

Annual Report 2010

CODIXX
Aktiengesellschaft



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BOARD MEMBERS

Managing Board

Detlef M. A. Prinzler

Managing board since October 29, 1999

Supervisory Board

Dr. Paul-Frank Weise

Solicitor, Braunschweig,
Chairman of the board since September 1, 1998,
appointed for a complete term in office until the end of the
general shareholders' meeting, which will decide about the discharge for the business year 2012 (2013)

Klaus Gerber

Managing board of Volksbank Lauterecken
Deputy chairman of the board,
Board member since March 10, 2004,
appointed for a complete term in office until the end of the
general shareholders' meeting, which will decide about the discharge for the business year 2013 (2014)

Dr. Günter Heine

Physicist, Biesenthal,
Board member since August 27, 2009,
appointed for a complete term in office until the end of the
general shareholders' meeting, which will decide about the discharge for the business year 2013 (2014)

Dr.- Ing. Hans-Jürgen Gaudig

Managing director of Ingenieurgesellschaft
BBP Bauconsulting mbH, Berlin,
Board member since August 30, 2007,
appointed for a complete term in office until the end of the
general shareholders' meeting, which will decide about the discharge for the business year 2011 (2012)

Kurt-Wolfgang Fredemann

Brigadier a. D., Neuburg upon Danube,
Board member since August 27, 2009,
appointed for a complete term in office until the end of the
general shareholders' meeting, which will decide about the discharge for the business year 2013 (2014)

Harald Gabriel

Master of Business Administration (UoAS),
Linden,
Board member since August 23, 2010,
appointed for a complete term in office until the end of the
general shareholders' meeting, which will decide about the discharge for the business year 2014 (2015)

Dear Shareholders,

The economic recovery already noticeable at the end of 2009 continued in 2010 for almost all industry sectors and regions and brought the CODIXX AG the most successful business year to date. With an increase in sales of 87 % even the company's own expectations were exceeded.

The increases in the telecommunications sector as well as the recovery of the semiconductor industry were the main contributing factors to this development. The sales figures of the catalogue business as well as for the large LED displays have also improved significantly. All other market sectors achieved again a slight increase, but due to their relatively strong results in the previous year were only able to experience a moderate growth.

This welcome sales trend resulted in a positive operating income and was particularly noticeable in an enhanced cash flow. Together with the revenue from the capital increase in mid 2010 the CODIXX AG was not only able to resume the regular interest payments, but due to a partial payment of old liabilities it could also be achieved that the associated companies waived the remaining amounts. Thus the company stands on much stronger foundations and is able to rise to the challenges of a deeper market penetration.

For the business year 2010 the CODIXX AG achieved an annual surplus of €603K. Compared with the previous year this means an improvement in results to the amount of €1,089K. The total revenue of the company increased by €930K to €2,495K. The operating expenses increased to €572K, the non-operating result amounting to €751K resulted mainly from the partial waiver of

old liabilities by the associated companies as well as the extraordinary amortization of a plant sold in 2011 and thus is €712K higher than in the previous year.

The CODIXX AG expects a further increase in sales for the business year 2011. Thus a clearly positive result is expected, even though lower than in the previous year as no neutral influences are anticipated. The expansion investments, which were already commenced in the previous year, provide the groundwork for further future growth.

Barleben, July 2011
Managing Board

Detlef M. A. Prinzler

1. REPORT OF SUPERVISORY BOARD

Dear Shareholders,

The company has experienced an eventful and successful year. Favored by the continuous penetration of all relevant sales markets with innovative products and the generally positive overall economic development in 2010, the CODIXX AG was able to generate a sales increase of 87% and achieved a positive annual result. It was only possible to achieve this increase because of the significant efforts and constant initiative of the staff. The supervisory board of the CODIXX AG expresses its gratitude and commends all members of staff.

A further milestone for the medium and long-term development of the CODIXX AG was achieved by the associated companies' partial waiver of receivables amounting in total to 1.15 Million Euro. The successful capital increase in September 2010 laid the foundations for this. Thus the profit situation and the financial standing of the company have been sustainably improved.

The supervisory board has continued to monitor the business management regularly throughout the business year 2010. It also held four meetings during the last business year. In addition to the respective meetings, the supervisory board was kept informed comprehensively and promptly about all important business transactions by the managing board as well as by the respective department representatives.

In addition to the actual meetings, the supervisory board was briefed face-to-face, over the telephone and via written reports about the company's development and situation. During the course of these briefings between the supervisory board, managing board, and the department managers colorPol®, the supervisory board were able to

gain a comprehensive overview of opportunities and risks, further business strategies as well as of individual business transactions.

Business transactions, which require by law and regulations the approbation of the supervisory board, have been discussed with the managing board and were approved by the supervisory board.

The auditor's report includes the unrestricted audit certificate of PricewaterhouseCoopers Aktiengesellschaft Wirtschaftsprüfungsgesellschaft (auditing company).

The supervisory board has given its final approval of the annual accounts, compiled by the managing board, without reservations. Thereby the annual accounts for the year 2010 have been declared.

Barleben, July 2011
Supervisory Board

Dr. Paul-Frank Weise
Chairman

2. MANAGING BOARD REPORT

2.1 Business Performance

With the previous business years having been exposed to the impact of the financial and economic crises, the CODIXX AG was able to demonstrate its sales' potential for the first time under normal conditions in 2010. The increased demand in all major market sectors led to a sales increase of 1.1 Million € to a total of more than 2.4 Million €. Thereof 2.3 Million € were generated by the sales of polarizers. Furthermore, the product group large LED displays was able to increase its contribution to €111K due to an increased spare parts business.

The company saw the biggest increase in the sales of polarizers for varying applications within the telecommunications sector. This market was the strongest source of revenue for the business year, closely followed by the semiconductor industry, which has returned to its pre-crisis level. The catalogue business was also further expanded, the range of filters distributed by catalogue suppliers was again extended. With only a few exceptions, all the remaining market segments, especially the measuring and image processing systems, were also able to increase their turnover even though they had already reached high sales figures in the previous year. As the three main sales segments considered here serve in part the same market, the balance between the market sectors achieved last year was further improved upon.

Also with regards to the sales regions a clear tendency towards a balance between the most important international markets becomes apparent. Even though for the business year 2010 the domestic business represented the biggest share of turnover, by doubling its sales total, it has to be taken into account here that the largest German customers target the global market for their own

products. Furthermore, the remaining sales regions, North America, Asia, and Australia have almost harmonized. The EU market also experienced a positive trend, albeit at a slower pace, nevertheless the Western European countries have experienced a slight recovery as well.

Even though this intensive sales trend means the requirements placed on the company have increased dramatically, the CODIXX AG was able to for the most part maintain short and reliable lead-times. Flexible internal logistics, close cooperation with the service providers and ultimately the highly efficient staff team provide the foundation for this success.

This welcome development was reflected in a positive operational result to the amount of €160K. In 2010 the shareholders and associated companies made a vitally important contribution to the improved financial and liquidity situation. After the capital increase of €350K in mid 2010, €300K of the fixed interest debts for the years 2005 until including 2009 were paid to the associated companies, who in turn waived the additional outstanding payment obligations of 1.15 Million Euro. This relief was considered in the non-operating result, which was additionally influenced by the non-scheduled depreciation on a plant to the amount of €400K. This depreciation took place due to the successful performance as part of the development project regarding micro structured polarizers which means that the utilization of the depreciated plant is no longer required.

Due to the welcome liquidity development all regular interest payments to the associated companies were resumed ahead of schedule for the complete business year 2010.

The increased sales volume has not only

2. MANAGING BOARD REPORT

led to higher requirements placed on the company's staff and logistics, but also caused the management to implement timely preparations for the next level of the business development. These comprise mainly the further automation and optimization of production steps, especially for the finishing and shipping of the products. For this reason a three year investment program has been approved, which also includes the partial expansion of the industrial premises. The program was started in August 2010, but a considerable share of the investment cost shall only be reflected in the subsequent year's accounts. To cushion the economic risks of this undertaking the CODIXX AG applied to the Investitionsbank Sachsen-Anhalt (investment bank Saxony-Anhalt) for subsidies from the investments assistance program.

After the successful audit by the auditing company PricewaterhouseCoopers Aktiengesellschaft the annual accounts of the CODIXX AG for the business year 2010 received an unrestricted audit certificate.

2.2 Public Relations and Marketing

With almost doubled sales figures the strategic marketing concepts and activities of the last years have paid off and generated a positive result.

The slump in the semiconductor market as well as the general market dip due to the economic crisis in 2009 have been overcome. This recovery, combined with the contributions from new customers, won by the continuously maintained market acquisition, has stimulated last year's growth.

In 2010 it was possible to achieve a greater balance between the various markets, even though the telecommunications sector recorded the strongest growth.

During last year the marketing activities were again focused on trade shows. The trade shows attended in 2010 were selected according to the main markets. Experience shows that due to the product cycles the penetration of new markets does take some time, therefore trade shows have not only proven themselves as being important for customer acquisition, but also to meet developers and buyers to discuss and further develop existing projects.

The following trade shows were attended:

ECOC – Turin, Italy, own stand
Optatec - Frankfurt/Main, Germany, own stand
SID Display Week, Seattle, USA, own stand
OFC/NF OEC - San Diego, USA, own stand
LASER World of Photonics China, Shanghai, partner stand with distributor
Photonics West, San Jose, USA, partner stand with distributor

In addition to the continued support and training for existing distributors an important distributor could be won for the Israeli market.

The continued main focus for the public relation undertakings is the up-to-dateness and expansion of the product documentations such as the CODIXX brochure, the product specifications as well as the website.

2. MANAGING BOARD REPORT

2.3. Outlook

The positive sales trend thus far continued in 2011. For the continued customer acquisition passive marketing with the website as well as active marketing in the way of contacting potential customers directly and attending trade shows will continue.

Compared to the year under review, during which 60 new customers were acquired, an additional 34 new customers were gained by the beginning of June 2011.

The upwards trend for the Asian market continues unabated. Here the telecommunications sector represents the driving force, yet the applications in this area are not limited to optical isolators. The semiconductor business, analysis technology and measurement engineering, as well as laser based applications and projection technology are also in demand.

High quality and customer satisfaction convert into increasing customer retention. The number of orders as well as the respective order volumes increase continuously. It is not expected that this development will change.

The project „Micro-structured Polfilter“ was concluded successfully. Here the use of colorPol® S - filters acting together with high-resolution camera chips has been proven. Currently, the customers promote the development of this application to marketability.

For the current business year the company expects further growth in sales, but not to the same extent as in the previous year. As the annual result for 2010 was significantly improved upon by the non-operating result, the company expects for 2011 with increased sales a clearly positive, but also slightly lower annual result as in the previous year.

3. CODIXX - FINANCIAL STATEMENT 2010

3.1. Balance Sheet at December 31, 2010

ASSETS	December 31, 2010	December 31, 2009
	€	€
A. Fixed Assets		
I. Intangible assets		
Patents und software	260,30	122,90
II. Tangible assets		
1. Improved and operating equipment	60.755,21	80.096,31
2. Technical machinery and equipment	1.321.313,17	1.979.490,30
3. Other plant, operating, and office equipment	208.740,75	227.274,90
4. CIP assets	0,00	95.347,57
	1.590.809,13	2.382.209,08
	1.591.069,43	2.382.331,98
B. Current Assets		
I. Inventories		
1. Raw materials, consumables, and supplies	285.936,64	271.167,71
2. Unfinished goods	3.110.468,98	3.142.396,43
3. Finished goods	467.457,85	532.279,68
	3.863.863,47	3.945.843,82
II. Receivables and other assets		
1. Account receivables	239.302,22	144.735,40
2. Other assets	57.884,95	38.794,64
	297.187,17	183.530,04
III. Cash and cash equivalents	683.683,75	210.119,88
	4.844.734,39	4.339.493,74
C. Prepaid expenses	14.770,40	8.262,54
	6.450.574,22	6.730.088,26

3. CODIXX - FINANCIAL STATEMENT 2010

LIABILITIES AND SHAREHOLDER'S EQUITY	December 31, 2010	December 31, 2009
	€	€
A. Shareholder's Equity		
I. Common stock (no par value)	3.850.000,00	3.500.000,00
II. Additional paid-in capital	7.064.584,21	7.064.584,21
III. Accumulated loss	8.465.741,18	9.068.934,12
	2.448.843,03	1.495.650,09
B. Deposits of silent partners	3.478.229,70	3.478.229,70
C. Accrued liabilities and contingencies		
Other accrued liabilities and contingencies	197.829,26	61.230,21
D. Liabilities		
1. Liabilities to banks	12.710,85	15.252,41
2. Advance payment on orders	4.007,50	187,98
3. Accounts payable	176.847,15	176.793,08
4. Other liabilities	132.106,73	1.502.744,79
(Thereof tax € 21.265,82; December 31,2009 € 13.675,59)		
(Thereof social security contributions € 1.829,27; December 31, 2009 € 2.331,53)		
	325.672,23	1.694.978,26
	6.450.574,22	6.730.088,26

3. CODIXX - FINANCIAL STATEMENT 2010

3.2. Income Statement for the Business Year 2010

	2010	2009
	€	€
1. Sales revenues	2.413.849,54	1.290.735,19
2. Inventory decrease (previous year increase) of finished an unfinished goods	-96.749,28	159.517,88
3. Other internally produces and capitalized assets	4.426,50	43.390,26
4. Other operating revenue (Thereof revenue from currency translation € 31.140,45)	1.348.521,32	111.122,30
5. Cost of sales		
a) Expenses for raw materials, consumables, and supplies	112.292,61	31.903,60
b) Expenses for purchased services	99.552,37	64.022,18
Gross profit	3.458.203,10	1.508.839,85
6. Personal expenditure		
a) Solaries	885.438,15	618.839,47
b) Social security contributions	164.718,37	139.799,23
7. Depreciation of intangible and tangible assets	808.547,24	412.629,32
8. Other operating expenses (Thereof expenses from currency translation € 11.918,25)	687.191,37	496.372,69
9. Other interes ans similar revenue	3.393,46	2.916,19
10. Interes and similar expenses revenue	311.819,96	329.686,99
11. Result from ordinary activities	603.881,47	-485.571,66
12. Miscellaneous taxes	688,53	619,67
13. Annual profit/loss (-)	603.192,94	-486.191,33
14. Loss carried forward	9.068.934,12	8.582.742,79
15. Accumulated Loss	8.465.741,18	9.068.934,12

3. CODIXX - FINANCIAL STATEMENT 2010

3.3. Appendix for the business year 2010

3.3.1. General Information

At the balance sheet date, December 31, 2010, CODIXX AG was a small capital company in accordance with § 267 HGB (German Commercial Code).

The annual accounts have been compiled in compliance with the financial reporting requirements of the commercial code for large capital companies as well as the supplementary requirements of the German Stock Companies Act („Aktiengesetz“). For the preparation of the appendix the size-related simplified system for small capital companies in accordance with § 288 HGB (German Commercial Code) has been partially applied by not reporting certain information.

As in the previous year no management report was created.

The total cost method has been applied for the income statement. In the interests of clarity the chosen presentation option is to always place information and annotations to the individual items of the annual accounts in the explanatory notes. The business year is the same as the calendar year.

The annual financial statements are based on the going concern principle. The German Accounting Law Modernization Act (hereinafter BilMoG), which came into force on May 29, 2009, was applied for the first time to the financial statements of the company for the business year 2010 in relation to the accounting and valuation methods (Article 66 Section 3 Clause 1 EGHGB). The option for an earlier application was not exercised (Article 66 Section 3 Clause 6 EGHGB).

The application of the BilMoG for the so-called BilMoG opening balance for January 1, 2010 has not resulted in any valuation or presentation changes to balance sheet items

for the previous year.

For the first time currency translation gains and losses are listed as so-called „of which“ notes in the Income Statement under the items „other operating revenue“ or „other operating expenses“ respectively, in accordance with the new regulations of the German Commercial Code (HGB).

3.3.2. Accounting and Valuation Principles

The **fixed assets** are recognized as amortized acquisition or production costs. The production costs comprise the material and production cost per item directly allocable to the fixed assets; for self-produced items of the tangible assets an adequate share of the overheads and of the depreciation of fixed assets, provided the production induces this depreciation, is included in the production costs.

The scheduled linear depreciation is executed in accordance with the asset depreciation range. The depreciation of accrued assets will be carried out as pro rata temporis from the month of acquisition or production, respectively. Non-scheduled depreciations shall be made for the non-temporary impairment in value.

Low-value assets with acquisition or production cost per item of more than €150.00 up to €1,000.00 will be summarized as compound items for low-value fixed assets and will be depreciated over a period of five years starting with the year of acquisition.

Raw materials, consumables, and supplies are valued at acquisition cost; and **finished and unfinished goods** at production cost; the lower of cost or market principle is applied. The production costs comprise the direct material and labor costs as well as an appropriate share of the overhead costs as well as an appropriate part of the impairment in value of the fixed assets, provided that this loss in value resulted from the production.

3. CODIXX - FINANCIAL STATEMENT 2010

The **remaining current assets** are balanced at par value. Receivables are adjusted using a flat rate allowance of 0.5 % of the net holdings of deliveries and services, as a provision against latent risks and against general credit risks.

Receivables in **foreign currency** were converted into Euro using the average closing spot rate for December 31, 2010.

The **subscribed capital** is reported at par value.

Accrued liabilities are recognized at the settlement value which dictated by prudent business judgment is required to cover all identifiable risks and uncertain liabilities.

Liabilities have been recorded with their settlement value.

Regarding the details for deferred tax in accordance with § 285 No. 29 HGB (German Commercial Code) the size-related simplified system as stipulated in § 288 in conjunction with § 267 section 4 HGB (German Commercial Code) has been applied.

3.3.3. Annotations to the Balance Sheet and the Income Statement

3.3.3.1. Balance Sheet Information

The development of the individual items of the **fixed assets** is shown in the fixed assets schedule (Appendix to annex).

The **share capital**, registered with the German commercial register and fully paid up, was increased in 2010 by 350,000 € - arising from new shares having been issued - to 3,850,000 €. It is divided into 3,850,000 bearer shares with no par value.

The premium paid on the shares is accounted for as **additional paid-in capital**.

The **deposits of silent partners** have each a maturity of more than a year, but less than five years.

The **other accrued liabilities and contingencies** mainly comprise provisions for variable salaries and profit sharing bonuses, personnel-related expenses, costs for financial statements and audits as well as for warranty expenses and for operating costs.

The **liabilities to banks** comprise a loan as part of a funded project to the amount of €13K, thereof €4K with a maturity of up to one year.

The **remaining liabilities** have a maturity of up to one year.

3.3.3.2 Angaben zur Gewinn- und Verlustrechnung

The **sales revenues** were mainly generated by the global sale of polarizers and additionally by the national sale of large LED-displays. The main sales markets for the polarizers are the EU, USA, and East Asia.

The **other own work** capitalized (€4K) are contributions to the fixed assets.

The **other operating revenue** comprises the partial waiver of investment payment obligations from previous years to the amount of €1,151K, subsidies for a research project to the amount of €102K, income from currency translations to the amount of €31k, personnel costs reimbursement of €25K, the board member's waiver of the payment of their remuneration for 2009 amounting to €23K and other revenue to the amount of €17K.

The **depreciations of tangible assets** contain non-scheduled depreciations to the amount of €390K. They concern an asset sold in 2011, which was depreciated to the amount of its sales value.

The **other operating expenses** comprise the book loss resulting from the disposal of tangible assets to the amount of €34K.

3. CODIXX - FINANCIAL STATEMENT 2010

3.3.4. Other Information

Other Financial Obligations

Other financial liabilities consist of rental, advisory and service contracts amounting to €212K. Thereof €173K falls due within a year. The purchase commitments for unsettled orders amount to €100K.

Furthermore, there are other financial liabilities from agreements regarding debt waivers with debtor warrants to the amount of €150K, whose maturity depends on future profits.

Moreover, there are warranty bonds of the amount of €5K with a maximal maturity of 27 months.

Fees for Auditing Services

The total amount of fees for auditing services for the business year 2010 is €18K, with €15K for the audit, and €3K for tax accountancy services.

Authorized Capital

On August 27, 2009 the general shareholders' meeting has authorized the managing board to increase the share capital with the approval of the supervisory board by August 30, 2014 by up to €1,750,000 by issuing new shares one or several times against cash or contributions in kind. On May 12, 2010 the supervisory board has approved the decision of the managing board from May 11, 2010 regarding the capital increase by issuing new shares in accordance with § 3 section 2 of the statutes. In 2010 the share capital was increased by €350,000 to €3,850,000. Thus the authorized capital is €1,400,000 at the balance sheet date.

Managing Board

Detlef M. A. Prinzler, Managing director of P&P Consulting GmbH, Edewecht, as well as liquidator (extended by endorsement) of the former Magdeburger Wasser- und Abwassergesellschaft mbH i.L., Magdeburg, and managing director of the Trinkwas-

serversorgung Magdeburg GmbH, Magdeburg.

Mr. Prinzler does not have an employment contract with CODIXX and does not receive earnings from CODIXX.

Supervisory Board

Dr. Paul-Frank Weise, solicitor, Braunschweig, chairman of the board;

Klaus Gerber, Managing board of the Volksbank Lauterecken, Lauterecken; Chairman of the board;

Dr.-Ing. Hans-Jürgen Gaudig, Managing director of Ingenieurgesellschaft BBP Bauconsulting mbH, Berlin;

Dr. Günter Heine, physicist, Biesenthal;

Kurt-Wolfgang Fredemann, Brigadier a. D., Neuburg upon Danube;

Harald Gabriel, MBA (FH), Linden, member by decree of the general shareholders' meeting on August 23, 2010,

For their activities in the business year 2010 the members of the supervisory board received earnings to the amount of €20K.

Employees

The annual average of **employees** was:

	2010	2009
Glass Polarizers	21	16
Large LED-Displays	1	1
Administration	3	3
	25	20

Barleben, May 20, 2011

Detlef M. A. Prinzler
Managing Board

3. CODIXX - FINANCIAL STATEMENT 2010

3.3.5. Development of the Fixed Assets

	Acquisitions and Production Cost				
	Jan 1, 2010 €	Transfers €	Additions €	Disposals €	Dec 31, 2010 €
I. Intangible assets					
Patents und software	101.863,87	0,00	234,00	0,00	102.097,87
II. Tangible assets					
1. Improvements and operating equipment	365.985,64	0,00	0,00	0,00	365.985,64
2. Technical machinery and equipment	5.827.100,79	84.592,45	23.402,69	74.027,87	5.861.068,06
3. Other plant, operating, and office equipment	791.437,72	0,00	27.416,63	12.779,05	806.075,30
4. CIP assets	95.347,57	-84.592,45	0,00	10.755,12	0,00
	7.079.871,72	0,00	50.819,32	97.562,04	7.033.129,00
	7.181.735,59	0,00	51.053,32	97.562,04	7.135.226,87

3. CODIXX - FINANCIAL STATEMENT 2010

Depreciations				Net Book Value	
Jan 1, 2010 €	Additions €	Disposals €	Dec 31, 2010 €	Dec 31, 2010 €	Dec 31, 2009 €
101.740,97	96,60	0,00	101.837,57	260,30	122,90
285.889,33	19.341,10	0,00	305.230,43	60.755,21	80.096,31
3.847.610,49	743.158,76	51.014,36	4.539.754,89	1.321.313,17	1.979.490,30
564.162,82 0,00	45.950,78 0,00	12.779,05 0,00	597.334,55 0,00	208.740,75 0,00	227.274,90 95.347,57
4.697.662,64	808.450,64	63.793,41	5.442.319,87	1.590.809,13	2.382.209,08
4.799.403,61	808.547,24	63.793,41	5.544.157,44	1.591.069,43	2.382.331,98

GLOSSARY

Dichroism / dichroic Derived from the Greek “dikhroos” (two-colored). Optical components which produce a two-colored effect are called dichroic. Dichroic color filters, for example, allow blue light through, whereas they reflect green and red light. Polarizers can also have dichroic properties, transmitting or reflecting, for example, various colors selectively. Opposed to this color neutral filters (grey filters) do not exhibit dichroic properties. The colorPol®-polarizers show distinctly strong dichroic properties for orthogonal polarization.

Infrared [IR] Electromagnetic radiation with a wavelength ranging from 780 nm (red) to circa 1 mm is referred to as infrared range, infrared light, infrared radiation or also infrared.

Colloid In chemistry the term colloid is used to describe very small particles causing color effects. Consequently, nanoparticles are also colloids.

Contrast Contrast is the ratio between the darkest and the brightest value. This correlates normally to the dynamic range. Regarding images one refers to a high contrast if the dynamic area is very wide, meaning the ratio of the dark image elements to the light image elements is very great. The human eye is not able to distinguish contrasts above 1000:1. In engineering contrasts up to 100.000.000:1 ($10^8:1$) are required. Since contrast is a ratio, the unit decibel (dB) is used, especially in telecommunications.

Polarizer Component used to filter electromagnetic waves depending on their polarization axis. Optical polarizing filters are classed by their physical principle of operation, their design as well as their mode of polarization.

The various types are:

- Crystal polarizers
- Nano particle polarizers
- Thin film polarizers (TFP, dielectric film polarizers)
- Plastic sheet polarizers
- Wire grid polarizers

Polarizers are important base elements in optics. Especially in modern optics, polarization plays an essential role, because it exists practically everywhere and because it can be used to gain information about material. Polarizers are the functional part in, for example, ellipsometer devices, optical isolators, polarimeter devices, Lyot-filters as well as LCDs.

Transmission The transmission τ is the coefficient, which is defined by the ratio of the energy of the transmitted radiation I to the energy of the absorbed radiation I_0 : $\tau = \frac{I}{I_0}$. The transmission relates to a given component, since the transmission depends on the optical path length (the thicker the component of the same material, the lower the transmission).

The transmission also plays an important role for information transfer using

fiber optic cables. The longer the fiber optic cable the worse the transmission and the lower is the intensity of the wanted signal. In order create as long as possible fiber optic cables, certain spectral ranges, for which the fiber shows an especially high transmission, are used on the one hand. On the other hand it is taken care that the optical components have minimal insertion loss on both ends of the fiber.

Ultraviolet [UV]

Generally electromagnetic radiation of the wavelength range below 390 nm is referred to as ultraviolet range, ultraviolet light, ultraviolet radiation or simply ultraviolet.

Wavelength

The wavelength λ is used to represent the oscillating frequency of an electromagnetic wave. Since this wave propagates into a direction with velocity v , the electrical or magnetic field respectively oscillates with a fixed frequency f , one can calculate the wavelength at a point in time t_0 with $\lambda = \frac{v}{f}$. The wavelength describes the spacial distance of two zero-crossings of a sinus oscillation of the electrical or magnetic field respectively. Since the velocity of propagation v depends on the medium, the wavelength also depends on the medium. Generally, wavelength refers to the wavelength of an electromagnetic wave in a vacuum. In a vacuum the velocity of propagation v equals the speed of light c_0 . Therefore the definition of wavelength is $\lambda = \frac{c_0}{f}$.

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