

FCC CERTIFICATION
On Behalf of
Launch Tech Co., Ltd.

X-631+ Main Unit
Model No.: X-631, X-631+, X-631+D, X-631+T

FCC ID: XUJX631WAMU

Prepared for : Launch Tech Co., Ltd.
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Test Report Certification

Applicant : Launch Tech Co., Ltd.
 Manufacturer : Launch Tech Co., Ltd.
 EUT Description : X-631+ Main Unit
 (A) MODEL NO.: X-631, X-631+, X-631+D, X-631+T
 (B) POWER SUPPLY: DC 5V(Power by USB Port)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.4: 2003

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.249 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : August 1- 10, 2012

Prepared by : Apple
(Apple, Engineer)

Approved & Authorized Signer : 
(Sean Liu , Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	X-631+ Main Unit
Model Number	:	X-631, X-631+, X-631+D, X-631+T
		(Note: These samples are identical in schematic, structure and critical components except for appearance. Therefore only model X-631+ is tested for FCC tests.)
Power Supply	:	DC 5V(Power by USB Port)
Operate Frequency	:	2402.000-2446.000MHz
Applicant	:	Launch Tech Co., Ltd.
Address	:	Launch Industrial Park, North Wuhe Avenue, Banxuegang Industrial Park, Longgang District, Shenzhen, China
Manufacturer	:	Launch Tech Co., Ltd.
Address	:	Launch Industrial Park, North Wuhe Avenue, Banxuegang Industrial Park, Longgang District, Shenzhen, China
Date of sample received	:	August 1, 2012
Date of Test	:	August 1- 10, 2012

1.2. Special Accessory and Auxiliary Equipment

PC	:	Manufacturer: DELL Model No.: DMC Serial No.: 3R7LF1X
LCD Monitor	:	Manufacturer: DELL Model No.: E172FPt Serial No.: 434
Keyboard	:	Manufacturer: DELL Model No.: SK-8110 Serial No.: LR86682
Mouse	:	Manufacturer: DELL Model No.: M071KC Serial No.: 410042355
Printer	:	Manufacturer: Canon Model No.: BJC-1000SP

1.3. Description of Test Facility

EMC Lab	:	<p>Accredited by TUV Rheinland Shenzhen</p> <p>Listed by FCC The Registration Number is 752051</p> <p>Listed by Industry Canada The Registration Number is 5077A-2</p> <p>Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193</p>
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	<p>F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China</p>

1.4. Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 8, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 8, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 8, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 8, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 8, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 8, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 8, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 8, 2012	Jan. 7, 2013

3. SUMMARY OF TEST RESULTS

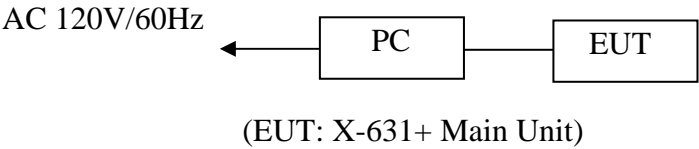
FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	Compliant
Section 15.249(a)	Fundamental and Harmonics Radiated Emission	Compliant
Section 15.249(d)	Spurious Radiated Emission	Compliant
Section 15.249(d)	Band Edge	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: “N/A” means “Not applicable”.

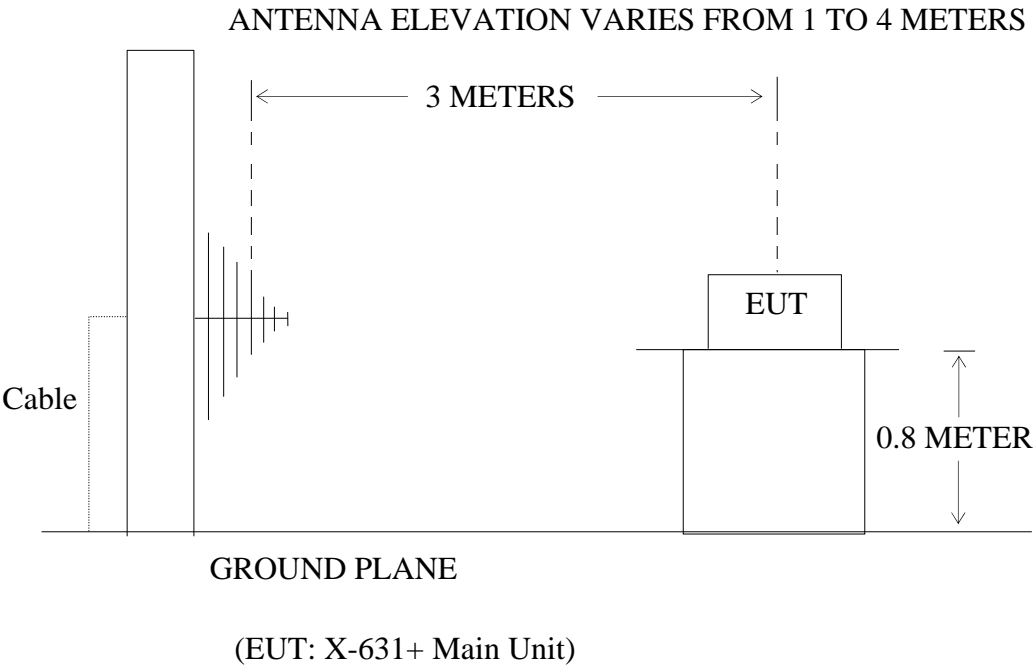
4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION **FOR SECTION 15.249(A)**

4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



4.1.2. Semi-Anechoic Chamber Test Setup Diagram



4.2.The Emission Limit

4.2.1.For intentional radiators, According to section 15.249(a), Operation within the frequency band of 2.4 to 2.4835GHz, The fundamental field strength shall not exceed 94 dB μ V/m and the harmonics shall not exceed 54 dB μ V/m.

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of harmonics (microvolts/meter)
902-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

4.2.2.According to section 15.249(e), as shown in section 15.35(b), the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

4.3.Configuration of EUT on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.3.1. X-631+ Main Unit (EUT)

Model Number : X-631+
 Serial Number : N/A
 Manufacturer : Launch Tech Co., Ltd.

4.4.Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1.

4.4.2.Turn on the power of all equipment.

4.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402.000 - 2446.000 MHz . We are select 2402.000MHz, 2419.000MHz, 2446.000MHz TX frequency to transmit.

4.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz is checked.

4.6.The Field Strength of Radiation Emission Measurement Results

PASS.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2402.000MHz	Test Engineer:	Bob

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2402.000	99.93	117.47	-7.45	92.48	110.02	94	114	-1.52	-3.98	Vertical
2402.000	90.33	105.97	-7.45	82.88	98.52	94	114	-11.12	-15.48	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
4804.000	48.38	53.06	-0.30	48.08	52.76	54.00	74.00	-5.92	-21.24	Vertical
7206.000	42.44	48.02	2.97	45.41	50.99	54.00	74.00	-8.59	-23.01	Vertical
4804.000	46.55	51.28	-0.30	46.25	50.98	54.00	74.00	-7.75	-23.02	Horizontal
7206.000	41.58	46.02	2.97	44.55	48.99	54.00	74.00	-9.45	-25.01	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2419.000MHz	Test Engineer:	Bob

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2419.000	99.97	109.95	-7.41	92.56	102.54	94.00	114.00	-1.44	-11.46	Vertical
2419.000	100.36	117.14	-7.41	92.95	109.73	94.00	114.00	-1.05	-4.27	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
4838.000	47.92	52.18	-0.11	47.81	52.07	54.00	74.00	-6.19	-21.93	Vertical
7257.000	44.58	48.58	3.10	47.68	51.68	54.00	74.00	-6.32	-22.32	Vertical
4838.000	45.79	51.14	-0.11	45.68	51.03	54.00	74.00	-8.32	-22.97	Horizontal
7257.000	40.87	45.69	3.10	43.79	48.97	54.00	74.00	-10.03	-25.21	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2446.000MHz	Test Engineer:	Bob

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2446.000	99.45	117.27	-7.34	92.11	109.93	94.00	114.00	-1.89	-4.07	Vertical
2446.000	96.32	109.82	-7.34	88.98	102.48	94.00	114.00	-5.02	-11.52	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
4892.000	48.33	52.33	0.20	48.53	52.53	54.00	74.00	-5.47	-21.47	Vertical
7338.007	43.17	48.27	3.28	46.45	51.55	54.00	74.00	-7.55	-22.45	Vertical
4892.000	45.12	50.98	0.20	45.32	51.18	54.00	74.00	-8.68	-22.82	Horizontal
7338.007	46.81	41.38	3.28	50.09	44.66	54.00	74.00	-23.91	-9.34	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

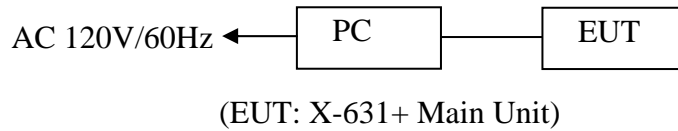
$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

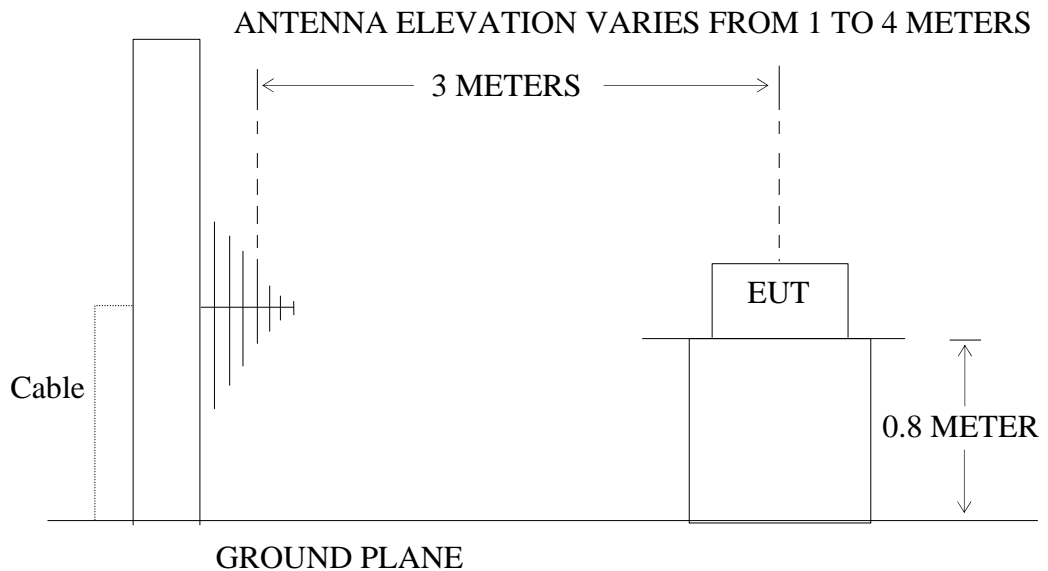
5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)

5.1. Block Diagram of Test Setup

5.1.1. Block diagram of connection between the EUT and simulators



5.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: X-631+ Main Unit)

5.2.The Emission Limit For Section 15.249(d)

5.2.1.Emission radiated outside of the specified frequency bands, except for harmonics, shall be comply with the general radiated emission limits in Section 15.209.

Radiation Emission Measurement Limits According to Section 15.209

Frequency (MHz)	Limit		
	Field Strength (microvolts/meter)	Measurement Distance (meters)	
0.009 – 0.490	2400/F(kHz)	300	The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
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	

5.3.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1. X-631+ Main Unit (EUT)

Model Number : X-631+
 Serial Number : N/A
 Manufacturer : Launch Tech Co., Ltd.

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402.000 - 2446.000 MHz . We are select 2402.000MHz, 2419.000MHz, and 2446.000MHz TX frequency to transmit.

5.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9kHz to 25GHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

5.6.The Emission Measurement Result

PASS.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2402.000MHz	Test Engineer:	Bob

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	X
---	---	---	---	---	---	Y
---	---	---	---	---	---	Z

30MHz-25GHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
36.1405	16.64	15.43	32.07	40.00	-7.93	Vertical
104.7978	18.28	13.93	32.21	43.50	-1.29	
809.9238	9.69	27.97	37.66	46.00	-8.34	
125.8058	22.17	13.04	35.21	43.50	-8.29	Horizontal
253.1401	19.46	17.74	37.20	46.00	-8.80	
809.9238	10.15	27.97	38.12	46.00	-7.88	

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2419.000MHz	Test Engineer:	Bob

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	X
---	---	---	---	---	---	Y
---	---	---	---	---	---	Z

30MHz-25GH

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
36.1405	16.77	15.43	32.20	40.00	-7.80	Vertical
104.4303	18.35	13.93	32.28	43.50	-11.22	
784.7128	9.53	27.88	37.41	46.00	-8.59	
81.6603	14.64	12.82	27.46	40.00	-12.54	Horizontal
125.8058	20.30	13.04	33.34	43.50	-10.16	
784.7128	10.97	27.88	38.85	46.00	-7.15	

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2446.000MHz	Test Engineer:	Bob

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
---	---	---	---	---	---	X
---	---	---	---	---	---	Y
---	---	---	---	---	---	Z

30MHz-25GH

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
36.2678	17.70	15.40	33.10	40.00	-6.90	Vertical
14.4303	18.55	13.93	32.48	43.50	-11.02	
784.7128	8.91	27.88	36.79	46.00	-9.21	
81.6603	16.04	12.82	28.86	40.00	-11.14	Horizontal
125.8058	22.30	13.04	35.34	43.50	-8.16	
784.7128	11.28	27.88	39.16	46.00	-6.84	

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss (if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

6. BAND EDGES

6.1.The Requirement

6.1.1.Band Edge from 2400MHz to 2483.5MHz Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

6.2.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.2.1. X-631+ Main Unit (EUT)

Model Number : X-631+
 Serial Number : N/A
 Manufacturer : Launch Tech Co., Ltd.

6.3.Operating Condition of EUT

6.3.1.Setup the EUT and simulator as shown as Section 4.1.

6.3.2.Turn on the power of all equipment.

6.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402.000-2446.000MHz MHz. We are select 2402.000MHz, 2446.000MHz TX frequency to transmit.

6.4.Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 RBW=1MHz, VBW=1MHz

6.5.The Measurement Result

Pass.

Date of Test:	August 10, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2402.000MHz	Test Engineer:	Bob

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2310.000	31.58	43.86	-7.81	23.77	36.05	54.00	74.00	-30.23	-37.95	Vertical
2381.764	32.89	46.75	-7.58	25.31	39.17	54.00	74.00	-28.69	-34.83	
2390.000	33.58	46.50	-7.53	26.05	38.97	54.00	74.00	-27.95	-35.03	
2310.000	30.25	44.45	-7.81	22.44	36.64	54.00	74.00	-31.56	-37.36	Horizontal
2377.819	34.55	47.78	-7.61	26.94	40.17	54.00	74.00	-27.06	-33.83	
2390.000	33.25	45.62	-7.53	25.72	38.09	54.00	74.00	-28.28	-35.91	

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	May 31, 2012	Temperature:	25°C
EUT:	X-631+ Main Unit	Humidity:	50%
Model No.:	X-631+	Power Supply:	DC 5V
Test Mode:	TX 2446.000MHz	Test Engineer:	Bob

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	36.36	48.46	-7.37	28.99	41.09	54.00	74.00	-25.01	-32.91	Vertical
2488.299	33.48	48.47	-7.38	26.10	41.09	54.00	74.00	-27.90	-32.91	
2500.000	30.55	43.89	-7.40	23.15	36.49	54.00	74.00	-30.85	-37.51	
2483.500	37.69	49.28	-7.37	30.32	41.91	54.00	74.00	-23.68	-32.09	Horizontal
2489.883	33.25	48.01	-7.39	25.86	40.62	54.00	74.00	-28.14	-33.38	
2500.000	32.14	45.53	-7.40	24.74	38.13	54.00	74.00	-29.26	-35.87	

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

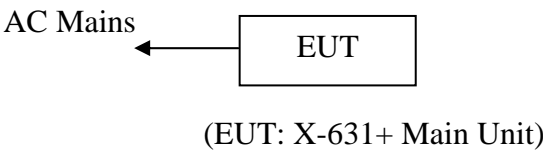
Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain

3. The spectral diagrams in appendix I display the measurement of peak values.

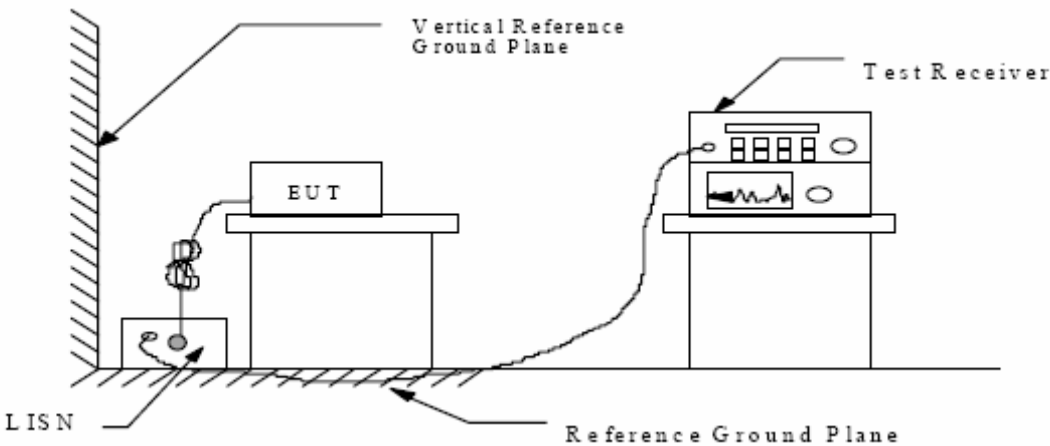
7. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

7.1. Block Diagram of Test Setup

7.1.1. Block diagram of connection between the EUT and simulators



7.1.2. Shielding Room Test Setup Diagram



(EUT: X-631+ Main Unit)

7.2. The Emission Limit

7.2.1. Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

7.3.Configuration of EUT on Measurement

The following equipment are installed on the Conducted Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.3.1.X-631+ Main Unit (EUT)

Model Number : X-631+
Serial Number : N/A
Manufacturer : Launch Tech Co., Ltd.

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 7.1.

7.4.2.Turn on the power of all equipment.

7.4.3. Let the EUT work in Tx (Middle Channel: 2419MHz) mode measure it.

7.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

7.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Date of Test:	<u>May 29, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>X-631+ Main Unit</u>	Humidity:	<u>50%</u>
Model No.:	<u>X-631+</u>	Power Supply:	<u>AC 120V/ 60Hz</u>
Test Mode:	<u>TX (Middle Channel: 2419MHz)</u>	Test Engineer:	<u>Bob</u>

Frequency (MHz)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector	Line
0.186830	45.20	64	-19.0	QP	Neutral
0.252043	44.80	62	-16.9	QP	
0.325410	42.10	60	-17.5	QP	
0.186085	35.00	54	-19.2	AV	
0.251038	31.50	52	-20.2	AV	
0.312676	29.60	50	-20.3	AV	
0.187577	44.70	64	-19.4	QP	Live
0.253051	46.50	62	-15.2	QP	
0.316443	43.30	60	-16.5	QP	
0.187577	35.80	54	-18.3	AV	
0.245097	31.60	52	-20.3	AV	
0.316443	30.30	50	-19.5	AV	

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

8. ANTENNA REQUIREMENT

8.1.The Requirement

8.1.1.According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2.Antenna Construction

The antenna type used in this product is Reverse Polarity (RP-SMA) connectors. and it is considered to meet antenna requirement of FCC. Refer to the product photo.



Antenna

APPENDIX I (Test Curves)



ACCURATE TECHNOLOGY CO., LTD.

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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #1486

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

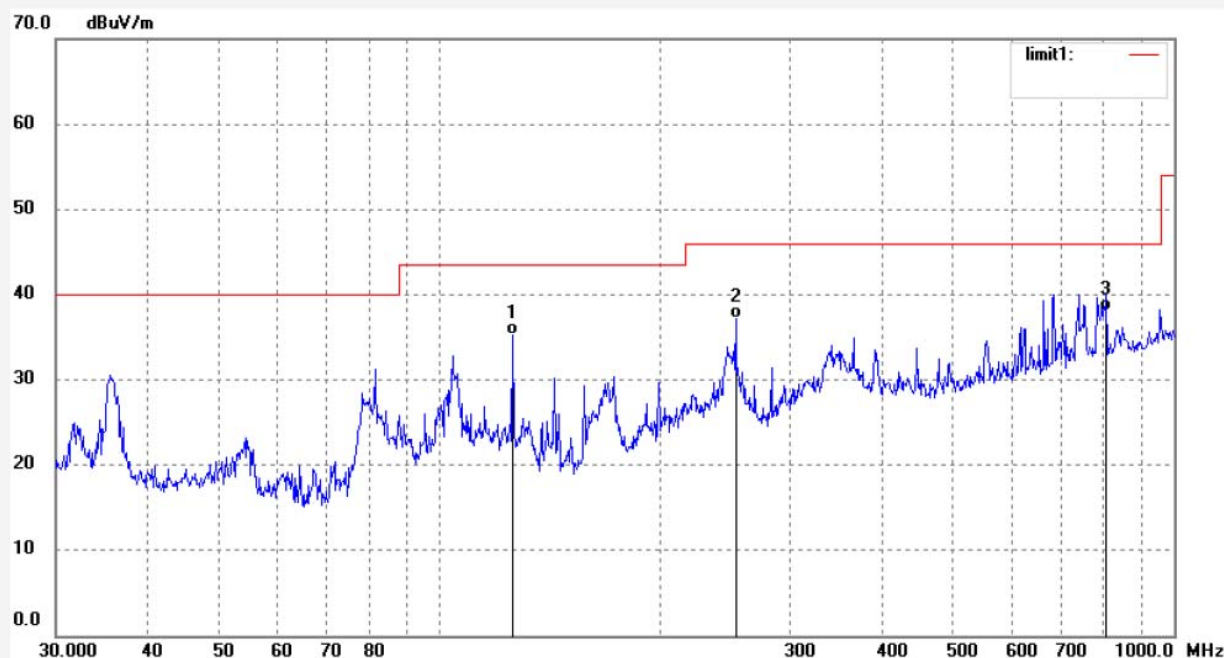
Date: 2012/08/10

Time: 15:37:47

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	125.8058	22.17	13.04	35.21	43.50	-8.29	QP			
2	253.1401	19.46	17.74	37.20	46.00	-8.80	QP			
3	809.9238	10.15	27.97	38.12	46.00	-7.88	QP			



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Job No.: star #1487

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

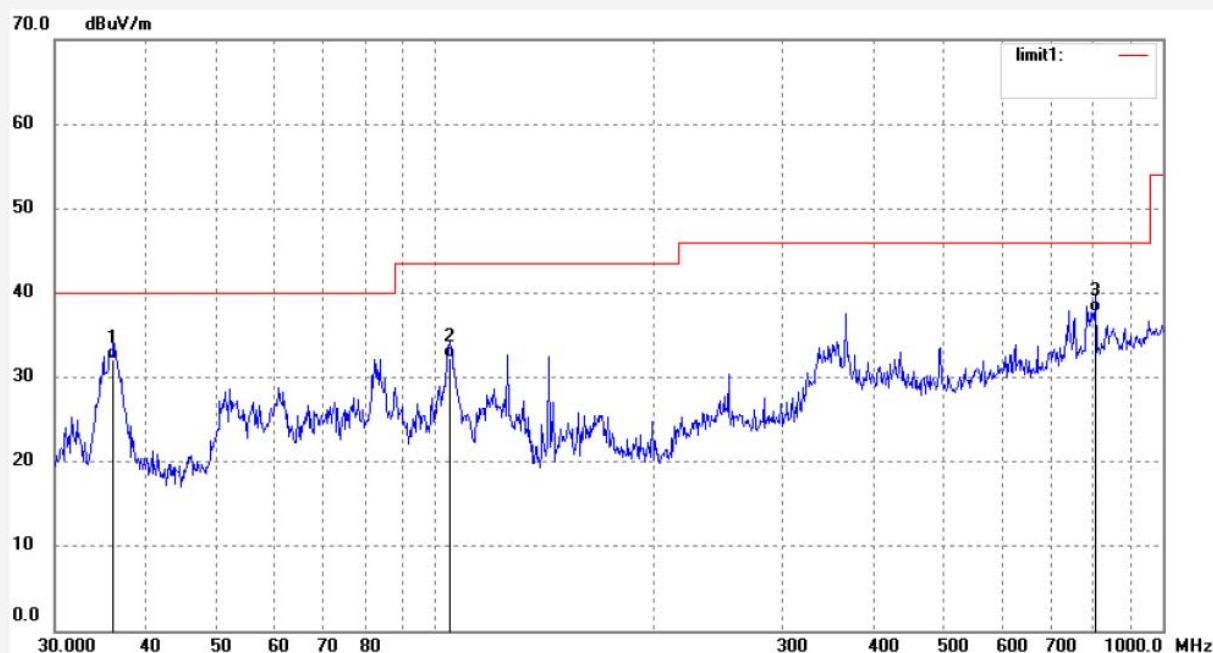
Date: 2012/08/10

Time: 15:38:46

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	36.1405	16.64	15.43	32.07	40.00	-7.93	QP			
2	104.7978	18.28	13.93	32.21	43.50	-11.29	QP			
3	809.9238	9.69	27.97	37.66	46.00	-8.34	QP			



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Job No.: STAR #1118

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

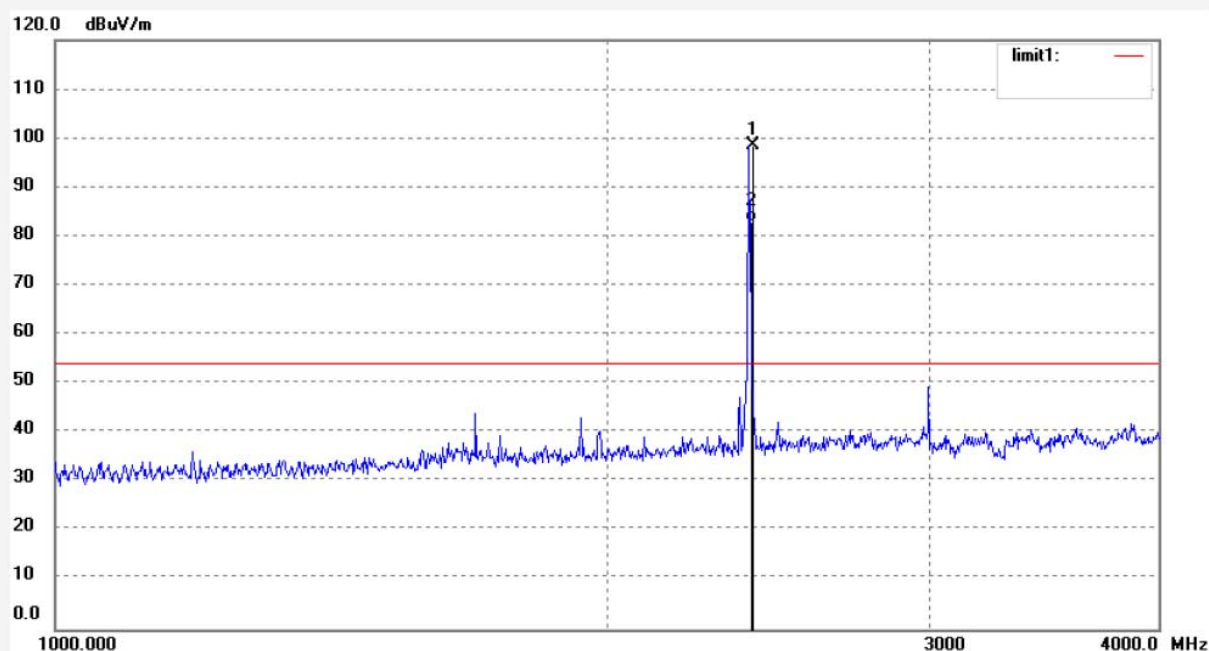
Date: 2012/08/10

Time: 2/24/06

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	105.97	-7.45	98.52	114.00	-15.48	peak			
2	2402.000	90.33	-7.45	82.88	94.00	-11.12	AVG			


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Job No.: STAR #1117

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

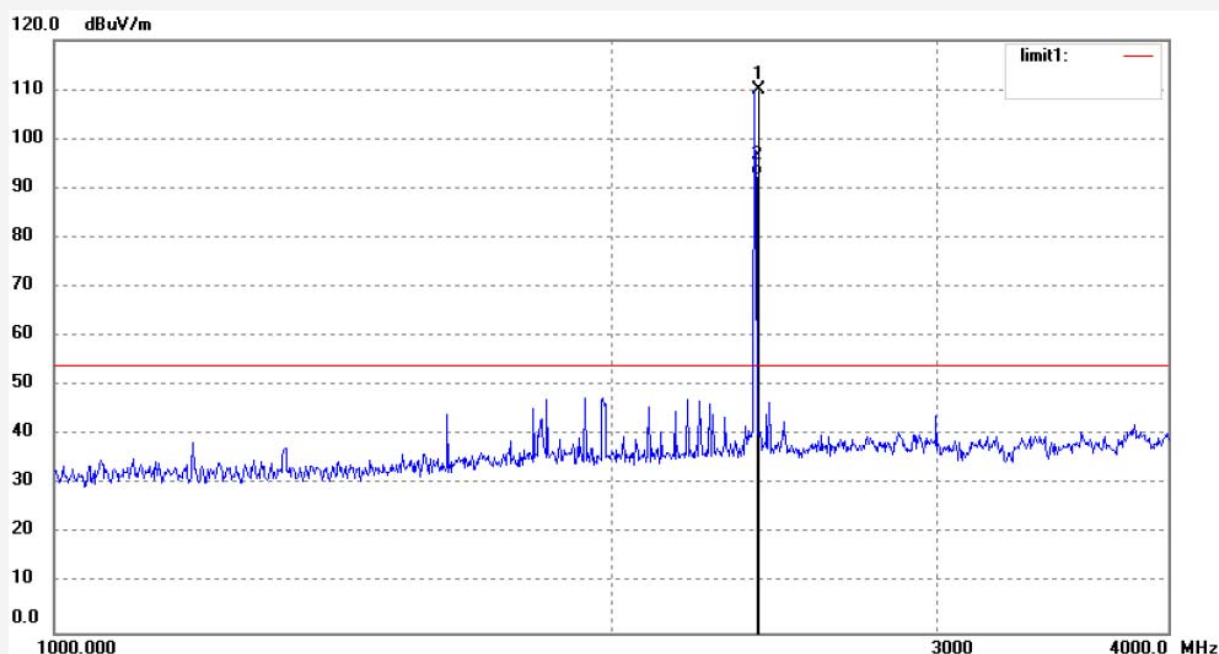
Date: 2012/08/10

Time: 2/21/43

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	117.47	-7.45	110.02	114.00	3.98	peak			
2	2402.000	99.93	-7.45	92.48	94.00	1.52	AVG			


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Job No.: STAR #1129

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

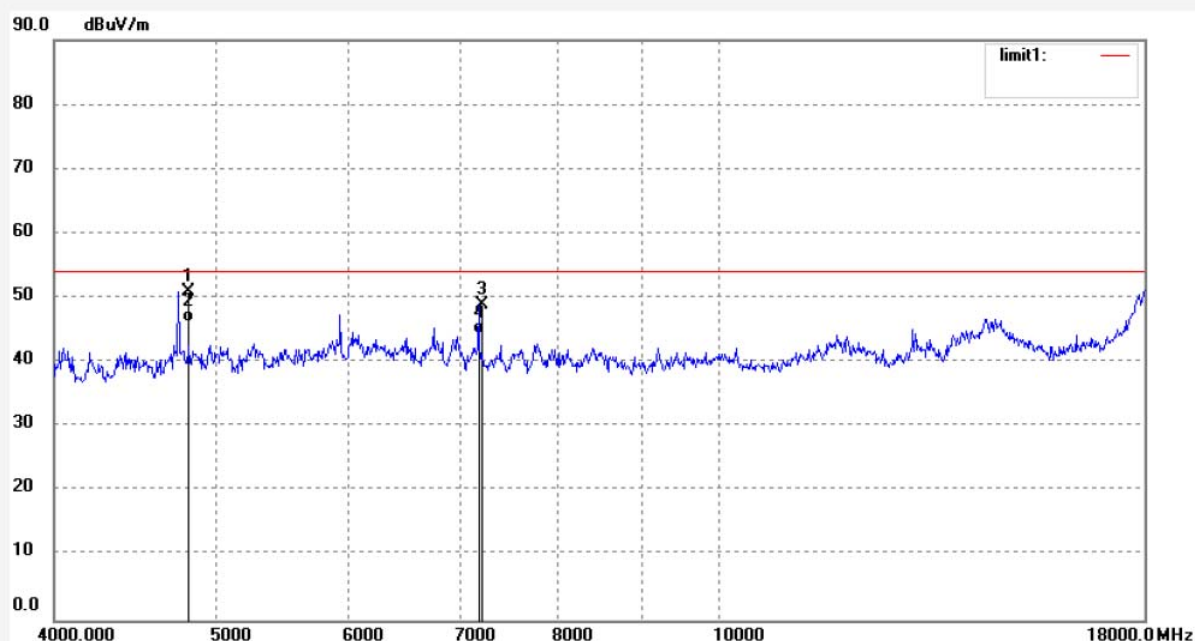
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Time: 2/53/07

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4804.000	51.28	-0.30	50.98	74.00	-23.02	peak			
2	4804.000	46.55	-0.30	46.25	54.00	-7.75	AVG			
3	7206.000	46.02	2.97	48.99	74.00	-25.01	peak			
4	7206.000	41.58	2.97	44.55	54.00	-9.45	AVG			


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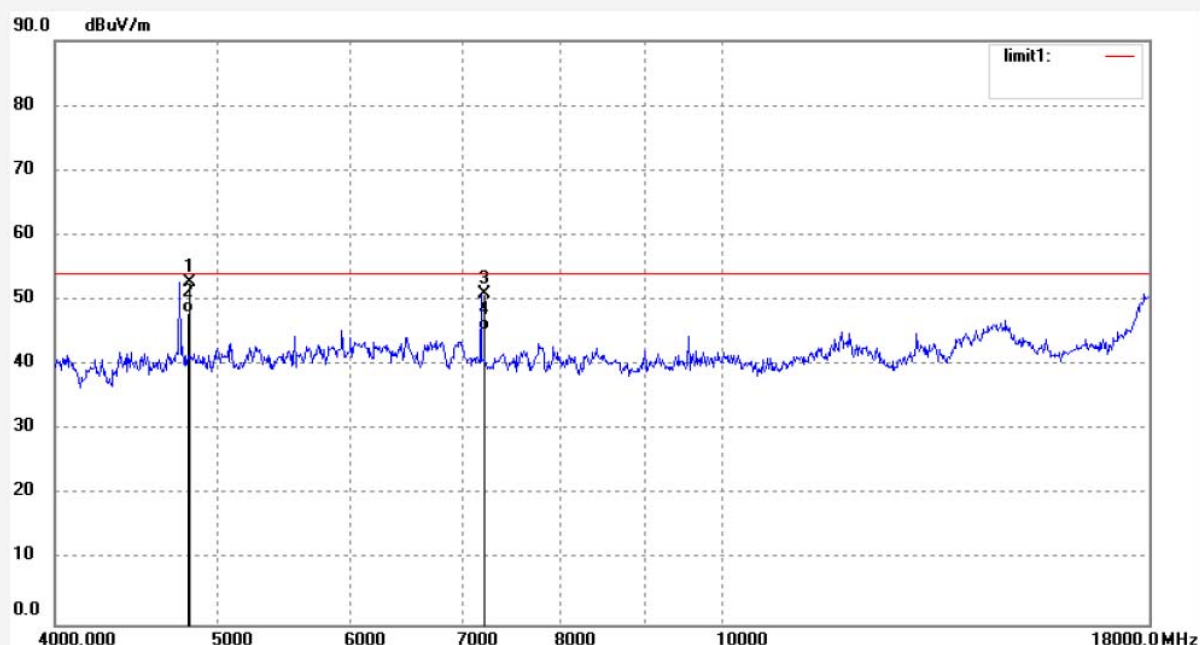
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 Site: 966 chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

 Job No.: STAR #1130
 Standard: FCC Class B 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 24 C / 48 %
 EUT: X-631+ Main Unit
 Mode: TX 2402MHz
 Model: X-631+
 Manufacturer: Launch

 Polarization: Vertical
 Power Source: DC 5V
 Date: 12/08/10/
 Time: 2/55/51
 Engineer Signature: Star
 Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4804.000	53.06	-0.30	52.76	74.00	-21.24	peak			
2	4804.000	48.38	-0.30	48.08	54.00	-5.92	AVG			
3	7206.000	48.02	2.97	50.99	74.00	-23.01	peak			
4	7206.000	42.44	2.97	45.41	54.00	-8.59	AVG			


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Job No.: STAR #1135

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

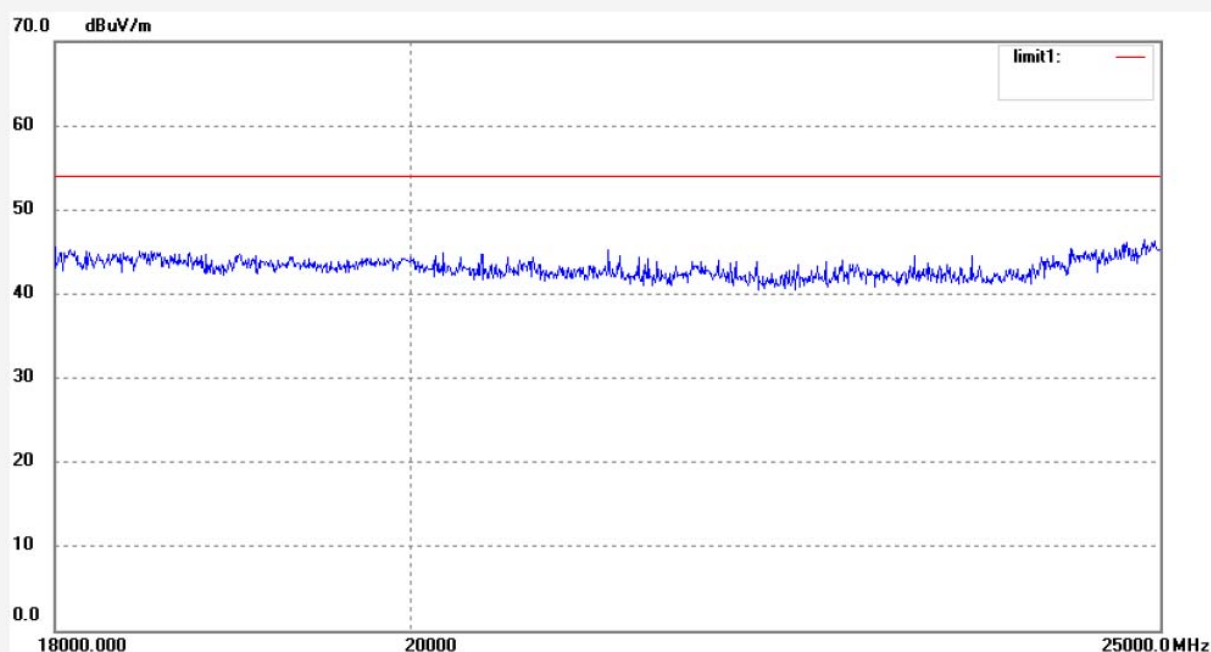
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Time: 3:17:31

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: STAR #1136

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

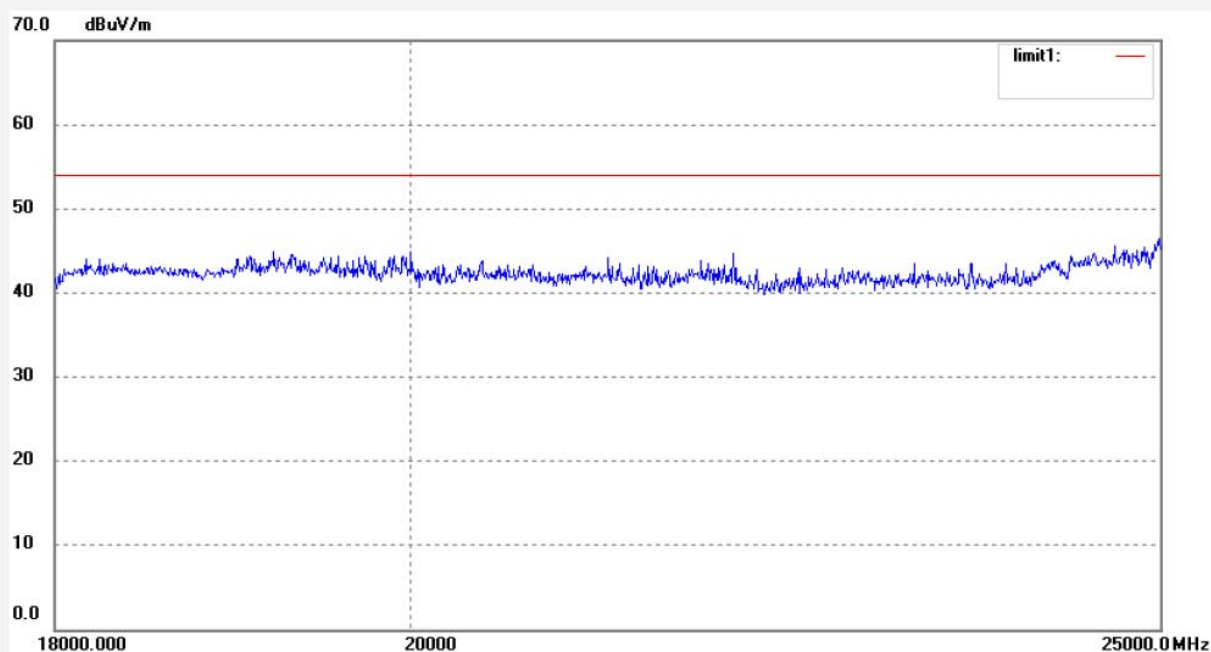
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Time: 3:20:46

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: star #1489

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

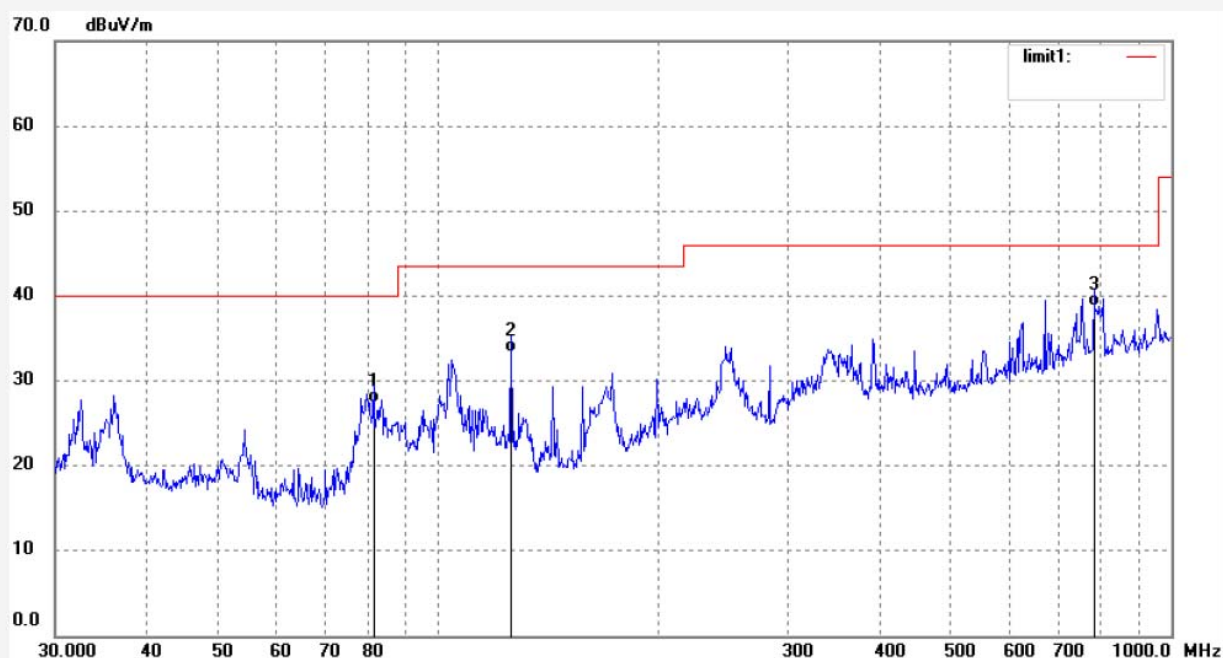
Date: 2012/08/10

Time: 15:41:31

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	81.6603	14.64	12.82	27.46	40.00	-12.54	QP			
2	125.8058	20.30	13.04	33.34	43.50	-10.16	QP			
3	784.7128	10.97	27.88	38.85	46.00	-7.15	QP			



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Job No.: star #1488

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

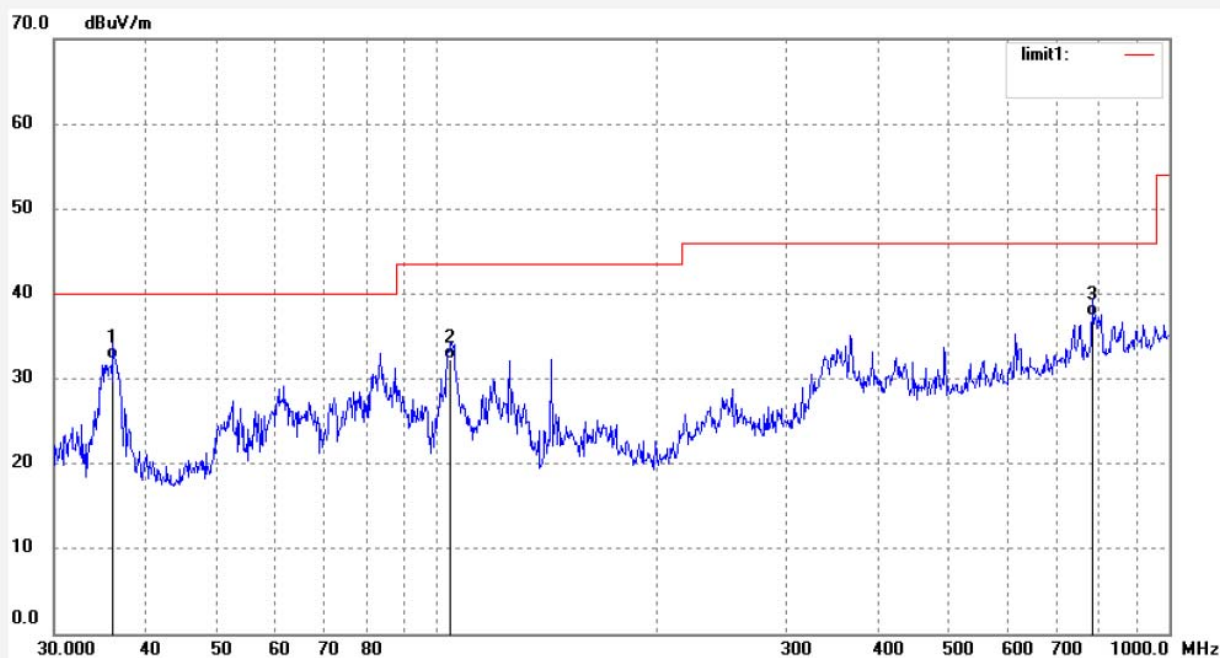
Date: 2012/08/10

Time: 15:39:28

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	36.1405	16.77	15.43	32.20	40.00	-7.80	QP			
2	104.4303	18.35	13.93	32.28	43.50	-11.22	QP			
3	784.7128	9.53	27.88	37.41	46.00	-8.59	QP			



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Job No.: STAR #1119

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

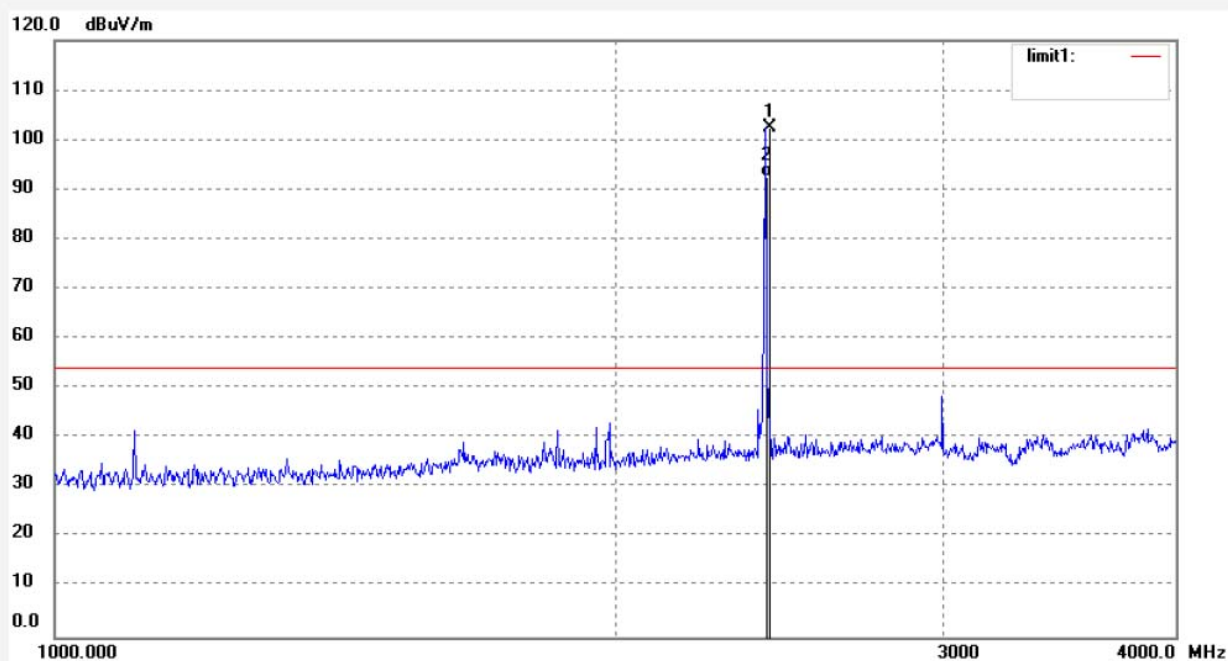
Date: 2012/08/10

Time: 2/28/10

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2419.000	109.95	-7.41	102.54	114.00	11.46	peak			
2	2419.000	99.97	-7.41	92.56	94.00	1.44	AVG			



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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1120

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

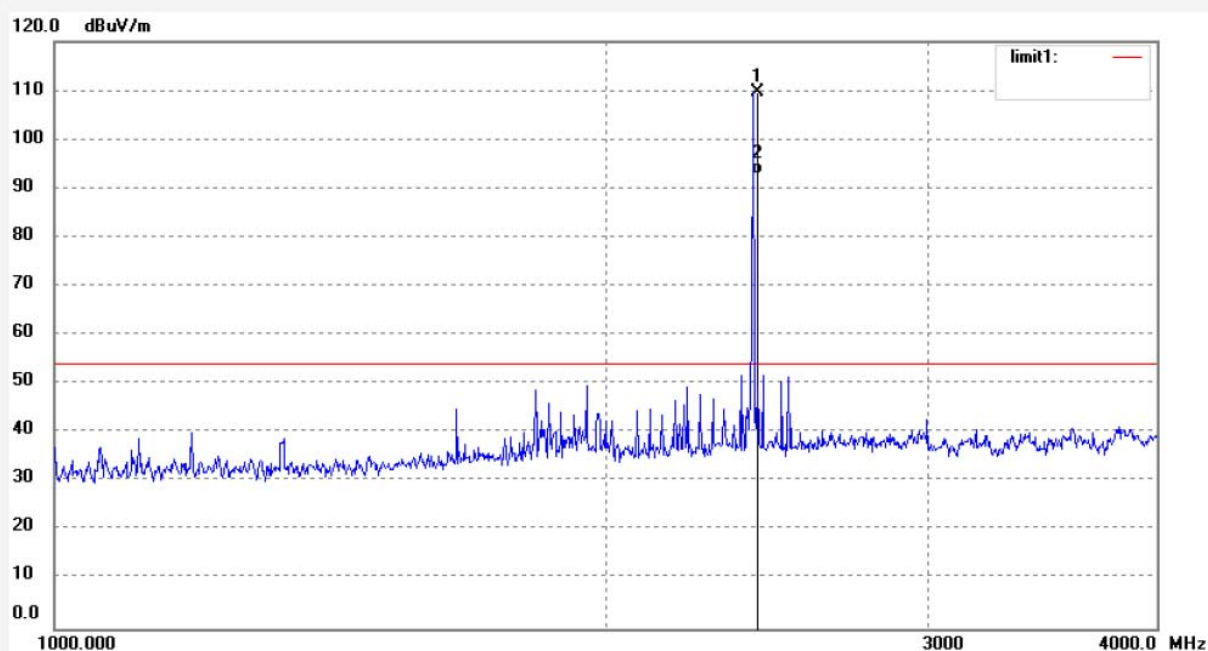
Date: 2012/08/10

Time: 2/29/38

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2419.000	117.14	-7.41	109.73	114.00	4.27	peak			
2	2419.000	100.36	-7.41	92.95	94.00	1.05	AVG			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #1132

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

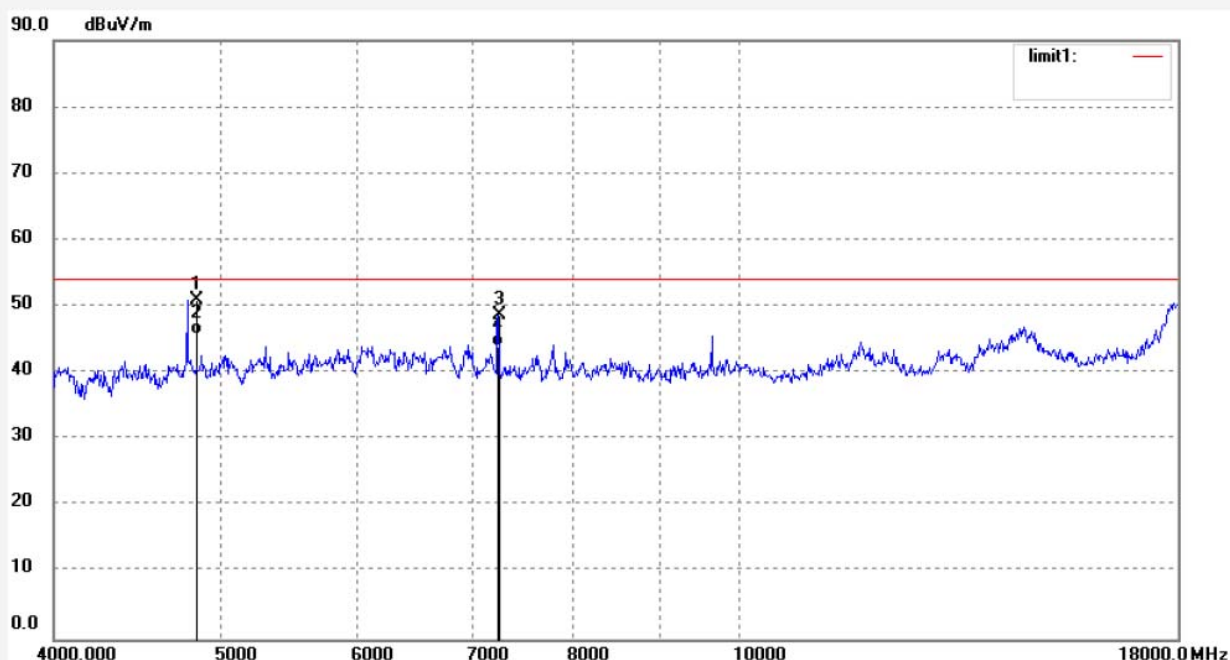
Date: 12/08/10/

Time: 3/02/19

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4838.000	51.14	-0.11	51.03	74.00	-22.97	peak			
2	4838.000	45.79	-0.11	45.68	54.00	-8.32	AVG			
3	7257.000	45.69	3.10	48.79	74.00	-25.21	peak			
4	7257.000	40.87	3.10	43.97	54.00	-10.03	AVG			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1131

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

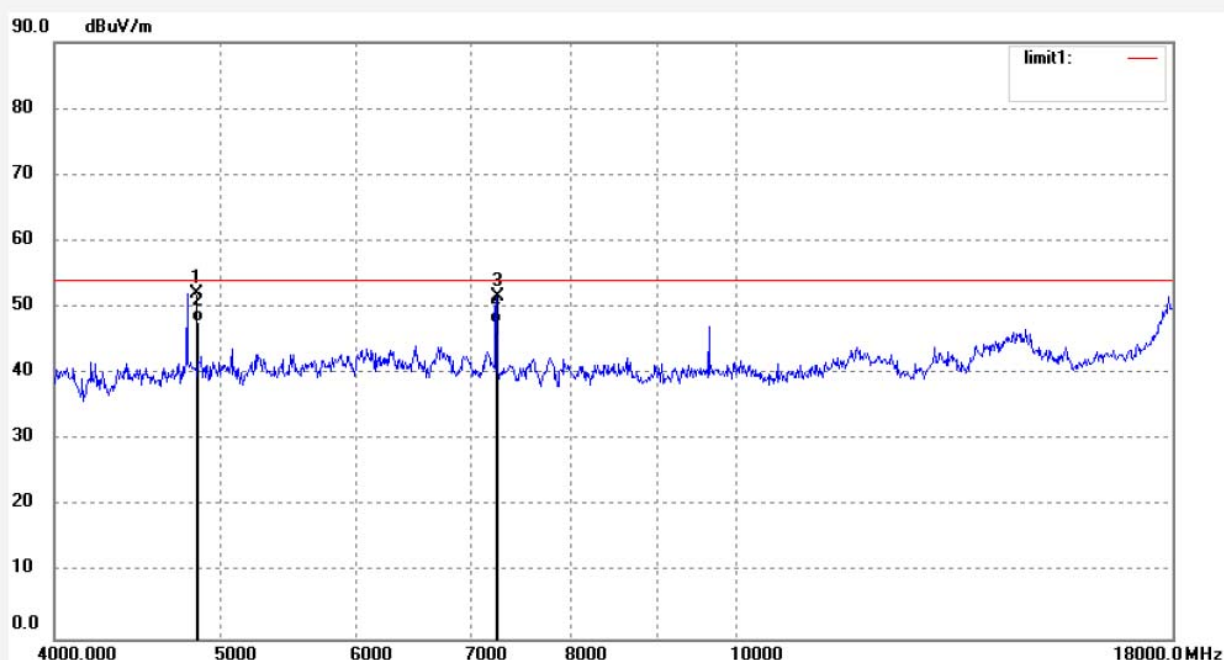
Date: 12/08/10/

Time: 3/01/44

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4838.000	52.18	-0.11	52.07	74.00	-21.93	peak			
2	4838.000	47.92	-0.11	47.81	54.00	-6.19	AVG			
3	7257.000	48.58	3.10	51.68	74.00	-22.32	peak			
4	7257.000	44.58	3.10	47.68	54.00	-6.32	AVG			


ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1138

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

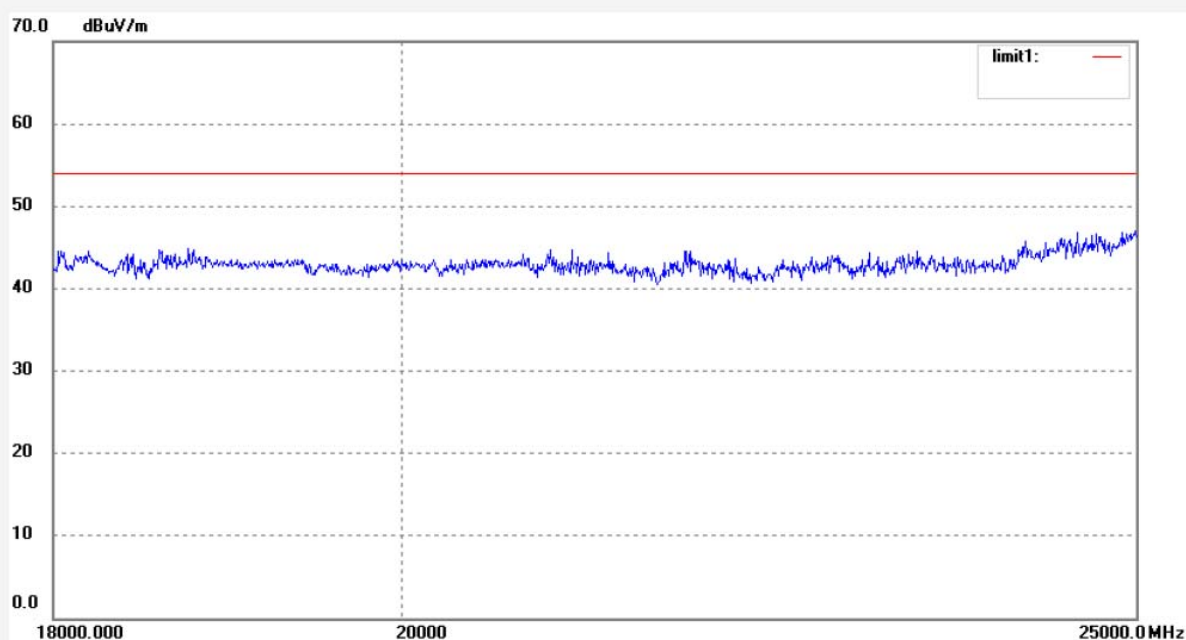
Date: 12/08/10/

Time: 3:28:35

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1137

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2419MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

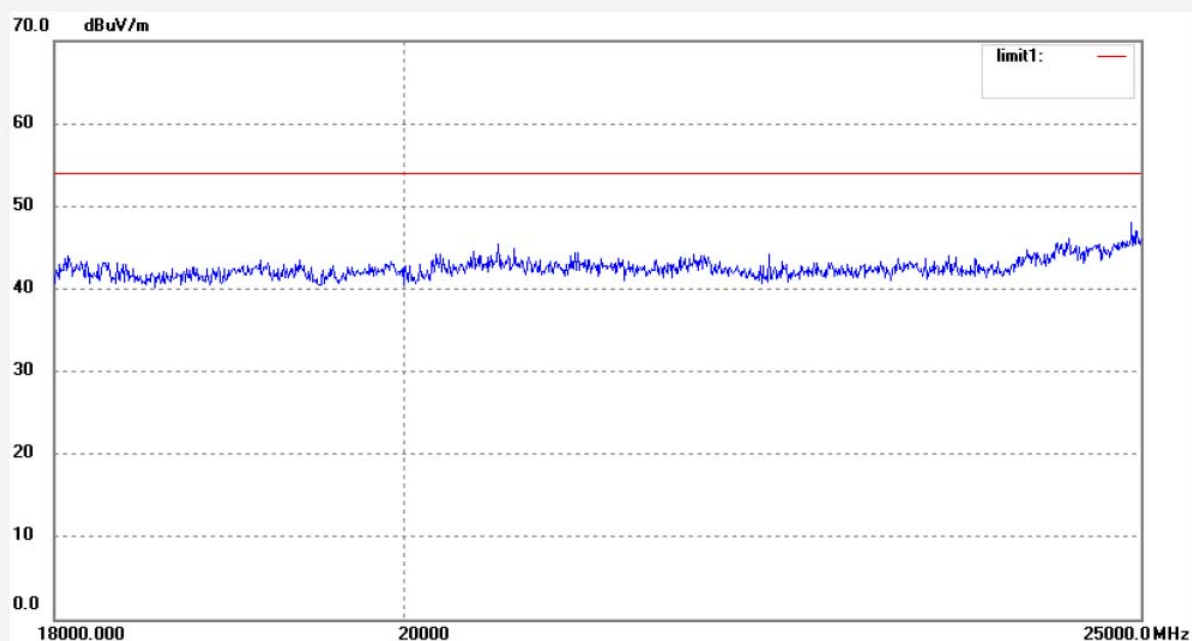
Date: 12/08/10/

Time: 3:23:15

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #1490

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

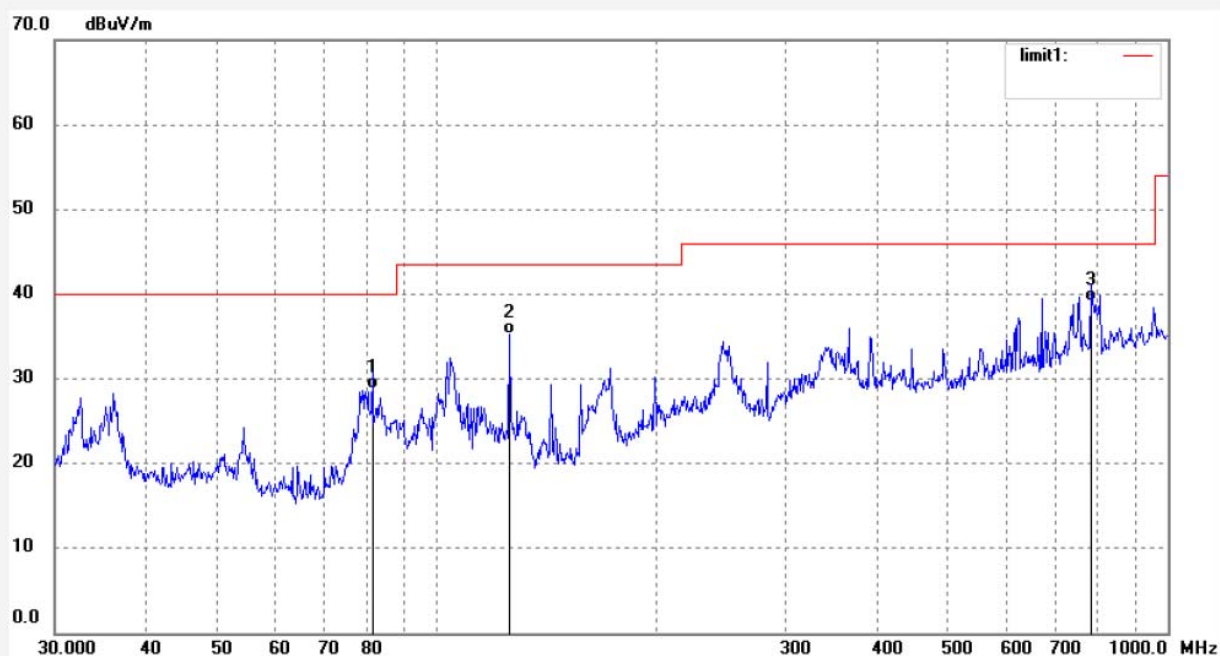
Date: 2012/08/10

Time: 15:42:56

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	81.6603	16.04	12.82	28.86	40.00	-11.14	QP			
2	125.8058	22.30	13.04	35.34	43.50	-8.16	QP			
3	784.7128	11.28	27.88	39.16	46.00	-6.84	QP			



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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #1491

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

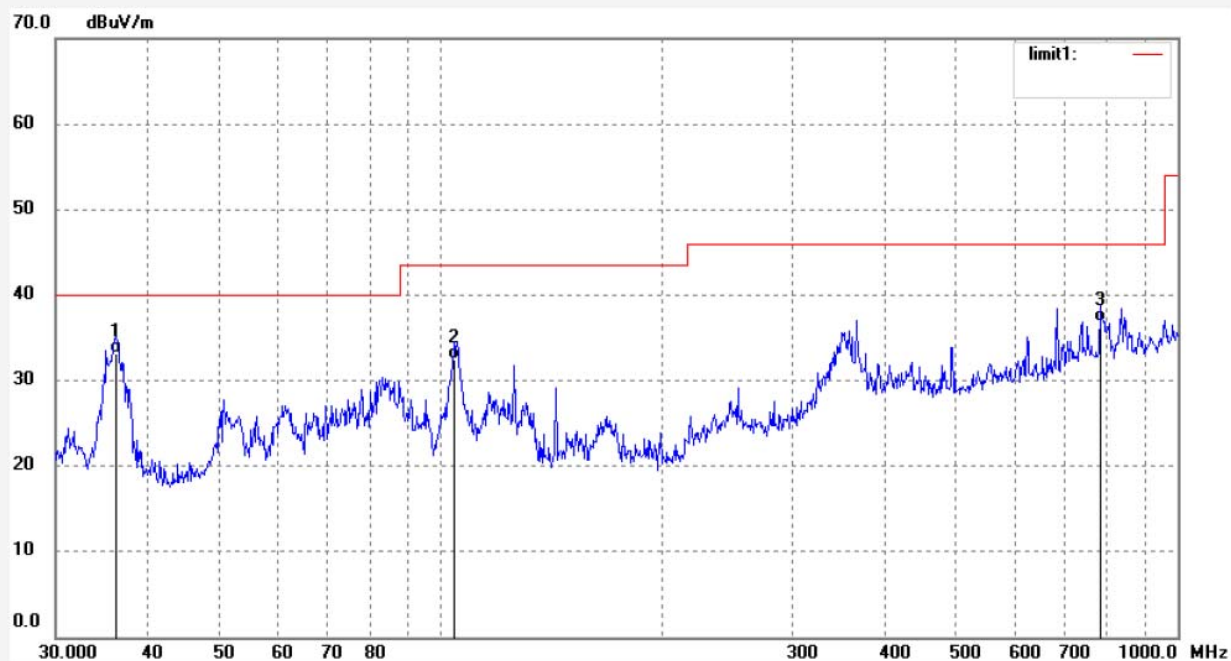
Date: 2012/08/10

Time: 15:43:56

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	36.2678	17.70	15.40	33.10	40.00	-6.90	QP			
2	104.4303	18.55	13.93	32.48	43.50	-11.02	QP			
3	784.7128	8.91	27.88	36.79	46.00	-9.21	QP			



ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1122

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

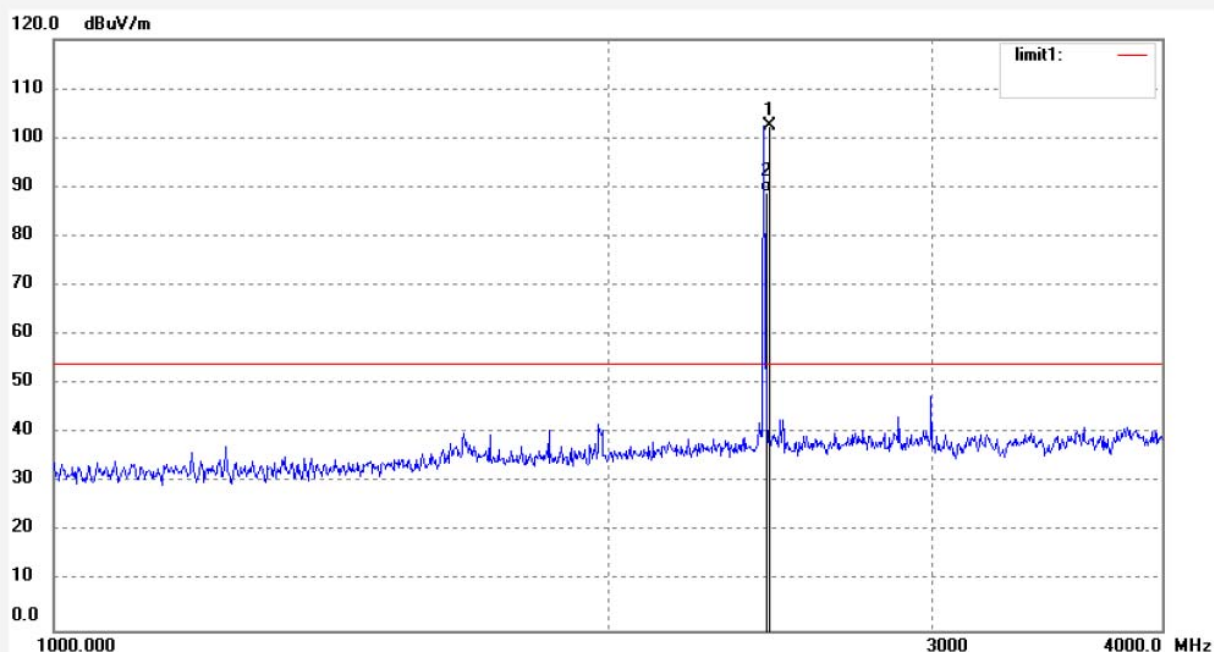
Date: 2012/08/10

Time: 2/35/29

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2446.000	109.82	-7.34	102.48	114.00	11.52	peak			
2	2446.000	96.32	-7.34	88.98	94.00	5.02	AVG			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1121

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

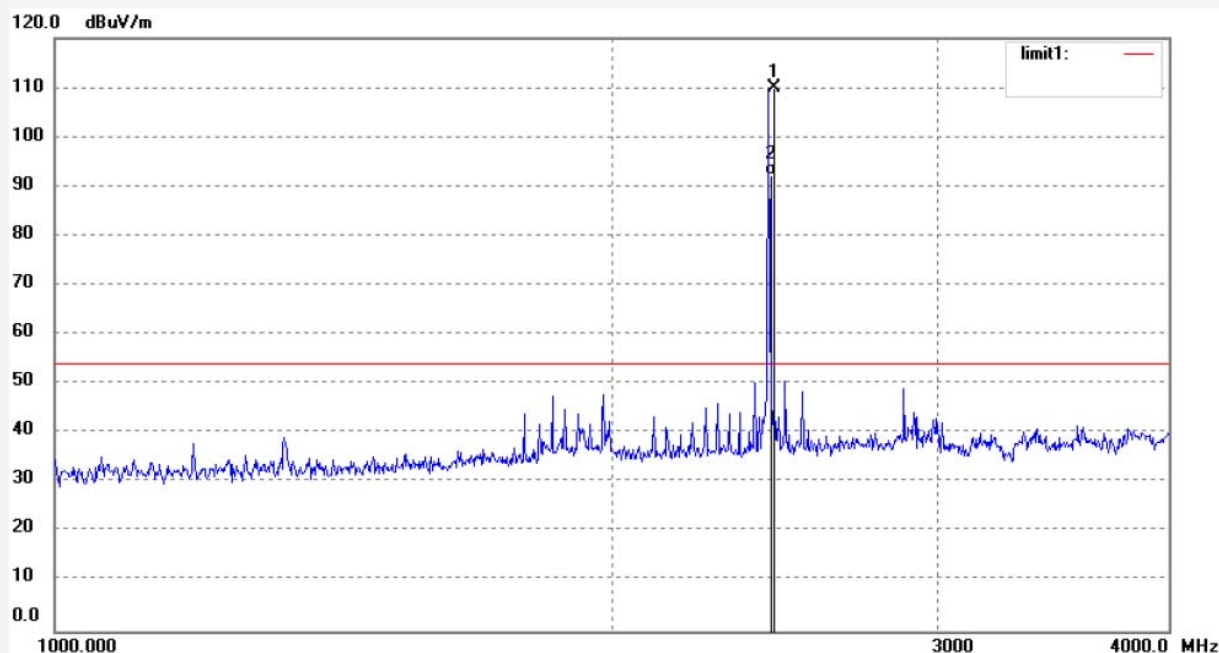
Date: 2012/08/10

Time: 2/33/37

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2446.000	117.27	-7.34	109.93	114.00	4.07	peak			
2	2446.000	99.45	-7.34	92.11	94.00	1.89	AVG			


ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1133

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

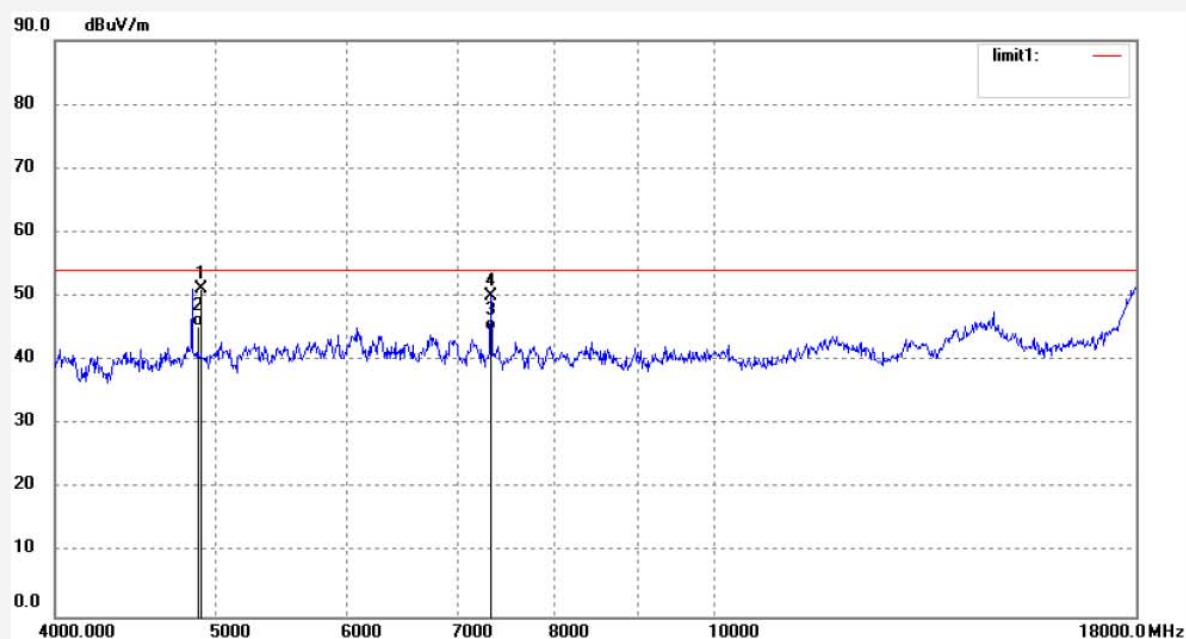
Date: 12/08/10/

Time: 3/06/45

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4892.000	50.98	0.20	51.18	74.00	-22.82	peak			
2	4892.000	45.12	0.20	45.32	54.00	-8.68	AVG			
3	7338.000	41.38	3.28	44.66	74.00	-9.34	AVG			
4	7338.007	46.81	3.28	50.09	54.00	-23.91	peak			



ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1134

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

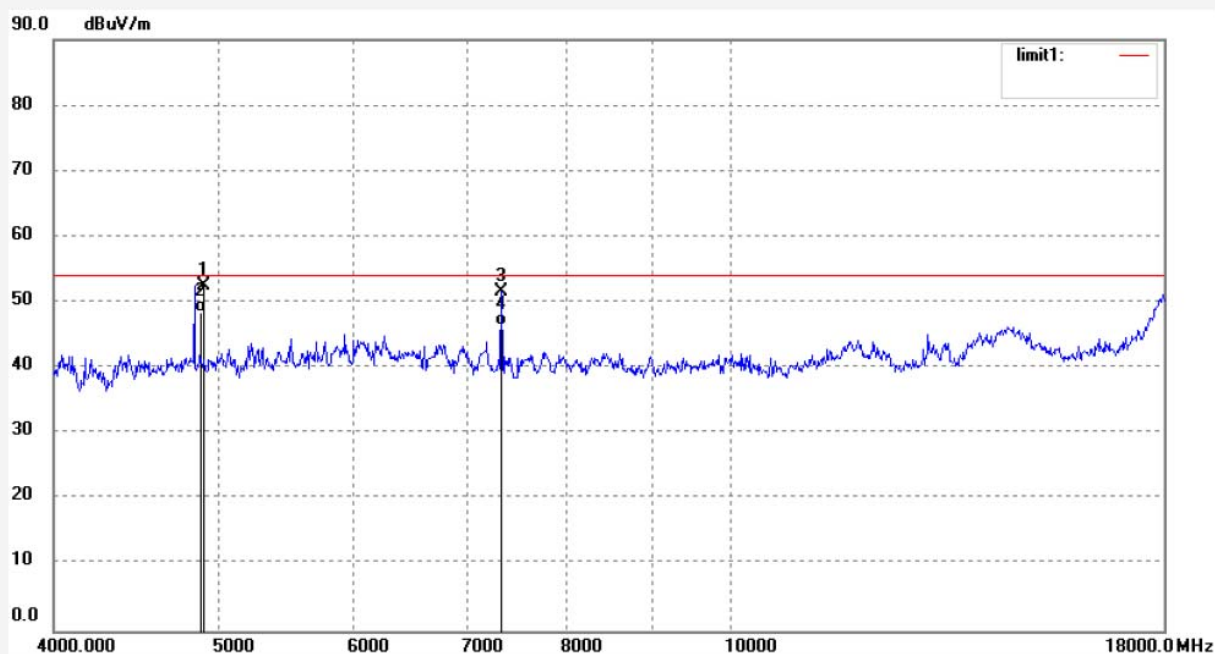
Date: 12/08/10/

Time: 3/07/36

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4892.000	52.33	0.20	52.53	74.00	-21.47	peak			
2	4892.000	48.33	0.20	48.53	54.00	-5.47	AVG			
3	7338.007	48.27	3.28	51.55	74.00	-22.45	peak			
4	7338.007	43.17	3.28	46.45	54.00	-7.55	AVG			


ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1139

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

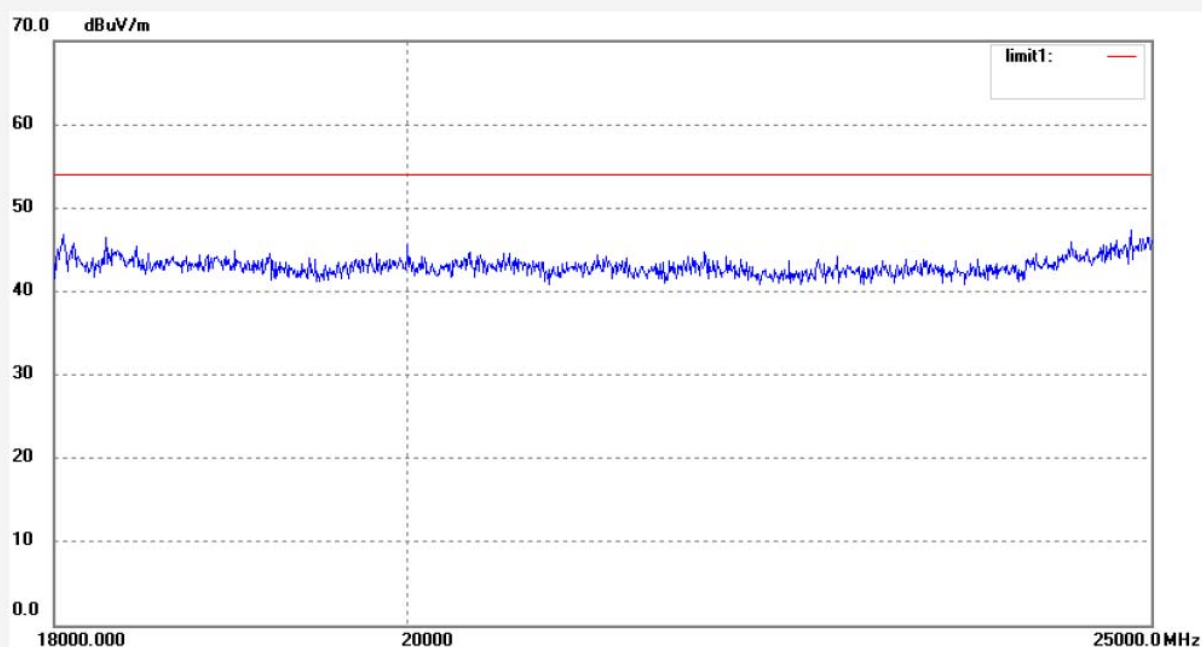
Date: 12/08/10/

Time: 3:31:50

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1140

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

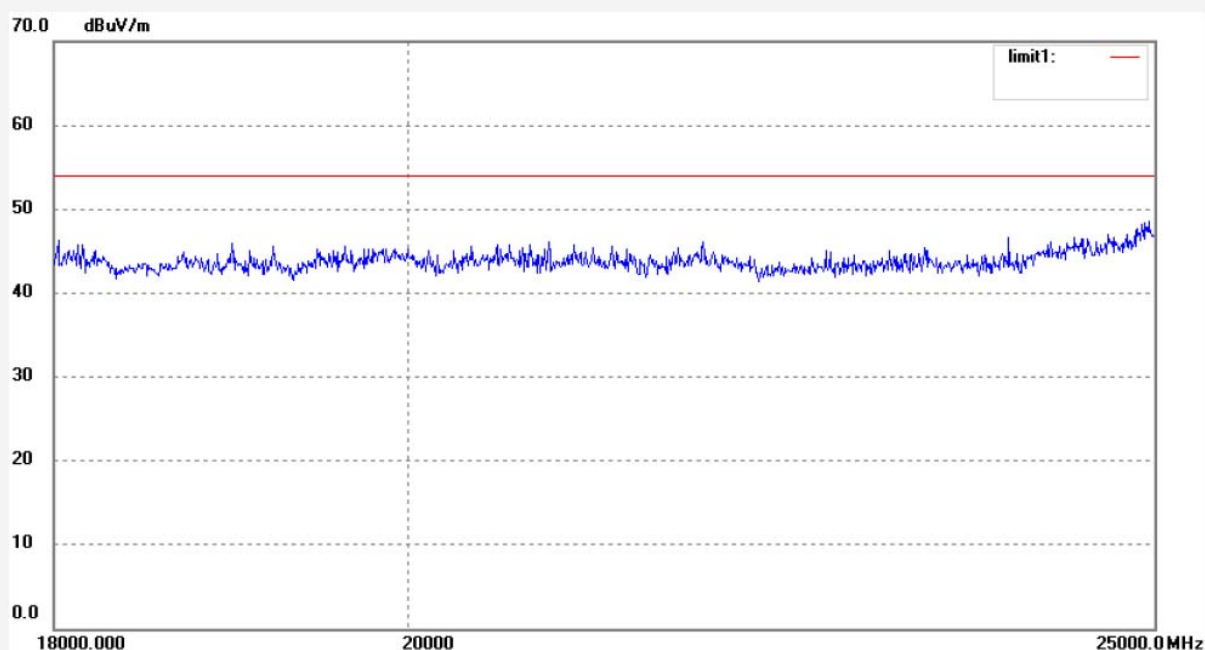
Date: 12/08/10/

Time: 3:35:02

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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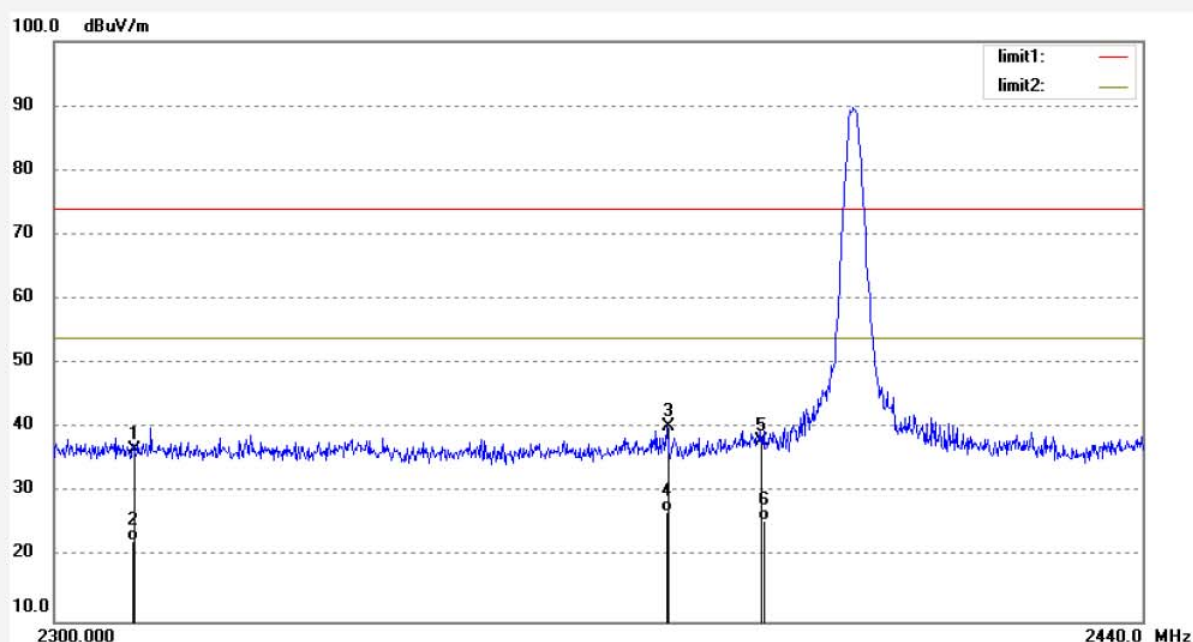
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #1341
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 24 C / 48 %
EUT: X-631+ Main Unit
Mode: TX 2402MHz
Model: X-631+
Manufacturer: Launch

Polarization: Horizontal
Power Source: DC 5V
Date: 2012/08/10
Time: 10:15:40
Engineer Signature: Star
Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.45	-7.81	36.64	74.00	-37.36	peak			
2	2310.000	30.25	-7.81	22.44	54.00	-31.56	AVG			
3	2377.819	47.78	-7.61	40.17	74.00	-33.83	peak			
4	2377.819	34.55	-7.61	26.94	54.00	-27.06	AVG			
5	2390.000	45.62	-7.53	38.09	74.00	-35.91	peak			
6	2390.000	33.25	-7.53	25.72	54.00	-28.28	AVG			


ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1340

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2402MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

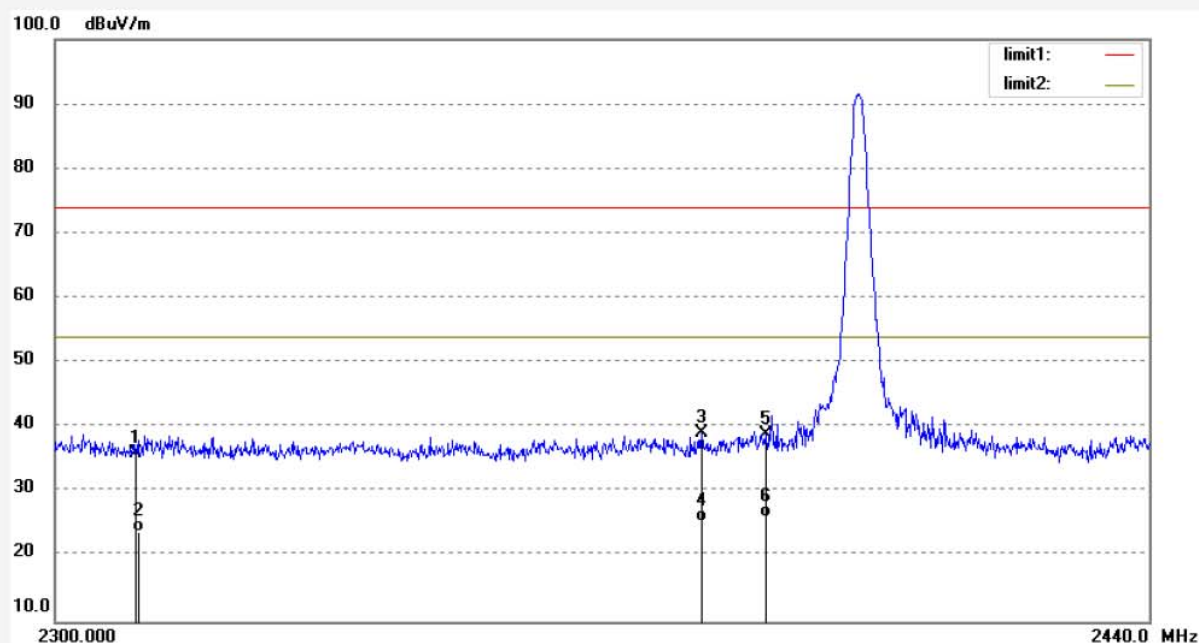
Date: 2012/08/10

Time: 10:11:25

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120944



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.86	-7.81	36.05	74.00	-37.95	peak			
2	2310.000	31.58	-7.81	23.77	54.00	-30.23	AVG			
3	2381.764	46.75	-7.58	39.17	74.00	-34.83	peak			
4	2381.764	32.89	-7.58	25.31	54.00	-28.69	AVG			
5	2390.000	46.50	-7.53	38.97	74.00	-35.03	peak			
6	2390.000	33.58	-7.53	26.05	54.00	-27.95	AVG			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1343

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Horizontal

Power Source: DC 5V

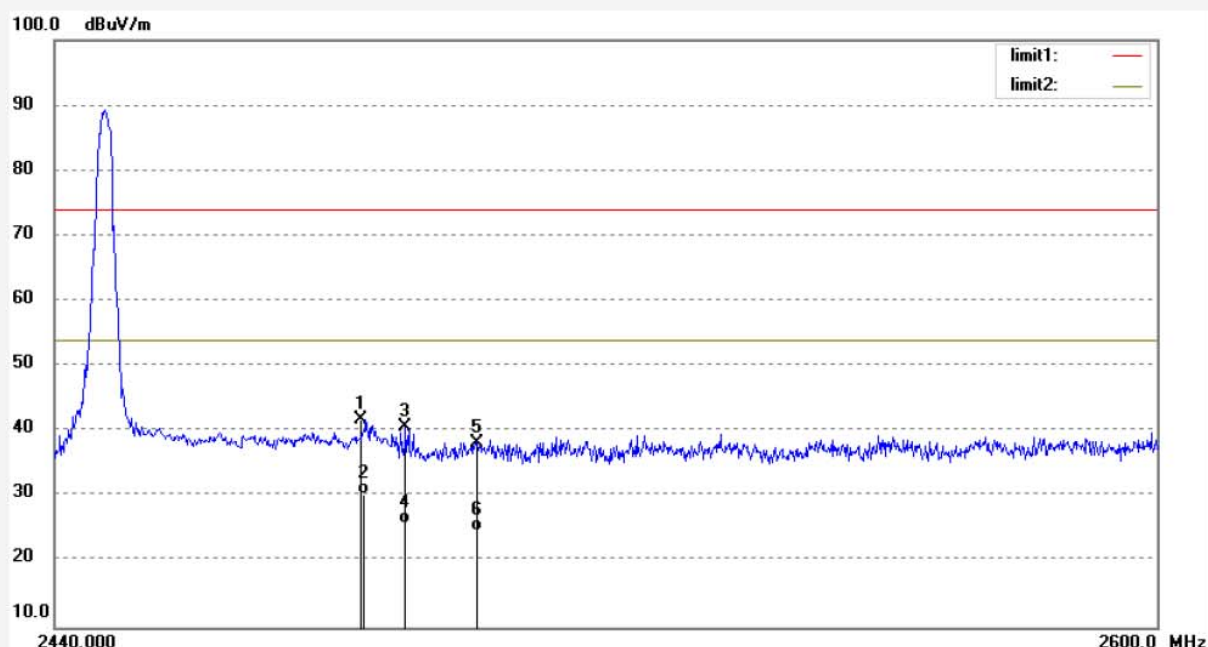
Date: 2012/08/10

Time: 10:18:11

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.28	-7.37	41.91	74.00	-32.09	peak			
2	2483.500	37.69	-7.37	30.32	54.00	-23.68	AVG			
3	2489.883	48.01	-7.39	40.62	74.00	-33.38	peak			
4	2489.883	33.25	-7.39	25.86	54.00	-28.14	AVG			
5	2500.000	45.53	-7.40	38.13	74.00	-35.87	peak			
6	2500.000	32.14	-7.40	24.74	54.00	-29.26	AVG			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #1342

Standard: FCC 15C PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 24 C / 48 %

EUT: X-631+ Main Unit

Mode: TX 2446MHz

Model: X-631+

Manufacturer: Launch

Polarization: Vertical

Power Source: DC 5V

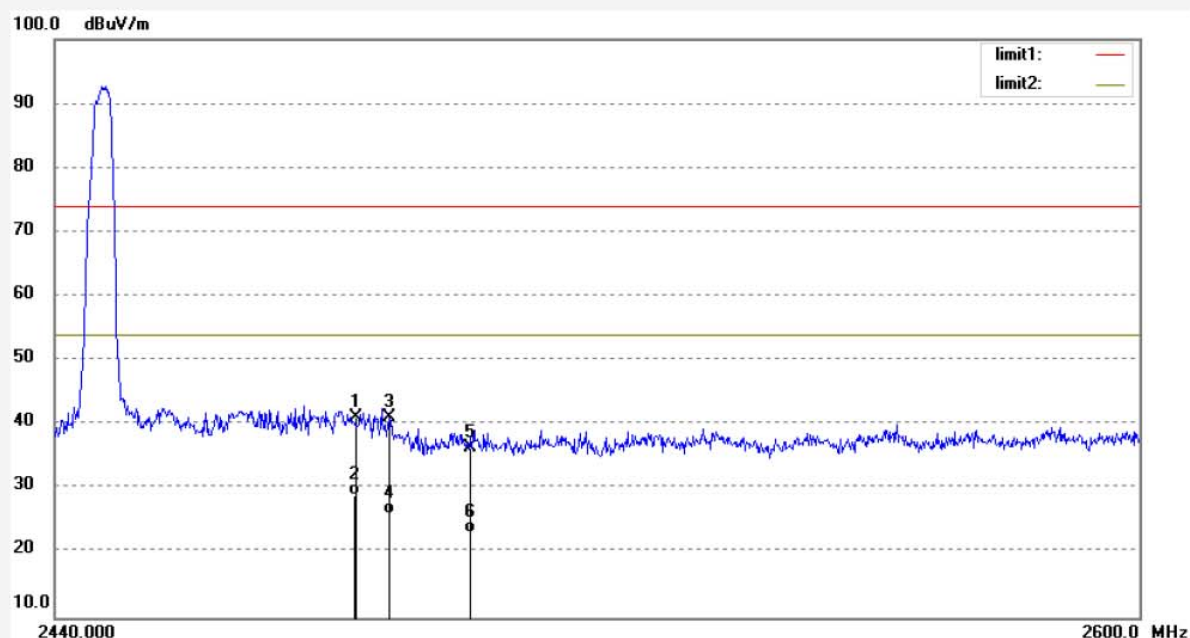
Date: 2012/08/10

Time: 10:15:24

Engineer Signature: Star

Distance: 3m

Note: Report No.:ATE20120994



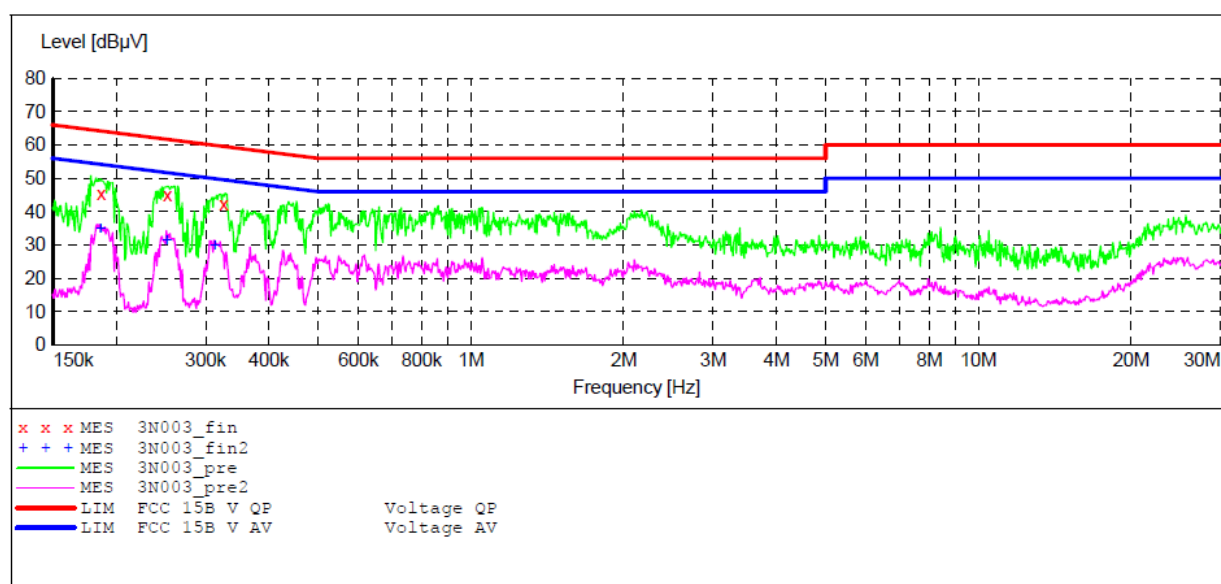
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	48.46	-7.37	41.09	74.00	-32.91	peak			
2	2483.500	36.36	-7.37	28.99	54.00	-25.01	AVG			
3	2488.299	48.47	-7.38	41.09	74.00	-32.91	peak			
4	2488.299	33.48	-7.38	26.10	54.00	-27.90	AVG			
5	2500.000	43.89	-7.40	36.49	74.00	-37.51	peak			
6	2500.000	30.55	-7.40	23.15	54.00	-30.85	AVG			

ACCURATE TECHNOLOGY CO., LTD**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: X-631+ Main Unit M/N:X-631+
 Manufacturer: Launch
 Operating Condition: On
 Test Site: 1#Shielding Room
 Operator: Star
 Test Specification: L 120V/60Hz
 Comment: Report No.:ATE20120994
 Start of Test: 8/10/2012 / 3:25:18PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "3N003_fin"**

8/10/2012 3:27PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.186830	45.20	11.2	64	19.0	QP	L1	GND
0.252043	44.80	11.4	62	16.9	QP	L1	GND
0.325410	42.10	11.6	60	17.5	QP	L1	GND

MEASUREMENT RESULT: "3N003_fin2"

8/10/2012 3:27PM

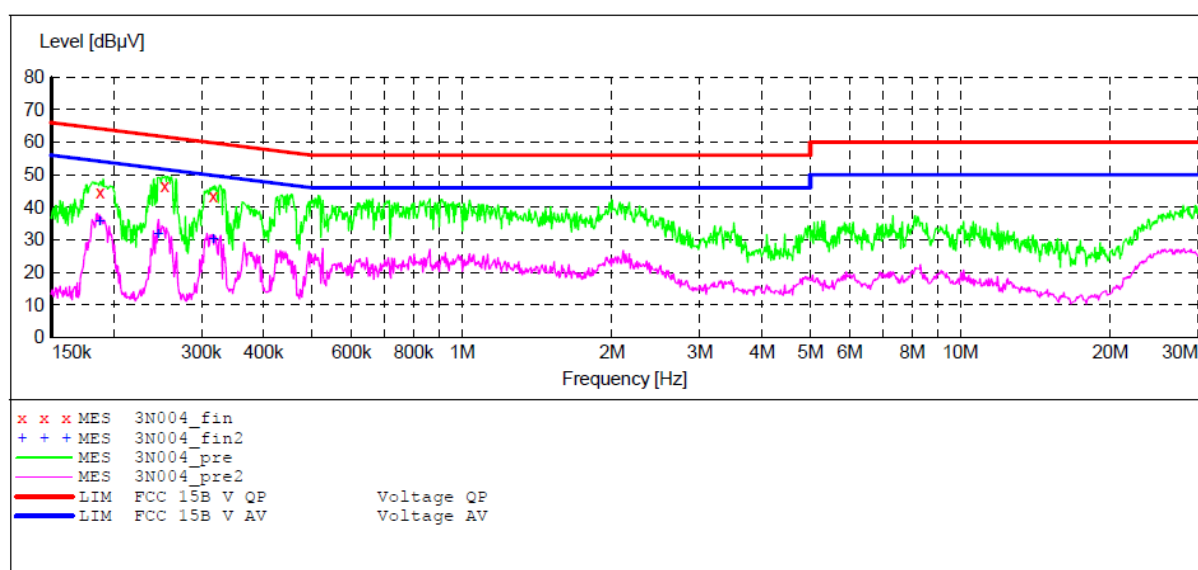
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.186085	35.00	11.2	54	19.2	AV	L1	GND
0.251038	31.50	11.4	52	20.2	AV	L1	GND
0.312676	29.60	11.6	50	20.3	AV	L1	GND

ACCURATE TECHNOLOGY CO.,LTD**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: X-631+ Main Unit M/N:X-631+
 Manufacturer: Launch
 Operating Condition: On
 Test Site: 1#Shielding Room
 Operator: Star
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20120994
 Start of Test: 8/10/2012 / 3:28:13PM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "3N004_fin"**

8/10/2012 3:30PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.187577	44.70	11.2	64	19.4	QP	N	GND
0.253051	46.50	11.4	62	15.2	QP	N	GND
0.316443	43.30	11.6	60	16.5	QP	N	GND

MEASUREMENT RESULT: "3N004_fin2"

8/10/2012 3:30PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.187577	35.80	11.2	54	18.3	AV	N	GND
0.245097	31.60	11.4	52	20.3	AV	N	GND
0.316443	30.30	11.6	50	19.5	AV	N	GND