Prüfbericht-Nr.: *Test report no.:*	CN22D1N5 (FCC-RFEXP) 001	**Auftrags-Nr.:** *Order no.*:	238522049	
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2021-11-12	
Auftraggeber: *Client:*	TAIYO YUDEN CO., LTD. 43-1, Yawatabara-machi, Takasaki-shi, Gumma, Japan			
Prüfgegenstand: *Test item:*	Bluetooth low energy/ANT/802.15.4 Module			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	EYSRSN			
Auftrags-Inhalt: *Order content*:	FCC Certification			
Prüfgrundlage: *Test specification:*	IEEE Std C95.1 47 CFR §2.1093 47 CFR §1.1310			

Wareneingangsdatum: *Date of sample receipt:*	2021-11-11
Prüfmuster-Nr.: *Test sample no:*	A003162507-001 A003162507-003
Prüfzeitraum: *Testing period:*	2021-12-24 - 2022-02-17
Ort der Prüfung: *Place of testing:*	EMC/RF Taipei Testing Site
Prüflaboratorium: *Testing laboratory:*	Taipei Testing Laboratories
Prüfergebnis*: *Test result*:*	Pass

überprüft von: *compiled by:*		**genehmigt von:** authorized by:	
Datum: *Date:* 2022-02-22	Jack Wang	**Ausstellungsdatum:** *Issue date:* 2022-02-22	Brenda Chen
Stellung / *Position:*	Jack Wang Senior Project Engineer	**Stellung** / *Position:*	Senior Project Manager

Sonstiges / *Other:*

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*

Contents

HISTORY OF THIS TEST REPORT

Revision	Description	Date Issued
R00	Original Release	2022-01-25
R01	Update test result for IEEE802.15.4	2022-02-22

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	EYSRSN
FCC ID	RYYEYSRSN

Technical Specification of EUT

Item	EUT Information
Operating Frequency	Bluetooth: 2402 MHz ~ 2480 MHz IEEE802.15.4: 2405 MHz ~ 2480 MHz
Modulation	Bluetooth: GFSK IEEE802.15.4: O-QPSK
Operation Voltage	3 Vdc
Antenna Type	PCB
Antenna Gain	-3.7 dBi

4 RF Exposure Evaluation

4.1 SAR test exclusion

Following FCC KDB 447498 D01 "General SAR test exclusion guidance v06"

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

a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:
[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [$\sqrt{f_{(GHz)}}$)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR, where
- $f_{(GHz)}$ is the RF channel transmit frequency in GHz.
- Power and distance are rounded to the nearest mW and mm before calculation.
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

b) For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:
1) {[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·($f_{(MHz)}$/150)]} mW, for 100 MHz to 1500 MHz
2) {[Power allowed at numeric threshold for 50 mm in step a)] + [(test separation distance – 50 mm)·10]} mW, for > 1500 MHz and ≤ 6 GHz

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion.
1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by [1 + log(100/$f_{(MHz)}$)]
2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½
3) SAR measurement procedures are not established below 100 MHz.

When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any SAR test results below 100 MHz to be acceptable.

5 Test Results

5.1 SAR Test Exclusion Threshold

Mode	Frequency (MHz)	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value	1-g head or body SAR test exclusion thresholds	Result
BLE	2480	6.14	5	1.934	3	Pass
ANT	2402	5.75	5	1.811	3	Pass
Nordic Original	2480	6.14	5	1.934	3	Pass
IEEE802.15.4	2480	6.15	5	1.937	3	Pass