AUSTRALIAN NATIONAL IMAMS COUNCIL (ANIC)

CAS STUNNING POULTRY REPORT

MAY 2023

CONTENTS

PLEASE READ THE REPORT IN ITS ENTIRETY

SECTION 1

POULTRY CAS STUNNING ASSESSMENT REPORT

POULTRY ASSESSMENT REPORT

Prepared by The Australian National Imams Council (ANIC) **01/05/2023**

Background

As the Australian Muslim community may be aware, CAS (Controlled Atmospheric Stunning) of Poultry has recently become a contentious topic. There is confusion on whether its application in the Halal slaughtering process is in-line with Islamic requirements for food consumption.

It's a sin in Islam to knowingly consume something that's not Halal. It is of utmost importance that care, transparency and trust are maintained.

Stunning in general is discouraged under Halal slaughter requirments. An Islamic verdict has previously been issued to allow stunning where deemed necessary by regulatory standards. This verdict outlines specific conditions within the stunning process that will allow it to be fit for Halal consumption under the Islamic principles of Halal Slaughter.

Stunning is the process of rendering animals immobile or unconscious prior to their slaughter for food. Various stunning methods are used with the objective to allow the animals to bleed out after slaughter.

In the last 10 years in Australia, the method of CAS stunning has become widely used. Previously, there has been inadequate research on the application of CAS stunning to conclulde its suitability in the Halal Slaughter process.

Allah (SWT) says: "*Forbidden to you (for food) are: dead meat (Maytah), blood, the flesh of swine…..*" (Surah al-Ma'idah, V: 53)

The Messenger of Allah (PBUH) said: "*Two types of dead meat and two types of blood have been made lawful for our consumption: The two dead types of meat are: fish and locust, and the two types of blood are: liver and spleen*." (Sunan Abu Dawud, Musnad Ahmad and Sunan Ibn Majah).

It is clearly stated in the Quran and the Hadith that a Dead Animal (*Maytah*) is Haram to consume.

The Australian National Imams Council (ANIC) requested an assessment to be performed on the pre-stunning of Poultry with the use of CAS stunning.

ANIC has been inundated with requests to update the community and food businesses on the results and ruling on this matter. Unfortunately, ANIC was delayed from conducting the report in 2021 due to the COVID lockdowns and the resistance of some CAS stunned facilities to engage.

ANIC engaged with vets to conduct the relevant and necessary tests and assessments to present the findings to the Australian Fatwa Council.

Purpose

The assessment was conducted on poultry post-stunning using CAS. This is required to assess the status of the bird post-stun and pre-slaughter, to determine its suitability for Halal consumption in accordance to Islamic principles and requirements.

A specifically set out testing program and veterinary report initiated by the **Australian National Imams Council** was requested to examine whether the current method of CAS stunning is deemed permissible within the Islamic Laws for Halal slaughter and consumption.

Performance Needs

After consultation and research on parameters required to determine life, specific parameters were requested by ANIC within the scope of testing in line with indicators that need to be met for the purpose of Halal Slaughter.

1. To determine the poultry status via VITAL SIGNS
2. To determine the poultry status via ECG
3. To record the consciousness level of the Poultry after undergoing CAS procedure to determine the presence of consciousness.
4. Reversibility of Stun (if possible)
5. To observe the current practice used from the arrival of birds to the point of slaughter.
6. To convey the result to the Australian Fatwa Council regarding the outcome for assessment to determine its halal status.

The Veterinary's Report Concluded:

- **Vital Signs**

The vital signs tables state that the majority of birds had no vital signs of life. Vital signs results can be found in the report in detail.

- **ECG indications**

"We have examined 29 birds post gas stunning and 1 bird pre stunning (control) at *the test* site. The ECG records from birds post gas stunning (CAS) at *the test* site confirmed that 24 birds out of 29 birds had some heart activity. Although the heart beats were irregular and weak however the presence of the heartbeats confirms that there was still heart activity after the gas stunning in 24 birds out of 29 birds. There were 5 birds with no heart activity after the gas stunning when we used the ECG."

The Vital Signs and ECG reports were sent for examination by experts on heart activity.

The Cardiologist and cardiac Electrophysiologist's conclusion:

"My overall interpretation that the ECGs of the 29 birds examined after gas stunning revealed no signs of cardiac electrical activity in 25 out of the 29 birds. 4 ECGs had irregular

electrical activity that likely represents motion artefact but could represent ventricular fibrillation, a condition not compatible with life during which the heart is not beating and unable to pump blood."

"It is worth adding that, in humans, an ECG is not performed to confirm death as occasionally a condition called pulseless electrical activity (PEA), or electromechanical dissociation (EMD) could lead to organised electrical activity of the heart with no effective cardiac contraction. Thus, death confirmation in humans relies on lack of signs of life as indicated by absence of respiratory movements, absence of carotid pulse, absence of heart sounds, and breathing sounds on auscultation and the presence of dilated fixed pupils."

The remainder of the report confirms the lack of signs of life in the examined birds as indicated by

- Absence of palpebral reflexes in all birds
- Absence of heart beats by auscultation in 27 out of the 29 birds
- Absence of pulse by palpation in all birds
- Absence of breathing activity in all birds
- Absence of muscle/chest movement except for very minimal muscle twitches in 3 birds
- Absence of wing flapping in all birds

CONCLUSION:

The veterinary report and the Cardiologist and cardiac Electrophysiologist concluded that most of the birds show **NO** Vital signs after the CAS and before the slaughter.

The process of CAS stunning is also irreversible (will not regain consciousness after stun) in its current practiced form.

Details of scope and results are viewable in the Vets report and the supporting cardiologist interpretation summary attached.

Australian Fatwa Council Assessment

The Australian Fatwa Council has convened a comprehensive discussion of the results presented in the Veterinary report. A qualified cardiologist assisted the Council in understanding and interpreting the VITAL SIGNS and ECG results.

Australian Fatwa Council Conclusion

After the assessment by 2 qualified Vets at a large and prominent poultry plant that has adopted CAS stunning before slaughter, a report in line with the scope set was presented to the Fatwa Council for assessment and decision.

Upon careful assessment and consideration of the report results, the absence of VITAL signs and ECG indications, the Australain Fatwa Council has concluded that the practice of CAS stunning, in its **current form,** is **NOT** fit for Halal consumption under the Islamic laws and principles of Halal slaughter. The animal is deemed to be dead before the slaughter. Therefore, this method cannot be accepted or certified as Halal for consumption. Any Halal certifications of CAS stunned facilities are invalid until an adequate assessment of the CAS stunned facility and its processes is conducted in line with the same scope inclusive of Vital Signs and ECG reports with expert interpretation, presented to the Australian Fatwa Council for assessment.

When the Veterinary report was complete, the test facility was asked to alter the CAS method for retesting of Poultry to attain whether the alteration made any effect on the results of the outlined scope on Poultry. Unfortunately, the test facility has not engaged and did not cooperate for further testing. **(Note: This is the reason for the delay in issuing this statement)**

As mentioned previously, stunning in general, is discouraged under Halal slaughter. An Islamic verdict was previously issued to allow stunning where deemed necessary by regulatory standards. This verdict outlined specific conditions within the stunning process that will allow it to be fit for Halal consumption under the Islamic principles of Halal Slaughter.

It is also important to note, the method of CAS stunning of Poultry is not permitted by any Global Halal standards set by any Muslim country around the world. Other methods of stunning, such as water bath electric stunning with certain conditions, are permissible.

Effects on the Australian Muslim Community

The Australian National Imams Council understands the anguish and inconvenience this will cause by the findings of the report, as Poultry is a large part of our diet.

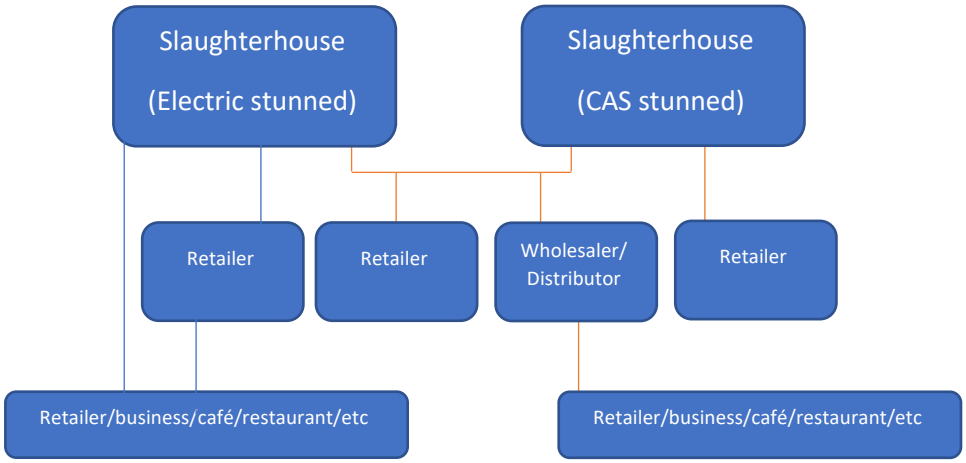
Although this may be the case, the importance of maintaining the Islamic dietary requirements in relation to Halal consumptions supersedes our dependence on such a product.

Unfortunately, the CAS stunning in Australia is widely practiced by some of the biggest brands in the industry. Although they may be labelled as Halal, this method does not meet the minimum requirements to be considered for Halal consumption and should be avoided and decertified immediately.

The Halal approved alternative method to CAS, is electric stunning. For the average consumer, it remains difficult to verify where the Poultry is sourced from.

Some larger brands use both stunning methods in separate facilities. However there is no way to verify the stunning method used for any bird sold under these large brands.

Please see chart 1.1, which outlines the typical process of the poultry supply chain. We understand this may cause difficulty for the average consumer. However, Muslim community members must work collectively to overcome such difficulties and challenges.



* Red lines represent the breakdown of Halal integrity.

Chart 1.1

Solutions

The Australian National Imams Council is working on identifying solutions to these difficulties, challenges and complex matters in the Halal poultry industry. We understand that the issues will not be resolved in the near future and will require more time.

We are engaging with the ACCC to discuss measures that could be taken against the false advertisement and labelling of Halal products in general. Some businesses are misleading the consumer to believe their Poultry is sourced from an electric stunned facility, when in reality, they are sourcing their Poultry from both electric stunned and CAS stunned facilities. If you come across false advertisements, labelling or misleading information on Halal products, we highly encourage you to report this to the ACCC.

It is imperative that part of the solution is a collective effort by the Muslim community, as consumers of Halal products, to be aware of the situation and encourage businesses to change their suppliers to trustworthy Halal certified Poultry that does not use CAS stunning.

We encourage poultry slaughterhouses, distributors, wholesalers and stakeholders involved to come to the discussion table and work on a solution to resolve this significant issue within the Halal poultry industry.

ANIC proposes to certifying bodies, an immediate solution to the issue, by decertifying all Poultry plants that use CAS stunning on birds.

We encourage all Halal Certification bodies in Australia that certify electric stun facilities to recommend the brand to the Australian Muslim community.

We also invite key stakeholders in the industry to discuss the issue and possible solutions to the matter. We encourage the Muslim consumer to refrain from consuming Poultry from CAS stunned brands or facilities.

We thank the Australian Muslim community for their understanding, cooperation and patience on the matter.

Stakeholders can contact ANIC at: info@anic.org.au

SECTION 2

VETS REPORT

Assessment of poultry processing sites to evaluate the impact of using "Gas Stunning Technology" on birds, in order to ensure that birds are unconscious but not dead after Stunning – [redacted]

Prepared by:

Dr. Nima Rahmani

Dr. Ali Sadeghpour

[redacted]

Audit Date: 01/03/2022

Date submitted: 18/03/2022

Summary:

The aim of this study is to medically assess the consciousness of birds after Controlled atmosphere stunning (CAS) stunning.

While gas stunning is considered to be technically feasible in Australia's slaughter houses, it is not without challenges of its own. Controlled atmosphere stunning methods or gas stunning, involving a variety of gas mixtures. CAS methods have been perceived as an improvement from an animal welfare perspective, partly because birds can be stunned without prior shackling, and are generally considered to result in improved product quality compared to water bath stunning. However, birds subjected to this method might die during the gas stunning therefore this stunning method might not be compliance with the Halal standards.

The possibility that these birds might die during gas stunning has created a question mark over the legitimacy of Halal certificates issued to the slaughter houses that use gas stunning.

The purpose of this study is to evaluate and examines unconscious birds post CAS to ensure they are actually unconscious and not dead.

Definition of gas stunning:

Gas stunning is defined as exposure of poultry to gas mixtures contained in a chamber which leads to gradual loss of consciousness. Several different methods of gas stunning of poultry can be used, involving different gas combinations.

Gas stunning results in a bird that loses posture, sometimes (e.g. depending on gas combinations used) displays head shaking, leg paddling and wing flapping during the stunning process, and lies flat and relaxed on belly, side or back when exiting the chamber.

Problem Statement:

The challenge of ensuring that birds / chickens that have gone through gas stunning room are still alive is the main challenge when using gas stunning method to adhere to the Halal slaughtering of the birds.

This study aims to scientifically and systematically measure vital signs of birds / chickens post gas stunning to ensure these birds are unconscious but not dead in order to comply with Islamic requirements on Halal slaughter.

During this study the [redacted] site located at [redacted] was visited to assess the gas stunning methods.

Methodology:

The [redacted] site was slaughtering large birds (3.0kg and above) during the audit time.

During the visit, veterinarian (Dr. Nima Rahmani) examined 30 birds, 29 birds post stunning to ensure all the below vital signs are present in the chickens and 1 bird pre stunning as "Control sample". The vital signs are as follow:

- Palpebral reflex
- Cardiac activity
- Breathing
- Pulse rate

- Muscle Movement / Chest movement
- Flapping
- Electrocardiogram (ECG)

Palpebral reflex

Palpebral reflex can be describe as Blinking in response to tapping the edge of the eyelid. We examined 30 birds and only the control sample displayed palpebral reflexes however the other 29 birds post stunning displayed no sign of Palpebral reflex. Please see tables 2, 3 and 4

Cardiac activity

Onset of death leads to permanent absence of cardiac activity (absence of heart beat), which can be ascertained using a stethoscope or physical examination. There was no sign of heart beat present on 27 of birds (out of 29 birds). The physical examination was performed by searching for any heart beat under the breast muscle. They were 2 birds that displayed heart beat however the remaining 27 birds had no sign of heart beat when we used stethoscope.

Breathing

Presents of breathing was one of the vital signs that was evaluated when examining the birds however no of the 29 birds had a sign of breathing or labored breathing. They were a few birds that were examined for breathing after they were hanged on the shackles however there was no sign of breathing in any of the birds that we examined.

The mouth / beak was opened to see if there was any movement or any reflex of the throat that could be a sign of breathing / rhythmic breathing.

Pulse rate

Onset of death leads to permanent loss of pulse. Pulse can be ascertained physically by pressing the (uncut) arteries in an extremity (e.g. femoral), and absence of pulse can be used to confirm death in birds. There were no pulse rate present on femoral artery for any of the 29 birds examined.

Muscle / Chest movement

The movement of the chest or other body muscles after the stunning shows that the chickens are still alive. This can be used as an indicator to verify the effectiveness of stunning. There were only 3 birds that showed very small muscles movements.

Flapping

The act of moving / flapping the wings after stunning is an indicator that the chickens are still alive before the slaughter. None of the birds were flapping their wings.

Electrocardiogram (ECG).

We use Electrocardiogram (ECG) test to check the heart rhythm and electrical activity of the heart of birds.

We used 4 ECG leads and connected them to the left wings, right wings, left leg and right leg of the birds to detect any possible heart bet.

In addition, we use the research paper titled “Scientific Opinion on monitoring procedures at slaughterhouses for poultry” which is a very detailed and comprehensive research paper to utilize more vital signs if needed.

Table 1: Settings of the gas stunning machine (CO2) for the 6 stages of CAS at [redacted] site

Stages	CO2 concentration %	Time / Sec
1	18%	60
2	28%	60
3	33%	60
4	38%	60
5	62%	100
6	0% Vent	15

Table 2: The results of the first 10 birds that were examined.

Signs	Control	1	2	3	4	5	6	7	8	9
Palpebral reflex	√	X	X	X	X	X	X	X	X	X
Cardiac activity	√	X	X	X	X	X	X	X	X	X
Breathing	√	X	X	X	X	X	X	X	X	X
Pulse rate	√	X	X	X	X	X	X	X	X	X
Muscle movement	√	X	X	X	X	X	X	X	X	X
Flapping	√	X	X	X	X	X	X	X	X	X
Pulse rate	√	X	X	X	X	X	X	X	X	X
ECG	√	X	√	√	√	X	√	X	√	√

The first 9 birds were collected post gas stunner and 1 bird was collected pre gas stunner as “Control”. These birds were collected as soon as they were coming out of the gas stunner and right before they were shackled.

Table 3: The results of the second 10 birds that were examined.

Signs	11	12	13	14	15	16	17	18	19	20
Palpebral reflex	X	X	X	X	X	X	X	X	X	X
Cardiac activity	X	X	X	X	X	X	X	X	√	X
Breathing	X	X	X	X	X	X	X	X	X	X
Pulse rate	X	X	X	X	X	X	X	X	X	X
Muscle movement	X	X	X	X	X	X	X	√	√	X
Flapping	X	X	X	X	X	X	X	X	X	X
Pulse rate	X	X	X	X	X	X	X	X	X	X
ECG	√	√	X	X	√	√	√	√	√	√

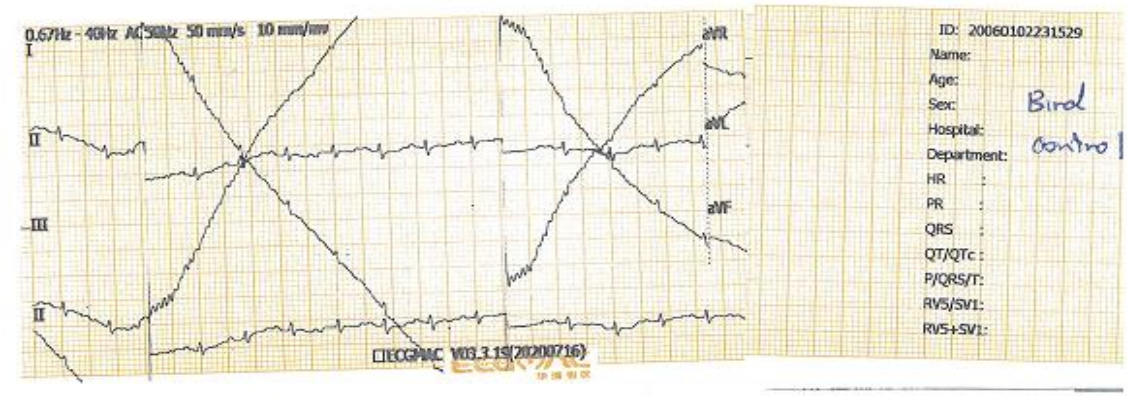
The second 10 birds were collected post gas stunner. These birds were collected just before the kill blade where the birds were slaughtered. These birds were shackled and stayed on the production line for almost 3 minutes before being slaughtered.

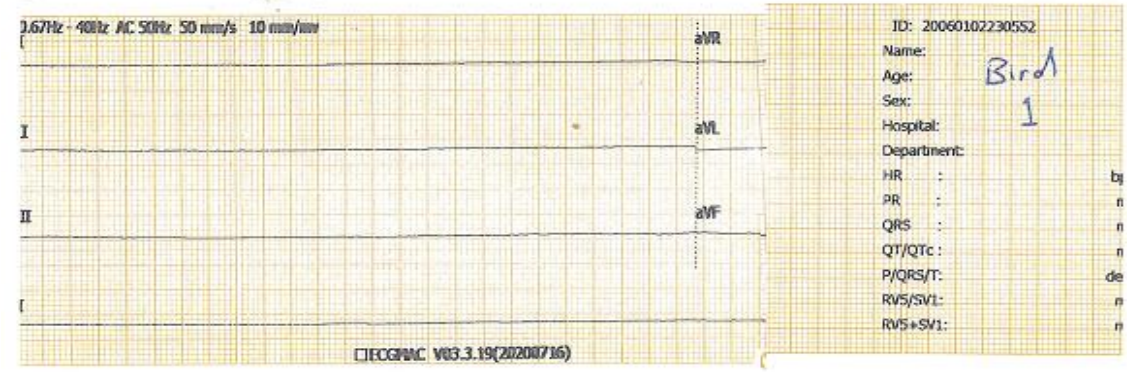
Table 4: The results of the third 10 birds that were examined.

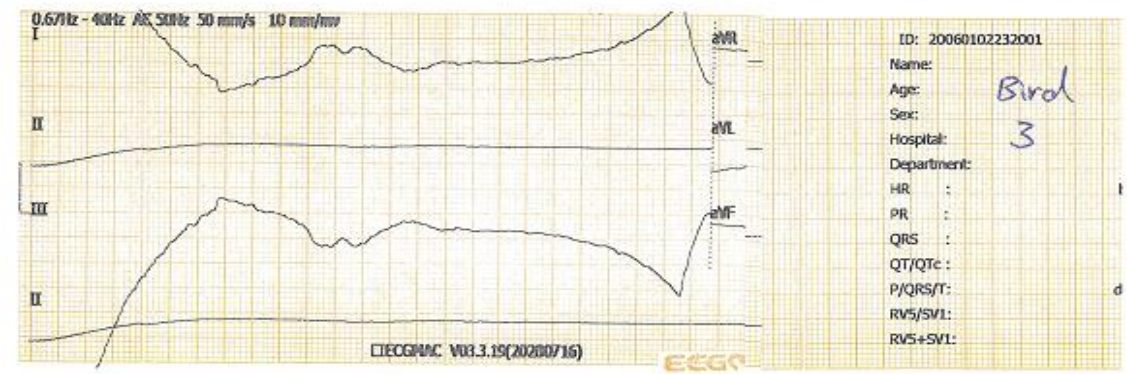
Signs	21	22	23	24	25	26	27	28	29	30
Palpebral reflex	X	X	X	X	X	X	X	X	X	X
Cardiac activity	X	X	X	X	X	X	X	X	√	X
Breathing	X	X	X	X	X	X	X	X	X	X
Pulse rate	X	X	X	X	X	X	X	X	X	X
Muscle movement	X	X	X	√	X	X	X	X	X	X
Flapping	X	X	X	X	X	X	X	X	X	X
Pulse rate	X	X	X	X	X	X	X	X	X	X
ECG	√	√	√	√	√	√	√	√	√	√

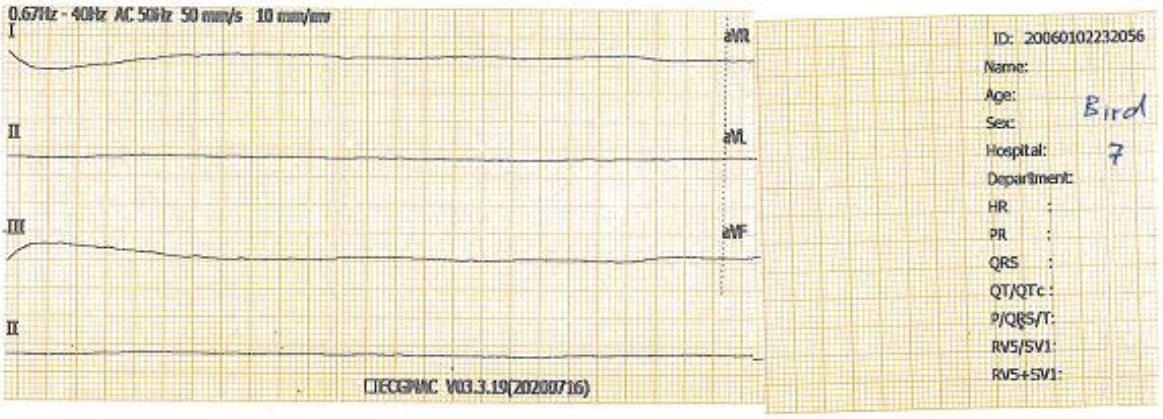
The third 10 birds were collected post gas stunner at the exact location of the second 10 birds. We repeated the same test on 10 more birds to have a better sampling size. The results showed that all the third 10 birds had ECG.

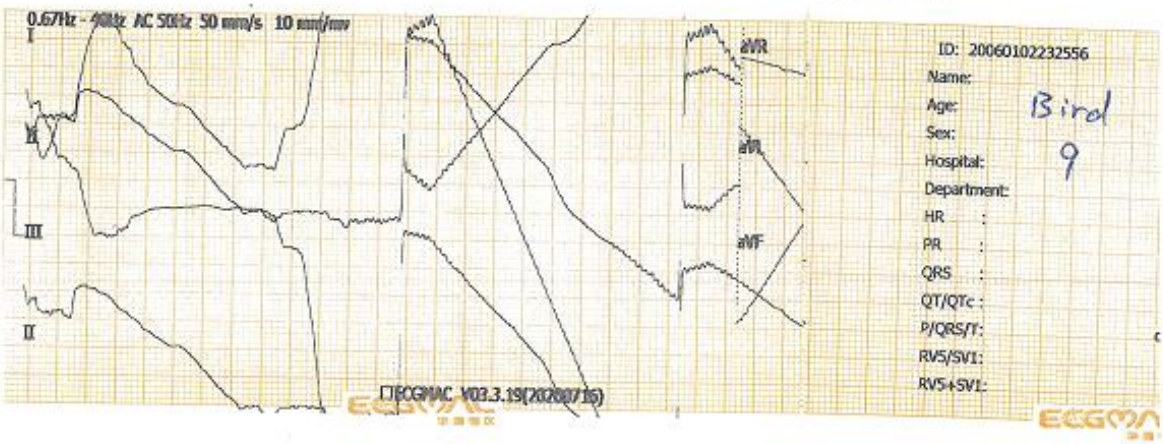
The results of the ECG shows that 5 birds out of 29 birds had no heart activity and ECG was a straight line (Bird 1 and Bird 7) in below graphs.

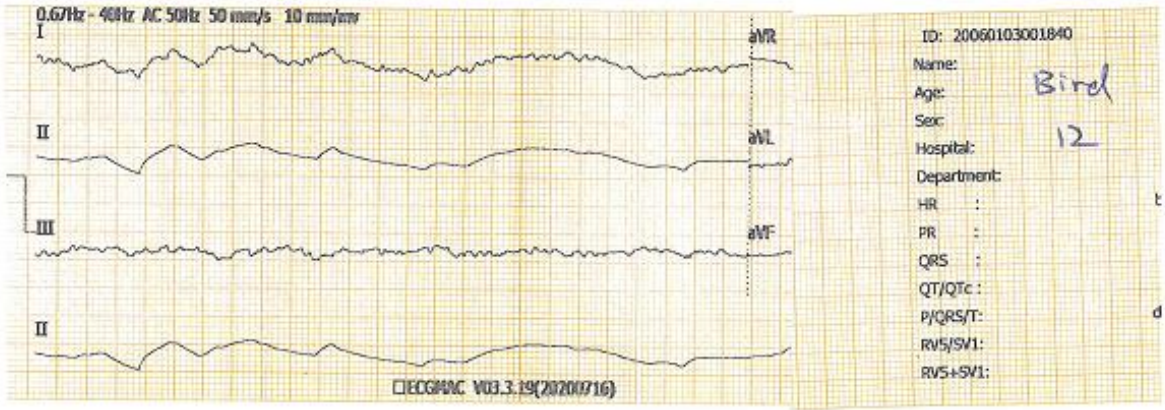




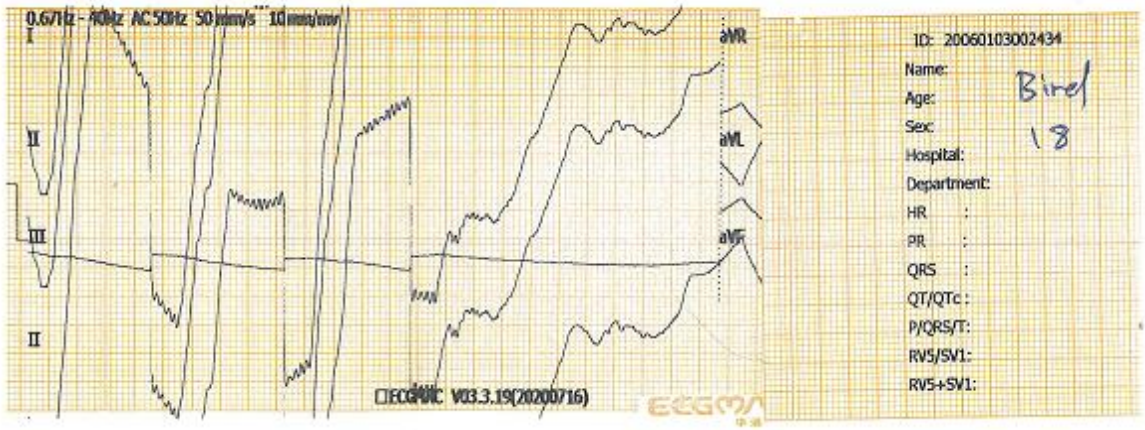


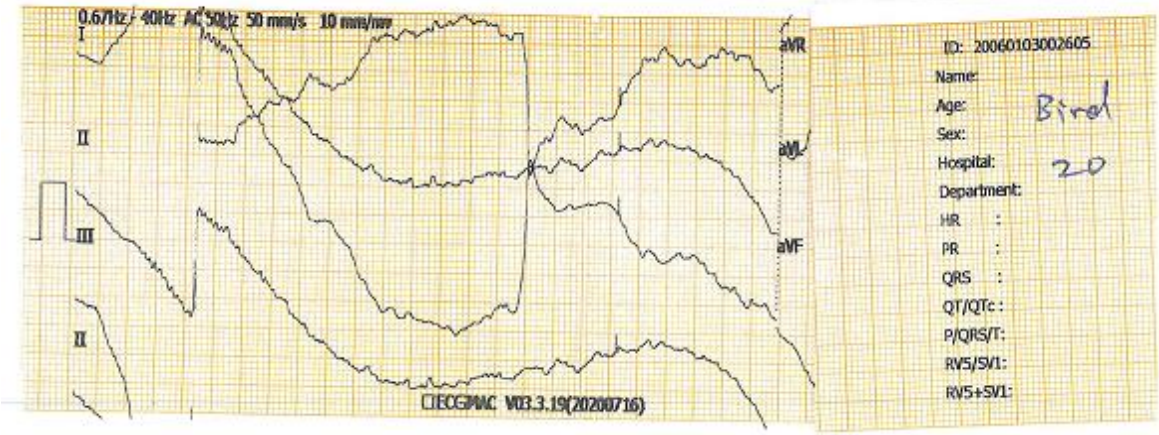

0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ECGMAC V03.3.19(2020/07/16)
ID: 20060102232056
Name:
Age:
Sex:
Hospital:
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
Bird
7

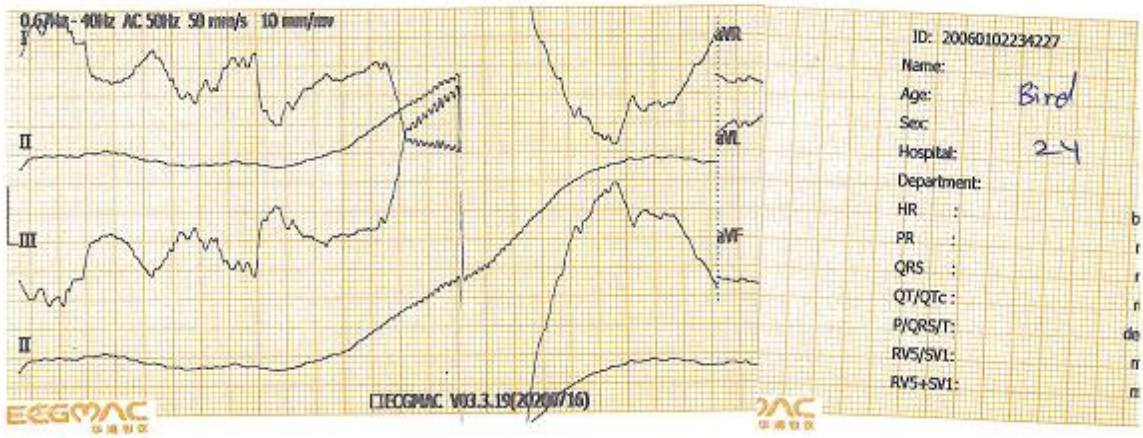

0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ECGMAC V03.3.19(2020/07/16)
ID: 20060102232556
Name:
Age:
Sex:
Hospital:
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
Bird
9

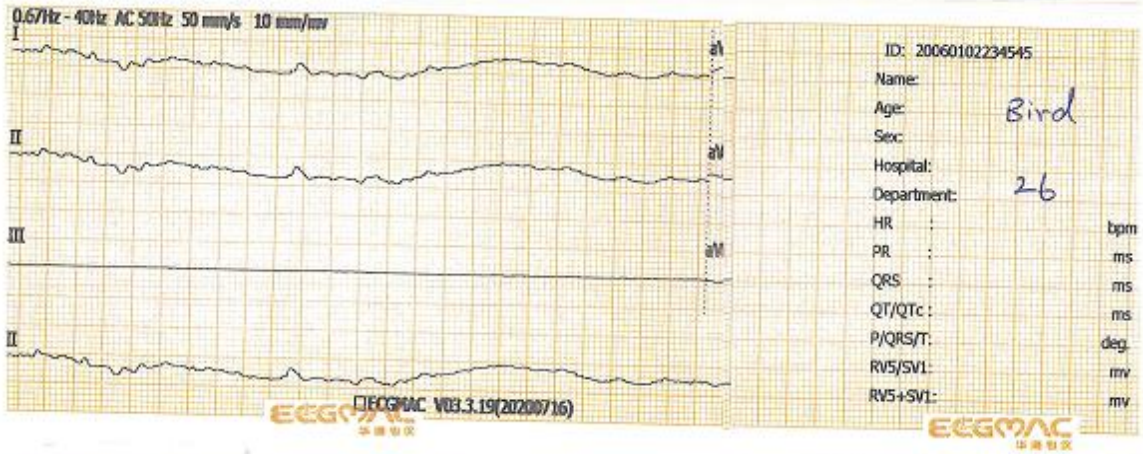

0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ECGMAC V03.3.19(2020/07/16)
ID: 20060103001840
Name:
Age:
Sex:
Hospital:
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
Bird
12

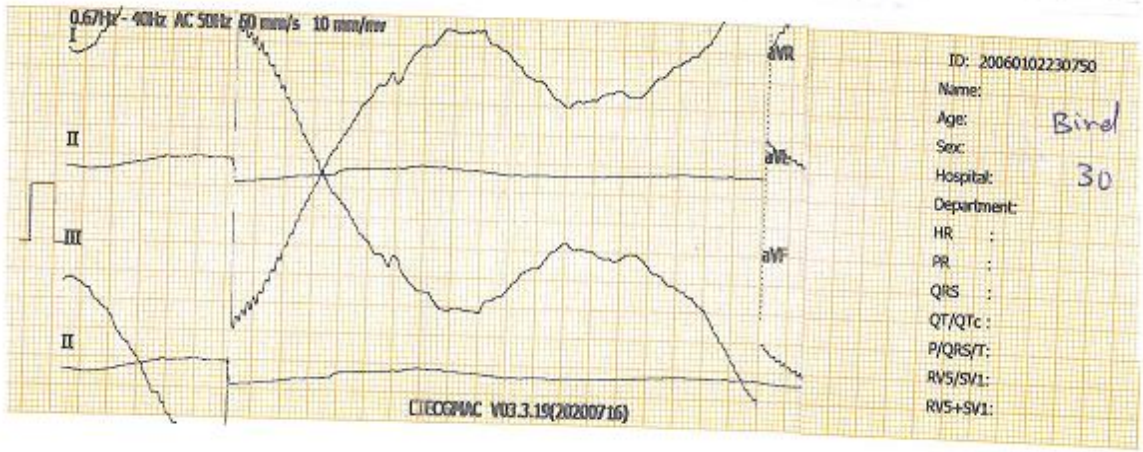

0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ID: 20060103002313
Name:
Age:
Sex:
Hospital:
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
Bird
16
ECGMAC V03.3.19(20200716)


0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ID: 20060103002434
Name:
Age:
Sex:
Hospital:
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
Bird
18
ECGMAC V03.3.19(20200716)


0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ID: 20060103002605
Name:
Age:
Sex:
Hospital:
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
Bird
20
ECGMAC V03.3.19(20200716)


0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVL
aVF
ID: 20060102234227
Name:
Age: Bird
Sex:
Hospital: 24
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
EECGMAC V03.3.19(20200716)


0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aV
aV
ID: 20060102234545
Name:
Age: Bird
Sex:
Hospital:
Department: 26
HR : bpm
PR : ms
QRS : ms
QT/QTc : ms
P/QRS/T: deg
RV5/SV1: mv
RV5+SV1: mv
EECGMAC V03.3.19(20200716)


0.67Hz - 40Hz AC 50Hz 50 mm/s 10 mm/mv
I
II
III
II
aVR
aVF
ID: 20060102230750
Name:
Age: Bird
Sex:
Hospital: 30
Department:
HR :
PR :
QRS :
QT/QTc :
P/QRS/T:
RV5/SV1:
RV5+SV1:
EECGMAC V03.3.19(20200716)

Interpretation of the results:

The wave of depolarization and repolarization shown on the ECG graphs above can be mapped on the body surface by sensing electrodes placed on the extremities and the wings and legs of the stunt birds. The resultant waveform traced on graph paper is called the electrocardiogram (ECG). When an ectopic impulse occurs singly, it generates a beat; when the beat repeats itself, it becomes a rhythm although there are no identical rhythms for any of the birds on the above ECG graphs however it shows that the heart beats were present in 24 birds out of 29 birds post gas stunning. The last 10 birds prior to the kill blade were examined and all 10 birds showed some heart activity on the ECG.

Conclusion:

We have examined 29 birds post gas stunning and 1 bird pre stunning (control) at [redacted] site. The ECG records from birds post gas stunning (CAS) at [redacted] site confirmed that 24 birds out of 29 birds had some heart activity. Although the heart beats were irregular and weak however the present of the heart beats confirms that there was still heart activity after the gas stunning in 24 birds out of 29 birds. There were 5 birds with no heart activity after the gas stunning when we used the ECG.

Note: During the audit the [redacted] site were processing large birds and all our assessment were performed on the large birds however the results of ECG and other biomarkers can change depending to the size of the birds.

SECTION 3

CARDIOLOGIST REPORT

Assalamu Alaikom Wa Rahmatu Allahe Wa Barakatuh,

I reviewed the files sent to me with regards to the experiment conducted by Dr Nima Rahmani on large birds (3KG and above) at a slaughtering site on 1st of March 2022.

Dr Rahmani examined 30 birds, 29 post stunning and 1 control to determine whether the birds were alive after gas stunning and before slaughtering or not.

I reviewed the 2 files sent to me named

1. Report final
2. ECG

The point I was asked to review is whether the electrocardiogram (ECG) of the birds showed any signs of heart activity after stunning and before slaughtering.

The first file (Report final) contained 3 tables (tables 2-4) detailing the interpretation of the file authors as to the birds' signs of life. The authors concluded that 24 out of the 29 examined birds had heart activity on ECG.

On reviewing the 12 ECG samples in that report, the only ECG that showed clear organized electrical activity of the heart was that of the control bird. The other ECG samples in that file are interpreted as follows:

1. Birds 1, 7 and 26 ECG revealed no signs of cardiac electrical activity
2. Birds 3, 9, 18, 24, and 30 ECG revealed no signs of electrical activity of the heart but also has significant motion artefact which results from poor contact of the ECG leads to the surface of the bird
3. Birds 12, 16 and 20 ECG revealed irregular electrical activity which likely represents motion artefact but could represent ventricular fibrillation a condition that results in the heart being unable to pump blood and is not compatible with life

The second file (ECG) contained 32 pages of ECG tracings. On reviewing the tracings, the following is a summary of the ECG interpretation:

1. Most of the ECGs revealed no signs of cardiac electrical activity or showed motion artefact due to poor contact of the ECG leads with the surface of the bird
2. The ECG on page 10 revealed organized electrical activity compatible with a beating heart, this was the ECG of the control bird
3. The ECGs on pages 20, 26, 29 and 30 revealed irregular activity that likely represents motion artefact but could represent ventricular fibrillation, a condition that results in no effective cardiac contraction (i.e., no effective heartbeat)

In summary:

I would like to commend the report's authors on their scientific approach in preparing this report. I do, however, disagree with their conclusion that signs of electrical activity were detected on 24 out of the 29 ECGs.

My interpretation based on my experience as a cardiologist and cardiac electrophysiologist is that the ECGs of the 29 birds examined after gas stunning revealed no signs of cardiac electrical activity in 25 out of the 29 birds. 4 ECGs had irregular electrical activity that likely represents motion artefact but could represent ventricular fibrillation, a condition not compatible with life during which the heart is not beating and unable to pump blood.

It is worth adding that, in humans, an ECG is not performed to confirm death as occasionally a condition called pulseless electrical activity (PEA), or electromechanical dissociation (EMD) could lead to organized electrical activity of the heart with no effective cardiac contraction. Thus, death confirmation in humans relies on lack of signs of life as indicated by absence of respiratory movements, absence of carotid pulse, absence of heart sounds, and breathing sounds on auscultation and the presence of dilated fixed pupils.

The remainder of the report confirms the lack of signs of life in the examined birds as indicated by

- Absence of palpebral reflexes
- Absence of heart beats by auscultation in 27 out of the 29 birds
- Absence of pulse by palpation
- Absence of breathing activity
- Absence of muscle/chest movement except very minimal muscle twitches in 3 birds
- Absence of wing flapping

It is thus my opinion based on my interpretation of the report that there were no obvious or convincing signs of life in any of the 29 birds examined post stunning and before slaughtering.

Kind regards,

Dr Ihab El-Sokkari
MBBCh, FRACP, FCSANZ
Cardiologist and cardiac electrophysiologist
Director of cardiac electrophysiology
Nepean Public and Private Hospitals
08-12-2022

SECTION 4

ECG RESULTS

3ch x 4 + (1ch) Bird Control 1

?ECGMAC

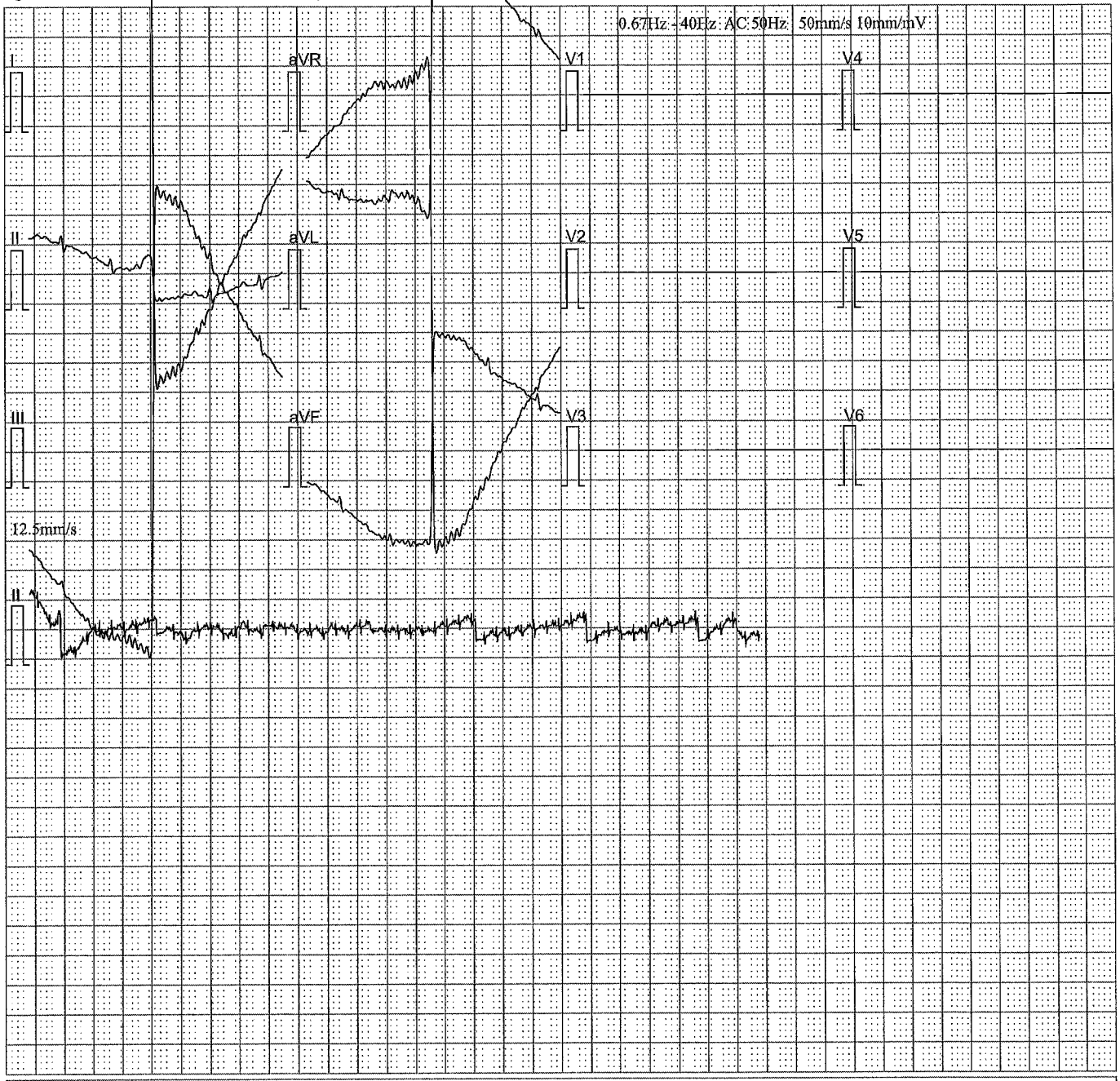
Name:

ID: 20060102231529

Sex: Hospital:

Age: Department:

Check Time: 02-01-2006 23:15:29



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

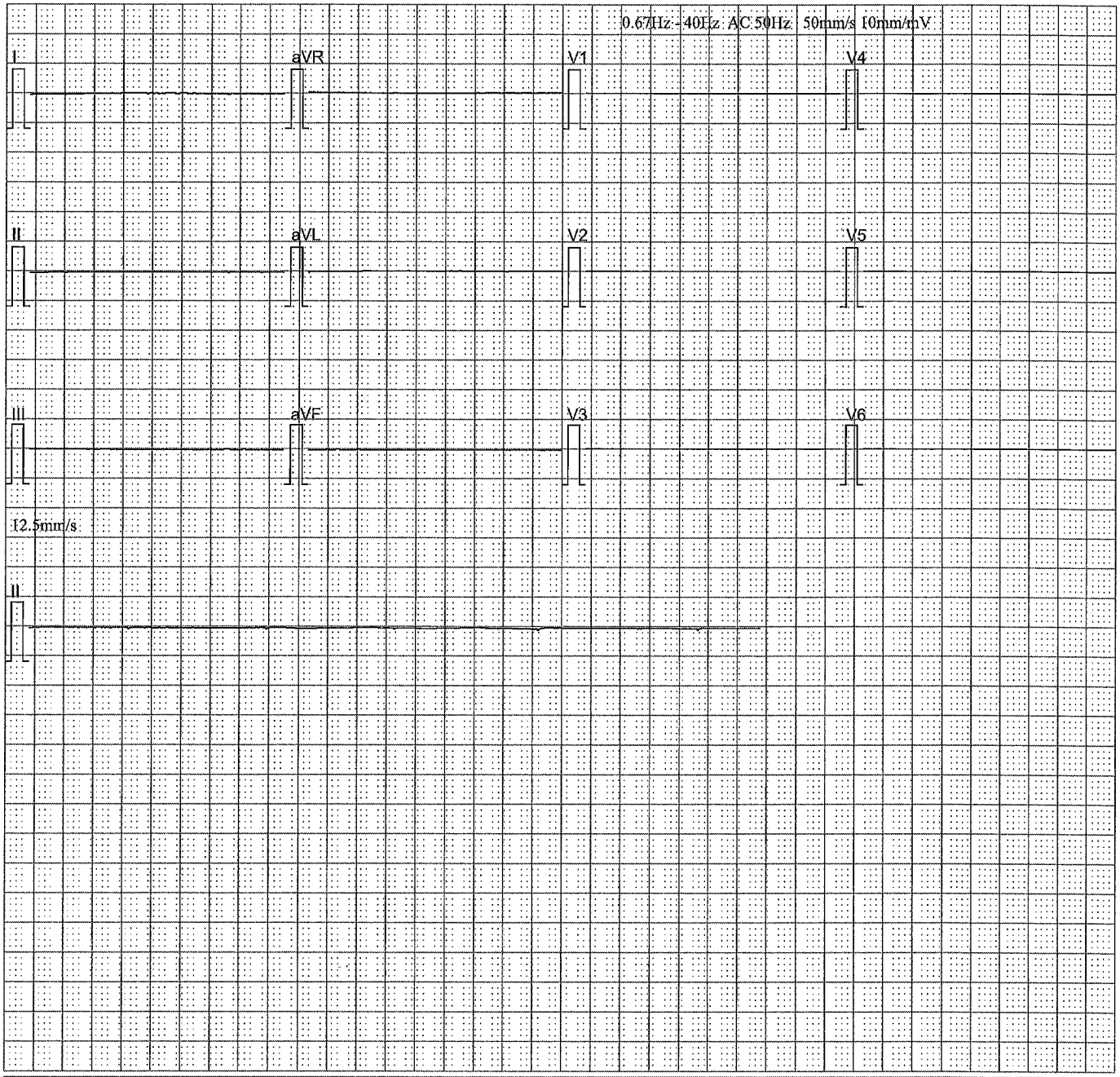
?ECGMAC

Name:

ID: 20060102231213

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:12:13



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

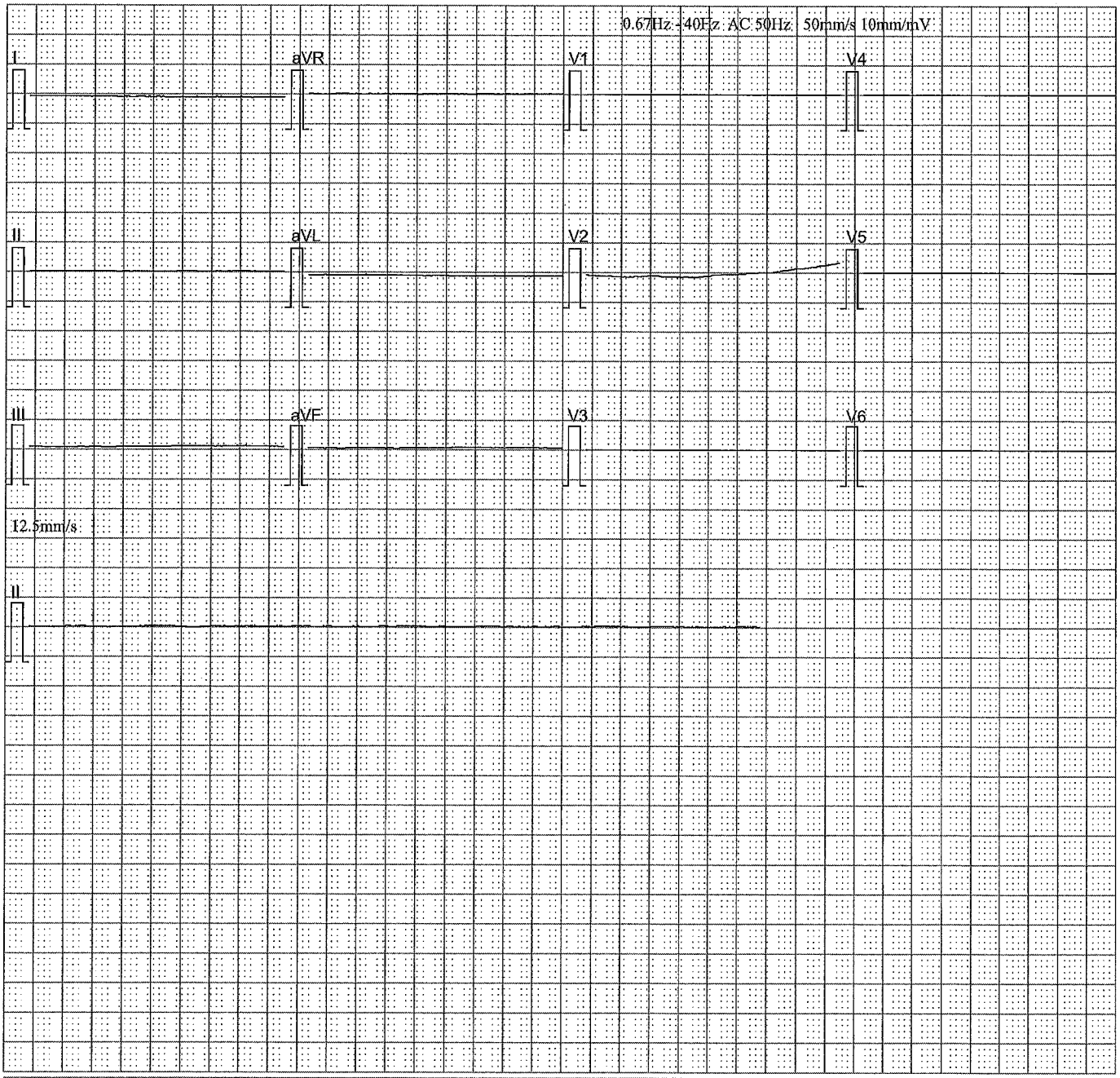
?ECGMAC

Name:

ID: 20060102230954

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:09:54



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

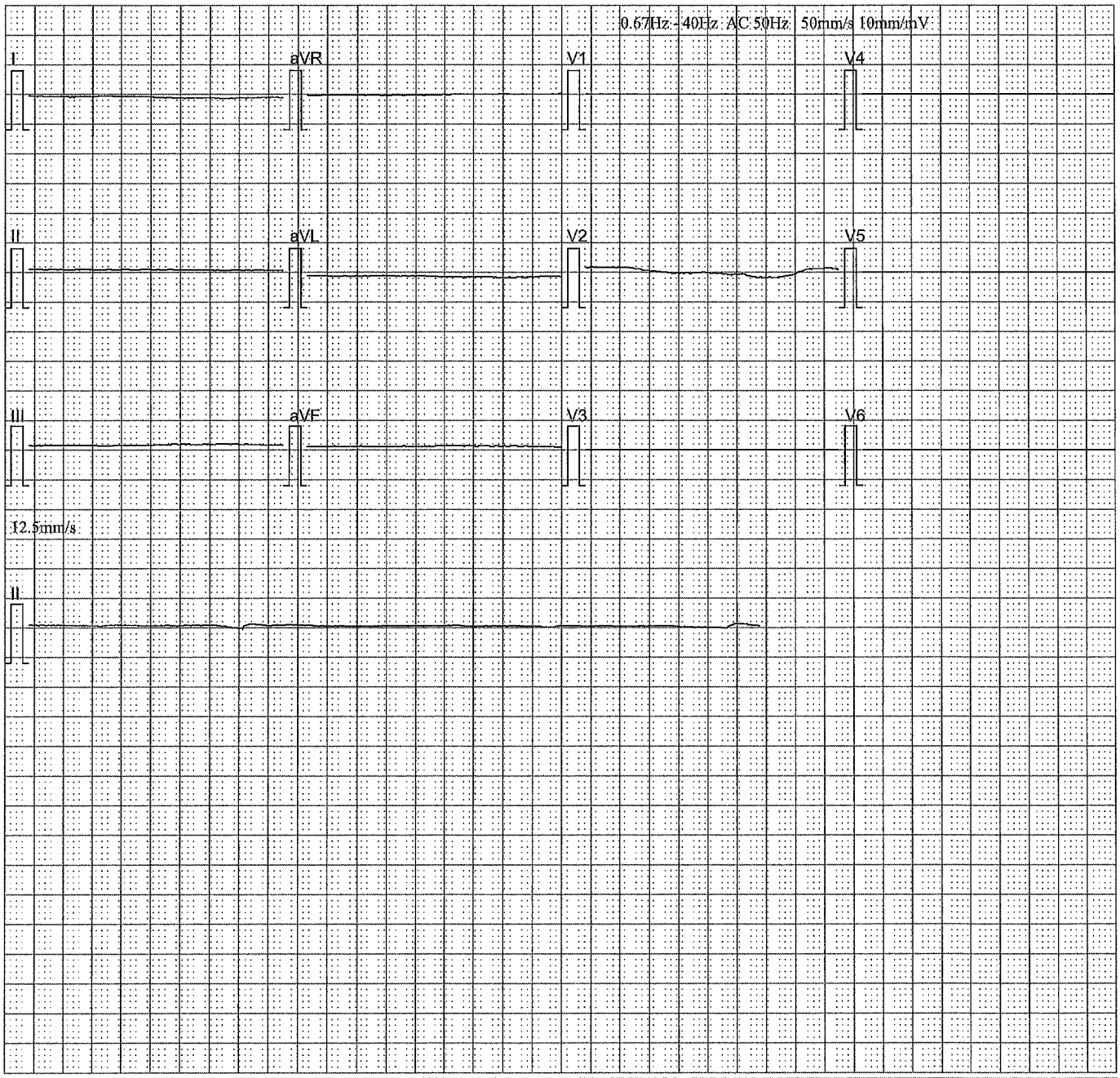
?ECGMAC

Name:

ID: 20060102230923

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:09:23



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

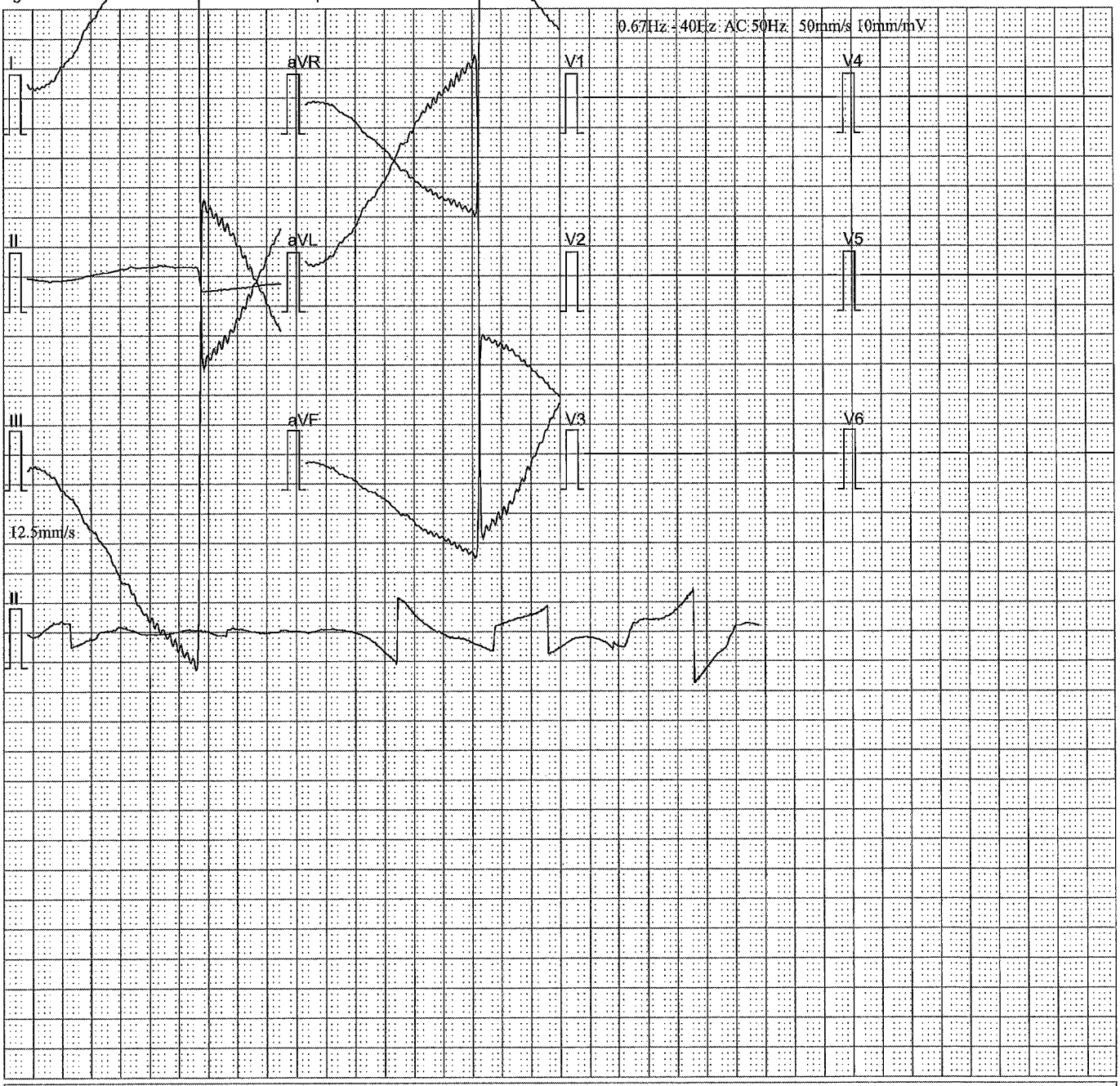
Name:

ID: 20060102230750

Sex: Hospital:

Age: Department:

Check Time: 02-01-2006 23:07:50



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

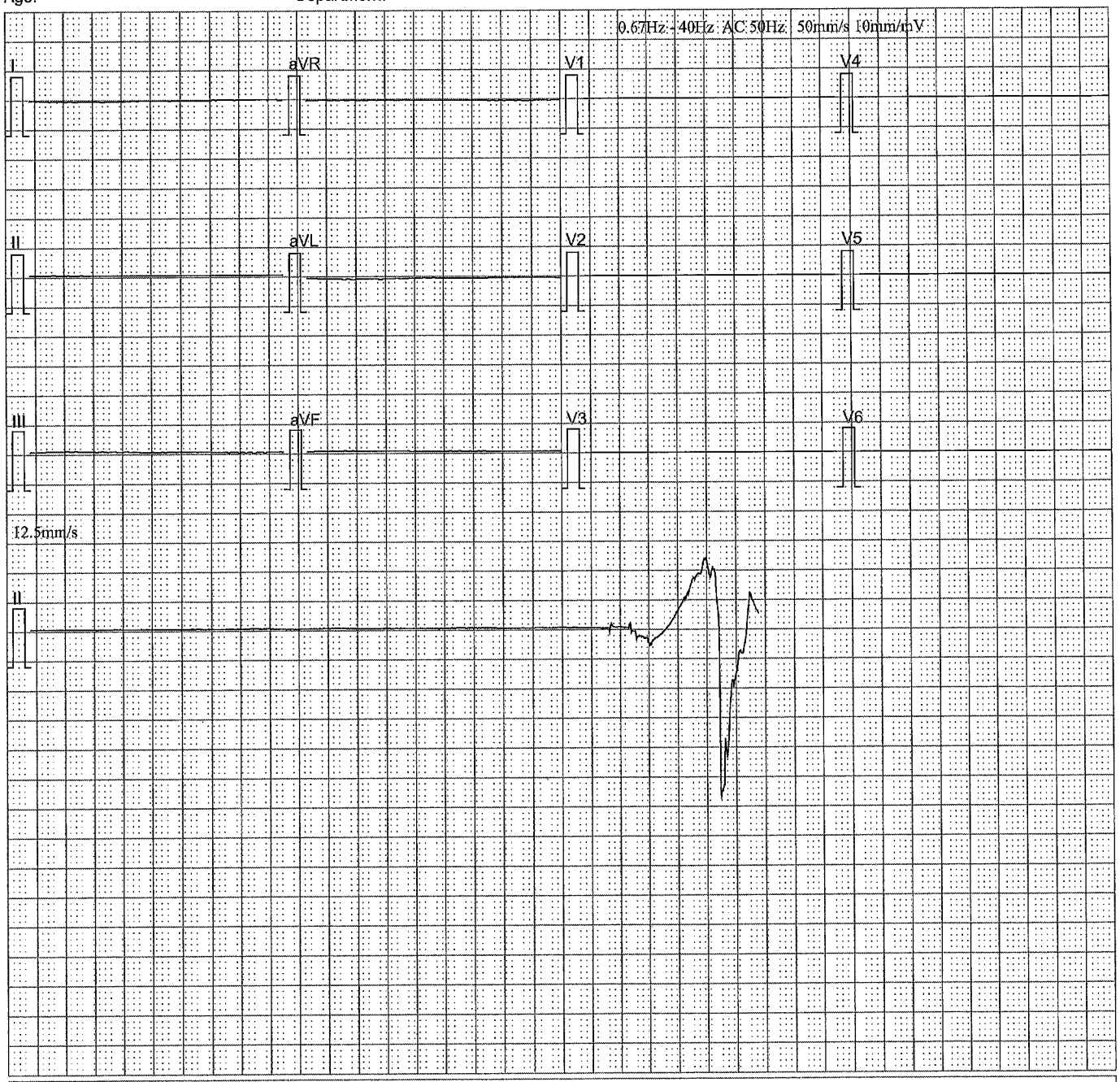
?ECGMAC

Name:

ID: 20060102230552

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:05:52



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

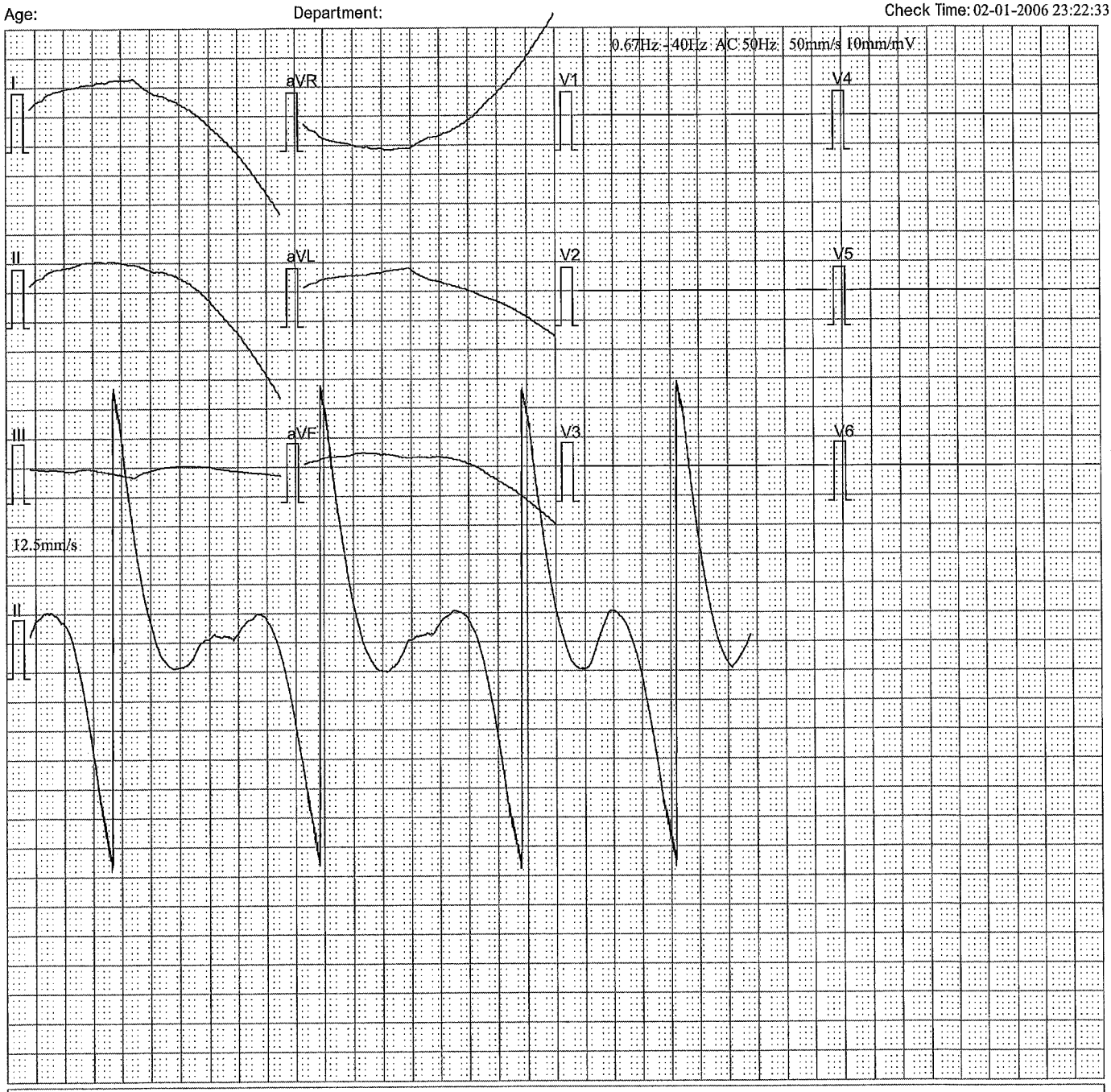
?ECGMAC

Name:

ID: 20060102232233

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:22:33



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

Name:

ID: 20060102232202

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:22:02

[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

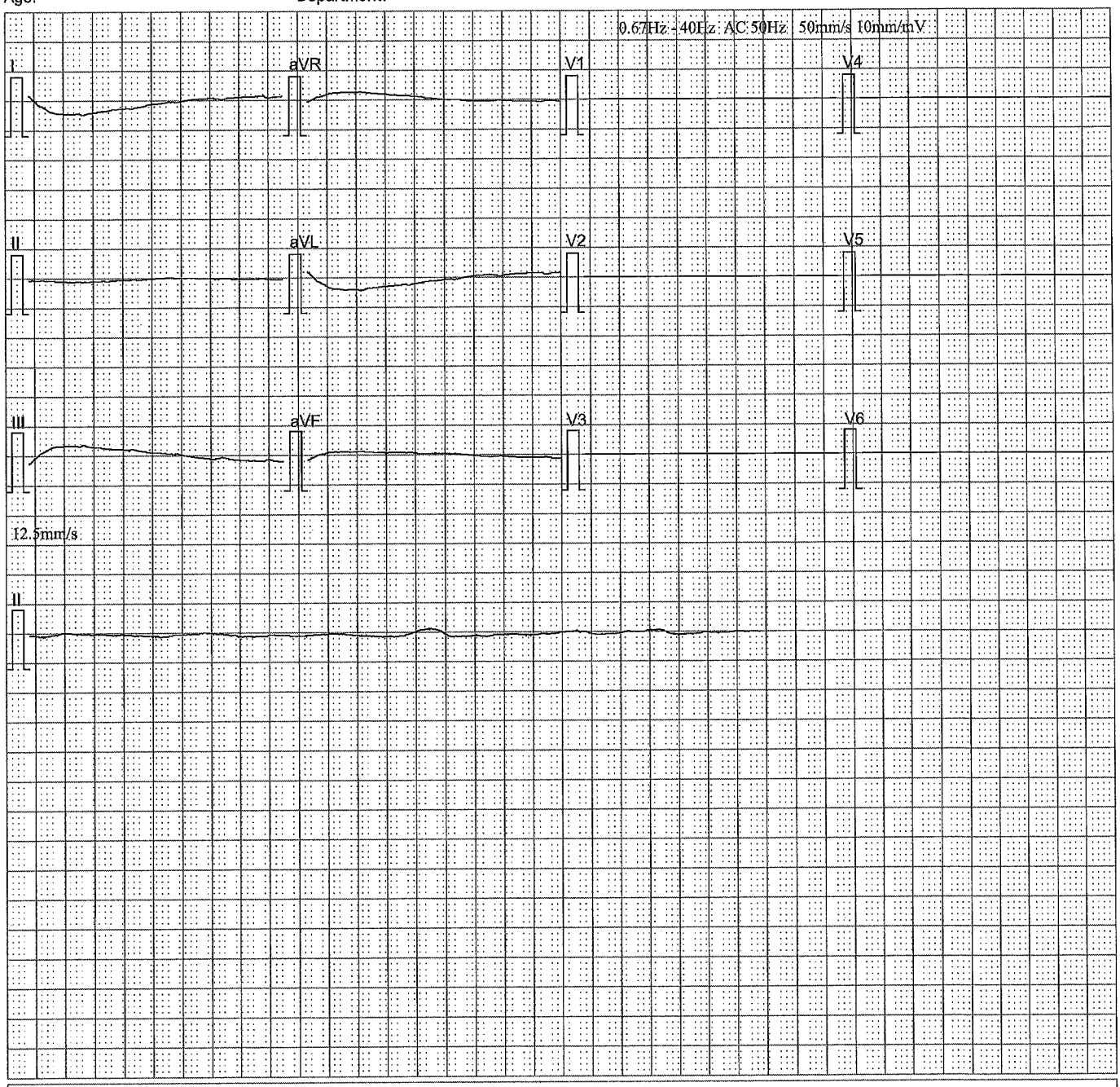
?ECGMAC

Name:

ID: 20060102232056

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:20:56



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

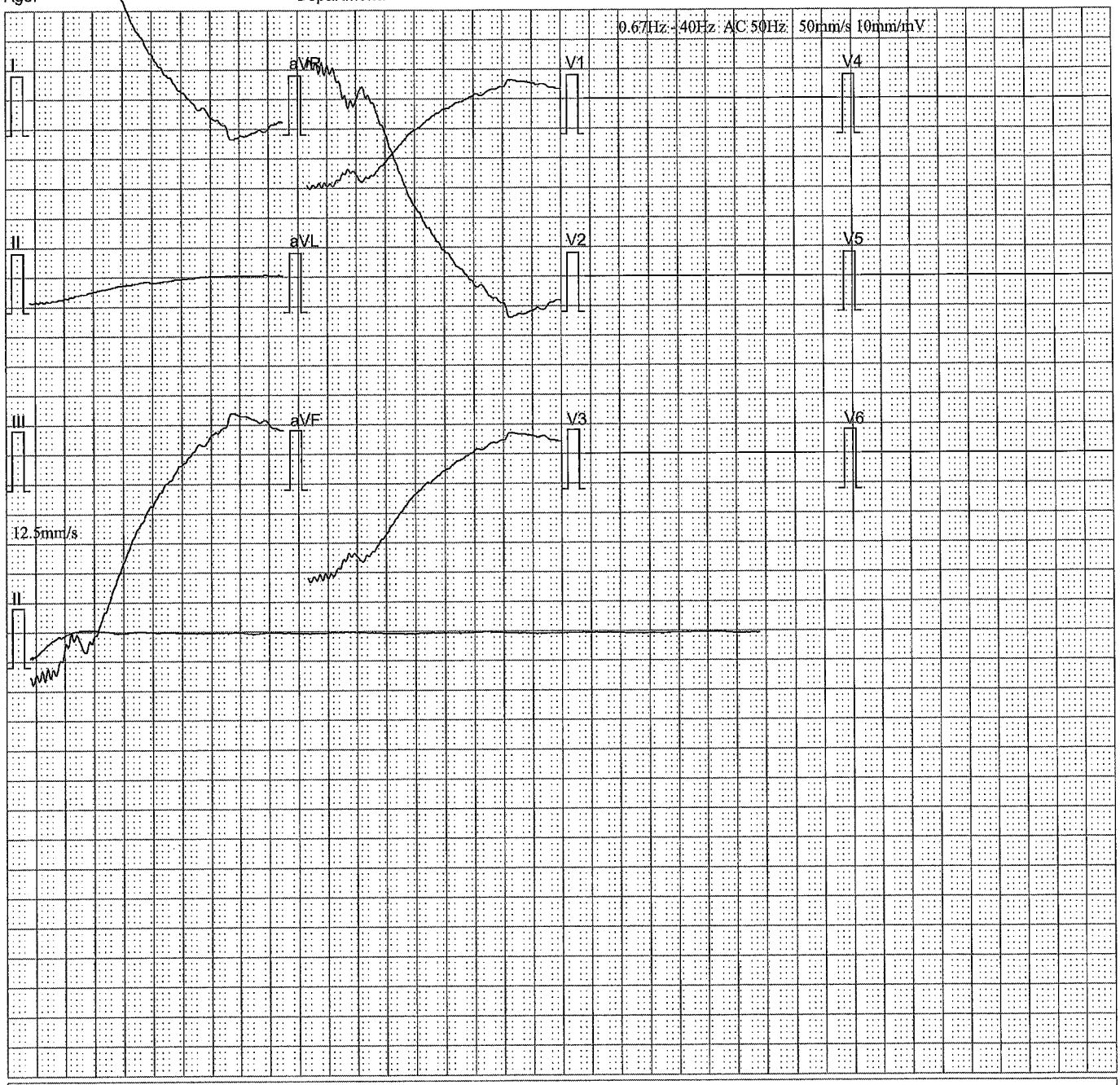
Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

Name:
ID: 20060102232001
Sex: Hospital:
Age: Department:

Check Time: 02-01-2006 23:20:01



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

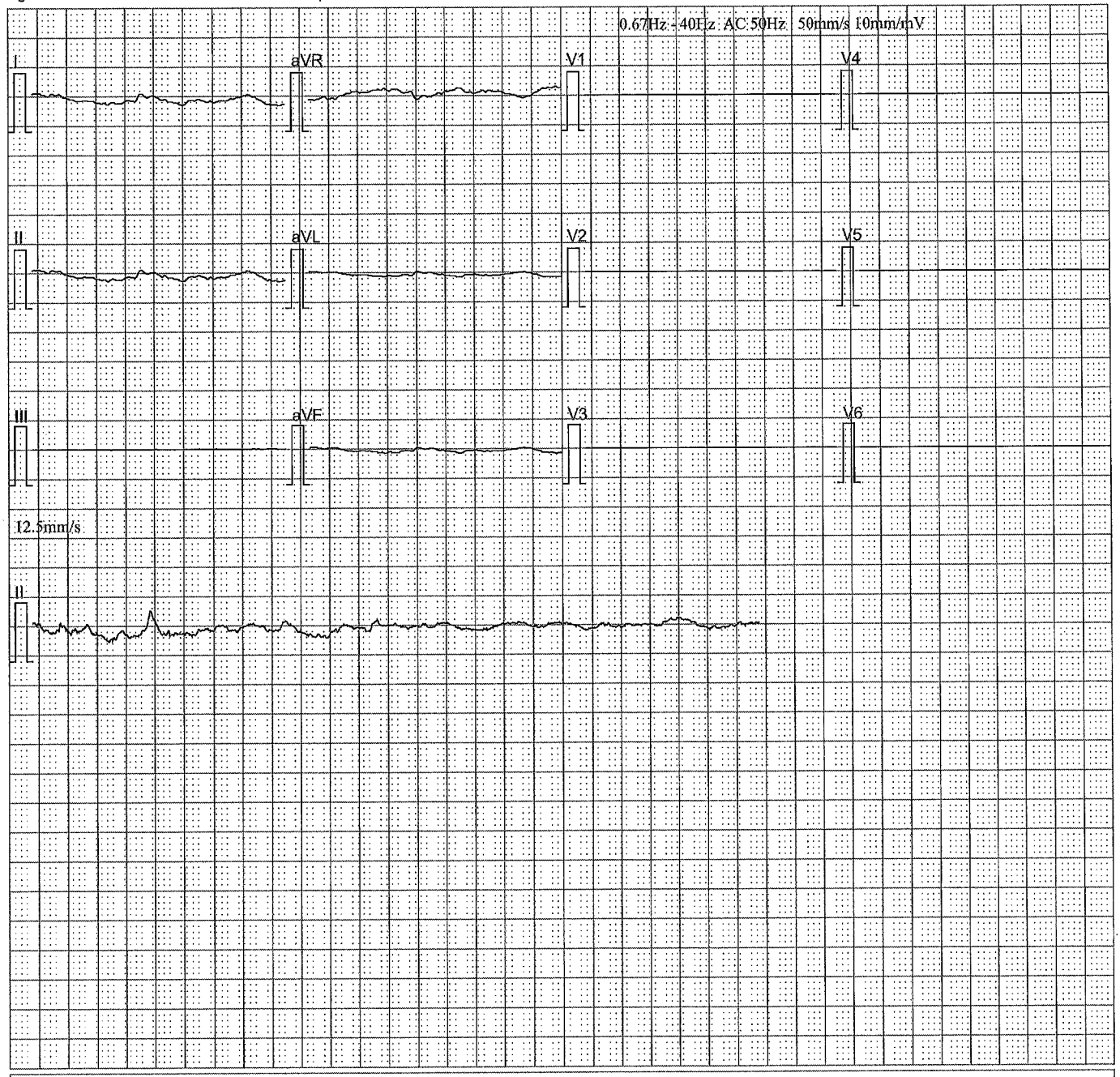
?ECGMAC

Name:

ID: 20060102234045

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:40:45



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

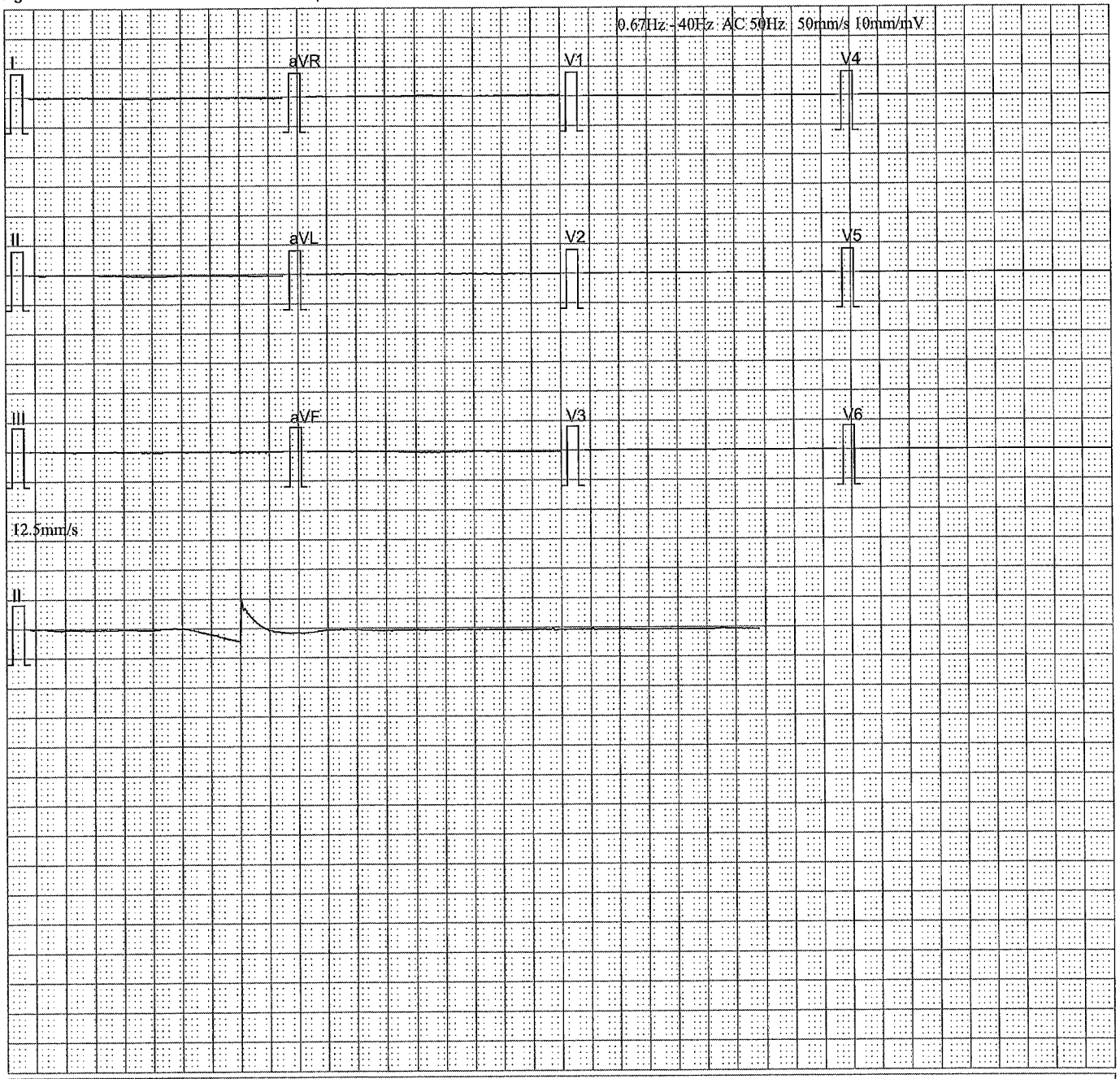
?ECGMAC

Name:

ID: 20060102233952

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:39:52



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

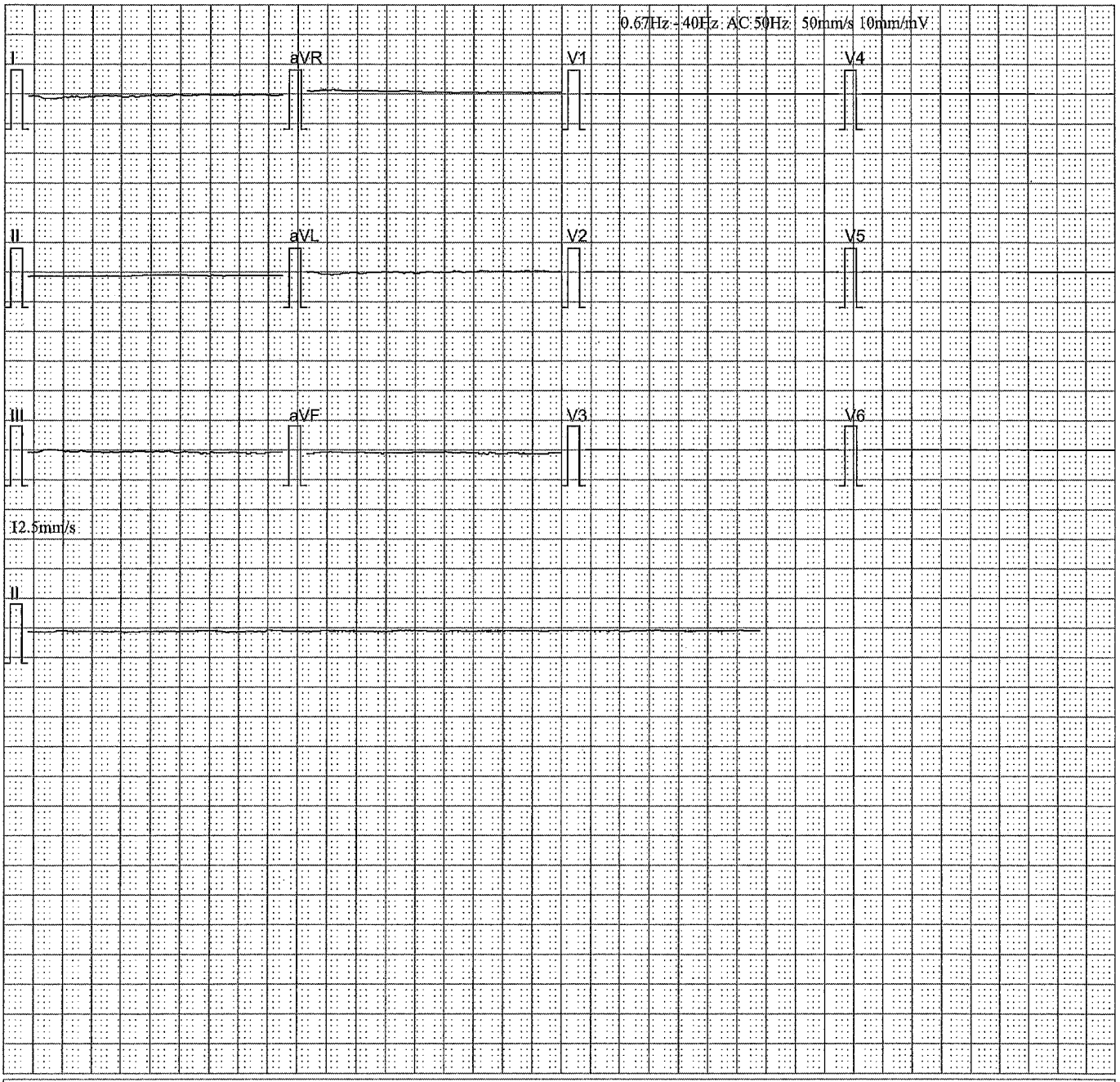
?ECGMAC

Name:

ID: 20060102233901

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:39:01



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

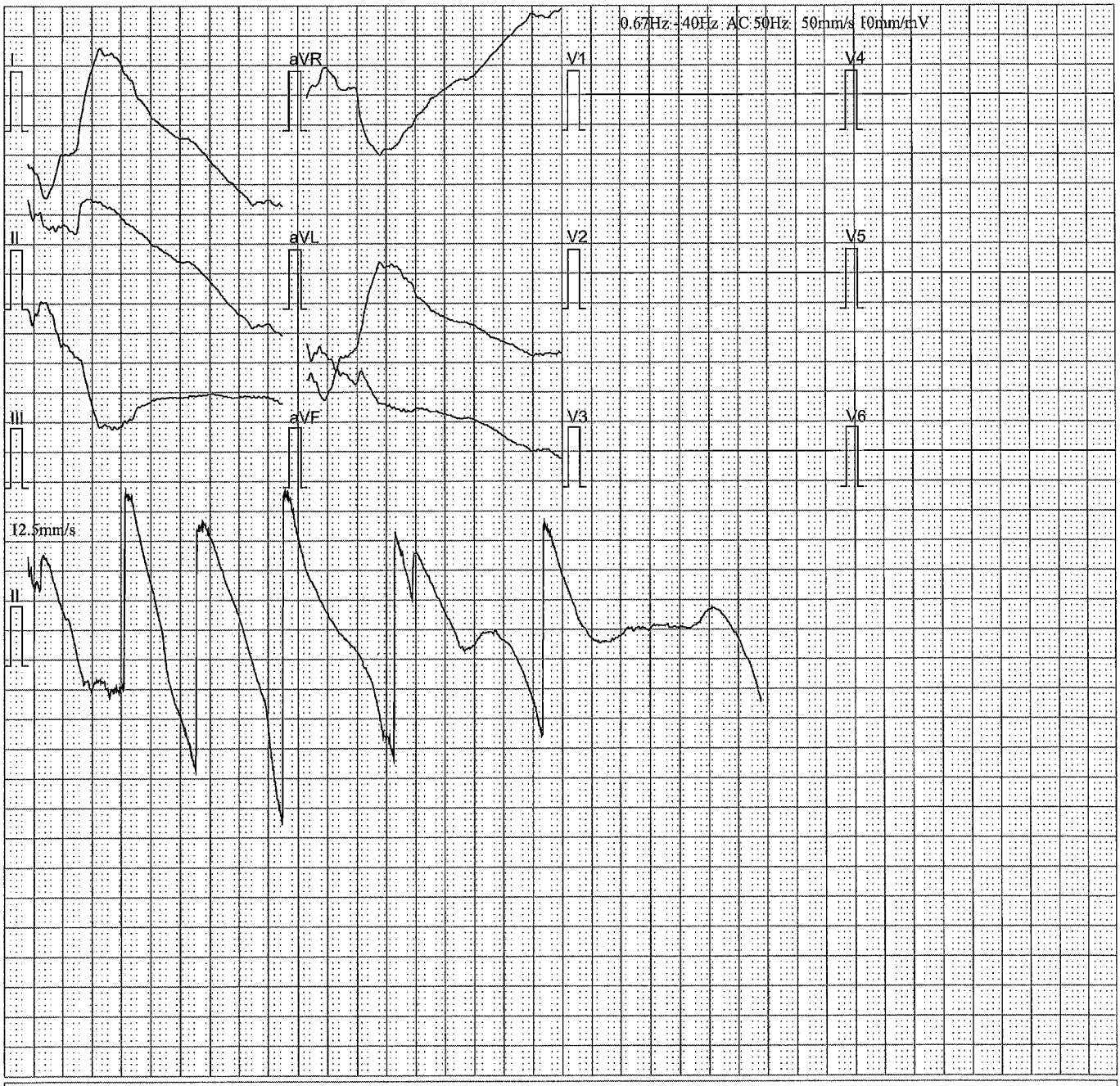
?ECGMAC

Name:

ID: 20060102232556

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:25:56



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

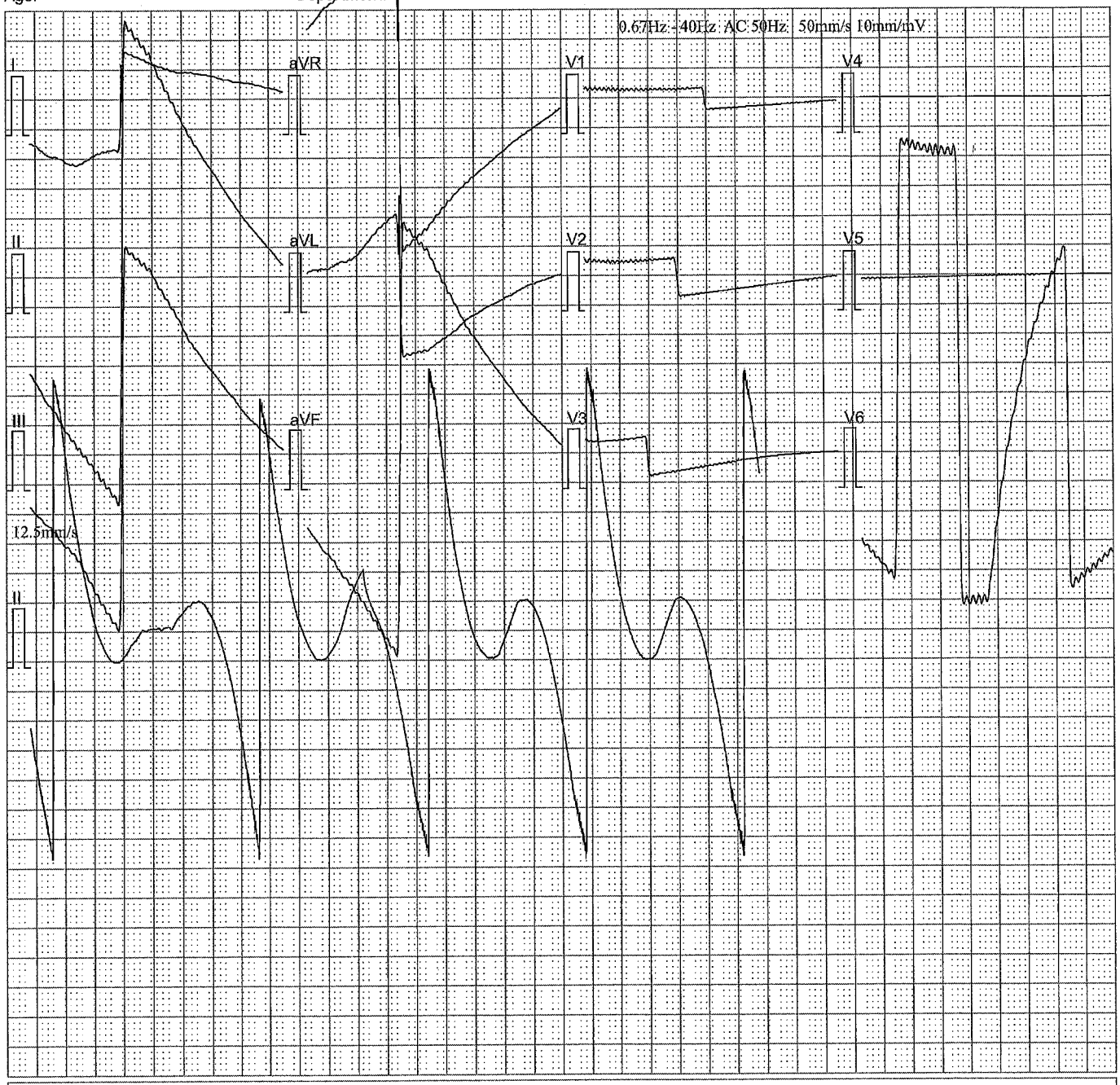
Name:

ID: 20060102232500

Sex: Hospital:

Age: Department:

Check Time: 02-01-2006 23:25:00



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

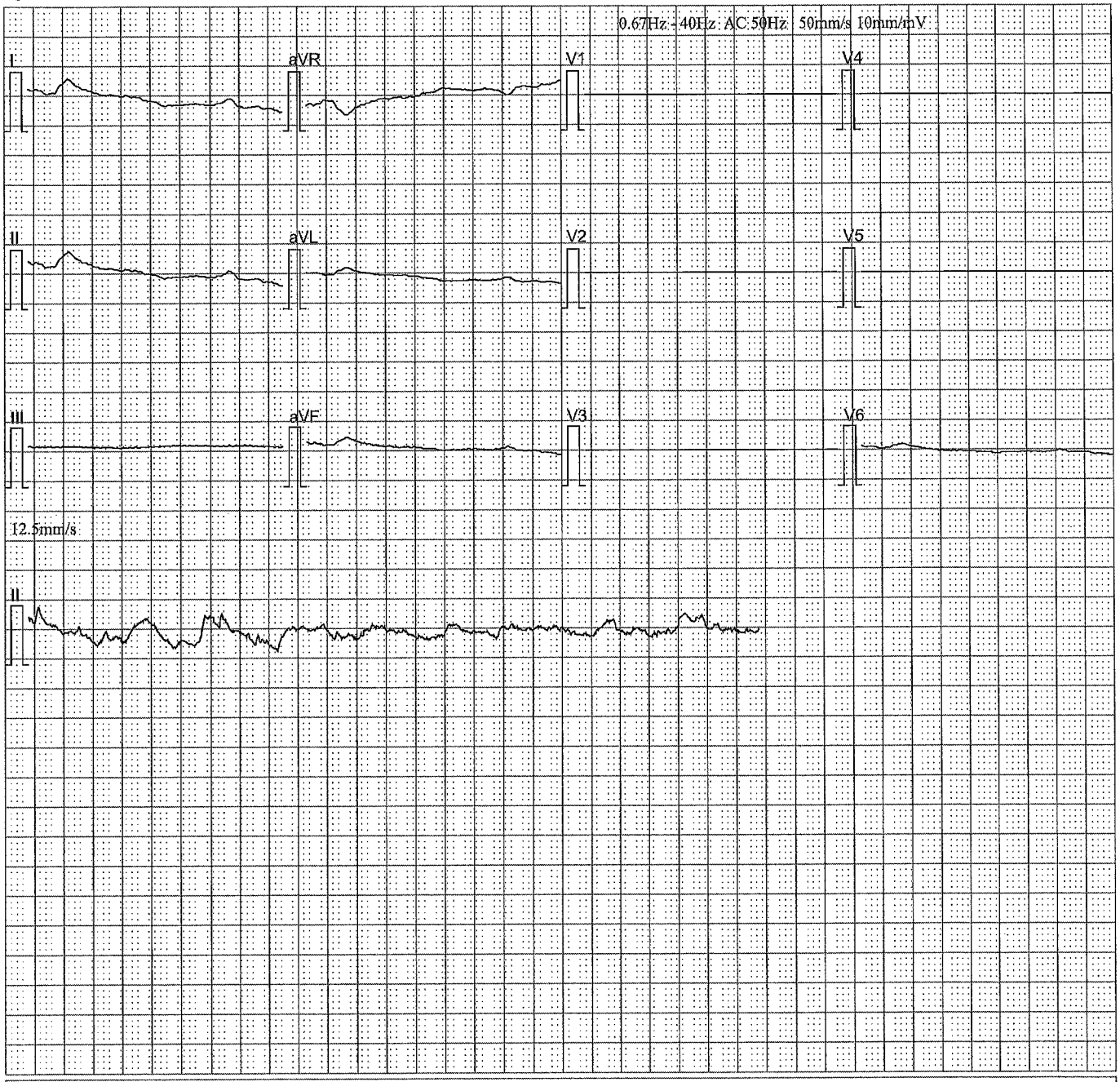
?ECGMAC

Name:

ID: 20060102234400

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:44:00



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

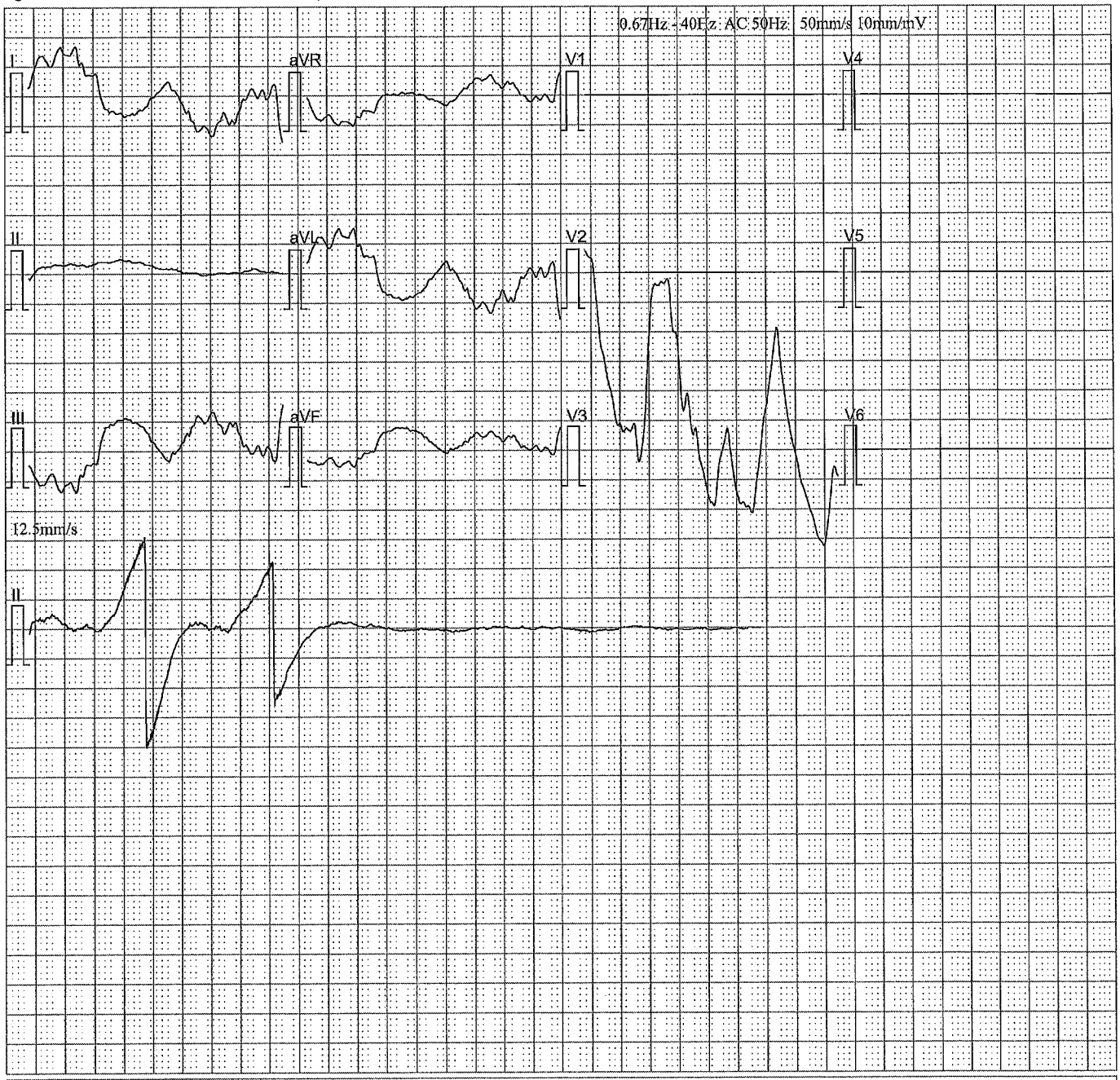
?ECGMAC

Name:

ID: 20060102234227

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:42:27



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

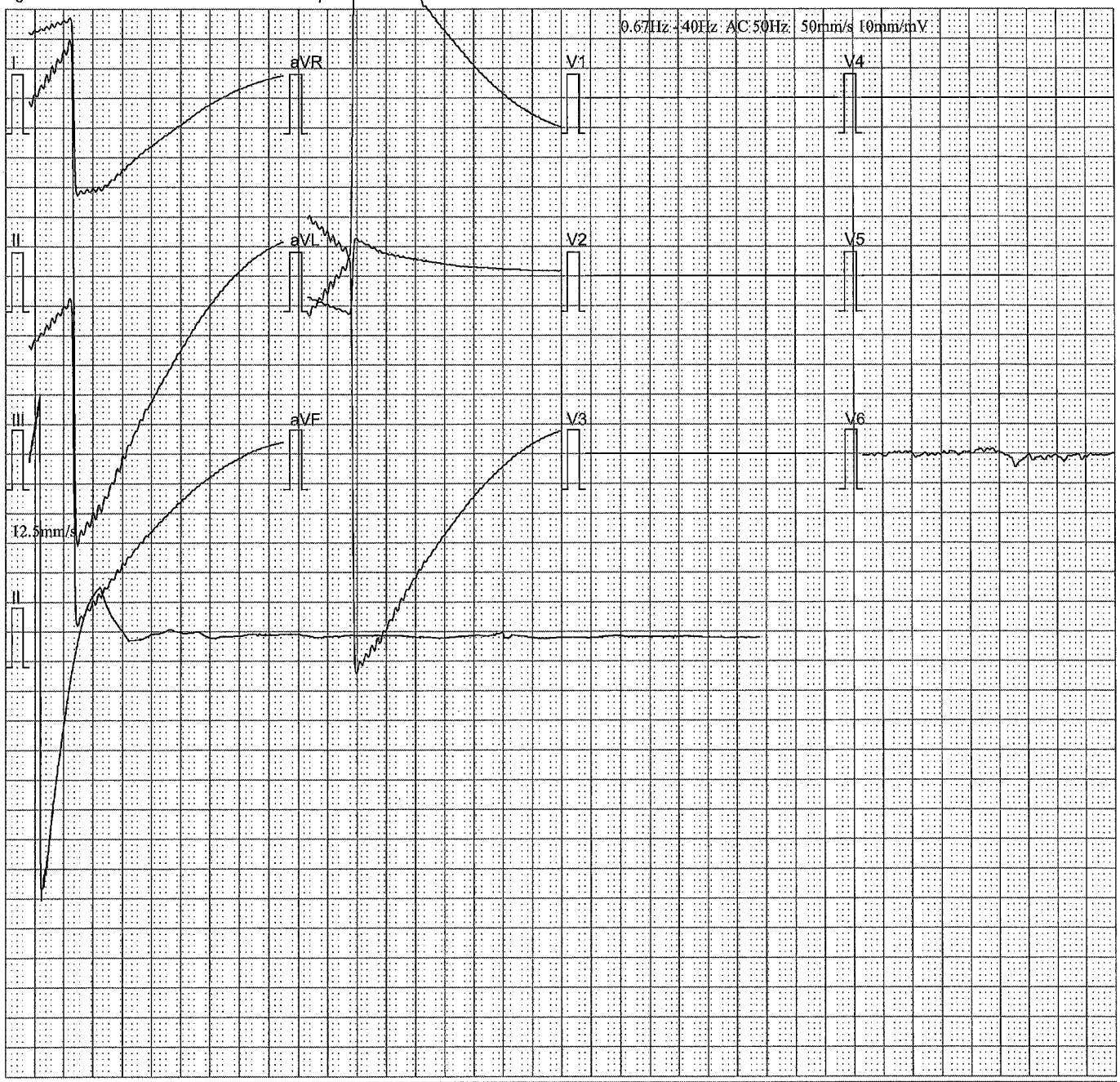
?ECGMAC

Name:

ID: 20060102234133

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:41:33



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

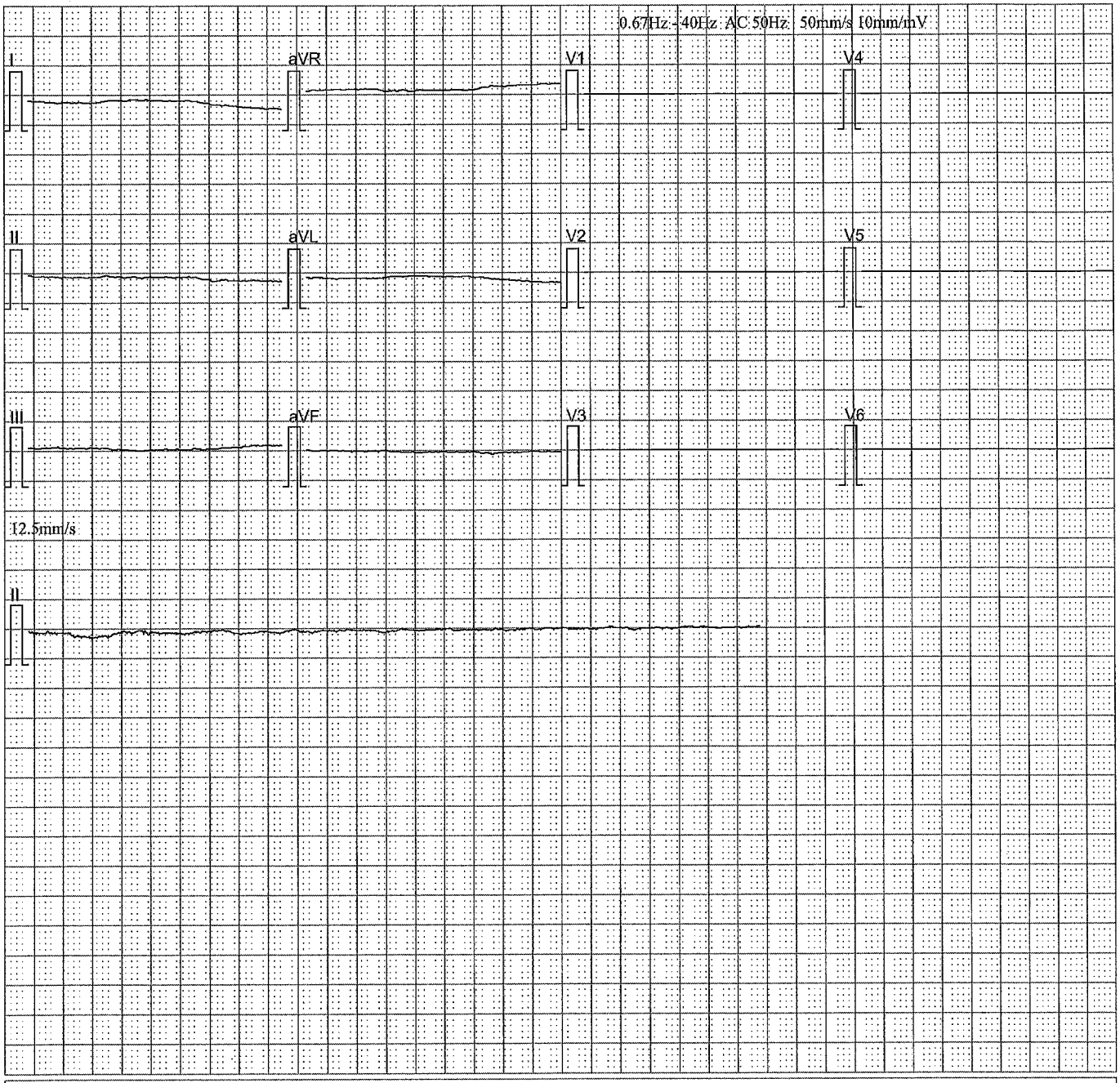
?ECGMAC

Name:

ID: 20060102234648

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:46:48



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

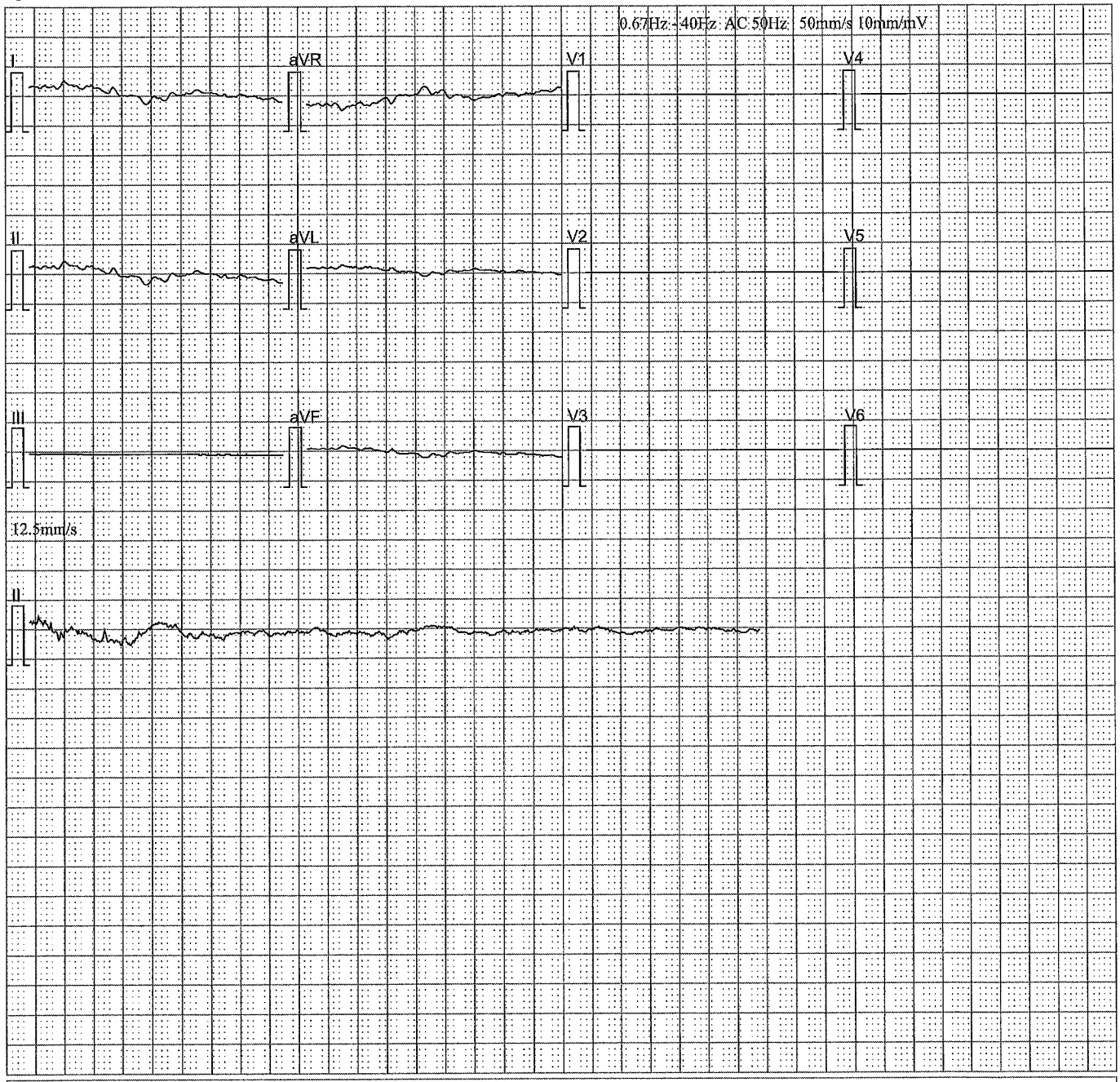
?ECGMAC

Name:

ID: 20060102234545

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:45:45



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

Name:

ID: 20060102234454

Sex: Hospital:

Age: Department: Check Time: 02-01-2006 23:44:54

[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

Name:

ID: 20060103001926

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:19:26

[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

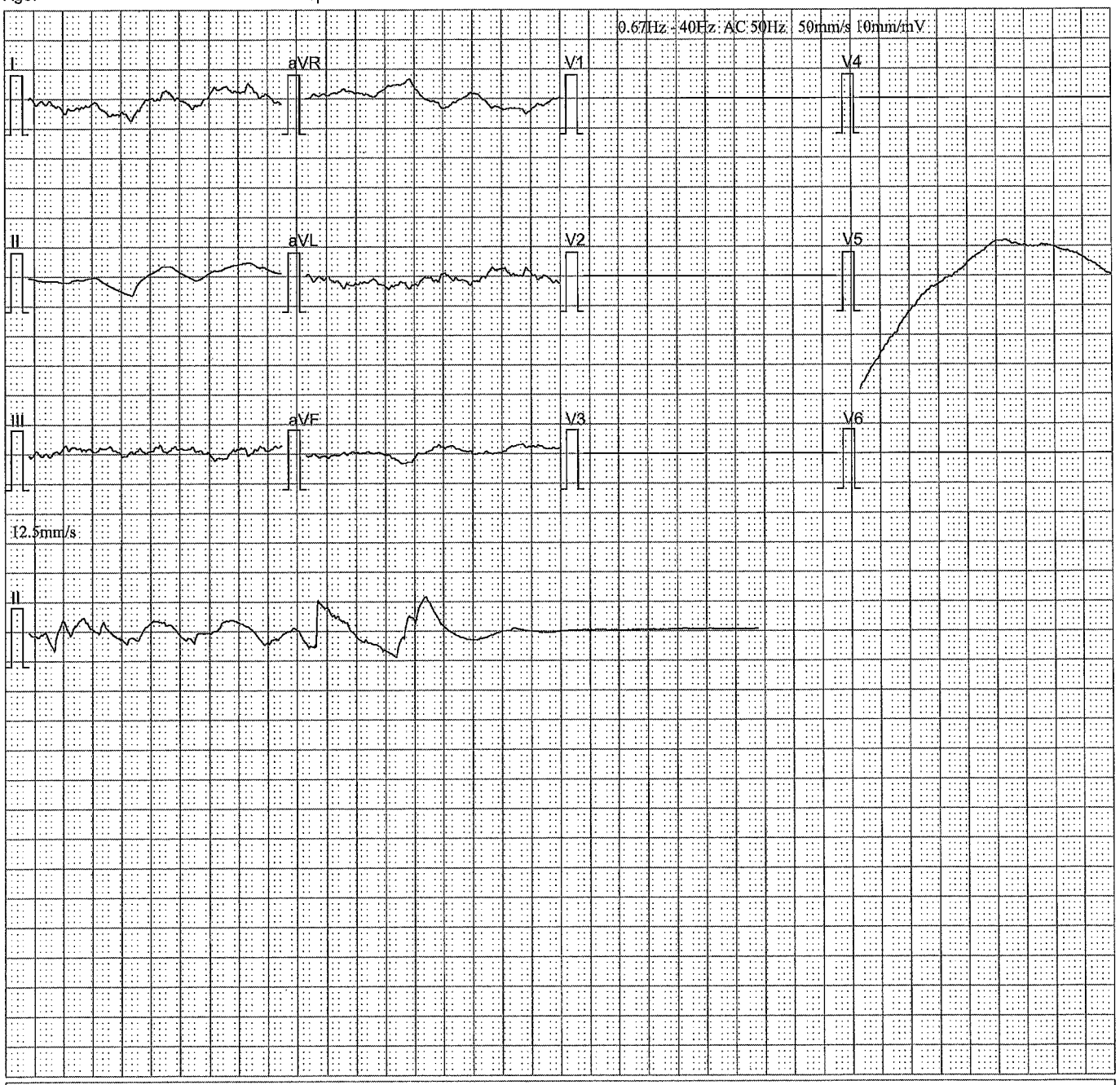
?ECGMAC

Name:

ID: 20060103001840

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:18:40



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

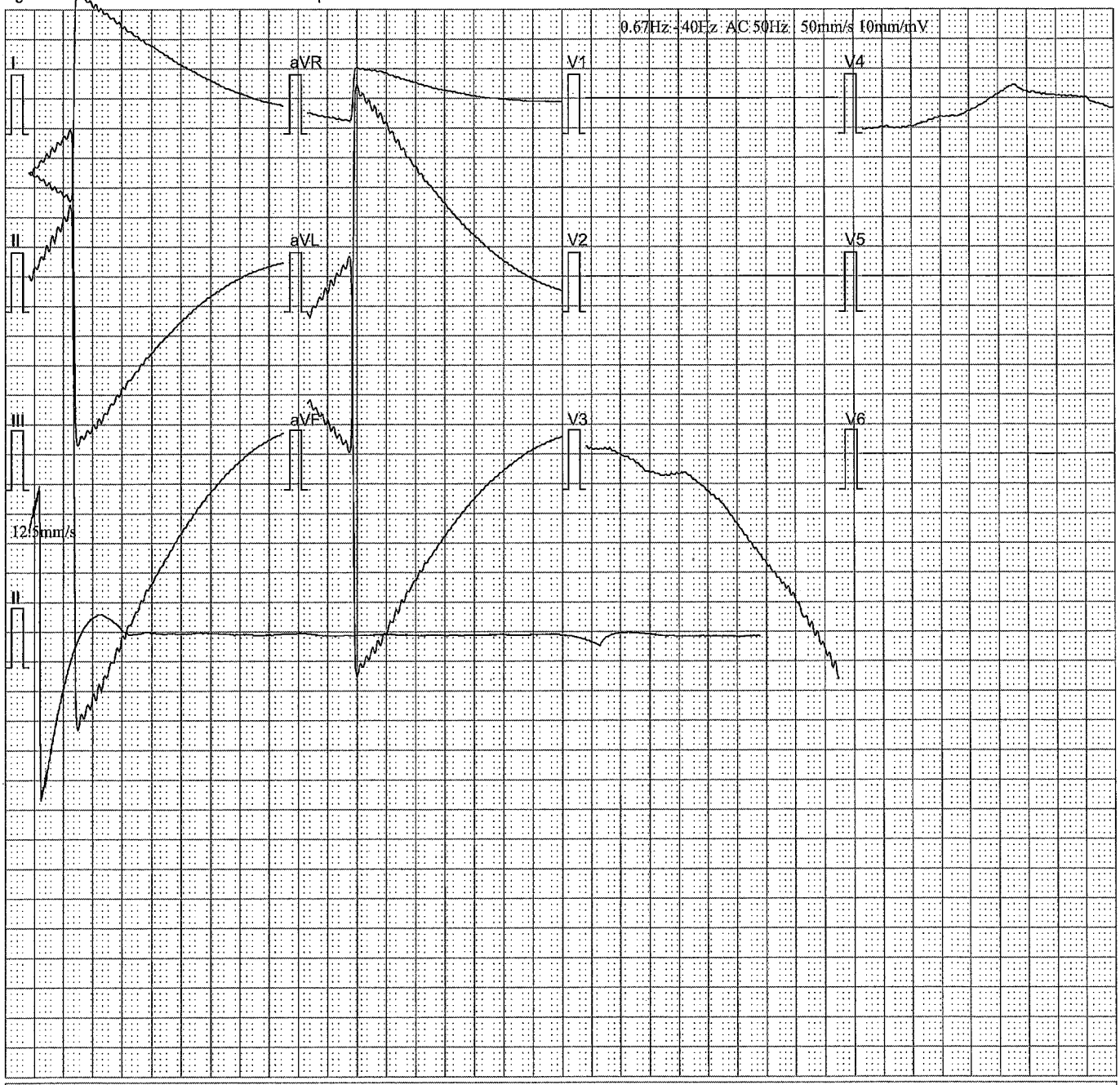
?ECGMAC

Name:

ID: 20060103001752

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:17:52



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

Name:

ID: 20060103001708

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:17:08

[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

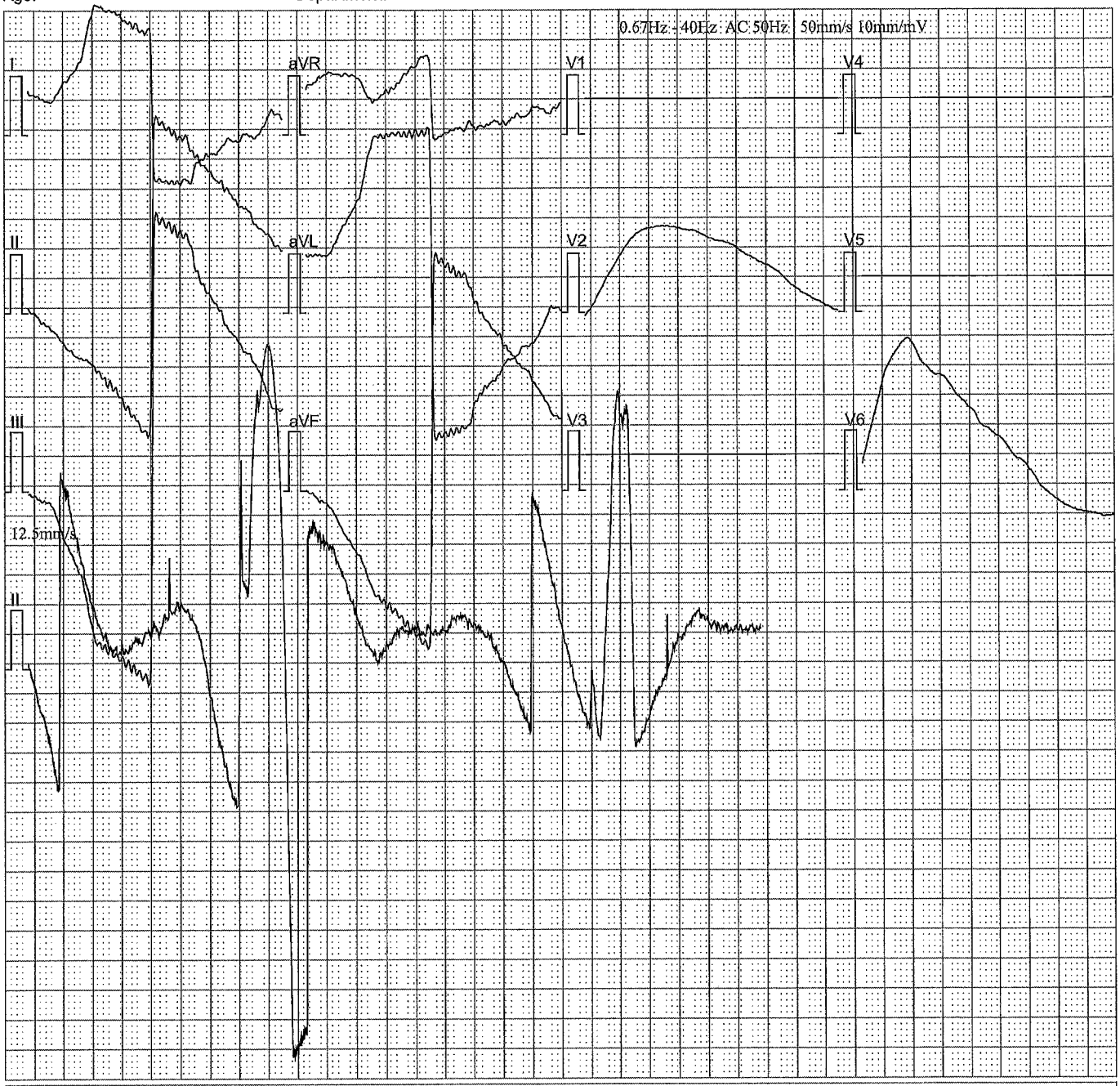
?ECGMAC

Name:

ID: 20060103002605

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:26:05



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

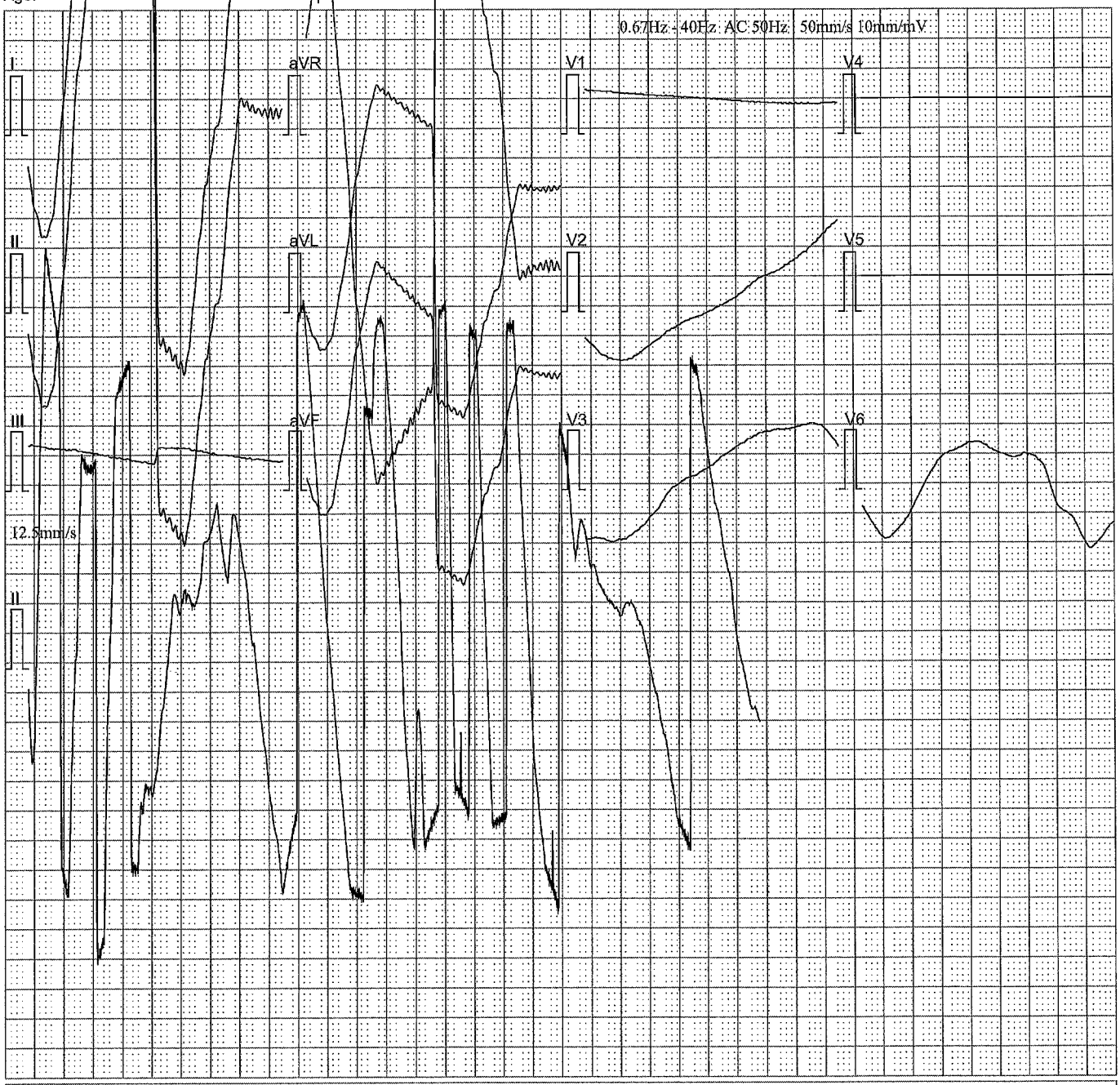
Name:

ID: 20060103002434

Sex: Hospital:

Age: Department:

Check Time: 03-01-2006 00:24:34



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

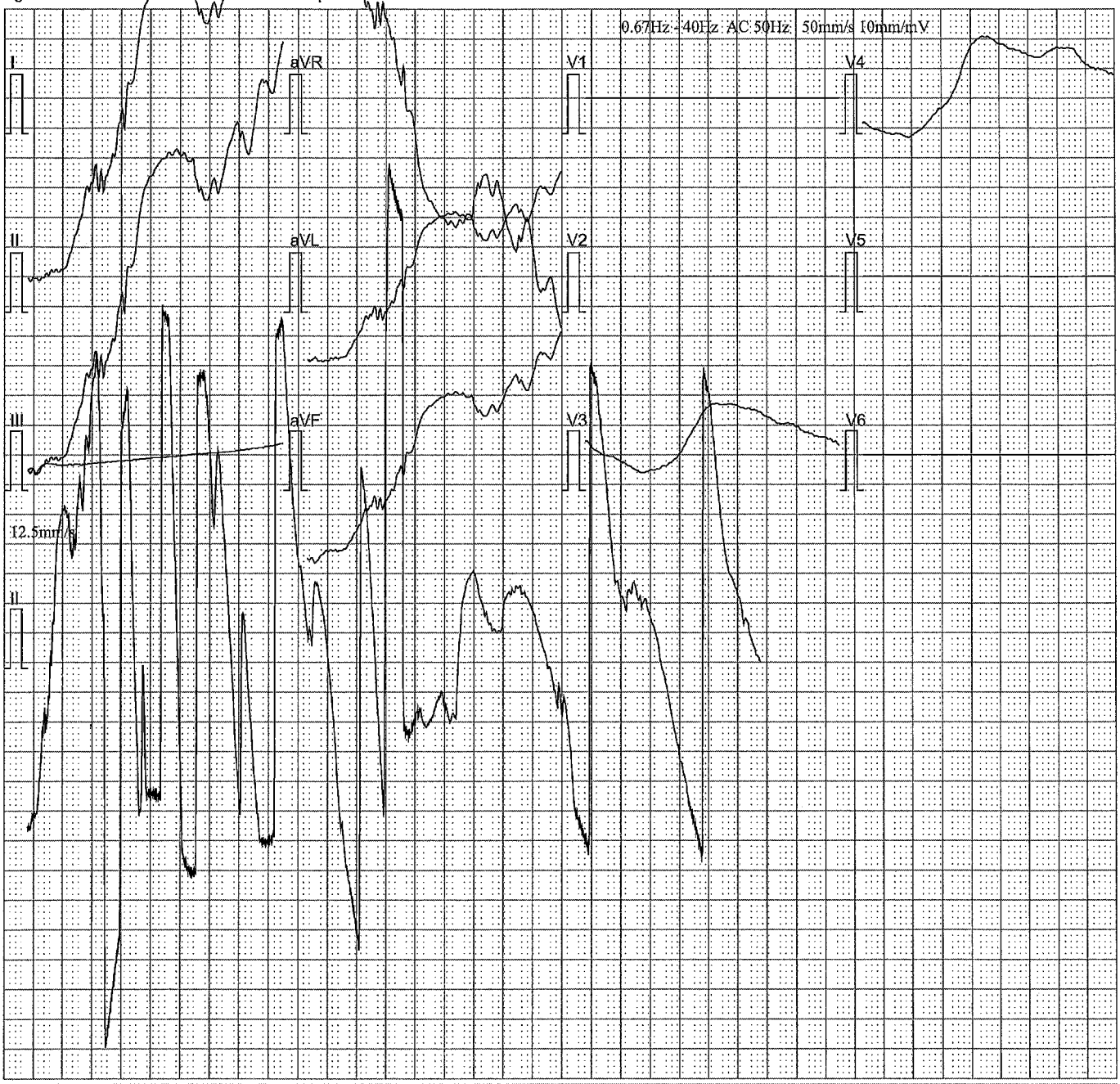
Name:

ID: 20060103002349

Sex: Hospital:

Age: Department:

Check Time: 03-01-2006 00:23:49



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

?ECGMAC

Name:

ID: 20060103002313

Sex: Hospital:

Age: Department:

Check Time: 03-01-2006 00:23:13

[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

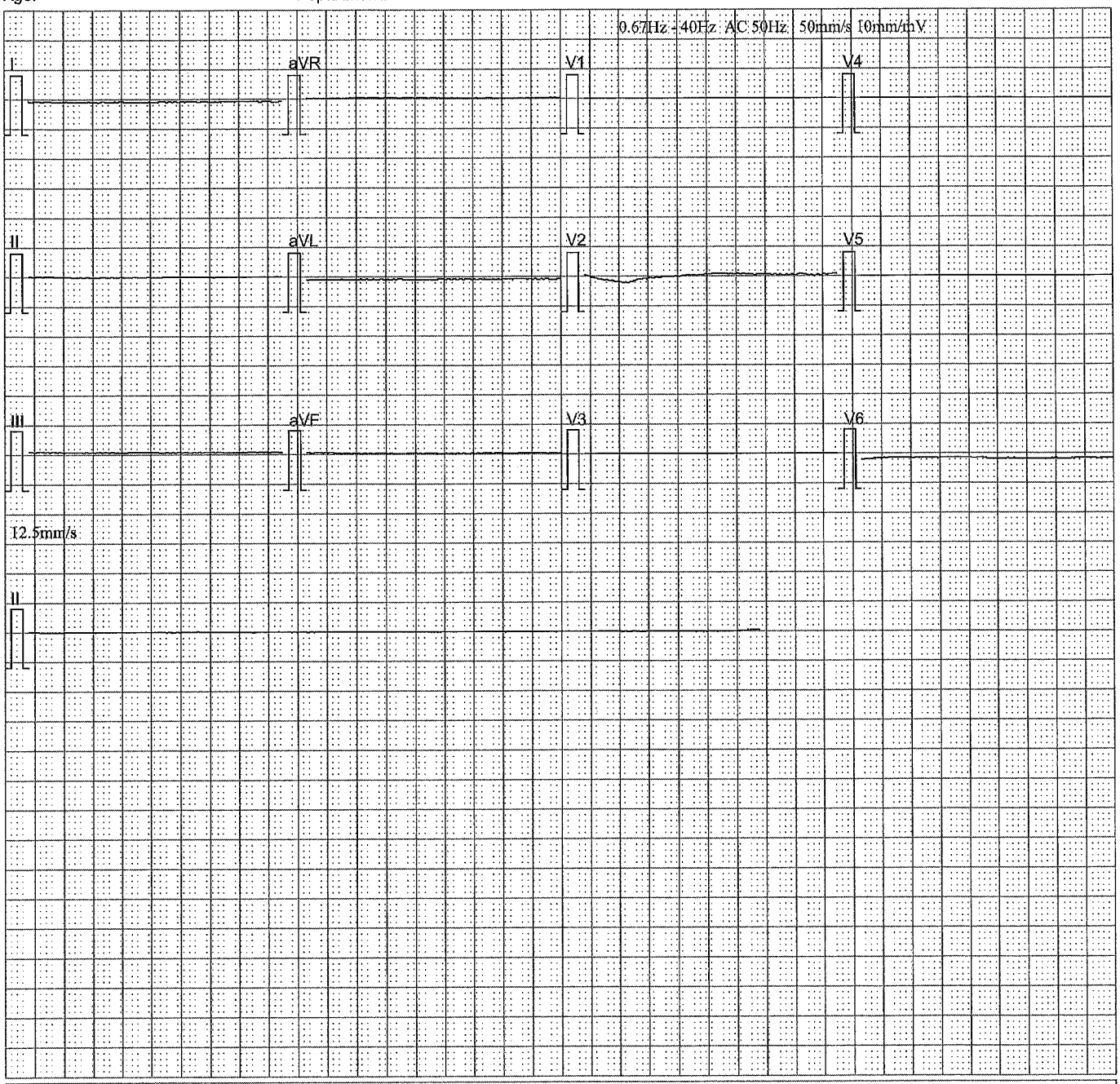
?ECGMAC

Name:

ID: 20060103002228

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:22:28



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor

3ch x 4 + (1ch)

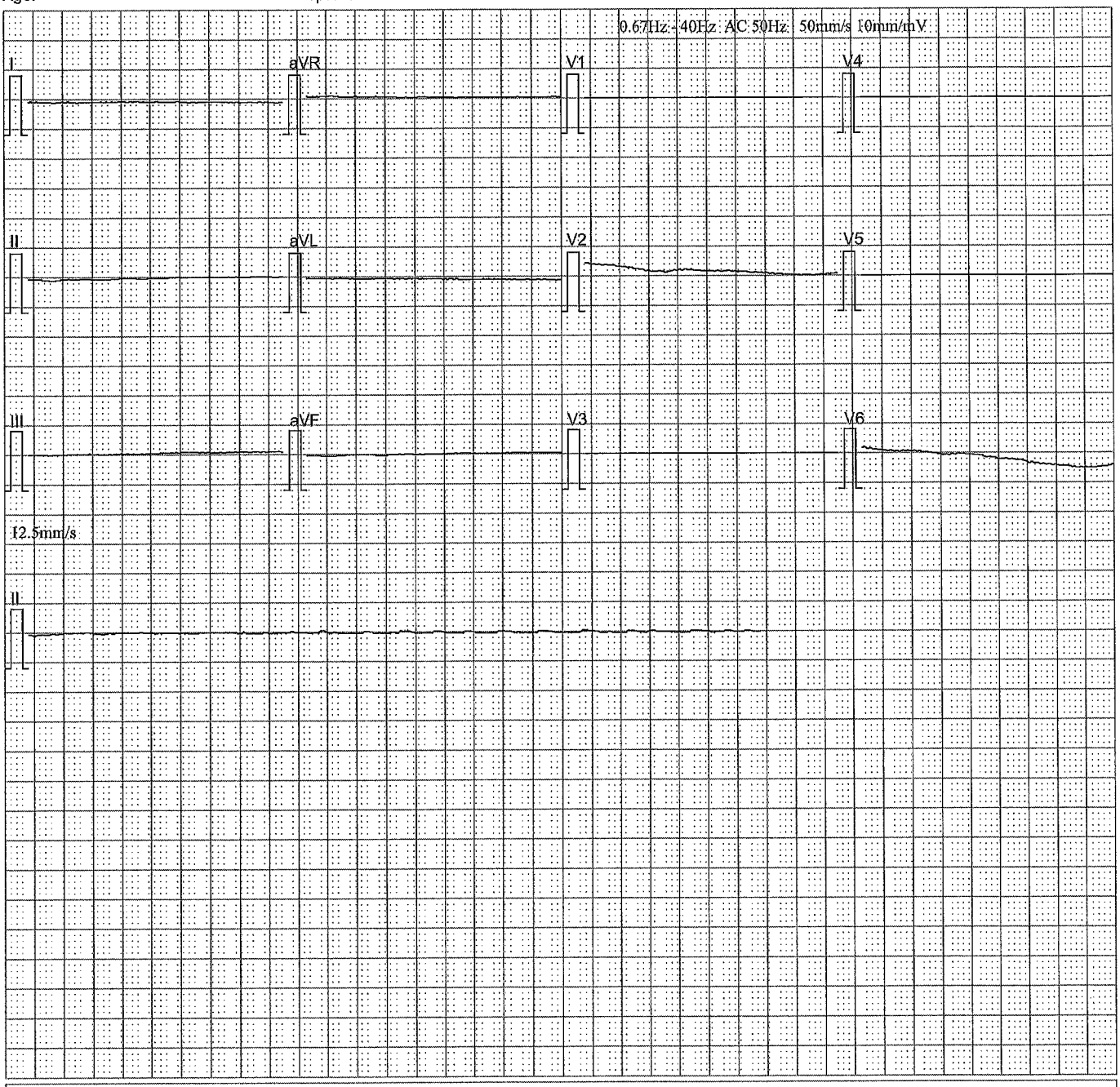
?ECGMAC

Name:

ID: 20060103002125

Sex: Hospital:

Age: Department: Check Time: 03-01-2006 00:21:25



[Measurement]

HR:	** bpm	P Width:	** ms	RV5/SV1:	**/** mv
P Axis:	** deg.	PR Interval:	** ms	RV5+SV1:	** mv
QRS Axis:	** deg.	QRS Duration:	** ms		
T Axis:	** deg.	QT/QTc Interval:	**/** ms		

[Analysis Result]

Reporter: _____

Notice: All the parameters and conclusions should be confirmed by doctor