

FCC Test Report

Report No.: AGC00008191202FE02

FCC ID :		TW5GD8217
APPLICATION PURPOSE :	:	Original Equipment
PRODUCT DESIGNATION :	:	2.4GHz Digital Wireless Baby Monitor
BRAND NAME :	:	N/A
MODEL NAME :		GD8217, GD8210
APPLICANT :	Ċ	Shenzhen Gospell Smarthome Electronic Co., Ltd.
DATE OF ISSUE :		Mar. 31, 2020
STANDARD(S) :	:	FCC Part 15.247
REPORT VERSION :	:	V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Report No.: AGC00008191202FE02 Page 2 of 53

REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0		Mar. 31, 2020	Valid	Initial Release





Report No.: AGC00008191202FE02 Page 3 of 53

TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE	
2.GENERAL INFORMATION	
2.1PRODUCT DESCRIPTION	6
2.2. TABLE OF CARRIER FREQUENCYS	
2.3 RELATED SUBMITTAL(S)/GRANT(S)	7
2.4TEST METHODOLOGY	
2.5 SPECIAL ACCESSORIES	
2.6 EQUIPMENT MODIFICATIONS	
3. MEASUREMENT UNCERTAINTY	8
4. DESCRIPTION OF TEST MODES	9
5. SYSTEM TEST CONFIGURATION	
5.1 CONFIGURATION OF TESTED SYSTEM	
5.2 EQUIPMENT USED IN TESTED SYSTEM	
5.3. SUMMARY OF TEST RESULTS	
6. TEST FACILITY	11
7. PEAK OUTPUT POWER	
7.1. MEASUREMENT PROCEDURE	
7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
7.3. LIMITS AND MEASUREMENT RESULT	
8. 6 DB BANDWIDTH	
8.1. MEASUREMENT PROCEDURE	
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
8.3. LIMITS AND MEASUREMENT RESULTS	
9. CONDUCTED SPURIOUS EMISSION	
9.1. MEASUREMENT PROCEDURE	
9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
9.3. MEASUREMENT EQUIPMENT USED	
9.4. LIMITS AND MEASUREMENT RESULT	
10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY	





Report No.: AGC00008191202FE02 Page 4 of 53

10.1 MEASUREMENT PROCEDURE	
10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
10.3 MEASUREMENT EQUIPMENT USED	
10.4 LIMITS AND MEASUREMENT RESULT	24
11. RADIATED EMISSION	
11.1. MEASUREMENT PROCEDURE	
11.2. TEST SETUP	
11.3. LIMITS AND MEASUREMENT RESULT	
11.4. TEST RESULT	
12. FCC LINE CONDUCTED EMISSION TEST	
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST	
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	
12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	
12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	
12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	40
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	
APPENDIX B: PHOTOGRAPHS OF EUT	





1. VERIFICATION OF COMPLIANCE

Applicant	Shenzhen Gospell Smarthome Electronic Co., Ltd.
	East of 01st-04th Floor, Block A, No.1 Industrial park, Fenghuang Gang,
Address	South of No.1 Baotian Road, Xixiang Street, Bao' an District, Shenzhen City,
	Guangdong Province 518126, P.R.China
Manufacturer	Shenzhen Gospell Smarthome Electronic Co., Ltd.
	East of 01st-04th Floor, Block A, No.1 Industrial park, Fenghuang Gang,
Address	South of No.1 Baotian Road, Xixiang Street, Bao' an District, Shenzhen City,
	Guangdong Province 518126, P.R.China
Factory	Shenzhen Gospell Smarthome Electronic Co., Ltd.
	East of 01st-04th Floor, Block A, No.1 Industrial park, Fenghuang Gang,
Address	South of No.1 Baotian Road, Xixiang Street, Bao' an District, Shenzhen City,
	Guangdong Province 518126, P.R.China
Product Designation	2.4GHz Digital Wireless Baby Monitor
Brand Name	N/A
Test Model	GD8217
Series Model	GD8210
Difference Description	All the same except for the model name
Date of test	Mar. 11, 2020 to Mar. 31, 2020
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BLE/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 Zerry

John Zeng (Project Engineer)

Mar. 31, 2020

Reviewed By

Max Zhan

Max Zhang (Reviewer)

Mar. 31, 2020

Approved By

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(Authorized Officer)

Mar. 31, 2020



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2.GENERAL INFORMATION

2.1PRODUCT DESCRIPTION

The EUT is designed as a "2.4GHz Digital Wireless Baby Monitor". 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

Operation Frequency	2.410 GHz to 2.473GHz
RF Output Power	8.02dBm(Max)
Modulation	GFSK
Number of channels	19 Channel
Antenna Designation	PCB Antenna(Comply with requirements of the FCC part 15.203)
Antenna Gain	3.0dBi
Hardware Version	GD8217M04
Software Version	V18
Power Supply	DC5V by adapter

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
	10	2410MHZ
	2	2413.5MHZ
	3	2417MHZ
2400~2483.5MHZ		
NO CO	17	2466 MHZ
K NO LO	18	2469.5 MHZ
	19	2473 MHZ





2.3 RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for FCC ID: TW5GD8217 filing to comply with the FCC Part 15.247 requirements.

2.4TEST 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.

2.5 SPECIAL ACCESSORIES

Refer to section 2.2.

2.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.





3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y $\pm U$, 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 = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB
- Uncertainty of total RF power, conducted, $Uc = \pm 0.8$ dB
- Uncertainty of RF power density, conducted, Uc = ±2.6dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %





4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX(2410MHz)
2	Middle channel TX(2441.5MHz)
3	High channel TX(2473MHz)

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 test modes by pressing button of EUT.





5. SYSTEM TEST CONFIGURATION

5.1 CONFIGURATION OF TESTED SYSTEM

EUT	NO.	Accessory

5.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	2.4GHz Digital Wireless Baby Monitor	GD8217	TW5GD8217	EUT
2	Adapter	XH005W050100USCU	Input: AC100-240V, 50/6Hz, 0.2A Output:DC5V, 1A	Accessory
3	USB Cable		2.0m unshield	Accessory

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(3)	Peak Output Power	Compliant
15.247 (a)(2)	6 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.247 (e)	Maximum Conducted Output Power Density	Compliant
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Compliant





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	Jun. 12, 2019	Jun. 11, 2020
LISN	R&S	ESH2-Z5	100086	Aug. 26, 2019	Aug. 25, 2020
Test software	R&S	ES-K1(Ver.V1.71)	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	Jun. 12, 2019	Jun. 26, 2020
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 12, 2019	Dec. 11, 2020
2.4GHz Fliter	EM Electronics	2400-2500MHz	N/A	Feb. 26, 2020	Feb. 25, 2021
Attenuator	ZHINAN	E-002	N/A	Aug. 26, 2019	Aug. 25, 2020
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 09, 2019	Sep. 08, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Jun. 14, 2018	Jun. 13, 2020
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 26, 2018	May. 25, 2020
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Oct. 15, 2019	Oct. 14, 2020
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 09, 2019	Jan. 08, 2021
Test software	FARA	EZ_EMC (Ver.RA-03A)	N/A	N/A	N/A



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7. PEAK OUTPUT POWER

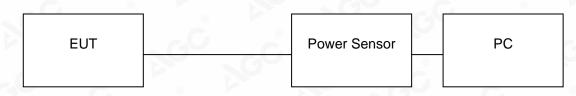
7.1. MEASUREMENT PROCEDURE

For average power test:

- 1. Connect EUT RF output port to power sensor through an RF attenuator.
- 2. Connect the power sensor to the PC.
- 3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 4. Record the maximum power from the software.

Note: The EUT was tested according to ANSI C63.10 (2013) for compliance to FCC 47CFR 15.247 requirements

7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) AVERAGE POWER SETUP







7.3. LIMITS AND MEASUREMENT RESULT

	OUTPUT POWER MEASUREMENT RESULT					
	FOR GFSK MOUDULA	TION				
Frequency (GHz)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail			
2.410	4.68	30	Pass			
2.441.5	6.26	30	Pass			
2.473	8.02	30	Pass			





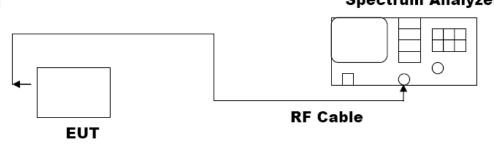
8.6 DB BANDWIDTH

8.1. 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 SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW≥3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

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



Attestation of Global Compliance

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Spectrum Analyzer



8.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AND MEASUREMENT RESULT						
Annlingh In Limite		Applicable Limits				
Applicable Limits	Test Data	Test Data (kHz)				
	Low Channel	2933	PASS			
>500KHZ	Middle Channel	2887	PASS			
	High Channel	2897	PASS			



TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

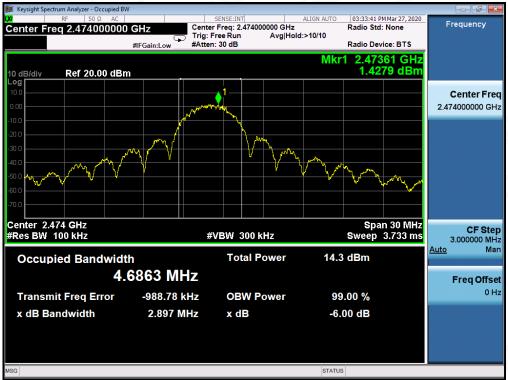






TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

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 SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

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					
	Measurement Result				
Applicable Limits	Test Data	Criteria			
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 30 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -30dBc than the reference level	PASS			





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Marker 10 dB/div 10.0 -10.0 -20.0 -20.0 -30.0 -30.0 -30.0 -50.0 -50.0 -50.0 -50.0	RF 50 Ω 1 2.34432481 Ref 20.00 d Ref 20.00 d State Ref 20.00 d State	AC 0827 GF PP IFC Bm	NO: Fast Gain:Low	Trig: Free Atten: 30		Avg Type Avg Hold:	: Log-Pwr >>100/100 Mkr	1 2.344 -55.7	-30.22 dBm	Peak Next Nex	Search lext Peak : Pk Right xt Pk Left rker Delta Mkr→CF r→Ref Lvl More
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Marker 10 dB/div Log 10.0 -10.0 -20.0 -20.0 -30.0 -40.0 -30.0 -40.0 -30.0 -40.0 -30.0 -30.0 -40.0 -30.0 -40.0 -30.0 -40.0 -30.0 -40.0 -30.0 -30.0 -30.0 -30.0 -40.0 -30.0 -40.0	RF 50 Ω 1 2.34432481 Ref 20.00 d Ref 20.00 d State Ref 20.00 d State	AC 0827 GF PP IFC Bm	VO: Fast Sain:Low	Trig: Free Atten: 30			: Log-Pwr >100/100 Mkr	1 2.344 -55.7	-30.22 dBm	Peak Next Nex	Search lext Peak : Pk Right xt Pk Left rker Delta Mkr→CF r→Ref Lvl More

TEST RESULT FOR ENTIRE FREQUENCY RANGE GFSK MODULATION IN LOW CHANNEL



Attestation of Global Compliance(Shenzhen)Co.,Ltd.

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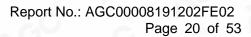
GFSK MODULATION IN MIDDLE CHANNEL

📕 Keysight Spectrum Analyzer - Swept SA		1 1			
₩ RF 50 Ω AC Marker 1 779.640988033	MHz	Avg Type	: Log-Pwr	28 PM Mar 27, 2020 TRACE 1 2 3 4 5 6	Peak Search
	PNO: Fast Trig: Fre IFGain:Low Atten: 3		:>100/100		
10 dB/div Ref 20.00 dBm			Mkr1 7 -59	79.64 MHz 9.881 dBm	NextPeak
10.0					Next Pk Right
0.00					Nové Dici off
-10.0					Next Pk Left
30.0				-29.23 dBm	Marker Delta
-40.0					Mkr→CF
-50.0			.1		
-60.0	la la construit de la construit La construit de la construit de	átar y Látán el _{a se} a pelo la fasta teres de la se		na fina fina any decom	Mkr→RefLvl
-70.0					More 1 of 2
Start 30.0 MHz #Res BW 100 kHz	#VBW 300 kHz	z S	Stop weep 94.00 m	1.0000 GHz s (30000 pts)	1012
ISG			STATUS		



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Keysight Spectrum Analyzer - Swept SA					
RF 50 Ω AC Marker 1 2.313290443015	PNO: Fast 😱 Trig	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwi Avg Hold: >100/100	TRACE 1 2 3 4 5 6	Peak Search
	IFGain:Low Atte	en: 30 dB	MI	(r1 2.313 29 GHz	
0 dB/div Ref 20.00 dBm				-57.067 dBm	
og					
10.0					Next Pk Rig
.00					
0.0					Next Pk L
0.0					
				-29.23 dBm	Marker De
0.0					
0.0					Mkr→
0.0				1	
0.0			I I II		Mkr→Ref
<mark>Sandalla (Madda Cam^batha Isa) (Cambia ad Isana)</mark> da kata at	a high ben an a group an an habir da bar magana punih pang dan bahar baring mar	a ha ma (plates) in the balance A succession in contraction for the	i nel 1917 - Ul David ang Balangka na na katalan katalan katalan katalan katalan katalan katalan katalan katal Katalan katalan	A STATE OF THE OWNER	
					Mo
			_	Stop 2.4000 GHz	10
tart 1.0000 GHz Res BW 100 kHz	#VBW 300	kHz		134.0 ms (30000 pts)	10
Res BW 100 kHz	#VBW 300	kHz	Sweep f	134.0 ms (30000 pts)	
Res BW 100 kHz	#VBW 300	KHz SENSE:INT		134.0 ms (30000 pts)	
Res BW 100 kHz G Keysight Spectrum Analyzer - Swept SA RF 50 Ω AC	0 GHz		STAT	I 34.0 ms (30000 pts)	
Res BW 100 kHz IG Keysight Spectrum Analyzer - Swept SA RF 50 Ω AC	0 GHz PNO: Fast 🔾 Trig	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwi Avg Hold: >100/100	134.0 ms (30000 pts) us 0.03:40:01 PM Mar 27, 2020 r TRACE [] 2 3 4 5 C TYPE [] DET PINNING	Peak Search
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Res BW 100 kHz g Keysight Spectrum Analyzer - Swept SA RF 50 Ω arker 1 4.880836611220 0 dB/div Ref 20.00 dBm 00 00 00 00	0 GHz PNO: Fast 🖵 Trig	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwi Avg Hold: >100/100	134.0 ms (30000 pts) us 0 03:40:01 PM Mar 27, 2020 r TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 r PNNNN Der PNNNNN 1kr1 4.880 8 GHz	Peak Search Next Pe Next Pk Rig
Res BW 100 kHz g Keysight Spectrum Analyzer - Swept SA RF 50 Ω arker 1 4.88083661122(0 dB/div Ref 20.00 dBm 00 0 0.0 0	0 GHz PNO: Fast 🖵 Trig	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwi Avg Hold: >100/100	134.0 ms (30000 pts) us 0 03:40:01 PM Mar 27, 2020 r TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 r PNNNN Der PNNNNN 1kr1 4.880 8 GHz	Peak Search Next Pe Next Pk Rig Next Pk L
Res BW 100 kHz α Keysight Spectrum Analyzer - Swept SA RF 50 Ω arker 14.880836611220 0 dB/div Ref 20.00 dBm 00 00 00 00	0 GHz PNO: Fast 🖵 Trig	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwi Avg Hold: >100/100	134.0 ms (30000 pts) us 0 03:40:01 PM Mar 27, 2020 r TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 r PNNNN Der PNNNNN 1kr1 4.880 8 GHz	Peak Search Next Pe Next Pk Rig Next Pk L
Res BW 100 kHz α Keysight Spectrum Analyzer - Swept SA RF 50 Ω arker 1 4.880836611220 0 dB/div Ref 20.00 dBm 00 0.0 0.0 1	0 GHz PNO: Fast 🖵 Trig	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwi Avg Hold: >100/100	134.0 ms (30000 pts) us 0 03:40:01 PM Mar 27, 2020 r TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 r PNNNN Der PNNNNN 1kr1 4.880 8 GHz	Peak Search Next Pe Next Pk Rig Next Pk L
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Res BW 100 kHz isg	0 GHz PNO: Fast 🖵 Trig	SENSE:INT	ALIGN AUTO	134.0 ms (30000 pts) us 0.03:40:01 PM Mar 27, 2020 TRACE 12:3 4 5: C TRACE DET PNNNNN Ikr1 4.880 8 GHz -36.986 dBm -29:23 dbm	Peak Search Next Pe Next Pk Rig Next Pk L Marker De Mkr→Ref
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Res BW 100 kHz 3G Keysight Spectrum Analyzer - Swept SA RF 50 Ω Jarker 1 4.880836611220 0 dB/div Ref 20.00 dBm 9 0 0.00 0 0.00 0	0 GHz PNO: Fast 🖵 Trig	SENSE:INT	ALIGN AUTC Avg Type: Log-Pwi Avg Hold: >100/100	134.0 ms (30000 pts) us 0.03:40:01 PM Mar 27, 2020 TRACE 12:3 4 5: C TRACE DET PNNNNN Ikr1 4.880 8 GHz -36.986 dBm -29:23 dbm	1 c Peak Search Next Pe Next Pk Rig Next Pk L Marker De Mkr→Ref I

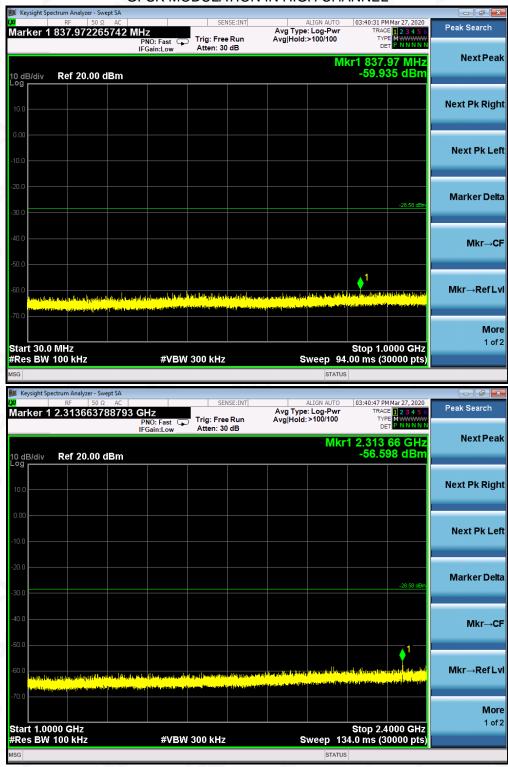


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GFSK MODULATION IN HIGH CHANNEL



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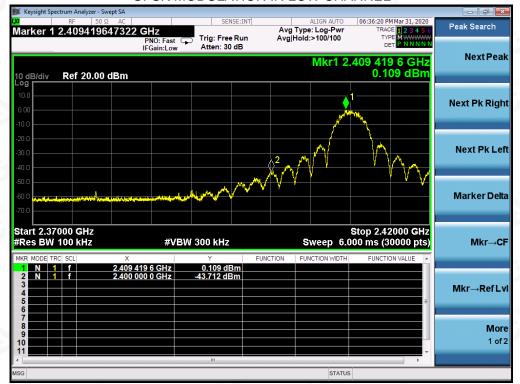


Report No.: AGC00008191202FE02 Page 22 of 53

🊺 Keysight Sp	ectrum Analyzer - Swept SA					
<mark>M</mark> arker 1	RF 50 Ω AC 4.9438849128	30 GHz	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	03:45:27 PM Mar 27, 2020 TRACE 1 2 3 4 5 6	Peak Search
Marker	4.0400040120	PNO: Fast IFGain:Low	Trig: Free Run Atten: 30 dB	Avg Hold:>100/100		Next Peal
10 dB/div	Ref 20.00 dBm			М	kr1 4.943 9 GHz -35.686 dBm	NextPea
Log						Next Pk Righ
0.00						
-10.0						Next Pk Lef
-20.0						
-30.0					-28.58 dBm	Marker Delt
-40.0	• '					
-50.0					d to the	Mkr→C
-60.0	e to second a final case of a		the sufficient of states			Mkr→RefLv
-80.0 11 the		an a	and the second secon	¹ Maria Ind		wiki →Rei LV
						Mor 1 of
Start 2.48			300 kHz	Succession	Stop 25.00 GHz	1 01.
#Res BW	TOO KHZ	#VBW	300 KHZ	Sweep	2.152 s (30000 pts)	







TEST RESULT FOR BAND EDGE GFSK MODULATION IN LOW CHANNEL

GFSK MODULATION IN HIGH CHANNEL





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10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

10.1 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 SPA Trace 1 Max hold, then View.

Note: The method of AVGPSD-1 in the ANSI C63.10 (2013) item 10.3 was used in this testing.

10.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 8.2.

10.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.

10.4 LIMITS AND MEASUREMENT RESULT

Channel No.	Power density (dBm/20kHz)	Limit (dBm/3kHz)	Result
Low Channel	-5.822	8	Pass
Middle Channel	-5.160	8	Pass
High Channel	-3.783	8	Pass

TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL

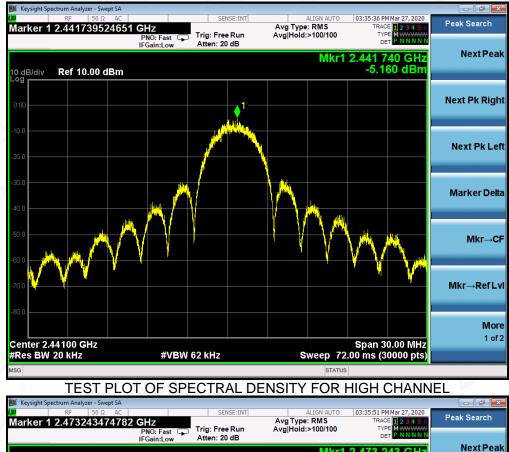




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TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL





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11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

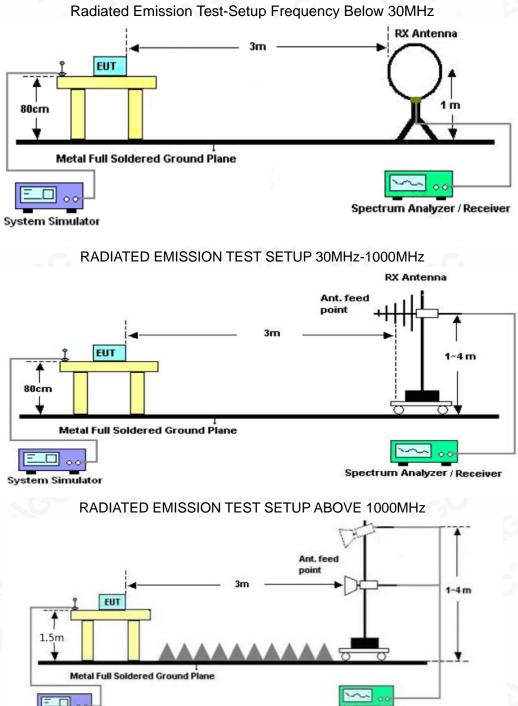
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated 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 emissions, 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.





Report No.: AGC00008191202FE02 Page 27 of 53

11.2. TEST SETUP



System Simulator



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Spectrum Analyzer / Receiver

Service Hotline:400 089 2118

11.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (micorvolts/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.

11.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

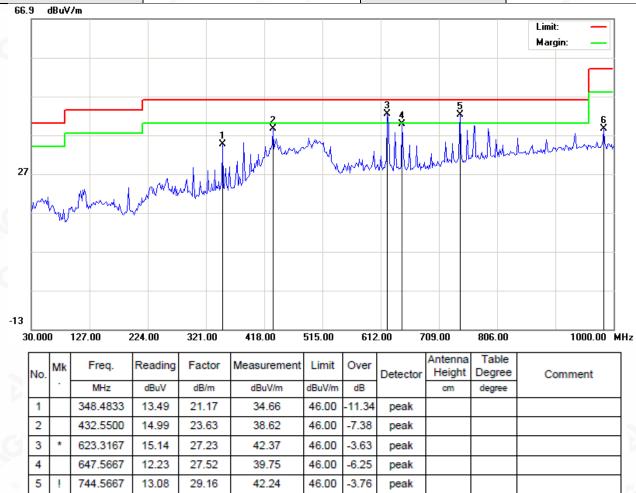




Report No.: AGC00008191202FE02 Page 29 of 53

RADIATED EMISSION BELOW 1GHZ

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal



54.00

38.61

15.39

peak

RESULT: PASS

6

6.19

32.42

983.8333

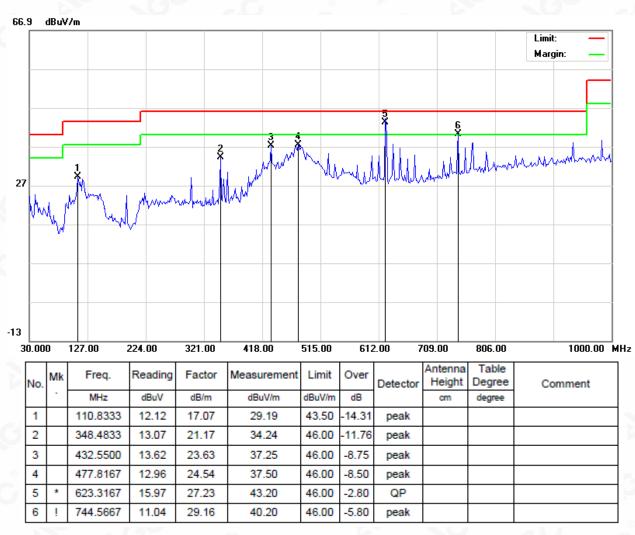


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EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



RESULT: PASS Note:

- 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.
- 2. All test modes had been tested. The mode 1 is the worst case and recorded in the report.



Report No.: AGC00008191202FE02 Page 31 of 53

RADIATED EMISSION ABOVE 1GHZ

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4820.000	46.59	0.08	46.67	74	-27.33	peak 💿
4820.000	41.39	0.08	· 41.47	54	-12.53	AVG
7230.000	42.98	2.21	45.19	74	-28.81	peak
7230.000	38.12	2.21	40.33	54	-13.67	AVG
emark:	60	οŤ,		200	J.CC	ő

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4820.000	44.26	0.08	44.34	74	-29.66	peak
4820.000	39.45	0.08	39.53	54	-14.47	AVG
7230.000	40.39	2.21	42.6	74	-31.4	peak
7230.000	36.18	2.21	38.39	54	-15.61	AVG
emark:		NOT I	- C	6		< C





Report No.: AGC00008191202FE02 Page 32 of 53

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4882.000	45.96	0.14	46.1	74	-27.9	peak
4882.000	40.57	0.14	40.71	54	-13.29	AVG
7323.000	41.62	2.36	43.98	74	-30.02	peak
7323.000	35.89	2.36	38.25	54	-15.75	AVG
emark:	G L	0		NOV I	00	8

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	The the the test of te
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4882.000	44.69	0.14	44.83	74	-29.17	peak
4882.000	39.74	0.14	39.88	54	-14.12	AVG
7323.000	40.61	2.36	42.97	74	-31.03	peak
7323.000	34.92	2.36	37.28	54	-16.72	AVG
· · · · ·			A GU	<u><u><u></u></u></u>	0	

Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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Report No.: AGC00008191202FE02 Page 33 of 53

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4946.000	44.16	0.22	44.38	74	-29.62	peak
4946.000	38.24	0.22	38.46	54	-15.54	AVG
7419.000	40.28	2.64	42.92	74	-31.08	peak
7419.000	35.49	2.64	38.13	54	-15.87	AVG
SC .	C.C	0		NOV.	0	8
mark:						

 EUT
 2.4GHz Digital Wireless Baby Model Name
 GD8217

 Temperature
 25° C
 Relative Humidity
 55.4%

 Pressure
 960bPa
 Test Voltage
 Normal Voltage

Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical
		e C	0

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4946.000	43.36	0.22	43.58	74	-30.42	peak
4946.000	37.52	0.22	37.74	54	-16.26	AVG
7419.000	38.23	2.64	40.87	74	-33.13	💿 peak 💆
7419.000	33.67	2.64	36.31	54	-17.69	AVG
		N	- Ci	0		NC.

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: PASS

Note:

Other emissions from 1G to 25 GHz are considered as ambient noise. No recording in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

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





Report No.: AGC00008191202FE02 Page 34 of 53

TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal



AV



RESULT: PASS



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Report No.: AGC00008191202FE02 Page 35 of 53

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



AV



RESULT: PASS



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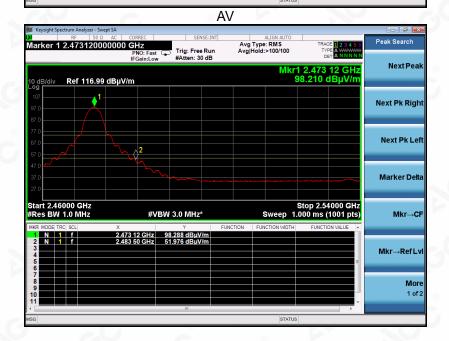
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Report No.: AGC00008191202FE02 Page 36 of 53

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

PK Peak Search Avg Type: Log-Pwr Avg|Hold:>100/100 1 2.474000000000 GHz Trig: Free Run #Atten: 30 dB NextPe Mkr1 2.47 104.68 Ref 116.99 dBµV/m Next Pk Righ Next Pk Lef Marker Delt Start 2.46000 GHz #Res BW 1.0 MHz Stop 2.54000 GHz Sweep 1.000 ms (1001 pts) #VBW 3.0 MHz Mkr→C 2.474 00 GHz 104.680 dBµV 2.483 50 GHz 59.932 dBµV Mkr→RefL More 1 of



RESULT: PASS

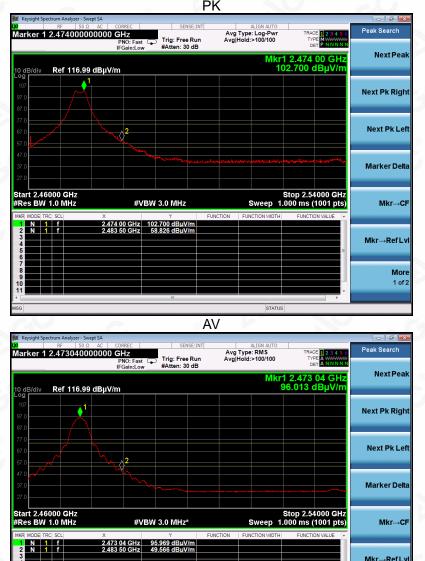


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Report No.: AGC00008191202FE02 Page 37 of 53

EUT	2.4GHz Digital Wireless Baby Monitor	Model Name	GD8217
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



RESULT: PASS

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB(μ V) to represent the Amplitude. Use the F dB(μ V/m) to represent the Field Strength. So A=F.



More

12. FCC LINE CONDUCTED EMISSION TEST

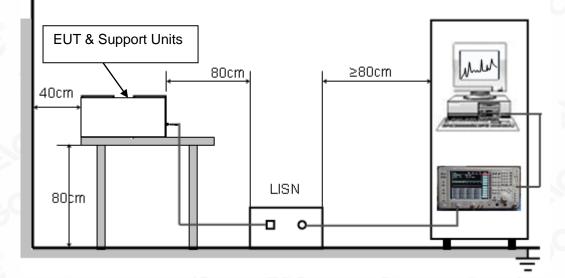
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Francisco	Maximum RF Line Voltage					
Frequency	Q.P.(dBuV)	Average(dBuV)				
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.

12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST







12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 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 equipments 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.

12.4. 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.
- 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 condition(s) was reported on the Summary Data page.





Line Conducted Emission Test Line 1-L Level [dBµV] 70 60 50 40 30 20 10 0 -10-20 150k 300k 400k 600k 800k 1M 2M 3M 4M 5M 6M 8M 10M 20M 30M Frequency [Hz] x x MES agc_fin

12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST



MEASUREMENT RESULT: "agc fin"

2020/3/13 17:	16						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000 0.170000 0.478000 0.698000 1.070000 1.406000	37.30 35.60 32.20 21.90 22.30 22.50	11.3 11.3 11.3 11.3 11.3 11.3 11.3	66 65 56 56 56	24.2 34.1	QP QP QP QP	L1 L1 L1 L1 L1 L1 L1	FLO FLO FLO FLO FLO FLO

MEASUREMENT RESULT: "agc fin2"

2020/3/13 17:16								
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000 0.162000 0.478000 0.686000 1.070000 1.406000	18.70 17.80 19.70 11.60 11.40 11.40	11.3 11.3 11.3 11.3 11.3 11.3 11.3	56 55 46 46 46		AV AV AV AV	L1 L1 L1 L1 L1 L1 L1	FLO FLO FLO FLO FLO FLO	



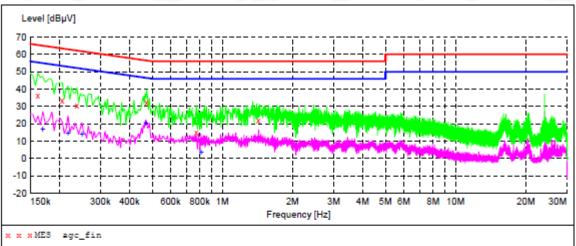
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Report No.: AGC00008191202FE02 Page 41 of 53

Line Conducted Emission Test Line 2-N



MEASUREMENT RESULT: "agc_fin"

2020/3/13 17:	12						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000 0.206000 0.238000 0.474000 0.774000 1.430000	36.60 33.30 30.70 32.30 14.90 21.90	11.3 11.3 11.3 11.3 11.3 11.3 11.3	65 63 56 56 56	31.5 24.1	QP	N N N N N	FLO FLO FLO FLO FLO FLO

MEASUREMENT RESULT: "agc fin2"

2020/3/13 17: Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.170000	17.50	11.3	55	37.5		Ν	FLO
0.218000	15.20	11.3	53	37.7		N	FLO
0.250000	14.50	11.3	52	37.3		N	FLO
0.470000	20.60	11.3	47		AV	N	FLO
0.810000	4.00	11.3	46	42.0	AV	N	FLO

RESULT: PASS

Note: All the test modes had been tested, the mode 1 was the worst case. Only the data of the worst case would be record in this test report.





Report No.: AGC00008191202FE02 Page 42 of 53

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

RADIATED EMISSION TEST SETUP BELOW 1GHZ



RADIATED EMISSION TEST SETUP ABOVE 1GHZ







Report No.: AGC00008191202FE02 Page 43 of 53



CONDUCTED EMISSION TEST SETUP





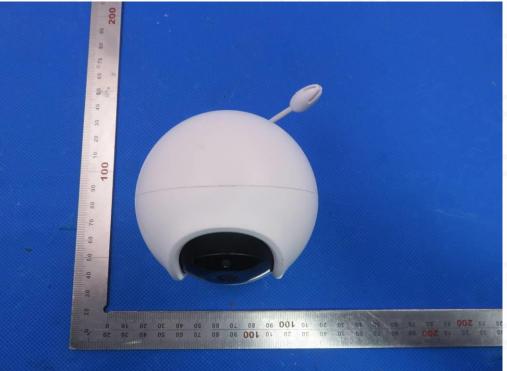
Report No.: AGC00008191202FE02 Page 44 of 53

APPENDIX B: PHOTOGRAPHS OF EUT

ALL VIEW OF EUT



TOP VIEW OF EUT





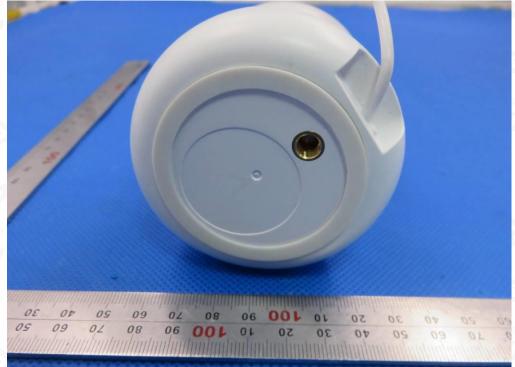
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Report No.: AGC00008191202FE02 Page 45 of 53

BOTTOM VIEW OF EUT



FRONT VIEW OF EUT

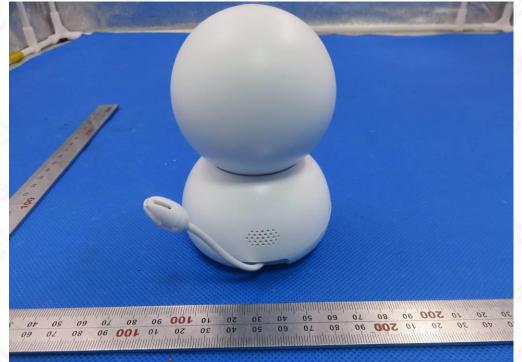






Report No.: AGC00008191202FE02 Page 46 of 53

BACK VIEW OF EUT



LEFT VIEW OF EUT





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Report No.: AGC00008191202FE02 Page 47 of 53



VIEW OF EUT(PORT)

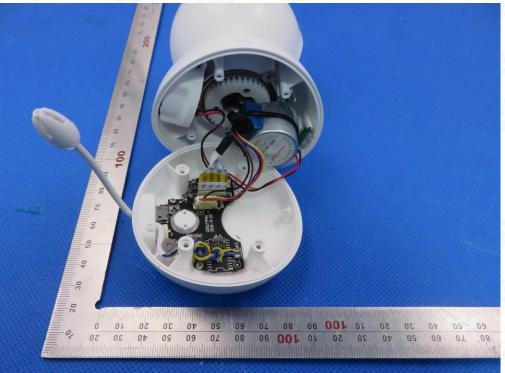






Report No.: AGC00008191202FE02 Page 48 of 53

OPEN VIEW OF EUT-1



OPEN VIEW OF EUT-2

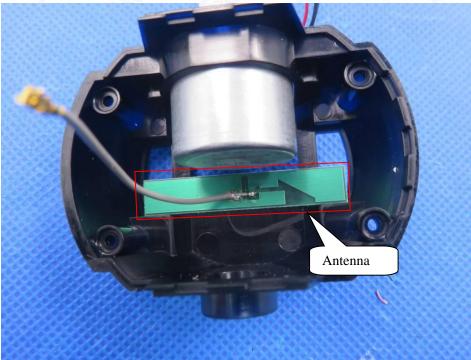




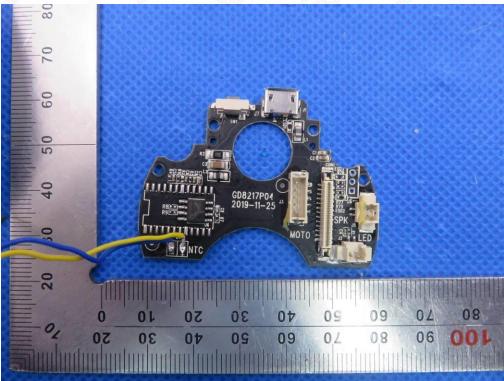


Report No.: AGC00008191202FE02 Page 49 of 53





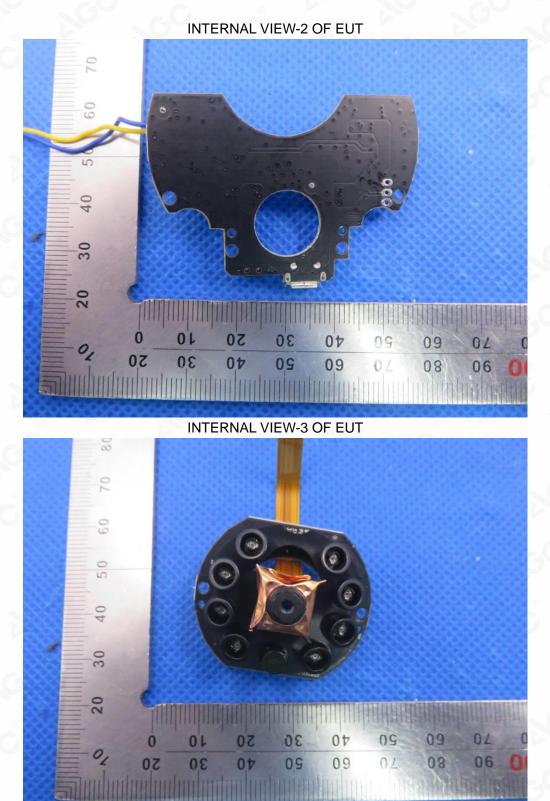
INTERNAL VIEW-1 OF EUT







Report No.: AGC00008191202FE02 Page 50 of 53

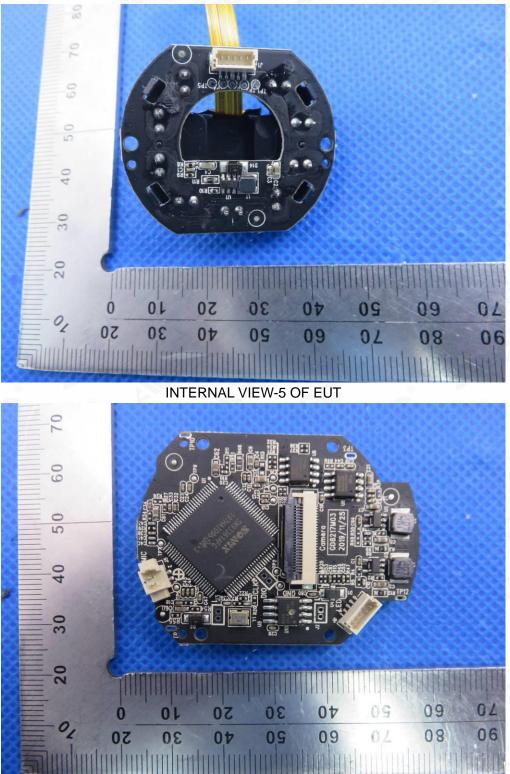






Report No.: AGC00008191202FE02 Page 51 of 53

INTERNAL VIEW-4 OF EUT

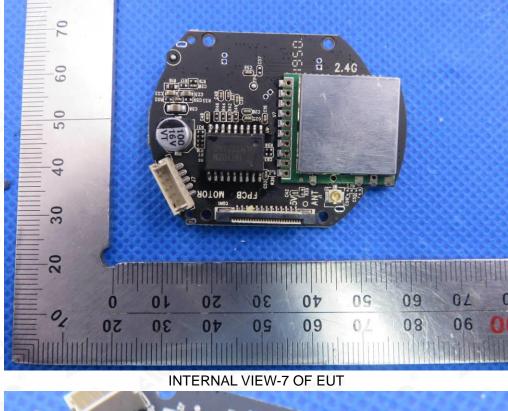






Report No.: AGC00008191202FE02 Page 52 of 53

INTERNAL VIEW-6 OF EUT

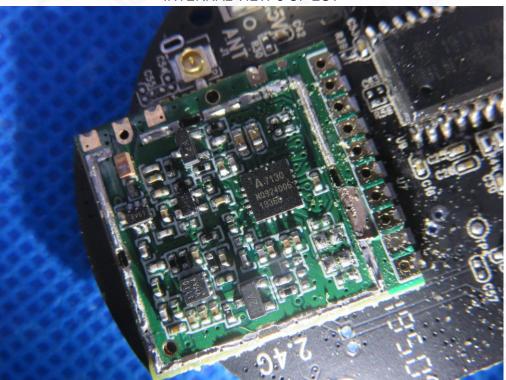








Report No.: AGC00008191202FE02 Page 53 of 53



INTERNAL VIEW-8 OF EUT

ADAPTER



----END OF REPORT----



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