FCC Test Report

Report No.: AGC02009151213FE01

FCC ID	:	TW5GD8220
PRODUCT DESIGNATION	:	Digital Wireless Baby Monitor With Storage Capacity
BRAND NAME	:	N/A
MODEL NAME	:	GD8220
CLIENT	:	ShenZhen Gospell Smarthome Electronic Co., Ltd.
DATE OF ISSUE	:	Jan.15, 2016
STANDARD(S)	:	FCC Part 15 Rules
REPORT VERSION	:	V1.0



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jan.15, 2016	Valid	Original Report

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Applicant	ShenZhen Gospell Smarthome Electronic Co., Ltd.
Address	5Floor/Block 2, Vision (SZ) Park, Hi-Tech Industrial Park, Shenzhen, China
Manufacturer	ShenZhen Gospell Smarthome Electronic Co., Ltd.
Address	East of 01st-04st Floor, Block A, No.1 Industrial park, Fenghuanggang, South of No.1 Baotian Road, Xixiang street,Bao'an District, Shenzhen City, Guangdong Province 518126, P.R.China
Product Designation	Digital Wireless Baby Monitor With Storage Capacity
Brand Name	N/A
Test Model	GD8220
Date of test	Jan.11, 2016 to Jan.12, 2016

1. VERIFICATION OF COMPLIANCE

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service 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 C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Tested by	Mar 2ha	y
Reviewed by	Max Zhang(Zhang Yi)	Jan.15, 2016
Approved by	Rock Huang(Huang Dinglue)	Jan.15, 2016
	Solger Zhang(Zhang Hongyi) Authorized Officer	Jan.15, 2016

2. GENERAL INFORMATION

2.1 PRODUCT DESCRIPTION

The EUT is a **Digital Wireless Baby Monitor With Storage Capacity** designed as a "Communication Device". It is designed by way of utilizing the FHSS technology to achieve the system operation.

A major technical description of EUT is described as following:

Operation Frequency	2408.625 MHz to 2473.875MHz
Modulation	FHSS
Number of channels	24
Antenna Designation	Fixed Antenna
Antenna Gain	2.0dBi
Hardware Version	GD8220M03
Software Version	V2.1
Power Supply	DC 5V by adapter

2.2 TABLE OF CARRIER FREQUENCYS

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2408.625	13	2442.375
02	2412.000	14	2444.625
03	2414.250	15	2448.000
04	2417.625	16	2450.250
05	2422.125	17	2453.625
06	2425.500	18	2457.000
07	2427.750	19	2459.250
08	2430.000	20	2461.500
09	2432.250	21	2464.875
10	2434.500	22	2467.125
11	2436.750	23	2470.500
12	2439.000	24	2473.875

2.3 RECEIVER INPUT BANDWIDTH

The input bandwidth of the receiver is 2.5MHz.

2.4 EXAMPLE OF A HOPPING SEQUENCY IN DATA MODE

Example of a 24 hopping sequence in data mode: 24,20,21,23,01,02,06,07,03,,04,08,05,09,10 22,19,18,16,17,15,12,13,14,11

2.5 EQUALLY AVERAGE USE OF FREQUENCIES AND BEHAVIOUR

The generation of the hopping sequence in connection mode.

2.6 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: TW5GD8220, filing to comply with 15.247 requirements.

2.7 TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4:2009. Radiated testing was performed at an antenna to EUT distance 3 meters.

2.8 MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Conducted measurement: ±3.18dB Radiated measurement: ±3.91dB

2.9 SPECIAL ACCESSORIES

Refer to section 3.2.

2.10 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

3. SYSTEM TEST CONFIGURATION

3.1 CONFIGURATION OF TESTED SYSTEM

Configure 1:



3.2 EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Mfr/Brand	Model/Type No.	Remark
1	Digital Wireless Baby Monitor With Storage Capacity	N/A	GD8220	EUT
2	Adapter	GOSPELL	G0659U-050-100	A.E

3.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.247	Peak Output Power	Compliant
§15.247	20 dB Bandwidth	Compliant
§15.247	Conducted Spurious Emission	Compliant
§15.209	Radiated Emission	Compliant
§15.247	Band Edges	Compliant
§15.247	Number of Hopping Frequency	Compliant
§15.247	Time of Occupancy	Compliant
§15.247	Frequency Separation	Compliant
§15.207	Line Conducted Emission	Compliant

4. DESCRIPTION OF TEST MODES

The following operating modes were applied for the related test items.

NO.	TEST MODE DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX
4	Normal operating

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. All conducted measurements performed with a temporary antenna connector soldered to the RF output.

4. The EUT used fully-charged battery when tested.

5. TEST FACILITY

Site	Dongguan Precise Testing Service Co., Ltd.	
Location	Building D, Baoding Technology Park, Guangming Road2, Dongcheng District, Dongguan, Guangdong, China.	
FCC Registration No.	371540	
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009.	

ALL TEST EQUIPMENT LIST

	Radiated	Emission Tes	st Site		
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI Test Receiver	Rohde & Schwarz	ESCI	101417	July 4, 2015	July 3, 2016
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 4, 2015	July 3, 2016
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 4, 2015	July 3, 2016
RF Cable	SCHWARZBECK	AK9515E	96221	July 4, 2015	July 3, 2016
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2015	June 5, 2016
MULTI-DEVICE Positioning Controller	Max-Full	MF-7802	MF780208339	N/A	N/A
Active loop antenna (9K-30MHz)	Schwarzbeck	FMZB1519	1519-038	June 6, 2015	June 5, 2016
Spectrum analyzer	Agilent	E4407B	MY46185649	June 6, 2015	June 5, 2016
Horn Antenna (1G-18GHz)	SCHWARZBECK	BBHA9120D	9120D-1246	June 6, 2015	June 5, 2016
Horn Ant (18G-40GHz)	Schwarzbeck	BBHA 9170	9170-181	June 6, 2015	June 5, 2016

	Conducted Emission Test Site										
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration						
EMI Test Receiver	Rohde & Schwarz	ESCI	101417	July 4, 2015	July 3, 2016						
Artificial Mains Network	Narda	L2-16B	000WX31025	July 8, 2015	July 7, 2016						
Artificial Mains Network (AUX)	Narda	L2-16B	000WX31026	July 8, 2015	July 7, 2016						
RF Cable	SCHWARZBECK	AK9515E	96222	July 4, 2015	July 3, 2016						
Shielded Room	CHENGYU	843	PTS-002	June 6,2015	June 5,2016						

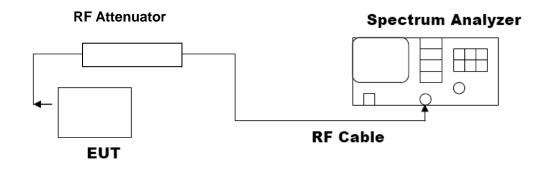
6. PEAK OUTPUT POWER

6.1. MEASUREMENT PROCEDURE

For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, middle and the bottom operation frequency individually.
- 3. RBW > the 20 dB bandwidth of the emission being measured, VBW \ge RBW.
- 4. Record the maximum power from the Spectrum Analyzer.
- 5. The maximum peak power shall be less 1W (30dBm).

6.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP



6.3 LIMITS AND MEASUREMENT RESULT

PEAK OUTPUT POWER MEASUREMENT RESULT FOR GFSK MOUDULATION									
Frequency (MHz)	Peak Power (dBm)	Average Power (dBm)	Applicable Limits (dBm)	Pass or Fail					
2408.625	14.200	8.421	30	Pass					
2442.375	12.425	6.657	30	Pass					
2473.875	12.270	6.438	30	Pass					

Low Channel

📕 Agilent Spectrum Analyzer - Swept SA			
Marker 1 2.408103423921	PNO: Fast 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100 DET P NNNNN DET P NNNN	Peak Search
10 dB/div Ref 20.00 dBm	FGain:Low #Atten: 30 dB	Mkr1 2.408 103 4 GHz 14.200 dBm	Next Peak
10.0			Next Pk Right
-10.0			Next Pk Left
-20.0			Marker Delta
-40.0			Mkr→CF
-60.0			Mkr→RefLv
Center 2.408625 GHz #Res BW 4 MHz	#VBW 8.0 MHz	Span 6.000 MHz Sweep 1.333 ms (20000 pts)	More 1 of 2
MSG		STATUS	

	IVIIdo	dle Channel		
💓 Agilent Spectrum Analyzer - Swept SA				
🙀 RF 50 Ω DC Marker 1 2.441924227461	CHz PNO: Fast IFGain:Low #Atten: 30 d	Avg Type: Log-Pwr un Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWW DET P NNNN	Peak Search
10 dB/div Ref 20.00 dBm		Mkr1 2	.441 924 2 GHz 12.425 dBm	Next Peak
10.0				Next Pk Right
-10.0				Next Pk Left
-20.0				Marker Delta
-30.0				Mkr→CF
-50.0				Mkr→RefLvl
-70.0				
Center 2.442375 GHz #Res BW 4 MHz	#VBW 8.0 MHz	Sweep 1.	Span 6.000 MHz 333 ms (20000 pts)	More 1 of 2
MSG		STATU		

Middle Cha . .

High Channel

Magilent Spectrum Analyzer - Swept SA				- 7 ×
Marker 1 2.473439228211	CHz PNO: Fast C Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE MWWWW	Peak Search
10 dB/div Ref 20.00 dBm	IFGain:Low #Atten: 30 dB	Mkr1 2.47	3 439 2 GHz 12.270 dBm	Next Peak
10.0				Next Pk Righ
-10.0				Next Pk Le
20.0				Marker Delt
40.0				Mkr→C
60.0				Mkr→RefL
Center 2.473875 GHz		Sources 4 202	pan 6.000 MHz	Mor 1 of
#Res BW 4 MHz	#VBW 8.0 MHz	Sweep 1.333	ms (20000 pts)	

7.20 DB BANDWIDTH

7.1 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 Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hoping channel
- $RBW \ge 1\%$ of the 20 dB bandwidth, $VBW \ge RBW$; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

7.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in Section 6.2

7.3 MEASUREMENT EQUIPMENT USED

The same as described in Section 5

7.4 LIMITS AND MEASUREMENT RESULTS

MEASUREMENT RESULT								
Appliachta Limita		Measurement Resu	t					
Applicable Limits	Test Da	ta (MHz)	Criteria					
	Low Channel	3.143	PASS					
	Middle Channel	3.144	PASS					
	High Channel	3.134	PASS					

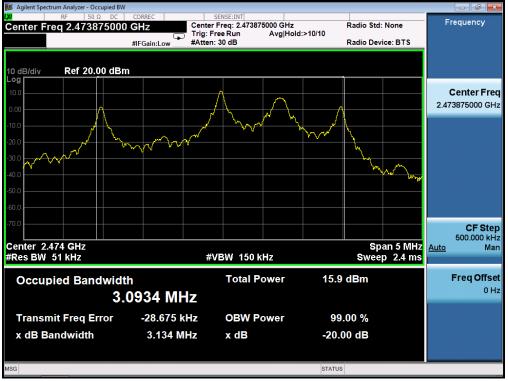
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



8. CONDUCTED SPURIOUS EMISSION

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.
- 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 ≥ RBW; Sweep = auto; Detector function = peak.
- 4. Set SPA Trace 1 Max hold, then View.

8.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 6.2

8.3 MEASUREMENT EQUIPMENT USED

The same as described in section 5

8.4 LIMITS AND MEASUREMENT RESULT

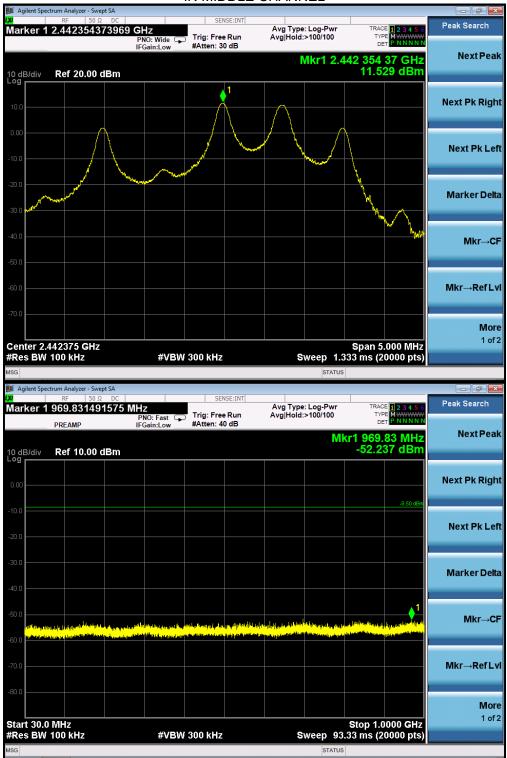
LIMITS AND MEA	SUREMENT RESULT	
Appliable Limite	Measurement Res	ult
Applicable Limits	Test Data	Criteria
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement,	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS
provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.	At least -20dBc than the limit Specified on the TOP Channel	PASS



TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE IN LOW CHANNEL

	Spectrum Analyzer - Swep									
<mark>w</mark> Marker	RF 50 Ω 1 962.31361	5681 MH:			ISE:INT	Avg Type			CE 123456	Peak Search
	PREAMP		NO: Fast 🖵 Gain:Low	Trig: Free #Atten: 4		Avg Hold:	:>100/100			
10 dB/div Log	∉ Ref 10.00 d	IBm						4 1 1 1 1 Wkr1 1 1 1 1 - 50 - 50 - 50 - 50 - 50 - 50 -	.31 MHz 82 dBm	Next Peak
0.00									-6.80 dBm	Next Pk Right
-10.0										Next Pk Lef
-30.0										Marker Delta
-40.0	Anderstandigen (see and a dedacard) - De	al the state of the	t frantille gland free Han	a tilul dan di	Notae en statut	hin was been alwayed	a till task of a c			Mkr→Cł
-60.0	e Bhenggionnaiste (1944) ha da bhollan a' 1956 an deara	i Milayka, Usaki Aliki	i faith ann a fag san da ann a	na ti dalam ndari di na Lingi ya	g (broka di S. M. orp	i pong ponsak pinan na				Mkr→RefLv
-80.0).0 MHz							Stop 1	0000 GHz	More 1 of 2
	W 100 kHz		#VBW	300 kHz		s	weep	93.33 ms (2	20000 GH2	
MSG							STAT	US		

📕 Agilent Spe X/		50 Ω DC		SEN	SE:INT					Peak Search
/larker 1	1 2.39957	9978999	GHZ PNO: Fast	Trig: Free	Run	Avg Type Avg Hold:	e: Log-Pwr :>100/100		E 123456 E MWWWW	Peak Search
	PREAMP		IFGain:Low	#Atten: 40						NextPea
							Mkr	1 2.399	58 GHz 68 dBm	NEXIFER
0 dB/div og	Ref 10.0	00 dBm						-21.1		
										Next Dk Dig
0.00										Next Pk Rig
									-6.80 dBm	
10.0										
20.0										Next Pk Le
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30.0										
										Mo
								Oton 2		1 0
	000 GHz							Stop 2.4	1000 GHz	
	000 GHz / 100 kHz		#VBW	300 kHz		s	weep 134	5.0p 2.4 1.7 ms (2	1000 GHz 20000 pts)	
			#VBW	300 kHz		S	weep 134 STATUS	\$10p 2.4 1.7 ms (2	0000 GHz 00000 pts)	
Res BW	ectrum Analyzer		#VBW		SE-INT	S		510p 2.4 4.7 ms (2	000 GHz 0000 pts)	
Res BW	ectrum Analyzer	Swept SA 50 Ω DC 1744587	GHz	SEN	SE:INT	Avg Type	STATUS	1.7 ms (2	20000 pts) ≊ 123456	Peak Search
Res BW 5G I Agilent Spe	ectrum Analyzer	50 Ω DC		SEN	Run		STATUS	1.7 ms (2	0000 pts)	
Res BW	ectrum Analyzer	50 Ω DC	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search
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Res BW	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search Next Pea
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Res BW G Agilent Spo arker 7 O dB/div Og	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search Next Pe
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Res BW G G G G G G G G G G G G G G G G G G G	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search Next Pea Next Pk Rig
Res BW G G G G G G G G G G G G G G G G G G G	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Lu
Agilent Spo Agilent Agilent Agilen	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Lu
Res BW ag Agilent Spot larker 2 0 dB/div 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TY TT TT TT TT 2.50	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Lu
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Res BW 3G 4 Agilent Spr 1 arker 2 0 dB/div 0 0 1 arker 2	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Lo Marker De
Res BW G Agilent Spe Agilent Spe Iarker 1 0 dB/div 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Lo Marker De Mkr→0
Res BW s a Agilent Spr Agilent	ectrum Analyzer RF 1 2.50489	50 Ω DC 1744587	GHz PNO: Fast C	SEN	Run	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Lo Marker De Mkr→0
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TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE IN MIDDLE CHANNEL

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larker 1	1 2.3463773		HZ PNO:Fast Ģ	Trig: Free	Run	Avg Type Avg Hold:	e: Log-Pwr :>100/100		E 1 2 3 4 5 6 E M WWWW	Peak Search
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	000 GHz / 100 kHz		#VBW	300 kHz		s	weep 134	Stop 2.4 1.7 ms (2	000 GHz 0000 pts)	
			#VBW	300 kHz		s	weep 134 status	Stop 2.4 I.7 ms (2	0000 GHz 0000 pts)	
Res BW	I 100 KHZ ectrum Analyzer - Sw		#VBW			8		Stop 2.4 I.7 ms (2	000 GHz 0000 pts)	
Res BW sg I Agilent Spe	I 100 KHZ ectrum Analyzer - Sw	Ω DC 183409 C	jHz	SE	NSE:INT	Avg Type	STATUS	1.7 ms (2	0000 pts) ≊ 123456	Peak Search
Res BW sg I Agilent Spe	ectrum Analyzer - Sw RF 50	Ω DC 183409 G		SE	NSE:INT		STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2 TRAC TYP DE	0000 pts)	Peak Search
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Res BW SG Agilent Spe Marker 1	ectrum Analyzer - Sw RF 50	Ω DC 183409 G	Hz PNO: Fast 🕞) Trig: Free	NSE:INT	Avg Type	STATUS 2: Log-Pwr 2:>100/100	1.7 ms (2	0000 pts)	Peak Search
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TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE IN HIGH CHANNEL

🊺 Agil	lent Spect	trum Analy.											- 7
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-00.0 -													
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随 Agilent Spe <mark>X</mark>		50 Ω DC			SEI	NSE:INT					Peak Search
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#Res BW Isc Agilent Spe Agilent Spe Arriker 1 Arriker 1 0 dB/div 0 dB/div 20.0	100 kHz ectrum Analyzer RF I 2.48350	- Swept SA 50 Ω DC DOOOOOO	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS 2: Log-Pwr :>100/100	4.7 ms (2 TRAC TYP P	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le
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Agilent Spe Agilent Spe Agilent Spe Aarker 1 0 dB/div 0.00 10.0 20.0 1 30.0	xtrum Analyzer RF 1 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS	4.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le
Ares BW sc Agilent Spe Agilent Spe Agile	100 kHz ectrum Analyzer RF I 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS 2: Log-Pwr :>100/100	4.7 ms (2 TRAC TYP P	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le Marker Del
#Res BW           Isc           Agilent Spec           Marker 1           0 dB/div           0.00           10.0           20.0           1           30.0           50.0           1           50.0	xtrum Analyzer RF 1 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS	4.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le Marker Del
#Res BW           Isc           Agilent Spec           Marker 1           0 dB/div           0.00           10.0           20.0           1           30.0           50.0           1           50.0	xtrum Analyzer RF 1 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS	4.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le Marker Del
fRes BW sc Agilent Spe Agilent Spe Agilent Spe Aarker 1 0 dB/div 0 00 10 0 10 0 11 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 1	xtrum Analyzer RF 1 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS	4.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le Marker Del Mkr→C
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#Res BW           Isc           Agilent Spe           Marker 1           0 dB/div           0 0           10.0           10.0           10.0           10.0           10.0           10.0           60.0           10.0           0.00	xtrum Analyzer RF 1 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS	4.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rig Next Pk Le Marker Del Mkr→C
Agilent Spe           0         dB/div           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0	xtrum Analyzer RF 1 2.48350	- Swept SA 50 Ω DC 0000000	00 GH PN IFG	Z	) Trig: Free	NSE:INT	Avg Type	STATUS	4.7 ms (2	20000 pts)	Peak Search Next Pea Next Pk Rigi Next Pk Le Marker Del Mkr→C Mkr→Ref L
4Res BW           SG           Agilent Spe           Agilent Spe           Aarker 1           0 dB/div           0 0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0	2 100 kHz ktrum Analyzer RF 1 2.4835( Ref 10.	- Swept SA 50 Ω DC DOOOOOOI 00 dBm	00 GH PN IFG	IZ IO: Fast G ain:Low	) Trig: Free	e Run 0 dB	Avg Type Avg Hold:	STATUS	4.7 ms (2	20000 pts)	Peak Search

# 9. RADIATED EMISSION

#### 9.1 MEASUREMENT PROCEDURE

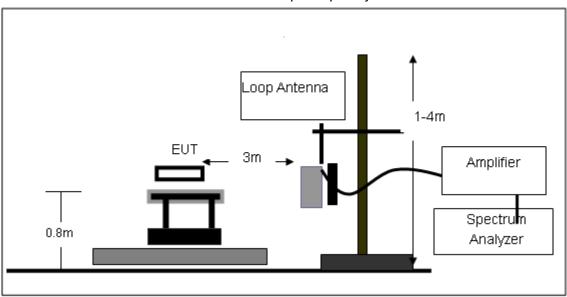
- 1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting 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 VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
- 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.

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

Spectrum Parameter	Setting
Start Frequency	1GHz
Stop Frequency	26.5GHz
RB/VB(Emission in restricted band)	100KHz/100KHz for Peak
RB/VB(Emission in non-restricted band)	1MHz/1MHz for Peak

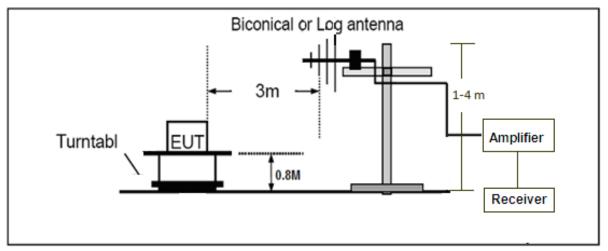
Receiver Parameter	Setting		
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP		
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP		
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP		

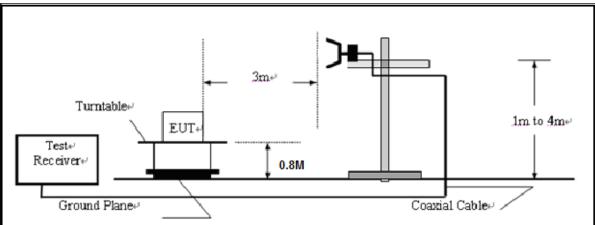
#### 9.2 TEST SETUP



Radiated Emission Test-Setup Frequency Below 30MHz

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

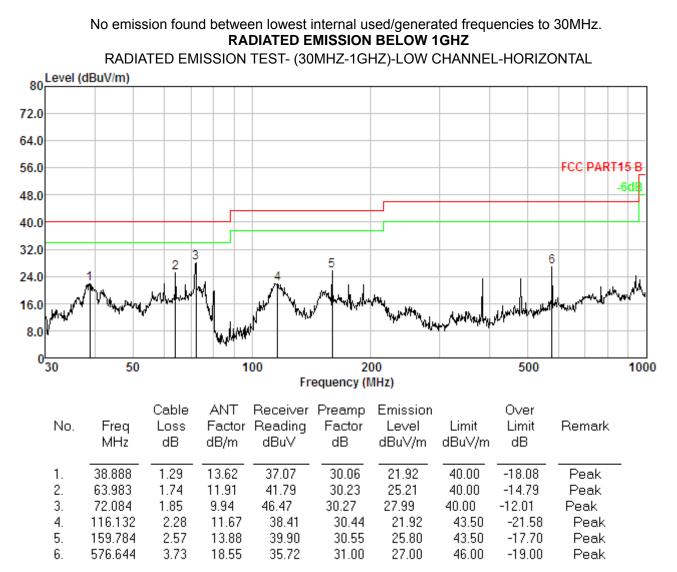




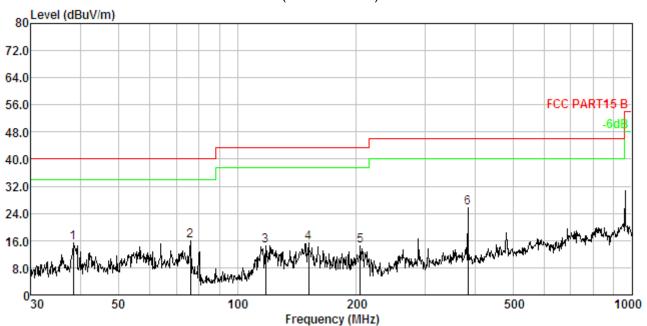
## RADIATED EMISSION TEST SETUP ABOVE 1000MHz

#### 9.3 TEST RESULT

#### **RADIATED EMISSION BELOW 30MHZ**



**RESULT: PASS** 



RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL

No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limit dBuV/m	O∨er Limit dB	Remark
1.	38.346	1.28	13.58	30.51	30.06	15.31	40.00	-24.69	Peak
2.	75.977	1.90	9.65	34.70	30.29	15.96	40.00	-24.04	Peak
3.	117.773	2.29	11.82	30.86	30.45	14.52	43.50	-28.98	Peak
4.	151.597	2.52	13.90	29.41	30.53	15.30	43.50	-28.20	Peak
5.	204.955	2.79	10.48	31.82	30.64	14.45	43.50	-29.05	Peak
6.	383.932	3.36	14.97	38.35	30.86	25.82	46.00	-20.18	Peak

#### **RESULT: PASS**

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

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

3. The mode 1 is the worst case, and only the data of the worst case recorded in this test report.

#### **RADIATED EMISSION ABOVE 1GHZ**

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 1	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2408.625	116.82	-9.37	107.45			peak
2408.625	112.79	-9.37	103.42			AVG
4817.250	51.29	3.74	55.03	74	-18.97	peak
4817.250	45.62	3.74	49.36	54	-4.64	AVG
7225.875	43.58	8.14	51.72	74	-22.28	peak
7225.875	37.97	8.14	46.11	54	-7.89	AVG
Remark:						
actor = Ante	enna Factor + Ca	able Loss – F	Pre-amplifier.			

EUT:Digital Wireless Baby Monitor<br/>With Storage CapacityModel Name. :GD8220Temperature:20 °CRelative Humidtity:48%

	With Storage Capacity		
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 1	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2402.013	113.64	-9.37	104.27			peak
2402.013	109.82	-9.37	100.45			AVG
4804.026	50.28	3.74	54.02	74	-19.98	peak
4804.026	44.38	3.74	48.12	54	-5.88	AVG
7206.039	42.98	8.14	51.12	74	-22.88	peak
7206.039	37.02	8.14	45.16	54	-8.84	AVG
Remark:						
actor = Ante	enna Factor + Ca	able Loss – I	Pre-amplifier.			

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> ℃	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 2	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2442.375	114.21	-9.63	104.58			peak
2442.375	110.56	-9.63	100.93			AVG
4884.750	50.64	3.76	54.4	74	-19.6	peak
4884.750	44.31	3.76	48.07	54	-5.93	AVG
7327.125	43.06	8.17	51.23	74	-22.77	peak
7327.125	38.12	8.17	46.29	54	-7.71	AVG
Remark:						
Factor = Ante	enna Factor + Ca	able Loss – F	Pre-amplifier.			

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 2	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2442.375	111.67	-9.63	102.04			peak
2442.375	107.84	-9.63	98.21			AVG
4884.750	48.97	3.76	52.73	74	-21.27	peak
4884.750	43.12	3.76	46.88	54	-7.12	AVG
7327.125	41.52	8.17	49.69	74	-24.31	peak
7327.125	36.24	8.17	44.41	54	-9.59	AVG
Remark:						
-actor = Ante	enna Factor + Ca	able Loss – I	Pre-amplifier.			

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 3	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2473.875	112.24	-9.61	102.63			peak
2473.875	108.54	-9.61	98.93			AVG
4947.750	48.62	3.83	52.45	74	-21.55	peak
4947.750	42.61	3.83	46.44	54	-7.56	AVG
7421.625	40.25	8.21	48.46	74	-25.54	peak
7421.625	33.87	8.21	42.08	54	-11.92	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 3	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
2473.875	110.06	-9.61	100.45			peak
2473.875	106.74	-9.61	97.13			AVG
4947.750	47.31	3.83	51.14	74	-22.86	peak
4947.750	41.88	3.83	45.71	54	-8.29	AVG
7421.625	39.16	8.21	47.37	74	-26.63	peak
7421.625	32.84	8.21	41.05	54	-12.95	AVG
Remark:						
-actor = Antenna Factor + Cable Loss – Pre-amplifier.						

**Note:** Other emission from 8G to 25 GHz are considered as ambient noise. No recording in the test report. Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.

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

### **10. BAND EDGES EMISSION**

#### **10.1 MEASUREMENT PROCEDURE**

- 1. Set the EUT Work on the top, the bottom operation frequency individually.
- 2. Set SPA Start or Stop Frequency=Operation Frequency, RBW=1MHz, VBW>=RBW, Center frequency =Operation frequency
- 3. The band edges was measured and recorded.

#### 10.2 TEST SET-UP

The same as described in section 9.2

#### **10.3 TEST RESULT**

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 1	Polarization :	Horizontal



TAglient Spectrum new PA 50 0 DC GHZ Narker 2 2.390630000000 GHZ PNO: Fast C→ IFGainLow #Atten: 20 dB ( Ao Analyzer - Swept SA Peak Search Avg Type: Log-Pwr Avg|Hold:>100/100 Mkr2 2.390 630 GH 50.399 dBµ\ Next Peak Ref 116.99 dBµV dB/div Next Pk Right Next Pk Left ¢² Marker Delta Start 2.37000 GHz #Res BW 1.0 MHz Stop 2.41500 GHz Sweep 3.509 s (1001 pts) #VBW 10 Hz Mkr→CF 103.024 dBuV 50.399 dBuV 2.408 655 GHz 2.390 630 GHz Mkr→RefLvl More 1 of 2

ΡK

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> ℃	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 1	Polarization :	Vertical



ΡK

AV

		7.00		
Agilent Spectrum Analyzer - Swept SA				- 4
RF 50 Q DC	SENSE:I			Frequency
tart Freq 2.370000000 G	PNO: Fast Trig: Free Ru IFGain:Low #Atten: 20 dB		TRACE 1 2 3 4 5 6 TYPE M	requeicy
0 dB/div Ref 116.99 dBµV		Mkr1	2.408 655 GHz 100.648 dBµV	Auto Tun
0g				Center Fre 2.392500000 GH
7.0				Start Fre 2.370000000 GH
7.0				Stop Fre 2.415000000 GH
tart 2.37000 GHz Res BW 1.0 MHz	#VBW 10 Hz		Stop 2.41500 GHz 3.509 s (1001 pts)	CF Ste 4.500000 MH Auto Ma
KR         MODE         TRC         SCL         X           1         N         1         f         2.408           2         N         1         f         2.390           3	3 655 GHz 100 648 dBμV 0 630 GHz 48.252 dBμV	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse
6				
1 <b>1</b>			-	

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> °C	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 3	Polarization :	Horizontal



ΡK

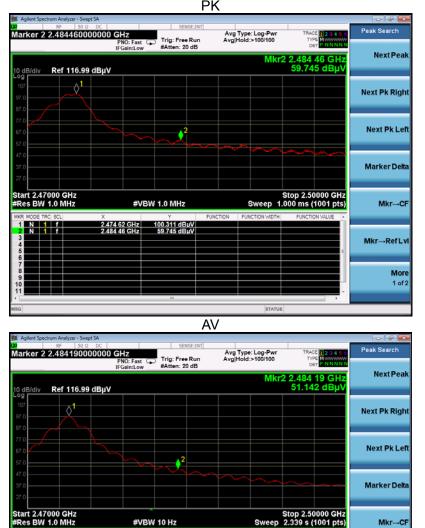
AV



Mkr→RefLv

More 1 of 2

EUT:	Digital Wireless Baby Monitor With Storage Capacity	Model Name. :	GD8220
Temperature:	<b>20</b> ℃	Relative Humidtity:	48%
Pressure:	1010 hPa	Test Voltage :	DC5V
Test Mode :	Mode 3	Polarization :	Vertical
		אס	



#### **RESULT: PASS**

Note: The other modes radiation emission have enough 20dB margin.

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

2.473 93 GHz 2.484 19 GHz

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

STATUS

97.047 dBuV 51.142 dBuV

Hopping off and Hopping on have been tested and only worst case recorded

### **11. NUMBER OF HOPPING FREQUENCY**

#### **11.1 MEASUREMENT PROCEDURE**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer Start = 2.4GHz Stop = 2.4835GHz
- 4. Set the Spectrum Analyzer as RBW>=1%span, VBW>=RBW.

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

Same as described in section 6.2 Conducted Method.

#### **11.3 MEASUREMENT EQUIPMENT USED**

The Same as described in section 5.3

#### **11.4 LIMITS AND MEASUREMENT RESULT**

TOTAL NO. OF	LIMIT (NO. OF CH)	MEASUREMENT (NO. OF CH)	RESULT
HOPPING CHANNEL	>=15	24	PASS

## 12. TIME OF OCCUPANCY (DWELL TIME)

#### **12.1 MEASUREMENT PROCEDURE**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.
- 3. Set Span = zero span, centered on a hoping channel.
- 4. Set the spectrum analyzer as RBW=1MHz, VBW>=RBW, Span = 0 Hz.

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

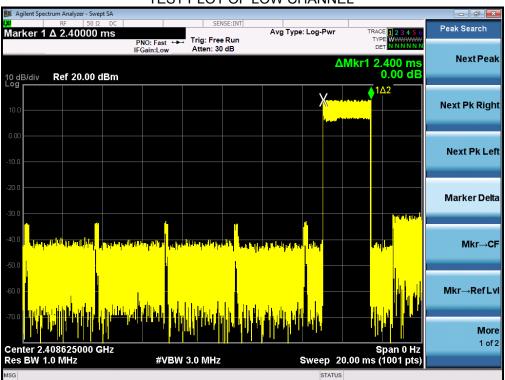
Same as described in section 6.2 Conducted Method

#### **12.3 MEASUREMENT EQUIPMENT USED**

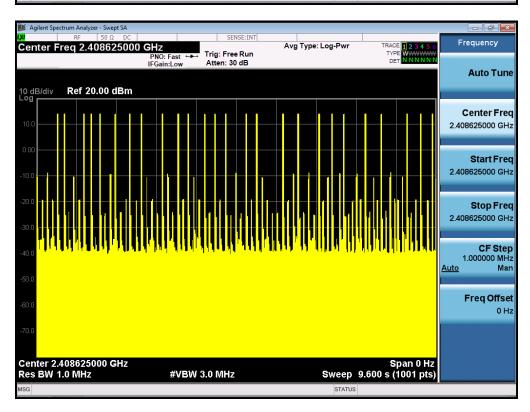
The same as described in section 5

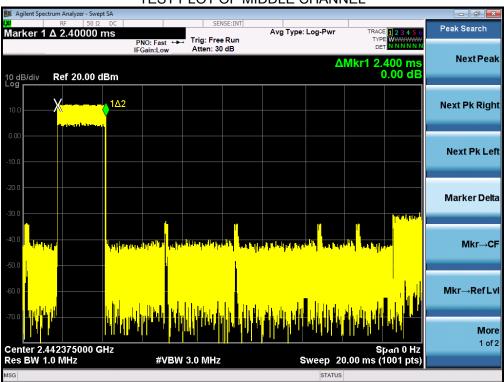
#### 12.4 LIMITS AND MEASUREMENT RESULT

The Worst Case						
Channel	Time of The Pulse (ms)	Sweep Time (s)	No. of The Pulse	Dwell Time (ms)	Limit (ms)	
Low	2.400	9.600	26	62.400	400	
Middle	2.400	9.600	23	55.200	400	
High	2.400	9.600	24	57.600	400	

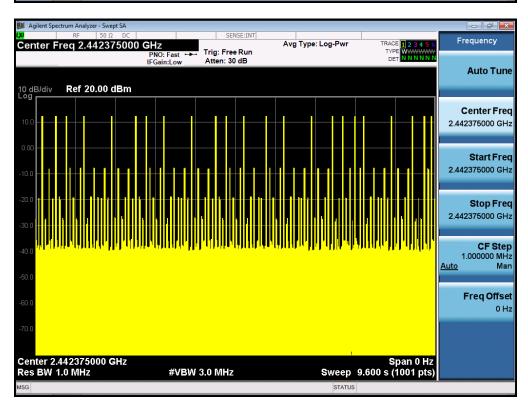


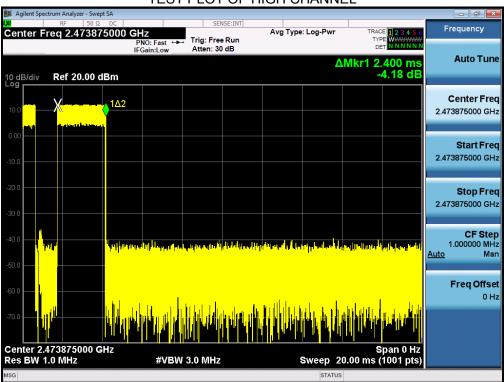
#### TEST PLOT OF LOW CHANNEL



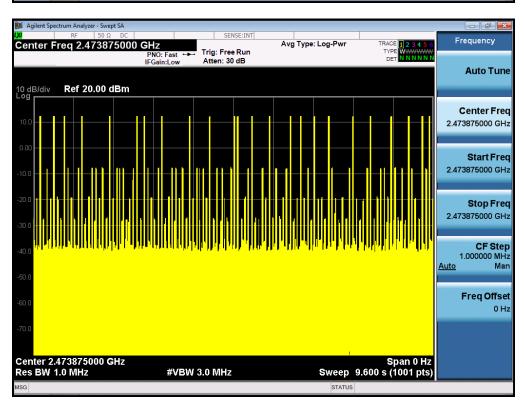


#### TEST PLOT OF MIDDLE CHANNEL





#### TEST PLOT OF HIGH CHANNEL



### **13. FREQUENCY SEPARATION**

#### **13.1 MEASUREMENT PROCEDURE**

- 1. Place the EUT on the table and set it in transmitting carrie mode
- 2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer
- Set Span = wide enough to capture the peaks of two adjacent channels Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span Video (or Average) Bandwidth (VBW) ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold

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

Same as described in section 6.2

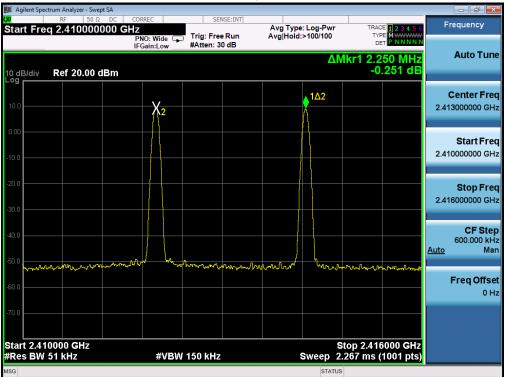
#### **13.3 MEASUREMENT EQUIPMENT USED**

The same as described in section 5

#### **13.4 LIMITS AND MEASUREMENT RESULT**

CHANNEL	CHANNEL SEPARATION	LIMIT RESULT		
	KHz	KHz	Data	
CH02-CH03	2250	>=25 KHz or 2/3 20 dB BW	Pass	

#### TEST PLOT FOR FREQUENCY SEPARATION



#### TEST PLOT FOR FREQUENCY SEPARATION

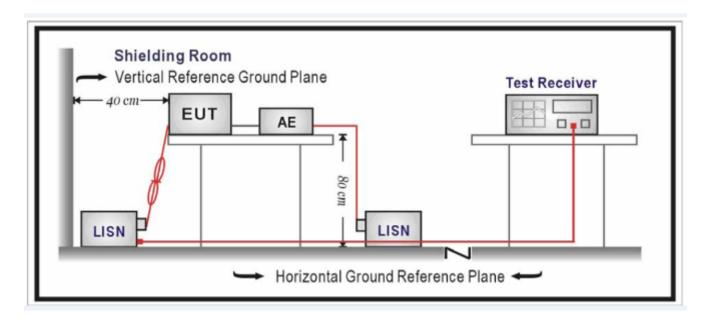
## **14. CONDUCTED EMISSION**

#### 14.1 LIMITS OF LINE CONDUCTED EMISSION TEST

Fraguanay	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

#### 14.2 BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST

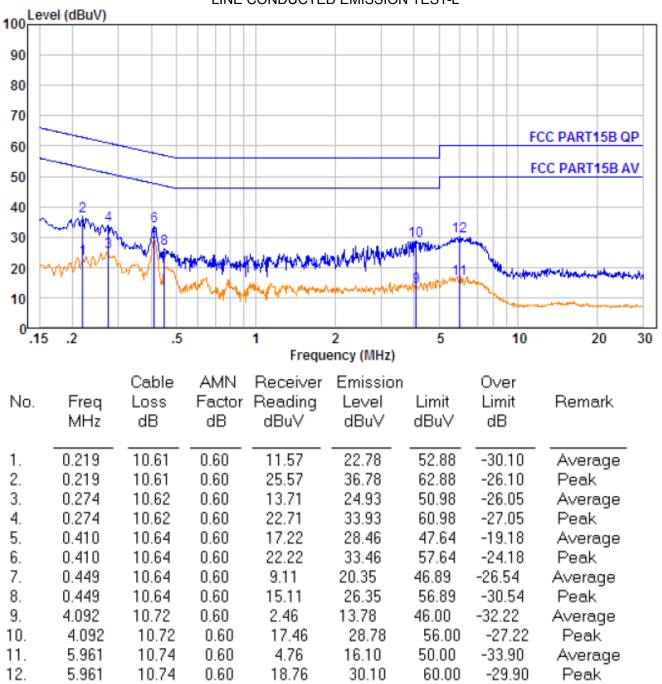


#### 14.3 PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 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 RS-GEN (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 RS-GEN.
- 3) All I/O cables were positioned to simulate typical actual usage as per RS-GEN.
- 4) The EUT received power by PC which received 120V/60Hz power through a LISN.
- 5) The EUT 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.
- 6) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 7) During the above scans, the emissions were maximized by cable manipulation.
- 8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
- 9) 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.

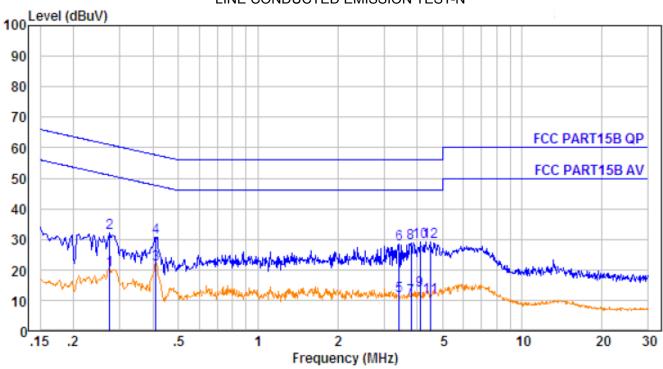
The test data of the worst case condition(s) was reported on the Summary Data page.

#### 14.4 TEST RESULT OF LINE CONDUCTED EMISSION TEST



LINE CONDUCTED EMISSION TEST-L

**RESULT: PASS** 



LINE CONDUCTED	

No.	Freq MHz	Cable Loss dB	AMN Factor dB	Receiver Reading dBuV	Emission Le∨el dBuV	Limit dBu∨	O∨er Limit dB	Remark
1.	0.274	10.62	0.60	8.71	19.93	50.98	-31.05	Average
2.	0.274	10.62	0.60	20.71	31.93	60.98	-29.05	Peak
3.	0.410	10.64	0.60	10.35	21.59	47.64	-26.05	Average
4.	0.410	10.64	0.60	19.35	30.59	57.64	-27.05	Peak -
5.	3.417	10.72	0.60	0.26	11.58	46.00	-34.42	Average
6.	3.417	10.72	0.60	17.26	28.58	56.00	-27.42	Peak
7.	3.799	10.72	0.60	-0.52	10.80	46.00	-35.20	Average
8.	3.799	10.72	0.60	17.48	28.80	56.00	-27.20	Peak
9.	4.114	10.72	0.60	1.87	13.19	46.00	-32.81	Average
10.	4.114	10.72	0.60	17.87	29.19	56.00	-26.81	Peak
11.	4.501	10.73	0.60	-0.21	11.12	46.00	-34.88	Average
12.	4.501	10.73	0.60	17.79	29.12	56.00	-26.88	Peak

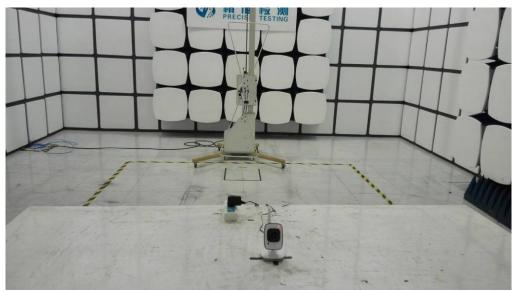
#### **RESULT: PASS**

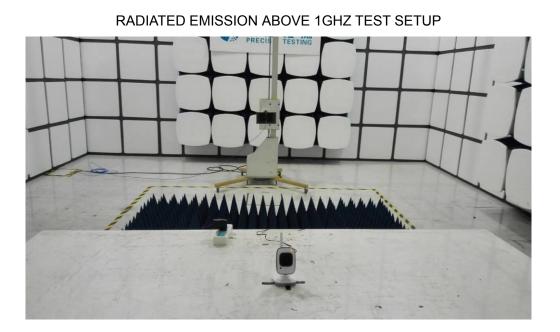
# APPENDIX I: PHOTOGRAPHS OF THE TEST SETUP

CONDUCTED EMISSION



RADIATED EMISSION BELOW 1GHZ TEST SETUP







## **APPENDIX II: PHOTOGRAPHS OF THE EUT**

ALL VIEW OF EUT

TOP VIEW OF EUT





BOTTOM VIEW OF EUT

FRONT VIEW OF EUT





BACK VIEW OF EUT

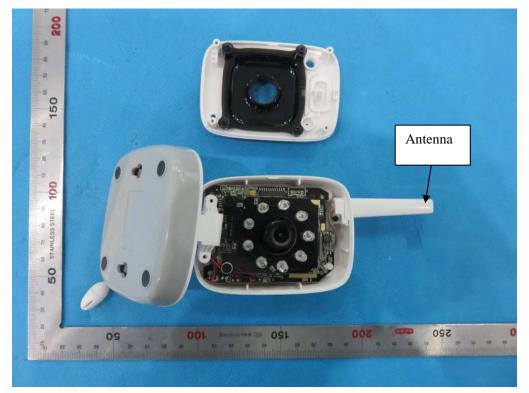
LEFT VIEW OF EUT





**RIGHT VIEW OF EUT** 

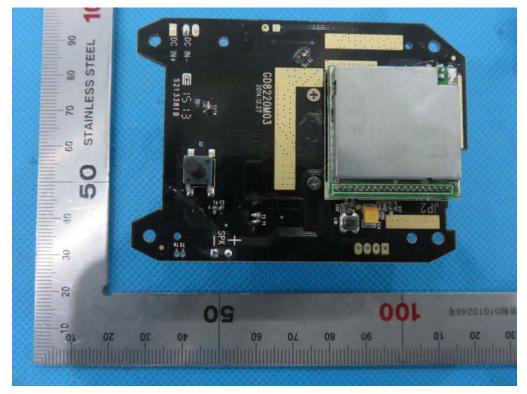
OPEN VIEW OF EUT





**INTERNAL VIEW OF EUT-1** 

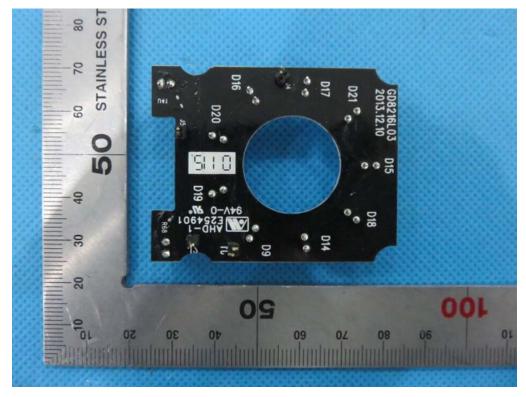
**INTERNAL VIEW OF EUT-2** 





**INTERNAL VIEW OF EUT-3** 

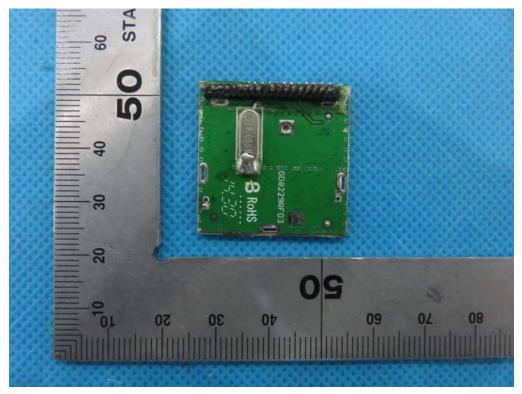
**INTERNAL VIEW OF EUT-4** 



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#### **INTERNAL VIEW OF EUT-5**

**INTERNAL VIEW OF EUT-6** 



⁻⁻⁻⁻END OF REPORT----