

Prüfbericht-Nr.: Test report no.:	60416920(RFEXPOSURE) 002	Auftrags-Nr.: Order no.:	238487774	Seite 1 von 8 Page 1 of 8
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2020-06-12	
Auftraggeber: Client:	A&D Company, Limited 1-243, Asahi, Kitamoto-city, Saitama 364-8585, Japan			
Prüfgegenstand: Test item:	Bluetooth Low Energy (v4.2) module			
Bezeichnung / Typ-Nr.: Identification / Type no.:	PAPZ7128			
Auftrags-Inhalt: Order content:	FCC Certification			
Prüfgrundlage: Test specification:	47 CFR §2.1093 47 CFR §1.1310			
Wareneingangsdatum: Date of sample receipt:	2020-09-08			
Prüfmuster-Nr.: Test sample no.:	A002905277-001			
Prüfzeitraum: Testing period:	2020-09-10 - 2020-09-14			
Ort der Prüfung: Place of testing:	EMC/RF Laboratory Taipei			
Prüflaboratorium: Testing laboratory:	Taipei Testing Laboratories			
Prüfergebnis*: Test result*:	Pass			
überprüft von: reviewed by:	genehmigt von: authorized by:			
Datum: Date:	2021-01-21	Ausstellungsdatum: Issue date:	2021-01-21	
Stellung / Position:	Senior Project Manager	Stellung / Position:	Senior Project Manager	
Sonstiges / Other:	This report is mainly modified the regulation from 47 CFR §2.1091 to 47 CFR §2.1093. The test report No. 60416920(RFEXPOSURE) 001 is replaced by this new test report No. 60416920(RFEXPOSURE) 002. Test report No. 60416920(RFEXPOSURE) 001 becomes invalid since 2021-01-21.			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable
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.				

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HISTORY OF THIS TEST REPORT

Report No.	Description	Date Issued
60416920(RFEXPOSURE) 001	Original Release	2020-12-29
60416920(RFEXPOSURE) 002	Modified the regulation from 47 CFR §2.1091 to 47 CFR §2.1093	2021-01-21

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:
N/A

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 (v4.2) module. It contains Bluetooth compatible chip enabling the user to communicate data through Bluetooth interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Table 1: Rating of EUT

General Information of EUT	Description
Kind of Equipment:	Bluetooth Low Energy (v4.2) module
Type Designation:	PAPZ7128
Operating Voltage:	3.3Vdc

Table 2: Technical Specification of EUT

Characteristic	Description
Modulation Type:	GFSK
Frequency Range:	2402 ~ 2480MHz
Antenna Type:	PCB Antenna
Antenna Gain:	3.14 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:

$$\frac{[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]}{\leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR, where}}$$

- $f(\text{GHz})$ 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) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz
- 2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ 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 $[1 + \log(100/f(\text{MHz}))]$
- 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 $\frac{1}{2}$
- 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

The maximum power at a distance of 5mm are show as below:

Frequency (GHz)	Max. Power (mW)	Min. test separation distance (mm)	SAR test exclusion calculation value	1-g head or body SAR test exclusion thresholds	Result
2.402 ~ 2.480	1.01	5	0.313	3.0	Pass