



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

SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251000450902

Page: 1 of 11

RF Exposure Report

Application No.: SZCR2510004509MO
Applicant: MANN HUMMEL VENTURES PTE LTD
Address of Applicant: 23, Rochester Park #04-02 Singapore 139234
Manufacturer: MANN HUMMEL VENTURES PTE LTD
Address of Manufacturer: 23, Rochester Park #04-02 Singapore 139234
Factory: Shenzhen Zowee Smart Manufacturing Co., Ltd.
Address of Factory: Room 101, 201, 401, 501, 601 of No.1 Factory Building, and No.1 Dormitory, No. 149, Second Industrial Road, Tangxiachong Community, Yanluo Street, Bao'an District, Shenzhen, Guangdong, CN
Equipment Under Test (EUT):
EUT Name: NEXUS
Model No.: NEXUS-CORE-LTE
FCC ID: Contains FCC ID: 2ASLU-NEXUS-LTE
FCC ID: 2ASLU-NEXUS-CORE
FCC Rules 47 CFR §2.1091
Standard(s) : KDB 447498 D04 interim General RF Exposure Guidance v01
Date of Receipt: 2025-10-20
Date of Test: 2025-10-30 to 2025-11-01
Date of Issue: 2025-12-31

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



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

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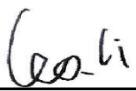
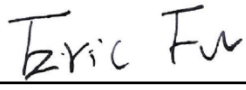
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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251000450902

Page: 2 of 11

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2025-12-31		Original

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



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1 Contents

	Page
1 Contents	3
2 General Information	4
2.1 General Description of E.U.T.....	4
2.2 Details of E.U.T.....	4
2.3 Test Location	8
2.4 Test Facility.....	8
3 FCC Radiofrequency radiation exposure limits	9
3.1 RF Exposure Compliance Requirement.....	9
3.1.1 Limits	9
4 Measurement and Calculation	10
4.1 Maximum transmit power	10
4.1.1 Exposure calculations for multiple sources	11



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2 General Information

2.1 General Description of E.U.T.

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

2.2 Details of E.U.T.

Power supply:	DC 12-24V
For BLE:	
Operation Frequency:	2402MHz to 2480MHz
Bluetooth Version:	V5.4 LE
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	FPC Antenna
Antenna Gain:	3.61dBi
For 2.4G WIFI:	
Operation Frequency:	802.11b/g/n(HT20)/ax(HEW20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (DBPSK, DQPSK, CCK); 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM);
Number of Channels:	802.11b/g/n(HT20)/ax(HEW20):11
Channel Spacing:	5MHz
Antenna Type:	FPC Antenna
Antenna Gain:	3.61dBi



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For 5G WIFI:	
Operation	U-NII-1: 5180-5240MHz (4 Channels);
Frequency/Number of channels (20MHz):	U-NII-2A: 5260-5320MHz (4 Channels); U-NII-2C: 5500-5700MHz (11 Channels); U-NII-3: 5745-5825MHz (5 Channels) U-NII-4: 5850-5895MHz (2 Channels)
Modulation Type:	802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM); 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024-QAM)
Channel Spacing:	802.11a/n/ac/ax20: 20MHz
DFS Function:	Slave without Radar detection
TPC Function:	Support TPC function
Antenna Type:	FPC Antenna
Antenna Gain:	U-NII-1: 3.05dBi U-NII-2A: 3.29dBi U-NII-2C: 3.46dBi U-NII-3: 3.08dBi U-NII-4: 3.46dBi

For LTE:	
CAT-M Frequency Bands:	CAT-M FDD Band 2 CAT-M FDD Band 4 CAT-M FDD Band 5 CAT-M FDD Band 12 CAT-M FDD Band 13 CAT-M FDD Band 25 CAT-M FDD Band 26 CAT-M FDD Band 66 CAT-M FDD Band 85
NB-IOT Frequency Bands:	NB-IOT FDD Band 2 NB-IOT FDD Band 4 NB-IOT FDD Band 5 NB-IOT FDD Band 12 NB-IOT FDD Band 13 NB-IOT FDD Band 25 NB-IOT FDD Band 26 NB-IOT FDD Band 66



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	NB-IOT FDD Band 71 NB-IOT FDD Band 85		
Testing frequency band:	LTE Band	Uplink (MHz)	Downlink (MHz)
	2	1850-1910	1930-1990
	4	1710-1755	2110-2155
	5	824-849	869-894
	12	699-716	729-746
	13	777-787	746-756
	25	1850-1915	1930-1995
	26	814-849	859-894
	66	1710-1780	2110-2200
	71	663-698	617-652
	85	698-716	728-746
Modulation Type:	QPSK, 16QAM		
Antenna Type:	Dipole Antenna		
Antenna Gain:	Band 2: -0.21dBi		
	Band 4: -1.22 dBi		
	Band 5: 1.78dBi		
	Band 12: -0.72 dBi		
	Band 13: 2.17 dBi		
	Band 25: -0.21 dBi		
	Band 26: 1.78 dBi		
	Band 66: -1.08 dBi		
	Band 71: -0.72 dBi		
	Band 85: -0.72 dBi		



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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR251000450902

Page: 7 of 11

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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2.3 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

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

No tests were sub-contracted.

2.4 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.



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3 FCC Radiofrequency radiation exposure limits

3.1 RF Exposure Compliance Requirement

3.1.1 Limits

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 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

4 Measurement and Calculation

4.1 Maximum transmit power

Operating Band	Frequency (MHz)	Maximum Conducted Power [dBm] (including tune up)	Antenna gain [dBi]	ERP/EIRP (mW)	ERP/EIRP Limit (mW)	Ratio	Verdict
BLE	2480	11.39	3.61	31.62	3060.00	0.0103	Pass
WiFi 2.4G	2437	22.26	3.61	386.37	3060.00	0.1263	Pass
WiFi 5G	5260	20.33	3.29	230.14	3060.00	0.0752	Pass
LTE B2	1850-1910	25	-0.21	316.2278	3060.00	0.1033	Pass
LTE B4	1710-1755	25	-1.22	316.2278	3060.00	0.1033	Pass
LTE B5	824-849	25	1.78	476.4310	1680.96	0.2834	Pass
LTE B12	699-716	25	-0.72	316.2278	1425.96	0.2218	Pass
LTE B13	777-787	25	2.17	521.1947	1585.08	0.3288	Pass
LTE B25	1850-1915	25	-0.21	316.2278	3060.00	0.1033	Pass
LTE B26	814-849	25	1.78	476.4310	1660.56	0.2869	Pass
LTE B66	1710-1780	25	-1.08	316.2278	3060.00	0.1033	Pass
LTE B71	663-698	25	-0.72	316.2278	1352.52	0.2338	Pass
LTE B85	698-716	25	-0.72	316.2278	1423.92	0.2221	Pass

Remark:

For BLE: The Power Data is based on the RF Test report SZCR251000450802.

For WIFI 2.4G: The Power Data is based on the RF Test report SZCR251000450803.

For WIFI 5G: The Power Data is based on the RF Test report SZCR251000450804.

For LTE: The Power Data is based on the RF Test report STS1912245W04.

4.1.1 Exposure calculations for multiple sources

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Simultaneous Tx Combination	Configuration
1	LTE + BT
2	LTE+ WiFi 2.4G
3	LTE+ WiFi 5G

No.	Mode	ERP/EIRP (mW)	ERP/EIRP Limit (mW)	Result Ratio	Total Ratio	Limit	Result
1	BLE	31.62	3060.00	0.0103	0.3391	1.0000	Pass
	LTE B13	521.1947	1585.08	0.3288			
2	WiFi 2.4G	386.37	3060.00	0.1263	0.4551	1.0000	Pass
	LTE B13	521.1947	1585.08	0.3288			
3	WiFi 5G	230.14	3060.00	0.0752	0.4040	1.0000	Pass
	LTE B13	521.1947	1585.08	0.3288			

Remark: This LTE Band was recalculated on the worst Band.

--End of the Report--