

# **TEST REPORT**

# No. B20N3097-BLE

for

Honor Device Co., Ltd.

**Smart Band** 

Model Name: ARG-B39

with

Hardware Version: LTAM230

Software Version: 1.1.0.1

FCC ID: 2AYGCARG-B39

Issued Date: 2021-02-22

#### **Designation Number: CN1210**

#### 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 SAICT.

#### Test Laboratory:

SAICT, Shenzhen Academy of Information and Communications Technology

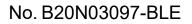
Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000. Tel:+86(0)755-33322000, Fax:+86(0)755-33322001 Email: yewu@caict.ac.cn. www.saict.ac.cn

©Copyright. All rights reserved by SAICT.



# **CONTENTS**

CON	TENTS	2
1.	SUMMARY OF TEST REPORT	3
1.1	I. TEST ITEMS	3
1.2	2. Test Standards	3
1.3	3. Test Result	3
1.4	4. TESTING LOCATION	3
1.5	5. Project data	3
1.6	5. SIGNATURE	3
2.	CLIENT INFORMATION	4
2.1	APPLICANT INFORMATION	4
2.2	2. MANUFACTURER INFORMATION	4
3.	EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	5
3.1	I. ABOUT EUT	5
3.2	2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	5
3.3	3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST	5
3.4	4. GENERAL DESCRIPTION	6
<b>4.</b> ]	REFERENCE DOCUMENTS	7
4.1	DOCUMENTS SUPPLIED BY APPLICANT	7
4.2	2. Reference Documents for testing	7
5.	TEST RESULTS	8
5.1	I. TESTING ENVIRONMENT	8
5.2	2. Test Results	8
5.3	3. Statements	8
6. '	TEST EQUIPMENTS UTILIZED	9
7.	LABORATORY ENVIRONMENT 1	0
8.	MEASUREMENT UNCERTAINTY1	1
ANN	IEX A: DETAILED TEST RESULTS1	2
А.	0 ANTENNA REQUIREMENT	2
А.	1 MAXIMUM PEAK OUTPUT POWER 1	3
A.2	2 PEAK POWER SPECTRAL DENSITY	4
Α.	3 6dB Bandwidth	6
A.4	4 BAND EDGES COMPLIANCE	8
A.:	5 TRANSMITTER SPURIOUS EMISSION - CONDUCTED	0
А.	6 TRANSMITTER SPURIOUS EMISSION - RADIATED	6
Α.	7 AC POWER LINE CONDUCTED EMISSION	3





# 1. Summary of Test Report

#### 1.1. Test Items

Description	Smart Band
Model Name	ARG-B39
Applicant's name	Honor Device Co., Ltd.
Manufacturer's Name	Honor Device Co., Ltd.

#### 1.2. Test Standards

FCC Part15-2019; ANSI C63.10-2013

#### 1.3. Test Result

#### Pass

Please refer to 5.2 Test Results.

#### 1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

#### 1.5. Project data

Testing Start Date:	2020-12-07
Testing End Date:	2020-12-10

### 1.6. Signature

An Ran (Prepared this test report)

Tang Weisheng (Reviewed this test report)

Zhang Bojun (Approved this test report)



# 2. <u>Client Information</u>

# 2.1. Applicant Information

Company Name:	Honor Device Co., Ltd.
Address:	Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, Guangdong, China
Contact Person	/
E-Mail	1
Telephone:	1
Fax:	1

### 2.2. Manufacturer Information

Company Name:	Honor Device Co., Ltd.
Address:	Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen,
Address.	Guangdong, China
Contact Person	1
E-Mail	/
Telephone:	/
Fax:	/



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

### 3.1.<u>About EUT</u>

Description	Smart Band
Model Name	ARG-B39
Frequency Range	2400MHz~2483.5MHz
Type of Modulation	GFSK
Number of Channels	40
Antenna Type	Internal
Antenna Gain	-2.5dBi
Power Supply	3.87V DC by Battery
FCC ID	2AYGCARG-B39
Condition of EUT as received	No abnormality in appearance

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

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

EUT ID*	IMEI	HW Version	SW Version	<b>Receive Date</b>
UT07aa	/	LTAM230	1.1.0.1	2020-11-30
UT06aa	/	LTAM230	1.1.0.1	2020-11-30

\*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	AE ID*
AE1	Li-ion Battery	/
AE2	Charging dock	/

#### AE1-1

Model	HB351731EFW
Manufacturer	Tianjin lishen battery joint-stock.,LTD.
Rated Voltage:	3.87V
Cutoff Voltage	4.45V
DischargeVoltage	3.0V
AE1-2	
Model	HB351731EFW
Manufacturer	Zhuhai CosMX Power Jinwan Subsidiary Co., Ltd.
Rated Voltage:	3.87V
Cutoff Voltage	4.45V
DischargeVoltage	3.0V
AE1-3	
Model	HB351731EFW
Manufacturer	Dongguan NVT Technology Co.,Ltd.



Rated Voltage:	3.87V
Cutoff Voltage	4.45V
DischargeVoltage	3.0V

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

Note: The Spurious emissions tests have been done with all models of Li-ion Battery, while the worst result is the test with AE1-1 HB351731EFW manufactured by "Tianjin lishen battery joint-stock.,LTD.". And the measurement results include the horizontal polarization and vertical polarization measurements. The test cases are selected as the worst cases for every conditions.

#### 3.4. General Description

The Equipment under Test (EUT) is a model of Smart Band with Internal antenna and battery.

It consists of normal options: Li-ion Battery Battery, Charging dock.

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

Samples undergoing test were selected by the client.



# 4. <u>Reference Documents</u>

# 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.

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;	2019
	15.247 Operation within the bands 902–928MHz,	
	2400–2483.5 MHz, and 5725–5850 MHz	
ANSI C63.10	American National Standard of Procedures for Compliance	2013
	Testing of Unlicensed Wireless Devices	



# 5. Test Results

#### 5.1. Testing Environment

Normal Temperature:15~35°CRelative Humidity:20~75%

5.2. Test Results

No	Test cases	Sub-clause of Part 15C	Verdict
0	Antenna Requirement	15.203	Р
1	Maximum Peak Output Power	15.247 (b)	Р
2	Peak Power Spectral Density	15.247 (e)	Р
3	Occupied 6dB Bandwidth	15.247 (a)	Р
4	Band Edges Compliance	15.247 (d)	Р
5	Transmitter Spurious Emission - Conducted	15.247 (d)	Р
6	Transmitter Spurious Emission - Radiated	15.247, 15.205, 15.209	Р
7	AC Power line Conducted Emission	15.107, 15.207	Р

See **ANNEX A** for details.

### 5.3. Statements

SAICT has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.2 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.



# 6. Test Equipments Utilized

#### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibratio n Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2021-01-15	1 year
2	Test Receiver	ESCI	100701	Rohde & Schwarz	2021-08-09	1 year
3	LISN	ENV216	102067	Rohde & Schwarz	2021-07-16	1 year

#### **Radiated emission test system**

NO.	Equipment	Model	Serial	Manufacturer	Calibration	Calibration
	- 4		Number		Due date	Period
1	Loop Antenna	HLA6120	35779	TESEQ	2022-04-25	3 years
2	BiLog Antenna	3142E	00224831	ETS-Lindgren	2021-05-17	3 years
3	Horn Antenna	3117	00066577	ETS-Lindgren	2022-04-02	3 years
4	Test Receiver	ESR7	101676	Rohde & Schwarz	2021-11-26	1 year
5	Spectrum	FSV40	101102	101192 Rohde & Schwarz	2021-01-14	1 year
	Analyser	F3V40	101192			
6	Chamber	FACT3-2.0	1285	ETS-Lindgren	2021-07-19	2 years
7	Horn Antenna	QSH-SL-18-	17013	0 7 7 7 2022		2 1/00/00
	nom Antenna	26-S-20	17013	Q-par	2023-01-06	3 years

#### **Test software**

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1
2	EMC32	Rohde & Schwarz	8.53.0
3	EMC32	Rohde & Schwarz	10.01.00

EUT is engineering software provided by the customer to control the transmitting signal. The EUT was programmed to be in continuously transmitting mode.

#### Anechoic chamber

Fully anechoic chamber by ETS-Lindgren



# 7. Laboratory Environment

#### Semi-anechoic chambe

Temperature	Min. = 15 °C, Max. = 35 °C	
Relative humidity	Min. = 20 %, Max. = 75 %	
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB	
Electrical insulation	> 2MΩ	
Ground system resistance	<4 Ω	
Normalised site attenuation (NSA)	< $\pm$ 4 dB, 3 m distance, from 30 to 1000 MHz	

#### Shielded room

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-1000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	<4 Ω

### Fully-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C	
Relative humidity	Min. = 20 %, Max. = 75 %	
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB	
Electrical insulation	> 2MΩ	
Ground system resistance	<4 Ω	
Voltage Standing Wave Ratio (VSWR)	$\leq$ 6 dB, from 1 to 18 GHz, 3 m distance	
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz	



# 8. <u>Measurement Uncertainty</u>

Test Name	Uncertainty ( <i>k</i> =2)		
1. RF Output Power - Conducted	1.32dB		
2.Power Spectral Density - Conducted	2.32	dB	
3. Occupied channel bandwidth - Conducted	66H	lz	
	30MHz≪f≪1GHz	1.41dB	
4 Transmitter Spurious Emission - Conducted	1GHz≪f≪7GHz	1.92dB	
4 Transmitter Spundus Emission - Conducted	7GHz≤f≤13GHz	2.31dB	
	13GHz≪f≪26GHz	2.61dB	
	9kHz≪f≪30MHz	1.70dB	
5 Transmitter Spurious Emission Dedicted	30MHz≪f≪1GHz	4.90dB	
5. Transmitter Spurious Emission - Radiated	1GHz≪f≪18GHz	4.60dB	
	18GHz≪f≪40GHz	4.10dB	
6. AC Power line Conducted Emission	150kHz≪f≪30MHz	3.00dB	



# **ANNEX A: Detailed Test Results**

# A.0 Antenna requirement

#### Measurement Limit:

Standard	Requirement				
	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the				
FCC CRF Part 15.203	permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection				
	systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is				
	employed so that the limits in this part are not exceeded.				

Conclusion: The Directional gains of antenna used for transmitting is -2.5 dBi.

The RF transmitter uses an internal antenna without connector.



### A.1 Maximum Peak Output Power

#### Method of Measurement: See ANSI C63.10-clause 11.9.1.1

Use the following spectrum analyzer settings:

a) Set the RBW = 1 MHz.

- b) Set VBW = 3 MHz.
- c) Set span = 3 MHz.
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

#### **Measurement Limit:**

Standard	Limit (dBm)
FCC 47 CRF Part 15.247(b)	< 30

#### Measurement Results:

Mode	Frequency (MHz)	RF output power (dBm)	Conclusion
	2402(CH0)	3.75	Р
GFSK	2440(CH19)	3.96	Р
	2480(CH39)	3.65	Р

#### **Conclusion: Pass**



### A.2 Peak Power Spectral Density

#### Method of Measurement: See ANSI C63.10-clause 11.10.2

#### **Measurement Limit:**

Standard	Limit
FCC 47 CRF Part 15.247(e)	< 8 dBm/3 kHz

#### **Measurement Results:**

Mode	Frequency (MHz)	Peak Power Spectral Density (dBm)		Conclusion
	2402(CH0)	Fig.1	2.73	Р
GFSK	2440(CH19)	Fig.2	2.67	Р
	2480(CH39)	Fig.3	2.32	Р

#### See below for test graphs. Conclusion: PASS

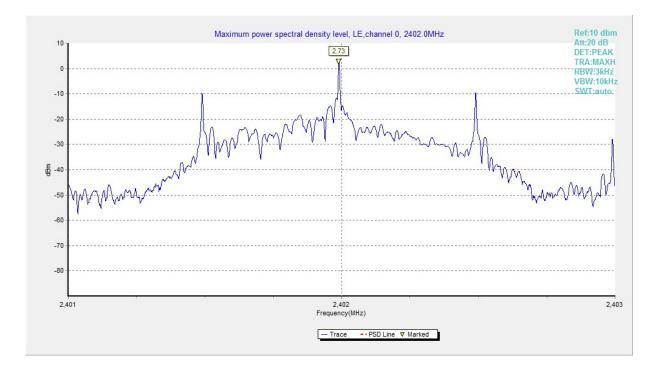
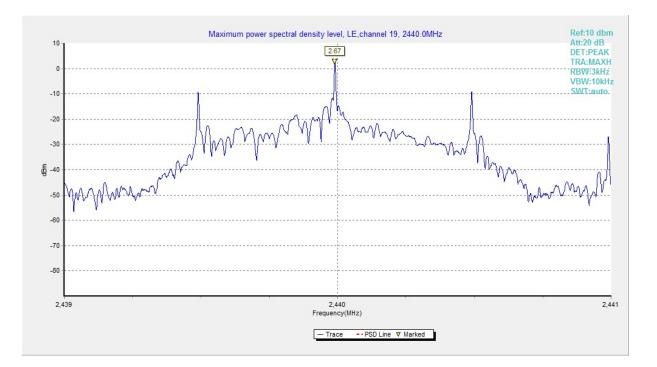
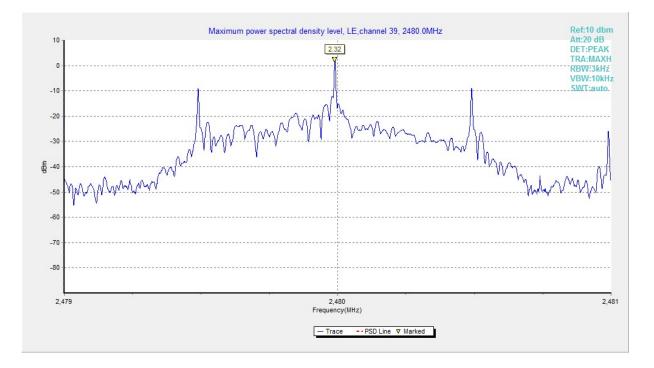


Fig.1 Power Spectral Density (Ch 0)













### A.3 6dB Bandwidth

#### Measurement Limit:

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

#### Measurement Result:

Mode	Frequency (MHz)	Test Results ( kHz)		Conclusion
	2402(CH0)	Fig.4	671.00	Р
GFSK	2440(CH19)	Fig.5	678.50	Р
	2480(CH39)	Fig.6	677.50	Р

#### See below for test graphs.

**Conclusion: PASS** 

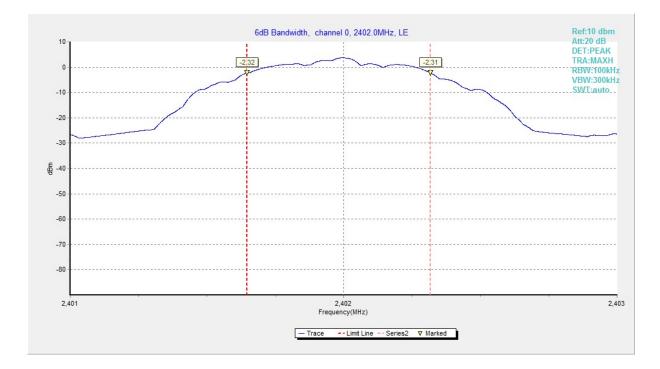
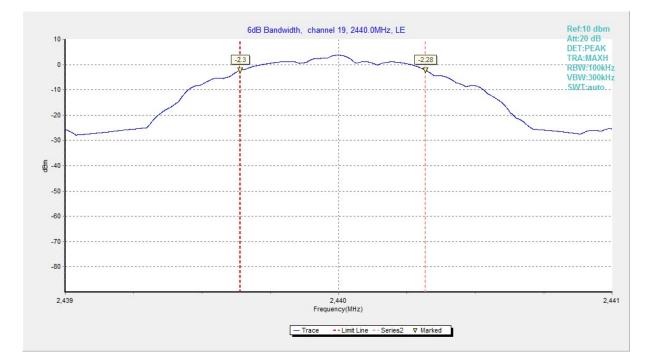


Fig.4 6dB Bandwidth (Ch 0)







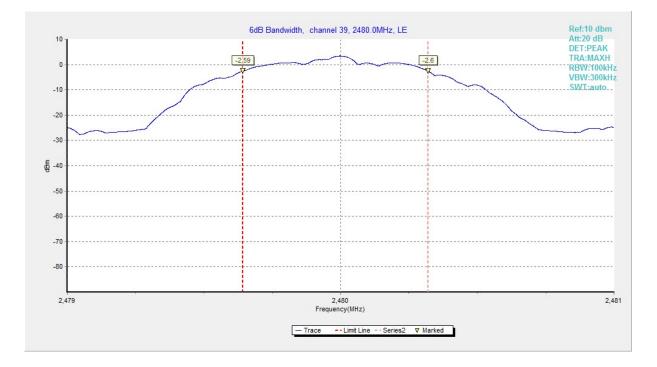


Fig.6 6dB Bandwidth (Ch 39)



# A.4 Band Edges Compliance

#### Measurement Limit:

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

#### **Measurement Result:**

Mode	Frequency (MHz)	Test Results (dBc)		Conclusion
GFSK	2402(CH0)	Fig.7	38.14	Р
Gron	2480(CH39)	Fig.8	41.70	Р

#### See below for test graphs.

Conclusion: PASS

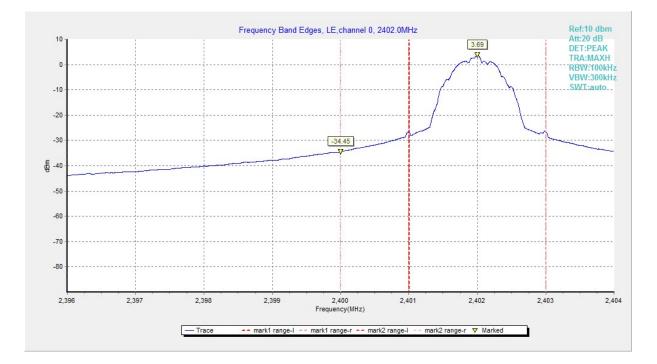


Fig.7 Band Edges (Ch 0)





Fig.8 Band Edges (Ch 39)



#### A.5 Transmitter Spurious Emission - Conducted

#### **Measurement Limit:**

Standard	Limit	
FCC 47 CFR Part 15.247 (d)	20dB below peak output power in 100 kHz	
	bandwidth	

#### **Measurement Results:**

MODE	Channel	Frequency Range	Test Results	Conclusion
		2.402 GHz	Fig.9	Р
	0	1GHz -3GHz	Fig.10	Р
		3GHz-10GHz	Fig.11	Р
		2.440 GHz	Fig.12	Р
	19	1GHz -3GHz	Fig.13	Р
GFSK		3GHz-10GHz	Fig.14	Р
	39	2.480 GHz	Fig.15	Р
		1GHz -3GHz	Fig.16	Р
		3GHz-10GHz	Fig.17	Р
	All channels	30MHz-1GHz	Fig.18	Р
		10GHz-26GHz	Fig.19	Р

#### See below for test graphs.

#### **Conclusion: Pass**

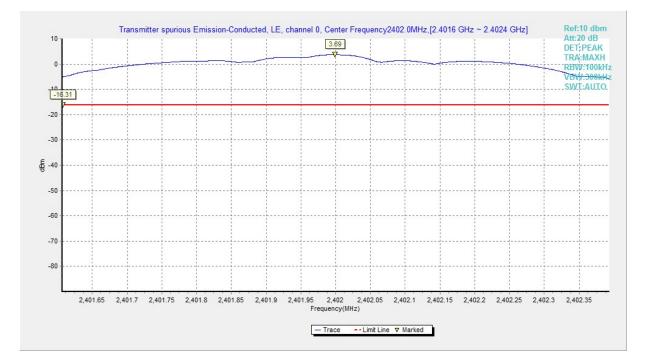
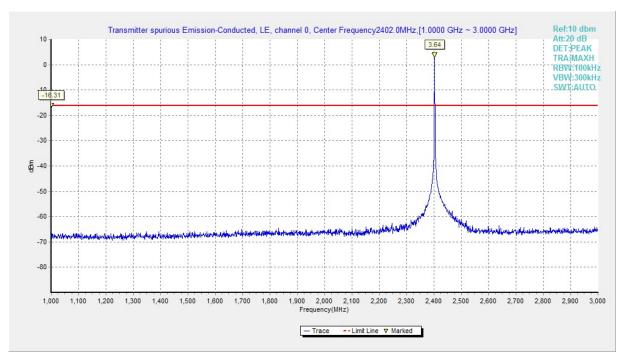


Fig.9 Conducted Spurious Emission (Ch0, Center Frequency)







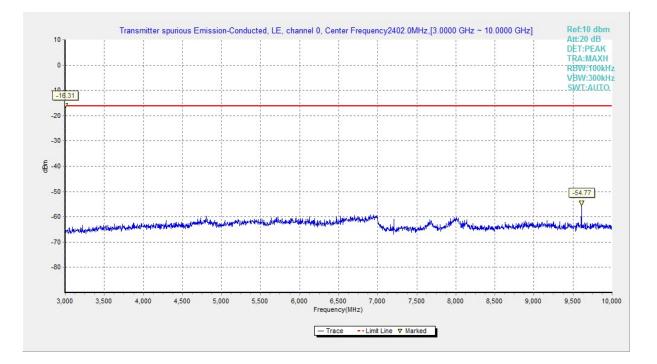


Fig.11 Conducted Spurious Emission (Ch0, 3 GHz-10 GHz)



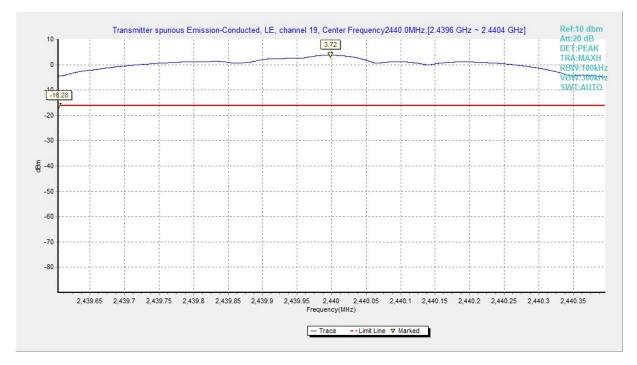


Fig.12 Conducted Spurious Emission (Ch19, Center Frequency)

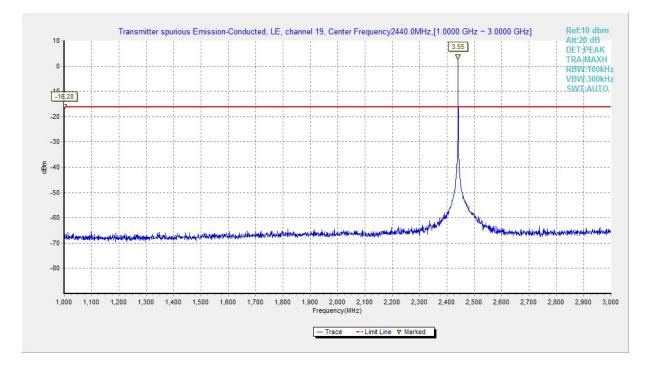
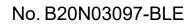


Fig.13 Conducted Spurious Emission (Ch19, 1 GHz-3 GHz)





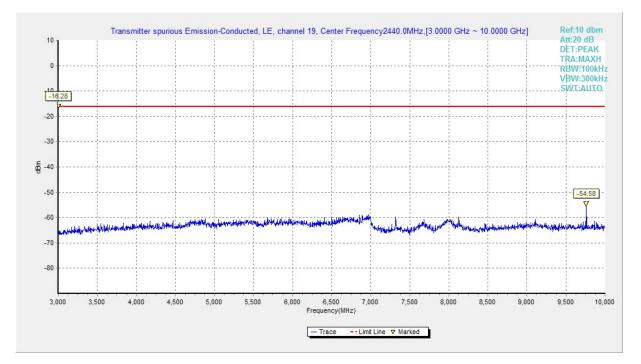


Fig.14 Conducted Spurious Emission (Ch19, 3 GHz-10 GHz)

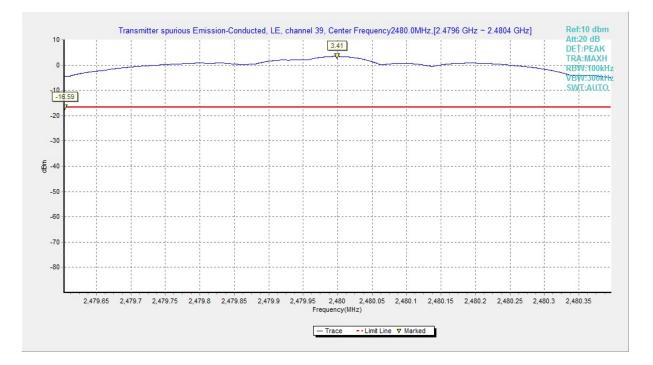
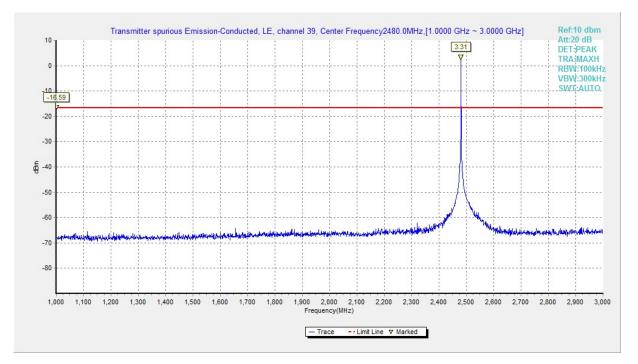


Fig.15 Conducted Spurious Emission (Ch39, Center Frequency)







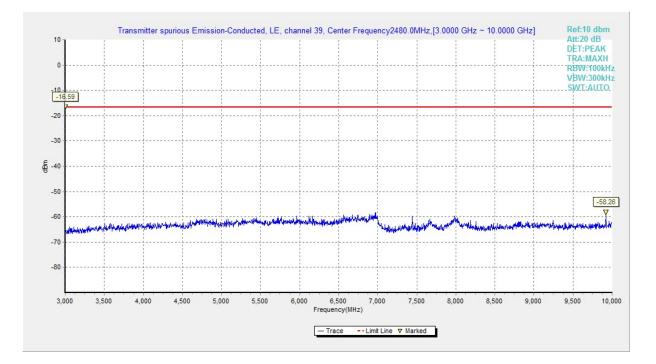


Fig.17 Conducted Spurious Emission (Ch39, 3 GHz-10 GHz)



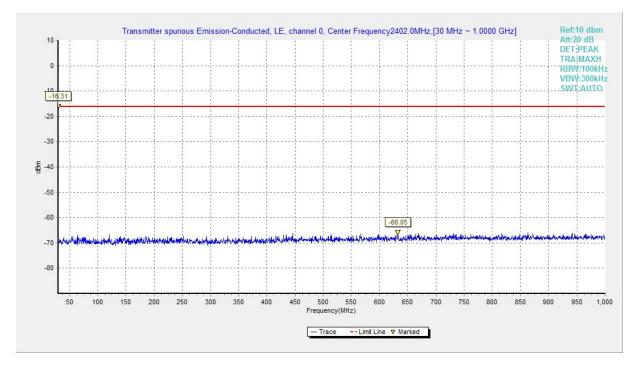


Fig.18 Conducted Spurious Emission (All channels, 30 MHz-1 GHz)

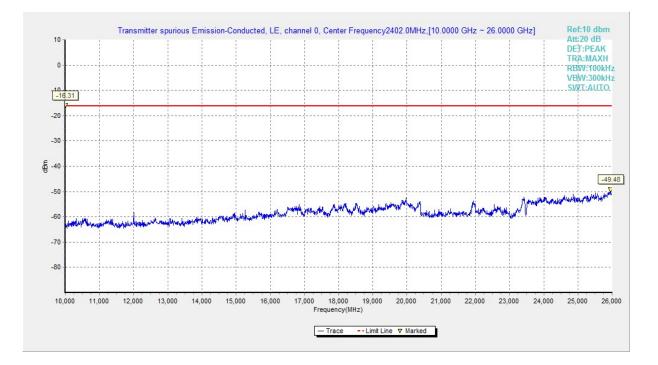


Fig.19 Conducted Spurious Emission (All channels, 10 GHz-26 GHz)



### A.6 Transmitter Spurious Emission - Radiated

#### **Measurement Limit:**

Standard	Limit	
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power	

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)).

#### Limit in restricted band:

Frequency of emission	Field strength(u)//m)	Measurement
(MHz)	Field strength(µV/m)	distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

#### **Test Condition:**

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission	RBW/VBW	Sweep Time(s)
(MHz)		
30-1000	120kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

**Note**: According to the performance evaluation, the radiated emission margin of EUT is over 20dB in the band from 9kHz to 30MHz.Therefore, the measurement starts from 30MHz to tenth harmonic. The measurement results include the horizontal polarization and vertical polarization measurements.



#### **Measurement Results:**

Mode	Channel	Frequency Range	Test Results	Conclusion
	0	1 GHz ~18 GHz	Fig.20	Р
	19	1 GHz ~18 GHz	Fig.21	Р
	39	1 GHz ~18 GHz	Fig.22	Р
GFSK	Restricted Band(CH0)	2.38 GHz ~ 2.45 GHz	Fig.23	Р
	Restricted Band(CH39)	2.45 GHz ~ 2.5 GHz	Fig.24	Р
		9 kHz ~30 MHz	Fig.25	Р
	All channels	30 MHz ~1 GHz	Fig.26	Р
		18 GHz ~ 26.5 GHz	Fig.27	Р

### Worst Case Result

## GFSK CH0 (1-18GHz)

Frequency (MHz)	MaxPeak (dBuV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
4803.600000	51.21	74.00	22.79	V	3.8
5848.200000	49.10	74.00	24.90	Н	4.5
7206.428572	56.83	74.00	17.17	V	5.0
9609.000000	53.80	74.00	20.20	V	6.1
12872.571429	48.69	74.00	25.31	V	9.9
16607.571429	54.56	74.00	19.44	Н	16.9

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
4803.900000	42.82	54.00	11.18	V	3.8
5803.800000	36.83	54.00	17.17	V	4.2
7206.428572	49.09	54.00	4.91	V	5.0
9606.857143	44.14	54.00	9.86	V	6.1
12870.857143	36.76	54.00	17.24	V	9.9
16607.571429	42.33	54.00	11.67	Н	16.9

#### GFSK CH19 (1-18GHz)

Frequency	MaxPeak	Limit	Margin	Pol	Corr.
(MHz)	(dBuV/m)	(dBµV/m)	(dB)	FOI	(dB/m)
4880.100000	51.33	74.00	22.67	V	3.7
5754.900000	49.37	74.00	24.63	V	3.8
7320.428572	56.61	74.00	17.39	V	4.5
9759.000000	55.96	74.00	18.04	V	6.6
13017.857143	48.30	74.00	25.70	Н	10.3
17934.428571	54.81	74.00	19.19	V	18.2



Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
4880.100000	42.54	54.00	11.46	V	3.7
5741.400000	36.53	54.00	17.47	V	3.8
7320.428572	49.76	54.00	4.24	V	4.5
9759.000000	47.69	54.00	6.31	V	6.6
12883.285714	36.81	54.00	17.19	Н	10.0
17934.428571	42.60	54.00	11.40	V	18.2

#### GFSK CH39 (1-18GHz)

Frequency	MaxPeak	Limit	Margin	Pol	Corr.
(MHz)	(dBuV/m)	(dBµV/m)	(dB)	FOI	(dB/m)
4959.600000	51.92	74.00	22.08	V	3.6
5749.800000	48.76	74.00	25.24	V	3.8
7440.428572	56.83	74.00	17.17	Н	5.4
9920.571429	55.05	74.00	18.95	Н	6.9
12909.000000	49.36	74.00	24.64	Н	10.1
16606.714286	54.73	74.00	19.27	V	16.9

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
4959.900000	44.83	54.00	9.17	V	3.6
5807.100000	36.93	54.00	17.07	V	4.2
7440.428572	49.43	54.00	4.57	Н	5.4
9920.571429	47.97	54.00	6.03	Н	6.9
12894.000000	40.84	54.00	13.16	V	10.0
16606.714286	42.49	54.00	11.51	V	16.9

Note:

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and Antenna Factor, the gain of the preamplifier, the cable loss.  $P_{Mea}$  is the field strength recorded from the instrument.

The measurement results are obtained as described below:

Result= P<sub>Mea</sub> +Cable Loss +Antenna Factor-Gain of the preamplifier.

See below for test graphs.

Conclusion: Pass



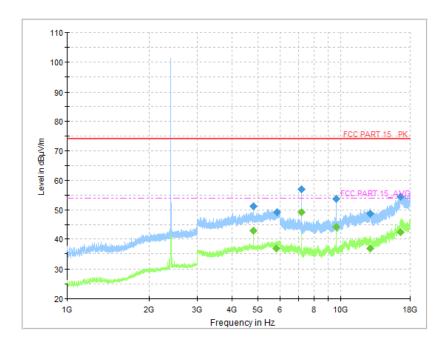


Fig.20 Radiated Spurious Emission (GFSK, Ch0, 1 GHz ~18 GHz)

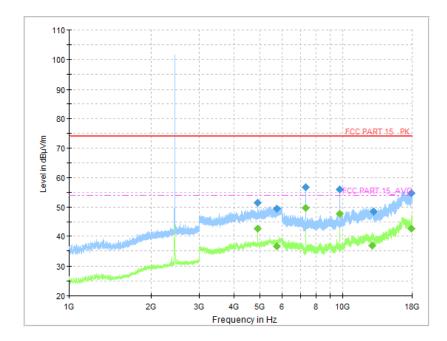


Fig.21 Radiated Spurious Emission (GFSK, Ch19, 1 GHz ~18 GHz)



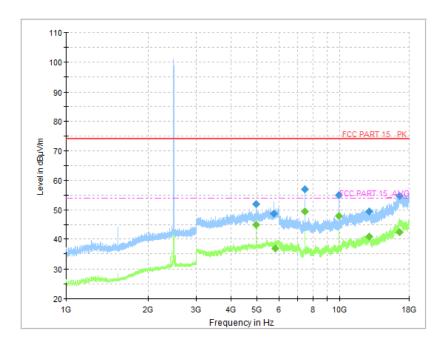


Fig.22 Radiated Spurious Emission (GFSK, Ch39, 1 GHz ~18 GHz)

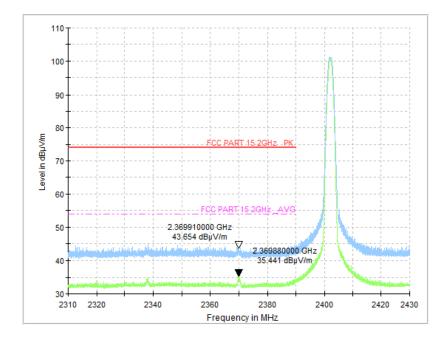


Fig.23 Radiated Band Edges (GFSK, Ch0, 2380GHz~2450GHz)



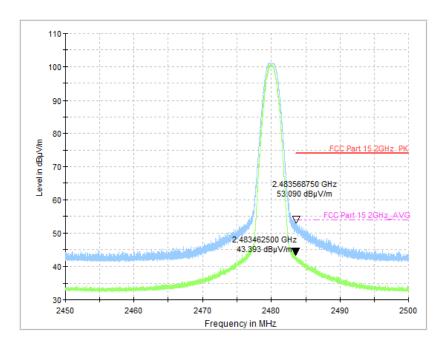


Fig.24 Radiated Band Edges (GFSK, Ch39, 2450GHz~2500GHz)

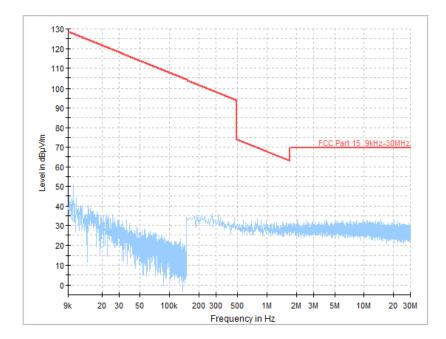


Fig.25 Radiated Spurious Emission (All Channels, 9 kHz-30 MHz)



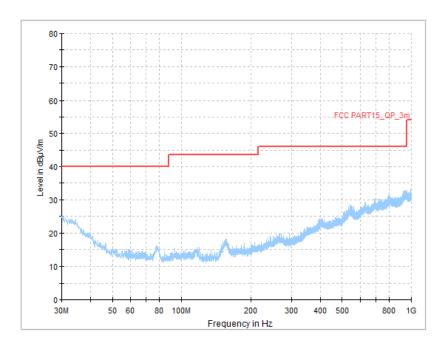


Fig.26 Radiated Spurious Emission (All Channels, 30 MHz-1 GHz)

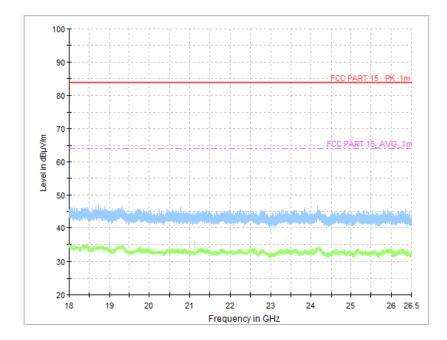


Fig.27 Radiated Spurious Emission (All Channels, 18 GHz-26.5 GHz)



### A.7 AC Power line Conducted Emission

#### **Test Condition:**

Voltage (V)	Frequency (Hz)		
120	60		

#### Measurement Result and limit:

BLE (Quasi-peak Limit)

Frequency range	Quasi-peak	Result (dBμV)		Conclusion			
(MHz)	Limit (dBµV)	Traffic	Idle	Conclusion			
0.15 to 0.5	66 to 56						
0.5 to 5	56	Fig.28	Fig.29	Р			
5 to 30	60						
NOTE: The limit decreases linearly with the logarithm of the frequency in the range							

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

BLE (Average Limit)

Frequency range	Average-peak	Result (dBµV)		Conclusion			
(MHz)	Limit (dBμV)	Traffic	ldle	Conclusion			
0.15 to 0.5	56 to 46						
0.5 to 5	46	Fig.28	Fig.29	Р			
5 to 30	50						
NOTE: The limit decreases linearly with the logarithm of the frequency in the range							
0.15 MHz to 0.5 MHz.							

**Note:** The measurement results include the L1 and N measurements.

See below for test graphs.

**Conclusion: Pass** 



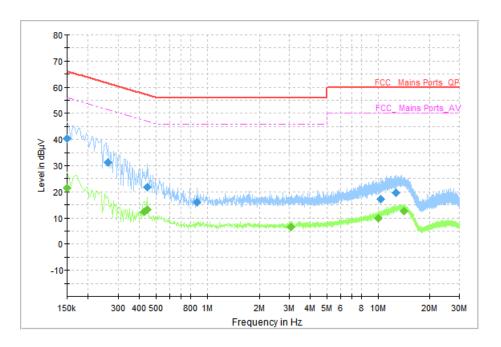


Fig.28 AC Power line Conducted Emission (Traffic)

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	40.48	66.00	25.52	L1	ON	10
0.262000	31.19	61.37	30.18	Ν	ON	10
0.442000	21.71	57.02	35.32	L1	ON	10
0.870000	15.87	56.00	40.13	L1	ON	10
10.382000	17.28	60.00	42.72	L1	ON	10
12.750000	19.52	60.00	40.48	L1	ON	10

#### Measurement Results: Quasi Peak

#### Measurement Results: Average

Frequency	Average	Limit	Margin	Line	Filter	Corr.
(MHz)	(dBµV)	(dBµV)	(dB)			(dB)
0.150000	21.45	56.00	34.55	L1	ON	10
0.426000	12.20	47.33	35.13	Ν	ON	10
0.442000	13.38	47.02	33.64	Ν	ON	10
3.062000	6.65	46.00	39.35	Ν	ON	10
9.986000	9.95	50.00	40.05	L1	ON	10
14.174000	12.57	50.00	37.43	L1	ON	10



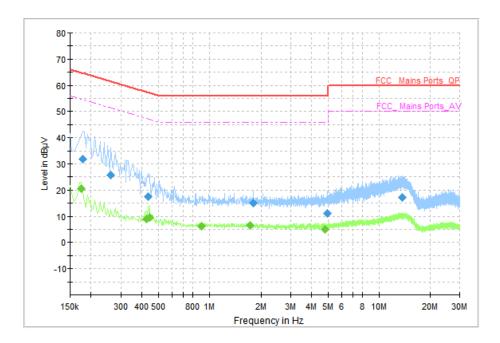


Fig.29	AC Power line Conducted Emission (Idle)
119.20	

Frequency (MHz)	Quasi Peak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)		
0.178000	31.82	64.58	32.76	Ν	ON	10		
0.262000	25.84	61.37	35.53	L1	ON	10		
0.434000	17.61	57.18	39.57	Ν	ON	10		
1.794000	15.09	56.00	40.91	Ν	ON	10		
4.954000	11.23	56.00	44.77	Ν	ON	10		
13.734000	17.13	60.00	42.87	L1	ON	10		

#### Measurement Results: Quasi Peak

#### Measurement Results: Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.174000	20.66	54.77	34.10	L1	ON	10
0.426000	9.00	47.33	38.34	Ν	ON	10
0.442000	9.47	47.02	37.56	Ν	ON	10
0.902000	6.19	46.00	39.81	Ν	ON	10
1.718000	6.47	46.00	39.53	Ν	ON	10
4.770000	5.12	46.00	40.88	Ν	ON	10

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