

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



TEST REPORT

Report No.: 13070962HKG-001

ALCO Electronics Ltd.

Application
For
Certification
(Original Grant)
(FCC ID: A2HRCT6077W2)
(IC: 9903A-RCT6077W2)

Transceiver

Prepared and Checked by:

Approved by:

Handwritten signature of Wong Cheuk Ho, Herbert.

Wong Cheuk Ho, Herbert
Lead Engineer

Handwritten signature of Chan Chi Hung, Terry.

Chan Chi Hung, Terry
Supervisor
Date: August 30, 2013

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Intertek Testing Services Hong Kong Ltd.

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-etlsemko.com

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GENERAL INFORMATION

ALCO Electronics Ltd.
BRAND NAME: VENTURER, MODEL: CT9077W2, CT9077W22
BRAND NAME: RCA, MODEL: RCT6077W2, RCT6077W22
FCC ID: A2HRCT6077W2
IC: 9903A-RCT6077W2

Grantee:	ALCO Electronics Ltd.
Grantee Address:	11/F., Zung Fu Industrial Building, 1067 King's Road, Quarry Bay, Hong Kong.
Contact Person:	Peggy Suen
Tel:	852-2562 6121
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e-mail:	peggy@alco.com.hk
Manufacturer:	Dongguan Houjie Alco Electronics General Factory
Manufacturer Address:	Gong Ye Xi Road, Houjie Industrial Compound, Houjie, Dongguan, Guangdong, P.R.C.
Brand Name:	VENTURER / RCA
Model:	CT9077W2, CT9077W22 / RCT6077W2, RCT6077W22
Type of EUT:	Transceiver
Description of EUT:	7" Tablet
Serial Number:	N/A
FCC ID / IC:	A2HRCT6077W2 / 9903A-RCT6077W2
Date of Sample Submitted:	July 24, 2013
Date of Test:	August 24, 2013
Report No.:	13070962HKG-001
Report Date:	August 30, 2013
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

Report No.: 13070962HKG-001
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i

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SUMMARY OF TEST RESULT

ALCO Electronics Ltd.
BRAND NAME: VENTURER, MODEL: CT9077W2, CT9077W22
BRAND NAME: RCA, MODEL: RCT6077W2, RCT6077W22
FCC ID: A2HRCT6077W2
IC: 9903A-RCT6077W2

TEST SPECIFICATION	REFERENCE	RESULTS
Transmitter Power Line Conducted Emissions	15.207 / RSS-Gen 7.2.4	Pass
Transmitter Field Strength and Bandwidth Requirement	15.249 / RSS-210 A2.9	Pass
Digital Device Radiated Emissions	15.109 / RSS-210 2.5	Pass

The equipment under test is found to be complying with the following standards:
FCC Part 15, October 1, 2012 Edition
RSS-210 Issue 8, December 2010
RSS-Gen Issue 3, December 2010

- Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.
2. Pursuant to FCC part 15 Section 15.215(c), the 20 dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over exceeded variations in temperature and supply voltage were considered.

Report No.: 13070962HKG-001
FCC ID: A2HRCT6077W2
IC: 9903A-RCT6077W2

ii

Table of Contents

1.0	General Description	1
1.1	Product Description	1
1.2	Related Submittal(s) Grants	1
1.3	Test Methodology	2
1.4	Test Facility	2
2.0	System Test Configuration	3
2.1	Justification	3
2.2	EUT Exercising Software	3
2.3	Special Accessories	3
2.4	Equipment Modification	4
2.5	Measurement Uncertainty	4
2.6	Support Equipment List and Description	4
3.0	Emission Results	5
3.1	Field Strength Calculation	5
3.2	Radiated Emission Configuration Photograph	6
3.3	Radiated Emission Data	6
3.4	Conducted Emission Configuration Photograph	6
3.5	Conducted Emission Data	6
4.0	Equipment Photographs	17
5.0	Product Labelling	17
6.0	Technical Specifications	17
7.0	Instruction Manual	17
8.0	Miscellaneous Information	18
8.1	Measured Bandwidth	18
8.2	Discussion of Pulse Desensitization	27
8.3	Calculation of Average Factor	27
8.4	Emissions Test Procedures	27
9.0	Equipment List	29

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1.0 **General Description**

1.1 Product Description

The Equipment Under Test (EUT) is a 7-inch Tablet with Android Operating System. The EUT equipped with a 7-inch LCD display (with touch screen), camera, USB, SD interface, loudspeaker and headphone output. The EUT contains a WiFi module complying with IEEE 802.11b/g/n(HT20)/n(HT40) standards that operating in 2.4GHz ISM frequency band (2400MHz – 2483.5MHz). The EUT is powered by an external AC/DC adaptor with 5VDC output. The adaptor accepts 100-240VAC. The applicant declared that the EUT does not contain Bluetooth RF module.

The Model: CT9077W22, RCT6077W2 and RCT6077W22 are the same as the Model: CT9077W2 in hardware aspect. The difference in model number and brand name serves as marketing strategy.

Antenna Type : Internal, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a transceiver.

The Declaration of the Conformity of PC Connectivity for this transceiver (with FCC ID: A2HRCT6077W2) is being processed as the same time of this application.

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1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). All radiated measurements were performed in an Open Area Test Site. Preliminary scans were performed in the Open Area Test Site only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application.

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been placed on file with the FCC and IC.

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2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2009).

The device was powered by 120VAC.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

All configuration (with and without PC connectivity during transceiver test) and setting of data rate for each 802.11b/g/n(HT20)/n(HT40) mode had been considered and worst case test data are shown on this test report.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

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2.4 Equipment Modification

Any modifications installed previous to testing by ALCO Electronics Ltd. will be incorporated in each production model sold/leased in the United States and Canada.

No modifications were installed by Intertek Testing Services Hong Kong Ltd.

2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

2.6 Support Equipment List and Description

1. 2GB Kingston SD Card
2. 1 x 1m USB cable
3. 1 x 1.2m long headphone
(Provided by Intertek)
4. Software RTL8188EU RFTTest Tools
5. Notebook IBM Thinkpad X40 (MIS-1486)
6. AC/DC Adaptor
(Model: TPA-595015U01; Input: 100-120VAC 50/60Hz 0.3A; Output: 5VDC 1.5A)
(Provided by Applicant)

3.0 Emission Results

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG - AV$$

where FS = Field Strength in dB μ V/m
 RA = Receiver Amplitude (including preamplifier) in dB μ V
 CF = Cable Attenuation Factor in dB
 AF = Antenna Factor in dB
 AG = Amplifier Gain in dB
 AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where FS = Field Strength in dB μ V/m
 RR = RA - AG - AV in dB μ V
 LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$\begin{aligned} RA &= 52.0 \text{ dB}\mu\text{V/m} & RR &= 18.0 \text{ dB}\mu\text{V} \\ AF &= 7.4 \text{ dB} & LF &= 9.0 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ AV &= 5.0 \text{ dB} \\ FS &= RR + LF \\ FS &= 18 + 9 = 27 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$

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3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 14472.000 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Passed by 12.0 dB

3.4 Conducted Emission Configuration Photograph

The worst case in line-conducted emission was found at 0.573 MHz

For electronic filing, the worst case line-conducted configuration photographs are saved with filename: conducted photo.pdf.

3.5 Conducted Emission Data

The graph and data table of conducted emission is shown as below.

Judgment: Pass by 9.5 dB

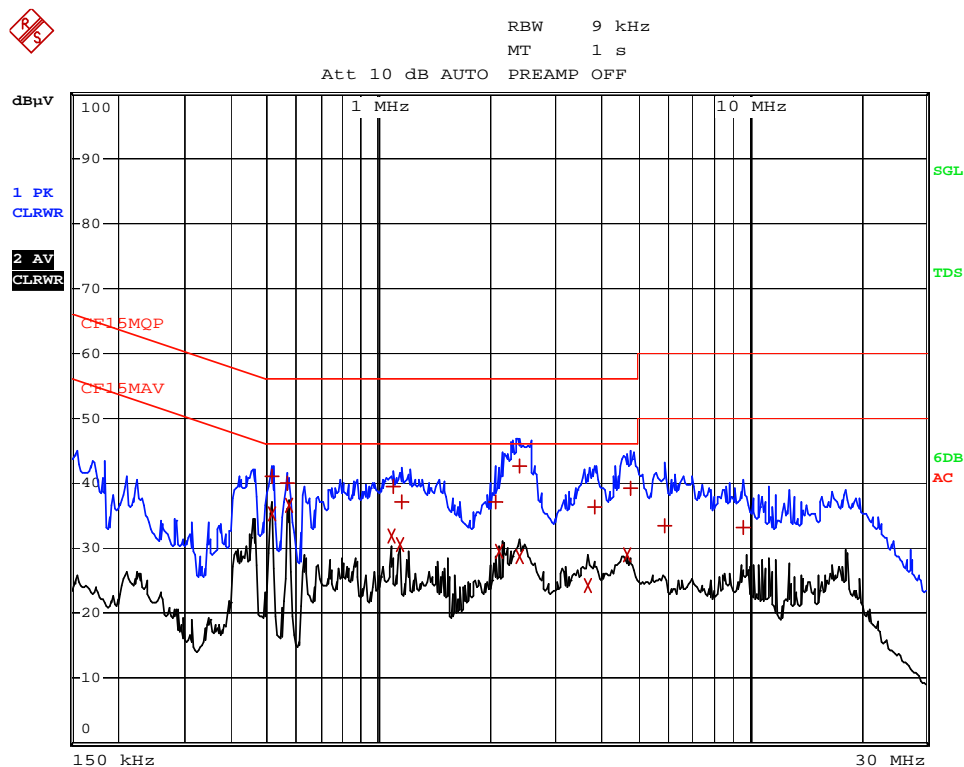
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Worst-Case Operating Mode: WiFi Transmitting

EDIT PEAK LIST (Final Measurement Results)					
TRACE		FREQUENCY	LEVEL	dBμV	DELTA LIMIT
Trace1:	CF15MQP				
Trace2:	CF15MAV				
Trace3:	---				
TRACE	FREQUENCY	LEVEL	dBμV	DELTA	LIMIT
1 Quasi Peak	514.5 kHz	41.06	L1	-14.93	
2 CISPR Average	514.5 kHz	35.40	L1	-10.59	
1 Quasi Peak	568.5 kHz	40.01	L1	-15.98	
2 CISPR Average	573 kHz	36.49	L1	-9.50	
2 CISPR Average	1.086 MHz	31.77	L1	-14.23	
1 Quasi Peak	1.0905 MHz	39.39	L1	-16.60	
2 CISPR Average	1.14 MHz	30.54	L1	-15.45	
1 Quasi Peak	1.149 MHz	37.01	L1	-18.98	
1 Quasi Peak	2.0715 MHz	37.05	N	-18.94	
2 CISPR Average	2.121 MHz	29.45	L1	-16.54	
2 CISPR Average	2.4045 MHz	28.63	N	-17.36	
1 Quasi Peak	2.409 MHz	42.55	L1	-13.44	
2 CISPR Average	3.687 MHz	24.38	L1	-21.61	
1 Quasi Peak	3.84 MHz	36.41	L1	-19.58	
2 CISPR Average	4.695 MHz	29.07	N	-16.92	
1 Quasi Peak	4.812 MHz	39.34	L1	-16.65	
1 Quasi Peak	5.9235 MHz	33.51	L1	-26.48	
1 Quasi Peak	9.699 MHz	33.16	N	-26.83	



Report No.: 13070962HKG-001
FCC ID: A2HRCT6077W2
IC: 9903A-RCT6077W2

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Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11b DSSS 11Mbps)

Table 1
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 01

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2412.000	79.9	33	29.4	76.3	94.0	-17.7
V	4824.000	33.6	33	34.9	35.5	54.0	-18.5
V	7236.000	27.8	33	37.9	32.7	54.0	-21.3
V	9648.000	28.3	33	40.4	35.7	54.0	-18.3
V	12060.000	32.5	33	40.5	40.0	54.0	-14.0
V	14472.000	35.0	33	40.0	42.0	54.0	-12.0

Channel 06

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2437.000	79.7	33	29.4	76.1	94.0	-17.9
V	4874.000	33.5	33	34.9	35.4	54.0	-18.6
V	7311.000	28.0	33	37.9	32.9	54.0	-21.1
V	9748.000	28.5	33	40.4	35.9	54.0	-18.1
V	12185.000	32.9	33	40.5	40.4	54.0	-13.6
V	14622.000	36.4	33	38.4	41.8	54.0	-12.2

Channel 11

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2462.000	79.6	33	29.4	76.0	94.0	-18.0
V	4924.000	33.9	33	34.9	35.8	54.0	-18.2
V	7386.000	27.8	33	37.9	32.7	54.0	-21.3
V	9848.000	28.4	33	40.4	35.8	54.0	-18.2
V	12310.000	32.8	33	40.5	40.3	54.0	-13.7
V	14772.000	36.3	33	38.4	41.7	54.0	-12.3

- NOTES:
1. Average Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11b DSSS 11Mbps)

Table 2
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 01

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2412.000	97.4	33	29.4	93.8	114.0	-20.2
V	4824.000	44.2	33	34.9	46.1	74.0	-27.9
V	7236.000	42.3	33	37.9	47.2	74.0	-26.8
V	9648.000	41.1	33	40.4	48.5	74.0	-25.5
V	12060.000	44.0	33	40.5	51.5	74.0	-22.5
V	14472.000	45.9	33	40.0	52.9	74.0	-21.1

Channel 06

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2437.000	97.3	33	29.4	93.7	114.0	-20.3
V	4874.000	44.4	33	34.9	46.3	74.0	-27.7
V	7311.000	42.3	33	37.9	47.2	74.0	-26.8
V	9748.000	41.4	33	40.4	48.8	74.0	-25.2
V	12185.000	43.7	33	40.5	51.2	74.0	-22.8
V	14622.000	47.3	33	38.4	52.7	74.0	-21.3

Channel 11

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2462.000	97.1	33	29.4	93.5	114.0	-20.5
V	4924.000	44.3	33	34.9	46.2	74.0	-27.8
V	7386.000	42.4	33	37.9	47.3	74.0	-26.7
V	9848.000	41.3	33	40.4	48.7	74.0	-25.3
V	12310.000	43.8	33	40.5	51.3	74.0	-22.7
V	14772.000	47.0	33	38.4	52.4	74.0	-21.6

- NOTES:
1. Peak Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11g OFDM 54Mbps)

Table 3
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 01

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2412.000	68.6	33	29.4	65.0	94.0	-29.0
V	4824.000	33.3	33	34.9	35.2	54.0	-18.8
V	7236.000	28.4	33	37.9	33.3	54.0	-20.7
V	9648.000	27.8	33	40.4	35.2	54.0	-18.8
V	12060.000	32.9	33	40.5	40.4	54.0	-13.6
V	14472.000	34.8	33	40.0	41.8	54.0	-12.2

Channel 06

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2437.000	68.4	33	29.4	64.8	94.0	-29.2
V	4874.000	33.2	33	34.9	35.1	54.0	-18.9
V	7311.000	28.9	33	37.9	33.8	54.0	-20.2
V	9748.000	28.0	33	40.4	35.4	54.0	-18.6
V	12185.000	33.2	33	40.5	40.7	54.0	-13.3
V	14622.000	36.3	33	38.4	41.7	54.0	-12.3

Channel 11

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2462.000	67.7	33	29.4	64.1	94.0	-29.9
V	4924.000	33.4	33	34.9	35.3	54.0	-18.7
V	7386.000	28.7	33	37.9	33.6	54.0	-20.4
V	9848.000	28.4	33	40.4	35.8	54.0	-18.2
V	12310.000	33.1	33	40.5	40.6	54.0	-13.4
V	14772.000	35.8	33	38.4	41.2	54.0	-12.8

NOTES: 1. Average Detector is used for emission measurement.

- All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
- Negative sign in the column shows value below limit.
- Horn antenna is used for the emission over 1000MHz.
- For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
- For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11g OFDM 54Mbps)

Table 4
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 01

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
V	2412.000	92.2	33	29.4	88.6	114.0	-25.4
V	4824.000	43.4	33	34.9	45.3	74.0	-28.7
V	7236.000	42.2	33	37.9	47.1	74.0	-26.9
V	9648.000	41.1	33	40.4	48.5	74.0	-25.5
V	12060.000	43.6	33	40.5	51.1	74.0	-22.9
V	14472.000	45.9	33	40.0	52.9	74.0	-21.1

Channel 06

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
V	2437.000	91.1	33	29.4	87.5	114.0	-26.5
V	4874.000	43.3	33	34.9	45.2	74.0	-28.8
V	7311.000	42.4	33	37.9	47.3	74.0	-26.7
V	9748.000	41.2	33	40.4	48.6	74.0	-25.4
V	12185.000	43.8	33	40.5	51.3	74.0	-22.7
V	14622.000	47.4	33	38.4	52.8	74.0	-21.2

Channel 11

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
V	2462.000	90.5	33	29.4	86.9	114.0	-27.1
V	4924.000	43.1	33	34.9	45.0	74.0	-29.0
V	7386.000	42.4	33	37.9	47.3	74.0	-26.7
V	9848.000	41.4	33	40.4	48.8	74.0	-25.2
V	12310.000	44.3	33	40.5	51.8	74.0	-22.2
V	14772.000	47.4	33	38.4	52.8	74.0	-21.2

- NOTES:
1. Peak Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11n HT20 mcs7 65Mbps)

Table 5
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 01

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
V	2412.000	68.4	33	29.4	64.8	94.0	-29.2
V	4824.000	33.6	33	34.9	35.5	54.0	-18.5
V	7236.000	28.7	33	37.9	33.6	54.0	-20.4
V	9648.000	28.0	33	40.4	35.4	54.0	-18.6
V	12060.000	32.9	33	40.5	40.4	54.0	-13.6
V	14472.000	34.8	33	40.0	41.8	54.0	-12.2

Channel 06

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
V	2437.000	67.9	33	29.4	64.3	94.0	-29.7
V	4874.000	33.8	33	34.9	35.7	54.0	-18.3
V	7311.000	28.9	33	37.9	33.8	54.0	-20.2
V	9748.000	28.5	33	40.4	35.9	54.0	-18.1
V	12185.000	33.1	33	40.5	40.6	54.0	-13.4
V	14622.000	36.0	33	38.4	41.4	54.0	-12.6

Channel 11

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
V	2462.000	67.6	33	29.4	64.0	94.0	-30.0
V	4924.000	33.7	33	34.9	35.6	54.0	-18.4
V	7386.000	28.5	33	37.9	33.4	54.0	-20.6
V	9848.000	28.0	33	40.4	35.4	54.0	-18.6
V	12310.000	32.6	33	40.5	40.1	54.0	-13.9
V	14772.000	35.8	33	38.4	41.2	54.0	-12.8

- NOTES:
1. Average Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11n HT20 mcs7 65Mbps)

Table 6
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 01

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2412.000	91.2	33	29.4	87.6	114.0	-26.4
V	4824.000	43.4	33	34.9	45.3	74.0	-28.7
V	7236.000	41.7	33	37.9	46.6	74.0	-27.4
V	9648.000	40.3	33	40.4	47.7	74.0	-26.3
V	12060.000	43.2	33	40.5	50.7	74.0	-23.3
V	14472.000	44.8	33	40.0	51.8	74.0	-22.2

Channel 06

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2437.000	90.1	33	29.4	86.5	114.0	-27.5
V	4874.000	43.2	33	34.9	45.1	74.0	-28.9
V	7311.000	41.9	33	37.9	46.8	74.0	-27.2
V	9748.000	40.4	33	40.4	47.8	74.0	-26.2
V	12185.000	43.1	33	40.5	50.6	74.0	-23.4
V	14622.000	46.0	33	38.4	51.4	74.0	-22.6

Channel 11

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2462.000	88.6	33	29.4	85.0	114.0	-29.0
V	4924.000	43.3	33	34.9	45.2	74.0	-28.8
V	7386.000	41.8	33	37.9	46.7	74.0	-27.3
V	9848.000	40.2	33	40.4	47.6	74.0	-26.4
V	12310.000	43.2	33	40.5	50.7	74.0	-23.3
V	14772.000	45.9	33	38.4	51.3	74.0	-22.7

- NOTES:
1. Peak Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11n HT40 mcs7 150Mbps)

Table 7

Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 03

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2422.000	67.4	33	29.4	63.8	94.0	-30.2
V	4844.000	33.1	33	34.9	35.0	54.0	-19.0
V	7266.000	28.9	33	37.9	33.8	54.0	-20.2
V	9688.000	28.0	33	40.4	35.4	54.0	-18.6
V	12110.000	33.3	33	40.5	40.8	54.0	-13.2
V	14532.000	36.5	33	38.4	41.9	54.0	-12.1

Channel 06

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2437.000	67.3	33	29.4	63.7	94.0	-30.3
V	4874.000	33.4	33	34.9	35.3	54.0	-18.7
V	7311.000	28.5	33	37.9	33.4	54.0	-20.6
V	9748.000	28.2	33	40.4	35.6	54.0	-18.4
V	12185.000	33.2	33	40.5	40.7	54.0	-13.3
V	14622.000	36.3	33	38.4	41.7	54.0	-12.3

Channel 09

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	2452.000	67.1	33	29.4	63.5	94.0	-30.5
V	4904.000	33.3	33	34.9	35.2	54.0	-18.8
V	7356.000	28.3	33	37.9	33.2	54.0	-20.8
V	9808.000	28.3	33	40.4	35.7	54.0	-18.3
V	12260.000	33.2	33	40.5	40.7	54.0	-13.3
V	14712.000	36.4	33	38.4	41.8	54.0	-12.2

- NOTES:
1. Average Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Report No.: 13070962HKG-001

14

FCC ID: A2HRCT6077W2

IC: 9903A-RCT6077W2

Intertek Testing Services Hong Kong Ltd.

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Applicant: ALCO Electronics Ltd.

Date of Test: August 24, 2013

Model: CT9077W2

Worst-Case Operating Mode: Transmitting (802.11n HT40 mcs7 150Mbps)

Table 8
Radiated Emissions
Pursuant to FCC Part 15 Section 15.249 Requirement

Channel 03

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2422.000	88.4	33	29.4	84.8	114.0	-29.2
V	4844.000	43.4	33	34.9	45.3	74.0	-28.7
V	7266.000	41.6	33	37.9	46.5	74.0	-27.5
V	9688.000	39.7	33	40.4	47.1	74.0	-26.9
V	12110.000	43.3	33	40.5	50.8	74.0	-23.2
V	14532.000	46.5	33	38.4	51.9	74.0	-22.1

Channel 06

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2437.000	88.2	33	29.4	84.6	114.0	-29.4
V	4874.000	43.3	33	34.9	45.2	74.0	-28.8
V	7311.000	41.3	33	37.9	46.2	74.0	-27.8
V	9748.000	40.4	33	40.4	47.8	74.0	-26.2
V	12185.000	43.4	33	40.5	50.9	74.0	-23.1
V	14622.000	46.4	33	38.4	51.8	74.0	-22.2

Channel 09

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	2452.000	87.7	33	29.4	84.1	114.0	-29.9
V	4904.000	43.6	33	34.9	45.5	74.0	-28.5
V	7356.000	41.5	33	37.9	46.4	74.0	-27.6
V	9808.000	40.3	33	40.4	47.7	74.0	-26.3
V	12260.000	43.4	33	40.5	50.9	74.0	-23.1
V	14712.000	46.3	33	38.4	51.7	74.0	-22.3

- NOTES:
1. Peak Detector is used for emission measurement.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative sign in the column shows value below limit.
 4. Horn antenna is used for the emission over 1000MHz.
 5. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
 6. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



Applicant: ALCO Electronics Ltd.
Model: CT9077W2
Worst-Case Operating Mode: WiFi Transmitting

Date of Test: August 24, 2013

Table 9

Radiated Emissions
Pursuant to FCC Part 15 Section 15.109 Requirement

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	32.250	41.6	16	10.0	35.6	40.0	-4.4
H	62.250	42.2	16	10.0	36.2	40.0	-3.8
H	80.250	46.0	16	6.0	36.0	40.0	-4.0
H	124.950	40.8	16	14.0	38.8	43.5	-4.7
H	135.250	41.6	16	14.0	39.6	43.5	-3.9
H	179.750	35.6	16	20.0	39.6	43.5	-3.9
H	708.025	27.8	16	30.0	41.8	46.0	-4.2
H	792.025	26.4	16	31.0	41.4	46.0	-4.6

- NOTES: 1. Peak Detector Data unless otherwise stated.
2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative sign in the column shows value below limit.
4. Horn antenna is used for the emission over 1000MHz.

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

5.0 **Product Labelling**

For electronics filing, the FCC ID and IC label artwork and the label location are saved with filename: label.pdf.

6.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States and Canada.

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



8.0 Miscellaneous Information

The miscellaneous information includes details of the test procedure and measured bandwidth / calculation of factor such as pulse desensitization and averaging factor.

8.1 Measured Bandwidth

From the following plots, they show that the fundamental emissions are confined in the specified band (2400MHz to 2483.5MHz). In case of the fundamental emissions are within two standard bandwidths from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.4 (2009) for frequency being measured.

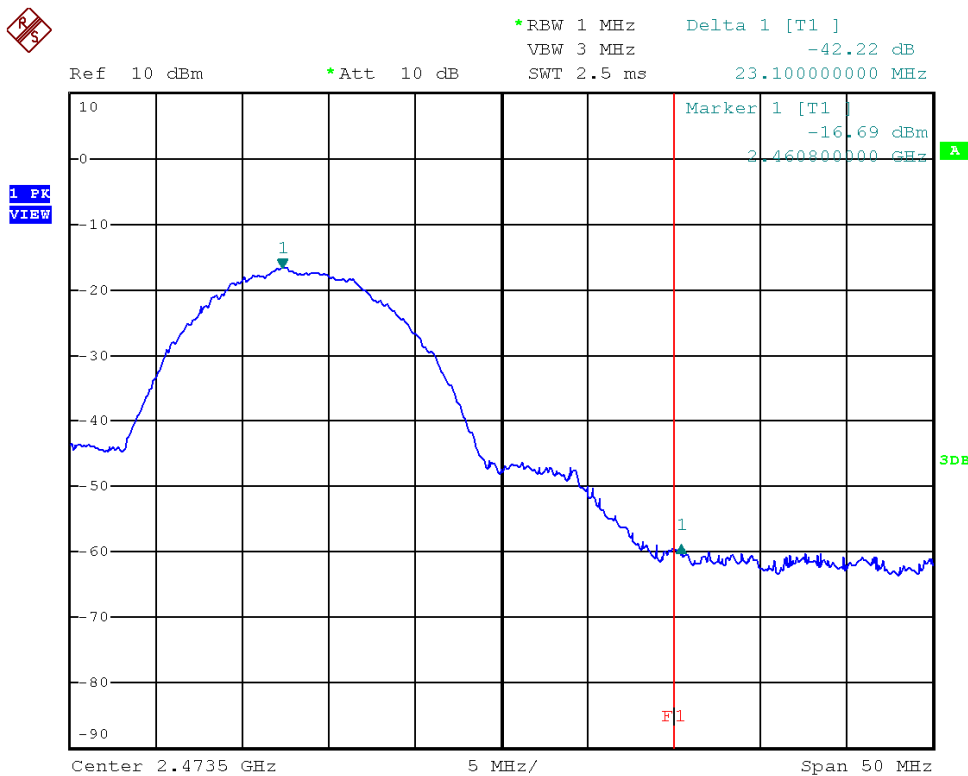
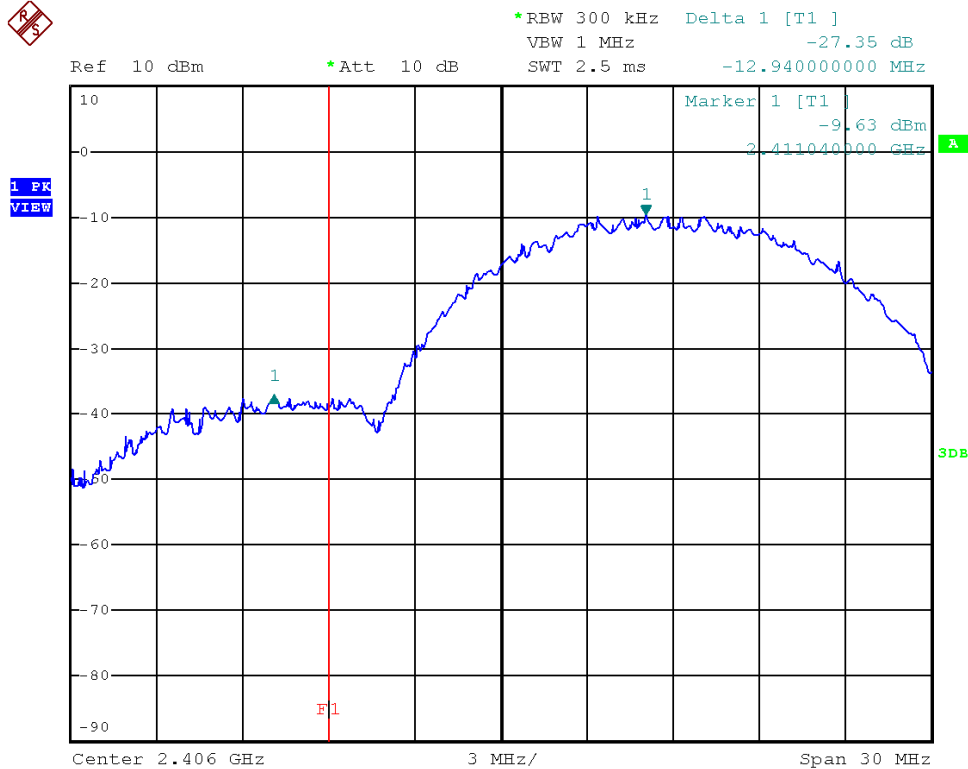
Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50dB below the level of the fundamental or to the general radiated emissions limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of part 15.249(d).

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

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Peak Measurement (802.11b DSSS 11Mbps)



Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

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Peak Measurement (802.11b DSSS 11Mbps)

Bandedge compliance is determined by applying marker-delta method, i.e. (Bandedge Plot).

Lower bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

=93.8 dB μ V/m - 27.4 dB
=66.4 dB μ V/m

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

=76.3 dB μ V/m - 27.4 dB
=48.9 dB μ V/m

Upper bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

=93.5 dB μ V/m - 42.2 dB
=51.3 dB μ V/m

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

=76.0 dB μ V/m - 42.2 dB
=33.8 dB μ V/m

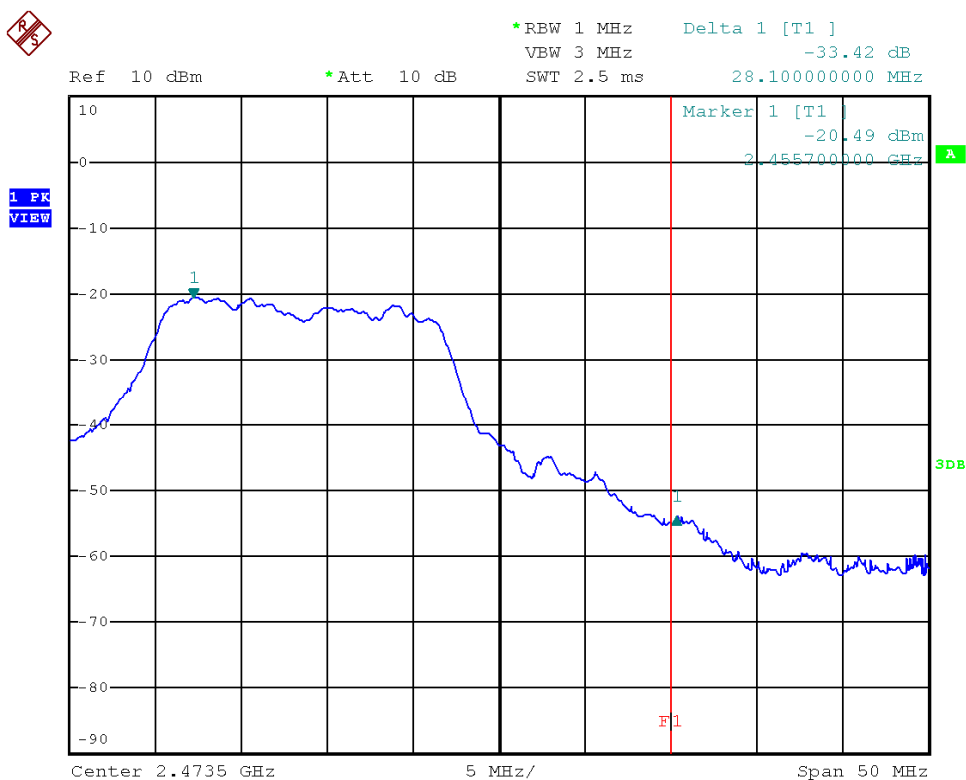
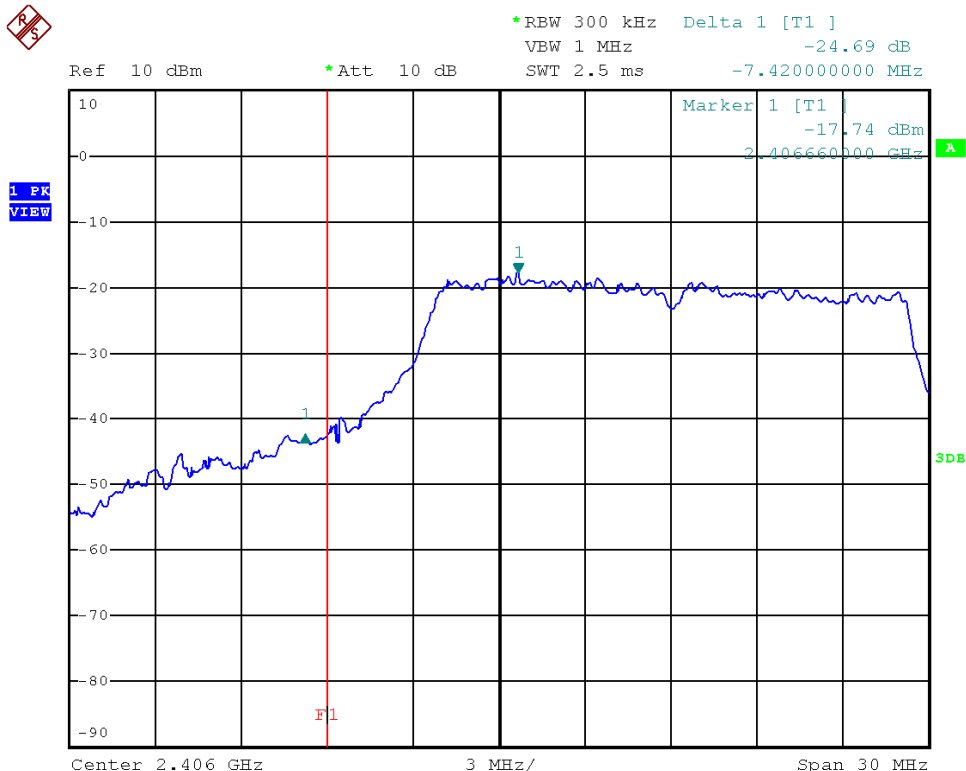
The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74 dB μ V/m (Peak Limit) and 54 dB μ V/m (Average Limit).

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



Peak Measurement (802.11g OFDM 54Mbps)



Peak Measurement (802.11g OFDM 54Mbps)

Bandedge compliance is determined by applying marker-delta method, i.e. (Bandedge Plot).

Lower bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

$$\begin{aligned} &= 88.6 \text{ dB}\mu\text{V/m} - 24.7 \text{ dB} \\ &= 63.9 \text{ dB}\mu\text{V/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

$$\begin{aligned} &= 65.0 \text{ dB}\mu\text{V/m} - 24.7 \text{ dB} \\ &= 40.3 \text{ dB}\mu\text{V/m} \end{aligned}$$

Upper bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

$$\begin{aligned} &= 86.9 \text{ dB}\mu\text{V/m} - 33.4 \text{ dB} \\ &= 53.5 \text{ dB}\mu\text{V/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

$$\begin{aligned} &= 64.1 \text{ dB}\mu\text{V/m} - 33.4 \text{ dB} \\ &= 30.7 \text{ dB}\mu\text{V/m} \end{aligned}$$

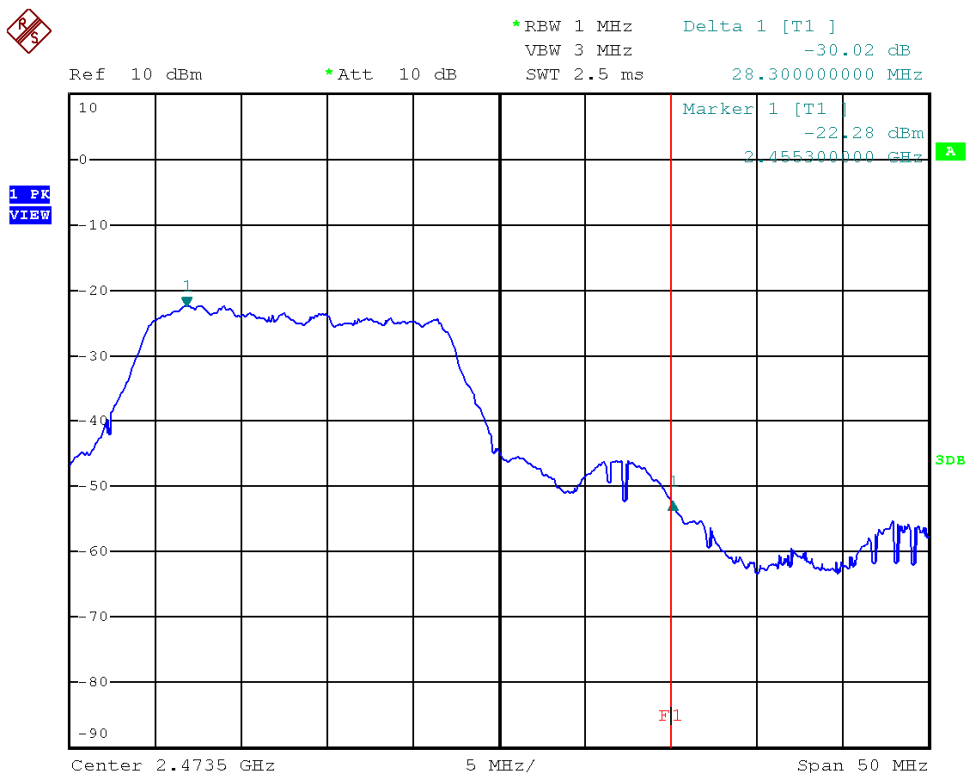
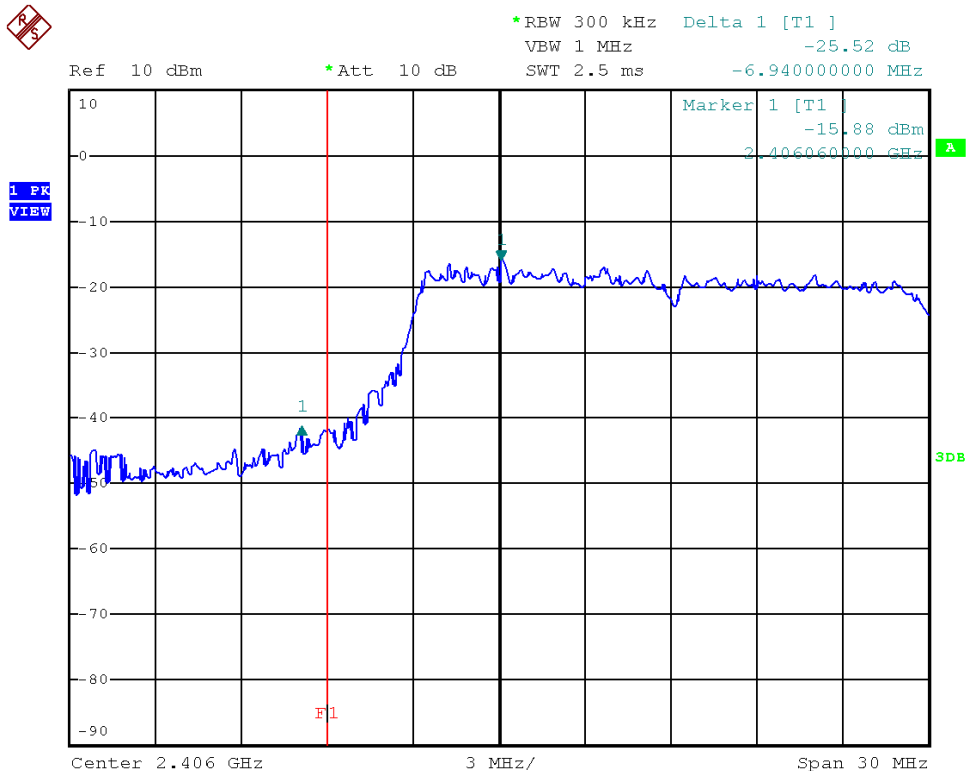
The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74 dB μ V/m (Peak Limit) and 54 dB μ V/m (Average Limit).

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



Peak Measurement (802.11n HT20 mcs7 65Mbps)



Peak Measurement (802.11n HT20 mcs7 65Mbps)

Bandedge compliance is determined by applying marker-delta method, i.e. (Bandedge Plot).

Lower bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

$$\begin{aligned} &= 87.6 \text{ dB}\mu\text{V/m} - 25.5 \text{ dB} \\ &= 62.1 \text{ dB}\mu\text{V/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

$$\begin{aligned} &= 64.8 \text{ dB}\mu\text{V/m} - 25.5 \text{ dB} \\ &= 39.3 \text{ dB}\mu\text{V/m} \end{aligned}$$

Upper bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

$$\begin{aligned} &= 85.0 \text{ dB}\mu\text{V/m} - 30.0 \text{ dB} \\ &= 55.0 \text{ dB}\mu\text{V/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

$$\begin{aligned} &= 64.0 \text{ dB}\mu\text{V/m} - 30.0 \text{ dB} \\ &= 34.0 \text{ dB}\mu\text{V/m} \end{aligned}$$

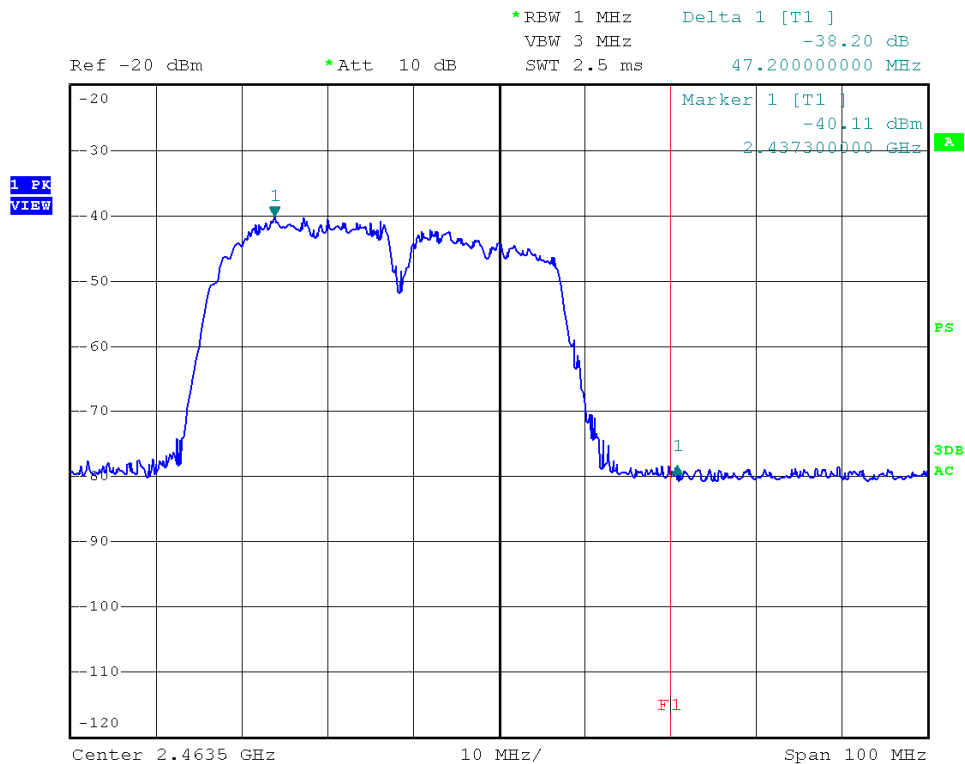
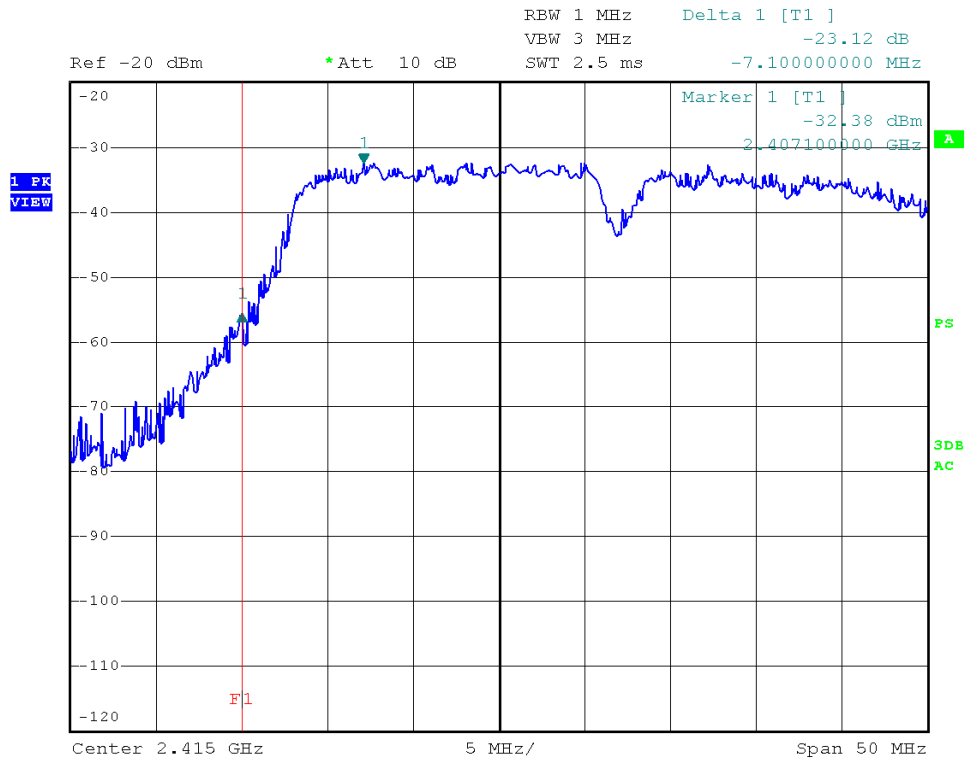
The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74 dB μ V/m (Peak Limit) and 54 dB μ V/m (Average Limit).

Issuing Laboratory:
Intertek Testing Services Hong Kong Limited

Hong Kong Accreditation Service (HKAS) has accredited this laboratory under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this report were determined by this laboratory in accordance with its terms of accreditation.



Peak Measurement (802.11n HT40 mcs7 150Mbps)



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25

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Peak Measurement (802.11n HT40 mcs7 150Mbps)

Bandedge compliance is determined by applying marker-delta method, i.e. (Bandedge Plot).

Lower bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

$$\begin{aligned} &= 84.8 \text{ dB}\mu\text{V/m} - 23.1 \text{ dB} \\ &= 61.7 \text{ dB}\mu\text{V/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

$$\begin{aligned} &= 63.8 \text{ dB}\mu\text{V/m} - 23.1 \text{ dB} \\ &= 40.7 \text{ dB}\mu\text{V/m} \end{aligned}$$

Upper bandedge

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the plot

$$\begin{aligned} &= 84.1 \text{ dB}\mu\text{V/m} - 38.2 \text{ dB} \\ &= 45.9 \text{ dB}\mu\text{V/m} \end{aligned}$$

Average Resultant field strength = Fundamental emissions (average value) – delta from the plot

$$\begin{aligned} &= 63.5 \text{ dB}\mu\text{V/m} - 38.2 \text{ dB} \\ &= 25.3 \text{ dB}\mu\text{V/m} \end{aligned}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74 dB μ V/m (Peak Limit) and 54 dB μ V/m (Average Limit).

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8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. Since the transmitter transmits the RF signal continuously.

8.3 Calculation of Average Factor

The average factor is not applicable for this device as the transmitted signal is a continuously signal.

8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of transmitter operating under the Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 (2009). A typical or an unmodulated CW signal at the operating frequency of the EUT has been supplied to the EUT for all measurements. Such a signal is supplied by a signal generator and an antenna in close proximity to the EUT. The signal level is sufficient to stabilize the local oscillator of the EUT.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

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8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements were made as described in ANSI C63.4 (2009).

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.1). Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the forbidden bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

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9.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Biconical Antenna	Log Periodic Antenna
Registration No.	EW-2500	EW-0954	EW-0446
Manufacturer	R&S	EMCO	EMCO
Model No.	ESCI	3104C	3146
Calibration Date	Mar. 22, 2013	Apr. 30, 2013	Apr. 30, 2013
Calibration Due Date	Feb. 28, 2014	Oct. 30, 2014	Oct. 30, 2014

Equipment	Spectrum Analyzer	Double Ridged Guide Antenna
Registration No.	EW-2188	EW-1133
Manufacturer	AGILENTTECH	EMCO
Model No.	E4407B	3115
Calibration Date	Nov. 05, 2012	Oct. 05, 2012
Calibration Due Date	Nov. 05, 2013	Apr. 05, 2014

2) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN
Registration No.	EW-2500	EW-2501
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Mar. 22, 2013	Nov. 30, 2012
Calibration Due Date	Feb. 28, 2014	Nov. 30, 2013

3) Bandedge Measurement

Equipment	Spectrum Analyzer
Registration No.	EW-2249
Manufacturer	R&S
Model No.	FSP30
Calibration Date	Oct. 04, 2012
Calibration Due Date	Oct. 04, 2013