

Prüfbericht-Nr.: <i>Test report no.:</i>	CN221AUQ (FCC-RFEXP) 001	Auftrags-Nr.: <i>Order no.:</i>	238545980	Seite 1 von 8 Page 1 of 8
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2022-07-25	
Auftraggeber: <i>Client:</i>	TAIYO YUDEN CO., LTD. 43-1, Yawatabara-machi, Takasaki-shi, Gunma, 370-0024, Japan			
Prüfgegenstand: <i>Test item:</i>	Bluetooth low energy/ANT/802.15.4 Module			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	EYSPJN			
Auftrags-Inhalt: <i>Order content:</i>	FCC Certification			
Prüfgrundlage: <i>Test specification:</i>	IEEE Std C95.1 47 CFR §2.1093 47 CFR §1.1310			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2022-07-11			
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003298064-015 A003298064-013			
Prüfzeitraum: <i>Testing period:</i>	2022-09-15 - 2022-10-14			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
Prüflaboratorium: <i>Testing laboratory:</i>	Taipei Testing Laboratories			
Prüfergebnis*: <i>Test result*:</i>	Pass			
überprüft von: <i>compiled by:</i>		genehmigt von: <i>authorized by:</i>		
Datum: <i>Date:</i>	2022-10-17	Ausstellungsdatum: <i>Issue date:</i>	2022-10-17	
Stellung / Position:	Pei-Shan Tsai Section Manager	Stellung / Position:	Ryan Chen Senior Project Manager	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<p>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. <i>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.</i></p>				

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HISTORY OF THIS TEST REPORT

Report No.	Description	Date Issued
CN221AUQ (FCC-RFEXP) 001	Original Release	2022-10-17

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
Appendix EP - Photographs of EUT

1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

2 Test Sites

2.1 Test Facilities

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)

3 General Product Information

3.1 Product Function and Intended Use

The EUT is Bluetooth low energy/ANT/802.15.4 Module. It contains Bluetooth & IEEE802.15.4 compatible module enabling the user to communicate data through Wireless interface.
For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Basic Information of EUT

Item	EUT Information
Kind of Equipment/Test Item	Bluetooth low energy/ANT/802.15.4 Module
Type Identification	EYSPJN
FCC ID	RYYEYSPJN

Technical Specification of EUT

Item	EUT Information
Operating Frequency	Bluetooth/ ANT/ Nordic Original: 2402 MHz ~ 2480 MHz IEEE802.15.4: 2405 MHz ~ 2475 MHz
Modulation	Bluetooth/ ANT/ Nordic Original: GFSK IEEE802.15.4: O-QPSK
Operation Voltage	1.7 ~ 3.6 Vdc (Tested at 3 Vdc)
Antenna Type	PCB
Antenna Gain	-1.5 dBi

4 RF Exposure Evaluation

4.1 SAR test exclusion

Following FCC KDB 447498 D04 "Interim General RF Exposure Guidance v01"

The corresponding SAR Test Exclusion Threshold condition(s), listed below:

- 1) $P_{th}(mW) = ERP_{20cm}(d / 20)^x$ x for distance $d \leq 20cm$
- 2) $P_{th}(mW) = ERP_{20cm}$ for distance $20cm < d \leq 40cm$

$$x = -\log_{10} \left(\frac{60}{ERP_{20cm}\sqrt{f}} \right)$$

$P_{th}(mW) = ERP_{20cm} =$ 0.3 GHz $\leq f <$ 1.5 GHz: 2040 f
1.5 GHz $\leq f \leq$ 6 GHz: 3060

Note:

The maximum time-averaged power or effective radiated power (ERP), whichever is greater, $\leq P_{th}$
 P_{th} is calculated based on separation distance d cm from transmitter to person for the device operating at f GHz

5 Test Results

5.1 SAR Test Exclusion Threshold

Band	Freq (MHz)	AVGP (dBm)	Ant Gain (dBi)	Distances (mm)	Duty (%)	AVGP (mW)	ERP (dBm)	ERP (mW)
Bluetooth	2402	8.31	-1.5	10	100%	6.78	4.66	2.92
ANT	2402	8.29	-1.5	10	100%	6.75	4.64	2.91
Nordic Original	2402	8.27	-1.5	10	100%	6.71	4.62	2.90
IEEE802.15.4	2405	8.27	-1.5	10	100%	6.71	4.62	2.90

*AVGP is time-averaged power

Band	Freq (MHz)	Pth (mW)	X	ERP 20cm (mW)	Ratio	Result
Bluetooth	2402	10.39	1.898	3060	0.65	exempt
ANT	2402	10.39	1.898	3060	0.6	exempt
Nordic Original	2402	10.39	1.898	3060	0.65	exempt
IEEE802.15.4	2405	10.38	1.898	3060	0.6	exempt