

ETSI Seminar 2023

An introduction to 3GPP

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Director of the 3GPP MCC



20/06/2023



Agenda

- The role of 3GPP
- About 3GPP
 - European Roots
 - Membership
 - Eco-system
- Structure of 3GPP Groups
- 3GPP – How It Works
 - Meetings
 - Stages, WIDs and SIDs
 - Releases
- Following the work
- Contacts



The role of 3GPP

- ▼ Part of the invention, proof of concept, **standardization**, trials, commercialization ...cycle

- ▼ Specifications and Studies providing a **system description** for mobile telecommunications

- ▼ The system description is characterized by a number of **standardized interfaces**. It is **not** a description of a standardized **deployment**

- ▼ This standardization effort enables an interoperable, multi-vendor approach to deployment and generates mass market economies of scale



About 3GPP – European roots

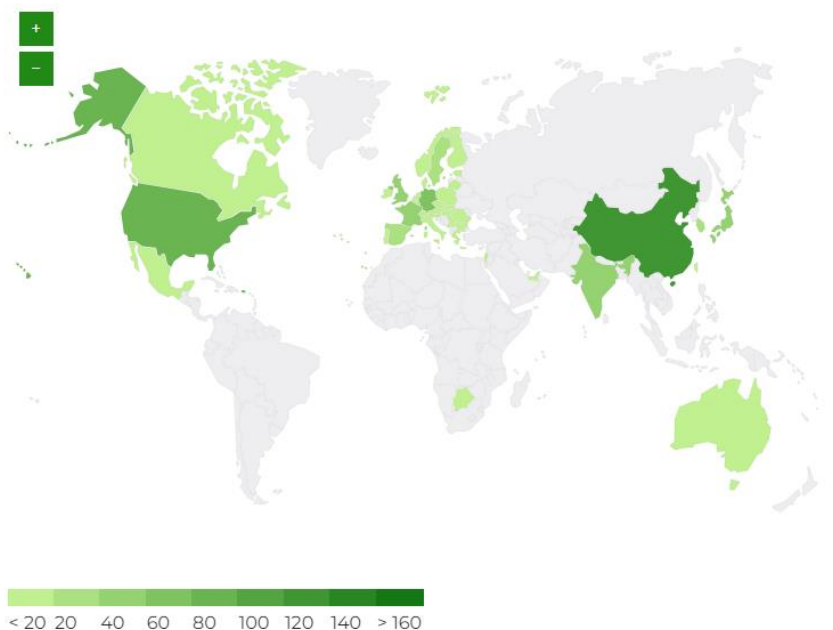
A Partnership between Standards Development Organizations (SDOs) and other related bodies for the production of Technical Specifications and Reports:

- Partnership Project Agreement drawn up in 1998.
- 3GPP created for the development of the Global System for Mobile (GSM) beyond 2G.
- Responsible for a 3G System based on the evolved GSM core network and radio access technology.
- ETSI working alongside other standards bodies from North America and Asia.
- Now THE place for 4G and 5G developments. All cellular operators are now committed to the 3GPP system.



About 3GPP (2) – Membership

3GPP Global Membership



42
Countries
824
Organizational Partner Members
13136
Number delegates at meetings this year
120
3GPP Meetings per year
4123
3GPP Specifications

The 3GPP Organizational Partners – from Asia, Europe and North America – determine the general policy and strategy of 3GPP.

824 organizations have joined 3GPP via one of these seven OPs.



<https://www.3gpp.org/about-us/partners>

About 3GPP (3) – An ecosystem

3GPP Organizational Partners (OPs)

824 companies



- **The 3GPP Organizational Partners (OPs)** - 7 Standards Organizations - from China, Europe, India, Japan, Korea and the United States.
- Participation in 3GPP by companies and organizations becoming Members of one of these 7 OPs.
- Inputs on market requirements may come in to the Project via **3GPP Market Representation Partners (MRP)**.
- There is a lot of additional **External liaison** activity...SDOs, Industry bodies, projects...

3GPP Market Representation Partners (MRPs)



5G Projects



Certification Bodies



Official Liaisons on specification work:

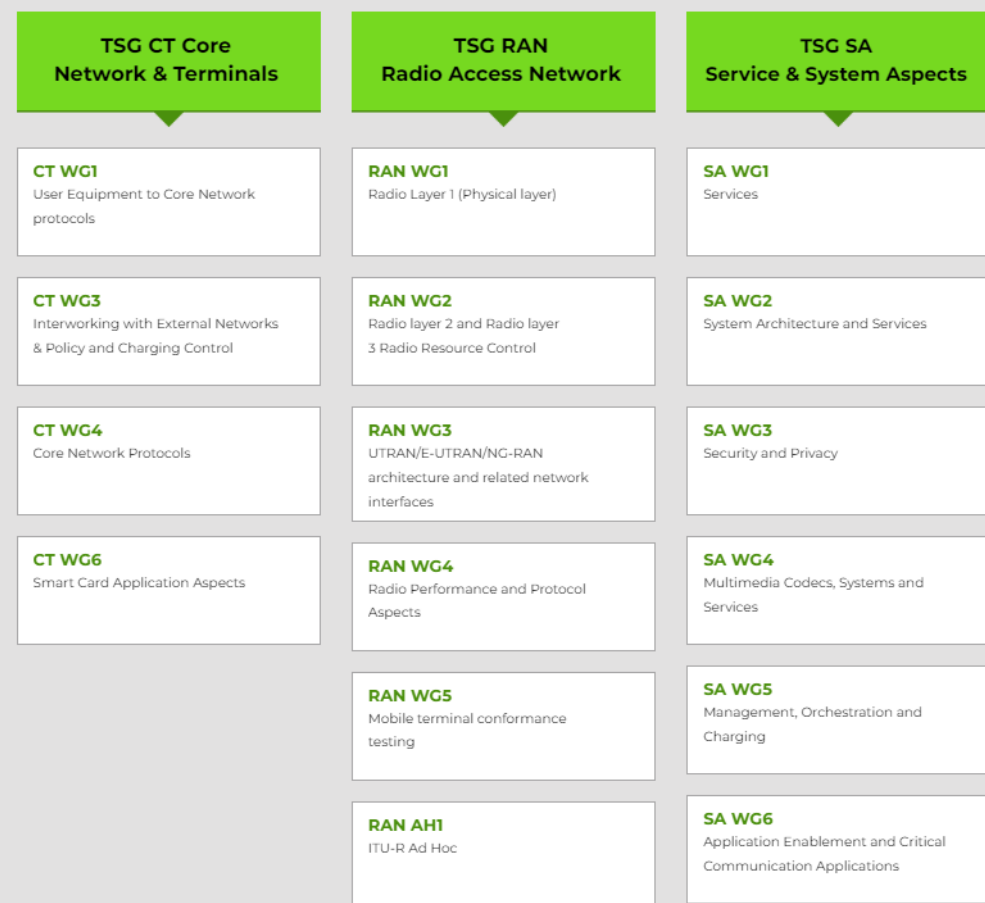
450 MHz Alliance, AISG, Bluetooth, Broadband Forum (BBF), CableLabs, International Special Committee on Radio Interference (CISPR), CTIA, Digital Video Broadcasting (DVB) Project, Ecma International, Expert Group for Emergency Access (EGEA), Eurescom, COST 273, European Radiocommunications Committee (ERC), Fixed Mobile Convergence Alliance (FMCA), GCF, Global TD-LTE Initiative (GTD), GPS Industry Council, GSM Association, HomeRF Forum, IDB Forum, IEEE, Internet Engineering Task Force (IETF), IrDA, International Multimedia Telecommunications Consortium (IMTC), Internet Streaming Media Alliance, ISO-ITU expert group, ISO MPEG / JPEG, ITU-T SG2, JAIN tm (Javatm APIs for Integrated Networks), The Java Community Process (JCP), Liberty Alliance Project, Metro Ethernet Forum (MEF), NENA, NGMN (Next Generation Mobile Networks), oneM2M, OMA (Open Mobile Alliance), Open Networking Foundation (ONF), Open IPTV Forum, Object Management Group (OMG), PCS Type Certification Review Board (PTCRB), Portable Computer and Communications Association (PCCA), Presence and Availability Management (PAM) Forum, RSA Laboratories, SDR Forum, Sun Micro Systems Inc., Steerco, SyncML Initiative, Trusted Computing Group (TCG), TeleManagement Forum (TMF), TCCA, TIA /TR45, TIA/TR47, ITU, TV-anytime Forum, Voice eXtensible Markup Language (VXML) Forum, Wi-Fi Alliance, Wireless Broadband Alliance (WBA), WLAN Smart Card Consortium, Wireless World Research Forum (WWRF), World Wide Web Consortium (W3C)

(Source: extract from <https://www.3gpp.org/about-3gpp/15-bodies-with-which-3gpp-has>)

Structure of the 3GPP groups

Technical Specification Groups (TSGs)

The Working Groups, within the TSGs, meet regularly and come together for their quarterly TSG Plenary meeting, where their work is presented for information, discussion and approval.



- Technical Specification Groups (TSGs) covering different aspects of 3GPP system
 - Core Network and Terminals (CT)
 - Radio Access Network (RAN)
 - Service and System Aspects (SA)
- TSGs are organized into Working Groups (WGs)
- Technical work is mostly done in WGs
- Overall approval, planning and coordination done in TSGs
- TSGs and WGs elect their leadership (2 year terms / 2 terms)

3GPP – How It Works

3GPP works based on

Participation in face-to-face meetings (and now also e-meetings)

Pro-activity & Contributions – you need written proposals to get attention

Consensus based

3 stages, often overlapping

Stage 1: Requirements

Stage 2: Architecture

Stage 3: Protocols

Work organization

Study Items, Work Items

Releases with fixed time-lines, which are partially overlapping

[Work Plan](#) (good overview)

> 820 Companies actively participate in the 3GPP work

From all over the world

All major telecommunication companies – operators, network/device/chipset vendors

More and more vertical industry representatives bring their work directly to 3GPP

A new Release every 15 to 24 months

Allows for reasonably fast standardization & deployment of new ideas

Strong commitment to time-lines guarantees reliable planning and time-to-market

New technologies easily introduced & then evolved in a phased approach (AI/ML, IIoT, MC, UAV, NPN, NTN, etc...)

Amazing Track Record

3GPP started 1998, since then all major standards projects were deployed

E.g. 3G/UMTS, 4G/LTE, VoLTE/IMS, NB-IoT, 5G

Seamless migration from “old” to “new” technology generations

3GPP – How It Works

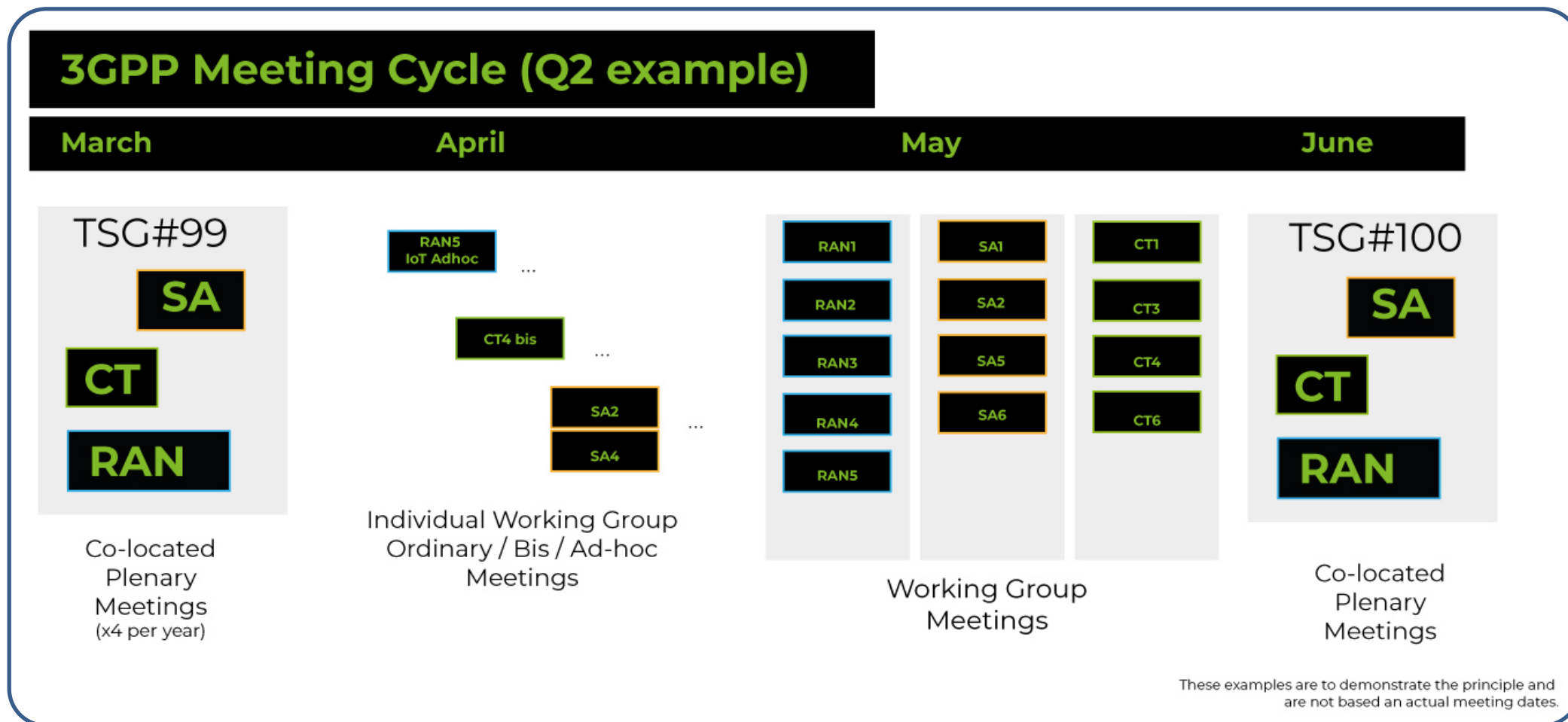
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3GPP Meetings

✔ TSG quarterly meeting cycle

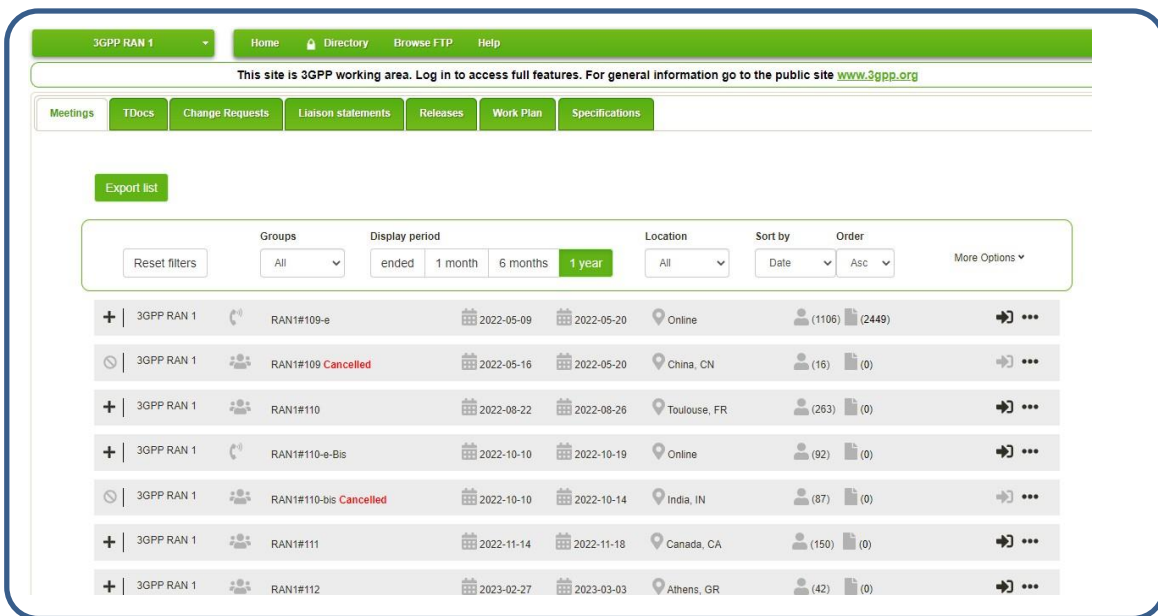


3GPP Meetings

3GPP meetings

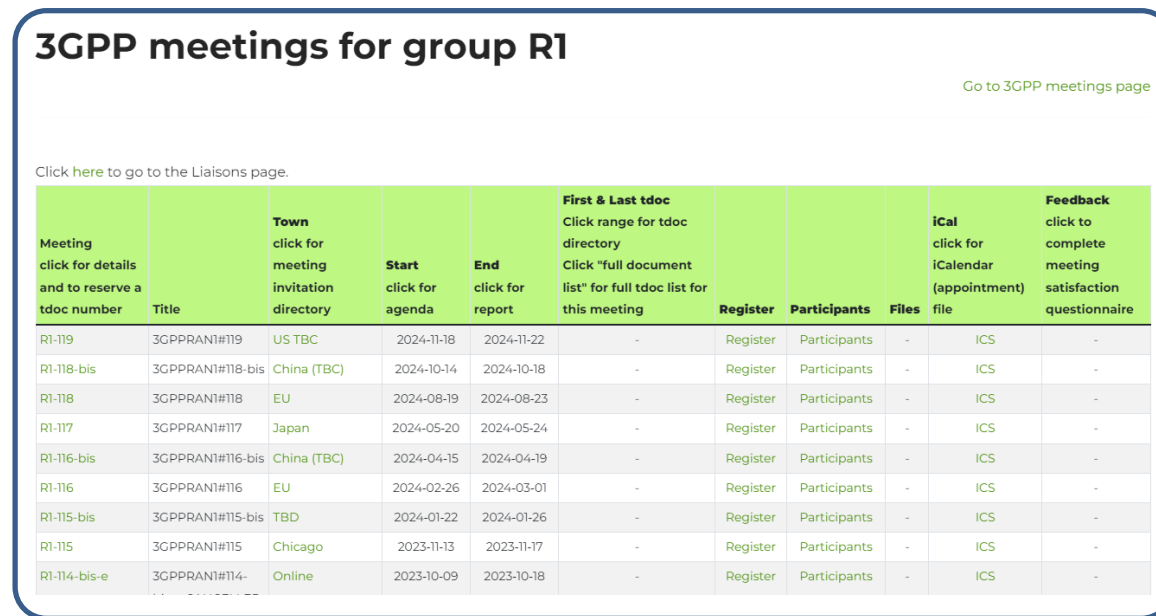
- The meeting calendar for any group (or all groups) can be found on the 3GPP web site and portal:

<https://portal.3gpp.org/>



The screenshot shows the 3GPP portal interface for viewing meeting calendars. At the top, there is a navigation bar with '3GPP RAN 1' selected, and links for 'Home', 'Directory', 'Browse FTP', and 'Help'. Below this is a message: 'This site is 3GPP working area. Log in to access full features. For general information go to the public site www.3gpp.org'. A secondary navigation bar contains buttons for 'Meetings', 'TDocs', 'Change Requests', 'Liaison statements', 'Releases', 'Work Plan', and 'Specifications'. The main content area features an 'Export list' button and a filter section with options for 'Reset filters', 'Groups' (set to 'All'), 'Display period' (with '1 year' selected), 'Location' (set to 'All'), 'Sort by' (set to 'Date'), and 'Order' (set to 'Asc'). Below the filters is a table listing various 3GPP RAN 1 meetings with columns for group name, status, dates, location, and participant counts.

<https://www.3gpp.org/3gpp-groups>



The screenshot shows the 3GPP website page for '3GPP meetings for group R1'. It includes a link 'Go to 3GPP meetings page' and a note 'Click here to go to the Liaisons page.' Below this is a table with columns: 'Meeting click for details and to reserve a tdoc number', 'Title', 'Town click for meeting invitation directory', 'Start click for agenda', 'End click for report', 'First & Last tdoc Click range for tdoc directory Click "full document list" for full tdoc list for this meeting', 'Register', 'Participants', 'Files', 'iCal click for iCalendar (appointment) file', and 'Feedback click to complete meeting satisfaction questionnaire'. The table lists several meetings with their respective details.

Meeting click for details and to reserve a tdoc number	Title	Town click for meeting invitation directory	Start click for agenda	End click for report	First & Last tdoc Click range for tdoc directory Click "full document list" for full tdoc list for this meeting	Register	Participants	Files	iCal click for iCalendar (appointment) file	Feedback click to complete meeting satisfaction questionnaire
R1-119	3GPPRAN1#119	US TBC	2024-11-18	2024-11-22	-	Register	Participants	-	ICS	-
R1-118-bis	3GPPRAN1#118-bis	China (TBC)	2024-10-14	2024-10-18	-	Register	Participants	-	ICS	-
R1-118	3GPPRAN1#118	EU	2024-08-19	2024-08-23	-	Register	Participants	-	ICS	-
R1-117	3GPPRAN1#117	Japan	2024-05-20	2024-05-24	-	Register	Participants	-	ICS	-
R1-116-bis	3GPPRAN1#116-bis	China (TBC)	2024-04-15	2024-04-19	-	Register	Participants	-	ICS	-
R1-116	3GPPRAN1#116	EU	2024-02-26	2024-03-01	-	Register	Participants	-	ICS	-
R1-115-bis	3GPPRAN1#115-bis	TBD	2024-01-22	2024-01-26	-	Register	Participants	-	ICS	-
R1-115	3GPPRAN1#115	Chicago	2023-11-13	2023-11-17	-	Register	Participants	-	ICS	-
R1-114-bis-e	3GPPRAN1#114-	Online	2023-10-09	2023-10-18	-	Register	Participants	-	ICS	-

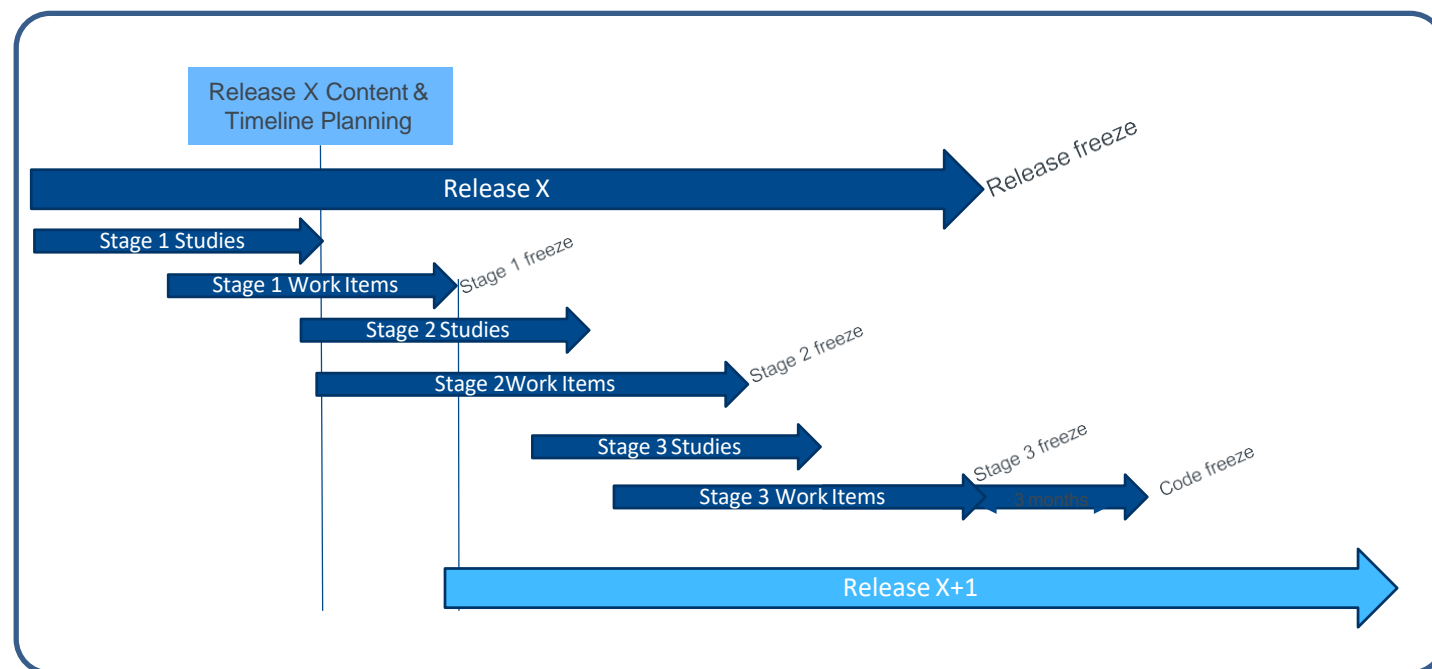
3GPP – Stages, SIDs and WIDS

3 stages, often overlapping

- ✓ Stage 1: Requirements
- ✓ Stage 2: Architecture
- ✓ Stage 3: Protocols

Work organization

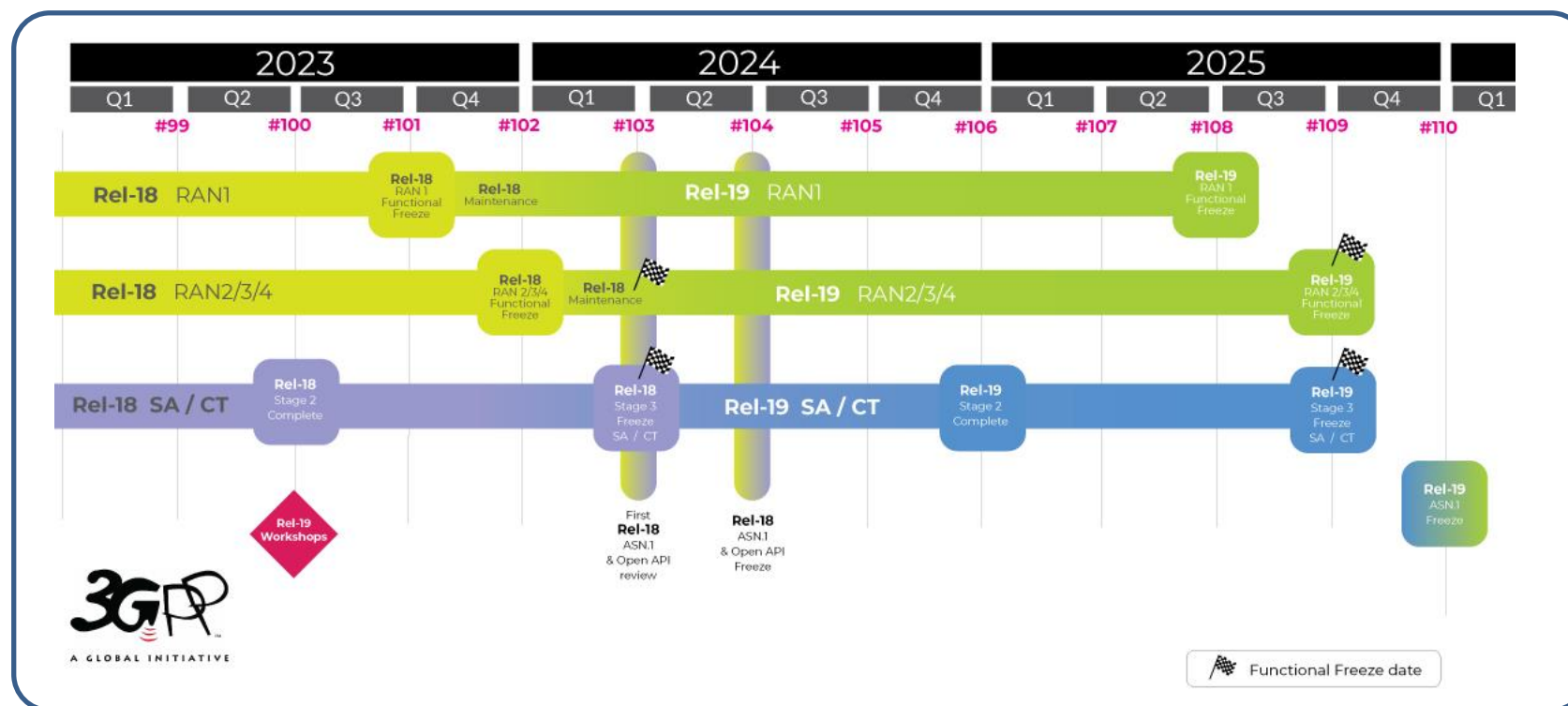
- ✓ Study Items, Work Items
- ✓ Releases with fixed time-lines, which are partially overlapping
- ✓ [Work Plan](#) (good overview)



3GPP – Releases

A new Release every 15 to 24 months

- Allows for reasonably fast standardization & deployment of new ideas
- Strong commitment to time-lines guarantees reliable planning and time-to-market
- New technologies easily introduced & then evolved in a phased approach (AI/ML, IIoT, MC, UAV, NPN, NTN, etc...)



3GPP – How It Works

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- ✔ Participation in face-to-face meetings (and now also e-meetings)
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- ✔ Consensus based

3 stages, often overlapping

- ✔ Stage 1: Requirements
- ✔ Stage 2: Architecture
- ✔ Stage 3: Protocols

Work organization

- ✔ Study Items, Work Items
- ✔ Releases with fixed time-lines, which are partially overlapping
- ✔ [Work Plan](#) (good overview)

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- ✔ From all over the world
- ✔ All major telecommunication companies – operators, network/device/chipset vendors
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A new Release every 15 to 24 months

- ✔ Allows for reasonably fast standardization & deployment of new ideas
- ✔ Strong commitment to time-lines guarantees reliable planning and time-to-market
- ✔ New technologies get easily introduced (IP, IoT, AI ...)

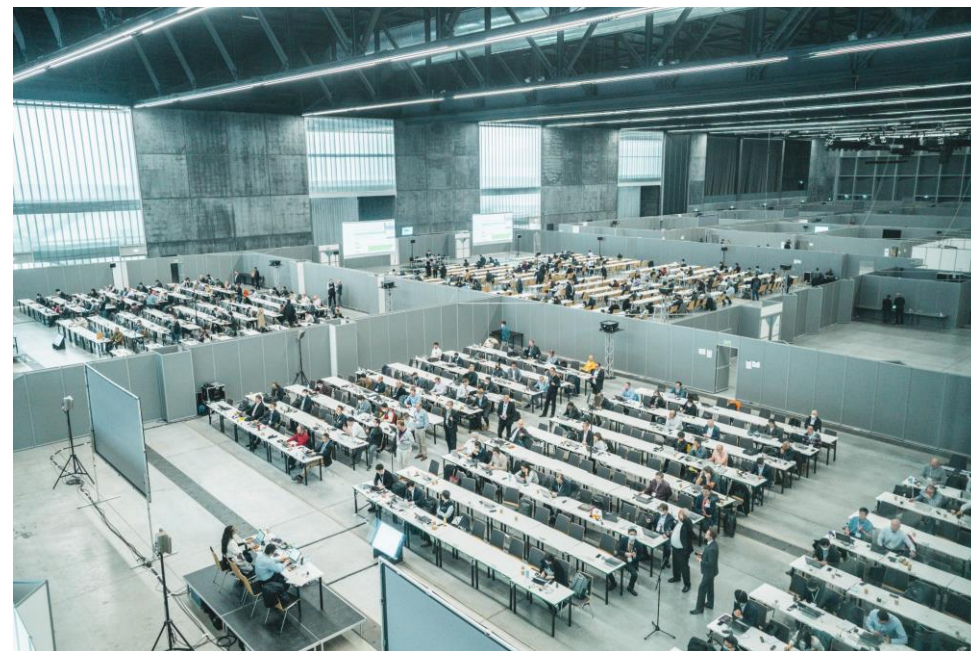
Amazing Track Record

- ✔ 3GPP started 1998, since then all major standards projects were deployed
- ✔ E.g. 3G/UMTS, 4G/LTE, VoLTE/IMS, NB-IoT, 5G
- ✔ Seamless migration from “old” to “new” generations

Following the work

The guiding principles of 3GPP are openness and ease of access to the results.

- All information is publicly available.
- Each TSG and each Working Group have declared terms of reference. This makes it relatively easy to determine which group you need to follow: <https://www.3gpp.org/specifications-groups>.
- Every TSG and every WG has an e-mail exploder. In most cases, anybody can join the exploder(s) in which he has an interest: <https://www.3gpp.org/specifications-groups/e-mail-lists>.
- The meeting calendar for all groups is set well in advance. Registration of intended participation in meetings can be done on-line.
- All meeting documents – invitation, agenda, contributions (so called “temporary documents”), meeting report, etc – are available on the file server, and remain there indefinitely: <https://www.3gpp.org/ftp/>.



Following the work (2)

The guiding principles of 3GPP are openness and ease of access to the results.

- All TSGs and WGs use a standardized file naming convention. From the file name, you can determine
 - the **originating TSG or WG**
 - the **year in which the document was created**

R4-2211147

- The 3GPP Work plan is published after every TSG SA meeting: <https://www.3gpp.org/specifications/work-plan>
- Specifications are on the file server, and can be downloaded individually or en masse. For a given spec, you can also track the change history from version to version: <http://www.3gpp.org/specification-numbering>



www.3gpp.org / [ftp / tsg_ran /](ftp://tsg_ran/) [WG1_RL1 /](#) [TSGR1_110 /](#) [D](#)

sort by name/desc	sort by date/desc	sort by size/desc
 R1-2205700.zip	2022/07/27 9:43	45,1 KB
 R1-2205701.zip	2022/08/17 20:31	2108,4 KB
 R1-2205702.zip	2022/08/13 20:51	107,5 KB
 R1-2205703.zip	2022/07/29 9:11	85,6 KB
 R1-2205704.zip	2022/08/13 20:51	111,3 KB
 R1-2205705.zip	2022/06/30 14:45	25,3 KB
 R1-2205706.zip	2022/06/30 14:45	47,3 KB
 R1-2205707.zip	2022/06/30 14:45	39,4 KB
 R1-2205708.zip	2022/06/30 14:45	50,4 KB
 R1-2205709.zip	2022/06/30 14:45	40,3 KB
 R1-2205710.zip	2022/06/30 14:45	29,3 KB
 R1-2205711.zip	2022/06/30 14:45	49,4 KB
 R1-2205712.zip	2022/06/30 14:45	49,3 KB


On the web

- www.3gpp.org has recent news and details of what is happening in the groups...
 - **News** about the 3GPP workshops on Rel-19
- Recent **Elections & Votes**
- **Membership** listing, contacts
- **Specifications by series**
- **'Browse our technologies'** featuring articles on dozens of keywords
- **Delegates corner** – A tool box of useful resources
- **3GPP groups** pages; ToRs, documents, meetings, officials.
- **Highlights** newsletter and subscription

Technical Specification Groups (TSGs)

The Working Groups, within the TSGs, meet regularly and come together for their quarterly TSG Plenary meeting, where their work is presented for information, discussion and approval.

TSG CT Core Network & Terminals	TSG RAN Radio Access Network	TSG SA Service & System Aspects
CT WG1 User Equipment to Core Network protocols	RAN WG1 Radio Layer 1 (Physical layer)	SA WG1 Services
CT WG3 Interworking with External Networks & Policy and Charging Control	RAN WG2 Radio layer 2 and Radio layer 3 Radio Resource Control	SA WG2 System Architecture and Services
CT WG4 Core Network Protocols	RAN WG3 UTRANE-UTRAN/NC-RAN architecture and related network interfaces	SA WG3 Security and Privacy
CT WG6 Smart Card Application Aspects	RAN WG4 Radio Performance and Protocol Aspects	SA WG4 Multimedia Codecs, Systems and Services

Toolbox

- 3GPP Working Procedures
- Delegates FAQs
- Email Lists
- Change Requests
- Elections & Technical Votes
- 3GPP Work Plan
- Releases
- Specification Numbering
- 3GPP Portal

Issue 06
(May 2023)

TECHNICAL HIGHLIGHTS:

- NR Support for UAVs
- RNAA: Protecting API resource owners through 3GPP CAPIF Framework
- REL-18 Security feature summary
- Extended reality for NR
- 3GPP RAN in Rotterdam
- 5G Architecture support for extended reality and media services
- Management, orchestration and charging in REL-18

PARTNER FOCUS:

- Driving specifications through 5G-MAC's open-source reference tools and media services
- Evolution of network nodes: from IAB to IRS
- 3GPP standard for satellite networks (NTN)
- Mission Critical - On the brink of transformation

A LOOK INSIDE:

- Engine room to bridge! An interview with Lionel Morand.

Highlights

3GPP - the 5G Standard

[View Newsletter](#)

Specifications by Series

- Radio aspects: 25 series
- CODECS: 26 series
- Data: 27 series

All 3GPP specifications have a specification number consisting of 5 digits, in a series inspired by the pre-1998 GSM series of specification numbering – with 1st 4 digits. In both cases, the first two digits define the series number.

These series are commonly used to describe the work. An example would be the '3B series' can be used in the project to describe radio studies and specifications for 5G NR.

The links in the table below will take you to listings of the specifications and reports in each series.

Subject of specification series	3G and beyond / GSM (3G and later)	GSM only (2G-4 and later)	GSM only (Before 2G-4)
Requirements	21 series	41 series	01 series
Service aspects ('stage 1')	22 series	42 series	02 series
Technical realization ('stage 2')	23 series	43 series	03 series
Signalling protocols ('stage 3') - user equipment	24 series	44 series	04 series

Membership

Membership of 3GPP applies to organizations (companies, government departments, educational establishments, etc) and not to individuals.

There is no direct membership to 3GPP, which is a Partnership project. The delegates come to 3GPP via their organization's membership of one of the seven 3GPP Organizational Partners.

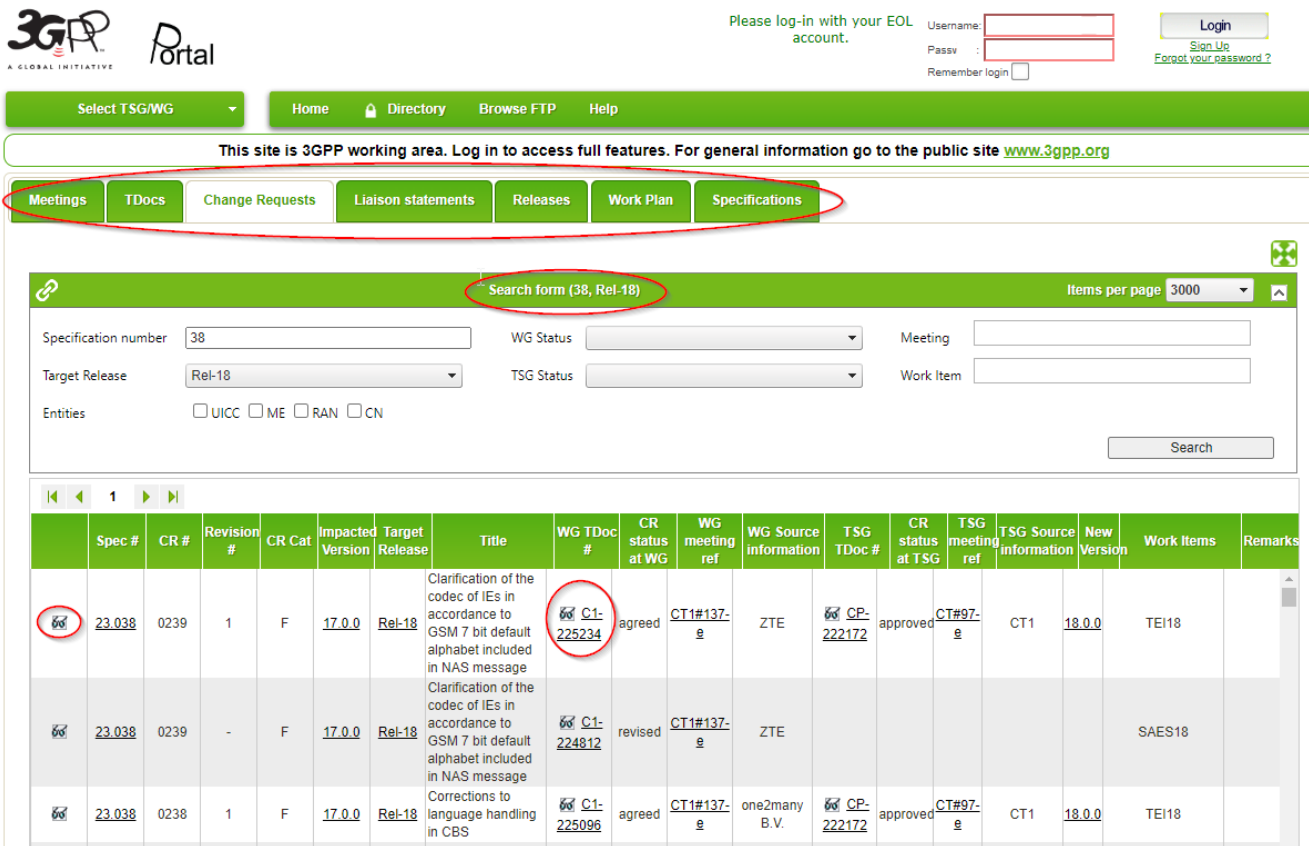
[3GPP Individual Members and Guests](#)

Full Individual Members

Article 8 of the 3GPP Working Procedures describes what constitutes Individual Membership of 3GPP.

*Membership in an Organizational Partner is a pre-requisite for Individual Membership of 3GPP. All entities registered

3GPP Portal (3GU)



- You can obtain most information without logging in to the [3GU portal](#).
- Allocating and uploading documents (TDocs) or draft Specifications can only be done when logged in with On-Line (EOL) account credentials.
- The access rights you get when logged in depend on your function in 3GPP. The following roles are defined, and these are listed in order of increasing rights:
 - Delegate: can see details of Release milestones, can reserve numbers for most types of TDoc and upload those TDocs.
 - Rapporteur: a delegate who also has the additional ability to reserve TDocs of type "draft TS" and "draft TR" for Specs for which they are the rapporteur (assuming those specs are still in draft mode, not yet under change control).
 - MCC staff members: Configure meetings, import meeting TDoc lists, upload the 3GPP work plan, manage data stored in the portal's databases - including the allocation of formal TS and TR numbers to new Specs.

Some useful links

More information on 3GPP:

- ✔ www.3gpp.org
- ✔ Subscribe to our regular newsletter '[Highlights](#)'
- ✔ Info, membership, marcom, liaisons: www.3gpp.org/contact

The essential rules of 3GPP:

- ✔ 3GPP Working Procedures
<https://www.3gpp.org/specifications-groups/working-procedures>
- ✔ 3GPP TR 21.900 Technical Specification Group working methods
<http://www.3gpp.org/DynaReport/21900.htm>
- ✔ 3GPP TR 21.801 Specification drafting rules
<http://www.3gpp.org/DynaReport/21801.htm>





Thank you for your attention

Follow us on:



Any further questions?

Contact me: Issam Toufik
Issam.Toufik@etsi.org

