

Fil-Tech, Inc. Quality Control Inspection Report

Date: 9/5/2006
 Crystal Type: Q18010
 Lot # (s): M5-10324061141AM
 Customer Name: Jelll
 Purpose of Inspection: Customer returned sensors due to cosmetic quality and short "life".
 Quantity Returned: One disc with nine crystals

Appearance and Condition:

All crystals met our cosmetic specifications. Crystal #8 had a small blemish on the edge of the crystal, but due to its size and location would normally pass inspection.

Production Data:

The originaling crystal production run had a 8% defective percentage and production process data was normal.

Summary of Electrical Test Results:

Frequency (Specification 5.975-5.995 MHz):

All crystals tested were within frequency specs.

Resistance at Resonance (Specification <15 Ohms):

All crystals tested were within resistance specs.

Q (Specification 100-2000):

All crystals tested were within Q specs.

Electrode Resistance (Specification <15 Ohms center to edge):

All crystals tested were within Electrode resistance spec.

IC/5 Life & Activity Test (Specifications: Life <5, Activity 499-550)

All crystals tested were within IC/5 life and activity test specs.

Temperature Stability Test (Specification: Range <10 Hz):

Average	5986709.66	A sample of five crystals (# 1-5) were taken for this test. These crystals remained stable through testing and passed the stability test specification.
Std Deviation	0.45	
Max	5986711.29	
Min	5986708.79	
Range	2.50	

Crystal Life Testing (Specification >40K per crystal):

Control Crystal		A sample of three crystals were tested. They ran stable and out performed the minimum specification.
Average=	97.40	
Test 1		
Average=	128.43	

Statistics for Tested Crystals	Results
Count of Sample #	9
Average of Frequency	5986400
Max of Frequency	5990861
Min of Frequency	5980117
StdDev of Frequency	4225.42
Range of Frequency	10744
Average of Resistance	14.49
Max of Resistance	15.70
Min of Resistance	13.00
StdDev of Resistance	1.17
Range of Resistance	2.70
Average of Q	137.67
Max of Q	152.00
Min of Q	126.00
StdDev of Q	10.71
Range of Q	26.00
Avg of Contact resistance	3.2
Max of Contact resistance	4.2
Min of Contact resistance	2.7
Std Dev of Contact resistance	0.5
Range of Contact resistance	0.8
Avg of IC/5 Life	0
Max of IC/5 Life	0
Min of IC/5 Life	0
StdDev of IC/5 Life	0
Range of IC/5 Life	0
Avg of IC/5 Activity	513
Max of IC/5 Activity	530
Min of IC/5 Activity	498
StdDev of IC/5 Activity	12.1
Range of IC/5 Activity	32

Summary and Conclusion:

The crystals met all specifications and did not exhibit any of the characteristics the customer originally stated. Customer should be contacted to ensure that the correct sample was sent back.