



**CTC**  **advanced**  
member of RWTÜV group



Bundesnetzagentur

BNetzA-CAB-02/21-102

## **SAR Test exclusion documentation according to FCC KDB 447498, RSS-102**

**Report identification number: 1-9420/19-02-09 Exclusion (FCC\_ISED)**

**contains the module with the following certification numbers**

FCC ID	N5F-AS1
ISED number	3248A-AS1
HVIN (Hardware Version Identification Number)	AS1A
PMN (Product Marketing Name)	ASCU
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

This report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

**Document authorised:**



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**EUT technologies:**

Technologies:	Max. rated power: EIRP	Max. calculated antenna gain:
NFC 13.56 MHz <sup>1</sup>	-26.93 dBm	--
NFC 125 kHz	Measured in separate report: 1-9420/19-02-09	

<sup>1</sup>) Test results taken from CTC Advanced GmbH report 1-9420/19-02-04 (page18)

Max Field strength: 68.3 dB $\mu$ V/m @3m => -26.93 dBm EIRP

**SAR test exclusion according to KDB447498 (General RF Exposure Guidance v06)**

Equation from Chapter 4.3.1: Standalone SAR test exclusion considerations page 11 and ff.

(3b) Standalone SAR test exclusion below 100 MHz < 50mm

$$0.5 \times (\text{Threshold}_{100\text{MHz}}) \times (1 + \log(100/f))$$

where

$\text{Threshold}_{1\text{-g};10\text{-g}}$  is 3 for 1-g; 7.5 for 10-g  
 $f$  is the RF channel transmit frequency  
 $\text{Threshold}_{100\text{MHz},50\text{mm}}$  is  $\text{Threshold}_{1\text{-g};10\text{-g}} \times d / f^{0.5}$ ; with  $f = 100\text{MHz}$  and  $d=50\text{mm}$

The table below gives the calculated maximal power that could be used for source based time averaged conducted power, adjusted for tune up tolerance. If this is below the calculated value SAR testing is excluded.

frequency [MHz]	Threshold1-g;10-g	Threshold <sub>100MHz,50mm</sub>	Powerlimit [mW]	P <sub>max-declared</sub>		Exclusion
				[dBm]	[mW]	
13.56	3	474.34	442.97	-26.93	0.0	yes

**SAR test exclusion according to RSS-102 Issue 5 Section 2.5.1/Table 1**

The table below gives the calculated maximal power that could be used for source based time averaged conducted or radiated power, adjusted for tune up tolerance. If this is at or below the calculated value the DUT is exempted from SAR evaluation.

frequency [MHz]	d <sub>separation</sub> [mm]	tissue volume	Powerlimit [mW]	P <sub>max-declared</sub>		Exclusion
				[dBm]	[mW]	
13.56	5	1 g	71.00	-26.93	0.00	yes

The limits above are defined for body worn application and therefore cover all use cases.