

<b>Prüfbericht-Nr.:</b> <i>Test Report No.:</i>	<b>50097181 001</b>	<b>Auftrags-Nr.:</b> <i>Order No.:</i>	<b>114068037</b>	<b>Seite 1 von 43</b> <i>Page 1 of 43</i>
<b>Kunden-Referenz-Nr.:</b> <i>Client Reference No.:</i>	N/A	<b>Auftragsdatum:</b> <i>Order date:</i>	04-Aug-2017	
<b>Auftraggeber:</b> <i>Client:</i>	Beijing TPCast Technologies Limited Company., Room 301-09, 3rd Floor, No. 22 Building, No.1 Yard, 1st Street of Wuliqiao, Chaoyang District, Beijing, P.R. China.			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Power Box			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type No.:</i>	AD-1			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	FCC Part15E/ RSS-247 / NCC Test report			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC 47CFR Part 15: Subpart E Section 15.407 RSS-247 (02-2017) NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2016)			
<b>Wareneingangsdatum:</b> <i>Date of receipt:</i>	27-Apr-2017			
<b>Prüfmuster-Nr.:</b> <i>Test sample No.:</i>	A000609780-001 A000609780-002			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	11-Aug-2017 - 17-Aug-2017			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	EMC/RF Laboratory Taipei			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TUV Rheinland Taiwan Ltd.			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>Report Date / tested by:</b>	<b>kontrolliert von / reviewed by:</b>			
2017-09-01 SamC.J. Kuo/Engineer	2017-09-01 Ryan W.T. Chen/Project Manager			
<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>
<b>Sonstiges / Other:</b>				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
<b>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.</b> <i>This test report only relates to the a. m. 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>				

**Prüfbericht - Nr.:** 50097181 001  
*Test Report No.*

**Seite 2 von 43**  
*Page 2 of 43*

## TEST SUMMARY

**5.1.1 ANTENNA REQUIREMENT**

RESULT: Passed

**5.1.2 26 dB BANDWIDTH AND 99% BANDWIDTH**

RESULT: Passed

**5.1.3 6 dB BANDWIDTH**

RESULT: Passed

**5.1.4 TRANSMIT OUTPUT POWER**

RESULT: Passed

**5.1.5 POWER SPECTRAL DENSITY**

RESULT: Passed

**5.1.6 SPURIOUS EMISSION**

RESULT: Passed

## Contents

<b>1.</b>	<b>GENERAL REMARKS .....</b>	<b>4</b>
<b>1.1</b>	<b>COMPLEMENTARY MATERIALS.....</b>	<b>4</b>
<b>2.</b>	<b>TEST SITES .....</b>	<b>5</b>
<b>2.1</b>	<b>TEST FACILITY.....</b>	<b>5</b>
<b>2.2</b>	<b>LIST OF TEST AND MEASUREMENT INSTRUMENTS.....</b>	<b>6</b>
<b>2.3</b>	<b>TRACEABILITY .....</b>	<b>7</b>
<b>2.4</b>	<b>CALIBRATION .....</b>	<b>7</b>
<b>2.5</b>	<b>MEASUREMENT UNCERTAINTY .....</b>	<b>7</b>
<b>3.</b>	<b>GENERAL PRODUCT INFORMATION.....</b>	<b>8</b>
<b>3.1</b>	<b>PRODUCT FUNCTION AND INTENDED USE .....</b>	<b>8</b>
<b>3.2</b>	<b>RATINGS AND SYSTEM DETAILS.....</b>	<b>8</b>
<b>3.3</b>	<b>INDEPENDENT OPERATION MODES .....</b>	<b>10</b>
<b>3.4</b>	<b>NOISE GENERATING AND NOISE SUPPRESSING PARTS .....</b>	<b>11</b>
<b>3.5</b>	<b>SUBMITTED DOCUMENTS.....</b>	<b>11</b>
<b>4.</b>	<b>TEST SET-UP AND OPERATION MODES.....</b>	<b>12</b>
<b>4.1</b>	<b>PRINCIPLE OF CONFIGURATION SELECTION .....</b>	<b>12</b>
<b>4.2</b>	<b>TEST OPERATION AND TEST SOFTWARE.....</b>	<b>12</b>
<b>4.3</b>	<b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b>	<b>13</b>
<b>4.4</b>	<b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....</b>	<b>14</b>
<b>4.5</b>	<b>TEST SETUP DIAGRAM .....</b>	<b>14</b>
<b>5.</b>	<b>ANTENNA PORT TEST RESULTS.....</b>	<b>16</b>
<b>5.1</b>	<b>TRANSMITTER REQUIREMENT &amp; TEST SUITES .....</b>	<b>16</b>
5.1.1	Antenna Requirement .....	16
5.1.2	26 dB Bandwidth and 99% Bandwidth.....	17
5.1.3	6 dB Bandwidth .....	22
5.1.4	Transmit Output Power.....	27
5.1.5	Power Spectral Density .....	29
5.1.6	Spurious Emission.....	39
	<b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>	<b>40</b>
<b>6.</b>	<b>LIST OF TABLES .....</b>	<b>43</b>
<b>7.</b>	<b>LIST OF PHOTOGRAPHS.....</b>	<b>43</b>

## 1. General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

**Appendix P: Photo Documentation internal view**  
(File Name: 50097181APPENDIXP)

**Appendix D: Test Result of Radiated Emissions**  
(File Name: 50097181APPENDIXD)

Test Specifications

The following standards were applied:

**Table 1: Applied Standard and Test Levels**

Radio
FCC CFR47 Part 15 Subpart E RSS-247 issue 2, Feb 2017 RSS-Gen, Issue 4, November 2014 ANSI C63.10:2013 FCC KDB 789033 FCC KDB 662911 D01 FCC KDB 644545 NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2016)

## 2. Test Sites

### 2.1 Test Facility

TUV Rheinland Taiwan Ltd.  
Taipei Office

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

FCC Registration No.: 340738  
IC Canada Registration No.: 9465A-1  
TAF Accredited NCC Test Lab. No.:0759  
TAF ISO17025 Certification effective periods: 2016-Jul-1st to 2019-Jun-30th



**Testing Laboratory**  
**0759**

## 2.2 List of Test and Measurement Instruments

**Table 2: List of Test and Measurement Equipment**

Kind of Equipment	Manu-facturer	Type	S/N	Last Calibration	Next Calibration
Test Software	Farad	EZ_EMC	Ver. TUV3A1	N/A	N/A
EMI Test Receiver	R&S	ESR7	101062	2016/09/12	2017/09/12
Spectrum Analyzer	R&S	FSV 40	100921	2017/05/02	2018/05/01
Spectrum Analyzer	Agilent	N9010A	MY53470241	2017/04/23	2018/04/22
Preamplifier (30MHz -1GHz)	HP	8447D	2944A06641	2016/12/28	2017/12/28
Preamplifier (18 GHz -40 GHz)	COM-POWER	PAM-840	461257	2016/12/01	2017/12/01
Pre-Amplifier (1GHz~18GHz)	EM Electronics	EM01G18G	060558	2016/11/17	2017/11/17
Bilog Antenna	TESEQ	CBL6111D	29802	2017/07/12	2018/07/12
Horn Antenna	ETS-Lindgren	3117	138160	2017/05/25	2018/05/25
Horn Antenna (18GHz~40GHz)	COM-POWER	AH840	101029	2016/10/11	2017/10/11
Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2017/06/14	2018/06/14
EMI Test Receiver	R&S	ESC17	100797	2016/12/30	2017/12/30
Spectrum Analyzer	R&S	FSL3	101943	2015/09/07	2017/09/07
Temp. & Humid. Chamber	WISEWIND	1509	509Q24R	2017/05/24	2018/05/24
LISN	R&S	ENV216	101262	2017/06/22	2018/06/21
Test Software	Audix	e3	Ver. 9	N/A	N/A
Test Software	Agilent	300328 testsystem	V1.9.1	N/A	N/A
Power sensor	Agilent	U2021XA	MY54020001	2017/03/08	2018/03/07

## 2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular schedule using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are:.

**Table 3: Emission Measurement Uncertainty**

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF power, conducted	$\pm 1.5$ dB
Adjacent channel power	$\pm 3$ dB
Radiated emission of transmitter, valid up to 40 GHz	$\pm 6$ dB
Radiated emission of receiver, valid up to 40 GHz	$\pm 6$ dB
Temperature	$\pm 2$ °C
Humidity	$\pm 10$ %

### 3. General Product Information

#### 3.1 Product Function and Intended Use

PC transmitter transfers audio and video signal of PC through TPCAST wireless high-definition transfer protocol to wireless signals which is transmitted to HMD receiver.

HMD receiver accepts wireless signals from PC transmitter, through TPCAST wireless high-definition transfer protocol to restore to audio and video signal which is transmitted to helmet display.

Power box adjusts voltage and current output from power bank to the used value for HMD Receiver and HMD, and offer power supply for the both. At the same time, it transfers the positioning information from the helmet and interactive information into wireless signal, and pass back to PC for operation.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

#### 3.2 Ratings and System Details

**Table 4: Technical Specification of EUT**

Technical Specification	Value
Kind of Equipment	Power Box
FCC ID	2AL8N-AD001
IC ID	22801-AD001
HVIN	F3
Brand name	TPCAST
Type Designation	AD-1
Operating Frequency	5180 - 5240MHz, 5745 MHz - 5825 MHz
Operation Voltage	5Vdc
Modulation	802.11n HT20 MHz Mode: OFDM 802.11 ac HT20 MHz Mode: OFDM
Antenna gain	3.1dBi
Antenna Type	PCB Antenna



**Table 5: Test Channel Frequency information**

	CH	Frequency
		(MHz)
802.11n (HT20) Band I	36	5180
802.11n (HT20) Band I	40	5200
802.11n (HT20) Band I	44	5220
802.11n (HT20) Band I	48	5240
802.11ac (HT20) Band I	36	5180
802.11ac (HT20) Band I	40	5200
802.11ac (HT20) Band I	44	5220
802.11ac (HT20) Band I	48	5240
802.11n (HT20) Band IV	149	5745
802.11n (HT20) Band IV	157	5785
802.11n (HT20) Band IV	165	5825
802.11ac (HT20) Band IV	149	5745
802.11ac (HT20) Band IV	157	5785
802.11ac (HT20) Band IV	165	5825

### **3.3 Independent Operation Modes**

The basic operation modes are:

- A. Transmitting
  - 1. Low channel
  - 2. Middle channel
  - 3. High channel
- B. Receiving
- C. Standby
- D. Off

### **3.4 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.5 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed in section 2.3 as appropriate. The samples were used as follows:

Conducted: A000609780-001  
Radiation: A000609780-002

Full test was applied on all test modes, but only worst case was shown.

**U-NII-1:****IEEE 802.11n HT20 mode for 5180 ~ 5240MHz:**

Channel Low (5180MHz), Channel Mid (5200MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

**IEEE 802.11ac HT20 MHz mode for 5180 ~ 5240MHz:**

Channel Low (5180MHz), Channel Mid (5200MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

**U-NII-3:****IEEE 802.11n HT20 mode for 5745 MHz ~ 5825 MHz:**

Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 6.5Mbps data rate were chosen for full testing.

**IEEE 802.11ac HT20 MHz mode for 5745 MHz ~ 5825 MHz:**

Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 6.5Mbps data rate were chosen for full testing.

## 4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

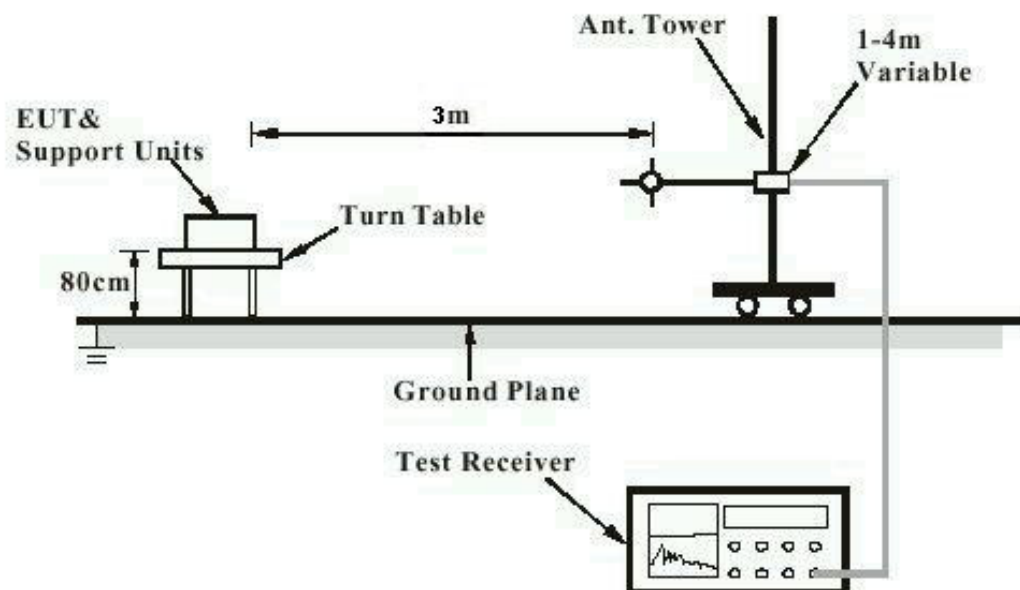
Description	Manufacturer	Model No.	Serial No.
Notebook(EMC-06)	Lenovo	TP00048A	PB-0F8B2

## 4.4 Countermeasures to achieve EMC Compliance

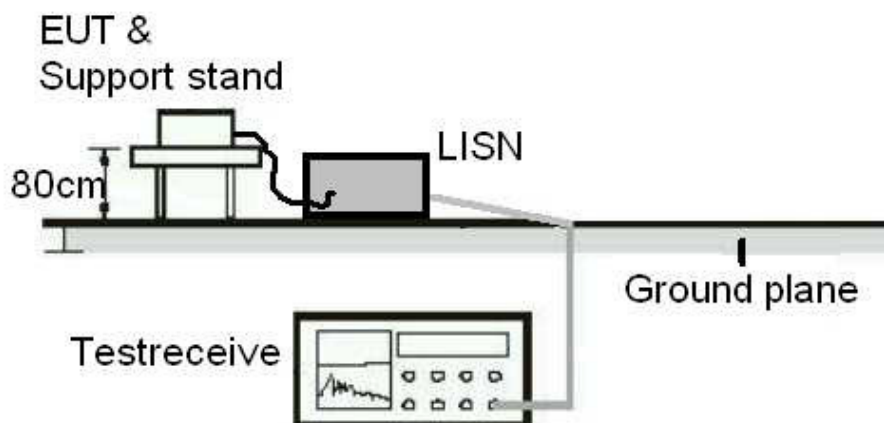
The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

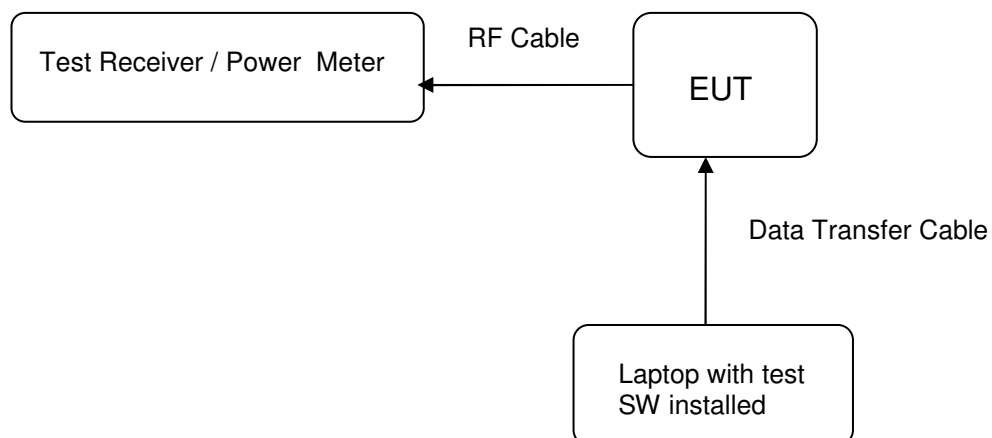
**Diagram of Measurement Configuration for Radiation Test**



### Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



### Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



## 5. Antenna Port Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:****Passed**

Test standard	:	LP0002(2016): 4.7.8 FCC Part 15.407(a), Part 15.203 and RSS- Gen 7.1.4
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 3.1dBi. The antenna is PCB Antenna with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.

Refer to EUT photo for details.



## 5.1.2 26 dB Bandwidth and 99% Bandwidth

### RESULT:

**Passed**

Test standard : LP0002(2016):4.7.3  
 FCC Part 15.407(a), RSS-247 issue2 6.2.1  
 Kind of test site : Shielded room

### Test setup

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
 Ambient temperature : 22-26 °C  
 Relative humidity : 50-65 %  
 Atmospheric pressure : 100-103 kPa

**Table 6: Test result of 26dB/99% Bandwidth 802.11n HT20**

Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low Channel	5180	34.79	18.872
Mid Channel	5200	36.82	18.812
Mid Channel	5220	34.46	18.912
High Channel	5240	37.69	20.261

**Table 7: Test result of 26dB/99% Bandwidth 802.11ac HT20**

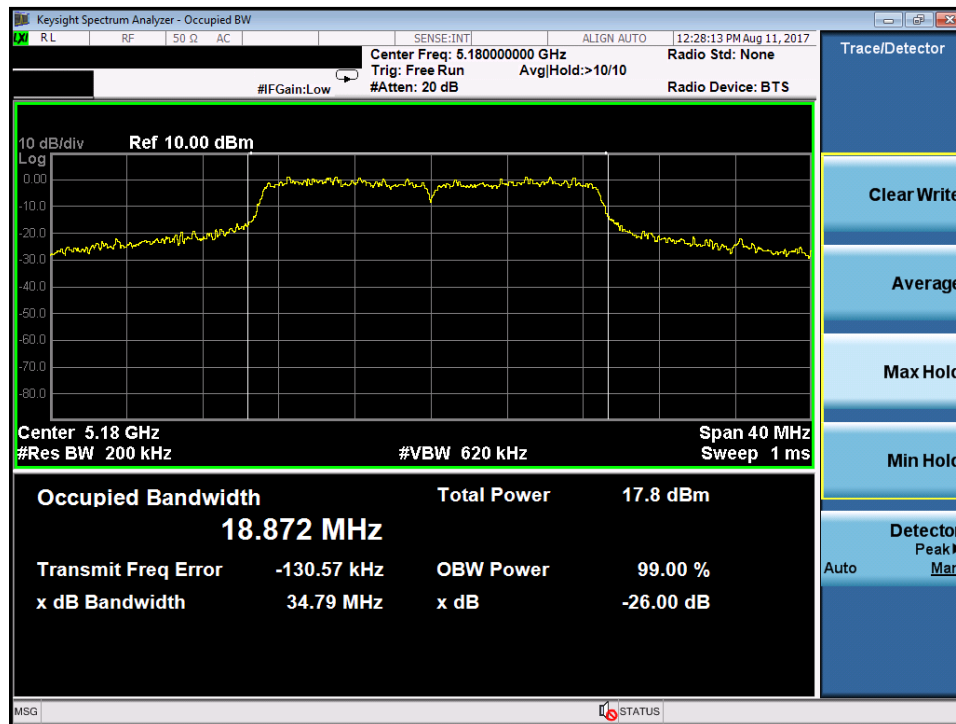
Channel	Channel Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low Channel	5180	32.96	18.295
Mid Channel	5200	35.05	18.488
Mid Channel	5220	34.39	18.748
High Channel	5240	38.42	19.528

**Prüfbericht - Nr.:** 50097181 001  
*Test Report No.*

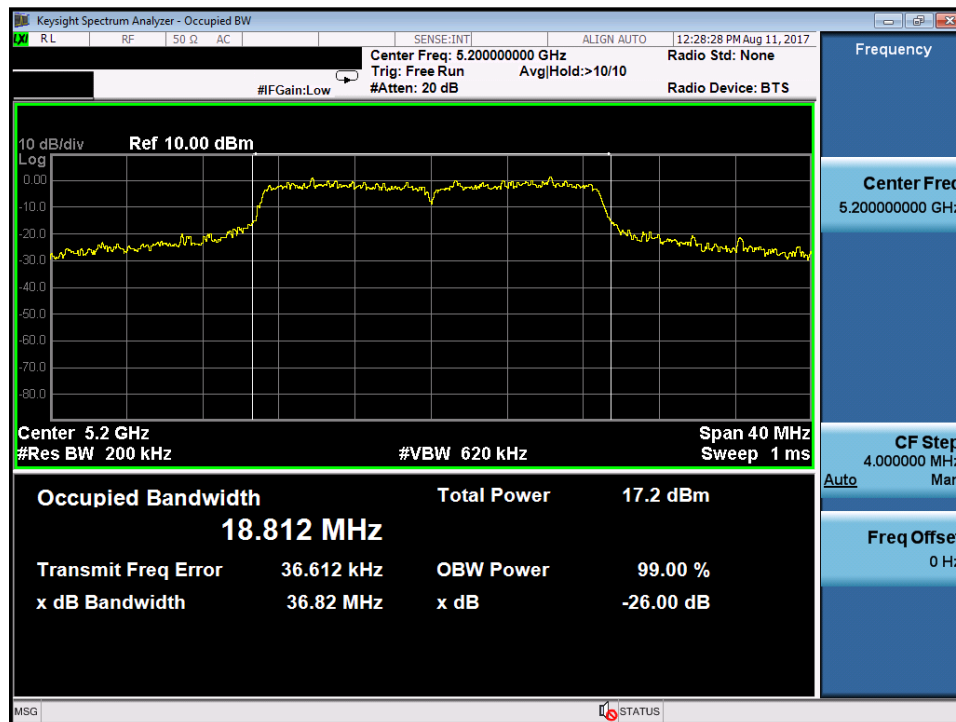
**Seite 18 von 43**  
*Page 18 of 43*

## Test Plot of 26dB Bandwidth 802.11n HT20

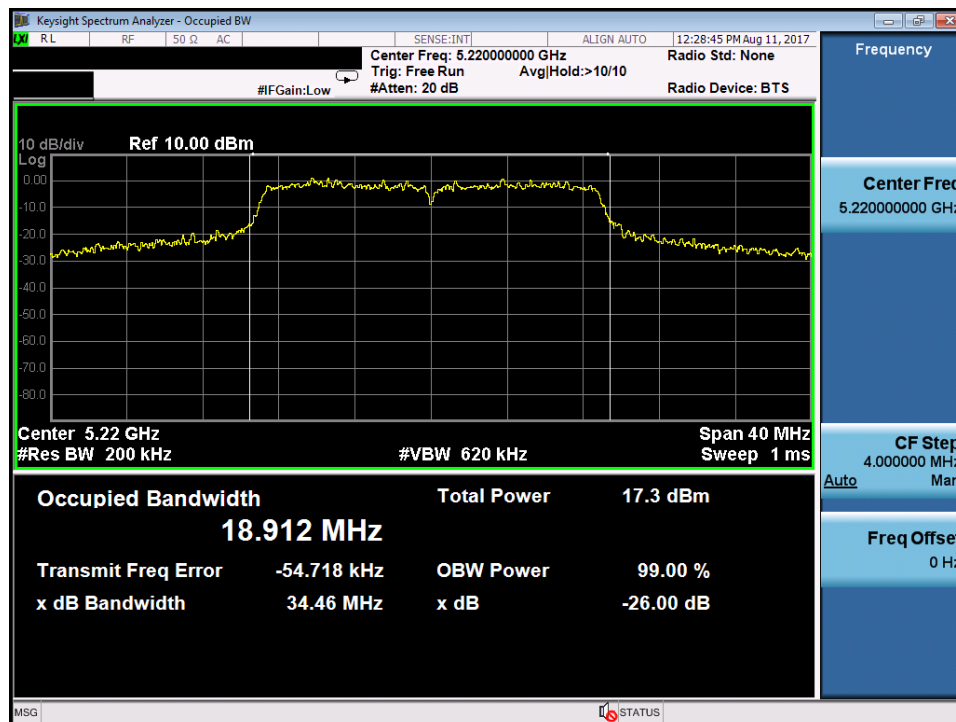
### Low Channel



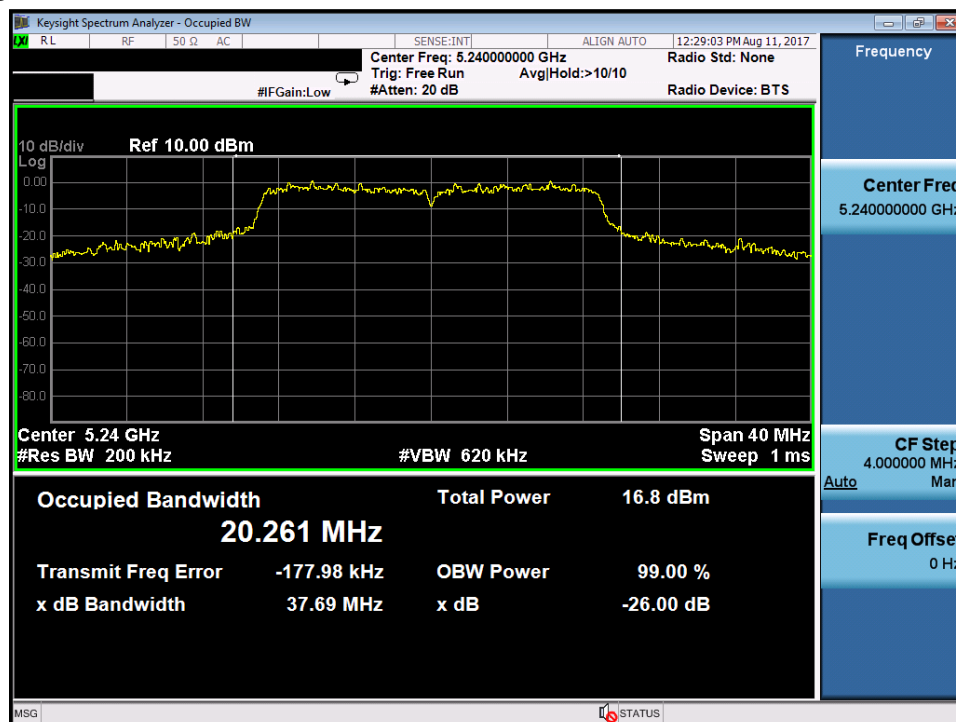
### Mid Channel



### Mid Channel

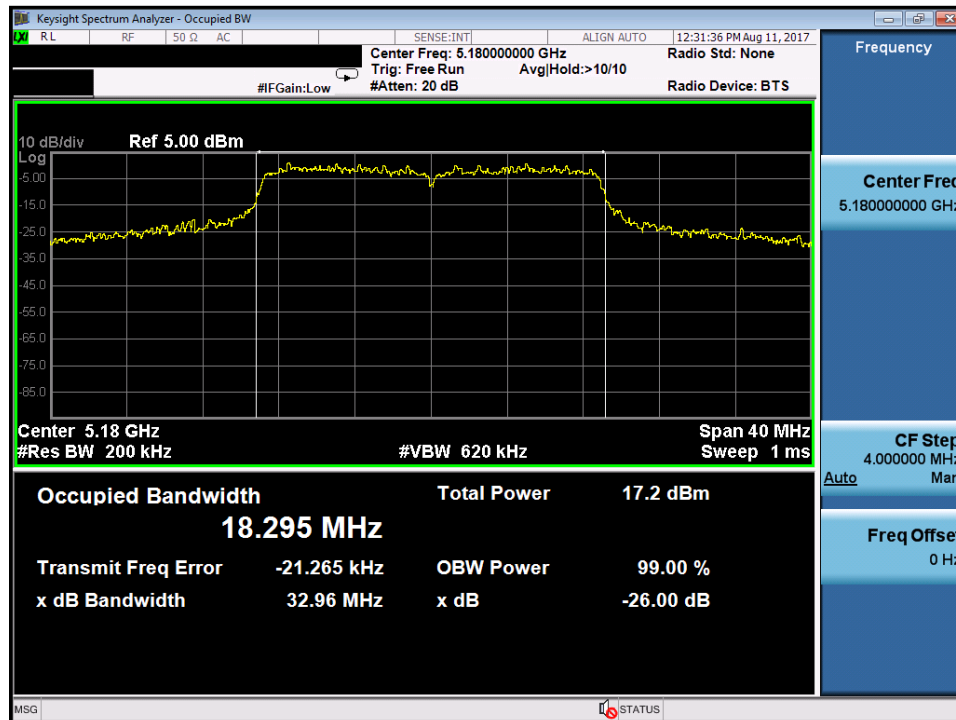


### High Channel

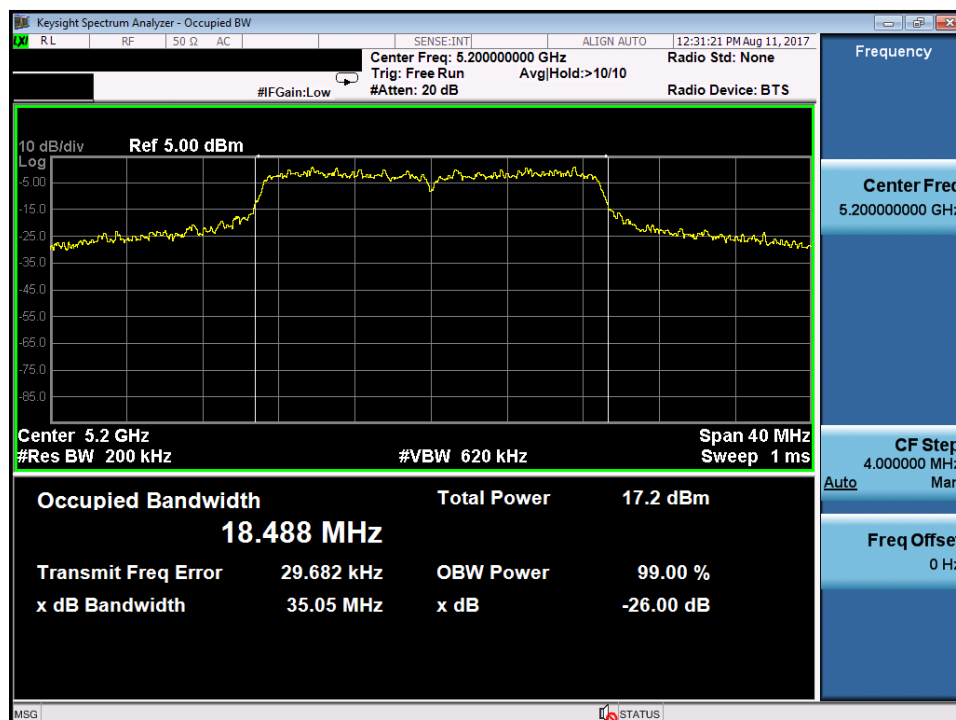


## Test Plot of 26dB Bandwidth 802.11ac HT20

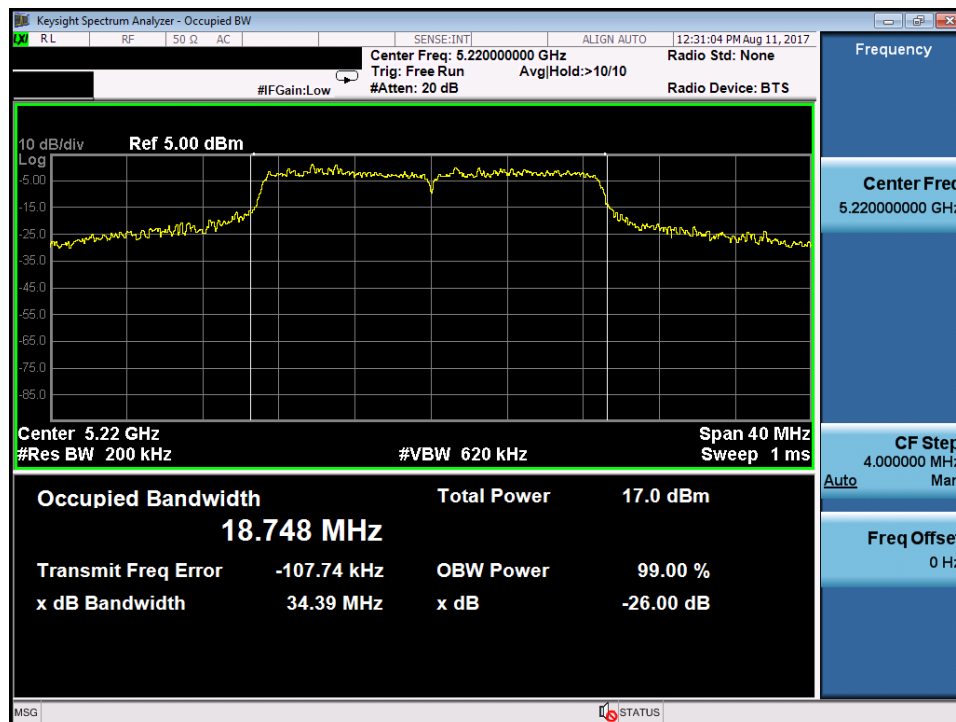
### Low Channel



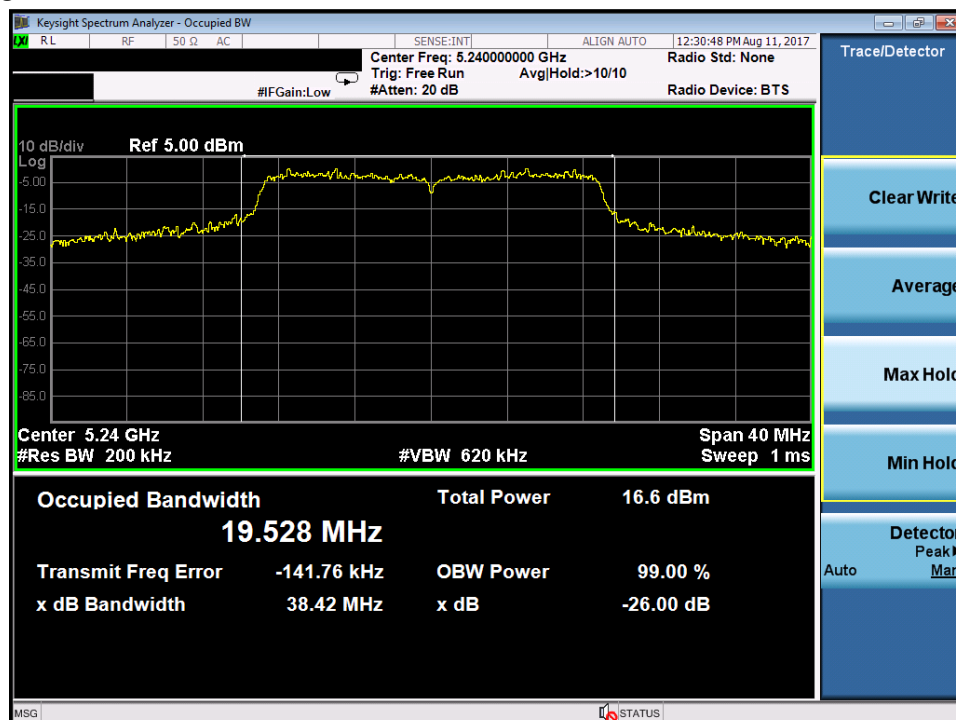
### Mid Channel



### Mid Channel



### High Channel



### 5.1.3 6 dB Bandwidth

**RESULT:**
**Passed**

Test standard : LP0002(2016):4.7.(5)  
 FCC Part 15.407(a), RSS-247 issue2 6.2.4  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
 Ambient temperature : 22-26 °C  
 Relative humidity : 50-65 %  
 Atmospheric pressure : 100-103 kPa

**Table 8: Test result of 6dB Bandwidth 802.11n HT20**

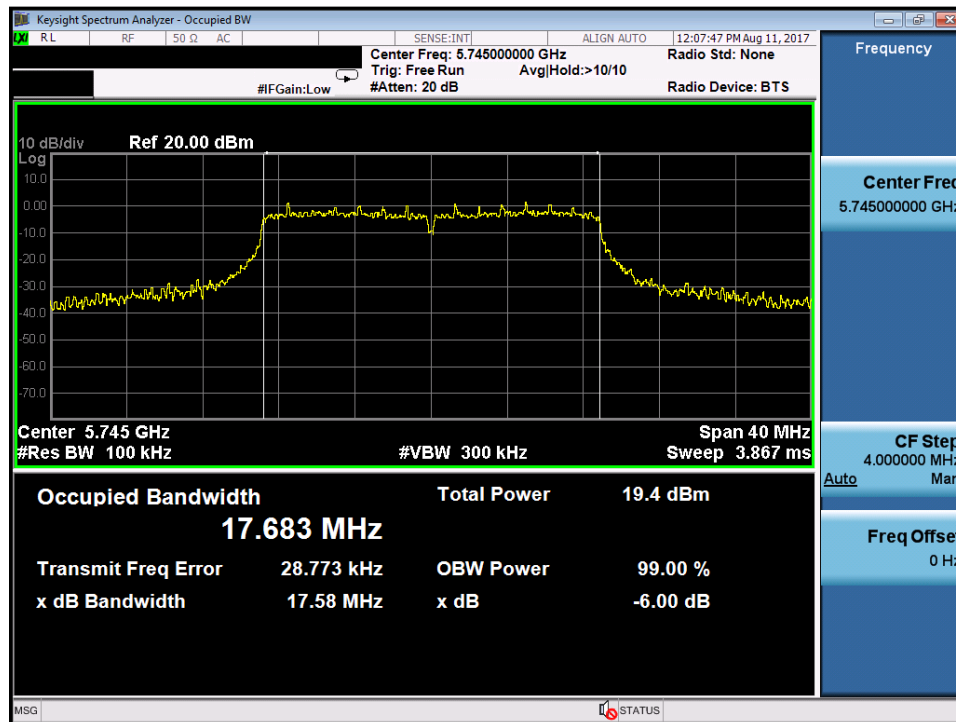
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low Channel	5745	17.58	> 0.5
Mid Channel	5785	17.58	> 0.5
High Channel	5825	17.58	> 0.5

**Table 9: Test result of 6dB Bandwidth 802.11ac HT20**

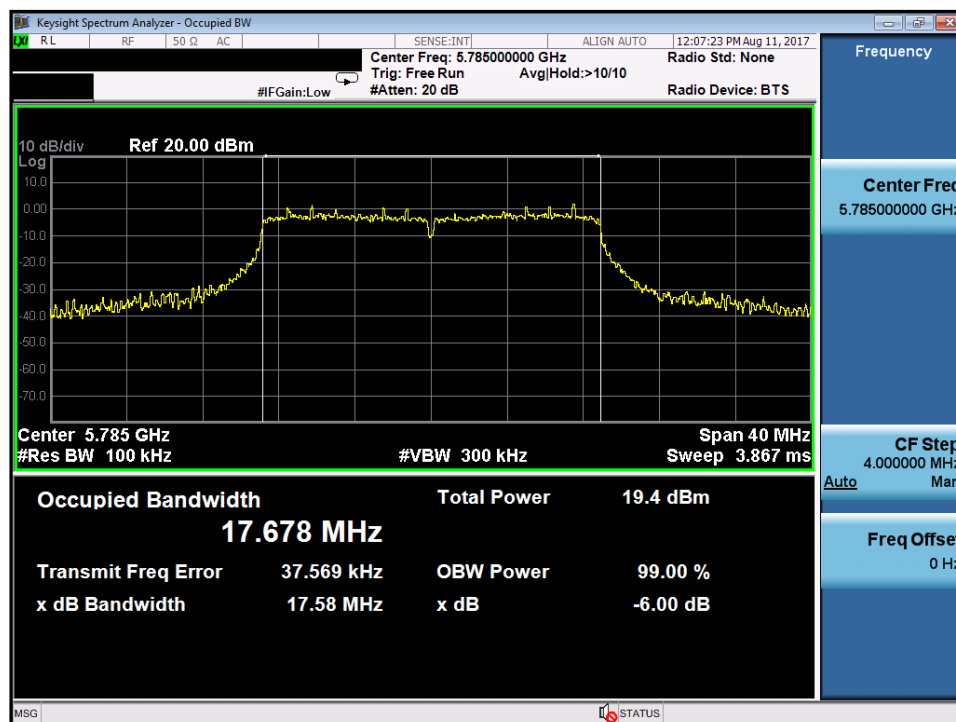
Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low Channel	5745	17.58	> 0.5
Mid Channel	5785	17.55	> 0.5
High Channel	5825	17.57	> 0.5

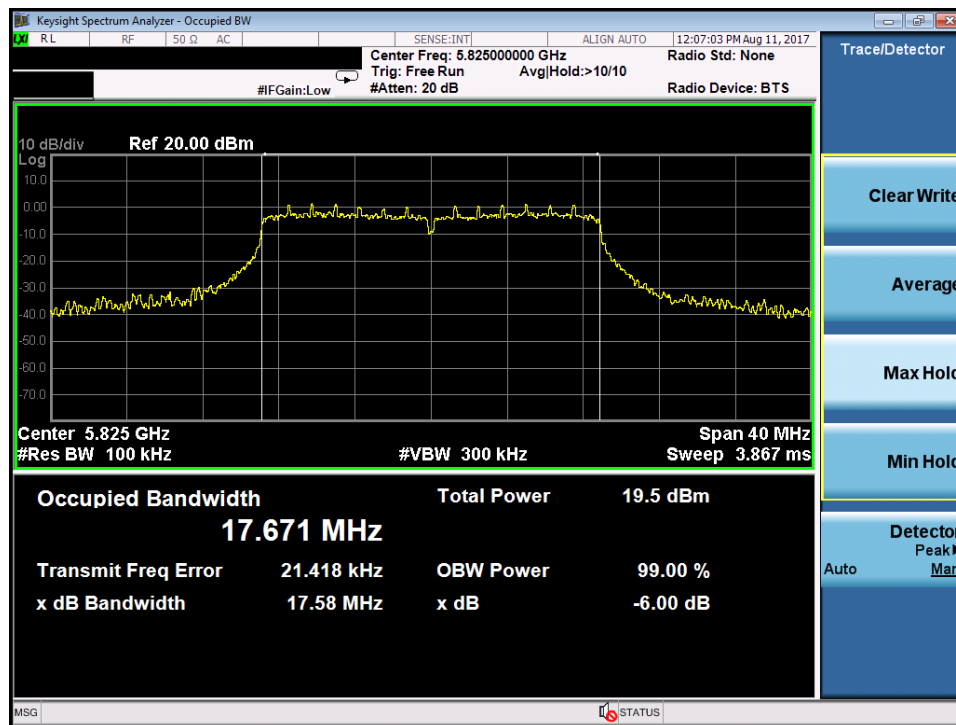
## Test Plot of 6dB Bandwidth 802.11n HT20

### Low Channel



### Mid Channel

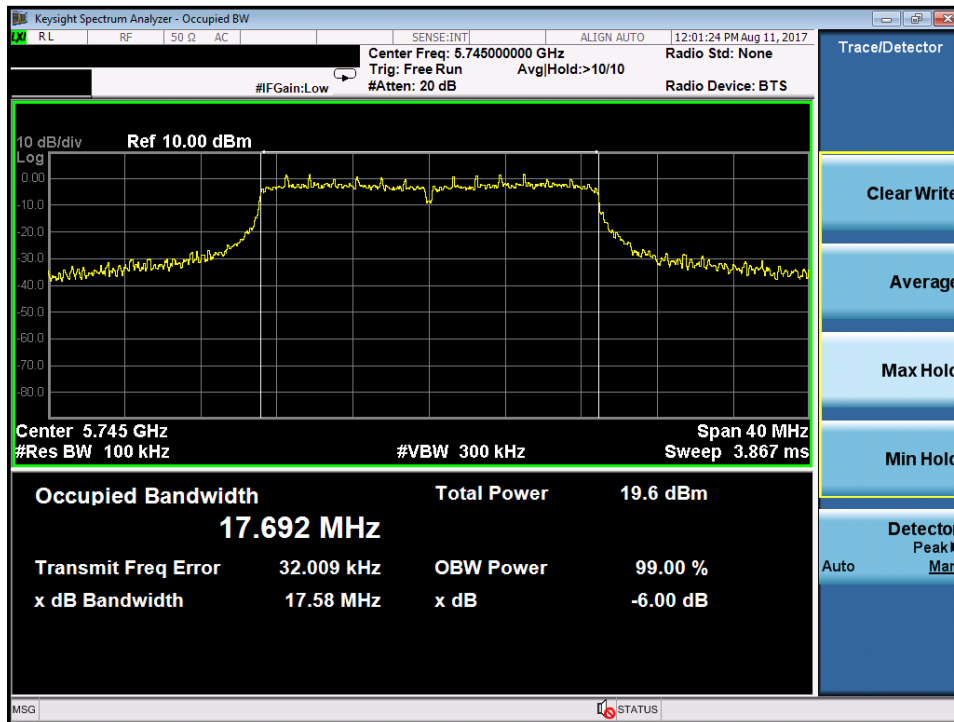


**High Channel**


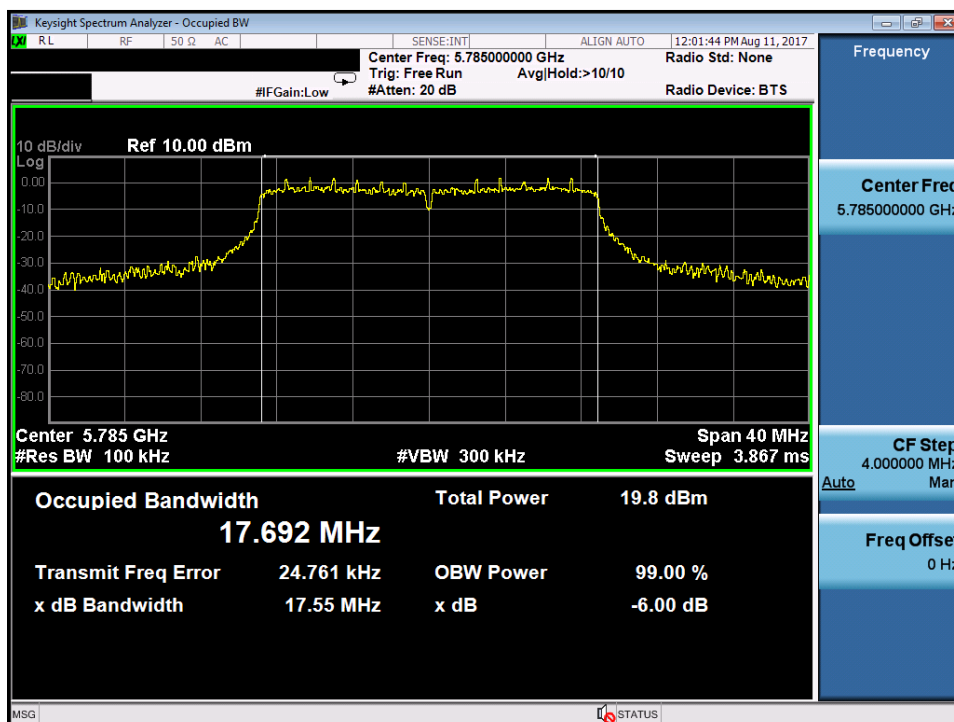


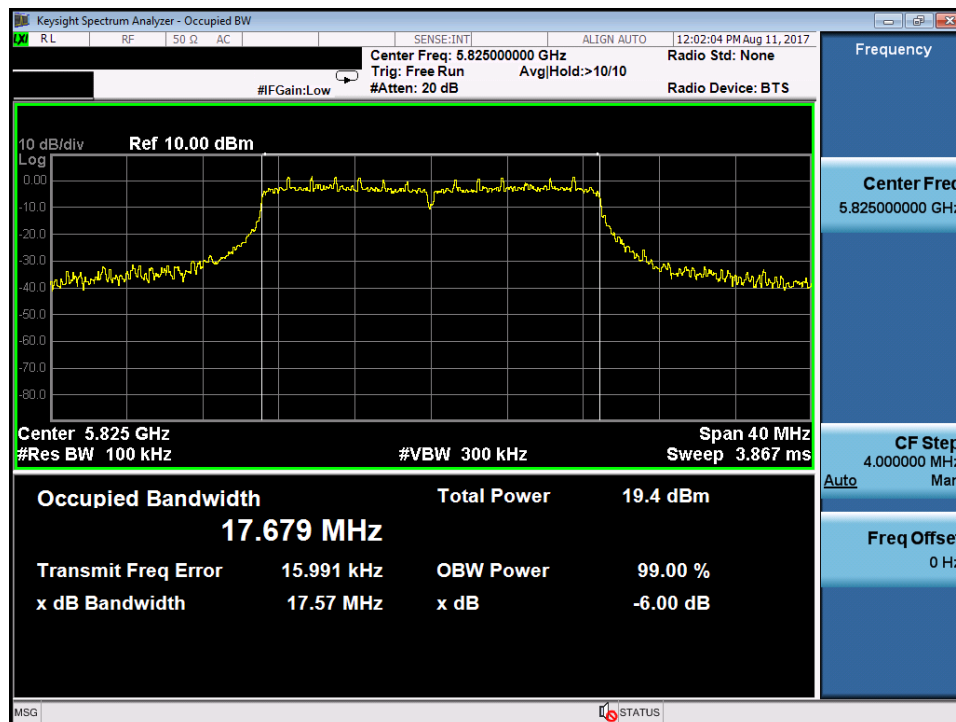
## Test Plot of 6dB Bandwidth 802.11ac HT20

### Low Channel



### Mid Channel



**High Channel**


## 5.1.4 Transmit Output Power

### RESULT:

**Passed**

Test standard : LP0002(2016):4.7.3  
FCC Part 15.407(a), RSS-247 issue2 6.2.1, 6.2.4

Kind of test site : Shielded room

### Test setup

Test Channel : Low/ Middle/ High  
Operation Mode : A

Ambient temperature : 22-26 °C  
Relative humidity : 50-65 %  
Atmospheric pressure : 100-103 kPa

15.407 General technical requirements.

(a) Power limits:

For the band 5.15–5.25 GHz.:

(iv) For mobile and portable client devices in the 5.15–5.25 GHz. band, the maximum **conducted** output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

-----  
(3 )For the band 5.725 - 5.85 GHz,  
the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

In addition, the maximum power spectral density shall not exceed 30 dBm in any 500kHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

=====

**Table 10: Test result of Transmit Power 802.11n HT20**
**5150-5250MHz:**

Channel	Channel Frequency (MHz)	Power (dBm)	Power (mW)	Limit (mW)	Result
Low Channel	5180	11.05	12.74	250	Pass
Mid Channel	5200	10.9	12.30	250	Pass
Mid Channel	5220	10.73	11.83	250	Pass
High Channel	5240	10.29	10.69	250	Pass

**5725-5850MHz:**

Channel	Channel Frequency (MHz)	Power(dBm)	Power (mW)	Limit (mW)	Result
Low Channel	5745	11.56	14.32	1000	Pass
Mid Channel	5785	11.83	15.24	1000	Pass
High Channel	5825	11.6	14.45	1000	Pass

**Table 11: Test result of Transmit Power 802.11ac HT20**
**5150-5250MHz:**

Channel	Channel Frequency (MHz)	Power (dBm)	Power (mW)	Limit (mW)	Result
Low Channel	5180	10.73	11.83	250	Pass
Mid Channel	5200	10.57	11.40	250	Pass
Mid Channel	5220	10.51	11.25	250	Pass
High Channel	5240	10.08	10.19	250	Pass

**5725-5850MHz:**

Channel	Channel Frequency (MHz)	Power(dBm)	Power (mW)	Limit (mW)	Result
Low Channel	5745	11.83	14.40	1000	Pass
Mid Channel	5785	12.06	14.10	1000	Pass
High Channel	5825	11.64	14.20	1000	Pass

## 5.1.5 Power Spectral Density

### RESULT:

**Passed**

Test standard : LP0002(2016):4.7.3  
 FCC Part 15.407(a)(1),(5)  
 RSS-247 issue2 6.2.1, 6.2.4

Kind of test site : Shielded room

### Test setup

Test Channel : Low/ Middle/ High  
 Operation Mode : A

Ambient temperature : 22-26 °C  
 Relative humidity : 50-65 %  
 Atmospheric pressure : 100-103 kPa

**Table 12: Test result of Power Spectral Density 802.11n HT20**

#### 5150-5250MHz:

Channel	Channel Frequency (MHz)	Peak Power Density (dBm)	Limit (dBm/MHz)	Result
Low Channel	5180	7.05	11	Pass
Mid Channel	5200	6.93	11	Pass
Mid Channel	5220	6.81	11	Pass
High Channel	5240	6.41	11	Pass

#### 5725-5850MHz:

Channel	Channel Frequency (MHz)	Peak Power Density (dBm)	Limit (dBm/MHz)	Result
Low Channel	5745	5.92	30	Pass
Mid Channel	5785	6.33	30	Pass
High Channel	5825	6.21	30	Pass

**Table 13: Test result of Power Spectral Density 802.11ac HT20****5150-5250MHz:**

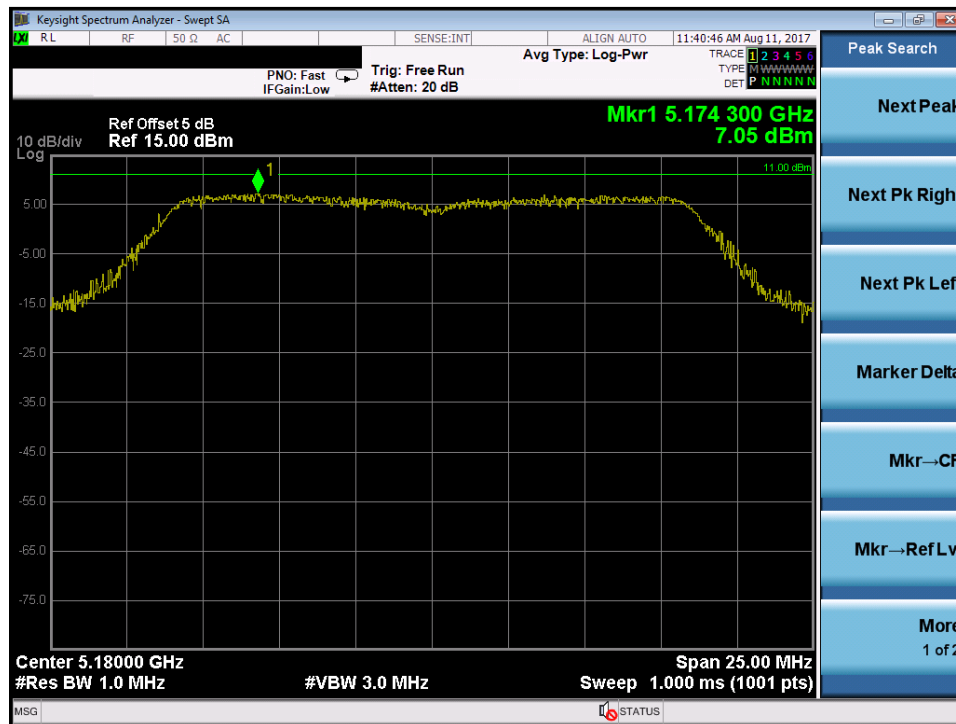
Channel	Channel Frequency (MHz)	Peak Power Density (dBm)	Limit (dBm/MHz)	Result
Low Channel	5180	6.99	11	Pass
Mid Channel	5200	6.95	11	Pass
Mid Channel	5220	7.15	11	Pass
High Channel	5240	6.33	11	Pass

**5725-5850MHz:**

Channel	Channel Frequency (MHz)	Peak Power Density (dBm)	Limit (dBm/MHz)	Result
Low Channel	5745	6.26	30	Pass
Mid Channel	5785	6.78	30	Pass
High Channel	5825	6.05	30	Pass

## Test Plot of Power Density 802.11n HT20 (5150-5250MHz)

### Low Channel



### Middle Channel



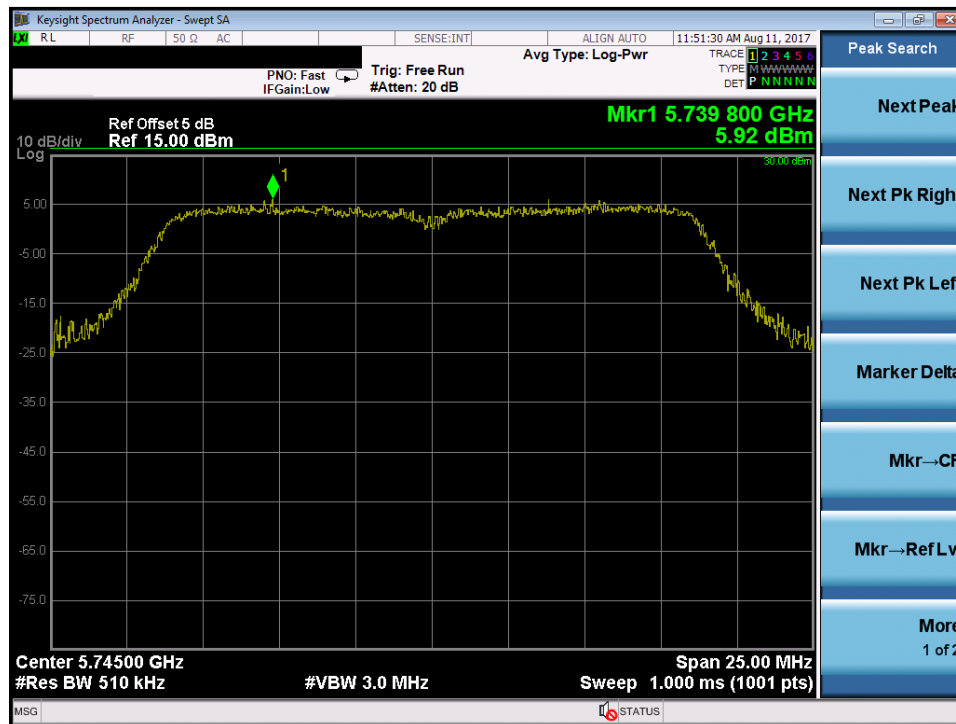
**Middle Channel**

**High Channel**

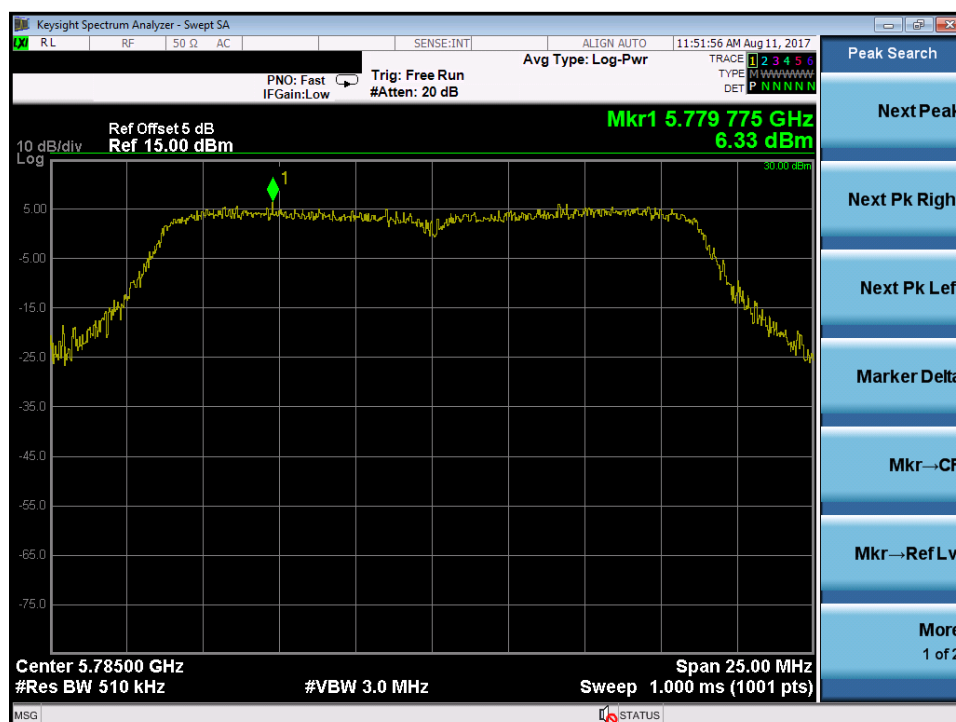



## Test Plot of Power Density 802.11n HT20 (5725-5850MHz)

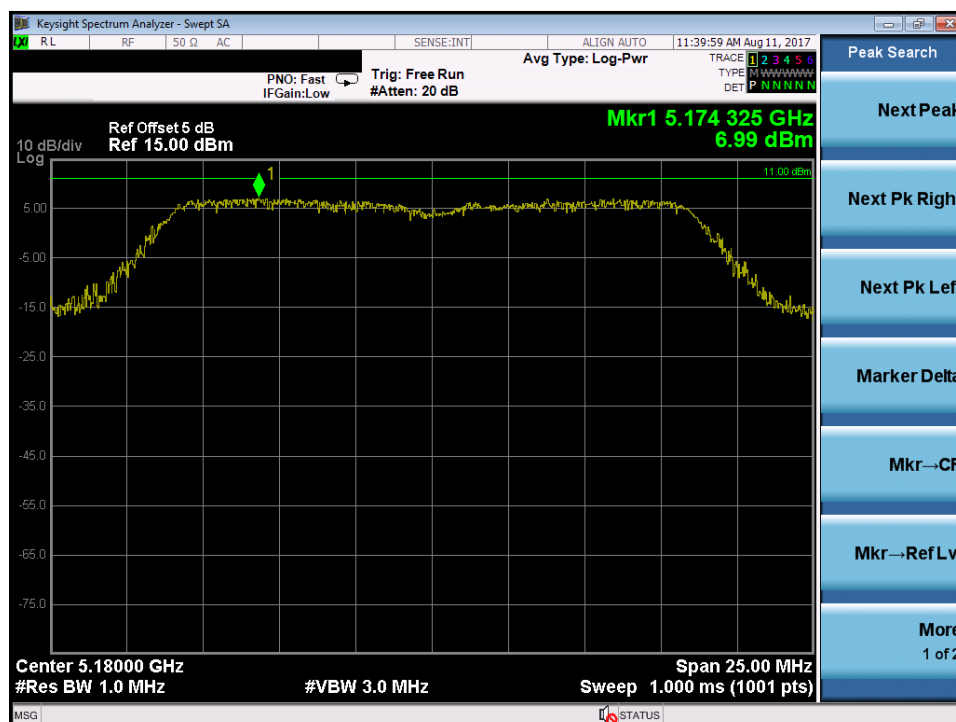
### Low Channel

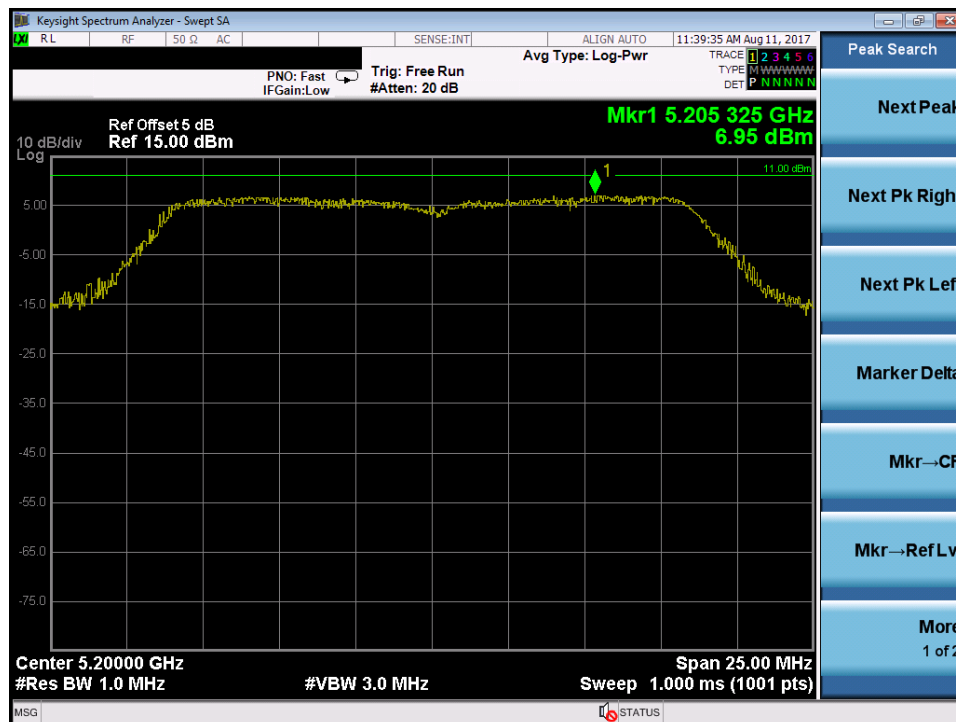
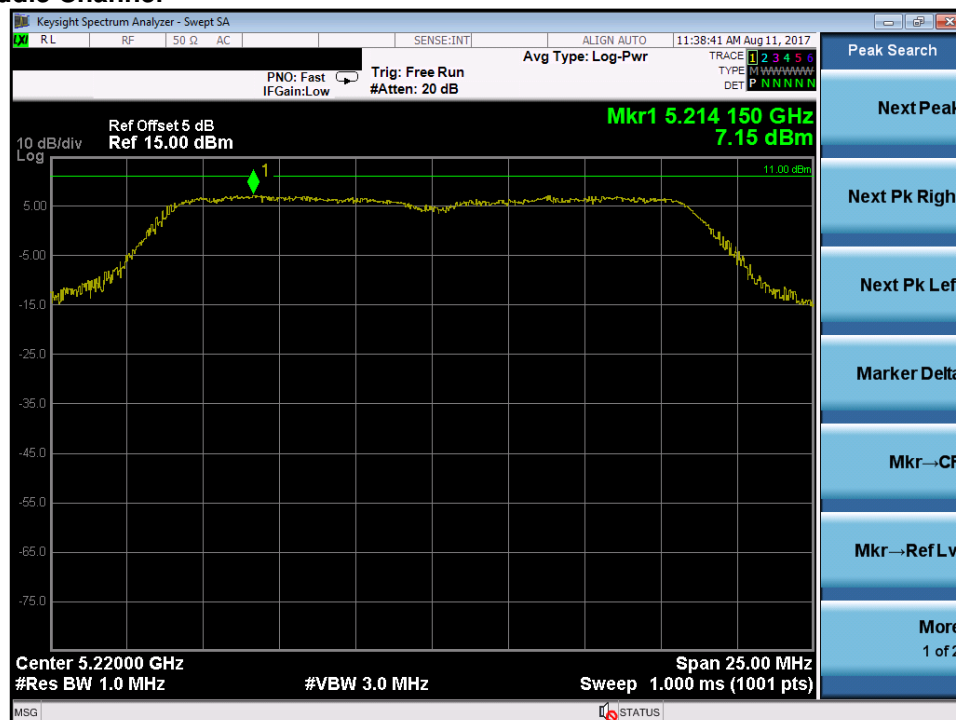


### Middle Channel

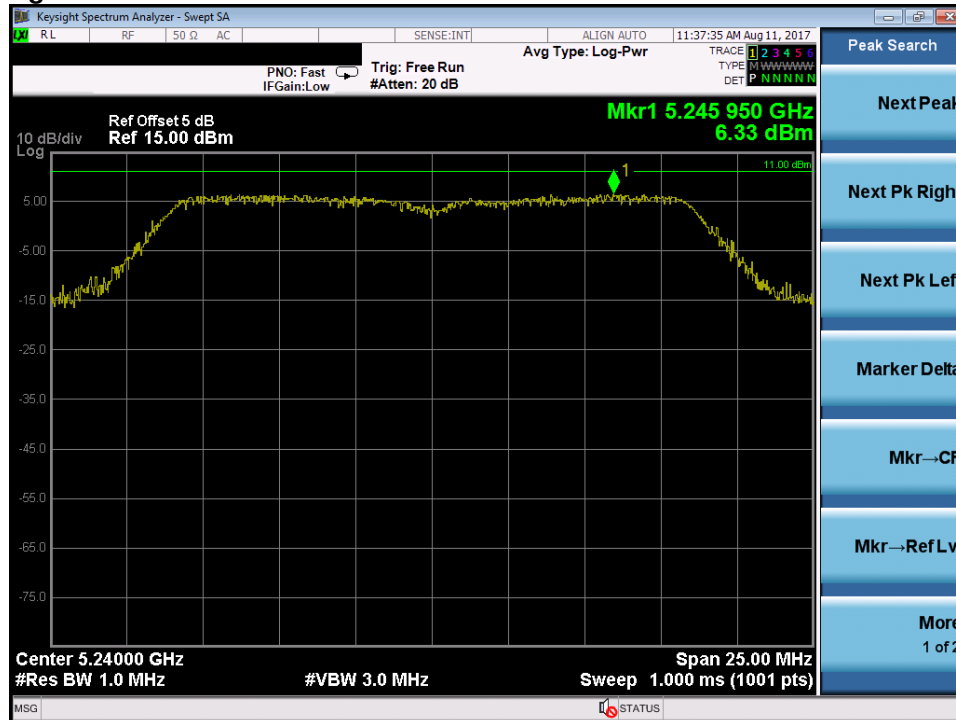


**High Channel**

**Test Plot of Power Density 802.11ac HT20 (5150-5250MHz)**
**Low channel**


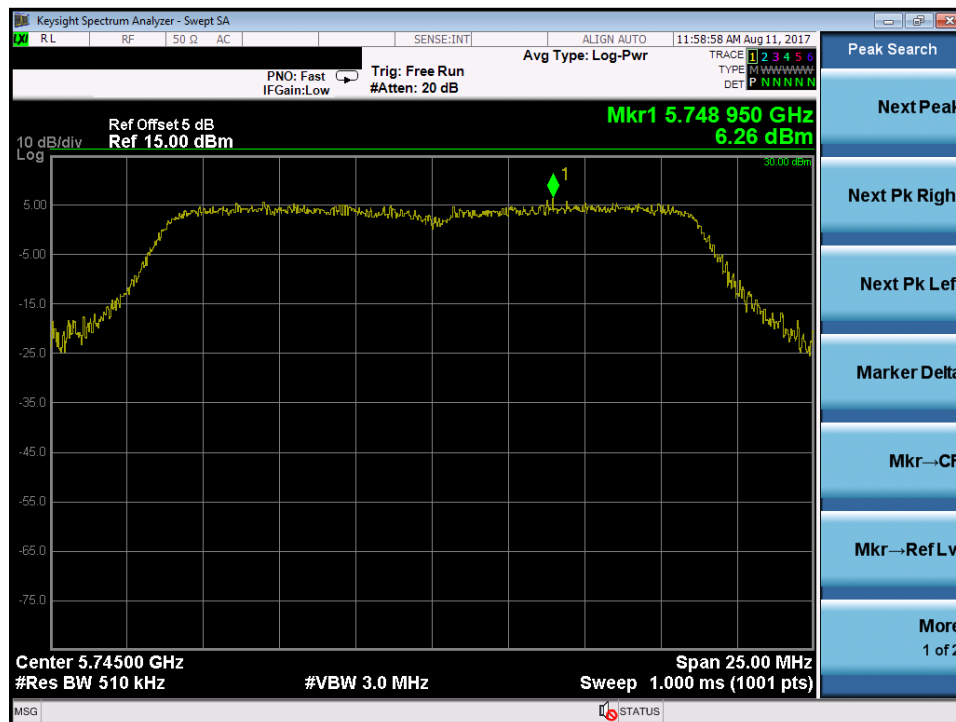
**Middle Channel**

**Middle Channel**


### High Channel

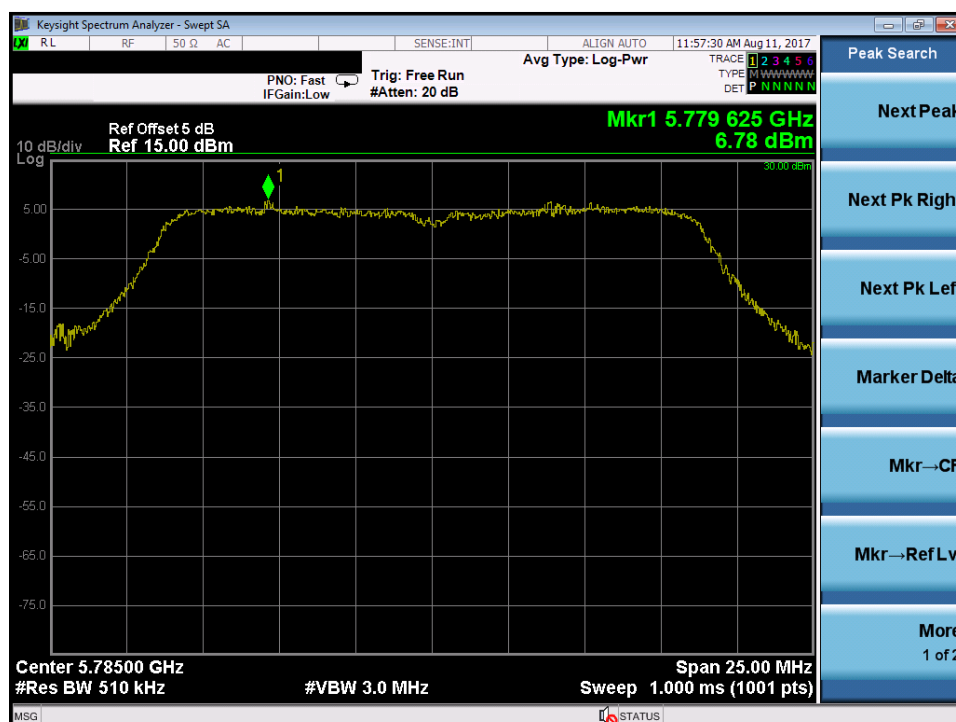


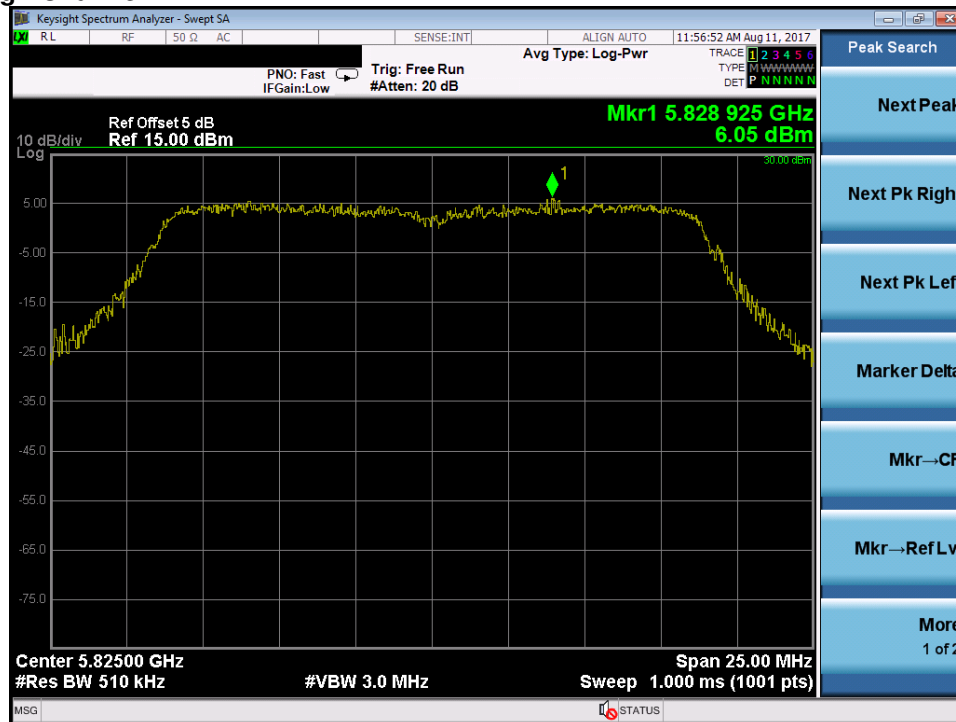
## Test Plot of Power Density 802.11ac HT20 (5725-5850MHz)

### Low Channel



### Middle Channel



**High Channel**


**Prüfbericht - Nr.:** 50097181 001

Test Report No.

**Seite 39 von 43**

Page 39 of 43

## 5.1.6 Spurious Emission

### RESULT:

**Passed**

Test standard	:	LP0002(2016):4.7.4 FCC 15.205, FCC 15.209, RSS-247 issue2, and RSS-Gen 7.2.1
Basic standard	:	ANSI C63.10: 2009
Limits	:	Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) and RSS- 210 2.7 (Table 1), must comply with the radiated emission limits specified in FCC 15.209(a) and RSS-210 2.7 (Table 2 and 3). Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in FCC 15.209(a) and FCC 15.249(a), RSS-210 2.7 (Table 2 and 3) and RSS-210 A2.9(a). LP0002(2016): 4.7.4
Kind of test site	:	3m Semi-Anechoic Chamber

### Test setup

Test Channel	:	Low/ Middle/ High
Operation mode	:	A, C

Remark: Testing was carried out within frequency range 30MHz to the tenth harmonic. For details refer to Appendix D. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The Z Axis orientation is the worst-case and recorded in this test report.

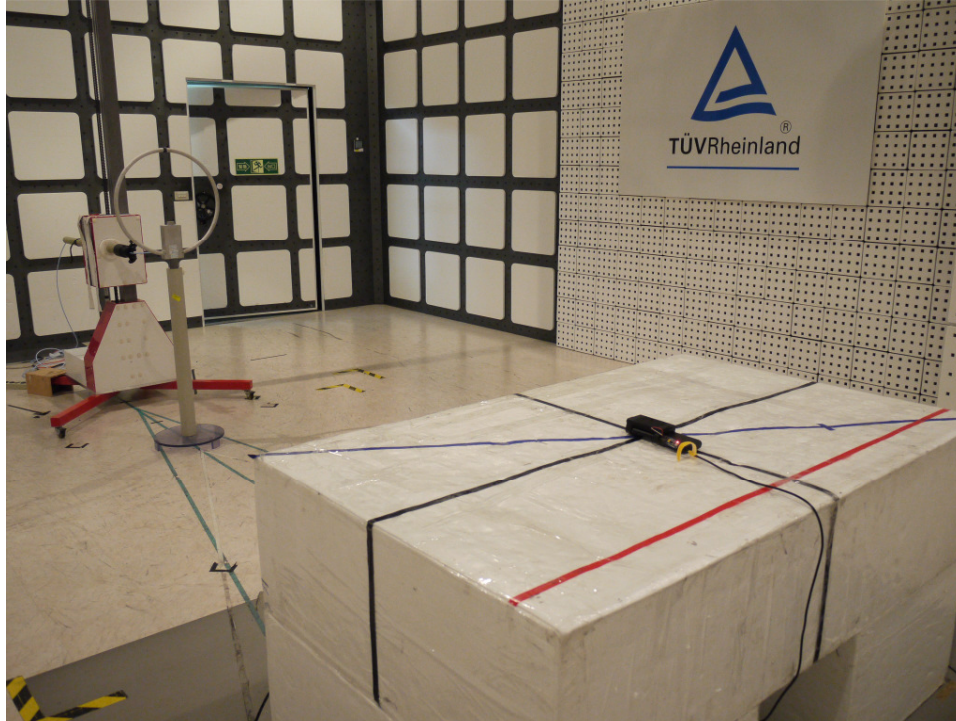
## Photographs of the Test Set-Up

**Photograph 1: Set-up for Spurious Emissions TX (Front View)**

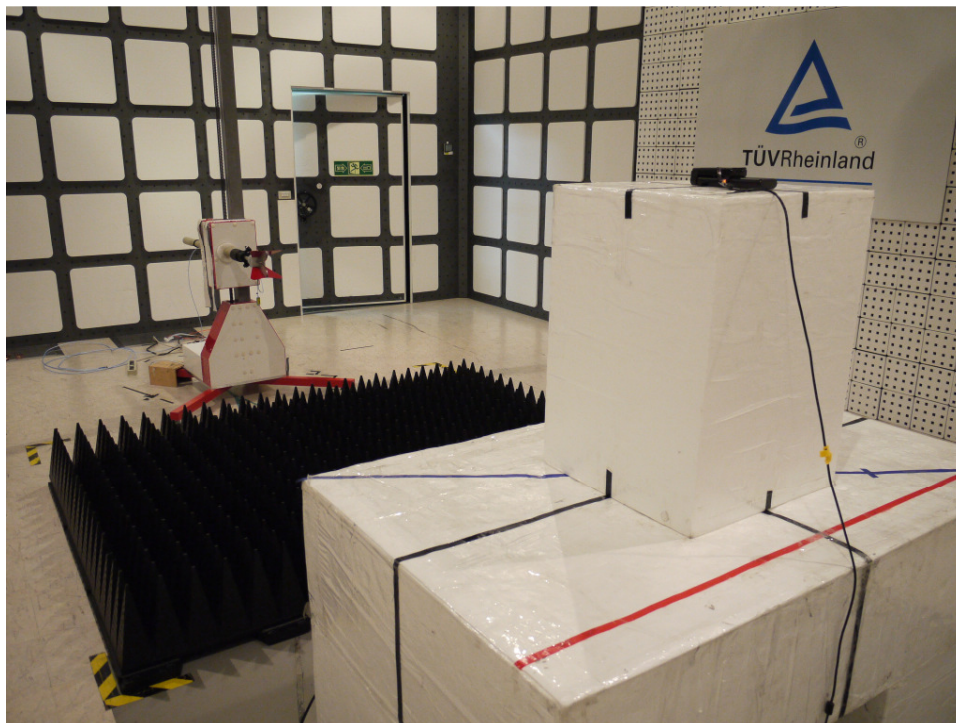




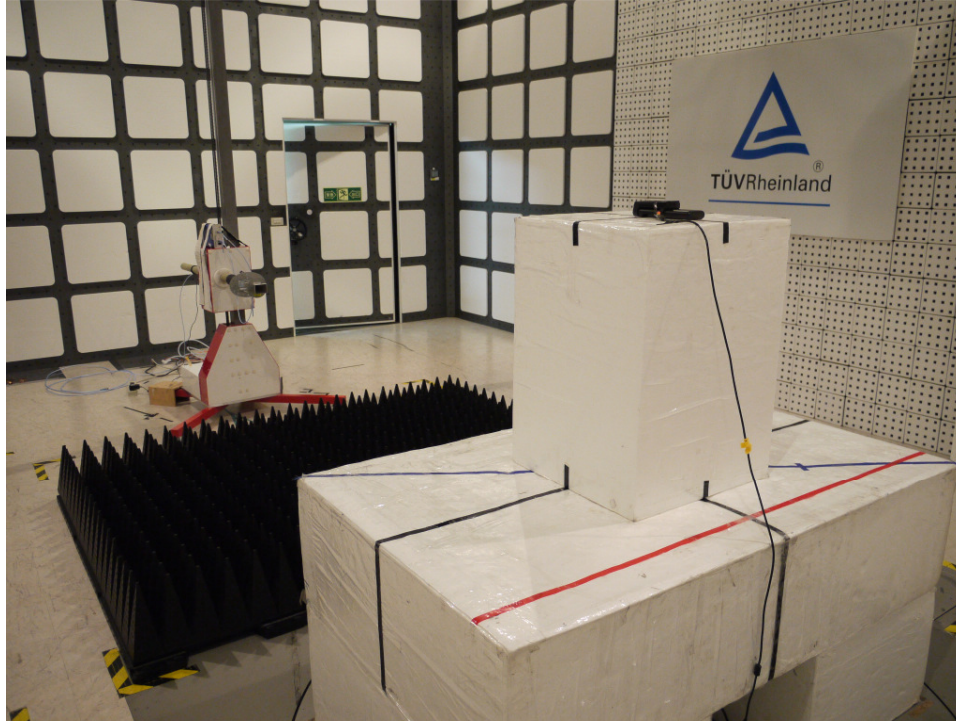
**Photograph 2: Set-up for Spurious Emissions TX (Back View 1)**



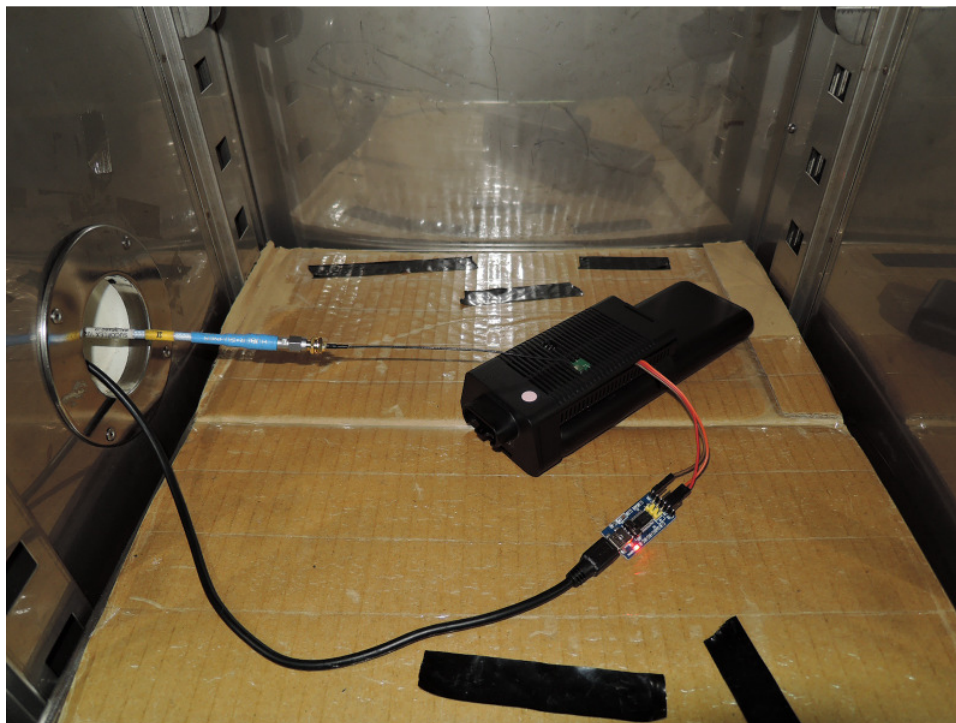
**Photograph 3: Set-up for Spurious Emissions TX (Back View 2)**



**Photograph 4: Set-up for Spurious Emissions TX (Back View 3)**



**Photograph 5: Set-up for Conducted testing**





## 6. List of Tables

Table 1: Applied Standard and Test Levels .....	4
Table 2: List of Test and Measurement Equipment .....	6
Table 3: Emission Measurement Uncertainty.....	7
Table 4: Technical Specification of EUT .....	8
Table 5: Test Channel Frequency information .....	9
Table 6: Test result of 26dB/99% Bandwidth 802.11n HT20 .....	17
Table 7: Test result of 26dB/99% Bandwidth 802.11ac HT20 .....	17
Table 8: Test result of 6dB Bandwidth 802.11n HT20 .....	22
Table 9: Test result of 6dB Bandwidth 802.11ac HT20.....	22
Table 10: Test result of Transmit Power 802.11n HT20 .....	28
Table 11: Test result of Transmit Power 802.11ac HT20.....	28
Table 12: Test result of Power Spectral Density 802.11n HT20 .....	29
Table 13: Test result of Power Spectral Density 802.11ac HT20 .....	30

## 7. List of Photographs

Photograph 1: Set-up for Spurious Emissions TX (Front View) .....	40
Photograph 2: Set-up for Spurious Emissions TX (Back View 1) .....	41
Photograph 3: Set-up for Spurious Emissions TX (Back View 2) .....	41
Photograph 4: Set-up for Spurious Emissions TX (Back View 3) .....	42
Photograph 5: Set-up for Conducted testing .....	42