RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW duplexer

LTE band XXVIII Block B

Series/type:	B8539
Ordering code:	B39791B8539P810
DCN:	80-PA243-20 Rev. A
Date:	February 3, 2017
Version:	2.0

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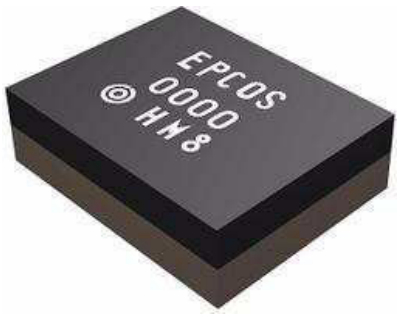
LTE band XXVIII Block B

Series/type:	**B8539**
Ordering code:	**B39791B8539P810**
Date:	December 16, 2014
Version:	2.0

EPCOS AG is a TDK Group Company.

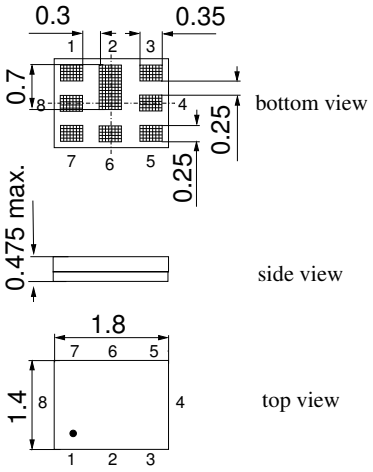
Application

- Low-loss SAW duplexer for mobile telephone LTE Band XXVIII systems
- Low insertion attenuation
- Usable passband 30 MHz
- Duplexer for higher part of Band XXVIII (Block B)
- Companion type is B8538/B8540 for lower Band XX-VIII (Block A)



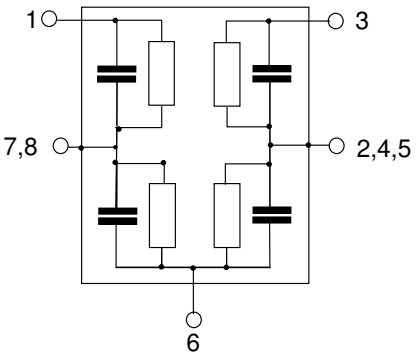
Features

- Package size 1.8 x 1.4mm², package height 0.475mm max.
- RoHS compatible
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitive **L**evel 3



Pin configuration

1	RX output
3	TX input
6	Antenna
2,4,5,7,8	Ground



Characteristics

Temperature range for specification: T = –20 ˚C to +90 ˚C
ANT terminating impedance: Z_{ANT}= 50 Ω || 6.0 nH
TX terminating impedance: Z_{TX} = 50 Ω + 4.0 nH (series)
RX terminating impedance: Z_{RX} = 50 Ω

Characteristics Tx - Ant		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	733.0	—	MHz
Maximum insertion attenuation	α				
718.240... 747.760MHz			1.9	2.8	dB
Amplitude ripplle	α				
718.240... 747.760MHz			1.0	1.9	dB
VSWR					
TX port 718.0 ... 748.0 MHz			1.7	2.0	
ANT port 718.0 ... 748.0 MHz			1.4	2.0	
Attenuation	α				
10.0 ... 698.0 MHz		30	38		dB
698.0 ... 710.0 MHz		15	38		dB
758.240... 772.760MHz		15	30		dB
773.240... 802.760MHz		41	44		dB
859.0 ... 894.0 MHz		30	38		dB
1225.0 ... 1250.0 MHz		40	47		dB
1436.0 ... 1510.0 MHz		35	40		dB
1559.0 ... 1563.0 MHz		35	39		dB
1565.42 ... 1573.374MHz		35	39		dB
1573.374... 1577.466MHz		35	39		dB
1577.466... 1585.42 MHz		35	39		dB
1597.55 ... 1605.89 MHz		35	39		dB
1805.0 ... 1880.0 MHz		30	37		dB
1930.0 ... 1995.0 MHz		30	36		dB
2010.0 ... 2025.0 MHz		30	36		dB
2154.0 ... 2244.0 MHz		30	35		dB
2400.0 ... 2484.0 MHz		28	34		dB
2570.0 ... 2620.0 MHz		28	34		dB
2872.0 ... 2992.0 MHz		15	33		dB
4900.0 ... 5950.0 MHz		15	23		dB

Characteristics

Temperature range for specification: T = –20 ˚C to +90 ˚C
ANT terminating impedance: Z_{ANT}= 50 Ω || 6.0 nH
TX terminating impedance: Z_{TX} = 50 Ω + 4.0 nH (series)
RX terminating impedance: Z_{RX} = 50 Ω

Characteristics Rx - Ant		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	788.0	—	MHz
Maximum insertion attenuation	α				
773.240... 802.760MHz			2.1	2.8	dB
Amplitude ripple	α				
773.240... 802.760MHz			0.7	1.4	dB
VSWR					
RX port 773.0 ... 803.0 MHz			1.8	2.2	
ANT port 773.0 ... 803.0 MHz			1.4	2.2	
Attenuation	α				
1.0 ... 699.0 MHz		40	62		dB
45.0 ... 65.0 MHz		50	70		dB
703.240... 732.760MHz		30	71		dB
718.240... 747.760MHz		50	61		dB
824.0 ... 6000.0 MHz		26	30		dB

Characteristics TX - RX		min.	typ. @ 25 ˚C	max.	
Isolation	α				
718.240... 747.760MHz		60	64		dB
773.240... 802.760MHz		54[1)]	57		dB

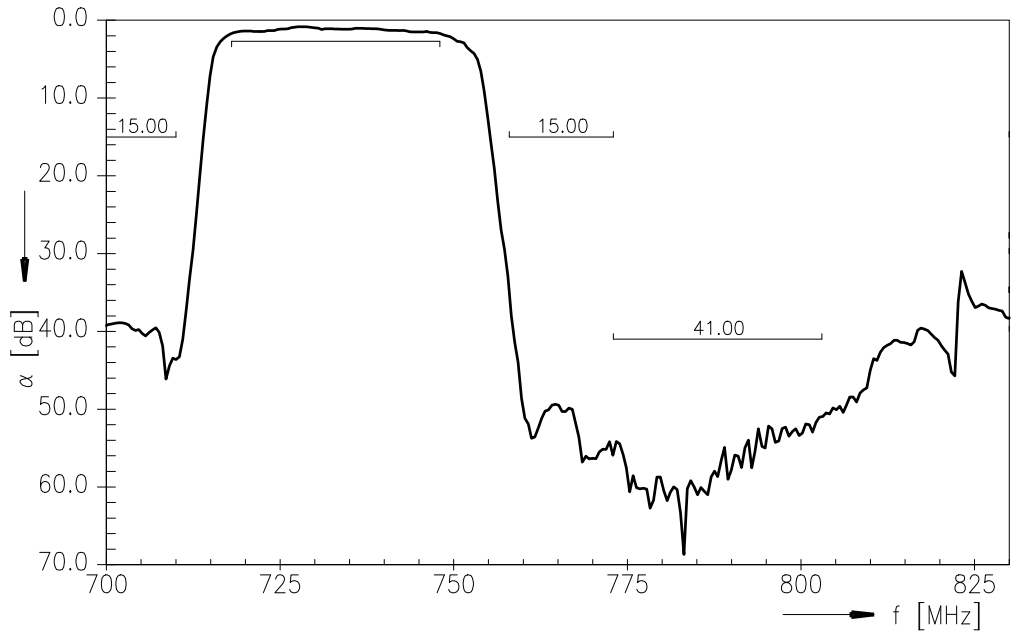
1) 53 dB for T= -20˚C to +20˚C

Maximum ratings

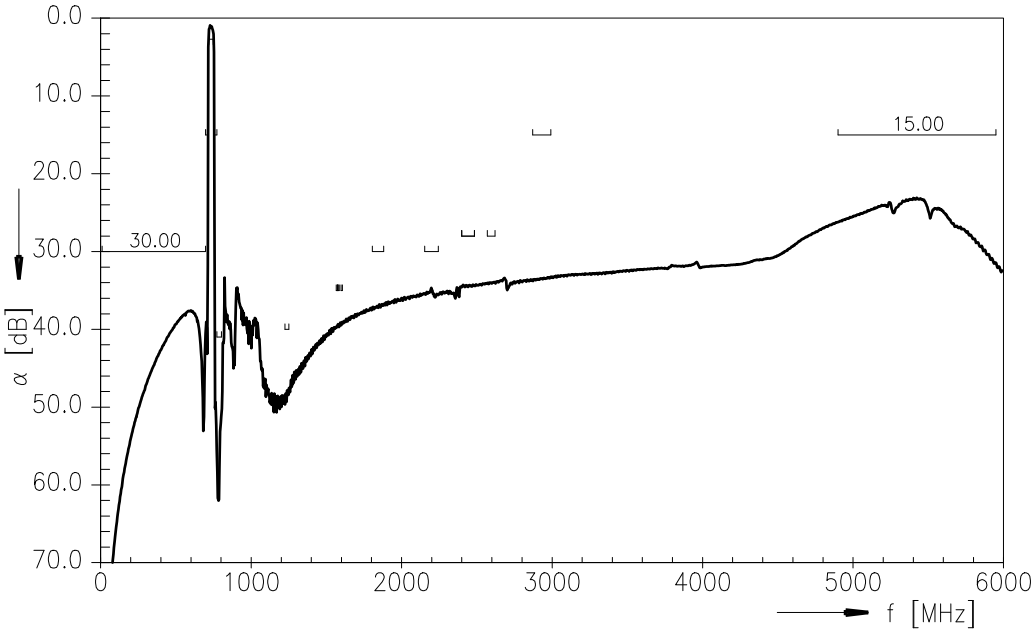
Storage temperature range	T_{stg}	–40/+85[1)]	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[2)]	V	machine model, 10 pulses
ESD voltage	V_{ESD}	300[3)]	V	HBM,+/- 1 pulses
ESD voltage	V_{ESD}	600[4)]	V	CDM,+/- 3 pulses
Input power at	P_{IN}			
718.0 ... 748.0 MHz		29	dBm	} continuous wave 50 ˚C, 5000 h
elsewhere		10	dBm	

1) Extended upperlimit: 168@125˚C acc. to IEC 60068-2-2 Bb.
2) acc. to JESD22-A115B (machine model), 10 negative & 10 positive pulses.
3) acc. to JESD22-A114F (human body model), 1 negative & 1 positive pulses.
4) acc. to JESD22-A101C (charge device model), 3 negative & 3 positive pulse

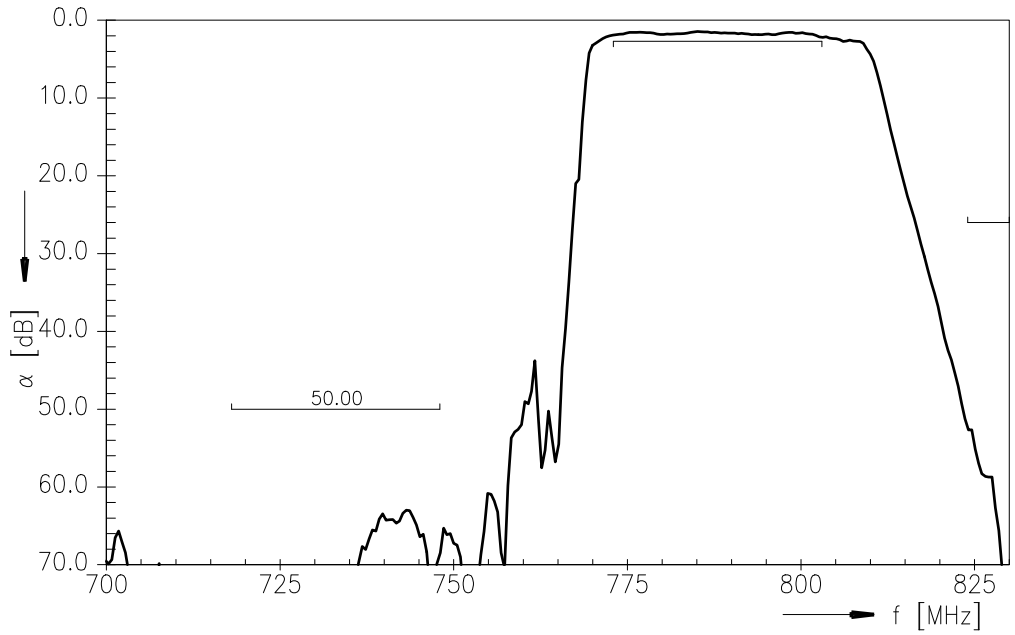
Frequency response Tx-Antenna



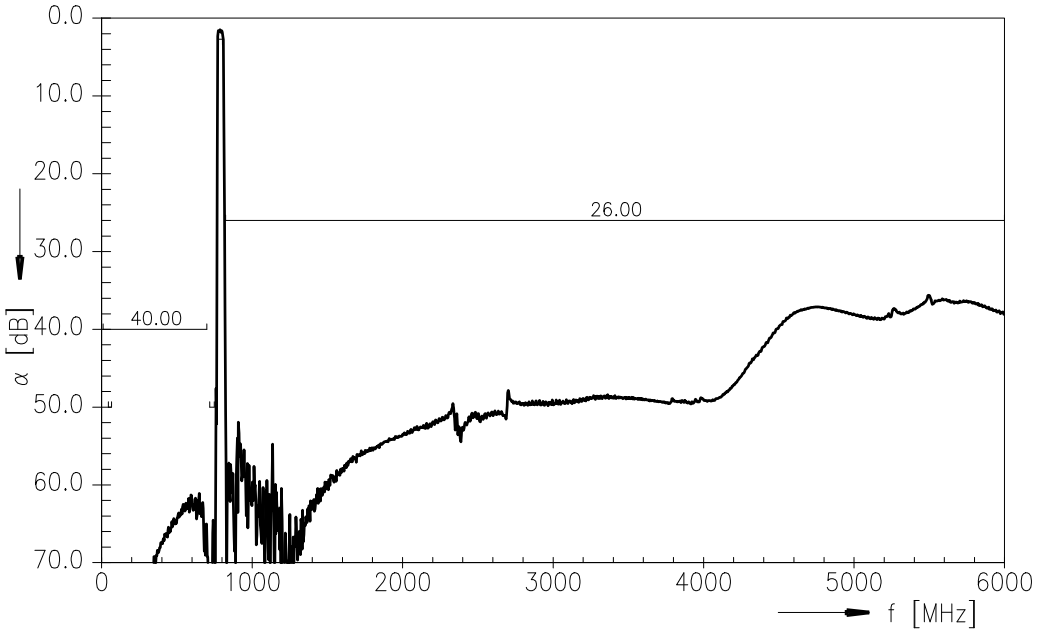
Frequency response Tx-Antenna (wideband)



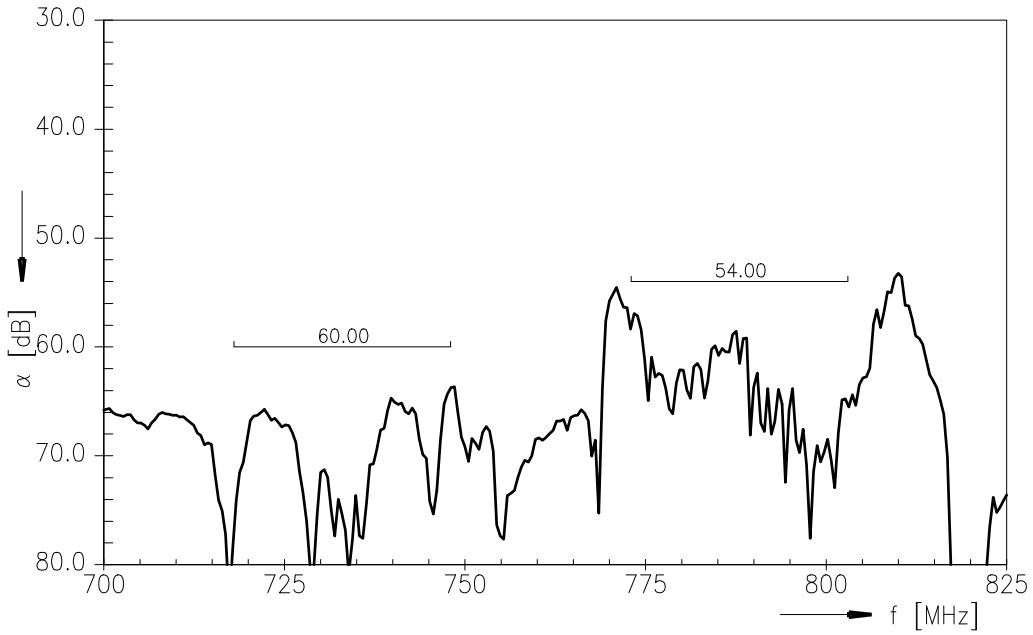
Frequency response Antenna-Rx



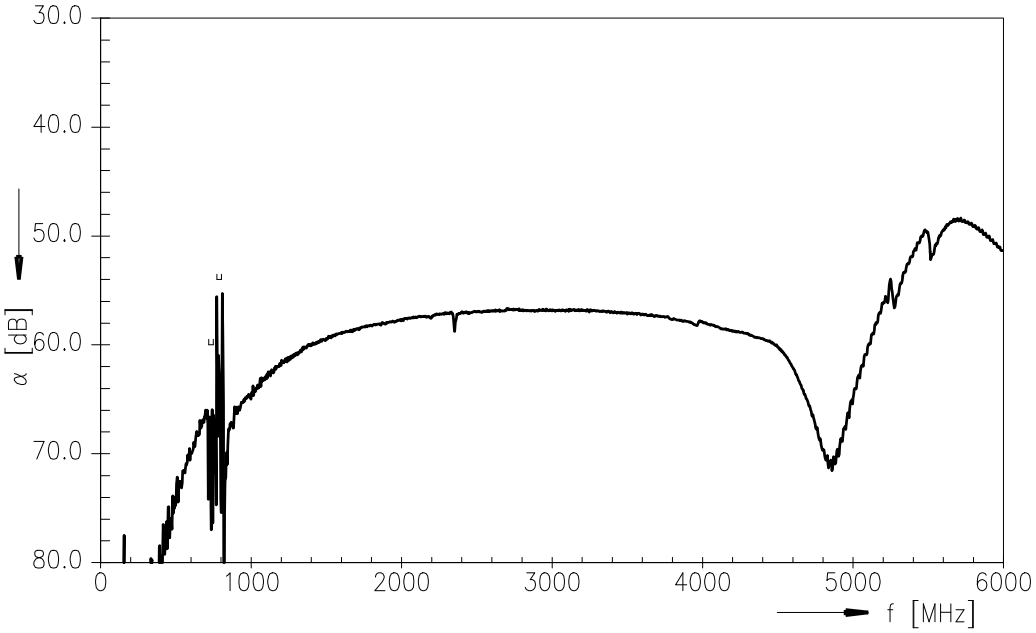
Frequency response Antenna-Rx (wideband)



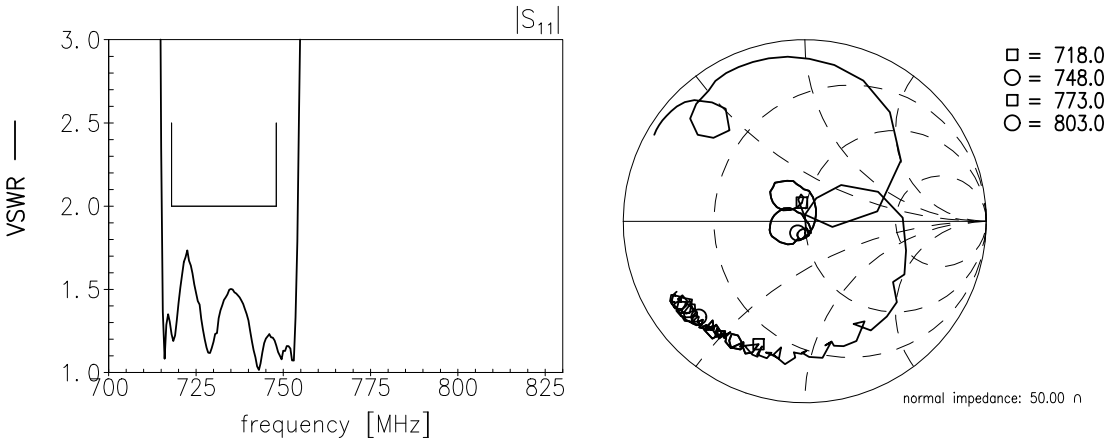
Frequency response Tx-Rx (Power transfer function)

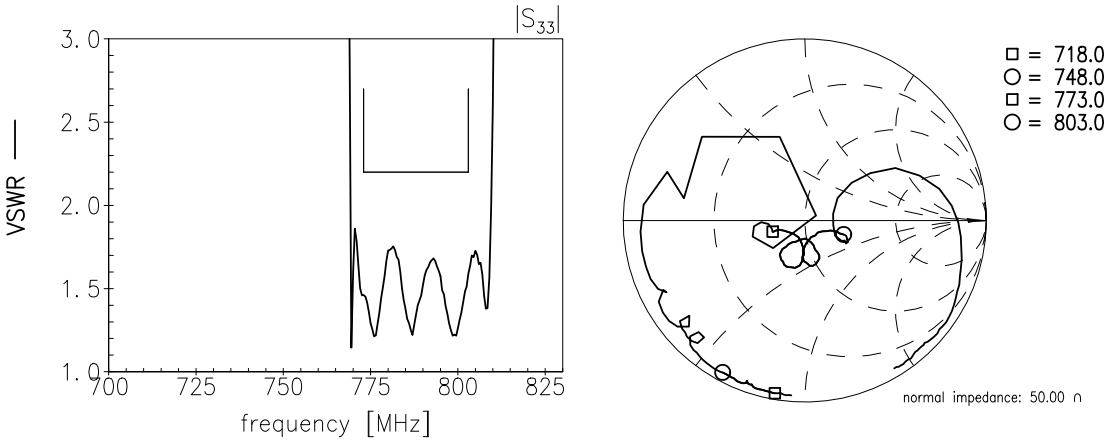


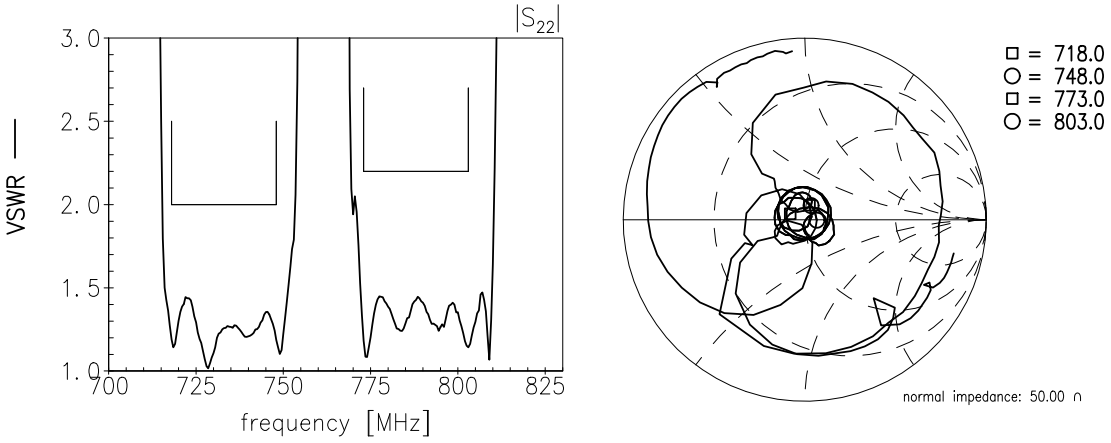
Frequency response Tx-Rx (wideband)



Return loss S_{11} Tx-port S_{22} Antenna-port S_{33} Rx-portReferences







References

Type	B8539
Ordering code	B39791B8539P810
Marking and package	C61157-A8-A79
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8539_NB_UN.s3p, B8539_WB_UN.s3p See file header for pin/port assignment.
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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