TEST REPORT

FCC ID: 2ACGI-TX900AT

Applicant : Audio Resource Group, Inc

Address : 405 Main Ave W, Suite 4G, West Fargo, ND58078, USA

Equipment Under Test (EUT):

Name	:	900MHz large area transmitter
Model	:	ARG-900AT,RAW-900AT,ARG-900AT-X, RAW-900AT-X, ARG-900AT-XX, RAW-900AT-XX, ARG-900AT-XXX,RAW-900AT-XXX, ARG-CV-900AT, RAW-CV-900AT

In Accordance with: FCC PART 15, SUBPART C : 2014 (Section 15.249)

Report No	:	T1850076 01
Date of Test	:	January 30, 2015 to February 26, 2015
Date of Issue	:	March 13, 2015
Test Result	:	PASS

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

(Mark Zhu)
General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Alpha Product Testing Laboratory Or test done by Alpha Product Testing Laboratory Approvals in connection with, distribution or use of the product described in this report must be approved by Alpha Product Testing Laboratory Approvals in writing.

TABLE OF CONTENT

1 General Information

1.1 Description of Device (EUT)

EUT	:	900MHz large area transmitter
Model No.	:	ARG-900AT,RAW-900AT,ARG-900AT-X,RAW-900AT-X, ARG-900AT-XX, RAW-900AT-XX, ARG-900AT-XXX,RAW-900AT-XXX,ARG-CV-900AT, RAW-CV-900AT
DIFF		Only different in Model No, the other the same. The test model: ARG-900AT
Trade mark	:	ARG
Power supply	:	DC 9V from adapter with 120V/60Hz
Adapter		JY41-090-050-UD, Input: 120VAC, 60Hz, 110mA; Output: 9VDC,500mA
Radio Technology	:	FM
Operation frequency	:	902.05-927.95MHz
Channel No.		519 Channels
Modulation	:	FM
Antenna Type	:	Reversed Dipole Antenna, max gain 3dBi.
Applicant	:	Audio Resource Group, Inc
Address	:	405 Main Ave W, Suite 4G, West Fargo, ND58078, USA
Manufacturer	:	Shenzhen Alors Technology Co., Ltd.
Address	:	South of 4th Floor, BLDG23, LianChuang Sci&Tech Park, Bulan Road, LongGang District, Shenzhen

1.2 Description of Test Facility

Alpha Product Testing Laboratory
Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road, Bao'an, Shenzhen, China

August 11, 2014 File on Federal Communication Commission

Registration Number: 203110

July 18, 2014 Certificated by IC

Registration Number: 12135A

2 EMC Equipment List

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	2015.01.19	1Year
Spectrum analyzer	Agilent	E4407B	MY49510055	2015.01.19	1Year
Receiver	R&S	ESCI	101165	2015.01.19	1Year
Bilog Antenna	SCHWARZBECK	VULB 9168	9168-438	2015.01.21	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	2015.01.21	2Year
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170 D(1432)	2015.01.21	2Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2015.01.19	1Year
Cable	Resenberger	SUCOFLEX 104	MY6562/4	2015.01.19	1Year
Cable	Resenberger	SUCOFLEX 104	309972/4	2015.01.19	1Year
Cable	Resenberger	SUCOFLEX 104	329112/4	2015.01.19	1Year
Pre-amplifier	SCHWARZBECK	BBV9743	9743-019	2015.01.19	1Year
Pre-amplifier	Quietek	AP-180C	CHM-0602012	2015.01.19	1Year
Test Receiver	Rohde & Schwarz	ESCI	101165	2015.01.19	1 Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2015.01.19	1 Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	101043	2015.01.19	1 Year

3 Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The test procedure used was ANSI Standard C63.4-2009 using a 50 u H LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25℃ with a humidity of 58%.

RADIATION INTERFERENCE: The test procedure used was ANSI Standard C63.4-2009 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25℃ with a humidity of 58%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.
Example:
Freq (MHz) METER READING + ACF + CABLE = FS
33.20 dBuV + 10.36 dB + 0.9 dB= 44.46 dBuV/m @ 3m
ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2009 10.1.7 with the EUT 40 cm from the vertical ground wall.

4 Summary of Measurement

4.1 Summary of test result

Test Item	Test Requirement	Stanadard Paragraph	Result
Spurious Emission	FCC PART 15: 2014	Section 15.249&15.209	Compliance
Conduction Emission	FCC PART 15: 2014	Section 15.207	Compliance
Occupied bandwidth	FCC PART 15: 2014	Section 15.249	Compliance
Band edge Requirement	FCC PART 15: 2014	Section 15.249	Compliance
Antenna Requirement	FCC PART 15: 2014	Section 15.203	Compliance

Note: The EUT has been tested as an independent unit. And Continual Transmitting in maximum power.

EUT is configured to transmit continuously (Duty cycle) is 100%， average correction factor = 20 log 1=0

4.2 Test connection

1, EUT was placed on a turn table, which is 0.8 meter high above ground.

TX Mode:

EUT

4.3 Assistant equipment used for test

Description	:	N/A
Manufacturer	:	N/A
Model No.	:	N/A

4.4 Test mode

The EUT was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

The EUT has two antennas, and only of them can transmit signal at a time, and they have the same RF characteristic, including antenna gain, insertion loss, etc. Both antenna has been evaluated, and only worst data listed in this report.

Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	902.05	---	----	----	----
2	902.10	258	914.95	516	927.8
3	902.15	259	915.0	517	927.85
4	902.20	260	915.05	518	927.9
5	902.25	261	915.10	519	927.95

4.5 Test Conditions

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

4.6 Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10-9	
Uncertainty for DC and low frequency voltages	0.06%	

5 Spurious Emission

5.1 Radiation Emission

5.1.1 Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

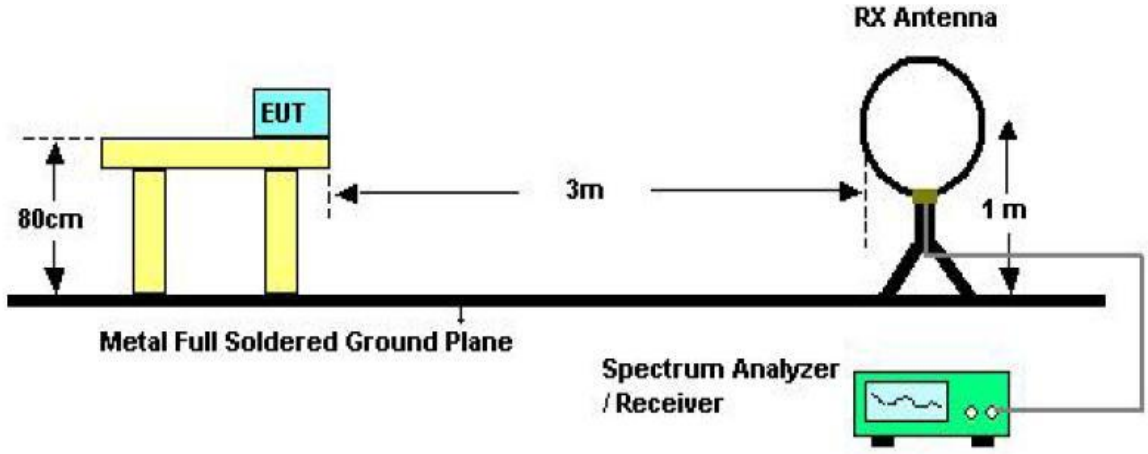
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

NOTE:

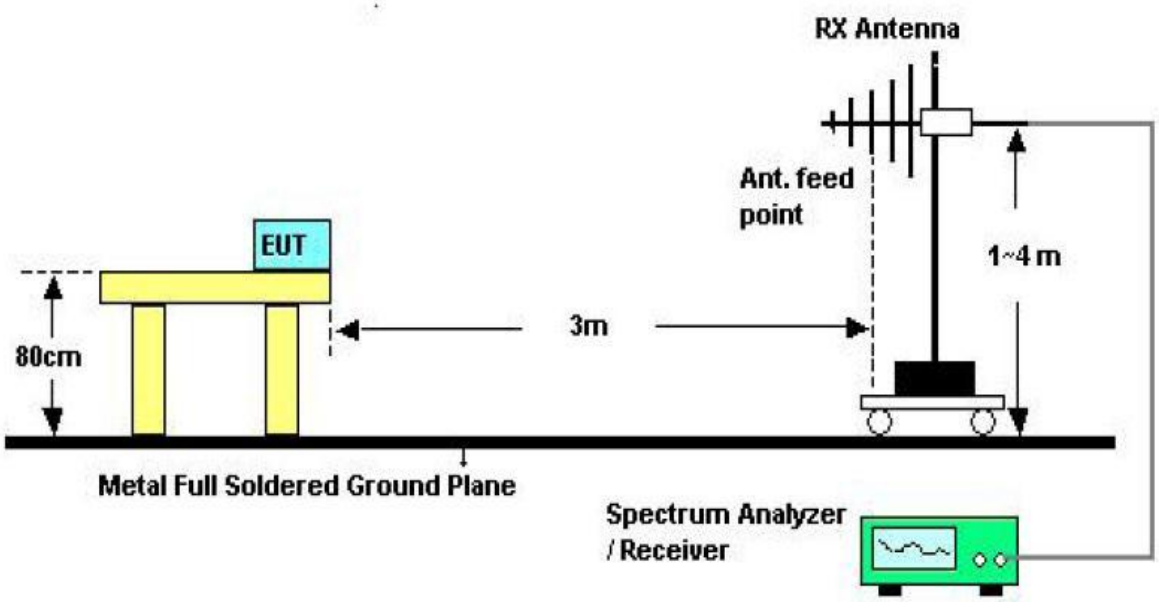
a) The tighter limit applies at the band edges.
b) Emission Level(dB uV/m)=20log Emission Level(Uv/m)

5.1.2 Test Setup

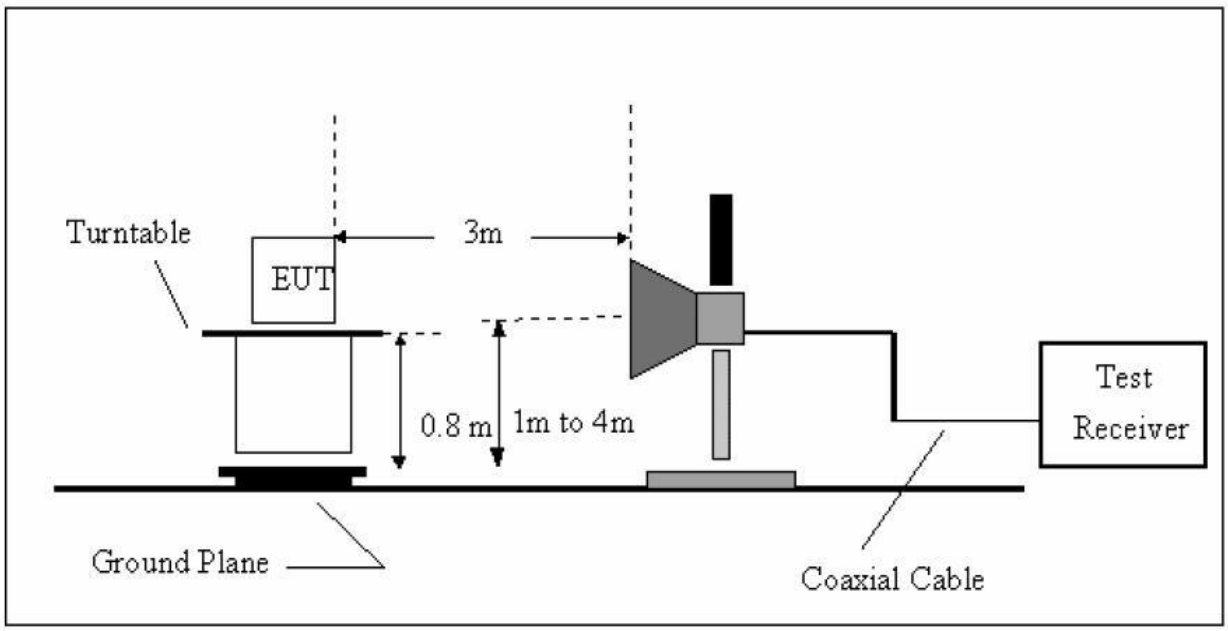
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

5.1.3 Test Procedure

a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground, The table was rotated 360 degrees to determine the position of the highest radiation
b) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured
d) If Peak value comply with QP limit Below 1GHz.The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
e) For the actual test configuration, please see the test setup photo.
f) Test for all x, y, z axes is performed and only the worst case of x axes was recorded in the test report.

5.1.4 Test Equipment Setting For emission test Result.

9KHz~150KHz	RBW 200Hz	VBW1KHz
150KHz~30MHz	RBW 9KHz	VBW 30KHz
30MHZ~1GHz	RBW 120KHz	VBW 300KHz
Above 1GHz	RBW 1MHz	VBW 3MHz

5.1.5 Test Condition

Continual Transmitting in maximum power.

5.1.6 Test Result

We have scanned the 10th harmonic from 9KHz to the EUT.
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Remark: Only show the test data of the worst Channel in this report.

From 30MHz to 1000MHz: Conclusion: PASS

Below 1GHz

30—1000MHz Radiated emissison Test result									
EUT: 900MHz large area transmitter M/N: ARG-900AT									
Power: DC 9.0V From adapter									
Test date: 2015-02-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: Tx Mode									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	47.99	49.42	13.59	0.09	31.83	31.27	40	8.73	PK
2	71.83	56.48	10.51	0.19	31.69	35.49	40	4.51	PK
3	83.82	57.24	9.35	0.23	31.53	35.29	40	4.71	PK
4	185.79	49.25	10.95	0.57	31.00	29.77	43.5	13.73	PK
5	/	/							
	/	/							
Antenna Polarity: Horizontal									
1	47.99	51.54	13.59	0.09	31.83	33.39	40	6.61	PK
2	71.83	48.59	10.51	0.19	31.69	27.6	40	12.4	PK
3	83.82	49.26	9.35	0.23	31.53	27.31	40	12.69	PK
4	185.79	49.36	10.95	0.57	31	29.88	43.5	13.62	PK
5									
	/	/							

Note:
1,Measuring frequency from 30MHz to 1GHz
2,Spectrum Set for PK measure: RBW=100KHz, VBW=300KHz, Sweep time=Auto, Detector: PK
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Radiated Emissions Result of Inside band and out of band

1GHz—25GHz Radiated emissison Test result									
EUT: 900MHz large area transmitter M/N: ARG-900AT									
Power: DC 9.0V From adapter									
Test date: 2015-02-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: 902.05MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	902.05	99.86	21.67	1.41	29.2	93.74	94	0.26	PK
2	1804.10	50.29	25.03	3.45	34.85	43.92	74	30.08	PK
3	1804.10	41.32	25.03	3.45	34.85	34.95	54	19.05	AV
4	2706.15	41.85	27.88	4.19	34.98	38.94	74	35.06	PK
5	2706.15	31.96	27.88	4.19	34.98	29.05	54	24.95	AV
	/	/							
	/	/							
Antenna Polarity: Horizontal									
1	902.05	95.75	21.67	1.41	29.2	89.63	94	4.37	PK
2	1804.10	51.76	25.03	3.45	34.85	45.39	74	28.61	PK
3	1804.10	41.29	25.03	3.45	34.85	34.92	54	19.08	AV
4	2706.15	43.68	27.88	4.19	34.98	40.77	74	33.23	PK
5	2706.15	30.77	27.88	4.19	34.98	27.86	54	26.14	AV
	/	/							

Note:
1,Measuring frequency from 1GHz to 25GHz
2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2,Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

EUT: 900MHz large area transmitter M/N: ARG-900AT

Power: DC 9.0V From adapter

Test date: 2015-02-06 Test site: 3m Chamber Tested by: Store Chu

Test mode: 915MHz

Antenna polarity: Vertical

No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	915	95.17	21.84	1.78	29.23	89.56	94	4.44	PK
2	1830	53.17	25.1	3.47	34.86	46.88	74	27.12	PK
3	1830	40.66	25.1	3.47	34.86	34.37	54	19.63	AV
4	2745	43.28	27.9	4.25	34.98	40.45	74	33.55	PK
5	2745	31.97	27.9	4.25	34.98	29.14	54	24.86	AV
	/	/							

Antenna Polarity: Horizontal

1	915	93.39	21.84	1.78	29.23	87.78	94	6.22	PK
2	1830	51.75	25.1	3.47	34.86	45.46	74	28.54	PK
3	1830	38.63	25.1	3.47	34.86	32.34	54	21.66	AV
4	2745	45.18	27.9	4.25	34.98	42.35	74	31.65	PK
5	2745	39.99	27.9	4.25	34.98	37.16	54	16.84	AV
	/	/							

Note:

1, Measuring frequency from 1GHz to 25GHz

2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK

2,Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS

3, Result = Read level + Antenna factor + cable loss-Amp factor

4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

EUT: 900MHz large area transmitter M/N: ARG-900AT

Power: DC 9.0V From adapter

Test date: 2015-02-06 Test site: 3m Chamber Tested by: Store Chu

Test mode: 927.95MHz

Antenna polarity: Vertical

No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss (dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	927.95	94.55	22	1.29	29.28	88.56	94	5.44	PK
2	1855.9	50.77	25.16	3.48	34.86	44.55	74	29.45	PK
3	1855.9	40.29	25.16	3.48	34.86	34.07	54	19.93	AV
4	2783.85	41.76	27.9	4.25	34.98	38.93	74	35.07	PK
5	2783.85	31.85	27.9	4.25	34.98	29.02	54	24.98	AV
	/	/							

Antenna Polarity: Horizontal

1	927.95	93.81	22	1.29	29.28	87.82	94	6.18	PK
2	1855.9	49.76	25.16	3.48	34.86	43.54	74	30.46	PK
3	1855.9	40.23	25.16	3.48	34.86	34.01	54	19.99	AV
4	2783.85	41.42	27.9	4.25	34.98	38.59	74	35.41	PK
5	2783.85	35.77	27.9	4.25	34.98	32.94	54	21.06	AV
	/	/							

Note:

1, Measuring frequency from 1GHz to 25GHz

2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK

2,Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS

3, Result = Read level + Antenna factor + cable loss-Amp factor

4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

6 POWER LINE CONDUCTED EMISSION

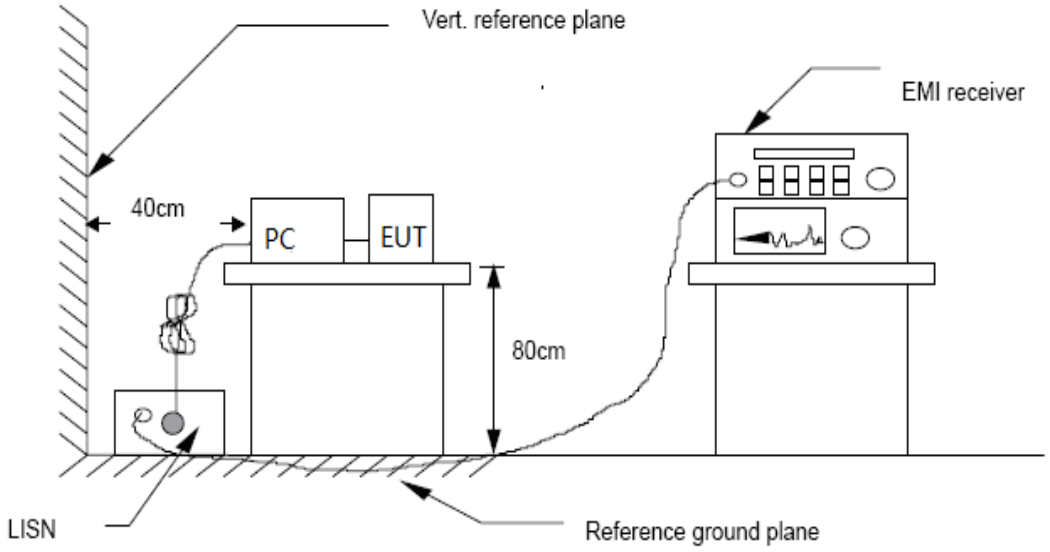
6.1 Conducted Emission Limits(15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.The limit decreases in line with the logarithm of the frequency in the rang of 0.15 to 0.50 MHz.

6.2 Test Setup

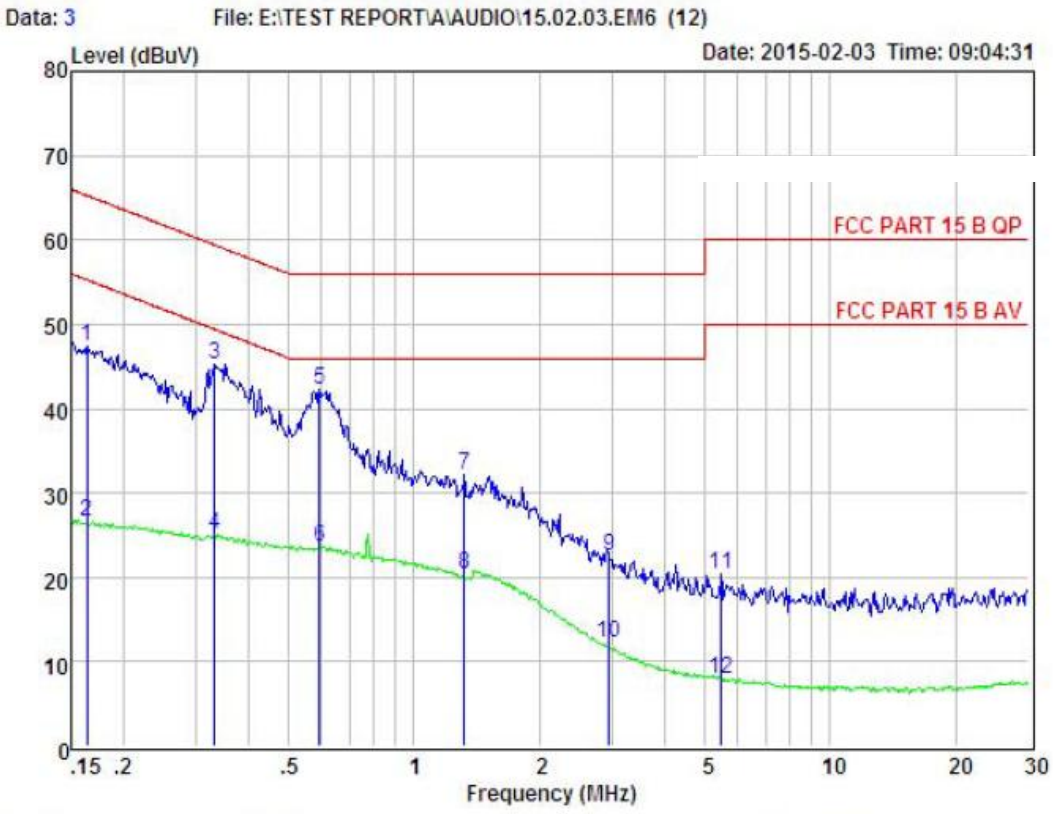


6.3 Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4-2009 on Conducted Emission Measurement.
The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

6.4 Test Results

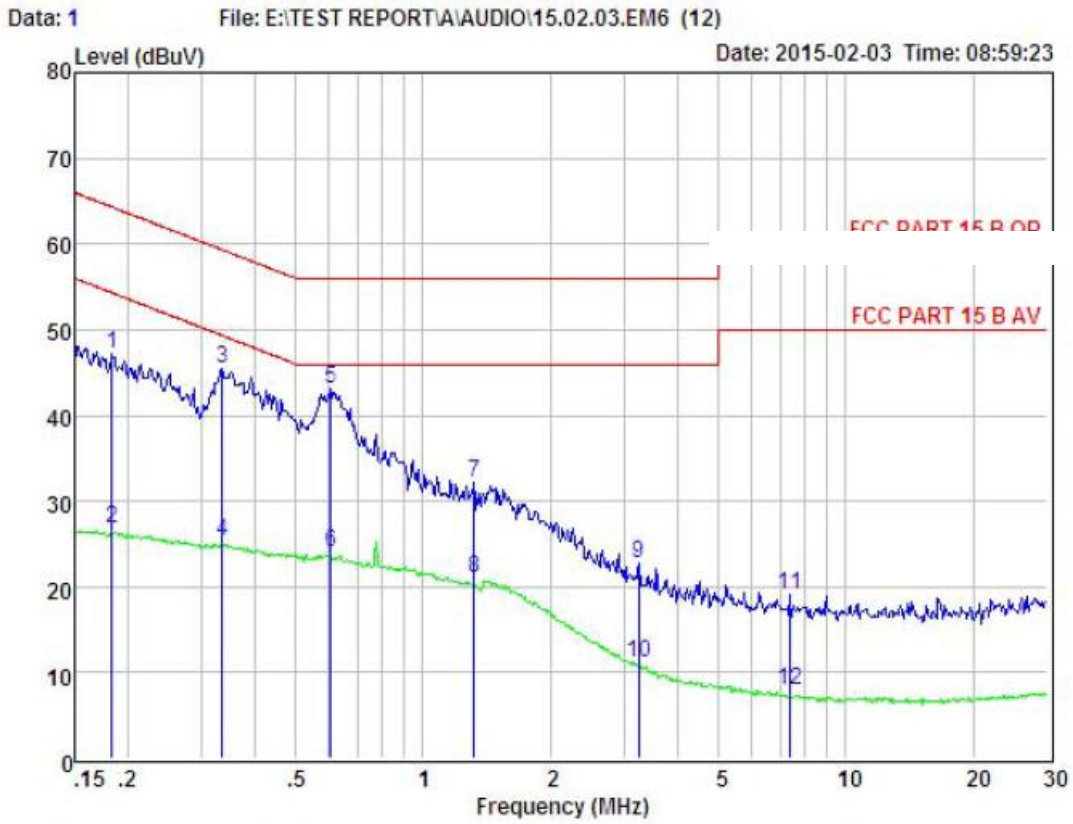
PASS. (See below detailed test data)



Condition : FCC PART 15 B QP POL: LINE Temp:20.1 ℃ Hum:45 %
EUT :
Model No :
Test Mode :
Power : DC 9V From Adapter With AC 120V/60Hz
Test Engineer:
Remark :

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.164	37.47	0.03	-9.72	0.10	47.32	65.25	-17.93	QP
2	0.164	16.77	0.03	-9.72	0.10	26.62	55.25	-28.63	Average
3	0.332	35.49	0.03	-9.72	0.10	45.34	59.40	-14.06	QP
4	0.332	15.25	0.03	-9.72	0.10	25.10	49.40	-24.30	Average
5	0.592	32.50	0.03	-9.72	0.10	42.35	56.00	-13.65	QP
6	0.592	13.83	0.03	-9.72	0.10	23.68	46.00	-22.32	Average
7	1.324	22.31	0.05	-9.71	0.10	32.17	56.00	-23.83	QP
8	1.324	10.45	0.05	-9.71	0.10	20.31	46.00	-25.69	Average
9	2.946	12.58	0.07	-9.70	0.12	22.47	56.00	-33.53	QP
10	2.946	2.27	0.07	-9.70	0.12	12.16	46.00	-33.84	Average
11	5.476	10.46	0.10	-9.65	0.13	20.34	60.00	-39.66	QP
12	5.476	-1.87	0.10	-9.65	0.13	8.01	50.00	-41.99	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:20.1 ℃ Hum:45 %
EUT :
Model No :
Test Mode :
Power : DC 9V From Adapter With AC 120V/60Hz
Test Engineer:
Remark :

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.183	37.34	0.03	-9.72	0.10	47.19	64.33	-17.14	QP
2	0.183	17.00	0.03	-9.72	0.10	26.85	54.33	-27.48	Average
3	0.336	35.71	0.03	-9.72	0.10	45.56	59.31	-13.75	QP
4	0.336	15.51	0.03	-9.72	0.10	25.36	49.31	-23.95	Average
5	0.604	33.34	0.03	-9.72	0.10	43.19	56.00	-12.81	QP
6	0.604	14.12	0.03	-9.72	0.10	23.97	46.00	-22.03	Average
7	1.324	22.24	0.05	-9.71	0.10	32.10	56.00	-23.90	QP
8	1.324	11.08	0.05	-9.71	0.10	20.94	46.00	-25.06	Average
9	3.241	12.80	0.07	-9.69	0.12	22.68	56.00	-33.32	QP
10	3.241	1.32	0.07	-9.69	0.12	11.20	46.00	-34.80	Average
11	7.368	9.19	0.13	-9.52	0.15	18.99	60.00	-41.01	QP
12	7.368	-1.84	0.13	-9.52	0.15	7.96	50.00	-42.04	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

7 Bandwidth

7.1 Test limit

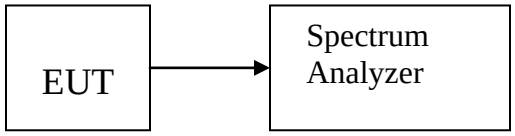
Please refer section15.249

7.2 Method of measurement

a) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b)The test receiver RBW set 30KHz,VBW set 100KHz,Sweep time set auto.

7.3 Test Setup



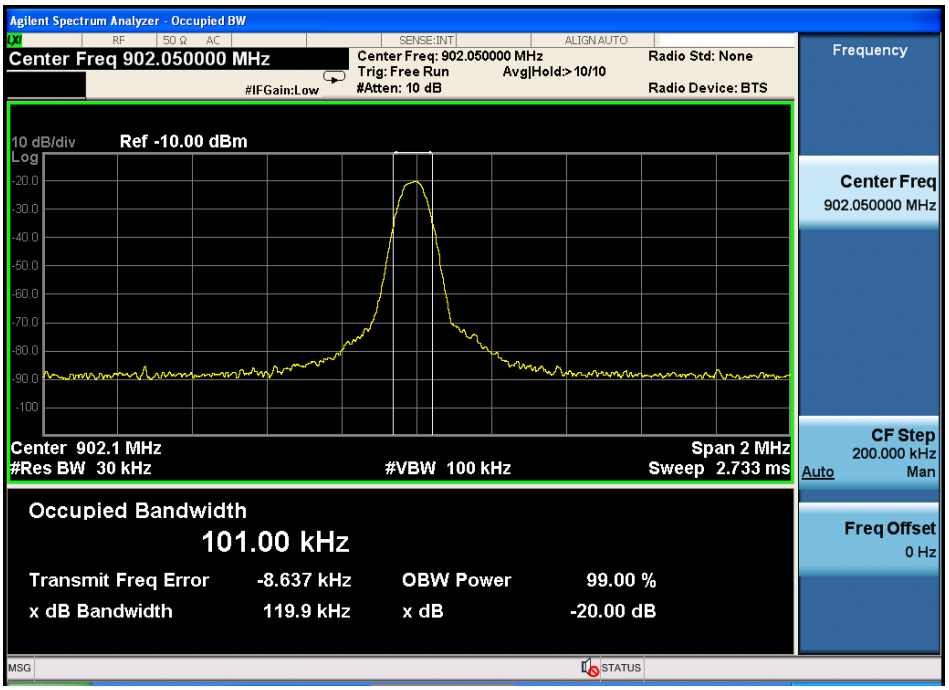
7.4 Test Results

PASS.

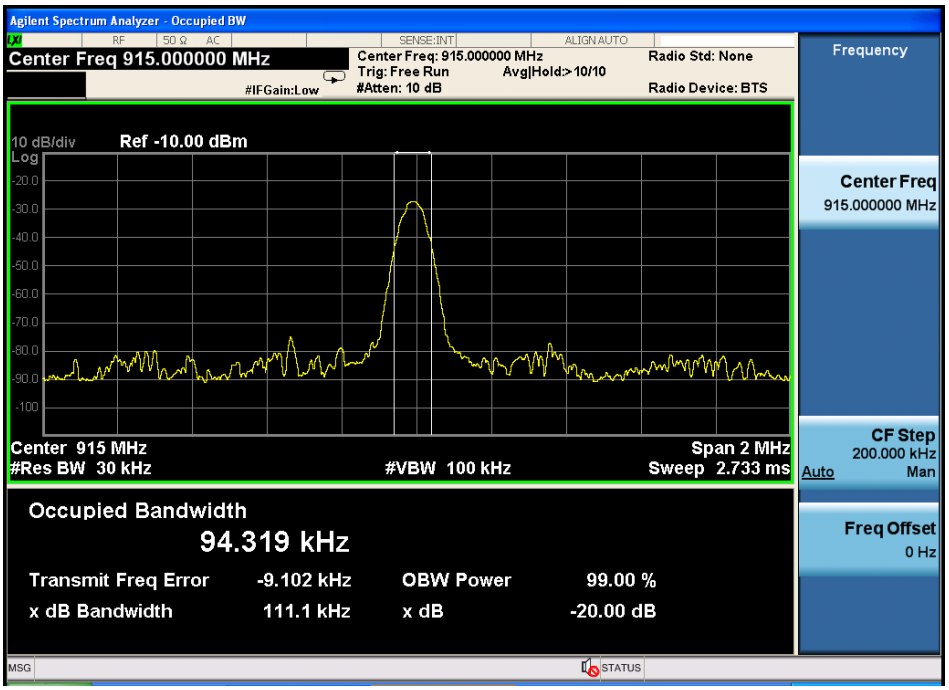
Detailed information please see the following page.

Channel	Frequency (MHz)	20dB Bandwidth (KHz)	Limit (KHz)	Result
CH1	902.05	119.9	/	PASS
CH260	915.00	111.1	/	PASS
CH519	927.95	107.7	/	PASS

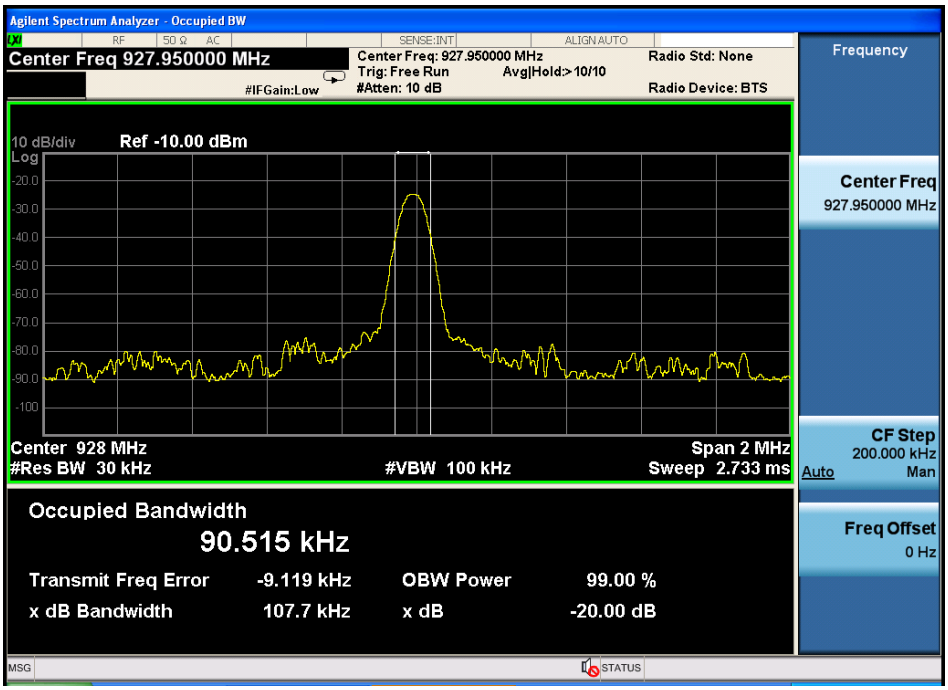
CH Low :


Agilent Spectrum Analyzer - Occupied BW
Center Freq 902.050000 MHz
Center Freq: 902.050000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref -10.00 dBm
Center Freq
902.050000 MHz
Center 902.1 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.733 ms
CF Step
200.000 kHz
Auto
Man
Occupied Bandwidth
101.00 kHz
Transmit Freq Error -8.637 kHz
OBW Power 99.00 %
x dB Bandwidth 119.9 kHz
x dB -20.00 dB
Freq Offset
0 Hz
MSG
STATUS

CH Mid :


Agilent Spectrum Analyzer - Occupied BW
Center Freq 915.000000 MHz
Center Freq: 915.000000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref -10.00 dBm
Center Freq
915.000000 MHz
Center 915 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.733 ms
CF Step
200.000 kHz
Auto
Man
Occupied Bandwidth
94.319 kHz
Transmit Freq Error -9.102 kHz
OBW Power 99.00 %
x dB Bandwidth 111.1 kHz
x dB -20.00 dB
Freq Offset
0 Hz
MSG
STATUS

CH High :


Agilent Spectrum Analyzer - Occupied BW
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
Center Freq 927.950000 MHz
#IFGain:Low
Center Freq: 927.950000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref -10.00 dBm
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100
Center 928 MHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.733 ms
Center Freq
927.950000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Occupied Bandwidth
90.515 kHz
Transmit Freq Error
-9.119 kHz
OBW Power
99.00 %
x dB Bandwidth
107.7 kHz
x dB
-20.00 dB
MSG
STATUS

8 Band Edge Check

8.1 Test limit

Please refer section15.249 and section 15.205.

249(c) Field strength limits are specified at a distance of 3 meters.

249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

249(e) As show in section 15.35(b), for frequencies above 1000MHz,the above field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak filed strength shall not exceed 2500 millivolts/meter at 3meters along the antenna azimuth.

8.2 Test Procedure

8.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

8.2.2 Check the spurious emissions out of band.

8.2.3 RBW, VBW Setting, please see the following test plot.

8.3 Test Setup

Same as 5.2.2.

8.4 Test Result

PASS.

30—1000MHz Radiated emission Test result									
EUT: 900MHz large area transmitter M/N: ARG-900AT									
Power: DC5.0V From Notebook									
Test date: 2015-02-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: Tx Mode									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	902	48.42	21.67	1.41	29.2	42.3	46	3.7	PK
2	/	/							
3	/	/							
4	/	/							
5	/	/							
	/	/							
Antenna Polarity: Horizontal									
1	902	45.28	21.67	1.41	29.2	39.16	46	6.84	PK
2	/	/							
3	/	/							
4	/	/							
5	/	/							
	/	/							

Note:
1,Measuring frequency from 30MHz to 1GHz
2,Spectrum Set for PK measure: RBW=100KHz, VBW=300KHz, Sweep time=Auto, Detector: PK
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

30—1000MHz Radiated emissison Test result									
EUT: 900MHz large area transmitter M/N: ARG-900AT									
Power: DC5.0V From Notebook									
Test date: 2015-02-06 Test site: 3m Chamber Tested by: Store Chu									
Test mode: Tx Mode									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	928	48.59	22	1.29	29.28	42.6	46	3.4	PK
2	/	/							
3	/	/							
4	/	/							
5	/	/							
	/	/							
Antenna Polarity: Horizontal									
1	928	49.76	22	1.29	29.28	43.77	46	2.23	PK
2	/	/							
3	/	/							
4	/	/							
5	/	/							
	/	/							

Note:
1,Measuring frequency from 30MHz to 1GHz
2,Spectrum Set for PK measure: RBW=100KHz, VBW=300KHz, Sweep time=Auto, Detector: PK
3, Result = Read level + Antenna factor + cable loss-Amp factor
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

9 Antenna Requirement

9.1 Standard Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

9.2 Antenna Connected Construction

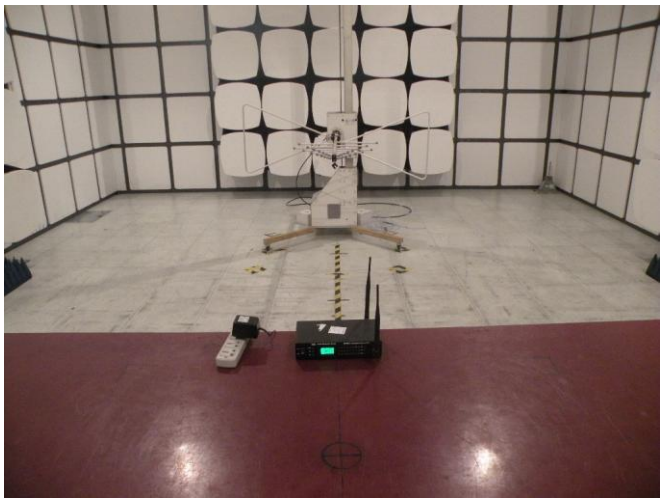
The directional gains of antenna used for transmitting is 3dBi, and is a Reversed Dipole Antenna and no consideration of replacement. Please see EUT photo for details.

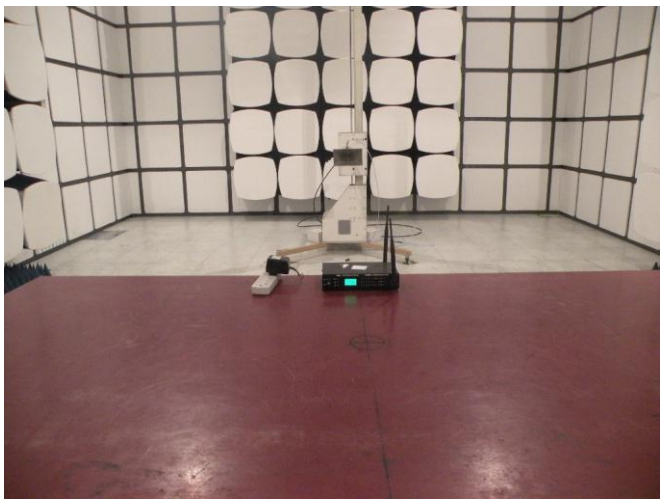
9.3 Result

The EUT antenna is Reversed Dipole Antenna. It comply with the standard requirement.

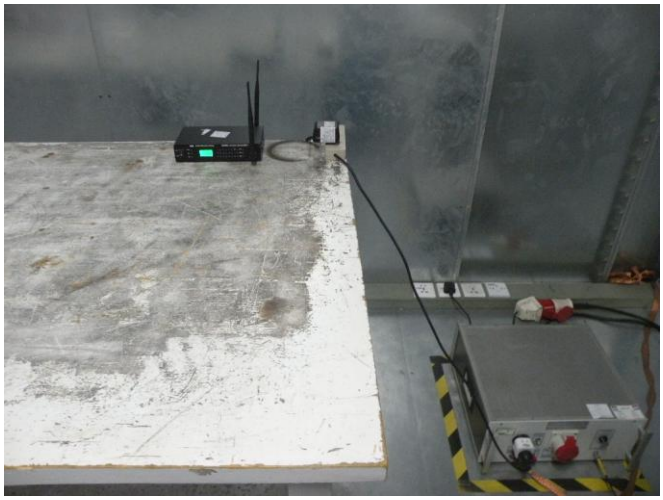
10 Photographs of Test Setup

4.7 Photos of Radiated emission

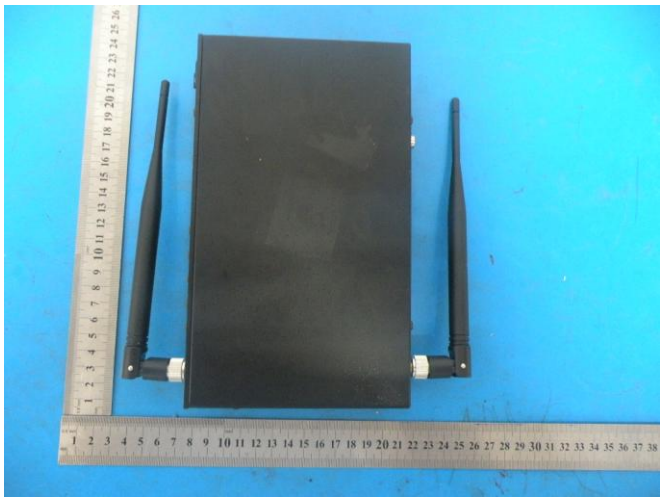


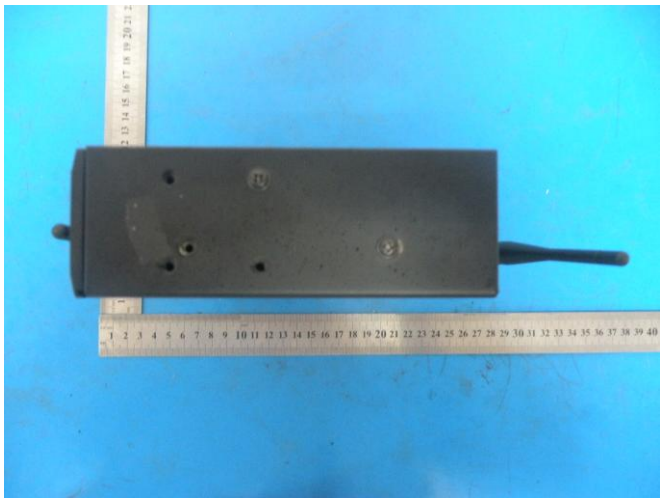


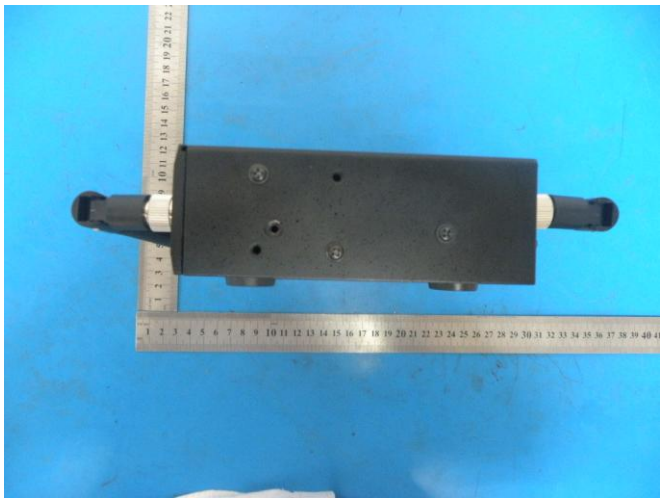
4.8 Photos of Conducted Emission test



11 Photographs of EUT



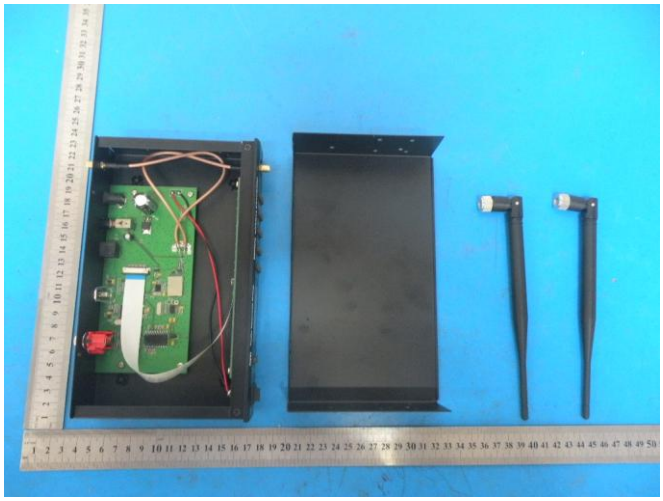


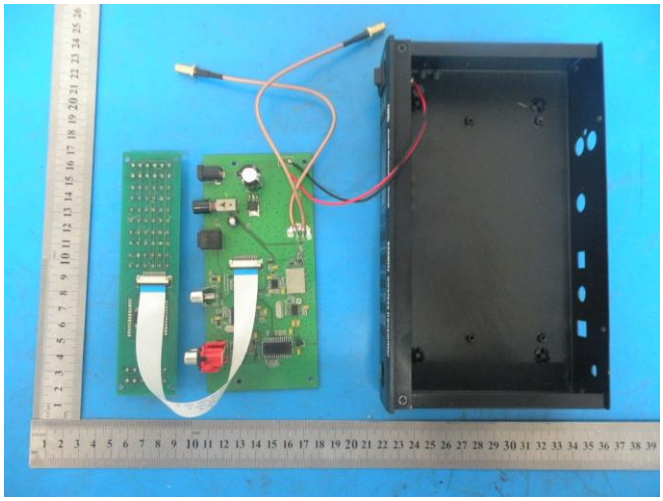



Audio Resource Group
900MHz wireless transmitter
ANT-A

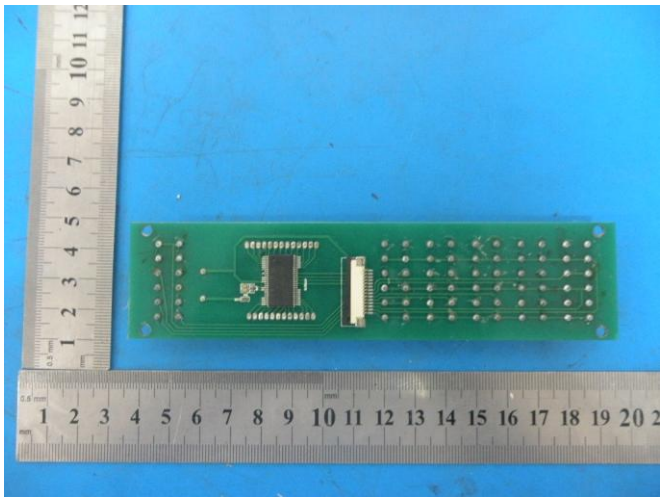

ANT-B
DC/9V Input
ANT-A
ANT-B
Optical Input

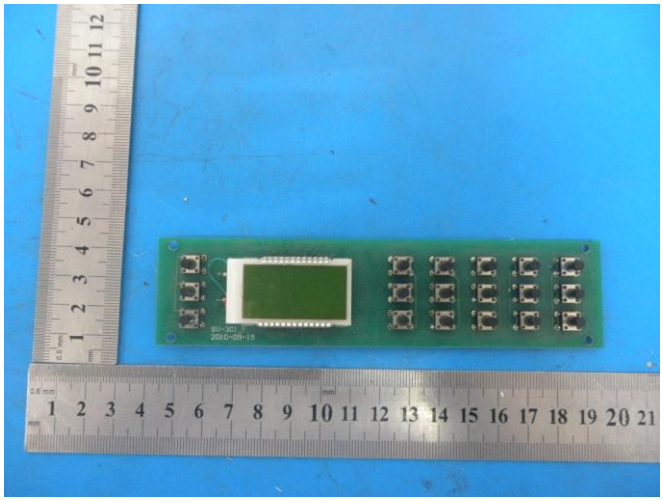

ess transmitter
Set
Enter
Memo
0
Mode
ANT-A

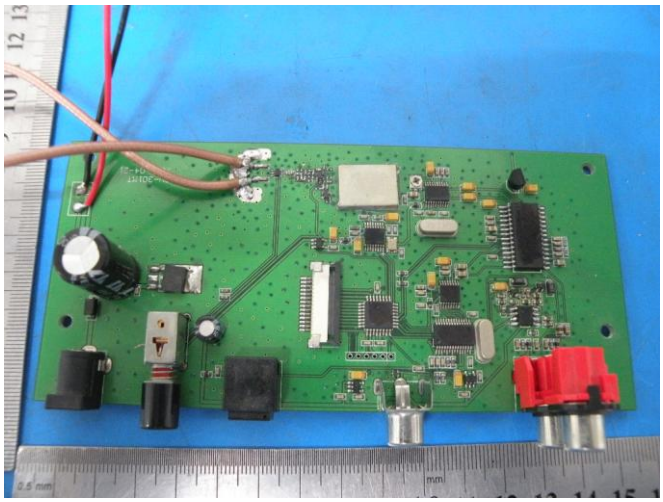


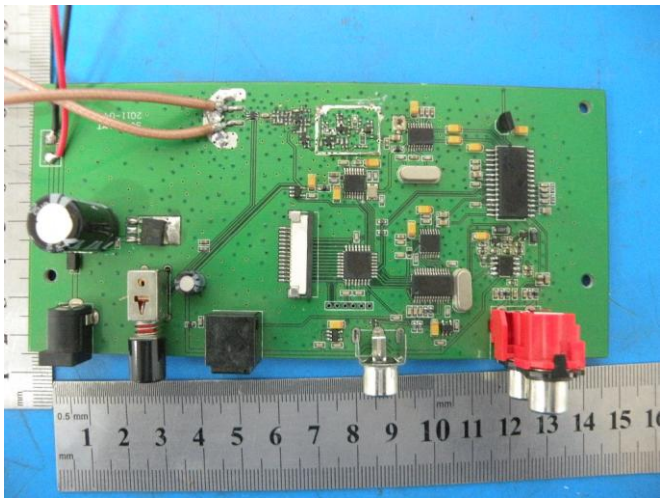


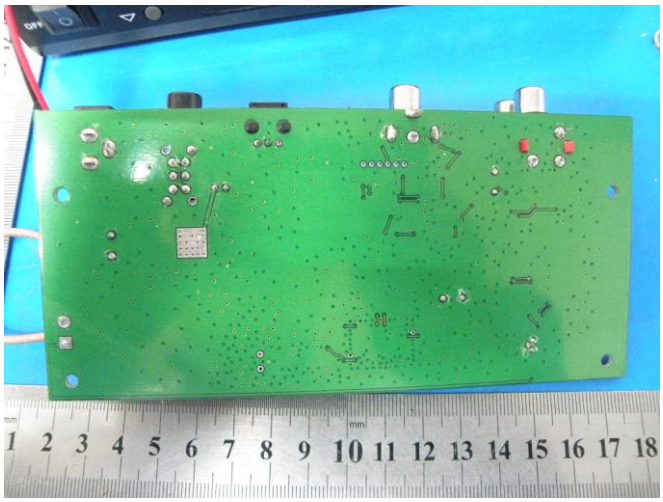

AC/DC ADAPTOR
CLASS 2 POWER SUPPLY
MODEL : JY41-090-050-UD
INPUT : 120VAC 60Hz 110mA
OUTPUT : 9VDC 500mA
1012
LISTED
85TU
E242312
MADE IN CHINA
FOR INDOOR USE ONLY











------THE END OF REPORT-------