



Total Solution Provider in Saw Device

SD-188001-C43

BAW Duplexer for Band2
Revision 2: December 2013



- Electrical Characteristics
 - Package Dimensions
 - Testing Environment
 - Frequency Characteristics
 - Foot print, Solder and Etc.
-

SAWNICS Inc.

460 Cheonheung-ri, Seonggeo-eup, Cheonan-si, Chungcheongnam-do, 330-836 / Korea.
Tel: +82 41 550 9372 / Fax: +82 41 550 9399 / www.sawnics.com

□ Electrical Characteristics

Maximum Ratings

Parameters Description	Unit	Minimum	Typical	Maximum
Operation 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) ⁽¹⁾	Ω	100		
Package type	C43			
Length x Width	mm ²	2.0 x 1.6		
Height	mm	0.9		

Electrical Specification

Tx to Ant		Specifications (+25°C)			
Parameters Description	Condition [MHz]	Unit	Minimum	Typical	Maximum
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 nd harmonic	3700.0 ~ 3820.0	dB	23	28	-
Attenuation in 3 rd harmonic	5550.0 ~ 5730.0	dB	7	10	-



Ant to Rx		Specifications (+25°C)			
Parameters Description	Condition [MHz]	Unit	Minimum	Typical	Maximum
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_{31}/S_{41} $)	1930.5 ~ 1989.5	dB	-3.0	-0.4 / 2.0	+3.0
Phase balance $\Phi(S_{31}) - \Phi(S_{41}) + 180^\circ$	1930.5 ~ 1989.5	deg	-10	-3.0 / +8.5	+10

Tx to Rx		Specifications (+25°C)			
Parameters Description	Condition [MHz]	Unit	Minimum	Typical	Maximum
Isolation in Rx Band	1930.5 ~ 1989.5	dB	50	56	-
Isolation in Tx Band	1850.5 ~ 1909.5	dB	55	59	-



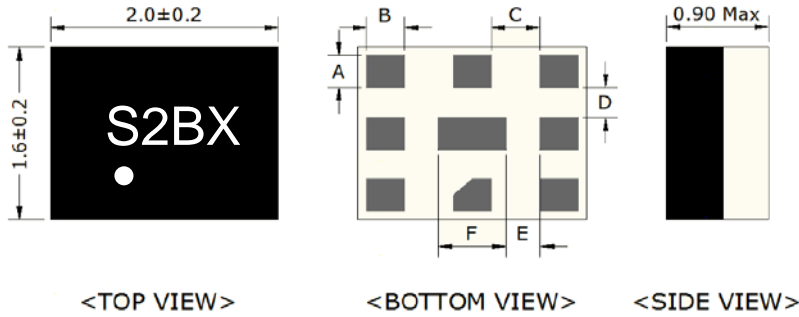
Electrical Specification

Tx to Ant		Specifications (-30 ~ +85°C)			
Parameters Description	Condition [MHz]	Unit	Minimum	Typical	Maximum
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 nd harmonic	3700.0 ~ 3820.0	dB	23	28	-
Attenuation in 3 rd harmonic	5550.0 ~ 5730.0	dB	8	10	-

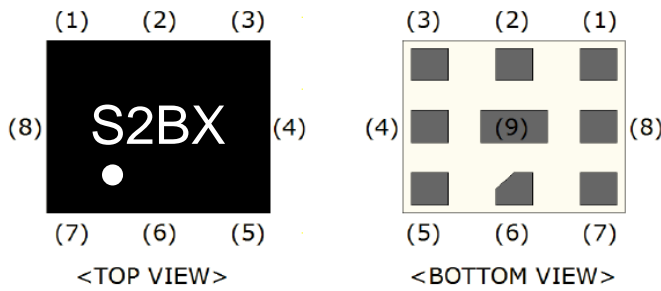
Ant to Rx		Specifications (-30 ~ +85°C)			
Parameters Description	Condition [MHz]	Unit	Minimum	Typical	Maximum
Insertion Loss	1930.5 ~ 1989.5	dB	-	2.6	3.5
Return Loss of Rx Port	1930.5 ~ 1989.5	dB	5	6.5	-
Return Loss of Ant Port	1930.5 ~ 1989.5	dB	5	6.5	-
Attenuation in Tx Band	1850.5 ~ 1909.5	dB	50	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

Tx to Rx		Specifications (-30 ~ +85°C)			
Parameters Description	Condition [MHz]	Unit	Minimum	Typical	Maximum
Isolation in Rx Band	1930.5 ~ 1989.5	dB	50	56	-
Isolation in Tx Band	1850.5 ~ 1909.5	dB	55	59	-

Package Dimensions



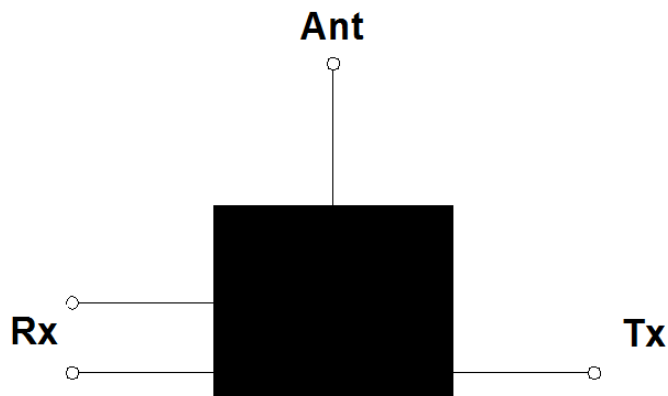
A	B	C	D	E	F	Thickness
0.30 ± 0.1	0.33 ± 0.1	0.43 ± 0.1	0.275 ± 0.1	0.295 ± 0.1	0.60 ± 0.1	0.90 MAX



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

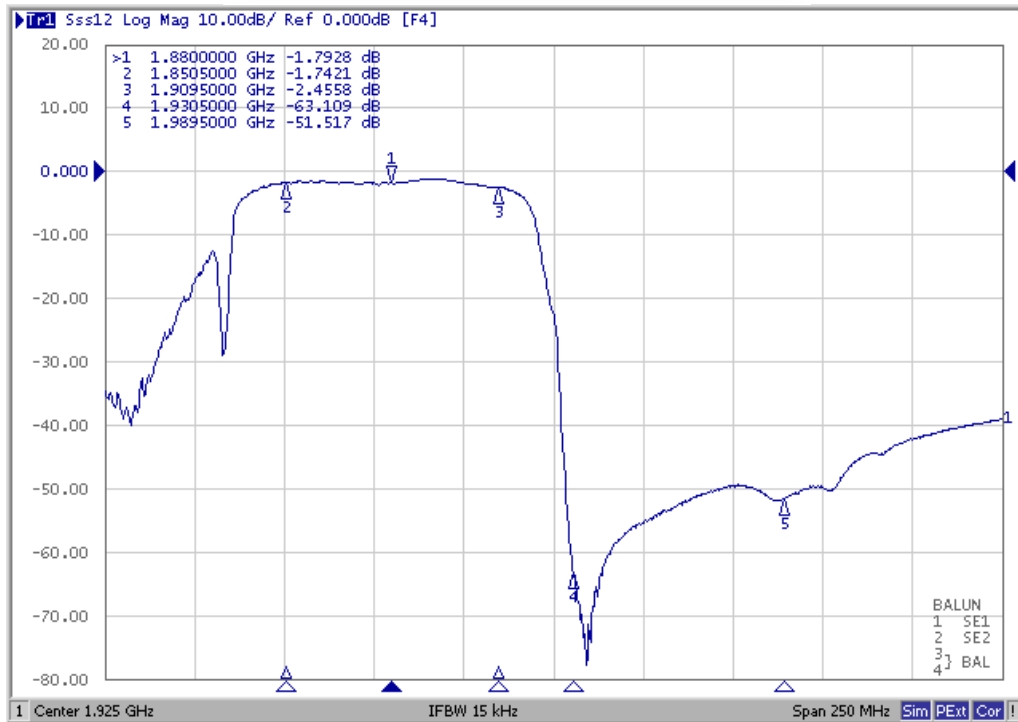
Marking Descriptions	
S	SAWNICS Duplexer
2	Band2 Application
B	Balanced Type
X	Date Code(Year+Month)

Testing Environment

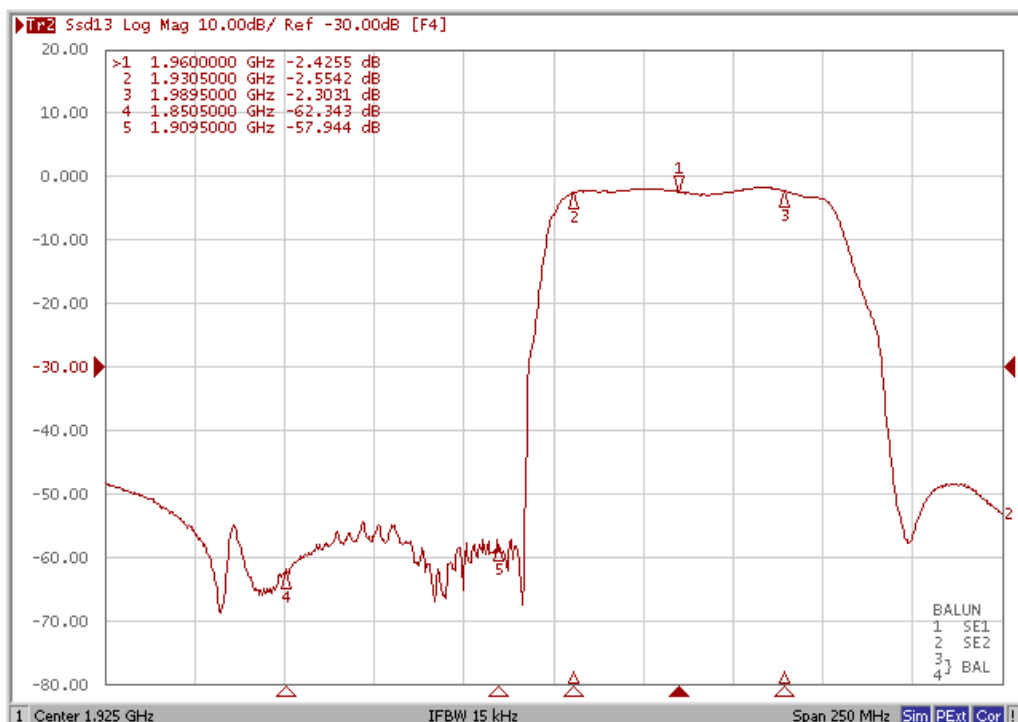


□ Frequency Characteristics

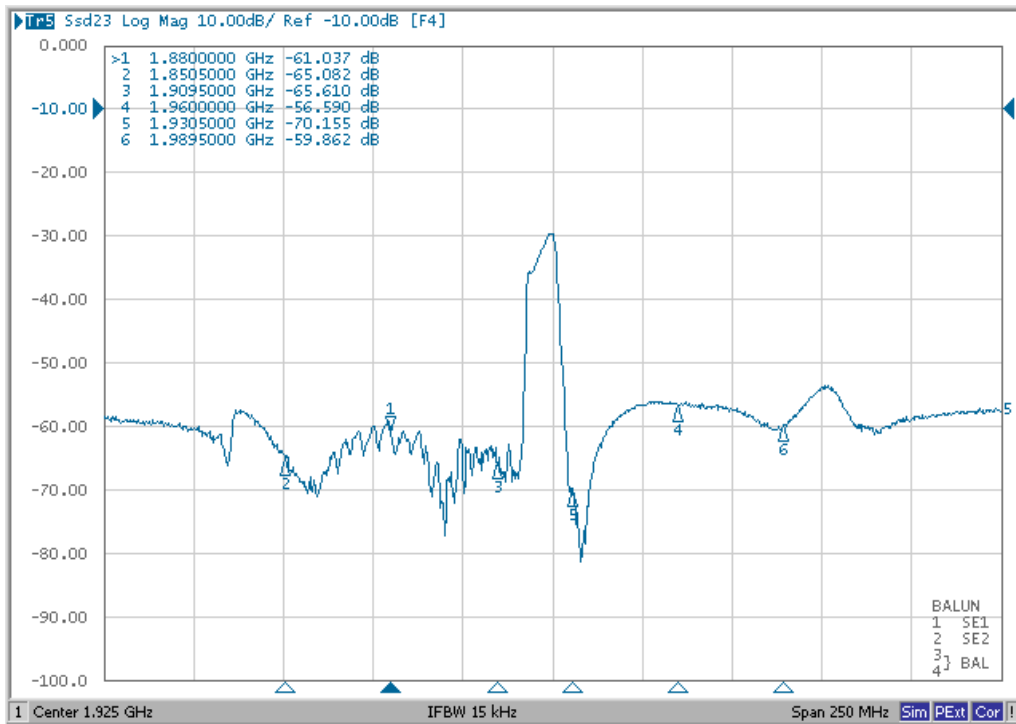
Tx to Ant



Ant to Rx

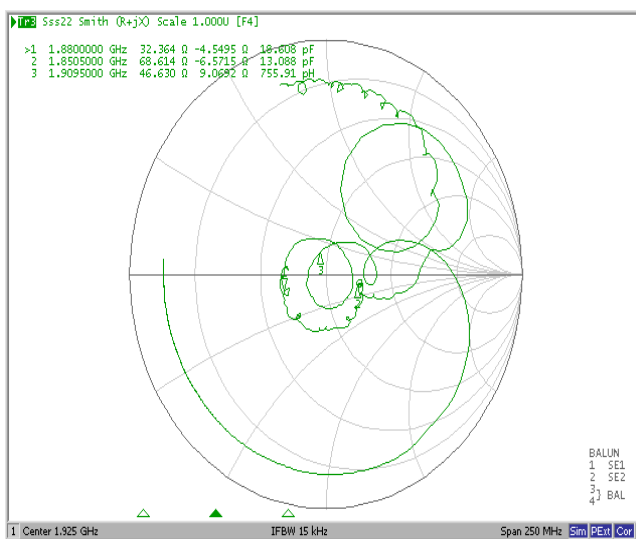


Isolation

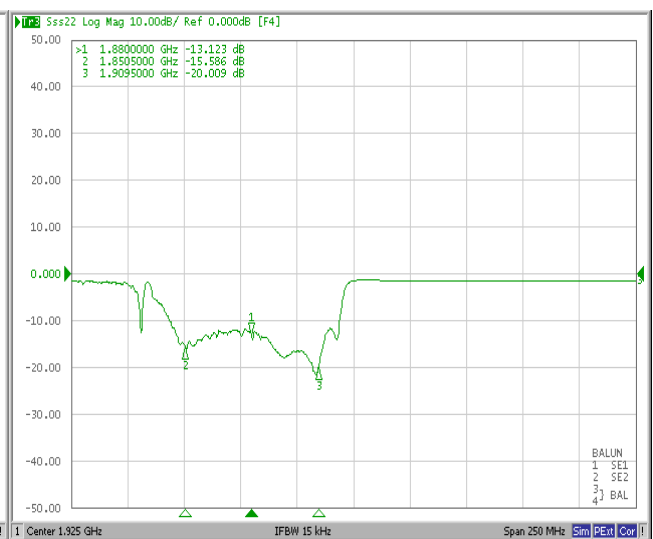


Tx Port

Smith Chart



Return Loss

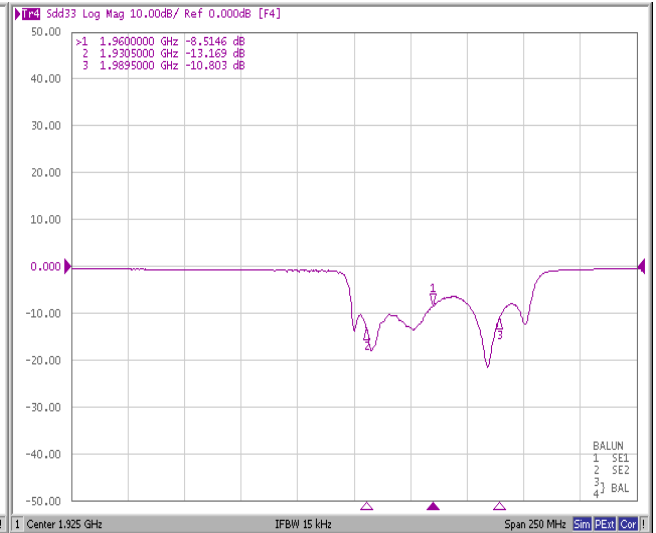
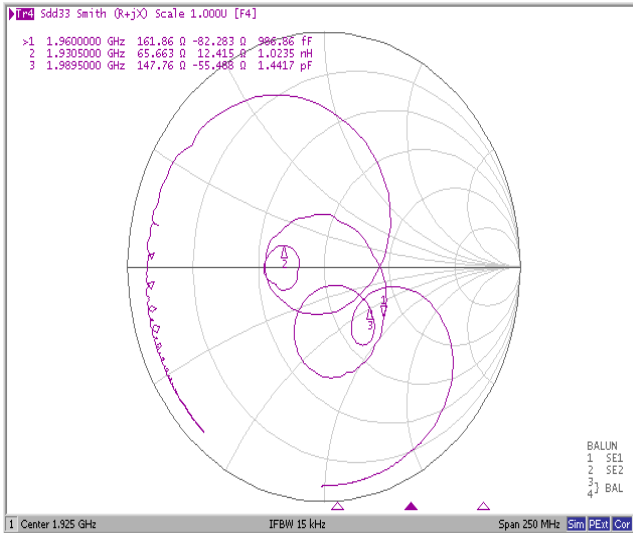




Rx Port

Smith Chart

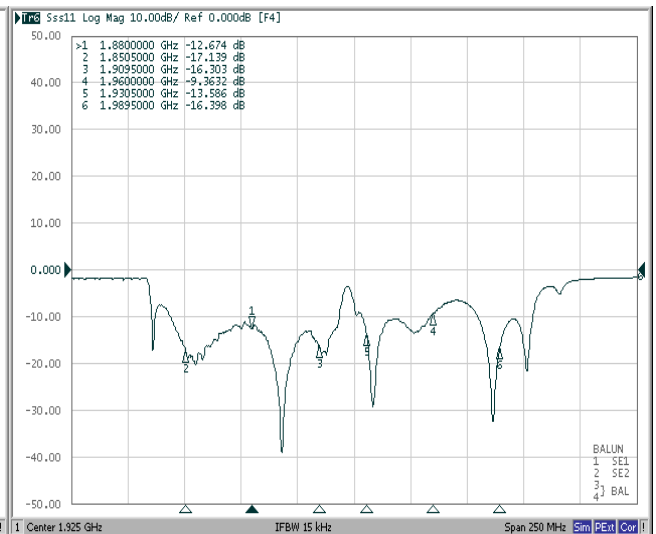
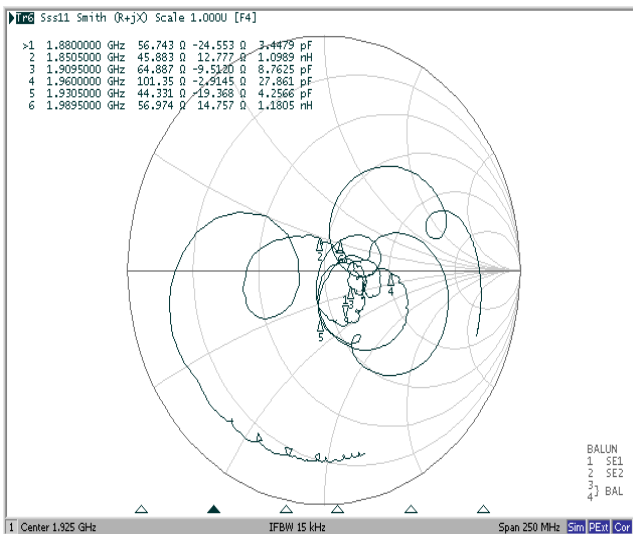
Return Loss



Ant Port

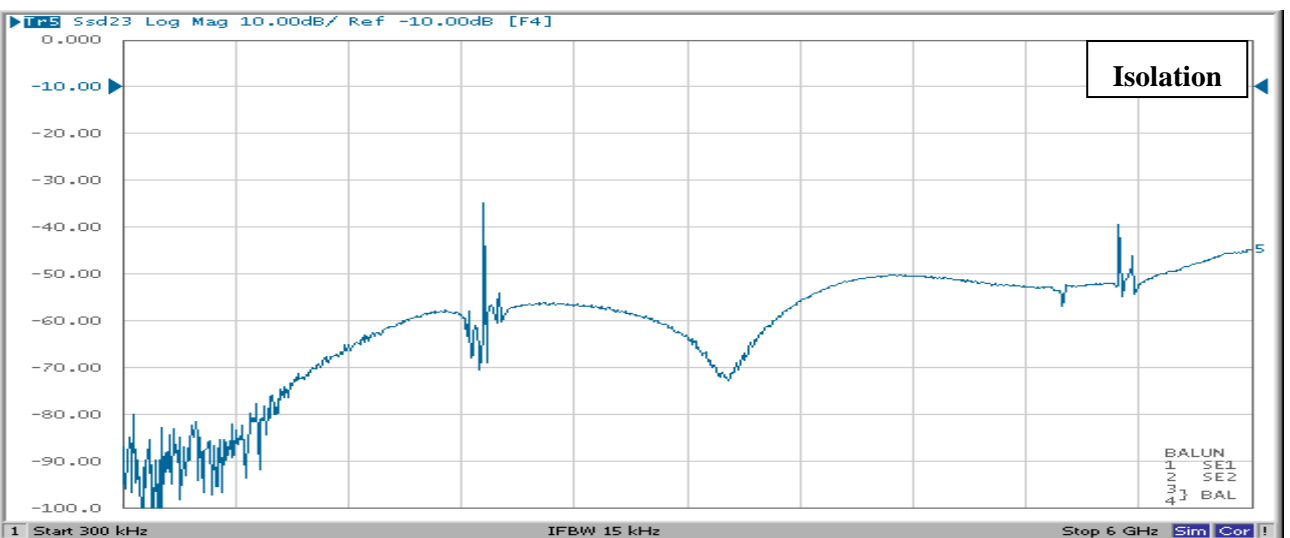
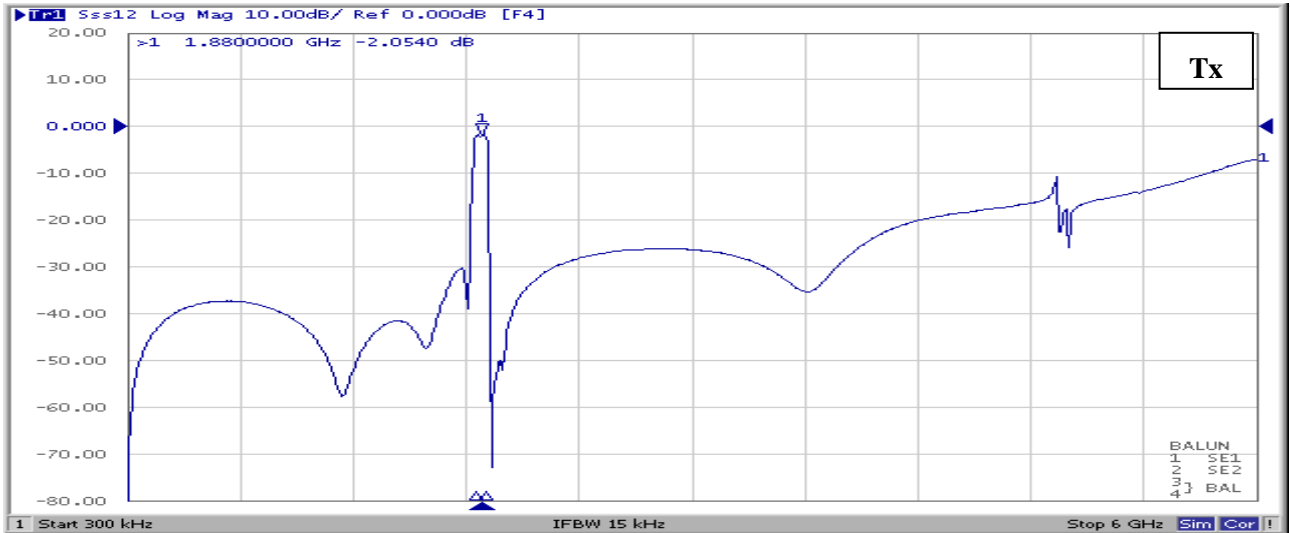
Smith Chart

Return Loss



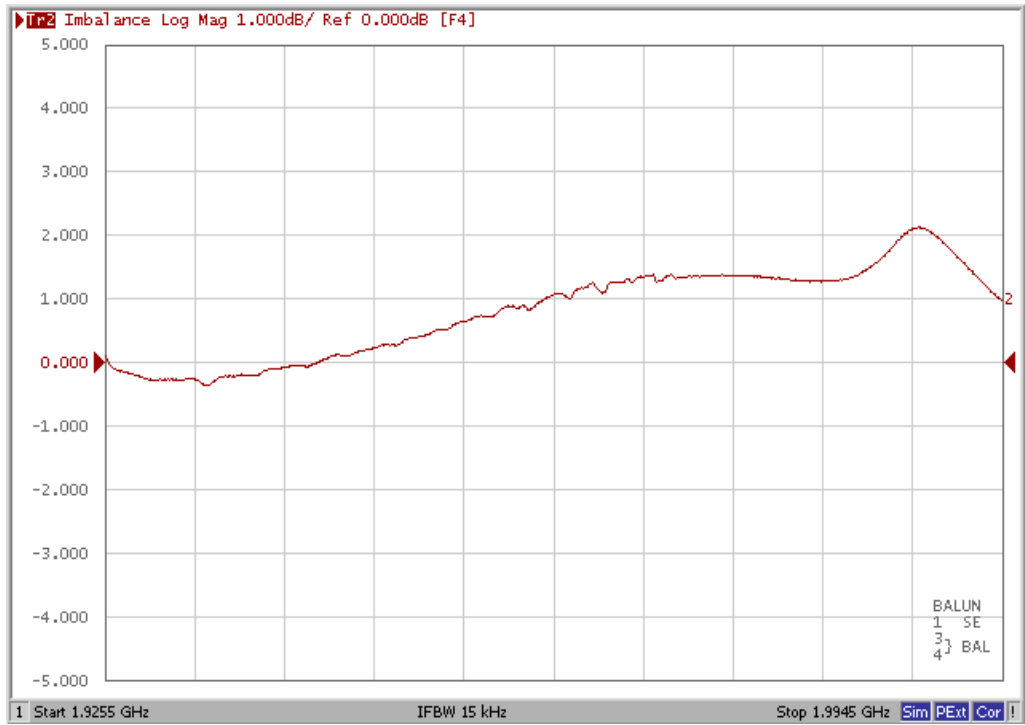


Wide Span

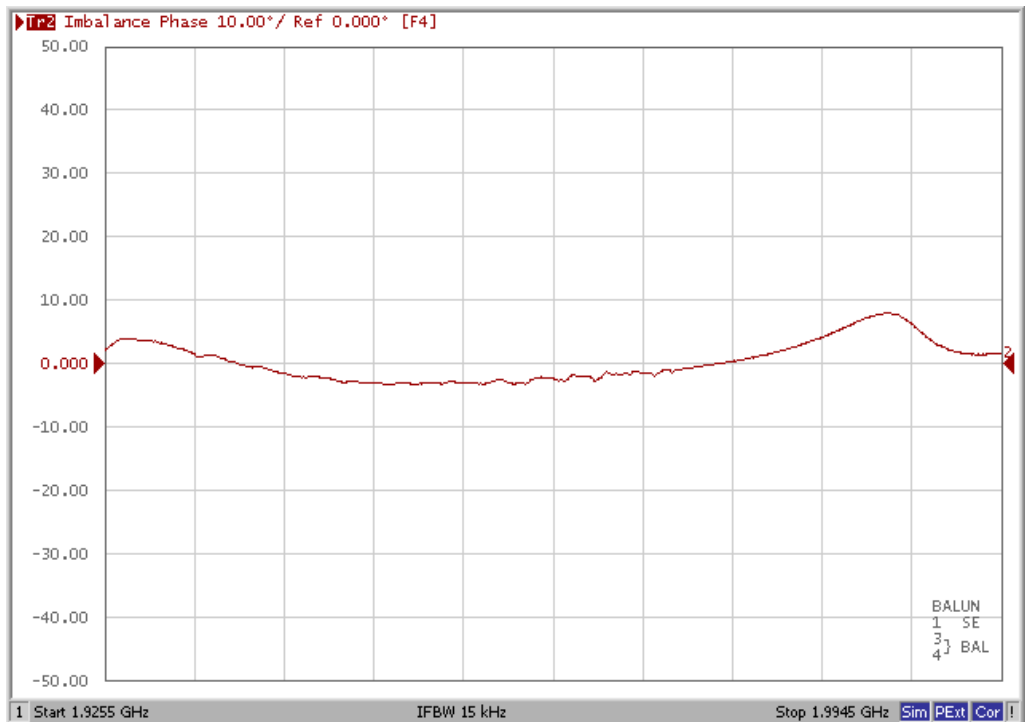




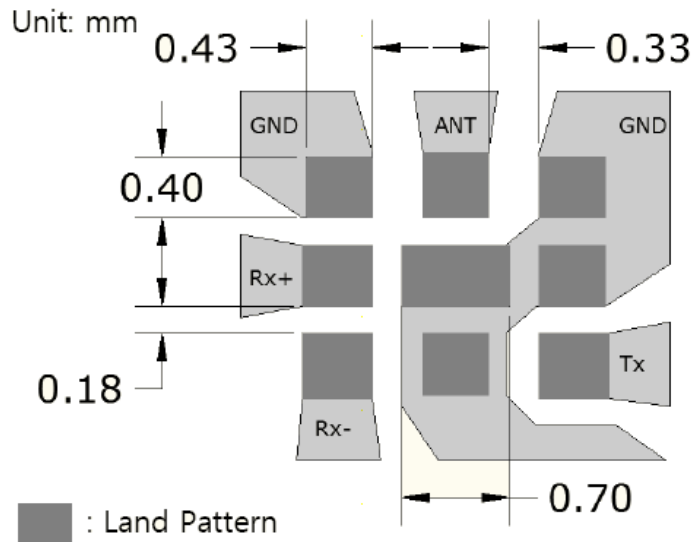
Amplitude Imbalance



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