

अनिवार्य आवश्यकताएँ

संख्या : TEC34732602

Essential Requirements

ER No. : TEC34732602

IP Security Equipment

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MTCTE के तहत जारी:

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Telecommunication Engineering Centre

Government of India

Khurshid Lal Bhawan, Janpath, New Delhi-110001, INDIA

Essential Requirements for:

IP Security Equipment

Certification Scheme: **SCS**

Product Fee Group: **C**

All types of IP Security Equipment including UTM, IPS, IDS, Firewall and the Associated IP Security Equipment like Network Security management Equipment, Network Security Analytics Equipment-Managed, Network security Analytics Equipment-Unmanaged, Content Security Appliance, Distributed-denial-of-service, Malware Analysis Equipment, Web Application Firewall, Network Data Encryption Equipment, Data Loss Prevention Equipment, Secure Telemetry Equipment, Secure Web Gateway Equipment.

Note: Annexures referred to in this ER are Annexures as mentioned in "Annexures to ERs" No. TEC/SD/DD/TCP-222/02/June19 as updated from time to time and available on MTCTE portal.

This product has the following variants:

1. Content Security Equipment
2. Data Loss Prevention Equipment
3. DDoS Protection Equipment
4. Firewall Equipment
5. Intrusion Detection System Equipment

6. Intrusion Prevention System Equipment
7. Malware Analysis Equipment
8. Network Data Encryption Equipment
9. Network Security Analytics Equipment-Managed
10. Network Security Analytics Equipment-Unmanaged
11. Network Security Management Equipment
12. Secure Telemetry Equipment
13. Secure Web Gateway Equipment
14. Unified Threat Management Equipment
15. Web Application Firewall

1. Variant 1 : Content Security Equipment

1.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
1.1.1	Application visiblility and control	Test No. 48 Annex-P11
1.1.2	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN55032. Annex-B
1.1.3	Data Loss Prevention	Test No. 50 Annex-P11
1.1.4	IDS Functional Test	Test No. 20, 21 Annex-P11
1.1.5	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
1.1.6	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
1.1.7	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
1.1.8	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
1.1.9	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B

1.1.10	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
1.1.11	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
1.1.12	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
1.1.13	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
1.1.14	SSL Proxy	Test No. 49 Annex-P11
1.1.15	UTM URL Content Anti-Virus Filtering/ Content Filtering	Test No.24, 25, 26 Annex-P11

1.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
1.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
1.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

1.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
1.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

1.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
1.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

1.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
1.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
1.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

1.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
1.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
1.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

1.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
1.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
1.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

1.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
1.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
1.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

1.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
1.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
1.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

1.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
1.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
1.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
1.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

1.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
1.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
1.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
1.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

1.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
1.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
1.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

1.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
1.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
1.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

1.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
1.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
1.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

1.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
1.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
1.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

1.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
1.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
1.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
1.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

1.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
1.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
1.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

1.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
1.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
1.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

1.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
1.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
1.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

1.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
1.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
1.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
1.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
1.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

2. Variant 2 : Data Loss Prevention Equipment

2.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
2.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN55032. Annex-B
2.1.2	Data Discovery and Classification	Appendix-II, Functional Test-85
2.1.3	Data Loss Prevention	Test No. 50 Annex-P11
2.1.4	File Transfer Quarantine	Appendix-II, Functional Test-87
2.1.5	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
2.1.6	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
2.1.7	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
2.1.8	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
2.1.9	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
2.1.10	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
2.1.11	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
2.1.12	IPV4 Parameters Set-D	RFC 791. Annex-P11
2.1.13	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
2.1.14	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
2.1.15	Manageability SNMPV2 or 3	RFC 3416 or RFC 3410. Appendix-II Test No. 38 or 39
2.1.16	Non-Sensitive Data Transfer	Appendix-II, Functional Test-86
2.1.17	Role-Based Policy Enforcement	Appendix-II, Functional Test-88

2.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

2.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
2.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

2.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
2.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

2.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
2.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

2.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
2.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
2.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

2.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
2.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
2.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

2.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
2.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
2.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

2.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

2.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
2.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

2.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
2.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
2.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

2.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
2.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
2.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
2.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

2.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
2.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
2.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
2.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

2.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
2.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
2.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

2.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
2.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
2.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

2.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
2.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
2.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

2.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
2.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
2.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

2.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
2.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
2.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
2.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

2.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
2.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
2.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

2.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
2.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
2.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

2.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
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2.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
2.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

2.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
2.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
2.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
2.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
2.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

3. Variant 3 : DDoS Protection Equipment

3.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
3.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
3.1.2	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
3.1.3	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
3.1.4	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
3.1.5	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
3.1.6	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
3.1.7	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B

3.1.8	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
3.1.9	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
3.1.10	L3 DDoS Protection	Test No. 51 Annex-P11
3.1.11	L4 DDoS Protection	Test No. 52 Annex-P11
3.1.12	L7 DDoS Protection	Test No. 53 Annex-P11
3.1.13	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11

3.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
3.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
3.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
3.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

3.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
3.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

3.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
3.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

3.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
3.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
3.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
3.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

3.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
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3.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
3.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
3.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

3.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
3.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
3.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
3.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

3.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
3.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
3.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
3.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

3.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
3.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
3.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
3.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

3.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
3.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
3.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
3.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

3.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
3.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
3.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn

3.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn
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3.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
3.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
3.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

3.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
3.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
3.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

3.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
3.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
3.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

3.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
3.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
3.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

3.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
3.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
3.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
3.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

3.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
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3.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
3.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

3.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
3.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
3.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

3.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
3.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
3.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

3.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
3.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
3.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
3.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
3.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

4. Variant 4 : Firewall Equipment

4.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
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4.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
4.1.2	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
4.1.3	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
4.1.4	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
4.1.5	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
4.1.6	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
4.1.7	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
4.1.8	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
4.1.9	IPSec Functional Test	Annex-P11
4.1.10	IPV4 Parameters Set-D	RFC 791. Annex-P11
4.1.11	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
4.1.12	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
4.1.13	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
4.1.14	NAT Functional Test	Annex-P11
4.1.15	Policy Functional Test	Test No. 19 Annex-P11

4.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
4.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
4.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

4.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
4.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

4.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
4.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

4.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
4.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
4.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

4.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
4.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
4.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

4.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
4.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
4.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

4.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
4.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
4.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

4.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
4.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
4.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

4.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
4.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
4.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
4.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

4.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
4.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
4.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
4.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

4.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
4.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
4.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

4.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
4.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
4.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

4.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
4.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15

4.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F
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4.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
4.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
4.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

4.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
4.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
4.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
4.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

4.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
4.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
4.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

4.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
4.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
4.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

4.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
4.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
4.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

4.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
4.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
4.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
4.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
4.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

5. Variant 5 : Intrusion Detection System Equipment

5.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
5.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
5.1.2	IDS Functional Test	Test No. 20, 21 Annex-P11
5.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
5.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
5.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
5.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
5.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
5.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
5.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
5.1.10	IPSec Functional Test	Annex-P11

5.1.11	IPV4 Parameters Set-D	RFC 791. Annex-P11
5.1.12	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
5.1.13	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
5.1.14	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
5.1.15	NAT Functional Test	Annex-P11
5.1.16	Policy Functional Test	Test No. 19 Annex-P11

5.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
5.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
5.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

5.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
5.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

5.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
5.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

5.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
5.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
5.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

5.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

5.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
5.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

5.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
5.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
5.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

5.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
5.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
5.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

5.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
5.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
5.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

5.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
5.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
5.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
5.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

5.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
5.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
5.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
5.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

5.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
5.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
5.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

5.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
5.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
5.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

5.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
5.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
5.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

5.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
5.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
5.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

5.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
5.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
5.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
5.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

5.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
5.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-

		F10
5.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

5.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
5.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
5.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

5.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
5.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
5.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

5.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
5.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
5.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
5.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
5.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

6. Variant 6 : Intrusion Prevention System Equipment

6.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
6.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550

		32. Annex-B
6.1.2	IDS Functional Test	Test No. 20, 21 Annex-P11
6.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
6.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
6.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
6.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
6.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
6.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
6.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
6.1.10	IPSec Functional Test	Annex-P11
6.1.11	IPS Functional Test	Test No. 22, 23 Annex-P11
6.1.12	IPV4 Parameters Set-D	RFC 791. Annex-P11
6.1.13	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
6.1.14	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
6.1.15	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
6.1.16	NAT Functional Test	Annex-P11
6.1.17	Policy Functional Test	Test No. 19 Annex-P11

6.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
6.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
6.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

6.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
6.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

6.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
6.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

6.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
6.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
6.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

6.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
6.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
6.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

6.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
6.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
6.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

6.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
6.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
6.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

6.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
6.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
6.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

6.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
6.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
6.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
6.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

6.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
6.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
6.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
6.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

6.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
6.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
6.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

6.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
6.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
6.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

6.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
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6.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
6.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

6.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
6.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
6.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

6.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
6.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
6.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
6.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

6.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
6.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
6.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

6.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
6.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
6.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

6.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
6.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
6.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-

		F11
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6.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
6.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
6.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
6.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
6.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

7. Variant 7 : Malware Analysis Equipment

7.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
7.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN55032. Annex-B
7.1.2	Dynamic Analysis	Test No. 55 Annex-P11
7.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
7.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
7.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
7.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
7.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
7.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
7.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B

7.1.10	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
7.1.11	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
7.1.12	Static Analysis	Test No. 54 Annex-P11

7.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
7.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
7.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

7.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
7.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

7.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
7.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

7.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
7.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
7.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

7.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
7.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
7.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

7.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
7.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
7.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

7.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
7.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
7.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

7.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
7.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
7.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

7.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
7.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
7.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
7.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

7.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
7.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
7.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
7.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

7.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
7.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
7.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

7.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
7.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
7.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

7.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
7.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
7.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

7.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
7.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
7.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

7.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
7.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
7.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
7.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

7.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
7.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
7.17.2	Operating Frequency for GSM or GPRS or	NFAP. Annex-F

	EDGE Int	
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7.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
7.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
7.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

7.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
7.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
7.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

7.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
7.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
7.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
7.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
7.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

8. Variant 8 : Network Data Encryption Equipment

8.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
8.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN55032. Annex-B
8.1.2	Data Encryption and Decryption function-	Test No. 16 Annex-P11

	IPSec	
8.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
8.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
8.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
8.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
8.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
8.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
8.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
8.1.10	IPV4 Parameters Set-D	RFC 791. Annex-P11
8.1.11	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
8.1.12	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
8.1.13	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11

8.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
8.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
8.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

8.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
8.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

8.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
8.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

8.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
8.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
8.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

8.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
8.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
8.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

8.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
8.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
8.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

8.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
8.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
8.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

8.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
8.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
8.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

8.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
8.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
8.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
8.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

8.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
8.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
8.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
8.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

8.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
8.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
8.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

8.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
8.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
8.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

8.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
8.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
8.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

8.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
8.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-

		F9
8.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

8.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
8.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
8.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
8.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

8.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
8.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
8.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

8.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
8.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
8.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

8.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
8.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
8.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

8.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
8.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3

8.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
8.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
8.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

9. Variant 9 : Network Security Analytics Equipment-Managed

9.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
9.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
9.1.2	Encrypted traffic analysis	Test No. 47 Annex-P11
9.1.3	IDS for Management and Analytic Equipment	Test No. 69 Annex-P11
9.1.4	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
9.1.5	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
9.1.6	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
9.1.7	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
9.1.8	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
9.1.9	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
9.1.10	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
9.1.11	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
9.1.12	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-

		P11
9.1.13	Network Visibility, Monitoring and Logging	Test No. 46 Annex-P11

9.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
9.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
9.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

9.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
9.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

9.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
9.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

9.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
9.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
9.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

9.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
9.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
9.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

9.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

9.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
9.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

9.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
9.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
9.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

9.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
9.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
9.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

9.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
9.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
9.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
9.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

9.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
9.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
9.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
9.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

9.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
9.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
9.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

9.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
9.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
9.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

9.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
9.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
9.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

9.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
9.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
9.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

9.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
9.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
9.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
9.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

9.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
9.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
9.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

9.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
9.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
9.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

9.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
9.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
9.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

9.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
9.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
9.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
9.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
9.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

10. Variant 10 : Network Security Analytics Equipment-Unmanaged

10.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
10.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
10.1.2	Encrypted traffic analysis	Test No. 47 Annex-P11
10.1.3	IDS for Management and Analytic Equipment	Test No. 69 Annex-P11
10.1.4	Immunity to AC Voltage Dips and Short	TEC EMI EMC Standard EN/IEC:61000-4-

	Interruptions	11. Annex-B
10.1.5	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
10.1.6	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
10.1.7	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
10.1.8	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
10.1.9	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
10.1.10	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
10.1.11	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
10.1.12	Network Visibility, Monitoring and Logging	Test No. 46 Annex-P11

10.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
10.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
10.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
10.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

10.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
10.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

10.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
10.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

10.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
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10.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
10.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
10.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

10.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
10.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
10.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
10.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

10.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
10.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
10.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
10.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

10.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
10.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
10.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
10.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

10.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
10.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
10.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
10.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

10.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
10.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
10.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

10.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
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10.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
10.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
10.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
10.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

10.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
10.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
10.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

10.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
10.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
10.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

10.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
10.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
10.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

10.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
10.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
10.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

10.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
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10.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
10.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
10.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

10.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
10.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
10.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

10.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
10.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
10.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

10.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
10.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
10.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

10.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
10.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
10.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
10.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
10.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-

		G1
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11. Variant 11 : Network Security Management Equipment

11.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
11.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
11.1.2	IDS for Management and Analytic Equipment	Test No. 69 Annex-P11
11.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
11.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
11.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
11.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
11.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
11.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
11.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
11.1.10	IPS Functional Test	Test No. 22, 23 Annex-P11
11.1.11	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
11.1.12	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
11.1.13	Policy Functional Test	Test No. 19 Annex-P11
11.1.14	Radius/ AAA/ Diameter	RFC 2865/ 3539/ 6733 Test No.67 Annex-P11

11.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
11.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
11.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

11.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
11.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

11.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
11.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

11.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
11.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
11.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

11.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
11.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
11.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

11.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
11.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
11.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

11.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
11.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
11.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

11.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
11.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
11.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

11.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
11.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
11.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
11.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

11.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
11.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
11.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
11.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

11.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
11.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
11.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

11.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
11.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13

11.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F
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11.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
11.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
11.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

11.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
11.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
11.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

11.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
11.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
11.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
11.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

11.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
11.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
11.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

11.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
11.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
11.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

11.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
11.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
11.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

11.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
11.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
11.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
11.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
11.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

12. Variant 12 : Secure Telemetry Equipment

12.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
12.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
12.1.2	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
12.1.3	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
12.1.4	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
12.1.5	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
12.1.6	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3.

		Annex-B
12.1.7	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
12.1.8	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
12.1.9	IPV4 Parameters Set-D	RFC 791. Annex-P11
12.1.10	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
12.1.11	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
12.1.12	Manageability SNMPV2 or 3	RFC 3416 or RFC 3410. Appendix-II Test No. 38 or 39
12.1.13	Telemetry Broker Alerts	Appendix-II, Functional Test-92
12.1.14	Telemetry Data Flow Visibility	Appendix-II, Functional Test-91
12.1.15	Telemetry Data Forwarding	Appendix-II, Functional Test-90
12.1.16	Telemetry Data Ingestion	Appendix-II, Functional Test-89

12.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
12.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
12.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

12.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
12.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

12.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
12.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

12.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

12.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
12.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

12.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
12.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
12.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

12.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
12.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
12.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

12.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
12.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
12.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

12.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
12.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
12.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

12.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
12.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
12.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
12.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

12.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
12.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
12.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
12.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

12.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
12.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
12.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

12.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
12.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
12.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

12.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
12.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
12.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

12.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
12.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
12.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

12.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
12.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H

12.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
12.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

12.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
12.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
12.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

12.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
12.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
12.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

12.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
12.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
12.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

12.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
12.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
12.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
12.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
12.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

13. Variant 13 : Secure Web Gateway Equipment

13.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
13.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
13.1.2	Forward Proxy	Appendix-II, Functional Test-93
13.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
13.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
13.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
13.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
13.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
13.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
13.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
13.1.10	IPV4 Parameters Set-D	RFC 791. Annex-P11
13.1.11	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
13.1.12	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
13.1.13	Manageability SNMPV2 or 3	RFC 3416 or RFC 3410. Appendix-II Test No. 38 or 39
13.1.14	Reverse Proxy	Test No. 66 Annex-P11
13.1.15	SSL/TSL Certificate Validation	Appendix-II, Functional Test-94
13.1.16	UTM URL Content Anti-Virus Filtering/ Content Filtering	Test No.24, 25, 26 Annex-P11

13.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
13.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
13.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

13.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
13.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

13.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
13.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

13.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
13.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
13.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

13.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
13.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
13.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

13.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
13.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
13.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

13.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
13.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
13.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

13.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
13.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
13.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

13.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
13.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
13.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
13.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

13.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
13.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
13.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
13.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

13.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
13.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
13.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

13.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
13.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13

13.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F
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13.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
13.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
13.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

13.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
13.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
13.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

13.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
13.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
13.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
13.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

13.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
13.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
13.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

13.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
13.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
13.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

13.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
13.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
13.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

13.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
13.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
13.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
13.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
13.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

14. Variant 14 : Unified Threat Management Equipment

14.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
14.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
14.1.2	IDS Functional Test	Test No. 20, 21 Annex-P11
14.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
14.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
14.1.5	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
14.1.6	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B

14.1.7	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
14.1.8	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
14.1.9	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
14.1.10	IPSec Functional Test	Annex-P11
14.1.11	IPS Functional Test	Test No. 22, 23 Annex-P11
14.1.12	IPV4 Parameters Set-D	RFC 791. Annex-P11
14.1.13	IPV6	RFC 8200 4861 4862 8201 4443 Annex-P11
14.1.14	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
14.1.15	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
14.1.16	NAT Functional Test	Annex-P11
14.1.17	Policy Functional Test	Test No. 19 Annex-P11
14.1.18	UTM URL Content Anti-Virus Filtering/Content Filtering	Test No.24, 25, 26 Annex-P11

14.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
14.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
14.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

14.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
14.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

14.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
14.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

14.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
14.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
14.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

14.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
14.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
14.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

14.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
14.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
14.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

14.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
14.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
14.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

14.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
14.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
14.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

14.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
14.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
14.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
14.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

14.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
14.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
14.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
14.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

14.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
14.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
14.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

14.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
14.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13
14.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F

14.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
14.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
14.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

14.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
14.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
14.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

14.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
14.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
14.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
14.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

14.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
14.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
14.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

14.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
14.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
14.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

14.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
14.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
14.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

14.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
14.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
14.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3

14.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
14.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1

15. Variant 15 : Web Application Firewall

15.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
15.1.1	Conducted And Radiated Emission - Class A	TEC EMI EMC Standard CISPR 32 EN550 32. Annex-B
15.1.2	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
15.1.3	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
15.1.4	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
15.1.5	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
15.1.6	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
15.1.7	Immunity to RF Field Induced Conducted Disturbance	TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B
15.1.8	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
15.1.9	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
15.1.10	Manageability SNMP V2 or V3/Netconf/Yang	RFC 3410 or RFC 3416 or RFC 6241 or RFC 6020 Test No. 38 or 39 or 68 Annex-P11
15.1.11	Protecting against OWASP top 10 vulnerabilities	Test No. 56 to 65 Annex-P11
15.1.12	Reverse Proxy	Test No. 66 Annex-P11

15.2 Interface 1 : 100 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.2.1	Average Launch power for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
15.2.2	Receiver Sensitivity 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H
15.2.3	Wavelength for 100 GE Opt	IEEE 802.3ba Cl. 86 88. Annex-H

15.3 Interface 2 : 10 100 1000 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
15.3.1	Link Speed and Autonegotiation Test GE	IEEE 802.3. Annex-H

15.4 Interface 3 : 10 100 BASE-T Ethernet

S.No.	Parameter Name	Standard Name
15.4.1	Link Speed and Autonegotiation Test FE	IEEE 802.3 Annex-H

15.5 Interface 4 : 10 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.5.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
15.5.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
15.5.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

15.6 Interface 5 : 1 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.6.1	Average Launch power for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
15.6.2	Receiver Sensitivity 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H
15.6.3	Wavelength for 1 GE Opt	IEEE 802.3z Cl. 38. Annex-H

15.7 Interface 6 : 200 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.7.1	Average Launch Power for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
15.7.2	Receiver Sensitivity for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122
15.7.3	Wavelength for 200 GE Opt	IEEE 802.3cn Cl 121 Cl 122

15.8 Interface 7 : 25 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.8.1	Average Launch Power for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
15.8.2	Receiver Sensitivity for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114
15.8.3	Wavelength for 25 GE Opt	IEEE 802.3 - 2018 Cl. 114

15.9 Interface 8 : 400 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.9.1	Average Launch Power for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
15.9.2	Receiver Sensitivity for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124
15.9.3	Wavelength for 400 GE Opt	IEEE 802.3cn Cl 122 Cl 124

15.10 Interface 9 : 40 G Optical Ethernet

S.No.	Parameter Name	Standard Name
15.10.1	Average Launch power for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
15.10.2	Receiver Sensitivity 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H
15.10.3	Wavelength for 40 GE Opt	IEEE 802.3ba Cl. 86 87. Annex-H

15.11 Interface 10 : 50G Ethernet Optical

S.No.	Parameter Name	Standard Name
15.11.1	Average Launch Power for 50 GE Opt	IEEE 802.3cn
15.11.2	Receiver Sensitivity for 50 GE Opt	IEEE 802.3cn
15.11.3	Wavelength for 50 GE Opt	IEEE 802.3cn

15.12 Interface 11 : 5G NR (FR1)

S.No.	Parameter Name	Standard Name
15.12.1	Int Parameters for 5G NR (FR1)	3GPP TS 38.521-1. Annex-F14
15.12.2	Operating frequency for 5G NR (FR1)	NFAP. Annex-F

15.13 Interface 12 : 5G NR- FR1 and FR2 interworking with other Radios

S.No.	Parameter Name	Standard Name
15.13.1	Int Parameters for 5G NR-FR1 and FR2 interworking with other Radios	3GPP TS 38.521-3. Annex-F13

15.13.2	Operating frequency for 5G NR- FR1 and FR2 interworking with other Radios	NFAP. Annex-F
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15.14 Interface 13 : 5G NR (FR2)

S.No.	Parameter Name	Standard Name
15.14.1	Int Parameters for 5G NR (FR2)	3GPP TS 38.521-2. Annex-F15
15.14.2	Operating frequency for 5G NR (FR2)	NFAP. Annex-F

15.15 Interface 14 : CDMA

S.No.	Parameter Name	Standard Name
15.15.1	CDMA Int Parameters	1xS0011 or EN 301 908-04 CDMA. Annex-F9
15.15.2	Operating Frequency for CDMA Int	NFAP. Annex-F

15.16 Interface 15 : Fast Ethernet Optical

S.No.	Parameter Name	Standard Name
15.16.1	Average Launch power for FE Opt	IEEE 802.3u. Annex-H
15.16.2	Receiver Sensitivity for FE Opt	IEEE 802.3u. Annex-H
15.16.3	Wavelength for FE Opt	IEEE 802.3u. Annex-H

15.17 Interface 16 : GSM or GPRS or EDGE

S.No.	Parameter Name	Standard Name
15.17.1	Int Parameters for GSM or GPRS or EDGE	3GPP TS 51 010-1 or EN 301 511. Annex-F10
15.17.2	Operating Frequency for GSM or GPRS or EDGE Int	NFAP. Annex-F

15.18 Interface 17 : LTE or LTE-A

S.No.	Parameter Name	Standard Name
15.18.1	Int Parameters for LTE or LTE-A	3GPP TS 36.521-1 or EN 301 908-13. Annex-F12
15.18.2	Operating Frequency for LTE or LTE-A Int	NFAP. Annex-F

15.19 Interface 18 : WCDMA or HSPA

S.No.	Parameter Name	Standard Name
15.19.1	Operating Frequency for WCDMA or HSPA Int	NFAP. Annex-F
15.19.2	WCDMA or HSPA Int Parameters	3GPP TS 34.121-1 or EN 301 908-2. Annex-F11

15.20 Interface 19 : WiFi

S.No.	Parameter Name	Standard Name
15.20.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
15.20.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 and or ETSI EN 302 502 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3
15.20.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
15.20.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex-G1