



# FCC TEST REPORT (15.407)

**REPORT NO.:** RF120120E03F-1

**MODEL NO.:** AR5BMD22

**FCC ID:** PPD-AR5BMD22

**IC:** 4104A-AR5BMD22

**RECEIVED:** Mar. 14, 2013

**TESTED:** Mar. 27 to Apr. 23, 2013

**ISSUED:** Apr. 26, 2013

**APPLICANT:** Qualcomm Atheros, Inc.

**ADDRESS:** 1700 Technology Drive, San Jose, CA 95110

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

**LAB ADDRESS :** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

**TEST LOCATION (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

**TEST LOCATION (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120120E03F-1	Original release	Apr. 26, 2013



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## 1. CERTIFICATION

**PRODUCT:** 802.11 a/b/g/n + BT Combo Card  
**BRAND NAME:** Qualcomm Atheros  
**MODEL NO.:** AR5BMD22  
**TEST SAMPLE:** R&D SAMPLE  
**APPLICANT:** Qualcomm Atheros, Inc.  
**TESTED:** Mar. 27 to Apr. 23, 2013  
**STANDARDS:** FCC Part 15, Subpart E (Section 15.407)  
ANSI C63.10-2009  
Canada RSS-210 Issue 8 (2010-12)  
Canada RSS-Gen Issue 3 (2010-12)

The above equipment (Model: AR5BMD22) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and was in 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:** Apr. 26, 2013  
( Midoli Peng, Specialist )

**APPROVED BY :** May Chen, **DATE:** Apr. 26, 2013  
( May Chen, Manager )



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## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407) ; RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC Part 15	RSS-210; RSS-Gen			
15.407(b/1/2/3) (b)(5)	RSS-210 A9.2	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.3dB at 11000.00MHz
15.407(a/1/2/3)	RSS-210 A9.2	Transmit Power	PASS	Meet the requirement of limit.
15.203	-	Antenna Requirement	PASS	Antenna connector is IPEX 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.



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## 2.1 MEASUREMENT UNCERTAINTY

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

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

Measurement	Value
Radiated emissions (30MHz-1GHz)	5.43 dB
Radiated emissions (1GHz -6GHz)	3.54 dB
Radiated emissions (6GHz -18GHz)	4.08 dB
Radiated emissions (18GHz -40GHz)	4.11 dB



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### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	802.11 a/b/g/n + BT Combo Card
<b>MODEL NO.</b>	AR5BMD22
<b>POWER SUPPLY</b>	DC 3.3V from host equipment
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM GFSK( BT <LE> mode) for DSSS
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 300Mbps Bluetooth(LE mode): 1Mbps
<b>OPERATING FREQUENCY</b>	<b>For 15.407</b> 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	<b>For 15.247</b> 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz Bluetooth(LE mode): 2.402 ~ 2.480GHz
<b>NUMBER OF CHANNEL</b>	<b>For 15.407</b> 16 for 802.11a, 802.11n (HT20) 7 for 802.11n (HT40)
	<b>For 15.247(2.4GHz)</b> 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) 40 (37 hopping + 3 advertising channel) for Bluetooth(LE mode)
	<b>For 15.247(5GHz)</b> 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40)



<b>MAXIMUM OUTPUT POWER</b>	<b>For 15.407</b> 802.11a: 56.402mW 802.11n (HT20): 43.173mW 802.11n (HT40): 43.861mW <b>For 15.247(2.4GHz)</b> 802.11b: 133.045mW 802.11g: 370.928mW 802.11n (HT20): 355.657mW 802.11n (HT40): 290.422mW Bluetooth(LE mode): 2.897 mW <b>For 15.247(5GHz)</b> 802.11a: 235.229mW 802.11n (HT20): 184.624mW 802.11n (HT40): 182.450mW
<b>ANTENNA TYPE</b>	See item 3.2
<b>ANTENNA CONNECTOR</b>	See item 3.2
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	NA
<b>ASSOCIATED DEVICES</b>	NA

**NOTE:**

1. This report is prepared for FCC class II permissive change and IC reassessment change. The difference compared with the Report No.: RF120120E03-1 R2 design is as the following information:
  - u Change the brand name.
  - u Enable the implementation of using micro-strip and RF connectors on mother board
2. There are Bluetooth technology and WLAN technology used for the EUT.
3. The device has three configurations (working mode)
  - a. WLAN only (2x2 MIMO)
  - b. BT+WLAN (2x2 MIMO) with reduced power on WLAN
  - c. BT+WLAN (1x1 mode on a/b/g only, chain 0 is used for BT and chain 1 is used for WLAN)



4. Spurious Emission (radiated emission) of the simultaneous operation (WiFi & Bluetooth) have been evaluated and no non-compliance found. The detail combinations of transmitters / frequencies / modes as below table

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type
2.4 GHz (802.11g) + Bluetooth	1 to 11	6	OFDM	BPSK
	0 to 78	0	FHSS	8DPSK
5 GHz (802.11a) + Bluetooth	149 to 165	157	OFDM	BPSK
	0 to 78	0	FHSS	8DPSK

5. This device support the power back off (For WLAN only mode.) for WLAN/BT coexist mode. The WiFi output power will reduce 5dB from Maximum power for WLAN and BT simultaneously transmission.
6. The EUT is 2 \* 2 MIMO with 11n beam forming function.

MODULATION MODE	TX/Rx FUNCTION
<b>802.11b</b>	1TX/1RX(Diversity) or 2TX/2RX
<b>802.11g</b>	1TX/1RX (Diversity) or 2TX/2RX
<b>802.11a</b>	1TX/1RX (Diversity) or 2TX/2RX
<b>802.11n (HT20)</b>	2TX/2RX
<b>802.11n (HT40)</b>	2TX/2RX

7. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
<b>Mode B</b>	<b>800ns GI</b>

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

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



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### 3.2 DESCRIPTION OF ANTENNA

The antennas provided to the EUT, please refer to the following table:

No.	Brand	Model	Antenna Type	Connector	Antenna Gain (dBi)< included cable loss>			
					For 2.4GHz	For 5GHz (5.15~5.35)	For 5GHz (5.47~5.725)	For 5GHz (5.725~5.850)
1&2	WNC	81.EBJ15.005	PIFA	IPEX	3.62	3.08	4.76	4.76

Cable Loss:

No.	Brand	Model	Cable Loss(dB)				Cable Length
			For 2.4GHz	For 5GHz (5.15~5.35)	For 5GHz (5.47~5.725)	For 5GHz (5.725~5.850)	
1&2	WNC	81-EBJ15.005	1.15	1.70	1.74	1.79	300

Note: Above antenna gains of antenna are Total (H+V).



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### 3.3 DESCRIPTION OF TEST MODES

#### Operated in 5150MHz ~ 5350MHz bands:

Eight channels are provided for 802.11a and 802.11n (HT20):

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

Four channels are provided for 802.11n (HT40):

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



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

Eight channels are provided for 802.11a and 802.11n (HT20):

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

Three channels are provided for 802.11n (HT40):

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz



### 3.3.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **RE < 1G**: Radiated Emission below 1GHz      **RE ≥ 1G**: Radiated Emission above 1GHz

**APCM**: Antenna Port Conducted Measurement

**NOTE:** The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

#### 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).
- The investigation has been done for the worst-case (1x1 vs. 2x2) on harmonics and band-edge to find out the worst-case for the final tests.
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 140	60	OFDM	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).
- The measurement was separately on 1x1 and 2x2 for a/b/g mode.
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6
For 5 GHz 802.11n (HT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6.5
For 5 GHz 802.11n (HT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	13.5



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**ANTENNA PORT CONDUCTED MEASUREMENT:**

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- 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).
- The measurement was separately on 1x1 and 2x2 for a/b/g mode.
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6
For 5 GHz 802.11n (HT20)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	6.5
For 5 GHz 802.11n (HT40)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	13.5

**TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Tseng
RE <sup>3</sup> 1G	22deg. C, 65%RH	120Vac, 60Hz	Nelson Tseng
APCM	25deg. C, 60%RH	120Vac, 60Hz	James Chan



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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 E (15.407)

Canada RSS-210 Issue 8 (2010-12)

Canada RSS-Gen Issue 3 (2010-12)

ANSI C63.10-2009

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

### 3.5 DESCRIPTION OF SUPPORT UNITS

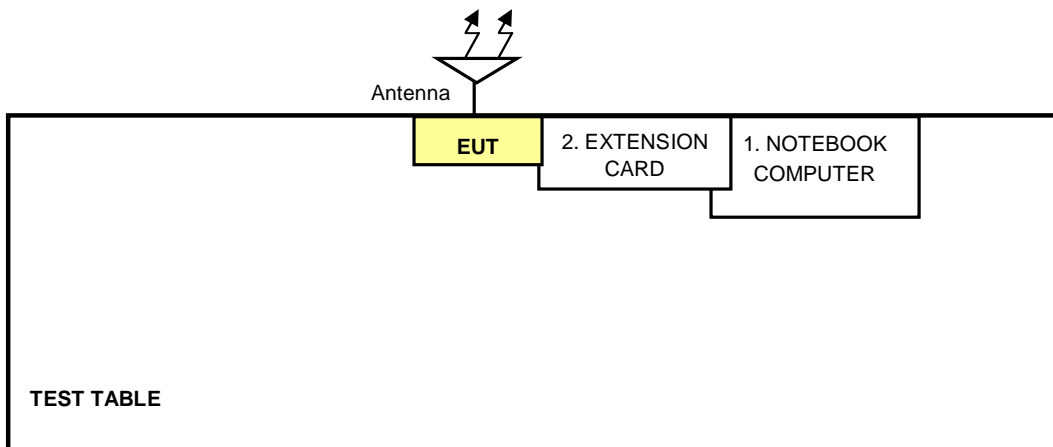
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	Lenovo	0769	L3-be248 08/01	FCC DoC
2	EXTENSION CARD	Atheros	NA	NA	NA

No.	Signal cable description
1	NA
2	NA

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

### 3.6 CONFIGURATION OF SYSTEM UNDER TEST







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## 4. TEST TYPES AND RESULTS

### 4.1 TRANSMIT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT

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

- NOTE:** 1. Where B is the 26dB emission bandwidth in MHz for FCC 15.407.  
2. Where B is the 99% bandwidth in MHz for RSS-210 Annex 9.

#### 4.1.2 TEST INSTRUMENTS

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

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Apr. 11, 2013

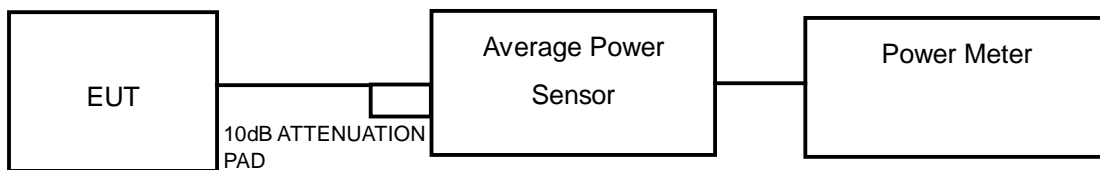
#### 4.1.3 TEST PROCEDURE

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

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



#### 4.1.6 EUT OPERATING CONDITIONS

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



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## 4.1.7 TEST RESULTS

### POWER OUTPUT

#### Single chain - 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	29.580	14.71	17	PASS
40	5200	30.832	14.89	17	PASS
48	5240	28.576	14.56	17	PASS
52	5260	51.642	17.13	24	PASS
60	5300	55.463	17.44	24	PASS
64	5320	49.431	16.94	24	PASS
100	5500	28.314	14.52	24	PASS
116	5580	50.003	16.99	24	PASS
132	5660	49.774	16.97	24	PASS
140	5700	24.547	13.90	24	PASS



### POWER OUTPUT

#### Multiple chain - 802.11a

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.16	11.87	25.757	14.11	16.91	PASS
40	5200	9.73	11.67	24.086	13.82	16.91	PASS
48	5240	10.28	11.81	25.837	14.12	16.91	PASS
52	5260	12.48	15.26	51.275	17.10	23.91	PASS
60	5300	13.51	15.31	56.402	17.51	23.91	PASS
64	5320	13.63	14.25	49.674	16.96	23.91	PASS
100	5500	12.27	11.64	31.454	14.98	22.23	PASS
116	5580	14.51	13.70	51.691	17.13	22.23	PASS
132	5660	14.78	14.10	55.765	17.46	22.23	PASS
140	5700	10.94	10.28	23.083	13.63	22.23	PASS

#### For Operated in 5150MHz ~ 5250MHz bands:

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$  = 6.09dBi > 6dBi , so the power limit shall be reduced to  $17-(6.09-6) = 16.91\text{dBm}$ .

#### For Operated in 5250MHz ~ 5350MHz bands:

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$  = 6.09dBi > 6dBi , so the power limit shall be reduced to  $17-(6.09-6) = 16.91\text{dBm}$ .

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

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$  = 7.77dBi > 6dBi , so the power limit shall be reduced to  $17-(7.77-6) = 22.23\text{dBm}$ .



## POWER OUTPUT

### 802.11n (HT20)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	10.04	11.71	24.918	13.97	16.91	PASS
40	5200	10.14	11.64	24.916	13.96	16.91	PASS
48	5240	10.84	12.63	30.457	14.84	16.91	PASS
52	5260	11.61	13.76	38.256	15.83	23.91	PASS
60	5300	12.00	13.51	38.288	15.83	23.91	PASS
64	5320	12.43	13.17	38.247	15.83	23.91	PASS
100	5500	12.72	11.68	33.430	15.24	22.23	PASS
116	5580	13.41	12.99	41.835	16.22	22.23	PASS
132	5660	13.65	13.01	43.173	16.35	22.23	PASS
140	5700	10.95	10.42	23.460	13.70	22.23	PASS

#### For Operated in 5150MHz ~ 5250MHz bands:

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.09\text{dBi} > 6\text{dBi}$  , so the power limit shall be reduced to  $17-(6.09-6) = 16.91\text{dBm}$ .

#### For Operated in 5250MHz ~ 5350MHz bands:

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 6.09\text{dBi} > 6\text{dBi}$  , so the power limit shall be reduced to  $17-(6.09-6) = 16.91\text{dBm}$ .

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

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2] = 7.77\text{dBi} > 6\text{dBi}$  , so the power limit shall be reduced to  $17-(7.77-6) = 22.23\text{dBm}$ .



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## POWER OUTPUT

### 802.11n (HT40)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	11.45	10.21	24.459	13.88	16.91	PASS
46	5230	12.05	14.12	41.855	16.22	16.91	PASS
54	5270	12.11	14.41	43.861	16.42	23.91	PASS
62	5310	9.90	9.65	18.998	12.79	23.91	PASS
102	5510	7.52	6.29	9.905	9.96	22.23	PASS
110	5550	13.53	12.93	42.176	16.25	22.23	PASS
134	5670	13.01	13.07	40.276	16.05	22.23	PASS

#### For Operated in 5150MHz ~ 5250MHz bands:

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$  = 6.09dBi > 6dBi , so the power limit shall be reduced to  $17-(6.09-6) = 16.91$ dBm.

#### For Operated in 5250MHz ~ 5350MHz bands:

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$  = 6.09dBi > 6dBi , so the power limit shall be reduced to  $17-(6.09-6) = 16.91$ dBm.

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

**NOTE:** Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$  = 7.77dBi > 6dBi , so the power limit shall be reduced to  $17-(7.77-6) = 22.23$ dBm.



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## 4.2 UNWANTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF UNWANTED EMISSION MEASUREMENT

Unwanted 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.



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

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dB $\mu$ V/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

**NOTE:**

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

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





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### 4.2.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	E4446A	MY48250253	Sep. 03, 2012	Sep. 02, 2013
MXE EMI Receiver Agilent	N9038A	MY50010156	Jan. 16, 2013	Jan. 15, 2014
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 14, 2012	Nov. 13, 2013
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 30, 2012	Oct. 29, 2013
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Nov. 14, 2012	Nov. 13, 2013
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Mar. 25, 2013	Mar. 24, 2014
Horn_Antenna AISI	AIH.8018	0000220091110	Nov. 27, 2012	Nov. 26, 2013
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Oct. 12, 2012	Oct. 11, 2013
RF Cable	NA	RF104-205 RF104-207 RF104-202	Dec. 26, 2012	Dec. 25, 2013
RF Cable	NA	CHHCAB_001	Oct. 07, 2012	Oct. 06, 2013
Software	ADT_Radiated _V8.7.05	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: Mar. 27 to Apr. 23, 2013



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#### 4.2.4 TEST PROCEDURES

Following FCC KDB 789033 D01 General UNII Test Procedures:

Radiated versus Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test
  - e-1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
  - e-2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
  - e-3. 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.
  - e-4. 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-5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
  - e-6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.



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**NOTE:**

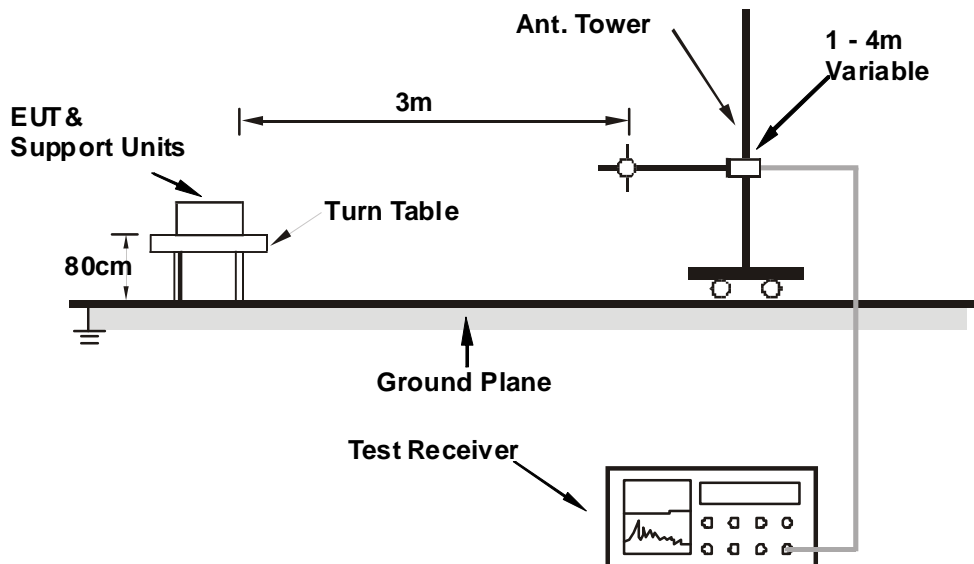
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.2.5 DEVIATION FROM TEST STANDARD

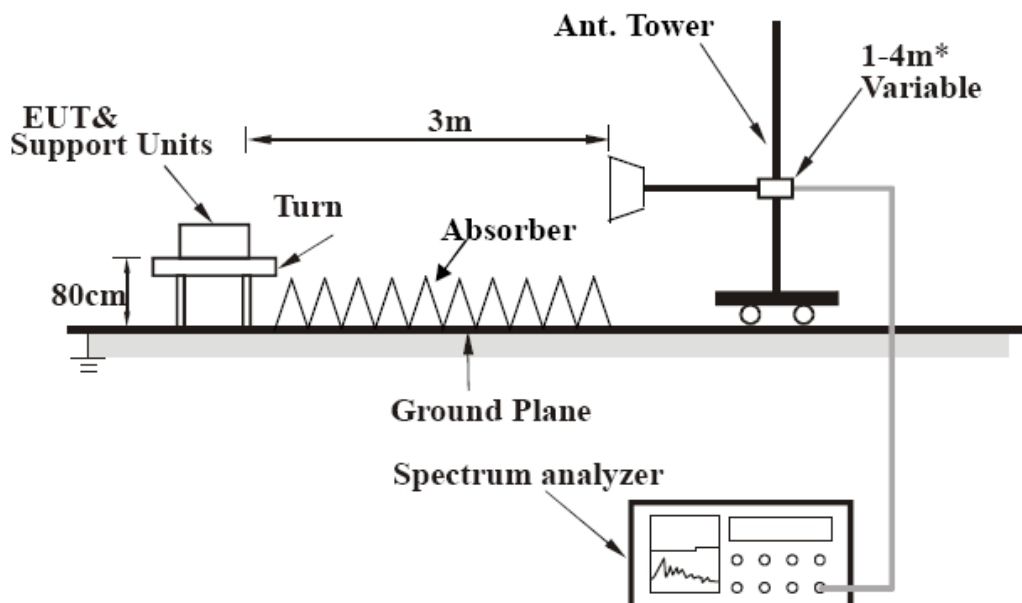
No deviation

#### 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.



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#### 4.2.7 EUT OPERATING CONDITION

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 “artgui.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.



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## 4.2.8 TEST RESULTS (RADIATED TEST)

## BELOW 1GHz WORST-CASE DATA

## Single chain - 802.11a

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	138.40	35.1 QP	43.5	-8.4	2.00 H	198	48.78	-13.69
2	148.44	41.5 QP	43.5	-2.0	2.00 H	198	54.72	-13.19
3	165.99	39.5 QP	43.5	-4.0	1.50 H	205	53.27	-13.79
4	299.71	43.4 QP	46.0	-2.6	1.00 H	338	55.83	-12.44
5	399.67	42.9 QP	46.0	-3.1	2.00 H	256	52.93	-10.03
6	899.36	43.0 QP	46.0	-3.0	1.50 H	308	43.47	-0.43
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	33.54	33.5 QP	40.0	-6.6	1.00 V	280	47.94	-14.49
2	148.05	34.9 QP	43.5	-8.6	2.00 V	278	48.13	-13.21
3	199.80	39.8 QP	43.5	-3.7	1.50 V	328	56.42	-16.63
4	298.84	40.3 QP	46.0	-5.7	2.00 V	243	52.75	-12.47
5	399.90	33.2 QP	46.0	-12.8	1.01 V	110	43.22	-10.02
6	899.12	40.7 QP	46.0	-5.3	1.50 V	288	41.13	-0.43

## REMARKS:

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



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**ABOVE 1GHz DATA**

**Single chain - 802.11a**

<b>CHANNEL</b>	TX Channel 36	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10360.00	57.7 PK	68.3	-10.6	1.13 H	144	8.49	49.21
2	15540.00	57.5 PK	74.0	-16.5	1.03 H	303	2.40	55.10
3	15540.00	46.2 AV	54.0	-7.8	1.03 H	303	-8.90	55.10

**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	#10360.00	58.0 PK	68.3	-10.3	1.63 V	38	8.79	49.21
2	15540.00	59.7 PK	74.0	-14.3	1.29 V	47	4.60	55.10
3	15540.00	47.6 AV	54.0	-6.4	1.29 V	47	-7.50	55.10

**REMARKS:**

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



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<b>CHANNEL</b>	TX Channel 40	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10400.00	57.8 PK	68.3	-10.5	1.14 H	156	8.97	48.83
2	15600.00	58.1 PK	74.0	-15.9	1.06 H	332	3.13	54.97
3	15600.00	46.4 AV	54.0	-7.6	1.06 H	332	-8.57	54.97

**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	#10400.00	58.0 PK	68.3	-10.3	1.57 V	51	9.17	48.83
2	15600.00	60.0 PK	74.0	-14.0	1.33 V	46	5.03	54.97
3	15600.00	47.4 AV	54.0	-6.6	1.33 V	46	-7.57	54.97

**REMARKS:**

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





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<b>CHANNEL</b>	TX Channel 48	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10480.00	58.1 PK	68.3	-10.2	1.18 H	156	8.71	49.39
2	15720.00	57.6 PK	74.0	-16.4	1.00 H	320	2.90	54.70
3	15720.00	46.2 AV	54.0	-7.8	1.00 H	320	-8.50	54.70

**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	#10480.00	58.1 PK	68.3	-10.2	1.66 V	36	8.71	49.39
2	15720.00	59.6 PK	74.0	-14.4	1.29 V	54	4.90	54.70
3	15720.00	47.3 AV	54.0	-6.7	1.29 V	54	-7.40	54.70

**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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



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<b>CHANNEL</b>	TX Channel 52	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10520.00	57.9 PK	68.3	-10.4	1.17 H	130	8.41	49.49
2	15780.00	59.4 PK	74.0	-14.6	1.02 H	321	4.51	54.89
3	15780.00	48.4 AV	54.0	-5.6	1.02 H	321	-6.49	54.89

**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	#10520.00	61.5 PK	68.3	-6.8	1.59 V	42	12.01	49.49
2	15780.00	61.0 PK	74.0	-13.0	1.23 V	51	6.11	54.89
3	15780.00	49.2 AV	54.0	-4.8	1.23 V	51	-5.69	54.89

**REMARKS:**

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



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<b>CHANNEL</b>	TX Channel 60	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10600.00	58.3 PK	74.0	-15.7	1.19 H	140	8.95	49.35
2	10600.00	47.7 AV	54.0	-6.3	1.19 H	140	-1.65	49.35
3	15900.00	59.3 PK	74.0	-14.7	1.00 H	308	4.21	55.09
4	15900.00	48.2 AV	54.0	-5.8	1.00 H	308	-6.89	55.09

**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	10600.00	61.3 PK	74.0	-12.7	1.61 V	24	11.95	49.35
2	10600.00	50.3 AV	54.0	-3.7	1.61 V	24	0.95	49.35
3	15900.00	61.0 PK	74.0	-13.0	1.32 V	69	5.91	55.09
4	15900.00	49.3 AV	54.0	-4.7	1.32 V	69	-5.79	55.09

**REMARKS:**

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



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<b>CHANNEL</b>	TX Channel 64	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10640.00	57.7 PK	74.0	-16.3	1.21 H	126	8.24	49.46
2	10640.00	47.3 AV	54.0	-6.7	1.21 H	126	-2.16	49.46
3	15960.00	59.4 PK	74.0	-14.6	1.07 H	318	4.57	54.83
4	15960.00	48.2 AV	54.0	-5.8	1.07 H	318	-6.63	54.83

**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	10640.00	60.8 PK	74.0	-13.2	1.63 V	37	11.34	49.46
2	10640.00	50.0 AV	54.0	-4.0	1.63 V	37	0.54	49.46
3	15960.00	61.2 PK	74.0	-12.8	1.30 V	68	6.37	54.83
4	15960.00	49.3 AV	54.0	-4.7	1.30 V	68	-5.53	54.83

**REMARKS:**

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



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<b>CHANNEL</b>	TX Channel 100	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11000.00	63.8 PK	74.0	-10.2	1.10 H	90	13.79	50.01
2	11000.00	51.5 AV	54.0	-2.5	1.10 H	90	1.49	50.01
3	#16500.00	59.5 PK	68.3	-8.8	1.04 H	311	3.13	56.37

**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	11000.00	66.5 PK	74.0	-7.5	1.96 V	23	16.49	50.01
2	11000.00	52.7 AV	54.0	-1.3	1.96 V	23	2.69	50.01
3	#16500.00	61.3 PK	68.3	-7.0	1.29 V	54	4.93	56.37

**REMARKS:**

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



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<b>CHANNEL</b>	TX Channel 116	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11160.00	63.6 PK	74.0	-10.4	1.06 H	77	13.89	49.71
2	11160.00	51.4 AV	54.0	-2.6	1.06 H	77	1.69	49.71
3	#16740.00	58.6 PK	68.3	-9.7	1.11 H	323	2.18	56.42

**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	11160.00	66.5 PK	74.0	-7.5	1.98 V	12	16.79	49.71
2	11160.00	52.5 AV	54.0	-1.5	1.98 V	12	2.79	49.71
3	#16740.00	60.6 PK	68.3	-7.7	1.29 V	27	4.18	56.42

**REMARKS:**

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



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<b>CHANNEL</b>	TX Channel 132	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11320.00	63.6 PK	74.0	-10.4	1.11 H	75	13.50	50.10
2	11320.00	51.3 AV	54.0	-2.7	1.11 H	75	1.20	50.10
3	#16980.00	59.5 PK	68.3	-8.8	1.02 H	316	2.32	57.18

**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	11320.00	66.3 PK	74.0	-7.7	1.94 V	3	16.20	50.10
2	11320.00	52.4 AV	54.0	-1.6	1.94 V	3	2.30	50.10
3	#16980.00	60.9 PK	68.3	-7.4	1.28 V	43	3.72	57.18

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 140	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11400.00	58.2 PK	74.0	-15.8	1.15 H	123	8.28	49.92
2	11400.00	47.6 AV	54.0	-6.4	1.15 H	123	-2.32	49.92
3	#17100.00	59.3 PK	68.3	-9.0	1.05 H	309	2.22	57.08

**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	11400.00	60.8 PK	74.0	-13.2	1.57 V	23	10.88	49.92
2	11400.00	50.1 AV	54.0	-3.9	1.57 V	23	0.18	49.92
3	#17100.00	61.0 PK	68.3	-7.3	1.27 V	25	3.92	57.08

**REMARKS:**

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





A D T

Multiple chain - 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	#10360.00	57.6 PK	68.3	-10.7	1.16 H	147	8.39	49.21
2	15540.00	58.8 PK	74.0	-15.2	1.16 H	123	3.70	55.10
3	15540.00	47.1 AV	54.0	-6.9	1.16 H	123	-8.00	55.10

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	#10360.00	57.6 PK	68.3	-10.7	1.60 V	44	8.39	49.21
2	15540.00	59.8 PK	74.0	-14.2	1.33 V	242	4.70	55.10
3	15540.00	48.7 AV	54.0	-5.3	1.33 V	242	-6.40	55.10

REMARKS:

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



A D T

<b>CHANNEL</b>	TX Channel 40	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10400.00	57.2 PK	68.3	-11.1	1.21 H	153	8.37	48.83
2	15600.00	58.2 PK	74.0	-15.8	1.25 H	99	3.23	54.97
3	15600.00	47.0 AV	54.0	-7.0	1.25 H	99	-7.97	54.97

**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	#10400.00	58.2 PK	68.3	-10.1	1.55 V	32	9.37	48.83
2	15600.00	59.1 PK	74.0	-14.9	1.32 V	232	4.13	54.97
3	15600.00	48.3 AV	54.0	-5.7	1.32 V	232	-6.67	54.97

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 48	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10480.00	57.7 PK	68.3	-10.6	1.16 H	138	8.31	49.39
2	15720.00	59.0 PK	74.0	-15.0	1.26 H	119	4.30	54.70
3	15720.00	47.3 AV	54.0	-6.7	1.26 H	119	-7.40	54.70

**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	#10480.00	58.1 PK	68.3	-10.2	1.60 V	38	8.71	49.39
2	15720.00	59.4 PK	74.0	-14.6	1.38 V	248	4.70	54.70
3	15720.00	48.5 AV	54.0	-5.5	1.38 V	248	-6.20	54.70

**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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

<b>CHANNEL</b>	TX Channel 52	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10520.00	59.8 PK	68.3	-8.5	1.00 H	310	10.31	49.49
2	15780.00	61.1 PK	74.0	-12.9	1.25 H	120	6.21	54.89
3	15780.00	49.4 AV	54.0	-4.6	1.25 H	120	-5.49	54.89

**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	#10520.00	60.3 PK	68.3	-8.0	1.85 V	24	10.81	49.49
2	15780.00	62.6 PK	74.0	-11.4	1.29 V	61	7.71	54.89
3	15780.00	50.0 AV	54.0	-4.0	1.29 V	61	-4.89	54.89

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 60	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10600.00	60.1 PK	74.0	-13.9	1.03 H	306	10.75	49.35
2	10600.00	48.1 AV	54.0	-5.9	1.03 H	306	-1.25	49.35
3	15900.00	60.5 PK	74.0	-13.5	1.24 H	124	5.41	55.09
4	15900.00	49.1 AV	54.0	-4.9	1.24 H	124	-5.99	55.09

**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	10600.00	60.2 PK	74.0	-13.8	1.83 V	30	10.85	49.35
2	10600.00	48.0 AV	54.0	-6.0	1.83 V	30	-1.35	49.35
3	15900.00	62.6 PK	74.0	-11.4	1.33 V	67	7.51	55.09
4	15900.00	50.2 AV	54.0	-3.8	1.33 V	67	-4.89	55.09

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 64	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10640.00	59.7 PK	74.0	-14.3	1.01 H	298	10.24	49.46
2	10640.00	47.7 AV	54.0	-6.3	1.01 H	298	-1.76	49.46
3	15960.00	60.4 PK	74.0	-13.6	1.28 H	115	5.57	54.83
4	15960.00	49.3 AV	54.0	-4.7	1.28 H	115	-5.53	54.83

**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	10640.00	60.4 PK	74.0	-13.6	1.85 V	44	10.94	49.46
2	10640.00	48.4 AV	54.0	-5.6	1.85 V	44	-1.06	49.46
3	15960.00	62.4 PK	74.0	-11.6	1.35 V	80	7.57	54.83
4	15960.00	50.3 AV	54.0	-3.7	1.35 V	80	-4.53	54.83

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 100	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11000.00	60.1 PK	74.0	-13.9	1.02 H	318	10.09	50.01
2	11000.00	48.3 AV	54.0	-5.7	1.02 H	318	-1.71	50.01
3	#16500.00	60.0 PK	68.3	-8.3	1.32 H	122	3.63	56.37

**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	11000.00	60.5 PK	74.0	-13.5	1.88 V	12	10.49	50.01
2	11000.00	48.6 AV	54.0	-5.4	1.88 V	12	-1.41	50.01
3	#16500.00	61.9 PK	68.3	-6.4	1.37 V	62	5.53	56.37

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 116	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11160.00	59.8 PK	74.0	-14.2	1.00 H	322	10.09	49.71
2	11160.00	48.1 AV	54.0	-5.9	1.00 H	322	-1.61	49.71
3	#16740.00	60.4 PK	68.3	-7.9	1.19 H	107	3.98	56.42

**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	11160.00	60.6 PK	74.0	-13.4	1.92 V	17	10.89	49.71
2	11160.00	48.5 AV	54.0	-5.5	1.92 V	17	-1.21	49.71
3	#16740.00	61.5 PK	68.3	-6.8	1.37 V	69	5.08	56.42

**REMARKS:**

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





A D T

<b>CHANNEL</b>	TX Channel 132	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11320.00	59.4 PK	74.0	-14.6	1.00 H	320	9.30	50.10
2	11320.00	47.8 AV	54.0	-6.2	1.00 H	320	-2.30	50.10
3	#16980.00	60.3 PK	68.3	-8.0	1.20 H	102	3.12	57.18

**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	11320.00	60.9 PK	74.0	-13.1	1.94 V	11	10.80	50.10
2	11320.00	48.9 AV	54.0	-5.1	1.94 V	11	-1.20	50.10
3	#16980.00	61.2 PK	68.3	-7.1	1.33 V	80	4.02	57.18

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 140	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11400.00	58.9 PK	74.0	-15.1	1.00 H	313	8.98	49.92
2	11400.00	47.4 AV	54.0	-6.6	1.00 H	313	-2.52	49.92
3	#17100.00	59.3 PK	68.3	-9.0	1.23 H	125	2.22	57.08

**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	11400.00	59.9 PK	74.0	-14.1	1.93 V	25	9.98	49.92
2	11400.00	48.0 AV	54.0	-6.0	1.93 V	25	-1.92	49.92
3	#17100.00	61.5 PK	68.3	-6.8	1.31 V	83	4.42	57.08

**REMARKS:**

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



A D T

### 802.11n (HT20)

<b>CHANNEL</b>	TX Channel 36	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10360.00	57.9 PK	68.3	-10.4	1.11 H	146	8.69	49.21
2	15540.00	58.6 PK	74.0	-15.4	1.10 H	113	3.50	55.10
3	15540.00	47.3 AV	54.0	-6.7	1.10 H	113	-7.80	55.10
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	#10360.00	57.3 PK	68.3	-11.0	1.56 V	48	8.09	49.21
2	15540.00	59.6 PK	74.0	-14.4	1.29 V	214	4.50	55.10
3	15540.00	48.6 AV	54.0	-5.4	1.29 V	214	-6.50	55.10

#### REMARKS:

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



A D T

<b>CHANNEL</b>	TX Channel 40	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10400.00	58.5 PK	68.3	-9.8	1.13 H	135	9.67	48.83
2	15600.00	58.6 PK	74.0	-15.4	1.21 H	90	3.63	54.97
3	15600.00	46.8 AV	54.0	-7.2	1.21 H	90	-8.17	54.97

**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	#10400.00	58.1 PK	68.3	-10.2	1.57 V	53	9.27	48.83
2	15600.00	59.6 PK	74.0	-14.4	1.31 V	205	4.63	54.97
3	15600.00	48.6 AV	54.0	-5.4	1.31 V	205	-6.37	54.97

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 48	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10480.00	58.4 PK	68.3	-9.9	1.07 H	138	9.01	49.39
2	15720.00	59.0 PK	74.0	-15.0	1.15 H	122	4.30	54.70
3	15720.00	47.5 AV	54.0	-6.5	1.15 H	122	-7.20	54.70

**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	#10480.00	58.1 PK	68.3	-10.2	1.52 V	54	8.71	49.39
2	15720.00	59.2 PK	74.0	-14.8	1.32 V	195	4.50	54.70
3	15720.00	48.4 AV	54.0	-5.6	1.32 V	195	-6.30	54.70

**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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

<b>CHANNEL</b>	TX Channel 52	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10520.00	60.2 PK	68.3	-8.1	1.00 H	326	10.71	49.49
2	15780.00	60.7 PK	74.0	-13.3	1.24 H	108	5.81	54.89
3	15780.00	49.0 AV	54.0	-5.0	1.24 H	108	-5.89	54.89

**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	#10520.00	60.5 PK	68.3	-7.8	1.86 V	25	11.01	49.49
2	15780.00	61.5 PK	74.0	-12.5	1.25 V	58	6.61	54.89
3	15780.00	49.1 AV	54.0	-4.9	1.25 V	58	-5.79	54.89

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 60	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10600.00	59.9 PK	74.0	-14.1	1.03 H	331	10.55	49.35
2	10600.00	48.2 AV	54.0	-5.8	1.03 H	331	-1.15	49.35
3	15900.00	60.5 PK	74.0	-13.5	1.25 H	98	5.41	55.09
4	15900.00	48.6 AV	54.0	-5.4	1.25 H	98	-6.49	55.09

**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	10600.00	60.9 PK	74.0	-13.1	1.84 V	21	11.55	49.35
2	10600.00	48.6 AV	54.0	-5.4	1.84 V	21	-0.75	49.35
3	15900.00	61.0 PK	74.0	-13.0	1.16 V	49	5.91	55.09
4	15900.00	49.4 AV	54.0	-4.6	1.16 V	49	-5.69	55.09

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 64	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10640.00	59.9 PK	74.0	-14.1	1.00 H	317	10.44	49.46
2	10640.00	47.9 AV	54.0	-6.1	1.00 H	317	-1.56	49.46
3	15960.00	60.1 PK	74.0	-13.9	1.25 H	118	5.27	54.83
4	15960.00	48.7 AV	54.0	-5.3	1.25 H	118	-6.13	54.83

**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	10640.00	60.5 PK	74.0	-13.5	1.88 V	13	11.04	49.46
2	10640.00	48.7 AV	54.0	-5.3	1.88 V	13	-0.76	49.46
3	15960.00	61.9 PK	74.0	-12.1	1.28 V	50	7.07	54.83
4	15960.00	49.5 AV	54.0	-4.5	1.28 V	50	-5.33	54.83

**REMARKS:**

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





A D T

<b>CHANNEL</b>	TX Channel 100	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11000.00	60.1 PK	74.0	-13.9	1.02 H	340	10.09	50.01
2	11000.00	48.1 AV	54.0	-5.9	1.02 H	340	-1.91	50.01
3	#16500.00	60.0 PK	68.3	-8.3	1.22 H	119	3.63	56.37

**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	11000.00	60.5 PK	74.0	-13.5	1.91 V	12	10.49	50.01
2	11000.00	48.7 AV	54.0	-5.3	1.91 V	12	-1.31	50.01
3	#16500.00	61.6 PK	68.3	-6.7	1.29 V	36	5.23	56.37

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 116	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11160.00	59.6 PK	74.0	-14.4	1.06 H	348	9.89	49.71
2	11160.00	47.8 AV	54.0	-6.2	1.06 H	348	-1.91	49.71
3	#16740.00	60.0 PK	68.3	-8.3	1.19 H	89	3.58	56.42

**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	11160.00	61.2 PK	74.0	-12.8	1.90 V	25	11.49	49.71
2	11160.00	49.1 AV	54.0	-4.9	1.90 V	25	-0.61	49.71
3	#16740.00	62.2 PK	68.3	-6.1	1.27 V	61	5.78	56.42

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 132	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11320.00	59.9 PK	74.0	-14.1	1.01 H	333	9.80	50.10
2	11320.00	47.7 AV	54.0	-6.3	1.01 H	333	-2.40	50.10
3	#16980.00	60.3 PK	68.3	-8.0	1.24 H	117	3.12	57.18

**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	11320.00	61.4 PK	74.0	-12.6	1.88 V	22	11.30	50.10
2	11320.00	49.2 AV	54.0	-4.8	1.88 V	22	-0.90	50.10
3	#16980.00	61.8 PK	68.3	-6.5	1.26 V	32	4.62	57.18

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 140	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11400.00	59.8 PK	74.0	-14.2	1.05 H	327	9.88	49.92
2	11400.00	48.0 AV	54.0	-6.0	1.05 H	327	-1.92	49.92
3	#17100.00	59.5 PK	68.3	-8.8	1.28 H	132	2.42	57.08

**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	11400.00	60.1 PK	74.0	-13.9	1.71 V	53	10.18	49.92
2	11400.00	48.6 AV	54.0	-5.4	1.71 V	53	-1.32	49.92
3	#17100.00	61.5 PK	68.3	-6.8	1.24 V	41	4.42	57.08

**REMARKS:**

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



A D T

802.11n (HT40)

<b>CHANNEL</b>	TX Channel 38	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10380.00	58.1 PK	68.3	-10.2	1.09 H	143	9.08	49.02
2	15570.00	57.9 PK	74.0	-16.1	1.11 H	117	2.86	55.04
3	15570.00	46.4 AV	54.0	-7.6	1.11 H	117	-8.64	55.04

**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	#10380.00	58.5 PK	68.3	-9.8	1.62 V	61	9.48	49.02
2	15570.00	56.4 PK	74.0	-17.6	1.45 V	288	1.36	55.04
3	15570.00	47.2 AV	54.0	-6.8	1.45 V	288	-7.84	55.04

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 46	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10460.00	59.5 PK	68.3	-8.8	1.10 H	315	10.25	49.25
2	15690.00	59.6 PK	74.0	-14.4	1.00 H	275	4.93	54.67
3	15690.00	49.1 AV	54.0	-4.9	1.00 H	275	-5.57	54.67

**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	#10460.00	59.4 PK	68.3	-8.9	1.72 V	53	10.15	49.25
2	15690.00	64.1 PK	74.0	-9.9	1.41 V	266	9.43	54.67
3	15690.00	49.3 AV	54.0	-4.7	1.41 V	266	-5.37	54.67

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 54	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	#10540.00	59.1 PK	68.3	-9.2	1.16 H	305	9.64	49.46
2	15810.00	59.0 PK	74.0	-15.0	1.01 H	265	4.04	54.96
3	15810.00	48.4 AV	54.0	-5.6	1.01 H	265	-6.56	54.96

**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	#10540.00	59.4 PK	68.3	-8.9	1.73 V	51	9.94	49.46
2	15810.00	63.5 PK	74.0	-10.5	1.40 V	271	8.54	54.96
3	15810.00	48.8 AV	54.0	-5.2	1.40 V	271	-6.16	54.96

**REMARKS:**

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



A D T

<b>CHANNEL</b>	TX Channel 62	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	10620.00	59.1 PK	74.0	-14.9	1.11 H	315	9.70	49.40
2	10620.00	47.9 AV	54.0	-6.1	1.11 H	315	-1.50	49.40
3	15930.00	57.1 PK	74.0	-16.9	1.09 H	119	2.14	54.96
4	15930.00	46.0 AV	54.0	-8.0	1.09 H	119	-8.96	54.96

**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	10620.00	59.9 PK	74.0	-14.1	1.72 V	40	10.50	49.40
2	10620.00	48.3 AV	54.0	-5.7	1.72 V	40	-1.10	49.40
3	15930.00	56.2 PK	74.0	-17.8	1.41 V	292	1.24	54.96
4	15930.00	47.6 AV	54.0	-6.4	1.41 V	292	-7.36	54.96

**REMARKS:**

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





A D T

<b>CHANNEL</b>	TX Channel 100	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11020.00	57.9 PK	74.0	-16.1	1.08 H	144	7.95	49.95
2	11020.00	46.3 AV	54.0	-7.7	1.08 H	144	-3.65	49.95
3	#16530.00	59.1 PK	68.3	-9.2	1.00 H	256	2.47	56.63

**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	11020.00	58.9 PK	74.0	-15.1	1.56 V	71	8.95	49.95
2	11020.00	47.5 AV	54.0	-6.5	1.56 V	71	-2.45	49.95
3	#16530.00	63.6 PK	68.3	-4.7	1.34 V	262	6.97	56.63

**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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

<b>CHANNEL</b>	TX Channel 110	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11100.00	58.8 PK	74.0	-15.2	1.18 H	305	9.10	49.70
2	11100.00	47.3 AV	54.0	-6.7	1.18 H	305	-2.40	49.70
3	#16650.00	59.2 PK	68.3	-9.1	1.00 H	245	2.30	56.90

**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	11100.00	58.8 PK	74.0	-15.2	1.70 V	65	9.10	49.70
2	11100.00	47.6 AV	54.0	-6.4	1.70 V	65	-2.10	49.70
3	#16650.00	63.2 PK	68.3	-5.1	1.43 V	278	6.30	56.90

**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).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " # ": The radiated frequency is out of the restricted band.



A D T

<b>CHANNEL</b>	TX Channel 134	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	11340.00	58.6 PK	74.0	-15.4	1.18 H	291	8.54	50.06
2	11340.00	47.0 AV	54.0	-7.0	1.18 H	291	-3.06	50.06
3	#17010.00	58.8 PK	68.3	-9.5	1.00 H	272	1.52	57.28

**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	11340.00	58.7 PK	74.0	-15.3	1.71 V	76	8.64	50.06
2	11340.00	47.3 AV	54.0	-6.7	1.71 V	76	-2.76	50.06
3	#17010.00	63.6 PK	68.3	-4.7	1.36 V	270	6.32	57.28

**REMARKS:**

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



A D T

#### 4.2.9 TEST RESULTS (CONDUCTED TEST)

The conducted emission test was considered some factor to compute test result.

Factor:

- a. The difference factor between the 1x1 versus 2x2. (The individual chain needs to be corrected by 3dB to account for two transmit chains.)
- b. The composite gain will be used when signal support the correlated signal.
- c. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands.
- d. For the band edge the gain for the specific band may have been used.
- e. In restricted bands below 1000 MHz, add upper bound on ground plane reflection:  
For  $f = 30 - 1000$  MHz, add 4.7 dB.

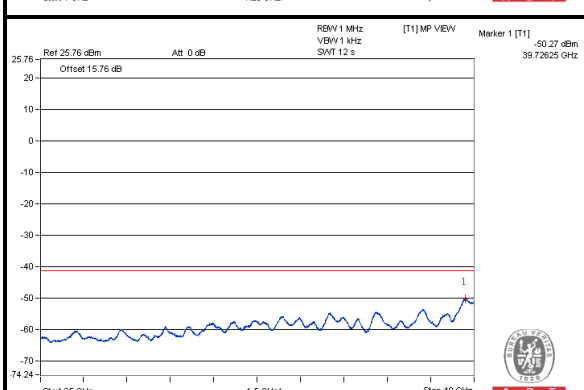
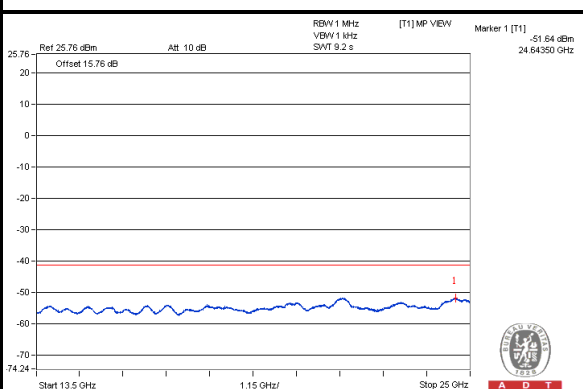
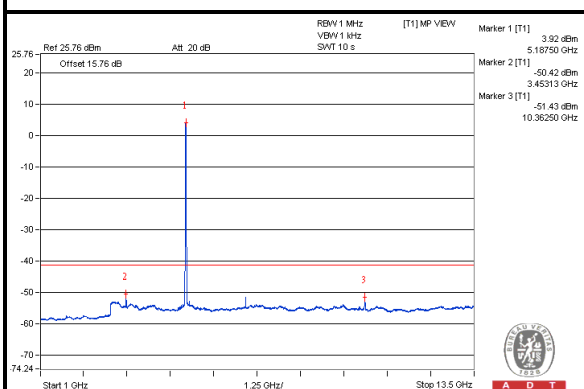
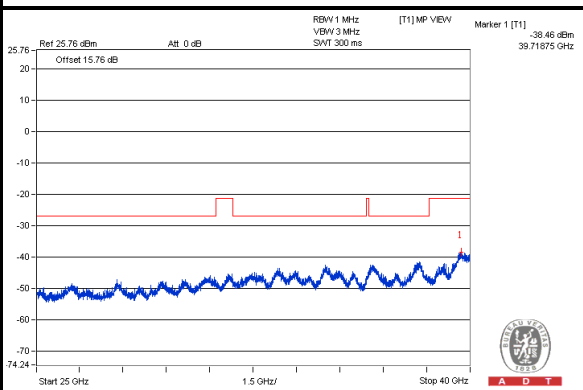
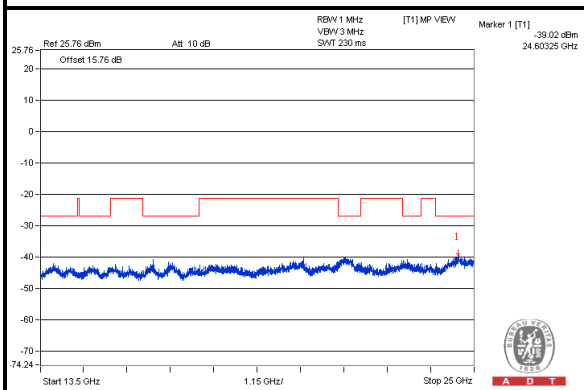
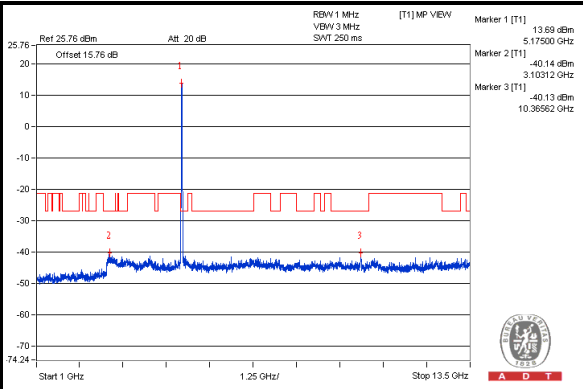
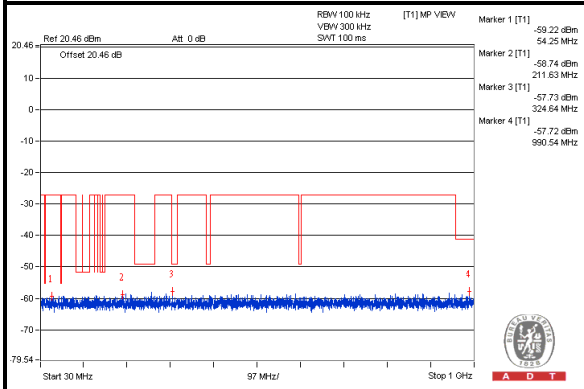
Antenna Gain (dBi)			
5.15~5.35GHz		5.47~5.725GHz	
Original Gain	Composite Gain	Original Gain	Composite Gain
3.08	6.09	4.76	7.77



A D T

# Single chain - 802.11a Conducted emission

## CH 36

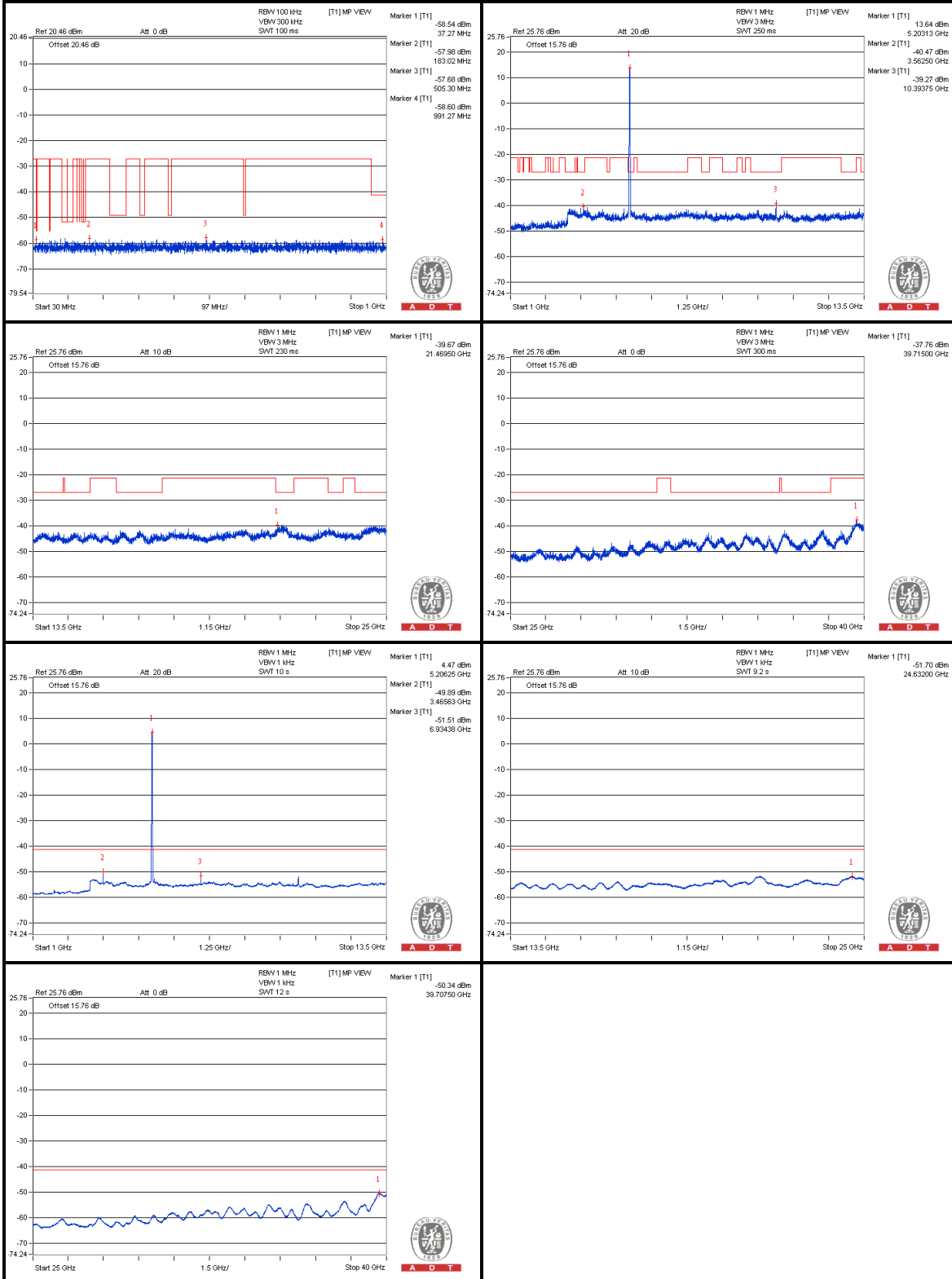




A D T

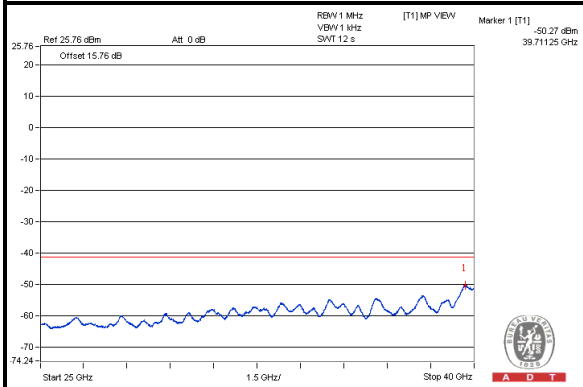
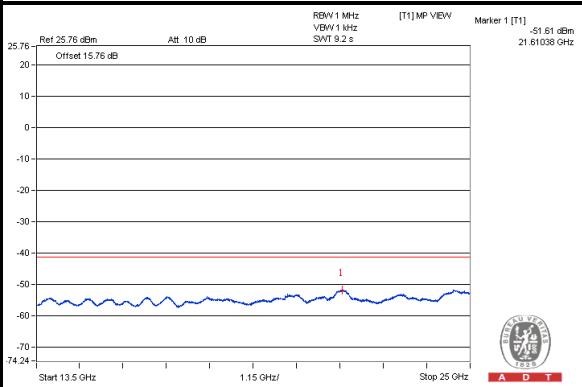
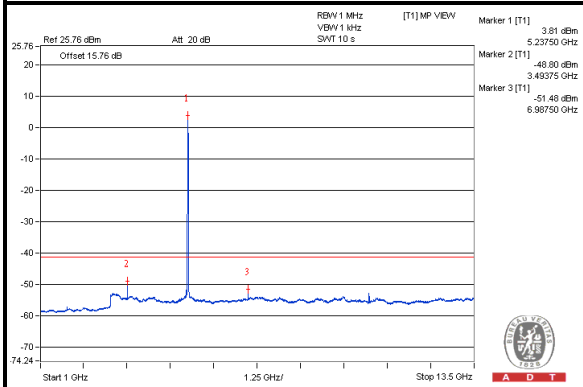
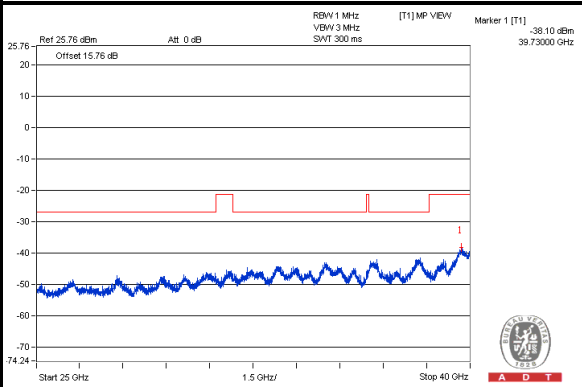
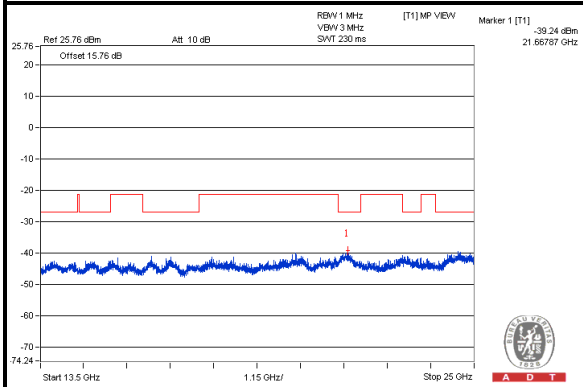
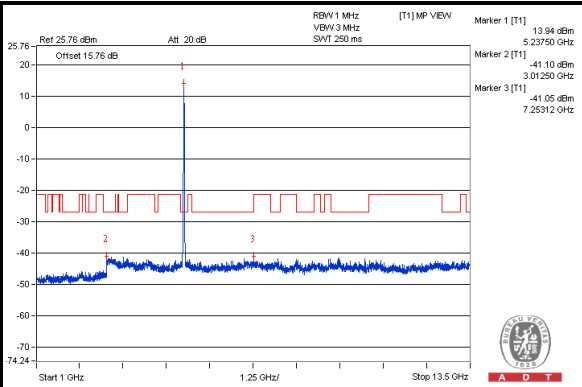
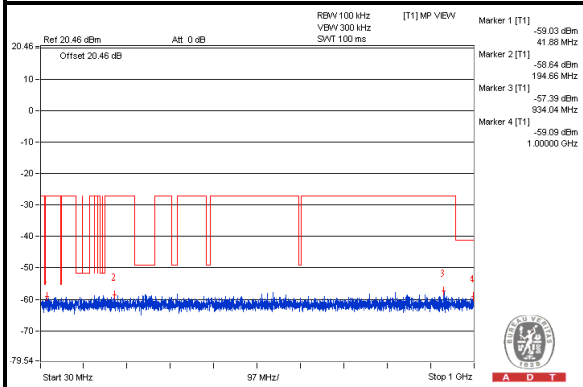
### Conducted emission

#### CH 40



# Conducted emission

## CH 48





A D T

### Conducted emission

#### CH 52



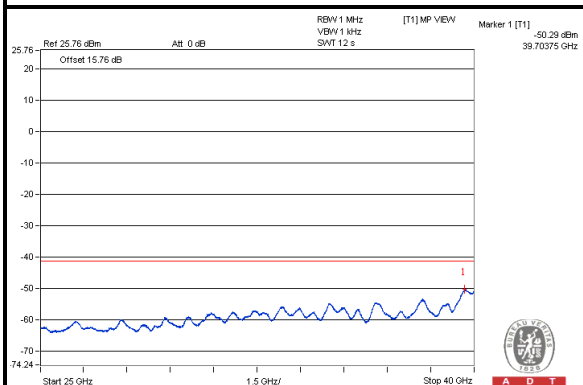
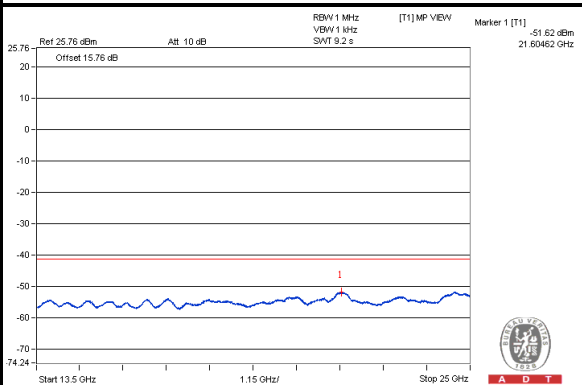
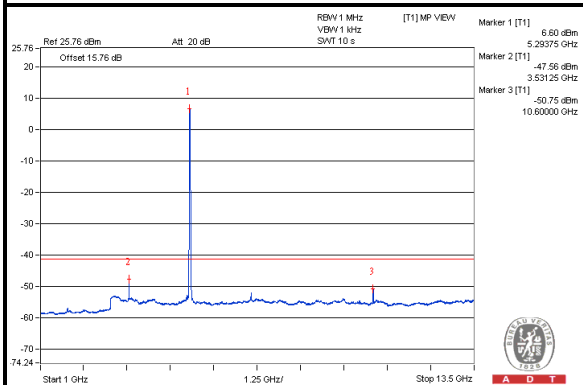
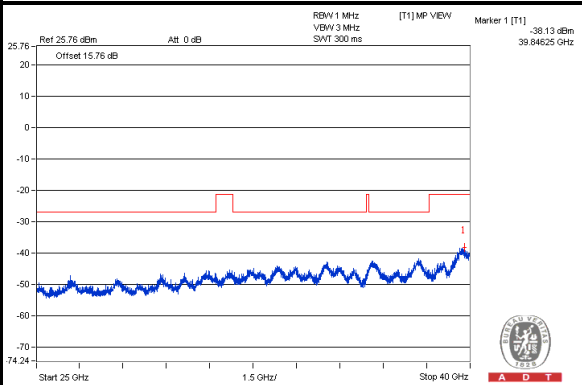
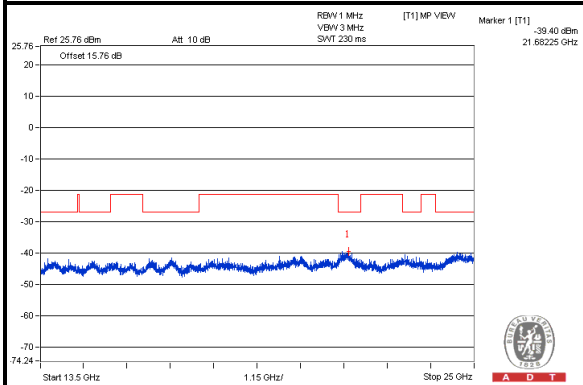
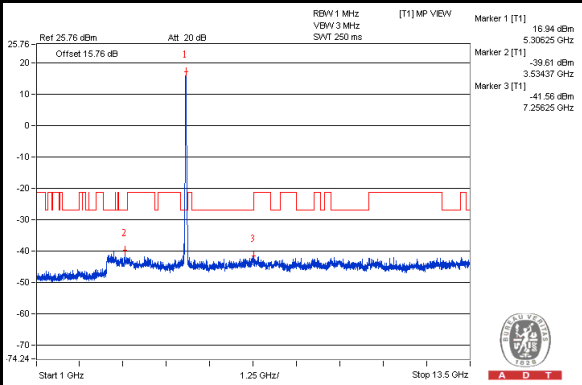
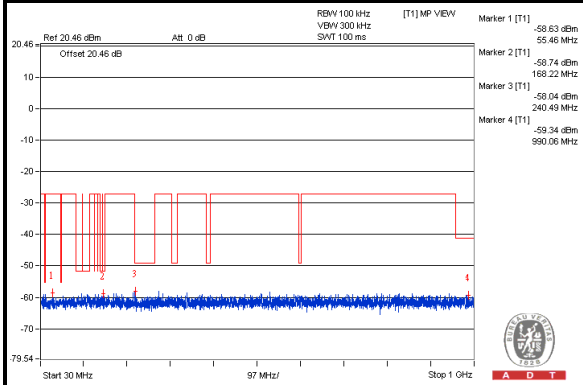




A D T

# Conducted emission

## CH 60





A D T

### Conducted emission

#### CH 64





A D T

### Conducted emission

#### CH 100



Conducted emission

CH 116





A D T

### Conducted emission

#### CH 132

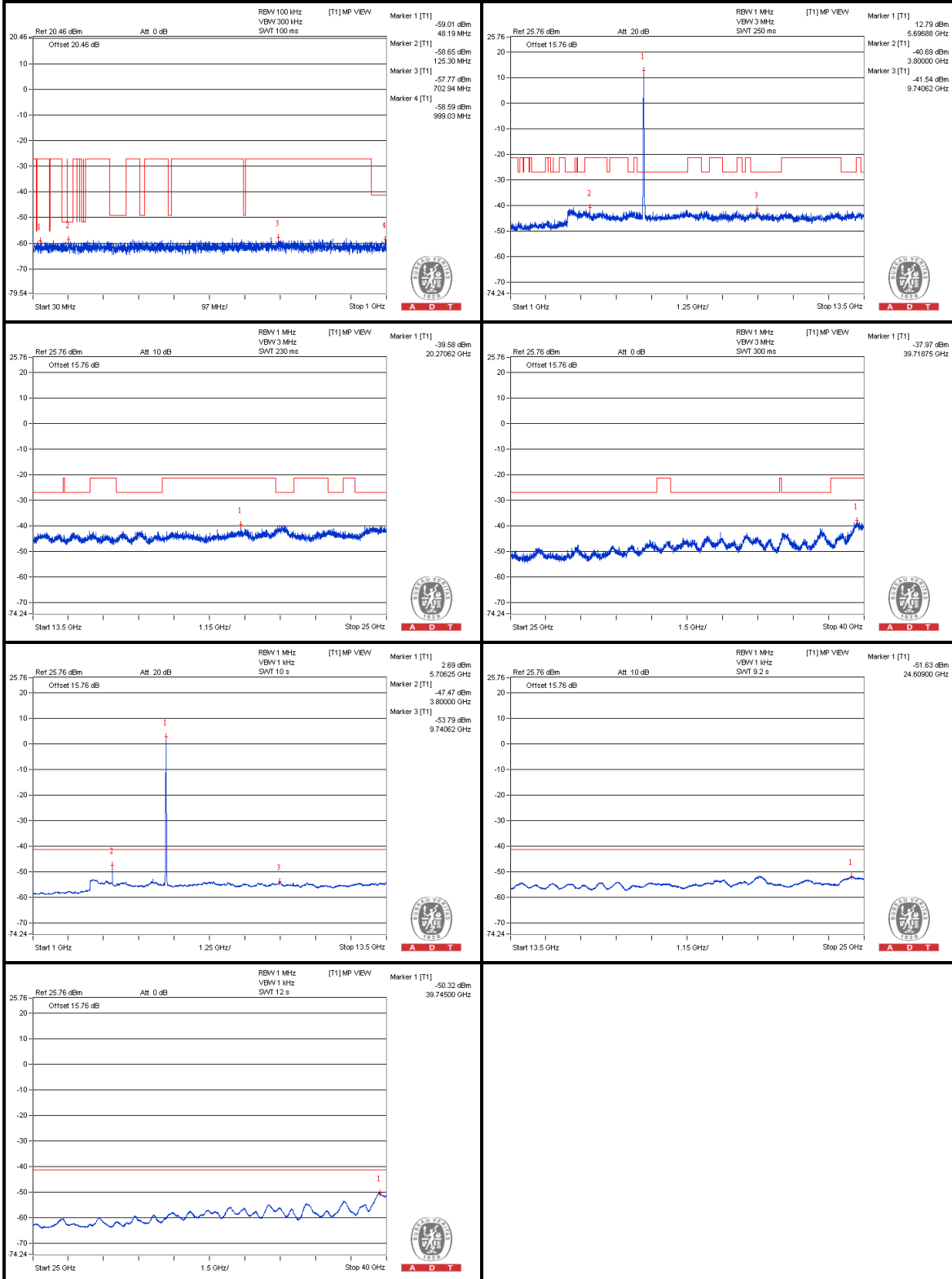




A D T

### Conducted emission

#### CH 140

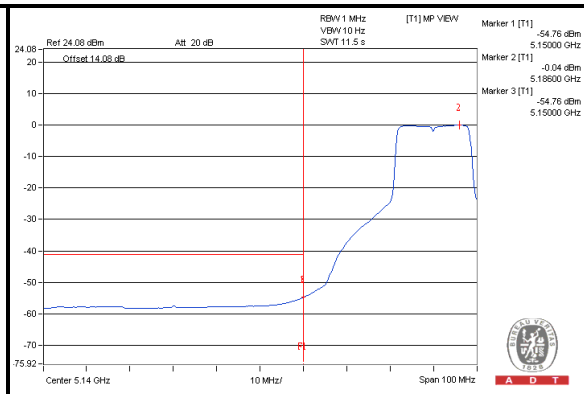
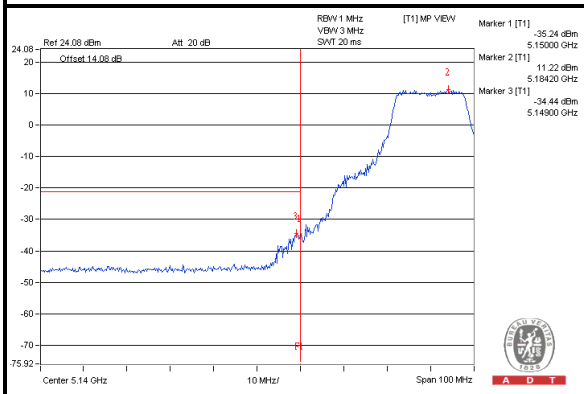




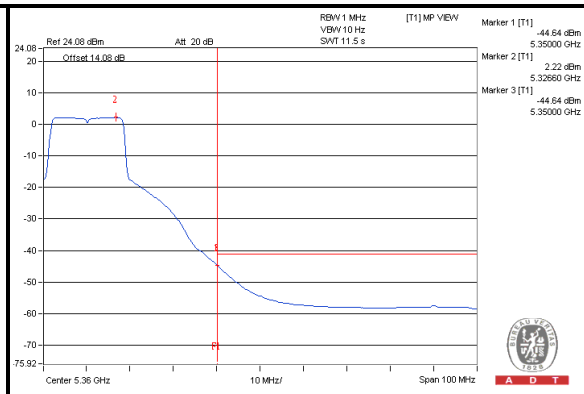
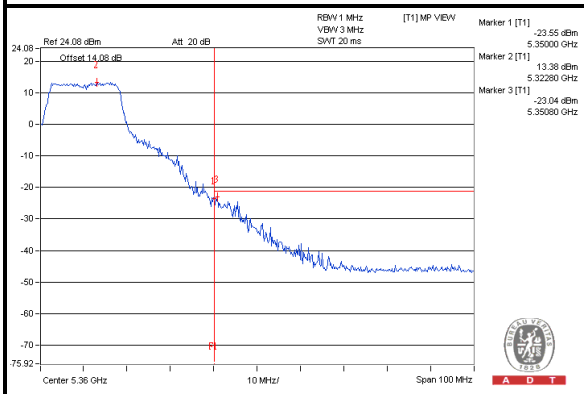
A D T

### Band Edges(Worst data is presented only.)

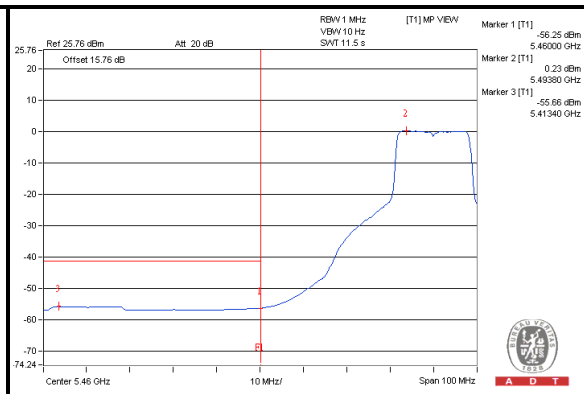
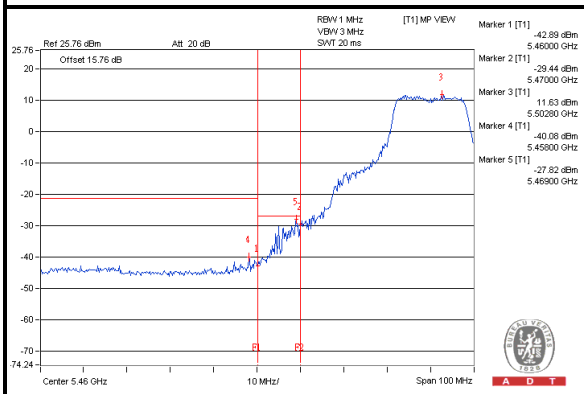
#### CH 36



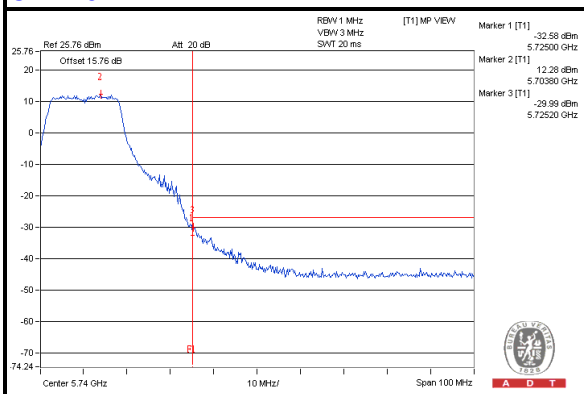
#### CH 64



#### CH 100

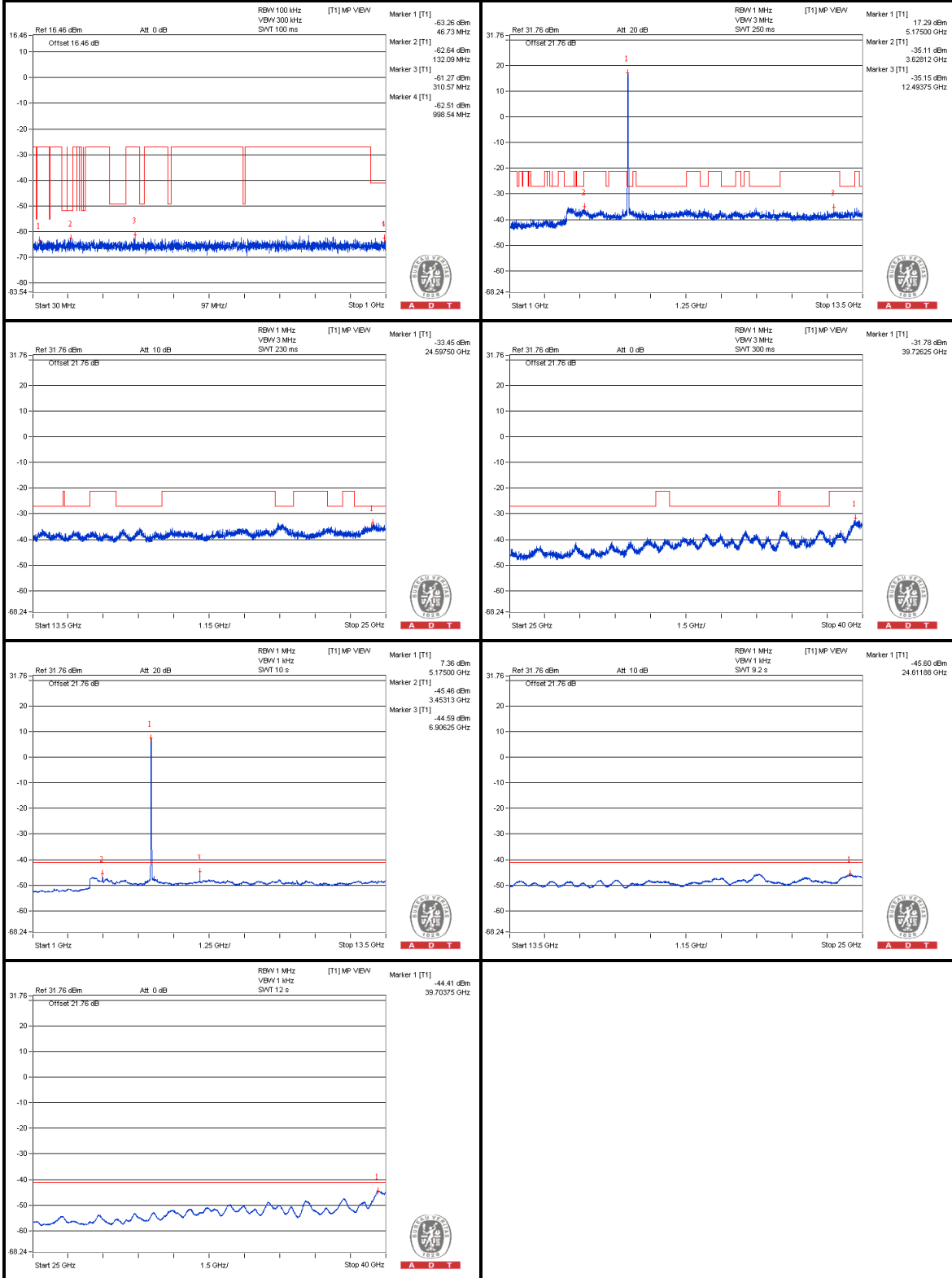


#### CH 140



**Multiple chain - 802.11a**  
**Conducted emission (Worst data is presented only.)**

**CH 36**



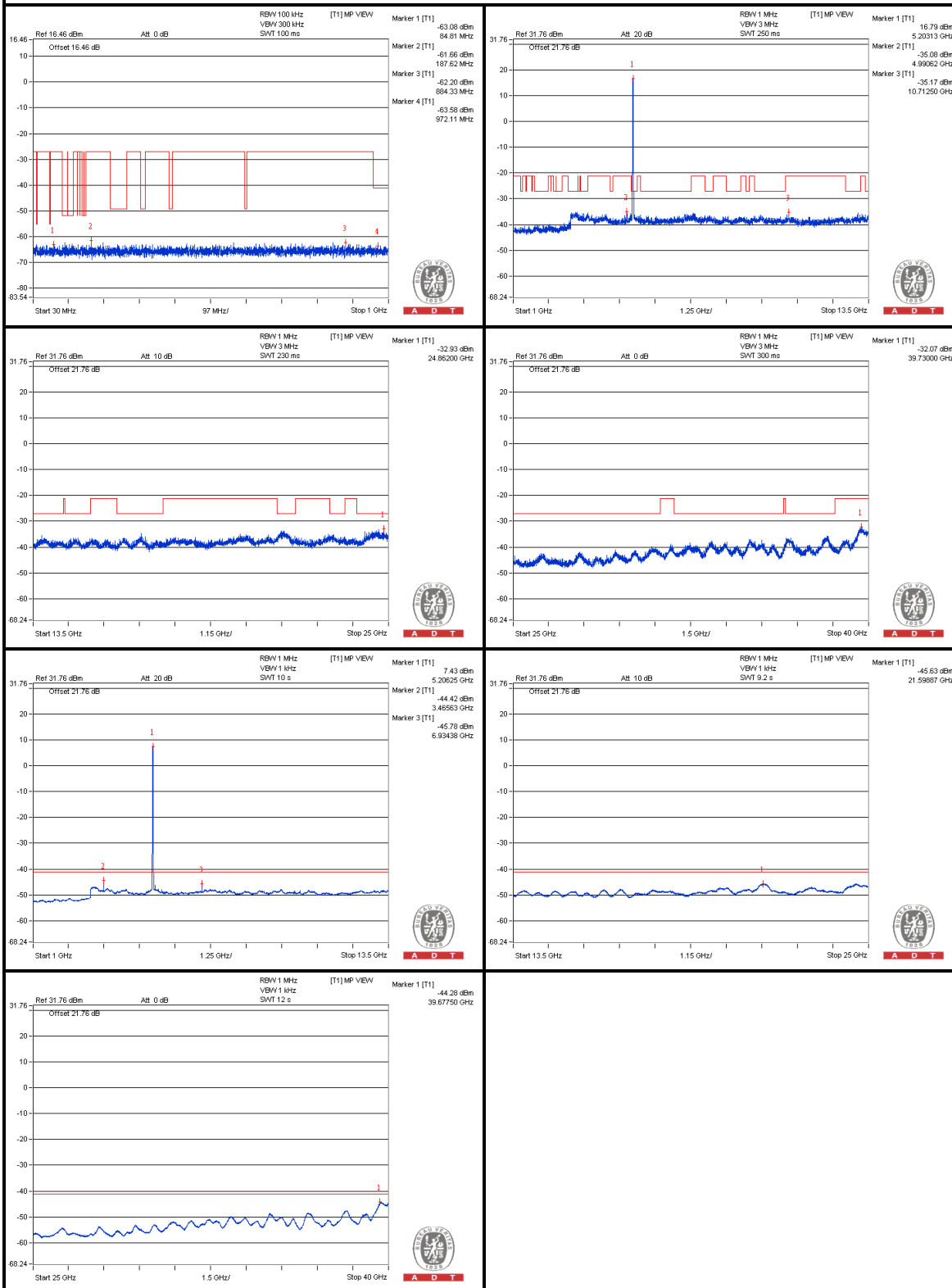




A D T

### Conducted emission (Worst data is presented only.)

#### CH 40





A D T

### Conducted emission (Worst data is presented only.)

#### CH 48

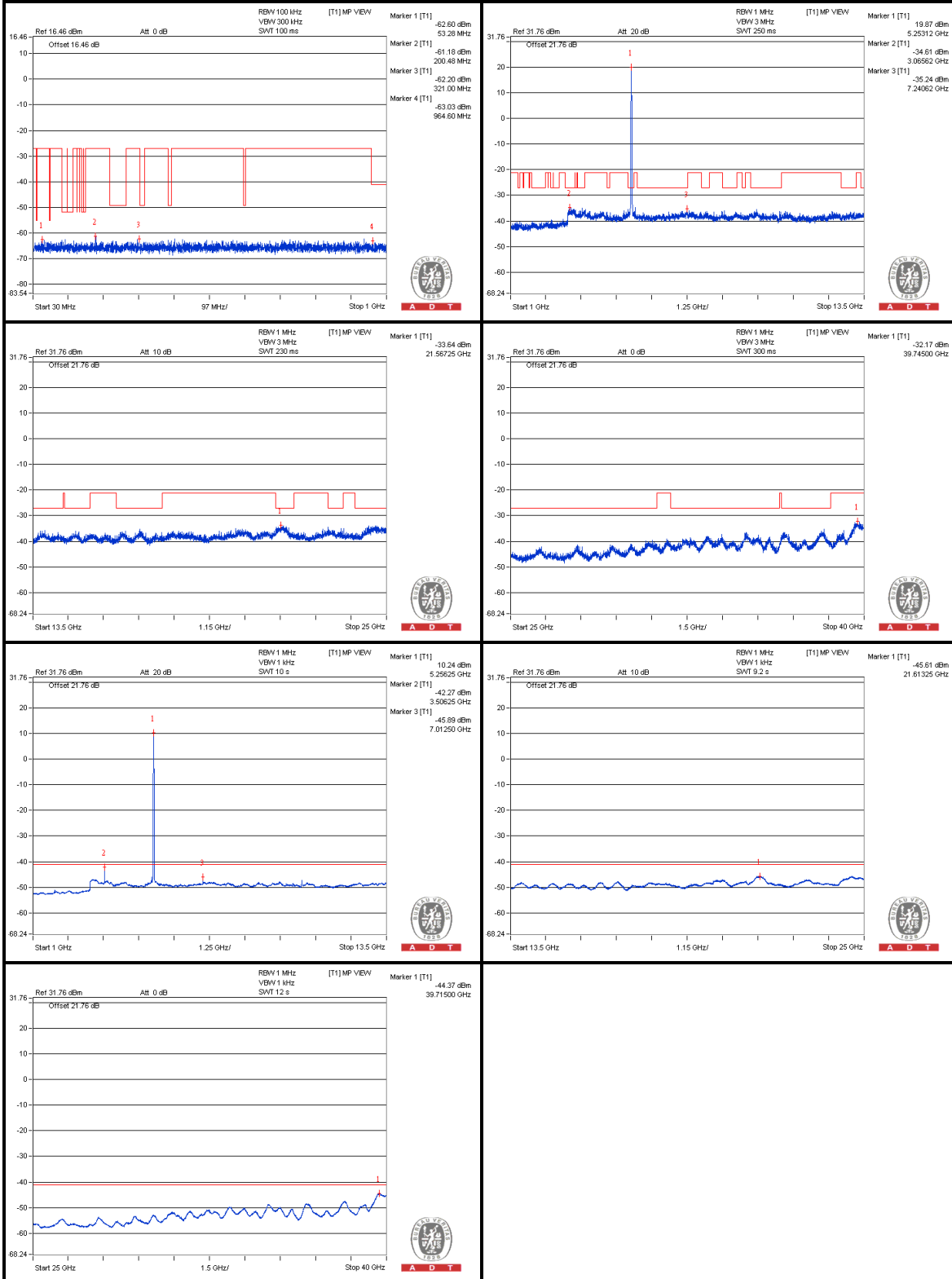




A D T

### Conducted emission (Worst data is presented only.)

#### CH 52





A D T

### Conducted emission (Worst data is presented only.)

#### CH 60

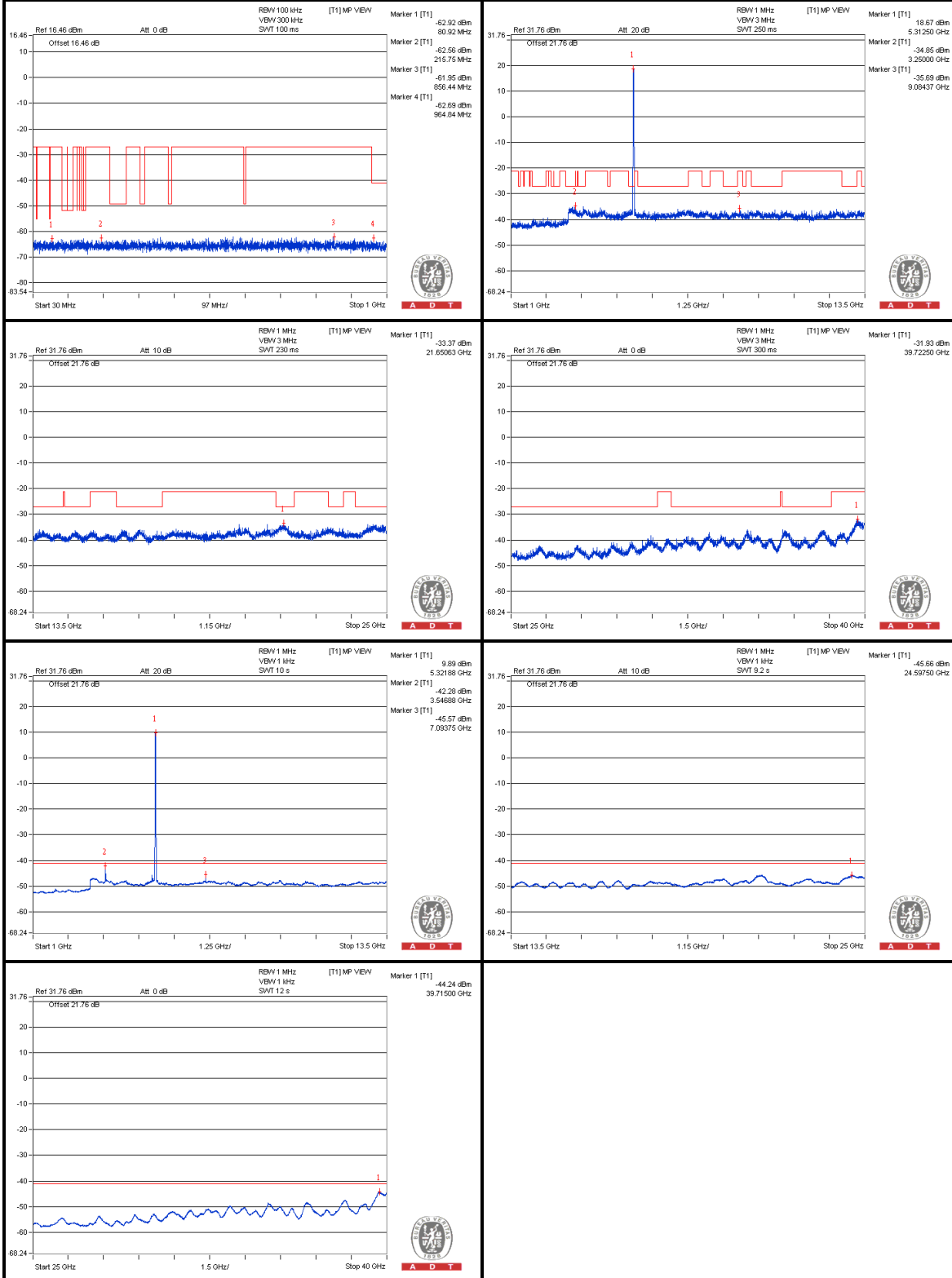




A D T

### Conducted emission (Worst data is presented only.)

#### CH 64





A D T

### Conducted emission (Worst data is presented only.)

#### CH 100





A D T

### Conducted emission (Worst data is presented only.)

#### CH 116

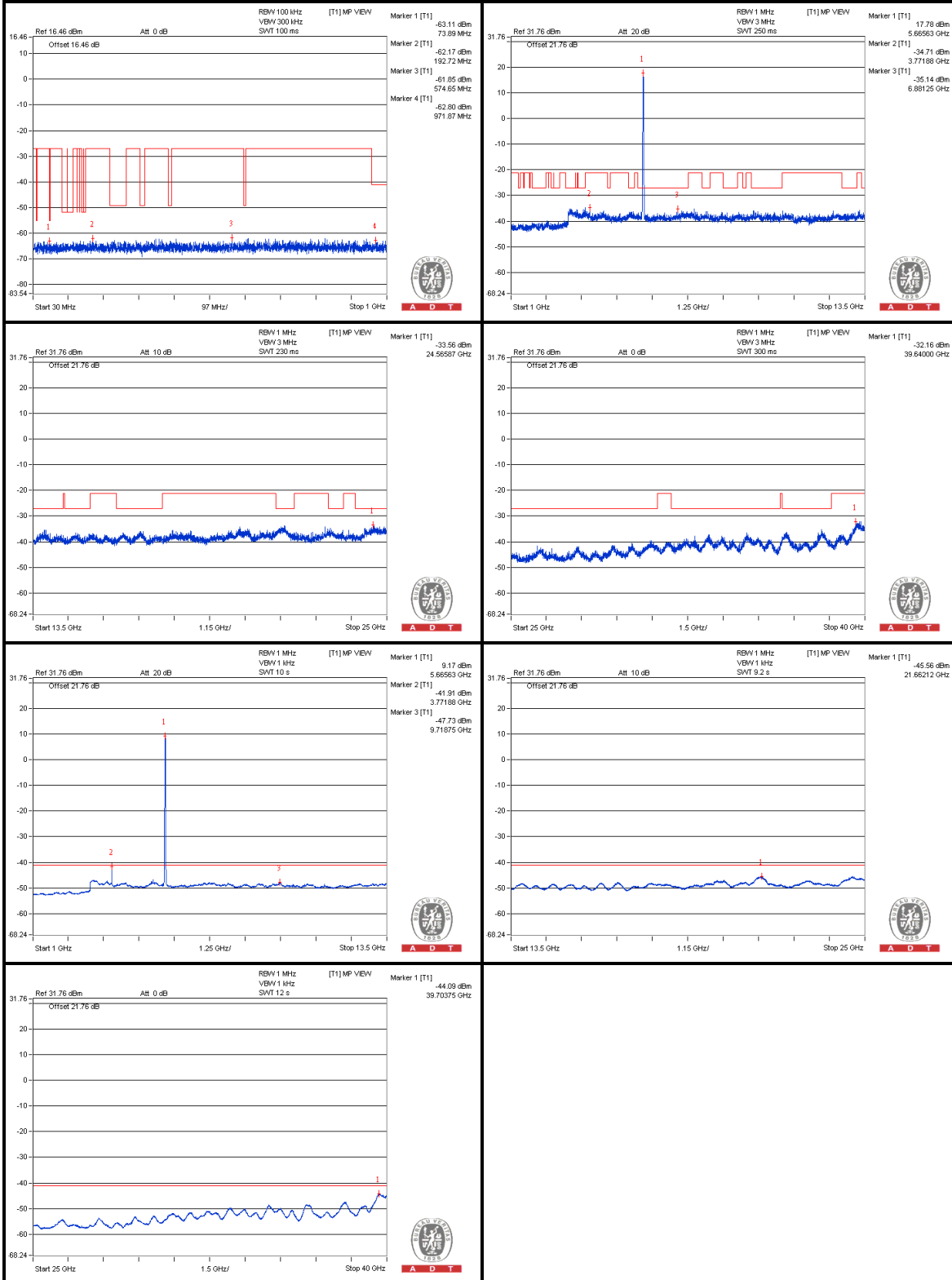




A D T

### Conducted emission (Worst data is presented only.)

#### CH 132







A D T

### Conducted emission (Worst data is presented only.)

#### CH 140

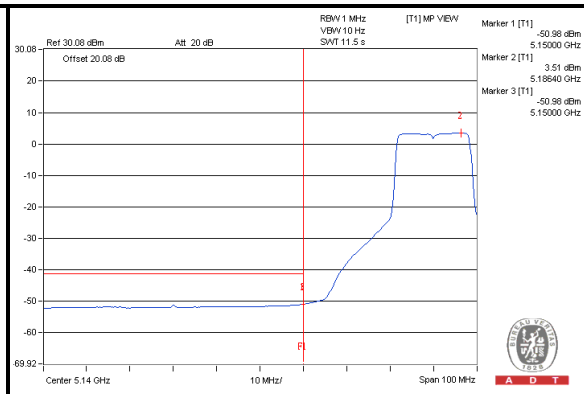
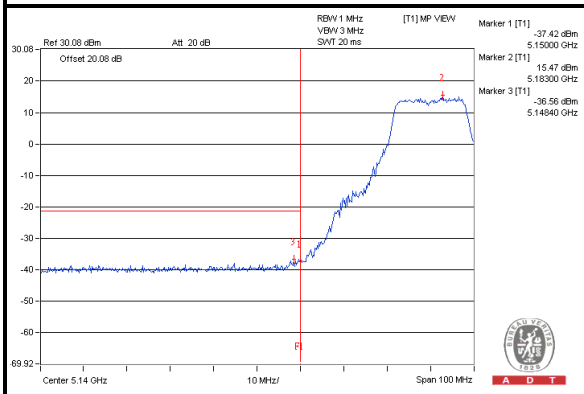




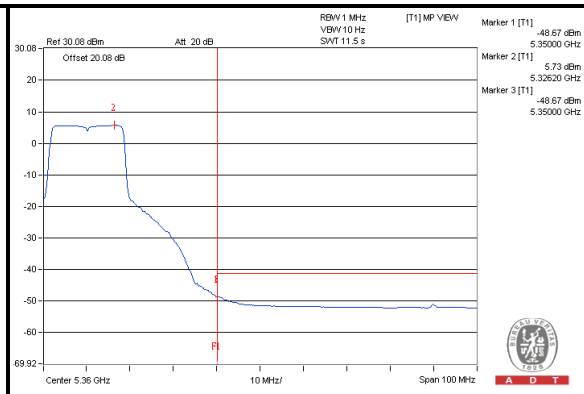
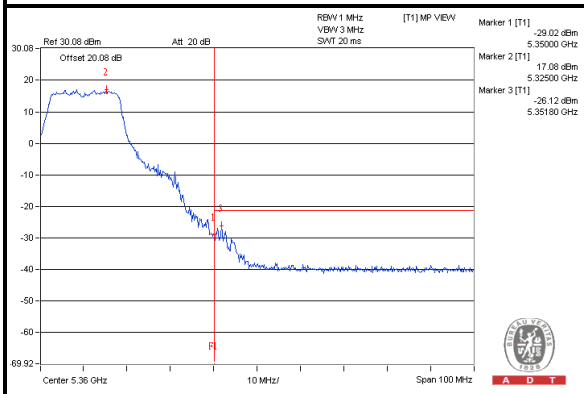
A D T

### Band Edges(Worst data is presented only.)

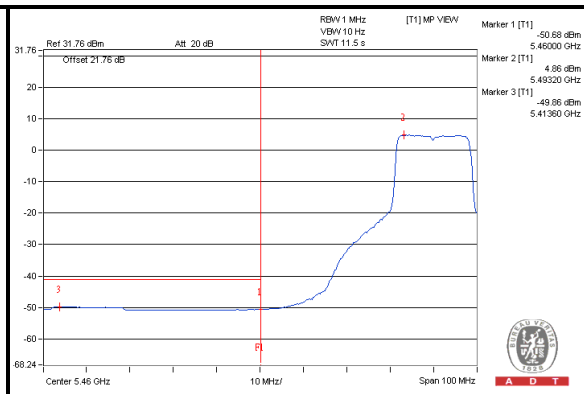
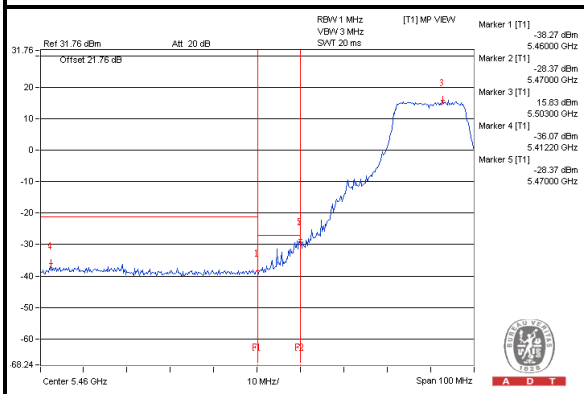
#### CH 36



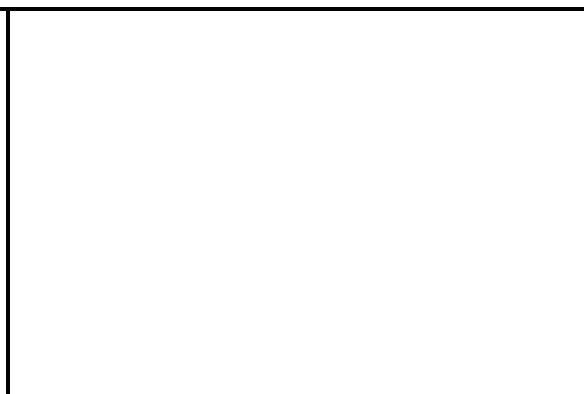
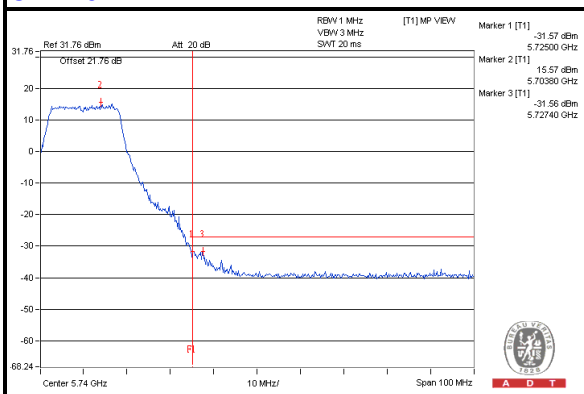
#### CH 64



#### CH 100



#### CH 140



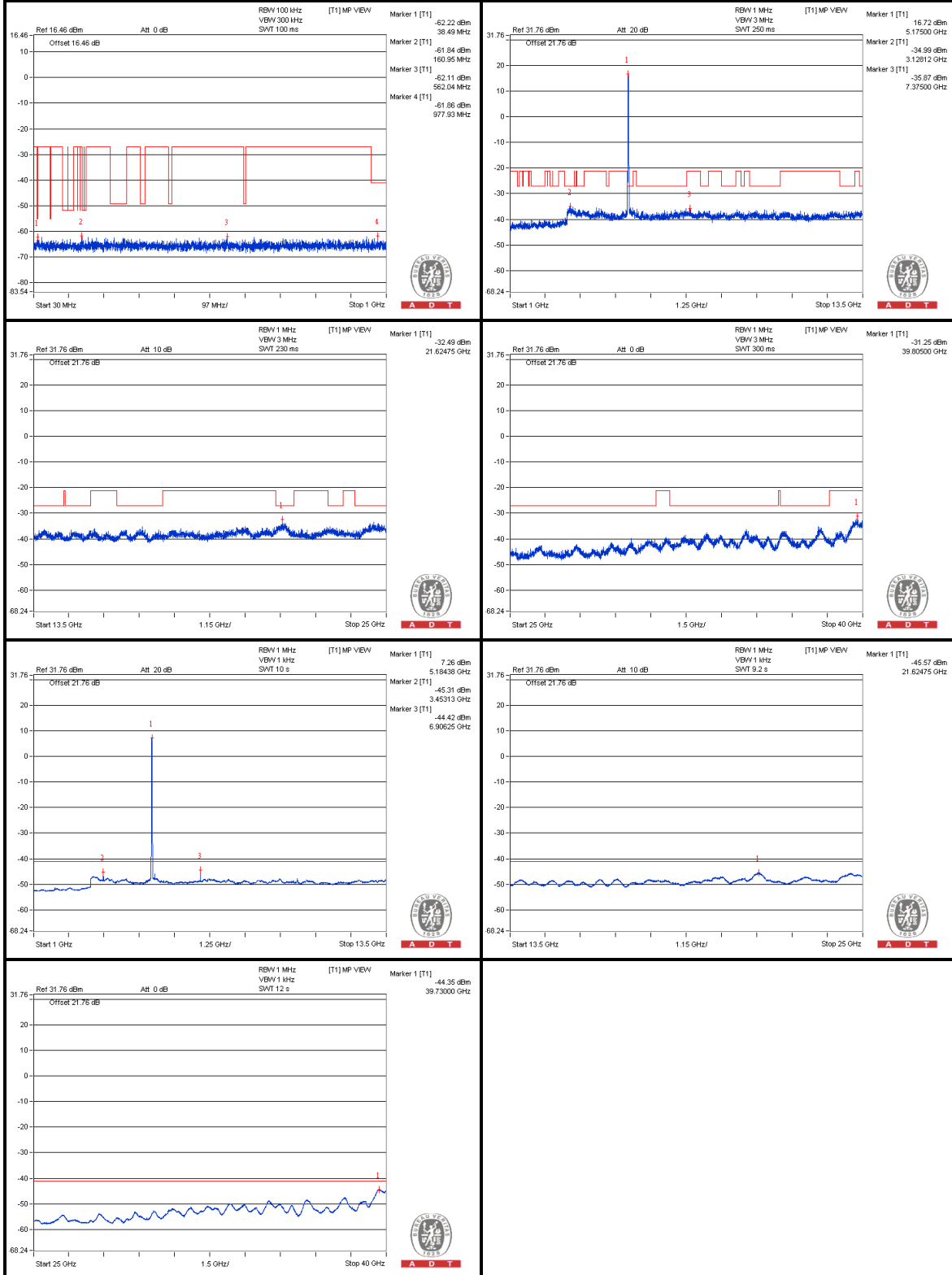


A D T

### 802.11n (HT20)

Conducted emission (Worst data is presented only.)

#### CH 36

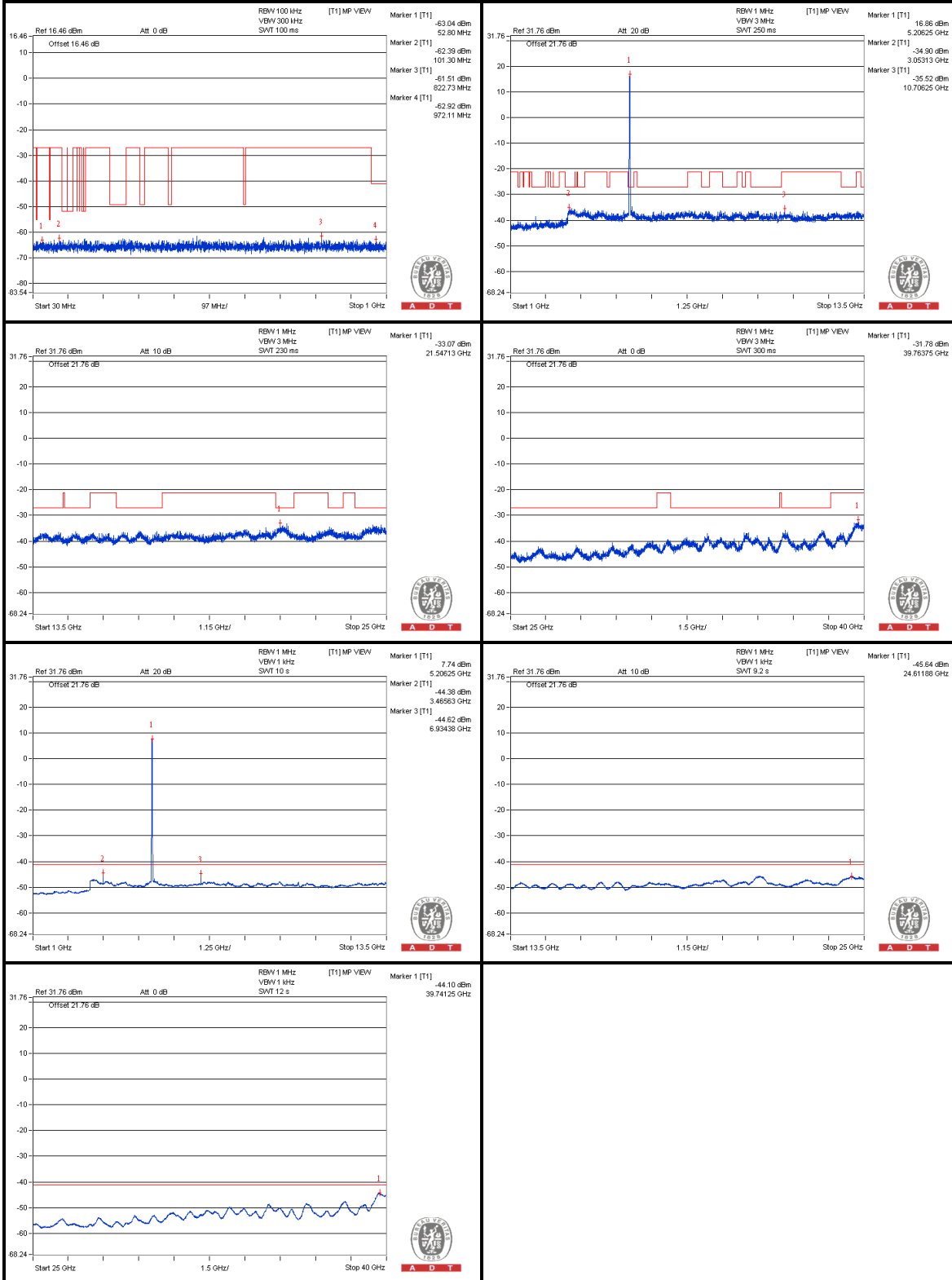




A D T

### Conducted emission (Worst data is presented only.)

#### CH 40

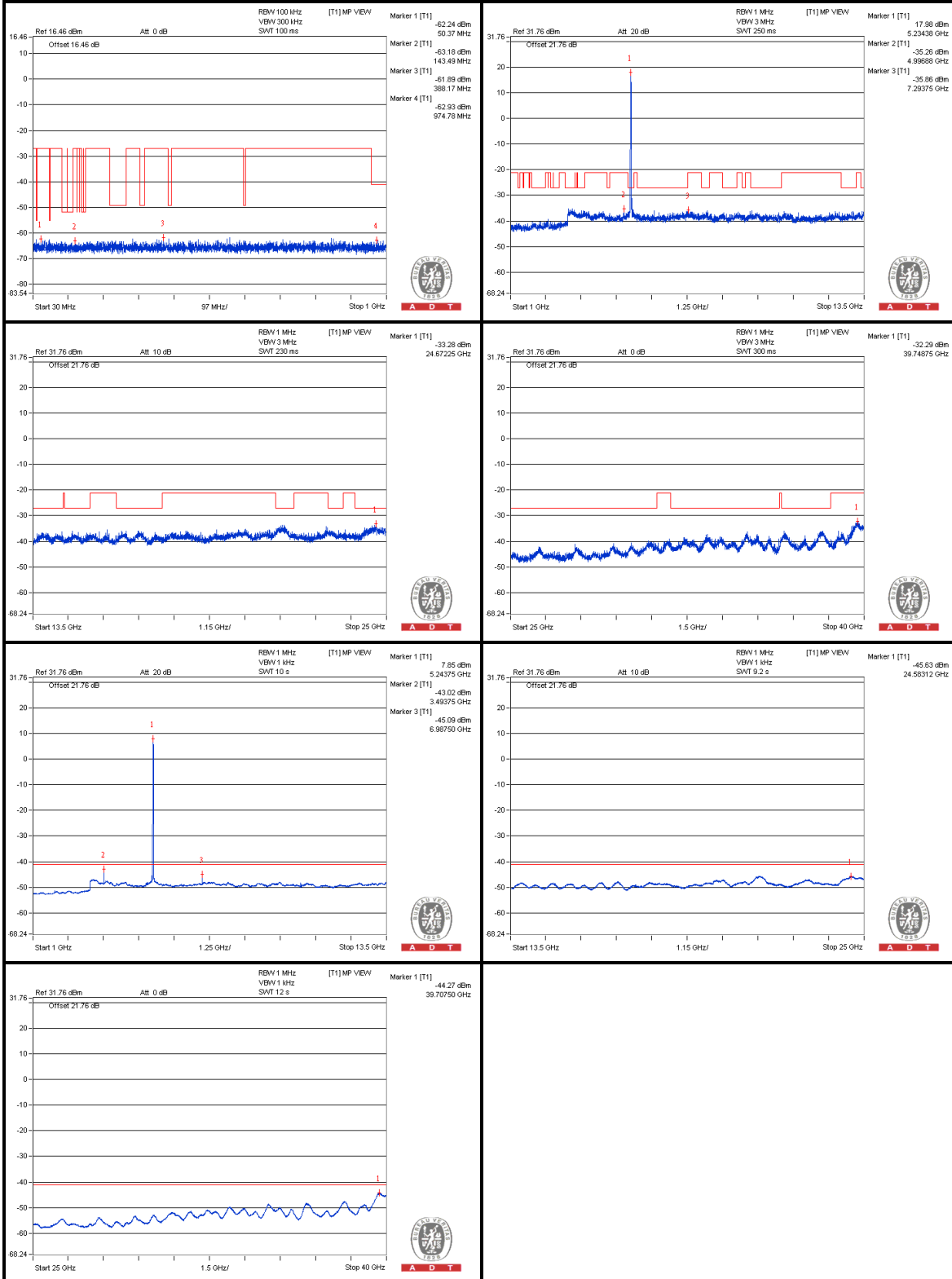




A D T

### Conducted emission (Worst data is presented only.)

#### CH 48





A D T

### Conducted emission (Worst data is presented only.)

#### CH 52





A D T

### Conducted emission (Worst data is presented only.)

#### CH 60

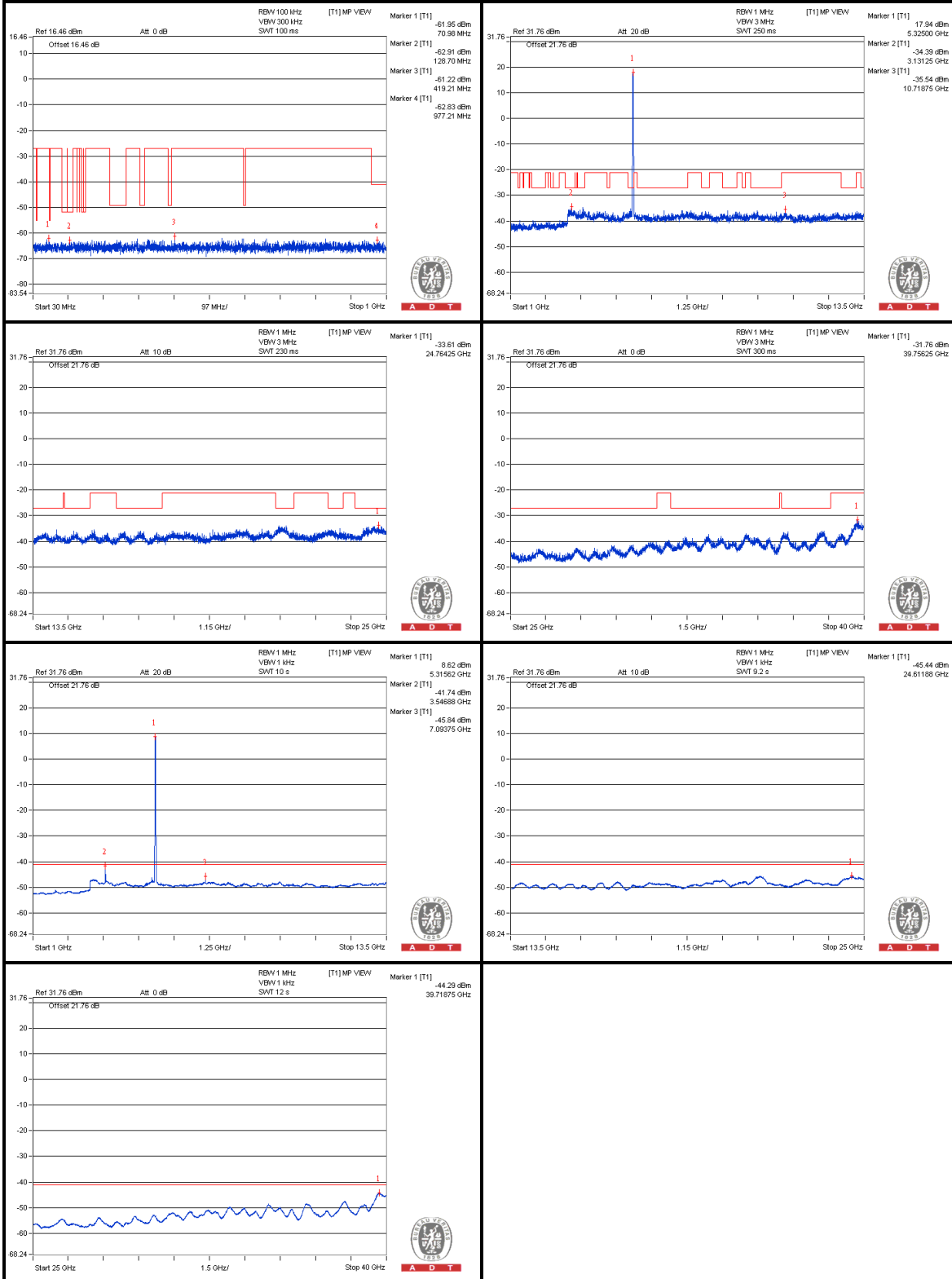




A D T

### Conducted emission (Worst data is presented only.)

#### CH 64







A D T

### Conducted emission (Worst data is presented only.)

#### CH 100





A D T

### Conducted emission (Worst data is presented only.)





A D T

### Conducted emission (Worst data is presented only.)

#### CH 132





A D T

### Conducted emission (Worst data is presented only.)

#### CH 140

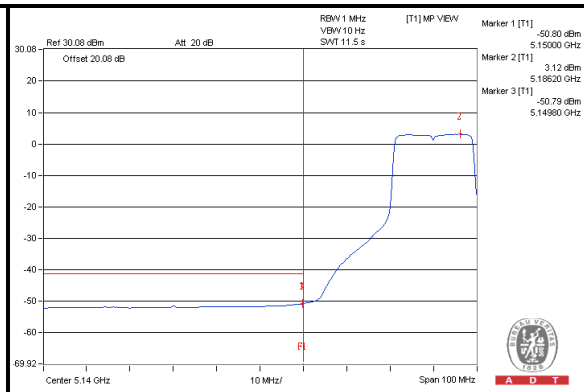
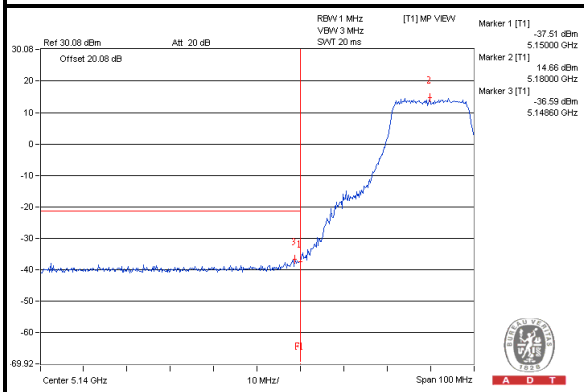




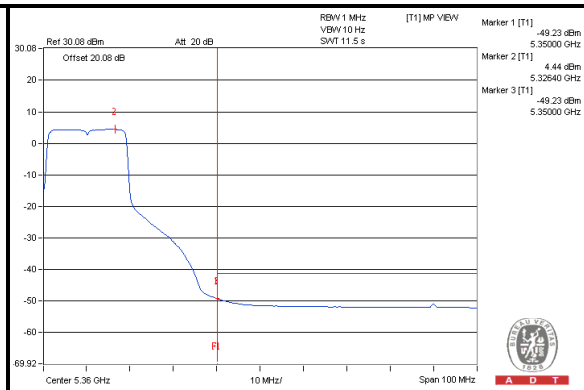
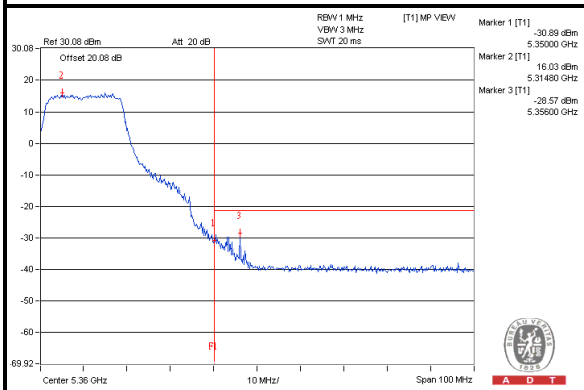
A D T

### Band Edges(Worst data is presented only.)

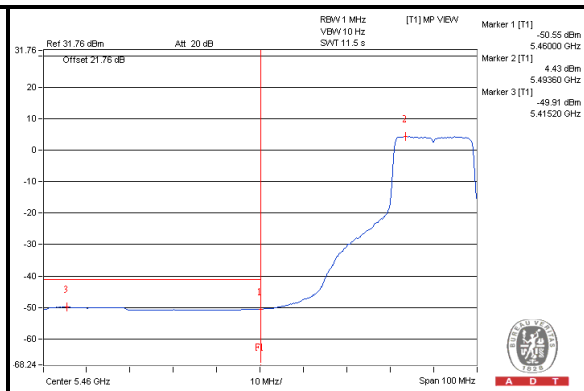
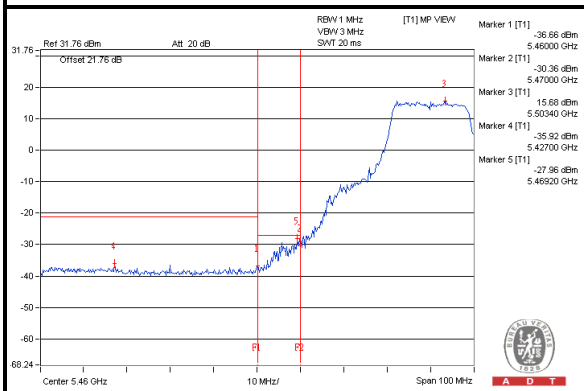
#### CH 36



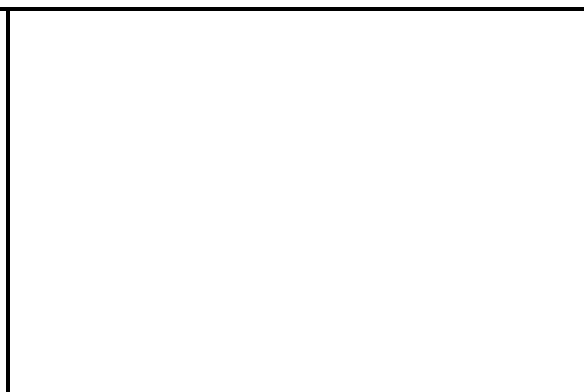
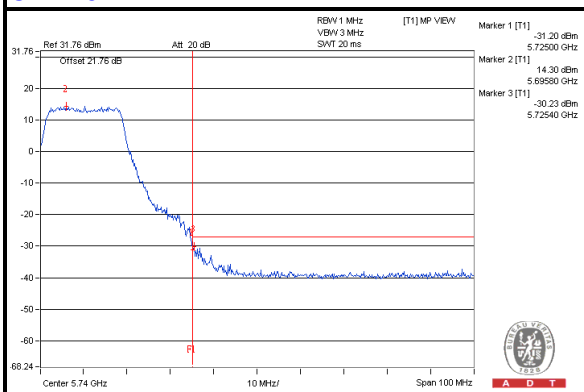
#### CH 64



#### CH 100



#### CH 140





A D T

### 802.11n (HT40)

Conducted emission (Worst data is presented only.)

#### CH 38

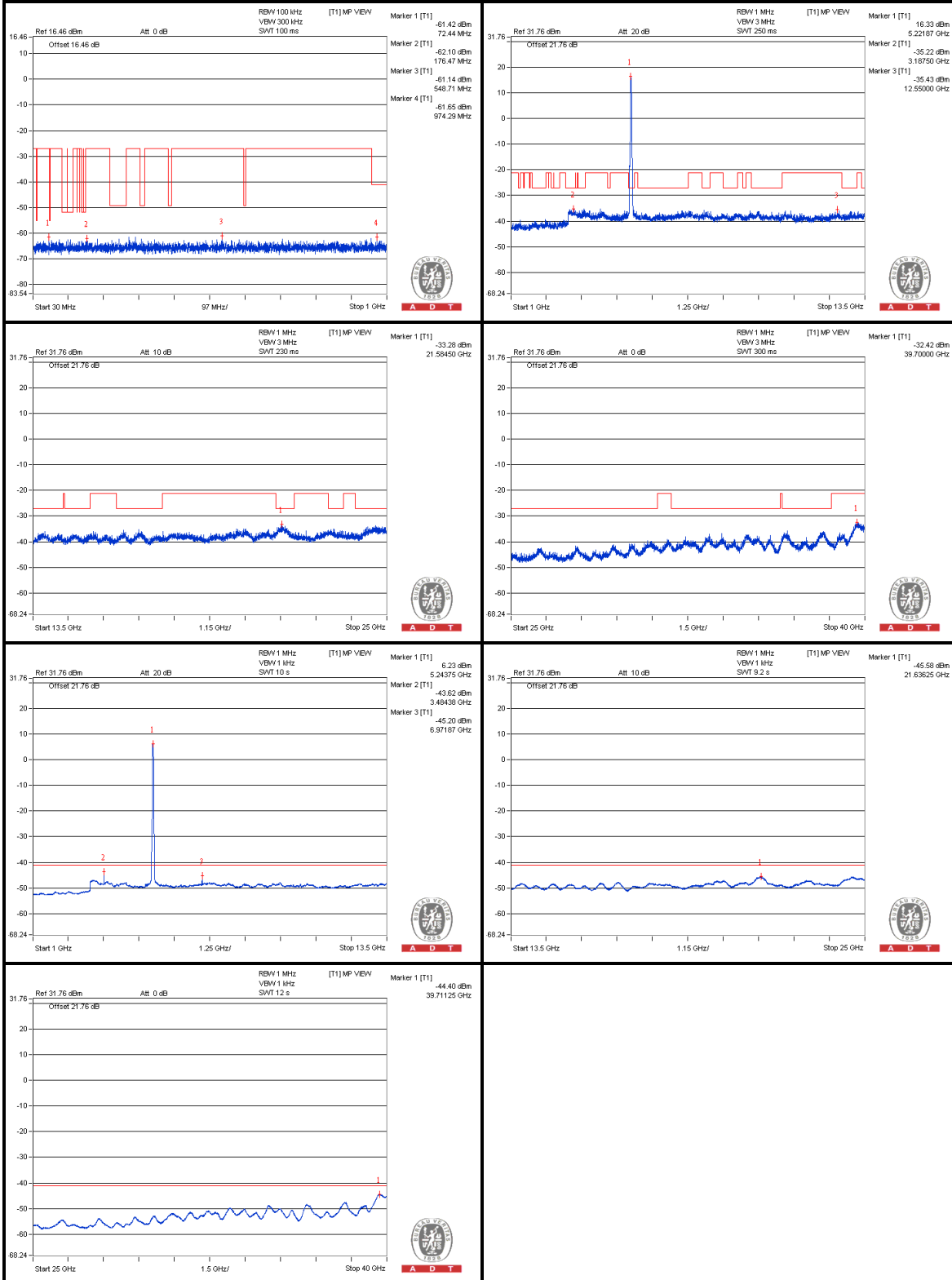




A D T

### Conducted emission (Worst data is presented only.)

#### CH 46





A D T

### Conducted emission (Worst data is presented only.)

#### CH 54







A D T

### Conducted emission (Worst data is presented only.)

#### CH 62





A D T

### Conducted emission (Worst data is presented only.)

#### CH 134

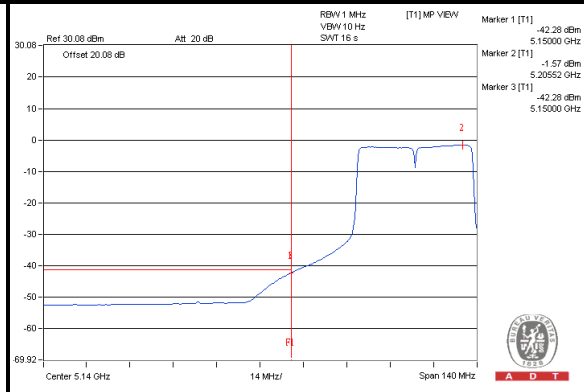
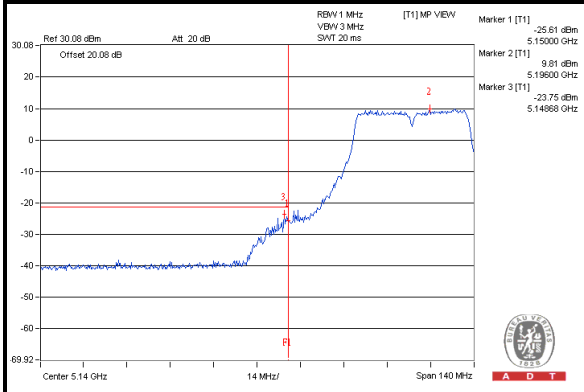




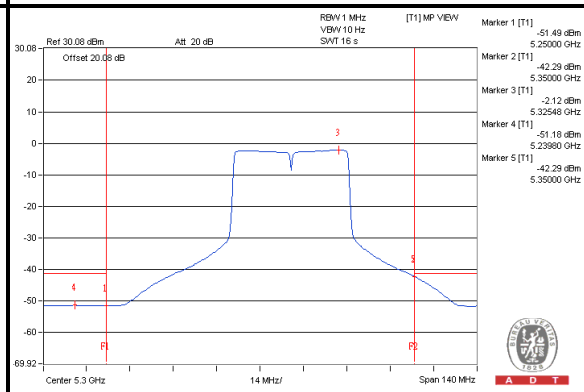
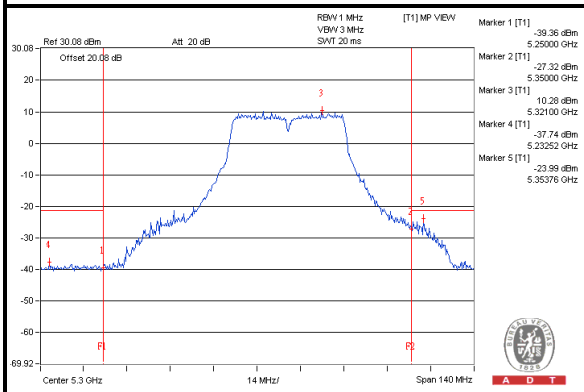
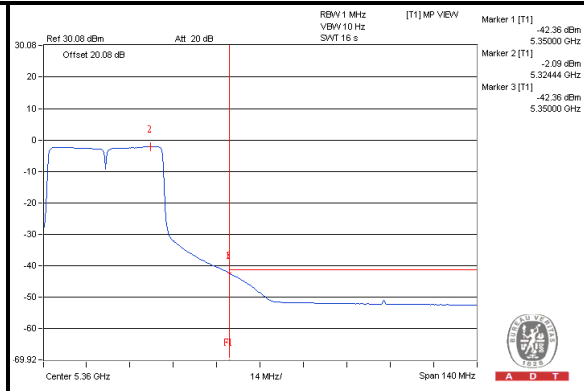
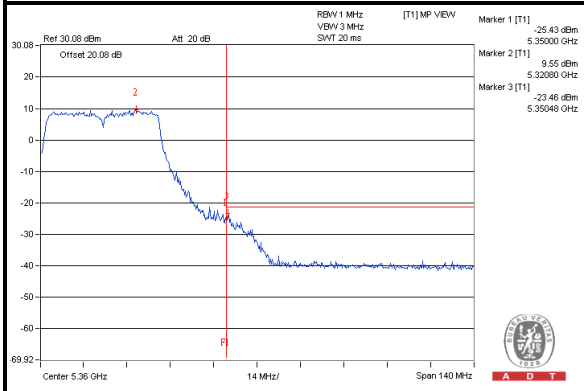
A D T

### Band Edges(Worst data is presented only.)

#### CH 38



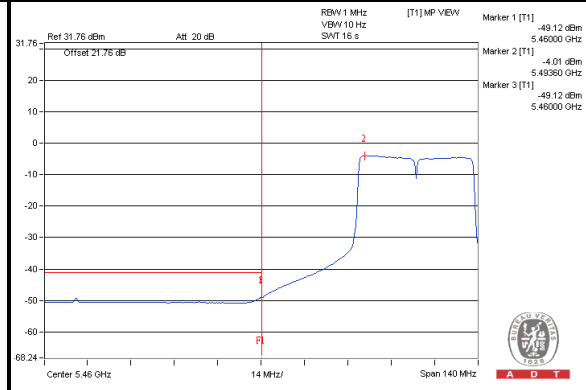
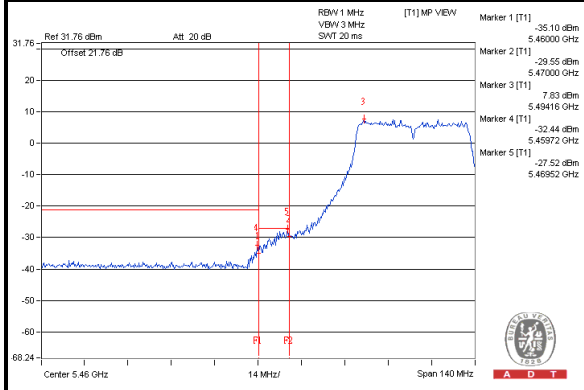
#### CH 62



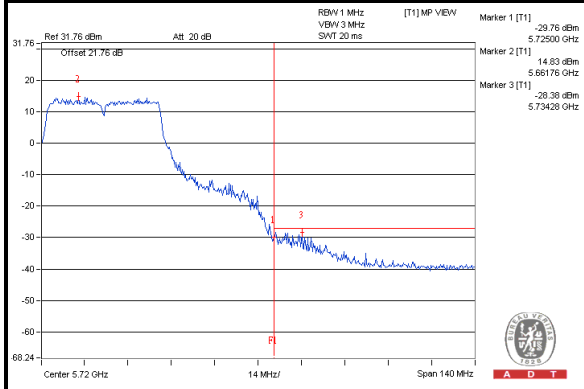


A D T

### CH 102



### CH 134





A D T

## 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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





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## 6. INFORMATION ON THE TESTING LABORATORIES

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

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

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

Fax: 886-2-26052943

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

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

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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



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

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

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