Specification for Corrective Action Control of Returned RF PCB Products and Services

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1. Purpose

This specification standardizes the handling process of returned RF PCB products, customer complaints and service abnormalities of the company. It ensures timely root cause analysis, formulation, implementation and verification of corrective actions for all returned RF PCB products and related service problems, prevents recurrence of non-conformities, stabilizes the high-frequency performance, impedance, signal integrity, appearance and reliability of RF PCB products, and complies with ISO quality system and customer audit requirements.

2. Scope

This document applies to the corrective action management of customer returns, incoming material returns, process returns, after-sales quality abnormalities and service-related problems of all RF high-frequency PCBs, radio frequency circuit boards and microwave PCBs of the company, covering the Quality Department, Engineering Department, Production Department, Warehouse Department, Sales Department and all outsourced suppliers.

3. Definition

3.1 Returned Products

All finished, semi-finished and sample RF PCBs returned by customers, returned for process rework, rejected by IQC incoming inspection, or returned due to inventory abnormalities.

3.2 Service-Related Return Problems

Non-physical quality problems fed back by customers, including document errors, parameter inconsistency, impedance data deviation, engineering defects, delivery abnormalities and technical service anomalies.

3.3 Corrective Action

Systematic improvement activities to eliminate the causes of non-conformities and prevent recurrence for occurred RF PCB defects or service abnormalities.

4. Responsibility

4.1 Quality Department

Responsible for judgment, defect analysis and failure confirmation of returned RF PCBs, issuance of 8D/corrective action reports, action tracking, effect verification and document filing.

4.2 Engineering Department

Formulate corrective and process optimization measures for technical problems of RF PCBs such as impedance deviation, line width error, dielectric abnormality, layer offset and signal characteristic defects.

4.3 Production Department

Implement process correction, operation method optimization, equipment parameter calibration, staff training and on-site improvement.

4.4 Sales Department

Collect customer return information, complaints and service abnormalities, synchronize internal notifications and follow up customer closed-loop confirmation.

4.5 Warehouse Department

Responsible for isolation, marking and zoned storage of returned RF PCBs to prevent mixed material outflow.

5. Control Requirements (Corresponding Audit Clause: Is corrective activity applied for a returned product/service?)

The company shall launch 100% corrective action activities for all returned products and service abnormalities without omission or exemption.

A corrective action report (CAR/8D) must be issued in any of the following situations:

Defective RF PCBs returned by customers (blistering, delamination, impedance deviation, micro-short circuit, open circuit, surface scratches, substrate whitening, moisture oxidation, dimension deviation, etc.)

Products returned for process rework and unqualified re-inspection

Returns caused by incoming material abnormalities and supplier defects

Service-related problems fed back by customers including technical service, document, parameter and delivery abnormalities

6. RF PCB Returned Product Handling Process

6.1 Return Receipt and Isolation

After the arrival of all returned RF PCBs, the Warehouse and Quality Department shall immediately isolate and mark them as "Returned Pending Inspection Products", prohibit mixing with qualified inventory and prevent secondary outflow.

6.2 Defect Confirmation and Failure Analysis

The Quality Department shall conduct full inspection, electrical testing, impedance re-testing, appearance analysis, section analysis, moisture analysis and process traceability on returned RF PCBs to confirm the root causes (man, machine, material, method, environment, measurement).

Key analysis items for RF PCBs: impedance deviation, uneven dielectric thickness, line width error, abnormal copper thickness, lamination delamination, temperature-resistant blistering, board surface contamination, oxidation and moisture, alignment offset and abnormal signal performance.

6.3 Corrective Action Formulation

Targeting the root causes of returned defects, the Quality Department shall take the lead with the cooperation of the Engineering and Production Departments to formulate corrective actions, including:

Process parameter correction (key RF processes including lamination, exposure, etching, gold immersion and solder mask)

Recalculation of impedance parameters and MI revision

Equipment spot check, calibration and maintenance

Staff operation training and work standard update

Strengthening warehouse moisture-proof, anti-static and temperature & humidity control

Tightened control over incoming material suppliers

6.4 Corrective Action Implementation

All responsible departments shall complete rectification within the improvement period. The Quality Department shall follow up the progress throughout the process to ensure the implementation of measures. Empty closed-loop without actual improvement is prohibited.

6.5 Effect Verification and Closed-Loop

The Quality Department shall conduct continuous follow-up verification on rectified batches (first article inspection, patrol inspection, shipment sampling inspection, electrical re-testing, impedance confirmation). The case can be closed and filed only after confirming that the defects are completely eliminated.

7. Corrective Action Management for Service-Related Return Abnormalities

For service problems fed back by customers (document errors, parameter reply deviation, engineering problems, delivery errors, communication deviation, etc.):

Collect and summarize problems by Sales/Engineering Department within 24 hours

Analyze error procedures and responsible nodes

Update work procedures, forms and review mechanisms

Carry out staff training and strengthen review mechanisms

Quality Department verifies the effectiveness of improvements and completes closed-loop management

8. Abnormality Traceability and Recurrence Prevention

All corrective action records for returned RF PCBs shall be uniformly filed as the basis for subsequent process improvement, process upgrading, customer audits and system inspections. Recurring similar problems shall be listed as key audit items with upgraded control standards.

9. Relevant Records and Forms

1. Customer Returned Product Inspection Report
2. 8D Corrective Action Report / CAR Corrective and Preventive Action Form
3. RF PCB Defect Analysis Report
4. Rectification Effect Verification Record Form

10. Supplementary Provisions

This specification shall take effect from the date of issuance, and the Quality Department is responsible for its unified interpretation and update.