

RF MEASUREMENT REPORT

FCC ID: HD5-EDA61K1
Applicant: Honeywell International Inc
Product: Mobile computer
Model No.: EDA61K-1
Brand Name: Honeywell
FCC Rule(s): Part 2, 24 (E) Section 24.232(c) & 24.238(a)
Result: Complies
Received Date: 2024-11-18
Test Date: 2024-11-21 ~ 2024-11-25

Reviewed By:

Ada Zhang

Approved By:

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2410RSU065-U6	V01	Initial Report	2025-01-10	Valid

Note: This report is based on the original MRT report (report No.: 2010RSU078-U6) to do the following modifications:

1. WCDMA BII duplexer in Pin-to-Pin change, Transmitter output power, Transmitter unwanted emissions (band-edge) and Radiated Spurious Emissions in the worst-case mode are evaluated.
2. Update applicant and manufacturer's name.

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1. General Information

1.1. Applicant

Honeywell International Inc
9680 Old Bailes Rd. Fort Mill, SC 29707 United States

1.2. Manufacturer

Honeywell International Inc
9680 Old Bailes Rd. Fort Mill, SC 29707 United States

1.3. Testing Facility

<input checked="" type="checkbox"/>	Test Site – MRT Suzhou Laboratory
	Laboratory Location (Suzhou - Wuzhong)
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
	Laboratory Location (Suzhou - SIP)
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China
	Laboratory Location (Suzhou - Wujiang)
	Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China
	Laboratory Accreditations
	A2LA: 3628.01 CNAS: L10551
	FCC: CN1166 ISED: CN0001
	VCCI: <input type="checkbox"/> R-20025 <input type="checkbox"/> G-20034 <input type="checkbox"/> C-20020 <input type="checkbox"/> T-20020
	<input type="checkbox"/> R-20141 <input type="checkbox"/> G-20134 <input type="checkbox"/> C-20103 <input type="checkbox"/> T-20104
<input type="checkbox"/>	Test Site – MRT Shenzhen Laboratory
	Laboratory Location (Shenzhen)
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China
	Laboratory Accreditations
	A2LA: 3628.02 CNAS: L10551
	FCC: CN1284 ISED: CN0105
<input type="checkbox"/>	Test Site – MRT Taiwan Laboratory
	Laboratory Location (Taiwan)
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: 3261
	FCC: 291082, TW3261 ISED: TW3261

1.4. Product Information

Product Name	Mobile computer
Model No.	EDA61K-1
Brand Name	Honeywell
IMEI	990013864528661(Conducted) 990013864528703(Radiated)
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Specification	v4.1 Dual mode
NFC	13.56MHz
GNSS Specification	GPS/GLONASS/BDS
3GPP Specification	GSM 900/1800 WCDMA Band II/IV/V CDMA200 Band BC0/BC1 LTE Band 2/4/5/7/12/13/17/25/38/41
Antenna Specification	Refer to Section 1.6
Accessory	
Rechargeable Li-ion Battery	Model No.: CK65-BTSC Nominal Capacity: 7000mAh/25.2Wh Nominal Voltage: 3.6V
Remark:	The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

1.5. Radio Specification under Testing

UMTS Specification	
TX Frequency Range:	WCDMA Band II: 1850 ~ 1910MHz
RX Frequency Range:	WCDMA Band II: 1930 ~ 1990MHz
Support Power Class	PC3
Modulation	BPSK, QPSK

1.6. Description of Available Antennas

Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
WCDMA Band II	1850 ~ 1910	FPC	-0.59

Note 1: All antenna information (Antenna type and Peak Gain) is provided by the manufacturer.

Note 2: The typical antenna used to calculate the ERP (EIRP).

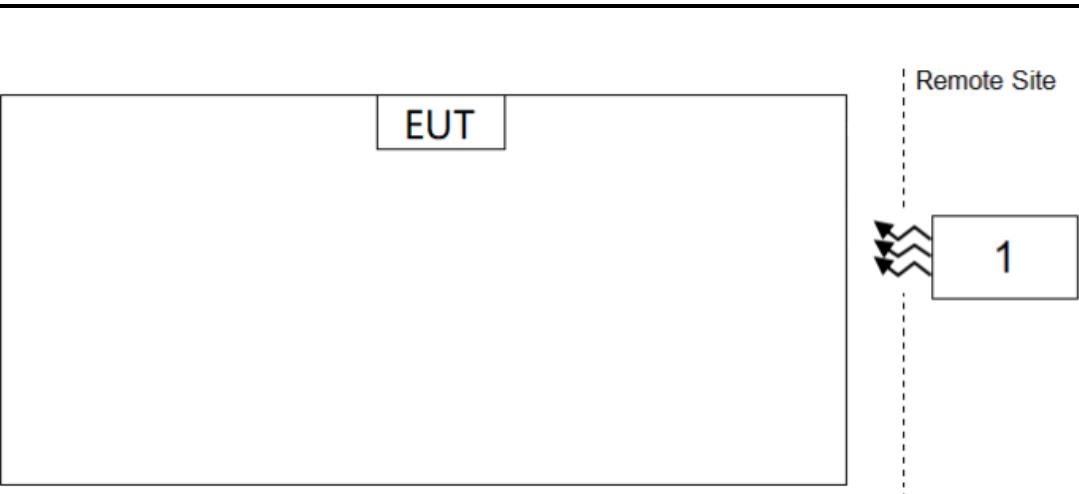
1.7. Test Methodology

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 24
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP

2. Test Configuration

2.1. Test System Connection Diagram



Product	Manufacturer	Model No.
1 Radio Communication Analyzer	Anritsu	MT8821C

2.2. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20% ~ 75%RH

3. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
TRILOG Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2025-04-17	WZ-AC2
EMI Test Receiver	Agilent	N9038A	MRTSUE06125	1 year	2025-05-08	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2025-09-23	WZ-AC2
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2025-05-06	WZ-AC2
Anechoic Chamber	RIKEN	WZ-AC2	MRTSUE06213	1 year	2025-04-18	WZ-AC2
Thermohygrometer	testo	608-H1	MRTSUE11263	1 year	2025-10-16	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2025-11-03	WZ-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06640	1 year	2025-01-11	WZ-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06987	1 year	2025-09-06	WZ-AC2
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07076	1 year	2024-12-04	WZ-AC2
Radio Communication Analyzer	Anritsu	MT8821C	MRTSUE06960	1 year	2025-06-18	WZ-AC2
Thermohygrometer	testo	608-H1	MRTSUE06362	1 year	2025-02-04	WZ-SR6
Shielding Room	HUAMING	WZ-SR6	MRTSUE06443	N/A	N/A	WZ-SR6
Radio Communication Analyzer	Anritsu	MT8821C	MRTSUE06960	1 year	2025-06-18	WZ-SR6
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2025-10-13	WZ-SR6
Directional Coupler	narda	4226-10	MRTSUE06562	1 year	2025-10-24	WZ-SR6
Attenuator	MVE	MVE2213	MRTSUE11093	1 year	2025-06-05	WZ-SR6
USB Power Sensor	Keysight	U2021XA	MRTSUE06446	1 year	2025-05-08	WZ-SR6

Software	Version	Function
e3	230711	RE & CE
Controller_MF 7802	1.02	RE Antenna & Turntable
UCTS	V 6.24.0705.0	license 3G & 4G & 5G

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.

(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Radiated Spurious Emissions
Measurement Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$):
Coaxial: 9kHz~30MHz: 2.35dB
Coplanar: 9kHz~30MHz: 2.37dB
Horizontal: 30MHz~200MHz: 3.46dB
200MHz~1GHz: 3.78dB
1GHz~40GHz: 4.97dB
Vertical: 30MHz~200MHz: 4.07dB
200MHz~1GHz: 5.28dB
1GHz~40GHz: 4.78dB
Transmitter Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$):
0.66dB

5. Test Result

5.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Test Result
24.232(c)	Transmitter Output Power	Conducted	Pass
2.1051, 24.238(a)	Transmitter unwanted emissions (band-edge)		Pass
2.1053, 24.238(a)	Transmitter Spurious Emissions	Radiated	Pass

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All supported modulation types were evaluated. The worst-case emission of modulation was selected. The power of HSDPA/HSUPA is lower than that of WCDMA. Therefore, the Transmitter unwanted emissions (band-edge), Transmitter Spurious Emissions were presented worst-case in the test report.
- 3) For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

5.2. Transmitter Output Power Measurement

5.2.1. Test Limit

WCDMA Band II:

Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

5.2.2. Test Procedure

ANSI C63.26-2015 - Section 5.2.4.2

5.2.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T$$

where

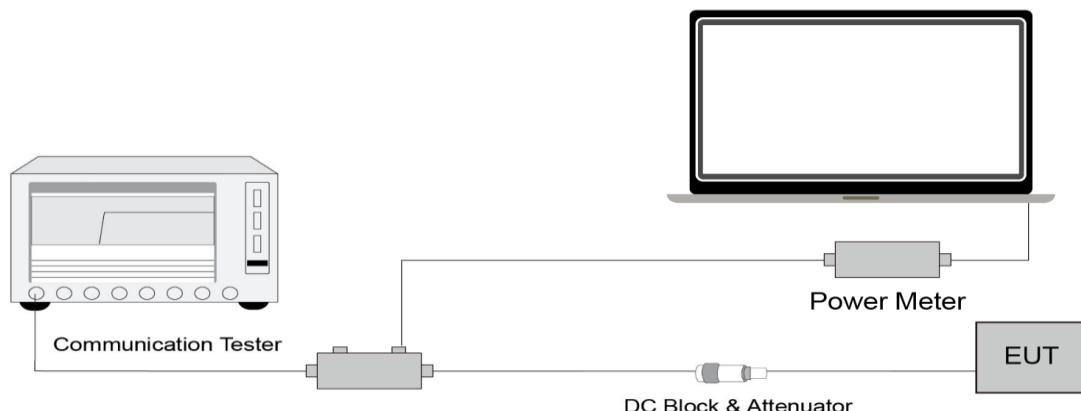
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

$$\text{ERP} = \text{EIRP} - 2.15$$

5.2.4. Test Setup



5.2.5. Test Result

Refer to Appendix A.1.

5.3. Transmitter unwanted emissions (band-edge) Measurement

5.3.1. Test Limit

24.238 (a)

For operations in the 1850 ~ 1910 MHz, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

5.3.2. Test Procedure

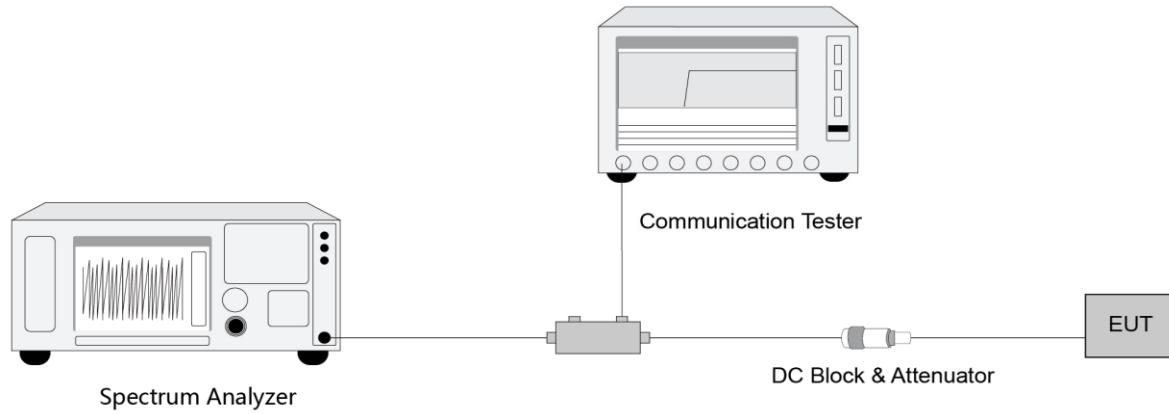
ANSI C63.26-2015 - Section 5.7

5.3.3. Test Setting

1. Set the analyzer frequency to Low or High channel
2. RBW = specified resolution bandwidth, for improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the frequency block group, provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer's band power functions.
3. VBW $\geq 3 \times \text{RBW}$
4. Sweep time = auto
5. Detector = power averaging (rms)
6. If the EUT can be configured to transmit continuously, then set the trigger to free run
7. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.
9. Compute the power by integrating the spectrum across the specified resolution bandwidth using the instrument's band or channel power measurement function, with the band/channel limits set equal to the

specified resolution bandwidth, when using a measurement bandwidth smaller than the specified bandwidth. Otherwise, Use the peak marker function to determine the maximum amplitude level.

5.3.4. Test Setup



5.3.5. Test Result

Refer to Appendix A.2.

5.4. Radiated Spurious Emissions Measurement

5.4.1. Test Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm.

$E (\text{dB}\mu\text{V/m}) = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters. The emission limit equal to 82.3dB μ V/m.

5.4.2. Test Procedure

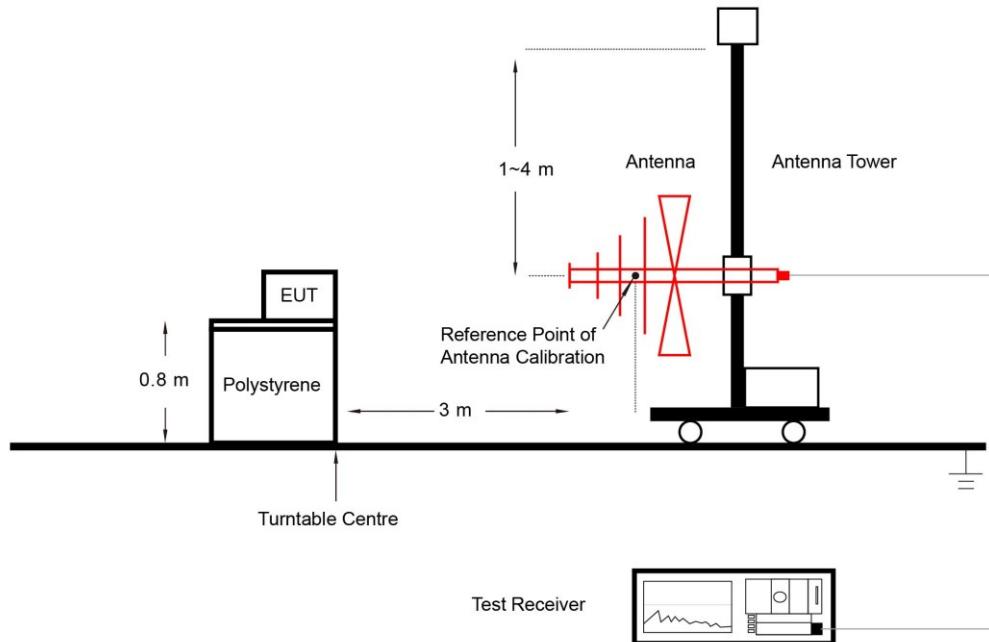
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.4.3. Test Setting

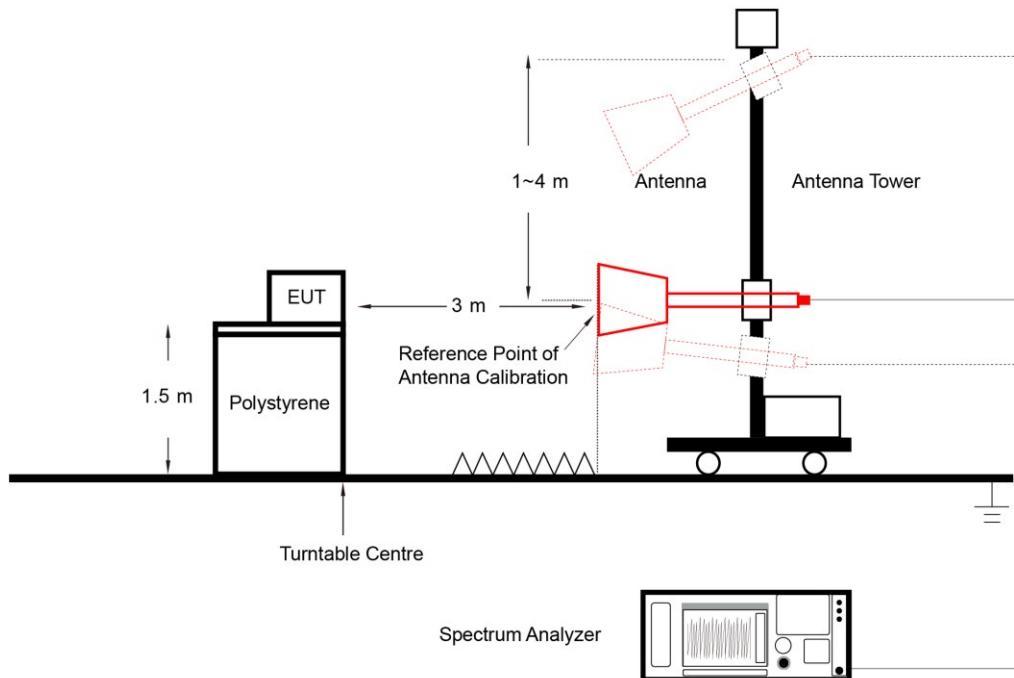
1. RBW = 120kHz or 1MHz
2. VBW $\geq 3 \times \text{RBW}$
3. Sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})$
4. Detector = CISPR quasi-peak / average detector (Below 1 GHz, compliance with the limits shall be demonstrated using a CISPR quasi-peak detector and the related measurement bandwidth. Above 1 GHz, compliance with the limits shall be demonstrated using a linear average detector with a minimum resolution bandwidth of 1 MHz.)
5. The trace was allowed to stabilize

5.4.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.4.5. Test Result

Refer to Appendix A.3.

Appendix A - Test Result

A.1 Transmitter Output Power Test Result

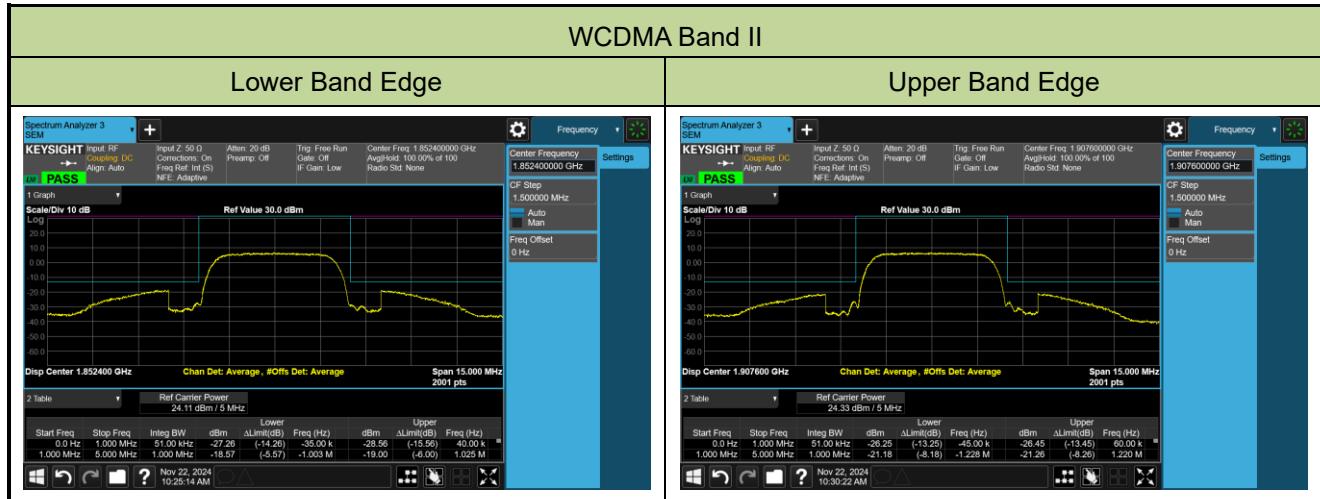
Test Site	WZ-SR6	Test Engineer	Edith Yu
Test Date	2024-11-21	Test Band	WCDMA Band II

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)			
		Channel				Channel			
		Low	Middle	High		Low	Middle	High	
WCDMA R99	1	23.98	24.16	24.08	-0.59	23.39	23.57	23.49	
HSDPA	1	23.02	23.19	23.15	-0.59	22.43	22.60	22.56	
	2	23.14	23.33	23.28	-0.59	22.55	22.74	22.69	
	3	22.58	22.80	22.78	-0.59	21.99	22.21	22.19	
	4	22.58	22.81	22.79	-0.59	21.99	22.22	22.20	
	5	23.02	23.29	23.09	-0.59	22.43	22.70	22.50	
HSUPA	1	21.09	21.34	21.28	-0.59	20.50	20.75	20.69	
	2	22.08	22.34	22.27	-0.59	21.49	21.75	21.68	
	3	21.18	21.42	21.25	-0.59	20.59	20.83	20.66	
	4	23.04	23.26	23.18	-0.59	22.45	22.67	22.59	
	Limit	33.01dBm							

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

A.2 Transmitter unwanted emissions (band-edge) Test Result

Test Site	WZ-SR6	Test Engineer	Edith Yu
Test Date	2024-11-22	Test Band	WCDMA Band II



A.3 Radiated Spurious Emissions Test Result

Test Site	WZ-AC2	Test Engineer	Lucas Wang
Test Date	2024-11-25	Test Band	WCDMA Band II

Frequency (MHz)	Reading Level (dB μ V)	Factor (dB/m)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
46.878	1.1	20.4	21.5	82.3	-60.8	Quasi-Peak	Horizontal
624.028	-6.4	27.4	21.0	82.3	-61.3	Quasi-Peak	Horizontal
48.624	10.7	20.5	31.2	82.3	-51.1	Quasi-Peak	Vertical
114.681	14.6	17.6	32.2	82.3	-50.1	Quasi-Peak	Vertical
3759.100	51.8	-0.9	50.9	82.3	-31.4	Peak	Horizontal
5642.700	45.7	3.7	49.4	82.3	-32.9	Peak	Horizontal
3762.500	50.1	-0.9	49.2	82.3	-33.1	Peak	Vertical
5642.700	39.5	3.7	43.2	82.3	-39.1	Peak	Vertical

Note1: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note2: The peak-detection value will always be equal to or greater than average-detection value. In a result, the peak-detection value measured by spectrum analyzer shall represent the worst-case results.

Note 3: The amplitude of Radiated transmitter spurious emissions (Frequency range from 9kHz to 30MHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value.

Therefore, the data is not presented in the report.

Appendix B - Test Setup Photograph

Refer to "2410RSU065-UT" file.

Appendix C - EUT Photograph

Refer to "2410RSU065-UE" file.