

FCC PART 15C TEST REPORT

No. I17Z62005-IOT07

for

TCL Communication Ltd.

Mobile Phone

6062W

With

FCC ID: 2ACCJBT09

Hardware Version: 06

Software Version: v1A65

Issued Date: 2018-04-10



Note:

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1. TEST LATORATORY

1.1. Testing Location

Conducted testing Location: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,

P. R. China100191

Radiated testing Location: CTTL(BDA)

Address: No.18A, Kangding Street, Beijing Economic-Technology

Development Area, Beijing, P. R. China 100176

1.2. TestingEnvironment

Normal Temperature: 15-35°C Extreme Temperature: -20/+60°C Relative Humidity: 20-75%

1.3. Project data

Testing Start Date: 2017-10-31
Testing End Date: 2018-04-10

1.4. Signature

Jiang Xue

(Prepared this test report)

Zheng Wei

(Reviewed this test report)

Lv Songdong

(Approved this test report)



2. CLIENT INFORMATION

2.1. Applicant Information

Company Name: TCL Communication Ltd.

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City: Shenzhen

Postal Code: /

Country: China

Telephone: 0086-755-36611722

Fax: 0086-75536612000-81722

2.2. Manufacturer Information

Company Name: TCL Communication Ltd.

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City: Shenzhen

Postal Code: /

Country: China

Telephone: 0086-755-36611722

Fax: 0086-75536612000-81722



3. <u>EQUIPMENT UNDER TEST (EUT) AND ANCILLARY</u> <u>EQUIPMENT(AE)</u>

3.1. About EUT

Description Mobile Phone
Model name 6062W
FCC ID 2ACCJBT09

WLAN Frequency Range ISM Band: 5725MHz~5850MHz

Type of modulation OFDM

Voltage 3.8VDC by Battery

Note: Photographs of EUT are shown in ANNEX C of this test report. Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	015126000202941	06	v1A65
EUT2	015126000205332/015126000202990	06	v1A65

^{*}EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Туре	SN
AE1	Battery	1	/
AE2	Charger	1	/
AE3	USB Cable	1	/
AE1			
Model		CAC3860010C1	
Manufactu	ırer	BYD	
Capacitan	ce	4000 mAh	
Nominal v	oltage	3.85V	
AE2			
Model		QC11US	
Manufactu	ırer	TIANPAO	
Length of	cable	/	
AE3			
Model		CDA0000103CF	
Manufacturer		LUXSHARE	
Length of	cable	80cm	

^{*}AE ID: is used to identify the test sample in the lab internally.



3.4. General Description

Equipment Under Test (EUT) is a model of Mobile Phone with integrated antenna. It consists of normal options: Battery and Charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; FCC Part15 15.209 Radiated emission limits, general requirements; 2016 15.247 Operation within the bands 902-928MHz, 2400-2483.5 MHz, and 5725-5850 MHz. Methods of Measurement of Radio-Noise Emissions from **ANSI C63.10** Low-Voltage Electrical and Electronic Equipment in the 2013 Range of 9 kHz to 40 GHz Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, UNII: KDB 789033 2014-06 Subpart E

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.



6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.407 (a)	1	Р
Peak Power Spectral Density	15.407 (a)	1	Р
Occupied 6dB Bandwidth	15.247 (a)	1	Р
Band Edges Compliance	15.209 (b)	1	Р
Transmitter Spurious Emission - Conducted	15.407	1	Р
Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	/	Р
AC Powerline Conducted Emission	15.107, 15.207	1	Р
Transmitter Spurious Emission - Radiated < 30MHz	15.247, 15.209	/	Р

Please refer to ANNEX A for detail.

Terms used in Verdict column

Р	Pass, The EUT complies with the essential requirements in the standard.		
NM	Not measured, The test was not measured by CTTL		
NA	Not Applicable, The test was not applicable		
F	Fail, The EUT does not comply with the essential requirements in the		
	standard		

6.2. Statements

CTTL has evaluated the test cases requested by the client/manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature 26° C Voltage 3.8V Humidity 44%



7. TEST EQUIPMENTS UTILIZED

Conducted test system

	conduction tool eyerom					
No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	2017-06-02	2018-06-01
2	LISN	ENV216	101200	Rohde & Schwarz	2017-08-04	2018-08-03
3	Test Receiver	ESCI	100344	Rohde & Schwarz	2017-05-06	2018-05-06
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

		,	I		Calibration	Calibratio
No.	Equipment	Model	Serial Number	Manufacturer	date	n Due date
			Nullibei		uale	II Due uale
1	Test Receiver	ESU26	100235	Rohde &	2018-02-27	2019-02-28
_ '	TOST TOOCHOL	20020	100233	Schwarz	2010 02 27	2013 02 20
	l con outours	115110 70	020224/007	Rohde &	0047.40.04	2040 42 02
2	Loop antenna	HFH2-Z2	829324/007	Schwarz	2017-12-04	2018-12-03
3	BiLog Antenna	VULB9163	301	Schwarzbeck	2018-01-04	2019-01-03
	Dual-Ridge					
4	Waveguide	3115	00167250	ETS-Lindgren	2017-05-22	2020-05-21
	Horn Antenna					
	Dual-Ridge					
5	Waveguide	3116	2661	ETS-Lindgren	2017-07-28	2020-07-27
	Horn Antenna					
6	Vector Signal	FSV40	101047	Rohde &	2017-06-23	2018-07-22
0	Analyzer	F3V40	101047	Schwarz	2017-06-23	2010-07-22
7	Semi-anechoic	,	CT000332-1	Frankonia	,	,
′	chamber	/	074	German	/	/

Test Software Utilized

Test Item	Test Software and Version	Software Vendor
Radiated Continuous Emission	EMC32 V9.01.00	R&S
Conducted Continuous Emission	EMC32 V8.52.0	R&S



8. Measurement Uncertainty

8.1. <u>Transmitter Output Power</u>

Measurement Uncertainty: 0.339dB,k=1.96

8.2. Peak Power Spectral Density

Measurement Uncertainty: 0.705dBm/MHz,k=1.96

8.3. Occupied 6dB Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4. Band Edges Compliance

Measurement Uncertainty: 0.62dBm,k=1.96

8.5. Spurious Emissions

Conducted (k=1.96)

, ,	
Frequency Range	Uncertainty(dBm)
30MHz ≤ f ≤ 2GHz	1.22
2GHz ≤ f ≤3.6GHz	1.22
3.6GHz ≤ f ≤8GHz	1.22
8GHz ≤ f ≤12.75GHz	1.51
12.75GHz ≤ f ≤26GHz	1.51
26GHz ≤ f ≤40GHz	1.59

Radiated (k=2)

Frequency Range	Uncertainty(dBm)	
9kHz-30MHz		
30MHz ≤ f ≤ 1GHz	4.86	
1GHz ≤ f ≤18GHz	5.26	
18GHz ≤ f ≤40GHz	5.28	

8.6. AC Power-line Conducted Emission

Measurement Uncertainty: 3.38dBm,k=2

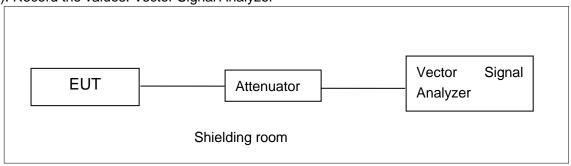


ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

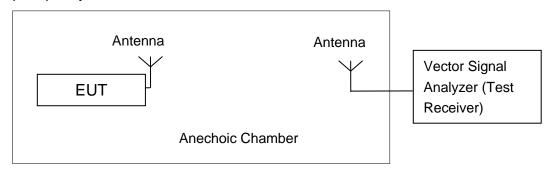
A.1.1. Conducted Measurements

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values. Vector Signal Analyzer



A.1.2. Radiated Emission Measurements

In the case of radiated emission, the used settings are as follows, Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz; Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 10Hz;



The measurement is made according to ANSI C63.10.

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.



A.2. Maximum Peak Output Power

Measurement Limit and Method:

Standard	Limit (dBm)
FCC CRF Part 15.407(a)	< 30

A.2.1. Maximum Peak Output Power-conducted

Measurement Results:

802.11a mode

	Data Rate	Test Result (dBm)		
Mode	(Mbps)	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
	6	23.35	/	/
	9	23.26	/	/
	12	23.23	/	/
000 110	18	22.67	/	/
802.11a	24	23.01	/	/
	36	23.48	23.18	20.21
	48	23.12	/	/
	54	23.11	/	/

The data rate 36Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Data Pata		Test Result (dBm)		
Mode	Data Rate (Index)	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz (Ch165)
	MCS0	26.13	25.91	21.03
	MCS1	25.19	/	/
	MCS2	25.78	/	/
	MCS3	26.23	/	/
802.11n (20MHz)	MCS4	26.31	/	/
	MCS5	26.38	/	/
	MCS6	26.14	/	/
	MCS7	26.25	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.



802.11ac-HT20 mode

	Data Rate		Test Result (dBm)		
Mode	(Index)	5745MHz	5785MHz	5825MHz	
	(IIIdex)	(Ch149)	(Ch157)	(Ch165)	
	MCS0	25.12	/	/	
	MCS1	24.87	/	/	
	MCS2	24.91	/	/	
000 44	MCS3	25.54	/	/	
802.11ac (20MHz)	MCS4	25.23	/	/	
(201VII 12)	MCS5	25.78	25.59	21.87	
	MCS6	25.33	/	/	
	MCS7	25.45	/	/	
	MCS8	25.19	/	/	

The data rate MCS5 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

	Data Bata	Test Result	(dBm)
Mode (Index)	Data Rate (Index)	5755MHz (Ch151)	5795MHz (Ch159)
	MCS0	26.45	/
	MCS1	25.31	/
<u> </u>	MCS2	25.33	/
802.11n	MCS3	25.28	/
(40MHz)	MCS4	26.14	/
=	MCS5	27.33	/
	MCS6	27.36	26.56
	MCS7	27.01	/

The data rate MCS6 is selected as worse condition, and the following cases are performed with this condition.

	Data Data	Test Result (dBm)		
Mode Data Rate		5755MHz	5795MHz	
	(Index)	(Ch151)	(Ch159)	
	MCS0	24.87	/	
	MCS1	24.98	1	
	MCS2	24.87	/	
000 44	MCS3	24.35	/	
802.11ac	MCS4	25.61	/	
(40MHz)	MCS5	26.35	26.18	
	MCS6	26.21	1	
Ī	MCS7	26.17	/	
	MCS8	26.25	/	



The data rate MCS5 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT80 mode

	Data Bata	Test Result (dBm)
Mode	Data Rate	5775MHz
	(Index)	(Ch155)
	MCS0	25.12
	MCS1	24.47
	MCS2	24.43
000 1100	MCS3	24.42
802.11ac (80MHz)	MCS4	24.31
(OUIVITIZ)	MCS5	26.03
	MCS6	26.07
	MCS7	26.15
	MCS8	26.12

The data rate MCS7 is selected as worse condition, and the following cases are performed with this condition.

Conclusion: PASS



A.2.2. Maximum Average Output Power-Conducted

Method of Measurement: See ANSI C63.10-clause 12.3.2.2 Method SA-1

802.11a mode

Mode	Test Result (dBm)			
Mode	5745MHz (Ch149) 5785MHz (Ch157) 5825MHz (Ch165)			
802.11a	16.48	16.26	15.79	

802.11n-HT20 mode

Mode	Test Result (dBm)			
Wiode	5745MHz (Ch149) 5785MHz (Ch157) 5825MHz(Ch165)			
802.11n(20MHz)	17.66	17.55	16.69	

802.11ac-HT20 mode

	Test Result (dBm)		
Mode	5745MHz (Ch149)	5785MHz (Ch157)	5825MHz(Ch165)
802.11ac(20MHz)	17.08	16.53	15.91

802.11n-HT40 mode

Mada	Test Result (dBm)		
Mode	5755MHz (Ch151)	5795MHz(Ch159)	
802.11n(40MHz)	17.28	16.97	

802.11ac-HT40 mode

Mode	Test Result (dBm)		
Wiode	5755MHz (Ch151)	5795MHz(Ch159)	
802.11ac(40MHz)	16.71	16.56	

802.11ac-HT80 mode

Mode	Test Result (dBm)	
Mode	5775MHz (Ch155)	
802.11ac(80MHz)	16.37	

Conclusion: PASS



A.3. Peak Power Spectral Density

Measurement Limit:

Standard	Limit	
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz	

The measurement is made according to ANSI C63.10 and KDB789033 D02

Measurement Uncertainty:

Measurement Uncertainty	0.75dB

Measurement Results:

Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
	149	6.25	Р
802.11a	157	6.48	Р
	165	6.89	Р
000 11 n	149	5.46	Р
802.11n HT20	157	5.38	Р
П120	165	5.81	Р
000 1100	149	7.68	Р
802.11ac HT20	157	7.57	Р
H120	165	7.73	Р
802.11n	151	3.50	Р
HT40	159	3.57	Р
802.11ac	151	3.36	Р
HT40	159	3.92	Р
802.11ac HT80	155	-0.3	Р

Conclusion: PASS



A.4. Occupied 6dB Bandwidth

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.247 (a)	≥ 500

The measurement is made according to KDB789033 D02.

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz

Measurement Result:

Mode	Channel	Occupied 6dB Bandwidth (MHz)		conclusion
	149	Fig.1	15.15	Р
802.11a	157	Fig.2	15.15	Р
	165	Fig.3	16.35	Р
000 11n	149	Fig.4	15.10	Р
802.11n	157	Fig.5	15.10	Р
HT20	165	Fig.6	17.55	Р
802.11ac HT20	149	Fig.7	15.15	Р
	157	Fig.8	15.10	Р
	165	Fig.9	17.65	Р
802.11n	151	Fig.10	35.04	Р
HT40	159	Fig.11	35.68	Р
802.11ac	151	Fig.12	35.04	Р
HT40	159	Fig.13	35.60	Р
802.11ac HT80	155	Fig.14	75.20	Р

Conclusion: PASS
Test graphs as below:



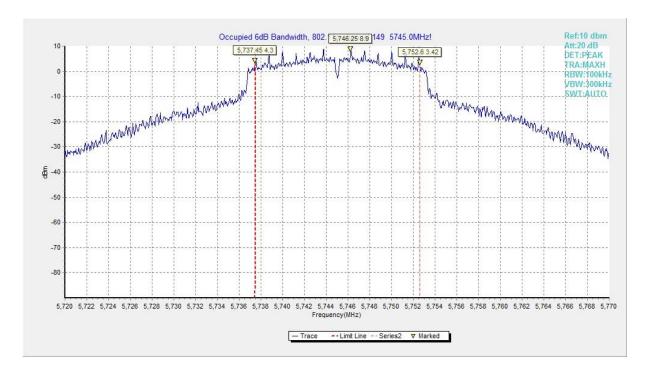


Fig. 1 Occupied 6dB Bandwidth (802.11a, Ch 149)

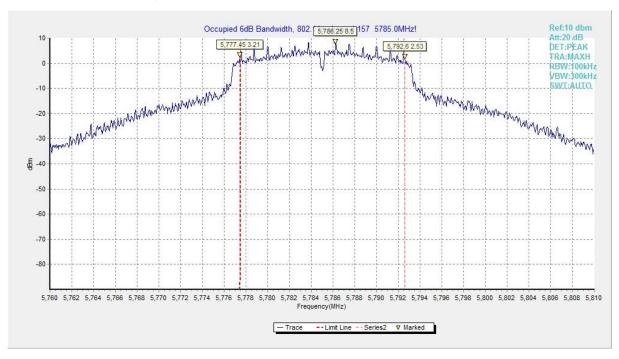


Fig. 2 Occupied 6dB Bandwidth (802.11a, Ch 157)



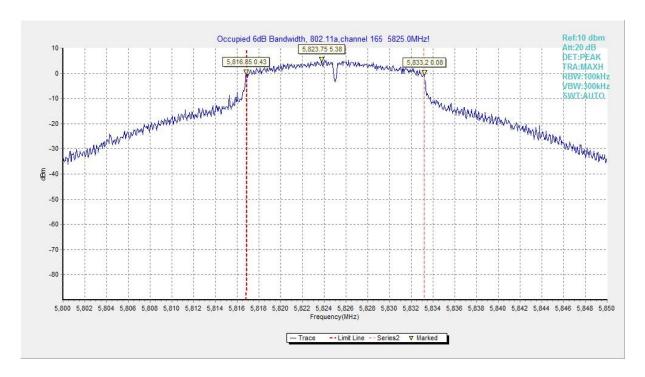


Fig. 3 Occupied 6dB Bandwidth (802.11a, Ch 165)

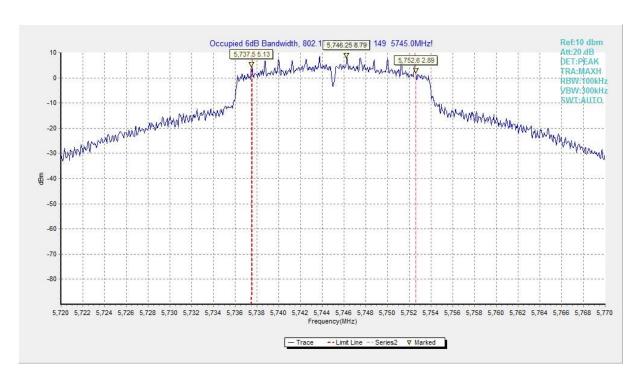


Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)



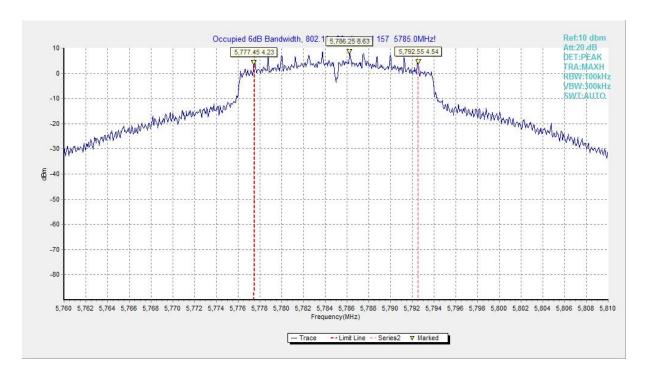
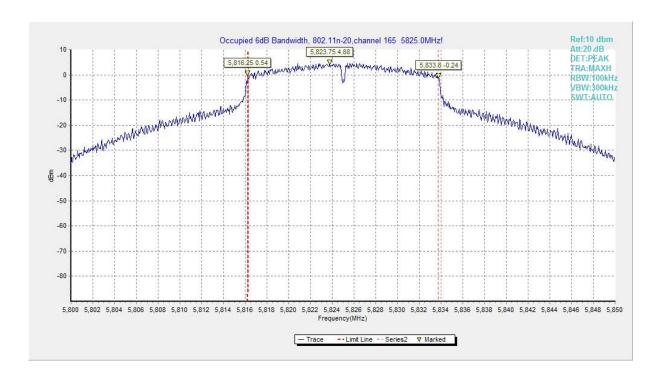


Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)





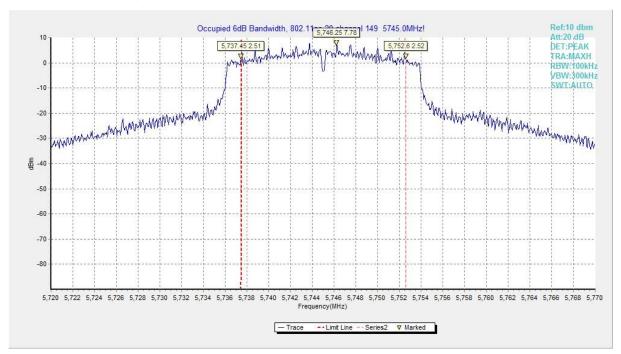


Fig. 6 Occupied 6dB Bandwidth (802.11n-HT20, Ch 165)



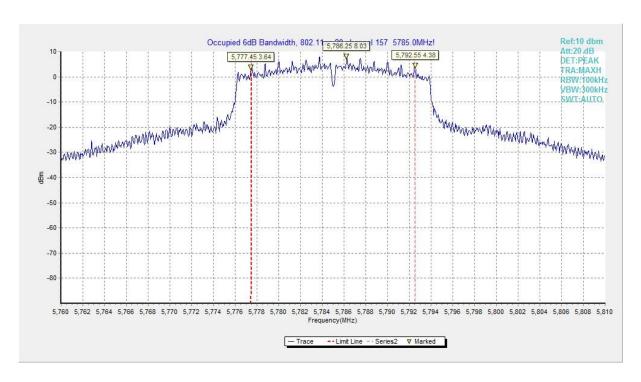


Fig. 8 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 157)



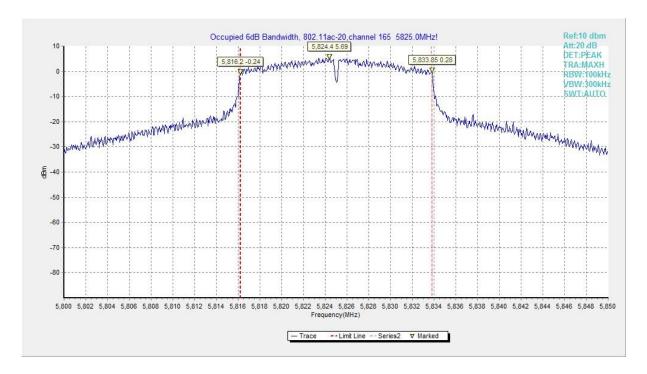


Fig. 9 Occupied 6dB Bandwidth (802.11ac-HT20, Ch 165)

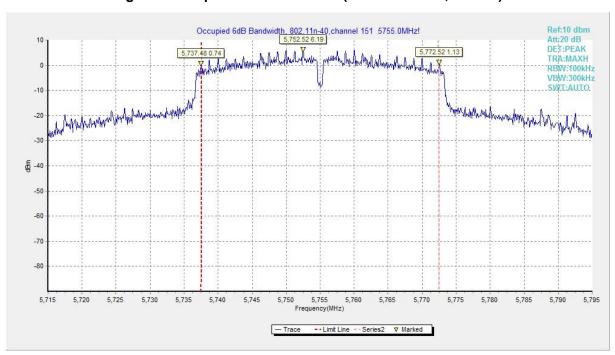


Fig. 10 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)