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FCC Test Report

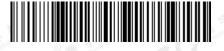
Report No.: AGC02171180101FE04

FCC ID :	2AOYF-MONSTERLINK
APPLICATION PURPOSE :	Original Equipment
PRODUCT DESIGNATION :	Bluetooth Speaker
BRAND NAME :	MONSTER LINK
MODEL NAME :	MONSTER LINK 9.01
CLIENT CLIENT	Radar lighting (guangdong) co. LTD.
DATE OF ISSUE :	Mar. 22, 2018
STANDARD(S) :	FCC Part 15 Subpart C Section 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		Mar. 22, 2018	Valid	Initial release

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1. VERIFICATION OF CONFORMITY

Annelissent	De des liebties (avenueles a) en LTD
Applicant	Radar lighting (guangdong) co. LTD.
Address	Room 2108, no. 2, north tower, no. 101, dongyuan south road, east district, zhongshan city.
Manufacturer	Shenzhen Accolade Sound Technology Co., Ltd
Address	ROOM 3011, Lao Bing Business Building, Yin Tian Area, Xixiang, Baoan, Shenzhen, China
Product Designation	Bluetooth Speaker
Brand Name	MONSTER LINK
Test Model	MONSTER LINK 9.01
Date of test	Feb. 06, 2018 to Feb. 27, 2018
Deviation	None
Condition of Test Sample	Normal State State Contraction
Report Template	AGCRT-US-BR/RF (2013-03-01)

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.247. The test results of this report relate only to the tested sample identified in this report.

ested By

Zhang Harry

Feb. 27, 2018 Henry Zhang(Zhang Zhuorui)

Reviewed By

very e

Forrest Lei(Lei Yonggang) Mar. 22, 2018

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is "Portable Speaker" designed as a "Communication Device". It is designed by way of utilizing the FHSS technology to achieve the system operation.

Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	7.53dBm(Max)
Bluetooth Version	V4.2
Modulation	GFSK, π /4-DQPSK, 8DPSK for BR/EDR
Number of channels	79
Hardware Version	V1.1
Software Version	V1.0
Antenna Designation	PCB Antenna
Antenna Gain	OdBi
Power Supply (By adapter 1)	Model:LY036SPS-180200W2 INPUT: 100-240V 50-60Hz 1A OUTPUT:18V 2A
Power Supply (By adapter 2)	Model:B136-180200-E2 INPUT: AC100-240V 50-60Hz 1.2A OUTPUT:18V 2A

Note: The EUT is equipped with two adapters, both have been assessed and only the worst test data of adapter 1 recorded in this report.

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	
	0	2402MHz	
Har and the second	Fundament 1	2403MHz	
C And Contraction			
NOC NO	38	2440 MHz	
2402~2480MHz	39	2441 MHz	
Francisco Contraction	40	2442 MHz	
GC "		The Barrens I The Barrens	
	77	2479 MHz	
the mark the market and the second se	78	2480 MHz	

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2.3. RECEIVER INPUT BANDWIDTH

The input bandwidth of the receiver is 1.3MHZ, In every connection one Bluetooth 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 multislot 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 79 hopping sequence in data mode: 40,21,44,23,42,53,46,55,48,33,52,35,50,65,54,67 56,37,60,39,58,69,62,71,64,25,68,27,66,57,70,59 72,29,76,31,74,61,78,63,01,41,05,43,03,73,07,75 09,45,13,47,11,77,15,00,64,49,66,53,68,02,70,06 01, 51, 03, 55, 05, 04

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 Bluetooth unit. The UAP(upper address part) are the 24MSB's of the 48BD_ADDRESS

The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For synchronization with other units only offset are 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 bit 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 te Sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions the Bluetooth 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 Bluetooth 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. TEST METHOD

All measurements contained in this report were conducted with ANSI C63.10-2013.

2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

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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 = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, $Uc = \pm 3.9 dB$
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB

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4. DESCRIPTION OF TEST MODES

105		
	NO.	TEST MODE DESCRIPTION
Hanna and	1	Low channel GFSK
o ^{00al}	2	Middle channel GFSK
GG	3	High channel GFSK
	4	Low channel π /4-DQPSK
Find Globa	5	Middle channel π /4-DQPSK
Alles	6	High channel π /4-DQPSK
	7	Low channel 8DPSK
® k	8	Middle channel 8DPSK
C.C	9	High channel 8DPSK
	10	BT Link
Noto:		

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. The EUT used fully-charged battery when tested.

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SC	Software Setting	nce nce
BlueTest3		
-Test Mode	-Test Arguments	
PAUSE RADIO STATUS	LO Freq. (MHz) 2441	ľ
RADIO STATUS FULL TXSTART TXDATA1	Power (Ext, Int) 50 50 Execute	100
TXDATA2 TXDATA3 TXDATA4	Cold Reset	
RXSTART1 RXSTART2 RXDATA1		
JIMONINI	Warm Reset	
-Test Results	Browse for file Display : C. Standard C. Dit From	ľ
J Save to Tile	Browse for file Display : • Standard C Bit Error	
. \logfile. txt		
Opening USB SPI (6003)	84).	
Transport active. BC7 (Hardware ID 0x33)	2) firmware version 8648.	
	04, parameters: 0004, 0989, 3232, 0000, 0000, 0000.	
Radio Test TXDATA1 su Sent Command Varid 500	ссезяти. 04, parameters: 0004, 0989, 3232, 0000, 0000, 0000.	- 3
Radio Test TXDATA1 su	ccessful	201
	04, parameters: 0004, 0989, 3232, 0000, 0000, 0000.	
Radio Test TXDATA1 su		
	AC THE ALL AND A CONTRACT OF THE ALL AND A C	
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5. SYSTEM TEST CONFIGURATION 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)

EUT

Configure 2: (Control continuous TX)

						×
C	EUT		Control box	Dal Con	PC	lobal
		3				

5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Mfr/Brand	Model/Type No.	Remark
Com Janco	Bluetooth Speaker	MONSTER LINK	MONSTER LINK 9.01	EUT
2	PC	APPLE	A1465	A.E.
3	Control box	CSR	USB_SPI_TOOLS	A.E
4	Adapter 1	N/A	LY036SPS-180200W2	Accessory
5	Adapter 2	N/A	B136-180200-E2	Accessory
6	USB Cable	N/A	1m unshielded	A.E
7	IPOD	APPLE	A1367	A.E
8 。	AUX in Cable	N/A	1m Unshielded	Accessory

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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
§15.247 d §15.209	Radiated Emission	Compliant
§15.247 d	Band Edges	Compliant
§15.247 a(1)(iii)	Number of hopping frequency	Compliant
§15.247 a(1)(iii)	Time of Occupancy	Compliant
§15.247 a(1)	Frequency Separation	Compliant
§15.207	Line conduction Emission	Compliant

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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
NVLAP Lab Code	600153-0
Designation Number	CN5028
Test Firm Registration Number	682566
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

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7. TEST EQUIPMENT LIST

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Jun.20, 2017	Jun.19, 2018
LISN	R&S	ESH2-Z5	100086	Aug.21, 2017	Aug.20, 2018

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun.20, 2017	Jun.19, 2018
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec.08, 2017	Dec.07, 2018
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep.20, 2017	Sep.19, 2018
preamplifier	ChengYi	EMC184045SE	980508	Sep.15, 2017	Sep.14, 2018
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May.18, 2017	May.17, 2019
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun.20, 2017	Jun.19, 2018
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep.28, 2017	Sep.27, 2018
Loop Antenna	A.H.Systems,Inc	SAS-562B		Mar. 01, 2016	Feb. 28, 2018

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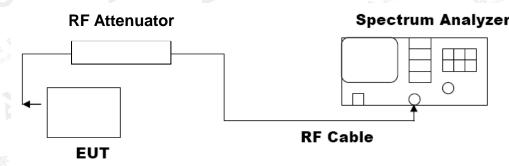
8. PEAK OUTPUT POWER

8.1. 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 21dBm.

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

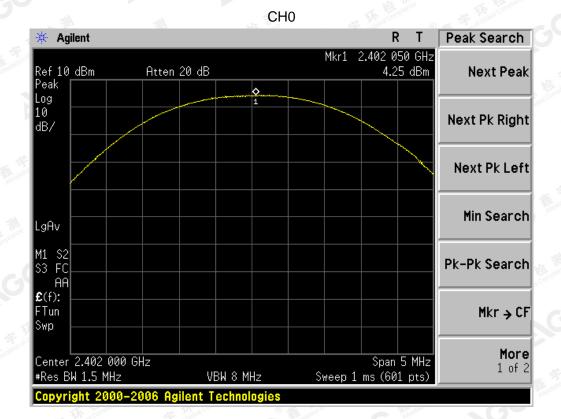


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8.3. LIMITS AND MEASUREMENT RESULT

		R MEASUREMENT RESULT MOUDULATION	
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	4.25	21	Pass
2.441	6.68	21	Pass
2.480	7.53	21	Pass

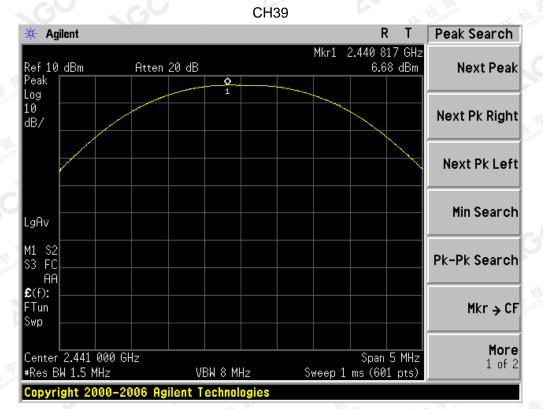


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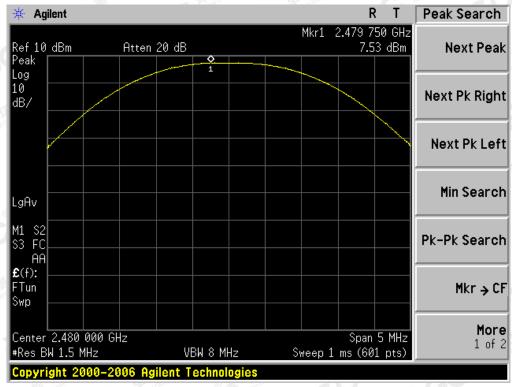




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CH78

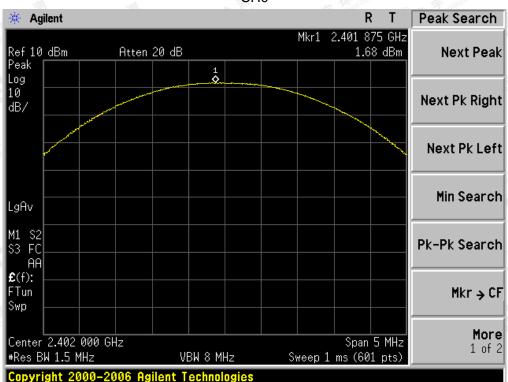


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		PEAK OUTPUT POWE	R MEASUREMENT RESULT	
		FOR 🛛 /4-DG	PSK MODULATION	
	Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
GC	2.402	1.68	21	Pass
	2.441	4.99	21	Pass
The store	2.480	5.94	21	Pass



CH0

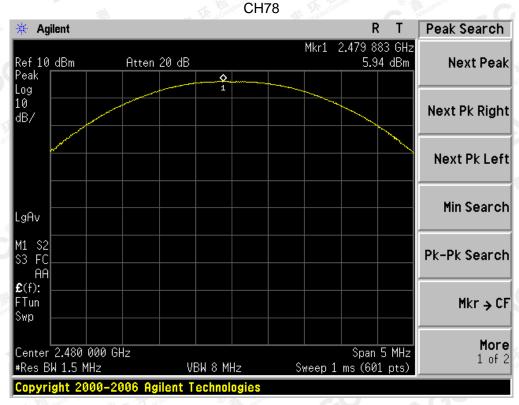
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CH39 Peak Search Agilent R Т ÷#+ Mkr1 2.440 867 GHz 4.99 dBm Ref 10 dBm Atten 20 dB Next Peak Peak ٥ Log 10 Next Pk Right dB/ Next Pk Left Min Search LgAv M1 S2 S3 FC Pk-Pk Search AA £(f): FTun Mkr → CF Swp More Center 2.441 000 GHz Span 5 MHz 1 of 2 #Res BW 1.5 MHz Sweep 1 ms (601 pts) VBW 8 MHz

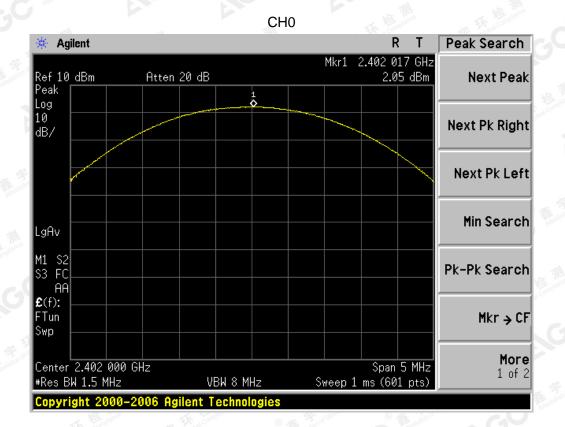


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	PEAK OUTPUT POWER I	MEASUREMENT RESULT	
	FOR 8-DPSK	MODULATION	
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	2.05	21	Pass
2.441	5.25	21 Start Start	Pass
2.480	6.19	21	Pass



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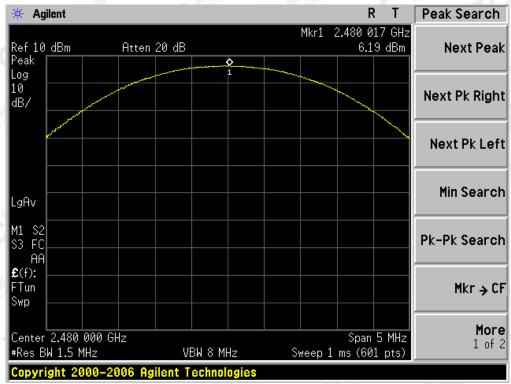


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Peak Search Agilent R Т ÷#+ Mkr1 2.440 900 GHz 5.25 dBm Ref 10 dBm Atten 20 dB Next Peak Peak ٥ Log 10 Next Pk Right dB/ Next Pk Left Min Search LgAv M1 S2 S3 FC Pk-Pk Search AA £(f): FTun Mkr → CF Swp More Center 2.441 000 GHz Span 5 MHz 1 of 2 #Res BW 1.5 MHz Sweep 1 ms (601 pts) VBW 8 MHz

CH39

CH78



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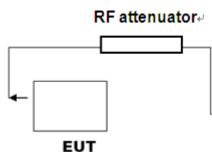
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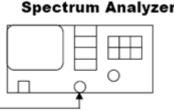
9. BANDWIDTH

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

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





RF Cable

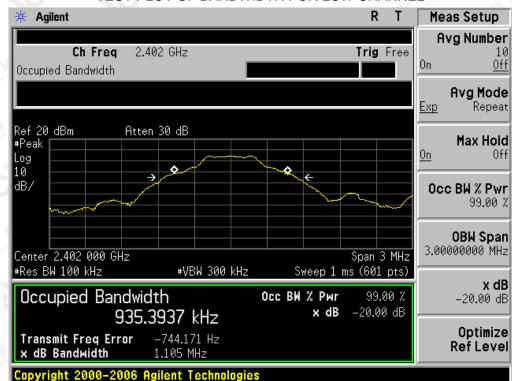
Note: The EUT has been used temporary antenna connector for testing.

9.3. LIMITS AND MEASUREMENT RESULTS

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT					
	Measurement Result				
Applicable Limits		Test Data (MHz)	Decult		
		99%OBW (MHz)	-20dB BW(MHz)	Result	
() The state of th	Low Channel	0.935	1.105	PASS	
N/A	Middle Channel	0.919	1.098	PASS	
	High Channel	0.933	1.082	PASS	

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TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

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Agilent R Meas Setup ₩. Avg Number Ch Freq 2.441 GHz Trig Free 10 Off 0n Occupied Bandwidth Avg Mode Repeat <u>Exp</u> Ref 20 dBm Atten 30 dB Max Hold #Peak 0n 0f Log ٥ ٥ 10 dB/ Occ BW % Pwr 99.00 % **OBW Span** 3.00000000 MHz Center 2.441 000 GHz Span 3 MHz #Res BW 100 kHz Sweep 1 ms (601 pts) #VBW 300 kHz x dB Occupied Bandwidth Occ BW % Pwr 99.00 % -20.00 dB -20.00 dB x dB 918.6214 kHz Optimize Transmit Freq Error -6.588 kHz **Ref Level** x dB Bandwidth 1.098 MHz

TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

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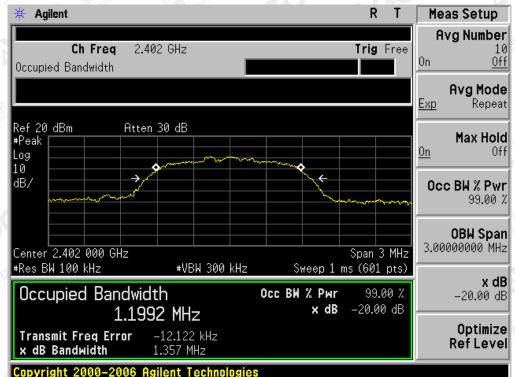
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

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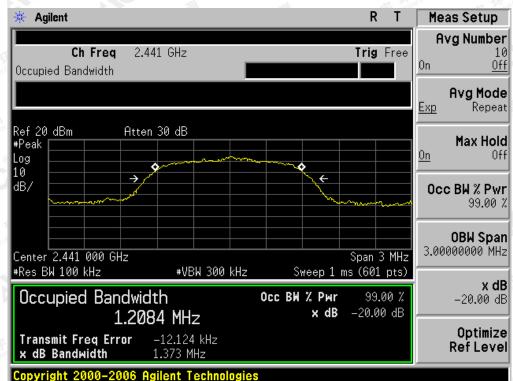
	line	and the second sec	
BLUETOOTH 2	MBPS LIMITS AN	D MEASUREMENT RE	ESULT
	Ме	asurement Result	
	Test Data (MHz)		Deculé
	99%OBW (MHz)	-20dB BW(MHz)	Result
Low Channel	1.199	1.357	PASS
Middle Channel	1.208	1.373	PASS
High Channel	1.208	1.357	PASS
	Low Channel Middle Channel	Me Test Data (MHz) 99%OBW (MHz) Low Channel 1.199 Middle Channel 1.208	Low Channel 1.199 1.357 Middle Channel 1.208 1.373

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



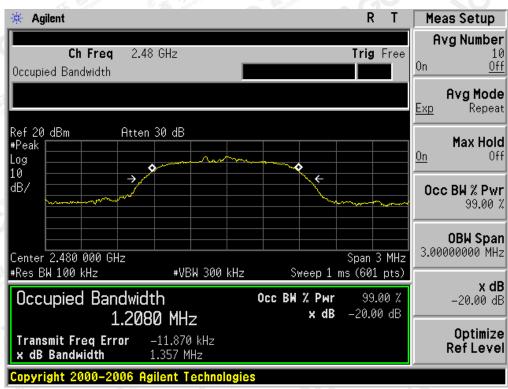
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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

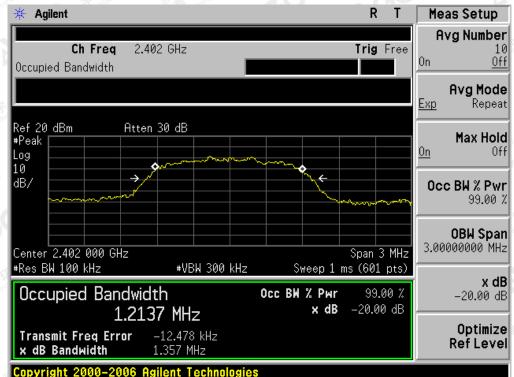
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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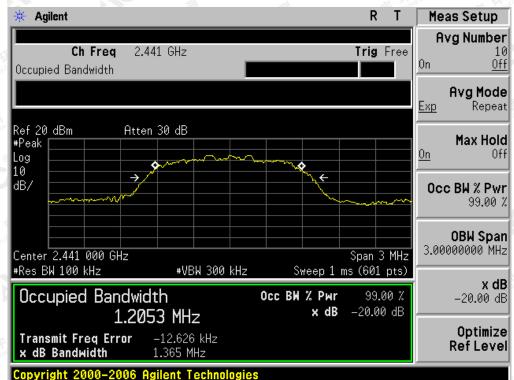
	Illine	- X - X - X	
BLUETOOTH :	3MBPS LIMITS AN	D MEASUREMENT R	ESULT
	Ме	asurement Result	
	Test Data (MHz)		Decult
	99%OBW (MHz)	-20dB BW(MHz)	Result
Low Channel	1.214	1.357	PASS
Middle Channel	1.205	1.365	PASS
High Channel	1.212	1.363	PASS
	Low Channel Middle Channel	Me Test Data (MHz) 99%OBW (MHz) Low Channel 1.214 Middle Channel 1.205	Low Channel 1.214 1.357 Middle Channel 1.205 1.365

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



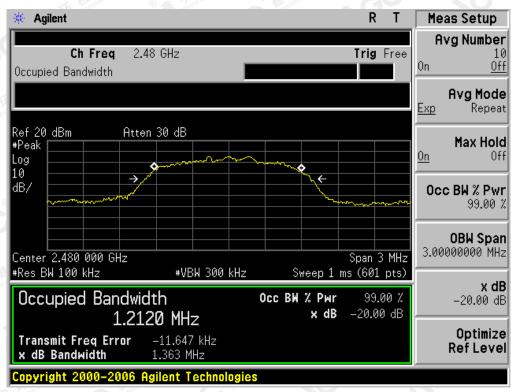
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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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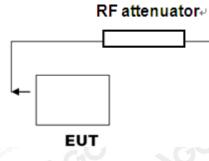
Report No.: AGC02171180101FE04 Page 30 of 80

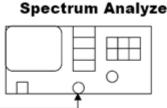
10. CONDUCTED SPURIOUS EMISSION

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 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 = 300kHz; Sweep = auto; Detector function = peak.
- 4. Set SPA Trace 1 Max hold, then View.

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





RF Cable

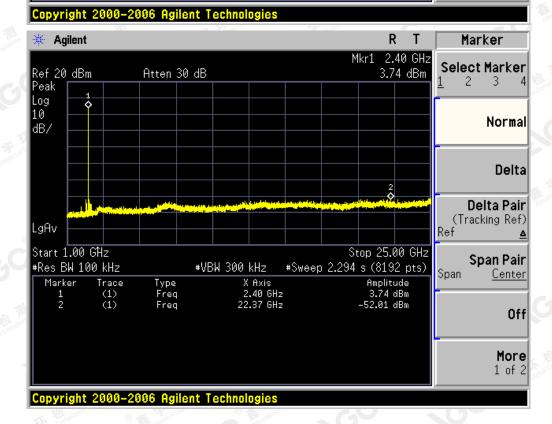
10.3. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT					
	Measurement Result				
Applicable Limits	Test Data	Result			
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS			
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	· The stand of the	GC Frank			
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	At least -20dBc than the limit Specified on the TOP Channel	PASS			
in§15.209(a))	CC C C	A			

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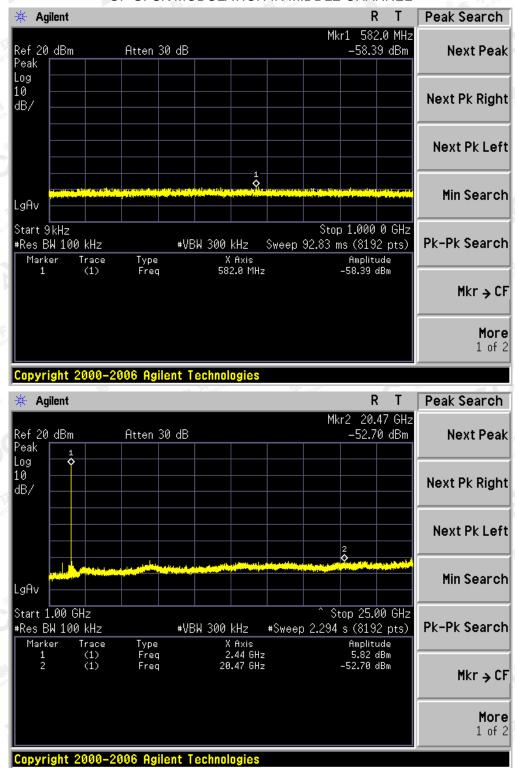
R ⋇ Agilent Т Peak Search Mkr1 104.3 MHz -58.24 dBm Ref 20 dBm Atten 30 dB Next Peak Peak Log 10 dB/ Next Pk Right Next Pk Left **Min Search** LgAv Start 9kHz Stop 1.000 0 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 92.83 ms (8192 pts) Pk-Pk Search X Axis 104.3 MHz Trace (1) Type Freq Marker Amplitude -58.24 dBm Mkr → CF More 1 of 2

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



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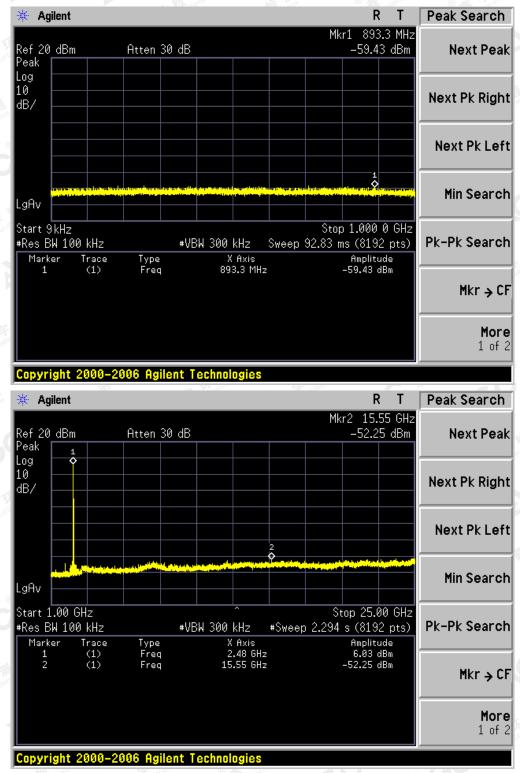


TEST PLOT OF OUT OF BAND EMISSIONS OF GFSK MODULATION IN MIDDLE CHANNEL

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

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11. RADIATED EMISSION

11.1. TEST LIMIT

Frequency	Distance	Field Strengths Limit		
(MHz)	(MHz) Meters		dB(µV)/m	
0.009 ~ 0.490	300	2400/F(kHz)	ane or the deviation of	
0.490 ~ 1.705	30	24000/F(kHz)		
1.705 ~ 30	30	30		
30 ~ 88	3	100	40.0	
88 ~ 216	3	150	43.5	
216 ~ 960	1 1 3 Th 1	200	46.0	
960 ~ 1000	3 Same Color	500	54.0	
Above 1000	3	Other:74.0 dB(µV)/m (Peak)	54.0 dB(µV)/m (Average)	

Remark: (1) Emission level dB μ V = 20 log Emission level μ V/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

11.2. MEASUREMENT PROCEDURE

- The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)
- 2. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Above 1GHz)
- 3. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
- 4. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- 5. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Below 1GHz)
- 6. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak&AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)

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	Spectrum Parameter	Setting	
Comt.	Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP	
-C 30 AUGSE	Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP	
	Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP	
# The Com	The state of the s	1GHz~26.5GHz	
Start ~Stop Frequency	Start ~Stop Frequency	RBW 1MHz/ VBW 3MHz for Peak,	
	G ···	RBW 1MHz/ VBW 10Hz for Average	

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

		He what a contract of the second
	Receiver Parameter	Setting
C Allestation	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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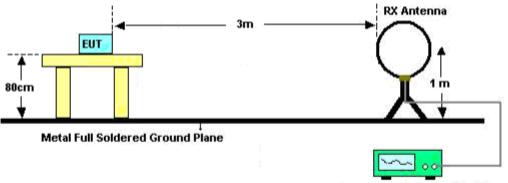




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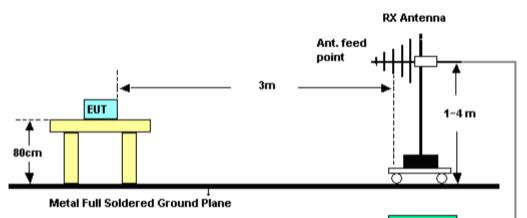
11.3. TEST SETUP

RADIATED EMISSION TEST SETUP BELOW 30MHz



Spectrum Analyzer / Receiver

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



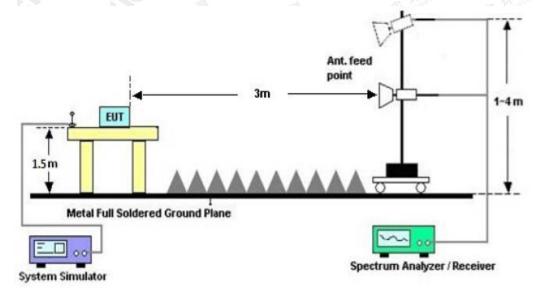
Spectrum Analyzer / Receiver

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RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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11.4. TEST RESULT

(Worst Modulation: GFSK)

RADIATED EMISSION BELOW 30MHz

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





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RADIATED EMISSION BELOW 1GHz

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL

INT ST	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment	
		-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	1	cm	degree		8
	1		39.7000	18.94	11.51	30.45	40.00	-9.55	peak				
	2		99.5167	22.29	10.00	32.29	43.50	-11.21	peak				
	3		173.8831	24.86	10.84	35.70	43.50	-7.80	peak				
	4	*	304.8333	22.53	15.73	38.26	46.00	-7.74	peak				3
	5		521.4666	8.80	21.71	30.51	46.00	-15.49	peak				
	6		899.7667	5.69	28.60	34.29	46.00	-11.71	peak				

RESULT: PASS



66.9 dBuV/m Limit: Margin: 27 8 ·13 30.000 127.00 224.00 321.00 418.00 515.00 612.00 709.00 806.00 1000.00 MHz

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL

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	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
WC S		-	MHz	dBu∀	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
	1		39.7000	18.97	8.51	27.48	40.00	-12.52	peak			
	2		173.8833	19.44	14.46	33.90	43.50	-9.60	peak			
	3	*	228.8500	24.59	11.83	36.42	46.00	-9.58	peak			
	4		296.7500	19.97	15.31	35.28	46.00	-10.72	peak			
	5		403.4500	15.20	19.17	34.37	46.00	-11.63	peak			
	6		594.2166	8.63	22.70	31.33	46.00	-14.67	peak			

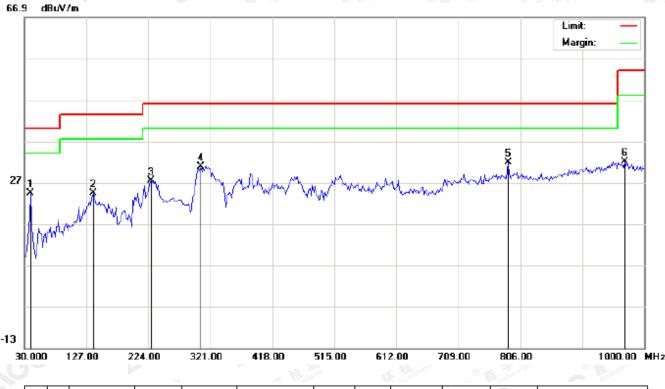
RESULT: PASS

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

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



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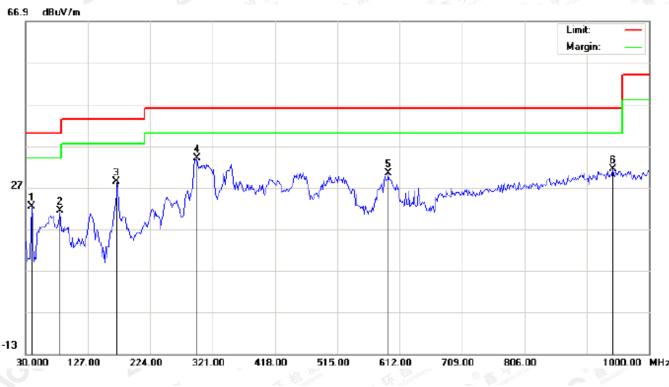


RADIATED EMISSION TEST- (30MHz-1GHz)-MIDDLE CHANNEL-HORIZONTAL

1	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		-	MHz	dBu∀	dB/m	dBuV/m	dBu∀/m	dB		cm	degree	
	1		39.7000	12.97	11.51	24.48	40.00	-15.52	peak			
Γ	2		138.3167	10.09	14.41	24.50	43.50	-19.00	peak			
Γ	3		228.8500	18.27	9.06	27.33	46.00	-18.67	peak			
Γ	4		306.4500	15.05	15.84	30.89	46.00	-15.11	peak			
Γ	5	*	786.6000	4.59	27.14	31.73	46.00	-14.27	peak			
	6		969.2833	2.26	29.81	32.07	54.00	-21.93	peak			

RESULT: PASS





RADIATED EMISSION TEST- (30MHz-1GHz)- MIDDLE CHANNEL -VERTICAL

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		39.7000	13.96	8.51	22.47	40.00	-17.53	peak			
2		83.3500	18.34	3.00	21.34	40.00	-18.66	peak			
3		172.2666	13.85	14.56	28.41	43.50	-15.09	peak			
4	*	296.7500	18.67	15.31	33.98	46.00	-12.02	peak			
5		594.2166	7.69	22.70	30.39	46.00	-15.61	peak			
6		943.4167	1.65	29.82	31.47	46.00	-14.53	peak			

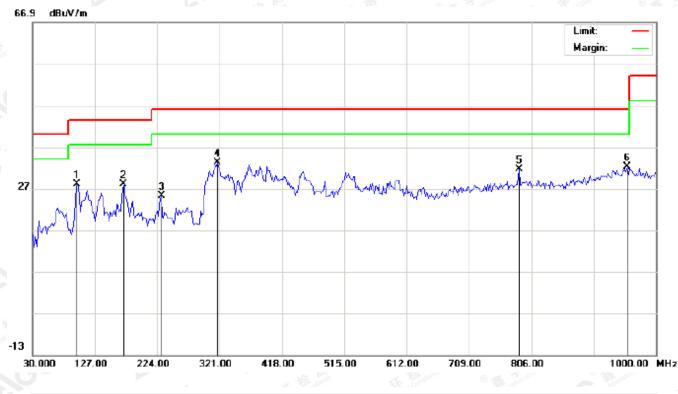
RESULT: PASS

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

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



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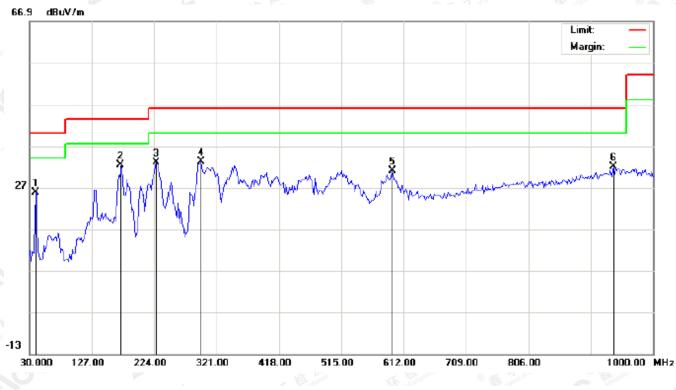
RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL-HORIZONTAL

	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
8		-	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
ſ	1		99.5167	18.07	10.00	28.07	43.50	-15.43	peak			
	2		172.2666	17.22	10.78	28.00	43.50	-15.50	peak			
	3		230.4667	16.40	8.89	25.29	46.00	-20.71	peak			
	4	*	317.7667	16.61	16.59	33.20	46.00	-12.80	peak			
ſ	5		786.6000	4.42	27.14	31.56	46.00	-14.44	peak			
1	6		954.7333	2.19	29.95	32.14	46.00	-13.86	peak			

RESULT: PASS



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RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL -VERTICAL

1	٩o.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		-	MHz	dBu∨	dB/m	dBuV/m	dBu∀/m	dB		cm	degree	
	1		39.7000	17.39	8.51	25.90	40.00	-14.10	peak			
	2	*	172.2666	17.85	14.56	32.41	43.50	-11.09	peak			
	3		227.2333	21.25	11.67	32.92	46.00	-13.08	peak			
	4		296.7500	17.89	15.31	33.20	46.00	-12.80	peak			
Γ	5		594.2166	8.23	22.70	30.93	46.00	-15.07	peak			
	6		938.5667	2.29	29.68	31.97	46.00	-14.03	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.

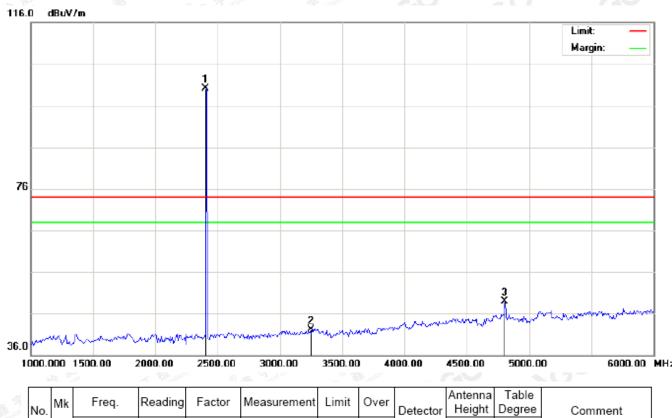




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RADIATED EMISSION ABOVE 1GHz

RADIATED EMISSION ABOVE 1GHz (1-10th Harmonics)-LOW CHANNEL-HORIZONTAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2402.000	89.83	10.32	100.15	74.00	26.15	peak			
2		3251.000	30.21	11.88	42.09	74.00	-31.91	peak			
3		4804.000	41.21	7.69	48.90	74.00	-25.10	peak			

RESULT: PASS



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116.0 dBuV/m Limit: Margin: 1 X 76 36.0 1000.000 1500.00 2000.00 2500.00 3000.00 3500.00 4000.00 4500.00 5000.00 6000.00 MHz

RADIATED EMISSION ABOVE 1GHz (1-10th Harmonics)-LOW CHANNEL –VERTICAL

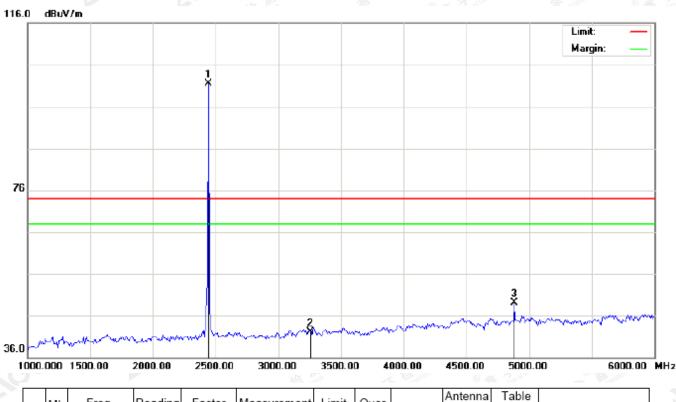
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	•	MHz	dBu∀	dB/m	dBuV/m	dBu∀/m	dB		cm	degree	
1	*	2402.000	89.44	10.32	99.76	74.00	25.76	peak			
2		3251.000	30.06	11.88	41.94	74.00	-32.06	peak			
3		4804.000	41.05	7.69	48.74	74.00	-25.26	peak			

RESULT: PASS



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RADIATED EMISSION ABOVE 1GHz (1-10th Harmonics)-MIDDLE CHANNEL-HORIZONTAL

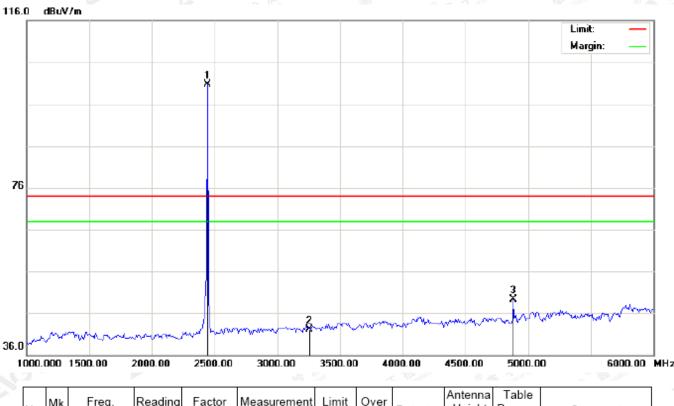


	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
×		•	MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
ati	1	*	2441.000	91.23	10.36	101.59	74.00	27.59	peak			
	2		3256.000	30.23	11.88	42.11	74.00	-31.89	peak			
	3		4882.000	41.16	7.89	49.05	74.00	-24.95	peak			

RESULT: PASS



RADIATED EMISSION ABOVE 1GHz (1-10th Harmonics) - MIDDLE CHANNEL –VERTICAL

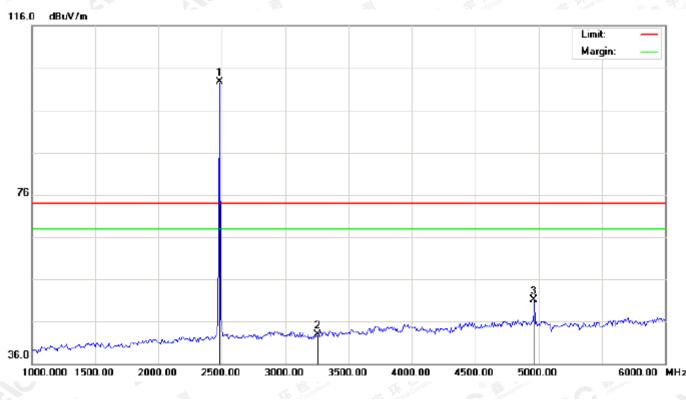


No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∨	dB/m	dBuV/m	dBu∨/m	dB		cm	degree	
1	*	2441.000	90.39	10.36	100.75	74.00	26.75	peak			
2		3259.000	30.14	11.88	42.02	74.00	-31.98	peak			
3		4882.000	41.39	7.89	49.28	74.00	-24.72	peak			

RESULT: PASS



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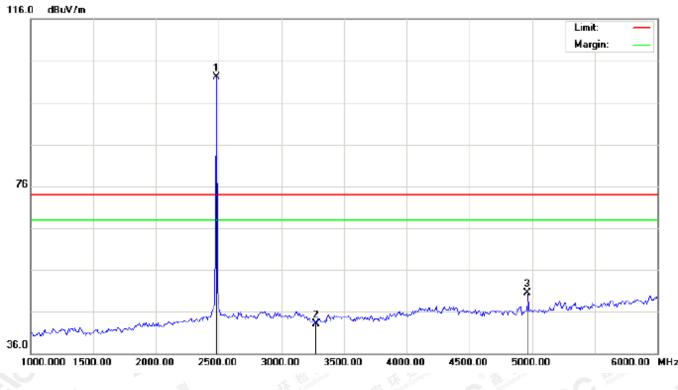
RADIATED EMISSION ABOVE 1GHz (1-10th Harmonics)-HIGH CHANNEL-HORIZONTAL

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	-	MHz	dBu∀	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1	*	2480.000	92.20	10.41	102.61	74.00	28.61	peak			
2		3259.000	31.11	11.88	42.99	74.00	-31.01	peak			
3		4960.000	43.10	8.09	51.19	74.00	-22.81	peak			

RESULT: PASS



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RADIATED EMISSION ABOVE 1GHz (1-10th Harmonics)-HIGH CHANNEL -VERTICAL

	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
1		-	MHz	dBu∀	dB/m	dBu∀/m	dBuV/m	dB		cm	degree	
ſ	1	*	2480.000	91.69	10.41	102.10	74.00	28.10	peak			
	2		3276.000	31.28	11.90	43.18	74.00	-30.82	peak			
	3		4960.000	42.41	8.09	50.50	74.00	-23.50	peak			

RESULT: PASS

Note: 6~25GHz at least have 20dB margin. 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.



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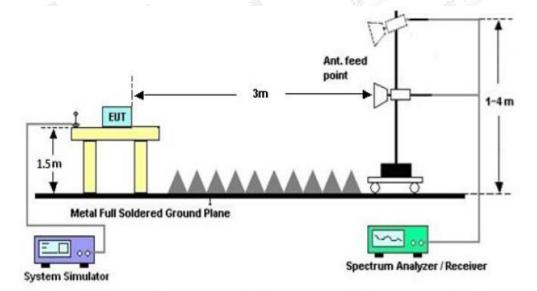
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12. BAND EDGE EMISSION

12.1. MEASUREMENT PROCEDURE

- 1. Set the EUT Work on the top, the bottom operation frequency individually.
- 2. Set SPA Start or Stop Frequency=Operation Frequency, For unrestricted band: RBW=100kHz, VBW=300kHz For restricted band: RBW=1MHz, VBW=3*RBW
 - Center frequency =Operation frequency
- 3. The band edges was measured and recorded.

12.2. TEST SET-UP





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12.3. TEST RESULT

(Worst Modulation: GFSK)

TEST PLOT OF BAND EDGE FOR LOW CHANNEL (1Mbps)-Horizontal



74.00

74.00

74.00

-31.19

23.21

26.04

peak

peak

peak

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2390.000

2400.000

2402.000

2

3

Δ

32.50

40.47

89.72

10.31

10.32

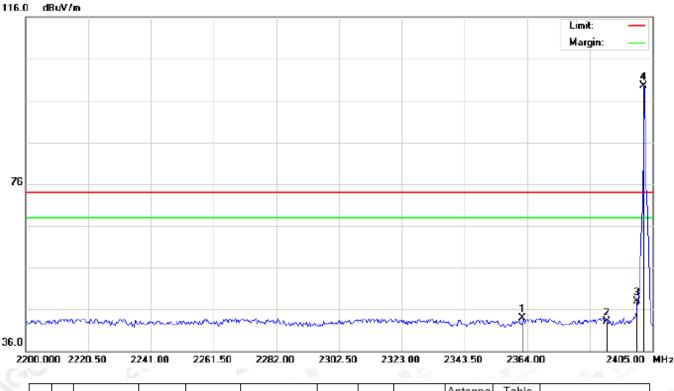
10.32

42.81

50.79

100.04



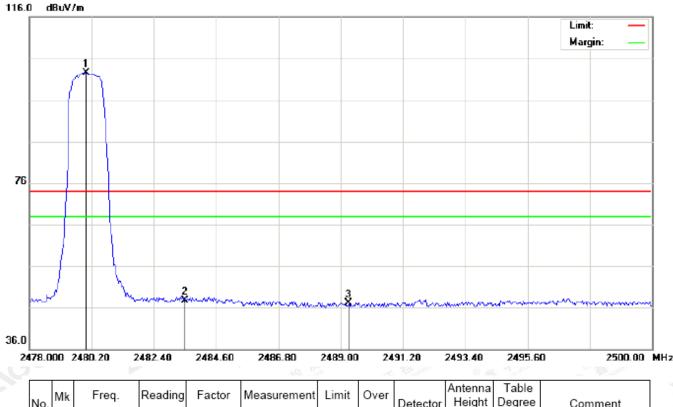


TEST PLOT OF BAND EDGE FOR LOW CHANNEL (1Mbps)-Vertical

No.	No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height		Comment
		-	MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
	1		2362.633	33.54	10.28	43.82	74.00	-30.18	peak			
	2		2390.000	32.71	10.31	43.02	74.00	-30.98	peak			
	3		2400.000	37.56	10.32	47.88	74.00	-26.12	peak			
	4	*	2402.000	89.09	10.32	99.41	74.00	25.41	peak			



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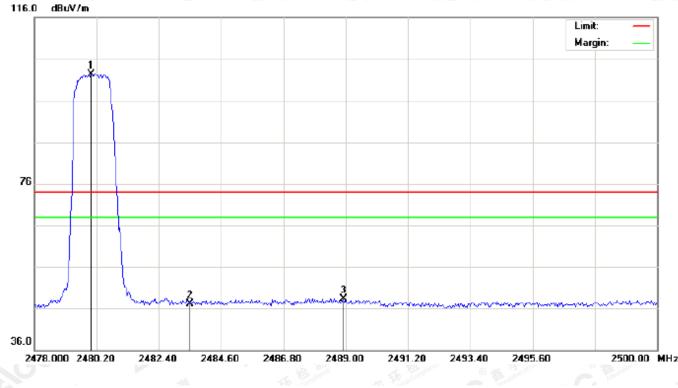
TEST PLOT OF BAND EDGE FOR HIGH CHANNEL (1Mbps)-Horizontal

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
	•	MHz	dBu∨	dB/m	dBu\//m	dBuV/m	dB		cm	degree	
1	*	2480.000	92.05	10.41	102.46	74.00	28.46	peak			
2		2483.500	37.19	10.41	47.60	74.00	-26.40	peak			
3		2489.293	36.72	10.42	47.14	74.00	-26.86	peak			





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TEST PLOT OF BAND EDGE FOR HIGH CHANNEL (1Mbps)-Vertical

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna etector Height		Comment
	•	MHz	dBu∀	dB/m	dBu∀/m	dBu∀/m	dB]	cm	degree	
1	*	2480.000	91.82	10.41	102.23	74.00	28.23	peak			
2		2483.500	36.76	10.41	47.17	74.00	-26.83	peak			
3		2488.927	37.84	10.42	48.26	74.00	-25.74	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. Hopping off and Hopping on have been tested and only worst case recorded



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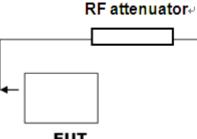
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13. NUMBER OF HOPPING FREQUENCY

13.1. 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>=3RBW.

13.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)



EUT

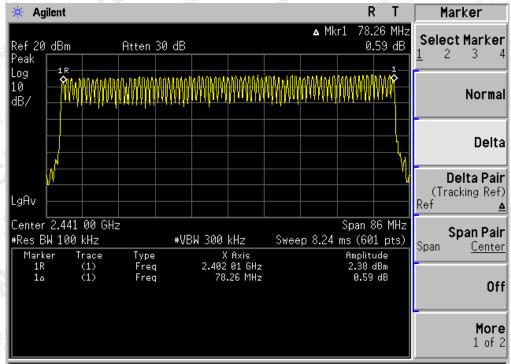
Spectrum Analyzer

RF Cable

13.3. LIMITS AND MEASUREMENT RESULT

TOTAL NO. OF	LIMIT (NO. OF CH)	MEASUREMENT (NO. OF CH)	RESULT
HOPPING CHANNEL	>=15	79	PASS





TEST PLOT FOR NO. OF TOTAL CHANNELS

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14. TIME OF OCCUPANCY (DWELL TIME)

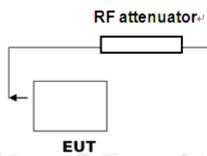
14.1. MEASUREMENT PROCEDURE

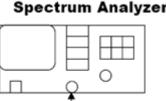
1. Place the EUT on the table and set it in transmitting mode

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

14.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)





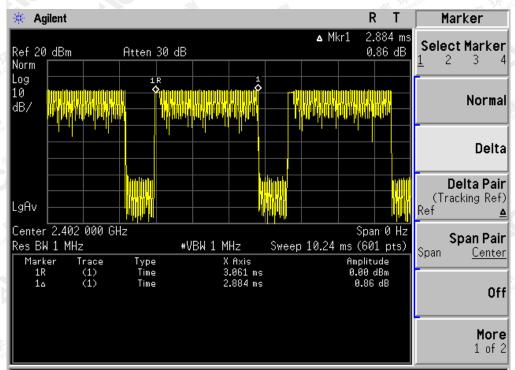
RF Cable

14.3. LIMITS AND MEASUREMENT RESULT

10	The Worst Case (3Mbps)										
Channel	Time of Pulse for DH5 (ms)	Period Time (s)	Sweep Time (ms)	Limit (ms)							
Low	2.884	31.6	307.63	400							
Middle	2.901	31.6	309.44	400							
High	2.901	31.6	307.63	400							

Low Channel Time 2.884*(1600/6)/79*31.6=307.63ms Middle Channel Time 2.901*(1600/6)/79*31.6=309.44ms **High Channel Time** 2.901*(1600/6)/79*31.6=309.44ms

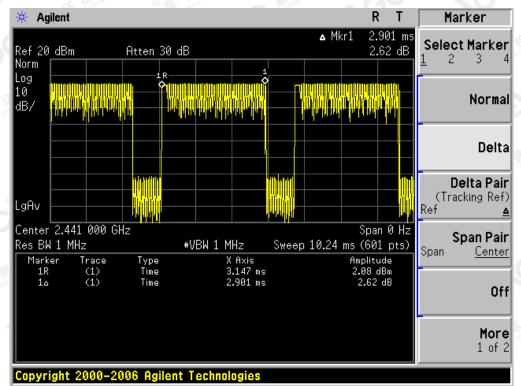


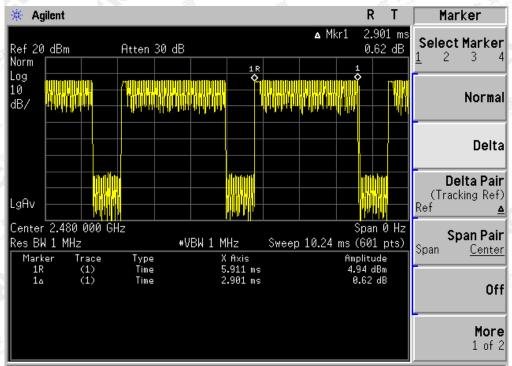


TEST PLOT OF LOW CHANNEL

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TEST PLOT OF MIDDLE CHANNEL





TEST PLOT OF HIGH CHANNEL

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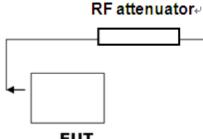
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15. FREQUENCY SEPARATION

15.1. MEASUREMENT PROCEDURE

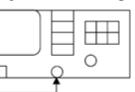
- 1. Place the EUT on the table and set it in transmitting mode
- 2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer
- Set Span = wide enough to capture the peaks of two adjacent channels Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span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

15.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)



EUT

Spectrum Analyzer

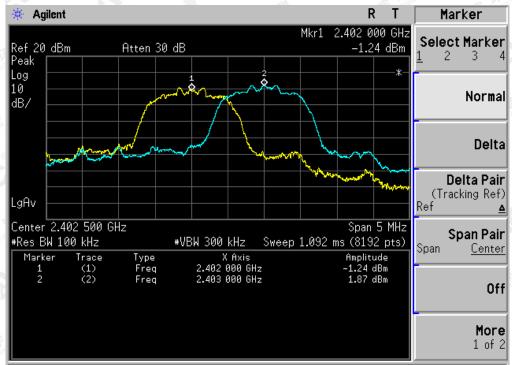


15.3. LIMITS AND MEASUREMENT RESULT

CHANNEL	CHANNEL SEPARATION	LIMIT	RESULT		
	KHz	KHz			
CH00-CH01	1000	>=25 KHz or 2/3 20 dB BW	Pass		

RF Cable





TEST PLOT FOR FREQUENCY SEPARATION (3Mbps)

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16. LINE CONDUCTED EMISSION TEST

16.1. LIMITS OF LINE CONDUCTED EMISSION TEST

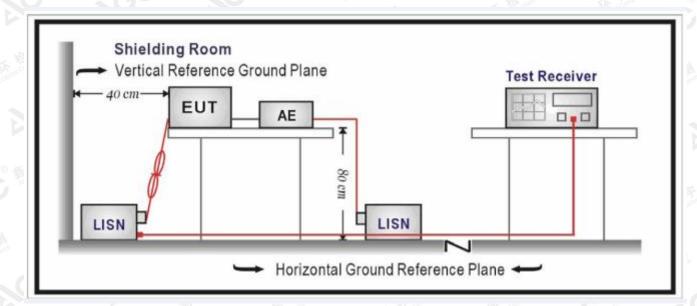
Frominant	Maximum RF Line Voltage						
Frequency	Q.P.(dBuV)	Average(dBuV)					
150kHz~500kHz	66-56	56-46					
500kHz~5MHz	56	46					
5MHz~30MHz	60	50					

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.

16.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





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16.3. 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 charging voltage by adapter which received 120V/60Hzpower by 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.

16.4. 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.



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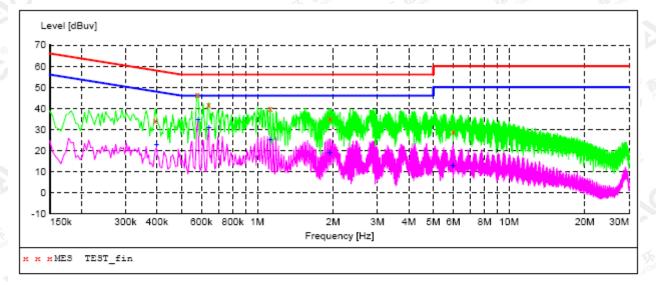
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16.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

By adapter1 (worst case)

FOR BR/EDR

Line Conducted Emission Test Line 1-L



MEASUREMENT RESULT: "TEST fin"

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.394000 0.578000 0.642000 1.126000 1.942000 5.990000	34.10 46.40 41.90 39.60 35.00 28.80	11.4 11.4 11.4 11.3 11.3 11.3	58 56 56 56 56 60	23.9 9.6 14.1 16.4 21.0 31.2	QP QP	L1 L1 L1 L1 L1 L1	FLO FLO FLO FLO FLO FLO

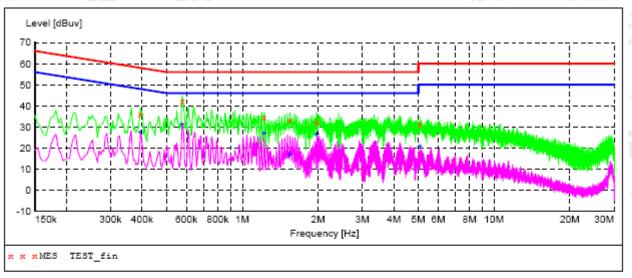
MEASUREMENT RESULT: "TEST fin2"

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.398000 0.582000 0.642000 1.126000 1.942000 5.990000	22.70 34.80 30.90 25.10 19.10 12.90	11.4 11.4 11.4 11.3 11.3 11.3	48 46 46 46 46 50	25.2 11.2 15.1 20.9 26.9 37.1	AV AV AV AV AV AV	L1 L1 L1 L1 L1 L1	FLO FLO FLO FLO FLO





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Line Conducted Emission Test Line 2-N

MEASUREMENT RESULT: "TEST fin"

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.394000 0.578000 1.222000 1.546000 1.974000 5.066000	35.80 42.00 34.80 33.00 32.20 31.10	11.4 11.4 11.3 11.3 11.3 11.3	58 56 56 56 60	22.2 14.0 21.2 23.0 23.8 28.9	QP	N N N N N	FLO FLO FLO FLO FLO FLO

MEASUREMENT RESULT: "TEST fin2"

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.394000 0.578000 1.222000 1.546000 1.978000 5.070000	27.60 31.10 26.80 16.80 26.40 20.70	11.4 11.4 11.3 11.3 11.3 11.4	48 46 46 46 50	19.2 29.2	AV AV	N N N N N	FLO FLO FLO FLO FLO FLO

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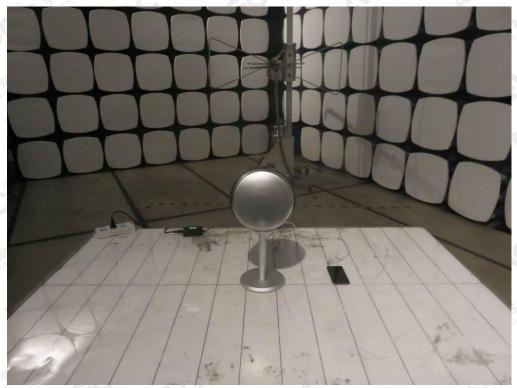


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APPENDIX A: PHOTOGRAPHS OF TEST SETUP FCC LINE CONDUCTED EMISSION TEST SETUP



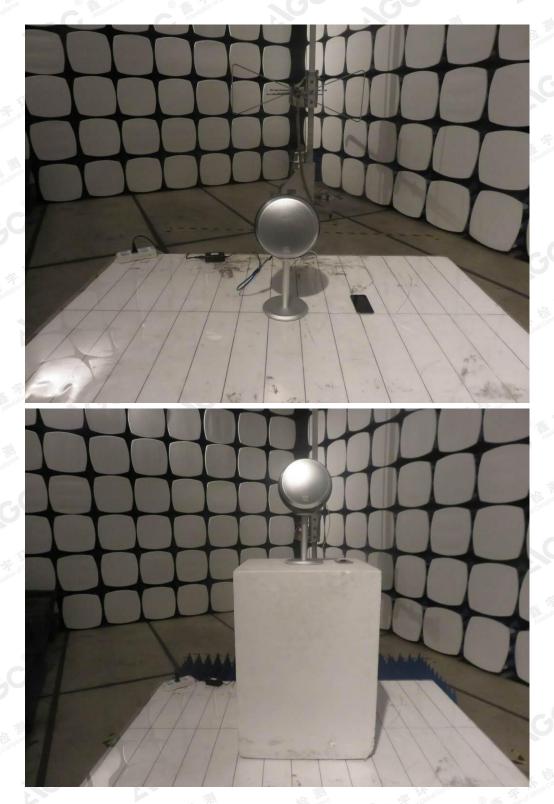
FCC RADIATED EMISSION TEST SETUP







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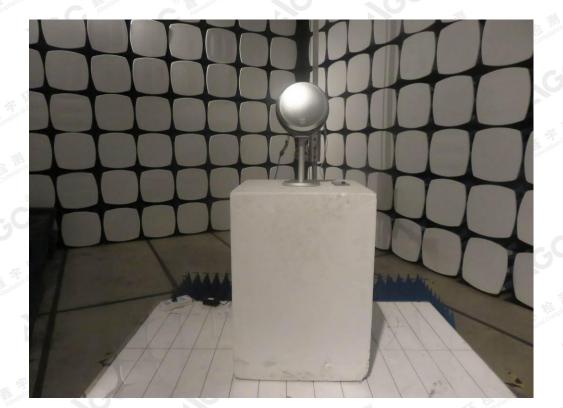


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APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



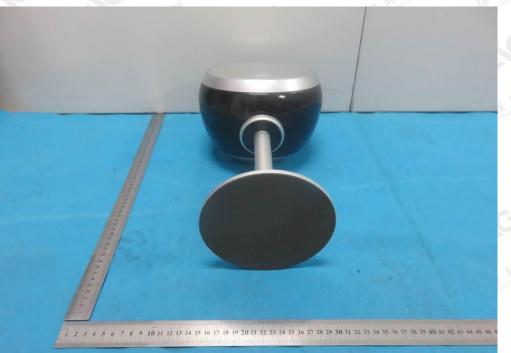
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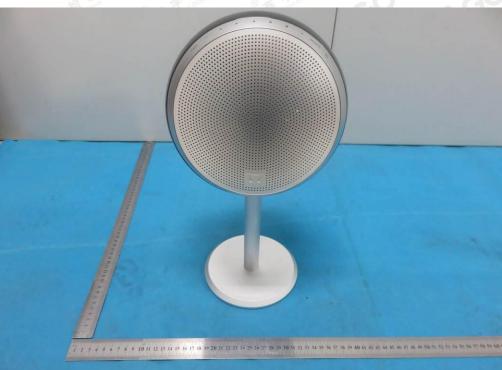


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BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



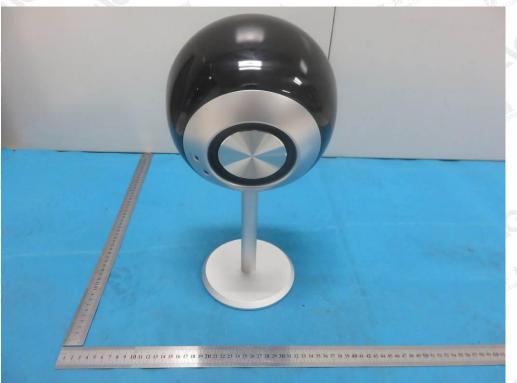
The results showing this jest report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.agc.gett.com.

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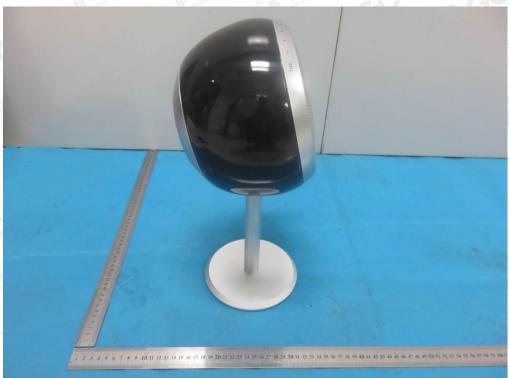


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BACK VIEW OF EUT



LEFT VIEW OF EUT



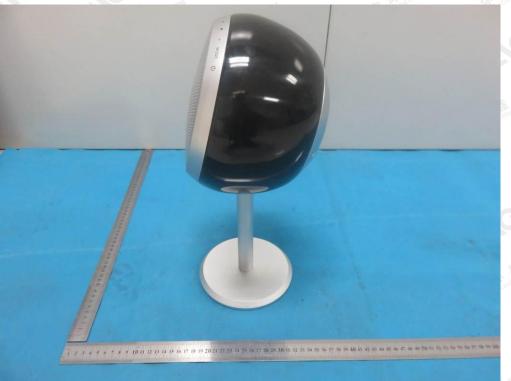
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VIEW OF EUT (Port)



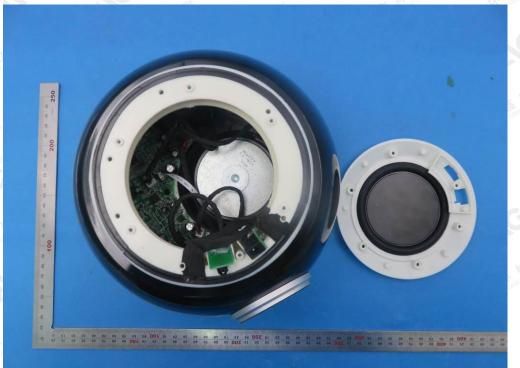
The results showed this test report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at bits //www.accment.com

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OPEN VIEW OF EUT-1



OPEN VIEW OF EUT-2



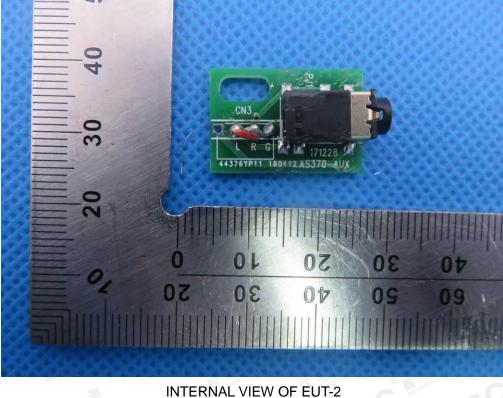
The results showing this jest report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by AGC, this document cannot be reproduced except in full with our prior written permission. The more details and the authenticity of the report will be confirmed at http://www.agc-cett.com.

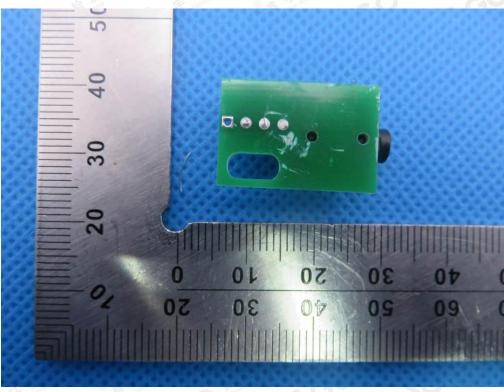
Attestation of Global Compliance



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INTERNAL VIEW OF EUT-1



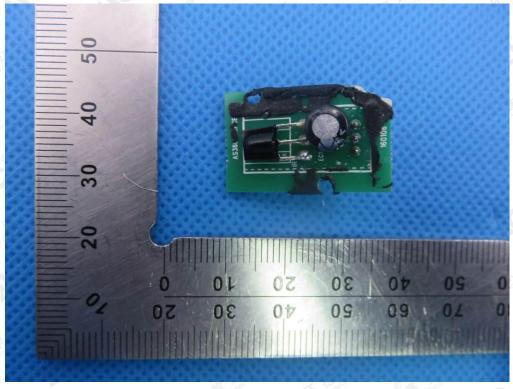




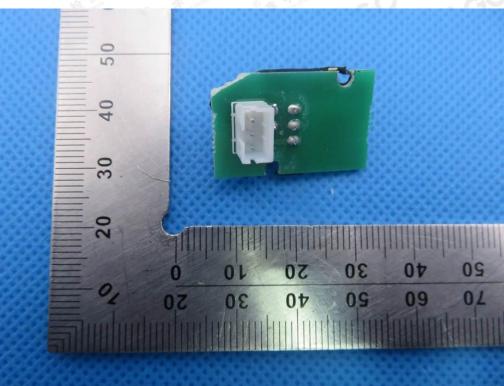


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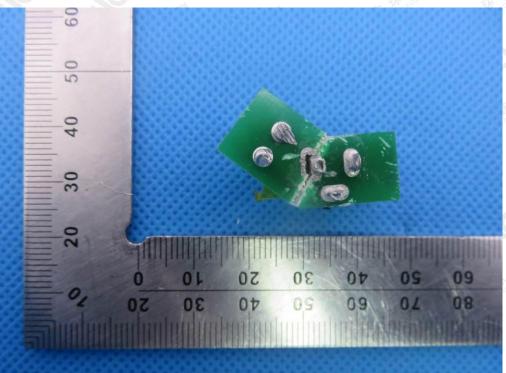


INTERNAL VIEW OF EUT-4



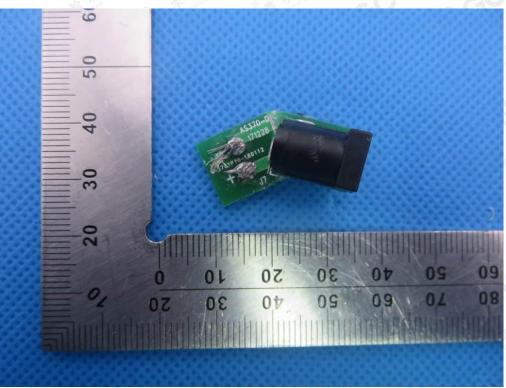


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INTERNAL VIEW OF EUT-5

INTERNAL VIEW OF EUT-6



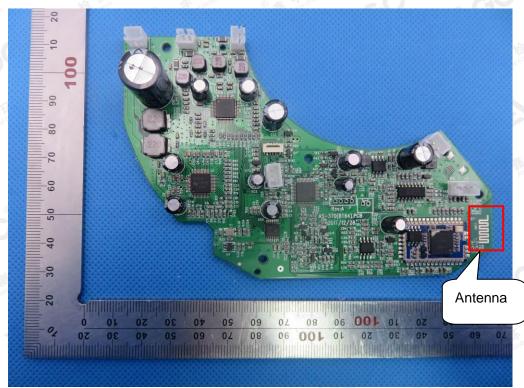


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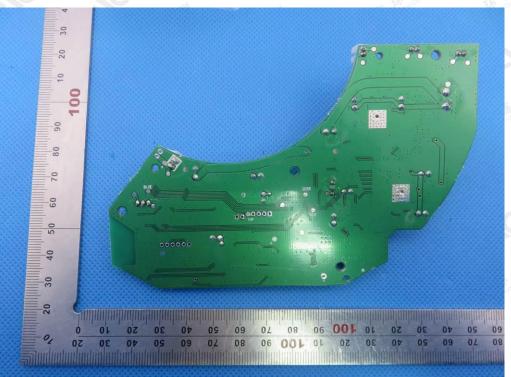
INTERNAL VIEW OF EUT-7

INTERNAL VIEW OF EUT-8





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INTERNAL VIEW OF EUT-9

INTERNAL VIEW OF EUT-10







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VIEW OF ADAPTER 1



VIEW OF ADAPTER 2



----END OF REPORT----

