



NEW HAVEN PUBLIC SCHOOLS

## Operations Memorandum

**To:** New Haven Board of Education Finance and Operations Committee  
**From:** Gilda Herrera  
**Date:** 1/25/2021  
**Re:** Renewal Agreement with Total Communication for Wireless Infrastructure

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**Contractor Name:** Total Communication, Inc.

**Contractor Address:** 333 Burnham Street, East Hartford, CT 06108

**Is the contractor a Minority or Women Owned Small Business?** N/A

**Renewal or Award of Contract/Agreement?** Yes

**Total Amount of Contract/Agreement and the Hourly or Service Rate**  
\$1,645,056.70

**Funding Source & Account #:** 3C202075 58704

**Key Questions:** (Please have someone ready to discuss the details of each question during the Finance & Operations meeting or this proposal might not be advanced for consideration by the full Board of Education):

- 1. What specific service will the contractor provide:** to provide wireless infrastructure for 15 schools in District from July 1, 2021 to June 30, 2022, in an amount not to exceed \$1,645,056.70.
- 2. How was the contractor selected? Quotes? RFP? Sealed Bid or Sole Source? Please describe the selection process including other sources considered and the rationale for selecting this method of selection:** RFP 2020-10-1351
- 3. If this is a renewal with a current vendor, has the vendor's performance been satisfactory under the existing contract or agreement?** No
- 4. If this Contract/Agreement is a Renewal has cost increased? If yes, by how much?** N/A
- 5. If this Contractor is New has cost for service increased from previous years? If yes, by how much?** This is a new service agreement for 2021-2022 to enhance Hybrid learning. High Capacity Wi-Fi indoor/outdoor.
- 6. Is this a service existing staff could provide? Why or why not?** No



NEW HAVEN PUBLIC SCHOOLS

**AGREEMENT**  
**By And Between**  
**The New Haven Board of Education**  
**AND**

Total Communication, Inc.

FOR DEPARTMENT/PROGRAM:

Information Department, NHPS

This Agreement entered into on the 1st day of July, 2021, effective  
(start date no sooner than the day after Board of Education Approval), on the 30 day  
of July, 2021, by and between  
the New Haven Board of Education (herein referred to as the "Board")  
and, Total Communication, Inc.

located at, 333 Burnham Street, East Hartford, CT 06108

(herein referred to as the "Contractor").

**Compensation:** The Board shall pay the contractor for satisfactory performance of services  
required the amount of \_\_\_\_\_ per  day,  hour or  session,  
for a total of day(s), hour(s) or session(s). \$ 1,645,056.70

The maximum amount the contractor shall be paid under this agreement: \$ 1,645,056.76  
Compensation will be made upon submission of an itemized invoice which includes a detailed  
description of work performed and date of service.

**Fiscal support** for this Agreement shall be by \_\_\_\_\_ **Program**  
of the New Haven Board of Education, **Account Number:** 3C202075 58704  
**Location Code:**

This agreement shall remain in effect from 07/01/2021 to 06/30/2022

**SCOPE OF SERVICE:** *Please describe service deliverables, including, locations and costs for  
service, including travel and supplies, if applicable. A detailed Scope of Service with pricing must  
be attached as Exhibit A). Please do not leave this section blank*

*Exhibit A: Scope of Service: Please attach contractor's detailed Scope of Service with all costs for services including travel and supplies, if applicable.*

*Exhibit B: Student Data and Privacy Agreement: Attached*

**APPROVAL:** This Agreement must be approved by the New Haven Board of Education *prior to service start date*. Contractors may begin service no sooner than the day after Board of Education approval.

**HOLD HARMLESS:** The Contractor shall insure and/or indemnify the Board and its members, employees and agents against all claims, suits, and expenses, including reasonable attorney's fees, in connection with loss of life, bodily injury or property damage arising from any neglect act or omission of the Contractor or its employees or agents. Further, the Contractor covenants and agrees that it shall hold the Board and its members, employees and agents harmless against any and all claims, suits judgments of any description whatsoever caused by the Contractor's breach of this agreement or based upon the conduct of the Contractor, or its agents or its employees or arising out of in connection with their activities under this agreement.

**TERMINATION:** The Board may cancel this agreement for any reason upon thirty (30) days' written notice sent to the Contractor by certified U.S. mail, return receipt requested; provided however, that the Board shall be responsible to the Contractor for all services rendered by the Contractor through the last day of thirty (30) day notice period, as long as the Agreement was approved by the Board prior to the start date of service.



Contractor Signature

\_\_\_\_\_  
President  
New Haven Board of Education

01/25/2021

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date



\_\_\_\_\_  
Contractor Printed Name & Title

Revised: 12/3/19



NEW HAVEN PUBLIC SCHOOLS

**EXHIBIT B**

**STUDENT DATA PRIVACY AGREEMENT  
SPECIAL TERMS AND CONDITIONS**

For the purposes of this Exhibit B "directory information," "de-identified student information," "school purposes," "student information," "student records," "student-generated content," and "targeted advertising" shall be as defined by Conn. Gen. Stat. §10-234aa.

1. All student records, student information, and student-generated content (collectively, "student data") provided or accessed pursuant to this Agreement or any other services agreement between the Parties are not the property of, or under the control of, the Contractor.
2. The Board shall have access to and the ability to delete student data in the possession of the Contractor except in instances where such data is (A) otherwise prohibited from deletion or required to be retained under state or federal law, or (B) stored as a copy as part of a disaster recovery storage system and that is (i) inaccessible to the public, and (ii) unable to be used in the normal course of business by the Contractor. The Board may request the deletion of any such student information, student records or student-generated content if such copy has been used by the operator to repopulate accessible data following a disaster recovery. The Board may request the deletion of student data by the contractor within two (2) business days of receiving such a request and provide to the Board confirmation via electronic mail that the student data has been deleted in accordance with the request, the date of its deletion, and the manner in which it has been deleted. The confirmation shall contain a written assurance from the Contractor that proper disposal of the data has occurred in order to prevent the unauthorized access or use of student data and that deletion has occurred in accordance with industry standards/practices/protocols.
3. The Contractor shall not use student data for any purposes other than those authorized pursuant to this Agreement.
4. A student, parent or legal guardian of a student may review personally identifiable information contained in student data and correct any erroneous information, if any, in such student data. If the Contractor receives a request to review student data in the Contractor's possession directly from a student, parent, or guardian, the Contractor agrees to refer that individual to the Board and to notify the Board within two (2) business days of receiving such a request. The Contractor agrees to work cooperatively with the Board to permit a student, parent, or guardian to review personally identifiable information in student data that has been shared with the Contractor, and correct any erroneous information therein.



5. The Contractor shall take actions designed to ensure the security and confidentiality of student data.
6. The Contractor will notify the Board, in accordance with Conn. Gen. Stat. § 10-234dd, when there has been an unauthorized release, disclosure or acquisition of student data. Such notification will include the following steps:

Upon discovery by the Contractor of a breach of student data, the Contractor shall conduct an investigation and restore the integrity of its data systems and, without unreasonable delay, but not more than thirty (30) days after such discovery, shall provide the Board with a more detailed notice of the breach, including but not limited to the date and time of the breach; name(s) of the student(s) whose student data was released, disclosed or acquired; nature of and extent of the breach; and measures taken to ensure that such a breach does not occur in the future.

7. Student data shall not be retained or available to the Contractor upon expiration of the contract between the Contractor and Board, except a student, parent or legal guardian of a student may choose independently to establish or maintain an electronic account with the Contractor after the expiration of such contract for the purpose of storing student-generated content.
8. The Contractor and Board shall each ensure their own compliance with the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g, as amended from time to time.
9. The Contractor acknowledges and agrees to comply with the above and all other applicable aspects of Connecticut's Student Data Privacy law according to Connecticut General Statutes §§ 10-234aa through 10-234dd.
10. The Parties agree that this Agreement controls over any inconsistent terms or conditions contained within any other agreement entered into by the Parties concerning student data.



# Cisco Meraki Erate FY21-22 New Haven Public Schools

## Itemized Pricing

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1410	MR46-HW	Meraki MR46 Wi-Fi 6 Indoor AP	595.55	839,730.00
76	MR56-HW	Meraki MR56 Wi-Fi 6 Indoor AP	759.96	57,756.77
115	MR86-HW	Meraki MR86 Wi-Fi 6 Outdoor AP	924.35	106,300.37
230	MA-ANT-20	Meraki Dual-band Omni Antennas	81.80	18,813.51
1601	LIC-ENT-5YR	Meraki MR Enterprise License, 5YR	184.96	296,116.87
<b>Labor Per Site No Lift Price Included-Pricing Below for adding the indoor and outdoor lifts and Plenum cabling to price</b>				
1	Labor-Inst-Equ	Bishop Woods Architecture and Design Magnet	5,102.88	5,102.88
1	Labor-Inst-Equ	Edgewood	3,380.00	3,380.00
1	Labor-Inst-Equ	Sound	4,280.60	4,280.60
1	Labor-Inst-Equ	Worthington Hooker Elementary	4,280.60	4,280.60
1	Labor-Inst-Equ	Worthington Hooker Middle	9,640.72	9,640.72
1	Labor-Inst-Equ	King/Robinson Magnet School	4,796.12	4,796.12
1	Labor-Inst-Equ	Metropolitan Business Academy	8,188.84	8,188.84
1	Labor-Inst-Equ	Engineering & Science University Magnet School	3,659.60	3,659.60
1	Labor-Inst-Equ	Ross Woodward Classical	7,783.72	7,783.72
1	Labor-Inst-Equ	Truman	5,564.12	5,564.12
1	Labor-Inst-Equ	Riverside Academy	2,300.12	2,300.12
1	Labor-Inst-Equ	New Haven Academy	5,522.60	5,522.60
1	Labor-Inst-Equ	Wexler Grant	6,143.60	6,143.60
1	Labor-Inst-Equ	James Hillhouse High School	13,524.36	13,524.36
1	Labor-Inst-Equ	West Rock STREAM Academy	8,353.72	8,353.72
1	Labor-Inst-Equ	Wilbur Cross High School	18,851.08	18,851.08
1	Labor-Inst-Equ	Davis Academy for Arts and Design Innovation	10,843.72	10,843.72
1	Labor-Inst-Equ	Fair Haven	8,924.12	8,924.12
1	Labor-Inst-Equ	Dr. Reginald Mayo Early Learning Center	6,143.60	6,143.60
1	Labor-Inst-Equ	Augusta Lewis Troup School	5,084.12	5,084.12
1	Labor-Inst-Equ	Cooperative Arts And Humanities High School	6,236.12	6,236.12
1	Labor-Inst-Equ	LW Beecher Museum School of Arts & Sciences	10,465.72	10,465.72
1	Labor-Inst-Equ	Brennan	4,124.12	4,124.12
1	Labor-Inst-Equ	Rogers	2,976.00	2,976.00
1	Labor-Inst-Equ	Clemente Leadership Academy	5,276.12	5,276.12
1	Labor-Inst-Equ	Columbus	4,316.12	4,316.12
1	Labor-Inst-Equ	Conte West Hills School	9,793.72	9,793.72
1	Labor-Inst-Equ	Mauro-Sheridan Science, Technology and Comm.	11,752.72	11,752.72
1	Labor-Inst-Equ	Benjamin Jepson Magnet	6,044.12	6,044.12
1	Labor-Inst-Equ	Celentano BioTech, Health and Medical Magnet	10,557.84	10,557.84
1	Labor-Inst-Equ	Clinton Avenue	4,901.60	4,901.60
1	Labor-Inst-Equ	Quinnipiac Real World Math STEM	4,280.60	4,280.60
1	Labor-Inst-Equ	Nathan Hale	6,764.60	6,764.60
1	Labor-Inst-Equ	Lincoln-Bassett	5,660.12	5,660.12
1	Labor-Inst-Equ	Hill Central Music Academy	4,600.24	4,600.24
1	Labor-Inst-Equ	High School In The Community	4,796.12	4,796.12
1	Labor-Inst-Equ	East Rock Community Magnet	9,172.72	9,172.72
1	Labor-Inst-Equ	John S Martinez Sea & Sky STEM Magnet School	4,892.12	4,892.12
1	Labor-Inst-Equ	Barnard Environment Studies Interdistrict School	6,200.72	6,200.72

### PROJECT SUMMARY WITHOUT LIFTS

<b>Meraki Material Summary</b>	<b>1,318,717.67</b>
<b>Labor/Materials All Sites-No Lift Charges</b>	<b>265,179.68</b>
<b>Total Customer Price-No Lifts</b>	<b>1,583,897.35</b>

\$468.00	Lifts Not Included If Needed Inside lift Cost \$520.44	28	\$13,104.00
\$1,617.00	Lifts Not Included If Needed Outdoor lift Cost \$1,796.60	23	\$37,191.00
			<b>\$50,295.00</b>

*Any remobilization off site or waiting on approvals of change order for lift approval will be billed as an extra at hourly labor rates in effect at that time.*

### PROJECT SUMMARY WITH PRICING OPTIONS

<b>Meraki Material Summary</b>	<b>1,318,717.67</b>
<b>Labor/Materials All Sites With Lifts</b>	<b>321,074.03</b>
<b>Total Customer Price-With Lifts</b>	<b>1,639,791.70</b>
<b>Total Customer Price-With Lifts and Plenum Cabling</b>	<b>1,645,056.70</b>

FOR SITE BREAKDOWN PRICING SEE FULL PRICING PAGE



Building	Total # of AP's	1 to 1 (29 Locations)			Café/Aud (28 Locations)				Outdoor (23 Locations)				Meraki Programming (\$)	Total Price Per School
		MR46 w/5 YR License	780.51	Mounting Labor (\$)	MR56 w/5 YR License	\$944.92	Cabling & Materials (\$)	Mounting Labor (\$)	MR86 w/5 YR LIC & (2)ANT-20 per WAP	\$1,272.91	Cabling & Materials (\$)	Mounting Labor (\$)		
Bishop Woods Architecture and Design Magnet	37	33	\$25,756.83	\$2,640.00	2	\$1,889.84	\$440.12	\$100.00	2	\$2,545.82	\$610.76	\$720.00	\$592.00	\$35,295.37
Edgewood	5	-	-	-	-	-	-	-	5	\$6,364.55	\$1,500.00	\$1,800.00	\$80.00	\$9,744.55
Sound	4	-	-	-	-	-	-	-	4	\$5,091.64	\$2,776.60	\$1,440.00	\$64.00	\$9,372.24
Worthington Hooker Elementary	4	-	-	-	-	-	-	-	4	\$5,091.64	\$2,776.60	\$1,440.00	\$64.00	\$9,372.24
Worthington Hooker Middle	34	24	\$18,732.24	\$1,920.00	2	\$1,889.84	\$440.12	\$100.00	8	\$10,183.28	\$3,756.60	\$2,880.00	\$544.00	\$40,446.08
King/Robinson Magnet School	46	44	\$34,342.44	\$3,520.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$736.00	\$41,028.40
Metropolitan Business Academy	52	42	\$32,781.42	\$3,360.00	8	\$7,559.36	\$880.24	\$400.00	2	\$2,545.82	\$1,996.60	\$720.00	\$832.00	\$51,075.44
Engineering & Science University Magnet School	3	-	-	-	-	-	-	-	3	\$3,818.73	\$2,531.60	\$1,080.00	\$48.00	\$7,478.33
Ross Woodward Classical	42	37	\$28,878.87	\$2,960.00	2	\$1,889.84	\$440.12	\$100.00	3	\$3,818.73	\$2,531.60	\$1,080.00	\$672.00	\$42,371.16
Truman	54	52	\$40,586.52	\$4,160.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$864.00	\$48,040.48
Riverside Academy	20	18	\$14,049.18	\$1,440.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$320.00	\$18,239.14
New Haven Academy	6	-	-	-	-	-	-	-	6	\$7,637.46	\$3,266.60	\$2,160.00	\$96.00	\$13,160.06
Wexler Grant	7	-	-	-	-	-	-	-	7	\$8,910.37	\$3,511.60	\$2,520.00	\$112.00	\$15,053.97
James Hillhouse High School	129	123	\$96,002.73	\$9,840.00	6	\$5,669.52	\$1,320.36	\$300.00	-	-	-	-	\$2,064.00	\$115,196.61
West Rock STREAM Academy	37	30	\$23,415.30	\$2,400.00	2	\$1,889.84	\$440.12	\$100.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$592.00	\$40,023.41
Wilbur Cross High School	129	115	\$89,758.65	\$9,200.00	8	\$7,559.36	\$1,760.48	\$400.00	6	\$7,637.46	\$3,266.60	\$2,160.00	\$2,064.00	\$123,806.55
Davis Academy for Arts and Design Innovation	52	43	\$33,561.93	\$3,440.00	2	\$1,889.84	\$440.12	\$100.00	7	\$8,910.37	\$3,511.60	\$2,520.00	\$832.00	\$55,205.86
Fair Haven	89	87	\$67,904.37	\$6,960.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$1,424.00	\$78,718.33
Dr. Reginald Mayo Early Learning Center	7	-	-	-	-	-	-	-	7	\$8,910.37	\$3,511.60	\$2,520.00	\$112.00	\$15,053.97
Augusta Lewis Troup School	49	47	\$36,683.97	\$3,760.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$784.00	\$43,657.93
Cooperative Arts And Humanities High School	61	59	\$46,050.09	\$4,720.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$976.00	\$54,176.05
LW Beecher Museum School of Arts & Sciences	59	52	\$40,586.52	\$4,160.00	2	\$1,889.84	\$440.12	\$100.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$944.00	\$59,306.63
Brennan	39	37	\$28,878.87	\$2,960.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$624.00	\$34,892.83
Rogers	31	31	\$24,195.81	\$2,480.00	-	-	-	-	-	-	-	-	\$496.00	\$27,171.81
Clemente Leadership Academy	51	49	\$38,244.99	\$3,920.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$816.00	\$45,410.95
Columbus	41	39	\$30,439.89	\$3,120.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$656.00	\$36,645.85
Conte West Hills School	52	45	\$35,122.95	\$3,600.00	2	\$1,889.84	\$440.12	\$100.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$832.00	\$53,171.06
Mauro-Sheridan Science, Technology and Comm.	56	46	\$35,903.46	\$3,680.00	2	\$1,889.84	\$440.12	\$100.00	8	\$10,183.28	\$3,756.60	\$2,880.00	\$896.00	\$59,729.30
Benjamin Jepson Magnet	59	57	\$44,489.07	\$4,560.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$944.00	\$52,423.03
Celentano BioTech, Health and Medical Magnet	56	47	\$36,683.97	\$3,760.00	4	\$3,779.68	\$880.24	\$200.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$896.00	\$57,386.04
Clinton Avenue	5	-	-	-	-	-	-	-	5	\$6,364.55	\$3,021.60	\$1,800.00	\$80.00	\$11,266.15
Quinnipiac Real World Math STEM	4	-	-	-	-	-	-	-	4	\$5,091.64	\$2,776.60	\$1,440.00	\$64.00	\$9,372.24
Nathan Hale	8	-	-	-	-	-	-	-	8	\$10,183.28	\$3,756.60	\$2,880.00	\$128.00	\$16,947.88
Lincoln-Bassett	55	53	\$41,367.03	\$4,240.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$880.00	\$48,916.99
Hill Central Music Academy	40	36	\$28,098.36	\$2,880.00	4	\$3,779.68	\$880.24	\$200.00	-	-	-	-	\$640.00	\$36,478.28
High School In The Community	46	44	\$34,342.44	\$3,520.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$736.00	\$41,028.40
East Rock Community Magnet	51	45	\$35,122.95	\$3,600.00	2	\$1,889.84	\$440.12	\$100.00	4	\$5,091.64	\$2,776.60	\$1,440.00	\$816.00	\$51,277.15
John S Martinez Sea & Sky STEM Magnet School	47	45	\$35,122.95	\$3,600.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$752.00	\$41,904.91
Barnard Environment Studies Interdistrict School	34	30	\$23,415.30	\$2,400.00	2	\$1,889.84	\$440.12	\$100.00	2	\$2,545.82	\$1,996.60	\$720.00	\$544.00	\$34,051.68
<b>Totals</b>	<b>1601</b>	<b>1410</b>	<b>\$1,100,519.10</b>	<b>\$112,800.00</b>	<b>76</b>	<b>\$71,813.92</b>	<b>\$15,844.32</b>	<b>\$3,800.00</b>	<b>115</b>	<b>\$146,384.65</b>	<b>\$65,719.36</b>	<b>\$41,400.00</b>	<b>\$25,616</b>	<b>\$1,583,897.35</b>

NO Lifts-PVC Cabling

Inside Lift Cost \$468 per site	28	\$13,104.00
Outdoor Lift for MR86 Cost \$1,617 per site	23	\$37,191.00

Any remobilization off site or waiting on approvals of change order for lift approval will be billed as an extra at hourly labor rates in effect at that time. **\$50,295.00**

All cabling above is quoted as PVC (not Plenum) Additional \$5,265.00 for plenum cabling-\$135.00 per site

Meraki Hardware Costs	Labor Costs	Total Cost Options
\$1,318,717.67	Labor Cost No Lifts \$265,179.68	\$1,583,897.35
\$1,318,717.67	Labor Cost with Lifts \$321,074.03	\$1,639,791.70
		<b>Recommended Pricing Option</b>
<b>\$1,318,717.67</b>	<b>Labor Cost w/ Lifts &amp; Plenum Cabling \$321,074.03</b>	<b>\$1,645,056.70</b>

**GENERAL ASSUMPTIONS**

The following General Assumptions apply to this quotation unless otherwise specified in the preceding scope of work.

**BASIC:**

All work is to be completed between 8:00AM and 4:00PM, Mon. - Fri. Overtime labor due to customer caused delays or customer time restraints shall be at an additional cost.

Installers will be provided timely access to all areas needed to complete this installation.

Material costs included with this quotation may fluctuate due to demand and availability. Material pricing is based on material costs at the time the quotation is given to the customer.

Work requests outside the original scope of work will be completed on a change order basis. All change orders must be signed prior to the commencement of that work.

Any and all fees, permits, and right of ways are the responsibility of the customer. Frontier can provide these services. If requested, additional costs will apply.

All materials and installation thereof shall conform to associated National Fire Protection Agency (NFPA) / National Electric Codes (NEC).

**CABLE ROUTES:**

Unless otherwise noted, no conduit construction is included with this quotation.

This quotation assumes a cable run will not exceed 200 FT, that ceilings are fully accessible, suspended type not to exceed 8 ft, with sufficient space available, walls should be sheet rock type and fishable. Patch panel not included

All required mowing of furniture, file cabinets, desks, and equipment will be responsibility of others.

Alterations or deviations if any, from the above scope of work or any delays or postponements of the work by the customer or its agents which result in additional materials or labor costs, will become an extra charge which will be billed as an addition to this proposal amount. Any extra move on or off the job site due to circumstances beyond our control will be billed as an extra at hourly labor and equipment rates in effect at the time.

**BUILDING PERMIT NOT INCLUDED**



**Prepared For:**

**City of New Haven**  
*Attn: Bureau of Purchases*  
200 Orange Street, Room 301  
New Haven, CT 06510



**Submitted By:**

**Chris Garlock**  
*Major Account Consultant*  
860.622.4132  
chrisgarlock@totalcomm.com







NEW HAVEN PUBLIC SCHOOLS

## Contents

NHPS Wireless Upgrade RFP #2020-10-1351

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1. **Company Information**
2. **Statement Qualifications**
3. **Solution Overview & Pricing**
4. **Supporting Documents**



# 1. Company Information

## Why Total Communications?

*Helping business connect, communicate, and collaborate since 1980*



*When your organization needs to connect, communicate, or collaborate, turn to Total Communications. For over 40 years, we've been dedicated to helping organizations use technology to increase productivity and enhance services. We are a trusted advisor for all your IT / Telecommunications needs, including telephone systems, carrier services, voice/video/data networks, Internet services, structured cabling and IT services.*

### **1980 to 2020: Continually Evolving**

Founded in 1980, Total Communications entered the newly opened telecommunications market selling hospital call systems, paging equipment and an electronic key telephone. From a small 5-person operation, Total has grown to be a dynamic enterprise with 4 locations and 6 divisions. We have continually expanded services in response to customer needs, starting with becoming an Authorized SNET Agent in 1989 to adding comprehensive IT Support in 2011. Total Communications has been based in Connecticut for over 40 years.

### **Experience**

Today, Total Communications serves 12,000 customers and has over 40 years of experience in voice, 25 years in data and 20 years in VoIP/unified communications. Dealing with leading the public and private sector clients throughout New England over the years has given us an in-depth perspective on your requirements and challenges. We have designed, implemented and maintained communication solutions for leading public and private entities including:

- Hartford Public Schools
- Greenwich Public Schools
- City of Waterbury & BOE
- Jobs for the Future
- City of Norwalk
- New Haven Public Schools
- Choate Rosemary Hall
- Holyoke Medical Center
- Westfield Gas & Electric
- City of Middletown



**Total & Cisco: Converging Voice & Data**

Total Communications is a Cisco Gold Partner. With experience in telephony and data, Total was selected by Cisco Systems in the late 1990s to work on their Selsius IP Telephony product prior to its release. In 1999 and 2000 Total Communications designed and installed a Cisco Unified Communications System for the Hartford, Connecticut Public Schools, which was one of the largest installations worldwide at the time. Today, we are a Cisco Master Collaboration Specialized Partner, a specialization held by less than 1% of Cisco VARs in the United States. This is the highest level of specialization Cisco offers, and recognizes Total as having the ability to provide sophisticated, value-added Cisco Unified Communications solutions through their in-depth sales capabilities, technology skills and service offerings.

**Continually Investing in TECHNOLOGY, STAFF & CERTIFICATIONS**

Today, thousands of businesses and organizations across the US rely on Total to maintain their critical IT / Telecommunications systems. Total has been recognized for customer satisfaction excellence by Cisco Systems and AT&T. As a service-driven company in a competitive industry; we constantly invest in technology, staff and certifications including:

**Technology**

We have invested in advanced technology to offer small-to-mid-size organizations enterprise-level services, giving them a technological edge. We've also made a major investment in physical resources. Total Communications manages customer networks from 2 secure, environmentally controlled Network Operating Centers (NOCs). Both NOCs feature high-speed Internet connections, multi-layer security, sophisticated software, and uninterruptible power supplies. The NOC at our corporate headquarters is backed by a 150 KW hard wired electrical generator, assuring business continuity for our customers.

- 1000 sq. ft. Network Operations / Co-location Center
- Redundant Network Monitoring Center at corporate headquarters
- Technology Demonstration Center
- 2 Million dollar inventory of parts & equipment

**Staff**

Our key network engineers have been deeply involved with Cisco IP Telephony since 1999. In addition to 5 local individuals with the CCNP-V certification and 2 with the CCNA-V certification, we have two CCIEs employed full time at our corporate headquarters in East Hartford, Connecticut. They each hold a certification in Collaboration, a certification held by less than 2,400 worldwide. A third CCIE is specialized in routing and switching and also holds the elite Cisco Certified Design Expert (CCDE) certification. All of these employees have participated in the design, implementation and support of Cisco Unified Communications projects ranging from 50 to 5,000 users. This group also collaborates with our on-staff Project Management Professional (PMP) and Microsoft and VMware certified staff members. Total is deeply committed to continual improvement by significantly investing in continuing education and technology upgrades annually.

**Company Certifications**

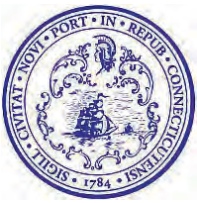
- Cisco® Gold Certified Partner (held by less than 1% of Cisco Partners in US)
- Cisco® Master Collaboration Specialized Partner
- Cisco® Advanced Collaboration Architecture
- Cisco® Advanced Data Center Architecture
- Cisco® Advanced Enterprise Network Architecture
- Cisco® Advanced Security Architecture

**Staff Qualifications**

- 37 network engineers with over 350 Cisco Certifications
- 1 Cisco® Certified Design Expert (CCDE, highest level of certification for design, ~200 worldwide )
- 5 Cisco® Certified Internetwork Experts (CCIE, Cisco's highest level of professional certification for planning, operating and troubleshooting infrastructures, 2 of these CCIEs are in Collaboration locally in East Hartford )
- 24 Professional Certifications (CCNP, CCDP)
- 42 Associate Certifications (CCNA, CCDA)



## 2. Statement of Qualifications



# Statement of Qualifications

## Statement of Qualifications:

Each solicitation response shall include a Statement of Qualifications in the format provided in this Solicitation upon stationary of the responding entity.

All questions must be answered, and the data given must be clear and comprehensive. The respondent may submit any additional information he/she desires.

1. Name of Vendor/Contractor/Respondent (requires a real person's name)

Total Communications, Inc. a subsidiary of Frontier Communications Corp.

2. Permanent main office address

333 Burnham Street, E. Hartford, CT 06108

3. Contact Information: Phone, Fax, **E-mail**

Phone 800.300.0824

Fax \_\_\_\_\_

860.528.1904

E-Mail info@totalcomm.com

4. When organized

1980

5. Legal form of ownership. If a corporation, where incorporated.

Corporation, Connecticut.

6. How many years have you been engaged in services, under your present name?

40 Years as Total Communications, Inc. and 5 Years as a wholly-owned subsidiary of Frontier Communications.

7. Experience in work similar in scope of services and in importance to this solicitation opportunity. Provide three references.

### **NEW HAVEN BOARD OF EDUCATION**

- \$8,000,000.00+

- William Zesner; Network Services Supervisor; william.zesner@new-haven.k12.ct.us 475220-1692

- Provide VOIP and Data Network Solutions for New Haven Schools 2019

### **CITY OF HARTFORD & HARTFORD BOARD OF EDUCATION;** 260 Constitution Plaza – Hartford, CT 06103

- \$6,500,000.00+; Initial Installation in August 1999 – currently maintaining. Supports over 24,000 students, 6500 IP Phones, over (60) Board of Education and City Locations, (16) PRI's, Cisco Call Manager 6

- Patrick Welch, Director of Network Operations, MHIS; 860-757-9436, pwelch@hartfordschools.org

### **CITY OF NORWALK;** 125 East Avenue – Norwalk, CT 06856

- \$1,100,000.00+; Installed July 2007; 900 IP Phones, Call Manager 4.2, Unity VM, 14 Locations including BOE

- Karen DelVecchio, Director Information Technology 203-854-7900

### **CITY OF TRUMBULL & BOARD OF EDUCATION;** 5866 Main Street, Trumbull, CT 06611

- \$500,000.00+; Installed 2017. Cisco BE6K, 830 users between Town and Schools. 4 SIP entry points. Town and schools each have failover to secondary servers, then can fail over to each other

- Bill Chin, IT Director, wchin@trumbull-ct.gov

8. Have you ever failed to complete any work awarded to you? If so, where and why?

No.

9. Have you ever defaulted on a contract? If so, where and why?

No.

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10. Describe any pending litigation or other factors, which could affect your organization's ability to perform this agreement

N/A

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11. Names, titles, reporting relationships, and background and experience of the principal members of your organization, including the officers. Indicate which individuals are authorized to bind the organization in negotiations with the City of New Haven

Scott Lennon, President of Total Communications Inc. is the legal signatory.

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12. Name, title, address and telephone number of the individual to whom all inquiries about this Proposal should be addressed.

Chris Garlock, Major Account Consultant, 860-622-4132, 860-528-1904 chrisgarlock@totalcomm.com

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13. Will you, upon request, fill out a detailed financial statement and furnish any other information or sign a release that may be required by the City of New Haven?

Yes.

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14. Tax Identification number(s) 06-1020653

15. Are you able to receive Credit Card Payments for your services rendered? Yes.

16. Addendums - notices are sent electronically and are posted to portal. You are responsible for the addendum content whether viewed or not. (See section **Interpretation of Addenda for details**)



check Box

17. Project requiring a percent market up, material cost cannot exceed ten percent (%). Please state your markup percentage here: \*\* N/A (\*\*if you leave it blank, we will consider your percentage markup "0")





### 3. Solution Overview & Pricing

## Solution Overview

Total Communications is proposing to continue our efforts with the New Haven Public Schools and Cisco Meraki to build a Hybrid Campus-Gain efficiencies through an agile network that can support students and faculty in the classroom and at home, from anywhere, on any device.

## Meraki Access Points

- High-capacity indoor and outdoor Wi-Fi 6
- Onboard device location analytics
- Built-in Bluetooth for asset and beacon tracking

Power new and improved user experiences with MR46, MR56, MR86 Wi-Fi 6 Certified technology—offering faster speeds for enhanced application experience, and more capacity for high-density indoor and outdoor environments

Meraki cloud-based dashboard provides total visibility into a network's users, their devices and their applications. This provides the ability to quickly create access control and application usage policies that optimize both the end-user experience and network security.

Total Communications dba Frontier Communications is providing an affordable solution to upgrade the New Haven public Schools wireless equipment throughout the district to one uniform solution within the existing Cisco and Meraki network.

The desired solution will be a continuation to standardize on Meraki and or compatible wireless equipment under the direction of the New Haven public school's IT Director and their designees. Total Communications has priced a Cisco Meraki Wireless refresh and design to upgrade the existing wireless access points and new access points as requested in the RFP. This Cisco Meraki solution of Access Points will seamlessly integrate with the existing NHPS Cisco Meraki infrastructure plans. The Total Communications design accounts for the current standardized of Meraki Wireless Equipment implementing new WIFI 6 technology.

Total Communications understands that access hours to the schools are M-F 6 AM -11 PM. Total Communications will have a project manager directly with the Director of Infrastructure working directly with NHPS IT dept. and will make plans to access buildings through the IT Department. Total Communications understands from the RFP there are no environmental issues that we will need to be made aware of to perform the installation. Total Communications will take down old access points and putting up new ones on the interior of the buildings. Total Communications will have access to the facilities to complete the installation of new exterior access points on the outside of the building where indicated. If a lift or additional materials are required for the proper installation, then approval will be requested via a Change Order from the NHPS IT dept.

Old equipment will be removed with NHPS and stored at central location within each of the 15 locations. A list of the project management and engineers with all certifications for the NHPS projects has been supplied. Total Communications complies with all requirements within the RFP. A Basic school diagram has been provided as an example on the layout and design for all 15 schools and corresponds to the pricing sheets.

- Total Communications dba Frontier Communications will install all the equipment and no subcontractors will be used.
- Total Communications will provide serial number and location for all access points upon completion in a spreadsheet.
- MR46 Access Points will be installed as a one to one replacement of existing access points and labor has been included in the pricing. If additional materials or a lift is required, the NHPS IT dept. will be notified on the cost difference and a Change Order will be placed before proceeding.
- MR56 Access Points installation for the Auditorium, cafeteria and Gymnasiums are not clear if they will be requiring wiring. We have provided pricing that would include wiring for each MR56 and if a lift is required the additional cost of the lift is also provided in the pricing spreadsheet. If no cabling is required and just a swap of the existing WAP or if materials are required, the IT dept. will be notified as to the cost changes and a Change Order will be placed for approval before proceeding with the work.
- MR86 access points to be installed on the outside of buildings will all be wired and if a lift is required the price is provided and a Change Order will be placed for approval before proceeding with the work.

Upon award of the project Total Communications will do a walk through with the IT dept. and identify locations and places additional materials and lift may be required.

- Electronic and/or hard copy manuals and documentation will be provided for the administration and support of the equipment at the completion on installation.
- The Cisco Meraki solution works hand in hand with your existing Meraki Wireless Network and the Cisco Umbrella content filtering.





# Cisco Meraki Erate FY21-22 New Haven Public Schools

## Itemized Pricing

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1410	MR46-HW	Meraki MR46 Wi-Fi 6 Indoor AP	595.55	839,730.00
76	MR56-HW	Meraki MR56 Wi-Fi 6 Indoor AP	759.96	57,756.77
115	MR86-HW	Meraki MR86 Wi-Fi 6 Outdoor AP	924.35	106,300.37
230	MA-ANT-20	Meraki Dual-band Omni Antennas	81.80	18,813.51
1601	LIC-ENT-5YR	Meraki MR Enterprise License, 5YR	184.96	296,116.87
<b>Labor Per Site No Lift Price Included-Pricing Below for adding the indoor and outdoor lifts and Plenum cabling to price</b>				
1	Labor-Inst-Equ	Bishop Woods Architecture and Design Magnet	5,102.88	5,102.88
1	Labor-Inst-Equ	Edgewood	3,380.00	3,380.00
1	Labor-Inst-Equ	Sound	4,280.60	4,280.60
1	Labor-Inst-Equ	Worthington Hooker Elementary	4,280.60	4,280.60
1	Labor-Inst-Equ	Worthington Hooker Middle	9,640.72	9,640.72
1	Labor-Inst-Equ	King/Robinson Magnet School	4,796.12	4,796.12
1	Labor-Inst-Equ	Metropolitan Business Academy	8,188.84	8,188.84
1	Labor-Inst-Equ	Engineering & Science University Magnet School	3,659.60	3,659.60
1	Labor-Inst-Equ	Ross Woodward Classical	7,783.72	7,783.72
1	Labor-Inst-Equ	Truman	5,564.12	5,564.12
1	Labor-Inst-Equ	Riverside Academy	2,300.12	2,300.12
1	Labor-Inst-Equ	New Haven Academy	5,522.60	5,522.60
1	Labor-Inst-Equ	Wexler Grant	6,143.60	6,143.60
1	Labor-Inst-Equ	James Hillhouse High School	13,524.36	13,524.36
1	Labor-Inst-Equ	West Rock STREAM Academy	8,353.72	8,353.72
1	Labor-Inst-Equ	Wilbur Cross High School	18,851.08	18,851.08
1	Labor-Inst-Equ	Davis Academy for Arts and Design Innovation	10,843.72	10,843.72
1	Labor-Inst-Equ	Fair Haven	8,924.12	8,924.12
1	Labor-Inst-Equ	Dr. Reginald Mayo Early Learning Center	6,143.60	6,143.60
1	Labor-Inst-Equ	Augusta Lewis Troup School	5,084.12	5,084.12
1	Labor-Inst-Equ	Cooperative Arts And Humanities High School	6,236.12	6,236.12
1	Labor-Inst-Equ	LW Beecher Museum School of Arts & Sciences	10,465.72	10,465.72
1	Labor-Inst-Equ	Brennan	4,124.12	4,124.12
1	Labor-Inst-Equ	Rogers	2,976.00	2,976.00
1	Labor-Inst-Equ	Clemente Leadership Academy	5,276.12	5,276.12
1	Labor-Inst-Equ	Columbus	4,316.12	4,316.12
1	Labor-Inst-Equ	Conte West Hills School	9,793.72	9,793.72
1	Labor-Inst-Equ	Mauro-Sheridan Science, Technology and Comm.	11,752.72	11,752.72
1	Labor-Inst-Equ	Benjamin Jepson Magnet	6,044.12	6,044.12
1	Labor-Inst-Equ	Celentano BioTech, Health and Medical Magnet	10,557.84	10,557.84
1	Labor-Inst-Equ	Clinton Avenue	4,901.60	4,901.60
1	Labor-Inst-Equ	Quinnipiac Real World Math STEM	4,280.60	4,280.60
1	Labor-Inst-Equ	Nathan Hale	6,764.60	6,764.60
1	Labor-Inst-Equ	Lincoln-Bassett	5,660.12	5,660.12
1	Labor-Inst-Equ	Hill Central Music Academy	4,600.24	4,600.24
1	Labor-Inst-Equ	High School In The Community	4,796.12	4,796.12
1	Labor-Inst-Equ	East Rock Community Magnet	9,172.72	9,172.72
1	Labor-Inst-Equ	John S Martinez Sea & Sky STEM Magnet School	4,892.12	4,892.12
1	Labor-Inst-Equ	Barnard Environment Studies Interdistrict School	6,200.72	6,200.72

### PROJECT SUMMARY WITHOUT LIFTS

<b>Meraki Material Summary</b>	<b>1,318,717.67</b>
<b>Labor/Materials All Sites-No Lift Charges</b>	<b>265,179.68</b>
<b>Total Customer Price-No Lifts</b>	<b>1,583,897.35</b>

\$468.00	Lifts Not Included If Needed Inside lift Cost \$520.44	28	\$13,104.00
\$1,617.00	Lifts Not Included If Needed Outdoor lift Cost \$1,796.60	23	\$37,191.00
			<b>\$50,295.00</b>

*Any remobilization off site or waiting on approvals of change order for lift approval will be billed as an extra at hourly labor rates in effect at that time.*

### PROJECT SUMMARY WITH PRICING OPTIONS

<b>Meraki Material Summary</b>	<b>1,318,717.67</b>
<b>Labor/Materials All Sites With Lifts</b>	<b>321,074.03</b>
<b>Total Customer Price-With Lifts</b>	<b>1,639,791.70</b>
<b>Total Customer Price-With Lifts and Plenum Cabling</b>	<b>1,645,056.70</b>

FOR SITE BREAKDOWN PRICING SEE FULL PRICING PAGE



Building	Total # of AP's	1 to 1 (29 Locations)			Café/Aud (28 Locations)				Outdoor (23 Locations)				Meraki Programming (\$)	Total Price Per School
		MR46 w/5 YR License	780.51	Mounting Labor (\$)	MR56 w/5 YR License	\$944.92	Cabling & Materials (\$)	Mounting Labor (\$)	MR86 w/5 YR LIC & (2)ANT-20 per WAP	\$1,272.91	Cabling & Materials (\$)	Mounting Labor (\$)		
Bishop Woods Architecture and Design Magnet	37	33	\$25,756.83	\$2,640.00	2	\$1,889.84	\$440.12	\$100.00	2	\$2,545.82	\$610.76	\$720.00	\$592.00	\$35,295.37
Edgewood	5	-	-	-	-	-	-	-	5	\$6,364.55	\$1,500.00	\$1,800.00	\$80.00	\$9,744.55
Sound	4	-	-	-	-	-	-	-	4	\$5,091.64	\$2,776.60	\$1,440.00	\$64.00	\$9,372.24
Worthington Hooker Elementary	4	-	-	-	-	-	-	-	4	\$5,091.64	\$2,776.60	\$1,440.00	\$64.00	\$9,372.24
Worthington Hooker Middle	34	24	\$18,732.24	\$1,920.00	2	\$1,889.84	\$440.12	\$100.00	8	\$10,183.28	\$3,756.60	\$2,880.00	\$544.00	\$40,446.08
King/Robinson Magnet School	46	44	\$34,342.44	\$3,520.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$736.00	\$41,028.40
Metropolitan Business Academy	52	42	\$32,781.42	\$3,360.00	8	\$7,559.36	\$880.24	\$400.00	2	\$2,545.82	\$1,996.60	\$720.00	\$832.00	\$51,075.44
Engineering & Science University Magnet School	3	-	-	-	-	-	-	-	3	\$3,818.73	\$2,531.60	\$1,080.00	\$48.00	\$7,478.33
Ross Woodward Classical	42	37	\$28,878.87	\$2,960.00	2	\$1,889.84	\$440.12	\$100.00	3	\$3,818.73	\$2,531.60	\$1,080.00	\$672.00	\$42,371.16
Truman	54	52	\$40,586.52	\$4,160.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$864.00	\$48,040.48
Riverside Academy	20	18	\$14,049.18	\$1,440.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$320.00	\$18,239.14
New Haven Academy	6	-	-	-	-	-	-	-	6	\$7,637.46	\$3,266.60	\$2,160.00	\$96.00	\$13,160.06
Wexler Grant	7	-	-	-	-	-	-	-	7	\$8,910.37	\$3,511.60	\$2,520.00	\$112.00	\$15,053.97
James Hillhouse High School	129	123	\$96,002.73	\$9,840.00	6	\$5,669.52	\$1,320.36	\$300.00	-	-	-	-	\$2,064.00	\$115,196.61
West Rock STREAM Academy	37	30	\$23,415.30	\$2,400.00	2	\$1,889.84	\$440.12	\$100.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$592.00	\$40,023.41
Wilbur Cross High School	129	115	\$89,758.65	\$9,200.00	8	\$7,559.36	\$1,760.48	\$400.00	6	\$7,637.46	\$3,266.60	\$2,160.00	\$2,064.00	\$123,806.55
Davis Academy for Arts and Design Innovation	52	43	\$33,561.93	\$3,440.00	2	\$1,889.84	\$440.12	\$100.00	7	\$8,910.37	\$3,511.60	\$2,520.00	\$832.00	\$55,205.86
Fair Haven	89	87	\$67,904.37	\$6,960.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$1,424.00	\$78,718.33
Dr. Reginald Mayo Early Learning Center	7	-	-	-	-	-	-	-	7	\$8,910.37	\$3,511.60	\$2,520.00	\$112.00	\$15,053.97
Augusta Lewis Troup School	49	47	\$36,683.97	\$3,760.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$784.00	\$43,657.93
Cooperative Arts And Humanities High School	61	59	\$46,050.09	\$4,720.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$976.00	\$54,176.05
LW Beecher Museum School of Arts & Sciences	59	52	\$40,586.52	\$4,160.00	2	\$1,889.84	\$440.12	\$100.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$944.00	\$59,306.63
Brennan	39	37	\$28,878.87	\$2,960.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$624.00	\$34,892.83
Rogers	31	31	\$24,195.81	\$2,480.00	-	-	-	-	-	-	-	-	\$496.00	\$27,171.81
Clemente Leadership Academy	51	49	\$38,244.99	\$3,920.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$816.00	\$45,410.95
Columbus	41	39	\$30,439.89	\$3,120.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$656.00	\$36,645.85
Conte West Hills School	52	45	\$35,122.95	\$3,600.00	2	\$1,889.84	\$440.12	\$100.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$832.00	\$53,171.06
Mauro-Sheridan Science, Technology and Comm.	56	46	\$35,903.46	\$3,680.00	2	\$1,889.84	\$440.12	\$100.00	8	\$10,183.28	\$3,756.60	\$2,880.00	\$896.00	\$59,729.30
Benjamin Jepson Magnet	59	57	\$44,489.07	\$4,560.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$944.00	\$52,423.03
Celentano BioTech, Health and Medical Magnet	56	47	\$36,683.97	\$3,760.00	4	\$3,779.68	\$880.24	\$200.00	5	\$6,364.55	\$3,021.60	\$1,800.00	\$896.00	\$57,386.04
Clinton Avenue	5	-	-	-	-	-	-	-	5	\$6,364.55	\$3,021.60	\$1,800.00	\$80.00	\$11,266.15
Quinnipiac Real World Math STEM	4	-	-	-	-	-	-	-	4	\$5,091.64	\$2,776.60	\$1,440.00	\$64.00	\$9,372.24
Nathan Hale	8	-	-	-	-	-	-	-	8	\$10,183.28	\$3,756.60	\$2,880.00	\$128.00	\$16,947.88
Lincoln-Bassett	55	53	\$41,367.03	\$4,240.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$880.00	\$48,916.99
Hill Central Music Academy	40	36	\$28,098.36	\$2,880.00	4	\$3,779.68	\$880.24	\$200.00	-	-	-	-	\$640.00	\$36,478.28
High School In The Community	46	44	\$34,342.44	\$3,520.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$736.00	\$41,028.40
East Rock Community Magnet	51	45	\$35,122.95	\$3,600.00	2	\$1,889.84	\$440.12	\$100.00	4	\$5,091.64	\$2,776.60	\$1,440.00	\$816.00	\$51,277.15
John S Martinez Sea & Sky STEM Magnet School	47	45	\$35,122.95	\$3,600.00	2	\$1,889.84	\$440.12	\$100.00	-	-	-	-	\$752.00	\$41,904.91
Barnard Environment Studies Interdistrict School	34	30	\$23,415.30	\$2,400.00	2	\$1,889.84	\$440.12	\$100.00	2	\$2,545.82	\$1,996.60	\$720.00	\$544.00	\$34,051.68
<b>Totals</b>	<b>1601</b>	<b>1410</b>	<b>\$1,100,519.10</b>	<b>\$112,800.00</b>	<b>76</b>	<b>\$71,813.92</b>	<b>\$15,844.32</b>	<b>\$3,800.00</b>	<b>115</b>	<b>\$146,384.65</b>	<b>\$65,719.36</b>	<b>\$41,400.00</b>	<b>\$25,616</b>	<b>\$1,583,897.35</b>

NO Lifts-PVC Cabling

Inside Lift Cost \$468 per site	28	\$13,104.00
Outdoor Lift for MR86 Cost \$1,617 per site	23	\$37,191.00

Any remobilization off site or waiting on approvals of change order for lift approval will be billed as an extra at hourly labor rates in effect at that time. **\$50,295.00**

All cabling above is quoted as PVC (not Plenum) Additional \$5,265.00 for plenum cabling-\$135.00 per site

Meraki Hardware Costs	Labor Costs	Total Cost Options
\$1,318,717.67	Labor Cost No Lifts \$265,179.68	\$1,583,897.35
\$1,318,717.67	Labor Cost with Lifts \$321,074.03	\$1,639,791.70
		<b>Recommended Pricing Option</b>
<b>\$1,318,717.67</b>	<b>Labor Cost w/ Lifts &amp; Plenum Cabling \$321,074.03</b>	<b>\$1,645,056.70</b>

**GENERAL ASSUMPTIONS**

The following General Assumptions apply to this quotation unless otherwise specified in the preceding scope of work.

**BASIC:**

All work is to be completed between 8:00AM and 4:00PM, Mon. - Fri. Overtime labor due to customer caused delays or customer time restraints shall be at an additional cost.

Installers will be provided timely access to all areas needed to complete this installation.

Material costs included with this quotation may fluctuate due to demand and availability. Material pricing is based on material costs at the time the quotation is given to the customer.

Work requests outside the original scope of work will be completed on a change order basis. All change orders must be signed prior to the commencement of that work.

Any and all fees, permits, and right of ways are the responsibility of the customer. Frontier can provide these services. If requested, additional costs will apply.

All materials and installation thereof shall conform to associated National Fire Protection Agency (NFPA) / National Electric Codes (NEC).

**CABLE ROUTES:**

Unless otherwise noted, no conduit construction is included with this quotation.

This quotation assumes a cable run will not exceed 200 FT, that ceilings are fully accessible, suspended type not to exceed 8 ft, with sufficient space available, walls should be sheet rock type and fishable. Patch panel not included

All required mowing of furniture, file cabinets, desks, and equipment will be responsibility of others.

Alterations or deviations if any, from the above scope of work or any delays or postponements of the work by the customer or its agents which result in additional materials or labor costs, will become an extra charge which will be billed as an addition to this proposal amount. Any extra move on or off the job site due to circumstances beyond our control will be billed as an extra at hourly labor and equipment rates in effect at the time.

**BUILDING PERMIT NOT INCLUDED**



## 4. Supporting Documents



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## MR46 Datasheet

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### High Performance 802.11ax Wireless

The Cisco Meraki MR46 is a cloud-managed 4x4:4 802.11ax access point that raises the bar for wireless performance and efficiency. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR46 offers high throughput, enterprise-grade security, and simple management.

The MR46 provides a maximum of 3.5 Gbps\* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization, and a fourth integrated radio delivers Bluetooth scanning and beaconing.

With the combination of cloud management, high performance hardware, multiple radios, and advanced software features, the MR46 makes an outstanding platform for the most demanding of uses—including high-density deployments and bandwidth or performance-intensive applications like voice and high-definition video.



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### MR46 and Meraki Cloud Management

Management of the MR46 is performed through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without time-

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consuming training or costly certifications. Because the MR46 is self-configuring and managed over the web, it can be deployed at a remote location in a matter of minutes, even without on-site IT staff.

24x7 monitoring via the Meraki cloud delivers real-time alerts if a network encounters problems. Remote diagnostic tools enable immediate troubleshooting over the web so that distributed networks can be managed with a minimum of hassle.

The MR46's firmware is automatically kept up to date via the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web. This means no manual software updates to download or missing security patches to worry about.

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## Product Highlights

- 4x4:4 MU-MIMO 802.11ax
- 3.5\* Gbps dual-radio aggregate frame rate
- 24x7 real-time WIDS/WIPS and spectrum analytics via dedicated third radio
- Integrated Bluetooth Low Energy Beacon
- Integrated scanning radio
- Enhanced transmit power and receive sensitivity
- Integrated enterprise security and guest access
- Application-aware traffic shaping
- Optimized for voice and video
- Self-configuring, plug-and-play deployment
- Sleek design blends into office environments
- Full-time Wi-Fi location tracking via dedicated 3rd radio

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## Features

### Dual-radio aggregate frame rate of up to 3.5 Gbps\*

5 GHz 4x4:4 radio and 2.4 GHz 4x4:4 radio offer a combined dual-radio aggregate frame rate of 3.5 Gbps\*, with up to 2,402 Mbps in the 5 GHz band and 1,147 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR46 to support a higher client density than typical enterprise-class access points, resulting in better performance for more clients, from each AP.



\* Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ax operation.

### Multi User Multiple Input Multiple Output (MU-MIMO)

With support for features of 802.11ax, the MR46 offers MU-MIMO and OFDMA for more efficient transmission to multiple clients. Especially suited to environments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultaneously. This increases the total network performance and improves the end user experience.

### Dedicated third radio delivers 24x7 wireless security and RF analytics

The MR46's dedicated dual-band scanning and security radio continually assesses the environment, characterizing RF interference and containing wireless threats like rogue access points. There's no need to choose between wireless security, advanced RF analysis, and serving client data - a dedicated third radio means that all functions occur in real-time, without any impact to client traffic or AP throughput.

### Bluetooth Low Energy Beacon and scanning radio

An integrated fourth Bluetooth radio provides seamless deployment of BLE Beacon functionality and effortless visibility of Bluetooth devices. The MR46 enables the next generation of location-aware applications while future proofing deployments, ensuring it's ready for any new customer engagement strategies.

### Automatic cloud-based RF optimization

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The MR46's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated third radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

**Integrated enterprise security and guest access**

The MR46 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and Enterprise authentication with 802.1X and Active Directory integration provide wired-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

**Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration**

Meraki Systems Manager natively integrates with the MR46 to offer automatic, context-aware security. Systems Manager's self-service enrollment helps to rapidly deploy MDM without installing additional equipment, and then dynamically tie firewall and traffic shaping policies to client posture.

**Application-aware traffic shaping**

The MR46 includes an integrated layer 7 packet inspection, classification, and control engine, enabling the configuration of QoS policies based on traffic type, helping to prioritize mission-critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, per SSID, per user group, or per individual user for maximum flexibility and control.

**Voice and video optimizations**

Industry standard QoS features are built-in and easy to configure. Wireless MultiMedia (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get prioritized correctly, not only on the MR46, but on other devices in the network. Unscheduled Automatic Power Save Delivery (U-APSD) and new Target Wait Time features in 802.11ax clients ensure minimal battery drain on wireless VoIP phones.

**Self-configuring, self-maintaining, always up-to-date**

When plugged in, the MR46 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. If new firmware is required, this is retrieved by the AP and updated automatically. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

**Advanced analytics**

Drilling down into the details of network usage provides highly granular traffic analytics. Visibility into the physical world can be enhanced with journey tracking through location analytics. Visitor numbers, dwell time, repeat visit rates, and track trends can all be easily monitored in the dashboard and deeper analysis is enabled with raw data available via simple APIs.

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## Specifications

Category	Specifications
Radios	<ul style="list-style-type: none"> <li>• 2.4 GHz 802.11b/g/n/ax client access radio</li> <li>• 5 GHz 802.11a/n/ac/ax client access radio</li> <li>• 2.4 GHz &amp; 5 GHz dual-band WIDS/WIPS, spectrum analysis, &amp; location analytics radio</li> <li>• 2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support</li> <li>• Concurrent operation of all four radios</li> <li>• Supported frequency bands (country-specific restrictions apply)</li> <li>• Supported frequency bands (country-specific restrictions apply):               <ul style="list-style-type: none"> <li>◦ 2.412-2.484 GHz</li> <li>◦ 5.150-5.250 GHz (UNII-1)</li> <li>◦ 5.250-5.350 GHz (UNII-2)</li> <li>◦ 5.470-5.600, 5.660-5.725 GHz (UNII-2e)</li> <li>◦ 5.725 -5.825 GHz (UNII-3)</li> </ul> </li> </ul>



<b>Antenna</b>	<ul style="list-style-type: none"> <li>Internal Antenna (5.4 dBi gain at 2.4 GHz, 6 dBi gain at 5 GHz)</li> </ul>
<b>802.11ax, 802.11ac Wave 2 and 802.11n Capabilities</b>	<ul style="list-style-type: none"> <li>DL-OFDMA**, UL-OFDMA**, TWT support**, BSS Coloring**</li> <li>4 x 4 multiple input, multiple output (MIMO) with four spatial streams</li> <li>SU-MIMO, UL MU-MIMO** and DL MU-MIMO support</li> <li>Maximal ratio combining (MRC) &amp; beamforming</li> <li>20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)</li> <li>Up to 1024-QAM on both 2.4 GHz &amp; 5 GHz bands</li> <li>Packet aggregation</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>Power over Ethernet: 42.5 - 57 V (802.3at compliant)</li> <li>Alternative: 12 V DC input</li> <li>Power consumption: 30W max (802.3at)</li> <li>Power over Ethernet injector and DC adapter sold separately</li> </ul>
<b>Interfaces</b>	<ul style="list-style-type: none"> <li>1x 100/1000/2.5G BASE-T Ethernet (RJ45)</li> <li>1x DC power connector (5.5 mm x 2.5 mm, center positive)</li> </ul>
<b>Mounting</b>	<ul style="list-style-type: none"> <li>All standard mounting hardware included</li> <li>Desktop, ceiling, and wall mount capable</li> <li>Ceiling tile rail (9/16, 15/16 or 1 1/2" flush or recessed rails), assorted cable junction boxes</li> <li>Bubble level on mounting cradle for accurate horizontal wall mounting</li> </ul>
<b>Physical Security</b>	<ul style="list-style-type: none"> <li>Two security screw options (included) (13.5 mm long and 2.5 mm diameter and 5 mm head)</li> <li>Kensington lock hard point</li> <li>Concealed mount plate with anti-tamper cable bay</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>Operating temperature: 32 °F to 104 °F (0 °C to 40 °C)</li> <li>Humidity: 5 to 95% non-condensing</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>Mean Time Between Failure (MTBF): 1,406,652hrs at +25°C operating temperature</li> </ul>
<b>Physical Dimensions</b>	<ul style="list-style-type: none"> <li>12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.43 cm), not including desk mount feet or mount plate</li> <li>Weight: 28.22 oz (800 g)</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>Integrated Layer 7 firewall with mobile device policy management</li> <li>Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal</li> <li>Flexible guest access with device isolation</li> </ul>



	<ul style="list-style-type: none"> <li>• VLAN tagging (802.1q) and tunneling with IPsec VPN</li> <li>• PCI compliance reporting</li> <li>• WEP***, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X, WPA3 - Personal**, WPA3 - Enterprise**, WPA3 - Enhanced Open (OWE)**</li> <li>• EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM</li> <li>• TKIP and AES encryption</li> <li>• Enterprise Mobility Management (EMM) &amp; Mobile Device Management (MDM) integration</li> <li>• Cisco ISE integration for Guest access and BYOD Posturing</li> </ul>
<b>Quality of Service</b>	<ul style="list-style-type: none"> <li>• Advanced Power Save (U-APSD)</li> <li>• WMM Access Categories with DSCP and 802.1p support</li> <li>• Layer 7 application traffic identification and shaping</li> </ul>
<b>Mobility</b>	<ul style="list-style-type: none"> <li>• PMK, OKC, &amp; 802.11r for fast Layer 2 roaming</li> <li>• Distributed or centralized layer 3 roaming</li> </ul>
<b>Analytics</b>	<ul style="list-style-type: none"> <li>• Embedded location analytics reporting and device tracking</li> <li>• Global L7 traffic analytics reporting per network, per device, &amp; per application</li> </ul>
<b>LED Indicators</b>	<ul style="list-style-type: none"> <li>• 1 power/booting/firmware upgrade status</li> </ul>
<b>Regulatory</b>	<ul style="list-style-type: none"> <li>• RoHS</li> <li>• For additional country-specific regulatory information, please contact Meraki sales</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• Lifetime hardware warranty with advanced replacement included</li> </ul>
<b>Ordering Information</b>	<ul style="list-style-type: none"> <li>• MR46-HW: Meraki MR46 Cloud Managed 802.11ax AP</li> <li>• MA-PWR-30W-XX: Meraki AC Adapter for MR Series (XX = US/EU/UK/AU)</li> <li>• MA-INJ-4-XX: Meraki Gigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)</li> <li>• MA-INJ-5-XX: Meraki Multigigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)</li> <li>• Note: Meraki access point license required.</li> </ul>



\*\* software features can be enabled via future firmware updates

## Compliance and Standards

Category	Standards
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<b>IEEE Standards</b>	<ul style="list-style-type: none"> <li>• 802.11a, 802.11ac, 802.11ax, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11k, 802.11n, 802.11r, and 802.11u***</li> </ul>
<b>Safety Approvals</b>	<ul style="list-style-type: none"> <li>• CSA and CB 60950 &amp; 62368</li> <li>• Conforms to UL 2043 (Plenum Rating)</li> </ul>
<b>Radio Approvals</b>	<ul style="list-style-type: none"> <li>• Canada: FCC Part 15C, 15E, RSS-247</li> <li>• Europe: EN 300 328, EN 301 893</li> <li>• Australia/NZ: AS/NZS 4268</li> <li>• Mexico: IFT, NOM-208</li> <li>• Taiwan: NCC LP0002</li> <li>• For additional country-specific regulatory information, please contact Meraki Sales</li> </ul>
<b>EMI Approvals (Class B)</b>	<ul style="list-style-type: none"> <li>• Canada: FCC Part 15B, ICES-003</li> <li>• Europe: EN 301 489-1-17, EN 55032, EN 55024</li> <li>• Australia/NZ: CISPR 22</li> <li>• Japan: VCCI</li> </ul>
<b>Exposure Approvals</b>	<ul style="list-style-type: none"> <li>• Canada: FCC Part 2, RSS-102</li> <li>• Europe: EN 50385, EN 62311, EN 62479</li> <li>• Australia/NZ: AS/NZS 2772</li> </ul>
<b>EMC</b>	<ul style="list-style-type: none"> <li>• EN 61000</li> </ul>



\*\*\* feature can be enabled for required networks

## Context and Comparisons

### 802.11ax, 802.11ac Wave 2 and 802.11n Capabilities

MR36	MR46	MR56
DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**
2 x 2 multiple input, multiple output (MIMO) with two spatial streams	4 x 4 multiple input, multiple output (MIMO) with four spatial streams	8 x 8 multiple input, multiple output (MIMO) with eight spatial streams on 5 GHz 4 x 4 multiple input, multiple output (MIMO) with

eight spatial streams on 2.4 GHz

Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming
SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support
20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80MHz channels (802.11ax)
Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands
Packet aggregation	Packet aggregation	Packet aggregation

## Power

MR36	MR46	MR56
Power over Ethernet: 37 - 57 V (802.af compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)
Alternative: 12 V DC input	Alternative: 12 V DC input	Alternative: 12 V DC input
Power consumption: 15W max (802.3af)	Power consumption: 30W max	Power consumption: 30W max
Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately

## Interfaces

MR36	MR46	MR56
1x 10/100/1000 BASE-T Ethernet (RJ45)	1x 100/1000/2.5G BASE-T Ethernet (RJ45)	1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45)
1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)

## Physical Dimensions

MR36	MR46	MR56
9.84" x 4.72" x 1.42" (25 cm x 12 cm x 3.6 cm), not including desk mount feet or mount	12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.426 cm), not including desk mount feet or mount plate	12.83" x 5.54" x 1.76" (32.6 cm x 14.079 cm x 4.47 cm), not including deskmount feet or mount

plate

Weight: 17.35 oz (492 g)

plate

Weight: 28.22 oz (800 g)

Weight: 35.27 oz (1 kg)

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## RF Performance Table

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### 2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)
2.4 GHz	802.11b	1 Mb/s	26.0
		2 Mb/s	26.0
		5.5 Mb/s	26.0
		11 Mb/s	26.0
2.4 GHz	802.11g	6 Mb/s	26.0
		9 Mb/s	26.0
		12 Mb/s	24.0
		18 Mb/s	24.0
		24 Mb/s	23.0
		36 Mb/s	23.0
		48 Mb/s	22.0
		54 Mb/s	22.0
2.4 GHz	802.11n (HT20)	MCS0	26.0

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		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	22.0
		MCS6	22.0
		MCS7	21.0
2.4 GHz	802.11ac (VHT20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	22.0
		MCS6	22.0
		MCS7	21.0
		MCS8	20.0
2.4 GHz	802.11ax (HE20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0

		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	21.0
		MCS8	20.0
		MCS9	20.0
		MCS10	19.0
		MCS11	19.0
2.4 GHz	802.11ac (VHT40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
		MCS8	20.5
		MCS9	20.0

2.4 GHz	802.11ax (HE40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	21.5
		MCS8	20.5
		MCS9	20.0
		MCS10	18.5
		MCS11	18.5

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## 5 GHz

Operating Band	Operating Mode	Data Rate	TX Power
5 GHz	802.11a	6 Mb/s	26.0
		9 Mb/s	26.0
		12 Mb/s	24.0
		18 Mb/s	24.0

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		24 Mb/s	23.0
		36 Mb/s	23.0
		48 Mb/s	22.0
		54 Mb/s	22.0
5 GHz	802.11n (HT20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
5 GHz	802.11n (HT40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0



		MCS7	22.0
5 GHz	802.11ac (VHT20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
		MCS8	21.0
5 GHz	802.11ac (VHT40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0
		MCS8	20.5

		MCS9	20.0
5 GHz	802.11ac (VHT80)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	22.0
		MCS6	22.0
		MCS7	20.0
		MCS8	19.0
		MCS9	19.0
5 GHz	802.11ax (HE20)	MCS0	26.0
		MCS1	26.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	22.0

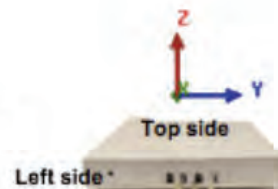
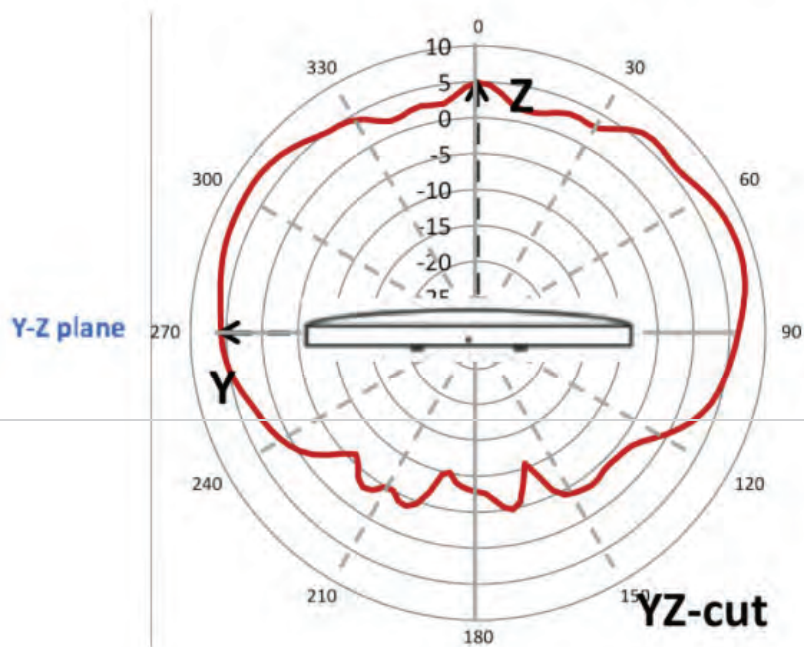
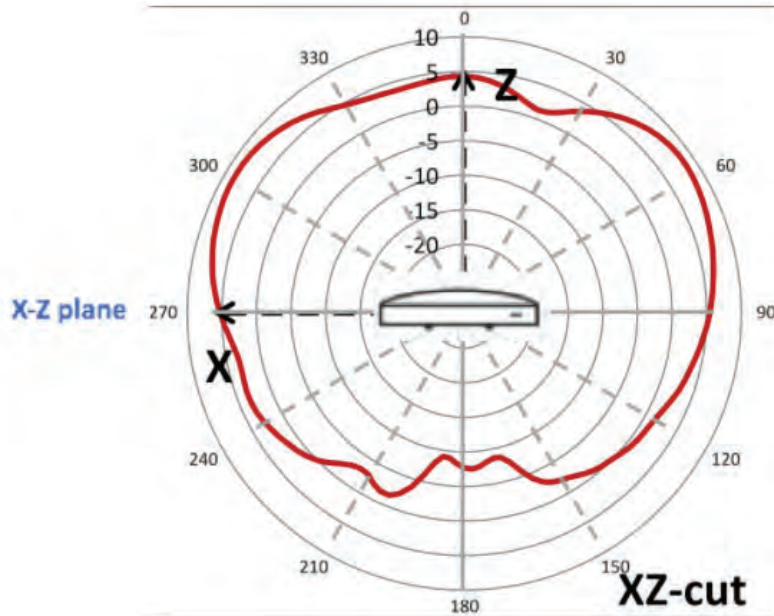
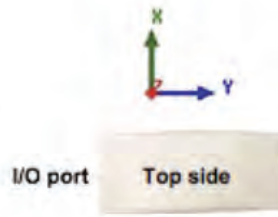
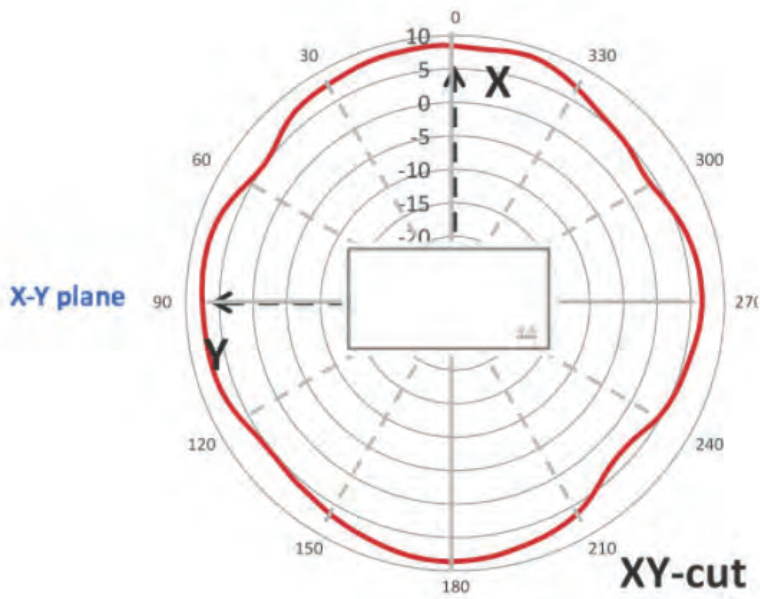
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		MCS9	21.0
		MCS10	19.0
		MCS11	19.0
5 GHz	802.11ax (HE40)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0
		MCS3	24.0
		MCS4	24.0
		MCS5	23.0
		MCS6	22.0
		MCS7	21.5
		MCS8	20.5
		MCS9	20.0
		MCS10	18.5
		MCS11	18.5
5 GHz	802.11ax (HE80)	MCS0	24.0
		MCS1	24.0
		MCS2	24.0

MCS3	24.0
MCS4	24.0
MCS5	22.0
MCS6	22.0
MCS7	20.0
MCS8	19.0
MCS9	19.0
MCS10	17.0
MCS11	17.0

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## Signal Coverage Patterns

## 5 GHz - Wireless

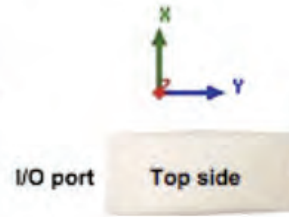
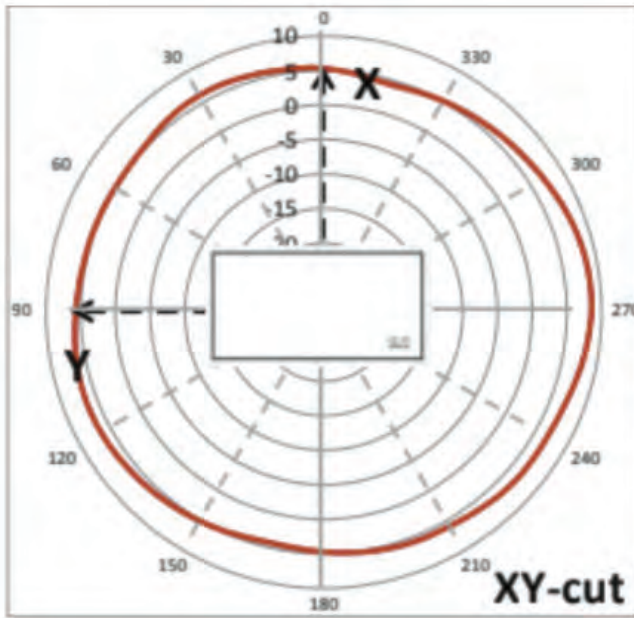




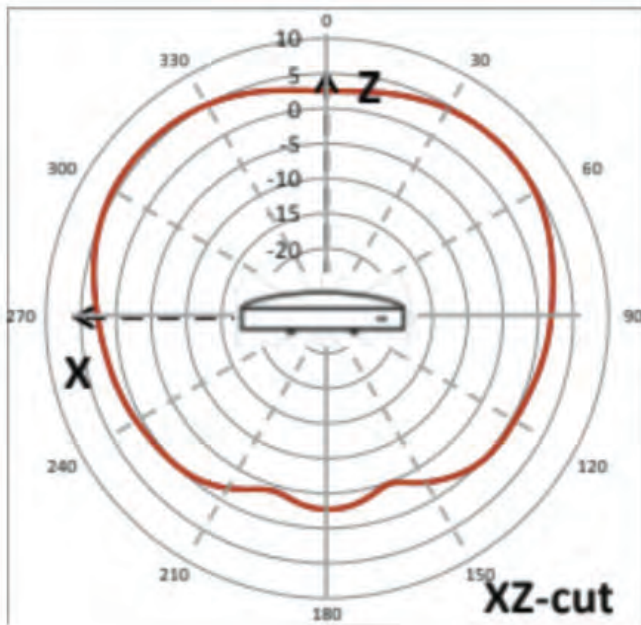
## 2.4 GHz - Wireless



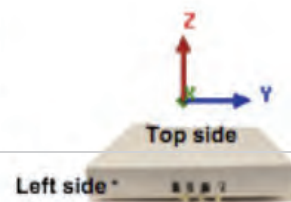
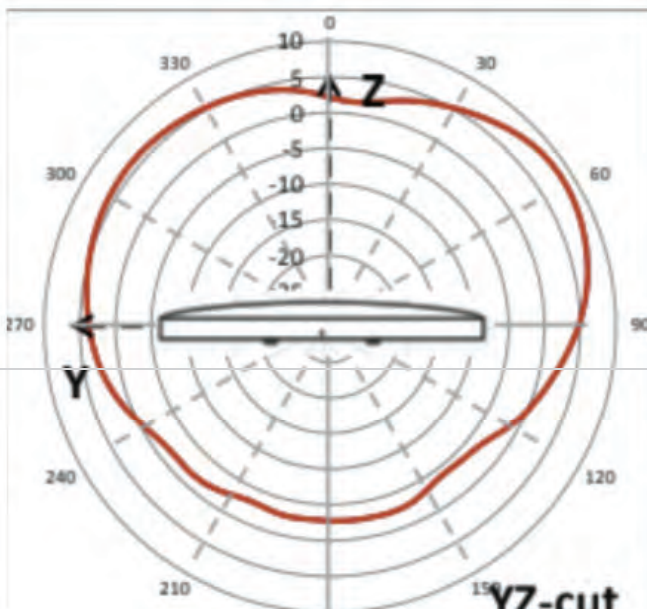
X-Y plane



X-Z plane

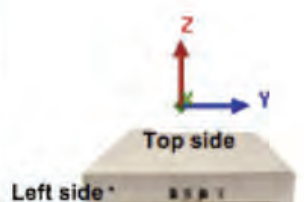
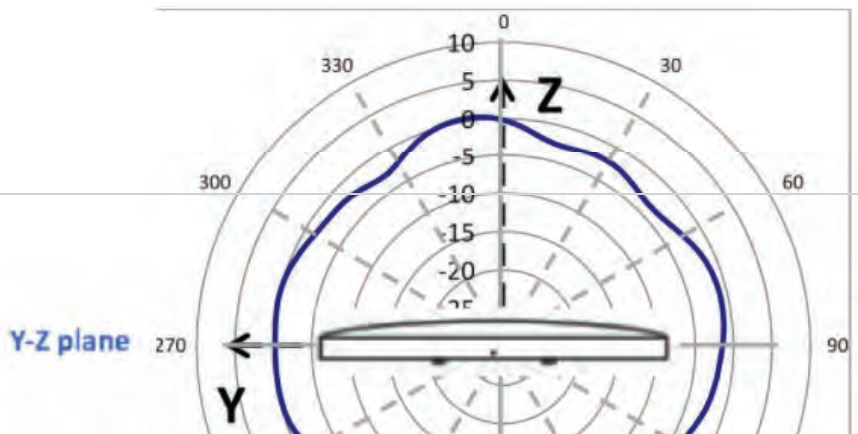
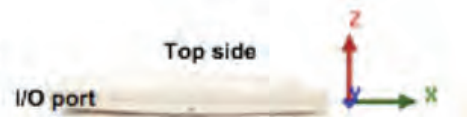
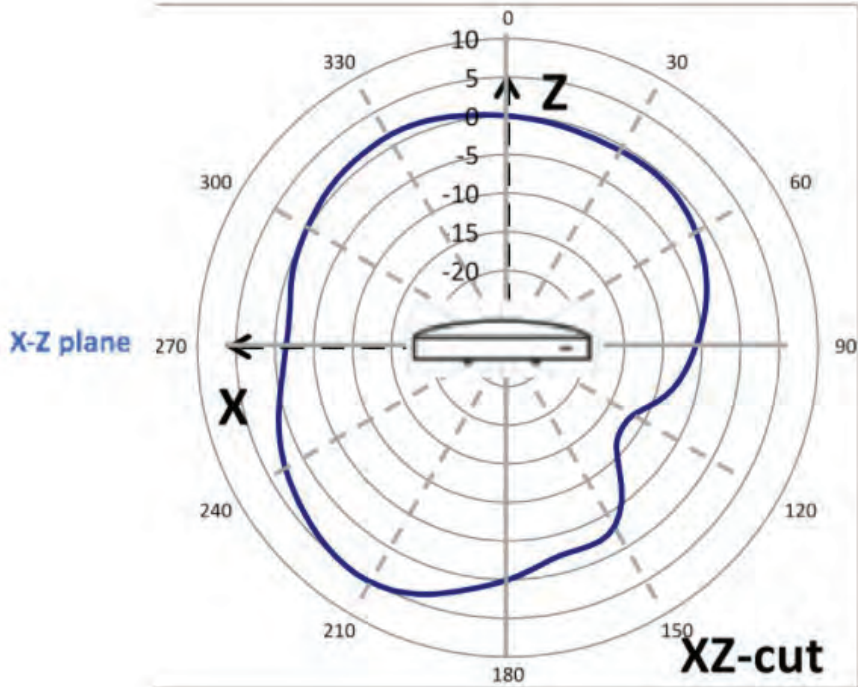
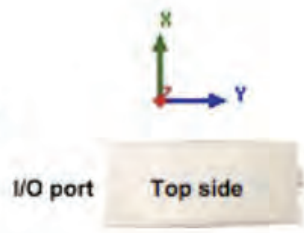
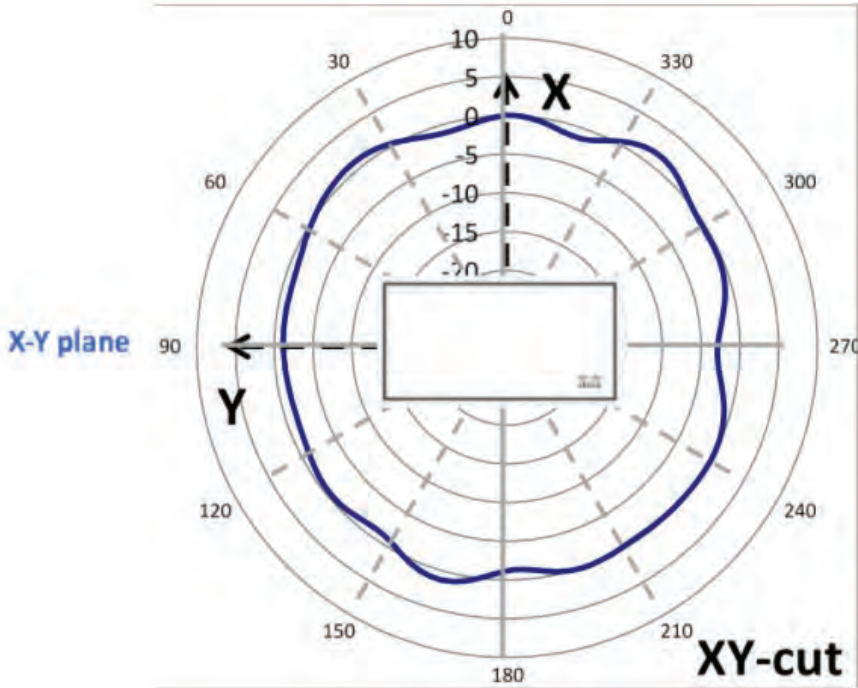


Y-Z plane



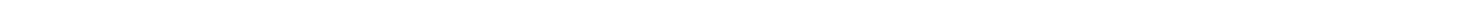


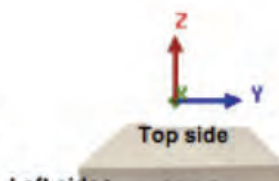
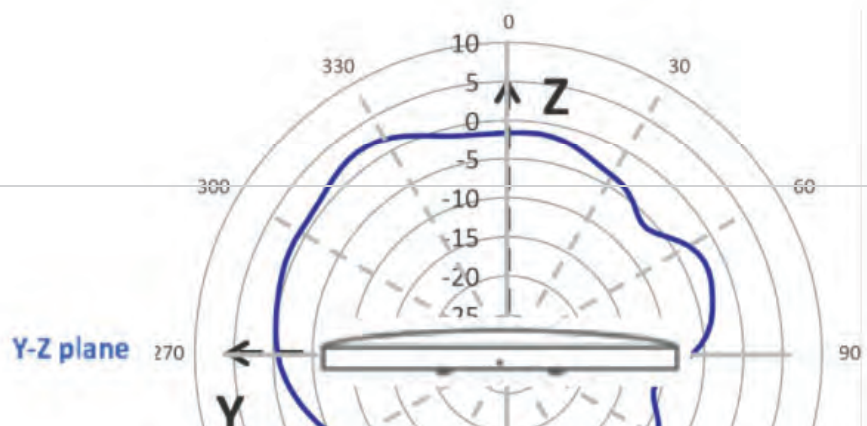
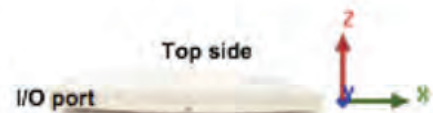
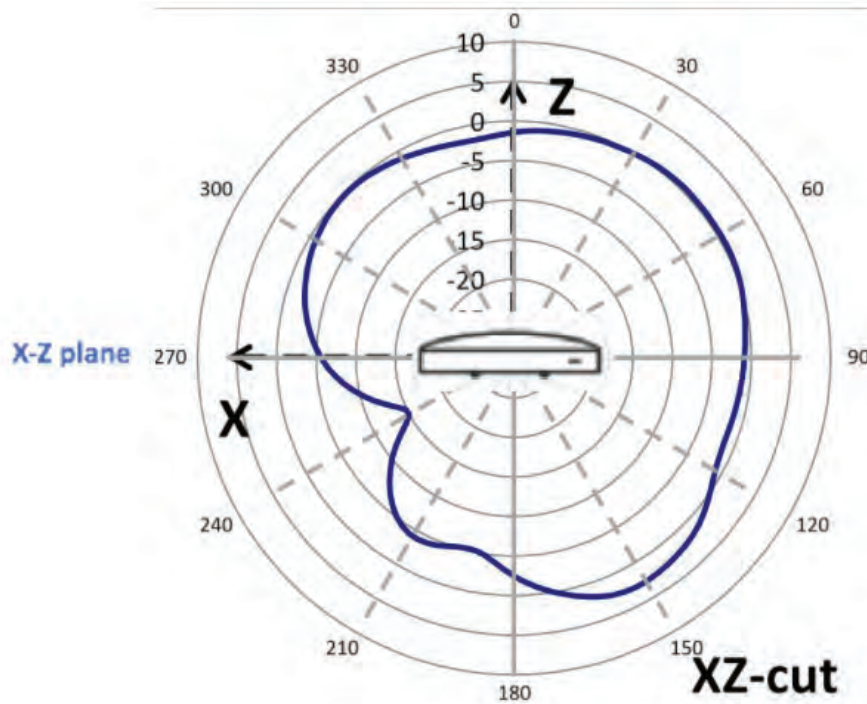
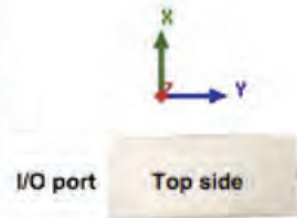
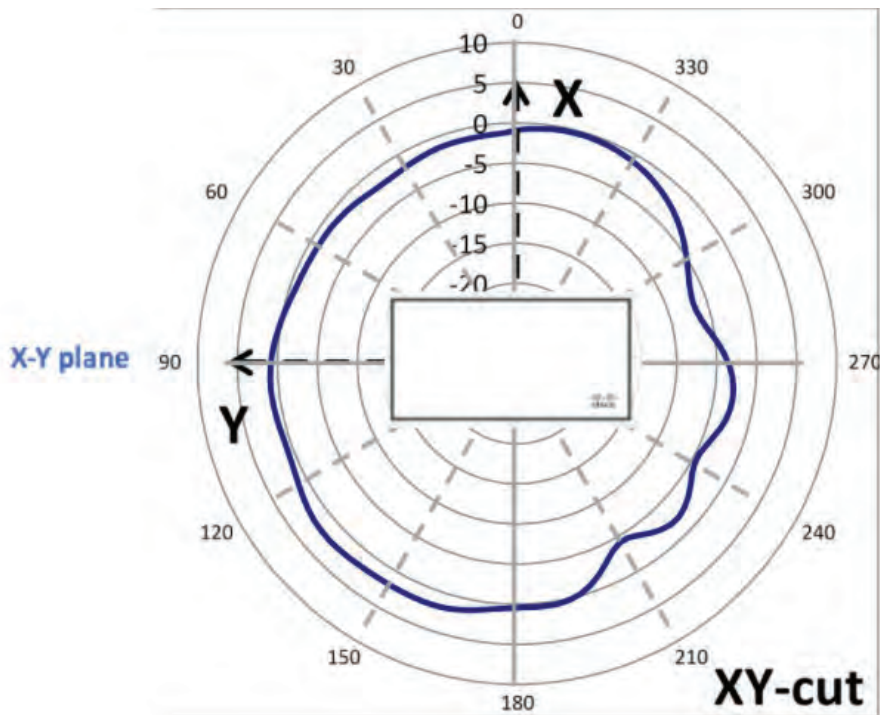
## 2.4GHz - Bluetooth





**2.4 GHz - Scanning**

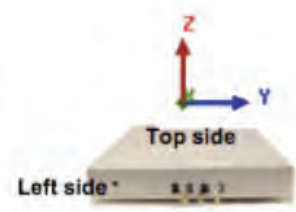
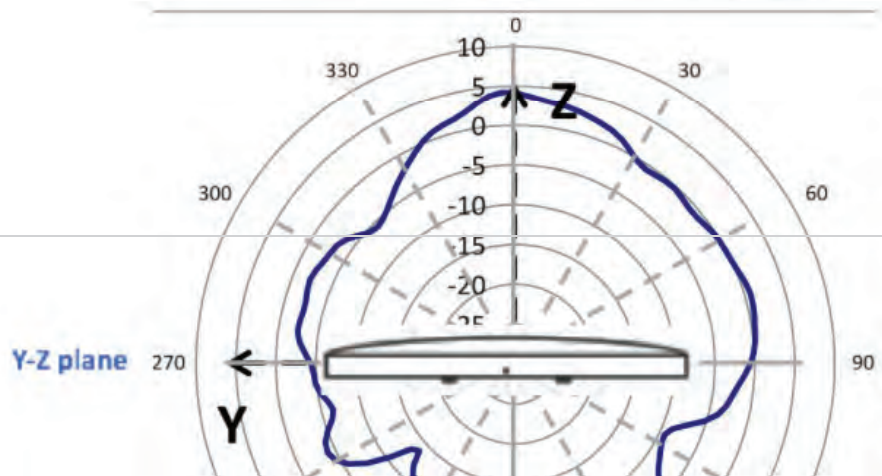
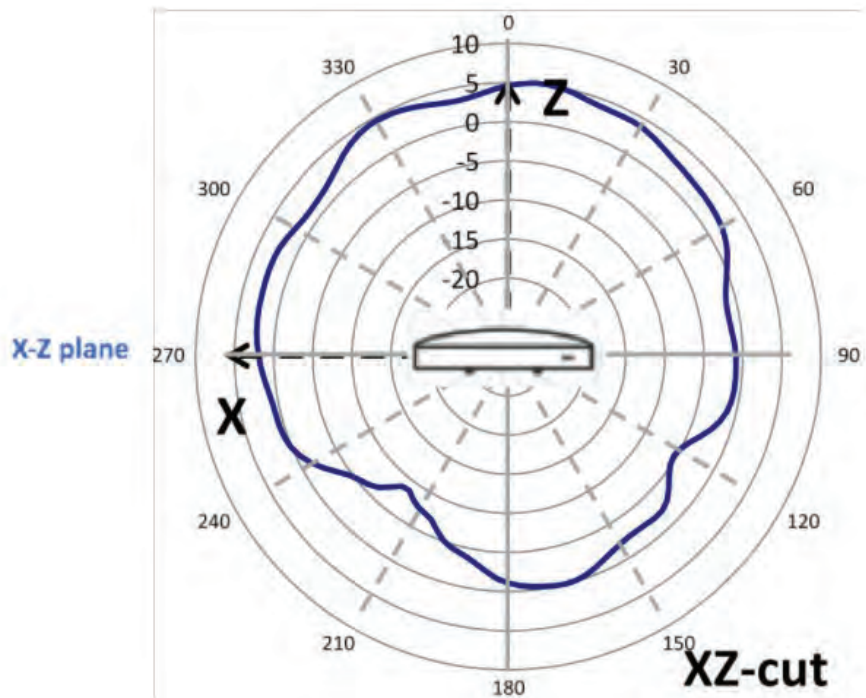
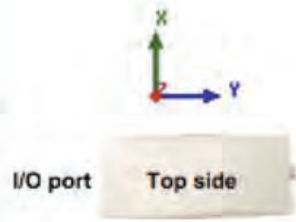
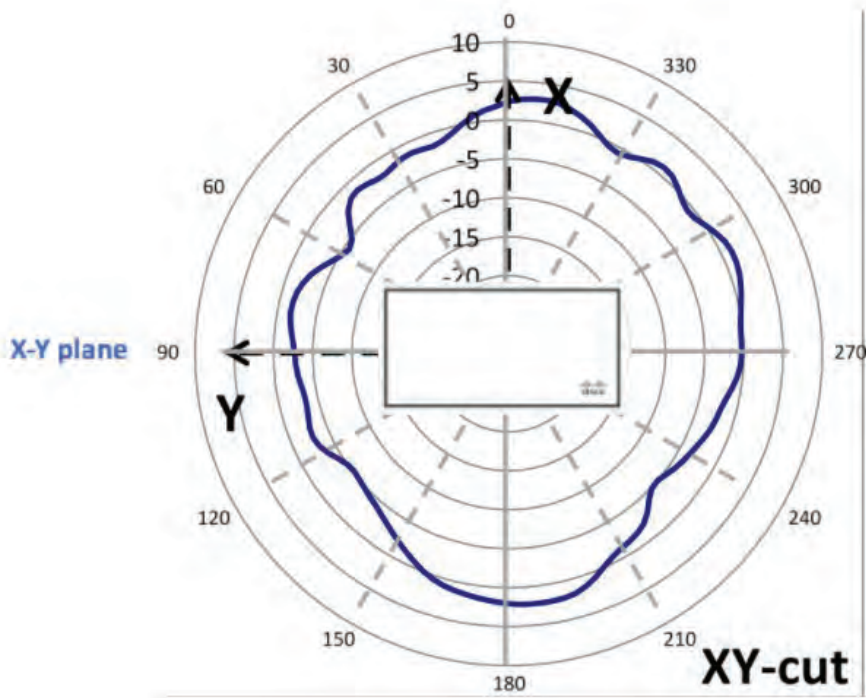








## 5 GHz - Scanning



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## Installation Guide

For instructions on how to install and configure MR46 access points please refer to the [MR46 Installation Guide](#).



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## MR56 Datasheet

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### High Performance 802.11ax Wireless

The Cisco Meraki MR56 is a cloud-managed 8x8:8 802.11ax access point that raises the bar for wireless performance and efficiency. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR56 offers high throughput, enterprise-grade security, and simple management.

The MR56 provides a maximum of 5.9 Gbps\* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization, and a fourth integrated radio delivers Bluetooth scanning and beaconing.

With the combination of cloud management, high performance hardware, multiple radios, and advanced software features, the MR56 makes an outstanding platform for the most demanding of uses—including high-density deployments and bandwidth or performance-intensive applications like voice and high-definition video.



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### MR56 and Meraki Cloud Management

Management of the MR56 is performed through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without time-

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consuming training or costly certifications. Because the MR56 is self-configuring and managed over the web, it can be deployed at a remote location in a matter of minutes, even without on-site IT staff.

24x7 monitoring via the Meraki cloud delivers real-time alerts if a network encounters problems. Remote diagnostic tools enable immediate troubleshooting over the web so that distributed networks can be managed with a minimum of hassle.

The MR56's firmware is automatically kept up to date via the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web. This means no manual software updates to download or missing security patches to worry about.

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## Product Highlights

- 8x8:8 MU-MIMO 802.11ax
- 5.9\* Gbps dual-radio aggregate frame rate
- 24x7 real-time WIDS/WIPS and spectrum analytics via dedicated third radio
- Integrated Bluetooth Low Energy Beacon
- Integrated scanning radio
- Enhanced transmit power and receive sensitivity
- Integrated enterprise security and guest access
- Application-aware traffic shaping
- Optimized for voice and video
- Self-configuring, plug-and-play deployment
- Sleek design blends into office environments
- Full-time Wi-Fi location tracking via dedicated 3rd radio

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## Features

### Dual-radio aggregate frame rate of up to 5.9 Gbps\*

5 GHz 8x8:8 radio and 2.4 GHz 4x4:4 radio offer a combined dual-radio aggregate frame rate of 5.9 Gbps\*, with up to 4,804 Mbps in the 5 GHz band and 1,147 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR56 to support a higher client density than typical enterprise-class access points, resulting in better performance for more clients, from each AP.



\* Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ax operation.

### Multi User Multiple Input Multiple Output (MU-MIMO)

With support for features of 802.11ax, the MR56 offers MU-MIMO and OFDMA for more efficient transmission to multiple clients. Especially suited to environments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultaneously. This increases the total network performance and improves the end user experience.

### Dedicated third radio delivers 24x7 wireless security and RF analytics

The MR56's dedicated dual-band scanning and security radio continually assesses the environment, characterizing RF interference and containing wireless threats like rogue access points. There's no need to choose between wireless security, advanced RF analysis, and serving client data - a dedicated third radio means that all functions occur in real-time, without any impact to client traffic or AP throughput.

### Bluetooth Low Energy Beacon and scanning radio

An integrated fourth Bluetooth radio provides seamless deployment of BLE Beacon functionality and effortless visibility of Bluetooth devices. The MR56 enables the next generation of location-aware applications while future proofing deployments, ensuring it's ready for any new customer engagement strategies.

### Automatic cloud-based RF optimization

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The MR56's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated third radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

**Integrated enterprise security and guest access**

The MR56 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and Enterprise authentication with 802.1X and Active Directory integration provide wired-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

**Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration**

Meraki Systems Manager natively integrates with the MR56 to offer automatic, context-aware security. Systems Manager's self-service enrollment helps to rapidly deploy MDM without installing additional equipment, and then dynamically tie firewall and traffic shaping policies to client posture.

**Application-aware traffic shaping**

The MR56 includes an integrated layer 7 packet inspection, classification, and control engine, enabling the configuration of QoS policies based on traffic type, helping to prioritize mission-critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, per SSID, per user group, or per individual user for maximum flexibility and control.

**Voice and video optimizations**

Industry standard QoS features are built-in and easy to configure. Wireless MultiMedia (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get prioritized correctly, not only on the MR56, but on other devices in the network. Unscheduled Automatic Power Save Delivery (U-APSD) and new Target Wait Time features in 802.11ax clients ensure minimal battery drain on wireless VoIP phones.

**Self-configuring, self-maintaining, always up-to-date**

When plugged in, the MR56 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. If new firmware is required, this is retrieved by the AP and updated automatically. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

**Advanced analytics**

Drilling down into the details of network usage provides highly granular traffic analytics. Visibility into the physical world can be enhanced with journey tracking through location analytics. Visitor numbers, dwell time, repeat visit rates, and track trends can all be easily monitored in the dashboard and deeper analysis is enabled with raw data available via simple APIs.

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## Specifications

Category	Specifications
Radios	<ul style="list-style-type: none"> <li>• 2.4 GHz 802.11b/g/n/ax client access radio</li> <li>• 5 GHz 802.11a/n/ac/ax client access radio</li> <li>• 2.4 GHz &amp; 5 GHz dual-band WIDS/WIPS, spectrum analysis, &amp; location analytics radio</li> <li>• 2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support</li> <li>• Concurrent operation of all four radios</li> <li>• Supported frequency bands (country-specific restrictions apply)</li> <li>• Supported frequency bands (country-specific restrictions apply):               <ul style="list-style-type: none"> <li>◦ 2.412-2.484 GHz</li> <li>◦ 5.150-5.250 GHz (UNII-1)</li> <li>◦ 5.250-5.350 GHz (UNII-2)</li> <li>◦ 5.470-5.600, 5.660-5.725 GHz (UNII-2e)</li> <li>◦ 5.725 -5.825 GHz (UNII-3)</li> </ul> </li> </ul>

<b>Antenna</b>	<ul style="list-style-type: none"> <li>• Internal Antenna (5.4 dBi gain at 2.4 GHz, 6 dBi gain at 5 GHz)</li> </ul>
<b>802.11ax, 802.11ac Wave 2 and 802.11n Capabilities</b>	<ul style="list-style-type: none"> <li>• DL-OFDMA**, UL-OFDMA**, TWT support**, BSS Coloring**</li> <li>• 8 x 8 multiple input, multiple output (MIMO) with eight spatial streams on 5GHz</li> <li>• 4 x 4 multiple input, multiple output (MIMO) with four spatial streams on 2.4GHz</li> <li>• SU-MIMO, UL MU-MIMO** and DL MU-MIMO support</li> <li>• Maximal ratio combining (MRC) &amp; beamforming</li> <li>• 20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)</li> <li>• Up to 1024-QAM on both 2.4 GHz &amp; 5 GHz bands</li> <li>• Packet aggregation</li> </ul>
<b>Power</b>	<ul style="list-style-type: none"> <li>• Power over Ethernet: 42.5 - 57 V (802.3at compliant)</li> <li>• Alternative: 12 V DC input</li> <li>• Power consumption: 30W max (802.3at)</li> <li>• Power over Ethernet injector and DC adapter sold separately</li> </ul>
<b>Interfaces</b>	<ul style="list-style-type: none"> <li>• 1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45)</li> <li>• 1x DC power connector (5.5 mm x 2.5 mm, center positive)</li> </ul>
<b>Mounting</b>	<ul style="list-style-type: none"> <li>• All standard mounting hardware included</li> <li>• Desktop, ceiling, and wall mount capable</li> <li>• Ceiling tile rail (9/16, 15/16 or 1 1/2" flush or recessed rails), assorted cable junction boxes</li> <li>• Bubble level on mounting cradle for accurate horizontal wall mounting</li> </ul>
<b>Physical Security</b>	<ul style="list-style-type: none"> <li>• Two security screw options (included) (3.5 mm long and 2.5 mm diameter and 5 mm head)</li> <li>• Kensington lock hard point</li> <li>• Concealed mount plate with anti-tamper cable bay</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Operating temperature: 32 °F to 104 °F (0 °C to 40 °C)</li> <li>• Humidity: 5 to 95% non-condensing</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Mean Time Between Failure (MTBF): 1,315,498hrs at +25°C operating temperature</li> </ul>
<b>Physical Dimensions</b>	<ul style="list-style-type: none"> <li>• 12.83" x 5.54" x 1.76" (32.6 cm x 14.079 cm x 4.47 cm), not including deskmount feet or mount plate</li> <li>• Weight: 35.27 oz (1 kg)</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Integrated Layer 7 firewall with mobile device policy management</li> <li>• Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal</li> </ul>



	<ul style="list-style-type: none"> <li>• Flexible guest access with device isolation</li> <li>• VLAN tagging (802.1q) and tunneling with IPsec VPN</li> <li>• PCI compliance reporting</li> <li>• WEP***, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X, WPA3 - Personal**, WPA3 - Enterprise**, WPA3 - Enhanced Open (OWE)**</li> <li>• EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM</li> <li>• TKIP and AES encryption</li> <li>• Enterprise Mobility Management (EMM) &amp; Mobile Device Management (MDM) integration</li> <li>• Cisco ISE integration for Guest access and BYOD Posturing</li> </ul>
<b>Quality of Service</b>	<ul style="list-style-type: none"> <li>• Advanced Power Save (U-APSD)</li> <li>• WMM Access Categories with DSCP and 802.1p support</li> <li>• Layer 7 application traffic identification and shaping</li> </ul>
<b>Mobility</b>	<ul style="list-style-type: none"> <li>• PMK, OKC, &amp; 802.11r for fast Layer 2 roaming</li> <li>• Distributed or centralized layer 3 roaming</li> </ul>
<b>Analytics</b>	<ul style="list-style-type: none"> <li>• Embedded location analytics reporting and device tracking</li> <li>• Global L7 traffic analytics reporting per network, per device, &amp; per application</li> </ul>
<b>LED Indicators</b>	<ul style="list-style-type: none"> <li>• 1 power/booting/firmware upgrade status</li> </ul>
<b>Regulatory</b>	<ul style="list-style-type: none"> <li>• RoHS</li> <li>• For additional country-specific regulatory information, please contact Meraki sales</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• Lifetime hardware warranty with advanced replacement included</li> </ul>
<b>Ordering Information</b>	<ul style="list-style-type: none"> <li>• MR56-HW: Meraki MR56 Cloud Managed 802.11ax AP</li> <li>• MA-PWR-30W-XX: Meraki AC Adapter for MR Series (XX = US/EU/UK/AU)</li> <li>• MA-INJ-4-XX: Meraki Gigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)</li> <li>• MA-INJ-5-XX: Meraki Multigigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)</li> <li>• Note: Meraki access point license required.</li> </ul>



\*\* software features can be enabled via firmware updates

## Compliance and Standards

Category	Standards
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<b>IEEE Standards</b>	<ul style="list-style-type: none"> <li>802.11a, 802.11ac, 802.11ax, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11k, 802.11n, 802.11r, and 802.11u***</li> </ul>
<b>Safety Approvals</b>	<ul style="list-style-type: none"> <li>CSA and CB 60950 &amp; 62368</li> <li>Conforms to UL 2043 (Plenum Rating)</li> </ul>
<b>Radio Approvals</b>	<ul style="list-style-type: none"> <li>Canada: FCC Part 15C, 15E, RSS-247</li> <li>Europe: EN 300 328, EN 301 893</li> <li>Australia/NZ: AS/NZS 4268</li> <li>Mexico: IFT, NOM-208</li> <li>Taiwan: NCC LP0002</li> <li>For additional country-specific regulatory information, please contact Meraki Sales</li> </ul>
<b>EMI Approvals (Class B)</b>	<ul style="list-style-type: none"> <li>Canada: FCC Part 15B, ICES-003</li> <li>Europe: EN 301 489-1-17, EN 55032, EN 55024</li> <li>Australia/NZ: CISPR 22</li> <li>Japan: VCCI</li> </ul>
<b>Exposure Approvals</b>	<ul style="list-style-type: none"> <li>Canada: FCC Part 2, RSS-102</li> <li>Europe: EN 50385, EN 62311, EN 62479</li> <li>Australia/NZ: AS/NZS 2772</li> </ul>



\*\*\* feature can be enabled for required networks

## Context and Comparisons

### 802.11ax, 802.11ac Wave 2 and 802.11n Capabilities

MR36	MR46	MR56
DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**	DL-OFDMA**, UL-OFDMA**, TWT support**, BSS coloring**
2 x 2 multiple input, multiple output (MIMO) with two spatial streams	4 x 4 multiple input, multiple output (MIMO) with four spatial streams	8 x 8 multiple input, multiple output (MIMO) with eight spatial streams on 5 GHz 4 x 4 multiple input, multiple output (MIMO) with eight spatial streams on 2.4 GHz
Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming	Maximal ratio combining (MRC) & beamforming

SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support	SU-MIMO, UL MU-MIMO** and DL MU-MIMO support
20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)	20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80MHz channels (802.11ax)
Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands
Packet aggregation	Packet aggregation	Packet aggregation

## Power

MR36	MR46	MR56
Power over Ethernet: 37 - 57 V (802.af compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)
Alternative: 12 V DC input	Alternative: 12 V DC input	Alternative: 12 V DC input
Power consumption: 15W max (802.3af)	Power consumption: 30W max	Power consumption: 30W max
Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately	Power over Ethernet injector and DC adapter sold separately

## Interfaces

MR36	MR46	MR56
1x 10/100/1000 BASE-T Ethernet (RJ45)	1x 100/1000/2.5G BASE-T Ethernet (RJ45)	1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45)
1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)	1x DC power connector (5.5 mm x 2.5 mm, center positive)

## Physical Dimensions

MR36	MR46	MR56
9.84" x 4.72" x 1.42" (25 cm x 12 cm x 3.6 cm), not including desk mount feet or mount plate	12.05" x 5.06" x 1.74" (30.6 cm x 12.84 cm x 4.426 cm), not including desk mount feet or mount plate	12.83" x 5.54" x 1.76" (32.6 cm x 14.079 cm x 4.47 cm), not including deskmount feet or mount plate
Weight: 17.35 oz (492 g)	Weight: 28.22 oz (800 g)	Weight: 35.27 oz (1 kg)

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# RF Performance Table

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## 2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)
2.4 GHz	802.11b	1 Mb/s	26
		2 Mb/s	26
		5.5 Mb/s	26
		11 Mb/s	26
2.4 GHz	802.11g	6 Mb/s	26
		9 Mb/s	26
		12 Mb/s	26
		18 Mb/s	26
		24 Mb/s	24
		36 Mb/s	24
		48 Mb/s	24
		54 Mb/s	24
2.4 GHz	802.11n (HT20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26

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		MCS4	26
		MCS5	24
		MCS6	24
		MCS7	23.5
2.4 GHz	802.11ax (HE20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	23.5
		MCS8	22.5
		MCS9	22.5
		MCS10	20.5
		MCS11	20.5

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## 5 GHz

Operating Band	Operating Mode	Data Rate	TX Power
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5 GHz	802.11a	6 Mb/s	26
		9 Mb/s	26
		12 Mb/s	26
		18 Mb/s	26
		24 Mb/s	26
		36 Mb/s	26
		48 Mb/s	25
		54 Mb/s	24.5
5 GHz	802.11n (HT20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	24.5
5 GHz	802.11n (HT40)	MCS0	26
		MCS1	26
		MCS2	26

		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	24.5
		MCS7	24
5 GHz	802.11ac (VHT20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	24.5
		MCS8	23.5
5 GHz	802.11ac (VHT40)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26



		MCS5	25
		MCS6	24.5
		MCS7	24
		MCS8	23
		MCS9	22.5
5 GHz	802.11ac (VHT80)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	24
		MCS6	24
		MCS7	23
		MCS8	22
		MCS9	22
5 GHz	802.11ax (HE20)	MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26

		MCS4	26
		MCS5	25
		MCS6	25
		MCS7	24.5
		MCS8	23.5
		MCS9	23
		MCS10	21.5
		MCS11	21.5
5 GHz	802.11ax (HE40)	MCS0	25
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	25
		MCS6	24.5
		MCS7	24
		MCS8	23
		MCS9	22.5
		MCS10	21

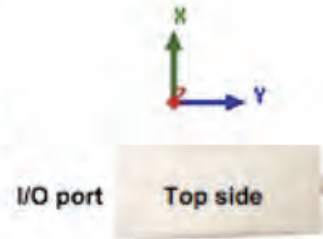
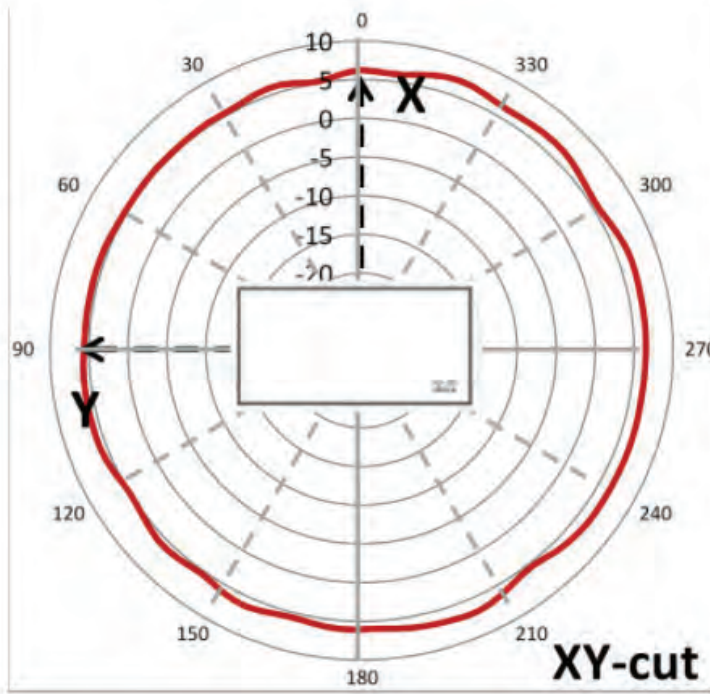
5 GHz	802.11ax (HE80)	MCS11	21
		MCS0	26
		MCS1	26
		MCS2	26
		MCS3	26
		MCS4	26
		MCS5	24
		MCS6	24
		MCS7	23
		MCS8	22
		MCS9	22
		MCS10	20
MCS11	20		

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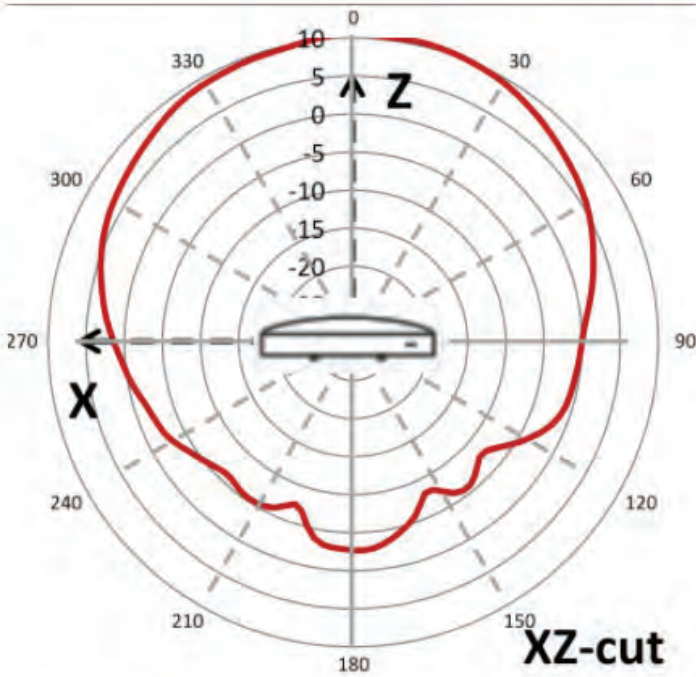
## Signal Coverage Patterns

## 5 GHz - Wireless

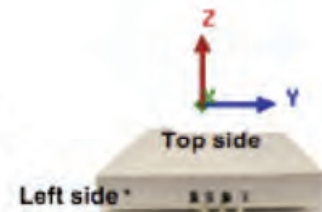
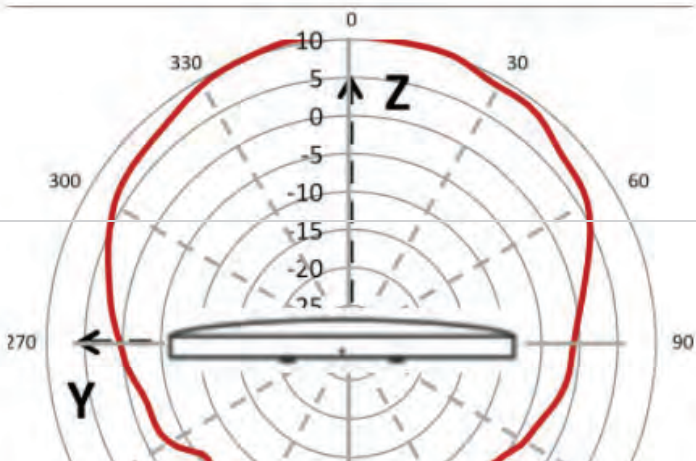
X-Y plane



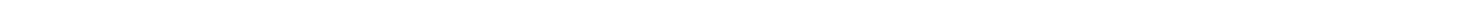
X-Z plane



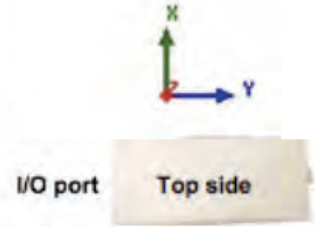
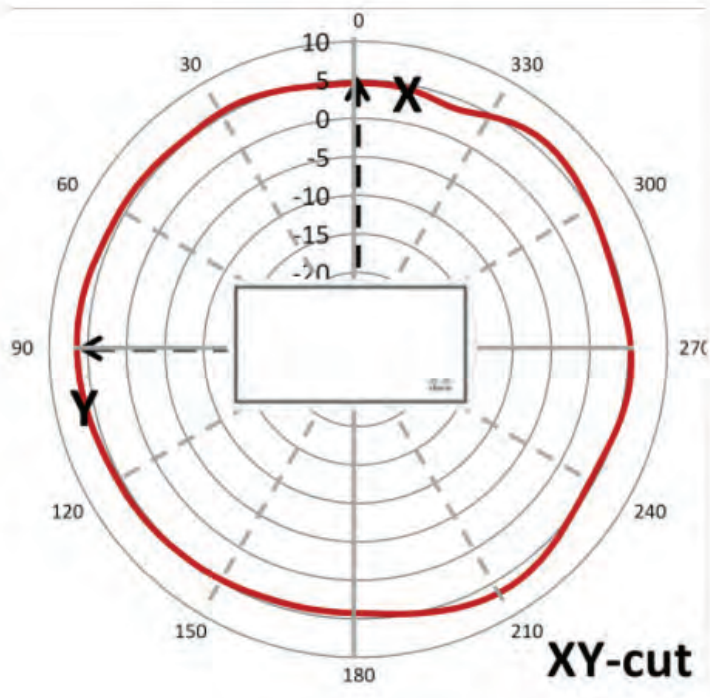
Y-Z plane



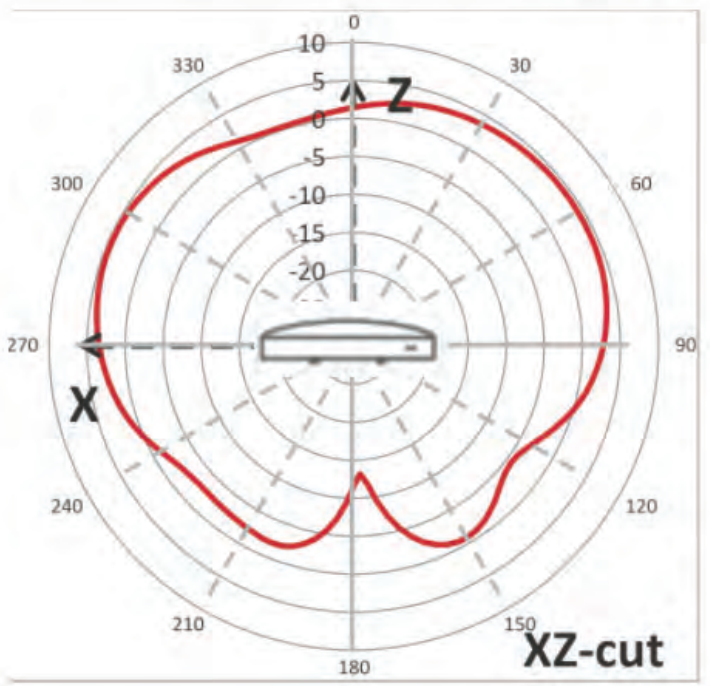
**2.4 GHz - Wireless**



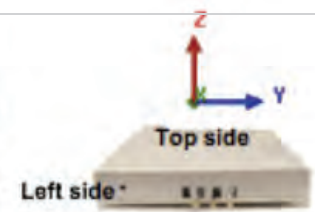
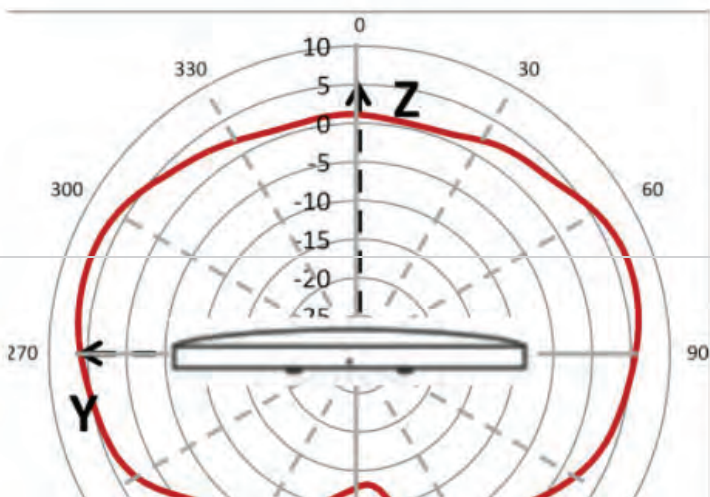
X-Y plane



X-Z plane



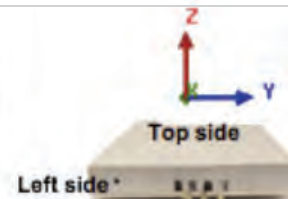
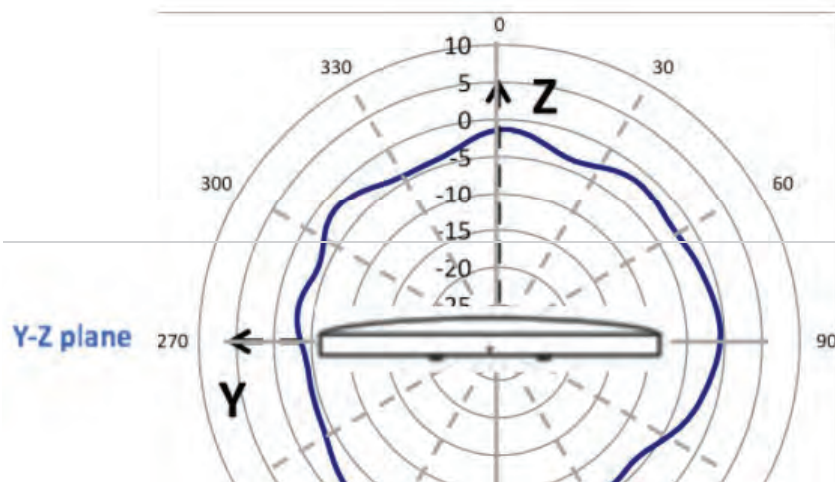
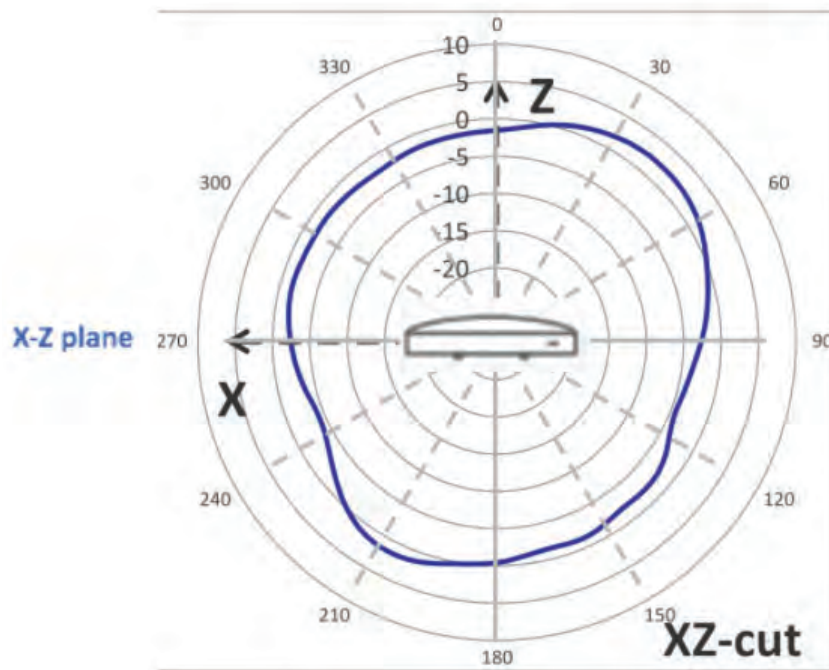
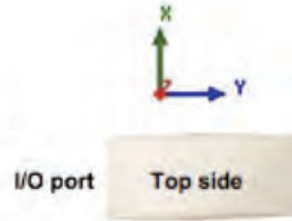
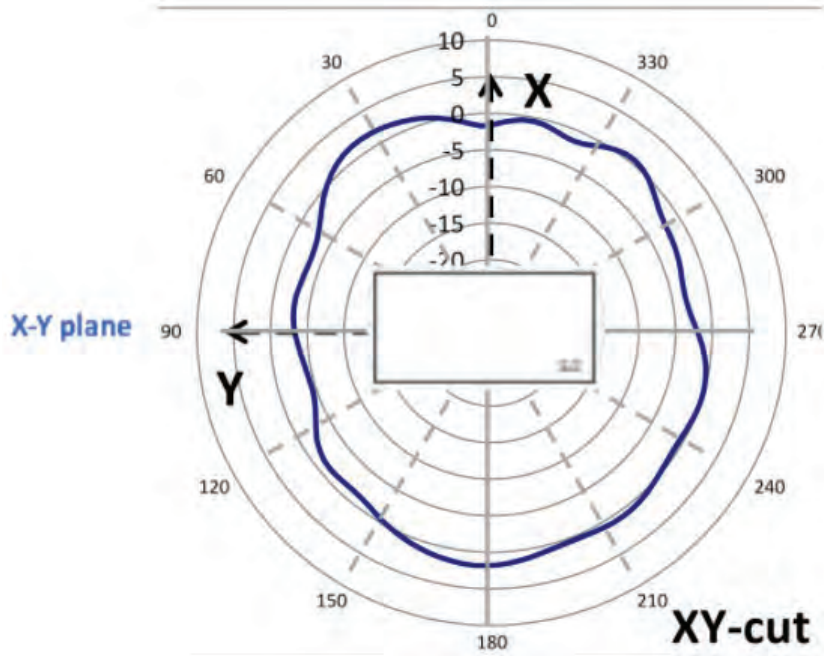
Y-Z plane





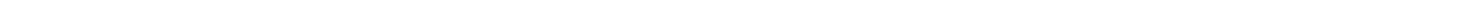


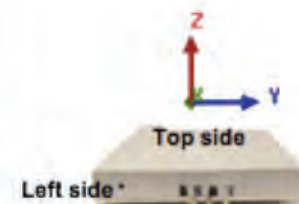
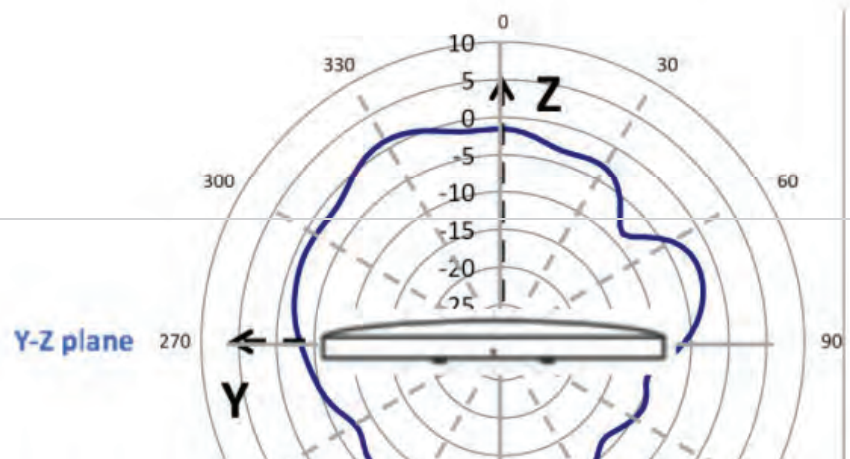
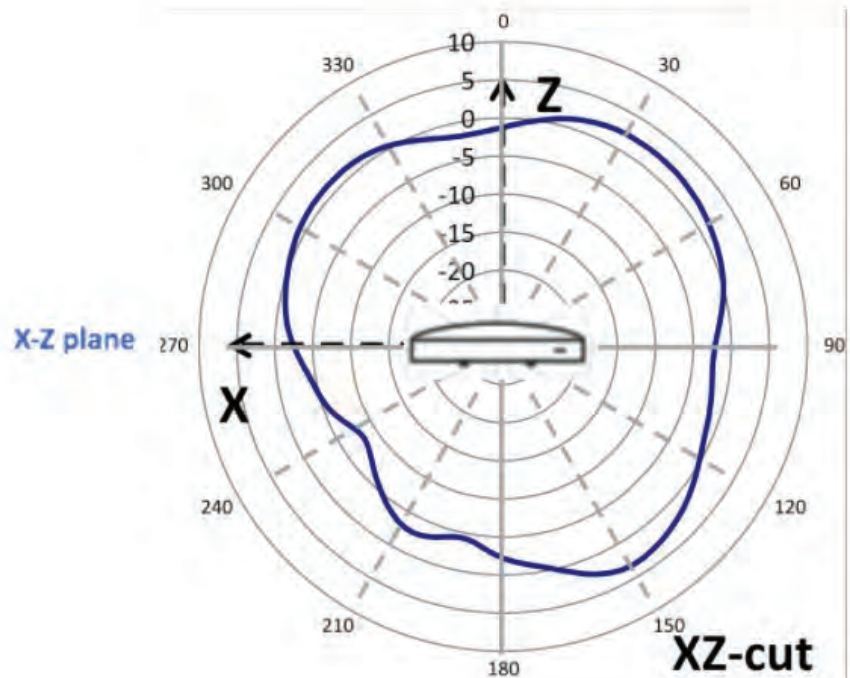
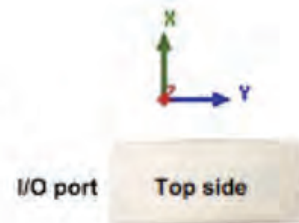
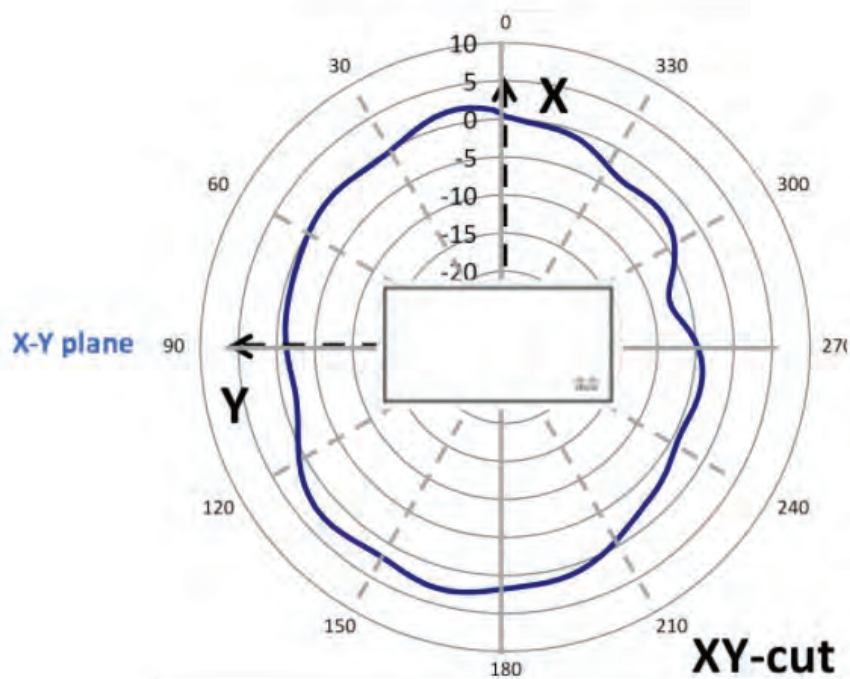
## 2.4GHz - Bluetooth





**2.4 GHz - Scanning**

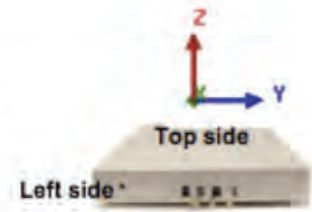
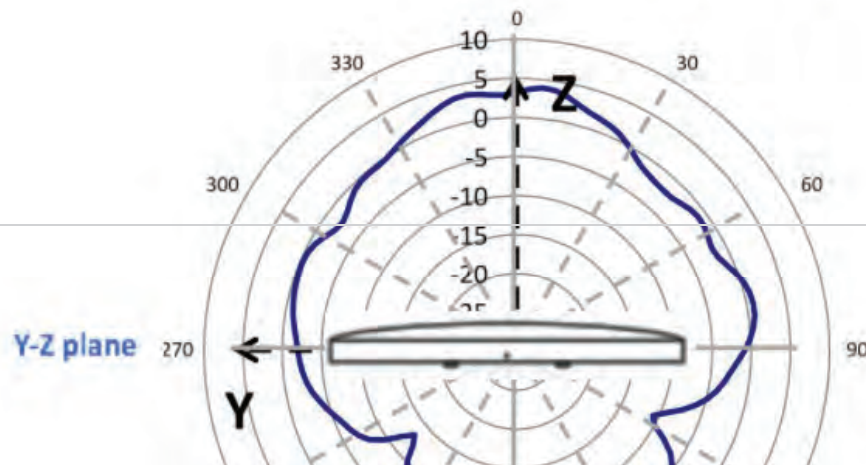
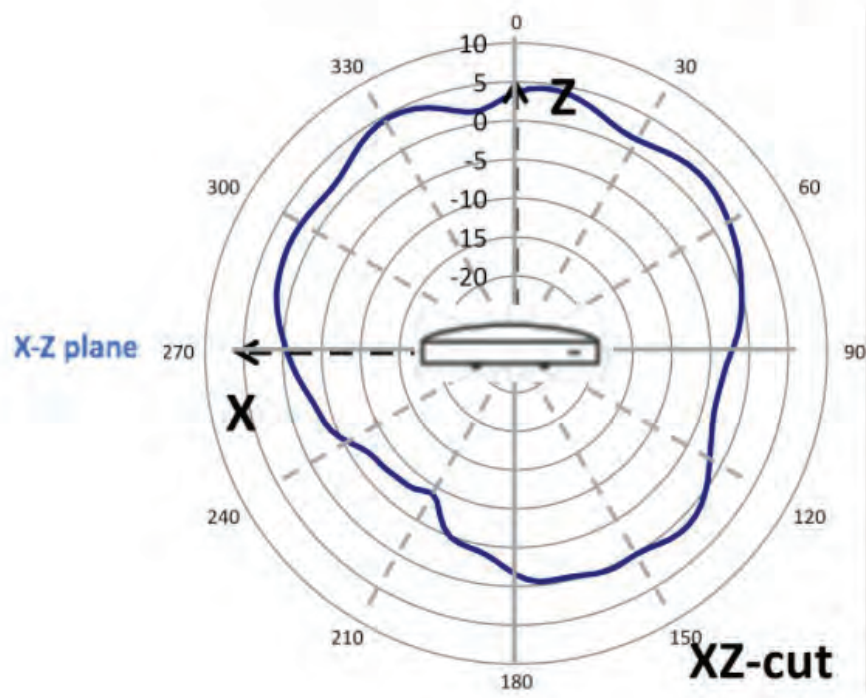
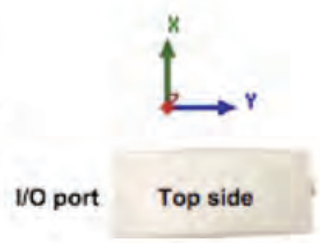
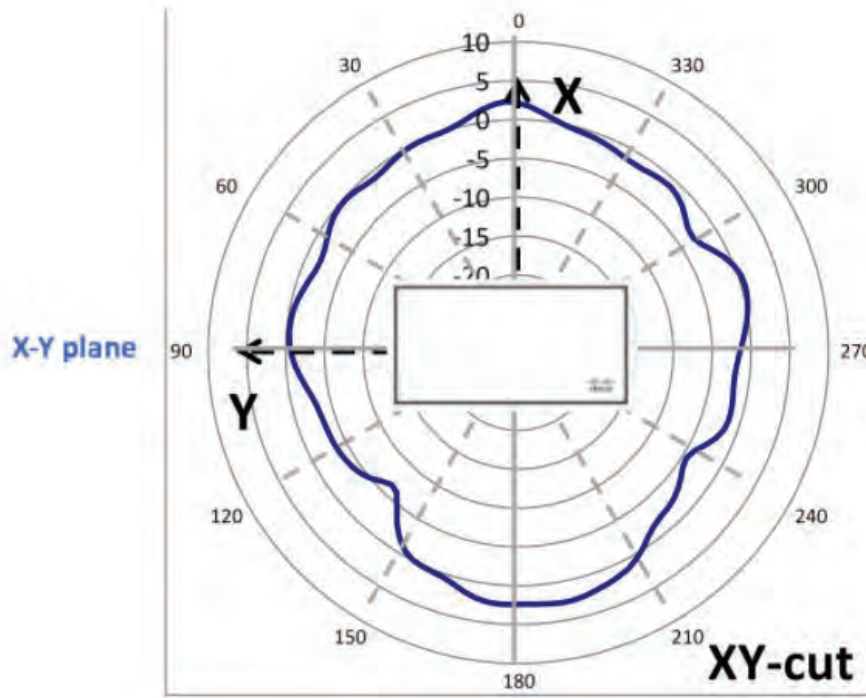






## 5 GHz - Scanning







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## Installation Guide

For instructions on how to install and configure MR56 access points please refer to the [MR56 Installation Guide](#).



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## MR86 Datasheet

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### High Performance 802.11ax Wireless

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The Cisco Meraki MR86 is a cloud-managed 4x4:4 802.11ax access point that raises the bar for wireless performance and efficiency. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR86 offers high throughput, enterprise-grade security, and simple management.

The MR86 provides a maximum of 3.5 Gbps\* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization, and a fourth integrated radio delivers Bluetooth scanning and beaconing.

With the combination of cloud management, high performance hardware, multiple radios, and advanced software features, the MR86 makes an outstanding platform for the most demanding of uses—including high-density deployments and bandwidth or performance-intensive applications like voice and high-definition video.



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## MR86 and Meraki Cloud Management

Management of the MR86 is performed through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without time-consuming training or costly certifications. Because the MR86 is self-configuring and managed over the web, it can be deployed at a remote location in a matter of minutes, even without on-site IT staff.

24x7 monitoring via the Meraki cloud delivers real-time alerts if a network encounters problems. Remote diagnostic tools enable immediate troubleshooting over the web so that distributed networks can be managed with a minimum of hassle.

The MR86's firmware is automatically kept up to date via the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web. This means no manual software updates to download or missing security patches to worry about.

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## Product Highlights

- 4x4:4 MU-MIMO 802.11ax
- 3.5\* Gbps dual-radio aggregate frame rate
- Integrated enterprise security and guest access
- Application-aware traffic shaping

- 24x7 real-time WIDS/WIPS and spectrum analytics via dedicated third radio
- Integrated Bluetooth Low Energy Beacon
- Integrated scanning radio
- Enhanced transmit power and receive sensitivity
- Optimized for voice and video
- Self-configuring, plug-and-play deployment
- Sleek design blends into office environments
- Full-time Wi-Fi location tracking via dedicated 3rd radio

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## Features

### Dual-radio aggregate frame rate of up to 3.5 Gbps\*

5 GHz 4x4:4 radio and 2.4 GHz 4x4:4 radio offer a combined dual-radio aggregate frame rate of 3.5 Gbps\*, with up to 2,402 Mbps in the 5 GHz band and 1,148 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR86 to support a higher client density than typical enterprise-class access points, resulting in better performance for more clients, from each AP.

 \* Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ax operation.

### Multi User Multiple Input Multiple Output (MU-MIMO)

With support for features of 802.11ax, the MR86 offers MU-MIMO and OFDMA for more efficient transmission to multiple clients. Especially suited to environments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultaneously. This increases the total network performance and improves the end user experience.

### Dedicated third radio delivers 24x7 wireless security and RF analytics

The MR86's dedicated dual-band scanning and security radio continually assesses the environment, characterizing RF interference and containing wireless threats like rogue access points. There's no need to choose between wireless security, advanced RF analysis, and serving client data - a dedicated third radio means that all functions occur in real-time, without any impact to client traffic or AP throughput.

### Bluetooth Low Energy Beacon and scanning radio

An integrated fourth Bluetooth radio provides seamless deployment of BLE Beacon functionality and effortless visibility of Bluetooth devices. The MR86 enables the next generation of location-aware applications while future proofing deployments, ensuring it's ready for any new customer engagement strategies.

### Automatic cloud-based RF optimization

The MR86's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated third radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

### Integrated enterprise security and guest access

The MR86 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and Enterprise authentication with 802.1X and Active Directory integration provide wired-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

### Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration

Meraki Systems Manager natively integrates with the MR86 to offer automatic, context-aware security. Systems Manager's self-service enrollment helps to rapidly deploy MDM without installing additional equipment, and then dynamically tie firewall and traffic shaping policies to client posture.

### Application-aware traffic shaping

The MR86 includes an integrated layer 7 packet inspection, classification, and control engine, enabling the configuration of QoS policies based on traffic type, helping to prioritize mission-critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, per SSID, per user group, or per individual user for maximum flexibility and control.

### Voice and video optimizations

Industry standard QoS features are built-in and easy to configure. Wireless MultiMedia (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get prioritized correctly, not only on the MR86, but on other devices in the network. Unscheduled Automatic Power Save Delivery (U-APSD) and new Target Wait Time features in 802.11ax clients ensure minimal battery drain on wireless VoIP phones.

### Self-configuring, self-maintaining, always up-to-date

When plugged in, the MR86 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. If new firmware is required, this is retrieved by the AP and updated automatically. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

### Advanced analytics

Drilling down into the details of network usage provides highly granular traffic analytics. Visibility into the physical world can be enhanced with journey tracking through location analytics. Visitor numbers, dwell time, repeat visit rates, and track trends can all be easily monitored in the dashboard and deeper analysis is enabled with raw data available via simple APIs.

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## Specifications

Category	Specifications
<b>Radios</b>	<ul style="list-style-type: none"><li>• 2.4 GHz 802.11b/g/n/ax client access radio</li><li>• 5 GHz 802.11a/n/ac/ax client access radio</li><li>• 2.4 GHz &amp; 5 GHz dual-band WIDS/WIPS, spectrum analysis, &amp; location analytics radio</li><li>• 2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support</li><li>• Concurrent operation of all four radios</li><li>• Supported frequency bands (country-specific restrictions apply)</li><li>• Supported frequency bands (country-specific restrictions apply):<ul style="list-style-type: none"><li>◦ 2.412-2.484 GHz</li><li>◦ 5.150-5.250 GHz (UNII-1)</li><li>◦ 5.250-5.350 GHz (UNII-2)</li><li>◦ 5.470-5.600, 5.660-5.725 GHz (UNII-2e)</li><li>◦ 5.725 -5.825 GHz (UNII-3)</li></ul></li></ul>
<b>Antenna</b>	<ul style="list-style-type: none"><li>• List of compatible antennas: MA-ANT-20/21/23/25/27 and AIR-ANT2513P4M-N=</li></ul>
<b>802.11ax, 802.11ac Wave 2 and 802.11n Capabilities</b>	<ul style="list-style-type: none"><li>• DL-OFDMA**, UL-OFDMA**, TWT support**, BSS Coloring**</li><li>• 4 x 4 multiple input, multiple output (MIMO) with four spatial streams</li><li>• SU-MIMO, UL MU-MIMO** and DL MU-MIMO support</li><li>• Maximal ratio combining (MRC) &amp; beamforming</li><li>• 20 and 40 MHz channels (802.11n); 20, 40, and 80 MHz channels (802.11ac Wave 2); 20, 40 and 80 MHz channels (802.11ax)</li><li>• Up to 1024-QAM on both 2.4 GHz &amp; 5 GHz bands</li><li>• Packet aggregation</li></ul>

<b>Power</b>	<ul style="list-style-type: none"> <li>• Power over Ethernet: 42.5 - 57 V (802.3at compatible)</li> <li>• Power consumption: 18W max (802.3at)</li> <li>• Power over Ethernet injector sold separately</li> </ul>
<b>Interfaces</b>	<ul style="list-style-type: none"> <li>• 1x 100/1000/2.5G BASE-T Ethernet (RJ45)</li> </ul>
<b>Mounting</b>	<ul style="list-style-type: none"> <li>• All standard mounting hardware included</li> <li>• Mounts to walls and vertical poles.</li> </ul>
<b>Physical Security</b>	<ul style="list-style-type: none"> <li>• Two security screws</li> <li>• Concealed mount plate with anti-tamper cable bay</li> </ul>
<b>Environment</b>	<ul style="list-style-type: none"> <li>• Operating temperature: -40 °F to 131 °F (-40 °C to 55 °C)</li> <li>• Humidity: 5 to 95% non-condensing</li> <li>• IP67 Environmental rating</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Mean Time Between Failure (MTBF): 1,566,656hrs at +25°C operating temperature</li> </ul>
<b>Physical Dimensions</b>	<ul style="list-style-type: none"> <li>• 11.81" x 6.02" x 2.16" (30.0 cm X 15.3 cm X 5.5 cm), not including cable gland, mounts or antennas</li> <li>• Weight: 1.5 kg</li> </ul>
<b>Security</b>	<ul style="list-style-type: none"> <li>• Integrated Layer 7 firewall with mobile device policy management</li> <li>• Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal</li> <li>• Flexible guest access with device isolation</li> <li>• VLAN tagging (802.1q) and tunneling with IPsec VPN</li> <li>• PCI compliance reporting</li> <li>• WEP***, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X, WPA3 - Personal**, WPA3 - Enterprise**, WPA3 - Enhanced Open (OWE)**</li> <li>• EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM</li> <li>• TKIP and AES encryption</li> <li>• Enterprise Mobility Management (EMM) &amp; Mobile Device Management (MDM) integration</li> <li>• Cisco ISE integration for Guest access and BYOD Posturing</li> </ul>
<b>Quality of Service</b>	<ul style="list-style-type: none"> <li>• Advanced Power Save (U-APSD)</li> <li>• WMM Access Categories with DSCP and 802.1p support</li> <li>• Layer 7 application traffic identification and shaping</li> </ul>
<b>Mobility</b>	<ul style="list-style-type: none"> <li>• PMK, OKC, &amp; 802.11r for fast Layer 2 roaming</li> <li>• Distributed or centralized layer 3 roaming</li> </ul>

<b>Analytics</b>	<ul style="list-style-type: none"> <li>• Embedded location analytics reporting and device tracking</li> <li>• Global L7 traffic analytics reporting per network, per device, &amp; per application</li> </ul>
<b>LED Indicators</b>	<ul style="list-style-type: none"> <li>• 1 power/booting/firmware upgrade status</li> </ul>
<b>Regulatory</b>	<ul style="list-style-type: none"> <li>• RoHS</li> <li>• For additional country-specific regulatory information, please contact Meraki sales</li> </ul>
<b>Warranty</b>	<ul style="list-style-type: none"> <li>• 1 year hardware warranty with advanced replacement included</li> </ul>
<b>Ordering Information</b>	<ul style="list-style-type: none"> <li>• MR86-HW: Meraki MR86 Cloud Managed 802.11ax AP</li> <li>• MA-INJ-5-XX: Meraki Multigigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)</li> <li>• MA-INJ-4-XX: Meraki Gigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)</li> <li>• MA-ANT-20 Meraki Dual-Band Omni Antennas</li> <li>• MA-ANT-21 Meraki 5GHz Sector Antennas</li> <li>• MA-ANT-23 Meraki 2.4GHz Sector Antennas</li> <li>• MA-ANT-25 Meraki Dual-Band Patch Antenna</li> <li>• MA-ANT-27 Meraki Dual-Band Sector Antenna</li> <li>• AIR-ANT2513P4M-N= Dual-band, 4-port, 30° beam</li> <li>• Note: Meraki access point license required. For AIR-ANT2513P4M-N= antenna, contact Cisco directly</li> </ul>

 \*\* software features can be enabled via firmware updates


## Compliance and Standards

Category	Standards
<b>IEEE Standards</b>	<ul style="list-style-type: none"> <li>• 802.11a, 802.11ac, 802.11ax, 802.11b, 802.11e, 802.11g, 802.11h, 802.11i, 802.11k, 802.11n, 802.11r, and 802.11u***</li> </ul>
<b>Safety Approvals</b>	<ul style="list-style-type: none"> <li>• CSA and CB 60950 &amp; 62368</li> <li>• Conforms to UL 2043 (Plenum Rating)</li> </ul>
<b>Radio Approvals</b>	<ul style="list-style-type: none"> <li>• Canada: FCC Part 15C, 15E, RSS-247</li> <li>• Europe: EN 300 328, EN 301 893</li> <li>• Australia/NZ: AS/NZS 4268</li> <li>• Mexico: IFT, NOM-208</li> <li>• Taiwan: NCC LP0002</li> </ul>

**EMI Approvals (Class B)**

**Exposure Approvals**

- For additional country-specific regulatory information, please contact Meraki Sales
- Canada: FCC Part 15B, ICES-003
- Europe: EN 301 489-1-17, EN 55032, EN 55024
- Australia/NZ: CISPR 22
- Japan: VCCI
- Canada: FCC Part 2, RSS-102
- Europe: EN 50385, EN 62311, EN 62479
- Australia/NZ: AS/NZS 2772

 \*\*\* feature can be enabled for required networks

## RF Performance Table

### 2.4 GHz

Operating Band	Operating Mode	Data Rate	Total TX Power (conducted)
2.4 GHz	802.11b	1 Mb/s	25.0
		2 Mb/s	25.0
		5.5 Mb/s	25.0
		11 Mb/s	25.0
2.4 GHz	802.11g	6 Mb/s	25.0
		9 Mb/s	25.0
		12 Mb/s	23.5
		18 Mb/s	23.5



		24 Mb/s	22.0
		36 Mb/s	22.0
		48 Mb/s	21.5
		54 Mb/s	21.5
2.4 GHz	802.11n (HT20)	MCS0	25.0
		MCS1	25.0
		MCS2	23.5
		MCS3	23.5
		MCS4	23.5
		MCS5	21.5
		MCS6	21.5
		MCS7	20.5
2.4 GHz	802.11ac (VHT20)	MCS0	25.0
		MCS1	25.0
		MCS2	23.5
		MCS3	23.5
		MCS4	23.5
		MCS5	21.5
		MCS6	21.5

		MCS7	20.5
		MCS8	19.5
2.4 GHz	802.11ax (HE20)	MCS0	25.0
		MCS1	25.0
		MCS2	23.5
		MCS3	23.5
		MCS4	23.5
		MCS5	21.5
		MCS6	21.5
		MCS7	20.5
		MCS8	19.5
		MCS9	19.5
		MCS10	18.0
		MCS11	18.0
2.4 GHz	802.11ac (VHT40)	MCS0	23.0
		MCS1	23.0
		MCS2	23.0
		MCS3	23.0
		MCS4	23.0

		MCS5	21.0
		MCS6	21.0
		MCS7	20.5
		MCS8	19.5
		MCS9	19.5
2.4 GHz	802.11ax (HE40)	MCS0	23.0
		MCS1	23.0
		MCS2	23.0
		MCS3	23.0
		MCS4	23.0
		MCS5	21.0
		MCS6	21.0
		MCS7	20.5
		MCS8	19.5
		MCS9	19.5
		MCS10	18.0
		MCS11	18.0

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## 5 GHz

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Operating Band	Operating Mode	Data Rate	TX Power
5 GHz	802.11a	6 Mb/s	24.0
		9 Mb/s	24.0
		12 Mb/s	23.0
		18 Mb/s	23.0
		24 Mb/s	22.0
		36 Mb/s	22.0
		48 Mb/s	21.0
		54 Mb/s	20.5
		5 GHz	802.11n (HT20)
MCS1	24.0		
MCS2	23.0		
MCS3	23.0		
MCS4	22.0		
MCS5	22.0		
MCS6	21.0		
MCS7	20.5		
5 GHz	802.11n (HT40)	MCS0	23.0
		MCS1	23.0

		MCS2	23.0
		MCS3	23.0
		MCS4	22.0
		MCS5	21.0
		MCS6	20.5
		MCS7	20.0
5 GHz	802.11ac (VHT20)	MCS0	24.0
		MCS1	24.0
		MCS2	23.0
		MCS3	23.0
		MCS4	22.0
		MCS5	22.0
		MCS6	21.0
		MCS7	20.5
		MCS8	19.5
5 GHz	802.11ac (VHT40)	MCS0	23.0
		MCS1	23.0
		MCS2	23.0
		MCS3	23.0

		MCS4	22.0
		MCS5	21.0
		MCS6	20.5
		MCS7	20.0
		MCS8	19.0
		MCS9	18.5
5 GHz	802.11ac (VHT80)	MCS0	23.0
		MCS1	23.0
		MCS2	23.0
		MCS3	23.0
		MCS4	22.0
		MCS5	20.0
		MCS6	20.0
		MCS7	19.0
		MCS8	18.0
		MCS9	18.0
5 GHz	802.11ax (HE20)	MCS0	24.0
		MCS1	24.0
		MCS2	23.0

		MCS3	23.0
		MCS4	22.0
		MCS5	22.0
		MCS6	21.0
		MCS7	20.5
		MCS8	19.5
		MCS9	19.0
		MCS10	17.5
		MCS11	17.5
5 GHz	802.11ax (HE40)	MCS0	23.0
		MCS1	23.0
		MCS2	23.0
		MCS3	23.0
		MCS4	22.0
		MCS5	21.0
		MCS6	20.5
		MCS7	20.0
		MCS8	19.0
		MCS9	18.5

		MCS10	17.0
		MCS11	17.0
5 GHz	802.11ax (HE80)	MCS0	23.0
		MCS1	23.0
		MCS2	23.0
		MCS3	23.0
		MCS4	22.0
		MCS5	20.0
		MCS6	20.0
		MCS7	19.0
		MCS8	18.0
		MCS9	18.0
		MCS10	16.0
		MCS11	16.0

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## Installation Guide

For instructions on how to install and configure MR86 access points please refer the MR86 Installation Guide



**CITY OF NEW HAVEN**  
New Haven, Connecticut 06510



**DISCLOSURE &  
CERTIFICATION AFFIDAVIT**

**EVERY SECTION MUST BE COMPLETED**  
For help completing this form contact 203-946-8201

<b>Contractor/Vendor Name:</b>	Total Communications, Inc. a subsidiary of Frontier Communications Corporation
<b>Address:</b>	333 Burnham Street, East Hartford, CT 06108
<b>Telephone and/or Fax #:</b>	800.300.0824
<b>Email Address:</b>	scottlennon@totalcomm.com / chrisgarlock@totalcomm.com
<b>Contact Person:</b>	Scott Lennon (Binding Agent) or Chris Garlock (Sales or RFP Response Questions)

**For the purposes of this Disclosure and Certification Affidavit, the following definitions apply:**

(a)	"Person" means one (1) or more individuals, partnerships, corporations, associations, or joint ventures.
(b)	"Contract" means any agreement or formal commitment entered into by the city to expend funds in return for work, labor, services, supplies, equipment, materials or any combination of the foregoing, or any lease, lease by way of concession, concession agreement, permit, or per agreement whereby the city leases, grants or demises property belonging to the city, or otherwise grants a right of privilege to occupy or to use said property of the city.
(c)	"City" means any official agency, board, authority, department office, or other subdivision of the City of New Haven.
(d)	"Affiliate Entity" means any entity listed in sections 9 or 10 below or any entity under common management with the Contractor.

<b>State of</b>	Connecticut	<b>County of</b>	Hartford
I,	Scott Lennon <small>(type or print your name above)</small>	<b>being first duly sworn, hereby deposes and says that:</b>	
1.	I am over the age of 18 and understand the obligations of making statements under oath; I understand that the City of New Haven is relying on my representations herein.		
2a.	I am the corporate secretary or majority owner (including sole proprietorship) of	Insert Company Name above	
2b.	Or I am an individual and my name is:	Scott Lennon <small>if an individual, insert your name above</small>	
3.	I am fully informed regarding the preparation and terms of the above referenced agreement (the "Agreement") and of all pertinent circumstances related thereto.		
4.	<b>Please select the applicable representation(s) regarding taxes or, if none of the below are accurate, attach an explanation of the status of the relevant tax obligations to this Affidavit (mark an "X" in the appropriate box or "NA" if none apply).</b>		
4a.	<input type="checkbox"/> As required by Conn. Gen. Stat. §12-41, the Contractor (and each owner, partner, officer, authorized signatory or Affiliate Entity of the Contractor) has filed a list of taxable personal property with the City of New Haven for the most recent grand list and all taxes are current.		
4b.	<input type="checkbox"/> The Contractor (including any owner, partner, officer or authorized signatory thereof) is not required to file a list of taxable personal property with the City of New Haven for the most recent grand list and does not owe any back taxes to the City of New Haven, either directly or through a lease or other agreement.		
4c.	<input type="checkbox"/> The Contractor or an owner, partner, officer, representative, agent or Affiliate Entity of the Contractor either i) has a PILOT agreement with the City of New Haven or ii) owes back taxes and has executed an agreement with the City of New Haven to pay said back taxes in installment payments. <b>Such agreement is attached and incorporated herein by reference and the payments under said agreement are not in default.</b>		
5.	<input checked="" type="checkbox"/>	Other than as may be described in section 4 above, the Contractor (including any owner, partner, officer, other authorized signatory, or Affiliate Entity) does not have any outstanding monetary obligations to the City of New Haven.	
6.	Please select the applicable representation about the Contractor's business registration:		
6a.	<input checked="" type="checkbox"/>	Contractor is a Connecticut corporation, partnership, limited liability company or sole proprietorship and its Connecticut Secretary of the State Business ID #:	06-1020653 Insert State Registration # above
6b.	<input type="checkbox"/>	Contractor is a foreign corporation, partnership, limited liability company or sole proprietorship but is registered to do business in the State of Connecticut. The Contractor's Connecticut Secretary of the State Business ID #:	Insert State Registration # above
6c.	<input type="checkbox"/>	<b>Contractor is a foreign corporation, partnership, limited liability company or sole proprietorship and is not registered to do business in the State of Connecticut. The Contractor is registered in the State of:</b>	Please insert State name above
Contractor has confirmed with the Connecticut Secretary of the State that the services it will provide pursuant to the Agreement do not constitute doing business in the State of Connecticut and no registration with the Connecticut Secretary of the State is required. Contractor does otherwise have the following State of Connecticut registrations, certificates or approvals relevant to the Agreement (if not applicable, state N/A).			



7. The following list is a list of the names of all persons affiliated with the business of the Contractor who are also affiliated with the City of New Haven. For purposes of this Affidavit, "affiliated with the business of the Contractor" includes any current or former employee (including officers) of the Contractor or any owner, board member or agent of the Contractor, or of any subsidiary or parent company of the Contractor, and "affiliated with the City of New Haven" means any employee, agent, public official, board member, commissioner or any other person serving in an official capacity for or on behalf of the City of New Haven. If none state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Name	City Affiliation Role & Time Frame	Contractor Affiliation Role & Time Frame	DOB
1 N/A			
2			

8. The following list is a list of all contracts in which either the Contractor, any person affiliated with the business of the Contractor or an Affiliate Entity of the Contractor provides, or has provided, services or materials to the City within one (1) year prior to the date of this disclosure. If none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Name of Contractor or Affiliate	Affiliation (if applicable)	Contract Number	DOB
1 N/A			
2			

9. The Contractor possesses an ownership interest in the following business organizations, if none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Organization Name	Address	Type of Ownership
1 N/A		
2		

10. The following persons and/or entities possess an ownership interest in the Contractor. If the Contractor is a corporation, list the names of each stockholder whose shares exceed twenty-five (25) percent of the outstanding stock. If none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Name	Title	% of Ownership	DOB
1 Frontier Communications Corp.	N/A	100	N/A
2			

11. If the Contractor conducts business under a trade name, the following additional information is required: the place where such entity is incorporated or is registered to conduct such business; and the address of its principal place of business, if none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

TRADE NAME	PLACE OF INCORPORATION/REGISTRY	PRINCIPAL PLACE OF BUSINESS
1 N/A		
2		

I hereby certify that I am duly authorized to sign this Affidavit and that the person who will sign the Agreement with the City on behalf of the Contractor will be duly authorized to execute the same. I hereby further certify that the statements set forth above are true and complete on the date hereof and that I, or another authorized individual of the Contractor, will promptly inform the City, in writing, if any of the information provided herein changes or is otherwise no longer accurate at any point during the execution of the above referenced Agreement. I understand that any incorrect information, omission of information or failure of the Contractor to update this information, as described in the foregoing sentence, may result in the immediate termination of any and all agreements the Contractor has with the City of New Haven and disqualification of the Contractor to further contract with the City.

Signature & Title of person completing this form:			
<i>[Signature]</i>			
<b>THIS FORM MUST BE NOTARIZED</b>		<b>NOTARY SEAL (if available)</b>	
Signature of Notary:		<i>[Signature]</i>	
Subscribed and sworn to, before me on this:	9th	Day of	November 20 20
My Commission Expires:	March 31st, 2021		

*This form should be mailed or emailed to the contracting department or included with a specific solicitation.*

(This form shall be updated if the Agreement contemplated hereby is not executed within six months of the date hereof.)





## MBE SUB CONTRACTOR UTILIZATION AGREEMENT

Rev. 9/28/2020

During the performance of this **Contract**, the **Awarded Contractor** agrees to comply with all provisions of the Small Business Enterprise Construction Opportunity Initiative Ordinance section 12-9. The City's provisions are as follows:

(a) The City's specific goals for utilization of MBE subcontractors are defined in Section 12-5 of this Ordinance. The City hereby requires that all parties bidding or otherwise seeking to be qualified as a Contractor with respect to a City Construction Contract ("the lowest responsible bidder") shall aggressively make every effort to obtain MBE participation in order to achieve the utilization goals.

(b) The provisions of this section 12 - 9 shall apply to all City Construction Contracts that are over \$150,000.

(c) All bidders shall be required to submit this affidavit signed by a principal or other authorized person of the Contractor and submitted with their bid. If the affidavit is not submitted with the bid, the bidder will be considered a non-responsive bidder, and the bid may be rejected. If a bidder submits more than one non-responsive bid within a 12-month period, that bidder will be disqualified from all future bids within the next 12 months.

(d) The City intends to award City Construction Contracts to the lowest responsible bidder that has achieved or made a good faith effort to achieve the MBE utilization goals. Failure by any awarded Contractor to demonstrate that they have either achieved the utilization goals, or that they have made good faith efforts to achieve the utilization goals as required hereunder, will result in a determination by the Purchasing Agent that the bidder is not a responsible bidder with respect to the City Construction Contract in question.

(e) In order to achieve the MBE utilization goals, a Contractor may award contracts to Subcontractors that are certified as MBEs for the purpose of this program, or may enter into a joint venture (or other commercially reasonable relationship which is satisfactory to the City for the purposes of this program) with one or more MBEs, for the purpose of carrying out the City Construction Contract. The MBE(s) must perform actual construction work (or construction-related work such as site preparation, etc.) and not merely act as a passive conduit.

(f) The Awarded Contractor shall submit signed contracts or letters of commitment with the MBEs that will be utilized by the Contractor in the carrying out such City Construction Contract, together with a list of the respective dollar amounts payable to each such MBE. This list shall be provided by the awarded Contractor to the Small Business Initiative during the Contract award process. For credit to be given, each MBE must be registered as an MBE prior to submittal of such list by the Contractor.

(g) If the awarded Contractor can demonstrate at the pre-award meeting with SCD, that it has successfully achieved the 25% overall MBE utilization goals for subcontracting, the Bureau of Purchases/SCD is not required to evaluate other efforts the awarded contractor made to achieve the goal.

(h) If, however, the awarded Contractor has failed to meet the MBE Utilization goal at the pre-award meeting with SBI, SBI will evaluate and verify if a Contractor has accomplished at least four of the following during their bid preparation process:

(1) The placing of the subcontracting opportunity on an approved City Construction opportunity website, for at least 10 days.  
<http://www.newhavencontractorsalliance.org/>

(2) The placing of advertisements in at least two local newspapers and at least one specialist publication aimed at small Contractors not less than two weeks prior to submittal of its bid or proposal, which advertisements shall have described the type of work being solicited, set forth the name, address and telephone number of a contact person at the Potential Contractor with knowledge of the project to which the City Construction Contract relates and stated where appropriate plans and specifications could be obtained.



(3) The mailing of notices (certified mail, return receipt requested) to at least four business associations and/or development agencies which disseminate bid and other construction-related information to businesses within the Greater New Haven area, not less than two weeks prior to its bid or proposal, which advertisements shall have described the type of work being solicited, set forth the name, address and telephone number of a contact person at the Potential Contractor with knowledge of the project to which the City Construction Contract relates and stated where appropriate plans and specifications could be obtained.

(4) Verification of quotes received from subcontractors that were denied because of cost, quality, availability, etc.

(5) Verification of outreach to and collaboration with the Regional Contractor's Alliance.

(6) A detailed description of any attempts made to enter into joint ventures or other such arrangements with MBEs and /or assistance provided to MBEs relative to review of plans and specifications or other documents issued by the City, review of work to be performed, encouragement of other Subcontractors to utilize MBEs, and any other such efforts undertaken to encourage the participation of MBEs and all actions taken by the Potential Contractor with respect to any proposals received from MBEs, including, where appropriate, the reasons for the rejection of any such proposals.

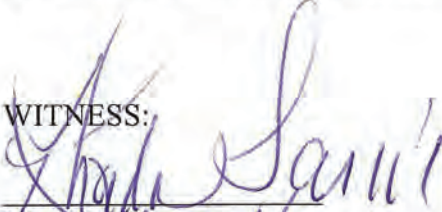
(7) Other efforts as determined in advance by the Purchasing Agent/SCD.


(i) In the event that SCD does not agree that a good faith effort has been made by the awarded Contractor, SCD/Purchasing has the right to reject the contractor. If the Contractor disputes this rejection, a committee composed of a representative from Small Contractor Development, the Corporation Counsel's Office, and the Bureau of Purchases will evaluate whether such good faith effort was achieved in accordance with the provisions of this Ordinance.

(j) If the awarded Contractor has failed to demonstrate a good faith effort in meeting the utilization goals, they will forfeit the award and the contract will be awarded to the next lowest responsible bidder.

(k) If all bidders are non-responsive bidders, the Purchasing Agent will have discretion to reject all bids and to re-bid the project, or to accept the lowest, otherwise-responsible, bidder in accordance with the provisions of this Section.

IN WITNESS WHEREOF, on the 9th day of November, 2020,  
the contract has caused two counterparts of this Agreement to be executed and delivered.

WITNESS:  
  
(signature)

  
(signature)

Total Communications, Inc.  
(Contractor)

By: Scott Lennon 

President  
(Title)

**CERTIFICATE OF NON ARREARAGE**

STATE OF CONNECTICUT )  
COUNTY OF HARTFORD )

SS *EST N.Y.T.F.K.O*

Scott Lennon being duly sworn deposes and says

1. He /She is the (owner, partner, officer, representative, or agent) of Total Communications, Inc.  
the Bidder that has submitted the attached Bid.
2. Neither the Bidder, nor its subcontractors are in arrears to the State of Connecticut  
Second Injury Fund.

(signed) *Scott Lennon*  
President  
Title

Subscribed and sworn to before me this 9th day of Nov., 2020

*Rhonda Tassie*  
Notary Public Commissioner  
of the Superior Court  
*3/31/2021*





# City of New Haven

## Current Workforce Certificate

Equal Opportunities

Bidder/Proposer : Total Communications, Inc. a subsidiary of Frontier Communications Corporation

Address 333 Burnham Street

City, State East Hartford, CT

Zip Code 06108

	<b>Racial Group</b>											
	<b>MALE</b>					<b>FEMALE</b>						<b>TOTAL</b>
	W	AA	HA	H	O	W	AA	HA	H	O		
<b>JOB CATEGORIES</b>												
Officials & Managers	15					3					18	
Professionals	2					3					5	
Technicians	15					3					18	
Sales Force	7					2					9	
Office & Clerical	15					4	1	1			21	
Craftsmen (skilled)												
Operatives (semi-skilled)												
Laborers (unskilled)												
Service Workers												
<b>Total</b>	<b>54</b>					<b>15</b>	<b>1</b>	<b>1</b>			<b>71</b>	

Are you a disadvantaged business enterprise?

Are you a women's business enterprise?

Does your company have an affirmative action plan?

Yes		No	✓
Yes		No	✓
Yes		No	✓

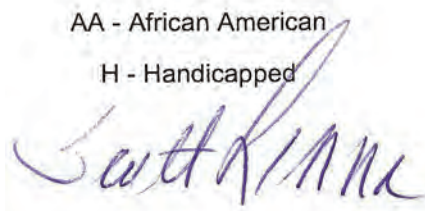
W - White (Caucasian)

HA - Hispanic American

O - Other

AA - African American

H - Handicapped





## EQUAL EMPLOYMENT OPPORTUNITY AGREEMENT

During the performance of this contract, the Contractor agrees as follows:

- a. To comply with all provisions of Executive Order 11246 and Executive Order 11375, Connecticut Fair Employment Practices Act, and the contract compliance ordinance of the City of New Haven, including all standards and regulations which are promulgated by the government authorities who established such acts and requirements, and all standards and regulations are incorporated herein by reference;
- b. Not to discriminate against any employee or applicant for employment because of race, color, religion, age, sex, physical disability or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to race, color, religion, sex, age, or national origin and physical handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship;
- c. To post, in conspicuous place available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause;
- d. To state, in all solicitations or advertisement for employees placed by or on behalf of the contract, that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, physical disability or national origin;
- e. To send to each labor union representative of workers with whom it has a collective bargaining agreement, or other contract or understanding, a notice advising a labor union or worker's representative of the contractor's commitments under the equal opportunity clause of the City of New Haven, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor shall register all workers in the skilled trades, who are below the journeyman level, with the Apprentice Training Division of the Connecticut State Labor Department;
- f. To utilize labor department and city sponsored manpower programs as a source of recruitment and to notify the contract compliance unit and such programs of all job vacancies;
- g. To take affirmative action to negotiate with qualified minority contractors for any work which may be proposed for subletting, or for any additional services, or work which may be required as a result of this contract;
- h. To cooperate with city departments in implementing required contract obligations for increasing the utilization of minority business enterprises;
- i. To furnish all information and reports required by the Contract Compliance Director pursuant to section 12 1/2 -1, 12 1/2-19 through section 12 1/2-32, 12 1/2-48 through 12 1/2-52 and to permit access to his books, records and accounts by the contracting agency, the Contract Compliance Officer, and the Secretary of Labor for purposes of investigation to ascertain compliance with the program;
- j. If such contractor employs three or more employees to refrain from paying such employees dues and related expense for clubs that restrict membership use of their facilities on the basis of race, color, sex, religion, national origin or ancestry;
- k. To take such action, with respect to any subcontractor, as the City may direct as a means of enforcing the provisions of sub-paragraphs (a) through (m) herein, including penalties and sanctions for noncompliance, provided however that, in the event the contractor becomes involved or threatened with litigation as a result of such direction by the City, the City will intervene in such litigation to the extent necessary to protect the interest of the City and to effectuate the City's Equal Employment Opportunity Program, in the case of funded directly or indirectly, in whole, or in part, under one or more Federal Assistance Programs, the contractor or the City may ask the United States to enter into such litigation to protect the interest if the United States;
- l. To file, along with his subcontractors, if any, compliance reports with the City in the form and to the extent prescribed in the contract by the Contract Compliance Director of the City of New Haven. Compliance reports filed at such times as directed shall contain information as to the employment practices, policies, programs and statistics of the contractor and his subcontractors, if any;
- m. To include the provisions of sub-paragraphs (a) through (m) of this Equal Opportunity Clause in every subcontract or purchase order so that said provisions will be binding upon each such subcontractor or vendor;



n. That a finding, as hereinafter provided, of a refusal by the contractor, or subcontractor, to comply with any portion of this program as herein stated and described, may subject the offending party to any or all of the following penalties:

1. Withholding of all future payments under the involved public contract to the contractor in violation until it is determined that the contractor, or subcontractor, is in compliance with the provisions of the contract;
2. Refusal of all future Bids for any public contract with the City of New Haven, or any of its departments or divisions, until such time the contractor or subcontractor, is in compliance with the provisions of the contract;
3. Cancellation of the public contract;
4. Recovery of specified monetary penalties;
5. In case of a substantial or material violation, or the threat of substantial or material violation of the compliance procedure or as may be provided in for by the contract, appropriate equitable or legal proceedings may be brought to enforce these provisions against contractors, subcontractors or other organizations, individuals or groups who directly or indirectly are not in compliance with the policy herein outlined. (Ord. of 12-5-77).

In Witness WHEREOF, on the 9th Day of November 2020  
the contract has caused two counterparts of this Agreement to be executed and delivered.

Witness:

  
\_\_\_\_\_  
(signature)

  
\_\_\_\_\_  
(signature)

Total Communications, Inc. 

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
President

\_\_\_\_\_  
Title



# City of New Haven

## MBE Utilization Documentation – Sub-Contractor Listing

**Project Name and Number:** Wireless Upgrade 2021 Erate #470 210001143

The Contractor herewith submits a complete list all Subcontractors to be used on the project by name address, type of work, dollar amount, outreach method used to secure subcontractor and appropriate company classification. If no Subcontractors are to be utilized, please indicate below.

Name of Contractor	Address	Telephone	Contact	Type of Work	Dollar Amount	Type of Outreach	MBE	W/BE
No Subcontractors								

I Scott Lennon Name representing Total Communications, Inc. Company Certify that I have read the City of New Haven's goals for use of minority and women owned small businesses and I have achieved the Goal of 25% participation.

*Scott Lennon* Signature      Scott Lennon, President Type Name & Title      11/9/2020 Date

Approved by SBI - Signature \_\_\_\_\_ Print Name and Title \_\_\_\_\_ Date \_\_\_\_\_



City of New Haven  
 Bureau of Purchases  
 200 Orange Street Rm 301  
 New Haven, CT 06510

[www.newhavenct.gov/gov/depts/purchasing/](http://www.newhavenct.gov/gov/depts/purchasing/)

Telephone: (203) 946-8201 Fax: (203) 946-8206

## NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of Connecticut ) County of (Hartford)  
 ss.

Scott Lennon, being first duly sworn, deposes and says that:

1. He/She is (owner, partner, officer, representative, or agent) of Total Communications, Inc.  
 the Bidder/proposer that has submitted the attached Bid/Bid.. (Bidder/Proposer's name)

2. He/She is fully informed respecting the preparation and contents of the attached Bid/Bid and of all pertinent circumstances respecting such Bid/Bid;

3. Such Bid/Bid is genuine and is not collusive or sham Bid/Bid;

4. Neither the said Bidder/Proposer nor any of its officers, partners, owners, agents, representative, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder/proposer, firm or person to submit a collusive or sham Bid/Bid in connection with the Contract for which the attached Bid/Bid has been submitted or to refrain from Bidding/proposing in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder/proposer, firm or person to fix the price or prices in the attached Bid/Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid/Bid prices or the Bid/Bid price of any other Bidder/proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of New Haven or any person interested in the proposed Contract;

5. The price or prices quoted in the attached /Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder/proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant; and

6. That no Alderman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury is directly or indirectly interested in the Bid/Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

(Signed) Scott Lennon

(Title) President

Subscribed and sworn to before me this 9th day of Nov., 2021.

(Title) Notary  
 My commission expires 3/31, 21.





## The City of New Haven's Priority Payment Program

### THIS FORM MUST BE COMPLETED & RETURNED WITH YOUR SOLICITATION RESPONSE

The City of New Haven has launched a new initiative called the Priority Payment Program (PPP). The PPP provides its vendors the option to submit invoices electronically and quickly receive payments via direct deposit...in as little as 10-15 days.

Vendors who enroll in the PPP will receive prompt payment of their invoices in exchange for a small discount offered on the goods and/or services they provide to The City of New Haven. Enrolled vendors are given the flexibility of setting the percentage rate they wish to offer The City, based around initiating the payment 10 days after a valid invoice has been submitted.

If payment is released before or after the 10<sup>th</sup> day of submission, the PPP then utilizes dynamic discounting to determine the appropriate discount. Dynamic discounting is a rebate calculation method that's based on the number of days it takes for an invoice to get paid. This period begins on the date a valid invoice is submitted to The City and ends on the date payment is initiated by the Controller. The quicker The City of New Haven pays an invoice - the higher the discount paid by the vendor. The longer it takes to pay - the lower the discount.

For example, a vendor offering payment terms of 2% / 10 / Net 30 stipulates that if payment of the invoice is initiated on the 10<sup>th</sup> day after it was received, The City deducts 2% from the total amount of the invoice in exchange for prompt payment. If payment is initiated before day 10, the discount taken will be slightly higher than 2%. If payment is released after the 10<sup>th</sup> day, the discount amount will be less than 2% and incrementally decrease as each day passes. If The City pays the invoice 30 days after it was received, no discount is taken and the full amount is paid to the vendor.

This table illustrates how dynamic discounts vary based on the time taken before payment is initiated by the City Controller.

Invoice Amount	Net Terms	Targeted Pay Date	Chosen Rate
\$5,000.00	30	10	2.00%

Date Invoice Received	05/01/18	Paid on Day	Discount Calculation	Discount Amount	Net Payment to Vendor
If Paid on:	05/02/18	1	2.90% paid 29 days early	\$145.00	\$4,855.00
If Paid on:	05/03/18	2	2.80% paid 28 days early	\$140.00	\$4,860.00
If Paid on:	05/04/18	3	2.70% paid 27 days early	\$135.00	\$4,865.00
If Paid on:	05/05/18	4	2.60% paid 26 days early	\$130.00	\$4,870.00
If Paid on:	05/06/18	5	2.50% paid 25 days early	\$125.00	\$4,875.00
If Paid on:	05/07/18	6	2.40% paid 24 days early	\$120.00	\$4,880.00
If Paid on:	05/08/18	7	2.30% paid 23 days early	\$115.00	\$4,885.00
If Paid on:	05/09/18	8	2.20% paid 22 days early	\$110.00	\$4,890.00
If Paid on:	05/10/18	9	2.10% paid 21 days early	\$105.00	\$4,895.00
If Paid on:	05/11/18	10	2.00% paid 20 days early	\$100.00	\$4,900.00
If Paid on:	05/12/18	11	1.90% paid 19 days early	\$95.00	\$4,905.00
If Paid on:	05/13/18	12	1.80% paid 18 days early	\$90.00	\$4,910.00
If Paid on:	05/14/18	13	1.70% paid 17 days early	\$85.00	\$4,915.00
If Paid on:	05/15/18	14	1.60% paid 16 days early	\$80.00	\$4,920.00
If Paid on:	05/16/18	15	1.50% paid 15 days early	\$75.00	\$4,925.00
If Paid on:	05/17/18	15	1.50% paid 15 days early	\$75.00	\$4,925.00
If Paid on:	05/18/18	16	1.40% paid 14 days early	\$70.00	\$4,930.00
If Paid on:	05/19/18	17	1.30% paid 13 days early	\$65.00	\$4,935.00
If Paid on:	05/20/18	18	1.20% paid 12 days early	\$60.00	\$4,940.00
If Paid on:	05/21/18	19	1.10% paid 11 days early	\$55.00	\$4,945.00
If Paid on:	05/22/18	20	1.00% paid 10 days early	\$50.00	\$4,950.00
If Paid on:	05/23/18	21	0.90% paid 9 days early	\$45.00	\$4,955.00
If Paid on:	05/24/18	22	0.80% paid 8 days early	\$40.00	\$4,960.00
If Paid on:	05/25/18	23	0.70% paid 7 days early	\$35.00	\$4,965.00
If Paid on:	05/26/18	24	0.60% paid 6 days early	\$30.00	\$4,970.00
If Paid on:	05/27/18	25	0.50% paid 5 days early	\$25.00	\$4,975.00
If Paid on:	05/28/18	26	0.40% paid 4 days early	\$20.00	\$4,980.00
If Paid on:	05/29/18	27	0.30% paid 3 days early	\$15.00	\$4,985.00
If Paid on:	05/30/18	28	0.20% paid 2 days early	\$10.00	\$4,990.00
If Paid on:	05/31/18	29	0.10% paid 1 days early	\$5.00	\$4,995.00
If Paid on:	06/01/18	30	0.00% paid 0 days early	\$0.00	\$5,000.00

Visit <https://www.newhavenct.gov/gov/depts/finance/default.htm> and click on "Priority Payment Program" to read our FAQs and get more details Questions? Email [onboarding@oxygen-finance.com](mailto:onboarding@oxygen-finance.com) or call us (866) 515-3860



# Priority Payment Program Enrollment Agreement

## City of New Haven

The City of New Haven is offering all bidders and active vendors the opportunity to enroll in their Priority Payment Program (PPP). Benefits include:

- Vendors decide what discount percentage they wish to offer off their goods/services in exchange for rapid payment processing
- Priority vendor status and enhanced customer service with The City of New Haven
- Electronic invoicing sent to one email address for quicker processing
- Invoices are typically processed and payment is initiated within 10 business days\* via direct deposit to your bank account rather than waiting 30+ days for a check in the mail
- Email notifications will be sent for any invoices that are rejected, along with instructions on how to revise & resubmit for payment
- Remittance statements delivered via email to help simplify the A/R reconciliation process

**THIS FORM MUST BE COMPLETED & RETURNED WITH YOUR SOLICITATION RESPONSE**

Company: Total Communications, Inc. Tax ID/EIN: 06-1020653

Contact Name: Scott Lennon Title: President

Address: 333 Burnham Street, E. Hartford, CT 06108

Email: scottlennon@totalcomm.com Phone: 860-622-4111

Billing Contact Name: Larry Weidner Title: Director of Finance

Address: 333 Burnham Street, E. Hartford, CT 06108

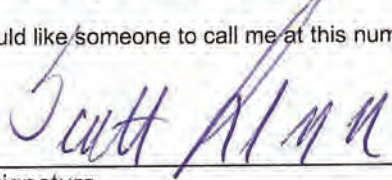
Email: larryweidner@totalcomm.com Phone: 860-622-4024

**PLEASE NOTE:** While enrolled in the Priority Payment Program, the rebate terms you choose will apply to all invoices submitted after the date this agreement is signed for all active and future contracts with The City of New Haven. Vendors can opt out of the program at any time by contacting Oxygen Finance via phone or email, but must wait a period of 12 months before enrollment eligibility is reinstated.

**Please select only one option below:**

- Yes, I would like to enroll in the PPP with the following terms for all future invoices: \_\_\_\_\_ % / 10 Days / Net 30 \*\*
- I confirm that I am an authorized representative of this company and that if The City of New Haven pays any Invoiced Debt owed to the aforementioned company under or in connection with any Contract prior to the date by which such payment would otherwise be required to be made under the terms of that Contract, The City of New Haven shall be entitled to deduct and retain from that Invoiced Debt, for its own benefit, an Priority Payment Discount which it will deduct and retain from that Invoiced Debt. These terms will apply to all invoices unpaid as of the date of signature as printed on this form. The discounts are dynamically calculated, with a target payment date of 10 days from the date of invoice acceptance. The final discount taken is proportionate to the number of days the payment is accelerated. A discount is taken ONLY if payment is made before 30 days from the date of invoice acceptance.
  - I understand and agree that once enrolled in New Haven's Priority Payment Program, payments will no longer be sent in the form of a paper check and mailed via the United States Postal Service, but rather will be paid electronically via direct deposit to our company's bank account.
  - I confirm that I am an authorized representative of this company and agree to these payment terms
- I'm interested in the PPP, but have questions and would like someone to call me at this number \_\_\_\_\_
- I'm already enrolled in the PPP
- No, I'm not interested in participating at this time

Scott Lennon  
Printed Name

  
Signature

11/9/2020  
Date

\* Please note: Payments made via direct deposit typically take 1-3 business days until funds are posted and available in your bank account  
 \*\* The City of New Haven reserves the right to approve or reject any proposed PPP percentage rates  
 Questions? Email us at [onboarding@oxygen-finance.com](mailto:onboarding@oxygen-finance.com) or call us (866) 515-3860



See Project Summary for Applicability

# STATE OF CONNECTICUT LABOR DEPARTMENT

REGULATION OF WAGES DIVISION

## CONTRACTORS STATE WAGE CERTIFICATION FORM

I, Scott Lennon of Total Communications, Inc.  
Officer, owner, authorized rep. Company name

Do hereby certify that the,

Company Name	Total Communications, Inc.
Address	333 Burnham Street
City, State Zip	E. Hartford, CT 06108

and all of its subcontractors will pay all workmen on the:

Wireless Upgrade 2021 Erate #470 210001143

Project name and address

The wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto)

[Signature]  
Signed

Subscribed and sworn to before me this 9th day of November, 2020.

[Signature]  
Notary Public  
3/31/2021

**RHONDA TASSIE  
NOTARY PUBLIC  
CONNECTICUT**



# VENDOR "BAN THE BOX" ORDINANCE COMPLIANCE AGREEMENT

Adopted 02/09

The City of New Haven is subject to Ordinance #1585 (2/17/2009) which prohibits unfair discrimination in City hiring policies against persons previously convicted and provides a mechanism to ensure that persons and businesses supplying goods and/or services to the City of New Haven have adopted and employ fair hiring policies and practices that are consistent with the City's goal of removing obstacles to the employment of persons with prior convictions.

Accordingly, during the performance of this contract, the Contractor agrees as follows:

(A) Vendors doing business with the City of New Haven shall adopt and employ conviction history policies, practices, and standards that are consistent with City standards further detailed in the attached ordinance. The Vendors' criminal history standards will be part of the criteria to be evaluated by the City as to whether to award a City contract. Further, the City will be able to evaluate a Vendor's execution of the criminal history standards as a part of the performance criteria of said City contract(s); the Awarding Authority, in consultation with the Office of Corporation Counsel and the Community Services Administration, shall consider any Vendor's deviation from these criminal history standards as grounds for rejection, rescission, revocation, or any other termination of the contract.

(B) Under exigent circumstances, an Awarding Authority, by its highest ranking member, in consultation with the Office of Corporation Counsel and the Community Services Administration, may grant a Vendor a waiver of the criminal history standards on a contract-by-contract basis. A written record of the waiver shall be kept on file by the Awarding Authority, the Community Services Administration and the Office of Corporation Counsel, and shall also be submitted to the City of New Haven Commission of Equal Opportunities. The written record shall include, but not be limited to: (a) a summary of the terms of the contract, (b) the details of the Vendor's failure or refusal to conform to the City's criminal history standards, and (c) a brief analysis of the exigency causing the grant of waiver. No waiver may be considered perfected unless the Awarding Authority fully complies with the provisions of this sub-section.

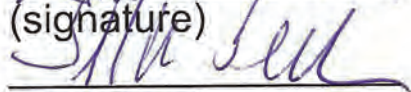
(C) A Vendor may contact the Community Services Administration to report any problems, concerns or suggestions regarding the implementation, compliance and impact of these sections, and the Community Services Administration shall log every comment received with a summary of the comment and shall keep on file any written comments. Subsequent to logging any comment the Community Services Administration shall refer all complaints to the Office of the Corporation Counsel and shall notify the relevant Awarding Authority of the complaint and any further investigation that the Community Services Administration in consultation with the Office of Corporation Counsel deems necessary or appropriate.

In Witness WHEREOF, on the 9th Day of November 2020,  
the contract has caused two counterparts of this Agreement to be executed and delivered.

Witness:



(signature)



(signature)

Total Communications, Inc. 

Contractor

President

Title



## MBE SUB CONTRACTOR UTILIZATION AGREEMENT

Rev. 9/28/2020

During the performance of this **Contract**, the **Awarded Contractor** agrees to comply with all provisions of the Small Business Enterprise Construction Opportunity Initiative Ordinance section 12-9. The City's provisions are as follows:

(a) The City's specific goals for utilization of MBE subcontractors are defined in Section 12-5 of this Ordinance. The City hereby requires that all parties bidding or otherwise seeking to be qualified as a Contractor with respect to a City Construction Contract ("the lowest responsible bidder") shall aggressively make every effort to obtain MBE participation in order to achieve the utilization goals.

(b) The provisions of this section 12 - 9 shall apply to all City Construction Contracts that are over \$150,000.

(c) All bidders shall be required to submit this affidavit signed by a principal or other authorized person of the Contractor and submitted with their bid. If the affidavit is not submitted with the bid, the bidder will be considered a non-responsive bidder, and the bid may be rejected. If a bidder submits more than one non-responsive bid within a 12-month period, that bidder will be disqualified from all future bids within the next 12 months.

(d) The City intends to award City Construction Contracts to the lowest responsible bidder that has achieved or made a good faith effort to achieve the MBE utilization goals. Failure by any awarded Contractor to demonstrate that they have either achieved the utilization goals, or that they have made good faith efforts to achieve the utilization goals as required hereunder, will result in a determination by the Purchasing Agent that the bidder is not a responsible bidder with respect to the City Construction Contract in question.

(e) In order to achieve the MBE utilization goals, a Contractor may award contracts to Subcontractors that are certified as MBEs for the purpose of this program, or may enter into a joint venture (or other commercially reasonable relationship which is satisfactory to the City for the purposes of this program) with one or more MBEs, for the purpose of carrying out the City Construction Contract. The MBE(s) must perform actual construction work (or construction-related work such as site preparation, etc.) and not merely act as a passive conduit.

(f) The Awarded Contractor shall submit signed contracts or letters of commitment with the MBEs that will be utilized by the Contractor in the carrying out such City Construction Contract, together with a list of the respective dollar amounts payable to each such MBE. This list shall be provided by the awarded Contractor to the Small Business Initiative during the Contract award process. For credit to be given, each MBE must be registered as an MBE prior to submittal of such list by the Contractor.

(g) If the awarded Contractor can demonstrate at the pre-award meeting with SCD, that it has successfully achieved the 25% overall MBE utilization goals for subcontracting, the Bureau of Purchases/SCD is not required to evaluate other efforts the awarded contractor made to achieve the goal.

(h) If, however, the awarded Contractor has failed to meet the MBE Utilization goal at the pre-award meeting with SBI, SBI will evaluate and verify if a Contractor has accomplished at least four of the following during their bid preparation process:

(1) The placing of the subcontracting opportunity on an approved City Construction opportunity website, for at least 10 days.  
<http://www.newhavencontractorsalliance.org/>

(2) The placing of advertisements in at least two local newspapers and at least one specialist publication aimed at small Contractors not less than two weeks prior to submittal of its bid or proposal, which advertisements shall have described the type of work being solicited, set forth the name, address and telephone number of a contact person at the Potential Contractor with knowledge of the project to which the City Construction Contract relates and stated where appropriate plans and specifications could be obtained.

(3) The mailing of notices (certified mail, return receipt requested) to at least four business associations and/or development agencies which disseminate bid and other construction-related information to businesses within the Greater New Haven area, not less than two weeks prior to its bid or proposal, which advertisements shall have described the type of work being solicited, set forth the name, address and telephone number of a contact person at the Potential Contractor with knowledge of the project to which the City Construction Contract relates and stated where appropriate plans and specifications could be obtained.

(4) Verification of quotes received from subcontractors that were denied because of cost, quality, availability, etc.

(5) Verification of outreach to and collaboration with the Regional Contractor's Alliance.

(6) A detailed description of any attempts made to enter into joint ventures or other such arrangements with MBEs and /or assistance provided to MBEs relative to review of plans and specifications or other documents issued by the City, review of work to be performed, encouragement of other Subcontractors to utilize MBEs, and any other such efforts undertaken to encourage the participation of MBEs and all actions taken by the Potential Contractor with respect to any proposals received from MBEs, including, where appropriate, the reasons for the rejection of any such proposals.

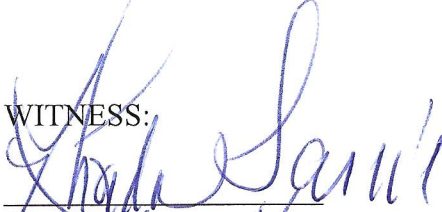
(7) Other efforts as determined in advance by the Purchasing Agent/SCD.


(i) In the event that SCD does not agree that a good faith effort has been made by the awarded Contractor, SCD/Purchasing has the right to reject the contractor. If the Contractor disputes this rejection, a committee composed of a representative from Small Contractor Development, the Corporation Counsel's Office, and the Bureau of Purchases will evaluate whether such good faith effort was achieved in accordance with the provisions of this Ordinance.

(j) If the awarded Contractor has failed to demonstrate a good faith effort in meeting the utilization goals, they will forfeit the award and the contract will be awarded to the next lowest responsible bidder.

(k) If all bidders are non-responsive bidders, the Purchasing Agent will have discretion to reject all bids and to re-bid the project, or to accept the lowest, otherwise-responsible, bidder in accordance with the provisions of this Section.

IN WITNESS WHEREOF, on the 9th day of November, 2020,  
the contract has caused two counterparts of this Agreement to be executed and delivered.

WITNESS:  
  
(signature)

  
(signature)

Total Communications, Inc.

(Contractor)

By: Scott Lennon 

President

(Title)



**CERTIFICATE OF NON ARREARAGE**

STATE OF CONNECTICUT )  
  )SS  
COUNTY OF HARTFORD )

*EXST HARTFORD*

**Scott Lennon**

\_\_\_\_\_ being duly sworn deposes and says

1. He /She is the (owner, partner, officer, representative, or agent) of \_\_\_\_\_ Total Communications, Inc.  
the Bidder that has submitted the attached Bid.

2. Neither the Bidder, nor its subcontractors are in arrears to the State of Connecticut Second Injury Fund.

(signed) *Scott Lennon*

**President**

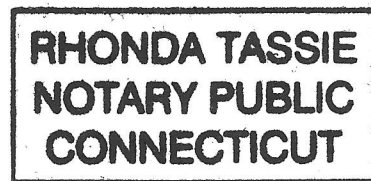
Title

Subscribed and sworn to before me this 9th day of Nov., 2020

*Rhonda Tassie*

Notary Public Commissioner  
of the Superior Court

*3/31/2021*



**City of New Haven**  
**Current Workforce Certificate**  
 Equal Opportunities

Bidder/Proposer : Total Communications, Inc. a subsidiary of Frontier Communications Corporation

Address 333 Burnham Street

City, State East Hartford, CT

Zip Code 06108

JOB CATEGORIES	Racial Group										TOTAL
	MALE					FEMALE					
	W	AA	HA	H	O	W	AA	HA	H	O	
Officials & Managers	15					3					18
Professionals	2					3					5
Technicians	15					3					18
Sales Force	7					2					9
Office & Clerical	15					4	1	1			21
Craftsmen (skilled)											
Operatives (semi-skilled)											
Laborers (unskilled)											
Service Workers											
<b>Total</b>	<b>54</b>					<b>15</b>	<b>1</b>	<b>1</b>			<b>71</b>

Are you a disadvantaged business enterprise?

Yes


No


Are you a women's business enterprise?

Yes

No

Does your company have an affirmative action plan?

Yes

No

W - White (Caucasian)

AA - African American

HA - Hispanic American

H - Handicapped

O - Other

*Scott K. [Signature]*

## EQUAL EMPLOYMENT OPPORTUNITY AGREEMENT

During the performance of this contract, the Contractor agrees as follows:

- a. To comply with all provisions of Executive Order 11246 and Executive Order 11375, Connecticut Fair Employment Practices Act, and the contract compliance ordinance of the City of New Haven, including all standards and regulations which are promulgated by the government authorities who established such acts and requirements, and all standards and regulations are incorporated herein by reference;
- b. Not to discriminate against any employee or applicant for employment because of race, color, religion, age, sex, physical disability or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to race, color, religion, sex, age, or national origin and physical handicap. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship;
- c. To post, in conspicuous place available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause;
- d. To state, in all solicitations or advertisement for employees placed by or on behalf of the contract, that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, physical disability or national origin;
- e. To send to each labor union representative of workers with whom it has a collective bargaining agreement, or other contract or understanding, a notice advising a labor union or worker's representative of the contractor's commitments under the equal opportunity clause of the City of New Haven, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor shall register all workers in the skilled trades, who are below the journeyman level, with the Apprentice Training Division of the Connecticut State Labor Department;
- f. To utilize labor department and city sponsored manpower programs as a source of recruitment and to notify the contract compliance unit and such programs of all job vacancies;
- g. To take affirmative action to negotiate with qualified minority contractors for any work which may be proposed for subletting, or for any additional services, or work which may be required as a result of this contract;
- h. To cooperate with city departments in implementing required contract obligations for increasing the utilization of minority business enterprises;
- i. To furnish all information and reports required by the Contract Compliance Director pursuant to section 12 1/2 -1, 12 1/2-19 through section 12 1/2-32, 12 1/2-48 through 12 1/2-52 and to permit access to his books, records and accounts by the contracting agency, the Contract Compliance Officer, and the Secretary of Labor for purposes of investigation to ascertain compliance with the program;
- j. If such contractor employs three or more employees to refrain from paying such employees dues and related expense for clubs that restrict membership use of their facilities on the basis of race, color, sex, religion, national origin or ancestry;
- k. To take such action, with respect to any subcontractor, as the City may direct as a means of enforcing the provisions of sub-paragraphs (a) through (m) herein, including penalties and sanctions for noncompliance, provided however that, in the event the contractor becomes involved or threatened with litigation as a result of such direction by the City, the City will intervene in such litigation to the extent necessary to protect the interest of the City and to effectuate the City's Equal Employment Opportunity Program, in the case of funded directly or indirectly, in whole, or in part, under one or more Federal Assistance Programs, the contractor or the City may ask the United States to enter into such litigation to protect the interest if the United States;
- l. To file, along with his subcontractors, if any, compliance reports with the City in the form and to the extent prescribed in the contract by the Contract Compliance Director of the City of New Haven. Compliance reports filed at such times as directed shall contain information as to the employment practices, policies, programs and statistics of the contractor and his subcontractors, if any;
- m. To include the provisions of sub-paragraphs (a) through (m) of this Equal Opportunity Clause in every subcontract or purchase order so that said provisions will be binding upon each such subcontractor or vendor;



n. That a finding, as hereinafter provided, of a refusal by the contractor, or subcontractor, to comply with any portion of this program as herein stated and described, may subject the offending party to any or all of the following penalties:

- 1. Withholding of all future payments under the involved public contract to the contractor in violation until it is determined that the contractor, or subcontractor, is in compliance with the provisions of the contract;
- 2. Refusal of all future Bids for any public contract with the City of New Haven, or any of its departments or divisions, until such time the contractor or subcontractor, is in compliance with the provisions of the contract;
- 3. Cancellation of the public contract;
- 4. Recovery of specified monetary penalties;
- 5. In case of a substantial or material violation, or the threat of substantial or material violation of the compliance procedure or as may be provided in for by the contract, appropriate equitable or legal proceedings may be brought to enforce these provisions against contractors, subcontractors or other organizations, individuals or groups who directly or indirectly are not in compliance with the policy herein outlined. (Ord. of 12-5-77).

In Witness WHEREOF, on the 9th Day of November 2020  
the contract has caused two counterparts of this Agreement to be executed and delivered.

Witness:

[Signature]  
(signature)

[Signature]  
(signature)

Total Communications, Inc  
[Signature]  
Contractor  
President  
Title

# City of New Haven

## MBE Utilization Documentation – Sub-Contractor Listing

Project Name and Number: Wireless Upgrade 2021 Erate #470 210001143

The Contractor herewith submits a complete list all Subcontractors to be used on the project by name address, type of work, dollar amount, outreach method used to secure subcontractor and appropriate company classification. If no Subcontractors are to be utilized, please indicate below.

Name of Contractor	Address	Telephone	Contact	Type of Work	Dollar Amount	Type of Outreach	MBE	WBE
No Subcontractors								

I Scott Lennon Name representing Total Communications, Inc. Company Certify that I have read the City of New Haven's goals for use of minority and women owned small businesses and I have achieved the Goal of 25% participation.

*Signature* Scott Lennon Signature Scott Lennon, President Type Name & Title 11/9/2020 Date

Approved by SBI - Signature \_\_\_\_\_ Print Name and Title \_\_\_\_\_ Date \_\_\_\_\_



City of New Haven  
 Bureau of Purchases  
 200 Orange Street Rm 301  
 New Haven, CT 06510

[www.newhavenct.gov/gov/depts/purchasing/](http://www.newhavenct.gov/gov/depts/purchasing/)

Telephone: (203) 946-8201 Fax: (203) 946-8206

## NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of Connecticut ) County of (Hartford)  
 ss.

Scott Lennon, being first duly sworn, deposes and says that:

1. He/She is (owner, partner, officer, representative, or agent) of Total Communications, Inc.,  
 the Bidder/proposer that has submitted the attached Bid/Bid. (Bidder/Proposer's name)

2. He/She is fully informed respecting the preparation and contents of the attached Bid/Bid and of all pertinent circumstances respecting such Bid/Bid;

3. Such Bid/Bid is genuine and is not collusive or sham Bid/Bid;

4. Neither the said Bidder/Proposer nor any of its officers, partners, owners, agents, representative, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder/proposer, firm or person to submit a collusive or sham Bid/Bid in connection with the Contract for which the attached Bid/Bid has been submitted or to refrain from Bidding/proposing in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder/proposer, firm or person to fix the price or prices in the attached Bid/Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid/Bid prices or the Bid/Bid price of any other Bidder/proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of New Haven or any person interested in the proposed Contract;

5. The price or prices quoted in the attached /Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder/proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant; and

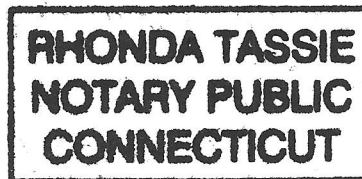
6. That no Alderman or other officer or employee or person whose salary is payable in whole or in part from the City Treasury is directly or indirectly interested in the Bid/Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

(Signed) Scott Lennon

(Title) President

Subscribed and sworn to before me this 9th day of Nov., 2021.

(Title) Notary  
 My commission expires 3/31, 21.





## The City of New Haven's Priority Payment Program

### THIS FORM MUST BE COMPLETED & RETURNED WITH YOUR SOLICITATION RESPONSE

The City of New Haven has launched a new initiative called the Priority Payment Program (PPP). The PPP provides its vendors the option to submit invoices electronically and quickly receive payments via direct deposit...in as little as 10-15 days.

Vendors who enroll in the PPP will receive prompt payment of their invoices in exchange for a small discount offered on the goods and/or services they provide to The City of New Haven. Enrolled vendors are given the flexibility of setting the percentage rate they wish to offer The City, based around initiating the payment 10 days after a valid invoice has been submitted.

If payment is released before or after the 10<sup>th</sup> day of submission, the PPP then utilizes dynamic discounting to determine the appropriate discount. Dynamic discounting is a rebate calculation method that's based on the number of days it takes for an invoice to get paid. This period begins on the date a valid invoice is submitted to The City and ends on the date payment is initiated by the Controller. The quicker The City of New Haven pays an invoice - the higher the discount paid by the vendor. The longer it takes to pay - the lower the discount.

For example, a vendor offering payment terms of 2% / 10 / Net 30 stipulates that if payment of the invoice is initiated on the 10<sup>th</sup> day after it was received, The City deducts 2% from the total amount of the invoice in exchange for prompt payment. If payment is initiated before day 10, the discount taken will be slightly higher than 2%. If payment is released after the 10<sup>th</sup> day, the discount amount will be less than 2% and incrementally decrease as each day passes. If The City pays the invoice 30 days after it was received, no discount is taken and the full amount is paid to the vendor.

This table illustrates how dynamic discounts vary based on the time taken before payment is initiated by the City Controller.

Invoice Amount	Net Terms	Targeted Pay Date	Chosen Rate
\$5,000.00	30	10	2.00%

Date Invoice Received	05/01/18	Paid on Day	Discount Calculation	Discount Amount	Net Payment to Vendor
If Paid on:	05/02/18	1	2.90% paid 29 days early	\$145.00	\$4,855.00
If Paid on:	05/03/18	2	2.80% paid 28 days early	\$140.00	\$4,860.00
If Paid on:	05/04/18	3	2.70% paid 27 days early	\$135.00	\$4,865.00
If Paid on:	05/05/18	4	2.60% paid 26 days early	\$130.00	\$4,870.00
If Paid on:	05/06/18	5	2.50% paid 25 days early	\$125.00	\$4,875.00
If Paid on:	05/07/18	6	2.40% paid 24 days early	\$120.00	\$4,880.00
If Paid on:	05/08/18	7	2.30% paid 23 days early	\$115.00	\$4,885.00
If Paid on:	05/09/18	8	2.20% paid 22 days early	\$110.00	\$4,890.00
If Paid on:	05/10/18	9	2.10% paid 21 days early	\$105.00	\$4,895.00
If Paid on:	05/11/18	10	2.00% paid 20 days early	\$100.00	\$4,900.00
If Paid on:	05/12/18	11	1.90% paid 19 days early	\$95.00	\$4,905.00
If Paid on:	05/13/18	12	1.80% paid 18 days early	\$90.00	\$4,910.00
If Paid on:	05/14/18	13	1.70% paid 17 days early	\$85.00	\$4,915.00
If Paid on:	05/15/18	14	1.60% paid 16 days early	\$80.00	\$4,920.00
If Paid on:	05/16/18	15	1.50% paid 15 days early	\$75.00	\$4,925.00
If Paid on:	05/17/18	15	1.50% paid 15 days early	\$75.00	\$4,925.00
If Paid on:	05/18/18	16	1.40% paid 14 days early	\$70.00	\$4,930.00
If Paid on:	05/19/18	17	1.30% paid 13 days early	\$65.00	\$4,935.00
If Paid on:	05/20/18	18	1.20% paid 12 days early	\$60.00	\$4,940.00
If Paid on:	05/21/18	19	1.10% paid 11 days early	\$55.00	\$4,945.00
If Paid on:	05/22/18	20	1.00% paid 10 days early	\$50.00	\$4,950.00
If Paid on:	05/23/18	21	0.90% paid 9 days early	\$45.00	\$4,955.00
If Paid on:	05/24/18	22	0.80% paid 8 days early	\$40.00	\$4,960.00
If Paid on:	05/25/18	23	0.70% paid 7 days early	\$35.00	\$4,965.00
If Paid on:	05/26/18	24	0.60% paid 6 days early	\$30.00	\$4,970.00
If Paid on:	05/27/18	25	0.50% paid 5 days early	\$25.00	\$4,975.00
If Paid on:	05/28/18	26	0.40% paid 4 days early	\$20.00	\$4,980.00
If Paid on:	05/29/18	27	0.30% paid 3 days early	\$15.00	\$4,985.00
If Paid on:	05/30/18	28	0.20% paid 2 days early	\$10.00	\$4,990.00
If Paid on:	05/31/18	29	0.10% paid 1 days early	\$5.00	\$4,995.00
If Paid on:	06/01/18	30	0.00% paid 0 days early	\$0.00	\$5,000.00

Visit <https://www.newhavenct.gov/depts/finance/default.htm> and click on "Priority Payment Program" to read our FAQs and get more details Questions? Email [onboarding@oxygen-finance.com](mailto:onboarding@oxygen-finance.com) or call us (866) 515-3860



# Priority Payment Program Enrollment Agreement

## City of New Haven

The City of New Haven is offering all bidders and active vendors the opportunity to enroll in their Priority Payment Program (PPP). Benefits include:

- Vendors decide what discount percentage they wish to offer off their goods/services in exchange for rapid payment processing
- Priority vendor status and enhanced customer service with The City of New Haven
- Electronic invoicing sent to one email address for quicker processing
- Invoices are typically processed and payment is initiated within 10 business days\* via direct deposit to your bank account rather than waiting 30+ days for a check in the mail
- Email notifications will be sent for any invoices that are rejected, along with instructions on how to revise & resubmit for payment
- Remittance statements delivered via email to help simplify the A/R reconciliation process

**THIS FORM MUST BE COMPLETED & RETURNED WITH YOUR SOLICITATION RESPONSE**

Company: <u>Total Communications, Inc.</u>	Tax ID/EIN: <u>06-1020653</u>
Contact Name: <u>Scott Lennon</u>	Title: <u>President</u>
Address: <u>333 Burnham Street, E. Hartford, CT 06108</u>	
Email: <u>scottlennon@totalcomm.com</u>	Phone: <u>860-622-4111</u>
Billing Contact Name: <u>Larry Weidner</u>	Title: <u>Director of Finance</u>
Address: <u>333 Burnham Street, E. Hartford, CT 06108</u>	
Email: <u>larryweidner@totalcomm.com</u>	Phone: <u>860-622-4024</u>

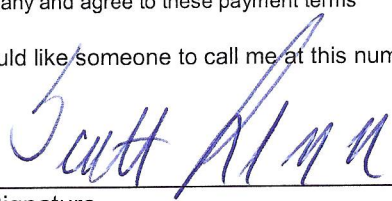
**PLEASE NOTE:** While enrolled in the Priority Payment Program, the rebate terms you choose will apply to all invoices submitted after the date this agreement is signed for all active and future contracts with The City of New Haven. Vendors can opt out of the program at any time by contacting Oxygen Finance via phone or email, but must wait a period of 12 months before enrollment eligibility is reinstated.

**Please select only one option below:**

- Yes, I would like to enroll in the PPP with the following terms for all future invoices: \_\_\_\_\_ % / 10 Days / Net 30 \*\*
- I confirm that I am an authorized representative of this company and that if The City of New Haven pays any Invoiced Debt owed to the aforementioned company under or in connection with any Contract prior to the date by which such payment would otherwise be required to be made under the terms of that Contract, The City of New Haven shall be entitled to deduct and retain from that Invoiced Debt, for its own benefit, an Priority Payment Discount which it will deduct and retain from that Invoiced Debt. These terms will apply to all invoices unpaid as of the date of signature as printed on this form. The discounts are dynamically calculated, with a target payment date of 10 days from the date of invoice acceptance. The final discount taken is proportionate to the number of days the payment is accelerated. A discount is taken ONLY if payment is made before 30 days from the date of invoice acceptance.
  - I understand and agree that once enrolled in New Haven's Priority Payment Program, payments will no longer be sent in the form of a paper check and mailed via the United States Postal Service, but rather will be paid electronically via direct deposit to our company's bank account.
  - I confirm that I am an authorized representative of this company and agree to these payment terms
- I'm interested in the PPP, but have questions and would like someone to call me at this number \_\_\_\_\_
- I'm already enrolled in the PPP
- No, I'm not interested in participating at this time

Scott Lennon

Printed Name



Signature

11/9/2020

Date

\* Please note: Payments made via direct deposit typically take 1-3 business days until funds are posted and available in your bank account

\*\* The City of New Haven reserves the right to approve or reject any proposed PPP percentage rates

Questions? Email us at [onboarding@oxygen-finance.com](mailto:onboarding@oxygen-finance.com) or call us (866) 515-3860



See Project Summary for Applicability

# STATE OF CONNECTICUT LABOR DEPARTMENT

REGULATION OF WAGES DIVISION

## CONTRACTORS STATE WAGE CERTIFICATION FORM

I, Scott Lennon of Total Communications, Inc.  
Officer, owner, authorized rep. Company name

Do hereby certify that the,

Company Name	Total Communications, Inc.
Address	333 Burnham Street
City, State Zip	E. Hartford, CT 06108

and all of its subcontractors will pay all workmen on the:

Wireless Upgrade 2021 Erate #470 210001143

Project name and address

The wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto)

[Signature]  
Signed

Subscribed and sworn to before me this 9th day of November, 2020.

[Signature]  
Notary Public  
3/31/2021

**RHONDA TASSIE  
NOTARY PUBLIC  
CONNECTICUT**

# VENDOR "BAN THE BOX" ORDINANCE COMPLIANCE AGREEMENT

Adopted 02/09

The City of New Haven is subject to Ordinance #1585 (2/17/2009) which prohibits unfair discrimination in City hiring policies against persons previously convicted and provides a mechanism to ensure that persons and businesses supplying goods and/or services to the City of New Haven have adopted and employ fair hiring policies and practices that are consistent with the City's goal of removing obstacles to the employment of persons with prior convictions.

Accordingly, during the performance of this contract, the Contractor agrees as follows:

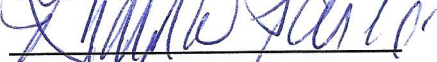
(A) Vendors doing business with the City of New Haven shall adopt and employ conviction history policies, practices, and standards that are consistent with City standards further detailed in the attached ordinance. The Vendors' criminal history standards will be part of the criteria to be evaluated by the City as to whether to award a City contract. Further, the City will be able to evaluate a Vendor's execution of the criminal history standards as a part of the performance criteria of said City contract(s); the Awarding Authority, in consultation with the Office of Corporation Counsel and the Community Services Administration, shall consider any Vendor's deviation from these criminal history standards as grounds for rejection, rescission, revocation, or any other termination of the contract.

(B) Under exigent circumstances, an Awarding Authority, by its highest ranking member, in consultation with the Office of Corporation Counsel and the Community Services Administration, may grant a Vendor a waiver of the criminal history standards on a contract-by-contract basis. A written record of the waiver shall be kept on file by the Awarding Authority, the Community Services Administration and the Office of Corporation Counsel, and shall also be submitted to the City of New Haven Commission of Equal Opportunities. The written record shall include, but not be limited to: (a) a summary of the terms of the contract, (b) the details of the Vendor's failure or refusal to conform to the City's criminal history standards, and (c) a brief analysis of the exigency causing the grant of waiver. No waiver may be considered perfected unless the Awarding Authority fully complies with the provisions of this sub-section.

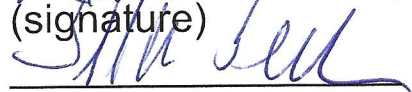
(C) A Vendor may contact the Community Services Administration to report any problems, concerns or suggestions regarding the implementation, compliance and impact of these sections, and the Community Services Administration shall log every comment received with a summary of the comment and shall keep on file any written comments. Subsequent to logging any comment the Community Services Administration shall refer all complaints to the Office of the Corporation Counsel and shall notify the relevant Awarding Authority of the complaint and any further investigation that the Community Services Administration in consultation with the Office of Corporation Counsel deems necessary or appropriate.

In Witness WHEREOF, on the 9th Day of November 2020,  
the contract has caused two counterparts of this Agreement to be executed and delivered.

Witness:



(signature)



(signature)

Total Communications, Inc. 

Contractor

President

Title



# Statement of Qualifications

## **Statement of Qualifications:**

Each solicitation response shall include a Statement of Qualifications in the format provided in this Solicitation upon stationary of the responding entity.

All questions must be answered, and the data given must be clear and comprehensive. The respondent may submit any additional information he/she desires.

1. Name of Vendor/Contractor/Respondent (requires a real person's name)

2. Permanent main office address

3. Contact Information: Phone, Fax, **E-mail**

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-Mail \_\_\_\_\_

4. When organized

5. Legal form of ownership. If a corporation, where incorporated.

6. How many years have you been engaged in services, under your present name?

7. Experience in work similar in scope of services and in importance to this solicitation opportunity. Provide three references.

### **NEW HAVEN BOARD OF EDUCATION**

- \$8,000,000.00+

- William Zesner; Network Services Supervisor; william.zesner@new-haven.k12.ct.us 475220-1692

- Provide VOIP and Data Network Solutions for New Haven Schools 2019

### **CITY OF HARTFORD & HARTFORD BOARD OF EDUCATION;** 260 Constitution Plaza – Hartford, CT 06103

- \$6,500,000.00+; Initial Installation in August 1999 – currently maintaining. Supports over 24,000 students, 6500 IP Phones, over (60) Board of Education and City Locations, (16) PRI's, Cisco Call Manager 6

- Patrick Welch, Director of Network Operations, MHIS; 860-757-9436, pwelch@hartfordschools.org

### **CITY OF NORWALK;** 125 East Avenue – Norwalk, CT 06856

- \$1,100,000.00+; Installed July 2007; 900 IP Phones, Call Manager 4.2, Unity VM, 14 Locations including BOE

- Karen DelVecchio, Director Information Technology 203-854-7900

### **CITY OF TRUMBULL & BOARD OF EDUCATION;** 5866 Main Street, Trumbull, CT 06611

- \$500,000.00+; Installed 2017. Cisco BE6K, 830 users between Town and Schools. 4 SIP entry points. Town and schools each have failover to secondary servers, then can fail over to each other

- Bill Chin, IT Director, wchin@trumbull-ct.gov

8. Have you ever failed to complete any work awarded to you? If so, where and why?

9. Have you ever defaulted on a contract? If so, where and why?

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10. Describe any pending litigation or other factors, which could affect your organization's ability to perform this agreement

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11. Names, titles, reporting relationships, and background and experience of the principal members of your organization, including the officers. Indicate which individuals are authorized to bind the organization in negotiations with the City of New Haven

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12. Name, title, address and telephone number of the individual to whom all inquiries about this Proposal should be addressed.

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13. Will you, upon request, fill out a detailed financial statement and furnish any other information or sign a release that may be required by the City of New Haven?

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14. Tax Identification number(s) \_\_\_\_\_

15. Are you able to receive Credit Card Payments for your services rendered? \_\_\_\_\_

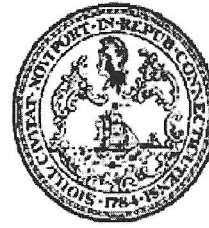
16. Addendums - notices are sent electronically and are posted to portal. You are responsible for the addendum content whether viewed or not. (See section **Interpretation of Addenda for details**)

check Box

17. Project requiring a percent market up, material cost cannot exceed ten percent (%). Please state your markup percentage here: \*\* \_\_\_\_\_ (\*\*if you leave it blank, we will consider your percentage markup "0")



**CITY OF NEW HAVEN**  
New Haven, Connecticut 06510



**DISCLOSURE &  
CERTIFICATION AFFIDAVIT**

**EVERY SECTION MUST BE COMPLETED**  
For help completing this form contact 203-946-8201

<b>Contractor/Vendor Name:</b>	Total Communications, Inc. a subsidiary of Frontier Communications Corporation
<b>Address:</b>	333 Burnham Street, East Hartford, CT 06108
<b>Telephone and/or Fax #:</b>	800.300.0824
<b>Email Address:</b>	scottlennon@totalcomm.com / chrisgarlock@totalcomm.com
<b>Contact Person:</b>	Scott Lennon (Binding Agent) or Chris Garlock (Sales or RFP Response Questions)

**For the purposes of this Disclosure and Certification Affidavit, the following definitions apply:**

(a)	"Person" means one (1) or more individuals, partnerships, corporations, associations, or joint ventures.
(b)	"Contract" means any agreement or formal commitment entered into by the city to expend funds in return for work, labor, services, supplies, equipment, materials or any combination of the foregoing, or any lease, lease by way of concession, concession agreement, permit, or per agreement whereby the city leases, grants or demises property belonging to the city, or otherwise grants a right of privilege to occupy or to use said property of the city.
(c)	"City" means any official agency, board, authority, department office, or other subdivision of the City of New Haven.
(d)	"Affiliate Entity" means any entity listed in sections 9 or 10 below or any entity under common management with the Contractor.

<b>State of</b>	Connecticut	<b>County of</b>	Hartford
I,	Scott Lennon <small>(type or print your name above)</small>	<b>being first duly sworn, hereby deposes and says that:</b>	
1.	I am over the age of 18 and understand the obligations of making statements under oath; I understand that the City of New Haven is relying on my representations herein.		
2a.	I am the corporate secretary or majority owner (including sole proprietorship) of	Insert Company Name above	
2b.	Or I am an individual and my name is:	Scott Lennon <small>if an individual, insert your name above</small>	
3.	I am fully informed regarding the preparation and terms of the above referenced agreement (the "Agreement") and of all pertinent circumstances related thereto.		
4.	<b>Please select the applicable representation(s) regarding taxes or, if none of the below are accurate, attach an explanation of the status of the relevant tax obligations to this Affidavit (mark an "X" in the appropriate box or "NA" if none apply).</b>		
4a.	As required by Conn. Gen. Stat. §12-41, the Contractor (and each owner, partner, officer, authorized signatory or Affiliate Entity of the Contractor) has filed a list of taxable personal property with the City of New Haven for the most recent grand list and all taxes are current.		
4b.	The Contractor (including any owner, partner, officer or authorized signatory thereof) is not required to file a list of taxable personal property with the City of New Haven for the most recent grand list and does not owe any back taxes to the City of New Haven, either directly or through a lease or other agreement.		
4c.	The Contractor or an owner, partner, officer, representative, agent or Affiliate Entity of the Contractor either i) has a PILOT agreement with the City of New Haven or ii) owes back taxes and has executed an agreement with the City of New Haven to pay said back taxes in installment payments. <b>Such agreement is attached and incorporated herein by reference and the payments under said agreement are not in default.</b>		
5.	<input checked="" type="checkbox"/>	Other than as may be described in section 4 above, the Contractor (including any owner, partner, officer, other authorized signatory, or Affiliate Entity) does not have any outstanding monetary obligations to the City of New Haven.	
6.	Please select the applicable representation about the Contractor's business registration:		
6a.	<input checked="" type="checkbox"/>	Contractor is a Connecticut corporation, partnership, limited liability company or sole proprietorship and its Connecticut Secretary of the State Business ID #:	06-1020653 Insert State Registration # above
6b.		Contractor is a foreign corporation, partnership, limited liability company or sole proprietorship but is registered to do business in the State of Connecticut. The Contractor's Connecticut Secretary of the State Business ID #:	Insert State Registration # above
6c.		<b>Contractor is a foreign corporation</b> , partnership, limited liability company or sole proprietorship and is not registered to do business in the State of Connecticut. The Contractor is registered in the State of:	Please insert State name above
Contractor has confirmed with the Connecticut Secretary of the State that the services it will provide pursuant to the Agreement do not constitute doing business in the State of Connecticut and no registration with the Connecticut Secretary of the State is required. Contractor does otherwise have the following State of Connecticut registrations, certificates or approvals relevant to the Agreement (if not applicable, state N/A).			



7. The following list is a list of the names of all persons affiliated with the business of the Contractor who are also affiliated with the City of New Haven. For purposes of this Affidavit, "affiliated with the business of the Contractor" includes any current or former employee (including officers) of the Contractor or any owner, board member or agent of the Contractor, or of any subsidiary or parent company of the Contractor, and "affiliated with the City of New Haven" means any employee, agent, public official, board member, commissioner or any other person serving in an official capacity for or on behalf of the City of New Haven. If none state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Name	City Affiliation Role & Time Frame	Contractor Affiliation Role & Time Frame	DOB
1 N/A			
2			

8. The following list is a list of all contracts in which either the Contractor, any person affiliated with the business of the Contractor or an Affiliate Entity of the Contractor provides, or has provided, services or materials to the City within one (1) year prior to the date of this disclosure. If none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Name of Contractor or Affiliate	Affiliation (if applicable)	Contract Number	DOB
1 N/A			
2			

9. The Contractor possesses an ownership interest in the following business organizations, if none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Organization Name	Address	Type of Ownership
1 N/A		
2		

10. The following persons and/or entities possess an ownership interest in the Contractor. If the Contractor is a corporation, list the names of each stockholder whose shares exceed twenty-five (25) percent of the outstanding stock. If none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

Name	Title	% of Ownership	DOB
1 Frontier Communications Corp.	N/A	100	N/A
2			

11. If the Contractor conducts business under a trade name, the following additional information is required: the place where such entity is incorporated or is registered to conduct such business; and the address of its principal place of business, if none, state none. Use additional sheet if necessary (must be on company letterhead and notarized):

TRADE NAME	PLACE OF INCORPORATION/REGISTRY	PRINCIPAL PLACE OF BUSINESS
1 N/A		
2		

I hereby certify that I am duly authorized to sign this Affidavit and that the person who will sign the Agreement with the City on behalf of the Contractor will be duly authorized to execute the same. I hereby further certify that the statements set forth above are true and complete on the date hereof and that I, or another authorized individual of the Contractor, will promptly inform the City, in writing, if any of the information provided herein changes or is otherwise no longer accurate at any point during the execution of the above referenced Agreement. I understand that any incorrect information, omission of information or failure of the Contractor to update this information, as described in the foregoing sentence, may result in the immediate termination of any and all agreements the Contractor has with the City of New Haven and disqualification of the Contractor to further contract with the City.

Signature & Title of person completing this form: <i>Scott K...</i>			
THIS FORM MUST BE NOTARIZED		NOTARY SEAL (if available)	
Signature of Notary: <i>Rhonda Tassie</i>			
Subscribed and sworn to, before me on this:	9th	Day of	November 20 20
My Commission Expires:	March 31st, 2021		

This form should be mailed or emailed to the contracting department or included with a specific solicitation.

(This form shall be updated if the Agreement contemplated hereby is not executed within six months of the date hereof.)

