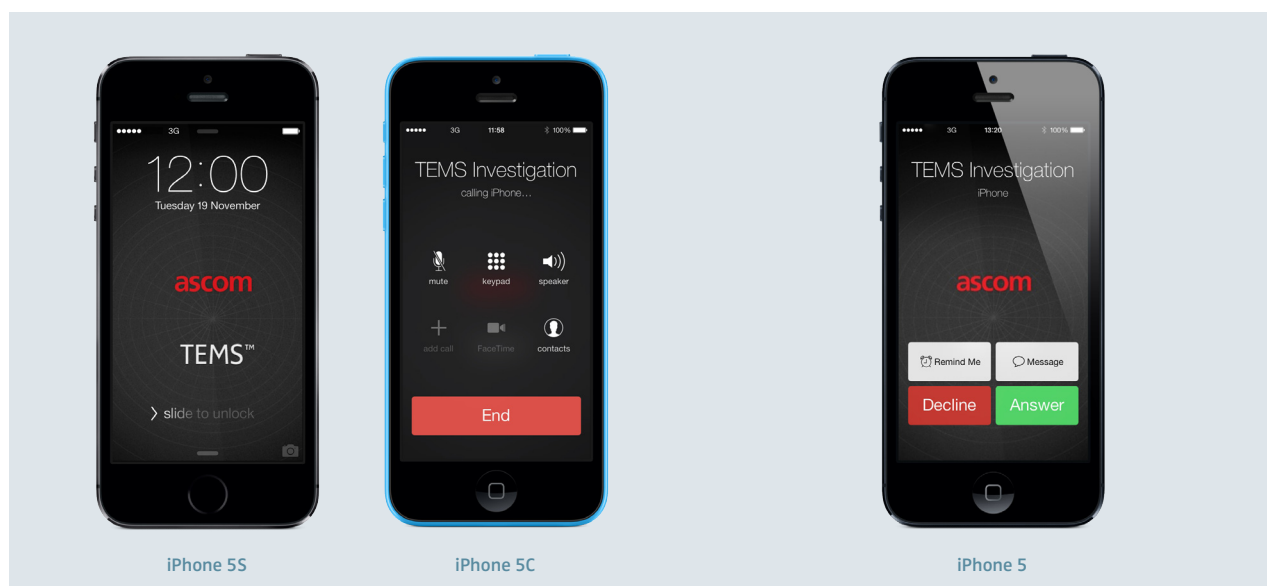


## TEMS INVESTIGATION 16.0

Product: Test and Measurement Tool

Solution Areas:



## Only TEMS™ Investigation Tests With iPhone®

Mobile operators\* can now employ the industry's most widely used drive testing technology to measure network services using the iPhone to determine precisely what customers are experiencing.

TEMS Investigation is the only radio access network (RAN) testing product that measures network performance from the iPhone user perspective, providing mobile network operators with critical data that can be used to optimize network performance. With this technology, mobile network operators will know that their TEMS Investigation iPhone-based testing units support iOS7 as well as future updates.

### Network Testing From the iPhone User Experience

- Roll out capacity expansion and monitor user experience using the same device as network subscribers
- Increase operational efficiency by automating service test procedures using the iPhone
- Bring unprecedented efficiency and detail to iPhone testing
  - Allows scripting and automation of service tests
  - Access to L3 messages and detailed RF measurements
  - Test with multiple iPhone devices at the same time

### Reuse Methodology and Scripting for iPhones

Supports scripting of all major service tests, including audio quality measurement (AQM)

- Circuit-switched voice (mobile-originated/mobile-terminated) – CS voice (MO/MT)
- Data services
  - Email, SMS, ping
  - TCP, UDP, FTP, HTTP, WAP
  - Packet-switched (PS) attach, PS detach
  - IP capture, video streaming (YouTube)
- AQM via Audio Capturing Unit R2 (ACU R2)
  - PESQ/POLQA
  - Mobile-to-mobile (M2M)/mobile-to-fixed (M2F)



Test network quality indoors where most iPhone users consume data.

## Supports iPhone Models Worldwide

### iPhone 5S

#### ▪ Model A1533 (GSM)

- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 4, 5, 8, 13, 17, 19, 20, 25)

#### ▪ Model A1533 (CDMA)

- CDMA EV-DO Rev. A and Rev. B (800, 1700/2100, 1900, 2100 MHz)
- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 4, 5, 8, 13, 17, 19, 20, 25)

#### ▪ Model A1453

- CDMA EV-DO Rev. A and Rev. B (800, 1700/2100, 1900, 2100 MHz)
- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 4, 5, 8, 13, 17, 18, 19, 20, 25, 26)

#### ▪ Model A1457

- UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 5, 7, 8, 20)

#### ▪ Model A1530

- UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- FDD-LTE (Bands 1, 2, 3, 5, 7, 8, 20)
- TD-LTE (Bands 38, 39, 40)

### iPhone 5C

#### ▪ Model A1532 (GSM)

- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 4, 5, 8, 13, 17, 19, 20, 25)

#### ▪ Model A1532 (CDMA)

- CDMA EV-DO Rev. A and Rev. B (800, 1700/2100, 1900, 2100 MHz)
- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 4, 5, 8, 13, 17, 19, 20, 25)



Obtain a fine-grained view of how iPhone users worldwide experience LTE.

#### ▪ Model A1456

- CDMA EV-DO Rev. A and Rev. B (800, 1700/2100, 1900, 2100 MHz)
- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 4, 5, 8, 13, 17, 18, 19, 20, 25, 26)

#### ▪ Model A1507

- UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 2, 3, 5, 7, 8, 20)

#### ▪ Model A1529

- UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- FDD-LTE (Bands 1, 2, 3, 5, 7, 8, 20)
- TD-LTE (Bands 38, 39, 40)

### iPhone 5

#### ▪ GSM model A1428

- UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 4 and 17)

#### ▪ CDMA model A1429

- CDMA EV-DO Rev. A and Rev. B (800, 1900, 2100 MHz)
- UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 3, 5, 13, 25)

#### ▪ GSM model A1429

- UMTS/HSPA+/DC-HSDPA (850, 900, 1900, 2100 MHz)
- GSM/EDGE (850, 900, 1800, 1900 MHz)
- LTE (Bands 1, 3, 5)