



*Full*

# TEST REPORT

**No. I18D00122-SRD02**

*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

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# RF Test Report

Report No.: I18D00122-SRD02

## Revision Version

Report Number	Revision	Date	Memo
I18D00122-SRD02	00	2018-08-30	Initial creation of test report

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## 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:	2018-07-06
Testing End Date:	2018-07-06


### 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
Bluetooth Frequency	2402MHz-2480Mhz
Bluetooth Channel	Channel0-Channel39
Bluetooth Modulation	GFSK;
Extreme Temperature	-30/+50°C
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

EUT ID*	Model Name	SN or IMEI	HW Version	SW Version	Date of receipt
N04	MobiWire Huritt, Altice S61	N/A	V01	VQ551-EH5 511	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; 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.	Jun,2016 Edition
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013



## 5. Summary of Test Results

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

Measurement Items	Sub-clause of Part15C	Sub-clause of IC	Verdict
Maximum Peak Output Power	15.247(b)	/	P
Peak Power Spectral Density	15.247(e)	/	P
6dB Occupied Bandwidth	15.247(a)	/	P
Band Edges Compliance	15.247(d)	/	P
Transmitter Spurious Emission-Conducted	15.247	/	P
Transmitter Spurious Emission-Radiated	15.247	/	P
AC Powerline Conducted Emission	15.107,15.207	/	P

Please refer to part 5 for detail.

The measurements are according to ANSI C63.10.

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	3.85
Humidity	Hnom	48%
Air Pressure	Anom	1010hPa

**Note:**

- a. All the test data for each data were verified, but only the worst case was reported.
- b. The GFSK was set in DH1.
- c. The DC and low frequency voltages' measurement uncertainty is  $\pm 2\%$ .

**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-RPW, 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. Peak Output Power-Conducted

#### 6.1.1 Measurement Limit

Standard	Limit (dBm)
FCC Part 15.247(b)(1)	< 30

#### 6.1.2 Test Condition:

Hopping Mode	RBW	VBW	Span	Sweeptime
Hopping OFF	3MHz	10MHz	9MHz	Auto

#### 6.1.3 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.5.

1. The output power of EUT was connected to the spectrum analyzer by cable. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Measure the conducted output power and record the results it.

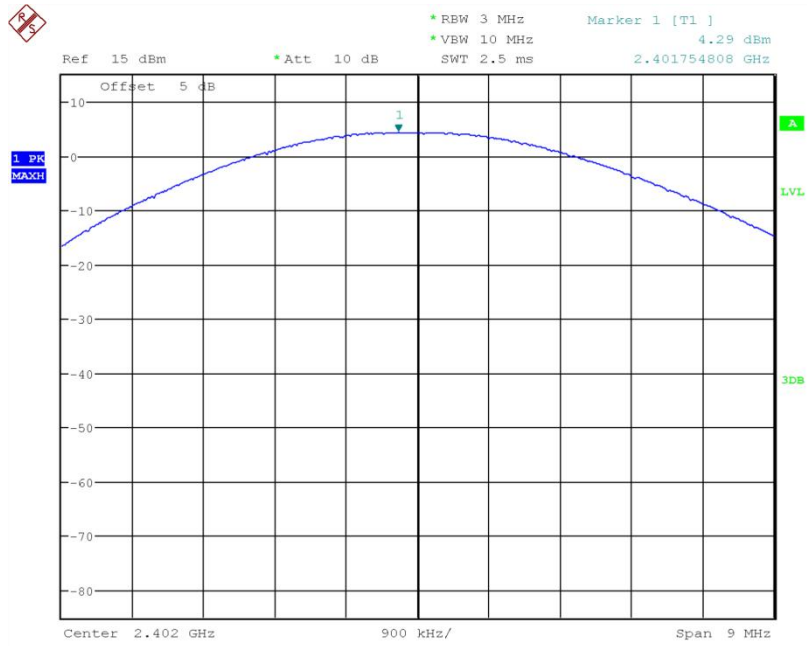
#### 6.1.4 Measurement Results:

##### For GFSK

Channel	Ch0 2402 MHz	Ch19 2440 MHz	CH39 2480 MHz	Conclusion
Peak Conducted Output Power (dBm)	4.287	4.066	3.44	P
	Fig.1	Fig.2	Fig.3	

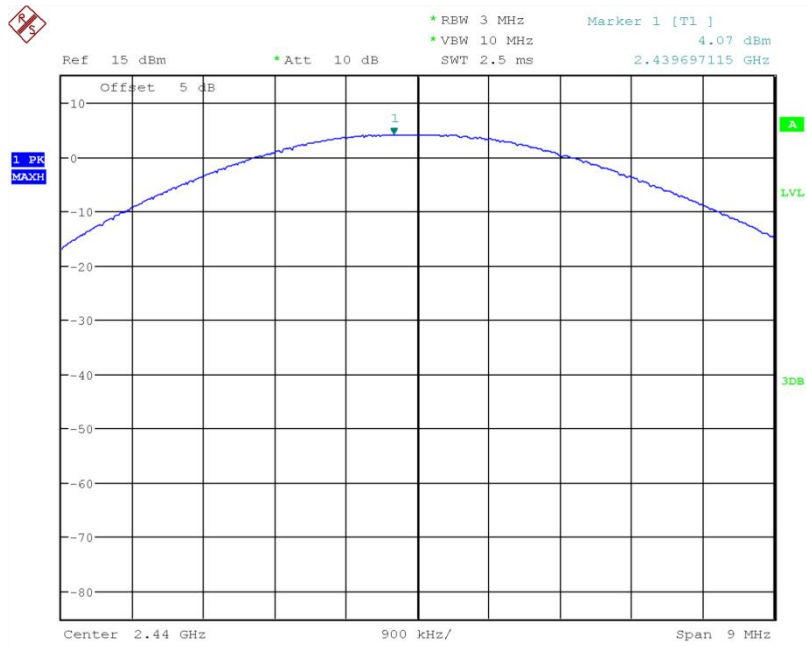
**Conclusion: PASS**

Test graphs an below



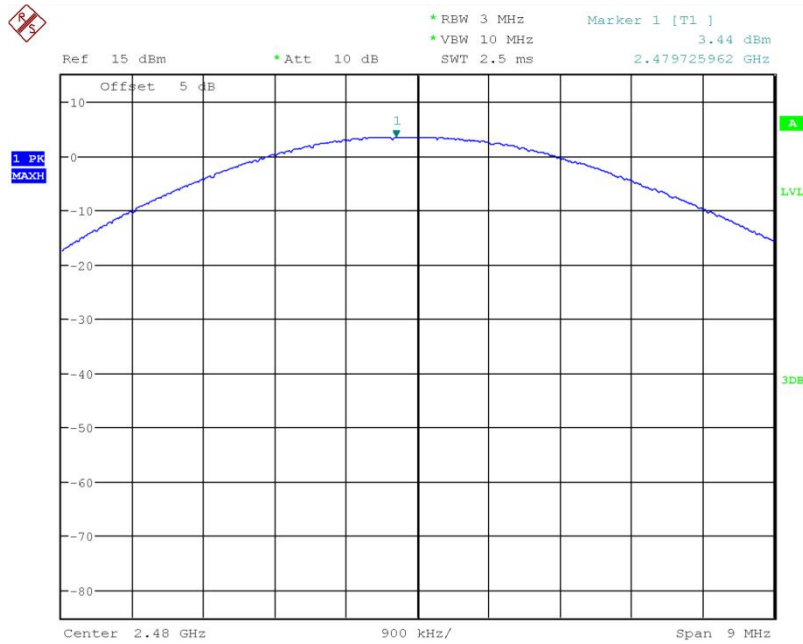
Date: 6.JUL.2018 10:37:40

Fig.1 Peak Conducted Output Power CH0, DH1



Date: 6.JUL.2018 10:38:01

Fig.2 Peak Conducted Output Power CH19, DH1



Date: 6.JUL.2018 10:39:48

Fig.3 Peak Conducted Output Power CH39, DH1

## 6.2. Peak Power Spectral Density

### 6.2.1 Measurement Limit:

Standard	Limit
FCC CFR Part 15.247(e)	< 8dBm/3 KHz

### 6.2.2 Test procedures

The measurement is according to ANSI C63.10 clause 11.10.

1. The output power of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Set analyzer center frequency to DTS channel center frequency.
4. Set the span to 1.5 times the DTS bandwidth.
5. Set the RBW to  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
6. Set the VBW  $\geq [3 \times \text{RBW}]$ .
7. Detector = peak.
8. Sweep time = auto couple.
9. Trace mode = max hold.
10. Allow trace to fully stabilize.
11. Use the peak marker function to determine the maximum amplitude level within the RBW.

12. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

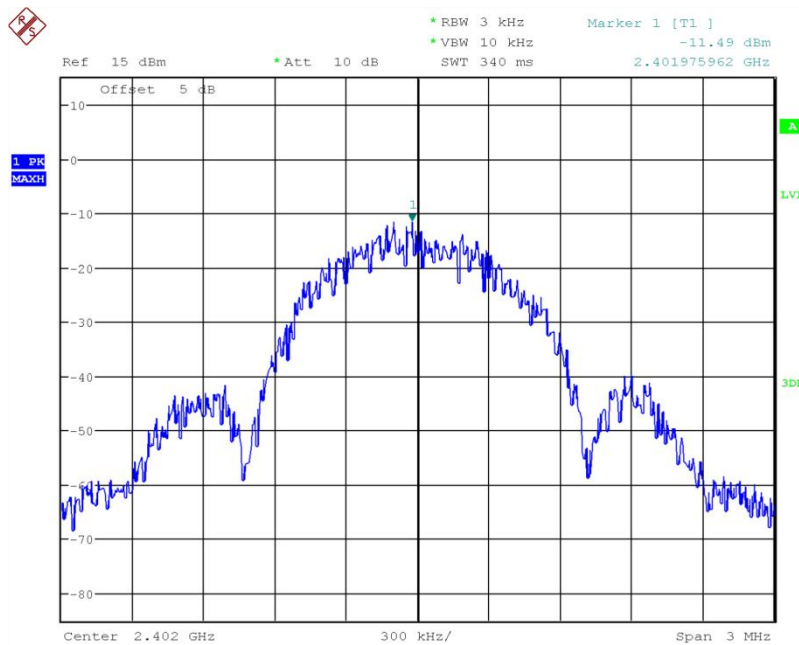
### 6.2.3 Measurement Uncertainty:

Measurement Uncertainty	0.75dB
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### 6.2.4 Measurement Results:

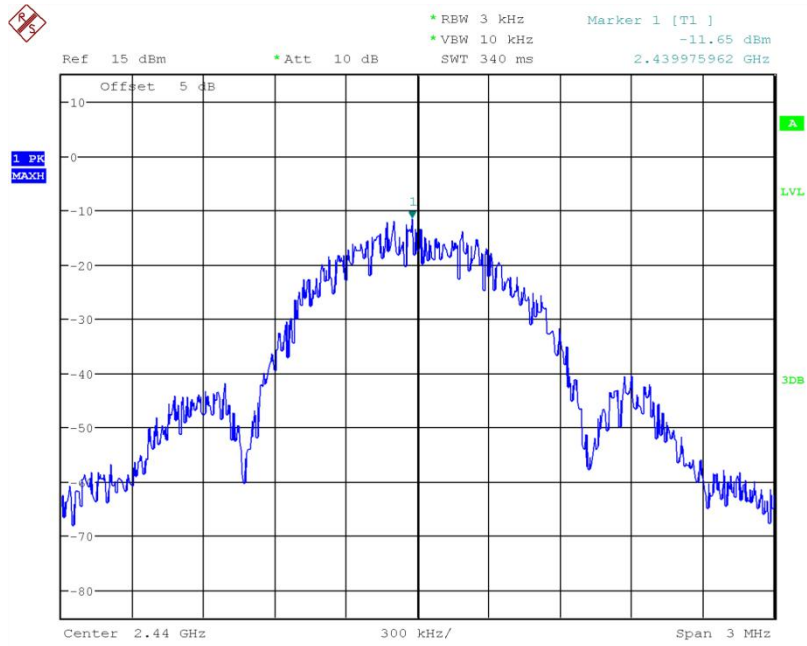
Mode	Channel	Power Spectral Density(dBm/3kHz)		Conclusion
BT-LE	00	Fig.4	-11.486	P
	19	Fig.5	-11.649	P
	39	Fig.6	-12.416	P

Test figure as below:



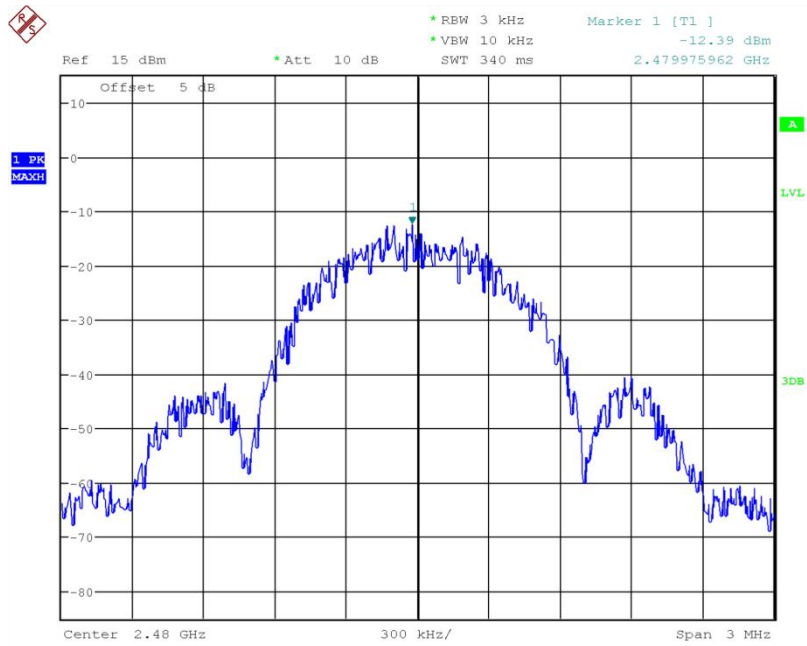
Date: 6.JUL.2018 10:35:12

Fig.4 Power spectral density: CH0



Date: 6.JUL.2018 10:35:51

Fig.5 Power spectral density: CH19



Date: 6.JUL.2018 10:36:19

Fig.6 Power spectral density: CH39

**6.3. 6dB Bandwidth**
**6.3.1 Measurement Limit:**

Standard	Limit
FCC 47 CFR Part 15.247 (a) (1)	$\geq 500k$

**6.3.2 Test procedures**

The measurement is according to ANSI C63.10 clause 7.8.7

1. Connect the EUT through cable and divide with CBT32 and spectrum analyzer.
2. Enable the EUT transmit maximum power.
3. Set the spectrum analyzer as DTS channel center frequency.
4. Span: two or five times of OBW
5. RBW= 1% to 5% of the OBW; VBW $\geq$ 3RBW; Max Hold.
6. Select the max peak, and N DB DOWN=6dB.
7. Record the results.

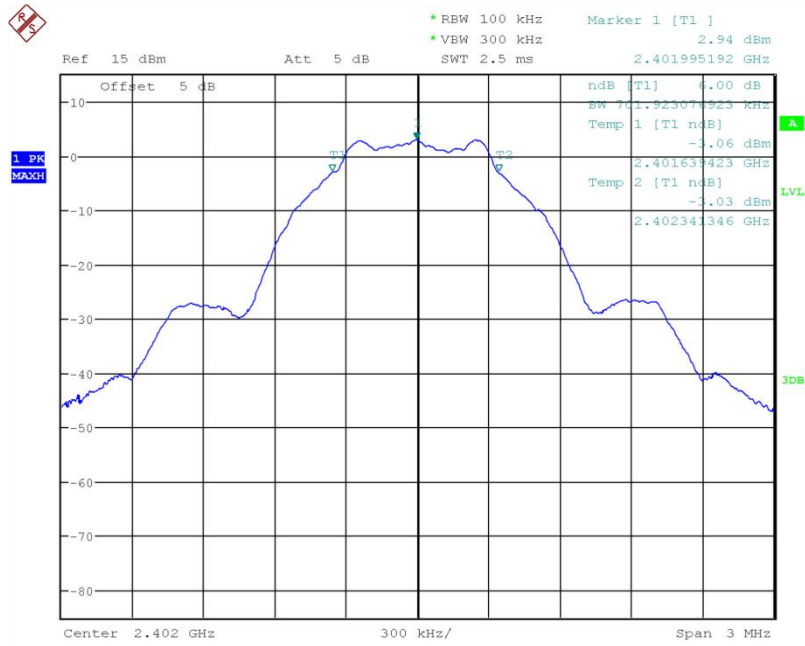
**Measurement Result:**
**For GFSK**

Channel	6dB Bandwidth (KHz)		Conclusion
0	Fig.7	702	P
39	Fig.8	707	P
78	Fig.9	702	P

**Conclusion: PASS**

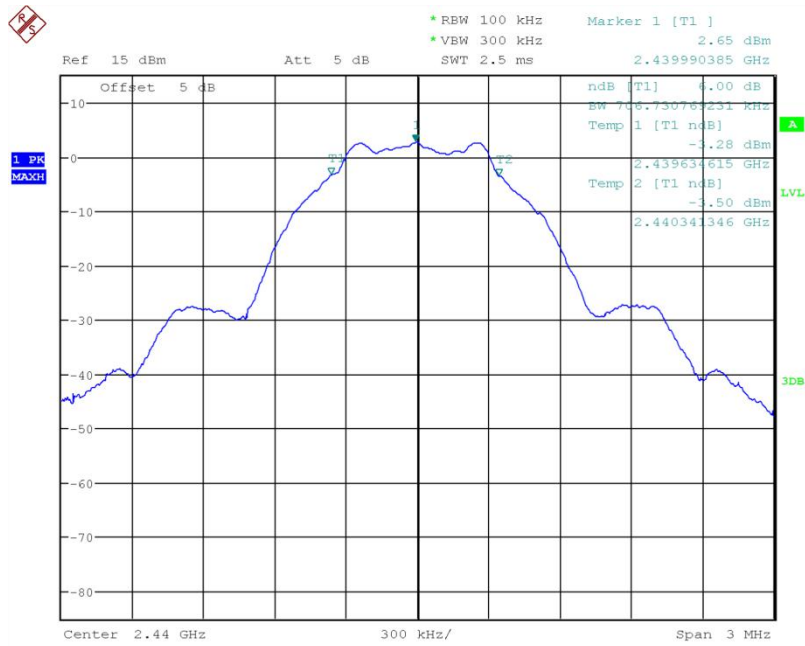
**Test graphs as below:**





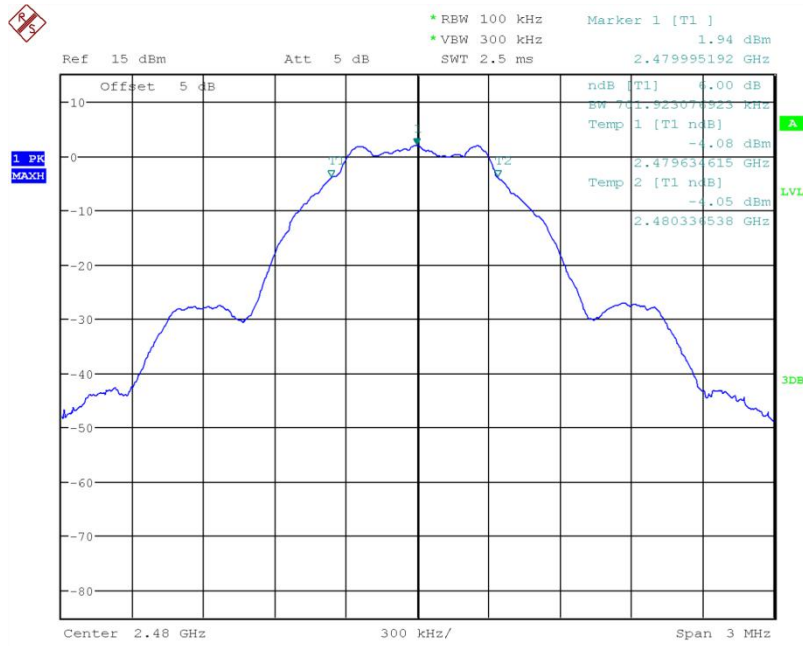
Date: 6.JUL.2018 10:26:05

Fig.7 6dB Bandwidth: Ch0



Date: 6.JUL.2018 10:26:31

Fig.8 6dB Bandwidth: Ch19



Date: 6.JUL.2018 10:26:55

Fig.9 6dB Bandwidth: Ch39

## 6.4. Frequency Band Edges-Conducted

### 6.4.1 Measurement Limit:

Standard	Limited(dBc)
FCC 47 CFR Part 15.247(d)	>20

### 6.4.2 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.6.

1. Connect the EUT to spectrum analyzer.
2. Set RBW=100KHz, VBW=300KHz, span more than 1.5 times channel bandwidth (2MHz).
3. Detector =peak, sweep time=auto couple, trace mode=max hold.
4. Allow sweep to continue until the trace stabilizes.

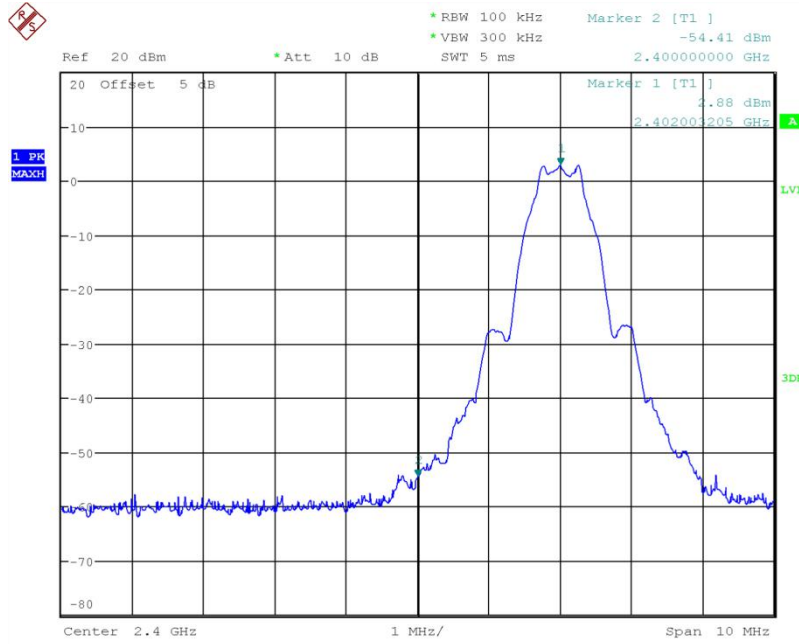
### 6.4.3 Measurement results

For GFSK

Channel	Band Edge Power (dBc)	Conclusion
00	Fig.10	P
39	Fig.11	P

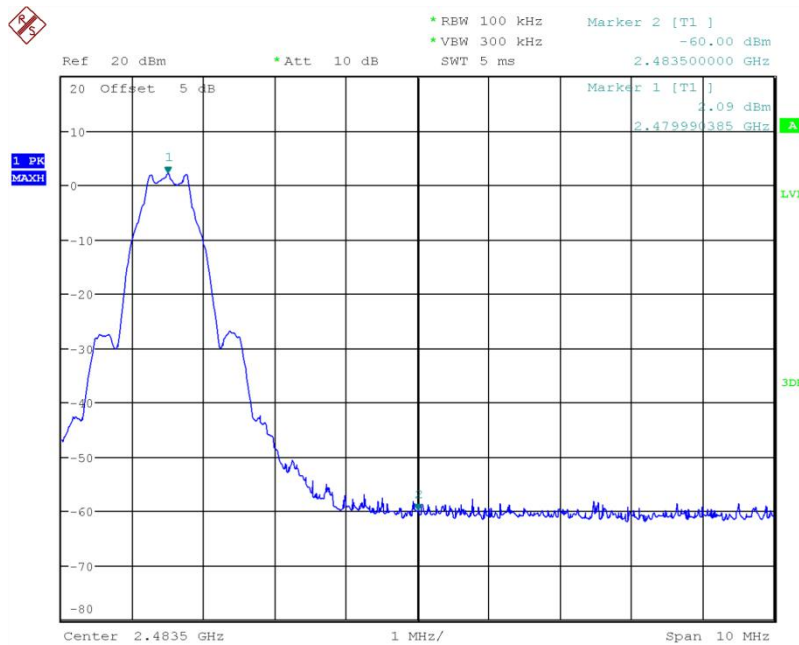
**Conclusion: PASS**

Test graphs an below



Date: 6.JUL.2018 10:28:09

Fig.10 Frequency Band Edge: GFSK, Ch0, Hopping OFF



Date: 6.JUL.2018 10:29:59

Fig.11 Frequency Band Edge: GFSK, Ch39, Hopping OFF

**6.5. Conducted Emission**

**6.5.1 Measurement Limit:**

Standard	Limit
FCC 47 CFR Part15.247 (d)	20dB below peak output power in 100KHz bandwidth

**6.5.2 Test procedures**

The measurement is according to ANSI C63.10 clause 7.8.8.

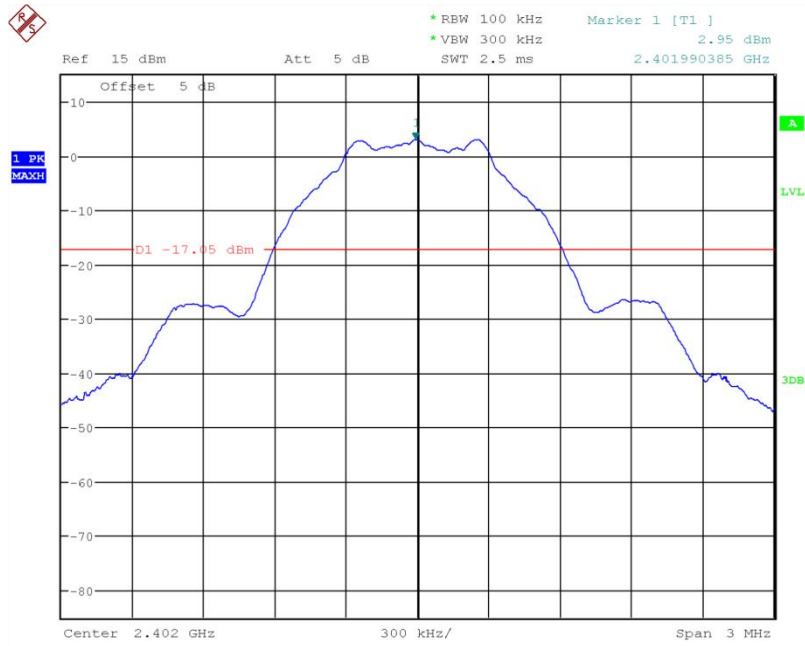
1. Connect the EUT to spectrum analyzer.
2. Set RBW=100KHz, VBW=300KHz.
3. Detector =peak, sweep time=auto couple, trace mode=max hold.

**6.5.3 Measurement Results:**

Channel	Frequency Range	Test Results	Conclusion
<b>Ch0 2402MHz</b>	Center Freq.	Fig.12	P
	30MHz~26GHz	Fig.13	P
<b>Ch19 2440MHz</b>	Center Freq.	Fig.14	P
	30MHz~26GHz	Fig.15	P
<b>Ch39 2480MHz</b>	Center Freq.	Fig.16	P
	30MHz~26GHz	Fig.17	P

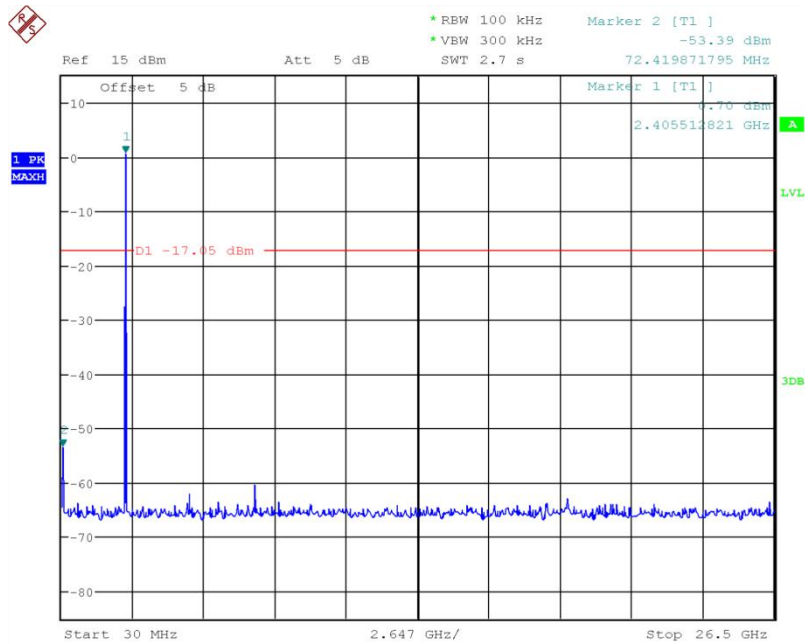
**Conclusion: PASS**

**Test graphs as below**



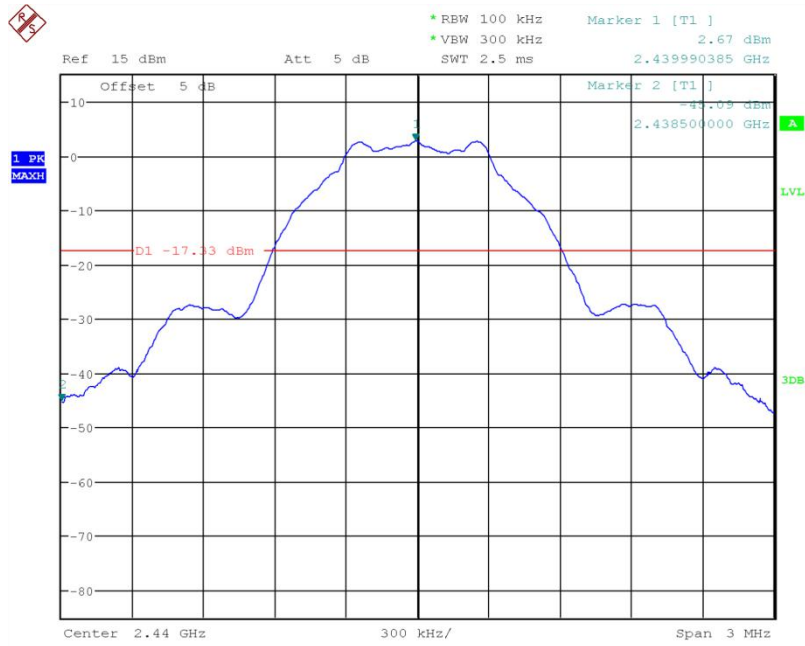
Date: 6.JUL.2018 10:31:46

Fig.12 Conducted spurious emission: Ch0, 2402MHz



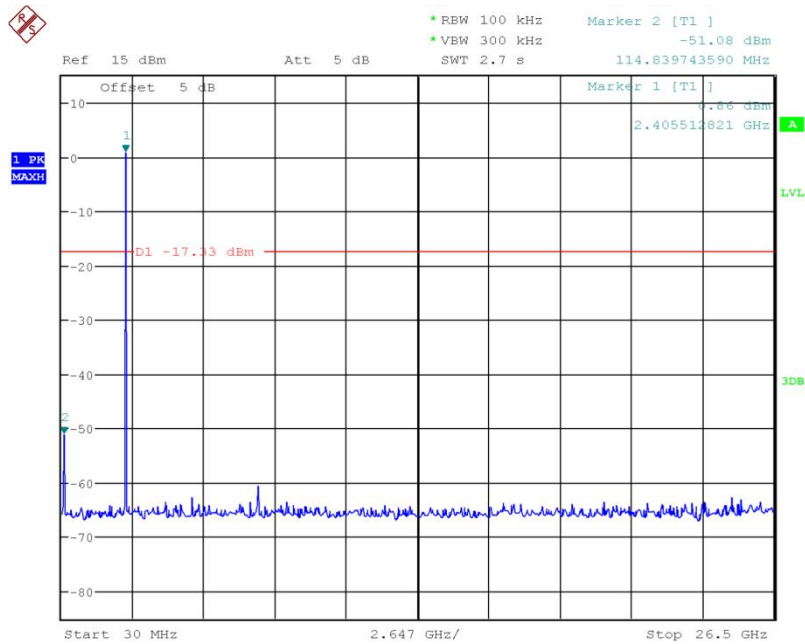
Date: 6.JUL.2018 10:32:10

Fig.13 Conducted spurious emission: Ch0, 30MHz~26GHz



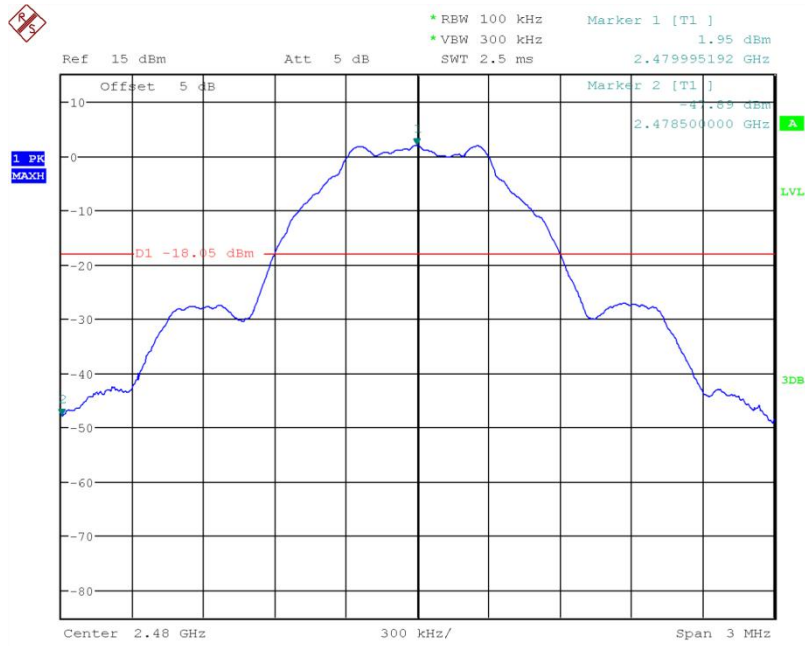
Date: 6.JUL.2018 10:32:47

Fig.14 Conducted spurious emission: Ch19, 2440MHz



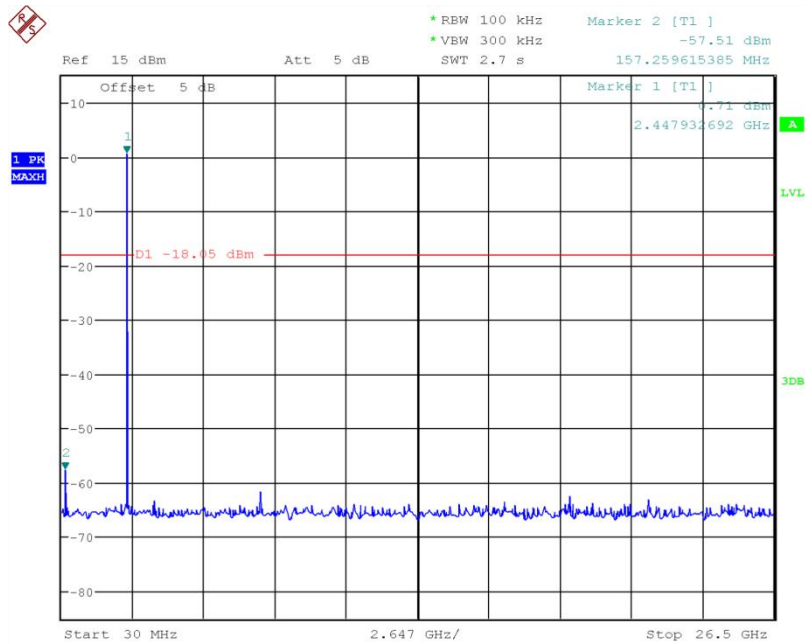
Date: 6.JUL.2018 10:33:10

Fig.15 Conducted spurious emission: Ch19, 30MHz~26GHz



Date: 6.JUL.2018 10:33:41

Fig.16 Conducted spurious emission: Ch39, 2480MHz



Date: 6.JUL.2018 10:34:04

Fig.17 Conducted spurious emission: Ch39, 30MHz~26GHz

## 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	FSQ26	101096	Rohde&Schwarz	2018-05-11	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 %
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. Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

**ANNEX B. 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\*\*\*\*\***