2. Network Requirements

The SMARTCAST platform supports both wired and wireless connections to a router for access to the Internet. The base platform must have at least 10/100 Mbps Ethernet and concurrent dual band 2.4 GHz plus 5 GHz 2x2 802.11ac to support the network connection. Each of the hardware interfaces will require a unique Media Access Control (MAC) address. It is VIZIO's responsibility to secure these MAC addresses and to provide them to the ODM for integration into the manufacturing process where these MAC addresses are assigned.

2.0 Wi-Fi Standards and Requirements

Cast receiver has built in support for Cast Wi-Fi setup protocol and relies on the platform for this management. In addition to setup, Cast receiver uses this abstraction to monitor network status changes and to interact with mDNS daemon.

Small skus may be limited to 2.4 Ghz 1.1 802.11n and 5Ghz 802.11ac dual band as a cost cutting measure for HD/FHD products that don't require as much bandwidth. These skus still must pass VIZIO WiFi performance.

Final WiFi chip assignment and support as follows:

WiFi Support	2020 -H	2021 -J	2022 -K	2023 -L	2024 -8
5691	WiFi 4 Dual-Band (MT7638, WiFi only)	• WiFi 4 Dual Band (MT7638, 1st source) • WiFI 5 Dual Band (MT7663, 2nd source) • V705x-J03, V756x-J03 and V705x-J01 - BT feature is disable for seasonal models	WiFi 6E Tri Band (MT7921a)	• WiFi 6E Tri Band (MT7921a, 1st MP) • WiFi 6 Dual Band (MT7920, 2nd MP forward)	• Wi-Fi 6 Dual Band / MT7920
5583	N/A	WiFi 4 Single Band (MT7603, WiFi only)	WiFi 5 Dual Band (MT7663) • MTK: MT7663	WiFi 5 Dual Band	• Wi-Fi 5 Dual Band / MT7663
5695	WiFi 5 Dual-Band (MT7668)	WiFi 4 Dual Band (MT7668)	N/A	N/A	N/A
5695s	N/A	N/A	WiFi 6E Tri Band (MT7921a)	• WiFi 6E Tri Band (MT7921a, 1st MP) • WiFi 6 Dual Band (MT7920, 2nd MP forward)	• Wi-Fi 6e Tri Band / MT7921a
5586L	N/A	N/A	N/A	N/A	• Wi-Fi 6 Dual Band / MT7920
5586F	N/A	N/A	N/A	N/A	• Wi-Fi 5 Dual Band / MT7663
72690-2K	N/A	N/A	N/A	• Wi-Fi 5 Dual Band / RTL8822CU	• Wi-Fi 5 Dual Band / RTL8822CU
72690-4K	N/A	N/A	N/A	N/A	• Wi-Fi 6 Dual Band / RTL8852

2.1 Wi-Fi and Network Management

Cast receiver has built in support for Cast Wi-Fi setup protocol and relies on the platform for this management. In addition to setup, Cast receiver uses this abstraction to monitor network status changes and to interact with mDNS daemon.

SoftAP requirement reinstated only for captive portal.

2.2 Interface Arbitration

Only one interface can be active. The arbitration during initial setup follows a two-step algorithm. TV must reboot with each.

	Requirement
1	If Ethernet network is connected and active, and W-Fi is connected, the wired connection must take precedence and the wireless interface is not used.
2	If the platform is connected via Wi-Fi and Ethernet is connected, the wired connection takes precedence.
3	If the Ethernet connection is disconnected, the TV must fall back to the Wi-Fi connection.
4	While content is streaming and at all other times, seamlessly switching from Ethernet to Wi-Fi on the same subnet must be supported and vice-versa.
5	Streaming movies and other user actions must not be interrupted or delayed by a network switch, subject to some minimal amount of data buffering at the application level.
6	The platform must retain separate and unique Wi-Fi scan information for identical SSIDs found on both the 2.4 GHz and 5 GHz bands for a given access point (e.g. identical SSIDs found on the same band of different access points). Ad-Hoc requires no network support.

2.3 Communication Protocol IPv4 and IPv6

Support both Internet Protocol version 4 (IPv4)and Internet Protocol version 6 (IPv6). IPv6 is the next generation Internet Protocol address standard intended to supplement, and eventually replace, IPv4 due to insufficient number of addresses. IPv4 uses 32 bit addresses whereas IPv6 uses 128 bit addresses.

2.4 Set Up Network Connection

During set up of the network connection for the platform, the following requirements apply.

	Requirement
1	Automatic or manual entry of TCP/IP configuration via DHCP for IP address, subnet mask, gateway, and Domain Name servers (DNS) must be supported.
2	Network status for Wi-Fi must include Signal Strength, Wi-Fi Mode, Secure/Clear.
3	Network status for Ethernet must include status ~~and throughput~~.
4	Connection test must include: 1. Established DNS Servers. 2. Established Network Time Protocol (NTP) time indicating successful Internet connection using Google service to ping DNS.
5	Wireless setup must include list of detected wireless access points and protocol, signal strength, and encrypted/clear indicator.
6	List of wireless access points must be ordered by signal strength. 1. Continue scanning and dynamically add AP's missing from the list.
7	Security types supported must include (WEP no longer supported): 1. WPA+TKIP/AES 2. WPA+TKIP 3. WPA+AES 4. WPA2+AES 5. WPA3+SAE 6. none
8	Manual entry of the Service Set Identified (SSID) must be supported. For IPv6 manual entry is not supported.
9	WLAN MAC address must be viewable from configuration screens including during initial setup.

2.5 Wi-Fi Country for Power Protocols

The power protocols for Wi-Fi are dictated by the country.

	Requirement
1	Before Wi-Fi is connected, Wi-Fi power band frequency default must be set to the lowest common denominator for North America until a specific country code is known.
2	After connection, the Wi-Fi power requirements are defined per the country found using geofencing.
3	If the country can not be determined via geofencing or returns none, then the lowest common denominator must persist.

2.6 Wireless Protocols and Security

	Wireless Protocol Requirements
1	802.11b (2.4GHz)
2	802.11g (2.4GHz)
3	802.11n (2.4GHz + 5Ghz)
4	802.11ac (5Ghz)
5	WIFI 6E 2x2 Tri band (2.4/5/6GHz)

2.6.1 Wireless Test Spec and Worksheets

	Requirement
1	2.4 Ghz 802.11ax 4K Test Spec Worksheet V4.4 Rev2.xlsx
2	2.4 Ghz 802.11n 2K Test Spec Worksheet V4.4 Rev2.xlsx
3	2.4 Ghz 802.11n 4K Test Spec Worksheet V4.4 Rev2.xlsx
4	5.0 Ghz 802.11ac 2K Test Spec Worksheet V4.4 Rev2.xlsx
5	5.0 Ghz 802.11ac 4K Test Spec Worksheet V4.4 Rev2.xlsx
6	5.0 Ghz 802.11ax 4K Test Spec Worksheet V4.4 Rev2.xlsx
7	5.0 Ghz 802.11n 2K Test Spec Worksheet V4.4 Rev2.xlsx
8	5.0 Ghz 802.11n 4K Test Spec Worksheet V4.4 Rev2.xlsx
9	6.0 Ghz 802.11ax 4K Test Spec Worksheet V4.4 Rev2.xlsx
10	802.11 Test Specification V4.4 Rev2.pdf

2.6.2 Wireless Security requirements

	Requirement
1	Wi-Fi Protected Access (WPA) with TKIP, AES, TKIP/AES
2	Wi-Fi Protected Access 2 802.11i (WPA2) with AES
3	Wi-Fi Protected Access 3 802.11 (WPA3) with AES or SAE
4	Mixed mode WPA2/WPA3

2.7 Wi-Fi Certification

VIZIO requires the ODM and vendors to test the Wi-Fi functionality in the exact same manner as a formal certification with the Wi-Fi Alliance. The system must pass all tests but does not need to be submitted for formal certification.

2.8 TV mDNS Support

	Requirements	Notes
1	mDNS required for casting.	
2	mDNS required for • wake on when in quick start mode.	
3	mDNS offload • wake on eco mode	

2.9 Adaptive Bitrate Streaming

Adaptive bitrate is a method of video streaming that supports encoding of source content at multiple bit rates. Three methods are supported.

	Video Streaming Encoding Requirement	Encryption required
1	MPEG-DASH PlayReady 2000 and for UHD PlayReady 3000, level 3.3 (Netflix)	
2	MPEG-DASH Widevine, level 1 and level 3	
3	HTTP Live Streaming (HLS)	AES-128 encryption