Prüfbericht – Produkte
Test Report - Products

Prüfbericht-Nr.: *Test report no.:*	IN23I1L3 001, IN23LG3K 001, IN23ULAF 001	**Auftrags-Nr.:** *Order no.:*	146815199 0010	Seite 1 von 3 *Page 1 of 3*
Kunden-Referenz-Nr.: *Client reference no.:*	2324191	**Auftragsdatum:** *Order date:*	2023-07-28	
Auftraggeber: *Client:*	eInfochips Inc 181 Metro Drive, Suite 170, San Jose, CA 95110			
Prüfgegenstand: *Test item:*	Aikri-82X-50AS-8			
Bezeichnung *Identification*	EIC-QCS8250-200-001			
Auftrags-Inhalt: *Order content*:	Maximum Permissible Expsoure			
Prüfgrundlage: *Test specification:*	FCC 1.1310 KDB 447498 D01			
Wareneingangsdatum: *Date of sample receipt:*	2023-08-18			
Prüfmuster-Nr.: **Serien -Nr.:** *Test sample no:* *Serial no.:*	A003542986-001 A003542986-002			
Prüfzeitraum: *Testing period:*	2023-08-18 - 2023-08-24			
Ort der Prüfung: *Place of testing:*	Wireless laboratory, Bangalore			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (India) Pvt. Ltd. 27/B,2nd cross road, Electronic city Phase1, Banglore-560100, India FCC Test Site Registration No: 496599			
Prüfergebnis*: *Test result*:*	Pass			

geprüft von: *tested by:*	Likhithesh M D	**genehmigt von:** *authorized by:*	Madhu K.N
Datum: *Date:* 2024-05-30		**Ausstellatum:** *Issue date:* 2024-05-31	
Stellung / *Position:*	**Likhithesh M D** **Senior Engineer**	**Stellung** / *Position:*	**Madhu K.N** **Assistant Manager**

Sonstiges / *Other:* FCC ID: 2ATUP-AIKRI-82X-50S

Zustand des Prüfgegenstandes bei Anlieferung: **Prüfmuster vollständig und unbeschädigt**
Condition of the test item at delivery: ***Test item complete and undamaged***

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.

1 RF Exposure Report

1.1 RF Exposure Measurement

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

1.2 RF Exposure Limit

1.2.1 For FCC

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b) showed in Table 1.

Table 1: Limits for Maximum Permissible Exposure (MPE) as per FCC

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm²)
Limits for Occupational / controlled Exposures			
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F or f = Frequency in MHz

1.2.2 Friss Formula

Friss Transmission Formula: Pd = (Pout * G) / (4*pi*r²)
Where
Pd = power density in mW/cm²
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
R = Distance between observation point and the center of radiator in cm

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.

1.2.3 EUT Operation Condition

EUT was enabled to transmit and receive at lowest, middle and highest channels.

1.2.4 Assessment Condition

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the user manual. So, this device classified as a mobile.

RF Exposure evaluation

Table 1: Test Results for Maximum Permissible Exposure for standalone mode of operation

Protocol: Wi-Fi 2.4GHz, Wi-Fi 5GHz, BLE & Bluetooth

Protocol	Data Rate (Mbps)	Channel Frequency (MHz)	Maximum measured Pout (dBm)	Antenna Gain (dBi)	Antenna Gain in linear scale (dB)	Tune up Value in	Maximum Power including tune up value (mW)	Power Density (mW/cm²)	FCC Limit (mW/cm²)
Wi-Fi 2.4 GHz	11	2437	23.10	3.6	2.29086	2	323.593	0.14747	1
Wi-Fi 5 GHz	MCS 0	5190	22.37	1.3	1.34896	2	273.526	0.07340	
BLE	1	2440	7.10	3.6	2.29086	2	8.12830	0.00370	
Bluetooth	1	2440	8.73	3.6	2.29086	2	11.8304	0.00539	

Note:

1. Manufacturer has declared the tune-up value as ±2 dB is considered in MPE calculation.
2. Maximum measured Pout values are taken from the product test report **(Report No: IN23I1L3 001, IN23LG3K 001, IN23ULAF 001)**

*****END OF REPORT*****