



## SAR Test exclusion documentation according to FCC KDB 447498

Report identification number: 1-2295/21-01-07-A Exclusion (FCC)

| contains the module with the following certification numbers |          |
|--------------------------------------------------------------|----------|
| FCC ID                                                       | 2AJ58-15 |

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

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**EUT technologies:**

| Technologies:  | Max. declared cond. AVG Power | Max. measured EIRP                 | Antenna gain |
|----------------|-------------------------------|------------------------------------|--------------|
| NFC<br>125 kHz | 27.4 dBm<br>(=550 mW)         | 53.5 dBμV (Peak)@3m<br>= -41.7 dBm | < 0 dBi      |

**NOTE:**

The measured PEAK EIRP according proves that the EUT antenna gain is far below 0dBi and that considering the max. declared output power is by far larger than the EIRP. Conducted values will be used for the RF exposure calculation. EIRP values are for information only.

Test results for EIRP taken from CTC advanced GmbH report 1-2295/21-01-05

Max. output power for the 125 kHz circle is 1100 mW with 50% duty cycle according customer declaration.

**Separation distance:** 20cm**NFC:**

(3a) Standalone SAR test exclusion below 100 MHz at test separation distances > 50mm and < 200mm

$$( \text{Threshold}_{100\text{MHz} > 50\text{mm}} ) \times (1 + \log(100/f))$$

where

$\text{Threshold}_{1-g;10-g}$  is 3 for 1-g; 7.5 for 10-g  
 $d_{\text{separation}}$  is the min. test separation distance ( >50mm and <200mm )  
 $f$  is the RF channel transmit frequency  
 $\text{Threshold}_{50\text{mm}; 100\text{MHz} < 50\text{mm}}$  is  $\text{Threshold}_{1-g;10-g} \times d / f^{0.5}$   
 with  $f = 100\text{MHz}$  and  $d=50\text{mm}$   
 $\text{Threshold}_{100\text{MHz} > 50\text{mm}}$  is  $(\text{Threshold}_{50\text{mm}; 100\text{MHz} < 50\text{mm}}) + (d_{\text{separation}} - 50\text{mm}) \times f / 150$   
 with  $f = 100\text{MHz}$

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<br>[MHz] | $d_{\text{separation}}$<br>[mm] | $\text{Threshold}_{1-g}$ | $\text{Threshold}_{50\text{mm}} (100\text{MHz})$ |        | Powerlimit<br>[mW] | $P_{\text{max-declared}}$ |        | Exclusion |
|--------------------|---------------------------------|--------------------------|--------------------------------------------------|--------|--------------------|---------------------------|--------|-----------|
|                    |                                 |                          | < 50mm                                           | > 50mm |                    | [dBm]                     | [mW]   |           |
| 0.13               | 199                             | 3                        | 13416.41                                         | 573.67 | 2239.11            | 27.40                     | 549.54 | yes       |

**This prediction demonstrates the following:**

The power density levels for FCC that are larger than the minimum safety-distances stated above, are below the maximum levels allowed by regulations.