

## Product Description

The RF-434LNA-915 RF Transceiver Module is a compact surface-mounted module for multi- channel 2GFSK operation in the 900 MHz ISM band. The module is completely shielded and pre-certified for operation under US radio regulations for license-free use.

## Technical data

Frequency	902.5~927.5 MHz
Modulation method	2 GFSK
Number of channels	51
Channel bandwidth	500k MHz
RF data rate (programmable)	76.8 kbit/s
Output power (programmable)	Max 16 dBm
Supply voltage	2.0-3.6 Volt
Temperature range	-40°C+85°C
Dimensions	22.6×18.6×7.45 (mm)
FCC ID	RN489896162JK915

## Theory of Operation/Technical Description

### - RF circuit function:

The major part of this IC is a 902.5-927.5 MHz compliant transceiver.

### - RF signal flow:

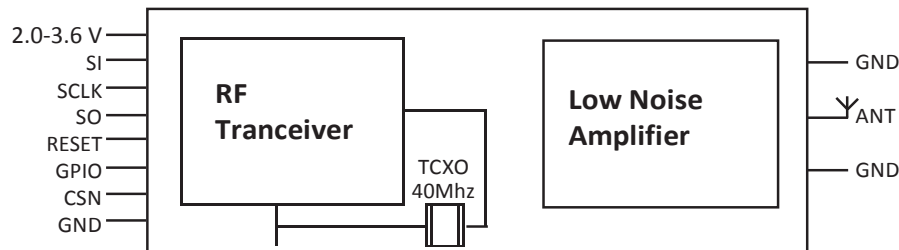
The Control signal is encoded into a Data Stream to be the modulation input for the transceiver.

### -Description of Antenna system:

The antenna shall be connected to the RF pin. The RF pin is matched to 50 Ohm. External antenna was connected by SMA cable and internal antenna was soldered on board. the antenna model includes:

1. Monopole antenna soldered on Board.  
(SHUN HU, 00K8M0040,0dBi)
2. Monopole antenna with reverse SMA Male.  
(MAGOYA,NA-915-3,2dBi)
3. Monopole antenna with reverse SMA Male.  
(MAGOYA,UT-915,2.5dBi)

## Block Diagram

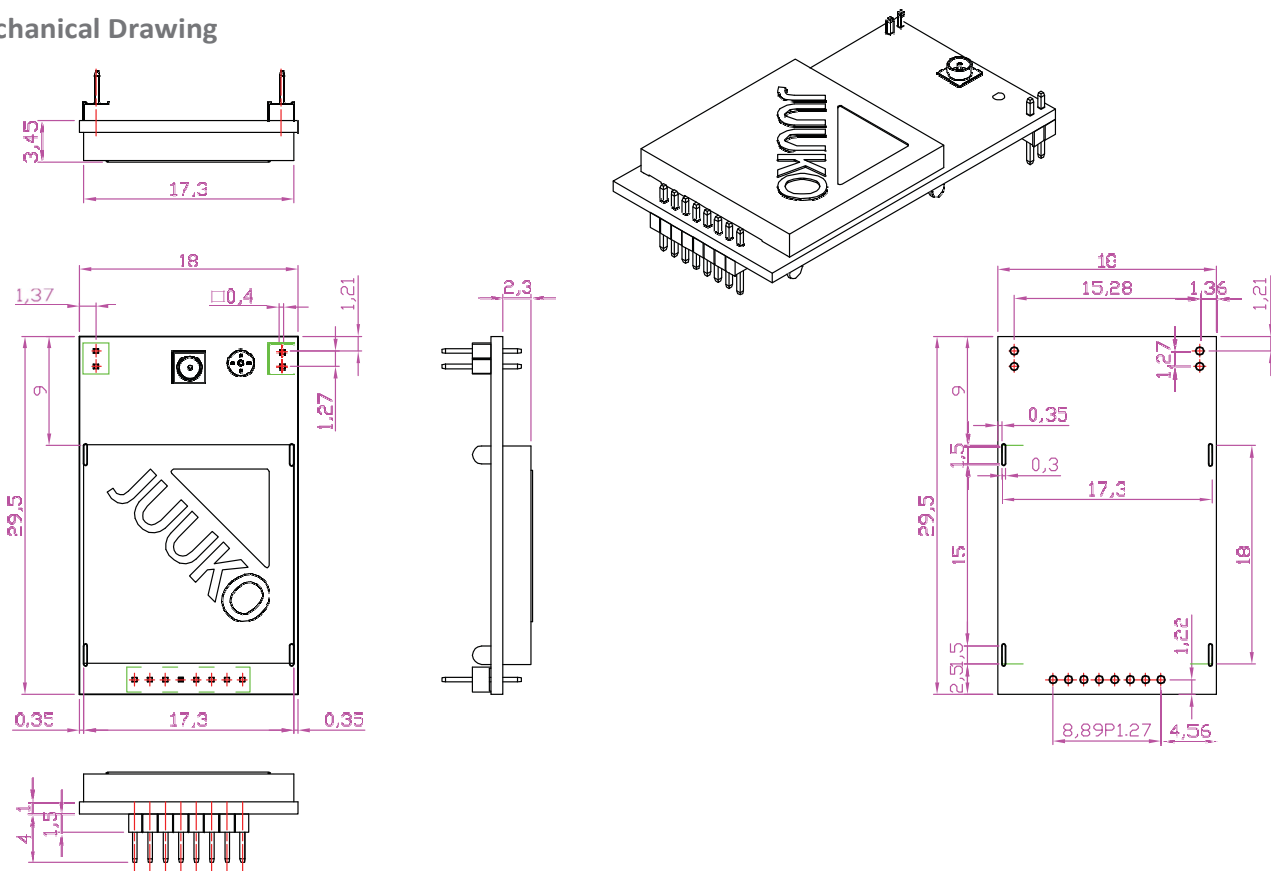


## Pin Assignment



Specifically, if an antenna other than the model documented in the Filing is used, a Class 2 Permissive Change must be filed with the FCC.

## Mechanical Drawing



## FCC Part 15

\* This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation

\* You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## IC Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The module has received Federal Communications Commission (FCC) CFR47 Telecommunications, Part 15 Subpart C "Intentional Radiators" modular approval in accordance with Part 15.212 Modular Transmitter approval. Modular approval allows the end user to integrate the module into a finished product without obtaining subsequent and separate FCC approvals for intentional radiation, provided no changes or modifications are made to the module circuitry. Changes or modifications could void the user's authority to operate the equipment. The end user must comply with all of the instructions provided by the Grantee, which indicate installation and/or operating conditions necessary for compliance. The finished product is required to comply with all applicable FCC equipment authorizations regulations, requirements and equipment functions not associated with the transmitter module portion. For example, compliance must be demonstrated to regulations for other transmitter components within the host product; to requirements for unintentional radiators (Part 15 Subpart B "Unintentional Radiators"), such as digital devices, computer peripherals, radio receivers, etc.; and to additional authorization requirements for the nontransmitter functions on the transmitter module (i.e., Verification, or Declaration of Conformity) (e.g., transmitter modules may also contain digital logic functions) as appropriate.

#### **LABELING AND USER INFORMATION REQUIREMENTS**

The RF-434LNA-915 module has been labeled with its own FCC ID number, and if the FCC ID is not visible when the module is installed inside another device, then the outside of the finished product into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording as follows:

Contains Transmitter Module FCC ID: RN489896162JK915 or Contains FCC ID: RN489896162JK915

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

#### **A user's manual for the finished product should include the following statement:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Additional information on labeling and user information requirements for Part 15 devices can be found in KDB Publication 784748 available at the FCC Office of Engineering and Technology (OET) Laboratory Division Knowledge Database (KDB) <http://apps.fcc.gov/oetcf/kdb/index.cfm>.

#### **RF EXPOSURE**

All transmitters regulated by FCC must comply with RF exposure requirements. KDB 447498 General RF Exposure Guidance provides guidance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to Radio Frequency (RF) fields adopted by the Federal Communications Commission (FCC). From the FCC Grant: Output power listed is conducted. This grant is valid only when the module is sold to OEM integrators and must be installed by the OEM or OEM integrators. This transmitter is restricted for use with the specific antenna(s) tested in this application for Certification and must not be co-located or operating in conjunction with any other antenna or transmitters within a host device, except in accordance with FCC multi-transmitter product procedures.

Hence the EUT is excluded from SAR evaluation. please also refer to FCC KDB publication 447498 D01 v05: Mobile Portable RF Exposure.

Module is not approved for use when being powered by AC power lines, either directly or indirectly through another device.

## INTRODUCTION

### 1. GENERAL DESCRIPTION

Model No / Series
NA-915-3 915MHz Flexible Whip Antenna

#### 1.1 SPECIFICATION

Parameter	Description
Frequency Band	915 MHz(902-928MHz)
Antenna Gain	2 dBi
Nominal Impedance	50 ohm
V.S.W.R	$\leq 1.5:1$
Polarization	Linear Vertical
Connector Type	Reverse SMA Male
Antenna Length	172 $\pm$ 1 mm
Wave	1/2 $\lambda$
Antenna Color	Black
Operating Temperature Range	-30°C~+85°C

### 2. Appearance



REUEX INDUSTRIAL CO., LTD. 名古屋通信股份有限公司

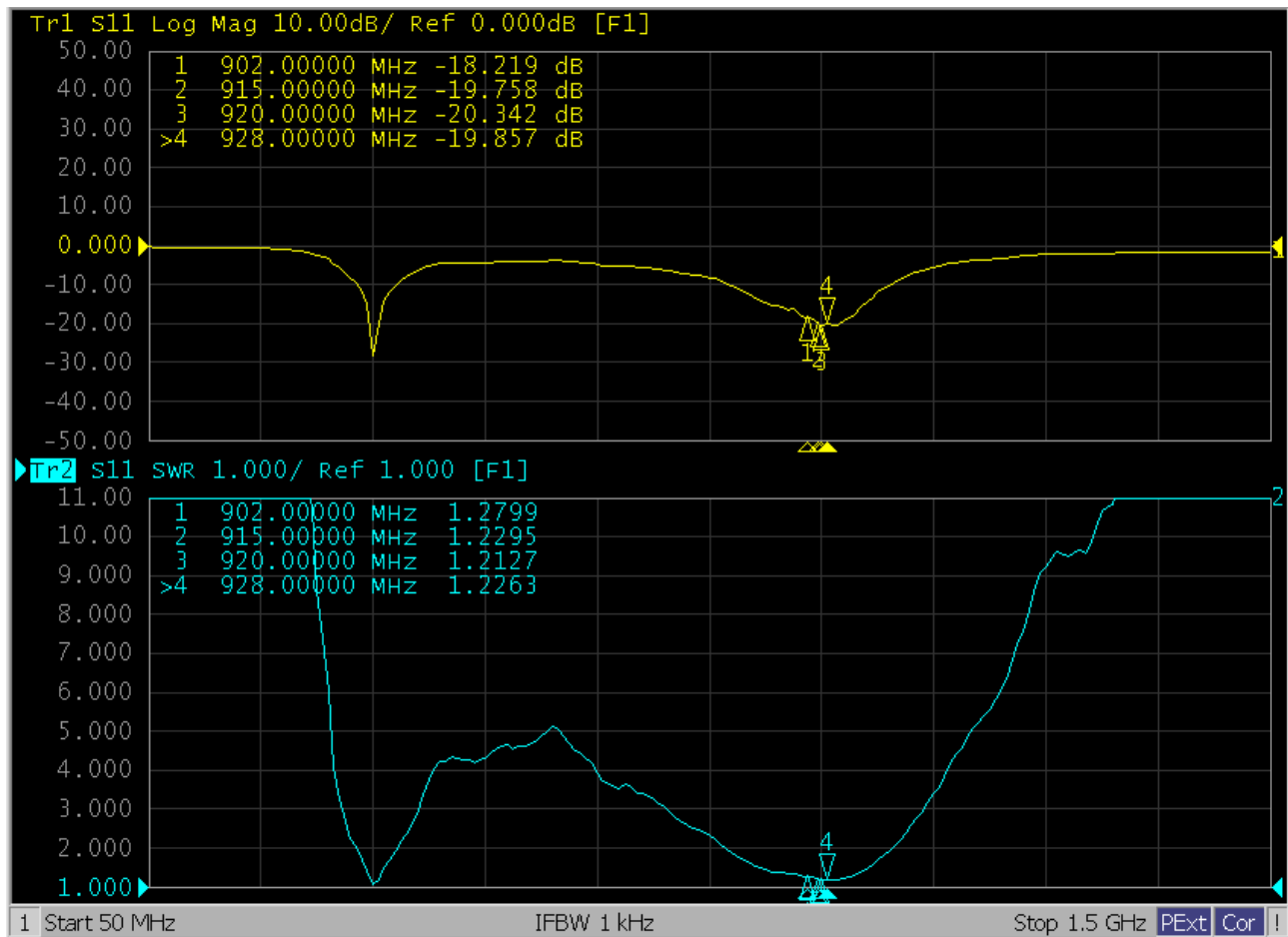
33441 桃園縣八德市力行街 41 號

NO.41 LI HSIN ST. PATEH CITY, TAOYUAN COUNTY, 33441 TAIWAN R.O.C.

TEL: +886-3-3644980 FAX: +886-3-3622014 EMAIL: [reuex@ms39.hinet.net](mailto:reuex@ms39.hinet.net)

Web: <http://www.nagoya.com.tw>

### 3. Return Loss & SWR Chart



REUEX INDUSTRIAL CO., LTD. 名古屋通信股份有限公司

33441 桃園縣八德市力行街 41 號

NO.41 LI HSIN ST. PATEH CITY, TAOYUAN COUNTY, 33441 TAIWAN R.O.C.

TEL: +886-3-3644980 FAX: +886-3-3622014 EMAIL: [reuex@ms39.hinet.net](mailto:reuex@ms39.hinet.net)

Web: <http://www.nagoya.com.tw>

## **INTRODUCTION**

### **1. GENERAL DESCRIPTION**

<b>Model No / Series</b>
UT-915 Magnet Antenna for 915MHz.

#### **1.1 SPECIFICATION**

<b>Parameter</b>	<b>Description</b>
Frequency Band	915 MHz
Antenna Gain	2.5 dBi
Nominal Impedance	50 ohm
V.S.W.R	$\leq 1.5:1$
Max Power Rating	50 Watts
Polarization	Vertical
Cable	RG-174 2m~5m (optional)
Connector Type	Reverse SMA Male
Antenna Length	310 mm
Operating Temperature Range	-30°C~+85°C

REUEX INDUSTRIAL CO., LTD. 名古屋通信股份有限公司

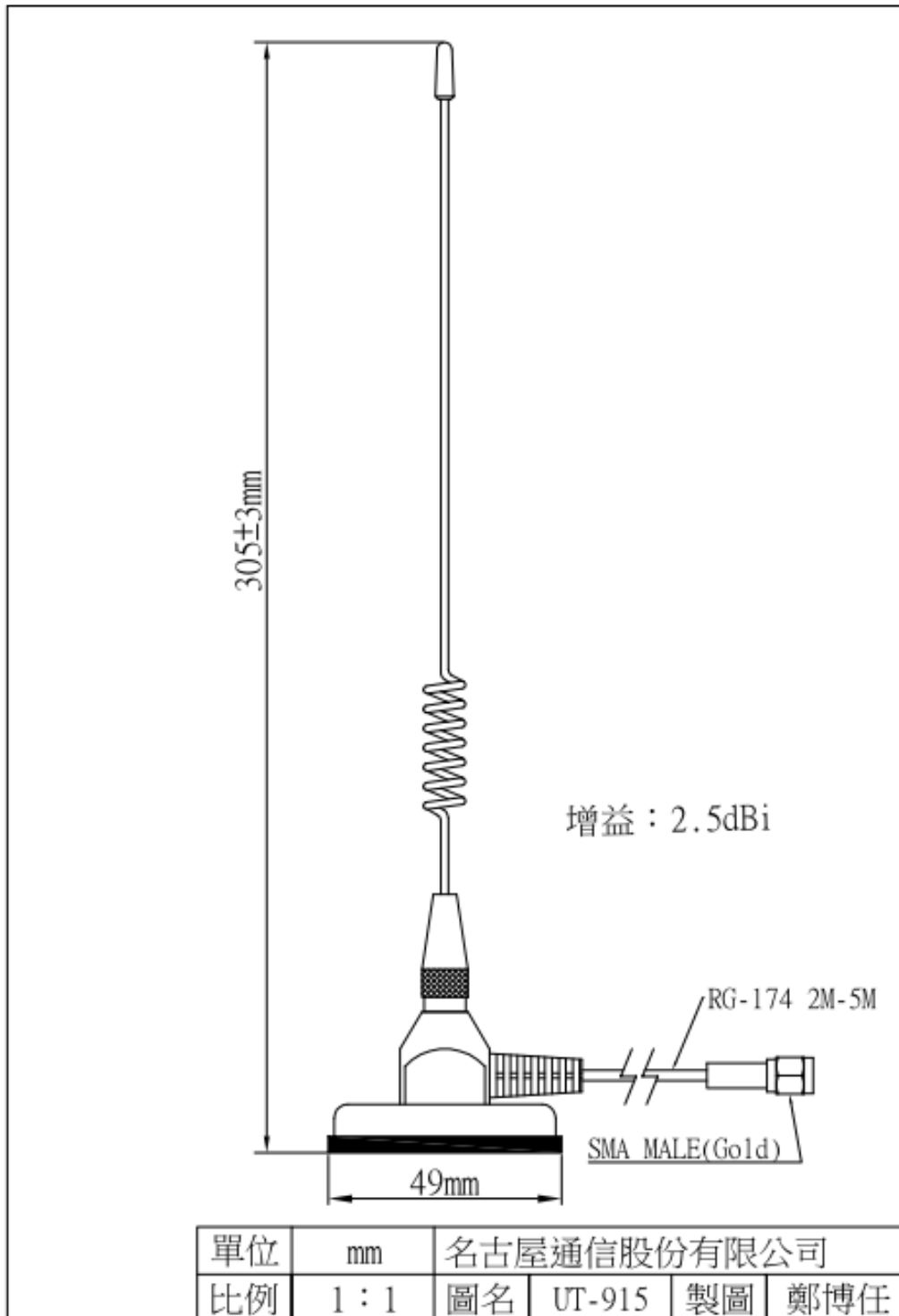
33441 桃園縣八德市力行街 41 號

NO.41 LI HSIN ST. PATEH CITY, TAOYUAN COUNTY, 33441 TAIWAN

TEL: +886-3-3644980 FAX: +886-3-3622014 EMAIL:

Web:

2. Appearance



REUEX INDUSTRIAL CO., LTD. 名古屋通信股份有限公司

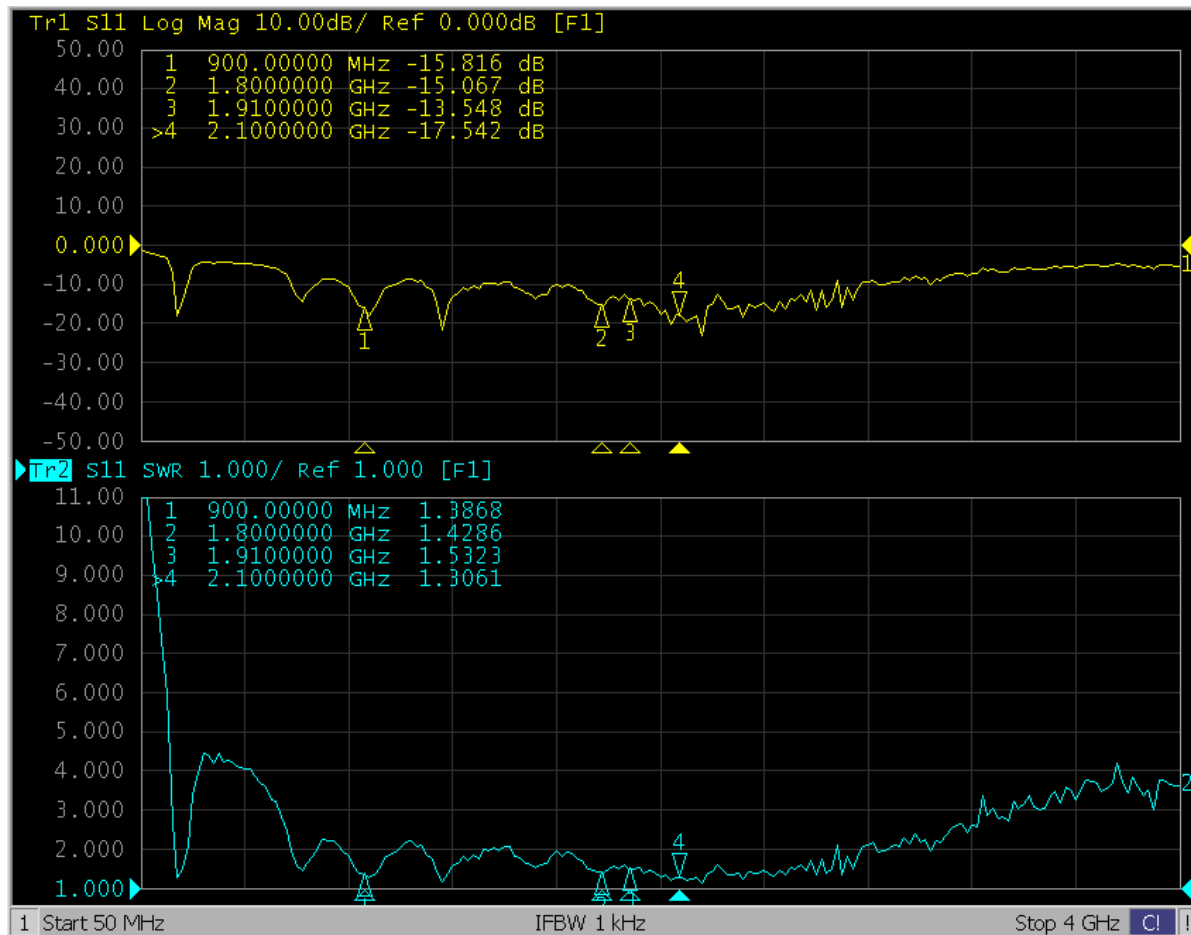
33441 桃園縣八德市力行街 41 號

NO.41 LI HSIN ST. PATEH CITY, TAOYUAN COUNTY, 33441 TAIWAN

TEL: +886-3-3644980 FAX: +886-3-3622014 EMAIL:

Web:

3. Return Loss and SWR Chart



REUEX INDUSTRIAL CO., LTD. 名古屋通信股份有限公司

33441 桃園縣八德市力行街 41 號

NO.41 LI HSIN ST. PATEH CITY, TAOYUAN COUNTY, 33441 TAIWAN

TEL: +886-3-3644980 FAX: +886-3-3622014 EMAIL:

Web: