

Battery Life Testing



Test Suites Supported

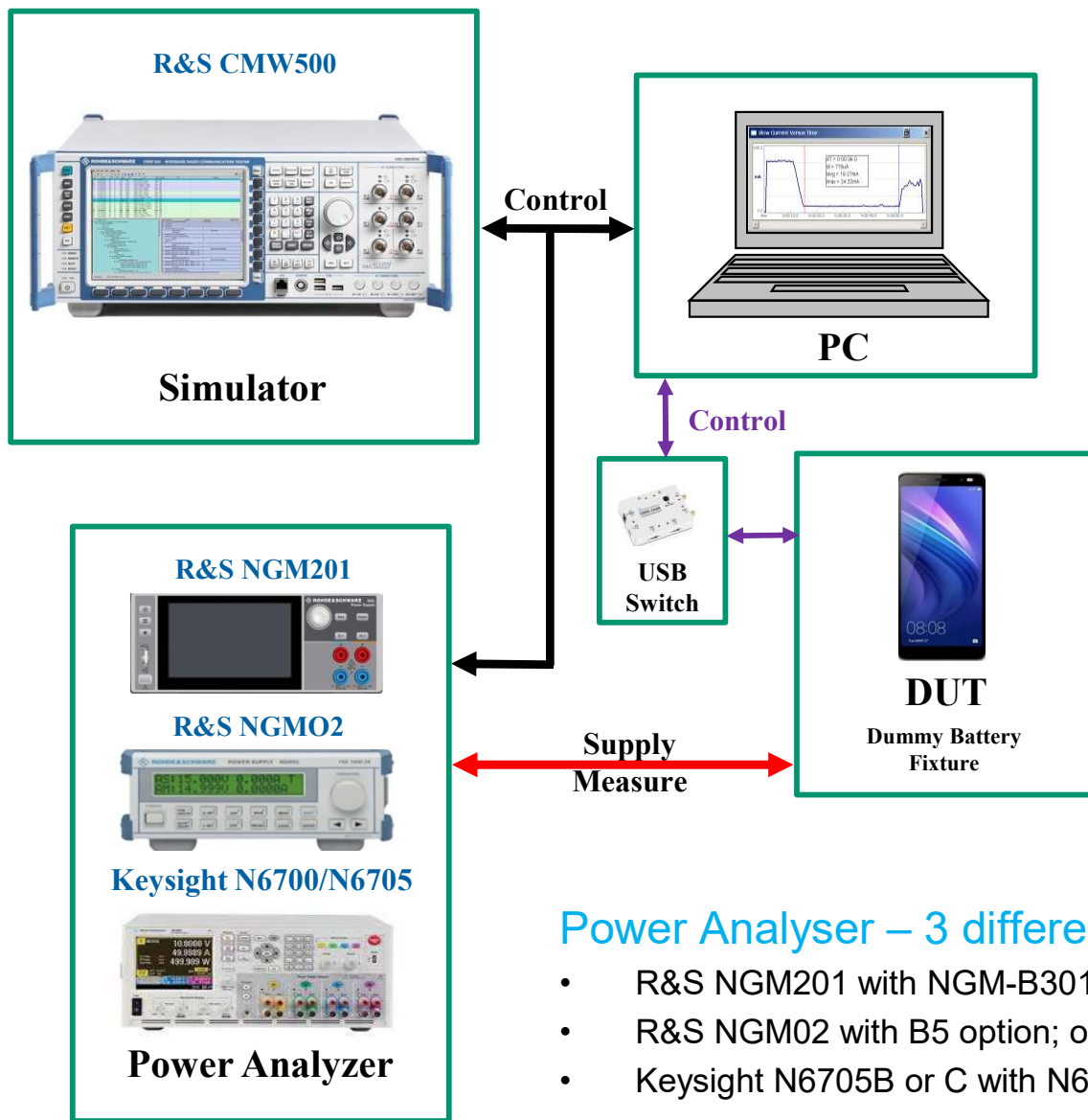


- **AT&T 10776 (LTE, 5G NR)**
 - For AT&T Approved Vendor Labs
 - All 5G Battery Life tests validated
 - Only platform offering all LTE Legacy tests
- **GSMA TS.09 version 13.0 (GSM, WCDMA, LTE, 5G NR)**
 - Includes Standby, Talk-Time and Application Tests
 - Includes new NB-IoT tests
- **GCF PC (GSM, WCDMA, LTE)**
 - The GCF Performance Criteria Tests (based on GSMA TS.09)
- **CTIA Test Plan (LTE, 5G NR)**
 - Only CTIA approved validated platform for use by CTIA Labs
- **T-Mobile (LTE, 5G NR)**
 - New LTE and 5G Battery Life PRD Test Suite
 - Used with R&S PQA 5G Data Throughput and Current Drain tests
- **EU Directive (EU EEI)**
 - New Energy Efficiency Index measurement
- **DISH (5G NR)**
 - Used with R&S PQA 5G Data Throughput and Current Drain tests

Analytek Framework supports:

- **Network Simulators**
 - R&S CMW500: To support Test Scripts covering LTE, WCDMA, GSM, CDMA
 - R&S CMX500: To support Test Scripts for FR1 and FR2, FDD and TDD and NSA and SA devices
- **Power Analysers**
 - R&S NGM201: Requires NGM-B301 option for higher accuracy
 - R&S NGMO2: Requires NGMO-B5 option for continuous measurements. Legacy PSU (no longer available)
 - Keysight N6705B/C: Requires N6781A (3A) or N6785A (8A) option. N6785A now mandatory for CTIA Testing
- **Temperature**
 - Hameg HMC8012: include temperature measurements with Current Drain recorded in parallel
- **GNSS Simulator**
 - LabSat 3: Dynamic or Static GPS signals for testing with Location Based Services enabled

AT&T 10776 Battery Life Testing



Validated Platform ID 225

Only platform validated for all Battery Life Tests:

- LTE Idle Mode and Connected Mode
- VoLTE (speech) and ViLTE (video) Calls
- UDP and FTP Download and Upload tests
- LTE CA throughput
- Dual SIM Idle Mode Battery Life
- Video Streaming
- Dual SIM Idle Mode Battery Life
- Measurements using different AT&T cDRX settings

Power Analyser – 3 different models supported

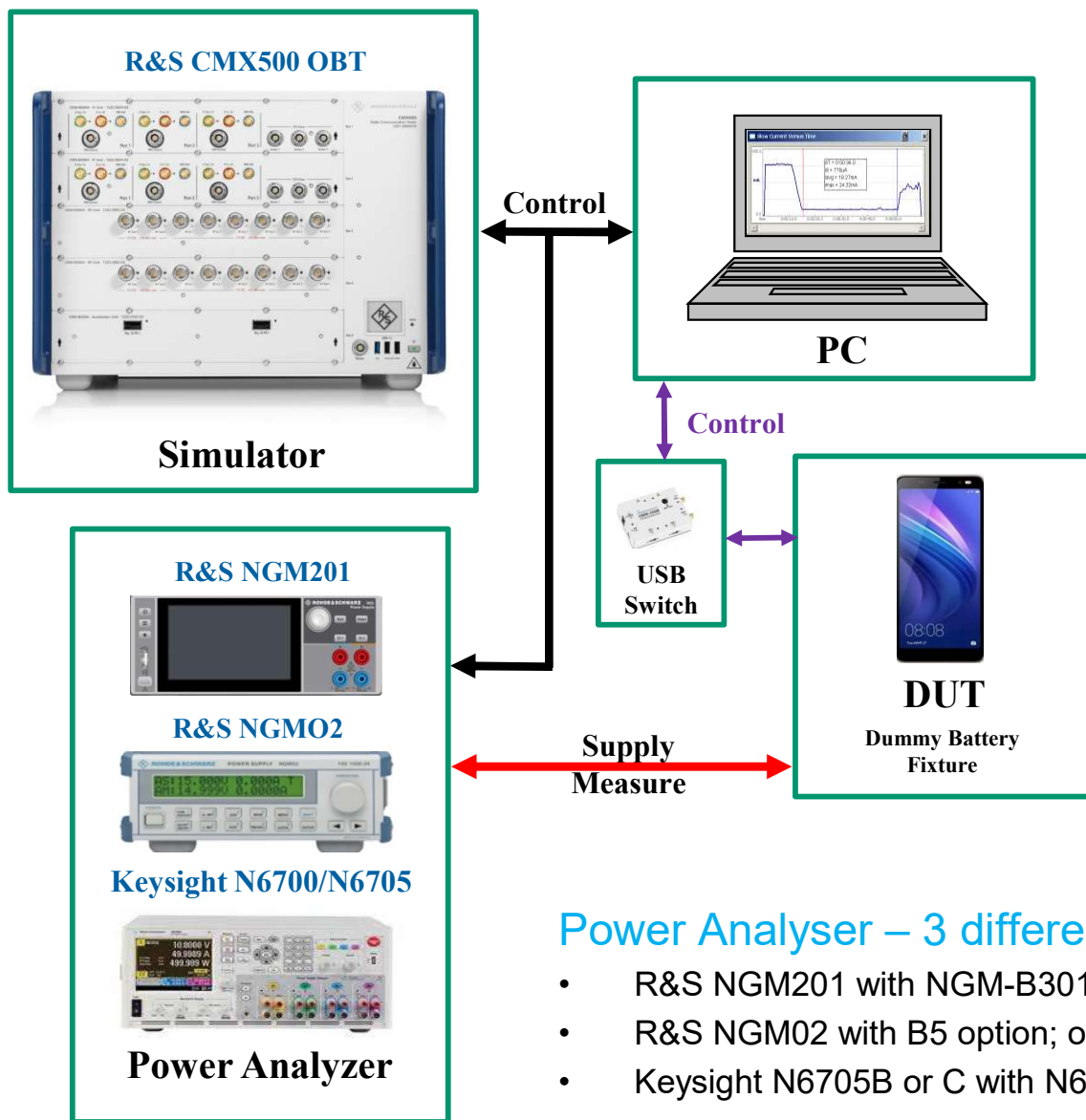
- R&S NGM201 with NGM-B301 option; or
- R&S NGM02 with B5 option; or
- Keysight N6705B or C with N6781A or N6785A option

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|-----------------|
| Part Number |
| ANA-TSB-AT&T-01 |

AT&T 10776 5G Battery Life Testing



Validated Platform ID 313



Validated for FR1 and FR2 Tests:

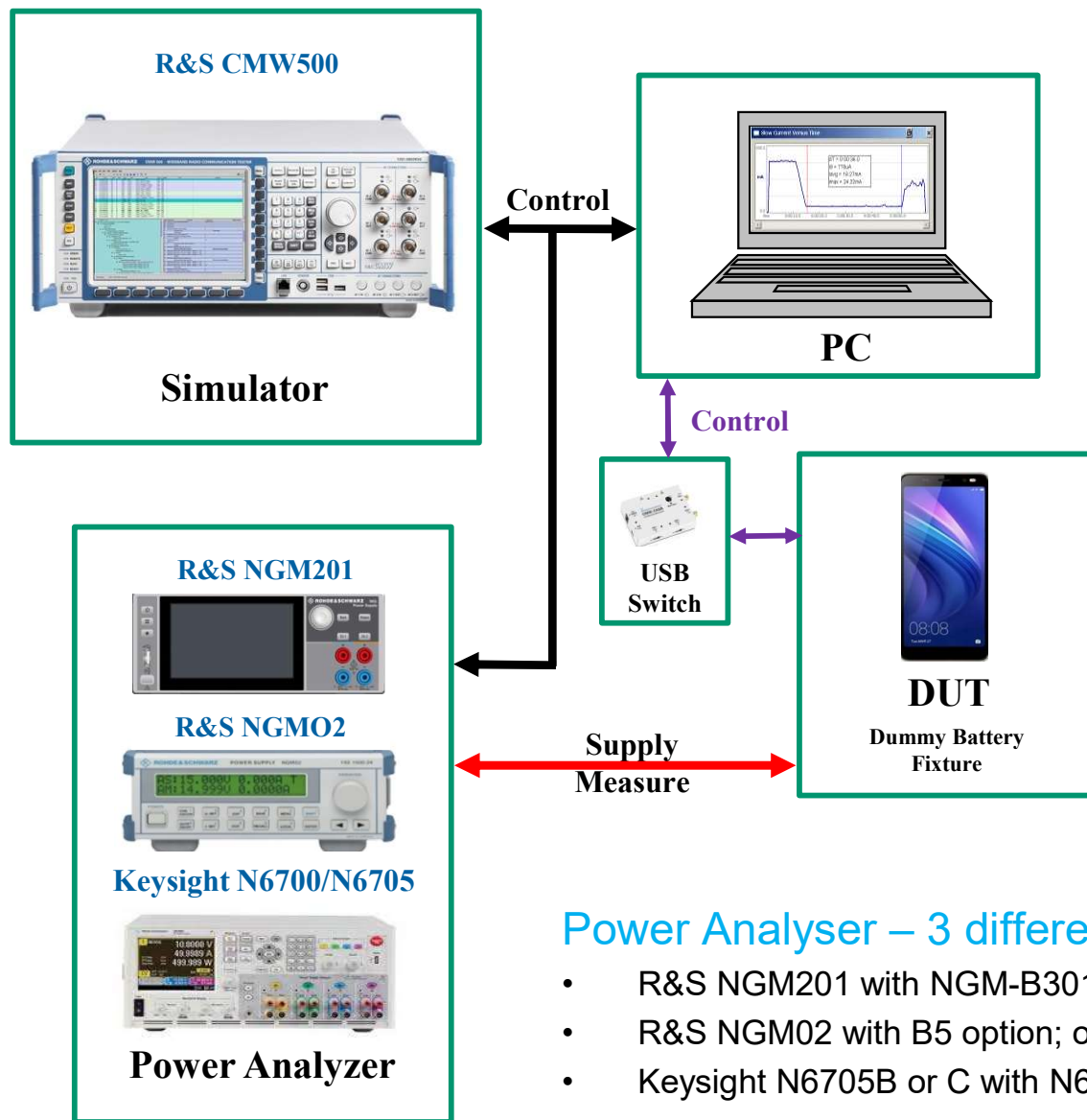
- N20-1-201 5G NR Idle Mode Battery Life
- N20-1-202 5G NR Connected Mode Battery Life
- N20-1-203 5G NR Connected Mode USB-C Battery Life
- N20-1-204 Idle Mode Battery Life for sub6 GHz
- N20-1-205 Connected Mode Battery Life for sub6 GHz
- N20-1-205 Connected Mode Battery Life for sub6 GHz
- N20-1-206 Voice over NR talktime
- N20-1-206 Video over NR

Power Analyser – 3 different models supported

- R&S NGM201 with NGM-B301 option; or
- R&S NGM02 with B5 option; or
- Keysight N6705B or C with N6781A or N6785A option

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| Part Number |
| ANA-TS-AT&T-5G |

GSMA TS.09 Battery Life Testing



Tests supporting GSM, WCDMA and LTE:

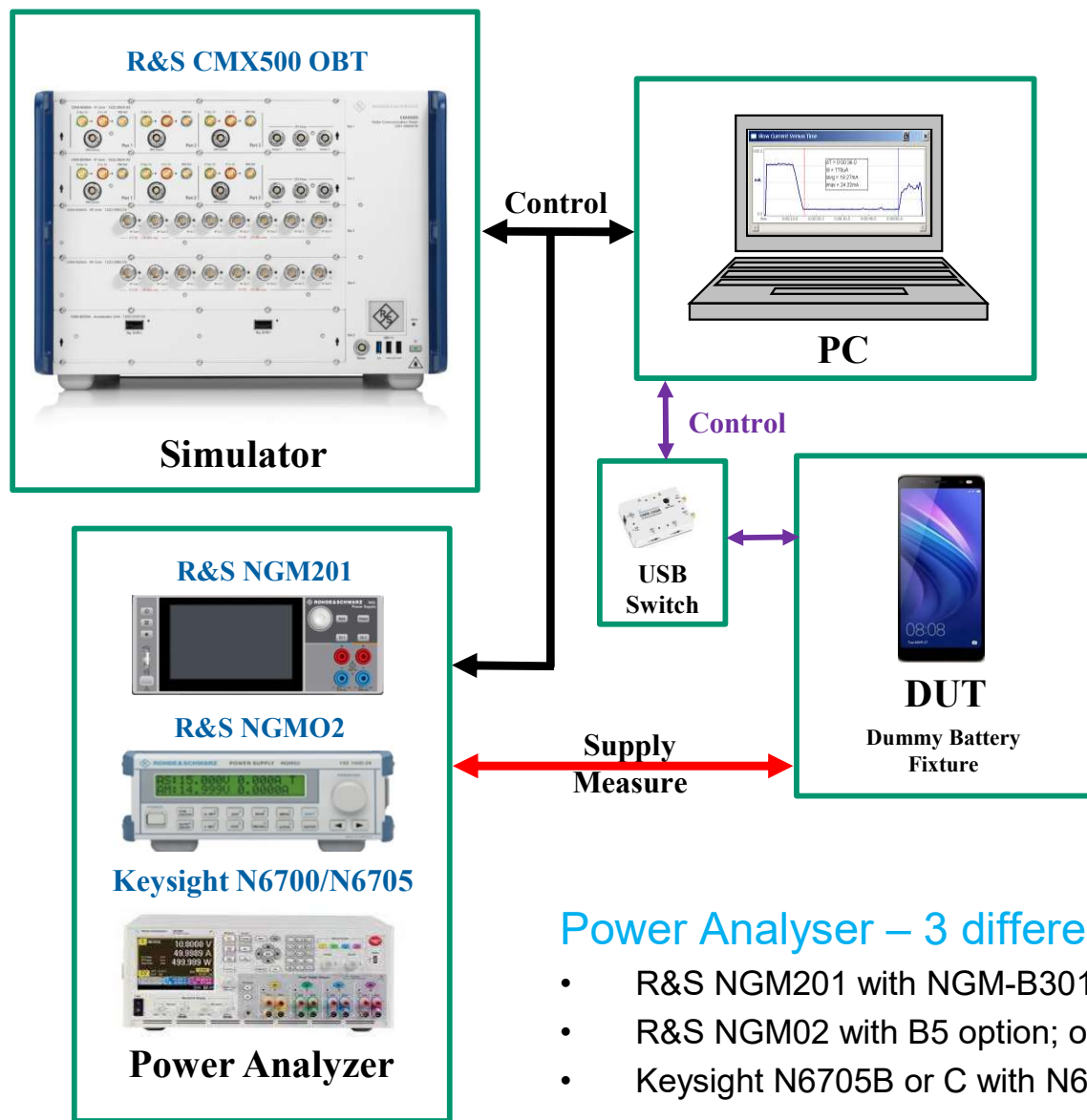
- Standby
- Talk Time (VoLTE, Circuit Switched)
- Packet Transfer Upload and download
- Browsing
- Video streaming (DASH/Progressive) and Audio streaming
- Video recording and playback
- Camera operation
- Bluetooth headset usage
- NB-IoT device testing

Power Analyser – 3 different models supported

- R&S NGM201 with NGM-B301 option; or
- R&S NGM02 with B5 option; or
- Keysight N6705B or C with N6781A or N6785A option

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|-------------------|
| Part Number |
| ANA-TSB-GSMA |
| ANA-TS-GSMA-NBIOT |

GSMA TS.09 5G Battery Life Testing



Tests supporting 5G NR:

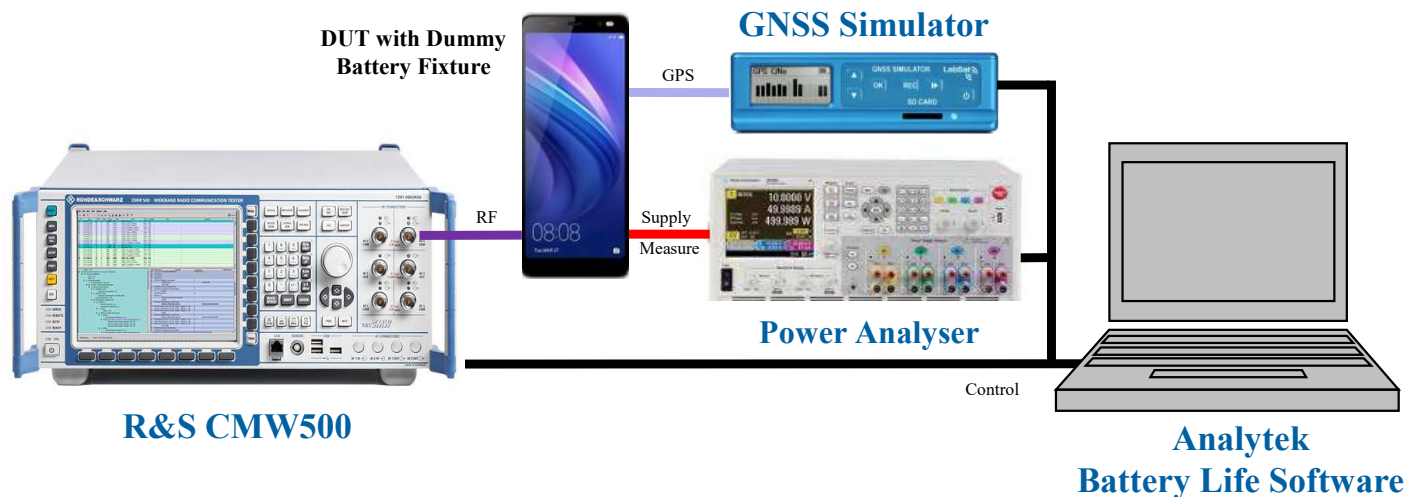
- Standby
- Talk Time (VoNR)
- Packet Transfer Upload and download
- Browsing
- Video streaming (DASH/Progressive) and Audio streaming
- Video recording and playback
- Camera operation
- Bluetooth headset usage
- Note that this revision of TS.09 is incomplete

Power Analyser – 3 different models supported

- R&S NGM201 with NGM-B301 option; or
- R&S NGM02 with B5 option; or
- Keysight N6705B or C with N6781A or N6785A option

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| Part Number |
| ANA-TSB-GSMA-5G |

CTIA Battery Life Testing



CTIA approved Platform for Battery Life Testing

- Mandatory for all AT&T devices; ref 10776 Reference LTE-BTR-1-2513
- Requests for results now made from T-Mobile
- Testing for smartphones and smartwatches for:
 - Standby and Homescreen
 - Voice, SMS and email
 - Video/Audio Streaming and music playback
 - Gaming
 - Measurement of available energy
 - Location Services
- From Test Plan version 1.6, also includes testing for MIIOT devices:
 - Standby
 - Power Saving Mode
 - Connected Mode

| Part Number |
|------------------|
| ANA-TSB-CTIA |
| ANA-TS-CTIA-MIOT |
| ANA-OPT-GNSS-01 |

CTIA 5G Battery Life Testing

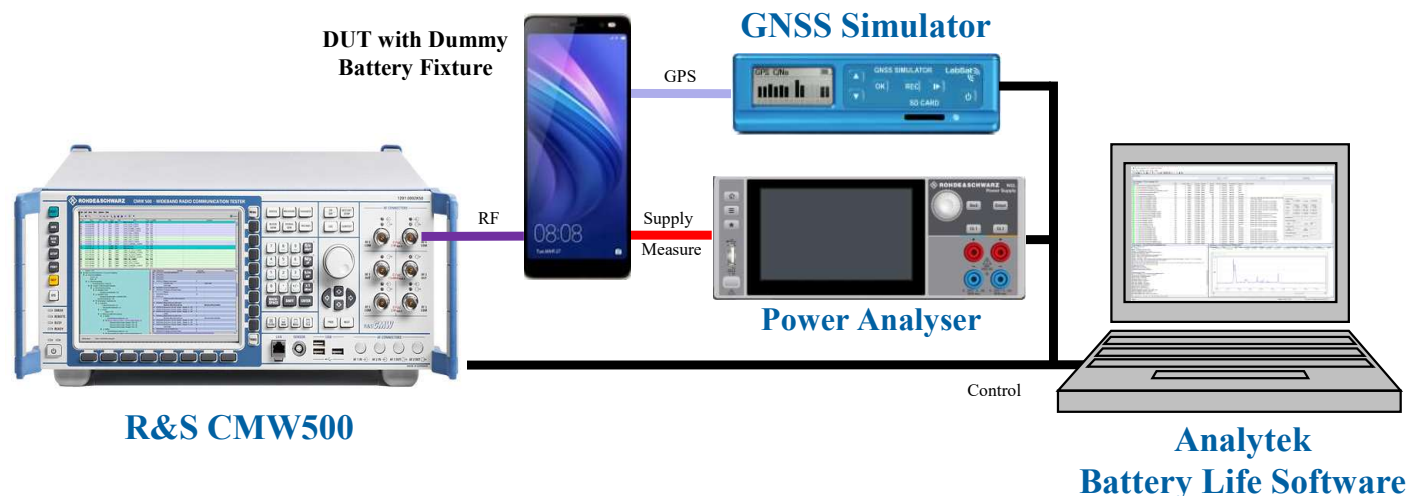


CTIA approved Platform for Battery Life Testing

- Testing for smartphones and smartwatches for:
 - Standby and Homescreen
 - Voice, SMS and email
 - Video/Audio Streaming and music playback
 - Gaming
 - Measurement of available energy
 - Location Services
 - Testing of FR1 SA, NSA and FDD, TDD
 - Proposed as testing requirement from AT&T, T-Mobile and DISH

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| Part Number |
| ANA-TSB-CTIA-5G |
| ANA-OPT-GNSS-01 |

T-Mobile Battery Life Testing

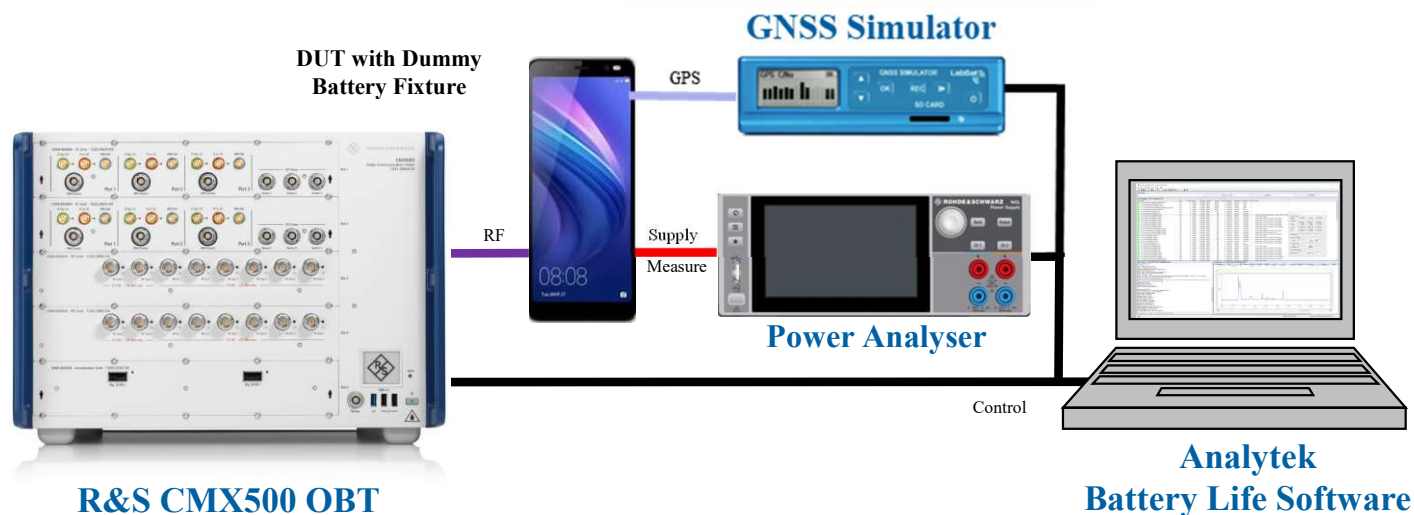


Platform for T-Mobile Battery Life Testing

- Legacy Solution ref T-Mobile US Master Terminal Requirements Battery Life TRD
- Testing for smartphones covering Sections:
 - 3.2 Battery Certification
 - 3.3 LTE Current Drain, Browsing and Practical Use Cases
 - 3.5 Wi-Fi Current Drain
 - 3.6 Wi-Fi Calling Current Drain
 - 3.7 Mobile Hotspot Current Drain
 - 3.8 Media (Music, Video, Audio) Current Drain
 - 3.9 Camera and Video Recording Current Drain
 - 3.10 UI ON Current Drain
 - 3.12 Charging Experience
 - 3.13 Airplane Mode
 - 3.16 Navigation Current Drain Requirements
 - 3.17 Network Scan

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| Part Number |
| ANA-TS-TMO-LTE |

T-Mobile 5G Battery Life Testing

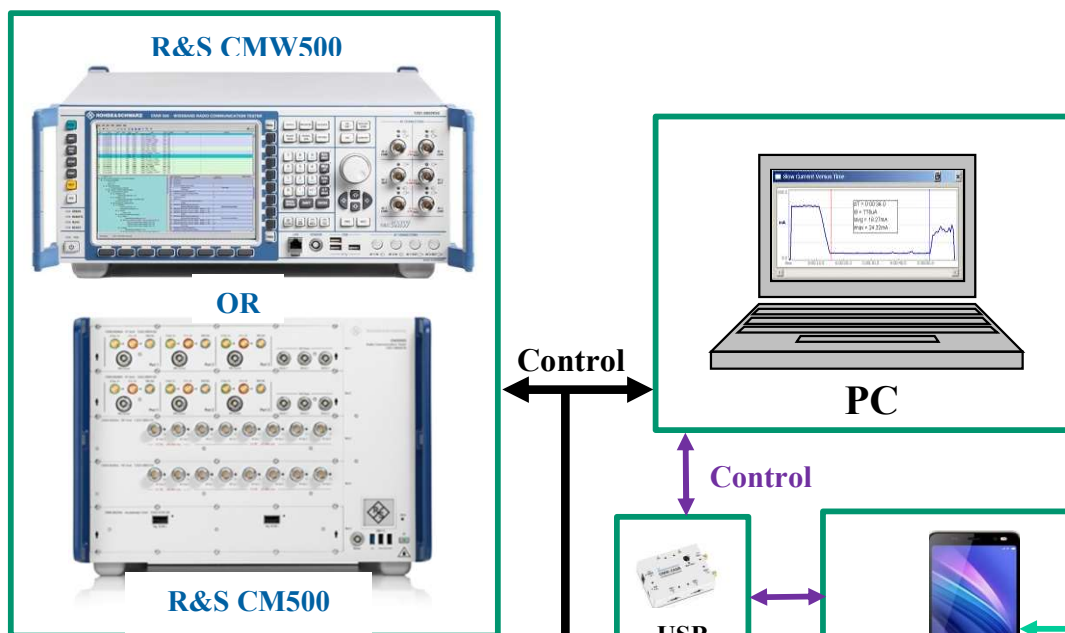


Platform for T-Mobile 5G Battery Life Testing

- 5G Solution ref T-Mobile US Master Terminal Requirements Battery Life TRD
- Testing for smartphones covering:
 - 3.4 5G Current Drain
 - 3.5 Wi-Fi Current Drain
 - 3.6 Wi-Fi Calling Current Drain
 - 3.7 Mobile Hotspot
 - 3.8 Media (Music, Video, Audio) Current Drain
 - 3.9 Camera and Video Recording Current Drain
 - 3.10 UI On Current Drain
 - 3.12 Charging Experience
 - 3.13 Airplane Mode
 - 3.14 Navigation Current Drain
 - 3.15 Always On Display Current Drain
 - 3.16 Network Scan

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| Part Number |
| ANA-TS-TMO-5G |

EU Energy Efficiency Test & Analysis

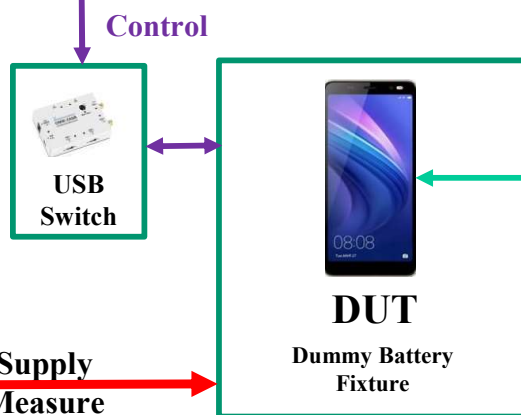


Network Simulator – 2 models supported

- R&S CMW500 LTE and WLAN; or
- R&S CMX500 LTE

Application running Test Sequence

- Full test setup allowing independent analysis of result generated by App.



Local App performing Test Sequence as per Annex IV Measurement And calculation methods

USB Switch

- Allow connection to DUT from PC during setup.
- Open connection for runtime.



Power Analyser – 3 different models supported

- R&S NGM201 with NGM-B301 option; or
- R&S NGM02 with B5 option; or
- Keysight N6705B or C with N6781A or N6785A option

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|--------------|
| Part Number |
| ANA-TS-EUEEI |

Ordering Information



| Description | Analytek Part Number | R&S Part Number | R&S SKU |
|---|----------------------|------------------|------------------|
| AT&T 10776 Battery Life Testing | | | |
| AT&T 10776 Legacy Test Suite | ANA-TSB-AT&T-01 | ANATSBATT | 9029.5672.02 |
| AT&T 10776 5G Test Suite | ANA-TS-AT&T-5G | ANAATT5G | 3693.7563.02 |
| GSMA TS.09 Battery Life Testing | | | |
| GSMA TA.09 Battery Life Measurement | ANA-TSB-GSMA | ANATSBGSMA | 9039.1463.02 |
| GSMA TA.09 Battery Life Measurement - NBloT | ANA-UPG-GSMA-NBIOT | ANAGSMAIOT | 3693.7570.02 |
| GSMA TA.09 Battery Life Measurement - 5G | ANA-TSB_GSMA-5G | ** NEW ** | ** NEW ** |
| CTIA Battery Life Testing | | | |
| CTIA Test Suite Bundle | ANA-TSB-CTIA | ANATSCTIA | 3592.8865.02 |
| CTIO MIOT Test Suite | ANA-TS-CTIA-MIOT | ANACTIAIOT | 3693.0381.02 |
| CTIA 5G Test Suite | ANA-TSB-CTIA-5G | ANACTIA5G | 3698.8951.02 |
| T-Mobile Battery Life Testing | | | |
| T-Mobile Battrey Life TRD - LTE | ANA-TS-TMO-LTE | ANATMOLTE | 3690.3538.02 |
| T-Mobile Battery Life Testing | ANA-TS-TMO-5G | ANATMO5G | 3690.3609.02 |
| T-Mobile PQA Current Drain Measurement | ANA-TSB-5G-CONTEST | ANACONTEST | 3688.9810.02 |
| DISH Battery Life Testing | | | |
| DISH PCAT Current Drain Measurement | ANA-DISH-CONTEST | ANADISH5G | 3717.9782.02 |
| Options | | | |
| GNSS Driver Option | ANA-OPT-GNSS-01 | ANAGNSS | 3693.0398.02 |