

# FCC TEST REPORT (15.407)

**REPORT NO.:** RF980406H01E-1 R1

MODEL NO.: AP-7131N

FCC ID: UZ7AP7131N

**RECEIVED:** Nov. 06, 2012

**TESTED:** Nov. 15 to Dec. 13, 2012 and Mar. 07, 2013

**ISSUED:** Mar. 15, 2013

**APPLICANT:** Motorola Solutions, Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services

(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF980406H01E-1	Original release	Jan. 24, 2013
RF980406H01E-1 R1	Modified output power.	Mar. 15, 2013



# 1. CERTIFICATION

PRODUCT: 11n Access-Point

**BRAND NAME:** Motorola

MODEL NO.: AP-7131N

TEST SAMPLE: R&D SAMPLE

APPLICANT: Motorola Solutions, Inc.

**TESTED:** Nov. 15 to Dec. 13, 2012 and Mar. 07, 2013

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10-2009

The above equipment (Model: AP-7131N) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

(Elsie Hsu, Specialist)

APPROVED BY : , DATE: Mar. 15, 2013

( May Chen, Manager )

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# 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)							
STANDARD SECTION	REMARK						
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.43dB at 6.91016MHz				
15.407(b/1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 5350.00MHz & 5470MHz.				
15.407(a/1/2)	Transmit Power	PASS	Meet the requirement of limit.				
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.				
15.407(a/1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.				
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.				
15.203	Antenna Requirement	PASS	No antenna connector is used.				

### NOTE:

1. The EUT was operating in 2.400 ~ 2.4835GHz, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz and 5.47~5.725GHz. For the 2.400 ~ 2.4835GHz and 5.47~5.6GHz & 5.65~5.725GHz RF parameters was recorded in another test report.

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- 2. This report is prepared for FCC class II change. All of test items need to be performed were presented in this test report.
- 3. The DFS report was recorded in another test report.

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# 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.98 dB
Radiated emissions (30MHz-1GHz)	5.59 dB
Radiated emissions (1GHz -6GHz)	3.56 dB
Radiated emissions (6GHz -18GHz)	4.10 dB
Radiated emissions (18GHz -40GHz)	4.24 dB

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# 3. GENERAL INFORMATION

# 3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	11n Access-Point
MODEL NO.	AP-7131N
POWER SUPPLY	DC 48V from Power Adapter or DC 55V from POE
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS
MODULATION TITLE	64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS,OFDM
	802.11b: up to 11Mbps
TRANSFER RATE	802.11a / g: up to 54Mbps
	802.11n: up to 300Mbps
OPERATING	<b>For 15.407</b> 802.11a/n/ac: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.58GHz, 5.66GHz ~ 5.70GHz
FREQUENCY	For 15.247 802.11b/g/n: 2.412 ~ 2.462GHz 802.11a/n/ac: 5.745 ~ 5.825GHz
	For 15.407 16 for 802.11a, 802.11n (HT20) 7 for 802.11n (HT40)
NUMBER OF CHANNEL	For 15.247 (2.4GHz) 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) For 15.247 (5GHz)
	5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)
MAXIMUM OUTPUT POWER	Please see NOTE
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	Adapter x 1

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# NOTE:

- This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF980406H01-1 design is as the following 1. information
  - u Modify applicant and address of applicant
  - **u** Add three new antennas.

Original Antennas								
No	Brand	Model	Antenna Type	Connecter Type (External only)	Frequency range (MHz)	Indoor or Outdoor		
1	Symbol	ML-2499-BYGA2-01R	YAGI	Type N-Female	2400~2500	Indoor		
2	Symbol	ML-2499-11PNA2-01R	Panel	RP-BNC-Female	2400~2500	Indoor		
3	Symbol	ML-2452-APA2-01	Dipole	RP-SMA MALE	2400-2500, 5150-5850	Indoor		
4	Motolora	ML-2452-PTA2M3X3-1	Embedded	RP-SMA-Male	2400-2500, 4900-5990	Indoor		
5	Symbol	ML-5299-WPNA1-01R	Panel	RP-SMA-Female	5150-5875	Indoor		
6	Symbol	ML-2499-HPA3-01R	Dipole	RP-BNC FEMALE	2400-2500	Indoor		
7	Symbol	ML-5299-HPA1-01R	Dipole	RP-SMA FEMALE	5150-5875	Indoor		
8	Motolora	ML-2452-PTA3M3-036	Patch	RP-SMA-Male	2400-2500, 4900-5990	Indoor		
9	WHA YU	ML-2452-APA6J-01	Dipole	SMA Plug Reverse	2400-2500, 4900-5990	Indoor		
10	Motolora	ML-2452-PNL9M3-036	Panel	Reverse SMA	2400-2500, 5150-5875	Indoor		
11	Motolora	ML-5299-BYGA15-012	YAGI	Type N Female connector	4900-5800	Indoor		
12	WHA YU	M25.90002.S01	Dipole	I-PEX	2400-2500, 5150-5850	Indoor		
Orig	jinal Antei	nnas						
No	Brand	Model	Gain (dBi)	Cable Loss(dB) (External only, if any)	Net Gain (dB)	Cable Length (External only, if any)		
1	Symbol	ML-2499-BYGA2-01R	14.2	0.3	13.9	12 inch		
2	Symbol	ML-2499-11PNA2-01R	11.2	2.7	8.5	96 inch		
3	Symbol	ML-2452-APA2-01	3 / 4	N/A	3 / 4	N/A		
4	Motolora	ML-2452-PTA2M3X3-1	1/2	N/A	1/2	N/A		
5	Symbol	ML-5299-WPNA1-01R	14.2	1.2	13	36 inch		
6	Symbol	ML-2499-HPA3-01R	4.6	1.3	3.3	48 inch		

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Symbol

Motolora

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ML-2452-PTA3M3-036

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0.84

0.92 / 1.97

5.9

6/7

Report Format Version 5.1.0

36 inch

36 inch

5.06

5.08 / 5.03



9	WHA YU	ML-2452-APA6J-01	-6 / -6	N/A	2.4GHz Peak gain: -5.76dBi 5GHz Peak gain: band 1: -3.77dBi band 2: -3.38dBi band 3: -2.84dBi band 4: -2.94dBi	N/A
10	Motolora	ML-2452-PNL9M3-036	8 / 10.7	N/A	8 / 10.7	36 inch
11	Motolora	ML-5299-BYGA15-012	14.5	N/A	14.5	3 ft
12	WHA YU	M25.90002.S01	3.03 / 4.06	N/A	3.03 / 4.06	63mm

#### Note:

- 1. For the original test report Radio card 1: The antennas 1~4, 6 & 8-10 will be used, therefore antenna 1, 2, 4, 6, 8, were chosen for final test.
- 2. For the original test report Radio card 2: The antennas 3~5 & 7-11 will be used, therefore antenna 4, 5, 7, 8, 11, were chosen for final test.
- 3. For the original test report Radio card 3: The antenna 12 will be used only, therefore antenna 12 was chosen for final test.

#### **Newly Antennas**

IACA	Newly Afternias							
No	Brand	Model	Antenna Connecter Type Type (External only)		Frequency range (MHz)	Indoor or Outdoor		
13	Motorola	ML-2499-BPNA3-01R	Directional Panel	N-Type Female	2400~2500	Outdoor		
14	Motorola	ML-2499-FHPA9-01R	Dipole Omni	Type-N-Male	2400~2500	Outdoor		
15	Motorola	ML-5299-FHPA6-01R	Omni-Directi onal	N male	5150-5875	Outdoor		
No	Brand	Model	Gain (dBi)	Cable Loss(dB) (External only, if any)	Net Gain (dB)	Cable Length (External only, if any)		
13	Motorola	ML-2499-BPNA3-01R	15.5	0.88	14.62	30.5cm		
14	Motorola	ML-2499-FHPA9-01R	10.5	0.88	9.62	30.5cm		
15	Motorola	ML-5299-FHPA6-01R	8.25	1.54	6.71	30.5cm		

#### Note:

- 1. For Radio card 1: The antennas 13~14 will be used, therefore antenna 13,14, were chosen for final test.
- 2. For Radio card 2: The antennas 15 will be used, therefore antenna 15, was chosen for final test.

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2. The maximum output power (Unit: mW):

	To maximum output p	Operating Frequency (MHz)					
No.	. Model No. 24		2412N	2412MHz ~ 2462MHz			
		802.11b	802	.11g	802.11n (HT20)		802.11n (HT40)
13	ML-2499-BPNA3-01R	97.920	110.	694	105.673		104.902
14	ML-2499-FHPA9-01R	344.994	329.	29.707 315.605			319.354
			0	perating	Frequency (MH:	z)	
No.	Model No.			5180	0 ~ 5320 MHz		
		802.11a 802		2.11n (HT20)		802.11n (HT40)	
15	ML-5299-FHPA6-01R	45.053			45.318		44.726
			0	perating	Frequency (MH	z)	
No.	Model No.		5500	~ 570	0 MHz< Radio o	ard	2 >
		802.11	а	802	2.11n (HT20)		802.11n (HT40)
15	ML-5299-FHPA6-01R	44.435			44.177		42.302
		Operating Frequency (MHz)					
No.	Model No.	5745 ~ 5825 MHz< Radio		5 MHz< Radio o	card 2 >		
		802.11	a	802	2.11n (HT20)		802.11n (HT40)
15	ML-5299-FHPA6-01R	579.528	1		577.833		575.285

- 3. Radiated and conducted emission of the simultaneous operation (2.4GHz & 5GHz) has been evaluated and no non-compliance was found.
- 4. The EUT must be supplied with a power adapter or POE as below:

Adapter						
Brand	Model No. Spec.					
		AC Input: 100-240V, 1A, 50-60Hz				
MOTOROLA	50-14000-247R	DC Output : 48V, 0.75A				
	DC output cable : 1.9m, unshielded with one core					
POE						
Brand	Model No.	Spec.				
MOTOROLA	AC Input: 100-240V, 0.8A, 50 / 60Hz					
MOTOROLA AP-PSBIAS-1P3-AFR DC Output: 55V, 0.57A						
For the original test report: From the above modes, the radiated emission worse case was						

For the original test report: From the above modes, the radiated emission worse case was found in **POE**. Therefore only the test data of the mode was recorded in this report.

- 5. The EUT has three radio cards inside the device.
  - Radio 1 operates all the time, with 3Tx MIMO, at 2.4 GHz.
  - Radio 2 operates all the time, with 3Tx MIMO at 5 GHz.
  - Radio 3 does not operate in 11n mode. In the 2.4GHz band, the radio 3 only transmits at 1Mbps which is 802.11b DSSS rate. In the 5GHz band, the radio 3 only transmits in 6Mbps which is 802.11a OFDM rate.
- 6. During normal operation, only radio 1 and 2 will transmit data, radio 3 will work as a sensor radio. Radio 3 is mostly Rx-only, though it does also transmit a low duty cycle signal at 2.4 GHz and 5 GHz. The radio 1 or radio 2 will transmit simultaneously with radio 3 when radio 3 detects signals.

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- 7. Radio 1 and radio 2 will reduce 1dB automatically from maximum power when radio 3 detect signals and transmit signals.
- 8. The EUT incorporates CDD function with 802.11a, 802.11b, 802.11g and MIMO function with 802.11n.
- 9. The radio 1 and radio 2 are 3 \* 3 spatial MIMO (3Tx & 3Rx) without beam forming function. The antenna configurations are three transmitter antennas and three receiver antennas. Spatial multiplexing modes for simultaneous transmission using 3 antennas, and for simultaneous receiver using 3 antennas.
- 10. The EUT have MIMO power save mode, one transmitter may be active (chain 0) while others is inactive (chain 1 and chain 2) or two transmitters may be active (chain 0 and 1) while others is inactive (chain 2). Output power is no different compared to operation when all of transmitter chains are active. Transmitter power is not increased or decreased for chain 0 or chain 0 and chain 1 when is single chain or dual chain mode, compared to three chain active mode.
- 11. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

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# 3.2 DESCRIPTION OF TEST MODES

# Operated in 5150 ~ 5350MHz band:

8 channels are provided for 802.11a, 802.11n (HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

# 4 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz
54	5270 MHz
62	5310 MHz

# Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

8 channels are provided for 802.11a, 802.11n (HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	116	5580 MHz
104	5520 MHz	132	5660 MHz
108	5540 MHz	136	5680 MHz
112	5560 MHz	140	5700 MHz

# 3 channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz



### 3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT		APPLICA	ABLE TO			
CONFIGURE MODE	PLC	RE < 1G	RE <sup>3</sup> 1G	APCM	DESCRIPTION	
1	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	Antenna 15 + With POE	
2	√	-	-	-	Antenna 15 + With Adapter	

Where PLC: Power Line Conducted Emission RE < 1G: Radiated Emission below 1GHz

RE <sup>3</sup> 1G: Radiated Emission above 1GHz

APCM: Antenna Port Conducted Measurement

NOTE: "-"means no effect.

#### **POWER LINE CONDUCTED EMISSION TEST:**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE	TESTED	MODULATION	MODULATION	DATA RATE
	CHANNEL	CHANNEL	TECHNOLOGY	TYPE	(MBPS)
802.11n (HT20)	36 to 140	52	OFDM	BPSK	6.5

#### **RADIATED EMISSION TEST (BELOW 1 GHz):**

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE	TESTED	MODULATION	MODULATION	DATA RATE
	CHANNEL	CHANNEL	TECHNOLOGY	TYPE	(Mbps)
802.11n (HT20)	36 to 140	52	OFDM	BPSK	6.5

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# **RADIATED EMISSION TEST (ABOVE 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6
802.11n (HT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5
802.11n (HT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	13.5

# **ANTENNA PORT CONDUCTED MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6
802.11n (HT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5
802.11n (HT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	13.5

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY	
PLC	26deg. C,75%RH	120Vac, 60Hz	Scott Chen	
RE<1G	25deg. C, 75%RH	120Vac, 60Hz	Robert Cheng	
RE <sup>3</sup> 1G	22deg. C, 64%RH	120Vac, 60Hz	Amos Chuang	
APCM	25deg. C, 60%RH	120Vac, 60Hz	Amos Chuang	

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# 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

# **FCC Part 15, Subpart E (15.407)**

ANSI C63.10-2009

All test items have been performed and recorded as per the above standards.

**Note:** The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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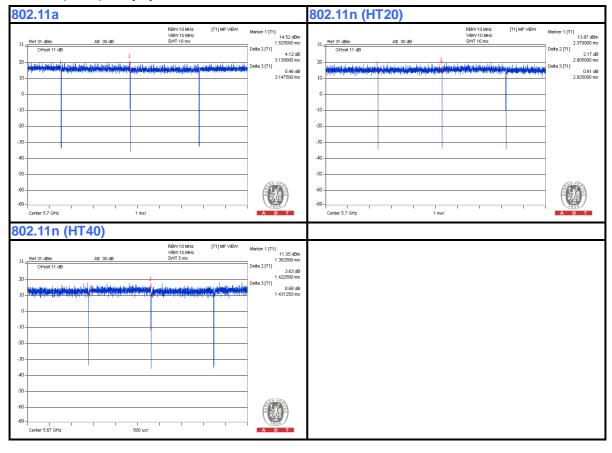
# 3.4 DUTY CYCLE OF TEST SIGNAL

Duty cycle of test signal is > 98 %, duty factor is not required.

**802.11a**: Duty cycle = 3.130 ms/3.147 ms = 0.995

**802.11n (HT20):** Duty cycle = 2.905 ms/2.925 ms = 0.993

802.11n (HT40): Duty cycle = 1.422 ms/1.431 ms = 0.994





# 3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1 1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable, 10m
2	UTP cable, 10m

**NOTE:** All power cords of the above support units are non shielded (1.8m).

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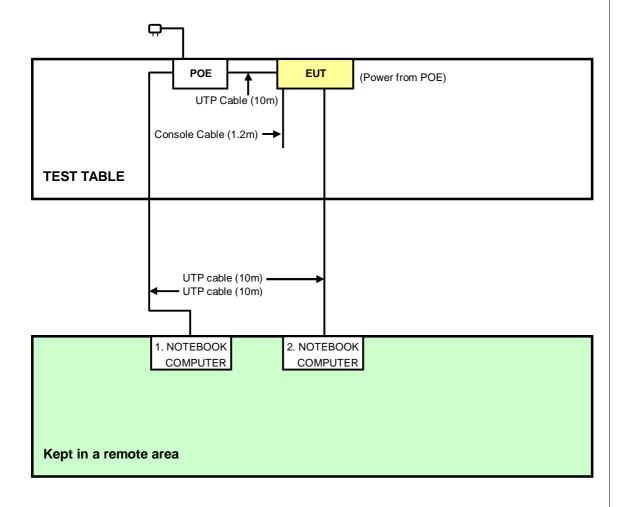
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# **CONFIGURATION OF SYSTEM UNDER TEST**

For Conducted Mode 1 / Radiated test:



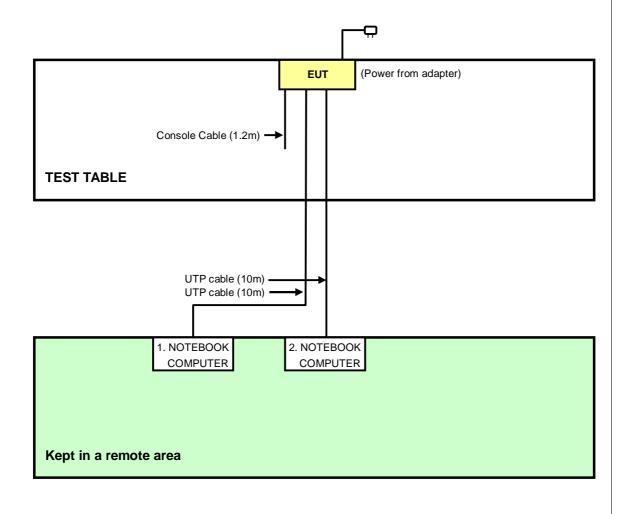
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# For Conducted Mode 2 / test:



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# 4. TEST TYPES AND RESULTS

# 4.1 CONDUCTED EMISSION MEASUREMENT

# 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)		
	Quasi-peak	Average	
0.15-0.5	66 to 56	56 to 46	
0.5-5	56	46	
5-30	60	50	

**NOTE**: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

# 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 12, 2012	Mar.11, 2013
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 06, 2012	Sep. 05, 2013
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 08,2012	June 07,2013
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 28, 2012	Aug. 27, 2013
50 ohms Terminator	50	EMC-3	Sep. 25, 2012	Sep. 24, 2013
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

#### Note:

- 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 2. The test was performed in Shielded Room No. C.
- 3 The VCCI Con C Registration No. is C-3611.
- 4 Tested Date: Nov. 23, 2012

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### 4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit 20dB) was not recorded.

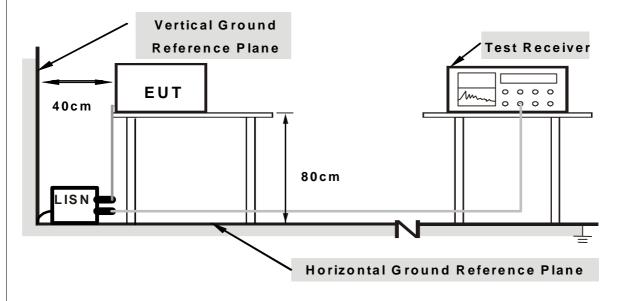
### NOTE:

1. The resolution bandwidth of test receiver is 9kHz for Quasi-peak detection (QP) & Average detection (AV).

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

# 4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

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# 4.1.6 EUT OPERATING CONDITIONS

- 1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
- 2. The communication partner run test program "WinPrius Radio Diagnostic Test Version 2.0.2x.exe" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

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Reference No.:121106E11



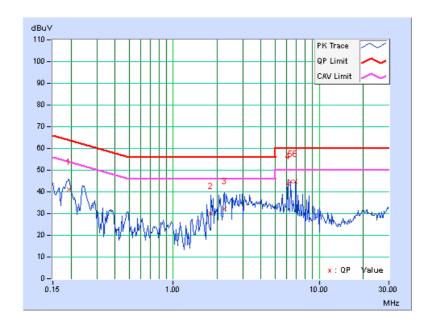
# 4.1.7 TEST RESULTS (MODE 1)

PHASE	lling (I)	Quasi-Peak (QP) / Average (AV)
		 , 11 0.4go (, 11 )

	Freq.	Corr.		ding lue		sion vel	Limit		Limit Margin		gin
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.19297	0.12	40.88	27.34	41.00	27.46	63.91	53.91	-22.91	-26.45	
2	1.81250	0.22	29.68	18.30	29.90	18.52	56.00	46.00	-26.10	-27.48	
3	2.24609	0.23	31.88	21.08	32.11	21.31	56.00	46.00	-23.89	-24.69	
4	6.11028	0.37	43.44	42.02	43.81	42.39	60.00	50.00	-16.19	-7.61	
5	6.37891	0.38	44.26	43.12	44.64	43.50	60.00	50.00	-15.36	-6.50	
6	6.91016	0.41	44.24	43.16	44.65	43.57	60.00	50.00	-15.35	-6.43	

#### **REMARKS:**

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



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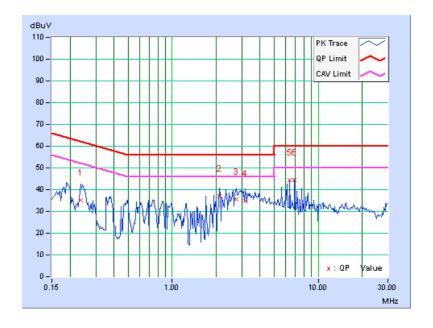
Reference No.:121106E11



PHASE	Neutral (NI)		Quasi-Peak (QP) / Average (AV)
-------	--------------	--	-----------------------------------

	Freq.	Corr.	rr. Reading Emission Limit			l i imit		nit	Mar	gin
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.23594	0.11	35.18	24.10	35.29	24.21	62.24	52.24	-26.95	-28.03
2	2.10156	0.21	36.78	23.64	36.99	23.85	56.00	46.00	-19.01	-22.15
3	2.73828	0.22	35.38	28.00	35.60	28.22	56.00	46.00	-20.40	-17.78
4	3.17188	0.23	34.48	27.34	34.71	27.57	56.00	46.00	-21.29	-18.43
5	6.37891	0.31	44.08	42.92	44.39	43.23	60.00	50.00	-15.61	-6.77
6	6.91016	0.33	44.18	42.96	44.51	43.29	60.00	50.00	-15.49	-6.71

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



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Reference No.:121106E11



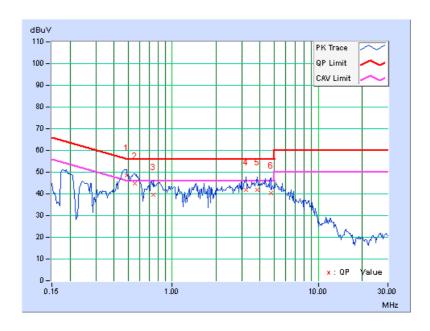
# 4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)		Quasi-Peak (QP) / Average (AV)
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	Freq.	Corr.		ding lue		sion vel	Limit		imit Margin	
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.48672	0.16	48.22	36.88	48.38	37.04	56.22	46.22	-7.84	-9.18
2	0.55234	0.17	44.70	33.76	44.87	33.93	56.00	46.00	-11.13	-12.07
3	0.74766	0.18	39.60	26.12	39.78	26.30	56.00	46.00	-16.22	-19.70
4	3.19922	0.25	41.44	29.70	41.69	29.95	56.00	46.00	-14.31	-16.05
5	3.81641	0.27	41.40	31.42	41.67	31.69	56.00	46.00	-14.33	-14.31
6	4.73438	0.31	40.14	31.24	40.45	31.55	56.00	46.00	-15.55	-14.45

#### **REMARKS:**

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



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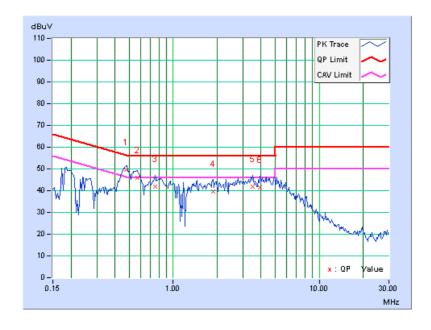
Reference No.:121106E11



PHASE	Neutral (NI)		Quasi-Peak (QP) / Average (AV)
-------	--------------	--	-----------------------------------

	Freq.	Corr.		ding lue	Emission Level L		Lir	mit	Mar	gin
No		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.47813	0.15	49.34	38.98	49.49	39.13	56.37	46.37	-6.88	-7.24
2	0.56797	0.16	45.62	28.40	45.78	28.56	56.00	46.00	-10.22	-17.44
3	0.75156	0.16	41.54	29.20	41.70	29.36	56.00	46.00	-14.30	-16.64
4	1.87891	0.21	39.36	27.32	39.57	27.53	56.00	46.00	-16.43	-18.47
5	3.51172	0.23	41.80	31.78	42.03	32.01	56.00	46.00	-13.97	-13.99
6	3.92969	0.24	41.30	31.36	41.54	31.60	56.00	46.00	-14.46	-14.40

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- 3. Margin value = Emission level Limit value
- 4. Correction factor = Insertion loss + Cable loss
- 5. Emission Level = Correction Factor + Reading Value.



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# 4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

# 4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

#### NOTE:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

#### 4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT					
	FIELD	STRENGTH AT 3m (dBµV/m)				
	PK	AV				
	74	54				
	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m)				
$\sqrt{}$	PK	PK				
	-27	68.3				

#### NOTE:

1. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$
 µV/m, where P is the eirp (Watts).

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# 4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250254	July 09, 2012	July 08, 2013
Pre-Selector Agilent	N9039A	MY46520311	July 09, 2012	July 08, 2013
Signal Generator Agilent	N5181A	MY49060517	July 09, 2012	July 08, 2013
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A02578	June 26, 2012	June 25, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
Horn Antenna SCHWARZBECK	BBHA 9120	9120D-783	Sep. 20, 2012	Sep. 19, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 06, 2012	Oct. 05, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

#### Note:

- 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. G.
- 4. The FCC Site Registration No. is 966073.
- 5 The VCCI Site Registration No. is G-137.
- 6 The CANADA Site Registration No. is IC 7450H-2.
- 7 Tested Date: Nov 15 to Dec. 11, 2012



#### 4.2.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

#### NOTE:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

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4. All modes of operation were investigated and the worst-case emissions are reported.

# 4.2.5 DEVIATION FROM TEST STANDARD

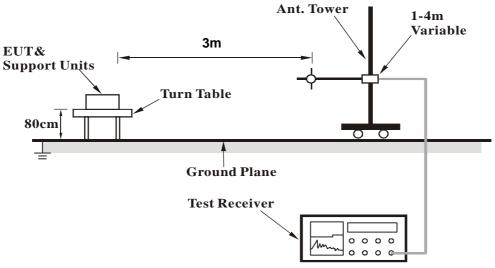
No deviation

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# 4.2.6 TEST SETUP



For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

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# 4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

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# 4.2.8 TEST RESULTS

# **BELOW 1GHz WORST-CASE DATA**

# 802.11n (HT20)

CHANNEL	TX Channel 52	DETECTOR	Overi Book (OB)
FREQUENCY RANGE	Below 1GHz	FUNCTION	Quasi-Peak (QP)

		ANTENNA I	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	<u>AT 3 M</u>	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.04	38.6 QP	43.5	-4.9	2.00 H	32	28.87	9.76
2	151.38	39.4 QP	43.5	-4.2	2.00 H	72	24.44	14.91
3	202.78	40.1 QP	43.5	-3.4	1.50 H	305	28.84	11.28
4	250.03	40.1 QP	46.0	-6.0	1.00 H	271	26.70	13.35
5	273.71	34.8 QP	46.0	-11.2	1.00 H	97	20.56	14.26
6	350.10	36.6 QP	46.0	-9.4	1.00 H	114	20.06	16.58
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.54	38.1 QP	40.0	-2.0	2.00 V	0	24.59	13.46
2	73.13	33.4 QP	40.0	-6.6	1.53 V	360	21.68	11.71
3	139.19	36.4 QP	43.5	-7.1	1.00 V	360	22.53	13.87
4	187.62	38.4 QP	43.5	-5.1	1.00 V	310	26.13	12.27
5	250.03	37.1 QP	46.0	-8.9	1.00 V	325	23.79	13.35
6	349.98	36.7 QP	46.0	-9.3	1.50 V	76	20.14	16.58

#### **REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.

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#### **ABOVE 1GHz DATA**

#### 802.11a

CHANNEL	TX Channel 36	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.3 PK	74.0	-14.7	1.16 H	341	17.00	42.30
2	5150.00	46.5 AV	54.0	-7.5	1.16 H	341	4.20	42.30
3	*5180.00	94.4 PK			1.16 H	341	52.00	42.40
4	*5180.00	83.5 AV			1.16 H	341	41.10	42.40
5	#10360.00	55.9 PK	68.3	-12.4	1.00 H	153	6.69	49.21
6	15540.00	63.1 PK	74.0	-10.9	1.00 H	25	8.00	55.10
7	15540.00	51.3 AV	54.0	-2.7	1.00 H	25	-3.80	55.10
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.6 PK	74.0	-14.4	1.17 V	346	17.30	42.30
2	5150.00	47.6 AV	54.0	-6.4	1.17 V	346	5.30	42.30
3	*5180.00	110.7 PK			1.17 V	346	68.30	42.40
4	*5180.00	99.9 AV			1.17 V	346	57.50	42.40
5	#10360.00	55.3 PK	68.3	-13.0	1.00 V	254	6.09	49.21
6	15540.00	62.9 PK	74.0	-11.1	1.00 V	151	7.80	55.10
7	15540.00	51.4 AV	54.0	-2.6	1.00 V	151	-3.70	55.10

# **REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

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CHANNEL	TX Channel 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5200.00	94.5 PK			1.14 H	332	52.03	42.47		
2	*5200.00	83.4 AV			1.14 H	332	40.93	42.47		
3	#10400.00	55.8 PK	68.3	-12.5	1.00 H	147	6.97	48.83		
4	15600.00	62.6 PK	74.0	-11.4	1.00 H	26	7.63	54.97		
5	15600.00	50.8 AV	54.0	-3.2	1.00 H	26	-4.17	54.97		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5200.00	110.8 PK			1.13 V	345	68.33	42.47		
2	*5200.00	100.1 AV			1.13 V	345	57.63	42.47		
3	#10400.00	55.2 PK	68.3	-13.1	1.03 V	254	6.37	48.83		
4	15600.00	62.8 PK	74.0	-11.2	1.00 V	154	7.83	54.97		
5	15600.00	51.1 AV	54.0	-2.9	1.00 V	154	-3.87	54.97		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



CHANNEL	TX Channel 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5240.00	95.7 PK			1.12 H	338	53.19	42.51		
2	*5240.00	84.9 AV			1.12 H	338	42.39	42.51		
3	#10480.00	56.3 PK	68.3	-12.0	1.00 H	146	6.91	49.39		
4	15720.00	62.4 PK	74.0	-11.6	1.00 H	17	7.70	54.70		
5	15720.00	51.1 AV	54.0	-2.9	1.00 H	17	-3.60	54.70		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5240.00	116.4 PK			1.14 V	345	73.89	42.51		
2	*5240.00	101.8 AV			1.14 V	345	59.29	42.51		
3	#10480.00	57.1 PK	68.3	-11.2	1.00 V	244	7.71	49.39		
4	15720.00	63.2 PK	74.0	-10.8	1.00 V	144	8.50	54.70		
5	15720.00	52.5 AV	54.0	-1.5	1.00 V	144	-2.20	54.70		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 52	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA I	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	100.8 PK			1.08 H	347	58.26	42.54
2	*5260.00	93.3 AV			1.08 H	347	50.76	42.54
3	#10520.00	56.5 PK	68.3	-11.8	1.00 H	245	7.01	49.49
4	15780.00	63.8 PK	74.0	-10.2	1.07 H	326	8.91	54.89
5	15780.00	51.3 AV	54.0	-2.7	1.07 H	326	-3.59	54.89
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	120.8 PK			1.17 V	317	78.26	42.54
2	*5260.00	108.3 AV			1.17 V	317	65.76	42.54
3	#10520.00	56.7 PK	68.3	-11.6	1.03 V	250	7.21	49.49
	15780.00	63.6 PK	74.0	-10.4	1.02 V	142	8.71	54.89
4	13700.00	03.0 FK	74.0	-10.4	1.02 V	172	0.7 1	34.09

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Reference No.:121106E11



CHANNEL	TX Channel 60	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	101.3 PK			1.10 H	335	58.72	42.58
2	*5300.00	93.8 AV			1.10 H	335	51.22	42.58
3	10600.00	55.9 PK	74.0	-18.1	1.10 H	346	6.55	49.35
4	10600.00	43.8 AV	54.0	-10.2	1.10 H	346	-5.54	49.35
5	15900.00	63.3 PK	74.0	-10.7	1.08 H	326	8.21	55.09
6	15900.00	50.8 AV	54.0	-3.2	1.08 H	326	-4.29	55.09
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	120.0 PK			1.14 V	336	77.42	42.58
2	*5300.00	107.9 AV			1.14 V	336	65.32	42.58
3	10600.00	56.3 PK	74.0	-17.7	1.00 V	314	6.95	49.35
4	10600.00	44.4 AV	54.0	-9.6	1.00 V	314	-4.93	49.35
5	15900.00	63.7 PK	74.0	-10.3	1.12 V	335	8.61	55.09
6	15900.00	51.0 AV	54.0	-3.0	1.12 V	335	-4.09	55.09

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 64	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	100.5 PK			1.11 H	328	57.91	42.59
2	*5320.00	93.3 AV			1.11 H	328	50.71	42.59
3	5350.00	59.2 PK	74.0	-14.8	1.19 H	331	16.61	42.59
4	5350.00	46.1 AV	54.0	-7.9	1.19 H	331	3.51	42.59
5	10640.00	56.9 PK	74.0	-17.1	1.00 H	156	7.44	49.46
6	10640.00	45.2 AV	54.0	-8.8	1.00 H	156	-4.26	49.46
7	15960.00	62.5 PK	74.0	-11.5	1.00 H	27	7.67	54.83
8	15960.00	51.1 AV	54.0	-2.9	1.00 H	27	-3.73	54.83
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	120.1 PK			1.17 V	344	77.51	42.59
2	*5320.00	108.1 AV			1.17 V	344	65.51	42.59
3	5350.00	66.7 PK	74.0	-7.3	1.17 V	344	24.11	42.59
4	5350.00	53.1 AV	54.0	-0.9	1.17 V	344	10.51	42.59
5	10640.00	57.6 PK	74.0	-16.4	1.10 V	59	8.14	49.46
6	10640.00	46.2 AV	54.0	-7.8	1.10 V	59	-3.26	49.46
7	15960.00	63.3 PK	74.0	-10.7	1.00 V	153	8.47	54.83
8	15960.00	51.2 AV	54.0	-2.8	1.00 V	153	-3.63	54.83

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



CHANNEL	TX Channel 100	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	62.2 PK	74.0	-11.8	1.14 H	355	19.38	42.82
2	5460.00	50.5 AV	54.0	-3.5	1.14 H	355	7.68	42.82
3	#5470.00	67.8 PK	68.3	-0.5	1.13 H	355	24.95	42.85
4	*5500.00	97.6 PK			1.16 H	319	54.64	42.96
5	*5500.00	90.1 AV			1.16 H	319	47.14	42.96
6	11000.00	57.3 PK	74.0	-16.7	1.00 H	162	7.29	50.01
7	11000.00	45.6 AV	54.0	-8.4	1.00 H	162	-4.41	50.01
8	#16500.00	62.2 PK	68.3	-6.1	1.05 H	28	5.83	56.37
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.7 PK	74.0	-12.3	1.09 V	349	18.88	42.82
2	5460.00	50.2 AV	54.0	-3.8	1.09 V	349	7.38	42.82
3	#5470.00	67.6 PK	68.3	-0.7	1.09 V	349	24.75	42.85
4	*5500.00	117.6 PK			1.09 V	349	74.64	42.96
5	*5500.00	107.1 AV			1.09 V	349	64.14	42.96
6	11000.00	57.5 PK	74.0	-16.5	1.00 V	163	7.49	50.01
7	11000.00	45.8 AV	54.0	-8.2	1.00 V	163	-4.21	50.01
8	#16500.00	61.9 PK	68.3	-6.4	1.11 V	16	5.53	56.37

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



CHANNEL	TX Channel 116	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5580.00	100.1 PK			1.16 H	334	56.96	43.14		
2	*5580.00	91.0 AV			1.16 H	334	47.86	43.14		
3	11160.00	55.8 PK	74.0	-18.2	1.00 H	352	6.09	49.71		
4	11160.00	43.9 AV	54.0	-10.1	1.00 H	352	-5.81	49.71		
5	#16740.00	66.0 PK	68.3	-2.3	1.26 H	354	9.58	56.42		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5580.00	119.1 PK			1.00 V	315	75.96	43.14		
2	*5580.00	107.1 AV			1.00 V	315	63.96	43.14		
3	11160.00	56.8 PK	74.0	-17.2	1.00 V	305	7.09	49.71		
4	11160.00	44.3 AV	54.0	-9.7	1.00 V	305	-5.41	49.71		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 132	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5660.00	99.7 PK			1.14 H	335	56.46	43.24		
2	*5660.00	91.2 AV			1.14 H	335	47.96	43.24		
3	11320.00	56.1 PK	74.0	-17.9	1.00 H	352	6.00	50.10		
4	11320.00	44.3 AV	54.0	-9.7	1.00 H	352	-5.80	50.10		
5	#16980.00	65.7 PK	68.3	-2.6	1.21 H	341	8.52	57.18		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5660.00	119.6 PK			1.00 V	315	76.36	43.24		
2	*5660.00	107.3 AV			1.00 V	315	64.06	43.24		
3	11320.00	56.7 PK	74.0	-17.3	1.00 V	314	6.60	50.10		
4	11320.00	44.4 AV	54.0	-9.6	1.00 V	314	-5.70	50.10		
5	#16980.00	67.0 PK	68.3	-1.3	1.17 V	321	9.82	57.18		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 140	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5700.00	96.1 PK			1.20 H	325	52.83	43.27		
2	*5700.00	88.8 AV			1.20 H	325	45.53	43.27		
3	#5725.00	66.5 PK	68.3	-1.8	1.16 H	360	23.20	43.30		
4	11400.00	55.7 PK	74.0	-18.3	1.00 H	340	5.78	49.92		
5	11400.00	43.0 AV	54.0	-11.0	1.00 H	340	-6.92	49.92		
6	#17100.00	65.7 PK	68.3	-2.6	1.26 H	335	8.62	57.08		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5700.00	116.2 PK			1.15 V	346	72.93	43.27		
2	*5700.00	104.1 AV			1.15 V	346	60.83	43.27		
3	#5725.00	67.2 PK	68.3	-1.1	1.15 V	346	23.90	43.30		
4	11400.00	55.8 PK	74.0	-18.2	1.04 V	298	5.88	49.92		
5	11400.00	43.1 AV	54.0	-10.9	1.04 V	298	-6.82	49.92		
6	#17100.00	67.5 PK	68.3	-0.8	1.12 V	332	10.42	57.08		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



# 802.11n (HT20)

CHANNEL	TX Channel 36	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		<b>ANTENNA</b>	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.2 PK	74.0	-14.8	1.14 H	348	16.90	42.30
2	5150.00	47.7 AV	54.0	-6.3	1.14 H	348	5.40	42.30
3	*5180.00	95.2 PK			1.22 H	328	52.80	42.40
4	*5180.00	85.3 AV			1.22 H	328	42.90	42.40
5	#10360.00	42.5 PK	68.3	-25.8	1.19 H	342	-6.71	49.21
6	15540.00	63.8 PK	74.0	-10.2	1.05 H	315	8.70	55.10
7	15540.00	50.9 AV	54.0	-3.1	1.05 H	315	-4.20	55.10
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.9 PK	74.0	-15.1	1.17 V	348	16.60	42.30
2	5150.00	47.4 AV	54.0	-6.6	1.17 V	348	5.10	42.30
3	*5180.00	111.8 PK			1.17 V	348	69.40	42.40
4	*5180.00	99.8 AV			1.17 V	348	57.40	42.40
5	#10360.00	43.0 PK	68.3	-25.3	1.15 V	345	-6.21	49.21
6	15540.00	64.0 PK	74.0	-10.0	1.05 V	324	8.90	55.10
7	15540.00	51.2 AV	54.0	-2.8	1.05 V	324	-3.90	55.10

# **REMARKS:**

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11

Cancels and replaces the report No.: RF980406H01E-1 dated Jan. 24, 2013

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CHANNEL	TX Channel 40	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5200.00	95.4 PK			1.18 H	317	52.93	42.47		
2	*5200.00	85.5 AV			1.18 H	317	43.03	42.47		
3	#10400.00	41.7 PK	68.3	-26.6	1.14 H	337	-7.13	48.83		
4	15600.00	64.3 PK	74.0	-9.7	1.00 H	326	9.33	54.97		
5	15600.00	51.1 AV	54.0	-2.9	1.00 H	326	-3.87	54.97		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5200.00	112.0 PK			1.20 V	355	69.53	42.47		
2	*5200.00	100.2 AV			1.20 V	355	57.73	42.47		
3	#10400.00	43.4 PK	68.3	-24.9	1.20 V	341	-5.43	48.83		
4	15600.00	64.0 PK	74.0	-10.0	1.02 V	334	9.03	54.97		
5	15600.00	51.1 AV	54.0	-2.9	1.02 V	334	-3.87	54.97		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11

Cancels and replaces the report No.: RF980406H01E-1 dated Jan. 24, 2013

Report Format Version 5.1.0



CHANNEL	TX Channel 48	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5240.00	95.4 PK			1.18 H	327	52.89	42.51		
2	*5240.00	85.2 AV			1.18 H	327	42.69	42.51		
3	#10480.00	42.2 PK	68.3	-26.1	1.11 H	342	-7.19	49.39		
4	15720.00	64.5 PK	74.0	-9.5	1.00 H	340	9.80	54.70		
5	15720.00	51.5 AV	54.0	-2.5	1.00 H	340	-3.20	54.70		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT	TABLE ANGLE	RAW VALUE	CORRECTION FACTOR (dB/m)		
		(dBuV/m)			(m)	(Degree)	(dBuV)	(ub/III)		
1	*5240.00	(dBuV/m) 111.6 PK			( <b>m</b> )	(Degree) 360	( <b>dBuv</b> ) 69.09	42.51		
1	*5240.00 *5240.00	, ,			` '	, ,	, ,	` ,		
		111.6 PK	68.3	-24.7	1.20 V	360	69.09	42.51		
2	*5240.00	111.6 PK 100.1 AV	68.3 74.0	-24.7 -10.1	1.20 V 1.20 V	360 360	69.09 57.59	42.51 42.51		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 52	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5260.00	100.1 PK			1.17 H	348	57.56	42.54		
2	*5260.00	91.4 AV			1.17 H	348	48.86	42.54		
3	#10520.00	56.7 PK	68.3	-11.6	1.11 H	315	7.21	49.49		
4	15780.00	63.2 PK	74.0	-10.8	1.09 H	320	8.31	54.89		
5	15780.00	51.1 AV	54.0	-2.9	1.09 H	320	-3.79	54.89		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*5260.00	119.2 PK			1.05 V	327	76.66	42.54		
2	*5260.00	107.1 AV			1.05 V	327	64.56	42.54		
3	#10520.00	56.3 PK	68.3	-12.0	1.05 V	327	6.81	49.49		
4	15780.00	62.6 PK	74.0	-11.4	1.05 V	327	7.71	54.89		
5	15780.00	50.7 AV	54.0	-3.3	1.05 V	327	-4.19	54.89		

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 60	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	99.9 PK			1.14 H	339	57.32	42.58
2	*5300.00	91.2 AV			1.14 H	339	48.62	42.58
3	10600.00	56.2 PK	74.0	-17.8	1.12 H	332	6.85	49.35
4	10600.00	43.4 AV	54.0	-10.6	1.12 H	332	-5.95	49.35
5	15900.00	62.7 PK	74.0	-11.3	1.13 H	305	7.61	55.09
6	15900.00	50.9 AV	54.0	-3.1	1.13 H	305	-4.19	55.09
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	119.2 PK			1.10 V	314	76.62	42.58
2	*5300.00	107.3 AV			1.10 V	314	64.72	42.58
3	10600.00	56.1 PK	74.0	-17.9	1.10 V	320	6.75	49.35
4	10600.00	43.5 AV	54.0	-10.5	1.10 V	320	-5.85	49.35
5	15900.00	62.9 PK	74.0	-11.1	1.01 V	311	7.81	55.09
6	15900.00	50.7 AV	54.0	-3.3	1.01 V	311	-4.39	55.09

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 64	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	99.7 PK			1.11 H	338	57.11	42.59
2	*5320.00	91.1 AV			1.11 H	338	48.51	42.59
3	5350.00	68.4 PK	74.0	-5.6	1.18 H	334	25.81	42.59
4	5350.00	53.5 AV	54.0	-0.5	1.18 H	334	10.91	42.59
5	10640.00	55.8 PK	74.0	-18.2	1.16 H	335	6.34	49.46
6	10640.00	43.1 AV	54.0	-10.9	1.16 H	335	-6.36	49.46
7	15960.00	62.3 PK	74.0	-11.7	1.15 H	297	7.47	54.83
8	15960.00	50.5 AV	54.0	-3.5	1.15 H	297	-4.33	54.83
		ANTENNA	A POLARITY	/ & TEST DI	ISTANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	119.2 PK			1.14 V	342	76.61	42.59
2	*5320.00	107.4 AV			1.14 V	342	64.81	42.59
3	5350.00	67.9 PK	74.0	-6.1	1.14 V	342	25.31	42.59
4	5350.00	53.1 AV	54.0	-0.9	1.14 V	342	10.51	42.59
5	10640.00	56.1 PK	74.0	-17.9	1.13 V	312	6.64	49.46
6	10640.00	43.4 AV	54.0	-10.6	1.13 V	312	-6.06	49.46
7	15960.00	63.1 PK	74.0	-10.9	1.00 V	318	8.27	54.83
8	15960.00	50.9 AV	54.0	-3.1	1.00 V	318	-3.93	54.83

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 100	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANITENINIA	DOL ADITY	TEST DIS	TANCE: HO	DIZONTAL	AT 2 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.5 PK	74.0	-13.5	1.04 H	339	17.68	42.82
2	5460.00	50.4 AV	54.0	-3.6	1.04 H	339	7.58	42.82
3	#5470.00	66.8 PK	68.3	-1.5	1.13 H	349	23.95	42.85
4	*5500.00	96.1 PK			1.11 H	334	53.14	42.96
5	*5500.00	87.9 AV			1.11 H	334	44.94	42.96
6	11000.00	55.5 PK	74.0	-18.5	1.20 H	322	5.49	50.01
7	11000.00	43.1 AV	54.0	-10.9	1.20 H	322	-6.91	50.01
8	#16500.00	62.3 PK	68.3	-6.0	1.15 H	283	5.93	56.37
		ANTENNA	A POLARITY	' & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.6 PK	74.0	-13.4	1.09 V	344	17.78	42.82
2	5460.00	50.3 AV	54.0	-3.7	1.09 V	344	7.48	42.82
3	#5470.00	67.1 PK	68.3	-1.2	1.09 V	344	24.25	42.85
4	*5500.00	116.8 PK			1.09 V	344	73.84	42.96
5	*5500.00	104.0 AV			1.09 V	344	61.04	42.96
6	11000.00	55.9 PK	74.0	-18.1	1.16 V	326	5.89	50.01
7	11000.00	43.1 AV	54.0	-10.9	1.16 V	326	-6.91	50.01
8	#16500.00	62.5 PK	68.3	-5.8	1.02 V	320	6.13	56.37

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11

Reference No.:121106E11
Cancels and replaces the report No.: RF980406H01E-1 dated Jan. 24, 2013

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CHANNEL	TX Channel 116	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	99.2 PK			1.06 H	324	56.06	43.14
2	*5580.00	90.8 AV			1.06 H	324	47.66	43.14
3	11160.00	55.1 PK	74.0	-18.9	1.24 H	307	5.39	49.71
4	11160.00	42.7 AV	54.0	-11.3	1.24 H	307	-7.01	49.71
5	#16740.00	62.1 PK	68.3	-6.2	1.11 H	283	5.68	56.42
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	119.5 PK			1.08 V	339	76.36	43.14
2	*5580.00	107.7 AV			1.08 V	339	64.56	43.14
3	11160.00	55.9 PK	74.0	-18.1	1.22 V	328	6.19	49.71
4	11160.00	42.9 AV	54.0	-11.1	1.22 V	328	-6.81	49.71
5	#16740.00	62.3 PK	68.3	-6.0	1.03 V	313	5.88	56.42

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 132	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	99.3 PK			1.02 H	313	56.06	43.24
2	*5660.00	90.7 AV			1.02 H	313	47.46	43.24
3	11320.00	55.7 PK	74.0	-18.3	1.25 H	293	5.60	50.10
4	11320.00	43.2 AV	54.0	-10.8	1.25 H	293	-6.90	50.10
5	#16980.00	62.9 PK	68.3	-5.4	1.11 H	294	5.72	57.18
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	119.7 PK			1.11 V	350	76.46	43.24
2	*5660.00	108.1 AV			1.11 V	350	64.86	43.24
3	11320.00	55.4 PK	74.0	-18.6	1.28 V	325	5.30	50.10
4	11320.00	42.4 AV	54.0	-11.6	1.28 V	325	-7.70	50.10
5	#16980.00	62.0 PK	68.3	-6.3	1.01 V	303	4.82	57.18

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 140	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	96.6 PK			1.23 H	328	53.33	43.27
2	*5700.00	89.2 AV			1.23 H	328	45.93	43.27
3	#5725.00	67.4 PK	68.3	-0.9	1.16 H	343	24.10	43.30
4	11400.00	56.0 PK	74.0	-18.0	1.21 H	282	6.08	49.92
5	11400.00	43.5 AV	54.0	-10.5	1.21 H	282	-6.42	49.92
6	#17100.00	63.4 PK	68.3	-4.9	1.14 H	284	6.32	57.08
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	114.7 PK			1.16 V	346	71.43	43.27
2	*5700.00	103.1 AV			1.16 V	346	59.83	43.27
3	#5725.00	67.5 PK	68.3	-0.8	1.16 V	346	24.20	43.30
4	11400.00	55.3 PK	74.0	-18.7	1.28 V	316	5.38	49.92
5	11400.00	42.1 AV	54.0	-11.9	1.28 V	316	-7.82	49.92
6	#17100.00	61.7 PK	68.3	-6.6	1.00 V	289	4.62	57.08

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



# 802.11n (HT40)

CHANNEL	TX Channel 38	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		<b>ANTENNA</b>	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.9 PK	74.0	-15.1	1.11 H	342	16.60	42.30
2	5150.00	46.0 AV	54.0	-8.0	1.11 H	342	3.70	42.30
3	*5190.00	96.6 PK			1.17 H	326	54.16	42.44
4	*5190.00	86.5 AV			1.17 H	326	44.06	42.44
5	#10380.00	54.7 PK	68.3	-13.6	1.21 H	280	5.68	49.02
6	15570.00	61.4 PK	74.0	-12.6	1.00 H	112	6.36	55.04
7	15570.00	49.8 AV	54.0	-4.2	1.00 H	112	-5.24	55.04
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.9 PK	74.0	-6.1	1.18 V	344	27.35	40.55
2	5150.00	52.1 AV	54.0	-1.9	1.18 V	344	11.55	40.55
3	*5190.00	108.6 PK			1.18 V	344	67.87	40.73
4	*5190.00	96.7 AV			1.18 V	344	55.97	40.73
5	#10380.00	55.3 PK	68.3	-13.0	1.22 V	309	7.71	47.59
6	15570.00	61.8 PK	74.0	-12.2	1.00 V	81	8.67	53.13
7	15570.00	50.2 AV	54.0	-3.8	1.00 V	81	-2.93	53.13

# **REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



CHANNEL	TX Channel 46	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	96.6 PK			1.22 H	336	54.10	42.50
2	*5230.00	86.7 AV			1.22 H	336	44.20	42.50
3	#10460.00	54.4 PK	68.3	-13.9	1.16 H	266	5.15	49.25
4	15690.00	61.9 PK	74.0	-12.1	1.01 H	108	7.23	54.67
5	15690.00	50.1 AV	54.0	-3.9	1.01 H	108	-4.57	54.67
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	108.9 PK			1.18 V	357	66.40	42.50
2	*5230.00 *5230.00	108.9 PK 96.7 AV			1.18 V 1.18 V	357 357	66.40 54.20	42.50 42.50
			68.3	-12.3				
2	*5230.00	96.7 AV	68.3 74.0	-12.3 -12.6	1.18 V	357	54.20	42.50

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 54	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*5270.00	100.0 PK			1.18 H	337	57.45	42.55			
2	*5270.00	91.2 AV			1.18 H	337	48.65	42.55			
3	#10540.00	53.8 PK	68.3	-14.5	1.13 H	260	4.34	49.46			
4	15810.00	61.6 PK	74.0	-12.4	1.04 H	114	6.64	54.96			
5	15810.00	50.1 AV	54.0	-3.9	1.04 H	114	-4.86	54.96			
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M				
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*5270.00	119.7 PK			1.12 V	307	77.15	42.55			
2	*5270.00	107.7 AV			1.12 V	307	65.15	42.55			
3	#10540.00	55.9 PK	68.3	-12.4	1.19 V	331	6.44	49.46			
4	15810.00	61.7 PK	74.0	-12.3	1.00 V	102	6.74	54.96			
5	15810.00	50.1 AV	54.0	-3.9	1.00 V	102	-4.86	54.96			

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 62	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	96.7 PK			1.22 H	350	54.12	42.58
2	*5310.00	88.7 AV			1.22 H	350	46.12	42.58
3	5350.00	65.8 PK	74.0	-8.2	1.17 H	345	23.21	42.59
4	5350.00	51.7 AV	54.0	-2.3	1.17 H	345	9.11	42.59
5	10620.00	54.2 PK	74.0	-19.8	1.18 H	275	4.80	49.40
6	10620.00	49.7 AV	54.0	-4.3	1.18 H	275	0.30	49.40
7	15930.00	61.4 PK	74.0	-12.6	1.04 H	110	6.44	54.96
8	15930.00	49.8 AV	54.0	-4.2	1.04 H	110	-5.16	54.96
		ANTENNA	A POLARITY	/ & TEST DI	ISTANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	110.1 PK			1.15 V	342	67.52	42.58
2	*5310.00	97.8 AV			1.15 V	342	55.22	42.58
3	5350.00	67.8 PK	74.0	-6.2	1.15 V	342	25.21	42.59
4	5350.00	53.3 AV	54.0	-0.7	1.15 V	342	10.71	42.59
5	10620.00	55.3 PK	74.0	-18.7	1.22 V	333	5.90	49.40
6	10620.00	42.4 AV	54.0	-11.6	1.22 V	333	-7.00	49.40
7	15930.00	61.4 PK	74.0	-12.6	1.00 V	99	6.44	54.96
8	15930.00	50.0 AV	54.0	-4.0	1.00 V	99	-4.96	54.96

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



CHANNEL	TX Channel 102	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.0 PK	74.0	-15.0	1.11 H	329	16.18	42.82
2	5460.00	46.0 AV	54.0	-8.0	1.11 H	329	3.18	42.82
3	#5470.00	64.5 PK	68.3	-3.8	1.12 H	313	21.65	42.85
4	*5510.00	92.5 PK			1.17 H	336	49.52	42.98
5	*5510.00	82.5 AV			1.17 H	336	39.52	42.98
6	11020.00	54.6 PK	74.0	-19.4	1.20 H	277	4.65	49.95
7	11020.00	49.9 AV	54.0	-4.1	1.20 H	277	-0.05	49.95
8	#16530.00	61.1 PK	68.3	-7.2	1.06 H	121	4.47	56.63
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	65.8 PK	74.0	-8.2	1.19 V	342	22.98	42.82
2	5460.00	51.9 AV	54.0	-2.1	1.19 V	342	9.08	42.82
3	#5470.00	66.8 PK	68.3	-1.5	1.12 V	344	23.95	42.85
4	*5510.00	107.5 PK			1.12 V	344	64.52	42.98
5	*5510.00	95.0 AV			1.12 V	344	52.02	42.98
6	11020.00	55.1 PK	74.0	-18.9	1.24 V	339	5.15	49.95
7	11020.00	42.4 AV	54.0	-11.6	1.24 V	339	-7.55	49.95
8	#16530.00	61.8 PK	68.3	-6.5	1.03 V	114	5.17	56.63

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1

Reference No.:121106E11



CHANNEL	TX Channel 110	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*5550.00	98.5 PK			1.23 H	336	55.42	43.08			
2	*5550.00	88.5 AV			1.23 H	336	45.42	43.08			
3	11100.00	54.3 PK	74.0	-19.7	1.25 H	291	4.60	49.70			
4	11100.00	49.6 AV	54.0	-4.4	1.25 H	291	-0.10	49.70			
5	#16650.00	60.9 PK	68.3	-7.4	1.06 H	122	4.00	56.90			
		ANTENNA	A POLARITY	/ & TEST D	STANCE: V	ERTICAL A	T 3 M				
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*5550.00	118.5 PK			1.15 V	299	75.42	43.08			
	*5550.00	400 0 0 /			1.15 V	299	59.92	43.08			
2	3330.00	103.0 AV			_						
3	11100.00	103.0 AV 54.5 PK	74.0	-19.5	1.28 V	349	4.80	49.70			
			74.0 54.0	-19.5 -12.0	1.28 V 1.28 V	349 349	4.80 -7.70	49.70 49.70			

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11



CHANNEL	TX Channel 134	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*5670.00	97.1 PK			1.19 H	336	53.85	43.25			
2	*5670.00	86.9 AV			1.19 H	336	43.65	43.25			
3	#5725.00	64.4 PK	68.3	-3.9	1.15 H	308	21.10	43.30			
4	11340.00	53.7 PK	74.0	-20.3	1.24 H	298	3.64	50.06			
5	11340.00	49.2 AV	54.0	-4.8	1.24 H	298	-0.86	50.06			
6	#17010.00	61.1 PK	68.3	-7.2	1.12 H	121	3.82	57.28			
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M				
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	*5670.00	113.5 PK			1.13 V	341	70.25	43.25			
2	*5670.00	101.3 AV			1.13 V	341	58.05	43.25			
3	#5725.00	67.7 PK	68.3	-0.6	1.13 V	341	24.40	43.30			
4	11340.00	54.8 PK	74.0	-19.2	1.29 V	355	4.74	50.06			
5	11340.00	42.3 AV	54.0	-11.7	1.29 V	355	-7.76	50.06			
6	#17010.00	62.0 PK	68.3	-6.3	1.00 V	114	4.72	57.28			

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

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- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. " # ": The radiated frequency is out of the restricted band.

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Reference No.:121106E11



# 4.3 TRANSMIT POWER MEASUREMENT

# 4.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

Note: Where B is the 26dB emission bandwidth in MHz.

# 4.3.2 TEST INSTRUMENTS

DESCRIPTION &	MODEL NO.	SERIAL	CALIBRATED	CALIBRATED
MANUFACTURER	WIODEL NO.	NO.	DATE	UNTIL
Power Meter	ML2495A	0824006	May 10, 2012	May 09, 2013
Power Sensor	MA2411B	0738172	May 10, 2012	May 09, 2013

# Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. Tested date: Mar. 07, 2013

# 4.3.3 TEST PROCEDURE

# FOR POWER OUTPUT MEASUREMENT

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level.

# FOR 26dB OCCUPIED BANDWIDTH

- Set RBW = approximately 1% of the emission bandwidth.
- 2. Set the VBW > RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

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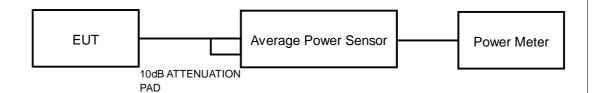


# 4.3.4 DEVIATION FROM TEST STANDARD

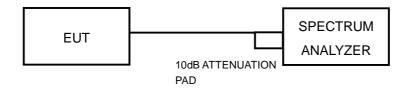
No deviation

# 4.3.5 TEST SETUP

# FOR POWER OUTPUT MEASUREMENT



# FOR 26dB OCCUPIED BANDWIDTH



# 4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

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# 4.3.7 TEST RESULTS

# **POWER OUTPUT:**

# 802.11a

CHAN	CHAN.	AVERA	GE POWER	R (dBm)	TOTAL POWER	TOTAL	POWER	PASS /
CHAN.	FREQ. (MHz)	CHAIN 0	CHAIN 1	CHAIN 2	(mW)	POWER (dBm)	LIMIT (dBm)	FAIL
36	5180	9.50	8.70	9.60	25.446	14.06	14.50	PASS
40	5200	9.50	8.60	9.70	25.490	14.06	14.50	PASS
48	5240	9.20	8.50	9.30	23.908	13.79	14.50	PASS
52	5260	12.60	11.25	11.31	45.053	16.54	21.50	PASS
60	5300	11.84	10.81	11.91	42.850	16.32	21.50	PASS
64	5320	12.12	11.01	11.97	44.651	16.50	21.50	PASS
100	5500	11.64	12.64	10.60	44.435	16.48	21.50	PASS
116	5580	11.80	11.61	10.70	41.373	16.17	21.50	PASS
132	5660	11.76	11.45	10.74	40.819	16.11	21.50	PASS
140	5700	11.51	11.67	11.55	43.136	16.35	21.50	PASS

The directional gain is 8.50dBi, therefore the limit needs to reduce.

# 802.11n (HT20)

CHAN	CHAN.	AVERA	GE POWER	R (dBm)	TOTAL	TOTAL	POWER	PASS /
CHAN.	FREQ. (MHz)	CHAIN 0	CHAIN 1	CHAIN 2	POWER (mW)	POWER (dBm)	LIMIT (dBm)	FAIL
36	5180	9.40	9.00	9.80	26.203	14.18	14.50	PASS
40	5200	9.50	9.10	10.20	27.512	14.40	14.50	PASS
48	5240	9.70	8.20	9.30	24.451	13.88	14.50	PASS
52	5260	12.45	11.49	11.35	45.318	16.56	21.50	PASS
60	5300	11.82	10.78	11.33	40.755	16.10	21.50	PASS
64	5320	12.01	10.90	11.84	43.464	16.38	21.50	PASS
100	5500	11.61	12.64	10.54	44.177	16.45	21.50	PASS
116	5580	11.78	11.68	10.64	41.377	16.17	21.50	PASS
132	5660	11.56	11.71	11.49	43.240	16.36	21.50	PASS
140	5700	11.20	11.70	11.50	42.099	16.24	21.50	PASS

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The directional gain is 8.50dBi, therefore the limit needs to reduce.

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# 802.11n (HT40)

CHAN	CHAN.	AVERA	GE POWER	R (dBm)	TOTAL	TOTAL	POWER LIMIT	PASS /
CHAN.	FREQ. (MHz)	CHAIN 0	CHAIN 1	CHAIN 2	(mW)	POWER POWER (mW) (dBm)		FAIL
38	5190	9.30	9.50	9.80	26.974	14.31	14.50	PASS
46	5230	9.30	9.10	10.10	26.872	14.29	14.50	PASS
54	5270	12.43	11.13	11.54	44.726	16.51	21.50	PASS
62	5310	10.40	10.30	11.70	36.471	15.62	21.50	PASS
102	5510	6.20	8.00	6.70	15.156	11.81	21.50	PASS
110	5550	11.97	11.65	10.36	41.226	16.15	21.50	PASS
134	5670	11.42	11.69	11.36	42.302	16.26	21.50	PASS

The directional gain is 8.50dBi, therefore the limit needs to reduce.

Report No.: RF980406H01E-1 R1 Reference No.:121106E11 Cancels and replaces the report No.: RF980406H01E-1 dated Jan. 24, 2013



# **26dB OCCUPIED BANDWIDTH:**

# 802.11a

CHANNEL	CHANNEL FREQUENCY	26dB	c BANDWIDTH (	(MHz)
CHANNEL	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2
36	5180	20.23	19.71	20.12
40	5200	19.95	19.83	19.95
48	5240	19.82	20.08	20.05
52	5260	20.30	19.84	20.74
60	5300	20.24	19.92	19.84
64	5320	19.57	20.47	20.12
100	5500	19.76	20.37	20.01
116	5580	20.38	20.20	20.06
132	5660	20.31	20.00	19.98
140	5700	20.03	20.58	20.11

# 802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY	26dB	c BANDWIDTH (	(MHz)
CHANNEL	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2
36	5180	20.96	20.45	20.79
40	5200	20.67	20.32	20.74
48	5240	20.91	20.82	22.12
52	5260	20.82	20.75	20.93
60	5300	20.84	22.48	21.10
64	5320	20.49	21.42	21.37
100	5500	21.07	21.50	21.39
116	5580	20.44	21.10	21.45
132	5660	21.63	20.74	21.13
140	5700	20.92	21.32	21.00

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Reference No.:121106E11



# 802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY	26dBc BANDWIDTH (MHz)				
CHANNEL	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2		
38	5190	49.42	47.80	50.12		
46	5230	49.75	47.56	49.38		
54	5270	48.70	47.86	49.35		
62	5310	49.19	48.03	50.27		
102	5510	49.49	48.10	50.52		
110	5550	49.14	47.44	49.42		
134	5670	48.61	48.06	49.19		

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Reference No.:121106E11
Cancels and replaces the report No.: RF980406H01E-1 dated Jan. 24, 2013



# 4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

# 4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 – 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

# 4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	May 09, 2012	May 08, 2013

### Note:

- 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 2. Tested date: Mar. 07, 2013

# 4.4.3 TEST PROCEDURES

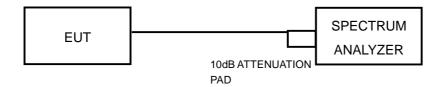
- 1. The transmitter output was connected to the spectrum analyzer.
- 2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

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# 4.4.4 DEVIATION FROM TEST STANDARD

No deviation

# 4.4.5 TEST SETUP



# 4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6

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# 4.4.7 TEST RESULTS

# 802.11a

	FDFOUENCY		PSD (dBm)		TOTAL	MAY LIMIT	
CHANNEL	FREQUENCY (MHz)	CHAIN 0	CHAIN 1	CHAIN 2	POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
36	5180	-3.84	-5.24	-4.28	0.36	1.50	PASS
40	5200	-3.58	-4.90	-4.66	0.43	1.50	PASS
48	5240	-3.75	-4.89	-3.75	0.67	1.50	PASS
56	5280	-0.58	-1.62	-1.99	3.42	8.50	PASS
60	5300	-0.63	-2.51	-2.10	3.10	8.50	PASS
64	5320	-1.38	-3.12	-2.04	2.65	8.50	PASS
100	5500	-1.27	-0.65	-2.97	3.25	8.50	PASS
116	5580	-1.03	-1.41	-2.45	3.18	8.50	PASS
132	5660	-1.60	-1.92	-2.65	2.74	8.50	PASS
140	5700	-1.58	-1.76	-1.99	3.00	8.50	PASS

The directional gain is 8.50dBi, therefore the limit needs to reduce.

# 802.11n (HT20)

	FREQUENCY		PSD (dBm)		TOTAL POWER	MAX. LIMIT	
CHANNEL	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2	DENSITY (dBm)	(dBm)	PASS/FAIL
36	5180	-3.30	-4.19	-3.41	1.16	1.50	PASS
40	5200	-2.91	-4.06	-3.85	1.19	1.50	PASS
48	5240	-2.88	-4.24	-3.50	1.27	1.50	PASS
56	5280	-0.97	-1.91	-2.20	3.11	8.50	PASS
60	5300	-1.52	-3.12	-3.10	2.26	8.50	PASS
64	5320	-1.52	-3.47	-2.36	2.39	8.50	PASS
100	5500	-1.72	-0.86	-3.01	3.00	8.50	PASS
116	5580	-1.33	-1.96	-2.79	2.79	8.50	PASS
132	5660	-1.87	-2.04	-3.04	2.48	8.50	PASS
140	5700	-1.03	-0.33	-2.69	3.53	8.50	PASS

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The directional gain is 8.50dBi, therefore the limit needs to reduce.

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# 802.11n (HT40)

	FDFOUENCY		PSD (dBm)		TOTAL	MAY LIMIT	
CHANNEL	FREQUENCY (MHz)	CHAIN 0	CHAIN 1	CHAIN 2	POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
38	5190	-6.60	-7.09	-6.77	-2.04	1.50	PASS
46	5230	-6.18	-7.21	-6.77	-1.93	1.50	PASS
54	5270	-4.56	-5.28	-5.60	-0.35	8.50	PASS
62	5310	-3.78	-5.52	-4.94	0.09	8.50	PASS
102	5510	-9.29	-9.00	-7.72	-3.84	8.50	PASS
110	5550	-5.03	-5.40	-6.19	-0.74	8.50	PASS
134	5670	-5.79	-5.43	-6.50	-1.11	8.50	PASS

The directional gain is 8.50dBi, therefore the limit needs to reduce.

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### 4.5 PEAK POWER EXCURSION MEASUREMENT

# 4.5.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT Shall not exceed 13 dB

# 4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	May 09, 2012	May 08, 2013

### Note:

- 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 2. Tested date: Mar. 07, 2013

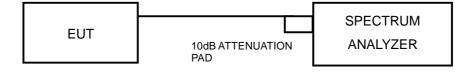
# 4.5.3 TEST PROCEDURE

- Set RBW = 1 MHz, VBW ≥ 3 MHz, Detector = peak.
- 2. Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
- 3. Use the peak search function to find the peak of the spectrum.
- 4. Measure the PPSD.
- 5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

# 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

# 4.5.5 TEST SETUP



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A D T	
4.5.6 EUT OPERATING CONDITIONS	
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.	

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# 4.5.7 TEST RESULTS

# 802.11a

CHAN.	CHAN. FREQ.	PE	AK VAL (dBm)	UE		PPSD (dBm)		PEAK	EXCUR	RSION	LIMIT	PASS/ FAIL
	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2	(dB)	FAIL
36	5180	4.69	4.30	5.14	-3.84	-5.24	-4.28	8.53	9.54	9.42	13	PASS
40	5200	5.04	3.92	5.24	-3.58	-4.90	-4.66	8.62	8.82	9.90	13	PASS
48	5240	5.11	4.28	6.54	-3.75	-4.89	-3.75	8.86	9.17	10.29	13	PASS
52	5260	7.81	7.26	7.84	-0.58	-1.62	-1.99	8.39	8.88	9.83	13	PASS
60	5300	7.64	6.53	7.77	-0.63	-2.51	-2.10	8.27	9.04	9.87	13	PASS
64	5320	7.37	5.75	8.54	-1.38	-3.12	-2.04	8.75	8.87	10.58	13	PASS
100	5500	7.34	8.24	7.00	-1.27	-0.65	-2.97	8.61	8.89	9.97	13	PASS
116	5580	7.57	7.75	7.22	-1.03	-1.41	-2.45	8.60	9.16	9.67	13	PASS
132	5660	6.62	7.84	7.36	-1.60	-1.92	-2.65	8.22	9.76	10.01	13	PASS
140	5700	6.70	7.57	7.68	-1.58	-1.76	-1.99	8.28	9.33	9.67	13	PASS

# 802.11n (HT20)

CHAN.	CHAN. FREQ.				PPSD (dBm)			EXCUR	LIMIT	PASS/ FAIL		
	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2	(dB)	FAIL
36	5180	5.59	4.89	6.52	-3.30	-4.19	-3.41	8.89	9.08	9.93	13	PASS
40	5200	5.82	5.43	6.13	-2.91	-4.06	-3.85	8.73	9.49	9.98	13	PASS
48	5240	5.87	5.04	6.47	-2.88	-4.24	-3.50	8.75	9.28	9.97	13	PASS
52	5260	7.95	7.12	7.71	-0.97	-1.91	-2.20	8.92	9.03	9.91	13	PASS
60	5300	6.83	5.90	6.88	-1.52	-3.12	-3.10	8.35	9.02	9.98	13	PASS
64	5320	7.22	5.69	8.04	-1.52	-3.47	-2.36	8.74	9.16	10.40	13	PASS
100	5500	7.06	8.03	6.78	-1.72	-0.86	-3.01	8.78	8.89	9.79	13	PASS
116	5580	8.00	7.74	7.02	-1.33	-1.96	-2.79	9.33	9.70	9.81	13	PASS
132	5660	6.83	7.86	6.67	-1.87	-2.04	-3.04	8.70	9.90	9.71	13	PASS
140	5700	7.86	8.33	6.19	-1.03	-0.33	-2.69	8.89	8.66	8.88	13	PASS



# 802.11n (HT40)

CHAN.	CHAN. FREQ.	PE	AK VAL (dBm)	UE		PPSD (dBm)		PEAK	EXCUF	SION	LIMIT	PASS/ FAIL
	(MHz)	CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2	(dB)	
38	5190	2.34	1.76	2.42	-6.60	-7.09	-6.77	8.94	8.85	9.19	13	PASS
46	5230	2.78	1.36	2.11	-6.18	-7.21	-6.77	8.96	8.57	8.88	13	PASS
54	5270	4.39	3.35	3.73	-4.56	-5.28	-5.60	8.95	8.63	9.33	13	PASS
62	5310	5.54	3.08	4.23	-3.78	-5.52	-4.94	9.32	8.60	9.17	13	PASS
102	5510	0.09	-0.21	1.11	-9.29	-9.00	-7.72	9.38	8.79	8.83	13	PASS
110	5550	3.77	3.35	2.89	-5.03	-5.40	-6.19	8.80	8.75	9.08	13	PASS
134	5670	3.89	4.10	2.98	-5.79	-5.43	-6.50	9.68	9.53	9.48	13	PASS

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# 4.6 FREQUENCY STABILITY

# 4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation

# 4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	May 09, 2012	May 08, 2013

### Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. Tested date: Mar. 07, 2013

# 4.6.3 TEST PROCEDURE

- 1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- 2. Turn the EUT on and couple its output to a spectrum analyzer.
- 3. Turn the EUT off and set the chamber to the highest temperature specified.
- 4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- 5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

Reference No.:121106E11

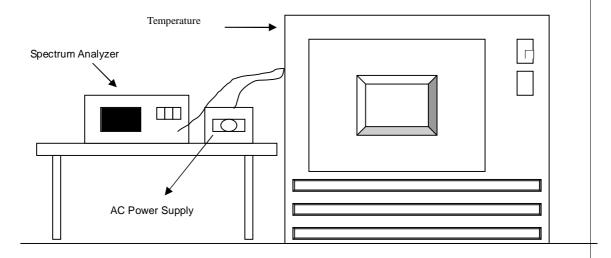
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# 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

# 4.6.5 TEST SETUP



# 4.6.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

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# 4.6.7 TEST RESULTS

	FREQUEMCY STABILITY VERSUS TEMP.									
	OPERATING FREQUENCY: 5320MHz									
		0 MIN	NUTE	2 MIN	NUTE	5 MIN	NUTE	10 MINUTE		
<b>TEMP.</b> (℃)	POWER SUPPLY (Vac)	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	
50	120	5320.004	0.7519	5319.9981	-0.3571	5319.9973	-0.5075	5320.0003	0.0564	
40	120	5320.0055	1.0338	5320.0002	0.0376	5320.005	0.9398	5320.0006	0.1128	
30	120	<mark>5319.98</mark>	-3.7594	5319.9793	-3.8910	5319.9871	-2.4248	5319.9783	-4.0789	
20	120	5319.9818	-3.4211	5319.9786	-4.0226	5319.9817	-3.4398	5319.9866	-2.5188	
10	120	5320.0156	2.9323	5320.0178	3.3459	5320.0074	1.3910	5320.0105	1.9737	
0	120	5320.0112	2.1053	5320.0072	1.3534	5320.0076	1.4286	5320.0042	0.7895	
-10	120	5319.9861	-2.6128	5319.99	-1.8797	5319.9863	-2.5752	5319.987	-2.4436	
-20	120	5319.9761	-4.4925	5319.9719	-5.2820	5319.9787	-4.0038	5319.974	-4.8872	
-30	120	5320.0213	4.0038	5320.0258	4.8496	5320.0242	4.5489	5320.0191	3.5902	

	FREQUEMCY STABILITY VERSUS VOLTAGE										
	OPERATING FREQUENCY: 5320MHz										
		0 MIN	NUTE	2 MIN	NUTE	5 MIN	NUTE	10 MINUTE			
<b>TEMP.</b> (℃)	POWER SUPPLY (Vac)	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift		
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm		
	138	5319.9828	-3.2331	5319.9804	-3.6842	5319.9816	-3.4586	5319.9878	-2.2932		
20	120	5319.9818	-3.4211	5319.9786	-4.0226	5319.9817	-3.4398	5319.9866	-2.5188		
	102	5319.9811	-3.5526	5319.9805	-3.6654	5319.9819	-3.4023	5319.9873	-2.3872		

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# 5. PHOTOGRAPHS OF THE TEST CONFIGURATION Please refer to the attached file (Test Setup Photo).

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# 6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Hsin Chu EMC/RF Lab:

Tel: 886-2-26052180 Tel: 886-3-5935343 Fax: 886-2-26052943 Fax: 886-3-5935342

# Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232 Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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# 7.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.
END

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