

Philips Lighting



Supplier Quality Manual

Version 5.0 July 2017

Foreword

The Philips brand promise “Innovation and You” positions innovative strength and the quality of our products, solutions and services as a main focus in our company.

To realize the brand promise, Philips relies more and more on its supply base. Only if our suppliers deliver outstanding quality of components, products and services and support Philips in the continuous drive for innovations and excellence, we are able to deliver.

The Lighting world is changing rapidly as a result of the growing importance of LED Lighting and Lighting systems and services. The change towards LED and Lighting systems and services requires a different approach and mindset regarding quality where you as our suppliers are key-players in realization thereof. To optimally work together, our processes in product development, lifecycle management and quality cooperation need to be aligned with our suppliers.

A number of practices are fundamental to the quality management of our supply base:

- We select our suppliers based on their competences and competitiveness and qualify them through audits. Quality Systems must be in place from the beginning of our relationship
- We involve our suppliers early in our development processes, making optimal use of the competencies and innovativeness on both sides
- We define our product specifications but also our quality standards unambiguously and measure the compliance of our suppliers to these requirements
- Products and components are released and changes are controlled using industry standard practices
- We regularly evaluate supply base performance to drive further improvement
- We work closely with our suppliers to prevent quality incidents and use state of the art methods and procedures
- We engage our suppliers in the Philips Sustainability Programs

This Supplier Quality Manual describes our standard ways of working. Next to the General Purchase Agreement as the official document, we request you as a supplier to acknowledge this manual and adhere to the mentioned statements and descriptions. Moreover, we expect you to proactively work together with us to ensure a competitive advantage, which will sustain and strengthen our market leadership and ensure a profitable future. Great quality performance shows us in a tangible way the supplier willingness to “Team-up with Philips” and is certainly one of the key factors in building stronger sustainable partnerships.

Trevor Pillay
Head of Quality and Customer Care Lighting

Anna Spinelli
Head of Procurement Lighting

Paul van den Kerkhoff
Head of Supplier Quality and – Sustainability Lighting

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1. Introduction

1.1. Lighting Supplier Quality Policy

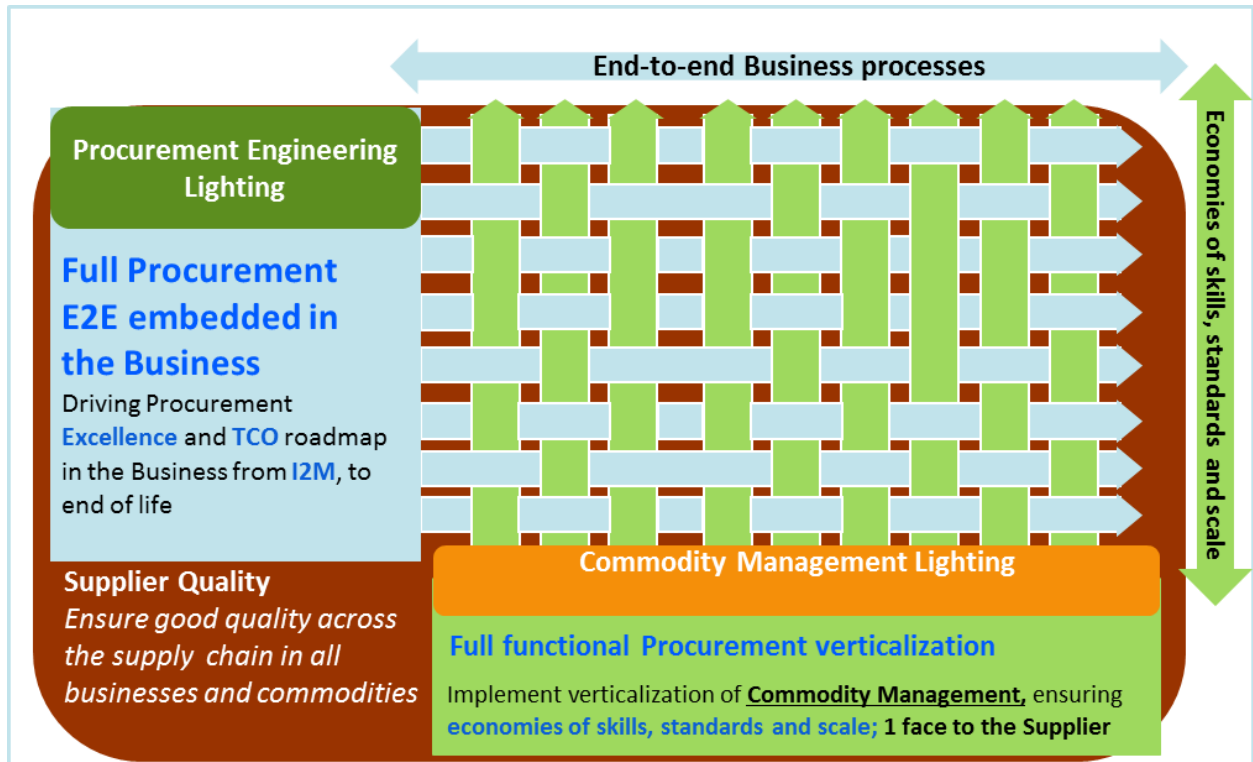
Philips Lighting is committed to providing the highest possible levels of customer satisfaction by delivering high quality, sustainable lighting products, solutions and services. Together with our suppliers we ensure that our lighting products, solutions and services fulfil our brand promise, are fit for use and comply with local regulatory and environmental requirements.

Our way of working is based on the following principles:



1.2. Supplier Quality Management Organization

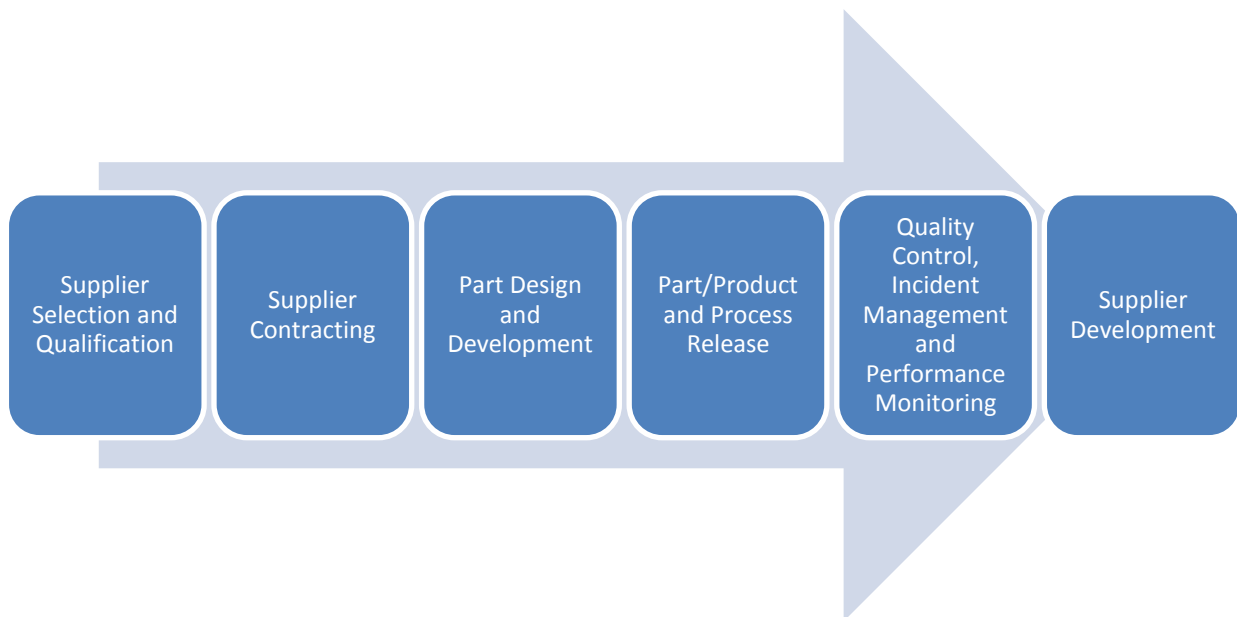
The Supplier Quality Management organization is part of the Procurement organization of Philips Lighting. A schematic representation of the different functions and responsibilities in Procurement is shown below:



In principle, there is one Supplier Quality Engineer (SQE) responsible for all quality aspects related to the supplier. For very large suppliers we may have more than one SQE; one of them is then in the lead and is called the Lead SQM. This individual is the Supplier Quality interface between the supplier and Philips Lighting and acts as highest escalation level to address quality related issues in the supply chain.

1.3. Supplier Quality Management Processes

As a supplier of Philips Lighting, you will be confronted with 6 main supplier quality processes. These 6 processes are further defined in their respective chapters.



We expect that the way of working, as described in this manual, will be followed for all parts* used in Philips Lighting products, including the ones defined by Philips Lighting, but sold and shipped to our outsourcing partners.

** Throughout this document the terms 'part' is used for all materials, components, products and services supplied to Philips Lighting.*

1.4. Philips Lighting Supplier Quality Relationships

To create a competitive advantage, it is essential to develop and manage supplier relationships. Although good relationships are sought with all suppliers, intensive working relationships can only be maintained with limited number of suppliers. We therefore apply a differentiated supply base management approach, where the working relationship with the supplier is determined by

- Product related risks
- Philips Lighting exposure (both financial and brand exposure)
- Supplier maturity

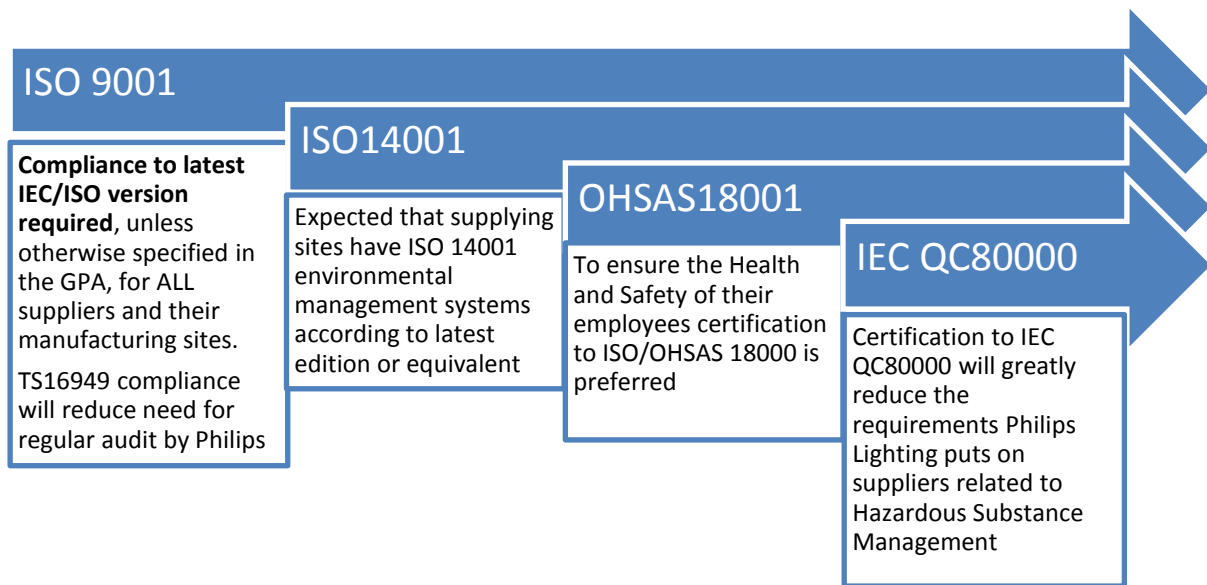
Where risks and/or exposure are high, Philips Lighting will put more controls in place than when those are low. With high maturity suppliers Philips Lighting will engage less than with low maturity suppliers.

This differentiated supply base management will enable Philips Lighting to:

- Devote the correct amount of attention to each supplier
- Develop stable and open working relationships
- Minimize the risks for Philips Lighting

Philips Lighting will regularly review the status of all suppliers reclassify when necessary.

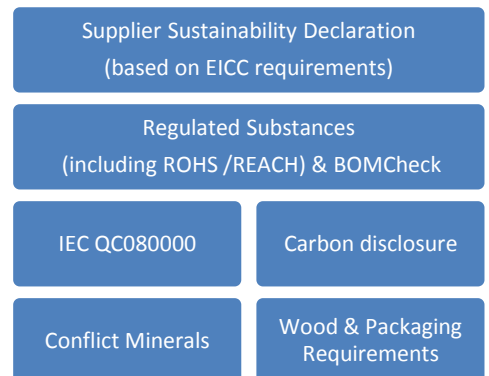
1.5. General Requirements to Suppliers



1.6. Sustainability Requirements

Philips Lighting has integrated sustainability throughout the company: in the strategy, organization and culture, in manufacturing and products, and with the suppliers. Philips' Lighting policies and practices can be found at: <http://www.lighting.philips.com/main/company/about/sustainability>

Main elements related to suppliers are shown in the graphics. Detailed requirements for all suppliers to Philips Lighting as well as templates and further information can be found at:



<http://www.lighting.philips.com/main/company/about/suppliers/supplier-sustainability>

As Philips Lighting often works in an outsourced manufacturing environment, the outsourcing party is expected to act on Philips Lighting behalf towards 2nd tier suppliers when it comes to Compliance, Performance Monitoring and Improvement related to sustainability.

1.6.1. Supplier Sustainability Declaration

All suppliers are required to comply to the Philips Lighting Supplier Sustainability Declaration (SSD). By signing the GPA, supplier commits to be compliant. The latest version of SSD can be found at http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/ODLI20170313_001-ZIP-en_AA-Philips-Lighting-Supplier-Sustainability-Declaration.pdf

The Philips Lighting Supplier Sustainability Declaration (SSD) covers labour and human rights, worker health and safety, environmental impact, ethics, and management systems. The Declaration also requires suppliers to cascade the EICC Code – as a total supply chain initiative – down to their next-tier suppliers.

We monitor supplier compliance with the Declaration through a system of regular audits, which are mostly performed by an independent audit firm. A detailed description can be found in paragraph 2.3.

1.6.2. Regulated Substance Management

The supplier shall comply with the Philips Regulated Substances List (RSL). This listing of chemical substances brings together all legal, industry and voluntary requirements to which Philips Lighting is committed regarding the chemical substances contained in our products. By signing the GPA, supplier commits to be compliant. The latest version of RSL can be found at:

http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/ODLI20170621_001-PDF-en_AA-Philips_Lighting_Regulated_Substance_List_RSL_May_2017.pdf

Suppliers must demonstrate their compliance with the RSL by uploading their compliance declarations into BOMCheck, an online cross-industry platform. Supplier shall provide evidence of compliance for products, raw materials and process materials according to the latest EU/CH RoHS and REACH requirements. Data shall be not older than one year and be measured by a third party accredited laboratory.

Data will be regularly validated by Philips Lighting and request evidence to suppliers. If suppliers are IECQ HSPM **QC080000** certified, validation will not be required.

1.6.3. Conflict Minerals and responsible sourcing

Conflict minerals are minerals mined in conditions where armed conflict and human rights abuses occur. The term is often used to refer to four minerals – tungsten, tantalum, tin and gold (also known as 3TG) – that are mined in the eastern region of the Democratic Republic of the Congo (DRC).

Responsible sourcing of minerals is an important part of our supplier sustainability commitment. We implement measures in our chain to ensure that our products are not directly or indirectly funding atrocities in the DRC. In addition to these conflict minerals, Philips Lighting also aims to ensure we do not source Mica and Cobalt from sources where human rights may be abused.

Suppliers are required to provide information on their sourcing of raw materials that may contain conflict minerals, mica or cobalt. On a yearly basis, a declaration (CRMT) needs to be submitted, where this information is provided. The latest template can be found at:

http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/ODLI20170203_001-UPD-en_AA-Philips-Lighting-Conflict-Minerals-Declaration-2017.pdf

1.6.4. Carbon disclosure

Philips Lighting believes that climate change and the growing need for energy consumption require innovative solutions and transformation in the behaviour of companies and people. We contribute with energy-efficient products and our carbon neutral commitment for our own operations. In addition, we motivate our supply chain to reduce its carbon footprint.

We are a member of the CDP Supply Chain program and Suppliers are yearly required to provide information on their carbon footprint in the CDP Questionnaire. We support our suppliers with training and tools to facilitate transparency and emission reduction activities.

1.6.5. Wood & Packaging Requirements

As part of our environmental approach towards wood and packaging, Philips Lighting requires packaging suppliers to use recycled materials to implement the final targets (paper >80%; PET plastic > 25%) and/or


other certified renewable resources or bio-based materials. Sustainable wood products shall be used from responsible sourcing.

The supplier shall provide evidence of compliance (e.g. amount of recycling, weight) to Philips together with all other documents under Development Process before Commercial Release.

1.7. Relationship Requirements


Philips Lighting believes in open and honest communications. Below are the routine communications we proactively expect from all our suppliers:

When to raise the red flag and report to Philips immediately:



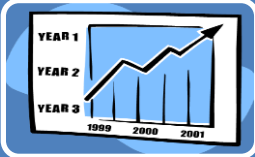
- Quality incidents in own and sub-supplier locations
- Non compliance to environmental regulations
- Proposed material or process changes
- Proposed manufacturing location changes
- Sub-supplier capacity or quality issues that may affect Philips' deliveries
- Communicate other known and potential supply problems and allocations

Know where you stand:




- Supplier portal (if applicable) or other communication channels
- Global Supplier Rating System (GSR) Report, i.e., quality, delivery, cost, responsiveness and innovation
- Overview of all complaints from Philips Lighting and its subcontractors

Keep us informed:



- Current manufacturing lead times
- Yield performances
- Delivery targets
- Outgoing PPM targets
- Best practices/lessons learned in supply chain excellence
- Renewal or expiration of ISO certifications
- BOMCheck

Risk management

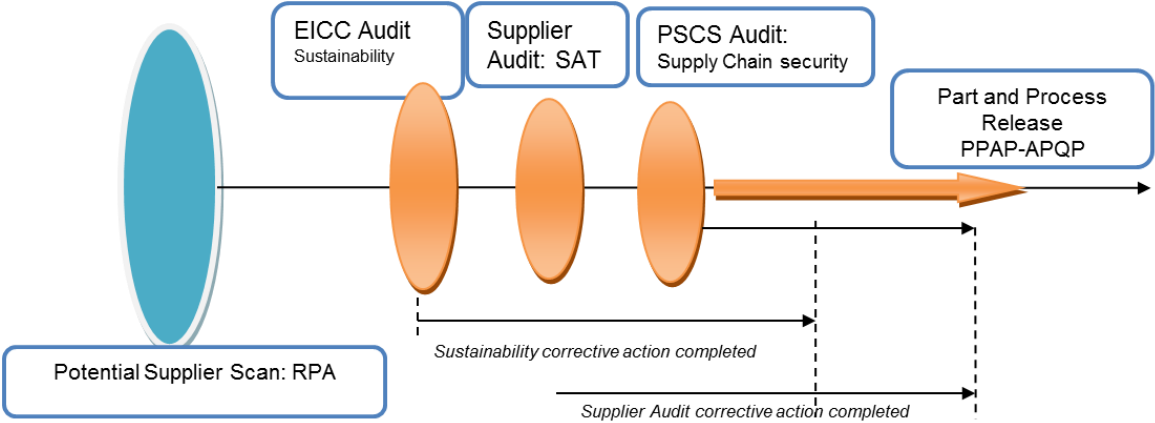


- Financial situation – i.e. sharing your financial report with us at least annually and being prepared to discuss it when requested
- Capacity issues – i.e. notifying us in case of (suspected) raw material or component scarcity
- Supply continuity issues – i.e. warning us in case of a (suspected) natural or geopolitical issue which may disrupt supply

2. Supplier Selection and Qualification

2.1. Supplier Selection and Qualification Process

Philips Lighting maintains a supplier selection process that evaluates and identifies potential sourcing partners. Commodity Management is responsible for selecting suppliers. This is done in cooperation with Supplier Quality and Procurement Engineering. The selection is based on a formal evaluation process as outlined below:



Based on size and risk related to the new business a subset of the activities mention may be executed.

2.2. Potential Supplier Scan

Philips Lighting continuously executes new projects, for which new suppliers may be required. In such cases a list of requirements will be made against which a first choice of suppliers can be made. Usually, this choice results in a long list of suppliers. To guarantee a detailed assessment with open discussions and to safeguard confidentiality, a Non-Disclosure Agreement (NDA) may be signed between Philips and the potential supplier.

High level information regarding the potential suppliers may be collected through a supplier questionnaire. During an on-site visit a Rapid Plant Assessment may be executed.

Rapid Plant Assessment												
Company		Supplier XXXX										
Plant		Plant ZZZZ										
Rated by												
Date dd/mmm/yyyy		your email address										
Measure	Score	Yeses		your email address							Scores	Industry Standard
		See	Result	1	3	5	7	9	11			
1	Customer Satisfaction	1-2-20	3 / 3								0%	50%
2	Safety, environment, cleanliness, & order	3-5-20	3 / 3								0%	50%
3	Visual Management Deployment	2-4-6-10-20	5 / 5								0%	50%
4	Scheduling system	11-20	2 / 2								0%	50%
5	Product flow, space use & material movement means	7-12-13-20	4 / 4								0%	50%
6	production efficiency / SOP execution	n/a	n/a								0%	50%
7	Inventory & WIP Levels	7-11-20	3 / 3								0%	50%
8	People teamwork, skill level, & motivation	6-9-14-15-20	5 / 5								0%	50%
9	Equipment & tooling state & maintenance	16-20	2 / 2								0%	50%
#	Ability to Manage Complexity & Variability /Engineering resources	8-17-20	3 / 3								0%	50%
#	Supply Chain Integration	18-20	2 / 2								0%	50%
#	Quality System Deployment	15-17-19-20	4 / 4								0%	50%
Totals			20 / 20								0%	50%

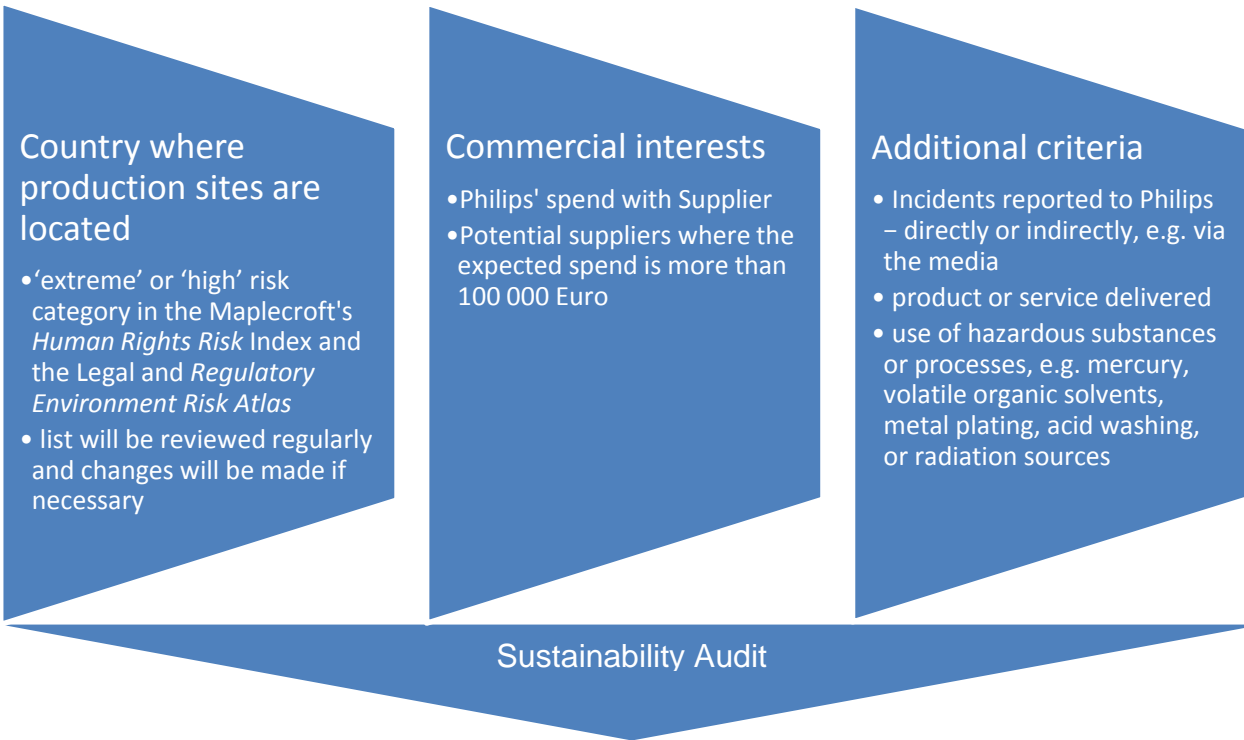
2.3. Sustainability Audit

As outlined in paragraph 1.6.1. we require all our suppliers to comply with the Philips Supplier Sustainability Declaration and evaluate their compliance through a sustainability audit based on the EICC (Electronic Industry Citizenship Coalition) requirements. This requirement forms an integral part of any commercial agreement between Philips and the supplier.

A sustainability audit may be executed depending on the risk profile of a supplier. The detailed program can and requirement be found at:

http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/Global/ODLI20170307_001-UPD-en_AA-Philips-Lighting-Supplier-Sustainability-Audit-Program-Manual.pdf

The Supplier's risk profile is determined by criteria relating to:

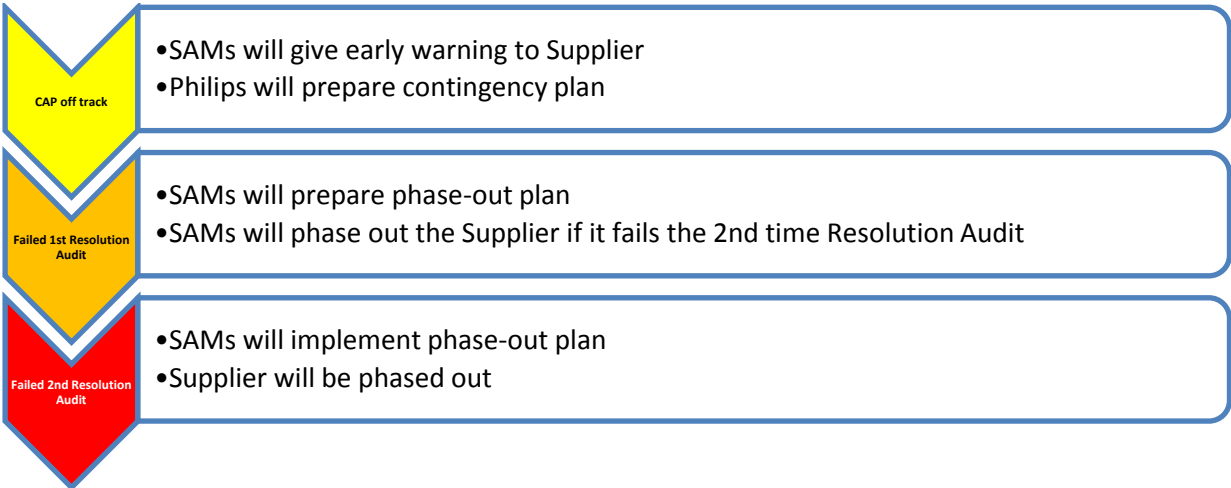


Audits will be executed by an external agency
Reference are the EICC requirements.
The costs need to be paid by the supplier

The Sustainability audit may result in non-compliances. These non-compliances need to be closed as soon as possible but at least as per schedule below:

	Progress check against milestones	Resolution Audit 1	Resolution Audit 2	New Audit Cycle
Zero tolerance (ZT)/ Critical/ Major Non Conformances	According to milestones determined in CAP (1 month suggested for ZT, 3 months suggested to critical and major NCs)	Before end of the longest timeline agreed in the CAP	3 months after the 1 st Resolution Audit if necessary	3 years after the Full-Scope Audit date
Minor Non-conformances	Monitoring takes place in supplier development program if applicable. No official follow up by Philips Lighting.	N/A	N/A	3 years after the Full-Scope Audit date

If Philips notices that there is a delay in the realization of the CAP, the following situations may arise:



Potential suppliers may only start shipments after all non-compliances have been corrected

2.4. Supplier Audits (SAT)

The primary goal of executing a Supplier Audit is to collect objective evidence identifying potential risks for Philips Lighting in doing business with the supplier under investigation. Audits verify the desired state of suppliers against requirements predefined by Philips Lighting internal stakeholders.

The scope of the audit depends on the expected spend and the expected risks. For suppliers with high or medium risk products and/or high exposure audits are done every 2 years. Audits are also done “for cause”, when there are clear indications of deviations or other risks at suppliers. The Supplier Audits will be done by means of a Philips Lighting Supplier Audit Tool (SAT), covering several Business processes. The SAT contains all elements of the internationally recognized VDA 6.3 standard, but is extended with several elements on Management and Organization, Sustainability, Supply Chain capabilities and Supply Chain Security. The elements on sustainability and supply chain (security) only serve to get a first impression of the level of control but do not replace a full audit.

The below table specifies the minimum requirements for audits. Individual Philips entities may decide to execute more extensive audits. High risk supplies mentioned in the table are suppliers where we source either high/medium risk or high exposure products (see paragraph 1.4).

(Expected) yearly SPEND	New Suppliers (Supplier release audits)	Existing Suppliers Low risk	Existing Suppliers High risk/"for cause"
<100K Euro	Outgoing inspection (OQC)	OQC only "for cause"	SAT
>100K Euro	SAT	SAT only "for cause"	SAT (at least bi-yearly)

One time Buy suppliers that are supply specifically for one project but will not be used again in other projects do not require to be audited. In case the spend is >100K Euro, Outgoing inspections are required.

Re-assessments are based on risk. Only those suppliers with significant risks for Philips Lighting or where we have recently experienced issue are identified will be re-assessed. "For cause" audits may be triggered by events such as

- Change of Location
- Performance issues/ Warning letters
- Change of Technology
- Suspected financial problems at the supplier
- Change of Management
- Large growth in the business

During the audit observations of the following types may be made:

- **Full compliance:** meeting requirements, fit for business
- **Compliance with remarks:** meeting requirements, fit for business, suggestion for improvement
- **Minor Non-Compliance (NC):** Minor improvements needed to comply with requirements, limited risks
- **Major Non-Compliance (NC):** Significant improvements needed to qualify, major risk
- **Blocking Non-Compliance (NC):** Unacceptable risk, immediate project- or production stop; Issue must be solved before restart is possible

At the end of the assessment, the Philips team will provide the results and areas for improvement. SAT Audits can result in a GREEN, YELLOW, RED or BLACK score. Depending on the outcome different follow up is required as shown in the table below.

	Description	Criteria	Resolution requirements
A	Pass. Supplier meets requirements. No or limited improvements needed.	<15% of questions with Minor NC, no Major NC's and no Blocking NC's	NCs to be resolved within 6 months
B	Conditionally pass. Corrective action and containment are required. Limited risk	<30% of questions with Minor NC, and/or ≤2 Major NC's and no Blocking NC's	Major NCs to be resolved within 3 months, minor NCs within 6 months
C	Fail. Supplier's process is incapable to meet requirements. Corrective action and containment are required. Major risk.	≥30% of questions with Minor NC, and/or >2 Major NC's and no Blocking NC's	Major NCs to be resolved within 3 months, minor NCs within 6 months
D	Fail. Blocking issues found. Project or regular production on hold until corrective actions have been implemented.	1 or more blocking NC	Discussion with Philips if resolution is required as business is likely to discontinue

In case of a C result, Philips Lighting may decide to issue a waiver to continue or start business under controlled conditions. In such cases at least proper containment actions need to be in place.

2.5. Philips Supply Chain Security audits (PSCS)

The purpose of the Philips Lighting Supply Chain Security (SCS) Program is to enable Philips Lighting to secure the goods flow in such a way that tampering, theft, unobserved goods replacement, addition of unfamiliar goods or other unauthorized access to the goods flow will be prevented as much as reasonably possible. This includes internal and intercompany transport.

Philips Lighting Supply Chain Security is in line with programs set up by governments, such as: Customs-Trade Partnership Against Terrorism (C-TPAT) from the US Department of Homeland Security, Authorized Economic Operator (AEO) in the European Union, India and Japan. In line with the SAFE framework of the World Customs Organization more countries are developing programs. Not following these programs will lead to more complex customs procedures and serious delays at international borders resulting in higher pipeline inventories and cash flow impact for Philips Lighting.

The SCS Policy is mandatory for all Logistics Service Providers and Finished Goods Suppliers that are involved with managing cross border shipment of Philips Lighting products. To verify compliance, the PSCS (Philips Supply Chain Security) self-assessment is used. The self-assessment and further guidance can be obtained via the SAM or SQE.

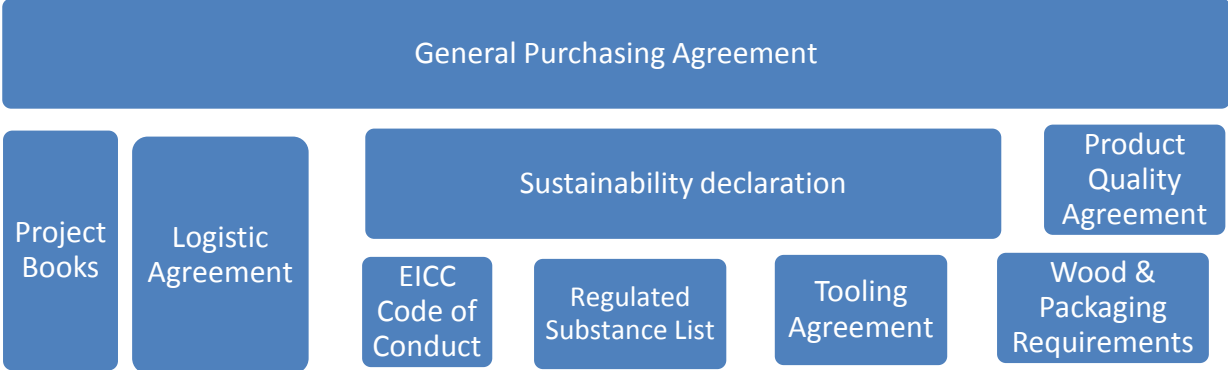
The PSCS self-assessment checklist will be sent and discussed with the supplier, after which the supplier is required to fill it. The checklist requires evidence of implementation of security measures as well as evidence of specific documentation related to supply chain security. Sample procedures are available at Philips Lighting to support the supplier with establishing documentation. The requirement is that >90% of all security requirements are effectively implemented and >90% of all required documentation is available and implemented.

Philips Lighting will review the self-assessment and may provide feedback, requesting for further implementation or documentation. Alternatively, Philips Lighting may decide to approve the self-assessment or execute an on-site verification audit. Usually this audit is executed separate from the SAT audits. However, a first indication of PSCS capability can also be obtained during the SAT audit.

It is Philips Lighting policy that suppliers must be compliant to all PSCS requirements prior to the part or product release, or no later than 1 year after part or product release and business has started. Failure to comply may lead to discontinuation of business.”

3. Supplier Contracting

3.1. General Purchase Agreement



Depending on the expected size of the business and the nature of the business relationship, Philips and the new supplier may sign a General Purchase Agreement (GPA) prior to release in the Philips Lighting supply base. This agreement governs all commercial aspects of the relationship with Philips. The GPA includes aspects such as change control, product release, regulated substances, quality targets, product verification, process control and warranty. Although Philips Procurement is responsible for this agreement, Supplier Quality will be consulted on the content of the contract. The Supplier Account Manager is responsible to agree with suppliers on the GPA content. GPA needs to be reviewed by Legal and SQM prior to final signing.

Philips can define the need for separate Product Quality Agreements, Project books, logistic agreements or tooling agreements as part of the GPA.

3.2. Product Quality Agreement

The Product Quality Agreement is a legal document linked to the GPA. Product Quality Agreements are typically used for single components (L0/L1 level) and define the agreed specifications, documentation and testing. It may contain part specific quality requirements such as fall off & field call rate targets, the list of critical to quality and safety parameters that should be followed, monitored and controlled by supplier and a list of PPAP elements that are required to release the product & part. The PQA should be signed off by the assigned Philips supplier quality manager, procurement manager and supplier representative no later than Supply Release.

3.3. Project Book

The Project Book is a legal document linked to the GPA. Project books are typically used for assembled products (L2/L3/L4/L5) and define the agreed specifications, documentation, project planning and execution details and testing. They determine the responsibility of both Philips Lighting and Supplier for each component in the assembly. It may contain product/ assembly specific quality requirements such as fall off & field call rate targets, the list of critical to quality and safety parameters that should be followed, monitored and controlled by supplier and a list of PPAP elements that are required to release the product & part. Long lead time items and spare part arrangements may be included. The Project Book should be signed off by the assigned Philips supplier quality manager, procurement manager and supplier representative no later than Supply Release.

3.4. Approved Vendor Listing

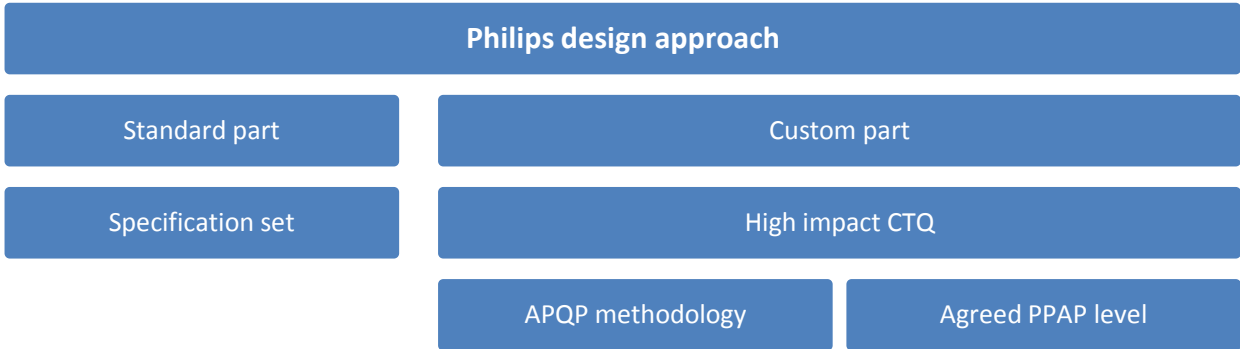
Upon confirmation that the new supplier has been qualified, the Commodity Cluster Team will send a new supplier request to the Sector Commodity Cluster Team Manager for approval. The new supplier will not be added without this approval. After a supplier has been released in the list of approved vendors, parts will have to be released separately by Philips Lighting before they can be used for mass production.

4. Part Design and Development

4.1. New Product Introduction (NPI)

There is untapped potential to accelerate collaborative innovation by aligning supplier innovation teams and strategic initiatives. Suppliers are expected to provide valuable inputs during these initiatives.

Where applicable, Philips Lighting will take the lead and share with suppliers the customer requirements on design, environmental requirements, reliability and quality goals. Upon request, suppliers should participate in design activities, e.g., Design-In workshops, Design for Assembly/Manufacturing, DfSS and/or PPAP. Inputs may be requested to Design for eXcellence conventions.



We differentiate the approach based on the impact of the Supplier’s contribution to innovation, the complexity of the part involved and the industry practise. Philips Lighting PPAP main objective is to support supplier defining a plan ensuring that a product, component or subassembly satisfies Philips requirements and to facilitate easy communication with the Supplier. It has a strong focus on manufacturing and industrialization and is complementary to Design for Six Sigma methodology used across Philips development organizations.

PPAP allows us to match the voice of customer with the voice of the suppliers (VOC = VOS) and is the hard proof the supplier understood our requirements

Philips Lighting PPAP is based on the standard of the automotive industry (AIAG) but is customized to take into account the diversity of the product portfolio, size and volumes across different business and sectors within Philips Lighting.

The objective is to identify, track and control the CTQs throughout the development and manufacturing process to meet the requirements. Each CTQ agreed is to be controlled by supplier and should be part of the supplier quality systems and as such part of the PPAP package presented by supplier as evidence of compliancy to requirements.

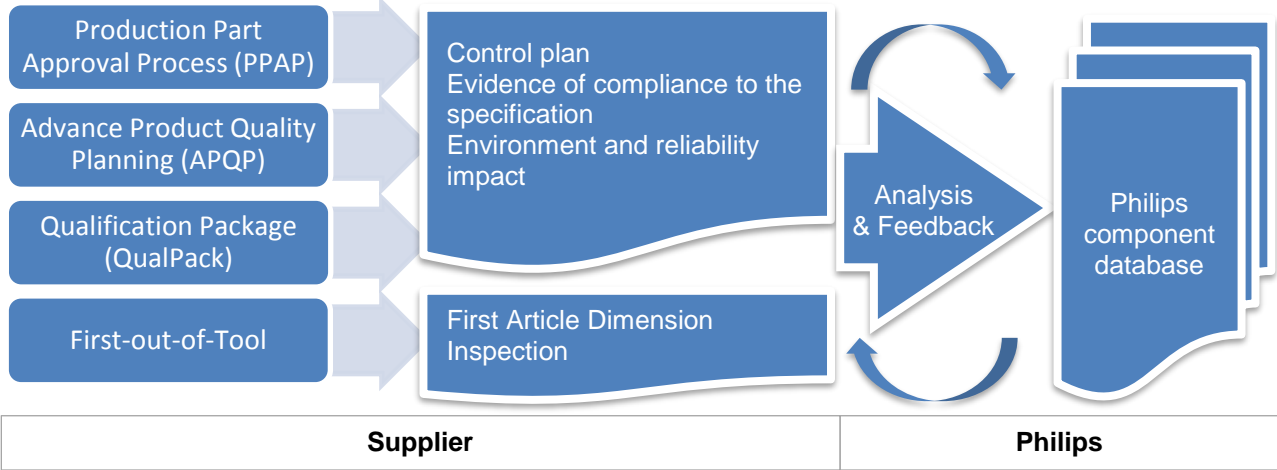
In case of electronic components, Qualpacks may also be accepted instead of PPAP. For simple tool related components, First Article Dimension Reports may be used to release a part. Decision of which method is to be used for part release is at the discretion of the responsible SQE.

4.2. Prototype Requirements

Throughout the product development stages, Engineering will request prototype samples for testing and evaluation. The supplier shall have a control plan when producing the prototype samples. The samples shall also be fully traceable for future analysis purposes and supplier shall have test data (part and process) available upon request. Non-approved suppliers may submit prototype samples for testing and evaluation,

but must not ship production level parts until the supplier is approved through the Supplier Selection and Qualification Process.

4.3. Part testing



Philips Lighting will request relevant data from the supplier, e.g., control plan and evidence of compliance to the specification, the environment and reliability impact. Upon receipt, Philips Lighting will make a judgment on compliance to the PPAP/QualPack requirements. If gaps are identified, Philips Lighting will request additional data or arrange for additional testing. Any failures found will be shared with the supplier. The supplier shall take actions to bring the part to the desired specifications. The part will have to be re-qualified before it is added into the Philips Lighting or BG specific Component Database.

For tool related parts, First-out-of-Tool parts will be released based by means of the ‘First Article Dimension Inspection’ report. Process for this is:

- The supplier shall measure, at minimum 5 parts, all dimensions on the drawings
- For multi-cavity production tools, the supplier shall measure all cavities in the tool
- The supplier shall perform process capability studies on CTQs. The Cpk indices must be calculated on a minimum of 30 parts and must meet the required Cpk level as described in chapter 5.2 Supplier Process Capability Requirements

4.4. Production Part Approval Process

The primary objectives for Production Part Approval Process (PPAP) are:

- Ensure part meets specifications
- Ensure supplier has robust process controls
- Ensure supplier has capable processes on CTQ parameters
- Ensure supplier has the proper measurement equipment on CTQ parameters
- Ensure that supplier understands that changes require notification

To demonstrate that these objectives are consistently met, the supplier shall submit Production Part Approval Process (PPAP) documents or (only in case of semiconductor parts) Qualification Packages (QualPacks) for at least the following situations:

- A new part
- Correction of a discrepancy on a previously submitted part
- Design or process change

- Change in source of second tier supplier material
- Part modified by an engineering change to design records, specifications or materials
- Transfer or rearrangement of tooling & equipment within a manufacturing location or to other locations
- Change in manufacturing methods or production processes
- Change in second tier supplier
- Production stop for more than one year

The supplier is responsible to conduct the proper quality planning prior to PPAP or QualPack submission.

Philips has defined three PPAP levels to release components and the following details are required per each level from supplier:

PPAP element		Level 4.1	Level 4.2	Level 4.3
1	Design records. (drawing)	X	X	X
2	Engineering Change Documents			X
3	Customer engineering approval			X
4	Design FMEA			X
5	Process flow diagram		X	X
6	Process FMEA		X	X
7	Control plan		X	X
8	Measurement system analyses		X	X
9	Dimensional results (Fit)	X	X	X
10	Material & Performance test results (Function)	X	X	X
11	Initial process study (Statistic)	X	X	X
12	Quality Laboratory Documentation	X	X	X
13	Appearance approval record (Form)	X	X	X
14	Sample of the product submitted (Run@rate, Pilot Run)	X	X	X
15	Master sample product submitted			X
16	Checking aids			X
17	Customer specific requirements	X	X	X
18	Part submission warrant	X	X	X

4.4.1. Manufacturing Release

Manufacturing release is part of the PPAP process. In case PPAP is not followed, manufacturing release through a trial run remains a requirement so that Philips Lighting can provide feedback prior to the release of the new part for manufacturing. Process Engineering will conduct the trial run and provide a Manufacturing Release Report prior based on run@rate to full production with the new part. Outsourced manufacturing sites will perform such a release according to their own internal procedure. The report is one of the deliverables according to PPAP (see above, element 14).

5. Process Release

5.1. Process release requirements

5.1.1. Supplier Process Capability Requirements

Philips Lighting requires all suppliers to have good knowledge of Statistical Process Control. The process capability requirements for all parts Critical to Quality (CTQ) are defined below:

Capability Index	$C_{pk} < 1.33$	$1.33 \leq C_{pk} < 1.67$	$C_{pk} \geq 1.67$
Comments	Corrective action plan required Production and delivery can start only after approval	No action required for existing/legacy products	Mandatory for all new designs

Process stability (must be proven with control chart) is a pre-requisite to C_{pk} calculation.

Suppliers shall demonstrate that they meet the process capability requirements in the PPAP or QualPack submission. C_{pk} requirements are subject to change depending on the project.

5.1.2. Measurement System Analysis (MSA)

The quality of measurement data produced by test equipment and gages is important to determine process and part conformance. The supplier shall establish a program for all gages to identify measurement error and how it relates to process or part conformance. Gauge repeatability and reproducibility (GR&R) can be best determined by using the average and range method for a variable gage study.

Gauge R&R (% Tolerance based on ANOVA method)	0 - 10% error	10% - 30% error	>30% error
	Acceptable measurement system	Conditional, depending upon importance of CTQ, process capability study	The gage needs improvement and should not be used to measure control plan CTQ's

GR&R studies are required for PPAP approval for all CTQ's identified in the PQA/MQS.

5.1.3. Calibration

The supplier shall establish a calibration system that will track and account for each gauge and measuring instrument individually. Established calibration intervals shall be documented, and each instrument shall be traceable to its last calibration date. Documentation shall include the actual quantitative measurements taken during the calibration, in order to monitor long-term performance.

Employees involved in using calibration equipment should have documented training on the instruments they use. Documentation of training records shall be retained for verification purposes.

Reference for Calibration shall be according ISO17025, latest edition.

5.1.4. Process Special Requirements

For different types of manufacturing processes special requirements may be applicable. Examples of these special requirements are:

- Temperature and humidity control
- Electro Static Discharge (ESD) protection
- Clean room conditions
- Safety products/parts
- Etc.

In general Philips Lighting will follow industry standards, but may deviate from this when this is deemed necessary. In these cases, the supplier will be clearly notified or vice versa.

5.1.5. Maintenance

All manufacturing processes require maintenance in some form or another. Philips Lighting requires suppliers to have a preventive maintenance plan in place. Corrective or breakdown maintenance is expected to be monitored, analysed and reduced. Preventive and corrective maintenance records need to be kept for verification.

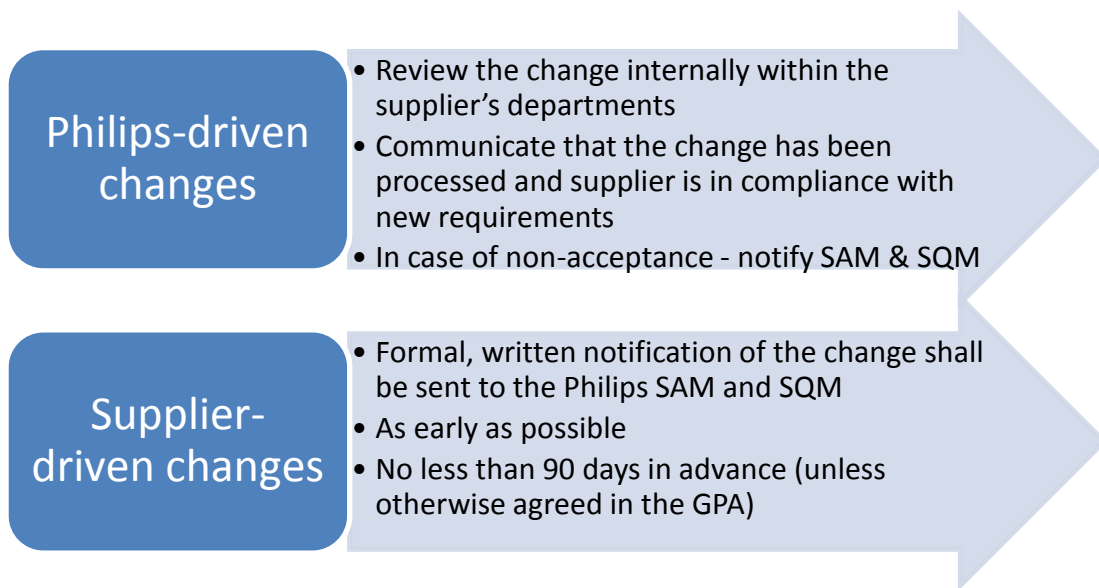
5.2. Supplier Application Signoff

Philips Lighting holds suppliers in high regard and recognizes them as the expert of their parts and processes. Philips Lighting depends on the suppliers to infuse this expertise into the parts and processes.

For critical parts, Philips Lighting may seek the help of the supplier to review the design to verify that the right part has been selected for the application and that there are no adverse conditions in the manufacturing processes that can negatively impact the reliability of the part. Philips Lighting will initiate this activity with the suppliers. Once the proper reviews have been conducted with no concerns identified, the supplier shall sign off on the application.

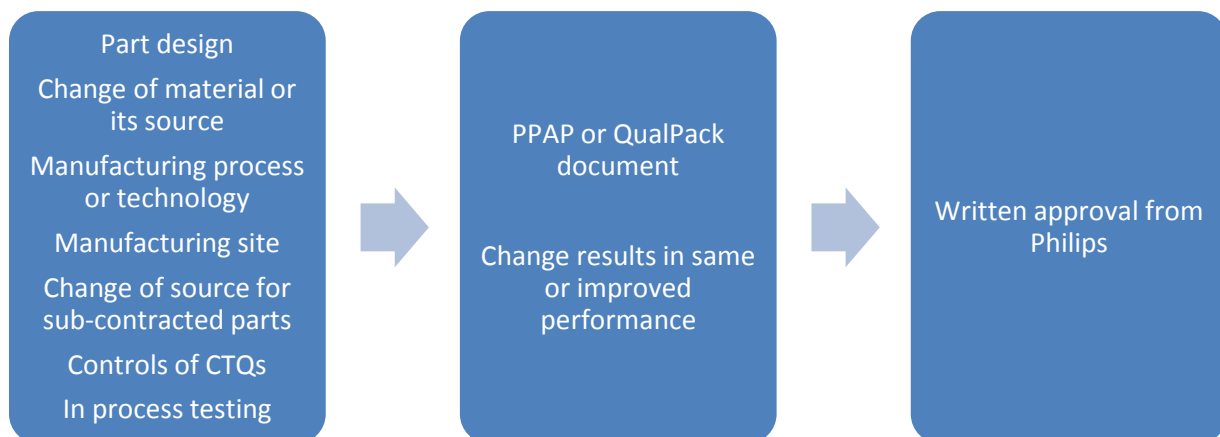
5.3. Change Control

There are two sources of change, Philips Lighting driven and supplier driven.



Suppliers shall demonstrate via PPAP or QualPack documents that the change will result in the same or improved performance. Philips Lighting may ask for additional time and samples for testing and may schedule an on-site assessment or may request additional quality documents, e.g., risk-assessment, updated Control Plan, transfer FMEA or a Delta analyses. Suppliers shall make sure that the change is traceable, without changing or adding any visible marking on the outside of the parts.

No change is allowed without written approval from Philips Lighting



For Part Termination Notifications, the Supplier shall inform Philips Lighting twelve (12) months in advance of last planned production date and eighteen (18) month before last shipment date unless otherwise agreed in the GAP. Supplier is expected to provide alternate parts and/or support in a Last Time Buy option.

5.4. Reliability

Suppliers shall test the reliability of the parts as agreed in PQA/Project book, specification/drawing in accordance with international industry standards. In case of doubt supplier shall contact the Philips Procurement representative.

Supplier shall monitor and analyse reliability testing results and inform Philips Lighting immediately in case of abnormalities.

6. Quality Control, Incident Management and Performance Monitoring

6.1. Cost of Non-Quality Reduction

Philips Lighting is committed to the principle of Continual Improvement and use Cost of Non-Quality as a measure of our performance. Non-conforming parts are to be reduced. We will actively cooperate with suppliers to investigate the cause of failure of non-conforming parts and the implementation of corrective and preventive actions.

6.2. Receiving Inspection

Suppliers must focus on prevention, not detection, and strive to improve their processes and the quality of the parts. Philips Lighting will focus on improving the supply base so that this non-value-added activity can be eliminated.

To help reduce the receiving inspection efforts and the overall Cost of Non-Quality (CoNQ), Philips Lighting may request the supplier to submit evidence of the supplier's outgoing and/or process quality control data related to Critical to Quality parameters (CTQs) and Fall Off Rate (FOR) data.

Philips Lighting or its outsourcing party may perform receiving inspection in accordance to internal procedures having an acceptance level of zero defects. Philips Lighting or its outsourcing party may reject any nonconforming parts. Final goal is to have a Direct-Ship-To-Stock way of working, but this will be only implemented for parts or suppliers with a proven track record for good quality.

6.3. In Process Testing

Philips Lighting strives to continually improve the quality of its products. Quality improvement teams are routinely formed to investigate root cause and eliminate problems. In-process test failures are diagnosed, repaired, and recorded. In cases where a part quality problem is suspected, the failed part will be collected and sent to suppliers via a Supplier Corrective Action Request (SCAR) or Non-Compliance Report (NCR). The supplier shall analyse the failure, initiate root cause investigation, and provide corrective and preventive actions to prevent problem recurrence.

6.4. Analysis of Customer Returns

Philips Lighting has Customer Care as top priority and will act as quickly as possible to minimize the impact to them, whenever issues are reported. Suppliers are considered valuable members of Philips Lighting's problem-solving team. Suppliers shall have capable resources and a documented process to support a fast turnaround of customer returns. The turnaround time for the total problem resolution should be commensurate with the urgency of the problem. The resources and the contact information, i.e., names, shipping address, shipping and handling instructions, shall be identified in advance. The supplier shall provide a complete analysis report using the 8D format. Depending on the nature of the problem, more frequent, interim reports will be needed to keep all parties informed.

Supplier's assistance may be needed in helping to resolve the problem at Philips Lighting's Customer or Manufacturing sites. In such cases, supplier shall send the technical experts to accompany the problem investigation at these sites.

6.5. Traceability

The supplier shall maintain a part traceability system capable of identifying production batches and preferably single parts in manufacturing and the supply chain. This system must include design, manufacturing and quality information including relevant material and process data. This information must be made available to Philips Lighting on request.

The supplier shall make clear what the level of traceability is and what traceability ID is used. When deemed necessary specific agreements will be made e.g. for safety related parts.

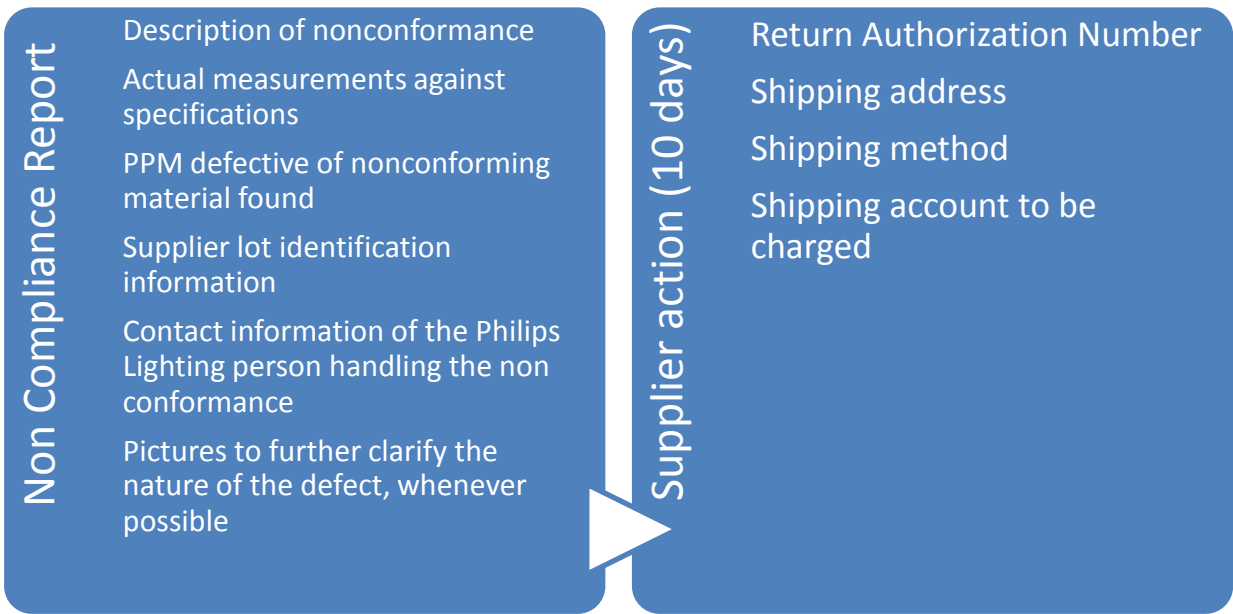
6.6. Part Quality

Part quality is defined as the ratio between the number of parts rejected at delivery or during the warranty period agreed between the supplier and Philips Lighting and the number of Parts supplied in a given time period. Part quality levels can be given on PPM level or percentage.

A reject is defined as a part not meeting the Part Specifications. If a part is rejected, Philips is entitled to claim damages from the Supplier in accordance with the relevant terms and conditions of the GPA and/or any applicable auxiliary agreements. Suppliers may be required to provide PPM data for both their incoming materials as well as their finished goods supplied to Philips Lighting.

6.7. Non-Compliance Report (NCR)

In case parts are rejected a Non-Compliance Report may be issued. NCR is used to recover costs from parts that do not meet Philips Lighting specifications.



Should the suppliers desire defect samples for analysis, it is the supplier’s responsibility to make such arrangement. Not having defect samples is not a valid excuse for missing the 10-day requirement.

Philips Lighting or its outsourcing party will provide this information to Logistics for the proper return of the material. After the return, Logistics will provide Negative Receipt Number to Accounts Payable as proof of shipment. After the proper accounts have been credited, Accounts Payable will close the NCR.

6.8. Supplier Corrective Action Request

In addition to the Non-Conformance Report, Philips Lighting or its outsourcing partner may request corrective actions from supplier. This is done via a Supplier Corrective Action Request (SCAR). The SCAR shall reference the NCR for complete non-conformance description where applicable. The SCAR can be communicated by e-mail or via a dedicated website. Instructions on how to complete the SCAR are included on the 8D Corrective Action Report. The mandatory 8D format can be found at: http://www.lighting.philips.com/b-dam/b2b-li/en_AA/company/supplier/problem-solving-report.docx

Supplier shall comply with the following requirements, unless specified otherwise in the GPA:

Non-conformance category	Confirmation and containment action	Root cause analysis and corrective action plan (tier 1)	Complaint solving/root cause analysis (tier 2)
Critical or safety issue*	24 hrs	5 calendar days**	According to agreed action plan
Other	2 days	10 calendar days**	According to agreed action plan

* “Critical or safety issue” is a non-conformance, which is assessed as likely to result in injury to person, material damage, environmental hazard, (potential) Philips customer complaint or other unacceptable consequences

** or otherwise, in case specified in the Philips Lighting complaint report

Containment actions shall first and foremost address how to protect Philips Lighting’s customers from injury or damage and to keep the production line from shutting down. Secondly, the supplier shall address what is to be done with suspect stocks, i.e., at the supplier’s warehouses, at Philips Lighting warehouses, and in transit between the supplier and Philips Lighting. Thirdly, the supplier shall detail the method of screening the suspected stocks, date of first delivery of safe part and how they will be distinguished from normal stock.

The Corrective Action Plan shall include the responsible person for each action and reasonable timing for completion. The supplier shall provide updates to the corrective action plan at the appropriate time. The SCAR will be closed after written approval by Philips Supplier Quality representative in charge of the complaint.

If the problem recurs within a 6-month period, Philips Lighting has the right to disqualify the part. Once a part is disqualified, Philips Lighting will explore alternatives from other qualified suppliers.

6.9. Cost Recovery

Philips Lighting is focused on prevention, but will initiate cost recovery caused by a supplier problem as a necessary part of business. Cost recovery is part of the NCR and SCAR process. All Costs of Non-Quality related to a supplier complaint shall be agreed between Philips Lighting and the supplier and credited before the complaint can be considered closed.

Cost of Non-Quality charges may include (list is not meant to be exhaustive):

- Final product replacement (including replacement in the field and related costs)
- Costs of excess work (rework, sorting, retest, etc.)
- Engineering costs
- Any other related costs, e.g. administration, freight, replacement costs etc.

Supplier will be informed by the SAM or SQM in case a cost recovery process is started. A written summary of all costs incurred will be provided to supplier. Subject to the agreed warranty terms in the GPA, reimbursement details will be agreed with the SAM.

6.10. Cost Prevention

To emphasize Philips Lighting is focused on prevention two main activities are defined to help our suppliers avoiding Cost of Non-Quality in the stages of full mass production.

Monthly Quality Reporting can be requested from the supplier. Although this might seem additional work at first it is an effective way to join forces in avoiding CoNQ. By effectively discussing CTQs, the way to monitor them and by jointly analysing the results (potential) problems can be identified early with a minimum of related cost.

Next to Supplier Assessments during the stages of Supplier Selection, Certification and Process Release Philips Lighting believes it can help suppliers by conducting Supplier Assessments also during the stage of full mass production. These assessments are performed in a similar way, but will mostly be focused on Quality and Manufacturing aspects of a specific site, line, process or group of parts.

7. Supplier Development

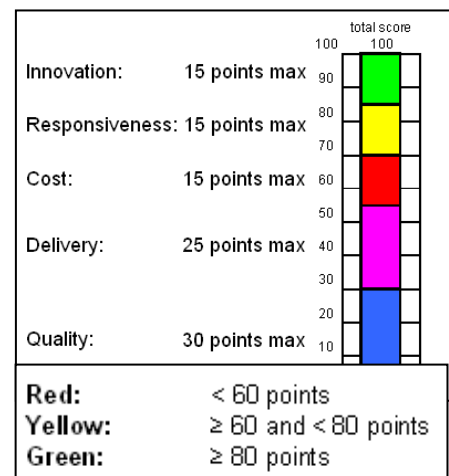
7.1. Supplier Rating

The performance of our most important Suppliers is evaluated in a consistent and standardized way using the Global Supplier Rating System (GSRS). The results are reported back to the suppliers as a basis for further improvement programs. Suppliers can access the results via the Internet. The relevant SAM or SQM may provide this access.

Supplier is expected to review their own performance monthly and to send a corrective action plan in case of RED scores.

The performance is measured against mutually agreed expectations, as well as against other suppliers within the commodity. The sum of the score of 5 elements will be between 0 and 100 points.

Three groups have been defined (red, yellow and green) to easily indicate which suppliers are performing well and which require attention (red and yellow requiring actions)



7.2. 2nd Tier Supplier Quality Management

To assure that the components and materials sourced by the supplier can be supplied and that the quality levels of components from 2nd Tier suppliers meet Philips Lighting requirements, Philips Lighting requests to have insights in the supplier selection of the supply base of its supplier.

The supplier must guarantee the quality of the components supplied by 2nd Tier suppliers. 1st Tier suppliers must select and qualify their suppliers and agree with them through a quality contract on specifications and other requirements. Quality assurance in line can be done through outgoing inspection at the 2nd tier supplier, Incoming Quality Control at 1st tier supplier or both. Especially the key and critical components must be considered. Non-conformities have to be followed up via 8D reporting and problem solving (see also chapter 6). Even if 2nd tier suppliers are selected by Philips or if Philips has approved those suppliers, the 1st tier supplier remains solely responsible to ensure the 2nd tier supplier parts conform to all quality requirements. Exemption to this rule is only possible in case of explicit agreement in writing between Philips and the 1st tier supplier.

2nd tier suppliers must be regularly audited by first tier supplier. In joint meetings with Philips representatives audit results and corrective action plan will be shared with Philips.

7.3. General Business Reviews

Philips Lighting recognizes communication is the key to success and welcomes the suppliers to visit Philips in the headquarters and in their plants. Please schedule these informal meetings in advance.

For specific suppliers Philips Lighting will conduct general business reviews periodically. These reviews will be scheduled in advance by Procurement/Supplier Account Manager. They can take place at headquarters, at the plant or at supplier's location. Typical topics for discussion include:

- Review of (quality and delivery) performance (GSRS)
- Technology updates
- Sharing of business climate
- New opportunities e.g. Early Supplier Involvement (ESI)
- Upcoming changes to the business, if applicable
- Supplier site assessments

For suppliers having chronic quality, delivery or communications issues, Philips Lighting will conduct performance reviews. Depending on the nature of the issues, suppliers may be asked to come to company headquarters or at the plant on short notice. Suppliers shall be fully prepared to discuss their corrective action plan on how to rectify the situation expeditiously. Follow up meetings may be required and will be defined in the meeting. If the problem is not corrected, more serious actions will be taken.

7.4. Continual Improvement

Philips is committed to continually improve its performance and that of its supply base. To support these activities, Philips may run supplier (quality) development programs. Participation in these development programs is generally on a voluntary basis. However, in case of structural underperformance of a supplier, participation in the program may be required to remain qualified as a supplier.

Supplier Quality Development programs typically consist of the following steps:

- Announcement of the development program and approach to suppliers to investigate their willingness to participate
- Self-assessment by the supplier, using a standard tool

- Quick scan by Philips Lighting representatives to verify the self-assessment or identify first quick wins
- Formulation of an improvement plan by the supplier
- Implementation of the improvement plan with regular follow up and review by Philips.

In addition to the above, Suppliers may also be invited to participate in the internal Philips Business Improvement Competition.

7.5. Joint Quality Managers/Joint Quality Engineers

To further optimize the cooperation between Philips Lighting and the Supplier, a Joint Quality Manager (JQM) is requested to be appointed on the highest level at the supplier side and/or a Joint Quality Engineer (JQE) at a dedicated site. The JQM/JQE will be the first contact point for Philips Lighting related to Quality issues. This individual must be sufficiently empowered and qualified to ensure a quick resolution of problems and to drive continual improvement programs at the Supplier.

7.6. Supplier (Quality) Workshop

Philips Lighting conducts Supplier (Quality) Workshops as a way to communicate to a large audience any important changes to (quality) requirements or any new (quality) concepts. These are not regularly scheduled events. The suppliers shall keep the company contacts updated so invitations can be sent to the proper person when these events are held.

7.7. Warning letters

In case of serious underperformance Philips Lighting may issue a warning letter. Warning letters are typically issued in following situations:

Category	Deviation
General Business Principles	Any violation to the Philips' General Business Principles.
Contracts	Breach of GPA, GTC, IP Agreements or Non-Disclosure Agreements Refusal to sign SSD, RSL and/or PSCS (for exporters to USA/Europe) as part of the GPA or separately
Compliance to specification	Market recall or serious incident (>100KEuro), (at least partially) caused by supplier
Supplier Audits (SEAT, VDA, sustainability)	Failure to submit an improvement plan after an audit or to close major non-compliances from audits within agreed time
Early Supplier Engagement	Unwillingness to support PPAP where requested
Product release and change control	Unapproved changes or unapproved outsourcing by supplier
Supplier performance	2 times red score on Quality in supplier rating GSRS in 12 months at total supplier level, or 4 times red on Quality at supplier-site level
Other	Any other issue caused by unprofessional behaviour of supplier, seriously impacting Philips or its customers

In all cases a clear corrective action to improve performance needs to be submitted by the supplier. Depending on the issue, a "for cause" audit may be executed by Philips Lighting at the supplier's site. Quality of the corrective action plan and closure of the actions will be closely monitored. Once Philips Lighting is satisfied with the corrective action implementation, the warning letter will be closed.

In case supplier is not willing or able to correct the deviation that was addressed in the Warning Letter, or another serious deviation has occurred within 12 months after issuing the first warning letter, a second warning letter will be issued.

This will impact the business relation with Philips Lighting. Typical actions that will be taken by Philips Lighting may include a temporary new business hold or supplier phase out. In case of very serious deviations, Philips Lighting may decide to blacklist suppliers, leading to a long term ban to deliver.

7.9. Exit Procedure

Changes in business environment will sometimes lead to changes in business objectives and strategies. There may be a time when the business relationship with a supplier will end.

In cases where a supplier is no longer able to serve the needs, Philips Lighting will work to protect the customers against any production interruption. Philips Lighting asks the suppliers to provide as much advance notice as possible. The supplier should maintain the current supply until a viable alternate source can be found.

In case of major quality or delivery deficiencies, Philips Lighting will notify the suppliers of their situation through a warning letter. In case of a second warning letter, Philips Lighting will act swiftly to protect its customers.

After the business relationship has ended, an ex-supplier shall go through the same Supplier Selection process as a new supplier before they can be considered for re-entry into the supply base. The ex-supplier cannot be considered as a new supplier on the Approved Vendor List (AVL) within 18 months after the previous business relationship has ended, unless Philips Lighting decides differently in exceptional cases.

Glossary

8D	Eight Disciplines Problem Solving - method to approach and to resolve problems. It establishes a permanent corrective action based on statistical analysis and focuses on the origin of the problem by determining its root causes
APQP	Advanced product quality planning - a framework of procedures and techniques used to develop products in industry
APQP tracker	The APQP tracker is used to facilitate communication with the supplier and between all functions involved in the project. It ensures that all required steps are completed on time, with a high quality of content during product development process. The tracker has a detailed supplier timing chart synchronized with Philips milestones
BOMCheck	The BOMCheck initiative is led by the European trade association COCIR and delivered by international environmental consultancy ENVIRON. Philips uses BOMCheck portal to list restricted and declare substances for regulatory compliance (REACH, RoHS, Batteries, Packaging etc.) in our products
CAP	Corrective Action Plan
Carbon Disclosure Supply Chain information request	CDP's supply chain program is an annual process that results in consistent information from suppliers on climate- and water-related strategy and action
Conflict Minerals	Conflict minerals are minerals mined in conditions of armed conflict and human rights abuses, mostly in the eastern provinces of the Democratic Republic of the Congo. Companies subject to the conflict minerals requirements must disclose conflict minerals information on a calendar year basis
CoNQ	Cost of Non-Quality
Cpk	The process capability index or process capability ratio is a statistical measure of process capability: the ability of a process to produce output within specification limits
Critical or safety issue	A non-conformance, which is assessed as likely to result in injury to person, material damage, environmental hazard, (potential) Philips customer complaint or other unacceptable consequences
CTQ	Critical to quality
DfSS	Design for Six Sigma - development methodology
DfX	Design For X - X = manufacturability, test, service, procurement, assembly, flexibility, environment, recycling, etc.
EICC	Electronic Industry Citizenship Coalition. EICC members commit and are held accountable to a common Code of Conduct and utilize a range of EICC training and assessment tools to support continuous improvement in the social, environmental and ethical responsibility of their supply chains
EICC tool	Can be found on the Philips Lighting sustainability website:
ESI	Early Supplier Involvement
FOR	Fall Off Rate, defined as the ratio between the number of produced bad parts/number of produced parts expressed in parts per million
FCR	Field call rate, defined as the moving annual total number of products returned from the field/moving annual total number of delivered products to the field, expressed as a percentage
FMEA	Failure Mode and Effects Analysis
GPA	General Purchasing Agreement

GSRS	Global Supplier Rating System - main tool used to continuously measure, monitor and feedback performance of supplier. Details on how each element is rated can be found in: http://www.philips.com/about/company/businesses/suppliers/gsr_training_modules.page
JQE/JQM	Joint Quality Engineer/Joint Quality Manager (see chapter 7.5)
MSA	Measurement System Analysis: A specially designed experiment that seeks to identify the components of variation in a measurement. A measurement systems analysis evaluates the test method, measuring instruments, and the entire process of obtaining measurements to ensure the integrity of data used for analysis (usually quality analysis) and to understand the implications of measurement error for decisions made about a product or process. MSA analyzes the collection of equipment, operations, procedures, software and personnel that affects the assignment of a number to a measurement characteristic.
MQA	Master Quality Agreement
NCR	Non Conformance Report
PPAP	Production part approval process (PPAP) is used to demonstrate that all customer engineering design records and specification requirements are properly understood by the supplier and that the process has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate. The PPAP process is described in paragraph 5.3 in more details.
PQA Kick off meeting	Under the lead of the assigned project SQE, a kick off meeting is organized with the supplier's team to discuss relevant project information which is documented in the PQA and first page of APQP tracker. Following to this meeting, follow up sessions are organized to review the technical product documentation and the list of CTQs. The purposes of these meetings are that the Supplier understands early enough all the specifications of the part to be supplied to Philips and that the Supplier agrees on the feasibility of the technical requirements before any investment is done.
QualPack	Qualification package - set of data and documents (procedures, process maps, forms, etc.) required for production release
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals. REACH addresses the production and use of chemical substances (i.e. everything made of atoms), and their potential impacts on both human health and the environment.
RSL	Regulated Substances List
RFA	Request of Analysis
Risk countries	As described and assessed by Maplecroft. The latest list of risk countries can be found on the following Philips website: http://www.philips.com/about/sustainability/oursustainabilityfocus/suppliersustainability.page
RoHS	Restriction of Hazardous Substances Directive 2002/95/EC, short for Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment
SAM	Supplier Account Manager - Philips focal point of contact for designated supplier(s)
SEAT	Supplier Evaluation and Assessment Tool
SQM	Supplier Quality Manager
SCAR	Supplier Corrective Action Request
SSD	Supplier Sustainability Declaration. More details can be found in The Supplier Sustainability Declaration is based on the Electronics Industry Citizenship Coalition (EICC) code of conduct, supplemented with stricter requirements on collective bargaining and freedom of association, in line with the Philips General Business Principles