

# TRANSCOM INSTRUMENTS

## Product Brochure



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INSTRUMENTS



# IoT Scanner

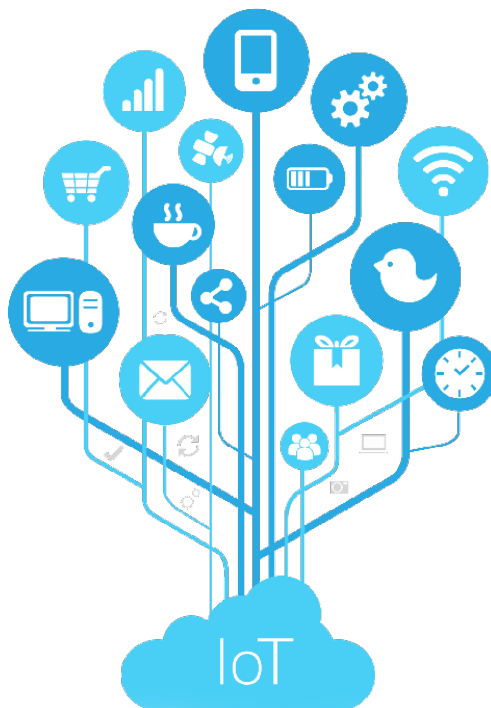
## Overview



IoT Scanner covers the test and measurements for narrowband IoT (NB-IoT) and enhanced Machine-Type Communication (eMTC) specified by 3GPP for base stations. It is an integrated platform based on all-standard scanner and LPWAN analysis software. As a third-party test solution, IoT Scanner guaranteed the neutrality of test. IoT Scanner overcomes the disadvantages of conventional test solutions that does not support terminal handover. The instrument can measure and test cells deployed standalone, in-band or in guard band. Support switching to cell with strongest signal coverage in real time. Ultra-fast test speed and very high sensitivity make the instrument suitable for a variety of test environments, including road test.

## Key Facts

- Support testing NB-IoT and eMTC
- Analyze and measure NB-IoT/eMTC base station downlink signal. Report cell frequency point, PCI, RSRP and RSSI. Output cell's signal strength waveform in time domain and frequency domain
- Support cell information measurement with independent deployment, in-band deployment and protect band deployment.
- Measuring speed  $\leq 500\text{ms}$  (single frequency point)
- Sensitivity:  $-135\text{dBm}$  (Typical)
- Data interface: network port
- RF Interface: SMA Female



# Innovative Features & Benefits

## Product features

- Test NB-IoT and eMTC with one equipment
- Ultra-fast test speed and very high sensitivity
- Support cell information measurement with three operation methods

## Typical applications

- Propagation model correction
- Network coverage optimization analysis
- Network structure quality assessment
- Indoor coverage test

# Solution Highlights

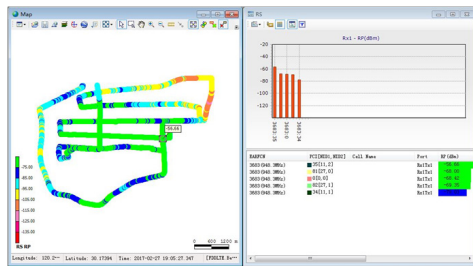
## Test NB-IoT and eMTC with one equipment

Conventional test solutions have several cons:

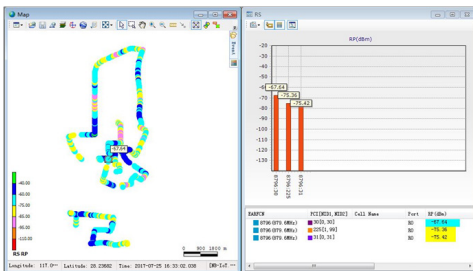
- Not support real-time terminal handover.
- IoT manufacturers' test solution are only for their own products. There is neutral solution that can test the actual coverage of IoT network from different manufacturers in contrast.
- There is a lack of test solutions that supports both NB-IoT and eMTC measurement, cannot meet the carriers' test requirements.

IoT Scanner Support both NB-IoT and eMTC signal demodulation. Report frequency of TOPN cell, PCI, RSRP, CINR and RSSI parameters. Measurement channels including PSS, SSS and RS. As compared to the previous solution, IoT Scanner supports real time terminal switching in NB-IoT test. Support the test of NB-IoT/eMTC network from all manufacturers. It can be used for manufacturers horizontal test and contrast.

Supporting software also has powerful features test plan can be freely defined, combined and showed in a variety of ways, such as track map, time domain graph, frequency domain graph, list, etc. Support data playback and parameter display, custom test report and automatically generate special test reports. Support the import and export of test data, test data can be generated into \*.csv, \*.kml and other formats. Instrument has built-in GPS module. The test results can be imported into third-party planning software to do network



eMTC test



NB-IoT test



Data analysis with Google Map

**Ultra-fast test speed and very high sensitivity**

NB-IoT technology can enhance the uplink power spectral density, retransmission and codec technology to achieve more than 20dB coverage gain, compared to GSM. Therefore, achieve a coverage of more than 100 times the coverage of GSM, a wide and deep coverage. The detection level of the NB-IoT device should be less than -125dBm according to the LTE effective coverage level of -105dBm. IoT SCANNER provided by Transcom provide -135dBm sensitivity which will meet the needs of the test. Besides, data measurement and uploading of single frequency point can be completed in 500ms to meet needs of various test environments, including road test.

**Support cell information measurement with three operation methods**

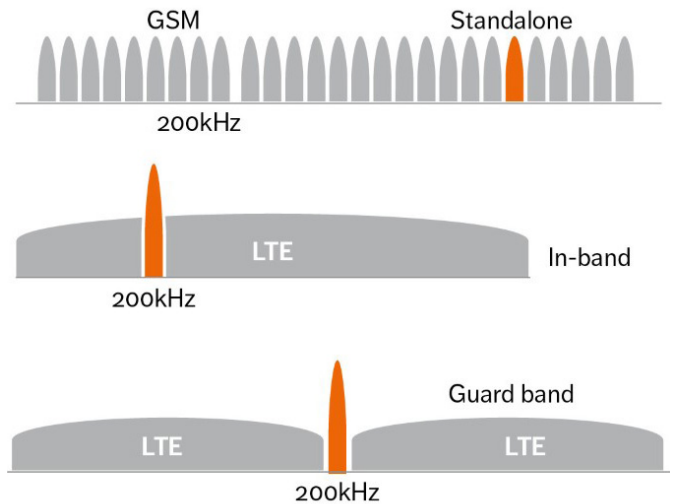
NB-IoT has three operation methods.

The standalone operation is suitable for reuse the GSM band. Channel bandwidth of GSM is 200KHz. Just enough to embed the NB-IoT 180KHz bandwidth, and both sides can have a 10KHz guard band.

The guard band operation uses resource blocks of unused 180 kHz bandwidth in the LTE edge guard band.

In-band operation utilizes any resource blocks in the LTE carrier.

With the NB-IoT / eMTC test instrument Transcom provided, you can automatically detect the three deployment methods, rapid measure information of cells with different deployment methods.



# Specifications

Performance		
NB-IoT	Supported band	870MHz to 880MHz
		900MHz to 1000MHz
		1800MHz to 1900MHz
		additional band customizable
	Deployment scenario	Standalone
		Guard band
	Data output	In-band Frequency Point, PCI, RSRP, RSSI, RSRQ, SINR
	Handoff	Supported
Measuring mode	Support measure NB-IoT & eMTC simultaneously	
Measurement speed	<500ms per frequency point	
Carrier bandwidth	180KHz	
eMTC	Supported band	800MHz to 1000MHz
		2620MHz to 2689MHz
		1805MHz to 1880MHz
		1845MHz to 1880MHz
	Data output	Frequency Point, PCI, RSRP, RSSI, RSRQ, SINR
	Measuring Mode	Support measure NB-IoT & eMTC simultaneously
	Measurement Speed	<1S per frequency point
Carrier bandwidth	5MHz	
CW	Supported band	2MHz to 3GHz
	Measurement Speed	>800
		Channel/sec
Dynamic range	-125dBm to -25dBm	
RF Features	Residual response	<-70dB
	Max safety input	< 10dBm
	Max operation input	-15dBm
	Frequency accuracy	±0.05ppm(GPS Locked) ±0.1ppm(GPS UnLocked)
	Resolution bandwidth	15/30KHz
	Sensitivity	-135dBm(RSRP)
	RF input	SMA
		Female(50Ω)
VSWR	1.5	
	Dynamic range (CINR)	-23dBm to +40dBm

Physical	Power consumption	maximum 24W
	Size/weight	120*100*220mm/2Kg
	Temperature	Operating: 0 C – 50 C Storage: -40 C – +85 C
	RF interface	RF1: NB-IoT RF2: eMTC RF3: MIMO
	Control interface	LAN
GPS	Sensitivity	-162dBm
	Interface	Male (50Ω) SMB

## Ordering List

Model	Description
T2200	IoT Scanner
Accessories Model	Description
TSPS-AS001	RF omnidirectional antenna 700 to 2700 MHz
TSPS-AS002	GPS antenna
TSPS-AS003	Data cable (3m Ethernet cable)
TSPS-AS004	Battery kit
TSPS-AS007	Portable box

*Keep innovating for excellence!*

## About us

Transcom Instrument Co., Ltd. founded in 2005 and headquartered in Shanghai, is a leading manufacturer and provider of RF and wireless communication testing instruments and overall solutions in China. Based on its independent brands and a wide range of core patented technologies, Transcom became national high-tech enterprise with independent intelligent property rights and has been listed into Shanghai Enterprise Recognition Award for High Growth SMEs in Technology.

Transcom is backed by a experienced and dedicated research team in mobile communication, radio frequency and microwave, and network optimization testing instrument. Through "Industry-University-Research" cooperation with universities, Transcom founded Southeast University-Transcom Electronic Measurement Technology Center at Southeast University to further ensure technology and talent reserve, and secure future visionary and sustainable technology development.

Transcom's product portfolios focus 4 areas: cellular network critical communication planning/maintenance/optimization, Manufacturing testing solution, educational instrument/equipment, spectrum monitoring sensor for system integration.



ISO14001



ISO9001

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Company Profile