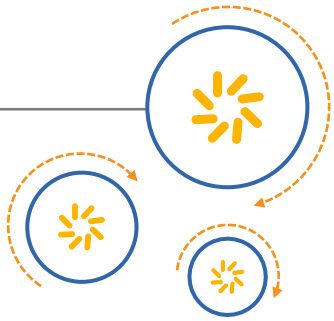
RF360 Europe GmbH

A Qualcomm – TDK Joint Venture



SAW Components

SAW Duplexer

Automotive telematics

Series/type:	B4406
Ordering code:	B39182B4406P810
Date:	June 13, 2014
Version:	2.3

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Automotive telematics

Series/type:	**B4406**
Ordering code:	**B39182B4406P810**
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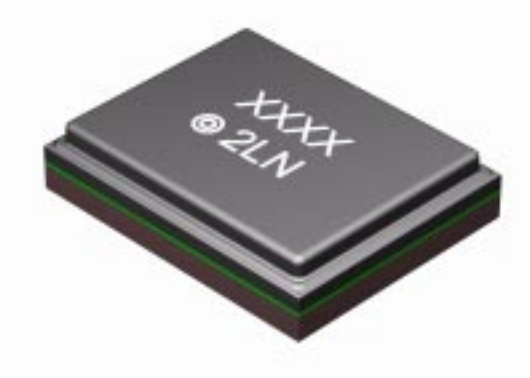
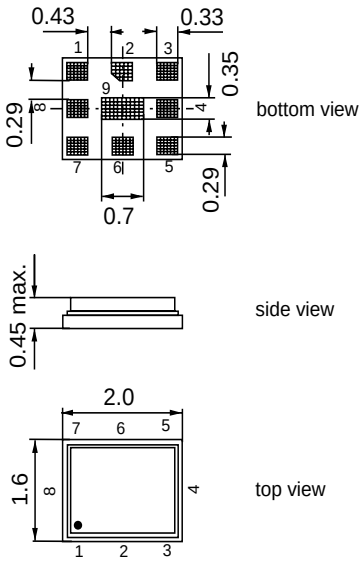
Application

- Low-loss SAW duplexer for Band III systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- Single ended to balanced transformation in Antenna - Rx path
- Impedance transformation 50Ω to 100Ω in Antenna - Rx path
- high Tx - Rx isolation



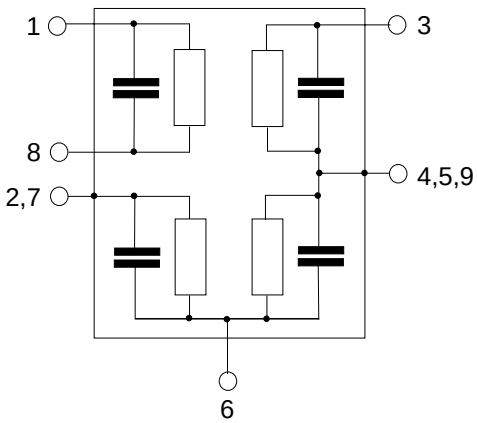
Features

- Package size 2.0 * 1.6 mm²
- Package height max. 0.45 mm
- RoHS compatible
- Approx. weight 0.005 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni terminals, Au-plated
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- AEC-Q200 qualified component family (operable temperature range –40˚C to +85˚C)



Pin configuration

3	Tx input
1, 8	Rx output (balanced)
6	Antenna
2, 4, 5, 7, 9	To be grounded



Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
ANT terminating impedance: Z_{ANT} = 50 Ω || 3.9nH
Rx terminating impedance: Z_{RX} = 100 Ω (balanced)|| 12nH
Tx terminating impedance: Z_{TX} = 50 Ω

Characteristics Tx-ANT		min.	typ. @ 25˚C	max.	
Center frequency	f_C	–	1747.5	–	MHz
Maximum insertion attenuation	α_{max}				
1714.00 ... 1781.00 MHz		–	2.0	3.1	dB
1710.00 ... 1785.00 MHz		–	2.5	4.1	dB
Amplitude ripple per 5MHz channel	$\Delta\alpha$				
1710.00 ... 1785.00 MHz		–	0.6	1.4	dB
VSWR					
Tx port 1710.00 ... 1785.00 MHz		–	1.5	2.0	
ANT port 1710.00 ... 1785.00 MHz		–	1.5	2.0	
Attenuation	α				
100.00 ... 1565.42 MHz		30	33	–	dB
1565.42 ... 1573.38 MHz		40	46	–	dB
1573.38 ... 1577.46 MHz		42	47	–	dB
1577.46 ... 1585.42 MHz		40	44	–	dB
1597.55 ... 1605.88 MHz		35	39	–	dB
1605.88 ... 1680.00 MHz		20	30	–	dB
1805.00 ... 1880.00 MHz		43	46	–	dB
1920.00 ... 1980.00 MHz		20	30	–	dB
2110.00 ... 2170.00 MHz		27	40	–	dB
2400.00 ... 2500.00 MHz		30	34	–	dB
2620.00 ... 2690.00 MHz		27	31	–	dB

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
ANT terminating impedance: Z_{ANT} = 50 Ω || 3.9nH
Rx terminating impedance: Z_{RX} = 100 Ω (balanced)|| 12nH
Tx terminating impedance: Z_{TX} = 50 Ω

Characteristics ANT-Rx		min.	typ. @ 25˚C	max.	
Center frequency	f_C	–	1842.5	–	MHz
Maximum insertion attenuation	α_{max}				
1805.00 ... 1880.00 MHz		–	3.2	4.4	dB
Amplitude ripple per 5MHz channel	$\Delta\alpha$				
1805.00 ... 1880.00 MHz		–	0.7	1.8	dB
Common mode rejection ratio					
1805.00 ... 1880.00 MHz		20[1)]	25	–	dB
VSWR					
Rx port 1805.00 ... 1880.00 MHz		–	1.6	2.0	
ANT port 1805.00 ... 1880.00 MHz		–	1.6	2.0	
Attenuation	α				
100.00 ... 1710.00 MHz		35	55	–	dB
1710.00 ... 1785.00 MHz		43	50	–	dB
1965.00 ... 2690.00 MHz		30	52	–	dB

1) A combination of 10˚ phase balance and 1 dB amplitude balance corresponds to 19.6 dB CMRR

Characteristics

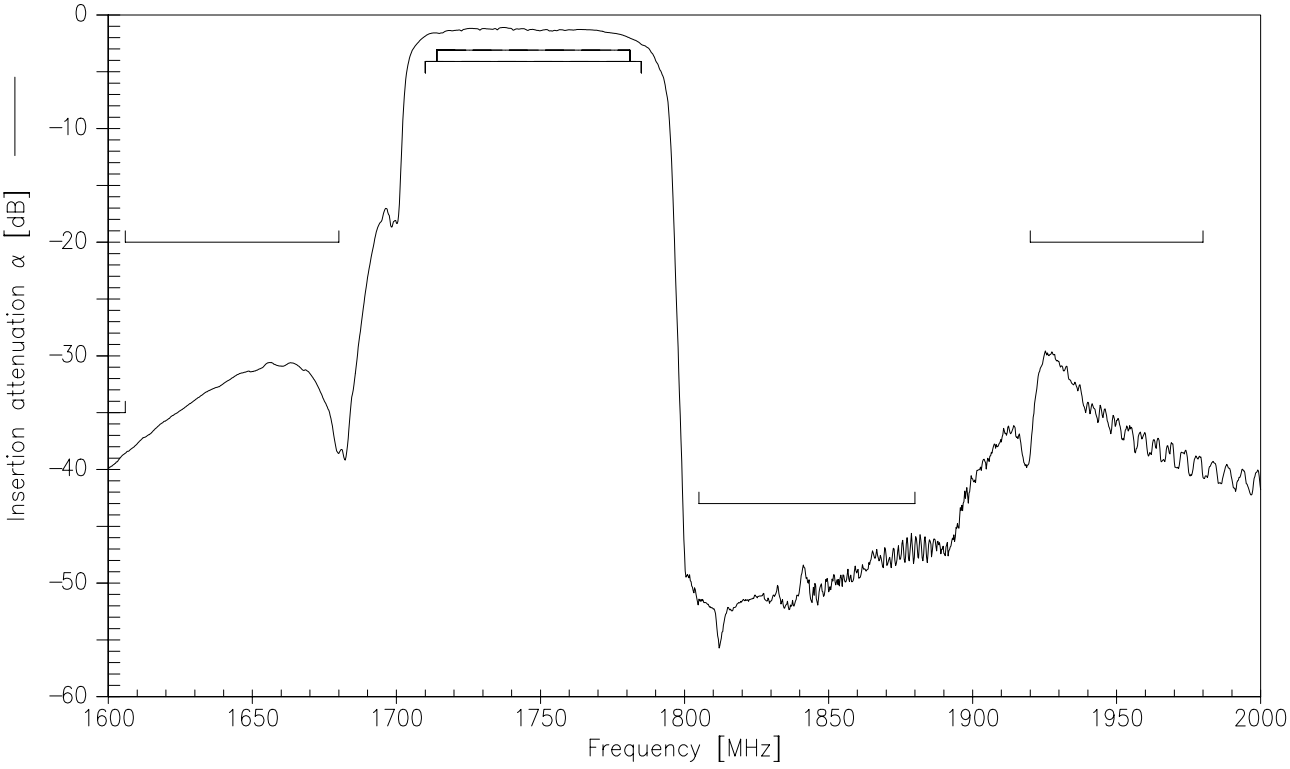
Temperature range for specification: T = –30 ˚C to +85 ˚C
ANT terminating impedance: Z_{ANT} = 50 Ω || 3.9nH
Rx terminating impedance: Z_{RX} = 100 Ω (balanced)|| 12nH
Tx terminating impedance: Z_{TX} = 50 Ω

Characteristics Tx-Rx		min.	typ. @ 25˚C	max.	
Differential Mode Isolation	α				
1710.00 ... 1785.00 MHz		50	55	–	dB
1805.00 ... 1880.00 MHz		50	53	–	dB
Common Mode Isolation					
1710.00 ... 1785.00 MHz		50	55	–	dB

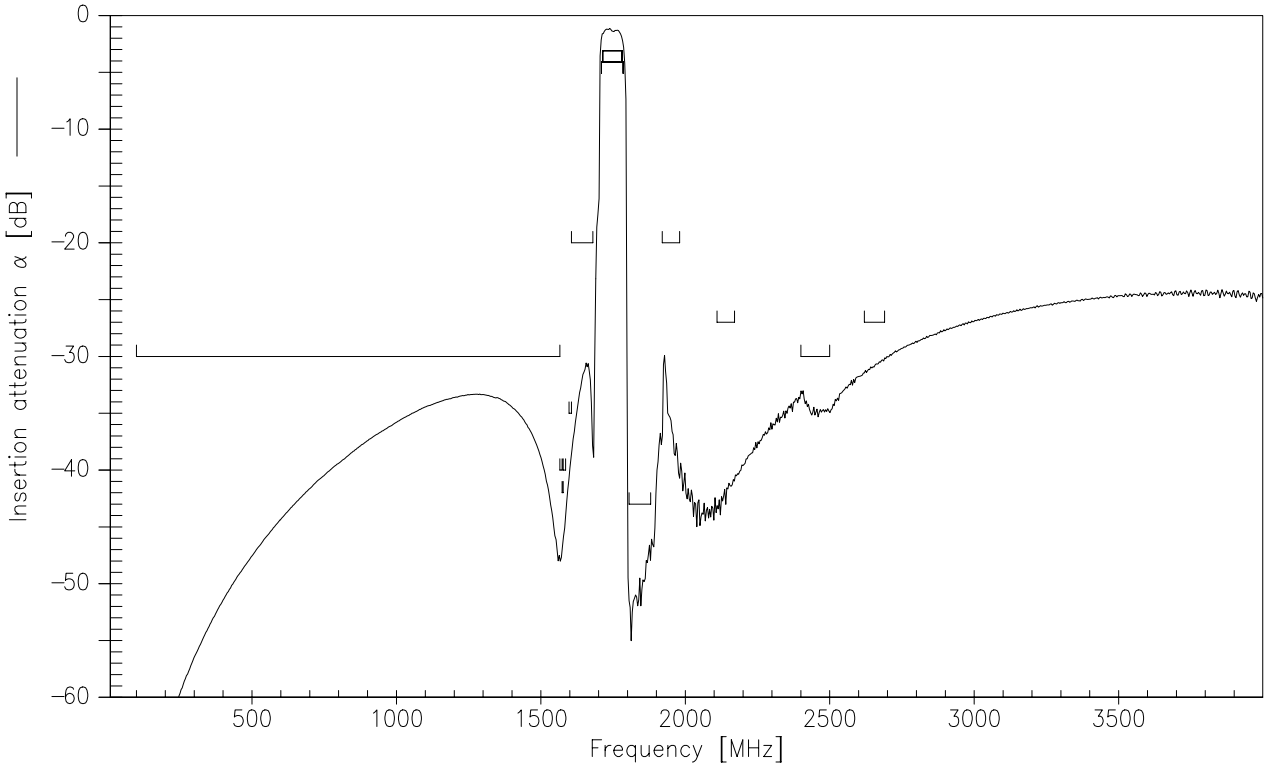
Maximum ratings

Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	0	V	
Input Power at	P_{IN}			
1710.0 ... 1785.0 MHz		29	dBm	} continuous wave
elsewhere		10	dBm	*T* = 55 ˚C, 5000 h

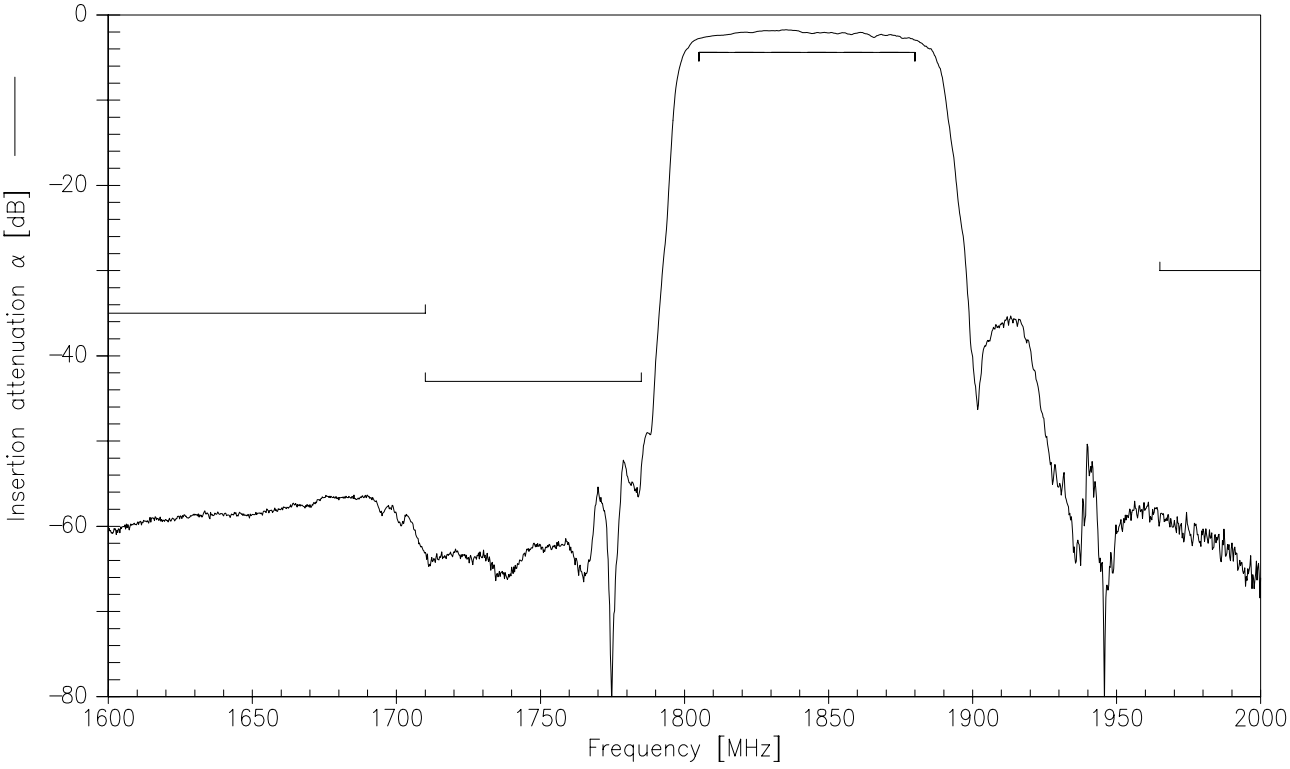
Frequency Response Tx-ANT



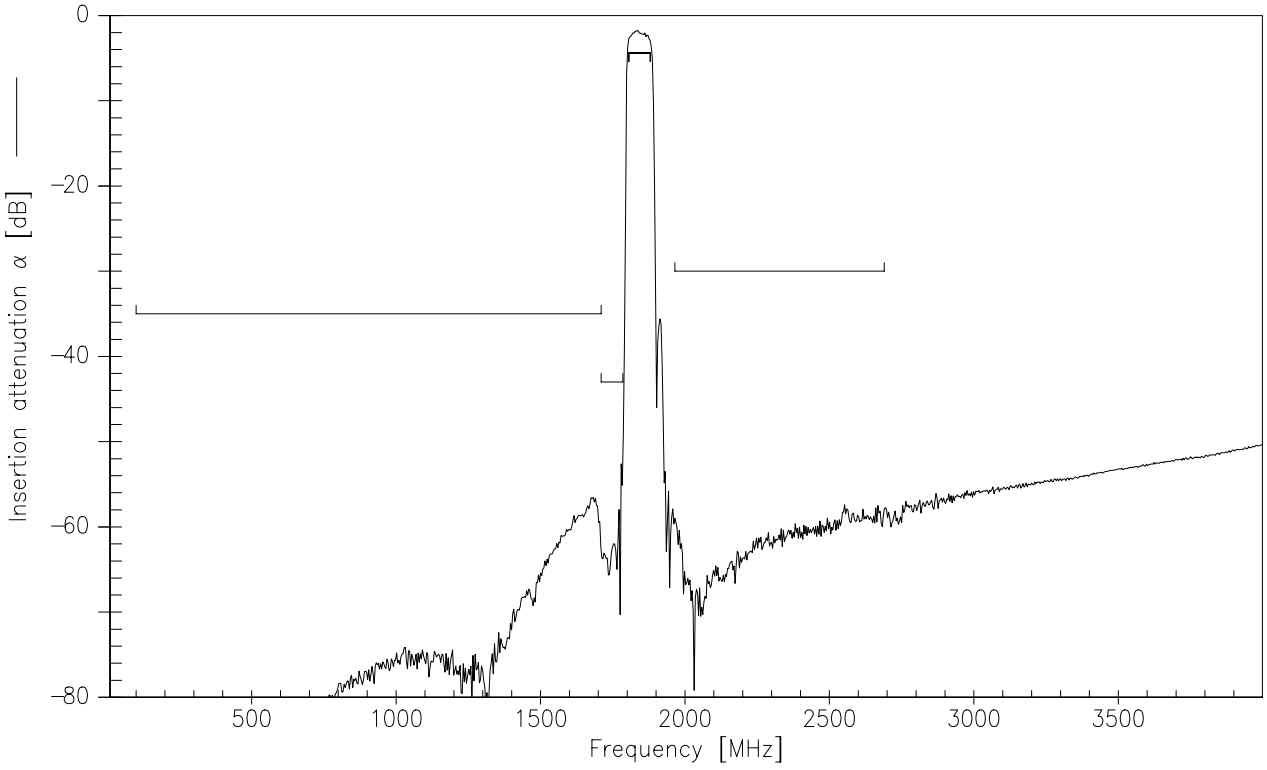
Frequency Response Tx-ANT (wideband)



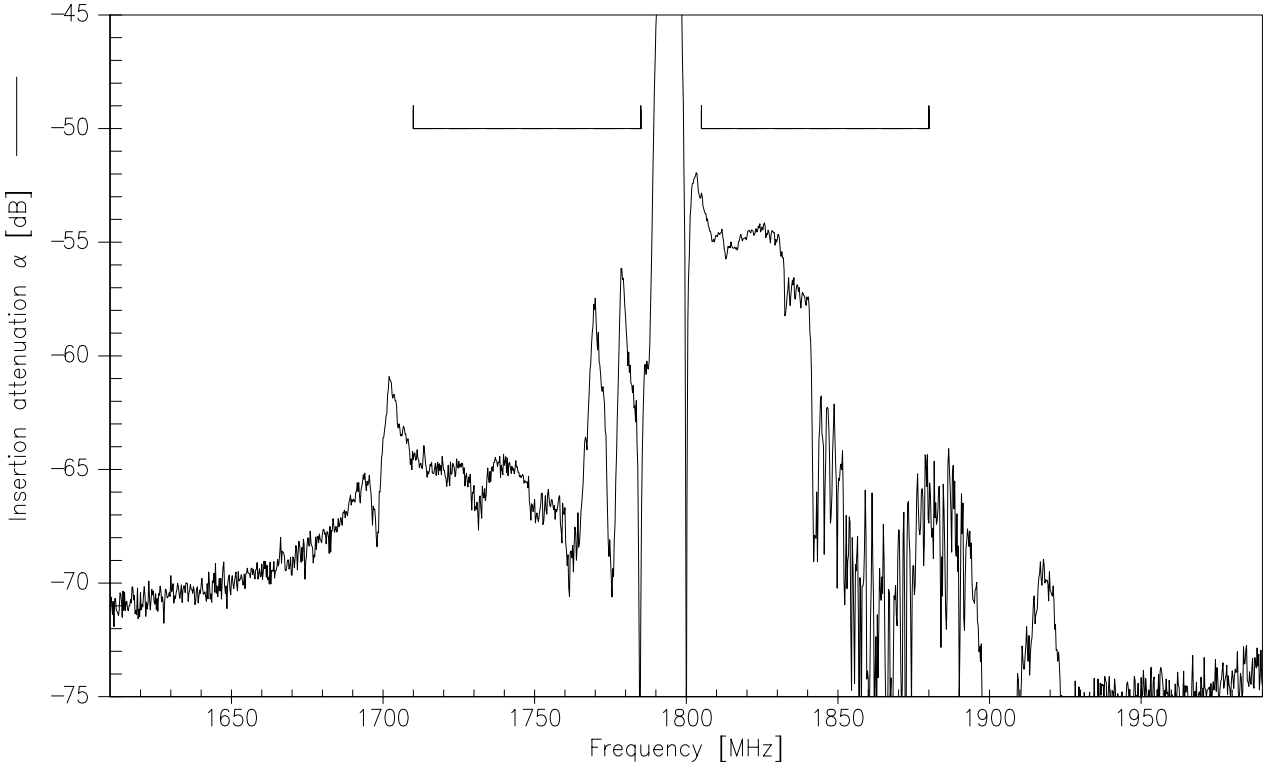
Frequency Response Rx-ANT



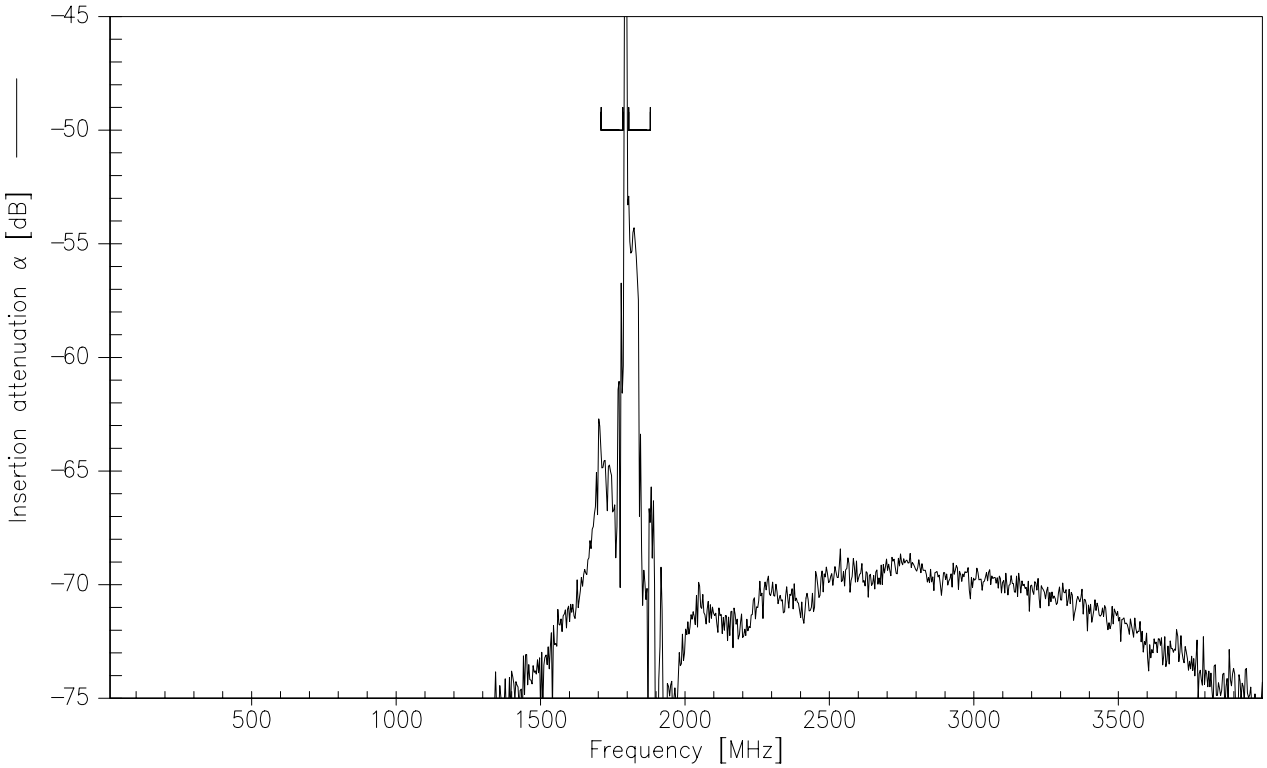
Frequency Response Rx-ANT (wideband)



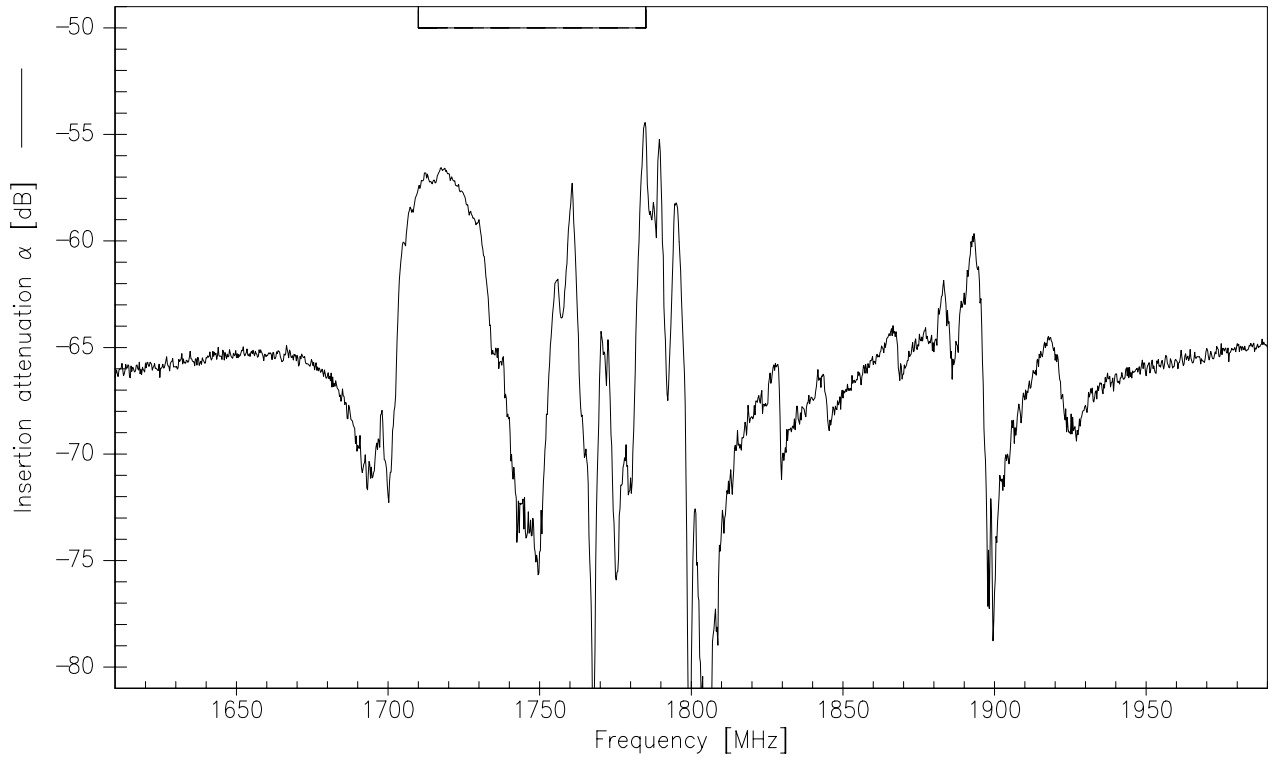
Frequency Response Tx-Rx (differential mode)



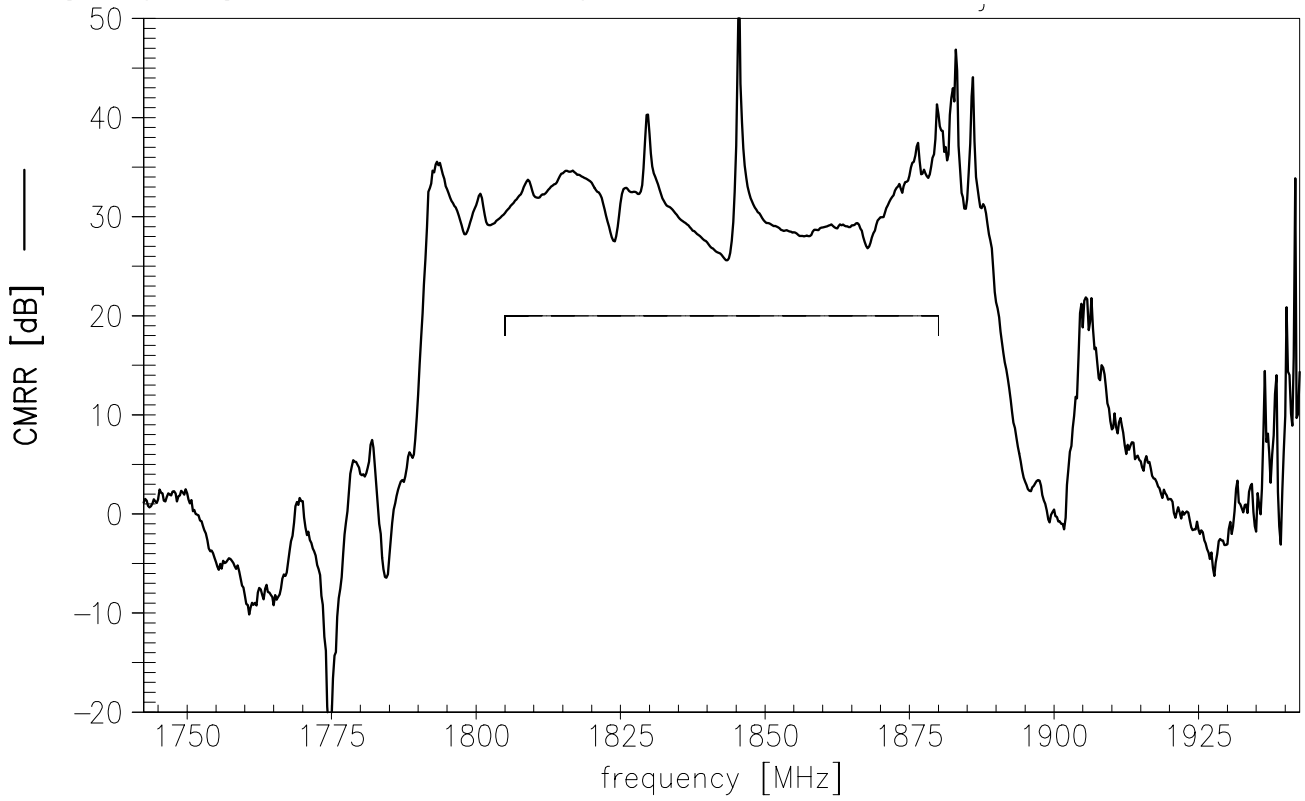
Frequency Response Tx-Rx (differential mode, wideband)



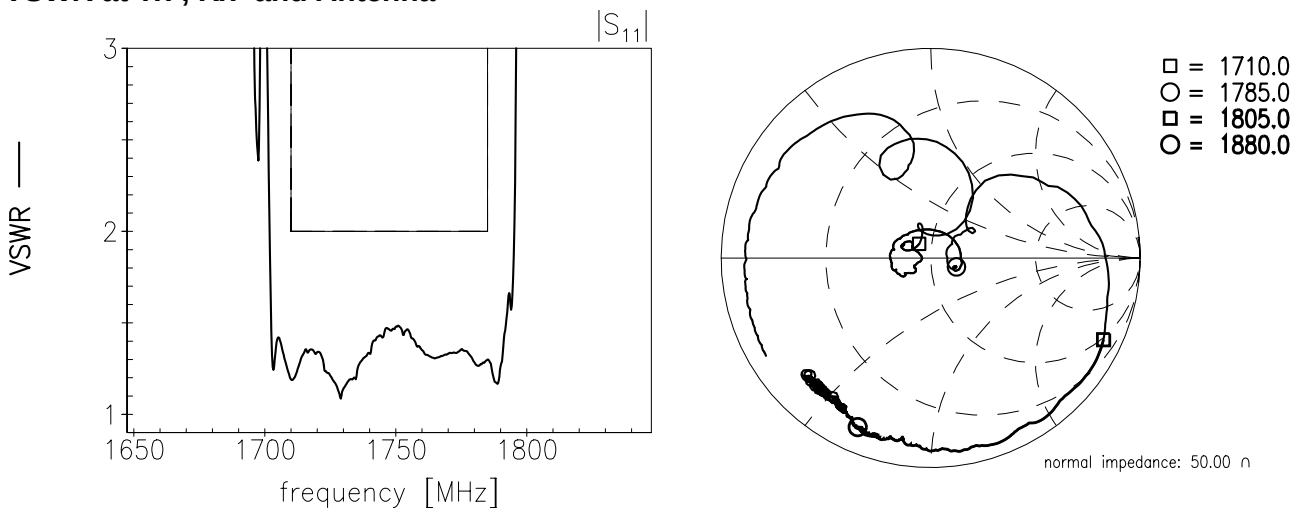
Frequency Response Tx-Rx (common mode)

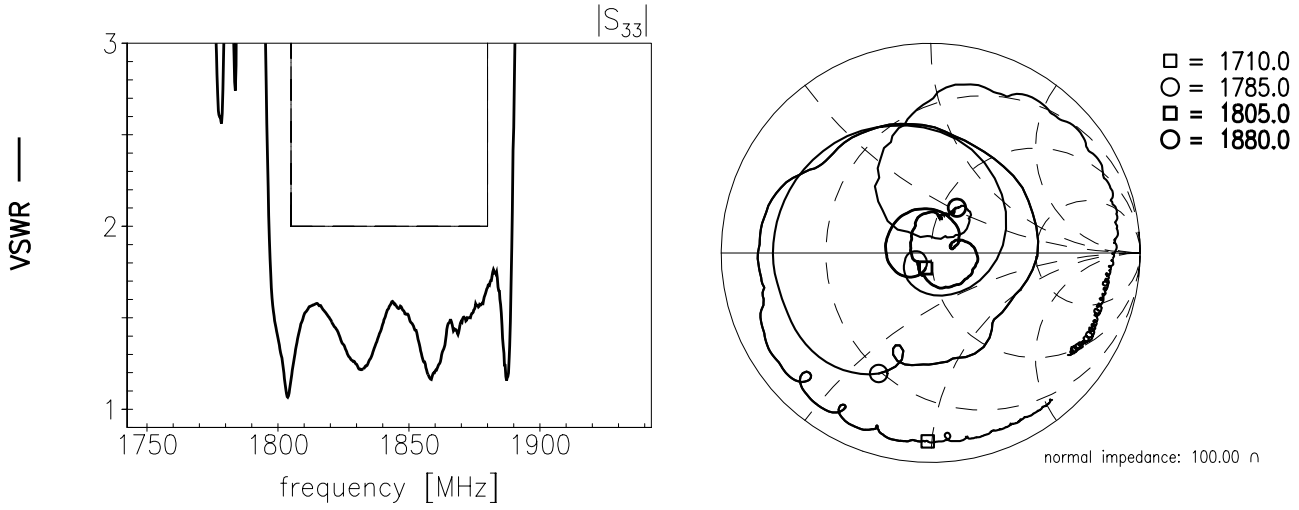


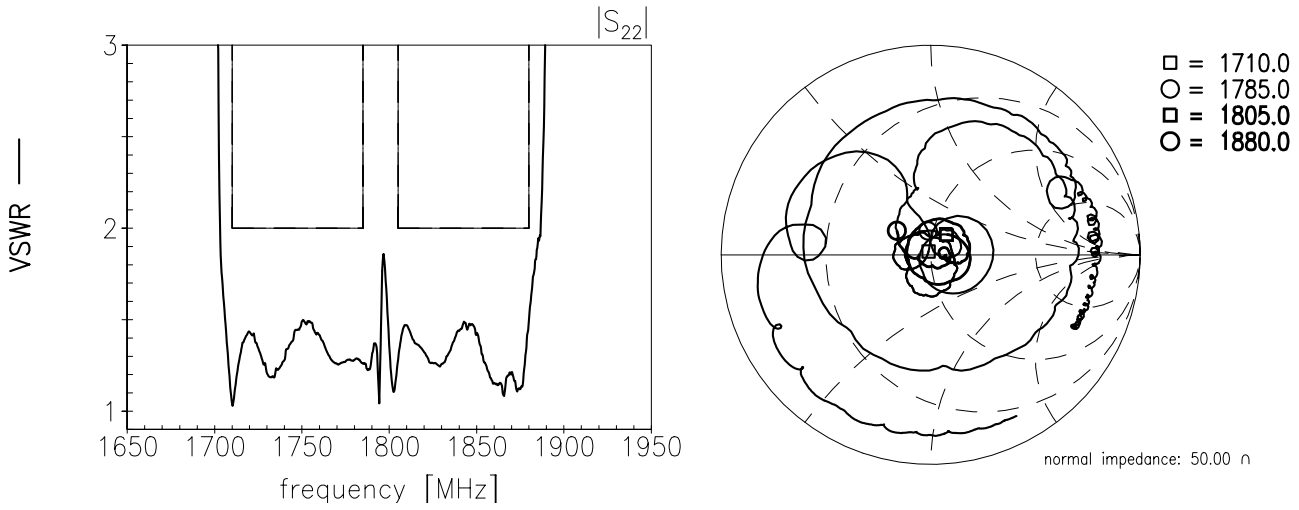
Frequency Response Common Mode Rejection Ratio



VSWR at Tx-, Rx- and Antenna







References

Type	B4406
Ordering code	B39182B4406P810
Marking and Package	C61157-A8-A64
Packaging	F61074-V8247-Z000
Date Codes	L_1126
S-Parameters	B4406_NB_UN.s4p, B4406_WB_UN.s4p See file header for pin/port assignment table.
Soldering profile	S_6001
RoHS compatible	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
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