# FCC Band Plan Technical Forum (July 16, 2012)

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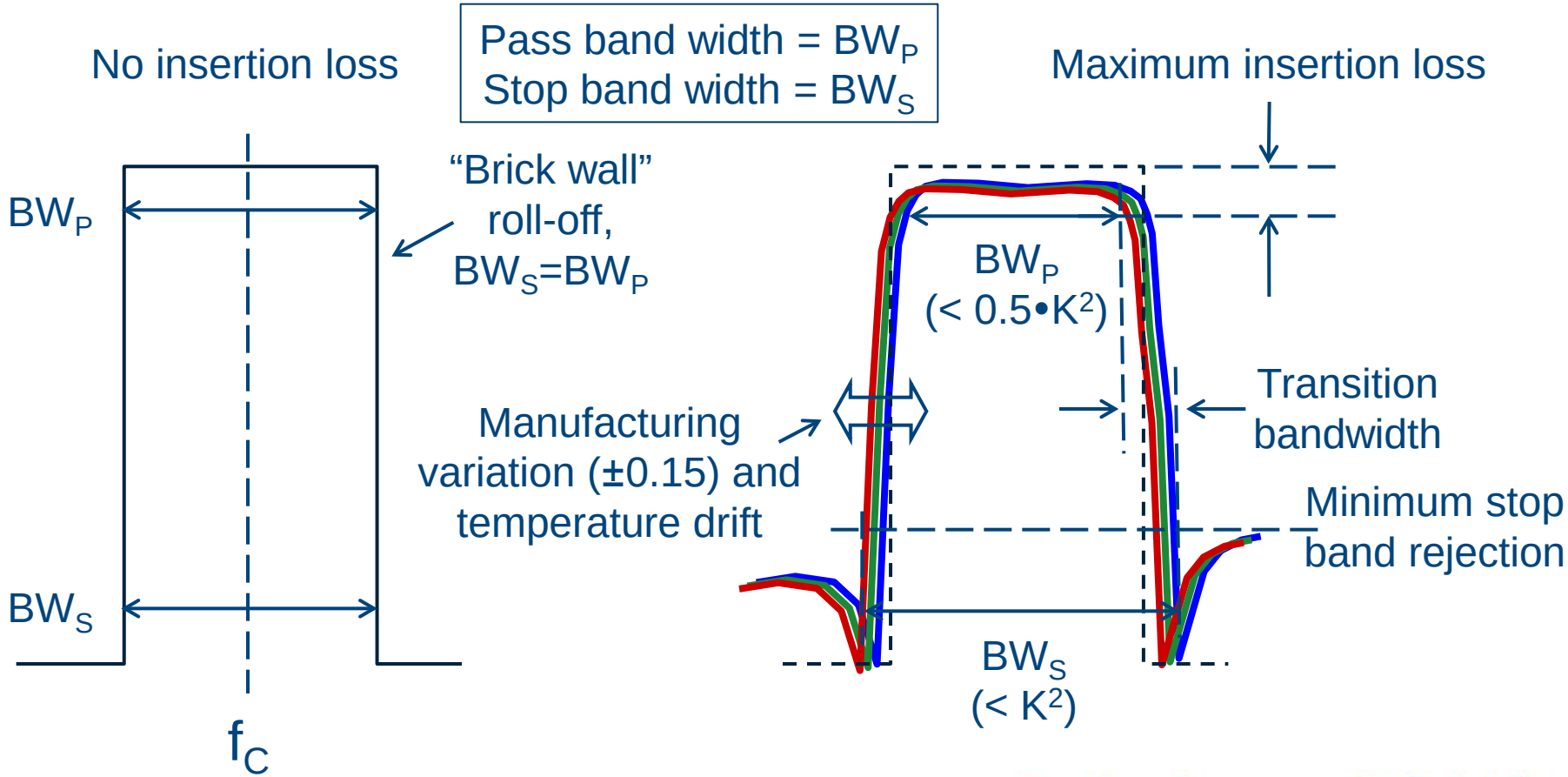
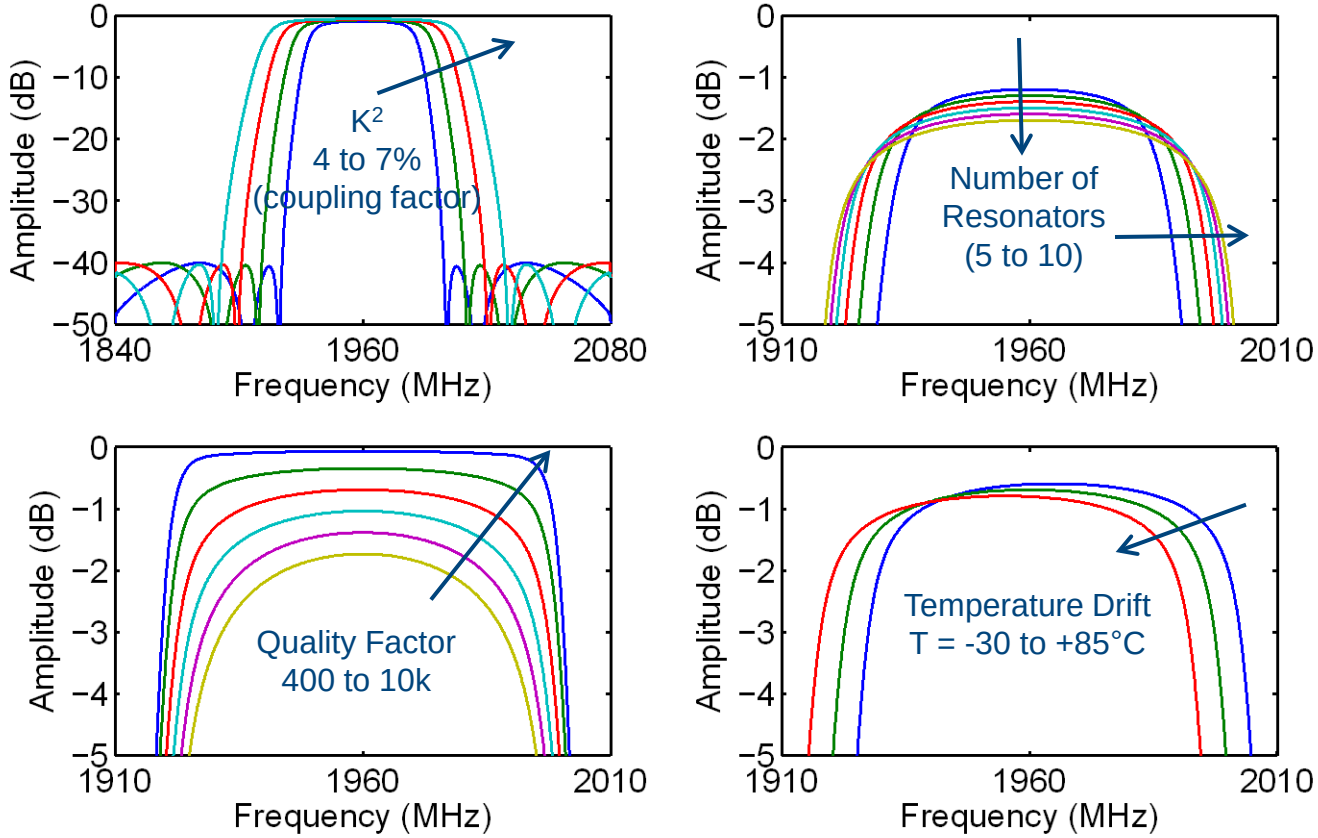
# Scalability of Filter Components

- Scaling means adding additional filters
- Nominal Filter Cost
  - TriQuint considers detailed ASP information to be proprietary
  - Band 2: ASP is greater than three times the ASP for Band 5
- Nominal Foot Print
  - Band 5: 2.0×1.6 $mm^2$
  - Band 2: 2.0×1.6 $mm^2$
- Additional complexity between the transceiver and antennae
  - Increased I/O at transceiver
  - Increased losses due to switches

# Trends in Filter Components

- Improved Filter Selectivity
  - Reduced temperature drift
  - Increased Quality factor
  - Implies a growing market share for TCSAW and BAW filters relative to conventional SAW filters.
- Increases in Piezoelectric Coupling Factor
  - Increases in filter bandwidth
  - Decreases in filter size
  - Implies new piezoelectric materials
- Integration
  - Modules assimilating multiple functions (PA, switch, filters, …)

# Challenges: Ideal versus Real Filters



# Effect of Number of Resonators, Q, $K^2$, and TCF