RF MEASUREMENT REPORT

FCC ID:	HD5-EDA5S1
Application:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Product:	Mobile Computer
Model No.:	EDA5S-1
Brand Name:	Honeywell
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	Part 90 Subpart S
Test Procedure(s):	ANSI C63.26: 2015
Test Date:	December 14, 2021 ~ January 17, 2022

Reviewed By: Jame Yuan

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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
2111RSU064-U10	Rev. 01	Initial Report	01-17-2022	Valid

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1. General Information

1.1. Applicant

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Bailes Rd. Fort Mill, SC 29707 United States

1.2. Manufacturer

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Bailes Rd. Fort Mill, SC 29707 United States

1.3. Testing Facility

☒	**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 Accreditations
	A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: ☐R-20025 ☐G-20034 ☐C-20020 ☐T-20020 ☐R-20141 ☐G-20134 ☐C-20103 ☐T-20104
☐	**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
☐	**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: L3261-190725 FCC: 291082, TW3261 ISED: TW3261

1.4. Product Information

Product Name	Mobile Computer
Model No.	EDA5S-1
IMEI	Conducted Measurement: 990018450007806 Radiated Measurement: 990018450011469
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Specification	v5.0 dual mode
NFC Specification	Active, 13.56MHz
GNSS Specification	GPS/Galileo/BDS/GLONASS
3GPP Specification	GSM 850/1900 WCDMA Band 2/4/5 LTE Band 2/4/5/7/12/13/17/25/26/30/38/40/41/66
Working Voltage	3.85Vdc
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

FDD T_X Frequency Range	Band 26: 814 ~ 824 MHz
FDD R_X Frequency Range	Band 26: 859 ~ 869 MHz

Note 1: For other features of this EUT, test report will be issued separately.

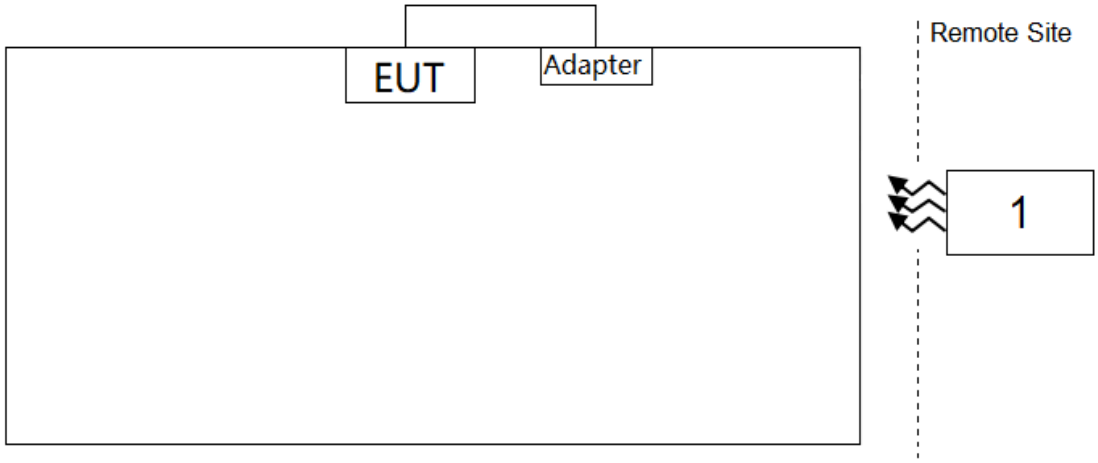
Note 2: LTE band 26 transmit frequency for part 90 rule is 814 ~ 824MHz and part 22 rule is 824 ~ 849MHz. ERP over 15MHz bandwidth complies the ERP limit line of part 22 rule, therefore ERP of the partial frequency spectrum which falls within part 22 also complies.

1.6. Antenna Details

Technology	Frequency Range (MHz)	Antenna Type	Max Peak Gain (dBi)
LTE Band 2	1850 ~ 1910	FPC	1.39
LTE Band 4	1710 ~ 1755		1.59
LTE Band 5	824 ~ 849		-2.81
LTE Band 7	2500 ~ 2570		1.35
LTE Band 12	699 ~ 716		-1.50
LTE Band 13	777 ~ 787		-1.64
LTE Band 17	704 ~ 716		-1.50
LTE Band 25	1850 ~ 1915		1.39
LTE Band 26	814 ~ 849		-2.81
LTE Band 30	2305 ~ 2315		0.48
LTE Band 38	2570 ~ 2620		1.35
LTE Band 40	2300 ~ 2400		0.55
LTE Band 41	2500 ~ 2690		1.35
LTE Band 66	1710 ~ 1780		1.59

2. Test Configuration

2.1. Configuration of Tested System



Product		Manufacturer	Model No.
1	Wideband Radio Communication Tester	R&S	CMW 500

2.2. 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 90
- 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

2.3. Test Environment Condition

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

3. Test Equipment Calibration Date

Instrument Name	Manufacturer	Model No.	Asset No.	Cali. Interval	Cal. Due Date	Test Site
Communication Tester	R&S	CMU 200	MRTSUE06009	1 year	2022/9/7	SIP-SR1
Communication Tester	R&S	CMW500	MRTSUE06243	1 year	2022/10/10	SIP-SR1
Signal Generator	Keysight	E8257D	MRTSUE06453	1 year	2022/6/24	SIP-SR1
Thermohygrometer	testo	622	MRTSUE06629	1 year	2022/11/2	SIP-SR1
Signal Generator	Keysight	E8257D	MRTSUE06904	1 year	2022/11/23	SIP-SR1
DC POWER MODULE	Keysight	N6743B	MRTSUE06905	/	/	SIP-SR1
DC POWER MODULE	Keysight	N6743B	MRTSUE06906	/	/	SIP-SR1
Low-Profile Modular Power System Mainframe	Keysight	N6700C	MRTSUE06907	/	/	SIP-SR1
Signal Analyzer	Keysight	N9021B	MRTSUE06915	1 year	2022/1/18	SIP-SR1
Temperature Chamber	BAOYT	BYG-80CL	MRTSUE06932	1 year	2022/3/16	SIP-SR1
Shielding Room	MIX-BEP	SIP-SR1	MRTSUE06948	/	/	SIP-SR1
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022/1/12	SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2022/6/24	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06599	1 year	2022/10/20	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2022/10/11	SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE06603	1 year	2022/10/31	SIP-AC2
Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2022/9/7	SIP-AC2
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2022/6/24	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06623	1 year	2022/11/28	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06624	1 year	2022/11/28	SIP-AC2
Preamplifier	EMCI	EMC001330	MRTSUE06643	1 year	2022/1/14	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2022/8/5	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2022/11/9	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2022/12/23	SIP-AC2
Loop Antenna	Schwarzbeck	FMZB 1519 B	MRTSUE06937	1 year	2022/3/9	SIP-AC2

Instrument Name	Manufacturer	Model No.	Asset No.	Cali. Interval	Cal. Due Date	Test Site
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2022/6/9	SIP-AC3
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06598	1 year	2022/11/9	SIP-AC3
Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2022/9/12	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE06619	1 year	2022/11/2	SIP-AC3
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2022/11/28	SIP-AC3
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/1/14	SIP-AC3
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06646	1 year	2022/8/26	SIP-AC3
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2022/12/23	SIP-AC3

Software	Version	Function
EMI Software	V3	EMI Test Software

4. 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=2Uc(y)): Horizontal: 9kHz ~ 300MHz: 5.04dB 300MHz ~ 1GHz: 4.95dB 1GHz ~ 40GHz: 6.40dB Vertical: 9kHz ~ 300MHz: 5.24dB 300MHz ~ 1GHz: 6.03dB 1GHz ~ 40GHz: 6.40dB
Conducted Spurious Emissions
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 76.2Hz

5. Test Result

5.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	Conducted	Pass	Section 5.2
2.1055, 90.213	Frequency Stability	< 2.5 ppm		Pass	Section 5.3
90.635	Conducted Output Power	< 100W		Pass	Section 5.4
2.1051, 90.691(a)	Band Edge	< 50 + 10log10 (P[Watts]) within 37.5kHz of Block Edge		Pass	Section 5.5, 5.6
2.1051, 90.691(a)	Spurious Emission	< 43 + 10log10 (P[Watts])			
2.1053, 90.691(a)	Spurious Emission	< 43 + 10log10 (P[Watts])	Radiated	Pass	Section 5.7

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 modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
3) All supported modulation types were evaluated. The worst-case emission of modulation was selected. Therefore, the Frequency Stability, Channel Band Edge, Radiated & Conducted Spurious Emission were presented worst-case in the test report.

5.2. Occupied Bandwidth Measurement

5.2.1.Test Limit

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

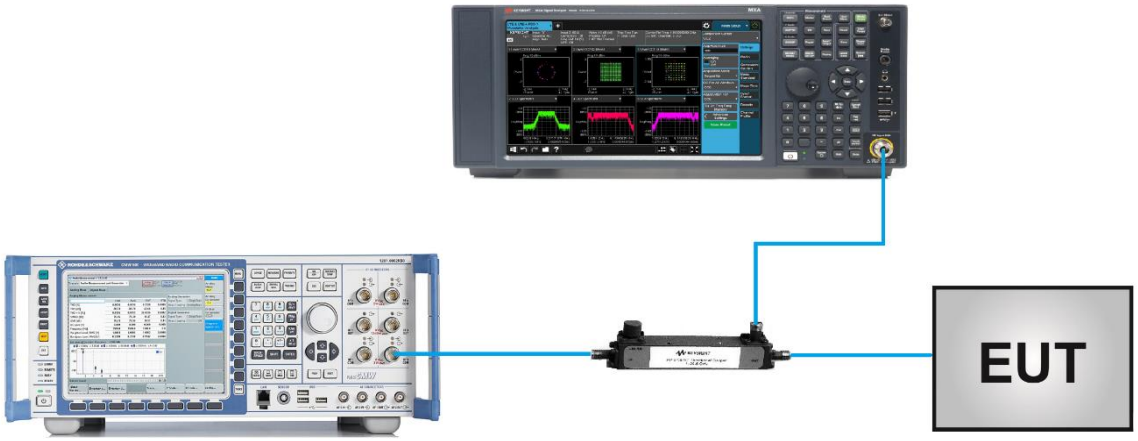
5.2.2.Test Procedure

ANSI C63.26-2015 - Section 5.4

5.2.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Use the 99% power bandwidth function of the instrument and report the measured bandwidth.

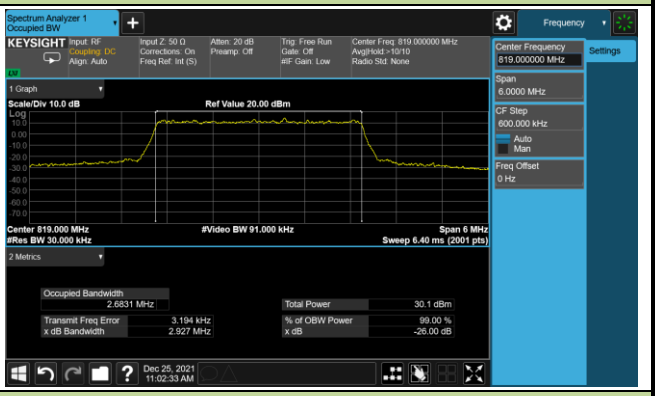
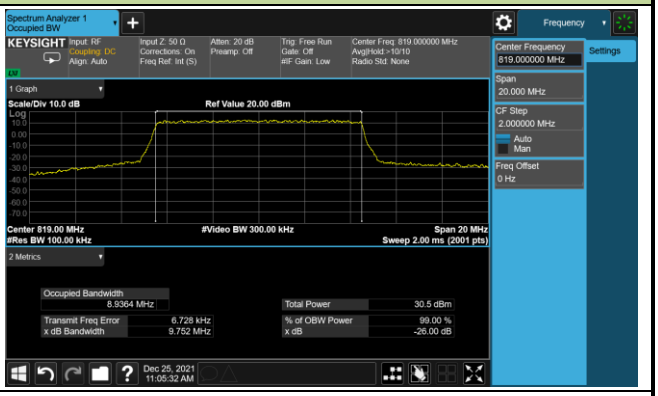
5.2.4.Test Setup



5.2.5.Test Result

Product	Mobile Computer	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/12/25
Test Band	LTE Band 26		

Modulation	Frequency (MHz)	Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK	819.0	1.4	1.08
		3	2.68
		5	4.47
		10	8.94
16QAM	819.0	1.4	1.08
		3	2.68
		5	4.46
		10	8.93
64QAM	819.0	1.4	1.09
		3	2.69
		5	4.46
		10	8.93
QPSK	821.5	15	13.40
16QAM			13.38
64QAM			13.35

99% Bandwidth - QPSK	
1.4MHz Channel Bandwidth	3MHz Channel Bandwidth
	
5MHz Channel Bandwidth	10MHz Channel Bandwidth
	
15MHz Channel Bandwidth	

99% Bandwidth - 16QAM

1.4MHz Channel Bandwidth

3MHz Channel Bandwidth

5MHz Channel Bandwidth

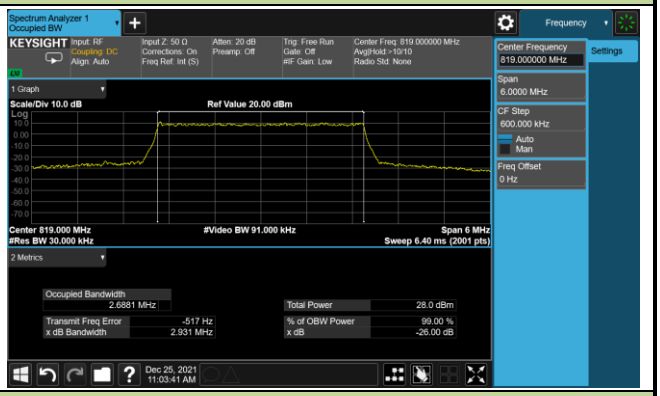
10MHz Channel Bandwidth

15MHz Channel Bandwidth

99% Bandwidth - 64QAM

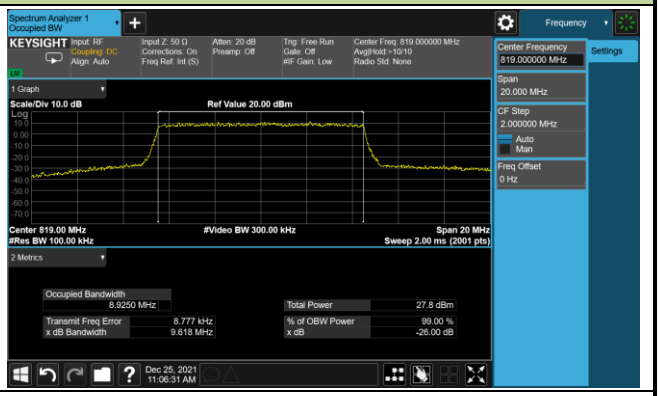
1.4MHz Channel Bandwidth

3MHz Channel Bandwidth



5MHz Channel Bandwidth

10MHz Channel Bandwidth



15MHz Channel Bandwidth

5.3. Frequency Stability Measurement

5.3.1.Test Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

5.3.2.Test Procedure

ANSI C63.26-2015 - Section 5.6

5.3.3.Test Setting

Frequency Stability Under Temperature Variations:

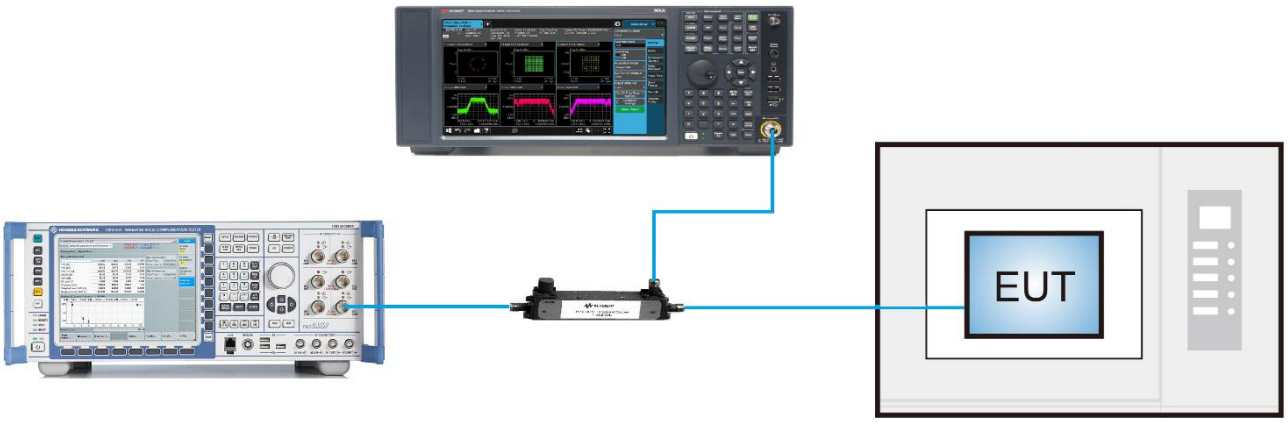
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, recordthe maximum frequency change.

5.3.4.Test Setup



5.3.5.Test Result

Product	Mobile Computer	Test Site	SIP-R1
Test Engineer	Candy Luo	Test Date	2021/12/24
Test Band	LTE Band 26_QPSK		

Power (Vdc)	Temp. (°C)	Frequency Tolerance (ppm)
3.3	- 30	0.0020
	- 20	0.0014
	- 10	0.0041
	0	0.0018
	+ 10	0.0019
	+ 20 (Ref)	0.0012
	+ 30	0.0008
	+ 40	0.0010
	+ 50	-0.0006
4.4	+ 20	-0.0015
3.135	+ 20	-0.0008

5.4. Conducted Output Power Measurement

5.4.1.Test Limit

The maximum output power of the transmitter for mobile stations is 100 watts (20dBw).

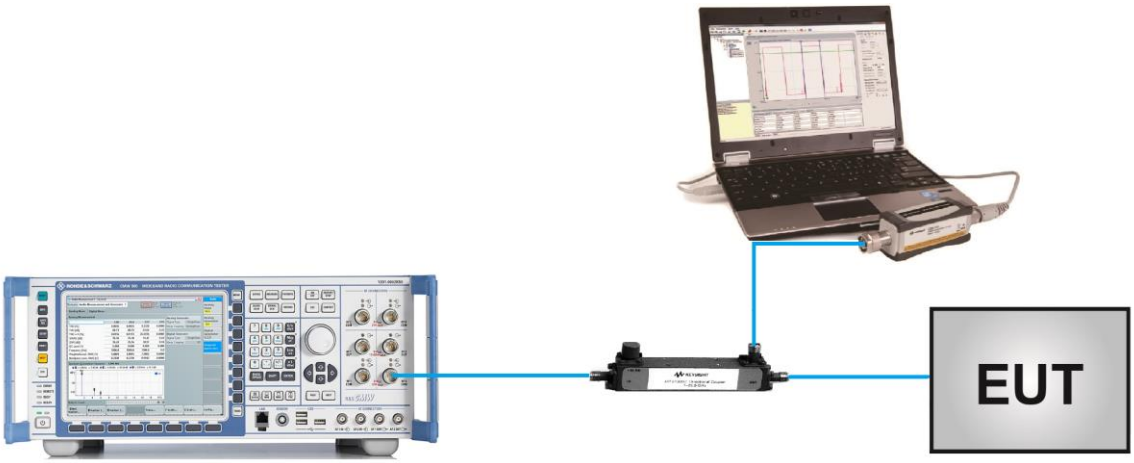
5.4.2.Test Procedure

ANSI C63.26-2015 - Section 5.2

5.4.3.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.

5.4.4.Test Setup



5.4.5.Test Result

Product	Mobile Computer	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/11/22
Test Band	LTE Band 26		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	Output Power (W)	Limit (W)
QPSK							
26697	814.7	1.4	1	0	22.58	0.1811	< 100
26740	819.0				22.29	0.1694	< 100
26783	823.3				22.32	0.1706	< 100
26697	814.7	1.4	1	2	22.78	0.1897	< 100
26740	819.0				22.81	0.1910	< 100
26783	823.3				22.66	0.1845	< 100
26697	814.7	1.4	1	6	22.52	0.1786	< 100
26740	819.0				22.77	0.1892	< 100
26783	823.3				22.46	0.1762	< 100
26697	814.7	1.4	6	0	21.72	0.1486	< 100
26740	819.0				21.74	0.1493	< 100
26783	823.3				21.70	0.1479	< 100
26705	815.5	3	1	0	22.55	0.1799	< 100
26740	819.0				22.34	0.1714	< 100
26775	822.5				22.55	0.1799	< 100
26705	815.5	3	1	7	22.84	0.1923	< 100
26740	819.0				22.51	0.1782	< 100
26775	822.5				22.45	0.1758	< 100
26705	815.5	3	1	14	22.56	0.1803	< 100
26740	819.0				22.68	0.1854	< 100
26775	822.5				22.73	0.1875	< 100
26705	815.5	3	15	0	21.72	0.1486	< 100
26740	819.0				21.82	0.1521	< 100
26775	822.5				21.75	0.1496	< 100

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	Output Power (W)	Limit (W)
QPSK							
26715	816.5	5	1	0	22.38	0.1730	< 100
26740	819.0				22.57	0.1807	< 100
26765	821.5				22.60	0.1820	< 100
26715	816.5	5	1	12	22.71	0.1866	< 100
26740	819.0				22.26	0.1683	< 100
26765	821.5				22.67	0.1849	< 100
26715	816.5	5	1	24	22.56	0.1803	< 100
26740	819.0				22.58	0.1811	< 100
26765	821.5				22.66	0.1845	< 100
26715	816.5	5	25	0	21.63	0.1455	< 100
26740	819.0				21.76	0.1500	< 100
26765	821.5				21.73	0.1489	< 100
26740	819.0	10	1	0	22.25	0.1679	< 100
			1	24	22.70	0.1862	< 100
			1	49	22.47	0.1766	< 100
			50	0	21.74	0.1493	< 100
26765	821.5	15	1	0	22.38	0.1730	< 100
			1	36	22.71	0.1866	< 100
			1	74	22.88	0.1941	< 100
			75	0	21.73	0.1489	< 100

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	Output Power (W)	Limit (W)
16QAM							
26697	814.7	1.4	1	0	21.92	0.1556	< 100
26740	819.0				21.82	0.1521	< 100
26783	823.3				22.04	0.1600	< 100
26697	814.7	1.4	1	2	21.43	0.1390	< 100
26740	819.0				22.08	0.1614	< 100
26783	823.3				22.08	0.1614	< 100
26697	814.7	1.4	1	6	21.30	0.1349	< 100
26740	819.0				21.95	0.1567	< 100
26783	823.3				21.37	0.1371	< 100
26697	814.7	1.4	6	0	20.42	0.1102	< 100
26740	819.0				20.64	0.1159	< 100
26783	823.3				20.85	0.1216	< 100
26705	815.5	3	1	0	21.98	0.1578	< 100
26740	819.0				21.56	0.1432	< 100
26775	822.5				21.60	0.1445	< 100
26705	815.5	3	1	7	21.93	0.1560	< 100
26740	819.0				21.77	0.1503	< 100
26775	822.5				21.75	0.1496	< 100
26705	815.5	3	1	14	21.17	0.1309	< 100
26740	819.0				22.09	0.1618	< 100
26775	822.5				21.68	0.1472	< 100
26705	815.5	3	15	0	20.37	0.1089	< 100
26740	819.0				20.68	0.1169	< 100
26775	822.5				20.62	0.1153	< 100

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	Output Power (W)	Limit (W)
16QAM							
26715	816.5	5	1	0	21.44	0.1393	< 100
26740	819.0				21.45	0.1396	< 100
26765	821.5				21.80	0.1514	< 100
26715	816.5	5	1	12	21.89	0.1545	< 100
26740	819.0				21.00	0.1259	< 100
26765	821.5				21.77	0.1503	< 100
26715	816.5	5	1	24	21.40	0.1380	< 100
26740	819.0				21.51	0.1416	< 100
26765	821.5				21.97	0.1574	< 100
26715	816.5	5	25	0	20.62	0.1153	< 100
26740	819.0				20.69	0.1172	< 100
26765	821.5				20.48	0.1117	< 100
26740	819.0	10	1	0	21.67	0.1469	< 100
			1	24	21.92	0.1556	< 100
			1	49	21.80	0.1514	< 100
			50	0	20.90	0.1230	< 100
26765	821.5	15	1	0	21.63	0.1455	< 100
			1	36	21.95	0.1567	< 100
			1	74	21.89	0.1545	< 100
			75	0	20.63	0.1156	< 100

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	Output Power (W)	Limit (W)
64QAM							
26697	814.7	1.4	1	0	20.48	0.1117	< 100
26740	819.0				20.45	0.1109	< 100
26783	823.3				20.61	0.1151	< 100
26697	814.7	1.4	1	2	20.70	0.1175	< 100
26740	819.0				20.58	0.1143	< 100
26783	823.3				20.48	0.1117	< 100
26697	814.7	1.4	1	6	20.63	0.1156	< 100
26740	819.0				20.57	0.1140	< 100
26783	823.3				20.55	0.1135	< 100
26697	814.7	1.4	6	0	19.26	0.0843	< 100
26740	819.0				19.67	0.0927	< 100
26783	823.3				19.33	0.0857	< 100
26705	815.5	3	1	0	20.80	0.1202	< 100
26740	819.0				20.23	0.1054	< 100
26775	822.5				20.63	0.1156	< 100
26705	815.5	3	1	7	20.58	0.1143	< 100
26740	819.0				20.38	0.1091	< 100
26775	822.5				20.76	0.1191	< 100
26705	815.5	3	1	14	20.42	0.1102	< 100
26740	819.0				21.42	0.1387	< 100
26775	822.5				20.21	0.1050	< 100
26705	815.5	3	15	0	19.38	0.0867	< 100
26740	819.0				19.76	0.0946	< 100
26775	822.5				19.48	0.0887	< 100

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	Output Power (W)	Limit (W)
64QAM							
26715	816.5	5	1	0	20.78	0.1197	< 100
26740	819.0				20.68	0.1169	< 100
26765	821.5				21.05	0.1274	< 100
26715	816.5	5	1	12	20.82	0.1208	< 100
26740	819.0				20.51	0.1125	< 100
26765	821.5				20.94	0.1242	< 100
26715	816.5	5	1	24	20.23	0.1054	< 100
26740	819.0				20.36	0.1086	< 100
26765	821.5				21.03	0.1268	< 100
26715	816.5	5	25	0	19.48	0.0887	< 100
26740	819.0				19.71	0.0935	< 100
26765	821.5				19.65	0.0923	< 100
26740	819.0	10	1	0	20.70	0.1175	< 100
			1	24	20.32	0.1076	< 100
			1	49	20.80	0.1202	< 100
			50	0	19.69	0.0931	< 100
26765	821.5	15	1	0	20.66	0.1164	< 100
			1	36	20.80	0.1202	< 100
			1	74	20.72	0.1180	< 100
			75	0	19.69	0.0931	< 100

5.5. Band Edge Measurement

5.5.1.Test Limit

Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log(f/6.1) decibels or 50 + 10 Log(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

5.5.2.Test Procedure

ANSI C63.26-2015 - Section 5.7

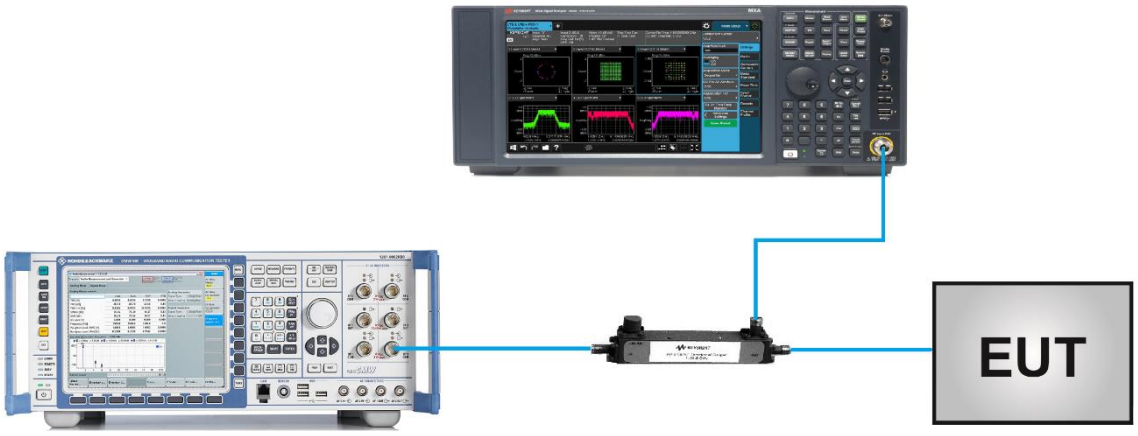
5.5.3.Test Setting

1. Set the analyzer frequency to low or high channel
2. RBW ≥ The nominal RBW shall be in the range of 1% of the anticipated OBW (in the 1MHz band immediately outside and adjacent to the band edge). 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 OBW), 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 ≥ 3*RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to “free run.”
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full

power

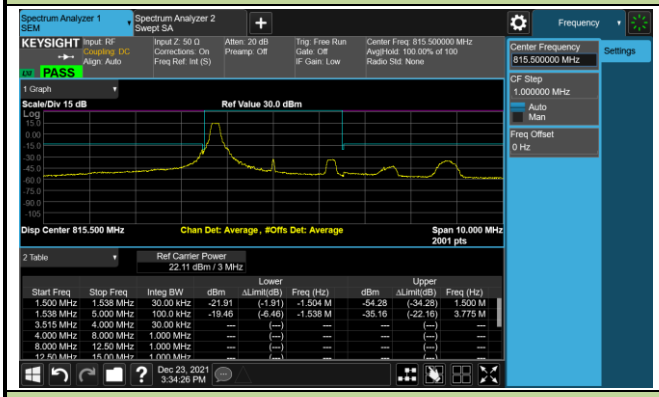
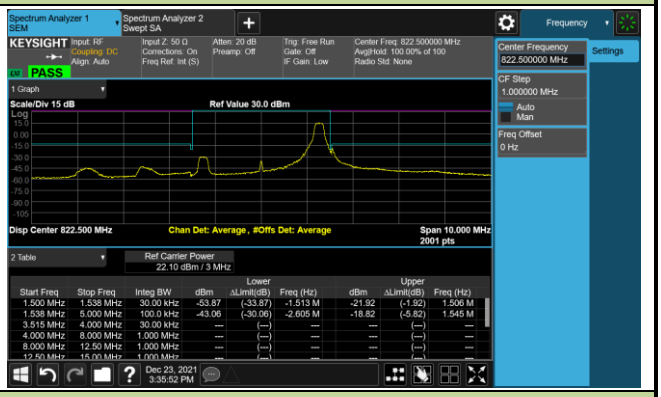
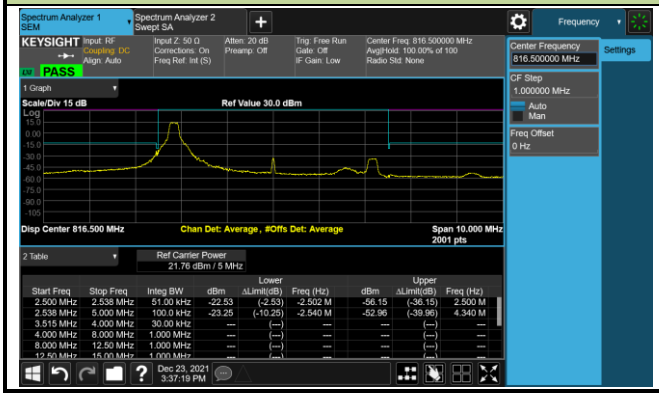
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

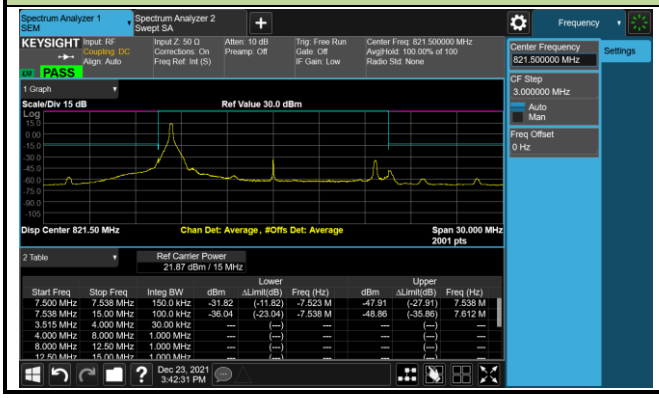
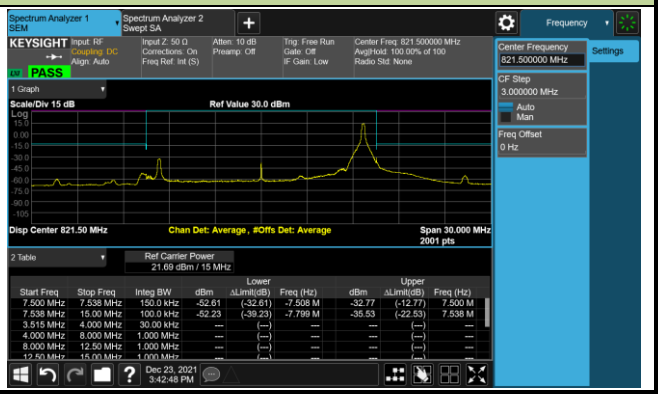
5.5.4.Test Setup



5.5.5.Test Result

Product	Mobile Computer	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/12/23
Test Band	LTE Band 26_QPSK		

1.4MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
3MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	
5MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	

10MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
15MHz Channel Bandwidth - 1RB	
Lower Band Edge	Upper Band Edge
	

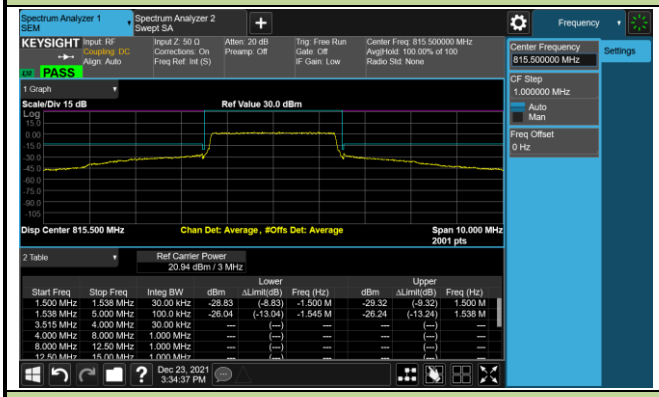
1.4MHz Channel Bandwidth - Full RB

Lower Band Edge

Upper Band Edge

3MHz Channel Bandwidth - Full RB

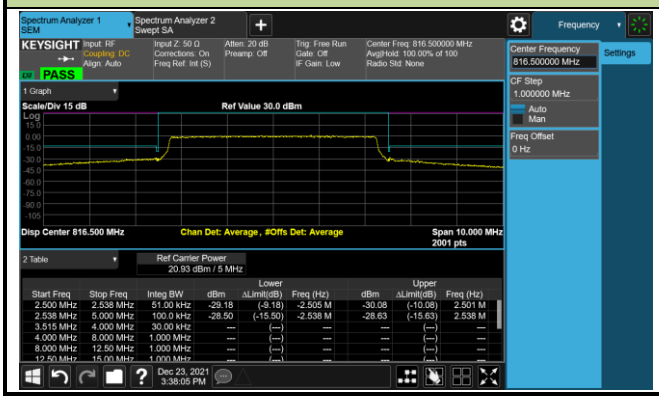
Lower Band Edge



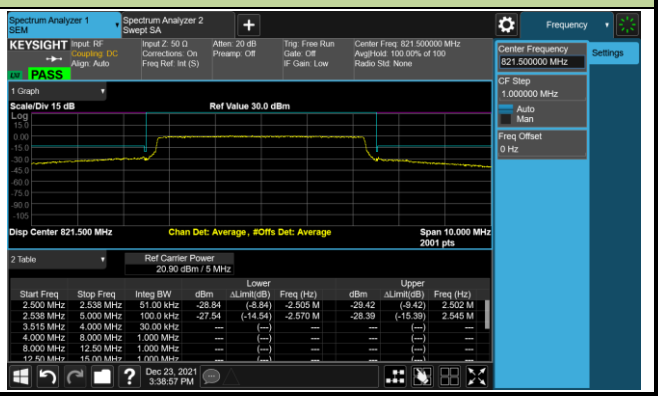
Upper Band Edge

5MHz Channel Bandwidth - Full RB

Lower Band Edge

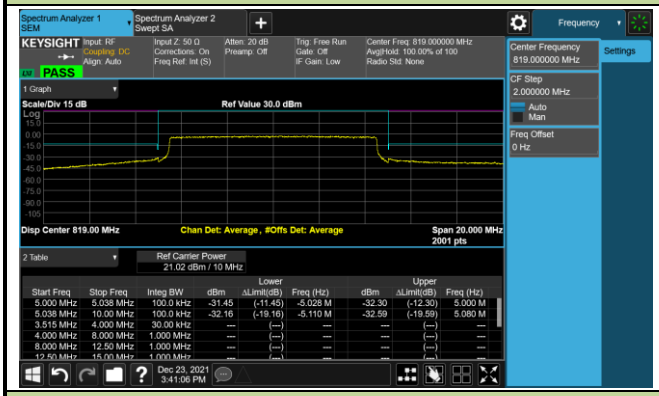


Upper Band Edge



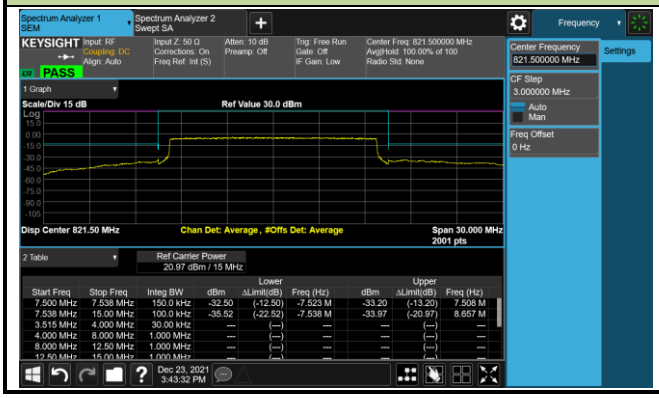
10MHz Channel Bandwidth - Full RB

Band Edge



15MHz Channel Bandwidth - Full RB

Band Edge



5.6. Conducted Spurious Emission Measurement

5.6.1.Test Limit

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

5.6.2.Test Procedure

ANSI C63.26-2015 - Section 5.7

5.6.3.Test Setting

1. Set the analyzer frequency to low, mid, high channel.
2. RBW = 1MHz
3. VBW ≥ 3*RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to “free run.”
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power.
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.

5.6.4.Test Setup

5.6.5.Test Result

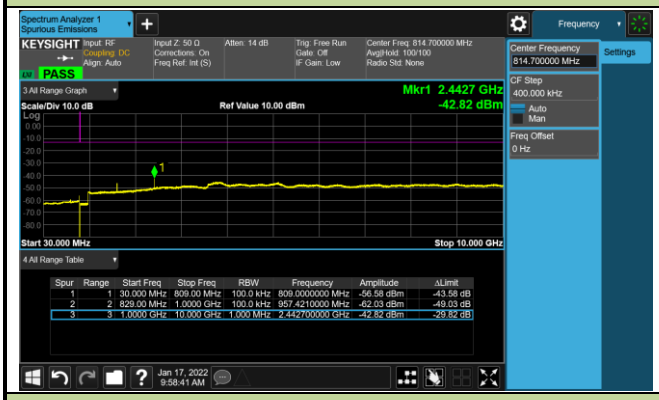
Product	Mobile Computer	Test Site	SIP-SR1
Test Engineer	Candy Luo	Test Date	2021/12/24 ~ 2022/01/17
Test Band	LTE Band 26_QPSK		

Channel	Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
26697	814.7	1.4	30 ~ 10000	-42.82	≤ -13.00	Pass
26740	819.0	1.4	30 ~ 10000	-42.36	≤ -13.00	Pass
26783	823.3	1.4	30 ~ 10000	-44.48	≤ -13.00	Pass
26705	815.5	3	30 ~ 10000	-44.64	≤ -13.00	Pass
26740	819.0	3	30 ~ 10000	-44.55	≤ -13.00	Pass
26775	822.5	3	30 ~ 10000	-44.63	≤ -13.00	Pass
26715	816.5	5	30 ~ 10000	-44.69	≤ -13.00	Pass
26740	819.0	5	30 ~ 10000	-44.46	≤ -13.00	Pass
26765	821.5	5	30 ~ 10000	-44.55	≤ -13.00	Pass
26740	819.0	10	30 ~ 9000	-44.67	≤ -13.00	Pass
26745	821.5	15	30 ~ 9000	-44.55	≤ -13.00	Pass

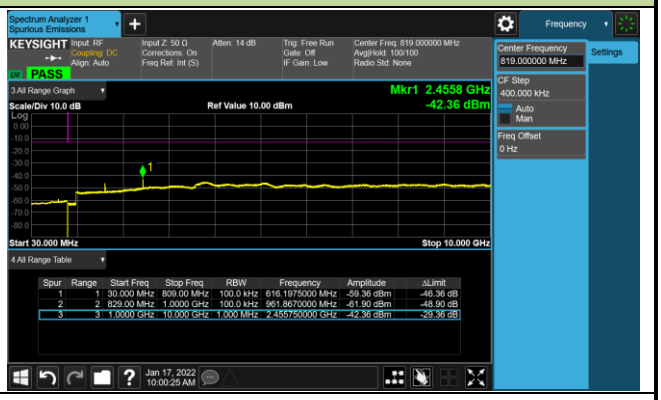
Note: Spurious emissions within 9Khz – 30MHz were found more than 20dB below limit line.

1.4MHz Channel Bandwidth

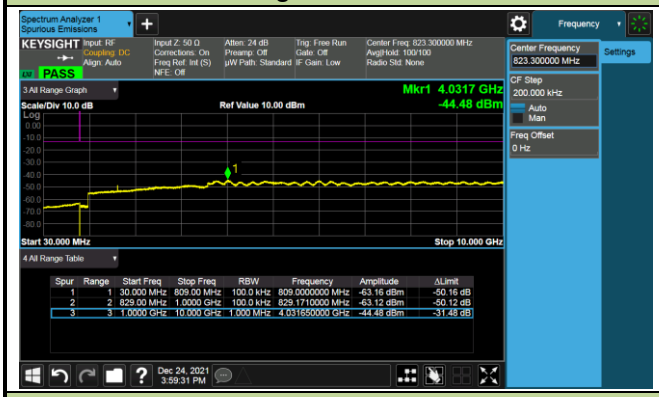
Low Channel



Middle Channel



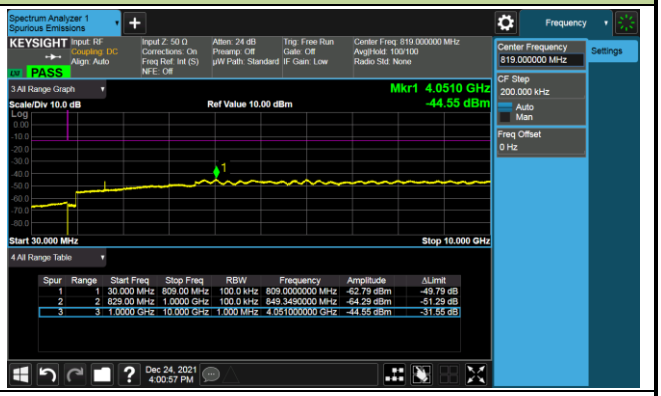
High Channel



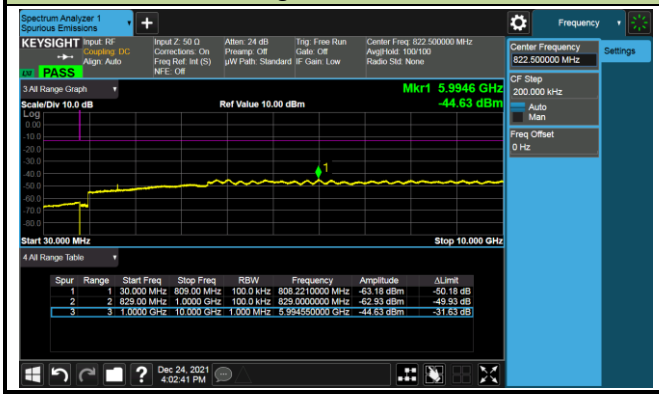
3MHz Channel Bandwidth

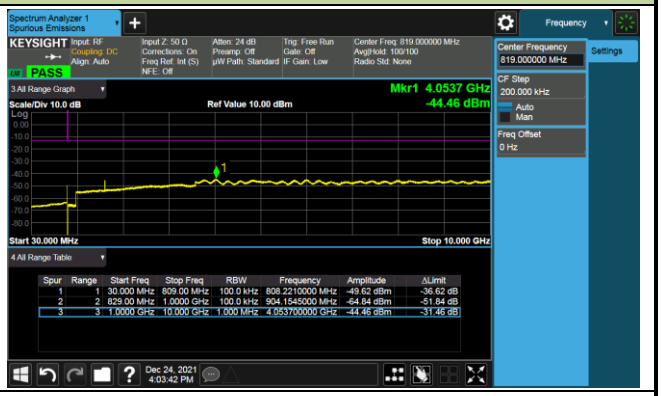
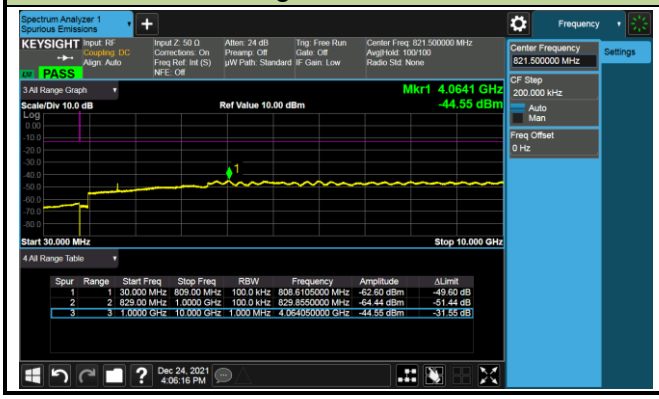
Low Channel

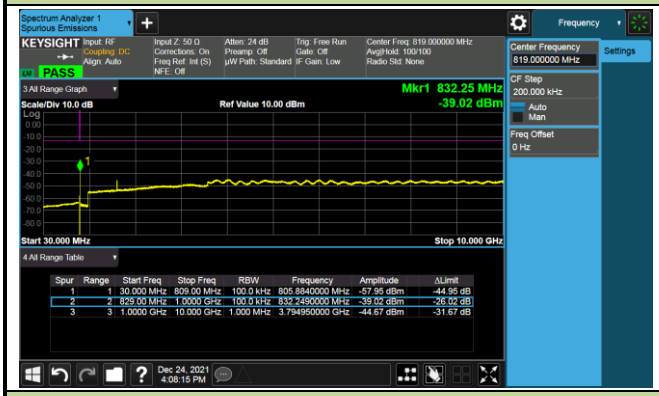
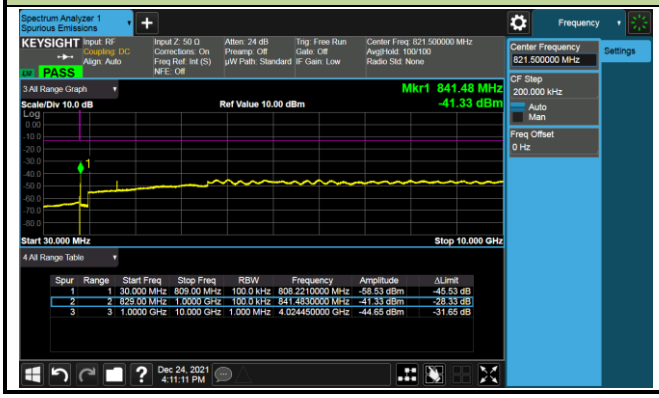
Middle Channel



High Channel



5MHz Channel Bandwidth	
Low Channel	Middle Channel
	
High Channel	
	

10MHz Channel Bandwidth	
Middle Channel	
	
15MHz Channel Bandwidth	
Middle Channel	
	

5.7. Radiated Spurious Emission Measurement

5.7.1.Test Limit

Out of band emissions: The powerof any emission outside of theauthorized operating frequency ranges must be attenuated below the transmitting power (P) by a factorof at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

E (dBμV/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dBμV/m.

5.7.2.Test Procedure

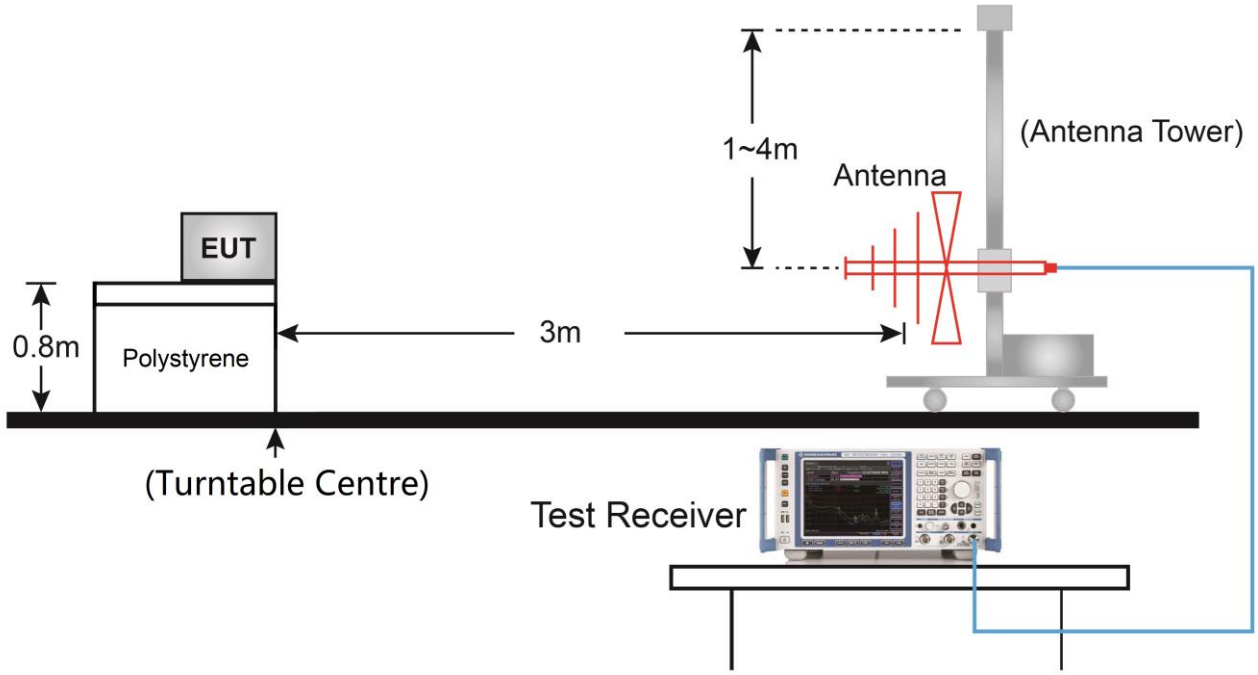
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.7.3.Test Setting

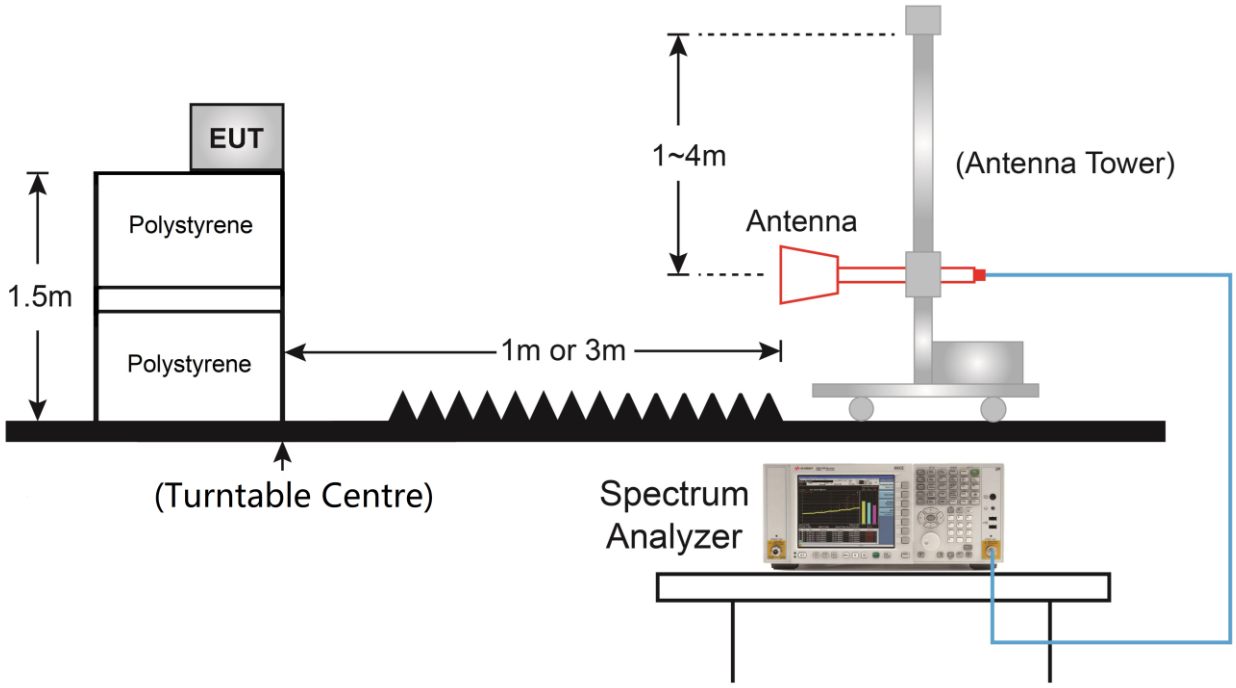
1. RBW = 1MHz
2. VBW ≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.7.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.7.5.Test Result

Product	Mobile Computer	Test Site	SIP-AC3
Test Engineer	Allen Zou	Test Date	2021/12/23 ~ 2021/12/24
Test Band	LTE Band 26_1.4MHz_1RB_QPSK		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
106.1	16.8	14.6	31.4	82.3	-50.9	Peak	Horizontal
965.6	14.6	30.0	44.6	82.3	-37.7	Peak	Horizontal
36.3	15.9	17.4	33.3	82.3	-49.0	Peak	Vertical
955.4	12.6	30.1	42.7	82.3	-39.6	Peak	Vertical
3788.5	51.6	-10.5	41.1	82.3	-41.2	Peak	Horizontal
5972.0	50.4	-8.6	41.8	82.3	-40.5	Peak	Horizontal
4382.5	51.2	-9.6	41.6	82.3	-40.7	Peak	Vertical
5543.0	50.4	-8.9	41.5	82.3	-40.8	Peak	Vertical
Middle Channel							
106.1	16.9	14.6	31.5	82.3	-50.8	Peak	Horizontal
931.6	14.2	30.0	44.2	82.3	-38.1	Peak	Horizontal
105.7	20.5	14.5	35.0	82.3	-47.3	Peak	Vertical
929.2	13.5	30.0	43.5	82.3	-38.8	Peak	Vertical
3645.5	51.3	-10.7	40.6	82.3	-41.7	Peak	Horizontal
5708.0	51.1	-8.9	42.2	82.3	-40.1	Peak	Horizontal
3898.5	50.5	-10.3	40.2	82.3	-42.1	Peak	Vertical
5763.0	63.3	-8.8	54.5	82.3	-27.8	Peak	Vertical
High Channel							
552.8	28.6	24.2	52.8	82.3	-29.5	Peak	Horizontal
716.8	21.3	27.0	48.3	82.3	-34.0	Peak	Horizontal
37.3	16.0	17.5	33.5	82.3	-48.8	Peak	Vertical
943.7	14.7	30.1	44.8	82.3	-37.5	Peak	Vertical
3695.0	50.6	-10.8	39.8	82.3	-42.5	Peak	Horizontal
4503.5	50.5	-9.3	41.2	82.3	-41.1	Peak	Horizontal
4102.0	50.7	-9.6	41.1	82.3	-41.2	Peak	Vertical
6027.0	51.4	-8.5	42.9	82.3	-39.4	Peak	Vertical

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB).

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

Appendix A - Test Setup Photograph

Refer to “2111RSU064-UT” file.

Appendix B - EUT Photograph

Refer to “2111RSU064-UE” file.

The End