Standardization work on Sustainable Digital transformation in CCSA

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Content

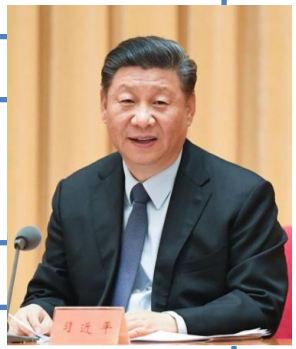
Climate Change be Intensively Focused

- The WMO and UNEP established the IPCC in 1988.
- In 1992, the United Nations adopted the UNFCCC
- The developed countries will reduce the total emissions of six greenhouse gases by 5.2% from 2008 to 2012 based on the emission reduction level established in 1990.(Kyoto Protocol)
- Controlling the global average temperature rise within 2℃ compared with the pre industrialization period by 2100, and will strive to limit the temperature rise within 1.5 ℃(Paris Agreement 2015)
- The global net emission will decrease by 45% in 2030 compared with 2010, and achieve Net Zero by 2050. (IPCC)

Climate Action in China

The 76th UN General Assembly

China will vigorously support the green and low-carbon development of energy in developing countries and will no longer make new overseas coal power projects.



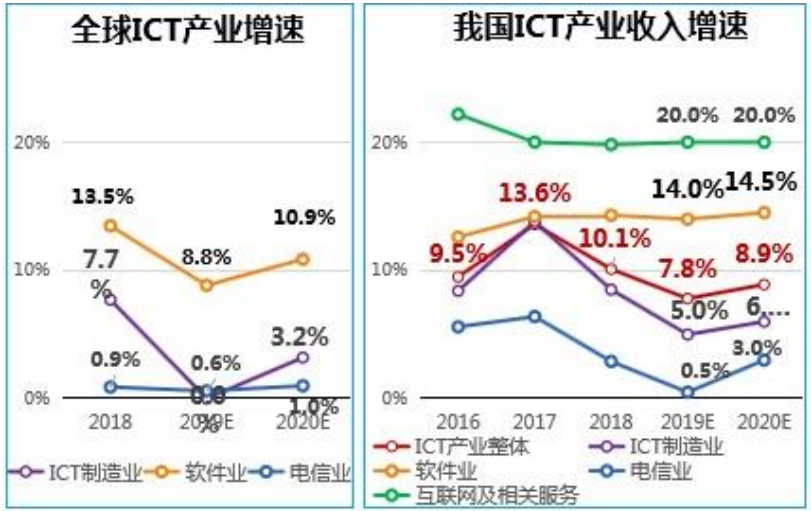
The 75th UN General Assembly

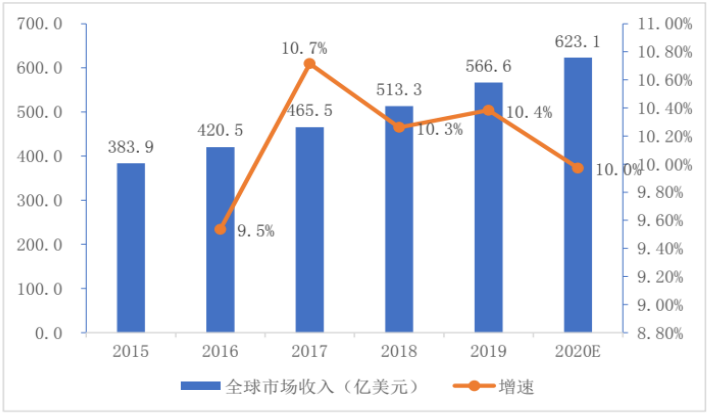
China's carbon dioxide emissions should reach its peak by 2030, and strive to achieve carbon neutralization by 2060.

The 15th Leaders' summit of the parties to the convention on biological diversity

China will release implementation plans and a series of support measures for peak carbon in key areas and industries.
China will continue to promote the adjustment of industrial structure and energy structure, vigorously develop renewable energy, and accelerate the planning and construction of large-scale wind power photovoltaic base projects.

Energy Consumption of ICT





来源：中国信息通信研究院

图 3 全球 IDC 市场规模

The GSMA, ITU, Gesi and the SBTI released emission reduction targets for the ICT industry in 2020 based on science. Specifically, the ICT industry needs to reduce GHG emissions by 45% from 2020 to 2030.

Our Responsibility from CCSA

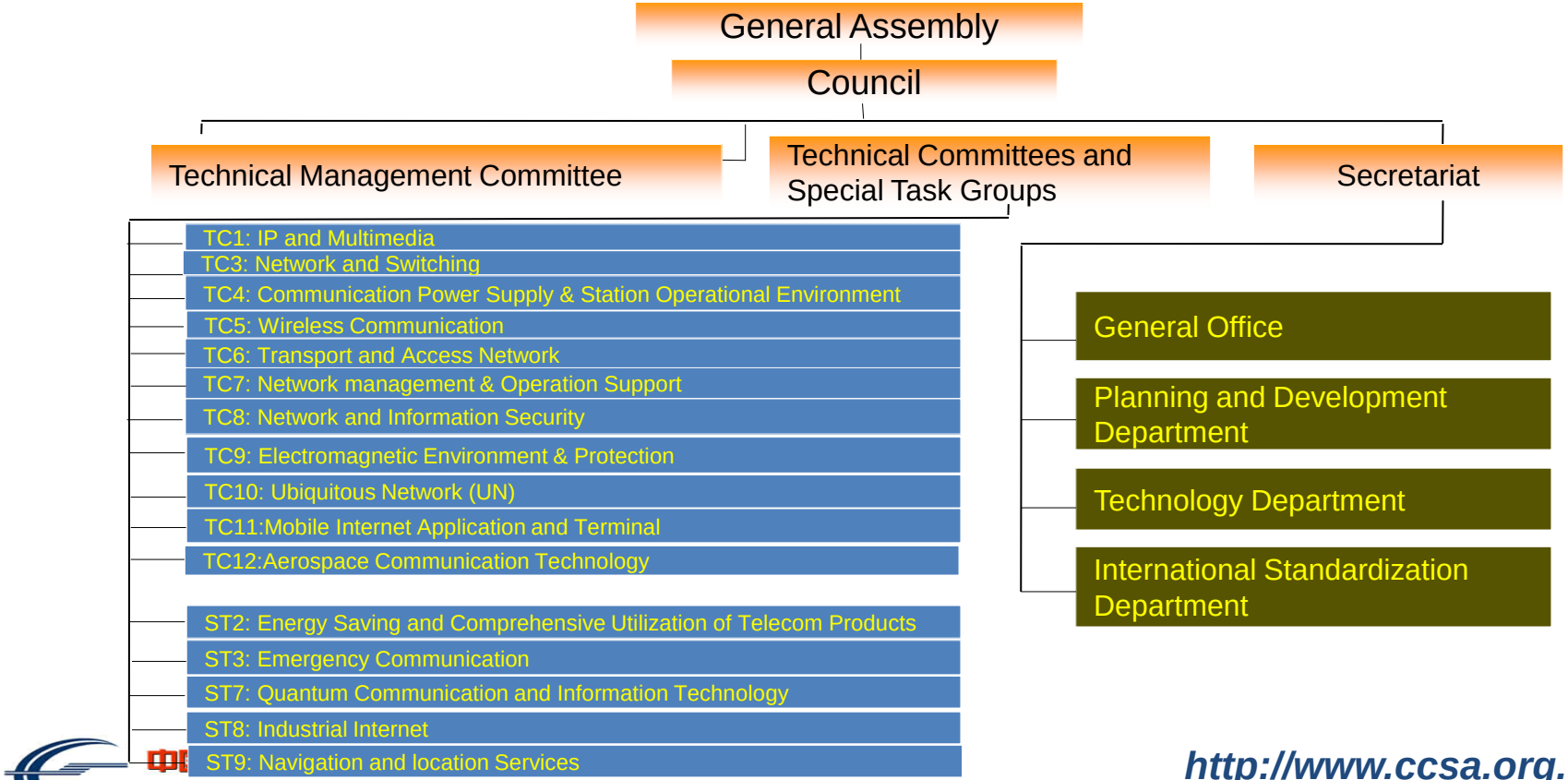
- ***The Standardization Association in Communication ndustry in China***

- *A market-oriented operating mechanism in which*:
  - The government plays a guiding role
  - Joint efforts by manufactures, universities, research institutes and users for standards development

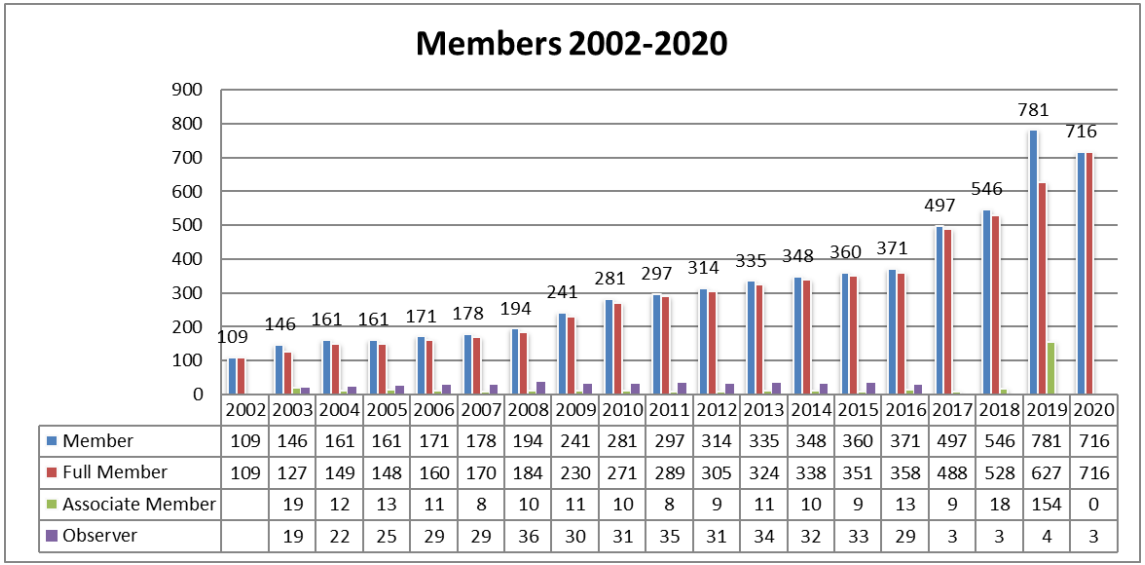
- Principle of "*Openness, Fairness, Justness and Consensus*"

- *Seek mutual promotion and harmonized development between domestic standards and international standards*

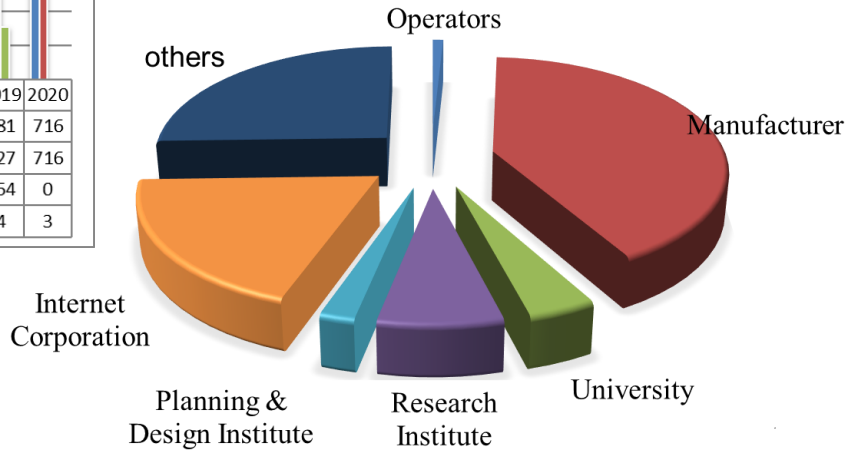
Organizational Structure of CCSA



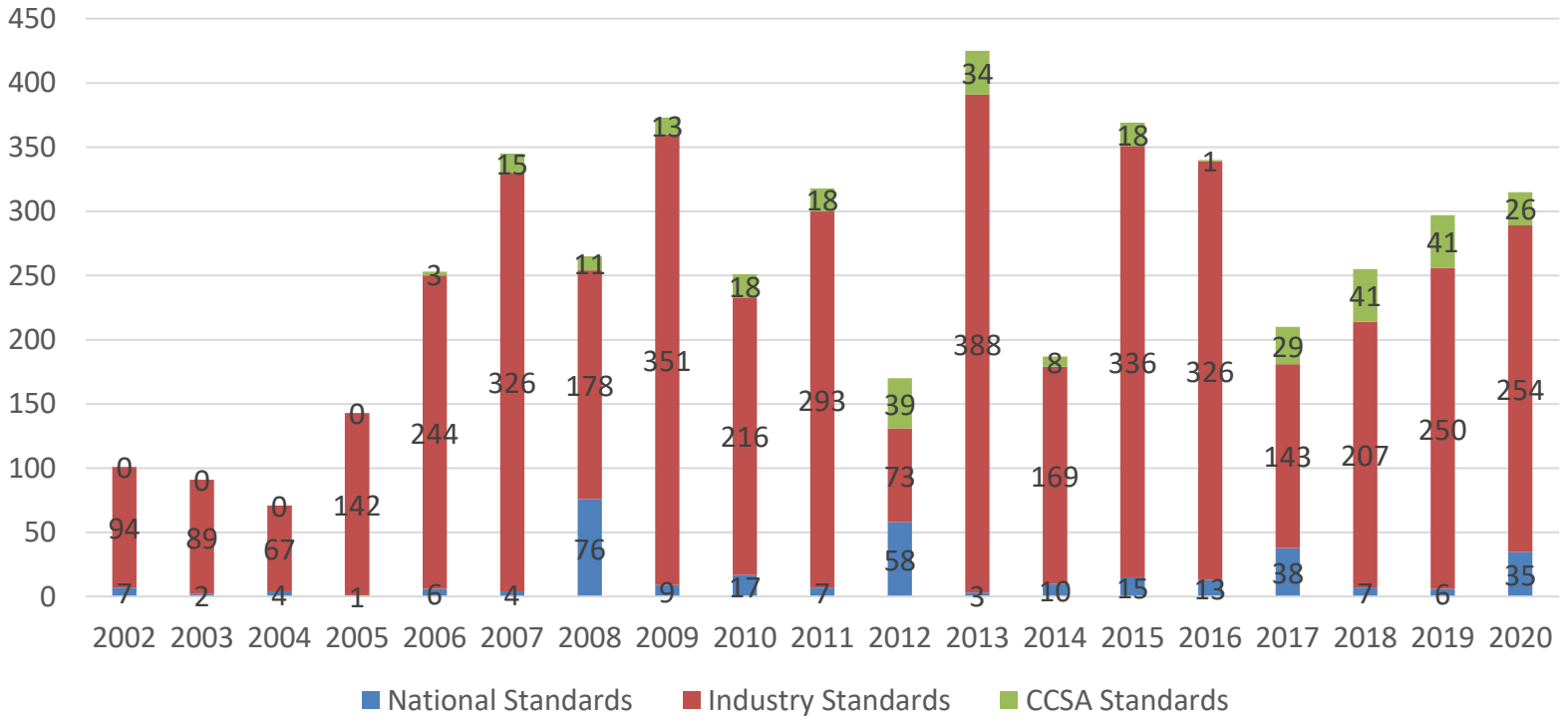
Members of CCSA



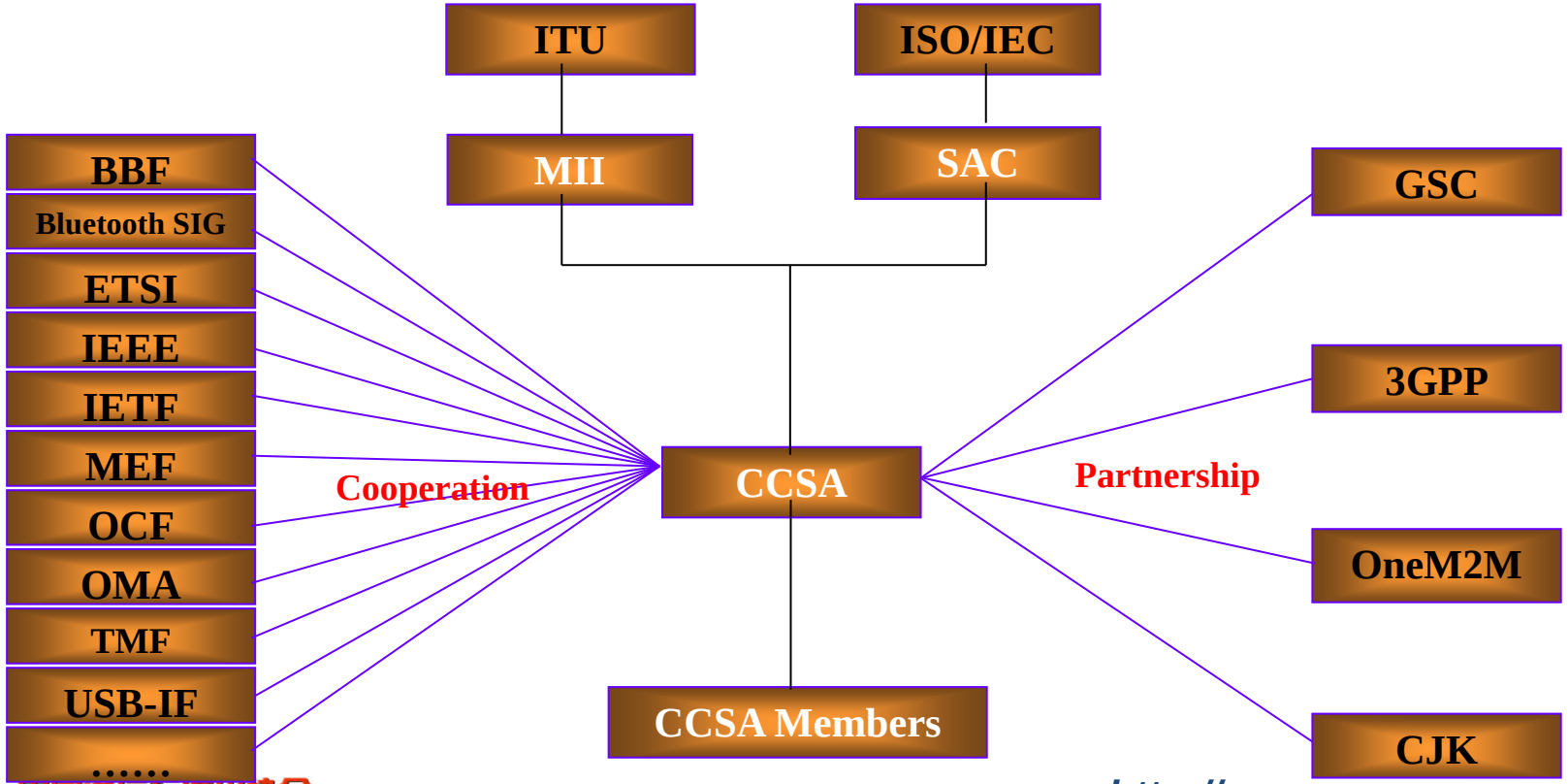
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Member	109	146	161	161	171	178	194	241	281	297	314	335	348	360	371	497	546	781	716
Full Member	109	127	149	148	160	170	184	230	271	289	305	324	338	351	358	488	528	627	716
Associate Member		19	12	13	11	8	10	11	10	8	9	11	10	9	13	9	18	154	0
Observer		19	22	25	29	29	36	30	31	35	31	34	32	33	29	3	3	4	3



Published Standards of CCSA



International Cooperation of CCSA



Standards of Green Energy

YD/T 1669-2016
The Off-Grid Wind/PV hybrid power supply system for telecommunications

YD/T 2321-2011
Technical requirement and testing methods for converting mode solar power controller for telecommunications

YD/T 3087-2016
The embedded solar photovoltaic power system for telecommnuications

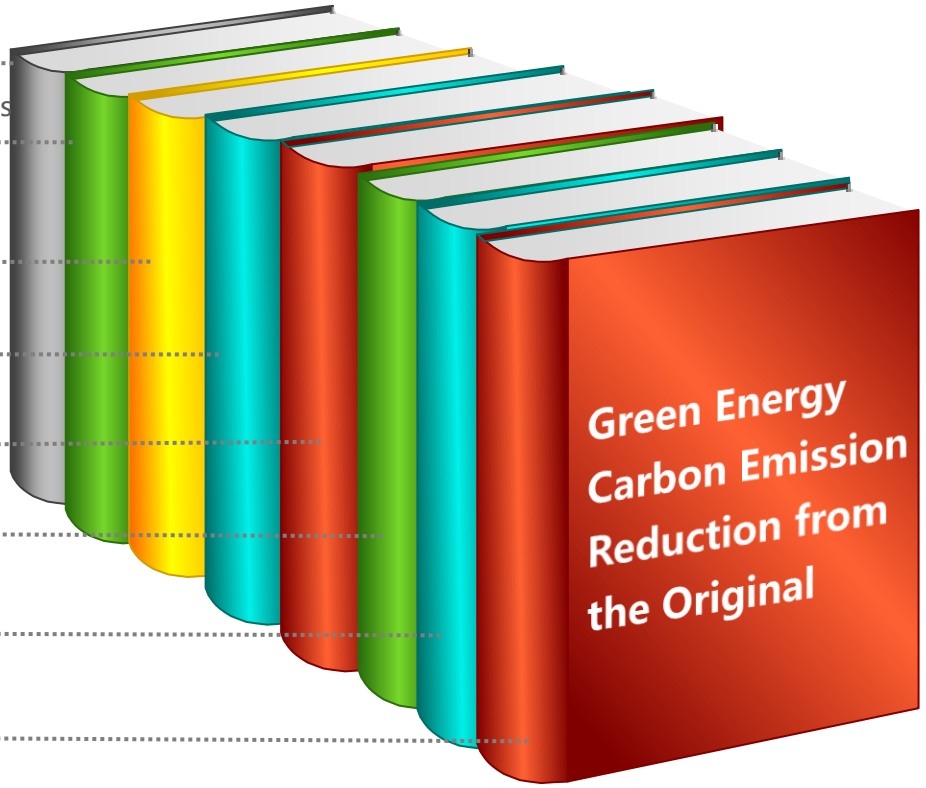
GB/T 26263-2010
The power system of wind energy for telecommunication

GB/T 26264-2010
The photovoltaic power system for telecommunication

YDB051-2010
Power supply of hydrogen fuel cell for telecommunications

YDB053-2010
Solid hydrogen storage system of fuel cells for telecommunications

T/CCSA 313-2021
Aluminum air battery system for telecommunication



Standards of Energy Efficiency

YD/T 2435.3-2020 Guide for energy saving technology of power supply and Room environment for telecommunications—Part 3:Grade of energy efficiency of power supply

YD/T 2435.4-2020 Guide for energy saving technology of power supply and room environment for telecommunications-Part 4：Classification of airconditioners energy efficiency

YD/T 2897-2015 Parameters and test methods for the energy efficiency - Optical transport network (OTN) equipment

YD/T 2898-2015 Parameters and test methods of energy efficiency for optical transport equipment - Packet Transport Network（PTN）equipment

YD/T 2899-2015 Parameters and test methods of energy efficiency for optical transport equipment Multi-Service transport platform（MSTP）equipment

GB/T 26262-2010 Guide for classification of telecommunication equipment energy efficiency

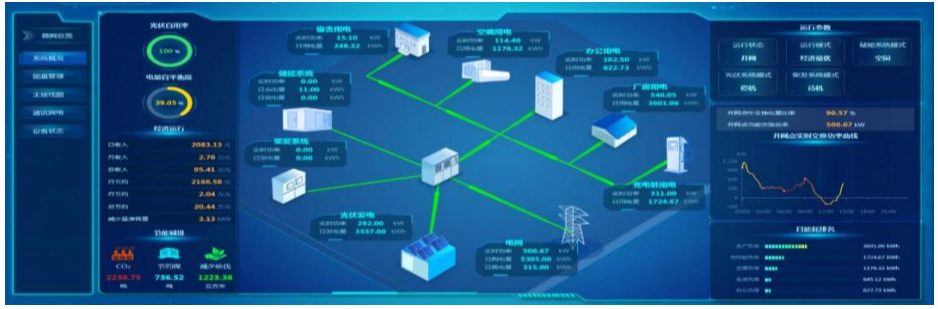
YD/T 3032-2016 Energy efficiency requirements and measurement methods for power and cooling systems in telecommunication rooms and stations

Standards of Energy-saving Technology and Products

No.	Number	Title
1	GB/T 28520-2012	Intelligent heat exchanger for telecommunication stations/sites
2	GB/T 28521-2012	Intelligent energy saving system by fresh air for telecommunication stations/sites
3	YD/T 1968-2009	Intelligent heat exchanger for telecommunication stations/sites
4	YD/T 1969-2009	Intelligent Energy Saving System by Fresh Air for Telecommunication Stations/Sites
5	YD/T 2061-2009	Constant temperature & humidity air conditioning system for telecommunication room
6	YD/T 2318-2011	Technical requirements and test methods of the integrated air conditioner with fresh air cooling for BTS
7	YD/T 2557-2013	Technical requiements and testing methods for CRAC with refrigerant pumping-compressing dual cycles
8	YD/T 2768-2014	Thermal control equipment for outdoor telecommunication enclosure Part 1:embedded thermal control equipment
9	YD/T 2769-2014	Thermal control equipment for outdoor telecommunication enclosure Part 2:temperature control equipment with PCM
10	YD/T 2770-2014	Technical requirements and experimental methods of heat pipe exchanger for communication base station
11	YD/T 3033-2016	PCM Energy storage equipment for telecommunication stations/sites
12	YD/T 3223-2017	Integrated heat pipe air conditioner for telecom stations/sites
13	YD/T 2435.1-2012	Guide for energy saving technology of power supply and Room Environment for telecommunications Part 1:General Rules
14	YD/T 2435.2-2017	Guide for energy saving technology of power supply for telecommunications and room environment—Part 2: Application conditions
15	YD/T 2435.5-2017	Guide for energy saving technology of power supply for telecommunications and room environment-Part 5:Airflow
16	YD/T 3320.1-2018	The high heat density thermal control equipment for telecommunication Part 1:In-row air conditioner
17	YD/T 3320.2-2018	The high (heat) density thermal control equipment for telecommunication room-Part 2:Rear door heat exchanger
18	YD/T 3320.3-2020	The high heat density thermal control equipment for telecommunication— Part 3: Overhead convective unit
19	YD/T 3767-2020	Technical Specifications of the hybrid Architecture with both commercial Power and uninterruptable Power Supply in Data Center
20	YD/T 3768.1-2020	Technical requirement and test methods of echelon using EV batteries for telecommunication—Part1: LiFePO4 battery
21	YD/T 3004-2016	Technical requirements on modular telecommunication room
22	YD/T 3568.1-2020	Technical requirements for telecommunication base station infrastructure— Part 1: General principles

Standards of Management in Energy Consumption and Carbon Emission

YD/T 3548-2019 Technical specifications of Energy Consumption Measurement & Management System for Communication Operators



YD/T 3048.1-2016 Technical requirements for assessment of carbon footprint of communication products Part 1 : Mobile phone

YD/T 3048.2-2016 Technical requirements for assessment of carbon footprint of communication products Part 2 : Ethernet switch

Future Plan in CCSA

Standards of Green Energy

- Renewable energy used in data center, telecommunication room and base station;
- New type of energy storage like hydrogen fuel cell and Aluminum air battery;
- Standards of energy intelligent application and comprehensive energy management are promoted simultaneously.

Standards of Energy Efficiency

- Product level : IT devices, infrastructure devices;
- System level : IT system, power supply system and air cooling system;
- Network level: Telecommunication room, base station and network system.

Standards of Energy Saving and Recycle

- Energy saving Technology and product : HVDC, free cooling,
- System level or room level energy saving standards: especially on digital and smart application together with under developing standards;
- Recycle and reuse of energy or materials: residual heat dissipation standard.

Standards of Carbon Emission

- GHG emission calculation and report (manufacturing and operating corp.);
- Carbon footprint of products (IT and infrastructure)
- Limitation and low-carbon evaluation(data center, telecommunication room, base station, etc.
- Management and Service.

Thank you！