

**ORIGINAL**

Before the

FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
)  
Federal-State Joint Board on )  
Universal Service )  
)  
Forward-Looking Mechanism )  
for High Cost Support for )  
Non-Rural LECs )

CC Docket No. 96-45

CC Docket No. 97-160

**REPLY COMMENTS OF WORLDCOM, INC.**

WorldCom hereby submits its Reply Comments on Sections III.C.3. and III.C.4. of the Commission's Further Notice of Proposed Rule Making (FNPRM) in the above captioned proceeding.

Well, at least the initial comments were predictable – AT&T/MCI say Hatfield is great<sup>1</sup> and Bell South/US West/Sprint promise a new, improved version of BCPM<sup>2</sup> – yet, neither the latest version of Hatfield nor the promised enhancement of BCPM are available for general inspection. And, GTE continues its generally negative attitude by trashing Hatfield<sup>3</sup> without offering any substantive alternative – that hardly seems sporting. GTE suggested instead that the Commission should rely on state approved engineering models.<sup>4</sup> It is precisely this potentially wide variety of costing theories and models that this Commission seeks to avoid for purposes of determining interstate universal service cost support through this proceeding. If GTE thinks it knows of more suitable costing models, now would be a good time for it to speak up. Several incumbents – Ameritech and GTE -- assert that since they are practically perfect in

<sup>1</sup> AT&T at ii.  
<sup>2</sup> Bell South, et al, at 4.  
<sup>3</sup> GTE at i.  
<sup>4</sup> GTE at ii.

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every way, their networks should be assumed to reflect the most efficient network design possible.<sup>5</sup> In spite of these low points, there were several areas of general agreement and shared concerns among the commenting parties.

Almost everyone agreed that modern network designs generally incorporate remote switch modules.<sup>6</sup> In fact, only SBC observed otherwise saying it found “no basis for the tentative conclusion that remote switches are more cost-effective than hosts or stand-alones.”<sup>7</sup> This creates an interesting tension when two parties appear to advocate radically different engineering algorithms. Two other parties<sup>8</sup> representing primarily rural carriers agreed with WorldCom’s proposal<sup>9</sup> that many very small central offices can quite effectively and economically be replaced by digital loop carrier (DLC) systems.

RUS provided what seem to be the most useful comments by disclosing recent cost data for very small central office and remote modules used by its borrower companies.<sup>10</sup> This data<sup>11</sup> when added to the depreciation study information provided by Commission staff suggests per line and fixed costs vary significantly based on line size.

#### Summary of Linear Regression Analyses on FCC Data from Switching Depreciation Studies<sup>12</sup>

Chart	Title	Sample	Formula	R-squared
1	5ESS – 1993-1995	66	$123.14x+2,000,000$	0.5511
2	Small 5ESS – 1993-1995	18	$123.86x+980,987$	0.1456
3	Medium 5ESS – 1993-1995	26	$68.609x+3,000,000$	0.0741
9	Large 5ESS – 1993-1995	24	$61.118x+7,000,000$	0.0505
4	5RSM – 1993-1995	53	$130.49x+333,879$	0.5810

<sup>5</sup> Ameritech at 4, GTE at iii.

<sup>6</sup> GTE at 11, Ameritech at 4, AT&T at 5

<sup>7</sup> SBC at i.

<sup>8</sup> ITCs at 4, TDS at 5.

<sup>9</sup> WorldCom at 2.

<sup>10</sup> RUS at Tables 3 and 4.

<sup>11</sup> Linear and logarithmic regressions of Tables 3 and 4 from the RUS filing are included as attachments hereto.

<sup>12</sup> The numbered charts were provided with WorldCom’s Comments in this proceeding.

5	DMS100 – 1993-1995	93	119.22x+550,205	0.5500
6	EWSD – 1993-1995	33	109.54x+420,278	0.8390
7	RAXE – 1993-1995	14	159.77x+231,478	0.8073
8	RSC – 1993-1995	83	113.85x+232,528	0.3442
RUS-3	Small Central Offices		107.55x+374,424	0.1434
RUS-4	Small Remote Modules		70.647x+87,265	0.4693

The data suggests a reasonably constant charge of \$107 to \$130 per loop with fixed charges ranging from \$230,000 for small offices or remotes to \$7,000,000 for very large offices. But, the relatively low R-squared values for the regressions also demonstrate that the number of loops is a good predictor of costs in only a few cases. Indeed, several parties observed that central office design presents a very complicated engineering challenge where the designer must consider busy hour, busy day and busy season calling patterns including call attempts and holding times, as well as, number of lines served, vertical services and custom features. The design must match remotes with compatible hosts while recognizing that host capacities likely will constrain remote capacities.<sup>13</sup> The Commission might ask incumbent LECs to provide such data (e.g., multiline business customer line counts by class of service and busy hour CCS usage per line for every class of service) as it already has asked for certain working loop data. Indeed, SBC seems to offer to provide its data.<sup>14</sup> The Commission should accept that offer immediately.

But, even if the Commission is able to gather some usage data, it needs a switch design tool and current pricing data that seem nearly impossible to obtain. Several parties suggest getting some switch data from the LERG.<sup>15</sup> The Commission already is using that resource. Others suggest using Bellcore's SCIS model.<sup>16</sup> But, SCIC is a proprietary product that we believe is made available only to parties who have signed a rather tough non-disclosure agreement. On balance, AT&T/MCI

<sup>13</sup> AT&T at 6, GTE at 11, Ameritech at 5, Bell Atlantic/NYNEX at 4, SBC at 3.

<sup>14</sup> SBC at 7.

<sup>15</sup> Bell South at Att 1, pg 2, Aliant at 2.

<sup>16</sup> Aliant at 3, Ameritech at 6

conclude a simple algorithm seems to be the only practical solution.<sup>17</sup> WorldCom reluctantly agrees, but suggests the Commission should include DLC and remote modules in its algorithms. It also should develop at least three switch cost algorithms – perhaps, small, medium and large versions – to better match fixed costs to switch size.

Several parties argue the model should reflect growth and software update costs.<sup>18</sup> Intellectually, they may be right. But, the model also should reflect productivity gains including decreasing switch costs and competitive losses. If the Commission adopts a short enough planning period, its model will create a snap-shot of an efficient network in the immediate future. It could periodically update that snap-shot to reflect changes in technologies and market demand, but it need not create a master model to dynamically consider all those conflicting variables. In fact, it is somewhat reassuring that productivity gains and competitive losses may, in fact, more than offset growth and inflation – assuming local competition actually emerges. The Commission should not further complicate an already massive model.

In its initial comments, WorldCom supported the Commission's tentative decision to use the Hatfield model for interoffice trunking, signaling and tandem investment. Based on the comments filed, we now reserve that endorsement pending a review of the promised BCPM enhancements. If we decide to continue supporting Hatfield, we do agree that the algorithms used must produce a design that closely imitates existing technical standards including multiple end-office trunk groups (e.g., multiple IXC trunk groups, multiple interoffice trunk groups, tandem trunk groups, and 911/E911, 411, operator, and announcement trunk groups). It also should recognize at least one tandem per LATA<sup>19</sup> even though this requirement may evaporate if and when RBOCs satisfy their 271/272 requirements. WorldCom agrees with RUS that all end-

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<sup>17</sup> AT&T at 3-4.

<sup>18</sup> RUS at 3, GTE at App. 1, pg 4, Bell South at Att. 1, page 5, Bell Atlantic at Att. 1, page 3.

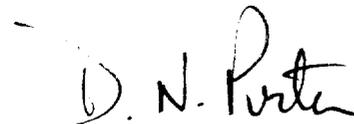
<sup>19</sup> SBC at 8.

offices and remotes should be connected to a SONET ring.<sup>20</sup> We feel that is not necessary for DLC.

Finally, GTE reargues a number of policy issues that it lost in earlier proceedings. The Commission should ignore that input.

In conclusion, WorldCom continues to support the Commission's effort to create a network cost model to use for computing universal service payments. We believe any model of something as complex as our domestic local telephone networks must include numerous simplifying assumptions. The decision to base any new network design on existing wire-centers is one such assumption. The Commission must make similar simplifying assumptions for switching costs. WorldCom believes the Commission now has access to sufficient data to create an acceptable switching cost algorithm.

Respectfully submitted,



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<sup>20</sup> RUS at 3.

Chart1

### Small Central Offices

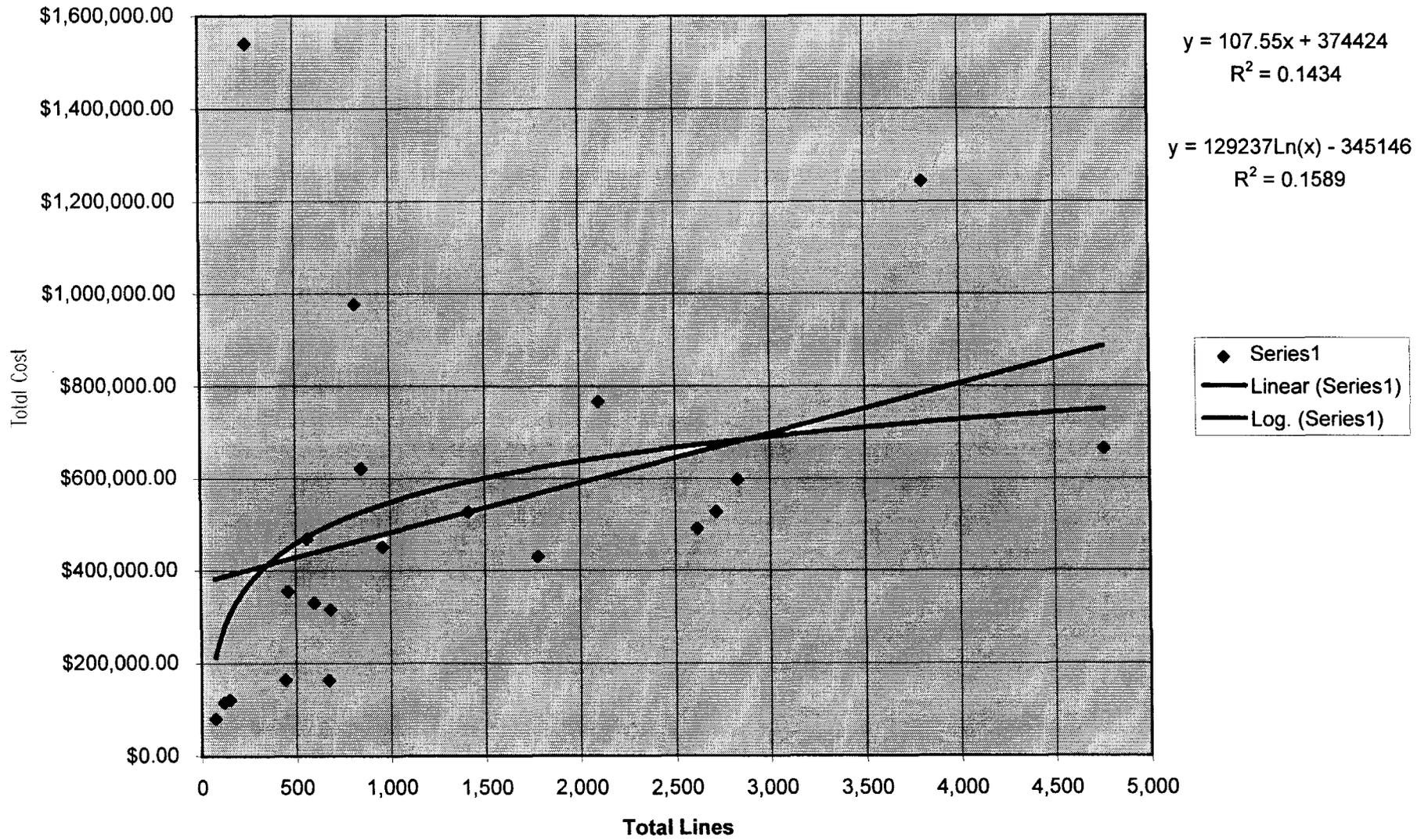
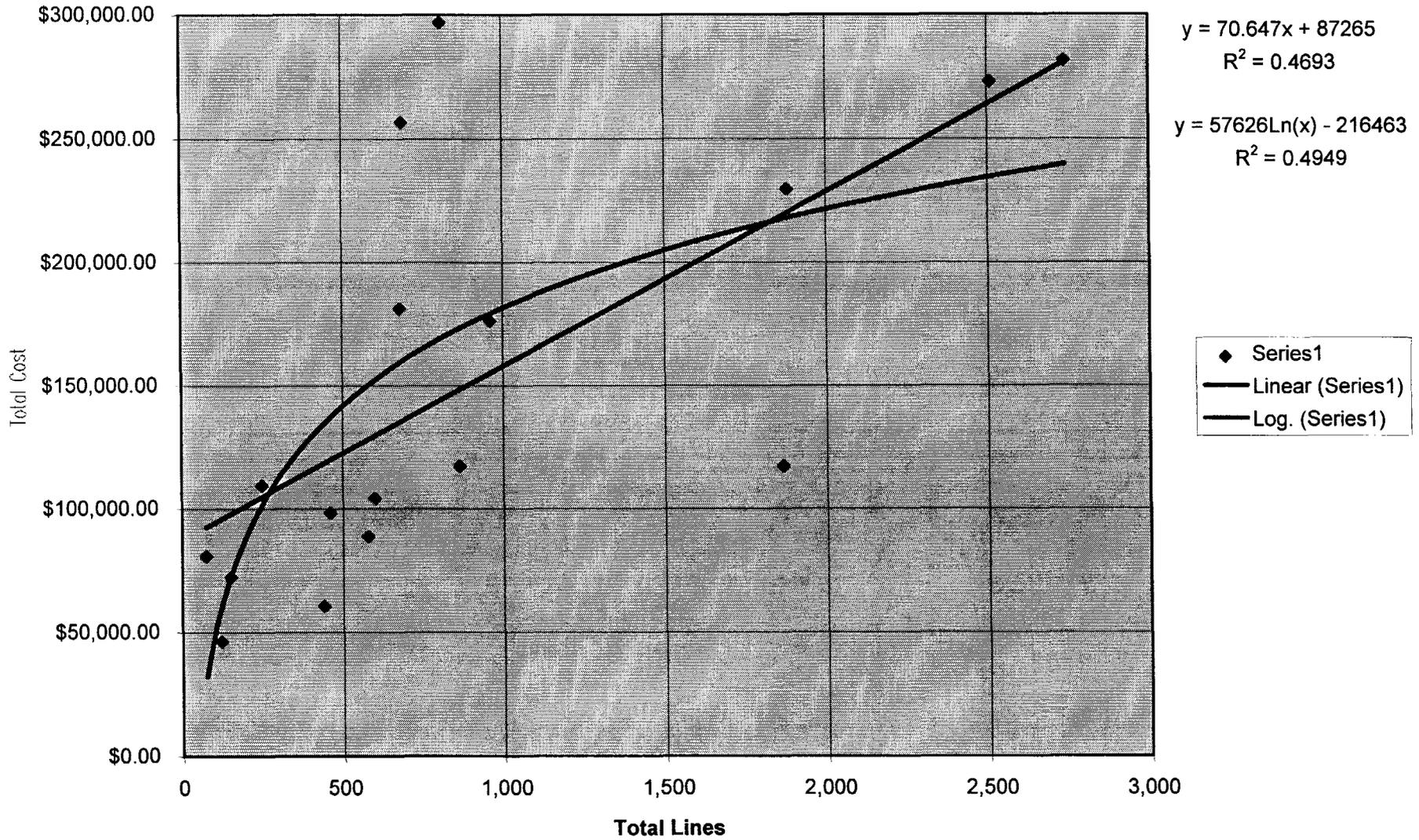


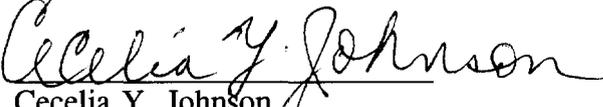
Chart2

### Small Remotes



**CERTIFICATE OF SERVICE**

I, Cecelia Y. Johnson, hereby certify that I have this 18th day of August, 1997, sent a copy by hand delivery or 1st class postage paid mail of the foregoing "Reply Comments of WorldCom, Inc. to all persons listed on the attached service list.

  
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