SAW Components

SAW Duplexer

LTE Band 20

Series/type:	**B8581**
Ordering code:	**B39851B8581P810**
Date:	November 15, 2012
Version:	1.3

Revision History

Changes compared to previously issued iteration

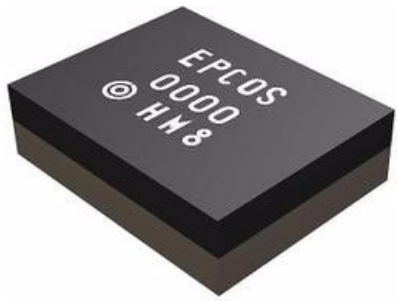
Issue	Originator	Detailed specification changes	Date
1.0	G. Bourjade	Preliminary data sheet, datas from AI73A	Sept, 3rd 2012
1.1	G. Bourjade	Ordering code, references	Oct, 11th 2012
1.3	G. Bourjade	ESD, HBM, Tx rejection, Rx VSWR and coil	Nov, 15th 2012

Preliminary Data

SMD

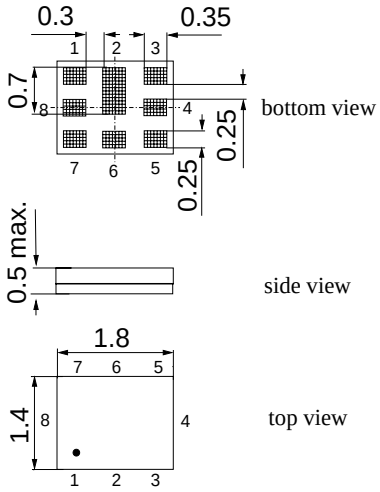
Application

- Low-loss SAW duplexer for LTE Band 20 systems
- Very high isolation
- Usable passband 30 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path
- Very small size and low height



Features

- Package size 1.8 * 1.4 * 0.5 mm^3
- RoHS compatible
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, Au-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel **3**



Pin configuration

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

Preliminary Data SMD

Characteristics

Temperature range for specification: T = -15 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 9.5 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced) || 47 nH

		Development status[1]			
Characteristics Tx-Antenna		**min.**	**typ. @ 25 ˚C**	**max.**	
Center frequency	f_c		847.0		MHz
Maximum insertion attenuation	α				
832.0 ... 862.0 MHz		-	2.2	2.8	dB
832.0 ... 862.0 MHz		-	2.2	2.5[2]	dB
Amplitude ripple (p-p)	Δα				
832.0 ... 862.0 MHz		-	1.0	1.9	dB
Input VSWR (Tx port)					
832.0 ... 862.0 MHz		-	1.7	2.0	
Output VSWR (Ant Port)					
832.0 ... 862.0 MHz		-	1.7	2.0	
Absolute attenuation	α				
10.0 ... 771.0 MHz		30	35	-	dB
771.0 ... 791.0 MHz		35	40	-	dB
791.0 ... 821.0 MHz		44	48	-	dB
873.0 ... 903.0 MHz		15	30	-	dB
925.0 ... 960.0 MHz		30	37	-	dB
1565.0 ... 1606.0 MHz		35	40	-	dB
1664.0 ... 2170.0 MHz		35	41	-	dB
2400.0 ... 2620.0 MHz		35	38	-	dB
2620.0 ... 2690.0 MHz		35	45	-	dB
3328.0 ... 3448.0 MHz		35	40	-	dB
4000.0 ... 6000.0 MHz		20	16	-	dB

1) Values in columns min., typ. and max. indicate the development status of the current version.
2) in +25,+55 ˚C temperature range

Preliminary Data

SMD

Characteristics

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TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 9.5 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced) || 47 nH

		Development status[1]			
Characteristics Antenna-Rx		**min.**	**typ. @ 25 ˚C**	**max.**	
Center frequency	f_c		806.0		MHz
Maximum insertion attenuation	α				
791.0 ... 821.0 MHz		-	2.4	3.5	dB
791.0 ... 821.0 MHz		-	2.4	3.0[2]	dB
Amplitude ripple (p-p)	Δα				
791.0 ... 821.0 MHz		-	1.2	2.7	dB
Input VSWR (Ant port)					
791.0 ... 821.0 MHz		-	1.6	2.0	
Output VSWR (Rx Port)					
791.0 ... 821.0 MHz		-	1.8	2.2	
Common mode rejection ratio					
791.0 ... 821.0 MHz		25	30	-	dB
Absolute attenuation	α				
10.0 ... 770.0 MHz		45	55	-	dB
770.0 ... 782.0 MHz		15	45	-	dB
832.0 ... 833.5 MHz		35	60	-	dB
833.5 ... 862.0 MHz		50	54	-	dB
873.0 ... 903.0 MHz		40	53	-	dB
1623.0 ... 1683.0 MHz		45	55	-	dB
2400.0 ... 2545.0 MHz		45	51	-	dB
2545.0 ... 4000.0 MHz		45	54	-	dB
4000.0 ... 6000.0 MHz		30	35	-	dB
Absolute mean attenuation	α_{mean}				
782.0 ... 790.0 MHz		4	8	-	dB
782.0 ... 790.0 MHz		6[3]	8	-	dB

[1] Values in columns min., typ. and max. indicate the development status of the current version.
[2] In +25,+55 ˚C temperature range

Preliminary Data SMD

Characteristics

Temperature range for specification: T = -15 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 9.5 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced) || 47 nH

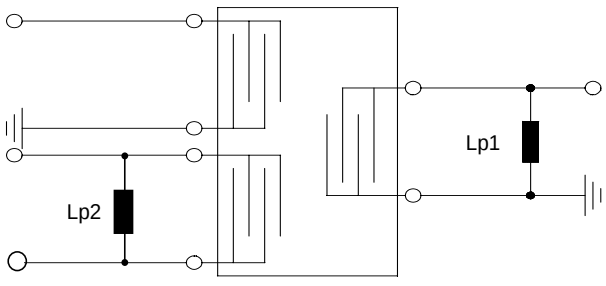
		Development status[1]			
Characteristics Tx-Rx		**min.**	**typ. @ 25 ˚C**	**max.**	
Differential mode isolation	α				
791.0 ... 821.0	MHz	45	48	-	dB
832.0 ... 834.0	MHz	40	60	-	dB
834.0 ... 862.0	MHz	54	57	-	dB
1574.0 ... 1577.0	MHz	40	64	-	dB
1664.0 ... 1724.0	MHz	20	63	-	dB
2496.0 ... 2586.0	MHz	20	58	-	dB
Common mode isolation	α				
832.0 ... 862.0	MHz	60	65	-	dB

[1] Values in columns min., typ. and max. indicate the development status of the current version.

Maximum Ratings

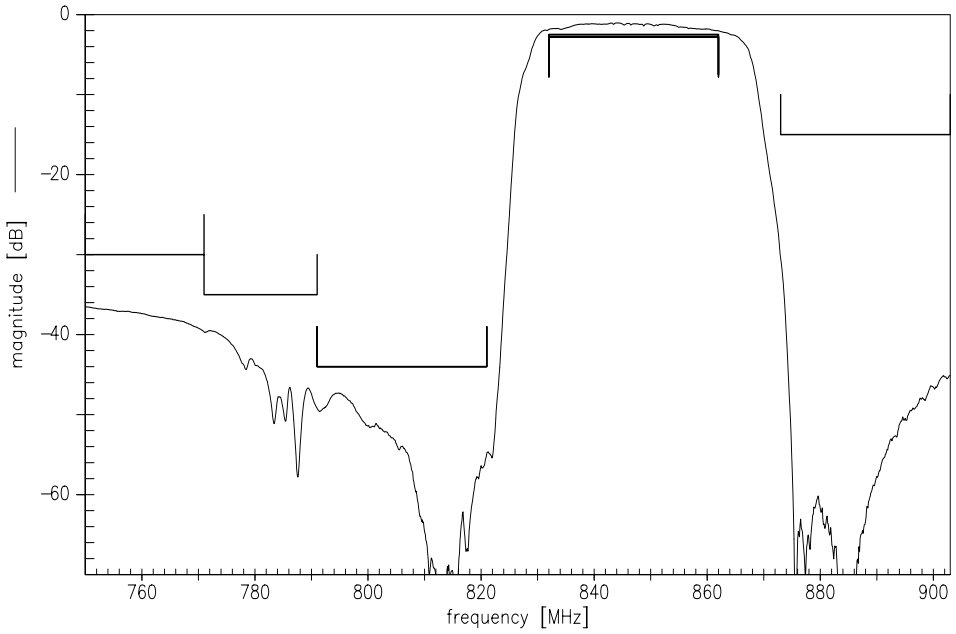
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	TBD	V	
ESD voltage, Tx, Ant Port	V_{ESD}	300	V	HB Model
ESD voltage	V_{ESD}	>500	V	CD Model
Input power at Tx Port				
832.0 ...862.0 MHz	P_{in}	TBD	dBm	} continuous wave
elsewhere	P_{in}	10	dBm	} 55 ˚C, 50000h

Matching network (element values depend on PCB layout)

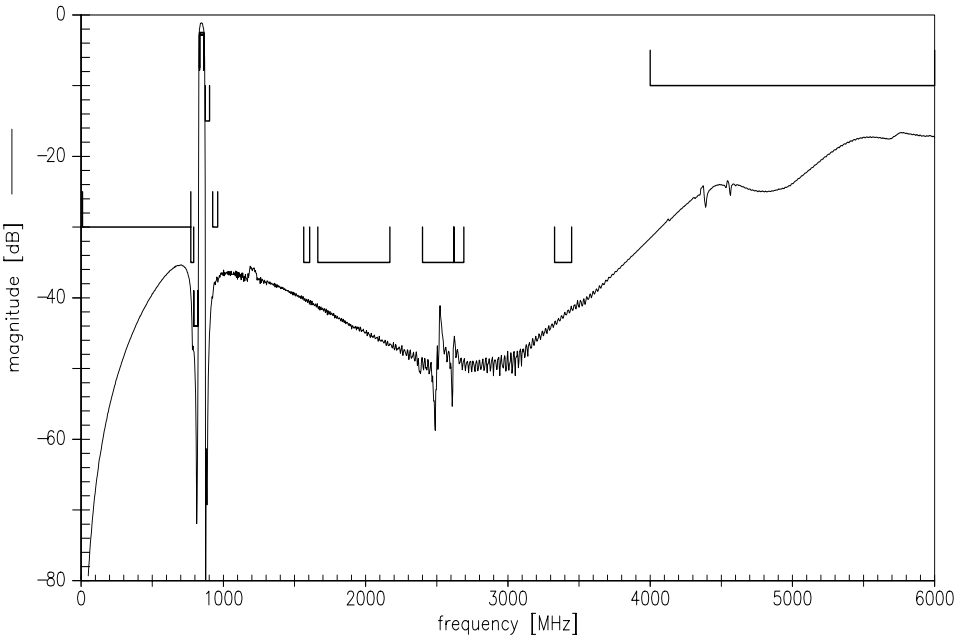


Lp1=9.5nH, Lp2 =47nH

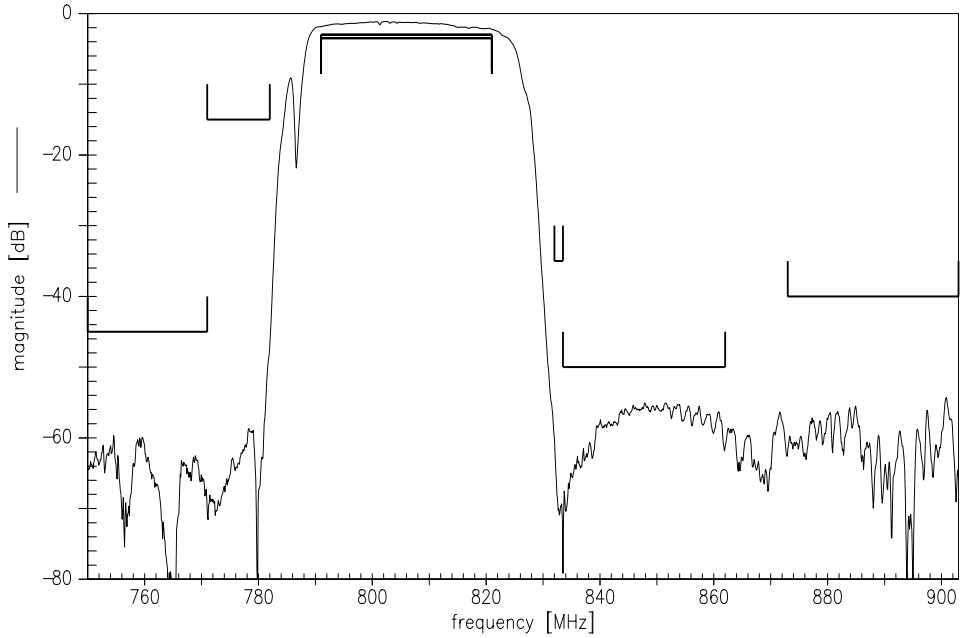
Frequency Response TX-ANT



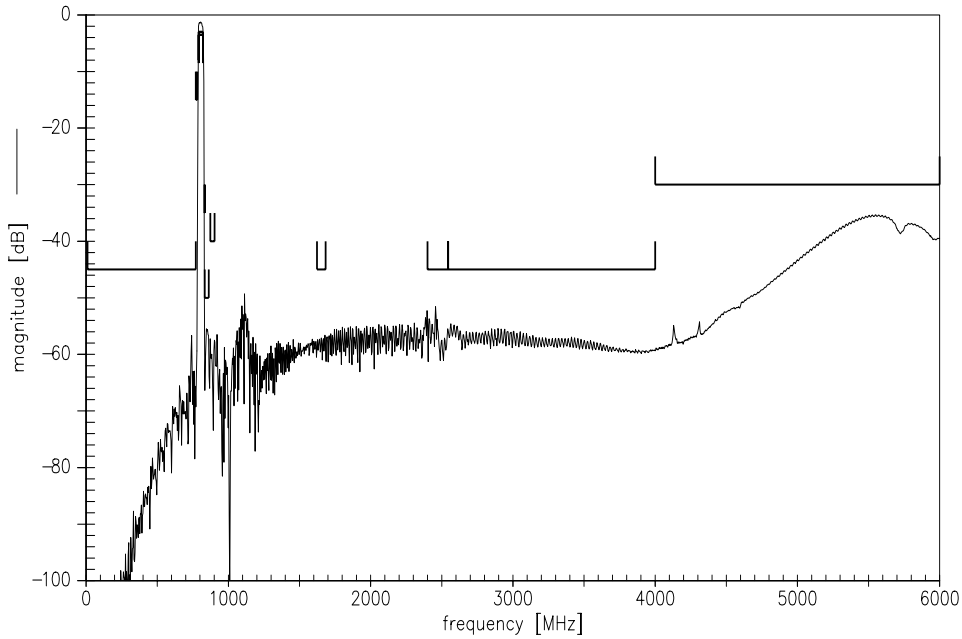
Frequency Response TX-ANT



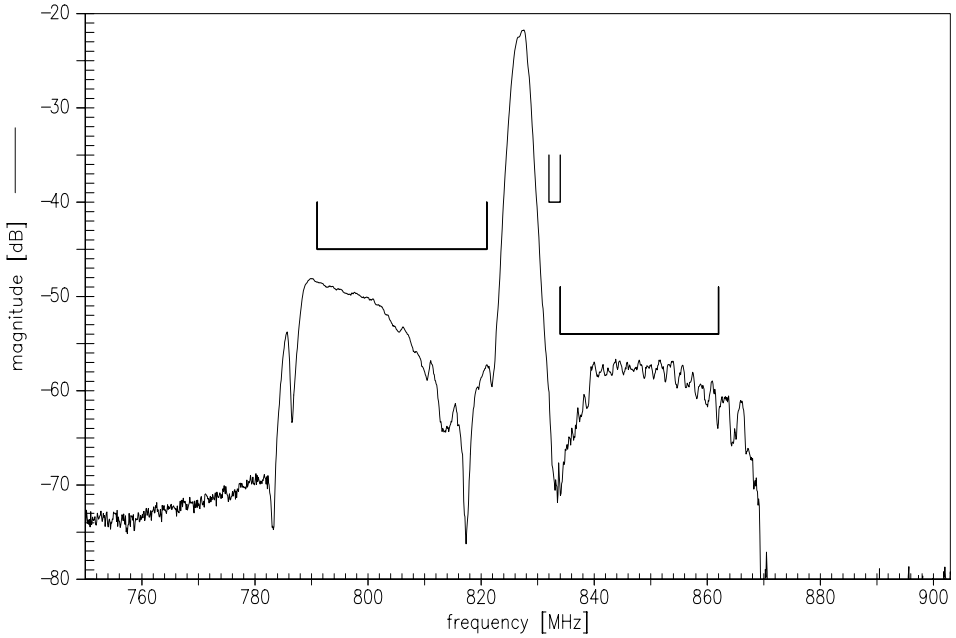
Frequency Response ANT-RX



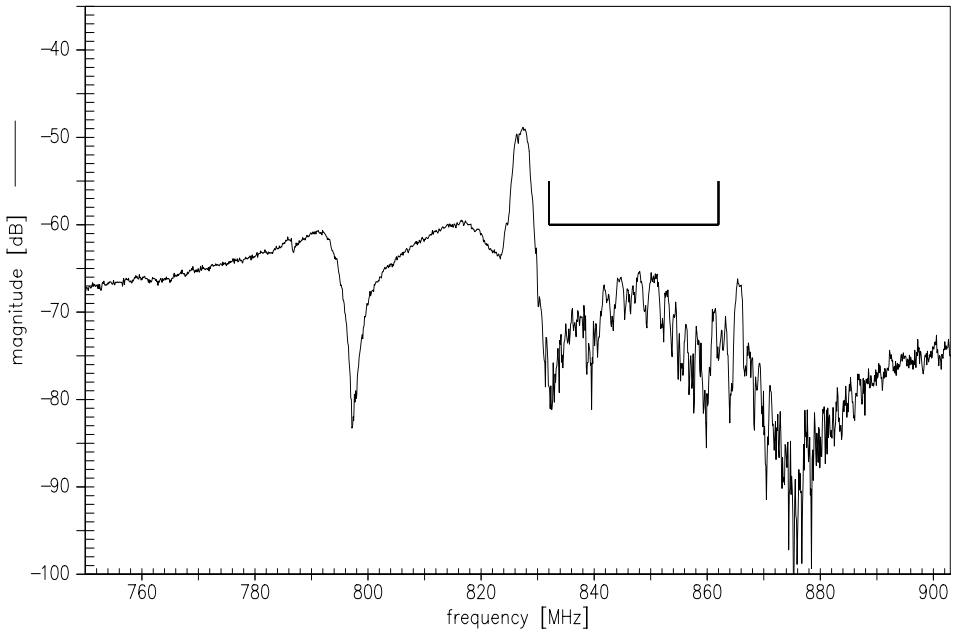
Frequency Response ANT-RX



Frequency Response TX-RX (ISOLATION)



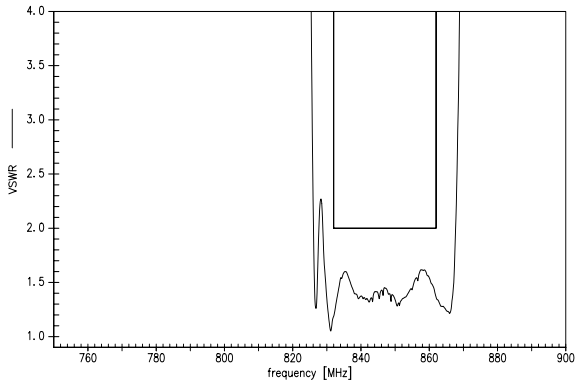
Frequency Response Common Mode Isolation

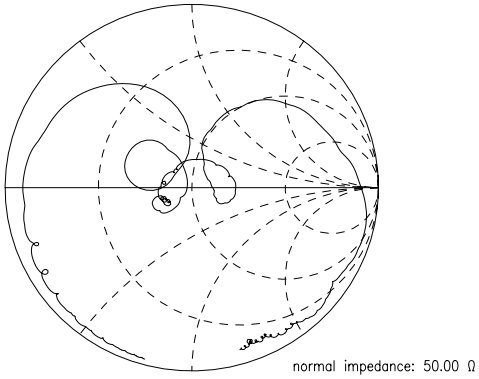


Preliminary Data

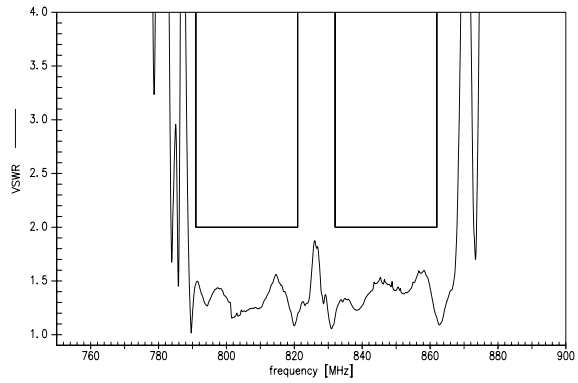
SMD

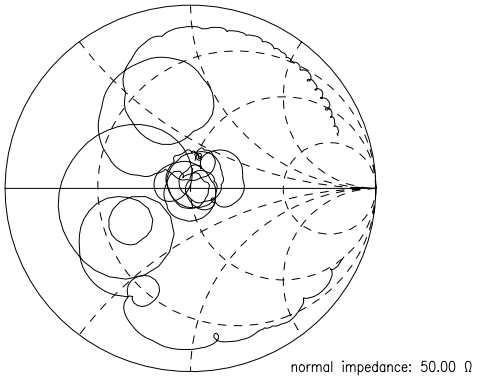
S11 VSWR (TX)



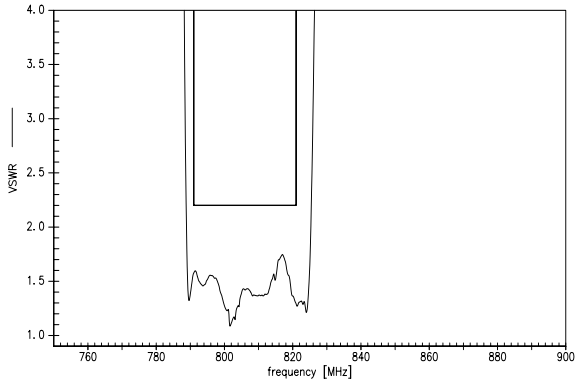


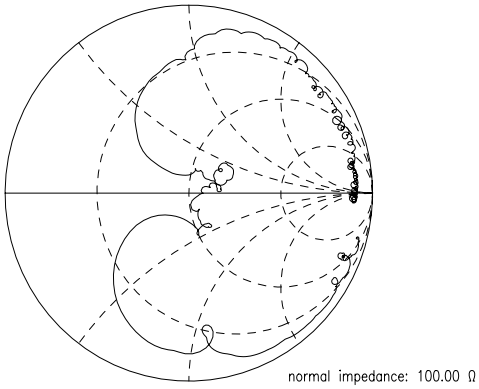
S22 VSWR (ANT)





S33 VSWR (RX)





Preliminary Data SMD

References

Type	B8581
Ordering code	B39851B8581P810
Marking and package	C61157-A8-A69
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8581_NB_UN.s4p, B8581_WB_UN.s4p See file header for port/pin 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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