

SAR Compliance Test Report

Date of Report	21/01/2021	Client's Contact person:	Mrs. Lavinia-Carolina Grecu
Number of pages:	5	Responsible Test engineer:	Kirsi Kyllönen
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Tested devices	Near Field Communication Reader NFC 3.0		
Related reports:	-		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC published RF exposure KDB procedures		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory		
Test Results:	The DUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document		
Date and signatures:	21.01.2021		
For the contents:			

Laboratory Manager

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Device under Test (DUT):

Product:	Near Field Communication Reader NFC 3.0
Manufacturer:	Continental Automotive GmbH
Model:	NFC 3.0
Hardware Version:	C2
FCC ID:	KR5NFC30
Document ID:	FCC SAR test report_NFC 3.0_ID4579_21012021
Notes:	This report replaces FCC SAR test report_NFC 3.0_ID4579_21122020. Change: antenna gain expressed as dBd.

1.2 Evaluation Results

The device conforms to the requirements of the standards when the maximum output power is less than or equal to the Test Exclusion Threshold Limit.

Regulator	System	Test Exclusion Threshold/ Exemption Limit at $\leq 50\text{mm}$ separation [mW]	Maximum Output Power [mW]	Result
FCC	NFC	443	61.7	PASS

2. DESCRIPTION OF THE DEVICE UNDER TEST (DUT)

The product is a Near Field Communication (NFC) reader, which will be integrated into cars. It is used for establishing communication with adequate devices at a frequency of 13.56MHz.

NFC transceiver is operating at 13.56 MHz nominal frequency:
One out of three antennas is used at a time. Simultaneous transmission of more than one antenna is not supported.

Exposure Environment	General population, uncontrolled
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2.1 Supported Frequency Bands and Operational Modes

Modes of Operation	Transmitter Frequency Range (MHz)
NFC	13.56

2.2 Test Exclusions

FCC SAR test exclusion thresholds in 447498D01 are shown in a table below. The exact threshold for 13.56 MHz was calculated using equation 4.3.1 c 2.

SAR test exclusion thresholds < 50mm (mW)	Transmitter Frequency Range (MHz)
443	13.56

Appendix C

SAR Test Exclusion Thresholds for < 100 MHz and < 200 mm

Approximate SAR test exclusion power thresholds at selected frequencies and test separation distances are illustrated in the following table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	< 50	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	237	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	mW
50	308	617	625	634	643	651	660	669	677	686	695	703	712	721	729	738	
10	474	948	961	975	988	1001	1015	1028	1041	1055	1068	1081	1095	1108	1121	1135	
1	711	1422	1442	1462	1482	1502	1522	1542	1562	1582	1602	1622	1642	1662	1682	1702	
0.1	948	1896	1923	1949	1976	2003	2029	2056	2083	2109	2136	2163	2189	2216	2243	2269	
0.05	1019	2039	2067	2096	2125	2153	2182	2211	2239	2268	2297	2325	2354	2383	2411	2440	
0.01	1185	2370	2403	2437	2470	2503	2537	2570	2603	2637	2670	2703	2737	2770	2803	2837	

3. OUTPUT POWER

3.1 Maximum defined Output Power

The maximum EIRP power declared by the manufacturer is $2.32\mu\text{W}$ and the maximum antenna gain -44.2 dBi .

Max antenna gain (dBd)	Max ERP (dBm)	Conducted output power (dBm)	Conducted output power (mW)
-46.35	-28.45	17.9	61.7

4. RESULTS

According KDB 447498D01, equation 4.3.1 c 2, the SAR test exclusion power threshold for 13.56 MHz is 443 mW at $\leq 50\text{ mm}$ separation distance.

The conducted maximum output power of the DUT 61.7 mW is thus it is below the test exclusion threshold.