



JMA Wireless TLS 3/8" Solutions

DIFFERENT BY DESIGN™

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JMA Bulk Cable for Small Cell

Bulk cable on small cell



1 BULK CABLE PERFORMS
OVER ALL FR1 5G BANDS

2 OPTIMAL PERFORMANCE
WHEN PAIRED TOGETHER

3 BULK CABLE INITIAL
OFFERINGS



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JMA's Premium Bulk Cable is 100% Tested

In all FR1 5G and 4G Bands

Return loss specification per band

	600	700 LTE	CDMA	PCS	AWS	WCS	BRS	CBRS	C-Band	LAA
Competitor A	24.3	24.3	24.3	24.3	24.3	24.3	24.3	Not Specified	Not Specified	Not Specified
Competitor B	24	24	24	24	24	23	23	Not Specified	Not Specified	Not Specified
JMA	30	30	30	30	30	28	28	23	23	22

CURRENTLY 5G BANDS BEING DEPLOYED



Performance test results labeled on every reel

- Return loss in all bands
- PIM
- Impedance

JMA's bulk cable is the only leading manufacturer's cable specified and tested to perform over all FR1 5G bands



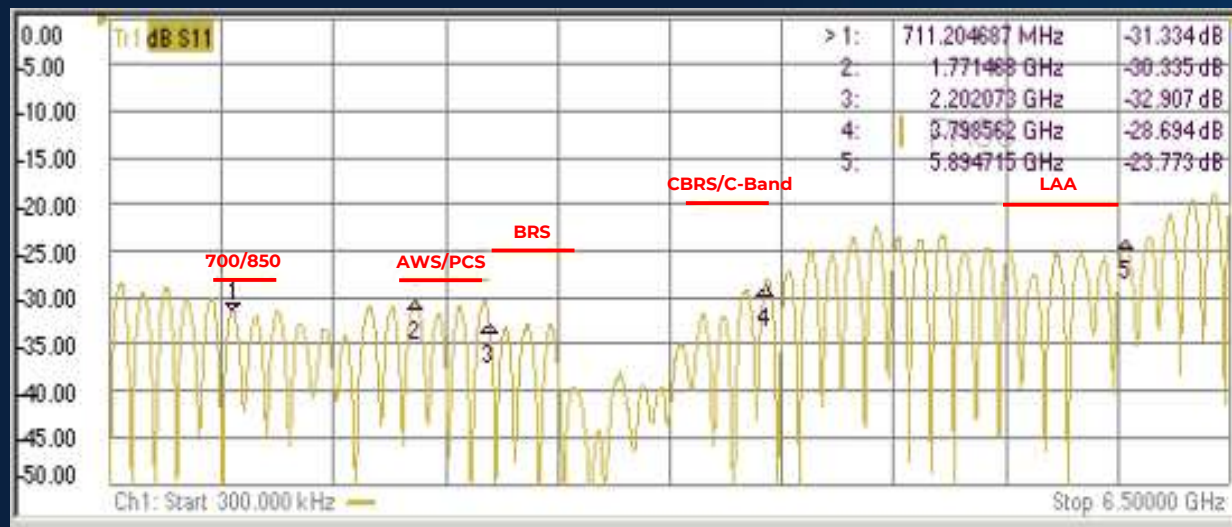
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JMA Bulk Cable Has Been Optimized

To Work with JMA Compression Connectors

Return loss performance of JMA bulk cable and compression connectors over entire FR1 frequency band



JMA jumper return loss specification limits

Optimal RF performance achieved when JMA cable is paired with JMA compression connectors



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New 3/8" Transmission Line System

Minimizes Loss in Confined Spaces

- **59% Less** loss than 1/4" superflex in upper FR1 frequency bands extends coverage footprint of higher frequency sites
- **19% Smaller** diameter as compared to 1/2" superflex allows more cables to fit in same conduit or pathway
- **Same Bend Radius** as 1/4" superflex enables routing through confined spaces such as concealment poles

Cable Type	Diameter	Bend Radius (mm)	Cable Loss/m @894 MHz	Cable Loss/m @2200 MHz	Cable Loss/m @3400 MHz
	Over Jacket (mm)				
1/4" Superflex	7.40	25.00	0.173	0.278	0.351
3/8" Superflex	11.30	25.40	0.112	0.177	0.220
1/2" Superflex	13.46	30.00	0.111	0.171	0.219
1/2" Annular	16.00	110.00	0.069	0.113	0.144



JMA's 3/8" bulk cable and compression connectors maximize site coverage in confined space applications



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3/8" Bulk Cable Initial Offerings

5G Premium cable

- Cable reels color coded for easy identification
- 3/8" PE jacket and 3/8" Plenum jacket cables available in 1Q22 – reduces loss over 1/4" Superflex
- Plenum cable ETL certified and labeled on jacket [c(ETL)us CATVP OR CMP] – Requirement for DAS

Model Number	Description	Reel Length (ft)
JMA38S-50-250	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	250
JMA38S-50-300	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	300
JMA38S-50-350	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	350
JMA38S-50-400	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	400
JMA38S-50-450	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	450
JMA38S-50-500	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	500
JMA38S-50-1 640	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm Black PE Jacket	1,640
JMA38SP-50-250	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	250
JMA38SP-50-300	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	300
JMA38SP-50-350	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	350
JMA38SP-50-400	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	400
JMA38SP-50-450	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	450
JMA38SP-50-500	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	500
JMA38SP-50-1 640	5G PremiumCoaxial Cable, 3/8" Superflex, 50 Ohm White PlenumJacket	1,640



JMA38S-50

JMA38SP-50

JMA's bulk cable initial offering includes the most common cables used in macro, small cell and in-building networks



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Proven Best in Class Coax Passives to make 3/8" Jumper On-site

Compression Connectors

PIM resistant compression technology reduces PIM related OPEX by 40%



JMA's unique compression connectors deliver:

- 40% Reduction in OPEX
- 35% Increase in throughput
- 7X Faster Installation
- Backed by comprehensive lifetime warranty including labor costs

Reusable Weather Protection

Infinitely reusable 2-piece design saves \$5 every time a connection is serviced



JMA's 2-piece weather protection provides:

- Less than 1 minute installation- traditional solutions take 15+ minutes
- Infinitely reusable saves \$5 each time a connection is serviced
- Installs in all temperature conditions- traditional solutions limited



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Proven Best in Class Factory-tested 3/8" JMA Pigtails

Eliminate Excess Cable Loss and Maximize 5G Upper Mid-Band Coverage Area

- Leverages JMA proven compression connector technologies that maximize long-term performance
- Factory-tested, cut-in-half delivered for max. flexibility
- Ease supply chain challenges by reducing part numbers by 75%
- Easily install in under one minute, faster than the time required to install extra cable hangers
- Improve site aesthetics with no excess length cables extending beyond antennas



**Only JMA pigtails maximize upper mid-band POP coverage –
eliminating the need for additional sites**

JMA 3/8" Connectors for Small Cells

**NEW 3/8 INCH
TRANSMISSION LINE**

1

NEW 3/8 INCH OFFERINGS

2



3

**4 & 5 PORT CLUSTER
SOLUTIONS**

4

**4 PORT CLUSTER
SMALL CELL EXAMPLE**



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JMA 3/8" Compression Connectors

Eliminate PIM by Design



Multi-Piece Connector



Manual Tools



Single-Piece Connector



Automated Tools

Traditional Connectors

- **Complex installation prone to craft error** – Multi-piece design requires nine steps to assemble and install onto cable
- **Not designed to eliminate PIM** – Decades-old technology has weak center conductor grip that generates PIM
- **Manual installation process relies on precision field measurements** – precise length and torque measurements must be used during installation process – not practical in field conditions

JMA Compression Connectors

- **Simple installation eliminates craft error** – Factory-assembled, single-piece design requires only three simple installation steps
- **Compression design eliminates PIM** – Active compression on center conductor, outer conductor, and jacket effectively bond the connector to the cable
- **Automated compression process eliminates process variability** – An automated pressing tool ensures consistency in any field conditions

JMA compression connectors install 7x faster and are guaranteed to eliminate PIM over their entire service life



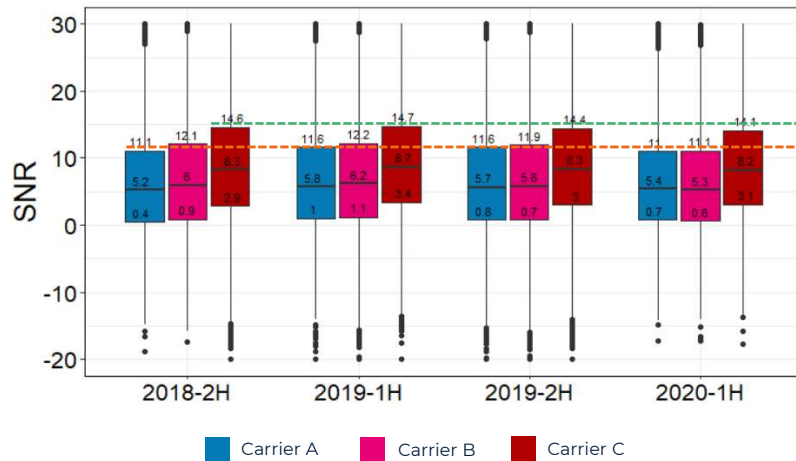
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JMA's Unique Passives

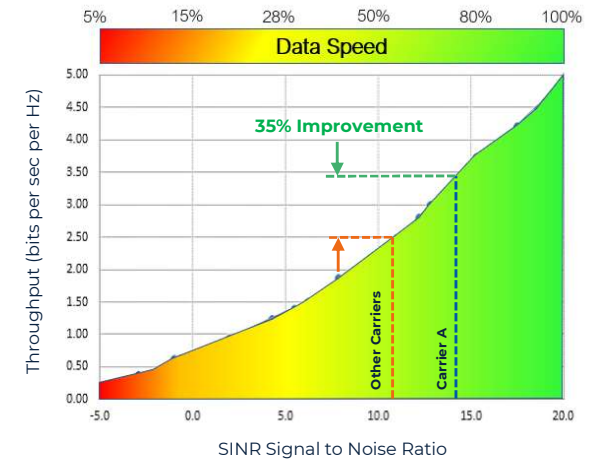
Help Carriers Achieve Best in Class Throughput

Signal to noise ratio over time (2H 2018 – 1H 2020)



Carrier A consistently achieves 25% better SINR than its competitors which translates directly into 35% increased throughput

LTE Data Speed vs. Signal to Noise Ratio



Source:

Carrier C standardized on JMA coax passives to maximize SINR and throughput



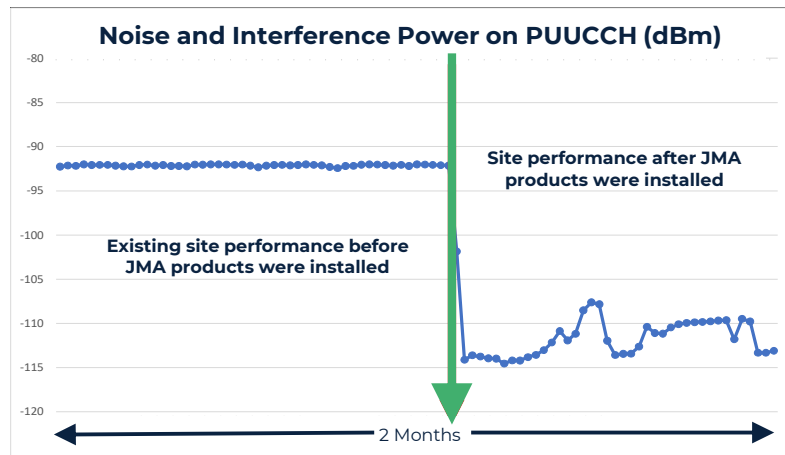
Source: <https://rootmetrics.com/en-US/content/verizon-in-early-2020>

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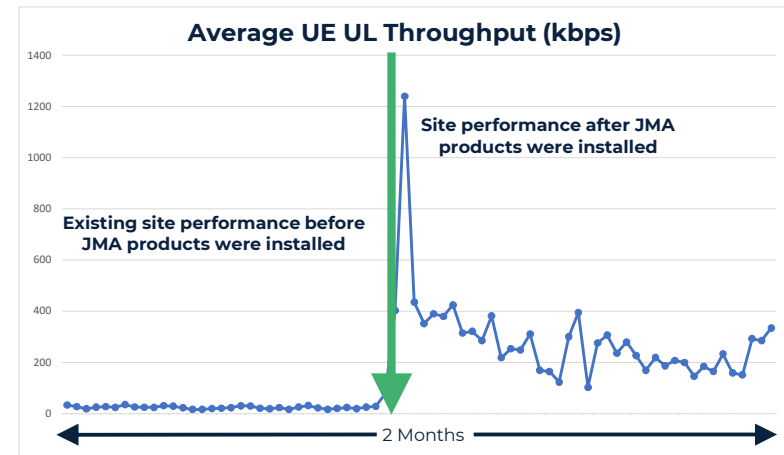


JMA's Unique Coax Passives

Are Proven Solutions to Internal PIM Issues



JMA Coax Passives Installed to Eliminate Internal PIM and Thereby Interference



UL Throughput Increases 4X as a Result of Noise Reduction

JMA compression connectors and laser-welded jumpers increase throughput by eliminating PIM

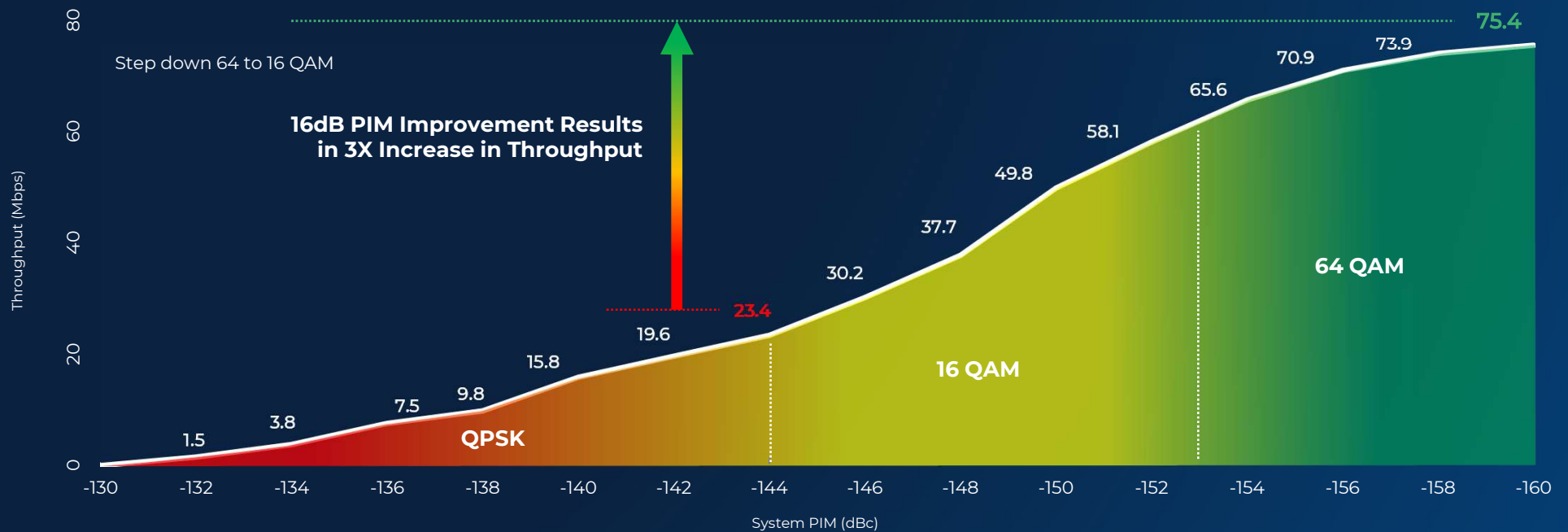


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JMA Coax Passives Maximize Throughput

By Eliminating PIM in Cabling



JMA's unique coax passives are the only products guaranteed to eliminate PIM



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* Graph Based on 3GPP Standards

