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FCC TEST REPORT (CO-LOCATED)

REPORT NO.: RF140820C01A-1
MODEL NO.: MR32-HW
FCC ID: UDX-60031010
RECEIVED: Aug. 04, 2014
TESTED: Oct. 03 ~ Oct. 08, 2014
ISSUED: Nov. 18, 2014

APPLICANT: Cisco Systems, Inc.

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ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140820C01A-1	Original release	Nov. 18, 2014



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1. CERTIFICATION

PRODUCT: Wireless 802.11 abgn/ac AP

MODEL NO.: MR32-HW

BRAND: Cisco

APPLICANT: Cisco Systems, Inc.

TESTED: Oct. 03 ~ Oct. 08, 2014

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)
FCC Part 15, Subpart E (Section 15.407)

The above equipment (model: MR32-HW) 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 : Celine Chou , **DATE** : Nov. 18, 2014
Celine Chou / Specialist

APPROVED BY : Ken Liu , **DATE** : Nov. 18, 2014
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207 15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.97dB at 0.15509MHz.
15.247(d) 15.407(b/1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2483.50MHz.

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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless 802.11 abgn/ac AP
MODEL NO.	MR32-HW
POWER SUPPLY	12Vdc (Adapter) 55Vdc (POE)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 802.11ac: up to 866.6Mbps
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 3 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)

OUTPUT POWER	1TX (Radio 1) 2412 ~ 2462MHz: 422.669mW 2TX (Radio 1) 2412 ~ 2462MHz: 860.953mW 1TX (Radio 3) 2412 ~ 2462MHz: 133.660mW 1TX (Radio 2) 5180 ~ 5240MHz: 334.965mW 2TX (Radio 2) 5180 ~ 5240MHz: 663.219mW 1TX (Radio 3) 5180 ~ 5240MHz: 52.602mW 1TX (Radio 2) 5260 ~ 5320MHz: 246.037mW 2TX (Radio 2) 5260 ~ 5320MHz: 220.807mW 1TX (Radio 3) 5260 ~ 5320MHz: 62.230mW 1TX (Radio 2) 5500 ~ 5700MHz: 250.035mW 2TX (Radio 2) 5500 ~ 5700MHz: 240.312mW 1TX (Radio 3) 5500 ~ 5700MHz: 133.045mW 1TX (Radio 2) 5745 ~ 5825MHz: 171.791mW 2TX (Radio 2) 5745 ~ 5825MHz: 398.298mW 1TX (Radio 3) 5745 ~ 5825MHz: 123.595mW 2402 ~ 2480MHz: 2.203mW
ANTENNA TYPE	Refer to note
ANTENNA CONNECTOR	Refer to note
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of BV ADT report no.: RF140820C01-2. Difference compared with the original report is adding 5260~5320MHz and 5500~5700MHz band. Therefore, the EUT was re-tested and presented in the test report.
2. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

BAND	MODULATION MODE	TX FUNCTION	REMARK
2.4GHz	802.11b	1TX	Radio 3
		1TX / 2TX	Radio 1
	802.11g	1TX	Radio 3
		1TX / 2TX	Radio 1
	802.11n (20MHz)	1TX	Radio 3
		1TX / 2TX	Radio 1
5GHz	802.11a	1TX	Radio 3
		1TX / 2TX	Radio 2
	802.11n (HT20)	1TX	Radio 3
		1TX / 2TX	Radio 2
	802.11n (HT40)	1TX	Radio 3
		1TX / 2TX	Radio 2
	802.11ac (VHT80)	1TX / 2TX	Radio 2

3. There are 6 antennas for the EUT.

NO.	TYPE	GAIN(dBi)					CONNECTOR	REMARK
		2.4GHz	5GHz BAND 1	5GHz BAND 2	5GHz BAND 3	5GHz BAND 4		
1	PIFA	5.05	-	-	-	-	IPEX	WLAN (Radio 1)
2	PIFA	4.50	-	-	-	-	IPEX	
3	PIFA	-	5.31	4.40	5.01	5.60	IPEX	WLAN (Radio 2)
4	PIFA	-	5.07	4.06	5.75	5.12	IPEX	
5	PIFA	2.38	4.22	4.36	3.99	3.22	IPEX	WLAN (Radio 3)
6	PIFA	0.67	-	-	-	-	IPEX	BT (Radio 4)

4. The EUT consumes power from the following adapter and POE. (for supply unit only)

ADAPTER	
BRAND	Powertron Electronics Corp.
MODEL	PA1024-120HEB200
INPUT POWER	100-240Vac, 50-60Hz, 0.6A
OUTPUT POWER	12Vdc, 2A, 24W Max
POWER LINE	1.5m cable with one core attached on adapter

POE	
BRAND	CISCO
MODEL	PD-9001GR/AT/AC
INPUT POWER	100-240Vac, 50/60Hz, 0.67A
OUTPUT POWER	55Vdc, 0.6A

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

FOR 5180 ~ 5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
42	5210MHz

FOR 5260 ~ 5320MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
58	5290MHz

FOR 5500 ~ 5700MHz

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	CHANNEL	FREQUENCY
102	5510 MHz	134	5670 MHz
110	5550 MHz		

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
106	5530MHz

FOR 5745 ~ 5825MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
155	5775MHz

FOR BLUETOOTH LE

40 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	
A	√	√	√	Powered by adapter
B	-	√	√	Powered by POE

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. "-" means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ 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.

EUT CONFIGURE MODE	MODE	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	REMARK
A	802.11b + 802.11n (HT20) + 802.11g + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 1 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		2412 ~ 2462	1 to 11		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 157 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		5745 ~ 5825	149 to 165		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 60 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		5260 ~ 5320	52 to 64		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 40 + 60 + 39	DBPSK	1TX (Radio 1)
		5180 ~ 5240	36 to 48		BPSK	2TX (Radio 2)
		5260 ~ 5320	52 to 64		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4

RADIATED EMISSION TEST (BELOW 1GHz):

- ☒ 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.

EUT CONFIGURE MODE	MODE	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	REMARK
A & B	802.11b + 802.11n (HT20) + 802.11g + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 1 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		2412 ~ 2462	1 to 11		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 157 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		5745 ~ 5825	149 to 165		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 60 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		5260 ~ 5320	52 to 64		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 40 + 60 + 39	DBPSK	1TX (Radio 1)
		5180 ~ 5240	36 to 48		BPSK	2TX (Radio 2)
		5260 ~ 5320	52 to 64		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4



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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.

EUT CONFIGURE MODE	MODE	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	REMARK
A & B	802.11b + 802.11n (HT20) + 802.11g + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 1 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		2412 ~ 2462	1 to 11		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 157 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		5745 ~ 5825	149 to 165		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 116 + 60 + 39	DBPSK	1TX (Radio 1)
		5500 ~ 5700	100 to 140		BPSK	1TX (Radio 2)
		5260 ~ 5320	52 to 64		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4
	802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE	2412 ~ 2462	1 to 11	6 + 40 + 60 + 39	DBPSK	1TX (Radio 1)
		5180 ~ 5240	36 to 48		BPSK	2TX (Radio 2)
		5260 ~ 5320	52 to 64		BPSK	1TX (Radio 3)
		2402 ~ 2480	0 to 39		-	Radio 4

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	22deg. C, 71%RH	120Vac, 60Hz	Jones Chang
RE<1G	23deg. C, 72%RH	120Vac, 60Hz 55Vdc	Nick Hsu
PLC	25deg. C, 70%RH	120Vac, 60Hz 55Vdc	Kevin Kuo

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3.3 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	DELL	E5410	1HC2XM1	FCC Doc Approved
2	POE	CISCO	PD-9001GR/AT/AC	NA	NA
3	ADAPTER	Powertron Electronics Corp.	PA1024-120HEB200	NA	NA

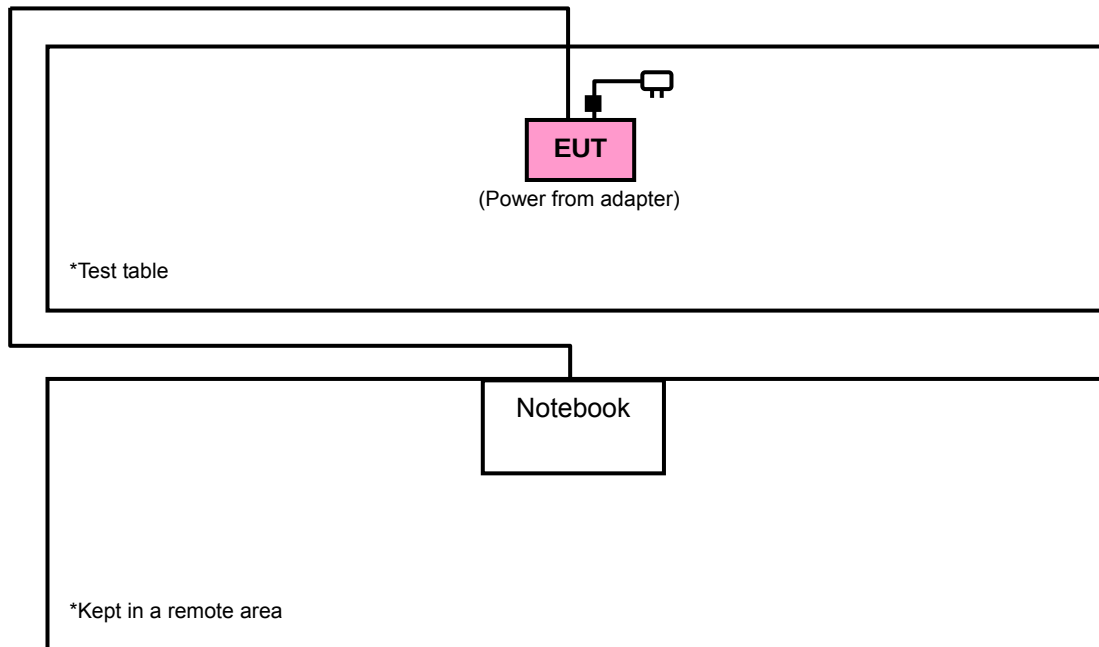
NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m LAN cable for test mode A, 1.8m LAN cable for test mode B
2	10m LAN cable
3	NA

NOTE:

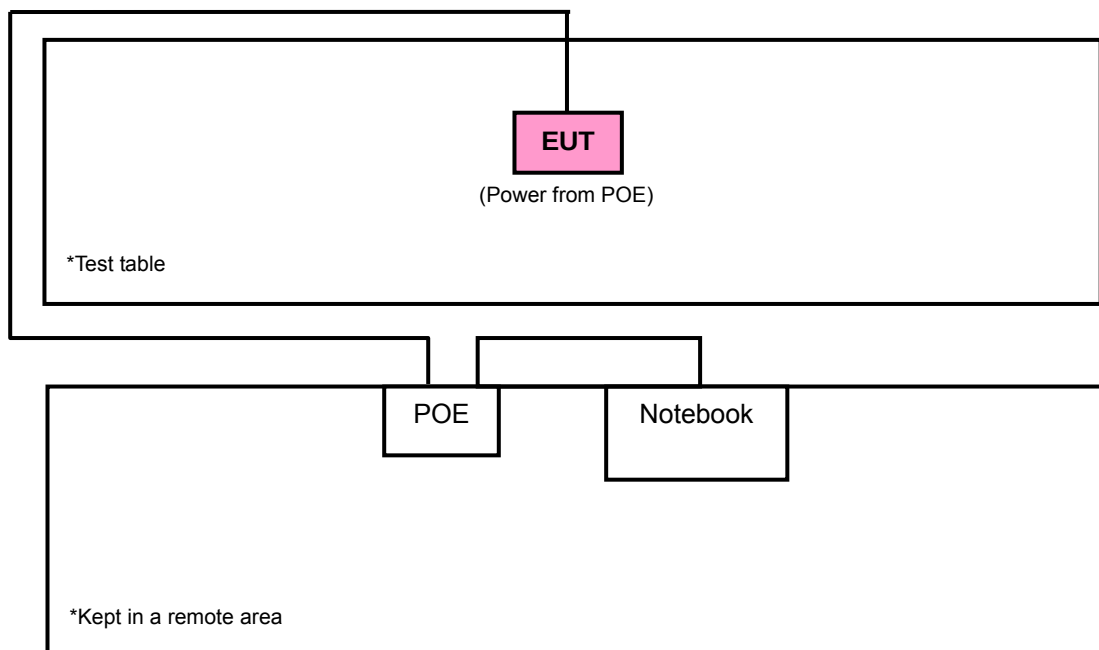
1. All power cords of the above support units are non-shielded (1.8 m).
2. Item 1 acted as a communication partner to transfer data.
3. Items 2-3 were provided by the manufacturer.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

TEST MODE A



TEST MODE B





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3.4 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 C (Section 15.247)

FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10-2009

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01	FIELD STRENGTH AT 3m	
	PK: 74 (dBuV/m)	AV: 54 (dBuV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBuV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) ^{*1} PK: -17 (dBm/MHz) ^{*2}	PK: 68.2 (dBuV/m) ^{*1} PK: 78.2 (dBuV/m) ^{*2}

NOTE: ^{*1} beyond 10MHz of the band edge ^{*2} within 10 MHz of band edge

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

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

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Jan. 02, 2014	Jan. 01, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Mar. 03, 2014	Mar. 02, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Feb. 26, 2014	Feb. 25, 2015
HORN Antenna SCHWARZBECK	9120D	209	Sep. 12, 2013 Sep. 12, 2014	Sep. 11, 2014 Sep. 11, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 17, 2014	Feb. 16, 2015
Preamplifier Agilent	8447D	2944A10633	Oct. 07, 2013 Oct. 07, 2014	Oct. 06, 2014 Oct. 06, 2015
Preamplifier Agilent	8449B	3008A01964	Aug. 26, 2013 Aug. 26, 2014	Aug. 25, 2014 Aug. 25, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	214378/4	Aug. 26, 2013 Aug. 26, 2014	Aug. 25, 2014 Aug. 25, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6 +309224/4	Aug. 26, 2013 Aug. 26, 2014	Aug. 25, 2014 Aug. 25, 2015
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2013	Oct. 17, 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. The test was performed in HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

5. The IC Site Registration No. is IC 7450F-3.

4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. 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 antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

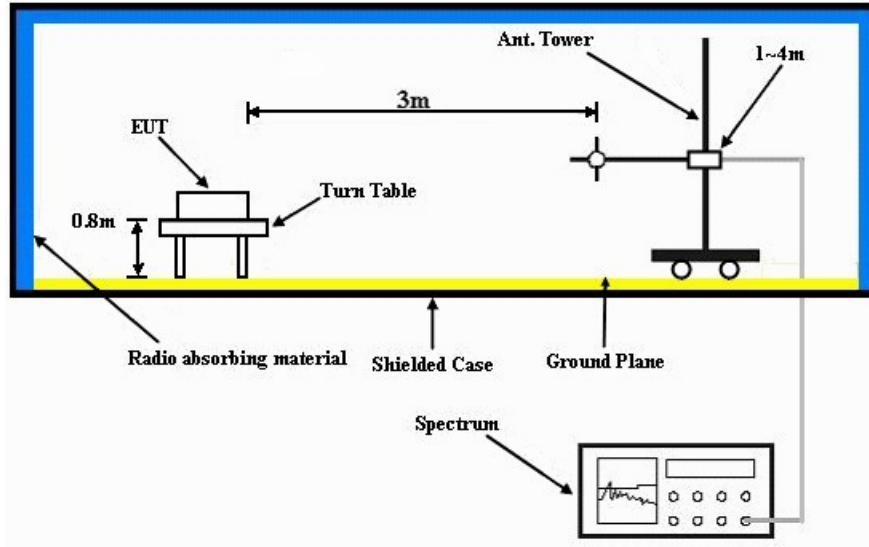
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.5 DEVIATION FROM TEST STANDARD

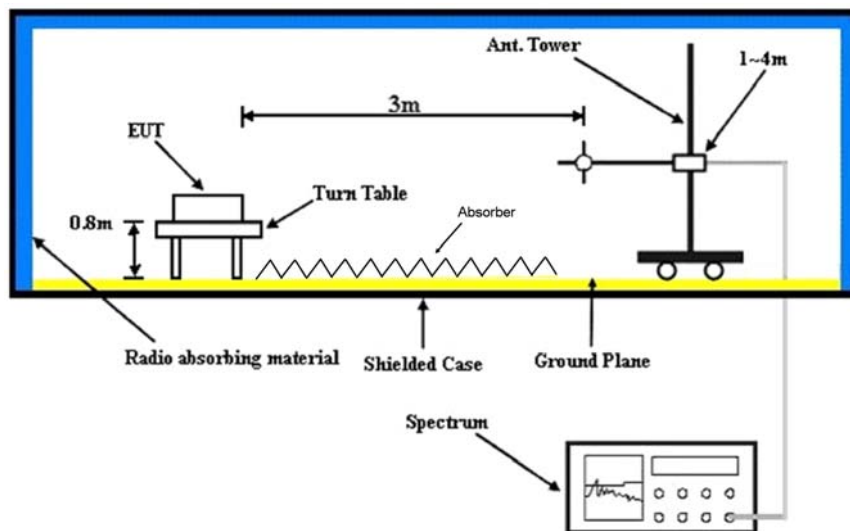
No deviation.

4.1.6 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.7 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared notebooks to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partner sent data to EUT by command "PING".

4.1.8 TEST RESULTS

ABOVE 1GHz DATA

802.11b + 802.11n (HT20) + 802.11g + BT LE

CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	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	2390.00	71.0 PK	74.0	-3.0	1.30 H	220	37.80	33.20
2	2390.00	51.8 AV	54.0	-2.2	1.30 H	220	18.60	33.20
3	*2412.00	109.1 PK			1.30 H	313	75.80	33.30
4	*2412.00	77.3 AV			1.30 H	313	44.00	33.30
5	*2437.00	121.2 PK			1.35 H	308	87.80	33.40
6	*2437.00	117.3 AV			1.35 H	308	83.90	33.40
7	*2480.00	98.2 PK			1.28 H	260	64.80	33.40
8	*2480.00	93.7 AV			1.28 H	260	60.30	33.40
9	2483.50	67.3 PK	74.0	-6.7	1.33 H	49	33.90	33.40
10	2483.50	53.8 AV	54.0	-0.2	1.33 H	49	20.40	33.40
11	4874.00	54.1 PK	74.0	-19.9	1.28 H	60	47.90	6.20
12	4874.00	44.3 AV	54.0	-9.7	1.28 H	60	38.10	6.20
13	4960.00	49.2 PK	74.0	-24.8	1.13 H	266	42.80	6.40
14	4960.00	36.7 AV	54.0	-17.3	1.13 H	266	30.30	6.40
15	7440.00	57.3 PK	74.0	-16.7	1.24 H	82	44.90	12.40
16	7440.00	47.3 AV	54.0	-6.7	1.24 H	82	34.90	12.40
17	*5580.00	116.0 PK			1.09 H	51	75.70	40.30
18	*5580.00	105.6 AV			1.09 H	51	65.30	40.30
19	11160.00	62.7 PK	74.0	-11.3	1.00 H	300	42.80	19.90
20	11160.00	49.5 AV	54.0	-4.5	1.00 H	300	29.60	19.90

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.



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CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	2390.00	60.0 PK	74.0	-14.0	1.68 V	22	26.80	33.20
2	2390.00	48.3 AV	54.0	-5.7	1.68 V	22	15.10	33.20
3	*2412.00	96.1 PK			1.59 V	348	62.80	33.30
4	*2412.00	68.6 AV			1.59 V	348	35.30	33.30
5	*2437.00	111.1 PK			2.21 V	328	77.70	33.40
6	*2437.00	107.4 AV			2.21 V	328	74.00	33.40
7	*2480.00	93.7 PK			1.00 V	212	60.30	33.40
8	*2480.00	92.5 AV			1.00 V	212	59.10	33.40
9	2483.50	67.4 PK	74.0	-6.6	2.24 V	330	34.00	33.40
10	2483.50	53.6 AV	54.0	-0.4	2.24 V	330	20.20	33.40
11	4874.00	53.2 PK	74.0	-20.8	1.01 V	356	47.00	6.20
12	4874.00	50.3 AV	54.0	-3.7	1.01 V	356	44.10	6.20
13	4960.00	49.4 PK	74.0	-24.6	1.05 V	89	43.00	6.40
14	4960.00	36.0 AV	54.0	-18.0	1.05 V	89	29.60	6.40
15	7440.00	60.2 PK	74.0	-13.8	1.00 V	166	47.80	12.40
16	7440.00	50.1 AV	54.0	-3.9	1.00 V	166	37.70	12.40
17	*5580.00	122.3 PK			1.00 V	353	82.00	40.30
18	*5580.00	106.9 AV			1.00 V	353	66.60	40.30
19	11600.00	61.4 PK	74.0	-12.6	1.15 V	289	42.50	18.90
20	11600.00	48.2 AV	54.0	-5.8	1.15 V	289	29.30	18.90

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.

802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	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	*2437.00	121.2 PK			1.30 H	312	87.80	33.40
2	*2437.00	117.3 AV			1.30 H	312	83.90	33.40
3	*2480.00	97.2 PK			1.25 H	235	63.80	33.40
4	*2480.00	93.5 AV			1.25 H	235	60.10	33.40
5	2483.50	67.7 PK	74.0	-6.3	1.25 H	293	34.30	33.40
6	2483.50	53.7 AV	54.0	-0.3	1.25 H	293	20.30	33.40
7	4874.00	52.8 PK	74.0	-21.2	1.25 H	70	46.60	6.20
8	4874.00	43.7 AV	54.0	-10.3	1.25 H	70	37.50	6.20
9	4960.00	48.8 PK	74.0	-25.2	1.08 H	250	42.40	6.40
10	4960.00	36.3 AV	54.0	-17.7	1.08 H	250	29.90	6.40
11	7440.00	56.8 PK	74.0	-17.2	1.33 H	99	44.40	12.40
12	7440.00	47.0 AV	54.0	-7.0	1.33 H	99	34.60	12.40
13	*5580.00	117.3 PK			1.13 H	299	77.00	40.30
14	*5580.00	106.6 AV			1.13 H	299	66.30	40.30
15	*5785.00	112.7 PK			1.00 H	333	72.00	40.70
16	*5785.00	91.7 AV			1.00 H	333	51.00	40.70
17	11570.00	61.3 PK	74.0	-12.7	1.10 H	263	42.50	18.80
18	11570.00	47.8 AV	54.0	-6.2	1.10 H	263	29.00	18.80
19	11600.00	61.2 PK	74.0	-12.8	1.00 H	300	42.30	18.90
20	11600.00	48.0 AV	54.0	-6.0	1.00 H	300	29.10	18.90

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.



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CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*2437.00	111.2 PK			2.17 V	323	77.80	33.40
2	*2437.00	107.6 AV			2.17 V	323	74.20	33.40
3	*2480.00	93.4 PK			1.00 V	200	60.00	33.40
4	*2480.00	92.2 AV			1.00 V	200	58.80	33.40
5	2483.50	67.5 PK	74.0	-6.5	2.22 V	331	34.10	33.40
6	2483.50	53.6 AV	54.0	-0.4	2.22 V	331	20.20	33.40
7	4874.00	53.2 PK	74.0	-20.8	1.01 V	359	47.00	6.20
8	4874.00	50.0 AV	54.0	-4.0	1.01 V	359	43.80	6.20
9	4960.00	48.6 PK	74.0	-25.4	1.05 V	77	42.20	6.40
10	4960.00	35.5 AV	54.0	-18.5	1.05 V	77	29.10	6.40
11	7440.00	58.3 PK	74.0	-15.7	1.03 V	168	45.90	12.40
12	7440.00	47.9 AV	54.0	-6.1	1.03 V	168	35.50	12.40
13	*5580.00	123.0 PK			1.00 V	344	82.70	40.30
14	*5580.00	107.2 AV			1.00 V	344	66.90	40.30
15	*5785.00	116.7 PK			1.00 V	290	76.00	40.70
16	*5785.00	94.7 AV			1.00 V	290	54.00	40.70
17	11160.00	62.6 PK	74.0	-11.4	1.11 V	287	42.70	19.90
18	11160.00	49.5 AV	54.0	-4.5	1.11 V	287	29.60	19.90
19	11570.00	61.2 PK	74.0	-12.8	1.22 V	320	42.40	18.80
20	11570.00	48.1 AV	54.0	-5.9	1.22 V	320	29.30	18.80

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.

802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	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	*2437.00	121.4 PK			1.27 H	316	88.00	33.40
2	*2437.00	117.4 AV			1.27 H	316	84.00	33.40
3	*2480.00	97.4 PK			1.23 H	241	64.00	33.40
4	*2480.00	93.4 AV			1.23 H	241	60.00	33.40
5	2483.50	67.4 PK	74.0	-6.6	1.27 H	235	34.00	33.40
6	2483.50	53.6 AV	54.0	-0.4	1.27 H	235	20.20	33.40
7	4874.00	52.9 PK	74.0	-21.1	1.24 H	66	46.70	6.20
8	4874.00	44.3 AV	54.0	-9.7	1.24 H	66	38.10	6.20
9	4960.00	49.0 PK	74.0	-25.0	1.06 H	290	42.60	6.40
10	4960.00	36.1 AV	54.0	-17.9	1.06 H	290	29.70	6.40
11	7440.00	56.5 PK	74.0	-17.5	1.30 H	102	44.10	12.40
12	7440.00	47.4 AV	54.0	-6.6	1.30 H	102	35.00	12.40
13	*5300.00	107.9 PK			1.00 H	210	67.90	40.00
14	*5300.00	87.6 AV			1.00 H	210	47.60	40.00
15	5350.00	61.3 PK	74.0	-12.7	1.09 H	121	54.90	6.40
16	5350.00	49.8 AV	54.0	-4.2	1.09 H	121	43.40	6.40
17	*5580.00	118.4 PK			1.07 H	289	78.10	40.30
18	*5580.00	106.3 AV			1.07 H	289	66.00	40.30
19	10600.00	61.7 PK	74.0	-12.3	1.00 H	299	42.10	19.60
20	10600.00	48.9 AV	54.0	-5.1	1.00 H	299	29.30	19.60
21	11600.00	61.6 PK	74.0	-12.4	1.00 H	310	42.70	18.90
22	11600.00	48.7 AV	54.0	-5.3	1.00 H	310	29.80	18.90

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	CH 6 + CH 116 + CH 60 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*2437.00	110.8 PK			2.14 V	329	77.40	33.40
2	*2437.00	107.9 AV			2.14 V	329	74.50	33.40
3	*2480.00	93.2 PK			1.00 V	213	59.80	33.40
4	*2480.00	92.4 AV			1.00 V	213	59.00	33.40
5	2483.50	67.4 PK	74.0	-6.6	2.20 V	330	34.00	33.40
6	2483.50	53.4 AV	54.0	-0.6	2.20 V	330	20.00	33.40
7	4874.00	53.3 PK	74.0	-20.7	1.01 V	3	47.10	6.20
8	4874.00	50.2 AV	54.0	-3.8	1.01 V	3	44.00	6.20
9	7440.00	58.4 PK	74.0	-15.6	1.00 V	170	46.00	12.40
10	7440.00	48.0 AV	54.0	-6.0	1.00 V	170	35.60	12.40
11	*5300.00	116.0 PK			1.10 V	344	76.00	40.00
12	*5300.00	93.5 AV			1.10 V	344	53.50	40.00
13	5350.00	67.1 PK	74.0	-6.9	1.00 V	344	60.70	6.40
14	5350.00	48.7 AV	54.0	-5.3	1.00 V	344	42.30	6.40
15	*5580.00	122.9 PK			1.01 V	353	82.60	40.30
16	*5580.00	107.3 AV			1.01 V	353	67.00	40.30
17	10600.00	61.4 PK	74.0	-12.6	1.07 V	66	41.80	19.60
18	10600.00	48.3 AV	54.0	-5.7	1.07 V	66	28.70	19.60
19	11600.00	61.9 PK	74.0	-12.1	1.15 V	290	43.00	18.90
20	11600.00	48.9 AV	54.0	-5.1	1.15 V	290	30.00	18.90

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.

802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	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	*2437.00	119.2 PK			1.35 H	320	85.80	33.40
2	*2437.00	115.5 AV			1.35 H	320	82.10	33.40
3	*2480.00	98.4 PK			1.26 H	280	65.00	33.40
4	*2480.00	96.4 AV			1.26 H	280	63.00	33.40
5	2483.50	64.0 PK	74.0	-10.0	1.19 H	5	30.60	33.40
6	2483.50	52.0 AV	54.0	-2.0	1.19 H	5	18.60	33.40
7	4874.00	54.0 PK	74.0	-20.0	1.22 H	336	47.80	6.20
8	4874.00	50.1 AV	54.0	-3.9	1.22 H	336	43.90	6.20
9	4960.00	48.8 PK	74.0	-25.2	1.15 H	233	42.40	6.40
10	4960.00	35.5 AV	54.0	-18.5	1.15 H	233	29.10	6.40
11	7440.00	55.5 PK	74.0	-18.5	1.27 H	103	43.10	12.40
12	7440.00	47.3 AV	54.0	-6.7	1.27 H	103	34.90	12.40
13	5150.00	64.1 PK	74.0	-9.9	1.05 H	293	57.70	6.40
14	5150.00	51.7 AV	54.0	-2.3	1.05 H	293	45.30	6.40
15	*5200.00	124.0 PK			1.00 H	54	84.00	40.00
16	*5200.00	110.5 AV			1.00 H	54	70.50	40.00
17	*5300.00	108.5 PK			1.00 H	228	68.50	40.00
18	*5300.00	88.1 AV			1.00 H	228	48.10	40.00
19	5360.00	63.5 PK	74.0	-10.5	1.23 H	44	57.10	6.40
20	5360.00	52.2 AV	54.0	-1.8	1.23 H	44	45.80	6.40
21	#10400.00	60.1 PK	74.0	-13.9	1.08 H	154	41.10	19.00
22	#10400.00	47.1 AV	54.0	-6.9	1.08 H	154	28.10	19.00
23	10600.00	61.7 PK	74.0	-12.3	1.00 H	299	42.10	19.60
24	10600.00	48.9 AV	54.0	-5.1	1.00 H	299	29.30	19.60

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 the restricted band.



A D T

CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	*2437.00	113.8 PK			1.41 V	325	80.40	33.40
2	*2437.00	110.3 AV			1.41 V	325	76.90	33.40
3	*2480.00	93.5 PK			1.00 V	211	60.10	33.40
4	*2480.00	92.4 AV			1.00 V	211	59.00	33.40
5	2483.50	67.4 PK	74.0	-6.6	1.33 V	299	34.00	33.40
6	2483.50	53.3 AV	54.0	-0.7	1.33 V	299	19.90	33.40
7	4874.00	55.9 PK	74.0	-18.1	1.03 V	11	49.70	6.20
8	4874.00	45.8 AV	54.0	-8.2	1.03 V	11	39.60	6.20
9	4960.00	48.6 PK	74.0	-25.4	1.10 V	79	42.20	6.40
10	4960.00	36.1 AV	54.0	-17.9	1.10 V	79	29.70	6.40
11	7440.00	58.5 PK	74.0	-15.5	1.00 V	170	46.10	12.40
12	7440.00	47.6 AV	54.0	-6.4	1.00 V	170	35.20	12.40
13	5150.00	61.4 PK	74.0	-12.6	1.00 V	100	55.00	6.40
14	5150.00	49.8 AV	54.0	-4.2	1.00 V	100	43.40	6.40
15	*5200.00	123.0 PK			1.08 V	7	83.00	40.00
16	*5200.00	109.0 AV			1.08 V	7	69.00	40.00
17	*5300.00	115.2 PK			1.13 V	351	75.20	40.00
18	*5300.00	93.0 AV			1.13 V	351	53.00	40.00
19	5400.00	70.1 PK	74.0	-3.9	1.20 V	300	63.50	6.60
20	5400.00	53.5 AV	54.0	-0.5	1.20 V	300	46.90	6.60
21	#10400.00	60.7 PK	74.0	-13.3	1.20 V	266	41.70	19.00
22	#10400.00	47.4 AV	54.0	-6.6	1.20 V	266	28.40	19.00
23	10600.00	60.6 PK	74.0	-13.4	1.05 V	70	41.00	19.60
24	10600.00	47.7 AV	54.0	-6.3	1.05 V	70	28.10	19.60

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 the restricted band.



A D T

BELOW 1GHz DATA

802.11b + 802.11n (HT20) + 802.11g + BT LE

CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	A		

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	49.34	27.1 QP	40.0	-12.9	1.50 H	131	41.60	-14.50
2	169.89	32.6 QP	43.5	-10.9	1.50 H	133	46.50	-13.90
3	210.72	39.2 QP	43.5	-4.3	1.50 H	140	55.50	-16.30
4	401.26	31.0 QP	46.0	-15.0	1.00 H	216	41.30	-10.30
5	751.23	30.9 QP	46.0	-15.1	1.00 H	220	33.90	-3.00
6	799.84	33.5 QP	46.0	-12.5	1.00 H	185	35.60	-2.10
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	47.40	35.2 QP	40.0	-4.8	1.00 V	5	49.80	-14.60
2	97.95	29.3 QP	43.5	-14.2	1.00 V	117	48.30	-19.00
3	191.28	31.8 QP	43.5	-11.7	1.00 V	129	48.10	-16.30
4	214.61	37.2 QP	43.5	-6.3	1.00 V	27	53.40	-16.20
5	799.84	31.4 QP	46.0	-14.6	1.00 V	212	33.50	-2.10
6	1000.00	35.3 QP	54.0	-18.7	1.00 V	145	34.20	1.10

REMARKS:

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



A D T

CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	B		

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	49.34	26.0 QP	40.0	-14.0	1.50 H	270	40.50	-14.50
2	159.86	41.6 QP	43.5	-1.9	1.01 H	267	55.20	-13.60
3	169.89	40.0 QP	43.5	-3.5	1.01 H	235	53.90	-13.90
4	201.00	37.5 QP	43.5	-6.0	1.01 H	165	54.10	-16.60
5	228.22	36.6 QP	46.0	-9.4	1.01 H	208	52.90	-16.30
6	391.54	30.9 QP	46.0	-15.1	1.01 H	225	41.40	-10.50
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	37.68	31.2 QP	40.0	-8.8	1.00 V	170	46.50	-15.30
2	57.12	33.3 QP	40.0	-6.7	1.00 V	10	47.90	-14.60
3	148.50	36.7 QP	43.5	-6.8	1.49 V	6	50.60	-13.90
4	201.00	30.4 QP	43.5	-13.1	1.00 V	10	47.00	-16.60
5	212.66	32.7 QP	43.5	-10.8	1.00 V	10	49.00	-16.30
6	375.98	31.6 QP	46.0	-14.4	1.00 V	174	42.30	-10.70

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.



A D T

802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	A		

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	57.12	31.2 QP	40.0	-8.8	1.50 H	74	45.80	-14.60
2	210.72	38.8 QP	43.5	-4.7	1.00 H	153	55.10	-16.30
3	370.15	34.7 QP	46.0	-11.3	1.00 H	210	45.50	-10.80
4	552.91	31.2 QP	46.0	-14.8	1.50 H	124	38.60	-7.40
5	751.23	30.6 QP	46.0	-15.4	1.00 H	230	33.60	-3.00
6	799.84	31.7 QP	46.0	-14.3	1.00 H	173	33.80	-2.10
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	47.40	35.3 QP	40.0	-4.7	1.00 V	16	49.90	-14.60
2	191.28	31.6 QP	43.5	-11.9	1.00 V	130	47.90	-16.30
3	214.61	37.4 QP	43.5	-6.1	1.00 V	21	53.60	-16.20
4	364.32	37.0 QP	46.0	-9.0	1.00 V	146	48.00	-11.00
5	564.58	28.9 QP	46.0	-17.1	1.00 V	111	36.20	-7.30
6	799.84	30.4 QP	46.0	-15.6	1.00 V	134	32.50	-2.10

REMARKS:

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



A D T

CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	B		

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	49.34	25.9 QP	40.0	-14.1	1.50 H	19	40.40	-14.50
2	171.83	40.4 QP	43.5	-3.1	1.49 H	268	54.60	-14.20
3	201.00	35.5 QP	43.5	-8.0	1.00 H	134	52.10	-16.60
4	214.61	36.6 QP	43.5	-6.9	1.00 H	124	52.80	-16.20
5	315.71	27.5 QP	46.0	-18.5	1.00 H	232	39.30	-11.80
6	500.42	30.6 QP	46.0	-15.4	1.50 H	141	38.90	-8.30
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	57.12	32.8 QP	40.0	-7.2	1.01 V	313	47.40	-14.60
2	158.22	38.4 QP	43.5	-5.1	1.01 V	5	52.10	-13.70
3	171.83	37.0 QP	43.5	-6.5	1.01 V	5	51.20	-14.20
4	224.33	30.7 QP	46.0	-15.3	1.01 V	5	47.00	-16.30
5	391.54	32.9 QP	46.0	-13.1	1.01 V	188	43.40	-10.50
6	500.42	30.8 QP	46.0	-15.2	1.01 V	200	39.10	-8.30

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.



A D T

802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	A		

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	49.34	26.0 QP	40.0	-14.0	1.50 H	355	40.50	-14.50
2	228.22	39.0 QP	46.0	-7.0	1.50 H	131	55.30	-16.30
3	500.42	29.7 QP	46.0	-16.3	1.50 H	112	38.00	-8.30
4	599.58	26.9 QP	46.0	-19.1	1.50 H	204	33.00	-6.10
5	900.94	29.1 QP	46.0	-16.9	1.00 H	150	29.50	-0.40
6	1000.00	35.5 QP	54.0	-18.5	1.50 H	209	34.40	1.10
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	41.57	35.6 QP	40.0	-4.4	1.49 V	20	50.60	-15.00
2	84.34	32.2 QP	40.0	-7.8	1.00 V	95	51.60	-19.40
3	185.44	32.0 QP	43.5	-11.5	1.00 V	142	47.80	-15.80
4	211.91	41.8 QP	43.5	-1.7	1.00 V	9	58.10	-16.30
5	354.60	44.2 QP	46.0	-1.8	1.49 V	158	55.50	-11.30
6	1000.10	32.7 QP	54.0	-21.3	1.00 V	5	31.60	1.10

REMARKS:

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



A D T

CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	B		

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	158.22	39.9 QP	43.5	-3.6	1.50 H	261	53.60	-13.70
2	335.15	26.8 QP	46.0	-19.2	1.00 H	238	38.40	-11.60
3	375.98	27.9 QP	46.0	-18.1	1.00 H	164	38.60	-10.70
4	500.42	30.6 QP	46.0	-15.4	1.50 H	141	38.90	-8.30
5	770.67	27.7 QP	46.0	-18.3	1.50 H	222	30.30	-2.60
6	990.38	28.7 QP	54.0	-25.3	1.50 H	18	27.70	1.00
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	49.34	30.4 QP	40.0	-9.6	1.49 V	6	44.90	-14.50
2	142.67	36.2 QP	43.5	-7.3	1.00 V	313	50.50	-14.30
3	201.00	30.4 QP	43.5	-13.1	1.00 V	10	47.00	-16.60
4	500.42	31.4 QP	46.0	-14.6	1.00 V	201	39.70	-8.30
5	696.79	27.5 QP	46.0	-18.5	1.49 V	203	31.90	-4.40
6	1000.00	33.2 QP	54.0	-20.8	1.00 V	148	32.10	1.10

REMARKS:

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



A D T

802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	A		

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	107.67	27.6 QP	43.5	-15.9	1.49 H	259	45.10	-17.50
2	193.22	37.9 QP	43.5	-5.6	1.49 H	150	54.30	-16.40
3	346.82	35.7 QP	46.0	-10.3	1.00 H	208	47.20	-11.50
4	560.69	29.4 QP	46.0	-16.6	1.49 H	114	36.70	-7.30
5	797.89	27.4 QP	46.0	-18.6	1.49 H	76	29.50	-2.10
6	897.05	30.0 QP	46.0	-16.0	1.49 H	237	30.50	-0.50
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	57.12	36.0 QP	40.0	-4.0	1.49 V	6	50.60	-14.60
2	88.23	31.3 QP	43.5	-12.2	1.00 V	110	51.00	-19.70
3	177.67	32.2 QP	43.5	-11.3	1.49 V	211	47.00	-14.80
4	210.72	36.8 QP	43.5	-6.7	1.00 V	14	53.10	-16.30
5	340.99	36.1 QP	46.0	-9.9	1.00 V	169	47.60	-11.50
6	535.42	29.1 QP	46.0	-16.9	1.00 V	147	36.90	-7.80

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.



A D T

CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	Below 1000MHz		Average (AV)
TEST MODE	B		

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	148.50	36.1 QP	43.5	-7.4	1.00 H	257	50.00	-13.90
2	210.72	39.4 QP	43.5	-4.1	1.00 H	124	55.70	-16.30
3	333.21	27.3 QP	46.0	-18.7	1.00 H	259	38.90	-11.60
4	500.42	29.7 QP	46.0	-16.3	1.50 H	136	38.00	-8.30
5	751.23	28.0 QP	46.0	-18.0	1.00 H	216	31.00	-3.00
6	1000.00	32.5 QP	54.0	-21.5	1.00 H	140	31.40	1.10
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	57.12	32.6 QP	40.0	-7.4	1.00 V	325	47.20	-14.60
2	199.05	29.9 QP	43.5	-13.6	1.00 V	341	46.50	-16.60
3	391.54	36.1 QP	46.0	-9.9	1.00 V	181	46.60	-10.50
4	500.42	32.2 QP	46.0	-13.8	1.00 V	214	40.50	-8.30
5	560.69	27.0 QP	46.0	-19.0	1.00 V	144	34.30	-7.30
6	1000.00	34.4 QP	54.0	-19.6	1.00 V	190	33.30	1.10

REMARKS:

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Apr. 24, 2014	Apr. 23, 2015
RF signal cable Woken	5D-FB	Cable-HYCO2-0 1	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 10, 2014	Jul. 09, 2015
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 HwaYa Shielded Room 2.
 3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

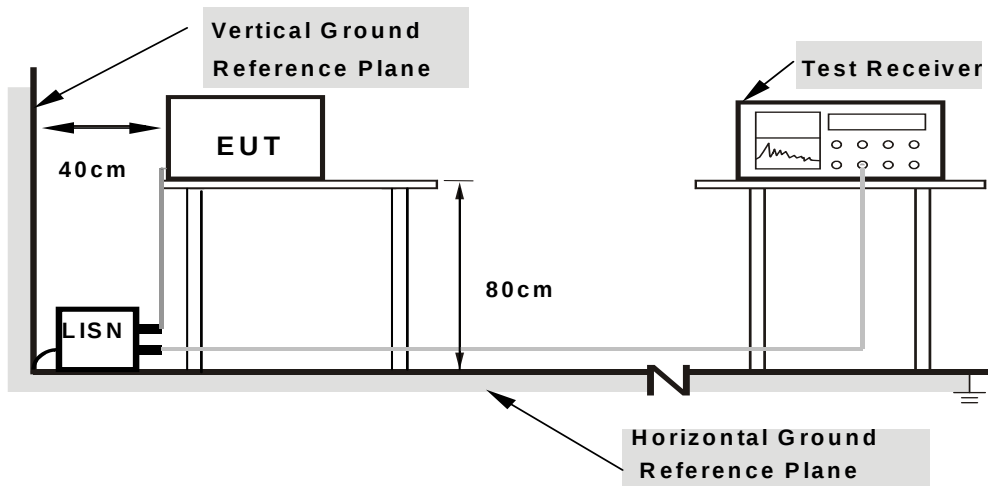
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

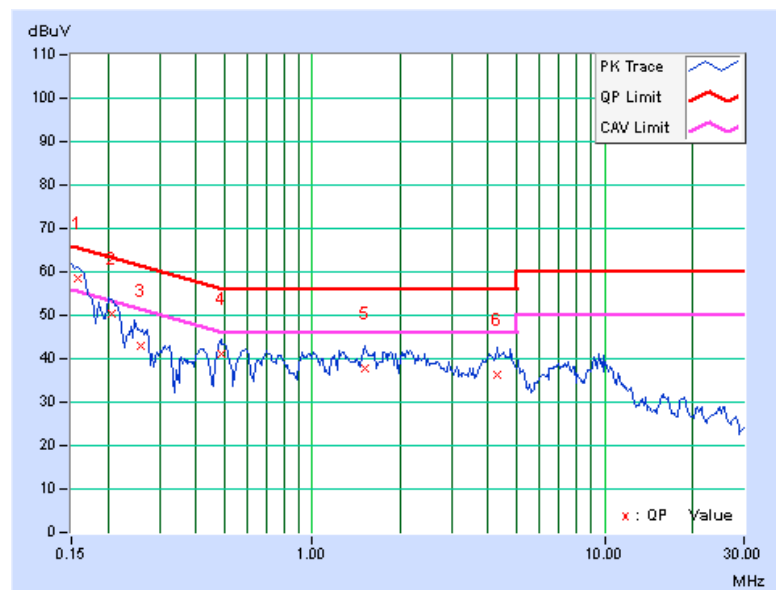
802.11b + 802.11n (HT20) + 802.11g + BT LE

CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.22	58.24	46.77	58.46	46.99	65.58	55.58	-7.12	-8.59
2	0.20587	0.24	50.03	39.82	50.27	40.06	63.37	53.37	-13.10	-13.31
3	0.25831	0.23	42.62	29.78	42.85	30.01	61.49	51.49	-18.63	-21.47
4	0.48594	0.23	40.89	32.92	41.12	33.15	56.24	46.24	-15.12	-13.09
5	1.51953	0.34	37.58	29.90	37.92	30.24	56.00	46.00	-18.08	-15.76
6	4.30078	0.44	35.76	29.59	36.20	30.03	56.00	46.00	-19.80	-15.97

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

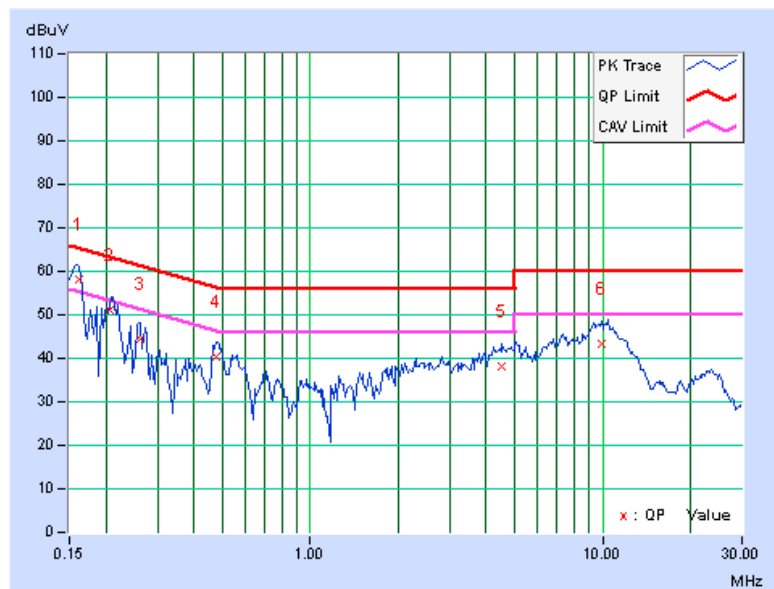


CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	0.23	57.94	44.70	58.17	44.93	65.38	55.38	-7.21	-10.45
2	0.20594	0.24	50.73	39.76	50.97	40.00	63.37	53.37	-12.40	-13.37
3	0.26328	0.26	44.22	32.95	44.48	33.21	61.33	51.33	-16.85	-18.12
4	0.47813	0.30	39.92	34.22	40.22	34.52	56.37	46.37	-16.15	-11.85
5	4.52734	0.50	37.76	31.34	38.26	31.84	56.00	46.00	-17.74	-14.16
6	9.97656	0.58	42.75	37.17	43.33	37.75	60.00	50.00	-16.67	-12.25

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

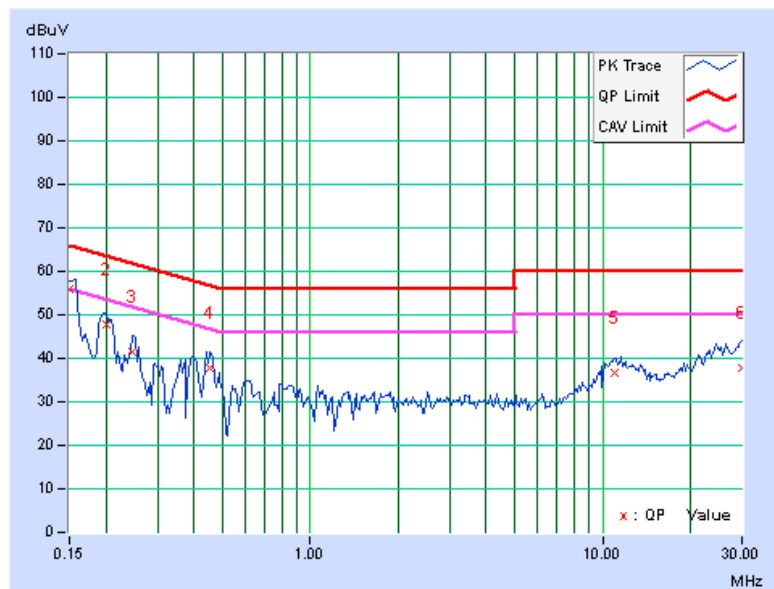


CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	B

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	0.15781	0.27	49.50	38.71	49.77	38.98	65.58	55.58	-15.81	-16.60
2	0.20859	0.28	42.10	33.57	42.38	33.85	63.26	53.26	-20.88	-19.41
3	0.37266	0.30	38.80	28.60	39.10	28.90	58.44	48.44	-19.34	-19.54
4	0.45078	0.30	38.50	30.36	38.80	30.66	56.86	46.86	-18.06	-16.20
5	12.42578	0.51	34.36	29.49	34.87	30.00	60.00	50.00	-25.13	-20.00
6	24.90625	0.54	38.08	33.14	38.62	33.68	60.00	50.00	-21.38	-16.32

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

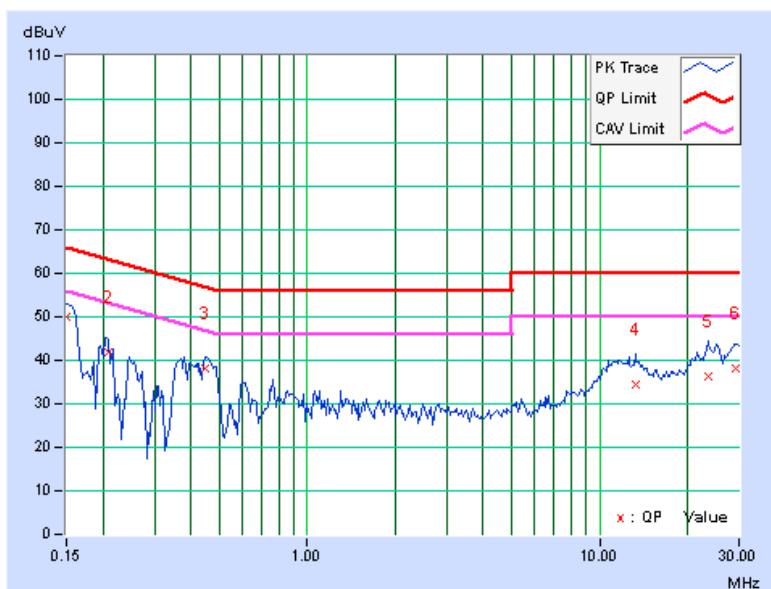


CHANNEL	CH 6 + CH 116 + CH 1 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.26	49.69	38.18	49.95	38.44	66.00	56.00	-16.05	-17.56
2	0.20859	0.28	41.56	32.92	41.84	33.20	63.26	53.26	-21.42	-20.06
3	0.44688	0.30	37.77	26.32	38.07	26.62	56.93	46.93	-18.86	-20.31
4	13.30469	0.55	33.81	28.89	34.36	29.44	60.00	50.00	-25.64	-20.56
5	23.60156	0.59	35.80	30.95	36.39	31.54	60.00	50.00	-23.61	-18.46
6	29.41016	0.46	37.57	32.88	38.03	33.34	60.00	50.00	-21.97	-16.66

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



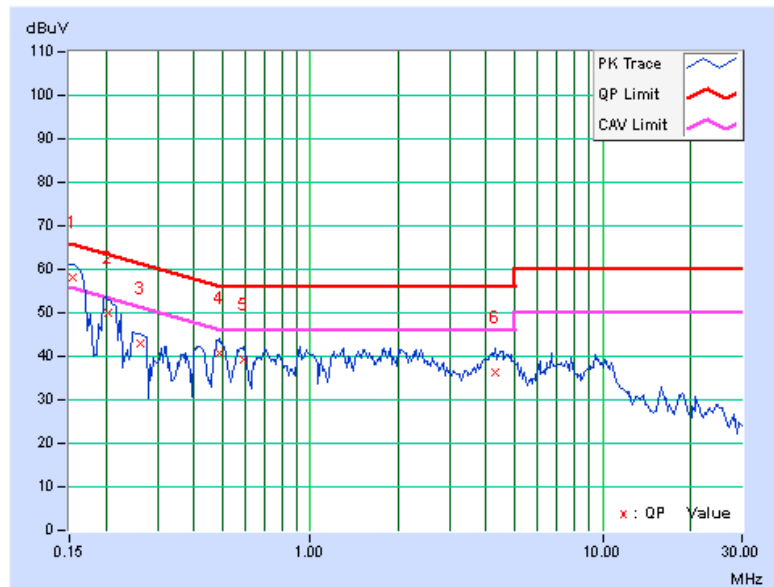
802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	A

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	0.15391	0.22	58.10	44.91	58.32	45.13	65.79	55.79	-7.47	-10.66
2	0.20460	0.24	49.87	39.24	50.11	39.48	63.42	53.42	-13.31	-13.94
3	0.26328	0.23	42.66	31.81	42.89	32.04	61.33	51.33	-18.43	-19.28
4	0.48984	0.23	40.33	30.02	40.56	30.25	56.17	46.17	-15.61	-15.92
5	0.59089	0.25	39.08	31.96	39.33	32.21	56.00	46.00	-16.67	-13.79
6	4.32031	0.44	35.92	29.45	36.36	29.89	56.00	46.00	-19.64	-16.11

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

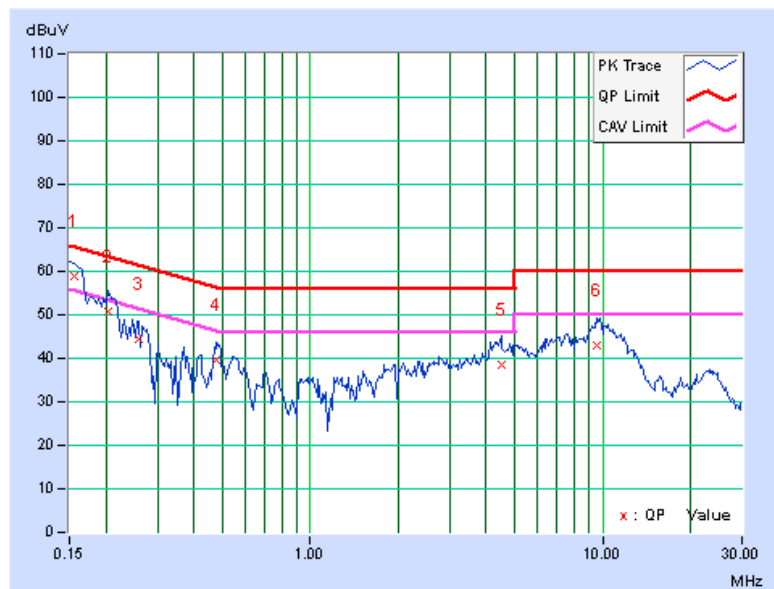


CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15509	0.23	58.53	46.10	58.76	46.33	65.72	55.72	-6.97	-9.40
2	0.20469	0.24	50.65	39.78	50.89	40.02	63.42	53.42	-12.53	-13.40
3	0.25938	0.26	44.32	31.67	44.58	31.93	61.45	51.45	-16.87	-19.52
4	0.47422	0.30	39.39	32.98	39.69	33.28	56.44	46.44	-16.75	-13.16
5	4.51172	0.50	37.92	31.28	38.42	31.78	56.00	46.00	-17.58	-14.22
6	9.56250	0.57	42.34	36.60	42.91	37.17	60.00	50.00	-17.09	-12.83

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

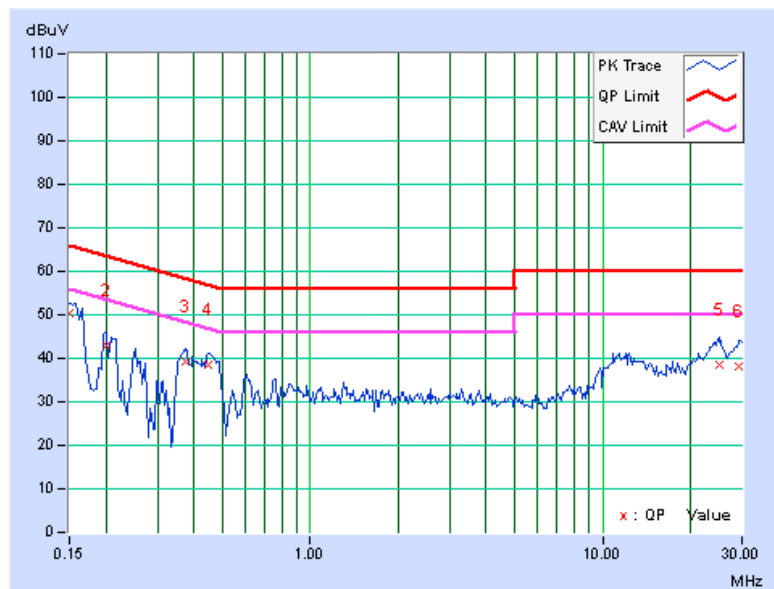


CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.26	50.09	37.70	50.35	37.96	66.00	56.00	-15.65	-18.04
2	0.20078	0.28	42.75	33.20	43.03	33.48	63.58	53.58	-20.55	-20.10
3	0.37266	0.30	38.92	28.83	39.22	29.13	58.44	48.44	-19.22	-19.31
4	0.44688	0.30	38.34	26.94	38.64	27.24	56.93	46.93	-18.29	-19.69
5	25.14844	0.53	37.81	32.78	38.34	33.31	60.00	50.00	-21.66	-16.69
6	29.16406	0.46	37.83	33.23	38.29	33.69	60.00	50.00	-21.71	-16.31

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

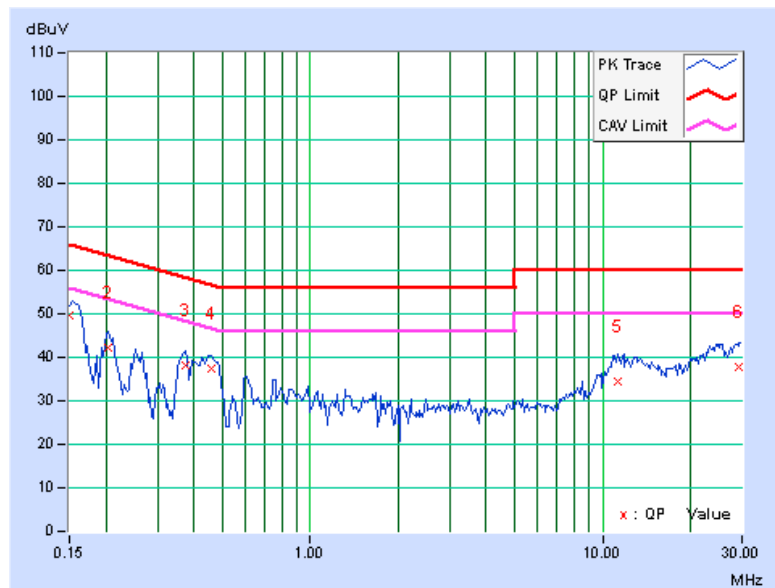


CHANNEL	CH 6 + CH 116 + CH 157 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.26	49.48	38.10	49.74	38.36	66.00	56.00	-16.26	-17.64
2	0.20469	0.28	42.10	34.26	42.38	34.54	63.42	53.42	-21.04	-18.88
3	0.37266	0.30	37.87	27.74	38.17	28.04	58.44	48.44	-20.27	-20.40
4	0.45859	0.30	37.22	30.66	37.52	30.96	56.72	46.72	-19.19	-15.75
5	11.34766	0.53	33.85	29.11	34.38	29.64	60.00	50.00	-25.62	-20.36
6	29.34766	0.47	37.18	32.54	37.65	33.01	60.00	50.00	-22.35	-16.99

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



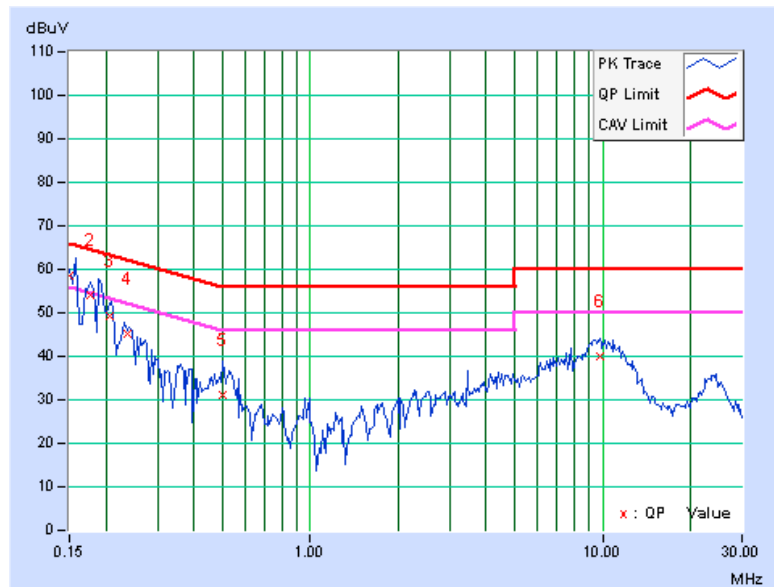
802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	A

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	0.15000	0.21	58.19	46.64	58.40	46.85	66.00	56.00	-7.60	-9.15
2	0.17762	0.23	53.82	43.36	54.05	43.59	64.60	54.60	-10.55	-11.01
3	0.20731	0.24	49.06	38.31	49.30	38.55	63.31	53.31	-14.01	-14.76
4	0.23712	0.24	44.91	34.42	45.15	34.66	62.20	52.20	-17.05	-17.54
5	0.50156	0.23	30.90	25.75	31.13	25.98	56.00	46.00	-24.87	-20.02
6	9.74609	0.51	39.54	33.90	40.05	34.41	60.00	50.00	-19.95	-15.59

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

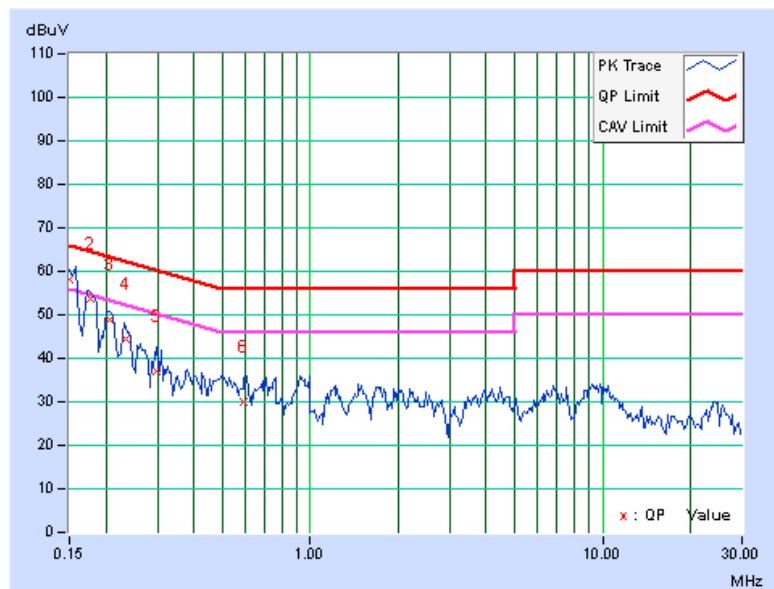


CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	A

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	0.15000	0.23	57.77	46.80	58.00	47.03	66.00	56.00	-8.00	-8.97
2	0.17726	0.23	53.42	42.92	53.65	43.15	64.61	54.61	-10.96	-11.46
3	0.20587	0.24	48.80	37.78	49.04	38.02	63.37	53.37	-14.33	-15.35
4	0.23458	0.25	44.33	32.83	44.58	33.08	62.29	52.29	-17.71	-19.21
5	0.29844	0.27	36.64	26.70	36.91	26.97	60.29	50.29	-23.38	-23.32
6	0.59241	0.30	29.56	23.22	29.86	23.52	56.00	46.00	-26.14	-22.48

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

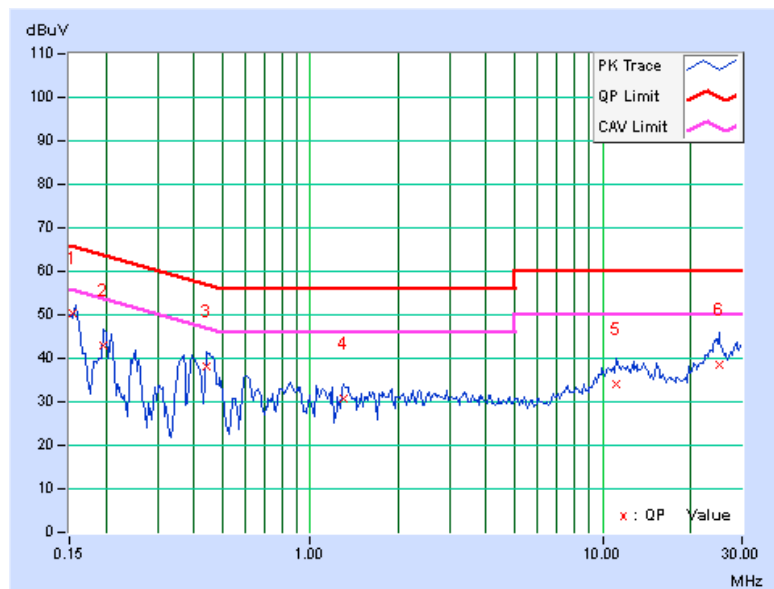


CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15399	0.27	50.14	40.74	50.41	41.01	65.78	55.78	-15.38	-14.78
2	0.19687	0.28	42.67	31.90	42.95	32.18	63.74	53.74	-20.79	-21.56
3	0.44297	0.30	37.69	27.15	37.99	27.45	57.01	47.01	-19.01	-19.55
4	1.30078	0.35	30.26	20.82	30.61	21.17	56.00	46.00	-25.39	-24.83
5	11.10938	0.51	33.43	28.42	33.94	28.93	60.00	50.00	-26.06	-21.07
6	25.02344	0.53	37.82	32.77	38.35	33.30	60.00	50.00	-21.65	-16.70

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

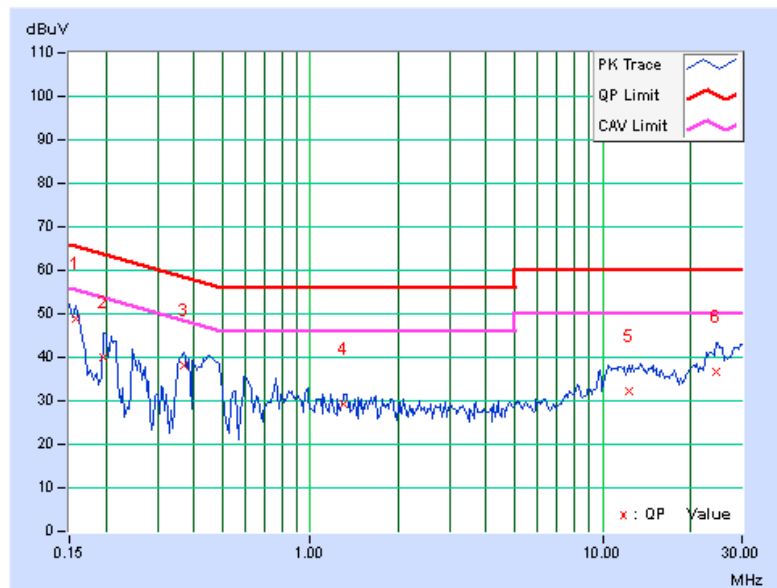


CHANNEL	CH 6 + CH 116 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	B

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	0.15781	0.27	48.76	38.47	49.03	38.74	65.58	55.58	-16.55	-16.84
2	0.19687	0.28	39.64	26.31	39.92	26.59	63.74	53.74	-23.82	-27.15
3	0.36875	0.30	37.77	29.53	38.07	29.83	58.53	48.53	-20.46	-18.70
4	1.30375	0.35	28.98	18.74	29.33	19.09	56.00	46.00	-26.67	-26.91
5	12.33203	0.54	31.85	26.90	32.39	27.44	60.00	50.00	-27.61	-22.56
6	24.58594	0.57	36.28	31.08	36.85	31.65	60.00	50.00	-23.15	-18.35

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



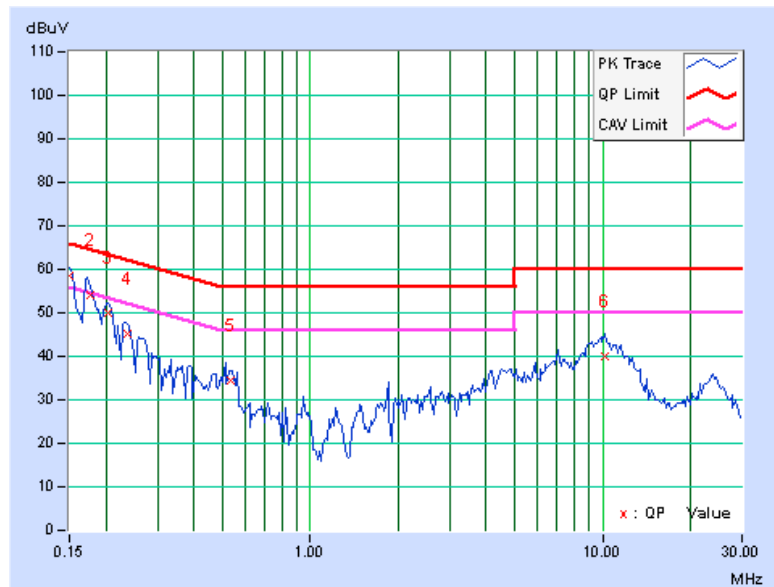
802.11b + 802.11n (HT20) + 802.11n (HT20) + BT LE

CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	A

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	0.15000	0.21	58.33	46.88	58.54	47.09	66.00	56.00	-7.46	-8.91
2	0.17726	0.23	53.96	43.60	54.19	43.83	64.61	54.61	-10.42	-10.78
3	0.20469	0.24	49.75	38.23	49.99	38.47	63.42	53.42	-13.43	-14.95
4	0.23594	0.24	44.93	35.03	45.17	35.27	62.24	52.24	-17.07	-16.97
5	0.53328	0.24	34.17	28.75	34.41	28.99	56.00	46.00	-21.59	-17.01
6	10.15234	0.51	39.62	34.14	40.13	34.65	60.00	50.00	-19.87	-15.35

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

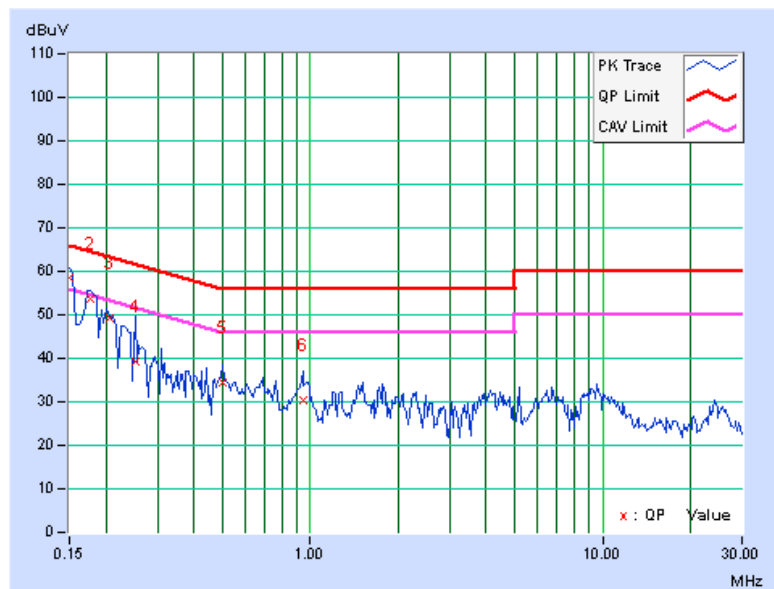


CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	A

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	0.15000	0.23	58.25	46.43	58.48	46.66	66.00	56.00	-7.52	-9.34
2	0.17734	0.23	53.46	42.88	53.69	43.11	64.61	54.61	-10.92	-11.50
3	0.20587	0.24	49.00	38.12	49.24	38.36	63.37	53.37	-14.13	-15.01
4	0.25156	0.26	39.01	14.80	39.27	15.06	61.71	51.71	-22.44	-36.65
5	0.50156	0.30	33.96	28.51	34.26	28.81	56.00	46.00	-21.74	-17.19
6	0.94297	0.29	30.18	22.96	30.47	23.25	56.00	46.00	-25.53	-22.75

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

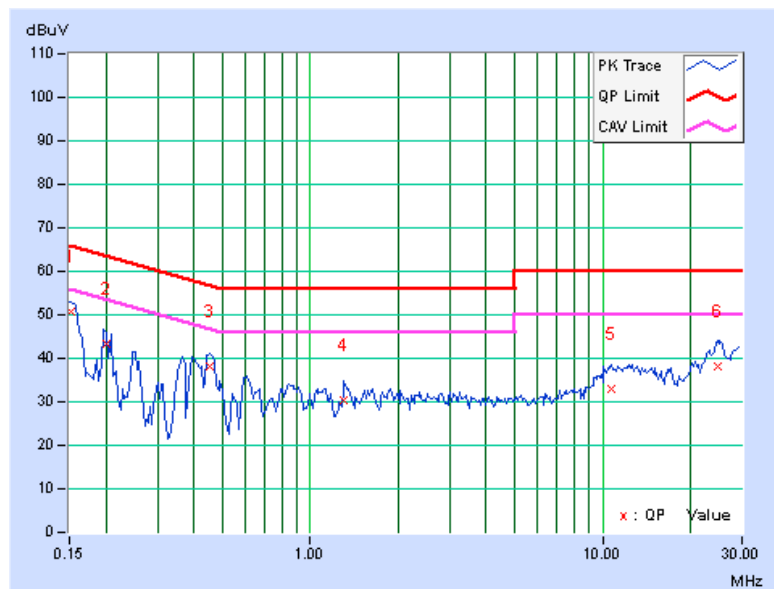


CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 1	TEST MODE	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15128	0.27	50.38	41.20	50.65	41.47	65.93	55.93	-15.28	-14.46
2	0.20122	0.28	43.05	35.74	43.33	36.02	63.56	53.56	-20.23	-17.54
3	0.45078	0.30	38.01	32.01	38.31	32.31	56.86	46.86	-18.55	-14.55
4	1.30859	0.35	30.14	21.02	30.49	21.37	56.00	46.00	-25.51	-24.63
5	10.74609	0.50	32.39	27.43	32.89	27.93	60.00	50.00	-27.11	-22.07
6	24.78516	0.54	37.69	32.74	38.23	33.28	60.00	50.00	-21.77	-16.72

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

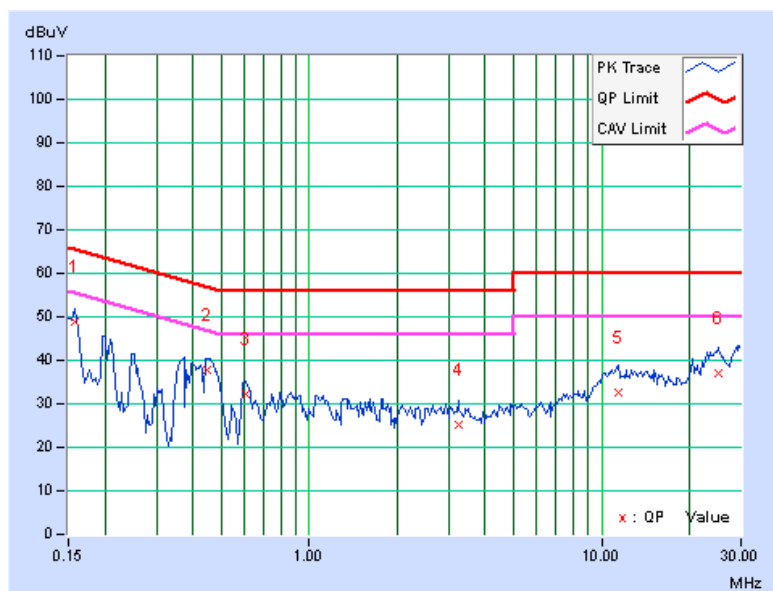


CHANNEL	CH 6 + CH 40 + CH 60 + CH 39	6dB BANDWIDTH	9kHz
PHASE	Line 2	TEST MODE	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.27	48.60	37.45	48.87	37.72	65.58	55.58	-16.71	-17.86
2	0.44572	0.30	37.65	26.51	37.95	26.81	56.95	46.95	-19.00	-20.14
3	0.60313	0.31	32.09	23.82	32.40	24.13	56.00	46.00	-23.60	-21.87
4	3.23828	0.41	24.84	16.29	25.25	16.70	56.00	46.00	-30.75	-29.30
5	11.39844	0.53	32.24	26.69	32.77	27.22	60.00	50.00	-27.23	-22.78
6	24.95313	0.57	36.65	31.42	37.22	31.99	60.00	50.00	-22.78	-18.01

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



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



A D T

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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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



A D T

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

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

---END---