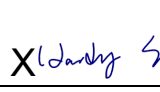


Prüfbericht-Nr.: <i>Test report no.:</i>	CN25NHGT 004	Auftrags-Nr.: <i>Order no.:</i>	168557102	Seite 1 von 16 Page 1 of 16
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2025-05-20	
Auftraggeber: <i>Client:</i>	Yingling Innovations Pte. Ltd. 24 Sin Ming Lane #06-97 Midview City, Singapore (573970)			
Prüfgegenstand: <i>Test item:</i>	Antigravity A1			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	DE001 (Trademark: ANTIGRAVITY)			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	CFR Title 47 FCC Part 1.1310 CFR Title 47 FCC Part 2.1091 RSS-102 Issue 6 December 2023 AS/NZS 2772.2:2016 Amd 1:2018			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025-06-05	Please refer to Photo Document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A004005894-043~047			
Prüfzeitraum: <i>Testing period:</i>	2025-06-05 - 2025-08-22			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	 Hardy Suo		genehmigt von: <i>authorized by:</i>	 Lin Lin
Datum: <i>Date:</i>	2025-09-08		Ausstellungsdatum: <i>Issue date:</i>	2025-09-08
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: 2B05J-DE001, IC: 34026-DE001, HVIN: DE001			
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:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
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 above mentioned 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>				

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Anmerkungen
Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: go.tuv.com/digital-signature <i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: go.tuv.com/digital-signature</i>
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

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Test Summary

3.1.1 RF EXPOSURE COMPLIANCE

RESULT: Pass

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1. Test Sites

1.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of China

FCC Test Site Number: CN1260

ISED Test Lab CAB identifier: CN0078

1.2 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

1.3 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

1.4 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendixes of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

1.5 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

2. General Product Information

2.1 General Description

The Product is a Antigravity A1 which supports Bluetooth LE, 2.4GHz / 5.2GHz / 5.8GHz SDR, 2.4GHz / 5.2GHz / 5.8GHz Wi-Fi and GNSS receiving functions.

*Remark: SDR means specific defined radio and cannot change radio specification via software / firmware by end-users.

Antigravity A1 (M/N: DE001) has an alternative FEM (Front-end Module) for 2.4GHz SDR and 5GHz SDR respectively:

- a. First FEMs: M/N: 24611 for 2.4GHz SDR, M/N: 58611 for 5GHz SDR
- b. Alternative FEMs: M/N: VC5331-21 for 2.4GHz SDR, M/N: VC5743-51A for 5GHz SDR

Note: FEM integrates power amplifier (PA), low-noise amplifier (LNA) with bypass and transmit / receiver (T/R) switch functions.

Full testing performed on FEMs M/N: 24611 for 2.4GHz SDR, M/N: 58611 for 5GHz SDR, additional testing of RF output power performed on alternative FEMs M/N: VC5331-21 for 2.4GHz SDR, M/N: VC5743-51A for 5GHz SDR.

For details refer to the User Manual, Technical Description and Circuit Diagram.

2.2 Rating and System details

Table 1: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment:	Antigravity A1
Type Designation:	DE001
Trademark:	ANTIGRAVITY
FCC ID:	2BO5J-DE001
IC:	34026-DE001
HVIN:	DE001
Operating Voltage:	DC 6-8.6V (Build-in battery) and charging by type-C port DC 5V/3A, DC 9V/3A, DC 12V/2.5A
Testing Voltage:	Fully charged battery
Operating Temperature Range:	-10 °C ~ +40 °C
Radiofrequency operating mode:	1) Bluetooth LE: operating within 2400-2483.5MHz, Bluetooth BLE (1Mbps&2Mbps) 2) 2.4GHz SDR/2.4GHz Wi-Fi: operating within 2400-2483.5MHz 3) 5GHz SDR/5GHz Wi-Fi: operating within 5150-5250MHz and 5725-5850MHz 4) GNSS (receiver): GPS L1 C/A, Galileo E1, BDS B1I operating within 1559-1610 MHz
Technical Specification of Bluetooth (Bluetooth LE)	
Operating Frequency:	2402 MHz to 2480 MHz

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Type of Modulation:	GFSK
Channel Number:	40 channels
Channel Separation:	2MHz
Data Rate:	1Mbps, 2Mbps
Antenna Type:	Integral Antenna (Slot antenna)
Antenna Number:	2 (1Tx1Rx only: ANT FL or ANT BR)
Antenna Gain:	ANT FL: 1.06dBi@2400~2483.5MHz ANT BR: 0.89dBi@2400~2483.5MHz (Provided by the Client)
The type of wideband data transmission equipment:	DTS
Technical Specification of 2.4GHz SDR	
Operating Frequency:	2405 MHz to 2470 MHz for 5MHz Bandwidth 2410 MHz to 2465 MHz for 10MHz Bandwidth 2415 MHz to 2460 MHz for 20MHz Bandwidth 2420 MHz to 2455 MHz for 40MHz Bandwidth
Type of Modulation:	OFDM(BPSK/QPSK/16QAM/64QAM)
Channel Number:	14 channels for 5MHz BW 12 channels for 10MHz BW 10 channels for 20MHz BW 8 channels for 40MHz BW
Channel Separation:	5MHz
Bandwidth:	5/10/20/40MHz
Antenna Type:	Integral Antenna (Slot antenna)
Antenna Number:	4 (2Tx2Rx only: ANT FL+ ANT BR, or ANT BL+ ANT FR)
Antenna Gain:	ANT FL: 1.06dBi@2400~2483.5MHz ANT FR: 0.85dBi@2400~2483.5MHz ANT BL: 0.82dBi@2400~2483.5MHz ANT BR: 0.89dBi@2400~2483.5MHz (Provided by the Client)
The type of wideband data transmission equipment:	DTS
Technical Specification of 2.4GHz Wi-Fi	
Operating Frequency:	2412 – 2472 MHz for 802.11b/g/n(HT20) 2422 – 2462 MHz for 802.11b/g/n(HT40)
Type of Modulation:	DSSS(DBPSK/DQPSK/CCK) OFDM(BPSK/QPSK/16QAM/64QAM/256QAM)
Channel Number:	13 channels for 20Mz BW 9 channels for 40MHz BW
Channel Separation:	5MHz
Data Rate:	1/2/5.5/11 Mbps for 802.11b 6/9/12/18/24/36/48/54 Mbps for 802.11g MCS0 ~ MCS7 for 802.11n(HT20) MCS0 ~ MCS7 for 802.11n(HT40)
Antenna Type:	Integral Antenna (Slot antenna)
Antenna Number:	2 (1Tx1Rx only: ANT FL or ANT BR)
Antenna Gain:	ANT FL: 1.06dBi@2400~2483.5MHz ANT BR: 0.89dBi@2400~2483.5MHz (Provided by the Client)
The type of wideband data transmission equipment:	DTS

Technical Specification of 5.2GHz SDR (unavailable for Canada)

Operating Frequency:	5155 MHz to 5245 MHz for 5MHz Bandwidth 5160 MHz to 5240 MHz for 10MHz Bandwidth 5165 MHz to 5235 MHz for 20MHz Bandwidth 5170 MHz to 5230 MHz for 40MHz Bandwidth
Type of Modulation:	OFDM(BPSK/QPSK/16QAM/64QAM)
Channel Number:	19 channels for 5MHz BW 17 channels for 10MHz BW 15 channels for 20MHz BW 13 channels for 40MHz BW
Channel Separation:	5/10/20/40MHz
Antenna Type:	Integral Antenna (Slot antenna)
Antenna Number:	4 (2Tx2Rx only: ANT FL+ ANT BR, or ANT BL+ ANT FR)
Antenna Gain:	ANT FL: 0.23dBi@5150~5350MHz ANT FR: 0.48dBi@5150~5350MHz ANT BL: 0.40dBi@5150~5350MHz ANT BR: 0.44dBi@5150~5350MHz (Provided by the Client)
The type of wideband data transmission equipment:	DTS

Technical Specification of 5.2GHz Wi-Fi (unavailable for Canada)

Operating Frequency	5180-5240MHz for 802.11a/n20/n40/ac20/ac40/ac80
Type of Modulation	OFDM(BPSK/QPSK/16QAM/64QAM/256QAM)
Data Rate	6/9/12/18/24/36/48/54 Mbps for 802.11a MCS 0 ~ MCS 7 for 802.11 n20/n40 VHT-MCS 0 ~ VHT-MCS 8 for 802.11 ac20 VHT-MCS 0 ~ VHT-MCS 9 for 802.11 ac40 VHT-MCS 0 ~ VHT-MCS 9 for 802.11 ac80
Channel Number	4 channels for 802.11a/n20/ac20 2 channels for 802.11n40/ac40 1 channel for 802.11ac80
Channel Separation	20MHz, 40MHz, 80MHz
Antenna Type	Integral Antenna (Slot antenna)
Antenna Number	2 (1Tx1Rx only: ANT FL or ANT BR)
Antenna Gain	ANT FL: 0.23dBi@5150~5350MHz ANT BR: 0.44dBi@5150~5350MHz (Provided by the Client)
The type of wideband data transmission equipment:	DTS

Technical Specification of 5.8GHz SDR

Operating Frequency	5735 MHz to 5840 MHz for 5MHz Bandwidth 5740 MHz to 5835 MHz for 10MHz Bandwidth 5745 MHz to 5830 MHz for 20MHz Bandwidth 5750 MHz to 5825 MHz for 40MHz Bandwidth
Type of Modulation	OFDM(BPSK/QPSK/16QAM/64QAM)
Channel Number	22 channels for 5MHz BW 20 channels for 10MHz BW 18 channels for 20MHz BW 16 channels for 40MHz BW
Channel Separation	5/10/20/40MHz

Antenna Type	Integral Antenna (Slot antenna)
Antenna Number	4 (2Tx2Rx only: ANT FL+ ANT BR, or ANT BL+ ANT FR)
Antenna Gain	ANT FL: 1.70dBi@5725~5850MHz ANT FR: 1.58dBi@5725~5850MHz ANT BL: 1.39dBi@5725~5850MHz ANT BR: 1.29dBi@5725~5850MHz (Provided by the Client)
The type of wideband data transmission equipment	DTS
Technical Specification of 5.8GHz Wi-Fi	
Operating Frequency	5745~5825MHz for 802.11a/n20/n40/ac20/ac40/ac80
Type of Modulation	OFDM(BPSK/QPSK/16QAM/64QAM/256QAM)
Data Rate	6/9/12/18/24/36/48/54 Mbps for 802.11a MCS 0 ~ MCS 7 for 802.11 n20/n40 VHT-MCS 0 ~ VHT-MCS 8 for 802.11 ac20 VHT-MCS 0 ~ VHT-MCS 9 for 802.11 ac40 VHT-MCS 0 ~ VHT-MCS 9 for 802.11 ac80
Channel Number	5 channels for 802.11a/n20/ac20 2 channels for 802.11n40/ac40 1 channel for 802.11ac80
Channel Separation	20MHz, 40MHz, 80MHz
Antenna Type	Integral Antenna (Slot antenna)
Antenna Number	2 (1Tx1Rx only: ANT FL or ANT BR)
Antenna Gain	ANT FL: 1.70dBi@5725~5850MHz ANT BR: 1.29dBi@5725~5850MHz (Provided by the Client)
The type of wideband data transmission equipment	DTS

Table 2: RF Channel and Frequency of Bluetooth LE

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Table 3: RF Channel and Frequency of 2.4GHz SDR

RF Channel	2.4GHz SDR, 5MHz BW	2.4GHz SDR, 10MHz BW	2.4GHz SDR, 20MHz BW	2.4GHz SDR, 40MHz BW
	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
01	2405			
02	2410	2410		
03	2415	2415	2415	
04	2420	2420	2420	2420
05	2425	2425	2425	2425
06	2430	2430	2430	2430
07	2435	2435	2435	2435
08	2440	2440	2440	2440
09	2445	2445	2445	2445
10	2450	2450	2450	2450
11	2455	2455	2455	2455
12	2460	2460	2460	
13	2465	2465		
14	2470			

Table 4: RF Channel and Frequency of 2.4GHz Wi-Fi

RF Channel	802.11 b/g/n(HT20)	802.11 n(HT40)
	Frequency (MHz)	Frequency (MHz)
01	2412	
02	2417	
03	2422	2422
04	2427	2427
05	2432	2432
06	2437	2437
07	2442	2442
08	2447	2447
09	2452	2452
10	2457	
11	2462	

Table 5: RF Channel and Frequency of 5.2GHz SDR

5.2GHz 5MHz Bandwidth (5155MHz-5245MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5155	6	5180	11	5205	16	5230
2	5160	7	5185	12	5210	17	5235
3	5165	8	5190	13	5215	18	5240
4	5170	9	5195	14	5220	19	5245
5	5175	10	5200	15	5225		
5.2GHz 10MHz Bandwidth (5160MHz-5240MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5160	6	5185	11	5210	16	5235
2	5165	7	5190	12	5215	17	5240
3	5170	8	5195	13	5220		
4	5175	9	5200	14	5225		

5	5180	10	5205	15	5230		
5.2GHz 20MHz Bandwidth (5165MHz-5235MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5165	5	5185	9	5205	13	5225
2	5170	6	5190	10	5210	14	5230
3	5175	7	5195	11	5215	15	5235
4	5180	8	5200	12	5220		
5.2GHz 40MHz Bandwidth (5170MHz-5230MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5170	5	5190	9	5210	13	5230
2	5175	6	5195	10	5215		
3	5180	7	5200	11	5220		
4	5185	8	5205	12	5225		

Table 6: Test channel and frequency of 5.2GHz Wi-Fi

U-NII-1					
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

Table 7: RF Channel and Frequency of 5.8GHz SDR

5.8GHz 5MHz Bandwidth (5735MHz-5840MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5735	7	5765	13	5795	19	5825
2	5740	8	5770	14	5800	20	5830
3	5745	9	5775	15	5805	21	5835
4	5750	10	5780	16	5810	22	5840
5	5755	11	5785	17	5815		
6	5760	12	5790	18	5820		
5.8GHz 10MHz Bandwidth (5740MHz-5835MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5740	7	5770	13	5800	19	5830
2	5745	8	5775	14	5805	20	5835
3	5750	9	5780	15	5810		
4	5755	10	5785	16	5815		
5	5760	11	5790	17	5820		
6	5765	12	5795	18	5825		

5.8GHz 20MHz Bandwidth (5745MHz-5830MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5745	6	5770	11	5795	16	5820
2	5750	7	5775	12	5800	17	5825
3	5755	8	5780	13	5805	18	5830
4	5760	9	5785	14	5810		
5	5765	10	5790	15	5815		
5.8GHz 40MHz Bandwidth (5750MHz-5825MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	5750	5	5770	9	5790	13	5810
2	5755	6	5775	10	5795	14	5815
3	5760	7	5780	11	5800	15	5820
4	5765	8	5785	12	5805	16	5825

Table 8: RF Channel and Frequency of 5.8GHz Wi-Fi

U-NII-3							
20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth			
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)		
149	5745	151	5755	155	5775		
153	5765	159	5795				
157	5785						
161	5805						
165	5825						

3. Test Results

3.1 RF Exposure Evaluation

3.1.1 RF Exposure Compliance

RESULT:

Pass

Test standard : CFR Title 47 FCC Part 2.1091
RSS-102 Issue 6
KDB 447498 D01 General RF Exposure Guidance v06
AS/NZS 2772.2:2016 Amd 1:2018

Limit : Table 1 of CFR Title 47 FCC Part 1.1310
Section 6.6 of RSS-102 Issue 6
AS/NZS 2772.2:2016 Amd 1:2018

3.1.1.1 RF Exposure Compliance Requirement

a) Radio Frequency Exposure Limit

For FCC:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Average Time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500	--	--	f/300	<6
1,500-100,000	--	--	1.0	<6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-3.0	614	1.63	*100	<30
3.0-30	824/f	2.19/f	*(180/f ²)	<30
30-300	27.5	0.073	0.2	<30
300-1,500	--	--	f/1500	<30
1,500-100,000	--	--	1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

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For IC:

Frequency range (MHz)	Electric field (V _{RMS} /m)	Magnetic field (A _{RMS} /m)	Power density (W/m ²)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	$58.07 / f^{0.25}$	$0.1540 / f^{0.25}$	$8.944 / f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000 / f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000 / f^{1.2}$

Note: f is frequency in MHz.

For RCM:

REFERENCE LEVELS FOR TIME AVERAGED EXPOSURE TO RMS ELECTRIC AND MAGNETIC FIELDS (UNPERTURBED FIELDS)

Exposure category	Frequency range	E-field strength (V/m rms)	H-field strength (A/m rms)	Equivalent plane wave power flux density S_{eq} (W/m ²)
Occupational	100 kHz – 1 MHz	614	$1.63 / f$	–
	1 MHz – 10 MHz	$614 / f$	$1.63 / f$	$1000 / f^2$ (see note 5)
	10 MHz – 400 MHz	61.4	0.163	10 (see note 5)
	400 MHz – 2 GHz	$3.07 \times f^{0.5}$	$0.00814 \times f^{0.5}$	$f / 40$
	2 GHz – 300 GHz	137	0.364	50
General public	100 kHz – 150 kHz	86.8	4.86	–
	150 kHz – 1 MHz	86.8	$0.729 / f$	–
	1 MHz – 10 MHz	$86.8 / f^{0.5}$	$0.729 / f$	–
	10 MHz – 400 MHz	27.4	0.0729	2 (see note 6)
	400 MHz – 2 GHz	$1.37 \times f^{0.5}$	$0.00364 \times f^{0.5}$	$f / 200$
	2 GHz – 300 GHz	61.4	0.163	10

b) Descriptions of Antennas

The EUT has 4 (ANT FL, ANT FR, ANT BL, ANT BR) antennas for Bluetooth LE, 2.4GHz / 5.2GHz / 5.8GHz SDR, 2.4GHz / 5.2GHz / 5.8GHz Wi-Fi transmitters, the details as below table:

ANT ID	BT	2.4GHz SDR	5.2GHz SDR	5.8GHz SDR	2.4GHz Wi-Fi	5.2GHz Wi-Fi	5.8GHz Wi-Fi
ANT FL	☐	☒	☒	☒	☐	☐	☐
ANT FR	☒	☒	☒	☒	☒	☒	☒
ANT BL	☒	☒	☒	☒	☒	☒	☒
ANT BR	☐	☒	☒	☒	☐	☐	☐

c) Radio Frequency Exposure Calculation Formula

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density (in appropriate units, e.g. mW/cm²)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

or:

$$S = \frac{EIRP}{4\pi R^2}$$

where: EIRP = equivalent (or effective) isotropically radiated power

d) RF Exposure Calculation, stand-alone mode

Mode	Max. power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Power Density (W/m ²)	FCC/RCM Limit (mW/cm ²)	IC Limit (W/m ²)
Bluetooth	6.49	1.06	20	0.001	0.011	1.0	5.3
2.4GHz SDR	29.88	1.06	20	0.247	2.471	1.0	5.3
2.4GHz Wi-Fi	19.83	1.06	20	0.024	0.244	1.0	5.3
5.2GHz SDR	20.32	0.48	20	0.024	n/a (*)	1.0	n/a (*)
5.2GHz Wi-Fi	19.47	0.44	20	0.019	n/a (*)	1.0	n/a (*)
5.8GHz SDR	29.68	1.70	20	0.273	2.732	1.0	9.7
5.8GHz Wi-Fi	17.94	1.70	20	0.018	0.183	1.0	9.7

(*: 5.2GHz SDR and 5.2GHz Wi-Fi are unavailable for Canada market)

Note:

- 1) The calculated distance is 20cm.
- 2) Output power refers to the test reports below:
 - i. Report number of Bluetooth, 2.4GHz SDR, 2.4GHz Wi-Fi: CN25NHGT 002
 - ii. Report number of 5.2GHz SDR, 5.2GHz Wi-Fi: CN25NHGT 003
 - iii. Report number of 5.8GHz SDR, 5.8GHz Wi-Fi: CN25NHGT 003

e) Simultaneous Transmission Scenario

The product has multiple transmitters, the Simultaneous Transmission possibilities are listed below:

Simultaneous Tx Combination	Configuration
1	2.4GHz SDR + 5.2GHz Wi-Fi
2	2.4GHz SDR + 5.8GHz Wi-Fi
3	5.2GHz SDR + 2.4GHz Wi-Fi
4	5.8GHz SDR + 2.4GHz Wi-Fi
5	2.4GHz SDR + Bluetooth
6	5.2GHz SDR + Bluetooth
7	5.8GHz SDR + Bluetooth

Per KDB 447498 D01 v06, simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on calculated or measured field strengths or power density, is ≤ 1.0.

The formula of calculated the Simultaneous transmission MPE is

CPD1 / LPD1 + CPD2 / LPD2 +.....etc.<1
 CPD = Calculation power density
 LPD = Limit of power density

Result of Simultaneous Transmission Scenario
For FCC/RCM

No.	Test Mode	Calculation (mW/cm ²)	Limit (mW/cm ²)	Calculation Ratio	Limit	Result
1	2.4GHz SDR + 5.2GHz Wi-Fi	0.247	1	0.266	1	Pass
		0.019	1			
2	2.4GHz SDR + 5.8GHz Wi-Fi	0.247	1	0.265	1	Pass
		0.018	1			
3	5.2GHz SDR + 2.4GHz Wi-Fi	0.024	1	0.048	1	Pass
		0.024	1			
4	5.8GHz SDR + 2.4GHz Wi-Fi	0.273	1	0.297	1	Pass
		0.024	1			
5	2.4GHz SDR + Bluetooth	0.247	1	0.248	1	Pass
		0.001	1			
6	5.2GHz SDR + Bluetooth	0.024	1	0.025	1	Pass
		0.001	1			
7	5.8GHz SDR + Bluetooth	0.273	1	0.274	1	Pass
		0.001	1			

For IC

No.	Test Mode	Calculation (W/m ²)	Limit (W/m ²)	Calculation Ratio	Limit	Result
1	2.4GHz SDR + 5.2GHz Wi-Fi	2.471	5.3	0.466	1	Pass
		n/a (*)	n/a (*)			
2	2.4GHz SDR + 5.8GHz Wi-Fi	2.471	5.3	0.485	1	Pass
		0.183	9.7			
3	5.2GHz SDR + 2.4GHz Wi-Fi	n/a (*)	n/a (*)	0.046	1	Pass
		0.244	5.3			
4	5.8GHz SDR + 2.4GHz Wi-Fi	2.732	9.7	0.328	1	Pass
		0.244	5.3			
5	2.4GHz SDR + Bluetooth	2.471	5.3	0.468	1	Pass
		0.011	5.3			
6	5.2GHz SDR + Bluetooth	n/a (*)	n/a (*)	0.002	1	Pass
		0.011	5.3			
7	5.8GHz SDR + Bluetooth	2.732	9.7	0.284	1	Pass
		0.011	5.3			

(*: 5.2GHz SDR and 5.2GHz Wi-Fi are unavailable for Canada market)

f) Conclusion

Therefore the maximum calculations result of above are meet the requirement of Radio Frequency Exposure (MPE) limit. This Transmitter must be installed to provide a separation distance of at least 20 cm from all persons.