



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 1 of 18

RF EXPOSURE EVALUATION REPORT

Application No.: SZCR2512005289AT
Applicant: ZK Technology LLC DBA ZK Teco
Address of Applicant: 200 Centennial Ave, Suite 211, Piscataway, New Jersey, 08854 United States
Manufacturer: ZK Technology LLC dba. ZKTeco WFM
Address of Manufacturer: 4515 George Road, Suite 370, Tampa Florida 33634 U.S.A
Equipment Under Test (EUT):
EUT Name: DATA COLLECTION TERMINAL
Model No.: Please refer to section 3 ♣
♣ Please refer to section 3 of this report which indicates which model was actually tested and which were electrically identical.
FCC ID: 2AUC7-ULT7G3
Standard(s) : FCC Rules 47 CFR §2.1091
KDB 447498 D04 interim General RF Exposure Guidance v01
Date of Receipt: 2025-12-01
Date of Evaluation: 2025-12-05 to 2026-01-19
Date of Issue: 2026-01-21

Evaluation Result:	Pass*
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* In the configuration evaluated, the EUT complied with the standards specified above.

Kenx. Xu

Kenx Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch EMC Laboratory

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Report No.: SZCR251200528906

Page: 2 of 18

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2026-01-21		Original

Authorized for issue by:				
		Edison Li		
		Edison Li/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

2 Contents

	Page
1 Cover Page	1
2 Contents	3
3 General Information.....	4
3.1 General Description of E.U.T.....	4
3.2 Details of E.U.T.....	4
3.3 Separation Distance	7
3.4 Test Location	8
3.5 Test Facility.....	8
3.6 Deviation from Standards.....	8
3.7 Abnormalities from Standard Conditions.....	8
4 Measurement and Calculation	9
5 FCC Radiofrequency radiation exposure limits	14
5.1 Blanket 1 mW Blanket Exemption.....	14
5.2 MPE-based Exemption.....	14
5.3 SAR-based Exemption	15
6 Measurement and Calculation	17
6.1 Maximum transmit power for Bluetooth/WiFi.....	17
6.2 Maximum transmit power for LTE Band	17
7 EUT Constructional Details (EUT Photos).....	18



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3 General Information

3.1 General Description of E.U.T.

Product Type:	☐ Portable device
	☒ Mobile device
	☐ Fixed device

3.2 Details of E.U.T.

Power supply:	Powered by Lithium-ion Polymer Battery Model: CLP505060P 2000 Capacity: 7.4V, 2000mAh, 14.8Wh Charging by DC 12V from external power supply Model: ADS-40SI-12-3 12036E Input: AC 100-240V, 50/60Hz, Max 1.0A Output: DC 12V, 3.0A, 36W
Cable(s):	DC Cable from adapter 1.8m unshielded with one core AC Cable from adapter 1.8m unshielded
For BLE:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.4
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	FPC Antenna
Antenna Gain:	1.1dBi
For 2.4G WiFi:	
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz, 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK), 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	5MHz
Number of Channels:	802.11b/g/n(HT20): 11, 802.11n(HT40): 7
Antenna Type:	FPC Antenna
Antenna Gain:	1.1dBi

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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 5 of 18

For 5G WiFi:	
Operation Frequency / Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels); U-NII-2A: 5260-5320MHz (4 Channels); U-NII-2C: 5500-5700MHz (11 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency / Number of channels (40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-2A: 5270-5310MHz (2 Channels); U-NII-2C: 5510-5670MHz (5 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency / Number of channels (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-2A: 5290MHz (1 Channel); U-NII-2C: 5530MHz, 5610MHz(2 Channels); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a/n/ac 20: 20MHz; 802.11n/ac 40: 40MHz; 802.11ac 80: 80MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	FPC Antenna
Antenna Gain:	3.89dBi
For NFC	
Operation Frequency:	13.56MHz
Modulation Type:	ASK
Antenna Type:	Loop Antenna
For 125KHz	
Operation Frequency:	125KHz
Modulation Type:	ASK
Antenna Type:	Loop Antenna



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Report No.: SZCR251200528906

Page: 6 of 18

Details of LTE Module*:	
Operation Frequency Band:	LTE Band: 2/4/5/7/12/13/17/25/26/41/66/71.
Modulation Type:	LTE: QPSK, 16QAM
Antenna Type:	FPC Antenna
Antenna Gain:	LTE Band 2: 2.10dBi, LTE Band 4: 2.68dBi, LTE Band 5: 0.68dBi, LTE Band 7: 2.98dBi, LTE Band 12: 0.68dBi, LTE Band 13: 0.68dBi, LTE Band 17: 0.68dBi, LTE Band 25: 2.10dBi, LTE Band 26: 0.68dBi, LTE Band 41: 2.98dBi, LTE Band 66: 2.68dBi, LTE Band 71: 0.68dBi.

*: The LTE module approval by FCC(FCC ID:ZMOSC206NA), Grant at 05/29/2025.

Remark:The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

Declaration of EUT Family Grouping:

Model No.: ULTIMA 7 G3, ULTIMA 7-inch, ULTIMA-200-G3, ULTIMA-G3, ULTIMA 7-G3 BASE, FLEXTOUCH 4.0, WTPURULT200-G3, Intellipunch 7, ULTIMA 7, ULTIMA 7 G3-CARD ONLY, ULTIMA 7 G3-BAR, ULTIMA 7 G3-MAG, ULTIMA 7 G3-FP, ULTIMA 7 G3-ZFP, ULTIMA 7 G3-F33L, ULTIMA 7 G3-IRF, ULTIMA 7 G3-RFID, ULTIMA 7 G3-M3, ULTIMA 7 G3-M3I, ULTIMA 7 G3-M3PI, ULTIMA 7 G3-MT30, ULTIMA 7 G3-MT10, ULTIMA 7 G3-MT12, ULTIMA 7 G3-MT15, ULTIMA 7 G3-ID, ULTIMA 7 G3-U356, ULTIMA 7 G3-U356i, ULTIMA 7 G3-U356LG, ULTIMA 7 G3-FACE, ULTIMA 7 G3-FT, ULTIMA 7 G3-T, ULTIMA-P, ULT7G3-MAG, ULT7G3-BAR, ULT7G3-ZFP, ULT7G3-FP, ULT7G3-FACE, ULT7G3-FT, ULT7G3-ZFP-MTPRO, ULT7G3-FACE-MTPRO, ULT7G3-FT-MTPRO, ULT7G3-PRO, ULTIMA-FACE-G3, ULT-FACE-G3, ULTIMA-FT-G3, ULT-FT-G3, CRNOUS 7 G3, CRNOUS 7 G3 BASE, CRNOUS 7 G3 Face, CRNOUS 7 G3 Pro, CRNOUS 7G3 FAM33L, CRNOUS 7 G3 Face VL Pro, CRNOUS-200-G3, ORION-G3, ORION-200-G3, ORION G3-BAR, ORION G3-MAG, ORION G3-TC1, ORION G3-FP, ORION G3-ZFP, ORION G3-LUM, ORION G3-PRO, ORION G3-PLUS, PLATO G3-BAR, PLATO G3-MAG, PLATO G3-FP, PLATO G3-ZFO, PLATO G3-LUM, PLATO -PRO, Ultima 7 G3 EU,Ultima 7 G3E,Ultima 7 G3N,Ultima 7 G3EM,Ultima 7 G3NA,Ultima 7 G3JP,Ultima 7 G3WF, DCT-ULTIMA-7-G3

Only the model ULTIMA 7 G3 was tested. According to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on model name and color.



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3.3 Separation Distance

Minimum test separation distance:	20cm
Remark: This minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.	

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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 8 of 18

3.4 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

3.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

3.6 Deviation from Standards

None

3.7 Abnormalities from Standard Conditions

None



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4 Measurement and Calculation

Maximum transmit power for NFC

4.2.1 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T14	REF. No.SEA18F01A

4.2.2 Equipments Used during Test

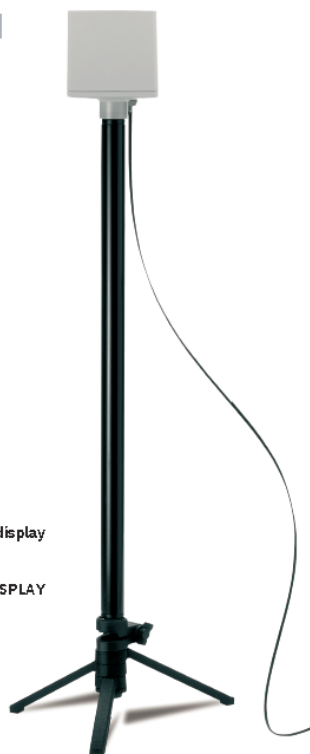
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Due date
1	3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2026/05/09
2	Electric and Magnetic Field Probe - Analyzer(9kHz-30MHz)	Narda	EHP-200A	SEM022-18	2026/04/02

EHP-200A Probe parameter:



Selective and broadband high frequency field analysis

- ▲ Powerful receiver for selective and wideband measurements in all 3 spatial directions
- ▲ Isotropic measurements in the 9 kHz to 30 MHz range EHP-200A in the 3 kHz to 30 MHz range EHP-200AC
- ▲ Electric Fields from 0.02 to 1000 V/m
- ▲ Magnetic Fields from 0.6 mA/m to 300 A/m EHP-200A from 6 mA/m to 1000 A/m EHP-200AC
- ▲ Built-in Frequency Spectrum Analysis
- ▲ Built-in rechargeable Li-Ion battery
- ▲ Optical interface for remote control and result display avoids distortion of the field under test
- ▲ Control and display using a PC or the 8053 DISPLAY Broadband Field Meter



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4.2.3 E.U.T. Operation

Operating Environment:

Temperature: 20.1 °C

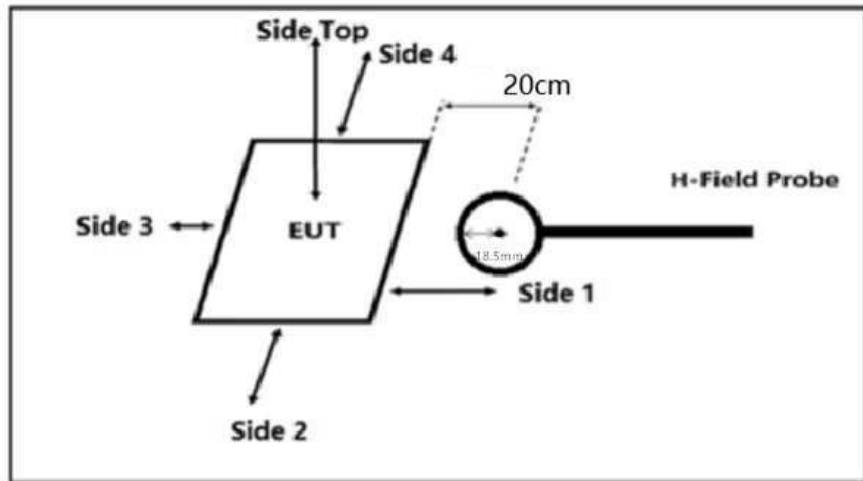
Humidity: 50.7 % RH

Atmospheric Pressure: 1020 mbar

4.2.4 Test mode Description

Pre-scan / Final test	Mode Code	Description
Final test	28	TX mode with modulation(125KHz).
Final test	29	TX mode with modulation(13.56MHz).

4.2.5 Test Block Diagram



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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 11 of 18

4.2.5 Limit

According to 47 CFR PART 1, Subpart I, Section 1.1310, the criteria listed in the below table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified table 1.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

RF exposure compliance will need to be determined with respect to 1.1310(b), (c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310.



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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 12 of 18

4.2.6 Measurement Data

Test mode:28

Magnetic Field Emissions

Operation Frequency	Test Distance(cm)	Test Position	Probe Measure Result (A/m)
125KHz	20	Side 1	0.0349
		Side 2	0.0322
		Side 3	0.0243
		Side 4	0.0204
		Top	0.0116

Electric Field Emissions

Operation Frequency	Test Distance(cm)	Test Position	Probe Measure Result (V/m)
125KHz	20	Side 1	0.9742
		Side 2	0.6849
		Side 3	0.5683
		Side 4	0.4877
		Top	0.4215

Test mode:29

Magnetic Field Emissions

Operation Frequency	Test Distance(cm)	Test Position	Probe Measure Result (A/m)
13.56MHz	20	Side 1	0.0536
		Side 2	0.0377
		Side 3	0.0251
		Side 4	0.0243
		Top	0.0149

Electric Field Emissions

Operation Frequency	Test Distance(cm)	Test Position	Probe Measure Result (V/m)
13.56MHz	20	Side 1	1.1563
		Side 2	0.7415
		Side 3	0.6253
		Side 4	0.5522
		Top	0.4527



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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 13 of 18

4.2.7 Standalone transmission

Test Mode	Frequency (MHz)	Magnetic Field Emissions(A/m)	Electric Field Emissions(V/m)	Limit(A/m)	Limit(V/m)	Magnetic Field Emissions Ratio	Electric Field Emissions Radio
125kHz	0.125	0.0349	0.9742	1.63	614	0.0214	0.0016
NFC	13.56	0.0536	1.1563	0.1615	60.7670	0.3319	0.0190



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5 FCC Radiofrequency radiation exposure limits

Test exemptions apply for devices used in general population/uncontrolled exposure environments, according to the SAR-based, or MPE-based exemption thresholds.

5.1 Blanket 1 mW Blanket Exemption

The 1 mW Blanket Exemption of §1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

The 1-mW blanket exemption applies at separation distances less than 0.5 cm, including where there is no separation. This exemption shall not be used in conjunction with other exemption criteria other than those for multiple RF sources in paragraph §1.1307(b)(3)(ii)(A).

The 1-mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it shall not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period. Exposure from such higher-power transmitters would invalidate the underlying assumption that exposure from the lower-power transmitter is the only contributor to SAR in the relevant volume of tissue.

5.2 MPE-based Exemption

General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table B.1—Thresholds For Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	—	1.34	159 m	—	35.6 m	1,920 R ²
1.34	—	30	35.6 m	—	1.6 m	3,450 R ² /f ²
30	—	300	1.6 m	—	159 mm	3.83 R ²
300	—	1,500	159 mm	—	31.8 mm	0.0128 R ² f
1,500	—	100,000	31.8 mm	—	0.5 mm	19.2R ²
Subscripts L and H are low and high; λ is wavelength.						
From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

The table applies to any RF source (i.e. single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are

based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.

For mobile devices that are not exempt per Table B.1 [Table 1 of §1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in §1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from §2.1091(c)(1); also in §1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

Limit calculation			
Frequency range	Frequency(MHz)	$R(\lambda/2\pi)(m)$	Threshold ERP(W)
300~1500MHz	915	0.0522	0.032
1500~100000MHz	2480	0.0193	0.007

5.3 SAR-based Exemption

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater.

If the ERP of a device is not easily determined, such as for a portable device with a small form factor, the applicant may use the available maximum time-averaged power exclusively if the device antenna or radiating structure does not exceed an electrical length of $\lambda/4$.

As for devices with antennas of length greater than $\lambda/4$ where the gain is not well defined, but always less than that of a half-wave dipole (length $\lambda/2$), the available maximum time-averaged power generated by the device may be used in place of the maximum time-averaged ERP, where that value is not known.



SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 16 of 18

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

The SAR-based exemption formula of §1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

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

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance(mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

Limit calculation				
Frequency range(GHz)	Frequency(GHz)	X	Distance(cm)	Pth (mW)
0.3~1.5	0.915	1.474	0.5	8.133
1.5~6	2.48	1.905	0.5	2.717

6 Measurement and Calculation

6.1 Maximum transmit power for Bluetooth/WiFi

Standalone transmission

Test Mode	Frequency (MHz)	Maximum Conducted power [dBm]	EIRP [dBm]	EIRP (mW)	Limit (mw)	Ratio	Verdict
BLE	2480	9.15	10.25	10.59	3060	0.00346	Pass
2.4G WIFI	2462	16.76	17.86	61.09	3060	0.01997	Pass
5G WIFI	5200	15.72	19.61	91.41	3060	0.02987	Pass

Note 1: BLE Power Data is based on the RF Test Report SZCR251200528905.

2. 2.4G WIFI Power Data is based on the RF Test Report SZCR251200528902.

3. 5G WIFI Power Data is based on the RF Test Report SZCR251200528903.

3. Use the maximum power between the conducted power and ERP/EIRP to perform RF exposure exemption evaluation.

6.2 Maximum transmit power for LTE Band

Type	Test Freq. (MHz)	Max Antenna Gain (dBi)	Max Cond. power (dBm)	Max Cond. power (mW)	Max EIRP (dBm)	Max EIRP (mW)	Limit (mw)	Cond. Ratio	EIRP Ratio	Result
LTE B2	1850.7	2.10	24.00	251.19	26.10	407.38	3060.00	0.08209	0.13313	PASS
LTE B4	1710.7	2.68	24.00	251.19	26.68	465.59	3060.00	0.08209	0.15215	PASS
LTE B5	824.7	0.68	24.00	251.19	24.68	293.76	3060.00	0.08209	0.09600	PASS
LTE B7	2502.5	2.98	24.00	251.19	26.98	498.88	3060.00	0.08209	0.16303	PASS
LTE B12	699.7	0.68	24.00	251.19	24.68	293.76	3060.00	0.08209	0.09600	PASS
LTE B13	779.5	0.68	24.00	251.19	24.68	293.76	3060.00	0.08209	0.09600	PASS
LTE B17	706.5	0.68	24.00	251.19	24.68	293.76	3060.00	0.08209	0.09600	PASS
LTE B25	1850.7	2.10	24.00	251.19	26.10	407.38	3060.00	0.08209	0.13313	PASS
LTE B26	814.7	0.68	24.00	251.19	24.68	293.76	3060.00	0.08209	0.09600	PASS
LTE B41	2498.5	2.98	24.00	251.19	26.98	498.88	3060.00	0.08209	0.16303	PASS
LTE B66	1710.7	2.68	24.00	251.19	26.68	465.59	3060.00	0.08209	0.15215	PASS
LTE B71	665.0	0.68	24.00	251.19	24.68	293.76	3060.00	0.08209	0.09600	PASS

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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251200528906

Page: 18 of 18

Simultaneous transmission

Test Mode	NFC	125KHz	BLE/2.4G/5G WiFi	4G	Total Ratio	Limit	Result
Ratio	0.3319	0.0214	0.02987	0.16303	N/A	N/A	N/A
Scenario 1	☒	☒	☒	☒	0.5462	1.0	Pass

7 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for SZCR2512005289AT

-End of the Report-



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