

# **FCC Test Report**

Report No.: AGC01579211104FE03

FCC ID : 2AVUHVA-IH006A

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION**: Baby Monitor Camera

BRAND NAME : VAVA

WA-IH006E(for camera), VA-IH009E(for camera),

MR-IH001E(for camera), MR-IH002E(for camera)

APPLICANT Shenzhen NearbyExpress Technology Development

Company Limited

**DATE OF ISSUE** : Jan. 26, 2022

**STANDARD(S)** : FCC Part 15.247

**REPORT VERSION**: V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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## REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	1	Jan. 26, 2022	Valid	Initial Release

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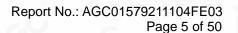
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## 1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen NearbyExpress Technology Development Company Limited		
Address	Room 701, 702, 703, 705, 706, 708, 709, Building E, Galaxy World Phase II, Minle Community, Minzhi Street, Longhua District, Shenzhen, China		
Manufacturer	Shenzhen NearbyExpress Technology Development Company Limited		
Address	Room 701, 702, 703, 705, 706, 708, 709, Building E, Galaxy World Phase II, Minle Community, Minzhi Street, Longhua District, Shenzhen, China		
Factory	ZhaoYang Gevotai (XinFeng) Technology Co., Ltd.		
Address	#3 Industrial Avenue, Industrial Park, Xinfeng County, Ganzhou City, Jiangxi Province, China		
Product Designation	Baby Monitor Camera		
Brand Name	VAVA		
Test Model	VA-IH006E(for camera)		
Series Model	VA-IH009E(for camera), MR-IH001E(for camera), MR-IH002E(for camera)		
Difference Description	All the same except for the model name		
Date of test	Dec. 20, 2021 to Jan. 23, 2022		
Deviation	No any deviation from the test method		
Condition of Test Sample Normal			
Test Result	Pass		
Report Template	AGCRT-US-BR/RF		

## We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC PART 15.247.

Prepared By	John Zeng	
Po F	John Zeng (Project Engineer)	Jan. 26, 2022
Reviewed By	Calin Lin	
- C	Calvin Liu (Reviewer)	Jan. 26, 2022
Approved By	Max Zhang	
SC SC	Max Zhang (Authorized Officer)	Jan. 26, 2022

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## 2. GENERAL INFORMATION

## 2.1. PRODUCT DESCRIPTION

The EUT is designed as "Baby Monitor Camera". It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

7 major teerinical description	n of Eo i is described as following
Operation Frequency	2410MHz to 2477MHz
RF Output Power	21.831dBm(Max)
Modulation	GFSK
Number of channels	20 Channels
Hardware Version	JST 009PVT_A0
Software Version	JST IH009 PU 211027 V01forLCD_TC35778_KLD50174C JST IH009 US 211102 V02
Antenna Designation	External Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	3.16dBi
Power Supply	DC 5V by adapter

## 2.2. TABLE OF CARRIER FREQUENCYS

Channel Number	Frequency(MHz)	Channel Number	Frequency(MHz)	
® 1	2410	® 11	2445	
2	2413.5	12	2448.5	
3	2417	13	2452	
9 4	2420.5	14	2455.5	
5	2424	15	2459	
6	2427.5	16	2462.5	
7	2431	17	2466	
8	2434.5	18	2469.5	
9	2438	19	2473	
10	2441.5	20	2477	

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#### 2.3. RECEIVER INPUT BANDWIDTH

The input bandwidth of the receiver is 1.3MHz, in every connection one device is the master and the other one is slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally, the type of connection (e.g. single of multi slot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also, the slave of the connection will use these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

#### 2.4. EXAMPLE OF A HOPPING SEQUENCY IN DATA MODE

Example of a hopping sequence in data mode: 10, 14, 16, 01, 05, 09, 11, 08, 17, 18, 13, 02, 15, 03, 12, 04, 07, 06, 19, 20.

#### 2.5. EQUALLY AVERAGE USE OF FREQUENCIES AND BEHAVIOUR

The generation of the hopping sequence in connection mode depends essentially on two input values:

- 1. LAP/UAP of the master of the connection.
- 2. Internal master clock.

The LAP (lower address part) are the 24 LSB's of the 48 BD\_ADDRESS. The BD\_ADDRESS is an unambiguous number of every unit. The UAP (upper address part) are the 24MSB's of the 48BD\_ADDRESS. The internal clock of a unit is derived from a free running clock which is never adjusted and is never turned off. For behavior action with other units only offset is used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5us. The clock has a cycle of about one day(23h30). In most case it is implemented as 28 bits counter. For the deriving of the hopping sequence the entire. LAP (24)

In most case it is implemented as 28 bits counter. For the deriving of the hopping sequence the entire. LAP (24 bits), 4LSB's (4bits) (Input 1) and the 27MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR-operations) are performed to generate the Sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions the system has the following behavior:

The first connection between the two devices is established, a hopping sequence was generated. For Transmitting the wanted data the complete hopping sequence was not used. The connection ended. The second connection will be established. A new hopping sequence is generated. Due to the fact the clock has a different value, because the period between the two transmission is longer (and it Cannot be shorter) than the minimum resolution of the clock (312.5us). The hopping sequence will always differ from the first one.

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## 2.6. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AVUHVA-IH006A** filing to comply with the FCC PART 15.247 requirements.

## 2.7. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

#### 2.8. SPECIAL ACCESSORIES

Refer to section 5.2.

#### 2.9. EQUIPMENT MODIFICATIONS

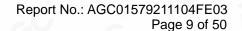
Not available for this EUT intended for grant.

#### 2.10. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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## 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

- Uncertainty of Conducted Emission, Uc = ±2.9 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.8 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.4 dB
- Uncertainty of total RF power, conducted, Uc = ±0.8dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %
- Uncertainty of Dwell Time: Uc = ±2 %
- Uncertainty of Frequency: Uc = ±2 %

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## 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel GFSK(2410MHz)
2	Middle channel GFSK(2441.5MHz)
3	High channel GFSK(2477MHz)
4	Hopping mode GFSK

#### Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
- 4. The EUT enters the test by pressing a button, no test software is required.

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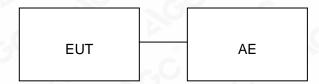


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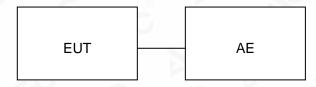
## 5. SYSTEM TEST CONFIGURATION

## **5.1. CONFIGURATION OF EUT SYSTEM**

Radiated Emission Configure:



Conducted Emission Configure:



#### **5.2. EQUIPMENT USED IN TESTED SYSTEM**

Item	Equipment	Model No.	ID or Specification	Remark
1	Baby Monitor Camera	VA-IH006E(for camera)	2AVUHVA-IH006A	EUT
2	Adapter(Camera)	NBS05B050120VU	Input: AC 100-240V, 50/60Hz, 0.2A Output: DC 5.0A, 1.2A	Accessory
3	Adapter(Monitor)	E010-1D050200VUU	Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0A, 2.0A	Accessory
4	Micro-B line(Camera)	N/A	2.5m unshielded	Accessory
5	Type-C line(Monitor)	N/A	2.5m unshielded	Accessory
6	Baby Monitor	VA-IH006F(for monitor)	N/A	Accessory

## **5.3. SUMMARY OF TEST RESULTS**

FCC RULES	DESCRIPTION OF TEST	RESULT	
15.247 (b)(1)	Peak Output Power	Compliant	
15.247 (a)(1)	20 dB Bandwidth	Compliant	
15.247 (d)	Conducted Spurious Emission	Compliant	
15.209	Radiated Emission	Compliant	
15.247 (a)(1)(iii)	Number of Hopping Frequency	Compliant	
15.247 (a)(1)(iii)	Time of Occupancy	Compliant	
15.247 (a)(1)	15.247 (a)(1) Frequency Separation		
15.207	Conducted Emission	Compliant	

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## 6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd		
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China		
Designation Number	CN1259		
FCC Test Firm Registration Number	975832		
A2LA Cert. No.	5054.02		
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA		

#### TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESPI	101206	May.11, 2021	May.10, 2022
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022
Test Software	FARA	EZ-EMC(Ver. AGC-CON03A1)	N/A	N/A	N/A

## **TEST EQUIPMENT OF RADIATED EMISSION TEST**

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Test Receiver	R&S	ESCI	10096	Apr. 14, 2021	Apr. 13, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn Antenna	SCHWARZBECK	BBHA9170	768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Preamplifier Assembly	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
Wideband Antenna	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	FARA	EZ-EMC(Ver.RA-0 3A)	N/A	N/A	N/A

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## 7. PEAK OUTPUT POWER

#### 7.1. MEASUREMENT PROCEDURE

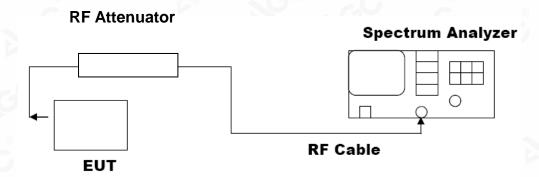
For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
- 3. RBW > 20 dB bandwidth of the emission being measured.
- 4. VBW ≥RBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

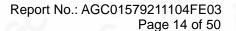
Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

## 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

#### **PEAK POWER TEST SETUP**



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## 7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Peak Output Power							
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail			
	2410	21.332	21	Pass			
GFSK	2441.5	20.938	21	Pass			
	2477	21.831	21	Pass			

#### CH01



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## CH<sub>10</sub>



#### CH20



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#### 8. 20DB BANDWIDTH

#### **8.1. MEASUREMENT PROCEDURE**

#### 6dB bandwidth:

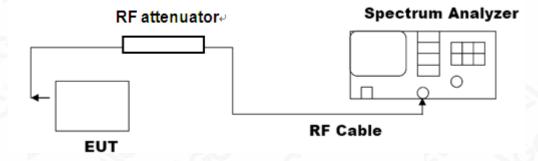
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW ≫xRBW.
- 4. Set SPA Trace 1 Max hold, then View.

#### Occupied bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
  The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth
  (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to RSS-247 requirements.

## 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



## 8.3. LIMITS AND MEASUREMENT RESULTS

Test Data of -20dB Bandwidth						
Test Mode	Test Channel (MHz)	-20dB Bandwidth (MHz)	Pass or Fail			
	2410	4.405	PASS			
GFSK	2441.5	4.551	PASS			
	2477	4.165	PASS			

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## TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



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The test results the test report.



#### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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## 9. CONDUCTED SPURIOUS EMISSION

## 9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
- 3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
  RBW = 100 kHz; VBW= 300 kHz; Sweep = auto; Detector function = peak.
- 4. Set SPA Trace 1 Max hold, then View.

## 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2

## 9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

#### 9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT						
Annliashla Limita	Measurement Resu	ılt				
Applicable Limits	Test Data	Criteria				
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum	At least -20dBc than the limit Specified on the BOTTOM	PASS				
intentional radiator is operating, the radio frequency	Channel					
power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.  In addition, radiation 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))	At least -20dBc than the limit Specified on the TOP Channel	PASS				

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#### TEST RESULT FOR ENTIRE FREQUENCY RANGE

TEST PLOT OF OUT OF BAND EMISSIONS OF GFSK MODULATION IN LOW CHANNEL



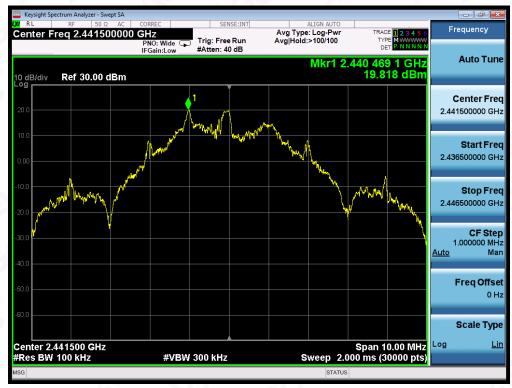


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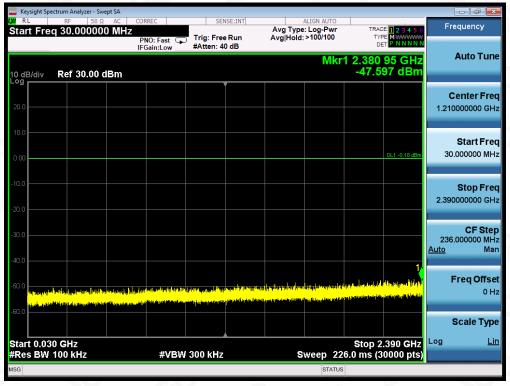


#### TEST PLOT OF OUT OF BAND EMISSIONS OF GFSK MODULATION IN MIDDLE CHANNEL



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#### TEST PLOT OF OUT OF BAND EMISSIONS OF GFSK MODULATION IN HIGH CHANNEL





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g/Inspection The test results the test report.





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## **TEST RESULT FOR BAND EDGE**

#### GFSK MODULATION IN LOW CHANNEL

## Hopping off



#### Hopping on



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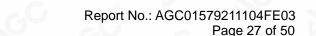
## GFSK MODULATION IN HIGH CHANNEL Hopping off



## Hopping on



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#### 10. RADIATED EMISSION

#### 10.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

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## The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

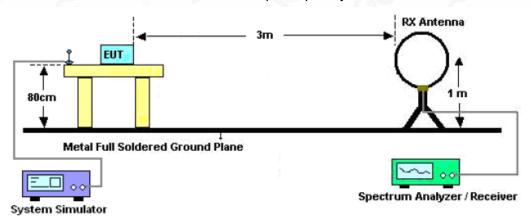
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

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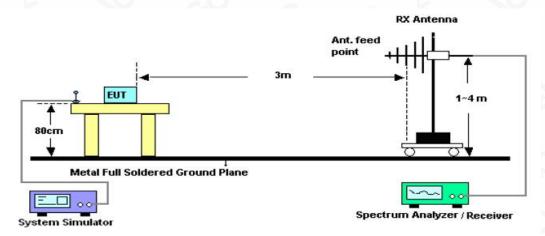


#### 10.2. TEST SETUP

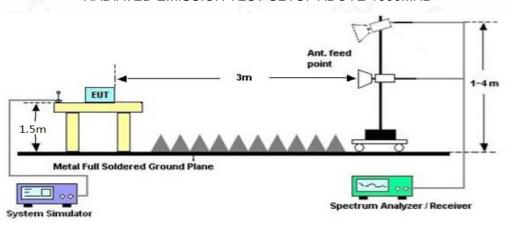
## Radiated Emission Test-Setup Frequency Below 30MHz



#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



## RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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#### 10.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement 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

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

#### 10.4. TEST RESULT

#### **RADIATED EMISSION BELOW 30MHz**

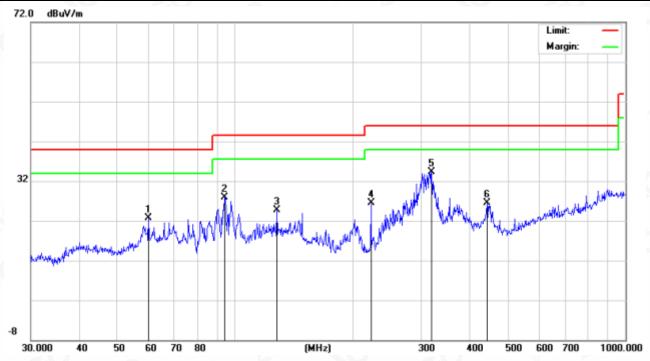
The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

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## **RADIATED EMISSION BELOW 1GHz**

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal



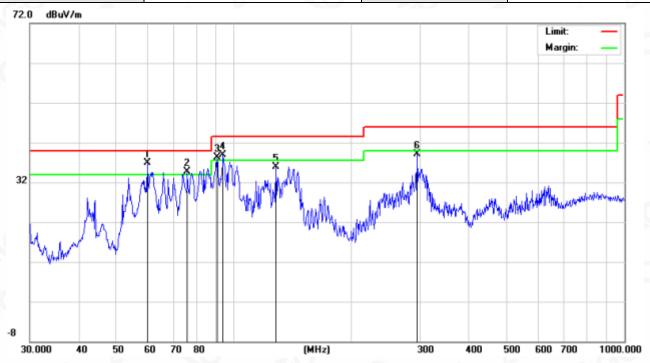
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		60.0690	11.22	11.48	22.70	40.00	-17.30	peak
2		94.0978	18.11	9.85	27.96	43.50	-15.54	peak
3	,	128.1129	11.89	12.84	24.73	43.50	-18.77	peak
4	2	222.9501	19.14	7.45	26.59	46.00	-19.41	peak
5	* :	318.8170	20.48	13.86	34.34	46.00	-11.66	peak
6	4	441.7425	11.53	14.98	26.51	46.00	-19.49	peak

**RESULT: PASS** 

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EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



No.	Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	60.0691	25.04	11.87	36.91	40.00	-3.09	peak
2	!	75.9773	23.85	10.81	34.66	40.00	-5.34	peak
3	!	90.5374	28.35	9.87	38.22	43.50	-5.28	peak
4	!	93.7685	29.63	9.24	38.87	43.50	-4.63	peak
5		128.1130	22.91	13.08	35.99	43.50	-7.51	peak
6		294.1137	24.48	14.61	39.09	46.00	-6.91	peak

## **RESULT: PASS**

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.

2. All test modes had been pre-tested. The mode 3 is the worst case and recorded in the report.

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d/Inspection
The test results
the test report.

## **RADIATED EMISSION ABOVE 1GHz**

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

r Reading	Factor	Emission Level	Limits	Margin	Value Type
4Du/A	(15)				
dBμV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
44.25	0.08	44.33	74	-29.67	peak
34.25	0.08	34.33	54	-19.67	AVG
39.56	2.21	41.77	74	-32.23	peak
30.11	2.21	32.32	54	-21.68	AVG
	<u> </u>				
֡	44.25 34.25 39.56	44.25     0.08       34.25     0.08       39.56     2.21	44.25     0.08     44.33       34.25     0.08     34.33       39.56     2.21     41.77	44.25     0.08     44.33     74       34.25     0.08     34.33     54       39.56     2.21     41.77     74	44.25     0.08     44.33     74     -29.67       34.25     0.08     34.33     54     -19.67       39.56     2.21     41.77     74     -32.23

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Time
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4820.000	43.21	0.08	43.29	74 🌑	-30.71	peak
4820.000	34.86	0.08	34.94	54	-19.06	AVG
7230.000	40.43	2.21	42.64	74	-31.36	peak
7230.000	30.74	2.21	32.95	54	-21.05	AVG
®			-0			
emark:					C.	®
ctor = Anter	nna Factor + Cable	Loss - Pre	-amplifier.			

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/Inspection The test results

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4883.000	44.21	0.14	44.35	74	-29.65	peak
4883.000	35.48	0.14	35.62	54	-18.38	AVG
7324.500	41.03	2.36	43.39	74	-30.61	peak
7324.500	31.65	2.36	34.01	54	-19.99	AVG
8	®			0	8	
emark:	- 6	@			- 0	· ©
actor = Anter	nna Factor + Cable	Loss - Pre-	amplifier.			

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	\/alua Trea
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4883.000	42.67	0.14	42.81	74	-31.19	peak
4883.000	35.57	0.14	35.71	54	-18.29	AVG
7324.500	38.19	2.36	40.55	74	-33.45	peak
7324.500	29.78	2.36	32.14	54	-21.86	AVG
		GU	(8)	©		
emark:					8	

<u> Factor = Antenna Factor + Cable Loss – Pre-amplifier</u>

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EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4954.000	45.89	0.22	46.11	74	-27.89	peak
4954.000	35.42	0.22	35.64	54	-18.36	AVG
7431.000	41.28	2.64	43.92	74	-30.08	peak
7431.000	32.13	2.64	34.77	54	-19.23	AVG
8				· ·		
	(8)				@	
emark:	-6	8			-6	8
actor = Anter	nna Factor + Cable	e Loss - Pre-	amplifier.			

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	60%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
44.57	0.22	44.79	74	-29.21	peak
36.27	0.22	36.49	54	-17.51	AVG
41.08	2.64	43.72	74	-30.28	peak
32.67	2.64	35.31	54	-18.69	AVG
	GU	®	®		
	(dBµV) 44.57 36.27 41.08	(dBµV) (dB) 44.57 0.22 36.27 0.22 41.08 2.64	(dBμV)     (dB)     (dBμV/m)       44.57     0.22     44.79       36.27     0.22     36.49       41.08     2.64     43.72	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)       44.57     0.22     44.79     74       36.27     0.22     36.49     54       41.08     2.64     43.72     74	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV/m)       44.57     0.22     44.79     74     -29.21       36.27     0.22     36.49     54     -17.51       41.08     2.64     43.72     74     -30.28

## **RESULT: PASS**

#### Note:

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin=Emission Level -Limit.

The "Factor" value can be calculated automatically by software of measurement system.

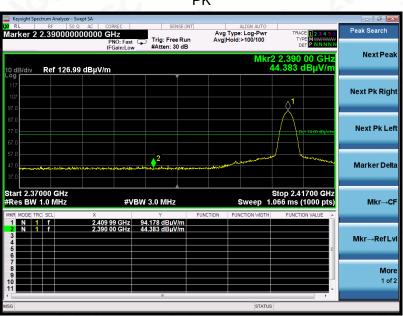
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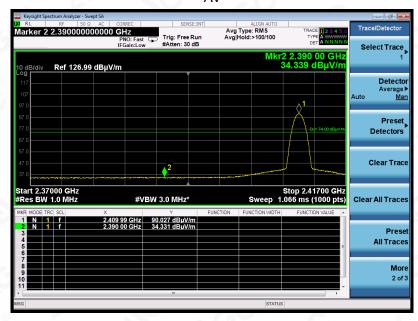
## TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

#### PΚ



## ΑV



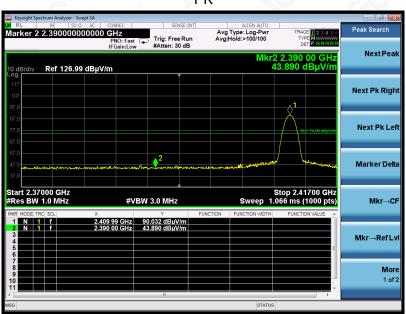
**RESULT: PASS** 

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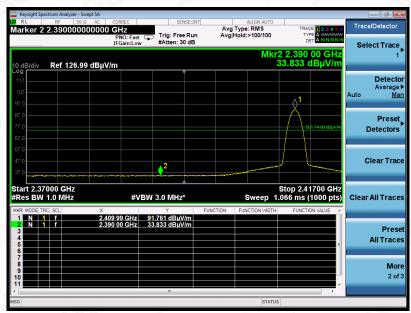


EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	25°C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

#### PK

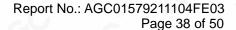


#### ΑV



**RESULT: PASS** 

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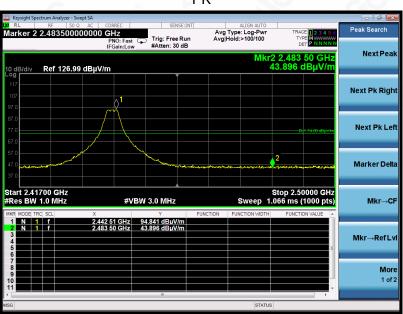


The test results

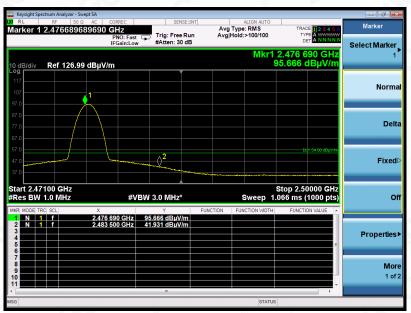


EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)
Temperature	mperature 25°C		55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

#### PK

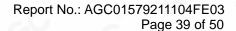


#### ΑV



**RESULT: PASS** 

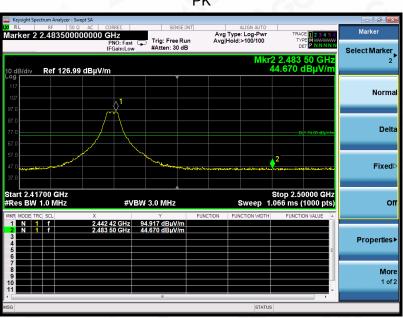
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EUT	Baby Monitor Camera	Model Name	VA-IH006E(for camera)		
Temperature	25°C	Relative Humidity	55%		
Pressure	960hPa	Test Voltage	Normal Voltage		
Test Mode	Mode 3	Antenna	Vertical		

### PK



### ΑV



### **RESULT: PASS**

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.

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## 11. NUMBER OF HOPPING FREQUENCY

#### 11.1. MEASUREMENT PROCEDURE

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- 1. Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
- 2. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
- 3. VBW RBW. Sweep: Auto. Detector function: Peak. Trace: Max hold.
- 4. Allow the trace to stabilize.

## 11.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 8.2

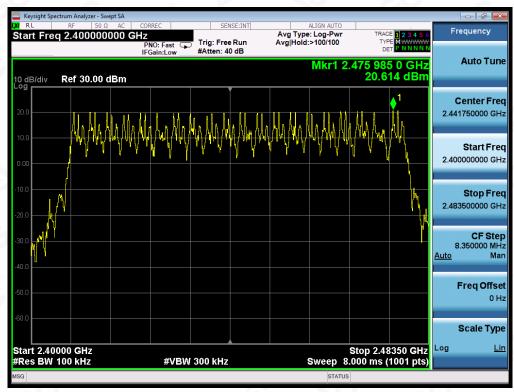
#### 11.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

#### 11.4. LIMITS AND MEASUREMENT RESULT

Test Mode	Test Mode MEASUREMENT (NO. OF CH)		Pass or Fail	
GFSK	20	>=15	PASS	

### TEST PLOT FOR NO. OF TOTAL CHANNELS



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## 12. TIME OF OCCUPANCY (DWELL TIME)

#### 12.1. MEASUREMENT PROCEDURE

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- 1. Span: Zero span, centered on a hopping channel.
- 2. RBW shall be ≤channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel.
- 3. Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
- 4. Detector function: Peak. Trace: Max hold.
- 5. Use the marker-delta function to determine the transmit time per hop.
- 6. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation:

(Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer)  $\times$  (period specified in the requirements / analyzer sweep time)

7. The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements.

#### 12.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 8.2

#### 12.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

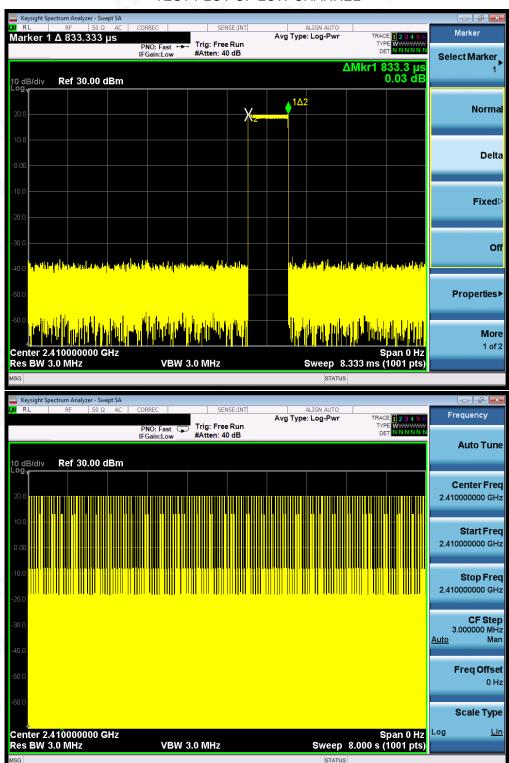
## 12.4. LIMITS AND MEASUREMENT RESULT

Channel	Time of Pulse for GFSK (ms)	Number of hops in the period specified in the requirements	Dwell Time (ms)	Limit (ms)	Pass or Fail
2410	0.833	112*4	373.184	400	Pass
2441.5	0.817	114*4	372.552	400	Pass
2477	0.817	117*4	382.356	400	Pass

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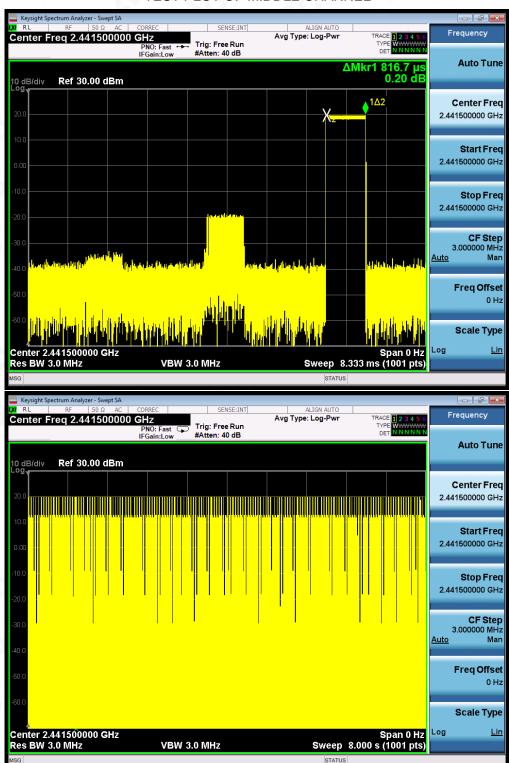
#### TEST PLOT OF LOW CHANNEL



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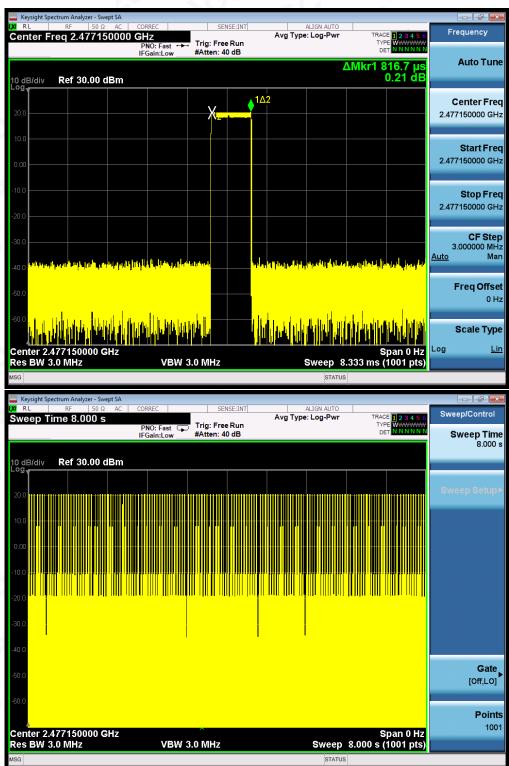
#### TEST PLOT OF MIDDLE CHANNEL



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#### TEST PLOT OF HIGH CHANNEL



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### 13. FREQUENCY SEPARATION

#### 13.1. MEASUREMENT PROCEDURE

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

- 1. Span: Wide enough to capture the peaks of two adjacent channels.
- 2. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
- 3. Video (or average) bandwidth (VBW) ≥ RBW.
- 4. Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

## 13.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 6.2

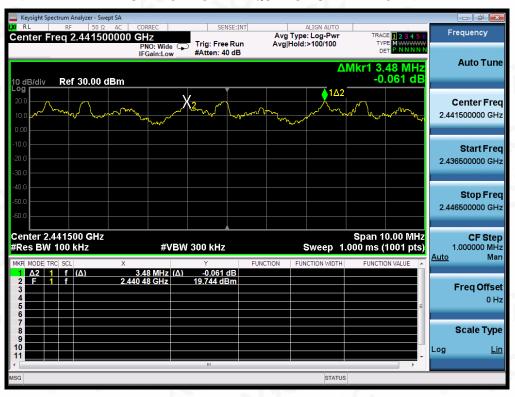
#### 13.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.3

#### 13.4. LIMITS AND MEASUREMENT RESULT

Test Mode	Channel Separation(MHz)	LIMIT	Pass or Fail	
Hopping	3.48	≥>= 2/3 -20dB BW	Pass	

#### TEST PLOT FOR FREQUENCY SEPARATION



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### 14. LINE CONDUCTED EMISSION TEST

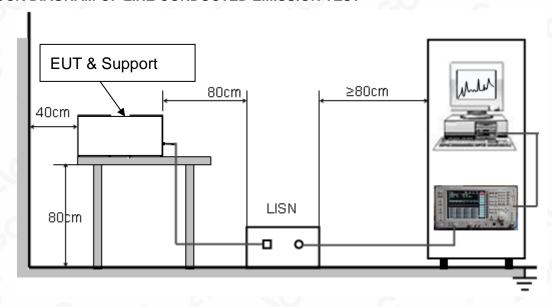
### 14.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage			
	Q.P (dBμV)	Average (dBμV)		
150kHz~500kHz	66-56	56-46		
500kHz~5MHz	56	46		
5MHz~30MHz	60	50		

Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

## 14.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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#### 14.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 Ohm load; the second scan had Line 1 connected to a 50 Ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 14.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

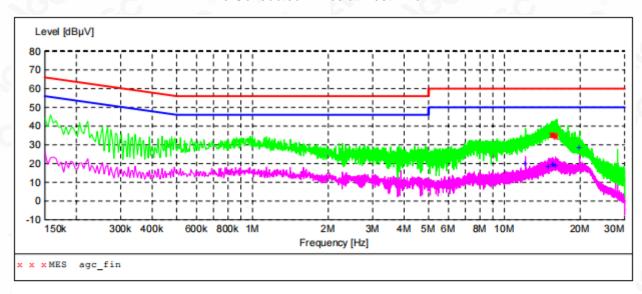
- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case was reported on the Summary Data page.

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### 14.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

Line Conducted Emission Test Line 1-L



## MEASUREMENT RESULT: "agc\_fin"

2021/12/27 22 Frequency MHz	:28 Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
15.382000	35.30	8.4	60	24.7	QP	L1	GND
15.506000	35.50	8.4	60	24.5	QP	L1	GND
15.726000	35.30	8.4	60	24.7	QP	L1	GND
15.970000	35.40	8.4	60	24.6	QP	L1	GND
16.050000	34.90	8.4	60	25.1	QP	L1	GND
16.186000	34.60	8.4	60	25.4	QP	L1	GND

#### MEASUREMENT RESULT: "agc fin2"

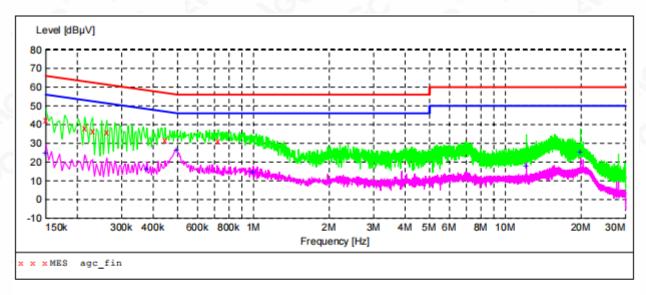
2021/12/27	22:28						
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
MHz	dΒμV	dB	dΒμV	dB			
12.126000	19.80	7.6	50	30.2	AV	L1	GND
14.990000	18.40	8.3	50	31.6	AV	L1	GND
15.506000	19.30	8.4	50	30.7	AV	L1	GND
15.598000	19.30	8.4	50	30.7	AV	L1	GND
15.950000	18.90	8.4	50	31.1	AV	L1	GND
19.878000	28.70	8.8	50	21.3	AV	L1	GND

## **RESULT: PASS**

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### Line Conducted Emission Test Line 2-N



### MEASUREMENT RESULT: "agc\_fin"

2021/12/27 22 Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	42.30	6.9	66	23.7	QP	N	GND
0.214000	38.20	6.5	63	24.8	QP	N	GND
0.230000	36.50	6.4	62	25.9	QP	N	GND
0.262000	36.10	6.2	61	25.3	QP	N	GND
0.446000	31.60	5.5	57	25.3	QP	N	GND
0.726000	31.00	5.4	56	25.0	QP	N	GND

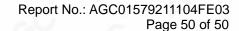
## MEASUREMENT RESULT: "agc fin2"

2021/12/27 2	2:31						
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
MHz	dΒμV	dB	dΒμV	dB			
0.150000	24.50	6.9	56	31.5	AV	N	GND
0.378000	16.30	5.8	48	32.0	AV	N	GND
0.498000	26.30	5.4	46	19.7	AV	N	GND
0.998000	14.50	5.4	46	31.5	AV	N	GND
12.122000	18.00	7.6	50	32.0	AV	N	GND
19.878000	25.20	8.8	50	24.8	AV	N	GND

#### **RESULT: PASS**

Note: 1. All test modes had been pre-tested. The mode 3 is the worst case and recorded in the report.

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### APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC01579211104AP01

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC01579211104AP02

----END OF REPORT----

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# Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
- 2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
- 6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
- 7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
- 9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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