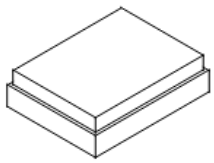
RFMi
BRAND OF AKOUSTIS

RoHS compliant

SF2591NM

897.5/942.5 MHz Filter Duplexer



SM1814

MAXIMUM RATING:

- Maximum DC Voltage: 5 V
- Operating temperature range: -30 °C to +85 °C
- Storage temperature range: -40 °C to +100 °C
- Input power : 29dBm (Ta=+50°C,10000h,LTE 5MHz modulation)
- Moisture Sensitivity Level: Level 1 (MSL 1)
- ESD 100V(MM) 200V(HBM)

ELECTRICAL CHARACTERISTICS:

Terminating impedance (Tx Port): 50//22nH Ω(Single-ended)

Terminating impedance (Rx Port): 50 Ω (Single-ended)

Terminating impedance (Ant Port): 50//8.2nH Ω (Single-ended)

Tx to ANT (f_{T0}=897.5 MHz)

Parameters Description			Unit	Min	Typ	Max	Remarks
Insertion Loss		882.4~912.6MHz	dB(*2)	-	1.3	2.4	-20~+85°C
		880.24~914.76MHz	dB	-	-	3.6	-30~ -20°C
			dB	-	1.6	3.2	-20~+85°C
Amplitude ripple		880.24~914.76MHz	dB	-	1.0	3.2	-
VSWR	ANT	880.24~914.76MHz	-	-	1.4	2.1	-
	Tx	880.24~914.76MHz	-	-	1.4	2.1	-
Attenuation:							
927.4 ~ 957.6 MHz			dB(*2)	48	54	-	-20~+85°C
925.24 ~ 959.76 MHz			dB	37	-	-	-30~ -20°C
			dB	42	-	-	-20~ 0°C
			dB	48	54	-	0~+85°C
1565 ~ 1606 MHz			dB	40	43	-	
1760 ~ 1830 MHz			dB	40	48	-	
2640 ~ 2745 MHz			dB	28	37	-	

(*1)Specification of insertion loss excludes loss that comes from the test board.
(*2)Integrated over +/-1.92MHz around the WCDMA channel center frequency.

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.

ANT to Rx (f_{T0}=942.5 MHz)

Parameters Description			Unit	Min	Typ	Max	Remarks
InsertionLoss(*1)		927.4~957.6 MHz	dB(*2)	-	1.5	2.5	-20~+85°C
InsertionLoss(*1)		925.24~959.76 MHz	dB	-	-	3.5	-30~ -20°C
InsertionLoss(*1)			dB	-	1.8	3.0	-20~+85°C
Amplitude ripple		925.24~959.76 MHz	dB	-	1.1	2.9	
VSWR	ANT	925.24~959.76 MHz	-	-	1.8	2.1	
	Rx		-	-	1.7	2.1	
Attenuation:							
880.24 ~ 914.76 MHz			dB	45	54	-	
1805 ~ 1875 MHz			dB	40	52	-	
2400 ~ 2500 MHz			dB	40	49	-	
2685 ~ 2790 MHz			dB	40	48	-	

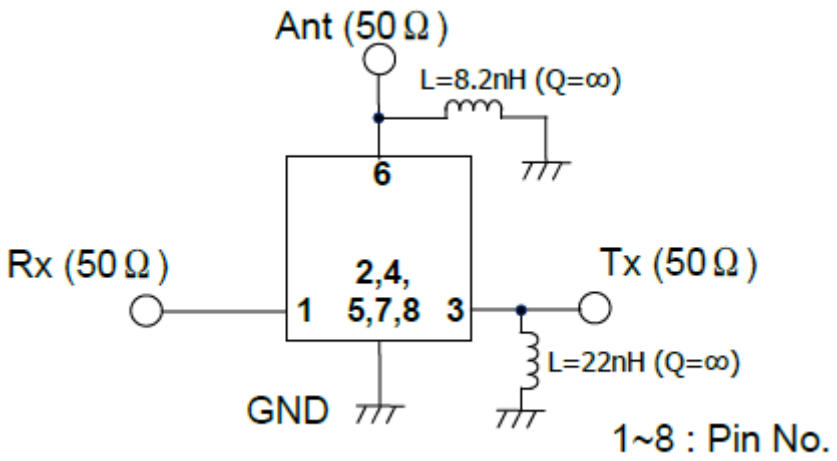
(*1)Specification of insertion loss excludes loss that comes from the test board.
(*2)Integrated over +/-1.92MHz around the WCDMA channel center frequency.

Tx to Rx

Isolation	882.4~912.6MHz	dB(*2)	55	58	-	-20~+85°C
	880.24~914.76 MHz	dB	48	-	-	
		dB	55	58	-	-30~ +25°C
	927.4~957.6MHz	dB(*2)	55	58	-	-20~+85°C
	925.24~959.76 MHz	dB	40	-	-	-30~ -20°C
		dB	45	-	-	-20~ 0°C
		dB	53	56	-	0~ +85°C

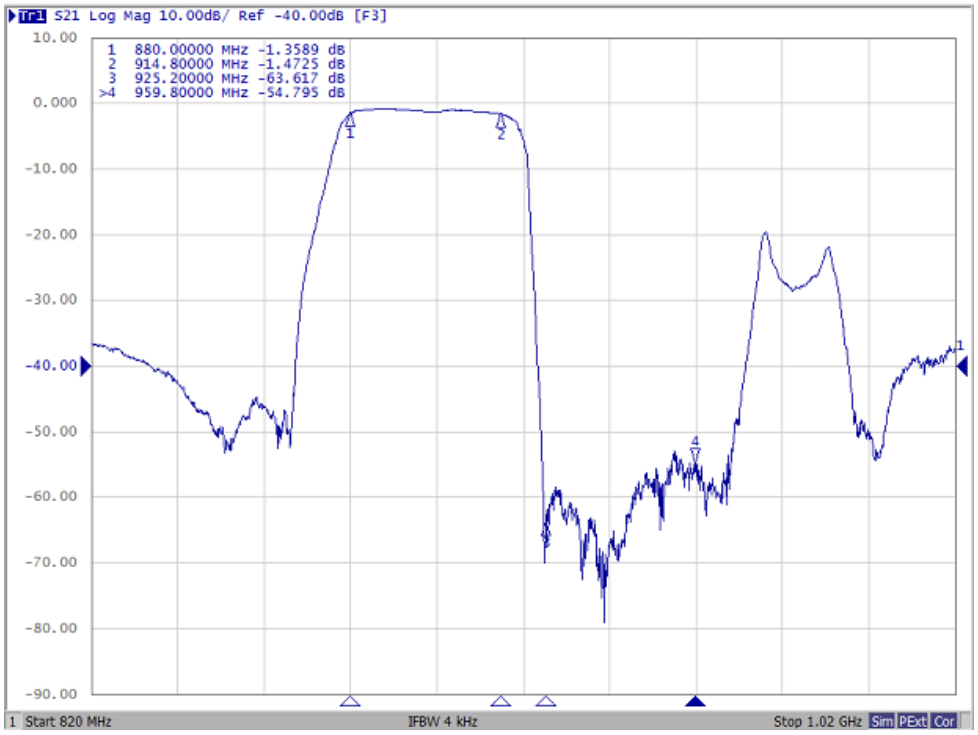
(*2) Integrated over +/-1.92MHz around the WCDMA channel center frequency

Evaluation Circuit

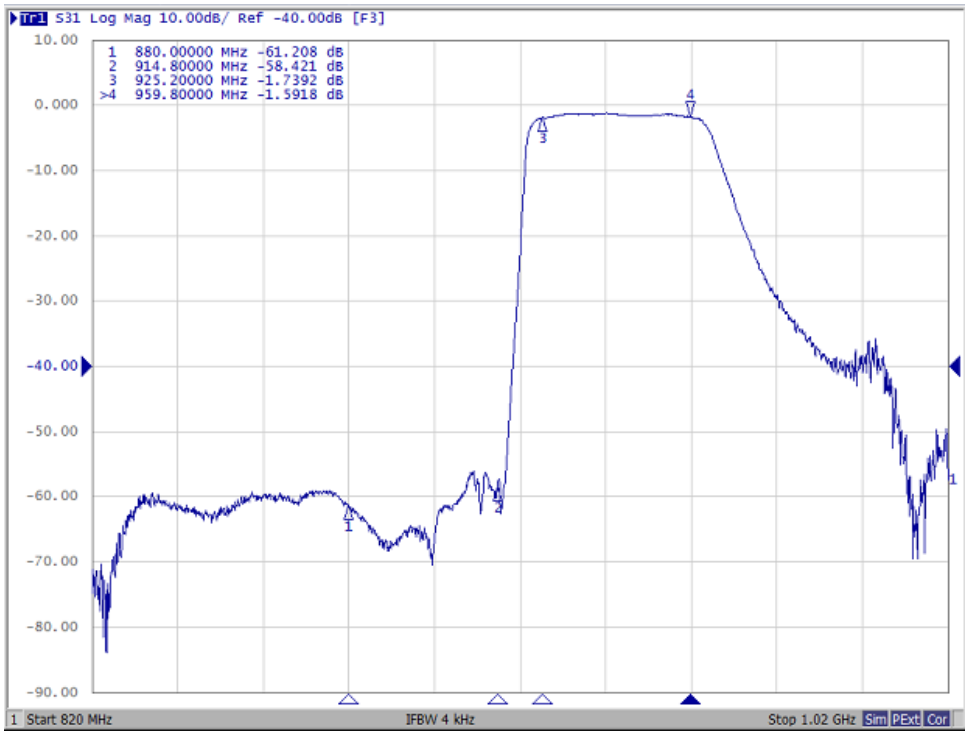


FREQUENCY CHARACTERISTICS:

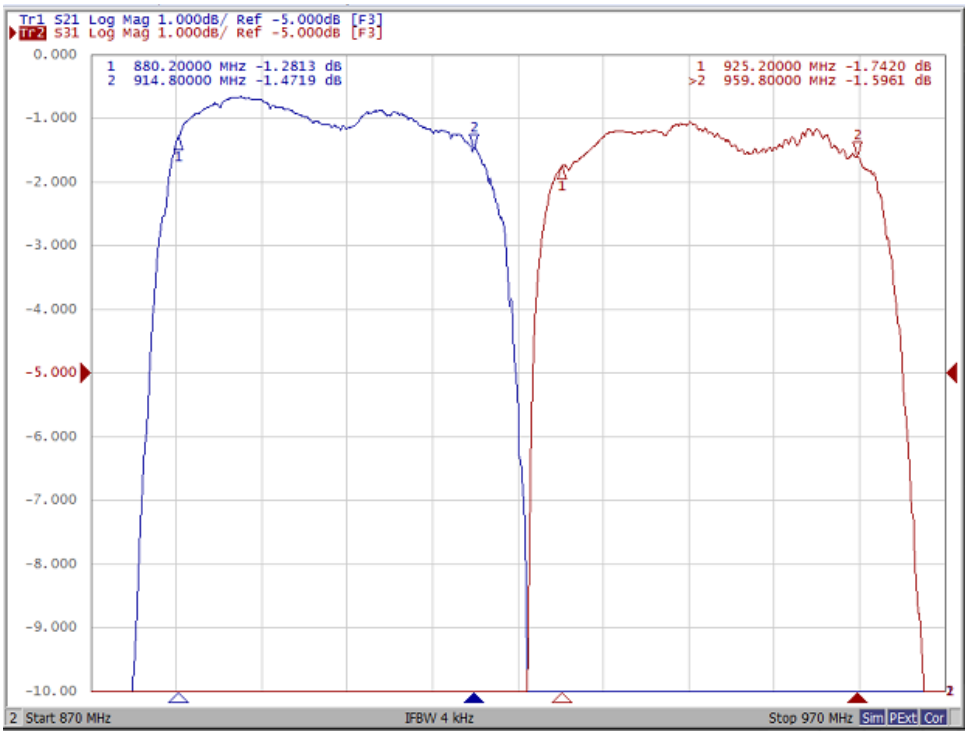
Tx to Ant



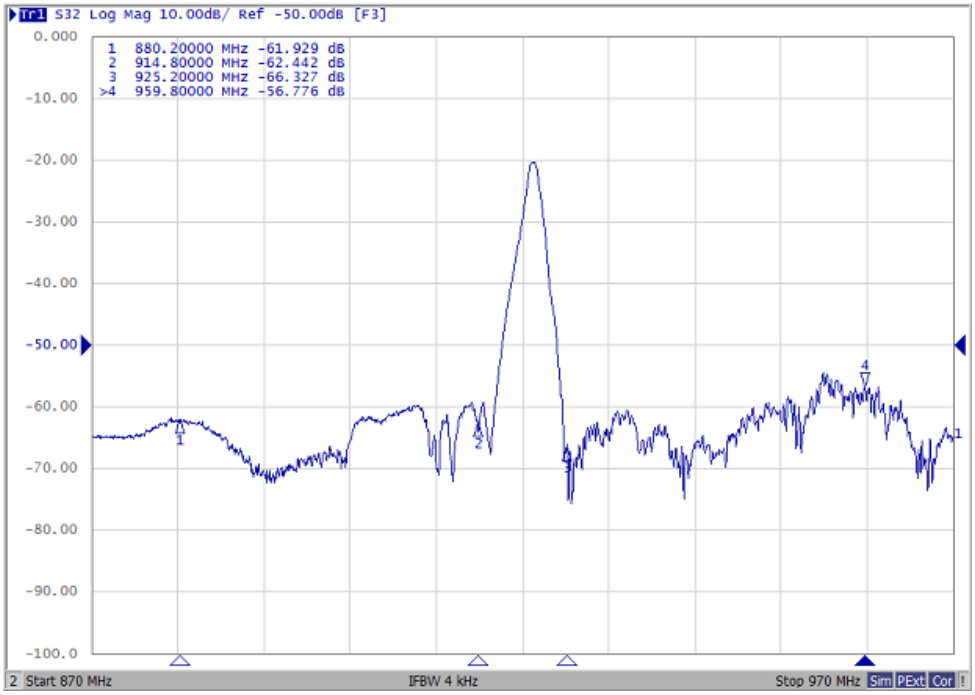
Ant to Rx



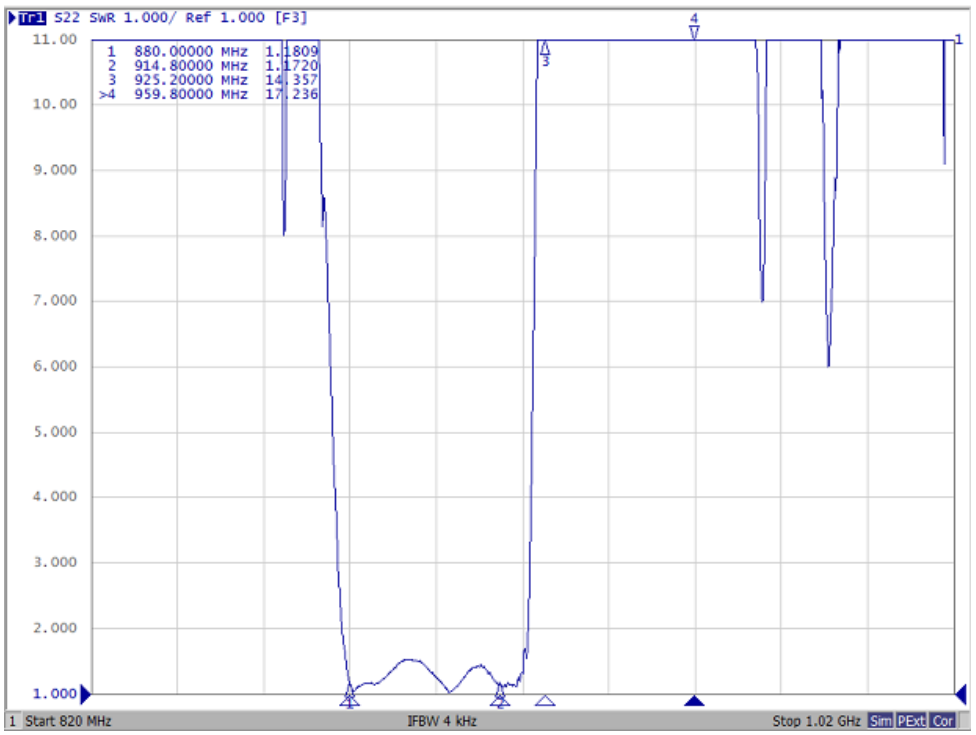
Tx to Ant ,Ant to Rx

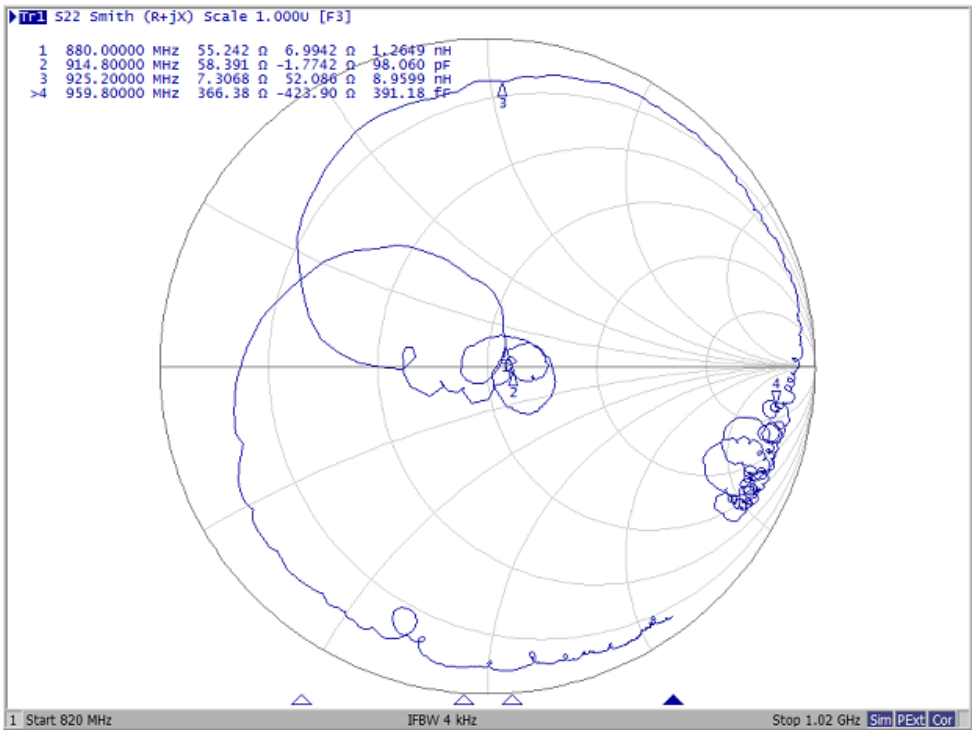


Tx to Rx Isolation

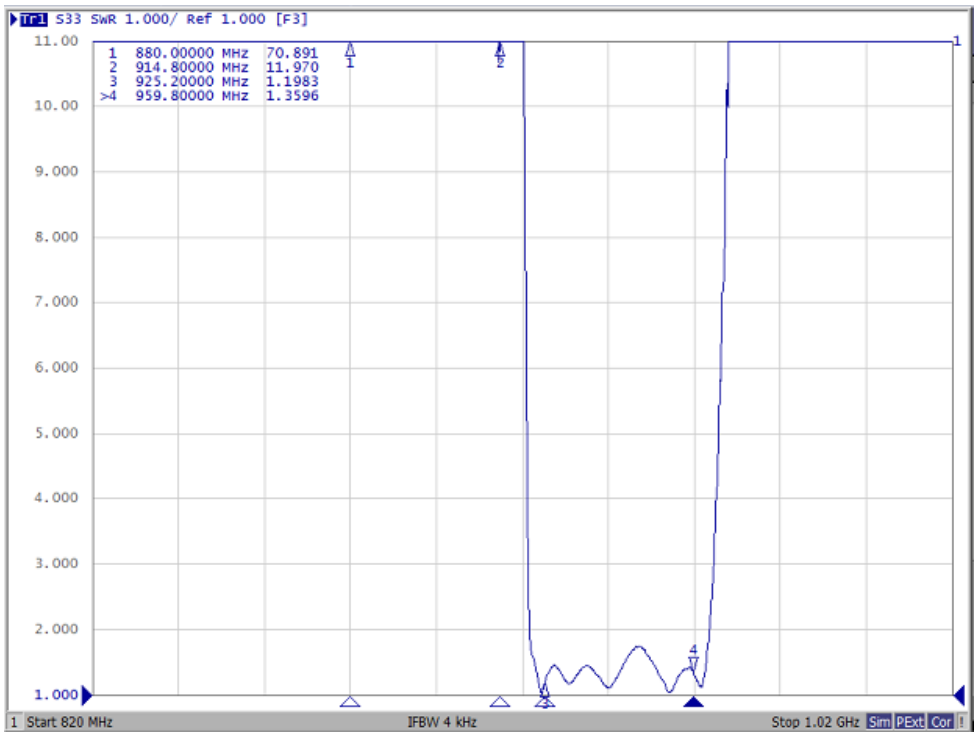


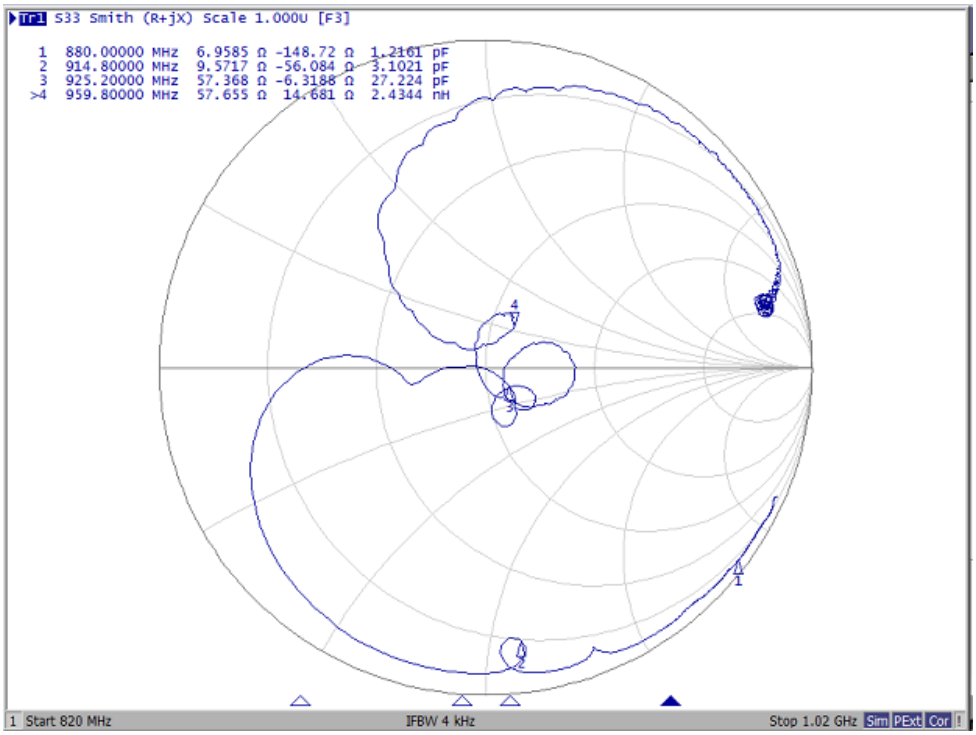
Tx Port



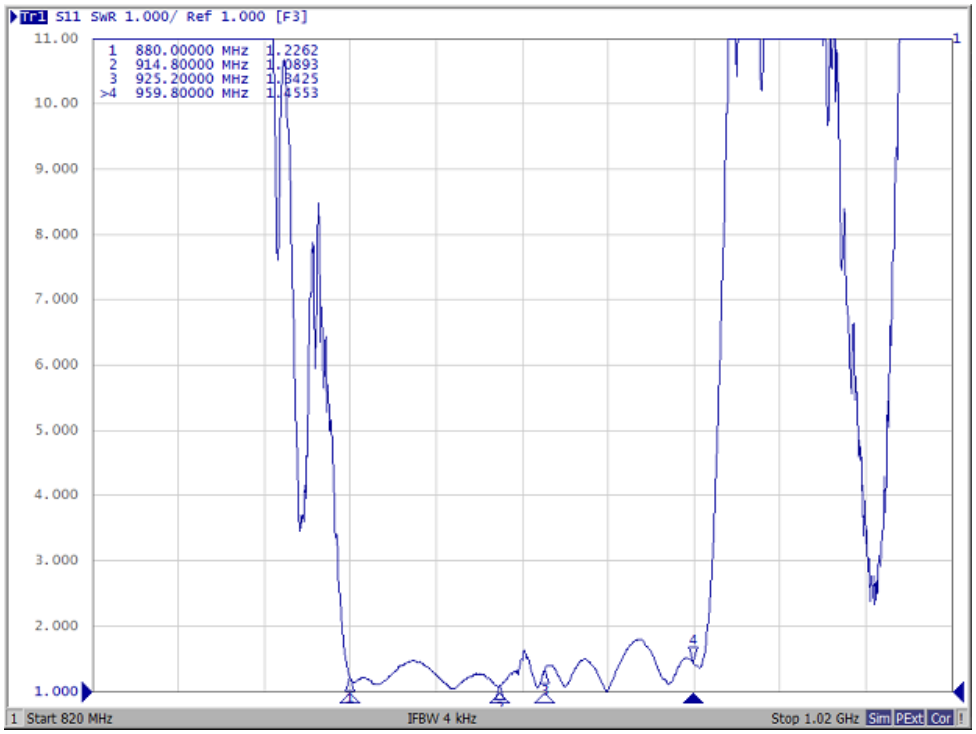


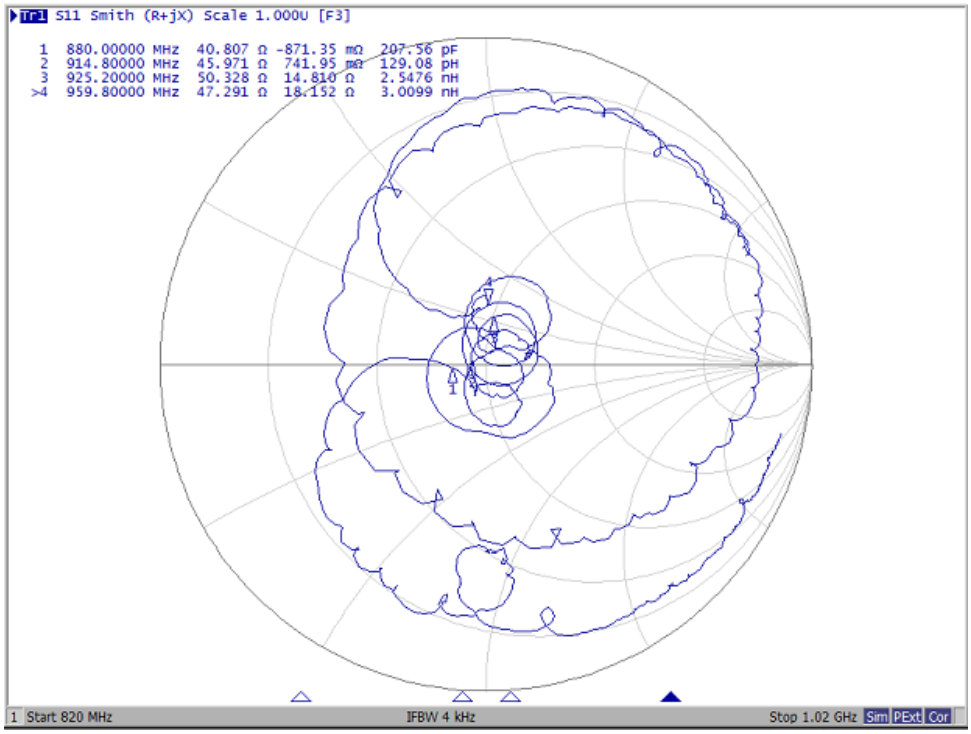
Rx Port



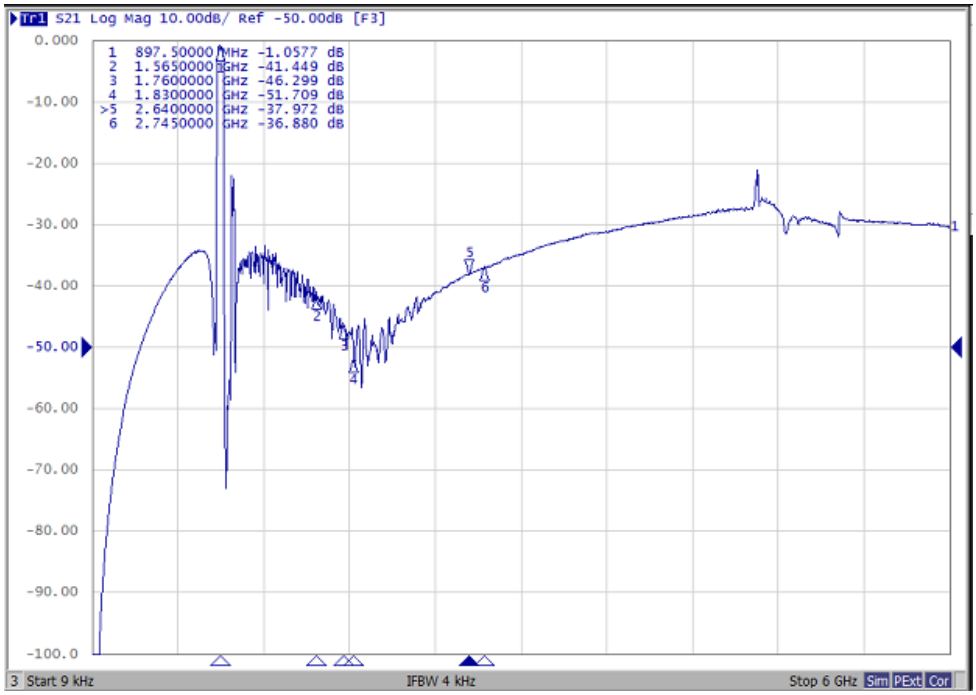


Ant Port

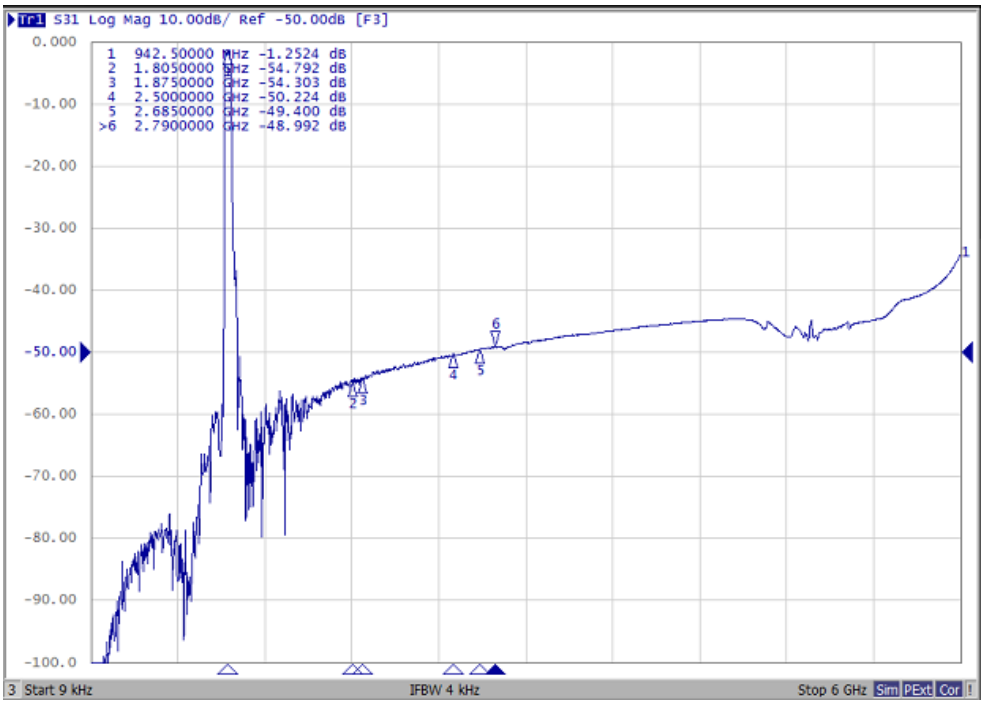




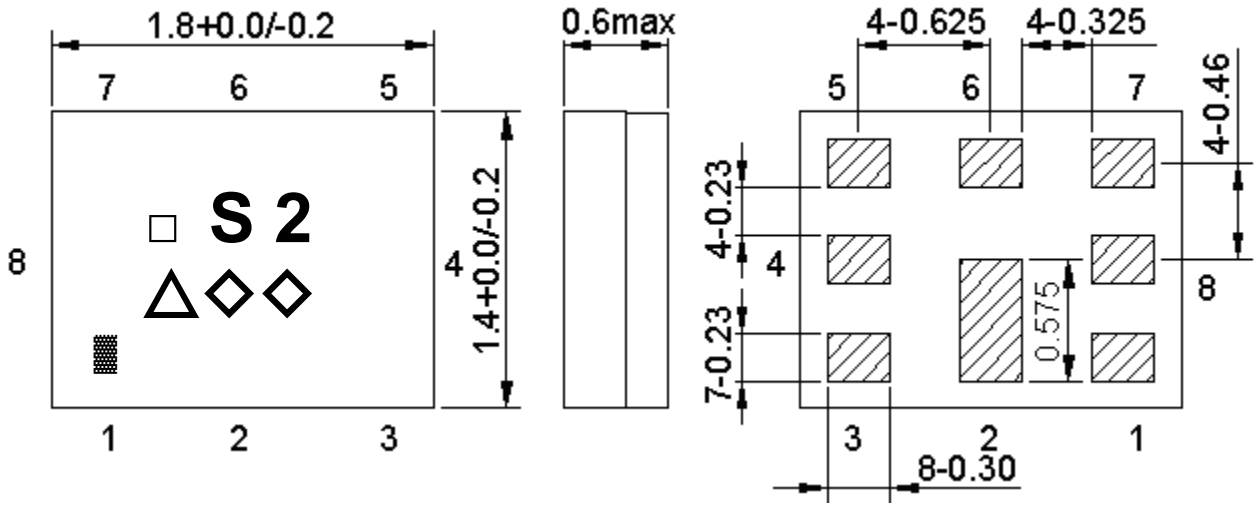
Tx to Ant (Wide span)



Ant to Rx (Wide span)



E.OUTLINE DRAWIN:



Not Specified Tolerance : +/-0.1 mm

Unit : mm

Traceability code (□ : S or 7)

Marking name : **S2**

△: Date code(2020 May → s ,…….., 2023 Dec→m.)

◇◇: Lot Code.

Product Date Code. Follow below table. (4-year cycle)

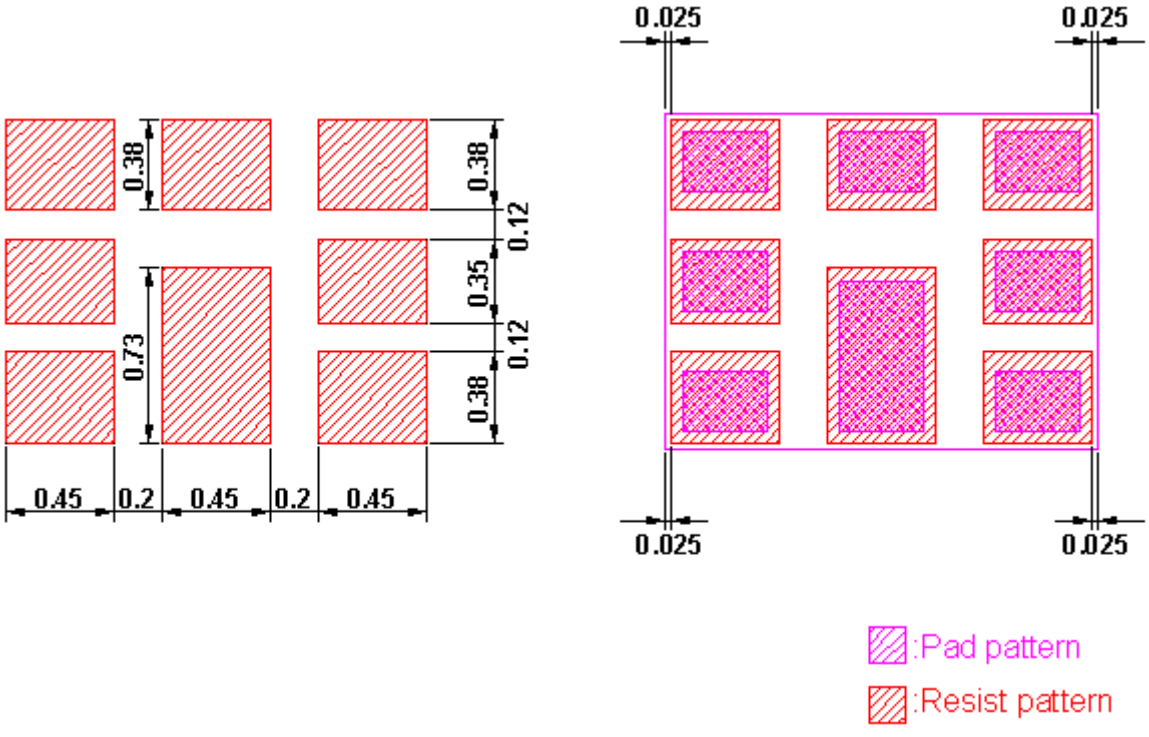
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	n	p	q	r	s	t	u	v	w	x	y	z
2021	A	B	C	D	E	F	G	H	J	K	L	M
2022	N	P	Q	R	S	T	U	V̄	W	X	Y	Z
2023	a	b	c	d	e	f	g	h	j	k	l	m

Pin Configuration

Pin No.	Pin name	Description
1	Rx	Receiver Pin
2	GND	Ground Pin
3	Tx	Transmitter Pin
4	GND	Ground Pin
5	GND	Ground Pin
6	ANT	Antenna Pin
7	GND	Ground Pin
8	GND	Ground Pin

Figure 1. Dimensions and Pin assignment

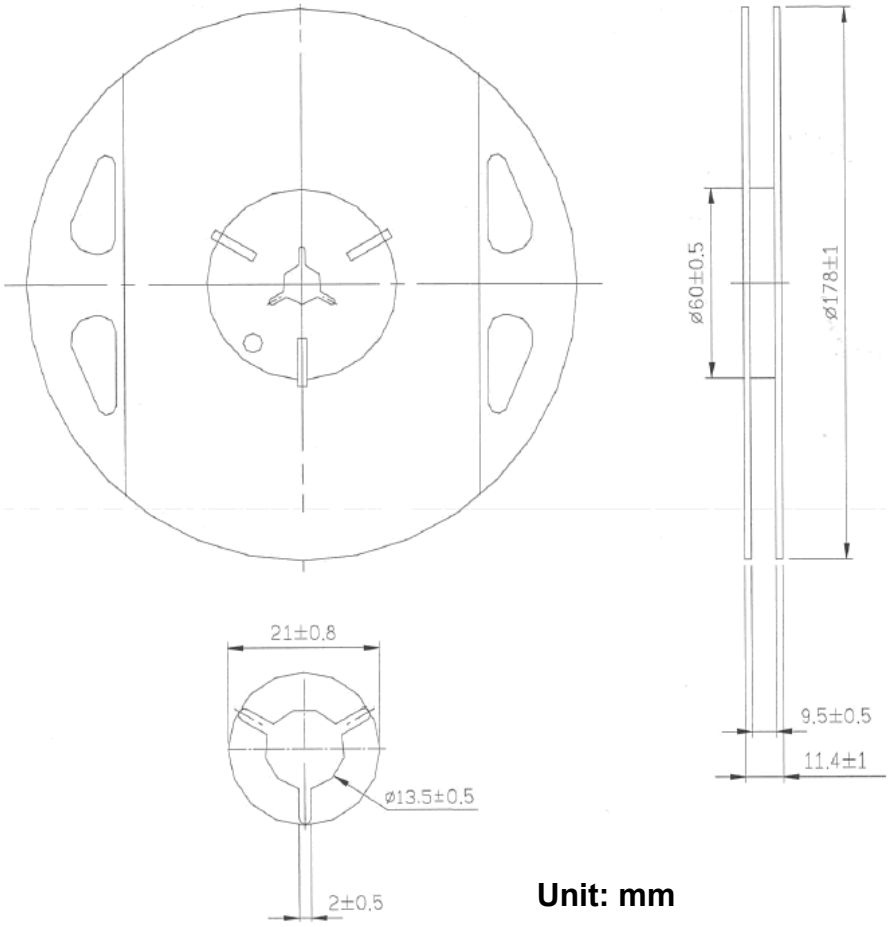
FOOTPRINT:



PACKING:

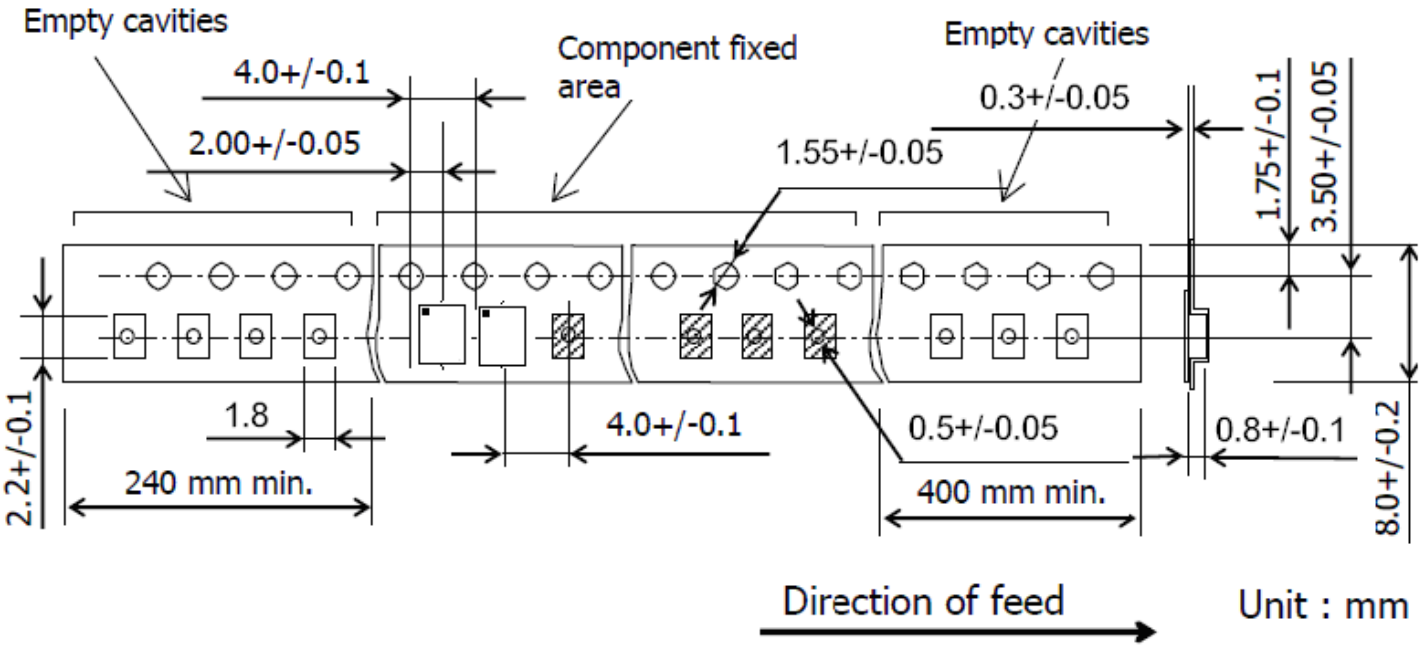
REEL DIMENSION

Reel Count:
7" = 3000
13" = 10,000



Unit: mm

TAPE DIMENSION



RECOMMENDED REFLOW PROFILE :

1. Preheating shall be fixed at 150~180℃ for 60~90 seconds.
2. Ascending time to preheating temperature 150℃ shall be 30 seconds min.
3. Heating shall be fixed at 220℃ for 50~80 seconds and at 245~260℃ peak (min. 10sec).
4. Time : 2 times.