

FCC TEST REPORT (WLAN 15.407)

REPORT NO.: RF140123E01-1

MODEL NO.: NFA-BAC-MR-02

FCC ID: COFNFABACMR02

RECEIVED: Jan. 23, 2014

TESTED: Feb. 08 to 12, 2014

ISSUED: Feb. 21, 2014

APPLICANT: UNIVERSAL GLOBAL SCIENTIFIC
INDUSTRIAL CO., LTD.

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140123E01-1	Original release	Feb. 21, 2014



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1. CERTIFICATION

PRODUCT: 802.11ac/a/b/g/n + BT Wireless Module
BRAND NAME: UG
MODEL NO.: NFA-BAC-MR-02
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: UNIVERSAL GLOBAL SCIENTIFIC INDUSTRIAL CO., LTD.
TESTED: Feb. 08 to 12, 2014
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10-2009

The above equipment (Model: NFA-BAC-MR-02) 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.

PREPARED BY : Midoli Peng , **DATE:** Feb. 21, 2014
(Midoli Peng, Specialist)

APPROVED BY : May Chen , **DATE:** Feb. 21, 2014
(May Chen, Manager)

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	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -13.85dB at 24.00MHz
15.407(b)(1/2/3) (b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5150.00MHz & 5725.0MHz.
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	Antenna connector is i-pex(MHF) not a standard connector.

- NOTE:** 1. For WLAN: The EUT was operating in 2400 ~ 2483.5MHz, 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, 5.47~5.6GHz & 5.65~5.725GHz. For the 2400 ~ 2483.5MHz and 5.725~5.850GHz RF parameters was recorded in another test report.
2. The DFS report was recorded in another test report.

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)	5.43 dB
Radiated emissions (1GHz -6GHz)	3.72 dB
Radiated emissions (6GHz -18GHz)	4.00 dB
Radiated emissions (18GHz -40GHz)	4.11 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT(WLAN)

PRODUCT	802.11ac/a/b/g/n + BT Wireless Module
MODEL NO.	NFA-BAC-MR-02
POWER SUPPLY	DC 3.3V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM BT-LE (GFSK) for DTS 256QAM for OFDM in 11ac mode only
MODULATION TECHNOLOGY	DSSS,OFDM, DTS
TRANSFER RATE	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps BT-LE (GFSK): 1Mbps
OPERATING FREQUENCY	For 15.407 5GHz: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.58GHz & 5.66GHz ~ 5.70GHz
	For 15.247 2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.745 ~ 5.825GHz BT-LE(GFSK): 2.402 ~ 2.480GHz
NUMBER OF CHANNEL	For 15.407 16 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 7 for 802.11n (HT40), 802.11ac (VHT40) 3 for 802.11ac (VHT80)
	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), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)

MAXIMUM OUTPUT POWER	For 15.407 802.11a: 40.832mW 802.11ac (VHT20): 74.158mW 802.11ac (VHT40): 56.017mW 802.11ac (VHT80): 14.724mW For 15.247 (2.4GHz) 802.11b: 98.401mW 802.11g: 470.977mW 802.11n (HT20): 795.974mW 802.11n (HT40): 531.246mW BT-LE(GFSK): 17.539mW For 15.247 (5GHz) 802.11a: 146.555mW 802.11ac (VHT20): 299.047mW 802.11ac (VHT40): 261.060mW 802.11ac (VHT80): 148.175mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ASSOCIATED DEVICES	NA

Note:

1. There are Bluetooth technology and WLAN technology used for the EUT.
2. WLAN & BT technology can not transmit at same time.
3. The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Brand	Model	Antenna Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connector Type	Cable Loss (dB)	Cable Length (mm)
Chain (0) Ant. 1 (WLAN Ant)	High-Tek Electronics Co.,Ltd	DC33001JB20	1.5	2.4~2.4835	PIFA	i-pex(MHF)	0.65	260
			0.68	5.15~5.35	PIFA	i-pex(MHF)	1.02	260
			2.77	5.47~5.75			1.07	
			2.72	5.75~5.85			1.09	
Chain (1) Ant. 2 (WLAN+BT Ant)	High-Tek Electronics Co.,Ltd	DC33001JB30	-1.55	2.4~2.4835	PIFA	i-pex(MHF)	0.98	390
			1.57	5.15~5.35	PIFA	i-pex(MHF)	1.53	390
			2.77	5.47~5.7			1.6	
			1.70	5.75~5.85			1.64	

Note: For 802. 11a/b/g mode: Max. antenna gain was chosen for final test.

4. The EUT incorporates a MIMO function without Beamforming.

MODULATION MODE	Tx/Rx FUNCTION
802.11a	1Tx/1Rx (diversity)
802.11b	1Tx/1Rx (diversity)
802.11g	1Tx/1Rx (diversity)
802.11n (HT20)	1Tx/1Rx (diversity) or 2Tx/2Rx
802.11n (HT40)	1Tx/1Rx (diversity) or 2Tx/2Rx
802.11ac (VHT20)	1Tx/1Rx (diversity) or 2Tx/2Rx
802.11ac (VHT40)	1Tx/1Rx (diversity) or 2Tx/2Rx
802.11ac (VHT80)	1Tx/1Rx (diversity) or 2Tx/2Rx

Note: The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

5. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
6. When the EUT operating in 802.11ac, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 9.
7. 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.

3.2 DESCRIPTION OF TEST MODES

Operated in 5150 ~ 5350MHz band:

8 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

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), 802.11ac (VHT40):

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

2 channels are provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
42	5210 MHz
58	5290 MHz

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

8 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

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), 802.11ac (VHT40):

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
106	5530 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
-	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ≥ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement

NOTE: 1. For 5GHz: The EUT's antenna (PIFA) had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane** (for below 1GHz) and **Y-plane** (for above 1GHz).

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 CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	132	OFDM	BPSK	6

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 CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	36 to 140	132	OFDM	BPSK	6

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
802.11ac (VHT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	13
802.11ac (VHT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	27
802.11ac (VHT80)	42 to 106	42, 58, 106	OFDM	BPSK	58.5

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
802.11ac (VHT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	13
802.11ac (VHT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	27
802.11ac (VHT80)	42 to 106	42, 58, 106	OFDM	BPSK	58.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	16deg. 69C,%RH	120Vac, 60Hz	Jason Huang
RE<1G	21deg. C, 63%RH	120Vac, 60Hz	Robert Cheng
RE ³ 1G	22deg. C, 66%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Chilin Lee

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)

789033 D01 General UNII Test Procedures v01 r03

662911 D01 Multiple Transmitter Output v02

ANSI C63.10-2009

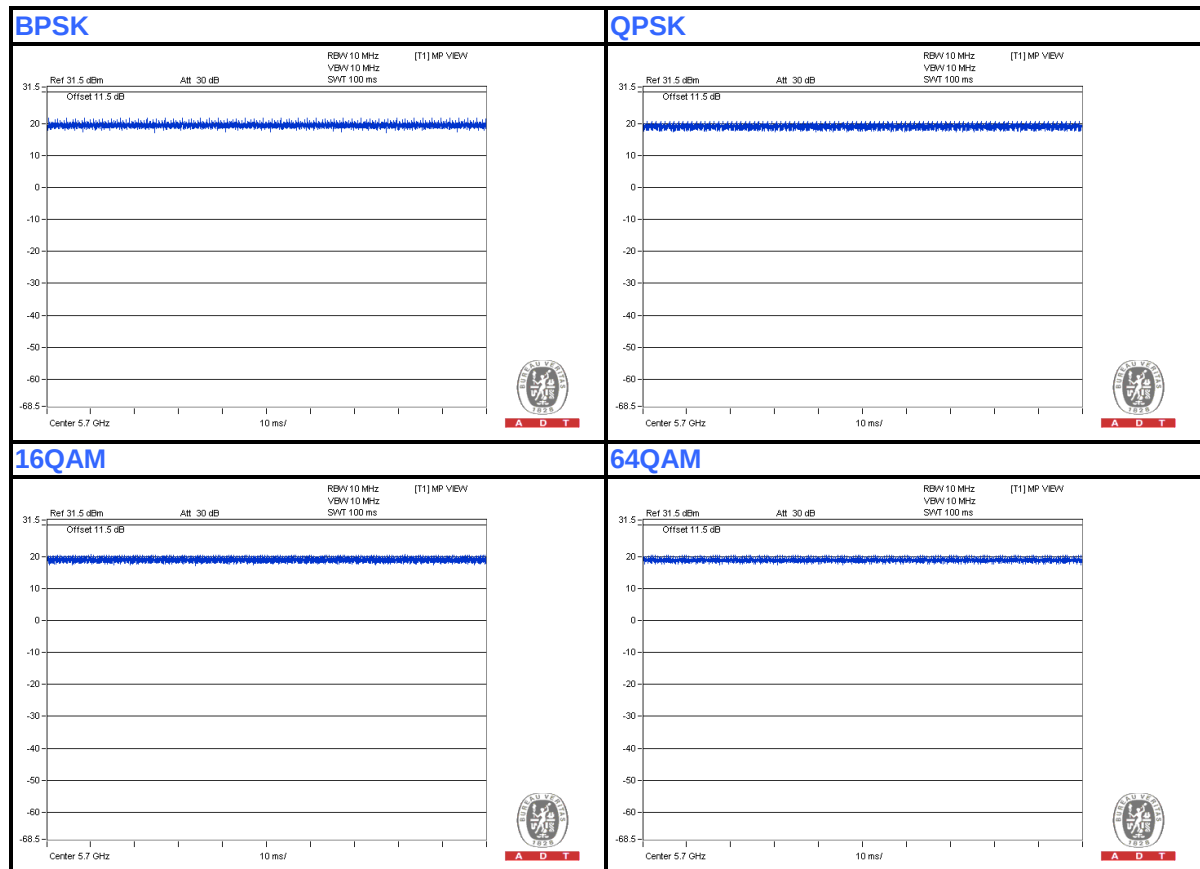
All test items have been performed and recorded as per the above standards.

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.

3.4 DUTY CYCLE OF TEST SIGNAL

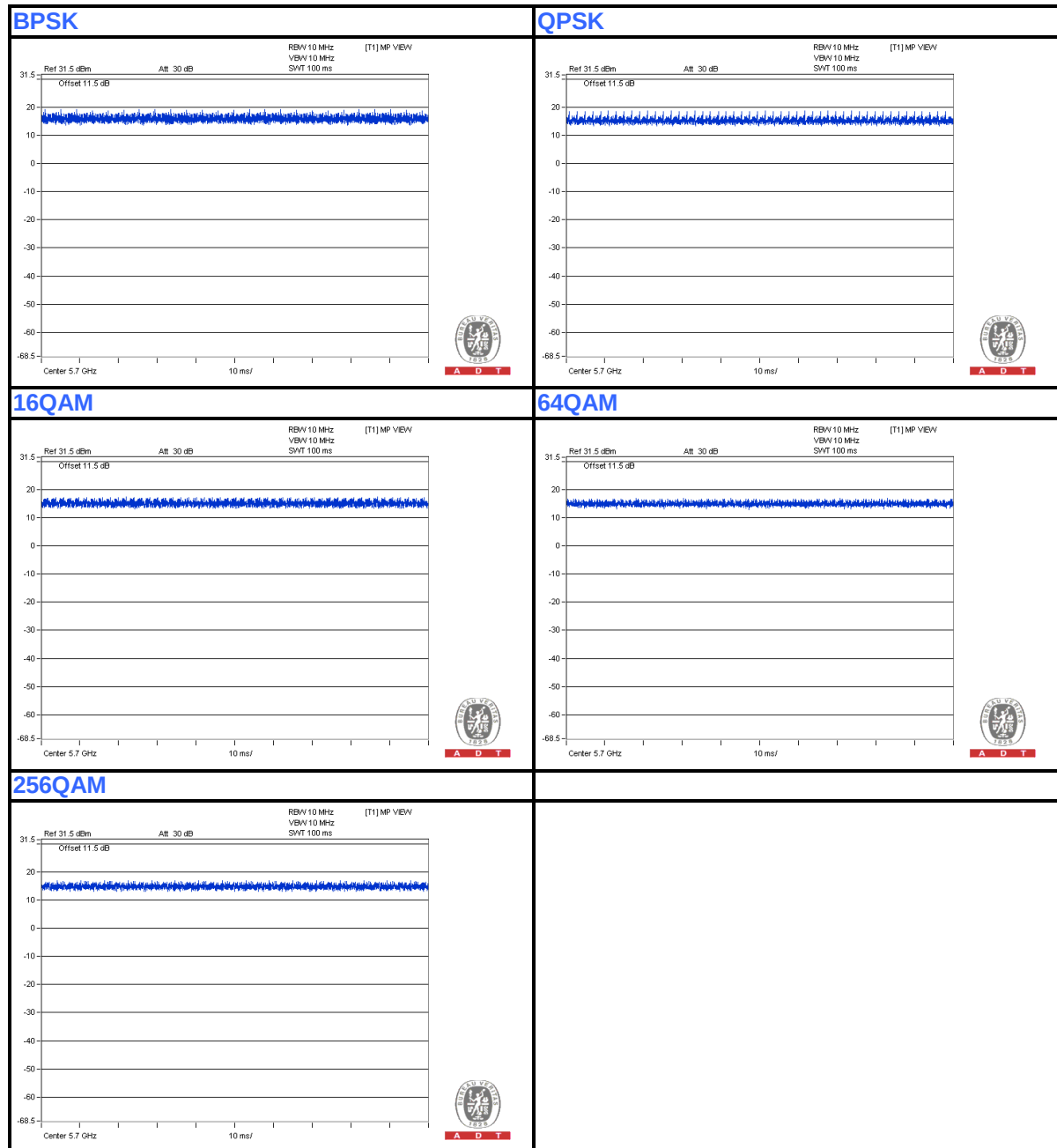
Duty cycle of test signal is 100 %, duty factor is not required.

802.11a



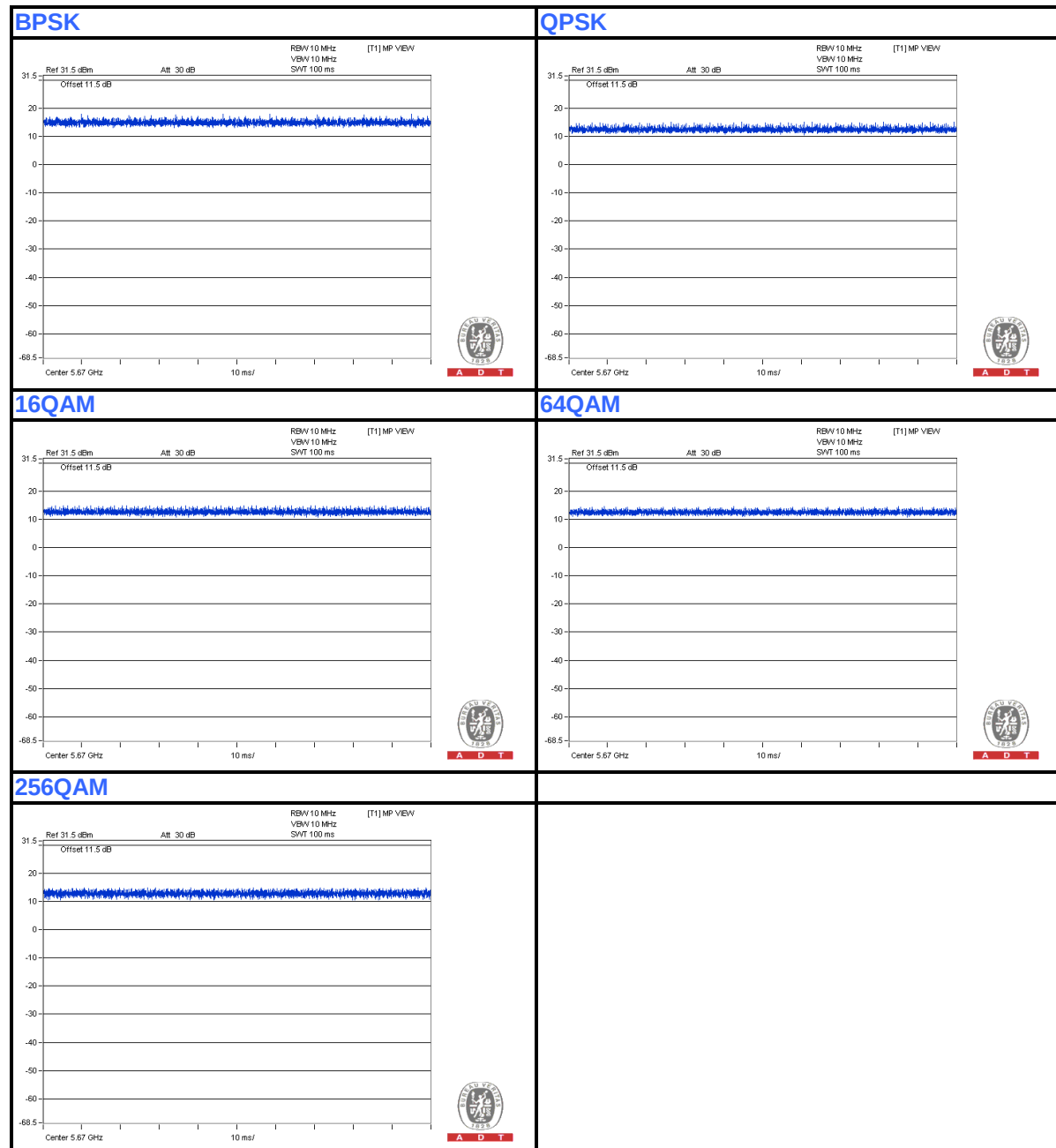
Duty cycle of test signal is 100 %, duty factor is not required.

802.11ac(VHT20)



Duty cycle of test signal is 100 %, duty factor is not required.

802.11ac(VHT40)



Duty cycle of test signal is 100 %, duty factor is not required.

802.11ac(VHT80)



3.5 DESCRIPTION OF SUPPORT UNITS

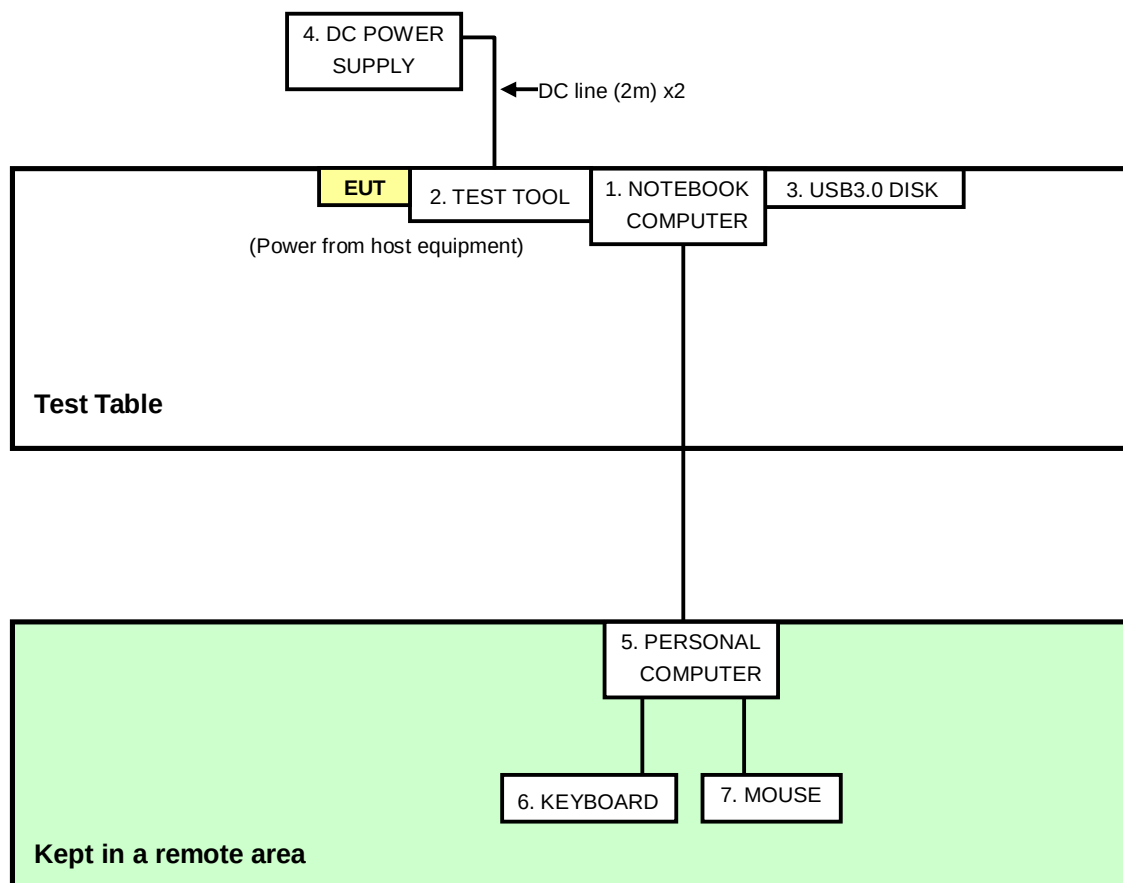
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	Lenovo	L3Z0244	NA	NA
2	TEST TOOL	UGSI	NA	NA	NA
3	USB 3.0 DISK	UGSI	NA	NA	NA
4	DC POWER SUPPLY	Topward	6603D	795558	NA
5	PERSONAL COMPUTER	Lenovo	NA	NA	NA
6	KEYBOARD	DELL	SK-8115	MY-0DJ325-71619-99 B-0479	FCC DoC
7	MOUSE	DELL	MOC5UO	I14066PS	FCC DoC

No.	Signal cable description
1	NA
2	NA
3	NA
4	DC cable(2m)
5	UTP cable(10m)
6	USB cable(1.7m)
7	USB cable(1.5m)

Note: The power cords of the above support units were unshielded (1.8m).

3.6 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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 ROHDE & SCHWARZ	ESCS 30	100375	Mar. 08, 2013	Mar. 07, 2014
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK8127	8127-522	Sep. 05, 2013	Sep. 04, 2014
Line-Impedance Stabilization Network (for Peripheral)	ENV216	100072	June 06, 2013	June 05, 2014
RF Cable (JYEBAO)	5DFB	COCCAB-001	Mar. 11, 2013	Mar. 10, 2014
50 ohms Terminator	50	EMC-03	Sep. 24, 2013	Sep. 23, 2014
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: Feb. 12, 2014

4.1.3 TEST PROCEDURES

- 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.
- The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was not recorded.

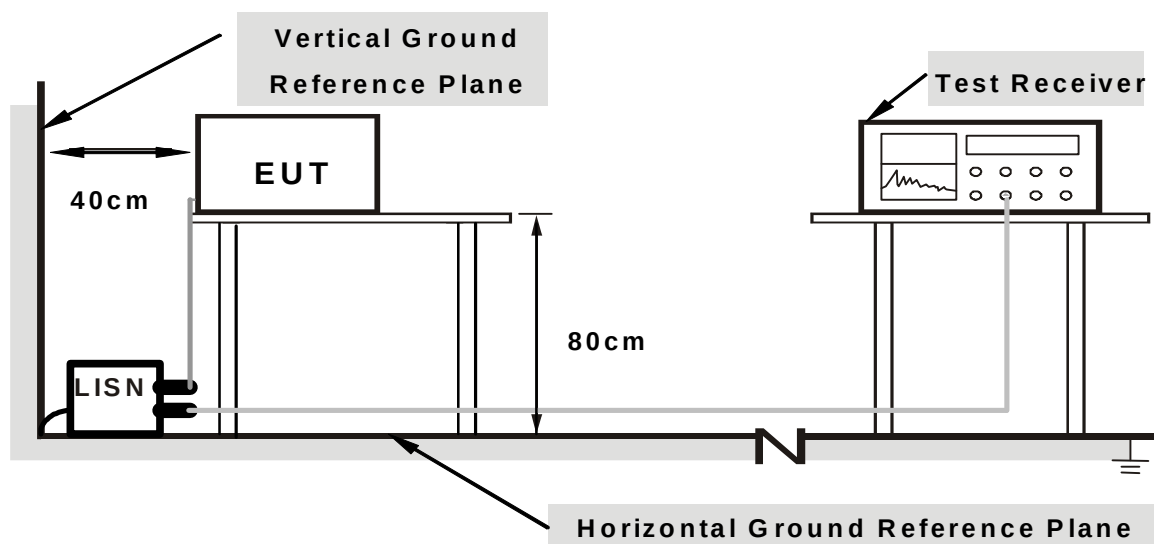
NOTE:

- 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.

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
“DutApiMimoBtFmBrdigeEth-shortcut” to enable EUT under
transmission/receiving condition continuously at specific channel frequency.

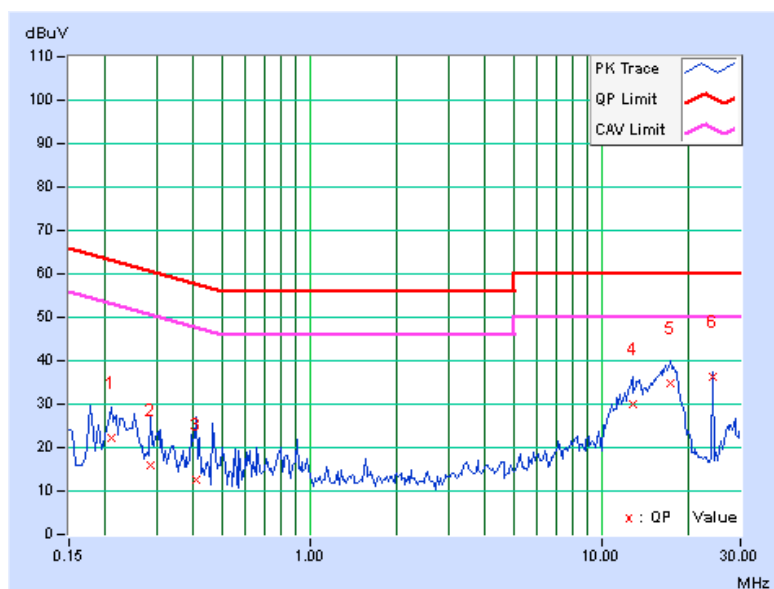
4.1.7 TEST RESULTS

PHASE	Line (L)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
-------	----------	----------------------	-----------------------------------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20859	0.10	21.96	15.78	22.06	15.88	63.26	53.26	-41.20	-37.38
2	0.28672	0.12	15.83	7.01	15.95	7.13	60.62	50.62	-44.67	-43.49
3	0.40781	0.14	12.52	5.74	12.66	5.88	57.69	47.69	-45.03	-41.81
4	12.80859	0.55	29.34	24.89	29.89	25.44	60.00	50.00	-30.11	-24.56
5	17.20313	0.66	34.24	29.53	34.90	30.19	60.00	50.00	-25.10	-19.81
6	24.00000	0.83	35.40	35.32	36.23	36.15	60.00	50.00	-23.77	-13.85

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

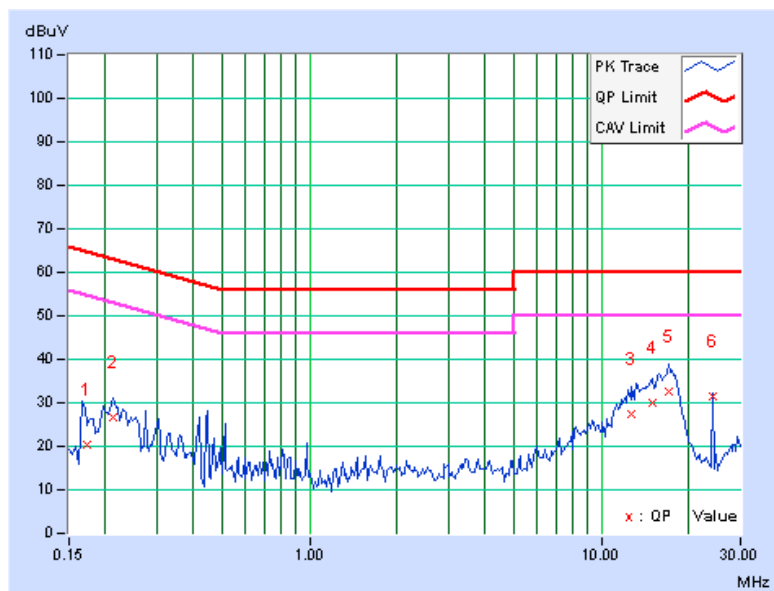


PHASE	Neutral (N)	DETECTOR FUNCTION	Quasi-Peak (QP) / Average (AV)
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17258	0.09	20.46	15.64	20.55	15.73	64.84	54.84	-44.28	-39.10
2	0.21250	0.10	26.54	21.10	26.64	21.20	63.11	53.11	-36.46	-31.90
3	12.72656	0.55	26.81	22.20	27.36	22.75	60.00	50.00	-32.64	-27.25
4	15.03906	0.62	29.20	24.60	29.82	25.22	60.00	50.00	-30.18	-24.78
5	16.98047	0.65	32.05	27.41	32.70	28.06	60.00	50.00	-27.30	-21.94
6	24.00000	0.82	30.73	30.67	31.55	31.49	60.00	50.00	-28.45	-18.51

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



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)
	PK	PK
	-27	68.3

NOTE:

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

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



A D T

4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 15, 2014	Jan. 14, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 13, 2013	Nov. 12, 2014
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
RF Cable	NA	CHHCAB_001	Oct. 06, 2013	Oct. 05, 2014
Spectrum Analyzer R&S	FSV40	100964	July 15, 2013	July 14, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Dec. 06, 2013	Dec. 05, 2014
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 29, 2013	Oct. 28, 2014
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 12, 2013	Dec. 11, 2014
Spectrum Analyzer Agilent	E4446A	MY48250253	Aug. 28, 2013	Aug. 27, 2014
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 13, 2013	Nov. 12, 2014
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 08, 2013	Oct. 07, 2014
Software	ADT_Radiated _V8.7.07	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. H.
4. The FCC Site Registration No. is 797305.
- 5 The CANADA Site Registration No. is IC 7450H-3.
- 6 Tested Date: Feb. 08, 2014

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:

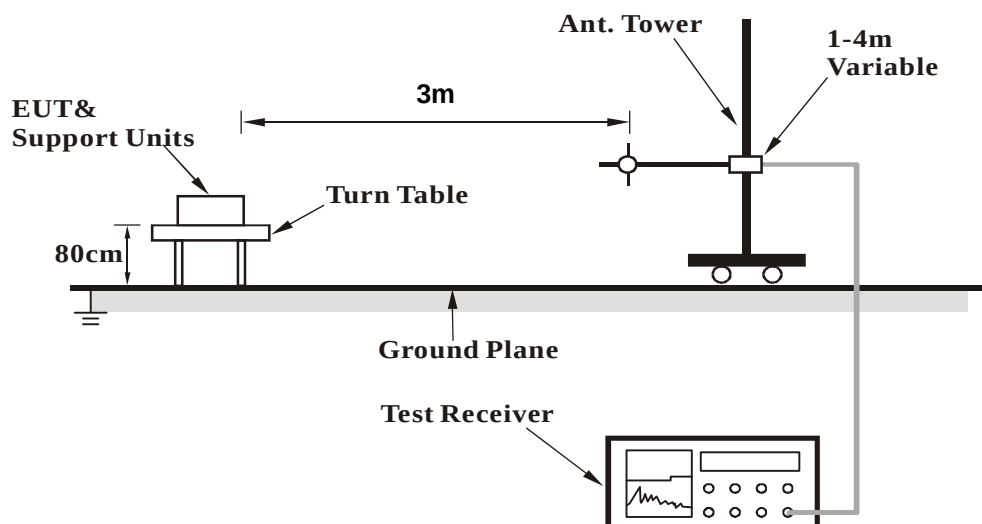
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.2.5 DEVIATION FROM TEST STANDARD

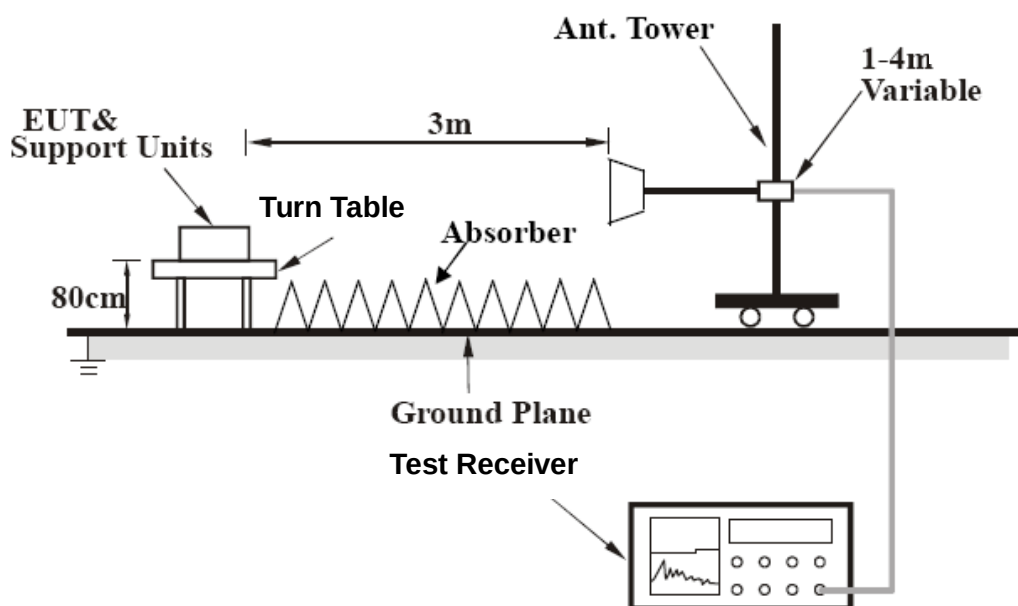
No deviation

4.2.6 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

4.2.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

802.11a

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

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	144.12	37.7 QP	43.5	-5.8	2.00 H	360	50.24	-12.55
2	156.75	38.7 QP	43.5	-4.8	1.45 H	69	51.43	-12.69
3	161.10	36.5 QP	43.5	-7.1	1.75 H	66	49.14	-12.69
4	240.11	36.7 QP	46.0	-9.3	1.45 H	211	50.56	-13.88
5	298.76	40.4 QP	46.0	-5.6	1.24 H	214	52.13	-11.71
6	360.14	40.8 QP	46.0	-5.2	1.33 H	314	50.78	-9.96
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	36.21	33.9 QP	40.0	-6.1	1.12 V	29	47.13	-13.24
2	59.61	32.2 QP	40.0	-7.8	1.25 V	134	45.67	-13.47
3	175.21	36.5 QP	43.5	-7.0	1.34 V	301	50.56	-14.02
4	199.45	36.7 QP	43.5	-6.8	1.24 V	110	52.60	-15.86
5	299.82	37.7 QP	46.0	-8.4	1.12 V	162	49.33	-11.68
6	336.20	41.2 QP	46.0	-4.8	1.00 V	34	51.84	-10.63

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

ABOVE 1GHz WORST-CASE DATA

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	61.4 PK	74.0	-12.6	1.00 H	218	17.83	43.57
2	5150.00	44.1 AV	54.0	-9.9	1.00 H	218	0.53	43.57
3	*5180.00	103.2 PK			1.00 H	218	59.56	43.64
4	*5180.00	93.5 AV			1.00 H	218	49.86	43.64
5	#10360.00	52.1 PK	74.0	-21.9	1.05 H	145	1.36	50.74
6	#10360.00	40.0 AV	54.0	-14.0	1.05 H	145	-10.74	50.74
7	15540.00	55.9 PK	74.0	-18.1	1.10 H	250	-0.16	56.06
8	15540.00	43.7 AV	54.0	-10.3	1.10 H	250	-12.36	56.06
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	65.7 PK	74.0	-8.3	1.01 V	56	22.13	43.57
2	5150.00	46.2 AV	54.0	-7.8	1.01 V	56	2.63	43.57
3	*5180.00	104.5 PK			1.01 V	56	60.86	43.64
4	*5180.00	95.6 AV			1.01 V	56	51.96	43.64
5	#10360.00	56.4 PK	74.0	-17.6	1.09 V	82	5.66	50.74
6	#10360.00	43.4 AV	54.0	-10.6	1.09 V	82	-7.34	50.74
7	15540.00	58.7 PK	74.0	-15.3	1.06 V	360	2.64	56.06
8	15540.00	47.0 AV	54.0	-7.0	1.06 V	360	-9.06	56.06

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	53.7 PK	74.0	-20.3	1.00 H	218	10.13	43.57
2	5150.00	42.7 AV	54.0	-11.3	1.00 H	218	-0.87	43.57
3	*5200.00	104.1 PK			1.00 H	218	60.42	43.68
4	*5200.00	93.6 AV			1.00 H	218	49.92	43.68
5	#10400.00	51.8 PK	74.0	-22.2	1.04 H	140	1.13	50.67
6	#10400.00	40.0 AV	54.0	-14.0	1.04 H	140	-10.67	50.67
7	15600.00	56.5 PK	74.0	-17.5	1.08 H	243	0.49	56.01
8	15600.00	44.0 AV	54.0	-10.0	1.08 H	243	-12.01	56.01
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	54.4 PK	74.0	-19.6	1.01 V	54	10.83	43.57
2	5150.00	43.1 AV	54.0	-10.9	1.01 V	54	-0.47	43.57
3	*5200.00	106.2 PK			1.01 V	54	62.52	43.68
4	*5200.00	95.8 AV			1.01 V	54	52.12	43.68
5	#10400.00	56.0 PK	74.0	-18.0	1.15 V	99	5.33	50.67
6	#10400.00	43.1 AV	54.0	-10.9	1.15 V	99	-7.57	50.67
7	15600.00	59.2 PK	74.0	-14.8	1.00 V	360	3.19	56.01
8	15600.00	47.6 AV	54.0	-6.4	1.00 V	360	-8.41	56.01

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	54.8 PK	74.0	-19.2	1.04 H	209	11.23	43.57
2	5150.00	43.3 AV	54.0	-10.7	1.04 H	209	-0.27	43.57
3	*5240.00	105.2 PK			1.04 H	209	61.47	43.73
4	*5240.00	95.2 AV			1.04 H	209	51.47	43.73
5	#10480.00	52.4 PK	74.0	-21.6	1.00 H	151	1.37	51.03
6	#10480.00	40.3 AV	54.0	-13.7	1.00 H	151	-10.73	51.03
7	15720.00	56.5 PK	74.0	-17.5	1.09 H	232	0.62	55.88
8	15720.00	44.4 AV	54.0	-9.6	1.09 H	232	-11.48	55.88
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	57.1 PK	74.0	-16.9	1.01 V	55	13.53	43.57
2	5150.00	43.9 AV	54.0	-10.1	1.01 V	55	0.33	43.57
3	*5240.00	107.8 PK			1.01 V	55	64.07	43.73
4	*5240.00	97.4 AV			1.01 V	55	53.67	43.73
5	#10480.00	56.5 PK	74.0	-17.5	1.14 V	79	5.47	51.03
6	#10480.00	43.5 AV	54.0	-10.5	1.14 V	79	-7.53	51.03
7	15720.00	58.6 PK	74.0	-15.4	1.00 V	360	2.72	55.88
8	15720.00	46.9 AV	54.0	-7.1	1.00 V	360	-8.98	55.88

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	103.5 PK			1.00 H	214	59.74	43.76
2	*5260.00	93.9 AV			1.00 H	214	50.14	43.76
3	5350.00	54.7 PK	74.0	-19.3	1.00 H	214	10.81	43.89
4	5350.00	43.3 AV	54.0	-10.7	1.00 H	214	-0.59	43.89
5	#10520.00	52.3 PK	74.0	-21.7	1.00 H	166	1.18	51.12
6	#10520.00	40.3 AV	54.0	-13.7	1.00 H	166	-10.82	51.12
7	15780.00	56.4 PK	74.0	-17.6	1.07 H	241	0.62	55.78
8	15780.00	44.1 AV	54.0	-9.9	1.07 H	241	-11.68	55.78
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	106.5 PK			1.00 V	55	62.74	43.76
2	*5260.00	96.5 AV			1.00 V	55	52.74	43.76
3	5350.00	55.4 PK	74.0	-18.6	1.00 V	55	11.51	43.89
4	5350.00	44.3 AV	54.0	-9.7	1.00 V	55	0.41	43.89
5	#10520.00	55.8 PK	74.0	-18.2	1.06 V	100	4.68	51.12
6	#10520.00	42.8 AV	54.0	-11.2	1.06 V	100	-8.32	51.12
7	15780.00	58.9 PK	74.0	-15.1	1.00 V	360	3.12	55.78
8	15780.00	47.2 AV	54.0	-6.8	1.00 V	360	-8.58	55.78

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5300.00	103.1 PK			1.01 H	219	59.29	43.81
2	*5300.00	93.5 AV			1.01 H	219	49.69	43.81
3	5350.00	54.3 PK	74.0	-19.7	1.01 H	219	10.41	43.89
4	5350.00	42.7 AV	54.0	-11.3	1.01 H	219	-1.19	43.89
5	10600.00	52.3 PK	74.0	-21.7	1.02 H	146	1.17	51.13
6	10600.00	40.0 AV	54.0	-14.0	1.02 H	146	-11.13	51.13
7	15900.00	56.1 PK	74.0	-17.9	1.00 H	230	0.35	55.75
8	15900.00	43.6 AV	54.0	-10.4	1.00 H	230	-12.15	55.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	105.3 PK			1.00 V	54	61.49	43.81
2	*5300.00	95.4 AV			1.00 V	54	51.59	43.81
3	5350.00	56.5 PK	74.0	-17.5	1.00 V	54	12.61	43.89
4	5350.00	44.2 AV	54.0	-9.8	1.00 V	54	0.31	43.89
5	10600.00	56.7 PK	74.0	-17.3	1.11 V	87	5.57	51.13
6	10600.00	43.5 AV	54.0	-10.5	1.11 V	87	-7.63	51.13
7	15900.00	59.3 PK	74.0	-14.7	1.00 V	360	3.55	55.75
8	15900.00	47.6 AV	54.0	-6.4	1.00 V	360	-8.15	55.75

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5320.00	103.2 PK			1.24 H	244	59.36	43.84
2	*5320.00	93.3 AV			1.24 H	244	49.46	43.84
3	5350.00	64.1 PK	74.0	-9.9	1.24 H	244	20.21	43.89
4	5350.00	44.3 AV	54.0	-9.7	1.24 H	244	0.41	43.89
5	10640.00	52.4 PK	74.0	-21.6	1.00 H	153	1.22	51.18
6	10640.00	40.4 AV	54.0	-13.6	1.00 H	153	-10.78	51.18
7	15960.00	55.7 PK	74.0	-18.3	1.00 H	242	-0.06	55.76
8	15960.00	43.5 AV	54.0	-10.5	1.00 H	242	-12.26	55.76
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	105.7 PK			1.00 V	54	61.86	43.84
2	*5320.00	95.3 AV			1.00 V	54	51.46	43.84
3	5350.00	65.4 PK	74.0	-8.6	1.00 V	54	21.51	43.89
4	5350.00	44.7 AV	54.0	-9.3	1.00 V	54	0.81	43.89
5	10640.00	56.4 PK	74.0	-17.6	1.16 V	82	5.22	51.18
6	10640.00	43.4 AV	54.0	-10.6	1.16 V	82	-7.78	51.18
7	15960.00	59.6 PK	74.0	-14.4	1.00 V	360	3.84	55.76
8	15960.00	47.7 AV	54.0	-6.3	1.00 V	360	-8.06	55.76

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5460.00	58.0 PK	74.0	-16.0	1.41 H	257	13.92	44.08
2	5460.00	44.3 AV	54.0	-9.7	1.41 H	257	0.22	44.08
3	#5470.00	64.8 PK	74.0	-9.2	1.41 H	257	20.70	44.10
4	#5470.00	47.7 AV	54.0	-6.3	1.41 H	257	3.60	44.10
5	*5500.00	102.5 PK			1.41 H	257	58.34	44.16
6	*5500.00	92.5 AV			1.41 H	257	48.34	44.16
7	11000.00	52.6 PK	74.0	-21.4	1.00 H	144	1.37	51.23
8	11000.00	40.4 AV	54.0	-13.6	1.00 H	144	-10.83	51.23
9	#16500.00	56.5 PK	74.0	-17.5	1.03 H	230	-1.35	57.85
10	#16500.00	44.2 AV	54.0	-9.8	1.03 H	230	-13.65	57.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	58.6 PK	74.0	-15.4	1.00 V	173	14.52	44.08
2	5460.00	44.4 AV	54.0	-9.6	1.00 V	173	0.32	44.08
3	#5470.00	62.4 PK	74.0	-11.6	1.00 V	173	18.30	44.10
4	#5470.00	47.6 AV	54.0	-6.4	1.00 V	173	3.50	44.10
5	*5500.00	104.2 PK			1.00 V	173	60.04	44.16
6	*5500.00	94.6 AV			1.00 V	173	50.44	44.16
7	11000.00	56.3 PK	74.0	-17.7	1.14 V	86	5.07	51.23
8	11000.00	43.2 AV	54.0	-10.8	1.14 V	86	-8.03	51.23
9	#16500.00	59.1 PK	74.0	-14.9	1.03 V	360	1.25	57.85
10	#16500.00	47.6 AV	54.0	-6.4	1.03 V	360	-10.25	57.85

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	#5470.00	55.9 PK	74.0	-18.1	1.24 H	252	11.80	44.10
2	#5470.00	43.4 AV	54.0	-10.6	1.24 H	252	-0.70	44.10
3	*5580.00	101.2 PK			1.24 H	252	56.84	44.36
4	*5580.00	92.3 AV			1.24 H	252	47.94	44.36
5	#5725.00	55.5 PK	74.0	-18.5	1.24 H	252	11.04	44.46
6	#5725.00	44.3 AV	54.0	-9.7	1.24 H	252	-0.16	44.46
7	11160.00	51.7 PK	74.0	-22.3	1.00 H	157	0.46	51.24
8	11160.00	39.7 AV	54.0	-14.3	1.00 H	157	-11.54	51.24
9	#16740.00	55.8 PK	74.0	-18.2	1.01 H	241	-3.15	58.95
10	#16740.00	43.6 AV	54.0	-10.4	1.01 H	241	-15.35	58.95
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	#5470.00	56.7 PK	74.0	-17.3	1.26 V	60	12.60	44.10
2	#5470.00	43.4 AV	54.0	-10.6	1.26 V	60	-0.70	44.10
3	*5580.00	103.6 PK			1.26 V	60	59.24	44.36
4	*5580.00	94.5 AV			1.26 V	60	50.14	44.36
5	#5725.00	55.9 PK	74.0	-18.1	1.26 V	60	11.44	44.46
6	#5725.00	44.4 AV	54.0	-9.6	1.26 V	60	-0.06	44.46
7	11160.00	56.3 PK	74.0	-17.7	1.09 V	95	5.06	51.24
8	11160.00	43.4 AV	54.0	-10.6	1.09 V	95	-7.84	51.24
9	#16740.00	59.1 PK	74.0	-14.9	1.06 V	360	0.15	58.95
10	#16740.00	47.3 AV	54.0	-6.7	1.06 V	360	-11.65	58.95

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	#5470.00	56.1 PK	74.0	-17.9	1.00 H	219	12.00	44.10
2	#5470.00	43.4 AV	54.0	-10.6	1.00 H	219	-0.70	44.10
3	*5660.00	103.3 PK			1.00 H	219	58.87	44.43
4	*5660.00	93.5 AV			1.00 H	219	49.07	44.43
5	#5725.00	55.3 PK	74.0	-18.7	1.00 H	219	10.84	44.46
6	#5725.00	44.1 AV	54.0	-9.9	1.00 H	219	-0.36	44.46
7	11320.00	51.8 PK	74.0	-22.2	1.00 H	147	0.43	51.37
8	11320.00	40.0 AV	54.0	-14.0	1.00 H	147	-11.37	51.37
9	#16980.00	56.1 PK	74.0	-17.9	1.00 H	226	-3.26	59.36
10	#16980.00	43.5 AV	54.0	-10.5	1.00 H	226	-15.86	59.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	#5470.00	56.2 PK	74.0	-17.8	1.24 V	61	12.10	44.10
2	#5470.00	43.5 AV	54.0	-10.5	1.24 V	61	-0.60	44.10
3	*5660.00	104.5 PK			1.24 V	61	60.07	44.43
4	*5660.00	94.9 AV			1.24 V	61	50.47	44.43
5	#5725.00	57.7 PK	74.0	-16.3	1.24 V	61	13.24	44.46
6	#5725.00	43.3 AV	54.0	-10.7	1.24 V	61	-1.16	44.46
7	11320.00	55.7 PK	74.0	-18.3	1.15 V	70	4.33	51.37
8	11320.00	42.9 AV	54.0	-11.1	1.15 V	70	-8.47	51.37
9	#16980.00	59.1 PK	74.0	-14.9	1.00 V	360	-0.26	59.36
10	#16980.00	47.7 AV	54.0	-6.3	1.00 V	360	-11.66	59.36

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	102.5 PK			1.00 H	134	58.07	44.43
2	*5700.00	92.2 AV			1.00 H	134	47.77	44.43
3	#5725.00	70.1 PK	74.0	-3.9	1.00 H	134	25.64	44.46
4	#5725.00	50.5 AV	54.0	-3.5	1.00 H	134	6.04	44.46
5	11400.00	52.0 PK	74.0	-22.0	1.00 H	154	0.45	51.55
6	11400.00	40.3 AV	54.0	-13.7	1.00 H	154	-11.25	51.55
7	#17100.00	55.8 PK	74.0	-18.2	1.07 H	240	-4.85	60.65
8	#17100.00	43.5 AV	54.0	-10.5	1.07 H	240	-17.15	60.65
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	104.8 PK			1.22 V	61	60.37	44.43
2	*5700.00	94.6 AV			1.22 V	61	50.17	44.43
3	#5725.00	69.2 PK	74.0	-4.8	1.22 V	61	24.74	44.46
4	#5725.00	49.7 AV	54.0	-4.3	1.22 V	61	5.24	44.46
5	11400.00	56.1 PK	74.0	-17.9	1.13 V	99	4.55	51.55
6	11400.00	43.3 AV	54.0	-10.7	1.13 V	99	-8.25	51.55
7	#17100.00	59.3 PK	74.0	-14.7	1.00 V	360	-1.35	60.65
8	#17100.00	47.7 AV	54.0	-6.3	1.00 V	360	-12.95	60.65

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) – Pre-Amplifier 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 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	61.7 PK	74.0	-12.3	1.01 H	204	18.13	43.57
2	5150.00	44.5 AV	54.0	-9.5	1.01 H	204	0.93	43.57
3	*5180.00	102.9 PK			1.01 H	204	59.26	43.64
4	*5180.00	92.8 AV			1.01 H	204	49.16	43.64
5	#10360.00	51.8 PK	74.0	-22.2	1.03 H	164	1.06	50.74
6	#10360.00	39.7 AV	54.0	-14.3	1.03 H	164	-11.04	50.74
7	15540.00	56.4 PK	74.0	-17.6	1.00 H	225	0.34	56.06
8	15540.00	43.8 AV	54.0	-10.2	1.00 H	225	-12.26	56.06
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	66.8 PK	74.0	-7.2	1.25 V	59	23.23	43.57
2	5150.00	46.1 AV	54.0	-7.9	1.25 V	59	2.53	43.57
3	*5180.00	105.3 PK			1.25 V	59	61.66	43.64
4	*5180.00	95.0 AV			1.25 V	59	51.36	43.64
5	#10360.00	56.6 PK	74.0	-17.4	1.12 V	97	5.86	50.74
6	#10360.00	43.4 AV	54.0	-10.6	1.12 V	97	-7.34	50.74
7	15540.00	58.8 PK	74.0	-15.2	1.00 V	360	2.74	56.06
8	15540.00	47.3 AV	54.0	-6.7	1.00 V	360	-8.76	56.06

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	61.5 PK	74.0	-12.5	1.00 H	216	17.93	43.57
2	5150.00	44.3 AV	54.0	-9.7	1.00 H	216	0.73	43.57
3	*5200.00	104.1 PK			1.00 H	216	60.42	43.68
4	*5200.00	93.4 AV			1.00 H	216	49.72	43.68
5	#10400.00	51.8 PK	74.0	-22.2	1.00 H	158	1.13	50.67
6	#10400.00	40.0 AV	54.0	-14.0	1.00 H	158	-10.67	50.67
7	15600.00	56.7 PK	74.0	-17.3	1.07 H	217	0.69	56.01
8	15600.00	44.3 AV	54.0	-9.7	1.07 H	217	-11.71	56.01
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	54.8 PK	74.0	-19.2	1.26 V	58	11.23	43.57
2	5150.00	43.5 AV	54.0	-10.5	1.26 V	58	-0.07	43.57
3	*5200.00	106.3 PK			1.26 V	58	62.62	43.68
4	*5200.00	95.6 AV			1.26 V	58	51.92	43.68
5	#10400.00	56.3 PK	74.0	-17.7	1.07 V	94	5.63	50.67
6	#10400.00	43.1 AV	54.0	-10.9	1.07 V	94	-7.57	50.67
7	15600.00	58.9 PK	74.0	-15.1	1.00 V	360	2.89	56.01
8	15600.00	47.5 AV	54.0	-6.5	1.00 V	360	-8.51	56.01

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	61.3 PK	74.0	-12.7	1.00 H	228	17.73	43.57
2	5150.00	44.0 AV	54.0	-10.0	1.00 H	228	0.43	43.57
3	*5240.00	104.8 PK			1.00 H	228	61.07	43.73
4	*5240.00	93.5 AV			1.00 H	228	49.77	43.73
5	#10480.00	51.5 PK	74.0	-22.5	1.00 H	142	0.47	51.03
6	#10480.00	39.7 AV	54.0	-14.3	1.00 H	142	-11.33	51.03
7	15720.00	56.7 PK	74.0	-17.3	1.03 H	241	0.82	55.88
8	15720.00	44.1 AV	54.0	-9.9	1.03 H	241	-11.78	55.88
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	55.2 PK	74.0	-18.8	1.25 V	57	11.63	43.57
2	5150.00	43.8 AV	54.0	-10.2	1.25 V	57	0.23	43.57
3	*5240.00	107.0 PK			1.25 V	57	63.27	43.73
4	*5240.00	95.8 AV			1.25 V	57	52.07	43.73
5	#10480.00	55.3 PK	74.0	-18.7	1.15 V	78	4.27	51.03
6	#10480.00	42.6 AV	54.0	-11.4	1.15 V	78	-8.43	51.03
7	15720.00	59.2 PK	74.0	-14.8	1.00 V	360	3.32	55.88
8	15720.00	47.4 AV	54.0	-6.6	1.00 V	360	-8.48	55.88

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.
- " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	106.2 PK			1.01 H	221	62.44	43.76
2	*5260.00	95.4 AV			1.01 H	221	51.64	43.76
3	5350.00	61.3 PK	74.0	-12.7	1.01 H	221	17.41	43.89
4	5350.00	43.7 AV	54.0	-10.3	1.01 H	221	-0.19	43.89
5	#10520.00	52.4 PK	74.0	-21.6	1.00 H	138	1.28	51.12
6	#10520.00	40.4 AV	54.0	-13.6	1.00 H	138	-10.72	51.12
7	15780.00	55.8 PK	74.0	-18.2	1.02 H	226	0.02	55.78
8	15780.00	43.6 AV	54.0	-10.4	1.02 H	226	-12.18	55.78
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	108.6 PK			1.23 V	58	64.84	43.76
2	*5260.00	97.8 AV			1.23 V	58	54.04	43.76
3	5350.00	56.5 PK	74.0	-17.5	1.23 V	58	12.61	43.89
4	5350.00	44.7 AV	54.0	-9.3	1.23 V	58	0.81	43.89
5	#10520.00	56.1 PK	74.0	-17.9	1.08 V	85	4.98	51.12
6	#10520.00	42.8 AV	54.0	-11.2	1.08 V	85	-8.32	51.12
7	15780.00	59.0 PK	74.0	-15.0	1.00 V	360	3.22	55.78
8	15780.00	47.2 AV	54.0	-6.8	1.00 V	360	-8.58	55.78

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5300.00	104.9 PK			1.00 H	210	61.09	43.81
2	*5300.00	94.9 AV			1.00 H	210	51.09	43.81
3	5350.00	61.6 PK	74.0	-12.4	1.00 H	210	17.71	43.89
4	5350.00	44.0 AV	54.0	-10.0	1.00 H	210	0.11	43.89
5	10600.00	51.6 PK	74.0	-22.4	1.04 H	145	0.47	51.13
6	10600.00	39.7 AV	54.0	-14.3	1.04 H	145	-11.43	51.13
7	15900.00	56.7 PK	74.0	-17.3	1.00 H	241	0.95	55.75
8	15900.00	44.2 AV	54.0	-9.8	1.00 H	241	-11.55	55.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	107.2 PK			1.23 V	58	63.39	43.81
2	*5300.00	97.3 AV			1.23 V	58	53.49	43.81
3	5350.00	56.6 PK	74.0	-17.4	1.23 V	58	12.71	43.89
4	5350.00	44.6 AV	54.0	-9.4	1.23 V	58	0.71	43.89
5	10600.00	55.9 PK	74.0	-18.1	1.04 V	92	4.77	51.13
6	10600.00	42.9 AV	54.0	-11.1	1.04 V	92	-8.23	51.13
7	15900.00	58.7 PK	74.0	-15.3	1.04 V	360	2.95	55.75
8	15900.00	46.9 AV	54.0	-7.1	1.04 V	360	-8.85	55.75

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.



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CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5320.00	105.1 PK			1.45 H	63	61.26	43.84
2	*5320.00	94.1 AV			1.45 H	63	50.26	43.84
3	5350.00	70.9 PK	74.0	-3.1	1.45 H	63	27.01	43.89
4	5350.00	50.6 AV	54.0	-3.4	1.45 H	63	6.71	43.89
5	10640.00	51.8 PK	74.0	-22.2	1.00 H	164	0.62	51.18
6	10640.00	39.8 AV	54.0	-14.2	1.00 H	164	-11.38	51.18
7	15960.00	56.3 PK	74.0	-17.7	1.06 H	237	0.54	55.76
8	15960.00	43.7 AV	54.0	-10.3	1.06 H	237	-12.06	55.76
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	107.5 PK			1.23 V	57	63.66	43.84
2	*5320.00	96.3 AV			1.23 V	57	52.46	43.84
3	5350.00	72.2 PK	74.0	-1.8	1.24 V	129	28.31	43.89
4	5350.00	51.5 AV	54.0	-2.5	1.24 V	129	7.61	43.89
5	10640.00	55.9 PK	74.0	-18.1	1.09 V	75	4.72	51.18
6	10640.00	42.6 AV	54.0	-11.4	1.09 V	75	-8.58	51.18
7	15960.00	59.0 PK	74.0	-15.0	1.06 V	360	3.24	55.76
8	15960.00	47.3 AV	54.0	-6.7	1.06 V	360	-8.46	55.76

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5460.00	67.4 PK	74.0	-6.6	1.00 H	257	23.32	44.08
2	5460.00	50.2 AV	54.0	-3.8	1.00 H	257	6.12	44.08
3	#5470.00	68.3 PK	74.0	-5.7	1.00 H	257	24.20	44.10
4	#5470.00	51.4 AV	54.0	-2.6	1.00 H	257	7.30	44.10
5	*5500.00	105.9 PK			1.00 H	257	61.74	44.16
6	*5500.00	95.4 AV			1.00 H	257	51.24	44.16
7	11000.00	52.1 PK	74.0	-21.9	1.00 H	146	0.87	51.23
8	11000.00	39.8 AV	54.0	-14.2	1.00 H	146	-11.43	51.23
9	#16500.00	55.8 PK	74.0	-18.2	1.07 H	217	-2.05	57.85
10	#16500.00	43.5 AV	54.0	-10.5	1.07 H	217	-14.35	57.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	70.1 PK	74.0	-3.9	1.29 V	129	26.02	44.08
2	5460.00	51.1 AV	54.0	-2.9	1.29 V	129	7.02	44.08
3	#5470.00	71.5 PK	74.0	-2.5	1.29 V	129	27.40	44.10
4	#5470.00	52.4 AV	54.0	-1.6	1.29 V	129	8.30	44.10
5	*5500.00	108.2 PK			1.29 V	129	64.04	44.16
6	*5500.00	97.8 AV			1.29 V	129	53.64	44.16
7	11000.00	56.0 PK	74.0	-18.0	1.16 V	72	4.77	51.23
8	11000.00	42.8 AV	54.0	-11.2	1.16 V	72	-8.43	51.23
9	#16500.00	59.0 PK	74.0	-15.0	1.00 V	360	1.15	57.85
10	#16500.00	47.3 AV	54.0	-6.7	1.00 V	360	-10.55	57.85

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) – Pre-Amplifier 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 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	#5470.00	56.2 PK	74.0	-17.8	1.18 H	228	12.10	44.10
2	#5470.00	43.9 AV	54.0	-10.1	1.18 H	228	-0.20	44.10
3	*5580.00	106.4 PK			1.00 H	228	62.04	44.36
4	*5580.00	96.1 AV			1.00 H	228	51.74	44.36
5	#5725.00	55.7 PK	74.0	-18.3	1.28 H	228	11.24	44.46
6	#5725.00	44.5 AV	54.0	-9.5	1.28 H	228	0.04	44.46
7	11160.00	51.5 PK	74.0	-22.5	1.05 H	150	0.26	51.24
8	11160.00	39.7 AV	54.0	-14.3	1.05 H	150	-11.54	51.24
9	#16740.00	55.5 PK	74.0	-18.5	1.00 H	231	-3.45	58.95
10	#16740.00	43.3 AV	54.0	-10.7	1.00 H	231	-15.65	58.95
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	#5470.00	56.8 PK	74.0	-17.2	1.29 V	128	12.70	44.10
2	#5470.00	43.5 AV	54.0	-10.5	1.29 V	128	-0.60	44.10
3	*5580.00	108.8 PK			1.29 V	128	64.44	44.36
4	*5580.00	98.3 AV			1.29 V	128	53.94	44.36
5	#5725.00	56.9 PK	74.0	-17.1	1.29 V	128	12.44	44.46
6	#5725.00	43.5 AV	54.0	-10.5	1.29 V	128	-0.96	44.46
7	11160.00	56.3 PK	74.0	-17.7	1.08 V	72	5.06	51.24
8	11160.00	43.1 AV	54.0	-10.9	1.08 V	72	-8.14	51.24
9	#16740.00	58.3 PK	74.0	-15.7	1.03 V	360	-0.65	58.95
10	#16740.00	47.0 AV	54.0	-7.0	1.03 V	360	-11.95	58.95

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 132	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	#5470.00	56.2 PK	74.0	-17.8	1.02 H	230	12.10	44.10
2	#5470.00	43.8 AV	54.0	-10.2	1.02 H	230	-0.30	44.10
3	*5660.00	105.8 PK			1.02 H	230	61.37	44.43
4	*5660.00	96.2 AV			1.02 H	230	51.77	44.43
5	#5725.00	55.1 PK	74.0	-18.9	1.02 H	230	10.64	44.46
6	#5725.00	44.1 AV	54.0	-9.9	1.02 H	230	-0.36	44.46
7	11320.00	52.4 PK	74.0	-21.6	1.03 H	159	1.03	51.37
8	11320.00	40.4 AV	54.0	-13.6	1.03 H	159	-10.97	51.37
9	#16980.00	60.0 PK	74.0	-14.0	1.00 H	208	0.64	59.36
10	#16980.00	47.0 AV	54.0	-7.0	1.00 H	208	-12.36	59.36
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	#5470.00	56.0 PK	74.0	-18.0	1.31 V	125	11.90	44.10
2	#5470.00	43.5 AV	54.0	-10.5	1.31 V	125	-0.60	44.10
3	*5660.00	108.1 PK			1.31 V	125	63.67	44.43
4	*5660.00	98.6 AV			1.31 V	125	54.17	44.43
5	#5725.00	58.3 PK	74.0	-15.7	1.31 V	125	13.84	44.46
6	#5725.00	44.1 AV	54.0	-9.9	1.31 V	125	-0.36	44.46
7	11320.00	56.1 PK	74.0	-17.9	1.10 V	85	4.73	51.37
8	11320.00	43.1 AV	54.0	-10.9	1.10 V	85	-8.27	51.37
9	#16980.00	58.9 PK	74.0	-15.1	1.00 V	360	-0.46	59.36
10	#16980.00	47.3 AV	54.0	-6.7	1.00 V	360	-12.06	59.36

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	102.1 PK			1.00 H	134	57.67	44.43
2	*5700.00	93.1 AV			1.00 H	134	48.67	44.43
3	#5725.00	65.4 PK	74.0	-8.6	1.00 H	134	20.94	44.46
4	#5725.00	46.9 AV	54.0	-7.1	1.00 H	134	2.44	44.46
5	11400.00	51.3 PK	74.0	-22.7	1.00 H	169	-0.25	51.55
6	11400.00	39.6 AV	54.0	-14.4	1.00 H	169	-11.95	51.55
7	#17100.00	56.5 PK	74.0	-17.5	1.04 H	234	-4.15	60.65
8	#17100.00	44.2 AV	54.0	-9.8	1.04 H	234	-16.45	60.65
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	104.2 PK			1.22 V	125	59.77	44.43
2	*5700.00	95.2 AV			1.22 V	125	50.77	44.43
3	#5725.00	73.0 PK	74.0	-1.0	1.38 V	128	28.54	44.46
4	#5725.00	49.9 AV	54.0	-4.1	1.38 V	128	5.44	44.46
5	11400.00	56.2 PK	74.0	-17.8	1.05 V	86	4.65	51.55
6	11400.00	43.1 AV	54.0	-10.9	1.05 V	86	-8.45	51.55
7	#17100.00	58.2 PK	74.0	-15.8	1.03 V	360	-2.45	60.65
8	#17100.00	46.8 AV	54.0	-7.2	1.03 V	360	-13.85	60.65

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.
- " # ": The radiated frequency is out of the restricted band.

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CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	68.8 PK	74.0	-5.2	1.23 H	257	25.23	43.57
2	5150.00	51.7 AV	54.0	-2.3	1.23 H	257	8.13	43.57
3	*5190.00	98.1 PK			1.23 H	257	54.44	43.66
4	*5190.00	87.4 AV			1.23 H	257	43.74	43.66
5	#10380.00	52.2 PK	74.0	-21.8	1.00 H	169	1.49	50.71
6	#10380.00	40.4 AV	54.0	-13.6	1.00 H	169	-10.31	50.71
7	15570.00	56.6 PK	74.0	-17.4	1.00 H	235	0.57	56.03
8	15570.00	44.2 AV	54.0	-9.8	1.00 H	235	-11.83	56.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	67.2 PK	74.0	-6.8	1.00 V	119	23.63	43.57
2	5150.00	53.0 AV	54.0	-1.0	1.00 V	119	9.43	43.57
3	*5190.00	99.6 PK			1.14 V	57	55.94	43.66
4	*5190.00	88.9 AV			1.14 V	57	45.24	43.66
5	#10380.00	56.3 PK	74.0	-17.7	1.15 V	70	5.59	50.71
6	#10380.00	43.1 AV	54.0	-10.9	1.15 V	70	-7.61	50.71
7	15570.00	59.0 PK	74.0	-15.0	1.04 V	360	2.97	56.03
8	15570.00	47.5 AV	54.0	-6.5	1.04 V	360	-8.53	56.03

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	54.4 PK	74.0	-19.6	1.19 H	95	10.83	43.57
2	5150.00	43.9 AV	54.0	-10.1	1.19 H	95	0.33	43.57
3	*5230.00	102.4 PK			1.19 H	95	58.68	43.72
4	*5230.00	90.8 AV			1.19 H	95	47.08	43.72
5	#10460.00	51.7 PK	74.0	-22.3	1.03 H	153	0.76	50.94
6	#10460.00	39.5 AV	54.0	-14.5	1.03 H	153	-11.44	50.94
7	15690.00	56.1 PK	74.0	-17.9	1.00 H	226	0.18	55.92
8	15690.00	43.8 AV	54.0	-10.2	1.00 H	226	-12.12	55.92
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	55.7 PK	74.0	-18.3	1.25 V	58	12.13	43.57
2	5150.00	43.6 AV	54.0	-10.4	1.25 V	58	0.03	43.57
3	*5230.00	104.4 PK			1.25 V	58	60.68	43.72
4	*5230.00	92.7 AV			1.25 V	58	48.98	43.72
5	#10460.00	56.1 PK	74.0	-17.9	1.06 V	93	5.16	50.94
6	#10460.00	43.3 AV	54.0	-10.7	1.06 V	93	-7.64	50.94
7	15690.00	59.3 PK	74.0	-14.7	1.05 V	360	3.38	55.92
8	15690.00	47.7 AV	54.0	-6.3	1.05 V	360	-8.22	55.92

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	101.9 PK			1.00 H	215	58.13	43.77
2	*5270.00	90.1 AV			1.00 H	215	46.33	43.77
3	5350.00	54.3 PK	74.0	-19.7	1.00 H	215	10.41	43.89
4	5350.00	43.9 AV	54.0	-10.1	1.00 H	215	0.01	43.89
5	#10540.00	52.1 PK	74.0	-21.9	1.00 H	153	0.98	51.12
6	#10540.00	40.0 AV	54.0	-14.0	1.00 H	153	-11.12	51.12
7	15810.00	56.1 PK	74.0	-17.9	1.00 H	233	0.35	55.75
8	15810.00	43.4 AV	54.0	-10.6	1.00 H	233	-12.35	55.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	103.4 PK			1.25 V	58	59.63	43.77
2	*5270.00	91.9 AV			1.25 V	58	48.13	43.77
3	5350.00	56.3 PK	74.0	-17.7	1.25 V	58	12.41	43.89
4	5350.00	43.8 AV	54.0	-10.2	1.25 V	58	-0.09	43.89
5	#10540.00	56.1 PK	74.0	-17.9	1.08 V	94	4.98	51.12
6	#10540.00	43.3 AV	54.0	-10.7	1.08 V	94	-7.82	51.12
7	15810.00	58.9 PK	74.0	-15.1	1.01 V	360	3.15	55.75
8	15810.00	47.4 AV	54.0	-6.6	1.01 V	360	-8.35	55.75

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5310.00	98.9 PK			1.00 H	229	55.07	43.83
2	*5310.00	88.6 AV			1.00 H	229	44.77	43.83
3	5350.00	54.3 PK	74.0	-19.7	1.00 H	229	10.41	43.89
4	5350.00	43.8 AV	54.0	-10.2	1.00 H	229	-0.09	43.89
5	10620.00	52.0 PK	74.0	-22.0	1.00 H	157	0.85	51.15
6	10620.00	39.9 AV	54.0	-14.1	1.00 H	157	-11.25	51.15
7	15930.00	55.8 PK	74.0	-18.2	1.01 H	218	0.04	55.76
8	15930.00	43.5 AV	54.0	-10.5	1.01 H	218	-12.26	55.76
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	100.7 PK			1.22 V	130	56.87	43.83
2	*5310.00	90.2 AV			1.22 V	130	46.37	43.83
3	5350.00	71.2 PK	74.0	-2.8	1.22 V	130	27.31	43.89
4	5350.00	52.2 AV	54.0	-1.8	1.22 V	130	8.31	43.89
5	10620.00	55.6 PK	74.0	-18.4	1.11 V	99	4.45	51.15
6	10620.00	42.7 AV	54.0	-11.3	1.11 V	99	-8.45	51.15
7	15930.00	58.8 PK	74.0	-15.2	1.05 V	360	3.04	55.76
8	15930.00	47.3 AV	54.0	-6.7	1.05 V	360	-8.46	55.76

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5460.00	64.9 PK	74.0	-9.1	1.11 H	126	20.82	44.08
2	5460.00	47.8 AV	54.0	-6.2	1.11 H	126	3.72	44.08
3	#5470.00	66.8 PK	74.0	-7.2	1.11 H	126	22.70	44.10
4	#5470.00	49.1 AV	54.0	-4.9	1.11 H	126	5.00	44.10
5	*5510.00	96.1 PK			1.11 H	126	51.91	44.19
6	*5510.00	85.3 AV			1.11 H	126	41.11	44.19
7	11020.00	51.4 PK	74.0	-22.6	1.00 H	144	0.16	51.24
8	11020.00	39.7 AV	54.0	-14.3	1.00 H	144	-11.54	51.24
9	#16530.00	55.6 PK	74.0	-18.4	1.07 H	216	-2.39	57.99
10	#16530.00	43.3 AV	54.0	-10.7	1.07 H	216	-14.69	57.99
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	65.9 PK	74.0	-8.1	1.00 V	175	21.82	44.08
2	5460.00	50.8 AV	54.0	-3.2	1.00 V	175	6.72	44.08
3	#5470.00	67.0 PK	74.0	-7.0	1.00 V	175	22.90	44.10
4	#5470.00	52.1 AV	54.0	-1.9	1.00 V	175	8.00	44.10
5	*5510.00	97.8 PK			1.00 V	175	53.61	44.19
6	*5510.00	87.0 AV			1.00 V	175	42.81	44.19
7	11020.00	55.9 PK	74.0	-18.1	1.05 V	76	4.66	51.24
8	11020.00	42.7 AV	54.0	-11.3	1.05 V	76	-8.54	51.24
9	#16530.00	59.4 PK	74.0	-14.6	1.00 V	360	1.41	57.99
10	#16530.00	47.8 AV	54.0	-6.2	1.00 V	360	-10.19	57.99

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	#5470.00	55.8 PK	74.0	-18.2	1.28 H	232	11.70	44.10
2	#5470.00	43.4 AV	54.0	-10.6	1.28 H	232	-0.70	44.10
3	*5550.00	101.4 PK			1.00 H	232	57.12	44.28
4	*5550.00	91.4 AV			1.00 H	232	47.12	44.28
5	#5725.00	55.3 PK	74.0	-18.7	1.28 H	232	10.84	44.46
6	#5725.00	44.3 AV	54.0	-9.7	1.28 H	232	-0.16	44.46
7	11100.00	52.5 PK	74.0	-21.5	1.00 H	140	1.21	51.29
8	11100.00	40.3 AV	54.0	-13.7	1.00 H	140	-10.99	51.29
9	#16650.00	55.8 PK	74.0	-18.2	1.05 H	219	-2.73	58.53
10	#16650.00	43.4 AV	54.0	-10.6	1.05 H	219	-15.13	58.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	#5470.00	58.2 PK	74.0	-15.8	1.07 V	227	14.10	44.10
2	#5470.00	45.1 AV	54.0	-8.9	1.07 V	227	1.00	44.10
3	*5550.00	103.1 PK			1.07 V	227	58.82	44.28
4	*5550.00	93.0 AV			1.07 V	227	48.72	44.28
5	#5725.00	56.2 PK	74.0	-17.8	1.07 V	227	11.74	44.46
6	#5725.00	43.6 AV	54.0	-10.4	1.07 V	227	-0.86	44.46
7	11100.00	55.7 PK	74.0	-18.3	1.07 V	100	4.41	51.29
8	11100.00	42.9 AV	54.0	-11.1	1.07 V	100	-8.39	51.29
9	#16650.00	59.0 PK	74.0	-15.0	1.00 V	360	0.47	58.53
10	#16650.00	47.2 AV	54.0	-6.8	1.00 V	360	-11.33	58.53

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	103.0 PK			1.10 H	215	58.58	44.42
2	*5670.00	91.6 AV			1.10 H	215	47.18	44.42
3	#5725.00	66.5 PK	74.0	-7.5	1.10 H	215	22.04	44.46
4	#5725.00	48.7 AV	54.0	-5.3	1.10 H	215	4.24	44.46
5	11340.00	52.0 PK	74.0	-22.0	1.03 H	162	0.58	51.42
6	11340.00	40.0 AV	54.0	-14.0	1.03 H	162	-11.42	51.42
7	#17010.00	56.3 PK	74.0	-17.7	1.02 H	240	-3.17	59.47
8	#17010.00	43.7 AV	54.0	-10.3	1.02 H	240	-15.77	59.47
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	104.6 PK			1.25 V	129	60.18	44.42
2	*5670.00	93.2 AV			1.25 V	129	48.78	44.42
3	#5725.00	65.6 PK	74.0	-8.4	1.25 V	129	21.14	44.46
4	#5725.00	52.7 AV	54.0	-1.3	1.25 V	129	8.24	44.46
5	11340.00	56.0 PK	74.0	-18.0	1.05 V	82	4.58	51.42
6	11340.00	43.2 AV	54.0	-10.8	1.05 V	82	-8.22	51.42
7	#17010.00	58.7 PK	74.0	-15.3	1.00 V	360	-0.77	59.47
8	#17010.00	47.0 AV	54.0	-7.0	1.00 V	360	-12.47	59.47

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) – Pre-Amplifier 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 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	5150.00	54.2 PK	74.0	-19.8	1.04 H	230	10.63	43.57
2	5150.00	43.7 AV	54.0	-10.3	1.04 H	230	0.13	43.57
3	*5210.00	93.1 PK			1.04 H	230	49.41	43.69
4	*5210.00	82.1 AV			1.04 H	230	38.41	43.69
5	#10420.00	51.9 PK	74.0	-22.1	1.04 H	147	1.14	50.76
6	#10420.00	39.6 AV	54.0	-14.4	1.04 H	147	-11.16	50.76
7	15630.00	56.7 PK	74.0	-17.3	1.06 H	233	0.72	55.98
8	15630.00	44.1 AV	54.0	-9.9	1.06 H	233	-11.88	55.98
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	62.5 PK	74.0	-11.5	1.39 V	310	18.93	43.57
2	5150.00	45.4 AV	54.0	-8.6	1.39 V	310	1.83	43.57
3	*5210.00	95.2 PK			1.39 V	310	51.51	43.69
4	*5210.00	84.2 AV			1.39 V	310	40.51	43.69
5	#10420.00	56.3 PK	74.0	-17.7	1.16 V	69	5.54	50.76
6	#10420.00	43.5 AV	54.0	-10.5	1.16 V	69	-7.26	50.76
7	15630.00	58.6 PK	74.0	-15.4	1.03 V	360	2.62	55.98
8	15630.00	46.9 AV	54.0	-7.1	1.03 V	360	-9.08	55.98

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	*5290.00	94.8 PK			1.01 H	220	51.00	43.80
2	*5290.00	82.9 AV			1.01 H	220	39.10	43.80
3	5350.00	55.0 PK	74.0	-19.0	1.01 H	220	11.11	43.89
4	5350.00	44.3 AV	54.0	-9.7	1.01 H	220	0.41	43.89
5	#10580.00	51.5 PK	74.0	-22.5	1.00 H	152	0.37	51.13
6	#10580.00	39.5 AV	54.0	-14.5	1.00 H	152	-11.63	51.13
7	15870.00	56.0 PK	74.0	-18.0	1.02 H	225	0.25	55.75
8	15870.00	43.4 AV	54.0	-10.6	1.02 H	225	-12.35	55.75
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	*5290.00	97.0 PK			1.41 V	313	53.20	43.80
2	*5290.00	85.1 AV			1.41 V	313	41.30	43.80
3	5350.00	61.3 PK	74.0	-12.7	1.41 V	313	17.41	43.89
4	5350.00	47.2 AV	54.0	-6.8	1.41 V	313	3.31	43.89
5	#10580.00	55.8 PK	74.0	-18.2	1.12 V	76	4.67	51.13
6	#10580.00	43.0 AV	54.0	-11.0	1.12 V	76	-8.13	51.13
7	15870.00	58.3 PK	74.0	-15.7	1.04 V	360	2.55	55.75
8	15870.00	46.9 AV	54.0	-7.1	1.04 V	360	-8.85	55.75

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) – Pre-Amplifier 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.

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		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	#5470.00	59.4 PK	74.0	-14.6	1.06 H	223	15.30	44.10
2	#5470.00	46.9 AV	54.0	-7.1	1.06 H	223	2.80	44.10
3	*5530.00	92.1 PK			1.06 H	223	47.86	44.24
4	*5530.00	80.4 AV			1.06 H	223	36.16	44.24
5	#5725.00	55.5 PK	74.0	-18.5	1.06 H	223	11.04	44.46
6	#5725.00	44.3 AV	54.0	-9.7	1.06 H	223	-0.16	44.46
7	11060.00	52.3 PK	74.0	-21.7	1.03 H	154	1.04	51.26
8	11060.00	40.0 AV	54.0	-14.0	1.03 H	154	-11.26	51.26
9	#16590.00	56.2 PK	74.0	-17.8	1.02 H	235	-2.05	58.25
10	#16590.00	43.8 AV	54.0	-10.2	1.02 H	235	-14.45	58.25
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	#5470.00	66.3 PK	74.0	-7.7	1.20 V	314	22.20	44.10
2	#5470.00	51.7 AV	54.0	-2.3	1.20 V	314	7.60	44.10
3	*5530.00	95.1 PK			1.20 V	314	50.86	44.24
4	*5530.00	83.0 AV			1.20 V	314	38.76	44.24
5	#5725.00	56.2 PK	74.0	-17.8	1.20 V	314	11.74	44.46
6	#5725.00	43.6 AV	54.0	-10.4	1.20 V	314	-0.86	44.46
7	11060.00	55.8 PK	74.0	-18.2	1.13 V	95	4.54	51.26
8	11060.00	42.6 AV	54.0	-11.4	1.13 V	95	-8.66	51.26
9	#16590.00	59.0 PK	74.0	-15.0	1.04 V	360	0.75	58.25
10	#16590.00	47.3 AV	54.0	-6.7	1.04 V	360	-10.95	58.25

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) – Pre-Amplifier 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.

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Jan. 21, 2014	Jan. 20, 2015

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 : Feb. 11, 2015

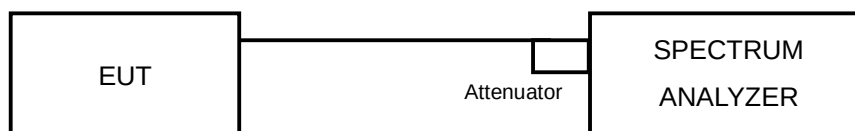
4.3.2 TEST PROCEDURE

1. Set RBW $\geq 1\%$ of the emission bandwidth.
2. Set the VBW $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Record the 99% emission bandwidth.

4.3.3 DEVIATION FROM TEST STANDARD

No deviation

4.3.4 TEST SETUP



4.3.5 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)
36	5180	16.68
40	5200	16.68
48	5240	16.68
52	5260	16.68
60	5300	16.68
64	5320	16.80
100	5500	16.80
116	5580	16.92
132	5660	16.68
140	5700	16.68

802.11ac (VHT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
36	5180	17.88	17.64
40	5200	17.76	17.76
48	5240	17.76	17.88
52	5260	18.00	17.76
60	5300	17.76	17.76
64	5320	17.88	17.64
100	5500	17.76	17.88
116	5580	18.00	18.00
132	5660	17.76	18.00
140	5700	17.76	17.88

802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
38	5190	36.60	36.20
46	5230	36.60	36.60
54	5270	36.60	36.60
62	5310	36.40	36.80
102	5510	36.40	36.60
110	5550	36.60	36.60
134	5670	36.60	36.60

802.11ac (VHT80)

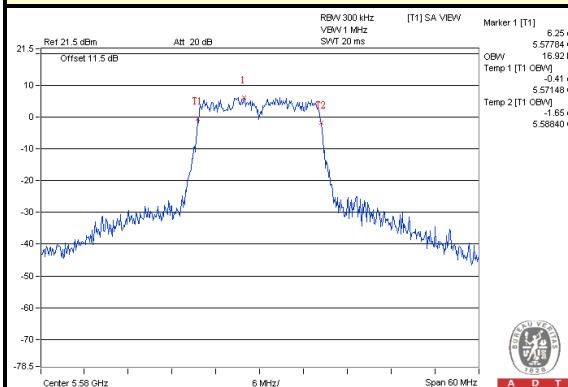
CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
42	5210	76.32	76.32
58	5290	76.08	76.32
106	5530	76.32	76.32



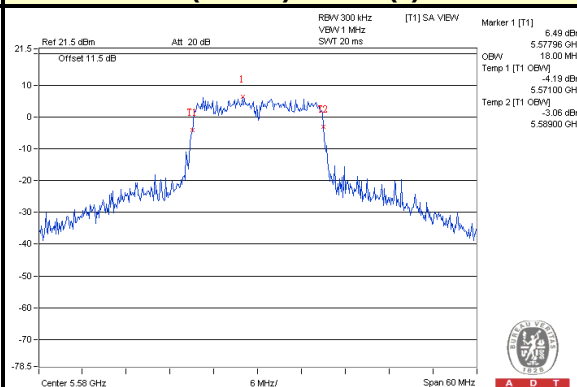
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SPECTRUM PLOT OF WORST VALUE

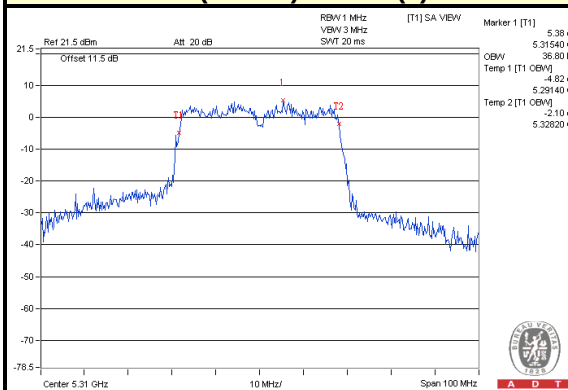
802.11a : CH116



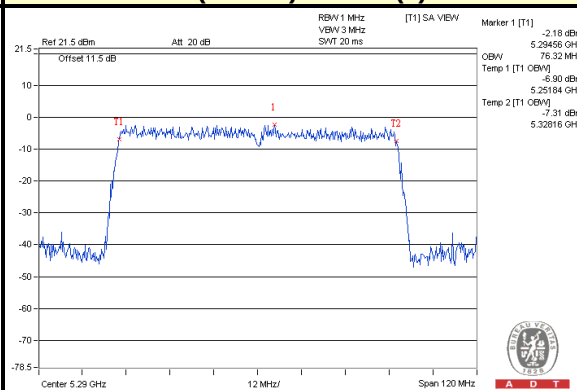
802.11ac (VHT20) / Chain(1) : CH116



802.11ac (VHT40) / Chain(1) : CH62



802.11ac (VHT80) / Chain(1) : CH58



4.4 TRANSMIT POWER MEASUREMENT

4.4.1 LIMITS OF TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

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

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(NANT/NSS)$ dB.

4.4.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter	ML2495A	1014008	Apr. 23, 2013	Apr. 22, 2014
Power Sensor	MA2411B	0917122	Apr. 23, 2013	Apr. 22, 2014

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 : Feb. 11, 2014

FOR 26dB OCCUPIED BANDWIDTH

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Jan. 21, 2014	Jan. 20, 2015

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 : Feb. 11, 2014

4.4.3 TEST PROCEDURE

FOR POWER OUTPUT MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

FOR 26dB OCCUPIED BANDWIDTH

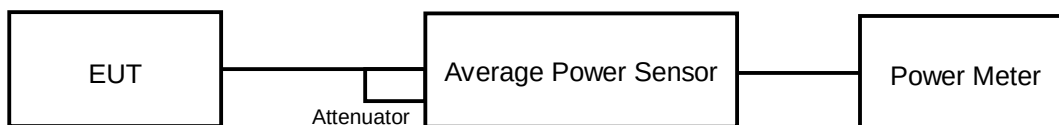
1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement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

4.4.4 DEVIATION FROM TEST STANDARD

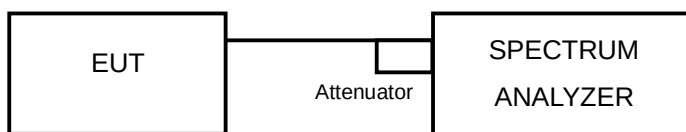
No deviation

4.4.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.4.6 EUT OPERATING CONDITIONS

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

4.4.7 TEST RESULTS

802.11a

POWER OUTPUT

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	33.420	15.24	17	PASS
40	5200	32.885	15.17	17	PASS
48	5240	39.902	16.01	17	PASS
52	5260	32.434	15.11	24	PASS
60	5300	31.769	15.02	24	PASS
64	5320	32.063	15.06	24	PASS
100	5500	34.119	15.33	24	PASS
116	5580	40.458	16.07	24	PASS
132	5660	40.832	16.11	23.99	PASS
140	5700	33.343	15.23	24	PASS

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)
36	5180	25.35
40	5200	21.20
48	5240	21.17
52	5260	20.02
60	5300	20.05
64	5320	20.22
100	5500	20.06
116	5580	20.13
132	5660	19.95
140	5700	19.96

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 4dBm + 10logB < UNII Band 1 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
36	5180	25.35	18.03 > 17
40	5200	21.20	17.26 > 17
48	5240	21.17	17.25 > 17
Power Limit = 11dBm + 10logB < UNII Band 2~3 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	20.02	24.01 > 24
60	5300	20.05	24.02 > 24
64	5320	20.22	24.05 > 24
100	5500	20.06	24.02 > 24
116	5580	20.13	24.03 > 24
132	5660	19.95	23.99 < 24
140	5700	19.96	24 = 24



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802.11ac (VHT20)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.01	14.12	45.822	16.61	17	PASS
40	5200	13.21	14.31	47.918	16.80	17	PASS
48	5240	13.24	14.33	48.188	16.83	17	PASS
52	5260	15.03	15.57	67.900	18.32	24	PASS
60	5300	14.94	15.24	64.609	18.10	24	PASS
64	5320	12.04	12.29	32.939	15.18	24	PASS
100	5500	13.30	13.39	43.207	16.36	24	PASS
116	5580	15.24	16.10	74.158	18.70	24	PASS
132	5660	15.31	16.01	73.865	18.68	24	PASS
140	5700	11.52	11.71	29.016	14.63	24	PASS

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
36	5180	30.10	20.37
40	5200	22.42	22.15
48	5240	22.65	20.51
52	5260	33.46	28.54
60	5300	31.82	24.52
64	5320	27.01	20.18
100	5500	30.18	26.19
116	5580	34.86	29.27
132	5660	31.71	38.87
140	5700	26.32	20.71

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 4dBm + 10logB < UNII Band 1 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
36	5180	20.37	17.08 > 17
40	5200	22.15	17.45 > 17
48	5240	20.51	17.11 > 17
Power Limit = 11dBm + 10logB < UNII Band 2~3 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5260	28.54	25.55 > 24
60	5300	24.52	24.89 > 24
64	5320	20.18	24.04 > 24
100	5500	26.19	25.18 > 24
116	5580	29.27	25.66 > 24
132	5660	31.71	26.01 > 24
140	5700	20.71	24.16 > 24



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802.11ac(VHT40)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	8.69	10.14	17.724	12.49	17	PASS
46	5230	13.11	14.14	46.406	16.67	17	PASS
54	5270	14.31	14.63	56.017	17.48	24	PASS
62	5310	10.81	10.93	24.438	13.88	24	PASS
102	5510	8.05	8.12	12.869	11.10	24	PASS
110	5550	13.91	14.82	54.943	17.40	24	PASS
134	5670	13.09	13.18	41.167	16.15	24	PASS

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
38	5190	41.98	41.68
46	5230	51.35	48.98
54	5270	55.83	56.91
62	5310	41.86	43.92
102	5510	41.87	41.92
110	5550	48.46	54.53
134	5670	45.97	54.57

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 4dBm + 10logB < UNII Band 1 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
38	5190	41.68	20.19 > 17
46	5230	48.98	20.9 > 17
Power Limit = 11dBm + 10logB < UNII Band 2~3 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
54	5270	55.83	28.46 > 24
62	5310	41.86	27.21 > 24
102	5510	41.87	27.21 > 24
110	5550	48.46	27.85 > 24
134	5670	45.97	27.62 > 24

802.11ac (VHT80)

POWER OUTPUT

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
42	5210	7.84	9.16	14.322	11.56	17	PASS
52	5290	8.18	9.11	14.724	11.68	24	PASS
106	5530	8.39	8.54	14.047	11.48	24	PASS

26dB OCCUPIED BANDWIDTH

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	
		CHAIN 0	CHAIN 1
42	5210	82.43	82.37
52	5290	82.15	82.30
106	5530	115.01	116.57

Note: For output power limitation is determined based on 26dBc bandwidth.

Power Limit = 4dBm + 10logB < UNII Band 1 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
42	5210	82.37	23.15 > 17
Power Limit = 11dBm + 10logB < UNII Band 2~3 >			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Limit (dBm)
52	5290	82.15	30.14 > 24
106	5530	115.01	31.6 > 24

4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 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

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Jan. 21, 2014	Jan. 20, 2015

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 : Feb. 11, 2014

4.5.3 TEST PROCEDURES

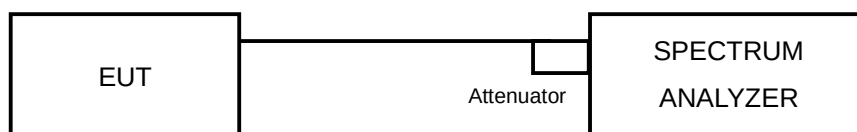
Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6

4.5.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	0.84	4	PASS
40	5200	1.83	4	PASS
48	5240	0.28	4	PASS
52	5260	0.96	11	PASS
60	5300	0.10	11	PASS
64	5320	-0.15	11	PASS
100	5500	-0.83	11	PASS
116	5580	1.80	11	PASS
132	5660	0.63	11	PASS
140	5700	2.08	11	PASS

802.11ac (VHT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1			
36	5180	-3.08	-2.57	0.19	4	PASS
40	5200	-2.91	-1.25	1.01	4	PASS
48	5240	-1.73	-3.38	0.53	4	PASS
52	5260	-0.14	-0.49	2.70	11	PASS
60	5300	0.37	-0.78	2.84	11	PASS
64	5320	-3.21	-3.31	-0.25	11	PASS
100	5500	-2.25	-0.15	1.94	11	PASS
116	5580	1.51	1.25	4.39	11	PASS
132	5660	-0.02	0.41	3.21	11	PASS
140	5700	-2.74	-4.21	-0.40	11	PASS

NOTE: 1. Method 1) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

802.11ac (VHT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1			
38	5190	-8.16	-8.73	-5.42	4	PASS
46	5230	-3.24	-5.32	-1.15	4	PASS
54	5270	-3.36	-2.68	0.00	11	PASS
62	5310	-5.60	-6.43	-2.99	11	PASS
102	5510	-8.35	-9.03	-5.67	11	PASS
110	5550	-3.39	-2.91	-0.13	11	PASS
134	5670	-3.25	-6.55	-1.58	11	PASS

NOTE: 1. Method 1) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

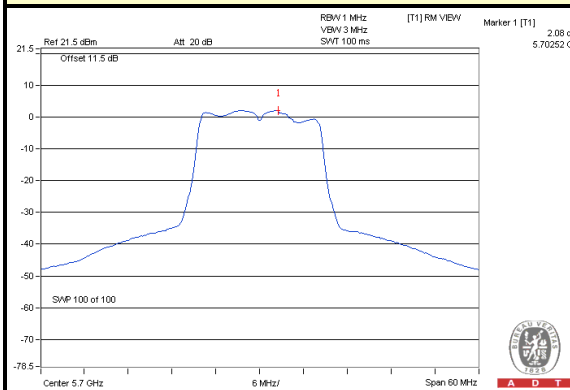
802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1			
42	5210	-12.57	-14.58	-10.45	4	PASS
58	5290	-12.01	-13.60	-9.72	11	PASS
106	5530	-11.47	-13.17	-9.23	11	PASS

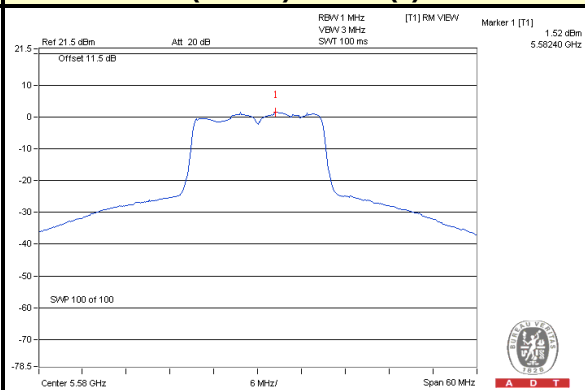
NOTE: 1. Method 1) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

SPECTRUM PLOT OF WORST VALUE

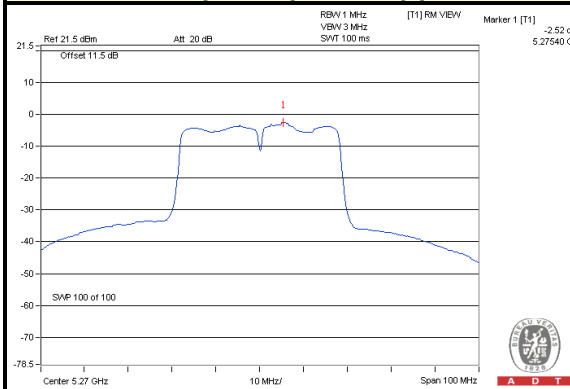
802.11a : CH140



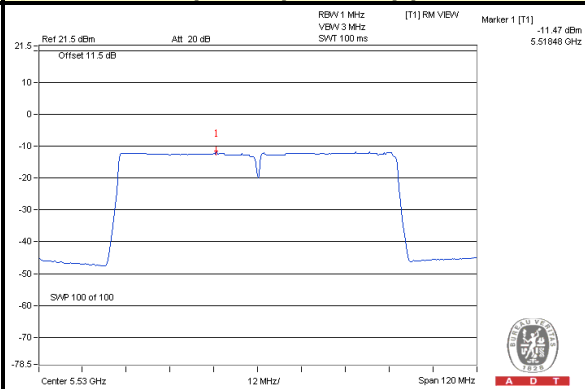
802.11ac (VHT20) / Chain(0) : CH116



802.11ac (VHT40) / Chain(1) : CH54



802.11ac (VHT80) / Chain(0) : CH106



4.6 PEAK POWER EXCURSION MEASUREMENT

4.6.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Shall not exceed 13 dB

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Jan. 21, 2014	Jan. 20, 2015

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 : Feb. 11, 2014

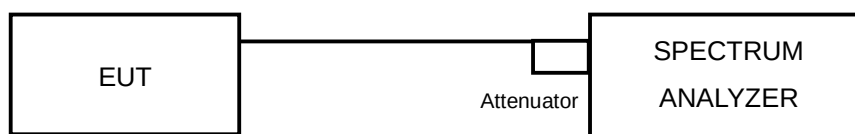
4.6.3 TEST PROCEDURE

1. Set RBW = 1 MHz, VBW $\geq$ 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.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



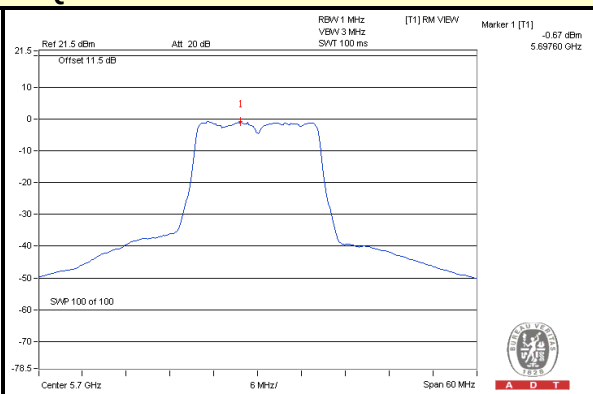
4.6.6 EUT OPERATING CONDITIONS

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

4.6.7 TEST RESULTS

MODULATION MODE	MODULATION TYPE	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/ FAIL
802.11a	BPSK	5700	10.77	2.08	8.69	13	PASS
	QPSK		10.49	-0.12	10.61	13	PASS
	16QAM		10.51	0	10.51	13	PASS
	64QAM		11.56	-0.67	12.23	13	PASS
802.11ac (VHT20)	BPSK	5700	8.04	-3.9	11.94	13	PASS
	QPSK		6.84	-4.17	11.01	13	PASS
	16QAM		7.01	-5.28	12.29	13	PASS
	64QAM		5.83	-4.01	9.84	13	PASS
	256QAM		7.32	-5.20	12.52	13	PASS
802.11ac (VHT40)	BPSK	5670	5.18	-5.08	10.26	13	PASS
	QPSK		4.82	-6.37	11.19	13	PASS
	16QAM		5.41	-5.86	11.27	13	PASS
	64QAM		5.73	-6.13	11.86	13	PASS
	256QAM		4.53	-6.20	10.73	13	PASS
802.11ac (VHT80)	BPSK	5530	-1.94	-12.97	11.03	13	PASS
	QPSK		-3.31	-14.01	10.7	13	PASS
	16QAM		-2.14	-14.01	11.87	13	PASS
	64QAM		-3.44	-13.75	10.31	13	PASS
	256QAM		-1.91	-14.02	12.11	13	PASS

802.11a / 64QAM



Ref 21.5 dBm

AB 20 dB

Offset 11.5 dB

Marker 1 [T1]

-5.20 dBm

5.69044 GHz

RBW 1 MHz

VBW 3 MHz

SWT 100 ms

SMP 100 of 100

Center 5.7 GHz

6 MHz

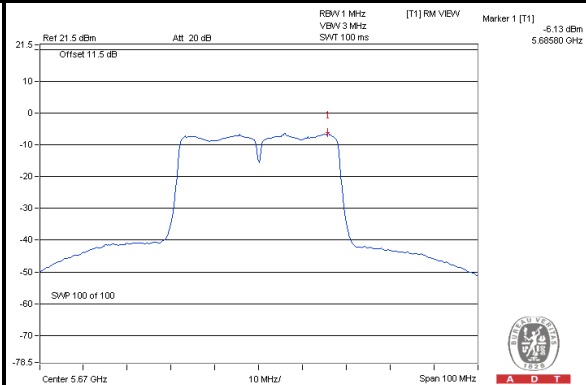
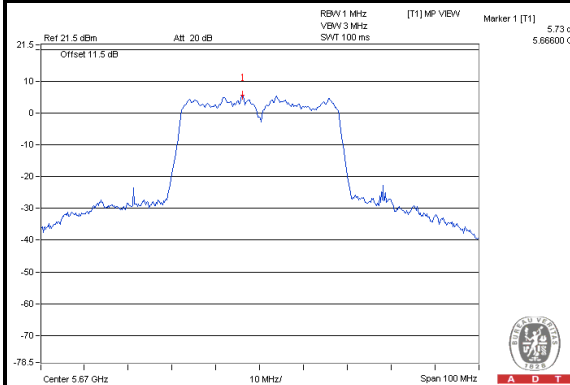
Span 60 MHz

A D T

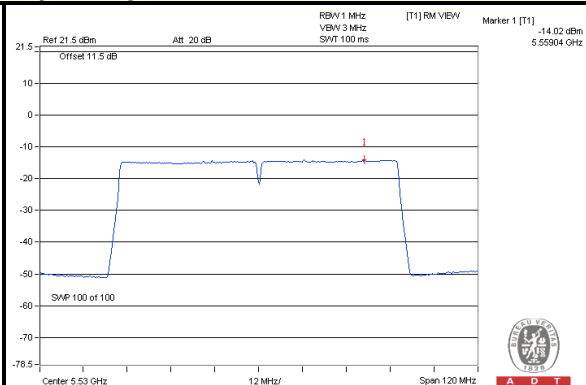
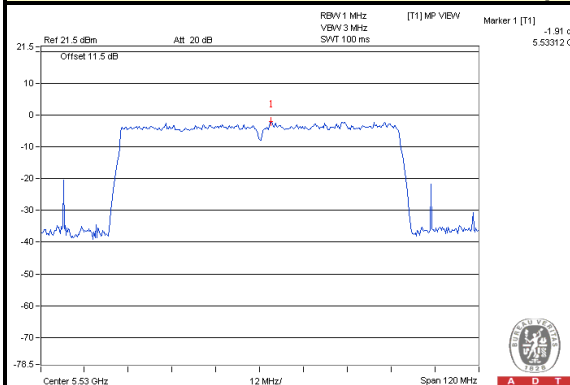


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802.11ac (VHT40) / 64QAM



802.11ac (VHT80) / 256QAM



4.7 FREQUENCY STABILITY

4.7.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Jan. 21, 2014	Jan. 20, 2015
Temperature & Humidity Chamber GIANTFORCE	GTH-150-40-S P-AR	MAA0812-008	Jan. 13, 2014	Jan. 12, 2015

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 : Feb. 11, 2014

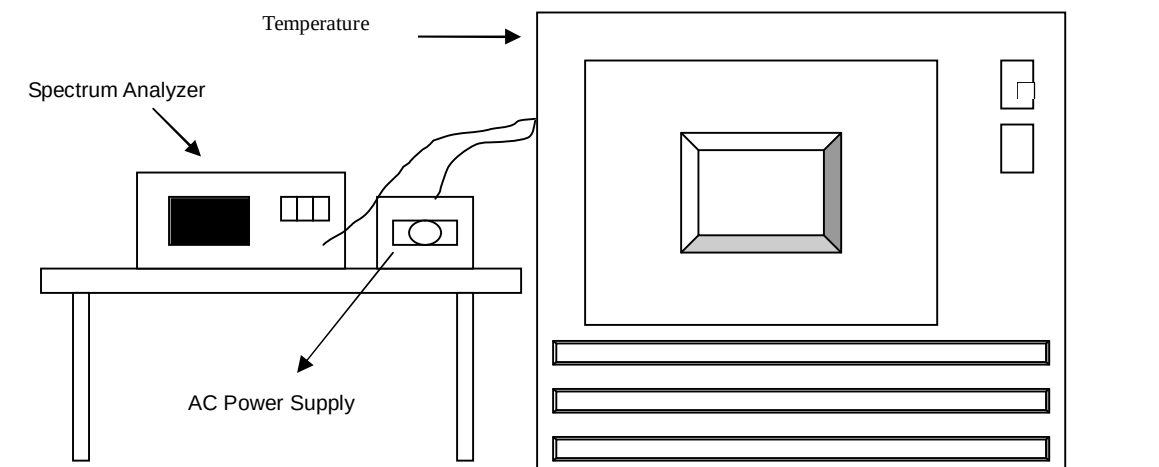
4.7.3 TEST PROCEDURE

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.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



4.7.6 EUT OPERATING CONDITION

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

4.7.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
50	120	5319.9944	-0.00011	5320.0017	0.00003	5320.0024	0.00005	5319.9973	-0.00005
40	120	5319.989	-0.00021	5319.9856	-0.00027	5319.9798	-0.00038	5319.9854	-0.00027
30	120	5320.018	0.00034	5320.0173	0.00033	5320.0158	0.00030	5320.0211	0.00040
20	120	5319.9924	-0.00014	5319.9866	-0.00025	5319.9917	-0.00016	5319.9887	-0.00021
10	120	5320.0142	0.00027	5320.0126	0.00024	5320.0053	0.00010	5320.0098	0.00018
0	120	5320.0134	0.00025	5320.009	0.00017	5320.0144	0.00027	5320.0059	0.00011
-10	120	5320.0019	0.00004	5319.996	-0.00008	5320.0017	0.00003	5319.9972	-0.00005
-20	120	5319.9865	-0.00025	5319.9879	-0.00023	5319.986	-0.00026	5319.9941	-0.00011
-30	120	5319.9783	-0.00041	5319.978	-0.00041	5319.9844	-0.00029	5319.9829	-0.00032

FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift	Measured Frequency	Frequency Drift
		(MHz)	%	(MHz)	%	(MHz)	%	(MHz)	%
20	138	5319.9929	-0.00013	5319.9856	-0.00027	5319.9907	-0.00017	5319.9888	-0.00021
	120	5319.9924	-0.00014	5319.9866	-0.00025	5319.9917	-0.00016	5319.9887	-0.00021
	102	5319.9916	-0.00016	5319.9873	-0.00024	5319.9924	-0.00014	5319.9892	-0.00020

5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

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:

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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.

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