

Comparative Statement
Supply & Installation of Wireless Access Point with
Tender # IT/26/18-19

Wireless Lan Controller(Qty. 1)			M/s.New Horizon Computer			M/s.Information Systems Associates Ltd (Comstar)			M/s.S2 Consulting Services (Pvt.) Ltd			M/s.Shahnawaz (Pvt.) Ltd			M/s.Silicon Technologies			M/s.Jaffer Business System (Pvt.) Ltd		
Sr. No.	Items	Description/ Specifications	Brand and Model	Unit Price	Total	Brand and Model	Unit Price	Total	Brand and Model	Unit Price	Total	Brand and Model	Unit Price	Total	Brand and Model	Unit Price	Total	Brand and Model	Unit Price	Total
	General Requirement	The controller should have: 1. 2 x 10G & 4 x GE ports 2. Separate Control plane and data plane 3. Survivable AP Architecture i.e., In the event of backhaul outage, new APs and clients can be added and full																		
1	Compliant Standards	IEEE 802.11a, IEEE 802.11b, IEEE 802.11e, IEEE 802.11d, IEEE 802.11e, IEEE 802.11g, IEEE 802.11h, IEEE 802.11i, IEEE 802.11n, IEEE 802.11p, IEEE 802.11q, IEEE 802.11s, IEEE 802.3, IEEE 802.3u, IEEE 802.11ac																		
2	Features	ARP support, DHCP support, MAC address filtering, Manageable, Syslog support, VLAN support, centralized security policies, wireless intrusion prevention system, RF management, quality of service (QoS) for voice and video, The APs and controller should be capable of 802.11q VLAN tagging of Management traffic independent of VLANs utilized by the WLANs (SSID). Further: a. The APs and controller may utilize different VLAN tags	Dell EMC Ruckus	1497474	1497474	Ruckus	1904600	1904600	Ruckus Smart Zone 100	1950000	1950000	Dell EMC Networking Smart Zone 124 SZ 124	1101600	1101600	Aruba 7220			Huawei AC6605	1422774	1422774
3	Network Transport Protocol	ARP, DHCP, ICMP/PP, TCP/PP, UDP/PP																		
4	Switching Protocol	Ethernet																		
5	Type	Network management device																		
6	Other Features	Wired speed, no blocking performance for 802.11n and optimized for 802.11ac networks Separate SSD tunnels allow both corporate and personal Internet access Support for up to 1000 access points and 25,000 clients with 55 activate licenses of AP Designed to support both 802.11n and 802.11ac networks Ability to manage 1000 access points simultaneously Option to add additional access points and feature licenses over time Allows access points to dynamically establish wireless connections without the need for a physical connection to the wired network																		
Wireless Access Point In Door (Qty. 50)																				
1	Compliant Standards	IEEE 802.11a, IEEE 802.11ac, IEEE 802.11e, IEEE 802.11b, IEEE 802.11d, IEEE 802.11g, IEEE 802.11h, IEEE 802.11i, IEEE 802.11n, IEEE 802.11s, IEEE 802.3af, IEEE 802.3at, WMM/802.11e										Indoor AP-R720								
2	Connectivity Technology	Wireless																		
3	Data Link Protocol	IEEE 802.11a, IEEE 802.11ac, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n																		
		Supporting channels up to 160MHz																		

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Wireless Lan Controller(Qty: 1)			M/s.New Horizon Computer			M/s Information Systems Associates Ltd (Comstar)			M/s S2 Consulting Services (Pvt.) Ltd			M/s Shahnawaz (Pvt.) Ltd			M/s Silicon Technologies			M/s Jaffer Business System (Pvt.) Ltd		
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		Wide Dynamic Bandwidth Selection allows the access point to dynamically switch between 20-, 40-, 80-, and 160-MHz channels Supporting Four spatial streams, MU-MIMO enables access points to split spatial streams between client devices, to maximize throughput. Enables both radios to operate in 5-GHz client serving mode. Allowing an industry-leading 2.5 Gbps over the airspeeds while increasing client capacity Allows the access points to intelligently determine the operating mode of serving radios based on the RF environment. The access points must operate in the following modes: 2.4-GHz and 5-GHz mode: One radio will serve clients in 2.4-GHz mode, while the other serves clients in 5-GHz mode • WMM, Power Save, LDPC, STBC, 802.11r/k/v • Hotspot • Hotspot 2.0 • Captive Portal • WISPy																		
4	Other Features																			
5	Supported Channels	• 2.4GHz: 1-13 • 5GHz: 36-64, 100-144, 149-165	Dell EMC Ruckus	109185.82	5459291	Ruckus	111190	5559500	Ruckus R 720	117500	5875000									
6	MIMO Technology	• 4x4 SU-MIMO • 4x4 MU-MIMO																		
7	Security	• WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK • WPS/WIDS																		
8	Supported Rates	• 802.11ac: 6.5 to 1,733Mbps (MCS0 to MCS9, NSS = 1 to 4 for VHT20/40/80) • 802.11n: 6.5 Mbps to 600Mbps (MCS0 to MCS31) • 802.11a/g: 54, 48, 36, 24, 18, 12, 9, 6Mbps • 802.11b: 11, 5.5, 2 and 1 Mbps																		
9	Antenna Gain	• Min Up to 3dBi																		
10	Ethernet	• Min Two Ethernet ports; Min one 2.5GbE & one 1GbE port • Power over Ethernet(802.3af/at/bt)with Category 5/5e/6 cable • Link Aggregation (LACP)																		
11	Client Capacity	• Up to 500 clients per AP																		
12	SSID	• Min Up to 16 per AP																		
13	PERFORMANCE AND CAPACITY	• 2.4GHz: 500Mbps or Higher • 5GHz: 1700Mbps or Higher																		
14	NETWORKING	Controller based Platform Support, supports wireless networking IPv4, IPv6, dual-stack Vlan, 802.1Q, 802.1x, Tunneling Technology, Policy Management Tools will be required. USB 1 USB 2.0 port, Type A																		
15	CERTIFICATIONS AND COMPLIANCE	• Wi-Fi Alliance • Wi-Fi CERTIFIED™ a, b, g, n, ac • Passpoint®. Vantage Standards Compliance • EN 60950-1 Safety • EN 60601-1-2 Medical • EN 61000-4-2/3/5 Immunity • EN 50121-1 Railway EMC • EN 50121-4 Railway Immunity • IEC 61373 Railway Shock & Vibration • UL 2043 Plenum • EN 62311 Human Safety/RF Exposure • WEEE & RoHS																		

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		• ISTA 2A Transportation																		
Wireless Access Point Out Door (Qty. 05)																				
1	Compliant Standards	IEEE 802.11a, IEEE 802.11ac (draft 5.0), IEEE 802.11c, IEEE 802.11b, IEEE 802.11d, IEEE 802.11g, IEEE 802.11h, IEEE 802.11i, IEEE 802.11n, IEEE 802.1s, IEEE 802.3af, IEEE 802.3at, WMM/802.11e										Outdoor AP-1710								
2	Connectivity Technology	Wireless																		
3	Data Link Protocol	IEEE 802.11a, IEEE 802.11ac, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n																		
4	Other Features	Supporting channels up to 80 MHz wide Dynamic Bandwidth Selection allows the access point to dynamically switch between 20-, 40-, and 80-MHz channels. Supporting Four spatial streams. MU-MIMO enables access points to split spatial streams between client devices, to maximize throughput. Enables both radios to operate in 5-GHz client serving mode. Allowing an industry-leading 2.5 Gbps over-the-air speeds while increasing client capacity. Allows the access points to intelligently determine the operating mode of serving radios based on the RF environment. The access points must operate in the following modes: 2.4-GHz and 5-GHz mode: One radio will serve clients in 2.4-GHz mode, while the other serves clients in 5-GHz mode. • WMM, Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v • Hotspot • Hotspot 2.0 • Captive Portal • WISPr																		
5	Supported Channels	• 2.4GHz: 1-13 • 5GHz: 36-64, 100-144, 149-165																		
6	MIMO Technology	• 4x4 SU-MIMO • 4x4 MU-MIMO																		
7	Security	• WPA-PSK, WPA-TKIP, WPA2 AES, 802.11i, Dynamic PSK • WIPS/WIDS	Dell EMC Ruckus	248701	1243505	Ruckus	238240	1191200	Ruckus T 710	252000	1260000		294840	1474200	Aruba AP-375			Huawei AP 8182DN	331838	1659188
8	Supported Rates	• 802.11ac: 29.3Mbps – 1733 Mbps (80MHz) • 802.11n: 6.5Mbps – 216.7 Mbps(20MHz) 13.5 Mbps – 800Mbps (40MHz) • 802.11a: 54, 48, 36, 24, 18, 12, 9 and 6Mbps • 802.11b: 11, 5.5, 2 and 1Mbps • 802.11g: 54, 48, 36, 24, 18, 12, 9 and 6Mbps																		
9	Antenna Gain	• Omni - Min Up to 3dBi sector - up to 6dBi																		
10	Ethernet	• 2 x 1GbE ports • Support for LACP (Link Aggregation Control Protocol) to maximize the backhaul bandwidth using both Ethernet ports • SFP Fiber Interface providing flexibility to backhaul to fiber																		
11	Client Capacity	• Up to 500 or Higher clients per AP																		
12	SSID	• Min Up to 6 per AP or Higher																		
13	PERFORMANCE AND CAPACITY	• 2.4GHz: 500Mbps or Higher • 5GHz: 1700Mbps or Higher																		
		Controller based Platform Support																		

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14	NETWORKING	Supplied wireless networking IPv4, IPv6, dual-stack Vlan, 802.1Q, 802.1x, Tunneling Technology, Policy Management Tools will be required																		
15	CERTIFICATIONS AND COMPLIANCE	Wi-Fi Alliance • Wi-Fi CERTIFIED™ a, b, g, n, ac • Passpoint® Vantage Standards Compliance • EN 60950-1 Safety • EN 60601-1-2 Medical • EN 61000-4-2/3/5 Immunity • EN 50121-1 Railway EMC • EN 50121-4 Railway Immunity • IEC 61373 Railway Shock & Vibration • UL 2043 Plenum • EN 62311 Human Safety/RF Exposure • WECE & RoHS • ISTA 2A Transportation																		
Wireless Network Reporting & Data Analytics (Qty: 01)																				
1	Deployment & Licensing options	Virtualized on-premises (Hyper-V®, VMware® or KVM™) Must include 55 AP licenses for the software tool along with support upto 1000 AP's																		
2	Features Required in Software	Proposed Big Data Wi-Fi analytics and reporting engine must be purpose built to help service providers make informed business decisions regarding the operation of their Wi-Fi networks and to be located in the Network Operations Centers (NOCs) The software must provide comprehensive network intelligence by collecting and aggregating data from applications, devices, access points and controllers Pre-packaged and customizable reports, dashboards and correlations Granular drill-down capability—to the level of individual sessions, clients and access points Predictive analytics powered by machine learning Three-year data storage capacity for up to 100,000 access points and millions of clients Open APIs for integration with network management and business intelligence systems The proposed Big Data Analytics and Reporting Engine must be able to provide real-time and historic data analysis and graphically displayed in an easy to understand format with a wide variety of views and customized reports. The data gathered by proposed Big Data Analytics and Reporting Engine must cover details essential network statistics such as traffic usage, client and session measurement, network changes, network latency, and inventory. Reporting Engine must support traffic statistics are reporting by SSID in addition to per radio and client, providing a service (SSID) view of network usage, client connections and performance statistics. Proposed Big Data Analytics and Reporting Engine must be able to provide the following metrics: AP Stats: • AP Name, MAC, Description, Serial #, GPS • Controller Name & MAC																		
			Del EMC Ruckus	193118	193118	Ruckus	352500	352500	Ruckus Smart Call Insight	360000	360000				Aruba AirWave			Huawei Esight	2216333	2216333

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		<ul style="list-style-type: none"> • Client Hostname & Username • # of sessions • # of unique clients • Session Length • Tx & Rx bytes <p>Client Session:</p> <ul style="list-style-type: none"> • AP Name, MAC, Description, Serial #, GPS • Controller Name & MAC • Client Device OS, Hostname & Username • # of sessions • # of sub sessions • # of unique clients • Session Length • Tx & Rx bytes • Connected time duration <p>Events:</p> <ul style="list-style-type: none"> • AP Name, MAC, Description, Serial #, GPS • Controller Name & MAC • Number of Events <p>Controller:</p> <ul style="list-style-type: none"> • Controller Name & MAC • Client Count • License Count • License Utilization 																		
Total			Rs. 8,393,388.00			Rs. 9,007,800.00			Rs. 9,445,000.00			Rs. 9,948,427.00			Rs. 13,218,634.00			Rs. 11,864,360.00		
GST			Rs. 1,426,875.00			Rs. 1,531,326.00			Rs. 1,605,650.00			Rs. 1,691,233.00			Included			Rs. 2,016,941.00		
Total Amount with GST			Rs. 9,820,263.00			Rs. 10,539,126.00			Rs. 11,050,650.00			Rs. 11,639,660.00			Rs. 13,218,634.00			Rs. 13,881,301.00		

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