



The Best Solution to Fulfill RFID Measurements with Spectrum Analyzer



GW INSTEK

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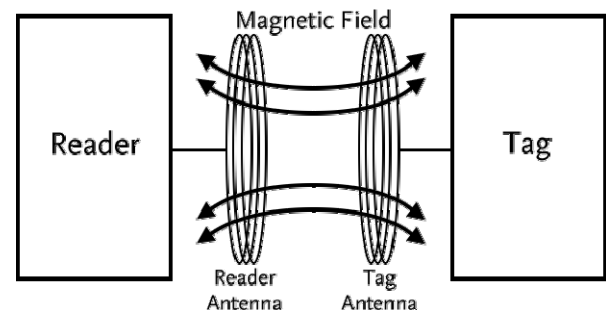
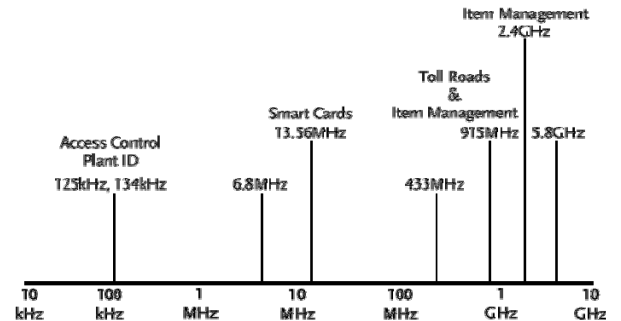
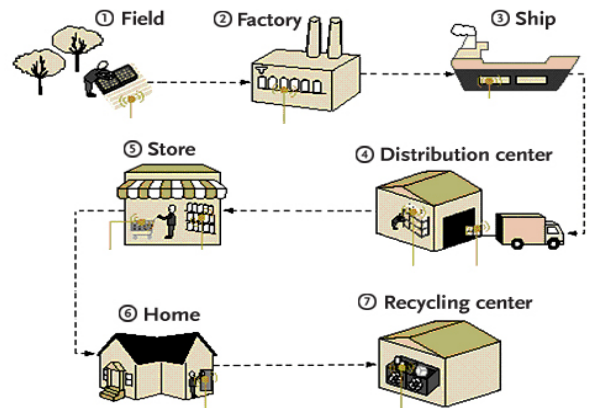
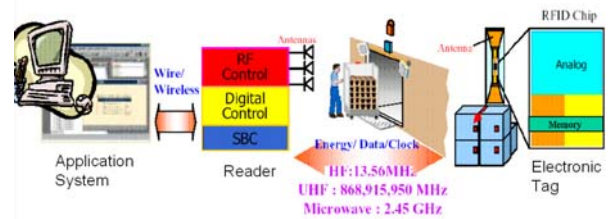
RFID Industry Background Knowledge

RFID applications are rapidly spreading in different industrial sectors in the growing global markets and have been commercialized for more than 20 years. Tracing its development history back to military Identification Friend or Foe (IFF) systems of the 1940s. Recent progress in submicron Integrated Circuits (ICs) allow to make RFID technology pervasive along many data-link applications.

The RFID (Radio frequency identification) system primarily is composed of three basic components including a tag, a reader, and back office data-processing equipment. This small RFID tag containing an integrated circuit chip and an antenna has the ability to respond to RF electromagnetic waves transmitted from the RFID reader in order to send, process, and store information; thus, the reader transmits and receives radio waves to gain the information stored in the tag while all the collected messages can be treated by the associated data-processing equipment. With the trend towards portable technology, this equipment can be designed as simple as a personal computer or as complex as an entire network enterprise management information system.

In general, RFID technology embodies a wide range of systems that are used to track or recognize objects. Electronic toll collection, real-time logistics and automatic vehicle parking management system are all forms of RFID systems. The RFID system industries cover a spectacular exhibition of RF data links and relevant communications techniques. RFID applications span the whole utility landscape from data links measuring a proximate reading for passive tags powered only from the RF signal supplying them, to battery powered tags with longer range. There are even RFID systems that are adopted on cell phones, GPS and satellite communications to track high value assets globally. The technology used in RFID systems is truly very diversified and widespread. In addition to these novel asset-tracking systems, communications technology for many RFID systems with onboard sensing capability has opened up new RFID opportunities outside of the inventory management sector.

In terms of the frequency band between 125 kHz and 13.56 MHz for RFID system, the features of applications including near-field and lower transmission capacity of RFID data have been adopted in RFID card with coil antenna to transmit the electromagnetic power within the near-field magnetic flux linkages.



Thus, with spectrum analyzer, the RFID tag makers can easily build up the production line for tag testing or tag designer can have the technical capability to develop the high performance antenna of passive tag.

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RFID Antenna tags measurement solution

First, the test measurement of RFID tag can easily executed by coupling the return-loss-bridge (RLB-001) to this 3GHz spectrum analyzer RF input port.

Then connect the cable between the source port of the return-loss-bridge and port of tracking generator output on the spectrum analyzer.

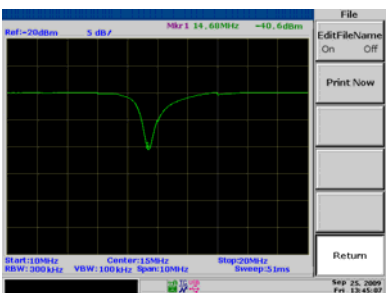
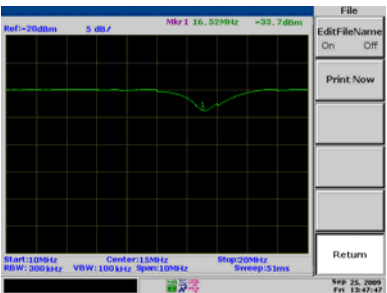
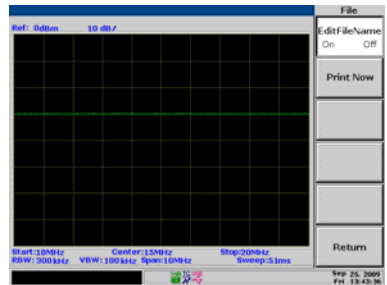
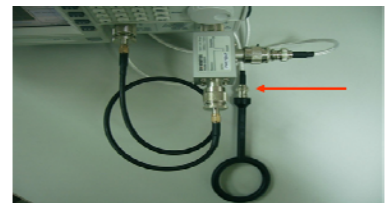
Finally, plug the loop-detecting kit in the load port of the return-loss-bridge junction and finishing the above sequence allow us to go for the normalization action of tracking generator.

Then the frequency characteristics clearly appear on screen once the tag objective is put under the loop-detecting kit.

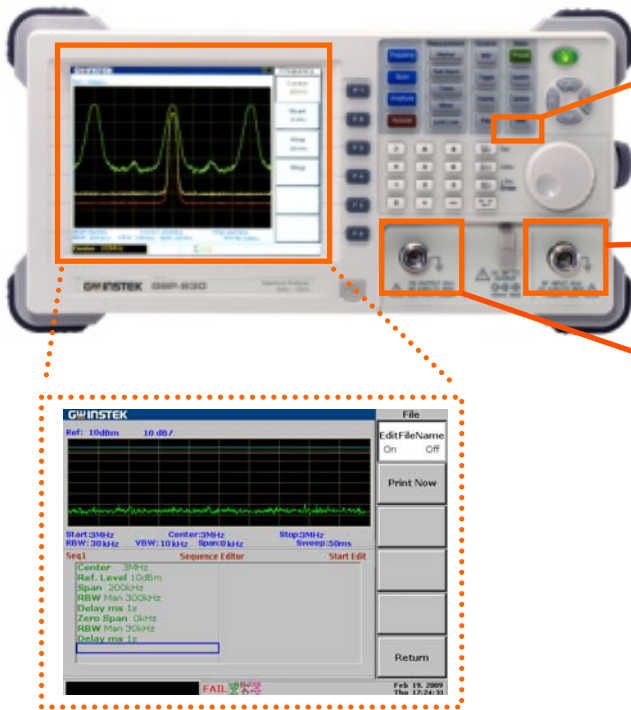
The corresponding data can be readily picked out by pushing the key of “Peak Search”.

Measurement Result (Example)

For return loss method, the result is shown as figure, which 10.6dB return loss can be seen. The minimum peak takes place at 14.68MHz.



GSP-830 Features



Sequence: Editing and executing the preloaded measuring procedures by one button.

DUT signal input

TG (Tracking Generator) : Install the tracking generator module (Opt.01) then it can connect RLB to measure RFID antenna tags.

Ordering Information

Spectrum Analyzer

- GSP-830 3GHz Spectrum Analyzer
- Opt .01 3GHz Tracking Generator Module

Return Loss Bridge

- RLB-001 1GHz Return Loss Bridge

EMI Probe Kit Sets

- GKT-006 EMI Probe Kit Sets Includes:

- H plain near field probe *2
- E plain near field probe *1
- E plain touch passive probe *1
- N(P) ~ BNC(I) adaptor *1
- N(P) ~ SMA(I) adaptor *1
- BNC(P) ~ BNC(P) RF cable *1
- SMA(P) ~ SMA(P) RF cable *1
- Carrying Case *1

Other Accessories

- ADP-001 Adapter BNC(I) ~ N(P) 2 個
- GTL-110 BNC(P), BNC Cable 1 條

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