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July 20, 2010

Written *Ex Parte* Communication

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W. Room TW-A325
Washington, DC 20554

Re: WT Docket No. 06-150; PS Docket No. 06-229; GN Docket No. 09-51

Dear Ms. Dortch:

On July 19, 2010, Sprint Nextel and a number of other companies filed in the above-referenced proceedings a technical paper prepared by Wireless Strategy, LLC entitled "*700 MHz Upper Band Analysis.*" Section VI of this technical paper explained how the duplexer design for the Upper 700 MHz device band class proposed by the Coalition for 4G in America is commercially feasible based on data provided by Avago Technologies. Attached are slides provided by Avago Technologies that set forth this supporting data.

Pursuant to section 1.1206(b)(1) of the Commission's rules, 47 C.F.R. § 1.1206(b)(1), this letter is being filed electronically for inclusion in the public record of the above-referenced proceedings. If any questions arise concerning this filing, please contact me.

Sincerely,

Trey Hanbury, Esq.
Director, Sprint Nextel Corporation

cc: James A. Barnett, Jr.
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Jeff Cohen
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Susan Singer
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Joel Taubenblatt
Peter Trachtenberg
Margaret Wiener
Jeff Goldthorp
Julius Knapp
Tom Peters
Nicole McGinnis

FBAR Capabilities for Combined 700 Upper Duplexer and B13 duplexer

18 June 2010

Comments on Simulations

These are linear (ADS) simulations, using linear offset to model over temperature and over manufacturing variations. Field interactions (HFSS) are not modeled

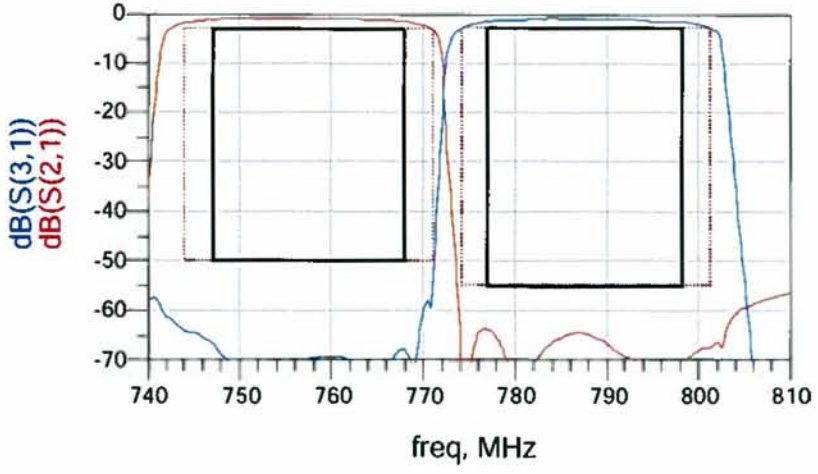
This kind of simulation typically gives a good indication of the bandwidth and roll off that can be achieved. Insertion loss numbers may be a few tenths of a dB optimistic. While these simulations do not allow negotiation of a final specification in detail, they provide enough information to indicate process capability, and can be used to make tradeoffs when considering design options

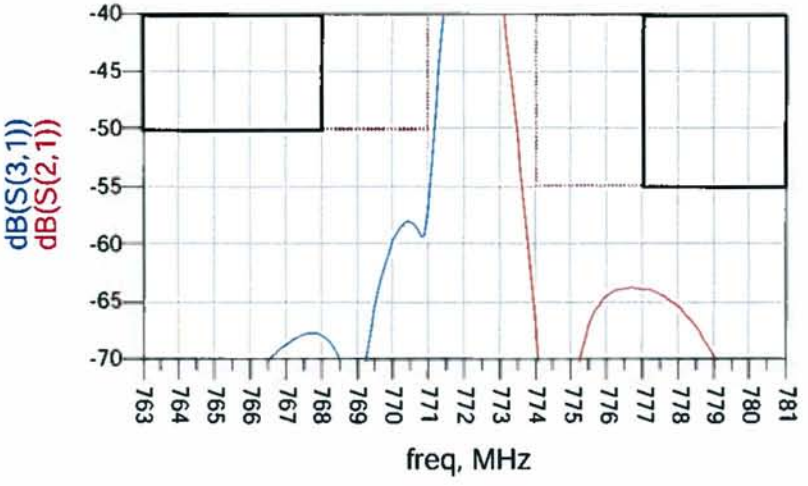
Duplexer pass band:

Tx: 777-798 MHz
Rx: 747-768 MHz

Design predicts IL ~3 dB worst case, with ISO performance ~55 dB Tx-Rx in Tx, ~50 dB Tx-Rx in Rx

700U Duplexer simulation: Pass Bands





IL = 3 dB
ISO = 55 dB

IL = 3 dB
ISO = 50 dB

ISO = 50 dB

ISO = 55 dB

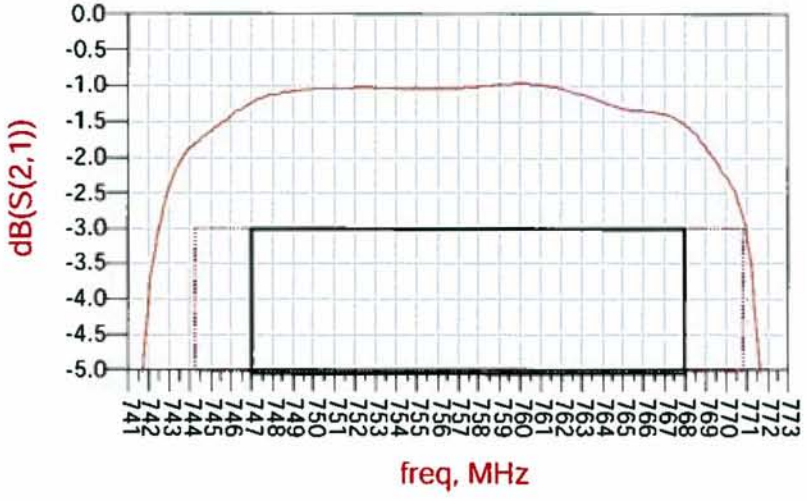
Tx filter

Rx filter

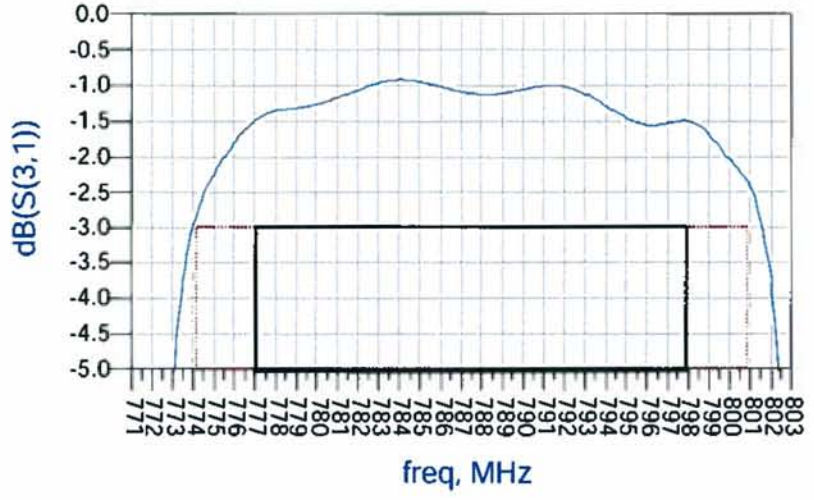
Room temperature nominal

-20 to + 80 + process variation

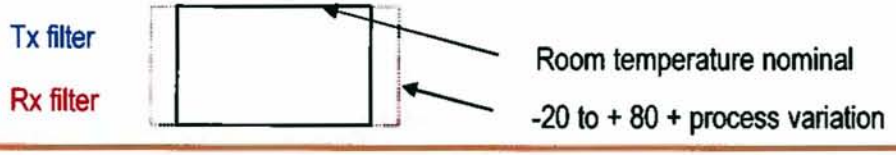
700U Duplexer simulation: Rx Insertion Loss



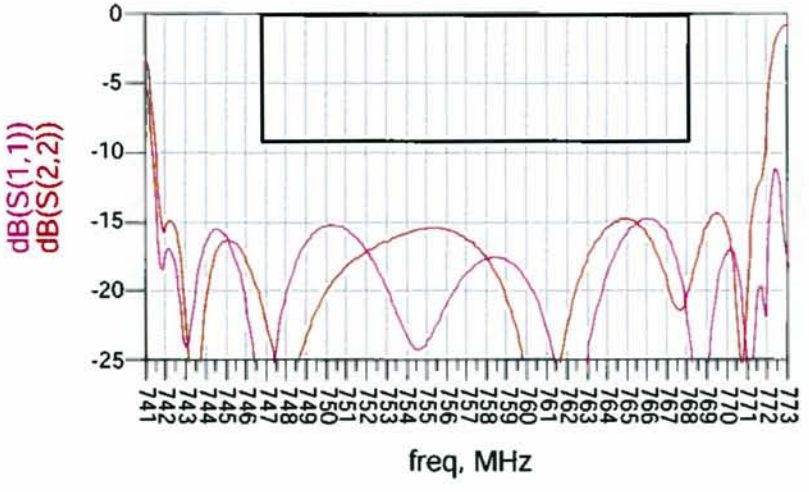
IL = 3 dB



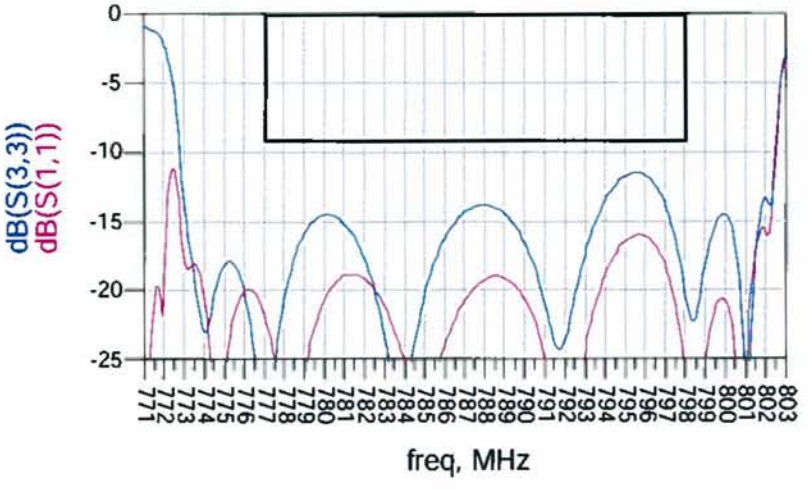
IL=3



700U Duplexer simulation: Return Loss



RL=9 dB



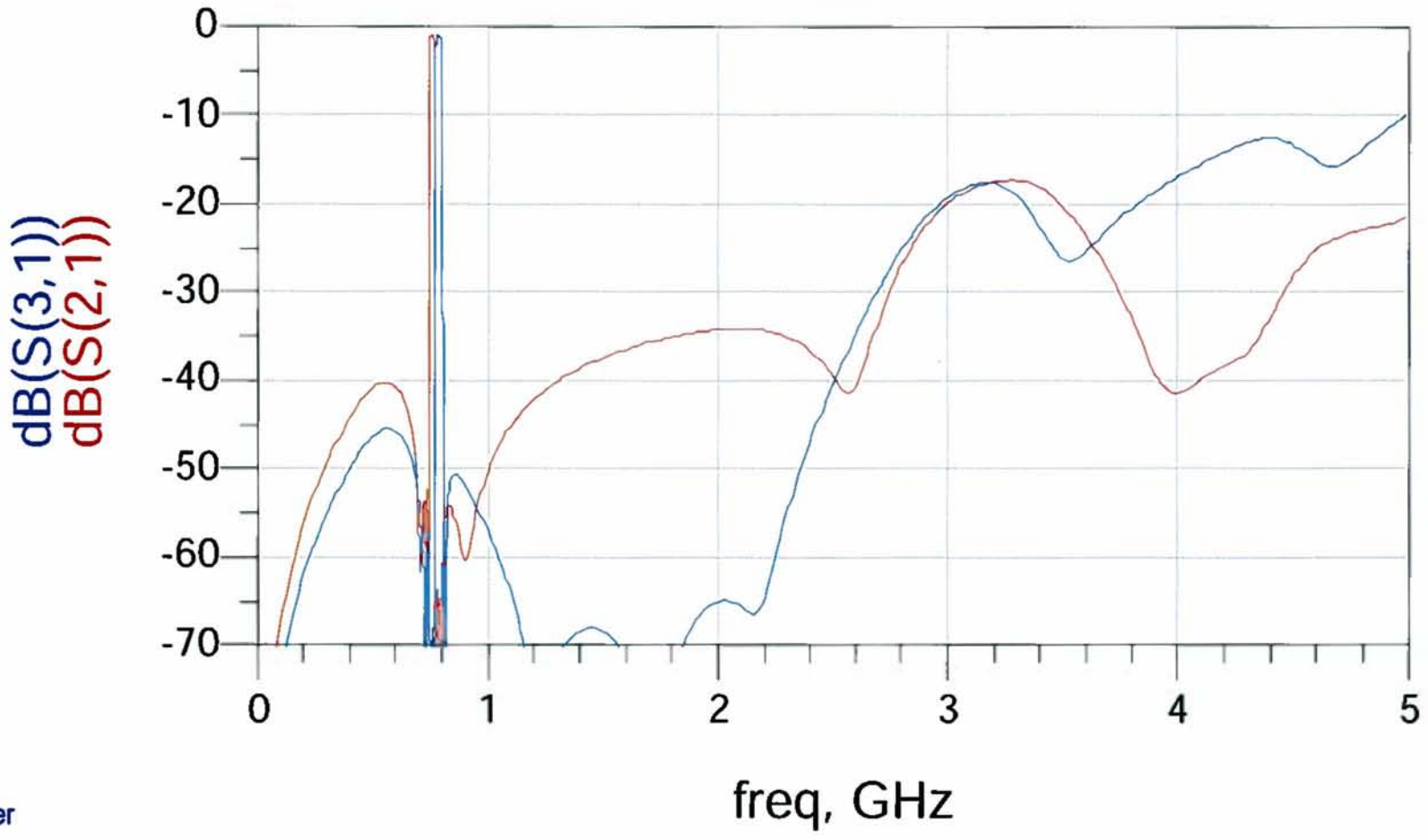
RL=9 dB

Antenna port

Tx port

Rx port

700U Duplexer simulation: Broad Band

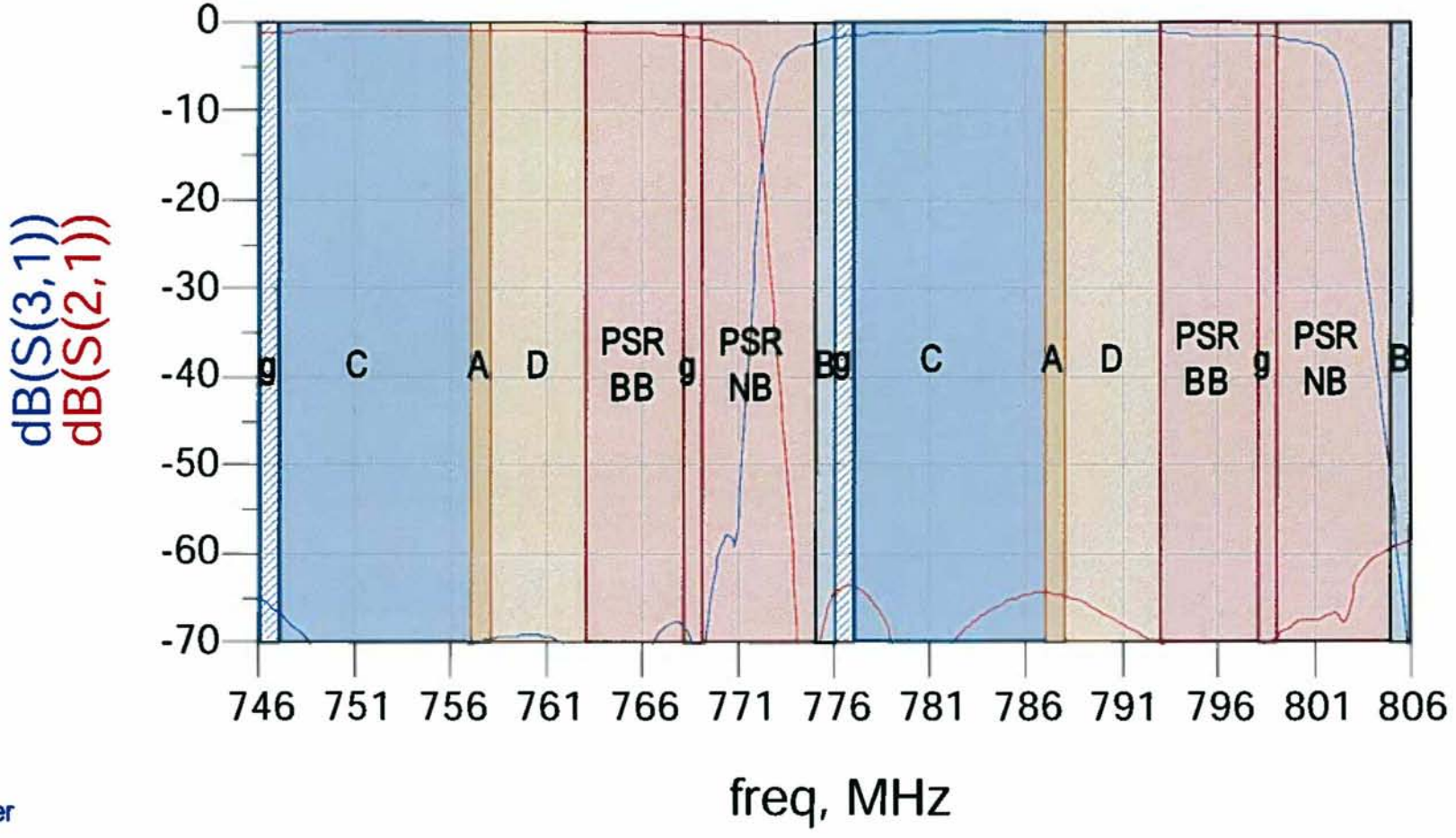


Tx filter

Rx filter

700U Duplexer simulation: 700U

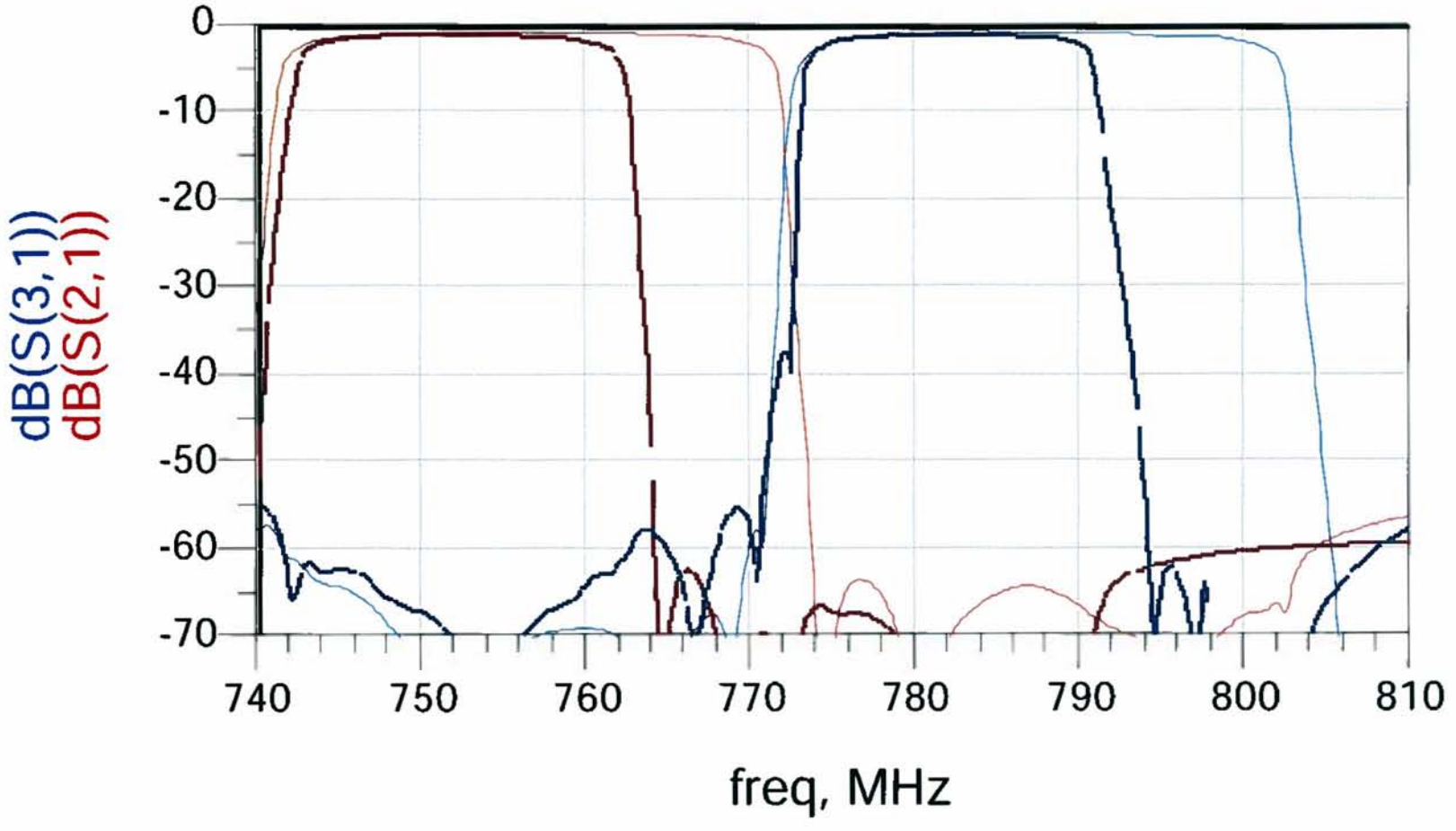
Traces are nominal room temperature performance



Tx filter

Rx filter

700U vs B13 Duplexer simulation: Pass Bands

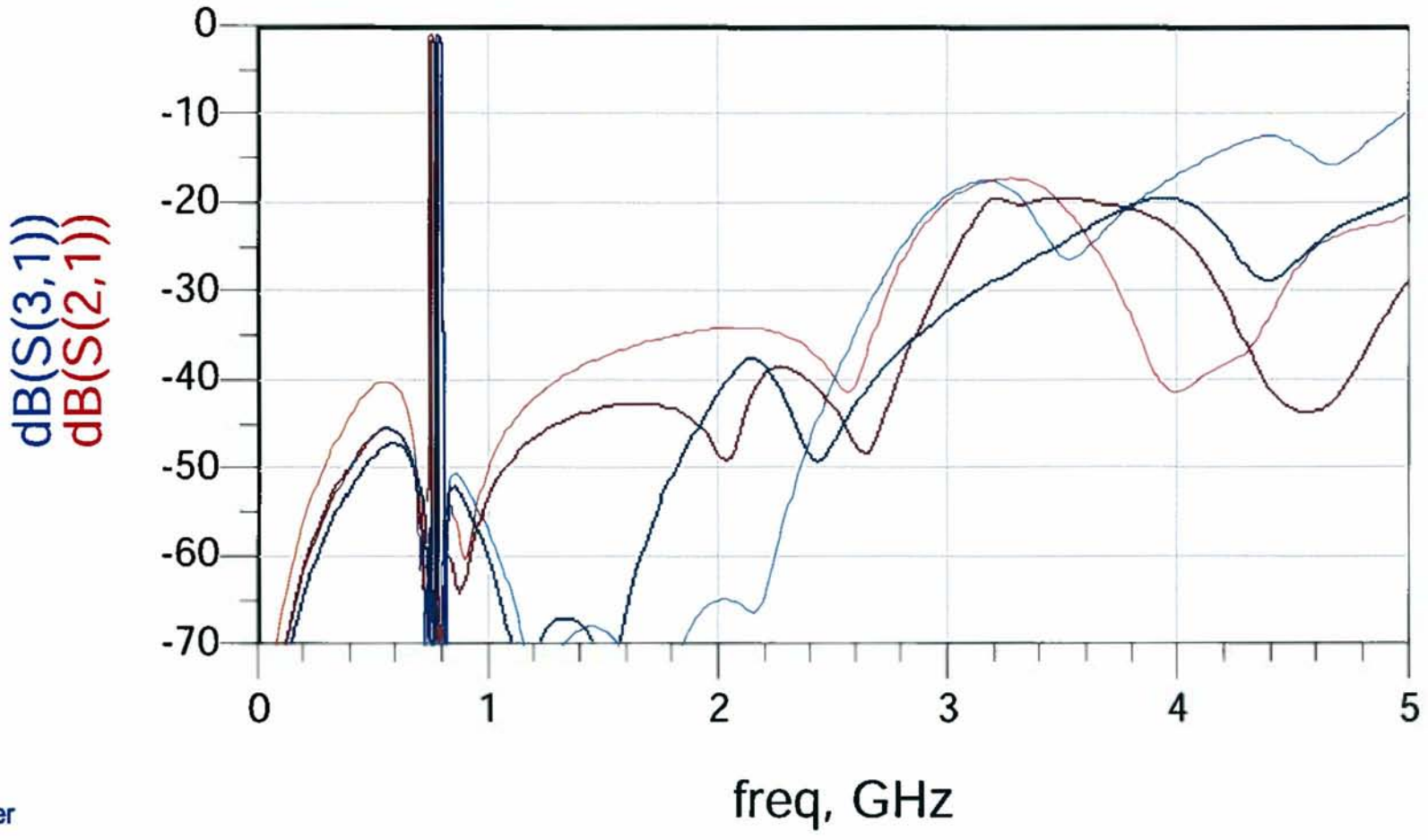


700U vs B13 Duplexer simulation: Insertion Loss

Tx filter

Rx filter

700U vs B13 Duplexer simulation: Broad Band

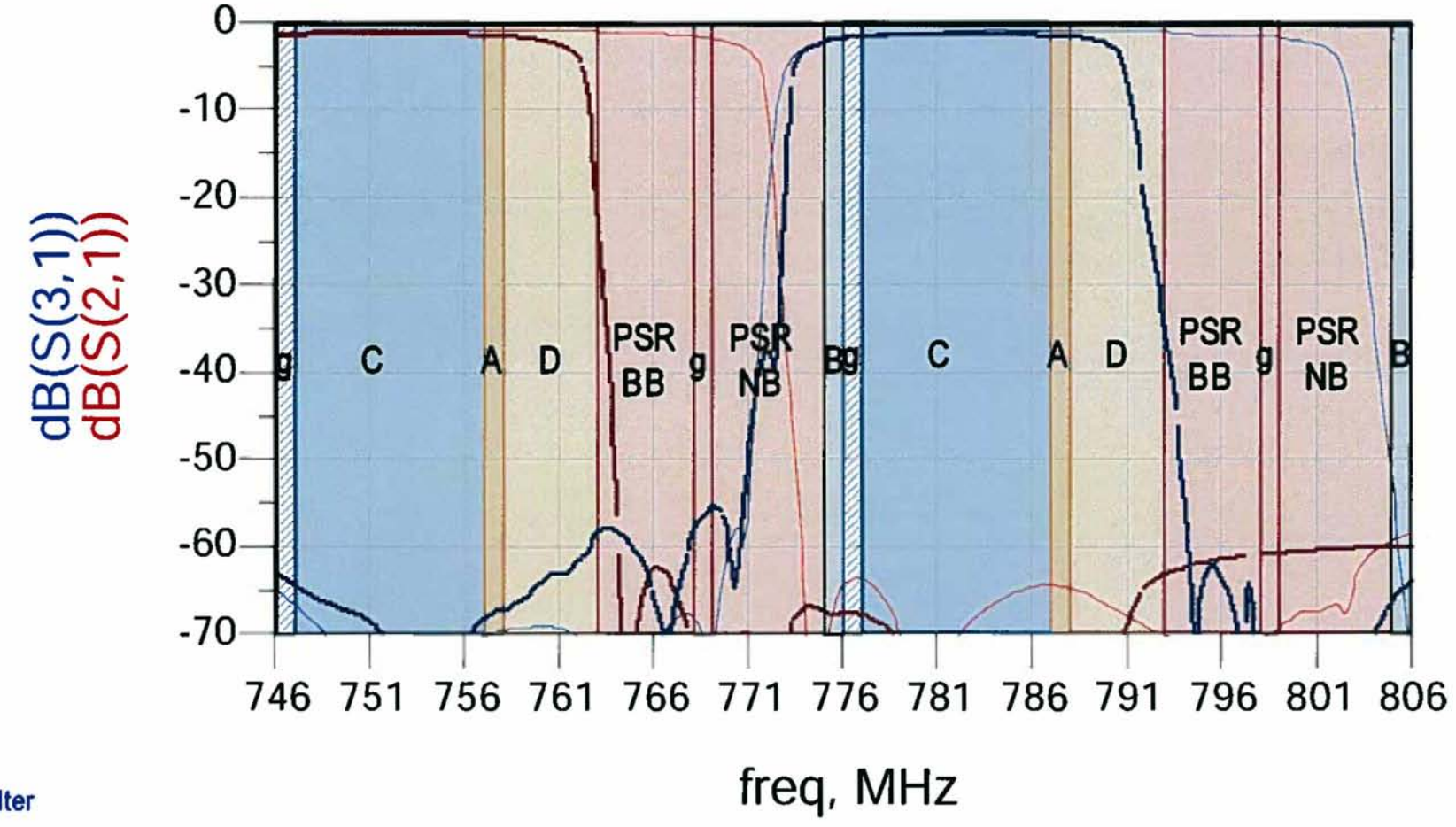


Tx filter

Rx filter

700U vs B13 Duplexer simulation: 700U

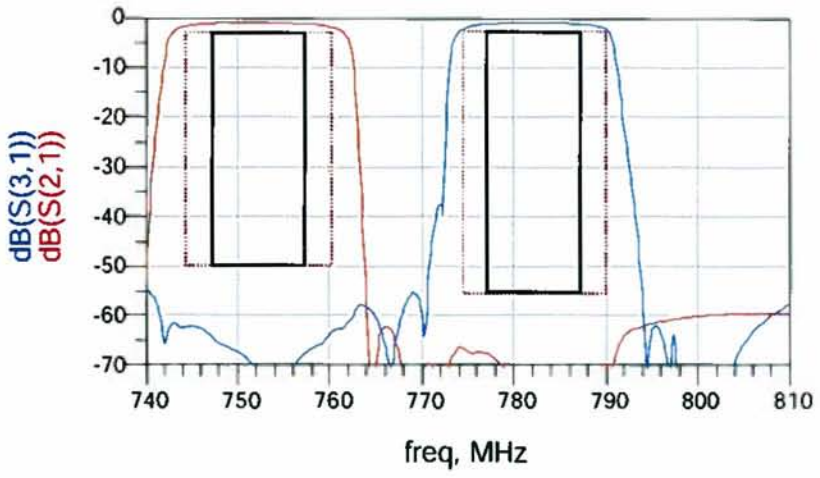
Traces are nominal room temperature performance

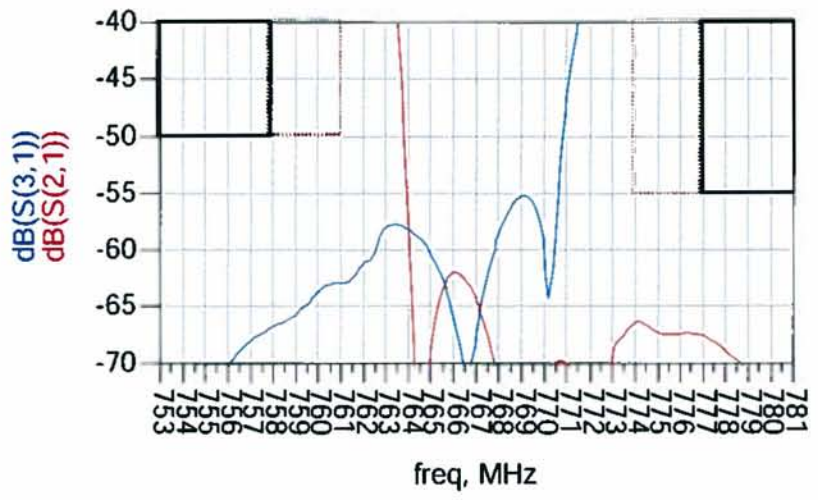


Tx filter

Rx filter

B13 Duplexer simulation: Pass Bands





IL = 2.5 dB
ISO = 50 dB

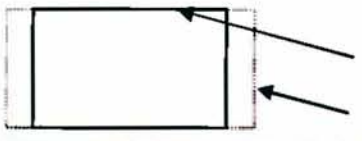
IL = 2.5 dB
ISO = 55 dB

ISO = 50 dB

ISO = 55 dB

Tx filter

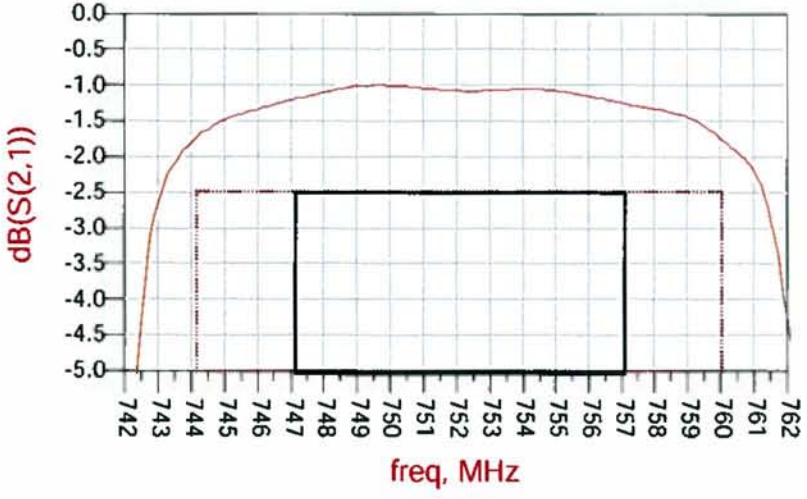
Rx filter



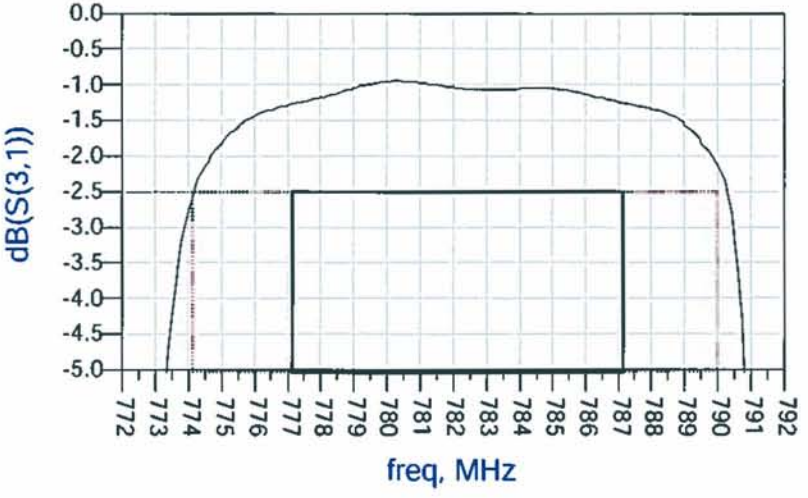
Room temperature nominal

-20 to + 80 + process variation

B13 Duplexer simulation: Rx Insertion Loss



IL = 2.5 dB



IL=2.5

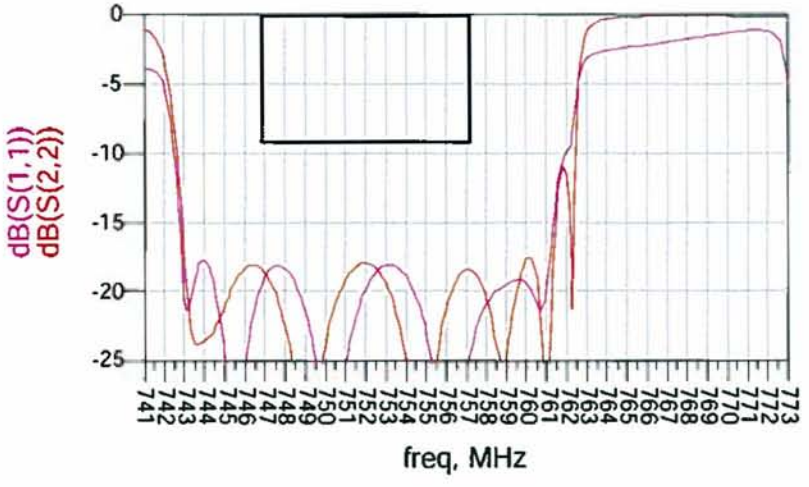
Tx filter

Rx filter

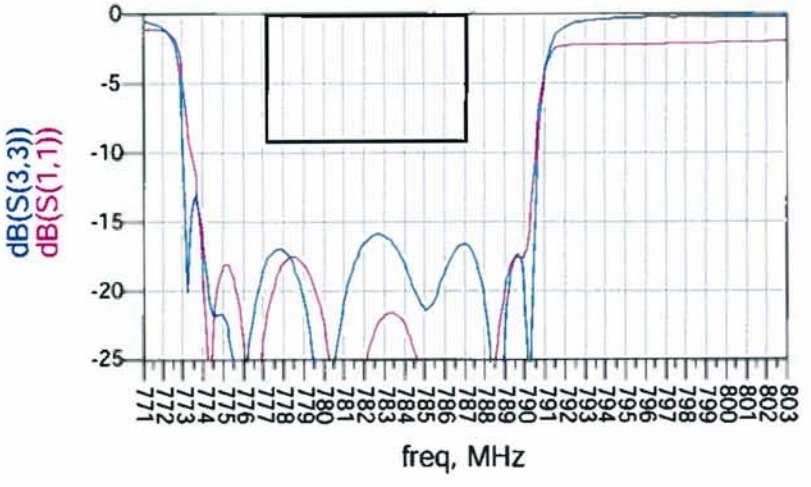
Room temperature nominal

-20 to + 80 + process variation

B13 Duplexer simulation: Return Loss



RL=9 dB



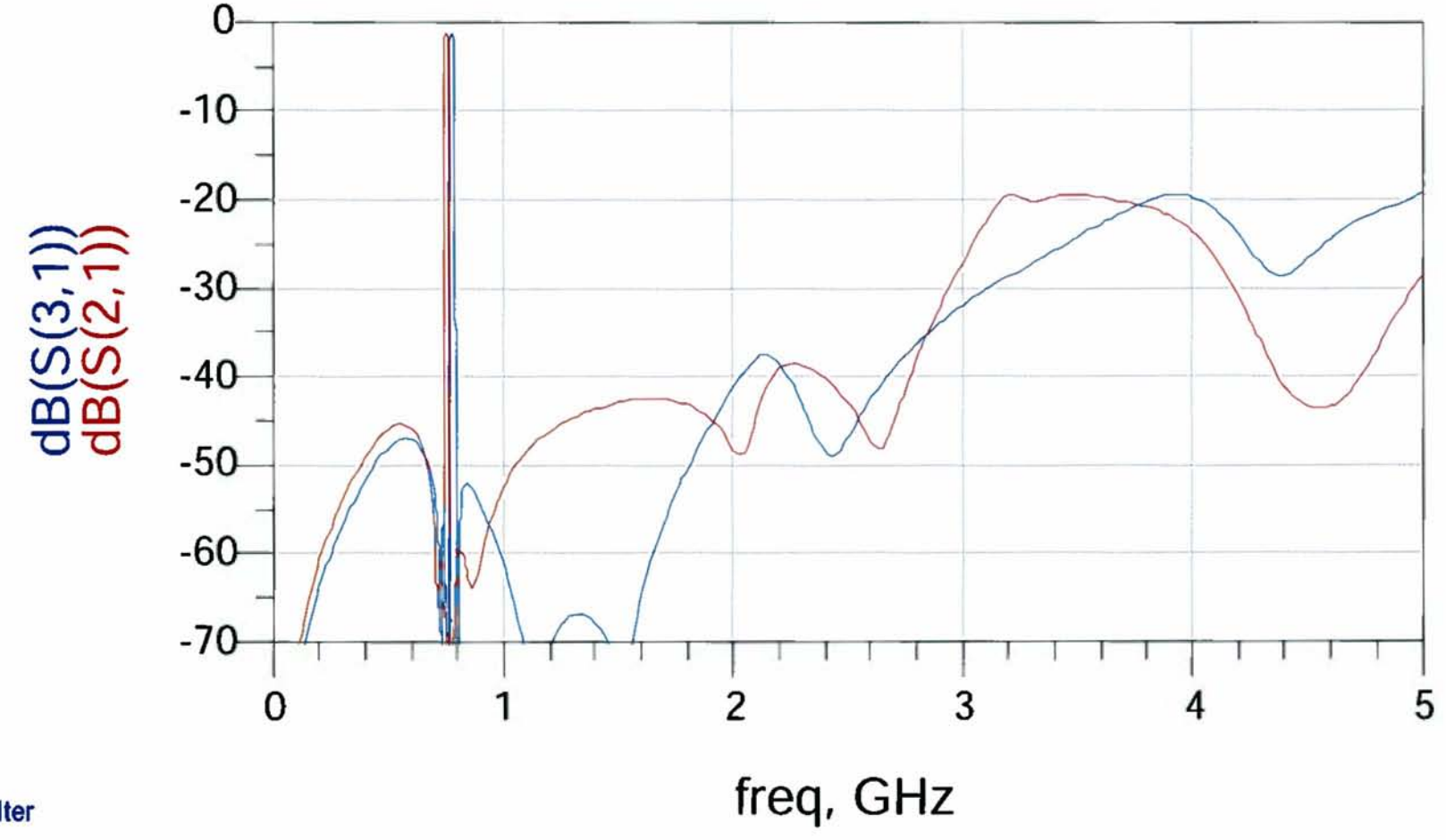
RL=9 dB

Antenna port

Tx port

Rx port

B13 Duplexer simulation: Broad Band

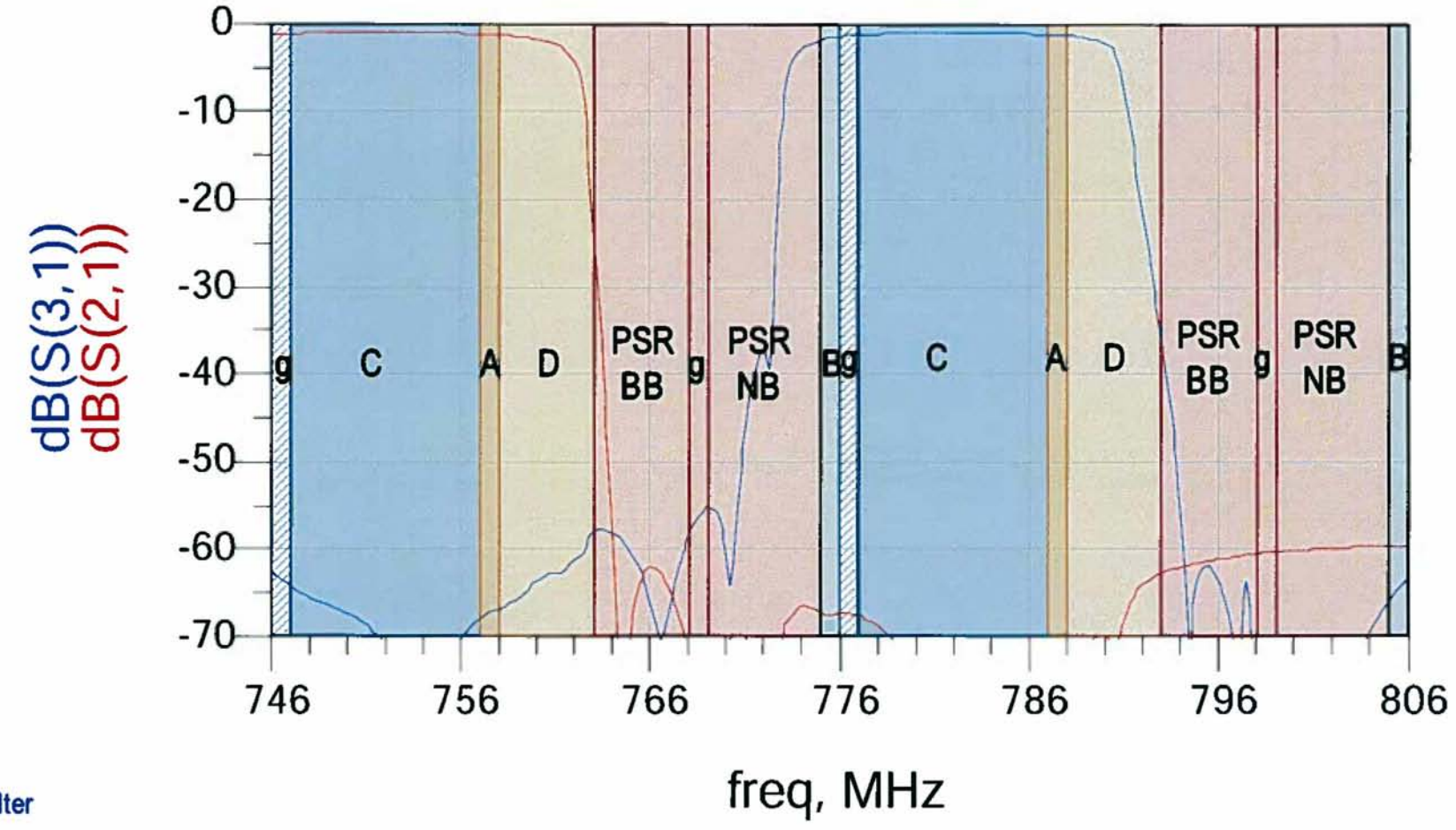


Tx filter

Rx filter

B13 Duplexer simulation: 700U

Traces are nominal room temperature performance



Tx filter

Rx filter