



*Full*

# TEST REPORT

No. I18D00122-SRD07

*For*

**Client : Mobiwire SAS**

**Production : 4G Smartphone**

**Model Name : MobiWire Huritt, Altice S61**

**FCC ID : QPN-S61**

**Hardware Version: V01**

**Software Version: VQ551-EH5511**

**Issued date: 2018-08-30**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of ECIT Shanghai.

**Test Laboratory:**

ECIT Shanghai, East China Institute of Telecommunications

Add: 7-8F, G Area, No.668, Beijing East Road, Huangpu District, Shanghai, P. R. China

Tel: (+86)-021-63843300, E-Mail: [welcome@ecit.org.cn](mailto:welcome@ecit.org.cn)



# RF Test Report

Report No.: I18D00122-SRD07

## Revision Version

Report Number	Revision	Date	Memo
I18D00122-SRD07	00	2018-08-30	Initial creation of test report

**CONTENTS**

<b>1. TEST LABORATORY.....</b>	<b>5</b>
<b>1.1. TESTING LOCATION.....</b>	<b>5</b>
<b>1.2. TESTING ENVIRONMENT.....</b>	<b>5</b>
<b>1.3. PROJECT DATA.....</b>	<b>5</b>
<b>1.4. SIGNATURE.....</b>	<b>5</b>
<b>2. CLIENT INFORMATION.....</b>	<b>6</b>
<b>2.1. APPLICANT INFORMATION.....</b>	<b>6</b>
<b>2.2. MANUFACTURER INFORMATION.....</b>	<b>6</b>
<b>3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE).....</b>	<b>7</b>
<b>3.1. ABOUT EUT.....</b>	<b>7</b>
<b>3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST.....</b>	<b>7</b>
<b>3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST.....</b>	<b>7</b>
<b>4. REFERENCE DOCUMENTS.....</b>	<b>8</b>
<b>4.1. REFERENCE DOCUMENTS FOR TESTING.....</b>	<b>8</b>
<b>5. SUMMARY OF TEST RESULTS.....</b>	<b>9</b>
<b>5.1. NOTES.....</b>	<b>10</b>
<b>5.2. STATEMENTS.....</b>	<b>10</b>
<b>6. TEST RESULT.....</b>	<b>11</b>
<b>6.1. MEASUREMENT METHOD.....</b>	<b>11</b>
<b>6.2. MAXIMUM AVERAGE OUTPUT POWER-CONDUCTED.....</b>	<b>12</b>
<b>6.3. PEAK POWER SPECTRAL DENSITY (CONDUCTED).....</b>	<b>12</b>
<b>6.4. OCCUPIED 6DB BANDWIDTH(CONDUCTED).....</b>	<b>14</b>
<b>6.5. TRANSMITTER SPURIOUS EMISSION.....</b>	<b>18</b>
<b>7. TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS.....</b>	<b>25</b>
<b>8. TEST ENVIRONMENT.....</b>	<b>25</b>



---

**ANNEX A. ACCREDITATION CERTIFICATE.....27**

## 1. Test Laboratory

### 1.1. Testing Location

Company Name:	ECIT Shanghai, East China Institute of Telecommunications
Address:	7-8F, G Area, No. 668, Beijing East Road, Huangpu District, Shanghai, P. R. China
Postal Code:	200001
Telephone:	(+86)-021-63843300
Fax:	(+86)-021-63843301

### 1.2. Testing Environment

Normal Temperature:	15-35°C
Extreme Temperature:	-30/+50°C
Relative Humidity:	20-75%

### 1.3. Project data

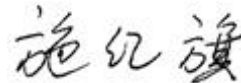
Project Leader:	Yu Anlu
Testing Start Date:	2018-07-11
Testing End Date:	2018-08-17

### 1.4. Signature



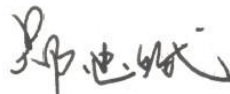
**Yang Dejun**

(Prepared this test report)



**Shi Hongqi**

(Reviewed this test report)



**Zheng Zhongbin**

**Director of the laboratory**

(Approved this test report)

## 2. Client Information

### 2.1. Applicant Information

Company Name:           Mobiwire SAS  
Address:                 79 AVENUE FRANCOIS ARAGO 92017 NANTERRE CEDEX France.  
Postcode:               France 92017  
Telephone:               +86 574 59555707

### 2.2. Manufacturer Information

Company Name:           Mobiwire SAS  
Address:                 79 AVENUE FRANCOIS ARAGO 92017 NANTERRE CEDEX France.  
Postcode:               France 92017  
Telephone:               +86 574 59555707

### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1. About EUT

EUT Description	4G Smartphone
Model name	MobiWire Huritt, Altice S61
WLAN Frequency Range	ISM Bands: 5725MHz~5850MHz
WLAN type of modulation	OFDM
Extreme Temperature	-30/+50℃
Nominal Voltage	3.85V
Extreme High Voltage	4.4V
Extreme Low Voltage	3.6V

Note: Photographs of EUT are shown in ANNEX A of this test report.

#### 3.2. Internal Identification of EUT used during the test

##### First Supply

EUT ID*	Model Name	SN or IMEI	HW Version	SW Version	Date of receipt
N04	MobiWire Huritt, Altice S61	N/A	V01	VQ551-EH5511	2018-07-05

\*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	SN
AE1	RF cable	---
AE2	---	---

\*AE ID: is used to identify the test sample in the lab internally.

## 4. Reference Documents

### 4.1. Reference Documents for testing

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

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15, Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; Subpart E—Unlicensed National Information Infrastructure Devices	2017
ANSI 63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013



## 5. Summary of Test Results

A brief summary of the tests carried out is shown as following.

<b>SUMMARY OF MEASUREMENT RESULTS</b>	<b>Sub-clause of Part15E</b>	<b>Sub-clause of IC</b>	<b>Verdict</b>
Maximum Output Power	15.407	/	<b>P</b>
Power Spectral Density	15.407	/	<b>P</b>
Occupied 6dB Bandwidth	15.403	/	<b>P</b>
Band edge compliance	15.407	/	<b>P</b>
Transmitter Spurious Emission - Conducted	15.407	/	<b>P</b>
Transmitter Spurious Emission - Radiated	15.407	/	<b>P</b>
AC Powerline Conducted Emission	15.407	/	<b>P</b>

Please refer to section 6 for detail.

Terms used in Verdict column

P	Pass, the EUT complies with the essential requirements in the standard.
NP	Not Perform, the test was not performed by ECIT.
NA	Not Applicable, the test was not applicable.
F	Fail, the EUT does not comply with the essential requirements in the standard.

## Test Conditions

Tnom	Normal temperature
Tmin	Low Temperature
Tmax	High Temperature
Vnom	Normal Voltage
Vmin	Low Voltage
Vmax	High Voltage
Hnom	Norm Humidity
Anom	Norm Air Pressure

For this report, all the test case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

Temperature	Tnom	25°C
Voltage	Vnom	3.85V
Humidity	Hnom	48%

**5.1. Notes**

All reported tests were carried out on a sample equipment to demonstrate limited compliance with section 3.

The test results of this test report relate exclusively to the item(s) tested as specified in section 5.

**5.2. Statements**

The MobiWire Huritt, Altice S61, supporting GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE/BT/BLE/WIFI, manufactured by Mobiwire SAS, which is a new product for testing. In this report, we test all the cases except the RSE data, and the RSE data please refer to Report No: C180816R01-RPW1, which was prepared by Compliance Certification Service Inc Kun Shan Laboratory.

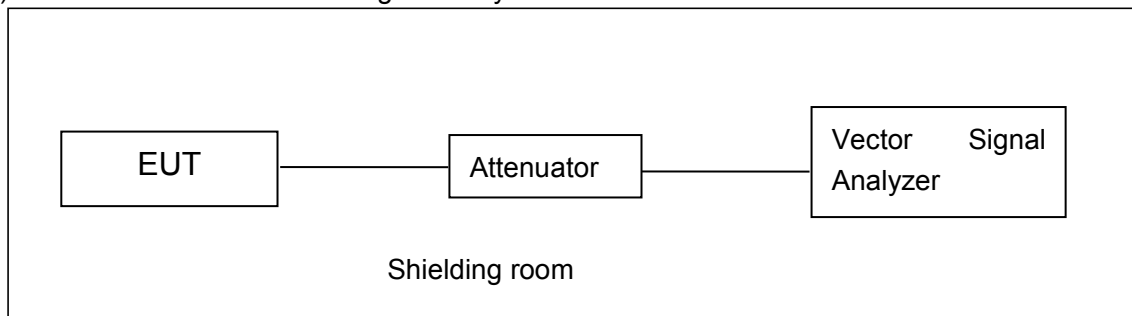
ECIT has verified that the compliance of the tested device specified in section 5 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 5 of this test report.

## 6. Test result

### 6.1. Measurement Method

#### 6.1.1. 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

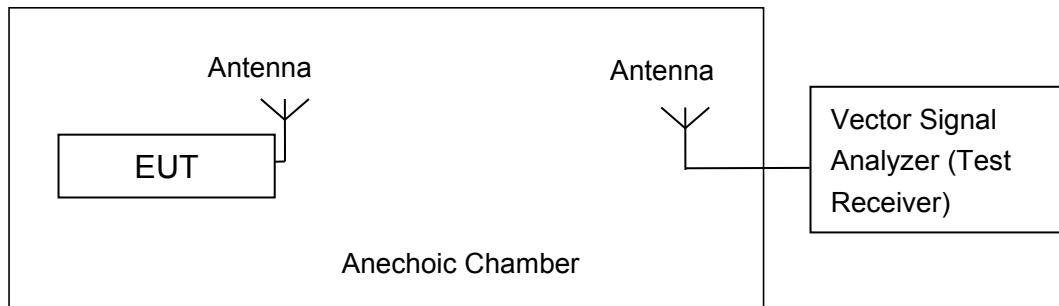


#### 6.1.2. Radiated Emission Measurements

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.

## 6.2. Maximum Average Output Power-Conducted

**Measurement Limit and Method:**

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

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

802.11a mode

U-NII-3

Mode	Data Rate(Mbps)	Teat Result(dBm)		
		5745MHz(Ch149)	5785MHz(Ch157)	5825MHz(Ch165)
802.11a	6	12.02	11.32	11.11

The data rate 6Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

U-NII-3

Mode	Data Rate(Index)	Teat Result(dBm)		
		5745MHz	5785MHz	5825MHz
802.11n(20MHz)	MCS0	12.55	11.30	11.15

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

802.11n-HT40 mode

U-NII-3

Mode	Data Rate(Index)	Teat Result(dBm)		
		5755MHz	/	5795MHz
802.11n(40MHz)	MCS0	12.31	/	11.72

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

**Conclusion: PASS**

## 6.3. Peak Power Spectral Density (conducted)

**Measurement Limit:**



## RF Test Report

Report No.: I18D00122-SRD07

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
802.11a	149	-1.309	P
	157	-2.250	P
	165	-2.229	P
802.11n HT20	149	-2.154	P
	157	-8.187	P
	165	-2.322	P
802.11n HT40	151	-5.200	P
	159	-5.636	P

**Conclusion: PASS**

**6.4. Occupied 6dB Bandwidth(conducted)**

**Measurement Limit:**

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

**Measurement Uncertainty:**

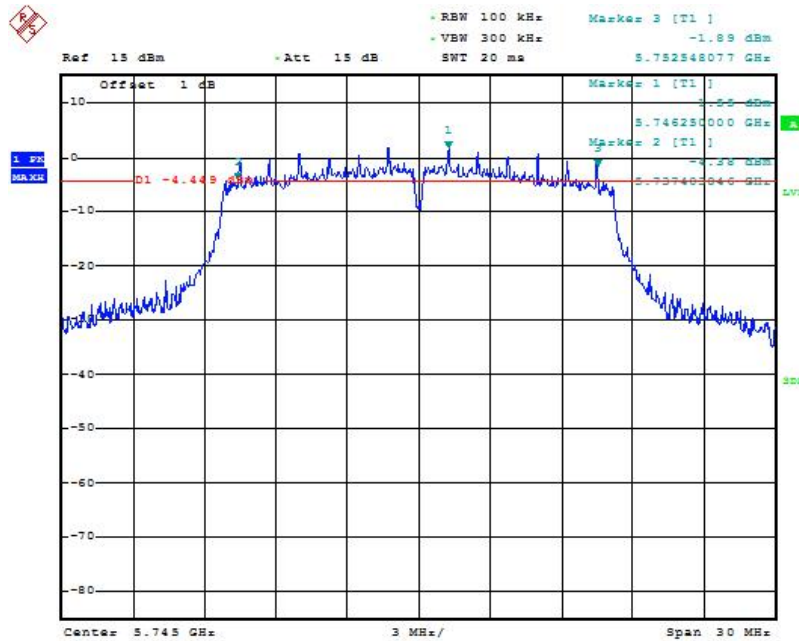
Measurement Uncertainty	60.80Hz
-------------------------	---------

**Measurement Result:**

Mode	Channel	Occupied 6dB Bandwidth ( MHz)		conclusion
802.11a	149	Fig.1	15.14	P
	157	Fig.2	15.19	P
	165	Fig.3	15.43	P
802.11n HT20	149	Fig.4	16.06	P
	157	Fig.5	15.14	P
	165	Fig.6	15.53	P
802.11n HT40	151	Fig.7	35.34	P
	159	Fig.8	35.42	P

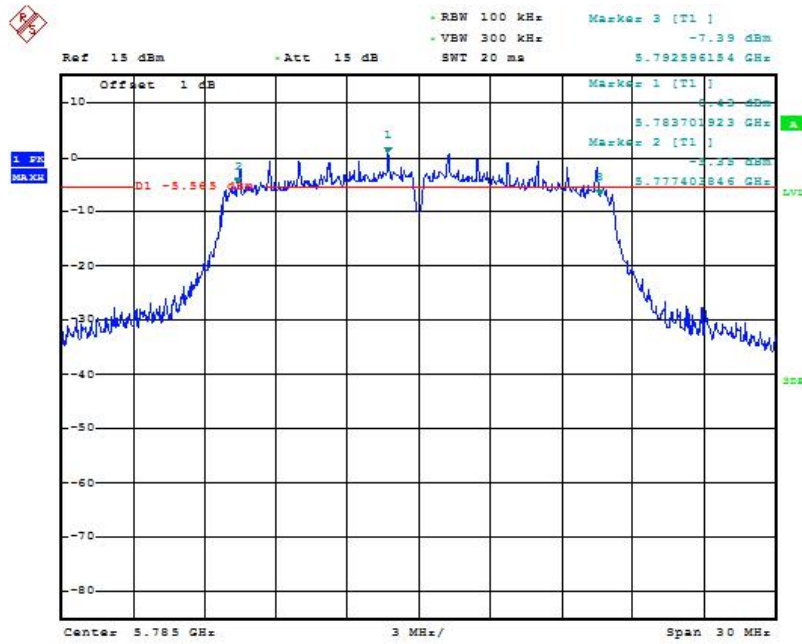
**Conclusion: PASS**

Test graphs as below:



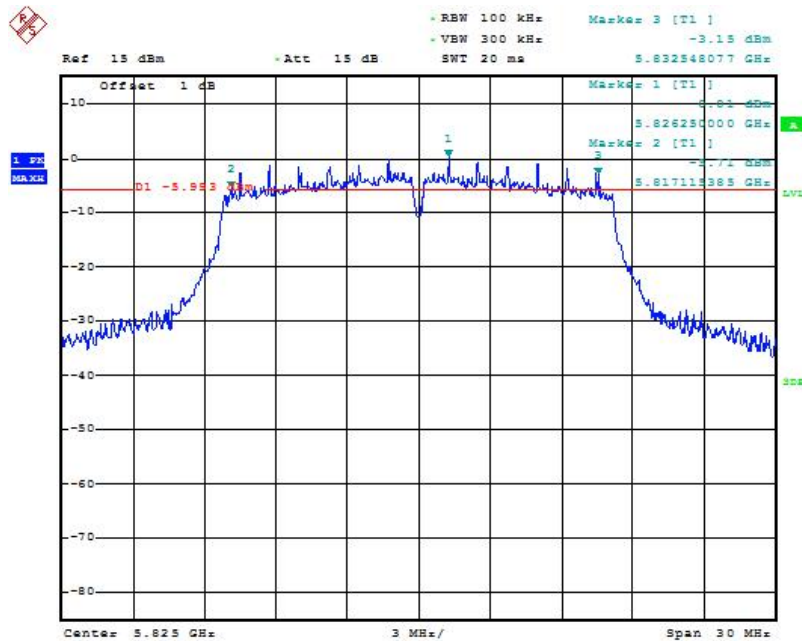
Date: 18.AUG.2018 09:36:40

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



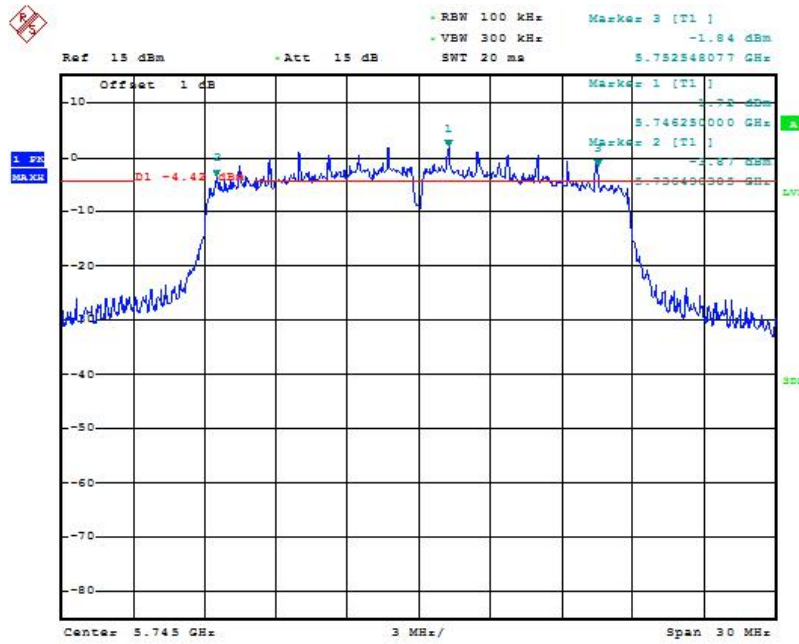
Date: 18.AUG.2018 09:37:17

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



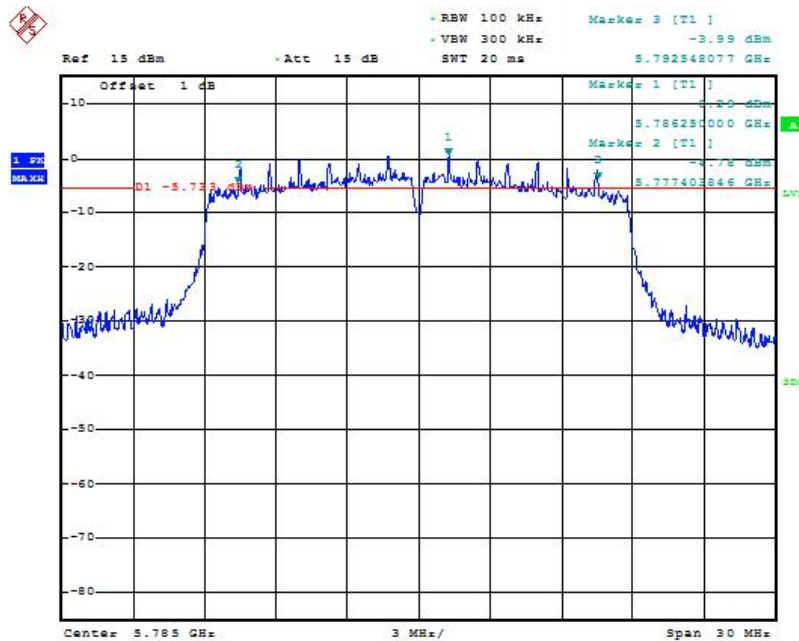
Date: 18.AUG.2018 09:37:56

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



Date: 18.AUG.2018 09:38:52

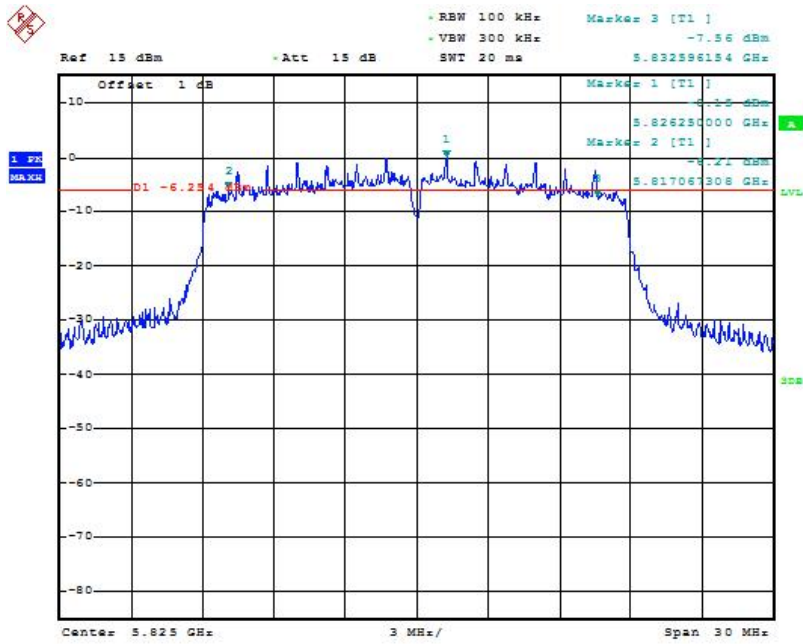
**Fig. 4 Occupied 6dB Bandwidth (802.11n-HT20, Ch 149)**



Date: 18.AUG.2018 09:39:30

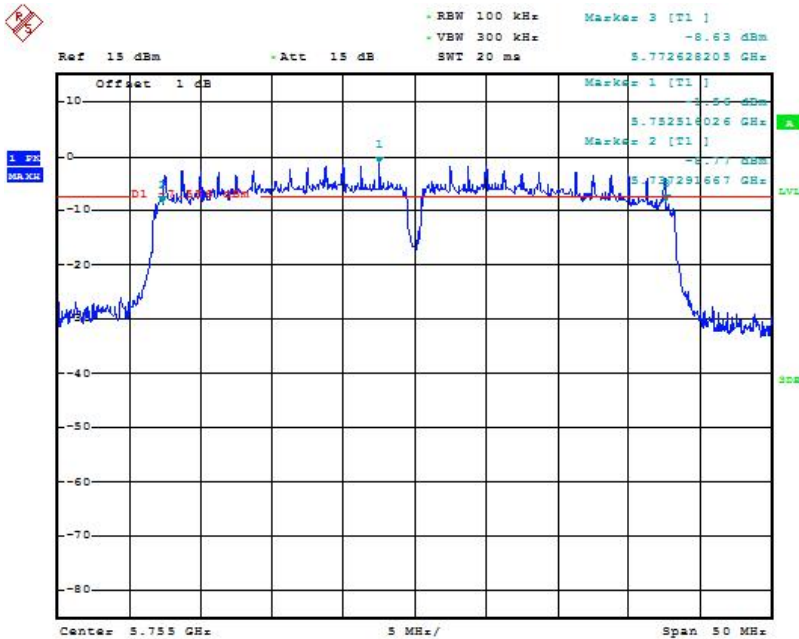
**Fig. 5 Occupied 6dB Bandwidth (802.11n-HT20, Ch 157)**





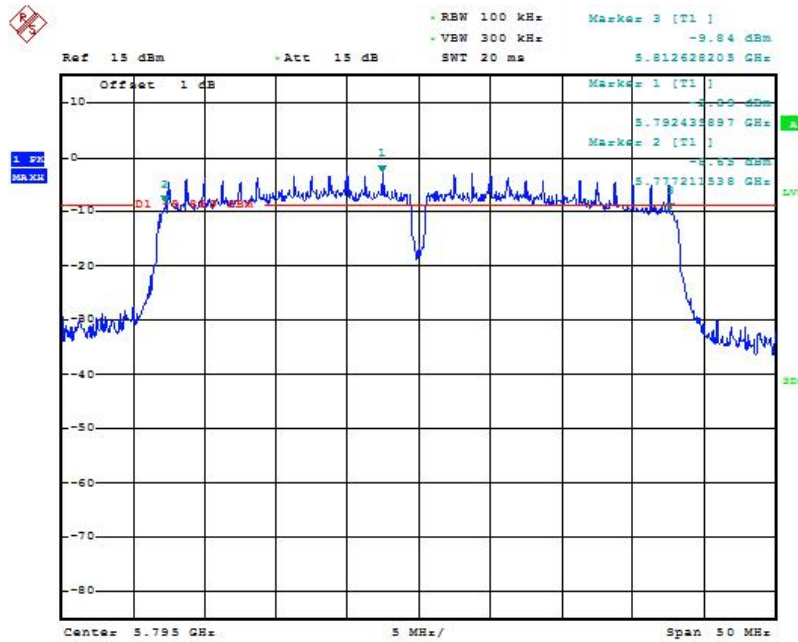
Date: 18.AUG.2018 09:40:16

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



Date: 18.AUG.2018 09:41:10

**Fig. 7 Occupied 6dB Bandwidth (802.11n-HT40, Ch 151)**



Date: 18.AUG.2018 09:41:47

**Fig. 8 Occupied 6dB Bandwidth (802.11n-HT40, Ch 159)**

## 6.5. Transmitter Spurious Emission

### Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC 47 CFR Part 15.407	5725MHz~5850MHz	< -27

The measurement is made according to ANSI C63.10 .

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

### Measurement Uncertainty:

Frequency Range	Uncertainty(dB)
30MHz ≤ f ≤ 1GHz	0.63
1GHz ≤ f ≤ 5.6GHz	1.55
5.6GHz ≤ f ≤ 40GHz	1.86

### 6.5.1 Transmitter Spurious Emission – Conducted

Modulation type and data rate tested (worse case):

Mode	Data rate	Channel
802.11a	6Mbps	149(5745MHz)
802.11n-HT20	MCS0	149(5745MHz)
802.11n-HT40	MCS0	151(5755MHz)

#### Measurement Results:

##### 802.11a mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11a	149(5745MHz)	30 MHz ~ 1 GHz	Fig.9	P
		1 GHz ~ 5.7 GHz	Fig.10	P
		5.9 GHz ~ 40 GHz	Fig.11	P

##### 802.11n-HT20 mode

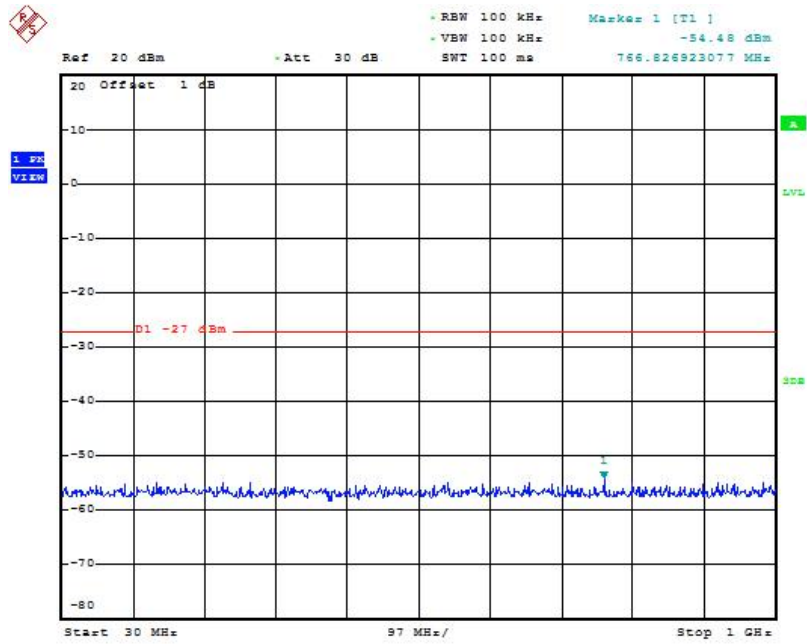
MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT20	149(5745MHz)	30 MHz ~ 1 GHz	Fig.12	P
		1 GHz ~ 5.7 GHz	Fig.13	P
		5.9 GHz ~ 40 GHz	Fig.14	P

##### 802.11n-HT40 mode

MODE	Channel	Frequency Range	Test Results	Conclusion
802.11n HT40	151(5755MHz)	30 MHz ~ 1 GHz	Fig.15	P
		1 GHz ~ 5.7 GHz	Fig.16	P
		5.9 GHz ~ 40 GHz	Fig.17	P

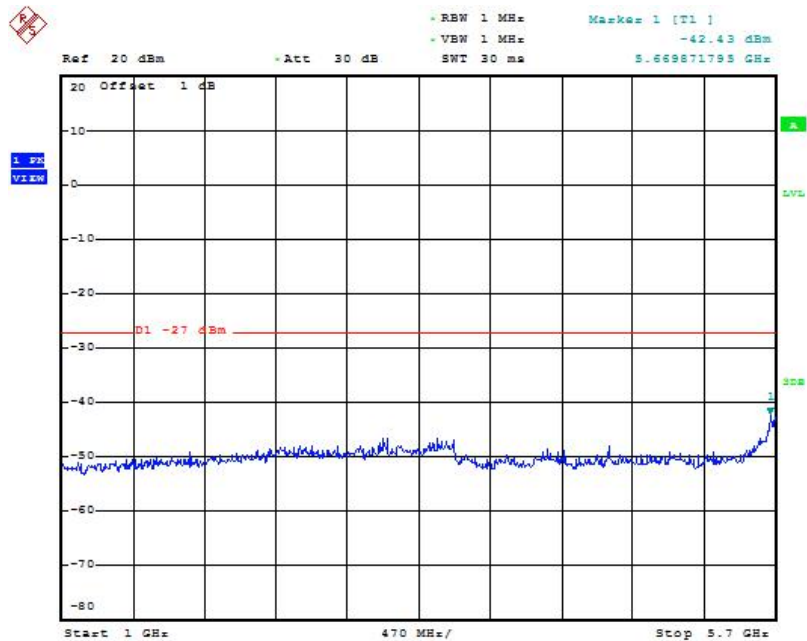
**Conclusion: PASS**

Test graphs as below:



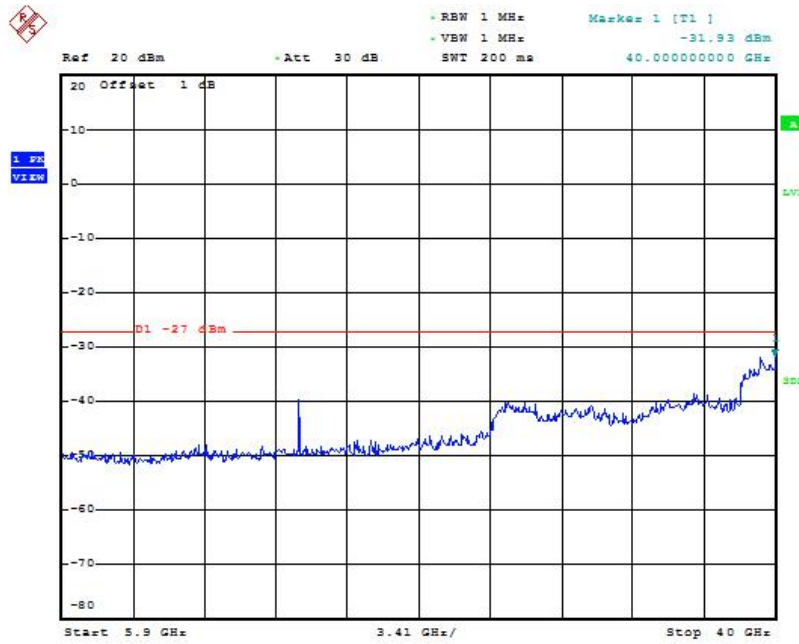
Date: 18.AUG.2018 11:09:17

**Fig. 9 Conducted Spurious Emission (802.11a, Ch149, 30 MHz-1 GHz)**



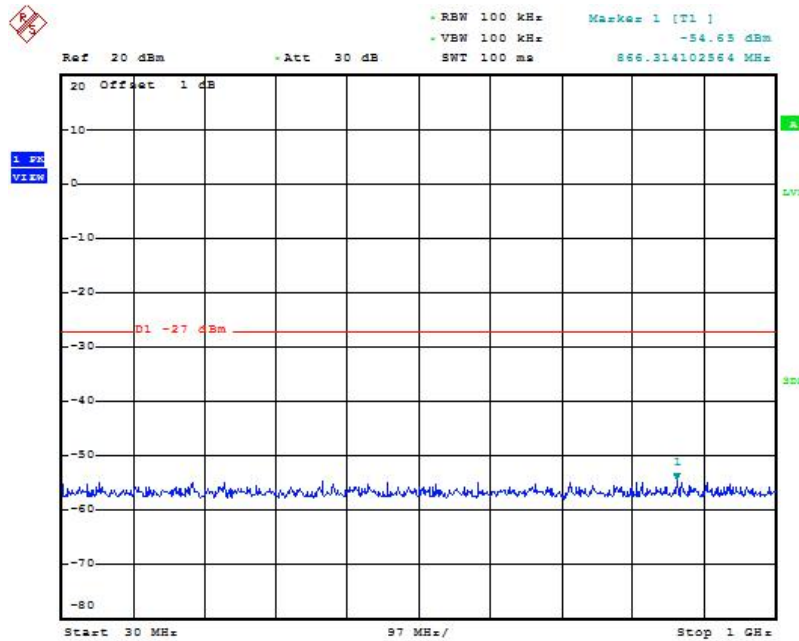
Date: 18.AUG.2018 11:09:46

**Fig. 10 Conducted Spurious Emission (802.11a, Ch149, 1 GHz -5.7 GHz)**



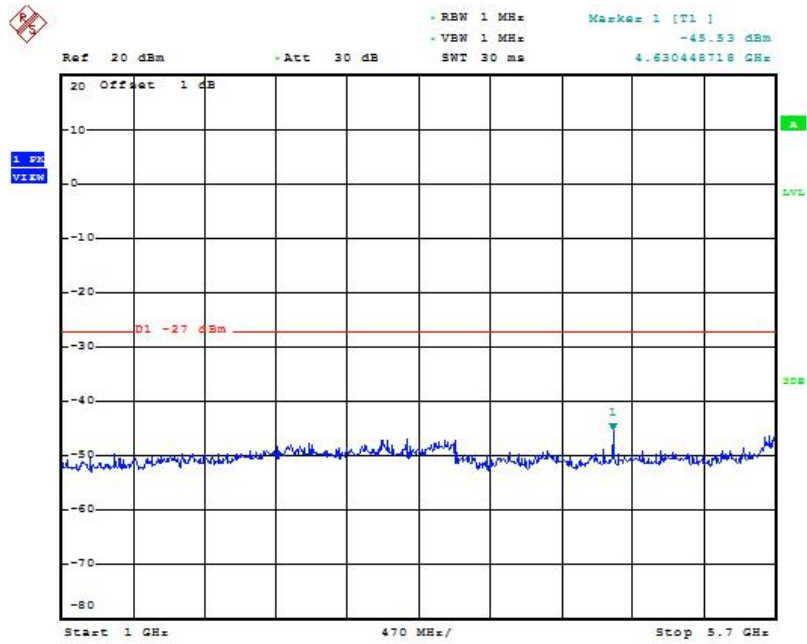
Date: 18.AUG.2018 11:10:16

**Fig. 11 Conducted Spurious Emission (802.11a, Ch149, 5.9 GHz-40 GHz)**



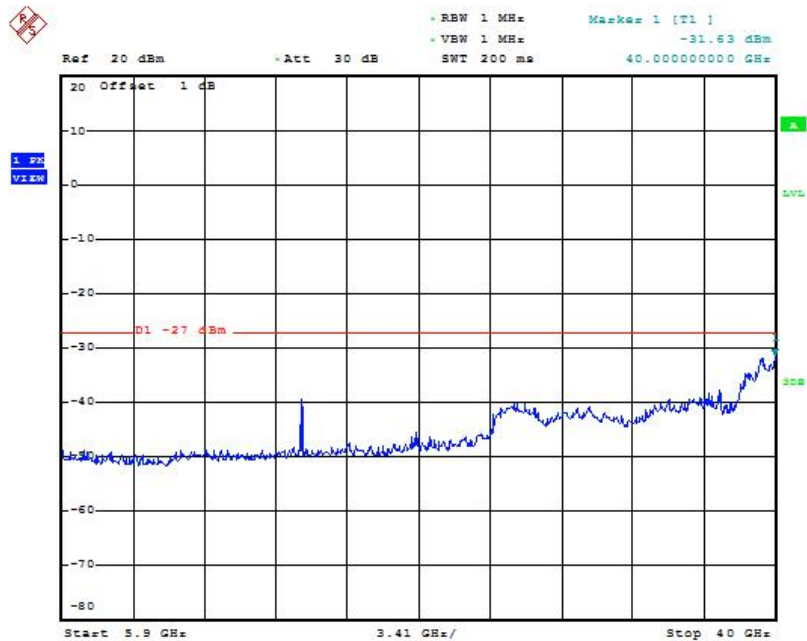
Date: 18.AUG.2018 12:15:46

**Fig. 12 Conducted Spurious Emission (802.11n-HT20, Ch149, 30 MHz-1 GHz)**



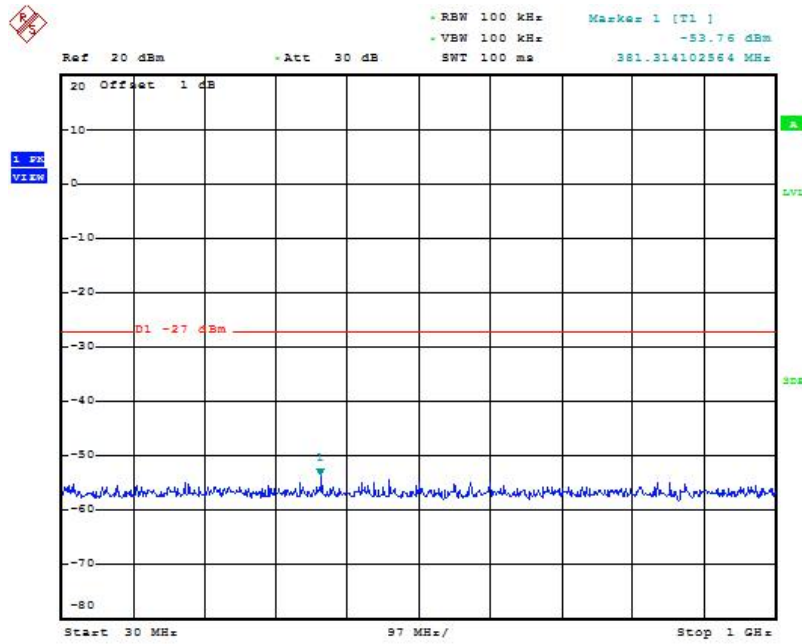
Date: 18.AUG.2018 12:16:16

**Fig. 13 Conducted Spurious Emission (802.11n-HT20, Ch149, 1 GHz -5.7 GHz)**



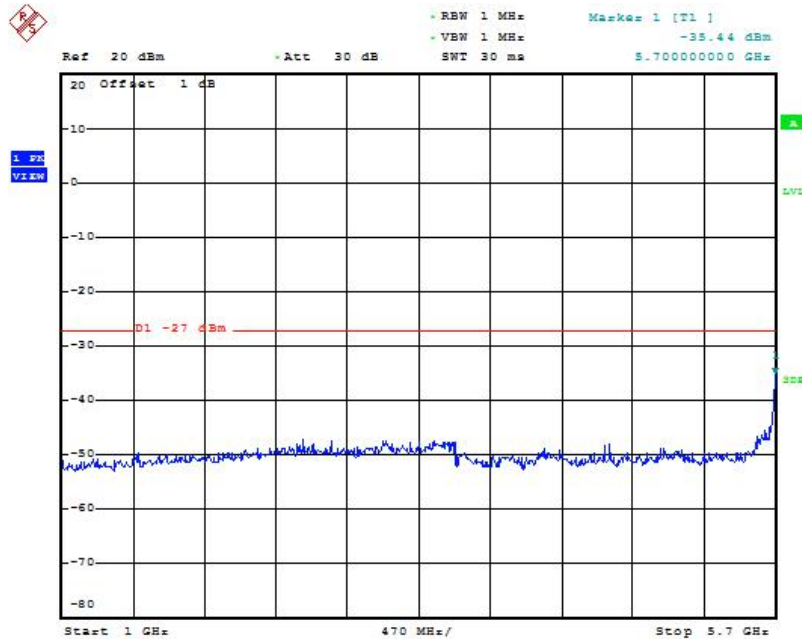
Date: 18.AUG.2018 12:16:45

**Fig. 14 Conducted Spurious Emission (802.11n-HT20, Ch149, 5.9 GHz-40 GHz)**



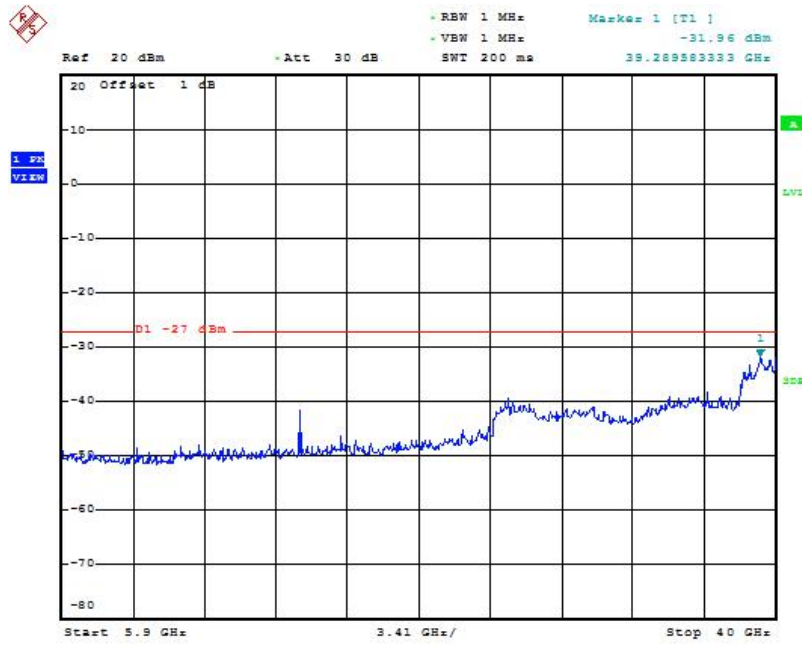
Date: 18.AUG.2018 12:24:34

**Fig. 15 Conducted Spurious Emission (802.11n-HT40, Ch151, 30 MHz-1 GHz)**



Date: 18.AUG.2018 12:25:03

**Fig. 16 Conducted Spurious Emission (802.11n-HT40, Ch151, 1 GHz -5.7 GHz)**



Date: 18.AUG.2018 12:25:33

**Fig. 17 Conducted Spurious Emission (802.11n-HT40, Ch151, 5.9 GHz-40 GHz)**



## 7. Test Equipment and Ancillaries Used For Tests

The test equipment and ancillaries used are as follows.

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration date	Cal.interval
1	Vector Signal Analyzer	FSQ40	200063	Rohde&Schwarz	2017-12-17	1 Year
2	DC Power Supply	ZUP60-14	LOC-220Z006-0007	TDL-Lambda	2018-05-11	1 Year

### Anechoic chamber

Fully anechoic chamber by Frankonia German.

## 8. Test Environment

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Ground system resistance	< 0.5

**Control room** did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =25 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 10 k
Ground system resistance	< 0.5

**Fully-anechoic chamber1** (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 25 %, Max. = 75 %



## RF Test Report

Report No.: I18D00122-SRD07

Shielding effectiveness	> 100 dB
Electrical insulation	> 10 k
Ground system resistance	< 0.5
VSWR	Between 0 and 6 dB, from 1GHz to 18GHz
Site Attenuation Deviation	Between -4 and 4 dB, 30MHz to 1GHz
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

**ANNEX A. Accreditation Certificate**



**Accredited Laboratory**

A2LA has accredited

**EAST CHINA INSTITUTE OF TELECOMMUNICATIONS**

*Shanghai, People's Republic of China*

for technical competence in the field of

**Electrical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).



Presented this 15<sup>th</sup> day of March 2017.



President and CEO  
For the Accreditation Council  
Certificate Number 3682.01  
Valid to February 28, 2019

*For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.*



\*\*\*\*\*END OF REPORT\*\*\*\*\*