

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW Duplexer for Smallcell

Band 1 (3G/LTE)

Series/type:	B8092
Ordering code:	B39212B8092P810
Date:	February 25, 2015
Version:	2.2

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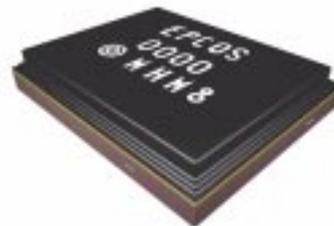
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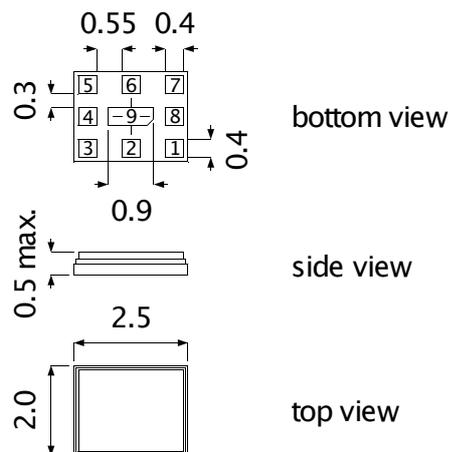
Application

- Low-loss SAW duplexer for 3G/LTE smallcell systems (Band 1)
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 60 MHz
- High power durability
- Industrial qualification
- Rx = uplink = 1920-1980 MHz
- Tx = downlink = 2110-2170 MHz



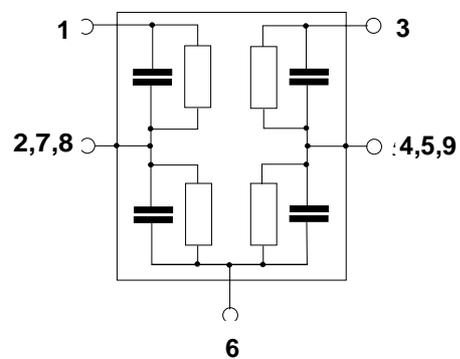
Features

- Package size 2.5 * 2.0 mm²
- max. Package height 0.5 mm
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Moisture Sensitivity Level 3



Pin configuration

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



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Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω // 2.2 nH
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics TX - ANT		min.	typ. @ 25 °C	max.	
Center frequency	f _C		2140.0		MHz
Maximum insertion attenuation 2110.0 ... 2170.0 MHz	α _{max}	-	2.0	2.5	dB
Amplitude ripple (p-p) 2110.0 ... 2170.0 MHz	Δα	-	0.8	1.6	dB
Error Vector Magnitude 2112.5 ... 2167.5 MHz	EVM ¹⁾	-	0.5	1.5	%
Input VSWR (TX port) 2110.0 ... 2170.0 MHz		-	1.7	2.0	
Output VSWR (ANT port) 2110.0 ... 2170.0 MHz		-	1.5	2.0	
Attenuation	α				
10.0 ... 1574.0 MHz		30	34	-	dB
843.0 ... 894.0 MHz		30	40	-	dB
1574.0 ... 1606.0 MHz		30	34	-	dB
1606.0 ... 1880.0 MHz		30	34	-	dB
1805.0 ... 1880.0 MHz		30	40	-	dB
1920.0 ... 1980.0 MHz		37	43	-	dB
2250.0 ... 2400.0 MHz		30	48	-	dB
2400.0 ... 2500.0 MHz		30	48	-	dB
2500.0 ... 2700.0 MHz		30	37	-	dB
2700.0 ... 3000.0 MHz		30	37	-	dB
2620.0 ... 2690.0 MHz		30	42	-	dB
3000.0 ... 3800.0 MHz		28	32	-	dB
3800.0 ... 4220.0 MHz		15	20	-	dB
4220.0 ... 4340.0 MHz		10	15	-	dB
4340.0 ... 5000.0 MHz		7	18	-	dB
5000.0 ... 6000.0 MHz		3	7	-	dB

¹⁾ Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141

DataSheet

Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω // 2.2 nH
RX terminating impedance:	Z _{RX} = 50 Ω
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics ANT - RX		min.	typ. @ 25 °C	max.	
Center frequency	f _C		1950.0		MHz
Maximum insertion attenuation 1920.0 ... 1980.0 MHz	α _{max}	-	2.3	3.7	dB
Amplitude ripple (p-p) 1920.0 ... 1980.0 MHz	Δα	-	0.9	2.2	dB
Error Vector Magnitude 1922.5 ... 1977.5 MHz	EVM ¹⁾	-	1.5	3.0	%
Input VSWR (ANT port) 1920.0 ... 1980.0 MHz		-	1.9	2.2	
Output VSWR (RX port) 1920.0 ... 1980.0 MHz		-	2.0	2.3	
Attenuation	α				
10.0 ... 1785.0 MHz		30	36	-	dB
1785.0 ... 1880.0 MHz		20	31	-	dB
1880.0 ... 1900.0 MHz		5	15	-	dB
2000.0 ... 2110.0 MHz		2.5	12	-	dB
2110.0 ... 2170.0 MHz		43	48	-	dB
2255.0 ... 2400.0 MHz		30	33	-	dB
2400.0 ... 2500.0 MHz		25	30	-	dB
2500.0 ... 3840.0 MHz		15	20	-	dB
3840.0 ... 3960.0 MHz		20	24	-	dB
3960.0 ... 5000.0 MHz		20	25	-	dB
5000.0 ... 5760.0 MHz		15	30	-	dB
5760.0 ... 5940.0 MHz		15	30	-	dB

¹⁾ Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141

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Characteristics

Temperature range for specification:	T = -10 °C to +85 °C
TX terminating impedance:	Z _{Tx} = 50 Ω
ANT terminating impedance:	Z _{Ant} = 50 Ω // 2.2 nH
RX terminating impedance:	Z _{Rx} = 50 Ω

Characteristics Rx-Tx		min.	typ. @ 25 °C	max.	
Attenuation	α				
1920.0 ... 1980.0 MHz		42	48	-	dB
2110.0 ... 2170.0 MHz		47	52	-	dB

Maximum Ratings

Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
ESD voltage	V _{ESD}	50 ¹⁾	V	machine model, 1 pulse
Input power at pin 1				source and load impedance 50 Ω
2110.0 ...2170.0 MHz	P _{in}	28 ²⁾	dBm	Pin 28dBm average - 39 dBm peak
elsewhere	P _{in}	10	dBm	} LTE 5 MHz downlink T = 55 °C, 100.000 h
Operating lifetime with Output power at antenna				source and load impedance 50 Ω
2110.0 ...2170.0 MHz	P _{out}	24 ³⁾	dBm	Continuous wave T=55 °C, 100khrs

¹⁾ According to JESD22-A115A (machine model), 1 negative and 1 positive pulses.

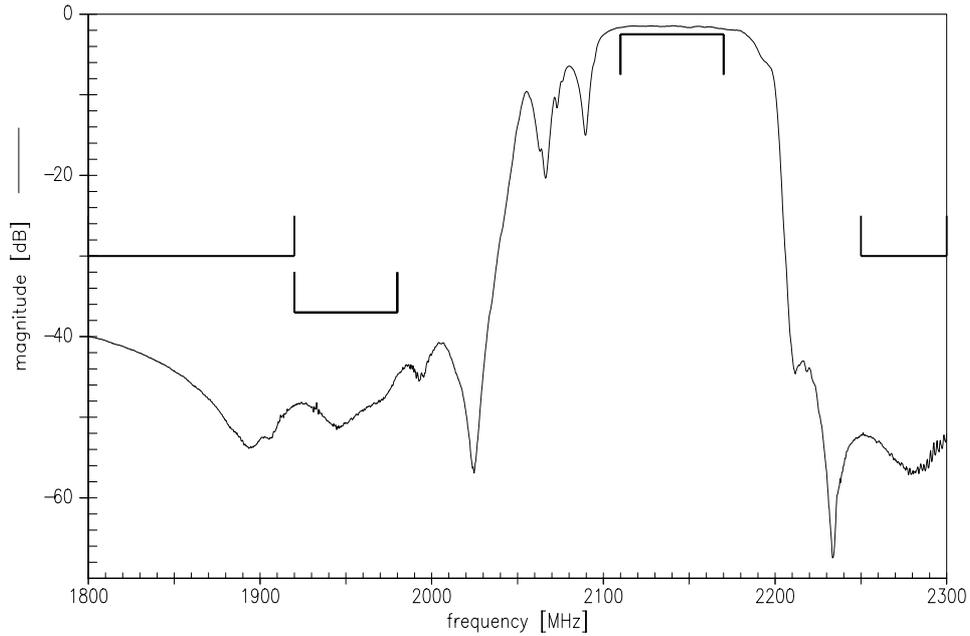
²⁾ Time to failure (TTDF) according to accelerated power durability tests, and wear out models.

³⁾ according to accelerated High Temperature Operating Life (HTOL) test.

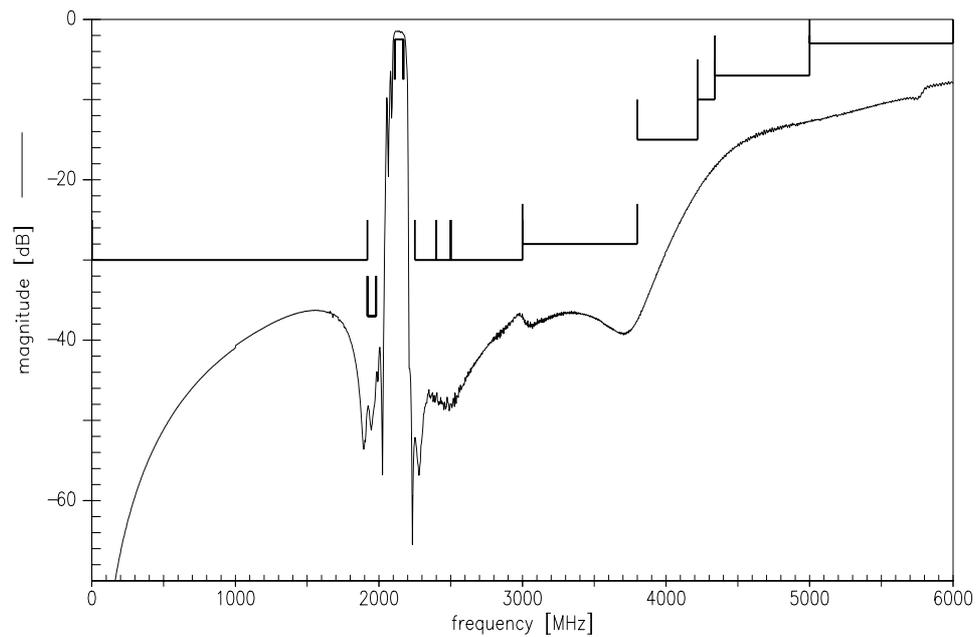
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Frequency Response TX-ANT



Frequency Response TX-ANT

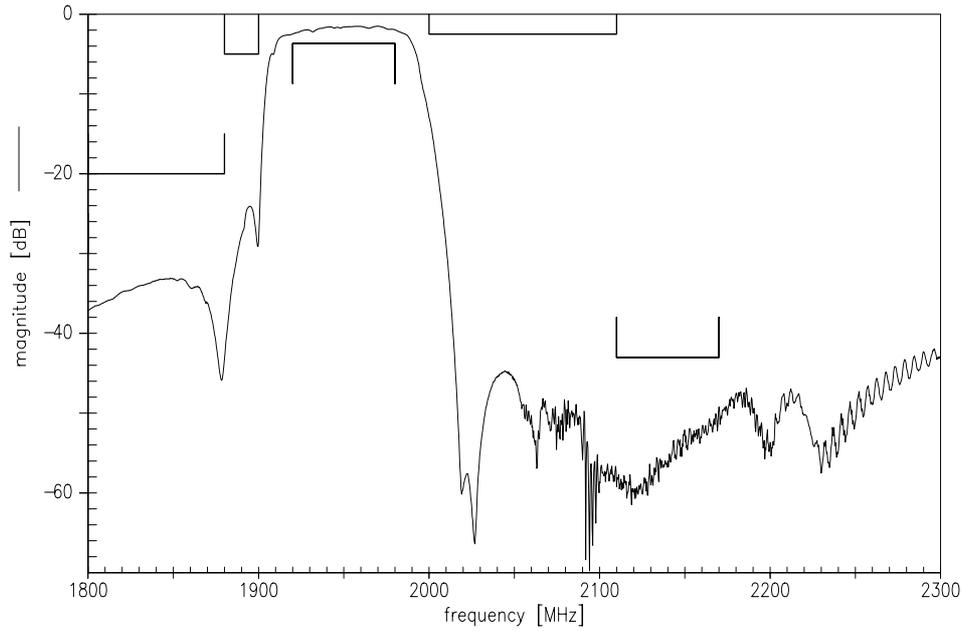


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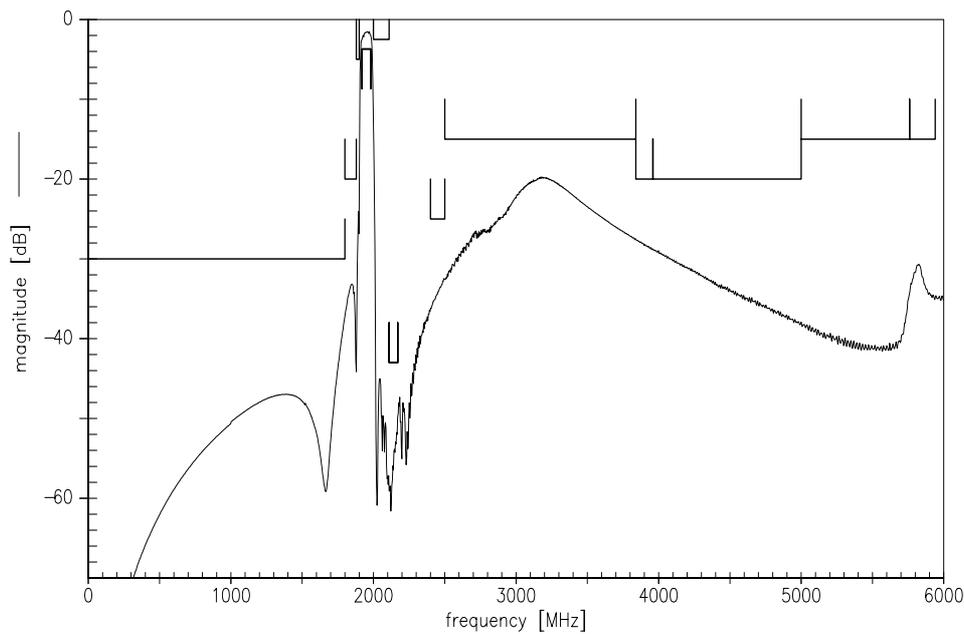
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Frequency Response ANT-RX



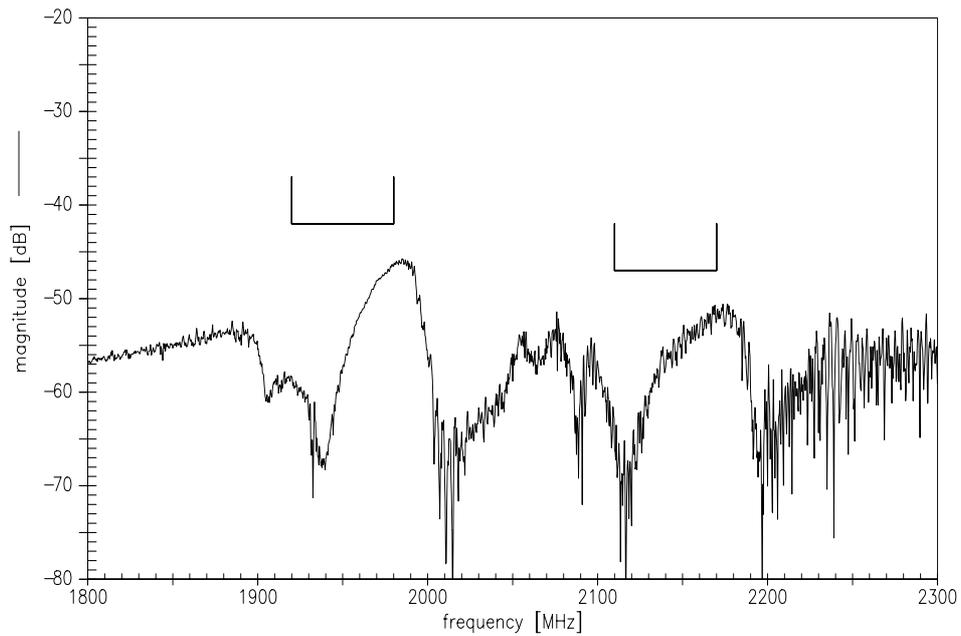
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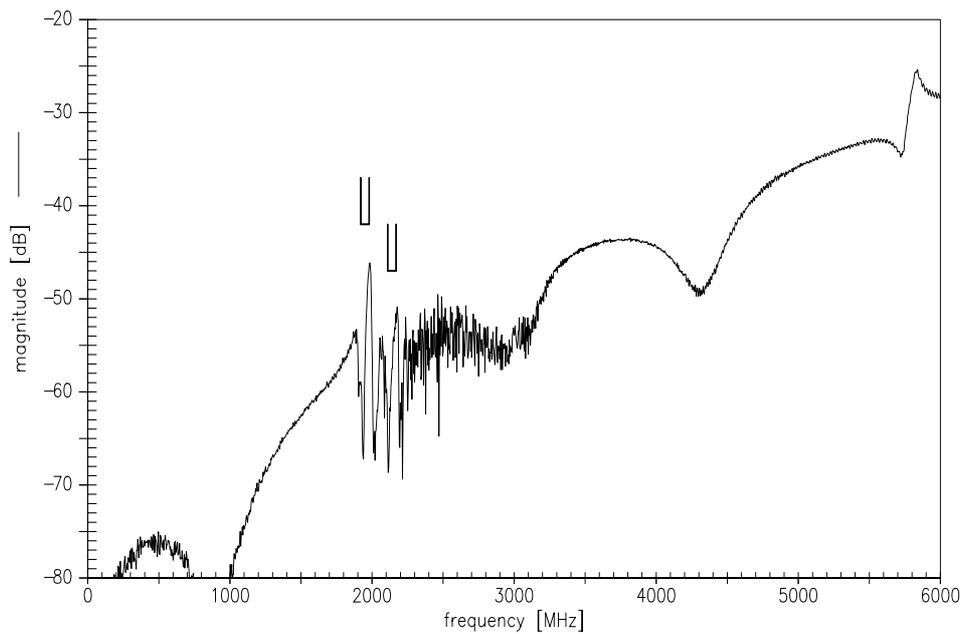
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Frequency Response TX-RX



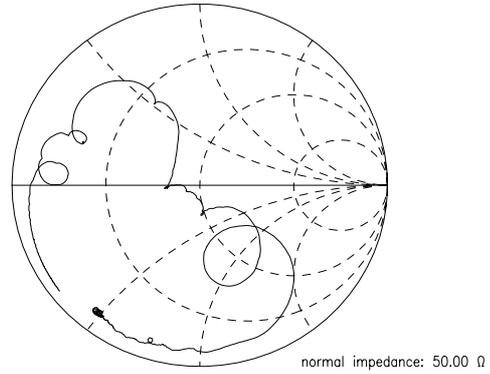
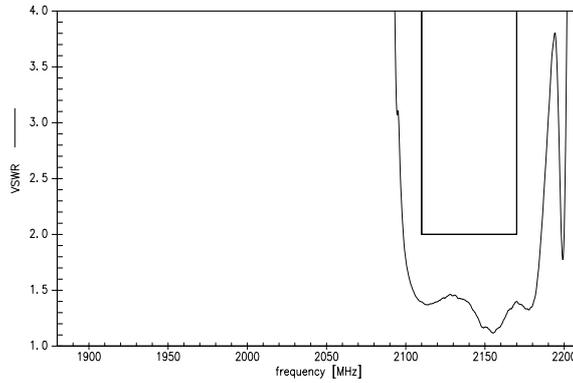
Frequency Response TX-RX



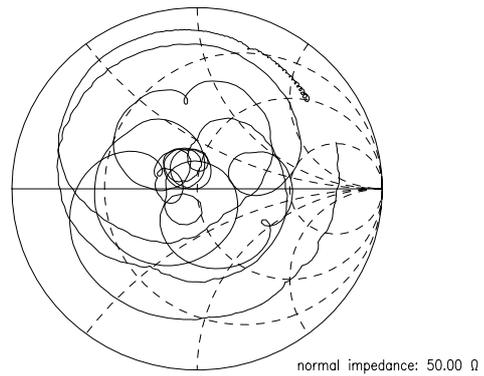
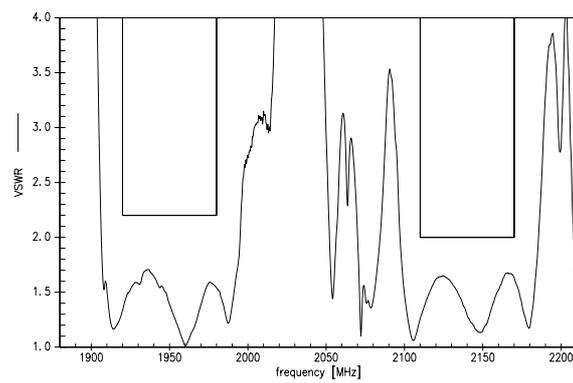
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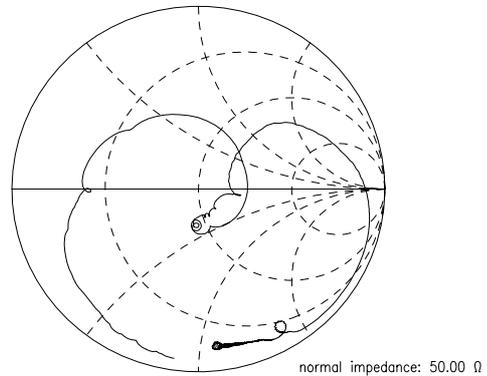
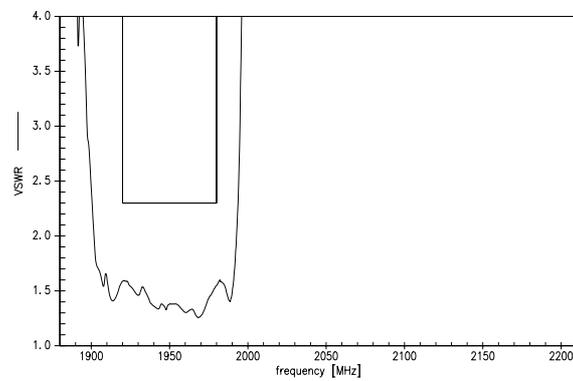
S11 VSWR (TX)



S22 VSWR (ANT)



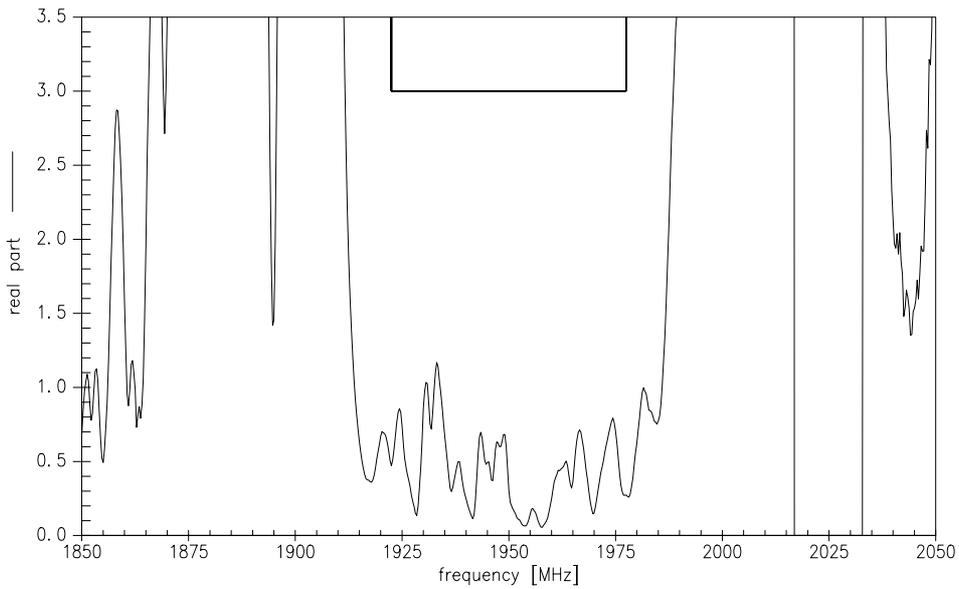
S33 VSWR (RX)



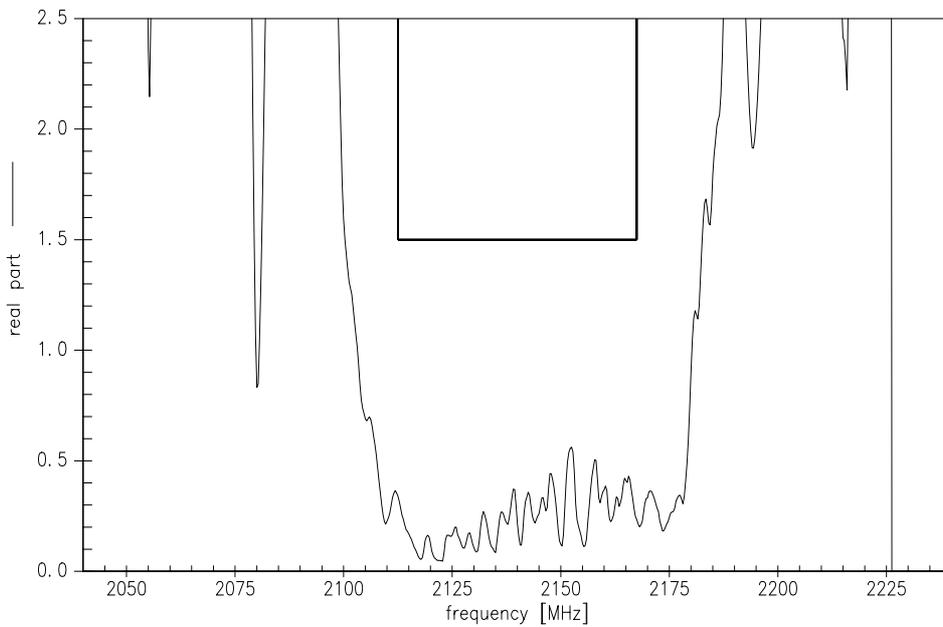
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EVM Rx



EVM Tx



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References

Type	B8092
Ordering code	B39212B8092P810
Marking and package	C61157-A8-A61
Packaging	F61074-V8232-Z000
Date codes	L_1126
S-parameters	B8092_NB.s3p, B8092_WB.s3p see file header for port/pin assignement 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 8 th , 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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