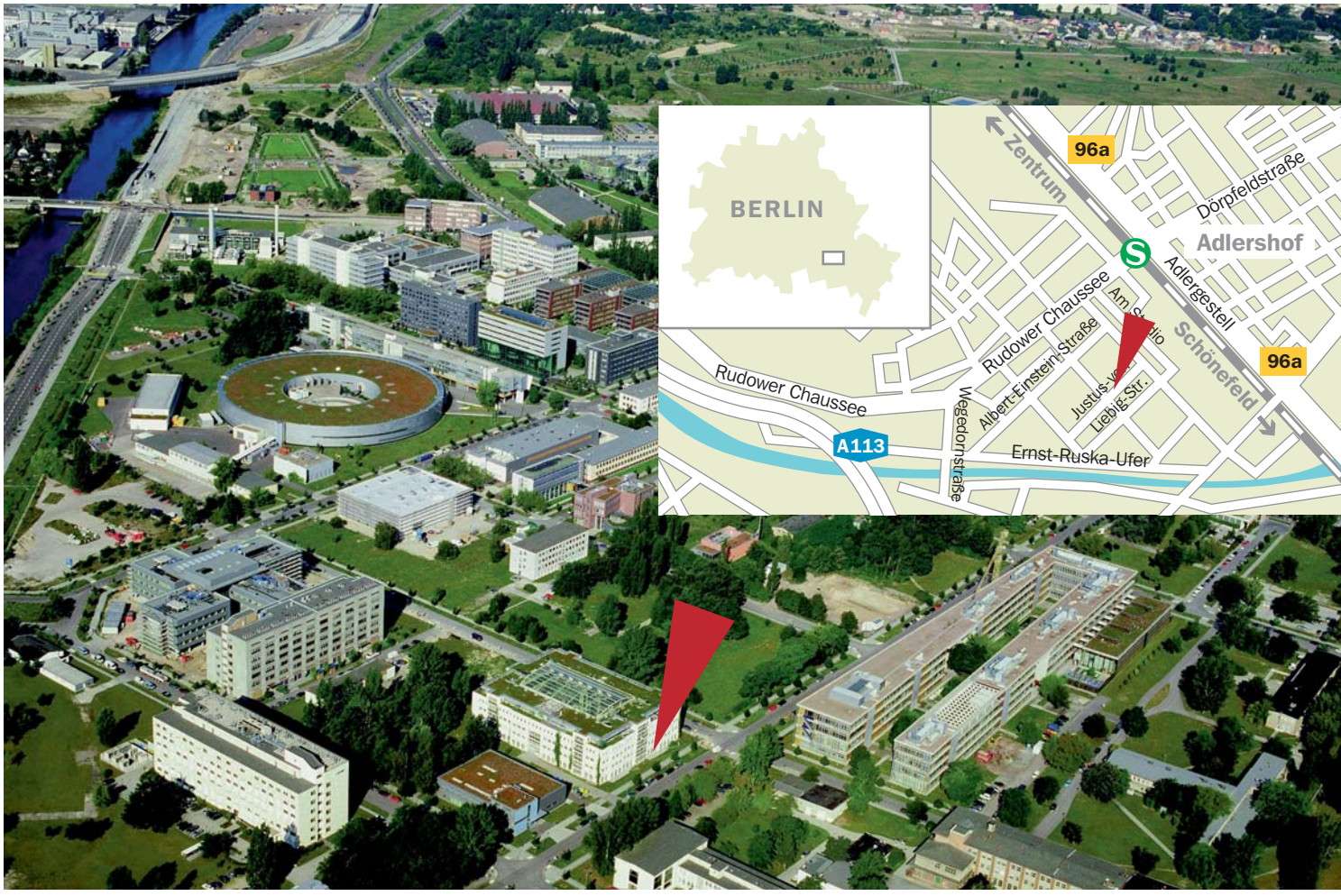
am pleased to accept your invitation to the a. m. event. The visit is free of charge for me.

Signature .....

Further information on the agenda can be found at www.bel2.net.

fibre optical components GmbH

In the Berlin-Adlershof Technology Park.



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