

FCC CFR47 PART 15 SUBPART E INDUSTRY CANADA RSS-210 ISSUE 8 CLASS II PERMISSIVE CHANGE

CERTIFICATION TEST REPORT

FOR

MIC-A2 FCC/IC C2PC

MODEL NUMBER: MIC-A2

FCC ID: MCLMICA2 IC: 2878D-MICA2

REPORT NUMBER: 12J14215-2, Revision A

ISSUE DATE: JANUARY 27, 2012

Prepared for HON HAI PRECISION IND. CO., LTD. 5F-1, 5 HSIN-AN ROAD HSINCHU SCIENCE-BASED INDUSTRIAL PARK TAIWAN, R.O.C.

Prepared by COMPLIANCE CERTIFICATION SERVICES (UL CCS) 47173 BENICIA STREET FREMONT, CA 94538, U.S.A. TEL: (510) 771-1000 FAX: (510) 661-0888



NVLAP LAB CODE 200065-0

Revision History

Rev.	lssue Date	Revisions	Revised By
	01/18/12	Initial Issue	F. Ibrahim
А	01/27/12	Updated manufacturer and added antenna information	A. Zaffar

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1. ATTESTATION OF TEST RESULTS

ST	APPLICABLE STANDARDS	TEST RESULTS
DATE TESTED: JA	NUARY 09-17, 2012	
SERIAL NUMBER: DK410	002	
MODEL: MIC-A2		
EUT DESCRIPTION:	MIC-A2 FCC/IC C2PC	
COMPANY NAME:	HON HAI PRECISION IND. CO. 5F-1, 5 HSIN-AN ROAD HSINCHU SCIENCE-BASED IN TAIWAN, R.O.C.	, LTD. DUSTRIAL PARK

CFR 47 Part 15 Subpart E	(Radiated and LC) PASS
INDUSTRY CANADA RSS-210 Issue 8 Annex 9	(Radiated and LC) PASS
INDUSTRY CANADA RSS-GEN Issue 3	(Radiated and LC) PASS

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

FRANK IBRAHIM EMC SUPERVISOR UL CCS Tested By:

Chin Pany

CHIN PANG EMC ENGINEER UL CCS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <u>http://www.ccsemc.com</u>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is WIFI Module with 802.11A/HT20.

The radio module is manufactured by Hon Hai Precision.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is EUT module, MIC-A2 is installed inside the specific host.

5.3. MAXIMUM OUTPUT POWER

The output power values were verified to be within +/- 0.5 dB from the original values under report number 11J13871-1 FCC IC DTS WLAN report.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PiFA antenna for TX/RX diversity, with a maximum gain of 2.55dBi as the original filing, and the antenna gain of this C2PC filing is 0.23dBi.

5.5. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was DRC Ver. 8.3.3426, UMI FW Ver. 19.0.35.

The EUT driver software installed during testing was Broadcom, rev. 5.100.82.54.

The test utility software used during testing was BCM Internal, rev. 5.100.RC82.54.

5.6. WORST-CASE CONFIGURATION AND MODE

The worst-case data rate for each mode is determined to be as follows, based on preliminary tests of the chipset utilized in this radio.

All final tests in the 802.11a mode were made at 6 Mb/s. All final tests in the 802.11n HT20 SISO mode were made at MCS0.

For radiated emissions below 1 GHz the worst-case configuration is determined to be the mode and channel with the highest output power.

To determine the worst-position of highest emissions, the EUT was investigated for X, Y, Z positions, and the worst position was turned out to be at X-position with AC Adapter.

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

	PERIP	HERAL SUPPORT E	QUIPMENT LIST	
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Dell	Latitude D430	NA	DoC
Laptop AC Adapter	Dell	LA65NS1-00	CN-OYD637-71615-8B6-263A	DOC
Evaluation Board	Broadcom	BCM9SANAD	1379054	NA
AC Adapter	JSP	PSAA10R-050	P112900695A1	DoC

I/O CABLES

			VO CABLE LIS	Г		
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	1m	NA
2	DC	2	DC	Un-shielded	1.5m	NA
3	I/O	1	Ribbon	Un-shielded	0.5m	NA

TEST SETUP

A Laptop is connected to the EUT via a ribbon cable for setup and removed during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

	TEST EC	QUIPMENT LIST		
Description	Manufacturer	Model	Asset	Cal Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	07-12-12
Antenna, Horn, 18 GHz	EMCO	3115	C00872	06-29-12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07-16-12
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01-27-12
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	04-19-12
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00996	05-04-12
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	07-28-12
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	11-10-12
EMI Test Receiver, 9 kHz-7 GHz	R&S	ESCI7	None	07-06-12
Highpass Filter, 7.6 GHz	Mcro-Tronics	HPM13195	N02601	CNR

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7. RADIATED TEST RESULTS

LIMITS AND PROCEDURE 7.1.

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as guasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 40 GHz is inv estigated with the transmitter set to the low est, middle, and highest channels in each applicable band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

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7.2. TRANSMITTER ABOVE 1 GHz

7.2.1. TX ABOVE 1 GHz FOR 802.11a IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





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HARMONICS AND SPURIOUS EMISSIONS

Test Engr: Chin Pang Date: 01/012 Project #: 12/14/15 Company: Hon Hai Test Target: FCC 15/407 Mode Oper: Legacy, 5.2GHz	Compliand	e Certific	ation Services	, Fremon	t 5m C	hamber								
Date: 01/10/12 Project #: 12/14215 Company: Hon Hai Tert Target: FCC 15/407 Mode Oper: Legacy, 5.2CHz f Measurement Frequency Amp Preamp Gain Average Field Strength Limit Dist Distance to Antenna D Corr Distance Correct to 3 uneters Peak Field Strength Limit Read Analyzer Reading Arg Average Field Strength Margin vs. Average Limit AF Antenna Factor Peak Calculated Peak Field Strength Margin vs. Peak Limit CL Cable Loss HDF High Pass Field Margin vs. Peak Limit Margin vs. Peak Limit f Dist Read AF CL nump D Corr Fitz Corr Limit Margin vs. Peak Limit Low Ch, 5180Affitz 13.0 32.2 0.0 0.7 55.8 74.0 -18.2 V P 15540 3.0 24.2 39.1 13.0 32.2 0.0 0.7 55.9 74.0 -18.1 H P 15540 3.0 24.2 <th>Test Engr:</th> <th></th> <th>Chin Pang</th> <th></th>	Test Engr:		Chin Pang											
Project #: 12J14215 Company: Hon Hai Test Target: FCC 151407 Mode Oper: Legacy, 5:1GHz $ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Date:		01/10/12											
Company: Hoi Hai Test Target: FCC 15/407 Mode Oper: Legacy, 5.3 GHz f Measurement Frequency Amp Preamp Gain Average Field Strength Limit Dit Distance to Antenna D Cor Distance Convect to 3 meters Peak Field Strength Limit Read Analyzer Reading Avg Average Field Strength Limit Margin vs. Average Limit CL Cable Loss HPF High Pass Filter Margin vs. Average Limit Margin vs. Average Limit f Mint Read AF At Attenna Tactor Peak Calculated Peak Field Strength Margin vs. Average Limit CL Cable Loss HPF High Pass Filter Margin vs. Average Limit Margin vs. Average Limit 15540 3.0 35.2 39.1 13.0 -32.2 0.0 0.7 55.8 74.0 -18.2 V P 15540 3.0 32.2 0.0 0.7 55.9 74.0 -18.1 H P 15540 3.0 <	Project #:		12.114215											
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Kirk Huger Legacy, 5.2GHz f Measurement Frequency Distance to Antenna D Corr Arr A antenna Factor CL Preamp Gain Average Field Strength Limit Margin vs. Average Limit Margin vs. Peak Limit f Distance to Antenna A Antenna Factor CL Calculated Peak Field Strength @ 3 m Margin vs. Peak Limit Average Limit Margin vs. Peak Limit f Dist CL Read dB dB dB D Corr HPF Fltr Corr. Limit Limit Margin vs. Peak Limit f Dist GHz Read (m) AF CL Amp D Corr Fltr Corr. Limit Margin vs. Peak Limit f Dist GHz Margin vs. Average Field Strength Margin vs. Peak Limit f Dist GHz Read dB dB D Corr Fltr Corr. Limit dBuV/m Margin vs. Peak Limit f Dist GHZ Margin vs. Average Field Strength Margin vs. Peak Limit f Dist GHZ Read AF CL Amp Antenna Dots f Dist GHZ O O O O	Foot Torge		ECC 15/407											
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Read Analyzer Reading AF Average Field Strength @ 3 m CL Margin vs. Average Limit Margin vs. Average Limit Margin vs. Peak Limit f Dist (m) Read dBv/d AF CL Amp AB D Corr dB Fltr Corr. Limit dBv/m Margin vs. Average Limit Margin vs. Peak Limit f Dist (m) Read dB/dB AF CL Amp AB D Corr Fltr Corr. Limit dBu/m Margin vs. Average Limit Margin vs. Peak Limit f Dist (m) Read dB/dB AF CL Amp AB D Corr Fltr Corr. Limit dBu/m Margin vs. Average Limit Margin vs. Peak Limit f Dist (m) Read dB/dB AF CL Amp AB D Corr Fltr Corr. Limit dBu/m Margin vs. Peak Limit Low Cb, 5100MHz 0 0 0.0 7.55.8 74.0 -18.2 V P 5540 3.0 24.2 3.9.1 13.0 -32.2 0.0 0.7 54.4 9.0 9.1 H A Vial Ch, 5200MHz 0		Dist	Distance to A	intenna		D Corr	Distance (Correct t	to 3 meters		Peak Field	l Strength Li	imit	
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CL Cable Loss HPF High Pass Filter f Dist (m) Read (BBuV) AF CL (BB Amp (BB D Corr (BB Filtr (BB Corr. (BB Limit (BB Margin (BB Ant. Pol. (BB Det. (P/AQP Notes Low Ch, 5180MHz		AF	Antenna Fact	or		Peak	Calculated	d Peak F	ield Streng	th	Margin vs	. Peak Limit	t	
f Dist Read (m) AF CL dB/m Amp dB D Corr dB Fltr dB Corr. dB Limit dB Margin dB Ant. Pol. V/H Det. P/A/QP Notes .ow Ch, \$180MHz		CL	Cable Loss			HPF	High Pass	Filter						
CHz (m) dBuV dB dB <th< td=""><td>f</td><td>Dist</td><td>Read</td><td>AF</td><td>CL</td><td>Amp</td><td>D Corr</td><td>Fltr</td><td>Corr.</td><td>Limit</td><td>Margin</td><td>Ant. Pol.</td><td>Det.</td><td>Notes</td></th<>	f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
Jow Ch, 5180AHrz Jow Ch, 5180AHrz<	GHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
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Store 3.0 3.0 3.0 2.6.3 3.0.1 13.0 -3.2.2 0.0 0.7 58.5 74.0 -18.1 H F 5.540 3.0 24.3 39.1 13.0 -32.2 0.0 0.7 58.5 74.0 -18.1 H A Mid Ch, 5200MHz	5.540	3.0	24.2	39.1	13.0	-32.2	0.0	0.7	44.8	54.0	-9.2	<u>v</u>	A	
Stere Stere <th< td=""><td>5.540</td><td></td><td>24.3</td><td>39.1</td><td>13.0</td><td>32.2</td><td>0.0</td><td>0.7</td><td>44.0</td><td>54.0</td><td>-10.1</td><td>н</td><td><u>r</u></td><td></td></th<>	5.540		24.3	39.1	13.0	32.2	0.0	0.7	44.0	54.0	-10.1	н	<u>r</u>	
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55600 3.0 36.0 38.8 13.0 -32.2 0.0 0.7 56.4 74.0 -17.6 V P 55600 3.0 24.4 38.8 13.0 -32.2 0.0 0.7 44.8 54.0 -9.2 V A 55600 3.0 34.7 38.8 13.0 -32.2 0.0 0.7 44.8 54.0 -9.2 V A 55600 3.0 34.7 38.8 13.0 -32.2 0.0 0.7 44.8 54.0 -9.2 V A 55600 3.0 34.7 38.8 13.0 -32.2 0.0 0.7 44.6 54.0 -9.4 H A 55600 3.0 36.2 38.4 13.1 -32.2 0.0 0.7 56.2 74.0 -17.8 V P 5.720 3.0 36.4 38.4 13.1 -32.2 0.0 0.7 56.4 74.0 -17.6 H P 5.720 3.0 36.4 38.4 13.1 -32.2 0.0 0.7 <td>fid Ch, 53</td> <td>200MHz</td> <td></td>	fid Ch, 53	200MHz												
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55.600 3.0 34.7 38.8 13.0 -32.2 0.0 0.7 55.1 74.0 -18.9 H P 55.600 3.0 24.2 38.8 13.0 -32.2 0.0 0.7 55.1 74.0 -18.9 H P 5600 3.0 24.2 38.8 13.0 -32.2 0.0 0.7 44.6 54.0 -9.4 H A High Ch. 5240Mftz	5.600	3.0	24.4	38.8	13.0	-32.2	0.0	0.7	44.8	54.0	-9.2	V	A	
15.600 3.0 24.2 38.8 13.0 -32.2 0.0 0.7 44.6 54.0 -9.4 H A High Ch. 5240Mhz	5.600	3.0	34.7	38.8	13.0	-32.2	0.0	0.7	55.1	74.0	-18.9	H	P	
High Ch, 5240Mhz A 15.720 3.0 36.2 38.4 13.1 -32.2 0.0 0.7 56.2 74.0 -17.8 V P 15.720 3.0 24.5 38.4 13.1 -32.2 0.0 0.7 56.2 74.0 -17.8 V P 15.720 3.0 24.5 38.4 13.1 -32.2 0.0 0.7 44.5 54.0 -9.5 V A 15.720 3.0 36.4 38.4 13.1 -32.2 0.0 0.7 56.4 74.0 -17.6 H P 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A ev. 4.1.2.7 No 10 10 10 10 10	5.600	3.0	24.2	38.8	13.0	-32.2	0.0	0.7	44.6	54.0	-9.4	H	A	
Inflat Cut Scrowniz	E-L CL 5	2403.0						<u> </u>						
5720 3.0 24.5 38.4 13.1 -32.2 0.0 0.7 44.5 54.0 -9.5 V A 15.720 3.0 36.4 38.4 13.1 -32.2 0.0 0.7 44.5 54.0 -9.5 V A 15.720 3.0 36.4 38.4 13.1 -32.2 0.0 0.7 56.4 74.0 -17.6 H P 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A Rev. 4.1.2.7 Note: No other emissions were detected above the system noise floor.	5 720	3.0	36.2	38.4	131	.32.2	0.0	07	56.2	74.0	-17.8	V	P	
15.720 3.0 36.4 38.4 13.1 -32.2 0.0 0.7 56.4 74.0 -17.6 H P 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 56.4 74.0 -17.6 H P 15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A Rev. 4.1.2.7 Note: No other emissions were detected above the system noise floor.	5,720	3.0	24.5	38.4	13.1	-32.2	0.0	0.7	44.5	54.0	-9.5	v	A	
15.720 3.0 24.6 38.4 13.1 -32.2 0.0 0.7 44.6 54.0 -9.4 H A Rev. 4.1.2.7 Note: No other emissions were detected above the system noise floor.	5.720	3.0	36.4	38.4	13.1	-32.2	0.0	0.7	56.4	74.0	-17.6	H	P	
Rev. 4.1.2.7 Note: No other emissions were detected above the system noise floor.	5.720	3.0	24.6	38.4	13.1	-32.2	0.0	0.7	44.6	54.0	-9.4	H	A	
Rev. 4.1.2.7 Note: No other emissions were detected above the system noise floor.														
Rev. 4.1.2.7 Note: No other emissions were detected above the system noise floor.			1											
	Note: No	other en	nissions were	detecte	d abov	e the sy	stem nois	e floor.						

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7.2.2. TX ABOVE 1 GHz FOR 802.11n HT20 IN THE LOWER 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)





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RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)





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RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





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RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





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HARMONICS AND SPURIOUS EMISSIONS

fest Engr		Chin Pan	g										
Date:		01/10/12											
Project #:		12J14215											
Company		Hon Hai											
fest Targ	et:	FCC 15.40											
Mode Op	er:	TX, 5.2GH	z, H120										
	f	Measureme	nt Freque	nev	Атр	Preamp (Jain			Average I	Field Stren	eth Limit	
	Dist	Distance to	Antenna	1	D Corr	Distance	Correc	t to 3 met	ters	Peak Fiel	d Strength	Limit	
	Read	Analyzer R	eading		Avg	Average I	Field S	trength @	3 m	Margin v.	s. Average	Limit	
	AF	Antenna Fa	actor		Peak	Calculate	d Peak	Field Stre	ngth	Margin v:	s. Peak Li	mit	
	CL	Cable Loss			HPF	High Pass	s Filter	:	-	_			
f	Dist	Read	AF	CL	Amp	D Corr	Fltr	Corr.	Limit	Margin	Ant. Pol.	Det.	Notes
GHz	<u>;</u> (m)	<u>dBuv</u>	dB/m	<u>an</u>	dB	dB	d B	dBuV/m	dBuV/m	<u>an</u>	V/H	PIA/QP	
Low C.n., : 15.540	3.0	35.6	39.1	13.0	-32.2	0.0	0.7	56.2	74.0	-17.8	н	Р	
15.540	3.0	24.3	39.1	13.0	-32.2	0.0	0.7	44.9	54.0	-9.1	H	À	
15.540	3.0	35.4	39.1	13.0	-32.2	0.0	0.7	56.0	74.0	-18.0	v	P	
15.540	3.0	24.2	39.1	13.0	-32.2	0.0	0.7	44.8	54.0	-9.2	V	A	
Mid Ch, f	200MH									·			
15.600	3.0	36.1	38.8	13.0	-32.2	0.0	0.7	56.5	74.0	-17.5	н	Р	
15.600	3.0	24.3	38.8	13.0	-32.2	0.0	0.7	44.7	54.0	- 9.3	H	A	
15.600	3.0	37.3	38.8	13.0	-32.2	0.0	0.7	57.7	74.0	- 16.3	V	Р	
15.600	3.0	24.6	38.8	13.0	-32.2	0.0	0.7	45.0	54.0	-9.0	v	A	
High Ch,	5240M	.i. Hz								İ			
15.720	3.0	36.2	38.4	13.1	-32.2	0.0	0.7	56.2	74.0	-17.8	H	Р	
15.720	3.0	24.3	38.4	13.1	-32.2	0.0	0.7	44.3	54.0	- 9.7	H	A	
15.720	3.0	26.0	38.4	13.1	-32.2	0.0	0.7	46.0	74.0	-28.0	V	P	
15.720	3.0	24.1	38.4	13.1	-32.2	U.U	U. 7	44.1	54.0	-9.9	v	A	
			-			•••••••				••••••••••••••••••••••••••••••••••••••			

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7.3. RECEIVER ABOVE 1 GHz FOR 20 MHz BANDWIDTH IN THE 5.2 GHz BAND

omplia	ance Ce	rtification	Services, Fi	emont 3	3m Cł	amber									
ompar	iy:		Hon Hai												
oject nte:	#:		2012-1-10												
est En	gineer:		Chin Pang												
onfigu	ration:		EUT and Lap	top											
ode:			RX, HT20 5.20	3Hz Band											
est Eq	uipmen	<u>t:</u>													
н	lorn 1-	18GHz	Pre-a	mplifer	1-26	GHz	Pre-am	plifer	26-40GH	z	Ho	orn > 18G	SHz		Limit
T60; \$	S/N: 223	3@3m	- T34 H	P 8449B		-				-				-	FCC 15.209
Hi Fred	quency Cal	oles —	1												
3' (cable 2	2807700	12' 0	able 2	28076	500	20'ca	ble 22	807500		HPF	Re	eject Filte	r <u>Peal</u> RB	<u>k Measurements</u> W=VBW=1MHz
3' c	able 228	07700	▼ 12' c	able 228	07600	•	20' cab	le 2280	7500			•		Avera	ge <u>Measurements</u> 1MHz ; VBW=10Hz
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
65	3.0	54.2	34.8	25.1	2.8	-37.7	0.0	0.0	44.4	25.0	74	54	-29.6	-29.0	<u>v</u>
93 60	3.0	52.0 54.4	33.I 29.6	26.8	35	-36.9	UU 00	0.0	46.U 53.0	26.5	74	54 54	-28.0	-27.5	v
63	3.0	53.6	36.2	25.1	2.8	-37.7	0.0	0.0	43.8	26.4	74	54	-30.2	-27.6	н
97	3.0	53.5	33.0	26.8	3.5	-36.9	0.0	0.0	46.9	26.4	74	54	- 27.1	-27.6	Н
.13	3.0	49.7	30,0	28.3	43	-36.0	۵0	0.0	46.3	26.6	74	54	-27.7	-27.4	H
	f Dist Read AF CL	Measurem Distance to Analyzer R Antenna F: Cable Los:	ent Frequenc > Antenna Leading actor	у		Amp D Corr Avg Peak HPF	Preamp (Distance Average Calculate High Pas	Gain Corre Field : d Peal s Filter	ct to 3 met Strength @ k Field Stre	ers 3 m ength		Avg Lim Pk Lim Avg Mar Pk Mar	Average I Peak Field Margin vs Margin vs	Field Strengt d Strength L Average L Peak Limit	h Limit imit ;

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7.4. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



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mon nar								
12J14215								
WLAN (Wor	rst Case)							
Tested By (Chin Pang							
Jan-10-2012	2							
Range 1 30	- 1000MHz	z						
Frequency	Reading	Detector	Amp Factor[dB]	Ant Factors[dB]	dBuV/m	Part 15B	Margin	Polarity
31.7446	33.68	PK	-29.2	19.5	23.98	40	-16.02	Horz
41.243	36.21	PK	-29.2	13.3	20.31	40	-19.69	Horz
143.0116	38.64	PK	-28.1	13	23.54	43.5	-19.96	Horz
399.8561	41.79	PK	-27	15	29.79	46	-16.21	Horz
527.9876	39.42	PK	-27	17.2	29.62	46	-16.38	Horz
672.0144	41.79	РК	-26.3	19	34.49	46	-11.51	Horz
Range 2 30	- 1000MHz	z						
Frequency	Reading	Detector	Amp Factor[dB]	Ant Factors[dB]	dBuV/m	Part 15B	Margin	Polarity
32.1323	43.69	PK	-29.2	19.4	33.89	40	-6.11	Vert
83.695	47.6	PK	-28.7	7.6	26.5	40	-13.5	Vert
97.2642	47.32	PK	-28.6	9.4	28.12	43.5	-15.38	Vert
178.8729	43.76	PK	-27.8	10.7	26.66	43.5	-16.84	Vert
672.0144	39.01	PK	-26.3	19	31.71	46	-14.29	Vert

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8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)			
	Quasi-peak	Average		
0.15-0.5	66 to 56 *	56 to 46 *		
0.5-5	56	46		
5-30	60	50		

Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

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RESULTS

6 WORST EMISSIONS

Hon Hai									
12j14215									
wlan (Worst Case)									
Tested By Chin Pang									
Jan-10-20	Jan-10-2012								
Line-L1 .	Line-L1 .15 - 30MHz								
Frequency	Reading	Detector	T24 IL L1[dB]	LC Cables[dB]	dBuV	CISPR 22B	Margin	CISPR 22B	Margin
0.1725	53.86	PK	0.1	0	53.96	64.8	-10.84	-	-
0.1725	34.85	Av	0.1	0	34.95	-	-	54.8	-19.85
0.519	49.56	PK	0.1	0	49.66	56	-6.34	_	_
0.519	30.75	Av	0.1	0	30.85	-	-	46	-15.15
15.738	45.9	PK	0.2	0.2	46.3	60	-13.7	-	-
15.738	31.76	Av	0.2	0.2	32.16	-	_	50	-17.84
Line-L2 .15 - 30MHz									
Frequency	Reading	Detector	T24 IL L1[dB]	LC Cables[dB]	dBuV	CISPR 22B	Margin	CISPR 22B	Margin
0.177	52.11	PK	0.1	0	52.21	64.6	-12.39	-	-
0.177	34.92	Av	0.1	0	35.02	-	-	54.6	-19.58
0.4965	52.67	PK	0.1	0	52.77	56.1	-3.33	-	-
0.4965	28.18	Av	0.1	0	28.28	-	-	46.1	-17.82
1.365	46.75	PK	0.1	0.1	46.95	56	-9.05	-	-
1.365	19.57	Av	0.1	0.1	19.77	-	-	46	-26.23

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LINE 1 RESULTS



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LINE 2 RESULTS



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