



SAW Components

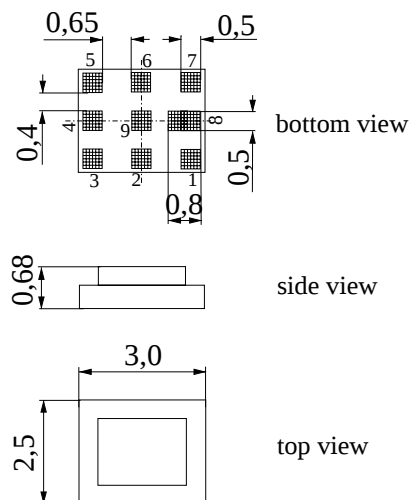
Datasheet B7661

Data Sheet

An abstract, grayscale graphic featuring a stylized globe with latitude and longitude lines. Overlaid on the globe is the word "EPCOS" in a large, white, sans-serif font, which is slightly tilted and appears to be part of a larger, repeating pattern.

Chip Sized SAW Package QCS9A
Features

- Low-loss duplexer for W-CDMA 800MHz band mobile telephone systems
- Package for **Surface Mounted Technology (SMT)**
- Small size and low height

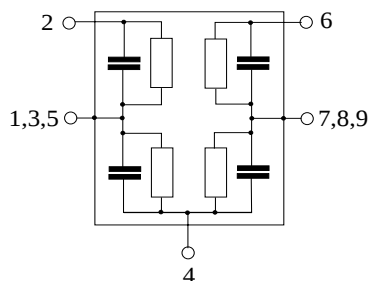

Terminals

Ni, gold-plated

Dimensions in mm, approx. weight 0,015 g

Pin configuration

6	TX Input
2	RX Output
4	Antenna
1, 3, 5	Ground
7, 8, 9	Ground



Type	Ordering code	Marking and Package according to	Packing according to
B7661	B39881-B7661-D610	C61157-A3-A8	F61074-V8156-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operating temperature range	T	- 30/+ 85	°C	machine model, 10 pulses source and load impedance 50 Ω continuous wave
Storage temperature range	T_{stg}	- 40/+ 85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100 ¹⁾	V	
Input power max.	P_{IN}	30	dBm	
830,0 ... 840,0 MHz		10	dBm	
elsewhere				

1) -acc. to JEDEC22-115A (Machine Model), 10 negative & 10 positive pulses



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Low-Loss Filter for Mobile Communication

835,0 / 880,0 MHz

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Characteristics

Operating temperature range	T	$= 25 \pm 2^{\circ}\text{C}$
ANT terminating impedance	Z_{ANT}	$= 50 \Omega, 8,2 \text{ nH (in parallel)}$
RX terminating impedance	Z_{RX}	$= 50 \Omega$
TX terminating impedance	Z_{TX}	$= 40 \Omega, 8 \text{ nH (in series)}$

Characteristics TX - ANT		min.	typ.	max.	
Center frequency	f_c	—	835,00	—	MHz
Maximum insertion attenuation	α_{max}				
	830,00 ... 840,00 MHz	—	1,5	1,8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	830,00 ... 840,00 MHz	—	0,2	1,0	dB
Return loss					
	830,00 ... 840,00 MHz	10,0	17,0	—	dB
Attenuation	α				
	40,00 ... 400,00 MHz	30	40	—	dB
	400,00 ... 500,00 MHz	25	36	—	dB
	875,00 ... 885,00 MHz	50	55	—	dB
	1210,00 ... 1400,00 MHz	20	32	—	dB
	1590,00 ... 1680,00 MHz	25	38	—	dB
	1680,00 ... 1980,00 MHz	27	42	—	dB
	2490,00 ... 2520,00 MHz	35	52	—	dB
Characteristics ANT - RX		min.	typ.	max.	
Center frequency	f_c	—	880,00	—	MHz
Maximum insertion attenuation	α_{max}				
	875,00 ... 885,00 MHz	—	2,3	2,4	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	875,00 ... 885,00 MHz	—	0,5	0,9	dB
	880,00 ... 885,00 MHz	—	0,3	0,5	dB
Return loss					
	875,00 ... 885,00 MHz	10,0	12,0	—	dB
Attenuation	α				
	40,00 ... 50,00 MHz	55	80	—	dB
	785,00 ... 795,00 MHz	35	46	—	dB
	830,00 ... 840,00 MHz	55	58	—	dB
	852,50 ... 862,50 MHz	1,5	3,0	—	dB
	1000,00 ... 1705,00 MHz	35	43	—	dB
	1705,00 ... 1770,00 MHz	45	57	—	dB
	2535,00 ... 2565,00 MHz	25	43	—	dB
	2625,00 ... 2655,00 MHz	32	40	—	dB
	3500,00 ... 3540,00 MHz	20	24	—	dB
	4375,00 ... 4425,00 MHz	15	25	—	dB
	5230,00 ... 5310,00 MHz	15	24	—	dB
	6125,00 ... 6195,00 MHz	—	22	—	dB



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Characteristics ANT - RX		min.	typ.	max.	
Attenuation	α				
	7000,00 ... 7080,00 MHz	—	20	—	dB
	7875,00 ... 7965,00 MHz	—	16	—	dB
	8750,00 ... 8850,00 MHz	—	17	—	dB
	9625,00 ... 9735,00 MHz	—	13	—	dB
	10500,00 ... 10620,00 MHz	—	17	—	dB
	11375,00 ... 11505,00 MHz	—	18	—	dB
	12250,00 ... 12390,00 MHz	—	18	—	dB

Characteristics TX - RX		min.	typ.	max.	
Isolation between TX and RX path	α				
	830,00 ... 840,00 MHz	55	58	—	dB
	875,00 ... 885,00 MHz	50	53	—	dB



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Characteristics

Operating temperature range	T	= -30 to 85°C
ANT terminating impedance	Z_{ANT}	= 50 Ω , 8,2 nH (in parallel)
RX terminating impedance	Z_{RX}	= 50 Ω
TX terminating impedance	Z_{TX}	= 40 Ω , 8 nH (in series)

Characteristics TX - ANT		min.	typ.	max.	
Center frequency	f_c	—	835,00	—	MHz
Maximum insertion attenuation	α_{max}				
	830,00 ... 840,00 MHz	—	1,6	2,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	830,00 ... 840,00 MHz	—	0,2	1,2	dB
Return loss					
	830,00 ... 840,00 MHz	10,0	17,0	—	dB
Attenuation	α				
	40,00 ... 400,00 MHz	30	40	—	dB
	400,00 ... 500,00 MHz	25	36	—	dB
	875,00 ... 885,00 MHz	48	52	—	dB
	1210,00 ... 1400,00 MHz	20	32	—	dB
	1590,00 ... 1680,00 MHz	25	38	—	dB
	1680,00 ... 1980,00 MHz	27	42	—	dB
	2490,00 ... 2520,00 MHz	35	52	—	dB
Characteristics ANT - RX		min.	typ.	max.	
Center frequency	f_c	—	880,00	—	MHz
Maximum insertion attenuation	α_{max}				
	875,00 ... 885,00 MHz	—	2,3	2,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	875,00 ... 885,00 MHz	—	0,6	1,6	dB
Return loss					
	875,00 ... 885,00 MHz	10,0	12,0	—	dB
Attenuation	α				
	40,00 ... 50,00 MHz	55	80	—	dB
	785,00 ... 795,00 MHz	30	46	—	dB
	830,00 ... 840,00 MHz	55	58	—	dB
	852,50 ... 862,50 MHz	1,5	3,0	—	dB
	1000,00 ... 1705,00 MHz	35	43	—	dB
	1705,00 ... 1770,00 MHz	45	57	—	dB
	2535,00 ... 2565,00 MHz	25	43	—	dB
	2625,00 ... 2655,00 MHz	32	40	—	dB
	3500,00 ... 3540,00 MHz	20	24	—	dB
	4375,00 ... 4425,00 MHz	15	25	—	dB
	5230,00 ... 5310,00 MHz	15	24	—	dB
	6125,00 ... 6195,00 MHz	—	22	—	dB



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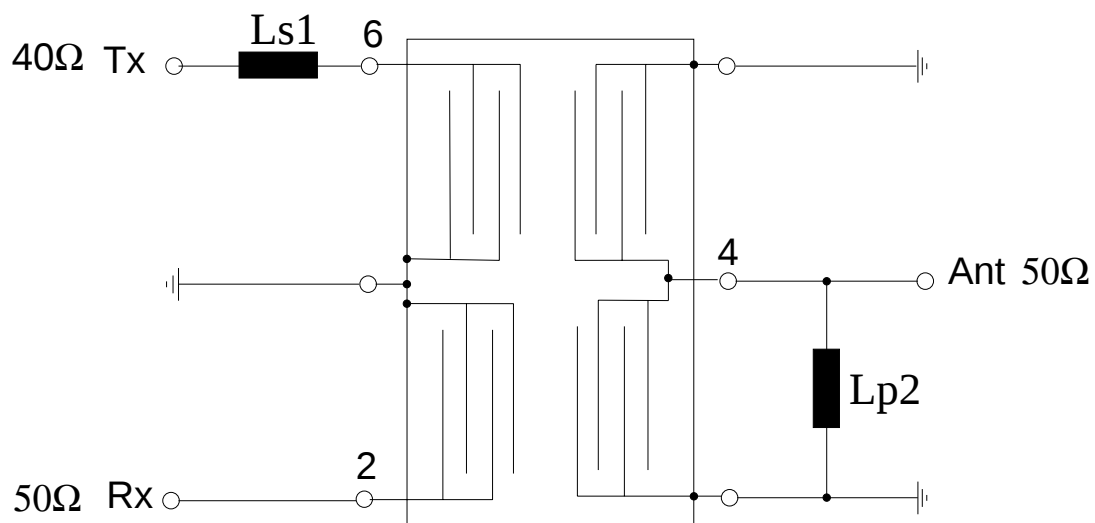


Characteristics ANT - RX		min.	typ.	max.	
Attenuation	α				
	7000,00 ... 7080,00 MHz	—	28	—	dB
	7875,00 ... 7965,00 MHz	—	16	—	dB
	8750,00 ... 8850,00 MHz	—	17	—	dB
	9625,00 ... 9735,00 MHz	—	13	—	dB
	10500,00 ... 10620,00 MHz	—	17	—	dB
	11375,00 ... 11505,00 MHz	—	18	—	dB
	12250,00 ... 12390,00 MHz	—	18	—	dB

Characteristics TX - RX		min.	typ.	max.	
Isolation between TX and RX path	α				
	830,00 ... 840,00 MHz	55	58	—	dB
	875,00 ... 885,00 MHz	48	51	—	dB

Matching circuit to terminating impedances

(Element values depend upon PCB layout)



$$L_{s1} = 8.0 \text{ nH}$$

$$L_{p2} = 8.2 \text{ nH}$$



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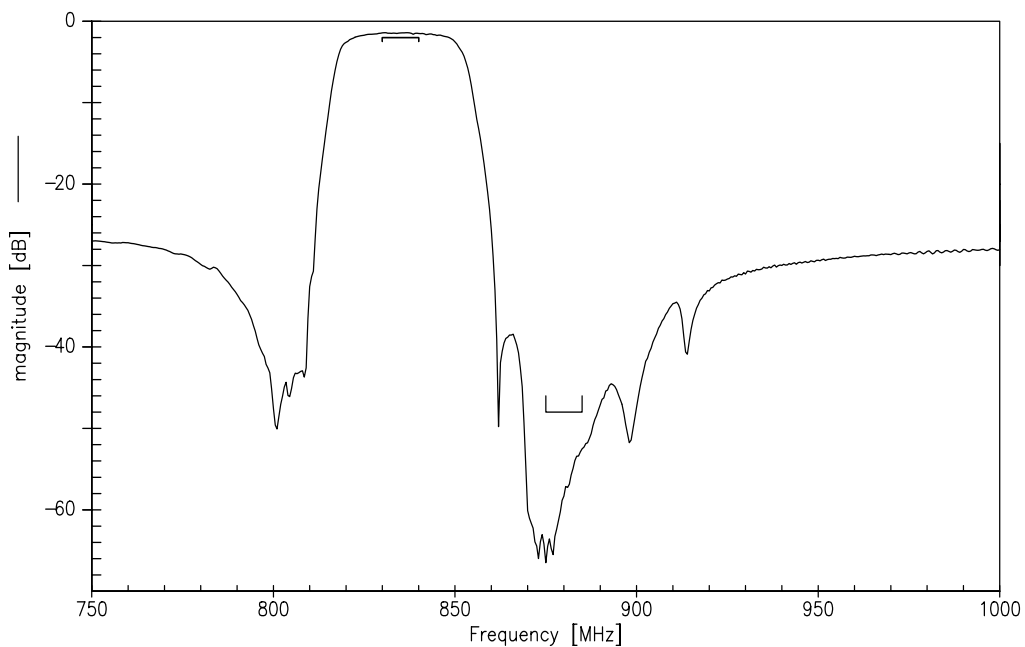
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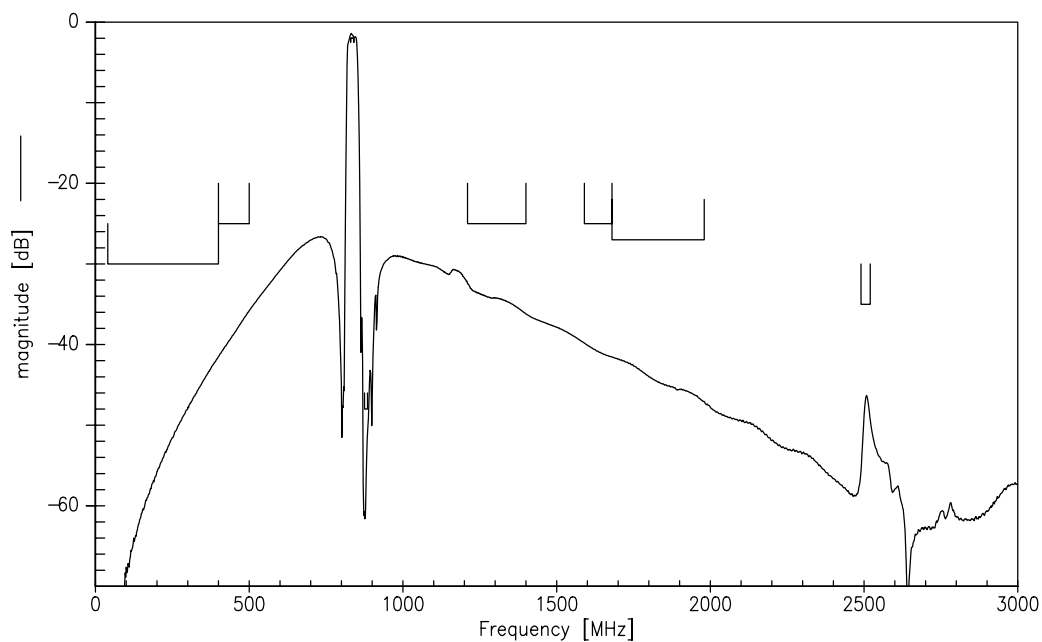
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Frequency Response TX - ANT



Frequency Response TX - ANT (wideband)





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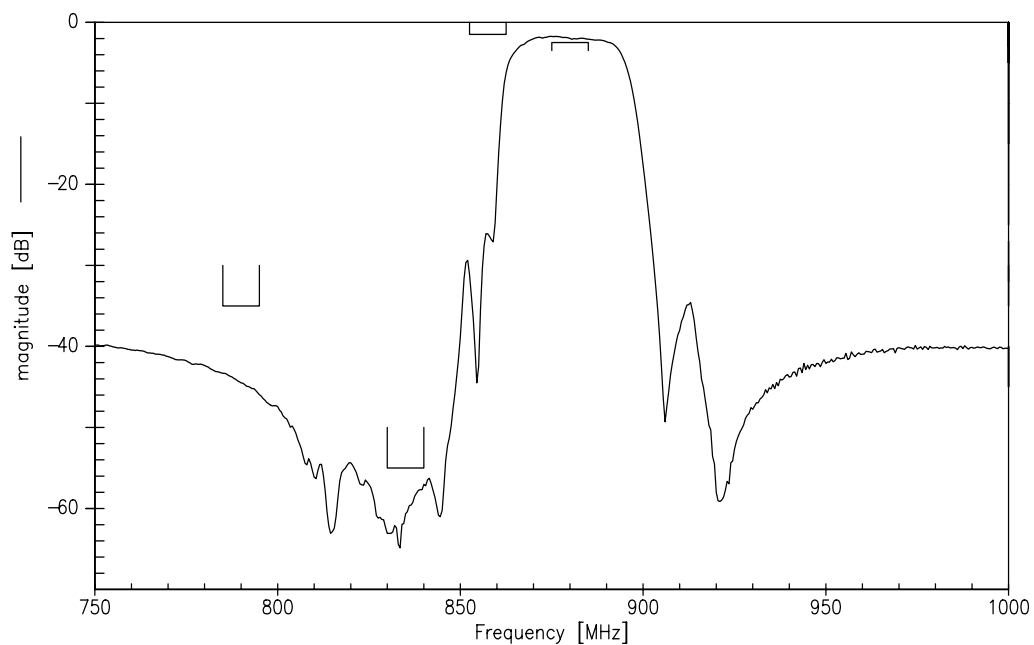
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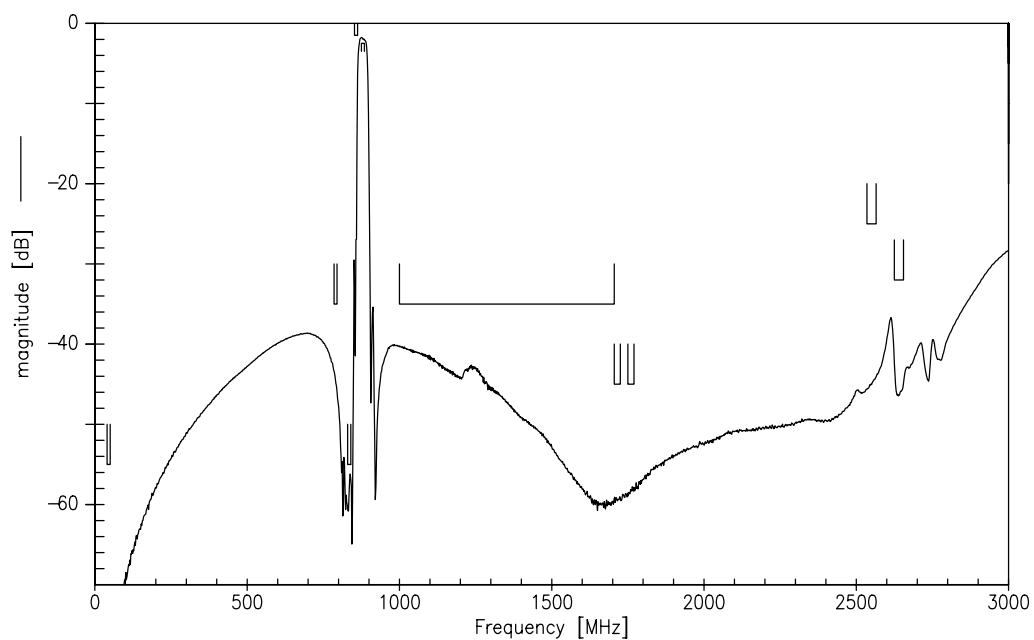
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Frequency Response ANT - RX



Frequency Response ANT - RX (wideband)





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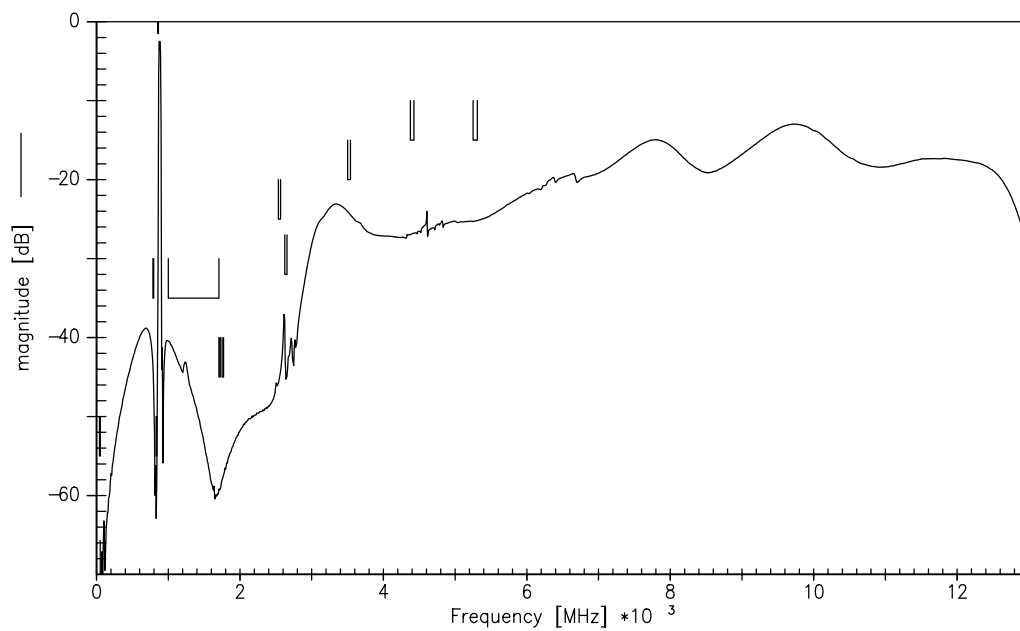
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Frequency Response ANT - RX





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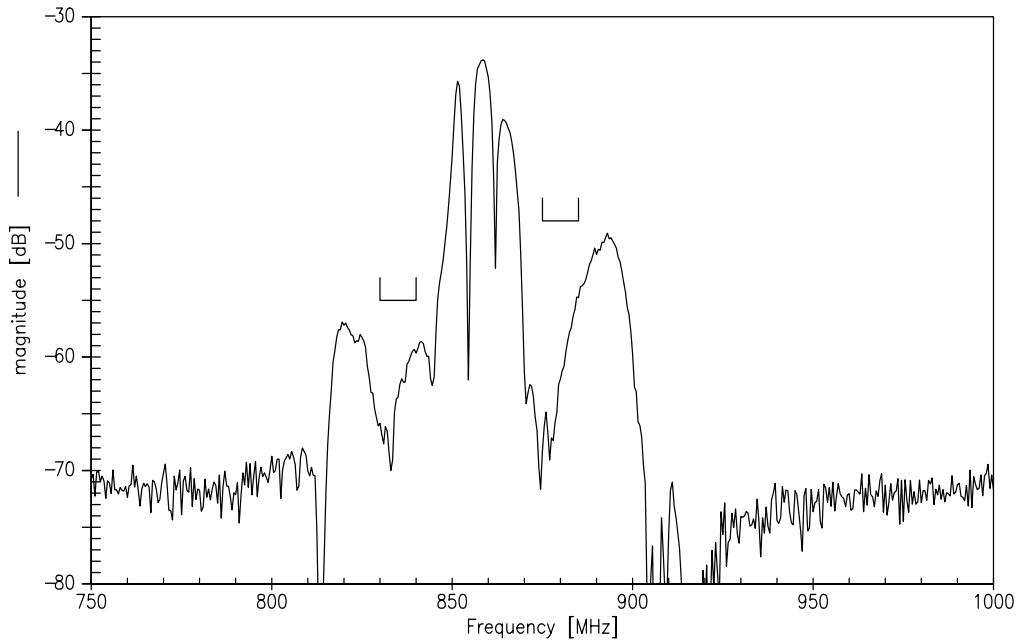
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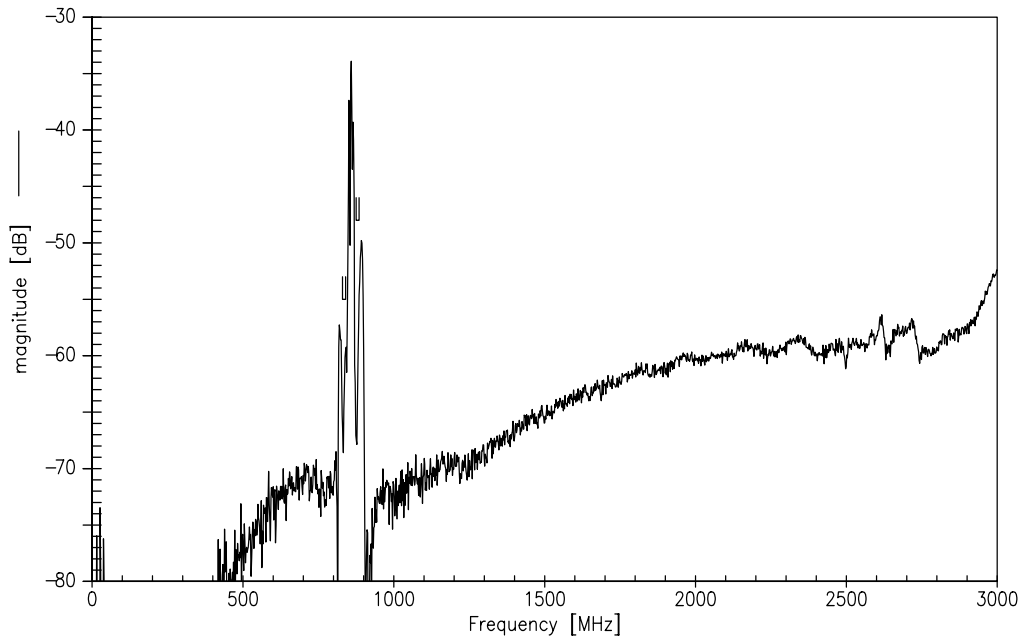
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Frequency Response TX - RX



Frequency Response TX - RX (wideband)





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