

FCC Radio Test Report

FCC ID: E2K-APL260B3

This report concerns (check one): ⊠Original Grant □Class II Change

Project No. : 1410101
Equipment : Access Point
Model Name : APL26-0B3
Applicant : Dell Inc.

Address : One Dell Way Round Rock, Texas 78682 United

States

Date of Receipt : Oct. 20, 2014

Date of Test : Oct. 20, 2014 ~ Nov. 17, 2014

Issued Date : Nov. 18, 2014
Tested by : BTL Inc.

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Declaration

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1410101	Original Issue.	Nov. 18, 2014

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1. CERTIFICATION

Equipment : Access Point

Brand Name: DELL
Model Name: APL26-0B3
Applicant: Dell Inc.

Date of Test : Oct. 20, 2014 ~ Nov. 17, 2014 Test Sample : ENGINEERING SAMPLE

Standard(s): FCC Part15, Subpart C: 2013 (15.247) / ANSI C63.4-2009

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1410101) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

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2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): F	CC Part15 (15.247) , Sub	part C: 2013	
Standard(s) Section FCC	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247(d)	Antenna conducted Spurious Emission	PASS	
15.247(a)(2)	6dB Bandwidth	PASS	
15.247(b)(3)	Peak Output Power	PASS	
15.247(e)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	
15.209/15.205	Transmitter Radiated Emissions	PASS	

NOTE:

- (1)" N/A" denotes test is not applicable in this test report.
- (2) The test follows FCC KDB Publication No. 558074 D01 DTS Meas Guidance v03r02 (Measurement Guidelines of DTS)

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2.1TEST FACILITY

The test facilities used to collect the test data in this report:

Conducted emission Test:

C02: 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Below 1 GHz):

CB08: 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Above 1 GHz):

CB08: 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC rules for reference only.

The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$, where expended uncertainty \mathbf{U} is based on a standard uncertainty multiplied by a coverage factor of $\mathbf{k=2}$, providing a level of confidence of approximately $\mathbf{95}\%$.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Conducted emission test:

Test Site	Measurement Frequency Range	U,(dB)	NOTE
C02	150 kHz ~ 30 MHz	2.59	

B. Radiated emission test:

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE										
					30 - 200MHz	3.35 dB									
	Horizontal	200 - 1000MHz	3.11 dB												
	Dadiated	Polarization	1 - 18GHz	3.97 dB											
CDOO	CB08 Radiated emission at		18 - 40GHz	4.01 dB											
CBUO												3m		30 - 200MHz	3.22 dB
	JIII	Vertical	200 - 1000MHz	3.24 dB											
		Polarization	1 - 18GHz	4.05 dB											
			18 - 40GHz	4.04 dB											

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz: 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) - 30 MHz - 1000 MHz: 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR} .

If U_{lab} is less than or equal to U_{CISPR} , then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{CISPR} , then:

- compliance is deemed to occur if no measured disturbance level, increased by (U_{lab} U_{CISPR}), exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by (U_{lab} U_{CISPR}), exceeds the disturbance limit.

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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Access Point			
Brand Name	DELL	DELL		
Model Name	APL26-0B3			
Model Difference	N/A			
	Operation Frequency	2412~2462 MHz		
Product Description	Modulation Technology	802.11b:DSSS 802.11g:OFDM 802.11n:OFDM		
	Bit Rate of Transmitter	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n up to 450 Mbps		
	Output Power (Max.)	802.11b: 23.04dBm 802.11g: 29.90dBm 802.11n(20MHz): 29.85dBm 802.11n(40MHz): 29.51dBm		
Power Source	Supplied from PoE.			
Power Rating	DC 48V 0.6A			

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

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2. Channel List:

	CH01 – CH11 for 802.11b, 802.11g, 802.11n(20MHz) CH03 – CH09 for 802.11n(40MHz)						
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Table for Filed Antenna

Ant.	Brand	Part NO.	Antenna Type	Connector	Gain (dBi)	Note
1	M •gear	C147-510906B	Dipole	R-SMA	3.76	TX/RX
2	M •gear	C147-510906B	Dipole	R-SMA	3.76	TX/RX
3	M •gear	C147-510906B	Dipole	R-SMA	3.76	TX/RX

Note:

(1) The EUT incorporates a MIMO function. Physically, the EUT provides three completed three transmitters and three receivers (3T3R), all transmit signals are completely uncorrelated, then, **Direction gain = G**_{ANT}, that is Directional gain=3.76.

4.

Operating Mode TX Mode	3ТХ
802.11b	V (ANT 1 + ANT 2+ANT 3)
802.11g	V (ANT 1 + ANT 2+ANT 3)
802.11n(20MHz)	V (ANT 1 + ANT 2+ANT 3)
802.11n(40MHz)	V (ANT 1 + ANT 2+ANT 3)

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3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09
Mode 5	TX MODE

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Radiated Test		
Final Test Mode	Description	
Mode 1	TX B MODE CHANNEL 01/06/11	
Mode 2	TX G MODE CHANNEL 01/06/11	
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11	
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09	

Note:

- (1) The measurements are performed at the high, middle, low available channels.
- (2) 802.11b mode: DBPSK (1Mbps)
 - 802.11g mode: OFDM (6Mbps)
 - 802.11n HT20 mode : BPSK (13Mbps)
 - 802.11n HT40 mode: BPSK (27Mbps)
 - For radiated emission tests, the highest output powers were set for final test.
- (3) For radiated below 1G test, the 802.11b is found to be the worst case and recorded.
- (4) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

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3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

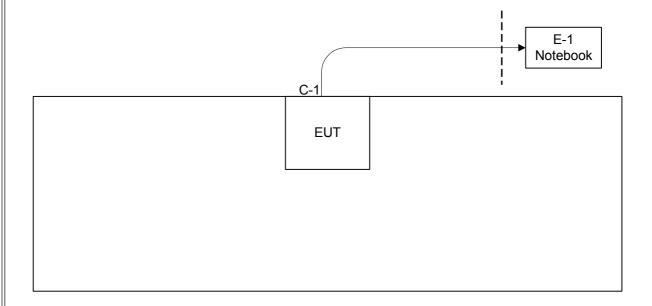
During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test software version	Artgui		
Frequency (MHz)	2412	2437	2462
802.11b	14.5	14.5	14
802.11g	14.5	15	14.5
802.11n (20MHz)	14	14	14
Frequency	2422	2437	2452
802.11n (40MHz)	13.5	14	14

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3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



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.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID/IC	Series No.	Note
E-1	Notebook PC	DELL	PP18L	DOC	PF329 A01	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	10m	RJ-45 Cable

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4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

Frequency of Emission (MHz)	Conducted Limit (dBµV)		
	Quasi-peak	Average	
0.15 -0.5	66 to 56*	56 to 46*	
0.50 -5.0	56	46	
5.0 -30.0	60	50	

Note:

(1) The limit of " * " decreases with the logarithm of the frequency

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

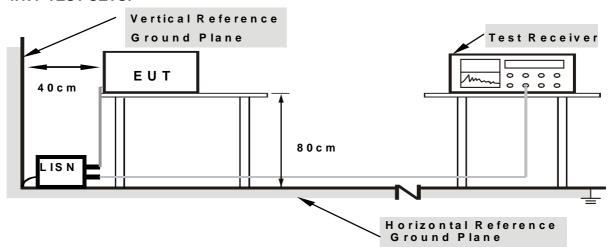
4.1.3 DEVIATION FROM TEST STANDARD

No deviation

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4.1.4 TEST SETUP



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

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 48V (PoE)

4.1.7 TEST RESULTS

Please refer to the Attachment A.

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4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

20dB in any 100 KHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9KHz-1000MHz)

	,	,
Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(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
960~1000	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequency (MHz)	(dBuV/m) (at 3 meters)		
	PEAK	AVERAGE	
Above 1000	74	54	

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW	RBW 1MHz VBW 3MHz peak detector for Pk value
(Emission in restricted band)	RMS detector for AV value

Receiver Parameter	Setting	
Attenuation	Auto	
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector	
Start ~ Stop Frequency	90KHz~110KHz for QP detector	
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector	
Start ~ Stop Frequency	490KHz~30MHz for QP detector	
Start ~ Stop Frequency	30MHz~1000MHz for QP detector	

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4.2.2 TEST PROCEDURE

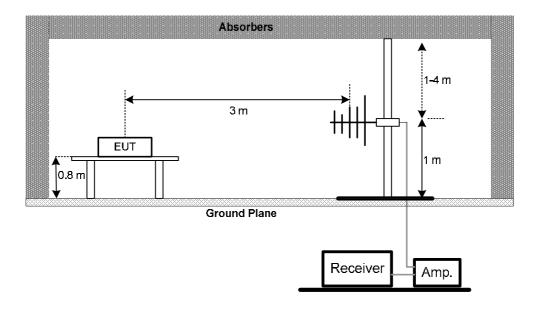
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.3 DEVIATION FROM TEST STANDARD

No deviation

4.2.4 TEST SETUP

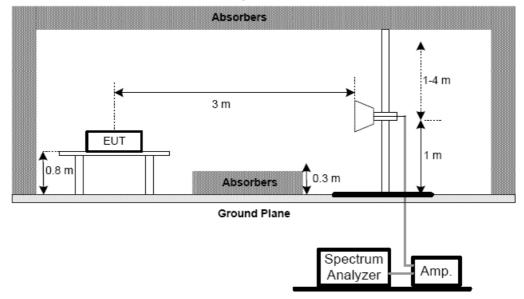
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



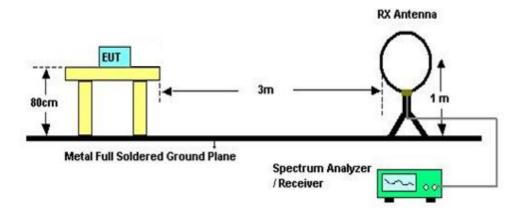
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(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For radiated emissions below 30MHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.5 Unless** otherwise a special operating condition is specified in the follows during the testing.

4.2.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 48V (PoE)

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4.2.7 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Attachment B

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.2.8 TEST RESULTS (BETWEEN 30MHZ TO 1000 MHZ)

Please refer to the Attachment C.

4.2.9 TEST RESULTS (ABOVE 1000 MHZ)

Please refer to the Attachment D.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable. For fundamental signal judgment was referred to Peak output test.

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5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES

FCC Part15 (15.247) , Subpart C				
Section Test Item Frequency Range (MHz) Result				
15.247(a)(2)	2400-2483.5	PASS		

5.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP

EUT	SPECTRUM
	ANALYZER

5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 48V (PoE)

5.1.6 TEST RESULTS

Please refer to the Attachment E.

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6. MAXIMUM PEAK CONDUCTED OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C						
Section	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(b)(3)	Maximum Output Power	1 Watt or 30dBm	2400-2483.5	PASS		

6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance v03r02.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP

EUT	Power Meter

6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Transmit output power was measured while the host equipment supply voltage was varied from 85 % to 115 % of the nominal rated supply voltage. No change in transmit output power was observed.

6.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 48V (PoE)

6.1.6 TEST RESULTS

Please refer to the Attachment F.

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7. ANTENNA CONDUCTED SPURIOUS EMISSION

7.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

7.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = Auto.

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP

EUT	SPECTRUM
	ANALYZER

7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 Unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 48V (PoE)

7.1.6 TEST RESULTS

Please refer to the Attachment G.

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8. POWER SPECTRAL DENSITY TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS	

8.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW=3KHz, VBW=10KHz, Sweep time = Auto.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP

EUT	SPECTRUM
	ANALYZER

8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 48V (PoE)

8.1.6 TEST RESULTS

Please refer to the Attachment H.

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9. MEASUREMENT INSTRUMENTS LIST

	Radiated Emission Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Spectrum Analyzer	R&S	FSP30	100854	Oct. 26, 2015		
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 14, 2015		
3	3 Microwave Agilent 8449B 3008A01714 Apr. 15		Apr. 15, 2015				
4	Microflex Cable	Harbour industries 27478LL142 1m May. 12,		May. 12, 2015			
5	Microflex Cable	EMC	S104-SMA	8m	May. 12, 2015		
6	Microflex Cable	Harbour industries	27478LL142	3m	May. 12, 2015		
7	Test Cable	LMR	LMR-400	12m	May. 13, 2015		
8	Test Cable	LMR	LMR-400	3m	May. 13, 2015		
9	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 17, 2015		
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	352 July. 10, 2015		

	6dB Bandwidth Measurement					
Item	m Kind of Equipment Manufacturer Type No. Serial No. Calibrated until					
1	Spectrum Analyzer	R&S	FSP30	100854	Oct. 26, 2015	

Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Aug. 8, 2015
2	Power Meter Sensor	Anritsu	MA2411B	1126001	Aug. 8, 2015

	Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	1 Spectrum Analyzer R&S FSP30 1		100854	Oct. 26, 2015		

	Power Spectral Density Measurement					
Item	m Kind of Equipment Manufacturer Type No. Serial No. Calibrated unt					
1	Spectrum Analyzer	R&S	FSP30	100854	Oct. 26, 2015	

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

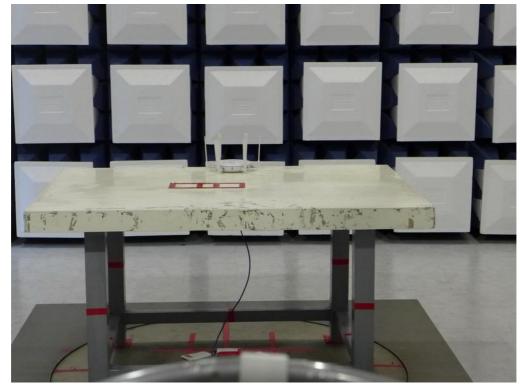
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10. EUT TEST PHOTO

Radiated Measurement Photos

9kHz to 30MHz





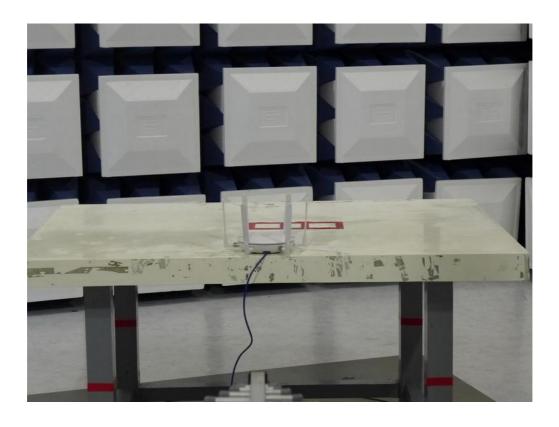
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Radiated Measurement Photos

30MHz to 1000MHz



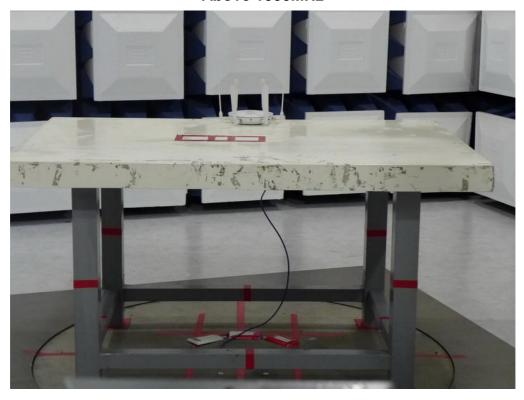


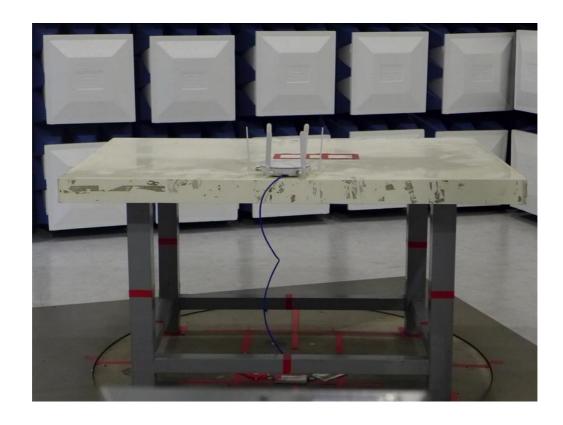
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Radiated Measurement Photos

Above 1000MHz





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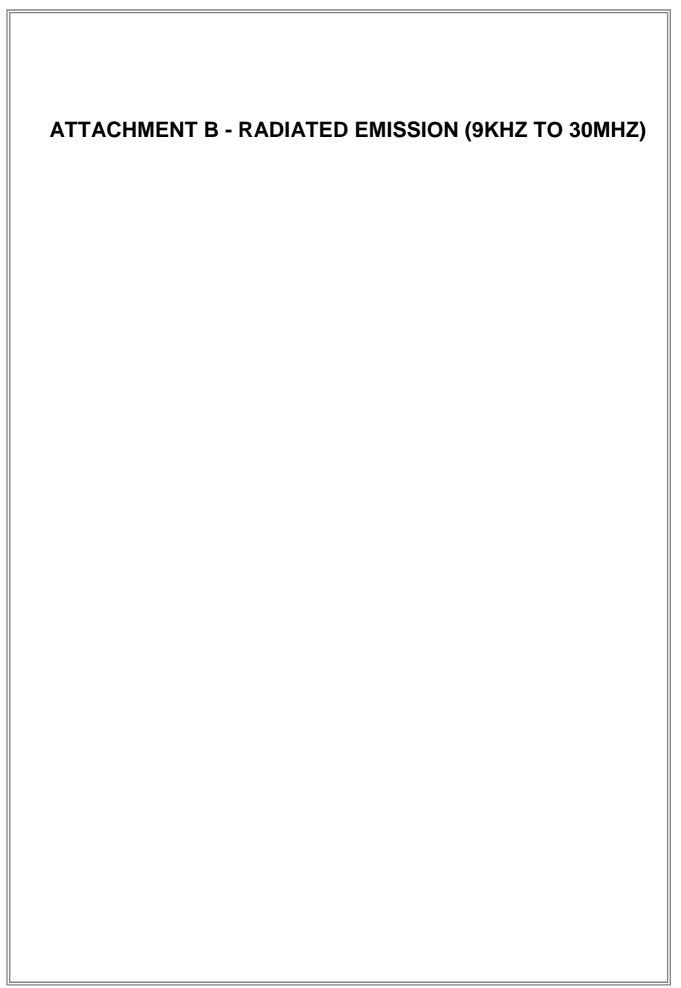
ATTACHMENT A - CONDUCTED EMISSION

Test Mode: N/A

Note: "N/A" denotes test is not applicable to this device.

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Test Mode: TX Mode

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	0°/90°	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOIC
0.1578	0°	56.30	12.00	68.30	103.64	-35.34	PK
0.3120	0°	39.63	11.10	50.73	77.72	-26.99	AVG
0.3120	0°	47.88	11.10	58.98	97.72	-38.74	PK
0.5460	0°	57.35	11.24	68.59	72.86	-4.27	AVG
0.0318	0°	35.60	11.24	46.84	92.86	-46.02	PK
0.6890	0°	59.35	11.30	70.65	70.84	-0.19	AVG
0.0429	0°	42.20	11.30	53.50	90.84	-37.34	PK
0.9200	0°	38.34	11.39	49.73	68.33	-18.60	QP
1.3360	0°	36.51	11.52	48.03	65.09	-17.06	QP

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	0°/90°	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOIC
0.1563	90°	50.26	12.01	62.27	83.73	-21.45	AVG
0.1563	90°	61.33	12.01	73.34	103.73	-30.38	PK
0.3145	90°	40.31	11.10	51.41	77.65	-26.24	AVG
0.3145	90°	47.25	11.10	58.35	97.65	-39.30	PK
0.5520	90°	57.35	11.24	68.59	72.77	-4.17	AVG
0.0318	90°	36.24	11.24	47.48	92.77	-45.28	PK
0.0429	90°	40.48	11.30	51.78	90.58	-38.80	PK
0.9230	90°	38.69	11.39	50.08	68.30	-18.22	QP
1.3350	90°	36.15	11.52	47.67	65.09	-17.42	QP

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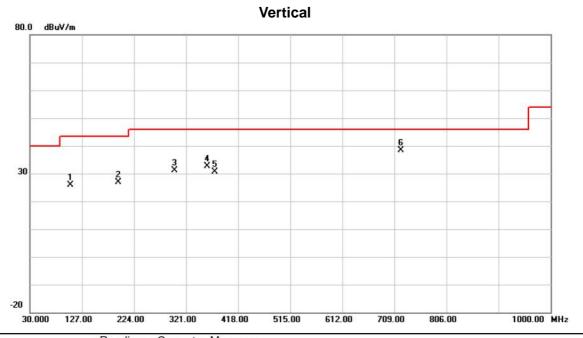


ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

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Freq.		Reading Level	Correct Factor	Measure- ment	Limit	Over		
MHz	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
5.1750	5.1750	44.04	-18.04	26.00	43.50	-17.50	peak	
4.9000	4.9000	43.46	-16.70	26.76	43.50	-16.74	peak	
9.1750	9.1750	44.68	-13.51	31.17	46.00	-14.83	peak	
0.8000	9.8000	44.83	-12.08	32.75	46.00	-13.25	peak	
4.3500	4.3500	42.39	-11.74	30.65	46.00	-15.35	peak	
1.1250	1.1250	43.53	-5.25	38.28	46.00	-7.72	peak	
1.1	1.1	250	250 43.53	250 43.53 -5.25	250 43.53 -5.25 38.28	250 43.53 -5.25 38.28 46.00	250 43.53 -5.25 38.28 46.00 -7.72	250 43.53 -5.25 38.28 46.00 -7.72 peak

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1000.00 MHz



-20

30.000 127.00

224.00

321.00

418.00

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		143.9750	36.22	-14.29	21.93	43.50	-21.57	peak	
2		282.2000	48.59	-13.91	34.68	46.00	-11.32	peak	
3		359.8000	47.23	-12.08	35.15	46.00	-10.85	peak	
4		374.3500	41.12	-11.74	29.38	46.00	-16.62	peak	
5	*	721.1250	42.75	-5.25	37.50	46.00	-8.50	peak	
6	1	900.5750	35.09	-2.82	32.27	46.00	-13.73	peak	

515.00

612.00

709.00

806.00

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ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

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2462.00 MHz

Orthogonal Axis: X
Test Mode: TX B MODE 2412MHz

Vertical 120.0 dBuV/m 70

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		2375.000	28.27	30.96	59.23	74.00	-14.77	peak	1 to	
2		2375.000	16.31	30.96	47.27	54.00	-6.73	AVG		
3	Х	2414.250	79.80	31.14	110.94	74.00	36.94	peak	no limit	
4	*	2414.250	77.38	31.14	108.52	54.00	54.52	AVG	no limit	

2412.00

2422.00

2432.00

2442.00

20.0

2362.000 2372.00

2382.00

2392.00

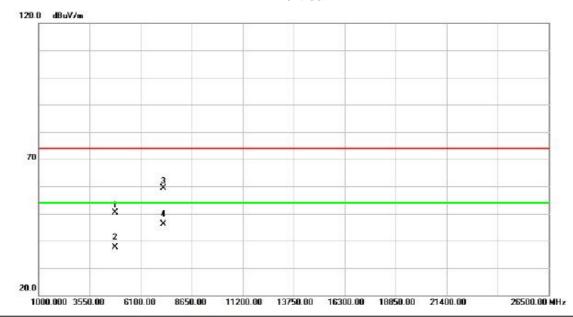
2402.00

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Orthogonal Axis: X
Test Mode: TX B MODE 2412MHz

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		4824.050	43.69	6.78	50.47	74.00	-23.53	peak	19-0-11 (100-) (100-)	
2		4824.050	30.82	6.78	37.60	54.00	-16.40	AVG		
3		7236.015	44.30	15.17	59.47	74.00	-14.53	peak		
4	*	7236.015	30.89	15.17	46.06	54.00	-7.94	AVG		

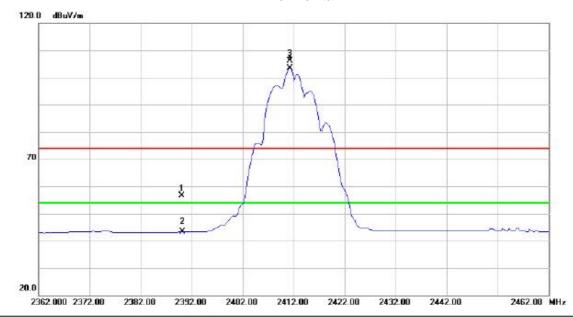
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Orthogonal Axis: X

Test Mode: TX B MODE 2412MHz

Horizontal

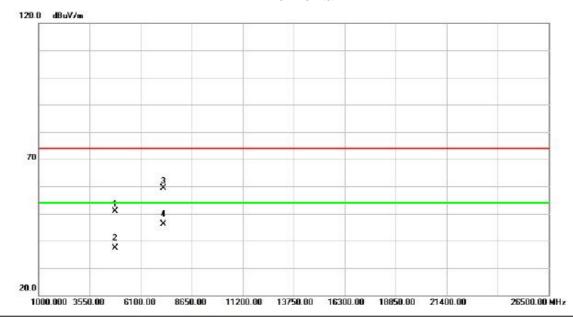


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		2390.000	25.68	31.02	56.70	74.00	-17.30	peak	10-0-31 10-0-31 000	
2		2390.000	12.25	31.02	43.27	54.00	-10.73	AVG		
3	X	2411.250	74.94	31.12	106.06	74.00	32.06	peak	no limit	
4	*	2411.250	72.14	31.12	103.26	54.00	49.26	AVG	no limit	

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Horizontal



No.	Mk	. Freq.	Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.410	44.21	6.78	50.99	74.00	-23.01	peak	
2		4824.410	30.56	6.78	37.34	54.00	-16.66	AVG	
3		7235.405	44.16	15.17	59.33	74.00	-14.67	peak	
4	*	7235.405	30.91	15.17	46.08	54.00	-7.92	AVG	

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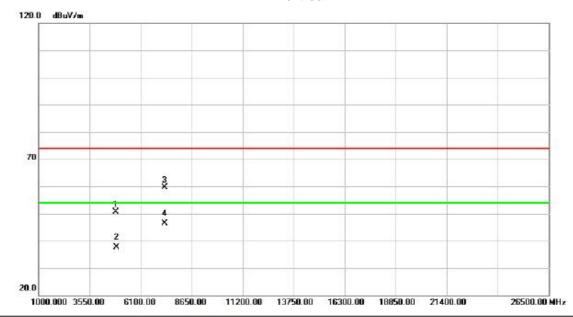
Vertical 120.0 dBuV/m 70 20.0 2387.000 2397.00 2407.00 2417.00 2427.00 2437.00 2447.00 2457.00 2467.00 2487.00 MHz

No.	Mk	c. Freq		ling el	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBu	V	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2438.250	79.9	91	31.25	111.16	74.00	37.16	peak	no limit	
2	*	2438.250	77.1	19	31.25	108.44	54.00	54.44	AVG	no limit	

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Vertical



No.	Mk	. Freq.	Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.000	43.95	6.78	50.73	74.00	-23.27	peak	
2		4874.000	30.84	6.78	37.62	54.00	-16.38	AVG	
3		7310.175	44.10	15.57	59.67	74.00	-14.33	peak	
4	*	7310.175	30.80	15.57	46.37	54.00	-7.63	AVG	

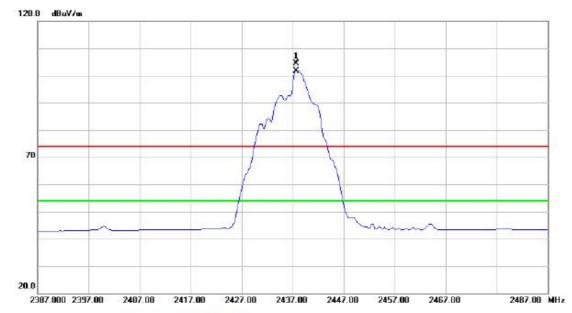
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Orthogonal Axis: X

Test Mode: TX B MODE 2437MHz

Horizontal

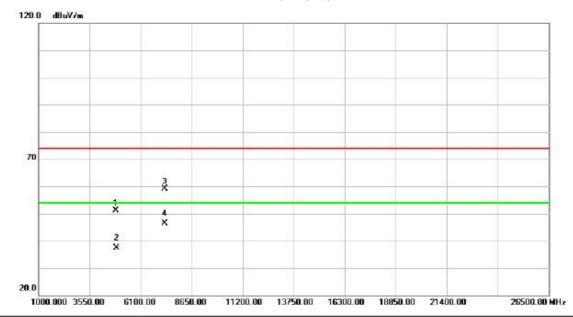


No.	M	ĸ.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	243	7.750	73.08	31.25	104.33	74.00	30.33	peak	no limit	
2	*	243	7.750	70.30	31.25	101.55	54.00	47.55	AVG	no limit	

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Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		4873.820	44.40	6.78	51.18	74.00	-22.82	peak	10-0-11-0-0-0-0	
2		4873.820	30.65	6.78	37.43	54.00	-16.57	AVG		
3		7311.065	43.55	15.57	59.12	74.00	-14.88	peak		
4	*	7311.065	30.76	15.57	46.33	54.00	-7.67	AVG		

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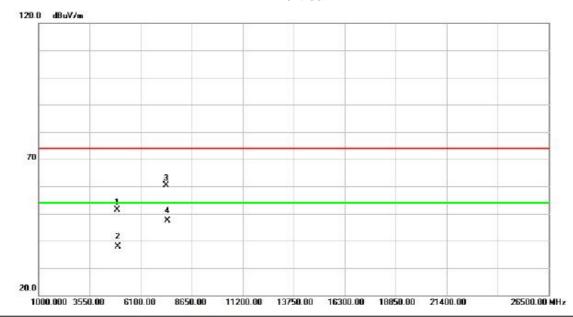
Vertical 120.0 dBuV/n 70 20.0 2412.000 2422.00 2432.00 2442.00 2452.00 2462.00 2472.00 2482.00 2492.00 2512.00 MHz

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2461.250	76.88	31.36	108.24	74.00	34.24	peak	no limit	
2	*	2461.250	73.58	31.36	104.94	54.00	50.94	AVG	no limit	
3		2483.500	25.59	31.46	57.05	74.00	-16.95	peak		
4		2483.500	12.88	31.46	44.34	54.00	-9.66	AVG		

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Vertical



No.	Mk.	Freq.	Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4923.975	44.52	6.77	51.29	74.00	-22.71	peak	
2		4923.975	31.02	6.77	37.79	54.00	-16.21	AVG	
3		7385.895	44.41	15.98	60.39	74.00	-13.61	peak	
4	*	7385.895	31.47	15.98	47.45	54.00	-6.55	AVG	

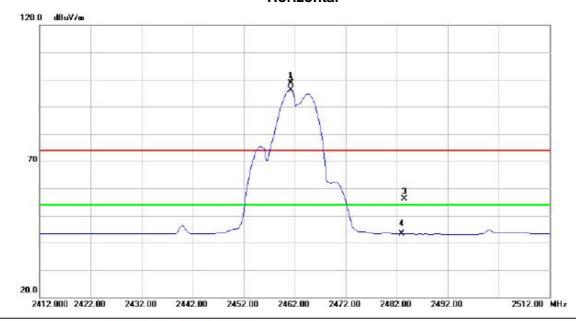
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Orthogonal Axis: X

Test Mode: TX B MODE 2462MHz

Horizontal

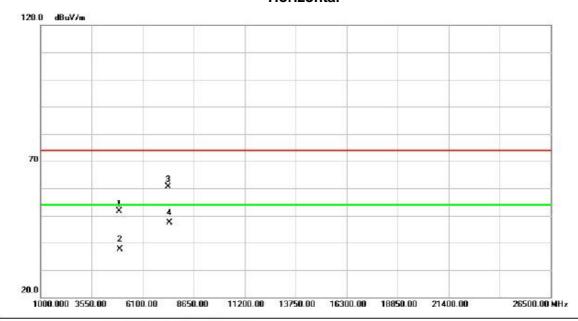


No.	Mk	. Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2461.250	67.26	31.36	98.62	74.00	24.62	peak	no limit	
2	*	2461.250	64.86	31.36	96.22	54.00	42.22	AVG	no limit	
3		2483.500	24.62	31.46	56.08	74.00	-17.92	peak		
4		2483.500	11.85	31.46	43.31	54.00	-10.69	AVG		
_		<u> </u>	<u> </u>							

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Horizontal

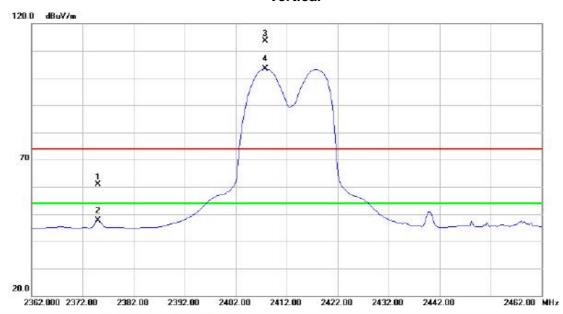


No.	Mk	. Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4923.870	44.84	6.77	51.61	74.00	-22.39	peak	
2		4923.870	30.90	6.77	37.67	54.00	-16.33	AVG	
3		7385.780	44.62	15.98	60.60	74.00	-13.40	peak	
4	*	7385.780	31.44	15.98	47.42	54.00	-6.58	AVG	

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Vertical



No.	Mk	k. F	req.	Reading Level	Correct	Measure- ment	Limit	Over			
		1	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		2375	.000	30.03	30.96	60.99	74.00	-13.01	peak		
2		2375	.000	16.66	30.96	47.62	54.00	-6.38	AVG		
3	X	2407	.750	82.61	31.11	113.72	74.00	39.72	peak	no limit	
4	*	2407	.750	72.28	31.11	103.39	54.00	49.39	AVG	no limit	

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Vertical

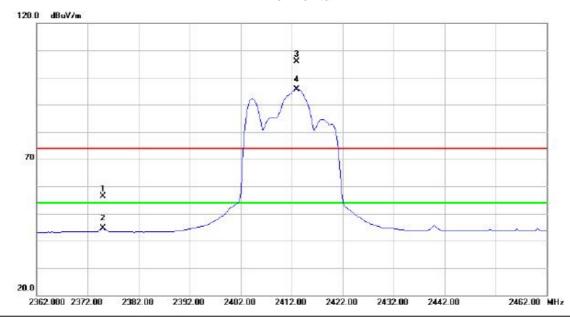


No.	Mk.	. Freq.	Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.065	44.05	6.78	50.83	74.00	-23.17	peak	
2		4824.065	30.77	6.78	37.55	54.00	-16.45	AVG	
3		7235.570	44.39	15.17	59.56	74.00	-14.44	peak	
4	*	7235.570	30.80	15.17	45.97	54.00	-8.03	AVG	

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Horizontal

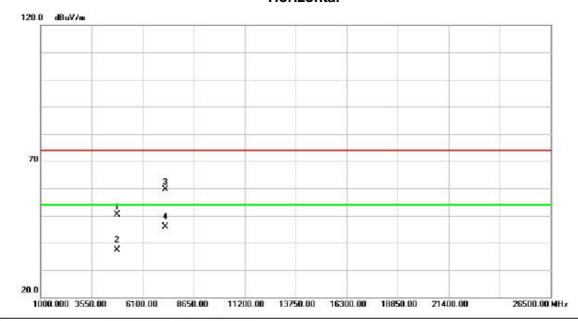


No.	Mk	Κ.	Freq.	Level	Factor	Measure- ment	Limit	Over			
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		237	5.000	25.53	30.96	56.49	74.00	-17.51	peak		
2		237	5.000	13.62	30.96	44.58	54.00	-9.42	AVG		
3	X	241	3.000	74.79	31.13	105.92	74.00	31.92	peak	no limit	
4	*	241	3.000	64.49	31.13	95.62	54.00	41.62	AVG	no limit	

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Horizontal

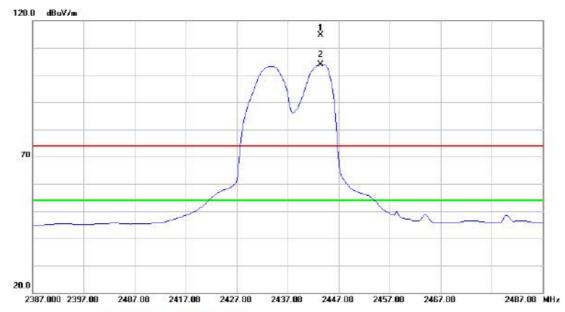


No.	Mk	. Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.390	43.57	6.78	50.35	74.00	-23.65	peak	
2		4824.390	30.50	6.78	37.28	54.00	-16.72	AVG	
3		7235.980	44.43	15.17	59.60	74.00	-14.40	peak	
4	*	7235.980	30.73	15.17	45.90	54.00	-8.10	AVG	

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Vertical



No.	Mk	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2443.500	83.25	31.28	114.53	74.00	40.53	peak	no limit	
2	*	2443.500	72.66	31.28	103.94	54.00	49.94	AVG	no limit	

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Vertical



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		4873.940	43.88	6.78	50.66	74.00	-23.34	peak	13-0-11-0-0-0-0-0	
2		4873.940	30.71	6.78	37.49	54.00	-16.51	AVG		
3		7310.955	44.02	15.57	59.59	74.00	-14.41	peak		
4	*	7310.955	30.66	15.57	46.23	54.00	-7.77	AVG		

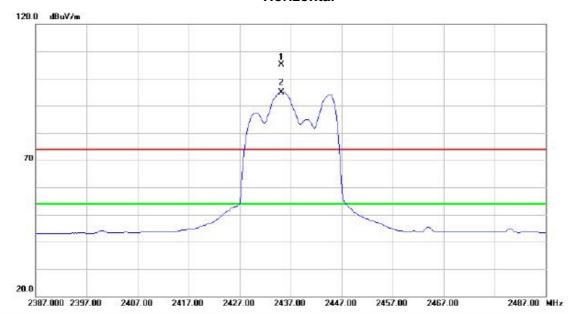
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Orthogonal Axis: X

Test Mode: TX G MODE 2437MHz

Horizontal



No.	Mk	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2435.250	73.91	31.23	105.14	74.00	31.14	peak	no limit	
2	*	2435.250	63.63	31.23	94.86	54.00	40.86	AVG	no limit	

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Horizontal

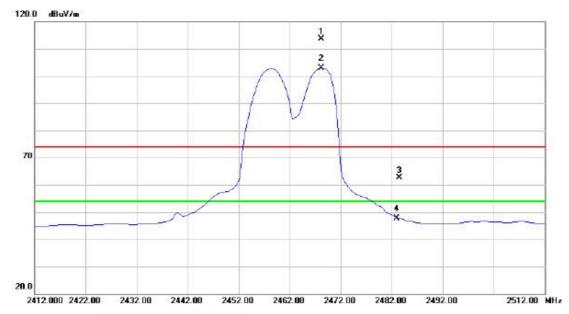


No.	Mk.	Freq.	Level	Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	-	4873.590	44.46	6.78	51.24	74.00	-22.76	peak		
2	-	4873.590	30.48	6.78	37.26	54.00	-16.74	AVG		
3		7310.905	43.98	15.57	59.55	74.00	-14.45	peak		
4	*	7310.905	30.52	15.57	46.09	54.00	-7.91	AVG		

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Vertical

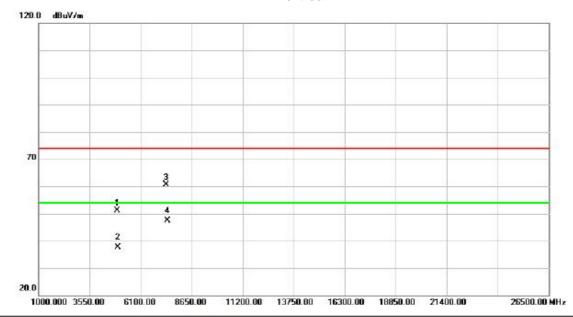


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2468.250	82.35	31.39	113.74	74.00	39.74	peak	no limit	
2	٠	2468.250	71.59	31.39	102.98	54.00	48.98	AVG	no limit	
3		2483.500	31.24	31.46	62.70	74.00	-11.30	peak		
4		2483.500	16.24	31.46	47.70	54.00	-6.30	AVG		

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Vertical



No.	Mk	. Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4923.990	44.47	6.77	51.24	74.00	-22.76	peak	
2		4923.990	30.89	6.77	37.66	54.00	-16.34	AVG	
3		7386.505	44.71	15.98	60.69	74.00	-13.31	peak	
4	*	7386.505	31.43	15.98	47.41	54.00	-6.59	AVG	

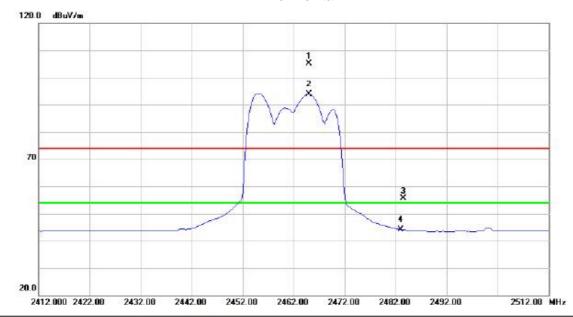
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Orthogonal Axis: X

Test Mode : TX G MODE 2462MHz

Horizontal

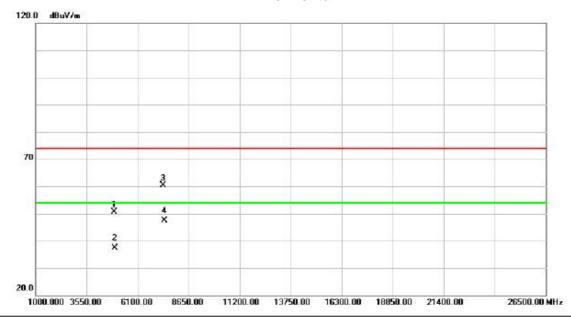


No.	Mk	. Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2465.000	73.69	31.37	105.06	74.00	31.06	peak	no limit	
2	*	2465.000	62.49	31.37	93.86	54.00	39.86	AVG	no limit	
3		2483.500	24.08	31.46	55.54	74.00	-18.46	peak		
4		2483.500	12.61	31.46	44.07	54.00	-9.93	AVG		

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Horizontal



No.	Mk.	Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.250	43.83	6.77	50.60	74.00	-23.40	peak	
2		4924.250	30.71	6.77	37.48	54.00	-16.52	AVG	
3		7385.470	44.52	15.98	60.50	74.00	-13.50	peak	
4	*	7385.470	31.34	15.98	47.32	54.00	-6.68	AVG	

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Vertical 120.0 dBuV/m 70 120.0 dBuV/m 20.0

No.	Mk	ζ.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		237	5.000	29.52	30.96	60.48	74.00	-13.52	peak		
2		237	5.000	17.49	30.96	48.45	54.00	-5.55	AVG		
3	X	241	7.500	79.79	31.15	110.94	74.00	36.94	peak	no limit	
4	*	241	7.500	64.48	31.15	95.63	54.00	41.63	AVG	no limit	

2412.00

2422.00

2432.00

2442.00

2462.00 MHz

2362.000 2372.00

2382.00

2392.00

2402.00

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Vertical

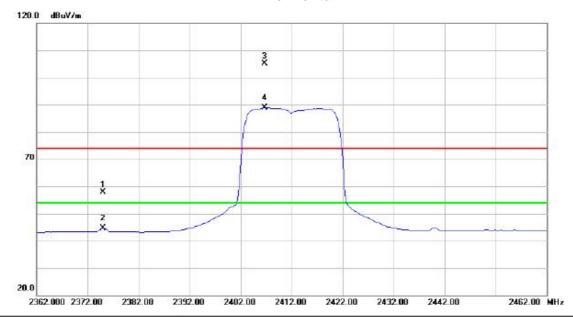


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		4823.930	44.08	6.78	50.86	74.00	-23.14	peak		
2		4823.930	30.66	6.78	37.44	54.00	-16.56	AVG		
3		7236.260	44.82	15.17	59.99	74.00	-14.01	peak		
4	*	7236.260	30.74	15.17	45.91	54.00	-8.09	AVG		

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Horizontal



No.	Mk	Freq.	Level	Factor	ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		2375.000	26.93	30.96	57.89	74.00	-16.11	peak		
2		2375.000	13.68	30.96	44.64	54.00	-9.36	AVG		
3	X	2406.750	74.14	31.10	105.24	74.00	31.24	peak	no limit	
4	*	2406.750	57.81	31.10	88.91	54.00	34.91	AVG	no limit	

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Horizontal

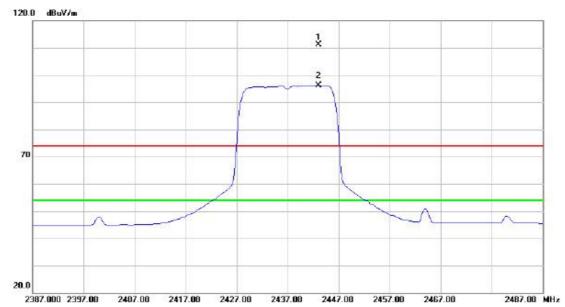


No.	Mk	c. Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4823.995	44.00	6.78	50.78	74.00	-23.22	peak	
2		4823.995	30.48	6.78	37.26	54.00	-16.74	AVG	
3		7236.785	44.59	15.17	59.76	74.00	-14.24	peak	
4	*	7236.785	30.62	15.17	45.79	54.00	-8.21	AVG	

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Vertical



No.	Mk	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2443.000	79.91	31.27	111.18	74.00	37.18	peak	no limit	
2	*	2443.000	64.97	31.27	96.24	54.00	42.24	AVG	no limit	

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Vertical

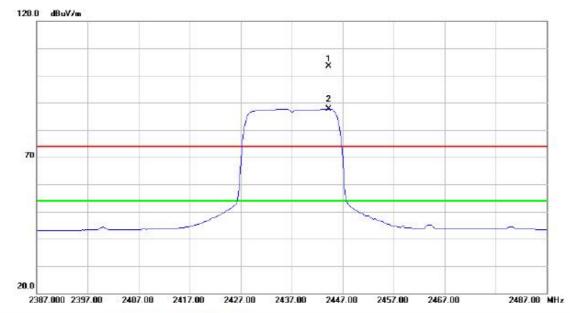


No.	Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		4873.955	44.25	6.78	51.03	74.00	-22.97	peak	19 - 0-14 11 - 0-10001	
2		4873.955	30.71	6.78	37.49	54.00	-16.51	AVG		
3		7310.470	44.08	15.57	59.65	74.00	-14.35	peak		
4	*	7310.470	30.70	15.57	46.27	54.00	-7.73	AVG		

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Horizontal



No.	Mk	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	X	2444.250	72.01	31.28	103.29	74.00	29.29	peak	no limit	
2	*	2444.250	56.47	31.28	87.75	54.00	33.75	AVG	no limit	

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