

# RF2F

## Run 10,000+ Foot Drops

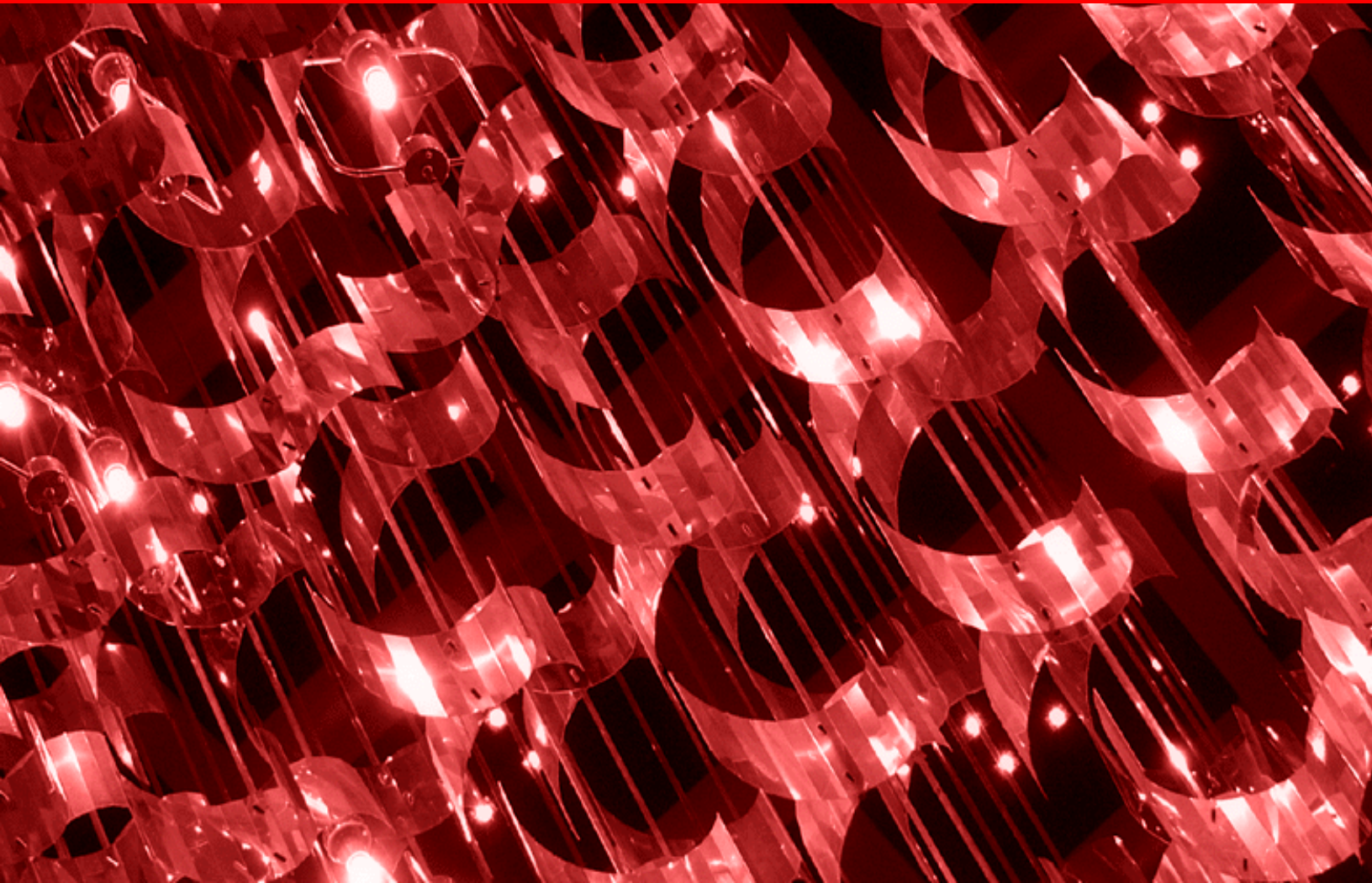
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Steven K Richey President, 4Cable TV Inc

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Easily and inexpensively serve customers beyond the end of your systems

RF2F allows you to transition back to fiber and use RFoG technology to serve customers that you normally could not serve.



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# Executive Summary

## Overview

At the end of almost every feeder line there are a few more homes that could be fed with a system extension but the cost is prohibitive. It is estimated that there is an average of 2 potential customers within 2000 feet of every end of line. The RF2F comes with a single, dual, quad, 8, or the new 16 output to easily and inexpensively extend your system at an average cost of \$500.00 per customer.

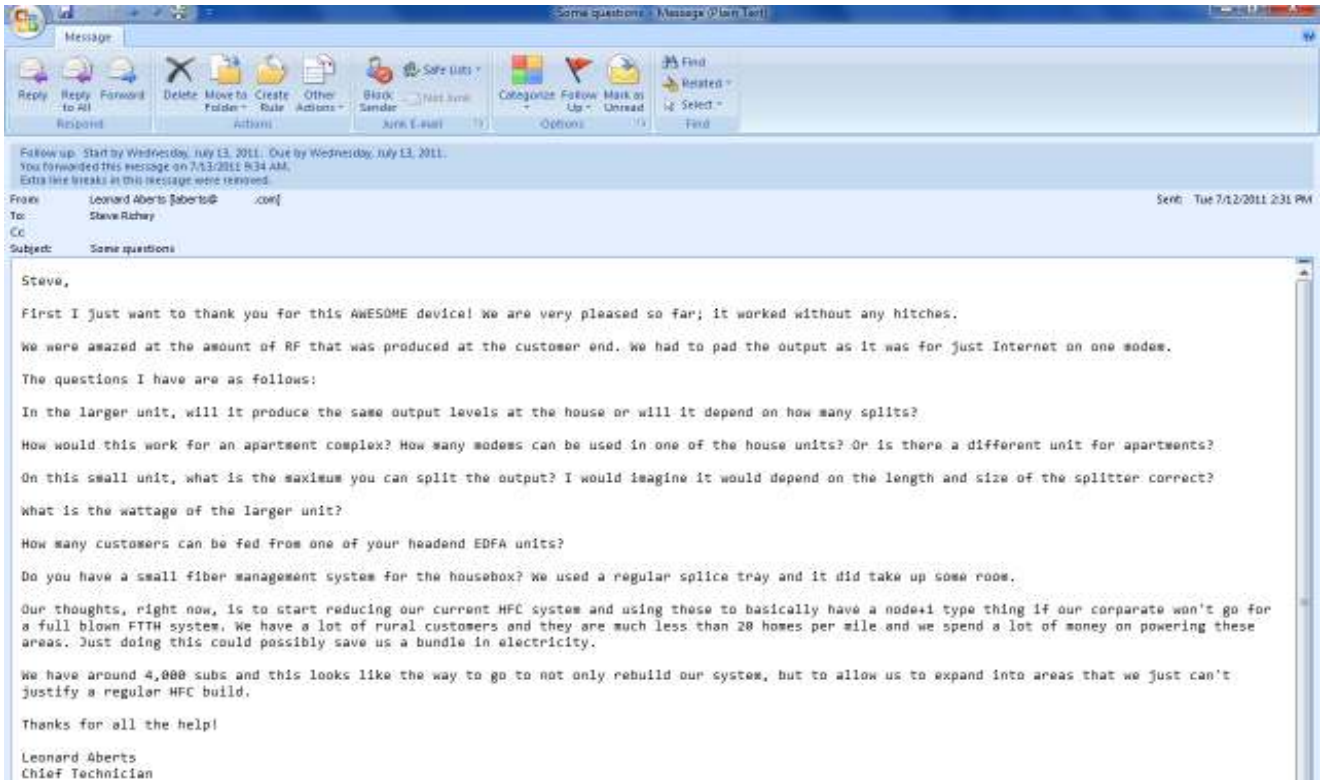


**THERE IS A POT OF GOLD AT THE END OF YOUR LINES**  
Early Adopters Love it:

### CATV Milestones

- 12 Channel Systems
- Solid State Amplifiers
- CARS Microwave
- 24 channel Systems
- Satellite delivered signals
- Fiber Optics
- Internet

These were all industry changing technologies and caused people in the industry to be excited. When presented with the RF2F concept operators are showing the same level of excitement.



## Business Challenge

At the end of almost every feeder line there are a few more homes that could be fed with a system extension but the cost is prohibitive. There is an average of 2 potential customers within 2000 feet of every end of line. Traditional methods of reaching these millions of potential customers are not cost effective

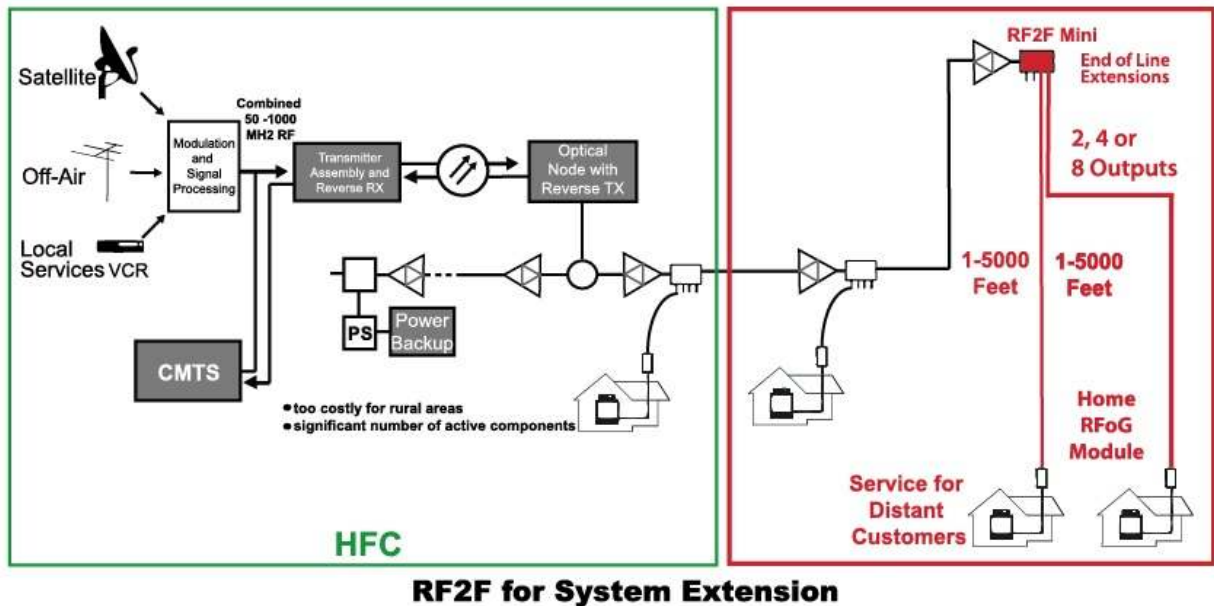
Challenge	Solution
Engineering costs	Drops do not normally require Engineering Fees
Line Extensions	NO line extensions-just long fiber drops
Pole attachment applications	Usually no application is required-just after the fact, drop notification

## **Cost Effective Expansion**

Today MSO's are spending \$3,600 to \$5,500 to purchase new subscribers, yet at the end of their existing feeders; there are millions of potential customers that can be served. By using RF2F technology a new customer can be acquired for a cost of under \$1,000 and in many cases for under \$500.00.

Systems, by simply making a paradigm shift in their strategy and using long fiber drops, can grow their customer base by 10-20%, without incurring large CAPX costs while flying under the radar screens of Wall Street.

# Now there is a way to Serve those Millions of Potential Customers RF to Fiber (RF2F)



## How it Works

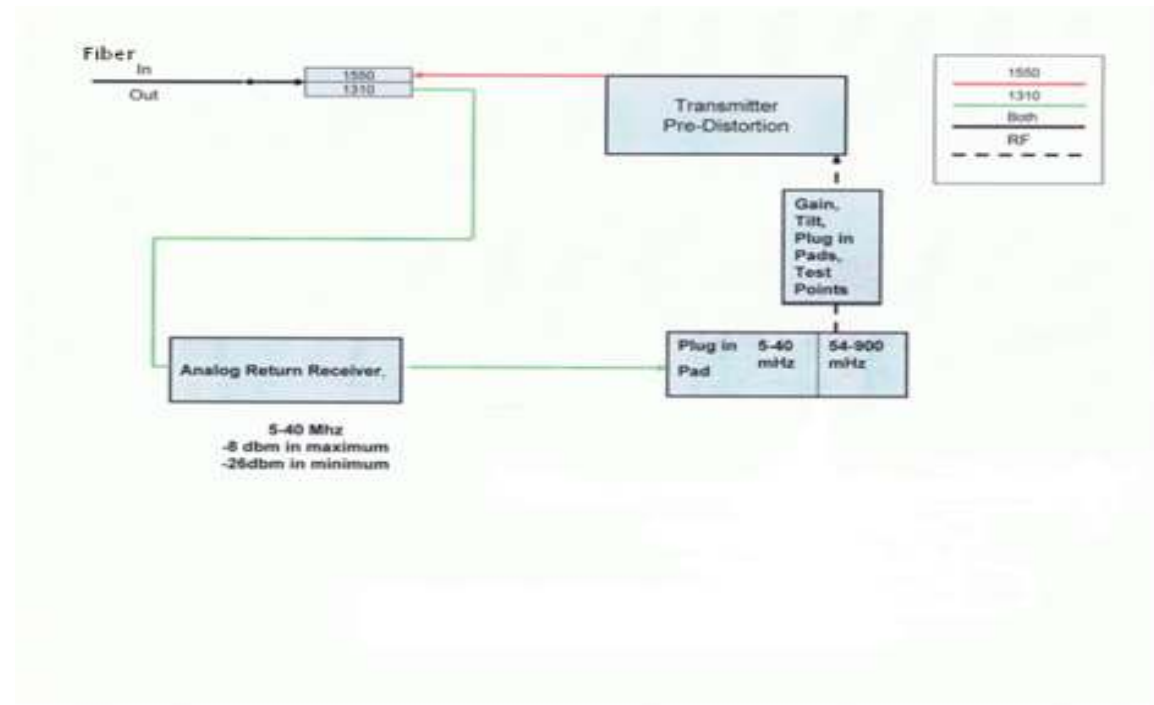
Each RF2F unit includes a low power 1550 nm transmitter, an optical receiver, a WDM, and an AC power supply in a small die cast housing. The 16-way adds a 13db outdoor EDFA to the unit and opens the door for higher output units. On the side of the fiber fed home you use a regular RFOG home unit and you can easily serve customers up to 10,000 feet from you coax plant.

The RF2F unit is available as a single, dual, quad, 8, or 16 output device, with each port capable of serving one home.



**At almost every end of line there are a few potential customers within 1-2000 feet.**





## CARRIER TO NOISE PERFORMANCE

System C/N	RF2F Link C/N	Combined Results
<b>42</b>	<b>51</b>	<b>41.49</b>
<b>43</b>	<b>51</b>	<b>42.36</b>
<b>44</b>	<b>51</b>	<b>43.21</b>
<b>45</b>	<b>51</b>	<b>44.03</b>
<b>46</b>	<b>51</b>	<b>44.81</b>
<b>47</b>	<b>51</b>	<b>45.54</b>

+

CNR in a Node plus 2 should be 47 dB and a node plus 3 would be 46.23 dB.

RF2F Benefits and ROI

	<b>Option</b>	<b>Required</b>	<b>Unit Cost</b>	<b>Total Cost</b>
1	Single Output install cost;			
a	RF2F-mini-1way (2mW)	1	600	600
b	R-ONU	1	135	135
c	Fiber 6 count 1000 ft	1	240	240
d	Misc. Boxes connectors	1	70	70
e	Total			1,045
f	Cost per customer			<b>\$1,045</b>
2	Dual Output install cost;			
a	RF2F-mini-2way (2 mW)	1	690	690
b	R-ONU	2	135	270
c	Fiber 6 count 1000 ft	1	240	240
d	Misc. Boxes connectors	2	70	140
e	Total			1,340
f	Cost per customer			<b>\$670</b>
3	Quad Output install cost;			
a	RF2F-mini-4way (5 mW)	1	1,195	1,195
b	R-ONU	4	135	540
c	Fiber 6 count 1000 ft	1	240	240
d	Misc. Boxes connectors	4	70	280
e	Total			2,255
f	Cost per customer			<b>\$564</b>
4	8 Output install cost;			
a	RF2F-maxi-8way (5 mW)	1	1,595	1,595
b	R-ONU	8	135	1,080
c	Fiber 6 count 1000 ft	1	240	240
d	Misc. Boxes connectors	8	70	560
e	Total			3,475
f	Cost per customer			<b>\$434</b>

5	16 Output install cost;			
a	a. RF2F-maxi-16way (20 mW)	1	2,795	2,795
b	R-ONU	16	135	2,160
c	Fiber 6 count 1000 ft	1	240	240
d	d. Misc. Boxes connectors	16	70	1,120
e	Total			6,315
f	Cost per customer			<b>\$395</b>

1. Income;

a.	Installation Income	\$100.00
b.	1 <sup>st</sup> Month cable and Internet Income	\$ 89.95
c.	Net after 1 <sup>st</sup> month Income	\$ 50.00

2. ROI:

a.	16-Way install	4 months
b.	8-Way install	5 Months
c.	Quad install	6 months
d.	Dual Install	10 months
e.	Single Install	17 months

Labor costs are not included as because of the following variables:

1. In house installation personal where the labor costs are already included in normal operation budgets;
2. Overhead installation by outside contractors;
3. Underground installation by outside contractors.

## Technical Specifications:

Parameter	2 mW	5mW
Output	3 dBm	7 dBm
CTB	65 dB	65 dB
CSO	65 dB	65 dB
Link CNR -1 dBm	51 dB	51 dB
Forward RF input	10 dBmv	10 dBmv
Return Insertion	1 to 3 dB	3 to 6 dB
Input RTL	18 dB	18 dB
Forward Flatness	±1 dB	±1 dB
Tilt*	1.5 dB	1.5 dB
Power	1.5 watts	1.75 watts

\* Transmitter tilt, additional tilt will be added in the receiver

79 Analog channels 450 MHz simulated digital 6 dB down

## Target Market and Size of Market

The initial marketing thrust will be to the Independent operators. They have the ability to react quickly and utilize the RF2F product.

At the same time presentations to the Major MSO's will be made and qualifications and or trial installations will be initiated. Orders from these companies should begin about 1 year's time.

Initial discussions with several Major MSO's indicate that there are a large number of cable end-of-lines across the US, each capable of producing impressive growth capabilities.

## Deployment

The first test units have been in use since December of 2009. Feedback from the field since 2009 generated improvements in the RF2F Product line.

## Summary

The RF2F family of products fill a unique void in the deployment of modern cable TV systems. Some of its advantages are:

- Potential 20% increase in subscriber count;
- With the market value of a subscriber between \$3,600 to \$5,500 - a high return on perceived value;
- Minimal or no engineering cost;
- 1 day installation;
- Pole attachments are classed as drops, no engineering fees;
- Only connect customers that are pre-signed, time contracts are very possible, short ROI almost 100% guaranteed;
- Perfect for hooking up business customers in business parks.



## Contact Us

<p>4Cable TV International Inc 1256 Highway 501 Bus, Conway, SC 29526 USA Email: <a href="mailto:sales@4cable.tv">sales@4cable.tv</a> Website: <a href="http://www.RF2F.com">www.RF2F.com</a> Tel: 843-347-4933 Fax: 843-347-4942</p>	<p>REPRESENTATIVE:</p>
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## More Information

For the latest information about our product and services, please see the following resources:

**Reference websites:**

<http://www.4cable.tv>

<http://www.rf2f.com>

<http://www.rfoq.info>