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## MR36H Datasheet

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### High Performance 802.11ax Wireless

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The Cisco Meraki MR36H is a Dual-band, 802.11ax 2x2:2 Wall Switch Access Point with dedicated security, wired access ports and RF management radio as well as an integrated Bluetooth Low Energy beacon and scanning radio.

The MR36H provides a maximum of 1.7 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 as well as IoT solutions.

With the combination of cloud management, high performance hardware, multiple radios, and advanced software features, the MR36H 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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### MR36H and Meraki Cloud Management

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Management of the MR36H 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 MR36H 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.

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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 MR36H's firmware is automatically kept up to date via the cloud. New features, security 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

- 2x2:2 MU-MIMO 802.11ax
- 1.7\* Gbps dual-radio aggregate frame rate
- 3 wired access ports and a Passthrough port integrated.
- 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 1.7 Gbps\*

5 GHz 2x2:2 radio and 2.4 GHz 2x2:2 radio offer a combined dual-radio aggregate frame rate of 1.7 Gbps\*, with up to 1,201 Mbps in the 5 GHz band and 573 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR36H 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 MR36H offers MU-MIMO and UL/DL 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 MR36H'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 MR36H 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 MR36H'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 MR36H 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 MR36H 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 MR36H 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 MR36H 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 MR36H 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.


**Pass-through port.**

MR36H has a unique port which is called Pass-through port, which links directly the second port on the back in the first physical port on the bottom of the Access point. This ports works similar to an extension cord, meaning it will physically link the input of the back port to the output of the bottom first port.

Pass-though port it is a physical extension of the lower back port.

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):</li></ul>

	<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>
<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>• 2 x 2 multiple input, multiple output (MIMO) with two 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: 37 - 57 V (802.3at compatible)</li> <li>• Power consumption: 30W max (802.3at). Note: actual power consumption may vary depending on the AP usage.</li> <li>• Power over Ethernet injector sold separately</li> </ul> <div>  <b>Note:</b> Actual power consumption may vary depending on the AP usage. </div>
<b>Interfaces</b>	<ul style="list-style-type: none"> <li>• 1x 10/100/1000 BASE-T Ethernet (RJ45) (Uplink on the back)</li> <li>• 1x 10/100/1000 BASE-T Ethernet (RJ45) with 802.3af Power over Ethernet output</li> <li>• 2x 10/100/1000 BASE-T Ethernet (RJ45) outputs</li> <li>• 1x Passthrough port (non-managed).</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) (10 mm long and 2.5 mm diameter and 4.7 mm head)</li> <li>• Kensington lock hard point</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> <li>• Operating altitude: Up to 40,000 feet (12,192 meters)</li> </ul>

<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Mean Time Between Failure (MTBF): 257,215hrs at +25°C operating temperature</li> </ul>
<b>Physical Dimensions</b>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Weight: 17.35 oz (492 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> <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>• MR36H-HW: Meraki MR36H Cloud Managed 802.11ax AP</li> <li>• MA-INJ-4-XX: Meraki Gigabit 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
IEEE Standards	<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>
Safety Approvals	<ul style="list-style-type: none"> <li>CSA and CB 60950 &amp; 62368</li> <li>Conforms to UL 2043 (Plenum Rating)</li> </ul>
Radio Approvals	<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>
EMI Approvals (Class 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>
Exposure Approvals	<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

MR36H	MR44	MR46	MR56
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DL-OFDMA\*\*, UL-OFDMA\*\*,

DL-OFDMA\*\*, UL-OFDMA\*\*,

DL-OFDMA\*\*, UL-OFDMA\*\*,

DL-OFDMA\*\*, UL-OFDMA\*\*,

TWT support**, BSS coloring**	TWT support**, BSS coloring**	TWT support**, BSS coloring**	TWT support**, BSS coloring**
2 x 2 multiple input, multiple output (MIMO) with two spatial streams	2.4GHz: 2 x 2 multiple input, multiple output (MIMO) with two spatial streams 5GHz: 4 x 4 multiple input, multiple output (MIMO) with four 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	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	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 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	Up to 1024-QAM on both 2.4 GHz & 5 GHz bands
Packet aggregation	Packet aggregation	Packet aggregation	Packet aggregation

## Power



**Note:** Actual power consumption may vary depending on the AP usage.

MR36H	MR44	MR46	MR56
Power over Ethernet: 37 - 57 V (802.3at compliant)	Power over Ethernet: 42.5 - 57 V (802.3at) <b>or</b> 37 - 57 V (802.3af) - low power mode	Power over Ethernet: 42.5 - 57 V (802.3at compliant)	Power over Ethernet: 42.5 - 57 V (802.3at compliant)
Alternative: Only PoE	Alternative: 12 V DC input	Alternative: 12 V DC input	Alternative: 12 V DC input
Power consumption: 30W max (802.3at) <b>or</b> 15W max (802.3af) - low power mode (Disables POE out functionality)	Power consumption: 30W max (802.3at) <b>or</b> 15W max (802.3af) - low power mode **	Power consumption: 30W max (802.3at <b>required</b> )	Power consumption: 30W max (802.3at <b>required</b> )

Power over Ethernet injector sold separately

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

MR36H	MR44	MR46	MR56
1x 10/100/1000 BASE-T Ethernet (RJ45)	1x 100/1000/2.5G BASE-T Ethernet (RJ45)	1x 100/1000/2.5G BASE-T Ethernet (RJ45)	1x 100/1000/2.5G/5G BASE-T Ethernet (RJ45)
No DC Power plug	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)
1x Gigabit Ethernet (RJ45) with 802.3af Power over Ethernet output			
2x Gigabit Ethernet (RJ45) outputs			
1x Passthrough port (non-managed).			

## Physical Dimensions

MR36H	MR44	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 4.43 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 4.43 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 desk mount feet or mount plate
Weight: 17.35 oz (492 g)	Weight: 26.07 oz (739 g)	Weight: 28.22 oz (800 g)	Weight: 35.27 oz (1 kg)

## RF Performance Table



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## 2.4 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
2.4 GHz	802.11b	1 Mb/s	20	-100
		2 Mb/s	20	-90
		5.5 Mb/s	20	-90
		11 Mb/s	20	-90
		6 Mb/s	19	-94
		9 Mb/s	19	-93
2.4 GHz	802.11g	12 Mb/s	19	-91
		18 Mb/s	19	-89
		24 Mb/s	16	-86
		36 Mb/s	16	-82
		48 Mb/s	16	-78
		54 Mb/s	16	-77
2.4 GHz	802.11n (HT20)	MCS0	18.5	-95
		MCS1	18.5	-92
		MCS2	18.5	-90
		MCS3	18.5	-87
		MCS4	18.5	-83

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
2.4 GHz	802.11ac (VHT20)	MCS5	14.5	-79
		MCS6	14.5	-78
		MCS7	14.5	-76
		MCS0	18.5	-95
		MCS1	18.5	-92
		MCS2	18.5	-90
		MCS3	18.5	-87
		MCS4	18.5	-83
		MCS5	14.5	-79
		MCS6	14.5	-78
2.4 GHz	802.11ax (HE20)	MCS7	14.5	-77
		MCS8	14	-72
		MCS0	19	-93
		MCS1	19	-90
		MCS2	19	-88
		MCS3	19	-85
		MCS4	19	-81
		MCS5	14.5	-77

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
2.4 GHz	802.11n (HT40)	MCS6	14.5	-76
		MCS7	14.5	-75
		MCS8	14	-70
		MCS9	14	-68
		MCS10	13.5	-65
		MCS11	13.5	-63
		MCS0	17	-92
		MCS1	17	-89
		MCS2	17	-87
		MCS3	17	-84
		MCS4	17	-80
		MCS5	14.5	-76
		MCS6	14.5	-75
		MCS7	14.5	-74
		MCS0	17	-91
		MCS1	17	-88
2.4 GHz	802.11ac (VHT40)	MCS2	17	-86
		MCS3	17	-83

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
2.4 GHz	802.11ax (HE40)	MCS4	17	-79
		MCS5	14.5	-75
		MCS6	14.5	-74
		MCS7	14.5	-73
		MCS8	14	-69
		MCS9	14	-69
		MCS0	18.5	-90
		MCS1	18.5	-87
		MCS2	18.5	-85
		MCS3	18.5	-82
		MCS4	18.5	-78
		MCS5	14.5	-74
		MCS6	14.5	-73
		MCS7	14.5	-72
		MCS8	14	-67
		MCS9	14	-65
		MCS10	13.5	-65
		MCS11	13.5	-63

## 5 GHz

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
5 GHz	802.11a	6 Mb/s	17.5	-92
		9 Mb/s	17.5	-91
		12 Mb/s	17.5	-89
		18 Mb/s	17.5	-87
		24 Mb/s	15	-83
		36 Mb/s	15	-80
		48 Mb/s	15	-76
		54 Mb/s	15	-76
		MCS0	17.5	-93
		MCS1	17.5	-90
5 GHz	802.11n (HT20)	MCS2	17.5	-88
		MCS3	17.5	-85
		MCS4	17.5	-81
		MCS5	13.5	-77
		MCS6	13.5	-76
		MCS7	13.5	-75
5 GHz	802.11n (HT40)	MCS0	17.5	-91

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
5 GHz	802.11ac (VHT20)	MCS1	17.5	-88
		MCS2	17.5	-86
		MCS3	17.5	-83
		MCS4	17.5	-79
		MCS5	13.5	-75
		MCS6	13.5	-74
		MCS7	13.5	-73
		MCS0	17.5	-94
		MCS1	17.5	-91
		MCS2	17.5	-89
		MCS3	17.5	-86
		MCS4	17.5	-82
		MCS5	13.5	-78
		MCS6	13.5	-77
		MCS7	13.5	-76
		MCS8	13.5	-70
5 GHz	802.11ac (VHT40)	MCS0	17.5	-91
		MCS1	17.5	-88

Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
5 GHz		MCS2	17.5	-86
		MCS3	17.5	-83
		MCS4	17.5	-79
		MCS5	13.5	-75
		MCS6	13.5	-74
		MCS7	13.5	-73
		MCS8	13.5	-68
		MCS9	13.5	-67
		MCS0	17.5	-88
	802.11ac (VHT80)	MCS1	17.5	-85
		MCS2	17.5	-83
		MCS3	17.5	-80
		MCS4	17.5	-76
		MCS5	13.5	-72
		MCS6	13.5	-71
		MCS7	13.5	-70
		MCS8	13.5	-65
		MCS9	13.5	-64

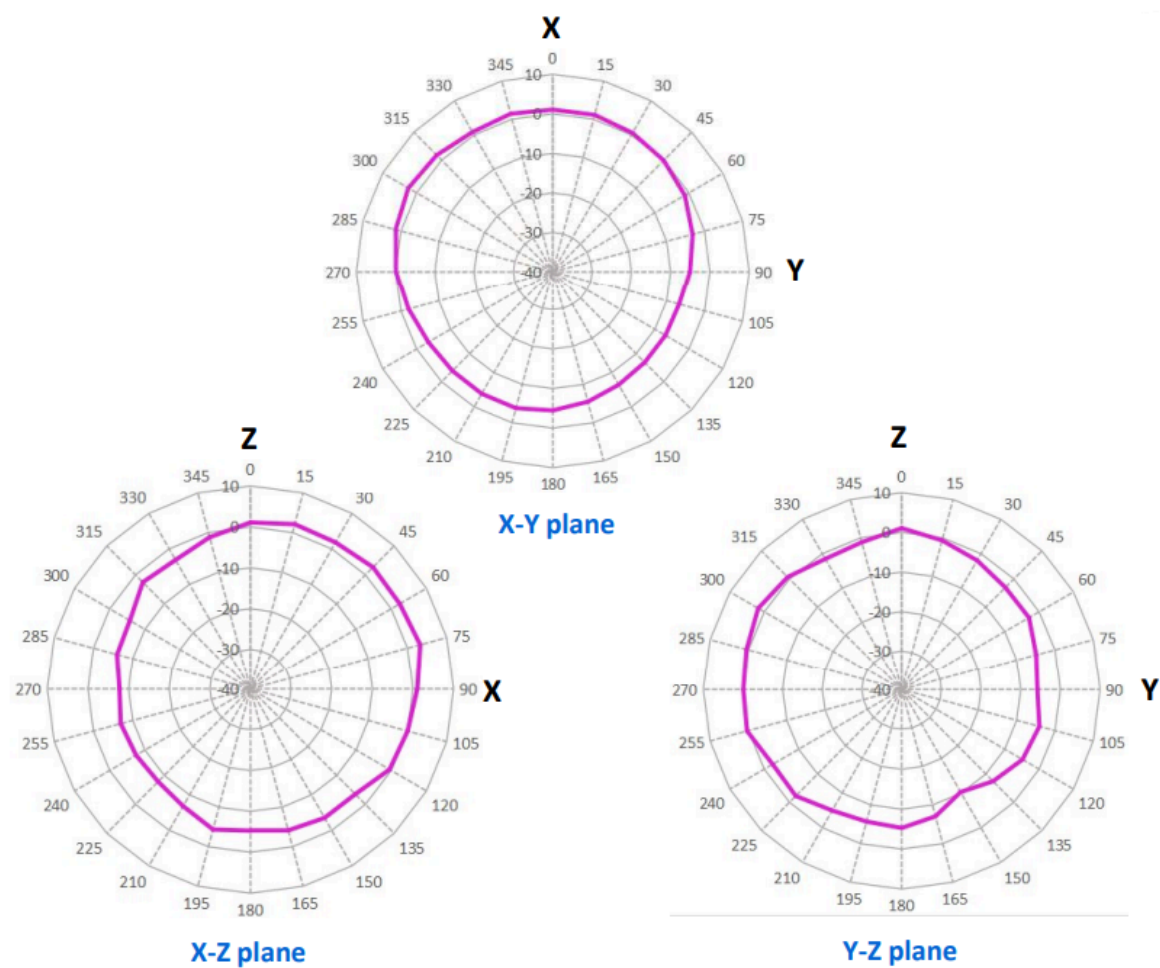
Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
5 GHz	802.11ax (HE20)	MCS0	17.5	-93
		MCS1	17.5	-92
		MCS2	17.5	-88
		MCS3	17.5	-85
		MCS4	17.5	-81
		MCS5	13.5	-77
		MCS6	13.5	-76
		MCS7	13.5	-75
		MCS8	13.5	-70
		MCS9	13.5	-68
		MCS10	12	-65
5 GHz	802.11ax (HE40)	MCS11	12	-60
		MCS0	17	-91
		MCS1	17	-88
		MCS2	17	-86
		MCS3	17	-83
		MCS4	17	-79
		MCS5	13.5	-75



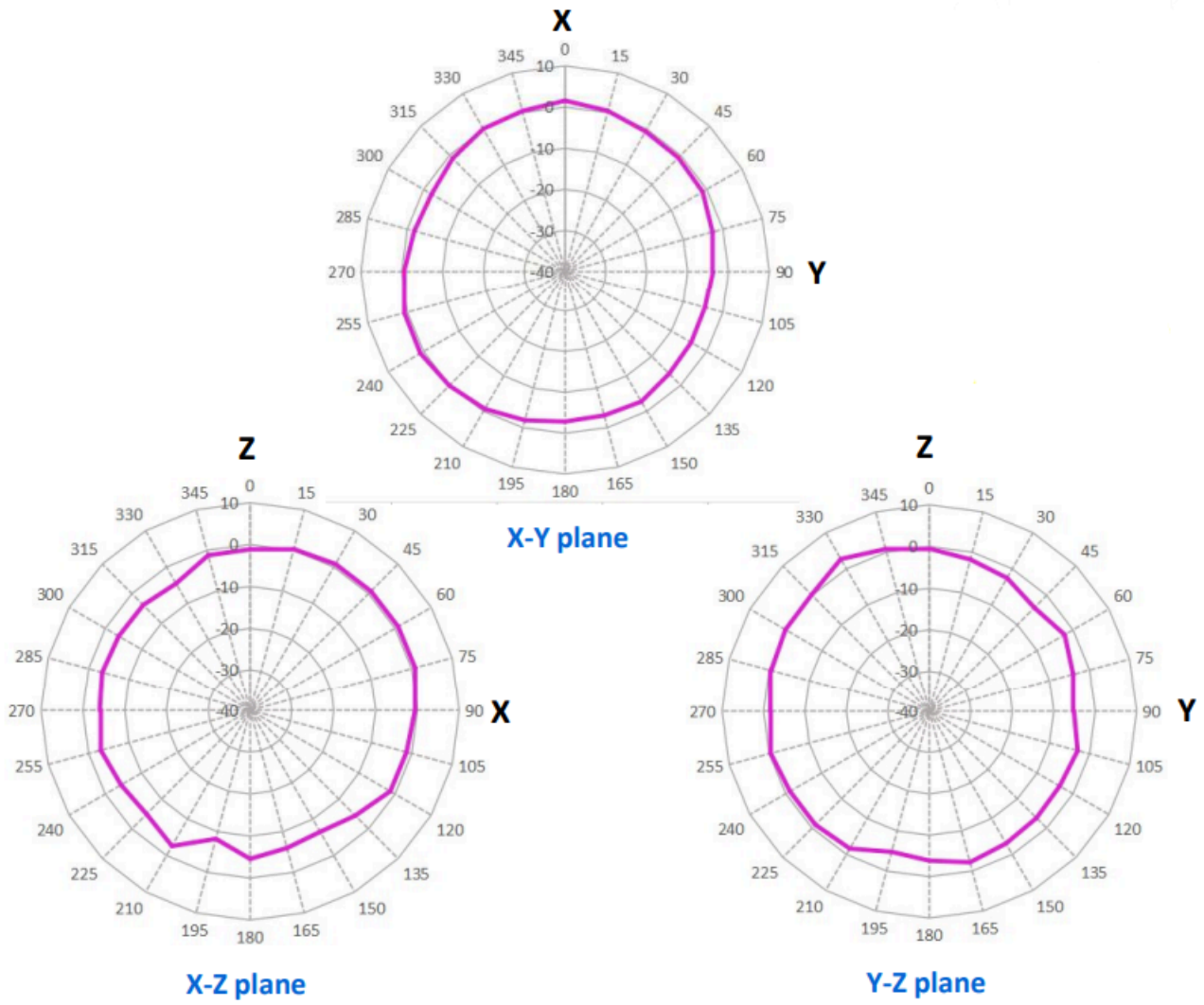
Operating Band	Operating Mode	Data Rate	TX Power (conducted)	RX Sensitivity
5 GHz		MCS6	13.5	-74
		MCS7	13.5	-73
		MCS8	13.5	-68
		MCS9	13.5	-66
		MCS10	12	-63
		MCS11	12	-62
		MCS0	17	-88
		MCS1	17	-85
		MCS2	17	-83
		MCS3	17	-80
		MCS4	17	-76
	802.11ax (HE80)	MCS5	13.5	-72
		MCS6	13.5	-71
		MCS7	13.5	-70
		MCS8	13.5	-65
		MCS9	13.5	-63
		MCS10	12	-60
		MCS11	12	-59

# Signal Coverage Patterns

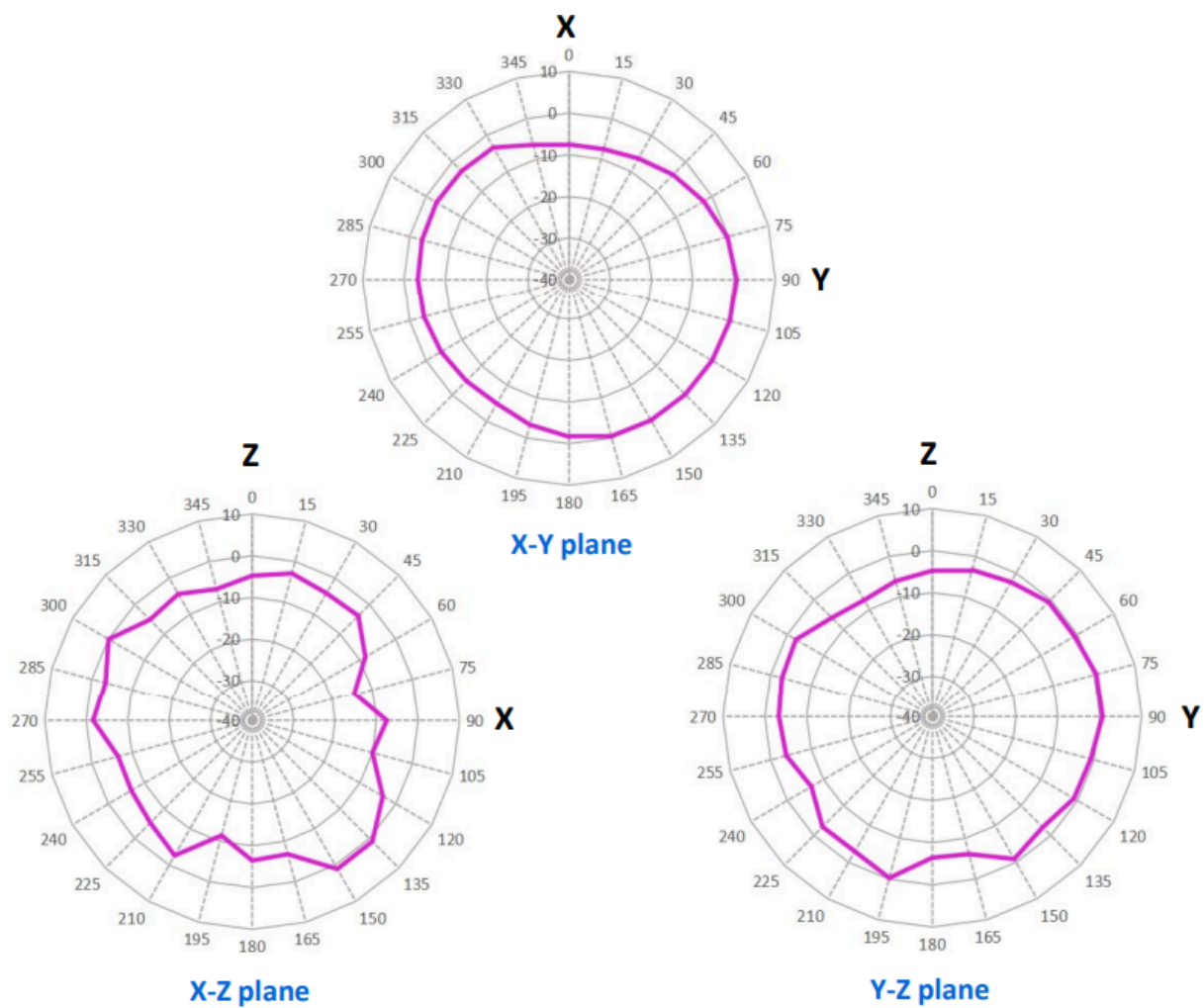
5 GHz - Wireless



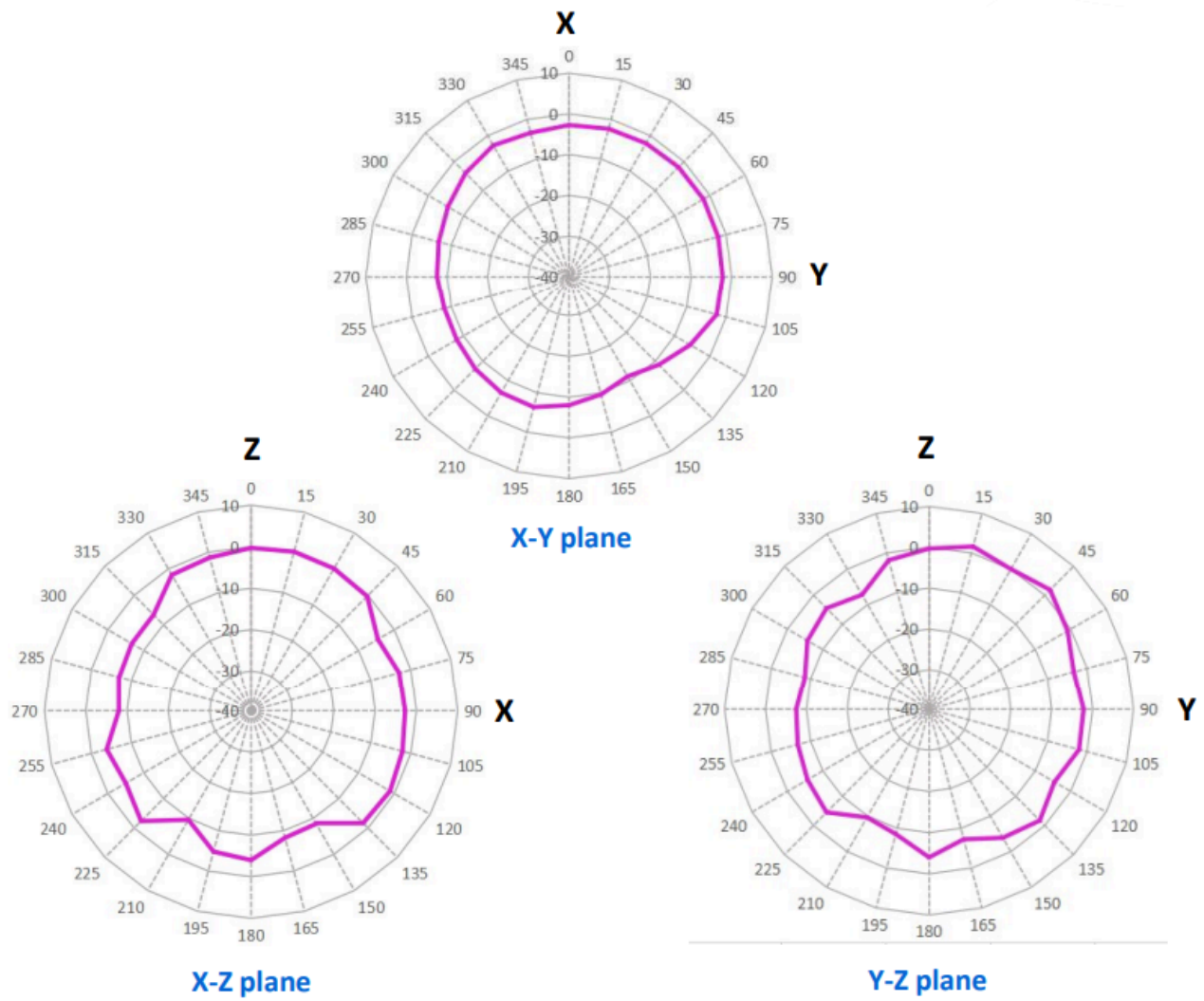
2.4 GHz - Wireless



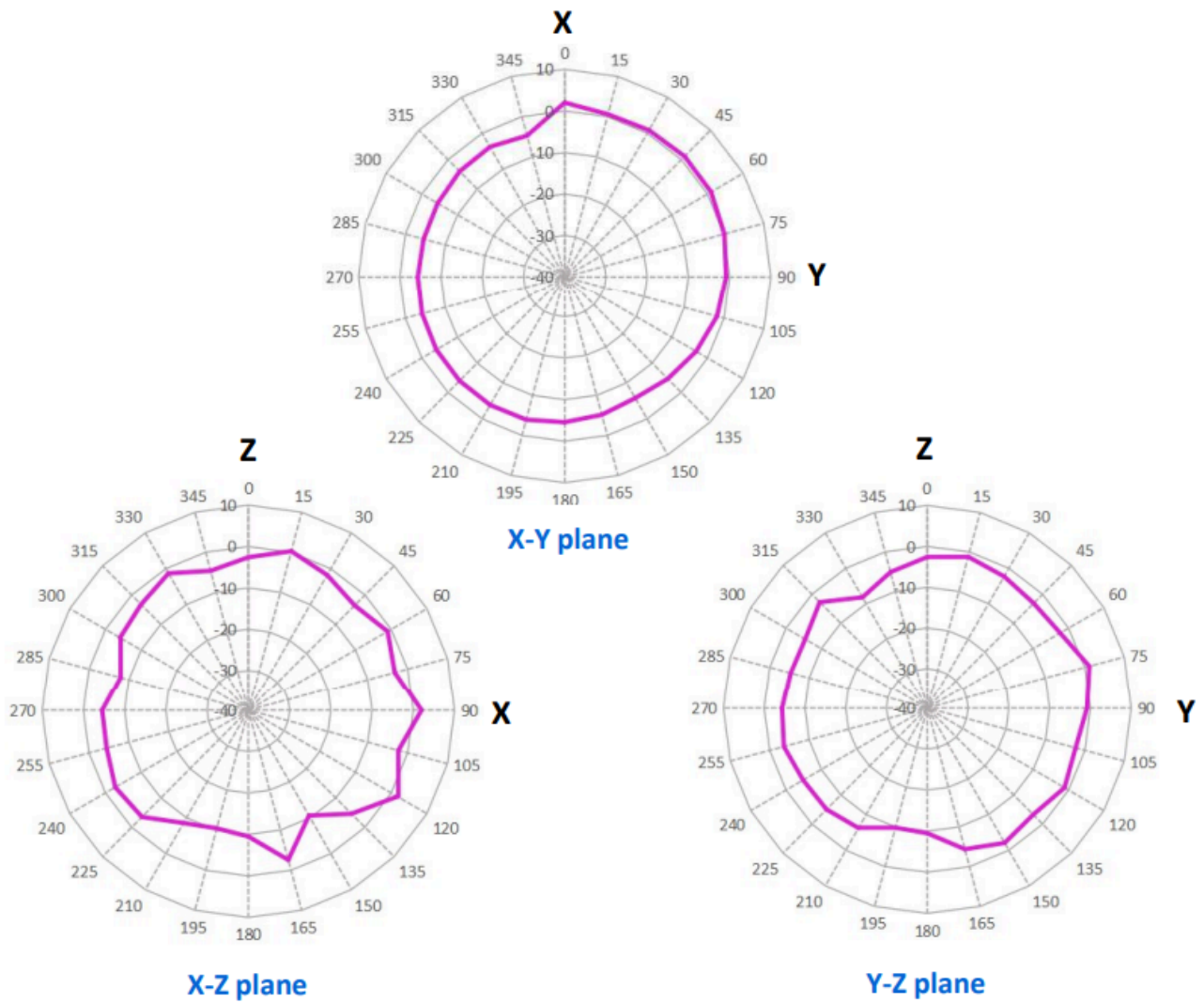
2.4GHz - Bluetooth



#### 2.4 GHz - Scanning



5 GHz - Scanning



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## Installation Guide

For instructions on how to install and configure MR36H access points please refer to the [MR36H Installation Guide](#).

# ThunderIT for the REMC SAVE Contract

ThunderIT offers products and services for REMC SAVE contract customers at a discounted price in accordance to the REMC price list.

## Overview for the REMC SAVE contract

REMC SAVE provides large volume contracts for a variety of educational resources, including furniture, school and office supplies, software and digital services, and technology.

The program saves time and money by providing bids compliant with the Michigan Revised School Code that also provides local school districts with the authority to purchase using REMC contracts. The legislation that established REMCs (Michigan Compiled Laws Act 451 Section 380.671), and State Board of Education Rules, enables REMCs to bid on behalf of local school districts and also provide local school districts with the authority to purchase using REMC contracts. All items and vendors are awarded through a sealed bid process by the REMC SAVE Bid Project and approved by the REMC Association.

REMC SAVE is provided as a project of the REMC Association of Michigan for all Michigan schools. REMC SAVE provides large-volume contracts for a variety of educational resources. By using REMC SAVE contracts, Michigan schools have saved more than \$1 billion since 1990. Every dollar saved through REMC SAVE today is one more dollar to invest in instruction tomorrow.

**ThunderIT services the following REMC districts;** REMC 1, REMC 2N, REMC 2C, REMC 2S, REMC 3, REMC 4, REMC 5, REMC 6, REMC 7, REMC 8, REMC 9, REMC 10, REMC 11, REMC 12W, REMC 12E, REMC 13, REMC 14W, REMC 14E, REMC 15, REMC 16, REMC 17, REMC 18S, REMC 18N, REMC 19W, REMC 19E, REMC 20, REMC 21, REMC 22

**ThunderIT services the following REMC customers;** AKIVA HEBREW DAY SCHOOL, BIRNEY MIDDLE SCHOOL, BUSSEY CTR-EARLY CHILDHOOD DEV, DEVRY UNIVERSITY - SOUTHFIELD – CENTRAL, HAMILTON ACADEMY CENTRAL OFFICE, LEONHARD ELEMENTARY SCHOOL, MCINTYRE ELEMENTARY SCHOOL, OAKLAND INTERNATIONAL ACADEMY

Other REMC contract holders include: Inacomp Technical Services Group, Sentinel Technologies, Software Services Group, Insight Direct USA, Information Systems Intelligence, Netech, Secant Technologies, CDW Logistics Inc (CDWG)

## **ThunderIT offers a variety of Solutions & Services to meet your every need**

### **Digital Workplace**

Transform your digital workplace and empower employees to drive your business forward. We deliver flexible, tailored, end-to-end solutions to keep your workforce engaged and productive. With an innovative approach centered around exceptional user experiences.

### **Smart Spaces**

We provide smart workspace solutions to help you deliver consistent network performance and give guests, employees and students an uninterrupted experience.

### **Secure Network Solutions**

Our security solutions help protect your network and critical data from cybersecurity threats

### **Safe Environments**

We believe that employee, student, and customer safety is paramount in any environment. That's why our solutions provide a cloud based platform to help you intuitively manage and monitor physical locations to ensure a safe experience for everyone.

### **Next Generation WiFi**

Power new and improved user experiences with our managed wifi solutions, offering faster speeds for enhanced application experience and more capacity for high density indoor and outdoor environments.

### **Remote Work Solutions**

With our remote work solutions, working away from the office is no big deal. Give employees a secure, optimized connection to your entire network from anywhere.

### **Hybrid Workforce**

We provide a seamless hybrid workforce solution that embraces change and operational scale. Give your employees and customers unrivaled experiences with a cloud platform that unifies best-in-class technologies.



## **Free Network Evaluation & Demo**

ThunderIT offers a FREE Network Evaluation and/or product Demo to help ensure you are well informed and confident when choosing the right Cisco Meraki solution for your needs. During our call we'll architect a custom built Cisco Meraki solution for your business or environment.

## **Migration & Deployment**

ThunderIT offers Migration and Deployment Services for your Cisco Meraki solution. Our experienced team of IT Professionals can configure, deploy and support your products to meet your needs. Our custom solutions ensure maximum efficiency and provide a clear path for your business going forward.

## **Managed Security**

ThunderIT offers the best and most cost-effective solution to lower your risk in a heightened threat environment. Our team of certified Cisco engineers are ready to ensure that your network is secure, and your firewall is optimally configured to defend your business.

## **Mobile device management (MDM) Services**

Our Mobile Device Management (MDM) solution unifies management of thousands of endpoint devices in a secure cloud platform, driving your organization's mobility initiatives, while maintaining an environment of agility and security.

## **Support & Monitoring**

ThunderIT offers network support and monitoring services that are designed to fit the needs of every customer.

## FAQs for the REMC SAVE Contract

**Q: Does REMC SAVE meet the legal requirement for competitive bidding?** A: The legislation that established REMCs (Michigan Compiled Laws Act 451 Section 380.671), and State Board of Education Rules, enables REMCs to bid on behalf of local school districts and also provide local school districts with the authority to purchase using REMC contracts. All items are competitively bid by REMC SAVE and awarded by the REMC Association.

**Q: Who can Use REMC SAVE contracts?** A: The following agencies are eligible to purchase using REMC SAVE contracts: PreK-12 Public, Charter (PSA) and Non-Public Schools, Community Colleges, Universities and Colleges, Public Libraries, Museums, State, County, and Local Government Agencies, Educational Non-profit Organizations and Health Care Facilities. Personal purchases at awarded bid pricing are at the discretion of the vendors.

**Q: What is REMC SAVE?** A: REMC SAVE is a free service of the REMC Association for all Michigan schools. There are 3 staff of REMC SAVE, and they conduct all of the bids and maintain vendor contracts. You can ask your local REMC Center questions. Find your local REMC Center by scrolling down the REMC SAVE home screen to view the map for your region or look up by zip code.

**Q: How do I provide feedback?** A: Your local REMC SAVE contact will always listen to any feedback you wish to provide. If you have feedback about the product, scroll down the home screen at [remcsave.org](http://remcsave.org) and click 'View All Vendors' and you can complete a vendor evaluation form.

**Q: What if my company wishes to become an awarded vendor?** A: Go to [vendorcenter.remcbids.org](http://vendorcenter.remcbids.org) and create an account by clicking Login or Register in the upper right corner. Follow the directions! The only requirement is that you need five Michigan K12 school references. Customers can send their vendor recommendations to their local REMC contact or email [remcsave@remc.org](mailto:remcsave@remc.org)

**Q: How are the vendors and products selected?** A: Products and Vendors are awarded through a competitive bid process. REMC SAVE staff analyzes all bids and make recommendations to the REMC SAVE Advisory Committee for award. Once the REMC SAVE Advisory Committee votes on the award recommendations, they are then voted on by the REMC Association Board of Directors for final award.

**Q: Where do I send my order or contact an awarded vendor?** To contact vendors, navigate to the vendor listing by scrolling down the home screen and click 'view all vendors,' or navigate to <https://www.remcsave.org/vendors>. Click on the vendor name to find their contact information.

**Q: What do I need to include on my purchase order?** Please make sure your purchase order is itemized and includes the REMC item number, the model number/name, the reseller product number (if available), the quantity of each item to be purchased, and the unit price. A quote may be attached, but the purchase order should still be itemized. Sometimes the item numbers for the warranties, accessories, and upgrades are located on the spec sheet, linked from the awarded item page – be sure to include on the Purchase Order.