

- BAW DUPLEXER For Band2
- Revision 2: December 2013

## Electrical Characteristics

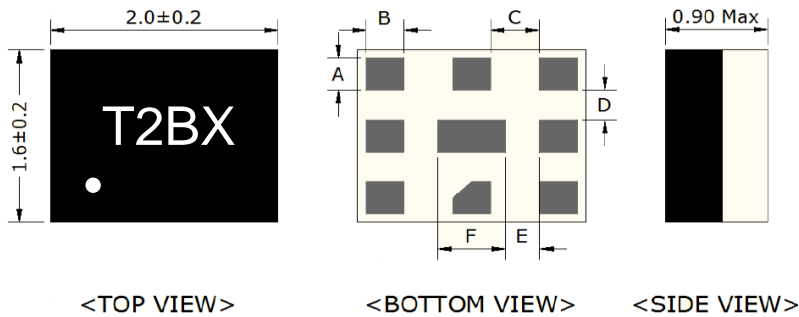
MAXIMUM RATING				
PARAMETERS DESCRIPTION	UNIT	MINIMUM	TYPICAL	MAXIMUM
Operating Temperature Range	°C	-30	-	+85
Storage Temperature Range	°C	-40	-	+85
Maximum DC Voltage	V	-	0	-
Input Power Level	W	2.0		
Antenna Impedance(single ended)	Ω	50		
Tx Impedance(single ended)	Ω	50		
Rx Impedance (balanced) <sup>(1)</sup>	Ω	100		
Package type & size	C43			
Length x Width	mm <sup>2</sup>	-	2.0 x 1.6	-
Height	mm	-	0.9	-

ELECTRICAL SPECIFICATION					
PARAMETERS	CONDITION [MHz]	UNIT	MINIMUM	TYPICAL	MAXIMUM
Tx → Ant		Specifications (+25°C)			
Insertion Loss	1850.5 ~ 1909.5	dB	-	2.5	3.0
Return Loss of Tx Port	1850.5 ~ 1909.5	dB	9	11	-
Return Loss of Ant Port	1850.5 ~ 1909.5	dB	9	11	-
Attenuation in Rx Band	1930.5 ~ 1989.5	dB	45	49	-
Attenuation in Cell band	862.0 ~ 894.0	dB	30	40	-
Attenuation in GPS Rx band	1570.0 ~ 1580.0	dB	35	46	-
Attenuation in Bluetooth band	2400.0 ~ 2500.0	dB	23	27	-
Attenuation in 2 <sup>nd</sup> harmonic	3700.0 ~ 3820.0	dB	23	28	-
Attenuation in 3 <sup>rd</sup> harmonic	5550.0 ~ 5730.0	dB	7	10	-
Ant → Rx		Specifications (+25°C)			
Insertion Loss	1930.5 ~ 1989.5	dB	-	2.6	3.0
Return Loss of Rx Port	1930.5 ~ 1989.5	dB	5	6.5	-
Return Loss of Ant Port	1930.5 ~ 1989.5	dB	5	6.5	-
Attenuation in Tx Band	1850.5 ~ 1909.5	dB	50	54	-
Attenuation in Cell Band	817.0 ~ 849.0	dB	35	43	-
Amplitude balance( S <sub>31</sub> /S <sub>41</sub>  )	1930.5 ~ 1989.5	dB	-3.0	-0.4 / 2.0	+3.0
Phase balance Φ(S <sub>31</sub> )-Φ(S <sub>41</sub> )+180°	1930.5 ~ 1989.5	deg	-10	-3.0 / +8.5	+10

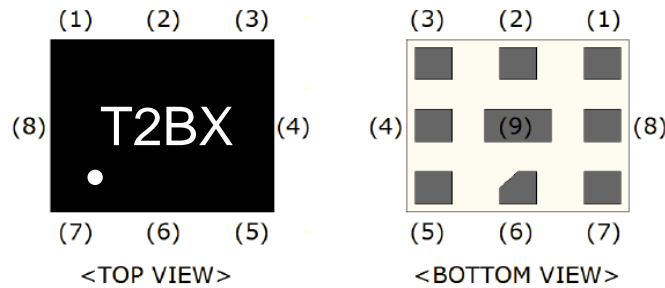
PARAMETERS	CONDITION [MHz]	UNIT	MINIMUM	TYPICAL	MAXIMUM
<b>Tx → Rx</b>		<b>Specifications (+25°C)</b>			
Isolation in Rx Band	704.0 ~ 716.0	dB	30	36	-
Isolation in Tx Band	734.0 ~ 756.0	dB	40	50	-

<b>ELECTRICAL SPECIFICATION</b>					
PARAMETERS	CONDITION [MHz]	UNIT	MINIMUM	TYPICAL	MAXIMUM
<b>Tx → Ant</b>		<b>Specifications (-30 ~ +85°C)</b>			
Insertion Loss	1850.5 ~ 1909.5	dB	-	2.5	3.5
Return Loss of Tx Port	1850.5 ~ 1909.5	dB	9	11	-
Return Loss of Ant Port	1850.5 ~ 1909.5	dB	9	11	-
Attenuation in Rx Band	1930.5 ~ 1989.5	dB	45	49	-
Attenuation in Cell band	862.0 ~ 894.0	dB	30	40	-
Attenuation in GPS Rx band	1570.0 ~ 1580.0	dB	35	46	-
Attenuation in Bluetooth band	2400.0 ~ 2500.0	dB	23	27	-
Attenuation in 2 <sup>nd</sup> harmonic	3700.0 ~ 3820.0	dB	23	28	-
Attenuation in 3 <sup>rd</sup> harmonic	5550.0 ~ 5730.0	dB	8	10	-
<b>Ant → Rx</b>		<b>Specifications (-30 ~ +85°C)</b>			
Insertion Loss	1930.5 ~ 1989.5	dB	-	2.6	3.5
Return Loss of Rx Port	1930.5 ~ 1989.5	dB	5	6.5	-
Return Loss of Ant Port	1930.5 ~ 1989.5	dB	5	6.5	-
Attenuation in Tx Band	1850.5 ~ 1909.5	dB	50	54	-
Attenuation in Cell Band	817.0 ~ 849.0	dB	35	43	-
Amplitude balance( $ S_{31}/S_{41} $ )	1930.5 ~ 1989.5	dB	-5.0	-0.4 / 2.0	+5.0
Phase balance $\Phi(S_{31}) - \Phi(S_{41}) + 180^\circ$	1930.5 ~ 1989.5	deg	-15	-3.0 / +8.5	+15
<b>Tx → Rx</b>		<b>Specifications (-30 ~ +85°C)</b>			
Isolation in Rx Band	704.0 ~ 716.0	dB	50	56	-
Isolation in Tx Band	734.0 ~ 756.0	dB	55	59	-

## Package Dimensions



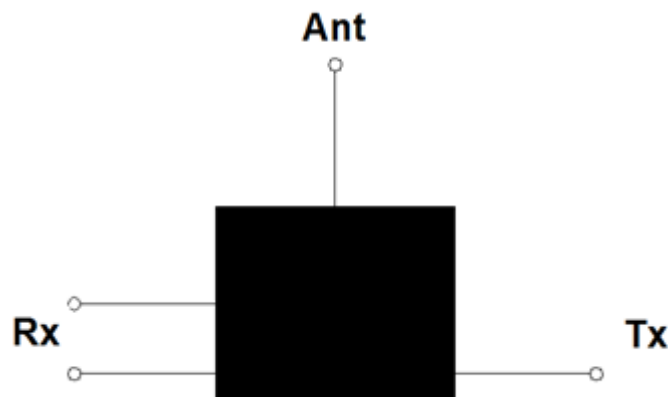
A	B	C	D	E	F	Thickness
0.30 ± 0.1	0.33 ± 0.1	0.43 ± 0.1	0.275 ± 0.1	0.295 ± 0.1	0.60 ± 0.1	0.90 MAX



Marking Descriptions	
T	Transko Duplexer
2	Band2 Application
B	Balanced Type
X	Date Code (Year+Month)

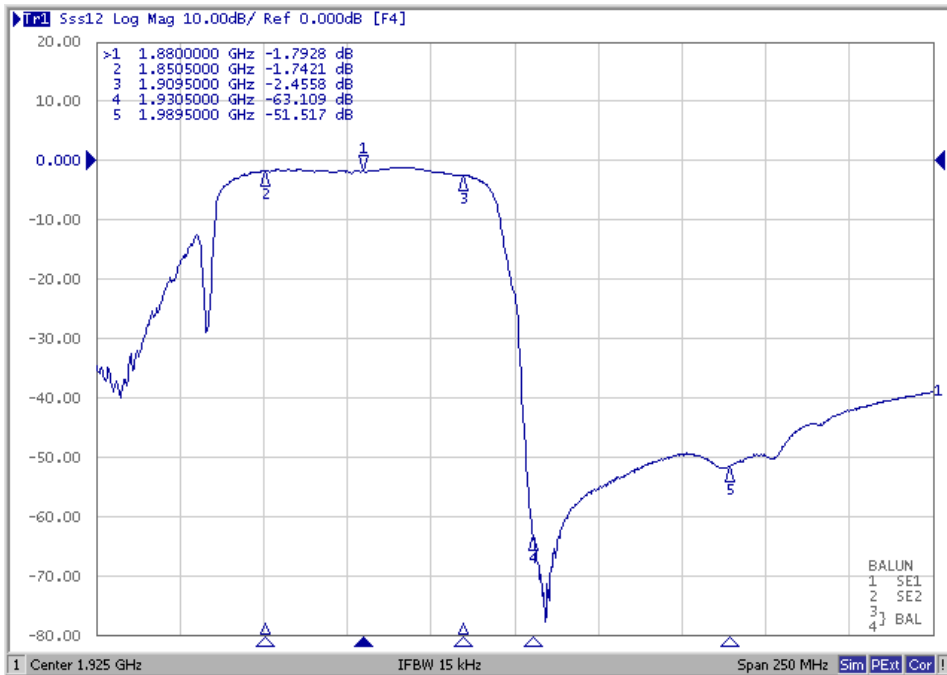
Pin Description	
(1),(3),(4),(6),(9)	Ground
(2)	Antenna
(5)	Tx
(7)	Rx - Balanced
(8)	Rx + Balanced

## Testing Environment

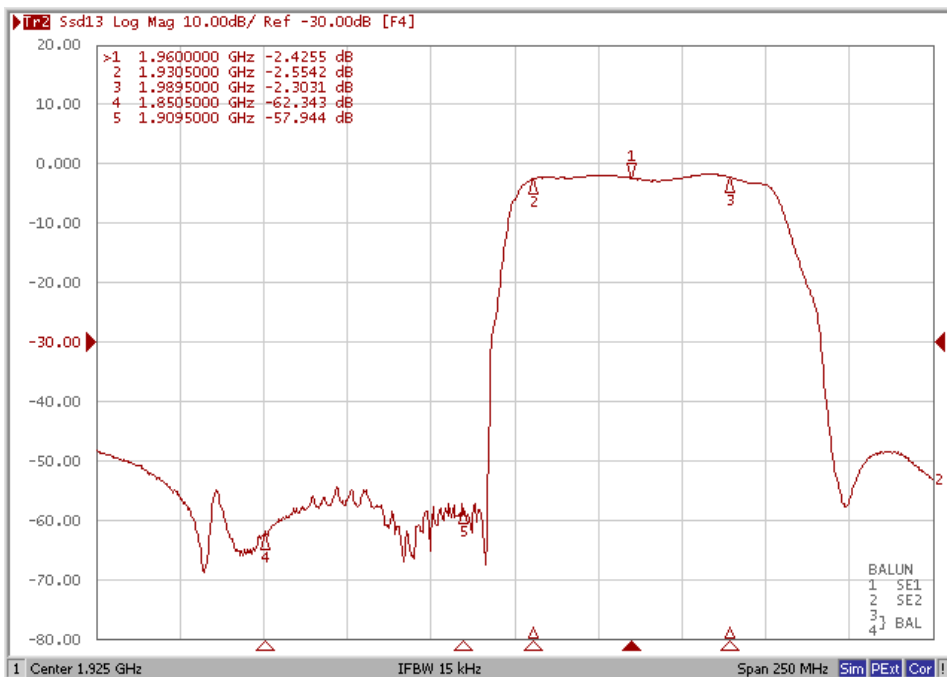


## Frequency Characteristics

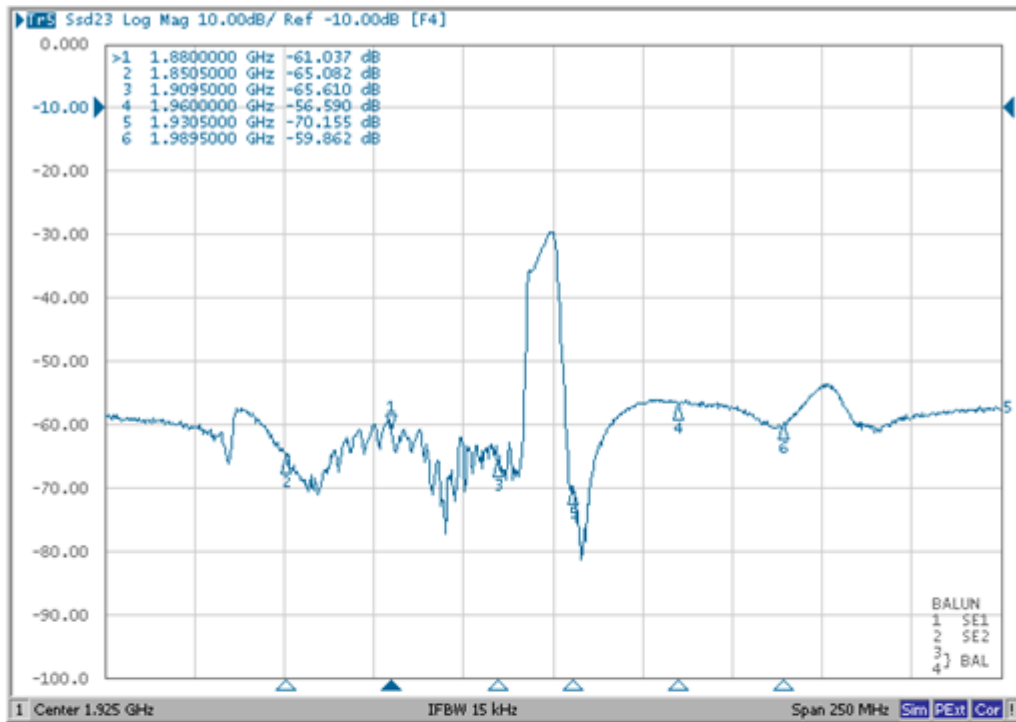
**Tx to Ant**



**Ant to Rx**

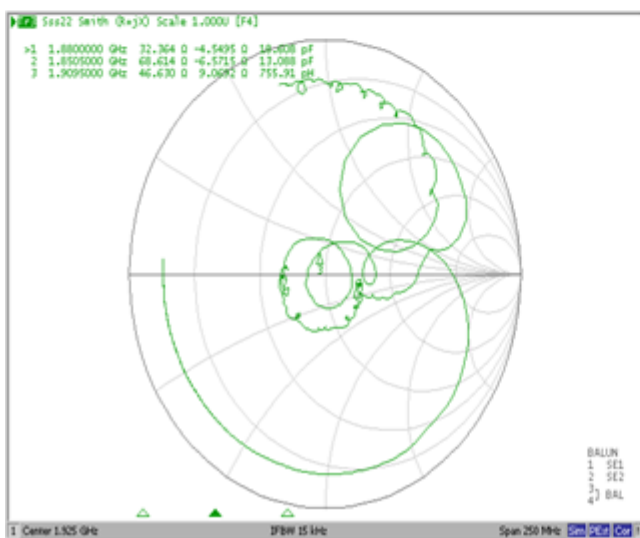


## Isolation

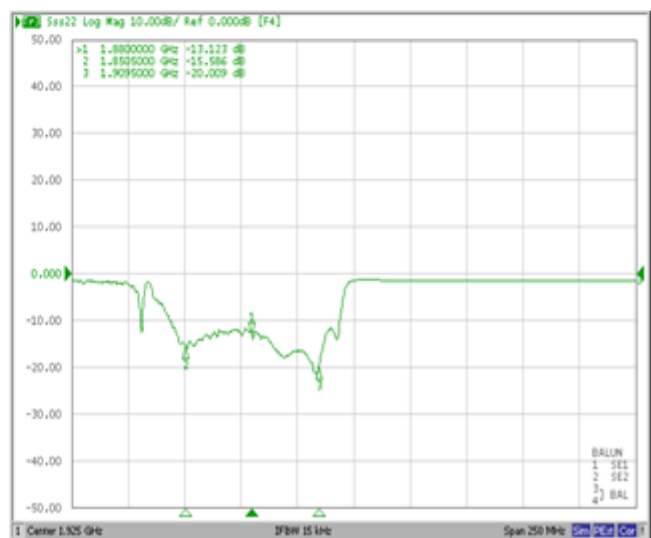


## Tx Port

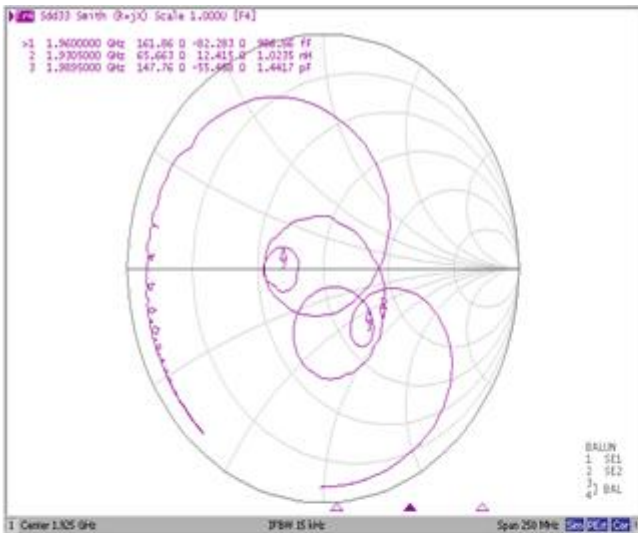
### Smith Chart



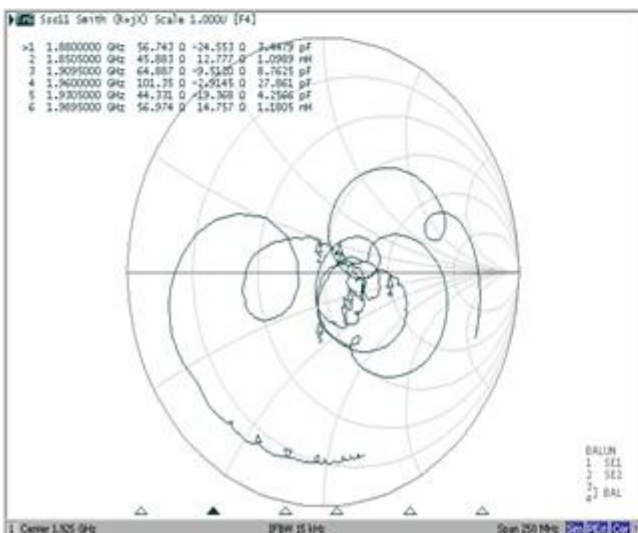
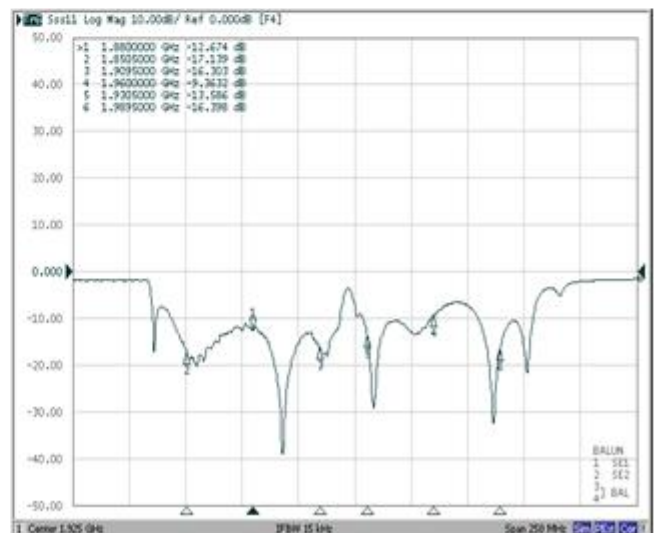
### Return Loss



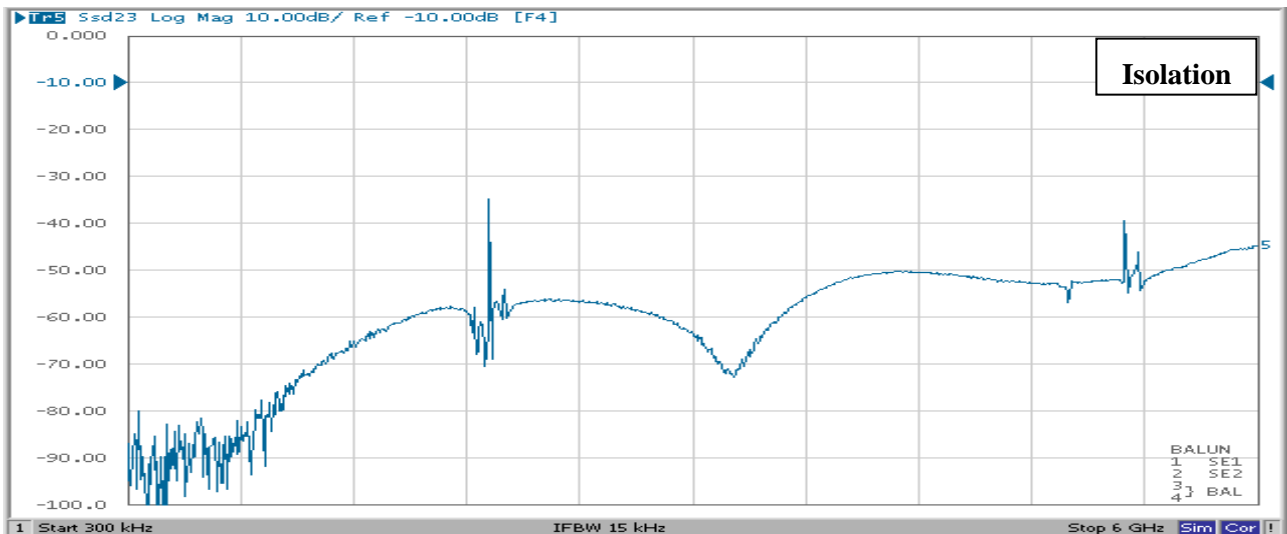
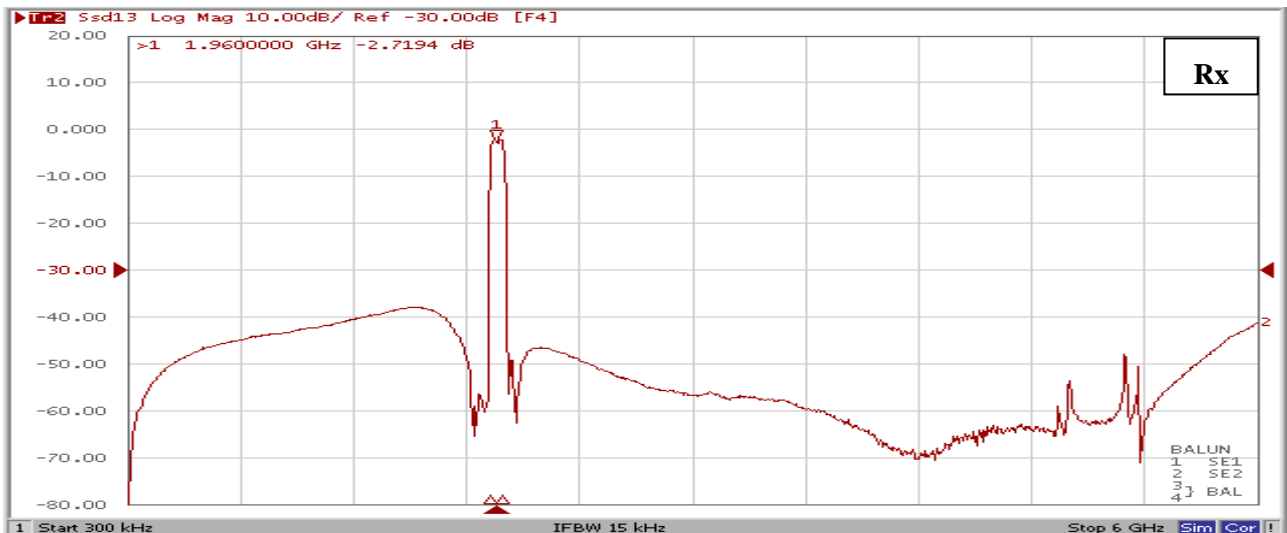
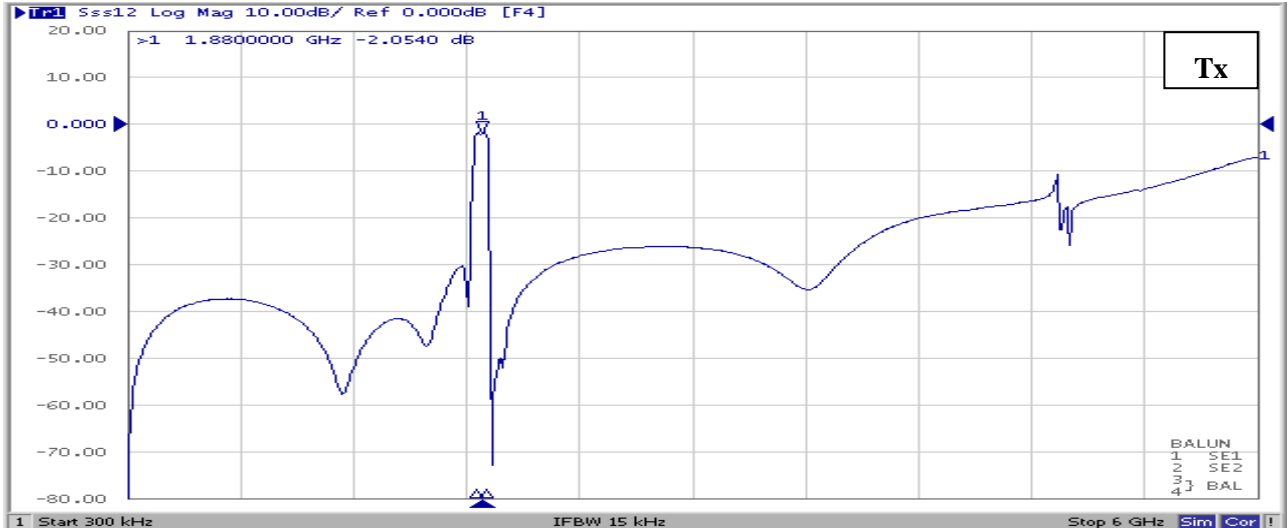
**Rx Port**

**Smith Chart**

**Return Loss**

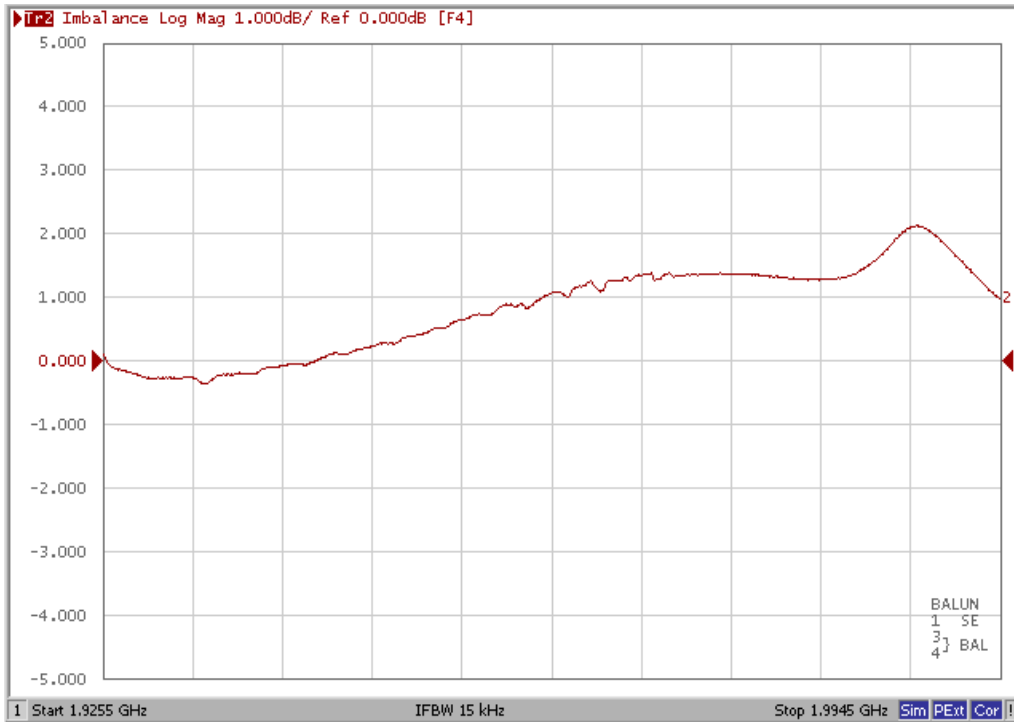

**Ant Port**

**Smith Chart**

**Return Loss**


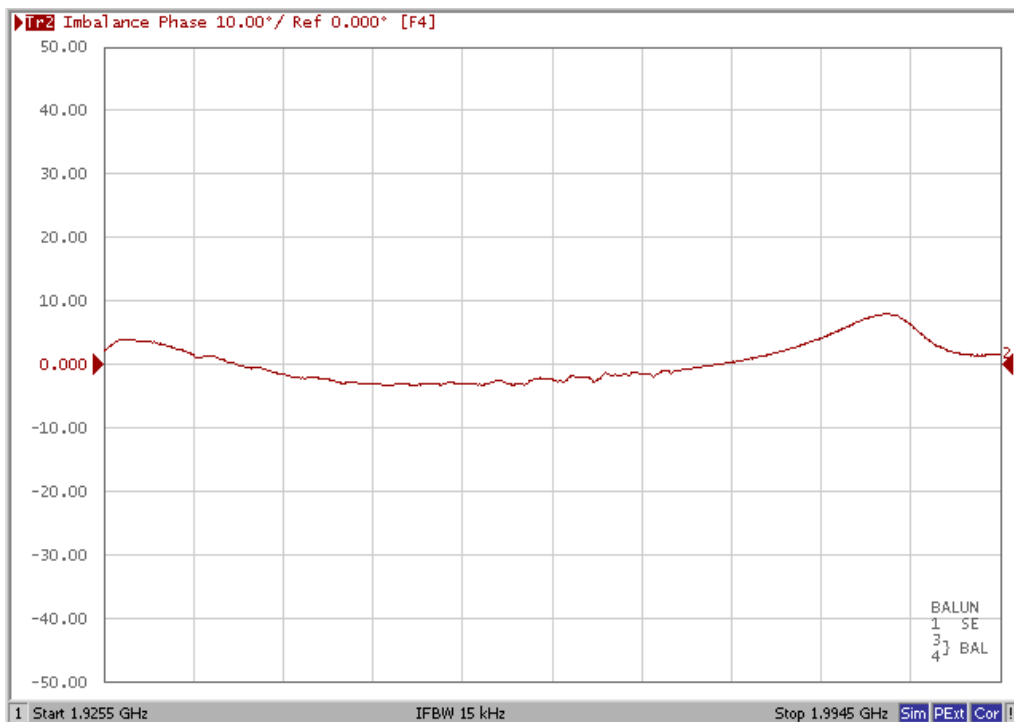
**Wide Span**



## Amplitude Imbalance

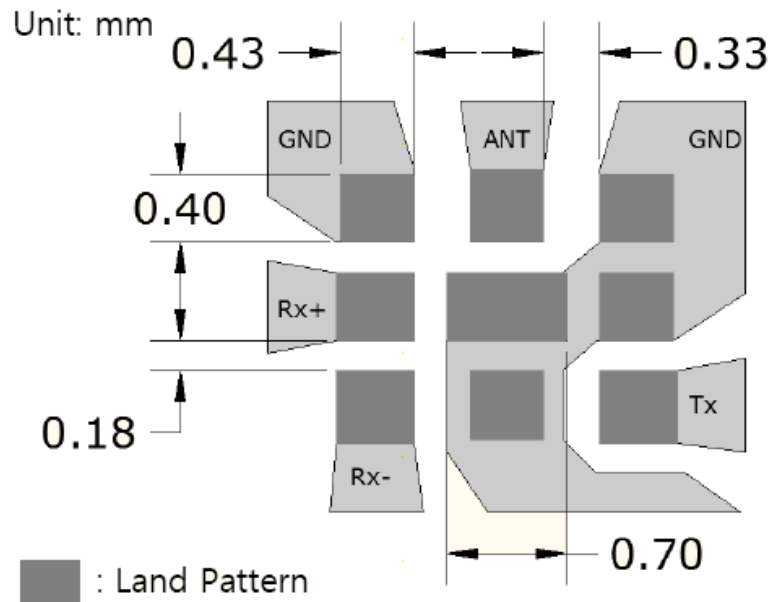


## Phase Imbalance





## Foot print, Solder and Etc.



### Notes ;

1. Antenna and Tx ports are Single-ended port of 50Ω impedance
2. Each of the two balanced-ended port is 50Ω impedance. Total impedance is 100Ω
3. Dimensions of all signal line width & space should be adjusted for 50Ω lined