

5G NR RedCap Test Solution

E7515R UXM 5G wireless test platform
and S8711A test application



Verify Devices with a Solution Optimized for RedCap and C-IoT Testing

RedCap stands for Reduced Capability 5G NR devices. 3GPP approved this new device type in Release 17 to make it easier for 5G to be used with IoT devices. The reduced 5G NR capability allows for reduced cost during development and manufacturing. Typically, IoT uses low-cost devices in applications such as wearables, industrial sensors, smart homes and cities, and security and surveillance.

Keysight's solution for RedCap testing reduces cost with the new E7515R UXM 5G Wireless Test Platform. Built on the industry-standard UXM 5G platform, the E7515R is simplified to focus on testing RedCap and C-IoT devices.

Verify essential RedCap capabilities with the S8711A test application software running on the E7515R:

- Creation of 5G NR RedCap cell with reduced bandwidth and fewer CC
- RedCap messaging with SIB1 Msg1, and Msg3
- RedCap message logging
- Functional and RF tests including throughput

Analyze RedCap device signaling and performance

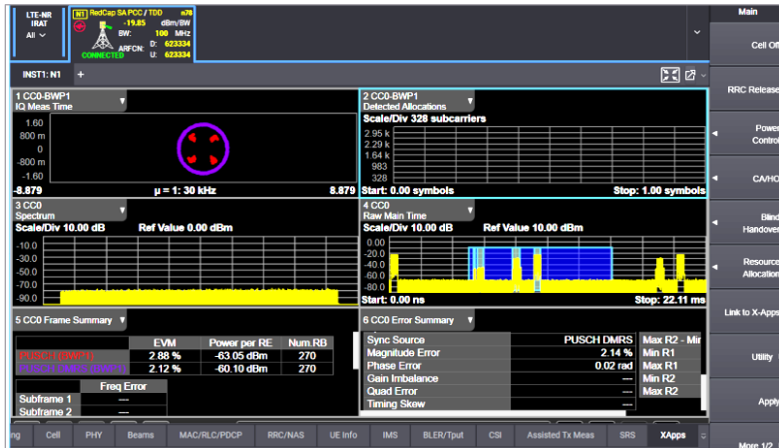
Cell	Time	Dir	Message
N1	2022/11/07 02:10:36.346	UL	Registration Complete
N1	2022/11/07 02:10:36.539	DL	RRC Reconfiguration
N1	2022/11/07 02:10:36.929	UL	RRC Reconfiguration Complete
N1	2022/11/07 02:18:29.602	DL	MIB
N1	2022/11/07 02:18:29.602	DL	SIB1
N1	2022/11/07 02:18:38.240	UL	NR Msg1
N1	2022/11/07 02:18:38.242	UL	NR Msg1
N1	2022/11/07 02:18:38.247	DL	NR Msg2
N1	2022/11/07 02:18:38.249	DL	NR Msg2
N1	2022/11/07 02:18:38.257	UL	NR Msg3
N1	2022/11/07 02:18:38.527	UL	RRC Setup Request

```

<SIB1>
<nonCriticalExtension>
<nonCriticalExtension>
<nonCriticalExtension>
<redCap-ConfigCommon-r17>
<cellBarredRedCap17>
<cellBarredRedCap17>
<cellBarredRedCap17>
<cellBarredRedCap27r17>
<cellBarredRedCap27r17>
  
```

RedCap signaling is easily analyzed and monitored with TA software. The previous figure shows an example of a message log from a RedCap cell.

The TA also measures the RF performance of RedCap devices. The following figure is an example of RedCap RF measurement results.



Keysight knows 5G

Keysight's solutions were first to market for 5G NR test providing a wealth of experience. Continuing enhancements provide test solutions for RedCap and other advancements such as NTN.

For more information

[Keysight RedCap solution page](#)

[Keysight E7515R UXM 5G Wireless Test Platform](#)

[Keysight S8711A Test Application](#)

[Keysight RedCap white paper, press releases, podcast, blog](#)

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