FCC ID TEST REPORT

for

UHF RFID READER

Model: SR-RU-9809(USB-L)

FCC ID: 2ABH7SR-RU-9809

Prepared for: ACC Systems Inc.
125 Wilbur Place, Suite 200, Bohemia, NY 11716, America

Prepared by: Shenzhen TCT Testing Technology Co.,Ltd
1F, Building 1, Yibaolai Industrial Park, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen, Guangdong, China

TEL: +86-0755-27673339
FAX: +86-0755-27673332

Report Number：TCT131114002F2-1
Date of Test： Dec. 06-Dec. 12, 2013
Date of Report： Dec. 12, 2013

Table of Contents

1.0 General Details

1.1 Test Lab Details

Name :	Shenzhen Tongce Testing Lab
Address:	1F, Leinuo Watch Building, Fuyong Town, Baoan Dist, Shenzhen, China
Telephone:	13410377511
Fax:	--

The test facility is recognized, certified, or accredited by the following organizations:

FCC Registration Number: 572331

Shenzhen TCT Testing Technology Co., Ltd., Shenzhen EMC Laboratory: Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

Registration Number: 572331

Industry Canada (IC)

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

Registration Number IC: 10668A-1

1.2 Applicant Details

Applicant:	ACC Systems Inc.
Address:	125 Wilbur Place, Suite 200, Bohemia, NY 11716, America
Telephone:	631 750 9238
Fax:	632 750 9241

Manufacturer:	Shenzhen Synco Technology Co., Ltd.
Address:	Room 716, Yiben E-Commerce Industrial Park, No.1063, Chaguang Road, Nanshan District, 518053,Shenzhen, China
Telephone:	+86-0755-82706912
Fax:	+86-0755-82706900

1.3 Description of EUT

Product:	UHF RFID READER
Model No.:	SR-RU-9809(USB-L)
Additional Model No.:	N.A.
Brand Name	N.A.
Modulation Type:	FHSS
Channel number:	63
Channel spacing:	0.4MHz
Operation Frequency:	902.6-927.4MHz
Antenna Designation:	Mental loop-antenna antenna, and the maximum antenna gain is 2dBi.
Rating:	DC 5V via USB line

1.4 Statement

N.A.

1.5 Test Engineer

The sample tested by 

Printed name: Jack Kang

2.0 Test equipments and Associated Equipment used during the test.

2.1 Test Equipments

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	July 7, 2013	July 6, 2014
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014
Pre-amplifier	Teseq	LAN6900	--	July 8, 2013	July 7, 2014
Pre-amplifier	Agilent	8447D	83153007374	July 8, 2013	July 7, 2014
Pre-amplifier	Agilent	8449B	3008A01738	July 8, 2013	July 7, 2014
Triple-loop antenna	ROHDE&SCHWARZ	HM020	843885/002	July 8, 2013	July 7, 2014
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	July 8, 2013	July 7, 2014
Horn Antenna	ETS LINDGREN	3117	--	July 8, 2013	July 7, 2014
Horn Antenna	ETS LINDGREN	3160	--	July 8, 2013	July 7, 2014
EMI Test Receiver	R&S	ESCS30	100139	July 7, 2013	July 6, 2014
LISN	AFJ	LS16C	16010222119	July 7, 2013	July 6, 2014

2.2 AE used during the test

Equipment type	Manufacturer	Model	FCC approval
Notebook	Lenovo	G485	FCC DoC
N/A			
N/A			
N/A			

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications

Requirement	CFR 47 Section	Result
Power Line Conducted Emission Test	**15.207(a)**	**PASS**
20dB Channel Bandwidth	**15.247 (a)(1), 15.247 (a)(1)(i), 15.215(c)**	**PASS**
Maximum Peak Output Power	**15.247(b)(2)**	**PASS**
Carrier Frequency Separation	**15.247 (a)(1)**	**PASS**
Number of Hopping Channels	**15.247(a)(1)(i)**	**PASS**
Time of Occupancy (Dwell Time)	**15.247(a)(1)(i)**	**PASS**
Conducted Spurious Emissions and Band Edge Spurious Emissions	**15.247 (d), 15.205 (a), 15.209 (a)**	**PASS**
Spurious Emission Test	**15.247 (d), 15.205 (a), 15.209 (a)**	**PASS**
Antenna Requirement	**15.203**	**PASS**

3.2 Test Standards

FCC Part 15:2012 Subpart C, Paragraph 15.247

FCC Public Notice DA 00-705-Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

4.0 EUT Modification

No modification by Shenzhen TCT Testing Technology Co., Ltd

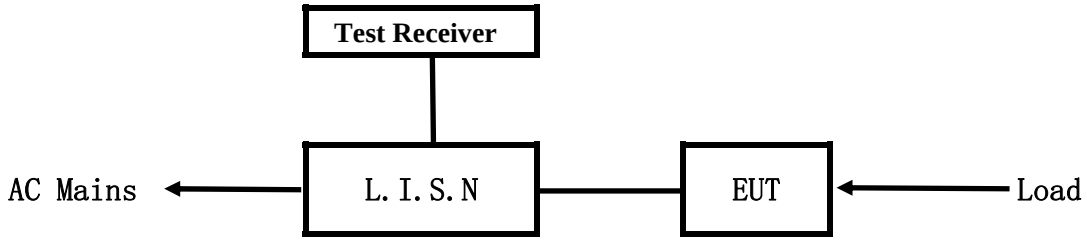
5.0 Measurement Uncertainty（95% confidence levels, k=2)

No.	Item	MU
1.	Radio Frequency	$\pm 1\times 10^{-9}$
2.	Temperature	±0.1℃
3.	Humidity	±1.0%
4.	RF power, conducted	±0.34dB
5.	RF power density, conducted	±1.45dB
6.	Spurious emissions, conducted	±3.70dB
7.	All emissions, radiated	±4.50dB

Note: 1) Low channel: 902.6MHz, Middle channel: 915.0MHz, High channel: 927.4MHz

6.0 Power Line Conducted Emission Test

6.1 Schematics of the test



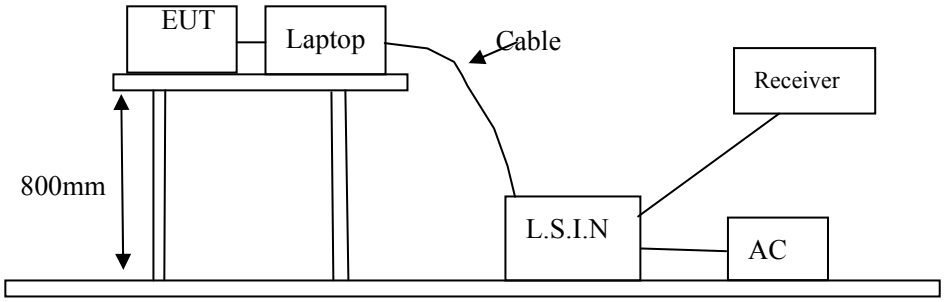
EUT: Equipment Under Test

6.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2009and ANSI C63.4-2003.The Frequency spectrum From 0.15MHz to 30MHz was investigated.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



6.3 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2009 and ANSI C63.4-2003

1) Setup the EUT and simulators as shown on the following

2) Enable AF signal and confirm EUT active to normal condition

6.4 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
EMI Test Receiver	R&S	ESCS30	100139	July 7, 2013	July 6, 2014
LISN	AFJ	LS16C	16010222119	July 7, 2013	July 6, 2014

6.5 Conducted Emission Limit

Frequency(MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

Notes: 1) *Decreasing linearly with logarithm of frequency.

2）The tighter limit shall apply at the transition frequencies

6.6 Test specification:

Environmental conditions: Temperature: 22° C Humidity: 52% Atmospheric pressure: 103kPa

Frequency range: 0.15 MHz – 30 MHz

The test was carried out in the following operation mode(s):
- HOPPING OFF mode

6.7 Test result

Pass

The requirements are FULFILLED

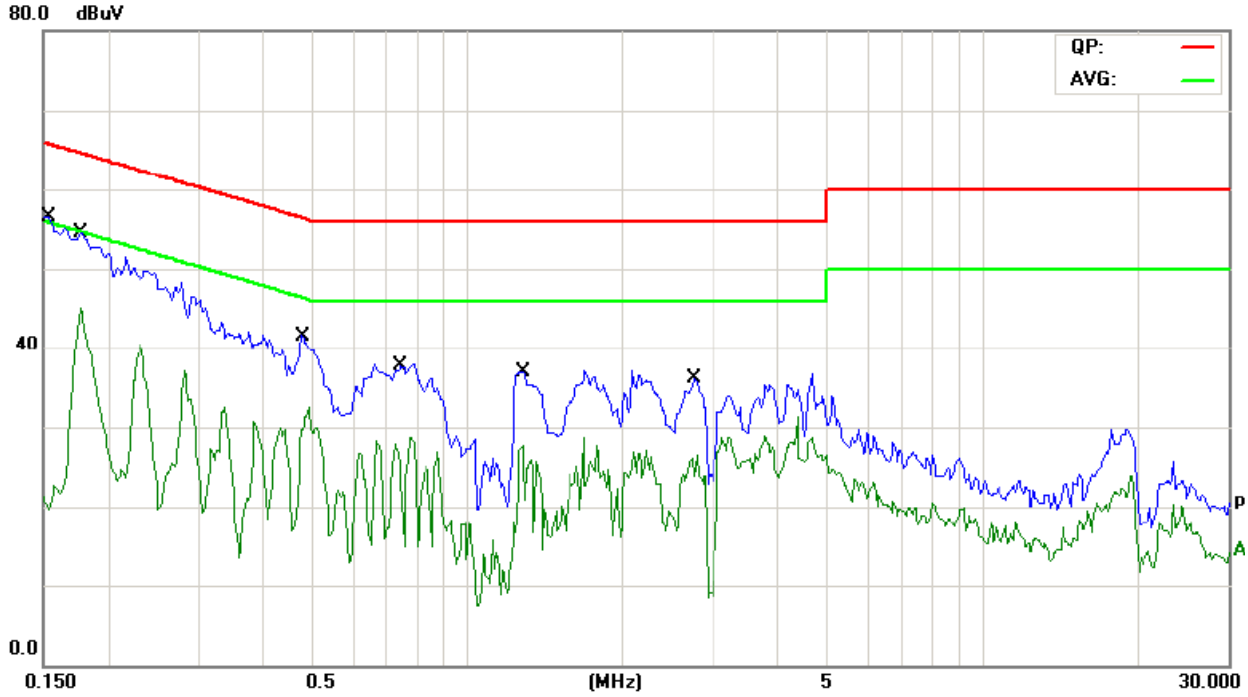
Remarks: _____

_____

A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

EUT Description:	UHF RFID READER
Operation Mode:	HOPPING OFF mode
Tested By:	Beryl Zhao
Test date:	Dec. 10, 2013

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s

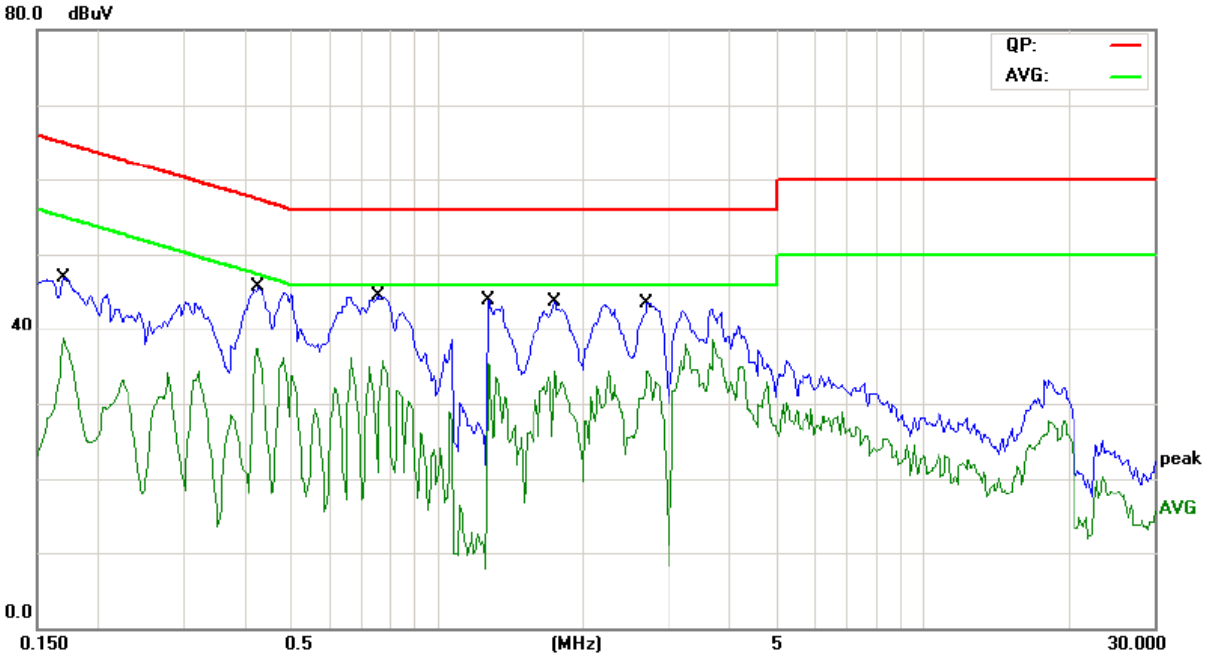


Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1532	47.71	30.37	--	--	65.79	55.79
0.1763	45.10	30.55	--	--	56.24	46.24
0.4839	35.19	25.66	--	--	56.00	46.00
0.7321	33.14	9.63	--	--	56.00	46.00
1.2789	32.72	16.90	--	--	56.00	46.00
2.7476	30.81	21.69	--	--	56.00	46.00

B Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT Description:	UHF RFID READER
Operation Mode:	HOPPING OFF mode
Tested By:	Beryl Zhao
Test Data:	Dec. 10, 2013

Start Frequency	Stop Frequency	Step	IF BW	Detector	Final M-Time
0.15MHz	30MHz	4.5KHz	10KHz	QP+AV	1s



Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.1685	--	--	41.62	30.53	64.99	54.99
0.4271	--	--	41.69	31.30	57.31	47.31
0.7526	--	--	40.74	30.43	56.00	46.00
1.2754	--	--	39.34	10.36	56.00	46.00
1.7497	--	--	39.01	29.21	56.00	46.00
2.7041	--	--	38.34	27.70	56.00	46.00

7.0 20dB Bandwidth Measurement

7.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014

7.2 Test Specification:

Environmental conditions: Temperature 23° C Humidity: 51% Atmospheric pressure: 103kPa

7.3 Limit

According to15.247(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

According to15.247(1)(i), For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

7.4 Test status:

N.A.

7.5 Test Result:

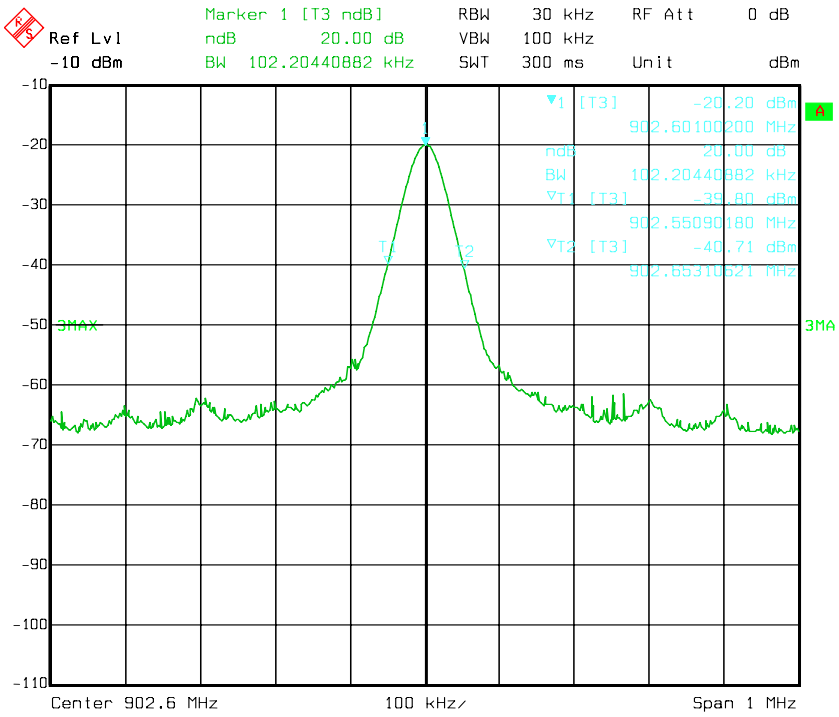
Channel number	20dB Bandwidth (kHz)	Limit (kHz)	Conclusion
Low	102.20	---	PASS
Middle	100.20	---	PASS
High	104.21	---	PASS

Note: Bandwidth limit according to FCC part 15 C, Section 15.247(a)

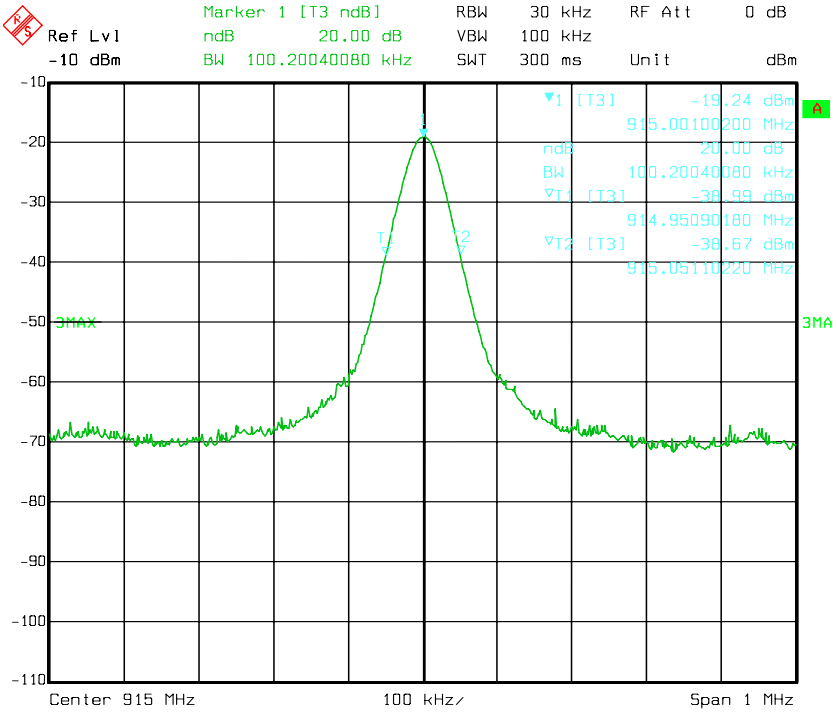
Frequency(MHz)	Hopping channels	Limit -20 dB bandwidth
902-928	≥50	<250kHz

Test Plots:

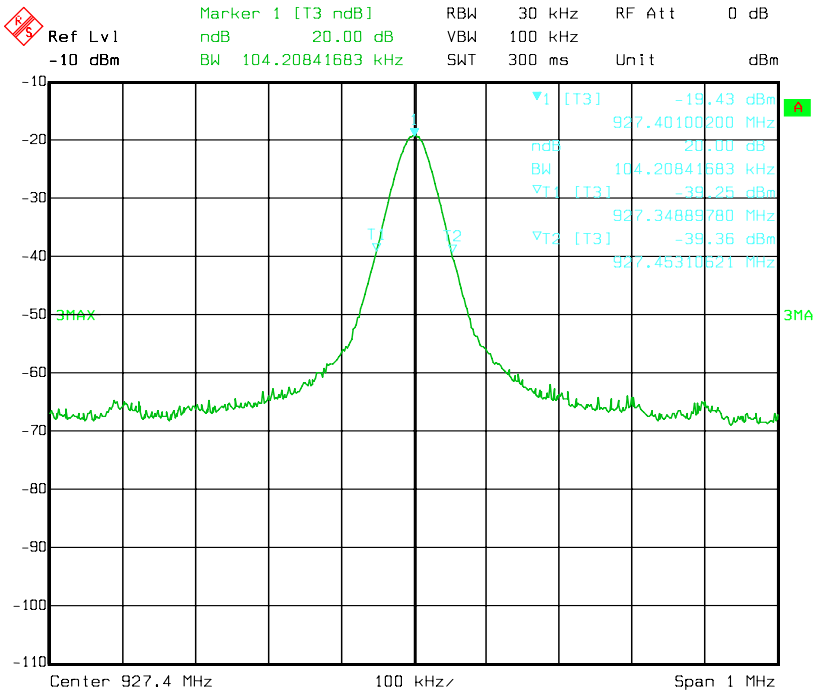
Low channel



Middle channel



High channel



8.0 Maximum Peak Output Power

8.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014

8.2 Test specification:

Environmental conditions: Temperature 23° C Humidity: 51% Atmospheric pressure: 103kPa

8.3 Test Procedure

1) Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.
2) Set the spectrum analyzer as follows: Span = approximately 5 times the 20 dB bandwidth, centred on a hopping channel； RBW > the 20 dB bandwidth of the emission being measured； VBW ≥ RBW； Sweep =auto； Detector function = peak； Trace = max hold
3) Measure the highest amplitude appearing on spectral display and record the level to calculate results.
4) Repeat above procedures until all frequencies measured were complete.

8.4 Limits

According to 15.247b(2), For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

8.5 Test Result

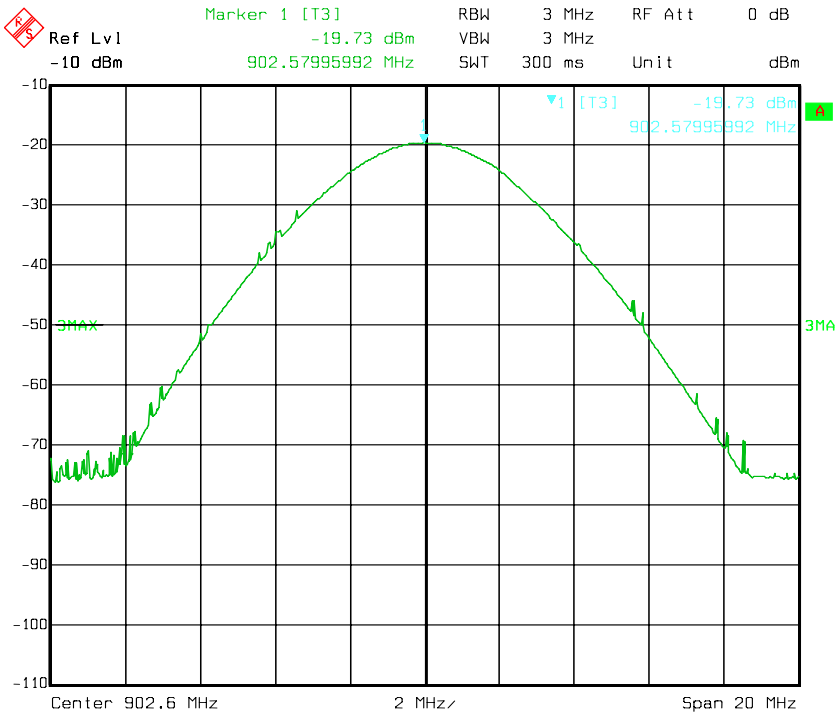
Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (mW)	Peak Power Limit (dBm)	Pass/ Fail
Low	-19.73	1000	30.00	Pass
Middle	-19.94	1000	30.00	Pass
High	-19.41	1000	30.00	Pass

Note: Peak Power limit according to FCC part 15 C, Section 15.247(a)

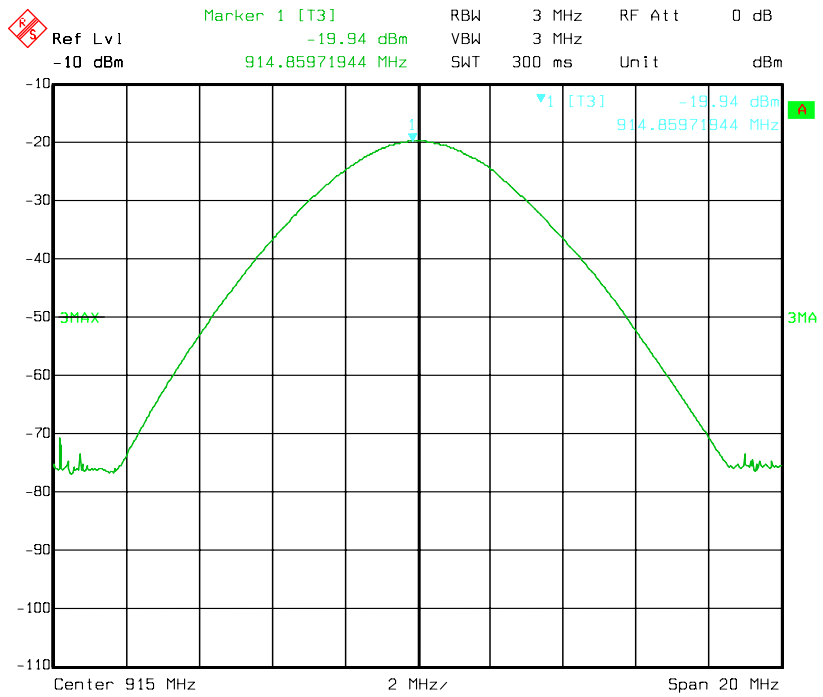
Frequency (MHz)	Hopping channels	Peak Power Limit	
		dBm	W
902-928	≥50	30	1

Test Plots:

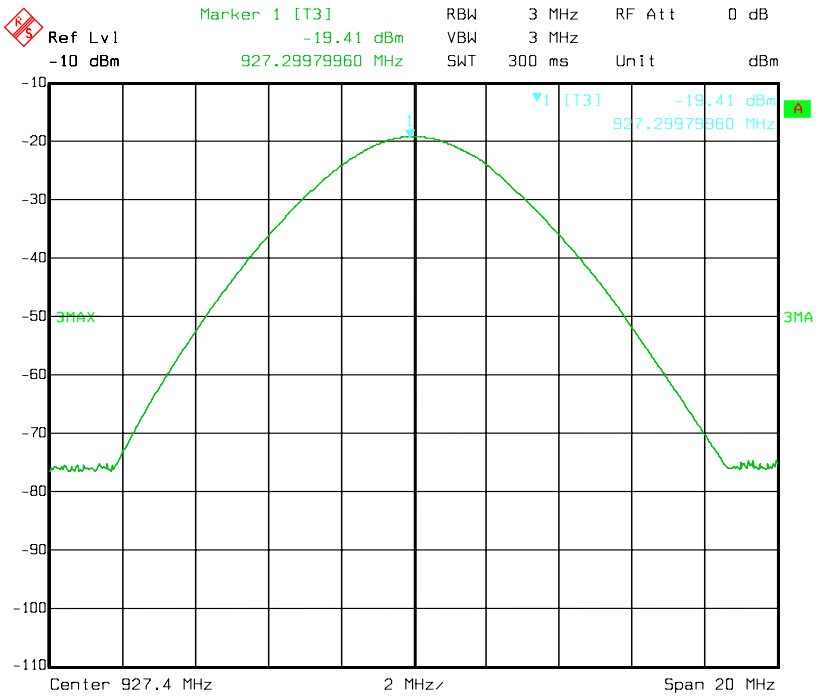
Low channel



Middle channel



High channel



9.0 Carrier Frequency Separation

9.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014

9.2 Test specification:

Environmental conditions: Temperature 23° C Humidity: 51% Atmospheric pressure: 103kPa

9.3 Test Procedure

1. Set the spectrum analyzer as follows: 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
2. Measure the separation between the peaks of the adjacent channels using the marker-delta function.
3. Repeat above procedures until all frequencies measured were complete.

9.4 Limits

According to FCC Part 15 C, Section 15.247(a), Frequency hopping systems shall have hopping carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, which is greater.

9.5 Test status:

N.A.

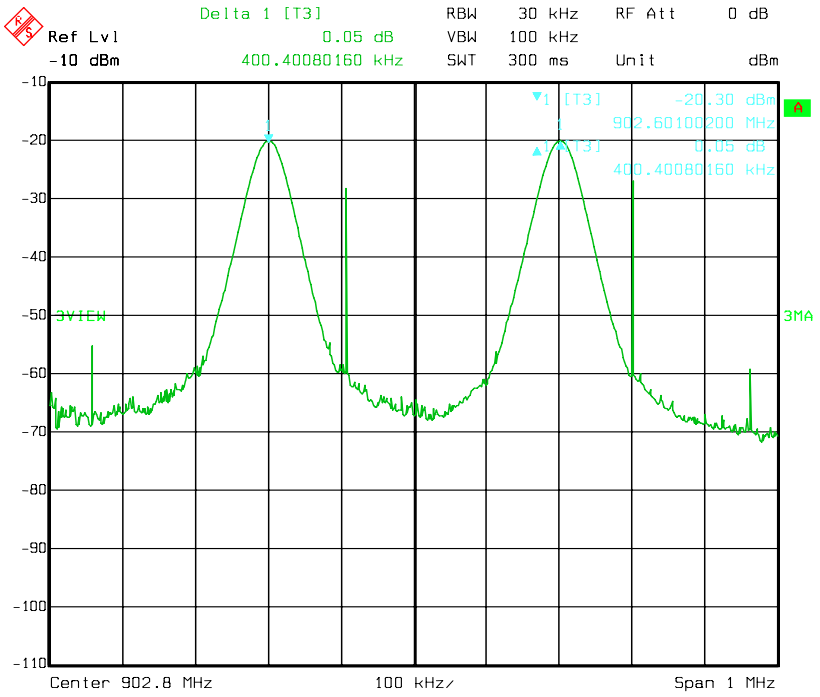
9.6 Test Result

Channel number	Carrier Frequency Separation	Limit	Pass/ Fail
Low	400.4MHz	≥ 25 kHz or two-thirds 20 dB bandwidth	Pass
Middle	400.8MHz		Pass
High	400.8MHz		Pass

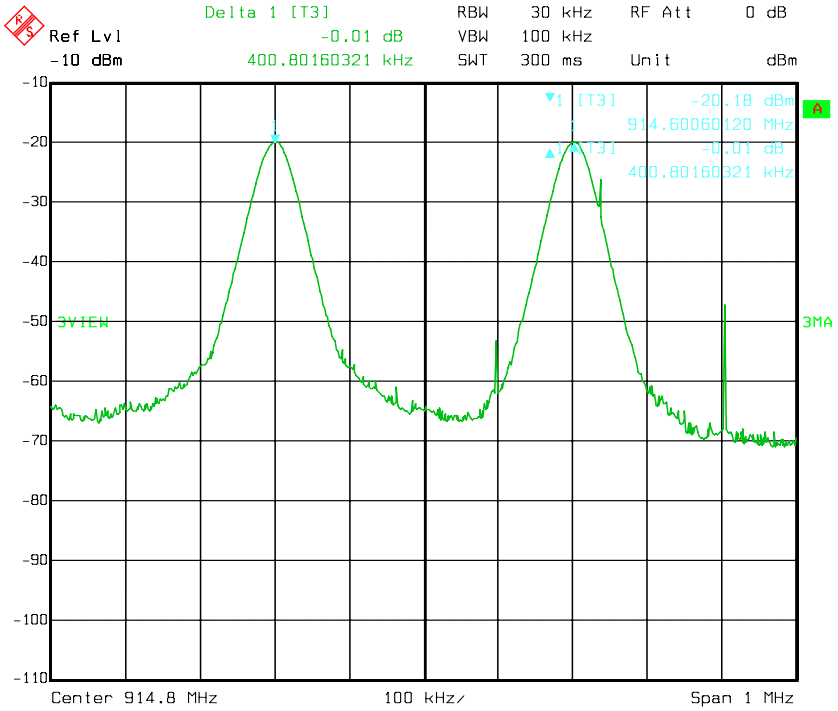
Note: Two-thirds 20 dB bandwidth: 69.3kHz

Test Plots

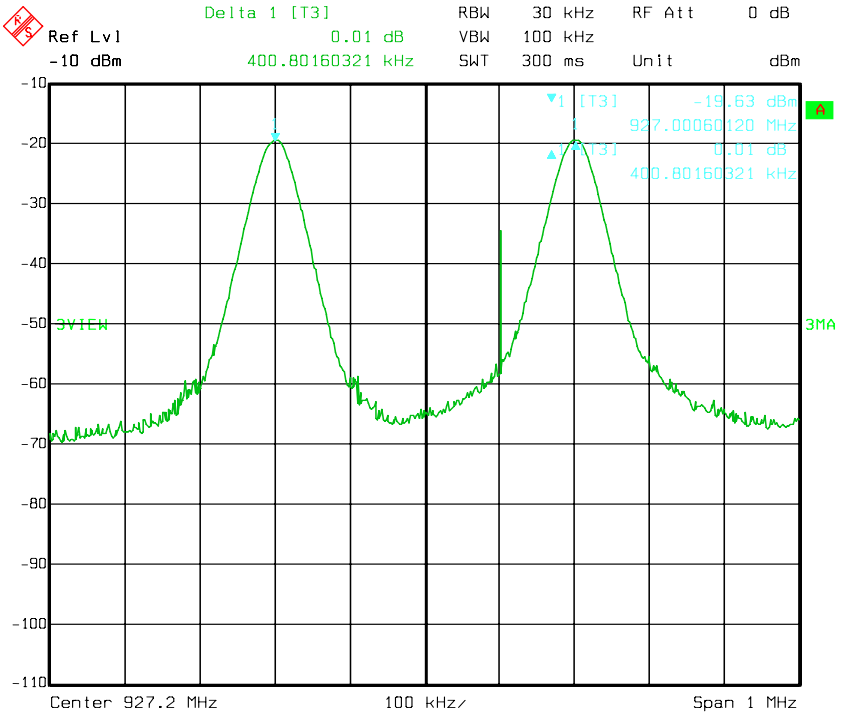
Low channel



Middle channel



High channel



10.0 Number of Hopping Channels

10.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014

10.2 Test specification:

Environmental conditions: Temperature 22° C Humidity: 51% Atmospheric pressure: 103kPa

10.3 Test Procedure

Set the spectrum analyzer as follows: Span = the frequency band of operation; RBW ≥ 1% of the span; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold

10.4 Limits

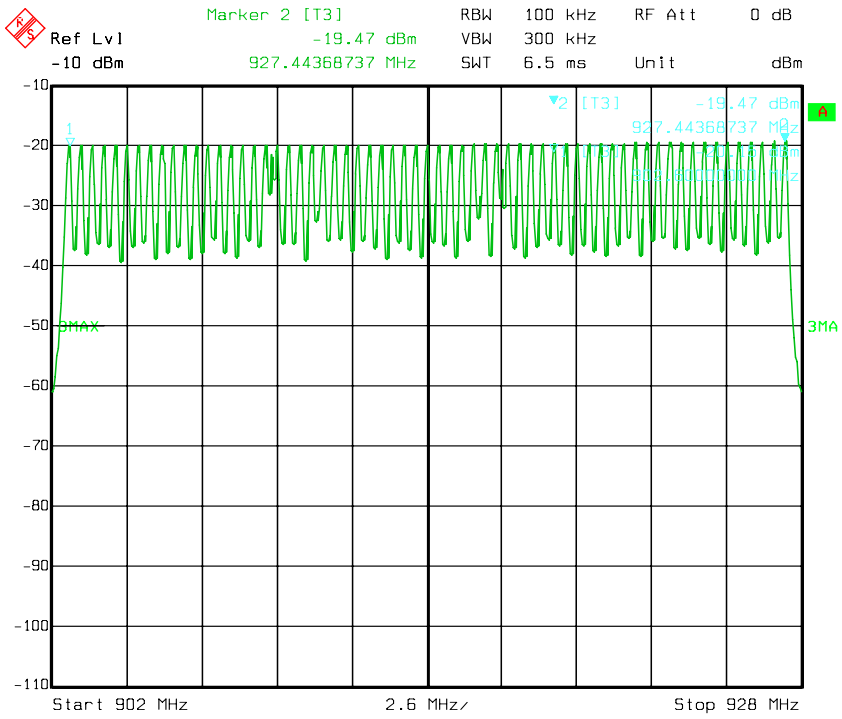
According to15.247(1)(i), For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

10.5 Test Result

Modulation Type	Operating Frequency	Number of hopping channels	Limit	Pass/ Fail
GFSK	902.6-927.4MHz	63	≥ 50	Pass

Note: According to the test, the 20 dB bandwidth of the hopping channel is less than 250 kHz

Test Plot:


Marker 2 [T3]
RBW 100 kHz
RF Att 0 dB
Ref Lvl
-19.47 dBm
VBW 300 kHz
-10 dBm
927.44368737 MHz
SWT 6.5 ms
Unit dBm
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
2 [T3]
-19.47 dBm
927.44368737 MHz
A
1
3MAX
3MA
Start 902 MHz
2.6 MHz/
Stop 928 MHz

11.0 Time of Occupancy (Dwell Time)

11.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014

11.2 Test specification:

Environmental conditions: Temperature 22° C Humidity: 52% Atmospheric pressure: 103kPa

11.3 Test Procedure

Span = zero span, centred on a hopping channel; RBW = 1 MHz; VBW ≥ RBW; Detector function = peak;
Sweep = as necessary to capture the entire dwell time per hopping channel; Trace = max hold
Measure the dwell time using the marker-delta function.
Repeat this test for different modes of operation (e.g., data rate, modulation format, etc.), if applicable.

11.4 Limits

According to15.247(1)(i), For frequency hopping systems operatingin the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;

11.5 Test status:

Pre-tests were made in continuous transmitting mode at lowest (902.6MHz), middle (915.0 MHz) and highest (927.4MHz) channel which indicates that the worst case is lowest (902.6MHz) channel mode, so it is reported lowest (902.6MHz) channel mode only.

11.6 Test Result

Number of transmission 10s	Length of transmission Time(ms)	Result(ms)	Limit(ms)
10times	23	230	400

Note: According to the test, the 20 dB bandwidth of the hopping channel is less than 250 kHz

12.0 Conducted Spurious Emissions and Band Edge Spurious Emissions

12.1 Test Equipment

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	July 7, 2013	July 6, 2014
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014
Pre-amplifier	Agilent	8447D	83153007374	July 8, 2013	July 7, 2014
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	July 8, 2013	July 7, 2014

12.2 Test specification:

Environmental conditions: Temperature 22° C Humidity: 52% Atmospheric pressure: 103kPa

12.3 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

12.4 Test status:

N.A.

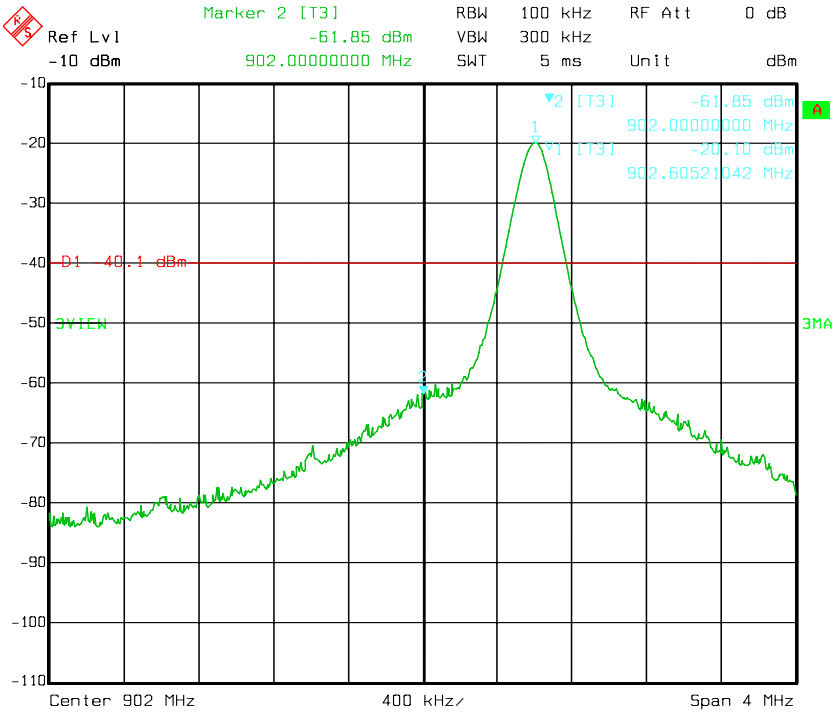
12.5 Test Result

See the test plots

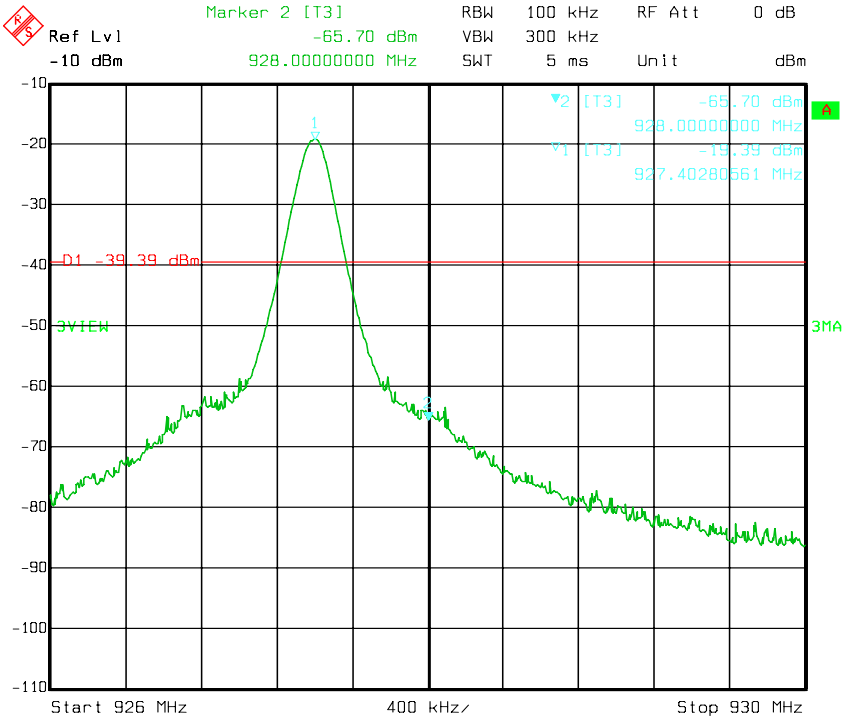
Test Plots

Radiated Emissions Band Edge

EUT operation mode: Keep transmitting in low channel

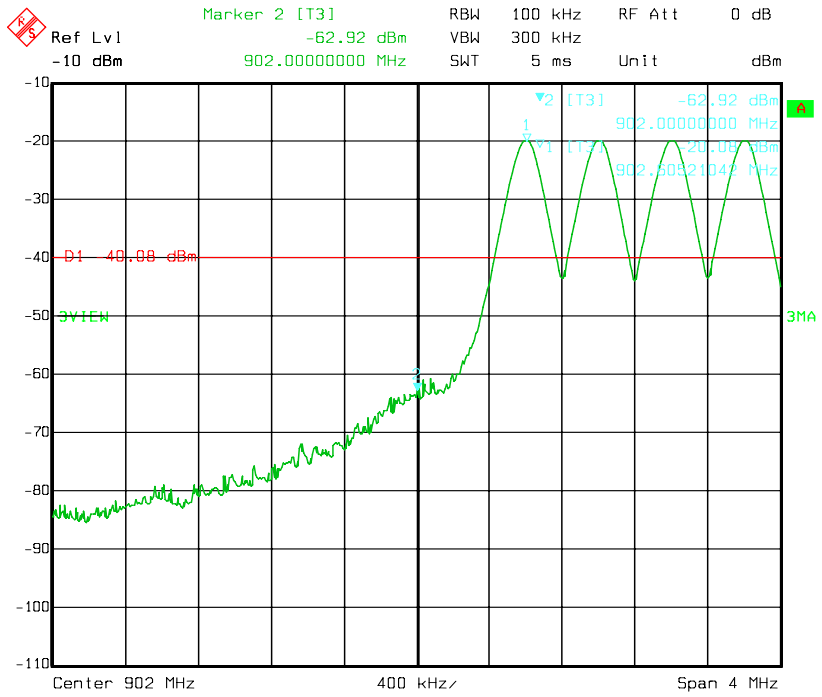


EUT operation mode: Keep transmitting in high channel

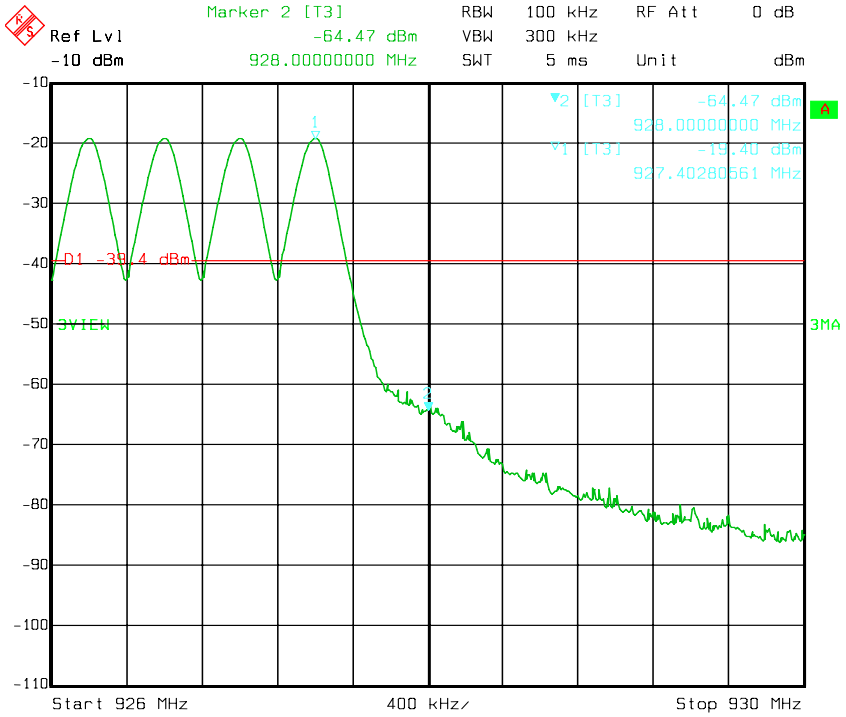


Radiated Emissions Band Edge

EUT operation mode: Keep hopping

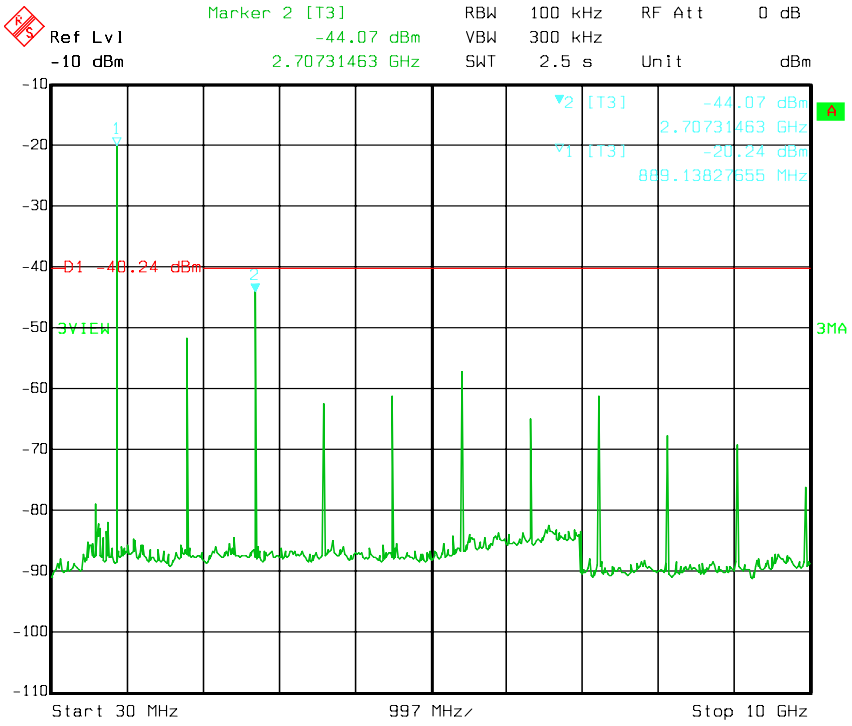


EUT operation mode: Keep hopping

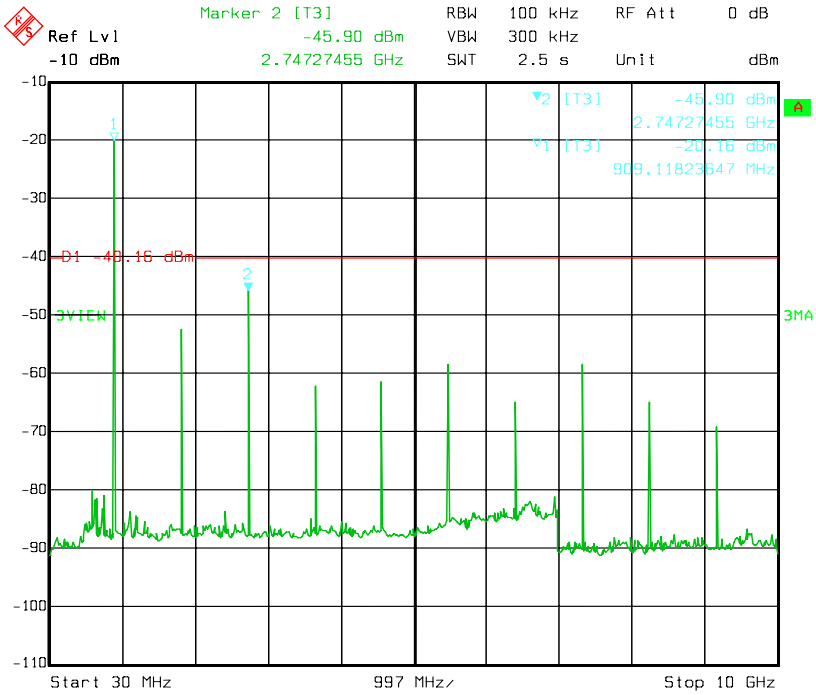


Conducted Spurious Emissions

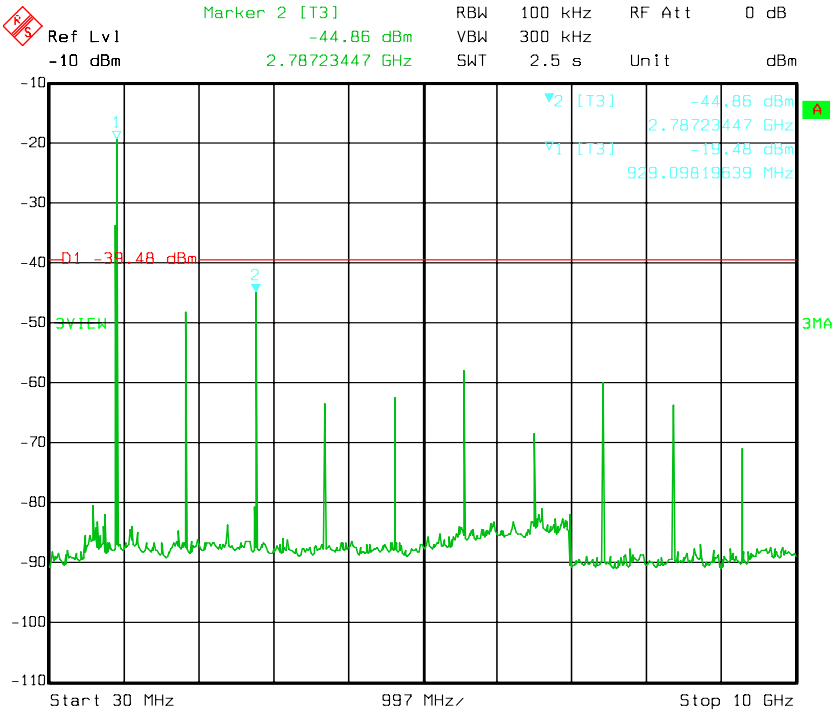
EUT operation mode: Keep transmitting in low channel



EUT operation mode: Keep transmitting in middle channel



EUT operation mode: Keep transmitting in high channel



Note: Note: The Pre-tests from 9 kHz to 30 MHz are conducted, and it is too low to report.

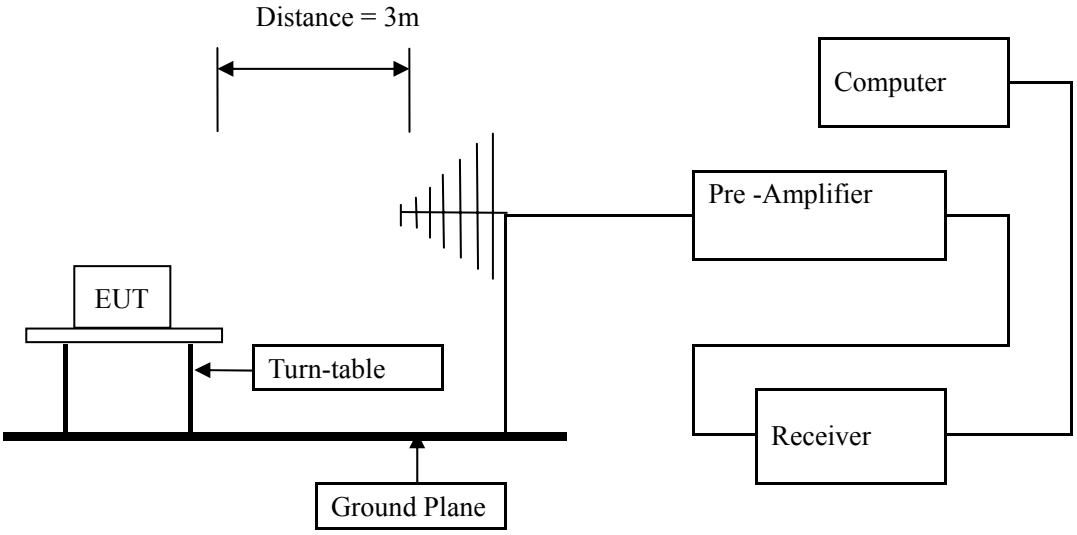
13.0 Spurious Emission Test

13.1 Radiated emissions

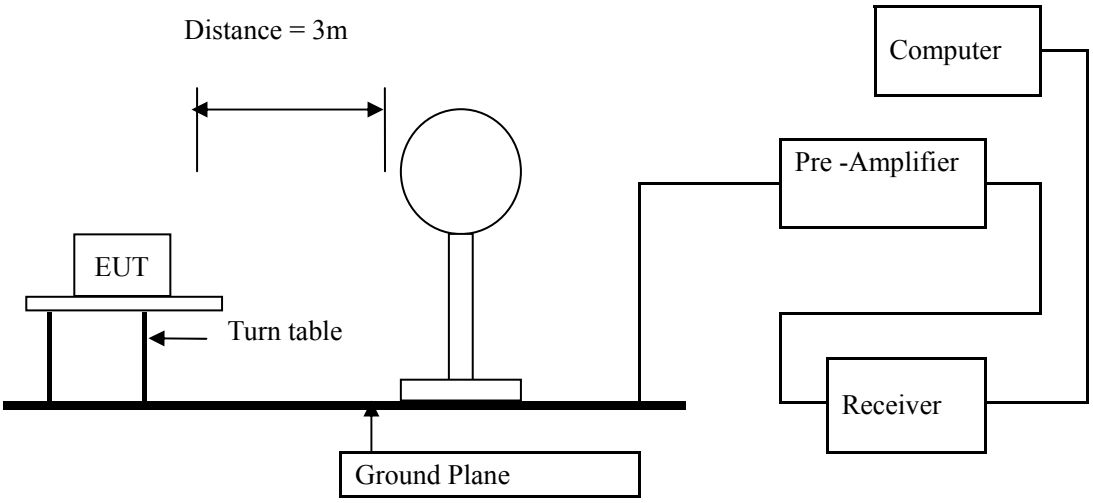
13.1.1 Test Method and test Procedure:

1) The EUT was tested according to ANSI C63.10 –2009 and ANSI C63.4-2003.
2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2009 and ANSI C63.4-2003.
3) The frequency spectrum from 9 kHz to 25 GHz was investigated. All readings from 9 kHz to 30 MHz are quasi-peak values with a resolution bandwidth of 9 kHz. All readings from 30 MHz to1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
5) The antenna polarization: Vertical polarization and Horizontal polarization.

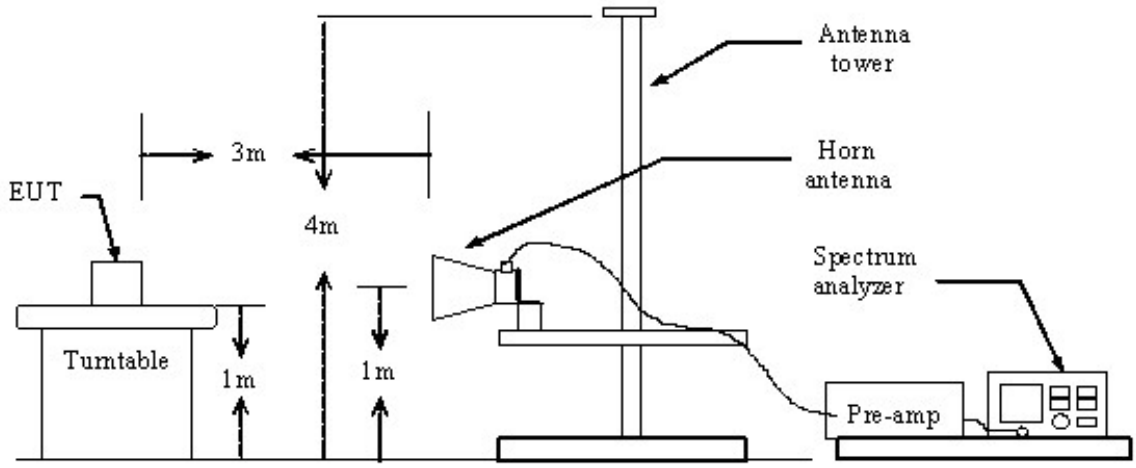
13.1.2 Block diagram of Test setup



Block diagram of Test setup for frequency below 30MHz



Block diagram of Test setup for frequency above 1GHz



13.1.3 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2009 and ANSI C63.4-2003.

13.1.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	20log 2400/F (kHz) + 80
0.490-1.705	3	20log 24000/F (kHz) + 40
1.705-30	3	20log 30 + 40
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1) RF Voltage (dBuV) = 20 log RF Voltage (uV)

2) In the Above Table, the tighter limit applies at the band edges.

3) Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4) This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

5) All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK and AV detector.

6) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula Ld1 = Ld2 * (d2/d1)

13.1.6 Test Equipment:

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	July 7, 2013	July 6, 2014
Spectrum Analyzer	ROHDE&SCHWARZ	FSEM	848597/001	July 7, 2013	July 6, 2014
Pre-amplifier	Teseq	LAN6900	--	July 8, 2013	July 7, 2014
Pre-amplifier	Agilent	8447D	83153007374	July 8, 2013	July 7, 2014
Pre-amplifier	Agilent	8449B	3008A01738	July 8, 2013	July 7, 2014
Triple-loop antenna	ROHDE&SCHWARZ	HM020	843885/002	July 8, 2013	July 7, 2014
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	July 8, 2013	July 7, 2014
Horn Antenna	ETS LINDGREN	3117	--	July 8, 2013	July 7, 2014
Horn Antenna	ETS LINDGREN	3160	--	July 8, 2013	July 7, 2014

13.1.7 Test specification:

Environmental conditions: Temperature 23° C Humidity: 50% Atmospheric pressure: 103kPa

13.1.8 Test result

Pass

A Radiated Emission (9 kHz----30 MHz)

Note: 1) Emission Level=Reading+ Cable loss+ Antenna factor-Amp factor

2) The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Result: Pass

Frequency (MHz)	Level@3m (dB μ V/m)	Limit@3m (dB μ V/m)
--	--	--
--	--	--
--	--	--
--	--	--

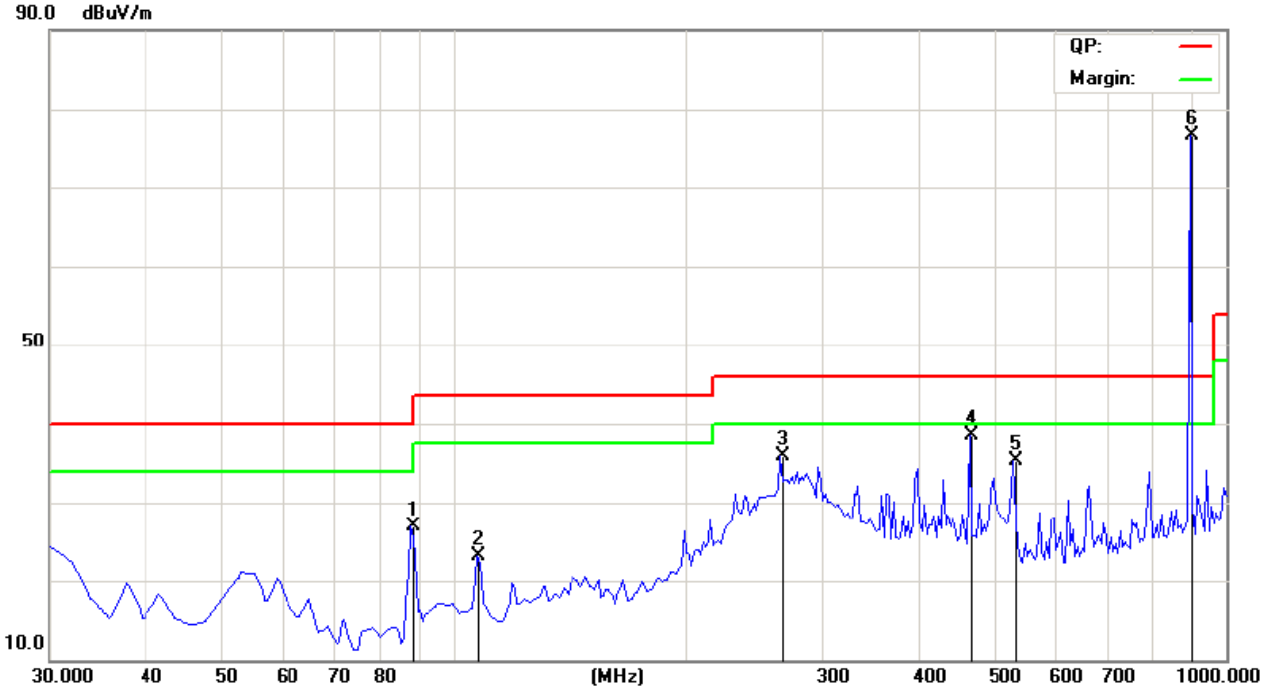
B General Radiated Emissions Data

Fundamental & Radiated Emission (30MHz----1000MHz)

Please refer to following diagram for individual

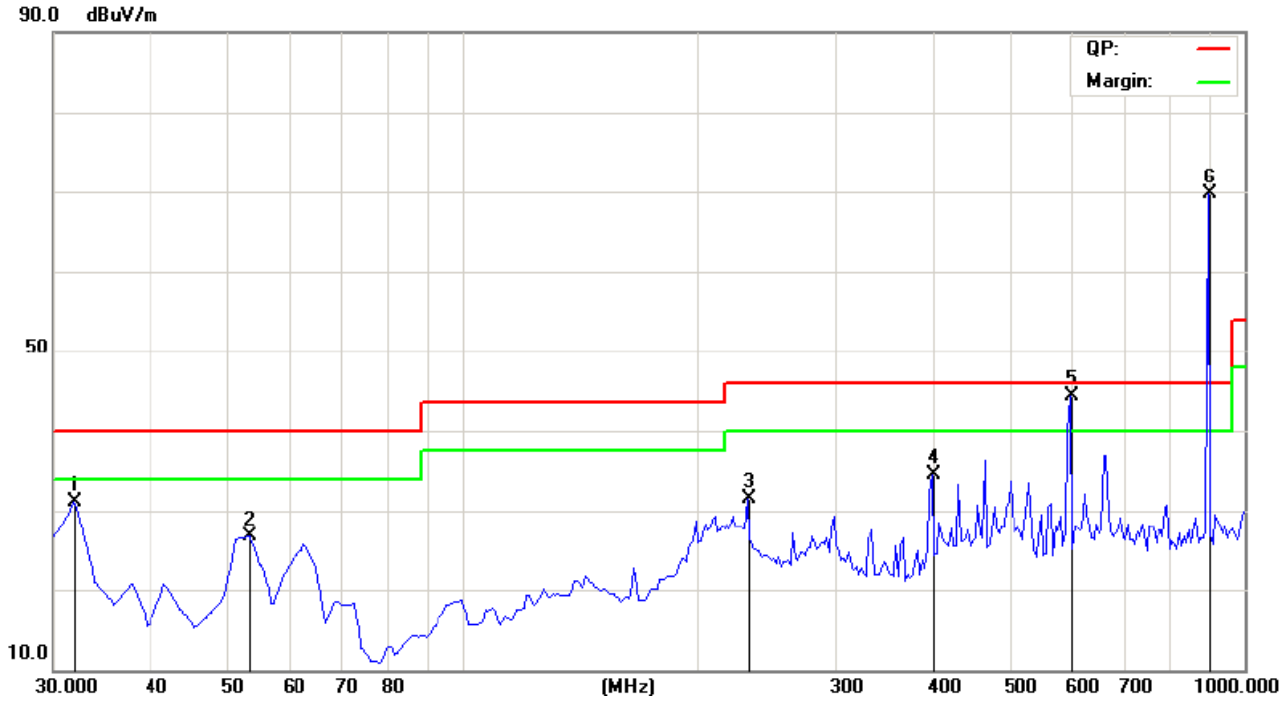
Low channel: 902.6 MHz

In Horizontal



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
88.3164	26.82	H	43.50
107.7555	23.11	H	43.50
265.2104	35.88	H	46.00
467.3747	38.55	H	46.00
533.4670	35.33	H	46.00
902.8056	76.63	H	--

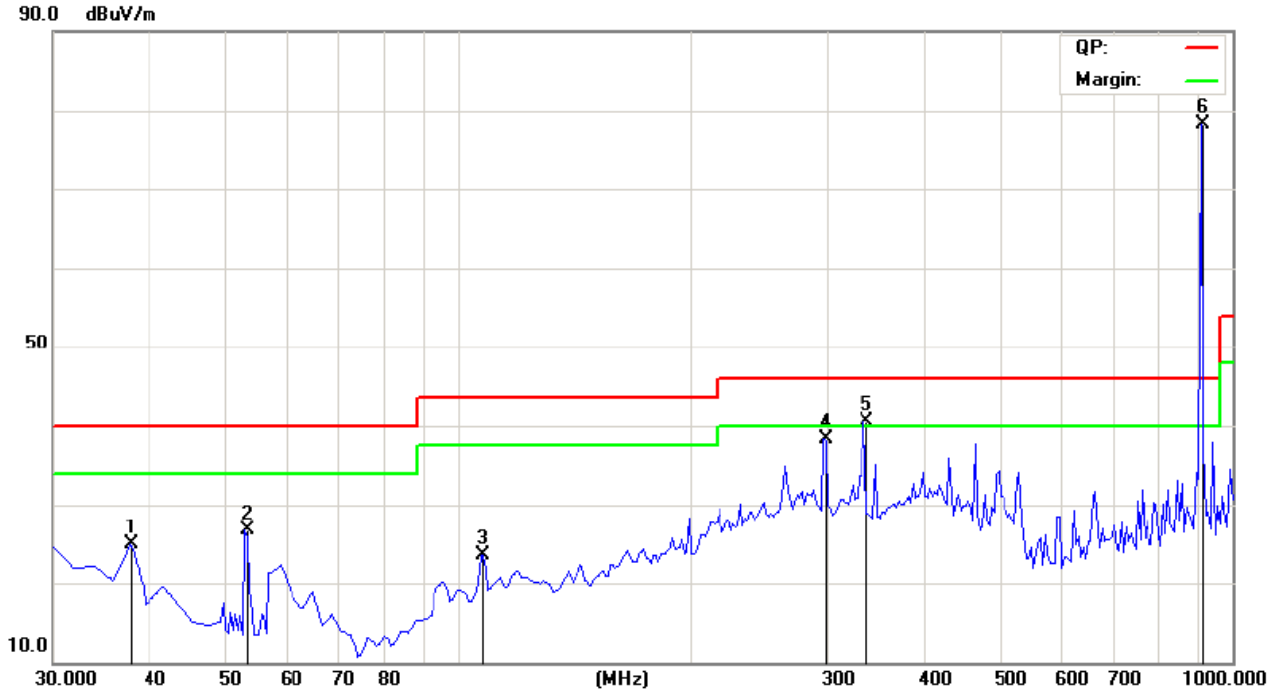
In Vertical



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
31.9440	31.02	V	40.00
53.3267	26.72	V	40.00
232.1643	31.57	V	43.50
399.3387	34.59	V	43.50
599.5591	44.38	V	46.00
902.8056	69.73	V	--

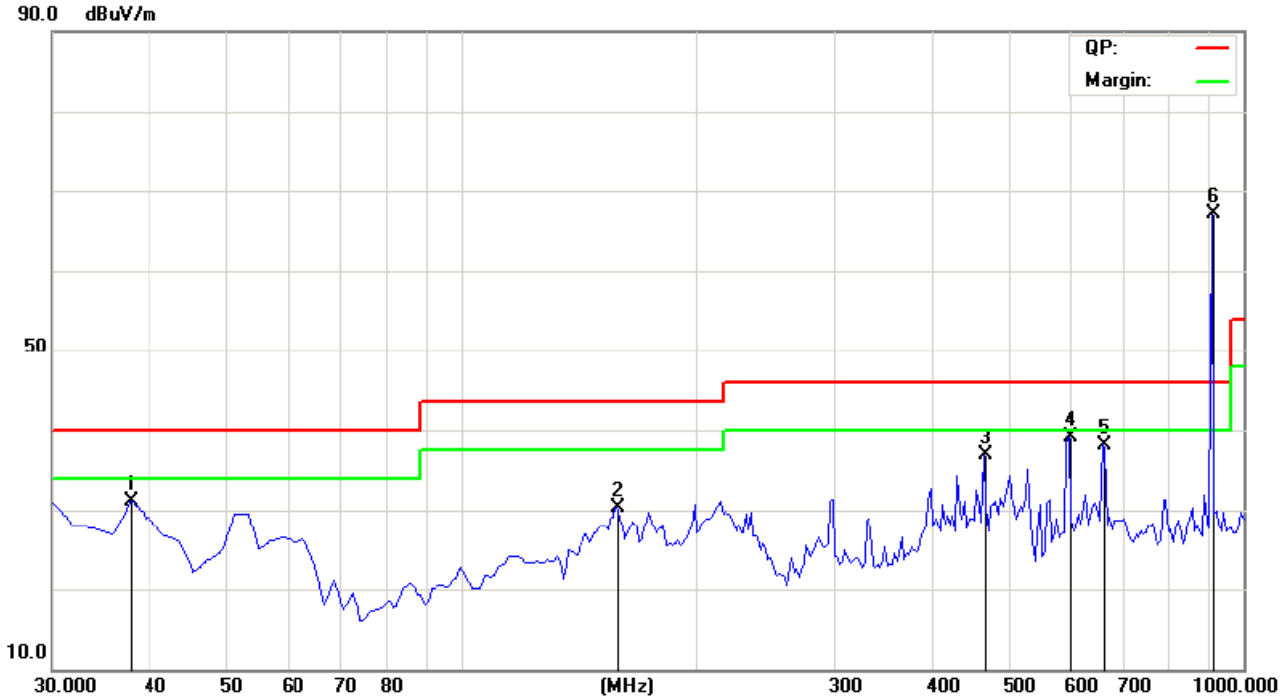
Middle channel: 915.0 MHz

In Horizontal



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
37.7756	24.92	H	40.00
53.3267	26.70	H	40.00
107.7555	23.55	H	43.50
298.2565	38.33	H	46.00
335.1904	40.51	H	46.00
915.0128	78.33	H	--

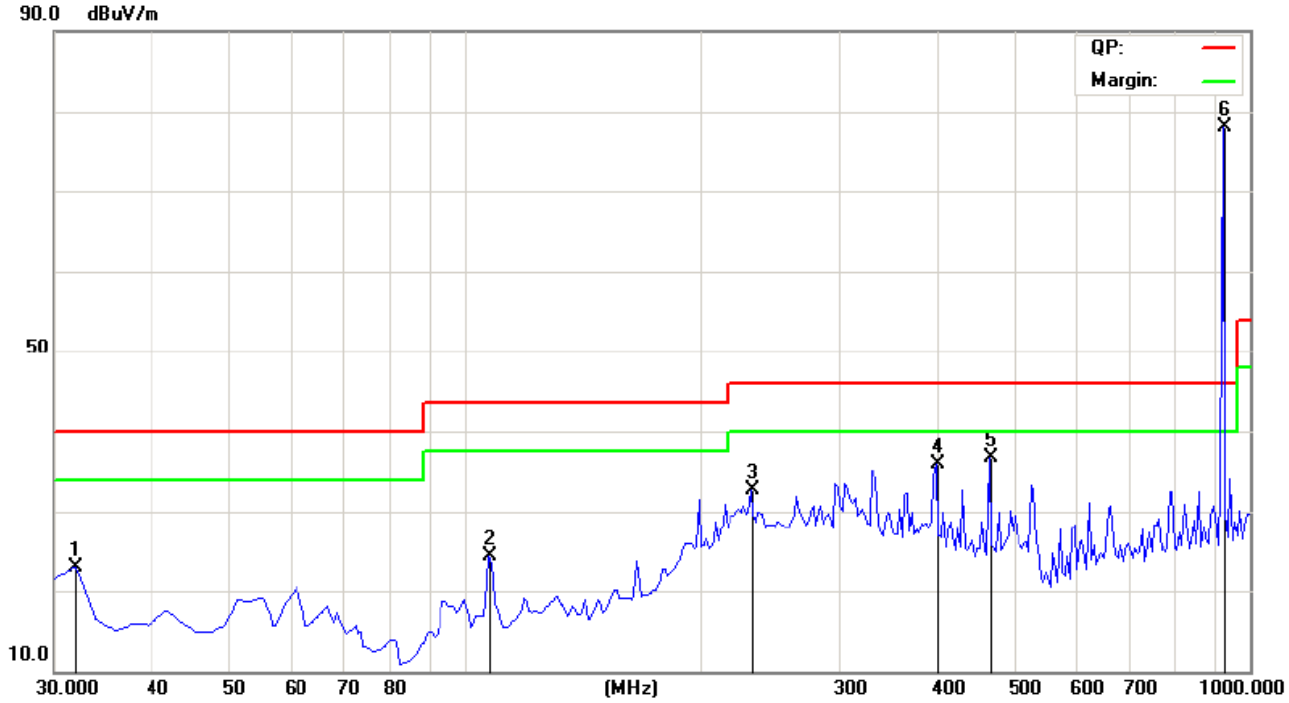
In Vertical



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
37.7756	31.13	V	40.00
158.2966	30.32	V	43.50
467.3747	22.71	V	46.00
599.5591	39.13	V	46.00
663.7073	38.20	V	46.00
915.0128	67.18	V	--

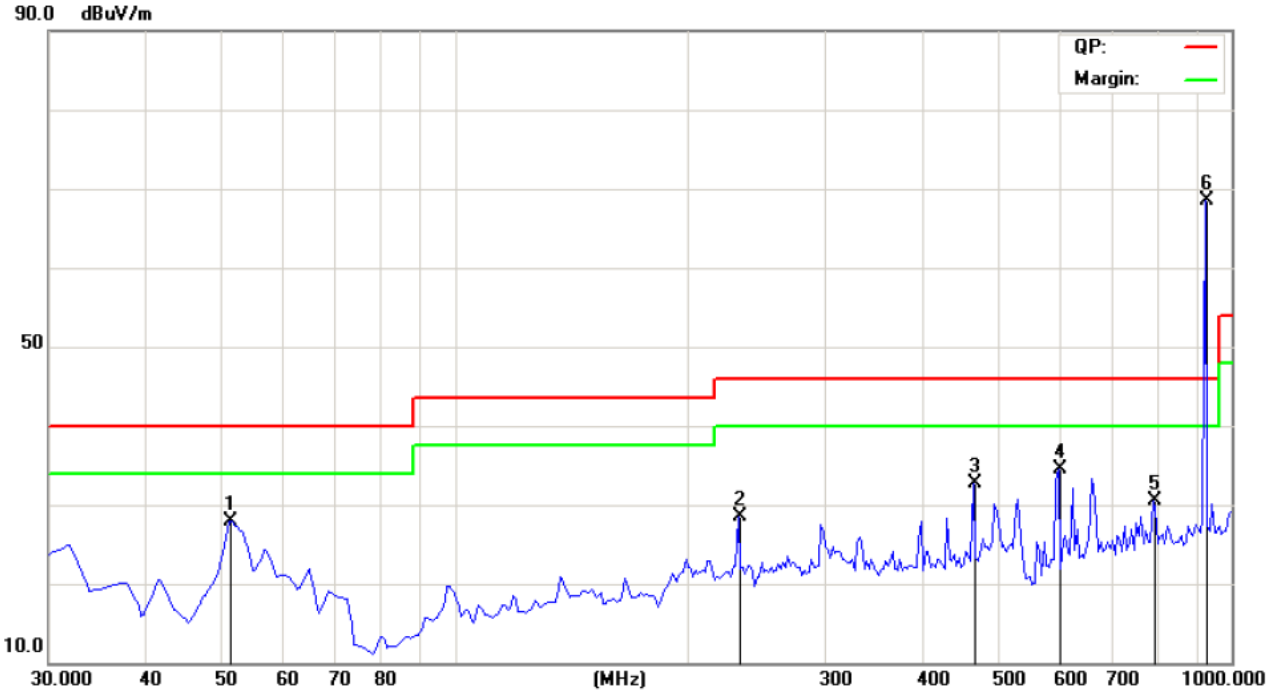
High channel: 927.6 MHz

In Horizontal



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
31.9440	22.97	H	40.00
107.7555	24.34	H	43.50
232.1643	32.75	H	46.00
399.3387	35.86	H	46.00
467.3747	36.66	H	46.00
928.0762	78.08	H	--

In Vertical



Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
37.7756	31.13	V	40.00
158.2966	30.32	V	43.50
467.3747	36.86	V	46.00
599.5591	39.13	V	46.00
663.7073	38.20	V	46.00
928.0726	68.26	V	--

C Harmonics Radiated Emission Data (1000MHz-25000MHz)

Low channel: 902.6 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1300.36	H	49.25	---	-4.20	45.05	---	74	54	-8.95
1805.20	H	49.25	---	-4.18	45.07	---	74	54	-8.93
2707.80	H	53.21	---	-4.12	49.09	---	74	54	-4.91
3610.40	H	50.14	---	-4.06	46.08	---	74	54	-7.92
4513.00	H	46.24	---	-3.99	42.25	---	74	54	-11.75
5415.60	H	45.36	---	-3.28	42.08	---	74	54	-11.92
1302.24	V	48.36	---	-4.20	44.16	---	74	54	-9.84
1805.20	V	48.23	---	-4.18	44.05	---	74	54	-9.95
2707.80	V	52.14	---	-4.12	48.02	---	74	54	-5.98
3610.40	V	49.17	---	-4.06	45.11	---	74	54	-8.89
4513.00	V	45.61	---	-3.99	41.62	---	74	54	-12.38
5415.60	V	44.75	---	-3.28	41.47	---	74	54	-12.53

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector).

3) Average test would be performed if the peak readings were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

Middle channel: 915.0 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1300.31	H	48.32	---	-4.20	44.12	---	74	54	-9.88
1830.00	H	50.12	---	-4.18	45.94	---	74	54	-8.06
2745.00	H	54.01	---	-4.11	49.90	---	74	54	-4.10
3660.00	H	49.36	---	-4.06	45.30	---	74	54	-8.70
4575.00	H	45.31	---	-3.98	41.33	---	74	54	-12.67
5490.00	H	44.09	---	-3.27	40.82	---	74	54	-13.18
1302.54	V	47.23	---	-4.20	43.03	---	74	54	-13.18
1830.00	V	50.56	---	-4.18	46.38	---	74	54	-10.97
2745.00	V	53.45	---	-4.11	49.34	---	74	54	-7.62
3660.00	V	48.44	---	-4.06	44.38	---	74	54	-4.66
4575.00	V	44.12	---	-3.98	40.14	---	74	54	-9.62
5490.00	V	43.75	---	-3.27	40.48	---	74	54	-13.86

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector).

3) Average test would be performed if the peak result were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

High channel: 927.4 MHz									
Freq. (MHz)	Ant. Pol. H/V	Peak reading (dBuV)	AV reading (dBuV)	Correction Factor (dB)	Emission Level		Peak limit (dBuV/m)	AV limit (dBuV/m)	Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
1302.56	H	47.23	---	-4.20	43.03	---	74	54	-10.97
1854.80	H	50.02	---	-4.18	45.84	---	74	54	-8.16
2782.20	H	52.78	---	-4.10	48.68	---	74	54	-5.32
3709.40	H	46.36	---	-4.05	42.31	---	74	54	-11.69
4637.00	H	45.75	---	-3.97	41.78	---	74	54	-12.22
5564.40	H	43.21	---	-3.27	39.94	---	74	54	-14.06
1301.36	V	50.42	---	-4.20	46.22	---	74	54	-7.78
1854.80	V	49.75	---	-4.18	45.57	---	74	54	-8.43
2782.20	V	52.86	---	-4.10	48.76	---	74	54	-5.24
3709.40	V	46.78	---	-4.05	42.73	---	74	54	-11.27
4637.00	V	45.73	---	-3.97	41.76	---	74	54	-12.24
5564.40	V	44.76	---	-3.27	41.49	---	74	54	-12.51

Notes: 1) Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

2) Radiated emissions measured in frequencies above 1GHz were made (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector).

3) Average test would be performed if the peak result were greater than the average limit.

4) Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

5) Emission Level=Peak (AV) Reading + Correction Factor;

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

6) Margin (dB) = Emission Level (Peak) (dBuV/m)-Average limit (dBuV/m)

14.0 Antenna Requirement

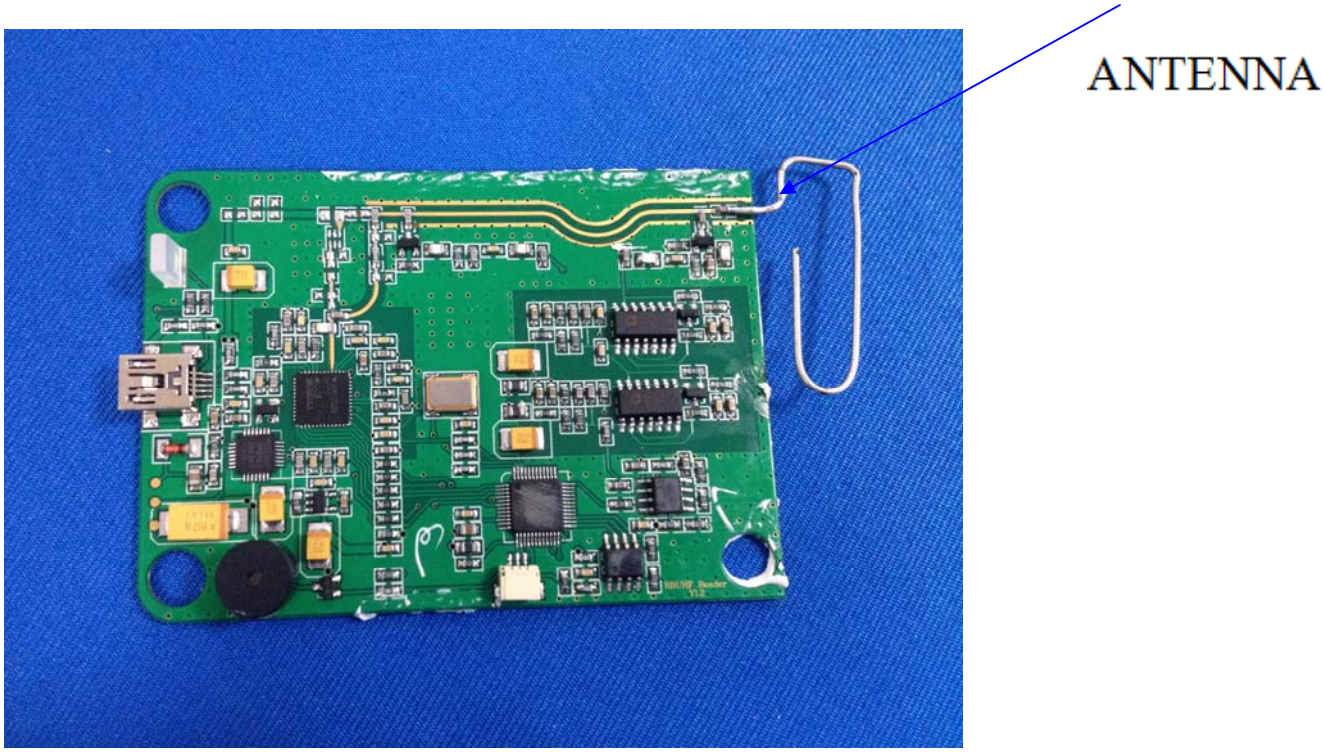
14.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

14.2 Antenna Specification

According to the manufacturer declared, the EUT has a Built-in antenna; the directional gain of antenna is 2 dBi, and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

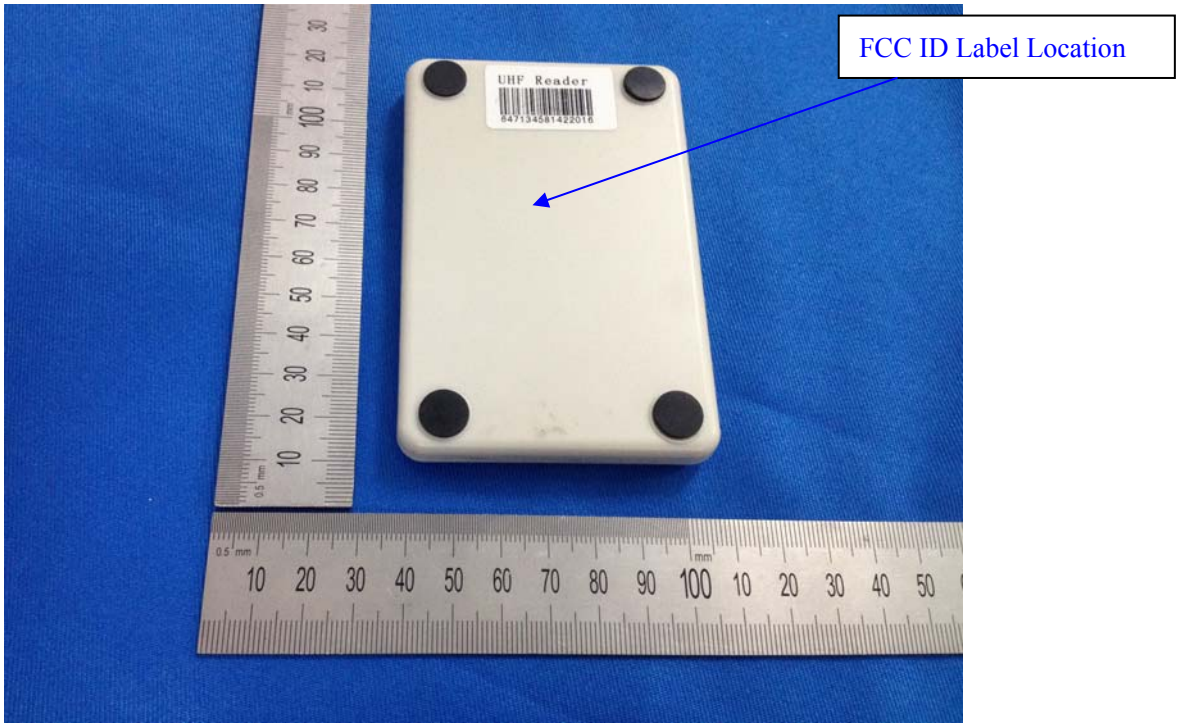


15.0 FCC ID Label

FCC ID: 2ABH7SR-RU-9809
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1)This device may not cause harmful interference, and
(2)This device must accept any interference received,
including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



--End of the report--